5. Cultural Plant Use and Management

The Kalapuyans of the Willamette Valley lowlands are closely associated with the management, harvesting, processing, and trading of at least three major plants: camas, tarweed, and white oak. The Klamaths are just as closely associated with sugar pine, yellow pine, and wokas, and the Athapaskans of southwest Oregon traded prized black oak, tanoak, and manzanita products.

Based on the evidence gained by this research – including archaeological, anthropological, botanical, historical, and eyewitness evidence – the Santiam Molallans can be closely associated with blue huckleberries, beargrass, and blackberries. They may have also been an important source of thimbleberry, blue elderberry, bracken fern, redcedar, chittum, bigleaf maple, and/or Indian hellebore products to adjacent tribes, based on the potential trading value of these crops, and on their current and persistent widespread occurrence.

A primary purpose of field research and documentation was to test the theories of ridgeline and riparian trail use that is the basis of this project (Part 2). If the theories proved correct, then a significant number of precontact and early historical cultural artifacts should reasonably be expected to be found in linear patterns of nodes closely approximating destination points (Part 3) and their linear, connective access routes (Part 4). The artifacts of most interest were the relict fields and meadows of berries, bulbs, weaving materials, and other beneficial plants most likely used by Santiam Molalla during the 1750-1850 study period. Assessments of these plants were made at each GPS reference point (Appendix D), and photographs were used to document flowers, fruits, nuts, and other features of cultural value on the days and at the elevations they were found.

Plant Names are those given by the field survey crews, often following discussion and consultation with one another. These names (along with a few minor notations of other plants in the daily forms or informal notes) are almost precisely the same as those found by Winkler (1984: Appendix) in her study of the Molallans in the Middle Fork Willamette and McKenzie river basins. Appendix C has a more complete, but not comprehensive, listing of cultural plants documented during this project (a more comprehensive listing is in the Excel database in conjunction with their GPS reference points). Cultural plants were treated as artifacts in nearly the same sense as obsidian blades or mortars and pestles, and were used to test the basic theoretical assumptions of this project. No attempt was made to be comprehensive in such listings (the photographs better serve that purpose), and most rare and endangered plants were disregarded for purposes of this survey.

Table 5. Typical Santiam Molalla plant products.

	
Blue huckleberries. N. Lapham	Blue elderberries. N. Lapham
	
Old-growth conifer. S. Brown	One-inch camas bulbs. B. Zybach
	
Wokas. E. Esselstyn	Beargrass blossoms. B. Zybach

Latin names (see Appendix C) are not given for all inventoried plant species for a number of reasons: 1) not all species have been correctly identified, and documentary photographs and precise field measures can be used to resolve these errors, if need be, at some future time; 2) Winkler (1984: Appendix) cites the authoritative Hitchcock for a complete listing of Latin names as they existed at that time, and for all of the plants listed in Appendix C; 3) the various species of willow, huckleberry, and ribes are so varied and intermingled that even expert taxonomists can't agree on some plants; and 4) mostly because Latin name identification for these species is not directly relevant to this study.

Food. There are a significant and widespread variety of edible seeds, nuts, and berries that ripen at most aspects and elevations throughout the entire summer. There are also significant fields and meadows of roots and bulbs in the study area that have good food value and were likely harvested in the spring and fall. Most food plants occurred at virtually every elevation, but prized blue huckleberry, beargrass, and Indian hellebore crops were only documented at sites above 3,000 feet elevation (Table 6). Most areas of human food production have become noticeably smaller in the past 50 years, and appear to have been diminishing in size for several centuries. Huckleberry fields, beargrass meadows, strawberry patches, ridgeline grasslands, and brakes all appear to be much smaller today than during the 1750 to 1850 time period and, in turn, were apparently much smaller during that time than during the 1500 to 1650 time period. This decline in area is largely marked, and caused, by the encroachment of conifer trees into areas previously kept free of trees via regular burning and tillage, and is documented by eyewitness accounts, aerial photographs, and land survey records.

Basketweaving. Large amounts of commercial-grade weaving materials, particularly willow and redcedar, could be found at all elevations, but beargrass could only be obtained above the 3,000 foot level. Other local plants likely used and traded by Santiam Molalla for weaving purposes include bigleaf maple, hazel, flags (wild iris), carex, and bunchgrass. Beargrass was particularly prized as a trade item, but willow baskets or other manufactured goods may have been of greater or equal importance at times.

Fuel. Woody fuels can be readily found within several minutes walk in almost every part of the study area, and the Santiam Molalla likely had no trouble finding or stockpiling fuel near residences and camping areas.

Other Plant Products. Little attempt was made to inventory or document plants typically used by Santiam Molalla for medicines, dyes, musical instruments, weapons, or other purposes. This was for two reasons: 1) these plants are not usually represented in the broad landscape-scale patterns of this study; and 2) they are outside the author's area of expertise.

Table 6. Relative elevations of principal Santiam Molalla cultural plants.

Plant Name	Type	Lowest	Highest	Product
1) Oak	Tree	0800	1600 (?)	Food, fuel
2) Camas	Bulb	0800	4000	Food
3) Willow	Shrub	0800	4200	Fiber, medicine
4) Blackberry	Vine	0800	4500	Food, dye
5) Bracken	Fern	0800	4500	Food, fiber
6) Thimbleberry	Shrub	0800	4500	Food, fiber
7) Beargrass	Bulb	3100	4700	Food, weaving
8) Wokas	Bulb	3300	4100	Food
9) Indian hellebore	Bulb	4100	4800	Medicine, poison
10) Blue huckleberry	Shrub	4200	4700	Food

Table 6 lists key plants of special interest to this study. Plants found in the lowest elevations (under 1200 feet, or so) were accessible during most of the year, and seasonally at higher elevations, but may only bear fruit or other desired products during a relative short period of time. Plants in the highest elevations (above 3000 feet elevation) can only be reached as snow permits, and typically ripen or otherwise mature during the summer months of June to September and had to be harvested during those months (as opposed to wapato or camas, as examples, that could be harvested at lower elevations most of the year). This list is arranged by documented elevation ranges that were recorded incidental to plant locations during the course of this project. These ranges are not comprehensive by any standard or intent, but provide a good idea as to the seasonal locations and activities of Santiam and Blue River Molalla, and the specific trails that were used to reaches these places, why, and when.

Low Elevation plants are those that were found only at lower elevations during field research, or that had been most commonly harvested in large quantities at lower elevations during early historical time.

1) White Oak (and tarweed and wapato) are important for their absence. These three plants were of major importance to the Kalapuyans of the Willamette Valley to the immediate west of the Santiam Molalla, and white oak and tarweed occur in abundance in the western part of Molallan lands in the Foster-Sweet Home area; white oak and tarweed were also present in abundance in the Blue River Molalla lands surveyed by Winkler (1984) on federal lands in the Middle Fork Willamette River basin. Although it is entirely possible that tarweed is present in the study area (wild sunflower, often harvested in conjunction with tarweed, was noted and photographed), it is often difficult to notice in daylight when its flowers close, and it may have been missed. Oak was searched for diligently, but only a single patch of scrub-oak was documented, on

the extreme western boundary of the study area, on the north bluff above the South Santiam River. Huge savannah oak trees exist to the immediate west, a few miles away. According to a long-time resident and professional firewood cutter, who directed us to the trees in the first place, there were no other oak to be found within the study boundaries, and he was firm on that point (R. Jones, personal communication, September 17, 2007). The question mark on the 1600' elevation entry for oak is because of an entry made by one of the researchers showing an oak grove (see Appendix D), but it appears the picture was taken well west of the study area in order to get a landscape profile of the western boundary.

2) Camas. An August 3, 2006 newspaper photograph of camas in full bloom in Gordon Meadow at 4,000 feet elevation was the beginning point of this project (Paul 2006) but, despite the fact the study area is about 130,000 acres in size, little or no other camas was found at any elevation. And why was camas being raised at that elevation in the first place? Most of the great camas fields of the Kalapuyans were in lowlands and wetlands, not high elevation meadows, and were a lot larger in size and a lot more accessible for a much longer portion of the year. One problem may have been timing. Camas dries up quickly and is very hard to spot once it is out of bloom. Field research was conducted in August and September, well after even the highest elevation camas had completed blooming. A few camas were noted along the banks of the South Santiam River in the Cascadia to Trout Creek corridor, and these appear to be relict of former fields or large patches. Leslie Haskin noted in 1934:

> Of all the food plants used by the Western Indians the camas was the most important and widely known. There is more romance and adventure clustered around the camas root and flower than about almost any other American plant. (Haskin 1934: 29-30)

Ubiquitous Plants are the plants that were commonly found almost everywhere, at every elevation and aspect, wherever trail alignments were documented.

3) Willow was used for a number of products, but particular varieties managed in certain ways were particularly valuable for weaving purposes (Anderson 2005). "Indian willow baskets" have maintained commercial and utilitarian value for all of Oregon's (and Washington's) history, for example, and it appears that some of the willow along Two Sisters, Black, and Falls creeks, may be suitable for that purpose. Other willow was used as medicine, food (cambium bark layer and shoots), construction materials, and fuel.

4) Blackberries will grow anywhere there is a recent disturbance – a new road shoulder, fresh logging, a slide, or a recent fire. It spreads everywhere it has an

opportunity, and native blackberries (see Appendix C) were found virtually everywhere plots were taken throughout the entire study area. Blackberries are also somewhat ephemeral, and tend to disappear quickly from the landscape when shaded out by conifer trees or other heavy shade; as a result, it is almost impossible to tell where old fields or patches may have been 200 years ago. On the other hand, it is possible that blackberries were managed as a crop that moved across the landscape, following burns, as conditions changed. The importance of berry-picking to the Molalla must be emphasized. As Winkler has noted:

> The importance to Molala subsistence of both hunting and berry-picking is reinforced by the fact that all published references to Molala subsistence mention either or both of these activities . . . (Winkler 1984: 5).

5) Bracken Fern was heavily used by Oregon Coast Range Indians for food and starch from the roots, and greens from the shoots. Heavy bracken fern prairies, or "brakes," ascended a large number of Coast Range ridgelines, and were likely burned and tilled annually. Burning bracken fern is different than grasslands, though, in that it is best as fuel in winter or early spring, rather than late spring or summer, when it is virtually fireproof (Zybach 2003). Grasslands tended to be burned in late summer or fall, after they had dried. Bracken fern, like blackberries, spreads quickly and easily to new disturbances. However, unlike blackberries, it can be cultivated into almost pure stands of highly productive food plants that can persist for decades, and possibly centuries, with little or no additional management effort. In that regard, ancient bracken fern prairies can often be identified, and relict patches can still be found.

Dickson (1946: 66) describes bracken fern use specific to the Molalla:

> When the young fronds of the Brake fern first shoot out from the ground, they are very tender and have been eaten like asparagus. In fact, the young shoots of the Brake fern were roasted in the ashes by the Molala Indians. Then, they ate these shoots after they were cooked tender just as we eat asparagus today.

6) Thimbleberry was documented almost everywhere, much like blackberry and bracken fern. However, also much like bracken fern, there appeared to be relict patches of this plant that were remnants of what had been much larger fields at one time. This phenomenon was first noted along the Latiwi Mountain Trail, at the intersection with Mann Creek Trail. A solid ridgeline of thimbleberry was competing with a conifer plantation, successfully in patches, but was only three or four feet in height, and it was impossible to tell if there had been significant berry production this year, or not. Haskin (1934: 172)

noted: "[b]oth the berries and tender early shoots [of thimbleberry] were eaten by the Indians," so perhaps berry production was not their principal value.

High Elevation Plants were those that were found only above 3000' elevation, and were not otherwise generally observed at lower elevations. These plants appear to be among the most prized of the Santiam Molalla, and with the greatest market potential.

7) Beargrass is found in abundance in several high elevation meadows along Black Creek, a major drainage of Soapgrass Mountain, between Gordon Meadows and Gordon Lakes. "Soapgrass" is an older name for beargrass (Haskin 1934: 43), as were "elk grass,""squaw grass," and even "squaw tit" (for the appearance of its blossom); all names that also appear across the landscape of western Oregon. Haskin writes:

> The name squaw grass comes, of course, from its use in basketry, but its true aboriginal name, current among the Indians of the Columbia Rapids where a large trade in the prepared leaves was carried on, was *quip-quip.* (Haskin 1934: 43)

Haskin quoted David Douglas' ca. 1825 observations at length, and also noted the same coincidence of beargrass and obsidian observed during this research (D. Lewis and T. Farque, personal communications, September 8, 2007), when he wrote in 1934:

> One day while skirting a large field of this grass on a high, inaccessible peak, I was surprised to notice unmistakable evidence of an Indian encampment. Over the ground, everywhere, were scattered chips of obsidian, with here and there an imperfect arrow. How did these come here, and why did the ancient people choose this inconvenient spot, far from water [Not likely. BZ], for setting up their camp? The answer is very simple; they came to gather squaw grass leaves, which were much used, and were an article of extensive commerce throughout the West long before the whites ever came to this coast. From the leaves the natives constructed hats, pouches, cups, baskets, and even water-tight cooking vessels. "Their baskets," writes David Douglas, "were formed of cedar bark and bear grass so closely interwoven with the fingers that they are water-tight without the use of gum or rosin; some of them are highly ornamented with strands of bear grass which they dye of several colors, and interwoven in a great variety of figures; this serves them the double purpose of holding their water, or wearing on their heads." (Haskin 1934: 41-43)

8) Wokas. This yellow water lily (Haskin 1934: 95-97) was an unexpected find when first observed in the small lake at the base of Bear Pass (see Table 3). According to Ruby and Brown (1986: 137): "From the Molalas the Klamaths obtained elk-horn spoons in exchange for the *wocus* lily roots of the Klamath Marsh." The Klamaths were also reputed, according to many sources, to have sown plants of their native land along the great trade routes they established in western Oregon and northern California. That is one popular explanation for the strips of yellow pine that used to exist in the Willamette Valley and still occur in the western Cascades, for example. If this story is true, then it stands to reason that the Klamaths' most treasured plant, the wokas, might be distributed in much the same way, at favored ponds and camping spots. Wokas was documented at Bear Pass and at Wolf Rock, and a stand of yellow pine was found at Swamp Mountain (but no pine seems to remain at Pine Rock, on Owl Ridge; see Table 3); is it possible that these were homeland plants of the Klamath, who were well known to the Molalla, and often visited their lands?

9) Indian hellebore is a highly poisonous plant known to cause deformities in calves and sheep. It grows more than 5-feet tall in wet prairies, woodlands and meadows and is a member of the lily family. A former USFS employee recounted a "prairie restoration" project in Gordon Meadows, where an effort was made to remove the large field of Indian (he said "false") hellebore growing there because it was considered a "toxic and invasive weed" that needed to be removed. Gordon Meadows was used as a cattle pasture for more than 100 years, so it is easy to see how a poisonous plant that causes deformities could be regarded as a weed. Elk can be seen moving through the Gordon Meadows Indian hellebore patch on Table 7, early in the growing season, and several chewed but uneaten Indian hellebore leaves were found in their trail.

This plant is listed in the daily inventories (Part 2; Appendix C) and USDA weed lists as "false hellebore," but the earlier name for the plant is being used for this report for reasons given by Haskin (1934: 54):

> Among the Indians of the North Coast no plant was more highly valued for its magical potency than this [Indian hellebore]. It was truly "skookum medicine," if we may judge from their myths and legends, which record endless instances of its marvelous use and powers.

Haskin then recounts several stories regarding the types of "supernatural" and "magical" uses of the plant, but no medicinal uses. Haskin was a local historian, amateur botanist, and photographer of some re-known in the early to mid-1900s; he was also an avid collector of oral histories and regional Indian stories and was paid by the WPA during the Depression to conduct such interviews in

the Linn County area, in which this study is located, so he is an acknowledged authority on this topic.

An Internet search of western US Native American uses of Indian hellebore turned up more than 100 separate entries, including:

Used mainly as a poultice of the mashed raw root as a treatment for rheumatism, boils, sores, cuts, swellings, bruises, and burns;

The root is analgesic, disinfectant and febrifuge. A decoction has been used in the treatment of venereal disease;

It also had quite a reputation as a contraceptive. A decoction of the root has been taken orally by both men and women as a contraceptive;

A dose of one teaspoon of this decoction three times a day for three weeks is said to ensure permanent sterility in women;

The roots have been grated then chewed and the juice swallowed as a treatment for colds;

The powdered root has been rubbed on the face to allay the pain of toothache;

Dried powder of Indian hellebore was used to treat fleas and other skin parasites;

The roots were eaten to commit suicide.

[Note: I am not a botanist or an ethnobotanist, and it is entirely possible I have misidentified this plant. However, the plant documented at Gordon Meadows and a few other locations is so similar in appearance and description to Haskin's "Indian hellebore," that even if it is a slightly different species I assume it may have been used for entirely similar purposes as listed above, much as the different varieties of ribes or huckleberries were used in the same manners. BZ]

10) Blue huckleberry is the name given by the field researchers to favored huckleberries at higher elevations, and without consulting one another on this designation or having a plan to do so. For some reason, the name "blueberries" was given to lower elevation huckleberries of the same color (see Appendix C), and they are likely an entirely different variety. An examination of the photographic evidence can help resolve naming differences in these fruits, but there is an obvious wide range of huckleberry varieties at all elevations of the study area, and most appear to be remnants of former fields of much greater extent. The cultural and commercial value of wild berry crops, and particularly

huckleberries, to Oregon Indian families probably cannot be overstated, but is still generally overlooked by federal resource managers (Minore 1972; Richards and Alexander 2006). The Sweet Home Ranger District is an exception to this rule, however, and has worked with western Oregon Tribes to restore huckleberry harvests for at least 15 years (Farquay 2007, personal communication).

Plant Management. Virtually nothing is known of Santiam Molalla plant management methods. An eyewitness observer wrote: "On the west face of the Cascades the Molallas claimed dominion, and fire was their agency for improving the game range and berry crops" (Minto 1908: 153), and that appears to be highly likely (Minore, et al. 1979; Boyd 1999b; Stewart 2002; Zybach 2003). However, other methods of plant management, including pruning, thinning, tillage, peeling, and weeding, also had to have been performed in order to increase plant productivity and product quality. These processes were probably universal throughout the range of these plants (K. Anderson 2005: personal communication, September, 2007), and can reasonably be inferred for the Santiam Molalla. Anderson (1993) also suggests experimental methods by which past practices might be rediscovered, and this process is listed as a recommendation for Gordon Prairie restoration (Part 8).

6. Fish and Game Products

It was not the purpose or intent of this project to monitor or document wildlife populations. However, a decision was made to document incidental encounters with local wildlife as the inventory was taking place (see Table 7), and numerous photographs and daily journal entries document the variety and widespread distribution of favored elk, butterflies, coyote, bear, deer, quail, grouse, frog, salamander, boomer, red ant populations, and other wildlife, that were encountered during this project. Some results were unusual, such as the unexpected documentation of two piles of mutilated salmon on Moose Creek bedrock (Swanson 2007), or the growing collection of GPS-referenced wildlife scat photographs accumulated by N. Lapham (see Table 2). Apparently people and wildlife like to go in the same places, is one thing we learn.

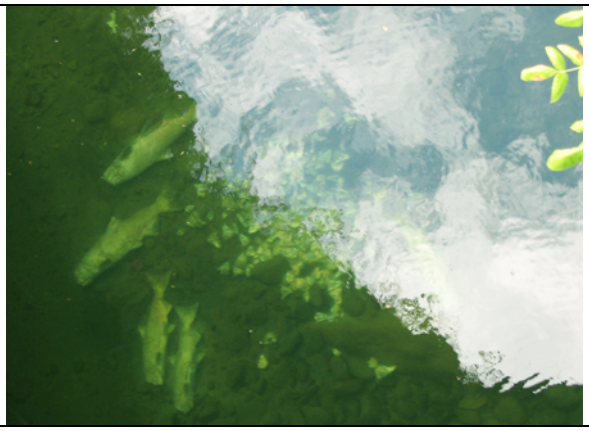
The Molalla had a reputation as skilled hunters, particularly for elk, which naturally form in herds (Frair, et al. 2005; Kie, et al. 2005). Mrs. Howard, a Clackamas Chinook informant to Melville Jacobs, said: "All the Molala people did was hunt!" (Winkler 1984: 5). Molallans were also known for their elkhorn spoons, blackberries, and huckleberries, and it is very likely that men hunted the same trail networks used by women and children to pick berries and dig roots and bulbs -- and just as likely during the same times of the year, depending on the movements and locations of the animals during harvest times. Mollalan men used dogs and snowshoes to hunt (Zenk and Rigsby 1998), and these tools would have greatly aided their success, in addition to allowing them to hunt on a year round basis.

Deer, bear, and birds like ripe berries, too, and beargrass may have got that name from the habit of bears digging and eating the bulbs in the spring, when people did.

Big Game. The evidence of greater human land use levels in the past may have possibly led to larger populations of deer and elk, although this notion is strongly refuted by Kay (2007), Lake (personal communications, 2007), and others. Larger populations of elk (if, indeed, they existed) would have likely been a result of far more browse being available in far more locations -- including protected valleys and widespread prairie grasslands -- throughout the year. Browse is also much poorer in quantity and quality within today's conifer forests (Frair, et al. 2005; Kie, et al. 2005), which have increased greatly in area and density during the past 200+ years, than in the grasslands and shrublands that likely characterized much of the study area during the 1750 to 1850 time period, and earlier.

"Bud" (A. T.) Morris was a life-long resident of the South Santiam Valley, having been born near Foster in the 1860s, and was in regular contact

Table 7. Local South Santiam River and Blue River wildlife species.

	
Elk, Gordon Meadows. B. Zybach	Squirrel in meadow. E. Esselstyn
	
Blue butterfly in beargrass. D. Lewis	Frog, Falls Creek. B. Zybach
	
Headless salmon, Moose Creek. N. Lapham	Grouse on road. E. Esselstyn

with local Indian families during his childhood. He was interviewed by Linn County historian Leslie Haskin in the 1930s:

> Morris reported that there had been many deer during the early days because the Indians came through in little bands, setting fire to the open range, keeping the brush burned down. "The open country, free from brush and undergrowth, made hunting and cattle herding a much easier task than it is now," he said. (Carey and Hainline 1979: 7)

Deer will also herd up if their populations become large enough, and become much easier to kill when they do. In herds, animals can be boxed into dead end canyons, or guided through narrow passes or trails where they can be readily slaughtered. This was also a common practice among pioneer white families along the South Santiam River: "up the Moose Mountain Road was Bloody Point, so named for a box canyon where deer and elk were corralled and slaughtered [in the late 1800s] for their hides" (Carey and Hainline 1979: 114).

Resident and Anadromous Fish. Local fish were not sufficiently abundant in numbers or large enough in size to form a regular staple of Santiam Molalla diets. Anadromous fish ran a gauntlet of highly skilled fishermen without limits or limitations in fishing methods, from Astoria to the Willamette Falls, and from the mouth of the Santiam to the juncture of the Middle Santiam and South Santiam rivers; before entering the study area and immediately encountering impassable waterfalls and long shallows of water. Bears were also good fishermen, and it is likely that only a few, if any, salmon or steelhead ever reached Canyon Creek, Moose Creek, or Falls Creek most years. Regular lamprey eel runs may have been more reliable as a food source, but exactly how much is unknown.

The damming of the junction of Middle Santiam and South Santiam rivers at Foster in the 1960s ended all potential salmonid and eel runs into the study area. From 1934 until 1942, the US Bureau of Fisheries conducted a series of "Stream Habitat Surveys" on all of the fish bearing tributaries of the Columbia River. A portion of the 1938 report on the South Santiam stated:

> Rainbow and cutthroat trout are abundant in the upper reaches of the South Santiam above Cascadia where the water is colder, but they seldom exceed 6" in length. In the lower, warmer portion, cyprinids [Oregon chub] are numerous. Dace are abundant everywhere. Fishing intensity is moderate, but the lack of large fish keeps this stream from being very popular with anglers. In 1937, salmon were permitted to ascend the South Santiam unhindered, and a fair run of spring Chinooks for this region occurred. (McIntosh et al 1990: 227)

On September 17, 2007, while stopping on the Moose Creek bridge to document potential creek crossing locations, we (N. Lapham and author) noticed two piles of dead salmon in the water with their noses cut off (see Table 7). At first they appeared to have spawned out, but the partially-severed heads made them look dolphin-like and unnatural. They had apparently been dumped from the bridge and were likely destined to be flushed into South Santiam River or Foster Reservoir with the first heavy fall rains. We guessed a public relations move. On September 19, the full story was on the front page of the local paper -- the fish had not been illegally dumped and were not native spawn: their placement was apparently a public relations effort, as surmised (Swanson 2007).