The Alseya Valley Prairie Complex, ca. 1850: Native Landscapes in Western GLO Surveys

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Editor's note: Over the past several years researchers and land managers in numerous fields have begun to recognize what many Native people have been saying for a long time; the ecological landscape in western Oregon reflects the influence of the judicious use of fire and other plant management techniques. Despite this recognition, relatively little research has been done to explore the diversity of techniques Native people used to nurture the region's ecological mosaic. Bob Zybach applies his broad knowledge of forest ecology and historical records in assessing the extent and variety of traditionally-tended plant communities in and around the Alsea Valley. He shows us that U.S. land survey records hold crucial, but largely untapped data for research on historic Native land use.

Summit of mountain, overlooking the Alseya Valley, course N. and S.
—Dennis Hathorn, Buck Peak, June 5, 1856

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Today there is a strong interest in rediscovering the nature and extent of historical Indian land use patterns in western Oregon. Knowledge of past environmental conditions and American Indian resource management actions can prove beneficial to developing wildfire control strategies (Boyd 1999c:293; Williams 2000:45-47), preservation of threatened and endangered species (Pendergrass 1996:227), recreation and maintenance of significant cultural landscape patterns (Winkler and Bailey 2002:2-3), and logging and reforestation planning (Wakefield 1988: personal communication).

Researchers and land managers have attempted to distinguish the effects of ecosystem management practices used by Native people historically, from the "natural variability" of ecological landscapes (e.g., Vale 2002). To what extent did historical landscapes reflect peoples' influence as well as other ecological processes? This knowledge is seen as key to the successful management of natural resources in western Oregon, where Native communities interacted closely with a complex ecosystem that has undergone drastic changes since European-American ("White") settlement began in the early 1800s. Knowledge of historical environmental conditions is needed as a baseline for this research (Schulte and Mladenoff 2001:5). Such

conditions can be estimated or documented for the lands of western Oregon by a number of methods, depending on the time period, scale, and specific location in question (Zybach 1992).

The abrupt transformation of land management practices that occurred in western Oregon in the early and middle 1800s makes this a particularly critical period to understand. Over scarcely more than a generation, diverse Indian societies were largely replaced by a population of White immigrant farm families. The catastrophic loss of Indian lives, knowledge, and land use practices through introduced diseases in the late 1700s and early 1800s, coupled with a corresponding invasion of foreign cultures, plants, animals, people, philosophies, and technologies, resulted in a landscape that was forever altered (Boyd 1999a; Robbins 1997:23-49).

General Land Office (GLO) surveys completed throughout western Oregon between 1850 and 1910 provide an exceptional source of information for documenting the transition of environmental conditions from traditional Indian land management practices to introduced European practices. Although these surveys were performed during the early 1850s and after, they can also be used to make reasonable estimates of environmental conditions at the time of contact (used here to mean the first documented contact between Indians and Whites for a given area), or even earlier.

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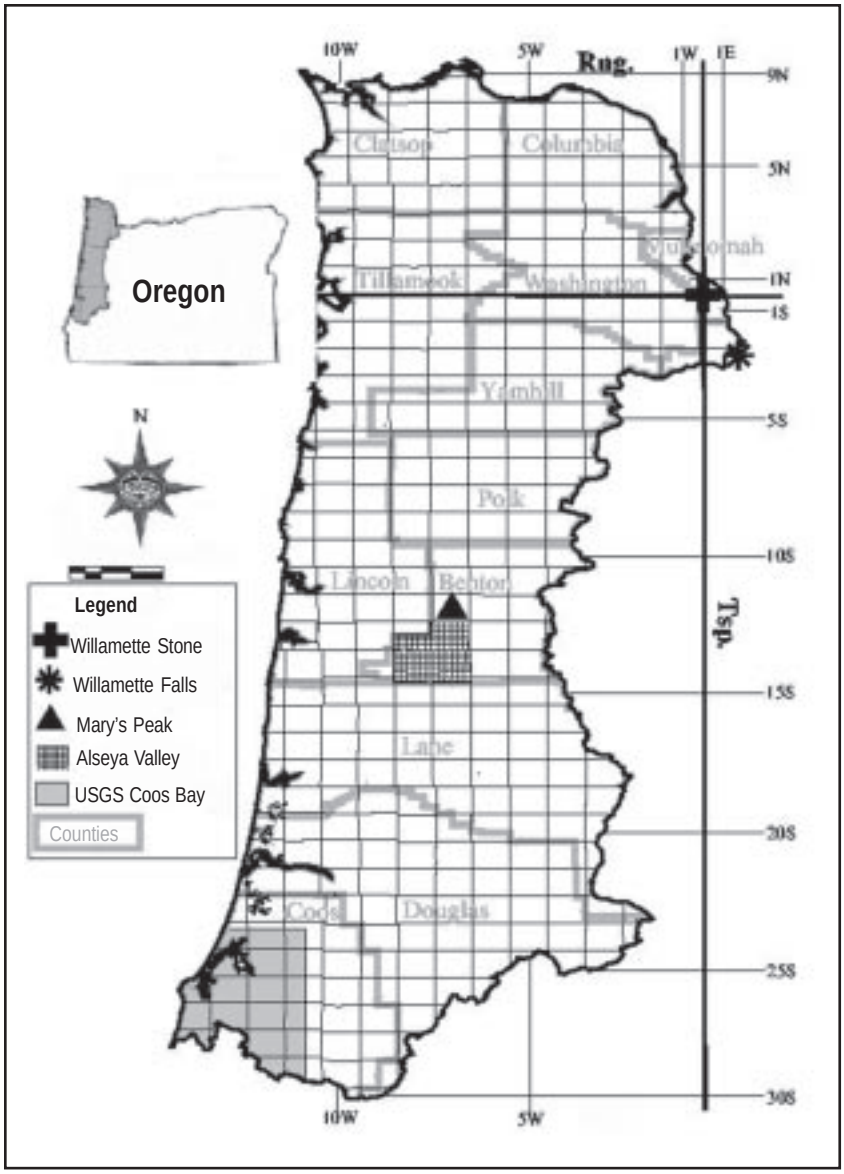
This article considers the Alsea Valley and Alsea River headwaters of the central Oregon Coast Range (see Map 1) and examines information contained in early GLO surveys for that area (see Map 2). Two questions are asked. How useful are GLO survey maps and notes for measuring and describing early historical landscape patterns in western Oregon? And how can this information be used to help us better understand traditional Indian land use patterns, including native plant management for food, medicines, fuel, and tools, herd maintenance, fire control, residential area landscaping, and trail maintenance?

My research indicates that GLO survey notes and maps hold much information about historical landscape ecology in the Alsea Valley and surrounding mountains. Indian land management practices likely account for much of the ecological variability documented in the earliest surveyor notes. The diversity and extent of native plant species and habitats in the study area declined through the last half of the 19th century and the 20th century.

Alseya Valley

> These boundaries include Alsea valley, a beautiful expanse of country some eight miles long and one wide. Not far from the upper end the two branches of the river unite, causing a widening in the vale to about four miles, forming a level prairie now thickly settled, and surrounded with lofty timber-covered hills (Fagan 1885:498).

I chose the upper Alsea River basin as the focus of this paper for a number of reasons. The proximity of local named landmarks, including Prairie Peak, Grass Mountain, Digger Mountain, Digger Creek, Klickitat Mountain, Klickitat Spring, Klickitat Lake, Peavine Ridge, Salmonberry Creek, Squaw Creek, and Indian Creek, suggests relationships between Native people and local ecology that existed prior to



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Map 1. Oregon Coast Range township index. This map locates and names each of the six-mile square (36 square mile) townships in this study (Moore 1851: 227-230), relative to their position in the Coast Range. Beginning at the Willamette Stone (McArthur 1982: 798), a north-south "meridian" and an east-west "baseline" serve as the beginning to a succession of six-mile wide tiers. Each east-west tier (also called "Township" and written as "Tsp." or "T.") is numbered consecutively north ("N.") or south ("S."), and each north-south tier (called "Range" and written as "Rng." or "R.") is numbered consecutively east ("E.") or west ("W."). The intersection of numbered township and range tiers form square townships designated by this numbering system. For example, the township containing Marys Peak is named Tsp. 12 S., Rng. 7 W. (or T. 12 S., R. 7 W.) and can be located by counting 12 tiers south and seven tiers west of the Willamette Stone.

intensive White settlement. In addition, the location is on a westward flowing river of the central Coast Range, an area for which relatively little historical ecological research has been completed (Teensma, et al.:3; Whitlock and Knox 2002:199, 203, 206, 223-224). For those reasons I determined that the upper Alsea River Valley was a good place to study representative environmental changes that had also occurred in other parts of the Coast Range, such as the Tillamook, Siletz, Yaquina and Coquille River valleys. Further, I was familiar with the area and its general landscape history, including the locations of relict old-growth oak, extensive salmonberry patches, scattered brakes, and persistent grassy balds (e.g., Zybach 1992). Lastly, living in Corvallis I had ready access to typewritten GLO notes, maps and field expertise via the Benton County Surveyor's Department.

By studying an area of tens of thousands of acres, it is possible to consider vegetation patterns at a landscape level. At this scale, GLO data are particularly useful (Schulte and Mladenoff 2001:7-8). In reviewing land records for the study, I found that six contiguous townships contained the eastern headwaters of the Alsea

River, the oak bottomlands of the river valley, and most of the named landmarks of interest. These same features were found within three complete townships (Tsp. [Township] 13 S., Rng. [Range] 7 W.; Tsp. 14 S., Rng. 7 W.; and Tsp. 14 S., Rng. 8 W.) and three partial townships (Tsp. 13 S., Rng. 8 W.; Tsp. 15 S., Rng. 7 W.; and Tsp. 15 S., Rng. 8 W.) of this group, were also within the borders of Benton County (see Maps 1 and 3). Excluding the partial township that extends into Lincoln County and the two partial townships in Lane County, the remaining portion of Benton County studied is about 90,000 acres.

The name of the study area, Alseya Valley Prairie Complex (or "Alseya Valley"), was chosen for three reasons. First, Alseya (or "Alciyeh") is an early historical—and possibly more correct (Zenk 1990b:570)—designation for the Alsi Indians (Fagan 1885:320-323; Frachtenberg 1920; Drucker 1965:81-101; Ruby and Brown 1986:4-5) that lived in the area at the time of White settlement ("Alsi" is a name favored by local residents today; see Alsea High School Students 1997). Next, the spelling of Alseyah Valley (vs. the modern spelling, "Alsea") is that favored by the first GLO surveyors to work there in the 1850s and 1860s (Hathorn 1856a:151; Mercer 1865:159), and it connotes the cusp of time between Indian residence and White occupation that is the focus of this paper. Lastly, the term "Prairie Complex" describes the diverse pattern of oak prairies, scatterings, brakes, meadows, and grassy balds that characterize much of the Valley's historical landscape. Therefore, the name describes the time, people, and environmental conditions of the study area as well as its location.

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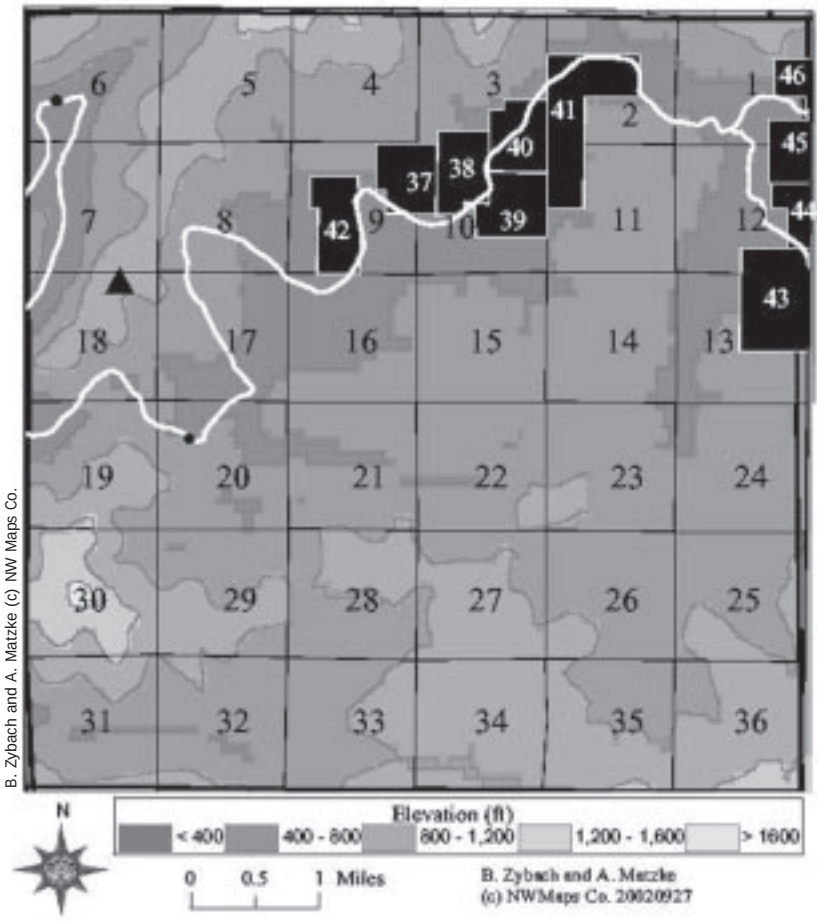
Cultural Landscape Pattern

> *Alsea Valley (ts !iphaha), back in the coast ranges, was a place to which many people went in summer to harvest camas and other wild crops* (Drucker 1933:82).

Alseya Valley is a setting of great natural abundance. As a landform, the valley consists of bottomlands near the river and its tributaries, surrounded by gentle slopes and low hills, extending upward toward steep mountain sides and waterfalls, surrounded by several high ridges and peaks (see Map 3). With a base elevation of about 200 feet, the valley is dominated by Marys Peak (McArthur 1982:474) to the northeast (Figure 1). At 4,097 feet elevation, this is the highest point in the entire Oregon Coast Range. The median elevation for the study area is about 1,000 feet (Daly and Taylor 2002).

The climate is classified as a northern extension of the Mediterranean climate that characterizes coastal California, with similar seasonal distributions but cooler temperatures and a longer rainy season. This means the year has two general seasons; a mild, wet winter and a warm, dry summer. There is little snow most years, except on the highest peaks, and that is usually melted by late spring. Likewise, most years have few—if any—days that reach a 100° F temperature (Redmond and Taylor 1997:34). From 1961 through 1991, the driest year averaged 67 1/2 inches precipitation throughout the valley, and the basin-wide average for the wettest year was 156 inches (Daly and Taylor 2002). Most precipitation falls in the form of



Map 2. Township 14 South, Range 8 West: subdivision and DLC survey index. This map shows the pattern of 36 square mile "sections" ("Sec." or "S.") created when surveyors subdivided a township. The numbering is always the same—beginning in the NE corner with Sec. 1, continuing west to Sec. 6, then south one mile to Sec. 7, proceeding east through Sec. 12, and then repeating the sequence two more times, continuing to number consecutively, until Sec. 36 is reached in the SE corner of the township (Moore 1851: 229). If original land claims (called a "Donation Land Claim" or "DLC") or portions of DLCs are contained within the township, they are also numbered consecutively, beginning with the number 37, so as to not confuse them with section numbers. For example, the DLC of Basil Longworth, (Longworth 1972), No. 37, is contained in T. 14 S., R. 8 S., Secs. 9 and 10 (Hathorn 1856c: 491-493). When a land claim straddled more than one township, it was given separate numbers for each township. Squire Rycraft (Fagan 1885: 525-526), for example, was given DLC No. 45 for the 94 acres he claimed in T. 14 S., R. 8 W., and No. 40 for the remaining 66 acres of his claim to the east, in T. 14 S., R. 7 W (Hathorn 1856c: 496-497).

rain during the "wet" season from October to March, during which time most days are cloudy and moist (Redmond and Taylor 1997:28). For the same years, the basin-wide average minimum temperature for January—usually the coldest month—varied from 32.8° F to 35.9° F The average maximum temperature for July, the warmest month, varied from 74.4° F to 82.1° F (Daly and Taylor 2002).

Another important aspect of the valley's climate is the infrequent occurrence of lightning (particularly "dry" lightning) and the relatively small number of fires attributed to this cause. The entire Coast Range has remarkably few lightning strikes or storms compared with the remainder of the Pacific Northwest (Morris 1934; Kirkpatrick 1939:28), and the first reported lightning-caused fire in the area didn't occur here until 1927 (Kirkpatrick 1939:31). This is an important consideration for this study because of the region's history of forest fires and the existence of numerous early historical prairies, meadows, brakes, and balds in Alseya Valley. These landscape features could have only been made and maintained through regular Indian burning—no other cause can be identified.

Forest trees, orchards, grasses, ferns, and numerous crops grow well in the valley (see Table 4 for list of plant names used by GLO surveyors). Today the bottomlands are dominated by the town of Alsea, descended from the "Alseya Settlement" of 1855 (McArthur 1982:12-13), at the juncture of the North and South forks of the Alsea River, and the remainder consists largely of numerous family-owned farms and ranches. Surrounding uplands are heavily forested with a variety

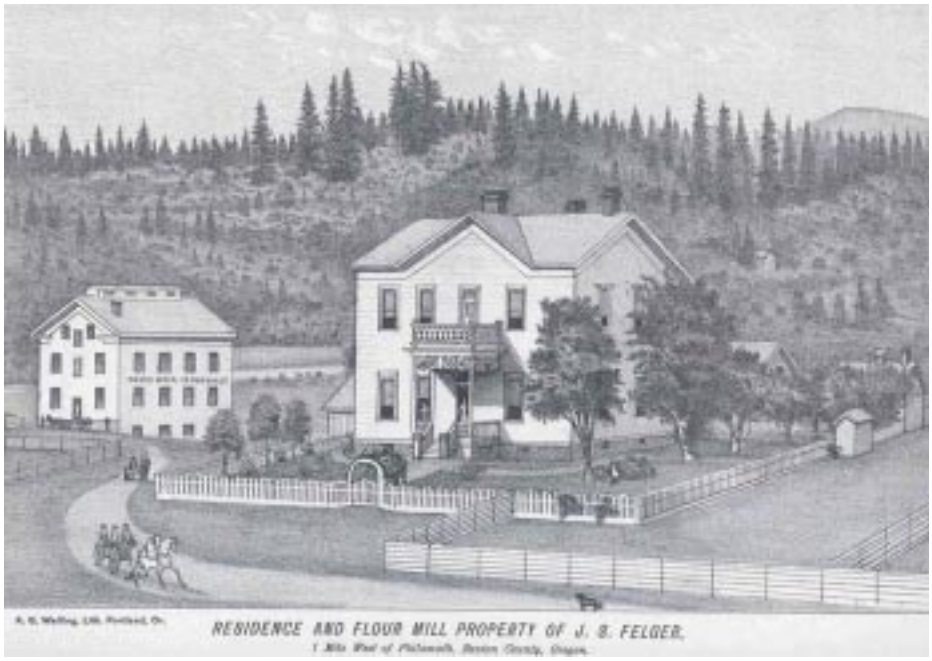


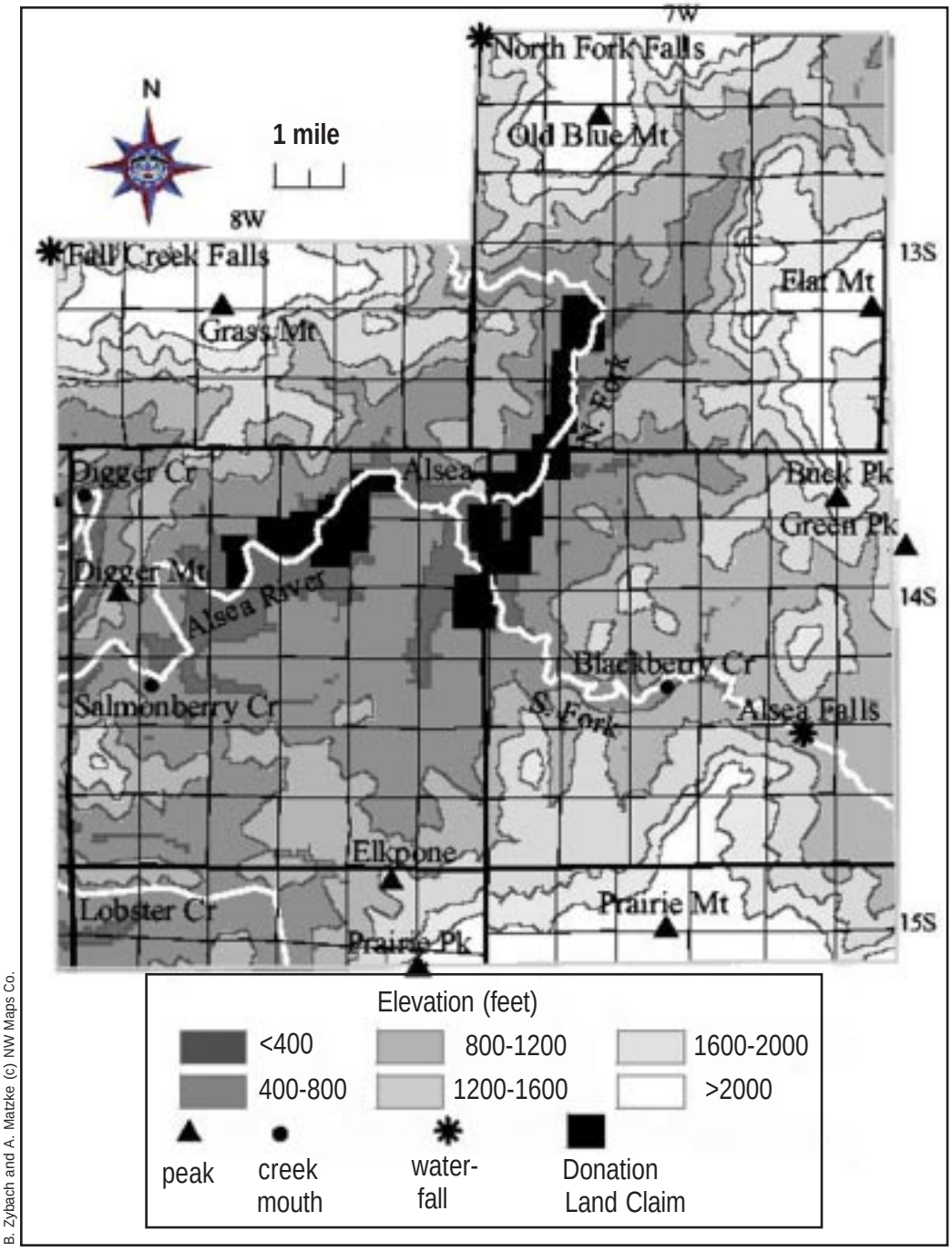
Figure 1. Grassy bald on Marys Peak, 1885. Marys Peak is a well-known landmark clearly visible for dozens of miles from the surrounding countryside. It marked the entry to Alseya Valley by established foot and horse trails from the north and east. This drawing (Fagan 1885:80) is from the northeast (Phinney 2000:214), near present-day Philomath. It clearly shows the grassy bald that characterized a large number of Coast Range peaks at that time (Aldrich 1973), including the majority of those in the study area. The Indian name for Marys Peak "is said to have been" Chintimini (McArthur 1982:474).

Evidence indicates that in the 1850s, the time of initial White settlement in the area, the Alseya Valley existed as a series of prairies, brakes, balds, openings, patches and meadows connected by a network of foot trails ....

of hardwoods and conifers, particularly Douglas-fir, which forms about 90% of the population and volume of trees in the area (Bagley 1915; Munger 1916).

Evidence indicates that in the 1850s, the time of initial White settlement in the area, the Alseya Valley existed as a series of prairies, brakes, balds, openings, patches and meadows connected by a network of foot trails, horse trails, and canoe routes, and bounded by stands of even-aged forest trees, burns, seedlings and saplings. This condition has been described as "yards, corridors, and mosaics" (Lewis and Ferguson 1999). Lewis and Ferguson initially used the phrase to describe a cultural landscape pattern maintained by Native people who lived in the boreal forests of Canada and Alaska, but determined that similar management patterns were also used by people in the conifer forests of the Rockies and Sierra Nevadas, northwest California, western Washington, Australia, and Tasmania (Lewis and Ferguson 1999:164-178). These researchers found that in each instance, fire was the tool most commonly used to establish and maintain grasslands and other openings ("fire yards"), bounded by stands of trees and open transportation routes ("fire corridors"). Fire was also the agent that entered unmanaged forested areas, whether by human cause or lightning, and caused burns that regenerated to a shifting mosaic of even-aged stands of seedlings, saplings, and trees (Lewis and Ferguson 1999:164-165).

Alseya Valley, by happenstance of the selection process, appears to be one of the few large areas in the western Coast Range that hasn't experienced a catastrophic



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Map 3. Alseya Valley landmarks and survey lines, ca.1910. Grass Mountain was called Holgates Peak (Hathorn 1856a: 235), Prairie Peak called Blue Mountain (Gesner 1891b: 418), and Old Blue Mountain called Green Mountain (Collier 1891: 388) in early surveys. I do not know their Indian names.

forest fire during the past 250 years. It may not be possible to determine why—or even if—this is true. Yet it may be that it is protected from such events by the presence of unusually high Coast Range peaks in the area, including Marys Peak (see Map 1; Figure 1), Grass Mountain, Prairie Peak, and Buck Peak (see Map 3). Or that its buffer of historical prairies, brakes and balds form an effective barrier from fire. Logging practices since the 1860s may have created similar openings (Fagan 1885:500, 525-526; Bagley 1915). It is also possible that such a fire did occur, but that rapid growth of local forests and brushlands concealed the event from early White settlers and surveyors. What is known, however, is that large scale—but non-

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catastrophic—forest fires had taken place in and about Alseyah Valley by 1853 (Webster 1853:98), and continued at regular intervals from then until 1910 (Corvallis Gazette 1902:2; Bagley 1915; Rust 1984:25), or even more recent times (Kirkpatrick 1939:30-31; Longwood 1940:70, 136).

Early Descriptions of Alseya Valley

On August 31, 1849, U.S. Army Lieutenant Theodore Talbot, on a reconnaissance mission from Fort Vancouver, Oregon Territory, arrived by horseback with a contingent of "a sergeant and nine men" at Alsea Bay (Haskin 1948:6). There he found two lodges of Alsi Indians, part of "about thirty of them, in all, living on this river and bay."

In his October 5, 1849 report of the trip to General Persifor F. Smith at Fort Vancouver, Talbot reported:

> There are no trails around the bay or up the river. I was informed by some Clicketat Indians that they had once attempted to cut a trail from the Willamette valley down the Alcea river, and had descended within about thirty miles of the ocean, when the country became so broken that they were obliged to abandon the attempt. There are some small fern-covered prairies on the upper part of the Alcea (Haskin 1948:7).

... the established canoe routes, prairies, and foot trails ... were being systematically measured and mapped by government land surveyors to facilitate further White settlement.

The decimated number of Alsi was not a surprise. Haswell had reported the presence of deadly smallpox (Boyd 1999a:21-60) in the vicinity in 1788, while traveling along the coast by ship (Elliott 1928:171), and in 1826 McLeod explored what had become a "thinly inhabited" area by canoe and horseback (Davies 1961:163). The claims of the Klickitats (Fagan 1885:319; Ruby and Brown 1986:95-97) were more intriguing. Within five years of Talbot's report the bottomland prairies of the upper Alsea River were being farmed by White immigrants, the "small fern-covered prairies" were being grazed by horses and cattle, to be followed by pigs, sheep, and goats (Fagan 1885:498-499; Corvallis Gazette 1902:2; Krewson 1955:86, 95), and the established canoe routes, prairies, and foot trails used by these foreign people and animals were being systematically measured and mapped by government land surveyors to facilitate further White settlement.

Table 1 lists the names of the men who conducted the original GLO land surveys in Alseya Valley, the years and times of year they conducted their surveys, and the locations they described and mapped. It also indicates whether Indian foot or horse trails were noted, and when and where forest fires had occurred. In common with the earliest Coast Range journalists (1788-1849) and the valley's original land claimants (see Map 2), all of the surveyors were White males. In July, 1856, Dennis Hathorn surveyed each of the 15 Donation Land Claims (DLCs) that had been established in the valley during the previous four years (Hathorn 1856c). Eight of the claims were for 160 acres each (1/4 section), and seven of the claims were for 320 acres (1/2 section). The larger claims indicate married couples. All of the claims were established along the mainstem Alsea River on the best 2,500 acres of bottomland prairie in Alseya Valley (see Map 3). By law, no Indians, Blacks, or Chinese were allowed to make claims (Carey 1971:253).

Surveyor	Dates	Townships	Burns	Trails
Webster, Kimball	Oct.-Dec., 1853	14-7	X	X
Gordon & Preston	Sept., 1854	13-7		X
Hathorn, Dennis	June-July, 1856	13-7; 13-8; 14-7; 14-8	X	X
Mercer, George	Aug., 1865	13-7;	X	
Dick, J. M.	Aug., 1873	13-8; 14-8	X	
Mercer	Jan., 1878	14-7;	X	X
Gesner, Alonzo	May-July, 1891	14-7; 14-8; 15-7; 15-8	X	X
Collier, Charles	Sept.-Oct., 1891	13-7; 13-8	X	X
Collier	Feb., 1892	13-7		X
Collier	Apr.-May, 1893	14-7; 15-7	X	X
Sharp, Edward	July, 1896	15-7	X	
Sharp	Jun.-Sept., 1897	13-8; 15-7	X	X

Table 1. Early GLO surveyors of Alseya Valley, 1853-1897

The nearly 90,000 acres of unclaimed lands remained in the ownership of the U.S. government, but were used communally by both Indians and Whites for camping, hunting, fishing, gathering and grazing purposes for many years (Rycraft 1922; Phinney 2000:149-150, 226, 291). This arrangement likely lasted until at least 1875 when the Alsea Agency was closed, the remainder of the Alsea and Yachats basins was opened to White settlement, and most resident Indian families were forced to relocate to Siletz (deVelde and deVelde 1980:22). One resident of the 1870s reported "In 1880 there were not more than 300 whites in the valley and I have seen as many as 1,000 Indians at one time. There was an Indian camp ground at the "narrows" about three miles below Alsea and the Indians used to come and go" (Phinney 2000:165). At least one Indian of unknown tribal affiliation, "Old Billy" (Hathorn 1856b:262; Rycraft 1922), lived in Alseya Valley among his White neighbors in the 1850s, in a cabin adjacent to the established Indian trail from the Willamette Valley to the present-day community of Tidewater (see Map 4).

The study area was surveyed and mapped from 1853 until 1897 by at least nine different men under contract to the GLO (see Table 1). Note that the surveys were initiated in the 1850s, but not completed until the 1890s. This time lag of forty years followed a pattern seen in much of western Oregon, including the Coast Range. Township and range lines were surveyed first, to establish the boundaries of the 36 square-mile townships (see Map 1), followed almost immediately by subdivisions of square-mile sections containing DLCs (see Map 2). Most of this work was completed in the 1850s, before the advent of Oregon statehood in 1859, and the beginning of the Civil War in 1860. Subdivision surveys of unclaimed lands—typically steep, forested and/or burned tracts that remained in the public domain because they were unsuitable for most agriculture or grazing purposes—were often delayed for a period of twenty to fifty years after initial township boundaries had been established.

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Indian Trail Network

There is a plain Indian trail leading from this township to tide water on the Alseya, which is said to be quite passable for horses. The Indians however generally travel it in their canoes from a point near the west line of the township [T. 14 S., R. 8 W.] and frequently from near the east line of the same. —Dennis Hathorn (1856b:278-279)

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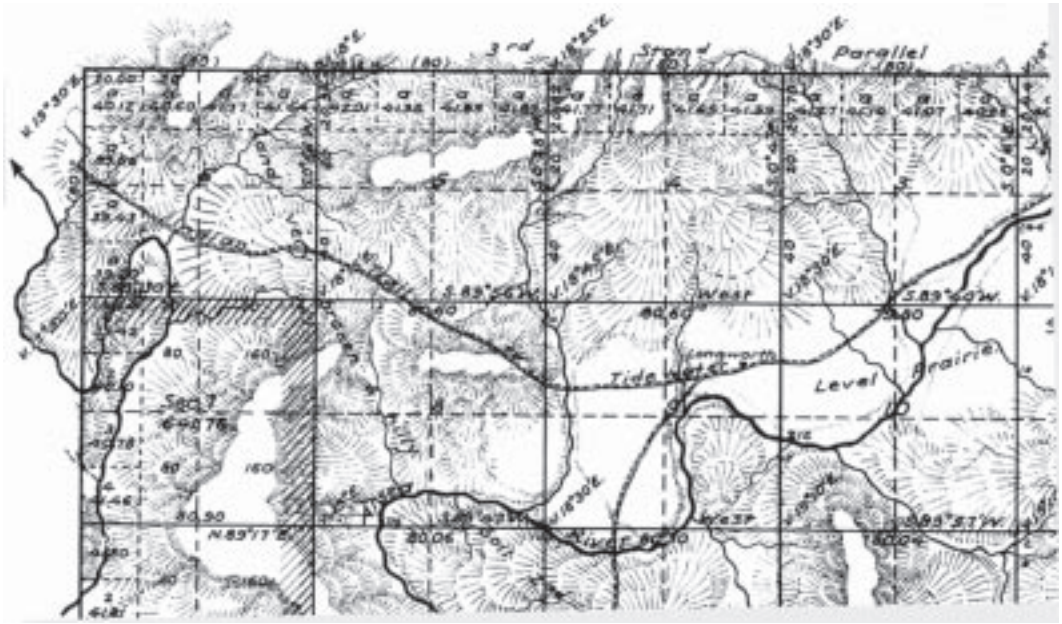
During the 1850s, at least three nations of Indians were known to regularly visit Alseya Valley: the Alsi, the Klickitats, and Kalapuyans from the Willamette Valley (Rycraft 1922). The Chepenafa band of Kalapuyans (Ruby and Brown 1986:18-19; Zenk 1990a:547-553) had ready access to the valley via an established foot trail to the south of Marys Peak (Figure 1), and the Chelamela Kalapuyans (Ruby and Brown 1986:17; Zenk 1990a:547-553) could reach the valley via a trail south of Green Peak (Map 3). Klickitats arrived by horseback, probably from the north by way of Klickitat Lake on the western foothills of Marys Peak, from the northwest by way of Klickitat Spring on Table Mountain, or from the southwest, by way of Klickitat Mountain, on the headwaters of Yachats River to the south of Alsea Bay.



Map 4. "Indian Trail to Tidewater" segment, 1856. This portion of the 1856 GLO map of Tsp. 14, Rng. 8 W. was first surveyed in July of that year (Hathorn 1856b: 265-278). Note the location of the Basil Longworth cabin (ibid.: 270; Hathorn 1856c: 491-493), established late November, 1853 (Longworth 1972: 38-39), on a "Level Prairie". Longworth built his home at the strategic juncture of the trail between Alseya Valley ("ts !iphaha") and "yaqais" (an important Alsi Indian community at tidewater) (Drucker 1965: 82), and the trail to a Siuslawan eeling spot at the mouth of Deadwood Creek (Rust 1984: 3)—a tributary of the Siuslaw River—via Lobster River (Map 3). "Old Billy's" cabin is shown on the DLC map of this township, in Sec. 1, near the juncture of the North and South forks of the Alsea River (see Map 2); the termination point of most coastal canoe traffic and a major intersection of foot and horse trails leading to and from Alseya Valley.

It is likely that members of the Yakona nation (Ruby and Brown 1986:275-276; Zenk 1990b:568-571) also visited the valley from time to time via an established trail over Grass Mountain (Sharp 1897:438; Bagley 1915). Similarly, Siuslaw people (Ruby and Brown 1986:206-207; Zenk 1990c:572-579) likely arrived via trails to the east and west of Prairie Peak (Map 3). These trails connected canoe routes and foot trails used by the Alsi throughout the river basin (e.g., see Map 4) to Klickitat horse trails that extended from eastern Washington to the Umpqua River (and therefore into California by way of Hudson's Bay Company trails established in the late 1820s), to foot trails and canoe routes used by Kalapuyans throughout the Willamette Valley, and to ocean trade with sea-going Tillamooks (Ruby and Brown 1986:240-243; Seaburg and Miller 1990:560-567) from the north (Davies 1961:165).

By one or more of these methods, Alsi were able to trade with Chinookan nations along the Columbia River to the north and with Siuslaw, Coos, Lower Umpqua, and various Athapaskan-speaking nations to the south (Miller and Seaburg 1990:580-588; Ruby and Brown 1986:11-12, 30-32, 64-81, 130-142, 208, 254-256; Silverstein 1990:533-546; Zenk 1990c:572-579). In summary, the Alseya Valley trail network combined well-established foot and horse trails with canoe traffic that directly connected the valley's occupants and resources to an international community of western Oregon, Columbia River and Pacific Ocean tribes and nations.

The existence of these access routes became well known to White residents in the valley and they were carefully recorded and mapped by GLO surveyors. Map 4, for example, clearly shows the "Indian Trail to Tide water" surveyed and described in 1856 (Hathorn 1856b:278-279). This road network contains a number of "Indian trail" segments appearing in GLO surveys of the 1850s and seems to indicate either Talbot misunderstood his "Clicketat" informants in 1849 (unlikely), that they were unaware of the trail (possible), that they were deliberately misleading (also possible; if for no other reason the route was grueling or difficult to follow and they wished to avoid taking or describing it), or that the route was completed sometime after September of that year (also possible, or even likely).

Hathorn was in Alseya Valley only a short time in 1856 during his survey work there, and was probably referring to Alsi people who were living or visiting at that time. In addition to the occupant of "Billy's Cabin," Hathorn was also in direct contact with other Indian people in the valley and was able to directly observe their actions. He certainly had ample opportunity to communicate with them and to discuss their activities with others. For example, on July 5, 1856, as he was surveying the adjacent land claims of brothers E. Thomas and Asbury E. Ellis (Hathorn 1856c:485-489; Map 2: DLC No. 38 and No. 39), Hathorn made the following series of notes:

> Enter Alseya River, course SW.... Leave same ... Enter another channel of same ... Leave same, course SW.... Enter prairie, course NE. and SW.... An Indian camp bears West about 25 lks. [16-17 feet] …. Enter [Ellis] yard, course E. and W.... Enter [Ellis] house (Hathorn 1856c:487).

It is difficult to establish the nationality of the camp, although they were likely Alsi and likely some of the same individuals Hathorn observed traveling by canoe. Rycraft noted a "traditional" gathering of more than a hundred Kalapuyans,

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"saltchucks" (people living near tidewater) and Klickitats that arrived by horseback in the valley during the mid-1850s (Rycraft 1922). Fagan, in his 1885 history of Benton County, also cast light on the various groups of Indians that remained in the Alsea River basin during early historical time:

> When the white men began to settle in the Alsea district nearly a quarter of a century ago, they found there the remains of three tribes; the "Alseas," by the bay and on the coast, a people of fishers; the "Klickitats," who hunted in the woods, and over the mountains to the south, and the "Drift Creek Indians" whose homes were scattered through the heavy timber, round Table Mountain, and on the streams heading thereabouts, to the east and northeast of the Alsea (Fagan 1885:320).

In addition to named trails that ran parallel to the river and major tributaries, well-established trails were also noted along most ridgelines.

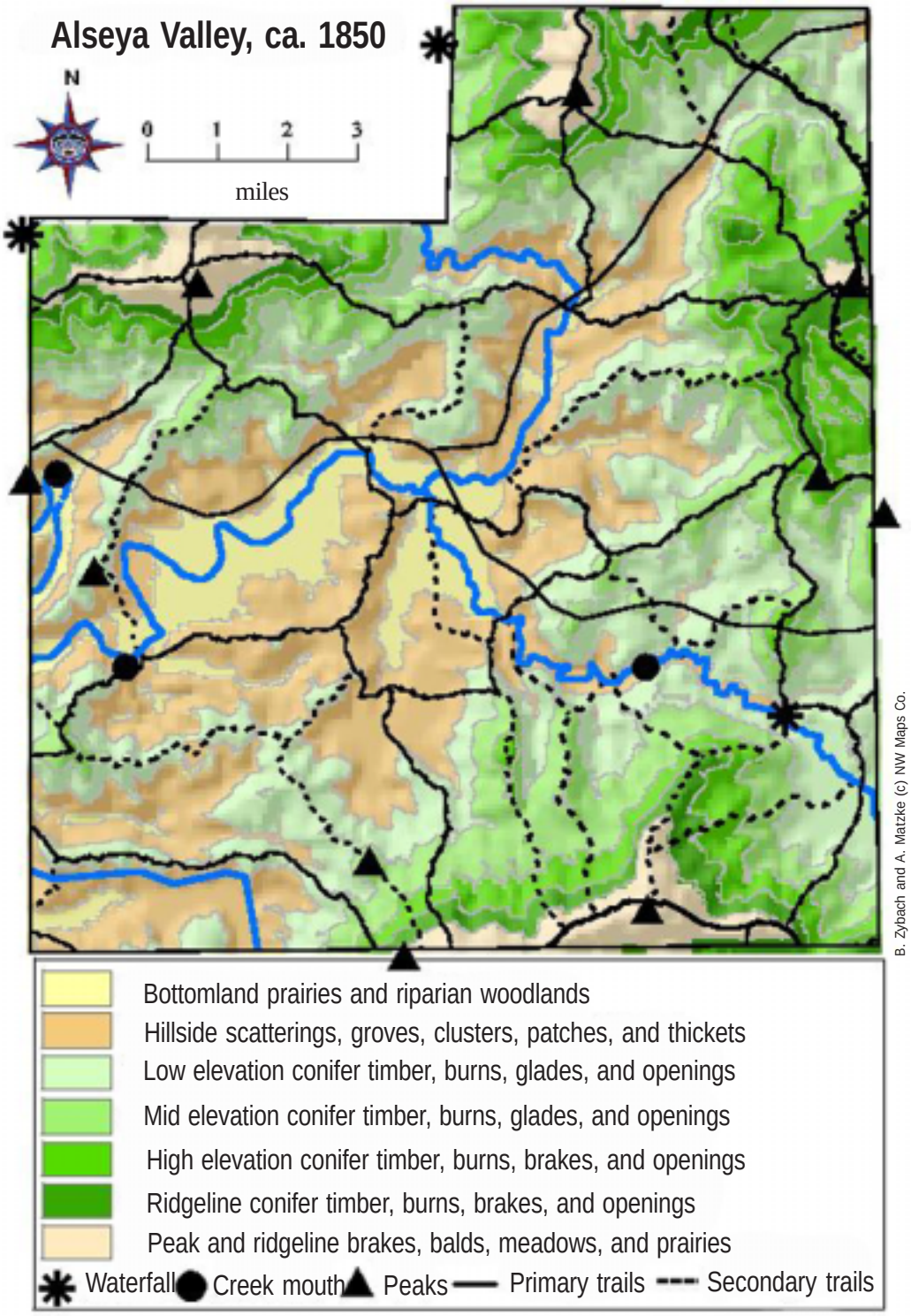
Hathorn was not the first surveyor to note named "Indian Trails" as primary access routes to and from Alseya Valley. In 1854, GLO surveyors Harvey Gordon and Josiah Preston noted the "Indian Trail to the Alseya" in the NE corner of Tsp. 13 S., Rng. 8 W. that left the Willamette Valley and connected to Hathorn's "Indian Trail to Tidewater" by way of the North Fork of the Alsea (Gordon and Preston 1854:275). Nearly forty years later, GLO surveyor Robert Collier documented the same trail segment running parallel to a wagon road in his survey notes:

> Top of a ridge ... Wells Creek ... Road from Philomath to Alsea … Stream … Indian trail, from Willamette Valley to Alsea, course SW. and NE. (Collier 1892:339).

The trail from Wells Creek continued to the North Fork of the Alsea, from there following the stream to its juncture with the South Fork, then splitting westward toward Tidewater and south on the "South trail to the Willamette" (Hathorn 1856a:159; see Map 4). In addition to named trails that ran parallel to the river and major tributaries, well-established trails were also noted along most ridgelines:

> Enter timber …. Leave timber and enter prairie on summit of ridge, course NW. and SE. Trail, course NW. and SE .... An Indian Trail …. Enter thicket …. Enter prairie …. Leave same and enter timber, course NW and SE.… Indian trail, course E. and W. (Hathorn 1856a:155).
>
> Indian trail on summit of ridge, course E. and W. (Hathorn 1856b:278).
>
> Top of ridge and trail, bears NE. and SW.... Top of ridge and trail, bears NE. and SW. . . Summit of ridge and trail (Gesner 1891a:285).

Map 5, facing page. Showing a generalized reconstruction of the pre-contact "lawns, corridors, and mosaics" landscape pattern (Lewis and Ferguson 1999) in Alseya Valley about 1850 (based largely on GLO notes and maps of surveyors listed in Table 1; vegetation types listed in Table 3). At this scale, individual glades, scatterings, meadows, patches, etc., are collected as a single band, surrounding bottomland prairies where they were most prevalent. Similarly, ridgeline brakes and prairies are shown at the higher elevations, where they were more frequently found. This process 1) minimizes the existence of stands of conifer forests at lower



elevations and exaggerates their extent at higher elevations, 2) eliminates the existence of openings at middle elevations by exaggerating their occurrence at lower and higher elevations, and 3) adds a more northerly extent to the southerly prairies and balds found on peaks (Aldrich 1972:86-88). Trail networks are likely under-represented, particularly in the lower elevations. Despite these changes, the final pattern is recognizable and representative of conditions that existed at a time preceding White settlement and survey. Note the strong correlation of plant types to landscape elevation (see Map 3).

> Top of ridge, bears East and West …. Trail from Alsea to Lobster, bears East and West (Gesner 1891a:300).
>
> Trail to Prairie Mountain, course 75° E., and S. 75° W., on top of ridge of same (Collier 1893:197).

It is important to note, however, that western Oregon lands—especially those adjacent to rivers, lakes, and streams—are particularly fertile and resilient to change. The decimation of local Indian populations from the 1770s until the 1850s (Fagan 1885:320; Boyd 1999a:21-60, 84-115) almost certainly resulted in corresponding reductions in land use and occupation. In the absence of regular disturbances, such as broadcast burning, coastal landscapes tend to become forested within a few seasons or years (Munger 1916; Moravets 1932). Riparian trees, such as alder and black cottonwood, can achieve large size in a matter of years or decades. Conifers, such as spruce, hemlock, redcedar, and Douglas-fir, typically achieve massive sizes in 60 or 80 years. The prairies of the Alseya were likely smaller and more fragmented and the forestlands greater and with larger trees in 1850 than in 1750, due to greatly reduced human use and occupation. For the same reason, trails likely became fewer and less defined during the same period.

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Many trail segments became more difficult to locate, possibly due to the time of year in which they were surveyed, or to diminished use that resulted from the reduction or relocation of local Indian populations:

> A dim Indian trail, course E. and W. (Hathorn 1856b:263).
>
> A dim Indian trail, course NE. and SW. (Hathorn 1856b:272).
>
> Top of ridge and old Lobster Trail, bears SW. and NE. (Gesner 1891a:282).

The well-developed Alseya Valley pattern of ridgeline and streamside trails, or "corridors," (Lewis and Ferguson 1999:165) coincides closely with other pre-contact landscape patterns in the region (e.g., Norton, et al. 1999:65-93) and with earlier work I have done with GLO surveys in the Coast Range. Indian trail networks along the Yaquina (Braman 1987:1, 5), Siletz (Zybach 1994), Marys and Luckiamute (Zybach 1999) rivers, for example, are similar to those found along the Alsea. Maps and notes developed by GLO surveyors in those areas are also similar. Principal reasons for the use of such trails likely involved trade, communications, other types of socializing, and resource management and procurement. The same survey lines that described roads, trails, and Indian camps also often noted numerous edible plant species (see Table 2) near the same locations.

Native Food Plants and Environments

> *They had dried salmon, and likewise (dried) fern-roots, which they ate during the winter. They ate fern-roots (mostly). Thus the people did during the winter... Such was the food of the people belonging to the past.* —Louisa Smith, 1911 (Frachtenberg 1914:81-83)

In addition to persistent trail patterns, GLO surveys also noted large prairies that could have only been created and maintained by Indian fires (Boyd 1999b). Edible plant species were often noted in the same locations. Alonzo Gesner, for example, made the following observations on Prairie Peak (which he called Blue Mountain) in 1891:

> Left timber and enter prairie, bears E. and W.; this prairie extends in an easterly and westerly direction, about 1 1/2 miles each way.... Summit of Blue Mountain bears E. and W.... this is one of the highest mountains in the Coast Range... Dense undergrowth of fir, hemlock, vine maple, hazel and huckleberry (Gesner 1891b:418).

Surveyors regularly noted specific types and species of plants and whether forest fires had entered the area, or not. Collier gave this general description of Tsp. 14 S., Rng. 7 W. (approximately 36 square miles; or about 23,000 acres) in May, 1893, for example:

> The usual vegetation of the Coast Range grows strongly everywhere. Wild grass and pea vine grows thick where other growths have been killed. Most of the openings are taken by a rank growth of fern. The whole has been covered by heavy fir, cedar and hemlock forests which has been deadened by fire on about half the area and the slopes exposed afford excellent range for cattle and sheep (Collier 1893:228).

Table 2 is a list of plants noted by GLO surveyors that were used for food by local Indians and White settlers. No attempt is made to identify other products (such as medicines, dyes, firewood, boards, basketry materials, twine, bows, arrow shafts, etc.) that may have been obtained from these plants or other plants noted by the surveyors. The reasoning for this focus is that most food plants were dominant (at least while in season) in their location, and usually constituted identifiable groupings (e.g., "clusters," "patches," "meadows") that form visible landscape patterns and can

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Food	Species	Years	Townships
Berries	Blackberry	1891-1897	13-7 (13 South, 8 West); 13-8; 14-7
Berries	Gooseberry	1891	15-8
Berries	Huckleberry	1891-1897	13-7; 14-7; 14-8; 15-7; 15-8
Berries	Oregon Grape	1856-1891	13-7; 14-7; 14-8; 15-7; 15-8
Berries	Salal	1856-1897	13-7; 13-8; 14-7; 14-8; 15-7; 15-8
Berries	Salmonberry	1865-1891	13-7; 13-8; 14-8; 15-8
Berries	Thimbleberry	1891-1893	13-7; 13-8; 14-7; 14-8; 15-8
Fruits	Choke Cherry	1856-1897	13-8; 14-7; 14-8; 15-8
Fruits	Crab Apple	1856	14-8
Grains	Grasses	1856-1893	13-8; 14-7; 14-8; 15-8
Nuts	Filbert	1853-1897	13-7; 14-7; 14-8; 15-7; 15-8
Nuts	White Oak	1856-1891	13-7; 13-8; 14-7; 14-8; 15-8
Peas	Legumes	1856-1893	13-7; 14-7; 14-8
Roots	Brackenfern	1853-1897	13-7; 13-8; 14-7; 14-8; 15-7

Table 2. Native Food plants of Alseya Valley.

be mapped, and were generally burned, harvested and/or processed at specific times of the year. Frachtenberg (1920:204), for example, gives the Alsi word for May as "the month for picking salmonberries" and the word for July as "the month for picking salal-berries." These factors also influenced the time and volume of trail use and the structure of adjacent forested areas. Dozens or hundreds of people moving into bracken fern prairies, filbert groves, or salmonberry fields to camp, burn, or pick crops, whether daily or on a seasonal basis, must have contributed to the lasting definition of local trails. The daily use of firewood in these locations would have resulted in annual clearings of forest debris resulting from wind, ice, fire, or other forms of tree and limb mortality. Lower limbs would have been removed from many trees adjacent to trails and campsites, and certain trees, such as willow, chittam, yew and redcedar, would have borne the marks of peeling, carving, and the removal of bow staves.

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Some of the entries in this table require further explanation. White settlers often referred to wild legumes as "Indian peas", and "fern" was, without doubt, mostly bracken fern. Both plants were maintained, harvested, and processed as important foods, providing protein and starch to many—if not all—western Washington and western Oregon Indian communities (Frachtenberg 1920:129-133; Norton 1979). Note that Collier rates the quality of these relict fields and burns in terms of their ability to feed livestock. These lands were being surveyed by the U.S. government for the purpose of being sold to private landowners—mostly farmers and ranchers—and livestock subsistence was critical to purchasers in the pre-automobile era. Grass and legumes were important feed crops for horses and cattle used for transportation, work, beef, and milk, while camas, acorns and fern roots were used to fatten hogs for market (Krewson 1955:86, 95). Fagan noted that the Alsea basin had become an important area of pork and butter production by the 1880s (Fagan 1885:498), a fact supported by Kirkpatrick (1939:14) more than 50 years later.

"Grass" was noted by surveyors as an important commodity, not only for potential settlers, but for their own pack animals as well. After surveying Tsp. 15 S., Rng. 7 W. in 1897, for example, Edward Sharp made the following observations:

> This township is covered with a heavy growth of valuable timber, mostly fir with scattering cedar, hemlock, maple and yew, with dense undergrowth and entirely without grass. A few glades of 3 or 4 acres each occur in secs. 3, 4 and 9 and an extensive glade in sec. 7 of about 100 acres. These glades are covered with a dense growth of fern with little grass... There are no trails excepting one leading into the northern part of the township. It is impossible to get a "pack horse" through the mountains (Sharp 1897:412).

It should be noted, however, that Sharp somehow missed the extensive grass prairies and trails associated with Prairie Mountain (see Map 3) in the northern part of the township, conditions duly noted by surveyors to the north (Collier 1893) and east (Gesner e.g., 1891b:418). Sharp's work is among the most cursory of the surveyors listed in Table 1, but his comments illustrate the importance surveyors placed on grass and the ability to get to work sites via horseback.

Unlike bracken fern, which often existed in relatively pure stands dominated by this single species, the components of grassy prairies, meadows, glades, and balds usually offered a wide variety of food resources. For example, Aldrich's 1972 study

of the grass balds on Prairie Peak and Grass Mountain provides a table of associated plants found on the balds (Aldrich 1972:105-115,148-153) that included at least 16 species considered to be major food plants for Indian communities in southwest Washington (Leopold and Boyd 1999:159-162). Many of these plants were used as food by the Alsi and their neighbors as well, including strawberries, blackberries, raspberries, chocolate lilies, tiger lilies, tarweed, fireweed, thistle, wild onions, and mountain carrots.

Native plants were described by surveyors in terms of species, general locations, and plant mosaic types (Table 3). They were also described in reference to land and property developments and often noted as they were encountered along GLO survey lines, DLC property lines, and riparian intersections. Bearing trees (Moore 1855:8-9) were precisely located and listed by species and diameter in relation to the mosaics (e.g., Zybach 1999:275-292); typically six or more trees per running mile, with a minimum of eight trees per forested section and often more than that for sections adjacent to double corners or those containing DLCs or riverine meanders (Moore 1855:12-14). This process allows us to compare the measures and observations of individual surveyors and better evaluate our estimates of past environmental conditions.

Native plants were described by surveyors in terms of species, general locations, and plant mosaic types

Landscape terms used by Alseya Valley surveyors included creeks (also referred to as branches and streams), rivers (the mainstem Alsea, its northern and southern forks, and Lobster Creek), springs, dry beds (both river and creek), gulches, gullies, hollows, landslides (also called slides; these were noted in several locations and occurred in all six townships in the study area), mountains, ravines, ridges (also called spurs), rock bluffs, slopes, tops (summits), bottoms, valleys, and a single pond

Name	Years	Townships	Burning
Belt	1893	14-7	Rare
Bottom	1853-1893	13-7; 14-7; 14-8	Situational
Brake	1856-1897	13-7; 13-8; 14-7; 15-7	Spring
Burn	1853-1897	13-7; 13-8; 14-7; 14-8; 15-8	Fall
Cluster	1891	15-8	Situational
Forest	1893	14-7	Rare
Glade	1893-1897	13-8; 14-7; 15-7	Situational
Grove	1893	14-7;	Situational
Meadow	1891-1893	14-7; 14-8; 15-8	Situational
Opening	1856-1893	13-8; 14-7; 14-8	Situational
Patches	1893	14-7	Fall
Prairie	1856-1897	13-7; 13-8; 14-7; 14-8	Fall
Scattering	1878-1891	14-7; 14-8	Fall
Swamp	1856-1878	13-7; 14-7; 14-8	Rare
Thicket	1856-1893	14-7; 14-8	Situational
Timber	1856-???	13-7; 14-7; 14-8	Rare
Trail	1853-1897	13-7; 14-7; 14-8	Situational

Table 3. Native plant environments of Alseya Valley, 1853-1897.

Surveyor's name	Latin name	Notes
Alder (Red)	*alnus rubra*	
Ash (Oregon)	*Fraxinus latifolia*	
Cherry, Wild	*Prunus emarginata*	"Cherry"
Chinquapin	*Chrysolepis chrysophylla*	
Chittam	*Rhamnus purshiana*	Cascara buckthorn
(Cottonwood, Black)	*Populus balsamifera*	"Balm" (of Gilead)
Crabapple (Wild)	*Pyrus fusca*	
Dogwood	*Cornus nuttalli*	
(Douglas-fir)	*Pseudotsuga menziesii*	"Fir"
(Fir, "True")	*Abies*, spp.	"Spruce"?
(Fir, Grand)	*Abies grandis*	
(Fir, Noble)	*Abies nobilis*	
Fir, White	*Abies concolor*	(?)
Hemlock (Western)	*Tsuga heterophylla*	
(Madrone)	*Arbutus menziesii*	"Mountain Balm"?
Maple (Bigleaf)	*Acer macrophyllum*	
Myrtle	*Myrica californica*	(?)
Oak (White)	*Quercas garryanna*	
(Redcedar)	*Thuja plicata*	"Cedar"
Spruce (Sitka)	*Picea sitchensis*	True fir?
Willow	*Salix*, spp.	
Yew	*Taxus brevifolia*	
Arrowwood	*Holodiscus discolor*	Ocean spray
Blackberry (Wild)	*Rubus ursinus*	
(Brackenfern)	*Pteridium aquilinum*	"Fern"
Camas	*Camassia*, spp.	
(Chokecherry)	*Prunus virginiana*	"Cherry"
Devil's Club	*Oplopanax horridum*	
Ferns	*Polystichum*, spp.	And others
Fireweed	*Epilobium angustifolium*	
Gooseberry	*Ribes divaricatum*	
Grasses	*Poaceae*, spp.	And others
Hazel	*Corylus cornuta*	Filbert
Huckleberry	*Vaccinium*, spp.	
Laurel	*Kalmia occidentalist* (?)	Madrone?
Lilac	*Ceanothus*, spp. (?)	Buckbrush?
Lily, Chocolate	*Fritillaria lanceolata*	
Lily, Tiger	*Lilium columbianum*	Oregon lily
Onion (Mountain, Wild)	*Allium crenulatum*	Also *Allium*, spp.
Oregon Grape	*Berberis aquifolium*	"Wild grape"
Pea (Wild, "Indian")	*Vicia americana*	Also *Lathyrus*, spp.
Raspberry (Wild)	*Rubus leucodermis*	Blackcap
Rhododendron (Western)	*Rhododendron macrophyllum*	
Salal	*Gaultheria shallon*	
Salmonberry	*Rubus spectabilis*	
Strawberry (Wild)	*Fragaria*, spp.	
Tarweed (Least)	*Madia minima*	
Thimbleberry	*Rubus parviflorus*	
Thistle (Edible)	*Cirsium edule*	Also, *Cirsium*, spp.

Table 4, GLO Bearing Trees (above line) and other native plants (below line) of Alseya Valley, 1853-1972. This list contains the local names used from 1853 until 1897 by GLO surveyors to identify vascular plant species in the Alseya Valley study area. It also includes several species otherwise noted in the text, particularly those cited from Leopold and Boyd (1999: 159-162) and Aldrich (1972: 148-153). Nomenclature is from Hitchcock and Cronquist (1973) and Gilkey and Dennis (2001), with some identifications made possible by the "Old-Time Names" list found in Anderson and Bedell (1987), references in Haskin (1934), and personal communication with Christy (2002). I have used commas in the "Surveyor's name" column to designate complete names used or occasionally used in survey notes (e.g., "wild cherry" and "white fir"), and parenthesis to identify better known or more recently named species (e.g., white oak and black cottonwood). "Notes" are meant to be self-explanatory and generally relate to information contained in the text.

Figure 2. Lobster Valley homestead, ca. 1900. This photograph shows the John Sapp homestead and family, taken about 100 years ago, in T. 15 S., R. 8 W., Sec. 6 (Bowen 1990: 34). Alonzo Gesner surveyed this property in July, 1891, when the family still lived in a cabin, barely visible near the base of the hill, center background. The surveyor noted several trails, a wagon road, fences, grain fields, pasture, orchard, yard, and a school house. Much of the area was "timbered with scattering fir, cedar, maple, alder and dogwood, mostly burned" (note snags in upper left corner). Local native food plants included "hazel, salalberry, salmonberry, gooseberry, and wild cherry" (Gesner 1891a: 256-257, 1891b415-416, 442-443). The fenced crops and pasture, yard, and orchard were obviously fashioned from bottomland prairie adjacent to Lobster River (overgrown with brush by the time of this photo), that ran through Sapp's holding.

in Tsp. 14 S., Rng. 7 W, Sec. 16 (Collier 1893:216). Other unique features noted in the same township were a "Hole in ground, 10 ft. in diam., 15 ft. deep, a stream, about 2 lks [16 inches] wide, observed in the bottom, course W." (Last Chance Ridge); "A sink of earth about 10 feet deep and 10 wide" (Buck Peak, Hathorn 1856a:151); and coal in Secs. 14 and 26 (Collier 1893:179, 184, 199). The "hole" and "sink" are of interest because they were directly intersected by surveyors' transects generally spaced a mile apart from one another, and were found near ridgelines, giving cause for speculation that they occurred regularly throughout the study area. Were they random natural geological phenomena otherwise not described, part of a system of elkfall pits (e.g., see Frachtenberg 1914:85), or were they used or constructed for some other purpose or purposes?

GLO surveyors were specifically instructed to note cultural "improvements" to the environment, including "Indian towns and wigwams," and "natural curiosities," including "all ancient works of art, such as mounds, fortifications, embankments, ditches, or objects of like nature" (Moore 1855:17-18). They were not trained to recognize locally common features as elk pits, peeled trees, or rock ovens. Beginning

GLO surveyors were specifically instructed to note cultural "improvements" ... including "Indian towns and wigwams"

with the establishment of DLC boundaries, native plant populations were soon limited and infiltrated by the plantations and structures of the new settlers. Surveyors duly noted and mapped fields, orchards, gardens, wagon roads, ditches, a bridge, a walk log, fences, barns, houses, an outhouse, a school house, a post office, and an old flume to "Inman's sawmill" in Tsp. 14 S. Rng. 7 W. (Fagan 1885:500; Collier 1893:178). As might be expected, more of these structural and vegetational changes are indicated in the GLO records from the 1890s (see Figure 2) than the 1850s, as the Valley became more heavily populated with immigrant farmers, ranchers, loggers, sawmill workers and their families.

Table 3 lists the names used by the GLO surveyors to describe the various types of vegetation patterns they encountered within the study area, as required by written instructions (Moore 1851:32-34; Moore 1855:17-18). Note that some descriptions (belt, cluster, forest, glade, grove, meadow, patches, and scattering) were only used in later surveys. As a result, it is reasonable to assume that the terms opening and thicket, of the earlier surveys, were simply supplanted by the more descriptive glades, groves, meadows and patches of the 1890s. Other vegetation types and environments were used consistently throughout the 45-year survey period: brakes (usually called fern prairies, fern patches, and fern openings), burns (called "deadenings" by some surveyors), prairies, and trails were all noted by most surveyors, no matter when the survey was conducted (see Table 1).

Flat and sloping alluvial lands adjacent to rivers and streams were called "bottoms" by the original surveyors ... These lands were typically the most prized by European American settlers in western Oregon ....

In addition to measuring distances between differing environments, surveyors described (e.g., used terms such as "burned," "dead," and "fine"), plotted, and identified species of bearing trees in relation to the environments, and they usually identified dominant shrubs and forbs that grew within them. This degree of detail often allows us to make reasonable estimates of the principal plant associations encountered by these men. This information provides excellent insights as to when and where harvesting and broadcast burning activities likely took place (see Table 2) prior to White settlement. Trail networks noted by the surveyors also contain clues as to which Indian communities were most likely to use plant resources, and whether by direct harvest or through trade. Trails were undoubtedly used for access to fish, game, and crops, and just as likely used to transport food and other trade items to local camps, villages, trading centers, and possible ceremonial locations.

Flat and sloping alluvial lands adjacent to rivers and streams were called "bottoms" by the original surveyors (Moore 1855:17). These lands were typically the most prized by European American settlers in western Oregon because of their fertility, the availability of water and water transport, and because they were nearly level and better suited for agricultural and homesite development (see Fig. 2). An added attraction was that most of these lands were in a condition of open grassy prairies and meadows, due to Indian burning practices, and considered well suited for livestock grazing, fencing, plowing, and home building purposes A result of these desirable qualities is that bottomlands were typically the first areas to be surveyed for township subdivisions and DLC boundaries; usually in the 1850s (see Maps 2 - 4 and Table 1). They were also the lands nearest the cusp of American Indian and European American occupancy, and thus most likely to represent pre-settlement conditions in the region. In sum, the areas most likely to show the effects of both Indian and White settlement, were also the areas most likely to be the first surveyed,

and also the most likely to be intensely mapped and described by surveyors. As a result of these circumstances, GLO descriptions of western Oregon floodplains and prairies are probably the most detailed records available for pre-contact land management practices in the region.

A final consideration of pre-contact Indian land management practices that can be derived from GLO records is the productivity and diversity of food crop, shrub, and forest tree species that existed across the landscape. The fertility of Coast Range lands is generally acknowledged by researchers, although usually attributed almost entirely to climate (including seasonal rainfall and long, mild growing seasons) and soil type (e.g. Franklin and Dyrness, 1988). Soil type, however, can largely be a result of centuries of vegetation growth and decomposition; a possible outcome of rarely understood or recognized long-term Indian land management practices.

A final consideration of pre-contact Indian land management practices that can be derived from GLO records is the productivity and diversity of food crop, shrub, and forest tree species that existed across the landscape.

The great size of coastal trees was often noted by many early Coast Range journalists, from Lewis and Clark on, and continues to be documented to the present time. Few considered the actual age of the trees, or how much height or girth they added during a year's growing time. However, the robust growth of bracken fern prairies, a managed food crop, was also noted by early journalists. Talbot, for example, on August 27, 1849, as he traveled along a tributary of the Siletz River on his way to the Alsea, wrote (Haskin 1948:4):

> The soil of the river bottom is very rich; grass growing luxuriantly where not completely choked up by the fern—this plant usurping possession of nearly every open spot of ground. It grows here from eight to ten feet in height, and is quite serious impediment to travel.

If Talbot had been traveling earlier in the year, he may have had a different perspective. Alseya Valley surveyor Collier (1893:192-193), for example, noted on May 1, 1893,

> Ascend gradually over rolling table land in old deadening. . . Top of ridge . . . Covered with good grass and patches of thimbleberry with strong growth of fern, now all flattened down.

Almost 40 years earlier, in the same Valley but five weeks later in the growing season and at a higher elevation, Hathorn (1856a:153-154) surveyed an environment that was very similar to the one described by Talbot. On June 8, 1856 he wrote:

> Enter prairie . . . Trail . . . Enter thicket . . . Enter fern prairie . . . Land hilly, Timber, principally fir and maple. The high prairie is covered with a thick coat of fern from 6 to 8 ft. high.

The surveyors also documented the diversity of dominant Alseya Valley native plant species, sometimes including trees, shrubs, and food plants in a single observation. Collier (1893:214), for example:

> . . . heavily timbered with fir and cedar and covered with dense undergrowth of salal, willow, hazel and arrowwood; remainder nearly open with scattering firs. On southern slope, covered with grass and pea vines.

Bottomlands were noted as containing alder, ash, balm (black cottonwood), cedar (redcedar), cherry (probably both wild cherry and chokecherry), chittam, fir (Douglas-fir), (wild) crabapple, (bigleaf) maple and willow tree species. Two swamps in the Valley were described as a "cedar swamp" and a "willow swamp." The lowest elevation and highest elevation grassy prairies along the Alsea River and on Prairie Peak contained (white) oak bearing trees, although oak was not mentioned in any other locations. In addition to Douglas-fir, redcedar, alder, maple, cherry, and chittam, higher elevations also contained chinquapin, dogwood, hemlock, "mountain balm" (probably madrone), myrtle (possibly a mistake, see Gesner 1891a: 252), spruce (possibly Sitka spruce, but maybe a "true" fir), white fir (possibly grand or noble fir), and yew.

GLO surveyors also noted a wide diversity of shrub and brush species. In addition to the food plants listed on Table 2, other species included arrowwood (Haskin 1934: 165), devil's club (called "devil's walking stick," "devil's war club," and—in the single instance in which a surveyor used Latin to identify a species within the study area—*Echiriopenax horridum*, by Collier 1893:394), laurel (a possible reference to madrone), lilac (probably buckbrush or another species of Ceanothus, but possibly a wilding or relict landscape plant of an abandoned homestead claim), rhododendron, and vine maple.

With the help of these records, traces of the early plants, animals, and people of Alseya Valley can still be found, if we look close enough in the right places.

Conclusions

This study demonstrates the usefulness of GLO survey records for measuring and describing baseline historical landscape patterns in western Oregon. It is very likely they can be used with confidence for similar purposes throughout the remainder of the Pacific Northwest. Early European American developments and settlement patterns are clearly located and identified in both space and time, providing significant information of value to historians, archaeologists, cultural resource managers, and others with an interest in this time period. Because these records form the basis for all subsequent landownership transactions and locations to the present time, they continue to have enduring value as measures and documents of environmental change after more than 150 years.

This project also demonstrates the potential of GLO maps and survey notes to make good estimates of pre-contact land use patterns and resource management practices. The detailed mapping of Indian canoe routes, foot and horse trail networks, homesites, and campsites in relation to managed fruit and nut orchards, berry patches, and extensive fields of root and grain crops cannot be duplicated by any other source of information. The location and timing of daily, seasonal, and annual practices of burning, tilling, and harvesting that took place in pre-contact times can be easily and reasonably inferred from these records. The precise location of individual trees and possible elk-fall pits provides exacting details of how and where people hunted, where they shaded themselves from the sun, and when they met to gather nuts or firewood. The great diversity and ready access of managed environments, including grassy prairies, oak groves, meadows, brakes, balds and berry patches provide strong insights into lifeways that no longer exist. This combination of detailed records and reasoned insights is just as significant for considering pre-

contact wildlife populations, their habitats, their food sources—and their interdependence with local human populations.

Finally, it is clear that through the careful examination and consideration of General Land Office survey records, the richness and even the beauty of a given place, previously hidden by time and circumstance, can be revealed. With the help of these records, traces of the early plants, animals, and people of Alseya Valley can still be found, if we look close enough in the right places. The same will likely hold true for most other places the first GLO surveyors went to measure and describe the features of the land.

Acknowledgements

Funding and other resources for this paper were provided by Ralph and Wilma Hull, Corvallis, Oregon, and Wayne Giesy, Philomath, Oregon. Primary research materials were furnished by Joe Mardis, Benton County Surveyor's Office, Corvallis, Oregon. GIS editing and mapping were completed by Amanda Matzke, research assistant, Oregon Climate Service, Oregon State University. Significant editorial assistance and encouragement were given by Scott Byram.

References

Aldrich, Frank T.
1973, *A Chorological Analysis of the Grass Balds in the Oregon Coast Range*. Ph.D. dissertation, Oregon State University, Corvallis, Oregon.

Alsea High School Students
1997, "Alsi Indians," *Kingfisher Magazine* # 13. Linn-Benton Educational Service District, Albany, Oregon: 30-51. Internet URL: www.OregonWW.org/Reports/S/007J/0912/Kingfisher/ November 4, 2002.

Anderson, E. William and Thomas E. Bedell
1987, *Northwest Common-Name Check List of Plants*. Agricultural Experiment Station, Oregon State University, Corvallis, Oregon.

Bagley, J. H.
1915, 1915 Cruise. Hand-colored maps, tables, and texts describing 1915 timber cruise of Benton County, Oregon (2 vol.). County Clerk's Office, Corvallis, Oregon.

Bowen, Lola
1990, *Family and Friends of Lobster Valley*. Self-published. Copy available in Benton County Historical Museum Library, Philomath, Oregon.

Boyd, Robert
1999a, *The Coming of the Spirit of Pestilence*. University of Washington Press, Seattle.

1999b, (editor) *Indians, Fire and the Land in the Pacific Northwest*. Oregon State University Press, Corvallis, Oregon.

1999c, Conclusion: Ecological Lessons from Northwest Native Americans," In, Boyd, Robert (ed.) *Indians, Fire and the Land in the Pacific Northwest*. Oregon State University Press, Corvallis, Oregon.

Braman, Tom
1987, "Indian Trail to Coast Teaches History, Ecology," *Benton Bulletin*, Philomath, Oregon, January 10.

Carey, Charles H.
1971, *General History of Oregon*. Binfords and Mort, Publishers, Portland, Oregon.

Christy, John
2002, Personal communication. Wetlands Ecologist, Oregon Natural Heritage Program, Portland, Or.

Collier, Charles M.
1891-1892, "Exteriors and Subdivisions of T. 13 S., R. 7 W.: Surveying Contract No. 572, dated April 18, 1891," In, County Surveyor's Record, Benton County, Oregon n.d. Government Field Notes, Vol. 3. Corvallis, Oregon.

1893, "South Boundary and Subdivisions of T. 14 S., R. 7 W.: Surveyors Contract No. 592, dated April 14, 1892," In, County Surveyor's Record, Benton County, Oregon n.d. Government Field Notes, Vol. 3. Corvallis, Oregon: 168-230.

Corvallis Gazette
1902, "The Fire in Alsea," *Corvallis Gazette*, September 23:2, Corvallis, Oregon.

Daly, Christopher and George Taylor
2002, PRISM Climate Mapping Program. www.ocs.orst.edu/prism/prism_new.html: November 4, 2002.

Davies, Kenneth G. (ed.)
1961, *Peter Skene Ogden's Snake Country Journal 1826-27*. Publications of the Hudson's Bay Record Society; 23. London, England.

de Velde, Paul and Henriette R. de Velde
1980, South Lincoln County and its Early Settlers: Charles L. Litchfield. In, *Lincoln County Lore*. Lincoln County Historical Society, Newport, Oregon.

Drucker, Philip
1965, "Contributions to Alsea Ethnography," *University of California Publications in American Archaeology and Ethnology*, Volume XXXV, 1934-1943, pp. 81-101, Kraus Reprint Corporation, New York.

Elliott, T. C.
1928, "Captain Robert Gray's First Visit to Oregon: Haswell's Log of Sloop Washington," *Oregon Historical Quarterly* (29)2:162-188.

Fagan, David D.
1885, *History of Benton County, Oregon: Including Its Geology, Topography, Soil and Productions (etc.)*. A. G. Walling Publishing Company, Portland, Oregon.

Frachtenberg, Leo J.
1914, *Lower Umpqua Texts and Notes on the Kusan Dialects*. Columbia University Press, New York.

1920, *Alsea Texts and Myths*. Smithsonian Institution Bureau of American Ethnology, Bulletin 67. Government Printing Office, Washington, DC.

Franklin, Jerry F. and C.T. Dyrness
1988, *Natural Vegetation of Oregon and Washington*. Oregon State University Press.

Gesner, Alonzo
1891a, "Exterior Lines and Subdivisions of T. 14 S., R. 8 W.: Contract #557, dated November 13, 1890," In, County Surveyor's Record, Benton County, Oregon n.d. Government Field Notes, Vol. 3: 238-257, 279-313 Corvallis, Oregon..

1891b, "Portion of West Boundary of T. 15 S., R. 8 W.: Contract #557, dated November 13, 1890," In, Benton County Surveyor's Record, n.d. Government Field Notes, Vol. 3: 415-443, Corvallis, Oregon.

Gilkey, Helen M. and La Rea J. Dennis
2001, *Handbook of Northwestern Plants*. Oregon State University Press, Corvallis, Oregon.

Gordon, Harvey and Josiah W. Preston
1854, "West Boundary of T. 13 S., R. 6 W.: Surveying Contract No. 40, dated Feb. 22, 1854," In, Benton County Surveyor's Record, n.d. Government Field Notes, Vol. 3. Corvallis, Oregon.

Haskin, Leslie L. (ed.)
1948, *Lincoln County Lore: From the Journal of Lieut. Theodore Talbot, U.S.A. On His Journey Through Lincoln County and Along the Oregon Coast in 1849*. Reprinted from the files of *Newport News*. Publication No. 1, Lincoln County Historical Society, Newport, Oregon.

Haskin, Leslie L.
1934, *Wild Flowers of the Pacific Coast*. Metropolitan Press, Portland, Oregon.

Hathorn, Dennis
1856a, "Third Standard Parallel South through R. 7 W. and Range 8 West, West Boundary of T. 14 S., R. 7 W., and Subdivisions of Fractional T. 14 S., R. 7 W.: Surveying Contract No. 63, dated March 22, 1856," In, Benton County Surveyor's Record, n.d. Government Field Notes, Vol. 3:151-164, 233-237, Corvallis, Oregon.

1856b, "Subdivisions of Fractional T. 14 S., R. 8 W.: Surveying Contract No. 63, dated March 22, 1856," In, County Surveyor's Record, Benton County, Oregon n.d. Government Field Notes, Vol. 3:257-279, Corvallis, Oregon.

1856c, "Surveying Contract No. 63, dated March 22, 1856," In, County Surveyor's Record, Benton County, Oregon n.d., Vol. 4: Donation Land Claim Index, pp. 375-378, 469-499, Corvallis, Oregon.

Hitchcock, C. Leo and Arthur Cronquist
1973, *Flora of the Pacific Northwest*. University of Washington Press, Seattle,.

Kirkpatrick, Dahl
1939, *A History of the Siuslaw National Forest, Oregon, as of December 31, 1939*. USDA Forest Service, US Government Printing Office, Washington, DC.

Krewson, E. A.
1955, *Tioga's Pigs*. Binford and Mort, Publishers, Portland, Oregon.

Leopold, Estella B. and Robert Boyd
1999, An Ecological History of Old Prairie Areas in Southwestern Washington. In, *Indians, Fire and the Land in the Pacific Northwest*. Robert Boyd, editor, pp. 139-163, Oregon State University Press, Corvallis, Oregon.

Lewis, Henry T. and Theresa A. Ferguson
1999. "Yards, Corridors, and Mosaics: How to Burn a Boreal Forest." In, *Indians, Fire and the Land in the Pacific Northwest*, Robert Boyd (ed.), Oregon State University Press, Corvallis, Oregon.

Longwood, Franklin R.
1940, *A Land Use History Of Benton County, Oregon*. Master of Forestry thesis, Oregon State College, Corvallis, Oregon.

Longworth, Basil N.
1972, *Memorandum on Thoughts, Reflections, and Transactions as Described by Basil Nelson Longworth on his Journey from Washington Township, Guernsey County, Ohio to Oregon in the Summer of 1853*. Ye Galleon Press, Fairfield, Washington.

McArthur, Lewis L.
1982, *Oregon Geographic Names*, 5th Edition. Western Imprints, Oregon Historical Society, Portland, Oregon.

Mercer, George
1865, "South Boundary of T. 12 S., R. 7 W.: Surveying Contract No. 112, dated July 20, 1865," In, County Surveyor's Record, Benton County, Oregon n.d. Government Field Notes, Vol. 3:159-160, Corvallis, Oregon.

1878, "South Boundary of Fractional T. 14 S., R. 7 W," Surveyors contract No. 277, dated Nov. 30, 1877," In, County Surveyor's Record, Benton County, Oregon n.d. Government Field Notes, Vol. 3:164-168, Corvallis, Oregon.

Moore, John M.
1851, *Instructions to Surveyor of Public Lands in Oregon, 1851*. General Land Office, Washington, DC.

1855, *Instructions to the Surveyors General of Public Lands of the United States, for Those Surveying Districts Established In and Since the Year 1850*. A. O. P. Nicholson, Public Printer, Washington, DC.

Miller, Jay and William R. Seaburg
1990, "Athapaskans of Southwestern Oregon," In, *Handbook of North American Indians, Volume 7: Northwest Coast*. Wayne Suttles, ed., Smithsonian Institution, pp. 580-588, Washington, DC.

Moravets, F. L.
1932, "Second Growth Douglas Fir Follows Cessation of Indian Fires," *Service Bulletin*. USDA Forest Service, Vol. 16(20):3, Washington, D.C.

Morris, William G.
1934a, *Lightning Storms and Fires on the National Forests of Oregon and Washington*. USDA Pacific Northwest Forest Experiment Station, Portland, Oregon.

Munger, Thornton T.
1916, "The Productive Capacity of the Douglas Fir Lands of Western Oregon and Washington," *The University of California Journal of Agriculture*. Vol. 4(3):92-93.

Norton, Helen H.
1979, "Evidence for Bracken Fern as a Food for Aboriginal Peoples of Western Washington," *Economic Botany*. Vol. 35, No. 4:384-396.

Norton, Helen H., Robert Boyd, and Eugene Hunn
1999, "The Klickitat Trail of South-central Washington: A Reconstruction of Seasonally Used Resource Sites," In, Robert Boyd, ed., *Indians, Fire, and the Land in the Pacific Northwest* pp. 65-93, Oregon State University Press, Corvallis, Oregon.

Pendergrass, Kathy L.
1996, *Vegetation and Response to Fire of Native Willamette Valley Wetland Prairies*. Oregon State University Master of Science thesis. Corvallis, Oregon.

Phinney, Mark
2000, *WPA Historical Records Survey, Benton County, Oregon: Interviews*. Edited by Danell Aukerman. Benton County Genealogical Society, Philomath, Oregon.

Redmond, Kelly and George Taylor
1997, "Climate of the Coastal Temperate Rain Forest," In, *The Rain Forests of Home*, Peter K. Schoonmaker, Bettina von Hagen and Edward C. Wolf (eds.), pp. 25-41, Island Press, Washington, DC.

Robbins, William G.
1997, *Landscapes of Promise: The Oregon Story, 1800-1940*. University of Washington Press, Seattle.

Ruby, Robert H. and John A. Brown
1986, *A Guide to the Indian Tribes of the Pacific Northwest*. University of Oklahoma Press, Norman, Oklahoma.

Rust, Elma
1984, *The Pioneers of Lake Creek Valley*, Self published, Copy in Oregon State University Valley Library, Corvallis, Oregon.

Rycraft, Squire L.
1922, Series of transcribed newspaper interviews published shortly after Rycraft's 94th birthday on September 30, including articles from October 3, 1922 *Corvallis Gazette-Times*, Corvallis, OR, and October 3, 1922 *Oregon Daily Journal*, Portland, on file at Benton County Historical Museum, Philomath, Oregon.

Schulte, Lisa A. and David J. Mladenoff
2001, "The Original US Public Land Survey Records: Their Use and Limitations in Reconstructing Presettlement Vegetation," *Journal of Forestry*, Vol. 99:5-10.

Seaburg, William R. and Jay Miller
1990, "Tillamooks," In, *Handbook of North American Indians, Volume 7: Northwest Coast*. Wayne Suttles, ed., pp. 560-567, Smithsonian Institution, Washington, DC.

Sharp, Edward F.
1897, "Portion of West Boundary and Portion of Subdivisions of T. 13 S, R. 8 W.: Surveying Contract No. 661, dated May 21, 1896," In, Benton County Surveyor's Record, n.d. Government Field Notes, Vol. 3:413-455 Corvallis, Oregon.

Silverstein, Michael
1990, "Chinookans of the Lower Columbia," In, *Handbook of North American Indians, Vol. 7: Northwest Coast*. Wayne Suttles, ed., pp. 533-546, Smithsonian, Washington.

Sullivan, Maurice S.
1934, *The Travels of Jedediah Smith, a Documentary Outline*. The Fine Arts Press, Santa Ana, California.

Teensma, Peter D. A., John T. Rienstra, and Mark A. Yeiter
1991, *Preliminary Reconstruction and Analysis of Change in Forest Stand Age Classes of the Oregon Coast Range From 1850 to 1940.* Technical Note T/N Oregon-9, USDI Bureau of Land Management, Oregon State Office, Portland, Oregon: 9 pp. w/4 maps.

Vale, Thomas R. (ed.)
2002, *Fire, Native Peoples, and the Natural Landscape*. Island Press, Washington, D.C.

Wakefield, Rex
1988, Personal communication. Former Supervisor, USDA Siuslaw National Forest.

Webster, Kimball
1853, "Third Standard Parallel South, thru R. 6 W. and West and South Boundaries of T. 14 S., R. 6 W.: Contract No. 37, dated September 19, 1853," In, Benton County, Oregon Surveyor's Record, n.d. Government Field Notes, Vol. 3. Corvallis, Oregon: 95, 98-101.

Whitlock, Cathy and Margaret A. Knox
1992, Prehistoric Burning in the Pacific Northwest: Human Versus Climatic Influences. In, *Fire, Native Peoples, and the Natural Landscape*, Thomas R. Vale, ed., Island Press, Washington, DC: 195-231.

Whitney, Gordon G. and Joseph P. DeCant
2001, Government Land Office Surveys and Other Early Land Surveys. In, *The Historical Ecology Handbook: A Restorationist's Guide to Reference Ecosystems*, Dave Egan and Evelyn A. Howell (eds.), Society for Ecological Restoration, Island Press, Washington, DC: 147-172.

Williams, Gerald
2000, "Reintroducing Indian-Type Fire: Implications for Land Managers," *Fire Management Today*, Vol. 60, No. 3: 40-48.

Winkler, Carol and Tim Bailey
2002, Restoring the Cultural Landscape at Jim's Creek: Challenges to Preserving a Spirit of Place. Paper presented at the 55th Annual Northwest Anthropological Conference, April 11-13, 2002. USDA Willamette National Forest, Westfir, Oregon.

Zenk, Henry B.
1990a, "Kalapuyans," In, *Handbook of North American Indians, Volume 7: Northwest Coast*, Wayne Suttles, ed. pp. 547-553 Smithsonian Institution, Washington, DC.

1990b, "Alseans," In, *Handbook of North American Indians, Volume 7: Northwest Coast*, Wayne Suttles, ed. pp. 568-571, Smithsonian, Washington, DC.

1990c, "Siuslawans and Coosans," In, *Handbook of North American Indians, Volume 7: Northwest Coast*, Wayne Suttles, ed.,pp. 572-579, Smithsonian Institution, Washington, DC: .

Zybach, Bob
1992, *Alsea River Drainage, Oregon: Sources and Uses of Historical Information for the Drift Creek and Lobster Valley Areas*. Coastal Oregon Productivity Enhancement (COPE) Program, USDA Pacific Northwest Research Station, Corvallis, Oregon.

1994, Siletz Gorge Forest History: Methods and Recommendations for Using Northwest Forest History Information with GIS Applications. Center for Environmental Studies, Santa Barbara, California.

1999, *Using Oral Histories to Document Changing Forest Cover Patterns: Soap Creek Valley, Oregon, 1500-1999*. Oregon State University MAIS thesis, Corvallis, Oregon.

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photo by Peter Hatch

David Hatch, with statue of Robert Gray.

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