A Burning Issue: American Indian Fire Use on the Mt. Rainier Forest Reserve

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Whether and how American Indians burned the land has long been a topic of discussion. On the Mt. Rainier Forest Reserve, precursor to the Gifford Pinchot National Forest in southwestern Washington, several sources describe how American Indians used fire as a tool to manage huckleberry patches (French 1957; Mowry 1854; Plummer 1900). Huckleberries are an early-seral species that grows best in areas that have been recently burned.

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Early Records

Some of the earliest descriptions come from the 1853 journals and reports of a Pacific Railroad Survey party under the leadership of Capt. George B. McClellan.* An officer in the U.S. Army Corps of Engineers, McClellan was under orders to explore the Northern Cascades for a suitable railroad route. His expedition's records attest to the extent of fire in the area, the role local Indians played in these fires, and the relationship between fire and huckleberries.

Expedition members frequently referred to fire, with statements such as, "Most of the way led through a burnt forest" (Cooper 1853) or, "These mountains have been burned over, so their appearance is bald and barren" (Duncan 1854). The expedition followed a well-established American Indian trail across the Cascades. The party's meteorologist, Lt. Sylvester Mowry (1854), wrote, "On leaving the low prairie lands back of Vancouver [an outpost across the Columbia River from present-day Portland, OR], and gradually penetrating the range of mountains, the atmosphere, clear below, became smoky. This appearance continued throughout the country in the vicinity of the mountains. It is believed to be caused chiefly by the immense fires which, from time to time, are kindled in the forests by the Indians, and which lay waste large sections of the country."

Mowry's use of the term "lay waste" is amusing, because most references to fire in the expedition's journals are immediately followed by descriptions of abundant berries. The party's naturalist, Dr. J.G. Cooper (1853), wrote, "The hill was covered with a species of

Sawtooth huckleberry fields on the Gifford Pinchot National Forest, showing tree encroachment. Photo: Jim Bull, USDA Forest Service, Gifford Pinchot National Forest, 1992.

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* McClellan went on to high command during the Civil War, leading the Army of the Potomac against Confederate forces during the Peninsula Campaign and Battle of Antietam in 1862.

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Vaccinium, the fruit nearly so finely flavored as a grape, and the ground in many places carpeted by strawberry vines with ripe fruit of delicious flavor." Lt. Johnson Duncan (1854), the party's draftsman, wrote, "These mountains … are remarkable for the quantity of berries growing on them. Strawberries and four varieties of whortleberries were noted. Berries are generally found on any tract of country visited by fire, but they are mostly found in the mountains, and seem to flourish best near the summit."

Oral Tradition

American Indians today claim that their ancestors purposefully set fires under very specific conditions in order to manage the huckleberry resource over time and space. However, Indian land-burning practices were generally curtailed by the Forest Service in the early 1900s. Most of the related information dates back several generations, passed down by word of mouth. In most cases, the oral tradition is quite general; the specific conditions under which American Indians burned the land are usually no longer known.

For example, Mary Kiona (1953), a Taidnapam woman born in 1868 in the northern part of what is now the Gifford Pinchot National Forest, provided this description: "[T]hey used to burn, and then after a while the Indians would grow berries, blackberries, and in higher places, huckleberries … every now and then they would burn such a small area in there so that the huckleberries would grow."

Yakama woman picking huckleberries in the Sawtooth huckleberry fields, on what is now the Gifford Pinchot National Forest. Photo: K.D. Swan, USDA Forest Service, 1933.

Finding supporting evidence for intentional burning is difficult. In many instances, particularly in Forest Service fire reports from the 1910s, fires were often attributed to carelessness by American Indians. Forest Supervisor H.O. Stabler (1910) wrote, "A great many Indians camp in and around Twin Buttes during July and August, and these camps need constant looking after because fires frequently owe their origin to logs used … in drying huckleberries." Forest Assistant Arthur Wilcox (1911) wrote, "In the high, open country around the summit of the Cascades the most prolific cause of fire is the method the Indians use in drying huckleberries by means of a burning log." Fire is and always has been a strategic part of forest ecosystems, and Indians would undoubtedly have taken advantage of the resources made available through natural forest fires.

In the early 1970s, a study on huckleberry productivity was conducted on the Gifford Pinchot National Forest (Minore 1972; Minore and others 1979). The researchers concluded that maintaining huckleberry patches through burning was exceedingly difficult at high elevations, because there is usually not enough fuel to carry a fire. The study has influenced both managers' and researchers' perceptions regarding the utility of fire for maintaining huckleberry patches.

Report of Fires

The National Archives and Records Administration in Washington, DC, has monthly and annual reports submitted by forest reserves,

including a set of reports under the title "Report of Fires in the Mt. Rainier Forest Reserve" (Allen 1904a, 1905). Two of these reports describe fires on the Mt. Rainier Forest Reserve in 1904 and 1905. Though established in 1897, the 2-million-acre (800,000-ha) reserve did not employ a single ranger on its southern half until 1902. The year 1904 was the first year that a ranger was assigned to the White Salmon River drainage, which occupies the southeastern portion of the reserve. The years 1904 and 1905 probably represent the very beginnings of custodial management on this portion of the reserve.

The fire reports contain a number of categories, including fire location, size, and date, and the name of the person who reported the fire. There is also a category for fire cause. Figure 1 shows part of the monthly report for September 1904.

Of the 32 fires in 1904 and 1905, 16 were reported to have been caused by American Indians. All 16 of these fires were in the southeastern portion of the reserve, an area known from ethnohistorical sources to have been used for huckleberry collection. The 16 fires occurred between August 4 and September 22 (mostly in mid-September).

Nine of the 16 fires were less than 1 acre (0.4 ha) in size, and four were from 1 to 10 acres (0.4–4 ha). The remaining three were, respectively, 80 acres (32 ha), 600 acres (240 ha), and 5,760 acres (2,310 ha) in size. Six of the fires were extinguished by rain, and 10 were extinguished by forest rangers, often on the same day they started.*

** For one of the nine small fires and for one of the six fires extinguished by rain, the information is missing in the original report but seems clear in context.*

What we see here is a pattern of repeated fires set in areas where the tree cover is very light, either within or adjacent to existing larger burns.

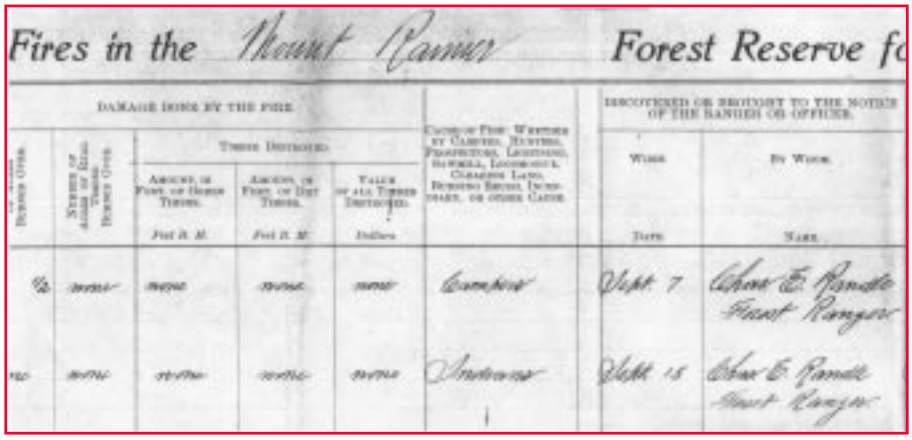
Fires in the Mount Rainier Forest Reserve fo

Figure 1—*Excerpt from "Report of Fires in the Mt. Rainier Forest Reserve" for September 1904, showing categories of information such as amount of "green timber" and "dry timber" burned and cause of fire.*

In the cover letter accompanying the 1904 fire report, Forest Supervisor G.F. Allen (1904b) discussed the two largest fires. "This [600-acre] fire and the large [5,760-acre] fire, south and west of the Mummy and Steamboat Mountain were set out by Indians from the Columbia river. They were probably actuated by a variety of motives. It is their practice to drive the game to the meadows and lakes by fire. The burning of the brush makes the country more open and accessible to horses. … It is the custom of the Indians to go into the mountains every summer, in great numbers. The women pick berries and the men hunt, gamble, run horses …"

Allen does not specifically attribute the fires to maintenance of huckleberry patches. But that is probably due to his lack of familiarity with or even consideration of huckleberry ecology. Huckleberries were simply not a major concern of forest rangers at that time.

Burn Patterns

Do the 16 fires tell us anything about traditional Indian land management practices? For the small fires, their location is intriguing, particularly when placed on an 1899 map, which classifies the reserve by categories of timber volume (fig. 2). Most of these fires occurred in areas that were either very lightly timbered or already classified as "burns." They cluster in the same general area and occur in the same area in consecutive years.

For the larger fires, the report provides additional information on the type and amount of timber burned. The categories "real timber," "dry timber," and "green timber" probably equate to mature, dead, and immature timber. An 8-acre (3.2-ha) fire in 1905 burned 48,000 board feet (260 m^3) of "dry timber" in an area classified as a burn. The 80-acre (32-ha) fire in 1905 burned 900,000 board feet (4,900 m^3) of "green timber" on 60 acres (24 ha), with the unstated

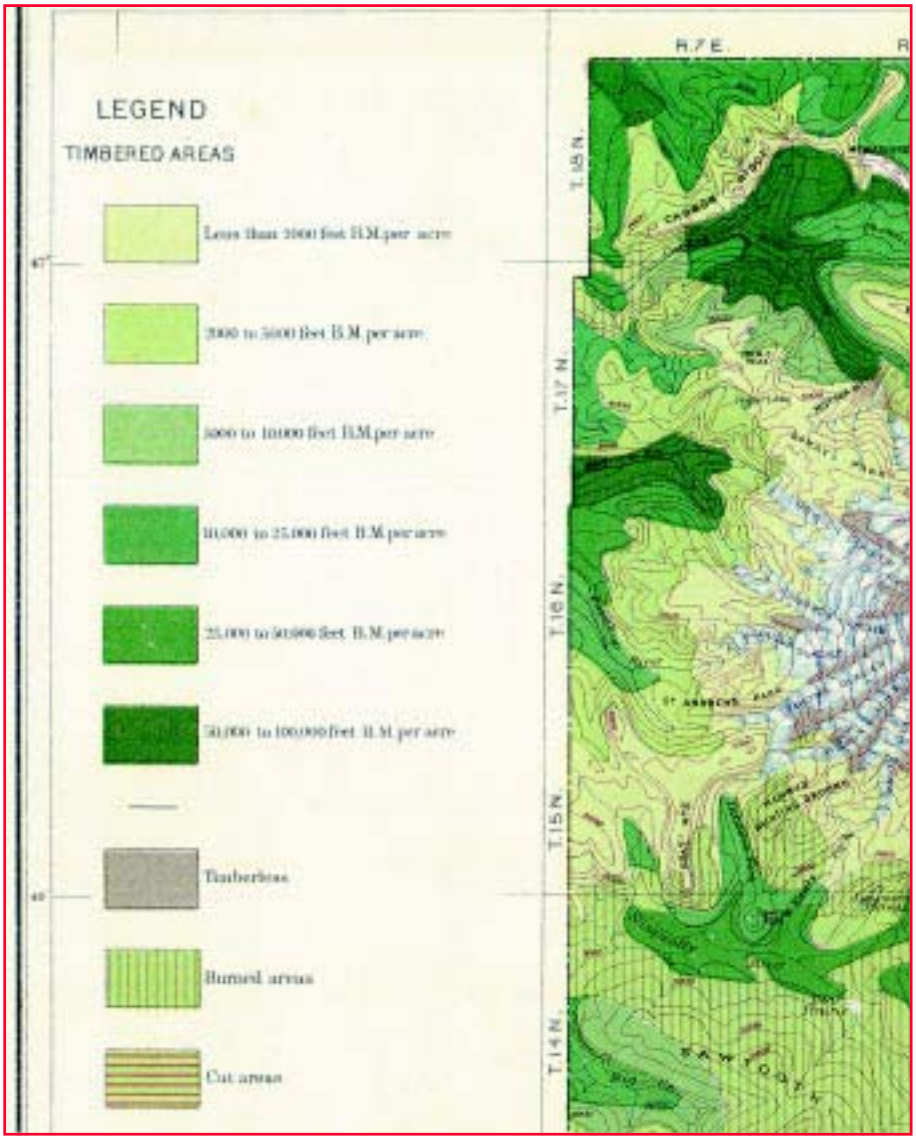

Figure 2—*Part of Fred Plummer's 1899 map classifying the Mt. Rainier Forest Reserve by relative timber volume and burned areas.*

assumption that 20 acres (8 ha) had no trees. That amounts to 15,000 board feet burned per acre (33 m^3/ha), a very light volume, indicating that the trees were immature. Average timber volume in mature forests in this area ranges from 35,000 to 50,000 board feet per acre (77 m^3/ha–110 m^3/ha).

The 600-acre (240-ha) fire in 1904, which burned north of Mt. Adams, reportedly destroyed 350,000 board feet (1,910 m^3) of "green timber." As stated in the report, "the amount of timber burned is comparatively light"—less than 600 board feet per acre (1.3 m^3/ha). The entire area is shown as a burn on the 1899 map; it is known ethnohistorically to have been used for huckleberry collection. Allen (1904b) also reported that the ranger who was trying to estimate the extent of the fire had to turn back, because deep snows in October prevented access.

The largest fire, which burned 5,760 acres (2,310 ha) in 1904 in the Indian Heaven area, reportedly damaged no "real timber" but did burn 100,000 board feet (540 m^3) of "green timber," or less than 20 board feet per acre (0.04 m^3/ha). The area burned was located entirely within what were considered berry fields at that time (fig. 3).

A 1909 silvicultural report describes the area (Wilcox 1909): "Fires set by Indians have been frequent on the western edge of this tract in years past. There is a large area west of Dead Horse Meadows and north of Lemei Rock, that has been burned over repeatedly until there are no seed trees left. … No other burns are known, at present, in this type."

Fred Plummer, the geographer who prepared the 1899 map of the reserve, commented specifically on the same area in his accompanying report (Plummer 1900): "The recent burns near Steamboat Mountain and over scattered patches to the southward have occurred periodically during the past twenty years, the last and most extensive fire being in 1897." This suggests a well-established pattern of repeated burning. From the American Indian point of view, the large fire of 1904 most likely represented a successful reburn within the older, larger burn of 1897, removing mostly conifer seedlings.

Maintenance Fires

What we see here is a pattern of repeated fires set in areas where the tree cover is very light, either within or adjacent to existing larger burns. They were set at a time of year when either rain or snow could be counted on to extinguish them within a month's time. They could certainly be described as maintenance fires.

Their time was ending. By 1907, only 1 of the 22 fires reported by Allen (1907) was described as incendiary. By that time, the ranger presence on the forest was much

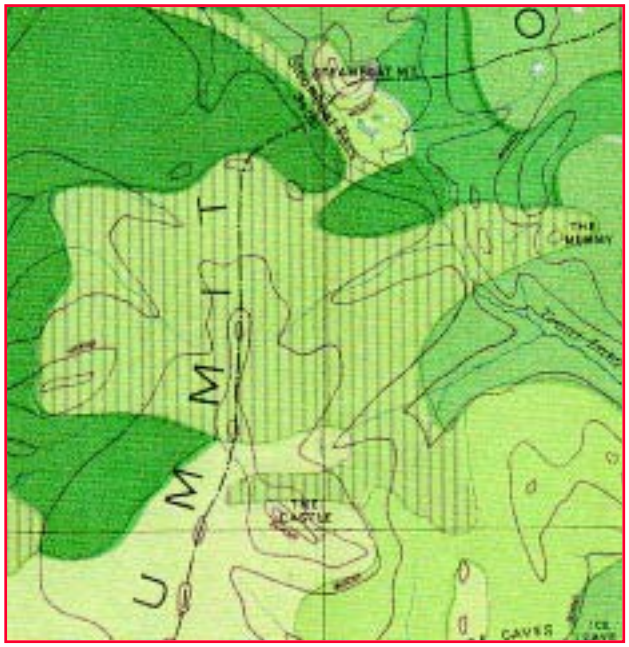

Figure 3—*Large burn (hatched area) shown on the 1899 map of Mt. Rainier Forest Reserve, "south and west of the Mummy and Steamboat Mountain," where a 5,760-acre (2,310-ha) fire occurred in 1904. In the early 1900s, this was one of the most productive huckleberry fields in the Pacific Northwest. Today's Sawtooth huckleberry fields are the last remnant.*

stronger. A few years later, H.O. Stabler (1911) could report, "During the last two summers and particularly … last summer, the Indians have been rather overawed by the number of Forest Officers and other Service employees that have appeared among them at any and all times."

Mary Kiona (1953) succinctly summarized the decline of traditional land-burning practices in her testimony before the Indian Claims Commission: "And until some time ago when the white man came, why, they couldn't make any more of them berry patches by starting fires on account of … forest fire hazard and stuff like that. So since then the huckleberry patches have disappeared almost completely from the Cowlitz land today."

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