



Archaeology and History In the Nisqually River Corridor

Mount Rainier National Park

July 2008

**Archaeology and History in the Nisqually Corridor
Sunshine Point, Kautz, & Longmire Historic District**

Results of the 2006-2007 Flood Damage Survey

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The Columbus Tree was a popular, barely avoidable, roadside attraction on the Nisqually corridor road to Longmire in the early 1900s. *Photo above and cover courtesy of S. Baker.*

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Introduction

In Mount Rainier National park, the Nisqually Corridor includes the Nisqually River floodplain and adjacent landforms from the river's origin at the Nisqually glacier near Paradise southwest to the point at which it exits the park near Ashford, Washington. For millennia, the corridor and its flanking ridges and valleys provided access to the mountain's interior forests and seasonally productive upland parks. In early historic times, the character of travel within the corridor changed from exclusively Native American trails, to settler-built horse trails and wagon roads designed to accommodate an increasing fraction of visitors to destinations at Longmire Springs and Paradise. Since the park's founding in 1899, Nisqually Corridor roads have been steadily improved to accommodate increasing visitation and, of course, motor transport. A century later, over 650,000 visitors passed through the Nisqually entrance on their way to Longmire, Paradise, and beyond. Today, the Nisqually Corridor road remains the most heavily traveled route in Mount Rainier National Park.

Various sections of the modern Nisqually road to Paradise, as well as some of its associated park service infrastructure, suffered unprecedented damage during heavy rainstorms on November 6 and 7, 2006. As the flood peaked, sections of road were lost 9.1 and 5.2 miles upstream from the Nisqually entrance. The Nisqually River broke through rip-rap revetments and natural bank vegetation at Longmire; endangering the emergency operation center west of the river, and damaging the access road and old campground on the river's eastern terrace. Downstream, Kautz Creek altered course and overflowed, eroding the road and damaging the Kautz service area near the creek's confluence with the Nisqually. At Sunshine Point, the road and over five acres of camp and picnic ground was lost to the river. Despite immediate initiation of emergency repairs at all of the damage sites in the corridor, the park did not reopen for full visitor services between the Nisqually entrance and Paradise until June 2007.

The archaeological survey reported here focuses on three areas where damage was most severe, and where reoccurring flood damage remains most likely –Sunshine Point, lower Kautz Creek, and Longmire Historic District. Specifically, the study areas include the following: 1) *Sunshine Point*: terrain lying between Nisqually Road and the Nisqually River from the Nisqually entrance to Tahoma Creek; 2) *Lower Kautz Creek*: the greater Kautz Creek floodplain and service area between Nisqually Road and the Nisqually River; and 3) *Longmire Historic District*: the greater Longmire developed area, including Longmire meadows. Map Figure 1 below shows the areas of potential effect established for each of the three Nisqually Corridor project areas. These represent the boundaries of the present study.

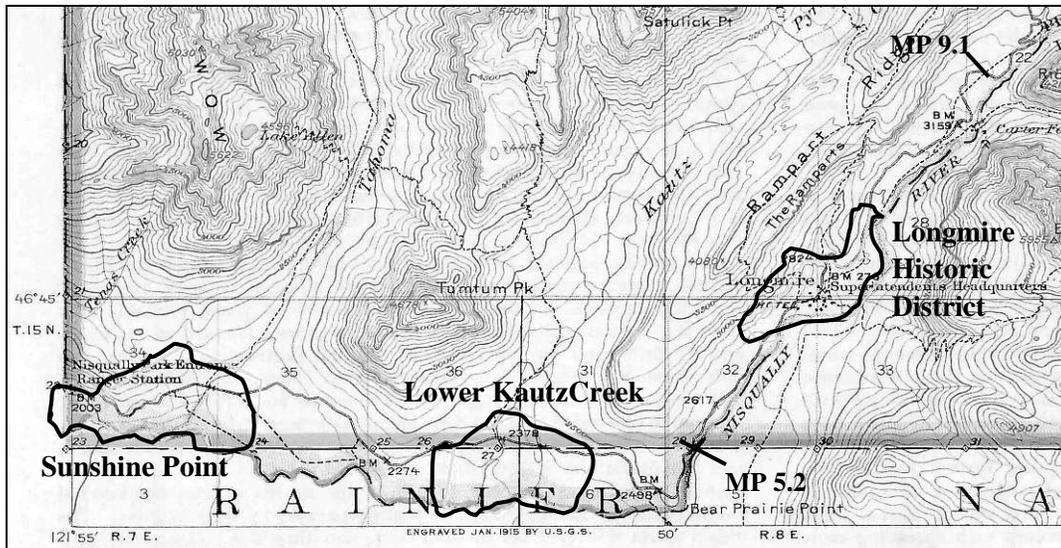


Figure 1. Nisqually Corridor Survey Areas. (USGS Relief Map, Marshall et al. 1915)

The three Nisqually corridor study areas contain archaeologically preserved historic and prehistoric remains related to the development of Mount Rainier, and of potential significance to the National Register of Historic Places. None of these areas, however, had been systematically surveyed for archaeological remains (as opposed to standing buildings and structural features) prior to the present project. Our intent is to provide inventory-level documentation to improve our understanding of historic processes in the Nisqually corridor, and to gather information suitable for inclusion in the park’s Nisqually Corridor Environmental Assessment (EA).

Archaeological fieldwork for the three Nisqually corridor study areas was completed between mid-September and mid-November, 2007. Final historical research and site documentation work was completed between January and April, 2008. Efforts relied on a combination of historical research and pedestrian site survey fieldwork. Work began with background research of the park’s archaeological database and park archives (assisted by park curator Brooke Childrey); and with interviews and field inspections with knowledgeable individuals whose vital help is gratefully acknowledged at the conclusion of this report. Our intent was to gather basic historical information regarding use of the corridor; and to identify archaeological remains, related to these uses in each of the three study areas. Gleason and Cheung conducted the pedestrian survey assisted periodically by former park ranger Rick Kirschner. Kirschner, who has been conducting historical archaeological research for the park, helped to relocate previously reported sites.

Archaeological survey involved surface inspection of the entire ground surface of each of the three study areas with surveyors spaced at approximately 20 meter intervals. This work resulted in the identification of a variety of new historic-period archaeological sites, and a number of new features associated with sites that had been documented previously—especially in the Longmire Historic District where remains of the original Longmire hotel and mineral baths had been noted, but only partially recorded. Please note, that with the exception of a culturally peeled cedar tree, all archaeological properties found during the present study relate to early historical activities in the corridor. They highlight changing uses of the landscape and infrastructure

developments associated with Mount Rainier National Park (MORA). These sites and site features were added to the park's archaeological database during the final work phase in 2008. During that time, we also expanded background research in order to place observed features into more accurate historical context.

The report that follows represents the culmination of combined historical and archaeological work. It presents information for each of the three study areas individually, and somewhat differently, due to variable flood impacts and association with somewhat different historical events affecting each. For each study area, however, we begin with environment, flood history, and historical backgrounds followed by a synopsis of archaeological remains related to that area's history. Historical backgrounds progress from early Native American and/or pre-National Park Service (NPS) history, to more recent 20th century events typically related to development of MORA infrastructure. We hope that the emphasis on history, though general in nature, helps to provide an appreciation for long-term events that have affected the park and the Nisqually Corridor, and provide a frame of references for interpreting the archaeological record of those events.

Study Area 1: Sunshine Point

The first study area extends from the Nisqually entrance east, through Sunshine Point, to point at which Tahoma Creek crosses Nisqually Road. Most of the survey area lies on the Nisqually River floodplain; and is vegetated by a mature closed-canopy forest of western red cedar, Douglas fir and western hemlock. Low ground vegetation ranges from light to moderately dense; varying primarily with the extent and intensity of sunlight penetration. The densest brush occurs in low-lying wet areas adjacent to a small east-west trending creek that parallels the Nisqually River and the highway. Under-story vegetation in places such as this includes vine maple, devil's club, vanilla leaf, Oregon grape, and clover. Skunk cabbage is present in the wettest areas. Either forest duff or 2006 flood deposits cover the ground surface throughout most of the survey area. The floodplain here is generally quite level. North of Nisqually Road, at the base of Mount Wow¹, the slopes average about 20 degrees.

The 2006 floods caused extensive erosion in the Sunshine Point project area. Combined over-bank flooding from Tahoma Creek and the Nisqually River destroyed completely the southwest portion of Sunshine Point campground, and deposited up to one foot of silt and sand across low parts of the floodplain between the campground and Tahoma Creek. A 20 to 30 meter wide area adjacent to Tahoma Creek was also affected by flood damage. Figures 2 and 3 show the landscape as it appeared in summer 2006, before the flood, and the new landform as it appeared after the flood in 2007. Campground loop roads are shown adjacent to the Nisqually River just left of photo center. Flood waters broke through the protective boulder levee at approximately the middle of the campground; removing levee, campground and highway up to andesite bedrock immediately north of the road.

¹ Mount Wow almost certainly takes its name from an anglicized spelling of the Sahaptin term *Wáu* for mountain goat. Historically, Mount Wow (or *Wáu*) often was referred to as Goat Mountain (A. Smith 2006:137).



Figure 2. Pre-Flood Sunshine Point in 2006

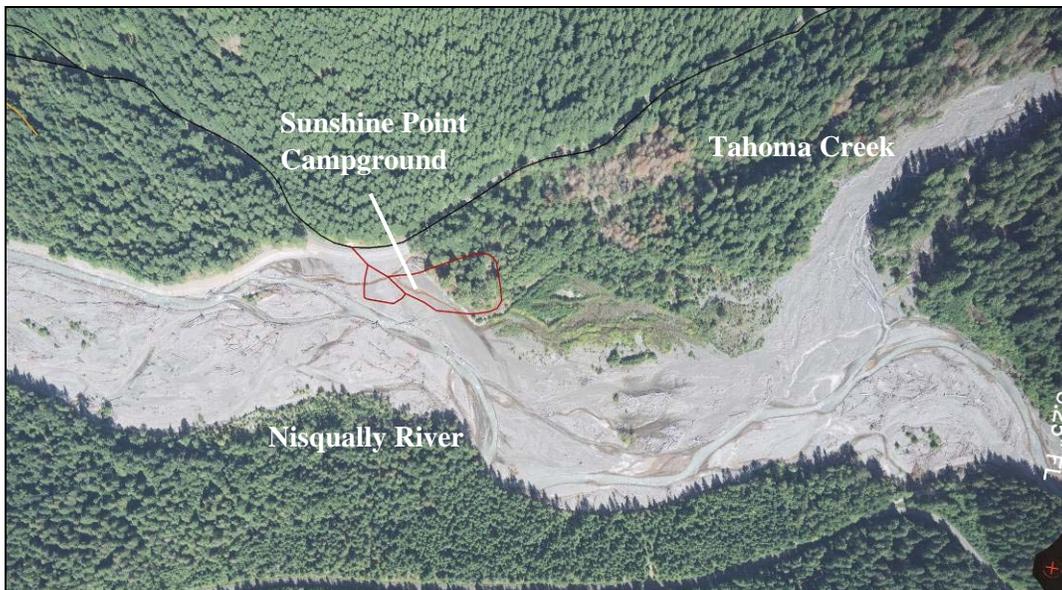


Figure 3. Post-flood Sunshine Point in 2007

The 2006 flood was not the first to affect Sunshine Point Campground. Citing park superintendent annual reports, Samora (1991) notes that floods in December 1997 “washed all but five or six sites on the first loop of Sunshine Point down the Nisqually River.” High water in the autumn of 2003, breached the bolder levee and washed through the campground, but failed to remove large sections entirely as was the case in 2006. Sediments exposed by the erosion face below the campground are dominated by poorly sorted, rounded cobbles; suggesting that the Sunshine Point landform was a flood deposit in the first place –a landform that the river, at least in part, reclaimed in 2006

Interestingly, it appears that the *surviving* landform northwest of the river (photo left between the highway and the river in Figure 3) is not a flood deposit, and has been stable for a very long time. Volcanic tephra from a Mount Saint Helens eruption 3500 years ago were visible in the erosion profile exposed adjacent to the washed-out road. This deposit, which extends downslope toward the Nisqually entrance, suggests that the floodplain between Sunshine Point and the Nisqually entrance has been relatively stable for at least 3500 years. Given the relatively great age of this portion of the landform, it is reasonable to assume that this part of the study area retained the greatest potential to preserve intact precontact and early historic-period archaeological remains. Unlike this western section, the eastern end of the study area appears to have been exposed to repeated erosion and deposition events into the relatively recent past.

Early History; Sunshine Point and the Nisqually Corridor

Native Americans and the Nisqually Corridor

Ethnographic and Historical Record:

Allan Smith's (2006) ethnography of Mount Rainier links the southwestern portion of the park to traditional use by the Nisqually Indian Tribe after whom the river takes its name. While not situated within park boundaries, at least two functioning Nisqually, or Mashel-Nisqually, villages still existed well inland on the Nisqually River drainage in the mid-1800s. Marion Smith identifies both of these in her 1940 Puyallup-Nisqually ethnography (M. Smith 1940), and Allan Smith discusses them in more detail in his ethnography of Mount Rainier National Park (A. Smith 2006). The lowest of these villages was *sákwiabc* near the confluence of Clear Creek and the Nisqually downstream from present-day La Grand dam. According to Smith, this was "Perhaps the largest" Nisqually village at the time of the treaty [of Medicine Creek in 1856] (M. Smith 1940:13, and A. Smith 2006:84). It is likely that, like other large villages in the region, *sákwiabc* relied on salmon as a primary subsistence staple. The location of this village, as well as *Bacálabc* described below, downstream of the La Grand falls barrier to salmon migration, reflects the importance of anadromous fish in sustaining village-sized settlements in the Pacific Northwest.

Allan Smith, citing his informant Billy Frank, notes a second village named *Bišál* upstream from *sákwiabc* at the confluence of the Mashel and Nisqually Rivers. This village, situated on a hill several miles southwest of Eatonville (A. Smith 2006:69), was the home of Satulick, or "Indian Henry," an acquaintance of James Longmire and the person for whom Indian Henry's Hunting Ground in the park is named. *Bišál* is probably the same village as that called *Bacálabc* by Marion Smith (1940:7-14, and in A. Smith 2006:80-85)². This village also was the home village of Leschi, famous for his leadership role in the short-lived Nisqually revolt over the Treaty of Medicine Creek; and probably the home of Wapowety, a Meshal-Nisqually who guided Lt. A.V. Kautz on his near-summit ascent of Mount Rainier in 1857 (A. Smith 2006:72).

A series of regularly traveled routes linked these upstream villages with other riverine and Puget Sound settlements to the west; and with Mount Rainier, the Cascade crest, and points beyond to the west. These routes were deteriorating, but still in use, during the mid to late 1800s. Wapowety, for example, reportedly followed an "Indian trail" up the Nisqually drainage through

² Because of the similarity between the words *Bišál* and *Mashel*, it is possible that Mr. Frank was referring to the place (Mashel Prairie) rather than the village name itself.

the town of National (just east of Ashford) and up to either what is now Kautz Creek or the Nisqually glacier when he guided Lt. Kautz on his 1857 climb (A. Smith 2006:72).

Hazard Stevens also used these routes in 1870. Guided first by James Longmire, and later by Sluiskin --a Sahaptin-speaking Taidnapam or Yakama Indian-- Stevens worked his way from Yelm to Tahoma (Mount Rainier) along a variety of difficult-to-follow Native American paths through the Nisqually corridor. In his journal (Meany 1916:94-134), Stevens provides interesting insight to the Nisqually River route, and a brief account of the massacre perpetrated on Indian people camped at or near Bacálabc-Bišál village in 1856. Accompanied by P.B. Van Trump, E.T. Coleman, and James Longmire, Stevens (in Meany 1916:100-106) writes the following about their journey up the Nisqually from Yelm Prairie to the park's southwestern corner:

We stepped off briskly [from Lacamas Prairie on the western edge of the larger Yelm Prairie] following a dim trail in an easterly course, and crossing the little prairie entered the timber. After winding over hilly ground for about three miles, we descended into the Nisqually bottom and forded a fine brook at the foot of the hill. For the next ten miles our route lay across the bottom, and along the bank of the river, passing around logs, following old, dry beds of the river and its lateral sloughs, ankle-deep in loose sand, and forcing our way through dense jungles of vine-maple. The trail was scarcely visible and its difficulties were aggravated by the bewildering tracks of Indians who had lately wandered about the bottom in search of berries or rushes. ...The weather was hot and sultry, and rendered more oppressive by the dense foliage.... At length we reached the ford of the Nisqually. Directly opposite, a perpendicular bluff of sand and gravel in alternate strata rose to the height of two hundred and fifty feet, its base washed by the river and its top crowned with firs. The stream [Nisqually] was a hundred yards wide, waist-deep, and very rapid. Its waters were icy cold, and of a milk-white hue. This color is the characteristic of glacial rivers. ...Following the bottom along the river for some distance, we climbed up the end of the bluff already mentioned, by a steep zigzag trail, and skirted along its brink for a mile. Far below us on the right rushed the Nisqually. On the left the bluff fell off in a steep hillside thickly clothed with woods and underbrush, and at its foot plowed the Owhap [Ohop Creek], a large stream emptying into the Nisqually just below our ford. Another mile through the woods brought us out upon the Mishel Prairie [southwest of Eatonville], a beautiful, oval meadow of a hundred acres embowered in the tall, dense fir forest, with a grove of lofty, branching oaks at its farther extremity, and covered with green grass and bright flowers. It takes its name from the Mishell [Mashel] River, which empties into the Nisqually a mile above the Prairie.

We had marched sixteen miles. ...Mr. Coleman announced the altitude of Mishell Prairie as eight hundred feet by barometer. By an unlucky fall the thermometer was broken.

The march was resumed early next morning. As we passed by the lofty oaks at the end of the little prairie, "On that tree," said Longmire... "Maxon's company hanged two Indians in the war of '56. Ski-hi and his band, after many depredations upon the settlements, were encamped on the Mishell, a mile distant, in fancied security, when Maxon and his men surprised them and cut off every soul except the two prisoners whom they hanged here."

For eight miles the trail led through thick woods, and then, after crossing a wide "burn," past a number of deserted Indian wigwams, where another trail from the Nisqually plains joined ours, it descended a gradual slope, traversed a swampy thicket and another mile of heavy timber, and debouched on the Mishell River. This is a fine, rapid, sparkling stream, knee-deep and forty feet wide, ...We unsaddled for the noon rest. Van Trump went up the stream, fishing; Longmire crossed to look out the trail ahead, and Coleman made tea solitaire.

...the little train was soon in readiness to resume the tramp. Longmire rode his mule across the stream, telling us to drive the pack-animals after him....

...The course was in a southerly direction, over high rolling ground of good clay soil, heavily timbered, with marshy swales... to the Nisqually River again, a distance of twelve miles. We encamped on a narrow flat between the high hill just descended and the wide and noisy river, near an old ruined log-hut, the former residence of a once famed Indian medicine man, who, after the laudable custom of his race, had expiated with his life, his failure to cure a patient.

Early next morning we continued our laborious march along the right [south] bank of the Nisqually. Towards noon we left the river, and after thridding in and easterly course a perfect labyrinth of fallen timber for six miles, ...at length crossed Silver Creek ...

A short distance after crossing Silver Creek the trail emerged upon more open ground, and for the first time the Nisqually Valley lay spread out in view before us. On the left stretched a wall of steep, rocky mountains, standing parallel to the course of the river and extending far eastward, growing higher and steeper and more rugged as it receded from view [probably Mount Wow and Tum Tum Peak]. At the very extremity of this range Takhoma [Rainier] loomed aloft, its dome high above all others and its flanks extending far down into the valley....

After our noon rest we continued our journey up the valley, twisting in and out among the numerous trunks of trees that encumbered the ground, and after several hours of tedious trudging struck our third camp on Copper Creek, the twin brother to Silver Creek, just at dusk...

Starting at daylight next morning, we walked two miles over rough ground much broken by ravines, and then descended into the bed of the Nisqually at the mouth of Goat Creek [about one mile west of the park boundary]... We continued our course along the river bed, stumbling over rocky bars and forcing our way through dense thickets of willow, for some distance, then ascended the steep bank, went around a high hill [probably the lower southwestern toe of Mount Wow] over four miles of execrable trail, and descended to the river again, only two miles above Goat Creek. At this point, the Takhoma branch or North Fork joins the Nisqually [this is the Tahoma Creek-Nisqually confluence near Sunshine Point campground shown on Figures 2 and 3]. ...Crossing the Takhoma branch, here thirty yards wide, we kept up the main river, crossing and recrossing the stream frequently, and toiling over rocky bars for four miles. ...We then left the Nisqually turning to the right in a southerly course ...to a small marshy prairie in a wide canyon or defile closed in by rugged mountains on either side, and camped beside a little rivulet on the east side of the prairie. This was Bear Prairie [south of the Longmire "back gate" at the head of Skate Creek]....

Stevens and company camped at Bear Prairie, traveled via Skate Creek canyon to the site of a nearly deserted Indian village on the Cowlitz River near the present location of Packwood. Here they met Sluiskin who the next day followed them back Bear Prairie; then guided them onto the flank of Mount Rainier [Takhoma] proper via Indian trails across the Tatoosh Range to Reflection Lakes, and up Mazama Ridge (A. Smith 2006:64-68).

Stevens' account of this adventure draws attention to diminished, but continuing, Native American use of the upper Nisqually drainage by means of deteriorating, but still viable, travel routes. Aside from the difficulty of the journey, the presence of now largely empty villages, and the tragedy of the Mashel massacre; the salient point is that, in the mid 1800s, Native American travel routes to Mount Rainier via the Nisqually corridor were well known and in use. Given the substantial prehistoric archaeological record on Mount Rainier, it is reasonable to assume that these, and other, access routes to the mountain had been in use for thousands of years prior to the onset of historic-period events and observations noted here. Stevens' observations regarding continuing Indian use were undoubtedly a pale reflection of a more robust presence only a hundred

years earlier --before Native American populations were decimated by old-world diseases, military conflict, and forced relocation onto small, economically untenable reservations.

Native American Archaeological Record in the Nisqually Corridor:

Despite an archaeological record implying substantial antiquity for Native American use of the mountain, and references for continuing Indian use of the Nisqually corridor and the park as recently as 1926 (Schmoe 1926), it is very difficult to identify precontact Indian cultural remains on the heavily vegetated, geologically active Nisqually floodplain. Such difficulties notwithstanding, two Native American archaeological properties have been reported (and one recorded) within the Sunshine Point project area. The first of these was reported by Floyd Schmoe (1926) as “a stone pestle used for grinding dried berries, seeds, or roots, which was found years ago near the Park Entrance.” Former park archaeologist Gregg Sullivan also refers to this item in a survey report for Nisqually entrance area (Sullivan 1997). Sullivan, however, only refers to the Schmoe report, and does not state whether or not this item had been collected. It seems likely that it was picked up, though it is not clear that it was saved.

It is possible that Schmoe’s pestle is one of three presently stored in the Mount Rainier curation facility, without provenience, under accession numbers MORA 8319, 8320, and 16961. The issue is not trivial. Presence of heavy stone tools of this sort suggests moderate to long-term, mixed age and gender residential sites. To date, tools comparable to the pestle have been found in only one other place in the park –a large residential site at 5000 feet on the southeastern flank of Sunrise Ridge (Site FS1990-01). Unfortunately, neither this, nor other comparable items were seen during the present survey; indicating that the ground stone artifact has been reported in error, has been collected, or simply could not be found again due to poor ground visibility. Figure 4 shows the three pestles presently housed in the MORA curation facility. It is possible that one of these is Schmoe’s artifact, though his description is too general to distinguish among them.

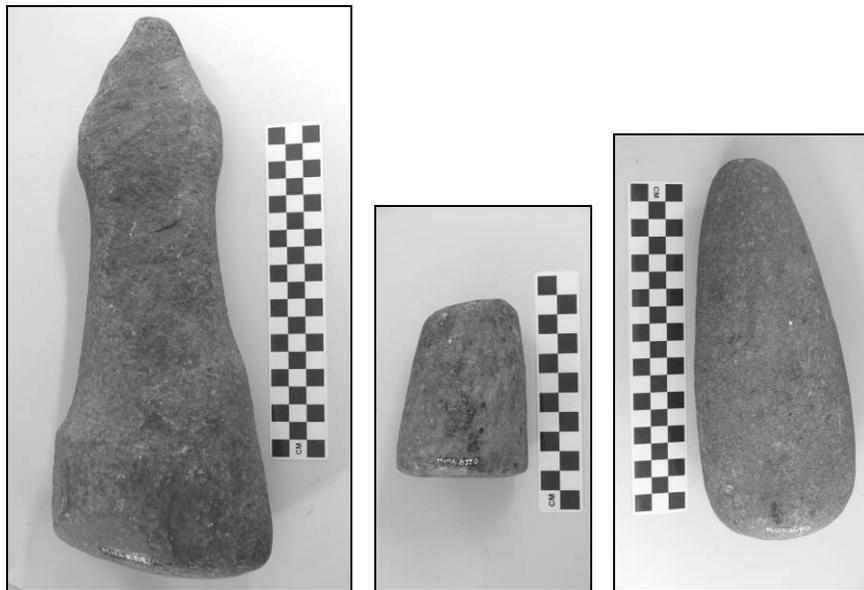


Figure 4. Ground Stone Pestles. Left to right MORA 8319, 8320, and 16961 (scale centimeters)

The intact floodplain landform between Sunshine Point and the entrance station also contains a culturally modified, bark peeled tree probably dating to the late 1800s or early 1900s. The site is a partially bark-peeled western red cedar recorded as site FS2005-18 and shown on Figure 5. The scar and associated axe cuts commonly are associated with Native American extraction of cedar bark for making baskets and water repellent clothing. Done properly, the process does not kill the host tree, as can be seen here. Note that although this tree dates to the historic period, the practice of peeling cedar also was employed during pre-contact times, and continues to be practiced today.

In addition to the above, there is no doubt that prehistoric and early historic Native American trails passed through the project area as indicated by A. Smith (2006) and Stevens (1916). As implied by the Stevens account, however, physical remains of precontact travel routes fade quickly, especially in heavily vegetated active floodplains such as that of the project area. We should recognize that, even in the absence of a formal archaeological site designation, the Nisqually corridor served as a general access route for Indian people using Mount Rainier and/or traveling eastward via Skate Creek to Cowlitz River, the Cascade crest, and beyond.



Figure 5. Site FS2005-18, Late 1800s to Early 1900s Bark-peeled Cedar

James Longmire and the Longmire Road



James Longmire was among the first to recognize the potential of Mount Rainier as a tourist destination. In the early 1850s, he and his family began homesteading a claim on Yelm Prairie with a commanding view of the mountain. In 1870, he guided the Stevens and Van Trump party to the base of Mount Rainier to begin their successful ascent. In 1883, the year he himself ascended the mountain, James Longmire discovered the mineral springs and meadow that now bear his name. Recognizing the commercial value of mineral baths, he filed an 18-acre mining

claim (he was unable to file a second homesteading claim). By 1885, he had cleared a trail to the springs, built a small cabin to house visitors, and began advertising “Longmire Medical Springs,” the waters of which were claimed to be “an antidote for disease, prepared in Nature’s own laboratory...” (Carson 2007).

By 1889, the resort development at Longmire meadow had expanded to a few guest cabins and two bathhouses. In the 1890s James Longmire opened a small hotel and began adding barns and outbuildings. In addition to the mineral springs, he was supplying parties of campers and climbers to Mount Rainier (Catton 1996:82-83). The character of these developments and their effects at Longmire meadows are discussed further in the section of this report that deals with the Longmire survey area. Of more direct relevance to Sunshine Point are Longmire’s efforts to develop a pack-trail and road to his higher elevation attractions.

In 1891, James Longmire appealed to a joint meeting of the Washington Alpine Club and the Tacoma Academy of Science to provide funding for construction of a road from Kernahan’s Ranch (Ashford) to Paradise Park. Funding, however, was denied; and Longmire was obliged to build the road in 1893 with his own money, and with help from a crew of Indian laborers. Figure 6 shows a section of the original Longmire road in, or near the Sunshine Point project area.



Figure 6. Longmire Wagon Road

For many years, the Longmire road was the only access route into the park capable of accommodating wagons and stages (Catton 1996: 41, 72-73). When construction of a government road began in 1903-1906, Captain Hiram Chittenden, Corps of Engineers project manager, reported that “The existing road built by private parties is, I think, without exception the worst I have ever traveled over” (Catton 1996: 121). The reconstruction of this section of road became a high priority for the park, preceding work on the route from Longmire meadows to Paradise Park. The Nisqually entrance to Longmire Springs section of the park road was completed in 1907.

Much of the new park road lay directly atop the preexisting Longmire route. Not all of the original road was destroyed, however. About 500 meters of the Longmire Wagon Road survives immediately upslope of the modern road above the remnant section of Sunshine Point campground shown in Figure 7. This section of wagon road (recorded as site FS2008-02) probably was constructed here to avoid washouts along the river and to gain the shortest possible route to Longmire Springs. The route was abandoned in favor of the lower elevation route, perhaps to afford a better view of the river, gentler grade, and access to Sunshine Point. As we now know, however, the lower route also entails greater risk of catastrophic flood damage.



Figure 7. Original Longmire Wagon Road Route near Sunshine Point

Mount Rainier Forest Reserve

Six years before it was designated a National Park, Mount Rainier and its surrounding forest margin was set aside as the Pacific Forest Preserve. The Preserve was established on February 20, 1893 as a 35-square mile area that included the summit of Mount Rainier. In 1897, the boundaries were expanded to the south and west, and it was renamed as Mount Rainier Forest Reserve. The area was set aside by the efforts of the larger timber companies, working with conservation groups and the government, to manage the forest for future timber harvests. The forest reserves were later integrated into the National Forest system managed by the United States Department of Agriculture. In 1899, the varied interests of scientists, mountaineers, tourists, and conservationists succeeded in pushing for legislation to turn the Reserve into Mount Rainier National Park, the fifth national park in the system. Park boundaries were expanded slightly in 1926 and 1931; in part to include sections of the main park access road in Nisqually corridor within park boundaries (Catton 1996:29). Initially, logging was not completely banned within the park; an issue that became controversial in the early 1900s when a timber sale was approved in the southwest portion of the Park. This, and other issues related to early Park Service history in the Sunshine Point survey area, is described in greater detail below.

National Park Service History: Nisqually Entrance to Sunshine Point

With the establishment of Mount Rainier National Park in 1899 came the need to provide better access and improved services to the park visitors. Early National Park Service developments within the park were concentrated in the area that soon became known as Nisqually entrance. The entrance was situated in the southwest corner of the park near the point at which the Longmire

wagon road entered the park. Completion of the government road to Longmire in 1907 ushered in an increase in visitors, and with them the automobile; leading Mount Rainier to become the first National Park to officially permit automobile travel. This distinction shaped the development of the Nisqually entrance; contributing to construction of park infrastructure such as the Oscar Brown ranger cabin in 1908, the Log Entrance Arch in 1911, a water supply system, a telephone system to communicate between ranger stations, road construction camps, and the superintendent's headquarters.

Oscar Brown cabin, built in 1908, is named for the ranger credited with building it. Prior to its construction, rangers lived in tents, until the superintendent granted them permission to build a cabin on the site. The Oscar Brown Cabin was the first ranger cabin to be built in the park. It served multiple functions as housing, park headquarters and entrance station from 1908 to 1917. Rangers stationed there were primarily responsible for orienting visitors to the new park, and of course, collecting automobile permit fees.

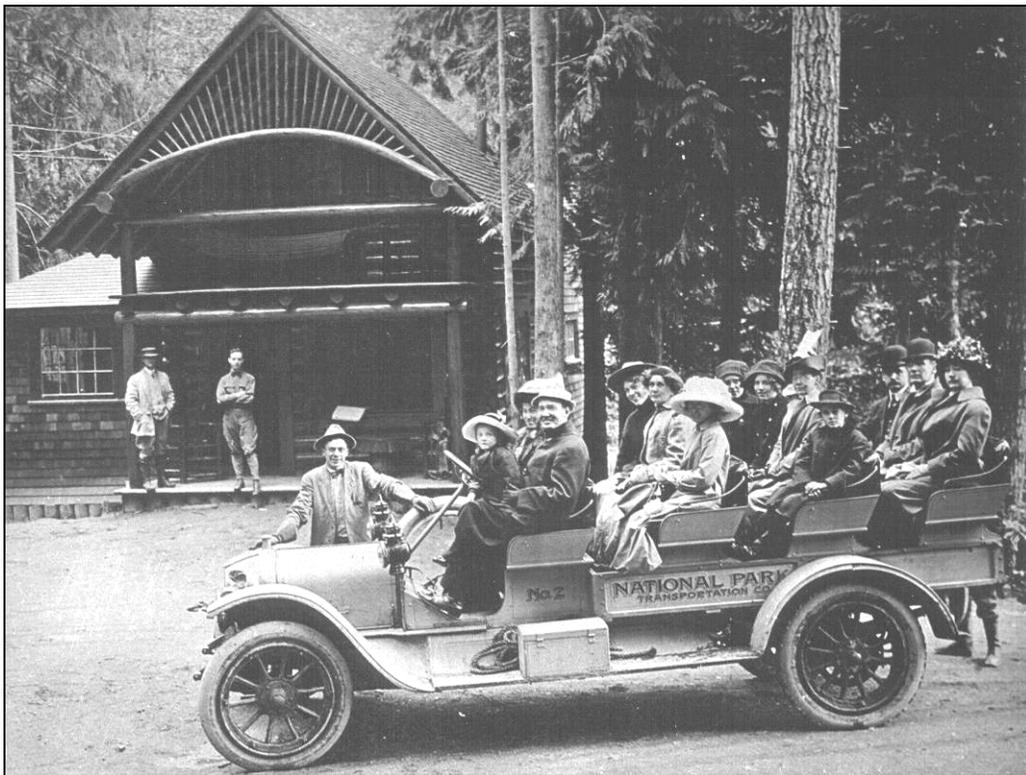


Figure 8. Touring car in front of the Oscar Brown Cabin, 1912 (twc 3348)

The log entrance arch at Nisqually entrance was constructed in 1911, spurred by Secretary of the Interior R.A. Ballinger who visited the park in 1910. Ballinger felt that the entrance lacked monumental character worthy of a National Park; which, he believed, required more than a ranger cabin and a painted signboard. To accommodate increasing traffic, the arch was widened in 1924-1926, and reconstructed in 1973 (the original sign was retained).

Other developments at the entrance include the construction of the superintendent's residence and another ranger residence in 1915; both located upslope north of the entrance arch.

Construction of the rustic style entrance station and comfort stations took place in the 1920s. An equipment building was added in 1934. Rock lined paths, trails, landscaping and a porte-cochere at the entrance station were added by the Civilian Conservation Corps. Detached kiosks and additional road improvements were added in the 1960s to 1980s (Dolan 1998).

As structures were added, the Park Service adhered to the rustic architectural style that it had adopted early on --a style that employed naturalistic design elements complementing the surrounding landscape. The early structures at Nisqually entrance remain, although their functions have changed. For example, after the new ranger residence was built in 1915, and the Park Headquarters was transferred to Longmire in 1917, Oscar Brown Cabin was reused as the entrance station. This changed again in 1926 with the construction of the purpose-built entrance station at its present location south of the highway. In later years, most of the entrance functions were shifted into kiosks immediately in front of the entrance station so that visitors could enter the park without the inconvenience of leaving their cars. These changes coincided with changes in road alignments and traffic circulation at the entrance. Today Oscar Brown cabin is somewhat isolated southwest of the entrance station and kiosks, with a footpath being the sole remaining access to the cabin.

The Civilian Conservation Corps (CCC) established as part of President Franklin D. Roosevelt's New Deal program, was active within the Park between 1933 and 1942. The CCC provided a seasonal workforce of young men that lived in camps within the park, and worked on a variety of construction and conservation projects; including trail maintenance and construction, construction of new buildings, planting trees, fighting white pine blister rust, building new campgrounds, erosion control, and roadside cleanup. The work crews lived in camps constructed and run by the Army; located at Tahoma Creek, Narada Falls, Carbon River, St. Andrews Creek, White River, Ohanapecosh, and Sunshine Point.

Results of CCC work are evident in each of the three survey areas. In the Sunshine Point area, CCC workers constructed buildings and trails, and landscaped the Nisqually entrance. The Sunshine Point CCC camp was later converted to public use until its unfortunate loss to the 2006 flood. The discovery of basket gabions at Sunshine Point (discussed in the archaeological section below) during the present survey suggests that, even in the 1930s, the park was concerned about the possibility of flood erosion from Tahoma Creek and the Nisqually River.

At Longmire, CCC crews restored Longmire meadow, rebuilt the Elcaine Longmire cabin, and restored the stonework around Soda Spring and Iron Mike Spring. The telephone and utility line construction and restoration work done by the CCC extends through all of the survey areas. Debris from various abandoned CCC camps was deposited in the lower Kautz Creek maintenance area after the 1947 lahar.

The Sunshine Point Archaeological Survey

For the most part, systematic pedestrian survey at Sunshine Point focused on what remained of the Nisqually River floodplain south of Nisqually Road and north of the river. Several historical features, however, were documented north of the highway on the lower slopes of Mount Wow. These include sections of the historic Longmire wagon road and remnants of the park's first

water system supplying the Nisqually entrance. These sites had been identified previously by park personnel, but had not been formally recorded or mapped.

In total, we recorded eight new historical sites and two isolates in the Sunshine Point study area. These include a section of the original Longmire wagon road north of the modern highway. The remaining sites are associated with National Park Service developments in the early to mid-1900s. In addition to these, we re-evaluated a recorded bark-peeled cedar which probably was associated with Native American use of the floodplain in the late 1800s.

Oscar Brown Cabin Area

Because of the mix of historical activities that took place in and around the Oscar Brown cabin, it is not surprising to find debris in its near vicinity. Site FS2008-01 is a scatter of historic trash located in the forest south of the cabin. Upright pocket tobacco cans, canning jar and bottle shards, sawed bone, shell and ceramics were partially buried in the duff that carpets the forest floor in this location. Also found in this area is an automobile windshield frame; probably from a Model A Ford closed car such as a sedan or coupe. The artifacts date from about 1920 to 1950 (a rough estimate based on the automobile windshield frame and the canning jar styles). We believe that the debris is associated with the use of the Oscar Brown cabin after the main park administrative headquarters moved to Longmire in 1917. However, because the park boundary is close by, it is possible that the debris is associated with visitors or with the use of adjacent private property. We did not find historical artifacts dating to the early 1900s when the cabin was built and occupied.

Longmire Wagon Road

Site FS2008-02 is a 500-meter long remnant section of the Longmire Wagon Road located north of and above the current grade of Nisqually Road as shown in Figure 7. The wagon road follows the 2180-foot elevation contour, some 80 feet above the Nisqually River. As stated above, this section of road was abandoned in favor of the lower elevation, gentler gradient Corps of Engineers route in 1907. The original wagon road is 12'6" wide, the grade varying from 6 to 15 degrees. Over most of its surviving length, the roadbed is still quite open and easily discernable as can be seen in Figure 7. Only a few small trees grow within the roadbed, though these will progressively obscure, and eventually disassociate, the roadbed as they age. Even so, it is surprising that the road remains as clear as it is given its abandonment for over a hundred years. We suspect that this is due to the fact that the road corridor continued to be used for water supply lines discussed below.

Nisqually Entrance Water Supply System

The park's water supply system was developed in conjunction with park infrastructure at Nisqually entrance and Sunshine Point, and was expanded as use increased. During the early 1900s development at Nisqually entrance, water for the Oscar Brown cabin/ranger station was supplied via small runoff streams on southern toe of Mount Wow north of the road. Here, as in many parts of the park, water was transported from small catchment dams by means of wire wrapped, tar sealed, cedar-stave pipes laid on, or just under, the ground surface. Figure 9 shows a section of wood-stave water, or sewer, pipe found during trenching for foundation improvements at the Oscar Brown Cabin. Buried next to the pipe is a brass automobile radiator. It appears to have been purposefully placed, but its function and age remain unknown.

The Nisqually entrance water system grew incrementally as additional buildings were completed and water needs grew. Remnant features related to the original Nisqually system, now identified as historical site FS2008-03, include two small dams and a water delivery pipeline located north of Nisqually Road on two adjacent small unnamed creeks flowing from Mt. Wow.

The dams are simple structures consisting of two or three logs stacked and held in place with vertical metal pipes and rock. A series of spikes driven into the top of the upper log may have held a batter board in place. Examination of the site reveals that, at some point, the first dam, with a wood-stave water delivery system was replaced, or expanded, with construction of a second dam in the adjacent drainage to the east. The dams were linked with a steel pipe that either replaced or supplemented the wood-stave system. We believe that the original system was too small to reliably supply growing water needs at the entrance, and was later supplemented by addition of the second dam some time between 1920 and 1950.

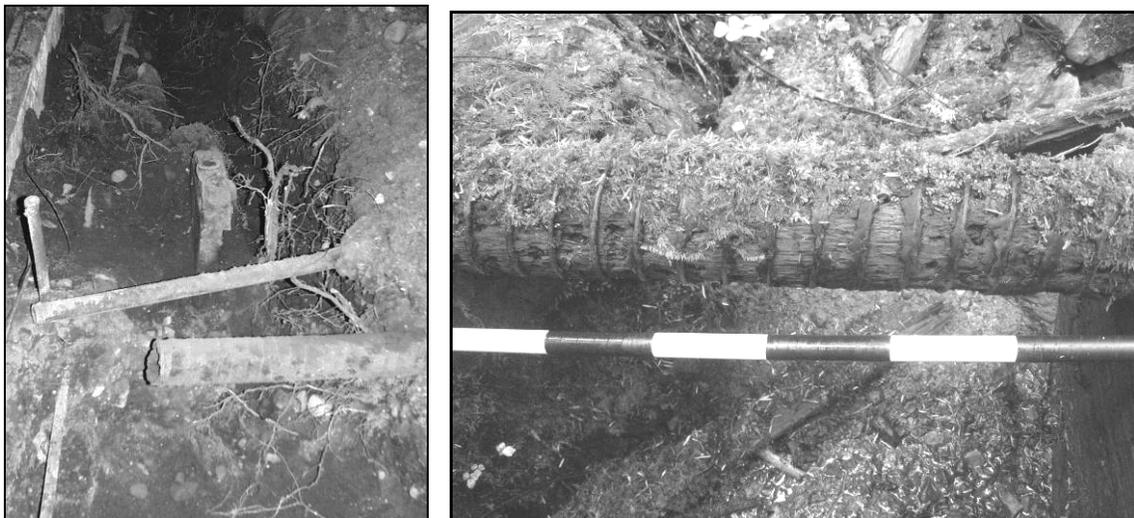


Figure 9. Wood-stave Pipe at Oscar Brown Cabin (lower left) and Crossing a Small Stream at Site FS2008-03 (Feature 2, right, scale in 10 cm increments)

The wood stave pipes shown above are constructed with individual sections of boards, butted together lengthwise and on edge to form 2 ¾ inch internal diameter conduits. The pipes were wrapped with wire, and coated with tar to prevent rust and deterioration. Because these pipes usually remained wet, the wood sections swelled to form tight seals. These types of pipes remained in use in the United States into the mid-twentieth century, in part because construction materials were economical, readily available, and easily transportable. Within the park, this type of pipe may have been the only feasible option for many years, and appear to have been fairly durable within the damp forested environment.

Nisqually Corridor Telephone and Power-lines

The first telephone line was constructed by the Tacoma and Eastern Railroad Company under a special use permit in 1911 (Catton 1996: 115-116). This line was used to communicate between Longmire Springs and the park entrance. In 1913, the Department of the Interior allotted

money to build a government line between the Nisqually entrance and Paradise Valley. The first government telephone line consisted of a single-wire grounded, battery-powered, crank-ring system, similar to the one used by the USDA Forest Service. The galvanized steel line used with the system was suspended from tree to tree with enough slack to resist breakage as trees swayed. While functional, the line proved to be difficult to maintain, and required frequent repair.

Additional telephone and power-lines were extended across the park in subsequent years. In the 1930s to 1940s, the CCC was responsible for maintaining the older lines, and for constructing new telephone and power-lines as needed. Much of this work was done to develop power and communication systems for the CCC camps themselves, as well as for the new public campgrounds, commercial development, and the growing park infrastructure. In the 1940s, the park began developing a radio communication system which supplemented and partially replaced the telephone lines (Catton,1996:345, 380). Single-wire telephone systems, however, continued to be used well into the mid-1900s. Figure 10 is a detail from telephone line reconstruction plans for the Longmire to Ohanapecosh line taken from a 1941 CCC project blueprint (Project No. 463). The line is typical of the single-wire grounded systems widely used throughout the park in the early days. Insulators, attachment wires, and staples still are attached to trees and lying on the ground in many park locations; including the Sunshine Point study area.

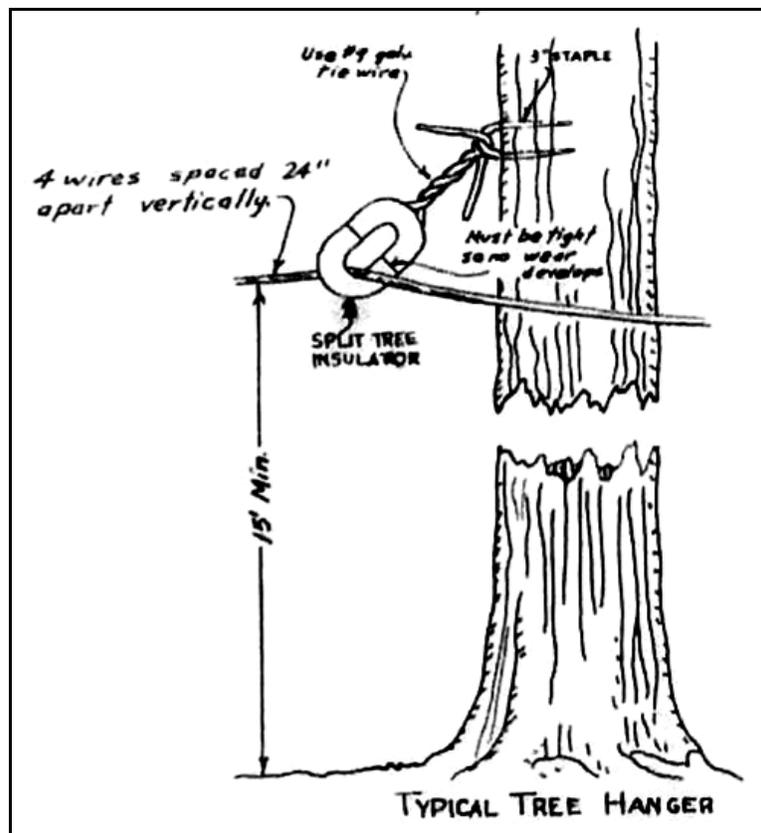


Figure 10. 1941 Diagram for Single-wire Telephone Line Construction



Figure 11. Site FS2008-05, Multiple Insulators in a Cedar Tree

In the Sunshine Point study area, remnants of telephone lines are present in various locations. Several trees with brown ceramic insulators, embedded and partially overgrown with bark, are present along the Longmire Wagon Road corridor (site FS2008-02). Telephone line features also are located on the floodplain nearer the river as indicated by the Figure 11 cedar “insulator tree” site FS2008-05. Here, two trees have been used as part of another multiple strand line. Brown ceramic insulators are attached to one of the trees, while only the nails remain in the second. Remnants of the telephone line system were also observed in lower Kautz Creek and Longmire study areas.

Electrical power illuminated burgeoning park developments from the early 1900s on. Small-scale hydroelectric generators at Longmire and Van Trump Creek were replaced with a larger generator in the late 1920s driven by a dam and large wood-stave water flume on the Paradise River. Power was directed upslope to the rapidly expanding Paradise development, and downslope to Longmire, and on to the Nisqually entrance.³ Though partially lost to the 2006 flood, remnants of a power-line with 1950s hardware and its access road can still be seen in the Sunshine Point study area --documented as site FS2008-04. Clearly, the power-line corridor extends well beyond present survey boundaries, and may date to the original 1920s project despite presence of more recent poles and hardware. Remnants of its access road and power poles also can be seen near previously reported historic campsite FS2005-01 between Tahoma Creek and Kautz Creek, in the lower Kautz Creek study area, and elsewhere along the entire route to Longmire and Paradise.

³ This information was provided by former park employ and park history chronicler, Jim Ellis.

Logging

The first substantial logging in the park was concentrated along the Nisqually to Longmire road corridor as part of the construction of the government road in 1907. The revenue from this timber sale was used to offset the cost of the ground clearing.



Figure 12. Logged Cedar Stump with a Springboard Notch at Site FS2008-07

A number of cedar stumps with springboard notches (Figure 12) are the most obvious remnants of the early, and controversial, timber sales that took place between 1908 and 1910 in the southwest corner of the park. The entire area of the Big Creek Shingle Company Timber Sale was recorded as site FS2008-07. The historic timber sale parcel (map Figure 13) also included an area along the south side of the Nisqually River and extended up Tahoma Creek about $\frac{1}{4}$ mile. There may be cut stumps in those areas as well, but at present, the site boundaries are limited by the scope of the 2007 survey.

In 1908, Beall Foster of Tacoma applied to the park to remove dead cedar from the southwest portion of the park about two miles inside the park entrance. Both the Acting Superintendent G. F. Allen and Assistant Secretary of the Interior Frank Pierce approved the sale, and it was authorized by Pierce. Foster initially offered to purchase 200 cords of shingle bolts at \$0.85 per cord. Competitive bidding, however, raised the price. Among the bidders was Edward S. Hall who owned the Rainier Mill in Ashford, and later became park superintendent (during the time the logging took place). Ultimately, Big Creek Shingle Company's offer of \$1.30 per cord carried the day. The contract with Big Creek Shingle Company was approved in 1909.

The scope of the cedar sale increased when a ranger assigned to scale and mark the timber estimated the sale would yield 5235 cords. In addition, Acting Superintendent Allen recommended that dead *standing* timber, as well as dead and down timber, should be included in the sale. Allen believed that this would reduce fire danger and that "the removal of these unsightly snags should add to the attractiveness of the park..."

Edward S. Hall, who succeeded Allen in 1910, more loosely defined a dead cedar as one that simply had a dry top. This would include, according to a critical report by the Mountaineers, “ninety-nine percent of the cedar in Mount Rainier National Park...” The Mountaineers and assistant engineer Eugene Ricksecker appealed to the Secretary of the Interior; describing the damages to the park, accusing Superintendent Hall of collusion, and alleging that the cut violated the terms of the contract. In the end, the department investigated the sale, the operation was terminated, and heavy fines were levied to the logging company (Catton 1996 165-169).

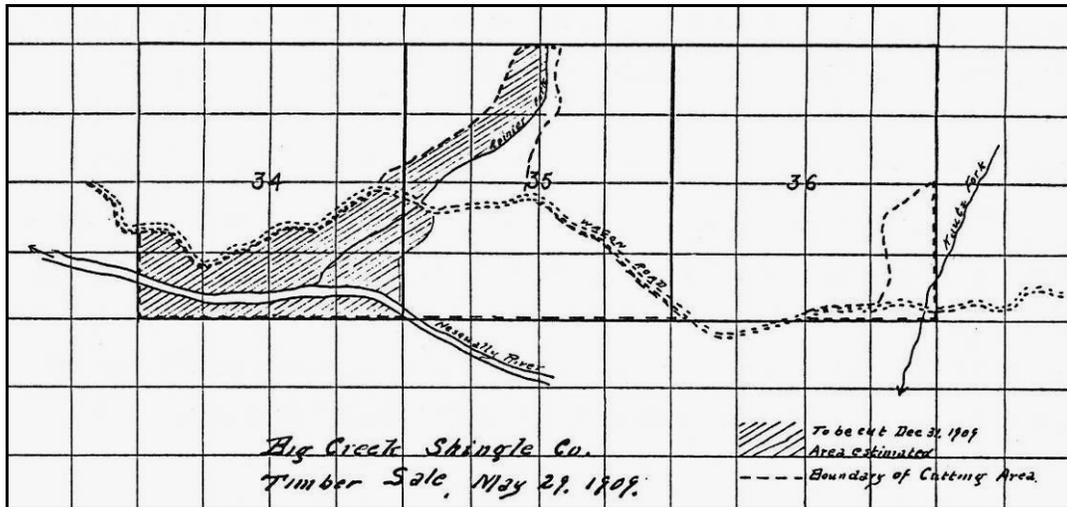


Figure 13. 1909 Timber Sale Map (from Catton 1996:169)

Additional logging was done in the corridor between 1956 and 1958. According to Catton (1996:522), C. A. Miller of Tacoma obtained a contract to remove “merchantable timber along a new section of power-line between the Nisqually entrance and Longmire.” Miller logged a total over 300,000 board feet of timber; combining his power-line corridor contract and a separate contract to clear hazardous trees along the Westside Road. During the present archaeological survey, numerous cedar stumps were seen within the vicinity of the power-line corridor (site FS2008-04). Because of their antiquity and proximity to the line, they were recorded as an archaeological component of that site.

Levees, Dikes and Stream Control Efforts

Site FS2008-06 is a short segment of rock levee located along the Nisqually River between the entrance and Sunshine Point. It is constructed of large shot rock boulders, and is quite possibly a remnant of the dike constructed along the Nisqually River following the 1947 Kautz Creek Lahar. Rock filled log cribbing and breakwaters were constructed on the Nisqually in 1933 (Superintendent’s Annual Report). However none were noted in the area of this remnant levee.

Camps

A historic campsite (FS2005-01) falls outside the survey area, but was revisited during this project in order to assess its condition after the 2006 floods, and to examine the artifacts to better determine the age of the site. The campsite is located on the right bank of the Nisqually River about 1.2 miles east of the mouth of Tahoma Creek. There are no structural remains present at the site, but the presence of at least three wood stoves, a bed frame and debris suggest it was occupied

for some length of time, perhaps seasonally. The presence of hole in cap milk cans, hole in cap food cans, and sanitary cans helps date the site to 1903-1914. The 1914 Park map shows that this area is outside the park boundary, and did not become part of the park until 1926, when the land in the southwest corner along the Nisqually River was transferred from the Forest Service. This was done to bring sections of the Nisqually Road within NPS jurisdiction (Catton 1996:239-240). Additional historic background research may yield more information on the occupants and purpose of this camp.

Finally, the ill-fated Sunshine Point campground –from which the survey area takes its name– was constructed in 1938. The campground was initially built as a CCC camp (RNP 8). It was intended to be an all year camp, unlike the other camps which were occupied from spring to fall (Catton, 341-342). Blueprints from 1938 and 1939 show a cluster of rectangular buildings including a laundry, four barracks, education building, recreation building, officers and NPS quarters, mess hall, dispensary, dry house, wash house, administration building, tool house and gas and oil storage building and one small unidentified building. These can be seen in Figure 14 below.

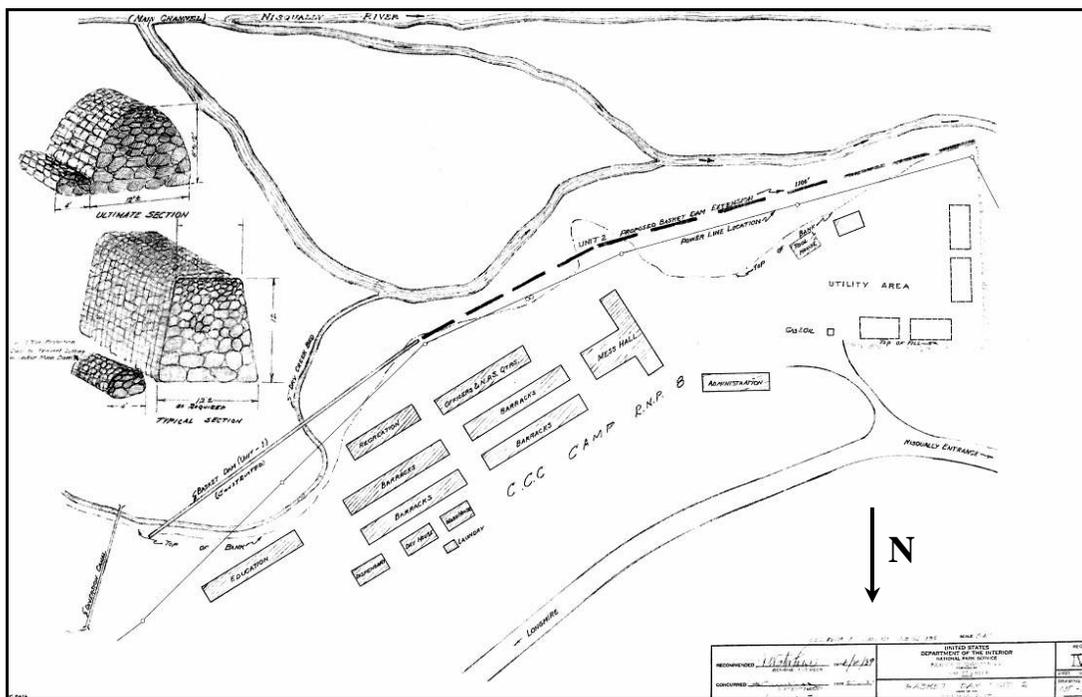


Figure 14. 1939 Blueprint of CCC Camp at Sunshine Point

The 1939 blueprint also depicts construction details and locations of basket dams. The basket dams (or gabions) were alignments of wire cages filled with rock placed upstream of the camp in the vicinity of the small stream channel. Remnants of these bank features are still present at the remnant eastern end of the campground. However, it was only during the post-field archival research that we realized the age and importance of these features. As a consequence the basket dam features have yet to be formally recorded as a historical archaeological site. Photo Figure 15 shows the Sunshine Point CCC camp in use. All of the CCC buildings, of course, have long since been removed.

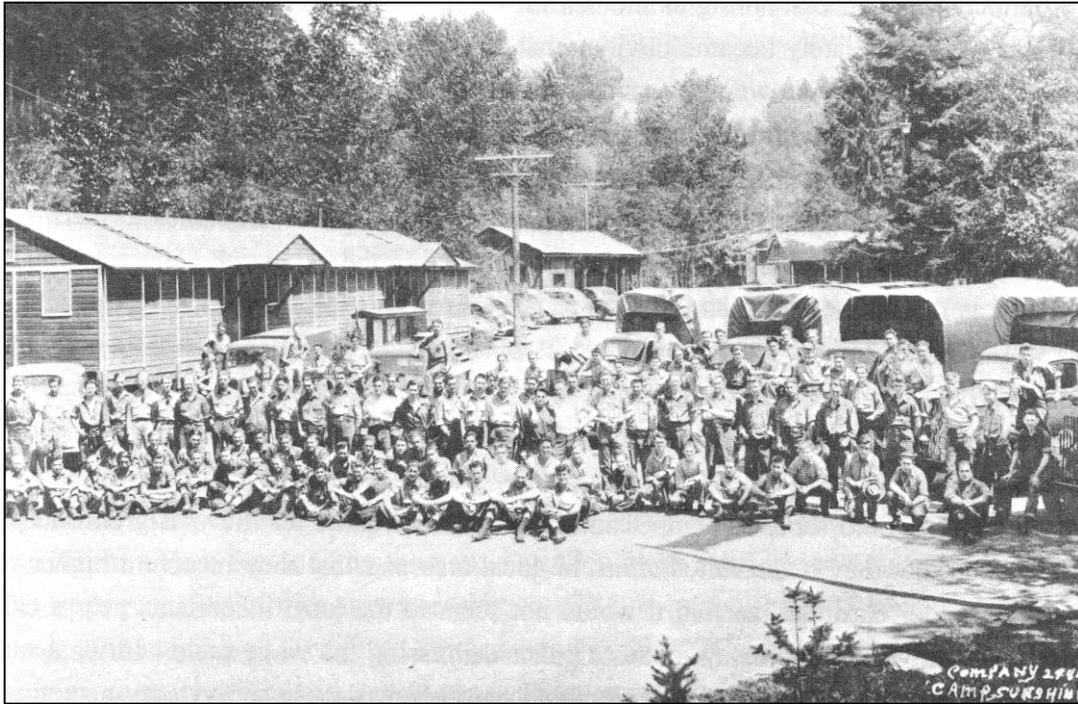


Figure 15. Civilian Conservation Corps, Company 2941, at Sunshine Point Camp

The public campground at Sunshine Point was built as part of the *Mission 66* project to improve and expand tourist facilities in the park (Catton 1996: 507). The campground underwent changes over time; including responses to flood damage, and internal redesign efforts. A 1972 plan map depicts 30 campsites, pit toilets and a group camp circle. By that time, a rock wall had been built along the Nisqually River to address flood concerns. By the 1990s, the number of campsites had been reduced to 18, and the bank of the Nisqually River was protected by rip-rap revetment. Prior to the 2006 flood, Sunshine Point contained 18 campsites, picnic sites and a vault toilet facility. Despite its relatively small size, the campground was popular with park visitors because of its sunny southern exposure and commanding views of the Nisqually River. Unfortunately for its long-term stability, the campground was built on floodplain sediments protected from Nisqually and Tahoma Creek erosion primarily by its constructed rock levee. It is this feature, of course, that failed during the 2006 flood; removing over five acres of the western end of the picnic area and campground, and creating the new landscape as shown in Figures 2 and 3 at the beginning of the Sunshine Point section.

Sunshine Point Study Area Archaeological Summary

Twelve archaeological properties were newly recorded or re-documented during the Nisqually Corridor project. We have described survey procedures and results in detail above. Table 1 below summarizes the Nisqually entrance to Sunshine Point archaeological record as we now know it. These sites and isolated finds are also recorded in more detail in the park's archaeological site files and electronic database maintained by the MORA Natural and Cultural Resource division at Longmire.

Table 1. Documented Archaeological Properties, Nisqually Entrance to Tahoma Creek

Site No.	Site Name	Description
FS2005-01	Power-line Camp	Ca. 1904-1914 historic campsite with cans, ceramics, and 3 stoves. Site revisited to update and add artifact information. Site name due to proximity to 1920s power-line. Precise function of the camp unknown.
FS2005-18	Nisqually Culturally Modified Tree	Peeled cedar tree located in area of FS2008-05. Probably historic period.
FS2008-01	Oscar Brown Cabin Refuse Scatter	Scatter of ca. 1920's -1930's debris south of the cabin. Includes automobile windshield, canning jar fragments, cans and ceramic fragments. Modern memorial stone is located near the site, within park boundaries.
FS2008-02	Longmire Wagon Road	500 meter segment of 1893 wagon road built by James Longmire. Blazed trees, an old telephone line and water line are also located within the road corridor.
FS2008-03	Nisqually Entrance Water Supply System	Two small dams on adjacent creeks along with metal and wood stave pipes. Ca. 1908 to mid-20 th century.
FS2008-04	Paradise River; Paradise to Nisqually Entrance Power-line Corridor	Segment of early to mid-1900s power-line corridor, including downed poles. Additional segments seen east to Tahoma Creek and at Kautz Creek included as part of this site.
FS2008-05	Nisqually Entrance Telephone Trees	Two cedar trees with wire, nails and ceramic insulators that formed part of the early park telephone line system, ca. 1911 to mid-20 th century.
FS2008-06	Old Nisqually River Levee	120 meter rock levee along the Nisqually River between the entrance and Sunshine Point.
FS2008-07	Big Creek Shingle Company Timber Sale	Large tract defined by boundaries of the 1909-1910 timber sale. Stumps, including two springboard notched stumps, were observed.
FS2008-11	Tahoma Bridge Stumps	Stumps with nails and wire rope on the NE side of the Tahoma Creek Bridge, likely associated with bridge or channel work.
IF2008-01	Liquor Bottle	Roadside discard of ca. 1930 complete bottle.
IF2008-02	Lee and Perrins Isolate	Roadside discard of Lee and Perrins bottle and Coke bottle fragment, early to mid 20 th century.

Study Area 2: Lower Kautz Creek

Kautz Creek is named for Lt. A.V. Kautz who was guided to the area by Mashel-Nisqually Indian, Wapowety, in 1857. He and his party intended to climb Mount Rainier, and nearly did so 13 years before the formally credited ascent of Hazard Stevens and P.B. Van Trump. The Kautz party probably ascended the Nisqually Glacier (see Meany 1916:73-93), but it is Kautz Creek and Kautz Glacier that retain his name.⁴ His guide, Wapowety, also is memorialized by *Wapowety Cleaver* which, fittingly enough, separates Kautz Glacier on the west from Van Trump Glacier on the east.

Before the 2006 flood, lower Kautz Creek flowed in a single-bed stream channel under a concrete and steel bridge at the western edge of the valley, and on to its confluence with the Nisqually River. During the 2006 flood, Kautz Creek broke through the boulder levee that had constrained it to its single channel about a mile upstream, and poured through several remnant flood channels in the central and eastern margin of large composite fan created by the Kautz Creek lahar/debris flow in 1947. The flood overtopped the highway, undermined its southern shoulder, and cut a deep erosion channel through the lower Kautz service area. Joining already high water from the Nisqually River, the flood eroded the Nisqually south bank endangering –though not destroying– the park’s lower Kautz helicopter landing pad located near the river. Figure 16 on the following page shows flood water flowing over the park road at the height of the 2006 event. Figure 17 shows the Kautz service area in the vicinity of the helicopter pad, the flood-eroded north bank of the Nisqually River.

The present survey boundaries are constrained primarily to the Kautz service area and highway margins shown below on Figures 16 and 17. Figure 1 shows the complete lower Kautz Creek archaeological study area. The area is entirely contained within the limits of 1947 debris flow, and its vegetation reflects its disturbed, early succession character. Trees are dominated by a thick second growth forest of alder, western hemlock, cedar, and Douglas fir. Consistent with its young age, most trees are less than 12 inches in diameter; although a few living old-growth trees that survived the lahar remain. Large, standing old-growth snags are common throughout this area. Tree casts --deep vertical shafts formed around buried tree trunks-- sometimes exceeded 10 feet in depth and often are hidden beneath a thick layer of moss and forest duff. Low ground vegetation includes salal, blackberry, currant, devils club, sword fern and bracken fern. The ground surface is generally thickly covered with moss or duff, except within channels scoured by the November 2006 flood. The eastern end of the study area was the most difficult to walk through. Here, the ground is crisscrossed by numerous downed second growth trees and old growth snags. Many of the downed snags had been cut and left to lie on the ground sometime after the 1947 lahar.

⁴ Lt. Kautz also should be remembered for his even-handed treatment of Indian people. He opposed the execution of Leshi, then under his guard at Fort Steilacoom (Meany 1916:75), and reported sympathetically on the Mashel massacre that had taken place just over a year before his attempted ascent of Mount Rainier in July of 1857 (Meany 1916:76-77). The Kautz name survives in members of the present-day Nisqually Indian Tribe.



Figure 16. Kautz Creek Floodwater Flowing over Nisqually Road in 2006. Photo faces east from the entrance road to the Kautz Service Area.



Figure 17. Eroded Nisqually North Bank at Kautz Service Area. Helipad near photo center. Wood storage area at photo right. Circa one meter artificial fill at the surface, with eroding metal, wood, and other buried debris scattered on the exposed cut-face.

The Lower Kautz Creek Drainage: 1915 to 2007

Kautz Creek Debris Flow and Flood Patterns

Kautz Creek was not always the single-channel stream that it appeared to be prior to the November 2006 flood. Indeed, there is reason to believe that the single channel pattern was the result of the 1947 debris flow, coupled with stream manipulation levee construction efforts between 1947 and about 1965. Before that time, Kautz Creek flowed into the Nisqually in two separate channels as shown on the park's first good quality topographic map (Marshall et al. 1915) (see Figure 18). Two bridges spanned these streams –one at the western margin of the floodplain near the site of the present Kautz Creek bridge, and a second approximately 1500 feet further east as shown below. The two-part flow pattern held until the 1947 debris flow substantially altered flow characteristics in its lower fan near the Nisqually River. It is likely that the 1947 event was one of a number of fluvial events affecting lower Kautz drainage patterns over the thousands of years that preceded park service purview –the most recent of these being the 2006 flood that reestablished Kautz Creek's historical two-part drainage pattern.

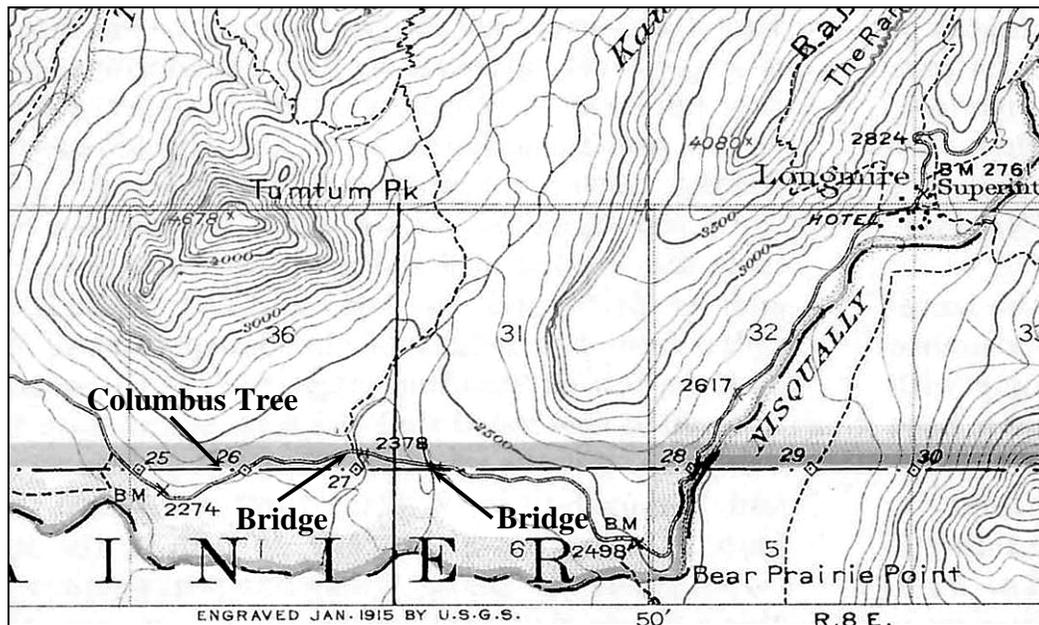


Figure 18. Lower Kautz Creek Floodplain in 1915. Arrows point to two Kautz bridges.

In whatever pattern the creek, its floodplain, and constructed features appeared during the early 1900s, its character changed abruptly on October 2-3, 1947. Heavy rain and a cloudburst at the upper end of Kautz Creek drainage triggered an outburst flood that eroded the Kautz Glacier and caused a succession of debris flows and floods to surge down valley. In the upper Kautz Creek valley, the lower portion of the glacier had gouged a 900-foot wide, 300-foot deep, ice filled trench. Runoff water from the rains undercut the glacier causing chunks of ice to calve off. The ice and debris caused temporary blockages in a constricted area in the valley; concentrating the material that was later released in pulses when the blockages gave way. The constricted area, commonly known as “the box canyon” is located 5 miles northeast of the highway. Eyewitnesses described the flows as “having the consistency of wet concrete, carrying along vegetation and boulders as large as 13 feet in diameter” (Crandall 1971). An estimated 40 million cubic meters of sediment

were moved, burying Nisqually Road under 9 meters (28 feet) of debris (Walder and Dreiger, 1993). The fan of mud and debris at Kautz Creek's confluence with the Nisqually River was 2,500 feet wide, and contained most of the coarse debris (Crandall 1971). Exposures in the sides of Kautz Creek show a "succession of unweathered gray fluvial deposits and lahars interbedded with horizons of forest duff and tree stumps and pyroclastic layers Y and W..." (Crandall 1971). Crandall goes on to note that "Old channels of Kautz Creek...are separated by ridges and terraces." These observations suggest that the 1947 event is just the most recent of a series of lahars and floods in this valley.

Figure 19 is a west-facing photograph showing receding flood waters on the eastern edge of the Kautz debris flow (at approximately the same location as Figure 16 in 2006) in October 1947. The size of the boulders provides an indication of the force of the event at this location.



Figure 19. Kautz Creek Floodwater Flowing over Nisqually Road in 1947. Photo faces west.

Figure 20 shows the track of the 1947 lahar from Kautz Glacier to the Nisqually River. This view captures the scale of the debris flow and shows multiple flood channels in its composite (debris flow-alluvial) fan. Receding water in these channels reflect light in the aerial photograph above; appearing as white stream-beds in the fan. As 1947 flood water receded, the channels remained; serving as the primary routes for renewed floods that have periodically inundated the lower Kautz floodplain since 1947 –most recently in November 2006.

Post-1947 Stream Flow Patterns and the 1950s Kautz Creek Levee

Consistent with the presence of multiple flow channels on its debris flow fan, Kautz Creek has changed course several times since the 1947 event. In 2006, the creek broke through an upstream boulder levee that had held the creek to its west-side course, and poured into alternative channels in the central and eastern parts of the fan. While this had not occurred for some time,

Kautz Creek course changes of this sort are not unknown. Historic photos, bridge construction documents, and a remnant rock and log levee north of Nisqually Road (site FS2008-10) combine to suggest that the creek has been at the center of several flood mitigation and construction efforts in the latter half of the 20th century.

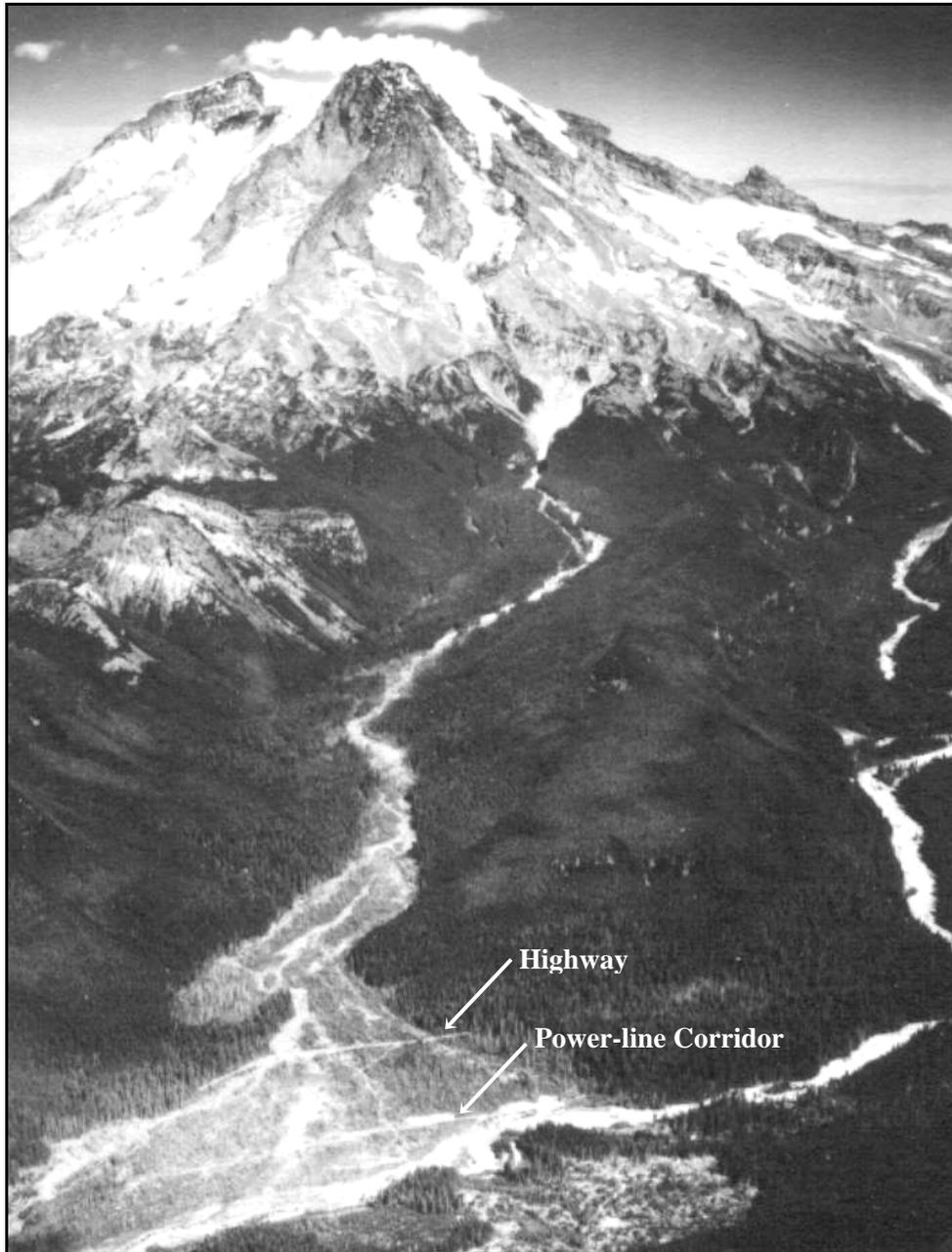


Figure 20. Washington Air National Guard Photograph of the 1947 Kautz Lahar

Recall that prior to 1947, Kautz Creek bifurcated into two streams about a mile north of the highway. The 1947 debris flow raised the grade of the landform, and created multiple incised flood channels. Most water flowed down the western margin of the fan near the foot of Tum Tum Peak (the westernmost channel on Figure 20). A new bridge was built in this location the following

spring (the debris flow destroyed both of the original Kautz bridges). This bridge, built of green logs, was intended to last only until a more permanent solution could be found.

In 1954, erosion under the log abutments accelerated planning for a new bridge. It was noted that Kautz Creek tended to shift its course across the recently formed debris fan landform. Because of continuing stream course uncertainty, and instability of the poorly consolidated lahar substrate, the park opted to build the new bridge of logs rather than of more costly concrete and steel. Thomas Mack of Tacoma won the contract to build a 60-foot bridge with log crib abutments, located just upstream from the 1948 bridge. The span was completed in May of 1955. The park completed work on the approaches and grading during that summer.

A 1958 MORA Completion Report entitled “Kautz Creek Bridge and Approaches” notes that, in 1956, the bridge’s roadbed approaches were surfaced and, importantly, that “channel work was completed about 1 mile above the bridge... because the river was threatening to cut a new channel east of the present one.” This threatened new eastern channel is almost certainly one of the flood channels shown in Figure 20. The channel work mentioned probably includes some form of mechanical deepening of the western Kautz streambed and/or bulldozing a boulder levee to block the would-be eastern channel. The effort forced Kautz Creek, at least temporarily, to flow into the single western channel and, of course, under the newly completed log bridge.

Mid-1950s flood control work was not limited to deepening and buttressing the western Kautz Creek Channel. At a minimum, one rock and log levee and two sets of culverts were installed to channel overflow water and direct it under the road during floods. Figure 21 shows remains of the log and boulder levee immediately adjacent to the present stream channel. Figure 22 shows the location of a combined ten and three foot culvert swamped by 2006 flood water.



Figure 21. FS2008-10 Log and Boulder Levee. Burtchard and Gleason stand on cabled logs.



Figure 22. Small Culvert Extends from the center of a Ten-foot Diameter Culvert Built in the Mid-1950s. Photo of receding flood water taken in November 2006.

The log-backed levee and culverts are perhaps the most significant of various mid-1950s to mid-1960s attempts to cope with the tendency of Kautz Creek to flow through multiple channels; at least during high water events. The log-backed levee, for example, was built north to south, parallel to one of the central-eastern overflow channels only about 200 feet north of the road. The levee clearly was intended to direct water into a ten-foot diameter culvert placed under the highway near the location of the easternmost pre-lahar stream and bridge shown on map Figure 18. Figures 21 and 22 show remnants of the levee and ten-foot culvert (with a three-foot insert) as they appeared after the 2006 flood. In addition to these features, a set of three three-foot diameter culverts also were placed under the highway in the mid-1950s to accommodate water flowing down the easternmost channel shown on Figure 20.

The presence of levee FS2008-10 is of more than casual historical interest. It is the existence of this levee that forced the 2006 flood to flow across the highway at precisely the point it did. The fact that flood waters hit the road at the location of the ten-foot culvert is a *direct result* of waters diverted to that point by what remains of the 1950s levee. Figure 21, taken in October 2007, clearly shows the new stream directed by, and parallel to, this levee. Because the ten-foot culvert (the target of the levee) had been partially filled and cored with the smaller three-foot passage shown in Figure 22, it could not accommodate the water volume associated with the 2006 event. Rather, water spread out, crossed and undercut the road, and flowed east adjacent to the road and through the small culverts that had been installed at the eastern margin of the debris flow in the 1950s. *It is important to note* that without the log-backed levee, 2006 flood waters may have followed a different course(s). Should this levee fail in the future, the stream may course again, probably to the slightly lower 1947 easternmost flow channel visible on Figure 20.

Presence of the log-backed levee and associated culverts notwithstanding, the events of 2006 could not have been anticipated in the mid-1950s when the park attempted to imbed Kautz Creek into a single western channel flowing under its new log bridge. Unfortunately, constricting water into a single channel also elevated water volume and erosion forces during high-water runoff events. As a result, the life of newly replaced log bridge was brief. It was undermined by flooding in 1959, only three years after its completion.



Figure 23. 1959 Flood at Kautz Creek Bridge

Photo Figure 23 shows the Kautz Creek log bridge during the 1959 flood. Note presence of snags still standing from the 1947 lahar. Note, too, that the bridge abutments are set on rounded boulders and other mixed debris flow sediments rather than on more stable sediments or bedrock. The combination of single stream channel, narrow span, and unstable abutment substrate probably contributed to the vulnerability of the structure; as it continued to do with its concrete replacement until the 2006 flood reestablished Kautz Creek's second channel.

The 1955 log bridge was repaired temporarily after the 1959 flood, and replaced in 1964 with a larger concrete structure immediately upstream. Figure 24 shows remnants of the log abutment adjacent next to the more massive concrete feature after it was exposed by the 2006 flood. The 2006 flood, however, was not the first event to test the new, more massive bridge. Over the years, the concrete bridge periodically experienced flood forces similar to those that undermined the 1948 and 1955 log structures. Its more massive concrete abutments, however, were able to withstand high water events experienced, at a minimum, in 1990 (Catton 1996: 561), 2003 and 2006. Following each flood, boulder riprap was used to replace the lost lahar substrate, and to attempt to rebuild and armor eroded embankments. Ironically, it is likely that bridge survived the largest of these events in 2006 because the new (old) stream course reopened to the east, reducing water flow and pressure against its beleaguered abutments.

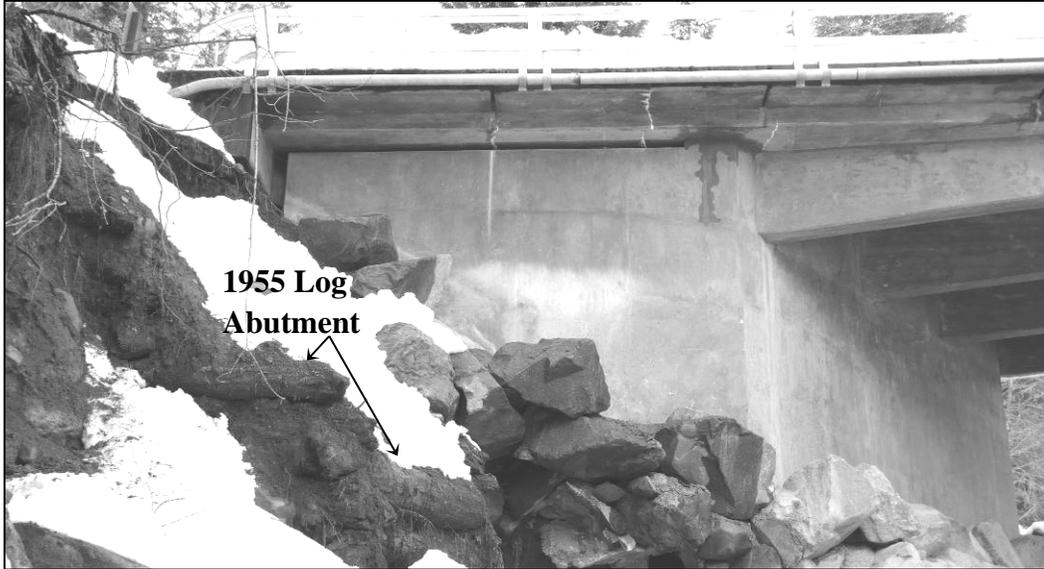


Figure 24. 1955 Kautz Creek Log Bridge Abutment Adjacent to the 1964 Concrete Bridge

In summary, the Kautz Creek valley has experienced repeated flood and debris flow events for a very long time. We know that the Nisqually Road included two Kautz Creek bridges for the first half of the 20th century. Between 1947 and 2006, the creek was forced into a single channel flowing along the western margin of the valley, and under the 1948, 1955 and 1964 series of bridges described above. During this time, it is clear that the park has attempted various strategies to prevent the stream from migrating into various slightly incised flood channels in the lower Kautz debris flow-alluvial fan. For the most part, these attempts succeeded in maintaining the single-channel stream pattern, if only temporarily. Emergence of the eastern drainage channel in 2006 restored the pre-1947 bifurcated stream pattern. We must reemphasize, however, that the present dual flow pattern is an artifact, in part, of an artificial rock and log levee constructed north of the highway in the mid-1950s. We believe that the long-term stability of this central-eastern channel hinges on the capacity of the aging levee to restrain the stream from moving further east, and the extent to which the new stream is able to down-cut and stabilize its position in the debris flow fan.⁵ Figure 25 shows the eastern channel flowing through its newly constructed pair of 12-foot diameter culverts into the lower Kautz service area in 2007.

Kautz Creek Service Area

The Kautz Creek service area lies south of the highway and north of the Nisqually River. The service area presently includes a north/south service road, a helicopter landing pad and control building, a Search and Rescue (SAR) building, and several cleared areas that are used for equipment storage, wood storage, and for scrap metal and equipment disposal. The areas used for equipment storage and stockpiling, as well as the helicopter base, are located at the south end of the service road along the north bank of the Nisqually River. This area was subject to substantial erosion along the Nisqually where the river cut back into the wood stockpile and helicopter landing

⁵ The capacity of the new channel to incise more deeply into its substrate may be limited by the relatively large size of the lahar boulders over which it is flowing, and the fact that the creek cannot incise below the base level of the culverts.

areas. Unstable bank sediments may erode further unless stabilized by some means. The new Kautz Creek channel shown entering the service area in Figure 25, also severed access roads and cut through storage areas along its north to south route toward its new confluence with the Nisqually River.



Figure 25. New Kautz Creek and Culverts in May 2007. Log-backed levee site FS2008-10 is located on the right (east) side of the creek, approximately 200 feet upstream (north) of the road.

Prior to the 1947 debris flow, the lower Kautz area was crossed by the Paradise River power-line and access road described earlier for the Sunshine Point study area, and recorded as site FS2008-04. Indeed, remnants of that corridor survived as can be seen clearly on the post-lahar aerial photograph included above as Figure 17. Citing Don Christianson, who worked on the power-line in 1946 and 1947, former park employee Jim Ellis tells us that there were four road/trail access routes from the main highway to the power-line: one near Sunshine Point just east of the Tahoma Creek Bridge; another east of Rock Point; a third just west of Kautz Creek; and the fourth west of Bear Prairie point south of Longmire. Ellis notes that all but the Bear Point routes were crude, but vehicle accessible. He also notes that Kautz Creek route probably provided access to a sawmill formerly located between the west fork of Kautz Creek and Tahoma Creek. In the early 1930s, the mill was moved to Longmire and set up on the east side of the Nisqually River near what is now the sewage treatment plant.

The lower Kautz service area was developed after the 1947 lahar, and is situated entirely on deep debris flow sediments. Jim Ellis (pers. com.) notes the following about post-lahar use of the area:

Once the mudflow firmed up, it was possible to drive from the "main road" to the power-line in several places. One was finally chosen and the sand mined near what was the heliport and used to

sand the road. That sand was also used to fill other areas as needed. Sometime in the late 50s or early 60s the incinerator above Longmire was closed and the area was used as a land fill.

With the demise of the CCC the tools that had been stored at Longmire in the CCC shed were taken to that area and buried. I do not know why they couldn't have been auctioned off through GSA. [A few of these were found during the present study.] Since the early to mid 60s the area has been used for surplus and excess storage.

That's all I know of the area except it was good fishing at least into the early 90s.

We were able to find little additional background about the lower Kautz Creek study area beyond general comments above, and those offered earlier regarding Indian trails and Lt. Kautz. Archaeological remains located during the survey, and summarized in the next section, relate to use of the area after the lahar with the exception of the power-line right of way, and 1920 to 1930s era rubbish dumped at lower Kautz after it was used for park storage and equipment disposal.

The Columbus Tree

While outside of the survey area *per se*, the Columbus Tree was a popular roadside attraction worthy of mention. The Columbus Tree was an old-growth Douglas fir, named to indicate that it was standing when Columbus made his 1492 voyage. It is the subject of several historic photographs and postcards in the park's collection that date from the 1910s to at least 1938, some of which depict automobiles driving around the tree (as on the cover and page *ii* of this report). These photographs show that the road skirted the south side of the tree with a turnout to the north where one could park, or drive between several other large Douglas firs.

The two photographs below show the Columbus Tree over an 18 year period. The photograph on the left is labeled on the front and was sold as a souvenir postcard featuring a scene probably dating to the 1920s. The 1938 photograph to the right depicts a couple standing at the base of the tree next to the sign that reads: "COLUMBUS TREE/ DOUGLAS FIR/ DIAMETER 8 FEET/ AGE ABOUT 700 YEARS".

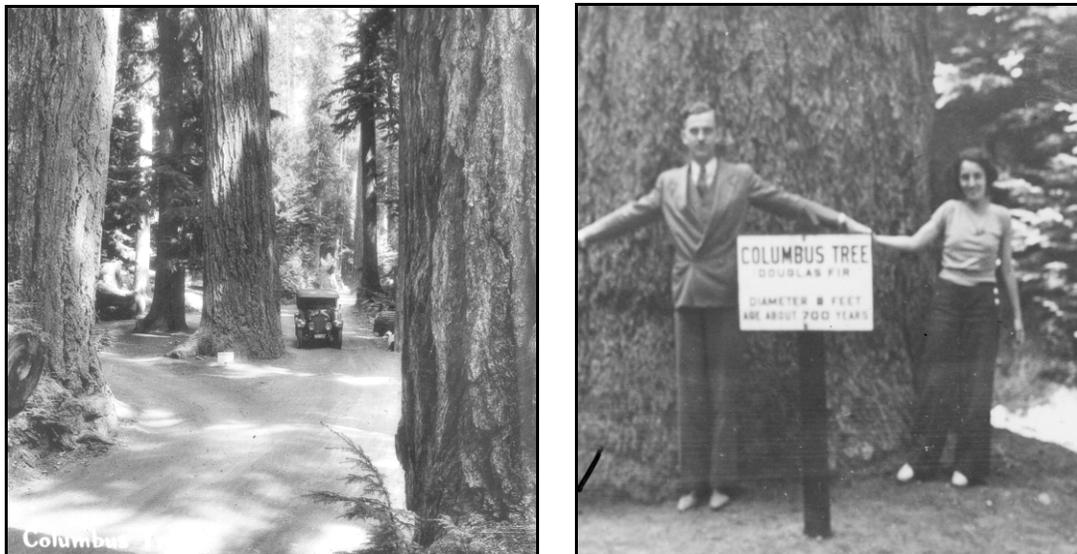


Figure 26. The Columbus Tree in the early 1900s.

In the park's early days, the Columbus Tree served to remind visitors of the great age of the natural wonders they were experiencing. Its presence emphasized that park roads were designed not only for access, but to also provide scenic views and educational opportunities as well. As logging depleted old-growth forests outside the park, patriarchs such as the Columbus Tree became more valued and deemed worth saving. Its location adjacent to –almost in– the roadbed assured that it would be seen by everyone entering the park.

Handy as it was for a wayside, the tree's location so near the road did not lend itself well to continued viability. Perhaps succumbing to root compaction or smothering when the road was widened and resurfaced, the original tree no longer stands. Other trees were given the same label into the mid-1900s; but, like the original tree itself, the designation eventually succumbed to indifference, or to more sophisticated interpretive efforts elsewhere. Even so, because it represents a well-known aspect of the park's interpretive history in the Nisqually Corridor, we feel obliged to honor the Columbus Tree again here.

Today, two large Douglas firs remain at what we believe to be the original Columbus Tree location on the north side of the road. One of these trees is alive, the other a snag. A leveled turnout at this spot is probably the remnant of the detour around the tree. Figure 27 shows the location west of the present Kautz Creek concrete and steel bridge.



Figure 27. Eric Gleason near the Location of the Columbus Tree. Photo faces east, 300 m from the steel and concrete Kautz Creek Bridge.

The Lower Kautz Creek Archaeological Survey

Because of the predominance of thick 1947 debris flow deposits throughout the study area, we did not expect to find precontact sites or artifacts in this area. This does not mean that the area

was unimportant to people in the precontact past. The confluence of Kautz Creek and the Nisqually River may well have been used as a trail camp for groups moving into more productive sub-alpine and alpine habitats, or as a modest resource gathering area for such items as red or Alaska cedar and devil's club. However, physical remains of early use, if present, were necessarily lost to the lahar event.

The 1947 event also destroyed the physical record of most 1800s and early 1900s historical events relevant to lower Kautz Creek. Prior to that date, we have only historical records and maps to reconstruct the lower Kautz landform and its use patterns. Interestingly, the post-1947 archaeological record, in concert with historical records, provides some insight into the creek's flood history in the latter half of the 20th century, and into the park's attempts to cope with its unpredictable nature.

Bridge and Flood Control Features

After the 2006 floods, Park archaeologists Greg Burtchard and Ben Diaz surveyed the bridge area and observed that the 2006 floods damaged the riprap and exposed remnants of the 1955 log bridge abutments shown in Figure 24. While not formally recorded as an archaeological site *per se*, the log abutment was photographed before it was recovered with boulder riprap. The feature still exists behind the riprap on the west bank immediately south of the now-westernmost Kautz Creek bridge as shown on Figure 24.

Archaeological site FS2008-10 includes remnants of a log-backed flood control levee discussed above and shown in Figure 21. The feature is located immediately adjacent and parallel to the new eastern channel of Kautz Creek north of Nisqually Road. Most of the flow of Kautz Creek is now concentrated into this channel. This levee was constructed sometime after the 1947 lahar event, apparently in an effort to keep the creek from meandering further to the east. The USGS map shows that, prior to the 2006 flood, an unnamed small creek occasionally flowed at this location passing under the highway through a small culvert. After the 2006 flood, and as described in greater detail in the section entitled *Post-1947 Stream Flow Patterns and the 1950s Kautz Creek Levee* above, the main flow of Kautz Creek shifted to this eastern channel overflowing the previous culvert and washing out the road. This necessitated the installation of two large culverts in order to handle the increased flow. The 2006 flood also partially eroded a section of the log-backed levee; rendering it somewhat more prone to loss in the event of another large-scale flood.

Levee FS2008-10 measures approximately 80 meters in length. Its southern end is constructed with boulders now obscured by thick moss. This section of the levee is approximately 2 meters wide and is less than 1 meter tall. The northern portion of the levee was constructed of stacked boulders, 3 to 4 across and 3 to 4 courses high. Here, the levee is about 2.75 meters wide (9 feet) and some 1.5 meters (5 feet) tall along the creek edge. Large logs cabled together as shown in Figure 27 provide extra support along the eastern margin of the northern sections of the levee. The logs were joined together with ½ inch cable in several locations. These cables are held in place with railroad spikes and cable clamps. Some of the logs are quite long --up to 20 meters (66 feet)-- and they all average approximately 60 cm (2 feet) in diameter. The central portion of the levee was partially eroded by the 2006 flood event. At present, we do not know exactly when the levee was constructed, though it may be related to 1956 stream channel work.



Figure 28. Close up of logs with cables anchored with railroad spikes. Boulders that would have formed the creekside portion of the levee have been displaced by 2006 floods.

Kautz Creek Service Area

FS2008-09 is a small dump consisting of what are probably Civilian Conservation Corps (CCC) and later artifacts. The items are scattered on the ground surface; indicating that they were deposited here sometime after the 1947 lahar. The dump consists of 15 observed items concentrated in a three meter diameter area. The items include a small electric space heater, a photographic print dryer, an automotive brake shoe, pipe, a lamp base, angle iron and what look to be radio parts. When Rick Kirschner, retired park ranger, brought us to this site, he reported that he had been told that the CCC era items had been in storage prior to their disposal at this location, and that there had been three pits used as dumps. His informant retrieved certain items from these dumps at that time; including CCC license plates and hand-crank telephones. Some of these items were recently donated back to the park and are currently at the curation facility at Tahoma Woods. The material that remains at this site is probably part of the discarded CCC and historic era items.

We were able to identify patent dates and functions of some of the artifacts, because they retained legible labels. The electrical space heater, at right photo center below, was manufactured by Wesix Heater Factories under a 1932 patent. The heater has a unique half-barrel shape supported by three curved legs. The design for the Lott Rotary Print Dryer, at left photo center, was patented in 1942. It was used for drawings, photographs and blueprints. One item has a label that reads “The Veeder M’F’G CO / PATENTED OCT 22 1895 & AUG 15 1911 / HARFORD Veeder CONN. U.S.A .” This component has a numerical counter that reads “54838”. Veeder-Root manufactured counting mechanisms many of which are used to measure liquids, as for a gasoline pump.

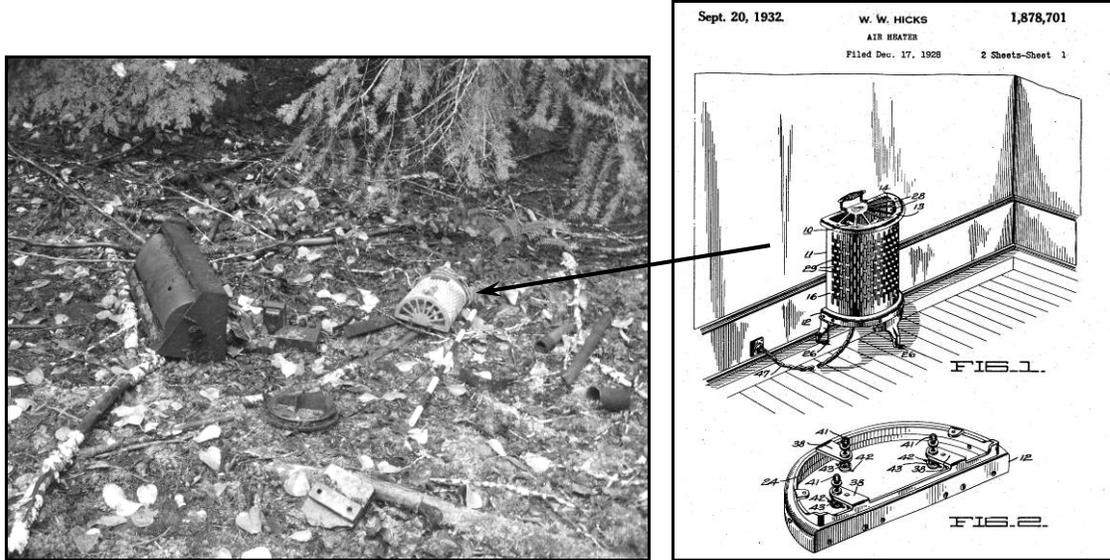


Figure 29. Historic-period Artifacts at Lower Kautz Creek. Left: dump containing CCC era discards. Right: 1932 patent drawing for the Wesix electrical heater found in the dump.

Site FS2008-08 is a tangle of telephone lines and five brown ceramic donut-shaped insulators, the remains of a telephone line. The moss-covered log on the site may have been the telephone pole. These are remnants of the extensive Park telephone system begun in 1911, and expanded and restored over the years. Brown ceramic insulators of this type were used during the time the CCC was actively constructing and restoring lines to ensure adequate communication between ranger stations, CCC camps, and public campgrounds. The park's telephone system is described more fully in the sections on the Sunshine Point and Longmire study areas.

Finally sections of the power-line corridor, a few power poles, and limited debris can still be discerned near the Nisqually River on the alignment shown in Figure 17. The corridor is a continuation of site FS2008-04 documented in the Sunshine Point study area, and extends to Longmire and beyond.

Kautz Creek Archaeological Summary

Because of relatively young sediments at Kautz Creek, few archeologically relevant remains were expected, and few were documented. For park planning purposes, perhaps the most important of the three is the log-backed levee located adjacent to the new central-eastern Kautz stream channel, about 200 feet north of Nisqually Road. The levee appears to have been built in the 1950s; intended to direct water toward a ten-foot culvert under the roadbed. Whatever its success at that time, the levee served that purpose in 2006; surviving the flood and forcing much of its water to strike the road precisely at the location of the large culvert. Unfortunately, that culvert had been replaced with a smaller three-foot culvert sleeve incapable of transmitting the volume of water released by the 2006 flood. Even so, the levee remains in place, continuing to assist channeling water toward the new pair of 12-foot culverts that now accommodate the renewed eastern branch of Kautz Creek. *We urge the park to consider the aging, structurally compromised nature of the remaining components of this rock and log levee.* Should the levee break in a flood

event comparable to 2006, it is likely that water would flood into low ground at the eastern edge of the 1947 debris-flow fan; possibly overtopping the road at that point.

Other sites documented at lower Kautz Creek include a CCC era rubbish dump (deposited on-site after 1947), limited remains related to the original Nisqually entrance to Longmire telephone line, and sections of the Paradise to Nisqually power-line corridor. These sites are summarized briefly below. The park's archaeological database retains additional site location and content information.

Table 2. Lower Kautz Creek Archaeological Properties

Site No.	Site Name	Description
FS2008-04	Paradise River; Paradise to Nisqually Entrance Power-line Corridor	Segment of early to mid-1900s power-line corridor, including downed poles. Additional segments seen at Sunshine Point included as part of this site.
FS2008-08	Kautz Creek Telephone Line	Downed telephone pole, wire and ceramic insulators.
FS2008-09	Kautz Creek Wesix Dump	Post 1947 deposit of possibly CCC era debris including a Wesix space heater, a print dryer, electronic parts and metal.
FS2008-10	Log-Backed Levee	Post-1947 log and rock levee along erosion channel east of Kautz Creek proper. Evidence of early channel control efforts.

Study Area 3: Longmire Historic District

It is the series of Indian trails, ultimately transformed to a scenic park road, that link the three Nisqually Corridor study areas together. Between 1883 and 1885, James Longmire, now well-familiar with Indian access routes, cleared the first horse trail to the small meadow and springs that now bear his name. Eight years later, using his own funds and Indian labor, he completed the first wagon road to his growing mineral springs development. His road created, for the first time, a route capable of transporting substantial quantities of construction materials, supplies and people through the Nisqually Corridor to Longmire Springs and beyond. The twisting and difficult five-day trip from Yelm Prairie to comparable places described by Kautz and Stevens (Meany 1916:73-131) could now be made in one to two days in relative comfort. Enhanced access benefited Longmire's venture which gradually expanded; dominating economic and visitor activity until the turn of the century.

Completion of the Government Road to Longmire Springs in 1907, combined with initiation of passenger rail service to Ashford in the early 1900s, eased access and stimulated tourism even further. At this time, the newly created Mount Rainier National Park, eager to promote and accommodate tourism, expanded hotel and other visitor-related facilities via concession leases in the vicinity of Longmire Springs. Because the Longmire family controlled the meadow area as an 18-acre private in-holding, the park's development focused on adjacent terrain between the meadow and the Nisqually River to the south and east. The park soon began building its administrative center on this new ground as well, effectively moving the center of development away from the meadow and toward the river. While the "Longmire" name persisted, the character of place changed from James Longmire's hardy, but rough-shod, pioneering enterprise; toward an emerging park service vision of a purposefully landscaped, rustic administration and visitor community.

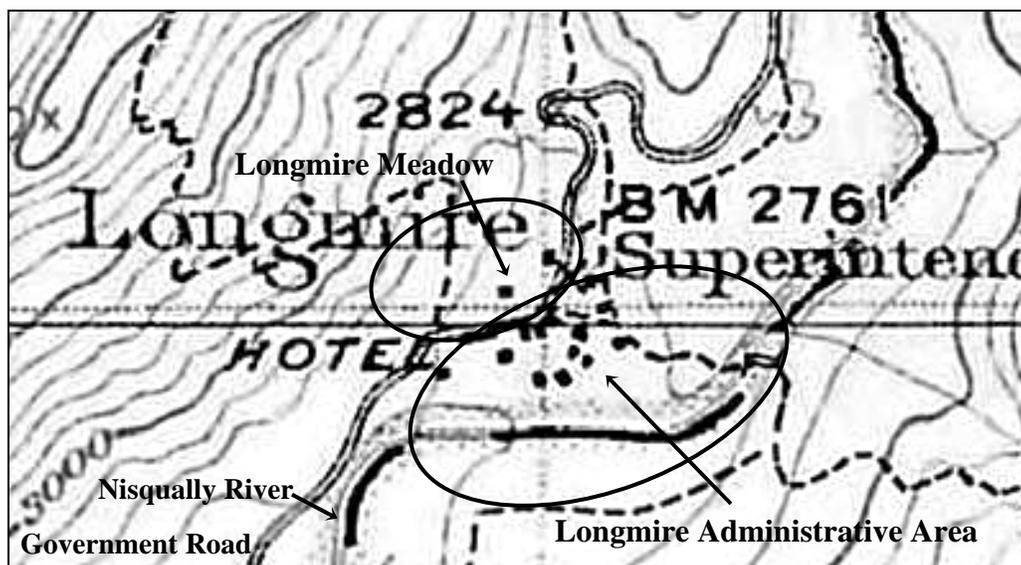


Figure 30. Longmire in 1915

By 1915, when the Marshall et al. (1915) map of Mount Rainier was published, the Government Road to Longmire Springs was only eight years old. Even this early, the scatter of constructed buildings suggests that the center of activity had shifted away from the meadow toward the administrative area shown on Figure 30. In the account that follows, we use this shift to distinguish between the two overlapping, but spatially separable and historically distinct components: 1) *Longmire Meadow* --site of the Longmire family's spa development in the late 19th and early 20th Centuries; and 2) *Longmire Administrative Area*, site of most NPS and concession developments in the early to mid-20th century. The entire Longmire developed area was designated a National Historic District in 1991 (Toothman 1990), and recognized again as a contributing element to the park's National Historic Landmark District designation in 1997 (Toothman, Begley and Carr 1997). In essence, both nominations recognized Longmire's significance to early park service master planning, the quality and continuing integrity of its rustic architecture, and its exceptional landscape design.

The November 2006 flood endangered the Longmire Historic District on both sides of the river. Elevated water volume upstream of the bedrock constriction spanned by the Nisqually Suspension Bridge (upper photo right below) rushed through the downstream opening with enough pressure to erode away riprap boulders intended to protect new construction on the west bank, and remove a substantial portion of the east bank near the Community building and historical campground. Figure 31 shows results of the 2006 event facing north toward Longmire's maintenance area. The southeast corner of the new emergence operations center (EOC) is undercut at photo center. Community building and campground erosion southeast of the river is just out of sight at lower photo left. Longmire meadows can be seen safely tucked away at upper photo left.



Figure 31. Longmire Administrative Area after the November 2006 Flood

Longmire floods, and even debris flows, are not uncommon. Nearly all of the Longmire administrative area lies on an abandoned river and lahar floodplain fan laid down shortly after 1686 C.E. (Pringle 2008). Pringle also notes traces of smaller debris flows dating to about 1860 C.E. are found on the floodplain south of Longmire meadows. The area remains flood prone as indicated by abandoned flood channels, natural levees, and low-lying wetlands. Since developing facilities here in the 1900s, the park has repeatedly been obliged to cope with bank erosion and flooding. Figure 32, for example, shows Longmire maintenance area during the height of the 1959 flood. In 2003, floods nearly comparable to those of 2006 damaged both river banks downstream from the suspension bridge. Superintendent's annual reports document other floods as well (see Samora 1991). Figure 33 is a south facing photograph showing the park's most recent attempt to protect the administrative area --a buried concrete wall and elevated levee armoring the northwestern river margin; shown here in construction between the bridge and the EOC.



Figure 32. Longmire Maintenance Area during the 1959 Flood



Figure 33. Buried Concrete Floodwall and Levee Under Construction in 2007. EOC on the right. Community building and realigned river bank across the Nisqually in the background.

Alder and other early succession trees populate the margins of the river within the Longmire administrative area; attesting to its high-energy, flood-prone nature. Older trees grow on slightly higher and more stable areas of the floodplain further back from the river. Low-lying wetlands at the margins of the built environment are vegetated with skunk cabbage, alder and horsetail. Surrounding forests include Douglas fir, western red cedar, western hemlock, lodgepole pine, and alder; with an understory of vine maple, sword fern and moss.

Less prone to high-energy floods, Longmire meadow is a lush wet meadow surrounded by a mid to late seral stage forest dominated by Douglas fir, western red cedar, western hemlock, and alder. Under-story forest vegetation is dominated by vine maple, sword fern and moss. The wet meadow supports dense grass, sedge, cattail, horsetail, skunk cabbage and other water tolerant species. Brackish water and mineral deposits retard plant growth near the springs and outflow streams.

A Brief History of the Longmire Historic District

Historical developments at Longmire began in 1883 with James Longmire's discovery of the meadow during his ascent of Mount Rainier. The constructed environment gradually expanded east of the road and across the river as Department of the Interior and National Park Service presence increased and visitation grew in the early to mid-1900s. Here we outline broad-scale events affecting the Longmire Historic District from Longmire's initial discovery, through the turn-of-the-century transition to control by the park service and park concessionaires, to master-planned park service developments in the 1920s. Most of this material is drawn from more complete accounts included in Catton (1996), Schiltgen (1986), Dolan (1997), and Owens and Dolan (2005). We encourage interested readers to refer to these accounts for greater detail than is practical here. This summary is meant to define the chronology of developments in the greater Longmire area and to set the scene for more detailed descriptions that follow in the section relating to the archaeological survey.

Longmire Meadow and Longmire Springs Hotel

Recognizing the potential commercial value of the mineral springs he discovered in 1883, James Longmire was quick to build rudimentary visitor facilities. Within two years, Longmire had begun to accommodate health and adventure-seeking guests at "Longmire Medical Springs." By 1889, Longmire's meadow and mineral springs resort had expanded to a few guest cabins and two bathhouses. In the 1890s, he opened a small hotel and began adding barns and outbuildings to supply parties of campers and climbers. In 1892, he patented the area as a 18.2-acre mineral claim (Catton 1996:82-83). Longmire also completed the wagon road from Nisqually entrance; and cleared trails to Paradise Valley and Indian Henry's Hunting Ground. When James Longmire died in 1897, his son Elcaine, and Elcaine's wife Martha, took over the operation and managed the hotel. The Longmire developments in the meadow area are well documented by the series of narrated photographs reproduced below.

Owing to its early date, photo Figure 34 depicts what is probably James Longmire's original cabin at Longmire Medical Springs. The gable end of the first small hotel can be seen behind the cabin to the right. While not easily seen in this photograph, James and Virinda Longmire's son, Elcaine, had already built his cabin at the forested meadow margin in the circled

area at lower photo-left. A reconstructed version of Elcaine's cabin still stands in its original location along the Trail of Shadows that presently circumnavigates the meadow.

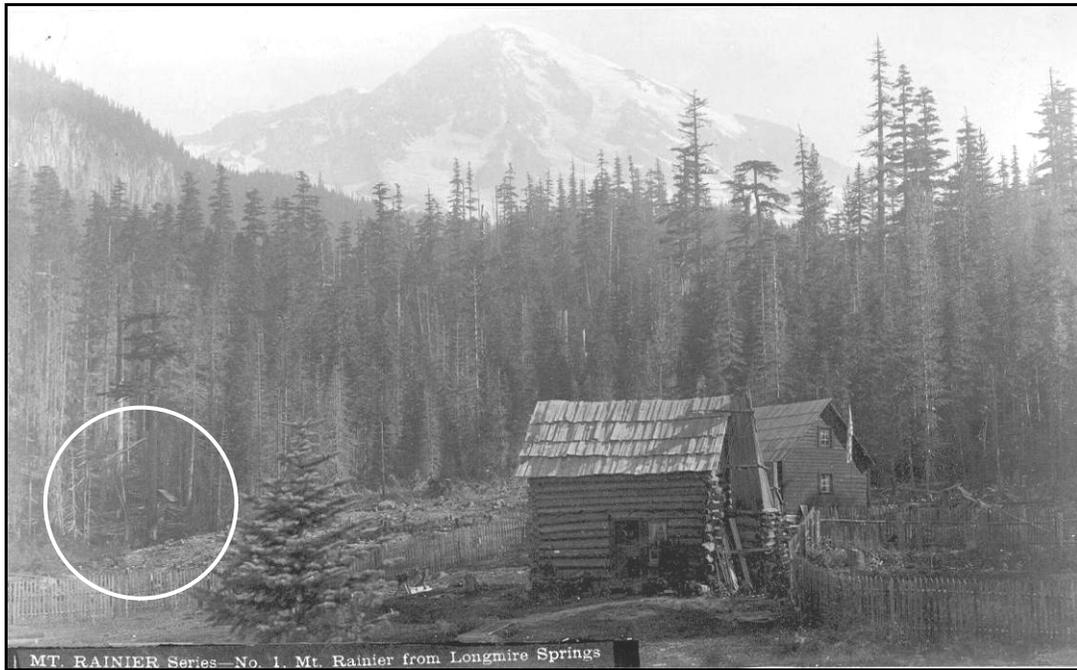


Figure 34. Pre-1888 Longmire Cabin and Hotel (twc 1284a)

Figure 35, dated 1888, is a wide-angle scene that shows the location of an early bathhouse (left of standing man, Henry Loomis). A frame building is under construction behind Longmire's log cabin. The new construction appears to be the north addition to the original hotel shown above.



Figure 35. Longmire Springs in 1888 (twc1264)

Figure 36, taken six years later in 1894, shows the hotel with its north addition completed, and a shed roofed addition attached to the south side of the hotel. Longmire's cabin has been removed. Only remnants of the log chimney still stand next to the fence in front of the hotel. A smaller bathhouse has replaced the original 1888 structure (note the narrower façade and the more sharply pitched roof).

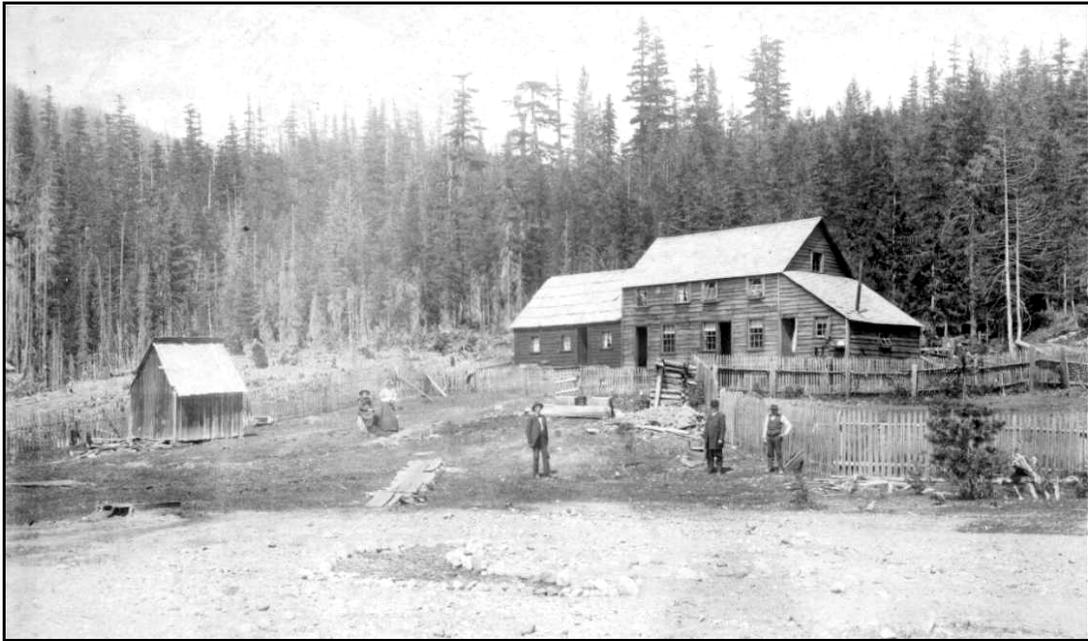


Figure 36. Longmire Springs Hotel in 1894. Log chimney near the fence. (twc 1293)

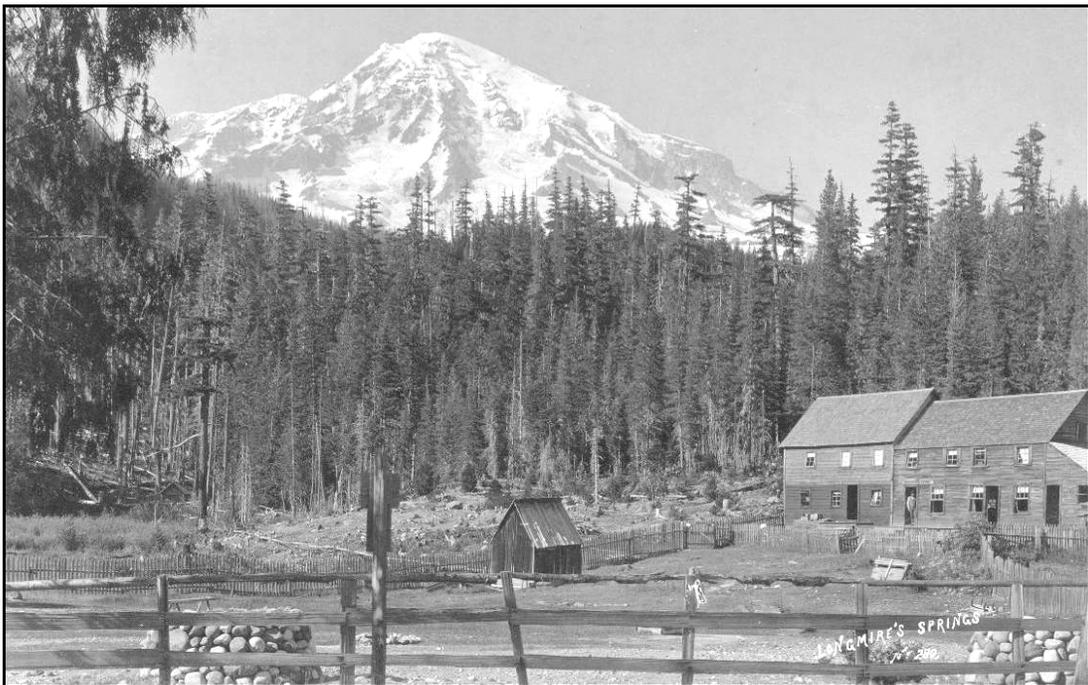


Figure 37. Longmire Springs Hotel ca. 1900 (twc1286)

Figure 37 is an exceptionally sharp photograph taken between 1894 and 1903; showing some improvement to the hotel property. A second story has been added to the north addition. A wooden water flume connects the Elcaine Longmire cabin-Iron Mike spring area to the bathhouse. Cobble wellheads and a fence also have been constructed. We know that the Longmires built a fence around their mineral claim and ran stock in the meadow around 1906 (Catton, 1996:84-85), but this photo appears to predate that time based on the change to the bathhouse shed.

Figure 38 probably dates to 1903 when the park service road to Paradise was being planned. The low-roofed structure at the right of the hotel (circled) is the soda spring. A wooden box surrounds one of the other springs lower right. Framing for a new porch can be seen across the front of the hotel.



Figure 38. Longmire Springs Hotel ca. 1903 (twc 1253)

Figure 39 on the following page depicts James Longmire's widow, Virinda, holding a glass, or perhaps a mason jar of mineral water next to one of the spring wellheads. The porch frame has been extended across the entire front of the hotel, and is covered with canvas. The boardwalk is clearly shown. The 1894 bathhouse has been replaced with a larger cedar shingle roofed, board and batten structure oriented north to south. It is not clear whether Virinda actually drank the water or poured it into the pitcher. We're guessing the pitcher.

Longmire Springs in the Early National Park Days

Shortly after Mount Rainier National Park was founded in 1899, property disputes arose between the Longmire family and the Department of the Interior regarding management of their private mineral claim in-holding. The claim clearly was not in use for mineral extraction in the normal sense, and the somewhat ramshackle character of their facilities at Longmire, as well as camps at Paradise and Indian Henry's Hunting Ground, grated on the administration's sense of park

beauty and pristine wilderness. As early as 1902, Virinda Longmire offered to resolve the issue by selling the property to the government for \$60,000, but the offer was declined.

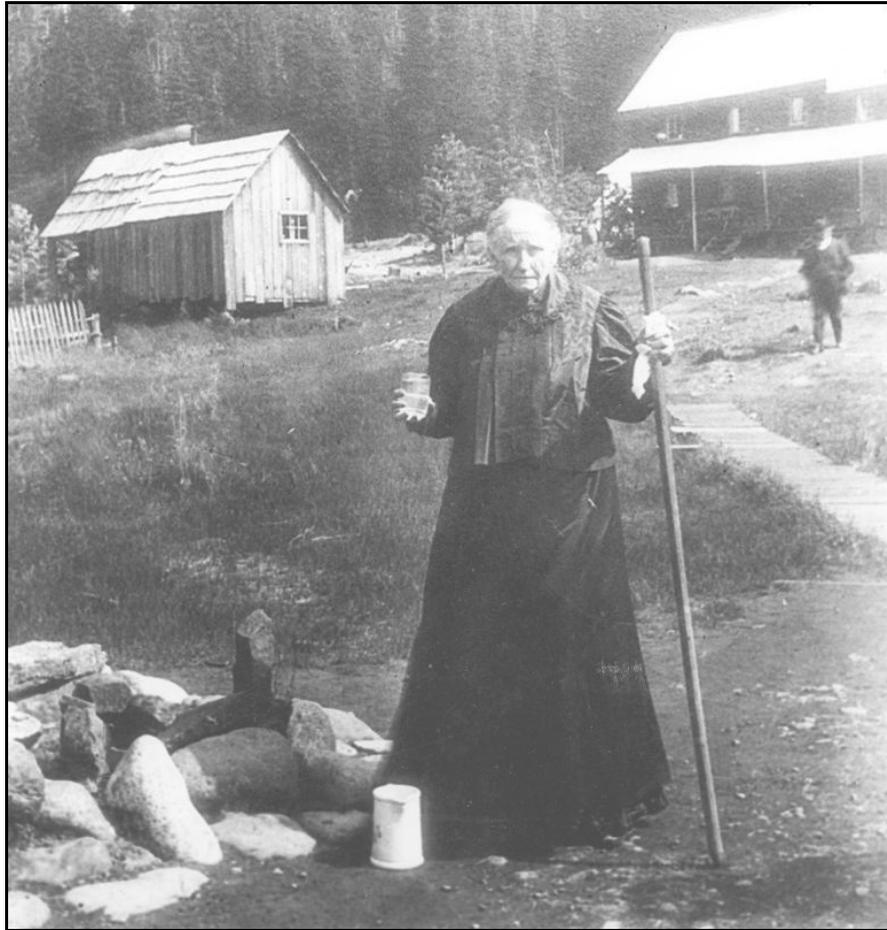


Figure 39. Virinda Longmire in Front of the Hotel ca. 1903-1904 (twc 1290)

In 1905, the young park introduced competition to Longmire by leasing a two-acre parcel across the road south of Longmire family property, in the southwestern end what would soon become the Longmire administrative area. The lease was given to the Tacoma and Eastern Railroad Company to build a new more elegant hotel –the National Park Inn. Competition engendered by construction of the Inn spurred the family to take some controversial actions, including opening a saloon (which quickly was shut down by the park superintendent). Virinda Longmire also filed for a 160-acre homestead claim on land surrounding their patented 18.2 acre mineral claim; asserting that, in 1884, James had built a cabin near the mineral claim in hopes to file for a homestead claim. Because the land had not been surveyed, the homestead claim was denied. The eventual survey found that one of the Longmire cabins fell outside the mineral claim boundaries. Despite multiple appeals, Virinda’s homestead claim was denied.⁶

⁶ Recall that the Longmires already held a homestead claim on Yelm prairie, and may simply not have qualified for a second on Mount Rainier.

Catton (1996:85) states that in 1907, Superintendent Allen ordered a ranger to burn the cabin that had been built outside of the mineral claim in order to preempt future claims. This was accomplished in the following winter. Additional research is needed to clarify the cabin burning account and pinpoint the location of the cabin --a potential historic archaeological site. The possibility exists that the log cabin that is now located adjacent to the Trail of Shadows --originally built by Elcaine Longmire ca. 1888, and reconstructed by the CCC and the NPS, is the cabin reportedly burned in 1908. The cabin does indeed lie just north of the Longmire Placer Claim. However, it is clearly illustrated on the 1911 map and would have had to have been rebuilt between 1908 and 1911 --no doubt over strong park service objections.

Figure 40 shows Longmire hotel sometime after 1903. The shed roofed addition on the south (left) end of the building has been replaced with a two story, gable-ended structure. The bath house is the same as that shown in the Virinda Longmire photo in 1903. Three women are standing near Virinda's mineral spring. The structure in the background is a temporary building, possibly a tent, possibly later replaced by a cabin.



Figure 40. Ca. 1903-1905 Photograph showing the Hotel with a New South Addition

Figure 41 shows the Longmire hotel between 1905 and 1908. The building now sports white paint, and the porch is moved to the sunnier southern end. Presumably canvas was used to cover the porch framework. Comparison with the new National Park Inn, shown in Figure 42, illustrates the marked contrast between the causal style of the Longmire hotel, and the more elegant façade of the Inn that would soon supplant it.

Longmire Administrative Area: National Park Inn and Other Early 1900s Concessions

Resort development by the Longmire family on their private property made the Longmire area the hub of tourist activities in the late 1800s through the turn of the century. In the first decade of the 20th century, however, the Department of the Interior began to weaken this grip and move development east and away from the meadow. As noted above, the park's first substantial lease

was given to Tacoma Eastern Railroad Company in 1905 to build the National Park Inn shown below. The Inn was completed in 1906 just to the south of the Longmire property. It was a large two-story building of 36 rooms that could house 60 guests. An additional 75 guests could be accommodated in wood-floored, illuminated tents situated on the grounds. There also was a log clubhouse east of the Inn. A hydroelectric plant powered by the Nisqually River supplied electricity and refrigeration. The Inn was operated under a five-year lease.



Figure 41. Longmire Hotel ca. 1908. Now painted white with a south-facing porch.



Figure 42. National Park Inn ca. 1912

In addition to National Park Inn, other small businesses began to appear in the Longmire administrative area south and east of the road in the early 1900s. Early enterprises include a livery stable, photographic studio, and grocery store on the leased property adjacent to the Longmire Springs development in the meadow.

A 1911 plat map of leased properties at Longmire Springs shows burgeoning activity, and increased presence of the automobile. Figure 43 shows the Longmire hotel at upper center. A new bath house is plotted near the center of the meadow. An auto barn is tucked into the inside curve of the Government Road. Linkletter's photo studio is situated immediately across the road next to Frank George's confectionary. National Park Inn and a "Club House" (still standing) are located south of the road. The two square leases are held by Susan Longmire's husband, George Hall, and by J. B. Turner. Hall's lease has two dwellings, a shed, and horse barn; possibly to support their pack trips to "Wigwam Hotel" in Indian Henry's Hunting Ground. Turner's lease contains a stable and a second auto barn. Other scattered buildings include ranger and engineer offices, several houses, and a hydroelectric generator and water channel southwest of National Park Inn.

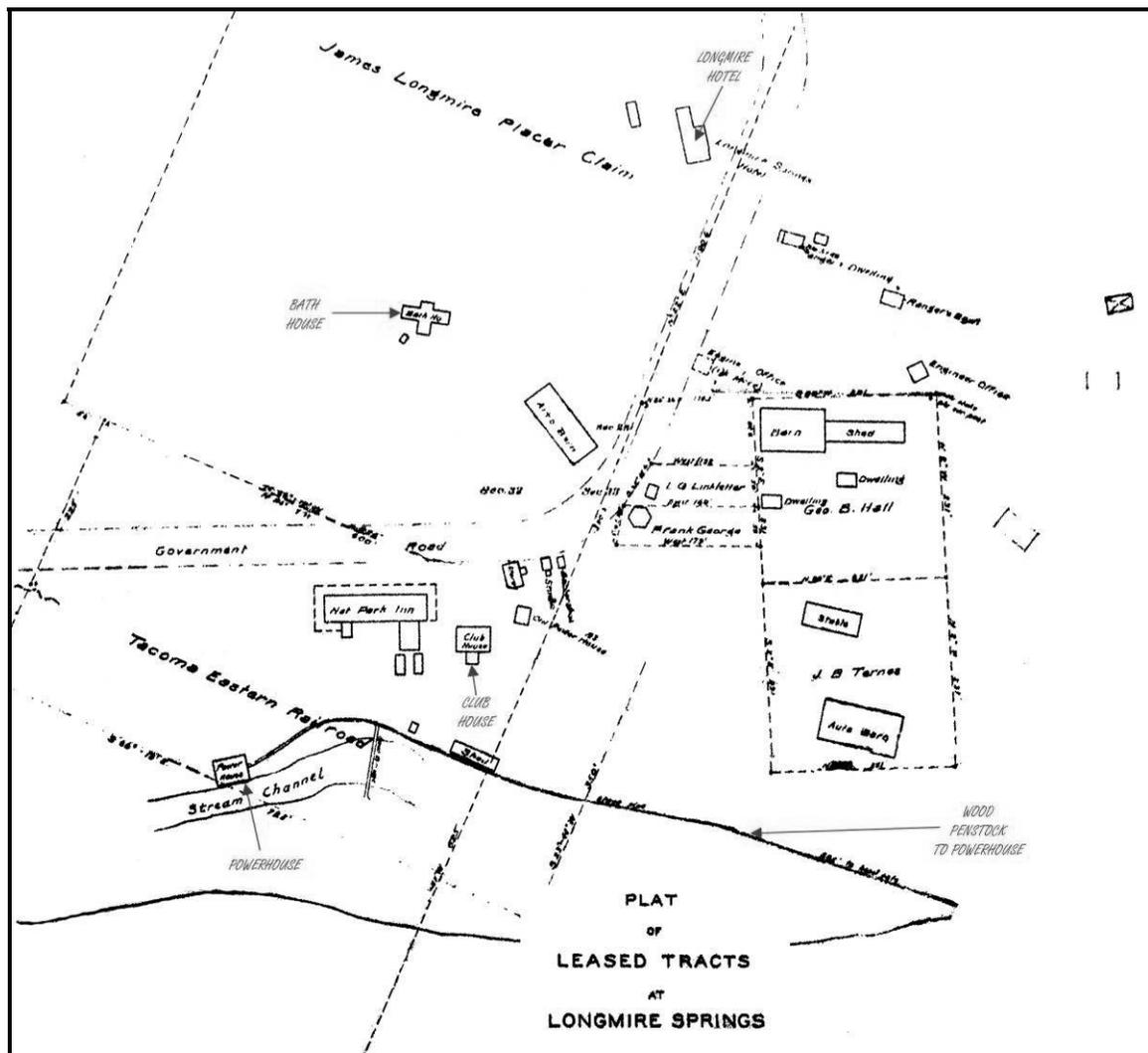


Figure 43. 1911 Plat of Leased Tracts at Longmire Springs

End of the Longmire Era at Mount Rainier

Growing park visitation in the first decade of the 20th century initially provided adequate business to fill both the new National Park Inn and the expanded Longmire Springs hotel. While far less elegant than the National Park Inn, the Longmire hotel was able to attract less-particular clients with its lower prices and excursions to outlying camps such as “Wigwam Hotel” in Indian Henry’s Hunting Ground. With deteriorating buildings and continuing difficulties in their relations with park management, the family found it difficult to compete with newer, better financed concessions.

In 1916, following the death of Elcaine Longmire, the family leased their property to the Longmire Springs Hotel Company, which began making substantial alterations to the meadow property. Improvements included construction of a new two-story, 17-room Inn annex in the meadow across from National Park Inn, 16 new bungalow cottages, tent frames, and a new sulfur plunge (Schiltgen 1986: 47, Catton 1996:86). Photo Figure 44, taken from Rampart Ridge, shows the Longmire area as it appeared about this time. This photograph is particularly informative because it shows the full developed area as it appeared at the time just before the Longmire family facilities were removed, and prior to the rapid developments that were about to commence with formal creation of the National Park Service. The Nisqually River is in full view in the background. The large open area between the buildings and the trees has either been cleared for construction of park facilities, or is an older flood/debris flow track that has not fully recovered.

Longmire meadow buildings include those discussed earlier with several additions. The building in the center of the meadow is a mineral “plunge pool.” Its bathhouse can just be seen immediately left of the double row of platform tents. The dark-roofed building barely visible above and slightly left of the bathhouse is the “Auto Barn” shown on the 1911 plat (Figure 43). The Inn Annex, the location of which can be seen on the 1916 map (Figure 45), has not yet been built.

Across the road, the original National Park Inn is fully built, and is flanked by additional tent platforms on the right. The large building behind the Inn is a storehouse which later became a laundry. Though not visible, the hydroelectric power house is present directly behind that building. Linkletter’s photo shop is one of the small buildings to the left of the Inn and Frank George’s hexagonal kiosk. Larger buildings in the cleared part of the administrative area are horse and auto barns. The park’s ranger facility is the small gray-toned building left of the large white barn, across a small clearing. When the present Administration Building was constructed in 1921, this building was moved across the clearing to the barn site where it now continues to serve as the Longmire museum.

From this point on, development shifted increasingly to the administrative side of the Longmire Historic District. Careful comparison of features shown in the photograph with those on the 1911 and 1916 maps allow us to reconstruct this time period and identify most of the early 1900s buildings at Longmire. The photo/map combination proved to be particularly useful in identifying remains of several of these features in both the Longmire meadow and Longmire administrative areas. These will be described further in the archaeological survey section of the report.



Figure 44. Longmire Developed Area as it Appeared ca. 1915. (Linkletter Photo L309)

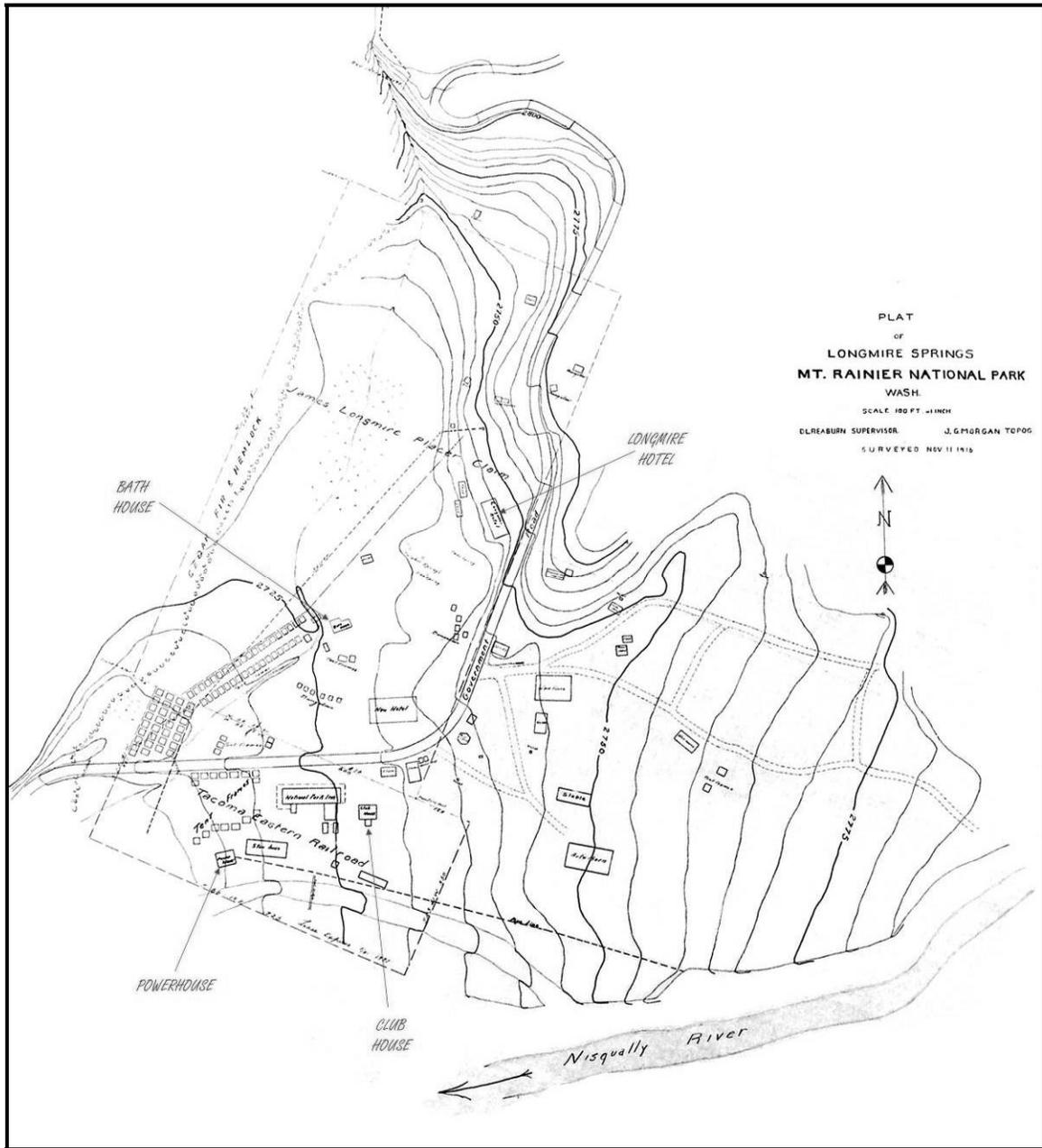


Figure 45. 1916 Plat of Longmire Springs

In 1916, Rainier National Park Company (RNPC) was formed by local businessmen and investors, and contracted with the Department of the Interior to provide tourist facilities and transportation. The RNPC soon began acquiring properties and leases in Longmire, and successfully negotiated the purchase of the Longmire Springs Hotel and Inn Annex. They obtained a 20-year lease on the land in 1919 and made immediate changes to Longmire meadows. The 1920 superintendent's annual report describes the subsequent changes as follows:

During the month of May the National Park Inn Annex, at Longmire Springs, was moved across the road. This gives it a better location and improves the appearance of the buildings at Longmire Springs and enables it to be more conveniently operated in connection with the National Park Inn.

The old Longmire Hotel was dismantled [sic] and burned May 17. The Company has done considerable work in cleaning up and improving the mineral springs and their surroundings. The soda springs have been enclosed by masonry walls and walkways have been constructed.

Rainier National Park Company and National Park Service Developments at Longmire

As described above, the RNPC was formed in 1916 by local businessmen and investors under concessions contract with the Department of the Interior. Later that year, the National Park Service was formed, and succeeded the Department of the Interior in managing the park. By the 1920's the RNPC was in control of the major concessions at Longmire, including the National Park Inn, Inn Annex, and the site of the original Longmire Springs Hotel and associated facilities. The Longmire family still owned their property but the RNPC held a 20-year lease. Although the Longmire Springs Hotel was burned in 1920, the bathhouse and some of the tent cabins at the south end of the meadow remained in use. RNPC also built a tennis court across the road from the Inn for the convenience and entertainment of its guests.

The National Park Inn Annex built by the Longmire Springs Hotel Company in 1916, was moved south, across the road in 1920, and sited east of the Inn and Clubhouse. After the original Inn burned in 1926, the Annex became known as the National Park Inn, as it is to this day. After the 1926 fire, visitor cabins were built in the area of the original Inn to provide additional visitor accommodations. The Clubhouse, which presently serves as a gift shop, is the only building in this complex that remains in its original location.

During this period, spurred by the growing popularity of Paradise as a visitor destination, RNPC and the National Park Service became concerned about the economic viability of the Inn and other Longmire attractions. The Nisqually Road to Paradise was complete, and accommodations offered by Paradise Inn and Paradise Camp Lodge had attracted visitors away from Longmire. Why stop at Longmire, when one could easily travel all the way to Paradise?

Responding to these challenges, the park initially considered the idea of promoting and further developing the mineral springs at Longmire as a health spa destination. In so doing, administrators hoped to attract visitors back to Longmire as a destination place, and to relieve congestion at Paradise. In the end, this idea faded after water samples from the springs were found to contain no medicinal value (Catton 1996:256-257). The concept of the health resort, however, did not die immediately. Health considerations probably influenced, temporarily, continued operation of the bathhouse. The bathhouse was converted to a small hospital in 1925, complete with accommodations for a nurse in a separate building. Other attempts to add tourist attractions included tennis courts, a toboggan slide, and a ski jump.

The NPS decision to locate headquarter facilities in Longmire in 1916 was no doubt due to the concentration of development and activity there. Early park management developments at Longmire included a ranger's cabin, an engineer's house, a warehouse (built in 1913, and later

converted to a dormitory) a superintendent's office, and a community kitchen (built in 1910, and later converted to the Longmire Library). Longmire remained the center of park operations for the next fifty years. From 1916 to 1927, facilities were added as needed both to meet administrative and maintenance needs as well as to support visitor needs including: a telephone switchboard in 1918, a modern comfort station in 1921, the bridge over the Nisqually River, and cottages for park personnel. Although the new buildings were constructed in the Rustic Style, the park did not formalize the Longmire development plan until 1926. Plan map Figures 46 and 47 illustrate these developments as they occurred. Much of the infrastructure shown on these maps remains; contributing to the Longmire Historic District's eventual inclusion in the National Register of Historic Places.

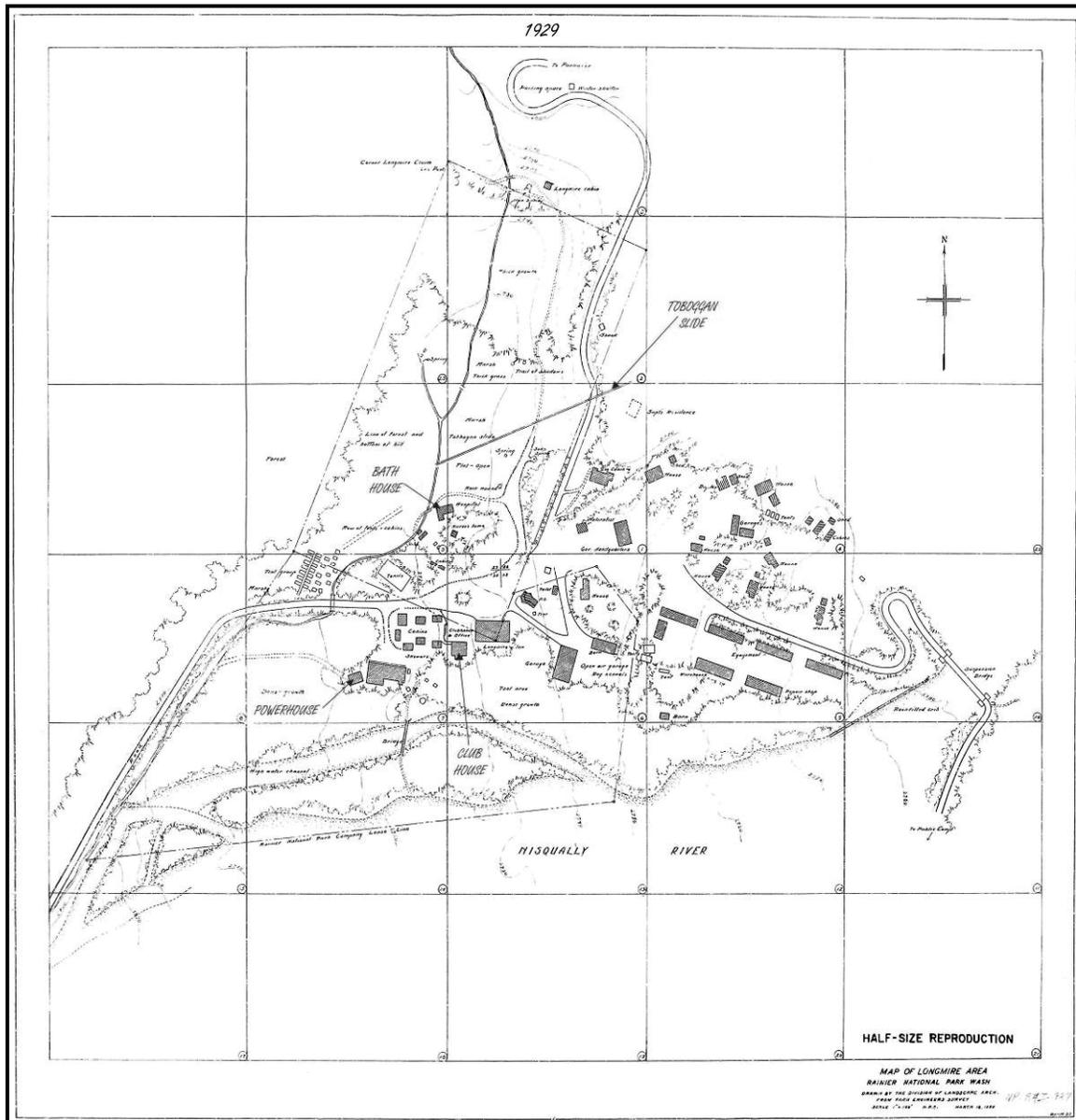


Figure 46. 1929 Map of Longmire Developed Area



Figure 47. 1935 Topographic Map of Longmire. The meadow is still private property.

The park began construction of the campground on the south side of the Nisqually River in 1924. Part of the funding for the campground paid for the construction of the Nisqually Suspension Bridge, which could accommodate automobile traffic to the campground. The suspension bridge

replaced an earlier pedestrian/livestock bridge known as the “Pony Bridge” that was sited at the same location about 1911 (Dolan 1997:18). The pony bridge and connecting trails are shown on the section of the 1915 topographic map included here as Figure 30.

As the National Park Service gained control of the Longmire area, the Park Service recognized the need to manage previously haphazard growth in the area. This led to a formal development plan in 1925 designed and managed by Landscape Architect Thomas Vint and the Western Division Office. The plan provided for organized placement and development of buildings, roads, trails, bridges, and landscaping; employing a rustic design style to harmonize with the park’s natural elements and scenery. This plan was the basis for developing Longmire as a park village. This plan helped to organize Longmire into discrete zones separating public spaces such as the plaza, meadow and campground from maintenance facilities and employee residences. Implementation of the plan during the late 1920s and 1930s included construction of the Administration Building in 1928, conversion of the former administration building to the Longmire Museum, construction of bungalow-style cottages, construction of a number of maintenance buildings, relocation of the 1913 warehouse (converted to a dormitory), and construction of the Community Building in 1926 near the campground (Schiltgen 1986:51, Dolan, 1997).

In the 1920s and 1930, Longmire meadows began to take on the character that we know today. The eastern portion of the modern “Trail of Shadows” route follows the path of Longmire’s original access road to the Longmire Spring’s Hotel. In 1925, the trail was extended to the north past the Longmire’s private property boundary, passing by Elcaine Longmire’s cabin site, Iron Mike Springs, and on around the western edge of the meadow to join the trail to Indian Henry’s Hunting Ground (Ramparts Trail). The trail was constructed as a cooperative project between the Park Service and the Boy Scouts. In 1934, the Elcaine Longmire cabin, in need of restoration, was rehabilitated/rebuilt by the CCC, which replaced the deteriorating log walls.

In 1939, after years of protracted negotiations, the National Park Service purchased the Longmire Mineral Springs property, one of the problematic private in-holdings within the park (Catton 322-327). In 1939, the CCC was employed to return the meadow to a more natural setting by removing structures, rock walls and pathways, revegetating disturbed areas, and repairing the stonework around Soda Springs and Iron Mike Springs (Dolan, 1997:20-22).

Aside from minor alterations, the addition of some new buildings and the loss of others; much of the 1920s designed character of the Longmire Historic District remains. In recognition of its National Register of Historic Places status, the park remains committed to preserving the integrity of its historic landscape design elements and its rustic buildings. Not included in either of the National Register nominations (Toothman 1990, and Toothman, Begley and Carr 1997), however, are *archaeological* (i.e., no longer standing or readily visible) remains of its longer historical past. The present project was designed to identify archaeological traces of the Longmire study area’s past, and organize them in a meaningful way related to the complex historical events that have transpired here. In the next section, we move to a discussion of these archaeological procedures and results.

The Longmire Archaeological Survey

Archaeological procedures for the Longmire study area focused on both Longmire meadows and administrative areas as described above. Because of intensive development, especially in the administrative area, the survey focused primarily on currently *undeveloped areas* (i.e., places not dominated by currently used buildings, roads, and parking lots) within the broader historic district. The survey combined standard pedestrian transect reconnaissance techniques as described for Sunshine Point and Kautz project areas, with more intensive survey focused on previously identified features; and/or those depicted on historic maps and photographs, and previous archaeological site maps.⁷

The river terrace along the northeastern bank of the Nisqually River also was surveyed from the suspension Bridge south to the downstream end of the historic campground. Here, as in much of the undeveloped survey area, the landscape is forested with western hemlock, Douglas fir, western red cedar, and a few yew trees. In the campground, the forest floor is especially uneven due to near-surface boulders and cobbles, probably from the 1686-1700 C.E. Nisqually debris flow (Pringle 2008), as well as more recent flood events. All undeveloped survey areas are covered with thick moss and forest duff; obscuring ground surface visibility, and restricting our ability to locate historical artifacts and small features. Accordingly, archaeological survey results in the Longmire study area, as in Sunshine and Kautz study areas, should be taken as a sample of a more robust presence that hopefully will come to light as time goes by.

Even though historical photographs and maps were useful in conducting the survey, we were not always able to locate remains of the buildings shown. Nor could we always unambiguously relate an archaeological feature to a depicted location or structure. These occasional problems notwithstanding, we found the procedure most helpful in organizing our survey work, and in providing a basis for positive identification of several previously undocumented or incorrectly plotted features in both the Longmire meadows and the Longmire administrative area across the road.

Previously Recorded Sites

FS1997-05: Longmire Hotel Complex (now Longmire Historic District)

Site FS1997-05, originally recorded as the Longmire Hotel Complex, was intended to account for Longmire family developments in the meadow area. We have retained this site number, but renamed and expanded it to include the entire Longmire Historic District. The Longmire Hotel Complex is retained as a sub-area within the historic district with newly documented functionally related features in or near Longmire meadow added. Other sub-areas are added as appropriate to group historic archaeological features with historical developments and locations with which they are related. In this way, new features and artifact concentrations can be

⁷ Certain maps from MORA's curation facility in Tahoma Woods (Historic Images section, Drawers MC2-3 and MC2-5) were particularly detailed and informative. These are reproduced on a smaller scale in this report: 1911 Map of Leased Tracts at Longmire Springs, 1916 Topographic Blueprint of Longmire, 1929 Longmire Map, 1935 Topographic Map of Longmire. The 1929 Longmire map was drafted from a set of maps drawn in February 1928; although it is comprehensive, the 1928 maps offer more detail than could be presented at a scale appropriate for this report.

added to a single Longmire Historic District archaeological site without proliferating independent site numbers that bear no apparent relationship to one another. Expanded site FS1997-05 and its sub-areas is discussed in further detail below. Please note that site FS1997-05 includes only *archaeological* remains. It does not include standing, currently used structures.

FS1996-01: E. H. Hudson Gravesite

Closely related to the Longmire Springs complex is the E. H. Hudson gravesite located just upslope from the Nisqually Road about 100 meters southwest of the meadow. This little-known grave is the last page of the tragic story of Mr. Hudson's demise while camping near Longmire Medicinal Springs in 1888. According to a 1951 interview with Lew Longmire (park archives cited in the FS1996-01 site form) E. H. Hudson came to the mountain on a hunting trip in late summer to autumn of 1888; accompanied by his young son and two companions. They camped at the lower end of Longmire meadow. One morning, as Hudson leaned over to extinguish their campfire, his loaded derringer pistol slipped out of his vest pocket, went off, and shot him in the throat. His son ran to get help from Maude Longmire who tried to stop the bleeding, but Hudson died that afternoon. A coffin was made from a wooden bathtub from the Springs, and the body was stored all winter in a shed and later buried "beside the trail below his camp." The Longmires believed that Hudson's family would reclaim the body, but the son was seen in the Klondike in 1898 and said he did not want the body which, by that time, was ten years buried. The Longmire family continued to put flowers on the grave for years. When Ricksecker planned the Government Road to replace the Longmire wagon road in 1906, the original alignment passed through the gravesite. The road was later routed to the south in order to avoid the grave. In the 1930s, the American Legion marked the grave with a curved pipe (still present today) and a wooden cross (no longer present). The grave southwest of the meadow on the north side of Nisqually Road is shown in Figure 48. The E.H. Hudson story and grave offers a, presently unexploited opportunity to interpret this aspect of the Longmire Historic District.



Figure 48. FS1996-01, the E. H. Hudson Gravesite

FS2004-02: Longmire-Eagle Peak Wood Stave Water Supply System

Site FS2004-02, is a section of a cedar stave pipe system exposed near the right abutment of the Nisqually suspension bridge in 2003. Originally, the pipe had been suspended under the bridge to carry water from a small collection area on the lower slope of Eagle Peak to the housing area west of the river. The wooden pipe has been replaced with steel pipe, but the recorded section remained under riprap before the 2003 flood. Additional sections of this system can still be seen a short distance north of Longmire's present water treatment and storage facility east of the river.

FS2005-09: Longmire Mine Adit

The Longmire Mine is a single mine adit with associated mine tailings. The shallow adit is located to the north of the project area, just outside the residential area. The site was not revisited as part of this project. Its relationship to historic events remains unknown at present.

Isolated Finds

While trenching in the vicinity of the present EOC building in 2002, parts of a 1920s truck were unearthed in artificial fill behind the Nisqually boulder levee. The site was photographed and recorded as IF2002-10. The truck fragments were recorded and discarded. And finally, Longmire Horseshoe Pit (IF1997-01) is located within the Longmire residential area. This developed area was not surveyed further during the present project. The site consists of two side-by-side horseshoe pits and the remains of a wooden scoreboard. Site recorders believed that the feature was associated with the CCC era at Longmire.

Longmire Historic District Archeological Remains; Site FS1997-05

The Longmire meadow and administrative areas were explored using historic photographs and maps; many of which were presented in the background review. Many of these photographs show the approximate location of the hotel, Longmire cabin, and outbuildings. Some proved to be quite useful in identifying archaeological remains and establishing their historical association.

Although the photographs provided tantalizing clues, changes in vegetation and trail patterns complicated the search. Second growth trees obscured many landscape features and distinctive rocks that otherwise would have provided physical landmarks to relocate buildings. Furthermore, the now restored wet meadow prohibited search for well features, as well as access the vantage point from which many of the historical photos were taken. Nonetheless, the photographs span most of the history of the Longmire hotel area and provided information about the building changes and the history of the development. Some of the photographs are dated, and from these, we were able to place the undated photographs in relative sequence.

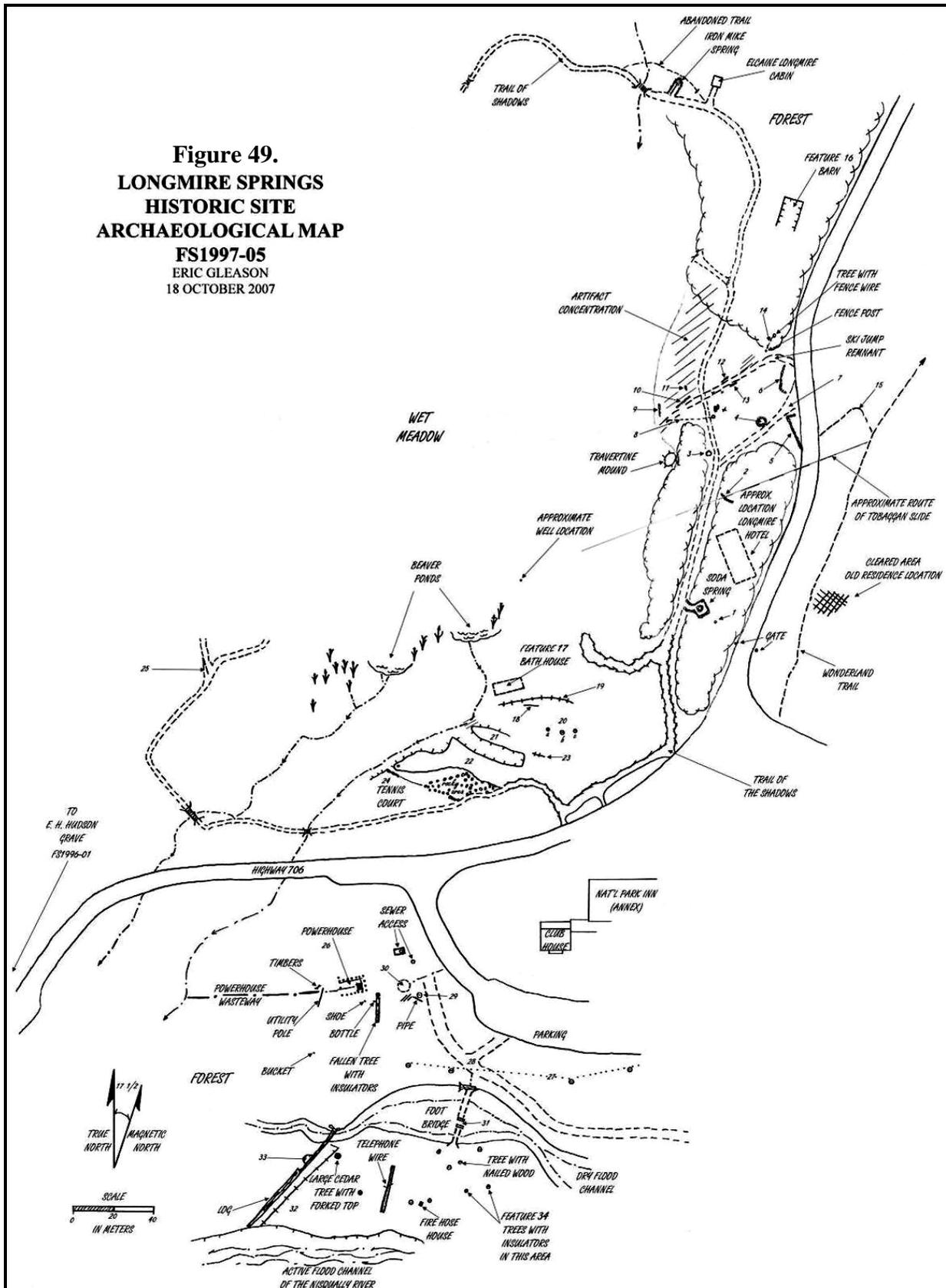
Site FS1997-05 subsumes all archaeological features recorded in Longmire meadow. Gary Wessen originally documented the site in a 1993 letter report to NPS regional archaeologist Jim Thompson. In 1997, MORA archeologist Gregg Sullivan mapped and recorded observable parts of the site. During the 2007 survey, we updated site documents to include 25 artifacts and features in the meadow area; and 11 artifact/feature associations elsewhere in the administrative area. New artifact/feature numbers were assigned to consolidate the 1997 designations. We also organized associations into four sub-areas to maintain spatial and, to some extent, temporal and functional distinctions between them. The *Longmire Springs Hotel Complex* is located at the west end of Longmire Meadow and includes the Longmire Springs Hotel, as well as a few subsequent NPS

features. The *Bathhouse* area is located at the south end of the meadow, where the bathhouse, tennis courts and tent structures were located. The *Powerhouse* area is located south of National Park Inn. The *Nisqually Suspension Bridge* area is in the area of the Nisqually Suspension Bridge. Additional areas may be added as more archaeological remains are found.

Table 3. FS1997-05 Longmire Historic District Archaeological Features

Feature No.	Description
Longmire Springs Hotel Complex	
1	Cedar stave water pipe adjacent to rock walled Soda Spring.
2	Curved rock wall. Apparent dry-laid retaining wall. Date unknown
3	Rock ring next to trail. Date and function unknown
4	Large rock ring/pit
5	Retaining wall near Nisqually Road with 90° angle (south of Feature 7)
6	Retaining wall next to Nisqually Road (north of Feature 7)
7	Path/trail between Nisqually Road and meadow
8	Terracotta drain line
9	Long rock wall parallel to the meadow, possible outbuilding foundation
10	Diagonal rock alignment or wall
11	Short section of rock alignment or wall
12	Rock alignment, possible ski jump location (north edge)
13	Rock alignment, possible ski jump location (south edge)
14	Fence line remnant, post and tree with wire
15	Toboggan trail
16	Barn Location
Bathhouse Area:	
17	Bathhouse location
18	Metal water pipe
19	Ditch
20	Three depressions at possible location of three bungalows
21	Leveled area, possible location of 6 bungalows
22	Leveled area
23	Small ditch
24	Tennis court
25	Wood stave pipe at head of Rampart Trail
Powerhouse Area:	
26	Powerhouse foundation
27	Telephone trees with 5 insulators
28	Alignment for powerhouse penstock line
29	Cedar tree with sign board
30	Brick pile in Laundry area
31	Footbridge remnants
32	Ditch
33	Pit
34	Telephone trees with 1-2 insulators
Nisqually Suspension Bridge Area:	
35	Pony bridge remains
36	Wood stave pipe

Figure 49.
LONGMIRE SPRINGS
HISTORIC SITE
ARCHAEOLOGICAL MAP
 FS1997-05
 ERIC GLEASON
 18 OCTOBER 2007



Map Figure 49 is a comprehensive sketch map of each of the four Longmire archaeological areas identified during the 2007 project. GPS points were taken at a variety of locations to increase map accuracy. Please note that standing structures such as the Soda Spring, Iron Mike Spring and the Elcaine Longmire Cabin were not given archaeological feature numbers, but were included on sketch maps as landmarks to help place the archaeological remains in context. Below, we describe documented features and artifact concentrations by site area.

Longmire Springs Hotel Complex

The location of Longmire Springs Hotel can be closely approximated using the 1916 map and measuring distances from Soda Spring and the position of the Nisqually Road from Longmire to Paradise. Because dense vegetation and thick duff and moss obscure direct surface evidence of the hotel *per se*, the location was not given a feature number. Nonetheless, we believe that the location indicted on map Figure 49 is correct. Two large cedars in this area may be the trees in front of and at the southwest corner of the hotel that appear in a ca. 1915 photographs of the hotel. A systematic subsurface survey, perhaps employing a metal detector, could pinpoint the hotel location more precisely. Note, however, that the location is some 60 meters south of where the hotel location was marked, we believe incorrectly, with wooden posts along the Trail of Shadows.



Figure 50. Detail of Longmire Springs Hotel Area from 1915 Linkletter photograph

The ca. 1915 overview of Longmire taken from the Ramparts provides useful details of outbuildings and tent structures around the hotel as in enlarged-view in Figure 50 above. Soda Spring is the low-roofed building circled to the right of the hotel (also see Figure 38). The white structures to the left of the hotel appear to be tents, although there appears to be a rectangular frame building to the right of the tents. This is the area where Features 8, 9, 10, 11 and an artifact scatter were found (see Table 3). The white building, or tent, in the center of the meadow is the mineral (sulfur) plunge. Remnants of the larger bath-house sheds depicted in photographs in front of the hotel were not found.

Figures 51 and 52 show identical meadow views –the first as it appears now, the second as it appeared in 1894. Minor distortion in the 1894 photograph is the result of a wider-angle lens.

The low area above and to the left of the horses in Figure 52, is now a cattail marsh. Marsh ponds are also now found in low ground in front of the hotel. Remnants of the rock-rimmed, concrete-lined well shown in the foreground were located by Kirschner and Burtchard in 2005 as shown in Figure 53. These could not be relocated in 2007 due to high water, and hence, did not receive a feature number in Table 3. The well should, however, be documented and accurately plotted at the earliest dry, or frozen, ground opportunity.



Figure 51. 2007 View of Longmire Meadow



Figure 52. Longmire Springs Hotel ca. 1894 (is1082)



Figure 53. Wellhead in the Longmire Meadow. Left: Rick Kirschner and Mark Davison at the well location. Right: Close up of the wooden lid covering the well.

Closer to Trail of the Shadows are Feature 2 –a section of rock wall, Feature 3 –a rock ring, and Feature 4 –a four meter diameter rock lined pit (see map Figure 49). The wall appears to be a dry-laid retaining wall. The rock rings may be formalized campfire features, but we were unable to establish function or temporal period through historical documents or photographs.

Features 5 and 6 are sections of a rock retaining wall located on the down-slope side of the Nisqually Road. The uppermost stones of the wall can be seen in the ca. 1915 photographs of the rear (northeastern side) of the Longmire Hotel (Figures 54 and 55). The gap in the walls is the location of the access road (Feature 7) connecting Nisqually Road to the hotel and meadow. Canvas tents were added to provide additional accommodations, and to serve as bathhouses and other facilities. The Nisqually road remained unpaved but edged with rock as noted above.

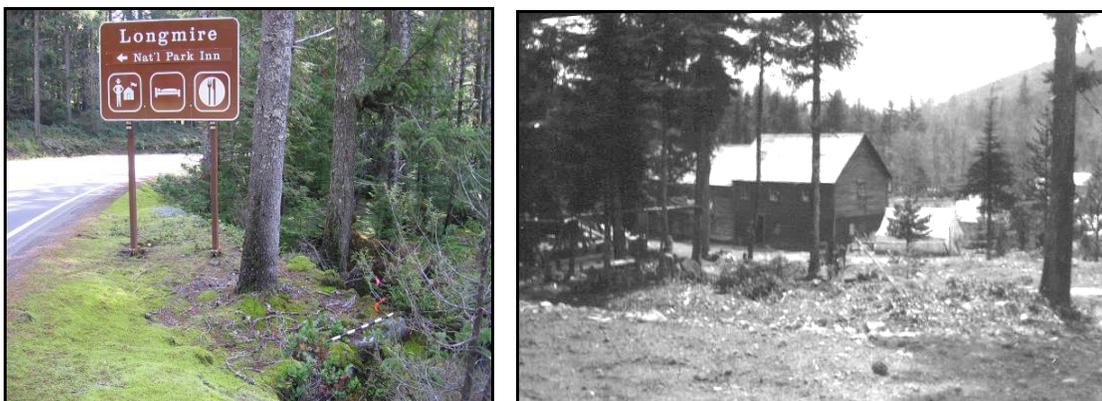


Figure 54. Right: Feature 5. Left: Rear View of the Hotel. Both photos taken from approximately the same location on the Nisqually Road to Paradise. (is1066)

Rock walls shown above and on the site map probably were associated with early Nisqually Road construction. Construction of this section of Government Road from Longmire to Paradise began in 1905; during which time only one mile was completed as it was quite “elaborate” and included “berms, drains and other refinements” (Catton 1996, 121-122). It is possible that these two walls were part of these “refinements.” The road in the foreground of Figure 55 is probably Government Road under construction. Longmires’ hotel is painted white, which is consistent with the early 1900s time frame. One of the rock walls can be seen at photo-left. There is a wire fence line in which some wire is wrapped around trees. A remnant of wire was recorded embedded in a tree in the area of the hotel.



Figure 55. Ca. 1905, Rear of the Longmire Hotel Painted White.

Features 9 (Figure 56) and 11, rock alignments some 60 meters north of the hotel, are probably remnants of outbuilding foundations that are depicted on the historic maps and on the ca. 1915 aerial view of Longmire taken from the Ramparts. Fragments of glass, white glazed ceramics, and nails are scattered in this area. One glass gastrolith (gizzard stone) was also seen in this area, a possible indication that poultry was kept here. Feature 16 is the location of the Longmire barn, as depicted on the 1911 map. It is located about 140 meters north of the hotel. It consists of a 10 meter by 15 meter leveled area that is bounded on three sides by a low cut-bank.

Vegetation and standing water in the meadow impeded systematic survey of this area. During the late 1800s and early 1900s, the Longmire family drained the meadow, and built spring boxes and wellheads to help control the springs. Since acquiring the property in 1939, the park has restored the meadow to its more natural state of bubbling springs, seeps and beaver ponds. Many structures visible on historic photographs and maps in the meadow area (such as the rock-rimmed well shown in Figure 52) could not be relocated.



Figure 56. Feature 9 Rock Alignment. Possible Longmire Outbuilding Foundation.

Features 12 and 13 are rock alignments most plausibly associated with NPS management of the meadow in the 1930s. These alignments coincide with the most probable location of a ski jump depicted on the 1935 map. The ski jump complimented a toboggan slide built just south of this location several years earlier. On a 1922 map, the toboggan slide is noted as being 1,100 feet long, a distance “ordinarily covered in 12 to 15 seconds” (text on the back of a 1925 photo in the University of Washington library). The slide crossed over the Nisqually Road trending to the SW, and passed near the location of the old Longmire Springs Hotel and on into the meadow. By 1938, the southern end had a curved extension. Figure 57 shows the slide in the winter of 1930.

Feature 15 (Figure 58) is a trail that accessed the toboggan slide, present from about 1922 to 1938. This trail to the top of the slide was known as the “Paradise Trail” on the 1935 map. Present remnants of the trail measure two meters wide, and are edged with an alignment of rocks on either side. The trail extends from the east side of the Nisqually Road to the Wonderland Trail and remains in good condition even though it has been abandoned for some time. The trail is depicted on the 1922, 1929 and 1935 maps of the Longmire area. It is the only clearly defined remnant of the toboggan slide; although one can see the remnant of a cleared swath through the trees from the top of the trail looking down toward the meadow.

The ski jump and toboggan slide are associated with RNPC developments at Longmire after the Longmire Hotel was demolished. Both were constructed to draw in tourists during the winter at a time when the Nisqually Road above Longmire was closed. According to the Superintendent’s Annual Report of 1924, there was a “definite demand on the part of the public for entrance to the Park during the winter months.” The park kept the road open to Longmire “by means of a snow plow attachment operating ahead of a caterpillar tractor.” RNPC provided a one-track toboggan slide, snow shoes, skis and toboggans, drawing 10,000 visitors during the first winter season of 1923-24. During the 1924-25 winter season, RNPC also brought in a team of

thirteen Alaskan sled dogs and an Eskimo driver to provide rides for paying tourists. Although the park viewed the winter season a success, RNPC lost money on winter operations. Nonetheless, RNPC continued to provide what they considered a public service in hopes of turning a profit in the future (Catton 199:277-278). The toboggan slide, apparently quite popular, operated for over 15 years. The ski jump is shown only on the 1935 map; the exact dates of its operation are unknown.



Figure 57. Toboggan Slide at Longmire 1930 (n 93)



Figure 58. FS1997-05 Feature 15, Toboggan Slide Trail

Bathhouse Area

The Longmire Mineral Springs Resort bathhouse (Feature 17) is shown at the south end of the meadow in the 1915 photograph below (Figure 60). The bathhouse was constructed in the phase of improvements that followed in response to added competition from the Tacoma and Eastern Railroad Company Hotel (the original National Park Inn). The 1915 overview taken from the Ramparts shows the bathhouse with a cross gabled roof, to the left of the row of tents.



Figure 59. Detail of Bathhouse Area from 1915 Linkletter photograph

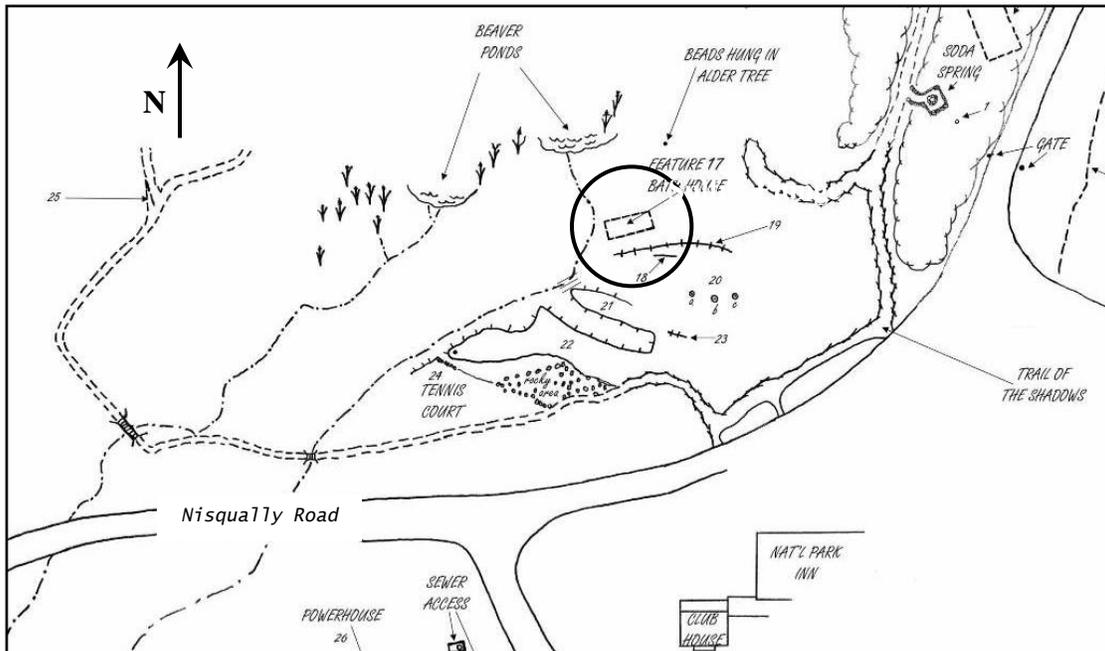


Figure 60. Bathhouse Area: detail of FS1997-05 Site Map

Another photograph, probably taken at about this time depicts the front of the bathhouse with two women standing at the front door. On a 1929 map, the bathhouse is labeled as the hospital, and a “nurses home” is located adjacent to the southeast. The buildings are gone by 1935. We pinpointed the bathhouse location armed with the maps and the frontal view below. The distinctly curved alder tree at the northeast corner of the building is still present (not visible in the 2007 photo Figure 62). A rectangular depression marks the footprint of the bathhouse.



Figure 61. Bath House in the Early 1900s (twc 1252)



Figure 62. Feature 17, the Bath House area in 2007. Jacqui Cheung standing at approximate location of the door. Ball Sure Seal canning jar (ca. 1900-1915) found in adjacent creek channel

A light scatter of artifacts is present in this area including window glass fragments, a penny (date illegible), and a complete canning jar found in the creek channel, close to the location of the footbridge on historic maps. Feature 19 (a ditch) and Feature 18 (an iron pipe) are located behind the bathhouse to the south.

Other structures depicted on historic maps and photographs in the bathhouse area are more difficult to relocate. By 1915, a row of tent frames was set up in the meadow southwest of the bathhouse as shown on Figure 61. These also appear on the 1929 map, but are gone by 1935. Today, the area has a beaver pond with a very wet grass and cattail meadow. Physical evidence of the location of these tent frames would be difficult to find in the saturated ground.

Three small depressions are located in the approximate area where three bungalows and the “nurses home” are depicted on the 1916 and 1929 Longmire maps. This area south of the bathhouse (Feature 17), now appears as a clearing surrounded by large trees. Uneven ground surface and vegetation makes it difficult to identify the outlines of foundations or building footprints. The small depressions recorded as Feature 20 may be historic pit features, or the result of more recent cultural or natural activity. No artifacts were seen in association with these features.

Feature 21 is located in the area where six bungalows are depicted on the 1916 Longmire map (Figure 45). By 1929, there is a tent and cabin located next to the creek and two cabins depicted to the southeast. (Figure 46). Feature 21 now appears as a rectangular leveled area delineated by ditches on its north and south edges. The southern ditch separates Feature 21 from another leveled area –Feature 22– which also has a ditch at its southern edge. The 1935 Longmire map depicts two parallel lines in this area that may represent the ditches on either side of Feature 21. The ditches, no doubt, provided drainage to ensure that the cabins and bungalows stayed dry. A cluster of artifacts were found next to the creek near the location of the ca. 1929 tent. The artifacts include: fragments of white glazed earthenware pitcher, including a handle and rim fragment; a colorless canning jar base embossed “KERR GLASS MFG CO / PAT. AUG 31 / 1915 / SAND SPRINGS OKLA.” An oval coil of pipe was found in the creek.



Figure 63. Artifacts found near Feature 21

Feature 24 is a large leveled area that appears to be the location of the tennis court depicted on the 1929 Longmire map. By 1935, the court had already been removed. The Trail of Shadows seems to have truncated the southern portion of this feature. Today, the area is relatively level, though with slight slope. Feature 25 is a 5-meter long section of wood stave pipe exposed on the Trail of the Shadows at the head of the Rampart Ridge trail.

Powerhouse Area

Features described above exhaust those discovered in the Longmire meadow area during the 2007 project. South and west of the Government Road (Nisqually Road), the administrative area is dominated by currently used buildings, and asphalt covered roads and parking surfaces. Archaeological remains of early concession and MORA administrative history, however, can still be found around its less developed edges. The powerhouse area is one of these places. Located southwest of modern National Park Inn (formerly the Annex) and store (formerly the Club House) are remains most plausibly related to the early 1900s hydroelectric power plant, and storehouse. These features are shown on Figure 64, and described below. Figure 65 is a section of the 1916 plan map showing buildings most plausibly related to those features.

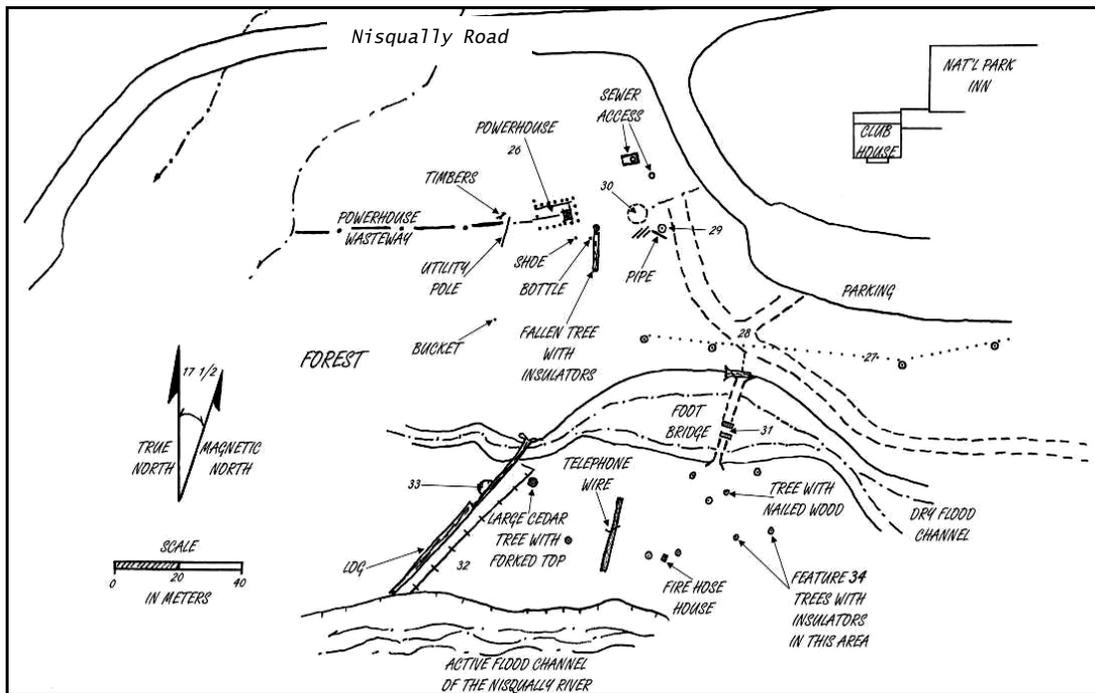


Figure 64. Powerhouse Area: detail of FS1997-05 site map

Feature 26 is the foundation of the ca. 1911 hydroelectric powerhouse built by the Tacoma and Eastern Railway Company to provide power to the National Park Inn and associated facilities. A foundation plan for this structure found in the park archives closely matches these remains. A 1911 map depicting the leased tracts at Longmire Springs shows the powerhouse at this location. The 1920 Superintendent's report mentions that the Longmire Power Plant was discontinued after the RNPC constructed a new plant on the Paradise River. By 1929, a structure at this same location with the same orientation and size is labeled the "Ice Plant." By 1935, this structure is no longer shown on maps; suggesting that it was demolished sometime between 1929 and 1935. The 1911

plans shows that the powerhouse was constructed as a simple wood-frame rectangular building with a gable roof supported by cedar foundation posts. The posts provided support for the structure while the cribbing structures provided additional support for machinery.

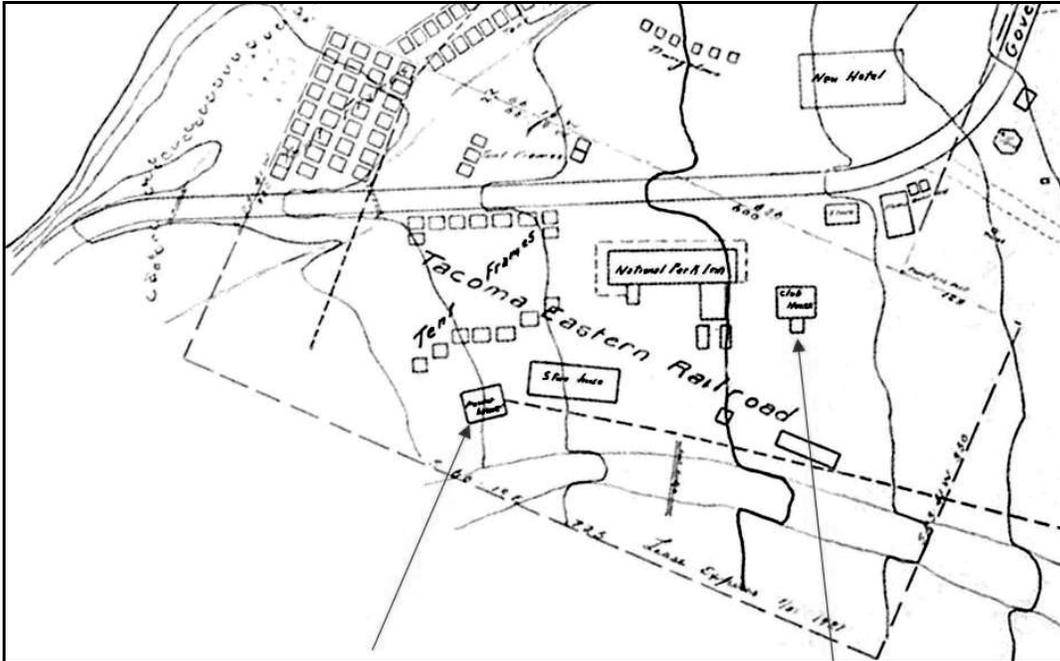


Figure 65. Detail of 1916 Longmire Map. Dashed line from the powerhouse is labeled “pipe line”. Arrow on the left points to the Powerhouse, the one on the right points to the Clubhouse.



Figure 57. FS1997-05, Feature 26. SE corner, showing log cribbing and cedar posts.

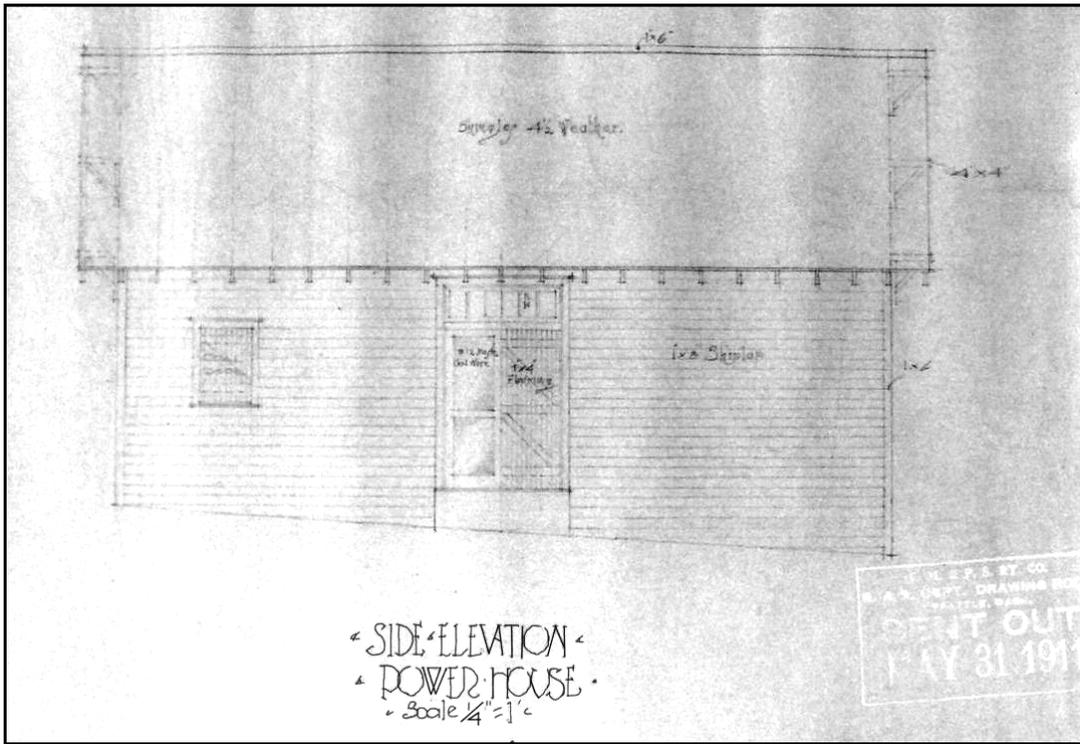


Figure 58. 1911 Powerhouse Blueprint

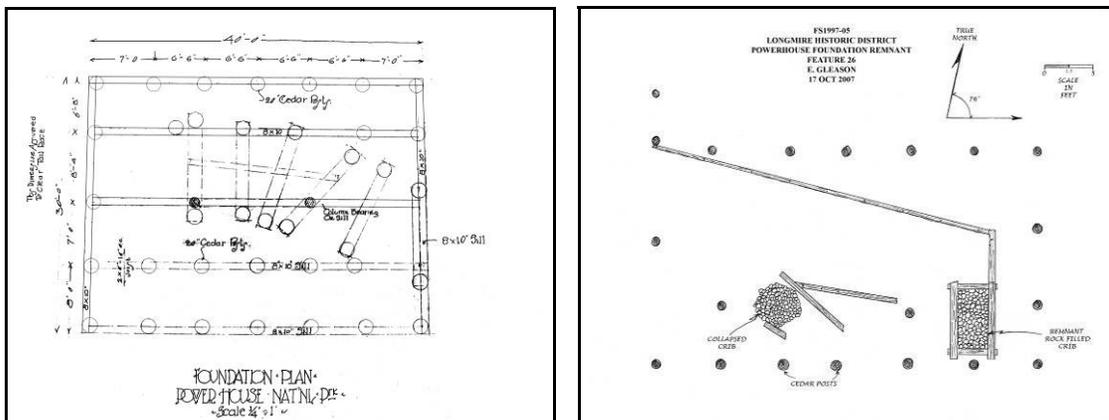


Figure 59. The Powerhouse. Left: 1911 blueprint of powerhouse foundation. Right: 2007 sketch map of powerhouse remains.

The route of the wood stave penstock associated with the powerhouse is depicted on the 1911 and 1916 Longmire area maps. Today the route remains visible as what appears similar to a road or trail segment oriented roughly NW/SE and extending more or less parallel to the existing paved road behind the National Park Inn. This route (Feature 28) is about 3 meters wide. Cobbles have been cleared from the grade. In places, it is bermed on either side.

Feature 30 is an artifact concentration consisting primarily of brick and other building debris located in the area where a store house building is depicted on the 1916 map. The same

building is labeled a laundry on 1929 and 1939 Longmire maps. A 1942 map in Owens and Dolan's 2005 Cultural Landscape Report contains a notation that the laundry was removed by 1958. The artifacts observed at this location may be demolition debris from this structure. The artifact concentration covers an area that measures approximately 3 x 5 meters. The main concentration contains approximately 30 machine-made bricks visible on the surface, with more probably present below the thick duff layer. Most of the bricks are still mortared together indicating that they came from a single structure.

Feature 31 is the remnants of a footbridge that spanned a Nisqually River flood channel. This bridge is depicted on the 1911, 1916 and 1929 maps of the Longmire area, but is gone by the time of the 1935 map. These maps were used to relocate the bridge, since it is not easily identified in the field. The bridge is oriented north to south and spans a dry channel some 8 meters wide and about 1.5 meters deep. All that remains of the bridge are the leveled areas on either side of the channel and a few associated structural logs. The leveled bridge approach on the north side has a cobble berm at the north end. A log was placed at the cut-bank of the channel parallel to the bank and is now partially engulfed by trees that have sprouted up along its length. The south side of the bridge also has a leveled approach. Nearby on a higher area within the channel, are two short log sections laid parallel to the channel. The log sections are covered with moss and have sprouted trees, but the sawn edge of the southern log is still intact. These logs probably represent the last remnants of structural supports for the footbridge deck. A few fragments of brown and colorless glass were found at the north end of the bridge. Nearby is the location of a shed depicted on the 1911 Longmire map. There is a slight leveled area at this location. However, no structural remains or cultural debris were noted here.



Figure 60. Feature 31, South End of the Footbridge. Photo shows two log sections that supported the bridge deck. View faces north across the channel to the other side of the bridge.

Features 27 and 34 are both remnant sections of separate telephone lines. These features primarily consist of ceramic insulators hung in trees through which the single wire telephone lines were strung. Telephone lines in this area were first installed by the Tacoma and Eastern Railroad Company in 1911, with additional lines added by the Department of the Interior starting in 1913. By 1929, there were "...125 miles of single grounded wire telephone line encircling the mountain and connecting all of the ranger stations with the telephone switchboard at Longmire" (Catton 1996:197). Later, the CCC was tasked with maintaining the telephone system that by then had expanded to 172 miles of line; connecting public camp grounds and CCC camps, as well as ranger stations. The unreliable nature of the lines and their requirement for constant maintenance eventually lead to their abandonment and replacement by radio communications, and improved telephone connections.

Feature 27 consists of five trees with insulators along a 140 meter alignment that extends runs roughly east to west. This alignment is located north of the old flood channel, and south of the National Park Inn parking lot. The trees chosen for this line were all mature Douglas firs without low branches. The trees varied in size, but were generally large –most being over 30 inches in diameter. The line consisted of up to five brown donut-shaped insulators mounted in a vertical line on one face of the trunk and placed over 12 feet above the ground surface. One of the trees along this alignment has fallen down adjacent to Feature 26. The donut-shaped split insulators on this tree had a "THOMAS" trademark.⁸

Feature 34 consists of 10 trees hung with telephone line insulators in the area south of the old Nisqually River flood channel and north of the modern flood channel. These trees are scattered within a 40 x 80 meter area, but lack a discernable pattern or alignment. The trees average 24 inches in diameter and include both cedars and Douglas firs. Most of these trees have a single insulator; although one tree has two. The insulators are mounted 6 to 10 feet above the ground. This area seems to represent a place where multiple lines from various locations converged toward the administrative headquarters at Longmire. Such lines are depicted on the 1935 topographic map of Longmire. There is also a 1941 Telephone Line Reconstruction Map found at the MORA curation facility that shows some line locations, as well a diagram of a "typical tree hanger" using a "split tree insulator" as illustrated in Figure 10 for the Sunshine Point study area.

Nisqually Suspension Bridge Area

The final area in the Longmire Historic District in which previously unrecorded archaeological remains were found is the location near the present Nisqually Suspension Bridge – the area where site FS2004-02 wood stave water pipe had been documented previously. Immediately upstream from this site, is the location of a smaller bridge commonly known as the "Pony Bridge." Remnants of the pony bridge remain. We recorded these, and linked them to Longmire site FS1997-05 as Feature 35 described below.

Feature 35 is the remains of a pedestrian and livestock passable bridge that crossed the Nisqually River at its narrowest point east and north of the Longmire administrative area. The Pony Bridge provided pedestrian and livestock access to the eastern bank of the Nisqually River

⁸ Thomas and Sons Co. of Ohio manufactured insulators from 1884 to 1957.

from the Longmire area. It was built sometime around 1911, and remained in place until the suspension bridge was constructed in 1923 to facilitate automobile access to campground facilities on the left bank of the river.

Pony Bridge remnants on the western bank of the river consist of bridge abutments located near the base of the northeast corner of the concrete abutment of the current suspension bridge. The abutments consist of three squared wooden beams partially protruding from the cut-bank. The spacing of the beams suggests that there was at one time a fourth beam as well which would have spaced the beams at 4½ foot centers. The beams are oriented to the east and are in direct line to connect to the abutment on the left bank of the river. The beams may have been hand hewn, but have weathered to such an extent that it is hard to tell with certainty.



Figure 61. Feature 35, Pony Bridge Support Beams. Wood beams are the remnants of the bridge adjacent to the suspension bridge on the western bank of the river.

The Pony Bridge remnants on the eastern bank of the river consist of a leveled area where two threaded rods protrude vertically. The rods were probably sunk into bedrock at this location to anchor bridge beams that are no longer present. The leveled area is some six to eight feet above the river; suggesting that, if not built up, the Pony Bridge could have sloped downward toward the east bank as it crossed the river. The remnants on the eastern bank are 30 m upstream from the present bridge.

A section of wood stave pipe (Feature 36) protrudes from the cut-bank 15 meters downstream of the left bank Pony Bridge abutment. We included the feature with site FS1997-05 in recognition of its association with development of the greater Longmire area. There is little doubt, however, that the segment is part of the Longmire-Eagle Peak water supply system previously recorded as site FS2004-02. The FS2004-02 site form also includes mention of the wood beams of the Pony Bridge. While we have not merged these two site numbers, their linked association should be noted. Both are included in the summary table for currently documented archaeological remains that concludes our discussion of the Longmire study area.

Longmire Historic District Archaeological Summary

The Longmire Historic District is a complex palimpsest of standing and in-use historical buildings and landscape features; and abandoned archaeological remains linked to its developmental past. The district’s National Register status recognizes the historical value and rustic design quality of its intact built environment. While the National Register does not include Longmire’s more deteriorated and fragmentary archaeological record, that record nonetheless preserves valuable information about the location, content, and function of buildings and other features that have come and gone since the late 1800s. In this project, we have focused on locating and describing these remains; and on linking them to historical events that created them.

It is important to note that archaeological materials found during the present project do not exhaust the total range that remains hidden under thick forest duff and asphalt. Even so, present results substantially expand the known range of archaeological materials at Longmire –especially in the relatively undeveloped meadow area, and in the southwestern margin of the administrative area between the modern National Park Inn and the Nisqually River. Except for previously recorded sites, we have grouped all archaeological remains under a single site number –FS1997-05, the *Longmire Historic District Archaeological Site*. We believe that the single designation minimizes confusion that can result from multiple site designations which tend to obscure relationships between one another. The name also recognizes its link to the still-standing buildings and landscape features that constitute the National Register District. Table 4 summarizes known Longmire archaeological remains by area. The number of areas and archaeological total should be expected to increase through time.

Table 4. Documented Archaeological Properties, Longmire Historic District

Sub-Area	Site /Features	Description
Meadow Area		
Longmire Springs Complex	FS1997-05; <i>Longmire Medical Springs</i> Features 2 through 11, and 16	Recorded features most plausibly related to Longmire family developments in the vicinity of the hotel between 1884 and 1916; including rock rings, rock retaining walls, paths, terra cotta drain, rock building foundations, & barn location (see Table 3 & Figure 49).
	FS1997-05, <i>Longmire Medical Springs</i> Unnumbered Features	Located but unnumbered features include the Longmire hotel site, a residential platform upslope from the hotel (see Figure 40), central meadow well; and currently used features such as the soda spring, Elcaine Longmire cabin site, & Iron Mike spring (see Table 3 & Figure 49).

Sub-Area	Site /Features	Description
Longmire Springs Complex	FS1997-05: <i>MORA-Rainier National Park Company</i> Features 1, and 12 through 15	Features most plausibly related to NPS administration post-dating 1916; including cedar stave water pipe, ski jump & toboggan slide remnants, trail, & fence line (see Table 3 & Figure 49).
Bathhouse	FS1997-05; Features 17 through 25	Related to late Longmire family & early RNPC days, the Bathhouse area includes the building outline, steel water pipes, ditches, tent/bungalow platforms, tennis court and wood water pipe remnants (see Table 3 & Figure 49).
E.H. Hudson Grave	FS1996-01	West of the meadow adjacent to the road. 1888 burial site for man who died of a self-inflicted gun-shot wound. Arched steel pipe marks the grave (see Figure 48).
Administrative Area		
Powerhouse	FS1997-05; Features 26 through 34	SW of National Park Inn. Related to hydroelectric plant and storehouse; including cribbed foundation, telephone insulators, penstock alignment, sign board, brick, footbridge, ditch and pit (see Table 3 & Figure 49).
Nisqually Suspension Bridge	FS1997-05; Features 35 and 36	Adjacent to modern bridge. Pony bridge abutment features & cedar stave water pipe associated with site FS2004-02 (see Table 3 & Figures 49 and 61).
Residential	IF1997-01	CCC-era horseshoe pit and small recreation area.
Maintenance	IF2002-10	1920s truck frame in fill adjacent to Nisqually riprap revetment near present Emergency Operation Center.
Other	FS2004-02	Longmire-Eagle Peak Water System. Wood-stave water pipe and catchment area on lower flanks of Eagle Peak. Transports water, via Nisqually bridge to Longmire administrative area. Feature 26 reported here is part of this system.
	FS2005-09	Longmire Mine Adit. Small mine test and tailings north of Longmire administrative area.

Nisqually Corridor Project; Summary and Recommendations

The Nisqually Corridor project was designed to investigate archaeological remains associated with three areas most heavily damaged by Nisqually River flooding in 2006, and subject to continuing construction-repair/flood management work in succeeding years. These areas include *Sunshine Point* from the Nisqually entrance to Tahoma Creek; *Lower Kautz Creek* floodplain-debris flow sediments ranging essentially from the present highway, through the Kautz storage area, to the river; and the greater *Longmire Historic District* including meadow and administrative areas on and adjacent to the Nisqually River floodplain-debris flow landform.

This report has been organized into three major sections –one for each of the three Nisqually Corridor study areas. Each section includes discussion of 1) local environment and flood history; 2) prehistoric and historic-period background; and 3) archaeological survey procedures and results. Our intent is to provide a stand-alone document introducing the area’s unique historical and archaeological past, as well as information suitable for assessing effects to archaeological resources that may result from continuing flood damage, or flood response actions. Below we summarize salient points regarding each study area’s flood history, human history, and the potential impact of continuing flood events on the archaeological record. We also offer recommendations to improve on our understanding of pre-history and history in the Nisqually corridor.

Sunshine Point Study Area

Loss of over five acres of Sunshine Point Campground during the 2006 flood is the most recent of a repeating sequence of floodplain building and erosion events. Even though the floodplain appears essentially intact on the earliest park maps, repeated 20th century floods, and attempts to control erosive effects of those floods through riprap revetment, attest to its unstable nature.

Irrespective of its geological instability, the greater Nisqually Corridor beginning, for park purposes, at the Nisqually entrance and terminating at the Nisqually glacier has been used to access the mountain for thousands of years. Despite dramatic population losses to epidemic diseases, Indian people continued to use the corridor, and upland habitats accessed via the corridor, into the late-1800s. Indeed, Indian trails were used as access routes to the mountain by early explorers and mountaineers. The locally prominent Mashel Nisqually Indian, Satulick (Indian Henry) and his family, were perhaps the last, and best known, Native Americans to hunt and gather in the park’s southwestern quadrant in the late 19th century.

Tourist travel through the corridor increased sharply after James Longmire’s discovery of what was to become *Longmire Medical Springs* in 1883. Completion of Longmire’s road, and the rapid expansion of park service infrastructure that followed soon thereafter transformed the corridor, and Sunshine Point, into a place not unlike what we see today –one still dominated by natural beauty; but accessed by the Nisqually Road, dotted by rustic buildings, and serving primarily short-term visitation functions.

Archaeological remains preserved in the Sunshine Point portion of the Nisqually Corridor reflect some of its long-term history. Precontact and early historic-period Native American remains are present in the form of bark-peeled cedar trees, and reported (though unconfirmed) stone grinding tools. A section of Longmire's road still can be seen upslope of the modern highway at Sunshine Point above the former campground location. Other early historic-period and Park Service developments survive in the form of abandoned spring boxes and wood-stave water pipes (also upslope of the highway), traces of the park's original entrance road, spring-board cut stumps, and camps --including traces of a CCC-era camp at Sunshine Point.⁹

Flood and Flood Control Effects

Future erosive flood events emanating from either Tahoma Creek or the Nisqually River potentially jeopardize sections of the low-lying floodplain between Tahoma Creek and what remains of Sunshine Point Campground. Depending on scale, substantial flood erosion in this eastern part of the study area could threaten remains of the Longmire Power-line Camp (site FS2005-01), and observed but as yet undocumented CCC camp remains at Sunshine Point.

West of the new erosion scar at Sunshine Point, the landform appears to be more stable. Mount Saint Helens tephra observed in the fresh scar suggests that the landform has been in place for at least 3500 years. Accordingly, the landform with its historic buildings and archeological components west of the campground to the Nisqually entrance may be reasonably safe from catastrophic flood erosion. This area, in any case, is somewhat protected by the new Pierce County levee constructed immediately after the 2006 flood. In this area, greatest flood danger appears to lie in burial by flood deposits in the event of a levee breach rather than erosive loss altogether.

Natural elevation upslope of the highway should protect that landform and archaeological remnants of Longmire's road and the early Nisqually entrance water system from destruction. Bedrock outcrops also should serve to limit the probability and extent of mass-waste landslides that can accompany flood events.

Construction of flood control features such as riprap levee, flow-control barbs or engineered log-jams at the river's margin pose little danger to observed archaeological properties with the possible exception of the Sunshine Point CCC camp. Here, construction should be preceded by archaeological survey as recommended below. Monitors should be present during the construction process to ensure that historical remains are not damaged.

Archaeological Recommendations

Two locations in the Sunshine Point study area warrant further archaeological exploration -- the Longmire Power-line Camp (FS2005-01), and remaining sections of the Sunshine Point Campground. During our revisit to site FS2005-01, we were able to examine its refuse dump more closely. Cans in the dump suggest a fairly tight date range of 1903 to 1914 for use of the site; suggesting that the site might be unrelated to construction of the park's power-line per se. This area did not become part of Mount Rainier National Park until the 1926 boundary change. We recommend further historical background research for this property in order to determine whether this site is the remnant of a homestead, timber, or mineral claim. Metal artifacts at this site, cans in

⁹ Please refer to more complete accounts presented earlier in this report for more thorough discussions of each study area's history and archaeological record.

particular, are very fragile and are deteriorating. These will continue to deteriorate in the wet forest environment. Testing and data recovery would preserve a sample of the fragile artifacts, or at the very least record them.

Information and maps related to the CCC camp at Sunshine Point were found after the field survey was completed. During the survey, we observed remnants of the CCC basket dams, or gabions, but did not recognize their age or understand their association at the time. It would be useful to complete additional research regarding the camp oriented at locating additional features; finding out when the camp was dismantled; and identifying the construction date of the public campground. Once these materials are assembled, a second field survey of the campground should be completed, using information from historic maps and photographs to help relocate CCC-era structural remains, if they exist.

While not of directly archaeological concern, we recommend excavation of a series of small sub-surface test units on the floodplain landform west of Sunshine Point to the Nisqually entrance to better define the area's geological structure. If, as suggested above, the area is blanketed by a layer of Mount Saint Helens Yn tephra, it is reasonable to believe that the area is relatively stable; or at least has been for some time. If, however, those deposits are intermittent and punctuated by flood deposited sediments, the park may wish to consider implementing more effective flood control measures to supplement the existing levee.

Lower Kautz Creek Study Area

Like Tahoma Creek and the Nisqually River, Kautz Creek has a dynamic floodplain. Created during the 1947 Kautz lahar, the lower alluvial-debris flow fan that constitutes the present study area is one of the youngest debris flow features in the park. Prior to that event, lower Kautz creek bifurcated and flowed beneath two government road bridges. Since 1947, Kautz Creek has flowed, for the most part, under a single bridge rebuilt three times in approximately its present location on the western edge of the debris fan. This pattern, however, has not been stable. While most of the creek's water (until the most recent event) continued to flow under the west-side bridge, flood induced meanders in the debris fan periodically inundated the Nisqually Road in the 1950s. These repeated events stimulated placement of several sub-roadbed culverts, construction of a diversion levee near the road, and mechanical diversion further upstream in the attempt to retain the single-streambed pattern and minimize flooding.

The 2006 flood is the most recent, but certainly not the last, Kautz Creek event. Placement of large culverts to transport water under the road at the new Kautz Creek channel may help to stabilize the flow pattern by virtue of diverting water through two channels similar to the pre-1947 pattern; but since the new stream channel has yet to be tested seriously, we cannot be certain. Downstream from the highway, the new Kautz channel should remain essentially in place so long as the culvert system remains intact. The Nisqually river margin, however, contains sections of exposed and poorly consolidated post-1947 fill that probably will continue to erode if not stabilized.

Because of the young landform, the lower Kautz Creek study area preserves relatively few features of archaeological significance –none that are both in situ and pre-date 1947. Among the

more interesting remains are those related to use of the service area south of the highway for materials storage and disposal. The oldest of these are disposed items related to the Depression era use of the park. Early to mid-1930s artifacts are found scattered on the ground surface near the helipad support office (site FS2008-09), and are reportedly buried in an as yet undiscovered location elsewhere. More modern refuse is scattered in various locations throughout the service area. Also found in the service area are remnant features related to the Paradise to Nisqually power-line corridor (FS2008-04), and the Kautz Creek Telephone Line (FS2008-08).

The most significant feature north of the highway is remains of a log-backed rock levee (FS2008-10) built in the mid to late 1950s. The levee is located immediately adjacent to the present main-stem of the Kautz about 200 feet north of the road. The feature is important not only because of its historical relationship to the park's stream control efforts, but because in 2006 this feature helped to direct water to the point (now culverted) at which the flood struck the highway. In the event of renewed flooding, it is possible that the aging feature will be tested again. Its continued capacity to withstand flood pressures will be of some importance in determining whether the stream retains its present channel, or creates yet another channel(s), probably further east.

Flood and Flood Control Archaeological Effects

Nisqually flood history is summarized briefly above, and in greater detail in the primary lower Kautz Creek study area section of this report. If the current streambed channels prove to be as unstable in the future as these accounts imply for the past, it is likely that the area will be subject to continued flooding. Because of the young age of the landform, and consequently young, or re-deposited, character of archaeological resources in the study area, these activities should have negligible effect to National Register eligible sites. However, because of the probable presence and unknown location of CCC-era dumped debris, we recommend that construction activities be reviewed and field inspected by an archeological monitor to minimize the probability of losing these materials altogether.

Archaeological Recommendations

In addition to construction monitor activities, more detailed historical research concerning construction of the Kautz Creek bridge and flood control efforts would be useful, not only from an historical or archaeological standpoint, but also to reflect the fluctuations in the stream channel and its responses to natural and manmade impacts. Further exploration into construction plans for the bridges or at maintenance records also may prove useful in this regard.

Somewhat outside of the debris flow fan, but in the general lower Kautz area, the Columbus Tree continues to pose unanswered questions. As above, it is possible that historical records or interviews could help to establish the original site and fate of the Columbus Tree, and the location of other trees that may have filled this role. Regardless of whether or not the original Columbus Tree remains (we believe that it does not), the location and story of the Columbus Tree would make for an interesting historic wayside.

Longmire Study Area

Most of the Longmire administrative area is built on an approximately 325 year old lahar-built terrace of the Nisqually River. The Longmire landform has been exposed to periodic flood

events since that time –a pattern that continues to the present. In 2003 and 2006, floods scoured river margins downstream from the Longmire Nisqually Bridge; undercutting riprap revetments and endangering buildings and other park facilities on both sides of the river. In response to the 2006 event, the park constructed a deep concrete floodwall extending from the bridge approximately 1200 feet on the western (administrative complex) side of the river. The wall is excavated into mixed-sized boulder rubble which helps to naturalize the setting by camouflaging the presence of the wall. The east side of the river near the Community Building is protected only by mixed-size rubble and boulder riprap moved into place after the 2006 event.

Despite its flood-prone nature, the Longmire administrative area, and the adjacent Longmire wet meadow have been sites of substantial historic activity since James Longmire discovered the mineral springs in 1883. First developed as *Longmire Medical Springs* in the late 1800s, the area grew rapidly as a tourist destination and the park's administrative center in the early 1900s. The area continues to function as one of the park's most important maintenance, special services and seasonal housing center despite moving more directly administrative functions to Tahoma Woods near Ashford in 1977 (in part, to avoid flood and debris flow risks).

Archaeological remains associated with historical development at Longmire still are visible at the fringes of the built environment both in the meadow and administrative areas. In the meadow, part of the original Longmire hotel complex had been recorded previously as site number FS1997-05. In order to avoid creation of a myriad of independent site numbers, we have lumped archaeological features related to the greater Longmire developed area under this single site designation. To distinguish between spatially, and occasionally, temporally distinct events, we have separated the site into *meadow* versus *administrative* areas; and further distinguished various sub-areas such as Longmire Springs, bathhouse, powerhouse, and the Nisqually bridge. We retained original designations for previously recorded sites, such as the E.H. Hudson gravesite (FS1996-01) to avoid inconsistency with previous reports. We encourage interested readers to refer to the section devoted to the Longmire study area for a detailed discussion of these historical events and related archaeological remains.

Flood and Flood Control Archaeological Effects

Nisqually River floods endanger Longmire's archaeological remains in much the same way they threaten the built environment; that is, loss through direct erosive action. To the best of our knowledge, however, most destructive floods to date have been confined to the near river margins away from historical buildings and features. Barring catastrophic new floods and/or debris flows, the probability of flood-related damage to archaeological properties reported here seems low.

As long as they are confined to the river margins, flood control construction activities are equally unlikely to affect archaeological or historic properties. Indeed, to the extent that such actions successfully minimize flood danger, they serve to protect archaeological remains somewhat further inland near the National Park Inn, or the meadow area. The only archaeologically relevant remains endangered are sites such as IF2002-10 (1930s truck frame) dumped into river-margin fill in the attempt to expand the maintenance area, features in the vicinity of the Nisqually Bridge, old riprap, and other features directly associated with past attempts to channel or prevent over-bank flooding of the river. In order to protect possible cultural remains, we recommend that an

archaeological monitor(s) be present when flood control projects are begun in order to document artifacts or features that may be encountered during the process.

Research and Interpretive Recommendations

The Longmire survey area is the most complex of the three addressed in this report. Its complexity is due to the many developments and historical changes that have taken place in the area –most related to the Longmire family, early 20th century concessionaires, and the National Park Service. While the park has made an effort to interpret many of these activities, other opportunities remain. The E. H. Hudson gravesite, for example, would make a fascinating historic wayside; providing a glimpse of the area in the 1890s as a rugged base camp for hunters, reliant on the Longmires for aid and supplies. Interpretive signage could be added to a roadside pullout near the site immediately west of the Inn with relatively little difficulty. By chance, a pullout already exists in the vicinity of the gravesite. Another wayside interpreting the Toboggan Slide could be placed on the Wonderland Trail east of Paradise Road at the top of the Toboggan slide access trail. A sign in this location provides an opportunity to interpret the short-lived toboggan run, and to draw attention to Longmire family and Park Service developments downslope as well.

In addition to interpretation, a good deal more work needs to be completed to fully document the Longmire Developed Area Archaeological Site (FS1997-05). During the present project, we were able to refine and expand on work begun in 1997; but in the short time available to us, we did not locate all the remnants of structures and other features present in the greater Longmire area. Even so, we hope that we have established a baseline for future work, and a site structure that is flexible enough to accept the addition of new features as they are discovered. Perhaps the wood stave pipe system FS2004-01 and the horseshoe pit IF1997-01 should be included as features within FS1997-05. In addition, the well identified in 2005 should be relocated and recorded as a feature. The GPS data, site sketch map and scans of historic site maps should be combined to form a comprehensive GIS layer or layers for Longmire. A metal detector survey could help to pin down the actual locations of a number of the historic structures including the Longmire Barn, Longmire Springs Hotel, outbuildings in the Hotel Area and bungalows in the Bathhouse area.

Finally, we remain intrigued by the 1907 Superintendent's report cited in Catton describing the burning of the Longmire Cabin. Maps and historic photographs seem to conflict with this account. Additional historic research, perhaps finding Catton's source and looking for other documents regarding the Longmire's homestead claims would clarify this issue.

In closing, we emphasize again the proposition that the Nisqually Corridor has been the focus of human movement to and from Mount Rainier for thousands of years. During this broad time-span, there is no doubt that flood and debris flow events periodically disrupted activities and altered travel routes; especially near the river and its tributary streams. Before the historic-period, however, it is unlikely that these events affected large population concentrations; at least not within park boundaries. We base this inference on simple lack of a resource base suited to support permanent settlement up-stream of the anadromous fish barrier posed by the falls now inundated by Alder Dam.

The picture changed in the late 19th and early 20th centuries. Prior to this time, unless people were en-route to the mountain, or camped temporarily near the river, floods and lahars were essentially travel inconveniences rather than threats to the built environment that they represent today –a problem intensified further by a warming climate and aggrading river beds. Because we now are committed to maintaining access along a well-defined, fixed route and because we have substantial investment in the built environment –especially at Longmire– we now are obliged to cope with flood events and attempt to minimize their impacts as best we can.

Here, we have attempted to draw attention to prehistoric and historic-period uses of the Nisqually Corridor, especially as expressed at Sunshine Point, lower Kautz Creek, and Longmire Developed Area. We hope that these accounts help to promote a more complete understanding of flood and human histories in these areas; clarify the archaeological and historical record of these events; and assist in environmental planning associated with continuing efforts to maintain the park’s infrastructure –including the National Historic Landmark District– in the Nisqually Corridor.

Acknowledgements

The Nisqually Corridor project could not have been completed without the assistance of a number of individuals. We began the effort by checking for previously recorded archaeological and ethnographic sites within the project area and compiled a list of these sites along with copies of the site forms and plotted their locations onto field maps. Park archaeologist Ben Diaz, and GIS specialist Darin Swinney readily gave of their time to assist us in use of the park’s computerized database to generate this information.

We were fortunate to spend several hours with Rick Kirschner –retired park ranger and font of historic park information. Rick took us to a number of historic resources within the survey areas, some of which had been previously recorded and others that had yet to be documented formally. This was a useful introduction to the survey area and to the types of sites we could expect to find. Rick continued to assist with the project throughout preparation of this report. We very much appreciate his efforts, his kind, understated manner, and his willingness to share his wealth of historical information with us.

Brooke Childrey at the MORA curatorial facility assisted with access to the Historic Images Archive and Database, microfilm record of Superintendents’ Annual Reports, and maps. Copies of relevant historic images and maps were taken into the field in order to field check site locations or specific features within the sites. Pedestrian survey at times focused on looking for features depicted on historic maps or photos which were particularly useful in the Longmire area; resulting in finding structural remnants that had been long dismantled or partially destroyed.

Former park employees and historians Jim Ellis and Robert McIntyre, Jr. also helped us to understand the link between park history and enigmatic archaeological remains –particularly relating to the history of the Paradise River power plant, and post-lahar activities at lower Kautz Creek. Eric Walkinshaw supported the project’s conception and, importantly, its funding as a

necessary part of the park's flood response and mitigation efforts. Finally, historical landscape architect Susan Dolan, reviewed discussions presented here; correcting our most egregious mistakes, and helping to improve accuracy overall. To these and many others who supported this project, and genuinely strive to promote a better understanding of the park's fascinating history, we offer our thanks.

Illustration Notes

MORA curator Brooke Childrey assisted with access to the historic images archive and database, microfilm record of Superintendents' annual reports, and maps. Photograph accession numbers from the images archive are listed for most images. Some of the maps and blueprints have been modified for this report: blue prints have been converted to grayscale images, faint lines have been darkened, maps have been cropped, and distracting spots and smears have been removed.

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