

Historical Land Use Change
Swauk Watershed, Central Washington



Justin Erickson
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Paper Information:

This paper represents the efforts of two quarters of undergraduate research that began in January of 2001 and was completed in June 2001. What started as an interesting and intriguing study, quickly turned into a fully funded undergraduate research project that employed numerous methods of study and was truly a labor of love.

Acknowledgements:

This project was aided financially by a C. Farrell Scholarship and represents independent work by the author, under the supervision of Dr. Karl Lillquist of the Department of Geography and Land Studies.

I wish to thank Dr. Karl Lillquist for his encouragement and support throughout this endeavor. Special thanks are also due to both Eugene Henderson, and Wesley Engstrom, who took time out of their busy schedules to meet and discuss the study area with me. Their kindness and generosity is very much appreciated.

Lastly, I thank my wife Danielle, who endured countless hours of "Swauk Talk," was an invaluable field assistant, and put up with an absent husband all too often this quarter.

Cover Photo: *Truck hauling logs near Williams Creek, circa 1938 (E. Henderson, collection).*

Abstract:

Situated in the northern fringe of Kittitas County, sits the Swauk Watershed. Bordered to the east and west by Teanaway Ridge and Table Mountain respectively, the Swauk is comprised of an intriguing array of natural and cultural features. The following research paper represents a condensed historical geography of the Swauk Watershed. My primary research question was as follows: what human-induced processes have altered the Swauk Watershed? The research contained herein is significant for a variety of reasons. Not only may it have natural resource management implications, but it may also prove vital in the management of cultural resources. Furthermore, like any changing landscape, the alterations must be documented as to avoid the disappearance and eradication of the characteristics that ultimately form a sense of place.

Overall, the watershed has been impacted by a variety of historic land uses that range from mining and logging, to grazing, homesteading, road building, and recreation. Fieldwork, literature review, map and aerial photograph interpretation, and personal interviews were all essential to my research. The land uses of the watershed have contributed jobs, capital, and culture to the town of Ellensburg and the county at large. It is my hope that the enclosed historical geography adds substance and depth to the existing literature, ultimately validating the Swauk's claim as one of the most fascinating regions in the county.

Introduction:

Like so many rural regions in the state, the Swauk Watershed has undergone dynamic shifts in land use and ownership that help to explain today's spatial imprint. Human activities including homesteading, farming, ranching, mining, logging, trapping, and railroad/highway construction have all taken place in the area, greatly impacting the watershed in positive and negative ways. The research questions I sought to answer were as follows: what human-induced processes have altered the landscape? Where did they these activities occur? Who was responsible for these changes? And, to what degree did the various land uses occur?

My primary goal with this research is the completion of this report and an occupying map, which synthesizes the comprehensive historical geography of the Swauk Watershed. It is my hope that this project will result in a solid contribution to the literature of this diverse and intriguing landscape. Furthermore, the research contained within may yield information that can guide resource management decisions and preserve the disappearing history of this unique place, thus lending the project its greatest significance and value.

Overall, there is very little written concerning the majority of the Swauk Watershed, and what is written, is typically centered around the mining activities that took place near the present-day town of Liberty. Hopefully, the blending of traditional historical and geographical tools has resulted in an accurate account of land use change in the Swauk Watershed. It is this evolution that comprises the rest of the paper.

Study Area:

The study area known as the Swauk Watershed is an assemblage of over a dozen principal creeks. It is bordered by Teanaway Ridge to the west and Table Mountain to the east. The county line constitutes its northern boundary, while its southern boundary is marked by the confluence of Swauk Creek and the Yakima River. The focus of my study included the upper portions of the watershed, essentially from First Creek to the Kittitas\Chelan County line. It is assumed that any discussion of the watershed from here on refers to the upper watershed unless otherwise noted. Some of the more notable creeks of the watershed include First, Williams, Baker, Hurley, and Iron Creek. The watershed is a north-south running basin that ranges in elevation from 2,000 to 6,000 feet and averages from 20" to 40" inches of precipitation, with heavier precipitation being the norm the further north one travels (WNF, 1997). Numerous forest roads provide access to the area, as does Highway 97, a major travel corridor that bisects the watershed (see figure 1).

The watershed offers an abundant array of physical attributes with a diverse biota consisting of subalpine and shrub-steppe varieties. According to Wenatchee National Forest (1997) officials, "The large variety of plants, animals, and landscape patterns have contributed to the rich tradition, both prehistoric and historic, of the area." With such a rich diversity, it is no surprise that the Swauk Watershed has been used extensively for so many different uses and by many diverse users.

With any discussion of land occupation and use it becomes imperative to place things in perspective, notably land ownership. Overall, the watershed is dominated by federal lands, which exceed 48,000 acres. Private holdings number at around 5,500

acres, some of which is comprised by homestead and mineral patents, with the rest residing in the form of railroad grants.

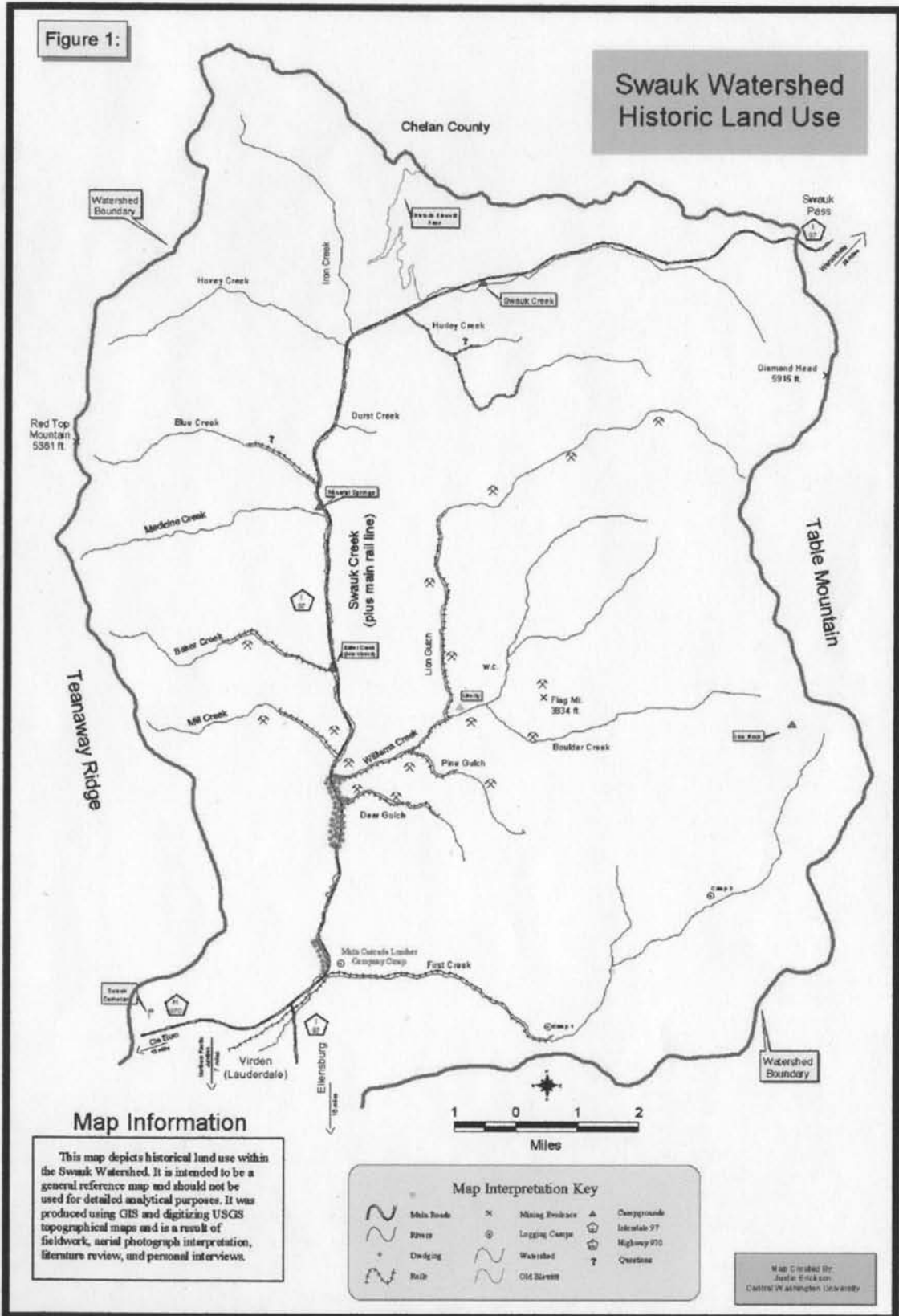
Today, the entire watershed is popular as a recreational area offering a plethora of winter and summer activities. While traditional activities such as mining, timber harvesting, and grazing still continue to varying degrees, many other activities including hiking, horseback activities, snowmobiling, hunting, and fishing also take place.

Methods:

The methods used in my research included library research, aerial photograph and topographical map interpretation, fieldwork, and personal interviews. Library research consisted mainly of books, master theses, and governmental documents. By broadening my search criteria several additional sources were discovered and have been utilized in this report as well. As mentioned above, personal interviews were conducted and I met with both Eugene Henderson and Wesley Engstrom. Eugene Henderson is the author of *The Pine Tree Express*, a book that chronicles the railroad logging exploits of the Cascade Logging Company between the years of 1916-1946. Wes Engstrom is a Liberty resident who lent much insight into the evolution of the small mining town as well as more modern concerns that while beyond the scope of this report, may be instrumental in further research by myself or other interested individuals.

My map was created by digitizing features off of USGS topographical maps into a GIS program (ArcView 3.2). The map also reflects fieldwork, aerial photograph interpretation, literature review, and personal interviews. It should be used for general reference only and is not designed for detailed analytical purposes.

Figure 1:



Note: Please see foldout map in back envelope for more detail.

Results and Discussion:

What appears below is a more-or-less chronological look at land occupation and use. Readers may be curious about the omission of Native Americans from the list below. As stated above, the main purpose of this paper is to chronicle historic land use change. While Native Americans certainly preceded white settlement and use of the area, such a discussion is better suited to a paper specifically dealing with anthropological findings and studies. Native American use of the Swauk Watershed seems to have been ecologically sustainable and left relatively little visual evidence of their ways of land use or site occupation, unlike so many of the Swauk's subsequent occupants whose rusty remnants still remain. Historical geography's traditional focus is on post-Native American landscapes, and I have not bucked the trend due to time and other constraints.

Mining:

Of all the activities in the Swauk, perhaps none is more widespread than the countless mining operations that dot the landscape. Gold was first discovered in the Swauk in 1867 and mining went through countless periods of activity, quickly followed by long spans of inactivity (Jordan, 1967). Both placer and hardrock mining methods were used in the Swauk and virtually all extraction techniques were utilized.

Placer deposits refer to those gold deposits that are mixed up within unconsolidated sediments such as stream valleys, streambeds, terraces, and other depositional/erosional landforms. Gold found in placer deposits are usually in the form of small flakes, but placer deposits may also harbor good-sized nuggets. Placer mining techniques include panning, sluicing, dredging, and hydraulic mining. Ground evidence for this activity includes tailings piles and infrastructure artifacts, such as water

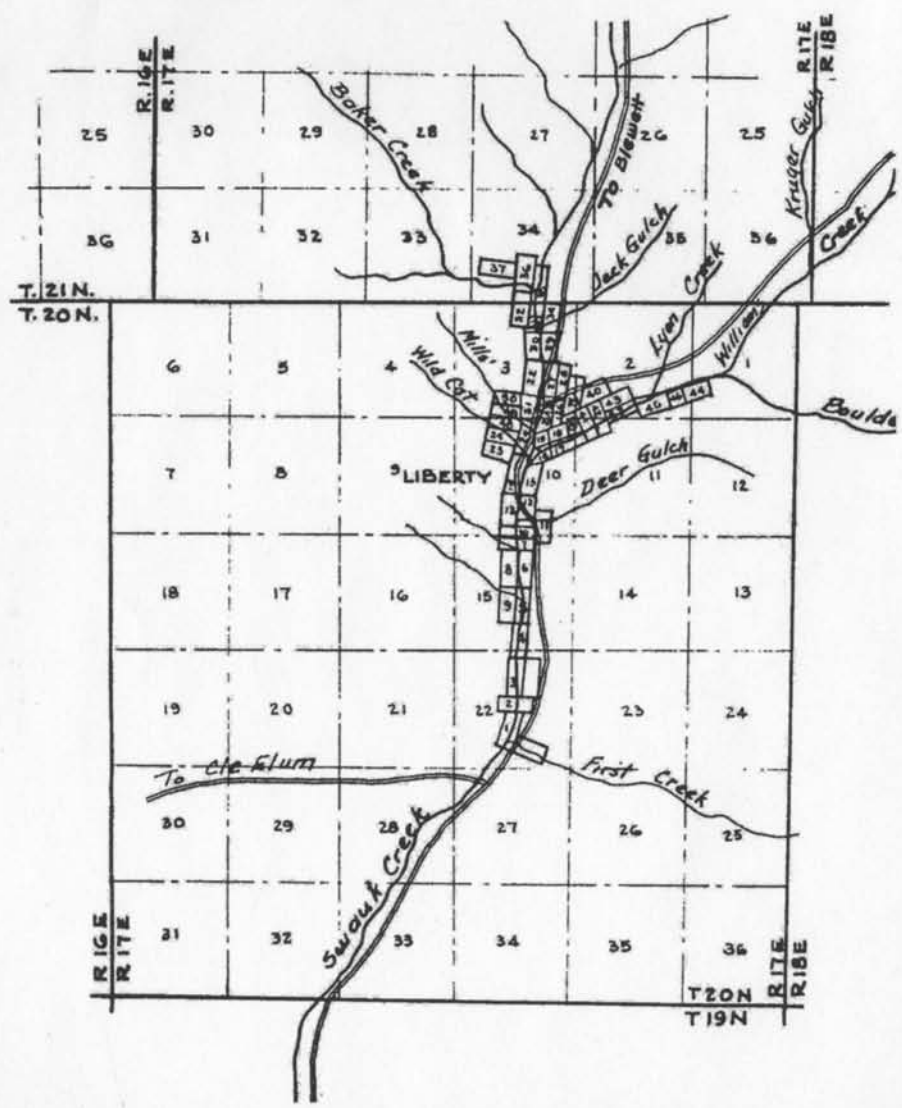
diversions and dilapidated equipment. The majority of mining claims in the watershed are of placer type and it is fair to say that virtually all the claims in the stream bottoms are placer claims (see figure 2).

Hardrock mining refers to gold mined from large rock masses as opposed to stream sediments. Miners access the ore by digging shafts and tunnels also known as "adits." Technically speaking, a tunnel has an opening at both ends, so an adit refers to a horizontal "tunnel" with only one opening. While isolated shafts and adits can be seen near Williams Creek and Mill Creek, more dense activity is centered on Flag Mountain where rare wire gold has been found. The most obvious ground evidence for this activity is of course, shafts and adits. Secondary observations including tailings piles, dilapidated buildings, and rail lines that were often used to transport material out of the mine, can also be seen.

Like so many gold mining regions, people came in droves to the Swauk, greatly influenced after reading what amounted to nothing more than propaganda by local newspapers. There was some truth to the rumors though, as Kittitas County led gold production for the entire state in 1895 with nearly half of the total production coming from the county (Jordan, 1967). Compared to other gold-producing states, the deposits were not notably rich, however, the largest gold nuggets ever found in the state were from the Swauk District (Moen, 1979).

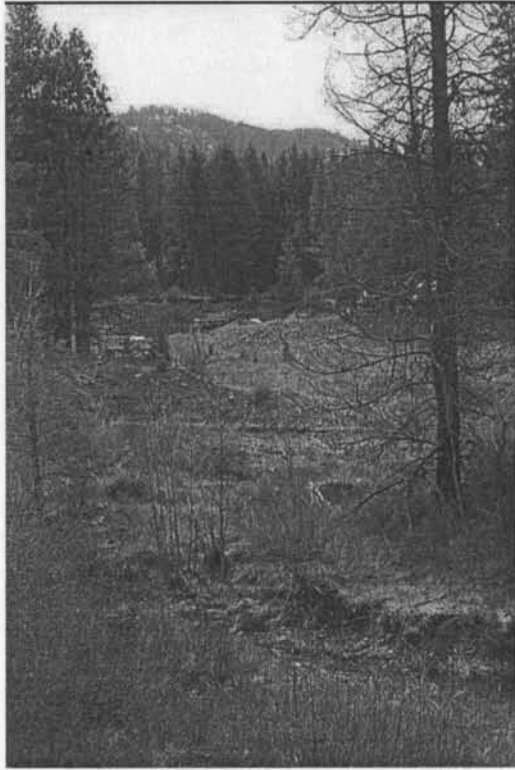
The most popular mining areas include Williams, Baker, and Boulder creeks, along with the main stem of the Swauk (see figures 2-4). Other prominent areas include Deer, Lion, and Pine Gulches and Mill Creek. In fact, the term "gulch" is synonymous with valley bottoms that have been influenced by mining activity.

Figure 2: Individual placer mining claims as of the late 1800s (Map from Hodges, 1897).



The Swauk has seen most if not all of the principal types of mining techniques.

Hydraulic mining began around 1883, but never really took hold as a dominant or



widespread activity. It was the depression of the 1890s that gold mines of Kittitas County reached their greatest productivity. As one student of history notes, "...in times of prosperity the gold mines would be neglected, but in times of economic depression people would turn to the mines as a possible source of relief (Tozer, 1965)."

Figure 3. Near the mouth of Williams Creek. Intense mining activity continues, even today (photo: J. Erickson).

The first prospecting was done in the current stream channels, but more profitable strikes were made along prehistoric or relict stream channels (Hodges, 1897). The old stream channels are covered by over a hundred feet of overburden at places, and are extremely hard to mine as a result. At the same time, gold was never found in enough quantities to warrant the expensive machinery and manpower that large companies could afford. This fact sets the Swauk apart from many, if not most mined areas. As an early history of mining in the Pacific Northwest asserts, "The miners of the Swauk have hitherto shown a decided repugnance to the invasion of outside capital, which would work the placers on a large scale by modern methods and therefore more economically, but efforts are being made in this direction (Hodges, 1897)." Despite Hodge's assurance,

commercial activity in the Swauk was extremely limited and isolated except for a few attempts at dredging and hydraulic mining. This however did not stop large companies from trying to capitalize on the Swauk's resources.

Mining claim holders began selling their claims to larger companies in the late 1890s. The large companies had so much capital invested into their claims that they had to find large quantities of gold just to break even (Tozer, 1965). Most companies could not find the quantities necessary to be self-sufficient resulting in the closing down of many claims in the Liberty area, ultimately proving that conditions in Swauk favored exploitation by the small entrepreneur rather than by the large corporation (Tozer, 1965). The situation has remained true ever since. Mining did, however, necessitate a need for



transportation, agriculture and other business interests.

Figure 4. A group of miners using a long-tom to extract placer deposits. Location unknown, but presumed along Williams Creek (photo: from Kittitas County Centennial Committee, 1989).

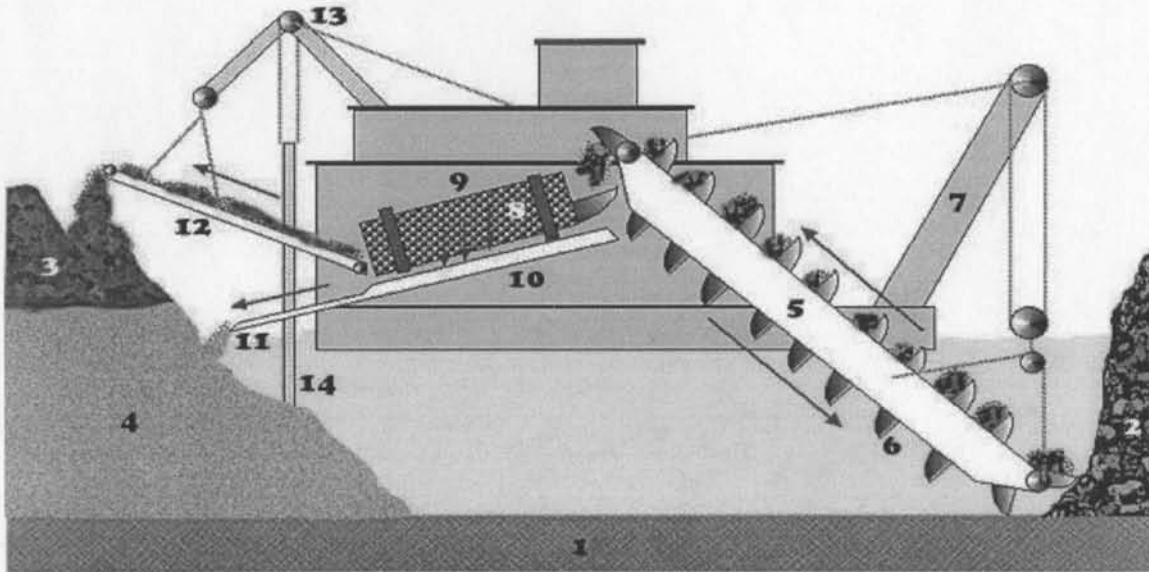
The mining in the upper county served to fuel nearby Ellensburg and other small communities. Overall, the bulk of profits made in the Swauk remained in the valley, as Ellensburg was the main supply center for the Swauk, Blewett, and Peshastin mining camps (Jordan, 1967). Many of the early explorers and prospectors remained in the area long after the heyday of mining activity, typically assisting in the development of other natural resources in the county (e.g. ranching, farming, sheep herding, logging). As an

early history of the county laments, "... the finding of the yellow metal may be considered one of the most important events of the early days, not only in its direct but in its indirect effects (Shiack, 1904)." Throughout much of the early 20th century, over a third of Kittitas Counties annual income came from mining and timber activity (Lyman, 1919). To be fair, however, most of the mining wealth was derived from the coal camps of Roslyn and Cle Elum, not from the gold mines of the Swauk.

Dredge mining has perhaps left the most obvious mining scars on the Swauk landscape. Tailings piles are still evident along Highway 97 (which follows Swauk Creek) between First and Williams Creeks. Dredges were most prevalent in the area between 1920-1929 and occurred very sporadically after that (Jordan, 1967). Dredges operated near the confluence of Williams and Swauk Creek, including Deer Gulch, during the 1920s. After a lull, dredging started again between Virden to about a mile above First Creek. The last of the big dredges operated during the 1950s up Williams Creek just south of the town of Liberty. Dredges work by essentially turning a river inside-out leaving the fine material on the bottom and the coarse material on top. In the process, large boulders are screened out and finer sediment is allowed to settle. For a nice visual representation of the dredging process please see figure 5.

All told, an estimated 3 million dollars worth of gold was removed from the Swauk (Jordan, 1967). There are reports of individual nuggets exceeding one thousand dollars in value (Weis, 1993). Today, very little is mined with the exception of some small subsistence mining concentrated along Williams Creek between Liberty and the northern extent of Lion Gulch, but occurring elsewhere as well.

Figure 5: Schematic illustration of a dredge at work.



(Source: Via, 2001)

1.)	Bedrock	6.)	Digging Buckets	11.)	Tail Sluice
2.)	Gravel	7.)	Bow Gantry	12.)	Coarse Conveyor
3.)	Coarse Tailings	8.)	Fine Sediment	13.)	Stern Gantry
4.)	Fine Tailings	9.)	Washing Trommel	14.)	Pivot Spud
5.)	Bucket Line	10.)	Sluice Boxes		

During my fieldwork in the Swauk, I was amazed at the sheer number of mining claims that dot the landscape. I literally lost count of the numerous claims that I saw throughout Williams Creek, Baker Creek, and Lion Gulch. Hardrock mines were numerous as was rusted machinery and mining equipment. I would characterize the hardrock mines I found as relatively shallow and small in scale. Little evidence of tailings piles were seen, which leads me to assume that little mining occurs today in the areas I visited. An old water diversion dam was found near Mill Creek, presumably used to facilitate mining in nearby adits. No doubt, that many such diversions exist or did exist at one time. It is estimated that over 500 mining claims are present throughout the

watershed (WNF, 1997). Not included in that number, are the dozens of claims that are owned outright (fee simple). The majority of these "claims" are centered around the town of Liberty and along the lower two miles of Williams Creek. Some clear-title claims are also present in the northern extreme of Lion Gulch, the lower portion of Deer Gulch, and Flag Mountain. There are, of course, others likely scattered around the watershed, but the above list constitutes areas that I have either read about, or seen on site and can verify.

Townsites: Liberty

The town of Liberty (see figure 6) has its origins in the gold mining economy of the Swauk Watershed. The principal cause and formation of the town resulted from the discovery of gold in 1867 near the confluence of Williams and Swauk Creek. Currently, the town of Liberty sits about two miles above the confluence of Williams and Swauk Creek, however, this was not always the case. In 1873, the original town of Liberty was founded at the mouth of Williams Creek along the Swauk. It was originally called "Swauk" until the United States Post Office required them to change the name in 1892 (Shelley, 1981). The town remained prominent until the early 1900s when the majority of the mining activity shifted upstream.

Between the years of 1912-1916 most of the residents and business owners moved up Williams Creek to be closer to the main mining camps and where a town named Meaghersville had been established. It was named after Thomas Meagher (see figure 7), an early miner and founder of the town. Meaghersville was eventually required to take up the name Liberty by the US Post Office to ease confusion. The original town site of Liberty no longer has any structures standing, as the last one burned by fire in 1962

(Jordan, 1967). At its heyday, the current town featured a hotel, saloon, two grocery stores, a blacksmith, a butcher shop, and a livery stable (KCCC, 1989). Like all mining communities, Liberty was typified by large population fluxes as the profitability of mining varied considerably from one year to the next. Overall though, Liberty had a relatively close-knit community and maintained a family atmosphere. As mining enthusiast and author Roy Mayo (1989) notes, “[Liberty] was never a boom or bust camp, but has had a relatively stable population throughout its history.”

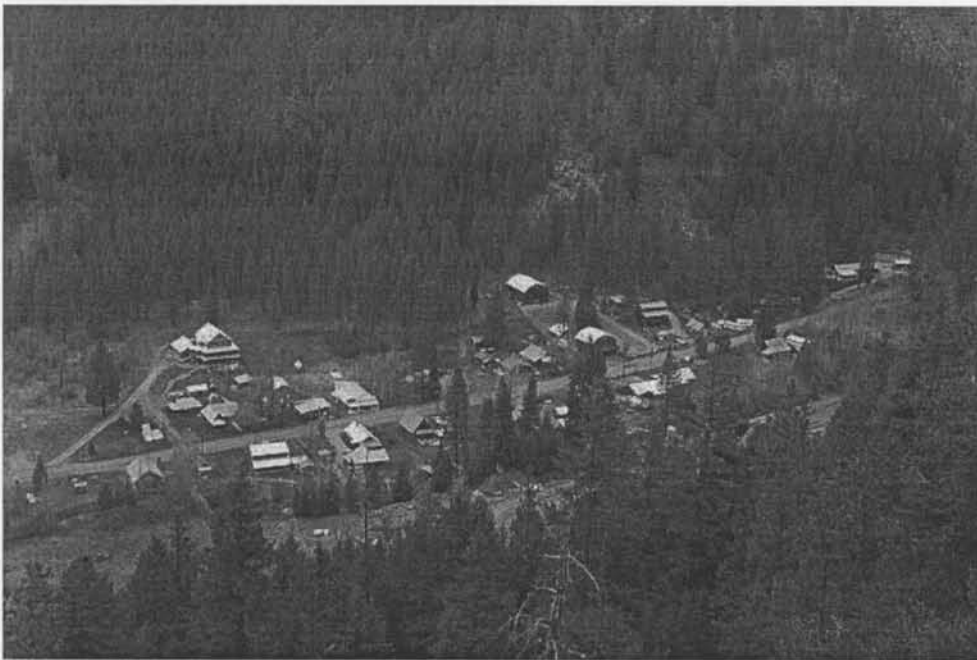


Figure 6. Present-day Liberty looking north (photo: J. Erickson).

Residents of Liberty have long been in a contentious battle to keep their homes and property. The founding of the Wenatchee National Forest in 1907 marked a concerted effort by National Forest officials to evict residents charging that they were not adhering to the requirements of the General Mining Law of 1872. Then in the 1950s a mining company laid claim to the mineral lands around and including the entire town. As a result, town citizens had to prove to the Forest Service that the town had long been a

continually occupied fixture of the region. Fire had destroyed all property deeds years earlier, so citizens essentially had to reconstruct the town history and their property ownership. In 1978, through efforts by senatorial giants Henry M. Jackson and Warren G. Magnuson Liberty residents were allowed clear title to their properties after a senate



bill was signed by President Jimmy Carter (KCCC, 1989).

Figure 7: Thomas Meagher's original cabin built on his mining claim (photo: J. Erickson).

Residents were officially given clear title to their property in 1982 after first purchasing their land from the government for around \$2500 an acre (Engstrom, personal communication). In 1974, Liberty was placed on the National Register of Historic Places, creating the Liberty Historic District (KCCC, 1989). The Historic District designation requires town buildings to retain their historic facade. New construction must also mimic the towns historic past. Always an oddity, Liberty remains one of the few boom-and-bust-type towns that has been continually occupied and has resisted the designation of being a vacated ghost town.

In fact, Liberty has the distinction of being the oldest continually occupied mining town in Washington State. The town contains 17 acres and around 19 lots of which about half are occupied full-time, while the others are used on a seasonal or weekend basis

(Engstrom, personal communication). While small-scale mining continues, it is clear that virtually no one makes a fulltime living off of mining any more (Engstrom, personal communication). In fact, Liberty's last remaining old-timer Jack Kirsch, died in February of 2001, at the age of 100. Jack first came to Liberty in 1928 and worked various rail jobs and prospected in Alaska before coming back and settling permanently in Liberty during the 1950s. He is likely the most colorful and written about character in Liberty's more modern history, and rightly so.

On-the-ground observations of Liberty provided me with a sense of the intense linkages of between the past and present. Old cabins, rusted machinery, and tailings piles abound everywhere. The town seemed eerily quiet on the several occasions I visited. Even though very few of the town's current residents partake in mining, it appears that most are aware and proud of the town's history.

Logging: (and associated rail)

It is estimated that over 60% of the upper Swauk Watershed has been manipulated by timber harvest (USFS, 1997). Rail lines were built in the early 1930s as the Cascade Lumber Company turned its focus from the Taneum Creek area to the Swauk (Henderson, 1989). Rail lines were built from the Northern Pacific junction at the mouth of Swauk Creek all the way up Swauk and beyond Hurley Creek in the northern extreme of the watershed. Before the rail lines, early timber extraction was done in a fairly small-scale manner to provide supplies to local miners (WNF, 1997). All told, there were probably between 20-30 miles of track within the watershed, sprawling over at least eight creeks in the region (Henderson, 1989).



Figure 8: Logs removed from Deer Gulch 1936 (photo: E. Henderson collection).

The Cascade Lumber Company (CLC) only harvested logs in excess of 16 inches in diameter, and thus limited themselves to only mature stands of old growth pine forest. Logging would occur simultaneously in multiple drainages, and the CLC employed both contract “gyppo” and company loggers (Henderson, personal communication). Early on, horses transported timber, but this soon gave way to mechanical processes, including bulldozers, as mechanization revolutionized the logging industry (see figure 8). The logging activity necessitated a need for large camps to house and feed workers. The largest of these camps occurred near the mouth of First Creek. First Creek also marked the place for several additional camps further up the creek (see figure 9). It makes sense

that the CLC headquarters and operation focal point resided on First Creek because they owned much of that land and the site provided reasonable access to the entire watershed.



Figure 9: Camp 1 on First Creek, roughly 2.5 miles above the mouth (photo: E. Henderson collection).

Timber was unloaded from the rail cars and shipped on trucks to reload areas that were located throughout the valley, before being finally sent to Yakima (KCCC, 1989). Rail log hauling ended in the Swauk around 1944 and the entire backbone of the operation including rails, locomotives, and administrative buildings were removed from the area soon after logging ceased (Henderson, 1989). It may seem odd to some readers to learn that all of the equipment was promptly removed, rather than left in place for future use. The removal of equipment occurred for several reasons. First, the majority of land logged in the Swauk was public land managed by the Wenatchee National Forest and not the Cascade Lumber Company, thus removal of the rail was part of their contract. Second, Cascade had conducted all of its anticipated logging and did not expect to harvest the stands anytime in the near future. At the same time, logging operations were occurring elsewhere and the equipment could be better used in other locales and/or sold

to finance other operations. As an interesting side note, the rails and equipment used on the Swauk came from the Taneum watershed (and the Teanaway, before that) where



logging occurred several years earlier (Henderson, 1989). Even today, evidence of the historic railroad can be seen in many of the drainages of the Swauk (see figure 10). In 1957 the Cascade Lumber Company merged with the Boise Payette Lumber Company of Boise, Idaho to form the Boise Cascade Corporation.

Figure 10. Evidence of the old rail bed abounds in Hurley Creek. Notice the decaying logs and the rail spike sticking out (photo: J. Erickson).

Fieldwork allowed for detailed analysis of the old rail bed and subsequent mapping. Generally speaking, the following rail bed characteristics were made: 1.) Rail lines were usually placed in drainage bottoms and were typically no more than 60 feet from the main channel of the drainage. 2.) Much of the old rail bed has been eroded or grown over and is difficult to see or follow. 3.) Many current roads seem to follow (in parts) the old rail bed, further complicating detection of the rail path. Rail spurs went up the following creeks: First, Mill, Baker, Williams, and Hurley Creek as well as Deer, Pine, and Lion Gulches. It is probable that rails also went up other creeks and smaller tributaries of the above creeks. Please see the *conclusions* section at the end of the paper for more discussion on this subject.

Farming, Ranching, and Trapping:

Farming, ranching and trapping are lumped together for several reasons. First, their general dates of inception are relatively similar. Second, all three are in many ways linked with the practice of homesteading. Lastly, there is very little documentation of the ranching, trapping or early farming that occurred in the area. In fact, of all three uses, the practice of ranching, or herding, probably contains the best record, as one usually had to apply for a grazing allotment, however, that was only initiated after the passage of the Organic Act in 1897.

It is not known when trappers first entered the Swauk, but it is generally considered that the Swauk held little commercial potential in the fur market (WNF, 1997). Sheep were the primary animal grazed in the region, although cattle were quite prevalent as well. In the 1930s the First Creek Cattlemen's Association ran in excess of 700 cattle between First and Williams Creek (KCCC, 1989). At its prime, the Swauk Watershed supported in excess of 10,000 sheep and over a 1,000 cattle (WNF, 1997). Currently, only around 1,000 sheep graze in the area, along with a hundred or so cattle. Two major stock trails historically crossed the watershed. The first trail, known as the Teanaway-Wilson trail, came off of Table Mountain, crossed between Deer Gulch and First Creek, and went up and over Teanaway Ridge. In 1916 over 45,000 sheep were counted at the Liberty Guard Station on their way to the Teanaway (WNF, 1997). The second stock trail also crossed Table Mountain and headed north over Swauk Pass on its way up to the Blewett region. It was known as the Naneum-Wilson trail.

Intricately involved in any discussion of farming and ranching practices is the notion of homesteading. The effects of homesteading are readily apparent in the Swauk where most of the successful attempts at homesteading were in the lower elevations of Swauk and Williams Creek (WNF, 1997). The historic site of Virden (Lauderdale) represents early homesteading activity and was named after George Virden, an early pioneer farmer in Horse Canyon (1876) (see figure 11). The Virden site has certainly seen its fair share of change. It has been used as a farm, store, post office, schoolhouse, and sawmill throughout its existence (KCCC, 1989). Several historic homesteads lie in



Williams Creek and upper Lion Gulch that date to the late 1800s (WNF, 1997).

Figure 11. Early photograph of the Virden homesite (photo: Kittitas County Centennial Committee, 1989).

Transportation:

Early access to the watershed was made available by a crude wagon road that was built just south of Blewett Pass in 1879 (WNF, 1997). The original road facilitated mining activity that was taking place in the Blewett region and ended at the town of Blewett. (Dow, 1963). The road traveled from Cle Elum up to Liberty where it followed Swauk Creek to the pass and Blewett. The old highway is still present and provides recreational access to the Wenatchee Mountains (see figure 12). The road was upgraded in the early 1900s until finally being replaced by the current highway in the 1950s. The

forest service maintains roughly 312 miles of road within the watershed, most of which



was constructed between 1960-1990 to facilitate timber and recreational activities (WNF, 1997).

Figure 12. Modern photograph of the Historic Blewett Pass (photo: J. Erickson).

Recreation:

Although the majority of my research deals with historic land use change through the 1940s, I cannot end this report without briefly saying a few things about recreation and the future of the Swauk. The primary use of the Swauk Watershed today is drastically different from its past. Gone are the heydays of logging, mining, ranching, and farming that have left an indelible legacy of conquest and adventure. Although nearly all of the historic uses still occur in isolated patches, recreation has taken center stage as the central activity notably through hiking, camping, hunting, and winter sports (snowmobiles, cross-country skiing). It would be wrong to imply though, that recreation has only recently been popular, for this simply is not the case. In fact, several ski lodges have occupied various sites in the watershed, typically along Highway 97. Such was the case with the Swauk Ski Bowl, which operated between 1946-1953, and whose main lodge now rests at Mineral Springs Resort. Currently, there are three developed campgrounds in the Swauk Watershed: Swauk, Mineral Springs, and Lion Rock. During

the 1980s, two campgrounds, Park Creek and Baker Creek were closed due to financial limitations (WNF, 1997). One of the most popular day-use recreational sites is located on Red Top Mountain. The area features popular agate beds, an old fire lookout, and is increasingly known as an excellent bird watching, location (WNF, 2001). Trails exceed 130 total miles in the watershed, and are dominated by a multiple-use philosophy. Of all the trails in the Swauk, only a few are designated for hikers only (WNF, 1997).

Dispersed camping is perhaps the most prevalent and obvious recreational activity occurring today (see figure 13). Evidence of dispersed camping is especially prevalent along Williams Creek and Lion Gulch, but I think it is a fair assessment to state that the



entire watershed is actively used for dispersed camping. What resource management problems this activity may hold are still unclear.

Figure 13: Memorial Day Weekend 2001 near Williams Creek (photo: J. Erickson).

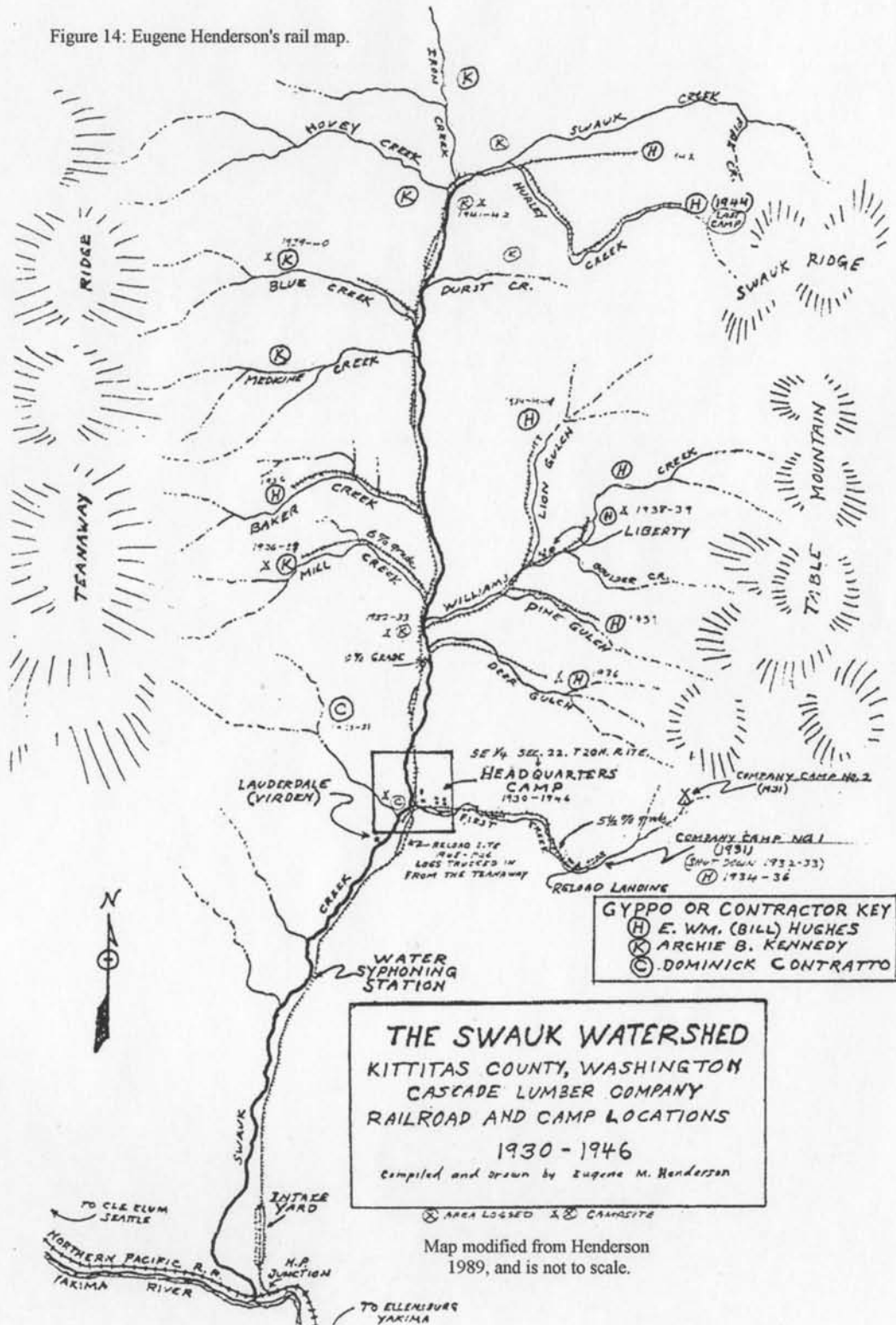
Conclusions/Future Research:

In contemplating the environmental implications from land use change in the Swauk Watershed one would assume to hear some fairly grim news. Surprising, though, I found very little literature that considered the numerous activities detrimental to the sustainability of either natural or human systems. Even the mining experienced by the region has turned out to be relatively harmless to the long-term health of the ecosystem.

Samples taken throughout the Swauk region show no signs of concern, as all measurements fall within state water quality guidelines (Washington State Department of Ecology, 2000). Since 1980, all large-scale mining operations have been required to obtain written approval from the Washington State Department of Fish and Wildlife (WDFW). Whether a project is deemed large or small-scale is determined by the equipment being used and not the size of the claim. Simple methods such as panning do not require a permit, while more evasive techniques including suction dredging, and any type of activity that will divert water, must go through the permitting process. The WDFW has also initiated general work dates and numerous technical requirements in an effort to protect fisheries and other critical habitat (WDFW, 1999). It is my opinion that resource degradation of the watershed is relatively minimal, especially if one considers the mining scars of towns such as Roslyn and the current logging practices of clear-cutting in the watershed.

Overall, I had mixed results in determining the historic path of the rail line. After meeting with Eugene Henderson and getting an updated version of his map (see figure 14), I set out to verify the existence of the rail spurs and accurately map them using topographical maps, aerial photographs, and fieldwork, ultimately creating a map using GIS. As you can see by my map (figure 1), the majority of Eugene's findings were validated, however, I placed the old rail bed location on the opposite side of several creeks than he did on more than one occasion. Really, the only spot of disagreement is centered around Blue Creek, where he shows an old rail line. Fieldwork showed little evidence to support his assertion, and thus Blue Creek is labeled with a question mark (figure 1). Perhaps there was a rail line along Blue Creek, but years of vegetative growth

Figure 14: Eugene Henderson's rail map.



and erosion, not to mention road building, have erased the scars. Fieldwork also led me to believe that a previously unmarked spur may have gone up a small drainage north of Hurley Creek (see map). Unfortunately, time did not permit me to physically check entire creek bottoms, or the main rail line that followed Swauk Creek. From my perspective, a precise understanding of rail locations, although preferred, is not necessary to obtain a more general understanding of the rail activities and their influence in the Swauk.

Further research of the area could yield some surprising findings. It would be fascinating to physically walk all of the main tributaries of the Swauk, and try to pinpoint the location of all the old rail lines. Other interesting studies could focus on the documentation of the more than 500 estimated mining claims that dot the watershed, which is already underway by a group of authors. Additional studies could also look at land use in Swauk Prairie with the abundant homesteads and agricultural activity, or the former ski lodges in the northern half of the watershed. Further research may also focus on the issue of dispersed camping, which is so common in the Swauk. A project of that nature would carry much validity and would likely be used by the Forest Service to help guide land management.

In conclusion, I want to reiterate the pleasures of working on this interesting and intriguing project. It is my hope that I have added something of value to the literature and history of the Swauk Watershed. Like the gold that brought men to the region over a century ago, the Swauk is still an alluring and captivating place. And much of this attraction is intricately linked to the land uses of the past and present along with the abundant natural beauty of the area. Perhaps the future of the Swauk lies in recreation

and camping, but it will never escape its historical land uses that have added character, substance, and identity to this place.

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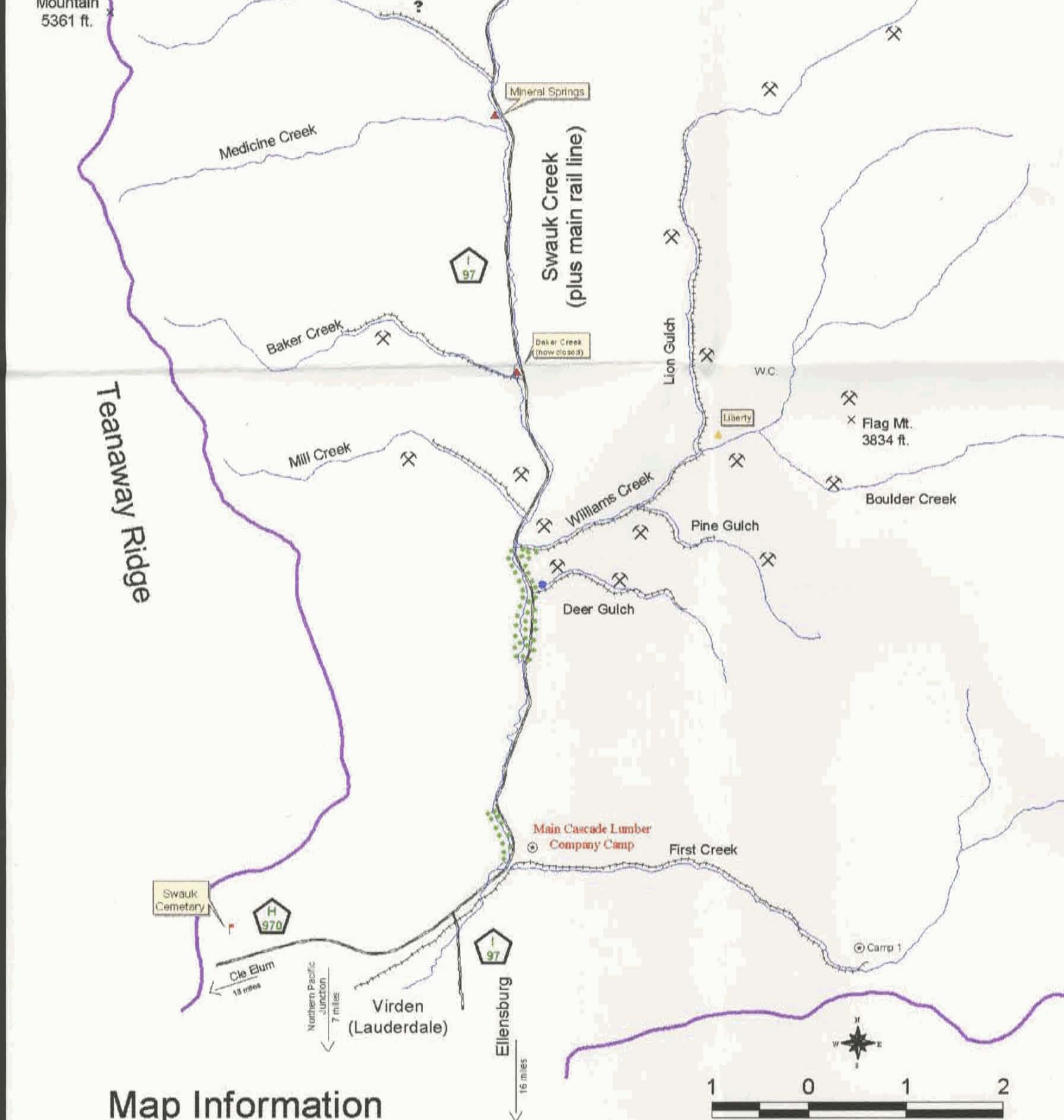
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Map Information

This map depicts historical land use within the Swauk Watershed. It is intended to be a general reference map and should not be used for detailed analytical purposes. It was produced using GIS and digitizing USGS topographical maps and is a result of fieldwork, aerial photograph interpretation, literature review, and personal interviews.

Map Interpretation Key

	Main Roads		Mining Evidence		Campgrounds
	Rivers		Logging Camps		Interstate 97
	Dredging		Watershed		Highway 970
	Rails		Old Blewitt		Questions