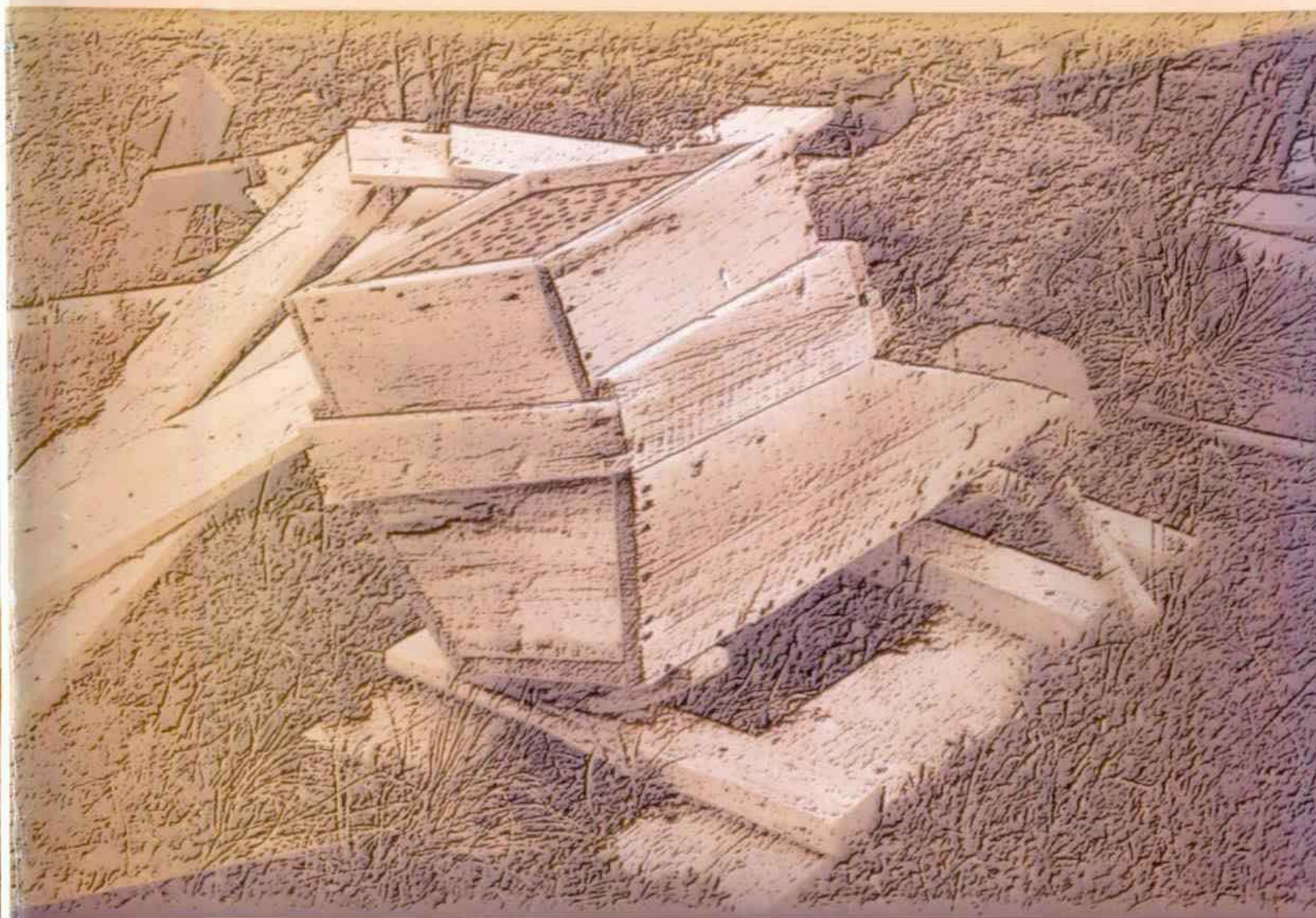


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Managing Historic Mining Artifacts on the Landscape



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Color Scans

8/7/2003



United States Department of the Interior

NATIONAL PARK SERVICE

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July 10, 2002

Enclosed please find a copy of *Managing Historic Mining Artifacts on the Landscape*. Conceived as a joint effort between Wrangell-St. Elias National Park and Preserve and Yukon-Charley Rivers National Preserve, this project represents a team effort to develop a proactive plan for managing the vast number of historic artifacts scattered across the historic landscape in Alaska's national parklands.

Within several of the national parks in Alaska, many of which comprise several million acres each, are numerous historic mining artifacts. These artifacts are clustered in both lode and placer mining sites, or are widely scattered across the landscape. Sites include simple domestic camps, lode or placer work areas, as well as more complex areas such as mill complexes or small communities. The remoteness of Alaska's parks and their relative newness contributes to the integrity of most of these historic mining sites. Unlike many parks in the lower 48 artifacts associated with early 20th century mining activities in Alaska are still in place where their owners left them. Parks do not have the facilities or staff to house extensive collections of these artifacts. The alternative is to leave them in place where they may be studied by historians and archeologists and where they also provide the visitor with a discovery experience unlike something they will find in other national parks. Consequently there was a need to develop a management strategy that would allow these artifacts to be preserved in place, on the landscape.

This team effort included a historian, a historic archeologist, a curator and a representative from each of the parks involved. This multidisciplinary team approach provided a range of perspectives and experiences that contributed to several wide ranging discussions while in the field and while writing this report. We hope you will find this report useful and interesting.

Sincerely,

Gary Candelaria
Superintendent

Managing Historic Mining Artifacts on the Landscape

**Anne Worthington
Logan Hovis
Abby Sue Fisher
George Teague
Doug Beckstead**

March 2002

Managing Historic Mining Artifacts on the Landscape

Introduction

Imagine a 15,000 acre National Register Historic District full of shovels, picks, enamel dishware, stoves, tools, and large pieces of equipment such as drill presses, compressors, motor vehicles, sleds or a Pelton wheel. Multiply this several times and you have a picture of the mining landscapes in Alaska. Because of remoteness and difficult access, nearly all the tools, housewares, and assorted paraphernalia necessary to run a mining operation and camp are still scattered about in buildings and about the landscape. Times are changing though. Not only are gradual deterioration and environmental erosion responsible for the disappearance of many artifacts, but increased visitation means that more and more items are walking off. In response to these threats, Anne Worthington and Cyd Martin, Cultural Resource Managers for Wrangell-St. Elias National Park and Preserve and Yukon-Charley Rivers National Preserve developed a project that examined the threats and recommended interpretive and stewardship efforts for these areas.

The mining landscapes selected for review are relatively intact compared to other places in the National Park system. This is, in effect, the last chance the National Park Service (NPS) has to preserve this element of our heritage. A team approach to examine select sites and recommend actions was chosen. The team was designed to include a curator, mining historian, historical archeologist, and a park cultural resource specialist familiar with the sites and management concerns. In order for this study to have application elsewhere in Alaska, and perhaps in the National Park system as a whole, three categories of mining sites were visited: low intensity placer mining, industrial placer mining with a dredge; and a lode mining site. Case studies that included National Register properties were designed specifically for Wrangell-St. Elias and Yukon-Charley, but may have application elsewhere. The team visited several drainages within the Chisana-Gold Hill Historic Mining Landscape that represent traditional northern placer mining techniques. The mining camp and mill site within the Bremner Historic Mining District were chosen to represent lode mining. The team also visited Coal Creek in Yukon-Charley Rivers National Preserve, which contains a major gold dredging operation. Other lode sites discussed include the Kennecott Mines

in Wrangell-St. Elias NP/P. The three mining categories enabled us to examine a wide range of artifact types and assemblages. The team also discussed the range of northern mining sites in general, using examples from Kennecott and other historic sites as food for thought.

The team visited the three different locations over a period of two weeks. While the team did not visit the Kennecott Mines, all had been to the Mill Town at one time or another and incorporated their



experiences there into the recommendations. At Wrangell-St. Elias the team included George Teague, historical archeologist, and current director of the NPS Western Archeological and Conservation Center in Tucson; Abby Sue Fisher, Chief of Museum, Archives and Historical Services for Keweenaw National Historic Park in Michigan, and former NPS Midwest Regional Curator; Logan Hovis, Mining Historian with the Alaska Support Office in Anchorage; and Anne Worthington, Cultural Resource Manager at Wrangell-St. Elias National Park and Preserve. The Yukon-Charley portion of the project included George Teague, Abby Sue Fisher, and Doug Beckstead, Historian for Yukon-Charley Rivers National Preserve. Kevin Fox, Unit Manager for Yukon-Charley, was pulled away unexpectedly at the last minute for other business and was not able to participate.

Historical Background

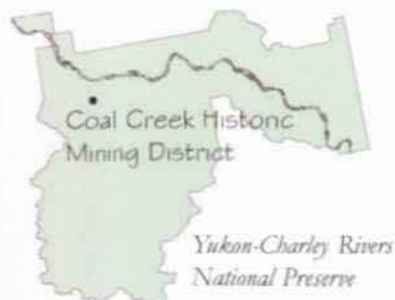
Historic properties in Alaska represent a variety of themes including transportation, hunting or trapping, settlement, and exploration. However, one of the most prevalent in terms of remains on the landscape is associated with mining activities. This includes the actual operation itself as well as ancillary sites such as individual camps, commercial centers and support activities such as sawmills. A comprehensive archeological survey of mining sites in Alaska's national parks identified 345 sites in the nine parks affected (Saleeby, 2000). While the team could clearly not visit even a fraction of the sites scattered across the various mining landscapes, they selected representative types from which generalized and specific recommendations could be drawn.

Sites in Wrangell-St. Elias NP/P and Yukon-Charley Rivers NP were selected as the representative areas. Along with Denali National Park and Preserve these parks contain the largest number of historic mining sites within Alaska. With the exception of Coal Creek and Kennecott, all sites represent either small, individually run operations employing the owner and an extra few people, or smaller corporate

enterprises

that rarely employed more than 50-100 men for extended periods of time. Often, initially large operations were reworked later by much smaller enterprises. In either case, the effect on the landscape could cover large areas. The extensive nature of some of these sites provides land managers with a number of issues and concerns when trying to develop preservation plans.

In many aspects, northern mining is similar if not the same



as mining elsewhere. Most of the tools and techniques are similar to those worked out in other, warmer climates. However, working frozen ground establishes a distinctly different aspect to the enterprise. Whether drifting along a buried lead or thawing ahead of a dredge, the frozen north adds extra costs and requirements. On the other hand, frozen ground made winter prospecting and development work easier as underground workings in frozen stream gravels would stand until the thaw. Some miners worked the frozen underground all winter and then sluiced the stockpiles as they thawed.

The northern mines were also isolated. Even the big camps - Nome and Fairbanks - were cut off from regular shipping by frozen rivers and oceans for much of the year. Until the advent of small aircraft and air services in the later 1920s, most northern mining areas, especially the smaller fields, were as isolated as the California mines in the 1850s.

Industrial mining in the north, dredging on Coal Creek or working underground at Kennecott, was a more expensive undertaking requiring greater returns on an investment. On the creeks, the work was often seasonal, and substantial investments were tied up idle for months on end. Gold and copper mines had trouble attracting and keeping a workforce during the winter months. Winter conditions often destroyed equipment and men. A broken steam pipe or a house fire could be hard on production and fatal to isolated miners.

There is a benefit to these harsh conditions. The cold and isolation of the north preserved many items that would otherwise be lost. Six or more months of freezing temperatures delayed rust and rot. Isolation and difficult access discouraged accidental discovery and petty theft.

Chisana-Gold Hill Historic Mining Landscape

Gold was discovered in the Chisana area in 1913, precipitating the last important gold rush in Alaska with over 2000 prospectors participating (Bleakley, 1996). Following on the heels of the Klondike Rush, miners from all over descended on the nine primary Gold Hill drainages east of Chisana. With many operators filing and working claims up and down the district's numerous drainages, a series of booms and busts up to and including the present modified the landscape. New methods and techniques frequently accompanied each successive boom, or reignited interest in mining the Gold Hill drainages. Mining techniques ranged from early exploration and drift mining, through ground sluicing, and shoveling in, to hydraulicking and finally mechanized mining with the use of heavy equipment.

N. P. Nelson made the district's first important placer discovery near the mouth of Bonanza Creek in May 1913, but it was the find made by Billy James and Matilda Wales a few days later and a couple of miles upstream that really put the place on the map. Reports of that strike electrified the region and precipitated Alaska's last major gold rush.

In the beginning at least, a small area was indeed pretty rich. That July a four-man crew employing relatively inefficient, hand-mining methods on Little Eldorado No. 1 recovered nearly 200 ounces in just two days. During the 1914 season, that single claim yielded about 3,250 ounces—around \$52,000 worth of \$16 gold or, at the current price of about \$285 a ounce, approximately \$925,000.

As Gold Hill's most productive mining areas were all above treeline, the prospectors situated their two main camps down below. The first, called Bonanza City, was located at the mouth of Bonanza Creek. Unfortunately, the timber there was soon exhausted, and the miners were forced to locate a better spot. That fall they established a second townsite, eventually called Chisana City, near the mouth of Chathenda Creek.



Chisana City, L. R. Zacharias Collection, Alaska State Library

The district remained viable until about 1920, when even its most productive claims were virtually exhausted. No significant recovery occurred until 1934,

when the construction of a road linking the Richardson Highway and the nearby Nabesna River greatly facilitated local transportation. The federal government's nearly 70 percent increase in the price of gold was even more significant, creating a substantial new incentive to mine. As the 1930s ended, production again began to fall. That accelerated in October 1942, when America's War Production Board issued Limitation Order L-208 closed most of the country's gold mines.

Mining on Gold Hill resumed in 1945, though on a far smaller scale. While all its original claims lapsed in the early 1950s, most were re-located fairly quickly. Despite the legal complications associated with operating within a National Park a few persistent miners continue mining there today.

Chisana/Gold Hill typifies the development of placer mining in Alaska, advancing through a number of discrete stages and employing a broad range of technology and equipment. Starting with little more than a shovel and a gold pan, local miners subsequently ground-sluiced promising creek bottoms and hydraulic mined the adjoining benches. While most built seasonal residences near their claims, they eventually established several more substantial communities as well. They also developed and maintained an extensive local transportation system, joining their mines, homes, and communities to the regional network which connected Dawson City and Canyon City, in the Yukon Territory, with McCarthy, Chitina, and Gulkana, Alaska.

Bremner Historic Mining District

Formed in the early to mid-20th century, this gold mining landscape encompasses more than 14,000 acres, and preserves a broad spectrum of mining technologies and infrastructure. Both placer and lode sites are represented with the emphasis on the placer sites between 1901 and 1916. Lode mining occurred later, between 1927 and 1942, and included development of a small mill. Two

airstrips epitomized changes in transportation that began appearing at this time. Rarely so well preserved elsewhere in Alaska are isolated artifacts, archeological sites, standing structures ranging from domestic to industrial buildings, and landscape features such as roads and culverts, airstrips, tram systems, utility lines and a water line. Bremner's remoteness contributes to its excellent preservation. (White 2000).

In the summer of 1901, a small group of prospectors discovered gold-bearing gravels in payable quantities near the head of the North Fork of the Bremner River in the Chugach Mountains. Despite efforts by the prospectors to suppress the news of discovery, the Bremner District experienced a limited gold rush in the following two years. Prospectors and land speculators quickly staked streams in the district, including Monahan Creek, Golconda Creek, and Standard Creek. In mid-1902, however, news of more promising gold strikes in the Nizina District attracted the bulk of rushers, leaving only a dozen miners in the Bremner region. Operations at this stage centered on gravel deposits along Golconda Creek (at the center of the Bremner Historic District). Initial workings employed hand techniques and the limited use of water power. By 1904, efforts included the direction of pressurized water against bench deposits (hydraulicking), similar to methods employed in Chitina Valley placer claims. In 1911, the Golconda Mining Company consolidated all claims on Golconda Creek and installed a second hydraulic plant. Falling gold prices coupled with the outbreak of World War I aggravated the gold industry nationally. Reflecting these trends, workings in the Bremner District practically ceased after 1916.

The reestablishment of mining activity in the late-1920s brought a new emphasis on the working of gold lode deposits discovered near the headwaters of Golconda Creek. During 1934 and 1935, the Bremner Gold Mining Company installed necessary mining support infrastructure, including a power plant, concentration mill, and tramway.

The improvement of gold prices in the early 1930s also stimulated the activities of other prospectors. By 1935, the Yellow Band Group, managed by Asa Baldwin (a prominent mineral surveyor), was mining lode claims a few miles south of the Bremner Gold Mining Company's workings. Three years later, the Yellow Band Group consolidated all lode mining claims in the Golconda Creek area and formed Yellow Band Gold Mines Inc. During that time, the Bremner District contained the only operating lode gold mine in the Chitina Valley. Gold mining activity ended in 1942 with the



Bremner Gold Mining Company Camp, Sylvia Baldwin Collection.

imposition of War Production Board Order L-208 declaring gold and silver mining a non-essential war-time industry. The death of Asa Baldwin in September of that year, coupled with the depressed economy for gold mining, crippled the Yellow Band Gold Mines and forced its eventual demise. In the late-1950s, Yelinore Inc. conducted assessment work on claims belonging to the moribund Yellow Band Gold Mines. Low gold prices and high development costs, however, continued to discourage operations and attempts to rejuvenate lode mining ceased altogether by the late 1970s (White 2000).

Kennecott National Historic Landmark

Mining operations at Kennecott occurred between 1901–1938. During this period the Kennecott copper mines were among the nation's richest, containing the last of the great high-grade copper ore deposits in the American West. The initial discovery of copper was made in 1900 on Bonanza Ridge, some 4,000 feet above the lateral moraine of the Kennicott and Root glaciers in central Alaska. By 1907, with control of the mining claims assured and finances secured, construction was under way on the concentration mill sited in the developing mill town below the mine. By 1911 the railroad had reached the town and shipment of ore to Cordova and outside markets began.



Throughout the 1910s and 1920s, the mines continued to expand with new discoveries and increased investment. Substantial facilities and infrastructure were established to advance the work and support the work force. Individual mine sites were self-sufficient camps, with structures for operating the mine and housing the workers. In the mill town, the largest surface facility was a 14-story concentration mill, surrounded by several industrial support buildings, including a power plant, leaching plant, shops and warehouses, and machine shop. Utilities and infrastructure were developed to route power and water for processing the ore and for domestic use. Scattered throughout the town, but concentrated on its edges were residential structures, including bunkhouses and individual cottages that provided housing for the mill workers, staff, and families. Most buildings in the town had indoor plumbing and steam heat. Community services included recreational facilities, space for church services, a school, and garden. Over the years, the industrial town took on the character of a small, self-sufficient community with domestic gardens, boardwalks, a store, and gathering areas.

Low copper prices forced a temporary closure of the mine between 1932–1934. Once the mines were reopened in 1935, the depletion of ore body finally led to the mines' closure in 1938. The company salvaged relatively little from the site. Some items, such as small tools, were shipped out for resale. Other items were simply left in place. Furniture was left in the residences, the powerhouse was left fairly intact, and the electrical shop retained enough equipment to maintain power (Gilbert et al, 2001).

D.T. Noonan filed the first mining claim on the Coal Creek drainage in 1901. Ironically the claim was for the coal resources on the creek, not gold. Over the next half century, a total of 565 claims were filed, the vast majority of which were for gold. Not all of these were original claims. Over time, ground was staked, restaked and claims consolidated into large associations.

The early miners on Coal Creek and its sister drainage, Woodchopper Creek, were drawn from a wide variety of backgrounds. Some came north in the mid-1890s working in Juneau and Circle, some in the late-1890s as part of the Klondike Gold Rush. The history of the people working claims on Coal Creek is essentially a microcosm of the gold rush history of Alaska and the Yukon. Men, and women who came north with the major rushes (especially the Klondike), found no claims available, moved on to Nome where they again found the ground already staked. From there, they migrated slowly back to the upper Yukon staking claims along tributaries like Coal Creek and Woodchopper Creek.



Small scale mining continued on Coal Creek through the mid-1930s when Gold Placers, Inc., an American company with Canadian capital, began acquiring options on the claims with the intent of installing a bucket line dredge. The dredge went into production in July 1936 and continued operation through the summer of 1977. Between 1936 and 1957, the Coal Creek dredge, under the management of Gold Placers, Inc., recovered 92,036.385 troy ounces of gold valued at \$3.2 million. That figure equates to \$29.9 million when taking inflation into account. According to Ernest Patty, general manager for the company, at one point in the 1930s, the joint operations between Coal Creek and Woodchopper Creek amounted to the third largest producers of gold in Alaska Territory behind only the Fairbanks Exploration Company in Fairbanks and the United States Smelting, Mining and Refining Company operations on the Seward Peninsula outside of Nome. (Beckstead 2000)

When the miners pulled out of Coal Creek, they left behind a wide assemblage of equipment ranging from hand tools, hydraulic piping, giants, tractors, sluices, and the dredge. Because of the relative isolation and inaccessibility of the drainage, most of these artifacts remain where they were last used.

Case Studies/Specific Recommendations

CHISANA-GOLD HILL HISTORIC MINING LANDSCAPE

Employing a variety of placer mining techniques, ranging from shoveling-in to hydraulicking later in the district's history, the miners left their mark on the ground. The Chisana-Gold Hill Historic Mining Landscape encompasses nine composite landscape. The entire National Register district includes over 27,000 acres and comprises 13 primary and secondary drainages where the mining activities were concentrated, two communities, notably Bonanza City and Chisana City, as well as a number of transportation routes and exploration sites scattered across the intervening distances. Features on the landscape include wood frame cabins(16), tent frames or camps (42), doghouses (35), boomer and diversion dams (56), flumes, ditches, tailings piles left over from ground sluicing, shoveling-in and hydraulicking operations, drift pits, exploration pits, trails and assorted isolated artifacts scattered about. Artifacts scattered across the landscape and concentrated in discrete sites

include a variety of domestic items including dishes and pots and pans, as well as small and large items associated with actual mining activities. Some of these objects consist of hydraulic monitors, sluice boxes, rocker boxes, a churn drill, windlasses, small hand tools such as hammers, axes, saws, hardware such as nails and railroad spikes, more exotic items such as drag buckets and of course the ever-present pick and shovel.



Bonanza Creek, looking downstream



*Hamshaw's Camp, c. 1914, Bonanza Creek
Stanley-Mason Collection, Tacoma Public Library*

Habitation sites are situated in and around the mining areas, frequently on small benches or level areas above the creek bed, next to the work areas. A few cabins remain, but more predominant are tent camps or artifact scatters that indicate an older or more basic camp. Artifacts remaining at habitation sites include enamelware, glass, occasional paper objects, and cans —many of which have been modified to serve a different function than originally intended. Many times the artifacts from habitation sites are mixed in with the



*Bonanza Creek No. 6
Stanley-Mason Collection, Tacoma Public Library*

work artifacts from an adjacent site. All of these artifacts were laboriously hauled to the area by horse, dogsled, and on the miner's backs. It wasn't until 1932 that Chisana received regular mail service. (Feldman 1998).

Impacts to artifacts in this area range from gradual deterioration, and disbursement resulting from flooding during spring breakup and periods of high rainfall, to collection of artifacts by visitors and local residents, and ongoing

mining activities. Mining activities continued into the present, with two active mining plans of operation in effect.

Typical of the Gold Hill area is a pattern of compact activity areas (such as habitation sites) surrounded by sometimes overlapping, loosely associated activity areas (such as tailings piles, ditches, dams) and isolated artifacts. Walking most of the length of Bonanza and Gold Run Creeks the team encountered several domestic and mining sites in addition to seeing innumerable unassociated artifacts scattered along the creek. These artifacts can provide important sources of data for understanding the past and can also be useful for interpretation and education. Importantly, they also provide "feeling" or atmosphere – visitors, or scholars, walking through the area can get a sense of how crowded this place was, and how extensively it was used.

The sheer number of sites and artifacts scattered across the Chisana-Gold Hill landscape requires a separate endeavor to develop an artifact management and preservation plan. After assessing the resources in the district the team recommended developing a management-in-place plan that includes treatment of structures and landscape features. Potential candidates are one or more tent frames, the churn drill and the boomer dam on Gold Run. This plan would also recommend a specific strategy for collecting a representative sample of the industrial and domestic assemblages throughout the district.



Artifacts arranged on table at NAB-049

Bonanza Creek

Historic resources along Bonanza Creek consist of a series of habitation sites interspersed by evidence of a variety of mining operations. Artifacts are primarily concentrated in habitation sites widely scattered along the drainage. Three sites representing the types found along most drainages were noted specifically:



NAB-049

NAB-050: Located in upper Bonanza Creek, this placer mining camp consists of two tent frames, an outhouse, three doghouses, a dam remnant, flume ruins and two trash scatters. This site is a typical habitation site for the Gold Hill area and contains a number of domestic items as well as small tools associated with mining activities, such as hammers, shovels, crosscut saw and picks.



Homemade ladder and washtub, NAB-



Hydraulic giant at NAB-062

NAB-062: Located in upper Bonanza Creek, this staging area for mining operations consists of riveted metal penstock, sluice boxes, a hydraulic giant, and a base for a giant nozzle. At one time this site contained a churn drill rig on skids. It was removed in the late 1990s by persons unknown.

In addition to the three sites identified here, isolated artifacts or groupings of artifacts were noted.

Recommendations for this drainage include:

- Develop and implement an artifact management and preservation-in-place plan for artifacts scattered at sites and along the drainage.
- Collect items immediately that are obviously rare, sufficiently threatened or are representative of their type:



Abby Sue Fisher and rocker box, Bonanza Creek

Rocker box and associated tools used in its operation, nozzle with canvas hose, smaller drag bucket - Fresno (IS #208)



Fresno drag bucket, Bonanza Creek

Sluice box with riffles, monitor (especially the nozzle) and gate valve, large bottomless scraper, bag of short railroad spikes, penstock, pole riffles (NAB-062)



Gate valve, Bonanza Creek

Coarse Money Creek

Coarse Money Creek is a tributary of Bonanza Creek and exhibits a similar pattern of site and artifact distribution.

NAB-077: Located on both sides of Coarse Money Creek this mining camp/operations area contains the remnants of three cabins or tent frames, three doghouses, two sheds one of which was built over a drift pit, and a scatter of artifacts, including a wheelbarrow.

Recommendations include:

- Develop and implement an artifact management and preservation-in-place plan for artifacts scattered at sites and along the drainage.
- Collect the triangular scoop used for cleaning sluice boxes and the wheelbarrow at NAB-077.

Gold Run Creek

Gold Run Creek begins as a narrow drainage with a series of habitation sites, dams and evidence of mining activities such as tailings or hand-stacked rock piles along its upper length.

Recommendations include:

- Develop and implement a collection and preservation in place plan for artifacts scattered at sites and along the drainage. Include the churn drill in plan.
- Stabilize boomer dam and initiate hazard fuel reduction at NAB-065.



Churn drill on Gold Run Creek

Chisana

Chisana consists of the remains of the “largest log cabin town in the world” (*Cordova Daily News*, February 24, 1914). Very few standing structures remain, however the foundations and associated artifacts for many of these cabins are still visible. Located amidst a small modern community and

adjacent to the primary airstrip for the area, Chisana is at risk for unauthorized collection. This should be taken into consideration when developing and implementing an artifact management and preservation-in-place plan for artifacts scattered around the area. Issues of public and private property should also be kept in mind.



Chisana City, E. R. Zacharias Collection, Alaska State Library

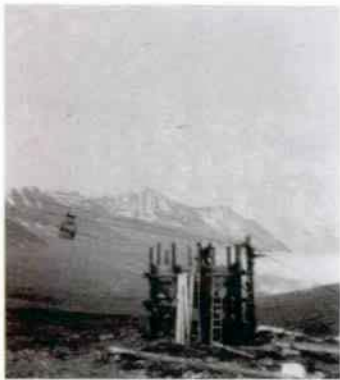


BREMNER HISTORIC MINING DISTRICT

The Bremner Historic District encompasses more than 20,000 acres and includes remnants of both placer and lode mining operations. There are essentially two landscapes within the Bremner Historic District, a placer mining landscape and a lode mining landscape. The placer mining landscape is located primarily in the southern portion of the district with some evidence in the northern portion. Evidence of placer mining activity is situated in the vicinity of streams, in particular Golconda Creek and Standard Creek. Cultural resources associated with the placer mining landscape include habitation sites (5), constructed water systems such as ditches (2), boomer (1) and diversion dams and flumes, small scale features which include artifacts and pieces of equipment,

circulation systems such as airstrips, trails (2) or roads (2) and evidence of the mine workplace such as tailings (3).

The lode mining landscape is concentrated in the northern half of the district. Whereas historic placer mining by definition occurs around water and streams, these requirements are not as critical for lode mining operations. Consequently the cultural resources associated with lode mining can be found high up on the valley walls in the form of underground tunnels and support structures, and on the valley floor where the habitation and processing areas were located. The mines and processing areas



Lower Tram Terminal, Yellowband Mine, Bremner. Sylvia Baldwin Collection.

below were connected by tram systems or in the case of the Sheriff Mine, a road. Features associated with the lode mining landscape include the lode mines themselves (4), a concentration mill (1), habitation sites (7), water systems which provided power and a domestic water supply (4) as well as culverts (8) and ditches which directed water away from critical areas such as roads and airstrips, transportation or circulation systems such as airstrips (2), roads (3) or trails, and aerial tramways (3), and a variety of small scale features which include artifact scatters, sleds, vehicles, power poles (44) and rock cairns (30).



Upper Tram Terminal, Sheriff Mine, Bremner. Sylvia Baldwin Collection.



(including a Model A), a sawmill, a compressor, jaw crusher, Dorr Classifier, Wilfley table, and a vast assortment of hardware and tools.

Because many of the more complete artifact assemblages are located within structures they are protected from many of the elements. As the structures continue to deteriorate they will eventually collapse, burying artifacts remaining in the buildings. Snow slides have the potential to impact the mine buildings located on the face of the mountains. Artifacts lying on the ground adjacent to buildings or at archeological sites are subject to weathering. All objects are at risk from unautho-

rized collection, whether inadvertently by visitors who don't know otherwise, or those seeking additional items for their collections. The remote location has protected Bremner in the past, but as visitation increases unauthorized collection is expected to increase.

The team visited the Yellowband (Bremner) Mining Camp (XMC-105) and the Lucky Girl Mill (XMC-104) specifically.

Yellowband Mining Camp (XMC-105)

The Yellowband Mining camp is the most extensive site within the Bremner District. It contains a central bunkhouse and kitchen with several outbuildings, including a powerhouse, shed, mechanic's



shop, blacksmith shop, and office. Other landscape features include a road with culverts, ruins of a portable sawmill, waterline, sled remnants and equipment such as a compressor and a Model A Ford dump truck.

The bunkhouse was stabilized by the NPS, and is used as an emergency shelter by visitors and staff. Associated structures have received foundation work and new windows as well. The contents of the buildings are relatively intact, but there is considerable deterioration of the bunkhouse as a result of ground squirrels coming through holes in the floor. Some items inventoried earlier are now missing from the garage, shed, office and bunkhouse.





Switch panel, XMC-105

The most vulnerable and valuable feature at the site is the switch panel, located in the powerhouse, which is still in good condition and intact, and has not been vandalized. It provides an excellent example of a small scale hydro-electric power generation system. The team discussed a large variety of options to discourage theft and vandalism. Options included locking the building, removing the panel, and on-site interpretation. The team could not decide on an effective protective measure that allowed the machinery to stay on site undisturbed. However, a method needs to be developed.

Other recommendations include:

- Collect loose items such as empty wooden dynamite crates.
- Place interpretive brochures in bunkhouse: Develop a stand alone interpretive brochure that includes general historic information about the Bremner Historic District and well as descriptions of the camp, mine sites and mill, and their relationship to each other. Reference to the mines and mill should not include locations (for resource and liability concerns).
- Place durable signage inside each of the buildings at the camp. Signage should identify each of the artifacts and describe their purpose and function and their relationship to the structure. These signs will also interpret the history of the camp, and establish an NPS presence on-site with the intent of discouraging vandalism and theft. This will also provide an educational experience for visitors to the site.
- Permanently identify specific valuable items that have the high potential to "walk off". These items include the drill press, anvil, forge and blower, vise, Gardner-Denver hydraulic drill, shoemaker anvil.



Drill press, XMC-105.



Garage and "larger artifacts", XMC-105.

- Continue to provide preventative maintenance/stabilization for the buildings. Also remove vegetation from around buildings and large artifacts (such as the bull gear for the tram, wagons, receiver for compressed air system, compressor, etc). Apply Boracare to the wooden wagon and sleds and prop the wheels up on blocks. Pest-proof the buildings that contain artifacts or conduct periodic cleanup of pest activity.



- Conduct a complete inventory of artifacts in the garage/machine shop and shed. Establish order among artifacts after complete documentation, rehang and store artifacts along walls and shelves as appropriate. This will give the impression that the contents are cared for and there is value placed on the material culture. Center area of the shed can be used for storage of maintenance materials. Place the Model A truck inside under cover in the center of the garage.

- Develop a maintenance plan for large items of machinery outside (ore carts, sawmill, bulldozer, compressor) that includes caring for these artifacts *in-situ* so that deterioration will be slowed.
- Conduct a complete inventory of the Assay Office. Permanently identify specific valuable items that have the potential to “walk off”. Continue preventive maintenance of the structure



Lucky Girl Mill (XMC-104)

Snow slides have removed the superstructure of the mill building, exposing the heavy equipment such as the ball mill, amalgamator, classifier, pulverisor and Wilfley table. Artifacts in the mill are exposed to the elements and will deteriorate more rapidly than those remaining in buildings. The assay room is still intact and to a lesser extent is the compressor room. In addition to assay equipment, the assay room contains an extensive collection of hand tools and hardware necessary for the running of the operation.



Workbench in assay room, Lucky Girl Mill.

Recommendations include:

- Conduct a complete inventory and documentation of artifacts in the assay room, at the mill, and adjacent areas. Establish order among artifacts after complete documentation, remove unassociated debris, rehang and store artifacts along walls and shelves as appropriate. This will give the impression that the contents are cared for and there is value placed on the material culture.
- Allow the brush to grow up over the trail from the

Yellowband Mining Camp to the Lucky Girl Mill, thus discouraging some visitors from making the trek up the hill.

KENNECOTT NATIONAL HISTORIC LANDMARK

The Kennecott National Historic Landmark encompasses over 14,000 acres of public and private lands. Within the vicinity of the mill town can be found tram systems (4), bridges (2), buildings (14), extensive tailings piles, utilidors, boardwalks and archeological features (113). Artifacts can be found scattered within the structures themselves, around archeological sites and just about anywhere else on the ground. Each mine site, connected to the mill by a tram system, contains bunkhouses as well as support facilities such as water and oil tanks, various types of sheds and outbuildings, avalanche barriers and garbage dumps. Artifacts are strewn all over the landscape and within the buildings.



Kennecott Mill Town

The mill town, with its ready access to McCarthy and the road system, and as a destination for visitors has its own set of issues, and an interim management plan has been developed for the site. One of the team members comes from a similar copper mining town in the Keweenaw Peninsula in Michigan and had some observations that may be of benefit.

- The ownership boundaries are blurred (private vs. public) and confusing. Interim interpretive signage for the NPS preservation work would be helpful in informing visitors why stabilization work is being conducted on some buildings and not others.
- After touring several buildings at the mill town we noted that areas have artifacts interspersed with debris (non-historic). Separate the historic and non-historic artifacts to give the impression that the historic artifacts are cared for. Tag items that need to be retained prior to preservation activities, including lead paint abatement. This indicates the item is not junk and visitors may be less likely to pilfer objects. Cull 70 years of accumulated debris from artifacts.



Rear of machine shop, Kennecott NHL.

- Install temporary metal screening (trommel or wire?) behind the machine shop to prevent removal of objects from collection until management can develop more permanent method of preservation.
- It was unclear that the mill town was a NPS site, given the lack of NPS presence and interpretive programs. Tours given by KGL and other private entities added to the confusion. A more prominent NPS presence will depend on decisions made by park management.

Jumbo, Bonanza and Erie Mines

The four mines located on the ridge above the mill town are more difficult to access than the mill town, but have similar issues and concerns with the other sites we have visited.

Of the four sites, the Glacier Mine is the most difficult to access and therefore the least likely to receive visitors. It has also deteriorated the most. Situated on a moving rock glacier only one structure retains integrity. Artifacts are primarily scattered about the landscape and are exposed to the elements. A few can be found in the winch house.



*Bonanza Mine, circa 1930s.
Frank Morris Collection.*

Perched on a cliff above the Kennicott Glacier the Erie Mine is also difficult to access.

However, it is not impossible to access, judging by the number of non-historic objects introduced annually into the bunkhouse, and by the historic artifacts that disappear each year. The cables holding the bunkhouse on the cliff are slowly failing, as is the roof which provides the primary protection from the weather. When the bunkhouse collapses it will take those artifacts inside it to the bottom of the cliff. Artifacts located in the blacksmith area and around the water tanks are becoming

increasingly buried under debris. Because of the steep nature of the site, few artifacts are found on the landscape.

Both the Jumbo and Bonanza mines are accessible from the mill town via a dirt road/trail that is severely eroded. Because of heavy vegetation

overgrowth the Bonanza mine is more difficult to access and receives fewer visitors. While vehicles cannot travel the entire distance to the Jumbo mine they can access part of the route, and ATVs can get most of the way to the mine site. Buildings at both sites have collapsed, and are continuing to collapse, burying artifacts inside. Both sites also receive unauthorized artifact collection. Adit closure at both these sites have restricted access to the underground workings, and the artifacts located there.



*Erie Mine, circa 1930s.
Al Nikolaus Collection*



In general recommendations for the Kennecott mine sites include:

- Conduct a complete inventory and documentation of artifacts before more objects are removed/pilfered.
- Collect representative sample for scientific and interpretive purposes. In particular remove the furniture from the Erie Mine for re-use at the store and bunkhouse in the mill town.
- Place signs at the base of the mine sites. Possible message: "THIS IS AN OUTDOOR MUSEUM. REMOVE NOTHING, DISTURB NOTHING. PRESERVE YOUR PARKS FOR FUTURE ENJOYMENT."
- Establish a brochure and walking trail that interprets the site, and shows visitors that the park is concerned about the site. Implement a monitoring plan or ranger/interpretive visit to enforce this idea.

COAL CREEK HISTORIC MINING DISTRICT



Machine Shop and Warehouse

temper screw, casing, hammers, bailer, and wrenches) and panners bench and sled rest below the pipe yard.

Gold Placers Inc. constructed the original machine and blacksmith shops and a parts warehouse/tractor garage approximately three quarters of a mile downstream from Camp No. 1 to confine the constant noise generated by these operations away from the crew living area. The camp buildings (bunkhouses, messhall, office, etc.) were skidded downstream in 1942 to a location roughly equidistant from the shops yet on the opposite side of the valley. The area previously occupied by Camp No. 1 was dredged leaving little evidence of the camp. The machine shop burned to the ground in 1952 leaving an assortment of machine parts, pulleys, tools and other metal objects to attest to its original location. The blacksmith shop and parts warehouse/tractor garage remain. Several boilers, large compressors and tractor parts remain in the vicinity of the shops. The parts warehouse continued to serve its original purpose even after the camp and shops were moved another mile and a half downstream to their present location at Beaton Pup (Camp No. 3). Today, a wide variety of parts for the dredge, tractors and various other large pieces of equipment remain

The Coal Creek Historic Mining District is characterized by three camp areas with a single set of buildings that were moved downstream from the uppermost location (Camp No. 1) to their current location (Camp No. 3) in support of the dredging operation. Ancillary resources include a seven mile long hydraulic ditch with two penstocks, a pipe yard that includes a very large quantity of steel pipe varying in size from 1 to 18 inches in diameter, thawing points, hoses and valves. In addition, the Keystone drill and complete drill string (bit, auger stem, jars, sinker bar, rope socket,



Coal Creek Dredge

on the shelves of the warehouse including complete piston and cylinder assemblies for the Atlas diesel engine, gaskets, pistons, valves, and hundreds of nuts and bolts of varying sizes. Unfortunately a porcupine has taken up residence making it's presence well known.

Because the valley floor was dredged essentially from limit to limit (side to side), there are few remains from the pre-1935 mining operations. The dredge tailings cover an area approximately one-quarter mile wide and four miles long. At various locations along the tailings, piles of bucket lips, sprockets and gears, and revolving screen panels indicate where annual overhauls

on the dredge took place.

The hallmark of the Coal Creek Historic Mining District is the Coal Creek dredge itself. Resting in it's pond approximately one mile upstream from the Yukon River, this four cubic foot bucket line dredge sits where it last worked the alluvial gravels. Due to the basically inaccessible location of Coal Creek the dredge has remained essentially the same as when the crew shut it down in the summer of 1977. Today tools and equipment remain on the workbenches and shelves within the dredge even down to such mundane items as welding rods and a pair of polyester slacks hanging on a nail.

All emphasis has been on dredge, but that is just a small part of the story. The story needs to extend to the support areas.

- Develop a moving and consolidation plan for the entire site. Before objects are relocated for preservation or interpretive purposes it is critical to inventory and record description and location.



Camp No. 1



Camp 1: furthest removed from dredge. There is a parts warehouse that needs to be made pest proof.

- Remove accumulated natural debris, and make pest proof.
- Inventory, consolidate and make orderly all artifacts, in order to show that they are taken care of.
- Develop representative collection strategy. No artifacts were noted that need tagging (ID).
- Develop a comprehensive walking tour or brochure for Camp 1 and site area as a whole.

- Develop a comprehensive inventory and treatment plan (include a full array of artifacts, apart from dredge locale).
- Machine shop ruins: inventory in detail and collect a representative sample.
- Blacksmith shop, analogous to one in Bremner: make pest proof, clean up debris and make orderly.
- Place identification numbers on heavy duty objects at Camp 1 including: swage block, forge, drill press, boilers, engine, compressor, and other major items of valuable equipment (scattered in woods).

Camp 2:

- Brush out area to facilitate mapping and inventory.
- Map, inventory and develop representative sample collection.



Tailings/ artifact concentrations at points along tailings that lead to dredge:

- Map and inventory concentrations and develop representative collection.
- Photograph the churn drill along with its associated parts and nearby artifacts. Complete a condition assessment, and develop a preventative maintenance plan (such as for the Cat & truck at Bremner).

Camp 3: Now primarily an administrative site this camp is still an integral part of story. Park management needs to determine whether site will be made accessible to public, and decide how to separate contemporary functions from historic functions (assay house).

- May serve as major interpretive function.

Dredge: The team was impressed with treatment of large and small objects associated with the dredge and had no further recommendations for further treatment. If the rest of the site could be dealt with as effectively as the dredge then they are on the right track. A walking tour brochure is an effective interpretive tool.



General Recommendations

All of the historic mining districts examined for this project are extensive. While management strategies include a variety of options including rehabilitation, preservation-in-place, and even benign neglect, the team recognizes that management of resources at both parks is in preliminary development stages and the direction we are recommending is to retain the widest range of options for interpretation and stewardship. Consequently preventative maintenance techniques are frequently recommended.

Recommendations were listed for specific sites that were visited by the team. The following recommendations are generalized and can be applied to a range of site and artifact types.

INVENTORY

- Record or document artifacts in place, in their historic context. This is a necessary first step before further work can be accomplished.

MAINTAIN IN PLACE

- Clean up debris so that the site looks cared for. This is based on the assumption that people are more likely to damage something that looks abandoned and uncared for. The desired view after cleanup would be what the site looked like after the inhabitants left.
- Develop a plan for long term monitoring and maintenance. Monitoring will determine when specific maintenance efforts are needed. Maintenance may include:
 - applications of *Bora care* on wood objects;
 - placement of susceptible objects up on blocks away from wet ground;
 - brushing of vegetation around large objects or buildings;
 - pest proofing or regular cleaning if pest proofing doesn't work;
 - preservation of industrial machinery and equipment as required using prescribed conservation techniques which may include oil or lubrication replacement;
- Permanently tag and identify large valuable portable items. Place a permanent stamp on bottom using a cataloging system distinguishable from the park's museum or interpretive cataloging system. Place a large flashy tag where it is easily visible to discourage casual collectors from removing objects. Include large artifacts with monetary as well as intrinsic value.

COLLECTION

- Develop a collection strategy for representative mining artifacts based on historic development, changes in available technology, and other local variables which may be area specific. Strategy should be developed in consultation with local technical expertise (historical, archeological and curatorial), as well as the park's Scope of Collections Statement. Collecting specific artifacts can be justified if they are significant, one-of-a-kind, or a unique item that documents an activity and is irreplaceable. Justification for collecting objects can be strengthened if the artifact supports research or is intended for use in an exhibit.
- Remove objects from site and relocate to dedicated storage for future research and exhibits. Ensure suitable storage for collection.

BENIGN NEGLECT

- Leave objects of common value on the landscape in order to further the discovery experience for the visitor.

INTERPRETATION

- Photograph "art shots" to freeze frame (preserve) the content and integrity of a site (either in a web site, take away publication, or exhibit).
- Produce walking tour brochures for visitors to take into the field.
- Develop exhibits at visitor centers, on site, or off-site that will inform people of the historic value of the site and efforts to preserve the site.
- Order and reassemble the artifacts in-situ, separating historic from non-historic.
- Use interpretive signage to identify the artifact inventory/assemblage on site.

Conclusion/Summary

Placer and lode mining, whether for gold, copper or antimony, played a predominant role in Alaska's history. Mining sites from small one and two person placer operations to large complexes complete with a mill, and other infrastructure, can be found in nine of Alaska's fourteen national parks and preserves. Because Alaska's mining history is relatively recent, dating from the end of the nineteenth century, many sites are still in good condition. Their remoteness has allowed complete artifact assemblages to remain relatively intact. Now is the critical time if we are to preserve these examples of Alaska's mining heritage. Natural conditions, such as weathering and flood events are gradually eroding many sites away and contributing to the gradual deterioration of artifacts. Increased visitation to many of these remote, and not so remote, sites is adding another element to the picture. While many visitors have good intentions, the temptation to take a souvenir home is great, especially a souvenir that looks like no one will miss it, or may not even know it exists in the first place.

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Recommendations provided by this team focus primarily on methods to make the visitor aware that these objects are an important part of the site, and that they will be missed. This is done through brochures or on-site signage and artifact marking. Because there are so many artifacts, and because they add to the "visitor experience", it is preferred that most of the artifacts be managed and preserved in place. It is inevitable that some will be lost. Consequently it is recommended that a collection plan be developed that takes into consideration historic development, changes in available technology, and other local variables which may be area specific. Objects collected will be curated and preserved in the park's collections for future research and display.

Most parks in Alaska were enabled in the early 1980s. Still young, they do not have extensive plans addressing management of resources, interpretation, or management of backcountry/Wilderness. Until the park can address the issues, the team's recommendations tried to retain the widest range of options for future interpretation and stewardship.

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