

# Environmental effect from the gold rush assignment

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This essay aims to identify the origin of the Gold Rush and identify the techniques used while also noting the harmful effects caused by each one. The Start Of the Gold Rush all began on January 24, 1848, when a carpenter named James Wilson Marshall picked up a nugget of gold from the river at the base of the Sierra Nevada Mountains near Colusa, California. Although Marshall and the man he was working for, John Sutter, tried to keep the news of this big discovery from the public, word got out anyway and soon people were swarming toward the western frontier.

This was when “ one of the largest human migration in history began” (The California Gold Rush). At first people were not buying the story, but as news spread of the fortunes being made in Californians Gold Rush, the first migrants started showing up. It was not long before the population of the California exploded, “ from just only 14, 000 at the start of year 1 849, to more than 100, 000 people by the end of that year. By the year 1852, the population crowded to 220, 000” (Cornell 342).

This underground well of fortune (which amounted to over \$2, 000, 000, 000, 000 worth of gold) was so vast, it emended significant amounts of people to harvest it all. Smart individuals looking to make a profit convinced others to dig gold for them and used that money to start business such as hotels, restaurants, banks, saloons, and all kinds of mining industries. Naturally, this brings up the economy of the state even more but it also brought more people to California.

At first, people used basic, almost primitive methods of gold mining which did little harm to nature such as the ever popular gold panning technique. In

the early days of gold mining, people used gold pans to find gold in the river, although it was actually the most ineffective of all. As time went on, less and less people used gold pan and created more effective ways to extract gold. Another popular tool was the rocker; it had a handle on top to push it back and forth. When the miner put the gravels into the top layer, the thinner and heavier partials would be screened to be separated from the rest.

Repeating this a couple of times, and with some luck, miners can find some gold hidden within the heavy minerals. These techniques to find gold usually required the help Of water and gravity, but since not all the gold is in the river, the miner has to get he water to where the gold is to be found, hence some of the mining ditches can still be found even today (Early Gold Mining Methods) . Eventually there would be too many people joining in on the “ Gold Rush”, which in turn made finding gold increasingly more difficult with the current methods of gold mining.

Had everyone stuck to these methods, the lands would not have been destroyed, but alas greed triumphs over natural preservation. Soon enough, the gold diggers begin to turn to more powerful ways to obtain the gold such as machines and explosives. These new methods of getting gold ay have helped satisfy the diggers’ greed, but it also caused irreversible damages to the lands of California. As time went by, the technology of gold mining became more and more sophisticated; this was when the gold fever started to become very harmful to nature.

The first way want to get into is the placer mining, which is a way of mining that yielded most gold in the early years. Although panning was one of the

ways of placer mining, this method was expanded upon when new techniques were added to it. For example, people started adding large amounts of mercury to their pans to separate the gold from other materials. Mercury has the ability to separate the gold from the extraction of secondary gold after the gravity method. Thanks to its intrinsic properties mercury allow to easily separate gold from other materials.

After the separation from the rest of unwanted particles, they simply evaporate the mercury to obtain the gold they want. It is well known that mercury is highly toxic. It can cause damages to the nervous system at even relatively low levels of exposure. Due to the evaporation of the mercury, we subsequently caused the release of mercury into the atmosphere. The water circulation in the atmosphere would bring the mercury back into the ocean and poison animals in the ocean, which in turn would indirectly poison human beings.

Perhaps one of the most destructive methods of advanced mining that existed was hydraulic mining. Though this method was extremely effective in extracting gold, it caused so much damage to the lands that "Hydraulic mining was prohibited in 1884 when it was discovered that the mining resulted in worsened flood conditions and also destroyed farmland. It wasn't known until much later that Hydraulic mining also left behind a huge amount of arsenic, mercury, cyanide and acid which contaminated the groundwaters, soil, rivers and lakes. (Rare Coins) Hydraulic mining, also called hydraulically is a technique originating from the Roman era involving high pressure jets of water to erode and scrape away dirt and gravel, which is

then funneled into a filter that leaves only the rich minerals behind.

Hydraulic mining was first used by Edward Matheson near Nevada CCNY', California, in 1853, ' Xv fashioned a three-foot tapered metal funnel to which they clamped a canvas hose. They pumped water through the hose and pointed it at the hillside from which they were trying to extract gold.

The water shot through with surprising force, quickly rendering the hillside into a pile of gravel and providing plenty of pay dirt from which to separate gold. " (PBS Gold Rush) The technique caught on fast and soon enough, people were utilizing dams to stock up on enough water to optimize their hydraulic mining operations. As mentioned earlier, hydraulic mining was also the most destructive method, eventually getting banned because of the destruction it caused.

One reason for this is because of the unnatural erosion caused by the high pressure jet streams, which led to unexpected floods. An example of this is mentioned in the PBS Gold Rush website, which mentions heavy rain during January 1861 which loosened deep snowdrifts in the Sierras. The result was inundated countryside, thousands of heads of drowned cattle and millions of cubic yards of dirt, mud and silt - all residue from upstream hillsides that had been pulverize by hydraulic mining. When the water receded, it left behind eight- foot drifts of silt in Sacramento.

Needless to say, Nature inflicted its wrath upon the greedy miners by destroying the farms and lands in the surrounding areas. Countless fields in the Sacramento Valley areas were deeply buried in mining sediment, riverbeds were raised rendering river crossing in certain areas more difficult,

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and farmers rose up in anger toward the destruction gold mining has caused. These factors were some of many that eventually led to the banning of hydraulic mining, which passed when farmers sued hydraulic mining operations in the famous *Edwards Woodruff v.*

*North Bloomfield Mining and Gravel Company* case. Following the case, hydraulic mining was temporarily banned, resurfacing later in 1893, albeit with much stricter regulations in an effort to avoid damage to both farmlands and nature. Gold mining can cause all air, soil, and water pollution. When the mining process works close to the ground surface, the mining sites will generate a large amount of dust which pollutes the air, also the process of refining the ore also pollutes the air.

When heating the ore to melt the metal and release it from its surrounding material, the smelter releases large amount of lead, nitrogen, and sulfur, which comes back to earth in the form of acid rain. Extracting a small piece of gold, a large amount of toxic wastes will be produced and left in the soil. The toxic heavy metal can go into the deeper soil and further pollutes the plants or prevent it from growing. The heavy metal and toxic waste can stay in the soil for years, that makes the area unsuitable for animals and human to live.

Lastly, water pollution is through a highly toxic chemical called cyanide. The miners use the solution of cyanide to dissolve the gold and collect them, but with little protection, the cyanide can easily leak into the soil and goes into local water supplies, lakes, river, and the ocean. The Gold Rush was definitely an era of prosperity, but was all that gold with releasing mercury

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into the atmosphere, flooding and destroying millions of farmland, and leaking dangerous chemicals such as cyanide into our soil and water?