

Nothing GOLD Can Stay

Is mining in Oregon worth the costs? **PART I OF II**

BY CAMILLA MORTENSEN

Compared to other Western states like Idaho and California, “on the whole Oregon is not very well endowed,” when it comes to gold, UO geology professor Mark Reed says. He says even Washington has more gold than Oregon.

But thanks to our geologic history of volcanoes and mountain formation we do have the precious metal. And thanks to the skyrocketing price of gold — analysts predict an ounce of gold will sell for more than \$2,000 before the end of the year — there’s a gold rush for Oregon’s public lands. Miners from California are flocking to southern Oregon’s rivers, and the first commercial gold mine in the state in a very long time has been proposed in Malheur County by a Canadian company.

Gold has been looking like a safe-haven investment these days while the stock market fluctuates wildly. On Sept. 6, gold went for \$1,920.94 an ounce. With prices like that, it’s no wonder that people want to buy and sell gold plucked from the broken necklaces in your jewelry box or panned and stripped from Oregon’s pristine rivers and public lands. But gold can be volatile, in investments or the environment.



Mining for gold, precious metals and other hardrock minerals has a toxic legacy in the West. The mercury used to separate gold from the rocks and minerals still poisons streams and lingers around mining sites. Mercury mines such as the Black Butte mine outside of Cottage Grove, now a Superfund site, are believed to be a source of the high mercury levels that lead to warnings about eating some of Oregon’s fish. And the scars of open pit mines dot the Western landscape from mining companies scraping away the land and drenching the rubble with cyanide to leach out the gold.

Modern mining companies say that this sort of contamination is a thing of the past. Andy Gaudielle is the project manager for a Canadian company called Calico Resources that is proposing the Grassy Mountain gold mine in Eastern Oregon. “Today’s mining is a lot different than it was 100 years ago,” Gaudielle says. “The mining industry has had a bad rap and deservedly so,” he admits, but Calico will use “new methods and new processes” to process 1,000 tons of rock per day to get at the 85,000 ounces of gold a year the company believes lies beneath Oregon’s soil. If gold stays at \$2,000 an ounce, then that comes to \$170 million worth of the precious metal a year.

But conservationists and others aren’t so sure that the damage to the environment is worth the price, or if the gamut of permits that miners must run have any teeth in the face of the seemingly impregnable Mining Law of 1872. Lesley Adams of Rogue Riverkeeper says suction-dredge mining for gold in southern Oregon is suffocating aquatic life due to turbidity in the river, and the environment isn’t the only cost — cleaning up toxic mine wastes costs taxpayers billions.

Chris Hansen of the Oregon Natural Desert Association (ONDA) says he is concerned about issues of water use, contamination and road building at Grassy Mountain. And everybody wants to know if the danger to the environment and cost to taxpayers is worth the money the mining will make for out-of-state companies.

The Environmental Protection Agency has estimated that mining pollution affects 40 percent of Western watersheds, and 2011 Government Accounting Office testimony identified 33,000 abandoned hardrock mine sites in the West and Alaska that degraded the environment by contaminating surface water and groundwater or leaving arsenic-contaminated tailings piles. According to the EPA, the federal government spent at least \$2.6 billion between 1998 and 2007 on cleaning up hardrock mines. Oregon alone has 5,827 abandoned hardrock mines, according to data gleaned from the Bureau of Land Management and Forest Service.

Gold in hot water

UO professor Reed, who researches hydrothermal geochemistry, says Oregon’s geologic history of hot water is what brought gold to its mountains and streams. Oregon has three kinds of gold deposits, he says: veins in metamorphic rocks in southern Oregon’s Klamaths and in Eastern Oregon’s Baker City area; “placer deposits” from weathering and erosion of the metamorphic vein gold; and “veins in young volcanic rocks, such as the early Cascade volcanoes and other volcanic areas on the east side of the Cascades.” Oregon may not have a lot of gold, but what there is spreads throughout the state.

Metamorphic rocks are basically rocks that were changed by pressure. Reed says the metamorphic gold was “cooked out” of the submarine volcanic rocks as they were created in an ancient subduction zone. Gold, as well as many other metals such as copper, lead and zinc, is transported in hot water and carried by sulphurs, Reed says. As the hot water goes through the rock it takes gold with it. So a vein of gold basically follows the flow of ancient hot water through faults and cracks in rock.

When a vein of gold “is weathered and eroded, then it forms grains that are eroded into streams and rivers,” Reed says. That gold forms placer deposits, which is what miners hunt for when they pan for gold, and what suction dredge miners are searching for when they suck up gravel from riverbeds.

“Molecularly, on a placer deposit, the gold isn’t tied up with anything,” says Gary Lynch, assistant director of Min-