

May 14, 2021

Office of Environmental Health Hazard Assessment (OEHHA)
Sacramento, CA 95814
Submitted via email



Re: Comments on proposed draft CalEnviroScreen 4.0

Dear Public Comment Committee,

The Sierra Fund appreciates the opportunity to offer comments on the latest draft of the CalEnviroScreen. We think that the CalEnviroScreen tool is an amazing and important tool. Our comments outline some concerns about the draft and recommendations to improve it.

204 Providence Mine Rd
Suite 214
Nevada City, CA 95959
P: 530.265.8454
F: 530.265.8176
E: info@sierrafund.org
www.sierrafund.org

Summary and Recommended Action

Our review of the CalEnviroScreen 4.0 finds that as a tool for assessing environmental risk of clean-up sites in rural Sierra mountain areas it has not improved significantly since the last iteration. The mine-scarred nature of the region is entirely ignored in the evaluation. In addition, rural areas have lower populations and as a consequence, scoring these areas for environmental risks gets under-estimated. The result is that significant environmental issues exist in the mountain regions of California that are undercounted and underweighted and therefore are often passed over in state funding actions. We recommend that a methodology that adds abandoned mine lands to the CalEnviroScreen database be initiated.

Our Qualifications

The Sierra Fund (TSF) is a 501(c)(3) non-profit corporation dedicated to improving the environmental health of the Sierra Nevada and the health of those people who make the Sierra their home. In March 2008 TSF Fund published *Mining's Toxic Legacy: An Initiative to Address Mining Toxins in the Sierra Nevada*, an 85-page report covering more than two-years' work on the topic. The report was released as part of legislative hearings on the impact of historic mining in California.¹ Since that time we have documented serious public health threats from exposure to "legacy mining toxics" through dust and fish consumption in several reports. More recently, we have worked to improve public understanding of the serious threat posed by poor air quality during wildfire events to human health from.² Our work on this issue was funded by the California Environmental Protection Agency Environmental Justice grant program.

In May 2021, The Sierra Fund will publish a report entitled *Due Diligence: Remediating California's Mine Lands*. The report includes a summary of the impacts of legacy mining practices on the health and ecosystems of Gold Country communities in the 21st century. The report

¹ To view this report, visit our website at:

https://www.sierrafund.org/wp-content/uploads/MININGS_TOXIC_LEGACY_2010printing_4web.pdf.

² To learn more about our environmentally health communities program activities, visit our webpage at <https://sierrafund.org/programs/environmentally-healthy-communities/>

documents the ongoing “cultural blindness” to the significant hazards presented by abandoned mines.

This cultural blindness continues forward with the current proposed version of EnviroScreen. We preface our comments by describing California’s 19th century Gold Rush.

What Happened During the Gold Rush?

Entire ecosystems were decimated in the hunt for gold. Every place from north to south and east to west was impacted, but ground zero was the Sierra Nevada. Its forests were cut to timber the mines and build the towns that were home to the gold and silver mines that straddled both sides of the mountains. Rivers were dammed, and hundreds of miles of ditches and canals were dug to convey water that was used to power hydraulic monitors. These “water cannons” washed away mountains to access ancient river deposits containing gold. Toxic substances such as cyanide and mercury were used to process the gold and then left behind in the waterways, mine tunnels and leach heaps. Hard rock mines tunneled hundreds of miles underground through rocks loaded with arsenic, asbestos and other toxic metals that were brought to the surface, crushed, and distributed across the landscape. Cities sprang up across the headwaters as immigrants from around the world flooded in to work in the mines and settle the towns. Native Californians were forced off the land and almost exterminated to accommodate new settlers and industry.

Impact on the People and the Place

The vicious impact of the Gold Rush era on the native *peoples* who lived at ground zero of the Gold Rush has also changed the *place*. Denying opportunities for native people’s cultural practices on the land has led to the creation of unhealthy and dense forests that burden communities with uncontrollable fire risk and unhealthy air; compromised fisheries and meadow ecosystems; and led to other threats to ecological well-being. Native people have been and remain the most vulnerable people in the Sierra Nevada - and all mining regions of the state.

When the price of gold fell in the early 20th century and the mines began to close, communities continued to grow on and around these sites of industry. Residents of these historic mining towns, steeped in the culture of the Gold Country, literally ignored the presence of the mines as they began building houses, schools and towns. In absence of the ability to visually detect the chemical or physical hazards at abandoned mine sites, many AMLs were subdivided and developed for California’s exploding population. Most land transactions, such as the purchase of a house, did not address the problems associated with legacy mines and toxic mine features in even a rudimentary way during escrow. As a result, mine-scarred or abandoned mine lands are found in, around and beneath communities throughout California and Nevada, including the Coast Ranges, the Mojave Desert, and the Gold Country regions of the Sierra Nevada, Siskiyou, and Trinity mountains.

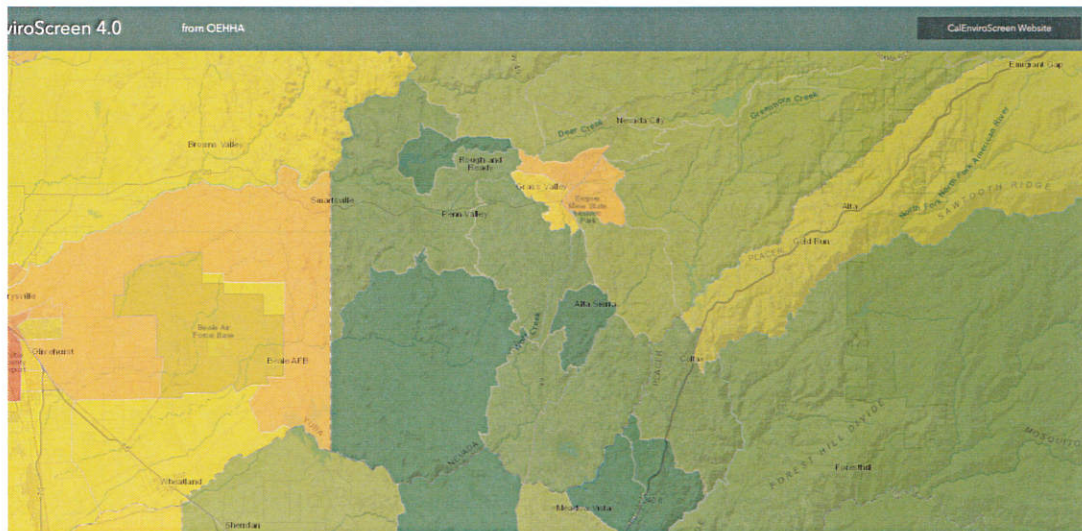
The Sierra Fund Comments

Nevada County is a Gold Rush community that demonstrates just one of many examples of how cultural blindness about the environmental health exposures faced in rural areas with

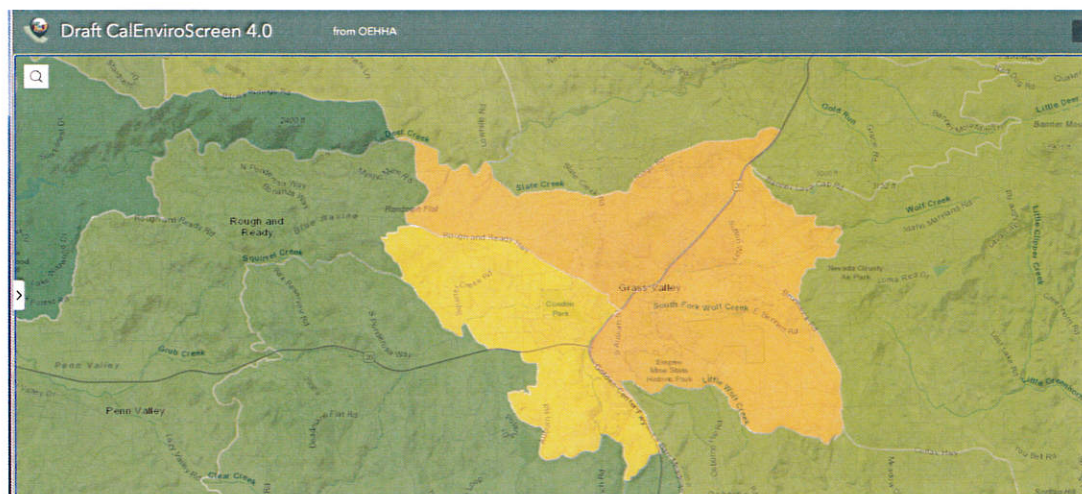
histories of mining get under-scored in the CalEnviroScreen tool. Of the 147 toxic sites identified by CalEnviroScreen in the county, 16 are designated “active” sites, one is a Superfund site.



Below is a screenshot of the CalEnviroScreen 4.0 for Nevada County. There is a sharp line between the two counties – Nevada County green but Yuba County orange. The environmental exposure appears to suddenly appear at the county line. As the elevation gets lower and the population density climbs the exposure rating gets higher. The impacts of the Gold Rush-era environmental health consequences seem to obey county boundaries.



Zoom in on Grass Valley. There were 700 hundred mines around this little town in the 19th century. One mine under this town drilled 360 miles of tunnels that go a mile into the earth. Rock from that mine was used everywhere. Asbestos, arsenic and lead occur naturally in the rock. Elementary schools, parks and convalescent homes were built on and with mine tailings.



Abandoned mines cover thousands of square miles of the state's headwaters in the Gold Country. They cross parcel lines, county and town boundaries and multiple jurisdictions.

The *actual* number of abandoned mine lands and features in Nevada County is not known, but numbers in the thousands. The vast majority of them are unidentified, small sites. Many of them are not located near population centers. Most of them were initiated in the late 18th and early 19th centuries when mercury was used to amalgamate gold.

A major obstacle to a proper assessment of the risk that low-income residents face in our community is that most of the serious environmental health threats of this region are not listed in the pollution-based exposures of concern that are favored by the EnviroScreen tool. The problems caused by traffic, diesel, pesticides and toxic releases are generally not significant here. However, our history leads to other **very serious exposures**.

Dusty Exposures while Working, Recreating or Living on Abandoned Mine Lands

Almost every town in the Gold Country of California was built on or around gold mines. These mines exploited the unique geology of the area which was loaded with gold and other precious materials.

Gold is often co-located with materials such as arsenic, lead or asbestos. Hundreds of miles of tunnels were drilled and blown through rock thousands of feet underground. Miners brought rock, containing gold alongside elevated levels of naturally occurring heavy metals to the surface. The gold-bearing rock was pulverized by stamp mills so that the fine-grained gold could be removed using mercury or cyanide. The processed material was deposited in tailings piles and impoundments. The contaminated waste rock was sometimes used as construction material. Most often it was left in enormous stacks and piles of loose rock.

TSF has tested abandoned mine lands for materials such as lead, arsenic and asbestos.³ Our research has demonstrated that soil – and especially the dust – on some of these lands can be dangerous to humans. For example, one sample of material taken from the “dirt bike” trails crossing the abandoned Marrall Chrome Mine at the USFS Foresthill OHV trail system, was found to contain almost 40% asbestos fibers.⁴

The presence of dangerous dusty exposures on abandoned mines is not considered an exposure in the EnviroScreen.

Mercury Exposure through Fish Consumption

Almost all of the abandoned mine lands are located in areas that are part of watersheds that continue to contribute sediment and mercury to local tributaries which flow into major water bodies in the state of California. The high mercury loads in the Sacramento/San Joaquin Delta are a result of mercury use in the headwaters of the Sierra Nevada. This mercury continues to mobilize during each storm event - 140 years *after* the gold processing actually took place.

³ <https://sierrafund.org/projects/ehcp-legacy-mine-hazards/>

⁴ <https://sierrafund.org/wp-content/uploads/TrailsAssessmentREPORT.pdf>

Once transported into water, even small amounts of mercury can pose a threat to public health. In aquatic ecosystems elemental mercury can methylate, become bioavailable, enter the food web, and biomagnify and bioaccumulate to very high levels in local wild fish.

Locally caught fish are a significant source of nutrition for low income communities all over the state, including in our region. To combat dangerous exposure to mercury via fish consumption, TSF has partnered with the CA Department of Public Health and the Office of Environmental Health Hazard Assessment to improve public visibility of the need for caution when catching and eating locally caught fish. This exposure risk is INVISIBLE on the EnviroScreen.

Bias Against Very Rural Communities

Another significant issue concerns site weights that adjust for sites nearest populated census blocks within a given tract. This weighting has a logic where population concentrations are high and may be proximate to Clean-Up sites. In rural regions with a history of mining, the 1000 meter (.6 mile) weighting adjustment is as not relevant to the impact of contamination as it is in urban cores. This is because, while population is less dense, the sources (for example, mine sites contaminated with mercury) , some very small, are cumulative as the contamination is transported and flows through watersheds and ends up in the major water bodies of the state.

Recommended Action

We recommend that OEHHA add criteria to the CalEnviroScreen exposures of concern that reflect the potential exposures associated with legacy mine lands. This could combine existing data at state and federal agencies that have maps depicting these lands.

Maps of abandoned mine lands exists that are based upon data that have been developed by the California Department of Toxic Substances, the California Department of Conservation (Abandoned Mine Lands Unit), the United States Environmental Protection Agency and the United States Geological Survey. These should be available for inclusion in your database.

There is a precedent for “seeing” legacy mine lands and having this information inform actions and policies that is currently under development at the State Water Resources Control Board. As part of their rule-making around permitting suction dredges for use in the waters of the state, the board has identified areas of historic gold mining as being contaminated with mercury. Their proposed permit⁵ prohibits suction dredge “*Discharges into watersheds with one or more water bodies located in areas of historic gold mining*” and “*Discharges into watersheds with one or more water bodies where mercury is detected above the fish tissue water quality objective.*”

We would be happy to meet directly with members of the committee to discuss our concerns and recommendations. Thank you again for this opportunity to comment.

For the Sierra,



Elizabeth Martin , Chief Executive Officer, The Sierra Fund

⁵ https://www.waterboards.ca.gov/water_issues/programs/npdes/docs/draft_suctiondredgeminig_permit.pdf