

IDAHO
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Unearthing Idaho:

Mining and Environmental Impacts in the Gem State

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UNEARTHING IDAHO:

Mining and Environmental Impacts in the Gem State

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EXECUTIVE SUMMARY

The Idaho Conservation League (ICL) is Idaho's leading voice for conservation, dedicated to safeguarding the state's air, water, land, and wildlife. This report outlines the environmental impacts of mining, provides an inventory of notable mining projects across Idaho, and delves into key issues such as mining law reform, best practices, abandoned mine issues, and the role of mining in the clean energy transition.

ICL evaluates mining projects on a case-by-case basis, striving to raise the bar on projects with manageable risks and opposing those with unacceptable environmental impacts. While mining provides many materials used by society or sought after by investors to represent wealth, mining is also one of the most environmentally damaging forms of resource extraction. The U.S. hardrock mining industry released nearly 1.5 billion pounds of toxic material into the environment in 2022 alone per the EPA's Toxic Release Inventory, the highest of any industry. Major environmental impacts from mining can include water contamination, air pollution, land disturbance, and impacts to fish and wildlife. In addition to the direct impacts within a mining project area, contaminants mobilized from mining activities can travel dozens or even hundreds of miles downwind or downstream of a mine site and affect communities both near and far.

We have included an inventory of all major mining projects in Idaho (at the time of this report's publication), spanning from mineral exploration to mine permitting in progress to operating mines to closed/abandoned/inactive mines. In total, we identified 30 mining projects across the state that warrant special attention from Idahoans. Despite Idaho currently having a relatively small number of operating mines (three large phosphate mines in southeast Idaho and three metal mines in north Idaho), there are a significant number of projects in the permitting process that could start operations in the next few years.

The thematic discussion of this report touches on four primary topics: mining law reform, best practices for mining projects, abandoned mine issues, and mining and the clean energy transition.



Water Contamination at Triumph Mine. Josh Johnson Photo.

1. **Mining Law Reform:** The General Mining Law of 1872 remains the law of the land when it comes to mining on public lands. Mining law holds mining as the highest and best use of public lands—more than municipal water supplies, habitat for threatened species, or open space for communities. These primary values of our public lands quickly become secondary compared to mine exploration and development, and adverse effects to these resources are only avoided "when practicable." This law needs significant updates to include more protective environmental standards, provide royalties to taxpayers and sufficient reclamation bonding, require meaningful tribal consultation, and allow federal agencies to deny mining projects when public resources such as drinking water supplies would be placed at risk.
2. **Best Practices for Mining Projects:** Through our mining work over the years, we have identified a number of "best practices" that can improve mining projects. These include things such as establishing early dialogue with stakeholders, conducting thorough environmental analyses, having sufficient bonding and reclamation plans, developing mine plans that avoid, minimize and offset impacts, and developing conservation programs that go above and beyond minimum legal requirements.

3. **Abandoned Mine Issues:** Idaho is littered with abandoned mines, many of which pose environmental and public health hazards. Cleanup efforts often fall on taxpayers due to lack of adequate bonding and the absence of responsible parties. The many examples of this situation happening in Idaho collectively highlights the need to bring additional funding, capacity, and attention toward abandoned mine issues.

4. **Mining and the Clean Energy Transition:** The demand for minerals like cobalt and lithium for clean energy technologies necessitates some degree of new mining. We must strive to obtain the metals truly needed to fuel our clean energy future without compromising the very environment we are trying to protect. Expanding mining or loosening current environmental safeguards in the name of the clean energy transition without addressing the shortcomings of our archaic mining laws is a shortsighted and misguided approach that would lead to more contaminated sites throughout Idaho. Further loosening of safeguards could result in more harm than good.

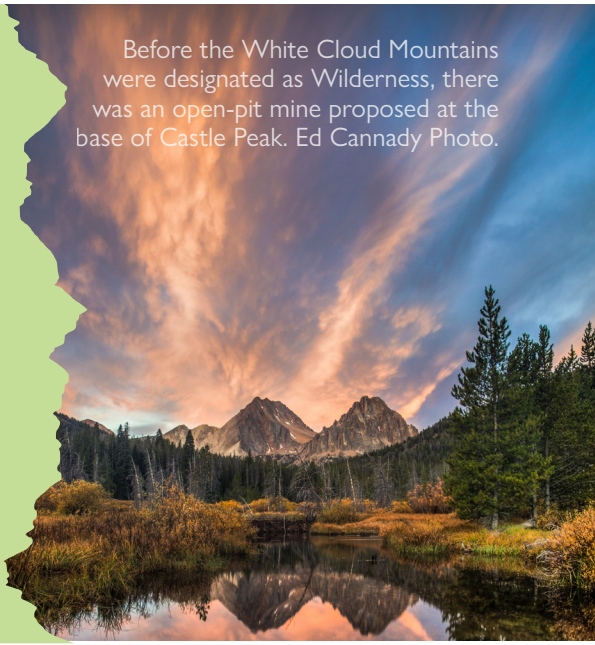
ICL remains committed to evaluating all mining projects on a case-by-case basis, opposing those that are in too sensitive a location and/or are too environmentally impactful while raising the bar on other projects by promoting the best practices highlighted in this report.



Aerial view of the sprawling Thompson Creek Mine near Challis, the largest operating open-pit mine in Idaho. EcoFlight Photo.

INTRODUCTION

Founded in 1973, the mission of ICL is to create a conservation community and pragmatic, enduring solutions that restore and protect the air you breathe, the water you drink, and the land and wildlife you love. ICL's seven strategic initiatives include confronting climate change, recovering Idaho's wild salmon and steelhead, cleaning up the Snake River, protecting public land, restoring the abundance and diversity of Idaho's wildlife, safeguarding North Idaho lakes and waters, and reducing pollution. ICL achieves these goals through public outreach and professional advocacy. With offices in Boise, McCall, Ketchum, and Sandpoint, the organization is a consistent, statewide voice for conservation in Idaho and represents more than 26,000 members and supporters. ICL's members and supporters care deeply about restoring and protecting the environment.



Before the White Cloud Mountains were designated as Wilderness, there was an open-pit mine proposed at the base of Castle Peak. Ed Cannady Photo.

Since our founding, ICL has worked to prevent large-scale mining projects that would irreparably degrade Idaho's environment. A proposed open-pit molybdenum mine at the base of Castle Peak in the heart of the White Cloud Mountains, and the widespread opposition that followed, was one of the catalysts for the creation of ICL in 1973. In the decades that followed, ICL led efforts to successfully designate Castle Peak and the surrounding area as the Cecil D. Andrus-White Clouds Wilderness, precluding future mining in that special place. ICL has continued to work to ensure that mining activities do not threaten human health, special places, or Idaho's clean water. We scrutinize every significant mining proposal in the state, improving those that are acceptable and opposing those with major environmental impacts in ecologically sensitive areas.

Idaho is known as the "Gem State" for a reason—it has a long and storied mining history dating back to the 1860s. This region's natural mineral abundance has continued to fuel mineral exploration and mine development for over 150 years, accompanied by the boom and bust cycles that are inherent to mining. This long history of mining, while an integral part of Idaho's history, has also left significant scars and contamination across the landscape, many with no cleanup plans or funding. And while mining was once considered one of the pillars of Idaho's economy, for the last several decades mining has constituted less than 1% of Idaho's economy, having been superseded in contribution by other sectors such as health services and outdoor recreation.[1]

Although in some respects we have come a long way from the mining heyday of the late 1800s with improved mining practices and technology, one thing that has not changed much since then is the fundamental law governing hardrock mining on public lands—the General Mining Law of 1872. This antiquated law has been amended slightly over the years, but at its core, it remains extremely favorable to the mining industry: allowing mining claims to trump all other uses of public lands and requiring no royalties from operating hardrock mines. The Forest Service and Bureau of Land Management have interpreted the law as preventing them from denying operations and only allowing agencies to attempt to minimize the impacts. This single law remains a significant roadblock to safeguarding communities and water supplies from irreversibly damaging mining operations in Idaho and beyond.[2]

This report is intended to provide a general overview of how mining impacts Idaho's natural environment and how we can balance our need for minerals with protection of our air, water, wildlife, and treasured landscapes.

[1] https://www.statista.com/statistics/1064884/idaho-real-gdp-by-industry/ and https://united-states.reaproject.org/data-tables/gsp-a900n/reports/160000/

[2] Phosphate, which has extensive deposits in southeastern Idaho and has been extensively mined, is managed under different regulations than the General Mining Law of 1872.

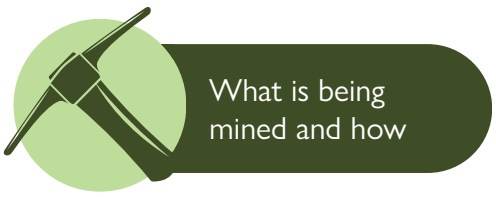
ICL'S APPROACH TO MINING

Before delving into the environmental impacts of mining, it is important to highlight a plain fact of our modern society—we need mining. Here in the United States, we use metals and other mined materials every day, from our cars to our smartphones to our fertilizers (and much, much more). Some of the metals found in Idaho are vital for emerging technologies that will power the green economy of the future, while some mined metals are imperative to our national defense. Other metals, such as gold, are primarily used for jewelry or to hoard wealth for companies and/or individuals—a much less compelling argument as to why that kind of mining needs to occur.

So while we do need mining to some degree, **we do not need to say yes to it everywhere and every time.** What we always need, however, is clean air, clean water, and a safe environment for ourselves and our families. Thus, the fundamental question becomes—how do we balance our need for mined materials with the environmental impacts of mining? It is a tricky question, but the key word for us is balance. On the one hand, we cannot say no to every mining project if we want to continue to have the technology we rely upon and continue moving toward a clean energy future. On the other hand, **there are always going to be places that are too special, too ecologically sensitive to mine—regardless of what is being mined.**

ICL evaluates mining projects on a case-by-case basis, working to raise the bar on some projects where risks are manageable, the impacts can be adequately minimized and mitigated, and where there can actually be an environmental benefit for the project to proceed (such as for some battery metals projects). ICL opposes projects that are too environmentally damaging either due to the location, the nature of the mining operation, and/or the potential for toxics to be transported in the air, surface water or groundwater and reach downwind or downstream communities.

In making these evaluations, we consider the following (and more):



What is being mined and how



What the potential contaminants of concern are and how can they be mobilized



How mine tailings are being managed



The need for long-term water treatment



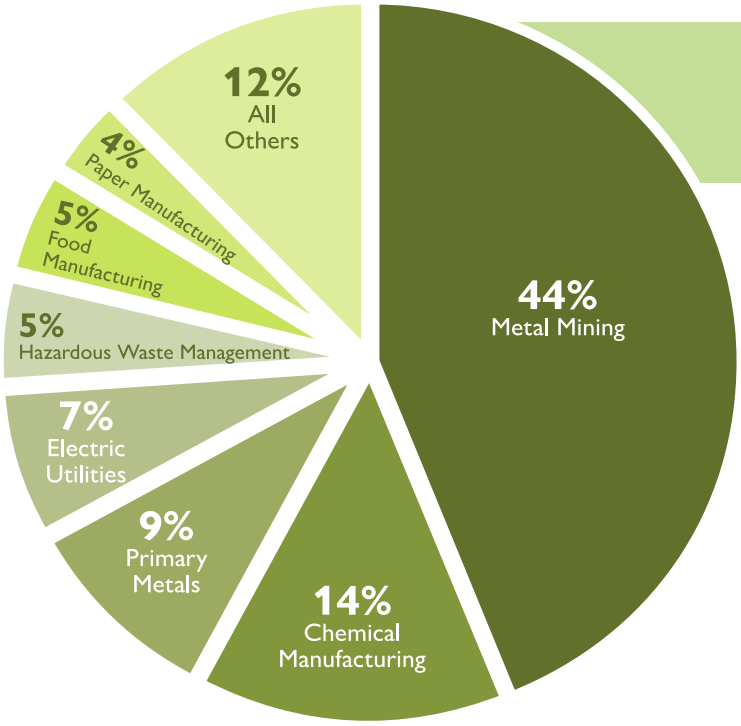
The ecological sensitivity of the site and surrounding area



Impacts to communities (including Indigenous communities who have been disproportionately harmed by past mining)

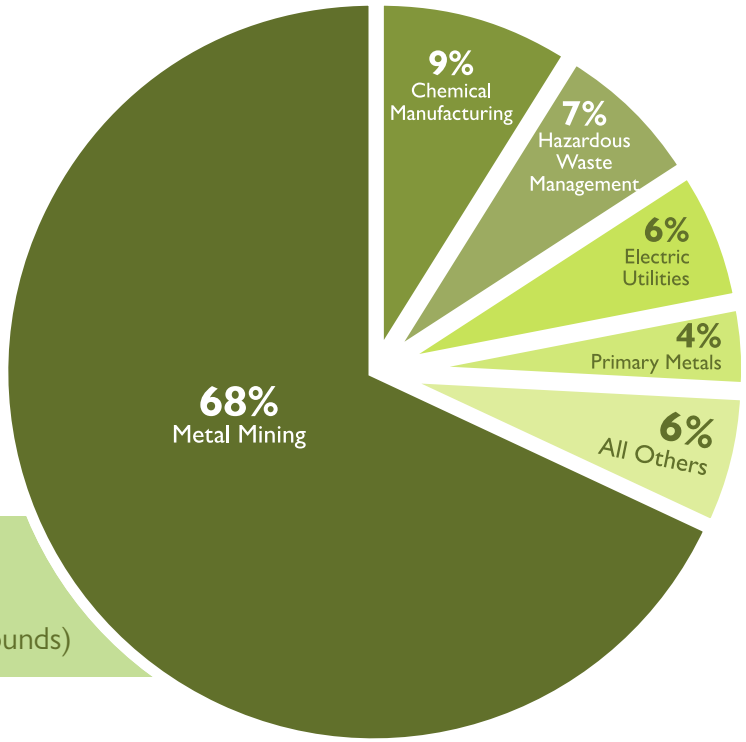
ENVIRONMENTAL IMPACTS OF MINING

Mining is widely recognized as one of the most environmentally impactful forms of resource extraction on our planet. According to the Environmental Protection Agency's (EPA) Toxic Release Inventory, **mining remains the nation's leading source of toxic releases to the environment.** In 2022 the hardrock mining industry in the U.S. released nearly 1.5 billion pounds of toxic material into the environment—more than any other individual sector.[3] In total, the hardrock mining sector accounted for 44% of all reported toxic releases and 68% of on-site disposal of toxic material for all industries—staggering statistics that highlight the amount of pollution generated by mining activities. The magnitude of these impacts is typically correlated with the size and style of mining operation (e.g. open pit versus underground) as well as the type of ore that is being mined. For example, to extract a single ounce of gold from the ground, a mining company could reasonably produce up to 20-100 tons of mining waste in the process.[4]



2022
Total Waste or Other Releases by Industry
Metal mining = 44% of all releases (1.45 billion pounds)

Graphs from EPA 2022 Toxic Release Inventory National Analysis[3]



2022
On-Site Land Waste Generated by Industry
Metal mining = 68% of on-site land disposal (1.43 billion pounds)

Graphs from EPA 2022 Toxic Release Inventory National Analysis[3]

[3] U.S. EPA, 2022 TRI National Analysis, available at: https://www.epa.gov/system/files/documents/2024-03/complete_2022_tri_national_analysis.pdf.

[4] https://earthworks.org/assets/uploads/archive/files/publications/20TonsMemo_FINAL.pdf

Water Contamination

Arguably the biggest environmental impact of mining, both historically and currently, is water contamination. If mining activities are occurring near lakes, rivers, or streams, and/or above shallow aquifers, contamination of surface water and/or groundwater is a distinct possibility. According to the EPA, approximately 40% of watersheds in the western U.S. had been impacted by historic mining activity by the year 2000.[5] Furthermore, mining can impact water quality and damage fish habitat far downstream.[6]

Mining at all scales has the potential to contaminate waters, both through mobilizing toxic contaminants that are naturally occurring in mineralized areas (e.g. arsenic, selenium) and by introducing new toxic contaminants through the transportation, ore processing, cyanide leaching, and closure stages (e.g. diesel fuel, mercury, cyanide, sulfuric acid, etc.). Acid mine drainage—the formation and movement of highly acidic water—can be another significant problem. This acidic water forms through the chemical reaction of surface water (e.g. rainwater, snowmelt) and shallow subsurface water with rocks that contain sulfur-bearing minerals, resulting in the generation of sulfuric acid which then leaches heavy metals out of the surrounding rocks and into the water. The combination of acid mine drainage and heavy metals can have adverse impacts on aquatic organisms, violate drinking water standards, and persist for hundreds of years.

A prime example of how mining can impact water quality is the mountaintop removal coal mines in southeastern British Columbia that are polluting the Kootenai River downstream into Montana and then northern Idaho. Although the source of the pollution is hundreds of miles away, toxic selenium continues to impair Idaho waterways—and a recent study by the United States Geological Survey indicates the pollution may be impacting downstream waters all the way into the Columbia River, with a greater than 400% increase over 40 years.[7] This pollution has negative consequences for aquatic ecosystems; in 2017, the population of westslope cutthroat trout in the Fording River (a headwater tributary of the Kootenai River) decreased by 93% due to selenium poisoning from mountaintop removal coal mining. Recent data shows that the concentrations of selenium in fish tissues in the Kootenai River in Idaho now exceed the EPA's nationwide limit, which could undermine efforts by the Kootenai Tribe of Idaho to recover endangered Kootenai River white sturgeon.



Water contamination at Blackbird Mine in the Salmon-Challis National Forest resulted in its listing as a Superfund site in 1983, and the issue persists to this day. John Robison Photo.

[5] https://nepis.epa.gov/Exe/ZyPDF.cgi/20004GRW.PDF?Dockey=20004GRW.PDF

[6] https://www.canr.msu.edu/csis/uploads/files/ac.els-cdn.com_S1470160X14005111_1-s2.0-S1470160X14005111-main.pdf "Characterizing coal and mineral mines as a regional source of stress to stream fish assemblages." *Ecological Indicators.*

[7] Selenium in the Kootenai River Basin, Montana and Idaho, United States, and British Columbia, Canada. USGS. 2022. 10.3133/fs20223033

Air Pollution and Public Health

The significant impacts of mining on air quality are often less apparent than its impact on water quality due to the less "visible" nature of much air pollution. However, a litany of mining activities—including rock blasting, rock/ore hauling, and ore processing—can and do emit tons upon tons of various air pollutants like dust (particulate matter), mercury, arsenic, lead, sulfur dioxide, and nitrogen dioxide.

All of these pollutants can have significant health effects on humans and the environment. The historic lead and zinc ore processing smelter located in Kellogg processed ore from the Bunker Hill mine from approximately 1917 to 1981. It is estimated that between 1965 and 1981 alone, more than 70,000 lbs of arsenic, 570,000 lbs of cadmium, 6,000,000 lbs of lead, 29,000 lbs of mercury, and 860,000 lbs of zinc were emitted into the surrounding air, with significant health effects on local residents, especially children.[8] Unmanaged emissions from the Bunker Hill lead smelter in 1974 resulted in massive lead poisoning of children residing in the Silver Valley. Children exposed to these levels of lead can and have suffered from learning disabilities, kidney dysfunction, and impaired reproductive health that continue to plague them to this day as adults. Today, the Bunker Hill area is one of the nation's largest and most complex Superfund cleanup sites, in large part due to the emission of these air pollutants.[9]

Air pollution from mining can affect resources further afield as well. In the early 2000s, ICL staff noticed an increase of mercury pollution in southern Idaho rivers and reservoirs (despite no local sources of mercury), leading to frequent fish consumption advisories. Mercury is a potent neurotoxin and fish were accumulating dangerous levels of mercury—so much so that the Idaho Department of Health and Welfare placed limits on the amount of fish that mothers and their children could eat. ICL subsequently conducted air monitoring around several large gold mines along the northern Nevada border and found that their ore processing facilities were emitting astonishing amounts of mercury. Ultimately, these mercury emissions were being blown hundreds of miles north where they were deposited in Idaho's waters and soils. Through the work of ICL and others, the EPA adopted stronger national emission standards for mercury emission from gold mines[10] and several Nevada mines were forced to upgrade their emission control equipment.[11]

Land Disturbance

Mining is responsible for some of the most dramatic human modifications of land on the planet. For example, Idaho's largest open pit mine, the Thompson Creek Mine, is 2,000 feet deep. The proposed CuMo mine in the headwaters of the Boise River would be even larger if it is developed—a 3,500-foot deep pit that would be among the world's largest open pit mines. The land disturbance created by mining is much bigger than just the excavated mine pits, however. Waste rock—sometimes called "development rock" by mining companies—is the non-ore bearing rock that has to be removed to access the ore. Waste rock piles can fill up entire valleys and also leach contaminants. Once the desired metals have been removed from the ore-bearing rock, the leftover waste is known as tailings. Tailings are often elevated in heavy metals and their dumping grounds can often bury entire river valleys. And while reclamation is a key component of every mining project, a mining company's best efforts still cannot return the land to its original condition; you cannot reverse mountaintop removal or unearth a river valley that has been buried with tailings.

A pertinent example of how significant the land disturbance associated with a mining project can be is the proposed Stibnite Gold Project in Valley County, which is in the midst of environmental permitting. As currently proposed, the overall project would disturb over 3,200 acres—equivalent to nearly 2,500 football fields. The tailings storage facility alone would newly disturb over 400 acres and hold up to 120 million tons of tailings, burying Meadow Creek under 475 feet of tailings. Although this project proposes to reclaim this significant land disturbance to some degree, this land will never return to anything close to the natural state it once was.

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[8] Stratus Consulting Inc., "Report of Injury Assessment and Injury Determination: Coeur d'Alene Basin Natural Resource Damage Assessment", Sept. 2000, p. 2-25.

[9] https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=1000195#bkground

[10] US EPA, "Final Rule To Reduce Mercury Emissions From Gold Mine Ore Processing And Production Sources - Fact Sheet", December 2010

[11] https://www.nbcnews.com/id/wbna23614296

Impacts to Fish and Wildlife

Due to mining's dramatic environmental impacts on land, air, and water, it also risks the integrity of the ecosystems and migratory routes that fish and wildlife depend on. Even exploratory drilling can affect wildlife; many drilling programs involve building extensive road networks, which in turn fragment habitat for species like grizzly bears and impair elk security.

Habitat fragmentation is one of the most pressing conservation concerns in Idaho and throughout the West. Wildlife species depend on access to high quality habitat and the ability to move between core areas of security. Many of Idaho's wildlife species use migration as a life-history strategy to locate adequate food resources and ensure environmental conditions that support rearing of their offspring. Mining activities can reduce connectivity and diminish the resiliency of wildlife. For example, habitat alterations from mine operations have been shown to increase the energy expenditure of mule deer seeking to avoid areas of disturbance.[12] This has potential consequences to the fitness of the herd and can reduce productivity and survival rates.

Potential impacts to wildlife from proposed mining roads were cited in a recent Department of the Interior decision to deny permission for the Ambler Access Project in Alaska. Mining roads are typically open year-round, forcing wildlife to avoid or severely alter their behavior on that landscape—effects that are very challenging to near impossible to properly mitigate for.

CURRENT MINING PROJECTS IN IDAHO

Idaho is of great interest to mining companies in large part due to 1) an abundance of remaining mineral resources, 2) a rich mining history, and 3) a highly favorable state political/regulatory climate. In this section of the report, we highlight the mining projects of note (as of publication time) across the state, ranging from exploration-stage through operating mines to abandoned mines.[13] We also provide a brief assessment of the primary environmental risks for each project from our perspective.



Soil Contamination at Stibnite.
Brad Smith Photo.

We have included an inventory of all major mining projects in Idaho (at the time of this report's publication) in Appendix I, spanning from mineral exploration to mine permitting in progress to operating mines to closed/abandoned/inactive mines. In total, we identified 30 mining projects (plus one in Canada that impacts Idaho waters downstream) that warrant the attention of local communities and their primary environmental risks. While this list is not exhaustive with respect to mineral exploration projects and closed/abandoned mines, it highlights how significant mining activity in the state is currently. Despite Idaho currently having a relatively small number of operating mines (three large phosphate mines in southeast Idaho plus three metal mines in north Idaho), there are a significant number of projects in the permitting process that could come to fruition in the next few years.

[12] Blum, M. E., K. M. Stewart, and C. Schroeder. 2015. Effects of large-scale gold mining on migratory behavior of a large herbivore. Ecosphere 6(5):74. http://dx.doi.org/10.1890/ES14-00421.1

[13] This is not intended to be an exhaustive list.

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Mineral Exploration

Not an exhaustive list

Black Pine
Gold

CuMo
Copper, Molybdenum

Kilgore
Gold

Beartrack-Arnett
Gold

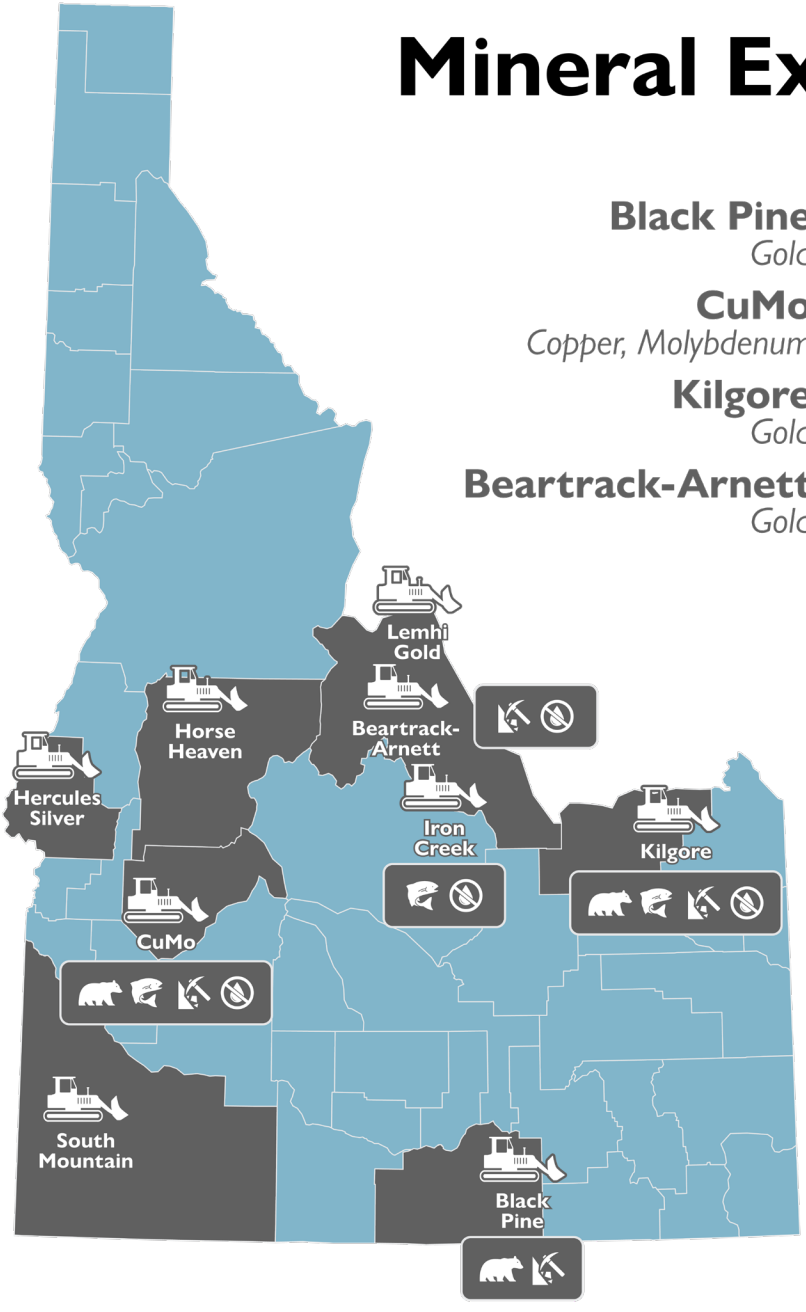
Lemhi Gold
Gold

Iron Creek
Cobalt

South Mountain
Gold

Horse Heaven
Gold, Antimony

Hercules Silver
Silver, Copper



Primary Risk

- Wildlife
- Fish
- Air Quality
- Major Land Disturbances
- Water Quality

*Note that county lines are included on these graphics to build awareness of location and engagement with local officials, not to imply that entire counties will be impacted by these mining projects. Effects may also travel beyond county lines. Projects that do not have any risk symbols associated with them are not without risks, but the project is in too early a stage to identify what the primary risks are yet.

Mine Permitting

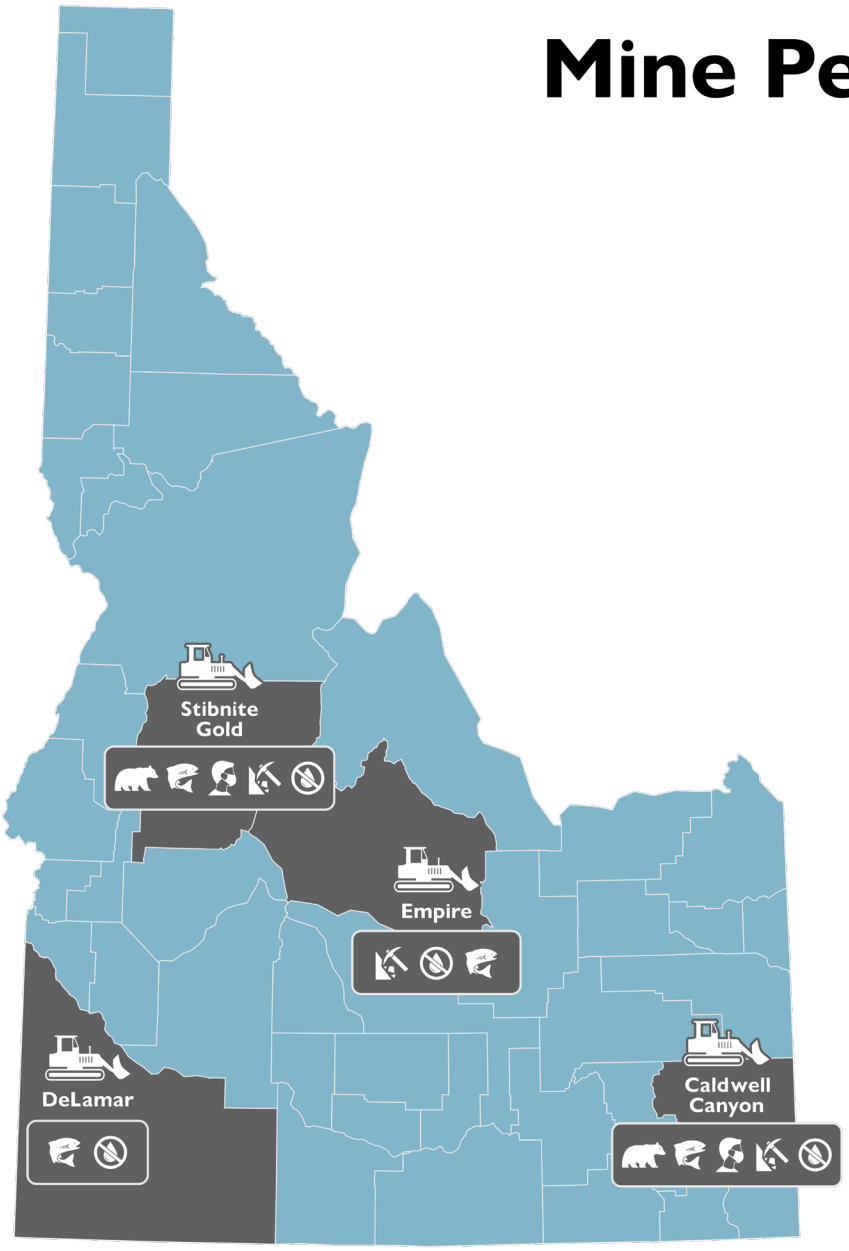
in progress

Stibnite Gold
Gold, Antimony

Caldwell Canyon
Phosphate

DeLamar
Gold, Silver

Empire
Copper



Primary Risk

- Wildlife
- Fish
- Air Quality
- Major Land Disturbances
- Water Quality

*Note that county lines are included on these graphics to build awareness of location and engagement with local officials, not to imply that entire counties will be impacted by these mining projects. Effects may also travel beyond county lines.

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Permitted Mines

but not yet operating

Dairy Syncline
Phosphate

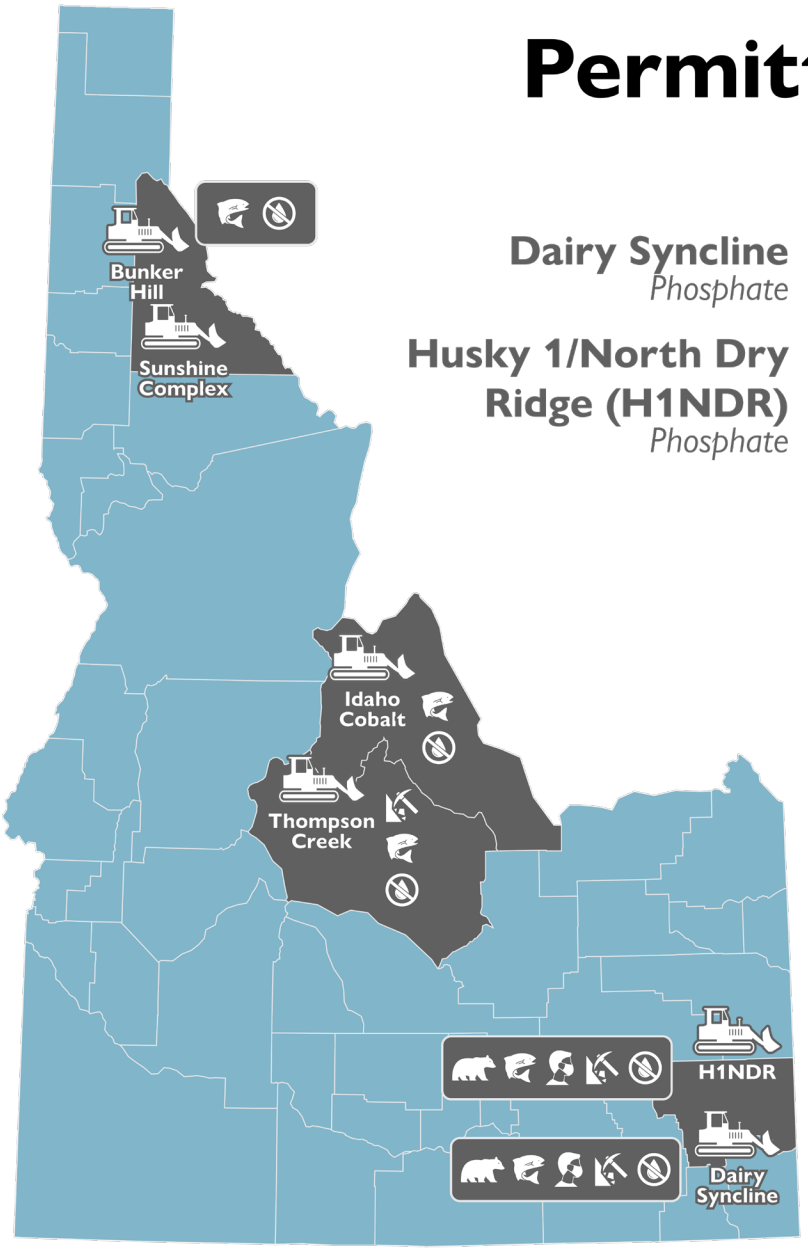
Husky 1/North Dry Ridge (H1NDR)
Phosphate

Idaho Cobalt
Cobalt

Thompson Creek
Molybdenum

Bunker Hill
Silver, Lead, Zinc

Sunshine Complex
Silver

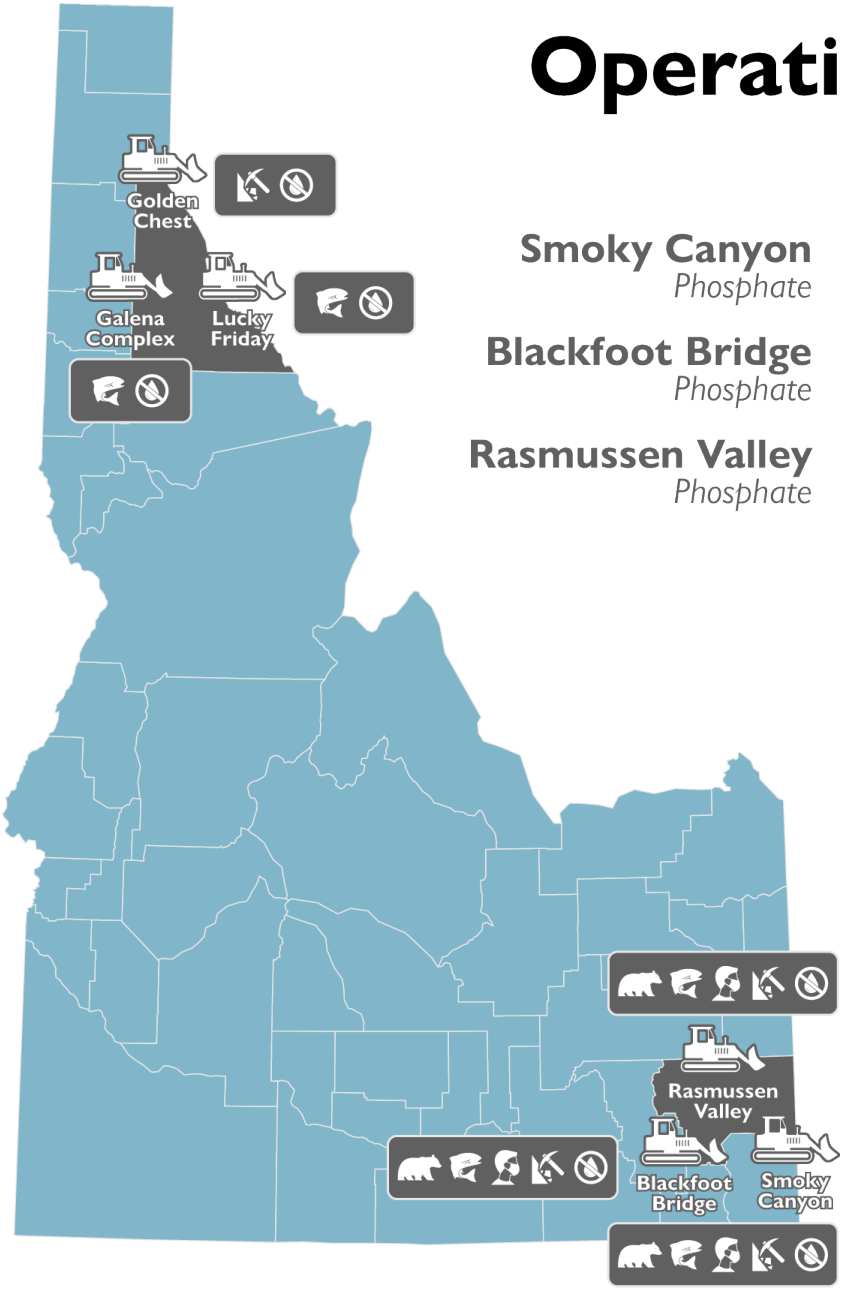


Primary Risk

- Wildlife
- Fish
- Air Quality
- Major Land Disturbances
- Water Quality

*Note that county lines are included on these graphics to build awareness of location and engagement with local officials, not to imply that entire counties will be impacted by these mining projects. Effects may also travel beyond county lines.

Operating Mines



Smoky Canyon
Phosphate

Blackfoot Bridge
Phosphate

Rasmussen Valley
Phosphate

Lucky Friday
Silver, Lead, Zinc

Galena Complex
Silver, Lead, Zinc

Golden Chest
Gold

Elk Valley coal mines
(in British Columbia)
Coal

Primary Risk

- Wildlife
- Fish
- Air Quality
- Major Land Disturbances
- Water Quality

*Note that county lines are included on these graphics to build awareness of location and engagement with local officials, not to imply that entire counties will be impacted by these mining projects. Effects may also travel beyond county lines.

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Closed/Abandoned Mines

Not an exhaustive list

Triumph
Lead, Zinc, Silver

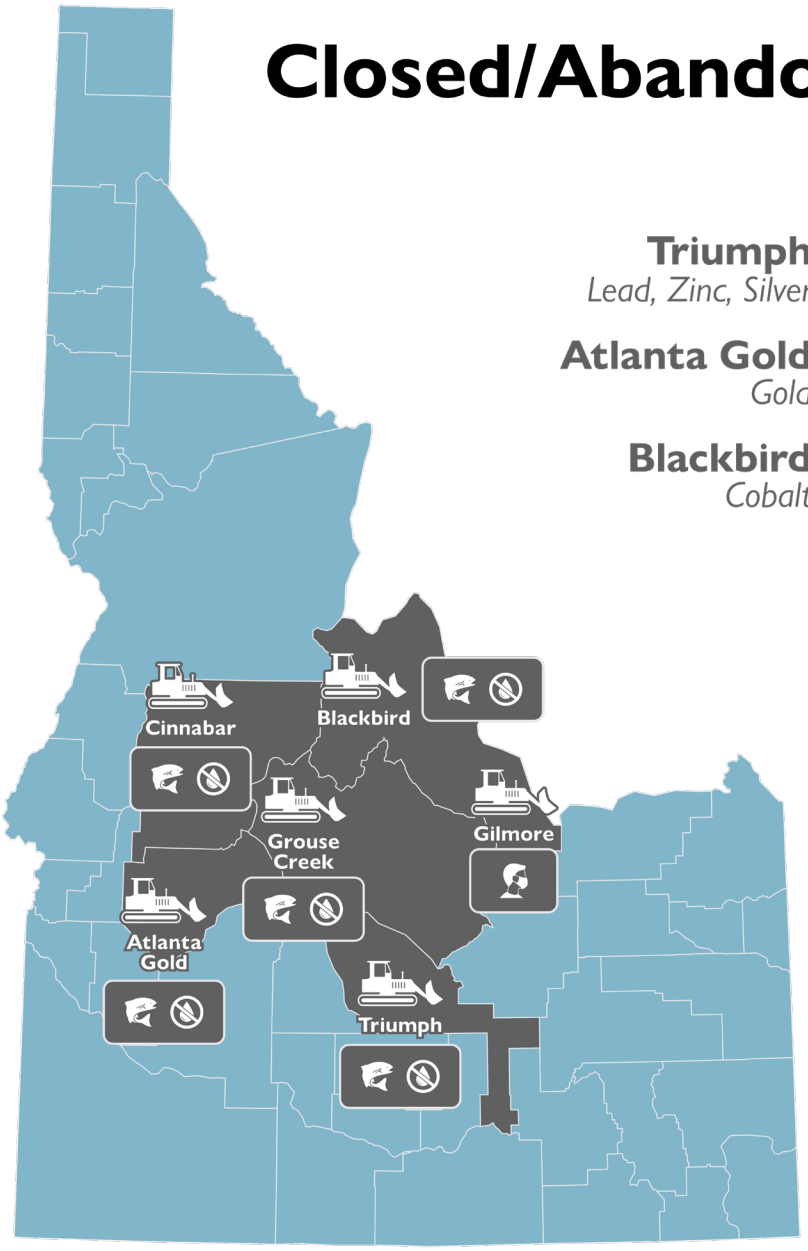
Atlanta Gold
Gold

Blackbird
Cobalt

Grouse Creek
Gold

Gilmore
Lead, Silver

Cinnabar
Mercury



Primary Risk

- Wildlife
- Fish
- Air Quality
- Major Land Disturbances
- Water Quality

*Note that county lines are included on these graphics to build awareness of location and engagement with local officials, not to imply that entire counties will be impacted by these mining projects. Effects may also travel beyond county lines.

THEMATIC DISCUSSION

While there are a multitude of potential issues to discuss related to mining and the environment in Idaho, for the purposes of this report, we have chosen to highlight these four topics for more detailed discussion:



Mining Law Reform

The General Mining Law of 1872, despite being over 150 years old, remains the law of the land governing mining on federal lands in the United States. This law has been extremely favorable to the mining industry, as it essentially prioritizes mining over any other use of public lands once a valid claim has been staked. The 1872 Mining Law practically prohibits federal land management agencies from denying a mining project on public lands. And under this law, any mining company, from any country[14], can stake as many claims as it would like on most federal public lands. Furthermore, the existing law does not include any specific provisions for environmental protection nor does it impose any royalties on hard rock mining.[15] Thus, ICL (along with many other local and national environmental groups) has long advocated for mining law reform.

From our perspective, meaningful mining law reform should:



ICL John Robison shows off pollution from the mining activities in Atlanta, ID. Abby Urbanek Photo.

1. Develop statutory mining-specific environmental standards to protect water quality, minimize mine waste, and restore disturbed areas.
2. Add a federal royalty for hardrock mining, with a portion of those funds allocated for abandoned mine cleanup.
3. End the practice of patented mining claims.
4. Clearly give land management agencies the authority to deny mine proposals in protected and/or ecologically sensitive areas (e.g. wilderness[16], wild and scenic river corridors[17], critical habitat for threatened and endangered species).
5. Establish a meaningful Tribal consultation process that gives Indigenous communities the right to say "No" to a mine proposal.
6. Impose more stringent bonding requirements that ensure financial guarantees are in place to cover the cost of restoration and mitigate impacts for all phases of a mining operation through closure.

[14] It is typical for multinational mining companies that are headquartered outside of the U.S. to create U.S. subsidiary companies to carry out projects.

[15] For comparison, oil and gas companies are required to pay a 16.7% royalty to the federal government for leases on public lands.

[16] New mining claims are not allowed in wilderness areas but minerals can be extracted from valid mining claims that were established prior to the establishment of a wilderness area.

[17] Under current regulations, filing of new mining claims or leases is allowed for wild and scenic river segments classified as scenic or recreational. For river segments classified as wild, no new mining claims or mineral leases can be granted within ¼ mile of the river; however, existing valid claims or leases within the wild and scenic river corridor remain in effect.

Unfortunately, given the current dynamics in Congress, we realistically do not anticipate the 1872 Mining Law to be meaningfully updated in the near future. While ICL and others will continue to advocate for mining law reform in Congress, there is an opportunity in the meantime to encourage the BLM and USFS to pursue regulatory reform of their agency-level mining regulations. Regulatory reform at this level would bring outdated mining regulations up to modern-day standards and was a key recommendation from a recent report from the Interagency Working Group on Mining.[18] According to those recommendations, "the USFS's general standards for mitigation are vague and may be applied inconsistently. Greater protection could be achieved by adopting consistent protective requirements across both agencies."

Ultimately, the status quo created by the 1872 Mining Law stacks the deck in favor of mining companies and against affected communities and the health of our environment. In Idaho, mining law reform is crucial for balancing economic development with environmental conservation, safeguarding natural resources, and protecting communities.

Best Practices for Mining Projects

The mining industry often argues that most mining contamination issues are a thing of the past, a relic of an age with outdated technology and past ways of doing business. However, modern mines can still result in significant environmental impacts. Because modern mines in Idaho typically target lower grade deposits (most of the high grade deposits have already been mined out), this translates into mines that create larger volumes of waste, more significant disturbance, and potentially greater risks of failure (e.g. larger tailings dams) and waste rock piles.

Furthermore, climate change is increasing risks to mine infrastructure from extreme precipitation events.

ICL works to raise the bar on mining projects across the state. While this is not intended to be an exhaustive list, there are certain best practices that both the permitting agencies and mining companies can implement to improve projects from an environmental standpoint:

- **Establish a dialogue with key stakeholders early and often throughout the permitting process.** The earlier mining companies can inform NGOs, Tribes, and impacted communities about a project, the earlier issues can be flagged, discussed, and addressed. We have often found the most productive outcomes for all parties on big mining projects can come from this frequent and transparent dialogue between the companies, NGOs, and other stakeholders, and we have even reached levels of agreement on specific proposals.
- **Conduct meaningful tribal consultation.** Tribes should have the right to Free, Prior and Informed Consent for projects that will materially impact nearby Native American reservations and other culturally important lands and resources. It is well established that many mining projects in Idaho (and across the West) are located in and around tribally significant lands, including ancestral homelands and present-day reservations.[19] Tribes in Idaho have also experienced tragic levels of harm and displacement from mining in the past, particular during the initial mining boom of the late 1800s. We must not repeat the mistakes of the past, but we appear poised to do so with projects like the Stibnite Gold Project, which is within the ancestral homelands of the Nez Perce Tribe and remains actively opposed by the Tribe.

[18] https://www.doi.gov/sites/doi.gov/files/mriwg-report-final-508.pdf (pgs. 125-127)

[19] "Mining Energy-Transition Metals: National Aims, Local Conflicts" MSCI, 2021.

- **Conduct the appropriate level of environmental analysis.** Too often, significant exploration projects are analyzed using a Categorical Exclusion rather than a more thorough Environment Assessment, which limits public input and the environmental safeguards that can be put in place. Large mine projects should always be analyzed through an Environmental Impact Statement (EIS), with independent and scientifically rigorous analysis of potential impacts. Even this level of analysis is not perfect, however; research shows that the EIS process often underestimates the impacts of mining, particularly the long-term impacts to water.[20]

- **Implement a robust water quality protection program.** All major projects (from substantial exploratory drilling to ongoing mining) should 1) be designed to avoid the need for water treatment in perpetuity, collect multiple years' worth of baseline water quality data before exploration begins, 2) collect water quality data encompassing all potentially impacted surface and groundwater through the life of the project, 3) report any exceedances in water quality standards to the appropriate authorities, and 4) make that data publicly available.

- **Incorporate climate change into mine plans**. The mining industry and government agencies have identified climate change as a significant risk to mine operations. The increased rate of extreme weather events, changing temperatures and precipitation patterns may affect the structural safety and stability of mining operations and infrastructure, increasing the potential risk of spills, tailings dam failures, and other significant impacts. Mining companies must develop plans that incorporate climate change into mine design, management, operations, reclamation, and closure.

- **Include sufficient bonding**. Sufficient bonding is essential to ensuring that site restoration can occur even if a mining company goes bankrupt. Bonding amounts should be calculated with the potential need for water treatment in perpetuity in mind. For example, the Smoky Canyon Mine (phosphate) in southeast Idaho has generated significant selenium pollution that impairs streams in both Idaho and Wyoming, but the existing bond did not include long-term water treatment for selenium, and then the mine was pulled into the Superfund program (also known as CERCLA). Under this program, the federal agencies do not calculate financial assurance until after a CERCLA remedy is finalized. This means that there is a significant financial liability for water treatment costs in the interim, which has now extended well over 15 years.

- **Buffer for the boom and bust nature of mining.** Mining remains as boom or bust today as it was in the 1800s due to the volatility of global markets. Companies should try to anticipate and buffer against the inevitable market downturns by providing training for local workforce and retraining workforce so they can stay in the community post-closure.

- **Develop robust reclamation and mitigation plans.** Mining companies should strive to go well beyond the bare minimum of what is legally required in terms of reclamation and mitigation and explore creative ways to compensate for impacts to fish, wildlife, and other resources. A proactive, "above and beyond" approach to mitigation helps build trust between mining companies and local communities and NGOs.

[20] (PDF) PREDICTED VERSUS ACTUAL WATER QUALITY AT HARDROCK MINE SITES: EFFECT OF INHERENT GEOCHEMICAL AND HYDROLOGIC CHARACTERISTICS1; and https://www.sciencedirect.com/science/article/pii/S2772735124000301?via%3Dihub

- **Enter into conservation programs and community benefit agreements.** Mining companies should go above and beyond their legal obligations to restore mining sites. They should demonstrate a commitment to both the local environment and communities they are working in/near by partnering with NGOs to fund and implement additional conservation projects (proximate but unrelated to their mine activities) and create agreements that share the benefits of mining projects with the communities that stand to be most impacted by them.
- **Commit to international mining standards.** Organizations such as the Initiative for Responsible Mining Assurance (IRMA) have developed voluntary global standards for mining that cover best practices for environmental and social responsibility, including Free Prior and Informed Consent for Indigenous communities that may be affected by mining projects. Mines looking to get certified under these standards must also undergo independent, third-party audits to ensure they are complying with environmental and social responsibility requirements. However, a commitment to these standards is not sufficient on its own to ensure environmental protection; it should be done in conjunction with other environmental best practices (such as those listed in this report).
- **Support mineral withdrawals in ecologically sensitive or otherwise special areas.** The mining industry typically opposes administrative and congressional mineral withdrawals, often using the argument that the ore is where it is and it should be able to be mined. However, the same logic is true for salmon-bearing streams, municipal water supplies, and other examples. The mining industry's recognition that some places are too ecologically sensitive or special to mine would go a long way toward earning public goodwill for mining in areas that are not as sensitive.

Incorporating these best practices alone does not fully mitigate the environmental risks associated with mining, but they are a good start to improving these projects in the long run.



The South Fork Salmon River is one of Idaho's most ecologically important watersheds. EcoFlight Photo.

Abandoned Mine Issues

Due to Idaho's extensive mining history, the state is crisscrossed with old mining roads and abandoned mine sites. According to the Idaho Department of Lands, there are an estimated 8,800 abandoned mines and prospects scattered across the state. Some of these sites are relatively benign while others are serious liabilities from both an environmental and public health standpoint. Common hazards associated with abandoned mine sites include unstable mine infrastructure, old adits discharging heavy metals into nearby streams or rivers, and contaminated soils/dust on site. Further complicating matters, any problematic abandoned mine sites likely have no company, potentially responsible party, or individual left to be responsible for any cleanup efforts that need to happen. Thus, the cleanup bill for these sites usually lies with the Idaho taxpayer—if the sites get cleaned up at all.

A prime example of how these abandoned mine issues can plague our lands and waters is the Triumph Mine site near Sun Valley. From the late 1800s until the 1950s, Triumph was an operating lead, zinc, and silver mine. In the 1990s, because of high levels of contamination and risks to health and the environment at the site, the EPA proposed cleaning up the Triumph site under the Superfund program. Instead of supporting Superfund cleanup, the State of Idaho convinced the EPA to let it work with the mining company, ASARCO, to clean up the site. However, the company went bankrupt soon thereafter so the State remains responsible for remediating the site—mostly on the taxpayer's dime. The mine adit and tailings pile continue to contaminate local groundwater with arsenic levels well above water quality and human health standards without a clear solution for how the water contamination issues will be permanently remedied.

Another cautionary example is the widespread mining pollution in the Silver Valley region, which includes the historic mining towns of Wallace and Kellogg. Silver mining began in earnest in the late 1800s in this region, leaving behind toxic tailings laden with unsafe levels of lead, zinc, copper, arsenic, cadmium, antimony, and mercury. By the 1930s, the 50-mile long South Fork of the Coeur d'Alene River was practically devoid of fish and other aquatic organisms. It was not until 1983 that most of the Silver Valley was declared a Superfund site, and extensive cleanup efforts continue to this day to remove lead and other toxic metals from the area's waters and soils. Despite these substantial cleanup efforts, the Coeur d'Alene River watershed remains contaminated with heavy metals and the ecosystem has not yet fully recovered. As of 2007, the EPA had spent over $200 million cleaning up this site, with estimates that the remaining cleanup will require hundreds of millions of dollars more to return the site and surrounding ecosystem to a safe condition.



The old Triumph mine site near Sun Valley, which is plagued by water contamination, remains a prime example of what can go wrong if mining companies don't have sufficient financial assurance to pay for cleanup efforts if or when they go bankrupt. Josh Johnson Photo.

These examples—and many more—collectively highlight the need to bring additional funding, capacity, and attention toward legacy mining issues both in Idaho and across the country.

Mining and the Clean Energy Transition

As our climate continues to warm, it is increasingly important to rapidly transition our global society away from burning fossil fuels and toward renewable, low-carbon energy and transportation. As the demand for clean energy, electric vehicles, and battery storage continues to grow, mining companies have increasingly looked to Idaho to mine sought-after minerals needed to achieve these goals. One of these minerals is cobalt—currently considered an important ingredient for the most common types of electric vehicle batteries. Idaho is home to the largest known cobalt deposit in the U.S., an area west of Salmon known as the Idaho Cobalt Belt.

While minerals like cobalt and lithium are currently vital for the clean energy shift, this does not exempt those mining projects from rigorous



Idaho is home to the largest known cobalt deposit in the U.S., an area west of Salmon known as the Idaho Cobalt Belt. EcoFlight photo.

regulation or environmental scrutiny. The mining industry has switched from climate denial to promoting the narrative that mining can be part of the solution to the climate crisis. Not surprisingly, the mining industry is leaning into the narrative that we can and must mine our way to a clean energy future and that mining companies want to help solve the climate crisis. This "critical minerals" frame can be quite effective, as it emphasizes a collection of values—national and economic security, climate change, and clean energy—that collectively appeal to a broad base of people. **However, it is important to recognize that mining companies are driven by the goal of generating profits for shareholders, and view the clean energy transition as a strategic business opportunity rather than an altruistic endeavor,** operating under the same policies that led to massive contamination and environmental degradation in the past.

Meeting the expected demand for minerals like lithium and cobalt to supply electric vehicle batteries should not predetermine the need for significant mining in the future; mining is not the only path for moving to a clean energy future (though it will be a part of it). Furthermore, metal mining is highly energy intensive, contributing significant amounts of greenhouse gas emissions.[21] Given how expensive, carbon intensive, and environmentally impactful mining is, we should also be looking increasingly toward recycling to help meet our battery metal needs. It is currently possible to recycle 95% of the four key metals found in lithium-ion batteries (cobalt, copper, lithium, nickel), indicating that battery metals recycling is feasible from a technological standpoint.[22]

Governmental policies and incentives that promote battery metal recycling are also needed to make large-scale battery recycling possible here in the United States. For example, the European Union has relatively high recycling rates for nickel, copper, and aluminum. This is in contrast to the rest of the world that recycles <20% of those same metals. Recycling has the potential to reduce mining demand for cobalt (by 35%), copper (by 55%), nickel (by 35%), and lithium (by 25%) compared to the total demand in 2040.[23] This provides an opportunity to significantly reduce the demand for new mining within Idaho and source minerals in a less carbon-intensive manner. A complimentary step in that direction would be for companies to embrace partnerships that promote the closed-loop lifecycle of batteries.[24]

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[21] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9999434/

[22] Earthworks, "Just Minerals: Safeguarding protections for community rights, sacred places, and public lands from the unfounded push for mining expansion", June 2021. Available at: https://earthworks.org/wp-content/uploads/2021/09/Just-Minerals-FINAL.pdf

[23] Dominish, E., Florin, N., Wakefield-Rann, R., (2020). "The potential of avoidance, reuse and recycling solutions to minimise mining for lithium-ion batteries for electric vehicles." Report prepared for Earthworks by the Institute for Sustainable Futures, University of Technology Sydney. Available at: https://www.earthworks.org/publications/ recycle-dont-mine/

[24] https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions (pg. 186)

Lastly, it is important to recognize that the world's shift to a mineral-based energy economy is coming at the expense of Indigenous peoples and their lands. The rush toward the clean energy transition risks being built upon a foundation of dirty mining that imperils sensitive ecosystems and disproportionately burdens Indigenous communities.[25] Many mines are now proposed to be located close to Native American reservations and ancestral homelands, negatively impacting ecological, cultural, and spiritual resources. Given that Indigenous communities around the world often bear the brunt of climate impacts, it is extremely problematic that those same communities would also have to bear the burden of the mining impacts associated with the clean energy transition. Additional coordination with these impacted communities is extremely important.

As we consider future mining projects in the context of the clean energy transition, we need a balanced assessment of risks and benefits. Embracing alternatives like battery recycling can provide some of the necessary minerals for clean energy without the extensive environmental and social costs associated with traditional mining practices. We must strive to obtain the metals that we need to fuel our clean energy future without compromising the very environment we are trying to protect by transitioning to a clean energy future. **Expanding mining under the guise of the clean energy transition without addressing the shortcomings of our archaic mining laws is a shortsighted and misguided approach.**

GET INVOLVED



If you are a concerned citizen…

Stay informed! While we strive to be Idaho's mining watchdog and track the dozens of active and proposed mining projects across the state, we also need your voice. By getting involved, we will keep you up to date on issues we work on with opportunities to take action on projects you are concerned about. Sign up for updates on our mining work, and consider joining us as a member.



If you are a mining company…

Reach out to ICL early to start a dialogue if you are proposing or already have a mining project in Idaho. We are always open to having conversations about how to improve projects from an environmental standpoint and communicate what red flags we see on a particular project and how they might be resolved; we aim to be transparent with our concerns. We also recommend that you implement as many of the best practices laid out in this report as possible into your projects.



If you are a land management or regulatory agency…

Initiate discussions with ICL regarding complex and/or controversial mining projects early on in the permitting process. Given the opportunity, we can flag our major concerns with projects early on in the process to allow for the chance to resolve them in a collaborative manner and avoid having to resort to administrative objections and/or litigation.

[25] https://www.eenews.net/articles/how-mining-for-clean-energy-could-undermine-bidens-ej-goals/

CONCLUSION

Mining is a big part of Idaho's history, but it has also caused substantial environmental harm across the state—some of which will never be fully repaired. So while we do "need" mining of certain types of minerals to support our modern way of living, we need to very carefully balance that need with the need to protect our water, air, land, and wildlife. As discussed in the report, the archaic mining laws in the U.S. have created a situation ripe for the proliferation of ill-advised mining projects and the environmental harms that they can create. The stakes are only getting higher as the clean energy transition continues to drive a resurgence in mining interest in Idaho, particularly for metals like cobalt and antimony. ICL remains committed to evaluating all mining projects on a case-by-case basis, opposing those that are in too sensitive a location and/or are too environmentally impactful while raising the bar on other projects by promoting the best practices highlighted in this report.

Appendix 1 - Inventory of Mining Projects

Project Stage	*Project Name*	*Owner*	*Location*	*Primary Ore(s)*	*Type*	*Current Status*	*Primary Risks*
Mineral Exploration* *not an exhaustive list	Black Pine	Liberty Gold	Cassia County, ID	gold	proposed open pit	Approved third expansion of their drilling program	
	CuMo	Idaho Copper Corporation	Boise County, ID	copper, molybdenum	proposed open pit	Ongoing permitting of drilling program	
	Kilgore	Excellon Resources	Clark County, ID	gold	proposed open pit	Approved 5 year drilling program	
	Beartrack-Arnett	Revival Gold	Lemhi County, ID	gold	proposed open pit	Approved 10 year phased drilling program	
	Lemhi Gold	Freeman Gold	Lemhi County, ID	gold	proposed open pit	Permitting an expanded drilling program	TBD
	Iron Creek	Electra Battery Materials	Lemhi County, ID	cobalt	tbd	Initial drilling program permitted in 2024	
	South Mountain	Thunder Mountain Gold	Owyhee County, ID	gold	proposed underground mine	Ongoing underground exploration	TBD
	Horse Heaven	Stallion Gold	Valley County, ID	gold, antimony	proposed open pit	Exploration drilling program scoped in 2023, awaiting NEPA decision	TBD
	Hercules	Hercules Silver Corporation	Washington County, ID	silver, copper	tbd	Exploration on USFS lands approved through Categorical Exclusion; active exploration on state lands since 2023	TBD
Mine Permitting in Progress	Stibnite Gold	Perpetua Resources	Valley County, ID	gold, antimony	proposed open pit	Final EIS and Draft ROD released in September 2024 followed by objection period; ancillary air and water permits still pending	
	Caldwell Canyon	Bayer/P4	Caribou County, ID	phosphate	proposed open pit	BLM approval vacated in federal court in 2023, revised EIS under review	
	DeLamar	Integra Resources	Owyhee County, ID	gold, silver	proposed open pit	EIS process likely beginning in 2025	
	Empire	Phoenix Copper/Konnex Resources	Custer County, ID	copper	proposed open pit	BLM is awaiting a final Plan of Operations before initiating an EIS	

Permitted (but not operating) Mines	Dairy Syncline	J.R. Simplot Company	Caribou County, ID	phosphate	open pit	Permitted by BLM in 2020, will go into production once Smoky Canyon is fully mined	
	Husky 1 North Dry Ridge	Itafos Conda	Caribou County, ID	phosphate	open pit	Permitted by BLM in 2023, will go into production when Rasmussen Ridge is fully mined	
	Idaho Cobalt	Jervois	Lemhi County, ID	cobalt	underground mine	Project on hold as of March 2023 due to low cobalt prices	
	Thompson Creek	Centerra Gold	Custer County, ID	molybdenum	open pit	Planned restart of mining in 2027	
	Bunker Hill	Bunker Hill Mining Corporation	Shoshone County, ID	silver, lead, zinc	underground mine	Restarting production in late 2024	
	Sunshine Complex	Sunshine Silver Mining & Refining Company	Shoshone County, ID	silver	underground mine	Permitted, infrastructure being rehabilitated before returning to production	TBD
Operating Mines	Smoky Canyon	J.R. Simplot Company	Caribou County, ID	phosphate	open pit	Ongoing ore production, phasing out in coming years	
	Blackfoot Bridge	Bayer/P4	Caribou County, ID	phosphate	open pit	Ongoing ore production, phasing out in coming years	
	Rasmussen Valley	Itafos Conda	Caribou County, ID	phosphate	open pit	Ongoing ore production, phasing out in coming years	
	Lucky Friday	Hecla	Shoshone County, ID	silver, lead, zinc	underground mine	Ongoing ore production	
	Galena Complex	Americas Gold and Silver Corporation	Shoshone County, ID	silver, lead, zinc	underground mine	Ongoing ore production	
	Golden Chest	Idaho Strategic Resources	Shoshone County, ID	gold	open pit/ underground mine	Ongoing ore production	

	Elk Valley coal mines	Teck Resources	British Columbia, Canada	coal	mountaintop removal	4 operating coal mines in BC continue to result in transboundary selenium pollution making it into the Kootenai River in Idaho	
Closed/ Abandoned Mines* *not an exhaustive list	Triumph	formerly ASARCO, now State of Idaho	Blaine County, ID	lead, zinc, silver	underground mine	IDEQ and IDL are responsible for cleanup actions at the site; cleanup activities are ongoing, IPDES permit in progress	
	Atlanta Gold	Atlanta Gold, Inc. (but semi-abandoned)	Boise County, ID	gold	underground mine	USFS in active compliance/enforcement procedures with operator for failure to adequately treat adit discharge	
	Blackbird	formerly several companies, now a Superfund site	Lemhi County, ID	cobalt	open pit	Ongoing EPA cleanup efforts since 1995	
	Grouse Creek	Hecla	Custer County, ID	gold	open pit	Undergoing closure; water treatment in perpetuity	
	Gilmore	abandoned	Lemhi County, ID	lead, silver	various	EPA Emergency Response in 2023 to perform dust suppression for roads with contaminated soils	
	Cinnabar	abandoned	Valley County, ID	mercury	underground mine	Candidate for Superfund listing	

Acronyms							
BLM	Bureau of Land Management				*Symbol*	*Primary Environmental Risk*	
EA	Environmental Assessment				🐟	fish	
EIS	Environmental Impact Statement				🦌	wildlife	
EPA	Environmental Protection Agency				😁	air quality	
IDEQ	Idaho Department of Environmental Quality				⛏️	major land disturbance	
IDL	Idaho Department of Lands				🚭	water quality	
IPDES	Idaho Pollution Discharge Elimination System						
NEPA	National Environmental Policy Act						
USFS	United States Forest Service						

IDAHO CONSERVATION LEAGUE

For more information, contact:

Idaho Geological Survey

Idaho Office of Energy and Mining Resources

U.S. Environmental Protection Agency

Idaho Department of Environmental Quality

Idaho Department of Lands



White Cloud Mountains. Ed Cannady Photo.



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