

Just Minerals

Safeguarding protections for community rights, sacred places, and public lands from the unfounded push for mining expansion

Why a responsible renewable energy transition hinges on mining law reform

JUNE 2021



EARTHWORKS



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ABOUT EARTHWORKS

Earthworks is a nonprofit organization dedicated to protecting communities and the environment from the adverse impacts of mineral and energy development while promoting sustainable solutions. We work with communities and grassroots groups to reform government policies, improve corporate practices, influence investment decisions, and encourage responsible materials sourcing and consumption. We expose the health, environmental, economic, social, and cultural impacts of mining and energy extraction through work informed by sound science.

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Glossary

CMI	Critical Materials Institute
DLA	Defense Logistics Agency
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
DOI	Department of Interior
DOS	Department of State
DRECP	Desert Renewable Energy Conservation Plan
EC	European Commission
EO	Executive Order
EPA	Environmental Protection Agency
ESG	Environmental and social governance
EV	Electric vehicle
FY	Fiscal Year
GAO	Government Accountability Office
GIS	Geographic information system
FLPMA	Federal Land Policy Management Act
FPIC	Free, Prior, and Informed Consent
IRMA	Initiative for Responsible Mining Assurance
IVAN	Identifying Violations Affecting Neighborhoods
LiB	Lithium-ion battery
NEPA	National Environmental Policy Act
NETL	National Energy Technology Laboratory
PDA	Percentage Depletion Allowance
RCRA	Resource Conservation and Recovery Act
R&D	Research and development
REE	Rare Earth Element
TRI	Toxic Release Inventory
UNEP	United Nations Environmental Programme
USGS	United States Geological Survey
USTR	United States Trade Representative
WTO	World Trade Organization



Executive Summary

The Biden-Harris administration has committed itself to the rapid, just, equitable, and fair transition to renewable energy.

Recognizing that the infrastructure to support this transition requires a variety of minerals—cobalt and lithium, among others—President Biden included them in a February 2021 Executive Order directing agencies to review and report on how to best secure various supply chains.

As the Administration develops policies to incentivize and scale up the use of renewable energy, it must also transition minerals policies toward more responsible sourcing that minimizes reliance on mining. Such an approach to meeting mineral demand recognizes that:

- 1 Mining has harmful climate, equity, and resource impacts that, if not carefully managed, may ultimately undermine the benefits of transitioning to renewable energy;**
- 2 Renewable energy infrastructure requires mineral supply chain stability. Sourcing minerals from more responsible mines is inherently more stable, but requires a meaningful update of our mining law and regulations;**
- 3 There is significant untapped mineral recycling and reuse potential available using current technology.**

The renewable energy transition must not touch off the kind of mining rush that has historically killed or displaced untold numbers of Indigenous and other marginalized peoples, destroyed sacred and cultural resources, stolen lands, scarred landscapes, and polluted water and climate. Building a sustainable economy based on clean energy gives us an historic opportunity to confront the legacy of injustice to Indigenous communities and damage to the public lands held in trust for future generations. Seizing that opportunity requires policies that prioritize recycling and reuse over new mining. Where new mining is acceptable, the mining industry must undertake the most responsible methods.

We must transition minerals policies toward more responsible sourcing that minimizes reliance on mining for the new energy economy.

Achieving this clean, just, and equitable minerals economy requires a repudiation of the mining industry's false-scarcity narrative that has shaped minerals policy for more than a decade. This distorted view stokes fears that foreign adversaries may choke off mineral supplies. From there, its proponents peddle nationalism claiming all minerals as "critical" to meet clean energy, national security, or other legitimate objectives. This narrative's desired solution is faster domestic mining with less oversight. It crescendoed in 2018 when the government listed 56 elements as "critical minerals". This decision effectively designated every domestic mine a critical mine, even those built to excavate gold or silver, because of trace elements always found near precious metals.



The false-scarcity narrative also prevents long-overdue reform to the outdated 1872 General Mining Law. Nearly 150 years after its passage, our mining laws still privilege mining over all other uses, including the rights and perspectives of Indigenous communities.

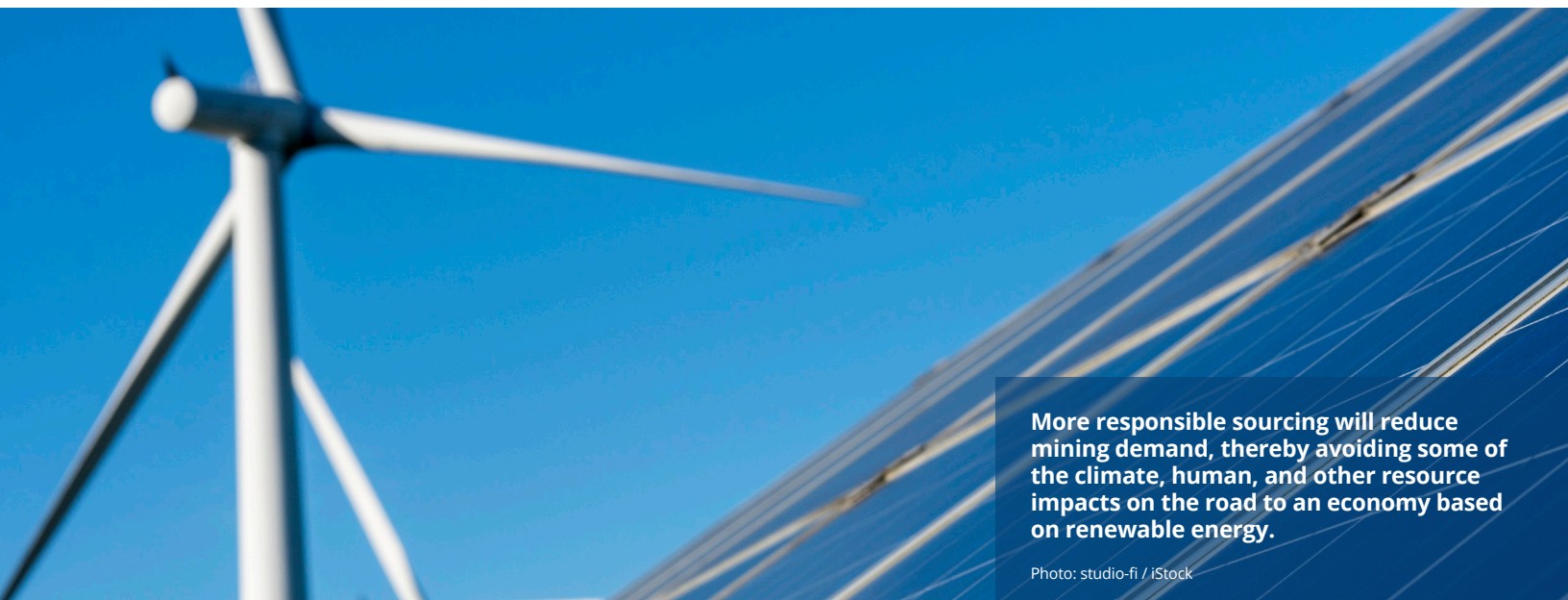
With the right policies in place, we can create a more circular economy that may approximately halve global demand for certain minerals, like cobalt, lithium, and nickel, key to the clean energy transition. As the market for secondary use of materials from electric vehicle batteries matures, this further reduces pressure to source from new mines. Major consumers, including automakers and electronics companies, have also directed their suppliers to source more responsibly. Ford, Microsoft, BMW, and Daimler-Benz, among others, have committed to the Initiative for Responsible Mining Assurance (IRMA), which independently audits and certifies environmental and social performance at mines.

The false-scarcity narrative also prevents long-overdue reform to the outdated 1872 General Mining Law.

This report argues for stronger mining industry oversight to better protect climate, water, and wildlife resources, sacred sites, and communities. We describe the current and historical problems associated with public lands mining and provide detailed recommendations for improvement. Ultimately, this means fixes to the antiquated 1872 Mining Law, rooted in this nation's settler-colonial era, and its rules that still precipitate exploitation of Indigenous resources.

In addition to mining policy fixes, the Federal Government's agencies have several tools available to enhance material supply chain security and reduce pressure to source from irresponsible mines. Government and consumer pressure both play important roles driving incentives and innovation in more responsible material sourcing.

There are better ways to source materials than new mines. Recycling, reuse, substitution, and other methods provide cleaner alternatives. More responsible sourcing will reduce mining demand, thereby avoiding some of the climate, human, and other resource impacts on the road to an economy based on renewable energy.



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Introduction

The rapid, just, equitable, and fair transition to a renewable energy economy—one without fossil fuels—will require the speedy deployment of green infrastructure. Available technologies in solar, wind, and battery power are economically competitive and growing rapidly, while their costs continue to fall. Building this clean energy infrastructure will require more materials fashioned from minerals such as cobalt, nickel, and lithium.

As with any transition, we must ensure against unintended consequences. As of this writing, humanity has roughly 30 years to cap global temperature rise at 1.5 degrees Celsius to avoid the most catastrophic climate impacts. According to the United Nations Environmental Programme (UNEP), mining accounts for 10% of global climate change impacts. We will therefore not enjoy the climate benefits of green infrastructure by primarily sourcing its skyrocketing mineral demand from new mines.

We also must avoid compounding the climate crisis with another minerals rush that repeats the tragic legacy of settler-colonial exploitation of Indigenous lands and resources. America's 19th century minerals rush led a cascade of lasting human rights and environmental impacts. In 1871, Congress ended treaty-making with Indigenous Tribes. In 1872, Congress enacted the General Mining Law without any cultural or environmental protections. That law still governs public lands mining today. The just, equitable, and fair 21st century renewable energy transition demands meaningful reform of this 19th century mining law and its 20th century rules.

This report begins with the legacy and modern impacts this mining regime created. It highlights places at risk from mining, and describes the long overdue policy updates our mining law and regulations need to better protect climate, communities, and resources. All these places remain under threat from mining due to the 1872 Mining Law. The last decade's false-scarcity rhetoric has unjustifiably intensified that threat. It feeds a rush for new mines targeting minerals across the periodic table irrespective of their purported use or relative abundance.



The 1872 Mining Law was passed to encourage settlement and colonization of what is now the western United States. The law, which has been narrowed but not updated, granted automatic privatization of any lands determined to have valuable mineral deposits, regardless of whether the land was already in use.

Photo: Wikimedia Commons




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We acknowledge the importance of supply chain security in certain materials. However, we challenge the notion that our public lands agencies should, or even could, resolve the geopolitics and economics of specialized, internationally-traded commodities. Other federal agencies have developed robust programs for this purpose. They blend tradecraft, statecraft, and spycraft with engineering, research, and development to reduce a material's criticality. Often, this means finding substitutes, diversifying supply, imposing trade restrictions, or increasing recycling, reuse, and collection.

Beginning with the War Department's first stockpile of ferromanganese, tin, tungsten, and other materials in 1939, the United States has developed a vast, well-resourced, interagency complex specifically designed to mitigate the risk of a disruption in materials supply. More recently, Administrations have repeatedly leveraged these programs to acquire materials for this century's climate and geopolitical challenges.

President Biden's supply chain Executive Order (EO) should use these programs and additional policies that prioritize more responsible material sourcing, rather than new public lands mines. Improving recycling and collection rates, reuse, and mineral substitution can each better serve as starting points to fill existing supply chain gaps. Providing the right blend of incentives and mandates will drive more investment where it is actually needed: in battery manufacturing, collection facilities, and related midstream green infrastructure. Transitioning the minerals we already mined once, to build what we now need, will drive the circular economy forward.

These alternatives to mining may help source the materials we need with fewer adverse impacts to climate, sacred and cultural sites, wildlife, and water. No alternative is perfect. Even with more robust material reuse and collection, new hardrock mines on public lands will still provide minerals. However, sourcing minerals from public lands under a law explicitly designed to further settler-colonialism only furthers environmental injustice and puts an equitable transition out of reach.



These alternatives to mining may help source the materials we need with fewer adverse impacts to climate, sacred and cultural sites, wildlife, and water.

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Hardrock Mining Impacts

Mining is a dirty, dangerous activity that causes significant climate, environmental, and human impacts across the world. The United Nations Environmental Programme (UNEP) estimates the hardrock mining sector accounts for 10 percent of climate change impacts.¹ The surge in global demand for new mining threatens to exacerbate problems associated with extraction.

The United States lacks adequate safeguards to protect climate, communities, clean air and water, cultural resources, wildlands, or wildlife from the impacts of mining. This has resulted in hundreds of thousands of old mines that continue to pollute water and other resources. Financing to reclaim all these toxic sites does not exist, and current regulations fail to prevent similar pollution from new mines.

This 21st century minerals rush threatens even more communities, cultural sites, watersheds, and landscapes, with harms lasting for generations. In the Navajo Nation alone, there are more than 500 abandoned uranium mines dating back to the 1940s. A 2019 study found that 26 percent of Navajo women—as well as some infants—had high levels of uranium in their blood.²

Environmental and Health Threats

According to the Environmental Protection Agency's (EPA) Toxic Release Inventory (TRI), in 2019 the hardrock mining industry released more toxic material into the environment than any other sector. In fact, mining accounted for more than 10 percent of all production-related industrial waste, totaling more than 3 billion pounds. In 2019, the domestic mining industry released approximately 120,000 pounds of cobalt and 1,124,912 pounds of cobalt compounds into the environment. The metal mining industry generated a shocking 85 percent of total reported releases.³



Hundreds of thousands of abandoned mines are scattered across the west, leaking toxic chemicals into soil and groundwater, disproportionately harming Indigenous and other marginalized communities. To protect communities and the environment, the federal government must ensure mining companies are required to reclaim closed mines and properly insure them before, during, and after operation.

Photo: Jim West / Alamy Stock



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In 2000, the EPA estimated that hardrock mining had contaminated streams in the headwaters of more than 40 percent of watersheds in the western United States. Significant amounts of the pollution come from abandoned mine sites with acid mine drainage problems that can persist for thousands of years if left untreated. The federal government estimates there are 500,000 abandoned mines in 32 states nationwide,⁴ primarily in the west.⁵

Ongoing acid mine drainage can lead to catastrophe. For example, in 2015 Colorado's abandoned Gold King mine released 3 million gallons of contaminated mine material into rivers, in three states and the Navajo Nation, leading to hundreds of millions of dollars in clean-up costs.⁶ In Montana, the community of Rimini still has contaminated drinking water caused by about 150 abandoned gold, lead, and copper mines that stopped operating in the 1950s.⁷

Federal Loopholes

Hardrock mines produce massive amounts of waste that frequently contain toxic materials such as arsenic, mercury, cadmium, chromium, and lead. Yet weak mining laws and loopholes in bedrock environmental laws allow mining companies to release toxic waste from mines into the air or directly into streams, rivers, and lakes—and they do, with devastating effects on people and the environments they depend on.

The 1872 General Mining Law is almost 150 years old, yet the same essential language still governs hardrock mining on public lands today.⁸ The 1872 law does not contain any environmental protections from mining. Its antiquated terms stem from its troubling settler-colonial origin in the theft of Indigenous peoples' lands and resources. Land management agencies use the law to justify permitting mining on public lands wherever industry claims—even if the land is sacred, or prized for recreation, wildlife habitat, cultural values, or other uses.

The Clean Water Act includes a gaping loophole that allows mining companies to pollute clean water sources with impunity. In 2002, the George W. Bush administration weakened the rules for the Clean Water Act specifically to allow mine operators to dump their tailings (the waste created by the mining process) directly into waterways such as streams, lakes, wetlands, and rivers. The law requires these same toxic materials from other industries kept out of U.S. waters.⁹

The Resource Conservation and Recovery Act (RCRA) is the federal law that governs waste management. Subtitle C of RCRA covers the management of waste deemed hazardous. Despite their high toxicity, the federal law categorically exempts mine waste from the hazardous waste provisions of RCRA. Therefore, no mining wastes are subject to federal hazardous waste statute. This enormous loophole, created in the 1980s, still stands to this day.¹⁰

These loopholes lead to real contamination: a 2019 investigation of 43 U.S. mine complexes, containing up to hundreds of individual mines each, found that the average daily runoff of contaminated wastewater is more than 50 million gallons per complex. In addition, the investigation found that it often runs untreated into nearby groundwater, rivers, and ponds.¹¹ While states could take action to close these loopholes and create some environmental safeguards where mining occurs, they have not done so.

2.1 billion gallons per day of wastewater

In just the U.S., 43 mine complexes produce more than 50 million gallons of water per complex per day — 2.1 billion gallons.



Financial Harms

Together, the 1872 Mining Law and these environmental loopholes account for why the financial burden of hardrock mine cleanup overwhelmingly falls upon taxpayers. Under the 1872 Mining Law, mining companies pay no more than \$5 per acre for the right to patent (or privatize) public lands. In addition, they pay neither federal royalties nor reclamation fees for hardrock minerals from public lands.¹²


This is unique: nowhere else in the world do hardrock mines pay zero royalty to a federal government. More than a century ago, Congress removed oil, gas, and coal from the 1872 Mining Law to create a leasing system where operators pay royalties to the public.¹³ Coal mines have paid fees to cover reclamation costs since the 1970s.¹⁴ Yet, hardrock mines do not pay their own.

According to the Government Accountability Office (GAO), as of September 2018 there were 872 mine operations authorized on public lands. Since the law provides no royalty, land managers do not track the amount or value of the public minerals produced.¹⁵ According to one estimate, mining companies have extracted more than \$300 billion worth of hardrock minerals from public lands since 1872.¹⁶

In addition to getting valuable minerals for free, mining companies receive generous tax breaks for depleting our natural resources. For example, the Percentage Depletion Allowance (PDA) permits a company to deduct a fixed percentage from their gross income based on the mineral extracted, ranging from 22 percent for uranium to 15 percent for silver and other hardrock minerals.¹⁷ According to the Biden-Harris administration's Fiscal Year (FY) 2022 Budget, repealing the PDA would generate more than \$1.3 billion in revenue over ten years.¹⁸

As the government gives money away to corporate polluters, the mining industry leaves the rest of us to pay to clean up the toxic messes they leave behind. EPA estimates that cleanup of the approximately half million abandoned hardrock mines at more than \$35 billion.¹⁹ Based on estimates of the value of minerals on public land, the mining industry could pay to prevent toxic pollution. For now, however, taxpayers are left footing the bills. New mining without strong environmental, health, and financial safeguards in place will only lead to more environmental and financial burdens for mining-affected communities.

EPA estimates that cleanup of the approximately half million abandoned hardrock mines at more than \$35 billion.



The Gold King Mine was abandoned for nearly a century before 3 million gallons of tailings burst from it in 2015. The Mine had several owners during its century-long operational period, but because of the U.S.'s antiquated mining law none were required to post reclamation bonds.

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Public Lands Mining Reform

Our public lands agencies manage more than 700 million acres, including many of the most treasured places in the country. Those agencies also bear a special Trust responsibility to federally-recognized Tribes whose land and resources the Federal Government manages. The Federal Government's Trust relationship with Tribes stems from their promises made in exchange for taking the vast majority of Tribal ancestral lands. Tribes retain some sovereignty and rights to use and occupy their ancestral lands, in addition to rights conferred by treaty.²⁰ Between 1778-1871, the United States executed more than 380 Tribal treaties. The year after Congress stopped making new treaties with America's Indigenous Tribes, President Grant signed the 1872 Mining Law.²¹

The Departments of Interior and Agriculture regulate hardrock mining on public lands.²² The mining law and its rules for hardrock mining have never been significantly revised. At the same time, modern mining uses energy-intensive methods that decimate landscapes with massive open pits, waste rock dumps, and tailings piles that extend over thousands of acres of land. Mining also may involve processing with toxic chemicals such as cyanide and sulfuric acid, which seep into nearby soil and water, significantly harming communities for decades.

We need not source metals primarily from new hardrock public lands mines. However, where we do mine public lands, climate crisis and environmental justice demand updates to this regulatory regime.²³ To guard against the threats mineral activities pose to climate, wildlife, communities, cultural resources, and the environment, we recommend the following policy changes:

- 1 Establish meaningful Tribal consultation and Indigenous resource protections.** On January 26, 2021, the Biden-Harris administration issued an EO on Tribal Consultation and Strengthening Nation-to-Nation Relationships.²⁴ Consultations and regulations on mining should seek to achieve the Free, Prior, and Informed Consent (FPIC) of Indigenous communities;
- 2 Give land managers discretion to balance mining proposals with other potential land uses and the protection of treasured places, sacred sites, and watersheds.** This requires a meaningful definition of the “unnecessary or undue degradation” standard in the Federal Land Policy Management Act (FLPMA) to include perpetual water treatment, and would grant discretion to deny mines with other serious impacts to environmental or cultural resources;
- 3 Exercise FLPMA and Organic Act authority to minimize or prohibit harm to natural and/or cultural resources from tailings piles proposed or located on public lands that do not contain a valuable mineral deposit.** Placement of such material may only occur on up to five acres per mine claim;
- 4 Provide an independent funding mechanism for clean-up of abandoned hardrock mines, similar to the coal abandoned mine fee and program, and assess a royalty;**
- 5 Require mining operators to use the best available technologies and meet strict operating standards throughout the mining process, including management of mine tailings.** Prioritize safety and prevent, to the greatest extent possible, surface and groundwater contamination, and disturbance to wildlife, landscapes, and cultural resources;



- 6 Require planning for climate impacts.** Exploration, operations, infrastructure, reclamation, and closure must be designed and managed to account for the increased risks associated with climate change, such as increasing the capacity of wastewater containment ponds to prevent toxic spills during extreme storms²⁵;
- 7 Require adequate financial assurances to cover all costs, including long-term water treatment, so the public does not bear that financial burden should a mining company become insolvent.** These assurances should prohibit risky financial instruments—such as corporate guarantees or their own property—as a form of bond;
- 8 Ensure rigorous inspection and enforcement, including sufficient penalties to deter bad behavior. Significant operations should undergo periodic comprehensive environmental and compliance audits by an independent third party.**²⁶ Violators should be barred from new permits. Agencies should impose fees to cover the costs of inspections, environmental reviews, and other administrative functions, sufficient to carry out their responsibilities; and
- 9 Commit to public transparency and accountability, including public involvement in decisions on permitting, bonding, inspections, and enforcement.** All financial assurance agreements, mine operation and reclamation plans, monitoring results, and compliance records should be posted online and readily accessible by the public.²⁷

At Risk GRAND CANYON NATIONAL PARK, ARIZONA

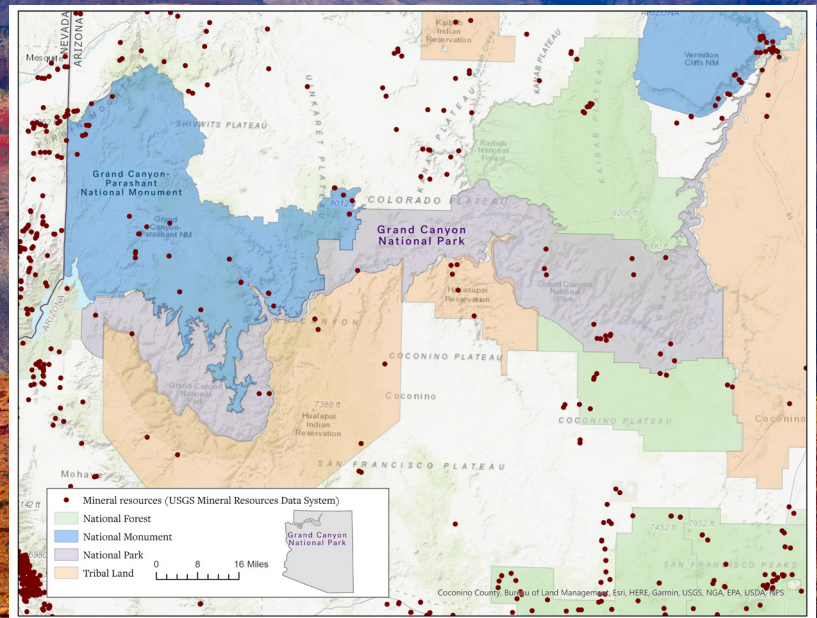


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Reducing Mining Demand by Managing Material Supply Chains

The false-scarcity minerals narrative misleads us to believe new domestic mines best help secure the mineral supplies we need. While mines will source some raw materials, the task of managing supply chains has almost nothing to do with mining. This task falls to other agencies, aside from those managing public lands, with well established tools to manage supply chain risk, including for minerals.

This section provides a limited discussion of the aims of these programs, which tend to fall into three categories:

- 1) Lowering geopolitical risk of a supply chain disruption by diversifying sources;**
- 2) Secondary recovery of materials from oil, gas, and mine waste; and**
- 3) Materials recycling, reuse, substitution, and building a circular economy.**

President Biden's "America's Supply Chains" EO can implement these tools to lower the pressure to source from new mines. These programs can and should reduce demand, diversify supply, and perform research and development. Traditionally, some of them have associated climate, justice, and environmental risks, particularly in reprocessing mine waste. Others, like nuclear subsidies, effectively serve as taxpayer handouts to a struggling mining industry.²⁸ President Biden's focus on sup-



ply chains instead invites the opportunity to revisit these powers to shape the circular economy.²⁹

The Departments of Commerce (DOC), Defense (DOD), Energy (DOE), State (DOS), Interior's United States Geological Survey (USGS), and other agencies manage a vast critical minerals industrial complex.

Federal agencies manage a vast critical minerals industrial complex that can make significant decisions affecting sourcing, recycling, reuse, and substitution trends.

Congress has repeatedly provided these agencies with broad authorities to stockpile minerals, impose trade restrictions, negotiate agreements, promote research, develop workforces, and discover alternatives.

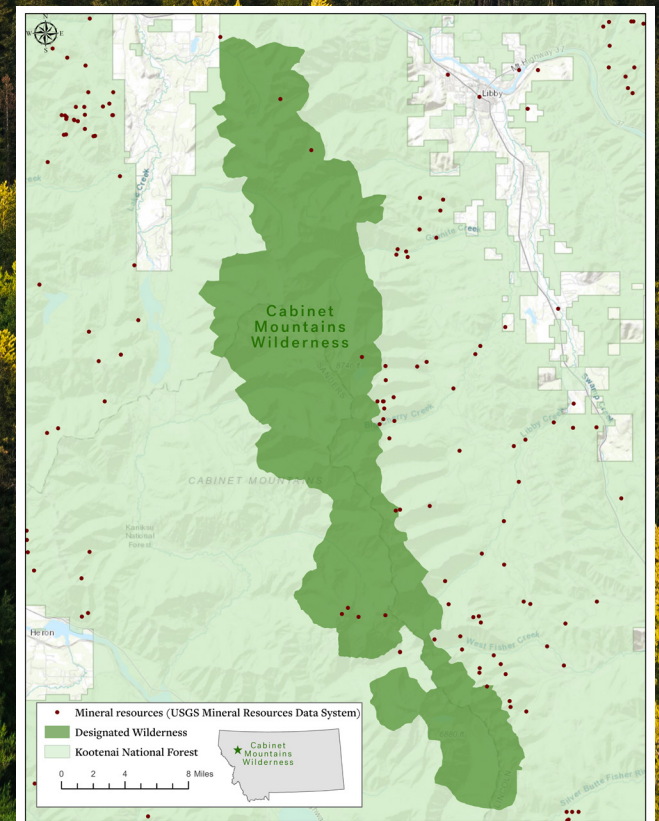
In December 2020, President Trump signed into law the FY2021 Consolidated Appropriations Act adding more than \$800 million to these efforts.³⁰

The federal government's interest in material supply chains dates at least back to World War II. The 1939 Strategic Materials Act first authorized DOD (then called the Department of War) to stockpile minerals such as tungsten and cadmium "to supply the industrial, military, and naval needs of the country for common defense."³¹

Over the following decades, more legislation directed funds to increase the stockpile and put it under management of DOD's Defense Logistics Agency (DLA). In 1993, the stockpile became overstocked, leading to the sale of 44 excess materials like nickel and silver.³² The current stockpile contains 37 materials worth \$1.15 billion, many of them "processed" materials such as quartz crystals and beryllium rods.³³

At Risk

CABINET MOUNTAINS WILDERNESS AREA, MONTANA



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Reducing Mining Demand Through Market Forces and Government Intervention

In 2010, a territorial dispute between China and Japan led China to restrict exportation of rare earth elements (REEs), driving up global prices. In response, DOE created a three-pillar Critical Materials Strategy: diversify global supply chains, in part by facilitating U.S. extraction, processing and manufacturing; develop substitutes; and decrease world demand through recycling and reuse.³⁴

DOE soon began ramping up research and development spending, establishing the Critical Materials Institute (CMI) at DOE's Ames Laboratory in 2013 with a five-year, \$120 million grant. CMI incorporates more than 300 researchers from other national laboratories and partners including Purdue University in developing "solutions to shortages" of REE elements and minerals including lithium and tellurium.³⁵

The United States Trade Representative (USTR) challenged China's trade restrictions in 2010 and 2012 with two cases before the World Trade Organization (WTO). Brazil, Russia, India, Singapore, Indonesia, Japan, Australia, the European Union and others joined the suit. In 2014, WTO ruled in the USTR's favor.³⁶ China later dropped the tariffs and re-supplied the market, resulting in REE prices plummeting.

But savvy investors did not wait for the WTO to resolve these trade disputes. Mines in Australia, Canada, Indonesia, and the United States started or restarted operations to address both short- and long-term supply constraint concerns. Many more mines and proposed mines throughout the world have since provided diversified supplies to hedge against any future disruption.

The Mountain Pass Mine in California produced REEs for decades before water pollution violations led then-owner, MolyCorp, to cease operations in 2002. While China's 2010 trade restrictions did spur mining again at Mountain Pass, investor enthusiasm did not last long. The price drop that followed the WTO ruling caused Mountain Pass to declare bankruptcy. The mine emerged from bankruptcy again in 2017 with the help of a suite of investors, including a 10 percent stake owned by a Chinese controlled firm.

As a practical matter, minerals are internationally-traded commodities on world markets often owned by foreign companies. Mining domestically does not guarantee the minerals stay in-country. In fact, minerals usually cross many borders after extraction.

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Regardless of their location or ownership, mines are just the first, and least important, link in the material supply chain. Once mined, minerals must undergo separation, processing, and refining, before being formed into alloys for use in manufacturing. An April 2010 GAO report estimated that creating an integrated U.S. REE supply chain could take up to 15 years as the government increasingly invests in downstream capacity for converting raw mineral ore into useful green infrastructure. In large measure, the decade since has instead seen considerable federal government subsidies for mining and mineral processing.³⁷

President Trump placed most of his policy focus on the least important critical materials supply chain link: mining. His Administration primarily adopted a fast mine permitting approach with two critical



minerals EOs: A 2017 order directed federal agencies to produce “recommendations to streamline permitting...enhancing access...and increasing discovery, production, and domestic refining of critical minerals resources.”³⁸ A second, from October 2020, declared America’s development of critical minerals a national emergency and directed DOE and DOI to speed permitting and subsidize critical minerals development within existing programs.³⁹

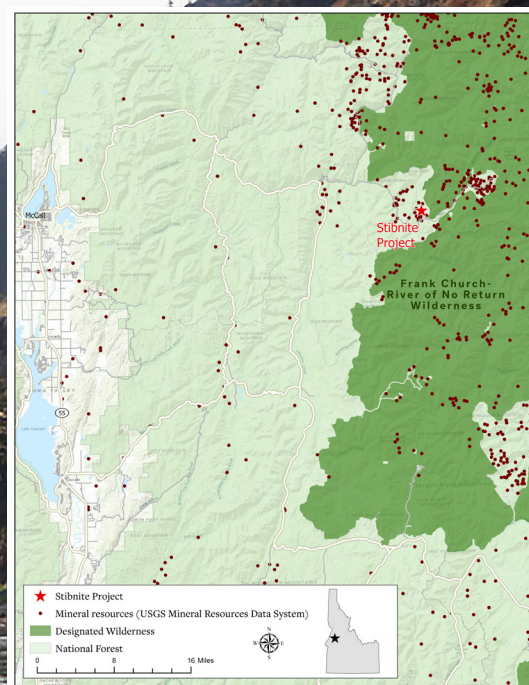
These orders unleashed a flood of government dollars for firms to mine or process domestic minerals. In 2019, President Trump invoked the Defense Production Act, giving DOD, among other things, broad acquisition powers for mineral development.⁴⁰ DOD did not then engage in meaningful consultation to earn the FPIC from the impacted communities near Sierra Blanca Mountain before subsidizing domestic mineral processing. Instead, DOD spent \$125 million in 2020, including a nearly \$10 million grant to the owners of the Mountain Pass mine to develop processing capabilities at the site.⁴¹ In January 2021, DOD announced it would pay mining company Lynas \$30 million to build a REE separation facility in Texas which would process minerals shipped from Lynas mines in Australia.⁴²

DOE reportedly budgeted \$160 million for REE processing last year, including two grants to Energy Fuels Inc, a Canadian company that operates the only U.S. domestic uranium mill.⁴³ The company notoriously lobbied the Trump administration to shrink the Bears Ears National Monument boundary in Utah to benefit their own uranium and vanadium claims.⁴⁴

One of the DOE grants was for processing REEs at Energy Fuels’ White Mesa uranium mill in Utah, and the other for a “conceptual design that would lead the way to commercial production of mixed REE oxides from coal-based resources.” It remains unclear whether the mill will actually process REE minerals.⁴⁵ What is clear, the agencies of the critical minerals industrial complex should seek communities’ FPIC before subsidizing additional domestic mineral processing.

At Risk

FRANK CHURCH RIVER OF NO RETURN WILDERNESS, IDAHO



Legislative Proposals

In the decade following the 2010 REE minerals trade dispute, the prevailing Congressional response tended to misplace focus on faster mine permitting. This resulted in several legislative proposals exploiting the trade dispute, invoking nationalism and xenophobia, and driving a false-scarcity narrative designed to remove community input from our Government's mining decisions. Congressman Mark Amodei (R-NV02), whose district is home to some of the country's biggest mineral mines, first introduced the National Strategic and Critical Minerals Production Act in 2013. This bill cynically labeled the community participation and environmental review required under the National Environmental Policy Act (NEPA) as a cause of mineral supply disruptions. His bill exempted all mining from the NEPA process.⁴⁶ However, the average time federal land managers spend permitting a mine is two years, according to a 2016 GAO study,⁴⁷ generally the same as in Australia, Canada, Chile, Norway, and other modern democracies with robust mining industries. According to the GAO, delays in mine permitting are primarily due to the failure of mining companies to provide sufficient and timely information.

The average permitting time for a proposed public lands mine is approximately two years, according to the Government Accountability Office.

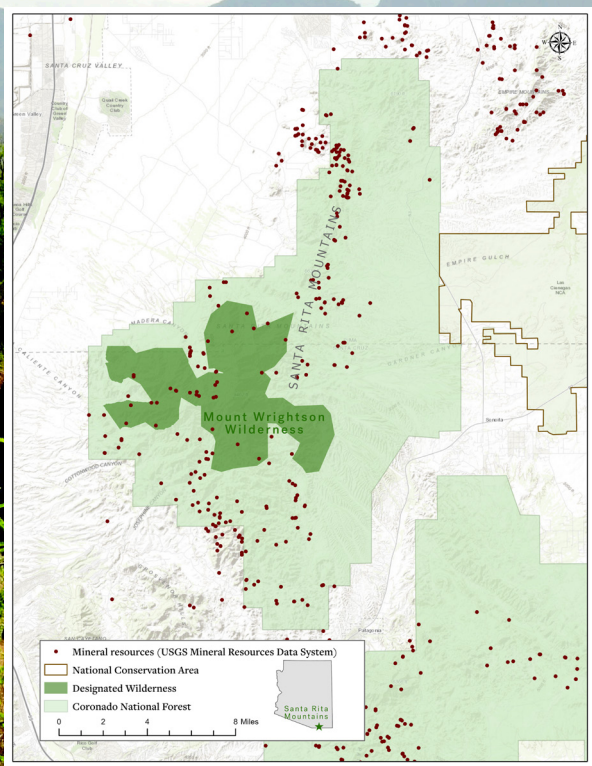


Photo: Norma Jean Gargasz / Alamy Stock

At Risk
SANTA RITA MOUNTAINS, ARIZONA



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Representative Amodei's bill was not the only legislative attempt to speed mine permitting. Senator Lisa Murkowski (R-AK) first introduced the Critical Minerals Policy Act in 2013, which was also designed to clip the NEPA review process for mines.⁴⁸ Notably, it also included more R&D, mineral recycling, and workforce development emphases.

Congress and President Trump enacted minerals legislation as part of a COVID relief and budget bill in December 2020. The final legislation dropped the most contentious mine permitting provisions, and also created a new DOE-led Critical Materials Consortium. The law provided \$1.5 billion over five years for DOE's National Energy Technology Laboratory (NETL) for extracting REE elements from coal and coal by-products. It also funded ongoing USGS efforts to map mineral deposits across the country, authorized \$75 million over three years for a Critical Minerals Supply Chain Research Facility, and created a Labor Department grant program for workforce development and education.⁴⁹

If the materials we need can come from diverse sources, then those materials become less critical, decreasing the pressure to source them from mining.

President Biden's supply chain EO, among other things, directed interagency collaboration to help mitigate risks of critical material supply chain disruptions. If the materials we need can come from diverse sources, then those materials become less critical. And as they become less critical, this decreases the pressure to source some of these materials from mining.

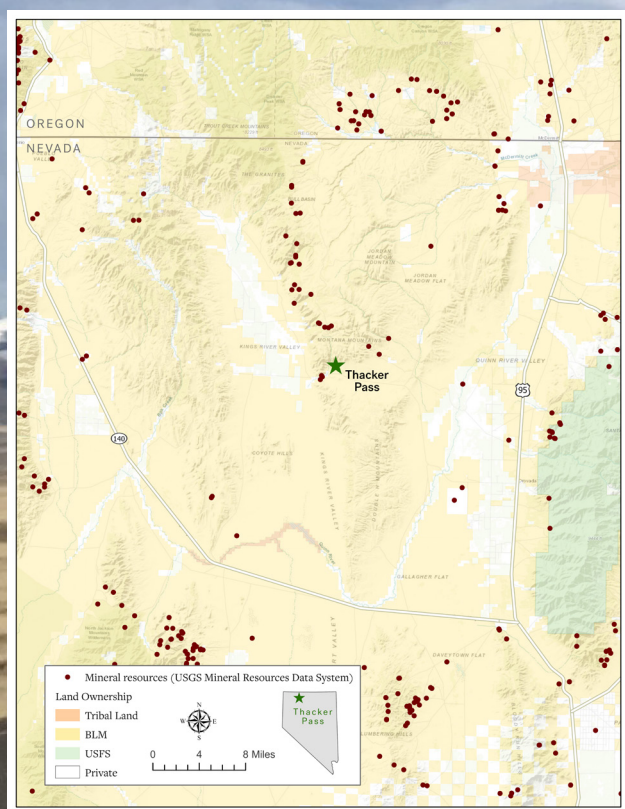


Photo: Great Basin Resource Watch

At Risk THACKER PASS, NEVADA



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Secondary Recovery of Minerals

Disclaimer: Nothing herein should be construed as endorsing primary, secondary, or byproduct extraction as responsible mineral sources. On the contrary, responsible sourcing begins at the end of the supply chain (end-of-life products) before sourcing from raw materials in mine waste. This is because these mineral activities carry significant climate, equity, and resource risks and impacts.

One of the largest sources of minerals in the United States is the mining industry's waste piles. By one estimate, an average 18 karat (.333 oz) gold ring generates approximately 20 tons of waste.⁵⁰ The abundance of designated critical minerals in mine waste undercuts arguments for scarcity. Re-mining this waste for non-jewelry minerals is currently underway. The Federal Government (mostly DOE and DOD) subsidize some of this secondary recovery and processing from domestic mine waste. These decisions must receive a hard look at their potential environmental impacts.⁵¹

In addition to compliance with applicable environmental regulations, these agencies must also undertake meaningful consultations to earn the FPIC of impacted communities. An FPIC standard for government subsidized mineral processing would also be consistent with the President's "America's Supply Chains" EO directive to take "steps to ensure that the Government's supply chain policy...considers climate and other environmental impacts."⁵²

At Risk MOJAVE AND SONORAN DESERTS

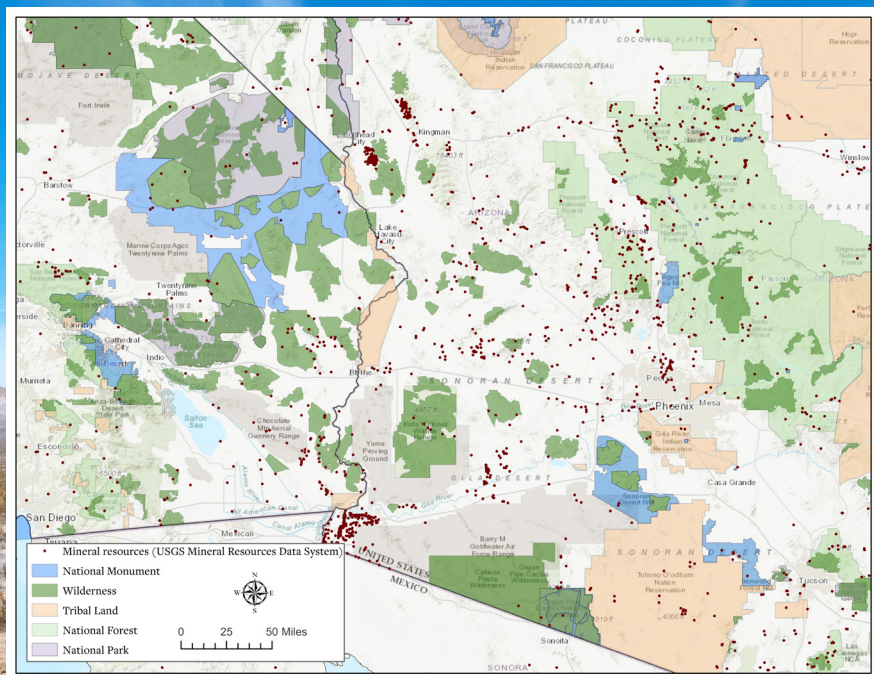


Photo: Ian Dagnall / Alamy Stock



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Re-Mining Mine Tailings

Mine tailings are the waste materials mining operations leave behind after removing the target mineral. Tailings can exist as either a wet slurry or in dry form as crushed rock, water, and additives used in the mining process. This waste material also contains minerals not targeted for production but are byproducts extracted along with mining. Re-mining waste for mineral byproducts causes social and environmental harms beyond the scope of this report.⁵³

DOE estimates that there is as much cobalt in Pennsylvania's coal mine waste ponds as in all of the Democratic Republic of Congo, the world's number one source.⁵⁴ The EPA's Toxic Release Inventory reports that the mining industry released, on site, 60 tons of cobalt and more than 500 tons of cobalt compounds, just in 2019.⁵⁵ USGS concluded that mine tailings at New York state waste sites contained REEs, including some in quantities with potential for "a substantial relative enrichment in the heavy REEs in comparison to many developed REE mines."⁵⁶

Federal largesse has fostered burgeoning efforts to recover byproduct minerals from extractive industry waste. These programs traditionally have not come out of meaningful consultations. That is, the government generally does not earn FPIC or actively seek input from communities affected by these mineral activities. President Trump's 2020 EO directed federal agencies to "accelerate...reuse of historic coal waste areas, material on historic mining sites, and abandoned mining sites for the recovery of critical minerals."⁵⁷ President Biden's DOE recently awarded \$19 million to 13 projects for this purpose.⁵⁸

International mining conglomerate Rio Tinto extracts lithium from wastes left at a century-old boron mine in southern California.⁵⁹ The company also received a \$3 million grant from the Defense Logistics Agency (DLA) to extract rhenium from its copper mine in Utah, and is beginning to derive the mineral monazite from a mine in Madagascar.⁶⁰

Apache Mill Tailings USA, Inc., states that it reclaims metals, including REE metals, more profitably than mining from "easily accessible and readily available" mine tailings.⁶¹ The USGS has also developed new ways to identify critical materials in mine tailings.⁶² West Virginia University's Water Research Institute created a treatment plant to recover REEs from acid mine drainage.⁶³ DOE funds established the Rare Earth Extraction Facility in 2018 to "bolster domestic supplies of REEs, reduce the environmental impact of coal-mining operations, reduce production costs and increase efficiency for processing market-ready REEs."⁶⁴ DOE and DLA have awarded grants to create a process for extracting multiple REE minerals from coal waste products in Pennsylvania.⁶⁵ The company's most recent grant would fund an installation in Pennsylvania developed in a consortium with Pennsylvania State University's Center for Critical Minerals.⁶⁶

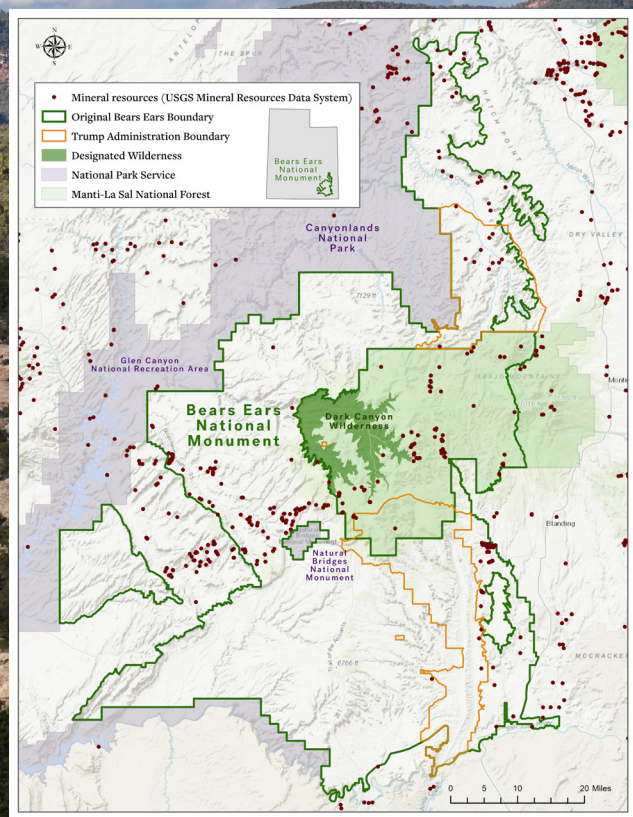
DOE estimates that there is as much cobalt in Pennsylvania's coal mine waste ponds as in all of the Democratic Republic of Congo, the world's number one source.



Reclamation from Fracking Wastewater

Wastewater, also called formation water or produced water by the oil and gas industry, comes to the surface from deep underground during early stages of hydraulic fracturing, also known as fracking. Even if all new drilling and fracking ended, the remaining active wells would still generate waste. Today in the United States there are roughly 1 million active wells.

Typically, wastewater increases over time as the oil or gas being produced by a well is depleted. It is estimated that the U.S. oil and gas industry generated 24.4 billion barrels of produced water, or more than 1 trillion gallons, in 2017.⁶⁷ This produced water contains some lithium and other metals. A Pennsylvania joint venture plans to extract lithium from produced water at multiple wastewater treatment facilities in the Marcellus shale region of Pennsylvania, Ohio, and West Virginia.⁶⁸ In Oklahoma, another company plans to extract similar materials from oil and gas produced water.⁶⁹



At Risk BEARS EARS
NATIONAL MONUMENT, UTAH

Photo: Judith Zimmerman/Danita Delimont / Adobe Stock



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Removal from Geothermal Brines

The Salton Sea is a 350 square mile inland lake in the southern California desert with eleven geothermal power plants along its southeastern shore. Piping hot mineral-rich water from deep underground turns steam turbines generating electricity. The hot water is then reinjected back underground. Like the wastewater from oil and gas deposits, this geothermal water contains lithium. Companies now propose to extract the lithium from the water before it is reinjected underground.⁷⁰

In 2020, California established a Lithium Valley Commission directed to review, investigate, and analyze opportunities and benefits for lithium recovery and use in the state.⁷¹ A final report is due to the State Legislature by October 1, 2022. The commission will help answer remaining questions about the full impacts of geothermal lithium extraction and how it should be regulated.

Among those impacts, California's Imperial Valley surrounding the Salton Sea bears a legacy of environmental injustice. Predominantly Latinx communities in Imperial County suffer disproportionately high asthma rates and other public health impacts from air emissions, agricultural dust, and runoff laced with toxins.⁷² Lithium extraction from geothermal brines also generates additional contaminants, including metals which need appropriate recovery, treatment, recycling, and disposal methods. The commission may also review programs for asthma management, education, and community air emissions monitoring through the state's Identifying Violations Affecting Neighborhoods (IVAN) network.⁷³

At Risk

GRAND STAIRCASE-ESCALANTE NATIONAL MONUMENT, UTAH

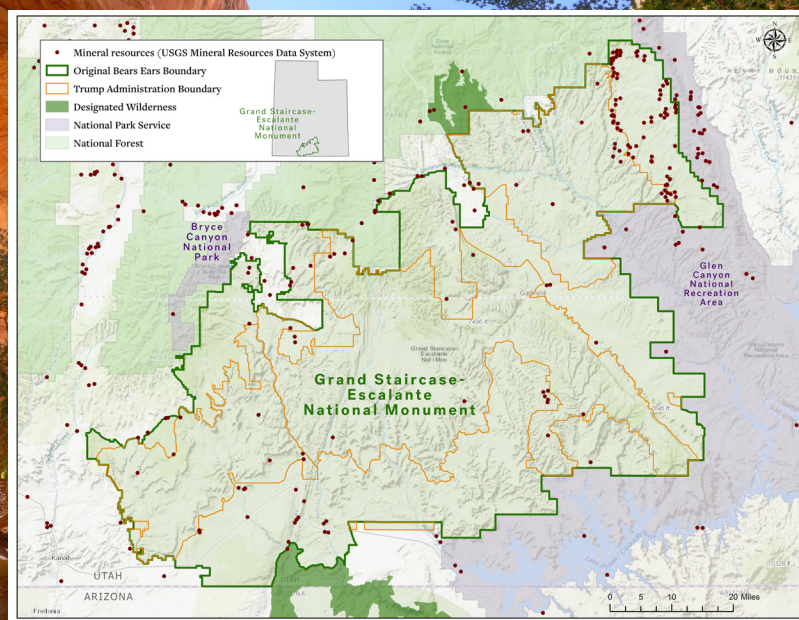


Photo: kojhirano / Adobe Stock



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Developing a Circular Economy

The United States has the opportunity and responsibility to build renewable energy infrastructure using more responsibly-sourced materials. Governments and the private sector can harness market power and help drive this innovation. In Japan, Honda expects to recover 80 percent of REE metals contained in some of their used nickel metal-hydride car batteries. In Germany, Siemens recycles REEs from electric vehicle motors.⁷⁴

The European Commission (EC), the executive body that forms legislation and regulations on behalf of the European Union, passed a directive in 2006 mandating collection and recycling for all batteries.⁷⁵ An updated directive is now before the EC that would cover the entire life cycle of batteries, from sourcing of materials to recycling.⁷⁶ Tenets of the directive include:

- 1 Use of responsibly sourced materials;**
- 2 Restricted use of hazardous substances;**
- 3 Minimum content of recycled materials;**
- 4 Increased recycling of portable batteries to 70 percent by 2030; and**
- 5 Creation of a carbon footprint declaration as prerequisite for battery sale.**

The directive was followed by the March 2020 adoption of the EC's Circular Economy Action Plan. This plan restricts single-use products, bans destruction of unsold durable goods, and makes it easier for consumers to repair products, among other measures.⁷⁷



Other nations, particularly in the European Union, Japan, and South Korea, spent the previous decade building the infrastructure to support a circular economy of responsibly sourced materials. This approach not only better positions these nations geopolitically, it also reduces climate pollution. As the United States considers clean energy infrastructure spending, our policymakers ought also to invest heavily in battery recycling, just as much as—if not more than—battery manufacturing.

Recirculating Minerals through Battery Supply Chain

Electric vehicles (EVs) produce significantly fewer global warming emissions than other vehicles and are a critical part of the strategy to fight climate change.⁷⁸ EVs rely on lithium-ion batteries (LiBs) to store the electricity that powers the car. LiBs are also used to store electricity on home or industrial energy grids powered by renewable energy. President Biden's DOE recently requested information from the public on the supply chain risks specifically for EV battery materials.⁷⁹

Most EV batteries today are LiBs, often built with lithium and various mineral substitutes. Meeting the demand for these minerals requires better sourcing options than mines. Circular economy policies have the potential to reduce mining demand for cobalt, copper, lithium, and nickel by 25-55 percent of total demand by 2040.⁸⁰

We can instead power EVs and power grids with battery materials sourced from mining alternatives.⁸¹ Improving recycling and collection rates will help offset demand for new mining.⁸²

Circular economy policies have the potential to reduce mining demand for cobalt, copper, lithium, and nickel by 25-55 percent of total demand by 2040.

- **LiB recycling is a mature technology.** Indeed, it is possible to recycle 95 percent of the four key minerals found in LiBs: cobalt, copper, lithium, and nickel. Current recycling capacity and processes focus on cobalt and nickel, yet large-scale implementation to recycle more of these and other elements is achievable with the right blend of incentives and mandates. Recycling is particularly important for recovery of metals.⁸³ Research has shown that recycling end-of-life batteries has the greatest impact on reducing primary demand for battery metals, including cobalt, lithium, nickel, and manganese.⁸⁴
- **Some EV batteries may still have 70 percent of their initial power capacity after 15 years.** These “dead” batteries can still serve a variety of purposes: Nissan currently remanufactures older batteries for reuse in cars; batteries can also be reused in vehicles with lower power requirements than standard cars, such as golf carts, forklifts, and airport baggage carts. In addition to vehicle use, batteries are reused for home or industrial energy grid storage.⁸⁵
- **While current battery lifetimes range 8-15 years, several manufacturers are developing batteries with lifetimes up to 20 years.** Others now have batteries with lower cobalt content or that contain mineral substitutes, such as potassium.⁸⁶ This will reduce the overall demand both for new batteries and mines.



Solutions for Electric Vehicle Batteries

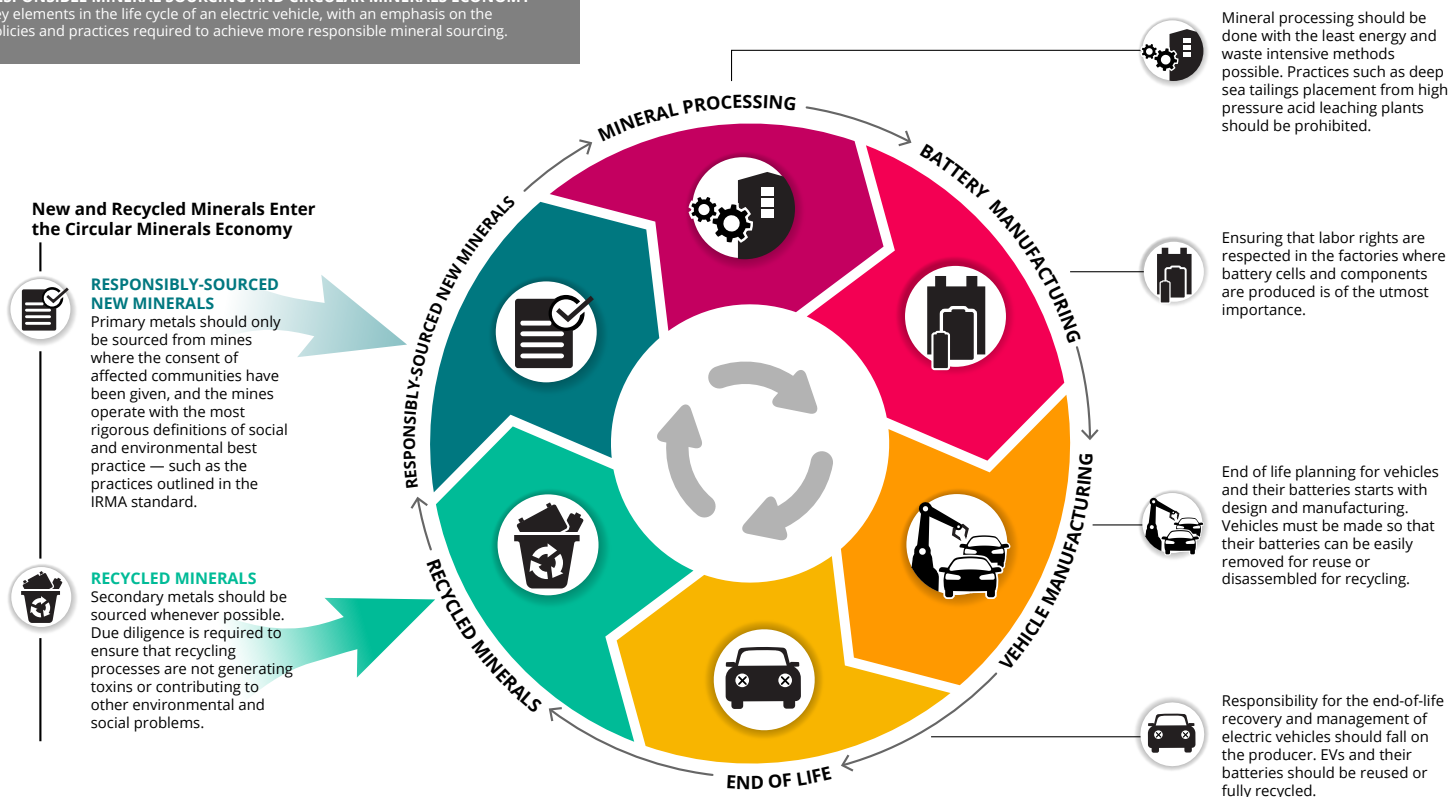
- Create recycling pathways that make it easy for car owners, dealers, and repair shops to return batteries to manufacturers at the end of battery life;
- Standardize battery shape, size, labeling, and other attributes across manufacturers to make recycling less dependent on company-specific recycling programs;
- Expand the programs available to reuse batteries for a second life to keep reuse competitive with the cost of new batteries;
- Continue research and development to test, manage, and improve battery systems;
- Establish performance, durability, and handling standards for first and second battery life.

The social, environmental, and climate impacts of mining pose significant risks, particularly at the beginning of the high-capacity battery materials supply chain. Shoring up our midstream supply chain gaps for battery materials will reduce the pressure to source these materials from mines. This course of action is essential if we wish to solve the climate crisis, and avoid a minerals rush that would compound that crisis with additional environmental and human rights catastrophes.

The EV battery sector must tie directly to the expansion of circular economy initiatives that facilitate domestic assembly, disassembly, and re-assembly into new batteries with minimal energy inputs or waste produced. Standardizing manufacturing, collection, and recycling will minimize the climate change, environmental, and social impacts of these batteries.

RESPONSIBLE MINERAL SOURCING AND CIRCULAR MINERALS ECONOMY

Key elements in the life cycle of an electric vehicle, with an emphasis on the policies and practices required to achieve more responsible mineral sourcing.



The circular economy includes recycling, reuse, and substitution of materials, in addition to new manufacturing capacity to use these recycled materials as inputs. While recycling technology exists today, the United States lacks domestic capacity. This is in large part due to the lack of a policy framework to increase economies of scale and create a market for these materials to be locally and sustainably sourced. Congress and the Administration should enact incentives and mandates to improve collection, recycling, and safe, affordable, and reliable disposal of these materials.

A circular economy upends the traditional “take-make-dispose” linear system in favor of an economic system that generates growth while considering social, economic, and environmental impacts. All products are reused, remanufactured, and recycled back into raw materials to the greatest extent possible. Producers and/or manufacturers must have clear, comprehensive responsibility and accountability in this system over the lifespan of the materials they source.

Well-designed recovery and recycling mandates are critical to ensure safe and effective battery recycling. The European Union’s 2021 Sustainable Batteries regulation proposal offers a suite of policies for the United States and other countries to consider for accelerating more sustainable battery design and recycling, as well as developing supply chain due diligence and traceability protocols. We can also learn from state-level programs in place, such as Washington State’s Extended Producer Responsibility law for solar panels.⁸⁷

Consumer Pressure for More Responsible Mines



The European Union’s 2021 Sustainable Batteries regulation proposal offers a suite of policies for the United States and other countries to consider for accelerating more sustainable battery design and recycling, as well as developing supply chain due diligence and traceability protocols.

Photo: navee / Adobe Stock



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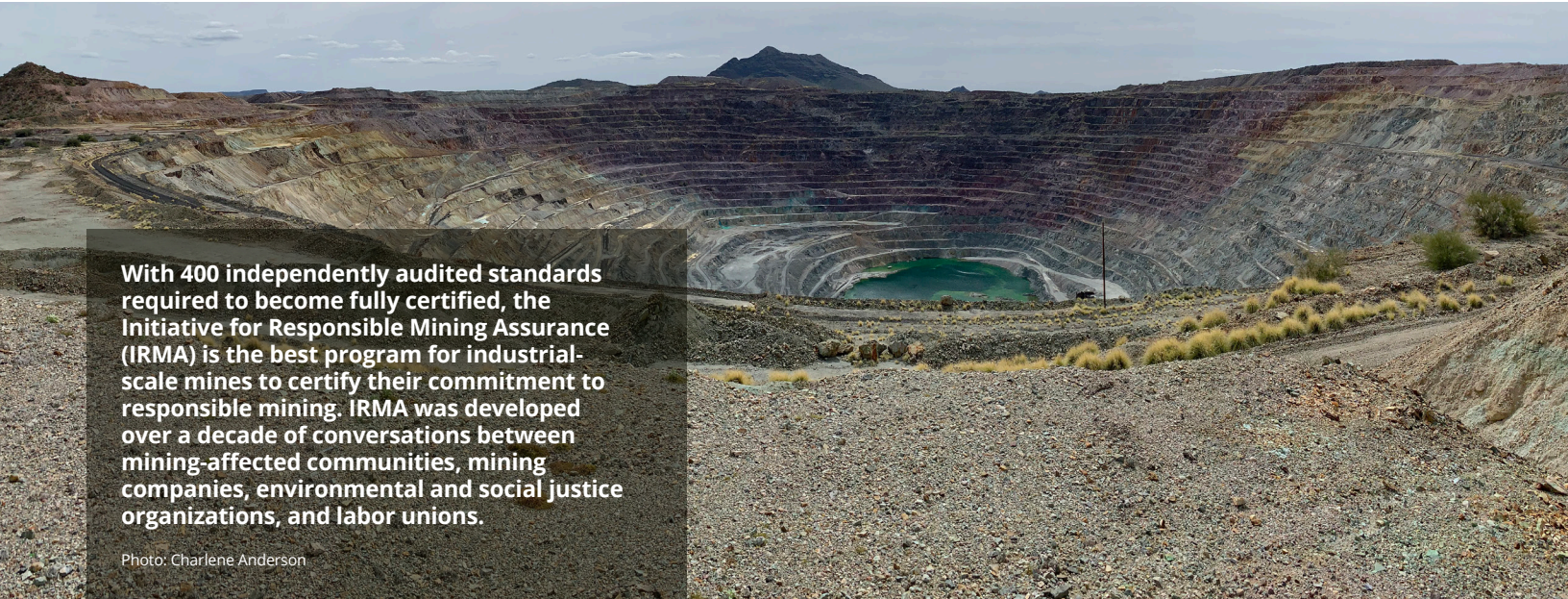
Even with effective regulation, mineral sourcing is most responsible when pressure comes from mineral purchasers who see value in better environmental and social governance (ESG). Market pressure has driven a proliferation of voluntary certification programs of varying efficacy for nearly each link in mineral supply chains. For industrial-scale mining, the Initiative for Responsible Mining Assurance (IRMA) sits at the forefront of generating this market value.

IRMA is an independent, multi-stakeholder, third-party verification and certification standard for industrial-scale mines. Its mission is to promote mining operations that respect human rights and local communities, provide safe, healthy, and supportive workplaces, minimize harm to the environment, and leave positive legacies.⁸⁸ IRMA was developed in consultation with a wide range of stakeholders, including labor unions, mining-impacted communities, environmental and social justice organizations, mining companies, and businesses that purchase mined materials.

IRMA certifies social and environmental performance at mine sites that volunteer to participate. The standards in the IRMA certification process fall into four categories: business integrity, planning for positive legacies, social responsibility, and environmental responsibility. Mining companies must meet approximately 400 independently audited standards to become fully IRMA certified.

Some lithium mining operations in the U.S. have indicated they will seek IRMA certification and have begun the independent auditing process. Mining companies chose IRMA, in part, because automakers and electronics companies such as Ford, Daimler-Benz, BMW, and Microsoft have directed their suppliers to only source from IRMA-certified mines.⁸⁹ The best indicator of IRMA's success is the consumer pressure IRMA members apply to mining companies to source more responsibly.

The standards in the IRMA certification process fall into four categories: business integrity, planning for positive legacies, social responsibility, and environmental responsibility.



With 400 independently audited standards required to become fully certified, the Initiative for Responsible Mining Assurance (IRMA) is the best program for industrial-scale mines to certify their commitment to responsible mining. IRMA was developed over a decade of conversations between mining-affected communities, mining companies, environmental and social justice organizations, and labor unions.

Photo: Charlene Anderson



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Conclusion

We can work together to help meet the twin challenges of climate crisis and equity posed by sourcing the materials we need for the clean energy transition. Yet we must first recognize the legal regime for public lands mining remains outdated, inadequate, and structurally inequitable. The solutions begin with reform to the law and rules governing public lands mines.

The solutions also include investments in material recycling, reuse, substitution, and building circular economy infrastructure. Properly implemented, President Biden's supply chain EO may create the room for circular economy policy that improves EV battery collection and reuse. Many agencies that do not give mining permits use myriad other tools to mitigate material supply chain risk. With the right policies in place, research indicates we can approximately halve the demand for lithium, cobalt, and nickel by 2040. As those materials become less critical, this decreases the pressure to source from public lands mines.

Mining and re-mining do produce minerals, but also toxic waste (tailings), climate pollution, and unjust impacts on communities. To make clean energy clean, we must shift away from extractive sourcing toward more responsible options. In addition to government regulation and incentives, consumer pressure can drive demand for IRMA certification with independent mine audits for better environmental and social performance.

Together, these three pillars—mining reform, circular economy, and consumer demand—will better serve our material sourcing needs than more mines.

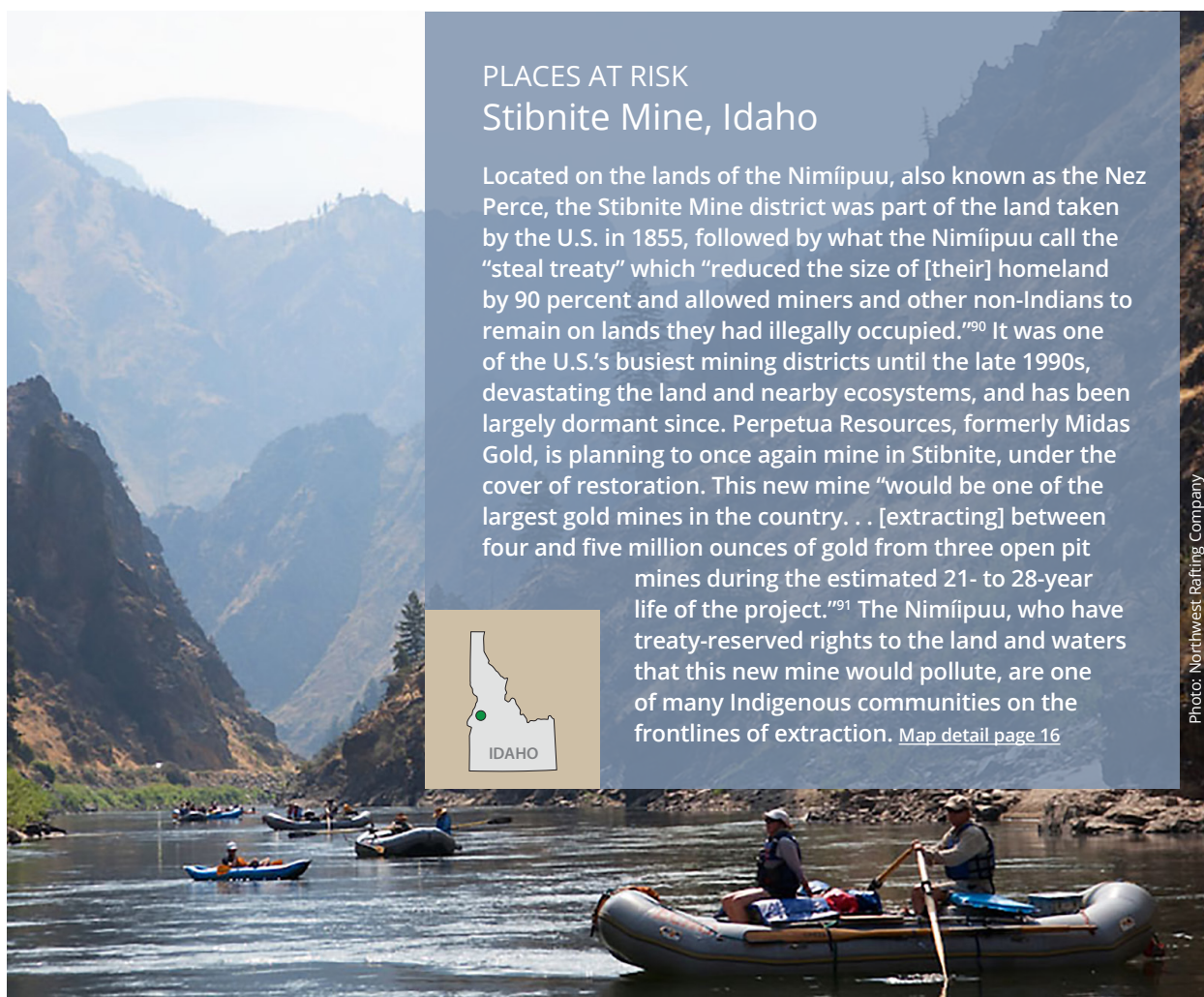


Places at Risk

These nine places are examples of many sacred, iconic, or otherwise treasured places in the United States. All remain under threat from mining due to the 1872 Mining Law. The last decade's false-scarcity minerals rhetoric has unjustifiably intensified that push. This feeds a rush for new mines targeting minerals across the periodic table irrespective of their purported use or relative abundance from other sources, particularly lithium; lithium mines are not sources of clean energy even if lithium batteries are.


Mining companies now propose new mines intended for precious metals (gold or silver) as purported sources for other minerals. For example, the Stibnite project actually seeks gold, while the operator boasts antimony found in trace amounts alongside gold deposits. While antimony does have a use coating some solar panels, this neither mitigates the mine's impacts nor changes Stibnite into a renewable energy project. The same is true for the uranium, vanadium, or certain rare earth elements present in deposits near Bears Ears, Mount Taylor, or the Grand Canyon.

Mines near these places are *not critical*. Reforming our mining laws to help protect these places *is critical*.



PLACES AT RISK
Stibnite Mine, Idaho

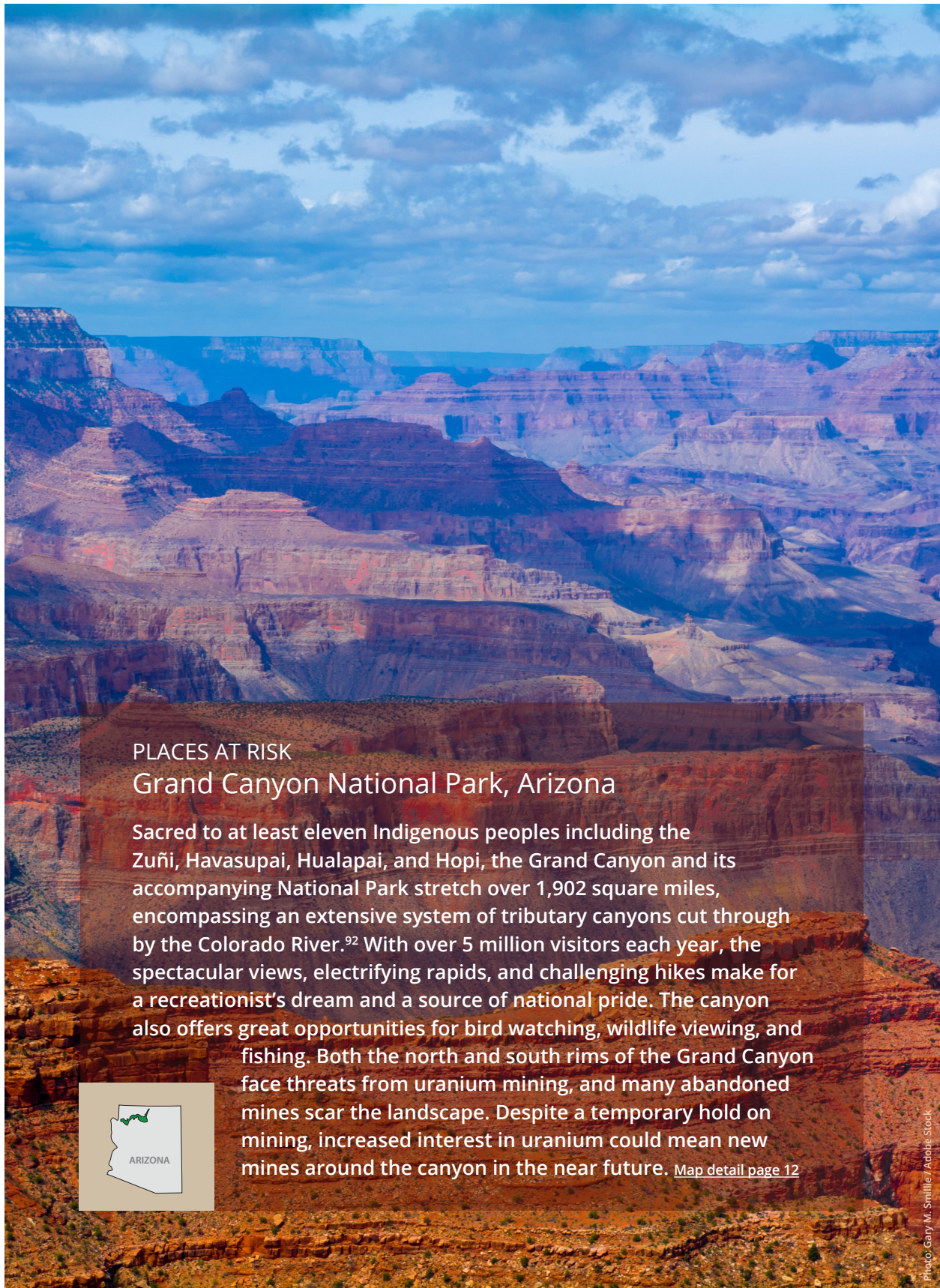
Located on the lands of the Nimíipuu, also known as the Nez Perce, the Stibnite Mine district was part of the land taken by the U.S. in 1855, followed by what the Nimíipuu call the "steal treaty" which "reduced the size of [their] homeland by 90 percent and allowed miners and other non-Indians to remain on lands they had illegally occupied."⁹⁰ It was one of the U.S.'s busiest mining districts until the late 1990s, devastating the land and nearby ecosystems, and has been largely dormant since. Perpetua Resources, formerly Midas Gold, is planning to once again mine in Stibnite, under the cover of restoration. This new mine "would be one of the largest gold mines in the country. . . [extracting] between four and five million ounces of gold from three open pit mines during the estimated 21- to 28-year life of the project."⁹¹ The Nimíipuu, who have treaty-reserved rights to the land and waters that this new mine would pollute, are one of many Indigenous communities on the frontlines of extraction. [Map detail page 16](#)



IDAHO

Photo: Northwest Rafting Company





PLACES AT RISK

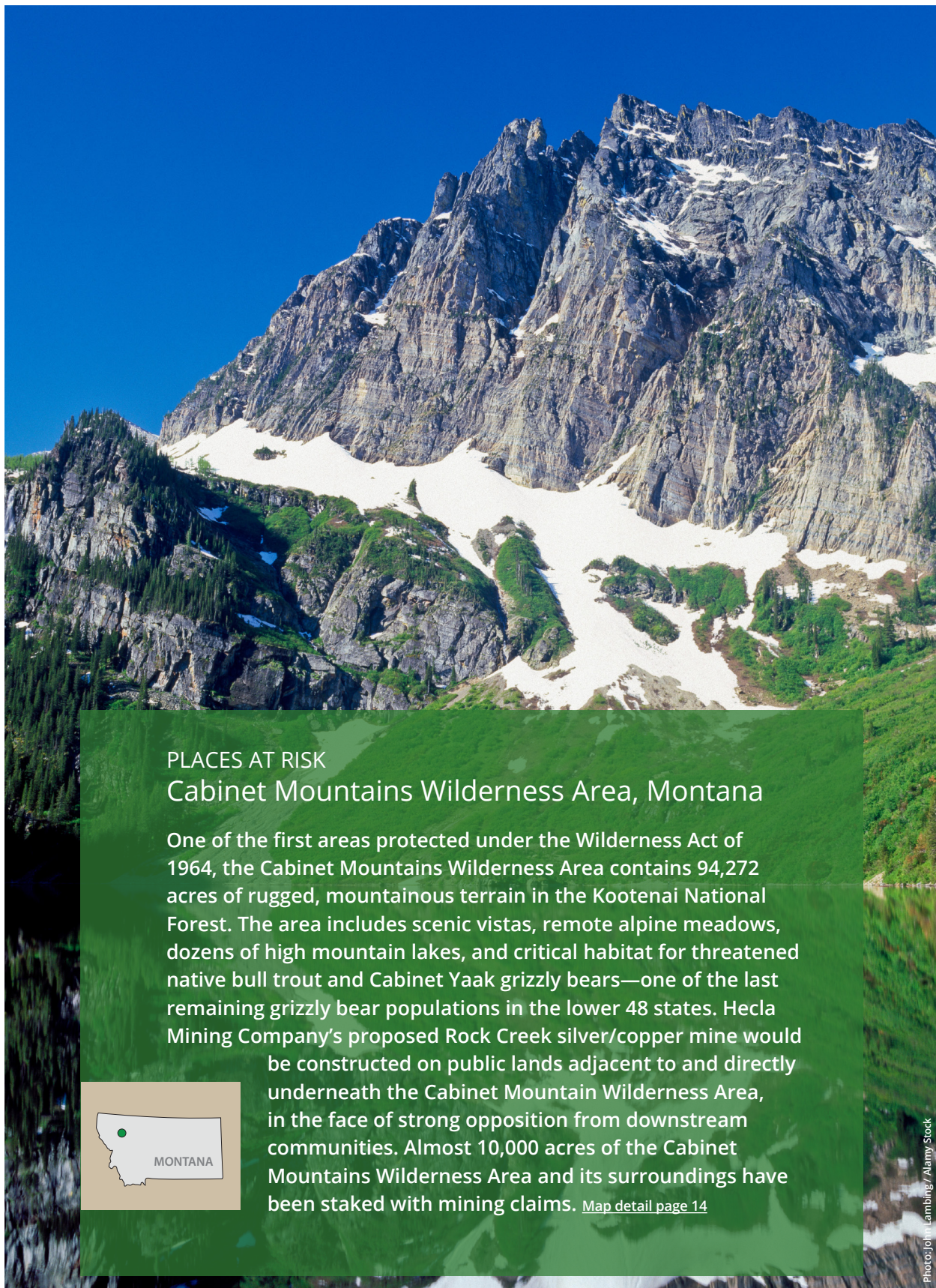
Grand Canyon National Park, Arizona

Sacred to at least eleven Indigenous peoples including the Zuñi, Havasupai, Hualapai, and Hopi, the Grand Canyon and its accompanying National Park stretch over 1,902 square miles, encompassing an extensive system of tributary canyons cut through by the Colorado River.⁹² With over 5 million visitors each year, the spectacular views, electrifying rapids, and challenging hikes make for a recreationist's dream and a source of national pride. The canyon also offers great opportunities for bird watching, wildlife viewing, and fishing. Both the north and south rims of the Grand Canyon face threats from uranium mining, and many abandoned mines scar the landscape. Despite a temporary hold on mining, increased interest in uranium could mean new mines around the canyon in the near future. [Map detail page 12](#)



Photo: Gary M. Smillie / Adobe Stock





PLACES AT RISK

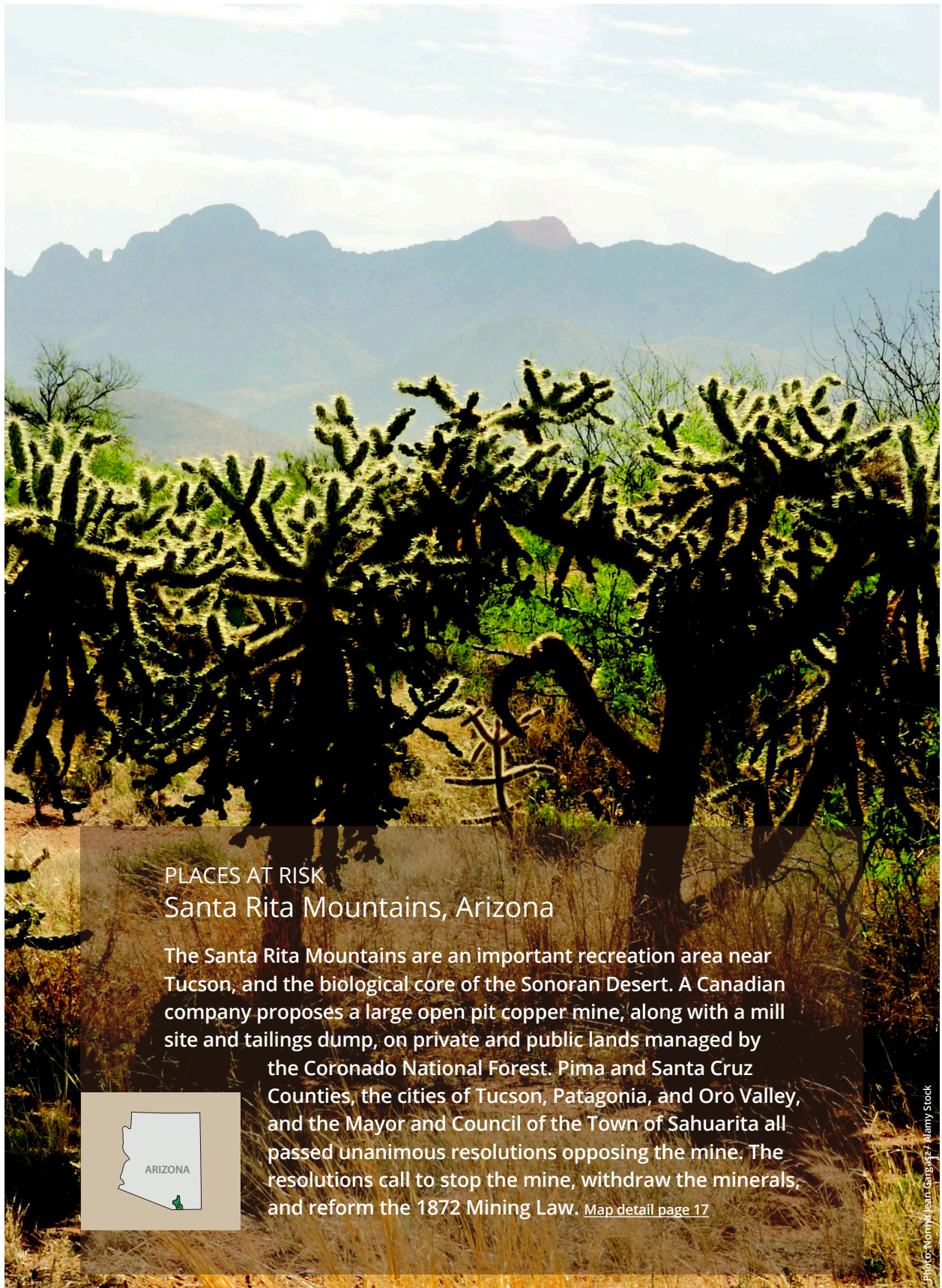
Cabinet Mountains Wilderness Area, Montana

One of the first areas protected under the Wilderness Act of 1964, the Cabinet Mountains Wilderness Area contains 94,272 acres of rugged, mountainous terrain in the Kootenai National Forest. The area includes scenic vistas, remote alpine meadows, dozens of high mountain lakes, and critical habitat for threatened native bull trout and Cabinet Yaak grizzly bears—one of the last remaining grizzly bear populations in the lower 48 states. Hecla Mining Company's proposed Rock Creek silver/copper mine would be constructed on public lands adjacent to and directly underneath the Cabinet Mountain Wilderness Area, in the face of strong opposition from downstream communities. Almost 10,000 acres of the Cabinet Mountains Wilderness Area and its surroundings have been staked with mining claims. [Map detail page 14](#)



Photo: John Lambing / Alamy Stock





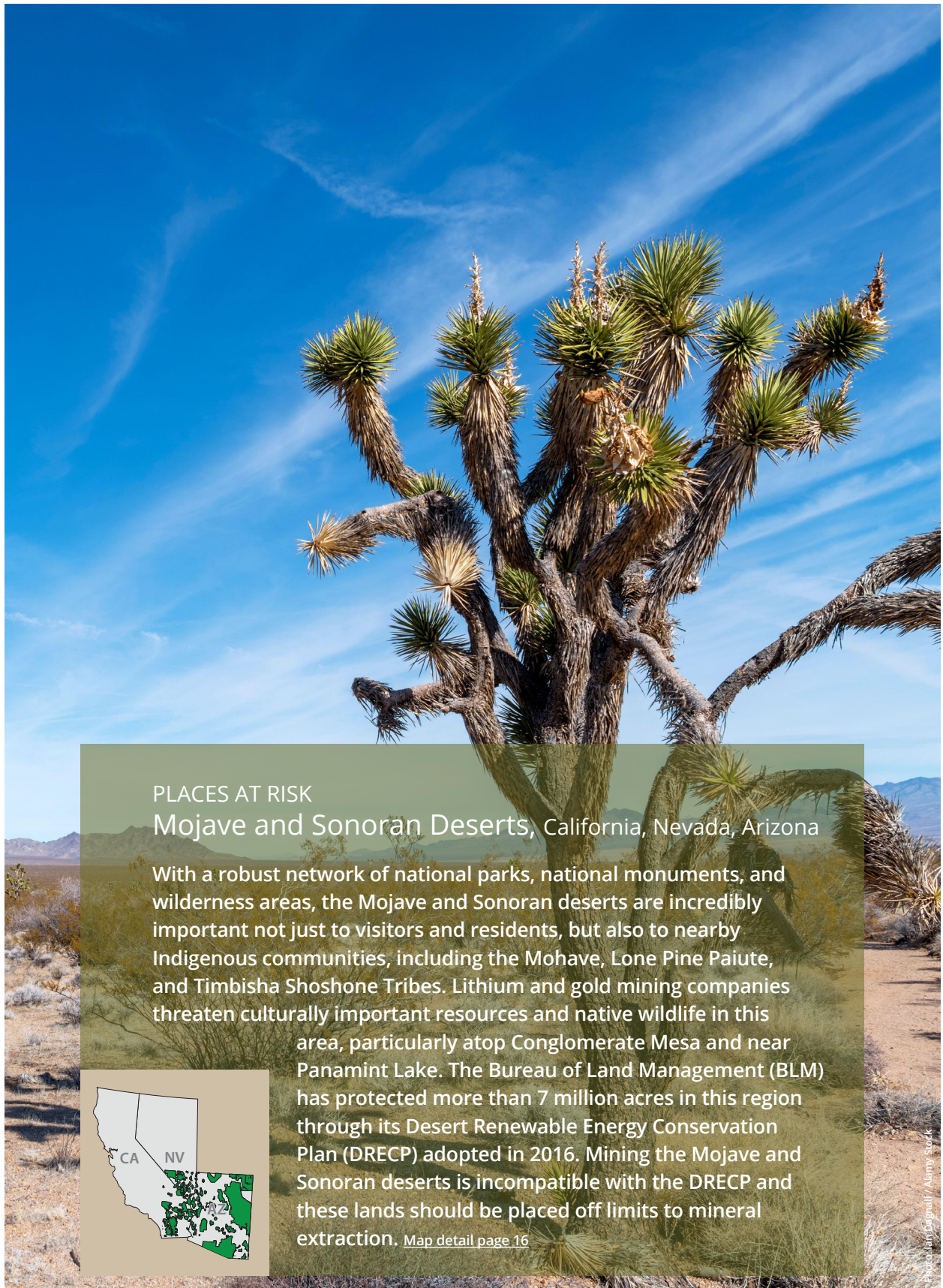
PLACES AT RISK Santa Rita Mountains, Arizona

The Santa Rita Mountains are an important recreation area near Tucson, and the biological core of the Sonoran Desert. A Canadian company proposes a large open pit copper mine, along with a mill site and tailings dump, on private and public lands managed by the Coronado National Forest. Pima and Santa Cruz Counties, the cities of Tucson, Patagonia, and Oro Valley, and the Mayor and Council of the Town of Sahuarita all passed unanimous resolutions opposing the mine. The resolutions call to stop the mine, withdraw the minerals, and reform the 1872 Mining Law. [Map detail page 17](#)



Photo: Nomy Jean Ganges / Wamy Stock





PLACES AT RISK

Mojave and Sonoran Deserts, California, Nevada, Arizona

With a robust network of national parks, national monuments, and wilderness areas, the Mojave and Sonoran deserts are incredibly important not just to visitors and residents, but also to nearby Indigenous communities, including the Mohave, Lone Pine Paiute, and Timbisha Shoshone Tribes. Lithium and gold mining companies threaten culturally important resources and native wildlife in this area, particularly atop Conglomerate Mesa and near Panamint Lake. The Bureau of Land Management (BLM) has protected more than 7 million acres in this region through its Desert Renewable Energy Conservation Plan (DRECP) adopted in 2016. Mining the Mojave and Sonoran deserts is incompatible with the DRECP and these lands should be placed off limits to mineral extraction. [Map detail page 16](#)

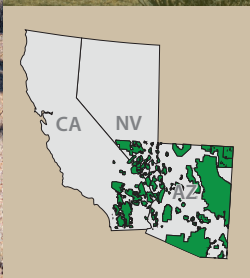
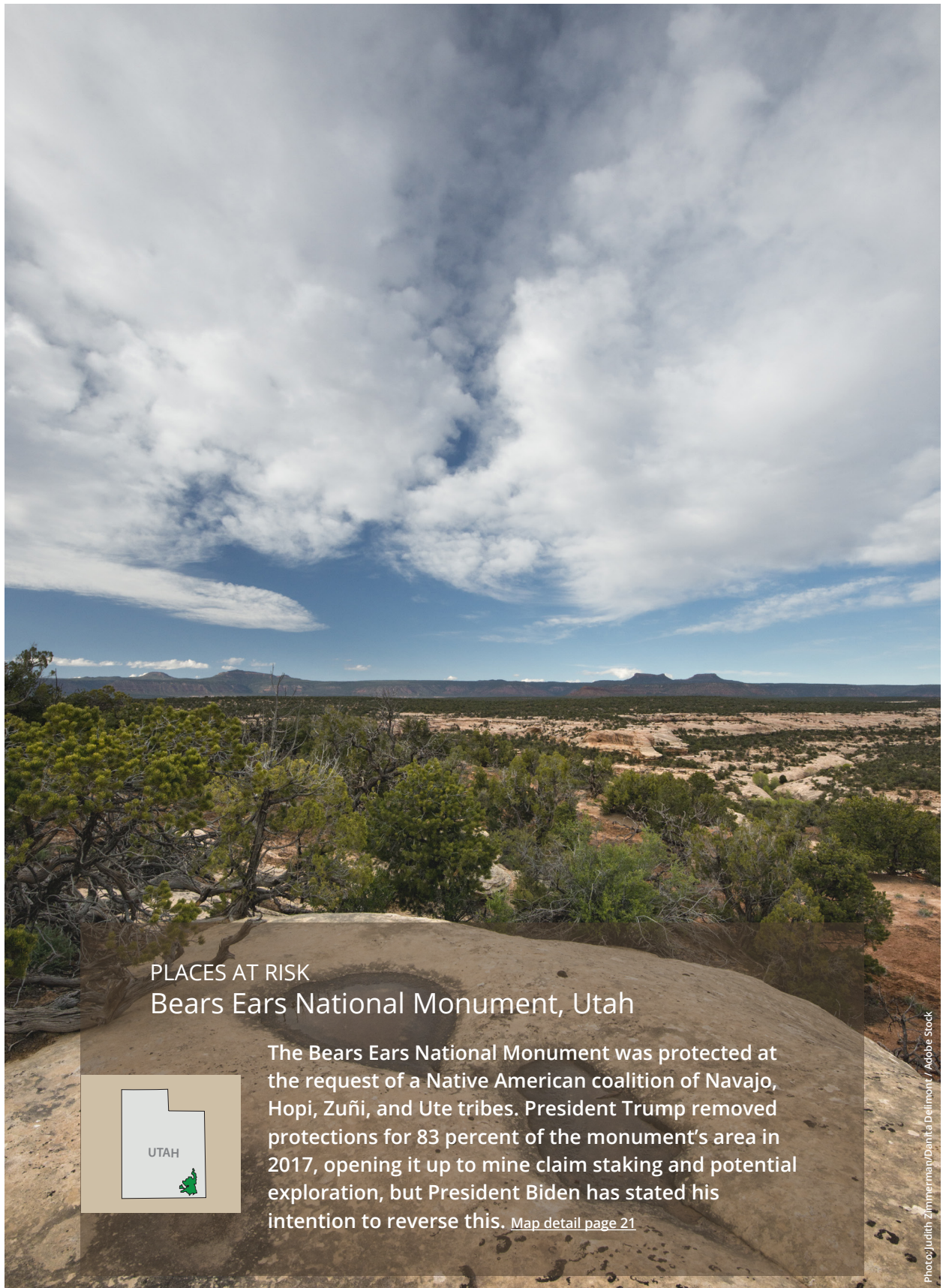


Photo: Ian Dignall / Alamy Stock





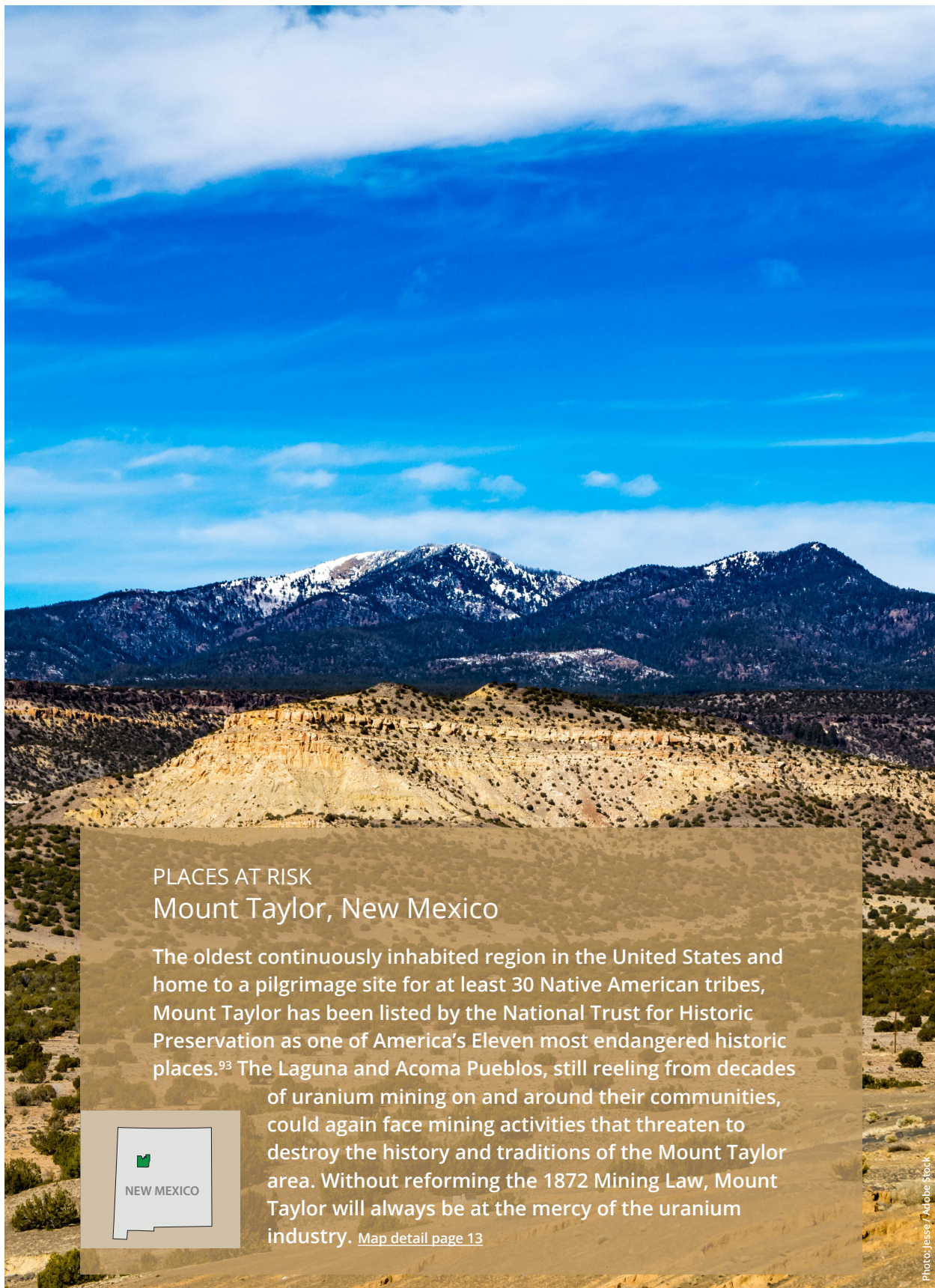
PLACES AT RISK Bears Ears National Monument, Utah



The Bears Ears National Monument was protected at the request of a Native American coalition of Navajo, Hopi, Zuni, and Ute tribes. President Trump removed protections for 83 percent of the monument's area in 2017, opening it up to mine claim staking and potential exploration, but President Biden has stated his intention to reverse this. [Map detail page 21](#)

Photo: Judith Zimmermann/Danita Delmont / Adobe Stock





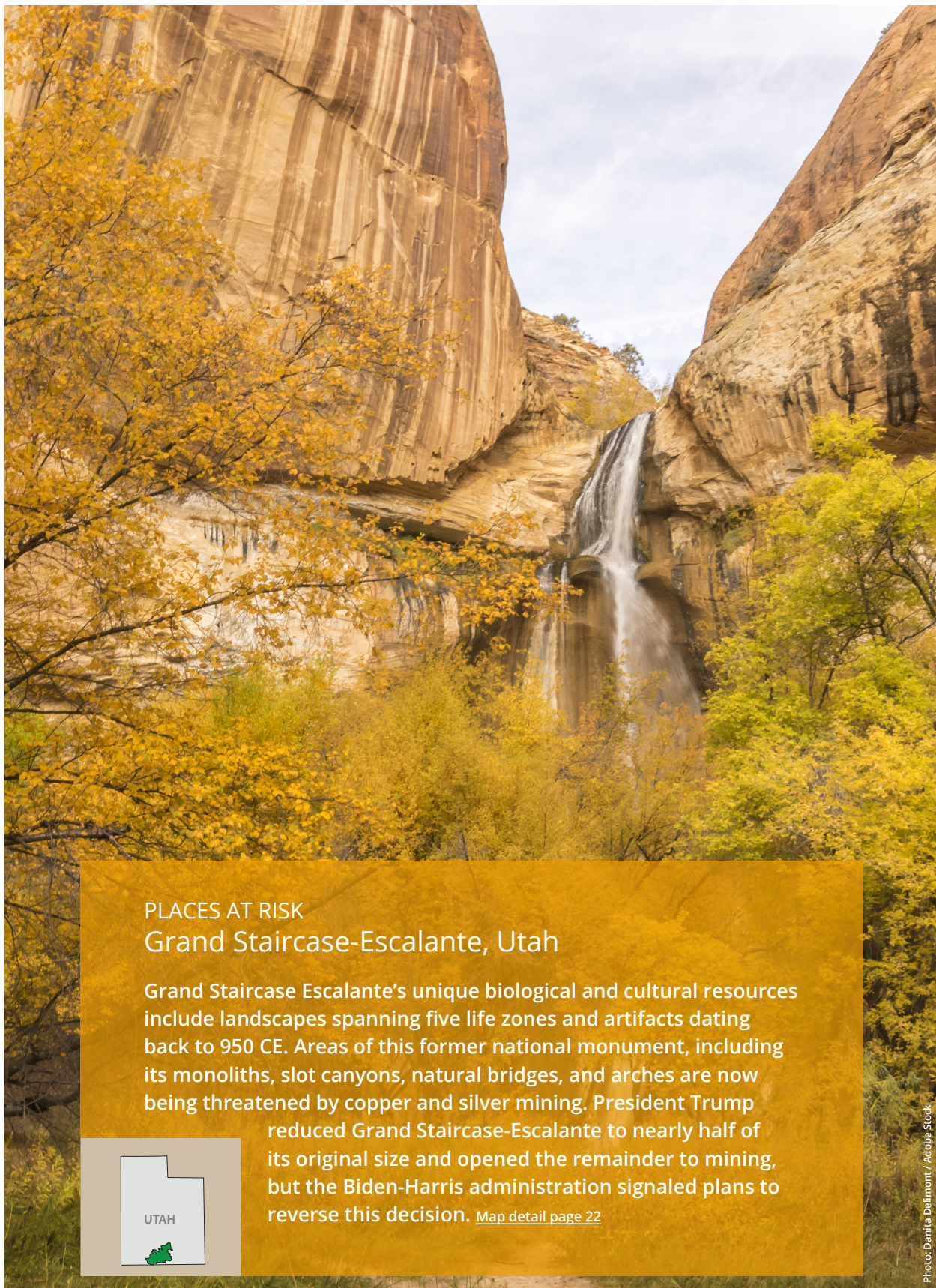
PLACES AT RISK Mount Taylor, New Mexico

The oldest continuously inhabited region in the United States and home to a pilgrimage site for at least 30 Native American tribes, Mount Taylor has been listed by the National Trust for Historic Preservation as one of America's Eleven most endangered historic places.⁹³ The Laguna and Acoma Pueblos, still reeling from decades of uranium mining on and around their communities, could again face mining activities that threaten to destroy the history and traditions of the Mount Taylor area. Without reforming the 1872 Mining Law, Mount Taylor will always be at the mercy of the uranium industry. [Map detail page 13](#)



Photo: Jesse / Adobe Stock





PLACES AT RISK

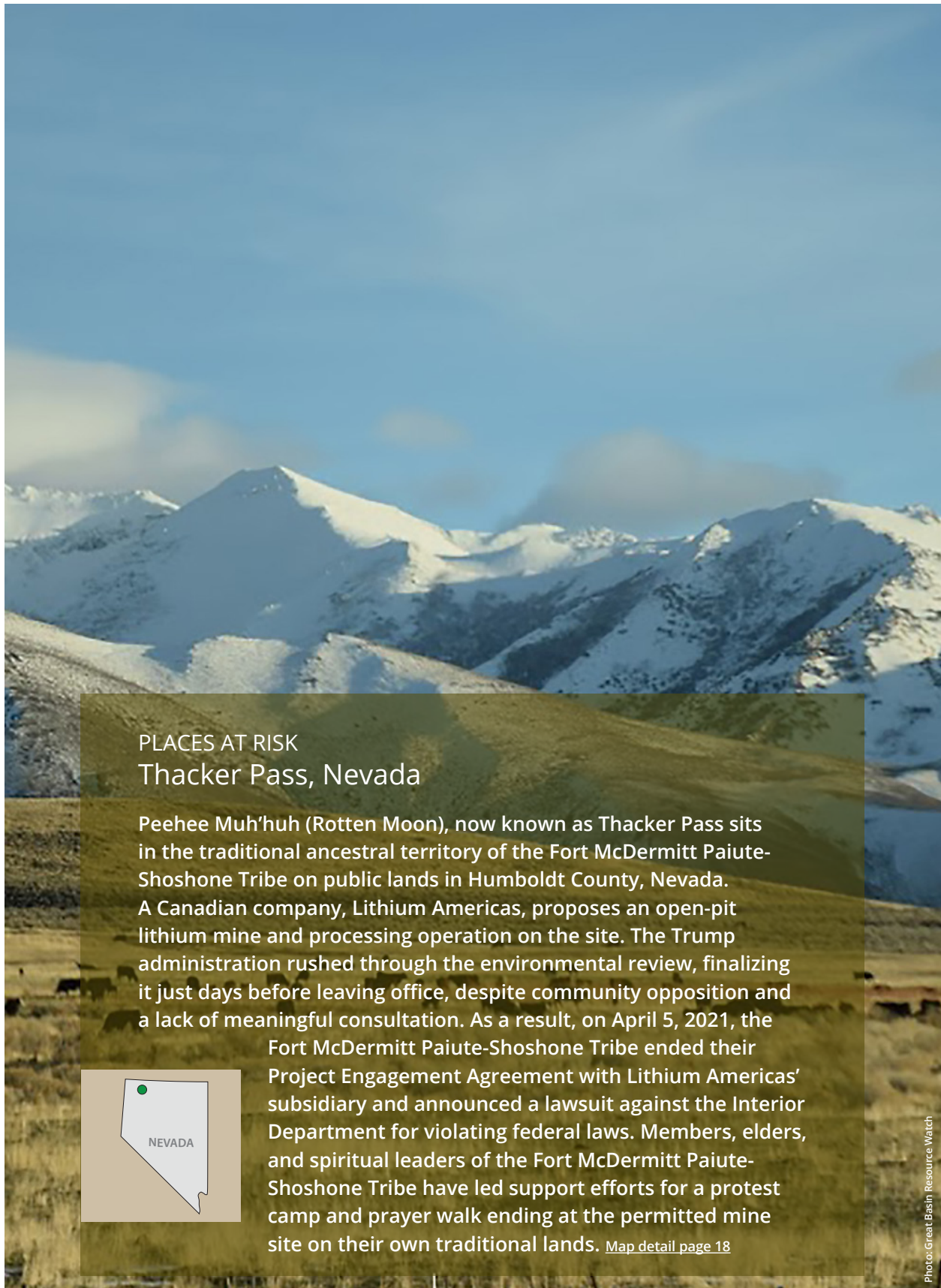
Grand Staircase-Escalante, Utah

Grand Staircase Escalante's unique biological and cultural resources include landscapes spanning five life zones and artifacts dating back to 950 CE. Areas of this former national monument, including its monoliths, slot canyons, natural bridges, and arches are now being threatened by copper and silver mining. President Trump reduced Grand Staircase-Escalante to nearly half of its original size and opened the remainder to mining, but the Biden-Harris administration signaled plans to reverse this decision. [Map detail page 22](#)



Photo: Danita Delimont / Adobe Stock





PLACES AT RISK Thacker Pass, Nevada

Peehee Muh'huh (Rotten Moon), now known as Thacker Pass sits in the traditional ancestral territory of the Fort McDermitt Paiute-Shoshone Tribe on public lands in Humboldt County, Nevada. A Canadian company, Lithium Americas, proposes an open-pit lithium mine and processing operation on the site. The Trump administration rushed through the environmental review, finalizing it just days before leaving office, despite community opposition and a lack of meaningful consultation. As a result, on April 5, 2021, the Fort McDermitt Paiute-Shoshone Tribe ended their Project Engagement Agreement with Lithium Americas' subsidiary and announced a lawsuit against the Interior Department for violating federal laws. Members, elders, and spiritual leaders of the Fort McDermitt Paiute-Shoshone Tribe have led support efforts for a protest camp and prayer walk ending at the permitted mine site on their own traditional lands. [Map detail page 18](#)



Photo: Great Basin Resource Watch



Endnotes

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- 4 U.S. EPA, Liquid Assets 2000 America's Water Resources at a Turning Point.
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- 10 See Budget of the U.S. Government Fiscal Year 2022, Table S-6, Pg 49, "Repeal percentage depletion for hard mineral fossil fuels. 42 U.S.C. § 6921(b)(3)(A)(ii)
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- 13 The Mineral Leasing Act of 1920 (February 25, 1920).
- 14 The Surface Mining Control and Reclamation Act (SMCRA 30 U.S.C. § 25 et seq.) passed in 1977 establishing, among other things, a 7 cents per ton fee on coal mine wastes dedicated to clean up of abandoned mines. States, like Montana, that have certified clean up of their abandoned coal mines often use some SMCRA funds for hardrock abandoned mine clean up as well. However, only coal pays the fee.
- 15 U.S. Government Accountability Office, "Mining on Federal Lands: More Than 800 Operations Authorized to Mine and Total Mineral Production Is Unknown," May 28, 2020, available at: <https://www.gao.gov/assets/710/707200.pdf>
- 16 Taxpayers for Common Sense, "Reforming the 1872 Mining Law: A Taxpayer Perspective," August, 2008, available at: https://www.taxpayer.net/wp-content/uploads/ported/user_uploads/file/Mining/TaxpayerMiningReport_Aug2008.pdf
- 17 Taxpayers for Common Sense, "The Percentage Depletion Allowance (PDA): A Double Giveaway for Hardrock Mining Companies," December 4, 2009, available at: <https://www.taxpayer.net/article/the-percentage-depletion-allowance-pda-a-double-giveaway/>
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- 19 U.S. EPA, Liquid Assets 2000 America's Water Resources at a Turning Point, page 10
- 20 Three early Supreme Court decisions, known as the Marshall trilogy, established the Trust doctrine. Johnson vs. M'Intosh (1823), Cherokee Nation vs. Georgia (1823), and Worcester vs. Georgia (1832).
- 21 30 U.S.C. § 22 et seq.
- 22 Public lands mining is administered through the Departments of Interior and Agriculture at 43 CFR part 3800 et seq. and 36 CFR part 228, respectively.
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- 25 U.S. Bureau of Land Management, David Williams, "Climate Change: Extreme Conditions: Do Plans of Operations Need to Include an Ark?" presented at Montana Tech, Mine Design Operations and Closure Conference 2012: https://www.mtech.edu/mwtp/2012_presentations/Dave%20Williams.pdf
- 26 Alaska Department of Natural Resources and Alaska Department of Environmental Conservation require an operator to complete an independent, third-party environmental audit during the approved permit cycle (typically 5 years) as a condition of their reclamation and waste management permits.



EARTHWORKS

JUST MINING: SAFEGUARDING PROTECTIONS FOR COMMUNITY RIGHTS, SACRED PLACES, AND PUBLIC LANDS FROM THE UNFOUNDED PUSH FOR MINING EXPANSION
Why a responsible renewable energy transition hinges on mining law reform
earthworks.org/just-minerals

- 27 The Alaska Department of Natural Resources large mine permitting team posts the requisite information on the state's website for public review at: <http://dnr.alaska.gov/mlw/mining/largemine/>
- 28 See Taxpayers for Common Sense: Understanding Nuclear Subsidies, Feb, 12, 2021. Available at: <https://www.taxpayer.net/energy-natural-resources/report-understanding-nuclear-energy-subsidies/>
- 29 See <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/02/24/executive-order-on-american-supply-chains/>
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- 31 See <https://www.dla.mil/Portals/104/Documents/Strategic%20Materials/DNSC%20History.pdf>
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- 36 https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds431_e.htm
- 37 GAO-10-617R Rare Earth Materials in the Defense Supply Chain
- 38 Federal Register :: A Federal Strategy To Ensure Secure and Reliable Supplies of Critical Minerals In May 2018, USGS finalized their list of critical minerals including 17 rare earth minerals and 6 platinum group metals totaling 56 individual elements.
- 39 Federal Register :: Addressing the Threat to the Domestic Supply Chain From Reliance on Critical Minerals From Foreign Adversaries and Supporting the Domestic Mining and Processing Industries
- 40 Trump tells Pentagon to find better sources of rare earth magnet | Reuters
- 41 DOD Announces Rare Earth Element Awards to Strengthen Domestic Industrial Base > U.S. DEPARTMENT OF DEFENSE > Release
- 42 DOD subsidizes mineral processing activities at the Little Round Top Mountain project a quarter mile west of Sierra Blanca Mountain in Texas. Concerned residents living near the area worry about potential water impacts from sulfuric acid heap leach operations and potential air impacts from windblown crushed rock (20,000 tons/day) containing radioactive elements. Consistent with our proposed mining rule reforms for public lands, DOD and other agencies within the critical mineral industrial complex should also protect community and climate interests. See also Lynas to feed new US plant with Kalgoorlie rare earths - Australian Mining
- 43 U.S. Companies Vie for Funds in Race to Build Rare Earths Industry - The New York Times (nytimes.com)
- 44 Uranium Miners Pushed Hard for a Comeback. They Got Their Wish. - The New York Times (nytimes.com)
- 45 See, Salt Lake Tribune Op-Ed (3/10/21): Amber Reimondo: Taxpayer dollars shouldn't keep uranium mill afloat
- 46 Jobs, Jobs, Jobs! Rep. Amodei Reintroduces Critical Minerals Legislation, Western Caucus Slams Grijalva's Anti-Mining Bill | Congressional Western Caucus (house.gov)
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- 52 Section 5(h) of the America's Supply Chains Executive Order
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