The Prudent Man and the Public Trust

Redefining 'Valuable Mineral Deposits' at the Intersection of Marketability, Extraction Costs, and Ecosystem Services

George Steward

Oregon State University

FES 585

May 2026

1. Introduction

The General Mining Act of 1872 is one of the most enduring pieces of American public land law. Drafted during an era of frontier expansion, it was built to encourage settlement of the West and extraction of the nation's mineral wealth. The law declared that "all valuable mineral deposits in lands belonging to the United States... shall be free and open to exploration and purchase" (30 U.S.C. § 22). For over a century, the phrase "valuable mineral deposit" has been the legal fulcrum on which the validity of unpatented mining claims rests (United States v. Clouser, 1998). But the 1872 statute provided no geological, metallurgical, or economic definition of what makes a deposit "valuable." That ambiguity left the federal courts and the Department of the Interior to construct a workable standard that could adapt to changing economic realities and national priorities.

This analysis traces the jurisprudence surrounding the discovery requirement of the 1872 Mining Act. It follows the "Prudent Man Rule" from its origin in the late nineteenth century to its refinement through the "Marketability Test" in the mid-twentieth century (Castle v. Womble, 1894). The analysis examines modern economic realities of mineral extraction, identifying administrative precedents from the Interior Board of Land Appeals (IBLA) where mining claims were invalidated not because minerals were absent, but because the compounding costs of extraction, environmental compliance, and labor rendered the deposits non-economic (United States v. Clouser, 1998).

The report then synthesizes these historical and economic vectors to define an emerging legal "gray zone." In an era defined by the monetization of ecosystem services, the implementation of the Social Cost of Carbon (SCC) in federal accounting, and volatile commodity markets, a novel defensive posture exists for mining claimants. By

leveraging the legal allowance for historical price fluctuations against the contemporary valuation of natural capital, a claimant may maintain the validity of a mineral discovery while arguing that the current "highest and best use" of the land requires delaying physical extraction (Righetti & Lewis, 2025). The 1872 Mining Act, despite its antiquated origins, can be retrofitted to navigate the intersection of private mineral rights and broader public economic interests, particularly amid the regulatory whiplash of federal land management in the mid-2020s (Trump Administration Kills Rule, 2026).

2. The 1872 General Mining Act and the Nature of Unpatented Claims

To understand the threshold for claim invalidation, one must first understand the property rights established by the General Mining Act of 1872. The statute governs hardrock mining, including gold, silver, copper, and platinum, on hundreds of millions of acres of federal public lands, primarily in the American West and Alaska (Earthworks, 2022). The law operates on a self-initiation basis: individuals and corporations may enter open public domain lands, prospect for minerals, and stake claims upon discovery (USDA Forest Service, 2021).

An unpatented mining claim grants the claimant a unique possessory interest. Provided a claimant makes a valid discovery and complies with applicable state and federal regulations, the owner of an unpatented mining claim possesses the exclusive right to extract minerals from the ground, even though the federal government retains fee simple title to the underlying land (In re United States Court of Federal Claims, 2011). As established by the Supreme Court in Best v. Humboldt Placer Mining Co. (1963), an unpatented claim is a possessory interest in land that is "mineral in character" (Best v.

Humboldt Placer Mining Co., 1963). Federal courts have consistently affirmed that valid unpatented mining claims are property protected by the Fifth Amendment's prohibition against uncompensated takings (Best v. Humboldt Placer Mining Co., 1963).

This property right is neither absolute nor immune from administrative challenge. The federal government maintains broad powers over the terms and conditions upon which public lands are used, and a claimant's rights are contingent on strict adherence to the Mining Act (Best v. Humboldt Placer Mining Co., 1963). Chief among these requirements is "discovery." Prior to a confirmed discovery, a prospector is protected against rival private claimants by the doctrine of pedis possessio: the right of physical possession while actively and peaceably searching for minerals (Convergent Mining, 2023). But pedis possessio offers no protection against the federal government. The United States can initiate a contest proceeding at any time to challenge a claim for lack of a valid discovery, and if the claimant fails to prove that a valuable mineral deposit exists, the claim is declared null and void ab initio (Convergent Mining, 2023).

3. The Evolution of Discovery: From Prudence to Profitability

3.1 Castle v. Womble and the Genesis of the Prudent Man Rule

For the first two decades after the passage of the 1872 Act, the definition of a "valuable mineral deposit" was loosely interpreted, often relying on mere geological inference. In 1894, the Department of the Interior established the foundational interpretation of this requirement in Castle v. Womble, 19 L.D. 455 (Castle v. Womble, 1894). Facing increasing disputes over public land, the Secretary of the Interior articulated a standard that became known as the "Prudent Man Rule."

The decision stated that a valid discovery is achieved "where minerals have been found and the evidence is of such a character that a person of ordinary prudence would be justified in the further expenditure of his labor and means, with a reasonable prospect of success, in developing a valuable mine" (Castle v. Womble, 1894). The Prudent Man Rule was ratified by the Supreme Court in Chrisman v. Miller, 197 U.S. 313 (1905), embedding the concept of "prudence" into federal mining law (United States v. Clouser, 1998). The standard shifted the focus from a pure geological assessment to a behavioral one: would a rational, economically motivated individual risk their own time and capital to develop the site? If the answer was yes, the statutory requirements were met (Debate Within and Debate Without, 1973).

3.2 United States v. Coleman and the Marketability Test

As the twentieth century progressed, the subjectivity of "ordinary prudence" required a more rigorous economic metric. The increasing scarcity of public land and the rise of competing uses, such as timber harvesting, recreation, and residential development, led to abuses of the mining law: individuals staked claims not to mine, but to control surface resources (GAO, 1974). This culminated in the Supreme Court's decision in United States v. Coleman, 390 U.S. 599 (1968) (United States v. Coleman, 1968).

The Coleman Court tied prudence to objective profitability, formalizing the "Marketability Test." The Court observed that Congress intended the 1872 Act to reward and encourage the discovery of minerals that are "valuable in an economic sense" (United States v. Coleman, 1968). The Court reasoned that "minerals which no prudent man will

extract because there is no demand for them at a price higher than the cost of extraction and transportation are hardly economically valuable" (United States v. Coleman, 1968).

The Marketability Test was framed not as a departure from the Prudent Man Rule, but as its logical refinement (United States v. Coleman, 1968). The Coleman Court stated that profitability is an essential consideration in applying the prudent man test, because a prudent man does not develop a mine merely to break even or operate at a loss (United States v. Coleman, 1968). This standard changed the adjudication of mining claims. A claimant could no longer prove merely that a mineral existed in sufficient physical quantity; they had to prove, as a present economic fact, that the mineral could be extracted, processed, and marketed at a net profit (United States v. Clouser, 1998).

3.3 The Distinct Burden for Minerals of Widespread Occurrence

The Marketability Test became particularly stringent for non-metallic minerals of widespread occurrence, such as sand, gravel, pumice, and building stone. Because these materials are ubiquitous, the Department of the Interior recognized a heightened risk that claims for these materials were subterfuges to acquire public land (Colorado Law Review, 1968).

In cases involving common varieties, the prudent man test requires that an actual, existing market for the specific mineral be affirmatively demonstrated by the locator (Wyoming Law Journal, 1968). As noted in early departmental decisions like Layman v. Ellis (1929), the claimant must justify possession by proving accessibility, proximity to a specific market, and the existence of present demand (Wyoming Law Journal, 1968). The Coleman decision reaffirmed this, noting that the immense quantities of identical stone found outside the contested claims raised a substantial question regarding the claimant's

true intention, which appeared to be acquiring 720 acres in a scenic national forest to build a residence rather than operate a bona fide mine (United States v. Coleman, 1968). The Marketability Test serves as both an economic filter and a mechanism to verify the claimant's good-faith intention to engage in genuine mining.

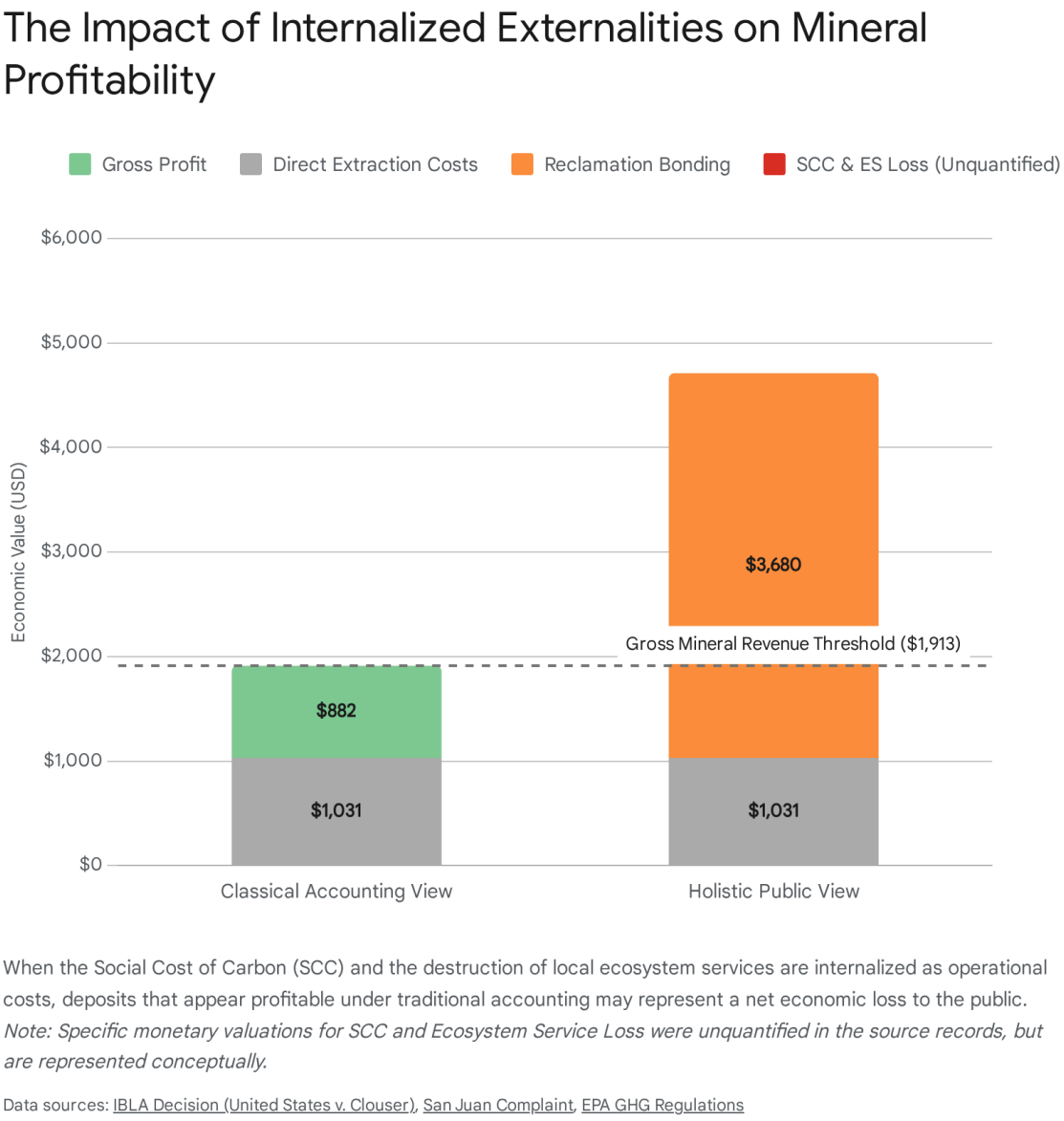

Figure 1: The Impact of Internalized Externalities on Mineral Profitability

4. Invalidation Through Economics: When Extraction Costs Eviscerate Value

The application of the Marketability Test has invalidated numerous mining claims in federal contest proceedings. In these cases, the geological presence of mineralization was confirmed, but the extraction costs rendered the deposit uneconomic. The legal framework requires that a valuable mineral deposit demonstrate a reasonable likelihood that the gross value of the extracted mineral exceeds the cumulative costs of extracting, transporting, processing, and marketing it (United States v. Clouser, 1998).

4.1 Case Study in Economic Failure: United States v. Clouser

A clear application of this economic threshold is found in the IBLA decision United States v. Clouser, 144 IBLA 110 (1998) (United States v. Clouser, 1998). In Clouser, the federal government contested the validity of six lode mining claims (the Robert E. Nos. 1 through 6) located within the Siskiyou National Forest in Curry County, Oregon (United States v. Clouser, 1998). The lands had been designated as part of the Kalmiopsis Wilderness Area in 1964 and withdrawn from new mineral entry effective December 31, 1983. The claimants bore a dual burden: they had to prove that a valid discovery existed both at the time of the statutory withdrawal and at the time of the administrative hearing (United States v. Clouser, 1998).

The geological presence of gold within the claim boundaries was largely undisputed by the government's mineral examiners. The case hinged on the economic viability of extracting that gold. The IBLA conducted a forensic economic analysis of the

claimants' proposed mining operations, isolating a deposit identified in an area known as the "Stope West Drift" (United States v. Clouser, 1998).

The physical metrics of the deposit were small but verifiable. The deposit was estimated to contain 29.6 tons of ore (United States v. Clouser, 1998). Based on recovery rates of 0.167 ounces of gold per ton, and applying the prevailing market gold price of $387 per ounce, the total expected gross return was calculated at 4.94 ounces of gold (United States v. Clouser, 1998). This equated to a maximum potential gross revenue of $1,913 (United States v. Clouser, 1998).

Against this finite gross revenue, the IBLA weighed the mandatory operational and regulatory costs. A critical point of contention was the calculation of labor. The claimants argued that their costs were low because they operated as a small, independent venture and proposed using the federal minimum wage rate of $5.64 per hour (United States v. Clouser, 1998). The Board rejected this premise. The IBLA ruled that the "prudent man" standard requires applying objective, prevailing industry labor rates, regardless of the claimants' willingness to work for less. The Board applied the prevailing wage rate for miners in the western states, $12.11 per hour, supplemented by approximately $4 per hour in mandatory fringe benefits (United States v. Clouser, 1998).

Using this standardized labor cost against the $387 per ounce gold price, the Board calculated a minimum economic cut-off grade of 0.168 ounces per ton required to break even (United States v. Clouser, 1998). The Stope West Drift deposit, at 0.167 ounces per ton, was already at the threshold of non-viability based on labor alone.

The Board then integrated mandatory regulatory compliance into the extraction cost. Testimony during the hearing established that the costs of environmental permitting

and reclamation bonding would total an estimated $3,680 in the first year alone (United States v. Clouser, 1998).

When total operational costs, comprising realistic labor, essential supplies, and permitting and bonding fees, were subtracted from the projected $1,913 in gross revenue, the extraction of the 29.6-ton deposit resulted in a net economic loss (United States v. Clouser, 1998).

The IBLA concluded that because the claimants failed to demonstrate that the claims encompassed mineralization that could be extracted, processed, and marketed at a profit, they could not justify a "prudent man" in further investment of labor and means (United States v. Clouser, 1998). The claims failed the Marketability Test and were declared null and void (United States v. Clouser, 1998). The Clouser decision establishes a critical precedent: the cost of compliance with federal environmental regulations, alongside objective labor assessments, constitutes a direct and often fatal "extraction cost" within the Marketability Test framework.

4.2 The Limits of Marketability: The "Too Much" Rule and Baker v. United States

While cases like Clouser used the Marketability Test to invalidate claims based on high extraction costs, administrative attempts to weaponize the test by invoking market saturation have met judicial resistance. For widespread, non-metallic minerals, the Department of the Interior has attempted to invalidate claims by arguing that the claimant has located quantities of a mineral far in excess of reasonably anticipated market needs: a doctrine colloquially termed the "too much" rule (Interior Department Solicitor's Opinion, 1996).

The federal courts have placed strict boundaries on the use of marketability to defeat claims in this manner. In Baker v. United States (1980), the Ninth Circuit Court of Appeals reviewed an IBLA decision that had invalidated two mining claims based on this "too much" rationale (Baker v. United States, 1980). The claimant had satisfied both the Prudent Man and Marketability tests, proving that his cinder claims were profitable and possessed a present market, but the IBLA ruled he held excessive reserves relative to the local demand (Baker v. United States, 1980).

The Ninth Circuit rejected this administrative extension, vacating the district court's dismissal. The court held that there is no statutory basis in the existing mining laws to support the "too much" rule (Baker v. United States, 1980). If a claimant can prove present marketability and profitability, the Department of the Interior is not authorized to arbitrarily limit the number of claims they may hold or the volume of minerals they may extract (Baker v. United States, 1980). This ruling reinforces the binary nature of the economic threshold: while the profitability requirement is strict, once it is proven, the scale of the claim is protected by statute, provided the claimant continues to act in good faith.

5. Managing Market Volatility: The Pacific Coast Molybdenum Doctrine

The vulnerability of mining claims to invalidation under the Marketability Test is compounded by the nature of global commodity markets. Mineral commodities are volatile, subject to boom-and-bust cycles dictated by geopolitical events, technological shifts, and macroeconomic trends. The strict interpretation of "present marketability"

raises a legal question: does a valid, long-standing mining claim become null and void the moment the commodity price dips below the cost of extraction on any given Tuesday?

5.1 Temporary Cyclical Depressions vs. Permanent Structural Shifts

The Interior Board of Land Appeals addressed this in In re Pacific Coast Molybdenum Co., 75 IBLA 16 (1983) (United States v. Clouser, 1998). The Board clarified the temporal scope of the Marketability Test, ruling that the requirement for a mineral deposit to be "presently marketable at a profit" does not demand a myopic examination of cost and price factors captured at a "specific, finite moment of time, without reference to other economic factors" (In re Pacific Coast Molybdenum Co., 1983).

Instead, the IBLA established a macroeconomic standard. A mining claimant must demonstrate that, as a present fact, "considering historic price and cost factors and assuming that they will continue, there is a reasonable likelihood of success that a paying mine can be developed" (United States v. Clouser, 1998). The Board drew a legal distinction between normal, cyclical market fluctuations and structural changes in the global economy (Decisions of the Department of the Interior, 1994).

The IBLA reasoned that if the price of a mineral falls due to a temporary, cyclical depression, a prudent miner would not abandon a proven, heavily capitalized deposit (United States v. Clouser, 1998). Standard industry practice dictates that the operator would suspend active extraction, place the mine in a care-and-maintenance status, and hold the property in anticipation of market recovery (Decisions of the Department of the

Interior, 1994). Under the Pacific Coast Molybdenum doctrine, such a temporary price drop does not destroy the statutory discovery or invalidate the claim (DOI, 1987).

Conversely, if a structural shift occurs within the industry, such as the invention of a cheaper synthetic substitute, the depletion of the primary ore body, or the permanent technological obsolescence of the mineral itself, historical conditions are no longer a reliable guide to present marketability (Decisions of the Department of the Interior, 1994). In the event of a structural shift, the claim cannot rely on historical pricing models to satisfy the Marketability Test and may be invalidated by the Department of the Interior.

5.2 The "Good Faith" Requirement and Assessment Work

The Pacific Coast Molybdenum doctrine preserves a claimant's "good faith" standing during economic downturns (House Committee on Resources, 1998). The 1872 Mining Act requires claimants to perform annual assessment work (or pay maintenance fees) on each claim to prevent speculative hoarding of public lands (House Committee on Resources, 1998). The purpose of this assessment work is to ensure that the claim is held in good faith, with actions "tending to develop the claim and directly helping in the extraction of minerals" (Interior Department Solicitor's Opinion, 1997). A claim can be invalidated upon a showing that it was not located or held in good faith for mining purposes (Federal Register, 1998).

Under Pacific Coast Molybdenum, holding a claim in good faith during a period of depressed prices does not require economically irrational behavior. A claimant is not forced to mine at a loss to prove intent. Maintaining regulatory compliance, performing assessment work such as geological surveys or maintaining infrastructure, and awaiting

optimal market conditions fulfill the Prudent Man Rule. It is, by definition, economically prudent to wait (Bureau of Land Management, 2017).

6. The Modern Cost of Extraction: Internalizing Environmental Externalities

As established in Clouser, environmental compliance costs are not theoretical; they are integrated into the Marketability Test as concrete extraction costs (United States v. Clouser, 1998). Modern mining operations on federal land must comply with an increasingly rigid framework of environmental regulations, most notably the Federal Land Policy and Management Act of 1976 (FLPMA). FLPMA mandated that the Secretary of the Interior take any action necessary to prevent "unnecessary or undue degradation" of public lands (DOI, 1987).

6.1 The Historical Burden and the Drive for Compliance

The modern regulatory environment is a direct response to the legacy of the 1872 Mining Act. The original statute contained zero provisions for ecological safeguarding or mandatory post-extraction cleanup (Earthworks, 2022). The environmental toll has been significant. Hardrock mining has polluted an estimated 40% of the headwaters of watersheds in the western United States (Earthworks, 2022). The American landscape is littered with hundreds of thousands of abandoned mines. The EPA estimates that the cost to taxpayers to clean up these sites exceeds $50 billion (Earthworks, 2022).

The financial structure of the 1872 Act compounds this issue. It allows mining interests to extract taxpayer-owned minerals without paying federal royalties, unlike the coal, oil, and gas industries, which are governed by the Mineral Leasing Act of 1920

(Earthworks, 2022). While the industry argues for net royalties based on gross yield less deductions for extraction, transport, and environmental compliance (U.S. Senate Committee on Energy and Natural Resources, 2008), the lack of a dedicated federal royalty stream has left the government shouldering the burden of remediation.

6.2 Regulatory Compliance and Reclamation Bonding

Modern federal land managers require financial guarantees before any ground disturbance occurs. Prior to commencing physical extraction, an operator must submit a comprehensive plan of operations and secure a reclamation bond (eCFR, 2024). Whether regulated by the BLM under 43 CFR section 3809 or by the Forest Service under 36 CFR section 228, these bonds ensure that the regulatory authority has sufficient funds to reclaim the site if the permittee defaults or declares bankruptcy (OSMRE, 2020).

The calculation of reclamation bonds represents a localized extraction cost (USDA Forest Service, 2004). The authorized officer must consider the estimated cost of stabilizing the topography, mitigating toxic runoff, treating water in perpetuity, and reclaiming all disturbed areas (eCFR, 2024). If the estimated cost of reclaiming the land is high due to geological complexity, tailings toxicity, or the ecological sensitivity of the surrounding area, the requisite bond may push total operational capitalization requirements above the projected gross revenue of the mineral deposit. As in Clouser, this renders the claim non-economic and legally invalid under the Marketability Test (United States v. Clouser, 1998).

6.3 The Horizon of Extraction Costs: The Social Cost of Carbon

While localized reclamation costs are well established within the IBLA framework, the frontier of environmental economics, and potentially the future of mining law, lies in the internalization of broader global externalities, specifically greenhouse gas emissions. The Social Cost of Carbon (SCC) is a metric used by federal agencies to quantify the long-term economic damage caused by each ton of CO2 emitted (Epstein et al., 2011). Current estimates vary, but benchmark models used in federal analysis range from $10 to $100 per ton of CO2e (Epstein et al., 2011).

Federal agencies are under pressure to integrate the SCC into their National Environmental Policy Act (NEPA) reviews and cost-benefit analyses (Federal Register, 2024). In challenges to federal oil and gas leasing in the San Juan Basin, plaintiffs have argued that agencies must account for the SCC when assessing the economic viability and environmental impact of extracting fossil fuels (Center for Agricultural and Shale Law, 2016). If the extraction, processing, and transportation of a mineral deposit result in greenhouse gas emissions, the monetization of those emissions via the SCC represents an "external cost" (Center for Agricultural and Shale Law, 2016).

Current IBLA jurisprudence has not yet routinely used the SCC to invalidate hardrock mining claims under the 1872 Act. But prevailing economic theory dictates that a truly efficient market must internalize these externalities to assess societal welfare (U.S. EPA, 2010). If the SCC were factored into the "extraction cost" of the Marketability Test, the economic viability of countless deposits would evaporate (U.S. EPA, 2010). The theoretical cost to the public, via quantified climate damage, would exceed the private

revenue generated by the mineral, failing the Prudent Man standard when viewed through a societal lens (International Seabed Authority, 2023).

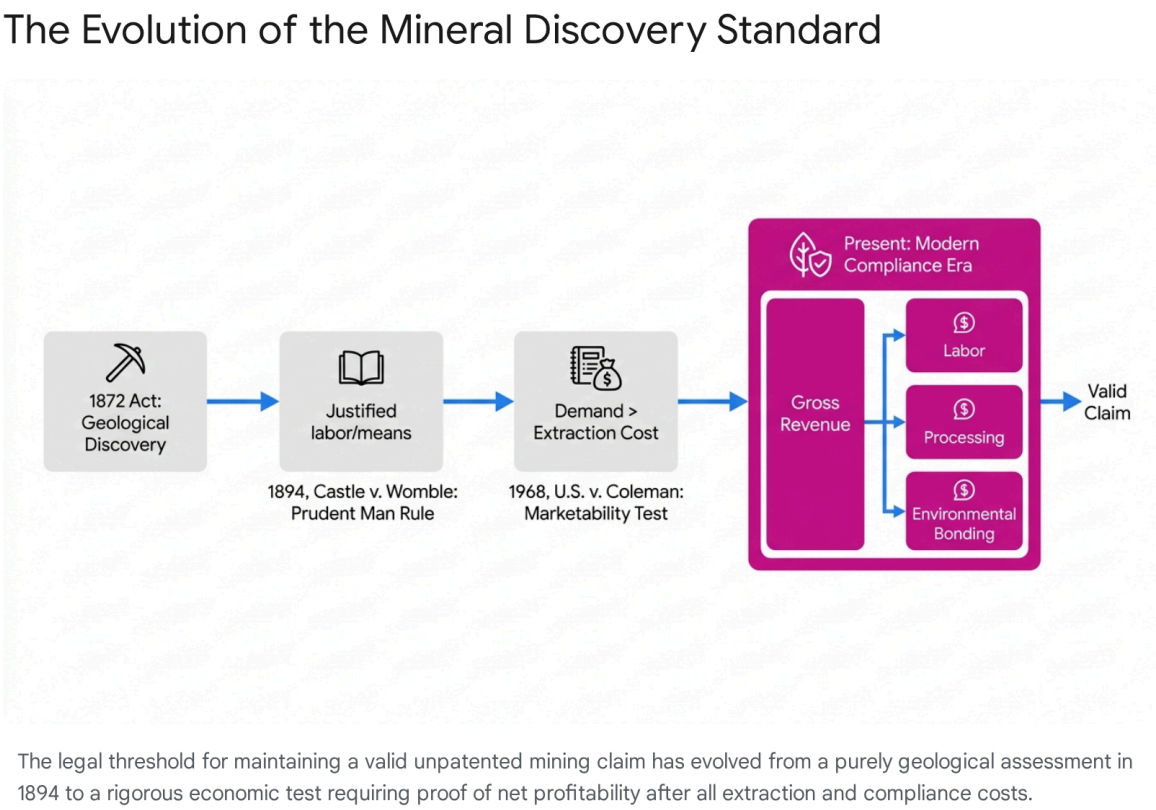

Figure 2: The Evolution of the Mineral Discovery Standard

7. The Paradigm Shift: Competing Values and "Highest and Best Use"

The integration of environmental and societal costs challenges the historical presumption of the 1872 Act. For over a century, federal land management operated under the doctrine that mining inherently constituted the "highest and best use" of public domain lands (Earthworks, 2021). Under this framework, public agencies were often

compelled to permit mineral extraction despite evidence that a specific parcel might be better suited for recreation, watershed protection, or conservation (Earthworks, 2021).

7.1 Valuing Ecosystem Services

Modern environmental economics and federal land appraisal standards have eroded the dominance of the mining presumption. "Highest and best use" is defined in federal appraisal standards as the most probable and legal use of a property, based on objective market evidence as of the date of valuation, that yields the highest value (USDA Forest Service, 2019). Economists and land managers increasingly recognize that this highest value is not necessarily found in the extraction of the subsurface mineral estate, but in the preservation of the intact surface ecology.

Ecosystem services are the quantifiable benefits that nature provides to human well-being and the broader economy. These services are categorized into four areas: provisioning services (food, fiber, water), regulating services (climate regulation, carbon sequestration, flood control), cultural services (tourism, recreation, spiritual value), and habitat services (biodiversity maintenance) (Wageningen University & Research, 2014).

Because many of these services act as public goods, they have historically been unpriced and overlooked in traditional economic decisions and mining appraisals (U.S. Geological Survey, 2021). But the absence of a market price does not equate to an absence of economic value. The destruction of a natural wetland or old-growth forest for an open-pit mining operation permanently eliminates natural water filtration systems and storm barriers. This destruction transfers billions of dollars in subsequent water treatment and disaster mitigation costs onto the public ledger (International Seabed Authority, 2023).

The role of federal lands in global climate mitigation is becoming a central economic focus. The federal government is the single largest owner of subsurface pore space in the United States (Righetti & Lewis, 2025). This contiguous, basin-scale pore space is essential for commercial-scale geologic carbon sequestration, a technology vital to achieving national net-zero objectives (Righetti & Lewis, 2025). If land is prioritized for destructive hard rock mining, its capacity for carbon storage, a valued ecosystem service, is compromised.

7.2 Regulatory Whiplash: The Public Lands Rule of 2024 to 2026

The tension between traditional extraction and modern ecosystem preservation reached a regulatory climax in the mid-2020s. The Biden Administration's Bureau of Land Management implemented the Conservation and Landscape Health Rule (the Public Lands Rule) in 2024 (Inside Climate News, 2026). This regulation sought to operationalize the "multiple use" mandate of FLPMA by elevating conservation to a legitimate use on par with drilling, mining, logging, and grazing (KSL.com, 2026). It introduced "restoration and mitigation leasing," allowing private entities to lease public lands to protect ecosystem services such as natural carbon storage, balancing the scales against the historical dominance of extraction (Inside Climate News, 2026).

The political landscape shifted. The second Trump Administration rescinded the Public Lands Rule in May 2026 (Inside Climate News, 2026). The Department of the Interior justified the repeal by arguing that the 2024 rule had inappropriately elevated conservation, threatening to "restrict productive use of the public lands and introduce uncertainty and unnecessary burdens in planning and permitting" (Inside Climate News, 2026).

The 2026 rescission reaffirmed a policy of "American Energy Dominance," prioritizing domestic mineral and energy production, cutting regulatory requirements, and viewing conservation leasing as an impediment to the statutory intent of public land utilization (Inside Climate News, 2026). This volatile regulatory environment, swinging from aggressive conservation mandates to aggressive extraction mandates within two years, creates legal uncertainty. For mining claimants navigating the 1872 Act, this whiplash alters the strategic calculus of locating, holding, and developing a mineral claim.

8. Synthesizing the "Gray Zone": A Defensive Strategy for Claimants

The convergence of these legal and economic vectors, the Marketability Test, the Pacific Coast Molybdenum doctrine, the monetization of ecosystem services and the SCC, and the volatile political climate exemplified by the 2026 repeal of the Public Lands Rule, creates a legal paradox. This paradox produces an unexploited "gray zone" within the architecture of the 1872 Mining Act.

Consider a scenario in which a defensive claimant, a mining entity focused on ESG metrics, a tribal coalition seeking to protect sacred lands, or a conservation trust secures an unpatented claim to a proven deposit of critical minerals. The claimant satisfies the geological requirement of the Prudent Man Rule. But they face opposing pressures: environmental groups demanding the invalidation of the claim due to ecological risks on one side, and a pro-extraction administration pushing for immediate development on the other (Grand Canyon Trust, 2021).

To maintain legal control of the land without triggering destructive extraction, the claimant can construct a defensive legal posture by turning the Marketability Test inward. The claimant argues that the current "highest and best use" of the unpatented claim is not immediate mining, but preservation of the overlying ecosystem services, banking the minerals for a more technologically advanced future.

The strategic legal argument proceeds through four steps:

8.1 Step 1: Proving Geological Presence and Securing the Claim

The defensive claimant provides drilling data and geological assays confirming a high-grade ore body. They establish the mineral's physical presence, thereby initiating possessory rights against rival locators (Convergent Mining, 2023).

8.2 Step 2: Internalizing the Macro-Economic Loss

Instead of downplaying costs as the claimants attempted in Clouser, the defensive claimant voluntarily adopts a holistic economic accounting model. They present data demonstrating that if they were to mine today, the true cost of extraction would be extreme. They incorporate prevailing labor rates, maximum baseline reclamation bonding (United States v. Clouser, 1998), the Social Cost of Carbon emitted by heavy machinery and processing (U.S. EPA, 2010), and the quantified economic loss of disrupted ecosystem services: loss of water filtration, carbon sequestration in old-growth timber (International Seabed Authority, 2023). They prove that these cumulative costs exceed the current spot price of the mineral, making immediate extraction a net economic loss for both the private operator and the public.

8.3 Step 3: Invoking Cyclical Delay as Prudence

Under the classic application of the Marketability Test, this net-loss calculation would render the claim null and void (United States v. Clouser, 1998). The claimant pivots and invokes the Pacific Coast Molybdenum doctrine (In re Pacific Coast Molybdenum Co., 1983). They argue that the current unprofitability is temporary: current extraction technologies are too carbon-intensive, and the current market price does not yet reflect the inevitable future scarcity of the critical mineral.

8.4 Step 4: Reconciling Good Faith with Conservation

The claimant concludes that a "person of ordinary prudence" would not initiate a financially destructive and environmentally damaging operation today (Castle v. Womble, 1894). A prudent operator, acting in good faith and in alignment with broader public economic interests, would delay physical extraction until technological advancements reduce the carbon intensity of mining, or until global commodity prices rise to offset the fully internalized environmental costs (Decisions of the Department of the Interior, 1994).

By arguing this framework, the claimant places the regulatory agency in a legal gray zone. The claimant proves they are a "prudent man" precisely because they refuse to mine under current economic and ecological conditions. They maintain the validity of the mineral discovery and their exclusive possessory rights (Pacific Legal Foundation, 2016), satisfy the requirement to hold the claim in good faith (Interior Department Solicitor's Opinion, 1997), and simultaneously protect the land's ecosystem services and carbon sequestration capacity. The deposit is banked for the future, rendering immediate extraction a net loss for the public and neutralizing demands from pro-extraction agencies to force development.

9. Conclusion

The 1872 General Mining Act was forged in a century that viewed the public domain as an inexhaustible resource requiring rapid alienation and physical conquest. Over 150 years later, the statutory language remains intact, but the legal mechanisms used to interpret it, namely the Prudent Man Rule and the Marketability Test, have been reshaped by modern economics.

As administrative precedents like United States v. Clouser demonstrate, the geological presence of a valuable mineral no longer guarantees a valid claim. The compounding costs of labor and environmental compliance act as an economic filter, rendering geologically rich deposits legally worthless. As the macroeconomic valuation of public lands expands to include the Social Cost of Carbon and ecosystem services, the concept of "extraction costs" is poised to expand further.

In the regulatory environment of the mid-2020s, where federal priorities swing from the conservation mandates of the 2024 Public Lands Rule to the extraction-focused policies of its 2026 rescission, the IBLA's jurisprudence offers a strategic opening. By applying the Pacific Coast Molybdenum doctrine to temporal market fluctuations, claimants can argue that the integration of modern environmental externalities temporarily undermines present profitability, making delayed extraction the only prudent course of action. The economic tests originally designed to police and invalidate speculative mining claims can be re-engineered into a legal shield. This gray zone allows claimants to secure subsurface rights for the future while preserving the ecosystem services functioning on the surface today. True economic prudence in the 21st century

requires balancing the wealth found in the earth against the cost to the environment above it.

10. References

Baker v. United States, 613 F.2d 224 (9th Cir. 1980).

Best v. Humboldt Placer Mining Co., 371 U.S. 334 (1963).

Bureau of Land Management. (2017). *Mining claim packet*. U.S. Department of the Interior. https://www.blm.gov/sites/blm.gov/files/2017%20mining%20packet.pdf

Castle v. Womble, 19 L.D. 455 (1894).

Center for Agricultural and Shale Law. (2016). *San Juan Basin complaint*. Penn State Law. https://aglaw.psu.edu/wp-content/uploads/2020/09/San-Juan-Complaint-May-3-2016.pdf

Colorado Law Review. (1968). Present marketability as a requirement for locating mining claims on public lands. *Colorado Law Review*. https://scholar.law.colorado.edu/cgi/viewcontent.cgi?article=2904&context=lawreview

Convergent Mining. (2023). *Mineral tenures (mining claims)*. https://www.convergentmining.com/c-blog/the-legalities-of-mining-claims

Debate within and debate without: NEPA and redefinition of the Prudent Man Rule. (1973). *Natural Resources Journal*, 13(4). https://digitalrepository.unm.edu/cgi/viewcontent.cgi?article=2822&context=nrj

Earthworks. (2021). *Golden patents, empty pockets*. https://earthworks.org/wp-content/uploads/2021/09/REPORT-GoldenPatentsEmptyPockets.pdf

Earthworks. (2022). *1872 Mining Law*. https://earthworks.org/issues/1872-mining-law/

eCFR. (2024). *Title 43, Part 3800: Mining claims under the general mining laws*. Code of Federal Regulations. https://www.ecfr.gov/current/title-43/subtitle-B/chapter-II/subchapter-C/part-3800

Epstein, P. R., Buonocore, J. J., Eckerle, K., Hendryx, M., Stout, B. M., Heinberg, R., Clapp, R. W., May, B., Reinhart, N. L., Ahern, M. M., Doshi, S. K., & Glustrom, L. (2011). Full cost accounting for the life cycle of coal. *Annals of the New York Academy of Sciences*, 1219(1), 73-98. https://documents.dnrec.delaware.gov/energy/information/otherinfo/Documents/RPS%20Cost%20Cap%20Regulation%20Public%20Record/RPS%20Cost%20Cap%20Exhibits/6%20Full-cost-accounting%20of%20coal%20Harvard%20report.pdf

Federal Register. (1998, March 27). *Mining claims under the general mining laws*. 63 FR 15000. https://www.govinfo.gov/content/pkg/FR-1998-03-27/html/98-7924.htm

Federal Register. (2024, April 23). *Conservation and landscape health rule*. 89 FR 30388. https://www.govinfo.gov/content/pkg/FR-2024-04-23/pdf/2024-08138.pdf

General Accounting Office. (1974). *Modernization of 1872 Mining Law needed to encourage domestic mineral production, protect the environment, and improve public land management* (Report No. B-118678). https://www.gao.gov/assets/b-118678-094207.pdf

Grand Canyon Trust. (2021). *Outdated mining law needs an update*. https://www.grandcanyontrust.org/blog/outdated-mining-law-needs-update/

House Committee on Resources. (1998). *Hearing on mining claim maintenance fees and assessment work requirement*. U.S. Government Printing Office.

In re Pacific Coast Molybdenum Co., 75 IBLA 16 (1983).

In re United States Court of Federal Claims. (2011). *Memorandum opinion and order*. https://ecf.cofc.uscourts.gov/cgi-bin/show_public_doc?2011cv0884-97-0

Inside Climate News. (2026, May 12). *Trump administration kills rule putting conservation of public lands on equal footing with resource extraction*. https://insideclimatenews.org/news/12052026/trump-blm-repeals-public-lands-conservation-rule/

Interior Department Solicitor's Opinion. (1996). *Excess reserves under the mining law* (M-36984). U.S. Department of the Interior. https://www.doi.gov/sites/doi.opengov.ibmcloud.com/files/uploads/M-36984.pdf

Interior Department Solicitor's Opinion. (1997). *Assessment work requirements under the Mining Law of 1872* (M-37004). U.S. Department of the Interior. https://www.doi.gov/sites/doi.opengov.ibmcloud.com/files/uploads/M-37004.pdf

International Seabed Authority. (2023). *Guidance on the economic valuation of ecosystem services and natural capital*. https://www.isa.org.jm/wp-content/uploads/2023/11/Guidance-on-economic-valuation-Part-II-of-the-report.pdf

KSL.com. (2026, May 13). *Bureau of Land Management just rescinded this public lands rule*. https://www.ksl.com/article/news/utah/environment/bureau-of-land-management-just-rescinded-this-public-lands-rule/51496235

Office of Surface Mining Reclamation and Enforcement. (2020). *Reclamation bonds*. U.S. Department of the Interior. https://www.osmre.gov/resources/reclamation-bonds

Pacific Legal Foundation. (2016). *Rinehart v. California amicus brief*. https://pacificlegal.org/wp-content/uploads/pdf/rinehart-v-california/Rinehart-AEMA-AC-Brf.pdf

Righetti, T. R., & Lewis, M. (2025). The valorization of federal pore space. *Boston University Law Review*, 105. https://www.bu.edu/bulawreview/files/2025/05/RIGHETTI-LEWIS.pdf

U.S. Department of the Interior. (1987). *Decisions of the United States Department of the Interior* (Vol. 94). https://www.doi.gov/sites/doi.opengov.ibmcloud.com/files/uploads/doi_decisions_094.pdf

U.S. Department of the Interior. (1994). *Decisions of the United States Department of the Interior* (Vol. 98). https://www.doi.gov/sites/doi.opengov.ibmcloud.com/files/uploads/doi_decisions_098.pdf

U.S. Environmental Protection Agency. (2010). *Guidelines for preparing economic analyses*. https://downloads.regulations.gov/EPA-HQ-OW-2021-0602-2437/content.pdf

U.S. Geological Survey. (2021). *Ecosystem services assessment and valuation*. U.S. Department of the Interior. https://www.usgs.gov/centers/geosciences-and-environmental-change-science-center/science/ecosystem-services-assessment

U.S. Senate Committee on Energy and Natural Resources. (2008). *Hearing to examine and consider updates to the Mining Law of 1872*. U.S. Government Printing Office. https://www.energy.senate.gov/services/files/51D230E5-C618-4836-BBF1-81A5255AC17F

United States v. Coleman, 390 U.S. 599 (1968).

United States v. Clouser, 144 IBLA 110 (1998).

USDA Forest Service. (2004). *Training guide for reclamation bond estimation*. U.S. Department of Agriculture. https://www.fs.usda.gov/geology/bond_guide_042004.pdf

USDA Forest Service. (2019). *Highest and best use: Forest Service handbook 5409.12*. U.S. Department of Agriculture. https://www.fs.usda.gov/im/directives/fsh/5409.12/5409.12_Ch20-AppraisalApplications.docx

USDA Forest Service. (2021). *Locatable minerals: Programmatic draft environmental impact statement*. U.S. Department of Agriculture. https://www.fs.usda.gov/geology/includes/minerals/locatableminerals/20210113-228A-DEIS-Compiled.pdf

Wageningen University & Research. (2014). *Economic viewpoints on ecosystem services*. https://edepot.wur.nl/290536

Wyoming Law Journal. (1968). Mining, the marketability test and the prudent man test, building stone as a common variety mineral, Coleman v. United States. *Wyoming Law Journal*, 22(3). https://scholarship.law.uwyo.edu/cgi/viewcontent.cgi?article=1051&context=land_water