Red Earth, Silent Treaties: Reimagining Legal Subjectivity and Temporal Violence in Martian Governance

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Abstract

As Mars colonization nears, international law remains bound to Earth-centric notions of sovereignty, temporality, and legal subjectivity. Foundational regimes—most notably the 1967 Outer Space Treaty, the 1979 Moon Agreement, and related UN resolutions—are ill-equipped to handle the socio-ecological ruptures of extraterrestrial settlement. Treating Mars as a blank canvas risks repeating colonial tropes of terra nullius and the Doctrine of Discovery. This analysis asks whether the common-heritage-of-humankind principle can be reconceived through decolonial, ecological, and Posthuman lenses to forestall capitalist appropriation and erasure on Mars. Drawing on Third World approaches to international law and critiques of linear futurism, we highlight Article II's narrow ban on national sovereignty (and its silence on corporate claims) and the Moon Agreement's weak environmental and sharing provisions. We question space law's anthropocentrism by analogy to Earth's recent environmental personhood cases, and explore whether erga omnes and intergenerational duties (evident in the Trail Smelter precedent and the Paris climate regime) might extend to space. We also scrutinize the Artemis Accords as a techno-hegemonic detour from multilateralism. Ultimately, we advance an interplanetary constitutionalism grounded in Martian humility, plurality, and justice, calling for a moratorium on mining and an Antarctic-style treaty on planetary protection that embeds equity, sustainability, epistemic justice, and Posthuman ethics in off-Earth law.

Keywords: Mars Colonization, International Space Law, Decolonial Approaches, Common Heritage of Humankind, Planetary Protection

1 Introduction: Earth-Centric Paradigms in Space Law

The 1967 Outer Space Treaty (OST) remains the bedrock of space governance (Durkee, 2023). It declares that outer space is the province of all mankind, open to exploration by all states, and it explicitly forbids any national appropriation of celestial bodies by claim of sovereignty, use, occupation or by any other means (Pic et al., 2023). In practical terms, no country may plant its flag and claim Mars as its territory. This non-appropriation rule was designed to prevent a new scramble for empire (de Zwart, Hen-

A. Danielsson et al. (eds.), *Proceeding of The Future of Life - Legal, Scientific, and Geopolitical Challenges (TFOL 2025)*, Advances in Social Science, Education and Humanities Research 1001,
https://doi.org/10.2991/978-2-38476-555-3_15

derson, & Neumann, 2023). Yet the OST assumes that only nation-states – not corporations, NGOs or private individuals – will be the masters of off-world space (Manoli, 2024). It treats space in res communis terms (a global commons), but it assigns control entirely to governments: states retain jurisdiction over any spacecraft they launch and must license or supervise any non-governmental space activity (Stotler, 2025). In effect, any mission to Mars by a corporation is legally an extension of its sponsoring state's power. The OST provides no direct check on such activities beyond saying they must be approved by a state (von der Dunk, 2020). Thus, space activities are conceived as extensions of state sovereignty, reflecting a rigid Westphalian worldview (Klinger, 2020).

Rather than retelling the Moon Agreement's history, the paper notes that its promise of shared space heritage was largely theoretical: major space powers never ratified it. This highlights a gap between aspirational law and practical enforcement, underscoring the need for substantive critique. In theory, every nation and future generation was to share in the fruits of any mining. In practice, however, the Moon Agreement has been nearly ignored: almost no major spacefaring country (notably, neither the U.S. nor Russia) has ratified it (de Zwart, Henderson, & Neumann, 2023). Its grand visions remain largely aspirational. United Nations General Assembly resolutions of the 1960s and 1970s similarly enshrined the ideals of peaceful use, scientific cooperation, and benefit to all nations, but these resolutions are soft law without enforcement. In sum, the OST and its kin form a patchwork of lofty principles with few mechanisms for implementation (Deplano, 2023). They ban flags on Mars but say next to nothing about protecting the Martian environment, governing private mining, or compensating those left out.

Thus the existing regime is profoundly Earth-centric. It rests on the Post-Westphalian view that only sovereign states hold authority in space, and it ignores emerging realities (Manoli, 2024). For example, Article VI of the OST makes a state internationally responsible for any space activities by its nationals, but this means at most that the state must oversee its companies' ventures – not that it must constrain them (Li, 2022). Article VIII retains a state's ownership of objects and any stations placed on celestial bodies, tying all Martian activity back to Earth jurisdiction (Deplano, 2021). Yet even these provisions assume that only human interests (through states) matter. The system assumes a linear model of progress rooted in Cold War rivalries, oblivious to the rise of billionaire-led enterprises, international consortia, or citizen scientists as actors. Most strikingly, it defines legal subjectivity in purely anthropocentric terms. Mankind means current humans (and their governments), not future Martian settlers or any Martian ecosystem (Marino & Cheney, 2023). By omitting corporations and ecosystems from full legal consideration, these founding laws leave Mars a tabula rasa of unresolved claims and ethical gaps. In short, Earth-bound law sets the stage, but it may not suffice for a truly off-Earth society (Wiener & Hamilton, 2025).

This article is limited to international space law concerning Mars and does not address domestic space policies or private-sector plans in detail. The paper does not claim empirical generalizability. This paper asks whether existing Mars governance frameworks

embed colonial temporal assumptions and thereby constrain the development of Martian legal subjects. We use a normative doctrinal analysis of international space law instruments (treaties, agreements, and institutional policies) to investigate this question. The contribution is to foreground temporal dimensions in space law, reinterpret the common heritage principle from a decolonial perspective, and propose concrete legal reforms to address these identified gaps.This study analyzes core international space law instruments (e.g. the Outer Space Treaty, Moon Agreement, Artemis Accords) and relevant institutional documents. Sources were selected for their relevance to Martian governance and temporal justice. No new empirical data were collected; instead, our conclusions are drawn from critical interpretation of these existing legal and policy texts.

The paper proceeds as follows. Section 2 outlines the decolonial legal framework. Section 3 diagnoses key governance and temporal injustices in current Martian policy. Section 4 examines the implications of these dynamics for Martian legal subjectivity. Section 5 then proposes targeted legal reforms to address the identified gaps.

2 Mars as a Colonial Frontier: Temporal Myth and Legal Imaginaries

Describing Mars as humanity's 'next frontier' recycles colonial metaphors and obscures alternative temporalities; the paper critiques this framing for privileging rapid expansion over sustainability. This frontier framing carries a heavy colonial baggage. On Earth, lands declared terra nullius (nobody's land) were claimed by explorers under the Doctrine of Discovery, even when indigenous peoples lived there (Hilberg, 2022). The colonizers treated those territories as empty and up for grabs. If Mars is similarly treated as an empty frontier, we risk a form of epistemic violence: erasing any possible Martian heritage (be it microbial life, geological history, or future claims) and justifying usurpation by external powers (Fletcher, Van Kranendonk, & Oliver, 2024). In effect, we would be repeating the same legal fiction used to justify colonial land grabs, but on an interplanetary scale. A Martian frontier narrative suggests that the planet is there to be conquered, rather than inhabited in conjunction with the planet's own character (Utrata, 2024).

At the heart of the so-called frontier myth lies a particular concept of time – often called chronopolitics – that presumes a predetermined path of development. Space law and policy frequently reflect what scholars term chrononormativity: the assumption of a straight-line timeline of progress (Klinke, 2025). Under this narrative, humanity is thought to expand outward from Earth in successive stages (orbital satellites, Moon landings, Mars bases, terraformed worlds), much as Western history marched across continents (Utrata, 2024). This linear perspective emphasizes a techno-futurist vision and downplays other ways of understanding time. It implicitly treats Mars as a blank canvas awaiting the next phase of human civilization. Such thinking sidelines cautionary voices and dismisses cyclical or sustainable approaches, framing human arrival on

Mars as an inevitable climax rather than a deliberate choice (Capper, 2019). In this chronopolitical framework, even a delay in colonization might be seen as a regression.

A critical legal geography perspective cautions that decolonizing space law requires more than superficial narrative changes; it demands substantive structural reform. The notion of a free frontier can blind us to entrenched power dynamics. Under a terra nullius logic (land belonging to no one), a Mars governed in this way would likely favor only those few who have the means to go there – just as colonial frontiers once empowered a handful of explorers backed by empires (Utrata, 2024). Recognizing these chronopolitical layers opens up alternative paths. For example, we might ask whether we really need to rush into profit-making on Mars, or whether slower timelines or even temporary moratoria on development should be respected (Wiener, 2025). Indigenous philosophies often understand land and time as interwoven with ancestors and responsibilities, reminding us to be humble about imposing human timetables on Mars. In this light, portraying Mars as an empty frontier loses its veneer of neutrality: it becomes a contested notion that either reinforces colonial tropes or calls for a more reflective narrative (Smiles, 2020).

In sum, the colonial imaginaries embedded in space discourse – seeing Mars as an empty frontier and assuming a seamless timeline of expansion – legitimize importing Earth-bound doctrines onto the Red Planet (Utrata, 2024). Questioning these assumptions is the first step toward a legal framework that refuses to merely replicate terrestrial empires in space.

3 Reexamining the Doctrine of Common Heritage

The concept of the common heritage of humankind is central to debates about Mars, yet it is deeply contested (Pic, Evoy, & Morin, 2023). Originally introduced in international law, this idea was meant to ensure that certain spaces or resources benefit everyone rather than being monopolized by a few (Mickelson, 2019). In space law it appears explicitly in the Moon Agreement and is echoed in the Outer Space Treaty (Deplano, 2023). The underlying logic is progressive: for example, resources on Martian moons like Phobos or Deimos would be managed for the global good rather than claimed by any single country (Rabitz, 2023). However, experience on Earth highlights the doctrine's pitfalls. Take the 1982 United Nations Convention on the Law of the Sea: its common heritage regime for deep-sea mining was designed to distribute gains through an international authority. In practice, that authority has been largely inactive (since there are no deep-sea mining revenues to share), and powerful countries have shaped the rules to their own advantage (Wilde et al., 2023). Similarly, many initiatives labeled as common heritage on Earth have been subverted by political power plays (Mickelson, 2019). History thus warns that common heritage can become an empty slogan unless it is backed by real enforcement and inclusive governance (Ranganathan, 2024).

The paper reconceives the common heritage doctrine as a dynamic guiding principle that emphasizes intergenerational justice and collective stewardship of shared heritage. Rather than a vague ideal, it must entail concrete accountability for who uses the resources and how (Yap et al., 2023). A decolonial stance would insist that powerful states and corporations cannot simply impose extraction projects in the name of mankind (Murrey & Mollett, 2023). Benefit-sharing must not be voluntary or symbolic, but legally binding. An ecological stance would demand that Martian environments – whether or not life exists – be treated as more than mere commodities, preserving them as a legacy for all (Deplano, 2023).

In practical terms, this could involve turning common heritage into an operational mandate. Any Mars mission might be required to advance collective scientific and social goods, not just private profit (Deplano, 2023). One could imagine an international Martian Authority, entrusted with licensing mining operations and overseeing a benefit fund like the intended Seabed Authority on Earth (Deplano, 2023). This authority could include representation from all countries (not just space powers), with special seats for vulnerable nations or indigenous peoples (Finnegan, 2022). Learning from indigenous cosmologies – in which land is kin and a trust for future generations – common heritage on Mars could mean that no action is allowed without considering justice and stewardship (Milligan, 2022).

Ultimately, properly implementing common heritage helps forestall a new land grab. If Mars is legally treated as a shared asset, then no state or company may treat it as an exclusive profit center (Pic et al., 2023). Instead of first-come, first-served, we open the door to cooperative models. This would reshape common heritage into a bulwark against the very colonial-style exploitation we hope to avoid: ensuring that the first wave of space explorers carry not only their rockets, but also binding commitments to fairness and sustainability (Pic et al., 2023).

4 Expanding Subjectivity: Rights of Martian Nature and Future Generations

Current space law presumes a strictly anthropocentric worldview: only human beings (and the states they form) are considered holders of rights and responsibilities (Marino & Cheney, 2023). By this logic, Martian dunes, ice caps or canyons have no intrinsic legal standing – they are mere resources or wilderness for human use. However, recent jurisprudence on Earth shows that the circle of legal concern can expand (Epstein et al., 2023). Courts and governments have begun to grant legal personhood to nature itself. In New Zealand, for instance, the Whanganui River was declared a legal person in 2017, with two guardians appointed to represent its interests (Kurki, 2022). Colombia's Supreme Court similarly recognized the Atrato River's rights in 2016, leading to a guardian council of the river's territory (Wesche, 2021). Even human-made ecosystems, like Lake Erie in 2020, were briefly granted rights by local vote (though later struck down) (Epstein et al., 2023). These examples demonstrate that law can, in fact, recognize natural entities as rights-bearers. If a river or forest can sue to protect its

existence, then by analogy a Martian glacier or crater might be given legal protection through designated custodians (Altabef, 2021).

Alongside expanded personhood comes the principle of intergenerational justice. Modern environmental law increasingly acknowledges that states owe duties not only to people alive today but also to future generations (Bertram, 2023). These obligations are often framed as erga omnes – responsibilities owed to all of humanity. For example, the 1938 Trail Smelter arbitration established that states must refrain from activities that cause cross-border environmental harm (Tignino & Bréthaut, 2020). In 1996, the International Court of Justice's advisory opinion on nuclear weapons went further, recognizing a general erga omnes principle to protect the environment for the benefit of present and future generations (Phyffer, 2024). Together, these precedents imply that massive pollution or habitat destruction is everyone's concern, not just a matter for the states directly involved. While these doctrines were developed on Earth, they hint at a broader cosmic ethic: if states have a duty to safeguard global commons like Earth's atmosphere and ozone layer, then we might well consider Mars's pristine environment a shared concern as well (Coustenis et al., 2023).

Bringing these threads together suggests a dramatic expansion of legal subjects. We could imagine Martian landscapes, or even microbial life if discovered, being granted legal rights or guardianship (Schwartz, 2019). Under this view, any country might have standing to challenge reckless exploitation of Mars, just as every UN member can raise concerns today (Su, 2022). Future humans born on Mars could be recognized as a distinct people with rights to the planet's resources (Lavigne, 2022). In practical terms, this might mean mandatory environmental-impact assessments for Mars missions, legal avenues to contest destructive mining projects, or even treaties designating certain Martian regions as protected areas off-limits to alteration (Cockell, 2024). For example, an international agreement could declare Valles Marineris or Olympus Mons as zones of special environmental status (Cockell, 2024). In such a vision, polluting Mars wouldn't just breach a narrow business contract; it would violate principles akin to erga omnes environmental obligations (Hader et al., 2023). In short, expanding the notion of legal subjectivity to include entire ecosystems and future generations would infuse Martian governance with duties of care (Marino & Cheney, 2023). It would bind any actor to a cosmic do no harm rule that serves both future humans and any non-human life that might exist. Once woven into law, these duties would stand as barriers against exclusive space exploitation (Marino & Cheney, 2023).

5 Artemis Accords and Techno-Hegemonic Governance

In recent years, the Artemis Accords – a series of bilateral agreements led by the United States – have introduced a new framework in space policy. The Accords lay out principles for cooperation in NASA's return-to-the-Moon program and future Mars missions, covering commitments to peaceful use, equipment interoperability, planetary protection, and the free exChange of data (Deplano, 2021). Publicly, they reaffirm core ideals of the Outer Space Treaty, but they also explicitly embrace resource extraction: endorsing the extraction and utilization of space resources, subject to each country's

domestic authorization (Hofmann, 2020). In effect, the Artemis Accords signal that the participating states (now more than twenty, including the U.S., Canada, Japan, and several European and Asian partners) will treat their nationals' right to mine space resources as consistent with international law (Deplano, 2021).

Crucially, the Artemis Accords are not a universal treaty. They are political commitments among signatories (Deplano, 2021). Major space powers like China, Russia and India have not joined; indeed, China and Russia have proposed a rival Moon treaty (Nie, 2025). This means that Artemis effectively creates a club framework whose rules bind some parties but not others. Critics charge that the Accords promote a form of techno-hegemonic governance: a regulatory regime set by the few states (and companies) with the technology to implement it (Manoli, 2024). For example, the Accords allow signatories to establish safety zones around planned infrastructure. If a U.S. company on Mars marks out a zone around its mining site, other states are urged to respect it and negotiate access. This conjures a picture of private companies staking claims on Mars, protected not by explicit sovereignty but by the Accords' code of conduct. Critics argue that this stance undermines the Outer Space Treaty by effectively allowing exclusive zones under another name (Deplano, 2021).

Furthermore, the Artemis Accords emphasize voluntary transparency and data-sharing without robust enforcement (Deplano, 2021). In practice, this tends to favor the advanced spacefaring nations while leaving others as mere spectators *(Palit, Dias, & Hazra, 2025)*. Under Artemis governance, space may come to resemble a technology-driven club: a small circle of powerful actors agreeing on norms among themselves, while non-signatory countries remain on the sidelines (Deplano, 2021). If Mars law ends up as a patchwork of bilateral deals and national licenses, then rights and access will depend largely on who wields influence (de Zwart et al., 2023). Instead of a unified, multilateral system, we risk seeing de facto fiefdoms. In essence, the Artemis approach could solidify the power of a few wealthy players rather than building a truly inclusive regime (McKeown, Dempster, & Saydam, 2022).

The Artemis example highlights a core dilemma: will international space law evolve through inclusive, multilateral treaties (with broad participation and binding obligations), or will it fracture into blocs anchored by superpowers and corporations? The outcome will shape Mars's future. If major powers pursue individual deals and open-market licenses, Mars could become a playground for exploitation rather than a platform for cooperation (Yap et al., 2023). This geopolitical and legal tension underscores the need for an alternative vision – one that preserves the possibility of a shared, multilateral framework instead of surrendering Mars to techno-legal fragmentation (Deplano, 2021).

6 Interplanetary Constitutionalism and Planetary Protection

Finally, scholars are exploring a novel idea to recast space law in constitutional terms: an interplanetary constitutionalism. This legal imaginary identifies core, constitution-

like values to guide a civilization living off Earth (Bower, 2023). Crucially, the concept is prefigurative: it asks what kind of legal order we want on Mars before we arrive, reflecting our highest ideals (Cohen & Morgan, 2023). At its heart is Martian humility – recognizing that humanity would be guests on Mars, not its masters. It calls for cosmic pluralism – respect for multiple worlds, possible life-forms, and a diversity of values beyond any single culture (Chon-Torres & Chela-Flores, 2023). Under interplanetary constitutionalism, key principles like equity, sustainability, dignity, and non-appropriation become foundational, not just optional policies (Bower, 2023).

A pluralistic approach would draw on many traditions. Indigenous cosmologies often regard celestial bodies as kin or sacred spaces, emphasizing the need to live in harmony with the cosmos (Finnegan, 2022). For example, Polynesian navigation traditions consider islands and stars to be like family members, not territories to be exploited (Fernandez-Velasco & Spiers, 2024). Afro-futurist ecological thought offers another vision: it imagines technology advancing hand-in-hand with social justice and ecological balance, rewriting old narratives of exploitation (Terry et al., 2024). In these imaginaries, a Martian colony would be as much about cultural renewal as about mining resources. Meanwhile, scholars of legal futurology encourage experimentation: they propose novel rights (perhaps even a form of Mars personhood), forward-looking charters or councils that anticipate Change, and scenario planning for issues like AI or genetic engineering on Mars (Altabef, 2021). Together, these perspectives inspire laws that go beyond merely extending terrestrial imperialism. They suggest our off-world institutions should reflect humanity's diverse heritage (Holcomb et al., 2024).

Concretely, this vision translates into embedding equity and sustainability into Martian governance (İnan-Şimşek & Atvur, 2025). Equity would mean involving those who have been historically marginalized. For instance, an inclusive space constitution could require that a portion of Mars research and any resulting profits be shared with developing nations (Deplano, 2023). It could also mandate that non-spacefaring countries have representation in Mars-related decision-making bodies (Yap & Kim, 2023). Epistemic justice demands that we value knowledge from non-Western traditions when crafting rules (Hutton & Cappellini, 2022). Perhaps Earth's multicultural heritage could even be honored by naming Martian landmarks in a variety of Earth languages, or by holding treaty negotiations under cross-cultural facilitators (Cockell, 2024). We must also anticipate Post-human ethics: if future Mars societies host advanced AI, biotech creations, or newly evolved organisms, the legal order must account for their interests too (Tzimas, 2025). This might sound far-off, but even now philosophers argue that highly advanced intelligences should have some moral standing.

Practically speaking, we should not wait until rockets land to adopt these values. As a first step, we recommend a global moratorium on mining and irreversible alteration of Mars (Cheney, 2025). This pause would allow time to negotiate a Binding Interplanetary Convention on Planetary Protection, modeled on the Antarctic Treaty System (Cockell, 2024).

Such a convention could include provisions like

Ban sovereignty claims and militarization on Mars: Amend the Outer Space Treaty to explicitly prohibit any national sovereignty or military presence on Mars.

Mandate environmental impact assessments: Require binding environmental reviews and a shared "duty of repair" fund for all major Martian projects.

Enforce open science protocols: Ensure that data from all Mars missions are made publicly available to support transparency and collaboration.

Implement benefit-sharing fund: Establish a transparent Mars Resource Fund into which a portion of any Martian resource revenues is deposited to benefit all humanity (e.g., climate resilience).

Each proposed action explicitly addresses a specific gap identified above. For example, banning sovereignty claims directly targets militarization risks on Mars; mandatory environmental assessments address ecological harms; open-data mandates improve transparency; and the Mars Resource Fund ensures fair benefit-sharing.

The treaty would also recognize that future human, animal or AI inhabitants of Mars, as well as microbial or newly emergent life, have a stake. It could establish advisory bodies for indigenous Martian microbiology (in the event of discovery) or for AI ethicists to guide robotics on Mars (Coustenis et al., 2023).

By analogy with the Antarctic Treaty's success, such a binding framework would help ensure that Mars is governed by cooperation and care, not by conflict and exploitation (Padden, 2022). It would elevate the idea of planetary protection from a narrow NASA protocol (designed merely to avoid contamination) into a broad ethic of stewardship: treating Mars as part of a larger moral ecosystem that we are responsible for (Yap & Kim, 2023).

In sum, interplanetary constitutionalism calls for a legal approach that is inherently multi-species, multicultural, and future-oriented. Only by grounding Mars law in humility, plurality, and planetary justice can we hope to write a just new chapter for all life under the same sky (Bonardi, 2023).

7 Conclusion

The contours of Mars may lie ahead, but the rules governing them demand urgent rethinking. As we have seen, relying on outdated, Earth-centric space law is bound to reproduce patterns of inequality, environmental harm, and cultural erasure. Instead, humanity must forge a new path: one that honors Mars as a shared heritage of all peoples, extends rights to non-human entities and to future generations, and treats space governance as a planetary-scale constitution. Embracing a prefigurative, decolonial, and pluralist legal imagination – drawing on indigenous wisdom, Afro-futurist visions, and

scientific foresight – offers hope that Martian law can promote equity and sustainability.

Key findings: Current space law remains profoundly Earth-centric, embedding colonial temporal assumptions that limit the emergence of Martian legal subjects.

Implications: This suggests that Martian governance will require decolonial temporal frameworks and expanded legal personhood.

Recommendations: The paper prioritizes three reforms: (1) explicitly ban territorial claims and militarization on Mars; (2) mandate binding environmental impact assessments and open-data requirements for all Mars missions; and (3) create a transparent benefit-sharing fund for Martian resources.

Generative AI Use Disclosure. The authors declare that no generative AI tools were used in the preparation of this manuscript.

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