

## Will Our Children Own Property in Space?

By Michelle Hanlon

### Abstract

Humanity's expansion into space is inevitable. What is not apparent is how smooth our transition into a multi-planetary species will be. What laws will guide our future in space? How can we set ourselves up for success? Currently, the regulation of space activities is guided by a treaty negotiated more than 50 years ago. While the concepts enshrined in that treaty, including the freedom of the exploration and use of space, remain relevant today, current events force us to recognize significant gaps in the law, chief among them centered around the concept of property ownership. This article suggests that the foundation for successful and sustainable human communities in space must be built outside existing concepts of law. Only with a departure from our sovereign paradigm can we assure our future success. And the best way forward requires looking back at—and protecting—history.

**Keywords:** Space, space law, space policy, space exploration, cultural heritage, human heritage, history, property, Outer Space Treaty, World Heritage Convention.

### Introduction

It is not uncommon for people to conflate laws and regulations with geographic locations. And indeed, modern laws are layered in and confined by political boundaries. We have town ordinances, state rules, federal laws, and multilateral international treaties that can supersede national laws. Often, these treaties themselves are identified geographically; thus, we have the *Antarctic Treaty*, the *Convention on the Law of the Sea*, and the *Outer Space Treaty*. This construct makes it all too easy to forget that the fundamental purpose of law is to manage relationships among people. Law does not exist because it is handed down by states; quite the contrary, sovereign states exist because of law. As we consider the expansion of humanity beyond our Earth and throughout the space the Earth occupies, we must accept—and embrace—the fact that the success and sustainability of human space exploration, and indeed the human race itself, requires a departure from our terrestrial legal structures and forms. Among the regimes to be tested is the concept of property ownership.

### Freedom of Exploration and Use

When the international community first started to think seriously about establishing “rules of the road” for outer space activities, the overarching and oft-stated goal was to preserve the use of space for peaceful purposes. Thus, in 1958, the United Nations established an ad hoc Committee on the Peaceful Uses of Outer Space (COPUOS) with a

primary goal of avoiding “the extension of national rivalries in this new field.”<sup>1</sup> COPUOS was made permanent in 1959, and in 1963 the United Nations approved a Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space which was the precursor for the 1967 Outer Space Treaty, frequently described as the *Magna Carta* for space.

Formally entitled the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, the Outer Space Treaty offers, as its title suggests, principles to guide *state* activities in space. However, Article VI of the treaty requires states to “authorize and supervise”<sup>2</sup> the activities of their national entities, including non-governmental entities, in space and more generally makes states responsible for all such activities. This suggests that states must make sure their nationals are also conducting activities in space pursuant to the guidelines offered by the treaty.

Ratified by 111 nations and signed by an additional twenty-three, Article I of the treaty encapsulates humanity’s fundamental precept in respect of space, namely that space “shall be free for the exploration and use by all.”<sup>3</sup> The treaty presents very few restrictions on this freedom. Chief among these is the agreement to use space “exclusively for peaceful purposes”<sup>4</sup> (Article IV). Other restrictions engender a subtle complexity of contradictions. A state may not claim territory in space (Article II), and yet international law applies in space (Article III). Article 17(1) of the Universal Declaration of Human Rights indicates that “everyone has the right to own property alone as well as in association with others.”<sup>5</sup> This seems to imply that states may not claim territory, but individuals may own property. Similarly, the Outer Space Treaty is clear that states will retain jurisdiction and control of any object they launch into space (Article VIII), and they will be held liable if they cause damage to the space object of another (Article VII). Yet leaving an object *in situ* on another celestial body essentially results in perpetual occupation of the surface upon which it rests. This runs afoul of the principle of non-appropriation encapsulated in Article II.

### **Due Regard to the Rescue?**

The only other constraint on the freedom of exploration and use is found in Article IX, which delineates three main requirements. First, all activities in space must be

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<sup>1</sup> See [www.unoosa.org/pdf/gares/ARES\\_14\\_1472E.pdf](http://www.unoosa.org/pdf/gares/ARES_14_1472E.pdf).

<sup>2</sup> United Nations, “Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies,” Resolution Adopted by the General Assembly, December 19, 1966, [www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html](http://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html).

<sup>3</sup> United Nations, “Outer Space Treaty.”

<sup>4</sup> United Nations, “Outer Space Treaty.”

<sup>5</sup> United Nations, “Universal Declaration of Human Rights,” Resolution Adopted by the General Assembly, December 10, 1948, [www.un.org/en/about-us/universal-declaration-of-human-rights](http://www.un.org/en/about-us/universal-declaration-of-human-rights).

implemented with “due regard to the corresponding interests of all other States.”<sup>6</sup> Second, states must consult in advance if they are embarking on an activity that may cause potentially harmful interference with activities of other states. Third, exploration should be conducted in a manner to avoid harmful contamination of space.

With respect to the second restriction, it must be stressed that states are not required to avoid harmful interference, only to consult prior to causing such interference. The third restriction has been interpreted to apply primarily to biological contamination and does not necessarily implicate space activities as they relate to other space participants. Thus, the main concept by which the Outer Space Treaty restricts activities, outside peaceful uses, is due regard.

Due regard is a standard that remains undefined. However, it is also used in the United Nations Convention on the Law of the Sea, which states that freedom of the high seas “shall be exercised by all States with due regard for the interests of the other States in their exercise of the freedom of the high seas.”<sup>7</sup> An arbitral tribunal considered the meaning of due regard in 2015 and declined to formulate due regard as a universal code of conduct. Instead, it found that due regard:

does not impose a uniform obligation to avoid any impairment of [a state’s] rights; nor does it uniformly permit [a state] to proceed as it wishes, merely noting such rights. Rather, the extent of the regard required by the Convention will depend upon the nature of the rights held by [the state’s], their importance, the extent of the anticipated impairment, the nature and importance of the activities contemplated by the [states], and the availability of alternative approaches.<sup>8</sup>

Under this interpretation, due regard requires a balancing test, taking into consideration the rights of the state that have been impinged upon by the contested activity, the extent of the impairment, the nature and importance of the contested activity, and the availability of alternative approaches. This balance will produce different outcomes on a case-by-case basis, an uncertainty that in and of itself is enough to make states and their nationals carefully consider their international obligations in respect of space activities. In fact, this type of balance promises not stability, but litigation. The tribunal made it very clear that there is no uniform obligation to avoid interference. Arguing how to balance the nature and importance of rights will put more money in the pockets of lawyers and less into space exploration.

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<sup>6</sup> United Nations, “Universal Declaration of Human Rights.”

<sup>7</sup> United Nations, “United Nations Convention on the Law of the Sea.” Resolution Adopted by the General Assembly, December 17, 1970, [www.un.org/depts/los/convention\\_agreements/texts/unclos/unclos\\_e.pdf](http://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf).

<sup>8</sup> *The Chagos Marine Protected Area Arbitration (Mauritius v. U.K.)*, Case No. 2011-03, Award, para. 519 (Perm. Ct. Arb. 2015).

## **Due Regard for “Property”**

Regardless, the Outer Space Treaty has performed admirably for more than 50 years. In part this is because until recently, only a few nations have had the ability to explore space. Moreover, thus far, only one private entity has succeeded in impacting another celestial body and that was a hard landing by SpaceX’s Beresheet in 2019. Space is big, the number of participants in space activities has been limited, and those participants have been able to stay out of each other’s way. This dynamic, however is swiftly changing.

Multiple states and private entities have expressed an interest in mining space resources. Logically, the first such mines will be operated on our Moon, as its proximity makes it a convenient experimental stage. However, lunar resources are concentrated in certain areas of the Moon. How will we prevent conflict over access to those resources?

One way to implement the concept of due regard is to adopt so-called safety zones. The Hague International Space Resources Governance Working Group, (Hague Working Group) in particular, urges the implementation of an international framework that would

permit States and international organizations responsible for space resource activities to establish a safety zone, or other area based safety measure, around an area identified for a space resource activity as necessary to assure safety and to avoid any harmful interference with that space resource activity. Such safety measure shall not impede the free access, in accordance with international law, to any area of outer space by personnel, vehicles and equipment of another operator. In accordance with the area-based safety measure, a State or international organization may restrict access for a limited period of time, provided that timely public notice has been given setting out the reasons for such restriction.<sup>9</sup>

The US Government also appears ready to endorse the concept of safety zones. In disseminating “principles” to guide the execution of bilateral agreements regarding space activities, the United States indicated that “deconfliction of activities” is a key goal. To support this goal, the US Artemis Accords propose that the United States

and partner nations will provide public information regarding the location and general nature of operations which will inform the scale and scope of “Safety Zones.” Notification and coordination between partner nations to respect such safety zones will prevent harmful interference, implementing

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<sup>9</sup> “Building Blocks for the Development of An International Framework on Space Resource Activities,” para. 11.3 (2019), [www.universiteitleiden.nl/binaries/content/assets/rechtsgeleerdheid/instituut-voor-publiekrecht/lucht--en-ruimterecht/space-resources/bb-thissrwg--](http://www.universiteitleiden.nl/binaries/content/assets/rechtsgeleerdheid/instituut-voor-publiekrecht/lucht--en-ruimterecht/space-resources/bb-thissrwg--).

Article IX of the Outer Space Treaty and reinforcing the principle of due regard.<sup>10</sup>

There can be no doubt that safety zones are not only a good idea, but also a necessity arguably mandated by the due regard provision of the Outer Space Treaty. Implementing a safety zone regime in space would remove many of the uncertainties in the Outer Space Treaty and eliminate the guesswork in the balancing act presupposed by the concept of due regard. However, the fact is that an international effort to address these important issues through COPUOS—which has grown from just 18 states to more than 90—will undoubtedly take many years, if not decades to reach conclusion. Conversely, the bilateral approach espoused by the United States feels exclusive and, if does not garner widespread adoption, it will leave have limited efficacy.

### **Due Regard for History**

While it may be argued that we have some time before actual mining operations begin on the Moon or any other celestial body, the fact is that the concept of due regard for objects already on the lunar surface needs to be addressed on a much swifter timetable.

Cultural artifacts on the Moon are vulnerable to any activity on the Moon. Indeed, the National Aeronautics and Space Administration recognized this in 2010 when it organized a team solely to address questions regarding the protection of historic sites on the Moon. The team developed and released its report, “NASA’s Recommendations to Space-Faring Entities: How to Protect and Preserve the Historic and Scientific Value of U.S. Government Lunar Artifacts” (NASA Guidelines), in July 2011.

The NASA Guidelines recommend the implementation of a two-kilometer exclusion radius around significant lunar heritage sites. Per the guidelines, no vehicle should overfly or attempt to land on the Moon within a two-kilometer radius of any so-called US Government heritage lander, defined to include the Apollo and Surveyor lunar landing sites. The distance was chosen primarily to alleviate the destructive potential of the regolith ejecta effect in the lunar environment. Essentially, any activity that will stir the lunar surface, whether a rover or a lander, will cause the very abrasive regolith to impact any hardware within a certain radius with the potential of causing severe damage. These guidelines, which are not binding or enforceable, even against US nationals unless they are specifically contracted by NASA, highlight the vulnerability of cultural heritage on the Moon, especially in the face of increased activity.

The fact of the matter is that it has proven difficult for the international community to agree on space governance matters. However, the nations of the world have provided unanimous support of the protection of human heritage. The Convention Concerning the Protection of the World Cultural and Natural Heritage has 194 state ratifications. That means nearly every nation on Earth agrees “that deterioration or disappearance of any

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<sup>10</sup> *The Artemis Accords*, NASA, October 13, 2020, [www.nasa.gov/specials/artemis-accords/index.html](https://www.nasa.gov/specials/artemis-accords/index.html).

item of the cultural or natural heritage constitutes a harmful impoverishment of the heritage of all the nations of the world"<sup>11</sup> and that collective effort must be undertaken to protect cultural heritage of "outstanding universal value."<sup>12</sup>

Unfortunately, the World Heritage Convention cannot be applied to space because sites are identified by the state in whose territory they reside. Since states cannot lay claim to territory in space, no off-world sites may be nominated. And yet there is no heritage more universal than lunar landing sites on the Moon, which represent both a milestone in human evolution and development and the culmination of the work of humans throughout the world and throughout history. The human relationship to space is necessarily global and universal. Few would argue that the sites where humans first began their exploration of space should be recognized and protected less than any site on Earth.

With this in mind, For All Moonkind, the only organization in the world focused on protecting human heritage in space, challenges the international community to consider due regard and the concept of safety zones not through the lens of competition, conflict and exploitation, but through the lens of conservation and kinship. Starting with humanity's firsts on the Moon—Luna 2, the first hard landing; Luna 9, the first soft landing; Apollo 11, the first crewed landing; and Chang'e 4, the first soft landing on the far side—the international community can consider the level of deference to be given to certain objects and sites. Taking the science into consideration, agreement can be reached regarding the establishment of safety zones, barring access to any of these sites until humans have the technology to approach them without destroying them. And, given the strong ownership structure of Article VIII of the Outer Space Treaty, any approach must be with the approval of the state that retains the ownership of the objects. These parameters will serve as the baseline, the most severe and rigorous protections any site on the Moon or anywhere in outer space can enjoy. It is an ideal starting point (1) to make the international community comfortable with the concept of safety zones and (2) to build the scientific understanding and knowledge necessary to combat both foreseen (intentional intrusion) and unforeseen hazards to human objects in space.

### **Our Children Will Redefine Property in Space**

Ultimately, what we are doing is not laying down the law but providing guidelines and principles to govern the relationships both amongst ourselves and between history and the future. The non-appropriation principle contained in Article II of the Outer Space Treaty is not a restriction, but an opportunity. Sovereign states may not claim territory in outer space, and yet our Earthly concept of property requires state affirmation. Essentially, Article II gives our future the flexibility to move beyond the sovereign paradigm and to form laws based on the universality of our experience and not on the territory in which

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<sup>11</sup> UNESCO, "Convention Concerning the Protection of the World Cultural and Natural Heritage," November 16, 1962, [whc.unesco.org/en/conventiontext/](http://whc.unesco.org/en/conventiontext/).

<sup>12</sup> UNESCO, World Heritage Convention.

we reside. What property might look like under this new regime remains to be seen, but certainly, building on kinship rather than exclusion is one small step in the right direction.

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**About the Author:** Michelle L. D. Hanlon is co-director of the Air and Space Law Program at the University of Mississippi School of Law and its Center for Air and Space Law. She is the editor-in-chief of the *Journal of Space Law*, the world’s oldest law journal dedicated to the legal problems arising out of human activities in outer space and the faculty advisor for its sister publication, the *Journal of Drone Law and Policy*. Michelle is a co-founder and President of For All Moonkind, Inc., a non-profit corporation that is the only organization in the world focused on protecting human cultural heritage in outer space. In this capacity, she was instrumental in the development of the recently enacted One Small Step Act in the United States. For All Moonkind has been recognized by the United Nations as a permanent observer to the United Nations Committee on the Peaceful Uses of Outer Space. Michelle is the president of the National Space Society and the mentor to the newly formed National Space Society Legal Fellows program. She was recently appointed to the Hague Institute for Global Justice Off-World Approach project. Michelle received her BA in Political Science from Yale College and her JD magna cum laude from the Georgetown University Law Center. She earned her LLM in Air and Space Law from McGill University.

**Editors’ Notes:** As editors of this *Journal of Space Philosophy*, we are thrilled to welcome to these pages Michelle Hanlon, Editor-In-Chief of the *Journal of Space Law*. In addition to advances in engineering and science, a great deal of policy infrastructure will be required for human communities to thrive in space. In this paper Professor Hanlon explores the legal foundation for the due regard that must be shown to others’ property in space and explains the precedent for establishing safety zones. Perhaps more importantly, she urges the application of these concepts to protect artifacts of cultural heritage, such as the historic moon landing sites. Her work is truly providing guidelines for future generations of space migration. **Gordon Arthur and Mark Wagner.**