

THE PRIVATE SPACE RACE: APPLYING PRIVATE SPACE MINERAL RIGHTS TO TEXAS STATE PROPERTY AND ESTATE PLANNING LAW

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ABSTRACT

Space travel and exploration is a long-standing interest of people all over the world and has been for decades, beginning with the “The Space Race.” Now, private (or commercial) space travel is starting to take off with companies such as Elon Musk’s SpaceX and Jeff Bezos’s Blue Origin. Currently, state property laws do not contain any provisions governing the use, rights to, or ownership of natural resources from outer space once they are brought to Earth. This Comment discusses the suggestion of an addition to the Texas Property Code, Texas Estates Code, and Texas Wills, Trusts, and Estate Planning Practice Guide to account for space law regulations and restrictions on ownership of minerals and matter from space. This Comment seeks to propose such additions to the Texas codes so that they may be applicable and easily adaptable to other state codes. Specifically, this Comment seeks to address inevitable future concerns of state residents’ use, development, and research of physical space minerals (already extracted from space) within state lines.

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I. INTRODUCTION

The year is 2026: Jane, a successful entrepreneur and mineral owner from Texas, decides to purchase a round trip ticket to see outer space for the first time.¹ She embarks on her journey and is amazed by the abundance of minerals she sees out in space.² This sparks an idea for Jane as she arrives back to Earth.³ She meets with a team to start collecting materials from space to use for her new business idea involving the use of space minerals in mechanical development.⁴ In a few years, Jane expects to claim most of the visible minerals in space and run a billion dollar industry in space mining

1. Author's original hypothetical.

2. *Id.*

3. *Id.*

4. *Id.*

through the establishment of her own legal, private space mining and commercial space travel company.⁵ However, John—around the same time in 2026—wins a ticket to travel to outer space and becomes interested in researching and developing new materials made from space’s resources.⁶ He has also legally created a company and accumulated the appropriate documents to proceed with research using the newly extracted minerals from space.⁷ He, too, gathers a team to extract these minerals and also expects to claim these minerals for a profitable industry in the Texas marketplace.⁸ The problem here lies in the lack of ownership legislation on these minerals; who truly owns the right to the space minerals, John or Jane?⁹

This Comment discusses the current legislation in effect involving private ownership of natural resources from space, and suggests additions to the Texas Property Code and Texas Estates Code governing this area to prevent potential situations like the one between Jane and John.¹⁰ Ownership rights expand everyday with new discoveries and exploration below, on, and above the Earth’s surface.¹¹ With the recent increase in private space travel, people might get the idea that they could own and profit off of matter in space.¹²

Some people have tried to own space but failed, some may think space is to be left alone, while others seek to explore and develop it.¹³ However, the only restrictions on the government’s ownership of space exist through a few acts and treaties discussed in this Comment.¹⁴ The space industry needs (1) international law with specific guidelines and laws to regulate the future of space ownership, travel, and use; (2) state property law governing the use, profitability, ownership, and transferability once a state resident brings certain space minerals into the state; (3) estate planning guidelines strictly for private citizens attempting to use ownership of space matter and orbital patterns to avoid ambiguous claims and monopolization of space

5. *Id.*

6. *Id.*

7. *Id.*

8. *Id.*

9. *Id.*

10. *See infra* Parts II–III.

11. *See infra* Part II.

12. *See* Stuart Fox, 6 *Private Companies That Could Launch Humans Into Space*, SPACE.COM (June 4, 2010), <https://www.space.com/8541-6-private-companies-launch-humans-space.html> [<https://perma.cc/E783-3H3C>].

13. *See* Jesse L. Silvernail, *Calibrating Intellectual Property and Innovation in Newspace*, 6 TEX. A&M J. PROP. L. 113, 128 (2020); Ezra J. Reinstein, *Owning Outer Space*, 20 NW. J. INT’L L. & BUS. 59, 62 (1999).

14. *See Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*, UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS, <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introouterspacetreaty.html> (last visited Sept. 22, 2021) [<https://perma.cc/9C5L-6WPE>]; H.R. 2262, 114th Cong. (2015); 51 U.S.C. ch. 701–13.

ownership.¹⁵ This Comment's focus is on the proposed language of state codes and estate planning practice guides regarding extracted space minerals brought to the state.¹⁶ While this Comment will not conduct a full survey of each state's property and estate planning laws, this Comment compares Texas as a community property state to Montana as a separate property state to show the transferability of space property law codification between different types of states.¹⁷

Due to the lack of space law in relation to property rights and estates, the Texas State Legislature should create additions to the Texas Property and Estates Codes that govern how state residents can own mineral rights in space.¹⁸ This Comment discusses the relevance of creating space mineral right regulation now because private space flights are increasing, and laypeople are increasingly exposed to space and its possibilities.¹⁹ This Comment is the first to tie private ownership of natural resources in space to state property law and estate planning.²⁰ Specifically, this Comment proposes Texas Property and Estates Code language to govern the possession, use, profitability, and transferability of space minerals extracted in space and brought to Texas for development, research, and other purposes.²¹ Part II discusses the background of ownership in space matter and relevant U.S. and international space regulations currently in place to restrict government ownership of space.²² Part III discusses property and estate planning law guidelines to prevent ambiguous ownership of space minerals by analyzing current Texas law and applying it to private citizens, comparing other states' laws to address the applicability of the proposed Texas law to other states, and addressing the pros and cons of these regulations and public policy.²³

II. SPACE TRAVEL: FROM GOVERNMENTS TO INDIVIDUALS

While space itself has an infinitely unknown history, human interaction and discovery of space have quickly expanded along with the development of human civilization.²⁴ Space travel and discovery began nearly a century

15. *Id.*

16. *See infra* Parts II–III.

17. *See infra* Parts II–III.

18. Author's original thought; *see* Silvermail, *supra* note 13; H.R. 2262, 114th Cong. (2015); 51 U.S.C. ch. 701–13.

19. *See infra* Part II.

20. *See infra* Parts II–III.

21. *See infra* Part III.

22. *See infra* Part II.

23. *See infra* Part III.

24. *See* Freddie Wilkinson, *The History of Space Exploration*, NAT. GEO., <https://www.nationalgeographic.org/article/history-space-exploration/> (last updated June 2022) [<https://perma.cc/27YE-DC7Q>]; *The Space Race*, PBS, <https://www.pbs.org/wgbh/americanexperience/features/moon-space-race/> (last visited Sept. 22, 2022) [<https://perma.cc/2SJG-DJF9>]; *Human Spaceflight*, NASA, <https://www.nasa.gov/specials/60counting/spaceflight.html> (last visited Sept. 22, 2022) [<https://perma.cc/F4FW-C8UZ>].

ago when people started to wonder what lay beyond Earth's surface.²⁵ The first gateway to what is now a large area of research, revenue, and innovation was "The Space Race."²⁶ This section discusses the timeline of space travel in the U. S. leading up to private commercial space travel today.²⁷ The topics in this section present the overwhelming importance of regulating private ownership of natural resources in space.²⁸ Currently, while some articles have discussed the possibility of space property law, there are few existing laws or regulations governing the ownership of space and its minerals.²⁹ Specifically, this section will examine current space law related to ownership and show how states do not have any property or estate planning laws regarding space minerals.³⁰ Eventually, space law is likely going to grow into its own vast area of law with attorneys specializing in space litigation, legislation, and interaction.³¹ However, this is the beginning of such an era with little legislation to build off of.³² Without regulations, the current issues surrounding the space law area involving ownership of natural resources from space will only continue to become more convoluted and complex.³³

A. The First Space Race and the History of United States Space Travel

Throughout history, many people have thought about what lies beyond the sky and the mystery of the sun and stars, but the true start to space travel and discovery took place in the world-wide events leading up to what is known as "The Space Race."³⁴ "The Space Race" began during the Cold War when the U.S. and the Soviet Union competed to get to the Moon first.³⁵ In October of 1957, the Soviet Union launched Sputnik 1 into orbit, and in January of 1958, America's Explorer 1 went into orbit.³⁶ From there, the Soviet Union and the United States took turns competing to launch different satellites and rockets into space—eventually aiming for the Moon.³⁷ These countries launched animals as test subjects to see how their bodies would react in space.³⁸ For instance, NASA successfully sent two monkeys to space

25. See Wilkinson, *supra* note 24; see PBS, *supra* note 24; NASA, *supra* note 24.

26. See Wilkinson, *supra* note 24; see PBS, *supra* note 24; NASA, *supra* note 24.

27. See Wilkinson, *supra* note 24; see PBS, *supra* note 24; NASA, *supra* note 24.

28. See Wilkinson, *supra* note 24; see PBS, *supra* note 24; NASA, *supra* note 24.

29. See Matthew T. Smith, *One Small Plot for a Man, or One Giant Easement for Mankind?: A New Approach to the Outer Space Treaty's Property for Mankind Principle*, 2020 ILL. L. REV. 1361, 1372 (2020); Reinstein, *supra* note 13; Silvernail, *supra* note 13.

30. See Smith, *supra* note 29; Reinstein, *supra* note 13; Silvernail, *supra* note 13.

31. Author's original thought.

32. See *infra* Sections II.C, II.D.

33. See Wilkinson, *supra* note 24; PBS, *supra* note 24; NASA, *supra* note 24.

34. See Wilkinson, *supra* note 24; PBS, *supra* note 24; NASA, *supra* note 24.

35. See PBS, *supra* note 24.

36. See *id.*

37. See *id.*

38. See *id.*

and retrieved them safely after they landed back on Earth.³⁹ The true spark to “The Space Race” began in 1961 when President Kennedy challenged the space program to land a man on the Moon in the next decade.⁴⁰ Finally, in July of 1969, Neil Armstrong and Buzz Aldrin became the first humans to set foot on the Moon.⁴¹

Throughout history and leading to current-day space travel, NASA operated its own sets of programs for space travel and discovery dating back to the mid-1900s.⁴² Project Mercury was the first U.S. program to send people to space between 1961 and 1963.⁴³ Through this project, NASA discovered that the human body could function in outer space for up to thirty-four hours.⁴⁴ The Gemini Program functioned as preparation for the Apollo Program’s missions “to test an astronaut’s ability to fly long duration flights ([fourteen] days); to understand how a spacecraft could rendezvous and dock with another vehicle in Earth orbit; to perfect re-entry landing methods; and to further understand the effects of longer spaceflights on astronauts.”⁴⁵ Most notably, the Apollo Program landed the first man on the Moon in July of 1969.⁴⁶ Test flights under this program resulted in several astronauts losing their lives while attempting to reach the Moon.⁴⁷

The last two major eras for NASA’s space travel and discovery are the Space Shuttle Era and the Space Station Era.⁴⁸ The Space Shuttle Era is well known for the 1986 Challenger and 2003 Columbia accidents.⁴⁹ However, “the space shuttle carried people into orbit repeatedly; launched, recovered and repaired satellites; conducted cutting-edge research; and built the largest structure in space, the International Space Station.”⁵⁰ The Space Station Era transformed space travel into the modern development of commercial flights.⁵¹ Private companies, such as SpaceX, contracted with NASA to aid in transporting materials and astronauts to and from the space station currently in orbit.⁵² This revolutionary era brought us the current and vastly growing space industry today.⁵³ Space travel is the new hot topic in science, business, and the legal field.⁵⁴

39. *See id.*

40. *See id.*

41. *See id.*

42. NASA, *supra* note 24.

43. *Id.*

44. *Id.*

45. *Id.*

46. *Id.*

47. *Id.*

48. *Id.*

49. *Id.*

50. *Id.*

51. *Id.*

52. *Id.*

53. *See id.*; *Origins of the Commercial Space Industry*, FED. AVIATION ADMIN., https://www.faa.gov/about/history/milestones/media/commercial_space_industry.pdf [<https://perma.cc/DL2Y-SMTL>].

54. *See* NASA, *supra* note 24; FED. AVIATION ADMIN., *supra* note 53.

B. Private Space Travel Now

The commercial space industry began in the 1960s when companies contracted with NASA and the Department of Defense to purchase and launch communication satellites.⁵⁵ Other countries began their own private space flight journeys when the European Space Agency created NASA's first commercial competitor.⁵⁶ Commercial space flight used to be under the Department of Transportation (DOT), but is now the Federal Aviation Administration's only space related matter.⁵⁷

Over the past ten years, private (or commercial) space travel has increased substantially and is continuously growing.⁵⁸ In 2010, people predicted the drastic increase of the commercial space travel industry due to launches that happened within that year.⁵⁹ Companies such as Blue Origin, Virgin Galactic, and SpaceX already set travel dates to launch rockets full of paying citizens ready to see outer space in person for the first time.⁶⁰

Blue Origin, founded by Amazon's Jeff Bezos, is going beyond commercial flights to space and is trying to discover and use new energy and mineral resources in space to preserve Earth's atmosphere by moving work that harms Earth into space.⁶¹ Blue Origin launched private space flights in October of 2021.⁶²

SpaceX, founded by Tesla's Elon Musk, was the first private space company to have a spacecraft deliver cargo to and from the International Space Station (ISS), and it was the first to take humans to the ISS in 2020.⁶³ SpaceX launched its first commercial space flight in early September 2021.⁶⁴ The company plans to launch more private space flights in 2022.⁶⁵

Virgin Galactic, founded by Virgin Mobile's Richard Branson, is another successful private space company providing space travel and discovery on commercial flights and the first "commercial spaceline and vertically integrated aerospace company."⁶⁶ One aspect about Virgin Galactic that separates the company from Blue Origin and SpaceX is its unique rocket

55. FED. AVIATION ADMIN., *supra* note 53.

56. *Id.*

57. *Id.*

58. *See* Fox, *supra* note 12.

59. *See id.*

60. *See id.*; Justin Bachman & Edward Ludlow, *SpaceX Sends Civilians Into Space on First Private Flight*, BLOOMBERG (Sept. 15, 2021, 10:34 p.m.), <https://www.bloomberg.com/news/articles/2021-09-16/spacex-launches-four-people-on-private-dragon-spaceflight> [<https://perma.cc/DJ2K-5CSD>]; SPACE X, <https://www.spacex.com/> (last visited Sept. 22, 2022) [<https://perma.cc/5NPK-B6QQ>]; BLUE ORIGIN, <https://www.blueorigin.com/> [<https://perma.cc/B2AV-NH3D>] (last visited Sept. 16, 2022); VIRGIN GALACTIC, <https://www.virgingalactic.com/> [<https://perma.cc/JDD4-P38L>] (last visited: Sept. 16, 2022).

61. *See* BLUE ORIGIN, *supra* note 60.

62. *See id.*

63. *See* SPACE X, *supra* note 60.

64. *See* Bachman & Ludlow, *supra* note 60.

65. *See id.*

66. *See* VIRGIN GALACTIC, *supra* note 60.

structure and how it uses crews in every test flight which makes each one a risk for the pilot; Blue Origin and SpaceX do automatic test flights without humans first.⁶⁷

C. The Ownership of Space—Current Space Law and Regulation Generally

Currently, space ownership law consists of governmental and international regulations governed by treaties and statutes.⁶⁸ These laws only restrict governments' and nations' claims over space and use of its resources.⁶⁹ The main treaty, The Outer Space Treaty of 1967 (The Treaty), acts as the foundation for international space law by providing restrictions and guidelines to protect citizens, innovation, the environment, and provide liability for states who damage, harm, or contaminate space with their objects and equipment.⁷⁰ Numerous countries, including the U. S., United Kingdom, China, Mexico, and Canada, have signed the treaty since its enactment in 1967.⁷¹ The purpose of The Treaty is to promote peaceful exploration and use of outer space, such as prohibiting placement of nuclear weapons into orbit.⁷² The Treaty also promotes fairness and freedom throughout all countries and people who seek to travel and explore space by requiring that such activities benefit "all countries irrespective of their degree of economic or scientific development."⁷³ Most pertinent to the topic of this Comment is that "[o]uter space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means."⁷⁴

Additionally, in November of 2015, Congress passed the U.S. Commercial Space Launch Competitiveness Act (Act) into law.⁷⁵ The purpose of this Act is to "facilitate a pro-growth environment for the developing commercial space industry by encouraging private sector investment and creating more stable and predictable regulatory conditions, and for other purposes."⁷⁶ The Act covers a multitude of regulations and

67. See Nicholas Schmidle, *The Red Warning Light on Richard Branson's Space Flight*, THE NEW YORKER (Sept. 1, 2021), <https://www.newyorker.com/news/news-desk/the-red-warning-light-on-richard-bransons-space-flight> [https://perma.cc/R39G-DGCP].

68. See UNITED NATIONS OFF. FOR OUTER SPACE AFF., *supra* note 14; H.R. 2262, 114th Cong. (2015); 51 U.S.C. ch. 701–13.

69. See UNITED NATIONS OFF. FOR OUTER SPACE AFF., *supra* note 14; H.R. 2262, 114th Cong. (2015); 51 U.S.C. ch. 701–13.

70. See UNITED NATIONS OFF. FOR OUTER SPACE AFF., *supra* note 14.

71. See *id.*

72. See *id.*

73. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies art. I, Jan. 27, 1967, 18 U.S.T. 2410.

74. *Id.* at art. III.

75. H.R. 2262, 114th Cong. (2015).

76. H.R. Rep. No. 114–127 (2015–2016).

agreements involving the commercial space industry and the government.⁷⁷ Title IV of the Act mentions an amendment to Title 51 of the United States Code, which is another controlling body of space law governing the National and Commercial Space Programs (such as NASA).⁷⁸

Moreover, it is not as outlandish today as it may sound for one to think about the property ownership possibilities of outer space and its resources.⁷⁹ In recent years, people have toyed with the idea of owning, claiming, or selling the Moon.⁸⁰ People have filed petitions and have even tried registering ownership of the Moon, and while some claim to own parts, domains, or certificates of space property, the idea of such broad ownership claims widely contradicts international law.⁸¹

The question “Who owns space?” has come up many times since space discovery began.⁸² The topic presents many interesting instances of people thinking of or trying to claim parts of space.⁸³ On one occasion, a man in Canada claimed to own Jupiter’s moons, some planets, and blank space in between.⁸⁴ A Quebec court dismissed the claim and found such a frivolous claim as “an abuse of the Canadian legal system.”⁸⁵ In 1936 a man named Dean Lindsey tried to claim ownership of space by filing documents claiming several known planets and planned to profit off of the properties.⁸⁶ Others have addressed the open ended question comparing such ownership to deep sea ownership and discovery.⁸⁷ One article focuses on the possibility of space ownership by proposing real property rights and development specifically regarding the Moon.⁸⁸ However, few have written on the topic of potential space ownership in relation to real property, easements, profitability, and intellectual property.⁸⁹

Furthermore, asteroid mining has become a phenomenon to make money and minerals out of space and its natural resources.⁹⁰ This practice is unregulated and potentially dangerous.⁹¹ The space industry is rapidly developing all over the world and is a continual and popular topic of

77. H.R. 2262, 114th Cong. (2015).

78. *Id.*; 51 U.S.C. ch. 701–13.

79. See Adam Mann, *Space Cases: The Weirdest Legal Claims in Outer Space*, WIRED (June 1, 2012 6:38 a.m.), <https://www.wired.com/2012/06/space-cases/> [<https://perma.cc/YBL9-EV2L>].

80. *See id.*

81. *See id.*

82. See Gbenga Oduntan, *Who Owns Space? U.S. Asteroid-Mining Act Is Dangerous and Potentially Illegal*, THE CONVERSATION (Nov. 25, 2015 6:34 a.m.), <https://theconversation.com/who-owns-space-us-asteroid-mining-act-is-dangerous-and-potentially-illegal-51073> [<https://perma.cc/8G9R-CGWV>].

83. *See Mann, supra* note 79.

84. *See id.*

85. *Id.*

86. *See id.*

87. *See Smith, supra* note 29.

88. Reinstein, *supra* note 13.

89. *See id.*; Smith, *supra* note 29; Silvernail, *supra* note 13.

90. *See Oduntan, supra* note 82.

91. *See id.*

discussion.⁹² Some argue that mining is not economically feasible while others see great profit in effective use of the mining process by mining near orbit asteroids.⁹³ If anything, asteroid mining is a growing industry that will ultimately encourage space travel and innovation in the near future, if not currently.⁹⁴ Other countries, such as the United Kingdom, have developed their own mining practices and have discovered rare minerals and metals, ice, and water, and found the value in the practice of asteroid mining.⁹⁵

Further, intellectual property rights involving space innovation have continually caused many conflicts in the space law realm and, too, are still unregulated and ambiguous.⁹⁶ One article does address this issue and suggests certain regulations to govern ownership of space materials, ideas, and inventions.⁹⁷ Specifically, trade secrets and patents become an issue when more people start to create new space technology.⁹⁸ While not related to personal or real property—as far as space ownership is concerned—these issues in intellectual property illustrate how all-encompassing property law is regarding space law and how little regulation currently exists to prevent or combat existing problems, conflicts, and confusion.⁹⁹

The Texas State Legislature needs to examine the high value of the natural resources people are increasingly claiming as their own.¹⁰⁰ Space is home to an abundance of unknown and undiscovered resources providing huge potential for innovation, energy, and research.¹⁰¹ Specifically, “the Moon, other planets and asteroids contain a rich diversity of minerals, gases and water that could be used to provide raw materials, energy and sustenance to sustain human life and enable exploration deeper into space.”¹⁰²

D. Current International Laws and the Lack of Current Space Property and Estate Planning Laws

International entities such as the United Nations (UN) and organizations such as the U.S. Space Force exist as the mediators and regulators of space

92. *See id.*

93. *See* Bruce Dorminey, *Does Commercial Asteroid Mining Still Have A Future?*, FORBES (Aug. 21, 2021 8:37 p.m.), <https://www.forbes.com/sites/brucedorminey/2021/08/31/does-commercial-asteroid-mining-still-have-a-future/?sh=604877f71a93> [<https://perma.cc/7MHK-DSHK>].

94. *See id.*

95. *Redefining Mining*, ASTEROID MINING CORP., <https://asteroidminingcorporation.co.uk/> (last visited Sept. 22, 2022) [<https://perma.cc/K5JE-MYRY>].

96. *See* Silvernail, *supra* note 13.

97. *See id.*

98. *See id.*

99. *See id.*

100. *See Resources in Space*, LUXEMBOURG SPACE AGENCY (June 6, 2020), <https://space-agency.public.lu/en/space-resources/ressources-in-space.html> [<https://perma.cc/MCK4-H8C8>].

101. *See id.*

102. *Id.*

interactions between nations.¹⁰³ Currently, no state laws govern ownership and use of natural resources in space, specifically a state resident's rights once the minerals are extracted and brought to Earth for further development, profitability, or other uses.¹⁰⁴ Also, states do not have any operative regulations governing estate planning over such resources and how they are devised upon the owner's death.¹⁰⁵ International space law exists, governed by the UN, and some countries have their own national space law to govern their space activities.¹⁰⁶

This Comment examines current legislation in the U.S. under the Act and Title 51 of the United States Code to see what is missing and what could be used in state legislation to further protect residents, the economy, and the environment.¹⁰⁷ While there is no mention of space law in state legislation, it is also necessary to examine current state property and estate planning laws to see where the topic could easily fit in the codes in proposing new code language.¹⁰⁸ This Comment will focus on Texas as a community property state and Montana as a separate property state to demonstrate the applicability of the laws regarding space mineral rights between states with different types of property laws.¹⁰⁹ This comparison is useful because community property and separate property states classify property in marriage differently, with community property being split evenly between each spouse and separate being much more complex.¹¹⁰ While the focus of this Comment is not marital property, applying proposed Texas space mineral property laws to a separate property state and showing that it could work in all states is necessary for the uniformity and future of space mineral regulation in and between states of all property values.¹¹¹

Because space is extraterrestrial and beyond that of any one country's jurisdiction, it makes sense that there would be an overarching area of law to govern the use of outer space and the space industry between nations.¹¹² The main restrictions and regulations over different nations' exploration and use of space is The Treaty.¹¹³ Before 1967 nations lacked regulations as to space

103. See generally, UNITED NATIONS OFF. FOR OUTER SPACE AFF., *supra* note 14 (demonstrating different agencies that discuss space regulations).

104. See TEX. PROP. CODE ANN. § 75; TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003; TEX. PRAC. GUIDE WILLS, TR. & EST. PLAN. ch. 3, 9, 11.

105. See TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003.

106. See UNITED NATIONS OFF. FOR OUTER SPACE AFF., *supra* note 14.

107. See *id.*; H.R. 2262, 114th Cong. (2015); 51 U.S.C. ch. 701–13.

108. See UNITED NATIONS OFF. FOR OUTER SPACE AFF., *supra* note 14; H.R. 2262, 114th Cong. (2015); 51 U.S.C. ch. 701–13.

109. See Patrick Hicks, *Community Property States & Definition*, TRUST & WILL (Nov. 10, 2021), <https://trustandwill.com/learn/community-property-states> [<https://perma.cc/72PF-NQZQ>].

110. See *id.*

111. See *id.*

112. See *id.*

113. See UNITED NATIONS OFF. FOR OUTER SPACE AFF., *supra* note 14.

exploration and ownership.¹¹⁴ The Treaty created restrictions for nations so that no government or nation could claim parts of space or its matter, but allows research and discovery access.¹¹⁵ No current legislation exists governing private citizens' use or rights of natural resources in space, only controlling countries' peaceful and fair use and exploration of outer space and its resources.¹¹⁶ There are other pieces of international legislation that govern matters in space that are worth mentioning: The Rescue Agreement, The Moon Agreement, The Liability for Damage Caused by Space Objects (The Liability Convention), and The Registration Convention.¹¹⁷ These agreements and programs exist as a means of ensuring all signed nations are on the same page with each of the aspects of space travel and military-related restrictions.¹¹⁸

First, as of December 3, 1968, The Rescue Agreement ensures the safety and rescue of astronauts to return them home safely to Earth as well as enforcing agreements between countries to ensure the return of space objects that may land apart from their launching site.¹¹⁹ The main purpose of the agreement is to ensure that all countries are on the same page regarding space safety and will hold each other accountable if the need for astronaut or space object rescue arises.¹²⁰

Next, adopted on December 5, 1979, The Moon Agreement is analogous with the goals of The Treaty in that the Moon cannot be used for non-peaceful purposes, and the agreement puts regulations on mining for resources on the Moon or any "non-Earth" body.¹²¹ Specifically, the "agreement forbids the establishment of military bases, installations and fortifications on the Moon and, the testing of any type of weapons, and the conduct of military maneuvers on the Moon."¹²² The agreement also emphasizes that no governmental organization, non-governmental organization, or any person can have the Moon as property.¹²³

114. *See id.*

115. *See id.*

116. *See International Space Law*, SPACE FOUND., https://www.spacefoundation.org/space_brief/international-space-law/ (last visited Nov. 1, 2021) [<https://perma.cc/4JCX-N54Q>].

117. *See id.*

118. *See id.*

119. *Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, done at London, Moscow and Washington April 22, 1968*, U.S. DEP'T OF STATE, <https://www.state.gov/rescue-of-astronauts> (last visited Jan. 3, 2022) [<https://perma.cc/J2QM-PFKL>]; *see id.*

120. *See* U.S. DEP'T OF STATE., *supra* note 119; SPACE FOUND., *supra* note 116.

121. *Convention on International Liability for Damage Caused by Space Objects*, UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS, <http://unoosa.org/oosa/en/ourwork/spacelaw/treaties/introliability-convention.html> (last visited Jan. 3, 2022) [<https://perma.cc/9MMY-HX3C>]; SPACE FOUND., *supra* note 116.

122. *Moon Agreement*, NUCLEAR THREAT INITIATIVE, <https://www.nti.org/education-center/treaties-and-regimes/agreement-governing-activities-states-moon-and-other-celestial-bodies-moon-agreement/> (last visited Jan. 3, 2022) [<https://perma.cc/9F87-YBEG>].

123. *See id.*

Further, beginning in 1972, The Liability Convention holds nations who launch space objects liable for damage caused by such space objects and also conducts the procedures for any settlements of claims.¹²⁴ Similar to the purpose of many state and federal laws, it is important to hold space companies and agencies accountable for any harm or damage their launches, projects, or objects may cause.¹²⁵

Lastly, The Registration Convention is a supplement to The Treaty, The Rescue Agreement, and The Liability Convention.¹²⁶ It empowers the UN Secretary-General to maintain a register of all space objects and requires the registration of all space subjects with the coordinating national space agency.¹²⁷ The “[i]nformation on the object launched into space, including the date and territory or location of the launch, essential orbital parameters, and the function or role of the object in space is to be communicated to the UN Secretary-General as soon as practicable.”¹²⁸ This ensures that a governing body (the UN) is aware at all times of what enters space, how long it will remain, what it is used for, and when it will return.¹²⁹

These international laws are typically regulated by the UN and the U.S. Space Force.¹³⁰ The U.S. Space Force is the sixth branch of the U.S. military (but under the U.S. Air Force) that oversees space operations and missions.¹³¹ This branch officially started in 2019 after President Trump directed its planning in 2018.¹³² Not only does the U.S. Space Force regulate space operations, it also protects the freedom of space travel and exploration while defending the “high ground” (space is sometimes referred to as the ultimate high ground because it is above Earth and such systems in place create a similar advantage to that of military high ground).¹³³ Therefore, insofar as international law regulates space law between countries, the UN and the U.S. Space Force have necessary laws in place; the aspect missing now is property law legislation applicable to private citizens’ use of space minerals.¹³⁴

Overall, the fact that such strict international laws are in place to protect nations and humans from harm and to prevent dangerous conflicts shows the

124. See SPACE FOUND., *supra* note 116.

125. See *id.*

126. See *id.*

127. See *id.*

128. *Launch Registration Convention*, NUCLEAR THREAT INITIATIVE, <https://www.nti.org/education-center/treaties-and-regimes/convention-on-the-registration-of-objects-launched-in-outer-space/> (last visited Jan. 3, 2022) [<https://perma.cc/W357-U8CV>].

129. See *id.*

130. See *United States Space Force*, MILITARY.COM, <https://www.military.com/space-force> (last visited Sept. 22, 2022) [<https://perma.cc/P9CM-UJ4D>].

131. See *id.*

132. See *id.*

133. See Gregory J. Meyer & Francis P. Stallings, *Is Space the Ultimate High Ground?*, PROCEEDINGS OF SPIE (May 20, 2011), <https://www.spiedigitallibrary.org/proceedings/Download?urlId=10.1117%2F12.889117> [<https://perma.cc/B27D-PRT7>].

134. See UNITED NATIONS OFF. FOR OUTER SPACE AFF., *supra* note 14; H.R. 2262, 114th Cong. (2015); 51 U.S.C. ch. 701–13.

increasing need for new specific legislation at each level of government, all the way down to the state level, especially in states housing rocket launches and space agencies such as Texas.¹³⁵ State property law lacks any regulation of ownership of space minerals that are currently in the extraction process in space through different means of asteroid mining practices.¹³⁶

The Texas Property Code covers a wide variety of property types, both Texas-specific and generally known.¹³⁷ Currently, the Texas Property Code has a section specifically governing the use and rights of minerals, which is what this Comment suggests space natural resources' codification should mirror.¹³⁸ The Texas Property Code does not have a section about space law, especially in relation to property in space.¹³⁹ However, because Texas is one of the top mineral producing states, an examination and consideration of the state's current mineral property laws would aid in creating such laws applicable to space mineral rights.¹⁴⁰ More specifically, as of 2020, Texas is the largest energy-producing, energy-consuming, top crude oil and natural gas producing, and top wind power producing state in the U.S.¹⁴¹ Additionally, the Texas Property Code has a title governing unclaimed property.¹⁴² This title would be most analogous to current space law ownership because space is "unclaimed property" as it has no owner, but is not abandoned; however, because of how broad and ambiguous the concept of space ownership is, an assumed statute is not enough to govern such a complex and growing area of law.¹⁴³ It is essential to include code language that addresses space mineral use and rights specifically.¹⁴⁴

Moreover, to properly introduce the possibility of new space related legislation it is necessary to see whether new space law involving space minerals in one state could easily be adopted in another to quickly implement regulation.¹⁴⁵ Because space minerals share common fundamentals, no matter what state they are in, it would then be up to each state to decide how to regulate ownership and estate planning of such minerals.¹⁴⁶ Notably, Texas is a community property state, so it is worth looking into state property law

135. See UNITED NATIONS OFF. FOR OUTER SPACE AFF., *supra* note 14.

136. See *id.*; TEX. PROP. CODE ANN. §§ 75.001–.002, 75.101–.102.

137. See TEX. PROP. CODE ANN. §§ 75.001–.002, 75.101–.102.

138. See *id.*

139. See *id.*

140. See *id.*

141. See *Texas State Energy Profile*, U.S. ENERGY INFO. ADMIN., <https://www.eia.gov/state/print.php?sid=TX> (last updated May 19, 2022) [<https://perma.cc/4ZR2-3JCY>].

142. See TEX. PROP. CODE ANN. §§ 75.001–.002, 75.101–.102.

143. See *id.*

144. See *id.*

145. See Hicks, *supra* note 109.

146. See Andy Greenspon, *Precious metals in peril: Can asteroid mining save us?*, HARV. UNIV. (Oct. 25, 2016), <https://sitn.hms.harvard.edu/flash/2016/precious-metals-peril-can-asteroid-mining-save-us/> [<https://perma.cc/DT2Q-7SY8>].

of a separate property state: Montana.¹⁴⁷ Like Texas, Montana is also one of the top mineral producing states in the U.S.¹⁴⁸ Additionally, the Montana Code also contains a title governing unclaimed property that is similar to the Texas code section.¹⁴⁹ As this Comment proposes, an addition to the Texas Property Code under Title 6: Unclaimed Property is easily adaptable to other states.¹⁵⁰ Easily transferable and widely applicable language for most states can create uniformity for private citizens' space mineral usage.¹⁵¹

1. Estate Planning Guidelines for Space Specific Cases and Clients

The Texas Estates Code contains sections discussing specific ways to divide certain assets to beneficiaries.¹⁵² Among these is the section addressing who the property will go to, but there are no regulations on space property rights after one's death.¹⁵³ Currently, Title 2 of the Texas Estates Code governs estates of decedents and durable power of attorney.¹⁵⁴ There are thirteen subtitles within Title 2 that go into detail about how to divide and process certain assets and documents after death.¹⁵⁵ Currently, the Texas Estates Code does not have any sections addressing the inevitably complex aspect of space minerals or space property interest in one's estate plan or testamentary instrument.¹⁵⁶

Again, looking at a separate property state's estates code is important to establish the flexibility and transferability space law codification allows.¹⁵⁷ As mentioned above, Montana is a separate property state, so it is helpful to examine its estate planning laws to see how easily space property rights in Texas law could be adopted there.¹⁵⁸ Montana, or any other state (community or separate property) could, at least, add or amend their own codes to adapt to the new Texas Property Code additions involving space regulations.¹⁵⁹ This Comment suggests a way to go about restricting transferability of space law rights that should remain consistent throughout all states, should other states adopt the proposed Texas Estates Code addition.¹⁶⁰

147. See Hicks, *supra* note 109.

148. See *The Top 5 Mineral-Producing States*, U.S. GEOLOGICAL SURV. (Apr. 14, 2017), <https://www.usgs.gov/news/top-5-mineral-producing-states> [https://perma.cc/W5LT-2MRF].

149. See MONT. CODE ANN. § 70-9-802.

150. See *id.*

151. Author's original thought.

152. See TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003.

153. See *id.*

154. See *id.*

155. See *id.*

156. See *id.*

157. See MONT. CODE ANN. § 70-9-802.

158. See *id.*

159. See *id.*

160. See *id.*

III. STATES SHOULD SET THE PRECEDENT FOR CODIFYING SPACE LAW OWNERSHIP REGULATIONS IN PROPERTY LAW TO APPLY IN ESTATE PLANNING PRACTICES

One starting place for regulating the ownership rights of space minerals when brought to Earth is for each state to create their own laws, certifications, requirements, and restrictions involving the use of extracted space minerals to ensure human and environmental safety.¹⁶¹ Currently, no regulation exists to govern the private ownership of natural resources in space.¹⁶² Due to the recent increase in private space travel, attempts of private space ownership are likely in the near future.¹⁶³ Codifying state property and estate planning laws regarding private ownership of natural resources in space helps to address concerns regarding the possible violation of property law values, the negative effects on the economy and environment, and protecting human life.¹⁶⁴ Additionally, by proposing both property and estate planning regulations and guidelines, attorneys can efficiently counsel clients who are considering owning or currently own natural resources from space.¹⁶⁵ Not to mention, Texas is home to one of NASA's locations, exposing it to more space exploration than any other state.¹⁶⁶

This Comment proposes new language to the Texas Property Code, Texas Estates Code, and the Texas Practice Guide for Wills, Trusts, and Estate Planning.¹⁶⁷ There are five main reasons why codification of personal mineral rights of space minerals is needed: (1) to avoid uncertainty, ambiguity in society and the law, and to avoid chaos in the space and mineral industry; (2) to uphold the traditional values of property law including the "bundle of rights" and fairness; (3) to promote space travel and discovery in a way that is safe and encourages qualified and certified ownership, use, travel, and other means; (4) to prevent abuse of power in the space industry through unlimited ownership of outer space resources stemming from unlimited wealth; and (5) to prevent further harm to the environment while still encouraging scientific research and innovation.¹⁶⁸ The fact that there are

161. See TEX. PROP. CODE ANN. §§ 75.001–.002, 75.101–.102; TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003; Fox, *supra* note 12.

162. See TEX. PROP. CODE ANN. §§ 75.001–.002, 75.101–.102; TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003.

163. See Fox, *supra* note 12.

164. See *infra* Part III.

165. See discussion *supra* Section II.B; TEX. PROP. CODE ANN. § 75; TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003; TEX. PRAC. GUIDE WILLS, TR. & EST. PLAN. ch. 3, 9, 11.

166. See *Space Center Houston/Space Shuttle SAIL Developmental Orbiter – Houston, TX*, NASA VISITORS CENTERS, <http://www.visitnasa.com/space-center-houston-texas> (last visited Sept. 22, 2022) [<https://perma.cc/5KP9-CJUP>].

167. See *infra* Section III.D.

168. See Molly Grace, *A Guide to Understanding Bundle of Rights in Real Estate*, ROCKET MORTGAGE (Aug. 11, 2021), <https://www.rocketmortgage.com/learn/bundle-of-rights> [<https://perma.cc/K4TX-JFG6>]; *The Concept of Property*, S613, <http://www.law.ha>

such dire circumstances counting on the regulation of space travel, ownership, and other uncoded aspects of the space industry, shows that space laws are now evermore so important to create.¹⁶⁹

A. Five Reasons Creating Codified Regulations Benefits Humans and the Environment

Space exploration and discovery presents a whole new world of opportunities in many areas of society.¹⁷⁰ This Comment briefly mentions the lack of current space ownership regulations, impacts to values of property law, society, the economy, the health of humans, and the preservation of the environment that come into play.¹⁷¹ The discussion below exemplifies five main reasons why the solution of creating codified regulations for private ownership of natural resources from space benefits society and the environment.¹⁷²

There are five main reasons why codification of personal mineral rights of space minerals is needed: (1) to avoid ambiguity in law and chaos in the space and mineral industry; (2) to uphold the traditional values of property law, including the “bundle of rights” and fairness; (3) to safely encourage space travel, discovery, and qualified and certified ownership of mineral rights; (4) to prevent abuse of power in the space industry through unlimited ownership of seemingly unlimited outer space resources stemming from the access to unlimited wealth; and (5) to prevent further environmental harm while still encouraging scientific research and innovation.¹⁷³ Increased risks and concerns for civilization, the environment, the atmosphere beyond Earth, and human health and safety come with increased space travel.¹⁷⁴

I. Avoiding Ambiguity, Unpredictability, and Chaos

During the era of the wild west, lands were fought over, claimed, and settled.¹⁷⁵ In the wild west many aspects of property law were a free-for-all.¹⁷⁶ While outer space may have its differences, ownership of space and its

vard.edu/faculty/cdonahue/courses/prop/mat/Mats_c34.pdf (last visited Nov. 11, 2021) [https://perma.cc/W6SZ-HDCF].

169. See Grace, *supra* note 168; *The Concept of Property*, *supra* note 168.

170. See discussion *infra* Section III.B.

171. See discussion *infra* Section III.B.

172. See discussion *infra* Section III.A.

173. See discussion *infra* Section III.A.

174. See Doris E. Urrutia, *How Will Private Space Travel Transform NASA's Next 60 Years?*, SPACE.COM (Oct. 12, 2018), <https://www.space.com/42113-nasa-future-private-spaceflight.html> [https://perma.cc/T44J-B36Q].

175. See Terry L. Anderson & Peter J. Hill, *The Not So Wild, Wild West: Property Rights on the Frontier*, 10 THE INDEP. REV. 2, 289 (2005).

176. See *id.*

minerals currently mirrors those chaotic historical conflicts.¹⁷⁷ Some issues in the wild west were related to ambiguity and unpredictability of claims to both personal and real property.¹⁷⁸ The first reason for codification is to avoid ambiguous ownership of natural resources from outer space.¹⁷⁹ One of the laws most analogous to space matter currently is the law governing those who find property without a known owner.¹⁸⁰ The Texas Property Code covers abandoned property and findings.¹⁸¹

Secondly, codifying how space resources are owned will establish predictability in an increasingly unpredictable area of law and society.¹⁸² As of now, people can only speculate about the future of the space industry and private space travel.¹⁸³ However, one way to establish some element of legal predictability is to set guidelines and regulations for ownership of space minerals and eventually other aspects of space and property law.¹⁸⁴ This way, while innovation and discovery continues, people cannot chaotically claim ownership of space minerals and begin profiting off them without adhering to some uniform rules.¹⁸⁵

Consequently, the current lack of space law governing private citizens' ownership and access to what is largely unknown in outer space presents further problems of conquest, including the possibility of other nations trying to step in.¹⁸⁶ What if other nations or private citizens in the U.S. decide to claim parts of space and a space property dispute arises?¹⁸⁷ Because space is quite literally out of the locational jurisdiction of any one person, government, or nation, it is difficult to determine which laws would control (if any) and who would enforce such laws.¹⁸⁸ As previously mentioned, there are treaties and regulations regarding nations' and governments' ownership of space; they have rights to discover and explore, but no rights to claim ownership.¹⁸⁹ Among these is The Treaty of 1967.¹⁹⁰ Additionally, the Act gives the U.S. the right to commercially travel and explore space, leading to

177. *See id.*

178. *See id.*

179. *See* TEX. PROP. CODE ANN. § 72.001.

180. *See id.*

181. *Id.*

182. *See* TEX. NAT. RES. CODE ANN. §§ 81.001-.002, 131.001-.006, 211.001-.002; TEX. PROP. CODE ANN. §§ 75.001-.002, 75.101-.102.

183. *See* TEX. NAT. RES. CODE ANN. §§ 81.001-.002, 131.001-.006, 211.001-.002; TEX. PROP. CODE ANN. §§ 75.001-.002, 75.101-.102.

184. *See* TEX. NAT. RES. CODE ANN. §§ 81.001-.002, 131.001-.006, 211.001-.002; TEX. PROP. CODE ANN. §§ 75.001-.002, 75.101-.102.

185. *See* TEX. NAT. RES. CODE ANN. §§ 81.001-.002, 131.001-.006, 211.001-.002; TEX. PROP. CODE ANN. §§ 75.001-.002, 75.101-.102.

186. *See* Wilkinson, *supra* note 24; *see* PBS, *supra* note 24.

187. *See* Wilkinson, *supra* note 24; *see* PBS, *supra* note 24.

188. *See* Wilkinson, *supra* note 24; *see* PBS, *supra* note 24.

189. *See* UNITED NATIONS OFF. FOR OUTER SPACE AFF., *supra* note 14.

190. *See id.*

the current situation.¹⁹¹ While international treaties and broad national legislation can support space travel, regulation, and safety, they do not account for the imminent future of profitability and ownership of space minerals.¹⁹² By having international, national, and state laws, all bases will be covered in the event of future space law disputes.¹⁹³

2. Upholding Traditional Values in Property Law

Traditional property law begins with the analogy that a property owner has a “bundle of sticks” creating true ownership.¹⁹⁴ The so-called bundle of sticks includes: (1) the right of possession, (2) the right of control, (3) the right of enjoyment, (4) the right of disposition, and (5) the right of exclusion.¹⁹⁵ This section addresses the fundamental values of property law and how codifying an ownership scheme for space property (specifically minerals brought to Earth) can uphold the traditional “bundle of sticks” to promote further discovery and innovation.¹⁹⁶

Property ownership is a world full of expectations.¹⁹⁷ When one claims ownership of property there is an expectation of advantages to possessing; otherwise, one would not care to claim much of the property they do today.¹⁹⁸ Another expectation is to be able to enjoy that property without interference from others, and with that expectation comes the right to dispose of such property when one no longer wants or needs it.¹⁹⁹ While one does have a right of exclusion over their property, it is subject to state and federal laws such as racial discrimination.²⁰⁰ Accordingly, while people enjoy a large spectrum of power over their property, aspects of these “sticks” can be restricted by the law and public policy.²⁰¹

Additionally, property rights are protected by the U.S. Constitution.²⁰² Specifically the Fourteenth Amendment states: “No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law”²⁰³ This aligns with traditional

191. H.R. 2262, 114th Cong. (2015).

192. See Wilkinson, *supra* note 24; PBS, *supra* note 24.

193. See Wilkinson, *supra* note 24; PBS, *supra* note 24.

194. See Grace, *supra* note 168.

195. See *id.*

196. See *id.*

197. See *The Concept of Property*, *supra* note 168.

198. See *id.*

199. See *id.*

200. See *Shelley v. Kraemer*, 334 U.S. 1, 22 (1948).

201. See Grace, *supra* note 168.

202. U.S. CONST. amend. XIV, § 1.

203. *Id.*

notions of property law in that one should be able to enjoy their “bundle of sticks” without interference of the government and others.²⁰⁴

Fairness is also a fundamental root of property law that should not end beyond the Earth’s atmosphere.²⁰⁵ As a traditional value of property law, fairness means only those who follow the rules of property law can claim rightful ownership of certain types of property.²⁰⁶ The issue of fairness arises mostly in the context of constitutional law and eminent domain where courts and lawmakers have come into conflict with honoring the right to own property.²⁰⁷

With further codification of state property law governing the ownership of space minerals, the federal government is less likely to step in, as in the case of eminent domain, and seize the space mineral rights because (1) they are not technically deemed land rights, and (2) codification promotes private ownership that will itself benefit the public environmentally and economically through resource innovation, research, and development.²⁰⁸ However, it is possible that circumstances could arise where a particular space mineral is deemed extraordinarily valuable and could supply a great public use, in which case the property could be subject to federal eminent domain action under rare circumstances.²⁰⁹ In applying these traditional property law values to space law, the best way to keep space exploration and ownership civilized and fair is to create laws that give property rights to space owners to avoid any conflict or abridgment of one’s rights.²¹⁰

In all, as society expands and develops, so does the typical idea of property ownership and interest.²¹¹ Space creates an extraordinary opportunity for new areas and branches of existing law, and with that comes the need to anticipate what people will try to do with their new found discoveries; staying true to the values of property law from the beginning of time means allowing people the right to claim ownership in a safe, fair, and regulated manner, but right now there is nothing of the sort for true space related ownership.²¹²

204. See Grace, *supra* note 168.

205. See Frank I. Michelman, *Property, Utility, and Fairness: Comments on the Ethical Foundations of “Just Compensation” Law*, 80 HARV. L. REV. 6, 1165, 1220 (Apr. 1967).

206. See Christina Sandefur, *The Property Ownership Fairness Act: Protecting Private Property Rights*, GOLDWATER INST. (Feb. 9, 2016), <https://goldwaterinstitute.org/article/the-property-ownership-fairness-act-protecting-private-property-rights/> [https://perma.cc/SR3Q-DCLG].

207. See Michelman, *supra* note 205.

208. See *id.*

209. See *id.*

210. See Grace, *supra* note 168; *The Concept of Property*, *supra* note 168.

211. See Brandon Dillon, *Profitable Risk: The Dangers of Consumer Spaceflight and Space Tourism*, VITERBI CONVERSATIONS IN ETHICS (Dec. 12, 2020), <https://vce.usc.edu/volume-4-issue-2/profitable-risk-the-dangers-of-consumer-spaceflight-and-space-tourism/> [https://perma.cc/F3HA-VQ5K]; 5 *Hazards of Human Spaceflight*, NASA (May 18, 2019), <https://www.nasa.gov/hrp/5-hazards-of-human-spaceflight> [https://perma.cc/DWZ3-E4MD].

212. See Dillon, *supra* note 211; NASA, *supra* note 211.

3. Promotion and Regulation of Qualified Discovery and Travelers

The third reason for space mineral ownership regulation is an indirect effect on the current ability to continually access space so long as one has the means to do so; regulations and restrictions could indirectly prevent a large risk to human health and safety presented by the overexertion of continual space travel.²¹³ One large concern about unregulated private ownership of space resources is the possibility of people traveling to space too often to claim ownership of new resources.²¹⁴ The human body is not meant for the atmosphere beyond Earth.²¹⁵ Astronauts go through extensive training to prepare their bodies for space travel.²¹⁶ NASA maintains general requirements of a professional astronaut, including citizen status, education, and physical training.²¹⁷ This exemplifies what it takes to be able to safely and effectively travel to space.²¹⁸ Not only do humans have to prepare for space, but products do as well.²¹⁹ Space Certification ensures a product's readiness for space.²²⁰

With more people traveling to space comes the risk of physical and psychological harm to those who travel too often.²²¹ The problem here is that there are more regulations on national space stations than private commercial space travel, so regulations need to be made now because private space travel is not going away.²²² Too much space travel for humans can cause detrimental health effects, so humans need to be knowledgeable about such effects before considering space travel.²²³ NASA provides information about the physical and psychological dangers that the human body is exposed to during space (i.e. space madness).²²⁴

Further, getting rid of or prohibiting private space travel altogether inhibits and discourages the creativity and innovation that drive society.²²⁵ Not only does space travel and discovery encourage innovation and improvement of society, but it creates jobs and helps contribute to the

213. See Dillon, *supra* note 211; NASA, *supra* note 211.

214. See Dillon, *supra* note 211; NASA, *supra* note 211.

215. See *The Human Body in Space*, NASA, (Feb. 2, 2021) <https://www.nasa.gov/hrp/bodyinspace> [<https://perma.cc/5ZJC-ZNJU>].

216. See *Astronaut Requirements*, NASA (Mar. 4, 2020), https://www.nasa.gov/audience/forstudents/postsecondary/features/F_Astronaut_Requirements.html [<https://perma.cc/M5RW-X3GF>].

217. *Id.*

218. See *id.*

219. *Space Certification*, SPACE FOUND., <https://www.spacefoundation.org/what-we-do/space-certification/> (last visited Sept. 22, 2022) [<https://perma.cc/C6ZK-WUM9>].

220. See *id.*

221. See Urrutia, *supra* note 174.

222. See NASA, *supra* note 211; NASA, *supra* note 215.

223. See Dillon, *supra* note 211; NASA, *supra* note 211.

224. See NASA, *supra* note 215.

225. See *Benefits Stemming from Space Exploration*, NASA, 1, 3–4 (Sept. 2013), <https://www.nasa.gov/sites/default/files/files/Benefits-Stemming-from-Space-Exploration-2013-TAGGED.pdf> [<https://perma.cc/N4JH-VSGY>].

economy.²²⁶ As previously mentioned in this Comment, space discovery provides benefits to the environment in several ways.²²⁷ Also, these national and private space companies discussed will create new generations of scientists, inventors, and space explorers.²²⁸ Wiping away years of research and progress just for the fear of uncertainty does not adequately outweigh the substantial benefits space discovery and exploration promotes; but, regulations and guidelines, like those suggested in this Comment, will help relieve reservations about uncertainty in the field of space law.²²⁹

In addition to legal scholars thinking about this new area of law and the need for more space law legislation, it is necessary that space experts are present in the room where the decisions are made.²³⁰ This Comment presents a blanket proposal of code language as a starting place to develop further and create the conversation for more ownership regulations to be put in place.²³¹ However, it is essential that the code language include, at the very least, safety measures for dealing with such space minerals, a source for more information, or a certification requirement before legal ownership can be obtained.²³²

4. *The Economy and the Implications of Wealthy Individuals Owning Space*

The last concern that arises with private ownership of space resources is the reality that space travel is expensive; thus, space ownership and access to space could be limited to the few who can both afford it and are willing to pay.²³³ Currently, one either has to pay for or win a commercial flight to space.²³⁴ This is yet another example of the private space industry companies gaining power over the space industry as a whole.²³⁵ This section also discusses what goes into the cost of private space travel and why it is so costly—furthering the argument that only the wealthy (or the lucky) have full space access.²³⁶ This leads to the possibility of only the wealthy owning space minerals and having the ability to use, develop, research, or profit from

226. *See id.*

227. *See id.*

228. *See id.*

229. *See id.*

230. Author's original thought.

231. *See infra* Section III.C.

232. *See infra* Section III.C.

233. *See* Jamie Carter, *How Much Is A Ticket To Space? \$100,000 If You Can Wait A Decade—But Here's How To Pay Nothing*, FORBES (July 19, 2021), <https://www.forbes.com/sites/jamiecartereurope/2021/07/19/how-much-is-a-ticket-to-space-100000-if-you-can-wait-a-decade-but-heres-how-to-pay-nothing/?sh=45f62650734a> [<https://perma.cc/7NHM-6QV4>].

234. *See id.*

235. *See* Jason Davis, *How Much Does Space Travel Cost?*, NBC NEWS (Oct. 15, 2018, 10:46 a.m.), <https://www.nbcnews.com/mach/science/how-much-does-space-travel-cost-ncna919011> [<https://perma.cc/CH4M-C668>].

236. *See id.*

them.²³⁷ By codifying the restrictions on ownership of space minerals, this puts the control into the hands of states so that residents are able to possess and use such minerals in accordance with state statute, but they might also have a restriction on how much one can own.²³⁸

There may also be encouragement to distribute—in this way, new code language could give a person more access to space mineral ownership, especially if the product, development, or research was certified for the public good.²³⁹ This could also introduce incentives for space mineral owners to put their ownership to use and to discourage space travel for only collective purposes.²⁴⁰ Realistically, very few people are going to know what to do with space minerals or how to get them, but what they are used for could potentially benefit more than the space mineral owner.²⁴¹ It is true that all of this is hypothetical; but just a few years ago so was private space travel.²⁴² The reality is the space industry is growing and inserting itself into many areas of the law, but the law is lagging behind.²⁴³ While there are many areas of the law that will soon involve space, this Comment specifically focuses on the impact these space minerals have on the states and on future generations, and right now that is heavily unregulated.²⁴⁴

Due to the constant discovery and practically “limitless wealth” space minerals could provide, those who have access to such minerals are in for a quick trip to success.²⁴⁵ The idea of people trying to profit off matter in space is not as far-fetched as some may think.²⁴⁶ People have profited from space travel, discovery, research, and development for decades.²⁴⁷ Currently, the law does not address or restrict the monetary aspect of space ownership and profitability internationally, nationally, or in states.²⁴⁸ However, the overarching issue is not as concerned with limitless wealth as it is with limitless ownership and quantity.²⁴⁹ While some may argue—in accordance with the previously mentioned core values of property law—so long as the right is legal and properly documented one should be able to own as much as they can afford.²⁵⁰ The problem with that rationale applied to space minerals, property interests, and more, is that space is vast, largely undiscovered, and

237. *See id.*

238. Author’s original thought.

239. *See infra* Section III.B.1.

240. *See infra* Section III.B.1.

241. *See infra* Section III.B.1.

242. *See Fox, supra* note 12.

243. *See supra* Section II.C.

244. *See supra* Section II.C.

245. *See Reinstein, supra* note 13.

246. *See id.*

247. *See id.*

248. *See supra* Part II.

249. *See supra* Part II.

250. *See Reinstein, supra* note 13; Davis, *supra* note 235.

an environment entirely different from Earth's.²⁵¹ The ability to travel to, access, and bring what is "out there" back down to Earth—simply because someone can afford to do so—without regulation introduces possible economic, environmental, and societal issues.²⁵² Overall, new legislation regarding the ownership of space, in any capacity, can help prevent this issue by placing restrictions on extraction, travel, what is brought to Earth, and other details to keep ownership fair and safe for all.²⁵³

5. *Atmospheric Effects of Private Space Access and What There Is to Discover*

This section addresses the harms to the environment caused by the increase in space travel.²⁵⁴ The first issue is the possible harm space travel can have on the ozone layer.²⁵⁵ With the increased amount of rockets going into the atmosphere, this section also discusses how each private space company is contributing to this environmental problem.²⁵⁶ Regarding U.S. space travel, NASA published a researcher's guide to international space travel including the major effects on the environment, the relation to its practices, and other national space stations.²⁵⁷ There are also ways in which space technology has helped us better understand the environment in space, such as reactions to certain metals and materials that should not go into the atmosphere.²⁵⁸ NASA's informational research guide mentions how NASA has learned from and worked to mitigate these environmental harms in further space development.²⁵⁹

Space contains a wide array of minerals that are valuable, rare, or unknown to humans.²⁶⁰ Most of these minerals and metals come from asteroid mining.²⁶¹ Scholars and researchers say asteroids alone can hold minerals such as iron, nickel, cobalt, and platinum, which have a potential

251. See Reinstein, *supra* note 13.

252. See *id.*

253. Author's original thought; see *id.*

254. See Cameron French, *Space Travel is Open for Business, But What About the Environmental Impact?*, CTV NEWS (July 12, 2021, 2:44 p.m.), <https://www.ctvnews.ca/climate-and-environment/space-travel-is-open-for-business-but-what-about-the-environmental-impact-1.5506132#:~:text=While%20many%20might%20assume%20that,Earth%20from%20the%20sun's%20harmful> [<https://perma.cc/CT42-TZTM>].

255. *Id.*

256. See Tereza Pultarova, *The Rise of Space Tourism Could Affect Earth's Climate in Unforeseen Ways, Scientists Worry*, SPACE.COM (July 26, 2021), <https://www.space.com/environmental-impact-space-tourism-flights> [<https://perma.cc/2A8A-4VDW>].

257. See *Space Environmental Effects*, NASA, https://www.nasa.gov/sites/default/files/files/NP-2015-03-015-JSC_Space_Environment-ISS-Mini-Book-2015-508.pdf (last visited Sept. 23, 2021) [<https://perma.cc/HLN8-7TBL>].

258. See *id.*

259. See *id.*

260. See Greenspon, *supra* note 146.

261. See *id.*

value of up to trillions of dollars' worth of minerals.²⁶² Having access to these minerals would not only help innovators, manufacturers, and researchers, but it could help to reduce the mining on Earth, thus reducing the harm to Earth's atmosphere while still harvesting valuable and necessary minerals and metals.²⁶³

As mentioned in the previous section, as people and companies continue to discover, research, and develop these space minerals here on Earth, it is necessary to put preventative measures in place to account for any possible ownership disputes and methods of handling/storing such minerals.²⁶⁴ The environmental benefits of extracting valuable minerals from somewhere outside Earth to preserve the atmosphere and environment are tremendous, but without regulation, such development in this area could do more harm than good.²⁶⁵ One way to regulate space minerals is through ownership rights to know who to hold accountable in the event of personal disputes, financial disputes, or environmental harms.²⁶⁶

Further, another harm to be concerned about are the hazards of spaceflight to the human body and the danger of unregulated space travel in order to obtain such space minerals mentioned above.²⁶⁷ NASA mentions the first of these hazards is radiation exposure when traveling beyond Earth's surface that can lead to cancer, central nervous system damage, negative effects on cognitive and motor function, and other physiological effects.²⁶⁸

The second hazard involves psychological aftereffects from increased and prolonged isolation and confinement.²⁶⁹ Astronauts are placed in space for long periods of time and no person can truly prepare oneself for the real issues that come with being crammed alongside others in a small space with limited access to oxygen.²⁷⁰

Third, is the most obvious physical hazard of being numerous miles away from Earth for sometimes months or years at a time, not to mention the lack of access to food, supplies, medical equipment, and water that are launched out to the astronauts.²⁷¹ Additionally, being that far from Earth presents possibility of complete loss of connection or communication.²⁷² The fourth notable hazard is the change in or loss of gravity that humans are

262. *See id.*

263. *See Asteroid mining might actually be better for the environment*, MIT TECH. REV. (Oct. 19, 2018), <https://www.technologyreview.com/2018/10/19/139664/asteroid-mining-might-actually-be-better-for-the-environment/> [<https://perma.cc/ANP8-TNFN>].

264. *See id.*

265. *See id.*

266. *See id.*

267. *See NASA*, *supra* note 211.

268. *See id.*

269. *See id.*

270. *See id.*

271. *See id.*

272. *See id.*

inevitably accustomed to having every day.²⁷³ NASA researchers continue to conduct studies to make sure humans' bodies stay healthy before, during, and after space flight to combat any physiological effects from gravity loss.²⁷⁴

Lastly, and closely aligned with the second hazard, the fifth hazard is the effect of the hostile and closed environment of a spacecraft.²⁷⁵ When creating spacecrafts, NASA makes sure to take into account the fact that humans will be required to spend sometimes years in these machines and thus need to maintain certain temperatures and environments capable of sustaining human life for those prolonged periods of time.²⁷⁶

While beyond the scope of this Comment, it is necessary to note that lay-people showing an increased interest in private commercial space travel and the high possibility of those people continuing to travel to space to discover and obtain minerals is yet another reason for more space related legislation.²⁷⁷

B. The Suggestion: Codify Restrictions of Personal Ownership of Natural Resources from Space

This Comment does not address this aspect of regulation in relation to extraction of space minerals and laws governing such use in outer space or internationally but focuses on the title of ownership over such minerals in the state of Texas and what can or cannot be done with such rights upon death.²⁷⁸ Through asteroid mining practices, new resources are currently being extracted from space and brought to Earth for further research and development.²⁷⁹ This Comment focuses on one path to the regulation of space mineral rights: state law.²⁸⁰

Natural resources in space are new and continually discovered; thus, they warrant current regulations on ownership rights.²⁸¹ Currently, no regulations exist to govern the unclaimed minerals space provides and the potential profitability they possess once they are brought to Earth.²⁸² This Comment specifically addresses the issues associated with the lack of ownership schemes involving space minerals that are extracted from space and brought on to Texas state property.²⁸³ Because these space minerals

273. *See id.*

274. *See id.*

275. *See id.*

276. *See id.*

277. Author's original thoughts; *see id.*

278. *See supra* Part III.

279. *See* ASTEROID MINING CORP., *supra* note 95.

280. *See supra* Part III.

281. *See* TEX. NAT. RES. CODE ANN. §§ 81.001–.002, 131.001–.006, 211.001–.002; U.S. GEOLOGICAL SURV., *supra* note 148.

282. *See* TEX. NAT. RES. CODE ANN. §§ 81.001–.002, 131.001–.006, 211.001–.002.

283. *See supra* Part II.

would likely fall under “natural resources” or “minerals,” possession and use of such materials would fall under the scope of property law.²⁸⁴ These regulations should begin at the state level where property law originates.²⁸⁵ From there, other states can adopt similar regulations to align with their state property and estate planning laws; yet, the Texas codification suggested in this Comment is universal enough to be closely adopted by other states, both separate property and community property states.²⁸⁶ Other states, and even other countries, need to start thinking about the realistic possibility of space and Earth’s growing relationship and how we now have technology to access space in ways we never have before.²⁸⁷

It is human nature to want to claim what we would like to be ours; which, if one has the means and ability to obtain space minerals and bring them to Earth, they should be able to do so.²⁸⁸ However, there needs to be an extra layer of restriction on claiming ownership of such objects because taking foreign objects from space differs from taking gold from California to Texas, or moving oil from New Mexico to New York.²⁸⁹ These objects are not from Earth, are seemingly limitless, and are capable of changing many areas of law as the space industry and, specifically, the asteroid mining industry continues to grow.²⁹⁰ Development is important to civilization, but right now it is all—quite literally—up in the air.²⁹¹

1. Codified State Property Laws

Why Texas and why state law?²⁹² When naturally occurring minerals are extracted in Texas they are subject to Texas laws governing the use, transfer, and purchase of such minerals; specifically, “oil, gas, uranium, sulphur, lignite, coal, and any other substance that is ordinarily and naturally considered a mineral in this state, regardless of the depth at which the oil, gas, uranium, sulphur, lignite, coal, or other substance is found.”²⁹³ Once minerals are brought to Texas from space, there needs to be some guidelines in place to regulate the use, transfer, and purchase of such minerals.²⁹⁴ The

284. See TEX. NAT. RES. CODE ANN. §§ 81.001–.002, 131.001–.006, 211.001–.002; TEX. PROP. CODE ANN. §§ 75.001–.002, 75.101–.102.

285. See TEX. PROP. CODE ANN. §§ 75.001–.002, 75.101–.102; TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003.

286. See Hicks, *supra* note 109.

287. See Fox, *supra* note 12.

288. See ASTEROID MINING CORP., *supra* note 95.

289. See TEX. PROP. CODE ANN. §§ 75.001–.002, 75.101–.102; TEX. NAT. RES. CODE ANN. §§ 81.001–.002, 131.001–.006, 211.001–.002.

290. See ASTEROID MINING CORP., *supra* note 95.

291. See UNITED NATIONS OFF. FOR OUTER SPACE AFF., *supra* note 14; H.R. 2262, 114th Cong. (2015); 51 U.S.C. ch. 701–13.

292. See TEX. PROP. CODE ANN. § 75.001.

293. *Id.*

294. See *id.*

section below mentions the aspect of unpredictability that comes with the lack of regulation in place ahead of further space exploration and the exposure of Earth's atmosphere to space minerals.²⁹⁵

Each state has their own way of regulating minerals in accordance with its natural resource code, property code, and other applicable laws.²⁹⁶ Currently, the Texas Natural Resources Code contains information about minerals and resources and the authority of the Texas Railroad Commission to oversee such operations.²⁹⁷ The issue is that no state code defines or regulates space minerals.²⁹⁸ With the increase in private commercial space travel it is likely that more people will get the idea to gather these space minerals and try to profit off of them.²⁹⁹ While states can use this as an opportunity to create space mineral rights for citizens actively using the minerals within state lines, no current regulations exist on the matter; this could ultimately lead to a situation like the posed hypothetical at the beginning of this Comment between Jane and John.³⁰⁰

Texas legislators should add a section to the Texas Property Code and Texas Estates Code specifically addressing the personal ownership of natural resources in space.³⁰¹ This gives the state a wide latitude to oversee the ownership of space minerals and their financial movement in the state economy.³⁰² Texas is one of the top five mineral producing states in the U.S., so Texas Property Law has an adequate foundation for a new subsection of natural resource ownership.³⁰³ Realistically, space is its own area of law, but the discovery of space minerals led to state property codification because it is more similar to mineral extraction interests than basic space law.³⁰⁴ One aspect about space is that its only real tie is to itself—so as space is explored, and especially when its minerals are brought to Earth, while the minerals themselves are comparable to that of Earth minerals, some may be completely foreign.³⁰⁵ Not to mention the other conspiracies that surround the concept of space exploration, however, those topics go far beyond the focus of this Comment.³⁰⁶

295. See *infra* Section III.B.1.

296. See TEX. PROP. CODE ANN. §§ 75.001–.002, 75.101–.102; TEX. NAT. RES. CODE ANN. §§ 81.001–.002, 131.001–.006, 211.001–.002; TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003.

297. See TEX. NAT. RES. CODE ANN. §§ 81.001–.002, 131.001–.006, 211.001–.002.

298. See UNITED NATIONS OFF. FOR OUTER SPACE AFF., *supra* note 14; H.R. 2262, 114th Cong. (2015); 51 U.S.C. ch. 701–13.

299. See Fox, *supra* note 12.

300. See *supra* Part I.

301. Author's original thought.

302. See TEX. PROP. CODE ANN. §§ 75.001–.002, 75.101–.102; TEX. NAT. RES. CODE ANN. §§ 81.001–.002, 131.001–.006, 211.001–.002; TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003.

303. See U.S. GEOLOGICAL SURV., *supra* note 148.

304. See ASTEROID MINING CORP., *supra* note 95.

305. See Greenspon, *supra* note 146.

306. See Elizabeth Howell & Alisa Harvey, 25 Space Conspiracies That Just Won't Die, SPACE.COM (Feb. 7, 2022), <https://www.space.com/36751-space-conspiracies.html> [<https://perma.cc/4ZUH-R6SX>].

The bottom line is that space law is going to encompass its own areas involving international, federal, and state law.³⁰⁷ State legislators and attorneys should begin drafting language for codification and focus on regulation of known space minerals so that their use in each state is not a free-for-all and can be conducted in a fair, efficient, profitable, and beneficial way for everyone.³⁰⁸ Putting this ownership of the right to use these physical minerals into the state property law box is just one way to go about regulating this area and it is the route this Comment drives.³⁰⁹

C. Adopting New Code Sections Adapted from Existing Texas Property, Estates, and Natural Resources Codes

In adopting the new code sections to the existing Texas law, it is necessary to effectively adapt the new sections in accordance with the rest of the codes to maintain consistency and uniformity.³¹⁰ The proposed legislation, discussed under the next section of this Comment, looks at the format and language of closely corresponding code titles and sections.³¹¹ First, this section will look at relevant Texas Property Code sections that are mirrored in the proposed legislation.³¹² Next, the Texas Estates Code has specific sections relevant to the proposed sections.³¹³ Lastly, it is necessary to examine the language of the Texas Natural Resources Code to accurately correspond language of minerals and other objects to maintain the consistency in the law.³¹⁴ For purposes of this Comment, this section helps to discuss the thought process behind the placement of the new code, practice guide language, and explains why each placement is necessary.³¹⁵

1. Texas Property Code

The first Texas code to look at is the Texas Property Code and its titles, chapters, and sections regarding minerals, unclaimed property, and rights in natural resource ownership.³¹⁶ In examining the relevant code section most applicable to space mineral rights, it is best to start in the Texas Property Code titles broadly.³¹⁷ The code covers a wide variety of topics from trusts,

307. See *supra* Part II.

308. See Grace, *supra* note 168.

309. See Grace, *supra* note 168.

310. See *infra* Sections III.C.1–4.

311. See *infra* Sections III.C.1–4.

312. See *infra* Sections III.C.1–4.

313. See *infra* Sections III.C.1–4.

314. See *infra* Sections III.C.1–4.

315. See *infra* Sections III.C.1–4.

316. See TEX. PROP. CODE ANN. §§ 75.001–.002, 75.101–.102.

317. See *id.*

to landlord-tenant, and to public records.³¹⁸ The title that most closely aligns with space minerals is Title 6: Unclaimed Property.³¹⁹ A specific chapter to look at is Chapter 75: Texas Minerals.³²⁰ Section 75.001 lays out definitions of relevant terms relating to minerals and ownership.³²¹ This is important to note in the new proposed code section because some of these definitions, while aligning with this code section, may change in accordance with specific space minerals.³²² Another important aspect Section 75.001 covers is the chapter's applicability.³²³ This is another piece the proposed section will mirror to convey relevance and applicability of the proposed additions to the current code.³²⁴

2. Texas Estates Code

The second Texas code worth looking at is the Texas Estates Code, generally, and how space mineral rights could possibly be incorporated into one's estate plan.³²⁵ In examining the relevant code section for estate planning laws and in looking, again, broadly at the titles of the Estates Code, a section specific to space law assets, in general, may warrant its own title, or at least its own chapter.³²⁶ Title 2: Estate of Decedents; Durable Power of Attorney is an applicable area to examine for broad measures governing estates, transferability after death, wills, and trusts.³²⁷ The language of a new title under this code should mirror that of the current title to maintain consistency throughout the Estates Code.³²⁸ For example, each title has sections discussing purpose, scope, procedures, and application to all types of estate planning instruments.³²⁹ The idea behind creating a title specifically for space assets in general (meaning that it would encompass other space property law development) stems from Title 4, encompassing only digital assets with a single chapter deciphering how to manage such property in estates.³³⁰ Therefore, it is practical to create a specific title or chapter addressing space mineral ownership or space law as it relates to Texas state law.³³¹

318. *See id.*

319. *See id.*

320. *See* TEX. PROP. CODE ANN. §§ 75.001–.002, 75.101–.102.

321. *See* TEX. PROP. CODE ANN. § 75.001.

322. *See id.*

323. *See id.*

324. *See id.*

325. *See* TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003.

326. *See id.*

327. *See id.* §§ 31.001–.002.

328. *See id.*

329. *See id.*

330. *See* TEX. EST. CODE ANN. §§ 2001.001–.005, 2001.051–.053.

331. *See* TEX. EST. CODE ANN. §§ 2001.001–.005, 2001.051–.053.

3. *Texas Natural Resources Code*

The third and last Texas code to examine for its definitional context is the Texas Natural Resources Code.³³² This Code does not currently contain any material governing space minerals.³³³ Contrary to the Texas Property Code and Texas Estates Code, the current issue this Comment addresses deals with minerals already extracted from space that also occur naturally in space.³³⁴ Therefore, adding language about space minerals to this particular code would be inapplicable.³³⁵ However, some language within Title 3: Oil and Gas and Title 4: Mines and Mining, for example, could assist in the drafting of legislation in the Texas Property and Estates Code to further maintain consistency in Texas law.³³⁶ Notably, Title 11: Miscellaneous Uses of Natural Resources has a section discussing the use of hazardous liquids that could be important to the codification of space minerals down the road.³³⁷

4. *A Look at the Practice Guide*

It is also necessary to take a look at the current Texas Practice Guide for Wills, Trusts, and Estate Planning to decide where legislators could incorporate specific section(s) about how to counsel a client with space property.³³⁸ The Texas Practice Guide for Wills, Trusts, and Estate Planning contains specific chapters for guidelines in practice of particular areas of property and estate planning law.³³⁹ While an addition to these chapters is not essential to the future of regulating and codifying space property and uses of space minerals, it is applicable to the issue at hand to provide attorneys with assistance on how to handle this new and quickly developing area of law.³⁴⁰

D. The Language of the Proposed Property and Estates Code Sections and Practice Guide

In proposing these additions to the Texas codes, this Comment does not address the legislative process of adding language to the Texas state codes, rather, this Comment discusses what the new additions to the codes would cover and where in each code to insert them.³⁴¹ This suggestion starts with the Texas Property Code, then the Texas Estate Code, and lastly, the Estate

332. See TEX. NAT. RES. CODE ANN. §§ 131.001–.006, 211.001–.002.

333. See *id.*

334. See *id.*

335. See *id.*

336. See TEX. NAT. RES. CODE ANN. §§ 81.001–.002, 131.001–.006.

337. See TEX. NAT. RES. CODE ANN. §§ 211.001–.002.

338. See TEX. PRAC. GUIDE WILLS, TR. & EST. PLAN. ch. 3, 9, 11.

339. See *id.*

340. See *id.*

341. See discussion *supra* Section III.C.

Planning Practice Guide.³⁴² The idea here is that all three are necessary to fully encompass the control of space mineral rights at the state level: property law governs how the rights are obtained and continued; the estate planning law governs what happens to those rights after the owner's death; and the Estate Planning Practice Guide helps attorneys to stay on the same page in counseling clients who are at any stage of aforementioned space mineral ownership.³⁴³

First, the addition to the Texas Property Code should include a general overview of definitions and use of the new section, permitted uses of space minerals, and impermissible or prohibited uses of space minerals.³⁴⁴ Second, the addition to the Texas Estates Code should include the transferability guidelines of space mineral rights and restrictions on what uses are permitted in compliance with the proposed Texas Property Code addition.³⁴⁵ Lastly, the addition to the Wills, Trusts, and Estate Planning Practice Guide should include broad guidelines under each mentioned chapter to assist attorneys in counseling clients with space mineral rights and assets therefrom.³⁴⁶

1. Estate Planning and Property Law Codified Statutes and Guidelines

The specific additions to the Texas Property Code, Texas Estates Code, and Wills, Trusts, and Estate Planning Practice Guide consist of: a Texas Property Code section under Chapter 75 addressing mineral rights specific to space; addressing who the property will go to; regulations on where space property can go after one's death; creating a Title 5 or Subtitle Q under Title 2 to address personal space property in one's estate plan and will; and specific guidelines for attorneys dealing with space property in the Practice Guide under Chapters 3, 9, and 11.³⁴⁷ Implementing any of these into the practice of Texas property law is the first step in the right direction toward regulation of private ownership of natural resources from outer space.³⁴⁸ These additions can, at least, help to solve the ambiguity, fairness, and economic concerns that come with the lack of ownership regulations.³⁴⁹ Additionally, the reason for adding the estate planning aspect (rather than leaving it at the property code) is because space is already complex, and tying in space minerals and

342. See TEX. PROP. CODE ANN. § 75; TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003; TEX. PRAC. GUIDE WILLS, TR. & EST. PLAN. ch. 3, 9, 11.

343. See TEX. PROP. CODE ANN. § 75; TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003; TEX. PRAC. GUIDE WILLS, TR. & EST. PLAN. ch. 3, 9, 11.

344. See TEX. PROP. CODE ANN. §§ 75.001–.002, 75.101–.102.

345. See TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003.

346. See TEX. PRAC. GUIDE WILLS, TR. & EST. PLAN. ch. 3, 9, 11.

347. TEX. PROP. CODE ANN. § 75; TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003; TEX. PRAC. GUIDE WILLS, TR. & EST. PLAN. ch. 3, 9, 11.

348. Author's original thought; see TEX. PROP. CODE ANN. § 75; TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003; TEX. PRAC. GUIDE WILLS, TR. & EST. PLAN. ch. 3, 9, 11.

349. Author's original thought; see TEX. PROP. CODE ANN. § 75; TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003; TEX. PRAC. GUIDE WILLS, TR. & EST. PLAN. ch. 3, 9, 11.

ownership requires guidelines and uniformity that all states should eventually codify in their state code—similar to the proposed Texas codification in this Comment.³⁵⁰

The first Texas Property Code language proposal is the new chapter: Space Minerals, under the current title of Unclaimed Property.³⁵¹ Proposed Section 78.001 provides general definitions of terms that require distinction or explanation regarding space law specifically.³⁵² It is important to define “space minerals” to differentiate them from other minerals also mentioned within the Texas Property Code.³⁵³

The proposed Texas Property Code sections are as follows:

Title 6 Unclaimed Property, Chapter 78 Space Minerals, Subchapter A:

Section 78.001: Definitions

(a) Generally:

- (1) “Space Minerals” include: any natural resource originating from space such as metals from asteroids, gases, water, and other naturally occurring matter in outer space.³⁵⁴
- (2) “Claim:” a claim means to stake ownership of a space mineral for purposes of innovation, development, or research.³⁵⁵ One claims ownership by filing for a certificate of ownership in the county they reside.³⁵⁶ The certificate of ownership records the information of the owner and the identity of the space mineral(s).³⁵⁷ If applicable, one may have to turn over the space mineral to state officials for inspection in accordance with the National Space Agency guidelines before a certificate can be issued to the owner.³⁵⁸
- (3) “Ownership:” ownership consists of actively taking, using, and profiting or seeking to profit from the space mineral(s) with a valid certificate.³⁵⁹

(b) This Chapter applies to Texas residents seeking or claiming ownership of space minerals through the means of private commercial space travel.³⁶⁰

350. See discussion *supra* Section II.D.

351. See TEX. PROP. CODE ANN. § 75.001.

352. See *id.*

353. See *id.*

354. Author’s original proposal.

355. *Id.*

356. *Id.*

357. *Id.*

358. *Id.*

359. *Id.*

360. *Id.*

(c) For information about space minerals application to Estate Planning and Testamentary transfer, see the new addition to the Texas Estates Code [below].³⁶¹

Section 78.002: Restrictions on Ownership of Space Minerals

(a) Space minerals shall not be used in a manner that conflicts with The Outer Space Treaty of 1967 or the U.S. Commercial Space Launch Competitiveness Act, including the use of such minerals for warfare purposes, nor shall such minerals be used for any illegal purpose under Texas state law or federal law or regulation.³⁶²

(b) Permitted uses of space minerals are:

- (1) Private scientific research and space discovery;
- (2) Collectible purposes (so long as the owner obtains a certificate of ownership and discloses such use);
- (3) Innovation of materials for the benefit of society (such as creating new machines or resources); or
- (4) For business purposes in innovation or donation to public entity.³⁶³

(c) The permitted use must be disclosed on the certificate of ownership and signed by a state official.³⁶⁴ If the use of the space mineral changes, one must update their certificate accordingly.³⁶⁵

(d) Any conflict in claim of ownership of space minerals shall be resolved by examining who first took possession and actively began to show ownership as it is defined in Section 78.001(a)(3) of this Chapter.³⁶⁶

Section 78.003: Requirements for claiming ownership of space minerals

(a) In accordance with existing federal or international law, a person claiming ownership of space minerals must register with the national space station all materials and such materials that may be subject to registration and inspection.³⁶⁷

(b) As mentioned in Section 78.001 of this Chapter, a certificate of ownership must be obtained after registering each space mineral.³⁶⁸

The purpose for this is to make sure the foreign mineral is safe to store on Earth and does not pose a substantial risk to humans or the environment.³⁶⁹

361. *Id.*

362. See UNITED NATIONS OFF. FOR OUTER SPACE AFF., *supra* note 14; H.R. 2262, 114th Cong. (2015); 51 U.S.C. ch. 701–13; author's original proposal.

363. Author's original proposal.

364. *Id.*

365. *Id.*

366. *Id.*

367. *Id.*

368. *Id.*

369. See *Space Debris and Human Spacecraft*, NASA (May 26, 2021), https://www.nasa.gov/mission_pages/station/news/orbital_debris.html [<https://perma.cc/BSF3-7YGZ>].

(c) Owners of space minerals are bound by the restrictions set forth in Section 78.002 of this Chapter.³⁷⁰

The second proposal for the Texas Estates Code involves broad language of the transferability of space minerals and inclusion of space minerals in one's estate.³⁷¹ Included under Title 2, Subtitle Q, the proposal creates Section 801.001 to codify the ability to transfer ownership of legally owned space minerals in accordance with the proposed Texas Property Code section listing requirements of claiming space mineral ownership.³⁷²

For the Texas Estates Code, the proposed section is as follows:

Title 2, Subtitle Q:

Section 801.001: Estates Including Space Rights and Ownership

(a) All estates and transfers shall stay in accordance with Chapter 78 of the Texas Property Code (suggested addition).³⁷³

(b) To include space minerals in a testamentary instrument and to ensure transferability of such minerals, the associated national space agency is required to inspect each mineral and its condition before initiating the transfer.³⁷⁴ To initiate transfer, the space agency must acquire the certificate of ownership.³⁷⁵ After inspection and reregistration, the certificate will be put in the name of the new owner.³⁷⁶

Section 801.002: Space Mineral Rights After Death

(a) Space mineral rights are transferable under testacy, intestacy, or in trusts.³⁷⁷

(1) Beneficiaries are subject to the restrictions listed in Chapter 78 of the Texas Property Code.³⁷⁸

(2) Any recipient of an interest in space minerals is required to maintain any certifications or requirements associated with ownership per Texas law, United States law, and international space law.³⁷⁹

(3) Purpose of ownership is required as set forth in Section 78.003 of the Texas Property Code.³⁸⁰

Lastly, the additions to the Texas Wills, Trusts, and Estate Planning Practice Guide are as follows:

First, additions under Chapter 3: Client Information Gathering and Counseling should include: (1) guidelines for information gathering about

370. Author's original proposal.

371. See TEX. EST. CODE ANN. §§ 101.001–.003, 201.001–.003.

372. Author's original proposal.

373. *Id.*

374. *Id.*

375. *Id.*

376. *Id.*

377. *Id.*

378. *Id.*

379. *Id.*

380. *Id.*

the client's current affairs with space minerals, travel, or other relation (under Section 3.5: Information Gathering), (2) how to obtain any possible verification (under Section 3.12), and (3) guidance regarding any additional personnel whose presence may be necessary in a space mineral matter (under Sections 3.14–3.17).³⁸¹

For the first aspect of gathering information, it is necessary to understand the client's affiliation and current knowledge of space minerals and the space industry.³⁸² An attorney may want to know why the client is either interested in owning such materials, what they have done or plan to do with any currently claimed minerals, and their future plans regarding space minerals in general.³⁸³ As for the second aspect of obtaining verification, as mentioned in the proposed sections of the Texas Property Code, it is necessary for the client to certify their ownership through the appropriate entities, such as the national space station.³⁸⁴ The third aspect involves the possibility of any space industry professional that may need to be consulted or whose presence may be required for meetings specifically regarding space property ownership.³⁸⁵

Second, additions under Chapter 9: Lifetime Planning should include information about managing the space mineral rights under Subchapter II: Planning for management of property and possibly adding such information under Section 9.3.³⁸⁶ While a broad suggestion, as the space industry grows, it is necessary to continually add guidelines for attorneys who counsel clients with space property.³⁸⁷ In the near future, it is possible that attorneys who specialize in space law will rapidly increase along with their demand, but for now, it is important that civil attorneys have a basic understanding of what claiming space property used within state lines entails.³⁸⁸ Currently, life planning may be difficult to plan too far ahead because of the uncertainty in the rapidly developing space industry, but it is better to have hypothetical plans in place for any reasonably foreseeable circumstances that may be applicable to other types of mineral properties.³⁸⁹

Lastly, additions under Chapter 11: Business Planning may be necessary for clients who use or plan to use space minerals in a business matter.³⁹⁰ This may include adding a section under "II. Choice of Entity," "VI. Special Provisions Impacting Closely Held Businesses," or "VII. Buy-Sell Agreements" to effectively counsel clients in accordance with current

381. See TEX. PRAC. GUIDE WILLS, TR. & EST. PLAN. ch. 3.

382. See *id.*

383. See *id.*

384. See *id.*

385. See *id.*

386. See TEX. PRAC. GUIDE WILLS, TR. & EST. PLAN. ch. 9.

387. See *id.*

388. See *id.*

389. See *id.*

390. See TEX. PRAC. GUIDE WILLS, TR. & EST. PLAN. ch. 11.

property law (and the new proposed Texas Estates and Property Code additions).³⁹¹ This is likely the most important addition to the Practice Guide because it is highly probable that people will seek ownership of space minerals for business and profitable purposes.³⁹² This is an area of the space mineral industry that has the capability of quickly getting out of hand if left unregulated.³⁹³ Each addition assists in creating structure and guidance for clients and attorneys to effectively keep up with the quickly developing space industry and the opportunities it presents.³⁹⁴

2. Applicability to Community Property and Separate Property States

For state property law, this Comment examines two states that produce and possess more natural resources than most states: Texas and Montana.³⁹⁵ Also, Montana is not a community property state, so the comparison will make the proposal that much more probable for multi-state adoption.³⁹⁶ It is important to briefly examine the language and format of the relevant Montana codes to ensure such adaptability between the states.³⁹⁷ The property section of the Montana Code governing unclaimed property closely aligns with that of the Texas Property Code.³⁹⁸ While it is not necessary that every state have identical space property laws, making the new code language transferable and adaptable to other states makes it easier and quicker for other states to implement such laws.³⁹⁹

Realistically, it is possible that no state would be willing or able to simply adopt an already written Texas state law, or that their legislators do not agree with it.⁴⁰⁰ However, in whatever capacity, each state should be encouraged to create some sort of law in their codes to combat the ever-growing space industry and to prevent any disputes or conflicts involving space mineral ownership and use in their states.⁴⁰¹ Overall and at the least, space minerals and space travel must be regulated on all levels—international, federal, and state.⁴⁰² Texas property law is just one starting place in a long journey of future legislation in space property interests.⁴⁰³

391. *See id.*

392. *See id.*

393. *See id.*

394. *See* TEX. PRAC. GUIDE WILLS, TR. & EST. PLAN. ch. 3, 9, 11.

395. *See supra* Part III.

396. *See supra* Part III.

397. *See* MONT. CODE ANN. § 70-9-802.

398. *See id.*

399. *See* Hicks, *supra* note 109.

400. Author's original thought.

401. *Id.*

402. *Id.*

403. *Id.*

IV. CONCLUSION

Now, back to the hypothetical in the year 2026: Jane and John's space mineral dispute.⁴⁰⁴ The problem here lies in the lack of legislation on these minerals—who owns the right to the space resources, John or Jane?⁴⁰⁵ With the new proposed legislation, Section 78.002 of the Texas Property Code would resolve this conflict by looking at who first claimed ownership as it is defined in Section 78.001.⁴⁰⁶ In this case, if Jane claimed ownership first, she would possess the space mineral rights to those she claimed before John.⁴⁰⁷ From there, she should meet with an Estate Planning attorney to effectively plan such ownership in accordance with her estate.⁴⁰⁸

Due to the lack of space law in relation to property rights and estates, the Texas State Legislature should create additions to the Texas Property Code and the Texas Estates Code governing the ownership of space mineral rights for state residents.⁴⁰⁹ This Comment examined the history of space travel beginning with "The Space Race" all the way to present-day private commercial space travel and the new area of law that is space ownership.⁴¹⁰ With this new legislation, state legislatures can hopefully get ahead of what is soon becoming the "Private Space Race," and make sure laws are in place to regulate ownership of minerals in space.⁴¹¹ While this Comment specifically covers space mineral law, private space travel opens a large door to many different aspects of unregulated activity that needs legislation.⁴¹² By starting the codification of space laws for private persons now, legislatures can save themselves the conflict when space law disputes arise without legislation to fall back on.⁴¹³

404. Author's original hypothetical.

405. *Id.*

406. *See supra* Part II.

407. *See supra* Part III.

408. *See supra* Part III.

409. *See supra* Part III.

410. *See supra* Part II.

411. *See supra* Part III.

412. Author's original thought; *see supra* Part III.

413. Author's original thought; *see supra* Part III.