# 1NC vs Westridge KY

## 1

### 1nc – t

#### Interpretation: appropriation involves permanent, exclusive use of land and resource extraction.

Stephen Gorove, Stephen Gorove (1917-2001) was a space law education pioneer. He served as a professor of space law and director of space studies and policy, from 1991-1998, at the University of Mississippi., 1969 " Interpreting Article II of the Outer Space Treaty" Fordham Law Review, https://ir.lawnet.fordham.edu/cgi/viewcontent.cgi?article=1966&context=flr

With respect to the concept of appropriation the basic question is **what constitutes "appropriation,"** as used in the Treaty, especially in contradistinction to casual or temporary use. The term "appropriation" is used most frequently to denote the taking of property for one's own or exclusive use with a sense of permanence. Under such interpretation the establishment of a permanent settlement or the carrying out of commercial activities by nationals of a country on a celestial body may constitute national appropriation if the activities take place under the supreme authority (sovereignty) of the state. Short of this, if the state wields no exclusive authority or jurisdiction in relation to the area in question, the answer would seem to be in the negative, unless, the nationals also use their individual appropriations as cover-ups for their state's activities.5 In this connection, it should be emphasized that the word "appropriation" indicates a taking which involves something more than just a casual use. Thus a temporary occupation of a landing site or other area, just like the **temporary or nonexclusive use of property, would not constitute appropriation**. By the same token, any use involving consumption or **taking with intention of keeping for one's own exclusive use would amount to appropriation.**

#### Violation – application of PTD to space isn’t permanent, it’s context dependent and depends on cost benefit analysis

**WEF n.d.** -- (“Public Trust Doctrine.” Water Education Foundation, The Water Education Foundation is a nonprofit organization whose goal is to provide unbiased, balanced information on water issues in California and the Southwestern United States. The Foundation's mission, since its founding in 1977, has been "to create a better understanding of water resources and foster public understanding and resolution of water resource issues through facilitation, education and outreach,” <https://www.watereducation.org/aquapedia/public-trust-doctrine>, HKR-AS)

Rooted in Roman law, the public trust doctrine recognizes the public right to many natural resources including “the air, running water, the sea and its shore.”

The public trust doctrine requires the sovereign, or state, to hold in trust designated resources for the benefit of the people. Traditionally, the public trust applied to commerce and fishing in navigable waters, but its uses were expanded in California in 1971 to include fish, wildlife, habitat and recreation.

At that time, the California Supreme Court in Marks v. Whitney broadened the definition of public trust because “public trust uses are sufficiently flexible to **encompass changing public needs**.” This definition would be first applied in a legal case in the 1980s (see below). [See also California water rights.]

Mono Lake Case

In California, public trust was most notably invoked in a landmark case involving water use at Mono Lake.

In a landmark case filed to protect the Mono Lake Basin from 40 years of water diversions by the city of Los Angeles, California’s Supreme Court ruled in 1983 that reasonable and beneficial uses of water **must be interpreted in accordance with public trust needs**. This was the first case in California where the public trust doctrine was applied.

Significantly, the Mono Lake decision held that the state retains jurisdiction over these rights and may reconsider the impact on public trust, which in addition to the traditional commerce, navigation and fishing, includes wildlife habitat. The necessity of protecting the public trust was to be determined by balancing the value and cost of instream water needs against the benefits and costs of diversions. [Purchase the Layperson’s Guide to Water Rights to learn more about public trust.]

#### Vote neg for Ground – allowing affs to not defend permanent appropriation kills negative ground – we can’t read the innovation DA, since they can say innovative appropriation efforts are allowed, we can’t read asteroid mining or disads to specific types of appropriation since they can defend an exemption for that, etc.

#### T is a voting issue that should be evaluated through competing interps – it tells the negative what to prepare for and reasonability invites judge intervention

## 2

### 1nc – t

#### Interp – the Affirmative must only defend that appropriation of outer space is unjust.

#### Violation: They defend a plan with an actor “states” and an ought statement instead of just defending the res

#### Standards – Effects and Extra-T which are voters for predictable limits and ground – allowing the Aff to defend implementation through any number of agreements/mechanisms explodes predictable limits – it shifts the topic to not appropriation good/bad but how we should end it which skews pre-tournament prep.

## 3

### 1nc – da

#### The plan upends local control over ocean zoning—national interests expedite offshore renewables, local opposition prevents it

Ganong 11, (J.D. Candidate at William & Mary Law School, The Slippery Shelf: Ceding the Public Trust to Administrative Ambivalence in Offshore Development, scholarship.law.wm.edu/cgi/viewcontent.cgi?article=1535&context=wmelpr)

Still, the Act garnered praise as a step in the right direction towards more cohesive management of the nation’s sea resources, as called for by a 2003 Pew Ocean Commission report,136 which provides part of a possible solution to allowing adjacent coastal states to command a response to negative impacts of projects in federal waters off their shores.137 The report calls for the federal government to revamp federal ocean laws to better protect ocean resources in the face of increasing ocean development.138 The report noted that “[t]he principal laws to protect our coastal zones, endangered marine mammals, ocean waters, and fisheries were enacted thirty years ago, on a crisis-by-crisis, sector-by-sector basis.”139 The result has rendered chaos for ocean management: “[p]lagued with systemic problems, U.S. ocean governance is in disarray.”140 The current state of affairs prompted the Commission to call for reformation of the federal government’s relationship to ocean resources, with the report noting, “[m]ost importantly, we must treat our oceans as a public trust.”141 The report advocates implementing ocean zoning guided by a National Ocean Policy Act and administered by regional authorities.142 Implementing the Pew Ocean Commission’s recommendations would aggrandize the Massachusetts Ocean Act of 2008 by installing a comprehensive ocean management policy and consequent zoning,143 administered through regional councils.144 While the plan calls for participation from various government officials and a broad range of stakeholders,145 it creates new governmental bodies146 at the expense of bypassing existing governmental zoning structures rooted in the American tradition of local land use governance.147 This is perhaps detrimental to states’ roles as public trust guardians when local governments, who traditionally hold such zoning authority,148 are situated nearest the project and, resultantly, may be best attuned to the negative externalities of offshore projects and most cognizant of the public’s interest in those resources affected by a particular offshore project.149 As discussed below, and as illustrated by the Cape Wind conflict, shifting ocean zoning authority to a new federal agency, even one peppered with local stakeholders, might aggravate existing tensions between offshore development, national policy considerations, and an American tradition of local control. IV. SITING THE POWER AS KEY TO SITING WIND FARMS AND OTHER OFFSHORE PROJECTS Perhaps contributing to the Cape Wind conflict is the dissonance between the presupposition of local land use controls and national policy advancement. The latent tension between local land use control and national policy objectives could be mitigated by a cohesive national oceanic policy and consequent zoning, as suggested by the Pew Commission report.150 A national ocean policy that heeds the traditional structure of American zoning governance may both chill paralyzing conflict and elevate discourse regarding appropriate offshore development.151 The concept of local control over what space is used for what purpose has deep-seated origins in local governance: as Rosenberg suggests, “[t]he practice of state and local government supremacy over direct land utilization has strong support in American concepts of federalism and enacting federal preemption would interfere with traditional land use control authority and would likely be very politically unpopular in many parts of the United States.”152 Clearly, the Cape Wind project has illustrated how unpopular removing local control from significant development can be.153 Perhaps the resistance to surrendering local control comes with good reason. Zoning powers were delegated to states, which in turn delegated such powers to municipalities and counties,154 due to federalism’s assumption that decision-making should occur at the most local level with capacity to solve the problem at issue.155 Whether local governments have the “capacity” to exhaustively analyze the impacts of an offshore wind farm might be arguable given that their perspective is often limited to localized concerns156 at the expense of broader concerns, like a national interest in encouraging renewable energy generation.157

#### Local PTD obstructs offshore wind now – increasing federal power over-rides this because of vast energy benefits – OSW undermines ocean biodiversity

Ganong 11, (J.D. Candidate at William & Mary Law School, The Slippery Shelf: Ceding the Public Trust to Administrative Ambivalence in Offshore Development, scholarship.law.wm.edu/cgi/viewcontent.cgi?article=1535&context=wmelpr)

While these concerns are valid,161 the same rationale for seating decision-making power closest to those it affects would seem to suggest that communities can capably assess the particular project impacts affecting their shores, navigable waterways, and citizens, thereby supporting the assertion that local governments should have some command of how spaces surrounding them are used. For instance, local communities have staged complaints that radiation from wind turbines could pollute the water and that turbine supports could attract jellyfish populations that would cause a corresponding decrease in fish, thereby affecting local fishermen.162 Without local fishermen to raise these concerns impacting their livelihood, this negative impact, however small, to the biodiversity of the proposed project site might not be so zealously emphasized. Also, corollary to the proposition that community oversight of project impacts leads to parochial decision-making163 is that state and federal agencies may not make decisions in the best interests of individual communities in an effort to achieve broader policy goals. This is especially true when federal and state alternatives to local decision-making stand to receive significant revenues from the proposed projects. This is the case in the Cape Wind project, where a twenty-eight year lease for operating offshore wind turbines will generate $88,278 in annual federally assessed fees, more when the project becomes operational, twenty-seven percent of which will go to the Massachusetts commonwealth.164 In times of shrinking public budgets, such inducements might sway policy makers, even inadvertently, towards project approval while understating negative project impacts.165 Because those closest to the project may best be able to articulate negative policy impacts,166 local governments should play an active role in articulating negative externalities from offshore development projects as part of a state’s fulfillment of its role as guardian of the public trust. While local governments should play an active role by guiding development of projects in federal waters, national policy goals could be too easily thwarted if local communities, or even states, held veto power for offshore projects marginally impacting their shores, despite the fact that such projects promise renewable energy benefits to a much larger segment of the population than resides within their town lines.167 While understanding the Alliance dissent’s warning against polarizing the stewardship of ocean resources with furtherance of national energy policy goals,168 it is important to note that the public trust doctrine should not be commandeered in the name of many to serve the private desires of a few,169 a charge Cape Wind project opponents have encountered in their opposition to the project.170 Yet in cases where competing values stake a claim to public trust doctrine arguments, such policy tensions are perhaps best left to resolution by the people, to whom powers are reserved by the Constitution’s Ninth and Tenth Amendments.171 Resolving these overarching policy conflicts could well be done through a comprehensive revamping of ocean legislation as suggested by the Pew Commission172 and as recommended by the U.S. Commission on Ocean Policy.173 Given the need for federal policy to establish a comprehensive offshore wind power regulatory scheme,174 the siting of offshore projects located in federal territorial waters should well be the prerogative of federal administrative agencies.175 Yet, to best resolve the tension between the benefits and tradition of local oversight and the need for efficacy in implementing a comprehensive national policy,176 heed should be given to the state’s role in enforcing the public trust doctrine177 and, consequently, to negative externalities flagged by those trustees of the public trust as provided for by statutes like the Massachusetts Ocean Act of 2008.178 To achieve this framework of complete federal jurisdiction concordant with the state’s public trust role, Congress can act on the U.S. Commission on Ocean Policy’s recommendation to strengthen partnerships with nonfederal agencies, particularly states, to manage off shore development.179 How to do this raises another discussion.

#### Their solvency author explicitly flags oceans as an area where the doctrine would be applied

Babcock 19 [H., general counsel to the National Audubon Society from 1987-91 and as deputy general counsel and Director of Audubon’s Public Lands and Water Program from 1981-87. Previously, she was a partner with Blum, Nash & Railsback, where she focused on energy and environmental issues, and an associate at LeBoeuf, Lamb, Leiby & MacRae where she represented utilities in the nuclear licensing process. From 1977-79, she served as a Deputy Assistant Secretary of Energy and Minerals in the U.S. Department of the Interior. Professor Babcock has taught environmental and natural resources law as a visiting professor at Pace University Law School and as an adjunct at the University of Pennsylvania, Yale, Catholic University, and Antioch law schools. Professor Babcock was a member of the Standing Committee on Environmental Law of the American Bar Association 2019. THE PUBLIC TRUST DOCTRINE, OUTER SPACE, AND THE GLOBAL COMMONS: TIME TO CALL HOME ET. [online] Lawreview.syr.edu. p. 234-35 Available at: <https://lawreview.syr.edu/wp-content/uploads/2019/09/H-Babcock-Article-Final-Document-v2.pdf#page=67>]

The 1959 Antarctic Treaty343 established “the foundation for international space law.”344 Like outer space, Antarctica and the oceans “presented a dilemma regarding habitation and defense. No nation occupied these territories and no nation desired a ‘race to own’ without a guarantee of who would emerge victorious.”345 Both the Antarctic Treaty and the Deep Seabed Hard Mineral Resources Act (the “Deep Seabed Act”)346 eschewed the concept of private property as well as the rights of first possession, in part, because the riches of those areas might allow developing nations to share in those riches as opposed to remaining economically marginalized.347 The Deep Seabed Act provides a model for how to regulate activities in a commons, like outer space, which it manages to do without privatizing the marine resource.348 As a result, it is “customary and accepted legal reasoning” to analogize between private ownership rights outside of national sovereignty, like those the Deep Seabed Act granted, and a “land claims recognition law for celestial bodies.”349 “The oceans and Antarctica . . . have much in common with the moon. They can be harsh environments that are difficult to reach to extract minerals [and are resource rich]. They are also designated international areas in which no nation has a sovereign claim.”350 The history of the earth’s oceans is a progression from “the domain of conquering armadas and privateers, when good legal title required as little as arbitrary lines drawn on a map,” to the concept of a “free sea” open to all countries, where no single country could “obstruct the use of that privilege.”351 International space law built on that history of open passage and “free sea.”352 The roots of the idea of granting non-space faring nations right of access can also be found in the 1958 Geneva Convention on the High Seas, which granted “landlocked states the right to sail the oceans by requiring their coastal neighbors to grant free passage over land and through territorial waters.”353 The legal framework of UNCLOS united “a broad spectrum of national and private interests into a shared agreement on the possession and usage of a seemingly borderless area of the global commons,” setting another useful precedent for outer space.354 However, UNCLOS, as a model, is impractical in “the vast reaches of outer space”—space is simply too vast and unlimited.355

**New turbines lead to invasive species – collapse global biodiversity**

**Langhamer 12** – Research Professor @ Norwegian University of Science and Technology

(Olivia, “Artificial Reef Effect in relation to Offshore Renewable Energy Conversion: State of the Art,” The Scientific World Journal, doi: 10.1100/2012/386713)//BB

One mitigating effect of offshore renewable energy on the local biodiversity may occur due to colonization by invasive species. Ever since international shipping started, marine organisms have been distributed all over the world by ballast water or as fouling on boat hulls. This introduction of alien species has dramatic ecological effects, since **it can be a threat to global biodiversity** [52, 53] and lead to local extinctions and fishery collapses [53]. Artificial hard substrates offer habitats for a large number of invasive species normally attached to rocky reefs [54]. In general, artificial structures do not host exactly the same species as a natural hard substrate [55, 56]. The installation of offshore renewable energy parks may not only introduce hard substrata in otherwise sandy-dominated bottoms, but can also provide new habitats for invasive species. Different hydrodynamics, such as more shelter due to new structures may lead to colonization of organisms very different to those on nearby hard substrates and thereby establish and spread nonindigenous species [57]. On wind turbine constructions in the North Sea and in the Baltic Sea the presence of alien species has been recorded [58–60] and may provide stepping-stones for spread, which could facilitate the establishment of the new taxa in the recipient region.

#### BioD loss causes extinction and turns everything

Torres 16 (Phil, founder of the X-Risks Institute, an affiliate scholar at the Institute for Ethics and Emerging Technologies, and the author of The End: What Science and Religion Tell Us About the Apocalypse, "Biodiversity loss: An existential risk comparable to climate change," Bulletin of Atomic Scientists, 4/11, http://thebulletin.org/biodiversity-loss-existential-risk-comparable-climate-change9329)

But there is another existential threat that the Bulletin overlooked in its Doomsday Clock announcement: biodiversity loss. This phenomenon is often identified as one of the many consequences of climate change, and this is of course correct. But biodiversity loss is also a contributing factor behind climate change. For example, deforestation in the Amazon rainforest and elsewhere reduces the amount of carbon dioxide removed from the atmosphere by plants, a natural process that mitigates the effects of climate change. So the causal relation between climate change and biodiversity loss is bidirectional. Furthermore, there are myriad phenomena that are driving biodiversity loss in addition to climate change. Other causes include ecosystem fragmentation, invasive species, pollution, oxygen depletion caused by fertilizers running off into ponds and streams, overfishing, human overpopulation, and overconsumption. All of these phenomena have a direct impact on the health of the biosphere, and all would conceivably persist even if the problem of climate change were somehow immediately solved. Such considerations warrant decoupling biodiversity loss from climate change, because the former has been consistently subsumed by the latter as a mere effect. Biodiversity loss is a distinct environmental crisis with its own unique syndrome of causes, consequences, and solutions—such as restoring habitats, creating protected areas (“biodiversity parks”), and practicing sustainable agriculture. The sixth extinction. The repercussions of biodiversity loss are potentially as severe as those anticipated from climate change, or even a nuclear conflict. For example, according to a 2015 study published in Science Advances, the best available evidence reveals “an exceptionally rapid loss of biodiversity over the last few centuries, indicating that a sixth mass extinction is already under way.” This conclusion holds, even on the most optimistic assumptions about the background rate of species losses and the current rate of vertebrate extinctions. The group classified as “vertebrates” includes mammals, birds, reptiles, fish, and all other creatures with a backbone. The article argues that, using its conservative figures, the average loss of vertebrate species was 100 times higher in the past century relative to the background rate of extinction. (Other scientists have suggested that the current extinction rate could be as much as 10,000 times higher than normal.) As the authors write, “The evidence is incontrovertible that recent extinction rates are unprecedented in human history and highly unusual in Earth’s history.” Perhaps the term “Big Six” should enter the popular lexicon—to add the current extinction to the previous “Big Five,” the last of which wiped out the dinosaurs 66 million years ago. But the concept of biodiversity encompasses more than just the total number of species on the planet. It also refers to the size of different populations of species. With respect to this phenomenon, multiple studies have confirmed that wild populations around the world are dwindling and disappearing at an alarming rate. For example, the 2010 Global Biodiversity Outlook report found that the population of wild vertebrates living in the tropics dropped by 59 percent between 1970 and 2006. The report also found that the population of farmland birds in Europe has dropped by 50 percent since 1980; bird populations in the grasslands of North America declined by almost 40 percent between 1968 and 2003; and the population of birds in North American arid lands has fallen by almost 30 percent since the 1960s. Similarly, 42 percent of all amphibian species (a type of vertebrate that is sometimes called an “ecological indicator”) are undergoing population declines, and 23 percent of all plant species “are estimated to be threatened with extinction.” Other studies have found that some 20 percent of all reptile species, 48 percent of the world’s primates, and 50 percent of freshwater turtles are threatened. Underwater, about 10 percent of all coral reefs are now dead, and another 60 percent are in danger of dying. Consistent with these data, the 2014 Living Planet Report shows that the global population of wild vertebrates dropped by 52 percent in only four decades—from 1970 to 2010. While biologists often avoid projecting historical trends into the future because of the complexity of ecological systems, it’s tempting to extrapolate this figure to, say, the year 2050, which is four decades from 2010. As it happens, a 2006 study published in Science does precisely this: It projects past trends of marine biodiversity loss into the 21st century, concluding that, unless significant changes are made to patterns of human activity, there will be virtually no more wild-caught seafood by 2048. Catastrophic consequences for civilization. The consequences of this rapid pruning of the evolutionary tree of life extend beyond the obvious. There could be surprising effects of biodiversity loss that scientists are unable to fully anticipate in advance. For example, prior research has shown that localized ecosystems can undergo abrupt and irreversible shifts when they reach a tipping point. According to a 2012 paper published in Nature, there are reasons for thinking that we may be approaching a tipping point of this sort in the global ecosystem, beyond which the consequences could be catastrophic for civilization. As the authors write, a planetary-scale transition could precipitate “substantial losses of ecosystem services required to sustain the human population.” An ecosystem service is any ecological process that benefits humanity, such as food production and crop pollination. If the global ecosystem were to cross a tipping point and substantial ecosystem services were lost, the results could be “widespread social unrest, economic instability, and loss of human life.” According to Missouri Botanical Garden ecologist Adam Smith, one of the paper’s co-authors, this could occur in a matter of decades—far more quickly than most of the expected consequences of climate change, yet equally destructive. Biodiversity loss is a “threat multiplier” that, by pushing societies to the brink of collapse, will exacerbate existing conflicts and introduce entirely new struggles between state and non-state actors. Indeed, it could even fuel the rise of terrorism. (After all, climate change has been linked to the emergence of ISIS in Syria, and multiple high-ranking US officials, such as former US Defense Secretary Chuck Hagel and CIA director John Brennan, have affirmed that climate change and terrorism are connected.) The reality is that we are entering the sixth mass extinction in the 3.8-billion-year history of life on Earth, and the impact of this event could be felt by civilization “in as little as three human lifetimes,” as the aforementioned 2012 Nature paper notes. Furthermore, the widespread decline of biological populations could plausibly initiate a dramatic transformation of the global ecosystem on an even faster timescale: perhaps a single human lifetime. The unavoidable conclusion is that biodiversity loss constitutes an existential threat in its own right. As such, it ought to be considered alongside climate change and nuclear weapons as one of the most significant contemporary risks to human prosperity and survival.

## 4

### 1nc – cp

#### States should declare that public guardianship obligations created by the non-ownership doctrine necessitate a reduction in private actor appropriation of Outer Space.

#### The public trust doctrine is inseparable from an anthropocentric politics of human chauvinism – further application can only strengthen exploitative relationships to nature – guardianship asserts the doctrine of non-ownership, which solves better and competes

Adler 05, Dean College of Law at Utah (Robert, The Law at the Water's Edge: Limits to ""Ownership"" of Aquatic Ecosystems, in Wet Growth: Should Water Law Control Land Use?, pg. 244)

I argue instead that the idea of a public “trust” should be replaced by one of public “guardianship.” In a classic trust, legal and equitable title are held by different persons, and the person with legal title has “equitable duties to deal with the property for the benefit of another person.” The trust duty is fiduciary and typically requires the trustee to maximize the income or other economic value of the trust assets for the beneficiary. This principle implies that if the trustee believes that a particular asset is better used for another purpose, or that certain trust values are more valuable than others from the perspective of the beneficiary, the trustee can manage the trust assets accordingly or even eliminate the resource entirely. Viewed again according to the underlying theory or property ownership, that landowners will make decisions that maximize the welfare value of the holding, public trust ownership solves some, but not all, of the market failure problems of private ownership. Under the expanded version of the public trust doctrine as interpreted by some courts, the trustee is now supposed to ensure that all common public values, including noncommodified environmental values that benefit the public in some way, are considered fully and appropriately and weighed against values that might benefit a subset of society or even an individual landowner disproportionately. If private market participants exert undue influence on the government’s decision process in the exercise of its trust, however, those decisions may not necessarily maximize overall welfare. Give the deference usually enjoyed by trustees absent clear violations of the trust duty, many courts are not likely to interfere with those judgements. Even absent such biasing of the trustee’s decision, a trustee may simply, in the exercise of its fiduciary judgement, determine that the commercial value of a particular piece of trust property is more valuable to the beneficiary than its environmental value, a decision more likely to be reviewed by courts from a procedural, rather than a substantive, perspective. Moreover, to the extent that trust resources provide ecosystem or other values or benefits that transcend the welfare of human societies, the public trust doctrine, - and trust law in general - is not even designed to incorporate those values. In fact, a public trustee arguably would violate its fiduciary duty to the public beneficiary if it considered environmental values at the expense of the immediate (current generation) public beneficiaries. One solution to that dilemma would be to consider the beneficiaries to include future as well as current generations of humans, but the inherently anthropocentric focus of the trust duty remains. Thus, while some courts have upheld government regulation and even prohibition of private development of land at the water's edge, under interpretations of the public trust doctrine and police power that affirm environmental stewardship duties; others have applied the doctrine as one that merely ensures that the trustee makes rational decisions after properly considering all trust values. 174 Other courts have ap­plied the doctrine to sanction the very economic development activities at the water's edge that cause such extensive aquatic ecosystem harm, such as the use of trust property for transportation systems, public utilities, oil production, and urban and commercial expansion. So long as the law considers aquatic species and other components of aquatic eco­systems to be "trust assets" to be managed entirely for the benefit of human economic and other welfare, aquatic ecosystems will remain vulnerable to continued impairment. A potentially more satisfying model, as discussed in the next section, is suggested by the evolution of wildlife law from one in which wildlife was similarly viewed as being "owned" by the state in trust for the people in common to one of "non­ownership." The non-ownership doctrine implies a corollary principle that the government is a guardian, rather than a trustee, of the resource and must exercise its legal responsibilities accordingly.

#### That human-centric ethic ensures escalating cycles of ecological collapse and exclusion – ethical obligation to reject

**Ahkin ‘10** (Melanie Ahkin, Monash University, 2010, “Human Centrism, Animist Materialism, and the Critique of Rationalism in Val Plumwood’s Critical Ecological Feminism,” Emergent Australian Philosophers, a peer reviewed journal of philosophy,http://www.eap.philosophy-australia.com/archives.html)  
  
These five features provide the basis for hegemonic centrism insofar as they promote certain conceptual and perceptual distortions of reality which universalise and naturalise the standpoint of the superior relata as primary or centre, and deny and subordinate the standpoints of inferiorised others as secondary or derivative. Using standpoint theory analysis, Plumwood's reconceptualisation of human chauvinist frameworks locates and dissects these logical characteristics of dualism, and the conceptual and perceptual distortions of reality common to centric structures, as follows. Radical exclusion is found in the rationalist emphasis on differences between humans and non-human nature, its valourisation of a human rationality conceived as exclusionary of nature, and its minimisation of similarities between the two realms. Homogenisation and stereotyping occur especially in the rationalist denial of consciousness to nature, and its denial of the diversity of mental characteristics found within its many different constituents, facilitating a perception of nature as homogeneous and of its members as interchangeable and replaceable resources. This definition of nature in terms of its **lack** of human rationality and consciousness means that its identity remains relative to that of the dominant human group, and its difference is marked as deficiency, permitting its inferiorisation. Backgrounding and denial may be observed in the conception of nature as extraneous and inessential background to the foreground of human culture, in the human denial of dependency on the natural environment, and denial of the ethical and political constraints which the unrecognised ends and needs of non-human nature might otherwise place on human behaviour. These features together create an ethical discontinuity between humans and non-human nature which denies nature's value and agency, and thereby promote its instrumentalisation and exploitation for the benefit of humans.11 This dualistic logic helps to universalise the human centric standpoint, making invisible and seemingly inevitable the conceptual and perceptual distortions of reality and oppression of non-human nature it enjoins. The alternative standpoints and perspectives of members of the inferiorised class of nature are denied legitimacy and subordinated to that of the class of humans, ultimately becoming invisible once this master standpoint becomes part of the very structure of thought.12 Such an anthropocentric framework creates a variety of serious injustices and prudential risks, making it highly ecologically irrational.13 The hierarchical value prescriptions and epistemic distortions responsible for its biased, reductive conceptualisation of nature strips the non-human natural realm of non-instrumental value, and impedes the fair and impartial treatment of its members. Similarly, anthropocentrism creates distributive injustices by restricting ethical concern to humans, admitting partisan distributive relationships with non-human nature in the forms of commodification and instrumentalisation. The prudential risks and **blindspots** created by anthropocentrism are problematic for nature and humans alike and are of especial concern within our current context of radical human dependence on an irreplaceable and increasingly degraded natural environment. These prudential risks are in large part consequences of the centric structure's promotion of illusory human disembeddedness, self-enclosure and insensitivity to the significance and survival needs of non-human nature: The logic of centrism naturalises an illusory order in which the centre appears to itself to be disembedded, and this is especially dangerous in contexts where there is real and radical dependency on an Other who is simultaneously weakened by the application of that logic.14 Within the context of human-nature relationships, such a logic must inevitably lead to failure, either through the catastrophic extinction of our natural environment and the consequent collapse of our species, or more **hopefully** by the abandonment and transformation of the human centric framework.15

#### Our evidence is explicitly comparative – ptd will be applied arbitrarily and cases will drag on – non-ownership is key to uniformity and broad ecological benefits, but the plan permanently sells away the environment

Adler 05, Dean College of Law at Utah (Robert, The Law at the Water's Edge: Limits to ""Ownership"" of Aquatic Ecosystems, in Wet Growth: Should Water Law Control Land Use?, pg. 244)

There are several other ways in which the non-ownership doctrine as applied to aquatic ecosystem resources and values differs from the existing public trust doctrine and is likely to be a superior tool to protect those resources and values. First, while some courts have endeavored to "unshackle" the public trust doctrine from its historic limits, the doctrine is, for the most part, constrained by those artificial geographic boundaries, and litigants seeking to enforce the public trust face a significant burden to overcome those presumed boundaries. The non-ownership doctrine and its implied government guardianship is defined not by artificial geographic limits but by actual determinations of the degree to which aquatic ecosystem values and services exist. Second, as explained above, the nature of the guardianship duty is a more logical model for government control of resources that cannot be owned and suggests that those resources must be protected and cannot be conveyed either for private economic gain or for public economic gain at the expense of ecological harms. Third, and most importantly, relative to the public trust doctrine the burden of proof should be flipped. Rather than requiring the government to prove that it owns or otherwise controls a resource under the public trust doctrine in order to justify protection, a landowner presumptively has no rights to impair ecosystem components, values, or services in a significant way, meaning the burden of proof is on the landowner to demonstrate ownership rights, and not vice versa. Like the public trust doctrine, of course, the "non-ownership" doctrine could suffer the fate of other efforts to develop rules of resource protection through a state-by-state and case-by-case approach, with the possibility of the same type of doctrinal fragmentation among states. For several reasons, however, the legal doctrine of "non-ownership" could avoid this common-law odyssey. First, the non-ownership doctrine was pronounced by the Court in Hughes as a matter of federal law in the context of a constitutional ruling. If the Court were to apply that same doctrine in the context of a constitutional takings challenge, it could achieve national status without the need for an uncertain crosscountry journey. While the public trust doctrine often is attributed to the Court's rulings in cases like Illinois Central and Shively v. Bowlby, in fact it had its origins in earlier state cases, and the Court has ruled that the geographic reach and other aspects of the public trust doctrine are a matter of state law. It was this perhaps unfortunate conclusion that has relegated the public trust doctrine to such an uncertain fate. Second, with due respect to the tremendous innovation and influence of the modern rejuvenation of the public trust doctrine, in addition to the inherent limitations discussed above, its application to a larger geography and a broader scope of trust resources relies heavily on a somewhat subjective, amorphous set of judgments about what advances public trust values and how those values should be balanced against other resources and values, both public and private. To be sure, application of the "non-ownership" doctrine will require sometimes difficult case by case judgments, as do virtually all efforts to protect ecological resources, whether judicial or regulatory in method. The core governing principle of non-ownership, however, is amenable to a far greater degree of uniformity. As a matter of law, once it is recognized that private-property rights do not include the right to destroy or degrade aquatic ecosystem resources, the role of government as guardian of those resources, whether through judicial or regulatory action, is less open to the type of discretion that characterizes the public trust doctrine. Under the guardianship principle, the government's role is to protect, not to choose from among a large number of potentially competing uses.

## 5

### 1nc – k

#### Settler colonialism is the permeating structure of the nation-state which requires the elimination of indigenous life and land via the occupation of settlers. The appropriation of land turns Natives into ghosts and chattel slaves into excess labor.

Tuck and Yang 12

(Eve Tuck, Unangax, State University of New York at New Paltz K. Wayne Yang University of California, San Diego, Decolonization is not a metaphor, Decolonization: Indigeneity, Education & Society Vol. 1, No. 1, 2012, pp. 1-40, JKS)

Our intention in this descriptive exercise is not be exhaustive, or even inarguable; instead, we wish to emphasize that (a) decolonization will take a different shape in each of these contexts - though they can overlap - and that (b) neither external nor internal colonialism adequately describe the form of colonialism which operates in the United States or other nation-states in which the colonizer comes to stay. Settler colonialism operates through internal/external colonial modes simultaneously because there is no spatial separation between metropole and colony. For example, in the United States, many Indigenous peoples have been forcibly removed from their homelands onto reservations, indentured, and abducted into state custody, signaling the form of colonization as simultaneously internal (via boarding schools and other biopolitical modes of control) and external (via uranium mining on Indigenous land in the US Southwest and oil extraction on Indigenous land in Alaska) with a frontier (the US military still nicknames all enemy territory “Indian Country”). The horizons of the settler colonial nation-state are total and require a mode of total appropriation of Indigenous life and land, rather than the selective expropriation of profit-producing fragments. Settler colonialism is different from other forms of colonialism in that settlers come with the intention of making a new home on the land, a homemaking that insists on settler sovereignty over all things in their new domain. Thus, relying solely on postcolonial literatures or theories of coloniality that ignore settler colonialism will not help to envision the shape that decolonization must take in settler colonial contexts. Within settler colonialism, the most important concern is land/water/air/subterranean earth (land, for shorthand, in this article.) Land is what is most valuable, contested, required. This is both because the settlers make Indigenous land their new home and source of capital, and also because the disruption of Indigenous relationships to land represents a profound epistemic, ontological, cosmological violence. This violence is not temporally contained in the arrival of the settler but is reasserted each day of occupation. This is why Patrick Wolfe (1999) emphasizes that settler colonialism is a structure and not an event. In the process of settler colonialism, land is remade into property and human relationships to land are restricted to the relationship of the owner to his property. Epistemological, ontological, and cosmological relationships to land are interred, indeed made pre-modern and backward. Made savage. In order for the settlers to make a place their home, they must destroy and disappear the Indigenous peoples that live there. Indigenous peoples are those who have creation stories, not colonization stories, about how we/they came to be in a particular place - indeed how we/they came to be a place. Our/their relationships to land comprise our/their epistemologies, ontologies, and cosmologies. For the settlers, Indigenous peoples are in the way and, in the destruction of Indigenous peoples, Indigenous communities, and over time and through law and policy, Indigenous peoples’ claims to land under settler regimes, land is recast as property and as a resource. Indigenous peoples must be erased, must be made into ghosts (Tuck and Ree, forthcoming). At the same time, settler colonialism involves the subjugation and forced labor of chattel slaves, whose bodies and lives become the property, and who are kept landless. Slavery in settler colonial contexts is distinct from other forms of indenture whereby excess labor is extracted from persons. First, chattels are commodities of labor and therefore it is the slave’s person that is the excess. Second, unlike workers who may aspire to own land, the slave’s very presence on the land is already an excess that must be dis-located. Thus, the slave is a desirable commodity but the person underneath is imprisonable, punishable, and murderable. The violence of keeping/killing the chattel slave makes them deathlike monsters in the settler imagination; they are reconfigured/disfigured as the threat, the razor’s edge of safety and terror. The settler, if known by his actions and how he justifies them, sees himself as holding dominion over the earth and its flora and fauna, as the anthropocentric normal, and as more developed, more human, more deserving than other groups or species. The settler is making a new "home" and that home is rooted in a homesteading worldview where the wild land and wild people were made for his benefit. He can only make his identity as a settler by making the land produce, and produce excessively, because "civilization" is defined as production in excess of the "natural" world (i.e. in excess of the sustainable production already present in the Indigenous world). In order for excess production, he needs excess labor, which he cannot provide himself. The chattel slave serves as that excess labor, labor that can never be paid because payment would have to be in the form of property (land). The settler's wealth is land, or a fungible version of it, and so payment for labor is impossible.6 The settler positions himself as both superior and normal; the settler is natural, whereas the Indigenous inhabitant and the chattel slave are unnatural, even supernatural. Settlers are not immigrants. Immigrants are beholden to the Indigenous laws and epistemologies of the lands they migrate to. Settlers become the law, supplanting Indigenous laws and epistemologies. Therefore, settler nations are not immigrant nations (See also A.J. Barker, 2009). Not unique, the United States, as a settler colonial nation-state, also operates as an empire - utilizing external forms and internal forms of colonization simultaneous to the settler colonial project. This means, and this is perplexing to some, that dispossessed people are brought onto seized Indigenous land through other colonial projects. Other colonial projects include enslavement, as discussed, but also military recruitment, low-wage and high-wage labor recruitment (such as agricultural workers and overseas-trained engineers), and displacement/migration (such as the coerced immigration from nations torn by U.S. wars or devastated by U.S. economic policy). In this set of settler colonial relations, colonial subjects who are displaced by external colonialism, as well as racialized and minoritized by internal colonialism, still occupy and settle stolen Indigenous land. Settlers are diverse, not just of white European descent, and include people of color, even from other colonial contexts. This tightly wound set of conditions and racialized, globalized relations exponentially complicates what is meant by decolonization, and by solidarity, against settler colonial forces. Decolonization in exploitative colonial situations could involve the seizing of imperial wealth by the postcolonial subject. In settler colonial situations, seizing imperial wealth is inextricably tied to settlement and re-invasion. Likewise, the promise of integration and civil rights is predicated on securing a share of a settler-appropriated wealth (as well as expropriated ‘third-world’ wealth). Decolonization in a settler context is fraught because empire, settlement, and internal colony have no spatial separation. Each of these features of settler colonialism in the US context - empire, settlement, and internal colony - make it a site of contradictory decolonial desires7. Decolonization as metaphor allows people to equivocate these contradictory decolonial desires because it turns decolonization into an empty signifier to be filled by any track towards liberation. In reality, the tracks walk all over land/people in settler contexts. Though the details are not fixed or agreed upon, in our view, decolonization in the settler colonial context must involve the repatriation of land simultaneous to the recognition of how land and relations to land have always already been differently understood and enacted; that is, all of the land, and not just symbolically. This is precisely why decolonization is necessarily unsettling, especially across lines of solidarity. “Decolonization never takes place unnoticed” (Fanon, 1963, p. 36). Settler colonialism and its decolonization implicates and unsettles everyone.

#### Their understanding of “space” replicates a Western theorization of place as neutral space relegates indigenous peoples to colonial authority by creating “cultural blanks” to be filled in by peaceful settlement

Barker and Pickerill 12 (Adam J Barker, and Jenny Pickerill, Department of Geography @ Univ of Leicester. “Radicalizing Relationships To and Through Shared Geographies: Why Anarchists Need to Understand Indigenous Connections to Lands and Place” Antipode.

Colonial Impacts on Perceptions of Place Indigenous understandings of place have generated criticism of many aspects of society in the northern bloc: Christian theology’s influence on political and economic colonial practice (Deloria 2003); the concept of “sovereignty” and the state system (Alfred 2006); constitutionalism as a method of governmental organization (Tully 1995; 2000); capitalism and relationships under a capitalist system (Adams 1989:17); language and culture (Basso 1996) and many other understandings of place, space, nature, and human relationships. Indigenous relationships to place fundamentally challenge colonial spatial concepts, from the ways that we move from place to place and through spaces (Pandya 1990) to how we move through time (Jojola 2004). Indeed Coulthard (2010:79) asserts that for Indigenous people place is central to understandings of life, whereas “most Western societies . . . derive meaning from the world in historical/developmental terms, thereby placing time as the narrative of central importance”. Historically, EuroAmerican cultures conceived of human relations to the environment in one of two ways, which John Rennie Short labels the “classical and romantic” (Short 1991:6): either “natural” places are improved through development and human spatial creation and use (with “wilderness” as a frightening, exterior “ other”), or despoiled through human contact and change (with the natural environment as a pristine and perfect spatial concept, and the suggestion that human identity must be bounded within it). Both conceptually marginalize or fully erase Indigenous presence in place. Contra this erasure, Indigenous peoples’ understandings of place have become important to the understanding of colonial geographies and the efforts of anti-colonial activists.2 Indigenous peoples have traditionally related to place through spatially stretched and dynamic networks of relationships (Cajete 2004; Johnson and Murton 2007). These networks bear some resemblance to Sarah Whatmore’s concept of hybrid geography, “which recognizes agency as a relational achievement, involving the creative presence of organic beings, technological devices and discursive codes, as well as people, in the fabrics of everyday living” (Whatmore 1999:26). Through these, Indigenous peoples have challenged the classical/romantic dichotomy that continues to haunt some aspects of anarchist spatial perceptions. For Indigenous peoples, place holistically encapsulates networks of relations between humans, features of the land, non-human animals, and living beings perceived as spirits or non-physical entities. All of these—humans included— are understood to have autonomy and will, but also obligation and responsibility to all of the other elements to which they are related and among whom they are situated. As such, we acknowledge that land and place are different to each other but seek to use the way they are interrelated throughout this article. Although land can be considered as material, its meaning is constantly interwoven into the relationality of place so that land is often taken to have multiple meanings beyond its simple materiality—as a resource, as identity and as relationship (Coulthard 2010). Indigenous peoples assaulted by settler colonization have and continue to face concerted attempts to break Indigenous connections to place. Religious conversion, for example, has had a massive impact on the ways that Indigenous peoples perceive the spaces occupied by spirit and otherwise metaphysical beings. Though no longer considered “tantamount to a complete transformation of cultural identity” (Axtell 1981:42), conversion to and participation in hierarchical-organized, spatially dislocated, and temporally defined Judeo-Christian religions (Deloria 2003:62–77) encouraged Indigenous peoples to see the spiritual as something above (literally) and beyond the direct contact of the human world. The general result is displacement and dislocation.

#### Thus, the only alternative is decolonization. ROB is to center indigenous scholarship and resistance – asking ourselves where we are situatied interms of our relationship to stolen land is a prereq to politics

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An ethic of incommensurability, which guides moves that unsettle innocence, stands in contrast to aims of reconciliation, which motivate settler moves to innocence. Reconciliation is about rescuing settler normalcy, about rescuing a settler future. Reconciliation is concerned with questions of what will decolonization look like? What will happen after abolition? What will be the consequences of decolonization for the settler? Incommensurability acknowledges that these questions need not, and perhaps cannot, be answered in order for decolonization to exist as a framework. We want to say, first, that decolonization is not obliged to answer those questions - decolonization is not accountable to settlers, or settler futurity. Decolonization is accountable to Indigenous sovereignty and futurity. Still, we acknowledge the questions of those wary participants in Occupy Oakland and other settlers who want to know what decolonization will require of them. The answers are not fully in view and can’t be as long as decolonization remains punctuated by metaphor. The answers will not emerge from friendly understanding, and indeed require a dangerous understanding of uncommonality that un-coalesces coalition politics - moves that may feel very unfriendly. But we will find out the answers as we get there, “in the exact measure that we can discern the movements which give [decolonization] historical form and content” (Fanon, 1963, p. 36). To fully enact an ethic of incommensurability means relinquishing settler futurity, abandoning the hope that settlers may one day be commensurable to Native peoples. It means removing the asterisks, periods, commas, apostrophes, the whereas’s, buts, and conditional clauses that punctuate decolonization and underwrite settler innocence. The Native futures, the lives to be lived once the settler nation is gone - these are the unwritten possibilities made possible by an ethic of incommensurability.*when you take away the punctuation he says of lines lifted from the documents about military-occupied land its acreage and location you take away its finality opening the possibility of other futures* -Craig Santos Perez, Chamoru scholar and poet (as quoted by Voeltz, 2012)

Decolonization offers a different perspective to human and civil rights based approaches to justice, an unsettling one, rather than a complementary one. Decolonization is not an “and”. It is an elsewhere.

#### Interpretation: The 1AC is an object of research. The role of the neg should be to disprove the various meanings of that object. Plan focus restricts the debate to a ten second statement and leaves the rest of the aff unquestioned. They should be responsible for the way their knowledge is constructed and used because that produces the best model for activism and ethics in the context of their aff which is a unique education net benefit to our interpretation

## Case

### Framing

#### 1. Every piece of impact defense to the aff is a justification for why you should reduce the aff’s risk down to infitismely small – proves that their scenarios are fabricated for settlerism

#### 2. This is another link – it justifies the 1% risk cheney doctrine of intervening in the middle east for a false threat, which was a worse political solution and caused massive suffering – this is the exact fear based politics that all of the K criticizes

#### 3. Value to life impact outweighs – we can’t experience ethical value in the first place if people are ontologically excluded by securitizaiton

#### 4. D/b – either you only die once so it’s painless or timeframe means you reduce their impacts down to a negligible amount and our ontological claims means settlerism ow/s either way

#### 5. extinction is drawn out according to them which means that all of our impacts ow/ on tf if I don’t go for the k

### Solvency

#### Aff doesn’t solve – all of the really destructive mining projects are the ones with super high economic benefits – tiny projects with little benefit would get stopped but SpaceX stuff like starlink with huge economic ramifications would still happen

#### The plan requires clarifying international space law and gets circumvented

Alexander William Salter 16, Assistant Professor of Economics, Rawls College of Business, Texas Tech University, "SPACE DEBRIS: A LAW AND ECONOMICS ANALYSIS OF THE ORBITAL COMMONS", 19 STAN. TECH. L. REV. 221 (2016), https://law.stanford.edu/wp-content/uploads/2017/11/19-2-2-salter-final\_0.pdf

V. MITIGATION VS. REMOVAL

Relying on international law to create an environment conducive to space debris removal initially seems promising. The Virginia school of political economy has convincingly shown the importance of political-legal institutions in creating the incentives that determine whether those who act within those institutions behave cooperatively or predatorily.47 In the context of space debris, the role of nation-states, or their space agencies, would be to create an international legal framework that clearly specifies the rules that will govern space debris removal and the interactions in space more generally. The certainty afforded by clear and nondiscriminatory48 rules would enable the parties of the space debris “social contract” to use efficient strategies for coping with space debris. However, this ideal result is, in practice, far from certain. To borrow a concept from Buchanan and Tullock’s framework,49 the costs of amending the rules in the case of international space law are exceptionally high. Although a social contract is beneficial in that it prevents stronger nation-states from imposing their will on weaker nation-states, it also creates incentives for the main spacefaring nations to block reforms that are overall welfare-enhancing but that do not sufficiently or directly benefit the stronger nations.

The 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (more commonly known as the Outer Space Treaty) is the foundation for current international space law.50 All major spacefaring nations are signatories. Article VIII of this treaty is the largest legal barrier to space debris removal efforts. This article stipulates that parties to the treaty retain jurisdiction over objects they launch into space, whether in orbit or on a celestial body such as the Moon. This article means that American organizations, whether private firms or the government, cannot remove pieces of Chinese or Russian debris without the permission of their respective governments. Perhaps contrary to intuition, consent will probably not be easy to secure.

A major difficulty lies in the realization that much debris is valuable scrap material that is already in orbit. A significant fraction of the costs associated with putting spacecraft in orbit comes from escaping Earth’s gravity well. The presence of valuable material already in space can justifiably be claimed as a valuable resource for repairs to current spacecraft and eventual manufacturing in space. As an example, approximately 1,000 tons of aluminum orbit as debris from the upper stages of launch vehicles alone. Launching those materials into orbit could cost between $5 billion and $10 billion and would take several years.51 Another difficulty lies in the fact that no definition of space debris is currently accepted internationally. This could prove problematic for removal efforts, if there is disagreement as to whether a given object is useless space junk, or a potentially useful space asset. Although this ambiguity may appear purely semantic, resolving it does pose some legal difficulties. Doing so would require consensus among the spacefaring nations. The negotiation process for obtaining consent would be costly.

#### Their author agrees the risk of public capture is still high – means alternatives are better – Harker inserted in blue

Babcock 19 [H., general counsel to the National Audubon Society from 1987-91 and as deputy general counsel and Director of Audubon’s Public Lands and Water Program from 1981-87. Previously, she was a partner with Blum, Nash & Railsback, where she focused on energy and environmental issues, and an associate at LeBoeuf, Lamb, Leiby & MacRae where she represented utilities in the nuclear licensing process. From 1977-79, she served as a Deputy Assistant Secretary of Energy and Minerals in the U.S. Department of the Interior. Professor Babcock has taught environmental and natural resources law as a visiting professor at Pace University Law School and as an adjunct at the University of Pennsylvania, Yale, Catholic University, and Antioch law schools. Professor Babcock was a member of the Standing Committee on Environmental Law of the American Bar Association 2019. THE PUBLIC TRUST DOCTRINE, OUTER SPACE, AND THE GLOBAL COMMONS: TIME TO CALL HOME ET. p 257-258 Available at: <https://lawreview.syr.edu/wp-content/uploads/2019/09/H-Babcock-Article-Final-Document-v2.pdf#page=67>]

The PTD offers both an approach for managing an open access commons and a gap-filling tool until a regulatory regime is adopted.507 The doctrine is based on the idea that the “sovereign holds certain common properties in trust in perpetuity for the free and unimpeded use of the general public.”508 The public’s right to access and use trust resources is never lost, and neither the government nor private individuals can alienate or otherwise adversely affect those resources unless for a comparable public purpose.509 The resources the doctrine protects “have long been part of a ‘taxonomy of property’ [that recognizes] the division of natural wealth into private and public property.”510 “The doctrine places on governments ‘an affirmative, ongoing duty to safeguard the long-term preservation of those resources for the benefit of the general public,’”511 thus limiting the sovereign’s power on behalf of both present and future individuals.512 It directs the government to manage trust resources for public benefit, not private gain.513 It applies to private as well as public resources and is used to preserve the public’s access to CPRs.514 Government agencies have the non-rescindable power to revoke uses of trust resources that are inconsistent with the doctrine.515 This effectively places a permanent easement over trust resources that burdens their ownership with an overriding public interest in the preservation of those resources.516 However, trust resources can be alienated in favor of private ownership, if the alienation will still serve the public’s interest in those resources and not interfere with trust uses of the remaining land.517 The PTD, therefore, protects the “people’s common heritage,”518 just as Article 11 of the Moon Treaty protects outer space as part of the common heritage of mankind.519

### Debris

#### No cascades:

#### Space is too big for frequent collisions---debris is spread widely across multiple huge planes and small objects quickly deorbit, clearing space. It’d take centuries to snowball, but adaptation solves first: intervening controls coming online check debris.

#### Amounts will increase only 30% after 200 years, assuming zero mitigation

Hugh Lewis 15, Senior Lecturer in Aerospace Engineering at the University of Southampton, Member of the UK Space Agency delegation to the Inter-Agency Space Debris Coordination Committee and Member of the UK delegation to the United Nations Committee on the Peaceful Uses of Outer Space, “Space Debris, Kessler Syndrome, and The Unreasonable Expectation of Certainty”, ROOM The Space Journal, Issue #3(5), October, https://room.eu.com/article/Space\_debris\_Kessler\_Syndrome\_and\_the\_unreasonable\_expectation\_of\_certainty

There is now widespread awareness of the space debris problem amongst policymakers, scientists, engineers and the public. Thanks to pivotal work by J.C. Liou and Nicholas Johnson in 2006 we now understand that the continued growth of the debris population is likely in the future even if all launch activity is halted. The reason for this sustained growth, and for the concern of many satellite operators who are forced to act to protect their assets, are collisions that are expected to occur between objects – satellites and rocket stages – already in orbit. In spite of several commentators warning that these collisions are just the start of a collision cascade that will render access to low Earth orbit all but impossible – a process commonly referred to as the ‘Kessler Syndrome’ after the debris scientist Donald Kessler – the reality is not likely to be on the scale of these predictions or the events depicted in the film Gravity. Indeed, results presented by the Inter-Agency Space Debris Coordination Committee (IADC) at the Sixth European Conference on Space Debris show an expected increase in the debris population of only 30% after 200 years with continued launch activity.

Collisions are still predicted to occur, but this is far from the catastrophic scenario feared by some. Constraining the population increase to a modest level can be achieved, the IADC suggested, through widespread and good compliance with existing space debris mitigation guidelines, especially those relating to passivation (whereby all sources of stored energy on a satellite are depleted at the end of its mission) and post-mission disposal, such as de-orbiting the satellite or re-orbiting it to a graveyard orbit. Nevertheless, the anticipated growth of the debris population in spite of these robust efforts merits the investigation of additional measures to address the debris threat, according to the IADC.

#### Collisions are unlikely because all debris is moving in the same direction, at the same speed

Michael McClennen 18, Research Informaticist in the Department of Geoscience at the University of Wisconsin-Madison, “With So Many Satellites and Space Junk Floating Around the Earth, How Is It That There Are Not Very Many of Them Colliding With One Another or Crashing Into The Space Station or Even New Ships Sent Into Space?”, Quora, 10/10/2018, https://www.quora.com/With-so-many-satellites-and-space-junk-floating-around-the-earth-how-is-it-that-there-are-not-very-many-of-them-colliding-with-one-another-or-crashing-into-the-space-station-or-even-new-ships-sent-into-space

In addition to the other answers, there is another very important factor. A large majority of the orbiting objects (both satellites and debris) are all going in roughly the same direction around Earth, in the same direction as Earth’s rotation with an orbital inclination of between 0º and 22º with respect to the equator. This is due primarily to the fact that launching due East is more efficient than launching in any other direction, and allows you to use the least amount of fuel in getting your payload to orbit. In addition, the laws of physics mandate that all of the objects at a given orbital altitude are moving at roughly the same speed. These basic facts substantially lower the chances of collision. As these objects all move around the globe, they are roughly keeping station with respect to most of the other objects at the same altitude.

There is, of course, another group of satellites and debris that are moving in polar orbits, which are roughly perpendicular to the the mostly-equatorial orbits I discussed in the previous paragraph. These satellites and most of their associated debris were deliberately placed into orbit at a different range of altitudes from the equatorially-orbiting satellites, specifically so that the two populations of objects would not crash into each other.

So it is not the case that the tracks of orbiting objects randomly cross in all directions. Rather the ones at any given altitude are (mostly) moving in the same direction and at roughly the same speed. This has helped quite a bit to keep the orbital-debris situation tolerable so far.

#### Alt causes---most space debris comes from Russian rocket bodies from the Cold War, not private launches.

#### Kessler’s confined to High LEO, but all the good stuff’s in other orbits. Their evidence doesn’t understand how space works---there are totally separate altitudes that never interact like Low LEO, Mid Orbit, and GEO and it’s physically impossible to spill up or down

#### Cascades are slow and won’t impact key GEO satellites

Corrinne Burns 13, Content Developer at the Science Museum's Antenna Gallery, “Space Junk Apocalypse: Just Like Gravity?”, The Guardian, 11-15, https://www.theguardian.com/science/blog/2013/nov/15/space-junk-apocalypse-gravity

Now? Are we in trouble?

Not yet. Kessler syndrome isn't an acute phenomenon, as depicted in the movie – it's a slow, decades-long process. "It'll happen throughout the next 100 years – we have time to deal with it," Kessler says. "The time between collisions will become shorter – it's around 10 years at the moment. In 20 years' time, the time between collisions could be reduced to five years."

Fortunately, communications satellites are, in the main, situated high up in geosynchronous orbit (GEO), whereas the risk of collisions lies mainly in the much lower, and more crowded, low Earth orbit (LEO).

But that doesn't mean we can relax. "We've got to get a handle on it – we need to prevent the cascade process from speeding up." And the only way to do that is, he says, to begin actively removing junk from space.

Charlotte Bewick agrees. She's a mission concepts engineer with the German space technology company OHB System, with special expertise in space junk – specifically, how we can capture it and bring it back to Earth. While agreeing with Kessler that the movie scenario is exaggerated, she remains concerned.

#### Johnson also doesn’t indicate that there is an external impact to any of these scenarios – means they don’t escalate and reading new terminals would be new in the 1AR just like reading an add-on

#### Alt causes to Johnson they can’t solve – Green

Les 1AC Johnson 13, Deputy Manager for NASA's Advanced Concepts Office at the Marshall Space Flight Center, Co-Investigator for the JAXA T-Rex Space Tether Experiment and PI of NASA's ProSEDS Experiment, Master's Degree in Physics from Vanderbilt University, Popular Science Writer, and NASA Technologist, Frequent Contributor to the Journal of the British Interplanetary Sodety and Member of the American Institute of Aeronautics and Astronautics, National Space Society, the World Future Society, and MENSA, Sky Alert!: When Satellites Fail, p. 9-12 [language modified]

Whatever the initial cause, the result may be the same. A satellite destroyed in orbit will break apart into thousands of pieces, each traveling at over 8 km/sec. This virtual shotgun blast, with pellets traveling 20 times faster than a bullet, will quickly spread out, with each pellet now following its own orbit around the Earth. With over 300,000 other pieces of junk already there, the tipping point is crossed and a runaway series of collisions begins. A few orbits later, two of the new debris pieces strike other satellites, causing them to explode into thousands more pieces of debris. The rate of collisions increases, now with more spacecraft being destroyed. Called the "Kessler Effect", after the NASA scientist who first warned of its dangers, these debris objects, now numbering in the millions, cascade around the Earth, destroying every satellite in low Earth orbit. Without an atmosphere to slow them down, thus allowing debris pieces to bum up, most debris (perhaps numbering in the millions) will remain in space for hundreds or thousands of years. Any new satellite will be threatened by destruction as soon as it enters space, effectively rendering many Earth orbits unusable. But what about us on the ground? How will this affect us? Imagine a world that suddenly loses all of its space technology. If you are like most people, then you would probably have a few fleeting thoughts about the Apollo-era missions to the Moon, perhaps a vision of the Space Shuttle launching astronauts into space for a visit to the International Space Station (ISS), or you might fondly recall the "wow" images taken by the orbiting Hubble Space Telescope. In short, you would know that things important to science would be lost, but you would likely not assume that their loss would have any impact on your daily life. Now imagine a world that suddenly loses network and cable television, accurate weather forecasts, Global Positioning System (GPS) navigation, some cellular phone networks, on-time delivery of food and medical supplies via truck and train to stores and hospitals in virtually every community in America, as well as science useful in monitoring such things as climate change and agricultural sustainability. Add to this the [disabling] ~~crippling~~ of the US military who now depend upon spy satellites, space-based communications systems, and GPS to know where their troops and supplies are located at all times and anywhere in the world. The result is a nightmarish world, one step away from nuclear war, economic disaster, and potential mass starvation. This is the world in which we are now perilously close to living. Space satellites now touch our lives in many ways. And, unfortunately, these satellites are extremely vulnerable to risks arising from a half-century of carelessness regarding protecting the space environment around the Earth as well as from potential adversaries such as China, North Korea, and Iran. No government policy has put us at risk. It has not been the result of a conspiracy. No, we are dependent upon them simply because they offer capabilities that are simply unavailable any other way. Individuals, corporations, and governments found ways to use the unique environment of space to provide services, make money, and better defend the country. In fact, only a few space visionaries and futurists could have foreseen where the advent of rocketry and space technology would take us a mere 50 years since those first satellites orbited the Earth. It was the slow progression of capability followed by dependence that puts us at risk. The exploration and use of space began in 1957 with the launch of Sputnik 1 by the Soviet Union. The United States soon followed with Explorer 1. Since then, the nations of the world have launched over 8,000 spacecraft. Of these, several hundred are still providing information and services to the global economy and the world's governments. Over time, nations, corporations, and individuals have grown accustomed to the services these spacecraft provide and many are dependent upon them. Commercial aviation, shipping, emergency services, vehicle fleet tracking, financial transactions, and agriculture are areas of the economy that are increasingly reliant on space. Telestar 1, launched into space in the year of my birth, 1962, relayed the world's first live transatlantic news feed and showed that space satellites can be used to relay television signals, telephone calls, and data. The modern telecommunications age was born. We've come a long way since Telstar; most television networks now distribute most, if not ali, of their programming via satellite. Cable television signals are received by local providers from satellite relays before being sent to our homes and businesses using cables. With 65% of US households relying on cable television and a growing percentage using satellite dishes to receive signals from direct-to-home satellite television providers, a large number of people would be cut off from vital information in an emergency should these satellites be destroyed. And communications satellites relay more than television signals. They serve as hosts to corporate video conferences and convey business, banking, and other commercial information to and from all areas of the planet. The first successful weather satellite was TIROS. Launched in 1960, TIROS operated for only 78 days but it served as the precursor for today's much more long-lived weather satellites, which provide continuous monitoring of weather conditions around the world. Without them, providing accurate weather forecasts for virtually any place on the globe more than a day in advance would be nearly impossible. Figure !.1 shows a satellite image of Hurricane Ivan approaching the Alabama Gulf coast in 2004. Without this type of information, evacuation warnings would have to be given more generally, resulting in needless evacuations and lost economic activity (from areas that avoid landfall) and potentially increasing loss of life in areas that may be unexpectedly hit. The formerly top-secret Corona spy satellites began operation in 1959 and provided critical information about the Soviet Union's military and industrial capabilities to a nervous West in a time of unprecedented paranoia and nuclear risk. With these satellites, US military planners were able to understand and assess the real military threat posed by the Soviet Union. They used information provided by spy satellites to help avert potential military confrontations on numerous occasions. Conversely, the Soviet Union's spy satellites were able to observe the United States and its allies, with similar results. It is nearly impossible to move an army and hide it from multiple eyes in the sky. Satellite information is critical to all aspects of US intelligence and military planning. Spy satellites are used to monitor compliance with international arms treaties and to assess the military activities of countries such as China, Russia, Iran, and North Korea. Figure 1.2 shows the capability of modem unclassified space-based imaging. The capability of the classified systems is presumed to be significantly better, providing much more detail. Losing these satellites would place global militaries on high alert and have them operating, literally, in the blind. Our military would suddenly become vulnerable in other areas as well. GPS, a network of 24-32 satellites in medium-Earth orbit, was developed to provide precise position information to the military, and it is now in common use by individuals and industry. The network, which became fully operational in 1993, allows our armed forces to know their exact locations anywhere in the world. It is used to guide bombs to their targets with unprecedented accuracy, requiring that only one bomb be used to destroy a target that would have previously required perhaps hundreds of bombs to destroy in the pre-GPS world (which, incidentally, has resulted in us reducing our stockpile of non-GPS-guided munitions dramatically). It allows soldiers to navigate in the dark or in adverse weather or sandstorms. Without GPS, our military advantage over potential adversaries would be dramatically reduced or eliminated.

### Asteroid Mining

#### What about the mining process changes when the public sector does it? They just don’t do that

#### Manufacturing net 20 takes out the aff – means mining is good right now since it’s about current mining practices – no reason why the aff revitalizes that anyway

#### Aff doesn’t reverse – just affirming PTD doesn’t get rid of all of mining

#### Water shortages not substantiated by ev so no IL to that 🡪 literally command F water not mentioned in any cards except as something like climate change which is turned anyway by the DA

#### OST prohibits space mining – aff doesn’t solve

Bhattacharya 18 [Kriti Bhattacharya, National University of Juridical Sciences, West Bengal, India.] “The Viability of Space Mining in the Current Legal Regime” Astropolitics The International Journal of Space Politics & Policy Volume 16, 2018 - Issue 3 (https://doi.org/10.1080/14777622.2018.1536858)

Several private players have expressed their desire to mine resources in space. This posits ethical and legal concerns. Several scholars argue that space mining activities flout the national non-appropriation principle enshrined in Article II of the Outer Space Treaty. However, it is the opinion of the author that space mining does not per se violate the provisions of Article II, though space mining brings forward other concerns of breach of cooperation and environmental damage. The current legal regime is not adequately equipped to address these problems. The national legislations of several countries which allow for space mining do not address these issues. Even though an international regime emulating deep seabed mining addresses some of these concerns, the current political structure is not in favor of such a development. Hence, the legal viability of any potential space mining industry is on tenuous terms.

#### No correlation between resources and war

Atkins, 16—PhD Candidate in Energy, Environment & Resilience at the University of Bristol (Ed, “Environmental Conflict: A Misnomer?,” <http://www.e-ir.info/2016/05/12/environmental-conflict-a-misnomer/>, dml)

The economic and strategic importance of oil and other non-renewable resource is indisputable. Yet the globalised character of international commerce has resulted in many nations ceasing to perceive resource dependency as a threat to autonomy or survival (Deudney, 1990). This interdependence has resulted in the decreased likelihood of inter-state conflict over control of resources, due to the price shocks these actions could propel across the system and the increasingly technological developments (Lipschutz and Holdren, 1990). Such dynamics are well illustrated by the 1973 oil crisis (Dabelko and Dabelko, 1993). Although the move by the Organisation of Arab Petroleum Exporting Countries (OAPEC) to restrict exports resulted in record price rises and the transformation of the international sphere, thus illustrating the economic relevance of resources, it did not result in international violent conflict. Furthermore, Le Billon (2001) has stated that the spectre of resource scarcity has resulted in the escalation of socioeconomic innovation and economic diversification – with the market mechanisms of contemporary capitalism creating an important impediment to conflict. In Botswana and Norway, minerals and oil, respectively, have been mobilised to ensure peaceful development rather than violent confrontation (Le Billon, 2001). Furthermore, in many cases potential scarcity has resulted in increased inter-state cooperation due to the shared interest in continued supply. The continued sanctity of the 1960 Indus Waters Treaty, between Pakistan and India, is an important example, with the spirit of cooperation over water resources enduring despite increased political tensions between the two nations (Wolf, 1998).

#### Humans will survive without satellites

Dr. Jim Wild 15, Professor of Space Physics at Lancaster University, Vice-President (Geophysics) of the Royal Astronomical Society, “With So Much Vested In Satellites, Solar Storms Could Bring Life To A Standstill”, The Conversation, 7/30/2015, https://theconversation.com/with-so-much-vested-in-satellites-solar-storms-could-bring-life-to-a-standstill-45204

Satellites are essential to modern life. So essential, in fact, that plans have been drawn up on how to cope with a situation in which we could no longer rely on them. A UK government document entitled the Space Weather Preparedness Strategy may sound strange, but when so much of modern communications, transport and the financial system relies on satellites, you can imagine why one would want a Plan B in place.

The reality is that we depend on satellites in more ways than we realise. The concept was popularised in a 1945 letter to Wireless World written by science fiction writer and inventor Arthur C Clarke – and from then satellite services has grown into an industry worth US$100 billion a year.

This highlights the extent to which satellite services pervade modern life. A fleet of several hundred communications satellites encircles our planet in geosynchronous Earth-orbit, with hundreds more at lower altitudes. Rapid satellite communications enable the global markets underpinning our economy, and the emergency and defence services that keep society safe. Satellites provide GPS global navigation services for transport on land, sea and in the air. Modern agriculture, manufacturing and logistics chains, that supply virtually everything you consume – from the milk in your coffee to the screen you’re reading this on – rely on information provided by satellites.

But you’d be forgiven for never noticing some of the subtle influences of satellite technology on your life. After all, who’d have thought that some trains use GPS data to control which doors open at platforms of different lengths? Or that banks uses high-precision timing of satellite navigation systems to time-stamp its financial transactions?

Worst case scenario

We could survive without satellites, but their influence and benefits are so widespread that it would require concerted effort and massive investment to do so. Which has led some to consider the risks satellites face, and what to do about them.

#### Hotlines solve

Chen Lan 15, Writer on the Chinese Space Program, Go Taikounauts, http://www.go-taikonauts.com/images/newsletters\_PDF/GoTaikonauts18.pdf

Though Sino-U.S. cooperation on human spaceflight is still uncertain, a positive move between the two countries has been made, that is the establishment of a space hotline. Western media reported in November that the hotline has been setup between Washington and Beijing to allow easy sharing of technical information about their space operations, hopefully avoiding any misunderstandings or accidents.

#### Substitutes solve REMs – multiple breakthroughs being made

Adam Currie, market writer, 3/18/13 [“Rare Earth Recycling: Risk to Sector or Investment Opportunity?” Rare Earth Investing News, 2013, http://rareearthinvestingnews.com/9255-rare-earth-recycling-risk-to-sector-or-investment-opportunity.html]

While Honda has impressed investors by succeeding in its recycling goals and its plans to commercialize this recycling process, it is not the only company focused on innovation. Since the industry underwent a severe shake up in 2008, more and more manufacturers have begun seeking alternative solutions aimed at either decreasing their dependence on rare earths, or securing their own REE supply.¶ In 2012, Toyota (TSE:7203) announced that it had developed a method to manufacture hybrid and electric vehicles (EVs) without the use of rare earth metals, while General Motors Company (NYSE:GM) confirmed it was “close to a breakthrough” that would reduce its need for dysprosium, a rare earth in especially high demand. Japan’s Hitachi (TSE:6501) has been clear of its intentions to move away from the use of REEs, announcing in April last year a highly-efficient permanent magnet synchronous motor that employs an iron-based amorphous metal in the core – and, crucially, no REEs.¶ Also, Ford (NYSE:F) announced that its nickel-metal-hydride batteries will be replaced with lithium-ion alternatives in a move that could see the company cut 500,000 pounds of REEs from its manufacturing process annually, while the US Department of Energy’s (DOE) Ames Laboratory confirmed that it too is working towards creating a method to remove neodymium from the mix of other materials in magnets.

#### Commercial mining solves extinction from scarcity, climate, terror, war, and disease.

Pelton 17—(Director Emeritus of the Space and Advanced Communications Research Institute at George Washington University, PHD in IR from Georgetown).. Pelton, Joseph N. 2017. The New Gold Rush: The Riches of Space Beckon! Springer. Accessed 8/30/19.

Are We Humans Doomed to Extinction? What will we do when Earth’s resources are used up by humanity? The world is now hugely over populated, with billions and billions crammed into our overcrowded cities. By 2050, we may be 9 billion strong, and by 2100 well over 11 billion people on Planet Earth. Some at the United Nations say we might even be an amazing 12 billion crawling around this small globe. And over 80 % of us will be living in congested cities. These cities will be ever more vulnerable to terrorist attack, natural disaster, and other plights that come with overcrowding and a dearth of jobs that will be fueled by rapid automation and the rise of artifi cial intelligence across the global economy. We are already rapidly running out of water and minerals. Climate change is threatening our very existence. Political leaders and even the Pope have cautioned us against inaction. Perhaps the naysayers are right. All humanity is at tremendous risk. Is there no hope for the future? This book is about hope. We think that there is literally heavenly hope for humanity. But we are not talking here about divine intervention. We are envisioning a new space economy that recognizes that there is more water in the skies that all our oceans. Th ere is a new wealth of natural resources and clean energy in the reaches of outer space—more than most of us could ever dream possible. There are those that say why waste money on outer space when we have severe problems here at home? Going into space is not a waste of money. It is our future. It is our hope for new jobs and resources. The great challenge of our times is to reverse public thinking to see space not as a resource drain but as the doorway to opportunity. The new space frontier can literally open up a “gold rush in the skies.” In brief, we think there is new hope for humanity. We see a new a pathway to the future via new ventures in space. For too long, space programs have been seen as a money pit. In the process, we have overlooked the great abundance available to us in the skies above. It is important to recognize there is already the beginning of a new gold rush in space—a pathway to astral abundance. “New Space” is a term increasingly used to describe radical new commercial space initiatives—many of which have come from Silicon Valley and often with backing from the group of entrepreneurs known popularly as the “space billionaires.” New space is revolutionizing the space industry with lower cost space transportation and space systems that represent significant cost savings and new technological breakthroughs. “New Commercial Space” and the “New Space Economy” represent more than a new way of looking at outer space. These new pathways to the stars could prove vital to human survival. If one does not believe in spending money to probe the mysteries of the universe then perhaps we can try what might be called “calibrated greed” on for size. One only needs to go to a cubesat workshop, or to Silicon Valley or one of many conferences like the “Disrupt Space” event in Bremen, Germany, held in April 2016 to recognize that entrepreneurial New Space initiatives are changing everything [ 1 ]. In fact, the very nature and dimensions of what outer space activities are today have changed forever. It is no longer your grandfather’s concept of outer space that was once dominated by the big national space agencies. The entrepreneurs are taking over. The hopeful statements in this book and the hard economic and technical data that backs them up are more than a minority opinion. It is a topic of growing interest at the World Economic Forum, where business and political heavyweights meet in Davos, Switzerland, to discuss how to stimulate new patterns of global economic growth. It is even the growing view of a group that call themselves “space ethicists.” Here is how Christopher J. Newman, at the University of Sunderland in the United Kingdom has put it: Space ethicists have offered the view that space exploration is not only desirable; it is a duty that we, as a species, must undertake in order to secure the survival of humanity over the longer term. Expanding both the resource base and, eventually, the habitats available for humanity means that any expenditure on space exploration, far from being viewed as frivolous, can legitimately be rationalized as an ethical investment choice. (Newman) On the other hand there are space ethicists and space exobiologists who argue that humans have created ecological ruin on the planet—and now space debris is starting to pollute space. Th ese countervailing thoughts by the “no growth” camp of space ethicists say we have no right to colonize other planets or to mine the Moon and asteroids—or at least no right to do so until we can prove we can sustain life here on Earth for the longer term. However, for most who are planning for the new space economy the opinion of space philosophers doesn’t really fl oat their boat. Legislators, bankers, and aspiring space entrepreneurs are far more interested in the views of the super-rich capitalists called the space billionaires. A number of these billionaires and space executives have already put some very serious money into enterprises intent on creating a new pathway to the stars. No less than five billionaires with established space ventures—Elon Musk, Paul Allen, Jeff Bezos, Sir Richard Branson, and Robert Bigelow—have invested millions if not billions of dollars into commercializing space. They are developing new technologies and establishing space enterprises that can bring the wealth of outer space down to Earth. This is not a pipe dream, but will increasingly be the economic reality of the 2020s. These wealthy space entrepreneurs see major new economic opportunities. To them space represents the last great frontier for enterprising pioneers. Th us they see an ever-expanding space frontier that offers opportunities in low-cost space transportation, satellite solar power satellites to produce clean energy 24h a day, space mining, space manufacturing and production, and eventually space habitats and colonies as a trajectory to a better human future. Some even more visionary thinkers envision the possibility of terraforming Mars, or creating new structures in space to protect our planet from cosmic hazards and even raising Earth’s orbit to escape the rising heat levels of the Sun in millennia to come. Some, of course, will say this is sci-fi hogwash. It can’t be done. We say that this is what people would have said in 1900 about airplanes, rocket ships, cell phones and nuclear devices. The skeptics laughed at Columbus and his plan to sail across the oceans to discover new worlds. When Thomas Jefferson bought the Louisiana Purchase from France or Seward bought Alaska, there were plenty of naysayers that said such investment in the unknown was an extravagant waste of money. A healthy skepticism is useful and can play a role in economic and business success. Before one dismisses the idea of an impending major new space economy and a new gold rush, it might useful to see what has already transpired in space development in just the past five decades. The world’s first geosynchronous communications satellite had a throughput capability of about 500 kb / s. In contrast, today’s state of the art Viasat 2 —a half century later— has an impressive throughput of some 140 Gb/s. Th is means that the relative throughput is nearly 300,000 greater, while its lifetime is some ten times longer (Figs. 1.1 and 1.2 ). Each new generation of communications satellite has had more power, better antenna systems, improved pointing and stabilization, and an extended lifetime. And the capabilities represented by remote sensing satellites , meteorological satellites , and navigation and timing satellites have also expanded their capabilities and performance in an impressive manner. When satellite applications first started, the market was measured in millions of dollars. Today commercial satellite services exceed a quarter of a billion dollars. Vital services such as the Internet, aircraft traffi c control and management, international banking, search and rescue and much, much more depend on application satellites. Th ose that would doubt the importance of satellites to the global economy might wish to view on You Tube the video “If Th ere Were a Day Without Satellites?” [ 2 ]. Let’s check in on what some of those very rich and smart guys think about the new space economy and its potential. (We are sorry to say that so far there are no female space billionaires, but surely this, too, will come someday soon.) Of course this twenty-fi rst century breakthrough that we call the New Space economy will not come just from new space commerce. It will also come from the amazing new technologies here on Earth. Vital new terrestrial technologies will accompany this cosmic journey into tomorrow. Information technology, robotics, artificial intelligence and commercial space travel systems have now set us on a course to allow us humans to harvest the amazing riches in the skies—new natural resources, new energy, and even totally new ways of looking at the purpose of human existence. If we pursue this course steadfastly, it can be the beginning of a New Space renaissance. But if we don’t seek to realize our ultimate destiny in space, Homo sapiens can end up in the dustbin of history—just like literally millions of already failed species. In each and every one of the five mass extinction events that have occurred over the last 1.5 billion years on Earth, some 50–80 % of all species have gone the way of the T. Rex, the woolly mammoth, and the Dodo bird along with extinct ferns, grasses and cacti. On the other hand, the best days of the human race could be just beginning. If we are smart about how we go about discovering and using these riches in the skies and applying the best of our new technologies, it could be the start of a new beginning for humanity. Konstantin Tsiokovsky, the Russian astronautics pioneer, who fi rst conceived of practical designs for spaceships, famously said: “A planet is the cradle of mankind, but one cannot live in a cradle forever.” Well before Tsiokovsky another genius, Leonardo da Vinci, said, quite poetically: “Once you have tasted flight, you will forever walk the earth with your eyes turned skyward, for there you have been, and there you will always long to return.” The founder of the X-Prize and of Planetary Resources, Inc., Dr. Peter Diamandis, has much more brashly said much the same thing in quite diff erent words when he said: “The meek shall inherit the Earth. The rest of us will go to Mars.” The New Space Billionaires Peter Diamandis is not alone in his thinking. From the list of “visionaries” quoted earlier, Elon Musk, the founder of SpaceX; Sir Richard Branson, the founder of Virgin Galactic; and Paul Allen, the co-founder of Microsoft and the man who financed SpaceShipOne, the world’s first successful spaceplane have all said the future will include a vibrant new space economy. Th ey, and others, have said that we can, we should and we soon shall go into space and realize the bounty that it can offer to us. Th e New Space enterprise is today indeed being led by those so-called space billionaires , who have an exciting vision of the future. They and others in the commercial space economy believe that the exploitation of outer space may open up a new golden age of astral abundance. They see outer space as a new frontier that can be a great source of new materials, energy and various forms of new wealth that might even save us from excesses of the past. Th is gold rush in the skies represents a new beginning. We are not talking about expensive new space ventures funded by NASA or other space agencies in Europe, Japan, China or India. No, these eff orts which we and others call New Space are today being forged by imaginative and resourceful commercial entrepreneurs. Th ese twenty-fi rst century visionaries have the fortitude and zeal to look to the abundance above. New breakthroughs in technology and New Space enterprises may be able to create an “astral life raft” for humanity. Just as Columbus and the Vikings had the imaginative drive that led them to discover the riches of a new world, we now have a cadre of space billionaires that are now leading us into this New Space era of tomorrow. These bold leaders, such as Paul Allen and Sir Richard Branson, plus other space entrepreneurs including Jeff Bezos of Amazon and Blue Origin, and Robert Bigelow, Chairman of Budget Suites and Bigelow Aerospace, not only dream of their future in the space industry but also have billions of dollars in assets. These are the bright stars of an entirely new industry that are leading us into the age of New Space commerce. These space billionaires, each in their own way, are proponents of a new age of astral abundance. Each of them is launching new commercial space industries. They are literally transforming our vision of tomorrow. These new types of entrepreneurial aerospace companies—the New Space enterprises—give new hope and new promise of transforming our world as we know it today. The New Space Frontier What happens in space in the next few decades, plus corresponding new information technologies and advanced robotics, will change our world forever. These changes will redefi ne wealth, change our views of work and employment and upend almost everything we think we know about economics, wealth, jobs, and politics. Th ese changes are about truly disruptive technologies of the most fundamental kinds. If you thought the Internet, smart phones, and spandex were disruptive technologies, just hang on. You have not seen anything yet. In short, if you want to understand a transition more fundamental than the changes brought to the twentieth century world by computers, communications and the Internet, then read this book. There are truly riches in the skies. Near-Earth asteroids largely composed of platinum and rare earth metals have an incredible value. Helium-3 isotopes accessible in outer space could provide clean and abundant energy. There is far more water in outer space than is in our oceans. In the pages that follow we will explain the potential for a cosmic shift in our global economy, our ecology, and our commercial and legal systems. These can take place by the end of this century. And if these changes do not take place we will be in trouble. Our conventional petro-chemical energy systems will fail us economically and eventually blanket us with a hydrocarbon haze of smog that will threaten our health and our very survival. Our rare precious metals that we need for modern electronic appliances will skyrocket in price, and the struggle between “haves” and “have nots” will grow increasingly ugly. A lack of affordable and readily available water, natural resources, food, health care and medical supplies, plus systematic threats to urban security and systemic warfare are the alternatives to astral abundance. The choices between astral abundance and a downward spiral in global standards of living are stark. Within the next few decades these problems will be increasingly real. By then the world may almost be begging for new, out of- the-box thinking. International peace and security will be an indispensable prerequisite for exploitation of astral abundance, as will good government for all. No one nation can be rich and secure when everyone else is poor and insecure. In short, global space security and strategic space defense, mediated by global space agreements, are part of this new pathway to the future.