# 1NC

### 1NC – OFF

#### Interpretation: appropriation involves permanent, exclusive use of land and resource extraction. The aff must defend that appropriation of outer space by private entities is unjust.

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 –

#### 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

### 1NC – OFF

#### 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.

#### Implementation of public trust doctrine protection will be arbitrary and capricious ensuring ecological harm. The counterplans application of non-ownership solves

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.

#### The counterplan and the plan are mutually exclusive – application of the public trust doctrine establishes ownership while the counterplan is explicitly non-ownership. Severance permutations should be rejected because they eliminate all counterplan net benefits and disprove desirability of the plan

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)

4. "Non-Ownership" of Wildlife: Consequences and Implications Several legal implications flow from the realization that states do not own wildlife populations but can regulate their use under inherent police power authority. First, and most obviously, if the sovereign cannot "own" wildlife species or populations (as opposed to individual members of a species when lawfully captured or killed under relevant federal and state laws and regulations), a fortiori neither do private landowners. This corollary, of course, is entirely consistent with the traditional "capture" doctrine in wildlife law, but for different and more fundamental reasons. Under traditional principles, individuals cannot own wildlife until it is reduced to physical possession, and hence control, through lawful kill or capture. Under the non-ownership doctrine as announced in Hughes and its predecessors, wildlife in its natural state is inherently incapable of ownership. Indeed, such ownership would then be inconsistent with the state's more appropriate status as a legal guardian of wildlife resources. If the state "owned" wildlife in the sense that one can own a mineral, presumably it would have the power to deplete it entirely if it determines that it is in the state's (and society's) best economic or other interests to do so. 207 If it only has the authority to regulate and protect the resource "as between a State and its inhabitants," it does so more in the position of a legal guardian rather than as a trustee "owner" with the rights normally attendant thereto. The guardianship analogy is still imperfect, but it is superior to the public trust notion with respect to the nonhuman values inherent in wildlife and other ecosystem resources and to the extent that those natural objects are viewed as having rights of their own. As a matter of property law, a "trustee ... has title to trust property; a guardian of property does not have title to the property, but has only certain powers and duties to deal therewith for the benefit of the ward, the ward having title to the property. "208 The state as guardian cannot confer on private individuals, through its system of property law or otherwise, an ownership interest in what it is guarding. Nor can it simply dispose of that "property." ln contrast, dispositions of trust property are restricted.

### 1NC – OFF

#### Expanding PTD shatters the entire legal-regulatory balance

Huffman 15 [James L. Huffman is Dean Emeritus of Lewis & Clark Law School and a Visiting Fellow at the Hoover Institution. He holds degrees from Montana State University (BS), The Fletcher School of Tufts University (MA) and the University of Chicago (JD). "WHY LIBERATING THE PUBLIC TRUST DOCTRINE IS BAD FOR THE PUBLIC." https://law.lclark.edu/live/files/19611-45-2huffman]

Since the beginning of the modern environmental movement in the 1960s, environmental advocates have been in search of ways to circumvent the twin obstacles of political compromise and vested property rights. In a 1970 article, Professor Joseph Sax suggested that the common law public trust doctrine might provide an avenue for judicial intervention in the name of claimed public rights in a wide array of natural resources. Because the traditional doctrine was narrowly limited in terms of both public rights and affected resources, Sax published a second article ten years later, calling for courts to liberate the public trust doctrine from its historical parameters. While a few judges responded with generally limited extensions of the doctrine, Sax’s plea has been ignored by most courts—but not by academics. A flood of law review articles have resorted to shoddy history, retrospective theorizing about the origins and purposes of the doctrine, appeals to higher law and moral imperatives, and confusion of the idea of public trust in representative government with the public rights protected by the public trust doctrine in efforts to persuade courts to liberate the doctrine. Implicit, if not explicit, in all of these arguments is the claim that the common law origins of American law and the American judicial system vest courts with authority to amend old law and make new law. At risk in this vast and imaginative effort to liberate the public trust doctrine from its common law confines are the constitutional separation of powers, the rule of law, due process and secure property rights, and the economic prosperity on which environmental protection ultimately depends.

#### Expanding PTD beyond precedent allows for unchecked judicial activism across the law – the plan applies it everywhere on earth, which ensures circumvention, authoritarianism, and shocks global rule of law

Huffman 15 [James L. Huffman is Dean Emeritus of Lewis & Clark Law School and a Visiting Fellow at the Hoover Institution. He holds degrees from Montana State University (BS), The Fletcher School of Tufts University (MA) and the University of Chicago (JD). "WHY LIBERATING THE PUBLIC TRUST DOCTRINE IS BAD FOR THE PUBLIC." https://law.lclark.edu/live/files/19611-45-2huffman]

Modern progressives, like their early twentieth century predecessors, tend to be skeptical of democratic policymaking. They prefer to rely on experts, scientific management and expeditious executive action to implement policies they know to be right and good. Democracy, the separation of powers, constitutional rights, and the rule of law all get in the way. It was early frustration with these traditional American principles that led Professor Sax to call for liberating the public trust doctrine from its historical shackles. He recognized that if courts could be persuaded to expand and extend the doctrine, environmentalists could revolutionize American property law while claiming the mantle of the rule of law. Courts would rule for environmentalist claims not because it was the right thing to do but because the law required it.

That barely a handful of courts have even acknowledged Sax’s invitation to liberate the public trust doctrine underscores that most judges, most of the time, do their best to interpret and apply the law as those affected by the law would reasonably expect them to. Most judges understand that people rely on those expectations in their interactions with others and in the risks they assume and to which they expose others. If it were otherwise, people would soon lose confidence in the courts as objective arbiters of disputes.

This does not mean that the law is stuck in the past. The common law has always evolved. But it has evolved in a way that respects rather than undermines expectations. One of the great strengths of the common law method is in “serving the rule of law by adapting legal rules to the demonstrated needs and wishes of those who rely on law to bring at least a degree of certainty to their day-to-day lives.”226

Perhaps the best indication of widespread commitment to the rule of law is that judges seduced into lawmaking of the kind urged by public trust liberationists, like the liberationists themselves, invariably appeal to precedent in seeking to justify their rulings. This does not mean that the lawmaking judges shy away from explaining the policy benefits of their decisions, but one would be hard pressed to find a case in which a court acknowledges that its new rule has no basis in preexisting law. Rather, lawmaking judges follow the path advocated by Judge Richard Posner in his commentary on the Supreme Court’s decision in Bush v. Gore.227 Posner explains that what he calls pragmatic judges should cover their lawmaking tracks by providing “legal-type judgment” as justification.228

Anyone who believes in the rule of law as a necessary principle of government in every free society should be troubled by this ends-driven, whatever-it-takes approach to judging in particular, and government in general. Even accepting, for the sake of argument, that we face a global environmental crisis as Professor Wood and many others assert,229 experience demonstrates that compromising the rule of law will harm rather than help efforts to meet any serious challenge. Saving a failing planet will require innovative thinking and creativity of the highest sort. History demonstrates that individual liberty and the rule of law are essential to such innovation and problem solving. Absent the rule of law, many a nation has failed to solve much lesser challenges.230

#### Rule of law solves war

Feldman ‘8 [Noah; September 28; Professor of Law at Harvard University School of Law; New York Times, “When Judges Make Foreign Policy,” lexis]

Why We Need More Law, More Than Ever

So what do we need the Constitution to do for us now? The answer, I think, is that the Constitution must be read to help us remember that while the war on terror continues, we are also still in the midst of a period of rapid globalization. An enduring lesson of the Bush years is the extreme difficulty and cost of doing things by ourselves. We need to build and rebuild alliances — and law has historically been one of our best tools for doing so. In our present precarious situation, it would be a terrible mistake to abandon our historic position of leadership in the global spread of the rule of law.

Our leadership matters for reasons both universal and national. Seen from the perspective of the world, the fragmentation of power after the cold war creates new dangers of disorder that need to be mitigated by the sense of regularity and predictability that only the rule of law can provide. Terrorists need to be deterred. Failed states need to be brought under the umbrella of international organizations so they can govern themselves. And economic interdependence demands coordination, so that the collapse of one does not become the collapse of all.

From a national perspective, our interest is less in the inherent value of advancing individual rights than in claiming that our allies are obligated to help us by virtue of legal commitments they have made. The Bush administration’s lawyers often insisted that law was a tool of the weak, and that therefore as a strong nation we had no need to engage it. But this notion of “lawfare” as a threat to the United States is based on a misunderstanding of the very essence of how law operates.

Law comes into being and is sustained not because the weak demand it but because it is a tool of the powerful — as it has been for the United States since World War II at least. The reason those with power prefer law to brute force is that it regularizes and legitimates the exercise of authority. It is easier and cheaper to get the compliance of weaker people or states by promising them rules and a fair hearing than by threatening them constantly with force. After all, if those wielding power really objected to the rule of law, they could abolish it, the way dictators and juntas have often done the world over.

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#### SOP decline causes global nuke war

Dr. G. John Ikenberry 15, PhD in Political Science from the University of Chicago, Albert G. Milbank Professor of Politics and International Affairs at Princeton University in the Department of Politics and the Princeton School of Public and International Affairs, “Getting Hegemony Right”, in Korean Attitudes Toward the United States: Changing Dynamics, Ed. Steinberg, p. 17-18

A critical ingredient in stabilizing international relations in a world of radical power disparities is the character of America itself. The United States is indeed a global hegemon, but because of its democratic institutions and political traditions it is--or can be--a relatively benign one. Joseph Nye's arguments on "soft power" of course come to mind here, and there is much to his point. But, in fact, there are other, more significant aspects of the American way in foreign policy that protect the United States from the consequences of its own greatness.

When other major states consider whether to work with the United States or resist it, the fact that it is an open, stable democracy matters. The outside world can see American policymaking at work and can even find opportunities to enter the process and help shape how the overall order operates. Paris, London, Berlin, Moscow, Tokyo and even Beijing--in each of these capitals officials can readily find reasons to conclude that an engagement policy toward the United States will be more effective than balancing against U.S. power.

America in large part stumbled into this open, institutionalized order in the 1940s, as it sought to rebuild the postwar world and to counter Soviet communism. In the late 1940s, in a pre-echo of today's situation, the United States was the world's dominant state--constituting 45 percent of world GNP, leading in military power, technology, finance and industry, and brimming with natural resources. But America nonetheless found itself building world order around stable and binding partnerships. Its calling card was its offer of Cold War security protection. But the intensity of political and economic cooperation between the United States and its partners went well beyond what was necessary to counter the Soviet threat. As the historian Geir Lundestad has observed, the expanding American political order in the half century after World War II was in important respects an "empire by invitation." The remarkable global reach of American postwar hegemony has been at least in part driven by the efforts of European and Asian governments to harness U.S. power, render that power more predictable, and use it to overcome their own regional insecurities. The result has been a vast system of America-centered economic and security partnerships.

Even though the United States looks like a wayward power to many around the world today, it nonetheless has an unusual ability to co-opt and reassure. Three elements matter most in making U.S. power more stable, engaged and restrained. First, America's mature political institutions organized around the rule of law have made it a relatively predictable and cooperative hegemon. The pluralistic and regularized way in which U.S. foreign and security policy is made reduces surprises and allows other states to build long-term, mutually beneficial relations. The governmental separation of powers creates a shared decision-making system that opens up the process and reduces the ability of any one leader to make abrupt or aggressive moves toward other states. An active press and competitive party system also provide a service to outside states by generating information about U.S. policy and determining its seriousness of purpose. The messiness of a democracy can, indeed, frustrate American diplomats and confuse foreign observers. But over the long term, democratic institutions produce more consistent and credible policies--policies that do not reflect the capricious and idiosyncratic whims of an autocrat.

## Case

### Space Colonization

#### Impact Turning Space Colonization:

#### First is Defense:

#### No existential risks – even if there were, space col can’t solve OR terrestrial refuges do.

Szocik 18 (Konrad Szocik, Assistant Professor at the University of Information Technology and Management in Rzeszow, Poland (Department of Philosophy and Cognitive Science), 2018. “Should and could humans go to Mars? Yes, but not now and not in the near future”. Futures. doi:10.1016/j.futures.2018.08.004)

4.5. There is no risk on Earth sufficient to justify the expense of a space refuge Space refuge is justified only when there is at least one kind of catastrophe on Earth which will lead to extinction of the entire human species. Baum (2015) and Baum et al. (2015) do not believe that space settlement offers advantage over terrestrial refuge. If terrestrial refuge (aquatic and/or subterranean) is able to protect against the strongest catastrophes including asteroid impact, the unique serious rationale accepted by public opinion for space human mission fails. As Alexey Turchin and Brian Patrick Green (2017) show, aquatic refuges based on adaptation of nuclear submarines may effectively play their role. They may be surface independent, which is the basic criterion of any refuge (Baum et al. 2015). They are cheaper and easier in engineering terms when compared with Mars settlement. A space refuge would not be able to cope with currently-occurring risks, e.g. overpopulation and climate change. Human overpopulation can be limited only on Earth by terrestrial policy and, if this can be done, no space base is necessary. If it is not possible, then no space base can solve this problem. For example, space settlement is not able to alleviate global warming, against Milligan’s suggestion. The unique way to do that on Earth is to reduce methane emission and/or to cool Earth by turning sunlight into space, as Solar Radiation Management proposes (Farquhar et al. 2017). There is only indirect, not direct applicability of space exploration. For instance, space technology might be applied to cope with asteroid impact or increasing the Sun temperature (Crawford). But these exogenous catastrophes caused by cosmic events are unlikely in lifespan of current and future generations (Tegmark and Bostrom 2005, p. 754), and for this reason they offer poor incentive for human space program. The unique rationale for space refuge mission could be future development of the Sun which will be getting more and more warmer in next billions years. But this threat does not justify human space settlement due to its high risk and high costliness (Jebari 2015). Nick Beckstead speculates on possible disasters on Earth deleterious also for humans living in shelters, e.g. scenarios that include invasion of aliens, runaway AI, or ecophagy caused by nanotechnology (Beckstead 2015).9 Beckstead rightly adds that the big challenge is not only rate of survival immediately after catastrophe but also chances for survival in long-term scale including collapse in food production and supply chain, and associated social and political collapse. It is hard to imagine catastrophe which kills the entire Earth population excluding people living in refuge. In this case, rationale for refuge fails.

#### Space Exploration for Colonization trades-off w/ terrestrial life-sciences – key to re-direct focus to solves terrestrial issues.

Haymet 7 (Tony, Director of the Scripps Institution of Oceanography – University of California, San Diego, Mark Abbott, Dean of the College of Oceanic and Atmospheric Science – Oregon State University, and Jim Luyten, Acting Director – Woods Hole Oceanographic Institution, “The Planet NASA Needs to Explore”, Washington Post, 5-10, [http://www.washingtonpost.com/wp-dyn/content/article/2007/05/09/AR2007050902451.html](http://www.lexis.com/research/retrieve))

Decades ago, a shift in NASA priorities sidelined progress in human space exploration. As momentum gathers to reinvigorate human space missions to the moon and Mars, we risk hurting ourselves, and Earth, in the long run. Our planet -- not the moon or Mars -- is under significant threat from the consequences of rapid climate change. Yet the changing NASA priorities will threaten exploration here at home. NASA not only launches shuttles and builds space stations, it also builds and operates our nation's satellites that observe and monitor the Earth. These satellites collect crucial global data on winds, ice and oceans. They help us forecast hurricanes, track the loss of Arctic sea ice and the rise of sea levels, and understand and prepare for climate changes. NASA's budget for science missions has declined 30 percent in the past six years, and that trend is expected to continue. As more dollars are reallocated to prepare for missions back to the moon and Mars, sophisticated new satellites to observe the Earth will be delayed, harming Earth sciences. The National Academy of Sciences has noted that the Landsat satellite system, which takes important measurements of global vegetation, is in its fourth decade of operation and could fail without a clear plan for continuation. The same is true for the QuikSCAT satellite, which provides critical wind data used in forecasting hurricanes and El Niño effects. In January, a partnership of university and NASA scientists demonstrated that climate change and higher ocean temperatures were reducing the growth of microscopic plants and animals at the heart of the marine food web. Their analysis was based on nearly a decade of NASA satellite measurements of ocean color, which unfortunately are at risk of being interrupted for several years. Sea levels are rising, and the Arctic Ocean may be ice-free in summer. The buildup of carbon dioxide in the oceans threatens to make them more acidic, which may in turn hinder the ability of some types of marine life, including corals, to build their shells and skeletons. We must learn as much as we can to assess these threats and develop solutions. Satellites provide coverage of vast, remote regions of our planet that would otherwise remain unseen, especially the oceans, which play an important role in climate change. Without accurate data on such fundamentals as sea surface height, temperatures and biomass, as well as glacier heights and snowpack thickness, we will not be able to understand the likelihood of dangers such as more severe hurricanes along the Gulf Coast or more frequent forest fires in the Pacific Northwest. Climate change is the most critical problem the Earth has ever faced. Government agencies and the private sector, as well as individual citizens, need to better grasp the risks and potential paths of global climate change. Mitigating these risks and preparing for the effects of warming will require scientific understanding of how our complex planet operates, how it is changing, and how that change will affect the environment and human society. John F. Kennedy's brilliant call to put a man on the moon by the end of the 1960s set an arbitrary deadline, but the deadline we face today is set by nature. NASA must continue to play a vital role in helping find ways to protect our planet for (and perhaps from) its intelligent life. Exploration of space is a noble quest. But we can't afford to be so starry-eyed that we overlook our own planet.

#### Extinction isn’t inevitable you should be highly skeptical of abstract, vague, and totalizing claims without any specific scenarios – these scenarios in the 1AC were less than 5 words and un-warranted – don’t let the 2AR spin.

#### Space col causes inter-colony wars and war with ETs---extinction.

Marko **Kovic 18**. Social scientist (PhD in political communication, University of Zurich), co-founder and CEO of the consulting firm ars cognitionis, co-founder and president of the thinktank ZIPAR, the Zurich Institute of Public Affairs Research. 06-12-18. “Political, moral, and security challenges of space colonization.” ZIPAR. https://zipar.org/discussion-paper/political-moral-security-challenges-space-colonization/

3.3 Extraterrestrial life The scientific understanding of the origins of humankind and of life on Earth thus far paints a clear picture: We are the “products” of biological evolution, just as all other life forms on Earth. Furthermore, we know that life can come into existence where there was no life before, through so-called abiogenetic mechanisms. These basic facts lead to a clear conclusion: It is very improbable that life on Earth is a once-in-a-universe event; it is highly probable that life has come into existence elsewhere in the universe as well. We do not know whether extraterrestrial life currently exists, and whether there is any extraterrestrial life in our vicinity (as far as we know, there is none in our Solar System). In theory, our galaxy might be full of life and even highly intelligent and technologically advanced life, but, as the famous Fermi paradox posits32, there is no trace of any extraterrestrial intelligence. Be that as it may, it is possible that there is extraterrestrial life beyond Earth, and it is possible that we will come into contact with extraterrestrial life due to colonization activity. What should our moral attitude towards extraterrestrial life look like? The moral issue of our attitudes towards extraterrestrial life can be divided into three classes of problems, according to the type of life we are dealing with: Primitive non-sentient life. Primitive sentient life. Non-primitive sentient life. Primitive non-sentient life are life forms that resemble microbial life forms on Earth, such as bacteria. Extraterrestrial microbial life can be of great instrumental value, specifically to humans, but also in a more general sense. That is a strong argument in favor of studying and preserving extraterrestrial microbial life33; we should not go out of our way to destroy microbial life, because that life might be very useful. The main moral issue about primitive non-sentient life, however, is not the question of instrumental value, but rather the question of intrinsic value: Is there a moral obligation for humans not to manipulate or even end extraterrestrial microbial life forms? This problem is, in all likelihood, the most pressing moral issue about extraterrestrial life and space colonization and one that deserves greater practical attention34. A common argument in favor of the intrinsic value position is that of conation or goal-orientedness35 36: Because even microbial life forms act vaguely rational (they have goals and behave so as to achieve their goals), their existence has some intrinsic value. The problem with this moral argument is that it can easily lead to the conclusion of strong conservationism, whereby any habitable planet or moon should remain uncolonized, lest we interfere with microbes that we might have failed to detect37. In addition, if we accept a strong version of the intrinsic value argument, we already have immense moral problems: On Earth, we do not particularly care for any microbial life form on intrinsic grounds, and we even actively fight some of them. Primitive sentient life are life forms that are not as intelligent as humans, but that are sentient, in the sense of being able to experience positive or negative affective states. Even though sentience is not a perfectly precise concept38, and even though we lack the means for truly assessing qualia (subjective experiences) of life forms other than humans39, it is almost certain that we humans are not the only life form capable of experiencing pain and pain-related suffering and that many animals on our planet are sentient as well40. Sentient extraterrestrial life forms require a different moral stance than non-sentient life forms. Imagine, for example, that two human space ship are about to land on an exoplanet. As the space ships are landing, the exhaust from their engines heats up the ground. Space ship A is landing on a nest of insect-like non-sentient life forms, frying them alive in the process. Space ship B is landing on a herd of bunny-like sentient creatures, frying them alive in the process. Both outcomes are unfortunate, but undoubtedly, killing the sentient bunny-like creatures must be morally worse than killing the non-sentient insect-like creatures, because the bunnies experienced enormous pain while they were being killed. Our moral stance towards sentient primitive extraterrestrial life will have to take sentience into account. Avoiding suffering in sentient extraterrestrial life should be a universal rule of space colonization. Somewhat obviously, such a rule would also prohibit treating sentient extraterrestrial life forms as food (But it is highly improbable that humans would have to routinely rely on extraterrestrial sentient life forms as sources of nutrition, even though we would be technologically advanced enough to engage in intersolar space colonization. We are in the process of overcoming traditional agriculture today41; reverting to traditional agriculture on future extrasolar colonies would amount to an extraordinarily improbable and inefficient anachronism.). Non-primitive sentient life are life forms that are sentient and possess a general intelligence at least as great as our own (It is possible that highly intelligent life forms might be non-sentient, but at least on Earth, sentience seems to correlate with intelligence.). The moral challenge of this type of extraterrestrial life is the same as with primitive sentient life, and there are additional moral problems to consider. If there are intelligent life forms beyond Earth, their levels of technological development will have great variance; some life forms will be intelligent, but not yet developed, whereas others will be intelligent and much more technologically advanced than we are. Intelligent life forms that are less technologically developed than we are present us with a moral problem: Should we interact with such civilizations and try to help them develop faster and overcome problems? This moral problem has perhaps most famously been explored in the television show Star Trek with its “Prime Directive”: The fictional United Federation of Planets is never to interfere with a technologically undeveloped civilization in order to avoid doing damage (Alas, the protagonists of Star Trek end up violating the Prime Directive time and again; doing so makes for a good story.). More generally, the problem of non-interference can be described as a reversed Zoo hypothesis42, whereby it is not extraterrestrial civilizations treating Earth like a conservation project, but us humans pondering whether we should treat extraterrestrial civilizations as conservation projects. A strong argument in favor of non-interference is the risk of both causing bad outcomes, both in the short- as well as in the long-term. Interacting with less developed civilizations might inadvertently do more harm than good, and it might steer the affected civilizations away from a path to development that might be beneficial to humankind in the long run. On the other hand, however, not investing a small amount of resources to greatly improve lives and reduce suffering seems morally dubious. If an extraterrestrial civilization that is going through a historical era similar to our Middle Ages is confronted with some catastrophic disease like our Black Death pandemic, not helping that civilization fight that pandemic seems cruel; not least because the cost for helping that civilization would almost certainly be trivially low. 3.4 Cosmic suffering Imagine that humankind has successfully mastered phase II colonization (colonization beyond our Solar System). All the problems described in the previous sections and subsections have long been successfully solved, and humankind is progressing steadily and peacefully. Then, something happens. At some point and for some reason, future humans decide that they do not want to merely engage in space colonization, but to do more: Actively seed the universe with (non-human) life43. Given the technological development of future humankind, it is relatively easy to send out non-sentient primitive life forms across the galaxy. Unfortunately, something horrible happens: The primitive microbial life-forms sent out into the cosmos mutate into aggressive bacteria that attack any life form they encounter, including sentient life – and in doing so, they cause tremendous pain and agony in the organisms they attack. The benevolent idea of spreading life has quickly turned into unimaginable suffering of trillions of sentient beings across the galaxy. Colonizing humans have thus created suffering on a cosmic, or astronomical, scale44. Cosmic suffering is the risk of creating suffering on a scale that is either not possible or not as probable without space colonization. There are many potential scenarios in which successful space colonization results in cosmic suffering. For example, the general problem of the repugnant conclusion discussed further above can also be regarded as an example of this class of risks. Cosmic suffering is a severe problem because it is contingent on, or at least made more likely by, successful space colonization. The conceptually challenging aspect of cosmic suffering is the correlation of cosmic suffering with the degree of space colonization: The greater the level of space colonization, the greater the risks of cosmic suffering become. This is the opposite of the relationship between space colonization and existential risks: The greater the level of space colonization, the lower existential risks become – this is one of the main motivations for space colonization, after all. In other words, successful space colonization decreases the probability that something goes wrong for humankind in terms of existential risks, but it increases the probability that something goes wrong in terms of suffering for the whole universe. 4. Security challenges In the above discussions of political and moral challenges, it is presumed that the problems and challenges that arise do so in a generally peaceful system of colonization. However, peace in the sense of a lack of armed conflict is not guaranteed with space colonization. On the contrary: Space colonization might produce new kinds of security challenges. 4.1 Inter-colonial war Violence and war have been decreasing over the course of our civilization’s history45 46 47. The decrease in violent armed conflict has coincided with an increase in cultural, political, and economic interconnectedness. Even though major armed conflicts are not yet a thing of the past48, humankind will probably continue on its current trajectory of peace. With space colonization, however, the trend of growing closer together might reverse because of increasing fragmentation, and with that reversal, peaceful cooperation might again give way to armed conflict. Some amount of human fragmentation due to space colonization is almost inevitable. One of the strongest biases we humans have is the intergroup bias49: We tend to separate people into ingroups and outgroups, and we generally favor our own ingroup over any outgroup. Our ingroup favoritism is often the source of collective identity: We identify with our home city and think it is better than other cities; we identify with our favorite football team and think it is better than other teams; we identify with our country of origin and think it is better than other countries. In a future in which humans have successfully mastered type I colonization (colonization within our Solar System) and perhaps even type II colonization (intersolar colonization), belonging to one habitat rather than another will almost certainly also be a source of collective identity. Humans born and raised on Venus would probably have more positive general attitudes towards Venus than towards Earth. That is not a problem in and of itself, but it can become a problem: If humankind is very successful at space colonization and manages to establish colonies across the galaxy, the ingroup dynamics within colonies and regions of colonies might grow so much that the perceived benefits of armed conflict increase, and the perceived costs decrease. In part, this might be due to the infrahumanization (or dehumanization) bias50: Our intergroup bias can have the effect of perceiving members of the outgroup as less human than members of our own ingroup. The problem of intergroup bias and armed conflict could be compounded by real biological differences in the long-term future. In the long term, different colonies of humans might adopt different stances on human enhancement technology and embrace different kinds of enhancement technologies. These differential paths of human enhancement might result in technology-induced quasi-speciation, whereby different strands of humans have increasingly distinct biological traits. The ultimate result of such a development might be a strong fragmentation of humankind and an increasing arms race in order to defend against the outgroup of all the (former) humans that are different from the ingroup (former) humans51. 4.2 Extraterrestrial (existential) risks Space colonization will increase the probability of discovering and coming into contact with extraterrestrial intelligence, either biological or artificial (in the sense of hypothetical advanced artificial general intelligence52). That prospect poses some moral challenges, as argued in subsection 3.3. However, it might also pose a security challenge if an extraterrestrial intelligence more technologically advanced than humankind has goals and preferences that go against the goals and preferences of humankind. In general, there are three categories of attitudes an extraterrestrial intelligence can have towards humankind53. First, an extraterrestrial intelligence can be benevolent. A benevolent extraterrestrial intelligence is one that would change its goals and preferences upon learning of humankind. Humankind is a benevolent intelligence: If we, for example, came into contact with an extraterrestrial civilization, we would obviously take the goals and preferences of that civilization into account and update our own goals and preferences, since we are morally advanced enough to do so. Second, an extraterrestrial intelligence can be apathetic. An apathetic extraterrestrial intelligence is one that does not at all change its goals and preferences upon learning of humankind. An apathetic intelligence would neither try to accommodate humankind, nor would it react in some non-friendly way. It would not care at all. The attitude of an apathetic intelligence is similar to the attitude we humans have when it comes to some random microbial life form on Earth: We might understand that that life form exists, but we do not care either way. Third, an extraterrestrial intelligence can be hostile. Hostility in a general sense means that an intelligence reacts to learning of humankind by regarding its own goals and preferences as categorically more important than humankind’s. A hostile extraterrestrial intelligence is not necessarily a security threat to humankind; hostility in this context does not mean hostility in the Hollywood kind but hostility in the sense of active disregard of humankind’s goals and preferences. That, however, might still represent a tremendous security risk. For example, a hostile intelligence might prefer humankind not to exist because our mere existence is perceived as a slight discomfort to the extraterrestrial intelligence. Hostile extraterrestrial intelligence thus represents a form of existential risk.

### Debris

#### Space Weather:

#### 1] If solar flares cause extinction, then DETECTION doesn’t mean that we can respond to it – their I/L is turning them off but their Impact is about just destroying the technology which solar flares would do if they’re on or off.

#### 2] We can survive solar flares and gamma rays

Peters 18 Ted Peters 18. Serves on the Advisory Council of METI (Messaging Extraterrestrial Intelligence). 2018. “Toward a Galactic Common Good: Space Exploration Ethics.” The Palgrave Handbook of Philosophy and Public Policy, edited by David Boonin, Springer International Publishing, pp. 827–843. Crossref, doi:10.1007/978-3-319-93907-0\_61.

This scientific knowledge must be incorporated into formulating our ethical agenda. Such damage scenarios lead us to think ahead. We need to plan for our planet’s future, and we need to incorporate such possibilities into our planning. With regard to solar flares, fortunately, there are ways to mitigate the damage should it occur: engineers can protect the grid with fail-safes or by turning off the power in the face of an incoming blast. With regard to a comet or asteroid strike, we will be given advanced notice. A diversion strategy could be effective, perhaps by hitting the object while it is yet far away with a nuclear bomb. We have no way to prevent gamma ray bursts from striking our Earth, but we could provide protective shields in sanctuaries for life forms we wish to restart following the event. These matters belong to our quandary. Just how will we respond?

#### Debris:

#### 1] No Kessler

Drmola and Hubik 18 [Jakub Drmola, Division of Security and Strategic Studies, Department of Political Science at the Faculty of Social Sciences of Masaryk University. Tomas Hubik, Department of Theoretical Computer Science and Mathematical Logic, Faculty of Mathematics and Physics, Charles University. Kessler Syndrome: System Dynamics Model. Space Policy Volumes 44–45, August 2018, Pages 29-39. https://www.sciencedirect.com/science/article/pii/S0265964617300966?via%3Dihub]

The baseline scenario represents a continuation of the current trends, which are simply extended into the future. An average 1% growth rate of yearly launches of new satellites (starting at 89) is assumed, together with constant success rate in satellites’ ability to actively avoid collisions with debris and other satellites, constant lifetime, and failure rate. This basic model lacks any sudden events or major policy changes that would markedly influence the debris propagation. However, it serves both as a foundation for all the following scenarios and as a basis of comparison to see what the impact would be. Given high uncertainty regarding future state of the satellite industry (how many satellites will be launched per year, of what type and size, etc.), we elected to limit our simulations to 50 years. The model can certainly continue beyond this point, but the associated unknowns make the simulations progressively less useful. Running this model for its full 50 years (2016–2066) yields the expected result of perpetually growing amount of debris in the LEO. One can observe nearly 2-fold increase in the large debris (over 10 cm) and 3-fold increase in small debris (less than 1 cm) quantities (Fig. 5). The oscillations visible in the graph are caused by the aforementioned solar cycles which influence the rate of reentry for all simulated populations except the still active (i.e. powered) satellites. Also please note that throughout the article, the graphs use quite different scales for debris populations because of the considerable variations between scenarios. Using any single scale for all graphs would render some of them unintelligible. We can see that this increase in numbers still does not result in realization of the Kessler syndrome as most of the satellites being launched remain intact for their full expected service life. However, it comes with a considerable increase in risk to satellites, which is manifested by their higher yearly losses, making satellites operations riskier and more expensive for governments and private companies alike. This increased amount of debris in LEO combined with the larger number of active satellites makes it approximately twice as likely that an active satellite will suffer a disabling hit or a total disintegration during its lifetime. It should be noted that this risk might possibly be offset by future improvements in satellite reliability, debris tracking, and navigation [17].

#### No Escalation over Satellites:

#### 1] Planning Priorities

Bowen 18 Bleddyn Bowen 2-20-2018 “The Art of Space Deterrence” <https://www.europeanleadershipnetwork.org/commentary/the-art-of-space-deterrence/> (Lecturer in International Relations at the University of Leicester)//Elmer

Space is often an afterthought or a miscellaneous ancillary in the grand strategic views of top-level decision-makers. A president may not care that one satellite may be lost or go dark; it may cause panic and Twitter-based hysteria for the space community, of course. But the terrestrial context and consequences, as well as the political stakes and symbolism of any exchange of hostilities in space matters more. The political and media dimension can magnify or minimise the perceived consequences of losing specific satellites out of all proportion to their actual strategic effect.

#### 2] Military Precedent

Zarybnisky 18, Eric J. Celestial Deterrence: Deterring Aggression in the Global Commons of Space. Naval War College Newport United States, 2018. (Senior Materiel Leader at United States Air Force)//Elmer

PREVENTING AGGRESSION IN SPACE While deterrence and the Cold War are strongly linked in the public’s mind through the nuclear standoff between the United States and the Soviet Union, the fundamentals of deterrence date back millennia and deterrence remains relevant. Thucydides alludes to the concept of deterrence in his telling of the Peloponnesian War when he describes rivals seeking advantages, such as recruiting allies, to dissuade an adversary from starting or expanding a conflict.6F 6 Aggression in space was successfully avoided during the Cold War because both sides viewed an attack on military satellites as highly escalatory, and such an action would likely result in general nuclear war.7F 7 In today’s more nuanced world, attacking satellites, including military satellites, does not necessarily result in nuclear war. For instance, foreign countries have used highpowered lasers against American intelligence-gathering satellites8F 8 and the United States has been reluctant to respond, let alone retaliate with nuclear weapons. This shift in policy is a result of the broader use of gray zone operations, to which countries struggle to respond while limiting escalation. Beginning with the fundamentals of deterrence illuminates how it applies to prevention of aggression in space.

#### 3] Collision risk is very small

Fange 17 Daniel Von Fange 17, Web Application Engineer, Founder and Owner of LeanCoder, Full Stack, Polyglot Web Developer, “Kessler Syndrome is Over Hyped”, 5/21/2017, http://braino.org/essays/kessler\_syndrome\_is\_over\_hyped/

The orbital area around earth can be broken down into four regions. Low LEO - Up to about 400km. Things that orbit here burn up in the earth’s atmosphere quickly - between a few months to two years. The space station operates at the high end of this range. It loses about a kilometer of altitude a month and if not pushed higher every few months, would soon burn up. For all practical purposes, Low LEO doesn’t matter for Kessler Syndrome. If Low LEO was ever full of space junk, we’d just wait a year and a half, and the problem would be over. High LEO - 400km to 2000km. This where most heavy satellites and most space junk orbits. The air is thin enough here that satellites only go down slowly, and they have a much farther distance to fall. It can take 50 years for stuff here to get down. This is where Kessler Syndrome could be an issue. Mid Orbit - GPS satellites and other navigation satellites travel here in lonely, long lives. The volume of space is so huge, and the number of satellites so few, that we don’t need to worry about Kessler here. GEO - If you put a satellite far enough out from earth, the speed that the satellite travels around the earth will match the speed of the surface of the earth rotating under it. From the ground, the satellite will appear to hang motionless. Usually the geostationary orbit is used by big weather satellites and big TV broadcasting satellites. (This apparent motionlessness is why satellite TV dishes can be mounted pointing in a fixed direction. You can find approximate south just by looking around at the dishes in your northern hemisphere neighborhood.) For Kessler purposes, GEO orbit is roughly a ring 384,400 km around. However, all the satellites here are moving the same direction at the same speed - debris doesn’t get free velocity from the speed of the satellites. Also, it’s quite expensive to get a satellite here, and so there aren’t many, only about one satellite per 1000km of the ring. Kessler is not a problem here. How bad could Kessler Syndrome in High LEO be? Let’s imagine a worst case scenario. An evil alien intelligence chops up everything in High LEO, turning it into 1cm cubes of death orbiting at 1000km, spread as evenly across the surface of this sphere as orbital mechanics would allow. Is humanity cut off from space? I’m guessing the world has launched about 10,000 tons of satellites total. For guessing purposes, I’ll assume 2,500 tons of satellites and junk currently in High LEO. If satellites are made of aluminum, with a density of 2.70 g/cm3, then that’s 839,985,870 1cm cubes. A sphere for an orbit of 1,000km has a surface area of 682,752,000 square KM. So there would be one cube of junk per .81 square KM. If a rocket traveled through that, its odds of hitting that cube are tiny - less than 1 in 10,000.