

The Changing Nature of Just War

How Our Changing Environment Ought to Change The Foundations of Just War Theory

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Our changing environment must, in turn, change the way we think about Just War Theory. While there is a long rich history within the just war tradition of considering an attack on natural resources to constitute an act of war (e.g. Victoria 1532; Grotius 1625), and while there have been more recent analyses about how environmental impacts can alter which wars and which actions within war can be justified (e.g., Drucker 1989; Reichberg & Syse 2000; Woods 2007), there has not yet been, to the best of our knowledge an analysis of how the environmental impacts of war ought to alter the just war framework itself. In other words, there has not yet been a consideration of how environmental impacts ought to change not only the *content* of just war principles, but also the way those principles are utilized, and in some cases even the principles themselves. In this paper, we argue that the time has come for such an analysis.

We begin by analyzing the environmental impacts on *jus ad bellum*, recognizing that the world in which we are entering is, sadly, one in which environmental causes for war are likely to increase. We argue, in fact, that in the right circumstances, environmental protection can provide a just cause for war. Yet environmental considerations also will have an increasingly significant negative impact on *proportionality of ends*. In effect, the environmental considerations within *jus ad bellum* create an ethical tension in which *just causes* are expanded but the very nature of the wrongs that justify war restricts rather than loosens the acceptable military ends by which nations can appropriately respond. We argue that the best way to resolve that tension is to explicitly elevate environmental considerations into wide proportionality, thereby granting wide proportionality an increasingly important role in *jus ad bellum*.

Considering environmental impacts also ought to influence the way in which we think about *in bello* theoretical considerations. These impacts can most easily be seen by considering a two key elements of *jus in bello*: *discrimination and proportionality of means*. We argue that doing so provides two important theoretical insights. First, it reinforces the traditional just war doctrine that the use of force—even within war—is *prima facie* morally problematic and requires justification. Second, it demonstrates the urgent need to move beyond the traditional debate in environmental ethics about whether the environment possesses intrinsic or merely extrinsic value.

Finally, considering the environmental impacts of just war theory ought to change how we think about just war theory both before and after a conflict. In other words, environmental considerations ought to be explicitly included in the more recent considerations of *jus post bellum* and they point the way towards a new area of theoretical consideration: *jus para bellum*. In the domain of *jus post bellum*, we argue that even a nation that fights a just war appropriately finds further limits on its actions: It must not do anything that further violates the rights of the innocent after the war is over. We believe, therefore, that if a war is to be ended well, *jus post bellum* must include a criterion of *environmental restoration*. We also recognize the huge impact preparing for war has on the environment. While necessary, maintaining forces, the acquisition of new equipment, research and testing, and the maintenance and disposal of equipment necessary for war can all have serious ramifications on the environment. When combined with other recent changes in the just war framework, these environmental ramifications indicate the need for a new thinking about the justice of military actions before war.

All these environmental considerations (*ad bellum*, *in bello*, *post bellum*, and even *para bellum*) point to an urgent need to reconsider the foundations of just war theory itself. In other words, considering the environmental impacts of war ought do more than change which wars we take to be just, and which actions in war we take to be just, doing so ought to cause a fundamental reevaluation about the way we reason about justice of wars to begin with. Those changes require more than simply being more explicit with respect to the impacts to the environment within the current just war framework.

1 Environmental Considerations in the Just War Tradition

To accomplish those aims, it will be helpful to begin by taking stock of the rich history within the just war tradition of considering environmental impacts to be significant for just war deliberations. In *On the Law of War made by the Spaniards on the Barbarians*, for example, Victoria argued that the just causes of war include damaging the environment (*e.g.*, by burning vineyards or olive gardens) (1532, Sec 54). Grotius went even further, contending that poisoning the land is analogous to poisoning a person. While poisoning a person invokes the rights to defend, recover, and punish within a political community [*i.e.*, it provides just grounds for criminal punishment], poisoning the land invokes the rights to defend, recover, and punish between political communities [*i.e.* it provides just grounds for war] (1625, Book 2, Chapter 1). More recent developments in asymmetric warfare provide further support for the contention that attacks on natural resources can, in circumstances, to be considered acts of war. A biological attack on a city's water supply, for instance, might constitute as significant an encroachment on a nation's sovereignty as a skirmish at the border (see, for example, Gleick 2006 & Elsthain 2003).

There have also been more recent philosophical analysis about the ways in which environmental calculations ought to alter the just war analysis of a particular war, or action within war. Focusing on *jus in bello*, Major Merrit Drucker (1989) contends that it is a military officer's responsibility to protect the environment to the best of her ability. Drucker attempts to reconcile the concept of military necessity with environmental ethics by arguing that the belief that military necessity always and everywhere justifying any and all environment destruction is as untenable as the belief that any minor destruction of the environment is never justified—even at the cost of sacrificing the

lives of countless soldiers. Gregory Reichberg and Henrik Syse (2000) build off this analysis and argue environmental impacts also ought to impact particular assessments of *jus ad bellum*. Mark Woods (2007) brings these insights together, considering how the environment ought to influence ethical decision making before, during, and after war.

These considerations have also been codified in international law. The 1976 *United Nations Environmental Modification Convention*, for example, prevents nations from using the environment as a weapon. *Protocol I of the Geneva Conventions* prohibits militaries from using any means of warfare intended or expected "to cause widespread, long-term, and severe damage to the natural environment" (Article 35.3). It also prohibits damages to the environment that "prejudice the health or survival of the [human] population" (Article 55.5). In addition, the 1998 *Rome Statute of the International Criminal Court* declares "widespread, long-term, and severe damage to the natural environment" a war crime (Article 8(2)(b)(iv)). Finally, the 1977 *Military Environmental Modification Convention* prohibits environmental modification techniques that have widespread, long-lasting, or severe effects.

Nonetheless, environmental considerations are almost always peripheral in any actual considerations of the ethics of war. The reason why might seem obvious. As Katherine Lutz puts the point, "If you could save a human life through military means and military preparation, [then the decision is obvious:] save the human life and worry about these secondary things later" (Mathiesen 2014). The moral significance of saving human lives seems to dwarf the moral significance of a tree, a forest, or even an ecosystem.

We believe, therefore, that the time has come to recognize that our changing world in turn mandates changing this traditional analysis of the environment as yet another input to just war calculations. Instead, environmental impacts ought to alter the way we consider the just war framework itself. Unlike militaries of times gone by, today's militaries can cause irreversible devastation within a moment's notice. While the total ordnance used in World War I was a mere 1,590 tons, in World War II that total had climbed to 4.26 million tons, and by the Vietnam War that total rose to 6.49 million tons (Theatre History 2016). Even what may be considered small wars can have tremendous environmental impacts. During the relatively short seven month 1991 Persian Gulf War, over 700 oil wells were ignited (McNeill & Painter 2009) and 11 million barrels of crude oil were spilled into the Persian Gulf (more 20 times than the Exxon Valdez spill) (Al-Damkhi *et al.* 2009). The war left over 40 percent of Kuwait's water supply contaminated, a devastation that will continue for decades to come (McNeill & Painter 2009). Almost a third of Kuwait's surface area was adversely affected by this relatively short war (McNeill & Painter 2009). Modern Warfare is, simply put, capable of unprecedented levels of destruction in very short periods of time that last far past the actual fighting. Moreover, armed conflict is now one of the largest contributors to environmental degradation worldwide. These impacts are particularly damaging for those already less fortunate, causing denial of basic human rights, widespread poverty, and refugee crises long after conflicts are over (Enzler 2006). Even if the value of the environment pales in comparison to the value of human life, the days when we could relegate environmental considerations to a mere secondary concern in the ethics of war have long since faded into history.

2.0 Impacts to *Jus ad Bellum*

In order to understand how environmental impacts ought to change the way we consider *jus ad bellum* principles, we must first consider the ways in which environmental issues impact two *jus ad bellum* criteria in particular: *just cause* and *proportionality of ends* (also referred to as *wide proportionality*). With respect to just cause, we argue that in the near future environmental impacts will increase just causes for war. However, the increasing impact to the environment of war will simultaneously make wide proportionality considerations more difficult to meet. In order to resolve this apparent tension within the just war framework, we contend that environmental impacts must become an explicit element of wide proportionality calculations, and that we must recognize how doing so changes the pragmatic significance of proportionality of ends within the *jus ad bellum* framework.

2.1 Just Cause

Let us begin, however, by considering the environmental impact to *just cause*. As the world's population continues to grow, environmental resources will become increasingly strained. As we argue in this subsection, this scarcity of resources will likely lead to an increase in states taking aggressive action in the name of self-preservation. Some of these wars will be morally justifiable. Other wars will likely be more paradigmatic acts of aggression. In this latter case, however, the nations attacked will then often be justified in defending themselves. In other words, as environmental difficulties increase, the causes of war—both descriptive and normative—will increase as well.

To make that case, we must first recognize that our environment is rapidly changing. The last 30 years have been warmer than any since 1850 and they are very likely the warmest in the last 1400 years (Stoker et al. 2013). As temperatures have increased, so have the frequency and strength of hurricanes and typhoons (Mei et al. 2015). Earlier spring temperatures have disrupted critical ecosystem services on which human society depends, such as clean air and water, and crop pollination (Staudinger et al. 2012). Water resources have become scarce and more highly variable (Haddeland et al. 2014), with associated negative consequences for crop yields (Lobell et al. 2011) as well as food security overall (Shindell et al. 2012).

The scientific evidence is also clear that the future impacts will be even more dire. Heat waves, droughts, floods, and storms are likely to become more frequent and more severe (Coumou & Rahmstorf 2012). Precipitation will likely increase overall, but there will be sharp regional variations, with some areas that now receive regular rainfall becoming arid (O'Gorman 2012). Coastal communities face risks of losing land to sea level rise (Kates et al. 2012) as well as loss of livelihoods through declines in fisheries catches (Cinner et al. 2012). Global health concerns will be exacerbated as factors that affect exposure, transmission, and resilience are heightened (McMichael 2013). Regional changes will often be variable, extreme, and much more difficult to predict (Field et al. 2014; Aldous et al. 2011).

It is not surprising that these changes have already led to an increase in conflict (Gleick 2014). It should be equally unsurprising that those changes may well lead to even more conflict in the future. Consider first one of the most important natural resources: water. Due to greater industrial

and agricultural demands in the last century, water usage worldwide has grown at twice the rate of population. It is estimated that by 2025, “1.8 billion people will be living in countries or regions with absolute water scarcity, and two-thirds of the world population could be under stress conditions” (UN-Water 2013a). Over 300 rivers, 100 lakes, and 200 aquifers cross international boundaries (Salman 2006). These trans-boundary lakes and river basins account for an estimated 60 per cent of global freshwater. Disputes over water rights are not uncommon, as there have been almost 450 agreements about this matter since 1820, including the *United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses* (1997). Over the next century, however, there is robust evidence that renewable surface water and groundwater resources in most dry subtropical regions will be significantly reduced (Field et al. 2014). This will likely intensify competition for water as countries struggle to gather enough water to provide their population with usable drinking water and to satisfy their agricultural, sanitation, and industrial needs.

Consider, for example, the situation between Pakistan and India. Setting aside their deep seeded animosity, in 1960 the two nations came to an agreement about the distribution of the six rivers of the Indus River System (Salman 2006). However, the tension over this valuable resource could easily reach a boiling point if these countries recent water woes worsen. India and Pakistan are already water stressed, but that stress will be exacerbated in the coming decades (UN-Water 2013b). Increasing populations, agricultural and industrial demands, shrinking Himalayan glaciers, reduced Kashmir Valley groundwater, and a higher frequency of droughts will each have a negative impact on water in the region (Field et al., 2014; Abraham et al., 2013). Disputes between Egypt, Ethiopia, and Sudan over the Nile; between Turkey, Syria, and Iraq over the Tigris and Euphrates; Israel, Lebanon, Jordan, and Palestine over the Jordan; Kazakhstan, Uzbekistan, Turkmenistan, Tajikistan, and Kyrgyzstan over the Aral Sea are just a few of the possible conflicts we could see as water resources become increasingly stressed. Fishery rights are also becoming increasingly contentious. Human consumption of fish has increased over the last century, outstripping population growth (World Health Organization 2016). This in turn has led to a steady increase in overfishing over the past four decades (Food and Agriculture Organization of the United Nations 2014). Furthermore, our changing climate is decreasing the average size of fish and changing their patterns of migration and distribution (Perry, Low, Ellis, & Reynolds 2005). All these impacts are leading to not only scarcity of this important resource, but also to fishing outside of traditional and legal boundaries (World Health Organization 2016).

At this point, it would be foolhardy to predict a particular war over water, fishing rights, or any given environmental resource fifty, twenty, or even five years into the future. Nonetheless, we can feel confident in our knowledge of two claims. First, mankind has a long and problematic history of wars over natural resources. Second, even if the most dire climate change predictions remain un-actualized, as our population continues to grow and as our climate changes, natural resources will be further strained—at least in certain geographic locations. It seems reasonable to contend, therefore, that environmental causes for war will likely increase in the near future. Some of those will be legitimate wars waged by nations that are justly fighting to protect resources that they properly take to be their own. Others will be paradigmatic wars of aggression. In the latter case, however, those acts of hostility will often be justly responded to by the other side. In either case,

therefore, when the environmental causes for war increase, the just causes of war will likely do so as well.

2.2 Proportionality of Ends

Environmental concerns will also increasingly influence wide proportionality, making that criterion more difficult to meet. To see how, one need only consider the fact that proportionality requires belligerents, as much as possible, “to restrict the amount of [long-term] damage ... extending beyond the period of hostilities” (Green 2008, 123). Unfortunately, quantifying more precisely the impact of environmental considerations on wide proportionality calculations is difficult if not impossible, given the lack of any straightforward commensurate scale to consider potential harms to the environment, potential harms to individuals, and the possible gains of war (Reichberg & Syse 2000). Regardless of any precise quantification, however, it is relatively easy to recognize the following: once we consider the devastating impact war can have on the environment, it becomes increasingly difficult to find offsetting benefits that could satisfy proportionality of ends.

Consider, for example, the amount of forest damaged during the Vietnam War: 97,000 km²: 26,313 km² from herbicides; 67,500 km² from bombing and shrapnel; and, 3,250 km² from bulldozing (Brauer 2009). In all, approximately 23 percent of Vietnam's forestland was lost to the war (McNeill & Painter 2009). The telling statistic, however, is not how much area is destroyed, but rather how long lasting the effects of that destruction can be. Ten percent of forests sprayed with herbicide only once and as much as eighty percent of the forests that were sprayed repeatedly will never be able to recover fully, the death of native flora having led to vast ecological changes as much of the native forests have been replaced by grassland (DeWeerd 2008). Even where land is able to recover, the recovery takes decades and centuries rather than years (Frey 2009). The destruction caused by modern warfare is not limited to direct attack. Intrusive pollutants from equipment, vehicles, and weaponry adversely affect the civilian population. These impacts include impacts on water, which often becomes contaminated and undrinkable (Zwijnenburg, 2014). Moreover, war is an inherently disruptive act: much like a natural disaster, it can cause widespread displacement of human life. Refugees quickly flood into an area and quickly overstress the area's water, food supplies, and sewage systems. In order to survive, these refugees start consuming natural resources around them (Brauer 2009). All of these factors lead to only one conclusion: War inevitably causes damage to our natural surroundings and that destruction can impact generations to come.

In Afghanistan, for example, considerable damage was done to the environment, and many people suffered directly and indirectly from heavy weaponry implemented to destroy enemy targets (Enzler 2006). Drinking water was compromised due to destruction of water storage, as well as from leaks, bacteria, and water theft, all problems exacerbated by decades of hostilities (Miller & Skelton 2015). The country of Afghanistan had been, before the Soviet invasion, consumed by forests and lush greenery, yet less than 2% of the country is wooded today (Enzler 2006). To this day, the country remains littered with cluster bombs, landmines, and various other ordnances (Miller & Skelton 2015). In all these cases, the devastating environmental impact of the hostilities makes proportionality of ends ever more difficult to satisfy.

2.3 Proportionality, Just Cause, and Realpolitik

The analyses of the previous two subsections seem to point us in opposite directions. The appropriate justifications of war seem likely to increase. Meanwhile, as the environmental impacts of war intensify, future wars become harder to justify. We believe the best way to resolve that apparent tension is to explicitly elevate environmental considerations into wide proportionality and to grant wide proportionality a more prominent role within the *jus ad bellum* framework. Let us explain.

While *proportionality of ends* has been a central *jus ad bellum* criterion for much of the framework's lengthy intellectual history, it often becomes impotent and redundant given its overlap with practical, realpolitik concerns. Consider, for example, the difference between the international response to two similar situations: Iraq's invasion of Kuwait in 1990 and the Russian occupation of Crimea in 2014. Both invasions presented intervening nations with a just cause for war, as both involved the violation of the sovereign territory and a plea for international assistance by the invaded nation. While the international community united in military action against Iraq, the same has not happened against Ukraine. One reason is perhaps obvious: While the negative consequences of a potential war with Iraq in 1991 were not insignificant [It is easy to forget in the aftermath of a decisive victory the legitimate concerns about bombs falling on Tel Aviv, which materialized, and chemical or biological attacks, which did not], they pale in comparison to the potential negative consequences of a war with Russia, a country with far more wealth, international influence, and military power. These differences manifest themselves within *proportionality of ends*, making a potential war much less likely to be just. However, these exact same considerations will also influence near-term, practical, realpolitik concerns, making warfare less likely to be initiated—or even seriously considered. *Proportionality of ends*, while an important *jus ad bellum* criteria, gets utilized much more frequently to eliminate merely *theoretical* wars rather than *actual* or *possible* wars, and the actual fighting it does judge as immoral on a standard analysis of the criterion can almost universally be criticized as imprudent as well.

Environmental impacts, on the other hand, have much less impact on near-term realpolitik concerns. By requiring long-term impacts to the environment to become an explicit part of any proportionality of ends calculation, wide proportionality becomes elevated in terms of its moral significance. It separates the criterion from mere considerations of realpolitik. In doing so, *proportionality of ends* may well become for our postmodern age as important a moral block against the immoral use of force as *legitimate authority* was in the age of Aquinas or as *just cause* was in the age of Walzer's original analysis. This result seems fitting. After all, it would be a morally tragedy if a war justified by an impact to the environment only lead to its further degradation. Requiring environmental impacts to be explicitly considered in wide proportionality calculations seems to be the best opportunity we have to capture the changing considerations of justice for our rapidly changing world.

3.0 Impacts to *Jus in bello* and the foundations of environmental ethics

Considering how the environmental considerations in our modern age also ought to influence the way in which we think about *in bello* theoretical considerations. These impacts can most easily be seen by considering a key element of *jus in bello*: *discrimination*. Considering the criterion of discrimination reinforces the traditional just war doctrine, too often neglected that the use of force—even within war—is *prima facie* morally problematic and needs to be justified. We argue that this traditional, generally disregarded, contention about the use of force in war can be reinforced by considering the proper status of the environment during war. Considerations of the impacts of proportionality considerations, on the other hand, provides insights into the foundations of environmental ethics, demonstrating the urgent need to move beyond a traditional debate regarding the extrinsic versus intrinsic value of the environment and to consider instead the value of the relationships between human beings and their environment.

3.1 Returning to tradition: even in bello, use of force prima facie prohibited

Many have argued that the environment should be considered a non-combatant (Woods 2007, 23-24). Major Merrit Drucker of the U.S. Air Force, for instance, offers three reasons why the environment should be considered a non-combatant and therefore offered traditional non-combatant protections. First, contrary to the rather straight-forward implacature of the popular audio book *Mother Nature is Trying to Kill You*, the environment is not, in fact, engaged in an attempt to destroy the combatants fighting for either side (Risken 2014). Second, like other non-combatants, the environment did not choose to be involved in any hostilities. Third and finally, the environment seems to resemble those in traditional non-combatant roles—doctors and chaplains who heal and nurture—much more than those engaged in traditional combatant roles who seek to damage or destroy (Drucker 1989, 146-147).

The problem with such analysis, however, lies with placing the environment within the larger, more traditional analysis of non-combatants. Noncombatant immunity is, in fact, often framed as a right (See, for example, Walzer 2006, 43). Noncombatants have the right not to be deliberate targets of attack. Moreover, we can never cause them intended harm, whether that harm is itself an intended end or even if it is merely as means to an end (Arneson 2007, 101). It would appear to strain credulity, however, to believe that digging trenches and thereby using the environment as a means would be wrong—even though using a competent adult who's not involved in hostilities in a similar way might well be. Moreover, while Drucker is correct in his analysis that the environment did not choose to be involved in hostilities, that fact clearly stems from a lack of autonomy altogether, rather than from a particular instantiation of autonomy (*i.e.*, the environment does not freely choose *not* to fight). The environment may well deserve some sort of protection, but to grant the environment the traditionally analyzed non-combatant *rights* seems problematic.

An alternative, we believe preferable, approach is to contend that the environment cannot be targeted and the impacts to the environment must be appropriately considered in any double effect calculations, not because the environment is a non-combatant, with all the rights that designation implies, but rather because the environment is not a combatant, and therefore the normative justificatory default against the use of force cannot be met. Violence requires justification—even within war—and pragmatic concerns alone cannot satisfy that justificatory burden. Combatant status is important because violence that only impacts combatants generally satisfies that justificatory burden. If there are impacts to anyone or anything else, however, those

impacts have to be *further* justified (*e.g.*, through double effect). Considering the principle of discrimination with respect to the environment thereby reminds us that the moral default—*even within war*—is against the use of violence.

Significantly, this conclusion about the use of force reinforces the often-neglected just war tradition default skepticism regarding the use of force. Violence is *prima facie* morally problematic and requires robust justification. Careful moral scrutiny is required because there are severe limitations upon the use of force as a potential tool of restorative justice (Reichberg & Syse 2000, 453; Aquinas 1268, q. 40, a.1). Contrary to the implication of many modern writers who take the focus of the moral domain to be *only* individual combatants, who can be attacked, and individual non-combatants, who cannot, recognizing the existence of a morally valuable relationship between humans (both combatant and noncombatant) and their environment reminds us that this default skepticism of the just war tradition against the use of force can, and should, continue once hostilities have commenced. Environmental considerations allow for a modern reinforcement of the traditional contention that even *in bello* the use of force is *prima facie* unjust.

3.2 Impacting environmental theory: Moving beyond intrinsic. vs. extrinsic value

Analyzing environmental impacts within war quickly raises questions regarding the foundational value of the environment. Unfortunately the most common responses to those questions seem to offer little in the way of a favorable resolution. Rather than posing a difficulty, we believe this limitation can provide as a unique opportunity to advance a long-standing debate in environmental theory. In other words, considering the appropriate role the environment ought to play in *proportionality of means* considerations ought to alter the way we think about the value of the environment itself. Let us explain.

There has been longstanding debate in environmental ethics about whether the environment is intrinsically or merely extrinsically valuable, *i.e.* whether the environment possesses a value “in itself,” or a value that is merely instrumental or derivative. Traditional English speaking moral philosophy has focused almost exclusively on human welfare and the intrinsic value of human beings. Unsurprisingly, within that tradition the traditional focus has been on the extrinsic value of the environment, more specifically on the impact to human beings. Then, the development of environmental ethics as a sub-discipline brought with it a recognition of the limits of an ethical mindset based on regarding the environment as valuable only for what it brings. Early environmental ethics almost universally advocated in favor of a new, distinctive, environmental ethic based on the environmental intrinsic worth (O’Neill 1992).

More recently, many theorists have noticed that this apparent dilemma stems from a misguided assumption that human beings are somehow “separate from their environment” (Mathiesen 2014). We reject the contention that one must either embrace a completely independent, free-floating, isolated value of ecosystems or endorse a purely anthropocentric, utilitarian conception of nature, accepting instead a value in the *relationship* between individual human beings and their particular environment. This value depends not on the environment itself nor on humans themselves, but instead on a kind of integrity of these related parts (Reichberg & Syse 2000, 455-458).

The old, familiar debate about intrinsically versus extrinsic value nonetheless endures (Lee 1996). And it is here where recognition of the ways in which environmental considerations in

proportionality of means calculations could impact this stalemate. For, if the environment has extrinsic value, then given the large number of lives frequently at stake in war, environmental considerations are likely to find themselves almost universally relegated to an after-thought. Contending that the environment has intrinsic value, on the other hand, does not appear to help much either; for, once again given the fact that decisions in war often result in the loss of life, either that inherent environmental value is dwarfed by considerations about the value of human life, or we quickly reach the kind of absurd conclusions feared by those who are (often far too) quick to object that any kind of land ethic is a dangerously eco-fascist one in which individuals humans will have to be sacrificed for the value of the environment in which they live (Regan 2004, 362). In other words, considerations of proportionality naturally offer a deeply theoretical rather than merely pragmatic reason to embrace agnosticism about the intrinsic or extrinsic value of the environment (C.f. Light 1993). It might appear that in order to analyze the impact that environmental degradation ought to have on *proportionality of means* calculations, resolution would be required for an age-old debate in environmental ethics about whether the environment possesses intrinsic or merely extrinsic value. It turns out, however, that the opposite is the case: Considerations of the environment in proportionality of means calculations provide a powerful new argument to move past that debate.

4 The Environment, Jus Post Bellum, & Jus Para Bellum

Perhaps the greatest impact of environmental considerations with respect to the ethics of war is that they require us to rethink the ethics of choices both before and after the war. In this penultimate section, we suggest that the broader taxonomy of just war and the environment includes postwar activities (*jus post bellum*) as well as preparations for war (*jus para bellum*). Let us consider each in turn.

4.1 Jus Post Bellum: the need for a criterion of restoration

Let us begin with considerations of *jus post bellum*. There is, perhaps, no more important recent development in the just war framework than considerations about the demands of justice at the end of war. The justification for these concerns lies in large part because, as Brian Orend put it, “We know that when wars are wrapped up badly, they sow the seeds for future bloodshed” (2002, 43). Many of the considerations of *jus post bellum* thereby look to limit the consequences of war, requiring for example, the terms of settlement should be reasonable, measured, and proportional. The most important consideration in *jus post bellum* as it has been previously formulated, however, is the legitimate aim of the war itself. “The proper aim of a just war is the vindication of those rights whose violation grounded the resort to war in the first place” (Orend 2002, 46). In considering issues of punishment, this criterion requires discrimination between those guilty for the crimes of war from those who are not. It also places a firm restriction that the pursuit of a war be limited to its original, legitimating cause. Compensation and rehabilitation may be required; war crimes trials may even be appropriate. But in all cases, these post war activities must be linked to the original violation that gave rise to a just war in the first place (Orend 2002).

Yet war—even a just war fought well—always introduces *further* rights violations for the innocent who are caught up in its destruction. While the rights violations within war are rightly blamed on the aggressor, even a just nation fighting well finds further limits on its actions: It must not do

anything that violates the rights of the innocent *after* the war is over. For those post-conflict violations, the nation fighting the just war, rather than the merely aggressor, would also be responsible. For *that* state of affairs involves a violation of rights not required by the war itself. In other words, the rights violations post conflict are *not* required in order to avoid a greater evil of allowing unchecked aggression. But this type of post-war infringement of rights is exactly what environmental degradation creates. Environmental destruction indiscriminately deprives people of rights to property, life, and security *post-bellum*. Therefore, if a war is to be ended well, a morally appropriate *jus post bellum* framework must include a criterion of *environmental restoration*. Both sides, just and unjust, are responsible to limit the destruction of war, as much possible, to the war itself. Individuals who have been unjustly wronged after a war must be compensated, and to whatever extent they can be, made whole. The same goes for the environment in which they live.

4.2 Jus Para Bellum: The need for a just war category for actions before war

Another aspect of war that has received insufficient ethical analysis is the preparation for war. We believe that the time has come to formally instantiate this aspect of war fighting into the just war framework. We will refer to it as *jus para bellum*: Justice prior to war. If for no other reason, this gap in the just war framework ought to be addressed given how frequently actions before war influence actions within war. A nation does not just show up on the battlefield; far more time and money is spent in the preparation for war than in war itself.

Pre-war activities include, but are not limited to: maintaining forces through training, acquiring new equipment, advancing technologically through research and testing, and maintaining and disposing equipment necessary for war. All of these preparations, while necessary, can have serious ramifications on the environment (Mathiesen 2014). The U.S. Department of Defense, for example, is the world's largest single consumer of fossil fuels. In 2007, U.S. forces used 20.9 billion liters of fuel, resulting in CO₂ emissions comparable to a mid-sized European country (Mathiesen 2014). In fact, as much as 20 percent of the global environment degradation can be attributed collectively to the world's militaries (Brauer 2009). Military necessity can no more be used as a cudgel to silence considerations of justice with respect to a military's activities *para bellum* than *in bello*. Since the impacts to the environment are often long lasting, impacting generations of humans, the ability to justify these activities will often be harder than our simple and frequent appeals to military necessity would suggest.

A powerful example of *jus para bellum* involves the development, testing, and disposal of nuclear weapons. Testing new nuclear devices often releases radionuclides into the atmosphere that have the potential to contaminate land and water, and the half-life of some of those particles is measured in millennia (Luig et al. 2011). The United States alone has 2,500 weapons that were retired and waiting to be dismantled (U.S. Department of State 2015). It is not merely the use or threat of use of these weapons that raises moral questions; life-cycle environmental impacts have to be taken into account during the justification of any new weapon's development.

As noted above, we are far from the first to notice the environmental impacts of military activities outside wars themselves. We are also not the first call for the creation of a novel just war category for actions before war; Mark Woods made a similar appeal in his paper "On the Nature of War"

(2007: XXX). Yet outside the very specific domain of those interested in the environmental considerations of the use of military force, this latter suggestion has gotten very little uptake. It does not seem likely that the reason lies in the fact that theorists fail to see any ethical issues in the environmental impacts of military activity outside of war. More likely, they view these activities as more akin to other actions that impact the environment outside of war: infrastructure, business development, urban planning, etc. In all these cases, environmental impacts ought to and in fact often do place normative force on decision makers, but those impacts are (sometimes appropriately, often inappropriately) weighed against other normative concerns: utility, social justice, cost-benefit, etc. In other words, a common, initial response is to accept that these instances raise environmental and ethical concerns, but wonder if those concerns are just war concerns. The default skepticism against *jus para bellum* is not due to a denial that environmental impacts raise ethical considerations, but rather to an uncertainty that the ethical issues in these cases are appropriately considered issues of just war theory.

We believe that it is in response to this background assumption that its essential to highlight that while environmental concerns should be one important component of *jus para bellum*, they will not be the only one. Once the just war framework was adapted to allow for the possibility of just preemptive actions (Walzer 2009, 74-85), then the actions of nations *before* war that could lead to such just preemptive responses ought to themselves be the subject to a similar moral assessment. This effect becomes all the more dramatic for those who believe that preventive war can be justified. In our modern world, the actions before war are often as morally significant as the decision to initiate hostilities—if not more so. Placing environmental concerns within the larger category of actions before war that have independently significant normative implications for the actions of, within, and after war points the way forward for a new category of just war analysis.

5.0 Conclusion: Practical implications of theoretical changes

We have made the case that as our environment changes, so too must our theoretical understanding of just war theory. These theoretical changes, however, must be matched with more practical ones. Environmental monitoring and impact assessment tools should be incorporated directly into strategic planning, a corps of environmental personnel should be created within the military, and environmental considerations should be incorporated into military training. In short, we must place more direct emphasis on preservation of the environment and inspire others to do so as well.

We should note first that to better understand the practical impact of modern war on the environment, better research is required. There is, thankfully, a growing sub-field of warfare ecology whose overriding aim is to try to develop a more precise scientific understanding of exactly that phenomenon. For example, Machlis and Hanson have identified that in order to fully understand the environmental impact of war, research before, during, and after conflict is required (2008). In most environments, unfortunately, ecological research is sparse before hostilities, and almost non-existent during them. Expanding warfare ecology would provides us with a better understanding of the link between armed conflict and the potentially grave threats to the natural environment, an understanding that would in turn allow for better decision making about the appropriateness of waging armed conflicts in the first place.

One particular way to achieve that aim would be to create a dedicated environmental corps at both the national and international level. At the international level, such an organization would be focused on expanding knowledge on the potential impact of war. During peacetime, this group would work with other international environmental organizations, both governmental and non-governmental, to help facilitate research. They would also help develop an international framework for grading the likely destruction from any given war as well as the level of effort required for recovery and restitution after hostilities are ended. At the national level, in addition to expanding our scientific knowledge, environmental corps could function similar to Monuments, Fine Arts, and Archives program of WWII. In peacetime, they could provide commanders with environmental information regarding the operation and siting of their bases, and they would conduct environmental training for the larger force (Drucker 1989). On the eve of potential conflicts, they could offer advice to policy makers and military strategists about the environmental impacts of going to war. During hostilities, they could provide commanders information about sensitive environmental areas, and they could maintain records of environmental degradation to facilitate future restoration. In order to achieve these ends, corps personnel ought to be integrated into the military infrastructure (*i.e.*, not an outside agency) yet possess an authority from the highest levels (e.g. the way the Monuments, Fine Arts, and Archives was commissioned by FDR and reported directly Eisenhower in WWII).

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