

PEACE STUDIES JOURNAL

Volume 8, Issue 1
October 2015

PEACE STUDIES JOURNAL

Vol. 8, Issue 1
October 2015

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Special Issue:

Confronting the Environmental Impacts of War

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Introduction—“War Is Not Healthy For Children & Other Living Things”: Confronting the Environmental Impacts of War

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INTRODUCTION—“WAR IS NOT HEALTHY FOR CHILDREN & OTHER LIVING THINGS”: CONFRONTING THE ENVIRONMENTAL IMPACTS OF WAR

As I write, the islands of Pagan and Tinian in the Pacific are threatened by U.S. military live-fire training plans and bombing desires. Under threat are coral reefs and other sea life, threatened and endangered endemic species, ancient geological wonders, and deep waters, much of which are still unexplored, as well as significant historical places and artifacts, pristine beaches, and the human residents of the Mariana Islands archipelago (U.S. Naval, 2015). Such maneuvering is not new. Historical resemblances abound: from the firebombing of the island of Japan to the destruction of Hiroshima and Nagasaki to nuclear “testing” at Amchitka in Alaska to the cluster bombing of Laos to military bombing of Kaho’olawe in the Hawaiian Islands to Vieques and on to Afghanistan, islands and deserts especially have long been selected as sites for military abuse by the U.S. and other nations (Blackford, 2004; Hashimoto, n.d.; Solnit, 1994).

Although the U.S. military has long known that global climate change is a larger threat than terrorism, it still continues to conduct its affairs the same way it always has—by moving into a place and never leaving, then destroying more land and critical habitats and utilizing more resources to do so. At more than 800 bases globally, in its tests and use of animals, its consumption of fuel, and weapons manufacturing, the U.S. military destroys the environment while spewing greenhouse gases and other kinds of lethal pollution (Helfrich, 2004; Soble, 2015; U.S. department, 2010). As historian Barry Sanders (2009), author of *The Green Zone: The*

Environmental Costs of Militarism, puts it, “the greatest single assault on the environment, on all of us around the globes, comes from one agency ... the Armed Forces of the United States” (p. 78).

Such history drives my desire to continue conversations started long ago about the connections between war and the environment. For a long time, I have frustrated my academic colleagues by pushing them to walk the walk. For starters, I have always held firm to the belief that you cannot espouse environmental action while eating animals. I have also repeatedly shown my students that they cannot support war and consider themselves environmentalists. In a small way, this brief collection supports such arguments.

I did not come to my way of thinking in a direct way, nor were my beliefs cemented at an early age. In fact, I appeared destined to participate in war. I was a Cub Scout, then a Boy Scout, and ultimately earned the rank of Eagle Scout. Earning merit badges in railroading, skiing, first aid, horsemanship (for which I had a near death experience), camping, and wilderness survival, provided me with useful knowledge and skills for which I might prepare for the end of the world (Helfrich, 2012). Many of my childhood experiences in Lancaster, Pennsylvania, and Rochester, New York, should have dictated that I join the military and serve patriotically. For a long time, I imagined entering the United States Naval Academy in Annapolis, getting through my time as a Plebe, and then pursuing a career in the military. During high school I recited the Pledge of Allegiance without question and was surprised when not everyone followed suit. I held steadfast to such patriotic fervor when I coached a high school soccer team during college and stood firm during the playing of the National Anthem. (Only later would I realize the strong connections between war and sport. Elias, 2010; Zirin, 2010.)

Even after serious study of history and then seeing the U.S. government and military through the thoughts and expressions of other people whilst studying and working abroad as an undergraduate and graduate student, I still held onto my belief in the necessity of war, all the while missing the larger, more significant points about the role of warfare and its impact not only on human life but also plant and animal species. It took my moving to Minneapolis, Minnesota, and becoming directly involved in social justice activism and with other activists and their work, to realize what I had likely felt all along: war is not life supporting.

When I arrived in Minnesota, activists were fighting new road construction and reroutes in Minneapolis, as well as animal and plant experimentation at the University of Minnesota (Losure, 2002; King, 2006). I met and was inspired by Marv Davidov, a Freedom Rider and the founder of The Honeywell Project that was established to protest Honeywell’s manufacturing of Bombies, or cluster bombs, that were dropped in Southeast Asia (Marv would be saddened yet unsurprised to learn that the U.S. supplied cluster bombs to Saudi Arabia to use in its recent campaign in Yemen); the McDonald Sisters—biological sisters Rita, Brigid, Kate, and Jane McDonald who also happen to be Catholic nuns who regularly got arrested for protests at Alliant Tech, the weapons manufacturer that Honeywell created; Vietnam veterans such as Craig Palmer from Mayday Books, but also other men and women from Vets for Peace; American Indian activists Winona LaDuke, Jim Anderson, and Clyde Bellecourt; and radical environmentalists such as David Miller (Vezner, 2012; Schatz, 2015; The Center, n.d.; Southside, n.d.). My own graduate advisor, the radical historian David Roediger, influenced me in countless ways, as did many fellow graduate

students. My dissertation work expanded my network to include activists, scientists, and organizers from the Southwest. I rubbed shoulders with and was influenced by social justice artists and writers, labor leaders, elected Green Party officials in municipal government, Earth First!ers, environmental, animal rights, human rights, and peace activists, and people working for animal liberation, ecofeminist causes, and various socioeconomic goals.

Indeed, it was during my time as a doctoral student at the University of Minnesota that I internalized the meaning of solidarity, began to see connected oppressions and the importance of intersectional social justice, and thought differently. I began to listen not only to Minnesota Public Radio/National Public Radio but also “Democracy Now” and local alternative radio stations. I participated in the annual May Day parade, various protests, and other life-supporting activities. It was also at the University of Minnesota where I began to connect war, violence, mass incarceration, inequality, and oppression generally with global climate change, species extinction, and other environmental disasters.

While working to create the first-ever guidebook to sustainable living in Minnesota, I came across the Poster Factory, a now-defunct organization from the 1970s that is inspiration for this collection. Following an effort of 5,000 University of Minnesota students and faculty who voted in 1970 to strike against the Cambodian invasion during the Vietnam War, named “Strike for Peace and Life,” an organization emerged to create politically dissenting artwork. Drawing on a broad history of dissenting artwork, the Poster Factory organized to produce a visual voice for the Minneapolis antiwar movement. Collective members created posters for Alive and Trucking Theater Co., *Anvil Magazine*, and the Honeywell Project. The group was especially concerned with peace, antiwar, and anti-Nixon issues. By 1972, however, the Poster Factory expanded to incorporate ecological ideologies and promoted growing gardens, recycling, reusing, and other individual methods to continue activism. As one of its posters encouraged, “pictorialize and define the cosmos/draw on your infinite springs of wisdom/join the peace cycle” (Christopherson, 2004).

Years earlier, the anti-war advocacy group, Another Mother for Peace, launched Mother’s Day “peace cards,” with the slogan “War is not healthy for children and other living things” and artwork that included a sunflower and yellow background. These moments and others connected the effects of war on the environment and are the focus of this special issue.

In this special issue, the reader will uncover two feature-length articles, two commentaries, an interview, and a college level course summary. Each of these submissions drive home the point that human wars on the battlefield and at home, ongoing and in the future, are at their core also wars against the environment, broadly defined. This special issue examines some of the significant ecological impacts of human wars throughout the world, specifically on nonhuman animals, plants, soil, water, and air—currently and in the past.

It is my hope that future studies will provide additional links and connections to the theme of this special issue. Such studies and activism could examine, for example: Iraq’s environment, ravaged by war; the abandonment of Vieques and the turn to Afghanistan instead to test large bombs, as well as bombing and “testing” in the Pacific, on volcanic islands and in desert areas globally; U.S. aerial bombing campaigns that cause earthquakes; U.S. military bases globally as Superfund sites; the history of Greenpeace (originally the “Don’t Make a Wave Committee” to protest nuclear tests

at Amchitka and elsewhere); the first Earth Day, which was almost entirely about anti-war generally and nuclear war activism specifically, as was the work of Rachel Carson; an ecological review of Benjamin Banneker and Benjamin Rush's 1793 essay, "A Plan of a Peace Office for the United States," Mark Twain's "The War Prayer," John Hersey's *Hiroshima*, or Smedley Butler's *War is a Racket*, for example; the toxification of American Indian and Indigenous lands globally to make bombs, as well as for national "sacrifice zones"; a new look at Vets for Peace, Plowshares Movement, and other groups that link antiwar with ecological and environmental protest. Additional studies could scrutinize nuclear fallout, landmines, testing on animals within the military, dissenting artwork and movements connecting war and ecology, and the environmental impacts at home and abroad of weapons such as napalm, Agent Orange, cluster bombs, and Depleted Uranium, as well as the mining of uranium and other metals, for example.

Yet there remains hope: The U.S. Navy was recently told to stay out of biologically sensitive areas for its weapons and sonar testing (Henkin, 2015). Two runways planned for Marine base Camp Schwab were recently halted by the Mayor of Okinawa because their construction will affect the health of coral-filled waters. We have also seen what can happen when wetlands are restored to places such as Iraq (Antonelli, 2013). Unfortunately, these cases are the exception to the rule: much of the human experience proves that "war is unhealthy for children and other living things."

For additional readings and films, consider:

- Al Jazeera English. (Director). (2012). *Greenpeace: From hippies to lobbyists*. Retrieved from <https://www.youtube.com/watch?v=T7UdiiKseQY>
- Austin, J. E., & Bruch, C. E. (Eds.). (2007). *The environmental consequences of war: Legal, economic, and scientific perspectives*. New York, NY: Cambridge University Press.
- Brauer, J. (2011). *War and nature: The environmental consequences of war in a globalized world*. Lanham, MD: Altamira.
- Cabral, A. (1991). *War and the environment*. Boston, MA: unknown publisher.
- Closmann, C. E. (2009). *War and the environment: Military destruction in the modern age*. College Station, TX: Texas A & M University Press.
- Days, A. T., & Days, L. H. (Directors). (2008). *Scarred Lands & Wounded Lives: The Environmental footprint of war*. Retrieved from <http://www.imdb.com/video/wab/vi3838354969>
- Harris, Susan. (Director). (2005). *Poison DUST: A close look at the dangers of radioactive depleted uranium weapons to innocent civilians & our own troops*. Retrieved from <https://www.youtube.com/watch?v=HBs1zCVR0Ao>
- Jensen, D. & Draffan, G. (2003). *Strangely like war: The global assault on forests*. White River Junction, VT: Chelsea Green.
- LaDuke, W. (2013). *The militarization of Indian country*. East Lansing, MI: Makwa Enewed.
- Lanier-Graham, S. D. (1993). *The ecology of war: Environmental impacts of weaponry and warfare*. New York, NY: Walker & Co.
- McNeill, J. R. & Unger, C. R. (2013). *Environmental histories of the Cold War*. New York, NY: Cambridge University Press.

- Mowat, F. (2011). *Eastern passages*. Toronto, Canada: Emblem Editions.
- Nocella, A. J, Salter, C., & Bentley, J. K. C. (Eds.). (2013). *Animals and war: Confronting the military-animal industrial complex*. Lanham, MD: Lexington Books.
- Russell, E. (2001). *War and Nature: Fighting humans and insects with chemicals from World War I to Silent Spring*. New York, NY: Cambridge University Press.
- Sanders, B. (2009). *The green zone: The environmental costs of militarism*. Oakland, CA: AK Press.
- Silberman, J. (Director). (2002). *Bombies* [DVD]. Retrieved from <https://www.youtube.com/watch?v=6HPH7grVHR0>
- Solnit, R. (1994/2014). *Savage dreams: A journey into the landscape wars of the American west*. Oakland, CA: University of California Press.
- Trumbull, D. (Director). (1972). *Silent running*. Retrieved from <https://www.youtube.com/watch?v=Sp0OEr1-Ueo>
- Tucker, R. P. (2004). *Natural enemy, natural ally: Toward an environmental history of war*. Corvallis, OR: Oregon State University Press.
- Westing, A. H. (1988). *Cultural Norms, War, and the Environment*. Solna, Sweden: Stockholm International Peace Research Institute.
- Westing, A. H. (2013). *Arthur H. Westing: Pioneer on the Environmental Impact of War*. New York, NY: Springer-Verlag.

References

- Blackford, M. (2004). Environmental justice, native rights, tourism, and opposition to military control: The case of Kaho'olawe. *The Journal of American History*, 91(2), 544-71.
- Christopherson, C. (2004). The Poster Factory: Visual dissidence proliferated from the antiwar movement at the University of Minnesota. Unpublished senior thesis, University of Minnesota, Minneapolis, Minnesota.
- Elias, R. (2010). *The empire strikes out: How baseball sold U.S. foreign policy and promoted the American way abroad*. New York, NY: The New Press.
- Hashimoto, I. (n.d.). Nuclear detonation timeline 1945-1998. Retrieved from <https://www.youtube.com/watch?v=cjAqR1zICA0>
- Helfrich, J. (2004, Mar 2). Global warming bigger threat than terrorism. *The Minnesota Daily*.
- Helfrich, J. (2012, Oct 17). Homophobia, "perversion files," and why I chose to renounce my Eagle Scout rank. Retrieved from <http://dissidentvoice.org/2012/10/homophobia-perversion-files-and-why-i-chose-to-renounce-my-eagle-scout-rank>
- Henkin, D. (2015, Apr 15). Whales blow hole in sonar plan. *Earthjustice*. Retrieved from http://earthjustice.org/blog/2015-april/whales-blow-hole-in-sonar-plan?utm_source=crm&utm_content=sonartitle&curation=ebrief#
- King, E. (2006). *Listen: The story of the people at Taku Wakan Tipi and the reroute of Highway 55 or the Minnehaha Free State*. Tucson, AZ: Feral Press.
- Losure, M. (2002). *Our way or the highway: Inside the Minnehaha Free State*. Minneapolis, MN: University of Minnesota Press.
- Sanders, B. (2009). *The green zone: The environmental costs of militarism*. Oakland, CA: AK Press.

- Schatz, B. (2015). How US cluster bombs banned by most countries ended up in Yemen. *Mother Jones*. Retrieved from <http://www.motherjones.com/politics/2015/06/cluster-bombs-yemen-saudi-united-states>
- Soble, J. (2015). Okinawa governor orders a halt to work on U.S. military airfield. *The New York Times*. Retrieved from http://www.nytimes.com/2015/03/24/world/asia/okinawas-governor-orders-building-of-us-marine-corps-base-to-be-halted.html?_r=1
- Solnit, R. (1994/2014). *Savage dreams: A journey into the landscape wars of the American west*. Oakland, CA: University of California Press.
- Southside Family School (Director). (n.d.). *Four sisters for peace* [DVD]. Retrieved from <https://www.youtube.com/watch?v=eMAEQ-a7dys>
- The Center for International Education. (n.d.). *Four sisters for peace*. Retrieved from <http://www.thecie.org/sisters>
- Antonelli, J., & Dusenbury, T. (Directors). (2013). *The new environmentalists from Chicago to The Karoo*. Retrieved from <https://vimeo.com/69587098>
- Vezner, T. (2012). Marv Davidov, Twin Cities peace activist dies at 80. *The Pioneer Press*. Retrieved from http://www.twincities.com/news/ci_19743590
- Project Censored. (2010). US Department of Defense is the worst polluter on the planet. *Project Censored*. Retrieved from <http://www.projectcensored.org/2-us-department-of-defense-is-the-worst-polluter-on-the-planet/>
- U.S. Naval Facilities Engineering Command, Pacific. (2015). *CNMI joint military training EIS/OEIS*. Retrieved from <http://www.cnmijointmilitarytrainingeis.com>
- Zirin, D. (Director). (2010). *Not just a game: Power, politics, & American sports* [DVD]. United States: Media Education Foundation.

PEACE STUDIES JOURNAL

Vol. 8, Issue 1
October 2015

Nonhuman Collateral Damage and Just War Pacifism

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NONHUMAN COLLATERAL DAMAGE AND JUST WAR PACIFISM

Abstract

This paper offers a pacifist argument that is the result of adding environmental concern to the traditional just war theory. The paper considers some of the negative environmental impacts of war and militarism. It discusses how the concept of collateral damage works within the just war theory and explains why the just war theory should include a consideration of nonhuman collateral damage. The paper defends “just war pacifism” as a reasonable conclusion for those who think that nonhuman collateral damage ought to be taken into account.

NONHUMAN COLLATERAL DAMAGE AND JUST WAR PACIFISM

War and militarism cause environmental damage. A growing body of work—both scholarship and international agreements—is concerned with mitigating the environmental impact of war. The International Committee of the Red Cross, for example, has issued two reports focused on protecting the environment in time of war (ICRC 1993 and 1996). A newly developing field of inquiry called “warfare ecology” aims to provide detailed empirical analysis of the impact of war on the ecosystem (Machlis & Hanson, 2008). Wars harm both the people who inhabit the ecosystem and the nonhuman elements of the ecosystem. In addition, militarism—the larger social, political, and economic system of military power—is both a massive consumer of natural resources and a significant source of pollution.

While the environmental impacts of war and militarism are clear, the moral question is whether those impacts can be justified. To answer that question an obvious place to begin is with the just war theory. The just war theory stipulates conditions in which war can be justified: as a last resort, in pursuit of a just cause, with right intention, and so on. According to most interpretations of the just war theory, so-called “collateral damage” is allowed when this damage is not deliberately intended, when it is proportional, and when it occurs as part of a legitimate war aim. However, most versions of just war theory use the term collateral damage in a restricted fashion—applying it only to harms done to human beings.

This essay considers how environmental impacts could be factored into just war theory as “nonhuman collateral damage.” It concludes that when nonhuman collateral damage is taken into consideration, war and militarism become even more difficult to justify than they already are. This essay builds upon arguments familiar from what is often called “just war pacifism.” This version of pacifism accepts the moral framework of the just war theory while arguing that a rigorous interpretation of the just war theory leads to pacifist conclusions. When we extend our concern beyond the human realm, there are even stronger reasons to be sympathetic to just war pacifism. The paper has three parts. First, I consider the negative environmental impacts of war and militarism. Second, I show how the concept of collateral damage works and why it should include nonhuman collateral damage. And third, I connect this with the critique of war known as just war pacifism.

The Negative Environmental Impacts of War and Militarism

The most obvious negative impact of war on the environment occurs when bombs are dropped, forests are burned, and waste and desolation are left behind on the battlefield. Consider one example: how deforestation is used as a weapon within war. This is an old method of warfare (with fire being used as a weapon) that was updated in Vietnam with the use of Agent Orange and other defoliants. In Vietnam, 5 million acres of forest were defoliated; 500,000 acres of cropland were destroyed (sprayed with “Agent Blue”—a chemical specifically aimed at destroying crops including rice). The destruction included 250,000 acres of mangroves, which are essential for coastal ecology (see

http://www.agentorangerecord.com/impact_on_vietnam/environment/defoliation/). The impact of all of this devastation will continue to linger for generations. Vietnam is not the only place impacted by deforestation caused by war. A report by DeWeerd (2008) showed how deforestation occurred in and around Rwanda as a result of the Rwandan genocide and subsequent refugee crisis. DeWeerd also points out that war is especially hard on already fragile ecosystems such as deserts—citing the challenges caused by the oil fires left in Kuwait after the Iraqi invasion and subsequent Operation Desert Storm. The list of negative environmental impacts of war is long and could stretch from Biblical times through Sherman’s march to the sea and on to Okinawa, Hiroshima, and beyond—including environmental destruction caused by narco-wars in South and Central America, and the war on terrorism in Asia and the Levant.

Not every environmental impact of war is negative. In some cases, war can benefit local ecosystems. Brady, Schultz, and Schwarzstein have each shown that the no-man’s lands created in wars can quickly become wildlife refuges. Apparently some beneficial ecological results of militarism have occurred in the DMZ in Korea, as well as in the mined borderlands between Iran

and Iraq. In the borderland between Iran and Iraq, for example, the Persian Leopard has made a comeback. In the case of the Persian Leopard, landmines have helped: the leopards are too light and agile to detonate the mines left behind by the war—even though human beings still avoid areas strewn with mines. One great irony here is that when human warfare creates spaces of mutual hostility that are too dangerous for human beings, the nonhuman world has a chance to flourish. In the short term we might cheer on the Persian Leopard and the other creatures who are benefiting in this modest way from “man’s inhumanity to man.” But this is obviously not a decent solution either to the environmental problem, or to the problem of war. The solution cannot be a world of mutual deterrence and militarized borderlands.

War impacts the nonhuman world in other ways. We might consider, for example, how animals have been used in war and the deep systematic implications of how we think about war, animals, and the environment. The title of one recent publication points toward a deep system problem: *Animals and War: Confronting the Military-Animal-Industrial Complex* (Nocella, Salter, & Bentley, 2013). That collection of essays argues that there is a deep and pervasive social, political, and economic system in which war and animal usage has long been intertwined. A systematic effort aimed at liberation and peace must consider the problem of anthropocentrism. Anthropocentrism (or what Colin Salter calls “human chauvinism” in Nocella 2013) includes the assumption that animals can simply be used in war. A critique of anthropocentrism—either from an animal rights/welfare standpoint or from the standpoint of ecology—would lead us to consider nonhuman suffering as a significant concern in critiques of war. Said differently, if we bring animals and the environment into conversations about the justification of war, we would be forced to think even more critically about war.

Again the story is not entirely one-sided. Soldiers themselves have had an interesting relationship with the animals that they use. The Animals in War Memorial in London makes this point. This memorial is dedicated to the countless animals that have been used in war—dogs, pigeons, horses, elephants, and so on. The Memorial contains this quotation: “This monument is dedicated to all the animals that served and died alongside British and Allied forces in wars and campaigns throughout time...They had no choice” (Animals in War website: http://www.animalsinwar.org.uk/index.cfm?asset_id=1385). Animals are caught up in war without choice and do not receive any obvious benefit from their involvement in war. The Memorial’s website reminds us that soldiers themselves are deeply impacted by the loss of animals in their care. A poem that accompanies the memorial is, “The Soldier’s Kiss,” by Henry Chappell (http://www.animalsinwar.org.uk/index.cfm?asset_id=1422). The poem recalls the death of a horse in war:

Only a dying horse! He swiftly kneels,
Lifts the limp head and hears the shivering sigh
Kisses his friend. While down his cheek their steals
Sweet pity’s tear: “Goodbye Old Man, Goodbye.”

The denial found in the claim this is “*only* a dying horse” is belied by the soldier’s tears and the tender kiss goodbye. Animals are valued comrades, whose deaths matter—even in the midst of battle. Recognizing that even soldiers care about animals helps to open a chink in the armor of anthropocentrism. The horror of war is not only the destruction of human beings. The horror of

war also includes the wanton destruction of beloved nonhuman companions, who are part of the collateral damage of war.

Before turning to the moral question of whether nonhuman collateral damage can be justified by the just war theory, let's consider the environmental costs of *militarism*—which can be defined as the social and political system that is engaged in preparation for war. The impacts of militarism may be less obvious than the outright killing that occurs in open warfare; but these impacts are equally important. Indeed, the effects of militarism on the environment may be more significant since militarism is an ongoing social project, while wars are episodic. Machlis and Hanson argue, for example, that “war preparations alone utilize up to 15 million square kilometers of land, account for 6% of all raw material consumption, and produce as much as 10% of global carbon emissions annually” (2008, p. 729).

There are both direct and indirect impacts of militarism on the environment. As summarized by Gay (2015), *direct* ecological harms are caused by the production of weapons, the deployment and testing of these weapons, and the storage and reprocessing of these weapons. Details include the use of petroleum, heavy metals and other toxins, as well as obviously harmful practices that are part of training. Wildlife at bombing ranges are harmed, for example. In the oceans the use of sonar training buoys harms whales and other marine animals. Gay summarizes the *indirect* negative impacts of militarism as including potential disasters (for example, from storage of toxic waste at military facilities or from possible damage caused by earthquakes to nuclear facilities, etc.). He also points toward a significant indirect impact as relating to the allocation of social resources—spending social capital on developing and deploying destructive technologies, rather than on more productive endeavors.

We might add at least two other more or less direct impacts: the impact on the environment from the prevalence of weapons, as well as the impact on the environment on dislocated (hungry and desperate) persons. DeWeerd points out that automatic weapons made available through militarized conflicts in Africa have been turned against animals, including hippos and gorillas. We might add here that as human populations are dislocated and as infrastructure is destroyed in conditions of war, refugees and survivors give up on sustainable practices and are forced to scrape by with whatever means are available. A related issue is that poor governance and social and economic problems in peacetime are exacerbated by war and lead to further problems during wartime, including environmentally destructive activity by those struggling to survive during wartime (see Glew and Hudson, 2008).

Other accounts fill in further details including the massive development of military infrastructure, which includes all sorts of actions: dredging for ports, building canals, constructing roads, mining, building bridges, constructing dykes, and developing underground bunkers (see Dutch, 2006). We should consider, for example, the military importance of the Panama and Suez canals, as well as the military purpose of railways and roads. One anecdote might make this point. General John J. Pershing addressed the U.S. Senate in 1921, arguing about the essential military importance of roads. He said, “Every road is of value during war” (U.S. Congress, 1921, p. 214). The great project of constructing the interstate highway system in the U.S. was a social engineering project, an economic boost for industry, and a way of facilitating the growth of militarism. It is not surprising to note that President Dwight D. Eisenhower's 1956 plan for the interstate highway

system in the U.S. was called, “The National System of Interstate and *Defense Highways*” (italics added for emphasis). Eisenhower was inspired by his own experience moving military materiel across the United States (he was involved in a slow moving transcontinental convoy in 1919) and across Europe and Germany in the Second World War (Pfeiffer, 2006). The point of this example is to show that military purposes and civilian infrastructure and development concerns intersect, while having significant environmental impacts. Not only is road construction itself environmentally harmful but also, the interstate highway system is a central feature of contemporary American commerce, which includes significant environmental impacts in terms of carbon emissions and other pollution.

Nonhuman Collateral Damage

The previous section has established that war and militarism are harmful to the nonhuman world. The moral question still needs to be considered, as to whether such environmental harms can be justified. The just war theory provides a moral framework within which we can examine this question. Although absolute pacifists will claim that war (and possibly violence even more broadly construed) can never be justified, the just war framework does not condemn war absolutely. Rather, the just war theory allows that in some cases war can be permitted: in response to a just cause, as a last resort, as a proportional response with the right intention and so on, according to principles commonly outlined under the rubric of *jus ad bellum*. The just war theory also stipulates that within war certain principles ought to be followed (known as principles of *jus in bello*): we ought to discriminate between combatants and noncombatants, we ought to avoid disproportional harm, and we ought not use means that are evil in themselves. There is a significant literature on the just war theory that fleshes all of this out in a variety of ways.

Most of the literature on just war theory is anthropocentric: human concerns are usually the *only* concern of the just war tradition. It is worth noting that the historical development of the just war theory occurs within Christian and European traditions, where anthropocentrism is taken for granted. Key authors in this tradition—from Augustine to Grotius and Kant—are decidedly anthropocentric. Within the usual interpretation of just war theory, if there is some concern for environmental issues, it is quite indirect. For example, poisoning water supplies is not justifiable according to traditional just war theory. The reason this is wrong is because it harms human beings, and not because of the direct damage done to wildlife or ecosystems.

Critical approaches to the issue of environmental damage in war may look in the direction of non-Western traditions that offer a critique of anthropocentrism. Another approach might begin by looking at ideas familiar either from ethicists who are focused on animal welfare concerns—such as Singer, Regan, or DeGrazia—or from the concerns of ecologists who are critical of anthropocentrism such as Deep Ecologists like Naess, Devall, and Sessions. Let us consider one of these authors in a bit more depth: Arne Naess, a leading philosophical voice of deep ecology. Naess’s scholarship brings together awareness of non-Western traditions and Western philosophical critiques of anthropocentrism. Naess’s work also includes extensive consideration of Gandhi and nonviolence (Naess 2005b). Although he is not an absolute pacifist, Naess advocates creative nonviolence. Naess also thought that peace movements and environmental movements should be joined together along with social justice movements in what he called “the three great movements” (2008, p. 99). The connection between deep ecology and Gandhi is

interesting. Although Gandhi is not primarily focused on ecological issues (as Lal has argued in 2002 and 2000), Gandhi is interested in articulating a worldview that centers on love, compassion, and nonviolence. Naess explains, for example, “Gandhi made manifest the internal relationship between self-realization, nonviolence, and what has sometimes been called biospherical egalitarianism” (2005a, p. 524). From this point of view, war is wrong because it harms *both* human and nonhumans.

Some authors have built upon such ideas and weaved them in more detail around the concerns and concepts of the just war theory. Woods (2007) for example, has argued that a significant problem is that “military necessity” appears to usually or always trump environmental concern. Nonetheless, Woods points out that there is a growing body of international law that is concerned to limit the environmental impact of war. Woods proposes that the issue of *proportionality* in just war theory (both macro-level proportionality in the sphere of *jus ad bellum* and micro-level proportionality in the sphere of *jus in bello*) can be a useful guide. Traditional, anthropocentric just war theory limits proportionality considerations to a focus on harm to humans. However, a non-anthropocentric interpretation of just war theory would argue that wars that devastate the environment are also not proportional.

Clearly, the issue of proportionality is important. An even more useful concept is the idea of “collateral damage” as extended to the nonhuman world. Chalecki has explained in some detail how the concept of nonhuman collateral damage can be understood within the just war framework and within international law. Traditional *jus in bello* considerations do not usually look at nonhuman collateral. Nonetheless, Chalecki notes that Principle VI of the Nuremberg Code defines as a “war crime” any “devastation not justified by military necessity” (Chalecki, 2013, p. 154). Such immoral devastation can include the deliberate destruction of artworks, religious icons, or other monuments or culturally significant artifacts. This probation on devastation can easily be extended to include environmental damage. Chalecki’s work summarizes ideas found in the International Red Cross documents mentioned above, indicating as Woods does, that international institutions are beginning to attend to this issue. Nonetheless, collateral damage is an idea that is ordinarily employed within just war theory in an anthropocentric fashion. The concept of collateral damage shows up in discussions of the problem of *discrimination* (within the framework’s *jus in bello* set of considerations). Justified military forces ought to discriminate between combatants and noncombatants—and each category is traditionally focused on human beings. Human combatants are legitimately killed. When human noncombatants are unintentionally killed, this is described as “collateral damage.” Collateral damage is permitted by application of the doctrine of double effect: if the primary intention is to destroy a legitimate target, then foreseen but unintended collateral damage is permitted. The idea of collateral damage is usually used exclusively to describe harms to human noncombatants. But the concept has been plausibly extended in a non-anthropocentric direction by Chalecki.

It may be possible to establish concern for nonhuman beings within an anthropocentric version of just war theory. For example, if animals (or wetlands or forests) are understood as property, then we might find some reason to avoid destroying them based in respect for property. An anthropocentric account of collateral damage might include a concern for civilian property. However, critics of anthropocentrism, such as Naess, will argue that this does not go deep enough, since it lacks direct concern for nonhuman beings.

It is important to note that within just war theory, the concepts of collateral damage and noncombatant immunity point toward some deep and open questions. McMahan (1994, 2009) has pointed out that in some cases human combatants are “innocent” (and don’t deserve to be killed), while human noncombatants may be culpable (and so may not deserve the immunity afforded to them). Consider, for example, the moral difference between a conscripted soldier (who is in a sense not guilty for the war he is fighting in) as compared to a political war-monger, who does not fight but supports the war (and hence is culpable). The set of problems indicated here is helpful in considering whether nonhuman beings can also be considered as noncombatants. Animals employed in war, for example, are not culpable and thus could plausibly be construed as noncombatants (although to be clear, McMahan does not make this connection).

Steffen (2015) has also extended just war considerations in a way that seeks to describe the environment as a “noncombatant.” Steffen points out that one of the challenges is that some forms of warfare effectively “weaponize” nature, turning natural forces into destructive forces to be used against an enemy. If this is true, then these natural forces are not “innocent noncombatants.” We might consider for example, whether horses, dogs, or other animals used in war can legitimately be killed. There may have once been something dishonorable (according to codes of chivalry) in targeting a soldier’s horse. However, in the era of mechanized weapons and high altitude bombing, such distinctions no longer apply. Thus, according to most mainstream accounts of justice in war, nonhumans can be legitimately targeted—especially if these nonhumans are weaponized. The same reasoning might apply, then, in consideration of other nonhuman elements on the battlefield. Forests can be burned, watersources can be fouled, and so on—if those natural features are being used by an enemy as a resource or weapon of war.

Steffen concludes that the natural world should be given a sort of “immunity from harm” similar to that which is afforded to noncombatants. This depends, of course, upon the sort of value we ascribe to nonhuman beings. Steffen points out that biocentric or non-anthropocentric approaches claim that there is some sort of intrinsic value in nature or in natural objects. If this is so then the natural world—including nonhuman animals—should be taken into account in the moral calculus of the just war theory. We might add an even stronger prohibition here, based upon the sorts of considerations that have come out of McMahan’s work. We would presume that nonhuman beings cannot be culpable for war in any sense. Indeed, the nonhuman world is “innocent” in the sense that nonhuman beings (whether animals or other features of the ecosystem) do not have the relevant intentionality to make them culpable. We need to be careful here—as for example, with regard to attack dogs, who may be “innocent” but who are “weaponized” when attacking and thus may be legitimately killed in self-defense. In general, it seems we ought to recognize that nonhuman animals and the natural world ought not be harmed because they are “innocent.” Thus it is possible to conclude that the nonhuman world deserves the kind of immunity that is afforded to human noncombatants, and that nonhuman collateral damage ought to be factored in to moral evaluations of war.

Just War Pacifism

There is more to be said about the concepts and issues considered above. The discussions in the literature of just war theory are detailed and complex, as are discussions of anthropocentrism and

non-anthropocentrism in environmental ethics and animal welfare, but let's move on to the next point. What should we think about war and militarism if we include non-anthropocentric concern? I argue that if nonhuman collateral damage matters in warfare, then it becomes even more difficult to justify war. Said differently, a just war theory that includes an account of nonhuman collateral damage will set up a high standard for the permissibility of war, which will tend toward the conclusion that war is usually not justified.

I have offered an interpretation of the just war theory that points toward a form of just war pacifism in other work (Fiala, 2004, 2008). In general, I argue that very few wars live up to the standards of the traditional just war theory. Even wars that are declared for ostensibly justified causes often end up violating principles of *jus in bello*. In the era of mechanized warfare, when killing occurs on a massive scale and in an indiscriminate fashion, it is likely that principles of *jus in bello* will be violated. Modern wars tend to create a substantial amount of collateral damage. Although collateral damage can be justified by the use of the doctrine of double effect (which permits harms to noncombatants so long as this harm is unintentional), I argue that this moral requirement is not as easily satisfied as proponents of war often believe. A serious appraisal of the importance of proportionality constraints and the principle of discrimination points us in the direction of a general rejection of modern warfare. Similar conclusions have been reached by a variety of authors who may be called "just war pacifists," "practical pacifists," or "contingent pacifists" (May, Sterba, Holmes, & Fiala, 2014). It may be that the use of smart bombs and drones could help in this regard by minimizing damage and narrowing targeting. So just war pacifists and contingent pacifists do not reject war absolutely. Rather, this approach admits that in some cases, limited and discriminate war could be justified by rigorous application of the just war theory.

However, if we bring nonhuman collateral damage into this conversation, the difficulty of justifying war increases. Consider the sorts of environmental and nonhuman damage we discussed above. If this sort of thing counts in the moral calculus of war, then the burden of proof for the justification of war becomes substantially higher. The same reasoning applies to the more broadly construed problem of militarism. If preparation for war also creates environmental damage, and if we take non-anthropocentric concerns seriously, then preparation for war is not easily justified.

Woods (2007) points in this direction when he applies an idea familiar from environmental ethics to the question of war: the precautionary principle. Woods concludes, "preventing environmental damage demands heightened caution and an injunction against military activities likely to lead to this damage" (p. 27). While Woods is somewhat circumspect (he does not argue toward a pacifist conclusion), it is possible to reach a stronger pacifist conclusion from this sort of approach. The history of warfare and militarism gives us good reason to suspect that warfare and militarism will create substantial nonhuman collateral damage. If we admit that nonhuman collateral damage matters, and if we admit that there are reasons to be skeptical of war even within a more traditional anthropocentric approach to just war theory, then it is reasonable to conclude that wars will often fail to live up to the standards of moral justification and ought to be morally condemned.

Conclusion

The history of warfare shows us blatant disregard for nonhuman collateral damage. Indeed, warfare has usually been justified on entirely anthropocentric grounds. A significant objection to the line of argumentation of this paper is that nonhuman beings do not count morally or that if they do count, the moral worth of nonhuman beings is far outweighed by human interests. The same sorts of anthropocentric arguments have been raised against those who argue for animal welfare or environmental concern. An extended defense of non-anthropocentrism is beyond the scope of this paper. I conclude by noting that one need not be a radical non-anthropocentrist to see that the impact of war on nonhuman beings gives us further reason to be skeptical of war. Anthropocentric concerns already lead just war pacifists to be skeptical of war. The fact that children are killed in war as collateral damage already gives us a significant reason to be critical of the justification of war. Even a slight sympathy for non-anthropocentric concerns can tip the balance toward pacifism. Recognition of the fact that nonhuman collateral damage is extensive in war and in militarism gives us reason for skepticism about the justification of war. Even if the nonhuman world is not afforded the kind of inherent dignity and value that biocentrists and animal rights advocates claim, it remains true that human beings love and cherish the nonhuman world. Even if the horse that is killed or the forest that is burned has no intrinsic value, these things have value for the human beings who shed tears at such wanton destruction.

References

- Brady, L. (2010). How wildlife is thriving in the Korean peninsula's demilitarised zone. *The Guardian*. (April 13, 2010).
- Chalecki, E. L. (2013). *Environmental security: A guide to the issues*. Santa Barbara, CA: ABC-CLIO.
- DeGrazia, D. (1996). *Taking animals seriously: Mental life and moral status*. Cambridge, UK: Cambridge University Press.
- DeGrazia, D. (2002). *Animal rights: A very short introduction*. Oxford, UK: Oxford University Press.
- Devall, W. and Sessions, G. (1985). *Deep ecology: Living as if nature mattered*. Salt Lake City, UT: Gibbs M. Smith, Inc.
- DeWeerd, S. (2008). War and the environment. *World Watch Magazine*. January/February 2008, 21, 1.
- Dutch, S. (2006). *Military impacts on the environment*. Retrieved from <https://www.uwgb.edu/dutchs/EnvirGeolNotes/Military.HTM>
- Fiala, A. (2004). *Practical pacifism*. New York, NY: Algora Publishing.
- Fiala, A. (2008). *The just war myth: The moral illusions of war*. Lanham, MD: Rowman and Littlefield.
- Fiala, A. (2014). "Contingent pacifism and contingently pacifist conclusions" *Journal of Social Philosophy* 45(4), 463–477.
- Fiala, A. (Ed.) (2015). *The peace of nature and the nature of peace*. Leiden, NL: Brill.
- Gay, W. (2015). "Negative impacts of militarism on the environment." In Andrew Fiala (Ed.), *The peace of nature and the nature of peace*. (pp. 51-60). Leiden, NL: Brill.
- Glew, L. and Hudson, M.D. (2007). Gorillas in the midst: The impact of armed conflict on the conservation of protected areas in sub-Saharan Africa. *Oryx*. 41, 140-150.

- Holmes, R. (1999). Pacifism for non-pacifists. *Journal of Social Philosophy* 30, 3.
- ICRC (International Committee of the Red Cross) (1993). *Protection of the environment in time of armed conflict*. Retrieved from <https://www.icrc.org/eng/resources/documents/misc/5deesv.htm>
- ICRC. (1996). "Guidelines for military manuals and instructions on the protection of the environment in times of armed conflict" Retrieved from <https://www.icrc.org/eng/resources/documents/misc/57jn38.htm>
- Lal, V. (2002). "Gandhi and the ecological Vision of Life: Thinking beyond Deep Ecology" *Environmental Ethics* 22(2) (Summer 2000), 149-68.
- Lal, V. (2000). "Too deep for deep ecology: Gandhi and the ecological vision of life" in Christopher Key Chapple & Mary Evelyn Tucker (Eds.), *Hinduism and ecology: The intersection of earth, sky, and water*. Cambridge, MA.: Harvard University Press.
- Machlis, G. E. & Hanson, T. (2008). "Warfare ecology" *BioScience* 58 (8) (September), 729-736.
- May, L. (2012). "Contingent pacifism and selective refusal." *Journal of Social Philosophy* 43(1) (Spring 2012), 1-18.
- McMahan, J. (1994). "Innocence, self-defense and killing in war." *The Journal of Political Philosophy* 2(3), 193-221
- McMahan, J. (2009). *Killing in war*. Oxford, UK: Oxford University Press.
- Naess, A. (1989). *Ecology, community and ;ifestyle: Outline of an ecosophy*. Cambridge, UK: Cambridge University Press.
- Naess, A. (2005a) "Self-Realization: An ecological approach to being in the world" *Ecology in* A. Drengson & H. Glasser, (Eds.), *The selected works of Arne Naess*, X. Dordrecht, NL: Springer.
- Naess, A. (2005b) *Spinoza and Gandhi as inspiration for deep ecology*. In A. Drengson & H. Glasser, (Eds.), *The selected works of Arne Naess*, X. Dordrecht, NL: Springer.
- Naess, A. (2008). *The ecology of wisdom: Writings by Arne Naess*. A Drengson & Devall, B. (Eds.). Berkeley, CA: Counterpoint Press.
- Nocella II, A. J., Salter, C., & Bentley, J. K.C. (Eds.) (2013). *Animals and war: Confronting the military-animal industrial complex*. Lanham, MD: Lexington Books.
- Pfeiffer, D A. (2006). "Ike's interstates at 50: Anniversary of the highway system recalls Eisenhower's role as catalyst" *Prologue* 38, 2. Retrieved from <http://www.archives.gov/publications/prologue/2006/summer/interstates.html>
- Regan, T. (1982). *All that dwell therein: Essays on animal rights and environmental ethics*. Berkley, CA: University of California.
- Regan, T. (2003). *Animal rights, human wrongs*. Lanham, MD: Rowman and Littlefield.
- Regan, T. (2004). *The case for animal rights*. Berkeley, CA: University of California.
- Schultz, C. (2014). "By keeping poachers out, mine fields give endangered animals somewhere to hide." *Smithsonian Magazine*. (December 22, 2014).
- Schwartzstein, P. (2014). "For leopards in Iran and Iraq, land mines are a surprising refuge." *National Geographic* (December 19, 2014).
- Sessions, G. (1995). *Deep ecology for the 21st century*. Boston, MA: Shambhala Press.
- Singer, P. (1990). *Animal liberation*, 2nd ed. New York, NY: New York Review.
- Steffen, L. (2015). War and the environment: A proposed revision in the ethics of restraint. In Fiala, A. (Ed.). *The peace of nature and the nature of peace*. (pp. 41-50). Leiden, NL: Brill.

- Sterba, J. (1998). *Justice for here and now*. Cambridge, UK: Cambridge University Press.
- Sterba, J. (2005). *The triumph of practice over theory in ethics*. Oxford, UK: Oxford University Press.
- Sterba, J. (2006). The Most Morally Defensible Pacifism. In Bleisch, B. and Strub, J-D. (Eds.), *Pazifismus: Ideengeschichte, theorie und praxis*. Bern, DE: Haupt Verlag.
- U.S. Congress. (1921). Interstate Highway System. *Hearings before the committee on Post Offices and Post Roads United States Senate Sixty-Seventh Congress First Session on S. 1355*.
- Woods, M. (2007). The nature of war and peace. In Brough, M.W., Lango, J.W., and van der Linden, H. (Eds.). *Rethinking the just war tradition*. Albany, NY: State University of New York Press.

PEACE STUDIES JOURNAL

Vol. 8, Issue 1
October 2015

Guns & Mud: Environmental Discourses of the U.S. Military and Modern Environmental Movement

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Keywords: Discourse, Nature, Military, Environmental

GUNS & MUD: ENVIRONMENTAL DISCOURSES OF THE U.S. MILITARY AND MODERN ENVIRONMENTAL MOVEMENT

Abstract

The process by which environmental legislation and regulation was applied to the U.S. military establishment was marked by acrimony and delay. The relationship between the environmental movement and the U.S. military can be characterized as conflictual. This paper will explore how differences between these two groups, expressed through their respective discourses, contributed to conflict and impeded consensus. Using discourse analysis, this paper argues that the basic orientation of each group towards the natural environment is very different, and the implications of this fundamental difference are far-reaching.

The environmental movement is dedicated to protecting the natural world, and therefore its discourse frames nature as both valuable and vulnerable. Military discourse and rhetoric often anthropomorphize aspects of the natural world; frequently, some aspect of nature is included among perceived enemies on the battlefield. This paper argues that these discursive elements frame nature in an oppositional manner that has contributed to the sometimes conflictual relationship between the U.S. military and the environmental movement.

Introduction

It is a fundamental assumption of the environmental movement that nature has existence value in its undisturbed state, and that the natural world is both inherently valuable and deserving of protection. This paper argues that several strands of American military discourse create an orientation towards nature that is opposed to the environmentalist orientation described previously. Narratives of the environment in the U.S. military frame nature as an enemy to be conquered and/or controlled. Overcoming natural obstacles is a sign of heroic triumph; furthermore, the heroic and self-sacrificing importance of the national defense mission is more important than environmental protection. These narratives follow American founding myths that connect national greatness to conquering wilderness and the wild frontier. This paper argues further that these narrative frames and the orientation they reflect contributed to the resistance of the military to acquiescence and embrace of U.S. environmental legislation in its modern history

First, this paper identifies the aspects of environmentalist discourse that treat nature as a good to be protected. Second, the aspects of military discourse that treat nature as an enemy are identified and discussed. These include the anthropomorphizing of nature, efforts to control nature, and attacks directed at the natural world. Third, this paper connects these discursive elements to the broader discursive treatment of nature in American culture. Fourth, recent historical evidence for the gulf between military and environmentalist discourse is reviewed. Efforts to force the military to reduce the environmental impacts of its activities were perceived with hostility, and efforts to introduce new concepts of “environmental security” were uneven. Rules about reducing environmental impact were perceived as increasing danger, reducing effectiveness, and reflecting un-American values. Finally, this paper argues that a fuller analysis of nature discourse in the U.S. military and the environmental movement may contribute to mutual understanding and a path out of conflict.

One: Discourse reflects and shapes the attitudes, beliefs, and opinions of individuals and institutions

A thorough review of discourse analysis literature is beyond the scope of this paper. However, several key aspects of the literature will serve as a jumping-off point for the following discussion. The analysis of a specific body of discourse can illuminate attitudes, beliefs, and opinions of individuals and institutions that produce and/or consume that discourse. Discourse reflects and sustains culture, and culture shapes discourse.

Language and its use provides a valuable avenue of approach for researchers studying organizations, although the field is broad and there are many ways of analyzing language and discourse. Two broad approaches can be understood as a focus on discourse in everyday social interaction, versus a broader focus on how language and discourse shapes social reality (Alvesson & Karreman, 2000, p. 1126). Furthermore, discourse can both reproduce and challenge dominance of people and ideas (van Dijk, 1993): “discourses are bound up with political power” (Dryzek 2005, p. 9). Heracleous and Marshak (2004) argue that discourse can best be understood as situated symbolic action, meaning that discourse “*does things,*” must be viewed in context, and is symbolic and constructive at multiple levels (p. 1291).

Discourse is closely connected to institutional identity and behavior. As Phillips et al argue (2004), “Institutions, therefore, can be understood as products of the discursive activity that influences actions” (p. 635). By telling stories about actions, discourse describes actions, influences the behavior of others, and “enact institutions” (p. 635). Discourses “make sense of the world” (Phillips et al, 2004, p. 636). By making sense of the world, discourses can be analyzed to understand how individuals and institutions perceive reality.

The significance of discourse as a guide to individual and organizational attitudes, beliefs, and opinions reflects the importance of nonrational grounds for belief and behavior. Lynn notes that a “feedback loop circulates between discourse and reality, even though the two are never identical” (Lynn, 2005, p. 475). Organizations often behave irrationally, even mindlessly, due to the influence of organizational socialization, script-following, and the tendency to conserve cognitive capacity (Ashforth & Fried, 1988).

Discourses reflect culture, of groups and organizations. Trice and Beyer (1984) define culture as having two components: “(1) its substance, or the networks of meanings contained in its ideologies, norms, and values; and (2) its forms, or the practices whereby these meanings are expressed, affirmed, and communicated to members” (p. 654). Trice and Beyer list frequently studied cultural forms, many of which include a discursive element, usually a narrative (1984, p. 655). Therefore researchers can look to the forms of culture to understand its substance, including discourse, which communicates culture. Discourse “is a shared way of apprehending the world” (Dryzek, 2005, p. 9).

Groups who do not share culture or discourse may run into conflict. Dryzek (2005) notes that the “way a discourse views the world is not always easily comprehended by those who subscribe to other discourses,” and that the basic terms of a discourse, its “shared assumptions,” often serve as the grounds for problem-solving--therefore, lack of shared terms may impede problem-solving (p. 9). This aspect of discourse seems particularly relevant here; the “shared assumptions” Dryzek refers to create an orientation towards the natural world that varies across groups. It will be argued that the fundamental differences in orientation towards nature between the military and the environmental movement have contributed to conflict, and impeded problem-solving, between these two groups.

This paper will address two bodies of discourse: that of the US environmental movement, and that of the American military complex. While not conducting a comprehensive analysis of either, this paper will identify key differences in the treatment of the natural world within these discourses. Implications of these differences will be analyzed in later sections.

Two: Environmentalist discourse: Nature is good and should be protected

The term “environmental movement” encompasses a broad segment of institutions, including many nongovernmental/nonprofit actors with a variety of identities, goals, and constituents. There are a number of environmental discourses, each of which has received close attention. Environmental discourse has been extensively analyzed, most notably by John Dryzek (1997, 2005) who created a four-part classification of environmental discourse: problem solving, survivalism, sustainability, and green radicalism. Other notable texts include Fischer and Hajer’s

volume (1999), Benton and Short (1999), and Cantrill and Oravec (1996). Mühlhäusler and Peace's review, "Environmental Discourses" (2006) provides an analysis of environmental discourse from an anthropological perspective, which will be discussed here.

Mühlhäusler and Peace define environmental discourse "as comprising the linguistic devices articulating arguments about the relationship between humans and the natural environment," and note the recent emergence of a "new discourse" that principally focuses on "the endangerment of nature and the human species in a global context" (2006, p. 458). They identify an "important discourse goal:" "to locate the speaker on the high moral ground" in arguing for environmental protection (p. 462).

Although there is significant variety present in environmentalist discourse, some basic precepts are common. Since we are focused here on the basic relationship between the natural world and human society, broad strokes are adequate.

One significant category of environmental discourse is utilitarian, focused on the maintenance of natural systems for the support of human life. Elements of this orientation can be seen in Dryzek's categories of global limits and environmental problem solving. This is also the underlying orientation of Gifford Pinchot, the founder of the United States Forest Service. Protecting the natural world in order to maintain the benefits that it provides to humans may be utilitarian, but it ascribes value to nature and supports the notion that unrestrained human activity will result in undesirable damage to the environment.

Another significant body of environmental discourse treats nature as having inherent value. This orientation towards nature, advanced most famously by John Muir, may have utilitarian elements (the restorative effect on humans of wild nature, potential medical breakthroughs waiting to be discovered in nature), but the basic assumption is that nature has value in its undisturbed state, that value is degraded by human extraction of resources, and consequently nature should be shielded from human activity. Dryzek's sustainability and green radical discourses reflect this orientation towards the environment. This approach more directly argues for the value of nature and its protection from human activity.

The duality between Pinchot and Muir is a helpful lens through which the environmental movement can be understood. Limerick sums up their differences in an episode revolving around a spider: "Muir's feeling for nature was all-embracing; to destroy the wilderness, even an unappealing and alarming creature, was sacrilege. Pinchot, undeniably fond of nature, had no objection to intervening in order to better it...Pinchot believed that nature could bear improvement" (p. 294).

At root, both the Pinchot and Muir orientations towards nature share a common foundation: both value nature. Whether for its inherent value or its utilitarian value, both groups argue that nature should be protected. Since the goal of the environmental movement is to protect nature, in some form or another, this analysis can be expanded. If nature deserves protection, it must therefore be subject to damage by human activity, and if that damage is undesirable, nature is understood to be valuable. Furthermore, if nature is to be protected, this implies that the natural world is, in some circumstances, more important than other social goals (for example, the short term economic

benefit of cutting down a forest). Some limits on human activity are considered worth imposing in the interest of environmental protection.

These may seem like radically obvious statements. However, we have built a series of assertions that can characterize the fundamental orientation of the environmental movement towards nature. These are:

Nature is valuable.

Nature is subject to damage.

Nature should be protected.

Protecting nature is sometimes more important than some other human goals.

These statements underpin the discourse and culture of the environmental movement, and serve as the basic assumptions about the world. From these very basic assertions, we next turn to an analysis of the orientation of the US military towards nature.

Three: Military discourse: Nature is dangerous and should be treated as such

The U.S. military is a large, powerful, and historic institution with a strong culture. Its identity is forged and reinforced through war. Stories about war are key to shaping this identity. Stories about war heroes, about specific battles, and about the institutions of the military (army, navy, air force, marines; specific units of these forces) all form and reinforce the culture of the military, including attitudes, beliefs, and opinions of individuals within military institutions. The discourse of war reflects how a “culture conceives of war,” or “the complex of assumptions, perceptions, expectations, and values regarding conflict, violence, and armed struggle (Lynn, 2005, p. 475).

Tinoco and Arnaud (2013) provide a thorough analysis of the culture of the US Department of Defense. They also provide helpful indices to conceptual and empirical studies on military culture that summarize recent research in the subject. They note that the military “is a social institution,” with “values and beliefs” that are transferred to new members via “rituals, symbols, and heroic stories” (p. 42). While not directly addressing the place of the natural world in military culture, they note that the “sense of duty” is the “integral and innermost component of the military culture,” and that this sense of duty emphasizes sacrifice of the self to the greater good, and “attitudes and behavior of what is considered right, good, and important” (p. 45).

Military discourse about the natural world stands in marked contrast to the environmentalist discourse discussed above. By definition, the natural world is of critical importance to the environmental movement. It may be presumed that nature is less central to the role and identity of the military. Quite the contrary. Nature is unquestionably *important* to the military: battles occur in nature (even urban fighting is affected by weather and climate), and nature is both powerfully affected by as well as powerfully impactful on battle. The importance of the environment to the U.S. military can be seen in two areas of professional military discourse: the treatment of the environment in tactical analyses of warfare, and the extensive research by the Department of Defense (DoD) and military services into earth sciences. These two bodies of discourse will be addressed first in this section, followed by a discussion of the U.S. Army Corps of Engineers, a branch of the military devoted to altering the environment.

Next, the treatment of nature in war memoirs. This body of discourse is not professional, and is more emotional and narrative than professional military discourses. Memoirs therefore offer a window into the emotional landscape of military personnel. War memoirs often anthropomorphize nature, and include aspects of the natural world among the enemies found on the battlefield. Finally, the treatment of nature by military historians, who often include environmental obstacles among the hurdles that war heroes successfully overcome or endure. By framing the environment as an element of battle to be heroically overcome, military historians place nature in opposition to the military.

After analyzing the strands of military discourse mentioned above, which is a nonexhaustive but illustrative sampling of relevant military discourses, a basic description of the orientation of the military towards nature, similar to that of the environmental movement, can be created. The picture that emerges is one quite different than the environmental movement. The practical consequences of this difference will form the third section of the paper.

Nature is Powerful and Unpredictable: Nature Should be Studied and Controlled

Nature may be an occasional enemy, but the American military has devoted enormous effort towards understanding (and perhaps influencing) this enemy. The power of environmental conditions to affect military operations has made the study of nature a critical element of warfighting. In 1961, DoD announced, “Department of Defense has a vital interest in the environmental sciences since the military services must have an understanding of, and an ability to predict and even to control the environment in which it is required to operate” (DoD, International Scientific Activities, quoted by Doel, 2003, p. 636).

In their textbook, *Modern Military Geography*, Galgano and Palka (2011) write: “Geographic information has been used to support military operations for as long as history has been recorded. This is because there is a clear and fundamental link between geography and military operations” (p. 1).

In their authoritative book, *Battling the Elements*, Winters et al devote each chapter to an analysis of the role played by natural conditions in landmark battles. The title itself reflects the notion that nature is one of the enemies that may be confronted on the battlefield. The authors note that “war and the environment are intertwined,” and write that “the physical setting within which battles are fought is neither passive nor presumable,” and that environmental factors “can combine in a number of ways, some anticipated, others unexpected, and a few unprecedented,” making nature’s impact on war “highly variable, often unpredictable, and always formidable” (Winters, 1998, pp. 1-4). Notably, Winters et al emphasize the unpredictability and power of natural factors, which increase the stress of battle.

In order to combat this variation and unpredictability, the American military has long maintained meteorological departments to help plan operations. Both military historians and earth science historians agree on the critical role that DoD played in the development of modern meteorology in the years following WWII. The national weather service emerged from the Army Signal Corps in 1891 (Harper, p. 670), indicating the importance of weather data to the military. In addition, armed

forces have also focused effort on geography, oceanography, hydrography, and other earth sciences. Harper describes the development of modern computer-based weather prediction as collaboration among meteorologists (many trained for WWII and seeking work in its aftermath) with major funding from the Navy's Office of Naval Research. Harper also notes that many military leaders who pushed for advanced meteorological prediction did so with the expectation that prediction would lead swiftly to control of the weather (Harper, 2003). The US Navy has a longstanding interest in the advancement of oceanography, and has played a key role in the development of the marine sciences since the establishment of the Depot of Charts and Instruments in 1830 (Navy 1). Another outgrowth of the Depot of Charts and Instruments is the US Naval Observatory, which was formally established in 1844 and performs a variety of astronomical functions and research for military and national use (Navy 2).

DoD has a robust history of advancing climate science. In the 1970s, ARPA funded a secret research program code-named NILE BLUE, which attempted to develop tools for global climate modification (Hecht and Tirpak, 1995). NILE BLUE followed on the heels of attempted local climate manipulation in the Vietnam conflict, when DoD seeded clouds over the Ho Chi Minh Trail in an effort to bog down resupply (Shapley, 1974). These programs were elements of broader research into climate control by DoD (Hart & Victor, 1993).

With a long history of incorporating environmental conditions into planning, tactics, and strategy, the US military is naturally attuned to the various environments in which it operates around the world. Training and education have long emphasized knowledge of geography and climatic conditions, and the military has invested in advancing a variety of earth sciences in order to gain a more thorough understanding of, and perhaps advantage in, the theaters of war.

Nature Should be Subject to Control

In one of his analyses of the U.S. Army Corps of Engineers, Todd Shallat opens by writing, “[The Corps] has been called America’s pre-eminent engineering organization, a nation builder, a bureaucratic superstar. Also a public enemy, a diligent destroyer, a military aristocracy, a lobby that can’t be licked” (1994, p. 17). Shallat observes astutely that the Corps arose during a time when the idea of “science” was closely linked to progress, “order and classification,” and engineering. Corps projects were considered scientific “improvements” (p. 17). Shallat notes, “An important catchword in the nineteenth century army, science embodied disparate objectives and values; the love of order, the promise of technological progress through conquest of nature” (p. 25). This enchantment with large scale efforts to alter nature, to bring it under human control, persisted in the Corps’ identity, mission, and culture.

The U.S. Army formally established a Corps of Engineers in 1802, although engineers had served in combat during all previous American wars, including the American Revolution (USACE): “Throughout the 19th century, the Corps built coastal fortifications, surveyed roads and canals, eliminated navigational hazards, explored and mapped the Western frontier, and constructed buildings and monuments in the Nation’s capital” (USACE). The Corps is the “largest planner and builder of channelization, dam, and flood control projects in the nation” (Mazmanian & Lee, 1975, p.166).

Mazmanian and Lee (1975) note that the Corps has a “preeminent position” and “high stature within the military” (p. 166). They quote Harold Ickes, who described the Corps as “the most powerful and pervasive lobby in Washington. The aristocrats who constitute it are our highest ruling class. They are not only the political elite of the army, they are the perfect flower of bureaucracy” (p. 167). By 1970, it was recognized that the Corps was using its large budget to “straighten rivers, build dams, and dig canals that frequently serve only narrow interests and too often inflict the wrong kinds of change on the environment” (Drew, quoted in Mazmanian & Lee, 1975, p. 167).

Stine (1983) analyzes how environmental groups in the 1960s and 1970s were able to “significantly influence” the Corps’ regulation of wetlands, by using “a complex strategy of support, criticism, and outright challenge” (pp. 60-61). The environmental movement pushed the Corps to broaden its perspective to include environmental considerations. Stine notes the internal conflict within the Corps as new tasks and considerations forced a fundamental readjustment of mission identity: “On a personal level,” some within the Corps “viewed its mission, and indeed its very purpose for being, as the promotion of economic development,” and therefore the notion of protecting wetlands was “simply distasteful” (p. 66).

The very mission of the Army Corps aimed to alter the natural environment, by increasing human control and shaping aspects of the environment in a way that improved the ability of the armed forces to defend the nation. The basic goal was to control nature.

Nature in War Memoirs: Nature is Dangerous

Enduring or overcoming terrible environmental conditions is a key element in many of the services’ heroic cultural narratives, and nature is framed like a military enemy. In memoirs of soldiers, sailors, and airmen, nature is anthropomorphized and battled against. Nature frequently adds to the challenges and burdens of war, increasing suffering and danger. Nature is framed as a source of problems that can be overcome through military prowess or ingenuity. Memoirs of warfighters from American conflicts provide examples:

World War I - “The night became an interminable battle against the rain. I would slouch back in an attempt to doze off, beginning to drift toward sleep when the cold water would creep up to my neck” (Veatch, 2000, pp. 64-65).

World War II - “Then we began to hit weather. It thickened and thickened. We hit patches of rain. Most of the clouds seemed to be low, and so we began to climb. We couldn’t go on oxygen because we had more men aboard than there were oxygen masks. There was little we could do except go on instruments and fly through the stuff” (Arderly, 1978, p. 115).

Vietnam - “The rain was the war and you had to fight it.” “When a man died, there had to be blame...You could blame the war...You could blame the rain. You could blame the river. You could blame the field, the mud, the climate. You could blame the enemy. You could blame the mortar rounds” (O’Brien, 1990, p. 186, p. 198).

These samples from American military memoirs treat nature, usually weather, like an enemy. Nature becomes another enemy, and environmental conditions are anthropomorphized to reflect the antagonistic relationship warfighters experience when battling against nature. Bad weather and other environmental conditions create dangers, delaying operations, challenging pilots, and putting another obstacle in the way of success.

Nature in Military History: Overcoming Natural Obstacles is a Sign of Heroism

Military historians use similar discursive elements to memoirists and military geographers, highlighting both the influence of environmental factors to battle as well as the oppositional forces of nature that frustrate armed forces. Historians often paint natural conditions as obstacles over which heroic leaders triumph. These narratives frame nature as an unpredictable enemy, which must be conquered or endured, defining one's heroism or brilliance. These narratives may enter the popular consciousness: General Washington's daring strike across the Delaware, Christmas 1776, through a sleety nor'easter, cemented his reputation as an outstanding leader, and key elements of the narrative of this episode center around the frigid, icy, stormy conditions of this surprise attack. Leutze's famous painting emphasizes this, with rowing soldiers fending off and warily eyeing menacing blocks of ice that clog the river.

Narratives of more modern conflicts also emphasize the importance of nature, and the role of leaders in overcoming environment-based challenges. The story of D-Day demonstrates not just that weather has a profound influence on military operations, but that terrain, tides and currents, and lunar phases all do as well. As one of General Eisenhower's biographers has written about the Normandy invasion, "Nothing, it seemed, had been left to chance. The only thing that could go wrong – the only thing over which the supreme commander had no control – was the weather." (Korda, 2007, p. 42). The lunar cycles had been carefully tracked, along with the tides at Normandy, and the period June 5-7 identified as offering the optimal confluence of environmental conditions: moonlight for night drops; the right interval of daylight to coordinate bombardments and landings; and the ability to schedule landings three hours before high tide (when it was determined that the water level would not obscure mined obstacles nor expose too long a stretch of beach for safe crossing) (Korda, 2007, pp. 441-2). The heavy wind and rain of June 1-4 pushed the invasion date back 24 hours, trapping troops aboard nauseous, heaving transport ships. A RAF meteorologist offered a brief 24-hour period – the night of June 5 and the morning of June 6 – and D-Day became an iconic moment of American military history (Korda, 2007, pp. 46-7).

Korda frames nature as the ultimate threat: "the only thing over which the supreme commander had no control," and therefore a source of anxiety and danger. Military historians echo this discourse by including elements of nature among the obstacles that heroic leaders endure or overcome.

Discourse Reflects the Orientation of Military to Nature

The discourses described here contribute to a fundamental orientation of the military towards nature that can be summarized in the following statements:

Nature is powerful and uncontrollable.

Nature can be dangerous.
Overcoming natural obstacles is a sign of heroism.
Nature should be subject to control.

From these statements the following corollaries can be identified:

Nature can be attacked.
Nature is less important than the military mission.

Nature can be attacked, and has been. Operation Ranch Hand, during the Vietnam conflict, deliberately targeted the natural environment of Vietnam (and Laos) with chemical weapons. Operation NILE BLUE, during roughly the same time period, was designed to control and weaponize global and local climates. Cloud-seeding was used to target the Ho Chi Minh Trail in Vietnam. These examples demonstrate that the natural world has at least on occasion been considered a valid target, and weapon, of war.

From all the statements above comes the conclusion: *nature is less important than the military mission*. As seen in the earlier discussion of military discourse, duty – and therefore mission – are the “integral and innermost component of the military culture” (Tinoco & Arnaud, 2013, p. 45). When duty is foremost, extending consideration towards nature, which is itself frequently the source of danger, is understandably less important.

Having characterized the basic orientation of the military towards nature that is evidenced by a limited sampling of military discourses, it is possible to see that this orientation is radically different than the orientation of the environmental movement, described in the first section. Military discourse of nature is perhaps an intensification of the ambivalence towards nature that is an undercurrent of American national discourse.

Four: Military discourse reflects a strand of American national discourse relating to wilderness and the frontier

The American military is a core national institution and component of the national character. The U.S. public trusts its military more than any other public institution, including the judiciary, the police, schools, and the medical establishment (Gallup). The sacrifices made by members of the military are honored by a national holiday, and in major national monuments in Washington, D.C. and around the nation.

As a core element of national identity, the U.S. military serves as a repository for cultural discourse. This discourse includes founding mythology about the American nation. American national discourse contains multiple narratives about nature, but a powerful strain of discourse addresses the conquest of the frontier, framing nature as dangerous and/or sinful, and the taming of the wilderness as improvement.

The American narrative of conquering the frontier, a foundational source of pride and American exceptionalism, may amplify the military’s ambivalence towards nature. Dima Adamsky (2010)

makes this connection, linking the pioneer or frontier mentality to modern military culture, which he describes as “optimistic techno-centric romantic culture” (p. 87).

In his masterwork on the symbolic and mythological place of the West in American literature and culture, *Virgin Land*, Henry Nash Smith quotes a newly arrived British settler describing the country as, “A waste and howling wilderness, where none inhabited but hellish fiends, and brutish men” (p. 4). Smith analyzes the dominant discourse of progress and civilization marching ahead at the frontier, pairing a “romantic love of the vanishing Wild West” with an appreciation for the “glorious victory of civilization over savagery and barbarism” (p. 52). In his landmark *The Quiet Crisis*, Stewart Udall notes that in America, the “ideas of independence and and free land were always inseparable” (p. 17). Smith argues that the frontier hypothesis of Frederick Jackson Turner “has been worked into the very fabric of our conception of our history” (p. 250), and argues further that this hypothesis developed out of “the myth of the garden” (p. 251).

In her analysis of the place of the West in American culture, Patricia Limerick points out that “every human group has a creation myth,” and offers a version of the white American origin myth containing the following line: “Generation by generation, hardy pioneers, bringing civilization to displace savagery, took on a zone of wilderness, struggled until nature was mastered, and then moved on to the next zone...Indians, symbolic residents of the wilderness, resisted--in a struggle sometimes noble, but always futile” (p. 322). Limerick notes that the image of the frontier to be conquered is frequently used in American political culture as a “simple and attractive metaphor for challenge, struggle, and mastery” (p. 324). The ubiquitous phrase, the “virgin continent,” implies that America was to be taken and put to use. The femininity of nature requires masculine dominance, and what is a more powerful symbol of masculinity than the warrior?

Richard Slotkin’s (1992) sprawling analyses of American culture, *Gunfighter Nation* and *The Fatal Environment* have thoroughly argued for the importance of Western myths to American culture, in particular frontier warriors. Udall writes of the “mystique known only to men confronted with a virgin continent or an uncharted sea,” men whose “undaunted curiosity and quiet fury” drove them to explore and conquer (p. 27). Although American national discourse frames nature in positive as well as negative terms, the powerful frontier image, containing a heroic warrior who fights evil and chaos, is far more closely linked to the American military than counterpoint images framing nature as a peaceful source of repose and solace away from the hustle of modern life.

The military orientation towards nature therefore must be understood in terms of the reinforcement it receives from national culture: just as American culture honors and reveres its armed forces, American culture reinforces narratives about nature in the military. Sited as it is within the bosom of national culture and pride, the American military derives strength from the harmony between its cultural narratives and those of the nation as a whole.

Five: The environmental movement and the military: fundamental divergence in discourse and attitudes reflected in history

The previous sections have sketched out the contours of a significant divergence in narratives about nature contained within the discourses of the U.S. military and the modern American

environmental movement. While the environmental movement frames nature as precious and urgently in need of protection from human activities, military discourse frames nature as dangerous and of lesser importance than the military mission, and seeks control over nature.

It is not argued here that discursive (reflecting cultural) differences between the military and the environmental movement *caused* conflict as the environmental movement sought to alter DoD behavior. A much more modest proposal is advanced: that these discursive differences shaped the contours of the conflict, and possibly contributed to acrimony between the two groups. The following section will address conflict between the military and policymakers seeking to alter military behavior relating to environmental impact. This history has been extensively analyzed, from different theoretical perspectives, by Robert Durant and Rita Floyd, whose books have informed the following analysis. Durant examined the process by which environmental policies were incorporated into defense policy and DoD behavior. Floyd analyzed the securitization of the environment under Presidents Clinton and Bush. These analyses highlight conflict as DoD was pushed to be more environmentally sensitive. The extent to which fundamental assumptions or orientations towards the environment contributed to acrimony will remain an open question, but it will be argued that the underlying differences in orientation may have contributed to a level of miscommunication or basic misunderstandings between the two groups, given their very different discourses.

First, a basic reality: the American military has had an enormous negative impact on the global environment.

It spearheaded the campaign to eliminate Amerindian power in the national territory, preparing it for settlement by Euro-Americans and, to a lesser extent, by African Americans. It built new infrastructure. Its demands for reliable and increasingly potent weaponry spurred the development of an efficient armaments industry and eventually led to the creation of a sprawling military-industrial complex. It acquired an archipelago of military bases around the world. It pioneered the development of nuclear weapons and nuclear power. In countless ways, large and small, the US military has affected the environment both in the United States itself and around the world. (McNeill & Painter, 2009, pp. 10-11)

The direct environmental impacts were mainly those associated with military bases at home and abroad, with their infrastructure, with their chemical and nuclear wastes, and with the disruptions caused by training and maneuvers – all of which was subject to minimal regulation, especially overseas. (McNeill & Painter, p. 28)

These long excerpts make clear that describing the range of military environmental impacts is beyond the scope of this paper. Suffice it to say that these impacts are nontrivial, and that they flow from nearly every aspect of military operations. Further, these impacts were largely unmonitored and unchecked until the 1970s – a remarkable fact. The military establishment was allowed to damage the environment in the name of national security largely unchallenged until the emergence of the modern environmental movement in the 1970s. As widespread pollution, habitat destruction, and other issues drew attention, public outrage sparked a political movement. Within remarkably short time, Richard Nixon signed a set of sweeping laws aimed at protecting America's

air, water, and wildlife (Examples include the Clean Air Act (42 U.S.C. §7401), 1970; Clean Water Act (33 U.S.C. §1251), 1972; Endangered Species Act (16 U.S.C. §1531), 1973).

The Rise of the Environmental Movement

When the length and breadth of environmental damage by the military are considered, it becomes clear what an enormous shock to the system was provoked by the modern environmental movement. The natural response was resistance. As Durant describes it, the “greening offensive” that undertook to improve DoD’s environmental record encountered a military “always on the counteroffensive” to these efforts (Durant, 2007, p. xi).

Durant does not argue that the US military, as a unitary organization, is now totally opposed to “greening”; he argues, however, that DoD is opposed to greening “on anything but the services’ terms when it came to its substance, scope, and pace,” and that DoD has been highly successful in getting its way in this area (Durant, 2007, p. 4).

The modern environmental movement was part of a broad shift in American public thought during the 1960s. One of the areas of public concern was the environment, broadly speaking. Among the foremost triggers for such concern, along with Rachel Carson’s *Silent Spring*, was the period of nuclear weapons testing in the 1960s, which generated public anxiety about both safety and environmental consequences (Sills, 1975). In fact, Hart and Victor note that the American military, along with the American public, was concerned about possible global effects of atmospheric nuclear testing, including an early mention of climate change (Hart & Victor, 1993).

As Nixon signed these acts into law, American troops were still fighting in the jungles of Vietnam. Operation Ranch Hand, suspended in 1971, had polluted an estimated 6 million acres of Vietnam and Laos with an estimated 19 million gallons of herbicide, 11 million gallons of which was a toxic formula known as Agent Orange (Buckingham, 1983). The toxic legacy of American operations in Vietnam, which was borne back to the US by returning servicemen affected by Agent Orange, placed the military squarely in the crosshairs of the environmental movement, which overlapped the anti-war movement to some extent.

The US military became a target of anti-war activists as well as environmentalists, and its ability to disregard the environmental consequences of its activities began to erode. The double onslaught of anti-war and pro-environmental movements may have contributed to a conflation of the two movements by some members of the U.S. military. Sills noted a “tendency towards increased politicization” within the environmental movement that emerged in the early 1970s, possibly in response to setbacks (Sills, 1975, p. 7). This development was accompanied by a change in rhetoric towards the language of conflict and war. The environmental movement identified enemies, and the US military was among them.

As Durant (2007) has extensively demonstrated, DoD has a “not insignificant yet still halting, halfway, and patchwork record of progress in...institutionalizing a green ethic in the US military in the post-Cold War era (p. 245). Durant’s analysis of DoD’s environmental record indicates that efforts to reduce the environmental impact of US military activities have been halting, and

repeatedly stymied by DoD itself. Change has come from without DoD – the White House and Congress – rather than from within.

Other observers have made similar observations about DoD culture: Henk (2006) summarized the status of environmental issues in DoD, and directly connected lack of concern for the environment with military culture:

The US military has little comprehensive or sustained environmental focus. It tends to defer substantive concern for environmental issues to a handful of civilian experts and to its engineers...The environmental content in the education of most military officers is very limited – so limited that it does not exert much influence on the organizational culture. (p. 2)

Recent History: Clinton and Bush

As the Cold War drew to a close, new definitions of national security were needed. Environmental issues were increasingly incorporated into broader conceptions of security and defense. In addition, the end of the Cold War turned media and public attention to the environmental damage done by the military, in particular by nuclear facilities (Floyd, 2010, p. 83). The end of the Cold War eliminated the most visible justification for large security expenditures, and therefore sparked a number of alternative, expanded definitions of national security. The fall of the USSR permitted new threats to gain policymakers' attention, including environmental issues (Floyd, p. 65).

Nonmilitary threats had long been recognized, but it took the fall of the Soviet Union to make their discussion politically permissible. As Ullman notes: "Since the onset of the Cold War in the late 1940s, every administration in Washington has defined American national security in excessively narrow and excessively military terms" (Ullman, 1983, p. 129).

With the end of the Cold War, a Democratic president had the opportunity to introduce the public to theories of environmental security, and expand the definition of national security to include protection from environmental problems. The external efforts of the Clinton administration to securitize environmental problems were aided by an internal readjustment as well. Individuals within the security establishment, facing budget cuts in the wake of the Soviet collapse, latched on to environmental issues, among others, to create plausible new definitions of security that could justify new funding areas or bolster others, like pollution prevention and cleanup, that had languished.

As the definition of national security expanded in the wake of the Cold War, some environmentalists and politicians saw an opportunity to strengthen the case for devoting resources to solving environmental problems. The Clinton administration made a concerted effort to "securitize" the environment by incorporating environmental problems into its definition of national security. Durant argues that the Clinton administration launched the "most concentrated, sustained, and potent effort in the modern military era" to "institutionalize a common sense of purpose for greening the services" (2007, p. 226).

The 1995 Bottom-Up Review (BUR) of DoD, led by Secretary of Defense Les Aspin, provides a clear example of the way the Clinton administration simultaneously broadened its definition of national security while also putting the Pentagon on the defensive. As part of “Defense Foundations,” the BUR included a section titled “Environmental Security,” which opened with the following declaration: “...our national security must include protection of the environment, and environmental concerns must be fully integrated into our defense policies” (BUR, p. 99).

Protecting the environment would be a new, broad mission for DoD; however, it had long discounted the ecological effects of its policies. The BUR placed environmental protection within the military mission, and stated that “environmental concerns” should be incorporated into defense decision-making: although it is not defined, this implies that environmental considerations may affect military decisions.

Rita Floyd provides an extensive analysis of the ways the Clinton administration incorporated the environment into its definition of national security – how Clinton ‘securitized’ the environment - in her 2010 book on the subject. Floyd concludes that the Clinton administration successfully securitized the environment, pointing to the creation of new policies and institutions that addressed environmental security, along with leadership and budget for these programs.

However, as Floyd notes, the largest of these programs was the Office of the Deputy Under Secretary of Defense – Environmental Security, headed by Clinton appointee Sherri W. Goodman, which, rather than respond to external threats from environmental issues, was focused on reducing military impact on the environment and “greening of the military” (Floyd, pp. 117-8). Floyd provides the unpublished DoD Strategy for Environmental Security mission statement (1993), which provides an example of this focus on the military’s role in creating environmental security problems:

DoD’s environmental security strategy will focus on Cleanup, Compliance, Conservation, and Pollution Prevention: C3P2...Environmental security threats are conditions affecting human health, safety, or environment that impair DoD’s ability to prepare for or carry out the National Security Strategy or create instabilities that can threaten US National Security...risks to public health and the environment from DoD activities; increased restriction of military operations; inefficient DoD resource use; reduced weapons system performance; demilitarization of nuclear, chemical and conventional munitions; and erosion of public trust. (p. 89)

By focusing on the military’s adverse impacts on the environment, this securitization process emphasized DoD’s role in contributing to environmental problems that created security threats. DoD was charged with responding to environmental security threats while also being blamed for some of them, a narrative not likely to win support within the security establishment. This construction framed nature as a victim of the US military, a narrative strikingly at odds with the military’s orientation towards the environment.

Although the Clinton administration successfully expanded conceptions of national security to include environmental problems, it focused attention on human-caused environmental threats, including climate change, rather than threats emanating from nature itself. The securitization

narrative of the Clinton administration called upon DoD to reform aspects of its behavior that contributed to environmental threats. The Clinton definition and discourse of national security as it pertained to the environment ran fundamentally contrary to the longstanding relationship of the military to the environment.

With the end of the Clinton administration and the start of the Bush administration, greening efforts were dealt a twofold setback. Durant notes that the U.S. military services “launched” a “counteroffensive” aimed at rolling back environmental legislation following the 2000 election (2007, p. 227). The terrorist attacks of September 11, 2001, redirected attention away from environmental concerns, and eliminated the use of environmental justifications for budget requests: the war against terrorism spurred defense spending. Durant quotes an assistant attorney general from Colorado on the military services during the Bush administration: “They think they’re beyond accountability” (2007, p. 227).

Six: conclusion: history is not destiny

Two basic narratives emerge from the historical record. First, nature has long been perceived as a source of challenges (adverse meteorologic, climatic, oceanographic, or geographic conditions) that warfighters must overcome. This antagonistic (or at least deeply ambivalent) narrative intersects with the heroic mission and identity of the military, which lifts the mission--national defense--above all other concerns. The American frontier mythology may strengthen the narrative of nature-as-enemy.

In brief, the heroic identity of the US military, in combination with its enduring narrative of nature as a source of challenges, makes inculcating an ethic of care for the environment a very challenging task. The checkered history of the US military’s relationship with the environment stands as evidence.

This paper has identified frames for the natural world contained in the discourse of both the environmental movement and the American military, and has concluded that these frames are deeply divergent. While environmentalist discourse frames nature as precious and subject to damage, military discourse frames nature as dangerous and subject to control. Discourse shapes attitudes and beliefs; therefore, military discourse on nature enables conclusions to be drawn about the institutional orientation or attitudes towards nature. While individuals’ attitudes and beliefs may vary, this discourse is an important element of military institutional culture. Given the particular strength and significance of military culture in creating and reinforcing group identity required for the high stress of military operations, it may be concluded that military discourse is especially powerful.

Furthermore, it is argued that these discursive differences contributed to the protracted and acrimonious process through which the military was forced to provide greater consideration to environmental impacts of its activities. Some environmentalist discourse vilified the military, and framed nature in ways that were fundamentally incongruous with accepted military values and beliefs. It is not surprising that this discourse was met with opposition from the armed forces.

However, it is not the intent of this paper to argue that differences in the discursive treatment of nature by the U.S. military and environmental movement will inevitably lead to conflict. Greater understanding may lead to the identification of common ground and breakthrough. Discourse can overcome significant barriers, if tailored appropriately to the desired audience. In *Language in Thought and Action*, Hayakawa and Hayakawa (1990) recount the story of overcoming white hostility, as a Japanese-American man in the U.S. during WWII, through carefully tailored communication (pp. 58-59). This anecdote demonstrates the power of language to support or undermine attitudes, beliefs, and values that may be conscious or unconscious.

The communication literature indicates that discourse is powerful. What discourse reveals about beliefs and attitudes can be useful. For example, environmentalist discourse that disregards the priority given to the military mission is unlikely to gain traction with a military audience. While nothing is as important as mission success, anything that contributes to that success is potentially valuable. Framing environmental protection in terms of the military mission may be a strategically wise choice for environmentalists seeking to alter behavior and change culture in a durable manner.

For example, in Afghanistan, companies of Marines have carried solar blankets in place of batteries on patrols, “saving hundreds of pounds from packs” (Daniel, AFPS). While reducing their environmental footprint through the use of renewable technology, these Marines also improved their mission capability by reducing pack weight. While the action is the same, different discourses could present the change in very different frames. Environmentalists may be more effective by seeking ‘discourse fit’, and considering what values are implied by the discourses they employ.

The conflicts that confront military strategists today may offer greater opportunity for environmentalists to frame environmental protection in terms of military advantage. Ideologically-driven conflict, which is often characterized by dispersed, low-tech, and urban terrorist activity, has unique characteristics that challenge strategy based on massed force. Measures of efficiency, dispersion, sustainability (military), and low tooth-to-tail ratios become more important, enabling connections between environmental and military objectives.

As environmentalists continue to push the US military to reduce its domestic and foreign environmental impact, greater discursive emphasis on the strategic, operational, and tactical benefits of environmental stewardship may be an effective approach: the idea of ‘discourse fit’ may reduce conflict over institutional and behavioral change.

References

- Adamsky, D. (2010). *The culture of military innovation: The impact of cultural factors on the revolution in military affairs in Russia, the US, and Israel*. CA: Stanford University Press.
- Alvesson, M. & D. Kärreman. (2000). Varieties of discourse: On the study of organizations through discourse analysis. *Human Relations*, 53(9),1125-1149.
- Arderly, P. (1978). *Bomber pilot*. KY: The University Press of Kentucky.
- Ashforth, B. E. & Y. Fried. (1988). The mindlessness of organizational behaviors. *Human relations*, 41(4), 305-329.

- Benton, L. M. & Short, J. R. (1999). *Environmental discourse and practice*. MA: Blackwell Publishers Ltd.
- Buckingham, Maj. W. A. (1983). Operation ranch hand: Herbicides in South East Asia. *Air University Review*.
- Cantrill, J. G. & Oravec, C. L. (1996). *The symbolic earth: Discourse and our creation of the environment*. Lexington, KY: The University Press of Kentucky.
- Daniel, L. (2011). Marines prove energy efficiencies in Afghanistan. *American Forces Press Service*. Retrieved from <http://archive.defense.gov/news/newsarticle.aspx?id=63841>
- Doel, R. E. (2003). Constituting the postwar earth sciences: the military's influence on the environmental sciences in the USA after 1945. *Social Studies of Science*, 33 (5), 635-666.
- Dryzek, J. S. (1997/ 2005). *The politics of the earth: Environmental discourses*. New York, NY: Oxford University Press.
- Durant, R. F. (2007). *The greening of the U.S. military: Environmental policy, national security, and organizational change*. Washington DC: Georgetown University Press.
- Fischer, F. & Hajer, M. A. (1999). *Living with nature: environmental politics as cultural discourse*. Oxford, UK: Oxford University Press.
- Floyd, R. (2010). *Security and the environment: Securitisation theory and US environmental security policy*. Cambridge, UK: Cambridge University Press.
- Gallup. "Confidence in institutions." (2014) Retrieved from <http://www.gallup.com/poll/1597/confidence-institutions.aspx>
- Harper, K. C. (2003). Research from the boundary layer: civilian leadership, military funding and the development of numerical weather prediction (1946-55). *Social Studies of Science*, 33, 667-696.
- Hart, D. M. & Victor, D. G. (1993). Scientific elites and the making of US policy for climate change research, 1957-74. *Social Studies of Science*, 23, 643-680.
- Hayakawa, S. I. & A. R. Hayakawa. (1990). *Language in thought and action*, 5th ed. New York, NY: Harvest Original, Harcourt Brace & Co.
- Hecht, A. D. & Tirpak, D. (1995). Framework agreement on climate change: a scientific and policy history. *Climatic Change*, 29, 371-402.
- Henk, D. (2006). The environment, the US military, and Southern Africa. *Parameters*, 36 (2), 98-117.
- Heracleous, L. & Marshak, R. J. (2004). Conceptualizing organizational discourse as situated symbolic action. *Human Relations*, 57(10), 1285-1312.
- Galgano, F. A. & Palka, E. J. (Eds.) (2011). *Modern military geography*. New York, NY: Routledge.
- Korda, M. (2007). *An American hero*. New York, NY: Harper Perennial.
- Limerick, P. N. (1987). *The legacy of conquest: The unbroken past of the American West*. New York, NY: W.W. Norton and Co., Inc.
- Lynn, J. A. (2005). Discourse, reality, and the culture of combat. *The International History Review*, 27(3), 475-480.
- Mazmanian, D. A. & Lee, M. (1975). Tradition be damned! The Army Corps of Engineers is changing. *Public Administration Review*, 35(2), 166-172.
- McCright, A. M. & Dunlap, R. E. (2011). The politicization of climate change and polarization in the American public's views of global warming, 2001-2010. *The Sociological Quarterly*, 52, 155-194.

- McNeill, J.R. & Painter D. S. (2009). "The global environmental footprint of the US military, 1789-2003." In *War and the environment: Military destruction in the modern age*. C. E. Closmann. (Ed.). (pp. 10-31). College Station, TX: Texas A&M University Press.
- Mühlhäusler, P. & Peace, A. (2006). Environmental discourses. *Annual Review of Anthropology*, 35 (October), 457-479.
- O'Brien, T. (1990). *The things they carried*. New York, NY: Penguin Books.
- Shallat, T. (1994). Science and the grand design: origins of the U.S. Army Corps of Engineers. *Construction History*, 10, 17-27.
- Shapley, D. (1974). Weather warfare: Pentagon concedes 7-year Vietnam effort. *Science*, New Series, 184 (4141), 1059-1061.
- Sills, D. L. (1975). The environmental movement and its critics. *Human Ecology*, 3 (1), 1-41.
- Slotkin, R. (1985). *The fatal environment: the myth of the frontier in the age of industrialization 1800-1890*. New York, NY: Atheneum.
- Slotkin, R. (1992). *Gunfighter nation: the myth of the frontier in twentieth-century America*. New York, NY: Atheneum.
- Smith, H. N. (1950). *Virgin land: The American West as symbol and myth*. Cambridge, MA: Harvard University Press.
- Stine, J. K. (1983). Regulating wetlands in the 1970s: U.S. Army Corps of Engineers and the environmental organizations. *Journal of Forest History*, 27(2), 60-75.
- Tinoco, J. & A. Arnaud. (2013). The transfer of military culture to private sector organizations: A sense of duty emerges. *Journal of Organizational Culture, Communications and Conflict*, 17(2), 37-62.
- Trice, H. M. & J. M. Beyer. (1984). Studying organizational cultures through rites and ceremonials. *Academy of Management Review*, 9(4), 653-669.
- Udall, S. L. (1963). *The quiet crisis*. New York, NY: Holt, Rinehart, and Winston.
- Ullman, R. H. (1983). Redefining security. *International Security*, 8, 1, 129-153.
- United States Army Corps of Engineers. "A Brief History of the Corps". Retrieved from <http://www.usace.army.mil/About/History/BriefHistoryoftheCorps/Introduction.aspx>
- United States Department of Defense. Report on the Bottom-Up Review. Secretary of Defense, Les Aspin. (October, 1993).
- United States Department of the Navy (1). Naval Oceanography, Naval Meteorology and Oceanography Command, About Us. Retrieved from www.navmetocom.navy.mil
- United States Department of the Navy (2). US Naval Oceanography Portal, US Naval Observatory, A Brief History of the Naval Observatory. Retrieved from www.navmetocom.navy.mil
- van Dijk, T. A. (1993). Principles of critical discourse analysis. *Discourse and Society*, 4(2), 249-283.
- Veatch, P. D. (2000). *Jungle, sea, and occupation: A World War II soldier's memoir of the Pacific Theater*. Jefferson, NC: McFarland & Co, Inc.
- Winters, H. A., Galloway Jr., G. E., Reynolds, W. J., & Rhyne, D. W. (1998). *Battling the elements: weather and terrain in the conduct of war*. Baltimore, MD: Johns Hopkins University Press.

PEACE STUDIES JOURNAL

Vol. 8, Issue 1
October 2015

War is Not Green: A Photographic Essay on Pacifism from the People's Climate March in New York City

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WAR IS NOT GREEN: A PHOTOGRAPHIC ESSAY ON PACIFISM FROM THE PEOPLE'S CLIMATE MARCH IN NEW YORK CITY

The environmental impacts of war have intensified at such a velocity over the past 100 years, that the physical theater of warfare itself is under siege and facing annihilation. The use of chemical weapons, for example, not only destroyed the lungs of infantrymen on the battlefields of World War I, it also poisoned the soil and air of Europe. A little more than two decades later, the atomic bombings of Hiroshima and Nagasaki left a grotesque legacy of radiation that has contaminated the DNA of plants, animals and humans beyond scientific comprehension. The use of napalm in Southeast Asia, deforestation in warring countries such as Rwanda, Tanzania, and the Republic of the Congo, and scorched earth policies in the two Persian Gulf Wars have incalculably damaged the ecosystem of mountains, forests, jungles, and deserts. In the words of the venerable Rachel Carson, "Only within the moment of time represented by the present century has one species—man—acquired significant power to alter the nature of his world."

So, as a photojournalist covering the People's Climate March in NYC on September 21, 2104, I was not surprised to encounter numerous banners, posters, t-shirts and other climate justice paraphernalia that connected the immorality of war with the destruction of Mother Nature. At some point I realized that the march had become more than a demonstration against political apathy and corporate greed: it had transformed into a mass revelation of humanity's burning desire to overcome war, which is just another word for the institutionalized homicide of residents –both

animal and human – within a shared biosphere. As a gathering of veteran pacifists, staunch anti-war crusaders, famous and anonymous conscientious objectors, and the most diverse generation of youth activists in human history, there has never been a public witness for peace of this magnitude in human history. In this series of photographs I attempted to capture the pacifistic spirit of the People's Climate March by speaking to the vital need for an end to militarism.



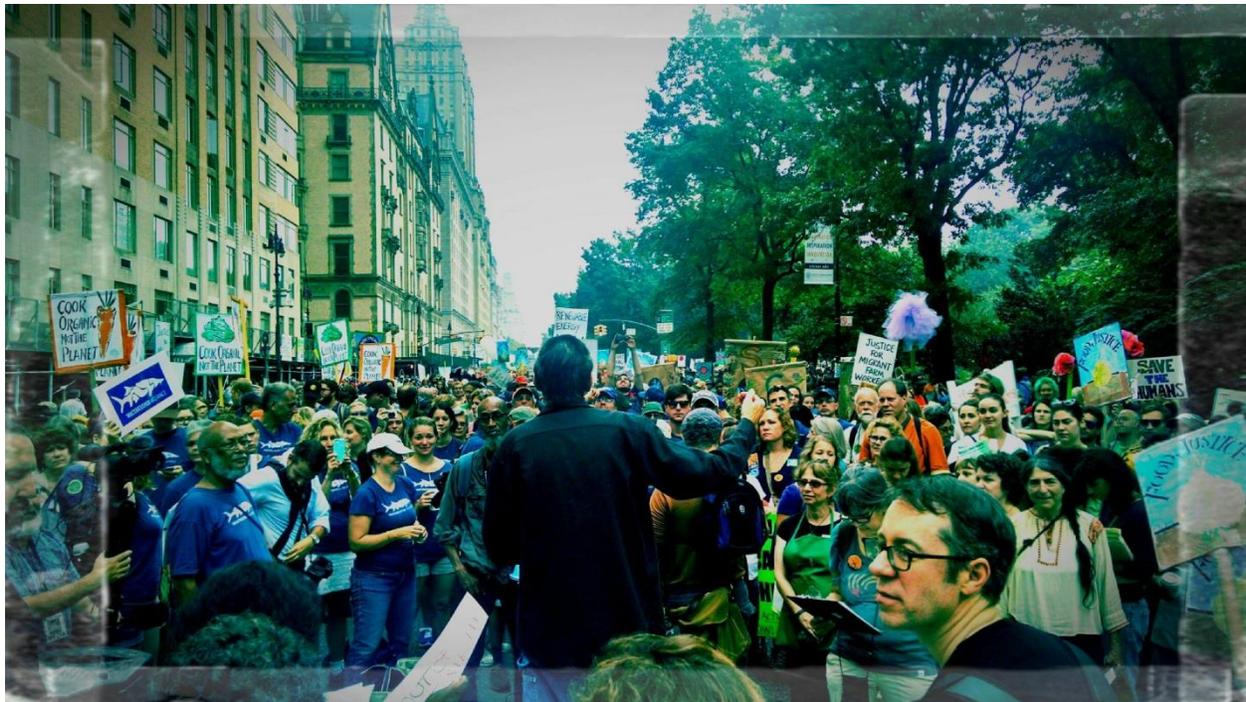
The “youth and students” contingent waiting excitedly for the official start of the march. On that day, the millennial generation made it loud and clear who the future belongs to.



“Converge for Systems Change” was one of the most popular slogans heard at the march. Many protestors see global warming as a threat to the habitability of our planet because of human systems like capitalism, colonization, slavery, homelessness, and warfare. These systems establish the preconditions for environmental degradation; so fixing the climate crisis will require that we replace these corrupt and broken systems with superior alternatives.



Code Pink is a frontline anti-war organization practicing a form of civil resistance that sets the bar for all other activists. Their fearless leader Medea Benjamin is demonstrating better than anyone else on the peace and justice scene today creative ways to expose the linkage between environmental destruction, economic exploitation, sexism, and the Military Industrial Complex.



A spoken word poet delivering a masterly 30-minute homily on organic farming and the evils of agribusiness. If the powers and principalities had anything to fear from 400,000 people assembling on the streets of Manhattan that day, it was the superb testimony of this one solitary soldier of truth.



The words "Defend our Mother" in a variety of languages perfectly encapsulated the goal of the march.



Signs like this one invited protestors to express why the march was important to them. Many people chose to represent their concern for animals. Did you know that the rate of human attacks on sharks compared with shark attacks on humans is 20 million to 1?



This optical illusion symbolizes the amount of money spent on armed forces throughout the world. The construction of one B-2 Stealth Bomber, for instance, costs American taxpayers over a billion dollars. How many trees could be planted for a billion dollars?



Anti-poverty activist and Green Party politician Cheri Honkala connecting the dots between economic injustice and the priorities of our government. Why should poor people suffer the consequences of global warming in ways that the privileged classes can avoid?

PEACE STUDIES JOURNAL

Vol. 8, Issue 1
October 2015

Reducing the Threat of a Nuclear Iran with Photovoltaic Technology: The Generous Solar Option

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REDUCING THE THREAT OF A NUCLEAR IRAN WITH PHOTOVOLTAIC TECHNOLOGY: THE GENEROUS SOLAR OPTION

Abstract

The potential instability created if Iran obtained nuclear weapons threatens global peace. If the U.S. follows the standard model, relatively weak diplomacy and economic sanctions could lead to another Iraq-like war. Although Iran and Iraq have differences, most observers would agree that the same outcome and price are likely results. In purely economic terms, the CBO estimates that the Iraq-US war cost ~\$2.4 trillion. Is there, however, a wiser, more-profitable way to invest in the elimination of nuclear capability in Iran? This commentary will quantify the 'generous solar option' and argue that the U.S. can obtain all the benefits from denuclearizing Iran for a fraction of the cost of the standard model, while earning a higher return and improve environmental impact in the process.

Framing the Problems

If Iran's leadership is given the benefit of the doubt on intentions, it is clear they have been convinced by the communist-thinking of their Russian allies that a strong, centralized electricity system based on nuclear power is their best hope for a prosperous future. In the U.S., this has been shown to be fictitious – after an initial flirtation with the 'power too cheap to meter', the free market

handily rejected nuclear power as too expensive and too financially risky. To this day, no insurance company on earth is willing to indemnify a nuclear power plant unless a government steps in and forces the risk on the population by creating arbitrary liability limits. As former U.S. Vice President Cheney pointed out, no company is going to invest in nuclear power without those caps. A recent study showed that this indirect nuclear energy insurance subsidy would provide over \$5 trillion in additional renewable electricity if diverted to solar energy in the U.S. (Zelenika-Zovko & Pearce, 2011). Based on an aggressive history of price declines, solar photovoltaic (PV) technology, which converts sunlight directly into electricity, can provide for a prosperous, environmentally-friendly and abundant electricity future – particularly for sunny Iran. Trillions of dollars are at stake as the dwindling supplies of fossil fuels for antiquated and polluting thermal power plants all need to be replaced, which is why countries throughout Europe and Asia are aggressively trying to position themselves as leaders in PV technology. No one has been more aggressive (or as successful) as China, who has come to dominate global PV manufacturing. Chinese manufacturers have been out competing their American counterparts so badly that the U.S. Government had to step in with punitive tariffs – some as high as 250% – to allow tiny American companies to remain viable in the face of the massive multi-GW Chinese- state-backed monoliths. Simple economies of scale alone can explain the current lack of competitiveness of American PV manufacturing.

There are two large-scale problems: 1) Iran has been deceived into thinking nuclear power is an economically-viable electricity provider, which has the unfortunate consequence of igniting nuclear proliferation concerns, which will cost the U.S. a fortune if it results in open war; and 2) the U.S., which dominated the early years of PV technology, is stuck with a lack of viable PV manufacturing sector, is quickly losing its innovation advantage and may miss the burgeoning renewable energy revolution. As often occurs when trying to solve engineering problems, solutions to two hard problems are often easier when they are combined.

The Generous Solar Solution

In exchange for Iran relinquishing all nuclear materials and nuclear equipment not specifically used for medicine and allowing UN weapons inspectors complete access to verify it, the U.S. will provide each Iranian citizen with enough solar PV to provide for all of Iran's electrical needs sustainably.

Is this possible?

Iran is a country of 75 million people that on average use only 2,240 kW-hrs per year (about \$250/year at U.S. average utility rates). The average Iranian citizen would only need a 1.25 kW PV system (five 250W modules) to provide all of their electrical needs. This is about 94 GW for the whole country. If the U.S. is going to provide them with the lowest possible investment cost from the American public, it makes sense to leverage the private sector. To complete the project in 5 years, the U.S. would need roughly twenty 1 GW PV factories. The U.S. does not currently have any factories that large, but they do have the knowledge and technical expertise to make them. There are even “factories in a box” for sale on the open international market – turn-key tool sets that can outfit an appropriately sized bank of warehouses into state-of-the-art solar cell factories. American corporations nimbly respond to financial incentives. By providing private U.S.

manufacturers 5 years of guaranteed sales of \$1/W for modules destined for Iran (above market price), the American private sector would rise to the challenge and build the plants.

Why would America want to do this?

A nuclear-weaponized Iran threatens American interests. With appropriate public relations efforts, the U.S. government could probably obtain support for a war with Iran, but for the most part, Americans are tired of Middle-Eastern wars and the concomitant cost in blood and money when the domestic economy is so strained.

The *Generous Solar* option provides a means to both denuclearize Iran while helping fix some of the economic problems at home all while improving environmental impact. Each 1 GW PV factory would employ over 1,775 people directly and create over 28,000 indirect jobs in the U.S. economy. Thus, overall 600,000 permanent American jobs would be created. Supporting this manufacturing would immediately provide a short-term stimulus to the U.S. economy and reduce unemployment.

After finishing the Iranian shipments in five years, America would be left with 20 of the largest, most advanced PV manufacturing factories in the world and over 35,000 workers trained in how to use them. This would make America much more competitive with Chinese PV manufacturing. Innovation is also expected at the factories during these 5 'sheltered' years (if for no other reason than to make extra profit by increasing production above the 1 GW contracts to sell on the open market). If these factories were able to follow the PV sectors historic learning curve at the end of the five years, each factory could sell solar panels at a hefty profit at prices that make solar electricity attractive in the U.S. market. The costs for scaled-PV manufacturing have been reliably predicted to be low enough that the demand created would more than consume factory name-plate production ten times over. This represents a substantial medium term increase in economic activity and increase in GDP as the U.S. begins a more aggressive transition to a secure, environmentally-beneficial, domestic source of electricity. The tax revenues alone make the investment attractive for the U.S. Government.

The generous solar option is an investment. The guaranteed sales for 20 factories would cost the U.S. \$94 billion. However, this is a relatively small investment in U.S. security. For example, it represents only about 6% of the projected budget for the F-35 Joint Strike Fighter program.

In addition to all the green jobs, secure domestic renewable electricity, and increase economic activity, there are also ancillary benefits for the U.S. First, putting a firm stop to nuclear proliferation in Iran would decrease the risk for a nuclear attack on the U.S. and increase the safety of Allies in the region (e.g. Israel). Iran would likely become another middle-eastern Allie to help stabilize the region and provide the U.S. with access to oil until the renewable energy transition is complete. Although anti-American terrorists could still exist, it is presumed that there would be much less anti-American sentiment in Iran after this plan than after a similar Iraq-war like strategy. Thus terrorism would decline.

America could also help put forward some of their other political goals. Providing the solar panels to Iranian individuals would help bring some of the poorest Iranians out of poverty and reduce inequality in Iran. Both of these benefits would enhance Iranian democracy and presumably

American interests. At the same time, showing kindness to an Islamic state will reduce religious tension throughout the world and make other conflicts potentially easier to resolve.

However, the largest benefits from this option are simply economic. The U.S. will literally save trillions of dollars avoiding a war with Iran. At the same time it would help put the U.S. back on top of international esteem and increase international goodwill. This helps the country directly – most obviously with the access provided to U.S. corporations that have an international presence. The Iraq war did a lot to damage to America's reputation (e.g. largest international anti-war protests in history) and this option could help repair some of that damage, particularly in the Middle-East.

Why would Iran want to do this?

To completely take advantage of this opportunity, Iran will need to invest too. In order to utilize the PV panels, Iran will need to invest heavily in improving their electrical infrastructure (currently their grid loses 18.5% of the electricity before reaching users) and in the balance of systems (or BOS includes racking, wiring, power electronics, and storage) for the PV systems.

Iran garners several economic advantages. The need for BOS components and installation of the PV would create an enormous boost in employment and GDP in the short term, while the sudden influx in low-cost non-volatile electricity would be expected to spur economic development and raise the GDP in the medium term. In the long term, developing the BOS components and expertise needed to take advantage of free PV modules from the U.S., Iran would spur a domestic solar market more advanced than that found in Germany. This experience would likely allow Iran to become a regional leader (and perhaps even global) in some areas of the rapidly growing technologies needed to enable intermittent energy sources, such as the sun, to make up a large percentage of a nation's electricity production (e.g. power electronics for microgrids, electricity storage, and smart grid technologies).

Politically, the Iranian leader seen as the driver of this option would benefit from all of his voters suddenly receiving a \$1,250 high-tech gift from a former enemy worth an equivalent to 2.5 months of income for the average Iranian, while radically reducing the risks of war devastating their country. The increased economic activity and concomitant increases in standard of living would also likely produce significant public support. Finally, Iran would also garner international prestige as the first solar-powered country in the world and all the interest and attention that go along with it. Lastly, by accepting the deal, Iran avoids painful economic sanctions, U.S. state-sponsored cyber-sabotage, war and the resultant probable destruction of their country.

Conclusions

By providing each Iranian citizen with the technology to produce electricity in exchange for their voluntary shunning of dangerous and risky nuclear technology, the world will be a safer place. This option, although technically-feasible, economic, and over-flowing with positive outcomes for both Iranian and U.S. citizens will not be easy to implement politically. Depending on their political viewpoint, for Iran's citizens nuclear power represents either the right to self-determination or the ability to maintain the status quo. U.S. leaders will need to work hard to frame the option in a way that allows Iran to remain both stable and to save face while abandoning their

nuclear ambitions. The largest barriers to this solution, however, will be from multi-national companies that benefit from the status quo in energy resource use and from the Middle East instability that breeds terrorism and war. Their political power is substantial, but does not outweigh the unacceptable economic penalties from following their models. In the U.S., it will also be a challenge to convince each American to invest about seventeen cents per day for 5 years to give Iranians free solar panels. The U.S. is hurting financially, but even America's homeless can spare 17 cents a day to prevent another war that would threaten national bankruptcy.

References

Zelenika-Zovko, I. & Pearce, J. M. (2011). Diverting indirect subsidies from the nuclear industry to the photovoltaic industry: Energy and economic returns. *Energy Policy*, 39, 2626–2632.

PEACE STUDIES JOURNAL

Vol. 8, Issue 1
October 2015

The Environment and Conflict in Africa: Conversations on the Challenges, Solutions, and Future for Conversation

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THE ENVIRONMENT AND CONFLICT IN AFRICA: CONVERSATIONS ON THE CHALLENGES, SOLUTIONS, AND FUTURE FOR CONVERSATION

Abstract

Today, many of Africa's protected areas, biodiversity hotspots, and wildlife species are under threat. Human encroachment, climate change, and environmental degradation have resulted in shrinking habitats, increasing incidences of human-wildlife conflict, and a decline in plant and animal species. Violent conflict exacerbates these challenges, making the management of national parks and protected species difficult if not impossible for conservationists and nongovernmental organizations (NGOs).

In northern Mali, Tuareg rebels and jihadi groups with connections to trafficking syndicates fund their violence with ivory ("Poaching in northern Mali threatens rare elephants," 2015). Against a backdrop of instability that has characterized a 14 month long civil war, South Sudanese soldiers kill wildlife for both food and financial gain (Okech, 2015). Since 1996, more than 130 rangers have been killed in the Democratic Republic of the Congo's (DRC) Virunga National Park (Fernandez, 2015), which is surrounded by and sometimes home to militia groups. The Janjaweed of Sudan, the Lord's Resistance Army in central Africa, and Séléka rebels in the Central African Republic (CAR) have all been linked to ivory smuggling (Hall & Crosta, 2015).

Conflict doesn't just degrade the environment—it feeds on that degradation. Militias, state militaries, and terrorist groups take sustenance from the natural world, but they also harvest its profit—in the form of the bush meat, ivory, and other illicit wildlife trades—to fund their brutality. In conversations with David Greer, the Coordinator of the World Wildlife Fund's (WWF) Great Apes Programme and Nir Kalron, founder of environmental security firm Maisha Consulting, we discuss the impacts of conflict on conservation, potential mitigation strategies, and the future of conservation in Africa.

As conservationists work to protect the environment and wildlife from more “traditional” threats (like those mentioned above), what are the added challenges that stem from violent conflict?

Greer: “The current level of conflict in equatorial Africa has perpetually hindered conservation work and has, in most cases, exacerbated traditional threats to conservation. Not only does conflict negatively affect biodiverse habitats by having opposition forces or militia hide out in their midst—thus necessitating that these groups exploit these areas for sustenance—but their constant threat to governments usually means that said governments do not have the luxury or motivation to strategize about less pressing issues, such as establishing the necessary conditions to support active eco-tourism, putting into place climate change mitigation strategies, or enforcing the rule of environmental law among a constituency responsible for keeping it in power.”

As Greer reminds me, conflict can also exacerbate corruption, and the two often feed on one another.

Greer: “The rampant corruption that exists within these governments also exposes them to continued instability—it's a never-ending, self-perpetuating process. Without fighting corruption, it is extremely difficult to establish rule of law. And when a country is predominantly lawless, or if prosecuting illegal activities is easily obstructed with a simple bribe, environmental laws are some of the first to suffer from ubiquitous impunity.”

Indeed, groups involved in environmental exploitation as a way to fund conflict are emboldened by weak laws, porous borders, and minimal punishments (Paulat, 2015), all of which are symptoms of a lack of good governance. Corruption and conflict can also feed on conservation, as resources for environmental protection flow into these same areas.

Kalron: “Some of the people who gain from poaching and trafficking are big, high-level people, or well-connected. They don't have to be presidents or prime ministers, but they are high-level people. If you can operate in a country like Kenya and go inside ports and airports and hire people, ship containers, and you can do it in relative freedom, then you've obviously got some connections.”

Greer relates the problem to a lack of leadership.

Greer: “I think one of the things [that's] implicit in all of this is that there's really poor leadership in all of these places we're talking about... People always want to focus on the poachers going out in their flip-flops and their torn shirts, but those are the people who are exploited. It's the military

leaders; it's the higher-ups within ministries. They're the ones who are actually overseeing this racket. The confiscations that my anti-poaching teams used to make in the CAR and Cameroon—half of the time the gun belongs to the mayor or the military.”

And when the government and the military are involved in the illicit wildlife trade, conservation work in conflict zones becomes even more difficult and dangerous.

In what ways do you see conservation organizations responding to conflict? How could they respond better?

Conservation discourse is dominated by two distinct approaches. The first is a focus on community-based conservation schemes, and the second is a reliance on technologically driven, high-level solutions such as drones and satellite images. Neither Kalron nor Greer are content with relying on these familiar options alone. According to Kalron, for example, too much reliance on technology overlooks the importance of personal relationships.

Kalron: “You’ll find that there’s a lot of personal aspects involved [in conservation]. Someone picks up the telephone and says, ‘Hey John, what’s up?’ And the other guy says, ‘Well, I think there’s a package coming your way.’ The more you close the loop on a personal basis, using your resources on the ground, the faster and better you are.”

Kalron is referring to intelligence sharing at a personal level, between individuals, law enforcement agencies, NGOs, and private companies—all of the stakeholders operating at the ground-level of conservation. Greer agrees with the need to have your ear to the ground.

Greer: “We’ve tried [community-based programs] in central Africa, and what we’ve learned is we largely don’t know what we’re doing. We don’t have enough people who are experts in community work. And so we have naively—we being all the conservation organizations frankly—shelled out lots of money for community activities expecting that it was going to reduce pressure on the forests.”

After a high-level government official stole start-up money for one of Greer’s projects, he realized that unless conservationists deal with the deeply rooted issues of corruption and a lack of leadership, they face an uphill battle.

Greer: “With regards to community-level support for conservation, I think it has so much to do with working in an environment where corruption is rampant. I know from my experience and my organization’s experience, the most successful community-oriented conservation projects are inversely correlated with the level of corruption... If we were able to deal with corruption, I think that would help in some regard. The problem is that in most of these conflict zones, it’s usually sympatric with corruption.”

The combination of conflict and corruption is not something that conservationists are normally prepared to handle.

Greer: “We’re ok with fighting and talking about fighting corruption, but we’re not quite there yet with regards to battling corruption in areas where we might get killed for speaking up against corrupt regimes.”

In that case, is the intensifying militarization of conservation, exemplified by the proliferation of drones and additional funding for weapons, the right way to deal with conflict?

In areas characterized by violent conflict and poachers armed with satellite phones and night vision goggles, Greer and Kalron agree that some level of militarization may be helpful in ensuring continued environmental protection. Greer points to the example of Garamba National Park in the DRC, which is co-managed by African Parks and the *Institut Congolais pour la Conservation de la Nature* (ICCN).

Greer: “The security of that place is their [African Parks’] responsibility. They’re mandated to financially support and organize military intervention when it’s necessary. I think that’s a good option over the short- and mid-term. It’s a lot like what we do in Dzanga-Sangha [in the CAR] in the sense that we actually do pay the rangers there, but they are still government staff and not WWF staff.”

Kalron has been at the front lines of some of these military interventions, working with WWF in in the CAR following the massacre of forest elephants there by Sudanese poachers. In these situations in which the risk of violence is high, groups like Kalron’s Maisha Consulting serve as short-term solutions. As Greer describes it, “[Kalron’s] approach is to be able to put his finger in the dam until things are stable enough so that more experienced conservationists can come in and do their work.”

Kalron: “These projects require a different approach that brings together some of our talents and know-how to be that buffer zone between the conservation organization that doesn’t necessarily know what ‘signals intelligence’ means or whatever kind of terminology you would use in the military world. That buffer zone is where we excel, by working together with the NGOs and eliminating that elusive buffer between the world of military operations and the world of research and management of the park. Because sides need to co-exist for good conservation security.”

And what do they think about drones, which have been called a “real game changer” in the fight to save Africa’s wildlife (Snitch, 2015)? Greer and Kalron caution that the use of drones isn’t always what it seems.

Kalron: “You have titles in the newspaper like, ‘Drones are now saving elephants from death.’ If you really analyze what you’re hearing and what you’re seeing, these are not real drones. They are either hovers or small crafts or civilian-built machines rather than military, defense-issued drones that cost millions or tens of millions of dollars. So there’s a little bit of an exaggeration.”

Greer also points to the limitations of drones in certain contexts.

Greer: “[Drones] are not useful for poachers in central Africa. I’ve been offered drones many times, and they’re just not useful because they might see a poacher’s fire in the middle of the forest, but if it takes you six or seven hours to mobilize or get a team together, and then you have to walk 15 kilometers to get there, then it’s too late.”

No matter the tools, both men agree that militarization is not a long-term solution in the face of heavily armed rebel groups.

Kalron: “Even if you have a ranger force with you, there’s too much evidence showing that they are ill equipped, and no matter how greatly trained they are... it still doesn’t mean that they can face a group of four or five heavily armed Sudanese... If you put more guns into it, I don’t know what that’s going to do. Again, there’s a stick. I’m not saying not to react with a stick. I know how to hit someone with a stick if I need to... But it’s short-term.”

What does the future of conservation look like?

As Kalron and Greer’s experiences illustrate, conservation in conflict zones isn’t just about violence. It’s also intertwined with issues of corruption, governance, community relations, and technology. This complexity results in challenges as well as opportunities for conservationists.

Greer: “One option is ramping up our efforts in trying to attack these underlying forces that continue to impede us in making significant progress. And that’s primarily corruption, the overexploitation of natural resources, and the very people who you’re working with to try and protect these natural resources, actually overseeing their destruction. We’re ramping up our support to law enforcement. We’re actually talking about and trying to get involved in attacking the corruptive elements, and calling them out, and publicizing that it’s not ok and you’ll go to jail if this happens.”

These efforts are embodied in WWF and TRAFFIC’s Wildlife Crime Initiative, an innovative endeavor geared toward addressing wildlife crime from a variety of angles, including better international policy and law enforcement.

Kalron’s advice for conservationists is more immediate. He recommends starting small and building personal relations based on interests.

Kalron: “Always find what I call ‘the diamonds in the rough.’ In any country, in any place, you can always find the good people, the dedicated people to work with. I always say, ‘You have to recruit.’ And when I say recruit, it’s not hiring as an employee, but recruiting philosophically, emotionally, someone to work with you who will say, ‘I’m down with you guys. You guys understand me. You guys understand my interests. I might not care about elephants as you do, but I care about national security’ or ‘I care about tourism. As long as you fulfill my interests, I will help you fulfill your interests.’ Know the people in front of you; know the regional commanders, the regional chiefs, and the tribal leaders. Know the people, and find common ground or shared interests. Only then will you succeed.”

For Greer, the future of conservation might mean relying on approaches that have traditionally been outside the expertise of conservationists. This includes fostering rule of law and taking aim at corrupt officials.

Greer: “[Let’s say] you’re trying to prosecute a Director General in a court system that is notoriously corrupt, where injustice can be purchased at any time. So you have to not only get the evidence to prosecute this guy, but you’ve also got to make sure you’re on the backs of the lawyers and the judges to say, ‘Guys, everybody is watching this.’ So you have to call the American ambassador and the German and the French ambassador, and you have to call the USAID [United States Agency for International Development] representative and tell these guys, ‘You need to call this judge, tell him you know about what’s going on, and tell him you look forward to seeing the results of this thing in the media, the international press.’”

Without the resolution of conflict and systemic issues like corruption that both feed into and feed off it, the future of conservation in parts of Africa appears bleak. Both Greer and Kalron say there is even talk among conservationists of pulling out of central Africa, where the challenges often outweigh the rewards.

Greer: “I cannot envision a scenario in which conservation NGOs working in a country or region experiencing continued conflict can experience long-term conservation success... Without an appropriate foundation of law and order—and perhaps the absence of conflict—upon which to build [conservation] projects, such initiatives are doomed to fail before getting off the ground.”

Greer ends our conversation with a sobering reminder. Referring to the arrest of ivory kingpin Feisal Ali Mohammed last December, he points out, “You know he would already be out if it wasn’t so publicized and people weren’t paying so close attention. And he still might get out.” For a man who plays a critical role in the illegal wildlife trade—a trade that bankrolls militias and terrorist groups—all that stands in the way between him and freedom is a corrupt judge or police officer.

References

- Fernandez, B. (2015). “Saving gorillas and the DRC in one fell swoop.” *Al Jazeera*. Retrieved from <http://www.aljazeera.com/>
- Hall, A., & Crosta, A. (2015). The ivory trade kills people too. *Al Jazeera*. Retrieved from <http://www.aljazeera.com/>
- Okech, F. (2015). “South Sudan animals decimated as troops fuel poaching crisis.” *Bloomberg News*. Retrieved from <http://www.bloomberg.com/>
- Paulat, L. (2015). “Uganda takes aim at wildlife poachers.” *Voice of America*. Retrieved from <http://voanews.com/>
- Poaching in northern Mali threatens rare elephants (2015). *BBC*. Retrieved from <http://www.bbc.com>
- Snitch, T. (2015). “Satellites, mathematics and drones take down poachers in Africa.” *The Conversation*. Retrieved from <http://theconversation.com>

PEACE STUDIES JOURNAL

Vol. 8, Issue 1
October 2015

Teaching Ecology of War and Peace: A Class Summary

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Keywords: Peace Education, Peace Ecology, Resource Conflict, Military Environmental Impacts

TEACHING ECOLOGY OF WAR AND PEACE: A CLASS SUMMARY

Abstract

I created a course, Ecology of War and Peace, in 1997 and have been teaching one or two sections each year ever since. It is a course informed by peace studies, peace activism, environmental studies, environmental activism, indigenous studies, strategic nonviolence, political science, human security studies, conflict resolution, natural resource management, environmental law, and systems studies. The course is divided into four basic sections: the environmental impacts of war, the environmental impacts of preparing for war, the natural resources as driver to war, and the examination of what a peace system might look like. Students begin the course in varying states and stages of shock and disbelief at the profound impacts of war and war preparation, try to come to grips with the overwhelming problems of natural resource depletion and contestation, and finish by a serious hypothetical examination of alternatives based on human needs theory.

I teach in the field of peace and conflict studies and so focus on various conflicts, costs and benefits of methods of conflict management, and hypothetical explorations of conflict transformation (i.e., converting destructive conflict into constructive conflict). This is a clear departure from all other fields and disciplines, eschewing temporary or long term use of violence, or the threat of violence in order to manage conflict. No other field does this and, in my view, this is what distinguishes the field of peace and conflict studies from all other fields and disciplines. We make good use of the

excellent research in communications, social psychology, sociology, political science, Anthropology and more. Into this field, then, I introduced the course Ecology of War and Peace.

Examining the environmental impacts of war goes back to the thinking of Margaret Mead and her advocacy for science in the public interest, and peace in the public interest. She prompted that strand of thinking during the horrific war in Vietnam and the scientific studies produced by scientists began to reveal some of the terrible environmental costs of war (Westing, 1984a; Westing, 1984b; Westing, 1985; Westing, 1986; Westing, 1988).

Anecdotal information on this can be found in the ancient writings of conflict from the Tao (“Where great armies have passed, thorn bushes grow”), from the Mediterranean region including ancient Rome and northern Africa (e.g. salting the fields of the defeated foe to cripple agriculture), on through the biological wars of the Middle Ages when plague was spread intentionally (e.g. dumping diseased corpses into water supply), and to the smallpox blankets given to Native Americans by Jeffrey Amherst’s orders. Indeed, the smallpox case raises the question of war-inflicted genocide (Koster, 2012), even when conquest is the goal, and not the elimination of the current occupants of the land.

The challenge of those who have investigated the environmental impact of wars has been, essentially, so what? Existential threat is why wars are fought and those environmental impacts are of secondary consideration when cold steel, hot lead or screaming missiles are filling the air and killing people instantly. There is time after the war to clean up. No soldier is going to fret about a water buffalo or the contamination of a local water supply when bullets or shells are whistling past him. Also, no government seems capable of enjoining or even monitoring the environmental impacts of its military bases and activities during wartime.

However, the evidence is that merely preparing for war is environmentally injurious on a large scale and those costs must be honestly calculated in the cost/benefit analysis that can lead to conflict management choices (Ehrlich & Birks, 1990; Thomas, 1995; Thomas, 1998; Hastings, 2000; Hynes, 2011). Nuclear war preparation produces deadly compounds that persist for geologic timespans, chemicals used to produce war materiel haunt a landscape for decades, minimally, and the relationship of climate change to conflict management methods is becoming sharply worrisome (Hastings, 2013). Matthew and Gaulin (2002) posit that the threat of war and war preparation to the environment may ultimately be what produces a peace movement that can change politics, the law, and culture. This is increasingly difficult to ignore since the US Pentagon and its supplying industries produce the greatest number of EPA Superfund sites, as well as consume more fossil fuel than any other single entity (Herndon, 2012).

Then we look at the history of environmentalism and democracy—not only how the US slowly came to begin protecting the environment starting with the Rachel Carson-inspired grassroots activism that drove the 1969 National Environmental Policy Act and its sequelae (e.g. Clean Water Act, Clean Air Act, Endangered Species Act, Resource Conservation and Recovery Act) but how the military of the US and those of other countries as well have successfully argued against enforcing environmental law over their activities. We begin to ask, “well, if the militaries have such an enormous environmental impact and they are immune from obedience to environmental laws, how can we address this?” We look at efforts to force the military to comply and we look at

efforts to reduce or transform conflict and thus reduce the perceived need for such large and contaminating militaries. This involves an examination of the relationship of natural resources to hot conflict (Renner, 1996; Klare, 2001; Bannon, 2003; Klare, 2004; Klare, 2012).

Finally we examine what a peace system would entail in order to—in Gandhi’s well chosen words—meet the needs of all and the greed of none. Timothy McElwee (2003) posited that this would require a three-step overlapping sequenced process of developing a robust body of laws against war and arms, reducing grievances that have resulted in war, and developing alternative methods of conflict management. Others have suggested working on culture (valorizing peacemakers, not warfighters), strengthening peace education, establishing cabinet-level peace ministries, and generally advocating for new social norms that invalidate violence as a conflict management method (UN General Assembly, 1999; Hastings, 2000; Ramsbotham, Woodhouse, & Miall, 2011).

I tell each class that we have studied war for 11,000 years, but have only practically studied peaceful methods of social conflict in our field of Peace and Conflict Studies for a few decades. Thirty years ago there were only a handful of Peace and Conflict programs at select colleges and universities, but now there are 400-600 worldwide, and that means that they—the current students of Peace and Conflict Studies—are the seed crop that will determine if our new set of peace norms is robust enough to change mainstream values and practices. With specialized courses such as Ecology of War and Peace, we are penetrating the complex system of conflict management studies more deeply all the time. Generalizing the public policy discussion via its introduction into liberal arts education presages a possible shift in the political winds that carry new policies and even laws into existence. That is our modest task.

References

- Bannon, I. & Collier, P. (Eds.). (2003). *Natural resources and violent conflict: Options and actions*. Washington D.C.: The World Bank. Retrieved from <https://openknowledge.worldbank.org/bitstream/handle/10986/15047/282450NaturalResources0violent0conflict.pdf?sequence=1>
- Ehrlich, A. H. & Birks, J. W. (Eds.). (1990). *Hidden dangers: Environmental consequences of preparing for war*. San Francisco, CA: Sierra Club Books.
- Hastings, T. H. (2000). *Ecology of war & peace: Counting costs of conflict*. Lanham, MD: University Press of America.
- Hastings, T. H. (2013). Climate chaos and conflict management. *Peace Review: A Journal of Social Justice*, 25(4), 495-501.
- Herndon, A. (19 October 2012). Pentagon, world's biggest fossil fuel user, shops for biofuels. *Bloomberg Business Week*. Retrieved from <http://www.businessweek.com/news/2012-10-19/gevo-syntroleum-vying-for-military-biofuel-supply-deals>
- Hynes, H. P. (2011). The invisible casualty of war. *Peace Review*, 23(3), 387-395. doi:10.1080/10402659.2011.596086
- Klare, M. T. (2001). *Resource wars: The new landscape of global conflict*. New York, NY: Metropolitan Books.
- Klare, M. T. (2004). *Blood and oil: The dangers and consequences of America's growing petroleum dependency*. New York, NY: Henry Holt.

- Klare, M. T. (2012). *The race for what's left*. New York, NY: Metropolitan.
- Koster, J. (2012). Smallpox in the blankets. *Wild West*, 25(2), 36-41.
- Matthew, R. A., & Gaulin, T. (2002). The ecology of peace. *Peace Review*, 14(1), 33-39.
doi:10.1080/10402650220118170
- McElwee, T. A. (2003). Instead of war: The urgency and promise of a global peace system. *Cross Currents*, 53(2), 148-170.
- Ramsbotham, O., Woodhouse, T., & Miall, H. (2011). *Contemporary conflict resolution* (3rd ed.). Malden, MA: Polity Press.
- Renner, M. (1996). Fighting for survival: Environmental decline, social conflict, and the new age of insecurity. New York, NY: W.W. Norton.
- Thomas, W. (1995). *Scorched earth: The military's assault on the environment*. Gabriola Island, Vancouver, CA: New Society Press.
- Thomas, W. (1998). *Bringing the war home*. Anchorage, AK: Earthpulse Press.
- UN General Assembly (1999). 53/243 A. Declaration on a Culture of Peace. Retrieved from <http://www.un-documents.net/a53r243a.htm>
- Westing, A. H. (Ed.). (1984a). *Herbicides in war: The long-term ecological and human consequences*. London, UK: Taylor & Francis.
- Westing, A. H. (Ed.). (1984b). *Environmental warfare: A technical, legal and policy appraisal*. London, UK: Taylor & Francis.
- Westing, A. H. (Ed.). (1985). *Explosive remnants of war: Mitigating the environmental effects*. London, UK: Taylor & Francis.
- Westing, A. H. (Ed.). (1986). *Global resources and international conflict: Environmental factors in strategic policy and action*. New York, NY: Oxford University Press.
- Westing, A. H. (Ed.). (1988). *Cultural norms, war and the environment*. New York, NY: Oxford University Press.