INTERVIEW WITH THE FILMMAKERS

WAR AND THE NATURAL WORLD

Interview with filmmakers and producers Alice and Lincoln Day about their documentary "Scarred Lands and Wounded Lives: The Environmental Footprint of War," by Tom Durwood, Valley Forge Military College, September 1, 2011.

1. Your documentary film "Scarred Lands and Wounded Lives: The Environmental Footprint of War" looks at a surprisingly wide range of damage to the natural world—from hundreds of abandoned battleships in the Pacific to deforestation in Afghanistan to nuclear waste in New Mexico. What surprised you most in the making of this film?

Before embarking on this film, we were already familiar with the scale of damage to the environment incurred by military activities. In 2004, when we started work on "Scarred Lands and Wounded Lives: The Environmental Footprint of War," we had already lived through American involvement in 6 major wars: World War II, Vietnam, the Gulf War, Kosovo, Iraq, Afghanistan. In each case, we had acquainted ourselves with the devastation wrought by war through newspaper reports, radio broadcasts, newsreels, documentary films. We were aware of the damage wrought by such weapons as cluster bombs and IEDs (improvised explosive devices), and by the construction of military bases, the movement of refugees and refugee camps. In "real time," we learned about the pulverization of Hiroshima and Nagasaki from the first and only use of the atomic bomb as a weapon of mass destruction by the USA and the toxic pollution to the land and the Vietnamese people from extensive application of the toxic defoliant, Agent Orange.

"Natural security (the protection and preservation of ecosystems) is an essential component of any realistic approach to national security."

James Janko's observation about the destruction in Viet Nam sets the tone for the theme of environmental pillage: "I often wonder if our struggle is not against human beings but against the earth that sustains them. We've become experts in blowing the earth up, using bombs, artillery, mortars, C-4, gun ships, napalm to reduce the earth to ashes."

What surprised us most in making "Scarred Lands" were the insights we received from the 13 people we interviewed on film. Paul Walker introduced the topic of the enormous amount of waste involved in

making weapons for war—the large volume never used, having to be stockpiled, stored or destroyed, the massive amount of military ordnance left behind in countries overseas, such as vehicles, tanks, munitions, many of which remain permanent fixtures in the landscape, a potential danger to children and unwary explorers. Sue Wareham noted that destruction to infrastructure, such as electricity and waste disposal plants, was often done intentionally, causing devastation in particular to the health and survival of children, who have special needs for clean water and unpolluted environments. John McNeill called attention to the pervasive amount of deforestation in all wars, resulting from combat itself in the effort to conceal troops from the enemy, but also to the fact that probably the most extensive and enduring damage to the environment comes from preparations for war—from the extraction of resources to manufacture weapons, the testing of new weapons, the construction of huge bases to house and harbor troops, the disposal of unused, spent and highly toxic weapons, the use of large areas of open, uninhabited lands as firing ranges or spaces in which to conduct combat training. Michael Barrett described nearly 4,000 ships sunk in World War II in the South Pacific, right now, over three hundred of which are oil tankers. After 60 years submerged under water, these ships are beginning to disintegrate and release their oil. In Truk Lagoon, Barrett said that 60 Japanese ships and more than 200 planes were struck down in the sea, releasing oil into the mangrove swamps where fish spawn and marine life reproduce. Surveying the lagoon from a small boat, Barrett notes, *"And as far out and remote as you are the entire area just smelled like a gas station. There was just so much oil coming off these ships."*

Aerial bombing can leave a long-term chemical "afterlife."

As well as being surprised by such revelations, we had not expected that the people whom we interviewed would be so uniformly positive about the possibilities for breaking the habit of war. From Lester Brown to Thomas Lovejoy they all said that much useful action was now in the works and that a new ethic of protecting the planet could be forged.

2. **Is it just modern combat technology which has caused this dilemma, or has warfare always had these powerful unintended consequences?**

Warfare has always had a heavy footprint on the environment: destroying trees and treasured landscapes, disrupting ecological systems, diminishing access to such vital resources as food and water, dislocating human and animal populations. However, the scale and destructive power of modern technology has changed the game. *For one thing, Dr. Wareham points out, "[B]y our best estimates approximately 90 per cent of the victims of warfare are currently civilians. This is a real turnaround from about 100 or so years ago, the start of the last century when it was the reverse. About 10*

percent of the victims of war were civilians and about 90 percent military." We are also, she notes, "using more and more munitions to get the same military effect."

An example of new technology that is changing the way warfare is conducted is the growing use of drones, which employ no troops on the ground and, in the effort to target one or two "high value" persons, often kill civilians at the same time. The very words we use to describe the conduct of warfare cover up and sanitize its consequences. Civilians killed in drone strikes or bombing raids are termed "collateral damage," as though their deaths were an expected and necessary by-product of war. The American and NATO bombing of Libyan cities loyal to Colonel Gaddafi have been described as a "constrained intervention."

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Early in the film, Paul Walker states, *"The primary goal in warfare is to beat the enemy, and when you want to defeat the enemy as quickly and as cost effectively as you'd like, you use the most dangerous weapons you can, for the most part, unless your own troops or your own population happens to be on the battlefield."*

However, a new feature of modern technology is the deadly effect on one's own troops of using toxic weapons, such as Agent Orange and depleted uranium. A memorial on the Mall in Washington DC, commemorating soldiers who returned from Viet Nam, but died later from exposure to Agent Orange is grim testimony to becoming victims of our own modern technology. As well, unexploded ordnance, land mines, and abandoned live munitions spread by the American military overseas remain on the battlefield and have resulted in many deaths and mutilating wounds sustained by American soldiers in Iraq and Afghanistan.

3. **How long can the environmental effects of war last?**

Clearly, in terms of the duration of their footprint the effects of war on the environment vary widely depending upon the nature of the damage and the ecosystems involved. When hostilities cease, some sites affected by combat, construction of bases, or "war games," can seem to recover within a year or two; others, such as those exposed to nuclear radiation remain uninhabitable or unusable for any purpose for generations or even millennia.

"When changed market conditions associated with World War I drove the price of wheat to record highs one response was to plow up the remaining native grasslands of the western Great Plains in order to grow more wheat. The result of this war-induced destruction of a vast native habitat was the Dust Bowl of the 1930s."

One could claim that modern warfare's deadliest and longest-lasting threats to the environment are largely invisible. Long after hostilities have ended, the millions of landmines and cluster bombs laid around the world continue to kill civilians and combatants alike. To the unsuspecting person, a road or field may look clean and undisturbed, but just beneath the surface can lie weapons that remain deadly for years. More than two decades after the Russian withdrawal from Afghanistan, Afghan civilians were still being killed or wounded by landmine explosions at the rate of 10 to 12 each day. Cluster bombs are particularly lethal since they become widely scattered, often fail to explode on contact, and, when partially concealed by earth and foliage, shine and attract children. As Dr. Wareham observes, *"Cluster bombs actually make a mockery of the word ceasefire. How can you have a ceasefire when we leave these weapons in the ground in such large numbers?"*

Any extinction of species is permanent and irreversible. As Thomas Lovejoy attests, war amplifies trends around the globe that are compromising biodiversity. The fragmentation of habitat that generally accompanies warfare as populations relocate in large numbers to escape harm and to find essential resources like wood, arable land, and clean water, endangers species by constricting their range and disrupting mating practices. What is happening with the gorillas in Rwanda, whose habitat has been affected by conflict in that region. is one of many contemporary examples.

4. The white phosphorous from the flares we used in our invasion has left the farmers in Iraq with untillable soil for almost a decade. Are farmers usually the biggest victims of war's environmental footprint?

Actually, given the web of dependence among species, we're all affected to some extent; some groups more than others, of course, depending on the nature of the damage they experience and the economic and social resources at their disposal. Farmers are certainly adversely affected, if only because of the effects of war and preparation for war on their land, water, and markets.

But, when one thinks of forced emigration, malnutrition, damage to unborn, loss of parents…it is children who are probably most affected.

5. One of the most interesting cause-and-effects you document is how war can dramatically affect a region's biodiversity. Can you explain that process, and what the long-term effects might be?

Nature is a web of life. Species are inter-connected; they depend on each other for survival. War and preparations for war can directly raise a species' mortality level through the destruction of its habitat -- its food and water sources, its migratory and mating patterns, for example. It can indirectly raise a species' mortality level by increasing mortality among other species on which it depends. And it can increase a species' mortality level by directly attacking it—to, e.g., feed troops, deprive enemy troops of food or (in the case of pack animals) transport, obtain materials (e.g., fish, animal flesh and skins) that can be exchanged for weapons or the money to purchase weapons.

When changed market conditions associated with World War I drove the price of wheat to record highs one response was to plow up the remaining native grasslands of the western Great Plains in order to grow more wheat. The result of this war-induced destruction of a vast native habitat was the Dust Bowl of the 1930s and a vast area of biodiversity apparently lost for all time.

6. It was clearly a long and labor-intensive process to make this film, assembling the striking images as well as the interviews. What prompted you to do it?

In October 2004, when we started to consider making a film, there was a perfect storm of reasons for doing a documentary depicting the environmental costs of war: taking political action, raising awareness, changing national perspectives.

Taking political action: October 2004 was a month before G.W. Bush faced election to a second term. He and his administration had started the Iraq war under false pretexts, without appropriating the funds to pay for it. His record on protection of nature was negative. He had appointed people to top positions in the cabinet, e.g., Gale Ann Norton, Secretary of Interior, who invariably favored corporate interests over conservation. Oil and coal interests reigned supreme. Bush was uninterested in promoting renewable sources of energy. Environmentalists and peace activists were alarmed about having four more years of indifference to the urgent need for sustainable policies for the earth. In the film, **Lester Brown** stresses the urgency of our current predicament, *"What we are looking at now is a threat to our global civilization and saving our civilization is not a spectator sport. We've got to change the system now, and that means becoming politically active."*

"Dr Martin Luther King warned about the perilous attraction of war itself, which tends to put all other concerns—social and environmental—in second place."

Raising awareness: Returning to live in the United States in 1993 after living 24 years in Australia, we began attending the DC Environmental Film Festival as a way of reconnecting with the environmental community. Each March, the DC festival screens two weeks of first-rate documentaries encompassing a wide variety of environmental challenges, e.g.: huge increases in human numbers, deforestation, growing scarcities of arable land and clean water, depletion of fish species, degradation of soils. We regularly attended many films and eventually were appointed to the festival's Advisory Board. But it was not what we saw in the festival that eventually compelled us to act, but what we did not see. In spite of massive evidence testifying to the urgent need for change, nothing was being said in film or in the public forum about the role of war in making life on earth less sustainable.. No film looked at the connection between warfare and human responsibility for the warming of the earth's atmosphere. In 2006, Al Gore launched "An Inconvenient Truth," asserting that all human activities must be measured in terms of their contribution to global warming. Yet even he by-passed military activity as a major contributor to greenhouse gas emissions and the pollution of air, land and water. As James Janko observes in the film,

we came to see that, *"The environment is war's silent casualty."* We were prompted to use film to end the silence and give the environment a voice.

Changing national perspectives: In planning our overall treatment of the film, we chose four key themes: The Environmental Footprint of War, The Existence of Natural Limits, The Diversion of Resources, and Transitioning to More Sustainable Futures. The final sequences of the film deal with the foundations of national security and the need to change course. Lester Brown paints a stark picture in describing his response to September 11, *"Terrorism is a threat, no question about it, but on my list of threats to our future, there are many more serious threats, climate change being an obvious one, population growth being another."* **Saleem Ali** elaborates on this theme by asserting that natural security (the protection and preservation of ecosystems) is an essential component of any realistic approach to national security. But raising awareness that preserving and protecting our natural resources is essential to our security as a nation is a public relations challenge. **Professor Ali** acknowledges that, *"As security concerns are discussed, the environment is immediately trumped and people say, well, we have to move forward because this is a matter of our survival. And what we have been suggesting is that the environment itself has a very survivalistic element to it. So protecting the environment should be considered at that level."*

7. The unintended consequences of warfare have been recounted before—for example, the creation of "no-man's lands" during the Korean War resulting in large natural habitats—but never as you have done.

What was the earliest account of the effects of war on the natural world that you found? Is there other literature on the topic, or did you find little precedent?

The environmental consequences of war are alluded to in a number of works on war. One of the first we came into contact with is in Alister Horne's excellent history of the battle of Verdun where, half a century after the battle, he writes of a part of the battlefield "with a forest of young firs planted in the 1930's when all other attempts at cultivation had failed" as being "the nearest thing to a desert in Europe" (Horne, *The Price of Glory*). More specific—and for us more useful—sources were various books and articles about the environmental consequences of war and preparation for war (most of which are listed in the bibliography in the "special features" section of our film). Some of the standouts among these are: Michael Renner, "Assessing the Military's War on the Environment," World Watch Institute, *State of the World*, 1991; Sarah DeWeerdt, "War and the Environment," *World-Watch*, Jan/Feb, 2008; "Environmental Effects of Warfare," Medical Assn for the Prevention of War (Australia), Oct. 1991; John R. McNeill, *Something New under the Sun -- An Environmental History of the Twentieth Century World*, W.W. Norton, 2000; Pekka Haavista, "Environmental Impacts of War, State of the World, 2005; Gary E. Machlis & Thor Hanon, "Warfare Ecology," *BioScience*, 2008; Jurgen Brauer, "The Effect of War on the Natural Environment," paper presented at Conference on Arms, Conflict, Security and Development, Middlesex University Business School, London, June 16-17, 2000; Stewart Firth and Karin von Strokirch, "A Nuclear Pacific," in Donald Denoon, et al., eds, *The Cambridge History of the Pacific Islanders*, Cambridge:

Cambridge Univ. Press, 1997; and the several excellent and beautifully presented *Post-Conflict Environmental Assessments* prepared by the United Nations Environmental Programme about such countries as Afghanistan (2003), Iraq (2003 and 2005), Kuwait (2003), and Palestine (2003).

"War amplifies trends around the globe that are compromising biodiversity."

A useful source of information specifically about landmines is Donovan Webster's documentary film "Aftermath: The Remnants of War," shown at the 2003 DC Environmental Film Festival (the festival that, in March 2008, premiered our film).

While a fairly substantial scientific literature exists on the subject, this science is seldom related to politics. Apart from the United Nations studies (noted above), scientific assessment of environmental damage from war is rarely reported on—even, on occasion, as we are learning with respect to the atomic bombings of Hiroshima and Nagasaki, actually suppressed by military and governmental authorities.

8. Americans may have a limited experience of this, since so few wars have been fought on our continent. Do other cultures have a more immediate awareness of the environmental footprint of war, or is this news to all of us?

Actually, quite a lot of armed combat has taken place on American soil, with, in some cases, substantial environmental damage. Best known is the Civil War, but there were also the Revolutionary War and the War of 1812. If, as we think is probably the case, it just seems as though Americans' experience of warfare is more limited than that of, say, Europeans or Asians, we think this could be largely because of: a) the fact that such a high proportion of the American population, being of relatively recent migrant origin (few family histories in America reach back much more than a century) lacks a historical memory of warfare in its country of residence comparable to that of established populations elsewhere in the world; and (b) the most environmentally destructive warfare in America -- the Indian Wars on the Great Plains -- is seldom mentioned, all but ignored in school history courses, and, when not ignored, is treated less as a war with a proper beginning and end than as merely a territorial expansion of a superior people and culture. Yet, the Indian Wars played a significant role in the destruction not only of a people and their varied cultures, but also of the habitats of a variety of animal life and one of the largest and most productive natural grasslands in the world.

But, irrespective of the amount of direct (actual or historical) experience of war-related environmental damage in America itself, Americans have certainly contributed greatly to war-related environmental damage elsewhere in the world: from the Philippines to the WWI trenches in France, to the South Pacific, Japan, Viet Nam, Iraq, Afghanistan; and, to meet both civilian and, increasingly, military demands for energy, to the mountain tops of West Virginia and the tar sands of Alberta.

9. You interview a number of knowledgeable subjects in the film, people from academia, nonprofits, the United Nations, the military, and medicine. What sectors of society have the most interest or incentive in resolving some of these complex problems?

Warfare raises a multitude of issues; everyone touched by it, whether directly or indirectly, has an interest in it. A large sector of American society today has an interest in keeping the country, if not in a permanent state of war, at least in a permanent state of preparedness for war. Businesses can profit from military activities; war can create jobs. Economic recessions enhance politicians' interest in maintaining activities that provide people with work. The current recession in the U.S. has seen a huge push back against proposals to reduce military spending by closing bases and eliminating materiel that is obsolete. Again and again, lobbied by special interests, Congress appropriates funding for military hardware that is generally regarded as flawed or ill-suited to the requirements of modern combat situations. The Nobel prize-winning physicist, Hans Bethe, famously opined, *"[W]e must break the habit of considering every weapon as just another piece of machinery and a fair means to win our struggle with our 'enemies,' whoever they are."*

Who, then, has an interest in breaking the engrained habit of taking the military path to resolve social problems? Despite evidence to the contrary, those with an interest in peace-building are surely a more numerous and more diverse group than those who promote war. They include you and me, ordinary people in "all walks of life," of every religion, in all the professions, all races and all income levels, doctors and scientists, diplomats and veterans -- people for whom killing others and plundering the earth is repugnant, immoral, archaic, wasteful; people who recognize war as being typically unsuccessful in realizing stated goals.

Toward the close of the film, Lester Brown poses the question on the minds of all viewers: *"Can we make it? Can we reverse the trends that are undermining our future? And my answer always is: it depends on what you and I do."* What we can do ranges from small acts of conservation -- turning off lights, using two sides of a page, walking and taking public transportation -- to writing one's representative and joining an organization promoting peace-building. Taking the initial step is the key to breaking the habit.

10. Warfare is always changing. Will future forms of combat find new ways of impacting the environment?

As long as there are wars, we can anticipate changes in combat materiel and technique; and with these changes, changes also in consequences for the environment.

Satellites have already proved useful for gathering vital information about the extent of droughts, floods, and loss of habitat. And technological developments have already made inter-continental warfare possible. Were space to become a future combat zone, the direct attacks would presumably be on satellites to restrict an enemy's access to information.

For land or sea-based combat, we can anticipate development of ever more powerful weaponry. Most probably, this would be of a toxic nature—and, therefore, particularly threatening to living organisms (both human and environmental) over very long periods of time.

11. Of the many and varied causes and effects you catalogue, clearly the nuclear threat to the natural world carries the most destructive potential. Is this the one that worries you most?

In terms of their destructive power, nuclear weapons are in a class all their own. They are a particular threat now because nuclear radiation is so uncompromisingly deadly to everything that comes into contact with it, and its effects on health and wellbeing are so long-lasting. In the short run, a nuclear weapon can kill thousands of civilians and pulverize a whole city. In the long run, exposure to nuclear radiation can alter genetic structure and lead to malformed births. We do not have to guess about the potential of nuclear destruction; we have examples that show the full lethal consequences for nature, infrastructure, and human beings: Hiroshima, Nagasaki, Bikini Atoll, and the 2,000 or more nuclear tests conducted by the eight members of the so-called "Nuclear Club," states that are known to have detonated nuclear weapons either on domestic or foreign soil. (Actually, though not generally included as a member of "the Club," Israel also has nuclear bomb capacity and it has conducted tests in South Africa.)

The threat of using radioactive weapons is compounded by two further dangers associated with their toxicity: first, the hazards to workers accompanying the extraction of uranium and its processing for use in weapons, and second, the continuing environmental quandary concerning where and how to dispose of the waste. Both of these stages make a potentially heavy footprint on the environment as radioactive material that has been dormant in the ground is mined, processed, and then discarded. This has led to the creation of huge "sacrifice zones" devoted exclusively to the storage of radioactive debris. Says *Professor McNeill*, *"One of the best examples of how the business of preparing for war can have long lasting environmental impacts is the nuclear weapons programs around the world that have been in place since the early 1940s …Wherever this has happened there have been environmental problems with radioactive waste which no one anywhere has satisfactorily solved."*

While nuclear power in war can have devastating, immediate and long-lasting impacts on the environment, there is another even more insidious long-term threat to the wellbeing of nature. Several of our specialists, along with Dr Martin Luther King, warned about the perilous attraction of war itself, which tends to put all other concerns – social and environmental -- in second place. Michael MacCracken states this peril specifically in relation to addressing the supreme environmental challenge of climate change: *"You might think that one of the most important things that would affect the environment due to military activities and the defense buildup is their direct emissions of gases.….But probably the largest impact that all the defense effort has is a diversion of our intellectual energy and our monetary resources away from trying to solve and address some of the long-term problems. What we really need to do is change our ways and change the energy path that we are on and get our energy resources in a different*

way." For the time being, unchecked climate change trumps nuclear power as the greatest threat to the natural world.

12. Where would you like to see the scholarship of war and the natural world go from here? Are there specific topics that you feel call out for a closer look?

This is easily the hardest question to answer. As "academics," our first step in writing the film script was to review the "scholarly" literature on war and the environment. What we found—to say the least—did not suit our purposes. War and the environment have tended to be regarded in separate boxes. War has been studied extensively. Its precipitating factors, causes and consequences, sociological and psychological underpinnings have been extensively analyzed and recorded. Somewhat less scholarly attention has been accorded the environment. And studies of the impact of war on the environment are rare. But environmental studies have recently taken on new life, with increasing public awareness about the enormous impact of the growth in human numbers and the threat of ever-increasing consumption of natural resources (particularly in rich countries) on our way of life (Day and Day). Interest in the disciplines of demography and ecology has burgeoned, along with an increase in such existential questions not previously considered so urgent as: whether there are limits to earth's capacity to serve as a habitat for humans, animals, and plants; and whether human activity is the primary cause of the observed warming of the earth's atmosphere.

What has been largely lacking, but is now beginning to be addressed, are studies that connect these two bodies of literature and their central issues: studies that ask how war and preparations for war affect ecosystems and the eco-services on which all organic life depends (UNEP Post Conflict Assessment Monographs); and conversely, that ask how natural conditions, such as rainfall, soil quality, abundance or scarcity of food, and the availability of wood bear upon relationships between people with common interests in these eco-services (Ali), whether they facilitate peace and diplomatic relations or bend toward conflict). In applied terms, such an approach might help to end the traditional compartmentalization between organizations whose main concern is peace-building and organizations whose main concern is preserving and protecting nature.

What sorts of specific questions might produce constructive information and greater understanding of the connection between these two huge and complex areas of research? Here are a few suggestions. Some may already be underway. All will require new ways of thinking about traditional subjects.

1) We need to study patterns in the connection between war and the environment on a global basis. A useful beginning would be a holistic analysis of the UNEP Post Conflict Assessment Programme monographs, seeking to find patterns that apply across the board in countries with very different social systems and natural conditions -- looking, in particular, for lessons from an environmental perspective that could provide a guide to reducing conflict and building peace.

2) We need to examine the impact of intentional destruction by violent means from the perspective of those most affected. For example: studying specifically how lives are wounded by the environmental damage of war. What is the effect on individuals of destroying the place where they and their family have made their home? How does that affect personal identity, health, values, attitudes toward the perpetrators? How does it affect the way one acts as a parent, teacher, citizen? How does it affect school performance, problem-solving, one's capacity to cope with stress? Can we, as inhabitants of a world that is shrinking and providing less and less space between individuals, afford to knowingly jeopardize the health, human potential, and character of any of its residents?

3) We need to study the phenomenon of the widespread indifference of our species to clear evidence of declining natural resources and scientific warnings about the unsustainable nature of our current ways. Why do we continue down the road to ruin? Why do we give war a pass to wantonly destroy our habitat when the earth is already staggering under the weight of human numbers and our ever more destructive patterns of consumption? In the film, Lester Brown warns of "Over-shoot and Collapse." Over several decades, he has been accumulating data showing that the ecosystems on which we depend for life are faltering, that "Time is Running Out." We have all the scientific data we need about our peril. What is missing is why so-called "homo sapiens" (wise man) continues to collude in his/her own destruction.

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