The Military Commander's Responsibility for the Environment

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I. Introduction.

To argue for environmental protection in wartime may sound ludicrous. Commanders have immense and heavy responsibilities. They must try to achieve victory, protect their soldiers, and protect noncombatants. Why should they concern themselves with protecting a forest, wetlands, or a species of fish when they are fighting for the survival of their unit or nation? Indeed, on the surface, it seems to be an inconsequential, unimportant, even irrational question. We might well question the moral and military sanity of a commander who endangers his troops to protect the environment. But the question is neither inappropriate nor insane. There are important, well-established moral reasons why commanders ought to do what they can to prevent or limit environmental damage, reasons which I think most commanders would find morally compelling.

The military commander usually views the environment as a resource to be exploited for tactical, strategic, or economic reasons. Actual military operations cause tremendous damage to ecosystems, and little consideration is given to conducting military operations in a way that minimizes environmental damage. This lack of consideration is caused, at least in part, by the absence of any clearly articulated, compelling moral reason for taking positive steps to limit damage. While the literature is replete with descriptions of damage done, moral arguments for limiting damage have not been fully explained.[1] My purpose in this paper is to provide one such argument. I will argue that all military commanders have responsibility for the environment in both peace and war. Peacetime responsibilities are founded on the commander's professional responsibility as an agent of the state. Wartime responsibilities stem from

the well-established prohibitions against harming noncombatants and destroying works of art and objects of historical or cultural value. I shall assimilate the natural environment to both the class of noncombatants and to works of art. If I am successful, all the generally accepted arguments for protecting noncombatants and cultural features and artifacts can be brought to bear on behalf of the environment.

My objective in this essay is to create a work of normative ethics that is philosophically sound, convincing to the military professional, and capable of being translated into actions achieveable by soldiers faced with deadly combat. To meet this objective, I explain why commanders ought to consider the environment valuable, compare the environment to a work of art, list the commander's peacetime responsibilities, explain how international law supports a military environmental ethic founded on noncombatant rights, show how the environment both resembles noncombatants and is essential to the well-being of noncombatants, suggest how commanders might limit environmental damage in war, and, finally, attempt to resolve the problems posed by military necessity. By showing how the environment is like noncombatants and valuable cultural artifacts, I can show how existing military law and procedures can be extended to include protection of the environment.

II. Why is the environment valuable?

Proving the environment is valuable is a difficult philosophical task. Westing summarizes the basic lines of argument:

> Whereas concern for ecological disruption during warfare may to some appear misdirected or even callous, especially when such disruption appears to be in partial substitution for human destruction, it can be justified on a number of grounds. First, it is in the long-run self-interest of the human race

> to protect the natural environment from which it ultimately derives its sustenance. Second, all living things deserve a measure of respect and protection in their own right. Third, an exposition of environmental damage associated with weapons of mass destruction might serve to bolster the argument to control their use, especially so in the light of today's growing environmental awareness. And fourth, a concern over ecological consequences of war does not preclude the direct traditional human concerns. It may, in fact, enhance such concerns via a civilizing influence and also perhaps by awakening a wider public to war-related concerns.[2]

Westing is suggesting that the environment is valuable for two reasons. First, he thinks the environment is valuable insofar as it contributes to human well-being (his first, third, and fourth justifications). I will call this reason the utilitarian argument. Second, he thinks the environment is valuable in its own right, apart from its utility to humans. I will call this reason the inherent worth argument.[3] These two reasons are generally similar to the moral theories of Mill and Kant.

The utilitarian argument holds that the environment is valuable insofar as it contributes to human happiness. Happiness is variously defined, although classical utilitarianism defines happiness as the absence of pain and the presence of pleasure. Under utilitarianism environmental protection becomes a function of human welfare. Any decision to destroy or protect a part of the environment will be made (ideally) by considering how much happiness the action will provide <u>all</u> those people affected by it. A comprehensive utilitarian calculation, in the context of a particular war, would have to take into account all persons

affected by the action, including future generations. A utilitarian foundation for environmental value means that a commander would have to take into account all persons affected by his decision--friendly, enemy, neutral, combatant, noncombatant, present and future generations. In reality, most utilitarian calculations in warfare are skewed.[4] One's own civilians and soldiers are valued; enemy civilians and soldiers are undervalued.

A utilitarian foundation for environmental worth brings in the problems associated with utilitarianism. In actual practice, utilitarian decisions in the realm of environmental protection are often merely justifications for the short-term economic (or military) gain of a few persons. Because utilitarianism depends so heavily on assigning quantifiable value to human beings, non-human entities, and to abstractions such as aesthetics, utilitarianism is especially vulnerable to manipulation and perversion by the unscrupulous. Even well-intentioned utilitarians can devalue the environment to the point where almost any environmental damage becomes acceptable. Finally, it is difficult to know what the consequences of one's actions will be.

The inherent worth argument holds that the environment does not derive its value or worth from its value or worth for human beings; rather, it is valuable in its own right. The environment would be valuable whether or not humans existed. I would like to argue for the inherent worth of the environment, because I think that we must consider the environment as inherently valuable if it is to be given serious consideration in war. This is my argument:

1. Things which have value have it either inherently or extrinisically (or both).
2. Endangered species are generally considered to have great value.
3. This value is not extrinisic. A short review of some of our efforts to save endangered species provides prima-facie evidence for this claim. Think about our attempts to save the California condor, the American

chestnut, sea turtles, or the humpback whale. Why do we do this? It is certainly not an utilitarian argument which marshalls thousands of people and millions of dollars to save a species which few have ever seen and which will have no input whatsoever on the quality of their lives. We must want to save species for their inherent worth. Think about our views towards extinct species like the passenger pigeon, or the Tasmanian tiger. We think it a great loss that these species are gone. Why? Again, no utilitarian argument can establish in any meaningful way that we are worse off because these species are gone. We mourn their loss because we think them to have inherent worth.

4. Endangered species must have inherent worth.
5. If endangered species are inherently valuable, then all species are inherently valuable.
6. If all species are inherently valuable, then the environment which sustains them must be inherently valuable.
7. All species and the environment are inherently valuable.

Therefore, if all species and the environment have inherent worth, then persons (those capable of affecting or destroying the environment) should do what they can to protect them.

There are other arguments for the inherent worth of the environment and its inhabitants. This worth may depend upon the uniqueness of a species. It may depend on the fact that a species took millions of years to evolve. It may come from the possibility that every organism and every natural process and substance is a manifestation of a divine presence. It may come from the beauty and sense of order and balance we perceive in the natural world. I think that any one of these reasons is sufficient to give inherent worth to the environment and its inhabitants; I have given one possible argument.

Comparing the environment to a work of art can provide another argument for the value of the environment. There is a long tradition of protection for cultural artifacts such as buildings, monuments, museums, churches and pieces of art. This tradition extends back to antiquity.[5] Modern international law includes respect for art:

> In sieges and bombardments all necessary measures must be taken to spare, as far as possible, buildings dedicated to religion, art, science, or charitable purposes, historic monuments, hospitals, and places where the sick and wounded collected, provided they are not being used at the time for military purposes. It is the duty of the besieged to indicate the presence of such buildings or places by distinctive and visible signs, which shall be notified to the enemy before hand.[6]

The reasons for protecting works of art are obvious. Art is considered to have both instrumental and intrinsic value. Its destruction usually affords no military advantage, and art is somehow considered the common property or heritage of mankind. It seems clear to me that the environment has all of these characteristics. We think the natural world is beautiful, literally a work of art, created by nature. But we can do much more than draw an analogy. The natural world has become, through man's activities, man's object:

> The awareness that we are slowly into now is that the earthly wildness that we are so complexly dependent upon is at our mercy. It has become, in a sense, our artifact, because it can only survive by human understanding and forbearance that we now must make. The only thing we have to preserve nature

with is culture. The only thing we have to preserve

wildness with is domesticity.[7]

Like it or not, we are now effectively in charge of nature. The earth has almost become another piece of man's art. And, just as we want our man-made art to be the best possible, we should want the nature-made art which is now ours to care for to be the best possible. Therefore, we should extend the protection we afford art in war to the environment.

Valuing the environment as we value a work of art has two advantages. It agrees with deeply held intuitions, and enables us to derive rules of conduct. Think of the way museum operators handle works of art being transported from one museum to another. They are using the work of art as a means of bringing aesthetic pleasure to people. Yet, because of the intrinsic value we assign to art, they take extraordinary measures to protect the art during transportation, storage, and display. If we view the environment as an entity that is a unique, inherently valuable, and capable of providing immense value to the present and future generations, we have an excellent foundation for a military environmental ethic.

What, then, can we say about the value of environment? We can say the same thing we say about the value of individual perons. We generally say that people have inherent worth, even though we cannot provide completely satisfactory arguments for the foundation of this worth. We act as if inherently worthy persons have rights; we try to protect rights; we erect moral and legal systems upon an unproved theory of rights; we demand that our soldiers respect and protect rights.

If we think that the environment is valuable, then the military commander has two types of responsibilty for the environment. First, the commander has the resposibility of any moral agent. Second, he or she has professional responsibility for the environment. I will argue that environmental protection

is a subset of military professional ethics. It is this professional responsibility that will be my concern in this paper.

I shall divide the commander's professional responsibility for the environment into two parts, analagous to the commander's more generalized responsibility. First, the commander has responsibility during peacetime.[8] Second, he has a different, more complicated set of responsibilities in wartime.

III. The commander's responsibilities in peacetime

I think it important to realize that the military commander's task in peacetime can be complex. The commander of a base, for example is a combination of a mayor or governor, a corporation head, and a military leader. He is not solely the commander of a military unit. In addition to strictly military responsibilities, the commander has civil responsibilites.

Peacetime responsibilities for the environment are similar in many ways to the responsibilities of any elected or appointed government official. The armed forces control vast amounts of land in the United States and in other countries; some of it is ecologically fragile or unique. Many military installations resemble towns or cities. Like any good mayor or city manager, the commander must carefully protect the land entrusted to his or her care. This means that the commander must attend to environmental issues related to air and water quality, to waste and sewage collection and disposal, electrical generation, recycling, storage and disposal of hazardous substances, wildlife management, harvesting of timber and extraction of minerals, grazing rights, shoreline protection, soil and water conservation, and a host of other environmental issues.[9]

But this is only part of his responsibilities. Unlike civilian counterparts, the military commander must use the land, sea, and air to train his troops. Every commander has a professional and a moral responsibility to train his

troops well. It is impossible to conduct effective training without practicing combat operations on actual terrain or waterways.

Training damages the environment. It can result in the destruction of vegetation and habitats, forest fires, soil erosion, pollution, and loss of wildlife. Sometimes this damage is short-term and the ecosystem quickly recovers; but often the damage is long-lasting or even permanent. A good commander must be concerned with both short-term and long-term damage.

The professional problem becomes one of reconciling two sets of activities which can be mutally exclusive. I propose the following maxim: The commander should train his troops, and he should damage the environment minimally, and only when no other method of training can be substituted. Paradoxically, a commander who is compelled to limit his training options is likely to conduct more carefully planned and executed training. Imposing environmental limits can cause the commander to derive maximum training value from non-environmentally damaging activities. When the environment is used, (when units "go to the field") imposing limits forces the commander and his subordinates to be more aware of terrain, vegetation, boundaries, map-reading and land navigation--all useful military skills.

Commanders can conduct a wide variety of effective training that has minimal or no environmental impact.[10] However, some training which can damage the terrain must be conducted. (I am also using "terrain" to mean airspace and bodies of water.) When terrain is required, commanders should select terrain that is not especially sensitive. Always, commanders should train in a way that minimizes damage. They should give special attention to wheeled and tracked vehicles, which should be restricted to land that will not be permanently damaged, and used during seasons of the year when the soil is not especially vulnerable to damage. Any cutting of trees or other vegetation should be controlled.

If soldiers need timber or plant material for military construction or camouflage, previously cut (and reusable) timber and artificial netting should be used. Wanton or clearly unnecessary destruction of plants or terrain and the killing of wildlife must be prevented. Commanders must insure that fuels are not spilled or intentionally dumped and that hazardous substances (waste oil, unused propellants, ammunition, contaminated fuel) are properly disposed of. Finally, after the training, commanders must repair environmental damage. This could include planting trees and ground cover, filling in fighting positions, stabilizing eroded areas, removing contaminated soil and trash, cleaning up fuel spills, and conducting research activities.[11]

The German Army in World War II serves as an excellent historical precedent for the compatability of highly effective training and real protection of the environment.[12] The Germans used garrison training areas near towns for as much individual training as possible. Their larger field training areas, used for unit manuevers, were carefully managed. They were usually located on land unsuitable for agriculture; however, much of the land had to be cultivated to prevent food shortages. These cultivated areas helped make the training more realistic. Commanders at these areas were responsible for limiting crop damage and preserving forested areas. Large training exercises were held in the fall to prevent damage to crops and soil erosion. Because they were forced to train a very large army in a very small area, the Germans developed training methods which were gentle on the land. To this day, the Germans are very effective at limiting environmental damage in their training areas.

This is a summary of the commander's peacetime responsibilities:

1) Site and operate bases and other facilities in an environmentally safe way.

2) Design and operate industrial operations (weapons production facilities,

maintenance plants, laundries, sewage treatment plants) that are nonpolluting.

3) Carefully safeguard and control especially hazardous materials or weapons.

4) Conduct peacetime training in a manner compatible with environmental preservation.

5) Take appropriate steps to protect species.

6) Continually identify and repair environmental damage.

7) Comply with appropriate local, state, and national laws.

8) Create and train appropriate staffs to assist them in their environmental responsibilities.

9) Train soldiers to protect the environment.

10) Enforce environmental laws with an appropriate system of education, reward, and punishment.

These peacetime responsibilities would also be applicable to fixed installations in rear areas of combat zones, as well as fixed installations in foreign countries.

My discussion of the commander's responsibility in peacetime has not included a discussion of the military's role in purely civil environmental projects, such as the construction or management of hazardous waste storage facilities. Although this is an interesting subject, I think such activities are encompassable within existing moral arguments. I want to restrict this paper to environmental problems that typical military commanders face. I will now turn to a discussion of environmental problems during war.

IV. International law and the prevention of environmental damage during war.

International law has not been silent on the environmental effects of military activity. In fact, there is a long tradition of limiting environmental damage, a tradition explicitly expressed in some of the most important documents of

western civilization.

One of the first admonitions against needless environmental destruction is in the Old Testament. We are commanded not to use fruit trees for military construction; only non-food producing trees are to be used.[13] In the Republic, Plato tell us that Greeks "will not ravage the country or destroy the houses."[14] Now, both of these orders are limited in scope--the Biblical injunction applies only to cultivated trees, and the Greek rule only applies in wars with other Greek city-states. Both are anthropocentric. The general maxim appears to be this: "Do not destroy food-producing plants, because they are useful to man."

The first comprehensive argument for limiting military damage to the environment was made by Hugo Grotius (widely regarded as the father of international law) in The Law of War and Peace, published in 1625. This remarkable book contains a clearly articulated set of moral rules for military commanders, rules intended to limit or prevent damage to the environment. Grotius' work should be the link between traditional thinking and writing on just war and more modern just war theories.

The Grotian view is undoubtedly anthropocentric and utilitarian. Grotius did not seem concerned with the "natural" environment. His concerns seemed to have extended only to plants and animals used in agriculture, and manmade objects such as buildings and monuments. While he permits destruction of the environment if it "compels the enemy to sue for peace in a short time," he imposes severe restrictions on what is permitted.[15] The essence of the Grotian view is that any damage to the environment must facilitate victory and must be avoided whenever possible. He argues that it is clearly in the best interest of the attacker to limit damage as much as possible. He proposes five principles: First, don't destroy anything in areas you occupy and the enemy does not. Second, don't destroy anything if it appears that victory is likely and imminent.

Third, don't destroy anything the enemy can obtain from somewhere else. Fourth, don't destroy anything that the enemy cannot use to wage war. Finally, manmade objects--what he calls "sacred things" or "consecrated things"--are to be treated in accordance with his first four principles.

Grotius was not an absolutist. His theory does allow for direct attacks on crops and direct attacks on the land. But Grotius is not permissive. His theory demands careful consideration before any damage is done, and his theory implies a presumption against environmental damage. He clearly rejects wanton environmental violence. His thoughts on the intentions of those who destroy the environment during war bear repeating:

> Nevertheless, if you examine the matter aright you will find that such depredations are ordinarily committed from motives of hatred rather than from considerations of prudence. It usually happens either that those conditions which justify devastation are lacking or that there are other more cogent reasons which advise against it.[16]

Although Grotius is clearly a key element in any military environmental ethic, much work still needs to be done. Grotius dealt with limited wars and limited damage. His "cogent reasons" are far more pressing in our time than in his; it is these we must examine in detail.

One of the most significant modern statements about war and the environment is contained in the Convention On The Prohibition of Military Or Any Other Hostile Use Of Environmental Modification Techniques. According to this Convention, known as the Enmod Convention of 1977, (which entered into force on 5 October 1978) signatories agree "...not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any

other State Party." The Convention defines environmental modification techniques as "any technique for changing-through the deliberate manipulation of natural processes--the dynamics, composition or structure of the earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space."[17] The Enmod Convention intends to prevent activities such as rainmaking, or the deliberate initiation of earthquakes, tidal waves, or hurricanes. Now, the Enmod Convention is more valuable for the intuition underlying it than for what it actually prohibits. Few military commanders have both the ability and the desire to use environmental processes as a weapon. Most of the activities outlawed are not possible given current technology; the Convention should, however, cause us to think about what technology will enable us to do in the future.

What is important is the implicit concept the Convention is built on. The Convention sees the environment as neutral in war. Just as neutral nations cannot be legally or morally forced to fight, the "neutrality" of the environment must be respected. The environment itself must not be used as a weapon; it is, as it were, not involved in the war.

The most recent international legislation (expresed in Protocol (I) Additional To The Geneva Convention of 12 August 1949, signed on 12 December 1977, entered into force on 7 December 1978) on limiting the effects of environmental damage explicitly requires combatants to limit environmental destruction:

> Care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population. Attacks against the natural environment by way of reprisals are prohibited.[18]

While Protocal I does impose limits on environmental damage, the language of the Protocol is sufficiently vague and permissive enough to allow considerable environmental damage. As with the Enmod Convention, Protocol I is more interesting for its underlying presupposition than for its (important) legal restrictions. Protocol I values the natural environment for strictly utilitiarian reasons. We are requried to prevent damage only when the population of the area is directly threatened. Ecosystems can sustain tremendous damage before the physical health of the ecosystem's human inhabitants is at risk. Protocol I would do little to protect plants or wildlife; it would rule out only the most extreme forms of environmental violence. Protocol I assigns no inherent worth to non-human species. It values the environment only in the crudest utilitarian way, leaving the door open to considerable environmental damage.

It is difficult to precisely summarize a moral argument for limiting environmental damage from international law. However, there seem to be several themes or threads that run throughout; it is these traditional legal reasons which serve as a starting point for a military environmental ethic. First, the legal tradition assumes a utilitarian value for the environment. The environment is valuable insofar as it benefits man. Second, the tradition repeatedly rules out clearly unnecessary or wanton damage to the environment. Third, there is a longstanding recognition that the environment is somehow not an appropriate target, is in some way neutral, innocent, or not to blame for the war.

I find two problems with the legal tradition. The tradition has underdefined the environment, valuing man's food crops and animals almost to the exclusion of natural species. Finally, the legal tradition of limiting environmental damage is a minimalist one. Beyond very basic prohibitions, it requires commanders to do very little to prevent damage. Further development of international environmental law needs to rectify these problems.

V. The Commander's responsibility in wartime.

While peacetime responsibilities seem clear, wartime responsibilities for the environment are more difficult to describe and justify. I think commanders should limit military damage to the environment for the same reasons they limit military activity to protect noncombatants and works of art.

I think a good reason for protecting the environment can be derived from a consideration of traditional just war theory. One of the primary tenets of just war theory is that warfare is a fight between combatants. A combatant is a person who can harm you. Everyone else is a noncombatant; they pose no threat. Historically, noncombatants have included (among other groups) women and children, medical and religious professionals, and wounded, sick, or captured soldiers. The rule of noncombatant immunity, although often violated, is nonetheless an established part of our moral tradition and international law. The intuition beneath noncombatant immunity is that people have rights to life, and that these rights should not be violated. Combatants find themselves in a situation where their rights are placed temporarily at risk; everyone else's rights are to be respected as best as possible.

Now, I think the environment should be regarded like a noncombatant. First, the environment is not in the business of fighting; it poses no intentional threat to the combatants. If the environment does have "rights," then the mere fact that there is combat occurring in the midst of it does not cause the environment to lose those "rights." If the environment is like a noncombatant, a direct attack on the environment, like a direct attack on noncombatants, is morally impermissible. Second, the environment, like the noncombatant, (for the most part) did not choose to be involved in the middle of a fight.

Obviously, the environment has no ability to choose, while persons do. But do most noncombatants really have a choice in the matter of war? In most cases it merely happens; the noncombatants, like the wildlife in a region, find themselves there. If the noncombatants have not placed themselves at risk, then those who do place them at risk have some responsibility for minimizing that risk. Third, the environment is remarkably like a group of soldiers who are considered to be noncombatants. Medical and religious professionals (chaplains), although members of the military organization, are classified as noncombatants. Their function is physical and spiritual healing and nurturing, not killing or fighting. Just as they protect and foster life, the environment, if treated properly, makes possible and sustains life in the most basic way imaginable. Insofar as the environment is a nurturer or healer, it should be accorded the types of rights and considerations we grant human nurturers and healers.[19]

If we accept the prohibition against direct attacks against noncombatants, we are also prohibited from attacking the noncombatant indirectly by (among other ways) destroying food, poisioning water supplies, or flooding the land he or she lives on. Therefore, the prohibition against indirect attacks on noncombatants entails a prohibition against direct attacks on the environment that will result in harm to noncombatants. It seems that noncombatant immunity carries with it significant responsibility for protecting the noncombatant's environment.

Just as we reject direct attacks on noncombatants, we ought to reject direct attacks on the environment. Is wanton environmental destruction, gratuitous killing of wildlife, or thoughtless damage of forests and croplands really a tactic we want to employ? Consider the use of Agent Orange in Vietnam:

> The use of herbicides raises important environmental questions. Does the United States wish to be identified

> with a program which can so drastically affect environmental balances where it is used? Some of the forests of South Vietnam have been seriouly damaged by the use of herbicides. I believe it is a fair assumption that the national security is not only involved with physical security but also embraces the democratic and ethical concepts which form the basic raison d'etre of the nation. It is important that the tactics used by the nation to preserve its security not come into conflict with the basic concepts which these tactics seek to secure. It is contrary to the broader meanings of the U.S. national purpose to perpetuate the use of tactics such as crop destruction in warfare.[20]

When we fail to take into account the environment, even in combat, we are departing from the basic concepts and values that ought to underlie our very existence as a nation. Certainly, we should hold respect for human rights and a consideration of future generations as basic American values. Is it morally right for us to fight using means that violate national ideals? I think not. We ought not to use methods of warfare that we would consider unjust if used against us.

VI. A plan for environmental protection in war.

Given these moral reasons for protecting the environment, commanders must take positive steps to prevent or limit environmental damage. It is more

difficult to specify what a commander should do in wartime than what he should do in peacetime. Clearly, "a commander is not only responsible for protecting the rights of civilians, but also for protecting the rights of soldiers, to ensure that they are only exposed to due risk."[21] The military commander in combat has an immensely difficult task. He must fight to win while protecting the rights of noncombatants and preserving the lives of his soldiers. Adding responsibilities for the environment imposes a tremendous additional burden on an already overtaxed commander.

But not all commanders are equally burdened. Commanders at higher levels have the time and information to think through the environmental effects of their actions. Even commanders at the lowest organizational level can take positive steps to prevent environmental damage. I will divide this responsibility into three parts: global responsibilities, strategic responsibilities, and tactical responsibilities.

Global responsibilities are the responsibilities of commanders at the highest national level. At this level, commanders must understand the global environmental effects of warfare. They must take into consideration essentially two considerations: the results of nuclear warfare, and the long-term cumulative effects of non-nuclear warfare. In planning and conducting wars, they must not use methods or weapons that have the potential to devastate large regions of the biosphere. I think one consequence of a military environmental ethic is an absolute prohibition on nuclear warfare. It is interesting to note that there seems to be a real understanding among national leaders that nuclear war really will damage the environment. The nuclear test ban treaty of 1963, which prohibited atmospheric testing of nuclear weapons, states that the parties wanted to "put an end to the contamination of man's environment by radioactive

substances."[22] This treaty has been, for the most part, honored, although underground tests have continued. Atmospheric nuclear testing has been an environmental mistake; nuclear war, even limited nuclear war, would be environmental suicide.

Strategic responsibilities are the responsibilities of commanders who plan and conduct campaigns which are part of a war. These commanders must take strong positive steps to limit environmental damage. They must plan campaigns with avoiding damage in mind. For example, they should avoid, if at all possible, especially fragile areas. They should prohibit mass destruction of the land (such as the U.S. use of Agent Orange in Vietnam) as a method of warfare. They must make their subordinates aware of the environment, and they must issue orders prohibiting damage. They must continually assess the effects of their campaigns on the environment. Finally, they must insure that positive steps are taken to heal environmental damage in areas they conquer and occupy. This may include entering into limited truces and agreements with enemy forces, organizing captured enemy soldiers to restore damaged land, using their own resources to repair damage, and supporting environmental researchers in occupied lands.

At the tactical level, or at the level where fighting actually occurs, the commander's task is most difficult. It is unreasonable to ask soldiers in actual combat to take extraordinary measures to protect the environment. There are, however, measures that combat commanders can and should take. First, they need to prevent environmental vandalism. They must strictly prohibit purposeless environmental damage. Second, they need to take what steps they can to protect the environment. This could include measures such as not using incendiary munitions, requiring soldiers to control and limit their weapon's effects, paying attention to at least minimal environmental consideration during

combat construction of positions and bridges, preventing poaching, and avoiding when possible fragile or easily damaged terrain. They should practice good control over munitions--minefields should be properly marked and recorded, and they should not abandon ammunition. Finally, they need to be especially careful about the "human" environment. They must respect croplands and domestic animals; they must not pollute or destroy water resources; they must not destroy dams or attack facilities, such as nuclear power plants, which could release hazardous substances.

Just as the German Army in World War II provides us an effective historical precedent for protection of the environment during training, the Allied effort to protect works of art during combat in World War II provides us an example of what a military effort to protect the environment would look like.[23] I would like to stress that military commanders can prevent damage--if they want to, and if they organize their forces properly.

As a part of the military government in Europe during World War II, the American Army assembled a group of staff officers (known as Monuments, Fine Arts, and Archives Officers) who were made responsible for identifying, locating, protecting and providing limited restoration for works of art, churches, monuments, archives, libraries and other entities of cultural or historical importance. These officers, many of whom were professionals in the fine arts, architecture or related fields, were instrumental in saving or limiting the damage to many works of art. The program was effective because it was mandated by President Roosevelt and supported by his highest commanders: General Marshall and General Eisenhower.

Monuments Officers served as special staff officers at high levels. They provided maps marked with the location of art works to subordinate commanders.

Combat units, aware of the location of works of art, were often able to avoid damaging them. The Monuments Officers provided advice to commanders, and they worked with local officials in Italy and France to preserve damaged structures and to prevent looting and vandalism. They assisted local officals in obtaining funds and other resources needed for repair or restoration, and they helped recover stolen items.

Several significant facts emerge from this experience. First, high ranking military commanders took the program seriously and supported it. Second, once soldiers were educated and made aware of the value of the objects in their path they were more considerate of them. Third, had the program been implemented earlier (say in 1939) it would have been more effective. Finally, aerial bombardment seems to have been the biggest source of damage.

A environmental protection program, following the same general principles of the World War II art protection program, could immensely reduce the damage done to the ecosystem by war.

VII. Military Necessity.

Should commanders risk the lives of their troops to protect the environment? Ideally, a commander would want to both save his troops and protect the environment. But how is he to resolve legitimate conflicts between these two values? I shall answer this question by placing the range of possibilities on a continuum. By marking our four points on the continuum, I hope to specify the amount of risk commanders can morally impose on their soldiers.

First, commanders could completely discount the environment, valuing their solider's lives absolutely. I will call this the Vietnam position. The use of Agent Orange, combined with massive land clearing and heavy bombardment, caused so much devastation that noncombatants were directly affected. This position

is clearly untenable. It does not take into account even minimal respect for the environment, and consists of an indirect (and sometimes direct) attack on noncombatants.

I will return to the American efforts during World War II to protect works of art to designate the midpoint of my continuum of risk. Eisenhower's instructions are significant:

> If we have to choose between destroying a famous building and sacrificing our own men, then our men's lives count infinitely more and the buildings must go. But the choice is not always so clear cut as that. In many cases the monuments can be spared without any detriment to operational needs. Nothing can stand against the argument of military necessity. That is an accepted principle. But the phrase "military necessity" is sometimes used where it would be more truthful to speak of military convenience or even of personal convenience. I do not want it to cloak slackness or indifference.[24]

I shall call Eisenhower's view the standard military view. The standard military view, if applied to the environment, is certainly an acceptable position. It requires commander's to exercise due care and plan carefully. I do not think, however, that it says enough about risk. The standard military view merely requires commanders to be aware and competent. This is not an insignificant requirement, and if it were actualized, would reduce tremendously the amount of damage done to the environment. It also permits considerable environmental damage.

I would like to propose a position that is somewhat more demanding than the standard military view. If we accept the view that the environment and its inhabitants all have inherent worth, then we need to give genuine consideration to the well-being of all--plants, animals, and persons. In addition to exercising due care I think commanders should take at least minimal risks with their soldier's lives to protect the environment. The amount of risk he should allow is difficult to specify, and is situationally variable. Each commander will have to decide in each case. When he decides, the commander must weigh his moral responsibilities to achieve victory, protect his soldiers, and protect noncombatants.

Finally, commanders could take extraordinary efforts to protect the environment, sacrificing their soldiers lives in the process. This position seems to me to be both immoral and irrational.

VIII. Conclusion.

In this paper, I have explained why commanders ought to limit military damage to the environment, and I have suggested how they can do it. I have, essentially, proposed a way to tolerate an inherently earth-destroying activity--war. Even if every commander diligently followed my plan, warfare would continue to assault and destroy the ecosystem. However, since it seems likely that wars will continue, I hoped to argue for a way of limiting the worst effects of war on the environment.

In reality, we can no longer tolerate the damage done by war. The present global environmental situation is frightening. The depletion of the ozone layer, the global warming trend, acid and toxic rain, massive deforestation, soil erosion, loss of species, and pollution of every kind are all interlocking problems which are degrading the quality of our lives and may threaten the very survival of future generations. We are rapidly becoming a nonviable species. We need to evolve beyond conflict to cooperation, beyond war to peace, beyond artificial political boundries to bioregions. Unless we can perceive what the

real threats are, we are doomed to slow extinction. Until the day comes when the massive amounts of resources expended on weapons and war are redirected towards healing and preserving our shared planet, we are acting irrationally, cheating ourselves and defrauding all the other inhabitants of the earth. Surely we can do better than this.

Notes

* I would like to thank Captain Wayne Mastin, Major Gary Coleman, and Major Paul Christopher for their help in preparing this article.

[1] For information on the environmental effects of warfare, see the following works: Julian Perry Robinson, The Effects of Weapons on Ecosystems (Oxford: Pergamon Press Ltd., 1979); Arthur H. Westing, Weapons of Mass Destruction and the Environment (London: Taylor & Francis Ltd., 1977); Arthur H. Westing, Ecological Consequences of the Second Indochina War (Stockholm: Almquist & Wiksell, 1976); Frank Barnaby, Warfare in a Fragile World: Military Impact on the Human Environment (London: Taylor and Francis Ltd., 1980); Arthur H. Westing, ed., Herbicides in War: The Long-Term Ecological and Human Consequences (London: Taylor & Francis Ltd., 1984); Robert H. Webb and Howard G. Wilshire, eds., Environmental Effects of Off-Road Vehicles: Impacts and Management in Arid Regions (New York: Springer-Verlag, 1983).

[2] Westing, Weapons of Mass Destruction and the Environment, p. 1.

[3] Paul W. Taylor, Respect for Nature (Princeton: Princeton University Press, 1986), p. 75. I am borrowing the term "inherent worth" from Taylor. Taylor develops an environmental ethic from a Kantian moral system.

[4] Just and Unjust Wars (New York: Basic Books, Inc., 1977), pp. 129-133. Walzer explains the limitations of utilitarian calculations in wartime contexts.

[5] Hugo Grotius, The Law of War and Peace, trans. Francis W. Kelsey, Arthur E.R. Boak [and others]. (Indianapolis: Bobbs-Merrill, 1925) pp. 751-756. For an explanation of Grotius' role in international law see "The Grotian Moment" in International Law: A Contemporary Perspective, ed. Richard Falk, Friedrich Kratochwil, and Saul M. Mendlovitz (Boulder, Co: Westview Press, 1985).

[6] Josef Goldblat, Arms Control Agreements (New York: Praeger Publishers, 1983) p. 122. (Annex to Hague Convention No. IV, October 18, 1907, Article 27).

[7] Wendell Berry, "Preserving Wildness." Wilderness, Vol. 50, No. 176, Spring 1987, p. 50.

[8] Carl F. Cranor, "Collective and Individual Duties to Protect the Environment," Journal of Applied Philosophy, Vol. 2, No. 2, 1985, pp. 243-249. Cranor presents a theory of environmental responsibility for both the individual citizen and the leader. I think his discussion of the responsibility of leaders is correct, and entirely appropriate as a general description of the military commander's moral responsibility for the environment.

[9] See "Maintaining Defense Efficiency with Minimal Impact on Man and Environment.' Commander's Digest, Vol. 19, No. 23, November 1976, pp. 3-8. The Department of Defense has committed itself to a high degree of environmental protection. See also, "Installation Commanders' Responsibilities for Hazardous Waste." Army Logistician, Vol. 18, No. 4, July - August 1986, pp. 11-14.

[10] They can use classes, map exercises, command post exercises, computer simulations and terrain walks to train themselves and their staffs. To train soldiers in the operation of weapons and equipment, commanders can use a variety of simulators and devices which teach the soldier how to use the equipment or weapon without actually driving a vehicle or firing ammunition. For example,

instead of actually live firing mortars and artillery pieces, devices which fire a smaller, less explosive sub-caliber round or a beam of light can be used.

[11] Sergeant First Class Michael Brown, "Unlimited Protection Plan." Soldiers, Vol. 41, No. 7, July 1986. The U.S. Army purchased a 244,000 acre training site in Pinon Canyon, Colorado in 1983. In order to minimize environmental damage, training is limited to certain times of the year. Only certain portions of the site are used. Each site is used for three years and allowed to rest for two. In addition to minimizing damage, the Army is reseeding 23,000 acres with native grasses. This is the type of program I am arguing for.

[12] Record Group 242, (National Archieves Collection of Seized Enemy Records, 1941-) "German Training Methods." pp. 38-39. For a recent summary of their protection efforts, see "Bundeswehr and Environment." Focus on Germany, 2/86. (Press and Information Office of the Federal Government, Welekerstrasse 11, 5300 BONN 1.)

[13] Deut. 20: 19-20.

[14] Plato Republic 471b.

[15] Grotius, The Law of War and Peace, p. 746.

[16] Grotius, The Law of War and Peace, p. 746.

[17] Goldblat, Arms Control Argeements, p. 194-195.

[18] Goldblat, Arms Control Agreements, p. 203.

[19] Plato's words bear repeating: "...if either party ravages the land of the others and burns their houses, this is considered an outrage and both parties unpatriotic, for if they loved their land they would never ravage it, their nurse and mother...." Republic, 470d.

[20] L. Craig Johnson, "Ecocide and the Geneva Convention." Foreign Affairs, Vol. 49, No. 4, July 1971, pp. 718-719.

[21] James M. Dubik, "Human Rights, Command Responsibility, and Walzer's Just War Theory." Philosophy and Public Affairs, Vol. 11, No. 4, Fall 1982, p. 370.

[22] Goldblat, Arms Control Agreement, p. 143.

[23] Harry L. Coles and Albert K. Weinberg, Civil Affairs: Soldiers Become Governors (Washington, D.C.: Department of the Army, 1964) pp. 84-90, 413424, 860-876.

[24] Coles and Weinberg, Civil Affairs, p. 417.