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The Environmental Effects of War

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Through the process of evolution, human beings have become the most advanced animals on the planet. The goal of evolution is to allow animals to be better adapted to their environment. Through humans, a new level of evolutionary adaptation has been achieved. Metropolises have been built, governments established, and vast technologies developed. All of these advances in human society are designed to better the survival of the human species. Humans have learned to organize themselves into different countries based on ideals, religions, geographical boundaries, and morals. Throughout history, humans have disagreed as a result of these differences in borders, values, and heritage. In extreme cases, war has resulted because of these differences.

Wars have been fought for many different reasons from religion to money. In the end however, war always results in the same thing--destruction. In the aftermath of war, the focus is always on the loss of human life, the destruction of property, and the great financial burden. There is a silent victim of war, however--the environment. The death and destruction of the environment, the Earth's natural resources, and its

inhabitants are almost always overlooked. One has to wonder what price the environment has paid as a result of modern warfare and what the effects of this destruction are on humankind.

Through a historical analysis of environmental destruction as a result of modern warfare, one can observe the moral and social ramifications this war on the environment has produced. Additionally, by evaluating the issue from theological, philosophical, and scientific perspectives, one can determine what steps have been and need to be taken in order to protect the environment from human violence. As horrible as war is, the death toll of any modern war will seem insignificant compared to the loss suffered by the environment if the Earth continues to be destroyed by modern weapons and warfare. In order for the human species to continue to survive, the environment must be protected.

To morally evaluate the toll war has had on the environment, one must first examine the history of this issue. Through a careful analysis of the recent history of warfare, one begins to see a pattern of environmental destruction. Environmental destruction does not begin with recent wars, "The first fireball flung at the first enemy, in prehistory, probably began it all" (Davis 203). Throughout history, armies have burned enemy crops and fields, rivers have been dammed, and water supplies have been poisoned, all in the name of war. There are even instances of this destruction seen in the Bible, "the story of Samson and Philistines...tells of...direct environmental

destruction. Samson burned crops, vineyards, and olive trees belonging to the Philistines” (Lanier-Graham 3). During the scouring of the ancient city of Schechem, Abimelech ordered his soldiers to sow the ground with salt, thus making the ground infertile (Judges 9:45). Genghis Khan was able to conquer Medieval Baghdad, one of the most advanced civilizations of its time, simply through the destruction of the city’s water supply (Lanier-Graham 5). Ancient warfare went beyond the simple tactics of crop destruction and the destruction of natural resources. Instances of ancient chemical warfare were seen in India around 2000 B.C., the Peloponnesian War, and Constantinople in 674 (Lanier-Graham 4). During the siege of Kaffa by the Mongols in the 1300’s, biological warfare was used. “The Mongols catapulted bodies of people who had died from the plague over the walls of the cities” (Lanier-Graham 5). These acts of chemical and biological warfare were used to not only destroy human lives, but had long term affects on animal life, plant life, and water systems. Chemicals and biological agents would make their way into the natural system destroying life at every level. These early instances of environmental destruction as a result of human warfare demonstrate how great the influence man can have on the environment, even with primitive weaponry and tactics.

More recently, this environmental destruction has reached more catastrophic levels. With the advancement of weapons of mass destruction to include chemical, nuclear, and biological warfare, damage of the environment has increased by massive

proportions. The first major conflict, in which this new level of environmental destruction was seen, is World War I. New weapons capable of producing terrifying results were unleashed in this bloody war. French farmland and countryside was destroyed as a result of trench warfare. The damage in some areas was so severe that the affects can still be seen today. Specifically, in the battle of the Somme, over 250,000 acres of farmland were so severely destroyed that they were deemed unfit for agriculture. Additionally, 494,000 acres of French forest were destroyed as a result of direct conflict during the war. In order to keep the allied war effort going, over 20 billion board feet were harvested (Lanier-Graham 19). European animal populations were also severely devastated by the war. The massive destruction of European forests brought the population of European buffalo, wisent, to near extinction (Lanier-Graham 20). Europe was not the only place that suffered environmental destruction throughout World War I. Surprisingly, the war had a significant impact on the environmental health of the United States. Farmers were forced to produce beyond their means in order to feed the war effort. As a result, many fields across the Great Plains were deemed infertile and the soil was void of all nutrients. Farm land spread beyond the plains and into wetlands and forests, destroying the natural habitat of many species native to North America. Finally, "timber forests in Minnesota, Wisconsin, and Michigan were destroyed to meet wartime needs" (Lanier-Graham 20). The affects of World War I on the environment were far reaching, spreading across the globe.

Unfortunately, the environment was never given a chance to heal, for World War II was right around the corner.

Although World War I had a significant impact on the environment, no toll was quite as great as that suffered during World War II. In this war, crimes on the environment went beyond the destruction of forests and the over-farming of fertile soil. Through the use of new technology, destruction was taken to an unprecedented level in World War II. The environmental effects of World War II were seen across the globe, from forest fires in the United States, to severe sand storms in North Africa. There were three regions that suffered the most environmental damage: Europe, Japanese occupied Pacific Islands, and Japan. In Europe, the environmental damage was far reaching. Norway saw the destruction of 15 million acres of property, crops, forests, and wildlife (Lanier-Graham 23). The Germans did not want to leave any resources for the allies to exploit; therefore, they destroyed anything and everything they did not use. In the Netherlands, the German Army flooded farmland with salt water in an attempt to starve the enemy into defeat, thus ruining 17 percent of the Dutch farmland (Lanier-Graham 24). The allies also exploited the environment to their advantage in the European campaign. This was most directly seen in the allied bombing of “two large dams in the Ruhr Valley...in an attempt to destroy Germany’s industrial economic base and to make it impossible for Hitler to produce any additional equipment” (Lanier-Graham 24). As a result, 6,500 livestock and 7,500 acres of farmland were destroyed.

The environmental destruction in the Pacific theatre was different than that seen in the European campaign. Instead of the destruction of farmland and livestock, as seen in Europe, entire ecosystems were destroyed. The Japanese had many military strongholds throughout the Pacific islands between Hawaii and the Japanese mainland. These islands were often isolated, and as a result were the home to very fragile ecosystems containing unique and exotic species. Many of the tactics used by the U.S. Marines on these islands had catastrophic effects on their ecosystems, "Once on the island, the Americans used flame throwers, tanks, and bulldozers, and any other means available at the time to clear the land" (Lanier-Graham 26). The environmental destruction did not end once an island was defeated. Whatever resources remained were used to for military purposes, to keep the war effort moving. For example, the building of airfields on conquered islands not only called for deforestation, but also the destruction of coral reefs. Engineers used live coral as the base for building these impromptu airfields (Lanier-Graham 27). Wildlife populations of these fragile habitats were also severely damaged. Countless species of birds were killed, and a handful even met an early extinction as a result of the Pacific campaign. Cats, dogs, and rats from other parts of the world were allowed to run rampant. These foreign species were allowed to become invasive in the fragile island ecosystems, bringing disease and overpopulation. Marine and oceanic life of the Pacific also suffered greatly throughout the war. There are numerous reports of whales being mistaken for submarines and

killed. It is estimated that there are over 220,000 pounds of mustard gas at the bottom of the ocean and countless gallons of oil spilled into the Pacific (Lanier-Graham 28). As terrible as the environmental destruction suffered by ecosystems in both Europe and the Pacific islands was, it pales in comparison to the destruction suffered by the Japanese homeland. The Nuclear Bombs dropped on Hiroshima and Nagasaki are the two single most destructive events in human history, "The heat, as intense as the interior of the sun, had turned the city to cinders, cremated every blade of grass, collapsed hundreds of structures with its awful wind, and polluted every repository of water" (Davis 208). Aside from the immediate effects suffered on the initial blasts, the environment continues to suffer from these two doomsday devices. Massive amounts of radiation were found in both the soil and water, making the land inhospitable to both plants and animals. In addition, there were considerable fires, acid rain, and massive erosion. The Japanese ecosystem is still recovering from the effects of nuclear warfare. The environment has yet to fully recover from World War II, and many wonder if it ever will.

The next major conflict that had a significant impact on the environment was Vietnam. Most of this war was fought in the jungles of Vietnam. This forced the U.S. Military to reevaluate their tactics and strategy. The Vietcong were different than other enemies the U.S. was accustomed to fighting; they utilized the surrounding jungles to engage in guerilla warfare. As a result, the U.S. military designed weapons that would

rob the Vietcong of the cover and concealment provided by the jungle. This was the first time the world had seen the use of weapons specifically designed for environmental destruction. There were two main weapons used by the U.S. in their massive destruction of the Vietnamese Jungles, Agent Orange and napalm. Agent Orange was commissioned for use in Vietnam by Defense Secretary Robert McNamara due to the fact that, "Guerrilla warfare was carried out by the Vietcong under the cover of the mangrove forest. The reasoning was that if the mangroves were removed, the enemy would lose its cover and be forced into the open" (Davis 227). In accordance with this plan, Operation Ranch Hand was created. By 1967, Ranch Hand had destroyed over 3.8 million acres of land, 1,000 peasants, and 13,000 livestock (Davis 227). Agent Orange was a deadly combination of chemicals designed to kill grass, foliage, woody species, and leave the soil too infertile to support life. The deadliest aspect of Agent Orange was the presence of the chemical dioxin. Dioxin is "one of the most lethal of all substances developed by humans and deadly not only to the person afflicted but to future generations" (Davis 226). Agent Orange was not only responsible for the destruction of plant life, but also causes death and birth defects in animals, including humans. Aside from the incredible amount of destruction caused by Agent Orange, the dropping of napalm destroyed countless acres of Vietnamese jungle. Napalm was used to destroy vast areas of jungle, in an attempt to disrupt Vietcong strongholds. For example, seventy-five to eighty percent of the U Minh forest was

destroyed by napalm (Lanier-Graham 34). Aside from new weapons of mass environmental destruction, Vietnam suffered from the conventional methods of warfare as well. Vietnamese ecosystems were devastated by the war. The deforestation of jungles caused the destruction not only of plant life, but also of the natural habitats of many animals. Due to the loss of vegetation, erosion became a problem and no plant life was able to grow in the unstable ground. Today, many parts of Vietnam are still described as looking like the surface of the moon (Lanier-Graham 37). In the Vietnam War, the world was introduced to a new kind of weapons, those specifically designed for environmental destruction.

More recently, the United States found itself fighting a conflict in the Middle East, specifically, Iraq. Desert Storm was a different war for the United States; they were fighting an enemy with an inferior army. As a result, the Iraqi army was forced to resort to unorthodox tactics, of which included environmental destruction, "Never has a war been so purposely destructive of the environment as the Gulf War" (Davis 211). Saddam Hussein and his army knew they could not beat the United States military. Instead of directly attacking the allied forces, they engaged in environmental destruction. Hussein saw his environmental warfare as a deterrent to stop the allied forces from attacking him. The majority of the environmental destruction seen in the Gulf War was caused by oil fires and oil spills. In Kuwait, the Iraqi army lit oil fields on fire, forming immense plumes of smoke, causing devastating environmental

destruction. The smoke caused by these fires resulted in air pollution. The soot from oil fires released carbon dioxide into the environment, combining with water in the atmosphere and forming acid rain (Davis 214). This acid rain did untold damage to the surrounding area, contaminating both water and food supplies. Livestock died as a result of drinking contaminated water and breathing toxic air. In addition, the resulting acid rain has yet to reveal its full effect. Saddam Hussein engaged in another tactic of environmental destruction, he destroyed hundreds of pipelines of oil and released millions of gallons of oil into the ocean. The resulting toll on the marine environment was reported to have killed at least "14 dugongs, 57 bottlenose dolphins, and 13 humpback dolphins" (Davis 212). This oil spill released twice the amount of oil into the ocean than any other oil spill previously had. Though the affects on the environment from the Gulf War may not have been as severe as in pervious wars, it was the first time the environment was attacked, solely for the purpose of environmental destruction.

Based on historical evidence, human warfare has taken a large toll on the environment. The fact that there have been benefits to the environment as result of warfare must not be overlooked. Many sites of historical battles, from Gettysburg to Normandy, are now national parks and monuments. As a result, these battlefields, once home to death and destruction, are now wildlife preserves, teeming with life (Lanier-Graham 72). Furthermore, during World War II, the Atlantic commercial fishing industry was greatly reduced. Consequently, many species of fish increased in

number and size (Lanier-Graham 73). Naval battleships and World War II planes cover the Pacific and Atlantic Ocean floors. These underwater graveyards are now home to many marine plant and animal species, becoming artificial reefs thriving in life. In addition, war is a benefit to many species of scavengers. In Gettysburg National Park, the vulture population is still at a relatively high level due to the many years of success they experienced there during the American Civil War. In Norway during World War II, local residents were not allowed to own firearms and as result, Norwegian bear, fox, and wolverine populations increased. Russian grey wolf population greatly increased during World War II as a result of an increase in resources. The most obvious example of the positive affect war has had on the environment is seen in the Korean demilitarized zone (DMZ). Today, this 151 mile wide strip is a safe haven to many animal and plant species. In the DMZ, they are protected from human influence and are surrounded by natural resources (Lanier-Graham 73). Though few and far between, human warfare has had limited positive affects on the environment.

Based on the historical evidence presented above, human warfare has had a significantly negative impact on the overall health of the Earth's environment and ecosystems. One must evaluate the environmental crisis that has resulted because of human conflict. This crisis must be evaluated and critiqued from an ethical and moral standpoint. First, it must be established, based on theological, philosophical, and scientific evidence, if humans indeed have a responsibility to protect the environment.

This is an issue of much debate and discussion within theological forums. Most major religions see the environment as gift from God, to humans. The Bible in fact, has passages explaining that although the Earth is a gift from God, humans are the stewards of the Earth. In other words, according to Christian tradition, it is a human responsibility to respect the Earth, use its resources wisely, and treat animals with respect. In the Islamic religion, the prophet Muhammad is often described as a conservationist preaching a respect for the environment. In Judaism, the Torah outlines compassion for animals in the book of Leviticus. Clearly, many of the world's major religions emphasize a respect and compassion for the environment. This same respect for the environment can also be seen in philosophical thought. Although, the exact level of respect the environment deserves is a much debated topic within the philosophical world. Though there are extremes to either side of the argument, it can generally be assumed that most modern philosophers feel that humans, as rational beings, are responsible for treating the environment with respect, and not misusing the Earth's natural resources. This is a generally utilitarian point of view. In other words, it is morally acceptable for humans to use the Earth and its resources to our advantage, but within reasonable limits. Defining these limits is the difficult part. In order to truly understand the nature of this issue, a brief look behind the science of conservation must be examined. Clearly there is theological and philosophical evidence for humans to be stewards of the environment, but there is also scientific evidence. Theology and

philosophy often overlook the fact that humans are animals. As animals, humans have evolved to become thinking rational beings. Regardless of rationality, the ultimate goal of any animal species is to survive, even humans. Therefore, in order to continue to survive and evolve as a species, humans must protect the environments and ecosystems they live in. Without a safe habitat to live and grow in, humans, like any animal, will not be able to survive as a species. Based on theological, philosophical, and scientific theories, humans are indeed responsible for proper care of the environment.

Now that it has clearly been established that humans have a responsibility to care for the environment, this principle must be applied to the environmental destruction caused as a result of war. As established earlier, the environment has played a large price because of war. Ironically most human wars have been fought over religious and philosophical ideals, the very ideals that teach humans to respect the environment. These conflicts have been between human factions that differ in ideals, race, religion, or creed. Throughout human history, philosophers and theologians argue over war and the morality of it; if there is such a thing as a moral war. Assume that some wars are indeed just. Wars fought to protect human kind, and to end the needless suffering and death of humans. If these wars do exist, then they are for the betterment of humans, as a species. Regardless of the morality and justice behind a war, it may still take an unprecedented toll on the environment. If the purpose of a war is to save human life, but the war itself destroys the environment these humans live in,

then what is the point of saving these lives? During the Gulf War, fought to protect the Kuwaiti people, Saddam Hussein and his army indirectly killed and injured countless Kuwaiti's through their attacks on the environment. Though the war may have liberated the Kuwaiti people, it opened them up to a new world of environmental problems. The issue is not if it is just to wage war, but if it is worth the cost to the environment. Is it moral to wage war for a better world, when really the world being fought for is being destroyed as a result? Obviously, something needs to be changed about the way modern warfare influences the environment.

Surprisingly, steps have been taken to help protect the environment in times of war. International treaties have been established that are designed to protect the environment. In 1977, it was declared illegal to engage in any techniques that change "the natural environment of Earth through the deliberate manipulation of nature" (Lanier-Graham 140). Additional treaties have been created protecting water, air, and other natural resources. Bans have been placed on nuclear tests and limits declared on the stock piling of environmentally dangerous weapons and chemicals; sanctions govern the disposal of solid waste. Through the sanctions, treaties, and laws mentioned above, the negative affect war has on the environment is slowly being diminished. Furthermore, each branch of the U.S. military has within it an organization dedicated to creating a more environmentally friendly and educated military. For example, the mission statement of United States Army Environmental Center (USAEC) explains their

role in protecting the environment, “As a field-operating agency...we implement the environmental program for the Army by providing a broad range of innovative and cost-effective products and services in support of Army training, operations, and sound stewardship” (USAEC 1). Through the USAEC, and organizations like it, the U.S. military is becoming more environmentally conscience. Hopefully, strives toward environmental protection will continue to be taken.

Humans, by nature, have an animal instinct to survive, reproduce, and spread their genes into future generations. As a result, humans are social animals that tend to associate with individuals who hold similar beliefs, morals, and creeds. Throughout human history wars have fought over these differing beliefs. Through a historical analysis of the affects of war on the environment, it is clear that modern human warfare has significantly reduced the overall environmental health of the Earth. Furthermore, though the application of theological, philosophical, and scientific theories it becomes clear that humans, as rational animals, are not only responsible for the protection of the environment, but must protect the Earth and its creatures in order to survive. Although steps have been taken to protect the environment from human destruction there is still a long way to go. Through careful analysis, it becomes painfully clear that the only way to truly protect the environment from war is to end war itself. Regardless of how environmentally conscience future militaries may become, “wherever there are military maneuvers, there will be some [environmental] damage” (Lanier-Graham 126). War is

a terrible thing; the site of any battlefield will be one of destruction. Bombs destroy life, tanks and other military vehicles destroy ecosystems, battleships pollute the ocean, chemical and biological warfare have the potential to destroy all life, and modern weapons indirectly attack the environment. As a result, it is impossible to completely protect the environment from war without eliminating war itself. Sadly, the human race is not advanced enough to spread the beautiful idea of peace across the globe. Peace however, is the only way to truly protect the environment from human conflict. Many people hope that the humans will someday learn to live in harmony with one another despite many differences. The ultimate fear however, is that human conflict will have taken such a toll on the Earth, its inhabitants, and its natural resources that there will not be a world left for humans to live in.

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