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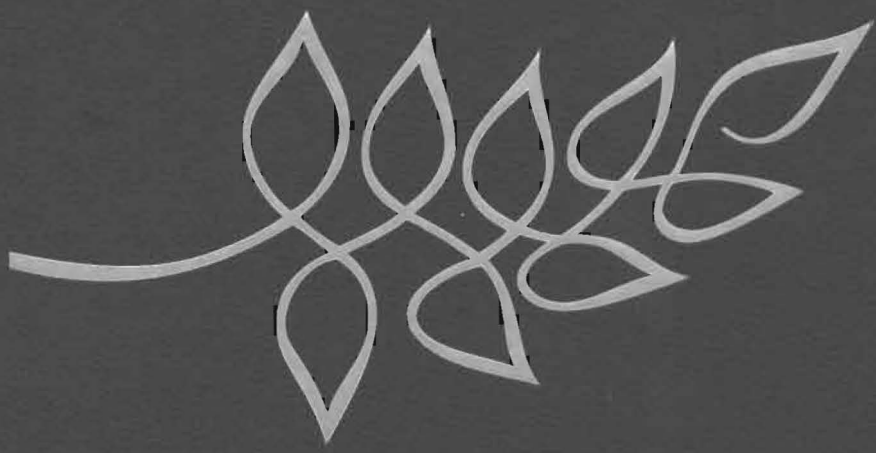

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perceived as weak and indecisive by U.S. political elites. By refusing further U.S. military air support, Kennedy decided to cut his losses and avoid becoming entrapped into escalating the conflict; however, there was no mutual de-escalation. In fact, the United States had to negotiate with Cuba for the release of prisoners, which resulted in further losses.

Assessment

Entrapment appears to be an obstacle to peaceful conflict resolution as it often promotes further escalation with little possibility of de-escalation. During a conflict, generally there is greater incentive to continue investing toward victory because yielding to the antagonist is perceived as equivalent to ignoble defeat. It has been suggested by Kriesberg that entrapment may be controlled by setting a limit on the amount of investments, thereby avoiding escalation. However, scholars concede that if one party knows that the other set a limit on its investments, there will likely be an attempt by the former to escalate beyond the latter's limit, thus causing defeat or further escalation.

International negotiation involves constant revision to meet the terms of each party, consequently making it difficult to instantly reach peace. It has been argued that the introduction of a third party to an international crisis may prevent entrapment by negating entrapping reinforcements if the party's authority is unrestrained, but revocable (Cross and Guyer 1980). Singer puts forth a proposal in which negotiations between adversaries to a conflict are conducted by professional bargainers available to national governments for hire. His proposal, however, has been criticized for its skepticism of modern diplomacy. Whether the peacemakers are diplomats, third party negotiators, or professional bargainers, it should be considered that peace is a process that requires patience and cooperation by all participants. But patience and cooperation are difficult to sustain in the context of international conflict, due to participants' divergent and volatile interests.

In analyzing historical accounts of international warfare, it is evident that entrapment surrounds political elite decision makers and contributes to conflict escalation. It is less clear that if there is entrapment, there can also be peace.

[*See also* Conflict, *subentry on* Social Theories; Conflict Analysis; Conflict Research, Methods of; Peacebuilding; *and* Third-party Role in Conflict Resolution.]

BIBLIOGRAPHY

Brockner, Joel, and Jeffrey Z. Rubin. *Entrapment in Escalating Conflicts: A Social Psychological Analysis*. New York: Springer, 1985. [Provides a comprehensive analysis of entrapment as a social-psychological process through the discussion and illustration of research experiments].

Cross, John G., and Melvin J. Guyer. *Social Traps*. Ann Arbor: University of Michigan Press, 1980.

Kriesberg, Louis. *Constructive Conflicts: From Escalation to Resolution*. 2d ed. Lanham, Md.: Rowman & Littlefield, 2002. [A thoughtful and in-depth discussion on how entrapment may be utilized to enhance prospects for peace rather than conflict escalation].

Maoz, Zeev. *Paradoxes of War: On the Art of National Self-Entrapment*. Vol. 3 of Studies in International Conflict. Boston: Unwin Hyman, 1990. [The chapter, "Paradoxes of Crisis Escalation," is useful in understanding how the results of research experiments are analogized to international conflicts to determine when entrapment occurs and how it escalates crises].

Singer, J. David. "Negotiation by Proxy: A Proposal." *The Journal of Conflict Resolution* 9, no. 4 (1965): 538–541.

Teger, Allan I. *Too Much Invested to Quit*. New York: Pergamon Press, 1980.

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ENVIRONMENTAL CONSEQUENCES OF WAR.

War affects nature in two ways. The direct effect is the immediate killing of flora and fauna—for example, the defoliation of trees and killing of mangrove stands during the Vietnam War or the wanton killing of elephants to trade ivory for weapons in African civil wars. The indirect way affects species by depriving them of key elements or even the entirety of their habitat. For example, oil spills on Saudi Arabian beaches during the 1991 Persian Gulf War smothered food sources for migrating shorebirds, and the bombing of Pacific coral reefs during World War II destroyed whole habitats.

The examples suggest that war is unambiguously detrimental to the natural environment. The reality, however, is much more complex. The factual record of what happens to nature in war can be difficult to establish. For many war regions, prewar baseline data are not available, so comparisons to postwar data cannot be made. The assembly of credible data during war is often dangerous. Field-based sampling of soil, water, and air or conducting species counts may not be possible. The construction of complete arrays of physical, chemical, and biological aspects of the biotic and abiotic environment is very complex and costly. For these reasons, the scientific record of war's effects on nature is very small.

Interstate Wars

Only three large-scale, international wars have been intensively studied with respect to their effect on nature, and even here, the record is incomplete. The specific environmental and ecological effects of herbicide spraying on nonhuman species in Vietnam in the 1960s and 1970s are disputed; however, spraying undeniably killed many trees, especially among mangrove stands. The opened canopy led to colonization by fast-growing bamboo grasses. To prevent eventual succession by tree species, villagers kept the spaces open by fire and by conversion to agriculture. One form of human agency (war) caused the initial destruction, and another form of human agency (peace) maintained it. The density and quality of Vietnam's forests prior to the war is disputed. Moreover, the debate focused on the damage done to commercial tree stands and economic revival, rather than on environmental and ecological effects.

Relative ignorance is compounded by inattention. The largest estimate of the area sprayed, 10,159 square miles (26,313 square kilometers) (Stellman et al. 2003), is only little more than one-third of the estimate of land areas affected by bulldozing, bombing, and shrapnel (Westing 1976). Yet these areas remain unstudied, even though it is now quite possible to return to the forests. Thus, we know virtually nothing about the long-term ecological effects the war may have had on the unsprayed forest areas.

With two exceptions, the Persian Gulf War of 1991 resulted in small ecological effects (Green Cross International 1998). One concerns mangrove stands in the bays just west of Abu Ali Island in Saudi Arabia. Other marine and intertidal resources have recovered. The war's effects were transitory, with no lasting damage. The other exception concerns the Kuwaiti desert. Heavy soil churning during the Iraqi invasion, the subsequent counterattack, and activity related to the putting out of oil fires and reconstruction of oil facilities presumably adversely affected desert soil, flora, and fauna. But convincing studies to demonstrate the point are sparse. Monies went to pay for the recovery of human economic activity, not for soil and desert ecology studies.

The 1999 Kosovo War also resulted in few, if any, detrimental ecological effects; at worst, they were highly localized (e.g., illegal logging). Notwithstanding reports about the release of dangerous chemicals from attacked industrial sites or the detection of depleted-uranium munitions residues, little has been demonstrated regarding actual damage to the environment and to wider ecological processes (UNEP 2001, 2002, 2003).

Intrastate Wars

Interstate wars tend to be of relatively short duration. In contrast, intrastate wars frequently last for decades: for example, some fifty years in Colombia, twenty years in Sri Lanka, and forty years in Angola. They also differ in that the primary weapons used are not tanks, bomber aircraft, and cruise missiles, but small arms, such as bladed weapons and handheld firearms.

Modern firearms, combined with local mobility and global distribution networks, can result in heavy poaching and resource extraction. This applies especially to African cases. Poaching does not appear as a major concern in Asian and Latin American civil war cases. Several reasons may account for this difference. First, the majority of the remaining big animals—elephants, rhinoceroses, hippopotamuses, and gorillas—are found predominantly in African countries. Relatively speaking, they are (or were) present in large numbers, easy to locate, and easy to shoot. Second, conservation programs tend to focus on "charismatic megafauna" so that the outside world would be expected to receive more reports about their fate than for poaching that might affect lesser-known animals such as ungulates, monkeys, or birds. Data collection is biased in favor of the better-known animals.

Third, differences in the nature of the wars in Africa as opposed to those in Asia and Latin America may account for the differential amount of poaching. For example, the wars in Burma (Myanmar) and Indonesia are cases of repression and armed resistance rather than cases of outright civil war. The number of weapons available to opposing groups appears small. Also, their use for poaching would be limited. The major Afghan wars—the Soviet invasion in 1979 and the U.S. invasion in 2001 (about either of which little is known of the environmental consequences)—were effectively interstate rather than intrastate, and its internal conflicts were interregional and tribal rather than cross-regional civil wars. A tribal war is less likely to result in deliberate poaching, as this would undermine a people's own lands. This may explain the Nicaraguan situation, especially for indigenous groups located on the Caribbean coast, where poaching was limited during the 1980s war.

In contrast, African civil wars tend to be wars for domination over the entire political realm of the country, even as many of them degenerate into resource

extraction to finance war or greed (timber, oil, diamonds, metals). A major factor facilitating poaching is the relative ease of transport, especially on the savanna or open plains. Motorized mobility and guns are a deadly combination for wildlife (Ostrowski, Massalatchi, and Mamane 2001).

Poaching may be inversely related to crowding. In Liberia, rebels, soldiers, and civilians sought shelter in forested areas. Shooting reveals location, and because it is more dangerous to reveal location in the forest than in the open, the level of gun-based forest poaching appeared to fall. Poaching then took the labor-intensive form of setting snares or traps which, being *in situ*, bind the poacher to a place and deprive him of mobility. The animal has to come to the trap instead of the poacher pursuing the animal. A stationary, unarmed poacher will do less harm than a mobile, armed one.

Intervention can have perverse effects. In the Central African Republic, during violent conflict there in the 1990s, a program to stop poaching of forest elephants in a nominally protected nature preserve was successful, but the diminished threat of encountering armed poachers led to other intrusions, such as illegal logging (Blom and Yamindou 2001).

The length, location, and financing of conflict appear important. Episodic war allows periods of recovery. The wars in Nicaragua, Rwanda, and Afghanistan did not affect the whole of these countries in equal measure at every point in time. In contrast, when wars affect large areas continuously and without any intervening letup, as in Angola and the Sudan, deleterious environmental effects of war are more likely. When war is financed from outside, reports of natural resource extraction are muted, but when war must be financed from within, it appears that it is ultimately financed via the world markets to which unsustainably harvested resources are shipped.

Refugees and Returnees

The clearest evidence of environmental consequences of war, even if the magnitude is difficult to discern, comes from the impact of refugees and returnees. The cases of Rwandan refugees in eastern Congo, Afghans in Pakistan, and Kosovars in Albania are convincing, as is the lesser-developed case of Colombia. Cities become more crowded than they already are, leading to environmental stresses, often exacerbated by inadequate water, sewage, and waste disposal facilities, and to environmental degradation, including deforestation, in the immediate vicinity. This mostly affects humans rather than wildlife, already scarce in urban areas. In South Vietnam, people fleeing from the countryside sought shelter in then-Saigon, whose population increased from 250,000 to 3 million during the war (Orians and Pfeiffer 1970). Some 500,000 Rwandans fleeing eastward in 1994 created Tanzania's second-largest urban area (Paskett 1998). A biochemical assessment of damage to industrial installations in the Croatian war found uncontrolled releases of dangerous chemicals into the nearby environment (the effects of which, however, are not known) and also that many of the water, sewage, and other treatment facilities had been destroyed (Richardson 1995). This, together with displaced populations seeking refuge, can completely overwhelm cities and expose the population and nonhuman environment to grave dangers.

When refugees flee to rural areas they often aggregate in camps from which they then set out to supplement their needs if these are not met by relief agencies. Refugees will make uncontrolled use of local natural resources, often depleting them. Long-term refugees are likely to convert their camps into permanent settlements, solidifying the environmental damage. This is a continuing concern in eastern Congo, where highly concentrated refugee settlements have led to the denuding of forests and to unsustainable bushmeat hunting. (The contrary case, when refugees disperse, is not well studied.)

Another effect occurs when a displaced group moves to territory that differs ecologically from the group's original habitat (e.g., Ethiopian pastoralists moving to agricultural land or nomadic herders moving into forests; (Byers 1991). A study on Rwanda showed that pastoral people bring their animals and clear forests for grazing land. A study of Afghans in Pakistan showed that refugees from agricultural areas, if settled in forests, will clear forests for agriculture, even when this is an inherently unsuitable economic activity. Studies comparing different camp locations within the same country—Afghans in Pakistan, Rwandans in the eastern Congo—show that settling refugees in barren land and at considerable distance from forests will keep the forests safe from intrusion. But this imposes greater pressure and cost on relief organizations.

When refugees flee, wildlife in the home area should recover. That is the impression given in the Afghan, Nicaraguan, and Angolan cases (e.g., Sogge 1992), and, to a lesser degree, in the Rwandan case. For Angola and

for the former Yugoslavia, it has been noted that environmental problems appeared to lessen as a result of reduced economic activity due to war or to economic sanctions applied prior to war.

Another topic concerns the biodiversity impact of returning refugees. A study on Mozambique stated with some certainty that adverse wildlife effects were closely correlated with the return path of refugees. Reopened highways and transportation corridors served as encroachment vectors and led to widespread wildlife slaughter (Hatton, Couto, and Oglethorpe).

Conservation in War

One victim of war is countries' reduced institutional capacity to protect nature and natural resources. Warfare prevents countries from carrying out their normal environmental protective duties. For example, serious soil erosion in the northern Ethiopian highlands in the 1980s was not caused by warfare but by government's attention being diverted to the civil war (Ståhl 1989). Conservation by default means conservation neglect. Finances are redirected, staff go unpaid, habitats lose their protected status, equipment is stolen, facilities are looted, installations are destroyed, grounds are invaded, flora trampled, animals poached, research records lost, and achievements reversed. However, apart from scattered instances of specific threats to particular species, we do not know much about the ecological nature of these effects.

Humanitarian relief agencies, conservation organizations, and economic development programs can work at cross-purposes. Following the Rwandan war in 1994, representatives of conservation groups took umbrage at humanitarian relief workers who appeared oblivious to the conservation value of nonhuman life and made injudicious refugee camp settlement decisions. Once an emergency has started and aid workers are overwhelmed with hundreds of thousands of people to care for, it is usually too late to do much about conservation. The key is in preparedness planning. After the Rwandan crisis, the United Nations High Commissioner for Refugees drafted new policy documents with regard to the natural environment (UNHCR 1996, 1998, 2001), but implementation is subject to the relevant authorities in refugee-receiving countries, who have their own location priorities.

Return to peace after war can be accompanied by resource concessions made in an unsettled natural-resource policy environment. In Mozambique, concessions were granted by different government agencies, influenced by corruption, without local consultation, and without coordination among government offices, granted even for protected areas that previously had been declared off-limits (Hatton, Couto, and Oglethorpe). It was not until 1997, five years after the end of the war, that a framework environmental law was passed by the national legislature. Enforcement is another matter.

Benefits of War, Costs of Peace

War does not always affect nature adversely. An oft-cited example is that of the Korean Demilitarized Zone (DMZ) and the Civilian Control Zone (CCZ), a three- to twelve-mile-wide (five- to twenty-kilometer-wide) zone south of the DMZ in which commercial encroachment is limited. These zones have become a haven for rare and endangered species and constitute a unique wildlife habitat ranging across the entire east-west landscape of the Korean peninsula (Kim 1997). The Albanian borders similarly were a no-go area under Enver Hoxha (1945–1989) and remained untouched except for some landmines (since removed).

As mentioned, when war moves or decimates human populations or reduces their economic activity, wildlife can recuperate. The Spanish invasion of Panama in the 1500s killed large numbers of the local population, and farm and grassland reverted to dense forest (Bennett 1968). Structures built for war can serve as artificial habitats. Artificial reefs seeded by sunken warships and warplanes are a common example. A nineteen-mile-long (thirty-kilometer-long) system of extensive underground reinforced concrete tunnels dug in World War II by German troops in western Poland now houses northern Europe's largest collection of hibernating bats: at least twenty thousand bats of twelve species, many of them rare or endangered. However, some World War I battlefields with intensive toxic disturbance sustained in a small area (e.g., around Verdan), have not yet fully recovered in some areas.

An important subset of the literature observes that the military is among the most important protectors of land, sea, and airspaces. Subjecting space to its exclusive use for training purposes, the military unwittingly protects vast areas from agricultural or other forms of encroachment that have destroyed wilderness places elsewhere. For example, to secure park borders the U.S. Army was given sole protective control over Yellowstone National Park from 1886 to 1918 (Byers 1994). However, nuclear

testing areas (e.g., in Nevada) may be irradiated for very long periods.

The converse of military activity benefiting nature is that of destructive peace. The Vietnam War may have left the natural environment in Vietnam, Cambodia, and Laos in tatters, but comparisons with relatively war-unaffected neighboring countries such as Burma, Indonesia, Malaysia, and Thailand show that the natural environment in the latter set of countries is now more damaged than it is in the former (Audubon 1991).

The peace that follows war is a time of high vulnerability for nature. Bushmeat hunting in Liberia increased drastically after the war. In Mozambique, wildlife slaughter appeared to follow the route charted by the reopening of roads. In Burma, the government's arrangements with various ethnic groups allow all of them to exploit the forest. What humans call war or peace is often irrelevant from the point of view of nature. For nature, both can be destructive.

[*See also* Ecology and Environment; United Nations High Commissioner for Refugees; *and* United Nations Office of the High Commissioner for Human Rights.]

BIBLIOGRAPHY

Audubon Society. "War and the Environment." *Audubon* 93 (September 1991): 89–99. Contributions by Malcolm W. Browne, Michio Kaku, James Fallows, and Eric Fischer.

Bennett, Charles F. *Human Influences on the Zoogeography of Panama*. Ibero-Americana, vol. 51. Berkeley: University of California Press, 1968.

Blom, Allard, and Jean Yamindou. *A Brief History of Armed Conflict and its Impact on Biodiversity in the Central African Republic*. Washington, D.C.: Biodiversity Support Program, 2001.

Brauer, Jurgen. *War and Nature: The Environmental Consequences of War in a Globalized World*. Lanham, Md.: AltaMira Press, 2009.

Byers, Bruce. "Armed Forces and the Conservation of Biological Diversity." In *Green Security or Militarized Environment*, edited by Jyirki Käkönen, pp. 111–130. Aldershot, UK: Dartmouth, 1994.

Byers, Bruce. "Ecoregions, State Sovereignty, and Conflict." *Bulletin of Peace Proposals* 22, no. 1 (1991): 65–76.

Green Cross International. *Environmental Legacy in Kuwait: An Environmental Assessment of Kuwait Seven Years after the Gulf War—Final Report*. Geneva, Switzerland: Green Cross International, 1998.

Kim, Ke Chung. "Preserving Biodiversity in Korea's Demilitarized Zone." *Science* 278 (1997): 242–243.

Orians, Gordon H., and E. W. Pfeiffer. "Ecological Effects of the War in Vietnam." *Science* 168 (1970): 544–554.

Ostrowski, Stéphane, Mahaman Sani Massalatchi, and Mamadou Mamane. "Evidence of a Dramatic Decline of the Red-Necked Ostrich *Struthio camelus camelus* in the Äir and Ténéré National Nature Reserve, Niger." *Oryx* 35, no. 4 (2001): 349–352.

Paskett, Curtis J. 1998. "Refugees and Land Use: The Need for Change in a Growing Problem." *Journal of Soil and Water Conservation* 53, no. 1 (1998): 57–58.

Richardson, Mervyn. *The Effects of War on the Environment: Croatia*. London: E & FN Spon, 1995.

Sogge, David (compiler). *Sustainable Peace: Angola's Recovery*. Harare, Zimbabwe: Southern African Research and Documentation Centre, 1992.

Ståhl, Michael. "Environmental Degradation and Political Constraints in Ethiopia." In *Ecology and Politics: Environmental Stress and Security in Africa*, edited by Anders Hjort af Ornäs and M. A. Mohamed Salih, pp. 181–196. Motala, Sweden: Motala Grafiska (for the Scandinavian Institute of African Studies), 1989.

Stellman, Jeanne M., Steven D. Stellman, Richard Christian, Tracy Weber, and Carrie Tomasallo. "The Extent and Patterns of Usage of Agent Orange and other Herbicides in Vietnam." *Nature* 422 (2003): 681–687.

United Nations Environmental Programme. *Depleted Uranium in Kosovo: Post-Conflict Environmental Assessment*. Nairobi, Kenya: UNEP, 2001.

United Nations Environmental Programme. *Depleted Uranium in Serbia and Montenegro: Post-Conflict Environmental Assessment in the Federal Republic of Yugoslavia*. Nairobi, Kenya: UNEP, 2002.

United Nations Environmental Programme. *Depleted Uranium in Bosnia and Herzegovina: Post-Conflict Environmental Assessment*. Nairobi, Kenya: UNEP, 2003.

United Nations High Commissioner for Refugees. *UNHCR Environmental Guidelines*. Geneva, Switzerland: UNHCR, 1996.

United Nations High Commissioner for Refugees. *Refugee Operations and Environmental Management: Key Principles for Decision-making*. Geneva, Switzerland: UNHCR, 1998.

United Nations High Commissioner for Refugees. *Refugee Operations and Environmental Management: Selected Lessons Learned*. Geneva, Switzerland: UNHCR, 2001.

Westing, Arthur. *Ecological Consequences of the Second Indochina War*. Stockholm, Sweden: Almqvist & Wiksell International, 1976.

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ENVIRONMENTAL PEACE AND HOLISTIC THEORIES. The major classical theory of environmental peace is Lao Tzu's Tao-te Ching (ca. 468 BCE). Its radical conclusion is to reject reward seeking, competition, and mechanical civilization as the only ways to human and ecological harmony. The Tao is the best way to this natural harmony—the "ten thousand beings" in