
COMMENTARY

The Animal Victims of the Gulf War

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Although hundreds of thousands of animals have died as a consequence of human war-making, no comprehensive effort has ever been made, to my knowledge, to assess the numbers or types of animal casualties during or after past conflicts. The prospect of killing or injuring animals has never had a deterrent effect on those making decisions about war. A few recent international agreements, reached in efforts to mitigate the impact of war on the environment, have not translated into significant restrictions on military activity, let alone explicit measures to protect animals in time of war.

The relationship between animals and war has received historical attention with regard to the uses of animals in military missions and military research. However, the war in Vietnam marked the first time that the environment and animals received close attention as victims of war. The chemical defoliation of massive tracts of forest in Vietnam killed, wounded, or evicted many of the animal inhabitants [1].

The Gulf war added a new dimension to the risks for animals as well as humans: the use of oil as a weapon. Along with their economic and tactical effects, oil spills and fires make animals their principal living victims since, for the most part, they are unable to escape their devastated habitats.

The Gulf war was also the first, as far as can be determined, in which some attempt was made to count animal deaths in a systematic way. It was also the first major war in which the military (in this case, U.S. and allied) made an effort to keep animals

from harm and to help alleviate animal suffering after the war.

The Gulf war animal casualty count includes thousands of marine birds, migratory birds, livestock animals, horses, camels, and other creatures who bore no responsibility for the conflict. The number of animal casualties is only conjectural, but then again, the full human toll has yet to be determined. The official count of U.S. military casualties reported by the public affairs office of the Department of Defense on August 12, 1991 stood at 765, including 307 dead. The number of Iraqi soldiers killed was at least 10,000 according to Pentagon estimates, but some news accounts have reported 100,000 or more. Casualties among Iraqi civilians, from air strikes and ground attacks, have been estimated to range from thousands to tens of thousands. Disease and hunger now rampant in Iraq, attributable to the war and to the political deadlock over economic sanctions, could take the lives of additional thousands by the end of the year [2].

In this context, the hundreds of thousands of animals that died or were injured during the Gulf war—and the millions of others (primarily migratory birds) that were placed at risk—must be viewed as one more dimension of a preventable tragedy. These casualties, enumerated in this article, resulted not only from bombings and artillery fire, but also from the ecological devastation left behind after the ceasefire.

Different animal populations in the Gulf region were affected by the war in different ways. Conversely, specific war-related actions have had more or less unique consequences for particular animals. The major categories of casualties and their causes can be summarized as follows:

1. Crude oil released into the Persian Gulf killed

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an estimated tens of thousands of marine birds,¹ threatened sea turtles and marine mammals, and probably caused death and injury to migrating birds passing through the region.

2. Toxic smoke from hundreds of oil fires killed migrating birds and may cause respiratory, blood, and immune system illnesses in all living beings, showing up first in birds and smaller mammals, but eventually affecting large animals and possibly humans.
3. Oil pouring from extinguished Kuwaiti wells has created huge petrochemical lakes that are destroying land surfaces and are draining into the sea, posing new threats to marine life.
4. Bombs, mines, and shells—including unexploded cluster bombs and other ordnance left behind after the ceasefire—killed and injured scores of livestock, horses, and camels.
5. The movement of tanks, trucks, and other large military vehicles tore up the desert, destroying fragile wildlife habitats and creating the conditions for unusually severe sandstorms that could take additional animal lives.
6. More than 400 animals at the Kuwait national zoo either were killed by Iraqi soldiers, died of starvation and injuries, or were removed from the zoo to unknown locations.

CASUALTIES OF THE BUILDUP

The first known animal casualties came during the buildup of U.S. and allied troops in Saudi Arabia. Bedouin-owned camels, accustomed to roaming the desert freely, were struck by artillery shells during military training exercises. Camels were especially threatened during nighttime maneuvers, when heat-seeking weapons could mistake foraging herds for targets. Fortunately, only a few incidents occurred before public protests, including letters from the Boston-based World Society for the Protection of Animals (WSPA) to U.S. officials, led to assurances that the well-being of the region's animals would be taken into account during military maneuvers [3]. However, once the war broke out, wildlife and

¹ During and after the war, the Saudi National Commission for Wildlife Conservation and Development (NCWCD) published a periodic newsletter on the status of wildlife affected by the oil spill. On February 24, 1991, the NCWCD reported that "estimated total bird deaths may have gone beyond 10,000 birds." These and similar estimates were based on field observations by rescue teams who reported dead bird counts as a proportion of live birds brought to the Jubail rescue station.

domestic animals stood little chance against thousands of air strikes, the movement of tanks through fragile habitats, and the use of oil as a weapon of mass destruction.

OIL-SOAKED WILDLIFE

Dying cormorants seen on worldwide television accompanied the news that millions of barrels of crude oil were pouring into the wildlife-rich waters of the Persian Gulf soon after the war began (Fig. 1). There are more than 3,650 animal species in Kuwait, Iraq, and Saudi Arabia, including 50 species threatened with extinction according to the International Union for the Conservation of Nature [4]. Animals at special risk included Socotra cormorants, green and hawksbill turtles, and dugongs (a kind of sea cow similar to the manatee). The Gulf is also a key resting place during the spring migration of two to three million birds returning to their European feeding grounds from Africa. Although no hard data have been gathered about migratory bird casualties, these populations were placed at special risk by the damage caused to Gulf ecosystems [4].

Estimates of the amount of oil spilled into the Gulf varied widely during the war. Postwar reports now seem to agree that at least 10 million barrels were released from Kuwaiti storage facilities and tankers, making the initial spill 37 times larger than the Exxon Valdez disaster in 1989 [5]. As the oil moved south along the Saudi coast, it was reduced in volume through evaporation and dispersal. Nevertheless, native marine birds including cormo-

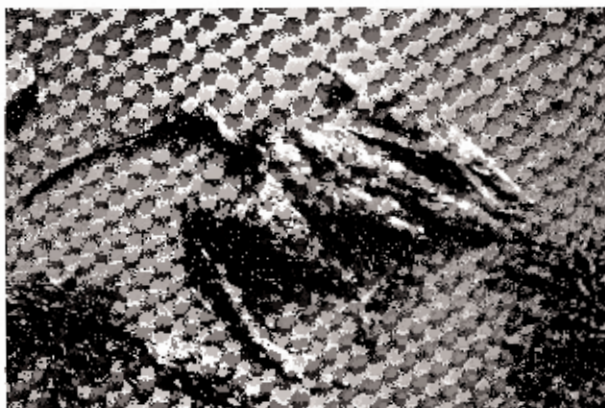


FIGURE 1. Body of oil-soaked gull on Saudi Arabian coast following massive spill of oil into Persian Gulf during first weeks of war. Courtesy of the World Society for the Protection of Animals

rants, grebes, herons, and gulls became trapped in an ooze of oil residue that was several centimeters thick along some parts of the Saudi coast.

Oil affects marine birds in a number of ways—all of them deadly. By soaking their feathers it destroys their buoyancy and puts them at risk of drowning or hypothermia. In an effort to preen themselves, the birds ingest the oil, which attacks the liver, lungs, and other organs, leading to internal hemorrhaging. Birds that survive the initial effects of the oil may develop blood disorders, such as hemolytic anemia; immune system damage from exposure to petrochemical toxins; or secondary respiratory illnesses that can also prove fatal.

The survival rate for oil-soaked birds is extremely low, even when rescue operations can be mounted quickly and experts trained in bird cleaning techniques can be rushed to the scene. Such was not the case in the Gulf, where military security preempted wildlife rescue efforts along all but a few sections of coastline near the Saudi city of Jubail. Here, a team of experts from the Royal Society for the Prevention of Cruelty to Animals (RSPCA) set up a single rescue station and trained Saudi volunteers in rudimentary cleaning procedures.

Wildlife rescue was made even more difficult because of the exclusion of foreign volunteers from the war zone. A handful of experts brought in from the WSPA, the RSPCA, and the Saudi National Commission on Wildlife Conservation and Development (NCWCD) had to make do with small teams of local students, oil company workers, and off-duty military personnel to free birds from the ooze. As of mid-April, the Jubail rescue center had collected about 1,300 birds—a small fraction of those killed in the oil-contaminated waters—as well as a few turtles and other animals. The mortality rate was at least 75% (somewhat higher than past rehabilitation efforts, but still within an expected range) [6], and only a few more than a hundred survivors could be rehabilitated and released, with the hope that they would not resettle in the slick.

Although there is no evidence so far that oil in the Gulf has harmed more than a few sea turtles, dolphins, or dugongs, the range of which is largely to the south and east of the slick, the potential for damage is great. The Gulf is home to two endangered species of turtle, the green and the hawksbill, with total populations of about 3,000 turtles. The war-related spills occurred at the beginning of nest-

ing season. Since a single drop of oil can destroy a turtle egg, protecting the nesting beaches from the advancing slick became a priority for conservationists, though the Saudi government and the military were more concerned with keeping the oil away from desalination plants. Fortunately, the slick stopped short of the principal nesting areas, and conservation organizations are now working with Saudi wildlife experts to ensure the future safety of the turtles.

The long-term prospects for Gulf wildlife are bleak but are hard to predict with confidence. The Gulf was highly polluted even before the war, from decades of oil production, as well as from massive spills that took place during the eight-year war between Iran and Iraq. Gulf temperatures are higher than those of Prince William Sound, the site of the Exxon Valdez spill, and should accelerate the breakdown of the oil. On the other hand, the water exchange rate in the Gulf is three to five years, compared with less than a month in Prince William Sound. This means that tar balls and other oil residue will remain on the Gulf floor for years as a threat to feeding turtles and other marine animals.

TOXIC OIL FIRES

The health impact (human and animal) of pollution from the hundreds of oil well fires still raging in Kuwait is a matter of intense controversy. The World Health Organization is working to develop an inventory of toxic substances spewing from the fires, and independent research along the same lines is being conducted by Friends of the Earth, Earth Trust, and other environmental groups. According to the United Nations Environment Program (UNEP), increases in sulfur compounds, carbon monoxide, and hydrocarbons from the fires may be counterbalanced by decreases resulting from interrupted oil production [5]. The U.S. government and independent experts also disagree over the possibility of long-term consequences to the global environment, which will depend not only on the composition of the gases involved, but also on their penetration into the upper atmosphere.

Whatever the ultimate effects, the immediate impact of the fires has been self-evident. Migrating birds that have passed through the smoke have been certain victims. Some have died on the spot, their carcasses found on fields throughout Kuwait. Others

are likely to have been fatally injured by the smoke but would have traveled some distance before dying, making reliable casualty estimates impossible.

On the ground, smoke-borne oil has coated vegetation and animals. Ingestion of the oil, through feeding or cleaning, could lead to the same immunologic and blood disorders among land-based animals, in ways similar to the threat now faced by marine life in the Gulf.

LIVESTOCK CASUALTIES

More than 80% of the livestock animals in Kuwait—mostly cattle, sheep, and goats—died between the Iraqi occupation in August 1990 and the ceasefire in March 1991 [7]. Assigning precise causes to all of the deaths is virtually impossible, but the principal causes include starvation, dehydration, intentional or accidental shooting, slaughter for food, and bombing. Livestock animals, in particular, are almost totally dependent on humans for their well-being, and the collapse of Kuwait's economy and domestic infrastructures, not to mention the flight of Kuwaiti residents from the country, left hundreds of thousands of these animals helpless.

Death also resulted when animals stepped on unexploded mines or cluster bombs, which littered the landscape at the end of the war. (Clearing some areas of unexploded ordnance has been deemed virtually impossible by military officials, and these areas may have to be fenced off to prevent future deaths among nomadic residents and their herds.)

Kuwait's livestock industry was a relatively small yet vital part of the prewar economy. There were 34 operating dairy farms in the country in August 1990, with 15,000 cows and cattle. Following the ceasefire, only two dairies were functioning in any capacity, and only 2,500 cattle were still alive. A population of 800,000 sheep was reduced to 10,000; 10,000 camels were down to 2,000; and, of 3,000 horses, many of them Arabian and thoroughbred race horses, fewer than 500 could be found in Kuwait at the end of the war [7]. (Some of the most valuable race horses and show horses were removed to Iraq before the air war began. Grooms and other horse handlers who were employed at Kuwaiti stables told staff from the WSPA that Iraqi soldiers arrived with lists of horses whom they demanded by name. The number of Kuwaiti horses currently held by Iraq is unknown.)

THE KUWAIT ZOO

While most of the animal casualties of the Gulf war can be viewed as inevitable, given the means by which the war was fought, one population of animals experienced extreme human cruelty, unacceptable under the conventions governing war to which most countries subscribe.

Allegations that Iraqi soldiers were killing and torturing animals at the Kuwait national zoo were made public in September 1990 by the WSPA. The news blackout in Kuwait made it impossible to substantiate the charges until March 2, 1991, when the Society inspected the zoo firsthand and found only 28 animals alive, of an original 440 or more.

Animal carcasses in the cages of a few surviving carnivores, along with eyewitness accounts, provided evidence that soldiers had tossed live animals to the lions and tigers for sport. A number of animals were killed and eaten by soldiers, although, inexplicably, a meaty water buffalo was left to browse unharmed on the zoo grounds. The charred remains of primates suggested that some animals had been set on fire, though there was no way to tell whether they had been alive at the time. According to an eyewitness, an Iraqi general used a monkey for target practice, shooting the animal in the hip. (The monkey survived the war and was treated several weeks after the ceasefire, but it has lost the use of its leg.) Other surviving animals, including an elephant (Fig. 2) and a brown bear, also suffered gunshot wounds. An unknown number of animals, primarily endangered species housed at the zoo, are



FIGURE 2. U.S. soldiers use a metal detector to search for bullet fragments in the shoulder of an elephant at the Kuwait Zoo that survived the war. Courtesy of the World Society for the Protection of Animals.

believed to have been removed to the Iraq zoo in Baghdad.

WAR, THE ENVIRONMENT, AND INTERNATIONAL LAW

Although Iraq is party to few of them, there are several international conventions meant to mitigate the impact of war on the environment, agriculture, animals, and other natural resources. Among these are the Hague Conventions (1899 and 1907), the Geneva Conventions (1949), the World Cultural and Natural Heritage Convention (1972), the Bern Protocols to the Geneva Conventions (1977), and the Prohibition of Military or any other Hostile Use of Environmental Modification Techniques (ENMOD) (signed in 1977). Almost one-third of the world's countries subscribe to this last convention, including the U.S. but excluding Iraq.

Since the ceasefire, UNEP has urged a thorough review of these conventions, with an eye toward strengthening them in light of the devastation in the Gulf [5]. Although the U.S. has not yet taken a position on the need for stronger laws protecting the environment during war, there are a few reasons to watch the Bush administration closely.

First, the administration claimed an exemption from issuing an environmental impact statement before the war, although the existence and suppression of such a report has been common knowledge among environmentalists. Second, President Bush and military spokespersons during the war consistently characterized the oil spills and fires as acts of environmental terrorism by Iraq, despite evidence that allied military actions contributed significantly to the destruction. Finally, understated postwar assessments of environmental damage by U.S. officials, including EPA administrator William Reilly, clash with independent assessments.

Strengthening the environmental conventions governing war would restrict U.S. freedom of action as much as it would that of other countries party to the agreements. Any administration resistance to

UNEP initiatives growing from this realization will have to be challenged.

There are at least two reasons to be concerned about the animal victims of the Gulf war and to monitor their recovery over the next few years. The first is compassion. These creatures suffer as wholly innocent victims of human conflict and thus have a moral claim to consideration before, during, and after a war. Second, the ability of wildlife and domestic animals to recover in war-damaged ecosystems could answer unresolved questions about the long-term environmental consequences of war.

War as it was waged in the Persian Gulf is now capable of unleashing long-term ecological devastation on a scale never before experienced, even without the use of nuclear, chemical, or biological weapons. Because animals' lives are more fully integrated with the natural environment in their day-to-day interactions than are those of humans, their deaths are not only individual tragedies, but also indicators of a much larger ecological cost of war. That cost must be calculated as part of an overall assessment of the potential environmental impact whenever nations consider going to war in the future.

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