THE INDEPENDENT

8 July 2006 18:03

# Vietnamese wildlife still paying a high price for chemical warfare

## By Jessie King

### Published: 08 July 2006

Forty years on, much of the environmental damage caused to Vietnam by American forces during the Vietnam War has still not been repaired, according to a new study.

In particular, the effects of the massive amounts of chemical defoliants sprayed from the air to destroy the jungle hiding places of the Vietcong guerrillas are still being felt, says the study, the first comprehensive account of Vietnam's natural history written in English.

Between 1961 and 1971, more than 20 million gallons of herbicides, the most notorious being "Agent Orange", were sprayed by the US to defoliate forests, clear growth along the borders of military sites and eliminate enemy crops.

Some of the herbicides also contained dioxins - compounds potentially harmful to people and wildlife - while one, "Agent Blue" - used mainly for crop destruction - was made up mainly of an organic arsenic compound. Repeated applications of the chemicals "sometimes eradicated all vegetation", according to the study - Vietnam: A Natural History - and the environment has still not recovered in many places. Weedy plant species such as alang-alang (also known as cogon or American grass) often invaded cleared areas, killing other plants and preventing normal regeneration of the forest. "In many areas, these weeds continue to dominate the landscape decades after the defoliants were sprayed," says the study.

As the spray was often concentrated along strategic waterways, it is believed to have had a long-term impact on wetlands and riverside vegetation. Scientists are finding that dioxins still surface in freshwater animals. The study adds: "In addition to effects on individuals, the defoliants undoubtedly modified species distribution patterns through habitat degradation and loss, particularly in wetland systems."

Direct attempts to eradicate Vietnam's forests were not the only military activities to affect its environment. The estimated 14 million tons of bombs or cluster-bombs dropped on to northern and southern Vietnam, Laos and Cambodia left an estimated 10 to 15 million large bomb craters.

In addition to the effects of these bombs, the impact of napalm, land mines, and other wartime technology on Vietnam's biological communities must also be taken into account, says the study.

It has been written by three wildlife specialists at the American Museum of Natural History - Eleanor Jane Sterling, Martha Maud Hurley and the Vietnamese expert Le Duc Minh. They say: "A country uncommonly rich in plants, animals and natural habitats, the Socialist Republic of Vietnam shelters a significant portion of the world's biological diversity, including rare and unique organisms and an unusual mixture of tropical and temperate species."

Most remarkably of all, in the past 15 years a whole suite of species hitherto unknown to science has been discovered in Vietnam, deep in jungles where scientific access had been made impossible by the war.

They include the saola, a large hoofed mammal of an entirely new genus - an antelope-like wild ox which is the world's largest land-dwelling animal discovered since 1937.

*Vietnam: A Natural History is published by Yale University Press*