

WILDLIFE AND HUMAN - IMPACT OF THE CLOSE ENCOUNTER: INDONESIA CASE

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Human and wildlife formerly live in a relatively disjunct, non-overlapping environment. In the past several decades, however, various human activities has shrunk the wildlife habitat and made the sylvatic habitat closer to human environment, through human induced disturbances to biodiversity (e.g., forest conversion, fragmentation), wildlife trade, breeding operation, and consumption of certain part of wildlife species. Expanding sites for agriculture and human settlements might also shorten their distance to the migration sites for birds. The quality of human's habitat has been worsened by the environmental pollution and global warming. Forest conversion and fragmentation has placed human closer to wildlife. Although there has been very few study conducted in Indonesia, studies in other countries revealed that directly transmitted diseases and vector-borne disease (mosquito-, tick-, flea, rodent-, bird-borne diseases) that used to host exclusively wildlife has expanded to people living around forest as new targets. Wildlife trade as pets and meat consumption might increase the risk of zoonoses for human. Primates are popular pets in Indonesia. Orang Utan (*Pongo pygmaeus*, *Pongo abelli*), for example, potentially transmit tuberculosis, hepatitis (A, B and C), HIV/AIDS, and probably Ebola to human, although the infected Orang Utan may not show a clinical signs. Certain carnivorous mammals and other cercopithecine monkeys (e.g. Long-tailed Macaques *Macaca fascicularis*) and bats (e.g., Flying Fox *Pteropus vampyrus*) are the usual animal hosts for rabies. Flying Foxes are often sold alive, as the meat is believed to be a cure for asthma and various skin problems. Rabies virus is transmitted primarily via the saliva during the bite of the infected animal. Gases of leptospirosis caused by *Leptospira* bacteria, transmitted from wild rodents (e.g., *Rattus norvegicus*, *R. tanezumii*, *R. exulans*, *Sanctis murinus*) through infected uterine secretions also have been reported in some Indonesian cities, especially following flood incidence. The surprising case of transmission of anthrax from captive bred Ostrich *Struthio camelus* to human happened in early 2000 in Indonesia (i.e. Purwakarta, Citeureup, Bima). When the infected ostriches were eradicated, the carcasses were stolen and consumed by local

people, as there were some doubts whether the ostriches were indeed infected with the *Bacillus anthracis* bacteria. Many people were infected by anthrax after consuming the Ostrich meat. The latest emerging cases of avian influenza (high or low pathogenic) lead to the hypotheses whether migratory species of waterbirds and shorebirds is responsible to the transfer of disease to human, possibly through cats and pigs. Birds may cause zoonotic Psittacosis as well. Bushmeat of wild boar sometimes harbor onchocerca worm in muscles, which can be transmitted to human via consumption of meat. Many traditional Chinese medicines involve consuming uncooked part of free-ranging wildlife species (including meat, blood, liver, gall bladder, brain, fetus), which might invite various diseases to human. The global trend of global warming may expand the natural distribution of mosquitoes and other insect vectors to the previously colder areas. The positive side of the closer encounter of wildlife and human is the use of wildlife as an indicator of environment health. Waterbirds preyed on fish and invertebrates in rice fields, for instance, can serve as an indicator of the persistent, lipophilic, organochlorine pesticides and the level of biomagnifications in the food webs. Research and monitoring scheme on the infectious and zoonotic disease in wildlife (including via consumption) and on the environment health by using wildlife species as indicators need to be conducted, as there is extremely little information regarding this matter. In addition, various hypothetical beliefs on zoonoses and anthroozoonoses diseases still need to be scientifically proven.