



GLOBAL HEALTH PROGRAM IN ASIA

Pathogens originating from wild animals are increasingly implicated in the emergence of infectious disease (EID) in human populations; therefore, any situation that promotes contact between humans and wildlife poses increased health risks to all parties at this junction. In Southeast Asia, foremost amongst these interfaces is the trade in wild species.

The wildlife trade is the second-largest illegal economy in the world after drugs, with the global value of legal and illegal trade estimated at around \$159 billion annually. This market is as diverse as it is large, with multiple wildlife species sold for food and medicine, as pets and for trophies. Trade on this scale brings with it a level of human and wildlife proximity and/or interaction that enhances the potential for disease transmission. Already this activity has contributed to the emergence of a suite of diseases such as severe acute respiratory syndrome (SARS), HIV, highly pathogenic avian influenza virus, plague, and monkey pox.

The recognition that wildlife trade also threatens the human, agricultural, and ultimately economic health of a country, presents an opportunity for conservation. Government support is fundamental to the success of any attempt to control the trade in wildlife, and can only be secured through a political appreciation that the continuation of trade presents a measurable national cost. In this, solely conservation-based approaches have ultimately faltered; however, other more politically influential sectors, particularly those of public health, agriculture and development, also have a stake in controlling the trade, which can have far-reaching consequences for their respective remits.

In Asia, WCS is working with national governments and other stakeholders to highlight the health risks inherent in the trade in wildlife and leverage our findings to increase the incentive to implement new measures or enforce often existing laws to mitigate the trade in wildlife.

Illustrations by Brendan Wenzel / www.brendanwenzel.info

LAO

In Lao PDR, WCS collects liver samples from clouded monitor lizards (*Varanus bengalensis nebulosus*) confiscated from the trade for traditional medicine, food and skin. Due to the vast, illegal trade of clouded monitor lizards, this species is now listed as CITES Appendix I, but despite the ban in all commercial trade, the movement of these animals across borders thrives. In Thailand and Lao PDR, there is a belief that the consumption of raw lizard liver improves virility; however, there is substantial health risk involved as the monitor lizards host a parasite (*Angiostrongylus cantonensis*) that can infect people and induce a potentially fatal condition called eosinophilic meningoencephalitis. By working with the government, the results of our research will be used to support and enforce measures to stop the trade and inform and educate the public on the dangers of wildlife consumption.

VIETNAM

Amphibians have been declining on a global scale since the 1980s, faced with threats such as overharvesting for trade (food, pets, biomedical research), climate change, environmental contaminants, habitat loss and fragmentation, introduced species, and disease. Almost a third of all known species are now considered in danger of extinction by the World Conservation Union (IUCN). Among the most significant causes of this decline is infectious disease, particularly chytrid fungus *Batrachochytrium dendrobatidis* (Bd) and ranavirus, and one of the highest risk factors in the spread of these viruses to naïve populations is trade. WCS teams in Vietnam and around Southeast Asia, where there is limited knowledge of amphibian diseases, are testing frogs at various points along the trade chain (markets, farms) for the presence and prevalence of these two diseases as a first step to help curtail the dissemination of amphibian pathogens that have until recently operated with little or no health regulation. Recent advances by the World Organisation for Animal Health (OIE) to recognize Bd and ranavirus as a "notifiable" disease--that is, OIE member states are obligated to report on disease status within their countries--may represent a future change in attitudes, and WCS results will be used to help regional governments to recognize and adhere to the new policies.

CAMBODIA

In Cambodia and throughout Southeast Asia, hundreds of thousands of wild birds pass through the trade as "merit" release birds each year. Buddhist followers purchase wild birds, trapped specifically for this purpose, when visiting temples or on special occasions and release these birds for spiritual "merit". The capture of these birds has significant conservation impacts with over 760,000 birds of 62 species recorded passing through these markets in Cambodia in just 13 months; however, there are additional health risks to humans and domestic animals as well. Wild birds are susceptible to a range of infectious diseases, some of which can have a considerable economic impact on poultry, such as highly pathogenic avian influenza, or cause disease in humans, such as ornithosis or salmonella. While these pathogens pose little threat when left in the wild, transmission rates increase as mixed groups of wild birds are trapped and traded in direct contact with consumers, vendors, poultry, and other wildlife. By highlighting the dangers of this practice to human health, WCS is working to provide the government with persuasive arguments for enforcing existing laws that prohibit the trade of wild birds.

