Study establishes importance of tracking diseases associated with illegal wildlife trade

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An article released today in *PLoS ONE* entitled, *Zoonotic Viruses Associated with Illegally Imported Wildlife Products*, from a collaborative study led by the U.S. Centers for Disease Control and Prevention (CDC), identified evidence of retroviruses and herpesviruses in illegally imported wildlife products confiscated at several U.S. international airports, including John F. Kennedy International Airport, George Bush Intercontinental-Houston and Atlanta Hartsfield-Jackson International. The pilot program was initiated to establish surveillance and testing methods to uncover the potential public health risks from illegally imported wildlife products coming into the United States. The preliminary results of the program clearly demonstrate the potential human health risk from the illegal wildlife trade at major international travel hubs as a pathway to disease emergence in animals and humans.

Lead author and Associate Director for Health and Policy at EcoHealth Alliance, Dr. Kristine Smith, stated "although the findings to date are from a small pilot study, they remind us of the potential public health risk posed by illegal importation of wildlife products – a risk we hope to better characterize through expanded surveillance at ports of entry around the country."

"The increase in international travel and trade brings with it an increased risk of unmonitored pathogens via the illegal wildlife trade," said Dr. Denise McAloose, chief pathologist for the Global Health Program of the Wildlife Conservation Society (WCS). The global trade of wildlife has largely contributed to the emergence of new diseases in livestock,

native wildlife and humans worldwide. Current research shows that 75 percent of emerging infectious diseases affecting people originate from contact with wildlife. These wildlife-borne diseases can be transmitted through human-animal interactions inherent in the global wildlife trade.

Items confiscated as part of the study included raw to semi-cooked animal parts, identified by American Museum of Natural History's Sackler Institute for Comparative Genomics, Columbia University, and WCS as nonhuman primates, including baboon and chimpanzee, and various rodent species using advanced genetic barcoding technologies. Pathogen analysis was conducted at the CDC National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention and Columbia University's Center for Infection and Immunity. Among the pathogens identified in the products were a zoonotic retrovirus, simian foamy viruses, and several nonhuman primate herpesviruses. These results are the first to confirm evidence of pathogens in illegally imported bushmeat that may act as a conduit for pathogen spread, and suggest that implementation of disease surveillance of the illegal wildlife trade will help facilitate prevention of disease emergence.

"Exotic wildlife pets and bushmeat are Trojan horses that threaten humankind at sites where they are collected in the developing world as well as the U.S. Our study underscores the importance of surveillance at ports, but we must also encourage efforts to reduce demand for products that drive the wildlife trade," said W. Ian Lipkin of Columbia University's Mailman School of Public Health. In fact, the U.S. is one of the largest consumers of imported wildlife products and wildlife. A previous study by EcoHealth Alliance showed that over a six-year period (2000-2006) approximately 1.5 billion live wild animals were legally imported into the U.S. – with 90 percent slated for the pet trade. Programs like the Centers for Disease Control and Prevention's Healthy Pets, Healthy People and EcoHealth Alliance's PetWatch encourage responsible exotic pet choices and ownership. U.S. Fish and Wildlife

records show that more than 55 million pounds of wildlife products enter the country each year, with New York City the most common port of entry followed by Miami, and Los Angeles.

Beyond the public health risks of the live and non-live wildlife trade are risk of disease introduction to native wildlife and agricultural species, proliferation of non-native wildlife causing damage to U.S. ecosystems, as well as the protection of threatened and endangered species identified by the International Union for Conservation of Nature. "These important research results highlight the value of using new DNA barcoding identification technologies to accurately monitor the wildlife trade, important for both disease surveillance and the conservation of endangered species," stated Dr. George Amato from the Sackler Institute of Comparative Genomics at American Museum of Natural History.

The pilot study is the first to establish port surveillance methodology to test for diseases associated with wildlife products. Through better surveillance of illegal wildlife product shipments entering ports around the country, authorities will have a better chance at preventing new disease emergence before it occurs. The pilot project involved a collaboration of scientists from the American Museum of Natural History, Columbia University, EcoHealth Alliance, the USGS National Wildlife Health Center, and the Wildlife Conservation Society.

Provided by American Museum of Natural History

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