

Practices at wildlife markets in Lao PDR endangering both biodiversity and human health

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Wildlife markets in Lao People's Democratic Republic (Lao PDR) illegally trade in high volumes of protected species and animals that can host dangerous pathogens, reports a new study from an international team of leading wildlife health professionals.

This Lao PDR trade, which endangers the region's biodiversity, has the potential to be a serious human health threat globally.

At seven markets surveyed three times over the course of the study, WCS (Wildlife Conservation Society) researchers and Laos PDR partners observed more than a ton of living and/or recently killed mammals offered for human consumption.

The species observed represented 12 taxonomic families capable of hosting 36 serious zoonotic pathogens. Such pathogens can "jump" from animals to humans and cause serious and sometimes rapidly spreading diseases. Examples of these 'zoonotic' pathogens include rabies virus, ebolaviruses, hantaviruses, Severe Acute Respiratory Syndrome (SARS) virus, and highly pathogenic avian influenza H5N1 virus.

The market surveillance work was undertaken in Lao PDR by WCS, their government partners, the National Animal Health Laboratory, and FHI360 as part of the USAID-funded PREDICT (predict.global) and PREVENT projects to identify new emerging infectious disease threats

and to reduce the risk of transmission to humans.

"As veterinarians we have responsibilities for ensuring the public's health," said Dr. Watthana Theppangna, co-author and Head of the PREDICT partner Bio-Safety Level III Laboratory at the Lao PDR National Animal Health Laboratory. "We are worried about the presence of [wildlife](#) in markets and the potential for pathogens to spread to people through the wildlife trade."

On average, 92 individual mammals per day were observed in conditions that support frequent wildlife/human contact—and ultimately could facilitate pathogen spillover.

In addition to the frequent wildlife/human contact due to the volume of animals, researchers observed a lack of biosecurity practices in the seven markets, further indicating the potential for pathogen transmission from infected wildlife to humans.

For example, only one of 11 vendors handling and butchering wildlife practiced hand washing, and running water was not present in all markets.

In addition, vegetable or other fresh-food products were frequently in contact with wildlife products, providing a route for cross-contamination.

According to Dr. Sarah Olson, a co-lead author of the study with WCS's Wildlife Health & Health Policy Program, "Human disease-causing pathogens clearly lurk in wildlife markets. The danger to your health is just less visible than the dangers to conservation. You can usually observe endangered species illegally on sale, but a range of largely invisible pathogens are likely there as well."

To understand the conservation threats, the researchers analyzed 375 daily surveys conducted across 93 wildlife markets. A total of 238 individual animals were classified as "threatened with extinction" according to the globally recognized IUCN Red List. Nationally, all wildlife sold in the markets are protected under the Lao PDR Wildlife and Aquatic Law.

Of particular concern for conservation were the high volumes of endangered animals observed (turtles, tortoises, deer, lorises, etc.). Also of interest was the finding that wildlife meat was consistently more expensive than domestic animal meat. This sheds light on the present dynamics of wildlife consumption in Lao PDR, suggesting that wildlife is sold in markets to affluent urban consumers, rather than for subsistence consumption. This has further implications for potential disease spread due to the biosecurity conditions in the trade and the movement of wildlife around the country to urban centers.

Mr. Soubanh Silithammavong, co-author and PREDICT Country Coordinator in Lao PDR said, "Although enforcement efforts are being made by the Government of Lao PDR to curb the illegal trade in wildlife, the government needs more support to raise capacity to conduct investigations and prosecutions of wildlife traders. This study should help raise awareness of the serious threat that wildlife trade in Lao PDR poses to both biodiversity and human [health](#)."

More information: Zoe F. Greatorex et al. Wildlife Trade and Human Health in Lao PDR: An Assessment of the Zoonotic Disease Risk in Markets, *PLOS ONE* (2016). [DOI: 10.1371/journal.pone.0150666](https://doi.org/10.1371/journal.pone.0150666)

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