

# Common human viruses threaten endangered great apes

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Christophe Boesch, director of Chimpanzee Projects at the Max Planck Institute for Evolutionary Anthropology in Leipzig, calls for better hygiene measures for Great Ape tourism. Credit: Sonja Metzge, Max Planck Institute for Evolutionary Anthropology

Common human viruses are responsible for outbreaks of respiratory disease that have led to the decline of endangered chimpanzees in the wild, according to a study reported online on January 24th in *Current Biology*.

The findings—which are the first to provide direct evidence of virus transmission from humans to wild great apes—illustrate the challenge of maximizing the benefit of research and tourism to great apes while minimizing the negative side effects that come with human contact, the

researchers say.

“Research and tourism has a strong positive effect on great apes’ survival since it reduces poaching activities in these areas and gives more ‘political weight’ to the apes and protected areas,” said Fabian Leendertz of Robert Koch-Institut and Max Planck Institute for Evolutionary Anthropology in Germany. “[The spread of viruses] has been a concern, but people had never proven it. Our demographic analyses of chimpanzees suggest that this started as soon as people got close enough to chimps to transmit diseases. There is a correlation between habituation—the proximity between humans and chimps—and disease outbreaks.”

Commercial hunting and habitat loss are major drivers of the rapid decline of great apes, the researchers said. Ecotourism and research have been widely promoted as a means of providing alternative value for apes and their habitats. While close contact between humans and habituated apes has raised concerns about disease transmission, previous studies had only demonstrated the spread of relatively mild bacterial and parasitic infections from humans to wild apes.

In the new study, the researchers gathered evidence from chimpanzees hit by five distinct respiratory outbreaks between 1999 and 2006 in Côte d'Ivoire, West Africa. The outbreaks sickened almost all of the chimps and led to a significant number of deaths.

All available tissue samples taken from chimps who had died tested positive for one of two paramyxoviruses: human respiratory syncytial virus (HRSV) or human metapneumovirus (HMPV), the researchers report. HRSV and HMPV are common causes of respiratory disease in humans and are the leading causes of lower respiratory disease in children and, in developing countries, a major source of infant mortality, the researchers said. In adults, HRSV and HMPV usually cause mild

upper-respiratory-tract infection but can lead to more serious illnesses such as pneumonia.

“The viruses we found are very common,” Leendertz said. “Antibody prevalence in humans is almost up to 100 percent, meaning almost everybody has had contact with these viruses.”

Twenty-four years of mortality data from observed chimpanzees revealed that such respiratory outbreaks could have a long history, Leendertz’s team reported. But, they added, there was some good news: “Survey data show that research presence has had a strong positive effect in suppressing poaching around the research site.”

The researchers have already stepped up guidelines to help minimize the disease risk to chimpanzees, and they urge others to do the same. For example, Leendertz said, they now maintain a distance of at least seven meters, wear masks, and disinfect their boots regularly.

Source: Cell Press

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