

# Ebola outbreaks killing thousands of gorillas and chimpanzees

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Why have large outbreaks of Ebola virus killed tens of thousands of gorillas and chimpanzees over the last decade? Observations published in the May issue of *The American Naturalist* provide new clues, suggesting that outbreaks may be amplified by Ebola transmission between ape social groups. The study provides hope that newly developed vaccines could control the devastating impact of Ebola on wild apes.

Direct encounters between gorilla or chimpanzee social groups are rare. Therefore, when reports of large ape die-offs first surfaced in the late 1990s, outbreak amplification was assumed to be through "massive spillover" from some unknown reservoir host. The new study, conducted by researchers from the Max Planck Institute for Evolutionary Anthropology, Cambridge University, and Stony Brook University at three sites in northern Republic of Congo, suggests that Ebola transmission between ape groups might occur through routes other than direct social encounter.

For instance, as many as four different gorilla groups fed in the same fruit tree on a single day. Thus, infective body fluids deposited by one group might easily be encountered by a subsequent group. Chimpanzees and gorillas also fed simultaneously in the same fruit tree at least once every seven days.

The study also provided the first evidence that gorillas from one social group closely inspect the carcasses of gorillas from other groups. Contact with corpses at funerals is a major mechanism of Ebola transmission in humans. Together with other recent observations on patterns of gorilla mortality, these results make a strong case that transmission between ape social groups plays a central role in Ebola outbreak amplification.

The study has important implications for controlling the impact of Ebola, which has killed roughly one quarter of the world gorilla population. "It means

that vaccinating one gorilla does not protect only that gorilla, it also protects gorillas further down the transmission chain," said Peter Walsh of the Max Planck Institute for Evolutionary Anthropology, the lead author on the study. "Thus, protecting remaining ape populations may not require vaccinating a high proportion of individuals, as many people naively assume." Walsh and collaborators are currently searching for funding to implement a vaccination program using one of the several vaccines that have now successfully protected laboratory monkeys from Ebola.

Source: University of Chicago

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