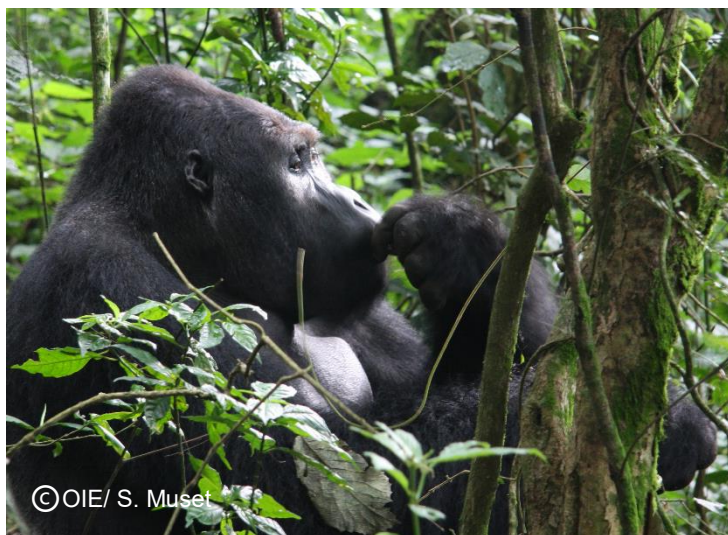


## **OIE's EBO-SURSY project:**

### ***Enhancing understanding of the animal-human transmission of Ebola virus disease to inform surveillance capacity building***

Given that Ebola virus disease (EVD) infection of humans by animals (also known as zoonotic transmission) is thought to be possible in 23 countries across Central and West Africa, enhancing understanding of the natural reservoir of the virus<sup>1</sup> as well as its amplifying hosts is a line of inquiry that affects more than 300 million people, of whom at least 22 million live in areas seen as high-risk. Through its EBO-SURSY project, the World Organisation for Animal Health (OIE) supported the French National Research Institute for Sustainable Development (IRD) to investigate the prevalence of EVD among non-human primates (NHPs) as well as the potential role of human-bat interactions in EVD transmission.



As a result of an extensive analysis of the blood and feces of over 4,500 NHPs, including both monkeys<sup>2</sup> (2,322 samples) and great apes<sup>3</sup> (2,327), IRD researchers, with the support of fellow scientists at national, regional and international research institutions, were able to confirm that these animals are not a reservoir animal for Ebola virus but that they are, like humans, severely affected by infection. Less than three percent of the sampled monkeys and none of the great apes were found to be carrying antibodies for EVD, the presence of which is usually a sign that an animal has been

infected by and recovered from the disease. In contrast, their absence suggests that of those NHPs that are infected by EVD, few survive – a finding that aligns with previous studies that have highlighted EVD's high mortality rates among primates, especially gorillas. NHPs also act as an intermediate host of the disease, with multiple human epidemics traced to a zoonotic transmission from contact with the blood or other bodily fluids of NHPs, often from the butchering or consumption of infected animals. Since human to human transmission of the disease can take place rapidly, it takes only one zoonotic infection to trigger a human outbreak of EVD.

### ***If non-human primates are not a reservoir, then where do their infections come from?***

While the natural reservoir of Ebola virus remains unconfirmed, scientific evidence suggest that blood and other bodily fluids of certain species of bats, which can carry the disease without being affected by it, are the most likely source of infection among both humans and NHPs. Yet, the exact nature of human-bat contacts and zoonotic transmission routes remains relatively unexplored – a gap that IRD's field research is working to fill

<sup>1</sup> An animal or animals that maintain the virus and transmits it to humans

<sup>2</sup> With tails and usually smaller in size. They include baboons and mandrills

<sup>3</sup> No tails and usually larger as well as more intelligent with opposable thumbs and nails (rather than claws). They include gorillas, bonobos, chimpanzees, gibbons and orangutans.

with its assessment of knowledge, attitudes and practices in four rural villages spread across Southern Cameroon.

Despite identifying significant differences between communities, depending on their geographical location within the country, the IRD-led study noted that exposure to bats, either through direct consumption and/or direct or indirect contact with them, was relatively common. Out of 135 study respondents, 40 percent indicated they consume bats, while 28 percent hunt them and 67 percent consume fruits previously chewed by them. With 55 percent of hunters using caves (where bats often roost) as shelters and 22 percent of interviewees noting that children catch and/or play with bats, human-bat contact is clearly a reality of everyday village life.

Given that bats can transfer a number of different diseases, including EVD, researchers were concerned to note that the vast majority of respondents (78 percent) did not feel that consuming bats carried any health risks. Even villagers with knowledge of the bat-Ebola link thought that *their* bats posed no risk of potential infection, an attitude potentially explained by the fact that Cameroon has never recorded a case of the disease. While there is a clear need to enhance and nuance public health messages, protecting human health is also increasingly dependent on strong veterinary systems that can spot emerging diseases in animals before a zoonotic event occurs.

Indeed, one of the most efficient and important means of predicting and reducing the risk of EVD outbreaks among humans is to identify high risk areas via testing for the presence of Ebola virus in the (presumed) reservoir population and exposure of humans as well as to monitor susceptible wildlife in these areas, especially NHPs, for signs of the disease. In some cases, human outbreaks are immediately preceded by large-scale deaths in NHP populations. Unfortunately, the financial and human resources needed for essential surveillance related activities are usually dramatically insufficient in at-risk countries. Building the capacity needed to address this gap is one of the core fields of the OIE's mandate as well as the central objective of the EBO-SURSY project.



#### Additional information:

- Launched in 2017, the five-year EBO-SURSY project is funded by the European Union and implemented by the World Organisation for Animal Health (OIE) in partnership with Le Centre de coopération internationale en recherche agronomique pour le développement (CIRAD), the French National Research Institute for Sustainable Development (IRD) and Institut Pasteur and aims to strengthen early detection systems for wildlife in West and Central Africa to prevent outbreaks of Ebola virus disease (EVD) and four other viral haemorrhagic fevers: Marburg virus disease, Rift Valley Fever, Crimean-Congo haemorrhagic fever, and Lassa fever. Learn more about the EBO-SURSY project here: [www.oie.int/EBOSURSY/en](http://www.oie.int/EBOSURSY/en)
- Learn more about Ebola Virus Disease here: <http://www.oie.int/en/animal-health-in-the-world/animal-diseases/ebola-virus-disease/>