PRESS RELEASE

Institute of Vertebrate Biology of the Czech Academy of Sciences
Květná 170/8
603 00 Brno
Czech Republic
www.ivb.cz

Gorilla health begins beyond the park boundary: parasites reveal how people, animals and landscapes are connected in Uganda

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Protecting mountain gorillas means looking beyond the gorillas themselves. A new study led by researchers from the Institute of Vertebrate Biology of the Czech Academy of Sciences, published in *Anthropology Today*, shows that the health of people, livestock, wildlife and the environment around Bwindi Impenetrable National Park in southwestern Uganda is deeply interconnected. Here, parasites are not only agents of disease; they are also connectors, revealing where people, animals, soil, water, conservation and everyday life meet.

Communities near protected areas are often described as threats to wildlife. This study reverses the lens, asking instead what people at the park boundary already know about the health risks they share with wildlife, and what stops them from acting on it. The work combined molecular parasitology, veterinary science, primatology, public health and social anthropology, with Ugandan public health specialist Nahabwe Haven of Bwindi Community Hospital, whose long-term relationships with local communities shaped every stage of the fieldwork.

“We began by asking how to diagnose and manage a parasite,” says lead author Kelly Sambucci. “In the field, the question grew much larger. Parasites showed us how health, ecology and everyday life are connected at the edge of a national park, and why local knowledge has to be part of the answer.”

A knowledge gap, or a resource gap?

One of the study’s clearest findings is that people living near the park already understand how parasites spread. Participants described flies moving between animal dung and food, children picking up soil while crawling, water sources shared with livestock and wildlife, and the dangers of eating meat from animals that had died of unknown causes.

What they lacked was not knowledge, but the means to act on it. Gumboots, gloves and soap were repeatedly described as too expensive, and water was often too scarce to wash hands between

Contact for media: Alena Fornůsková, Science Communication Department
Institute of Vertebrate Biology of the Czech Academy of Sciences
fornuskova@ivb.cz, +420 605 464 704

cleaning animal shelters and other work. When none was available, people described rubbing their hands in the wet morning grass before moving from the animals to the vegetable garden, an inventive adaptation to hard conditions, not a failure to follow advice.

“This is not behavior born of ignorance,” Sambucci says. “People know how infections spread. The gap between knowing and doing is a gap in resources, not in understanding.”

Paride Bollettin, social anthropologist of the team from the Masaryk University adds: "The approach adopted in the field and the results reflect the importance of interdisciplinary dialogues as well as of the local perspective and its effect on shaping collaborative research"

When gorillas, goats and people share the same land

The boundary between park and villages is far more porous in daily life than it appears on a map. Wild pigs graze in areas later used by domestic animals; gorillas enter banana plantations, and goats and cattle follow them in. These shared spaces let parasites and other infectious agents move between wildlife, livestock and people, but the study cautions against blaming any single species. The risks emerge from the whole system: where people live, where animals graze, how far the nearest health worker or vet is, and how the benefits and burdens of conservation are shared.

“One striking moment came when a participant suggested that worms in humans and cattle might, if tested, turn out to be the same, articulating in a single sentence the very hypothesis the team was testing in the laboratory. For us, this was a turning point,” says Barbora Červená, co-author of the study and researcher of the Institute of Vertebrate Biology and the University of Veterinary Sciences Brno and continue, “One Health cannot just mean scientists bringing knowledge to communities. People living in these landscapes are already reading the signs. Our job is to connect that with the biology.”

One Health as practice, not slogan

The study also highlights the inequalities running through conservation. Mountain gorillas are among the world’s most iconic conservation successes, drawing tourism and funding, yet the park’s creation transformed daily life for neighboring communities, including lost access to grazing land and to forest plants once used to treat illness in people and animals. Some villages sit off the tourist routes with limited health and veterinary care, though their health matters for the gorillas too. Asked what they needed from the research team, participants did not request more information. They asked for a closer health center, better access to a vet, protective equipment, soap and water.

“For people living at the park boundary, One Health is not an abstract concept,” says Nahabwe Haven. “It is about water, livestock, children, gardens, gorillas and being able to get help when someone gets sick.”

“If we want to protect gorillas in the long term, we cannot separate their health from the people and animals living around the park,” Sambucci concludes. “Parasites make these connections visible. They show us that conservation, public health and everyday life are part of the same system.”

The study was conducted in collaboration with Bwindi Community Hospital as part of ongoing research at the human–livestock–wildlife interface around Bwindi Impenetrable National Park, supported by the Czech Science Foundation.

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Institute of Vertebrate Biology of the Czech Academy of Sciences
fornuskova@ivb.cz, +420 605 464 704

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More information:

Kelly Sambucci, ÚBO AV ČR (interview in English)
Phone: +420 775 934 073
e-mail: sambucci@ivb.cz

Barbora Červená, ÚBO AV ČR
Phone: +420 724 507 426
e-mail: cervena@ivb.cz

Photo:



Artistic interpretation of parasite transmission upon receiving a description of our research project

(Peter Triibes, 2023).

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Institute of Vertebrate Biology of the Czech Academy of Sciences
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Photographs from focus group discussions setup (Sambucci, 2024).



An information sign near the entrance to Bwindi Impenetrable National Park highlights the risk of disease transmission between people and gorillas, illustrating that public awareness efforts are already underway. However, the study suggests that information alone is insufficient to change behaviour, with the social and economic circumstances of local communities playing an equally important role. (Photo B. Červená)

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In most of the Bwindi landscape, villages border the national park directly, with no buffer zone in between. Livestock graze close to the forest, sharing the landscape with wildlife and creating opportunities for pathogens to move in both directions. (Photo B. Červená)



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Cattle, goats and sheep are an important source of livelihood for local households. Livestock management varies between villages: some animals graze freely, while others are tethered or herded. These everyday husbandry practices influence how often domestic animals come into contact with wildlife. (Photo B. Červená)



Tethering animals is one way of preventing crop damage and limiting their movements. Not all livestock therefore roam freely. Differences in husbandry practices may also influence the likelihood of contact with wildlife and the transmission of certain pathogens. (Photo B. Červená)

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Kelly Sambucci, together with her Ugandan colleagues from Bwindi Community Hospital, prepares small compensation packages for participants in the focus group discussions. Taking part in the study meant spending time away from work and family for local community members. Providing this support helps ensure that participation is also possible for people for whom such a time commitment would otherwise be difficult. (Photo B. Červená)

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Dogs are a common part of households around Bwindi National Park, where they are used for guarding and hunting and often move between villages and the surrounding landscape. Previous research of the team in the Central African Republic showed that dogs can play an important role in the transmission of parasites between protected areas and nearby communities. (Photo B. Červená)

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