

# New AI wildlife camera developed to improve conservation

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Tim van Deursen from Hack The Planet installing an AI-enabled camera trap in Lopé National Park Gabon. Credit: Floris Tils

A new project, jointly led by the University of Stirling and Dutch start-up Hack the Planet, has for the first time developed an artificial intelligence (AI) powered wildlife camera that could hugely benefit conservation by identifying real-time animal-human conflict.

The technology, which can detect different animal species and humans in real time, has the potential to discover conflicts between people and wildlife, as well as illegal activities in protected areas, and provide live alerts to eco-guards.

Trail cameras are regularly used in wildlife surveys to detect ecosystem threats but are often hampered in remote regions due to a lack of broadband connectivity. Using AI-powered wildlife cameras could fix this issue by providing instant alerts without the need for WiFi, long-range radio or cellular coverage, helping better conserve, protect and restore ecosystems as a result.

The study, titled "Real-time alerts from AI-enabled [camera](#) traps using the Iridium satellite network: a case-study in Gabon, Central Africa," and published in *Methods in Ecology and Evolution*, accurately identified elephants and humans in remote areas of Gabon, where the technology was deployed.

The pilot from researchers and engineers at the University of Stirling and Hack the Planet, part of digital product studio Q42, shows that these smart cameras could help to detect poachers and prevent human-elephant conflicts that often take place in the African rainforest, among other places.

The smart camera trap they have developed can immediately label images thanks to AI and, if necessary, send a warning to, for example, rangers or a village.

The research shows that remote monitoring and offline analyses can be made reliably. The system is also able to prevent conflict between humans and animals by deterring elephants from entering a village in search of food.

It is the first time that such an innovative camera system has been rigorously tested under the tough conditions of a rainforest. By combining an AI model, ready-made camera traps and custom hardware with a satellite connection, it is now possible to send real-time information to rangers from remote locations. The research shows that

reliable analyses can be made with a view to nature conservation and ecology.

Dr. Robin Whytock, Post-doctoral Researcher at the University of Stirling during the study, said, "Real-time data from [smart cameras](#) and other sensors could revolutionize how we monitor and protect the world's most threatened ecosystems. The advances made in this study show that real-time data could be used to make better decisions during time-critical situations."

Tim van Deursen, founder of Hack The Planet, said, "With this pilot we have demonstrated that our AI-powered camera technology works and can have a positive impact on nature conservation. Our solution does not depend on the installation of additional network infrastructure in the landscape and can be deployed in the field by non-experts anywhere in the world."

Lee White, Gabonese minister of Water, Forests, the Sea and Environment, said, "Fewer of our eco-guards will die, and more poachers will be caught, if we can deploy this technology."

During the pilot in the Gabonese rainforest, five camera systems took more than 800 photos in 72 days. 217 photos of elephants were taken. The AI model achieved an accuracy of 82% in recognizing elephants. Rangers received an alert from the system within seven minutes on average.

**More information:** Robin C. Whytock et al, Real-time alerts from AI-enabled camera traps using the Iridium satellite network: A case-study in Gabon, Central Africa, *Methods in Ecology and Evolution* (2023). [DOI: 10.1111/2041-210X.14036](https://doi.org/10.1111/2041-210X.14036)

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