

Candid wildlife shots aid conservation of African wildlife

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Hyena. Credit: Lindsey Rich and Panthera

These photographs are some of the 30,000 intriguing images of wildlife in Botswana taken using camera traps set up by ecologist Lindsey Rich of Virginia Tech. Her results – published in the new issue of the *Journal of Applied Ecology* – will help wildlife authorities in Botswana to target their conservation work more precisely.

Working with the Botswana Predator Conservation Trust, PhD candidate Lindsey installed 221 camera traps in areas of differing human impact, from a game reserve to a livestock grazing area, to find out how human activity and environmental variables affected wildlife.

The camera traps recorded 44 different species of mammal over five months. Among the candid snapshots is this spotted hyena carrying a

midnight snack – a Cape buffalo leg probably scavenged from a lion kill; a porcupine family – two adults and their porcupette (as the young are called) – out for an evening stroll; and a pride of lions, which spent more than 10 minutes biting and pawing another camera trap attached to the opposite fence post.

Each photograph is time and date stamped, but Lindsey and her team still needed to look at each image to identify the species. "I also had to delete many more images of swaying grass or sage. Camera trap surveys are a powerful research tool but involve a lot of data management," she says.

Remote camera traps use motion- and heat-sensing infrared technology to detect passing animals. They collect information 24 hours a day, seven days a week, in all weathers without the need for a human to be present.



Porcupine. Credit: Lindsey Rich and Panthera

Better and more affordable technology means that they have become an increasingly popular and important [research tool](#), helping ecologists worldwide to study ecological interactions and the causes of biodiversity change, and to measure the success of conservation actions.

The study found that species richness was greatest in floodplains and grasslands, as well as deep in protected wildlife areas. It also shows that the positive influence of protected areas was strongest for extra-large species (over 200kg) and herbivores.

According to Lindsey: "Our results highlight the importance of protected areas and grasslands in protecting biodiversity in southern Africa. We also demonstrated how [camera traps](#) and hierarchical modelling can be used to assess entire terrestrial wildlife communities which should reduce funding, time and personnel costs, when compared to single species approaches."

As well as providing vital data for the Botswana government, she worked with a local rural school, enabling children to see and learn more about local wildlife. "Enabling children to have positive experiences with [wildlife](#) will help build a conservation ethic among Botswana's younger generation," says Lindsey.



Lions. Credit: Lindsey Rich and Panthera



Greater kudu. Credit: Lindsey Rich and Panthera



Black backed jackal. Credit: Lindsey Rich and Panthera

More information: Lindsey N. Rich et al. Using camera trapping and hierarchical occupancy modelling to evaluate the spatial ecology of an African mammal community, *Journal of Applied Ecology* (2016). [DOI: 10.1111/1365-2664.12650](https://doi.org/10.1111/1365-2664.12650)

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