

# Tourist photographs are a cheap and effective way to survey wildlife

July 22 2019

---



Two male lions touching heads. Credit: Megan Claase, Rafiq et al., *Current Biology*, 2019

Tourists on safari can provide wildlife monitoring data comparable to traditional surveying methods, suggests research appearing July 22 in the

journal *Current Biology*. The researchers analyzed 25,000 photographs from 26 tour groups to survey the population densities of five top predators (lions, leopards, cheetahs, spotted hyenas, and wild dogs) in northern Botswana, making it one of the first studies to use tourist photographic data for this purpose.

The idea came to lead author Kasim Rafiq after hours with his Land Rover grill-deep in an abandoned warthog burrow. Rafiq, then a Ph.D. candidate at Liverpool John Moores University, had been following the tracks of a one-eared leopard named Pavarotti that he'd been searching for for months.

"Eventually I got out of the hole and spoke with the safari guides who I met on the road nearby, and who were laughing," says Rafiq, who is about to begin a Fulbright Fellowship to expand the project further at UC Santa Cruz. "They told me that they'd seen Pavarotti earlier that morning. At that point, I really began to appreciate the volume of information that the guides and tourists were collecting and how it was being lost."

Traditionally, animal population surveys in Africa are done using one of three methods: [camera traps](#), track surveys, and call-in stations. Each has advantages and disadvantages. Camera traps, for example, are particularly useful to understand the variety and densities of species in an area, but they also have an immense up-front cost with no guaranteed lifespan. "For one of my other projects, I had an elephant knock down one of the camera traps, and then lion cubs ran away with the camera. When I collected it, it just had holes in it," Rafiq says.





Photograph of two wild dogs. Credit: Megan Claase, Rafiq et al./ *Current Biology*, 2019

To test whether [tourist](#) photographs could be used for wildlife surveying, the researchers provided participating tourists with small GPS trackers, originally designed for tracking pet cats. These allowed researchers to later tag the wildlife photographs with location data. The photographs were then filtered not only by the species identified, but also by the individual animal, for the top predators, and then analyzed using computer modeling to estimate densities.

Rafiq and his team manually identified animals by their coloration patterns or, in the case of lions, by their whisker spots. The tourist photograph method was carried out alongside camera trap, track, and

call-in station surveys to compare the wildlife density estimates obtained from each and the costs to get this information.

"The results suggest that for certain species and within areas with [wildlife tourism](#), tourist-contributed data can accomplish a similar goal as traditional surveying approaches but at a much lower cost, relative to some of these other methods," says Rafiq.

For example, the tourist-photograph method was the only approach to identify cheetahs in the study area and provided density estimates for many of the other carnivore species that were largely comparable to those from the other methods. Most of the costs of the tourist photograph method were down to the manual processing of images. These are tasks that in the future could be outsourced to [artificial intelligence](#) to reduce survey costs further.



Photograph of a spotted hyena. Credit: Megan Claase, Rafiq et al./ *Current Biology*, 2019

"If we could combine advances in artificial intelligence and automated image classification with a coordinated effort to collect images, perhaps by partnering with tour operators, we would have a real opportunity for continuous, rapid assessment of wildlife populations in high-value tourism areas," he says.

This method of surveying animal populations is most applicable when studying the charismatic megafauna that tourists are usually interested in, and in areas with established tourism programs.

"There isn't one silver bullet that will be useful in every situation," Rafiq says. "Instead, as conservationists and researchers, we have a toolkit of different techniques that we can dip into depending on our project's requirements and needs. This study adds to the growing body of evidence that citizen science is a powerful tool for conservation. This approach provides the opportunity to not only aid the monitoring of charismatic megafauna highly valued by society, but also has the potential to shape how we can meaningfully participate in conservation efforts."

**More information:** Kasim Rafiq et al, Tourist photographs as a scalable framework for wildlife monitoring in protected areas, *Current Biology* (2019). [DOI: 10.1016/j.cub.2019.05.056](https://doi.org/10.1016/j.cub.2019.05.056)

Provided by Cell Press

Citation: Tourist photographs are a cheap and effective way to survey wildlife (2019, July 22) retrieved 26 June 2024 from <https://phys.org/news/2019-07-tourist-cheap-effective-survey-wildlife.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.