THE CONVERSATION

Ecotourism could be making animals less scared, and easier to eat

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While ecotourists enjoy the warm waters of the Cuiaba River in Brazil, our presence in natural areas like this may have unanticipated costs for local wildlife. Author provided

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Translations

Read this article in French and English

Wildlife populations are suffering death by a thousand cuts as a result of human activities. Wildlife are being hunted, fished, and poached. They are suffering from climate change and pollution. Diseases take their toll, as do newly invasive species. They are also being fragmented as a function of increased habitat destruction.

These are obvious culprits of environmental disruption. But there is one realm where we may be having an unanticipated impact on wildlife: nature-based tourism.

It is possible that our increasing penchant for nature tourism is making wildlife in these areas more vulnerable to predators. Unfortunately, we don't yet have enough data to properly assess this risk.

Our team brought attention to this concern in a review recently published in Trends in Ecology and Evolution. In the study, we attempt to understand how animals may become more docile, bolder, and less fearful when exposed to humans.

We suggest this could then potentially lead to an increased risk of predation when people leave the area, signalling an unrecognised cost of ecotourism.

A 'human shield'

To domesticate animals, we must tame them, and this often means deliberately selecting those individuals that are more docile and tolerant. Domestication is, in part, achieved by making animals safe from predators – for example by fencing them in, bringing them into our homes, or raising them in cages.

We are now learning that urbanisation causes similar effects: animals that prosper in the cities are generally more docile and less fearful of humans than animals that live outside the cities. There is also evidence of genetic evolution of urban animal populations.

In many cases, predators avoid urban areas, creating a "human shield" that protects urban prey and can trigger a cascade of ecological changes. Behind such a shield, prey become more likely to frequent the areas predators avoid. This leads prey to be less vigilant against predators and devote a greater time to foraging. We can often see these effects when the vegetation takes a noticeable hit.

But urbanised areas are not the only context where human shields can arise. Nature-based tourism, too, might create a shield effect.

More tourists, more animals getting eaten?

According to a recent report, there are more than 8 billion visits to terrestrial protected areas annually. That's as if each person on Earth visited a protected area once, and then some! This number is even more impressive given that the report only considered visitors to protected areas larger than 10 hectares, and didn't include marine protected areas.

Such a human presence on natural areas has obvious damaging effects, such as increased traffic and pollution, vegetation trampling, and vehicle collisions with wildlife. However, in our study we speculate that nature-based tourism might, under certain circumstances, also create a human shield that makes wildlife more vulnerable to predators.

We already know that this has increased some species' vulnerability to wildlife poachers and illegal hunters.

At first glance, it seems unlikely that animals would respond less to predators simply by becoming used to the presence of humans.

Prey species have sophisticated anti-predator abilities to assess their risk of attack. These inborn warning systems are the result of an evolutionary arms race, meaning that some animals respond to "ghosts" even after being isolated from predators for some time.

For instance, island populations of Sitka black-tailed deer isolated from predators for 60 years showed a similar level of vigilance to deer exposed to predators.

But there is some evidence that individuals that are bold around humans may also be bold around their predators. For instance, fox squirrels from a population habituated to human presence responded less to different predator noises than individuals from the non-habituated population.

Fox squirrels that are used to having humans around are less responsive to predators. Is this true for other species, too?
mandj98/flickr, CC BY-NC

Animals learn responses to their environment that can form predictable behavioural patterns. Such a pattern may, for example, link docility with a reduced response to predators. In this way, docile animals may respond inappropriately in the presence of a predator.

So if tourism-related human shields are sufficiently stable to make animals more tolerant towards humans, and if by being exposed to humans animals become more docile or excessively bold, these individuals may be more vulnerable when exposed to real predators.

What next?

Our paper is a call for more research on this important issue. Indeed, the journal we published in routinely publishes papers that seek to stimulate new work in this area and we listed a number of examples of needed studies in our review.

While UNESCO has guidelines for ecotourism, they do not address the issues we identified. We need to understand the factors and conditions under which human shields arise and their effects on wildlife behaviour. Armed with data from many species from different locations and studied under varied conditions, we will be better able to provide concrete management recommendations to wildlife managers.

Nevertheless, four such likely recommendations are to:

Create zones for governing visits in natural areas (as is done in many areas already, like the Galapagos).

Enforce times where natural areas are closed off to humans (as for hunting).

Avoid contact with humans in places where there are pups and juveniles (if, as we suspect, early contact with humans may enhance docility in wild animals).

Reduce or eliminate feeding of wildlife by tourist operators and guides (a common practice in a number of “ecotourist” venues).

To tour, or not to tour

So, is ecotourism a good thing or a bad thing? It depends.

In many developing countries, people must choose between consuming natural resources or creating another viable economy. Often, nature-based tourism and ecotourism creates unique economic opportunities. Here any increased predation costs of ecotourism will pale in comparison to the benefits this industry can bring.

However, when dealing with small and vulnerable populations, or when dealing with nature-based tourism in more developed countries, perhaps any excess predation is less acceptable.

We believe that ecotourists, who travel to help communities and biodiversity, will be those most open to self-regulation, if required, to better preserve local wildlife. We hope that the research our review stimulates will help provide the information and tools to improve the benefits of ecotourism, while eliminating or reducing the negative impacts. Time will tell and we’re excited to learn more.

Conservation
Tourism
Ecotourism
Wildlife conservation