

The pangolin is not the culprit and species do not mount invasions

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One year ago, at the end of my teaching semester, I was doing my weekly reading of the main science journals and was struck by how the initial hypothesis on the origin of the COVID-19 pandemic was recalled in a ‘News and Views’ in the prestigious journal *Nature*. “The Malayan pangolin”, the authors wrote, “suddenly faced allegations that it was the culprit” (Koutsakos and Kedzierska, 2020).

Back then, as were many others, I was paying special attention to the research news on the pandemic. That was not just because I was worried, and wanted to learn more, about the virus. It was also because of my interest in the story of the origin of the zoonosis, as a biologist who teaches students an introductory course on mammals. In my lectures, besides teaching students about evolution, adaptation, ecology and behaviour, I also speak about conservation and ethics, and how we often see our relationships with other living beings through the distorted lens of anthropocentrism.

One of the topics I find particularly hard to discuss is how animals – and, in particular, mammals – may ‘bring us’, and ecosystems, damage, as in cases of zoonoses and ‘alien species invasions’. But are animals really responsible?

That is certainly how we tend to describe stories of unfortunate consequences of the interactions between humans and other species of animals and plants. Consider the following:

- 1 “Wild animals probably brought it [sc. SARS-CoV-2] to humans in the first place” and among “primary suspects early in the pandemic, pigs were top of the watchlist” (Mallapaty, 2021).
- 2 “The invasive snail ... fooled zoologists” (Nature, 2018).
- 3 “South Africa’s invasive species guzzle precious water and cost US\$450 million a year” (Wild, 2018).
- 4 “Invasive alien species are responsible for substantial losses of goods, services and production capacity ... and economic resources are spent each year for their management” (Diagne *et al.*, 2021).

These are just a few examples, taken from articles published in the last few years in *Nature*. In each case, we find linguistic structures that make non-human species the grammatical subject of various actions which damage humans, and that ascribe intentionality to – and responsibility for – those actions. Animals, it seems, *bring* us diseases, *fool* us, *invade* our territories, and are *responsible* for causing economic and environmental harm.

However, neither pangolins nor pigs intended to transmit diseases; snails and pine trees, all by themselves, did not invade continents or steal water. None of these species bear responsibility in the way that our anthropocentric language suggests. On the contrary, it is *we* who trap, trade and kill pangolins and thousands of other wild species, from which we may catch a new disease. It is *we* who introduce – sometimes unintentionally but often intentionally – alien species, that may or may not have become successful but harmful residents outside their native range. *We* are to blame and thus *we* ought to be the grammatical subject of those sentences.

Even the names we use are often misleading, as when we call a species an *invader* (Knight, 2001; Wild, 2018). The word ‘invade’ connotes military conquest, and subjugation through force. We should, instead, say that these are *anthropogenically introduced* (‘anthroproduced’, for brevity) species – a name that clearly locates where agency and thus responsibility lies.

Such semantic shifts look small, but they may help us to focus better on the real source of the problems: raising awareness of *our* responsibility for environmental damage. These shifts also stress the importance of prevention, instead of continuing on with ‘business as usual’ and only later looking for morally difficult, and often ineffective, solutions (Rollin, 2014; Pluess *et al.*, 2012).

I realized more deeply the potentially perverse implications of semantics while listening to a BBC Radio podcast on sexual violence, where it was noted by a psychologist how we commonly say “she was raped”, and that this agentless passive construction subtly suggests that the *victim* bears the responsibility. In the words of an earlier study, this kind of grammatical construction “obscure[es] agency by placing the actor in the background, and the victim in the foreground, of discourse” (Bohner, 2001: 516–17). Shouldn’t we say “he raped her”, “we caught a virus from pangolins, bats or rodents” and “we introduced alien species”?

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