THE BURNING
QUESTION

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with Murray Rudd

## Should we allow some species to go extinct?

Problems such as habitat destruction and climate change are putting an increasing number of species at risk of extinction. We have a limited capacity to save some of those species but it will mean surrendering others. It's a sad reality to face but it's becoming more widely accepted; a recent survey published in *Conservation Biology* showed that 54 per cent of scientists agreed that there are some species we should give up on.

Assuming we were to progress in such a way, deciding which species we should save and which we shouldn't is going to be difficult. We need to think in triage terms, prioritising where to direct our resources because we don't have the knowledge or money to save everything. From an economic perspective, some species may be too expensive to save. From a scientific perspective, our choices can be informed by a focus on three factors: genes, species or ecosystems.

A focus on genetic diversity can be used to help prioritise conservation efforts by identifying species that represent diverse branches on the tree of life. This could help maintain more options for future adaptability and evolution as environmental change accelerates. With this approach, some species that are genetically very similar could be abandoned as they contribute only marginally to evolutionary capacity.

Strategies that focus on the species most under threat often see high-profile, iconic species emphasised. These are species valued as symbols of nature, such as tigers and wild Atlantic salmon, or as national symbols like the American bald eagle or Chinese panda. But saving these creatures may divert resources from others without careful planning. Edinburgh Zoo, for example, is hoping its new pandas will help raise funds for wild panda conservation in China, increasing total conservation funding rather than simply splitting the pie.

Protecting whole ecosystems is the focus of many current conservation strategies. By defending areas that are rich in biological diversity, such as rainforests and coral reefs,



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ecological processes may be maintained, bolstering resilience to emerging threats. But ecosystem conservation choices have their consequences. For example, if tropical beach nesting grounds for migratory sea turtles aren't protected, their survival will be jeopardised.

Focusing on just one of these factors – genes, species or ecosystems – will have consequences. By concentrating only on species, for instance, an ecosystem may suffer, with species that are crucial parts of it dying off. But together those three factors make up what we call 'biological diversity' and things are critical at this overarching level too. In the *Conservation Biology* survey, over 99 per cent of scientists agreed that human activities are accelerating an already serious loss of global biological diversity. Some scientists are now willing to consider very active conservation interventions such as assisted migrations: physically moving species from one region to another to ensure their survival. Other scientists maintain we should simply protect important ecosystems and migration corridors, but leave species alone to adapt as best they can as pressures mount.

But while the decisions we make will depend on how we prioritise our conservation actions, they'll also be influenced by the economic and political situation. And economically at least, these are uncertain times. One thing is certain, though: stemming the loss is critical.

Which species would you save and how would you decide? post@sciencefocus.com