Bring elephants to Australia?

There's a solution to the continent's rampant fires and feral animals, says **David Bowman** — introduce large mammals and increase hunting pressure.

Three years ago this week, Australia was burning. On 7 February 2009 — now known as Black Saturday — a massive firestorm consumed more than 400,000 hectares in southern Australia. At least 173 people died trying to outrun the fires, defend their homes or seek shelter.

That blaze was unusually fierce, but fires are a constant source of anxiety for Australia. The continent is extremely fire-prone, with a distinctive signature of oscillating fire activity that begins in the north during the winter, then moves south during the summer. Lately, the fires have been more intense and widespread, perhaps as a result of climate change — last year, around 5% of the continent was burnt.

If only fires were Australia's sole environmental concern. The continent is also overrun by invasive species. They fill holes created by a mass extinction event that occurred around 50,000 years ago during the Pleistocene, when the arrival of the first Australians coincided with a collapse in the continent's megafauna, namely giant marsupials (some as large as hippopotamuses), reptiles and birds[1]. The precise causes of that event are unclear, but the resulting gap in the food web has been filled by populations of pigs, goats, cattle, horses, donkeys, camels, buffalo and deer[2]. These animals are reconstructing ecosystems, a trend amplified by the introduction of alien plants, particularly ultra-competitive grasses[2].

So far, Australia and other regions dealing with similar environmental crises have responded by spending millions on piecemeal control programmes that target one problem at a time. For instance, Australians have tried attaching radio collars to buffalo and then following them in helicopters to find and kill others in the herd[3]. Such approaches cost millions, and are ultimately ineffectual — for every buffalo hunted, another is born to replace it.

I think that another, more holistic approach can address Australia's ecological problems. Specifically, we must restabilize food webs (now out of balance because of the Pleistocene extinctions), the loss of the Aboriginal traditions of patch burning and hunting, and the ad hoc release of non-native animals and plants. We must introduce and manage predators to control the feral animals, and bring in herbivore species to graze the flammable grasses — which we can better control using small fires as 'über-herbivores'[4].

I accept that this is a radical way of thinking; we would have to weigh the various options. For example, we could stop poisoning the Australian wolf (dingo). Poisoning disrupts their social structure, and research suggests that dingoes in packs act as top predators of smaller predators such as introduced foxes[5]. More dingoes could also help to control other feral animals, such as

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pigs. Alternatively, we could introduce predators such as the Komodo dragon, which would fill the niche of the giant lizards that once thrived in Australia[6].

But, because such predators can pose threats to humans and livestock, it might be more realistic to employ Aboriginal hunters, who could help to control feral animals and restore the traditional practice of patch burning. Indeed, existing ranger programmes that enable indigenous people to return to their roots — by hunting buffalo or managing natural resources — have been shown to have social and health benefits for this disadvantaged sector of the Australian community[7].

A major source of fuel for wildfires in the monsoon tropics is gamba grass, a giant African grass that has invaded north Australia's savannas[8]. It is too big for marsupial grazers (kangaroos) and for cattle and buffalo, the largest feral mammals. But gamba grass is a great meal for elephants or rhinoceroses. The idea of introducing elephants may seem absurd, but the only other methods likely to control gamba grass involve using chemicals or physically clearing the land, which would destroy the habitat. Using mega-herbivores may ultimately be more practical and cost-effective, and it would help to conserve animals that are threatened by poaching in their native environments. This potential solution is not limited to Australia — it has been suggested that elephants could be used as part of a project to 'rewild', or return North American ecosystems to their prehuman state[9].

I realize that there are major risks associated with what I am proposing. It would be essential to proceed cautiously, with well-designed studies to monitor the effects. The greatest challenge would be managing the density of herbivore populations so that their demand on resources does not degrade the ecosystem. Here, we could adopt management methods from game parks and reserves, such as building fences, regulating the availability of water and food, and controlling breeding and hunting.

Of course, introducing large mammals cannot solve all of Australia's ecological-management conundrums. And I am mindful that the proposal could be used to justify commercial grazing in fragile ecosystems, an ongoing controversy[10]. But the usual approaches to managing these issues aren't working. The full spectrum of options needs to be canvassed in an open and honest way. ■

David Bowman *is professor of environmental change biology at the School for Plant Science, University of Tasmania, Private Bag 55 Hobart, Tasmania 7001, Australia.*
e-mail: david.bowman@utas.edu.au

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