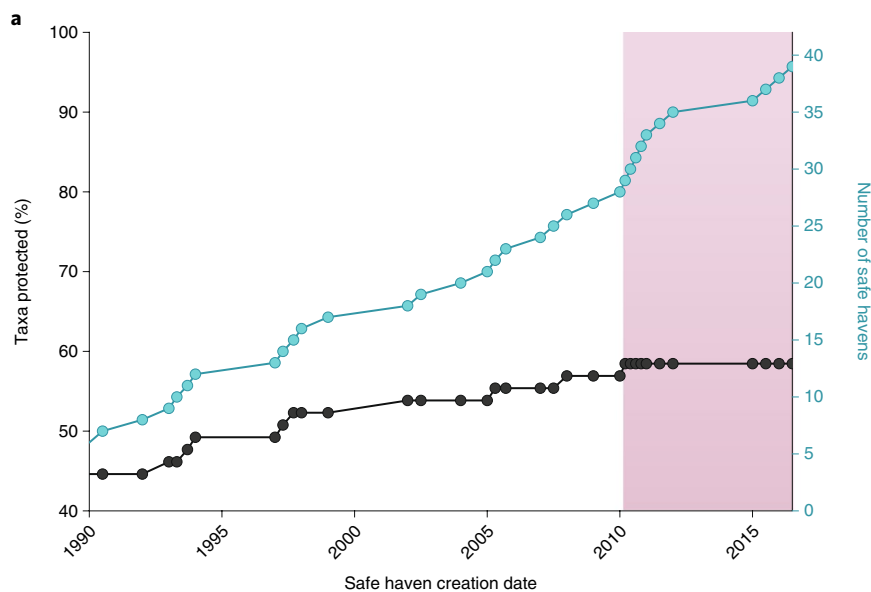


Australia's mammal fauna requires a strategic and enhanced network of predator-free havens

To the Editor — Introduced cats (*Felis catus*) and European red foxes (*Vulpes vulpes*) have caused the precipitous decline and extinction of many native mammal species in Australia¹. Many surviving species now persist in the wild only on predator-free islands and in small natural refugia where introduced predators are at low density. These natural refugia have inspired the creation of 'safe havens': areas where populations of imperilled mammals can be protected from introduced predators, either on offshore islands, or by predator-proof fences on the mainland².

The creation of safe havens revolutionized Australian mammal conservation in the late twentieth century. The number of these havens has increased rapidly over the past 30 years (Fig. 1); there are now 17 fenced areas (with a further seven under construction) as well as 22 islands on which introduced predators have been eradicated and where populations of native mammals have been translocated and established. Introduced predator eradications are currently planned for five more large Australian islands. These havens have improved the population status and probably prevented the extinction of some of Australia's most imperilled mammal species, mostly species of arid and semi-arid distribution, and larger body size. The network currently protects 38 mammal taxa regarded as highly or extremely susceptible to predation from introduced predators.

Most havens have been created by governments, non-government organizations and private landholders acting largely independently of each other. Under a decentralized governance structure, and without an explicitly unified objective, new havens risk being established inefficiently, as seen in the early growth of protected area networks^{3,4}. For example, although the 11 havens created over the past seven years increased protection for 16 predator-susceptible taxa, these were already represented in the haven network and no unrepresented taxa were added to the network (Fig. 1). Twenty-nine predator-susceptible taxa remain unrepresented in the haven network. If a primary conservation objective is to ensure comprehensive protection for all at-risk species, current expansion is performing poorly.



b



Fig. 1 | Increase in species representation under haven network expansion. **a**, Representation of predator-susceptible taxa in havens compared with growth in havens since 1990. Black line, percentage of taxa protected by havens over time for a national target of 67 predator-susceptible taxa; blue line, number of safe havens over time. The pink band indicates the 11 havens created over the past seven years, which have only provided coverage for previously represented species. **b**, A greater bilby (*Macrotis lagotis*). Bilbies have been a primary focus for Australian havens. Credit: **b**, Dave Watts/Alamy Stock Photo.

If national scale objectives such as adequate representation of all predator-susceptible taxa in havens are to be met efficiently, new havens need to address representation gaps in the existing network. Systematic conservation prioritization methods⁵ can help to identify the best locations for new havens, and inform strategies for determining the order in which

taxa are added to the network. However, successful application of these tools requires conservation action to be coordinated and communicated among the conservation actors who contribute to the haven network. This will be difficult to achieve because the actors are diverse and employ different models to fund conservation actions⁶. Ultimately, the success of the haven network

will be judged by its capacity to sustain all predator-susceptible taxa until eradication of introduced predators on landscape or national scales becomes viable, allowing re-introduction outside havens. This goal is achievable if decisions are informed by a coordinated national strategy supported by state-of-the-art conservation planning approaches. □

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Competing interests

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