

# Science for Environment Policy

## Removing invasive mammals from islands leads to major biodiversity benefits

**Eradication of invasive mammal species is a strategy used to help conserve biodiversity on islands** and restore populations of native species. Researchers have now assessed the success of this strategy globally, highlighting the importance of controlling invasive species to protect biodiversity on islands and achieve global conservation targets.

**Islands support more biodiversity than similarly sized terrestrial ecosystems.** They are also home to more threatened species, with 61% of all recently extinct and 37% of all critically endangered species found on islands. Invasive mammal species, such as rats, goats and cats, are the main cause of extinctions on islands. Eradication of these non-native species is a commonly used conservation tool, having been used on over 700 islands across the globe.

In this study, researchers reviewed existing scientific literature and consulted experts to assess the success of invasive mammal eradication programmes on islands globally. Islands with successful mammal eradications were identified using the [Database of Island Invasive Species Eradication](#) (DIISE).

Benefits to conservation from invasive species removal, including increases in populations, increases in breeding, reduction in predation or the return of native or rare species were evaluated, as well as any negative impacts, such as loss of non-target species. This 'demonstrated benefits' analysis was limited to the eight countries in the database with the most eradications (including their overseas territories): Australia, Ecuador, France, Mexico, New Zealand, Seychelles, the UK and the USA.

The researchers also predicted the potential benefits of eradication programmes to certain endangered species (those listed as 'critically endangered' or 'endangered' on the IUCN Red List<sup>1</sup>) of landbirds, seabirds, reptiles and mammals (excluding sea turtles and marine mammals).

In total, 786 populations of 321 native species were demonstrated or predicted to benefit from mammal eradication on 261 islands globally. Rodents (57%) were the most commonly eradicated group, followed by goats and cats (11% and 8% respectively). The literature searches and expert interviews indicated that 236 native island species — including 62 species threatened with extinction — benefited from invasive mammal removal, whereas seven species showed negative impacts (for example, birds may consume toxic bait intended for invasive mammals, and scavengers may ingest toxic substances and suffer secondary poisoning).

The researchers suggest that, in most cases, these negative impacts are temporary, because the eradication operation ceases when invasive mammals no longer pose a threat, and long-term benefits then accrue. Four threatened species — island fox (*Urocyon littoralis*), Seychelles magpie robin (*Copsychus sechellarum*), Cook's petrel (*Pterodroma cookii*) and black-vented shearwater (*Puffinus opisthomelas*) — had their [International Union for the Conservation of Nature \(IUCN\) Red List](#) extinction-risk categories reduced as a direct result of invasive mammal eradication.

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1. Based on the IUCN Red List of Threatened Species: <http://www.iucnredlist.org/>

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Bird species benefited the most from invasive mammal exclusion, representing 69% of the beneficiary species identified. The study predicted that a total of 107 highly threatened species of birds, mammals and reptiles, including 74% of the world's endangered seabirds, potentially benefited from invasive mammal removal.

Mammals, birds and reptiles are relatively well studied but the impact on other fauna, such as amphibians and invertebrates, is less well known. The research also highlights the lack of ecosystem-scale data and monitoring of eradication programmes. Data outlining how specific native species responded to mammal eradication was also rare, indicating a major gap in post-eradication monitoring efforts.

Long-term monitoring is important to understand conservation gains and improve the efficiency of invasive species eradication programmes. The researchers say monitoring studies are often too short to give a true picture of the recovery of native species and, in certain cases, there may be an initial negative effect on native species before an overall, long-term positive effect. Sufficient commitment through funding and planning is, therefore, important to better document the impact of conservation interventions, including at an ecosystem scale.

Overall the study results show that, despite the lack of long-term monitoring, investment in invasive mammal eradication on islands is an effective way of stemming the loss of biodiversity and can contribute towards achieving conservation commitments, such as the Aichi targets<sup>2</sup>.



2. Aichi Biodiversity Targets:  
<https://www.cbd.int/sp/targets/>