
Seabird recovery following rat and cat eradication in Seychelles: achievements and challenges.

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Abstract

The impact of rat and cat eradication on ecosystems is poorly documented, especially in the tropics. In Seychelles, between 1996 and 2010, invasive rats and (in most cases) cats were eradicated from ten islands (five granitic and five coralline), of 21 to 219 ha. Monitoring comprised formal protocols combined with empirical wildlife observations. To date, benefits have been documented for a minimum of 23 seabird populations of nine different species, i.e. 12 (re)colonisations and 11 population increases. Increases in population size or range have been recorded in almost all islands where rats (and cats) were removed. First positive impacts were noted within one to ten years after the eradications, in some islands more substantially than others depending on the proximity of source populations and other unknown factors. Almost all seabird populations already present increased in numbers, and six species established or re-established a total of ten new breeding populations across seven islands. Seabirds appear to play an important role in the ecosystem recovery process, by inducing vegetation changes and bringing in nutrients. Vegetation changes that followed rat eradication such as the rapid development of native *Pisonia grandis* trees further contributed to the establishment of new species or the increase of existing ones. Apart from seabirds, many other native vertebrates (landbirds, reptiles) and several large invertebrates (snails, millipedes, crabs) have also benefited from these operations, further contributing to the restoration process of these islands. Documenting ecosystem recovery should be given higher priority in future. Overall, rat and cat eradication consistently benefited seabird populations and island ecosystems in all cases. However, biosecurity is the keystone for long-lasting conservation impacts of such island restoration programs and crucially needs to become part of islanders' culture. Lack of surveillance and poor biosecurity can have dramatic consequences. The recent reinvasion of Conception Island by rats, the subsequent loss of one third of the global population of a threatened endemic passerine (Seychelles White-eye *Zosterops modestus*) and the decline of the recently established shearwater colony reveals how ecosystem recovery can be quickly reversed, and how vulnerable seabirds and other wildlife, which depend on predator-free island sanctuaries, are.

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