

# Black rat does not bother Mediterranean seabirds

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This is a black rat (*Rattus rattus*) on the Mediterranean islands. Credit: Lise Ruffino /SINC.

Human activities have meant invasive species have been able to populate parts of the world to which they are not native and alter biodiversity there over thousands of years. Now, an international team of scientists has studied the impact of the black rat on bird populations on Mediterranean islands. Despite the rat's environmental impact, only the tiny European storm petrel has been affected over time by its enforced cohabitation with the rat.

A European team has studied around 300 islands in the western Mediterranean, and has confirmed that the presence of the black rat (*Rattus rattus*) has an effect on the number of marine birds there. Mass

colonisation by rats is damaging to the native biota of islands, leading to a 68% risk of extinction for procellariiform seabirds (tube-nosed birds with webbed feet of three to four toes).

Although rats have been introduced into the islands of the Mediterranean over the past 2,000 years, "there has not been any recorded extinction of any seabird species since they first arrived on the islands in this basin", Lise Ruffino, lead author of the study and a researcher at the Mediterranean Institute of Ecology and Paleoecology (IMEP) at the Paul Cézanne University in France, tells SINC.

The study, which has been published recently in *Biological Invasions*, has evaluated more than 50% of the islands in the western Mediterranean. The scientists found that only 31% of the small Mediterranean islands or islets (of less than five hectares) were rat-free. In fact, 99% of islands measuring more than 30 hectares have been invaded by black rats, and living alongside them has had a serious impact on the survival of four procellariiform species.

Of the four species studied, Cory's shearwater (*Calonectris diomedea diomedea*), the Mediterranean shearwater (*Puffinus yelkouan*), the Balearic shearwater (*Puffinus mauretanicus*), and the European storm petrel (*Hydrobates pelagicus melitensis*). "The only one that seems to have been seriously affected as a result of the presence of this invasive species throughout the entire region is the small European storm petrel", points out Ruffino.

The biologist says: "The presence and abundance of the other three shearwaters was more influenced by the features of the individual islands". Mediterranean islands are not very isolated in a geographical sense, meaning it has been easier for this lengthy cohabitation to arise because of their bio-geographical distribution.

Mariano Paracuellos, another of the authors of the study and a researcher at the Aquatic Ecology and Aquaculture Research Group at the University of Almeria, explains that bird reserves have been created, which have limited the birds' interaction with the rats, as have features on each island that act as barriers. "These have helped the birds to avoid direct cohabitation with the rats, and without them the birds could have been seriously affected".

The growing presence of [invasive species](#) around the globe is one of the greatest threats to the preservation of biodiversity worldwide. One of the most serious cases is that of the black rat, which has successfully made its home on 80% of the islands on the planet over the past few thousand years.

More information: Ruffino, L.; Bourgeois, K.; Vidal, E.; Duhem, C.; Paracuellos, M.; Escribano, F.; Sposimo, P.; Baccetti, N.; Pascal, M.; Oro, D. "Invasive rats and seabirds after 2,000 years of an unwanted coexistence on Mediterranean [islands](#)" *Biological Invasions* 11(7): 1631-1651, 2009.

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