
Eradication of the Black Rat, *Rattus rattus*, and biodiversity monitoring in the French Mediterranean islands : the case study of Riou Archipelago in the Calanques national Park

Mathilde Meheut^{*1}, Elodie Debize^{†1}, Lidwine Le Mire Pecheux¹, and Olivier Lorvelec²

¹Parc national des Calanques – Parc national – Bât 4A, Impasse Paradou, 13009 Marseille, France

²UMR0985 INRA – Institut National de la Recherche Agronomique - INRA – Agrocampus Ouest Écologie et Santé des Écosystèmes, Équipe Écologie des Invasions Biologiques, Campus de Beaulieu, 35042 Rennes Cedex., France

Abstract

The Calanques national Park includes a large marine area with several small islands, which represent the western distribution limit of the European Leaf-Toed Gecko (*Euleptes europaea*) and are the site of an exceptional seabird diversity, including Scopoli's Shearwater (*Calonectris diomedea diomedea*), for which the Riou Island is one of the most important breeding sites in France.

Rodents are well known to be among the most impacting invasive species in insular ecosystems, capable of significantly affecting seabird breeding success. Eradication operations of Black Rat (*Rattus rattus*), which have been introduced since the Antiquity in the Riou Archipelago, have already been implemented in the smallest islands with rat trapping method and rodenticide inside bait stations. These methods would not be the most suitable in the case of the Riou and Ma'ire islands, which are characterized by a steep topography, therefore an aerial broadcast method using a helicopter is considered.

The objective of this project is to compile methods and protocols concerning rodent eradication on islands, in order to propose the most adequate operation for the management of the study site. A point of major importance is to assess the effects of rat eradication over the system biodiversity throughout the time. For this reason, besides eradication methods, the focus of this project is to define monitoring protocols of various biodiversity components (vegetation, invertebrates, seabirds, reptiles and small mammals) that will be set up before the eradication operation, giving an initial assessment to compare with post-eradication biodiversity monitoring.

Keywords: Biological invasion, Mediterranean Islands, Invasive mammals species, Rodent, *Rattus rattus*, Eradication, Ecological monitoring

^{*}Speaker

[†]Corresponding author: elodie.debize@calanques-parcnational.fr