

“Impact of Invasive Rodents on Endemic Reptiles in New Caledonian Mining Sites. A Pilot Study”

Authors: Thibault Martin^{1,2}, Brescia Fabrice¹, Hurlin Jean-Claude¹, Debar Léo², Jourdan Hervé², Vidal Eric²

Affiliation:

- ¹ Institut Agronomique Néo-Calédonien (IAC), Axe 2 " Diversités biologique et fonctionnelle des écosystèmes terrestres ", BP 73, 98890 Païta, Nouvelle Calédonie
- ² Institut Méditerranéen de Biodiversité et d'Écologie marine et continentale (IMBE), Aix-Marseille Université, UMR CNRS - IRD – UAPV, Centre IRD Nouméa - BP A5, 98848 Nouméa Cedex, Nouvelle-Calédonie

Abstract

Biological invasions are known to be responsible for species depletion and/or extinction worldwide, especially on insular ecosystems and areas disturbed by human activities. In New Caledonia, one of the world's 34 biodiversity hotspots, several invasive species were introduced and have a negative impact on native species. The “R-mines” project, funded by the CNRT nickel, aims to study on mining sites the impact of three introduced species (rats, cats and ants) on reptile communities. Indeed in New Caledonia, reptiles are recognized as high priority biodiversity markers, given their exceptional endemism rate (89,4%). Here we present results focussing on invasive rodents/skinks interactions. During four three-night sessions of lethal trapping in each of the two mining sites selected (Tiebaghi, Goro), rodents were caught using rat and mouse snap traps placed in pairs along transects in two vegetation types. Thereby we collected 284 rats from two species (*Rattus rattus*, *Rattus exulans*) and extracted their gut. We then conducted diet analysis using an identification key specifically based on skink scale characteristics and a reference collection recently developed for the project. We found that 16 % of trapped rats were skink predators and we were able to determine 89% of prey remains at the species level. Of the nine different skink species preyed, three are listed as **V**ulnerable in the UICN red list, one is **E**NDangered and one is **C**ritically Endangered. This study identified species directly impacted by invasive rats and could be helpful for implementing and prioritizing future operations to restore endangered native skink populations.

Keywords: *Invasive rats, endemic skinks, diet analysis, skink scales morphology*