

Biodiversity inventory of earthworms of Martinique through the use of DNA barcoding unveiled both native and introduced species

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The Martinique is at the hearth of the Caribbean hotspot of biodiversity, a region known to host a large number of plant and vertebrate endemic species. The species diversity of invertebrate species, and in particular those of the soils, is less well known. One of the objectives of the REBIOS project is to fill the knowledge gap on earthworm diversity in Martinique. Because of the limited number of morphological characters taxonomically valuable in earthworms, this task remains however a challenge. DNA barcoding has been shown to be an effective tool to overcome the taxonomic impediment in earthworms and to facilitate biodiversity assessment in tropical ecosystems.

From specimens sampled during successive prospecting sessions, we first built a reference library for earthworms from Martinique through different DNA-based species delimitation methods. We then used this curated library to assign unknown specimens collected in different epiphytic micro-habitat and sampled in a fragmented landscape situated between the two protected areas of the Montagne Pelé and the Pitons du Carbet. Our preliminary results suggest the existence of several potentially new to science and endemic species in the preserved habitats while the agricultural matrix is largely occupied by an invasive species.

keywords: Arboricolous earthworms; DNA barcoding; species delimitation