Saving the threatened terrestrial biodiversity in the French Overseas tropical islands: which research strategy?

Jean-Yves Meyer*^{†1}, Dominique Strasberg^{‡2}, Eric Vidal^{§3}, César Delnatte^{¶4}, Hervé Jourdan^{||3}, and Serge Muller**⁵

¹Délégation à la Recherche, Gouvernement de la Polynésie française – B.P. 20981, 98713 Papeete, Tahiti, French Polynesia

²UMR Peuplements Végétaux et Bioagresseurs en Milieu Tropical, Université de la Réunion (PVBMT) – 15 avenue René Cassin, 97744 Saint Denis Cedex, Réunion

³Institut Méditerranéen de Biodiversité et d'Ecologie marine et continentale, Aix Marseille Université,

CNRS, IRD, Avignon Université, Centre IRD de Nouméa (IMBE) – BPA5, 98848 Nouméa cedex, New Caledonia

⁴Office National des Forêts, Délégation Régionale de Martinique (ONF) – 78 route de Moutte, B.P. 578, 97207 Fort-de-France, Martinique

⁵UMR Institut de Systématique, Evolution, Biodiversité, Muséum national d'Histoire naturelle, CNRS, EPHE, Sorbonne Université (ISEB) – Muséum National d'Histoire Naturelle (MNHN) – CP 39, 16 rue Buffon, 75005 Paris, France

Abstract

70% of the ca. 18,000 endemic plant and animal species known in France are found in the French Overseas tropical islands, formed by 11 territories located in three oceans (Atlantic, Indian and Pacific) and comprising an area of only 4 % of the French nation. This "mega-biological" diversity hold France responsible for both the study and the conservation of this unique natural heritage at the European and international level. Moreover, these island biota are highly threatened by local and global anthropogenic changes (e.g. loss and degradation of natural habitats, invasive alien species, overexploitation, pollutions, and climate change) with exacerbated impacts in the more vulnerable island ecosystems, and with record numbers of extinct of endangered endemic species. Those challenges justify that particular efforts in conservation sciences should be conducted on both the endemic species and the particular ecosystems and habitats found in these tropical island territories. In this talk, we illustrate their relevance in crucial ecological issues (colonization, speciation and radiation, extinction and rarity, biological invasions and biotic interactions, forest dynamics and restoration, impacts of temperature and sea-level rise) through some research

^{*}Speaker

 $^{\ ^{\}dagger} Corresponding \ author: \ jean-yves.meyer@recherche.gov.pf$

 $^{{}^{\}ddagger} Corresponding \ author: \ dominique.strasberg@univ-reunion.fr$

Corresponding author: eric.vidal@ird.fr

 $[\]label{eq:corresponding} \ensuremath{^{\P}\corresponding}\ author:\ cesar.delnatte@onf.fr$

 $[\]label{eq:corresponding} \ensuremath{^\|} \ensuremath{\operatorname{Corresponding}}\xspace{\ensuremath{\operatorname{author: herve.jourdan@ird.fr}}\xspace{\ensuremath{\mathbb{R}}}$

^{**}Corresponding author: serge.muller@mnhn.fr

and conservation programs recently conducted or planned in the next future. We urge that more concerted efforts between research scientists, managers and local island communities, and between territories sharing the same challenges, are developed. They should lead to common strategies and demonstrate the importance of these French Overseas tropical island territories at the national, regional and international scales.