Disentangling the linkages between biodiversity and emerging infectious diseases

Jean-François Guégan[*1]

[1]Institut de Recherche pour le Développement (IRD) – Institut de Recherche pour le Développement – Centre IRD de Montpellier BP 64501, 34394 Montpellier Cedex 5, France

Abstract

Near 60 to 65% of emerging infectious diseases are zoonotic, *i.e.* they have an animal origin. Intuitively, the greatest number of zoonotic pathogens should exist in areas with greatest biodiversity; nevertheless, disease emergence frequently is associated with biodiversity loss, often anthropogenic in origin. Several hypotheses have been proposed, including the dilution effect hypothesis and selection for opportunistic host species. Yet, much of the science remains theoretical and data available are spread among unrelated groups of investigators. The best chance for understanding the relationships between biodiversity and infectious diseases lies in multi-institutional and multidisciplinary collaboration. We brought together ecologists, public health scientists, veterinarians, modelers and parasitologists from four countries, working in different regions of the world. We analyzed the role of biodiversity in transmission of emerging infectious diseases at different spatial scales, using both empirical data and mathematical modelling. In this oral presentation we will present the main research findings from our BIODIS working-group, and we will discuss on their usefulness for understanding future emerging disease outbreaks and their implications in public health terms.

Keywords: Biodiversity and infectious diseases, hierarchical scales of organization, public health, EcoHealth approach, statistical and mathematical modeling

[*]Speaker