**Effects of lemur species behaviour on the distribution of their host-plants**

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**Abstract**

Most primates in tropical forests are frugivorous and play a fundamental role as seed dispersers of many plant communities. Thus, assessing their mutualistic interactions with their host plants is crucial for our understanding of their contribution to tree recruitment, and their role in forest restoration and regeneration. Such research objective has taken on urgency as a result of the global increasing decline in the populations of frugivorous primates due to habitat loss and fragmentation. Understanding how multiple sympatric dispersers differentially affect the spatial patterns of dispersal and recruitment of their shared host-plant can also shed light on the potential effects of the decline or loss of these species on the ecosystem. The main goal of this study was to assess the overall effectiveness of three Malagasy primates (*Eulemur rufifrons, Eulemur rubriventer* and *Varecia variegata editorum*) in the rainforest of Ranomafana National Park as seed dispersers, by examining the impacts of their behaviour and habitat use on seed dispersal, and their contribution to the recruitment of their host-plants. In Madagascar, understanding the roles of lemur dispersers is especially critical given that up to 94% of lemurs are currently threatened with extinction [[Schwitzer et al., 2013](#_ENREF_2)] and they are considered to be key dispersers in Malagasy forests. In addition, the frugivorous bird and bat communities in Madagascar’s forests are depauperate, and thus lemurs may play a keystone role as seed dispersers for a large proportion of trees in the forest. Working with local guides who are familiar with the local fauna and flora, we collected a year of data on lemur feeding, defecation and movement. We also conducted a 3-yr recruitment experiment to assess the contributions of each lemur species to the recruitment of their host-plants relative to their habitat use and seed-dispersal patterns. Results of the first part of this study are currently published in the journal *American Jounral of Primatology* [[Razafindratsima et al., 2014](#_ENREF_1)]. Data show that these three lemur species deposited a majority of their consumed seeds at a distance < 100 m away from conspecific adult trees, and long-distances of seed disperrsal were rare. They had shorter seed-dispersal distances compared to similar-sized primate species in other tropical regions. Also, they differed in the way they moved through their habitats, resulting in differenc patterns of seed dispersion. Variation in dispersal effectiveness may have critical effects on plant demography, population dynamics and community structure. Further analyses, including a demographic model, are currently in process to explore how they also vary in their qualitative effects on the recruitment of their host-plants.

**Literature cited**

Razafindratsima OH, Jones TA, Dunham AE (2014). Patterns of movement and seed dispersal by three lemur species. *Am J Primatol* 76: 84-96.

Schwitzer C, Mittermeier R, Davies N, Johnson SE, Ratsimbazafy J, Razafindramanana J, Louis EE, Rajaobelina S (2013). *Lemurs of Madagascar: A strategy for their conservation 2013-2016*. Bristol, UK, IUCN SSC Primate Specialist Group, Bristol Conservation and Scienec Foundation, and Conservation International.

*Varecia variegata editorum*

