

# Assessment of habitat suitability for the greater bamboo lemur (*Prolemur simus*) in Ranomafana National Park, Madagascar

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The greater bamboo lemur (*Prolemur simus*) is a nutritional specialist, almost exclusively feeding on one species of bamboo, *Cathariostays madagascariensis*. This lemur species is increasingly endangered in its natural habitat in eastern Madagascar by anthropogenic habitat destruction. It was therefore classified as Critically Endangered by the IUCN. Even in the forests of Ranomafana there are only a few individuals remaining today, despite this area being a relatively large national park.

This study asks for possible reasons for the continuing decline of *P. simus* in Ranomafana as an example for other parts of the species' distribution area. It thus asks for the habitat needs of *P. simus* that result from its ecology. I collected data of the Greater bamboo lemur's behaviour as well as of its habitat, especially on the occurrence and abundance of bamboo used as a food resource by the species.

The data collection for the habitat description took place during 1.5 months in October/ November 2006 in two forest areas near Ranomafana that *P. simus* used at this time: Talatakely, which is situated inside Ranomafana National Park, and Ambatolahy dimy, which constitutes an unprotected area. A comparison of these two habitats was thus made possible. The behavioural data were collected in Talatakely during two weeks and were complemented with additional data collected by P. Wright in November/ December 2004 and April/ May 2006. The results show a clear decline of *P. simus* in Ranomafana, especially of males, during the last eight years. *P. simus* is a relatively inactive lemur, which is an adaptation to their folivorous diet: The animals are resting for 51% of the day, where activity levels decrease with age. The peak resting time is situated between 9 and 13h. Feeding is the second main activity of *P. simus*. During the raining season there seems to be an increase in time spent foraging, which is associated with a marked seasonality in food resources exploited by the lemurs. Spatial group cohesiveness could be observed, although the animals rarely had physical contact. The most frequently used method of grooming was therefore *Autogrooming*. Playing behaviour was more frequently seen in males, especially in the youngest ones. *P. simus* mostly uses the forest height level of between 5 and 10m, where its main foods such as culm pith, leaves and young shoots are to be found. The animals seem to use lower areas when the temperature increases.

The distribution of bamboo tends to be higher in those areas where the animals were often observed. There is thus a positive correlation between the abundance of *Cathariostays madagascariensis* and the ranging behaviour of *P. simus*.

The patchy distribution of bamboo in Talatakely and the small size of the remaining forested area in Ambatolahy dimy favour the decline of *P. simus* around Ranomafana. The national park area moreover covers too many wind-exposed areas, which are less suitable for *Cathariostays madagascariensis*. Furthermore, humans represent a disturbing factor in both forests. However, the data also show that forests that are being used by humans can be beneficial for the lemurs and the bamboo as long as the rate of exploitation of trees and bamboo is not too high. Therefore it needs to be asked whether a forest that is sustainably used by humans may be better for *P. simus* than a completely protected area in the long term. Such a forest should have sufficient flat, humid areas, where *Cathariostays madagascariensis* can grow optimally.

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