

Demographic dynamics of isolated populations of brown collared lemur (*Eulemur collaris*) in littoral forest fragments of South-eastern Madagascar.

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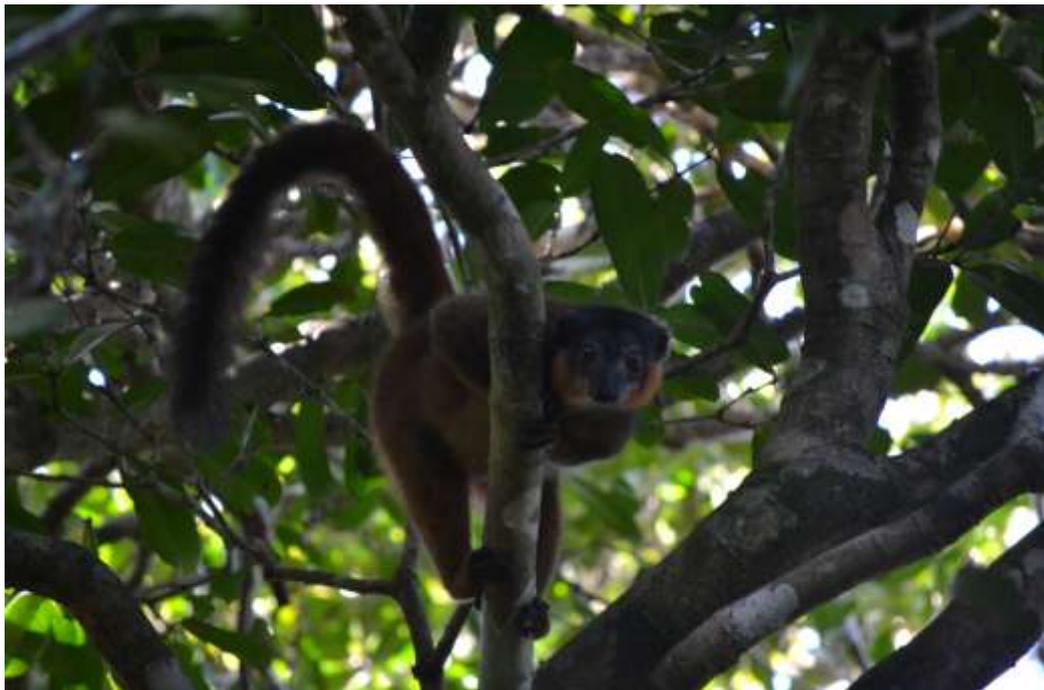
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The brown collared lemur (*Eulemur collaris*) is a medium sized lemur, belonging to the genus *Eulemur*, which are distributed from south-west of Tolagnaro to the Mananara river, where it plays a fundamental ecological role as the principal seed disperser for a number of plant species. The species' status on the IUCN Red List of Threatened Species was assessed as Vulnerable, which means the species population has been reduced by more than 30% over the past 24 years. Habitat loss and hunting are the two main pressures on this species, especially on those populations living in the isolated fragments of the south-eastern littoral forest. It has been reported that habitat conditions may influence the birth rates of primates, as it determines the healthy condition of the animals and its population, thereby influencing fertility in many species. Habitat fragmentation and degradation also affect quality and quantity of food resource, plant density, size and distribution in the fragmented forest.

Lemurs in the littoral forest of South-Eastern Madagascar are under pressure from human disturbances, such as habitat loss and hunting. The distribution and population density of the brown collared lemur *Eulemur collaris* in the fragmented littoral forest of Sainte Luce and Mandena were assessed in 2000-2001, but there is no information on the demographic dynamics of this species' populations. A recent report has been published on demographic dynamics for groups of *E. collaris* living in Mandena Conservation Zone, an isolated and degraded littoral forest, west of Fort Dauphin where the species has been reintroduced in 2000. However the distribution of this species in larger fragments of Sainte Luce littoral forest still remains unknown. Additionally, no such studies were conducted on this species population at Tsitongambarika - a very important habitat as it is the closest ecological equivalent habitat sharing species with the littoral forest of Sainte Luce.

This study involved estimating population sizes for *E. collaris* and other nocturnal lemurs in the area such as the Southern Woolly lemur (*Avahi meridionalis*) and Rufous lemur (*Microcebus rufus*) in fragmented forests of Sainte Luce and comparing with previous studies to investigate the demographic dynamics of this species. We also carried out habitat surveys in order to understand

why lemurs are present in some forest fragments but not in others. The results obtained from this study have showed that different species of lemur respond differently to habitat fragmentation: *E.collaris* and *A. meridionalis* responded negatively to habitat disturbance while *Microcebus rufus* populations remain relatively stable and do not seem to be affected by degradation or fragment size. *E.collaris* does not disperse to the other three fragments due to the lack of food resources available, low numbers of large trees, and high level of human disturbance. No lemurs were found in the unprotected fragments, suggesting that direct hunting might be a major factor to the absence of lemurs in this area. The clearing of forest for agricultural purposes at Tsitongambarika III has the highest impact on forest degradation. Hunting is a major factor influencing the densities of lemur at Ampasy forest, and *E.collaris* - the largest lemur in the area might be under the most pressure



Picture 1. Female brown collared lemur *Eulemur collaris* in S17, Sainte Luce



Picture 2. Rufous mouse lemur (*Microcebus rufus*) at Sainte Luce



Picture 3. Fat tailed dwarf lemur (*Cheirogaleus* sp.) at Sainte Luce



Picture 4: Southern woolly lemur (*Avahi meridionalis*) at Sainte Luce



Picture 5: *E. collaris* trap at Tsitongambarika III, Ampasy