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Influence of seed abundance on two ground-dwelling murids in the Kanneliya rainforest

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The food limitation hypothesis is said to govern the abundance of small mammals in tropical rainforests. This investigation therefore attempted to ascertain the influence of seed availability on the two predominant ground-dwelling rodents *Mus mayori* (Sri Lanka Spiny rat) and *Rattus rattus kandianus* (Common Sri Lanka House rat) in the Kanneliya rainforest. The study was conducted from October 2006 to March 2007. Six plots of 40 x 90 m located at least 500 m apart were randomly selected and population sizes of the two murids were estimated using a four-day live trapping session in each plot. Seed searches were simultaneously carried out within the plots. After the initial trapping session was completed food enrichment trials were carried out in the six study plots for two weeks. The population sizes of the murids were ascertained for a second time after food enrichment using the same live trapping protocol. Seed predation rate was also estimated during the food enrichment trials.

A total of 65 individuals were captured in the six study plots which included 35 individuals of *M. mayori* (53.8 %) and 29 individuals of *R. r. kandianus* (44.6 %). Only one individual of *Suncus zeylanicus* was captured during the study. The mean abundance of rodents prior to food enrichment was 10.67 (± 2.8) with that of *M. mayori* being 5.83 ($\pm$ 1.3) and *R. r. kandianus* being 4.83 (± 1.6). Seed addition in the six plots resulted in a significant increase in rodents with total mean abundance attaining 18.33 ($\pm$ 2.2) (Paired T-Test for total rodents, $T = 2.77$, $P < 0.05$). The mean abundance of the individual species after food addition was 10.83 ($\pm$ 1.8) for *M. mayori* and 7.5 ($\pm$ 0.8) for *R. r. kandianus.* Seed predation rate in Kanneliya was 5.42 g (± 0.95) per day. Seed searches revealed the presence of 16 seed/fruit types among the leaf litter of the forest. Although a positive effect was observed between natural seed availability and rodent abundance this trend was not significant. The results of this investigation thus

indicate that food availability, particularly during the non-fruiting season, may at least in part regulate rodent populations in tropical rainforests.

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