

MOTANE SLENDER LORIS (*Loris tardigradus nycticeboides*) IS A CRITICALLY ENDANGERED PRIMATE THAT NEEDS MORE CONSERVATION ATTENTION

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ABSTRACT

The primates of Sri Lanka are represented by five species, out of which three are endemic to Sri Lanka. This includes two species of slender lorises, *Loris tardigradus* and *Loris lydekkerianus* of which the former is endemic to Sri Lanka. The endemic red slender loris *Loris tardigradus*, represented by two subspecies (*L. t. tardigradus* and *L. t. nycticeboides*), is ranked among the top ten globally threatened primate species. However, very little attention has been given to study this species in the past. Therefore, the aim of the present study was to document their distribution, the threats they face, their conservation status and management needs through a occupancy monitoring programme across 160 sites located in the Wet, Intermediate and Dry Zones of Sri Lanka over a period of two years. A distribution map of the red slender loris has been compiled based on the results of this study. The initial results indicate that size of the forest, forest seral status, protection status of the forest, arboreal connectivity of the forest and fragmentation have affected the slender loris site occupancy. Rediscovery and the first physical examination of the Montane slender loris (*L. t. nycticeboides*) are among the key outcomes of this study. The Montane slender loris was recorded from several remaining montane forest patches between 1600-2100m in Nuwara-Eliya. Thus, available natural vegetation for the Montane slender loris is less than 3500 ha which exist as five forest fragments. The estimated population size is less than 60-100 mature individuals. This study further reveals that the few remaining habitats of Montane slender loris are under a great deal of pressure due to forest dieback, encroachment by invasive alien species and firewood collection by the local people. Therefore, Montane slender loris should be listed as a Critically Endangered species. A pilot montane forests restoration programme at Hakgala SNR is an effort to enhance the carrying capacity for Montane red slender loris.

KEY WORDS: Montane slender loris, Primates,

INTRODUCTION

The primates of Sri Lanka are represented by five species, out of which three are endemic to Sri Lanka (Nahallage *et al.*, 2008). This included two species of slender lorises, *Loris tardigradus* and *Loris lydekkerianus* that are nocturnal Strepsirrhini primates, endemic to the Southern India and Sri Lanka. The grey slender loris, *Loris lydekkerianus* comprises of two Indian subspecies (*L. l. lydekkerianus* and *L. l. malabaricus*) and two Sri Lankan subspecies (*L. l. grandis* and *L. l. nordicua*). The red slender loris *Loris tardigradus* is endemic to Sri Lanka and comprise of two subspecies (*L. t. tardigradus* and *L. t. nycticeboides*) (Brandon-Jones *et al.*). The red slender loris is ranked among the top ten globally threatened primate species by the Zoological Society

of London's (ZSL's) EDGE (Evolutionary Distinctiveness and Global Endangerment) of Existence programme (www.edgeofexistence.org), which prioritizes species according to their Evolutionary Distinctiveness and Global Endangerment (Isaac *et al.*, 2007). Despite this, most previous research and conservation effort has focused on the Indian lorises, with the Sri Lankan species/subspecies receiving comparatively little attention. As such, relatively little had been documented with regard to the threats they face, their conservation status and management needs.

MATERIALS AND METHODS

To begin to address this data gap, a massive occupancy monitoring programme across the Wet Zone, Intermediate Zone and Dry Zone has been undertaken over the past two years by the Slender Loris Conservation Project (a collaborative project of the Open University of Sri Lanka, FOGSL University of Colombo and Zoological Society of London) to assess the status of slender lorises at over 160 sites, most of which has been subjected to nearly two centuries of over exploitation for agriculture (e.g. tea, rubber cardamom), timber plantation and urbanization.

RESULTS AND DISCUSSION

Work carried out to date has enabled mapping of the main distribution of the red slender loris in the rainforests in Sri Lanka, and begun to answer questions regarding habitat preferences and threats. The initial results shows that size of the forest, forest seral status, protection status of the forest, arboreal connectivity of the forest and fragmentation have affected the slender loris site occupancy.

Rediscovery and the first physical examination of the Montane slender loris (*L. t. nycticeboides*) are among the key outcomes of the Slender Loris Conservation Project (Gamage *et al.* 2010). The team was further able to detect the Montane slender loris from several remaining montane forests patches (Figure 1). The study further revealed that Montane slender loris only occupied montane evergreen forests between 1600-2100m in Nuwara-Eliya. Nearly 90% of this forest type has disappeared due to deforestation for human settlements, tea plantation and *Eucalyptus*/pines plantation. Thus, available natural vegetation for the Montane slender loris is less than 3500 ha and estimated population size is less than 60-100 mature individuals. Unfortunately, the loris occupied habitats are existing as five fragments (Horton Plains National Park, Conical Hill Proposed Forest Reserve, Kikiliamana Forests Reserve, Hakgala Strict Nature Reserve and Kandapola Sitaeliya Conservation Forests). This study further reveals that the few remaining habitats of Montane slender loris is under a great deal of pressure due to forest dieback,

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encroachment by invasive alien species and firewood collection by the local people (Gamage *et al.*, in preparation).

However, in 2008 status of the Montane slender loris was downgraded from Critically Endangered to Endangered in IUCN's red list and as a consequence loris was removed from the world top 25 endangered primates list (Mittermeier *et al.*, 2007). The reason for this change is unclear. However, our long-term investigations clearly suggest that Montane slender loris must be reassigned the Critically Endangered status. This reassignment would help a great deal to gather financial and other forms of support to continue the on-going efforts to prevent this species from becoming extinct.

The overall results of the recently completed occupancy study (2009-2012) show that the Montane slender loris is Critically Endangered [A1(c), C.C2 a(i)]. Thus, Phase two of the Slender loris conservation project is designed to address this issue. The project initiated a pilot montane forests restoration programme at Hakgala SNR (Enrichment of Hakgala Strict Nature Reserve via replanting of native tree in the degraded lands for survival of critically endangered Montane Slender Loris) in 2013 under the supervision of Department of Wildlife Conservation. The project team is working closely with the District Secretariat of Nuwara Eliya, Department of Wildlife Conservation, Forest Department, Municipal Council of Nuwara Eliya, local community groups and schools in the region to raise awareness in the Montane slender loris and the importance of protecting and restoring its habitat. So far, with support from ZSL, the team has planted more than 5,000 native trees to connect fragmented forest patches. This effort will continue this year as well (Fig. 2 and 3).

Through linking occupancy data with both habitat characteristics and the protected status of the surveyed sites, the outcomes go beyond pure research to provide an adaptive management framework for resource management agencies to protect this endangered species and its habitats. The partners and relevant government departments have formed an expert group (Loris conservation expert group) and a steering committee (steering committee for slender loris) to ensure that applied actions are implemented.



Figure 1. Male (right) and Female (left) Mountain slender loris form NuwaraEliya

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Figure 2. Planting was ceremonially started in 21st May 2013 with participation of the Mayor of Nuwara Eliya, the DWC staff members, Participants from District Secretariat Nuwara Eliya, Local community groups, teachers and students from the schools in Nuwara Eliya.



Figure 3. Current view of the forest restoration site 1 at the Hakgala Strict Nature Reserve

ACKNOWLEDGEMENT

We thank the Director General of the Department of Wildlife Conservation (DWC), the Research Committee, the Deputy Director, Mr. S. R. B. Dissanayake and DWC staff for their support. We extend our thanks to Conservator General and the Forest Department staff for their support. We give special acknowledgment to the dedicated and professional Slender Loris Conservation Programme field team: G. D. C. Pushpa-Kumara, C. A. Mahanayakage, V. Sumanasekara, G. Rathnayake, D. R. Vidanapathirana, S. Ariyaratna, V. Rathnayake, D. Samarasingha, D. De Silva, T. Senevirathna, R. Peries, U. Wickramasingha, M. Goonasekara, L. Rathnayake, S. Jayalath, P. Yahanpath and M. A. C. Maheshani.

The programme is funded through the EDGE of Existence Programme of the Zoological Society of London, Synchronicity Foundation and BBC Wildlife Fund - we are extremely grateful for their support.

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