



**Microhabitat selection by
the Ashy-headed Laughingthrush
Garrulax cinereifrons (Sylviidae)
in unlogged and regenerating
selectively logged forest tracts in the
Sinharaja World Heritage Site,
Sri Lanka**

**A Dissertation submitted for the
Degree of Master of Science
In Environment Science**

UCFS



542163

**A. M. S. Siriwardhane
Faculty of Science
University of Colombo
November 2007**

ABSTRACT

The Ashy-headed Laughingthrush *Garrulax cinereifrons*, a globally-threatened bird species endemic to Sri Lanka, has long been considered an undisturbed rainforest interior species. However, its regular occurrence in forest tracts subjected to selective logging in the past, and in edges of forests has also been observed. The selection of similar types of microhabitat in unlogged and regenerating selectively logged forest tracts was hypothesized as the cause for this paradoxical multiple habitat use. It was further hypothesized that if the Ashy-headed Laughingthrush is an 'undisturbed forest' species, its densities would be higher in unlogged forest tracts than in logged tracts.

To test these hypotheses, I studied the qualitative and quantitative similarity of occupied microhabitats, their selection by the Ashy-headed Laughingthrush, and densities of the species in unlogged and regenerating selectively logged forest tracts in the Sinharaja World Heritage Site, Sri Lanka, for six months between January and September 2004 excluding the months March, April, and August.

The visual identification of occupied microhabitats made at random while cautiously following groups of the Ashy-headed Laughingthrush revealed that those microhabitats were similar between unlogged and regenerating logged forest tracts. Almost all of them were edges or centres of gaps (edges of tree fall gaps; their centres; edges of logging roads, logging trails, foot paths, and streams). The characteristics of occupied microhabitats (*viz.* overstorey tree density, total basal area of overstorey trees, understorey tree density, canopy cover, litter cover, and litter thickness) were quantitatively similar between unlogged and regenerating logged forest tracts, except for higher shrub density in the latter. All the microhabitats were overall similar as revealed by the cluster analysis. These qualitative and quantitative similarities show that the occupancy of similar microhabitat types (*i.e.* gaps) underlies the observed presence of the species in both unlogged and regenerating logged forest habitats.

The vast majority of occurrences of the Ashy-headed Laughingthrush in each forest tract was in gap edges (95% in unlogged forest; 94.34% logged forest) indicating selection and that it is a 'gap edge specialist'. The occurrence in an interior microhabitat was observed only once (1.25% in unlogged forest). Its specialty and almost non occupancy of interior microhabitat are supportive for the species to be considered an edge species as against an interior species.

The relative densities of the Ashy-headed Laughingthrush perceived through combined interpretation of mean group size and average encounter rate in the unlogged and the regenerating logged forest tracts were higher in the latter. The uniformity in spatial dispersion of canopy gaps in the regenerating selectively logged forest tracts could be the cause for higher densities there. Since the densities of a species are considered to be higher in a habitat that is more suitable for it, the selectively logged forest as at present (i.e. recovered at least for 20 years) would be considered a better habitat than the unlogged ('undisturbed') forest.

Conservation planners need to recognize that the availability of gaps in a rainforest is conducive for the presence of the Ashy-headed Laughingthrush. Further studies are necessary to quantify the critical level of cumulative canopy openness permissible in the habitat of the Ashy-headed Laughingthrush.