# 3.1 Diversity of Worker Ant Communities (Order: Hymenoptera; Family: Formicidae) in Non-Agricultural Lands in Ratnapura District

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## ABSTRACT

An ant survey (Jan., 2004 - Dec., 2005) conducted in the forests and some selected agricultural lands in Ratnapura district for the preparation of an inventory and to locate the habitats of the endemic ant, *Aneuretus simoni* Emery, was extended to non-agricultural lands in the district, from January to June in 2006. Worker ants were sampled along three transects laid in such a land in Kuruwita (January), Dumbaramanana (February), Godakawela (March), Ambilipitiya (April), Balangoda (June) and Nivithigala (June). Along each 100 m transect, twenty five honey baits were kept at four metre intervals and collected after an hour into bottles filled with 85% ethanol. In addition, ants sampled by soil sifting (20) and hand collection (10) at 4 m intervals were also preserved in 85% ethanol. Ants were sorted, identified to the possible taxonomic levels and enumerated in the laboratory. Air (23° – 35° C) and soil temperatures (22° - 33 °C), soil moisture content (17% - 37%) and soil organic matter (2% - 9%) of each site were also recorded.

Although members of six subfamilies, Amblyoponinae, Cerapachyinae, Dolichoderinae, Formicinae, Myrmicinae and Ponerinae and, fifty six species and morphospecies of ants were recorded, *Aneuretus simoni* (Subfamily: Aneuretinae) was never observed during this study. Significantly different Species Richness values (chi square test; $p< 0.05$) were recorded for the lands in Kuruwita (18), Dumbaramanana (19), Godakawela (28), Ambilipitiya (17), Balangoda (29) and Nivithigala (26). *Technomyrmex albipes* (36.8%) dominated the Kuruwita ant community while *Pachycondyla* sp. 2, *Monomorium* sp. 2 and *Paratrechina longicornis* were observed in considerable (>5%) proportions. *Pheidole* sp. 2 was dominant in Dumbaramanana whereas *Tapinoma melanocephalum* (24.8%), *Technomyrmex bicolor* (12.6%), *Myrmicaria brunnea* (10.4%) and *Technomyrmex albipes* (5.9%) were also observed in considerable proportions. *Tapinoma melanocephalum* was the dominant species recorded from Godakawela (28.9%) and Nivithigala (27%) study sites. In addition, *Pheidole* sp. 2 (10.9%) and *Pheidole* sp. 3 (10.9%) in Godakawela and *Camponotus* sp. 2 (11.4%) & *Paratrechina longicornis* (9.3%) in Nivithigala were observed in considerable proportions. The dominant ant species observed in Ambilipitiya and Balangoda were *Anoplolepis gracilipes* (72.9%) and *Pheidole* sp. 2 (36.9%), respectively. Considerable proportions of *Tetramorium bicarinatum* (9%) in Ambilipitiya and *Pheidole* sp. 4 (12.9%) in Balangoda were also observed. *Anoplolepis gracilipes* and *Meranoplus bicolor* were the species common to six disturbed regions and this observation indicated that these species may have a value as biological indicators of disturbance. The ponerines, *Anochetus* spp., *Cryptopone* spp., *Diacamma ceylonense*, *D. indicum*, *Hypoponera* spp., *Leptogenys* spp., *Odontomachus simillimus*, *Pachycondyla* spp. and *Platythyrea* sp., when present, were always observed in very low proportions. Although the reasons for the presence of different ant communities in the six lands were not investigated in detail it is apparent that each ant community observed in each land could be a reflection of the environmental quality of each land. Members of Subfamily Aenictinae, which were recorded from forests in Ratnapura were not observed in these lands.

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