

Similarities and differences of ant communities in three types of habitats in the intermediate zone of Sri Lanka.

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Abstract

Ants are a common biotic component in different types of terrestrial ecosystems. Similarities and differences of ant fauna that inhabited selected forests and cultivated and uncultivated lands in Anuradhapura district were investigated in 2008 and this investigation was extended to intermediate zone, Kurunegala lands, in 2009. Worker ants were collected during 30th September to 1st of October from Badagamuwa forest (F), a banana cultivation (B) and an uncultivated land (U) in Mawathagama. Soil (40) and litter (40) sifting, honey baiting (40) for an hour and manual collection (40) were carried out at 2.5 m distance along five, 100 m transects laid at each land. Twenty, honey-baited pitfall traps were placed throughout each sampling area and the traps were collected after five hours. All samples were preserved in 70% ethanol. Worker ants were sorted and identified to the furthest possible taxon in the laboratory. Air (F: 26.2 ± 0.9 °C ; B: 26.7 ± 0.75 °C ; U: 29.8 ± 1.7 °C) and soil temperatures (F: 25.7 ± 0.27 °C ; B: 27.1 ± 0.22 °C ; U: 32.1 ± 1.8 °C), soil moisture% (F: 15.2 ± 3.2 ; B: 17 ± 2.3 ; U: 16.9 ± 2) and soil pH (F: 5.08 ± 0.5 ; B: 5.4 ± 0.18 ; U: 4.62 ± 0.21) of each transect were also recorded.

Worker ants belonging to five subfamilies, twenty one genera and thirty six species and morphospecies were recorded. Dolichoderinae, Formicinae and Myrmicinae were common at the three lands but ponerines were restricted to the forest. Two pseudomyrmecines were common at the forest and the uncultivated land. *Anoplolepis gracilipes* Jerdon (F-32.6%, B-76%, U-14.3%) and *Paratrechina yerburyi* Bolton (F-2%, B-5.3%, U-7.6%) were common to the three lands (Proportional similarity = 16.4%). *Pheidologeton diversus* Jerdon (37.6%), *Pachycondyla luteipes* Brown (6.9%), *Solenopsis geminata* Fabricius (3.9%), *Technomyrmex albipes* Smith (2%), *Odontomachus simillimus* Smith (0.8%), *Leptogenys ocellifera* Roger (0.7%), *Tetramorium tortuosum* Roger (0.7%), *Tetraponera allaborans* Walker (0.6%) , *Hypoponera* sp. 1 (0.2%) and *Leptogenys* sp. 1 (0.2%) were restricted to the forest ($H^I=1.7$) and *A. gracilipes*, *Pheidole* sp. 3, *P. diversus* and *P. luteipes* were dominant in this community (Chi-square ; $p<0.05$). *Lophomyrmex quadrispinosus* Jerdon (4.6%), *Tetramorium walshi* Forel (1.3%), *Crematogaster biroi* Mayr (0.6%), *Crematogaster* sp. 3 (0.4%), *Recurvidris* sp. 1 (0.4%) and *Monomorium floricola* Jerdon (0.2%) were observed only in the banana cultivation ($H^I=0.98$) while *A. gracilipes*, *P. yerburyi* and *Meranoplus bicolor* Guerin-Meneville were the dominant species (Chi-square; $p<0.05$). *Tapinoma melanocephalum* Fabricius (8.8%), *Lepisiota* sp. 1 (3%), *Paratrechina longicornis* Latrielle (3%), *Oecophylla smaragdina* Fabricius (0.9%), *Tetramorium smithi* Mayr (0.6%), *Camponotus sericeus* Fabricius (0.3%), *Monomorium* sp. 3 (0.3%), and *Tetraponera rufonigra* Smith (0.3%) were observed only in the uncultivated land ($H^I=2$) and *T. melanocephalum*, *A. gracilipes*, *P. yerburyi*, *Crematogaster rothneyi* Mayr and *Pheidole* sp. 4 contributed higher proportions (Chi – square $p<0.05$).

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