

4.2 Similarities and differences of ant communities in three types of habitats In Mihinthale region

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ABSTRACT

Ants are ecologically important biotic components in the forests, cultivated lands and uncultivated lands in Sri Lanka. Similarities and differences of ant communities that inhabit such ecosystems in Anuradhapura region were recorded in 2008 and this investigation was extended to the foraging worker ant communities in Mihinthale region on 23rd and 24th of April 2008. Worker ants were collected from Mihinthale forest (F), a teak field (T) and an uncultivated land (U) in the premises of Rajarata University. Soil (40) and litter (40) sifting, honey baiting (40) and manual collection (40) were carried out at 2.5 m distance along five, 100 m transects laid at each land. Honey baits were collected after an hour. 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 : $28.8 \pm 0.45^{\circ}\text{C}$; T : $32.4 \pm 0.55^{\circ}\text{C}$; U : $32.2 \pm 0.45^{\circ}\text{C}$) and soil temperatures (F : $28.4 \pm 0.55^{\circ}\text{C}$; T : 31°C ; U : $30.4 \pm 0.55^{\circ}\text{C}$), soil moisture% (F : 24 ± 0.8 ; T : 15 ± 0.75 ; U : 15 ± 0.45) and soil pH (F : 5.9 ± 0.04 ; T : 6.2 ± 0.34 ; U : 6 ± 0.1) of each transect were also recorded.

Worker ants belonging to seven subfamilies, twenty five genera and forty six species and morphospecies were recorded from Mihinthale region. Members of Dolichoderinae, Formicinae, Myrmicinae, Ponerinae and Pseudomyrmecinae were recorded from the three lands and a doryline was observed only in teak cultivation while an aenictine was recorded only from the uncultivated land. *Anoplolepis gracilipes* (F – 2.9%, T – 0.3%, U – 18.5%), *Camponotus irritans* (F – 0.1%, T – 0.6%, U – 0.2%), *Oecophylla smaragdina* (F – 0.6%, T – 0.2%, U – 0.7%), *Crematogaster rothneyi* (F – 8%, T – 0.3%, U – 0.3%), *Leptogenys ocellifera* (F- 1.2%, T – 4.1%, U – 2.4%), *Meranoplus bicolor* (F- 10%, T – 5.9%, U – 10%), *Monomorium pharaonis* (F – 0.1%, T – 17.7%, U – 1.3%), *Myrmecaria brunnea* (F- 1.3%, T – 1.4%, U – 4.2%), *Pachycondyla* sp. 1 (F – 1.1%, T – 1.2%, U – 4.2%), *Pheidole* sp. 1 (F – 7.3%, T – 0.3%, U – 0.5%), *Pheidole* sp. 3 (F – 0.8%, T – 1.1%, U – 2.3%), *Pheidole* sp. 4 (F – 16.5%, T – 5%, U –

19.4%), *Solenopsis geminata* (F – 13.5%, T – 0.9%, U – 3.2%), *Tetramorium bicarinatum* (F – 0.1%, T – 0.2%, U – 0.7%) and *Tetramorium walshi* (F – 1.3%, T – 0.6%, U – 0.7%) were common to the three lands (Similarity Co-efficient = 19.4%). *Acropyga acutiventris* (0.1%), *Camponotus sp. 2* (0.1%), *Dilobocondyla sp. 1* (0.2%), *Leptogenys sp. 2* (0.6%), *Pheidole sp. 9* (13.7%) and *Tetraoponera rufonigra* (1.2%) were restricted to the Mihinthale forest ($H' = 2.6$) and *Pheidole sp. 4*, *Pheidole sp. 9*, *Solenopsis geminata* and *Meranoplus bicolor* were dominant in this community (Chi-square; $p < 0.05$). *Anochetus sp. 3* (0.3%), *Camponotus sp. 1* (0.5%), *Dorylus orientalis* (1.2%), *Leptogenys sp. 1* (0.3%), *Lophomyrmex quadrispinosus* (40%) and *Technomyrmex bicolor* (0.2%) were restricted to the teak field ($H' = 2.3$) while *Lophomyrmex quadrispinosus* was dominant in this community (Chi-square ; $p < 0.05$). *Aenictus sp. 1* (0.2%) and *Calyptomyrmex sp. 1* (0.2%) were observed only in the uncultivated land ($H' = 2.6$) and *Anoplolepis gracilipes*, *Pheidole sp. 4* and *Meranoplus bicolor* represented higher proportions in this community (Chi-square ; $p < 0.05$).

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