

SPECIES COMPOSITION AND DISTRIBUTION OF TERMITES IN SELECTED HABITATS OF THE PERADENIYA UNIVERSITY PARK

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Introduction

Termites (Isoptera) are beneficial insects in nature as decomposers. They are also destructive insect pests. Termites are widely distributed throughout the tropical and subtropical regions (Harris, 1971). According to Sands (1975), 59 species of termites in 28 genera belonging to the 4 families; Hodotermitidae, Kalotermitidae, Rhinotermitidae and Termitidae have been recorded from Sri Lanka. The objective of the study was to determine the species composition, diversity and microhabitats of termites in three selected habitats of the University Park.

Materials and Methods

Peradeniya University Park is 150 ha in extent and comprises of several habitats representing different vegetation types and land use patterns. Three different habitats in the University Park; *Alstonia* woodland, playground and stream bank of Sarasavi oya were selected for the study.

Sampling of termites: A belt transect (50 x 2 m) was used for sampling termites in each habitat. During sampling, mounds, runways, live trees

(2 m above ground), dead trees, leaf litter and soil (25 x 25 x 10 cm³) were examined.

Random collections: Termites were randomly collected from a hostel compound (in Sarasvi Uyana Hostel), road side and a building (Faculty of Agriculture). Termites collected from both methods were identified to species level using taxonomic keys of Roonwal & Chhotani (1989) and Chhotani (1997).

Results

From the different study sites in the Peradeniya University Park, six species of termites belonging to 4 genera in the family Termitidae were recorded (Table 1 and 2). *Alstonia* woodland harbored the highest number of termite species (5 spp.) followed by the stream bank (3 spp.). Of the termites recorded, *Odontotermes feae* was present only in the *Alstonia* woodland, where it had made runways on *Alstonia macrophylla*. Similarly, *Hospitalitermes monoceros* was confined to arboreal nests in road sides. The rest of the species recorded were not confined to a particular habitat.

Table 1. Termites recorded from sampling of selected habitats.

Species	Microhabitat	Habitat/Site
<i>Odontotermes feae</i>	Runways (on <i>Alstonia macrophylla</i>)	Alstonia woodland
<i>Odontotermes redemanni</i>	Mound	
	Runways (on <i>Mangifera indica</i>)	
<i>Nasutitermes</i> sp.1	Decaying trunk	
<i>Odontotermes ceylonicus</i>	Mound	
<i>Hypotermes obscuriceps</i>	Mound	
<i>Odontotermes redemanni</i>	Mound	Stream bank
<i>Nasutitermes</i> sp.1	Decaying trunk	
<i>Odontotermes ceylonicus</i>		
<i>Odontotermes ceylonicus</i>	Soil (subterranean)	
<i>Odontotermes redemanni</i>	Mound	Playground
	Runways (on <i>Samenia saman</i>)	
<i>Hypotermes obscuriceps</i>	Mound	

Table 2. Termites recorded through random collections.

Species	Microhabitat	Habitat/Site
<i>Hypotermes obscuriceps</i>	Mounds	Compound (Sarasvi Uyana Hostel)
<i>Hospitalitermes monoceros</i>	Arboreal nest	Road side
<i>Hypotermes obscuriceps</i>	Wooden furniture	Soil Science department (Faculty of Agriculture)
<i>Odontotermes ceylonicus</i>		

Microhabitats of termites in the study sites comprised soil, dead tree trunks, and runways on trees, mound and timber. From the 3 transects sampled, the number of colonies encountered were 10 (*Alstonia*-woodland), 7 (playground) and 6 (Stream bank).

According to Shannon's Diversity Index, the highest species diversity was recorded from the *Alstonia* woodland (1.470) followed by the stream bank (1.011) and the lowest

from the playground (0.598). The highest Evenness Index (0.920) was obtained for the stream bank and the lowest (0.863) for the playground.

Discussion

According to the findings the most common termite species in the study area; *O. ceylonicus*, *O. redemanni*, and *H. obscuriceps* are mound builders. Furthermore, mounds were present in all the study locations. *O. feae* was confined to a single site and why it is so is unclear. This species is known from different microhabitats in

different countries in South Asia (Harris, 1971). According to Sands (1975), *Odonotermes* is the most common termite genus in Sri Lanka. The arboreal termite, *H. monoceros* (the black termite) is endemic to Sri Lanka. Furthermore, 4 of the species recorded from the area are considered as secondary pests of tea. Tea plantations had existed in the Hanthana hills since 1940s. All 6 species belonged to the family Termitidae. Family Termitidae is the most common termite family in Sri Lanka (Sands, 1975), in the Indian sub region as well as in the Oriental region. The comparatively high diversity of termites in the *Alstonia* woodland and stream bank can be due to the presence wet soil and the availability of several microhabitats. The lowest species diversity in the playground can be attributed to the dry soil and the uniform ground cover of grasses. Shannon evenness values revealed that all the termite species show an even distribution. (Range 0.86 - 0.92) This may due to the resource partition and termite species may have less competition for resource

Sands, W.A. (1975). Country visit report (CVR/ 76/ 1), Centre for Overseas Pest Research, College House, London, U.K.

References

- Chhotani, O.B. (1997). The fauna of India and the adjacent countries, Vol. II. Zoological Survey of India, Calcutta.
- Harris, W.V. (1971). Termites, Their Recognition and Control. New York Longmans.
- Roonwal, M.L. and Chhotani, O.B. (1989). The fauna of India and the adjacent countries, Vol. I. Zoological Survey of India, Calcutta.