

## Termite Assemblages in Lower Hanthana Forest and Variation in Worker Mandible Structure with Food Type

E. W. M. T. D. Ekanayake and W. A. I. P. Karunaratne

*Department of Zoology, Faculty of Science, University of Peradeniya*

Termites are the most important of the wood destroying insects. They are important as super decomposers and as organisms that maintain carbon, nitrogen balance in ecosystems. Generally termites feed on wood and soil. Therefore, their mandible structure varies depending on their food type, wood and soil. The present study examines the species composition and diversity of termites in five different forest types in Lower Hanthana area and relate worker mandible teeth pattern to their food habits.

Termites were collected in 2 m X 5 m plot areas, in both wet and dry seasons, from five selected forest types: open woodland (495 m), mixed pinus (538 m), pure pinus (535 m), riverine forest (504 m) and dense woodland (618 m). The number of encounters was taken as the number of individuals of each species. Collected soldier termites were identified using taxonomic keys. Mandibles of identified worker termite species were slide mounted. A total of 14 species of termites (*Coptotermes gaurii*, *Nasutitermes ceylonicus*, *N. fletcheri*, *N. kali*, *Nasutitermes* sp. 1, *Hypotermes obscuriceps*, *H. xenotermitis*, *Odontotermes globicola*, *O. horni*, *O. obesus*, *Odontotermes* sp. 1, *Odontotermes* sp. 2, *Odontotermes* sp. 3 and *Dicuspiditermes incola*) belonging to five genera, four subfamilies and two families were collected from different microhabitats of the five forest types. Of them, 13 species belonged to the higher termite family Termitidae and one species, *C. gaurii* to the primitive termite family Rhinotermitidae. Termite diversity decreased with increasing altitude, temperature and humidity but the relationships were not significant. This may be due to the small sample size. Among the five sites, the highest diversity of 1.6959 (Shannon-Wiener diversity index) was recorded from riverine forest during the wet season. However, open woodland at the lowest altitude had the highest diversity of termites in both seasons (Wet: 0.4505, Dry: 1.6297). This may be due to favourable temperature with a low level of humidity and rainfall prevailing in this site that facilitated their survival. Of the species encountered, *H. xenotermitis* is a new record to Sri Lanka and *C. gaurii* for Lower Hanthana forest. *Odontotermes horni*, the most abundant species was recorded only during the wet season. *Nasutitermes ceylonicus* was the most abundant, in both wet and dry periods. During the study period, the amount of woody tree parts on the ground was high, facilitating the presence of *Nasutitermes* spp. Teeth patterns of worker mandibles revealed three feeding groups, Group I (wood feeding lower termites), Group II (wood feeding, non-fungus growing termites) and Group III (humus-soil feeding termites). True soil feeding Group IV termites were not recorded from the Lower Hanthana area during the present study. Group II wood feeding non-fungus growing termites were the most abundant. The high amount of fallen twigs in each site may be the reason for the highest abundance of Group II termites in the Lower Hanthana area.