

**D-19: Microhabitat preferences for nest building by the red ant-*Oecophylla smaragdina* in the Makandawa forest reserve, Kitulgala**

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*Oecophylla smaragdina* (Hymenoptera: Formicidae) is the only representative of the genus *Oecophylla* in Sri Lanka.

Casual observations suggest that *Oecophylla* prefers open areas to forest areas. Therefore, the main objective of this study was to determine any microhabitat preference within the reserve and to identify the decisive factors contributing to this preference.

Based on visual observations of vegetation height, canopy cover, spatial distribution of trees and herbs, denseness of the vegetation, thickness of the undergrowth, terrain and disturbances, 3 different sites; A, B & C were identified within the study area. Each site was analysed for % vegetation cover, 10 cm DBH tree density and vegetation height diversity.

To see any preference for nest building, 500 paces from the forest "entrance" and about 15-20 m towards forest interior on either side within this length were traversed searching for nests. On sighting a nest, number of nests in a tree, nest height diversity expressed by the Shannon-Wiener Index, mean nest volume and finally the number of nests in each site were recorded.

Location of each nest was categorized arbitrarily as in the top, middle or bottom of the tree foliage and positions of nests in the vegetation continue (canopy, sub canopy, shrub layer, understorey) were also recorded.

## SECTION D

According to the habitat factors, site A was the most open or most disturbed while site B was the densest. Site C lay in between and gave an appearance of a young forest.

Occupancy by means of nest density of site A was markedly higher ( $X^2 = 51.96$ ,  $p < 0.001$ ;  $X^2 = 60.48$ ,  $p < 0.001$  respectively with sites B & C). Even in this selected microhabitat the distribution clumped together at certain points where the forest gets more light. Since the amount of light received is inversely proportional to the % vegetation cover, this clumped distribution can simply be related with the % vegetation cover ( $r = -0.97$ ,  $p < 0.01$ ,  $df = 3$ ). This selective distribution seemed to decrease with the distance from the road-edge to the forest interior ( $r = -0.94$ ,  $p < 0.05$ ,  $df = 3$ ). It must be due to the relationship between the distance from the road-edge and the % vegetation cover ( $r = 0.94$ ,  $p < 0.05$ ,  $df = 3$ ).

Number of nests in a tree, the nest height diversity and mean nest volume were higher in site A.

The "top" portion of the tree foliage was highly preferred than the "middle" ( $X^2 = 11.0$ ,  $p < 0.001$ ) and they never used the bottom. At the same time, more than 80% of the nests were distributed above the shrub layer upto the canopy layer.

*Oecophylla smaragdina* in the Makandawa Forest Reserve exhibited a marked microhabitat preference within the reserve. It occupies mostly the most open or the most disturbed area of the reserve. Therefore one can conclude that *Oecophylla smaragdina* in a rain forest is a microhabitat specialist, the preferred microhabitat being the long, narrow strips adjacent to forest openings constructed by roads, gaps, etc.

The significant preference for nesting in the "top" portion of the foliage and preference for nesting above the more closed shrub layer indicate that they prefer open areas.

In a preferred microhabitat the ant is not selective for occupation of many of the available locations.