

**COMPARISONS ON ANT AND TERMITE
DIVERSITY BETWEEN REGENERATING
AND PRIMARY FOREST IN DANUM
VALLEY AND THEIR RELATIONSHIP
WITH PHYSICAL, CLIMATIC AND
BIOLOGICAL FACTORS**

PH.D. THESIS
UNIVERSITI MALAYSIA SABAH

NOEL BELTRAN-TAWATAO

**INSTITUTE FOR TROPICAL BIOLOGY AND
CONSERVATION
UNIVERSITI MALAYSIA SABAH
2005**



UMS
UNIVERSITI MALAYSIA SABAH

ABSTRACT

COMPARISONS ON ANTS AND TERMITE DIVERSITY BETWEEN REGENERATING AND PRIMARY FORESTS IN DANUM VALLEY AND THEIR RELATIONSHIP WITH PHYSICAL, CLIMATIC AND BIOLOGICAL FACTORS

This research investigated the diversity of ants and termites and their interactions with the different environmental variables after 14 years of forest regeneration. Comparison of species diversity was focused between unlogged and selectively-logged forest at Danum Valley for 12 months. A total of 114 species of ants belonging to 45 genera and 44 species of termites belonging to 23 genera were collected in unlogged and selectively-logged forest. Species richness and diversity of ants and termites between the two sites were found very similar after 14 years of forest regeneration. Percentage of species similarity of ants and termites in both sites were also found relatively high. Feeding groups of termites were all also found proportion in both sites likewise with the functional groups of ants. The presence of logging debris influenced the dominance of wood feeding groups in selectively-logged forest. The varieties of plants occurring in selectively-logged forest may have also contributed to the diversity of ants by providing a source for dietary requirements and as a habitat. The production of young leaves or shoots had also attracted herbivory insects, which had been served as prey to predatory ants influencing their dominance. Canonical Discriminant Function Analysis revealed a significant separation between regenerating and primary forest. Soil pH and canopy cover were found to be the most discriminating factors among the environmental variables and other variables were found to have strong potential to be discriminating in the future. This was accounted for by habitat changes occurring in selectively-logged forest affecting the species composition by either favoring some species to remain in the area or immigrate to nearby sites.

