

A South East Asian ponerine ant of the genus *Leptogenys* (Hym., Form.) with army ant life habits*

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Summary. The emigration and raiding behavior of the SE Asian ponerine ant *Leptogenys* sp. 1, which resembles *L. mutabilis*, were observed in the field (Ulu Gombak, Malaysia). The ants formed monogynous colonies that consisted of up to 52100 workers. The bivouac sites of this species were found in leaf litter, rotten logs, ground cavities, etc., and were rarely modified by the ants. The colonies stayed in these temporary nests for several hours to 10 days; afterwards, they moved to a new nest site. The emigration distances ranged from 5–58 m. Since nest changing takes place at irregular intervals, and pupae and larvae are always present in the nest relocations of *Leptogenys* sp. 1, the emigration behavior is not linked to a synchronized brood development. *Leptogenys* sp. 1 is a nocturnal forager; in our study, up to 42600 workers participated in each raid. The ants move forward on a broad front; behind the swarm a fan-shaped network of foraging columns converges to form a main trunk trail. A new system of foraging trails is developed in each raid. The workers search for their prey collectively; they attack and retrieve the booty together. The diet of *Leptogenys* sp. 1 consists mainly of arthropods. Army ant behavior is characterized by (1) formation of large monogynous colonies, (2) frequent emigrations, and (3) mass raids in which all foraging activities are carried out collectively. Since *Leptogenys* sp. 1 performs these typical army ant behavior patterns, this species represents the army ant ecotype. However, this species differs considerably from army ant species that have synchronized broods and huge colonies with dichthadiiform queens.

* Dedicated to Professor Dr. M. Lindauer on the occasion of his 70th birthday

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Introduction

In the tropics of Africa and America, army ants of the subfamilies Dorylinae and Ecitoninae are faunal elements of outstanding ecological importance. They perform impressive mass raids and colony movements. Most conspicuous are the swarm-raiding epigaic prey generalists, e.g., *Dorylus* (*Anomma*) *wilverthi* in Africa (Raignier and van Boven 1955) and *Eciton burchelli* and *Labidus praedator* in the neotropical region (Rettenmeyer 1963; Schneirla 1971).

Doryline ant species occur also in SE Asia, but the *Dorylus* species of this region are subterranean foragers, and *Aenictus* species prey mainly on various ant species (Wilson 1964). Swarm raiding epigaic *Dorylus* species are not found in SE Asia. Gotwald (1979) hypothesized that the lack of diversity in this genus in Asia might be due to competitive exclusion by other ant species with army ant life habits that were already well established when *Dorylus* dispersed to this zoogeographical region. This idea is supported by investigations on *Aenictus gracilis* and *Aenictus laeviceps* in the Philippines (Schneirla and Reyes 1966). These species prey on a broader range of invertebrates and show transitions to swarm raiding behavior. Moffett (1984) described swarm raiding behavior also in the myrmicine ant *Pheidologeton diversus*.

During our research on migrating ants in the tropical rain forest of the Malayan Peninsula, we observed a ponerine ant species that performs spectacular mass raids and nest relocations. Here we report that this ant species indeed represents the army ant ecotype and resembles the Dorylinae and Ecitoninae in many aspects of its life history. Specimens of the species were sent for identification to B. Bolton, British Museum (Natural History), London. The species belongs to the *Leptogenys*