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CARRION FLIES (CALLIPHORIDAE) IN TROPICAL RAIN FORESTS IN SARAWAK, SOUTH-EAST ASIA.

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ABSTRACT

575 specimens of 22 species of calliphoridswere collected from 8 different forest types in the Gunung Mulu National Park, Sarawak. The common species preferred different altitudes and forest types. All the 5 species of *Chrysomya* were found in the lowland forests below 800 m, but some preferred the alluvial forest, whereas others occurred more numerously in the mixed dipterocarp forest. *Lucilia porphyrina* was the only abundant calliphorid between 800 and 1600 m, and the two species of *Calliphora* were confined to the upper montane forests, *C. fulviceps* even to the summit of G. Mulu (above 2100 m). Most (11) of the rarer species (13) occurred in the lowland forests. Between-habitat variation in the calliphorid abundance was negatively correlated with the abundance of large scarabid beetles, with which the flies are suggested to compete for the same resources (carrion). The occurrence of large predatory beetles (Staphylininae) appears to follow the abundance of the calliphorid, their presumed prey. The number of relatively abundant species in local communities was less than 5 in Mulu, which is not higher than the corresponding figure in the temperate or even subarctic communities. This is attributed to the similarity of the habitat (carrion) anywhere in the world, and to intense competition for resources within it.

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1. Introduction.

Trapping and breeding experiments on local carrion fly communities have been conducted especially in Europe, North America, Japan, and Australia (see references in Norris, 1965; Hanski & Kuusela, in press), while little is known on calliphorid communities in the tropics (Cornaby, 1974), and especially in tropical rain forests. I have presented elsewhere (Hanski, in press) a mathematical model which predicts, contrary to the general rule, a decreasing rather than an increasing trend in species diversity in this community with decreasing latitude. The reason for this is that, due to higher temperatures in the tropics, the rate of habitat (carrion) exploitation may be expected to be higher there than in the temperate regions, and this may be shown to make coexistence between two or more like species less likely (Hanski, in press). When I got the opportunity to carry out field studies in Sarawak in March to May in 1978, as a member of the Royal Geographical Society/Sarawak Government Gunung Mulu Expedition, I wanted to carry out observations on local calliphorid communities to test the above prediction. These observations are reported in this paper.