

Land snail diversity in a square kilometre of tropical rainforest in Sabah, Malaysian Borneo

Abstract

We surveyed the land snail fauna in a single square kilometre of undisturbed tropical rainforest on acidic soil in the Danum Valley Conservation Area, Sabah, Malaysian Borneo. A malacofauna assessment protocol developed for a Cameroonian rainforest (de Winter & Gittenberger, 1998) was adapted to the present study. In each of 36 0.04 ha plots we searched for two person-hours, beat all trees between one and five cm in diameter at chest height over an inverted umbrella, and collected four litres of litter, from which the shells were later extracted by flotation. We also hand-collected additional snails and slugs while transferring from plot to plot. Species were identified where possible or assigned to morphospecies. In total, 546 individuals were found, belonging to 61 species and at least 14 families. Extrapolation suggests that the true diversity lies around 85 species. Several species were found that had previously only been known from limestone areas. Our study shows that, contrary to expectation, land snail diversity in southeast Asian rainforests can be high in spite of low abundance. The diversity in Danum Valley is similar to that of a four ha locality in New Zealand (60 species), and exceeded only by the site in Cameroon (97 species).