

Effects of karst forest degradation on pulmonate and prosobranch land snail communities in Sabah, Malaysian Borneo

Abstract

Limestone (karst) outcrops in Southeast Asia are rich in land snails. Certain groups of land snails, in particular Prosobranchia species, are restricted to limestone and show a high degree of short-range endemism. Karst habitats are, however, seriously degraded by quarrying, logging, agriculture, and burning. The effect of these disturbances on land snail fauna is unknown, so we studied paired primary and secondary forest localities on six separate limestone hills in Sabah, Malaysian Borneo. Land snails were sampled with a standard protocol and identified to species level. More than 16,000 individuals, belonging to 74 species, were recorded. In most sites, snail diversities did not differ between disturbed and undisturbed plots. However, pulmonate snails were significantly more abundant at disturbed localities than prosobranch snails, whereas abundances for both groups were similar at undisturbed sites. Because Prosobranchia contain many site-endemic species, our findings suggest that continued exposure to these disturbances will eventually lead to extinctions in this group.