

Biodiversity inventories, indicator taxa and effects of habitat modification in tropical forest

Abstract

Despite concern about the effects of tropical forest disturbance and clearance on biodiversity, data on impacts, particularly on invertebrates, remain scarce. Here we report a taxonomically diverse inventory on the impacts of tropical forest modification at one locality. We examined a gradient from near-primary, through old-growth secondary and plantation forests to complete clearance, for eight animal groups (birds, butterflies, flying beetles, canopy beetles, canopy ants, leaf-litter ants, termites and soil nematodes) in the Mbalmayo Forest Reserve, south-central Cameroon. Although species richness generally declined with increasing disturbance, no one group serves as a good indicator taxon for changes in the species richness of other groups. Species replacement from site to site (turnover) along the gradient also differs between taxonomic groups. The proportion of 'morphospecies' that cannot be assigned to named species and the number of 'scientist-hours' required to process samples both increase dramatically for smaller-bodied taxa. Data from these eight groups indicate the huge scale of the biological effort required to provide inventories of tropical diversity, and to measure the impacts of tropical forest modification and clearance.