

OR192*Evolution and body size: drivers of global termite patterns***Cecilia Dahlsjo**

Termites are one of the most important invertebrate decomposers in lowland tropical forests and play a major role in ecosystem processes, such as nutrient turnover and availability, which affect forest ecosystems as a whole. The Termitidae family comprises four of the five termite functional groups which feed on dead organic matter from wood to mineralised soil. Termitidae evolved in Africa and colonised tropical regions in other parts of the world through dispersal events either by crossing land bridges or by rafting. Due to the physiological and functional differences of termite functional groups their dispersion, and subsequent evolution, have affected the assemblage of lineages on different continents. It is known that termite species diversity is different across the tropical regions; and although this is important for understanding assemblage patterns, in order to quantify the importance of termites in ecosystem processes biomass and abundance data are needed. Until now, comparable biomass and abundance data have been sparse and so comparisons across regions have not been possible. Through extensive sampling, using a standardised sampling protocol in Peru, the available comparable biomass and abundance data from Malaysia and Cameroon were complimented and enabled the first intercontinental comparison of its kind. The intercontinental differences were mainly due to the dominance of two large-bodied soil-feeding termite lineages, which are endemic to Africa, and the absence of fungus-growing termites from South America. These findings strongly suggest that the intercontinental patterns may be caused by evolutionary history and not present day climate. Allometric relationships (population density-body size and metabolic rate-body size) in termite functional groups among the three regions were also examined. We show that the evolutionary drivers that influence termite biogeography patterns also affected the Allometric relationships with potential impacts on ecosystem processes.