SPATIAL PATTERNS OF DIVERSITY IN MOUNTAIN CHAINS: ANTS IN THE AUSTRALIAN WET TROPICS

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Plants and vertebrates show predictable three-dimensional variation in species diversity and turnover in mountain chains. The "altitudinal gradient hypothesis" predicts that species richness decreases with increasing elevation, and, according to the "mid- domain effect" hypothesis, mountains in the middle of a chain have highest species diversity. We collected comprehensive data on ant communities at different altitudes within five subregions of the Australian Wet Tropics to test these hypotheses for an ecologically dominant invertebrate group. Using a combination of ground baits, arboreal baits, Winkler sacs and pitfall traps, we recorded a total of 231 species from 55 genera. The richest ant genera were species of *Pheidole* (45 species), *Rhytidoponera* (14 species) and *Anonychomyrma* (11 species). Ant species richness was negatively correlated with elevation in four of the five subregions, and overall richness was highest in the middle subregion (Atherton Uplands). Spatial patterns of ant diversity in Australia's Wet Tropics are therefore consistent with both the altitudinal gradient and the mid-domain effect hypotheses.

Key words: Community composition, distributional patterns, altitude, latitude, Australian Wet Tropics, ants.