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Altitudinal gradients in bat community structure within the Australian Wet Tropics: temperature seasonality, not 'height above sea level', drives community structure.

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While some field studies have reported changes in bat community structure over altitudinal gradients, the effect is not strong and not always detectable. This is contrast to longer-term spatial models of animal distributions based on climatic variables that predict clear changes in community structure with altitude. Here we analyze presence-absence data of bats along altitudinal gradients on five mountain ranges within the Australian Wet Tropics (Windsor, Spec, Lamb, Carbine & Atherton Uplands), covering elevations from 100 to 1200m and a latitudinal range of almost 3 degrees. A total of 10 species were detected, with four dominant groups based on AnaBat call-file frequency: *Rhinolophus megaphyllus* (62%), *Minopterus australis* (23%), *Vespadelus spp*. (12%) & *Minopterus orianae* (2%). We used a combination of muti- and univariate analyses (using the R package mvabund) to investigate the probability of occurrence of these species as a function of elevation, latitude and key environmental parameters derived from climatic distribution models for these ten bat species (using MaxEnt). Results suggest that community structure is significantly influenced by changes in temperature seasonality (Bioclim 4), with the probably of occurrence of most species decreasing with increasing temperature seasonality. Neither latitude or elevation *per se* were significant. Within the Wet Tropics Bioclim4 shows a complex and nonlinear relationship with altitude and mountain range. The lack of a simple linear relationship between the key environmental drivers of bat species occurrence may obscure detection of altitudinal influences on bat community structure in studies that do not include relevant environmental parameters.

SPOKEN PRESENTATION