**Elevation and phylogenetic diversity on neotropical arthropods**

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The diversity and phylogenetic community structure of many organisms is negatively affected by factors that covary with elevation. On the Pacific slope of the Cordillera Guanacaste within Area de Conservación Guanacaste (ACG) in northwestern Costa Rica we are engaged in a long-term test of the relationship between elevation and arthropod diversity on three volcanos. We test the strength of the diversity:elevation relationship using molecular operational taxonomic units (MOTU) or by phylogenetic diversity (PD) based on DNA barcodes, multi-gene phylogeny and morphometrics. In some groups, we have observed an asymmetrical mid-elevation peak at approximately 600–800 m and we found high species turnover between sites on the same mountain and among the three mountains. In most groups, at the highest elevation cloud forest sites we found evidence of significant phylogenetic clustering, the expected result of environmental filtering. Many groups are characterised by very narrow elevational range and high diversity at each sampling point. These results emphasise that climate change will bring strong changes in the location and composition of biodiversity on these mountains. Early results emphasise that the structure and composition of the hyperdiverse communities present at any one elevation are extremely vulnerable to a changing climate.