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Variation in a darwin wasp (Hymenoptera: Ichneumonidae) community along an elevation gradient in a tropical biodiversity hotspot: Implications for ecology and conservation**Emily M. Durand***University of York , United Kingdom*

Biodiversity is one of the most useful measures in analyzing ecosystems. Distribution of biodiversity has been examined in relation to many different communities, however many of the most diverse taxa remain underrepresented in research. Understanding community characteristics and surrogates for biodiversity is imperative in the face of climate change and habitat loss. The Darwin wasp (Ichneumonidae, Pimplinae) is a vastly diverse group of insects, yet remains one of the lesser understood taxa. This means that conservation strategies of Pimplinae biodiversity are difficult to execute.

We use Malaise traps to collect Pimpline specimens along an elevational gradient in the Brazilian Atlantic Rainforest. The community compositions of Pimplinae are analysed to determine patterns of distribution along the mountain side.

We use PCA on community characteristics including species richness, alpha biodiversity and beta biodiversity. Biotic and abiotic environmental factors are analysed against community characteristics.

Strong associations found with temperature and other environmental characteristics including lianas, trees, and bamboos. These results are concordant with previous research on altitudinal gradients. Results also add to existing knowledge on latitudinal gradients in species richness of Ichneumonidae and suggest that lower to medium altitudes host the most species of Pimplinae in tropical habitats.

To better understand which factors surrogate Ichneumonidae most effectively, future research should test a greater range of altitudes, thus giving us an idea of what communities are like higher up. Examining Pimpline populations in urban areas would also be beneficial to understanding how Darwin wasps can be conserved in areas alongside humans. Currently, we can conclude that parasitoid wasp communities would benefit from conservation strategies at all altitudes, especially mid and lower elevations.

Biography

Emily M. Durand completed her Integrated Master's degree of Biology in Ecology at the University of York (2018-2022). During this period, she explored techniques of data analysis such as Principal Components Analysis (PCA) and Non-metric MultiDimensional Scaling (NMDS) analysis. These methods of ordination examine data in such a way that associations and trends can be identified within a complex dataset. These outcomes act the basis of more complex analysis and ultimately provide the next steps for research into data associations. In the instance of Durand's most recent publication, we examine the surrogates of parasitoid wasp communities in the Brazilian Atlantic rainforest.