

Climate Change and New Zealand's Alpine Grasshoppers (Orthoptera: Acrididae)

Emily Koot ^{*1}, Steve Trewick ¹, Mary Morgan-Richards ¹

¹ Massey University, Palmerston North

Eligible for student prize

Rapid anthropogenic climate change has stimulated interest in climate and the impacts it will have on biodiversity around the globe. Many types of biological outcomes are indicated, including local adaptation and extinction, but on steep environmental gradients population responses are most readily detected. One such system exists among the New Zealand alpine fauna. Among insects, many lineages independently evolved in response to particular local climatic conditions on mountains, and the elevational gradient means that habitat availability and connectivity changes quickly as global climate changes. The specialised New Zealand alpine fauna includes >13 species of short-horn grasshoppers (Orthoptera: Acrididae), that provide an opportunity to explore evolution in light of global changes in climate. By investigating when these species lineages diverged, their ancestral relatives, population genetic structure and the ecological niche space they inhabit, we can infer how these species have responded to past climate events, and in turn predict how they will respond to future climate change.

