

## Submitted Abstract

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<b>First Author</b> First Name Last Name	Stephanie Louise (1) Payne
<b>Submitting Author</b> First Name Last Name	Stephanie Louise Payne
<b>Correspondence</b>	stephanie@thepaynetribe.co.za
<b>Co-Authors</b> >> E-Mails will be not listed	Alison, Jamie (2); Høye, Toke Thomas (2); Steenhuisen, Sandy-Lynn (1)
<b>Organisations</b>	1: Afromontane Research Unit, and Department of Plant Sciences, University of the Free State, Phuthaditjhaba, 9866, South Africa 2: Department of Ecoscience, Aarhus University, Grenåvej 14, Building 8411, H104, 8410 Rønne, Denmark
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<b>Title</b>	Camera Surveillance Of Invertebrate Abundance And Plant Phenology Within A Montane Climate Change Experiment.
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## Abstract

Climate change is a significant driver of the range-expansion of plant and invertebrate species. However, effects of climate are often mediated by plant-animal interactions. For example, as flowering plants expand their ranges to higher elevations, they may be limited by an absence of compatible pollinators. Similarly, effects of plant species' range expansion on invertebrates, including pollinators and herbivores, are also likely. However, in montane regions, baseline data to measure the impacts of climate change on ecosystems are often lacking. As a result, we are unable to accurately predict and mitigate the effects of range-expanding species on wider biodiversity.

We begin to address this issue in the South African component of the globally collaborative RangeX project. Twenty-five time-lapse cameras were deployed in the Maloti-Drakensberg Transfrontier Park, South Africa, at two sites spanning a large elevational gradient. Within the high elevation site, focal plants were transplanted to elevations beyond their native range and allocated one of two treatments: within open-top chambers, which create a warming effect, or an open control. These cameras recorded animal abundance, plant-animal interactions, and phenological changes of plants across the 2021/2022 summer and autumn seasons, both in terms of indigenous biodiversity and introduced plants. We report on baseline results of the summer and autumn seasonal invertebrate abundance and diversity, as well as the changes in greenness and phenology of focal plants, across elevations and between treatments. Specifically, we report effects of elevation and warming on the abundance and phenology of insects of the Orders Lepidoptera, Orthoptera, Coleoptera, Hymenoptera and Diptera. These data provide valuable information pertaining to the colonisation potential of range-expanding species, indicating (1) whether interactions with animal species may limit or facilitate their expansion and (2) how plant species, in turn, may influence the abundance of wild pollinators and herbivores.