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Dr. Peter H Thrall

Editor in Chief of the Editorial Bord

Ecology Letters

Dear Editorial Board,

I am pleased to submit our original manuscript **“Microclimatic variation regulates seed germination phenology in alpine plant communities”** by Clara Espinosa del Alba, Eduardo Fernández-Pascual and Borja Jiménez-Alfaro, to be considered for publication as a “Letter” in Ecology Letters.

In this study, we aim to understand how environmental conditions influence germination phenology in alpine ecosystems. Our questions are focused on both local and regional regulation levels. Specifically, do alpine microclimatic conditions modify germination phenology in fellfields vs. snowbeds? And do alpine species from temperate and Mediterranean climates show similar phenological responses?

We present a novel experimental framework to calculate community-wide germination phenology traits. We found a generalizable and quantifiable phenological shift of germination along alpine microclimatic variation. To our knowledge, this is the first study demonstrating the impact of microclimate on germination phenology in alpine plants.

Our findings help to predict the effect of new climatic conditions (namely, decreasing snow cover and increasing warming) on the regeneration phenology of alpine plants, with implications on seed germination, seedling establishment, and the resilience of alpine communities.

The present study takes microclimatic gradients recently identified as potential buffers for alpine plants in future climate scenarios and investigates their potential effects on germination phenology, with detailed and realistic environmental conditions.

We are confident that our manuscript is of broad international interest and consider that it fits the scope of Ecology Letters. Our manuscript has not been published, nor is it currently under consideration for publication elsewhere. We would also like to clarify that all sources of funding have been acknowledged and that no ethical approvals were required for this research.

Thank you for taking the time to consider this manuscript.

Yours sincerely,

Clara Espinosa del Alba, corresponding author, on behalf of the co-authors.