Clara Espinosa del Alba

IMIB, Biodiversity Research Institute

CSIC-University of Oviedo-Principado de Asturias

33600 Mieres, Spain

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Dr. Peter H Thrall

Editor in Chief of the Editorial Board

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 investigate how environmental conditions influence plant phenology in alpine ecosystems at both local and regional regulation levels. We present a sophisticated approach combining a novel experimental setting to calculate community-wide germination phenology traits for 54 species with field reciprocal sowing. Our results show a generalizable and quantifiable phenological shift of germination along alpine microclimates, being to our knowledge the first study demonstrating the impact of microclimatic variation on alpine plant phenology.

Our findings help to predict the effect of new climatic conditions (namely, decreasing snow cover and increasing warming) on the regeneration niche of alpine plants, with implications on seed germination, seedling establishment, and the resilience of plant communities. We hope this study will set a precedent in the understanding of alpine plant ecology at the community level.

Our study provides a completely new framework based on experimental data, following a preliminary evaluation of microclimatic variation of alpine systems (Jiménez-Alfaro et al. 2024). We are confident that our manuscript is of broad international interest and consider that it fits the scope of Ecology Letters. The manuscript has not been published, nor is it currently under consideration for publication elsewhere. 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.