

Borja Jiménez-Alfaro
IMIB, Biodiversity Research Institute
CSIC-University of Oviedo-Principado de Asturias
33600 Mieres, Spain

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Dear Editors,

We are pleased to submit our manuscript “Microclimatic regulation of germination phenology in alpine plants” by Espinosa del Alba, Fernández-Pascual and Jiménez-Alfaro, to be considered for publication in Nature Plants.

This study addresses the relationship between microclimate and plant regeneration, a generally overlooked topic in plant ecophysiology. Our approach has special interest since it combines a novel experimental setting to calculate phenology traits with field reciprocal sowing. This requires huge efforts in field sampling, soil temperature monitoring and realistic experiments for thousands of fresh seeds.

Our study is focused on alpine ecosystems, which are supposed to be especially sensitive to snow-related microclimatic gradients. Overall, our results show a generalizable and quantifiable phenological shift of germination in temperate and mediterranean alpine systems. This is, to our knowledge, the first study demonstrating the impact of microclimatic variation on alpine plant phenology with a direct link to regeneration.

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 seedling establishment and the resilience of plant communities.

We are confident that our manuscript is of broad international interest and consider that it fits the scope of Nature Plants. 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,

A handwritten signature in blue ink, consisting of a stylized, overlapping loop followed by a long horizontal stroke extending to the right.

Borja Jiménez-Alfaro, senior author.