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**Monica Turner and Stephen Carpenter**

**Editors-in-Chief of Ecosystems,**

11th of December 2019

Dear Editors:

We are pleased to submit an original research article entitled “*Oak resilience to drought and land use show how the ecological and geographical rear edges do not necessarily meet today*” by Antonio J. Pérez-Luque, Guillermo Gea-Izquierdo, Regino Zamora, to be considered for publication in Ecosystems Journal.

This manuscript aims to test if rear-edge populations have a concordance between geographical and ecological marginality, with lower performance, higher vulnerability, and thus higher risk of extinction than do populations at the core of the species' range. We combined dendroecological methods and remote-sensing information to evaluate the impact of drought on radial tree growth and canopy greenness (as proxies for secondary and primary growth) on Mediterranean *Quercus pyrenaica* populations located at the rear-edge of the species distribution. Forest resilience to several extreme drought episodes and to climate change over the long term was also evaluated.

The high values of resilience found for tree growth and canopy greenness suggest that *Q. pyrenaica* populations in Sierra Nevada are located in a geographical but not a climatic, ecological rear edge; with major importance of land-use changes in the current niche. The resilience responses of oak forest to drought events are not spatially homogeneous throughout the mountain range, due to differences in ecological conditions and/or past-management legacies.

Our results suggests that rear edge needs to be redefined, partly because of land-use legacies and their effect on the possible mismatch between the current distribution of species (*i.e.* determining the "available" geographical rear edge) and the ecological (limiting) rear edge of species. We hope you find this research interesting and suitable for publication in Ecosystems because it deals with a traditional paradigm in Ecology (center-periphery hypothesis).

This manuscript has not been published and is not under consideration for publication elsewhere. We have no conflicts of interest to disclose. This research was conducted with scientific integrity and within the known norms of science. The database will be available for further analyses.

Thank you for your consideration

Sincerely,

On behalf of the co-authors,

Antonio J. Pérez-Luque