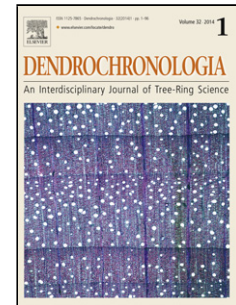


Accepted Manuscript

Title: Growth delay by winter precipitation could hinder *Juniperus sabina* persistence under increasing summer drought

Authors: Ana I. García-Cervigón, Juan Carlos Linares, Miguel García-Hidalgo, J. Julio Camarero, José M. Olano



PII: S1125-7865(18)30050-X
DOI: <https://doi.org/10.1016/j.dendro.2018.07.003>
Reference: DENDRO 25529

To appear in:

Received date: 13-3-2018
Revised date: 25-7-2018
Accepted date: 25-7-2018

Please cite this article as: García-Cervigón AI, Linares JC, García-Hidalgo M, Julio Camarero J, Olano JM, Growth delay by winter precipitation could hinder *Juniperus sabina* persistence under increasing summer drought, *Dendrochronologia* (2018), <https://doi.org/10.1016/j.dendro.2018.07.003>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Growth delay by winter precipitation could hinder *Juniperus sabina* persistence under increasing summer drought

Ana I. García-Cervigón^{1*}, Juan Carlos Linares², Miguel García-Hidalgo³, J. Julio Camarero⁴ and José M. Olano³

¹ Departamento de Biología, CASEM, Universidad de Cádiz, Campus Universitario de Puerto Real s/n, E-11510 Puerto Real, Spain.

² Departamento de Sistemas Físicos, Químicos y Naturales, Universidad Pablo de Olavide, Ctra. Utrera km 1, E-41002 Sevilla, Spain.

³ Departamento de Ciencias Agroforestales, EiFAB, Universidad de Valladolid, Los Pajaritos s/n, E-42004 Soria, Spain.

⁴ Instituto Pirenaico de Ecología (IPE-CSIC), Avda. Montañana 1005, E-50192 Zaragoza, Spain

* Corresponding author: ana.gcervigon@uca.es

Abstract

Plants in Mediterranean mountains are particularly vulnerable to climatic change. In these environments, low temperature is combined with water shortage during summer, and as a result, the positive effect of global warming theoretically expanding the growing season length may be counterbalanced by rising drought stress. These circumstances may be exacerbated in the rear edge of species distribution, where warmer conditions occur. Here, we examined the climate-growth relationships of *Juniperus sabina*, a major prostrate shrub above the treeline in Mediterranean mountains, to investigate climate sensitivity and long-term signals stability in four rear-edge populations from southern Spain. We demonstrate that, over recent decades, local climatic conditions have modulated the response of *J. sabina* secondary growth to the ongoing climate change. We observed a negative effect of winter-spring moisture on secondary growth that suggests a limitation for earlier growth activity at higher elevation, potentially hindering the ability of *J. sabina* to compensate forthcoming increases in summer drought. At the driest site, we also detected a positive effect of October precipitation, suggesting a second growth pulse by early autumn. Our results

Download English Version:

<https://daneshyari.com/en/article/6541182>

Download Persian Version:

<https://daneshyari.com/article/6541182>

[Daneshyari.com](https://daneshyari.com)