



## **Are post-fire silvicultural treatments a useful tool to fight the climate change threat in terms of plant diversity?**

Javier Hedo de Santiago (1), Manuel Esteban Lucasr Borja (1), and Jorge de las Heras (2)

(1) Castilla-La Mancha University, School of Agricultural and Forestry Engineering of Albacete, Agroforestry Technology and Science and Genetics, Spain (javier.hedo@gmail.com), (2) Castilla-La Mancha University, School of Agricultural and Forestry Engineering of Albacete, Plant Production and Agricultural Technology, Spain

Adaptative forest management demands a huge scientific knowledge about post-fire vegetation dynamics, taking into account the current context of global change. We hypothesized that management practices should be carry out taking into account the climate change effect, to obtain better results in the biodiversity maintenance across time. All of this with respect to diversity and species composition of the post-fire naturally regenerated Aleppo pine forests understory. The study was carried out in two post-fire naturally regenerated Aleppo pine forests in the Southeastern of the Iberian Peninsula, under contrasting climatic conditions: Yeste (Albacete) shows a dry climate and Calasparra (Murcia) shows a semiarid climate. Thinning as post-fire silvicultural treatment was carried out five years after the wildfire event, in the year 1999. An experiment of artificial drought was designed to evacuate 15% of the natural rainfall in both sites, Yeste and Calasparra, to simulate climate change. Taking into account all the variables (site, silvicultural treatment and artificial drought), alpha diversity indices including species richness, Shannon and Simpson diversity indices, and plant cover, were analyzed as a measure of vegetation abundance. The results showed that plant species were affected by thinning, whereas induced drought affected total cover and species, with lower values at Yeste. Significant site variation was also observed in soil properties, species richness and total plant cover, conversely to the plant species diversity indices. We conclude that the plant community shows different responses to a simulated environment of climate change depending on the experimental site.