
Facilitation by nurse plant *Juniperus communis* subsp. *hemisphaerica* and its role on natural regeneration of cedar forest on the southern slope of Djurdjura (Algeria)

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Abstract

The main objective of this study is to determine if *Juniperus communis* subsp. *hemisphaerica*, a nurse plant, plays a facilitating role in the dynamics of cedar forest in the massif of Djurdjura. In order to highlight the possible effect of the presence / absence of cedar seed trees on vegetation dynamics and natural regeneration of this species, the choice of study sites meets the criterion of representativeness and takes into account three different phytoecological situations: a dense stand of cedar, a cedar-pasture ecotone area and a juniper formation without cedar seed trees. In each type of these sites, we sampled 13 tufts of hemispherical juniper, each one representing a floristic record; the dimensions of each record are those of the patch itself. To appreciate the various correlations that may exist between the nurse plant, its biological characteristics and the facilitated species, through different parameters, as specific diversity of the flora, number of tall scrubs and recovery of individuals of *Cedrus atlantica* within juniper thickets, we used multivariate analysis for the handling of the data collected. The dataset table contains 39 surveys and 16 dendrometric and biological variables of juniper individuals measured at the three study sites. The results obtained allow to highlight the nature of positive interactions of this juniper in the dynamics of the cedar forest. These interactions, rendered by the role of shelter provided by the tufts of hemispherical juniper, favor the emergence of a microhabitat adequate to the installation of the plant species linked to the cedar stand, thus protecting them from ecological stress in mountain and anthropogenic disturbances. Among these latter, overgrazing remains the major problem threatening the biological recovery and biodiversity of the Djurdjura massif. It would be conceivable to use this facilitation process for ecological restoration of the degraded cedar forest in Djurdjura.

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