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El valor de la Naturaleza para una Sociedad Global

“Assessing the soil ecological conservation state of the drove roads network of Madrid: a starting point of the LIFE CAÑADAS restoration project”

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Drove roads (DRs) are the traditional routes used by herders and livestock for their seasonal movements in search of the most productive pastures. Spanish DRs have suffered a progressive abandonment and ecological degradation, threatening the relevant role of DRs as ecological corridors. For this reason, some of them were selected in the LIFE CAÑADAS project, which aims at restoring and recovering the functionality of these routes to enhance their role as providers of connectivity between Natura 2000 sites, within a predominantly agricultural matrix.

Three categories of DRs were established according to their ecological state: (i) reference (assumed to be adequately grazed and maintained) (ii) abandoned (no livestock use, with biomass accumulation) and (iii) eroded drove roads. In this contribution, we present a previous diagnosis using edaphic indicators related to soil ecological state before the development of the restoration strategy. Samples were taken in summer 2020 and, among other parameters, enzyme activity was determined using a fluorometric method. Extracellular enzyme activity is involved in essential processes in terrestrial ecosystems regarding soil organic matter processing or stabilization and nutrient cycling, and the addition of C-, N-, or P-rich synthetic substrates allows its determination.

Our preliminary results show that reference plots have higher mean values of enzyme activity than abandoned and eroded DRs. These results indicate that two processes that are to some extent antagonistic, namely the loss of vegetation cover through erosion and the excessive accumulation of biomass due to the cessation of grazing, lead to a similar loss of soil functionality.