



## **Deterioration of soil quality and pasture production linked to overgrazing in rangelands of Extremadura (SW Spain)**

Manuel Pulido-Fernández (1), Susanne Schnabel (1), Joaquín Francisco Lavado Contador (1), Javier Lozano-Parra (1), and Francisco González López (2)

(1) GeoEnvironmental Research Group, University of Extremadura, Faculty of Philosophy and Letters, Avda. de la Universidad s/n, 10071 Cáceres, Spain (mapulidof@unex.es), (2) Centro de Investigación La Orden-Valdesequera, Finca La Orden, Gobierno de Extremadura, 06187 Guadajira, Badajoz, Spain

Soil degradation phenomena include water erosion and physical and biological processes have been already reported in rangelands of southwestern Spain. The increasing of the number of domestic animals since 1986 has been highlighted as one of the key causes. The main goal of this work is to analyze the effects of the excessive number of animals on soil quality and pasture production in privately-owned farms dedicated to extensive ranching.

Soil properties, soil surface cover, erosion features, pasture production and composition, rainfall and land management variables such as livestock density were analyzed during a period of 3 years (2008-2011). The study was carried out in 22 fenced units belonging to 10 farms distributed throughout the Spanish region of Extremadura.

The occurrence of bare soil patches, and consequently water erosion processes, as well as an increasing in the mean values of bulk density from 5 to 10 cm in depth were observed in the fenced units with animal stocking rates exceeding 1 AU ha<sup>-1</sup> (AU: animal cattle equivalent unit). Some indications which may serve to confirm the negative effect of increased bulk density on pasture production and quality were also found.