



Soil erosion on Mediterranean scrubland in Eastern Spain

Artemi Cerdà(1) and Merche B. Bodí(1,2)

(1) Departament de Geografia. Universitat de València. Blasco Ibáñez, 28, 46010- València. artemio.cerda@uv.es

(2) GEA (Grupo de Edafología Ambiental). Departamento de Agroquímica y Medio Ambiente, Universidad Miguel Hernández, Avenida de la Universidad s/n, 03202-Elche, Alicante.

Previous studies have shown that scrub vegetation contributes to low sediment and water losses. However, scrubland is being slashed in Eastern Spanish Mountains and planted with *Pinus halepensis* to increase infiltration rates and decrease soil losses. The objective of this research is to measure soil and water losses on a typical Maquia Mediterranean scrubland. Four plots (1, 2, 4, and 16 m²) were established on scrublands (*Quercus ilex*, *Pistacea lentiscus*, *Juniperus oxycedrus*, *Brachypodium retusum*...) on a 20 % slope at the El Teularet-Sierra de Enguera Experiment Station. The parent material is limestone, and the soils are sandy loam with a 2-4 cm thick layer of litter and have 96 % plant coverage. Runoff and sediment yields collected in 2004 and 2005 showed that the runoff and erosion rates were almost negligible. Runoff coefficients were 0.14, 0.12, 0.08, and 0.03 % and soil loss was 0.05, 0.04, 0.05, and 0.16 Mg ha⁻¹ year⁻¹ for the 1, 2, 4, and 16 m² plots in 2004 with a total year rainfall of 716 mm. Mean sediment concentration was very low: 0.04, 0.07, 0.05, and 0.03 g l⁻¹ for the 1, 2, 4, and 16 m² plots respectively. During 2005 total rainfall was 247 mm and runoff and soil loss was negligible. These results show extremely low erosion rates under scrubland, although low frequency-high magnitude events did not take place during the study. A rainfall simulation approach with high intensity rainfall experiments is recommended to determine whether high soil and water losses can occur under extreme rainfall events in scrublands.