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The impact of land abandonment on soil erosion in the eastern Spain. The El Teularet – Sierra de Enguera experimental station contribution

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Land abandonment took place during the 50's and 60's in Spain. The mountainous areas were abandoned and a vegetation recovery processes developed a cover of shrubs on the fields. Most of those abandoned fields were affected by forest fire, which encouraged the recovery of Cistus albidus and Ulex parviflorus. At the Sierra de Enguera, in Eastern Spain, the vegetation cover on 30 year old abandoned fields is dense (90-100 % cover) and the soils doubled the organic matter content at 0-1 cm depth to the tillage ones. Tillage and herbicide management's results in crust covered soils. The objective of this research is to quantify the soil erosion losses on croplands (herbicide treatments) and on rangeland (30-yr after the abandonment), where the main vegetation covers was Ulex parviflorus.

The study area show a 500 mm y-1 mean annual rainfall and vegetation establishment was very efficient. Runoff and sediment yield were collected form 1, 2, 4, and 16 m2 plots on Abandoned and Crop land management's plots A tipping-bucket raingauge (0,2 mm) was installed in 2003 and sediments and runoff collected after every rainfall event. The results show that water losses were one order of magnitude greater on the herbicide treated soils, meanwhile the soil erosion were 6.5 Mg ha-1 year-1 on the cropland and 0.05 Mg ha-1 year-1 on the abandoned soils. The results of 5 year measurements demonstrated that Mediterranean scrubland control the soil erosion processes after land abandonment.