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Erosion in Mediterranean Ecosystems: changes and future challenges

JM García Ruiz (1), N. Lana Renault (2), E Nadal Romero (3), and S. Beguería (4)

(1) Instituto Pirenaico de Ecología, CSIC, Campus de Aula Dei, Apartado 13.034, 50080-Zaragoza, Spain. (humberto@ipe.csic.es), (2) Area of Physical Geography, University of La Rioja, 26004-Logroño, Spain (noemi-solange.lana-renault@unirioja.es), (3) University of Zaragoza, Geography and Land Management, Zaragoza, Spain (estelanr@unizar.es), (4) Estación Experimental de Aula Dei, CSIC, Campus de Aula Dei, Apartado 13.034, 50080-Zaragoza, Spain (sbegueria@csic.es)

Soil erosion processes are closely related to climate characteristics and land uses together with certain soil properties. Changes in any of these factors will result in changes in the intensity of soil erosion and in the processes involved, with immediate consequences on water quality, fluvial channel dynamics and reservoir silting, at short term, and on ecosystems productivity at long term, thus affecting some key environmental, welfare and livelihood aspects. In the case of the Mediterranean region, future environmental scenarios forecast an increase in temperature and a decrease in precipitation (most probably accompanied by an increase in intensity). At the same time, an opposite trend in the spatial organization of human activities is foreseen for the highlands and the lowlands, named respectively deintensification (or land abandonment) and intensification. Effective land management strategies should focus particularly on the factors which are rapidly influenced by human activities, that is, land cover and land uses; moreover, they should deal with the complexity derived by such dual spatial scenario/organization. The increasing information on the consequences of different land cover/land uses on soil erosion under different environmental conditions must be the basis for new land management strategies, which look at the territory with a global perspective, considering both the in-situ and ex-situ consequences of any decision. A deep reflection is needed for discussing what we know and what we have to know in the next future for being increasingly effective and for coping against the immediate challenges we must face.