Geophysical Research Abstracts, Vol. 9, 02347, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-02347

Influence of vegetation in reducing sediment connectivity along ephemeral channels in SE Spain

P. J. Sandercock, J. M. Hooke

Department of Geography, University of Portsmouth, UK

(peter.sandercock@port.ac.uk / Fax: +44 023 9284 2512)

River channels form an important feature of the landscape, serving as major distributaries for the transfer of sediments to downstream areas. They may also function as an important source of eroded sediment in the catchment. Vegetation, through its effect in increasing channel resistance and roughness, is seen as playing a potentially important role in decreasing rates of sediment erosion and overall connectivity of sediment transfers within the landscape. Detailed studies have been undertaken of vegetation and process interactions within the ephemeral channels of SE Spain at three scales (channel network, reach and quadrat). The influence vegetation has in reducing sediment connectivity is studied at each scale by repeat surveys and mapping after floods. Transitions in vegetation types along the channel network are linked to changes in the character and amount of sediments supplied and competence of channel to transfer these sediments downstream. These relations are exemplified through a study of the distribution and density of the perennial grass *Lygeum spartum* within the upper parts of Cárcavo Basin. These grasses establish within fine grained sediments and form an extensive cover along the channel in close proximity to areas contributing a large amount of fine grained sediments. As drainage area and discharge increases along the channel network, there is a decrease in the density of these grasses. This decrease is linked in part to the lack of additional sediment inputs and significant breaks in supply due to the retention of sediments by check dams. Changes in channel competence also arise as drainage area increases resulting in increased conveyance of fine sediments downstream. The grasses themselves are also effective in trapping sediments and reducing the supply to downstream areas. This has implications for conservation management and reduction of sediment delivery to reservoirs and urban areas.