



## Conditions for use of vegetation for stabilisation of 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)

Soil erosion and land degradation represents a significant problem within semi-arid areas of the Mediterranean, with increasing concern over the onset of desertification in this region. The ephemeral channels which drain these areas form major source areas and transport paths for sediments. Detailed studies have been undertaken of vegetation and process interactions within the ephemeral channels of SE Spain to determine the potential for vegetation to be used to stabilise these channels and reduce the supply of sediments to downstream reservoirs. The conditions in which particular vegetation types are found have been determined through a process of measuring a range of environmental factors that broadly relate to water availability, substrate and morphology. Substrate/sediment supply and water availability appear to be the major factors driving vegetation patterns in these channels, with clear differences noted between the major vegetation assemblages (grasses, reeds, shrubs and trees). For vegetation to be effective in reducing or preventing erosion and degradation then the tolerance of the plants to flow and sediment effects also has to be assessed. Monitoring of effects of flows on vegetation is providing the necessary data to make these assessments. The perennial grass *Lygeum spartum* has the potential to form a dense cover where fine substrates exist and in zones of high sediment supply, such as in close proximity to gully inputs. Their hummocky growth form attests to their ability to trap fine sediments and their extensive root systems give these plants a very high resistance to erosion. In contrast, species such as *Dittrichia viscosa* and *Nerium oleander* have a higher affinity for coarser substrates and are limited in their ability to trap sediments. This knowledge provides a base for an evaluation of the potential use of vegetation for the stabilisation of ephemeral channels.