

Geophysical Research Abstracts,
Vol. 10, EGU2008-A-08292, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-08292
EGU General Assembly 2008
© Author(s) 2008



Landscape Controls on Channel Morphology in the Cairngorm Mountains, Scotland: identifying habitats for riverine ecosystems.

S.J. Addy, A.J. Hartley and C. Soulsby

Environmental Hydrology Research Group, School of Geosciences, University of Aberdeen, Scotland (s.j.addy@abdn.ac.uk)

Scottish upland rivers exhibit some of the greatest diversity of process and form in the UK reflecting the diversity of landscape evolution history, climate and landuse. This contribution outlines key findings from the mountainous River Dee drainage basin (2300 km²), north-east Scotland. Preliminary findings ascertained using a combined field and GIS based approach indicate that the glacial legacy seems to form the dominant control on the hierarchy of landscape controls that influence the morphology and sensitivity of channel morphology at three different scales: catchment, valley segment and reach. At the catchment scale, differences in the distribution of channel types between catchments are broadly related to the varying intensity of glacial denudation and deposition. Within individual catchments at the valley segment scale, spatial differences in glacial erosion and deposition control the broad spatial distribution of channel morphology types by affecting valley topography, drift cover and base level positioning. At a finer scale, local differences in valley topography, drift cover and landuse affect the fluvial sediment supply and transport capacity regimes which in turn create channel morphology variability. By better characterizing the physical reference conditions within the area of study that influence channel morphology, improvement of the prediction of upland channel morphology and sensitivity is possible which in turn could potentially explain the distribution of certain aquatic species and aid riverine habitat management.