Geophysical Research Abstracts,
Vol. 11, EGU2009-13542, 2009
EGU General Assembly 2009

Methods for assessing the efficacy of riparian vegetation in retaining sediment in forested and agricultural catchments.

D. Neary (1,3), P. Ffolliott (2), and P. Smethurst (3)

(1) USDA Forest Service, Rocky Mountain Research Station, Flagstaff, Arizona, USA,, (2) University of Arizona, Tucson, Arizona, USA, (3) CSIRO Sustainable Ecosystems, Hobart, Tasmania, Australia, (dneary@fs.fed.us / FAX +01-928-556-2130)

Riparian zones function as important barriers or treatment areas that protect water resources from non-point source sediment. Vegetation and the geomorphic characteristics of these buffer strips produces infiltration, filtering, and deposition of sediment-laden water flowing off of intensively managed forestry and agriculture lands. The effectiveness of vegetation in riparian areas for trapping sediment depends upon the velocity of water flow, size distribution of sediments, slope and length of slope above the riparian buffer, slope and length of the buffer strip, depth of water flow into the riparian zone, vegetation characteristics such as type, density, and height. Data on sediment removal by forest vegetation buffer strips suggests that two main actions occur. First, the forest edge environment promotes sediment removal from surface runoff. Second, the sediment is sorted as it moves through lower gradient zones of the riparian buffer. Methods used to measure sediment retention and sorting in riparian zones range from small plots to watershed-scale approaches. Some approaches examine both suspended sediment and bedload while others measure only suspended sediments. This paper will examine the methods used to quantify these processes and illustrate them with examples from forest management operations and agriculture.