

Title: Effects of Vegetation Patterns on Soil and Water Losses from a Purple Soil in China

Li li^{1,2}, J.G.Liu².

1, University of Arizona;2, Chang Jiang River Scientific Research Institution, Wuhan, China.

Abstract: Understanding how vegetation patterns on the landscape influence sediment and water runoff is critical for watershed management. Controlling the soil and water losses from purple soil, which is a unique type of soil distributed in China, is beneficial for reducing the sediment load to the Yangtze River. The objective of this study was to better understand the effects of the location of vegetation on the hillslopes (top, middle, and bottom of plots) on sediment yields and runoff discharge. We used an artificial rainfall simulator on experimental plots 8 m in length and 1 m in width with three patterns of vegetation: grass on the top, middle, or bottom of the plots, with the remainder of the plot areas being bare soil. Coverage amounts of grass ranged from 0 to 80%. Rainfall intensity ranged from 48 to 96 mm hr⁻¹. The results showed that the ranking of both sediment yield and runoff discharge was top of slope pattern > middle of slope pattern > bottom of slope pattern for all rainfall intensities and coverage amounts. The results of this experiment will help to guide the design and implementation of vegetative conservation practices in the area.