Road Sideslope Erosion Control

Issue: The Forest Service road system is more extensive than the U.S. Interstate Highway System consisting of over 400,000 miles, which traverse the National Forest. Sediments carried from the forest roads can account for as much as 90 percent of all sediment emanating from forestlands, which has a potential for detrimental impacts. In recent years, forest roads have been recognized as a critical area to control erosion on the forest landscape. All components of the forest road prism, consisting of cutslopes, fillslopes, traveledway, and ditch, have accelerated erosion losses. Forest managers need cost-effective methods to control erosion losses from the road prism while preserving or re-establishing native vegetation for aesthetic purposes.

Study Description: A long-term erosion control study has been established on the Shoal Creek District of the National Forest of Alabama to evaluate the most promising erosion control techniques. Three road sideslope erosion control techniques are being evaluated using bound plots; native species vegetation, exotic species vegetation, and a wood excelsior erosion mat. An untreated control was used to assess the erosion rates without implementing BMP's for road sideslopes. The effect of treatments on sediment yield, runoff, and percent cover are being analyzed.

Status: The erosion control study was installed in 1995 and continues to be intensively monitored for the past 4½ years. Long-term data on the effect of native and exotic species vegetation are being and will continue to be collected to provide understanding of time effects on sediment yield from sideslopes. Sediment yield prediction equations under each associated treatment are expected to be the significant contribution of this research to forest managers. Research conducted has been reported in seven publications (three refereed journal publications) and five presentations at international conferences. New research studies focusing on downslope sediment transport distances and sediment delivery rates are planned as a result of this work.

Benefits:

- *Gross sediment and runoff yield from treatments under erosion control techniques*
- *Comparison of native and exotic species for erosion control*
- *Sediment loss prediction models under selected control techniques*
- *Scientific data to analyze current BMP's*

Cooperators: National Forest of Alabama – Shoal Creek District

Contacts: John Grace III - USDA Forest Service – Southern Research Station - 4703