

MANAGING FOREST ROADS

CAN VEGETATED ROADWAYS REDUCE ENVIRONMENTAL IMPACTS?

Forests typically have lower erosion rates than other land-use categories and are seldom linked to non-point source pollution problems. In fact, forest operations are not in the top-five leading sources of pollution to rivers and streams. However, forest managers realize that any land-disturbing activity has the potential to present soil erosion and water quality problems. This realization has resulted in the management of forestlands with a focus on further reducing erosion losses from one of the major sources of erosion and sedimentation problems in forestlands: forest roads.

In the past 15 years, forest roads have been the center of a debate related to environmental impacts of forest operations. Forest roads have been cited to account for the majority of all soil erosion from forests and are typically void of vegetation cover to reduce the erosive action of raindrop impact and sediment transport. Due to this fact, erosion and sediment control from the road system continues to be of concern in forest management. Current forest service road management focuses on reducing impacts through a holistic approach. Administrative controls focus on road-management policies and engineering controls focus on alternative road designs, storm water runoff control, soil stabilization and sediment control alternatives.

One such alternative design to reduce the environmental impact of forest roads is vegetated roadways. It is hypothesized that vegetated roadways would reduce the accelerated erosion losses associated with forest roads. Vegetated roadways would result in a reduction in exposed soil, increased protection from raindrop impact and a reduction in the energy associated with road runoff to transport detached sediment.

However, a key concern in forest road management complicates the process of vegetating roads: trafficability. Trafficability is a major concern in forest road management because the primary purpose of the road system is to provide access for management or recreation. Vegetated roadways would not utilize typical grading operations to maintain a relatively smooth surface. Vegetated roadways would likely increase road moisture with increased shading of the road surface, which could further reduce trafficability. The combination of excluding typical grading operations and increased road surface moisture may result in a degraded road system that may or may not reduce erosion losses.

The U.S. Department of Agriculture Forest Service's Southern Research Station, in collaboration with Tuskegee University, Weyerhaeuser Co., Inc. and National Forests of Alabama, recently initiated a study to explore vegetated roadways as an alternative for controlling erosion losses from forest roads. The investigation aims to explore two questions: Are vegetated roadways effective in reducing soil erosion from low-volume forest roads? Will the trade-off associated with vegetated roadways decrease trafficability? Answers to these questions are expected in the near future upon the completion of experiments on more than 44 forest road sections in Alabama in a head-to-head comparison of vegetated and traditional graded road sections. In summary, additional investigations and designs of alternative approaches for forest roads are required for continued maintenance and protection of two of our most valuable natural resources: soil and water. **SWS**



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