

Effectiveness of Erosion and Sediment Control Practices for Forest Roads

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Abstract. Increased demands for land access for management, recreation, and other uses gave rise to increased road development rates on Federal lands. Past road construction methods were often unrestricted, until destructive landslides and water quality degradation could no longer be ignored. In order to minimize road construction and maintenance effects on aquatic resources, Best Management Practices (BMPs) were developed; BMPs are methods designed to control or eliminate the effects of nonpoint source (NPS) pollution. In regards to road construction, BMPs address the affects of erosional processes and sedimentation.

The National Forest Service has developed a set of 28 BMPs (Best Management Practices for Nonpoint Source Management) for road construction, maintenance, and obliteration. The efficiency of BMPs has been assessed by implementation of the measure, not the success of the measure in reducing sediment production. Therefore an assessment on the usefulness of the measures was needed. A literature review and synthesis on the effectiveness of each BMP measure was conducted. The BMPs are designed for application at the national level, but the efficiency of many BMPs varied by region, therefore few conclusive statements could be made. However, effectiveness was shown for all revegetation efforts on hillslopes, obliterated roads, and stream crossings. Outsloping road surfaces were found to outperform insloped roads in regards to sediment production. Water bars were shown to be effective at controlling road drainage, and lastly, gravel/rock road surfacing was found to reduce sediment from unpaved roads. As a result of the region variability for BMP effectiveness, individual states' list of forest road BMPs should be consulted before any road-related activity is undertaken.