

Using the GRAIP Sediment Model to Inform Road Maintenance Decisions in the Scriver Creek Subwatershed

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In 2012 the Boise National Forest implemented road maintenance activities within the Scriver Creek subwatershed with the goal of reducing sediment delivery and improving water quality. While “fully supporting” beneficial uses, the Scriver Creek subwatershed was identified as needing a reduction in fine sediment to assist in attaining the goals of the sediment total maximum daily load (TMDL) in place downstream on the Middle Fork Payette River. The Geomorphic Roads Analysis and Inventory Package (GRAIP) (Prasad 2007) was used to characterize the road sediment condition of 124 miles of roads within the subwatershed. GRAIP field data were collected and processed during 2010-2011 (USFS 2011). Model outputs include: road surface erosion by road segment, total sediment delivered to streams by drain point and by road segment, and sediment routed through the stream. During summer of 2012, the Forest received supplemental restoration funding to complete priority restoration work. This funding was directed toward improving road-hydrologic conditions in Scriver Creek and the GRAIP model results were used to target locations where sediment delivery could be reduced. The work included: blading, ditch cleanout, spot road-surface aggregate placement, ditch armoring and replacement of deteriorating drainage structures. This work was undertaken along road segments identified as contributing sediment to the stream channel. GRAIP predicted 528 tons per year of road-related sediment delivery within the subwatershed. Of that amount, an estimated 40-ton (7.5%) reduction in overall sediment delivery is expected to result from the implemented road maintenance activities. The reduction in sediment delivery to Scriver Creek assists in meeting the goals of the sediment TMDL in place downstream on the Middle Fork Payette River and is expected to provide benefits to water quality beneficial uses and increased resiliency for aquatic species through improvements to aquatic habitat.