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FIRST PRIORITY IMPLEMENTATION STRATEGIES FOR SEDIMENT CONTROL IN ECOLOGICALLY VALUABLE SALMONID WATERSHEDS

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ABSTRACT: Historically, the restoration and protection of biologically important salmonid watersheds has been undertaken in a piecemeal and marginally effective fashion. Flawed strategies or modes of "restoration" are not likely to provide timely, effective biological protection. During this period of limited funding, we believe most salmonid recovery strategies will fail to protect and recover the species or their habitat because the pace of implementation is too slow. As a remedy, we propose an aggressive, watershed-wide initial treatment strategy for road systems that emphasizes the cost-effective treatment of chronic road surface sediment and high priority episodic failure sites. Watershed scientists have identified excess sediment delivery to stream channels from roads as one of the most significant and controllable factors affecting salmonid habitat. Roadbeds are a primary source of anthropogenic fine sediment delivery to streams during normal water years and often produce large volumes of eroded sediment during infrequent, large magnitude storm events. Experience has shown that employing full road upgrading treatments to prevent episodic road and stream crossing failures is effective but very expensive. This analysis suggests we employ a highly effective but less costly interim treatment strategy aimed at providing immediate widespread habitat protection using cost-effective treatments for both chronic and episodic sediment sources. This "first priority implementation strategy" for roads focuses on eliminating barriers to salmonid migration, greatly reducing chronic fine sediment delivery and employing highly cost-effective treatments to prevent episodic failures. Where roads are hydrologically connected to streams, an aggressive program to disperse road runoff will greatly reduce fine sediment discharge. Likewise, widespread construction of inexpensive critical dips will prevent stream diversions that cause significant gullying and catastrophic hillslope landslides. Rather than immediately replacing and upgrading all undersized stream crossing culverts, overflow culverts can be installed to temporarily avert overtopping and wash-outs. Similarly, trash barriers and flared inlets can be selectively installed to protect the most vulnerable stream crossings until the preferred long term culvert upgrade can be applied. By immediately focusing on implementing these basin-wide restoration treatments, rather than waiting for sufficient funding for costly stream crossing upgrades, key watersheds can be cost-effectively protected in a short period.

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