

Preliminary Results from GRAIP Road Sediment and PIBO Channel Monitoring
from Watersheds in Western Montana

Richard Cissel
322 E Front St Suite 401
Boise, ID 83702
Telephone:
2083734393
Email: rcissel@fs.fed.us

Forest roads can degrade aquatic ecosystems by altering hydrologic, wood, and sediment regimes, degrade water quality, and reduce habitat suitability for aquatic biota. Often sedimentation is singled out as a dominant contributor to degradation. There are currently over a million kilometers of low traffic roads on public lands in the United States, but declining timber harvest has reduced the capacity to maintain these systems. We address the relationship between roads and streams by merging two proven monitoring approaches to develop a new understanding of road impacts on aquatic ecosystems. First, we apply an empirical methodology known as the Geomorphic Roads Analysis Inventory Package (GRAIP) to locate and estimate fine sediment generation on road surfaces and delivery to streams. We link the GRAIP monitoring with stream channel monitoring using the PACFISH-INFISH Biological Opinion (PIBO) protocol to develop local relationships of road effects with in-channel responses. Early results from an investigation of 4 sub-watersheds in Montana support conceptual models linking high road densities with increased fine sediment within streambeds. Detailed inventory and modeling work indicate that in this landscape, even at high road densities, a small percentage of roads are responsible for the majority of fine sediment currently delivered from roads to streams. Preliminary results support strategically improving necessary roads and removing unneeded legacy roads when appropriate.