

Science

BRIEFING

March 4, 2014

ROAD DECOMMISSIONING: PICKING THE RIGHT ROAD

BACKGROUND

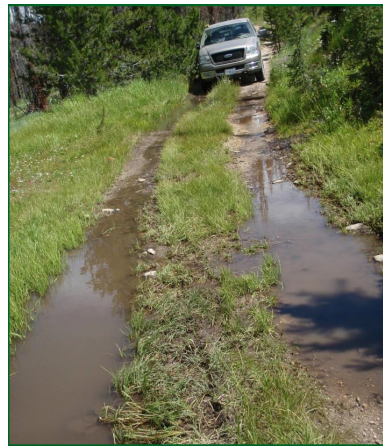
There are many miles of roads in our National Forests, many of them old and untended. Many examples exist where abandoned older roads fail and divert water from streams over hillsides, destroying downstream infrastructure and fish habitat.

When resources are limited, and when visitors to the National Forests value road access, being choosy about where to do work and what kind of work to do is important. In most road systems, less than 10% of the road network delivers 90% of the fine sediment, and only a few stream crossings represent a substantial risk. Our primary metrics for restoration success remain number of miles of road treated or number of miles decommissioned. While this gives some indication of improvements for both wildlife and water related values, it is only a very rough measure.

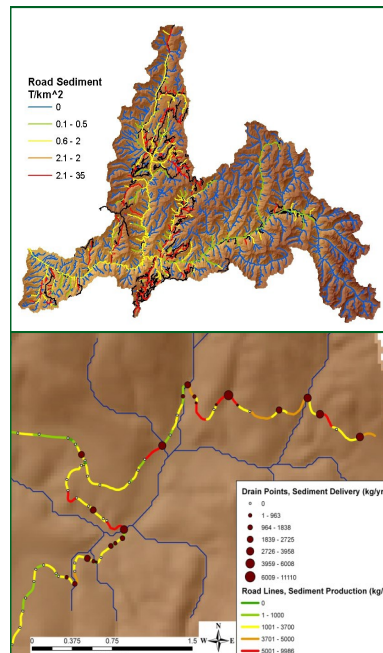
RESEARCH

Research Activity: The Geomorphic Roads Analysis and Inventory Package (GRAIP) is a set of GPS and GIS tools designed to find where the most road erosion enters streams and where the places with the highest risks for gullies and stream crossing failures are. The combination of on-the-ground inventory and erosion modeling can be used to identify the highest priorities, estimate expected sediment and failure risk reductions, and to evaluate the as-built benefits to water resources.

Benefits to Resource Managers: Using sediment and risk metrics to set priorities for road work and decommissioning is more efficient with our funds and better promotes good will with forest visitors. For instance, if one of our measures of success is defined by the number of miles we decommission, we inadvertently incentivize closure and decommissioning of the easiest roads to decommission and quantity of road removed. If the real concerns are protecting water quality while maintaining the access that many National Forest users value, targeted closures would achieve water quality goals faster while keeping more road miles accessible.



The Legacy Roads program was established to help reduce impacts to water resources and aquatic habitat from poorly built, designed, located, or maintained roads.



Example GRAIP outputs, predicting accumulated road sediment in streams (top) and road sediment production and delivery (bottom).

KEY POINTS

- The Legacy Roads program directs work towards urgently needed road decommissioning, road and trail repair and maintenance, and removal of fish passage barriers.
- GRAIP is an ideal tool to prioritize roads for restoration or decommission. GRAIP identifies:
 - 1) sediment delivery from roads to streams
 - 2) need and priority for road restoration based on risk of road related landslides and gully initiation
 - 3) less than 10% of the road network often responsible for 90% of road sediment delivery
 - 4) many aspects of road risk associated with watershed health in a single field visit
 - 5) effectiveness monitoring for BMP and TMDL work

MORE INFORMATION

Supporting documentation is available at www.fs.usda.gov/GRAIP/index.shtml. For additional information, please contact **Tom Black**, USFS Hydrologist, Thomas.Black1@usda.gov or **Charlie Luce**, USFS Research Hydrologist, Charles.Luce@usda.gov.