



Project Impacts

NSRC-FUNDED RESEARCH FINAL REPORT

Assessing Road Impacts on Stream Stability and Health in Forested Watersheds

PROJECT AWARD YEAR AND TITLE:

2009

Linking Roads in Forested Watersheds to Stream Stability and Stream Health: Tools for Assessing Road Impacts and Restoration Options

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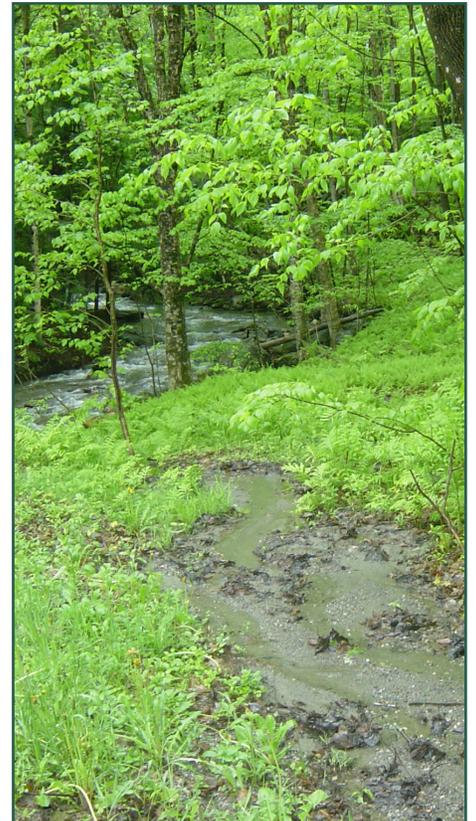
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Roads in rural, upland forested landscapes are important sources of runoff and sediment to waterways. How roads and road networks connect to waterways upstream can greatly influence downstream conditions.

To develop more efficient and less costly tools to measure the impacts of roads on streams, NSRC researchers evaluated traditional and newly developed metrics (forms of measurement) that used road position on the landscape along with runoff and sediment discharge pathway to characterize road-stream connectivity. Using data on stream geomorphic conditions developed by the Vermont Agency of Natural Resources, they related road connectivity metrics to stream channel condition (stability) using 102 forested, upland streams in Vermont with minimal development other than predominantly gravel road networks.

Researchers found that measures of road density, proximity, and orientation to waterways can be used to distinguish among categories or classes of stream geomorphic condition at multiple geographic scales surrounding a waterway. Channel characteristics (stream bed material, bed form, and channel slope) combined with road connectivity metrics successfully distinguished channel condition for nearly 67% of the channels evaluated and for 90% of channels within approximately one class of stream condition. This research contributes to efforts in evaluating the cumulative downstream effects of roads on stream channels and aquatic resources within the forested landscape of the Northern Forest region.

