

# Testing the Efficacy of Buffers for Protecting Streams and Riparian Forests



## “Ecology and Silviculture of Northern Lake States Forests”

A research work unit of the USDA Forest Service North Central Research Station

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### Study Briefing

*Established 2003, Northeast Minnesota*

### Purpose:

The Minnesota Forest Resources Council (MFRC) was charged under the Sustainable Forest Resources Act with coordinating the development of voluntary site-level timber harvesting and forest management guidelines that include practices to sustain riparian resources. This project is evaluating the effectiveness of the guidelines at protecting forested riparian areas at a site-level. Our work on this study examines the consequences of riparian forest management on forest productivity, carbon distribution, tree regeneration, and nutrient retention.

### Study Design:

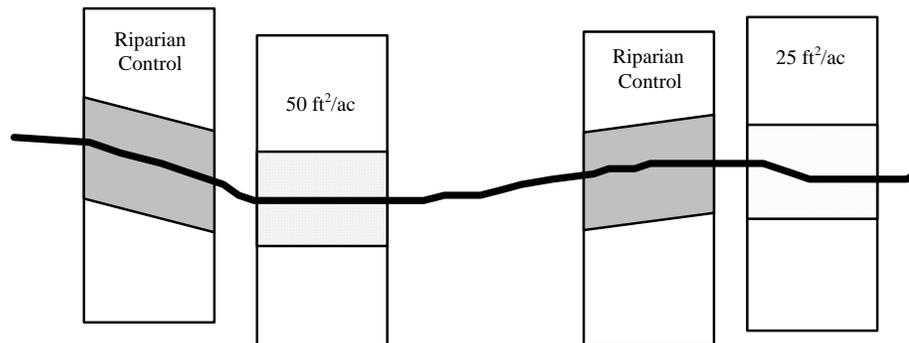
We are using a randomized incomplete block design consisting of eight blocks, each containing two stands. The blocks are located around first to third order streams throughout northeastern Minnesota. For each treatment, the RMZ width is fixed at 150' according to the current Minnesota forest management guidelines (Minnesota Forest Resources Council 1999), but the amount of residual basal area varies among treatments. The treatments are defined below. In all cases, the non-RMZ portion of the treatment area is clearcut.

**Riparian Control** -- No harvest activity within the riparian management zone,

**High residual basal area** (50 ft<sup>2</sup>/ac) in the RMZ,

**Low residual basal area** (25 ft<sup>2</sup>/ac) in the RMZ.

Figure 1. Study Design. In each study area, treatment pairs consisting of a riparian control and either a high or low residual basal area treatment.



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### **Study History:**

Harvest Treatments applied in 2003-04. Pre-Harvest (2003) and Post-Harvest (2004) measurements taken.

### **Publications:**

Master's thesis in progress. Data collection is ongoing.

### **Investigators:**

Brian Palik, Randy Kolka, NCRS; Doug Kastendick, NCRS & U of Minnesota; Charlie Blinn, Eric Zenner, Ray Newman, U of MN.; JoAnn Hanowski, Natural Resources Research Institute, U of MN.

*Minnesota Forest Resources Council. 1999. Sustaining Minnesota Forest Resources: voluntary site-level management guidelines for landowners, loggers and resource managers. Minnesota Forest Resources Council, St. Paul, Minnesota.*