

**Report for 2005MT62B: STUDENT FELLOWSHIP:
Environmental conditions associated with the extent
and composition of woody riparian vegetation within
the West Fork of the Gallatin River watershed**

Publications

- There are no reported publications resulting from this project.

Report Follows

Abstract

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Project Title: Environmental conditions associated with the extent and composition of woody riparian vegetation within the West Fork of the Gallatin River watershed

Riparian vegetation provides stability to banks and hillsides, influences biogeochemical processes, and interacts with both surface and groundwater to alter near-stream flow systems. It also provides a disproportionate amount of wildlife habitat relative to its area occupied on the landscape. This study focuses on woody riparian vegetation within the West Fork of the Gallatin River watershed. The primary objectives are to: (a) assess the significance of environmental factors as driving variables of riparian vegetation structure and composition and (b) assess the ability of remotely sensed topographic data to predict the vertical and lateral extent of riparian vegetation above the stream.

Research Accomplishments

The first objective was addressed during the 2005 field season. I sampled 80 plots across 30 sites within the main stem of the West Fork of the Gallatin River, and along two tributaries, the Middle Fork and Beehive Creek. Plots were located on one of three visually-determined landforms extending laterally from the stream channel (floodplain, terrace, and adjacent upland). Within each plot, percent cover of trees and shrubs was sampled, and the following environmental variables were collected: elevation, plot height above the stream, plot distance from the stream, floodplain width, valley confinement and stream gradient.

This initial data set was analyzed using multivariate methods. When data from all three landforms were included, species composition was related most strongly to elevation and plot height above the channel. When only floodplain and terrace data were used, species composition was related mostly to elevation and floodplain width. Additional sampling will occur within the West Fork watershed during the summer of 2006.

Conclusions

This study will provide valuable insights into riparian vegetation-environment relationships, as well as increase our understanding of the ability to use remotely sensed topographic data to predict the extent and composition of riparian vegetation in small mountain watersheds.