



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: CA4001

Title: Examining the relative influence of riparian and upland landcover and landuse on instream habitat: Improved methods for the Russian River basin.

Focus Categories: Wetlands, Agriculture

Keywords: buffer strips, riparian, watershed, scale, land use, salmon habitat, restoration, GIS, remote sensing

Start Date: 03/01/2001

End Date: 02/28/2002

Federal Funds: \$13,910

Non-Federal Matching Funds: \$47,626

Congressional District: 9th

Principal Investigator:

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Abstract

Because riparian buffers are an integral component of the strategy for protecting and recovering salmonid populations, it is critical to understand how they function at a watershed scale. The upland drainage basins of the Russian River have an established history of livestock grazing, timber harvesting and vineyard development. Protection of salmon and Steelhead trout who spawn in these waters is a focus of federal, state, and local resource agencies. This study will build on previous landscape analyses of riparian buffer strips and will further elucidate the relationship between riparian corridors and flows of sediment and water from the uplands to the stream. The study will examine the influence of landscape variables, such as upland land cover and land use, on instream habitat. Previous studies might be overlooking landscape characteristics that can be derived from high-resolution topography and imagery. This study will construct a suite of models, based on multiple and logistic regression that build on previous methods and simultaneously address an important methodological question that arises in landscape ecology: can the use of higher-resolution topographic data and imagery improve our methods of modeling natural systems? The data will extend to include small, unmapped drainages. These drainages, and the characteristics of their riparian corridors, may strongly influence conditions within main-stem streams. The proposed method and results will provide information on the effectiveness of buffer strips on a watershed scale to resource agencies and landowners.