Project Title: Analysis of land-use effects on landscape patterns and biological diversity in Pacific Northwest forests: 1972-1992.

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Wallin, D.O., F.J. Swanson, B. Marks, J. Kertis and J. Cissel. Landscape dynamics in Pacific Northwest forests: a comparison of 400 years of pre-settlement conditions to current and...
alternative future conditions. (Invited paper) American Association for the Advancement of Science, Pacific Division, June 20, 1995, Vancouver, British Columbia.


While there is widespread recognition of the importance of preserving biological diversity, there is considerable uncertainty about how to map current patterns of diversity and monitor changes through time. Ground-based approaches are impractical for examining regional patterns of biological diversity, for monitoring change, and they may actually overlook important higher-order phenomena. Thus, there is a critical need for innovative techniques to examine land-use effects on biological diversity at the landscape and regional scales. In this project, we have used satellite-based remote sensing to examine land-use effects on forest ecosystems in the Pacific Northwest region (PNW) of the U.S.A. Rates and patterns of forest change throughout the region were quantified for the period from 1972 to 1993. This information was then used to map changes in the abundance and distribution of potential habitat for selected vertebrate species. The results of this project will be useful for identifying "keystone" stands that are important in maintaining habitat connectivity at the regional scale and for evaluating the impact of future land-use on vertebrate diversity throughout the region. The approaches developed here will also be useful in other forested regions throughout the world.