

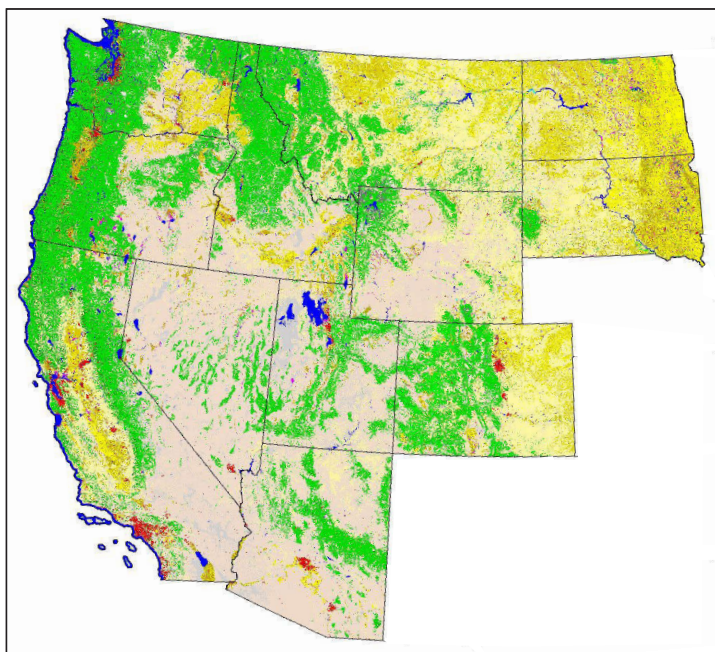
US EPA ARCHIVE DOCUMENT

# EMAP-West Communications

## Land Cover Data for Western Ecological Assessments

### Introduction

Land cover and land use data are fundamental ingredients of ecological studies which deal with large regions and the impacts of human activities. Because these data are remotely sensed, primarily satellite imagery, they cover the entire landscape in the 12 contiguous states of EMAP-West (see the figure below showing the Multi-Resource Land Classification imagery of the West).



### More than Maps

Advances in computer technology and geographic information systems (GIS) have made it possible to calculate complex landscape metrics that have uses far beyond the production of attractive maps. This is made possible because the new landscape data being generated will cover the entire surface of the western United States at relatively fine scales; i.e., a change in land use can be detected in an area as small as 30 meters square. This information, a formidable data set in itself, can be combined with other data to evaluate complex interactions. For example, the impact of roads on aquatic resources requires multiple data sets in combination all of which must be combined into an index that can be related to multiple water quality variables.

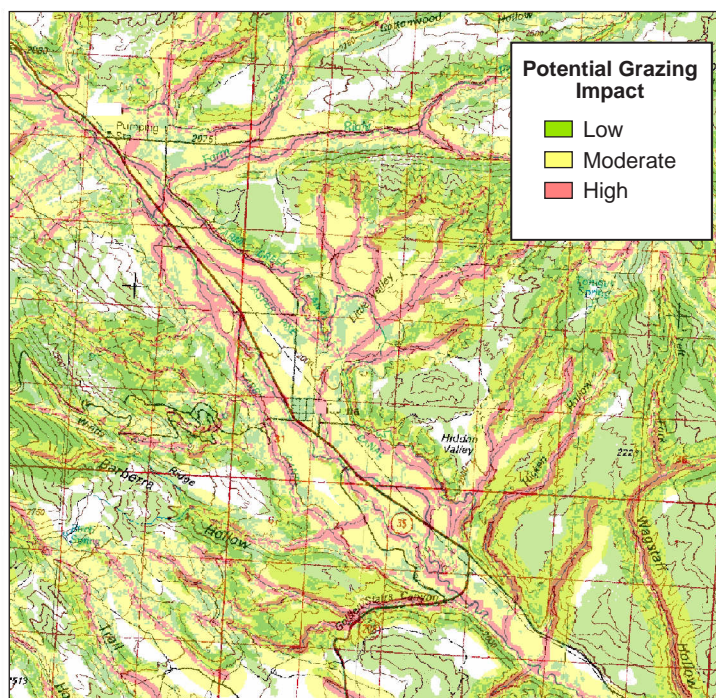
### Use of Landscapes Data

While useful for many purposes, the major focus of the Landscapes group in EMAP-West will be to evaluate the association of multiple landscape variables with aquatic condition being measured by the Surface Waters and Coastal groups. Since the condition of estuaries and rivers and streams is clearly influenced by large-scale processes, quantitative evaluation of that influence is needed. It is the goal of the Landscapes component to assess spatial variability in landscape pattern and the degree to which that

pattern is associated with the condition of estuaries and inland surface waters. If conditions in aquatic resources are closely linked to watershed-scale landscape patterns, it may be possible to assess potential conditions of aquatic resources from landscape data at many scales across the western U.S. This could allow more informed targeting of waterbodies for protection/restoration activities.

### Progress

To date, emphasis has been placed on bringing a series of geographically-based data sets together in a format that allows the calculation of various metrics. An example of an indicator that is being developed, potential grazing impact, is shown in the figure below.



A core set of indicators is being developed for each state and recorded to CD's for easy distribution. The state of Oregon and the Southern Rockies regions have CD's prepared and are under review. As the Program develops, the landscape indicators will be tested and, if the expected relationships are found, predictive models of aquatic condition will be developed, ultimately providing the states and tribes of the West with an important tool in their monitoring and assessment activities.

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