

Geography - Geographic Analysis and Monitoring Program

Land Cover Trends Project

The Land Cover Trends Project is designed to document the types, rates, causes, and consequences of land cover change from 1973 to 2000 within each of the 84 U.S. Environmental Protection Agency (EPA) Level III ecoregions that span the conterminous United States. The project's objectives are to:

- Develop a comprehensive methodology using probability sampling and change analysis techniques and Landsat Multispectral Scanner (MSS), Thematic Mapper (TM), and Enhanced Thematic Mapper (ETM) data for estimating regional land cover change.
- Characterize the spatial and temporal characteristics of conterminous U.S. land cover change for five periods from 1973 to 2000 (nominally 1973, 1980, 1986, 1992, and 2000).
- Document the regional driving forces and consequences of change.
- Prepare a national synthesis of land cover change.

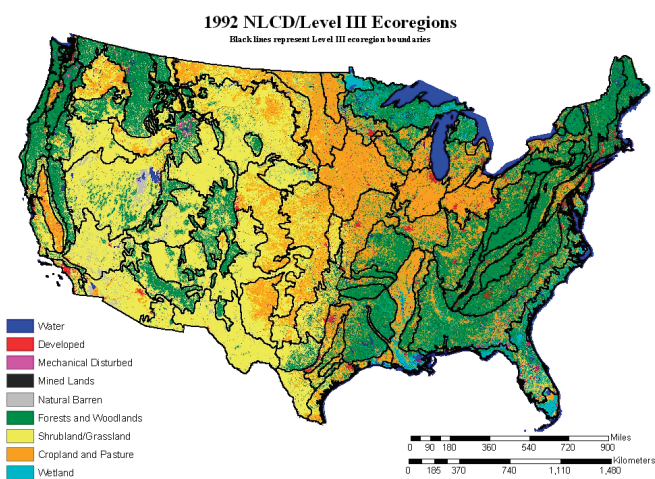
Land use and land cover changes occur at all scales, and changes can have dramatic, cumulative impacts. Land use and land cover changes are of concern globally as well as locally and regionally because of the impacts on land management practices, economic health and sustainability, and social processes. The challenge facing policy-makers and scientists is that

there is generally a lack of comprehensive data on the types and rates of land use and land cover change, and even less systematic evidence on the causes and consequences of land cover change. Results from this research will contribute to a national assessment of the impacts of land cover change, providing a basis for improved predictions of future changes, and consequently, may lead to improved policies for regional management of environmental resources.

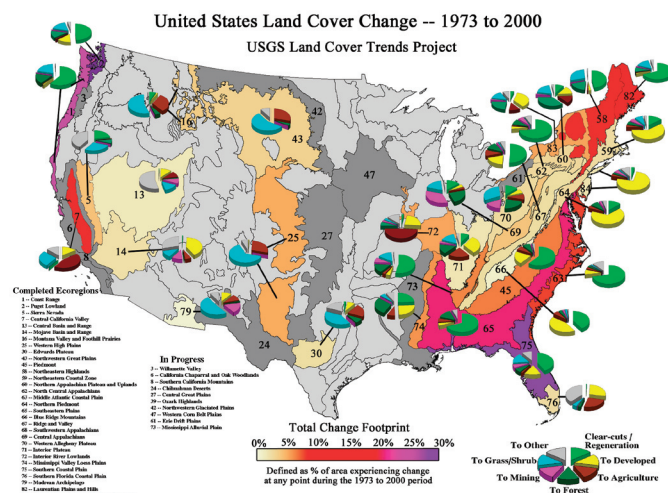
Land cover change is estimated using a stratified random sampling of 20-km-by-20-km or 10-km-by-10-km sample blocks allocated within an ecoregion-based spatial framework. Historical Landsat MSS, TM, and ETM satellite imagery, along with historical aerial photography, are used to derive land cover maps for the five separate dates. The sample block land cover data are then used to analyze the spatial, temporal, and sectoral dimensions of change, and when coupled with an analysis of the causes and consequences of change, the story of change can be told.

For More Information

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Ecoregion Framework: "Ecoregions" are designed to serve as a spatial framework for environmental resource management and denote areas that contain a geographically distinct assemblage of environmental conditions, natural communities, and plant species. Above, ecoregion lines superimposed on the National Land Cover Data set (NLCD) illustrate the strong relationship between ecoregions and land use and land cover.



Preliminary Results: This image uses color to show the proportion of each ecoregion experiencing change and includes pie charts to convey the percentage of the major conversions that were estimated.