SPATIAL AND STATISTICAL ANALYSIS OF THE LAND COVER CONVERSIONS MAPPED BY NLCD LAND COVER PRODUCTS

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Commission VI, WG VI/4

KEY WORDS: NLCD, Land Use, Land Cover, Land Cover Change, Most Common Conversions

ABSTRACT:

There has been significant progress over the last several decades towards developing data sets that characterize the United States land surface. The National Land Cover Database (NLCD) provides the most comprehensive, nationally consistent, wall-to-wall, 30-meter resolution land-use/land-cover change data available for the country. An analysis of the land change conversions that occurred in the 2001-2006 and 2006-2011 time periods was conducted to determine how well the NLCD mapping process is doing in detecting U.S. land surface change. We analyzed 16 land-use/land-cover classes for changes over 3 dates (2001, 2006, 2011) and 2 temporal periods. Analysis focused on all 256 From/To land conversions occurring between the 2 time periods. The most common types of land conversions were the loss of forest due to harvesting, fires, development, and mining. These changes accounted for 26,146,801 acres of change in the 2001 to 2011 time period. The second most common types of changes were the regrowth of forest and grassland/shrubland after harvesting and/or fires. These changes accounted for 16,749,615 acres of land conversion between 2001 and 2011. The third most common type of change was a gain in developed land due to urbanization and new developments. These changes accounted for 4,993,039 acres of land change. Other types of change included gains in the extent of water due to flooding and new reservoir development, agricultural expansion, and loss of water due to drought. Overall, NLCD change products make a significant contribution to understanding U.S. land change but tend to underestimate the amount of change occurring, specifically from wildland fire, agricultural contraction, and to a lesser degree forest harvesting.

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