LAND COVER CHANGE MAP COMPARISONS USING OPEN SOURCE WEB MAPPING TECHNOLOGIES

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Abstract—The USDA Forest Service is evaluating the status of current landscape change maps and assessing gaps in their information content. These activities have been occurring under the auspices of the Landscape Change Monitoring System (LCMS) project, which is a joint effort between USFS Research, USFS Remote Sensing Applications Center (RSAC), USGS Earth Resources Observation and Science (EROS) Center, and academic partners. One of the early needs identified was a system that facilitated the visual comparison of several change maps in a common visualization framework. The application presented here is the result of this need.

The LCMS landscape change viewer is a web-based platform that allows users to interact with the various change data layers and visually identify areas of overlap and uniqueness. In addition to the zoom and pan functions that are expected in a web map, features of the application include user configurable:

- Order of comparison in the map table of contents
- Turning on and off individual years for each of the change data sources
- Year selection based on a user defined range of years
- Adjusting the transparency for each change data source
- Selection of color for each of the change data sources

These functions are made possible through the following technologies:

- Tilemill that produces static data tiles for viewing on a web map
- Leaflet.js to render the maps
- A custom Leaflet layer developed at RSAC that allows the browser to render tiles in a color and opacity as specified by a user

Together, these technologies eliminate the need for a GIS server and allow most basic GIS viewing operations to occur on the client's browser.

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