GAP National Land Cover Data: Recent Developments

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The National Gap Analysis Program (GAP) has been a pioneer in broad-scale land cover mapping efforts. Beginning in the 1980s, GAP mapped land cover on a state-by-state basis for use in the mapping of wildlife habitat distributions. These state projects were often the first attempts at land cover mapping conducted in the state and are often credited with expanding the local expertise necessary to do remote-sensing-based land cover mapping projects. However, differences in source data and classification systems used by the individual states hampered efforts to use state-level data for regional assessments that included analysis across the entire range of a wildlife species. Recently GAP has been working to update these early land cover mapping efforts by developing regional land cover mapping products. Regional land cover projects were completed for the Southwest, the Southeast and the Northwest regions. Data from these projects were combined with data generated by the Landfire project (www.landfire.org) to create a seamless dataset for the conterminous United States.

Goals

The creation of high quality land cover maps furthers GAP's mission of "keeping common species common" by identifying those places in the
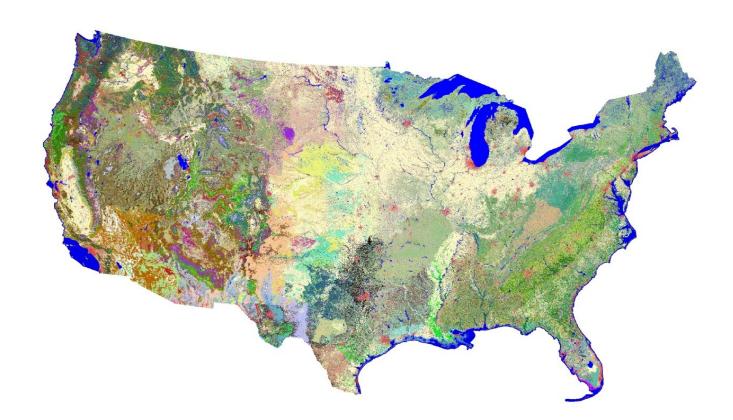

Figure 1. The final version of the land cover map contains 551 Ecological Systems and modified Ecological Systems.

country with sufficient good quality habitat to support wildlife as well as by providing a seamless land cover map for the entire US that can be used for habitat conservation. Current GAP land cover mapping efforts strive to maintain consistency in the mapping of large geographic areas, allowing for habitat modeling across entire spe-

cies' ranges and for planning efforts at the national scale.

Accomplishments

In February, 2010, GAP launched an online national land cover viewer to enable users to easi-
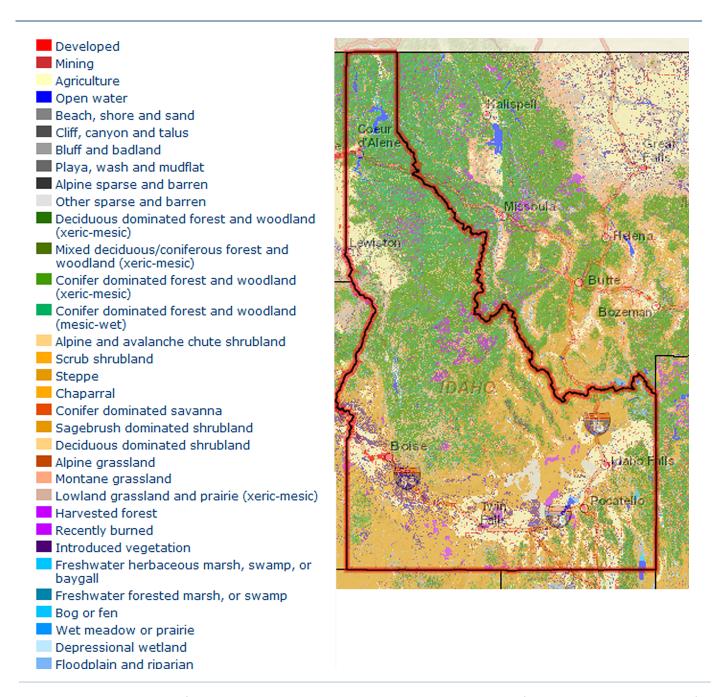

Figure 2: This screen capture from the National Land Cover Viewer displays the land cover for Idaho with the level 2 classification which contains 43 classes, and incorporates information on elevation and climate.

ly explore and download data (http://gapanalysis.nbii.gov/landcover).

The viewer, designed by Applied Geographics in conjunction with GAP expertise, displays GAP national land cover data at three hierarchical levels of thematic resolution. Level 1, with eight classes, generalizes to the level of vegetative physiognomy (e.g., grassland, shrubland, forest). Level 2, with 43 classes, incorporates information on elevation. Level 3, with 586 classes, uses the ecological systems classification developed by NatureServe. Because the three levels are hierarchical, users can view and download land cover data at the classification detail needed for their project. The land cover interface draws the national land cover data quickly and allows for nearly instantaneous zooming and panning.

The viewer lets users choose from among four base maps over which to display land cover data: topology, roads and towns, a high resolution satellite image or USGS topographic quadrats. Users can also adjust the transparency of the land cover data, which allows them to see that data in relation to other familiar landscape features. Detailed descriptions of the ecological systems (i.e., Level 3) are generated by clicking on the land cover data in the viewer and are displayed in a separate popup window. Land cover summary reports can be generated by state or county. These types of summaries are required by many different types of users but can be time consuming and technically challenging to generate.

Since the national land cover viewer's launch, an average of approximately 150 visitors per day have visited the web site. Visits peaked in mid-June at 2,800 visitors per day, after a USGS press release. Visitors to the land cover viewer represent a wide variety of federal, state and private agencies. Users of the viewer live in each of the 50 states as well as 49 different countries. Of the states, California and Washington have had the greatest number of viewers, while Canada and Japan have the highest number of viewers outside of the U.S.

During the next year, GAP will continue to add functionality to the land cover viewer with a new release planned for Spring 2011. We are working to improve the national land cover data set by working with vegetation ecologists and other natural resource experts to identify mapping errors and improve and standardize the mapping of Ecological Systems across the country. We are working to crosswalk the Ecological Systems classification to the National Vegetation Classification (NVC) and to allow users to view the land cover data at the various hierarchical levels represented by the NVC. GAP is also incorporating land cover data from Alaska and Hawaii into the viewer. Once this is accomplished, land cover summary statistics will be generated for the 50 states. We are also planning to integrate the Protected Areas of the United States (PAD-US) dataset into the viewer. This will allow users to explore the land cover within the country's National Parks and other protected lands. Comments on the GAP land cover viewer and the underlying data can be emailed to adavidson@uidaho.edu.