

## More than Fire

Though named LANDFIRE, the suite of tools, models and digital map layers is the first *complete, nationally consistent* collection of resources with an ecological foundation that can be used across several disciplines. As such, LANDFIRE products reach beyond fire into other application areas related to the nation's natural resources.

- More than 20 digital map layers were created, including current vegetation, estimated pre-European settlement vegetation, current vegetation structure, and a metric that summarizes how current vegetation composition and structure are different from pre-settlement vegetation.
- In addition to these spatial products, more than 1,000 dynamic vegetation models were created, which textually and quantitatively describe succession and disturbances in every major ecological system in the United States.

All of these products are available for public download at [www.landfire.gov](http://www.landfire.gov). LANDFIRE models and spatial layers have been used in important wildland fire management situations, but also in numerous and varied conservation applications as well, such as an "enhanced CAP process," national condition assessments and habitat evaluations. For more information regarding LANDFIRE on the ground, see [www.tncfire.org/training\\_landfire.htm](http://www.tncfire.org/training_landfire.htm).

LANDFIRE products were developed for national or regional level analyses, but may be acceptable for smaller geographies after review by practitioners with local knowledge. Currently, the LANDFIRE Program is improving and updating products, and working to increase their appropriate use.



# LANDFIRE ON THE GROUND

## THUMBNAIL STORIES



email: [LANDFIRE@tnc.org](mailto:LANDFIRE@tnc.org)  
website: [www.tncfire.org/LANDFIRE](http://www.tncfire.org/LANDFIRE)

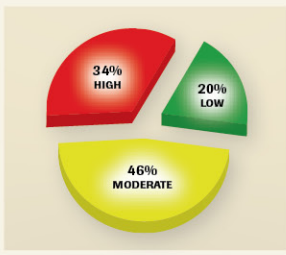
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### Ecological Departure

The Nature Conservancy used the LANDFIRE National FRCC map to characterize ecological conditions for the lower 48 states. This analysis showed that approximately two-thirds of the conterminous United States is naturally vegetated and, therefore, is assigned an FRCC ecological departure value. The remaining one-third of land cover is characterized as either agricultural or urban land cover, or sparsely or non-vegetative land cover such as water, snow/ice or barrens. It was found that within the naturally vegetated areas, approximately three-quarters of the land cover is moderately to highly departed from its reference condition (red and yellow in chart above). Results also showed that two-thirds of the naturally vegetated areas inside federally administered lands are moderately to highly departed.

### Regional Fire Risk Assessments

Human and fiscal impacts of wildfire are issues at all scales, from communities and states to large geographical regions. Community Wildfire Protection Plans are designed toward understanding local wildfire threats; states have undertaken tailored analyses specifically to address their needs; regional assessments are under way in every portion of the country, and planners are using LANDFIRE National and LANDFIRE Rapid Assessment data to inform decisions at even larger landscape levels. The Northern Risk Assessment, organized and conducted by the USDA Forest Service, used LANDFIRE data extensively in its analysis. In addition, certain LANDFIRE spatial layers are being considered by both the Southern Wildfire Risk Assessment and the Western Fire Risk Assessment as managers conduct or update their analyses.

### Carbon Rapid Assessment

Under the Energy Independence and Security Act, the U.S. Geological Survey is required to analyze biological and geological carbon stocks and fluxes across the nation. As a first step, a "Rapid Assessment" was conducted in late 2009 first to provide quick, initial information. This carbon rapid assessment relied heavily upon nationally consistent, well-documented LANDFIRE project products, such as historical and current vegetation layers.

### Northern Sierra Nevada Climate Change Project

A group of organizations committed to protecting the northern Sierra Nevada, the Northern Sierra Partnership, has launched an effort designed to examine how potential future climates could affect the region's flora and fauna. The project goals are to assess the predicted impacts of climate change on the region and identify cost-effective strategies for maintaining ecosystem resilience in the face of such changes. The project will use LANDFIRE vegetation dynamics models and spatial data in conjunction with local data sets to investigate the effects of climate change, including reduced snowpack, elevated temperature and CO<sub>2</sub> enrichment on vegetation into the future.

### Hiawatha National Forest

Representatives of Region 9 (northeast United States) of the USDA Forest Service and The Nature Conservancy are collaborating to help regional Forest Service planners incorporate LANDFIRE data into their mix, with a focus on the Hiawatha National Forest. The data are being used to inform the Stone-Moss mid-scale planning effort, a western unit of the Hiawatha project that identifies opportunities for management. Using this analysis, the planning team explored which stages of forest development are under- and/or over-represented. Typically for the Great Lakes, older- and all-ages fire-dependent forest development stages are under-represented. LANDFIRE cross-boundary information can provide a true landscape perspective for planners.

### Carbon and Air Quality

The use of fire as a conservation tool is threatened by atmospheric carbon and air quality challenges. Smoke modeling at the landscape scale could become a critical part of the decision-making process in the future regulatory environment. In a partnership between The Nature Conservancy, the University of California-Berkeley and Spatial Informatics Group, smoke emissions predictions from a common fire effects prediction model (CONSUME) using LANDFIRE spatial products were compared to predictions using local plot data on four sites in California. Smoke emission predictions were generally higher when LANDFIRE fuel model data were used as compared with local plot data. However, local plot data often were not extensive, nor did they cross ownership boundaries, and thus may be less useful for very large landscapes or regional analyses.