Don't Let the Name Fool You:

LANDFIRE Products Can Be Applied to the Terrestrial Part of Watershed Equations

What is LANDFIRE?

The Landscape Fire and Resource Management Planning Tools Project – LANDFIRE – is an innovative wildland fire, ecosystem and fuel assessment-mapping project designed to generate comprehensive, landscape-scale maps of vegetation, fire and fuel characteristics for the United States using a consistent process nationwide.

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 reaches beyond research and results regarding fire in the United States.

Why LANDFIRE?

While watershed planners must focus on water availability, temperature, geomorpoholgy, energy and nutrient sources, the terrestrial vegetation components of watersheds are also important. However, complete and comprehensive datasets describing vegetation are often lacking. The national LANDFIRE program can help address this problem with a suite of data and tools, all available at one location, including detailed metadata. The LANDFIRE suite of spatial products includes more than 20 nationally consistent raster layers related to vegetation type, height, and canopy cover as well as historic vegetation conditions and departure from these conditions. Additionally, there are over 1,300 stand-alone ecological models and descriptions of pre-settlement conditions. LANDFIRE includes a number of tools that enhance data access and usability.

What Can LANDFIRE Do?

LANDFIRE spatial products and vegetation models can:

- Provide consistent landscape-scale, cross-boundary geospatial products to support fire and land management planning activities.
- Help identify and assess conservation targets and evaluate individual or multiple threats to conservation targets.
- Be used to explore the potential effectiveness and costs of various management options.
- Strengthen partner relationships through collaborative learning.
- Help stewards and planners learn about past, present and potential future disturbance regimes and effects.
- Support local planning, management and monitoring activities requiring consistent vegetation data.
- Assist with strategic and tactical planning for fire operations where other necessary data is unavailable.
- Help federal and state agencies and private organizations collaborate with regard to fire and other natural resource management.
- Supplement other data and information in USFS and other watershed assessments.
- Assist with Community Wildfire Protection Plans, effective resource allocation and collaboration between agencies and the public.

All LANDFIRE products are available for public download. 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.

LANDFIRE is part of The Nature Conservancy's North America Conservation Region. Contact any member of the TNC-LANDFIRE National Team for information.

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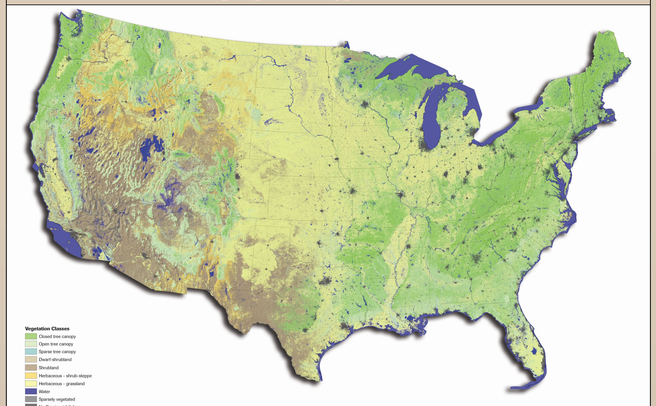
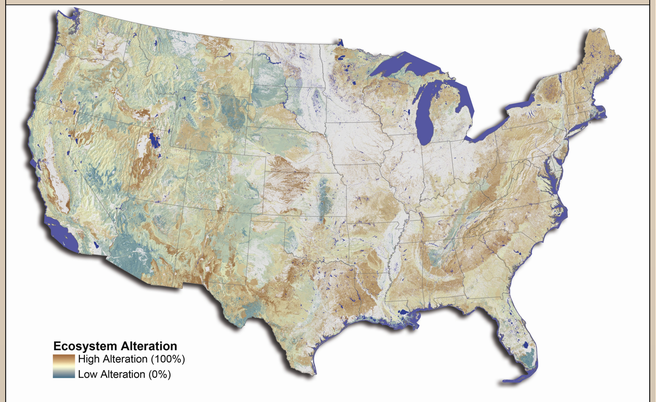
Existing Vegetation Types in the CONUS



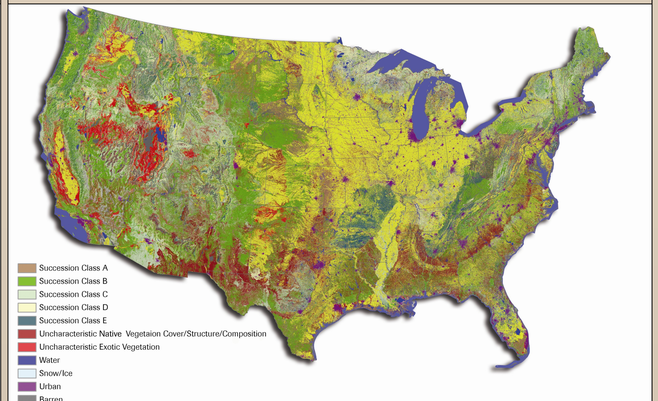
The Existing Vegetation Type (EVT) layer represents the vegetation currently present at a given site. LANDFIRE vegetation map units are derived from NatureServe's Ecological Systems classification, which is a nationally consistent set of mid-scale ecological units. Existing vegetation is mapped through a predictive modeling approach using a combination of field reference information, Landsat imagery, and spatially explicit biophysical gradient data. Field data keyed to dominant vegetation type at the plot level were used as "training data" to drive the modeling process. Attribute information is provided that links the LANDFIRE EVT map units to existing classifications such as the National Vegetation Classification System and those of the Society of American Foresters and Society of Range Management.

Ecosystem Alteration in the CONUS



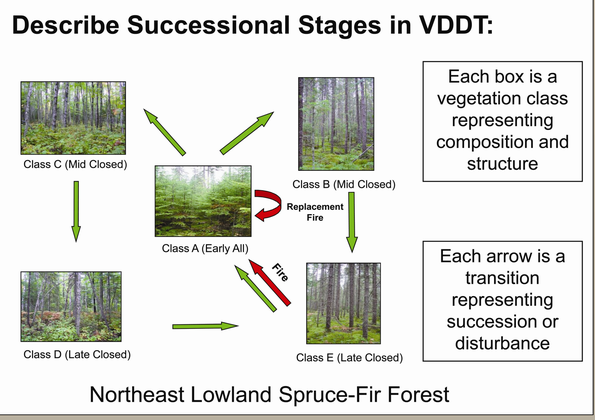
The Ecosystem Alteration (also known as Fire Regime Condition Class, or FRCC) data product uses a range from 0 to 100 to depict the amount that current vegetation has been altered from simulated historical vegetation reference conditions. This alteration results from changes to species composition, structural stage, and canopy closure. It is important to note that the Ecosystem Alteration layer represents the departure of current vegetation conditions from simulated historical reference conditions. LANDFIRE simulates historical vegetation reference conditions using the vegetation and disturbance dynamics model LANDSUM (Keane and others 2002; Keane and others 2006; Pratt and others 2006). Current vegetation conditions are derived from a classification of LANDFIRE layers of existing vegetation type, cover, and height.

Vegetation Succession Stages in the CONUS



The Succession Classes (SCLASS) layer characterizes current vegetation conditions with respect to the vegetation species composition, vegetation cover, and vegetation height ranges of successional states that occur within each reference condition (biophysical setting). SCLASS can also represent uncharacteristic vegetation components, such as exotic species, that are not found within the compositional or structural variability of successional states defined for a reference condition. To produce SCLASS, the historical reference conditions of these successional states were simulated using the vegetation and disturbance dynamics model LANDSUM (Keane and others 2002). The area contained in succession classes is compared to the simulated historical reference conditions to calculate measurements of vegetation departure, such as fire regime condition class.

Model Development



Projecting changes in vegetation structure and composition over time is an important part of landscape-level analyses. Vegetation may change for a variety of reasons, such as human activity, fires, insects, pathogens, mammals, weather, or growth and competition. The interaction of these factors is complex and the combined effects are difficult to predict over long periods.

The Vegetation Dynamics Development Tool (VDDT) is a user-friendly, Windows-based computer tool which provides a state and transition landscape modeling framework for examining the role of various disturbance agents and management actions in vegetation change. It allows users to create and test descriptions of vegetation dynamics, simulating them at the landscape level. VDDT provides a common platform for specialists from different disciplines to collectively define the roles of various processes and agents of change on landscape-level vegetation dynamics. Moreover, VDDT allows for rapid gaming and testing of the sensitivity of the ecosystem to alternative assumptions. It thus provides a means for learning and communication. In the future, VDDT will be transitioning to an updated, more integrated version of the environment called Path. The current version of Path is also available for download. (ESSA Technologies. http://www.essa.com/tools/vddt/)

What are Your Ideas? We Need Your Input!