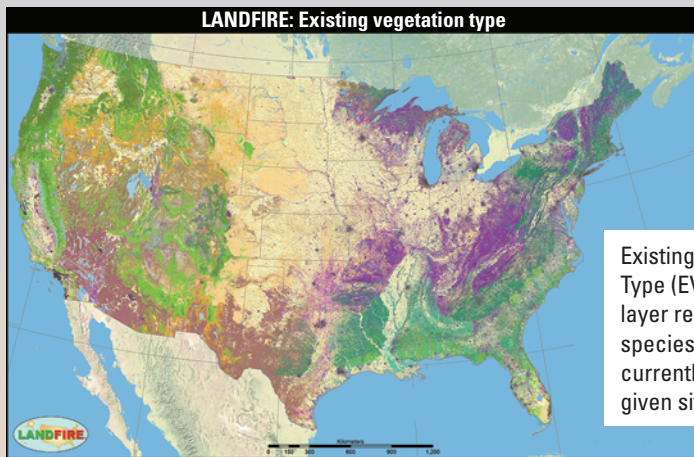# USGS
science for a changing world

LANDFIRE

Overview

LANDFIRE, also known as the Landscape Fire and Resource Management Planning Tools Program, is a vegetation, fire, and fuel characteristic mapping program managed by the U.S. Department of Agriculture Forest Service and the U.S. Department of the Interior. LANDFIRE represents the first, and only, complete, nationally consistent collection of spatial resource datasets with an ecological foundation that can be used across multiple disciplines.

LANDFIRE data products are primarily designed and developed to be used at the landscape level to facilitate national and regional strategic planning and reporting of wild land fire and other natural resource management activities. However, LANDFIRE's spatially comprehensive dataset can also be adapted to support a variety of local management applications that need current and comprehensive geospatial data.

LANDFIRE: Existing vegetation type

Existing Vegetation Type (EVT). The EVT layer represents the species composition currently present at a given site.

Products

Vegetation
Environmental Site Potential
Biophysical Settings
Existing Vegetation Type
Existing Vegetation Height
Existing Vegetation Cover
Vegetation Dynamics Models

Fire Regime
Fire Regime Groups
Mean Fire Return Interval
% Low-severity Fire
% Mixed-severity Fire
% Replacement Severity Fire
Vegetation Condition Class
Vegetation Departure Index
Succession Classes

Topographic
Aspect
Elevation
Slope

Fuel
13 Anderson Fire Behavior Fuel Models
40 Scott and Burgan Fire Behavior Fuel Models
Canadian Forest Fire Danger Rating System
Fuel Characteristic Classification System
Fuel Loading Models
Forest Canopy Cover
Forest Canopy Height
Forest Canopy Bulk Density
Forest Canopy Base Height

Disturbance
Fuel Disturbance
Vegetation Disturbance
Vegetation Transition Magnitude
Vegetation Transitions Databases
Annual Disturbance Layers
FVS Disturbance Database

Reference
LANDFIRE Reference Database
Public Events Geodatabase

Benefits

Here are some benefits of using LANDFIRE data and products:

- Provides consistent landscape-scale, cross-boundary geospatial products to support fire and land management planning activities.

- Supports local planning, management, and monitoring activities requiring consistent vegetation data.

- Assists with strategic and tactical planning for fire operations where other necessary data are unavailable.

- Helps Federal and State agencies and private organizations collaborate with regard to fire and other natural resource management issues.

Data Products

The LANDFIRE suite of spatial products includes more than 25 vegetation, fire, fuel, and topography datasets describing existing vegetation composition and structure, potential vegetation, and surface and canopy fuel characteristics for the entire Nation. Data products are created at a 30-meter grid spatial resolution and are developed using georeferenced field plot data, satellite imagery, and simulation models. More information regarding LANDFIRE data products can be accessed at http://www.landfire.gov/viewer.

Banner and background photographs: The Big Windy Complex fire, Oregon, 2013. Photographs by Lance Cheung, U.S. Dept. of Agriculture.

Releases

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
LANDFIRE releases — Name/version/year of release												
Name	**LF National**		LF 2008			LF 2010	LF 2012	LF 2014		**LF Remap**	LF 2017	LF 2018
Version	*LF 1.0*		*LF 1.1*			*LF 1.2*	*LF 1.3*	*LF 1.4*		*LF 2.0*	*LF 2.1*	*LF 2.2*

LANDFIRE (LF) National, delivered in 2009, was LANDFIRE's first national extent, spatial dataset. The vegetation and fuel layers have since been updated three times to more accurately represent current conditions and account for landscape disturbances and successional change: in 2011 with LF 2008, in 2014 with LF 2010, and in 2015 with LF 2012. The last planned update to LF National will be delivered in 2016 with LF 2014. A remap of the entire product suite is expected to start in 2016 with completion in 2018. After this, vegetation and fuel layers will be updated on a regular basis to account for landscape disturbances and successional change.

Application Examples

More uses of LANDFIRE data can be accessed at http://maps.tnc.org/landfire/.

Fire frequency in California.—This study was designed to generate a current, comprehensive summary of pre-settlement fire frequency estimates for California ecosystems that are dominated by woody plants. A foundational mapping and analysis report focused on fire-return interval departure was developed using LANDFIRE Biophysical Settings information as the framework for the analysis. More information can be accessed at http://www.fs.fed.us/rm/pubs/rmrs_gtr292/2011_vandewater.pdf.

Photograph by U.S. Forest Service.

Grizzly bear population.—The grizzly bear population in northwestern Montana is one of six threatened populations identified in the U.S. Fish and Wildlife Service's Grizzly Bear Recovery Plan. The primary objectives of the study were to develop a statistically rigorous estimate of grizzly bear population size and assess variation in the density of bears. LANDFIRE provided accurate data that covered the full study area at a resolution appropriate for multiscale analysis. Key LANDFIRE variables used included vegetation type and successional state. More information can be accessed at http://www.landfire.gov/download-file.php?file=griz_study_final.pdf.

Photograph © 2002 Corel Corporation

Wyoming: Wild land fire in the urban interface.—Ignition and unsuppressed growth of wildfires starting in a remote part of the study area were modeled using FSim, a large-fire simulator, to assess probable impacts of fire suppression. The annual area that could burn and the likelihood that wildfires could reach a nearby wild land urban interface defense zone were evaluated. LANDFIRE 2001 spatial layers were a primary data source for the study. More information can be accessed at http://fireecologyjournal.org/docs/Journal/pdf/Volume08/Issue02/125.pdf.

Photograph by U.S. Forest Service.

Regional carbon dioxide monitoring.—LANDFIRE spatial products were combined with Forest Inventory and Analysis plots and other databases to provide new estimates of U.S. west coast forest biomass carbon stocks, net ecosystem production, net biome production, and their attendant uncertainties. More information can be accessed at http://www.dnr.wa.gov/Publications/em_fp_biomass_regional_carbon_dioxide_implications_of_forest_bioenergy_production.pdf.

Photograph by Ian Britton, FreeFoto.com

Partners

For more information

LANDFIRE Project Manager
U.S. Geological Survey Earth Resources
Observation and Science (EROS) Center
47914 252nd Street, Sioux Falls, SD 57198