



# LANDFIRE PRODUCTS TABLE

Reference	
Reference products represent data collected from public, government, and proprietary sources to inform the LANDFIRE mapping processes and update LANDFIRE products. Public versions of LANDFIRE reference database, which exclude proprietary and/or sensitive data, are available for download.	
<b>LF Reference Database (LFRDB)</b>	The LF National LFRDB includes information from geo-referenced sample points depicting vegetation and fuel information. For LF Remap, new and updated plot information are being compiled and used to inform existing vegetation mapping. The LF Remap LFRDB will be available for download at the completion the LF Remap effort in mid to late 2020.
<b>Events Geodatabase</b>	A collection of polygons depicting recent natural disturbance and land management activities used to update existing vegetation and fuel layers. The LF Remap effort and events are being produced for the years 2015 and 2016 and will be released to the public at the end of LF Remap in mid to late 2020.
<b>Forest Vegetation Simulator Ready Database (FVSRDB)</b>	Nationwide Forest Vegetation Simulator analysis ready plot data (StandInit and Treelnit tables).

Disturbance / Transition	
Disturbance products are developed to help inform updates to LANDFIRE data to reflect change on the landscape caused by management activities and natural disturbance. They are a compilation of data from multiple sources including time series Landsat imagery, fire mapping programs including Monitoring Trends in Burn Severity (MTBS), Burned Area Reflectance Classification (BARC), Rapid Assessment of Vegetation Condition after Wildfire (RAVG), LANDFIRE Refresh events and other sources.	
<b>Annual Disturbance (Dist) 1999-CurrentUpdateYEAR</b>	Depicts where change occurred on the landscape, both spatially and temporally, on an annual basis and are used to inform model vegetation transitions to provide updates to LF vegetation, fuel, and fire regime products.
<b>Vegetation Disturbance (VDist)</b>	Composites of Annual Disturbance products for the previous 10 years used in LF 1.x products to inform LF vegetation transitions and to update existing vegetation products (Type, Cover and Height) for disturbances on the landscape. This product was not developed for LF Remap.
<b>Fuel Disturbance (FDist)</b>	The latest 10 years of Annual Disturbance products representing disturbance year and original disturbance code. FDist was a refinement of VDist in LF 1.x products and is a refinement of Historical Disturbance in LF Remap to more accurately represent disturbance scenarios within the fuels environment.
<b>Historical Disturbance (HDist)</b>	The latest 10 years of Annual Disturbance products are used to identify disturbance year, type, and severity. Starting with LF Remap, HDist replaces VDist from previous LF versions incorporating pre-disturbance vegetation logic (based on disturbance year and vegetation type).



<b>Vegetation Transition Magnitude (VTM)</b>	A summary of the relationship between disturbance types and resulting effects on the vegetation in terms of changes in life-form and canopy cover through 2014.
<b>Forest Vegetation Transitions Database (FVTDB)</b>	Provides forest vegetation transition rules in tabular format depicting relationship between disturbance type, severity, and time-since-disturbance and its effect on existing vegetation type, cover, and height through 2014.
<b>Non-forest Vegetation Transitions Database (NFVTDB)</b>	Contains non-forest vegetation transition rules in tabular format depicting the relationship between disturbance type, severity, and time-since-disturbance and its effect on existing vegetation type, cover, and height through 2014.
<b>Forest Vegetation Simulator Disturbance Database (FVSDDDB)</b>	FVS disturbance analysis outputs for fire, insect and disease, wind and mechanical disturbances modeled at a high, moderate and low severity and represented at three time-steps post disturbance.

<b>Vegetation</b>	
LF <b>existing vegetation</b> products describe Existing Vegetation Type, Existing Vegetation Canopy Cover, and Existing Vegetation Height and are created using predictive landscape models based on extensive field-referenced data, satellite imagery and biophysical gradient layers using classification and regression trees.	
<b>Existing Vegetation Type (EVT)</b>	Complexes of plant communities.
<b>National Vegetation Classification (NVC)</b>	Narrow sets of diagnostic plant species, including dominants and co-dominants, broadly similar composition, and diagnostic growth forms.
<b>Existing Vegetation Cover (EVC)</b>	Vertically projected percent cover of the live canopy layer for a specific area.
<b>Existing Vegetation Height (EVH)</b>	Average height of the dominant vegetation.
LF <b>potential vegetation</b> products describe Biophysical Settings (BPS) and Environmental Site Potential are created using predictive landscape models based on extensive field-referenced data and biophysical gradient layers using classification and regression trees.	
<b>Biophysical Settings (BPS)</b>	Vegetation that may have been dominant on the landscape pre-Euro- American settlement.
<b>Biophysical Settings Models and Descriptions (BpS)</b>	State-and-transition models representing pre-settlement reference conditions for each biophysical setting.
<b>Environmental Site Potential (ESP)</b>	Vegetation that could be supported at a given site based on the biophysical environment.

<b>Fuel</b>	
Fuel data describe the composition and characteristics of surface and canopy fuel. Fuel products provide consistent fuel data to support fire planning, analysis, and budgeting to evaluate fire management alternatives, as well as supplement strategic and tactical planning for fire operations.	
<b>Fuel Rulesets Database</b>	A standalone fuel rulesets database exported from the LF Total Fuel Change Toolbar.



Surface Fuel	
<b>13 Anderson Fire Behavior Fuel Models (FBFM13)</b>	A set of fire behavior fuel models that represent distinct distributions of fuel loading found among surface fuel components (live and dead), size classes, and fuel types, based on grass, shrub, timber, and slash fuel types and categorized into 13 models to help users estimate fire behavior, including rate of fire spread and fire intensity, generally represents severe fire conditions.
<b>40 Scott &amp; Burgan Fire Behavior Fuel Models (FBFM40)</b>	A set of fire behavior fuel models that increases prediction accuracy by providing more models in the fuel types (grass, shrub, timber, slash) than Anderson's 13, captures moisture variations and unique fuel differences, allows user to plan or illustrate the effects of multiple or varying fuel and fire scenarios beyond the severe fire season, such as prescribed fire and fire use applications.
<b>Canadian Forest Fire Danger Rating System* (CFFDRS) *Alaska only</b>	Canadian system for rating the risk of forest fires, arranges fuel types into five major groups with 16 discrete fuel types that are qualitatively distinguished by variations in their forest floor and organic layer, their surface and ladder fuels, and their stand structure and composition.
<b>Fuel Characteristics Classification System (FCCS)</b>	Describes the physical characteristics of a relatively uniform unit on a landscape that represents a distinct fire environment; provides land managers, regulators, and scientists with a nationally consistent and durable procedure to characterize and classify fuelbed characteristics to predict fuel consumption and smoke production. For LF Remap, FCCS will be released as part of the final release for CONUS.
<b>Fuel Loading Models (FLM)</b>	Characterizes wildland surface fuel and contains representative loading for each fuel component (e.g., woody and non-woody) for typical vegetation classification systems; characterizes fuel loading across all vegetation and ecological types. FLM will not be produced for LF Remap.
Canopy Fuel	
<b>Forest Canopy Cover (CC)</b>	Proportion of the forest floor covered by the vertical projection of the tree crowns.
<b>Forest Canopy Base Height (CBH)</b>	Average height from the ground to a forest stand's canopy bottom at which there is enough forest canopy fuel to propagate fire vertically into the canopy, meters * 10
<b>Forest Canopy Bulk Density (CBD)</b>	Density of available canopy fuel in a stand, kg m <sup>-3</sup> * 100
<b>Forest Canopy Height (CH)</b>	Average height of the top of the vegetated canopy, meters * 10
Fuel Vegetation	
<b>Fuel Vegetation Type (FVT)</b>	Represents a modified version of EVT and more accurately leverages fuel transition assignments related to disturbed areas by re-establishing pre-disturbance vegetation, allowing fuel model transitions and vegetation to properly align with logic developed from Fuels Calibration Workshops.



<b>Fuel Vegetation Cover (FVC)</b>	Represents a modified version of EVC and more accurately leverages fuel transition assignments related to disturbed areas to properly align with logic developed from Fuels Calibration Workshops.
<b>Fuel Vegetation Height (FVH)</b>	Represents a modified version of EVH and more accurately leverages fuel transition assignments related to disturbed areas to properly align with logic developed from Fuels Calibration Workshops.

## Fire Regime

Historical fire regimes, intervals, and vegetation conditions are mapped using the Vegetation Dynamics Development Tool (VDDT). These data support fire and landscape management planning goals in the National Cohesive Wildland Fire Management Strategy, the Federal Wildland Fire Management Policy, and the Healthy Forests Restoration Act.

### Historical Fire Frequency and Severity

<b>Fire Regime Groups (FRG)</b>	Characterizes the presumed historical fire regimes within landscapes based on interactions between vegetation dynamics, fire spread, fire effects, and spatial context; definitions were altered from previous applications to best approximate the definitions outlined in the Interagency Fire Regime Condition Class Guidebook and refined to create discrete, mutually exclusive criteria appropriate for use with LF's fire frequency and severity products.
<b>Mean Fire Return Interval (MFRI)</b>	Average period between fires under the presumed historical fire regime.
<b>Percent Low-severity Fire (PLS)</b>	The amount of low-severity fires relative to mixed- and replacement-severity fires under the presumed historical fire regime, defined as less than 25% average top-kill within a typical fire perimeter for a given vegetation type.
<b>Percent Mixed-severity Fire (PMS)</b>	The amount of mixed-severity fires relative to low- and replacement-severity fires under the presumed historical fire regime, defined as between 25 and 75 % average top-kill within a typical fire perimeter for a given vegetation type.
<b>Percent Replacement-severity Fire (PRS)</b>	The amount of replacement-severity fires relative to low- and mixed-severity fires under the presumed historical fire regime, defined as greater than 75% average top-kill within a typical fire perimeter for a given vegetation type.

### Vegetation Departure

<b>Vegetation Condition Class (VCC)</b>	A discrete metric that quantifies the amount that current vegetation has departed from the simulated historical vegetation reference conditions.
<b>Vegetation Departure (VDEP)</b>	Range from 0 - 100 depicting the amount that current vegetation has departed from simulated historical vegetation reference.
<b>Succession Classes (SClass)</b>	Current vegetation conditions with respect to vegetation species composition, cover, and height ranges of successional states occurring within each biophysical setting.



## Topographic

Topographic products serve as input to the Landscape (.LCP) file which is used in models to predict wildland fire behavior and effects.

<b>Aspect (ASP)</b>	Azimuth of the sloped surfaces across a landscape in degrees.
<b>Elevation (DEM)</b>	Land height above mean sea level, in meters.
<b>Slope (SLP)</b>	Percent change of elevation over a specific area, in degrees.

## Seasonal (MoD-FIS)

A strategy for mapping dynamic fuels that addresses the temporal precision needed to model fire behavior with seasonal variability. Called **Modeling Dynamic Fuels with an Index System (MoD-FIS)**. LF applies two model ready indexes of MoD-FIS to account for fuel's seasonal variability, representing current, real-time conditions.

<b>Southeast MoD-FIS</b>	Drought Based Fuel Dynamic system (LF DBFD) better represents drier conditions with fuel models in the Southeast United States.
<b>Great Basin and Southwest MoD-FIS</b>	Provisional products that capture the inter-annual variability in herbaceous growth and impact on available fuels in the Great Basin and Southwest United States.