

Version Update LFTFC 0.12

A new version of the LFTFC (LANDFIRE Total Fuel Change) Tool for ArcGIS 10 is now available from <http://nifft.gov>. The new version of LFTFC has incorporated some subtle differences which are not adequately explained in the existing User Guide. Consequently, we have prepared this addendum to the User Guide to assist users until that time when the User Guide can be updated.

The most significant change in LFTFC is that the new version applies to the LF 1.1.0 data (i.e., Refresh 2008). In addition, because the derivation of LF 1.1.0 data products incorporated disturbances from 1999 through 2008, the default rulesets now include information pertaining to recent disturbances. Consequently, an additional input layer pertaining to recent disturbances is now required. The additional input layer is denoted as FDIST and is available from the LANDFIRE Data Distribution Site.

The inclusion of disturbance information requires a recoding of the grid value of the EVT input layer to differentiate between an EVT not affected by disturbance versus an EVT that was affected by disturbance. This recoding of the EVT layer is done internally within LFTFC.

The inclusion of FDIST as an additional input layer and the recoding of the EVT grid values to account for disturbance are discussed below.

Fuel Disturbance Layer (FDIST)

Creating a Management Unit (MU) now requires an additional LANDFIRE input layer – FDIST. The grid value of FDIST is denoted by a 3-digit integer which identifies the disturbance type, disturbance severity, and time since disturbance, respectively. That is, the first digit identifies the disturbance type (Table 1); the second digit identifies the disturbance severity (Table 2); and the third digit identifies the time since disturbance (Table 3).

Table 1. Five disturbance types used by LANDFIRE.

Disturbance Types and Effects	FDIST Grid Values	Examples
Fire– alters canopy fuel characteristics and surface fuel loads	100 series (e.g., 1XX)	Wildfire and Prescribed Fire
Mechanical – rearranges or adds fuel to the fuel bed	200 series (e.g., 2XX)	Mastication, lop & scatter, piling
Mechanical – removes fuel from the existing fuel bed	300 series (e.g., 3XX)	Timber harvest or other biomass removal treatments
Wind – alters canopy fuel characteristics and surface fuel loads	400 series (e.g., 4XX)	Any blow down event
Insects – modifies canopy fuel characteristics	500 series (e.g., 5XX)	Mountain pine beetle

Table 2. Disturbance severity classes used by LANDFIRE.

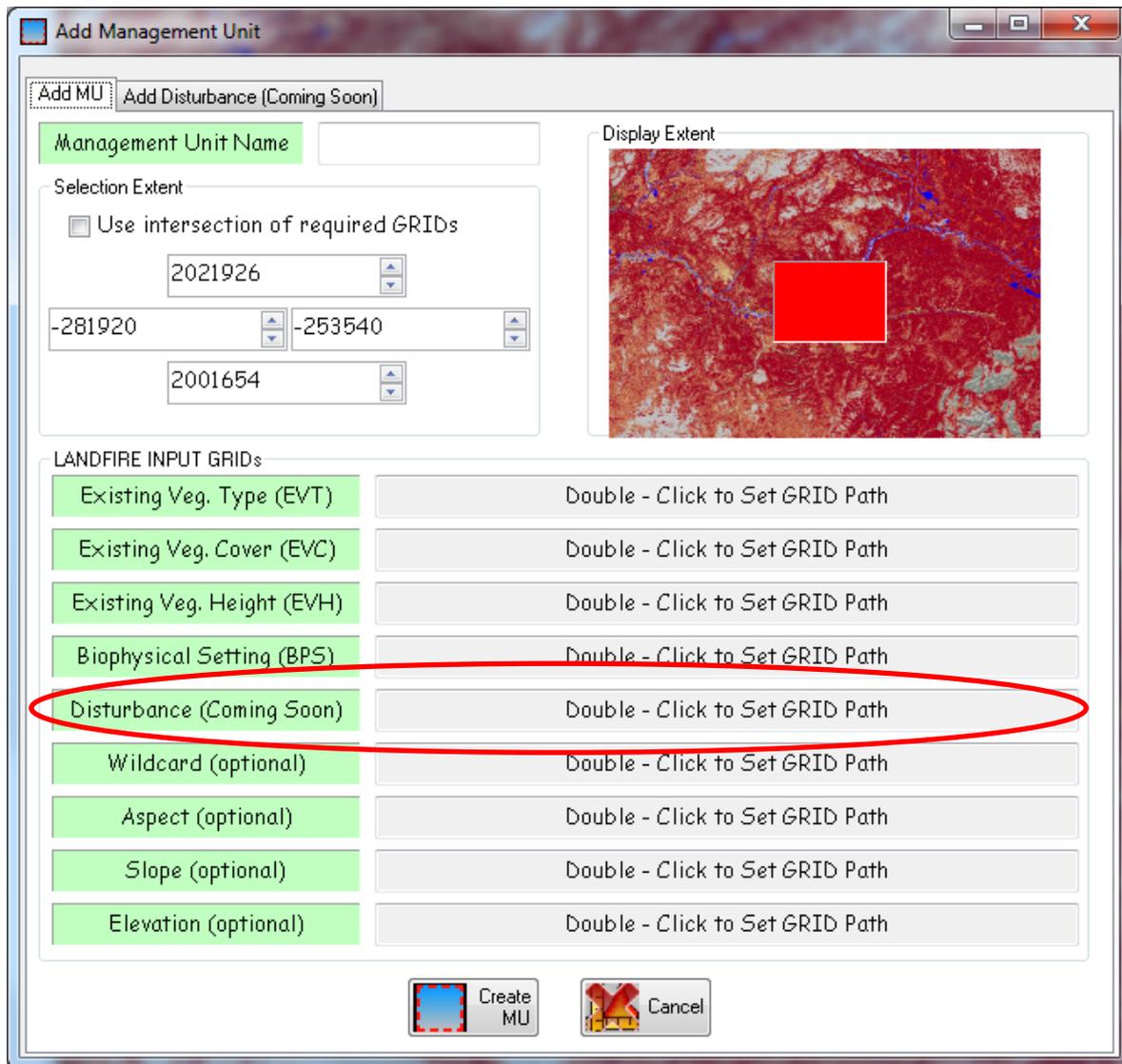
Severity class and Effects	FDIST Grid Values	Examples
Low – less than 25% above-ground biomass removed	10 series (e.g., X1X)	Underburns, light thinning
Moderate – 25 to 75% above-ground biomass removed	20 series (e.g., X2X)	Mixed-severity burns, moderate thinning
High – more than 75% above-ground biomass removed	30 series (e.g., X3X)	Stand-replacement burns, clearcuts and seedtree harvest

LANDFIRE used Time Since Disturbance (TSD) to account for the transition of fuels through the first 10-years following disturbance. The classification system was stratified by geographic area as productivity in Hawaii and the Southeastern Unities States is substantially higher than the rest of the Unities States.

Table 3. Time Since Disturbance (TSD) classes used by LANDFIRE.

Time Since Disturbance (TSD) Classes		FDIST Grid Values
Hawaii and Southeastern US	Remainder of US	
Less than 1-year	Less than 5 years	1 series (e.g., XX1)
1 to 3 years	1 to 5 years	2 series (e.g., XX2)
3 to 10 years	5 to 10 years	3 series (e.g., XX3)

The FDIST disturbance layer needs to be selected as one of the five required input layers when adding a Management Unit as illustrated below.



EVT Recoding

The new version of LFTFC recodes any EVT that has been subjected to disturbance. The grid values of disturbed EVTs are modified to reflect disturbance type, disturbance severity, and TSD. The first digit of the grid value is changed according to disturbance type (Table 4). Two digits are then added to the end of the grid value where the fifth digit denotes disturbance severity (Table 5), and the sixth digit denotes TSD (Table 6). Thus, the grid values of disturbed EVTs contained within the rulesets will be different from those same EVTs that have not been disturbed.

Table 4. Recoding of EVT grid values to reflect disturbance type.

EVT Grid Value	EVT Description
2XXXXX	Undisturbed EVT
3XXXXX	EVT disturbed by fire.
4XXXXX	EVT disturbed by mechanical treatment – fuels rearranged/added
5XXXXX	EVT disturbed by mechanical treatment – fuels removed
6XXXXX	EVT disturbed by wind
7XXXXX	EVT disturbed by insects or disease

Table 5. Recoding of EVT grid values to reflect disturbance severity¹.

EVT Grid Value	EVT Description
XXXX1X	EVT effected by low-severity disturbance
XXXX2X	EVT effected by moderate-severity disturbance
XXXX3X	EVT effected by high-severity disturbance

¹ See Table 2 for description of severity classes.

Table 6. Recoding of EVT grid values to reflect Time Since Disturbance (TSD)¹.

EVT Grid Value	EVT Description
XXXXX1	EVT is within first time series of disturbance event
XXXXX2	EVT is within second time series of disturbance event
XXXXX3	EVT is within third time series of disturbance event

¹ See Table 3 for description of TSD.

In the example illustrated below, the grid value (2045) of the Northern Rocky Mountain Dry – Mesic Montane Mixed Conifer Forest EVT is recoded to grid value 304533 because it was disturbed by high severity fire in the last 5 to 10 years:

- Original EVT = 2045
- Fire Disturbance Type – 304533 (300,000 series)
- High Severity – 304533 (30s series)
- 5-10 years time since disturbance – 304533 (third time series)

Fuel Rules for MU z01_fdist08_f

Auto Rule Add Rule Edit Rule Delete Rule Copy Rule

Session Name: **New Session**

Select Rules:

- All
- FCCS
- FREM
- FLM

Existing Vegetation - Fire - High Severity - (≥ 5 yrs) or (≥ 3 yrs in the SE) and (≤ 10 yrs)

304533 Northern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest

Ruleset: Compare FM Distribution Graph EVT Description

100% of EVT 0% of BPS 0% of Wild 0% of BPS_Wild Pixels left behind: 0

Range of Cover	Range of Height	BPS	FM13	FM40	CG	On/Off	Acres
10%- 39% Tree	5(m)- max Tree	any	5	SH2 / 142	1	On	22114.72
10%- 100% Tree	0(m)- 5(m) Tree	any	2	GS2 / 122	0	On	380.07
40%- 69% Tree	5(m)- max Tree	any	9	TL6 / 186	1	On	16921.8
70%- 100% Tree	5(m)- 25(m) Tree	any	9	TL6 / 186	1	On	0
70%- 100% Tree	25(m)- max Tree	any	10	TU2 / 162	1	On	0