LANDFIRE Product Application Summary

Title: Updating LANDFIRE Fuel Grids Using MTBS Fire Severity Data

Citation: User Guide – Available from TNC/LANDFIRE

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Application Location: South Central Idaho Fire Planning Unit
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Objectives

1. Update LANDFIRE 2012 fuels data to reflect 2013 large fire disturbances
2. Create output fuels layers for use by local fire managers in fire modelling applications

Project description

The LANDFIRE Program provides updated versions of its data in two-year increments. However, due to the effort involved in the update process, the data is typically not available until two or three years past its currency date. This project replicated the LANDFIRE update process by using available Monitoring Trends in Burn Severity (MTBS) data for four large fires that occurred in 2013 within the South Central Idaho Fire Planning Unit (FPU). MTBS data was chosen over Rapid Assessment of Vegetation Conditions after Wildfire (RAVG) data due to the availability of all four fires and the quality of the Landsat imagery used (i.e. RAVG data had scan lines). This MTBS data was pre-processed and used to update the Existing Vegetation Cover (EVC) layer with a post-fire reduction in vegetation cover. It was also used to update the Fuel Disturbance (FDist2012) layer. These updated layers, along with other LANDFIRE data, were then input into the LANDFIRE Total Fuel Change Tool (LFTFCT) and fuels rulesets were adjusted based on local knowledge. Using the LFTFCT, final fuels grids were created which reflect the large fire disturbances of 2013 and subsequent changes in fuel models. This process provides fire managers with locally updated fuels layers between official LANDFIRE updates. These updated fuels layers are critical for accurate fire behavior predictions in fire modelling applications.

While quality fuels and vegetation layers exist on local levels for the different federally managed lands within the FPU (e.g. VCMQ), their spatial extent does not currently cover the entire FPU. For this reason LANDFIRE data were used in order to provide consistent coverage of all public and private land over the entire FPU.

LANDFIRE products used

All LANDFIRE products used in this project were from the most recent release (LF2012/LF_1.3.0).

BPS – Biophysical Setting (2012)	Dist2008 – Disturbance 2008
EVC – Existing Vegetation Cover (2012)	Dist2009 – Disturbance 2009
EVH – Existing Vegetation Height (2012)	Dist2010 – Disturbance 2010
EVT – Existing Vegetation Type (2012)	Dist2011 – Disturbance 2011
FDist2012 – Fuel Disturbance (2012)	Dist2012 – Disturbance 2012

Both the EVC and FDist2012 were necessarily modified using the MTBS severity data. EVC was reduced within the fire perimeters based on classified relative differenced normalized burn ratio (rdNBR), which provided value of canopy cover reduction. FDist2012 was also updated to account for the 2013 large fire disturbances based on MTBS severity classes. It was necessary to update both the EVC and FDist2012 prior to their input into the LFTFCT. The LFTFCT then uses these updated inputs to create the updated fuels layers based on inherent fuels rulesets.

Value of the work to the natural resource management/conservation community

By using this scalable process, natural resource managers will be able to make local updates to LANDFIRE fuels data between official LANDFIRE updates. It is important for managers to be able to use readily available MTBS (or RAVG if appropriate) along with LANDFIRE data to make these local updates. These updated fuels layers are relied upon for accurate fire behavior predictions and modelling analysis on extended-attack wildland fires that may impact values at risk and firefighter and public safety. Additionally, accurate fuels layers will help managers define and prioritize areas needing fuels reduction work including thinning or prescribed fire.

Photo: McCann Fire 2013, Credit: A. Beauchaine

Visual representation of the data updating process.