



In Partnership with Local Users: LANDFIRE Calibrates Regional Fuel Products in the Southeast and Intermountain West

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WHAT HAPPENED? LANDFIRE incorporated expert fuel model calibrations from Colorado and the Southeast GeoAreas for the LF 2023 Update (completed in December 2024).

WHY CALIBRATE? LANDFIRE always recommends that users adjust LF products to match their local conditions. For that reason, calibrating fuel models to reflect local expert knowledge is a widely accepted practice in the fire community. Local calibrations can improve fuel model accuracies, facilitate decision-making, provide context for updated risk

assessments, and improve resource allocations. [LANDFIRE's fuel rulesets](#) are regularly updated according to observations of fire behavior on the ground. The fuel rule calibrations described below were completed in coordination with regional fuels experts. Read on to see what happened.

ARE ALL CALIBRATION SUGGESTIONS THAT LANDFIRE RECEIVES INCLUDED?

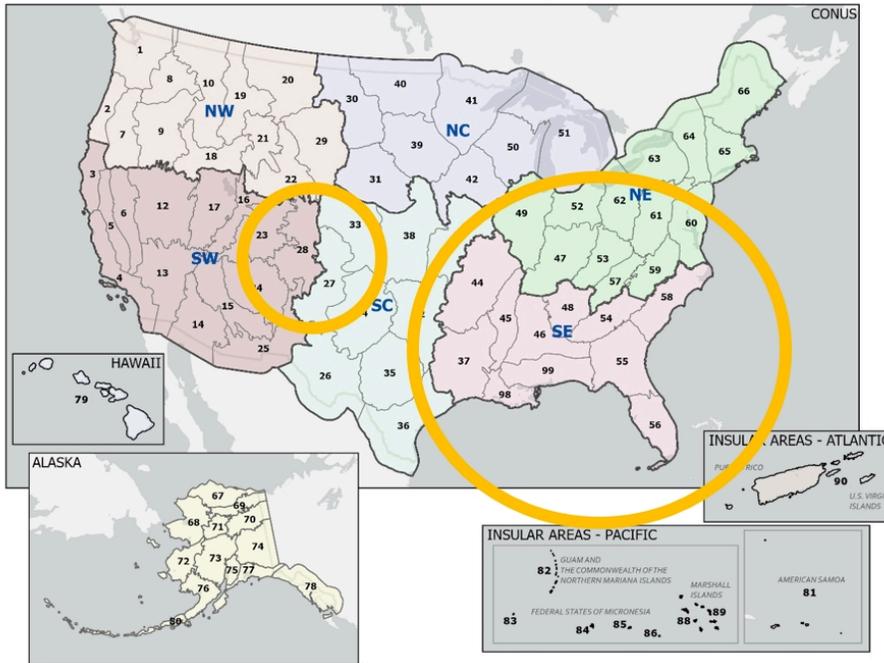
No, in fact, these decisions are not made lightly. When users suggest calibrations, the LANDFIRE Fuels team completes an in-depth review to determine if changes



Typical wildfire scene characterized by pinyon juniper and sagebrush steppe landscape.



LANDFIRE GEOAREAS & MAP ZONES



sessions were conducted with local experts to recalibrate fuel rules for more than 100 LF Existing Vegetation Types (EVT) in the Southeast GeoArea. These fuel rules specify the appropriate fuel model assignment for a given range of dominant vegetation cover and height for a given EVT.

should be made to LANDFIRE’s fuel rulesets. The suggested changes are compared against predicted fire behavior outputs (flame length, rate of spread) and modeled fire behavior by fire analysis applications such as [FlamMap](#). LANDFIRE fuels are based on historic average fire season conditions. These conditions are defined as the average daily environmental conditions experienced during a fire season. As such, only those fuel ruleset calibrations that align with ‘average fire-season-day’ are incorporated in future LANDFIRE products. In contrast, many regional calibrations geared towards wildfire risk assessments focus on conditions associated with historic, large fires.

FUEL CALIBRATION IN THE SOUTHEAST:

During the [Southern Wildfire Risk Assessment \(SWRA\)](#) revisions, calibration

WHAT CHANGED? This recent update resulted in some key adjustments for the (one hundred twenty-three) EVT fuel rules that were incorporated into LF’s 2023 Product Release. For example, one result of the work was the shift in fuel rules from "moderate load broadleaf litter" class to a "high load broadleaf litter" class. This is significant because areas with an increase in fuel loading will show an increase in fire behavior. While this is an example of a fuel rule that was incorporated, some of the recommended canopy fuel adjustments were not applied because the suggested changes could not be broadly applied by LANDFIRE across calibration boundaries. There are still a handful of recommendations being reviewed for this area.

FUEL CALIBRATION IN COLORADO: The Colorado All Lands (COAL) risk assessment resulted in further calibration sessions for



zone 23 (Utah/Colorado), though many of those calibrations were also applied to zone 28 (Colorado). These calibrations relied on a standard pixel-based approach, calibrating surface fuel models to the standard 40 Scott and Burgan Fire Behavior Fuel Models (FBFM40) based on LANDFIRE vegetation, cover, and height.

WHAT CHANGED? The Utah and Colorado update resulted in some key adjustments to the LANDFIRE fuel rules in Pinyon Juniper areas of the Southwest GeoArea. After analyzing two sets of Pinyon Juniper calibration recommendations, LANDFIRE produced a new set of fuel rules in several Pinyon Juniper EVT's. After analyzing fire behavior model outputs, LANDFIRE adjusted these rules to represent predicted fire behavior in these areas.

CONCLUSION: LANDFIRE adheres to a strict set of calibration rules, incorporating only those recommendations that meet rigorous standards. Many calibration recommendations have already been implemented, but due to a tight annual update schedule and limited resources, the broader range of suggestions will be integrated as time permits. Significant effort has been dedicated to the calibration procedure, and LANDFIRE continuously learns from experts on local fuel conditions to ensure ongoing improvements.

Reviewing and incorporating newly calibrated fuel models ensures the effectiveness of wildfire management and the safety of communities. LANDFIRE data is designed for broad applicability, serving as a

foundational resource for countless analyses—from modeling prescribed burns to forecasting high-severity wildfire conditions. As such, the LANDFIRE Program will continue to support stakeholders by providing the most accurate, continuous and reliable data possible to the user community.

DID YOU KNOW? LANDFIRE is always looking for user feedback on data and events? Learn how to:

- [Submit your data and events](#)
- [Read the data call letter](#)

HAVE QUESTIONS? LANDFIRE is here to help:

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- [Check out the LANDFIRE's fuel-related videos on YouTube](#)
- Ask the [LANDFIRE Helpdesk](#)
- [Subscribe to our monthly newsletter \(3-min read!\)](#)