



LANDFIRE National Alaska and Hawaii Milestone Overall Quality Assessment Report

The LANDFIRE National Alaska and Hawaii Milestone Overall Quality Assessment Summary is a product of the LANDFIRE Product Quality Working Team (PQWT). This report provides potential users access to information about the quality of the LANDFIRE data in Alaska and Hawaii (AK_HI) so that the LANDFIRE products may be fully and appropriately used. There were no specific quality targets or requirements in the LANDFIRE Charter for LANDFIRE National milestones, but the production teams strived to create the highest quality products possible under the project budget and schedule constraints. Details of the quality control processes used in the project can be found in the Product Quality and Control Assessment (PQCA) Plan at www.landfire.gov/documents/LANDFIRE_PQCA_Plan_V2.0.pdf. A second report focusing on analyzing LANDFIRE Super Zone agreement in AK_HI is also available on www.landfire.gov. We will also make individual Map Zone contingency tables from AK_HI available for download on this website. Users must be cautious when interpreting this information because sample sizes are often too low and poorly distributed across categories in individual map zones to provide results with sufficient precision.

As with all quality assessments, it is important that the user understand the limitations of the assessment process. To assess the “accuracy” of a product, a comparable product considered to be “true” (often called “reference” in the published literature) must be available. For LANDFIRE, no “true” data existed, so we utilized a sample (called holdout plots) of the LANDFIRE Reference Data Base ground plots that were not used to develop the spatial products. Because there were numerous issues with the holdout plots, such as total sample size, plot classification methodology, variable plot quality, etc., we chose to use the term “agreement” rather than “accuracy”. This distinction is common in the literature.

Because the holdout plots were the only reference data available for the agreement assessments, only the product that was directly developed from the LANDFIRE Reference Data Base (LFRDB) plots [Existing Vegetation Type (EVT)] could be quantitatively assessed. A quantitative assessment of Canopy Fuels variables was not conducted in Alaska and Hawaii due to a lack of plots with canopy information. Additional information about applications and quality of LANDFIRE spatial products in Hawaii and Alaska can be downloaded at https://www.conservationgateway.org/ConservationPractices/FireLandscapes/LANDFIRE/Documents/ModifyingLF_DataGuide_V1.pdf

**Overall Agreement for LANDFIRE National
Existing Vegetation Type in the Eastern Milestone Super
Zones**

Super Zone	Existing Vegetation Agreement (%)	# of EVT Classes Assessed	# of plots
Alaska	23	104	664
Hawai'i	36	14	44

Overall Assessment Highlights

- The overall agreement between LANDFIRE EVT and auto-keyed EVT for hold-out plots was low for both Alaska (1 of 4) and Hawaii (1 of 3).
- Overall sample size was very low for Hawai'i, and thus the precision of those results is very low.
- Evidence from a LANDFIRE Application project indicates that the actual agreement is higher in HI, and that the EVT products are useful for statewide planning
(<https://www.conservationgateway.org/Files/Pages/hawaii-assessment-and-res.aspx>)
- Per category sample sizes were very low for Alaska, and thus the precision of the per category agreement estimates is very low.
- A LANDFIRE Application Project explored the quality of EVT in Alaska at several local sites, and found similar low agreement results.
([http://www.conservationgateway.org/Documents/Alaska LANDFIRE Application Project Map and Classification Review in Seven Locations across Alaska.pdf](http://www.conservationgateway.org/Documents/Alaska%20LANDFIRE%20Application%20Project%20Map%20and%20Classification%20Review%20in%20Seven%20Locations%20across%20Alaska.pdf))
- Overall agreement only tells part of the story. Users are encouraged to review the actual contingency tables and class-specific agreements for each Super Zone (included in a second report) to fully understand the results of the assessment.
- LANDFIRE was designed as a strategic data product, but we are evaluating its quality using a per-pixel (30m) assessment. These agreement results do not indicate how well LANDFIRE products support strategic analyses.
- Fire Behavior Fuel Model (FBFM13) is an important LANDFIRE product. However, there is no method or data available to quantitatively assess its quality. Given the number of FBFM categories (13), and that the results are “calibrated” by local experts, the LANDFIRE PQWT predicts that on average FBFM13 agreement will match or exceed EVT agreement results. The tendency of local users to “adjust” FBFM13 for current conditions does make this prediction difficult to verify.