Quality Assessment of LF2008 Existing Vegetation Cover and Existing Vegetation Height Spatial Layers Using Forest Inventory Analysis Plots

This is a summary paper that highlights portions of a presentation that was given in the 2012 FIA Symposium. The presentation title was *"Development and Applications of the LANDFIRE Forest Structure Layers"* by Chris Toney (USFS-Rocky Mountain Research Station), Birgit Petersen (ASRC Research and Technology-EROS), Don Long, Russ Parsons and Greg Cohn (USFS-Rocky Mountain Research Station)

Background and Methods

LANDFIRE 2008 Existing Vegetation Cover (EVC) and Existing Vegetation Height (EVH) spatial layers were assessed for quality within the forest vegetation types using FIA plots measured in 2008 and 2009. These plots were not used to develop the LANDFIRE EVC and EVH products, and thus constitute an independent assessment sample. The assessments were conducted for CONUS only, and were stratified by location (East of the Rockies; West of the Rockies) for EVC. EVC was assessed as a continuous variable using the mid-points of 10% canopy cover classes and regression methods, while EVH was assessed as a categorical value using a contingency table approach.

Highlights-Existing Vegetation Cover

West (3,589 plots)

- Mean EVC difference (bias): - 2 [%]
- Mean absolute EVC difference: +/- 11 [%]
- R^2 = 0.58 (r = 0.76)

East (4,587 plots)

- Mean EVC difference (bias): - 3.8 [%]
- Mean absolute EVC difference: +/- 13 [%]
- R^2 = 0.40 (r = 0.63)

Summary

- The overall LF2008 EVC mapping bias for forests was less than one-half of a 10% canopy class in both the East and West.
- There was a tendency for LF2008 to over-predict EVC at lower forest covers, and under-predict at higher forest covers, as is typical for most prediction models
- Average absolute size of an EVC error in LF2008 is approximately one 10% canopy cover class for forests

Highlights-Existing Vegetation Height

- 7,933 plots included in the analysis for CONUS
- Five height classes: 0-5m, 5-10m, 10-25m, 25-50m, 50m+
- Overall agreement: 74%
- Agreement within one height class: 95%
- Producer's Agreement by height class varied from 50% (5-10m) to 80% (10-25m)
- User's Agreement by height class varied from 12% (50m+) to 89% (10-25m)

Summary

- Across CONUS, forest height mapped in LF2008 is in the correct height class almost three-quarters of the time.
- A User should expect that forest height mapped by LANDFIRE is consistently within one height class of the correct height (95% in this independent sample).
- There is considerable variation in User's Accuracy across the height classes with short and tall classes being mapped well less consistently.
- There is less variation in Producer's Accuracy across the forest height classes.

Follow this link to download the complete presentation:

www.landfire.gov –link not complete until presentation is finalized and posted

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