CASE STUDY

Assessing wildfire hazard in Colorado

DigitalGlobe imagery used to evaluate wildfire hazard in Fourmile Canyon

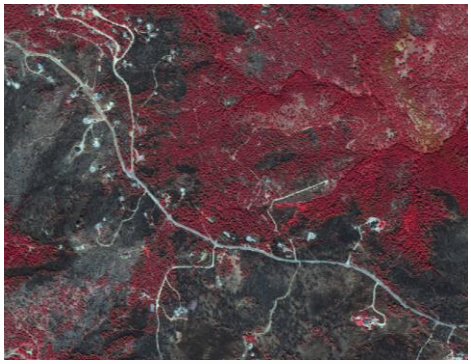
Fourmile Canyon west of Boulder, Colorado, experienced a devastating wildfire in September 2010. DigitalGlobe imagery was used to evaluate the home ignition zone before and after the fire. The home ignition zone (HIZ) is the area that includes a structure and its surroundings and strongly influences the potential for ignition from wildfire.

The goal of this study was to quantify and interpret the land cover, burned area, and topography in the HIZ of the Fourmile Canyon area west of Boulder. Land cover was characterized by percentage cover, forest contiguity, adjacency of canopy to structure, and predominance of ladder fuels. Burned area was characterized by percentage of burned forest and grass and structure survival. Topography was characterized by slope, aspect, landform class, and structure exposure to downward facing slope. To calculate these metrics, multiple data sources (e.g. DigitalGlobe's 8-band multispectral imagery and LiDAR point clouds) were integrated using an object-oriented image analysis. Compared to the Fourmile Canyon area as a whole, the HIZ contained more bare land and less forest land, had more widely spaced canopies, and experienced less burning during the fire. The methods used in this study, paired with on-the-ground data collection, can be applied to other wild land-urban interface areas to assess the characteristics of the HIZ both pre- and post-fire.

Platt, R.V. 2014. Wildfire Hazard in the Home Ignition Zone: An Object-Oriented Analysis Integrating LiDAR and VHR Satellite Imagery. *Applied Geography*. 51:108-117.

"DigitalGlobe's WorldView-2 satellite has the spatial and spectral resolution we needed to assess certain key characteristics of the home ignition zone. The high spatial resolution allowed us to resolve individual trees, patches of grass, and bare areas surrounding structures. The enhanced spectral resolution – in particular the two near infrared bands and the red edge band – were useful for detailed identification of burned areas."

—DR. RUTHERFORD PLATT, ASSOCIATE PROFESSOR OF ENVIRONMENTAL STUDIES, GETTYSBURG COLLEGE



A DigitalGlobe satellite image of a neighborhood devastated by the Fourmile Fire. In this color-infrared composite image, red represents healthy vegetation and black represents burned areas.

DigitalGlobe imagery allowed us to characterize the home ignition zone of structures (shown by the red line) before and after the Fourmile Fire.

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