

## QUANTIFYING CANOPY FUELS FOR FIRE MODELING

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### ABSTRACT

Land managers need the ability to assess alternative fuel treatments. Assessing fuel treatments requires modeling fire behavior and fire effects. Estimates of canopy fuel characteristics, including bulk density, crown base height, available canopy fuel load, stand height and foliar moisture content, are necessary for modeling fire behavior and fire effects in forest types that experience crown fire. Existing models (e.g., FARSITE and NEXUS), models under development (for example, the revision of BEHAVE and Albini's physical model of fire spread), and fuel classifications (for example, Fuel Characteristics Classes and the natural fuel photo series) require quantitative estimates of these characteristics. However, standard methods for determining these values have not yet been developed and calibrated. In this paper we review existing methods for deriving these values. None has yet been tested against direct measurements. Therefore, direct measurements of canopy characteristics should be made for a range of forest types and stand conditions. The data gathered from such a study could be used to verify and calibrate estimates made using other methods, and could also be used to produce a photo series.