3.12) Evaluation of Multispectral Data for the Determination of Fuel Loads in Forested Environments*.

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Effective fire management in forested environments is dependent on the knowledge of levels and distribution of fuel loads. Past methods of collecting this information have depended on costly, and frequently inadequate, grand sampling. This study was designed to examine the feasibility of using remote sensing (multispectral TM data) to predict levels and distribution of forest fuels in the Mineral King region of Sequoia National Park. Data on actual fuel loads were collected from 70 randomly located, 0.025 ha macro-plots within the designated study area. Data collected at each plot included overstory characteristics (tree density, height and size parameters by species), midstory characteristics (shrub density, height and volume), understory characteristics (herbaceous cover and height), fine fuel (deadfall and litter). These data were used in the development of hierarchical classification of vegetative communities and fuel load classification. Multispectral (TM) data used were from a July 1992 Landsat overflight. All data were corrected for atmospheric error using flat field correction, and further processed using three techniques; normalized difference vegetation index (NDVI), modified soil adjusted vegetative index (MASSIVE), and linear spectral unmixing (LSU). Community and fuel classes identified from the ground data were used as the basis for supervised classifications. A maximum of 35 of the field collected locations were used to identify training areas. The remaining were used for accuracy assessment. The results suggest a usable relationship between multispectral data and fuel loading in forested environments.

* Abstract for presentation at the annual Photogrammetry and Remote Sensing Conference, Portland, OR in May 1999. See 1996 MKRRP Annual Report (Miller and Brookins 1997; Caprio 1997) for detailed description of project and methods.