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Relationships between Remotely Sensed Data and Biomass Components in a Big Sagebrush (Artemisia tridentata) Dominated Area in Yellowstone National Park

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Abstract: The predictive power of a hyperspectral imagery for estimating woody and herbaceous biomass were examined for a big sagebrush (Artemisia tridentata) dominated area in Yellowstone National Park, Wyoming, United States of America. The normalized difference vegetation (NDV) and structure insensitive pigment (SIP) indices were used to investigate the relationships between biomass components and reflectance spectra. Ground data were collected in 13 sample plots 1 m^2 in size by clipping all herbaceous vegetation to ground level and stripping green leaves from big sagebrush plants. Strong relationships (R^2 from 0.83 to 0.96) were found between the hyperspectral data and biomass components. The results indicate that fine resolution hyperspectral imagery is capable of estimating various biomass components in big sagebrush dominated areas.

Key Words: Hyperspectral imagery, indices, big sagebrush, biomass, Yellowstone National Park

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