Application Note

Analyzing Biomass Dynamics And Changes In Species Composition Across a California Grassland With The *UniSpec-DC*

A research group from Michigan State University (Department of Plant Biology) is using the UniSpec-DC to analyze biomass dynamics and changes in species composition across a California grassland system, as they relate to management techniques including prescribed burning, prescribed grazing, and reseeding of native grasses. They are interested in enhancing the understanding of grassland dynamics across long temporal and large spatial scales, therefore improving the conservation and restoration of these systems. In order to effectively and efficiently do this, they are incorporating long-term spectral data

over large spatial scales, using a variety of remote sensing technologies and spatial analytical techniques. Using remote sensing to characterize forage dynamics and species composition provides a consistent, repeatable way to statistically quantify changes across grassland systems. The results of this research will be presented in a web-based interface, designed to provide private landowners across the watershed a means to track forage values and species composition changes as they relate to management efforts. The goal is to encourage improved management decisions by the individual landowners, and the overall restoration and sustainability of these grasslands.

The UniSpec-DC is also being used on grassland plots in Michigan where the group is quantifying changes in the relationships between spectral measurements and biomass dynamics, from germination to senescence. They are interested in clearly defining the applicability of their green and senescent biomass algorithms within the phenology of the species of interest, in order to provide the most accurate biomass analyses across the grassland system as possible. Future projects, which will involve sampling with the UniSpec-DC, include defining the relationships between spectral data and levels of grazing and nitrogen deposition across grassland systems.

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