Modified Fire Regime Effects on Plant Functional Groups across the ANF in the Transverse Mountain Range, Southern California

Potential Applications for Early Detection of Ecosystem Tipping Points and Restoration Needs

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OVERVIEW

One of the primary goals and needs of the forest is to sustain, retain or enhance the native vegetation, the habitat it provides, as well as the ecological and hydrological functioning for natural and human benefits. In order to address the need to retain and enhance vegetation condition and diversity, observation and measurement of the ecosystem response to frequency and severity of disturbances enables clear direction for restoration planning. This study asks how fire residence time and combustion temperatures drive vegetation community plant strategies, and how that indicates the potential for a significant disturbance which may result in an ecosystem which is ecologically and hydrologically imbalanced. We also focus on how to leverage that potential post-disturbance condition for long-term restoration planning and immediate BAER (Burn Area Emergency Rehabilitation) needs.

We propose to leverage Avisirs, MASTER, incident progression and IR heat detection as well as a system for measuring and quantifying plant functional response to fires in order to address these questions. Analysis of changes or transitions of vegetation patches through time across the landscape are suspected to provide insight into early detection of events to which we can proactively respond during the immediate BAER treatment period as well as for long-term restoration planning.

METHODS

*Field Veg Data Collection (Began 2012)
*Test difference in data collection production rate with inverse or Site Sampling Location Approach
*Determine Residence time and Combustion Temps from Master data and Ancillary Datasets.
*Determine Most Appropriate Plant Functional Group Organization for Response to Disturbance and Insight into Restoration Needs and Ecological and Hydrological Functioning.
*Compare Current and Historic Plant Functional Groups through Historic Aerial Classification

REFERENCES:


Wieslander VTM Maps; Images from the Wieslander Vegetation Type Mapping Collection are courtesy of the Marian Koshland Bioscience and Natural Resources Library, University of California, Berkeley. www.lib.berkley.edu/BiosystemsVetm.