Vegetation Dynamics Models

LANDFIRE National Vegetation Dynamics Models are created through a series of expert workshops and a review process that engages regional experts from around the country. A **VDDT Model** and **Model Description** are created for each biophysical setting (BpS; see inset) in each LANDFIRE mapping zone. Modeling products can be downloaded for a majority of LANDFIRE mapping zones at this time (see links at right). These data products are being released incrementally across the U.S. and are posted as they become available.

VDDT Models

Each BpS was modeled quantitatively using the VDDT (Vegetation Dynamics Development Tool) software. VDDT is a public domain, aspatial, user-friendly modeling tool, available from ESSA Technologies. The VDDT data include quantitative information about the rates and pathways of succession and the frequency and effects of disturbances. Landscape reference condition percentages for each BpS are an important output of the model.

What are Biophysical Settings?

Biophysical Settings (BpS) represent the vegetation that may have been dominant on the landscape prior to Euro-American settlement and are based on both the current biophysical environment and an approximation of the historical disturbance regime. The LANDFIRE BpS concept is similar to the concept of potential natural vegetation groups used in mapping and modeling efforts related to fire regime condition class.

Model Descriptions

Each model includes comprehensive documentation that describes the vegetation, geography, biophysical characteristics, succession stages, and disturbance regimes of each BpS. Descriptions also document the assumptions behind, the outstanding questions about, the contributors to, the resources used for, and the evolution of each model. In addition, model descriptions include the results of the VDDT modeling and can be used as reference conditions for Interagency Fire Regime Condition Class Guidebook procedures. Read the new document "Using the LANDFIRE Biophysical Settings Model Descriptions," which examines the major elements of the model descriptions and explains how they can be used.

Model Applications

Vegetation models help ecologists, planners and managers understand the interactive nature of succession and disturbance and evaluate their impact on a landscape. LANDFIRE models are relevant for the pre-European settlement landscape and serve as a potential baseline point for planners in identifying which vegetation composition and structures are overrepresented or are lacking on a specific landscape. LANDFIRE vegetation models are also easily modified to represent current and future conditions. These modifications can include the cost and ecological impact of management activities, such as prescribed fire, thinning, livestock grazing, and herbicides. Users can also add invasive species states and pathways and potential remediation activities to the models. In addition, users can alter disturbance patterns and/or probabilities to account for potential climate changes. With all these options included, planners and managers can investigate and identify a way forward that is more likely to provide the future conditions they desire.

LANDFIRE National vegetation dynamics models are delivered in a database compatible with version 6.0 of VDDT. **Users will need VDDT version 6.0 or better in order to view the models.** VDDT can be downloaded from www.essa.com/vddt.