

## Status and Key Considerations from IMAP Blue Mountains work



**Status** – An experimental modeling structure within the Vegetation Development Dynamics Tool (VDDT) state-and-transition modeling framework has been created for the Blue Mountains study area. This area includes over 130 watersheds and about 14 million acres, ranging from salt desert shrub to forests and alpine meadows.

Seven state and transition models were developed for forested environments and 14 for grasslands, shrublands, and woodlands. These models have not yet been validated. Initial conditions data on existing vegetation to run the models were summarized from gradient nearest neighbor tree lists for forested vegetation, stand data from National Forests, non-forest vegetation cover and structure from the ReGAP effort. Potential vegetation data for stratifying site productivity and successional relationships came from gradient

nearest neighbor, ecological systems, and National Forest maps. Fourteen combinations of watershed, ownership/allocation, and wildland-urban interface land classes can be modeled individually or in combination.

Proposed scenarios for modeling historical conditions and current management have been identified and preliminary inputs developed. Spatial data and the state and transition models are available to IMAP partners through an FTP site maintained by the Oregon Department of Forestry. The procedures, programs, and understanding to link the models with the initial conditions files and run the historical conditions and current management scenarios for each of the watershed, ownership/allocation combinations are in place. A major effort will still be needed to organize and extract information from the many output files to address policy relevant questions. A substantial effort was made to link inventory plots to state and transition models and methods will be transferable to future study areas.

Nearly twenty people from the Oregon Department of Forestry, Wallowa-Whitman NF, USFS R6 Regional Office, Willamette NF, USFS Washington Office FVS Service Center, and PNW Research Station contributed to the effort and were recognized for excellent work at the June 12, 2007 IMAP working meeting.

**Key considerations** - Participants in the Blue Mountain IMAP effort discussed the Blue Mountains effort at the June 12 IMAP working meeting in order to capture issues that should be considered as work continues in the Blue Mountains and begins on the next major study area (the east-side Oregon Cascades). Highlighted findings include:

- Documentation is critical. The project needs consistent and easy-to-use methods to document spatial, modeling, and other data. This relates to a recognized Users' Group work item. Although a general description of the Blue Mtns model structure has been generated, users are cautioned against justifying policy decisions based on the experimental output until modeling documentation is created that thoroughly describes the scientific and experiential basis for creation of the VDDT state class definitions, multiplier values, and other elements of the model structure.
- Validation is needed. The Blue Mtns models will need serious research efforts to validate or refine the various types of disturbance multiplier information on which VDDT operates.
- Investment needed to process output. The VDDT output is expected to be voluminous in the amount of computer memory required. Although output processing tools for tabular and graphical data representation have been created, a major investment to develop software to facilitate policy and GIS analyses at the watershed scale will be required.
- The ad-hoc nature of IMAP work is beneficial because it involves local, knowledgeable experts but poses problems because other work priorities often interfere with coordination, production, and focus. The project may need a small dedicated staff and the ability to pull in ad-hoc teams. Dedicated staff might include a project manager and data stewardship/administration.
- The balance between desired detail and workable, understandable models and data is difficult. While many would like more detailed models and data, such detail involves additional time and assumed knowledge. As currently implemented, VDDT data and models are designed to be useful at the scale of 5<sup>th</sup> field watersheds, at the finest. Additional work to provide integration with finer-scale project analysis, policy questions, and other assessment and monitoring tools will be needed.
- The questions for analysis need to be framed so that project priorities for data and models can be focused on necessary elements and at appropriate reporting scales rather than dispersed across a somewhat vague and moving set of interests. This issue relates to a recognized Users' Group work item. A need for focus should, however, recognize that issues may change and project flexibility is important.
- Forest structure and transition data are being refined. An effort is underway to utilize forest growth and yield information generated with the Forest Vegetation Simulator (FVS) to refine the forest structure information in the VDDT state classes and transition rates for each of the modeled forest types. This process is being coordinated through the Forest Management Service Center in Ft. Collins, CO and the PNW Research Station. As such, it is likely that re-evaluation and finalization of the Blue Mtns analyses will occur after the FVS work is completed and prior to the ODF statewide assessment. Further development of information processing tools to facilitate Blue Mtns model updating in the future is recommended.