
Using Models to Provide a Virtual Test of Forest Treatments

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BEMRP's participation in the Bitterroot National Forest's proposed Trapper Bunkhouse Land Stewardship Project (Trapper-Bunkhouse Project) consists of two parts. One is the field study mentioned elsewhere in this ECO-Report that is looking into the effects of thinning and burning on various resources. The other part involves modeling to determine where treatments should take place both from a fuel reduction and economic standpoint.

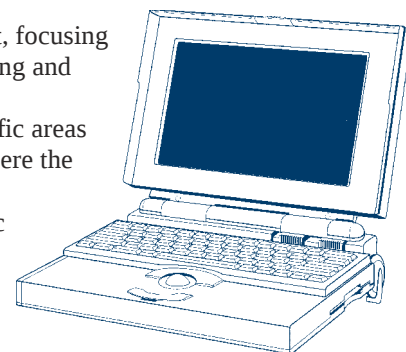
Through the course of the Trapper-Bunkhouse Project, researchers have worked with Forest personnel to integrate various types of computer models with the project planning process (see the 2005 ECO-Report article "Visualizing a Forest Landscape Today and Tomorrow" available at BEMRP's website: <http://www.fs.fed.us/rm/ecopartner>). Early on, we used broad-scale models of vegetation disturbance processes and fire behavior along the Bitterroot Front to help the Forest focus in on a particular project area. During the final phase of the planning process researchers worked with the Forest to test the utility and efficiency of MAGIS, a planning model that integrates vegetation information with fire hazard, economic, and other resource information.

The objective of MAGIS modeling was to assist development of scenarios that make the best use of budgets and reduce wildfire hazards while providing other significant resource benefits. During this process, researchers interacted with Forest planning team members to design model scenarios that included the issues outlined in the purpose-and-need

statements for the project, focusing primarily on fire-risk rating and economics. The modeled scenarios indicated specific areas (delineated as stands) where the combined benefits (fuel reduction AND economic efficiency) could increase the overall efficiency of the project.

These areas were further investigated on the ground to determine whether they should be included in the action alternatives. The "ground-truthed" treatments were compiled to build a model-assisted alternative to include with other alternatives in the draft Environmental Impact Statement.

Once the Forest defined alternatives to evaluate, additional fire behavior modeling provided a virtual test of how effectively proposed treatments may alter future fire behavior across the entire project area. The primary modeling tool for this step was FlamMap, a product of the Fire Sciences Lab. FlamMap is a fire behavior mapping and analysis program that computes potential fire behavior characteristics (spread rate, flame length, fireline intensity, etc.) over a landscape for constant weather and fuel moisture conditions. We compared proposed treatments under the action alternatives with the No Action alternative. While analyses of the results are still underway, preliminary results indicate that the model-assisted alternative may more effectively constrain future fire behavior than treatments defined and located using conventional planning processes.



Scientific Independence... (from page 2)

Scientists have a responsibility to society based on the confidence that is placed in credible scientific information. Indeed, as demonstrated by organizations like the National Academy of Sciences, science often represents the only social means by which complex problems can be solved. When issues like "spotted owl conservation and national economics" or "global warming" become highly politicized, the general public, and some politicians, turn to science for reliable information. In such cases, the preponderance of "scientific information" holds sway even when scientific consensus is beyond reach. For this reason alone, scientists must strive for independent, credible understandings worthy of "scientific stature" and the value placed on such stature by society. This highlights a significant difference between scientists who work *with* those who must consider political factors versus scientists who work *for* them.

Conducting Research... (from page 3)

half-day session at the Northern Region Training Academy that included presentations on: 1) biomass utilization opportunities from restoration treatments; 2) ecology and management of invasive species; 3) efficacy of herbicide for mitigation of ecological impacts of spotted knapweed invasion; and 4) fire history of riparian and upland zones in six headwater drainages of the Bitterroot National Forest.

We also helped with eight school field trips to local Forest sites and a public field trip to the Trapper-Bunkhouse Project area. An impressive Lick Creek Demonstration/Research Forest Interpretive Auto Tour brochure has been completed recently and is available at the Bitterroot National Forest Darby District office. Check out our updated website for more information on BEMRP research, activities, and publications (<http://www.fs.fed.us/rm/ecopartner>).