

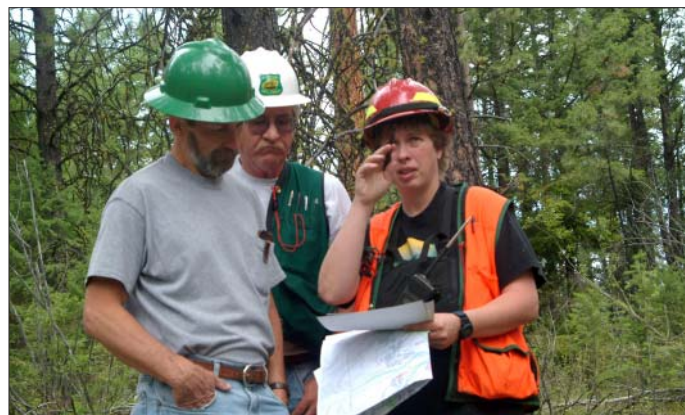
Understanding Forest Ecology from the Landscape to the Project Level

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Several researchers in the Forestry Sciences Laboratory have been actively involved in BEMRP since its inception in the early 1990s. The recent research on the Trapper Bunkhouse Land Stewardship Project began in 2004. In ecosystem management, sometimes we need to look at the big picture, or the landscape scale, and sometimes we need to work on a more local, or project-level scale. In the past few years we've taken a landscape-level approach to understanding the role of fire in riparian forests and have used models to predict where wildfires are likely to occur. We've also focused in on a project area where we might be able to affect wildfire behavior and study the effects of treatments to reduce wildfire risk.

In 2004 and 2005, Jimmie Chew and Chris Stalling made several computer simulation runs of landscape processes along the entire western portion of the Bitterroot National Forest. Chris used the SIMPPLLE (SIMulating Patterns and Processes at Landscape scaLEs) model developed by Jimmie to evaluate areas where wildfires might have greatest impact on the wildland/urban interface. The predicted occurrences of wildfires were influenced by the interaction of different forest stand conditions with simulated insect and disease activity. These simulations were for a no-treatment alternative, using early vegetation data sets agreed upon by the BEMRP Landscape Analysis Team in 2004.

The SIMPPLLE model identified three critical areas at risk to high-severity wildfire along the Bitterroot Front, and through local knowledge from Bitterroot National Forest resource specialists the Forest chose the area between Trapper and Bunkhouse Creeks on the Darby District as the highest priority area in need of fuel reduction efforts. When new vegetation maps (called VMAP) became available in early 2006, new model simulations validated the original runs.



Mick Harrington, Ed Hayes, and Cheri Hartless reviewing stands on the Trapper Bunkhouse Land Stewardship Project that will potentially be used for research study sites. (Photo by Ward McCaughey)



Elaine Sutherland, Eric Ziegler, and Ethan Mace collecting an increment core from a fire-killed tree on the Bitterroot National Forest. (Photo by Mathew Burbank)

I participate on the Bitterroot National Forest Interdisciplinary Team (IDT), which is composed of Forest Service managers and researchers evaluating research needs for the Trapper Bunkhouse Land Stewardship Project. I also am on the Treatment Development Team sub-committee in charge of developing a replicated set of experiments that will test the effects of fuel reduction treatments. This past year I worked together with Mick Harrington, a research forester from the Fire Sciences Laboratory in Missoula, to locate sites similar in stand structure where experiments could be conducted. We mapped and flagged boundaries of each treatment area and installed temporary plots to measure pre-treatment stand structures. We installed permanent plots in the fall of 2006 and I will coordinate initial measurement of vegetation components during the summer of 2007.

Other studies directed by Elaine Kennedy Sutherland have been conducted on the Bitterroot National Forest since 2002. Fire history and vegetation data from 13 headwater stream corridors and associated uplands on the Bitterroot and Lolo National Forests show that fires in these mixed conifer/lodgepole pine systems were more frequent and less severe than generally supposed. Our studies show that fires burned through these riparian sites approximately every 5 to 36 years.

BEMRP's projects are just a few of what we are doing around the Northern Rockies to improve knowledge of the ecosystems in this area. For more information on some of our projects, please see our website at <http://www.fs.fed.us/rm/ecology/>.