Building the Knowledge Base Necessary to Achieve Management Objectives Following Wildfire

Stephen D. Hobbs

College of Forestry, Oregon State University

February 24, 2006

The occurrence of wildfire is a major forest health issue facing resource managers and policy-makers throughout the western US. In Oregon the hazard is particularly severe on overstocked federal forestlands. Management actions surrounding post-fire restoration activities, including salvage logging, are controversial and often the subject of heated debate and litigation. Frequently these situations are characterized by lengthy delays of management actions which sometimes result in unintended consequences. A major contributing factor is the lack of credible information about the effects on resource values of post-wildfire restoration practices, including salvage logging that might be used to achieve management objectives. Although a great deal is known about subjects such as reforestation, it is clear adequate information is still not available. To build the knowledge base necessary for managers and policy-makers to have a wider range of options and greater confidence in the decisions they make and to gain public trust, a significant research and outreach education effort is required. We need search no further than southwestern Oregon to find an example of what can be accomplished when leaders have a vision and take action to solve a serious forest resource management problem.

For many years forest managers in southwestern Oregon were plagued by serious reforestation problems following timber harvest. In the 1970s this resulted in the USDI Bureau of Land Management withdrawing significant acreage from the allowable cut land base. As a result, federal agencies, the forest industry, and county governments approached Oregon State University (OSU) about forming a new research and outreach education program focused on finding solutions to the reforestation problems. In 1978 the Forestry Intensified Research (FIR) Program was launched. This program integrated fundamental and applied research with outreach education. The FIR Program was conducted cooperatively by scientists from the OSU College of Forestry and the USDA Forest Service Pacific Northwest Research Station. Researchers based in Corvallis and Medford worked closely with local managers and resource specialists to address critical questions related to the reforestation problems. An important and innovative aspect of the program was the location of an interdisciplinary team of OSU scientists in Medford for the duration of the program (1978-1991) to conduct research and outreach education programs. When the FIR Program was completed in 1991, new information had been developed from more than 100 studies spanning 13 years. These studies conclusively demonstrated the vast majority of forestland could be reforested. This information was summarized in the book *Reforestation Practices in Southwestern Oregon and Northern California* published in 1992.

Although post-wildfire restoration and salvage logging were not the focus of the FIR Program, much of what was learned does have applicability. For example, in southwestern Oregon it is clear that:

1. Lands can be successfully reforested with planted seedlings following timber harvest, site preparation (including prescribed burning) or brush field reclamation.

2. Successful reforestation requires achieving certain standards in a carefully choreographed sequence of events appropriate to site conditions and the management objective(s) to be achieved.

3. The landscape and environmental conditions are highly variable in space and time. Thus treatments must be tailored to fit site conditions to achieve management objectives.

4. Competition from woody and herbaceous species well-adapted to site conditions can delay stand development.

5. If intervention is necessary to achieve management objectives, the timing and sequence of operations is crucial. Delays in particular can often have unintended negative consequences (e.g., competition from associated vegetation, logging damage to regeneration).

6. Establishing an interdisciplinary team of scientists and educators in the problem area on a year round basis greatly enhanced the applicability of the research to management problems and the acceptance and implementation of new knowledge by practitioners.

Despite the many achievements of the FIR Program, it did not directly address questions related to post-wildfire restoration per se or salvage logging and although some work was done on natural regeneration, this was a relatively small part of the program. Given the current threat of wildfire, the need for better information about post-wildfire restoration, salvage logging, and the effects these practices have on resource values, is of critical importance. To develop the knowledge base that will provide resource managers and policy makers with credible information upon which to base decisions both they and the public can have confidence in, the following steps are recommended.

1. Establish a long-term research and outreach education program specifically focused on post-wildfire restoration, including salvage logging.

2. Insure that universities and federal agencies are full partners in the program. Universities are uniquely equipped to provide a broad range of interdisciplinary expertise in research and outreach education. University involvement would also provide for training the next generation of forest resource scientists and managers to better deal with these problems.

3. Use the FIR model as the basis for the program. Integrating fundamental and applied research with outreach education using interdisciplinary teams stationed in the geographic problem areas creates huge advantages over the traditional research and outreach education model and greatly speeds the transfer of new information to decision-makers.

4. Sufficient flexibility should be built into the planning and management of federal forests to permit the kind of rigorous scientific experimentation needed to generate credible, scientifically sound information for policy makers and resource managers.

Hobbs, S.D., S.D. Tesch, P.W. Owston, R.E. Stewart, J.C. Tappeiner II, and G.E. Wells. Eds. 1992. Reforestation Practices in Southwestern Oregon and Northern Calfornia. Forest Research Laboratory, Oregon State University, Corvallis, Oregon. 465 p.