

Sustaining the Land, People, and Economy of the Blue Mountains: The Blue Mountains Natural Resources Institute

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Abstract—The Blue Mountains Natural Resources Institute approaches issues by deciding if a critical issue is one of information needs or of differing values. If a values issue, we arrange local forums for discussion; if an information issue, we disseminate available information, or undertake research projects as appropriate. One issue we have researched involving both values and information needs is fuel reduction. Through an adaptive management cycle of treatment, evaluation, and refinement, we have brought new understanding to management options for fuel treatment efforts and the ecological and economic results. A survey on acceptance of fuel reduction methods allowed integration of social, ecological, and economic factors, an essential feature of ecosystem management.

The Blue Mountains Natural Resources Institute was formed in 1990 in response to a grassroots effort by several committed local citizens in northeastern Oregon and southeastern Washington concerned about declining forest conditions. Eighty years of fire suppression and preferential harvest of old-growth ponderosa pine (*Pinus ponderosa*) had created a landscape with many overstocked stands and large accumulations of fuel. Drought during the 1980s and conspicuous outbreaks of insect pests fueled concern that the Blue Mountains were ripe for uncharacteristically severe wildfire. Citizens wanted research to focus on the problem to provide land managers with ways to reduce risks. The citizen effort to create the Institute was assisted by the Forest Service Pacific Northwest Research Station to draft the Institute charter, mission, and goals. Through citizen efforts, the Institute was mandated by the Food, Agriculture, Conservation, and Trade Act of 1990 and chartered as a Federal Advisory Committee. The committee took the form of a Board of Directors representing a variety of groups interested in natural resources: Federal and state agencies, universities, industry, private landowners, environmental advocates, tribes, and county governments. The Institute was designed to have no authority over management, but to offer information focused on finding ways to improve forest conditions.

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The mission of the Institute is to enhance the economic and social benefits derived from the natural resources of the Blue Mountains in a manner that is ecologically sound and sustainable (Tanaka and others 1993). The area served by the Institute includes four counties in southeastern Washington and all or part of ten counties in northeastern Oregon (fig. 1). We address the mission in three broad ways: forums for discussion, education/outreach, and research. Our clientele includes anyone involved with natural resources, including private landowners, agency managers, scientists, students, and interested citizens. We have formed formal partnerships with over 80 entities and involved partners in planning and executing research programs, forums, and educational efforts such as seminars, tours, conferences, and a quarterly newsletter.

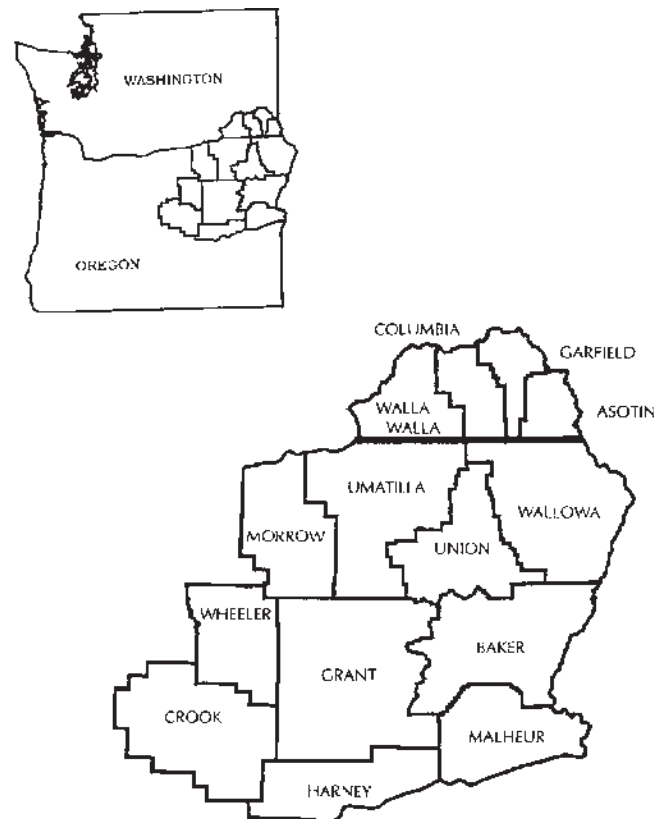


Figure 1—Area covered by the Blue Mountains Natural Resources Institute.

The Institute approach to an issue can be described as a decision chart. We first ask if a critical issue is one of knowledge or of values. If it is a values question, we approach it by organizing forums for discussion. If it is a knowledge issue, we determine if there is existing information that can be brought to bear. We collect what information is available and disseminate it through appropriate media: tours, workshops, seminars, published papers, conferences, and technical notes. If we determine that there is a knowledge gap, then we work with partners to conduct research. Our research program takes an adaptive ecosystem management approach with three main principles: a management orientation; integration of economic, social, and biological disciplines; and a technology transfer component.

In deciding where to focus our efforts, we look to the Board of Directors, our partners, and our technical committees. The Board of Directors typically identifies the main issues of concern.

Early on, the Board wanted a discussion on how people viewed forest health. In 1991 and 1992, we conducted a series of forums on forest health throughout the Blue Mountains area (Starr and Quigley 1992). At each forum, we invited representatives of an array of interests to speak on forest health from their viewpoint. The speakers were local as much as possible and included Forest Service scientists and managers, state departments of wildlife and forestry, tribes, local businesses, county government, and environmental advocates. They each gave brief presentations followed by questions and answers. It was illuminating to have people with such a wide variety of viewpoints speak at one gathering. This helped inform the public, Institute staff, Board of Directors, and the speakers as well. These forums helped the Institute build a foundation of credibility to offer unbiased information and have all viewpoints honored.

While values on forest health served as the focal issue initially, one of the first orders of business was to identify gaps in scientific knowledge across the wide spectrum of issues relating to forest conditions. Technical committees were formed to discuss research needs in each of nine issue areas such as “wildlife,” “biodiversity,” and “socioeconomic concerns.” Output from the technical committees helped to guide a literature search and synthesis of existing natural resource information on the Blue Mountains (Jaindl and Quigley 1996). This work summarized the knowledge to date and also identified the most critical research topics. We also found a need for other such synthesis efforts on more focused topics and undertook one on salvage harvest (McIver and Starr 2000).

One research topic that was identified as a knowledge gap by the technical committees was acceptable methods of fuel reduction, and we have focused considerable energy on it. Our fuel reduction work, like most of our research, has used the adaptive management model, with evaluation of a research effort leading to refinement and another focused research effort. We have been able to partner with land managers to take advantage of their operations to apply treatments, and we then measure the responses. We began by building on the Genesis Demonstration project on the Malheur National Forest. The project involved citizens in shaping plans, and then applied management practices such as thinning and prescribed fire to restore and sustain the health and productivity of the land. The research component

conducted by Oregon State University (OSU) scientists examined how thinning and fire might influence the activity of forest pathogens and alter the abundance and distribution of standing and down dead wood.

Building on the Genesis Project, a team of OSU scientists evaluated fuel reduction by means of a cable yarding system on level ground coupled with a mechanical harvester (The Deerhorn Project; Kellogg and Brown 1995; McIver 1995). We wanted to see if the cable system could be used economically on level ground to reduce soil effects of fuel reduction activities. Fuels were significantly reduced at Deerhorn by cable yarding, and soil disturbance was less than that typically produced by a skidding system. Economically the operation was a narrow success, through the production of both sawlogs and chips. Effects of the fuel reduction on ants and pileated woodpecker (*Dryocopus pileatus*) foraging were also studied.

Based on findings in these earlier studies, a replicated study was designed for the Limber Jim site on the Wallowa-Whitman National Forest. Cooperators included La Grande District personnel; scientists from OSU, Pacific Northwest Research Station (PNW), and the University of California-Davis; and private contractors who purchased the materials and performed the logging to specification. Researchers compared forwarding with skyline yarding, both coupled with the single-grip harvester. Variables measured included fuel reduction, soil effects, residual tree damage, pine marten (*Martes americana*) habitat effects, and economics (Drews and others 1998; McIver 1998). These three sets of information—objective, environmental effects, and economics—integrated into one study allowed managers to make more informed decisions (fig. 2). In this case, single-grip harvesting to fell trees, coupled with forwarding to retrieve them, was the best choice in terms of both economics and environmental effects.

Yet another study in the cycle of adaptive management is under way on the Wallowa-Whitman National Forest. This

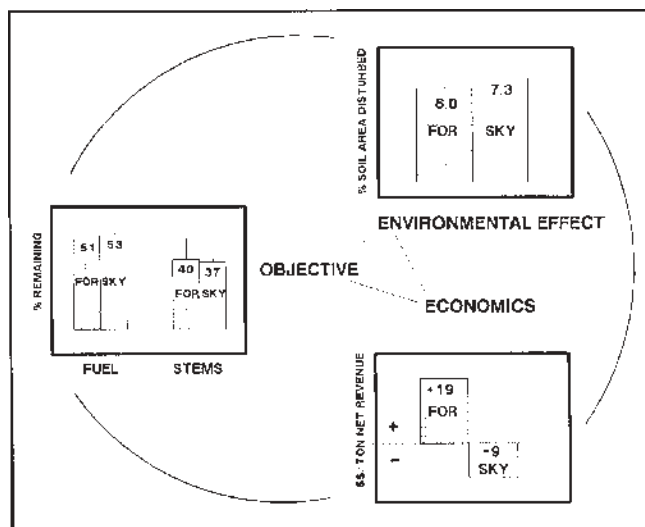


Figure 2—The three sets of information needed to make decisions on management tradeoffs: the Objective, the Environment Effects, and the Economics.

study at Hungry Bob will compare fire and thinning as methods of fuel reduction. Currently, thinning treatments have been applied, and prescribed fire is scheduled for late summer 1999. We will again employ scientists from OSU and PNW to study economics and environmental effects. Replicated treatments are prescribed fire, thinning, thinning followed by fire, and untreated control. In addition to looking at economics, soil disturbance, and residual tree damage, we will also investigate below-ground processes.

Taken together, these fuel reduction studies illustrate the use of adaptive management (fig. 3) in which action is taken, results are evaluated, and the next action is taken using modified methods based on improved knowledge. Results from research are quickly transferred to managers and the public through as many means as needed (tours, videos, brochures, technical notes), and, from this body of information, more-informed decisions are made. From Genesis to Hungry Bob, operational research conducted in an adaptive management context has provided increasing knowledge on the practice of fuel reduction. In these times, land managers are faced with intense scrutiny of their actions and imperfect knowledge on which to base their decisions. Adaptive management offers a way for managers to move ahead based on the best available knowledge, and to decrease risk and uncertainty.

It is also important to remember that the technical information generated by these studies will only be useful if the public supports the objective of fuel reduction and the methods used to accomplish it. Thus, we commissioned a survey conducted by OSU scientists to examine public acceptance of alternative fuel reduction methods (Shindler 1997). Results suggest broad support among citizens of the Blue Mountains for either prescribed fire or thinning for fuel

reduction on Forest Service land, with thinning the preferred alternative. Taken together, the social, economic, and biological data on fuel reduction provides the manager with a complete package of information from which to make decisions, a central tenet of ecosystem management.

The types of studies we have undertaken—partnering science, management, and public together to achieve enhanced learning—require adjustments to traditional approaches. Managers need to adjust their plans to allow for random replication and for an untreated control. Scientists must adjust their plans to allow for many factors beyond their control including delays that sometimes interfere with uniform treatment. Contractors must adjust their plans to conform to strict protocols and the need for uniform treatment in the face of market fluctuations and other business demands. All this is possible only with willing cooperation from the many partners. Our adaptive approach to research demonstrates it is possible.

Though challenging, operational research is worth the result. Only in large, integrated studies that take into account the social, economic, and biologic factors, can we gain the information necessary to weigh trade-offs resulting from many management actions. Only armed with such information and with input from and concurrence of the public, can management proceed in the contentious atmosphere that characterizes natural resource issues today. An institution such as the Blue Mountains Natural Resources Institute is uniquely equipped to work with all the parties and bridge the gaps among the various interests to make such research/management projects a reality.

The mission of the Blue Mountains Natural Resources Institute remains a rallying point for its many partners. Though falling short on some partner expectations, the

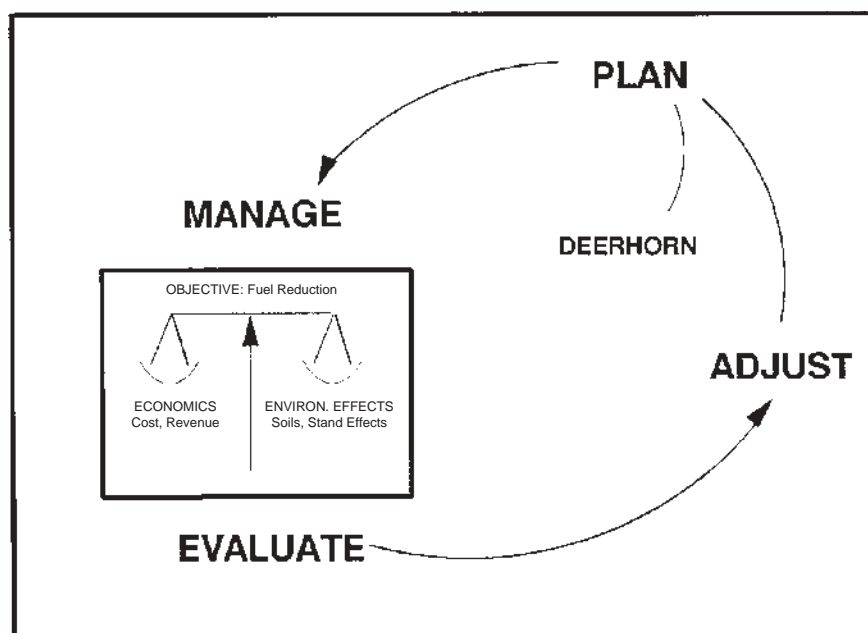


Figure 3—Adaptive management cycle using the Deerhorn-Limber Jim management experiments as sources of new information.

Institute has accomplished a wide array of successes. As the 10-year life of the Institute draws to an end, many outside factors influence its visibility. The mission is strongly supported, but downsizing and significant budget cuts in federal agencies put future funding in question. A redefined and more focused Institute may emerge. The lessons learned about partnerships, adaptive management, public understanding of technical and value issues, and integrated research will guide research and management activities well beyond the life of this single institution.

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