APPENDIX C

Visualizing Alternative Futures: One Cornerstone of Collaborative Planning

Understanding the alternative futures possible for the national forests and grasslands in the context the larger landscapes in which they are located is at the heart of planning under the Committee's recommendations. By understanding the possible outcomes of management decisions, a desired future condition and a set of outcomes can be determined, and the management steps needed to achieve these conditions and outcomes can be selected.

Recent developments in technology have greatly eased the delineation and examination of alternative futures. Computer-based mapping and spatial analysis have opened up new vistas for projecting futures with the active participation of the public. In a sense, the technology for collaborative planning has arrived just in time.

Three examples are shown below of recent attempts to portray future landscapes under alternative management scenarios. They reflect recent attempts by members of the Committee and others to employ the latest technology to portray potential future landscapes in ways that encourage easy understanding and active participation by the groups and people interested in the management of national forests and grasslands.

Case 1. Delineating Alternative Futures in the Central Sierra of California

The potential of severe, crown-replacing wildfire is a major concern on the western slopes of the Sierra Nevada in California, especially in the mixed-conifer zone, where fire suppression and harvest have created fuel conditions believed to be unlike those of the past. Also, the health of the region's late-successional forests, watersheds, human communities, and timber industry are important considerations. These maps show the fire-severity potential on the Eldorado National Forest under the current forest condition (Fig. 1), in the future without active management (Fig. 2), and with a combination of prescribed fire and timber harvest to reduce fire hazard (Fig. 3). Other maps show progress in improving later successional forests and other features. The analysis that created these alternative futures included consideration of the patchy and episodic nature of wildfire, which, in turn, allowed portrayal of the probability of wildfire over the next 50 years in different areas (Fig. 4). Many of the areas along the Western edge with the highest likelihood of burning are adjacent to settlements. Comparing Fig. 4 to Fig. 2 or 3 helps drive home some of the potential implications of actions that affect the future condition of the Eldorado National Forest.

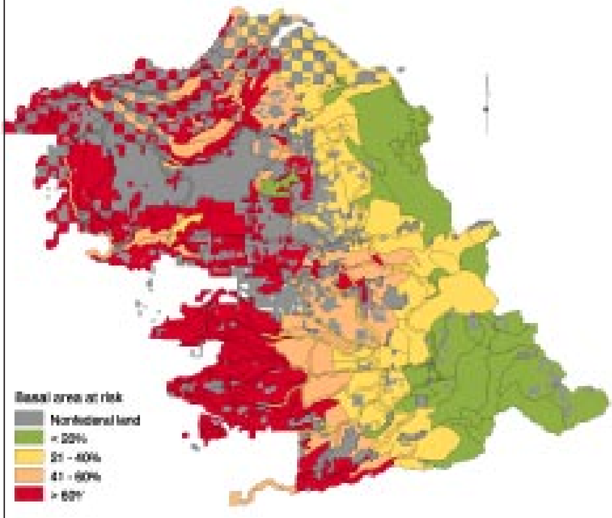

Fig. 1. Initial fire severity potential on the Eldorado National Forest

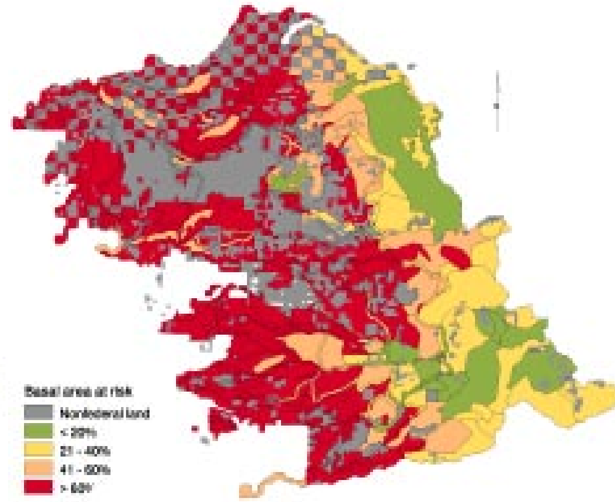

Fig. 2. Fire severity potential in the fifth decade on the Eldorado National Forest without active management.

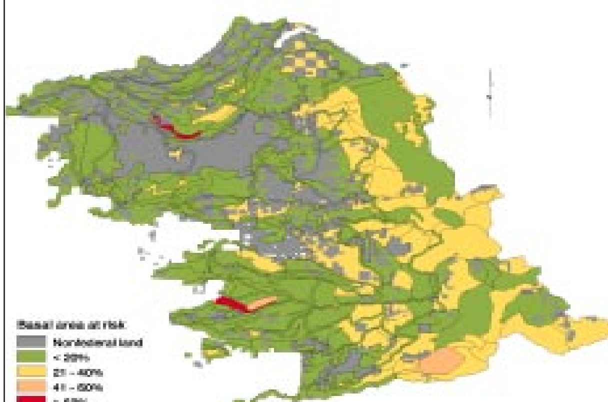

Fig. 3. Fire severity potential in the fifth decade on the Eldorado National Forest, with active management.

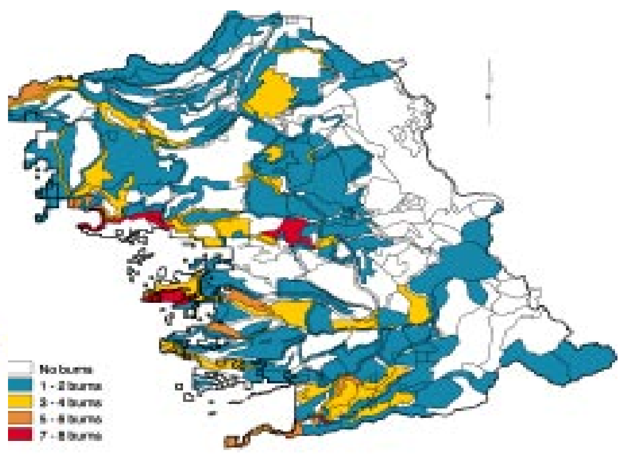

Fig. 4. Number of burns per late-successional old-growth polygon over 50 years, with 10 simulations on the Eldorado National Forest. This result can be interpreted as the probability that a polygon will burn during the 50 years.

Source: Integrating Wildfire into Strategic Planning for Sierra Nevada Forests," by K. Norman Johnson, John Sessions, Jerry Franklin,and John Gabriel. Reprinted from the Journal of Forestry 96(1):44-45 published by the Society of American Foresters, 5400 Grosvenor Lane, Bethesda, MD 20814-2198. Not for further reproduction.

Case 2. Understanding the Future Landscape of Coastal Oregon

The Alsea Basin in Western Oregon is typical of the many coastal basins in Oregon that are the focus of attention in the recovery of coastal salmon stocks (Fig. 5). Nonindustrial private owners have the lowlands along the rivers, and the forest industry, Forest Service, and BLM share the uplands of this 300,000-acre watershed.

Planning the stewardship of the national forest in the Basin will be difficult without knowledge of the likely actions of other owners and the likely landscape condition of the entire watershed through time. Satellite imagery can help provide an estimate of current landscape condition (Fig. 6), and these conditions can be projected forward for 100 years based on assumptions about the actions of the different owners in the basin (Fig. 7). The darker blue or green the vegetation, the older the stand. Small square or oblong areas are usually the result of recent clearcuts on federal lands. Large square or oblong areas are often the result of clearcuts on private lands. In the simulation shown here, the federal forests are allowed to grow without active management, forest industry lands are on a 50-year rotation (using clearcutting for the regeneration harvest), and the nonindustrial private lands are managed through a combination of partial cuts and clearcuts.

These maps and associated analysis can have a number of uses. They can (1) help in understanding the landscape context for federal forest management, (2) help visualize and interpret the desired future condition of the federal forests in the context of all ownerships in the basin, (3) provide a vehicle for coordinated federal planning in the Basin, and (4) help federal agencies understand and explain the payoff from active intervention in the management of federal forests.

Source: The Coastal Landscape Analysis and Management Study (CLAMS), a cooperative project by the College of Forestry of Oregon State University and the USDA Forest Service Pacific Northwest Research Station.

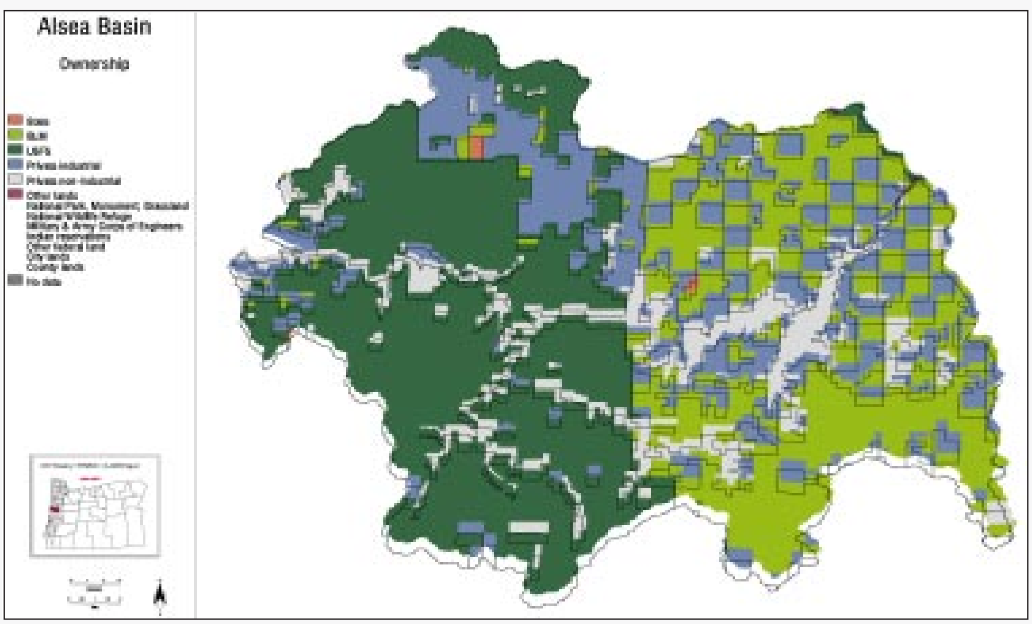

Fig. 5. Land ownership in the Alsea Basin

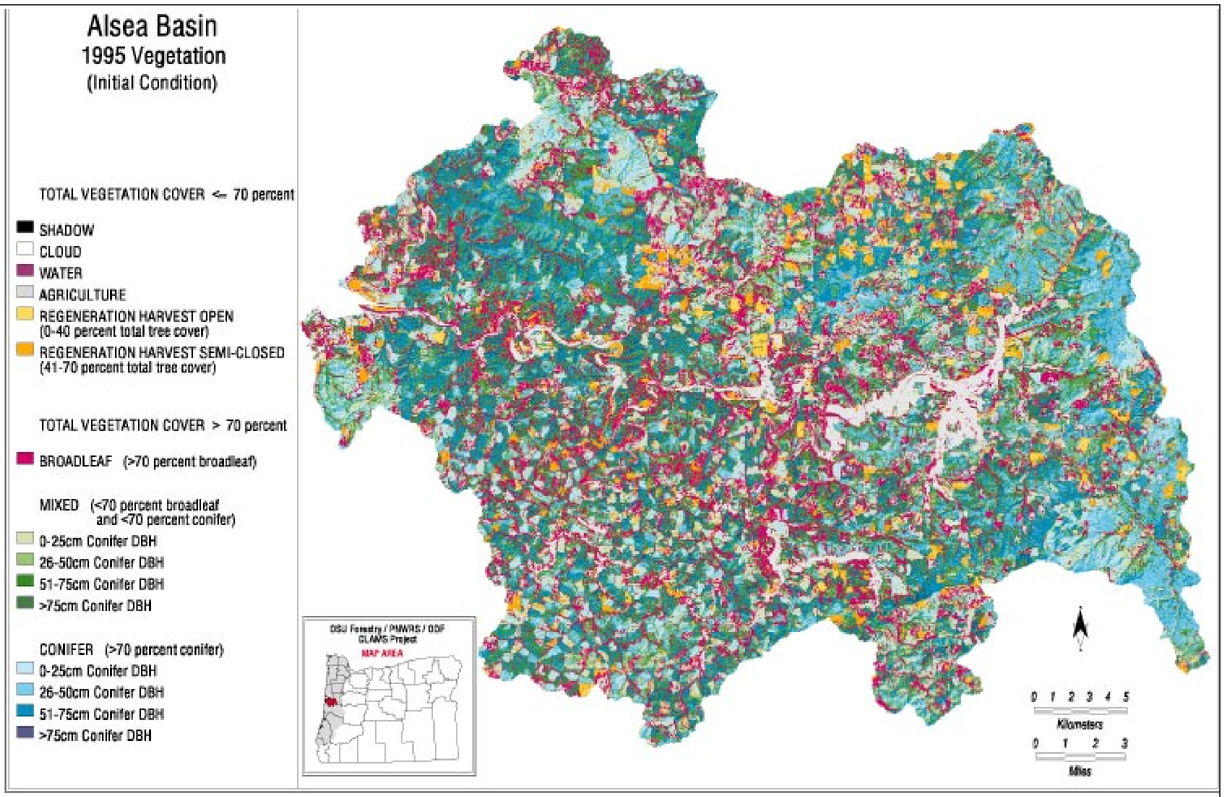

Figure 6. Current vegetation cover in the Alsea Basin

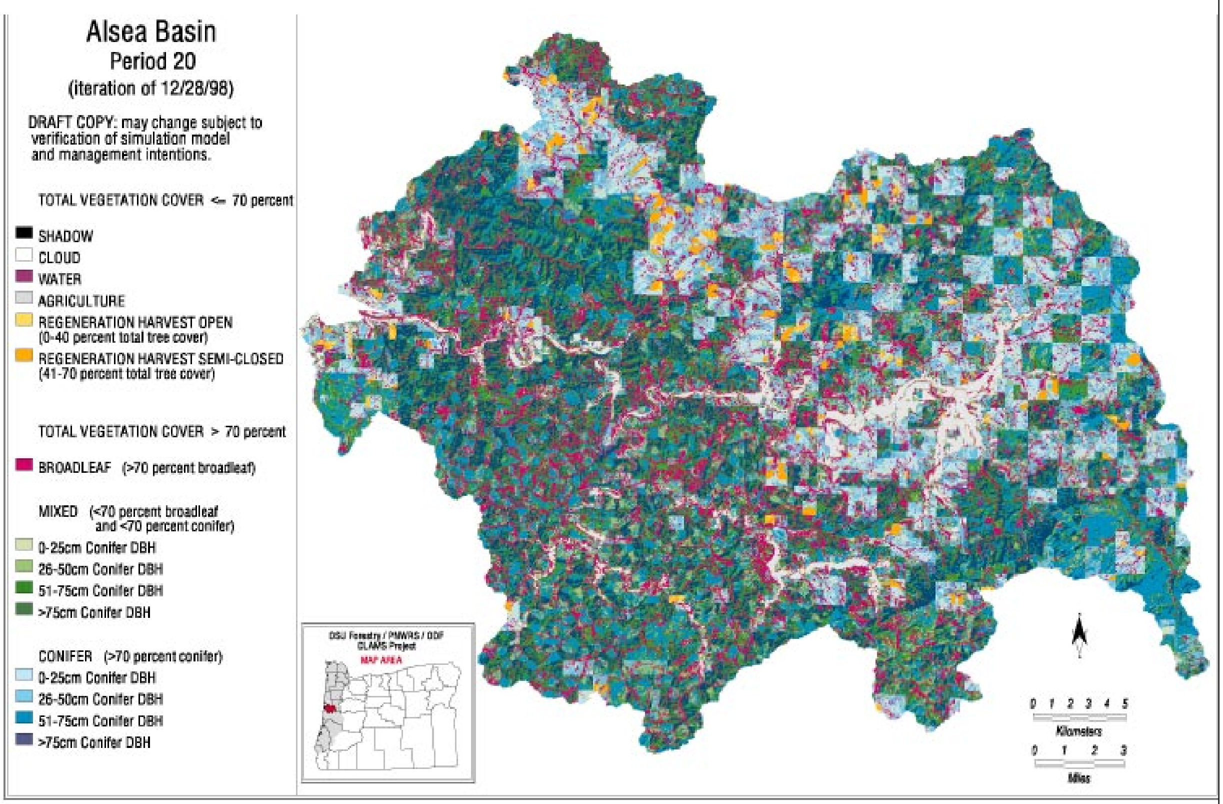

Figure 7. Simulated future vegetation cover in the Alsea Basin.

Case 3. Visualizing the Implications of Proposed Actions in Sierra Nevada Forests

There has been renewed interest in strategies to reduce the threat of wildfire on the national forests of California. Case 1 in this Appendix looked at alternative strategies for managing large landscapes to reduce fire hazard. Visually portraying the appearance of particular stands and landscapes under a proposed action can also be useful.

In California, the Forest Service has developed a number of proposals to place fuel breaks strategically across the mid-elevation forests. These actions would call for a reduction in the density of the overstory and the removal of "ladder fuels." These proposals often meet resistance because many in the public imagine a linear clearcut across the landscape. To help the public understand the appearance of the landscape after the fuel break is put in, the Forest Service used computer simulation to illustrate stand and landscape conditions before and after the action.

At the stand level, the fuel break would thin the overstory and remove much of the understory. (Figs. 8 and 9 show the action applied to one of the denser stands.) At the landscape level, the fuel break would occupy the ridgetop and upper reaches of the slopes (Fig. 10) and only modestly alter the appearance of the slope (Figs. 11 and 12).

These simulations can help enormously in developing a common understanding of the proposed action and in focusing debate onto the real issues.

Source: Region 5, USDA Forest Service.

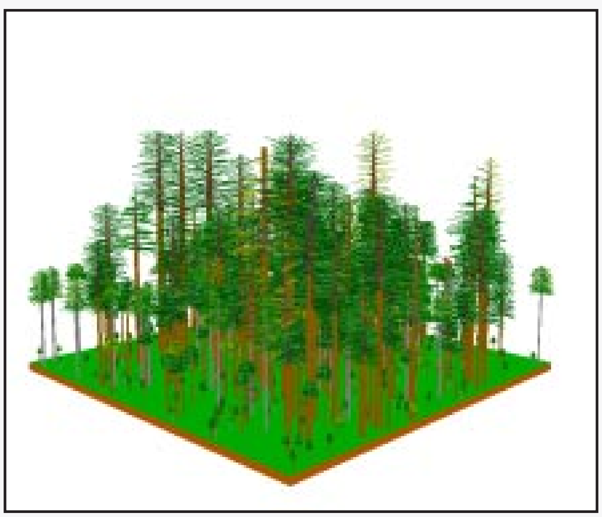

Fig. 8.Fuelbreak before treatment.

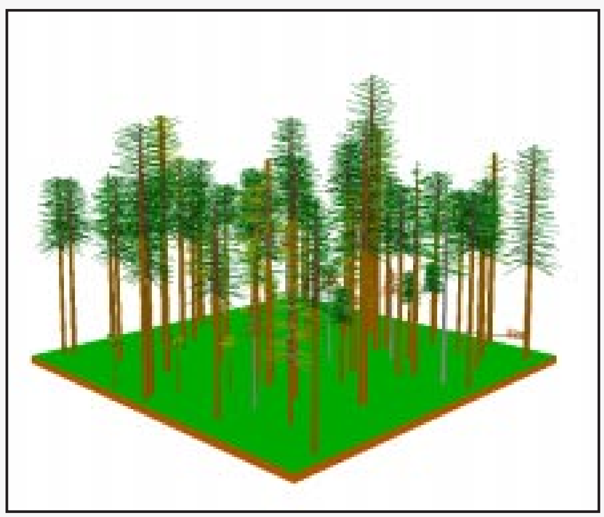

Fig. 9. Fuelbreak after treatment.

Fig. 10. Location of fuelbreak.

Fig. 11. Landscape before creation of fuelbreak.

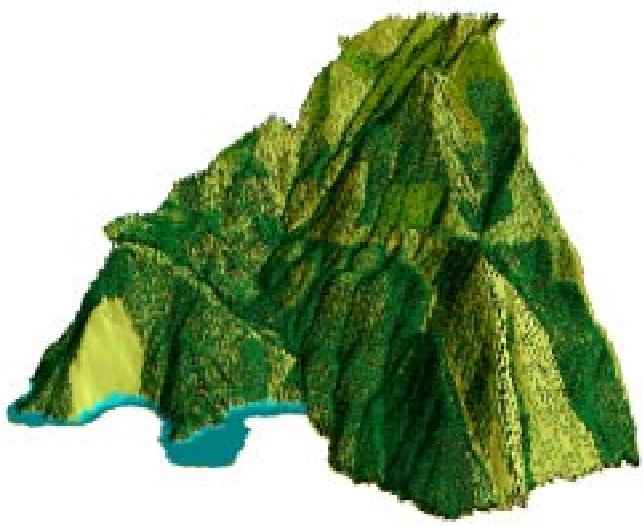

Fig. 12. Landscape after creation of fuelbreak.