

A Landscape Analysis Plan¹

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Abstract

A Landscape Analysis Plan (LAP) sets out broad guidelines for project development within boundaries of the Kings River Sustainable Forest Ecosystems Project. The plan must be a dynamic, living document, subject to change as new information arises over the course of this very long-term project (several decades). Two watersheds, each of 32,000 acres, were dedicated to the effort by the Kings River Ranger District of the Sierra National Forest. Several documents were used to prepare a draft LAP in 1995. Although the plan lays out general guidelines for managing both watersheds, all land and forest treatments implemented under the LAP still require preparation of appropriate documents under the National Environmental Policy Act, which are open to public comment and appeal. Adaptive management is an overriding concept, with the basic intent being to learn from all individual projects and to adjust management directions accordingly. The existing draft LAP is presently under revision in response to new information from numerous discussions during field tours, new science presented in a report to Congress from the Sierra Nevada Ecosystem Project, and new science and management guidelines being developed by the Sierra Nevada Conservation Framework (an effort to produce an Environmental Impact Statement to guide the management of 11 National Forests in the Sierra Nevada).

Why a Landscape Analysis Plan?

A Landscape Analysis Plan (LAP) forms a link between national forest plans prepared under the National Forest Management Act (NFMA) of 1976 and specific projects that implement those plans in compliance with the National Environmental Policy Act (NEPA) of 1969. It has developed in response to the USDA Forest Service's reorientation to ecosystem management, under direction from Jack Ward Thomas, former Chief of the Forest Service. The Sierra National Forest instituted LAPs as a step to provide assessments at a landscape scale, tiering off the Pacific Southwest Region's (Region 5's) definition of a landscape as "An area of interacting ecosystems where patterns are repeated because of geology, landform, soils, climate, biota, and human influences throughout the area. The size, shape, and patterns of landscapes are determined by interacting ecosystems" (Manley and others 1995: p. 206). The LAP pertains to a land area considerably smaller than that of the National Forest but considerably larger than that of an individual project. As such, it can provide "A planning schedule that documents existing conditions, desired conditions, and projects that will achieve desired conditions" within boundaries of the defined landscape (Manley and others 1995, p. 206).

In developing the LAP, we have solicited comments from within the Forest Service and from the public. In the case of the Kings River Sustainable Forest

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Ecosystems Project, it serves as a guide for project development. Its main objectives are:

- To blend social, physical, economic, and biological needs through ecosystem analysis and public collaboration to assure productive and healthy forest ecosystems.
- To understand forest landscapes as ecological systems.
- To assure consideration of the implications of our actions in terms of those ecological systems.
- To interpret the Sierra National Forest's Land and Resource Management Plan (LRMP) (USDA 1992) by documenting our collective vision of the desired condition of the landscape and to help communicate it to others.
- To guide us in meeting the objectives of the LRMP.

Because several decades will be needed to attain the desired condition of the watersheds in the project and some effects will be evident sooner than others, the LAP must be a living document. It will be adapted and amended as new information emerges, based on its application in the field.

Development of the Landscape Analysis Plan

Soon after the Kings River Sustainable Forest Ecosystems Project received support from the Forest Service's Region 5 and Pacific Southwest Research Station, and was formally approved by the Supervisor of the Sierra National Forest, the Kings River Ranger District established an Interdisciplinary Team of specialists—team leader, silviculturist, wildlife biologist, hydrologist, soil scientist, heritage resource specialist, recreation specialist, and fire/fuels specialist—with the task of preparing a LAP for the project area. Two major watersheds are included: Dinkey Creek, about 32,000 acres, and Big Creek, also about 32,000 acres (*fig. 1*). A draft LAP was completed in 1995, following guidelines in Region 5's draft "Ecosystem Management Guidebook," later completed under a new title (Manley and others 1995). This guidebook was our primary source for developing the LAP. The Plan had to be consistent with desired conditions for the Sierra National Forest, as described in the Forest's LRMP (USDA 1992) and as amended by the California Spotted Owl Environmental Assessment (USDA 1993) and the Standards and Guides for Grazing (USDA 1995a). Finally, input from other specialists in range, geology, fisheries, landscape architecture, botany, engineering (transportation and logging), pathology, and entomology contributed to the analysis effort on an as-needed basis, and comments were solicited from the public and from scientists at the Pacific Southwest Research Station's laboratory in Fresno.

In addition, the Interdisciplinary Team followed a process developed for watershed analysis in the Forest Service's Pacific Northwest Region (Region 6), under the President's Pacific Northwest Plan. This prescribes the following, eight-step process (Furniss and McCammon 1993):

- Identify issues, describe desired conditions, and formulate key questions.
- Identify key processes, functions, and conditions.
- Stratify the watershed.
- Assemble analytical information needed to address the key questions.
- Describe past and current conditions.
- Describe condition trends and predict effects of future land management.
- Interpret, integrate, and present findings.
- Manage information, monitor, and revise strategies (adaptive management).

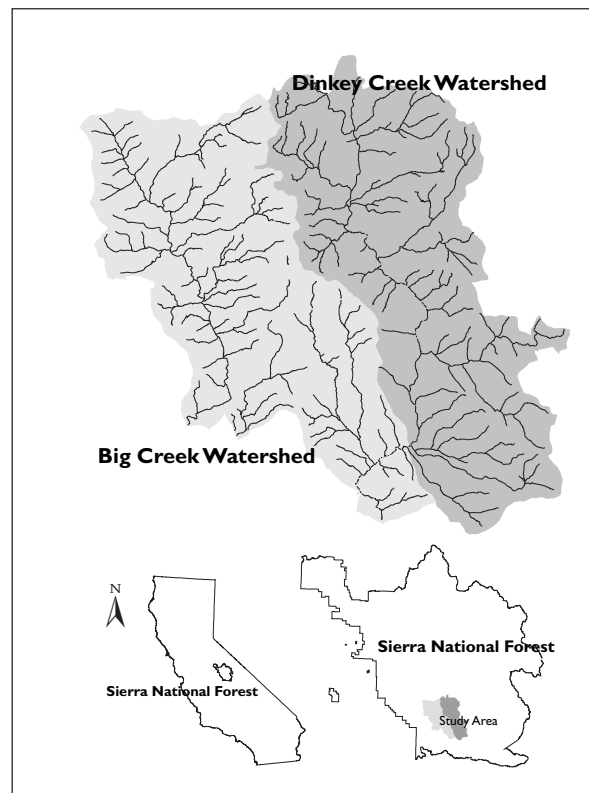


Figure 1—The Kings River administrative study area in the Sierra National Forest in central California includes the 64,000-acre Big Creek and Dinkey Creek watersheds (indicated by shading).

To attain desired conditions, the Sierra National Forest's LRMP relies heavily on zoning to allocate lands among competing resource objectives and even-aged forest management prescriptions. The two forest management systems proposed for study in the Kings River Project, however, reduce reliance on forest zoning, emphasize attainment of multi-resource objectives on more homogeneous areas in each watershed, and rely heavily on the uneven-aged management system to program vegetation treatments. Additional guidance and concepts for this approach were taken from Chapel (1990), Chapel and others (1992), Fiske and others (1993), and USDA (1994).

Although the plan lays out general guidelines for managing both watersheds (Verner and Smith, in this volume) and includes "A Landscape Management Implementation Schedule," all land and forest treatments implemented under the LAP still require the preparation of appropriate NEPA documents (Biological Evaluations, Biological Assessments, and Environmental Assessments or Environmental Impact Statements). These, of course, require full public disclosure and opportunities for public comment and appeal.

Adaptive management is an overriding concept for the Kings River Project. The basic intent, of course, is to learn from all individual projects and to adjust management directions accordingly. This is accomplished through continual interaction among management personnel of the Sierra National Forest, the Kings River Ranger District, and scientists from the Pacific Southwest Research Station's laboratory in Fresno. Scientists are studying various components and functions of the affected forest ecosystems (Verner and Smith, in this volume) to gain an understanding of the effects of treatments over the long-term (10-50 years). In addition, to discuss results to date, all of these personnel, together with members of the interested public and scientists and managers from other entities, annually participate in several field tours to treatment areas within the two watersheds. These sessions have proven to be extremely productive for the sharing of ideas and evaluating results of forest management activities intended to attain desired conditions for various resources—watersheds, forest health, wildlife habitat, fuel loading, and others. Field tours of the first two uneven-aged

projects, for example, raised concerns among scientists and members of the public about tree size-class distributions and vertical diversity of the tree canopy resulting from the first applications of small-group selection (Smith and Exline, in this volume). This led to some thinking about the silvicultural prescriptions applied in the first projects and is expected to result in some revision and a different approach for some future projects. In effect, then, “adaptive management” of some sort is occurring on the ground, as we move forward.

The Current Situation

A primary objective of the LAP is that forest management in the Kings River Project area will remain dynamic as forest managers, scientists, and the public learn how to better sustain forest ecosystems. As new information comes in from the several research projects underway in the Project area (Verner and Smith, in this volume), it can be incorporated quickly into subsequent forest treatment projects. The draft LAP (USDA 1995b) is now under revision to incorporate such sources of new information. This includes input from the numerous discussions during field tours, new science presented in the report to Congress from the Sierra Nevada Ecosystem Project (SNEP 1996a, b, c, and d), and new science and management guidelines being developed by the Sierra Nevada Conservation Framework (the current effort to produce an Environmental Impact Statement to guide management of 11 National Forests in the Sierra Nevada).

Partnerships and Collaboration

The collaborative effort among researchers, interested citizens, tribal governments, forest managers, university partners, and industry representatives has developed into a synergistic approach for solving problems of natural resource management. The effort is intense and challenging as more species and ecological processes are recognized as being at risk, and the project is attracting more collaboration and partnerships.

Acknowledgments

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