

## Appendix O: LTBMU Effects Analysis

Forest Service planning occurs at three levels: national strategic planning, NFS unit planning (forest planning), and project or activity planning. The LTBMU plan is a NFS forest plan that provides a framework for integrated resource management and for guiding subsequent project and activity planning. The forest plan does not result in direct, physical impacts to the environment, but it may constrain where and how projects or activities can occur. The forest plan does not authorize projects or activities or commit the LTBMU to take action.

Forest plans cover broad geographic areas for a period of 15 years or more. As a result, the environmental impacts resulting from forest plans are removed in time and space because projects or activities guided by the plan occur throughout the 15 year period. Since future events and influences are largely unpredictable, the environmental analysis for forest plans is by its nature somewhat speculative. The analysis methods described in Chapter 3 of the EIS are designed to predict reasonable and consistent environmental impacts for the broad geographic area rather than site-specific impacts normally associated with much smaller areas.

Environmental analyses for forest plans are intended to provide the responsible official with a reasonable estimate of effects taking into account the uncertainty and large geographic scale of a forest plan. Analysis methods are vetted through an interdisciplinary team of specialists and managers using extensive public collaboration and consider the best science available. This process includes a review of the draft documents by Forest Service specialists at the Regional level and final documents by independent scientists. Extensive public input is solicited through meetings, web input, and public comment on the draft forest plan and DEIS. This process results in a consistent and fair analysis that highlights the important differences between alternatives given the need to project into an unknown future and to do so within the time and budget allowed.

After the LTBMU released the DEIS for public comment, the agency received several comments that requested a more detailed effects analysis. While the agency has added more detail in the FEIS, some members of the public may believe that the effects analysis in Chapter 3 is still too general. Therefore, this discussion has been added to describe the analytical methodology the Forest Service used in preparing Chapter 3 and to explain why a more detailed effects analysis is not practical.

## **The Unpredictability of Natural Conditions and Human Values Over Time**

The effects predicted in the environmental analysis are unlikely to unfold exactly as predicted. There are numerous areas of environmental uncertainty, including: seasonal weather patterns, the scope and intensity of wildfires, the dynamics of bark beetle infestations, the spread of invasive exotic species, and, most significantly, climate change. There have been significant changes in such natural disturbance regimes in recent years, and it is likely that such changes will continue. However, it is extremely difficult to predict the rate and trajectory of such changes, particularly over the long term and with the synergistic impact of climate change. Given that the environmental context for forest plan implementation will be changing over time and in an unpredictable manner, environmental effects can only be predicted based on known values over broad geographic areas. Effects predictions are determined by IDT members who provide expert knowledge about the environment based on applicable scientific papers and their professional understanding of cause/effect relationships for the LTBMU.

Natural conditions and human values are two of the main influences on land management decisions at the project level. However, neither natural conditions nor human values are static. Political priorities and associated funding will change over time and so too will the scope of Forest Service projects at the site-specific level. And, because the agency can only make general assumptions about the direction and magnitude of change in natural conditions or human values, the agency cannot presently forecast with accuracy the exact consequences of implementing forest plan alternatives in the future.

Given the uncertainty of future events, attempts to provide greater detail will not result in any better prediction of environmental effects. Spending more public money on data and analysis would do little to improve effects predictions since more money cannot improve prediction of the inherent variables in the system.

Further, our knowledge base is improving all the time and forest plan guidance is expected to change as we adapt to changes in climate, best available science, and public demand. Over time, plan amendments are expected as more is learned through the project planning process, research and monitoring activities.

## **The Analytical Methodology Employed in Chapter 3 of the EIS**

While analytical methods vary by resource area, each resource uses a set of resource-specific indicators to structure the analysis. Also included are a set of assumptions specific to the resource, while assumptions common to all resources are described at the beginning of Chapter 3. Where models are used, they are identified and their limitations are disclosed.

For each topic in Chapter 3, the analytical methodology described is the most appropriate methodology the agency is aware of. While certain members of the public requested a more detailed effects analysis, which would include more forecasting of the physical effects of the various alternatives on the environment, none of those individuals or groups proposed any practical or reliable analytical methodologies. Therefore, based on the agency's extensive history, experience, and technical expertise in conducting effects analyses, collaborative public involvement, science reviews and the lack of other practical solutions, the agency employed the various methodologies described in Chapter 3 of the EIS, recognizing its limited ability to predict specific, future, physical impacts to the environment. These methodologies, while admittedly limited, strike a reasonable balance between forecasting reasonable broad-scale estimates of environmental consequences without drifting into the realm of unreasonable speculation.

## **The Uncertainty and Risks Associated With Forecasting Environmental Effects**

There are several factors that influenced the agency's decision to adopt the methodologies described in Chapter 3 of the EIS. These are as follows:

### **The Forest Service's Staged Decision-Making Process**

The Forest Service engages in a two-step decision-making process where general guidance and direction is provided at the forest plan level, and concrete commitments are made at the project level. This process is known as "tiering" where the forest plan addresses broad program-level questions of a general nature and the site-specific projects address direct effects of specific actions. In this sense the project "tiers" to the decision made in the forest plan since project scope is constrained by the forest plan (see the Council on Environmental Quality NEPA regulations at 40 CFR 1508.28(a)). None of the decisions made by the LTBMU's forest plan revision have direct environmental impacts. Rather, only at the site-specific, project level is it possible to determine with a high level of certainty if an irreversible and irretrievable commitment of resources is proposed and an analysis of actual expected physical effects generated. Given there are no direct impacts to the environment from this plan revision, it is difficult to predict, with precision the environmental consequences that might flow indirectly from the adoption or revision of a forest plan.

This explanation should not be construed to mean that the Forest Service's decision-making structure avoids the analysis and disclosure of environmental effects. Rather, it is meant to clarify that certain stages of the decision-making process are more amenable to predictive, and useful, analysis. At the plan level, preparing a detailed and accurate effects analysis is problematic, since there remains great uncertainty about the scope and intensity of site-specific actions to be implemented pursuant to the forest plan. Only when site-specific decisions are being considered does the agency have sufficient details about land-management activities to engage in reasonably accurate predictive analysis. And, that is the stage where the bulk of Forest Service NEPA effects analysis has occurred and will continue to occur. Therefore, while the EIS does attempt to provide some projections of the environmental consequences of the various forest plan alternatives, the early stage of a forest plan in the agency's two-step decision-

making process precludes the type of detailed effects analysis that several commenters requested. At the forest plan level appropriate analysis considers the relative contributions of plan components of each alternative toward achieving desired future conditions.

### **Forest Plans do not grant, withhold or modify any contract, permit or other legal instrument and do not authorize projects or activities**

All of the alternatives considered in the EIS do not commit the Forest Service to take any particular action at any particular time. Each alternative includes a combination of general goals and specific constraints, but leaves all decisions that cause direct environmental effects to the project level. The agency believes that retaining broad decision-making space at the project level is appropriate for several reasons, including: the variability of terrain and ecotypes within the LTBMU; the unpredictability of natural systems over time; and the ever-changing state of scientific knowledge related to natural systems and the management thereof. Based on these and other factors, the LTBMU concluded that a revised plan would be the most successful if it were flexible and could adapt to varying conditions in space and time.

The plan establishes direction through desired conditions, objectives, land allocations, suitable uses and standards and guidelines that both guide and establish boundaries for Forest Service line officer discretion at the landscape level. This allows meaningful evaluation of environmental impacts at the scale of an entire National Forest. Further, the plan allows considerable management discretion at the project level. Individual line officers may opt to make decisions at the limit of what is permitted by the forest plan's Standards and Guidelines; in other cases, individual line officers may opt to exercise their discretion by acting well below such limits. Available budgets and skills may limit what is possible. The collaborative process used to develop site-specific projects may result in improved local knowledge, expertise, and values included in the decision-making process. So better decisions are made, which promote ecological and social sustainability in ways that a Forest-level plan could not anticipate.

Although such discretion prevents us from accurately predicting environmental consequences at the project level at the time of plan revision, the "roadmap" established by forest plan direction is sufficient to determine reasonable cause and effect relationships for gauging meaningful differences between alternatives and their environmental effects. Given the broad latitude for collaborative decision-making at later stages in the decision-making process, the Forest Service cannot now reasonably predict what the results of such decision-making will be.

The Forest Service's multiple-use mandate under the Multiple-Use Sustained-Yield Act and National Forest Management Act is quite broad and was designed to accommodate a wide array of uses, depending on the prevailing values within and outside the agency. The forest plans are designed to be flexible and adaptable to changes in natural conditions, social conditions and human values over time. Therefore, the balance between the multiple uses – recreation, watershed protection, grazing, timber harvest, wildlife protection, mining, etc. – is likely to fluctuate over time, resulting in different environmental impacts as that balance changes. Plan amendments and revision will be conducted with the appropriate NEPA procedures and public collaboration.

### **The Risk of Speculation**

While some members of the public would like to see more detailed effects analysis in Chapter 3, that is not its purpose. Specific and detailed effects analyses are an outcome of projects and activities that comply with this plan will be subject to NEPA analysis when and where subsequent projects are proposed. Site-specific project proposals are readily analyzed in detail whereas the effects of the proposed

management plan and alternatives in this EIS are necessarily broad scale approximations based on a variety of assumptions.

The analytical methodology employed in Chapter 3 is intended to highlight the differences between alternatives with respect to many different issues. Since the effects of this decision will be felt for many years to come, it was necessary to forecast various trends and conditions based on past and current observations. In order to provide meaningful estimates of effects, making some assumptions is necessary, however the Forest Service refrained from over-reaching in this regard by striking a reasonable balance that provides information useful to the public and agency decision-makers without engaging in speculation that might convey a level of certainty regarding environmental effects that was misleading. Any attempt to portray effects in more detail would be highly speculative and misleading to the public.

In the end, the agency tried to strike a reasonable balance, where Chapter 3 of the EIS would provide information that would be useful to the public and the agency decision-makers, without engaging in speculation that might convey a level of certainty regarding environmental effects that was illusory.