

Kenney Flats Project
Initial Scoping Issues & Responses
Oct. 2002

NEPA Analysis

- 1) **“The EA should clearly state whether the primary purpose within each unit...is fuels reduction or ecosystem management as these purposes may be mutually exclusive to some extent.” Colorado Wild**

The purpose and need for this project proposal is described on pages 5-6 of the pre-decisional EA. In the Kenney Flats situation, the two goals are not mutually exclusive. The proposed treatments share the multiple goals of fuels reduction and ecological restoration; however, the current condition of the forest, restoration needs, and fire hazard will influence the relative emphasis of these two goals at any particular site. Treatments are generally categorized in the document by forest type and proximity to private land.

- 2) **“The analysis should include one or more alternatives that have no new roads, temporary or permanent.” Colorado Wild**

Alternatives 1 and 2 do not include any road activities.

- 3) **“...we request that a no-harvest alternative, restoration only alternative, one emphasizing disturbance processes, be developed and given fair and adequate consideration....a reasonable alternative that would exclude the harmful effects of commercial logging while encouraging natural recovery. The project should be limited to controlled fire and removal of already dead trees and those with beetles in them (which will die soon).” Hatfield-Sierra Club**

Alternative 1 is a continuation of the current situation, which includes prescribed fire, with no thinning. To date, this has served the purpose of treating ground fuels, but has not changed the stand structure to meet the goals of restoration or the reduction of crown fire potential.

Alternative 2 proposes restoration activities of thinning, followed by prescribed fire, with no commercial logging. The analysis projects that the amount of ground fuels left would be outside the historic range of variation for the site.

Density and connectivity of tree canopy of the live trees is contributing more to the fire hazard than the standing dead trees. As there are areas where forest plan direction for snags is not currently being met, we propose to leave standing those dead trees that will serve as excellent wildlife habitat.

Vegetation

**1) “Thinning for fuel-reduction is a fairly recent phenomenon. Aggressive and experimental forestry over large areas may result in a large monoculture. The results are unknown.”
Colorado Wild**

The effects of management on Southwest forest ecosystems have been extensively studied for decades, beginning with detailed projects such as that initiated by Woolsey in 1911 with 51 permanent plots in the ponderosa vegetation type in Arizona and New Mexico, and the work done by Gus Pearson in the Fort Valley Experimental Forest near Flagstaff (USDA Forest Service 2001, Feeney *et.al.* 1998). Researchers have returned to these historical research areas to conduct thinning and/or burning treatments, as did Feeney and others who concluded “...restoration treatments improved resource uptake, growth, and insect resistance capabilities of pre-settlement ponderosa pines.” (1998) More recently, Merrill Kaufmann’s work around Cheesman Lake, looking at historical ponderosa pine landscapes as contrasted to current-day conditions has provided supporting information on the need for active thinning and burning in the fire-adapted ponderosa pine forest type (Vance *et. al.* 2001). Further observations by Kaufmann and others following the Hayman Fire provides support for active management as long as it is done on a landscape scale since many of the fuels treatments in advance of this fire “...in most cases were either too small ... or too old and had not been maintained.” (Colorado Department of Natural Resources 2002) Graham and others, upon reviewing stand treatments in forests across the western US, have also concluded the need to perform such management on a landscape scale (1999). Given these and other studies mentioned in the body of this Environmental Assessment, we believe there is a wealth of research supporting this effort at its current scale.

A concern by our Forest’s silviculturists is that given the often-times difficult nature of establishing new pine regeneration, our thinning from below and follow-up burning should avoid the complete or near-complete loss of young ponderosa pines. Hence, our silvicultural prescriptions are being designed to retain pockets of young pines, both to provide for

diversity of age (and hence, size) classes and to mimic the historical ponderosa pine structure of multi-cohort stands made up of single-cohort groups.

Existing stands in the Kenney Flats area now resemble a monoculture given the lack of age class and structural diversity. Proposed thinning treatments would create both age class and structural diversity. This would be accomplished by improving regeneration opportunities, restoring stand clumpiness and creating openings within the forest canopies.

- 2) “It is our hope that alternatives for managing material on site and for removal of most materials from the site will both minimize further damage and degradation within the project area...Please require thinning, mowing and harvesting techniques that offer the lowest impacts.” San Juan Citizens Alliance**

We absolutely agree that we should be using low impact techniques in our forest activities. Please refer to the mitigation measures for the action alternatives. Based on the results of recent demonstration fuel reduction projects we feel there is equipment available that meets these concerns.

- 3) “Consider pruning larger trees rather than cutting them down. While some smaller trees, which are present mainly because of fire suppression, may need to be removed to achieve appropriate fire risk reduction, pruning the lower branches of some large trees can also reduce fire danger. This removes a fire ladder fuel while still retaining the ecological values of the larger trees.” Hatfield-Sierra Club**

The focus on thinning treatments proposed is to treat the smaller dense stands of trees and retain larger trees across the landscape. A combination of repeated prescribed fire and other natural processes has resulted in pruning the majority of the larger trees. These trees alone pose little threat in a wildfire situation. The real risk to larger trees comes from the ladder fuels growing beneath them and from the high density of smaller trees. During a wildfire event, the smaller trees and shrubs will likely move the fire into the larger trees and up into their crowns. Thus the potential for losing larger trees during a wildfire event is high under existing (no action) conditions.

Fire

- 1) **“The potential for a stand replacement fire should be assessed considering the possibility of other disease epidemics attacking any white fir, oak brush, or other understory ladder fuels prior to a fire event.” Colorado Wild**

Stand conditions within the analysis area under extreme fire conditions are very conducive to a large stand replacement fire event as described in the pre-decisional EA on pages 52-53, 55-59, 148-154 and Appendix G. Comparison of risk from insect and disease attacks under existing conditions versus post treatment is described on pages 28 and 43-44 in the pre-decisional EA.

- 2) **“...literature strongly suggests that the most cost-efficient and effective way to protect homes and lives from wildland fire is to concentrate management activities within 200 feet of homes. “ Colorado Wild**

We would encourage homeowners to follow guidelines for reducing the fuels buildup adjacent to any structures. Keeping flames close to the ground can allow firefighters, if available, to protect structures.

However, simply reducing fuel buildups near structures does nothing to accomplish the changes in extreme wildfire behavior that will reduce destructive impacts to watersheds, wildlife habitat, view sheds, air quality, and future recreational uses of the forest. We have seen locally that fire fed by the large accumulations of fuels deep within the forest can develop into such extreme behavior that normal methods of fuel reductions within neighborhoods and fire management techniques are ineffective at protecting lives, structures and resources.

Additionally, one of the main goals of restoring forest stands to pre-settlement conditions is to reestablish resilience to fire. This would allow naturally occurring fires to be accepted and managed for their benefits with little risk of the devastation to resources, human life and structures that we see so frequently when fires occur under current forest conditions.

In addition to addressing wildland urban interface concerns, the purpose and need for actions (pre-decisional EA pages 5-6) addresses multiple goals that require thinning of forests adjacent to private land. Treatments proposed under this project are designed to prevent or moderate a broad array of potentially adverse ecological and socio-

economic impacts that could be associated with an extreme fire event, (see pre-decisional EA pages 148-154).

The action alternatives, under “extreme conditions”, in contrast with the No-action alternative, assume suppression forces would be facing a surface fire. A surface fire would move slower and be less affected by overhead winds than a crown fire, allowing suppression forces more time to establish control lines, and thereby allowing more time for owners and/or forces working with owners to effect control measures around structures. Some of the effects discussed are assumed to affect homeowners and structures directly, some indirectly.

An article in “Forest Magazine” described an interview with Mr. Jack Cohen, Forest Service Fire Scientist and states, referencing the Jasper Fire, Cerro Grande Fire and the Valley-Skalkaho Complex:

“Properly speaking, fires like these are infernos. Cohen has concerns – as do most fire scientists – about the ability of forests to recover from such blazes. In other words, Cohen does not think ...that it’s just houses that need to be saved. He thinks the forest needs to be saved as well, and he supports thinning and burning projects even if they take place well away from residential properties. “My research indicates that even with these high intensity fires you can make houses highly ignition resistant and still lose the forest,” Cohen said.” (Forest Magazine 2001)

The Colorado State Forest Service, Pagosa Fire Protection District and the Pagosa Ranger District believe a combination of private and public land treatment activities provide the most effective defense for homeowners against wildfire occurring within the wildland – urban interface while at the same time reducing the threat to surrounding forest resources from a catastrophic fire event.

- 3) “the analysis should assess the impacts to wildfire risk, as opening up the canopy will increase sunlight hitting ground fuels which may actually increase fire risk, while additional sunlight on the ground will further growth of ladder fuels, particularly gambel oak.” Colorado Wild**

Thinning that reduces canopy bulk density will increase sunlight hitting ground fuels. The positive results will more than offset any negative impacts. Thinning will result in more shrubs and grasses, which will change the potential fire behavior from high risk canopy fires to manageable and desirable ground fires. This trade-off will not only

benefit fire behavior, but will also have a desirable change in wildlife habitat and plant species composition and structure.

- 4) “...the FS should also assess the ramifications of logging and/or other vegetation management without subsequent burning. Oak brush is likely.” Colorado Wild**

We agree that managing vegetation without burning in the pine oak type will not result in the restoration and fire behavior changes that are the goals of this proposal. All the action alternatives analyzed in detail includes mechanical treatment followed by prescribed burning.

- 5) “The analysis should disclose current fire management policies for the project and surrounding areas, optimally through a Fire Management Plan.” Colorado Wild**

Current fire management polices are addressed in Alt. 1. Implementation of either of the action alternatives would increase opportunities for wildland fire use.

- 6) More specific information concerning how much and where dozers would be used needs to be provided to the public...” Dave Scherer**

As in the past in this analysis area, we will design prescribed fire treatment areas to minimize new soil disturbances, using existing geographic features and roads as firebreaks, reducing the need for bulldozer lines. The exact location of any lines is not determined until prescribed burn plans are prepared.

Ecosystem Restoration

- 1) “The Forest Service should clearly define the historic conditions that it intends to restore with this project.” Colorado Wild**

These are described in the pre-decisional EA on pages 36-58 and in *Appendix A, Kenney Flats Resource History*.

- 2) “Fuel reduction may be appropriate and necessary in the wildland urban interface, but fuels reduction alone will not restore ecosystem integrity and, if done improperly, will degrade it further. Restoration should include the elimination of ecologically degrading activities that impede the ability of**

natural recovery. Such activities, in this case, may include inappropriate livestock grazing, road building, off-road vehicle use and fire suppression. We encourage the Forest Service to analyze how implementation of passive restoration techniques such as halting the above mentioned activities, would further ecosystem restoration in this case.” Colorado Wild

We agree that there is much more to restoration than the reduction of fuels. The proposal to thin dense stands of small diameter pine in a manner that mimics pre-settlement conditions, with openings with groups of intermingled crowns, is an attempt to move the forest toward a more natural, fire-resilient structure.

Our resource history indicates that historic heavy grazing from European settlement through the mid-twentieth century contributed to the increased density of trees and shrubs, by eliminating much of the fine ground fuels that would have carried fire. The EA analysis does not indicate that the current level of livestock grazing would impede restoration activities.

Road building impacts under Alternatives 3 and 4 are addressed in the pre-decisional EA pgs. 123-124. The area is closed the motorized travel off-road. Some of this activity does occur illegally and we agree this can be “ecologically degrading”. The Forest uses a combination of information and law enforcement to try to prevent this form of degradation.

Conditions are currently far enough outside the range of natural variation that not suppressing fire would lead to severe ecological impacts. Once the forest is more resilient to wildfire, one of the goals would be to be able to use other methods of fire management in addition to fire suppression in parts of the analysis area.

3) “We firmly believe that a diameter cut limit is necessary to protect old growth and potential old growth and ecological values. The San Juan NF should not incorporate exemptions to these restrictions for mistletoe-laden trees or diseased trees.” Colorado Wild, concern also raised by Dave Scherer.

Paramount to the proposed action and its restoration emphasis is the need to favor and retain large and especially older ponderosa pine. All action alternatives include the stipulation that pre-settlement trees are to be avoided, unless it is a safety issue, as defined in OSHA standards. This guidance will pass directly into marking guides for the actual preparation of the thinning areas. By focusing on the actual age of the trees, we are trying to be responsive to the “old growth” issue that is the

concern, rather than a size, which could be highly arbitrary and not reflective of ecological values.

There are two key reasons that the Forest is not advocating a diameter limit for this or other sales. First, a large tree to some may be a small tree to others. A “large” diameter may be found on a “short” tree. Given the wide range of size of tree (diameter or height) reflective of trees in the Kenney area, there is no agreement – even among specialists in the field of silviculture, wildlife (and wildlife habitat), or ecology – on what arbitrary limits should be set. (Similarly, Brad Ack, program director of the Grand Canyon Trust, was quoted 3/9/01 in the Durango Herald as stating: “The diversity of forest ecosystems in northern Arizona doesn’t lend itself to a one-size-fits-all restoration strategy, including the use of arbitrary [diameter limit] caps.” The Grand Canyon Trust is a partnership formed to coordinate thinning, prescribed burns and other programs aimed at restoring health and reducing fire danger in forests around Flagstaff.) Second, and more importantly, setting an arbitrary limit could preclude the Forest’s ability to meet its restoration objectives. One of the objectives of this project is to increase the number of large trees. We’re concerned that by adopting arbitrary size limits on trees to be removed, desired stand structures from a restoration standpoint would not be achieved.

4) “The project will...intervene in natural disturbance processes that are vital ecosystem sustainability....” Hatfield-Sierra Club

The project is designed to enhance the analysis area’s ecosystems resilience to natural disturbances. Currently the area is out of its historical range of variation relative to fire intervals as well as Forest density. These factors under the No Action Alternative may result in wildfire, insect and disease events well outside the range of what might be termed natural disturbances for this area. Specific goals for this project are described in the purpose and need for the proposed project on page 5-6 of the pre-decisional EA. One of the stated goals of the project is to restore the resilience that would allow natural disturbance processes to occur with results that are within the natural range of variation for the stand.

Forest Health

- 1) **“The analysis should include discussion of increased spread of root disease due to the creation of more stumps and tree wounds...logging can actually increase the rate at which Annosus spreads.” Colorado Wild**

The analysis determined that root diseases were not prevalent in the area, thus no significant increase in spread is anticipated.

Wildlife

- 1) **“National Forests must gather Management Indicator Species (MIS) population and trend data before taking action that may affect habitat.” Colorado Wild, similar concern raised by Hatfield-Sierra Club**

The MIS analysis is discussed on pages 81-105 in the pre-decisional EA.

- 2) **“FS Region 3 prohibits logging within a ring of 420 acres around the 180 acre nest (goshawk) area from March through September. This large 600 acre area is known as the “post-fledging area” or PFA. The PFA, coupled with the seasonal restrictions, is required to protect young goshawks during the highly vulnerable stage of their lives as they learn to fly and hunt. The San Juan NF continues to arbitrarily and capriciously adopt mitigation measures far less protective than current measures call for.” Colorado Wild, similar concern raised by Hatfield-Sierra Club**

As recommended by Reynolds et al. (1992) nest areas may be treated via thinning unwanted understory trees or shrubs with non-uniform spacing using prescribed fire or hand tools. These activities should be applied outside the March 1 to August 15 seasonal restriction. Treatment should be applied in a manner that does not reduce basal areas below 110 square feet, or reduce canopy closure less than 50%. High canopy closures (50-70% +), large overstories, basal area between 90-110, and open understories are desired structural attributes for nest areas (Shuster 1994). The treatments proposed and specific mitigation designed for goshawk for this project complies with Reynolds's recommendations (see pre-decisional EA page 30 and Appendix D, pages 15, 19-20, 23 and 25).

“The Flammulated owl is a regional Sensitive Species that should be carefully assessed.” Colorado Wild

Flammulated owl is addressed in the Biological Evaluation on pgs. 14, 18-19.

3) The project will jeopardize the viability of species that thrive in forest ecosystems through activities associated with timber harvest and road building...” Hatfield-Sierra Club

Impacts to wildlife are addressed in the predecisional EA on pages 81-120, 147-148, 152-153 and within the Biological Assessment and Evaluation. The analysis indicated no jeopardy for the viability of any species from any proposed activities. The comment does not provide any site specific information that would provide a basis for a specific response.

4) “User created snowmobile routes will have harmful effects and harass lynx.” Hatfield-Sierra Club

There is no lynx habitat within the analysis area.

5) “The potential impacts on calving, fawning, and migration activities of elk and deer need to be adequately addressed. Thinning that removed too many trees over sizable areas could significantly reduce hiding and thermal cover in those areas, forcing deer and elk to find other habitat, the amount and effectiveness of which is already limited to a considerable degree by presence of open roads and human residences.: Hatfield-Sierra Club

Elk are addressed in the MIS section of the pre-decisional EA on pgs. 91-92 and 101-102. The elk herd in this area is at an all time high and numbers continue to increase annually. We have no information to indicate that elk have experienced increased mortality due to reductions in forest densities. The analysis does not indicate that hiding and thermal cover would be appreciably impacted. Relative to thermal cover, the area, in normal snowfall years, is not considered winter range.

6) “Habitat for amphibians such as wood frog and boreal toad could be destroyed.” Hatfield-Sierra Club

There is no existing habitat within the analysis area for these species.

Landslides/Soil

- 1) **Soil resources, especially on any identified earth flow and landslide areas, should be carefully identified in relation to impacts from logging and road building.” Colorado Wild**
- 2) **“Landslide prone areas must be thoroughly mapped and documented. Geological problems in the past are greatly exasperated by road building and timbering in the past and in the proposal.” Hatfield-Sierra Club**

There are no known earth flow or landslide areas within any of the proposed treatment units or associated temporary roads.

- 3) **“Do any soil types in the project area have excess compaction as a result of timber harvest?” Colorado Wild**

The soil analysis is discussed on pgs. 60-66 in the pre-decisional EA. This indicates that the soil in proposed treatment areas is not prone to excessive compaction.

Watershed

- 1) **“Increase in water yield should be assessed when opening up the canopy through commercial logging, pre-commercial thinning or vegetation management.” Colorado Wild**

The watershed analysis is discussed on pgs. 67-78 in the pre-decisional EA. No appreciable increases in water yield are anticipated.

- 2) **“How will the additional road construction (permanent or temporary), road construction disrupt surface drainage and sub-surface flow?” Colorado Wild**

No disruption to surface drainage or sub-surface drainage is predicted from new temporary roads, see pgs. 71-73 and 77-78 in the pre-decisional EA. In addition past experience has shown that properly designed temporary roads do not disrupt surface drain or sub-surface flows. Proposed reconstruction under alternatives 3 and 4 will improve surface drainage on affected roads.

3) “The project will...degrade water quality and watershed condition.” Hatfield-Sierra Club

The comment provides no basis for this opinion and this conclusion is not supported in the watershed analysis.

Forest Plan Standard and Guidelines

1) “Road density in both the analysis area and each sub-watershed within the analysis area, if they exceed Forest Plan Standards, and the road density [should be identified] following the implementation of each of the action alternatives.” Colorado Wild

Open road densities within the analysis area are within Forest Plan standards and guidelines. New temporary roads will not be open.

2) “The analysis must identify whether San Juan NF Plan Standards and Guidelines [for snags} will be met following logging, road construction and perhaps prescribed fire. It is our understanding through the field tour of the project that the area is not currently meeting Forest Plan standards for snags.” Colorado Wild

Yes, currently the Forest Plan standards for snags are not being met for ponderosa pine in the Kenney Flats area. We share the concern for maintenance of existing standing dead trees within the analysis area. Special mitigations are included in each of the action alternatives, designed to protect existing and future pine snags.

Air Quality

1) “The San Juan NF must disclose prescribed burns planned elsewhere on the Forest to determine cumulative air quality impacts of all such proposals.” Colorado Wild

The prescribed burning portion of this project was previously analyzed in the San Juan National Forest Prescribed burning Plan EA 1997 and associated Decision Notice. Analysis of prescribed burning impacts across the Forest is beyond this site specific scope of this analysis.

However, to address the concern you raise regarding cumulative air quality impacts of multiple fires, each decision to actually implement any burn plan for any individual fire considers other prescribed burns in the

area scheduled for similar timeframes. Each burn plan prescribes methods of smoke management. Prescribed fires are conducted only with the consultation with Colorado State Department of Air Quality, who issues required burn permits.

Law Enforcement

- 1) **“...even temporary roads and firelines for that matter, create pathway for use that did not previously exist. This tends to increase human use, and particularly motorized use...thereby creating increased environmental impacts beyond what is anticipated...At the very least, creation of these new roads increases law enforcement difficulties and costs, which logically need to be acknowledged in the proposal.” Dave Scherer**

**“User created routes will increase as a result of the proposal”
Hatfield-Sierra Club**

New temporary roads and firelines are not projected to appreciably increase illegal off-road vehicular use given the openness and flat nature of the terrain in the Kenney Flats area. New temporary roads will be gated and fire lines would be restored to restrict motorized vehicle use.

Economics

- 1) **“There is no cost/benefit analysis, and in fact no financial information provided whatsoever....costs of Environmental assessment (EA’s) need to be included in cost of this project”
Dave Scherer**

This comment was made during initial scoping prior to completion of the environmental analysis prior to there being any financial analysis available. The financial analysis for this project is displayed in the pre-decisional EA on pages 136-137. The cost of the environmental analysis is considered a “sunk” cost and is not part of the appropriate methodology for financial analysis of costs of this project.

- 2) “The project will damage social and economic uses and values associated with natural forests (including forest that are affected by beneficial natural disturbance) for the benefit of the timber industry, even though non-timber uses are far more important to local economies and the regional economy....we are concerned with the adverse economic effects of commercial logging on public lands and the damage and loss of ecosystem service values associated with standing or otherwise intact forest ecosystems. ”Hatfield-Sierra Club**

This is not a timber sale project but rather a fuels reduction and restoration project. This concern is difficult to adequately address since the commenter provides no project specific information relative to the assertions in the comment. As displayed in the cumulative fire effects section in the pre-decisional EA on pages 148-154 under the no action alternative, during a severe wildfire situation, the very values noted in the comment will likely be at serious risk of loss. The financial analysis on pages 136-137 in the pre-decisional EA meets Forest Service manual direction and policy. Also see response to 3 below.

- 3) “By law, the United States Forest Service...must fully account for benefits and costs of natural resource management decisions and make those decisions in a manner that maximizes net public benefit.” Hatfield-Sierra Club**

Compliance with Legal Requirements:

- Conduct financial and economic efficiency analyses in timber sale NEPA documents -- Forest Service Manual (FSM) 2432.22, 1970, and R2 Supplement 1970.6.
- NEPA CEQ Regulations 40 CFR 1500-1508

"Net public benefits", as prescribed by 36 CFR 219, is not a benefit-cost analysis given a comprehensive economic efficiency framework -- one that incorporates a monetary expression of all known market and non-market benefits and costs. Such an analysis is generally used when economic efficiency is the sole or primary criterion upon which a decision is made. The Forest Service does not endorse or expect this use of economic efficiency analysis in projects, programs, or other analyses. The agency recognizes that many of the values associated with natural resource management are best handled not apart from, but in conjunction with, a more limited benefit-cost framework. This concept is expressed in National Forest Management Act (NFMA) regulations [36 CFR 219] and is referred to as “cost-efficiency.” When discussing the evaluation of Forest Plan alternatives, the regulations state that the

evaluation "shall compare present net value, social and economic impacts, outputs of goods and services, and overall protection and enhancement of environmental resources" [36 CFR 219.12(h)]. It is this process that results in a Forest Plan that "maximizes long term net public benefits in an environmentally sound manner" [36 CFR 219.1]. The NFMA regulations define net public benefits as:

"An expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index" (emphasis added) [36 CFR 219.3]

Such an approach is reasonable given the vast array of environmental and socio-economic considerations in establishing or revising a Forest Plan. It is also consistent with the definition of multiple use as given in the MUSY Act.

While applying the notion that "net public benefits" as stated in NFMA may be used by decision makers at the project level, nowhere does NFMA require such a decision rule for projects. Only to the extent that a project decision meets the requirements and intents of the Forest Plan does it achieve "net public benefits."

The FS Manual and Handbook system agrees with this approach. FSH 1909.17, section 10 calls for economic efficiency analysis for all projects. Section 11 clarifies the analysis required. A pure economic efficiency analysis includes all benefits and costs in monetary terms, and therefore, maximizing present net value yields the same results as maximizing net public benefits. However, in most planning (and project) conditions all benefits and costs cannot be monetarily valued. Under this circumstance, maximizing present net value is not the same as maximizing net public benefits, and the handbook recommends the use of "cost-efficiency" to satisfy these requirements. FSM 2430 and FSH 2409.18 also focus on the concept of "cost-efficiency" rather than pure economic efficiency.

The efficiency analysis in the EA meets FS Manual and Handbook requirements.

The implementing regulations of NEPA expressly avoids a cost-benefit analysis as being a necessary basis for decisions: "For purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative

considerations.” (40 CFR 1502.23) A cost-benefit analysis, however, may be conducted if desired or required by other laws, regulations, or directives (See FS Manual and Handbook discussion).

The Kenney Flats pre-decisional EA is compliant with all relevant laws and regulations, including agency direction found in FSM 1970 & 2430, and the associated handbooks FSH 1909.15, FSH 1909.17, and FSH 2409.18.

The Kenney Flats Project Area economic analysis was identical to the financial analysis because no change in those outputs for which the FS has established values (range, recreation, and water) was quantitatively estimated.

- 4) “In all projects requiring “stewardship” goals, the Forest Service Handbook and Manual explicitly require consideration of alternatives without commercial logging: “Where timber harvest is proposed primarily for the purpose of achieving forest stewardship purposes...a full range of alternatives, including practical and feasible non-harvest, must be analyzed in the environmental analysis process” (FSM 2432.22c).”
Hatfield-Sierra Club**

Alternative 2 would treat material on site and thus meets FSM 2432.22c direction.

Transportation

- 1) “Cumulative effects on fragmentation need complete analysis. Additional road building will be highly detrimental. Road densities are already too high and in need of reduction, not increase.” Hatfield-Sierra Club**

The cumulative effects analysis is described in the pre-decisional EA on pgs. 141-154. No fragmentation is predicted where habitats would be rendered unusable by species following treatments. Open road densities meet Forest Plan standards and guidelines.

Range

- 1) **“Livestock grazing may have to be limited. In order to restore the role of fire, stock will have to be either reduced or not allowed to graze in one place for more than a short period.”**

Hatfield-Sierra Club

The analysis does not predict that livestock use will conflict with meeting restoration or fuels reduction objectives. Several hundred acres have already been successfully burned within the analysis area and the existing grazing allotment. There has been no need to alter grazing management or operations within the area.