

Ancient Forest International, Environmental Protection Information Center, Citizens for Better Forestry, California Wilderness Coalition, Northcoast Environmental Center, Klamath Forest Alliance, Center for Biological Diversity, Western Fire Ecology Center, American Lands, Redwood Chapter Sierra Club, Klamath-Siskiyou Wildlands Center, South Fork Mountain Defense, Forest Conservation Council
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July 6, 2001

S.E. "Lou" Woltering
Forest Supervisor
Six Rivers National Forest
1330 Bayshore Way
Eureka, CA 95501

Re: **"Phase I - Fuels Treatment For Community Protection" FEIS Comments**

Dear Lou,

Please accept the following comments on the Final Environmental Impact Statement (FEIS) for the "Phase I - Fuels Treatment for Community Protection" timber sale, submitted on behalf of Ancient Forest International, Environmental Protection Information Center, Citizens for Better Forestry, California Wilderness Coalition, Northcoast Environmental Center, Klamath Forest Alliance, Center for Biological Diversity, Western Fire Ecology Center, American Lands, Redwood Chapter Sierra Club, Klamath-Siskiyou Wildlands Center, South Fork Mountain Defense, and Forest Conservation Council.

GENERAL COMMENTS

1. The May 25, 2001 Chief's Emergency Situation Determination is unsupported by the project record and runs contrary to available science.

According to Forest Service regulations, an emergency is defined as an unexpected event, or a serious occurrence, or a situation requiring urgent action" (36 C.F.R. /215.10(d)(1)). According to the May 14, 2001 emergency determination request submitted by the Six Rivers National Forest, without logging there is a high probability that future wildfires will exhibit the same extreme fire behavior that occurred during the Megram Fire. The administrative stay exemption was requested under section 215.10(d)(1)(ii) hazardous or unsafe conditions as a result of wildfire or other circumstances. The request was granted by Forest Service Chief Dale Bosworth, in a May 25, 2001 letter, to address the potential significant risk to human health and safety to the local communities in the affected area, including the Hoopa Valley Indian Reservation, if actions are not initiated this summer.

The FEIS and project record fail to provide scientific support for the emergency situation determination, and fail to address the considerable scientific evidence that directly contradicts the determination or even acknowledge the considerable scientific controversy surrounding the question of whether post-fire logging can in fact reduce future fire risk.

First, there is no support for the Forest Service's contention that a hazardous or unsafe situation currently exists, or that immediate commercial logging will reduce the alleged risk to local communities. In fact, the FEIS readily acknowledges that there is no immediate threat of future wildfire, stating [t]he risk of a future fire is not high at present (FEIS, p. IV-26) and [i]n the short term, fire behavior would be low (FEIS, p. IV-35). The 1999 Megram fire already consumed most of the smaller fuels on the ground, as well as the ladder fuels which are often associated with large wildfires. The FEIS acknowledges that the current fuel loading is mainly in the standing trees, which are generally not available to burn (FEIS, p. III-25, IV-35). The FEIS also admits that the No Action Alternative has the lowest fire hazard in the short-term, and that implementing the logging project would elevate the fire hazard in the short-term. (FEIS, p. II-32).

Second, there is no scientific evidence that there is an increased risk of reburn in the fire area or that post-fire logging decreases the threat or intensity of future fire. In January, 2000, the Forest Service's Pacific Northwest Research Station reviewed all available post-fire logging studies and prepared a comprehensive literature review, titled "Environmental Effects of Postfire Logging: Literature Review and Annotated Bibliography" (McIver & Starr 2000). This review found no studies documenting a reduction in fire intensity in a stand that had previously burned and then been logged. The review considered the 1995 report prepared by a team of prominent university and agency scientists headed by Dr. Robert Beschta titled "Wildfire and Salvage Logging: Recommendations for Ecologically Sound Post-Fire Salvage Management and Other Post-Fire Treatments On Federal Lands in the West" (Beschta et al. 1995). The authors of the Beschta Report were also aware of no evidence supporting the contention that leaving large dead woody material significantly increases the possibility of reburn. As recognized by the Beschta Report, it is the fine fuels that carry fire, and not the large trees that are targeted for logging. The Pacific Northwest Research Station's literature review also considered the Forest Service's response to the Beschta Report, prepared by Forest Service scientist Richard Everett and others. The Everett Report agreed that [t]here is no support in the scientific literature that the probability for reburn is greater in post-fire tree retention areas than in salvage logged sites and [t]he [Beschta] authors are correct that the intense reburn concept is not reported in the literature. In fact, according to the Everett Report, current research suggests that salvage logged areas may have elevated fire hazard compared to unlogged sites for the first 20 years. The FEIS and project record, as well as the May 14 and May 25 letters, fail to acknowledge or consider the Beschta Report, the Everett Report, the PNW Literature Review, and other scientific evidence which runs counter to the Phase 1 logging proposal and Chief's "emergency determination."

Third, there is no scientific evidence that any "emergency" exists in the Megram fire area that requires immediate action. The Beschta Report concluded that there is no ecological need for immediate intervention on the post-fire landscape, stating "[w]ith respect to the

need for management treatments after fires, there is generally no need for urgency, nor is there a universal, ecologically-based need to act at all. By acting quickly, we run the risk of creating new problems before we solve the old ones. Ecologically speaking, fires do not require a rapid human response." As explained by the Everett Report, the only urgent need to log after intense wildfire is based on economics. The Forest Service has concluded, however, that economics is not a viable reason for a stay exemption under 36 C.F.R. /215.10(d). In Kentucky Heartwood v. Worthington, the court enjoined the Forest Service from proceeding with logging on the Daniel Boone National Forest pursuant to an emergency situation determination. 125 F. Supp.2d 839 (E.D. Ky. 2000). On reconsideration, Forest Service Chief Dombeck emphasized that economics is not a normally accepted rationale for a stay exemption. The Chief further emphasized that the record must demonstrate an imminent risk, stating "Fuel loading does not, in and of itself, satisfy the provisions of 36 CFR 215.10(d) concerning criteria that must be met for granting an exemption of stay from implementation. Those criteria center around demonstrating that an emergency situation exists because of imminent risks to public health and safety, private property, or the environment. The record should demonstrate a reasonable basis for determining that there are imminent risks before the Chief may grant an exemption from stay." According to Chief Dombeck, the record must adequately show that an emergency situation exists that requires treatment before the end of the appeal period. As the FEIS itself admits, no emergency exists that necessitates action before the end of the normal appeal period (e.g., FEIS, pp. III-25, IV-26, IV-35).

Fourth, the proposal to remove large woody material in a commercial timber sale also fails to address the real fire risk, specifically small-diameter surface and ladder fuels close to homes and communities. This is not consistent with current Forest Service management direction. For example, the National Fire Plan states: "Notably, the Administration's wildland fire policy does not rely on commercial logging or new road building to reduce fire risks and can be implemented under its current forest and land management polices. The removal of large, merchantable trees from forests does not reduce fire risk and may, in fact, increase such risk. Fire ecologists note that large trees are "insurance for the future – they are critical to ecosystem resilience." Targeting smaller trees and leaving both large trees and snags standing addresses the core of the fuels problem." (Managing the Impact of Wildfires on Communities and the Environment - A Report to the President in Response to the Wildfires of 2000). Reinforcing this position, the Forest Service Cohesive Strategy states: "In most cases, any receipts associated with treatments will not be significant due to the need to reduce the disproportionately large number of small, non-merchantable trees, brush, and shrubs that dominate short interval fire-adapted ecosystems and leave standing the larger, fire-tolerant trees." (Protecting People and Sustaining Resources in Fire-Adapted Ecosystems – A Cohesive Strategy, 2000).

Fifth, the FEIS ignores the available Forest Service science suggesting that fire prevention measures must be taken in close proximity to the affected communities in order to be effective. The DEIS cover letter admits that the proposed Phase 1 harvest areas are geographically removed from the immediate vicinity of the local communities. In fact, the proposed harvest units for the Phase 1 logging project are located several miles away (approximately 2.5 to 9.5 miles) from any of the communities that it purports to protect. According to Forest Service scientist Jack Cohen, in his 1999 report, *Reducing the Wildland Fire Threat to Homes: Where and How Much?* (Cohen 1999), fuel modification efforts are only needed within a few tens of meters from a home,

not hundreds of meters or more from a home. The Cohen Report, like the Beschta, Everett, and PNW Reports, is not addressed by the FEIS or project record.

In summary, the FEIS and project record have failed to disclose or address the fact that there is no scientific evidence to support its contention that this project qualifies for an emergency determination. While ignoring the Forest Service's own literature review and other evidence, the FEIS and project record instead provide unsupported, conclusory assertions that the situation is unsafe unless immediate action is taken. In addition, the FEIS and project record fail to acknowledge that economic reasons are not sufficient to qualify for an emergency determination pursuant to Forest Service regulations.

PROPOSED ACTION

1. The FEIS provides insufficient evidence in support the stated "Purpose and Need" for the project.

According to the FEIS, [t]his project implements the first phase of the Megram Recovery Strategy (Appendix A) aimed at protecting local communities from catastrophic wildfires and extended exposure to smoke. (FEIS at S-2). The FEIS, however, provides no objective data or scientific analysis to support its fundamental assumption that commercial logging in the severely burned areas will somehow decrease the risk or intensity of a future fire, or that logging in remote areas will somehow protect communities.

The FEIS alleges that logging is needed to reduce large fuels and the risk of future fire, but provides no objective data or scientific analysis in support of its contention that there is a fire risk, or that the risk will be alleviated by a commercial logging project. The FEIS and project record contain no objective data to allow the public to do anything more than guess about the accuracy of the premise.

The applicable scientific reports (e.g., Beschta Report, Everett Report, PNW Literature Review), which the Phase 1 FEIS neglects to disclose or consider, indicate that the Phase 1 purpose and need is in fact unsupported. As set forth above, according to the available reports, there is no evidence that commercial logging in the wake of an intense wildfire will decrease the possibility of reburn. The FEIS and project record have failed to disclose or address the fact that there is no scientific evidence to support its future reburn theory. While ignoring its own literature review and evidence, the Forest Service instead provides unsupported, conclusory assertions that the situation is unsafe unless immediate action is taken. Because the statement of need for the Phase 1 project is premised on unsupported conclusions and does not consider or disclose scientific evidence that runs contrary to the proposed logging, the FEIS violates NEPA.

2. The FEIS fails to analyze or disclose the available scientific evidence that runs directly counter to the proposed action.

The FEIS repeatedly asserts that the proposed post-fire logging project, which will take place in the most severely burned areas, will have either negligible or beneficial environmental impacts. The FEIS fails to acknowledge or address the considerable

scientific evidence that directly refutes these assertions, including the reports mentioned above as well as other documents and analyses in the scientific literature.

We provided a copy of the Beschta Report to both the Six Rivers and Shasta-Trinity National Forests in a January 26, 2000 letter outlining recommendations for development of Watershed Analyses in the Big Bar fire area. However, the Beschta Report as well as other scientific information we have provided to the Six rivers and Shasta-Trinity National Forests since that time, have been completely ignored, including within the HLMTT WA, LSRA, and Megram Recovery Strategy. The first and only reference made to the Beschta Report is in the FEIS "Response to Comments" section, which erroneously states "the Forest Service researchers review of Beschta's paper found that it is not a balanced scientific paper and does not apply to project level decision-making." (FEIS, p.M-3). This response misrepresents the Everett Report's ("Forest Service researchers") review of the Beschta Report, which agreed that "[t]here is no support in the scientific literature that the probability for reburn is greater in post-fire tree retention areas than in salvage logged sites." and "[t]he [Beschta] authors are correct that the intense reburn concept is not reported in the literature."

It is worth noting that while the FEIS summarily and arbitrarily rejects Beschta et al. (1995) as "not a balanced scientific paper," it extensively quotes "Bonnicksen 2000" in the FEIS as an objective scientific paper. In fact, Bonnicksen (2000) is not even intended to be a scientific paper, but rather a statement of opinion which relies heavily on the HLMTT WA, with no supporting peer-reviewed literature or analysis. Interestingly, while the FEIS uses Bonnicksen (2000) to support the notion that the area "would be faced with greater risk of a wildfire larger and more destructive than the Megram Fire" (FEIS, p. IV-9), it does not address issues that Bonnicksen (2000) raises regarding the use of fuelbreaks: "Shaded fuelbreaks are an unnatural intrusion on the appearance, structure, and dynamics of native forests."; "Historically, patches were often long and narrow, many pointing in an uphill direction, but they were always irregular in shape. Shaded fuelbreaks will convert patches in the forest mosaic into large, nearly rectangular blocks with straight or wavy edges. This will further compromise or eliminate opportunities to restore and sustain the natural structure and diversity of native forests."(Bonnicksen 2000). As this example illustrates, it appears that the FEIS and project record selectively use information that supports their decision to implement the proposed actions while ignoring information or evidence that contradicts or challenges the project's assumptions. At the very least, an objective consideration and substantive response to such information is necessary in order to meet the requirements of NEPA. The FEIS utterly fails in this task.

We have also presented to the Six Rivers National Forest in previous comments on the project a substantial amount of information and evidence from the scientific literature regarding potential impacts to soils, wildlife, fire and fuels, water quality and watershed hydrology, vegetation and natural regeneration, cumulative effects, aquatic habitat, and fisheries in the project area. The FEIS completely lacks any acknowledgment of this information, and fails to consider and address any information that disputes or challenges the FEIS's conclusions or analysis. The complete failure of the FEIS to respond to this substantive information renders it legally inadequate under NEPA.

3. The FEIS fails to analyze or consider all connected and similar projects on soils, water quality, wildlife, fisheries, and natural regeneration.

According to the FEIS, the proposed project "implements the first phase of the Megram Recovery Strategy" (FEIS, p. S-2, I-1). This strategy, which was prepared in June 2000 and is included as Appendix A of the FEIS, outlines numerous actions that are intended to be implemented within the project area, including the construction of an extensive network of "strategic" fuel breaks and fuel treatment areas to facilitate future fire suppression efforts (FEIS, pp. A-8 to A-11). The FEIS makes clear that this first project is intended to function as an integral component of this fuelbreak and fire suppression strategy (FEIS, pp. S-1, S-2,I-1,I-1, I-5). The FEIS explains that a future proposal, Phase II, would "continue and complement work that is proposed in Phase I by reducing fuels in unburned and moderately burned areas within strategic fuel breaks. Connecting the high severity and less severely burned fuel treatment areas would create a more continuous and effective fuel break." (FEIS, p. I-1). The FEIS promises that potential foreseeable future actions under Phase II would be "considered in the cumulative effects analysis completed for Phase 1" (FEIS, p. I-1). However, no specific information or detail is provided in the FEIS cumulative effects analysis on either the Megram Recovery Strategy or Phase II in particular, including the location, acreage, or treatment prescriptions of these foreseeable future actions. This lack of any detailed information on future foreseeable actions to be undertaken in the project area renders the analysis meaningless and legally inadequate.

The "Phase 1" logging project, and the subsequent Phase 2" project which is currently being developed, along with the hazard tree removal projects on the Six Rivers and Shasta-Trinity National Forests, and the other post-fire logging projects on the Shasta-Trinity and Six Rivers National Forests (e.g., the "Happyman Plantation Project", "Plantation Precommercial Thinning, Release, and Fuels Treatment" and "Plantation Planting, Site Preparation, and Fuels Treatment") are all proposed to contribute to the development of the Megram Recovery Strategy fuelbreak system, are located directly adjacent to each other, and will be implemented over the same time frame. They are all clearly connected, cumulative, and similar actions that must be considered in a single EIS. No document has been prepared to explore and disclose the collective impacts of these multiple post-fire projects, along with the 1999 wildfires and associated fire-fighting and suppression activities. In addition, no NEPA document has been prepared to analyze the potential impacts and effectiveness of the fuelbreak and fuel treatment system contemplated in the HLMTT WA, Forest-wide LSR Assessment, and Megram Recovery Strategy.

While the FEIS discloses that a primary objective for both phase 1 and the entire Megram Recovery Strategy is to construct and maintain "permanent fuel breaks in strategic areas" (FEIS at IV-27), it summarily and arbitrarily rejects any suggestions to analyze this strategy in a single comprehensive EIS as required by NEPA. Despite the clear objectives of this project to construct permanent fuelbreaks to facilitate future fire suppression (e.g., FEIS, pp. S-1, S-2,I-1,I-1, I-5), public comments requesting the FEIS to analyze fuelbreak maintenance and future fire suppression impacts were summarily and arbitrarily rejected as "outside the scope" of this proposal (FEIS, pp. B-10, B-12).

The entire purpose of the project, and all of its supposed benefits and justification, is based on the effectiveness of fuel breaks in stopping future fires. How else would it achieve its stated objectives (i.e., reduce the size and severity of large fires, reduce large scale impacts from smoke, protect communities, etc.)(FEIS, p. S-2)? The FEIS claims that "fuel breaks themselves would substantially lower the risk of catastrophic spread of future wildfires across the landscape." (FEIS, p. S-7). However, this statement is contradicted by the Forest-wide LSR Assessment, which states that "[f]uelbreaks are not designed to stop fires, but rather to allow suppression forces a higher probability of successfully attacking a wildland fire. The amount of technology directed at the fire and the requirement for firefighter safety determines the effectiveness of fuelbreaks in the suppression effort." (LSRA, p. 6-18).

The project record clearly demonstrates that regular fuelbreak maintenance is needed for proper functioning and to achieve the stated objectives of the project. On the fuelbreak maintenance issue, the LSRA states: "Because of the environmental dynamics and long-term use and strategic nature of fuelbreaks, a maintenance and reburn schedule is necessary to keep fuel loading and canopy closure at required standards. Indefinite maintenance of the fuelbreak to ensure low fuel conditions is essential. In the Klamath subregion, the occurrence of sprouting hardwoods with substantial regrowth potential (Tappeiner et al. 1984) suggests maintenance intervals of a decade or less for fuelbreaks (Agee and Edmonds 1992). For the SRNF LSRs, this reference would mainly be applicable in the tanoak series and to a certain degree in the Douglas-fir series. For some species with substantial annual natural fuel contribution (including white fir and red fir), maintenance intervals could be in the two to three year range." (LSRA at 6-19). The sale area is primarily in the white fir zone, which means that they will have to start maintaining the fuelbreaks even before they have completed their construction. The FEIS even admits that "initially fuel break maintenance would occur every 2-10 years depending how quickly brush returns." (FEIS, p. B-12).

When asked about the potential use of herbicides for the maintenance of fuelbreaks, the FEIS simply states that it is "[o]utside the scope of the proposed action. Use of herbicides is permissible within our LRMP but is not part of this proposal. Separate NEPA would be required to use herbicides." (FEIS "DEIS Comments for inclusion in project file-last edits 5/23/01" pp. 5 & 6). However, herbicides are the most cost-effective method for controlling the brush and shrubs that rapidly occupy fuelbreaks, and they are known to have significant environmental effects. Because the primary intent of the proposed actions are to construct permanent fuelbreaks of which long-term maintenance is critical, the methods and potential impacts of maintenance activities, including the use of herbicides, is indeed within the scope of the proposed actions and needs to be considered in this proposal.

It is widely acknowledged that fire suppression activities, including fireline construction with bulldozers and chainsaws, burnouts/backfires, and chemical fire retardant use, result in significant environmental impacts that adversely affect soils, water quality and watershed hydrology, aquatic habitat and fisheries, wildlife and their habitat, and vegetation. Extensive fire suppression actions were taken in 1999 during the Big Bar Fire Complex which significantly affected the project area, and yet the FEIS fails to disclose or analyze any of these impacts.

According to the fish BA/BE for the Big Bar Fire (Shasta-Trinity and Six Rivers National Forests, 5/23/00): "Suppression activities within the Lower Trinity River watershed, chiefly Hawkins Creek subwatershed... included approximately 3.5 miles of dozerline, and about 1 mile of handline located along ridgelines. effects to riparian reserves were primarily from the burnout/backfire operation."; "Suppression in Mill and Tish Tang watersheds included 15 miles of handline and 5.5 miles of dozerline on USFS lands and 13 miles of dozerline and 6 miles of handline within the Hoopa Valley Tribal lands. Dozerlines crossed riparian reserves in 2 locations, and handlines crossed at least 4. ...In addition... 1 safety zone, and 2 drop points were established within riparian reserves."; "Suppression in Horse Linto Creek included a total of 11 miles of dozerline (8 of which were ridgeline, the remaining being mostly midslope), and 11 miles of handline. dozerlines crosses riparian reserves in 3 locations, and handlines crossed in 8 locations. ...1 helispot ... and 3 drop points were located within riparian reserves."

While the BA/BE discloses some of these impacts, it does not include any information on slope or soil where the firelines, drop points, and helispots are located, or any details about the firelines, drop points, or helispots themselves. Other suppression impacts noted in the BA/BE are burnout/backfires, water developments, and fire retardant drops. In addition, numerous fire rehab activities introduced sediment into stream channels, including culvert replacement, grading/resurfacing, slash pile burning, and yarding of downed hazard trees. Regarding cumulative effects, the fish BA/BE concludes: "These activities may manifest effects downstream or downslope as net increases in sediment delivery to channels, higher turbidities; alterations to riparian habitat including riparian canopy removal; increased water temperatures; decreased stream flow due to increased water usage; and reduced LWD available for fish habitat."

The wildlife BA for the Big Bar Fire (Shasta-Trinity and Six Rivers National Forests, 7/10/00) does not list fire suppression impacts by watershed, but provides the following descriptions of suppression activities: "Bulldozers were used to construct roughly 50 miles of fireline and ranges from approximately 12 to 50 feet wide. these dozerlines consisted of areas where all material was removed down to bare mineral soil. dozerlines constructed through owl habitat removed the habitat."; "A very roughly estimated 100 miles of handlines were constructed. These relatively narrow (approximately two to six feet wide) lines consisted removing ground vegetation, shrub/sapling and existing dead woody material down to bare mineral soil, some limbing of larger trees (up to roughly 6 to 8 feet) occurred."

Because of these impacts, the fish and wildlife BA/BE's determined that emergency fire suppression and emergency rehabilitation actions taken in 1999 "adversely affected" threatened coho salmon and northern spotted owl and their critical habitat in the FEIS project area. It is noteworthy that neither the U.S. Fihs and Wildlife Service nor the National Marine Fisheries Service have prepared Biological Opinions for the "take" of listed species for these actions, in violation of the Endangered Species Act. Although information on fire suppression activities is readily available to the SRNF, the FEIS fails to consider any of these impacts. Interestingly, the BA/BE for fish states that 7,000 acres were purposely burned during burnout/backfiring operations in the entire Big Bar fire area. However, the BA for wildlife estimated that 20,836 acres were purposely burned

during burnout/backfire operations for the Big Bar fire area, a difference of 14,000 acres. In addition, the SRNF estimated that 6,150 acres were burned during backfire/burnout operations on the Six Rivers NF alone. We have developed our own GIS coverage of burnout/backfire operations for the Big Bar fire area, based on fire records and daily fire progression GIS coverages, and estimate that 44,000 acres, or about 30% of the total fire area, was burned by firefighters. The FEIS at the very least should have addressed these impacts in its cumulative impacts analysis. Because the proposed project is intended to facilitate future fire suppression activities within the proposed fuelbreaks, they are connected and foreseeable future actions with well known and likely impacts that should also be addressed in the FEIS. The failure to address fire suppression activities within the project area indicates that all significant impacts of concern on soils, water, aquatics, vegetation, and wildlife have not been adequately addressed.

The project record clearly acknowledges that both suppression and fuelbreak maintenance are critical issues that determine the ultimate effectiveness of the proposed actions in achieving the stated objectives and have both short- and long-term impacts, and yet the FEIS completely fails to consider or address them. This is a gross deficiency that renders the FEIS legally inadequate.

To determine the appropriate scope for an EIS, NEPA regulations direct federal agencies to consider connected, cumulative, and similar actions (40 C.F.R. §1508.25). Connected actions are actions that are closely related and therefore should be discussed in the same EIS (40 C.F.R. §1508.25(1)). Cumulative actions are those which would have cumulatively significant impacts and should therefore be discussed in the same EIS (40 C.F.R. §1508.25(2)). Similar actions are those with similarities that provide a basis for evaluating their environmental consequences together in the same EIS, such as common timing or geography (40 C.F.R. §1508.25(3)). The failure to prepare a single EIS to address the overall, environmental impacts of all connected, cumulative, and similar actions for the Big Bar Complex Fire area constitutes a violation of NEPA.

4. The FEIS fails to analyze all direct, indirect, and cumulative impacts on soils, water quality, wildlife, fisheries, and natural regeneration.

As outlined above, there are numerous past, present, and foreseeable future actions within the project area that significantly impact soils, water quality, wildlife, fisheries, and natural regeneration within the project area. The FEIS fails to list, let alone address, the direct, indirect, and cumulative impacts of the following activities in the project area:

SIX RIVERS NF

1. "Burned Area Emergency Rehabilitation" (BAER) activities - no NEPA (Big Bar Complex Interim BAER Report (11/9/99) - implemented in Fall 1999 and Summer 2000 - wide range of activities, including straw mulching, aerial seeding, waterbarring, yarding felled trees, trail maintenance, contour felling, culvert replacement and upgrading, & road grading and resurfacing - located throughout Big Bar fire area in Red Cap, Mill, Tish Tang, Horse Linto, and New River watersheds, including within Phase 1 project area - within Megram Recovery Strategy area (all CPA's).

2. "Megram Roadside Hazard Tree Project" - DN/FONSI signed 7/6/00, appealed 9/22/00, Appeal Decision signed 10/12/00 reversing a portion of the SRNF's decision (S&M exemption & 5-year timeframe), surveys for S&M species completed fall 2000 and spring 2001, logging commenced this summer and is on-going - hazard tree removal on 114.6 miles of roads throughout the Megram fire area, including all roads used to access Phase 1 units and within or adjacent to many Phase 1 units - within Megram Recovery Strategy area (CPA #1,#4, #5) - includes some roads on Shasta-Trinity NF in Happy Camp Mtn. area that are used as SRNF log truck haul routes from Lone Pine Ridge.
3. "Happyman Plantation Project" - DM signed 7/18/00 with logging completed this spring - salvage of 191 acres of severely burned plantations in the Happy Camp Mountain and Waterman Ridge area - several units are adjacent to the Phase 1 units on Waterman Ridge and several more are adjacent to the proposed STNF "New River" units near Happy Camp Mtn. - within Megram Recovery Strategy area (CPA #1).
4. "Fuels Reduction for Community Protection - Phase 1" - FEIS 6/8/00, ROD expected 7/9/00 - would salvage 1,050 acres in vicinity of Waterman Ridge, Groves Prairie, Hawkins Creek, Lone Pine Ridge, and Mill Creek - within Megram Recovery Strategy area (CPA #1, #4, #5).
5. "Plantation precommercial thinning, release, and fuels treatment" - scoping notice 6/21/01, comments due 7/5/01 - would treat 438 acres of young conifer plantations on the Lower Trinity Ranger District from July 2001 through December 2002 - approx. 219 acres are located in the Phase 1 project area in Waterman Ridge and Hawkins Creek - within Megram Recovery Strategy area (CPA#1).
6. "Plantation planting, site preparation, and fuels treatment" - scoping notice 6/28/01, comments due 7/12/01 - would treat 696 acres of young conifer plantations within Megram fire area from August 2001 through January 2003 - entire project located within Phase 1 project area in Waterman Ridge, Groves Prairie, Hawkins Creek, Lone Pine Ridge, and Mill Creek - within Megram Recovery Strategy area (CPA #1, #4, #5).

SHASTA-TRINITY NF

1. "Big Bar Hazard Tree Removal Project" - DN/FONSI signed 9/1/00, appealed 10/20/00, Appeal Decision signed 12/19/00 reversing a portion of the STNF's decision (S&M exemption & 5-year timeframe), surveys for S&M species completed fall 2000 and spring 2001, logging commenced this summer and is on-going - hazard tree removal on 60 miles of roads in Onion and Megram fire areas in the New River, including roads used to access "New River Community Protection and Burned Area Restoration Project" - adjacent to Megram Recovery Strategy area and SRNF projects in Happy Camp Mtn. area, including Phase 1 (CPA #1).
2. "New River Community Protection and Burned Area Restoration Project" - Scoping notice 12/15/00, EA expected August or September, 2001 - salvage and construct fuel breaks on 4300 acres and conduct prescribed burning on 890 acres in New River watershed in Big Bar fire area - adjacent to Megram Recovery Strategy area and SRNF projects in Happy Camp Mtn. area, including Phase 1 (CPA #1).

HOOPA VALLEY INDIAN RESERVATION

1. Fire salvage in Mill Creek watershed in Megram fire area - adjacent to Megram Recovery Strategy area and SRNF projects in Mill Creek (CPA#4).
2. Timber Harvest Plans on Hoopa Valley Indian Reservation in Mill Cr. watershed - downstream from Megram Recovery Strategy CPA #4.

PRIVATE LANDS

1. THP #1-95-296/TRI - 300 acres (18 acres "clearcut", 7 acres "sanitation", 281 acres "rehab" and 14 acres "alternative prescription") - in Quinby Creek near Ziegler Point in T6N R6E sections 7 and 8 - within Megram Recovery Strategy area (CPA#1) (this info came from the SRNF Megram Road Hazard Tree Project wildlife BA/BE, 4/24/00).

OTHER CUMULATIVE IMPACTS THAT SHOULD BE CONSIDERED

1. 1999 Fire suppression activities - Big Bar Fire area and Megram Recovery Strategy area (all CPA's)
2. Grazing - Mill Creek and Groves Prairie Allotments - within Megram Recovery Strategy area (CPA #4, #5).
3. Future fire suppression activities - within Megram Recovery Strategy area (all CPA's).

All of the actions and project listed above cause environmental impacts that are similar to those caused by the proposed "Phase 1" timber sale, and occur within the affected area. Because the FEIS fails to address the direct, indirect, and cumulative impacts of these actions on soils, water quality, wildlife, fisheries, vegetation and natural regeneration, it does not meet the substantive requirements of NEPA and is legally inadequate.

ALTERNATIVES

1. The FEIS fails to consider a reasonable range of alternatives.

Numerous requests were made by the public in comments on the proposed action to consider alternatives to the proposed logging project, including a non-commercial restoration alternative, an alternative focused on removal of small-diameter fuels, a community protection alternative focused in the wildland-urban interface, a non-roadless alternative, and alternative fuelbreak prescriptions for implementation of prescribed burning programs. The DEIS and FEIS summarily rejected these requests, stating that they would not meet the "purpose and need" for action or are "outside the scope of the proposal" (e.g., FEIS, pp. B-1, B-10, B-14). However, the FEIS and project record do not provide any evidence or discussion explaining why they are not within the scope of the proposal or would not meet the stated purpose and need, and do not disclose or analyze pertinent scientific literature which contradicts these assertions. For example, Cohen (1999) emphasized that reducing fuels within 40 meters of homes and structures, and using non-flammable construction materials, are the most effective actions to take in order to "protect communities." Similarly, the available scientific literature (e.g., McIver & Starr 2000) demonstrate that removal of highly flammable small diameter materials is the most effective action to reduce fire risk. In addition, the available literature amply demonstrates that the proposed removal of large diameter woody debris and the

construction and logging in severely burned watersheds has the potential to significantly impact the environment and post-fire recovery processes (e.g., Beschta et al. 1995). For example, because of the sensitivity of the post-fire landscape and because of the known persistent significant impacts that typically result from post-fire salvage logging activities, Beschta et al. (1995) recommend that all post-fire salvage logging in sensitive areas be prohibited: Salvage logging by any method must be prohibited on sensitive sites, including: in severely burned areas (areas with litter destruction), on erosive sites, on fragile sites, in roadless areas, in riparian areas, on steep slopes, or any site where accelerated erosion is possible. In addition, the building of new roads in the burned landscape should be prohibited. The proposed phase 1 project includes activities that run counter to all of these recommendations. However, the FEIS fails to even consider any alternatives that does not include these activities. In order to satisfy NEPA's requirements, it is imperative that the FEIS give fair consideration to these less environmentally-impacting alternatives. At the very least, the FEIS should have provided some documentation or legitimate reasons why these alternatives were not considered in more detail. However, it fails to do so.

The Phase 1 logging project FEIS includes the mandatory no action alternative, plus three action alternatives. The FEIS acknowledges that there are only slight differences among the action alternatives. All action alternatives propose between 790 and 863 acres of commercial logging, between 224 and 254 acres of tractor logging, between 0.4 and 0.5 miles of new road, and between 1.2 and 1.25 miles of reconstructed roads (FEIS, pp. S-11, S-12). According to comments submitted on the project by the U.S. Environmental Protection Agency, the three action alternatives are relatively similar in terms of the potential environmental effects. Because there are a number of other less environmentally-impacting alternatives which would address the stated purpose and need of the project that were not adequately considered, the FEIS is legally inadequate.

VEGETATION AND STAND STRUCTURE

1. The FEIS fails to provide site-specific vegetation and stand conditions in terms of burn severity, vegetative cover, down logs and snags, environmental conditions, existing regeneration, and residual tree species and densities.

Despite repeated requests for site-specific information on vegetation and stand conditions in terms of burn severity, vegetative cover, down logs and snags, environmental conditions, existing regeneration, and residual tree species and densities, the FEIS fails to provide it. This information is critical to properly evaluate both the effectiveness and potential impacts of the proposed actions, and yet is entirely missing from the FEIS and project record. This constitutes a critical failure of the FEIS.

The FEIS "Response to comments" section states: "Comment: I searched but could not find a thorough discussion in the affected Environment about the existing natural regeneration that is occurring in many of the units. Response: a more thorough discussion of existing vegetation across the landscape can be found in the HLMTT WA which was referenced in the DEIS." (FEIS at M-2). However, the HLMTT WA does not provide any detailed information on existing regeneration within the units, instead providing generalized statements regarding factors that would be involved to determine

regeneration. The FEIS also fails to provide site-specific information on existing regeneration within the units, also providing generalized descriptions of the factors that affect natural regeneration (e.g., FEIS, p. III-2). The FEIS does not provide any of the specific information that it suggests is needed to evaluate natural regeneration, such as proximity to seed sources, periodicity of seed crop, germination and survival of seedlings, and the effects of vegetative competition and animal browsing (FEIS, p. III-2). The complete failure of the FEIS to provide this information prevents a meaningful description of the affected environment and an analysis of potential effects to this critical landscape feature.

We have also repeatedly requested that the FEIS provide detailed site-specific information of burn severity within the proposed units. We raise this question because field visits to the proposed units demonstrate that there are significant patches of live trees and vegetation remaining within the units. The FEIS simply responds that "only units that burned with high severity" will be entered. However, there is some confusion as to what constitutes "high-severity" in this case. The FEIS states that "Fuels reduction would only occur in those stands that have vegetation mortality of 60 percent or greater" (FEIS at S-1 and I-3). However, the FEIS also states that "[t]he high severity burn category, with over 80 percent of the trees killed, reset the seral stage to shrub/forb." (FEIS at III-1). According to the HLMTT WA, "moderate severity" includes those stands with 25 to 70 percent mortality and "high severity" is classified as having >70 percent mortality (HLMTT WA at 3-75 and 3-76). Table 3-5 lists burn severity by slope position and slope class within Horse Linto and Mill Creek watersheds, but does not disclose which burn severity definition is used (i.e., >60%, >70%, or >80% mortality) (FEIS at III-13). The FEIS states that "No further discussion on proposed, threatened, and endangered wildlife and botany species will be presented in this chapter because no suitable habitat exists within the severely burned areas where the treatment units are located" but does not disclose what burn severity definition is used (i.e., >60%, >70%, or >80% mortality) (FEIS at III-17). The apparent inconsistency and vague use of the term "high-severity" and the tremendous implications for analysis of environmental effects from this classification makes it all the more important that specific burn severity be documented within each unit. The failure of the FEIS to provide this critical information renders it useless for decision-making, and legally inadequate.

2. The FEIS fails to provide evidence to support the assumption that all proposed stands have been reset to the "shrub/forb" seral stage.

The FEIS repeatedly asserts that stands proposed for treatment "have been converted to the shrub/forb seral stage." (e.g., FEIS, p. III-2, III-3). According to the SRNF LRMP FEIS: "SH (shrub/forb harvested): Generally open stands that have resulted from timber harvest, dominated by shrubs, with the top layer of conifers smaller than 6" dbh. Structural diversity, particularly vertical diversity, is very low here... This stage is often limited to one structural layer." and "SN (shrub/forb natural): Generally dense stands that have resulted from high intensity wildfire, mass soil movement, or flood, dominated by shrubs with the top layer of conifers smaller than 6" dbh. Structure follows that of the shrub/forb harvest seral stage." (LRMP FEIS p. III-25). If high severity stands are defined in the FEIS as having 60% or greater mortality (FEIS, p. S-1), then up to 40% live canopy remains within the units (including unburned and moderately burned

patches). The residual live trees in the units are much larger than the 6" dbh criteria, and the stands have more than one structural layer with a fairly high level of vertical diversity. It is obvious from field visits that significant forest structure remains within the proposed units in the form of large (>36" dbh) live, green trees and other vegetation, including moderately burned and unburned patches. This contradicts the assumption that all of the proposed units have been completely reset to the "shrub/forb" seral stage, and renders the FEIS' description of the affected environment as well as the analysis of effects on soils, wildlife, water quality, riparian and aquatic habitat, fire and fuels, and natural regeneration meaningless. This is a critical failure of the FEIS.

3. The FEIS fails to analyze or disclose impacts to existing natural regeneration from salvage logging, fuels treatments, and the construction and reconstruction of temporary roads and landings.

The FEIS states that "Naturally regenerated stands will be impacted by the large number of dead trees as they decay and fall, which can crush or damage new growth. These falling trees can reduce the number of surviving seedlings and saplings. The growth and succession of stands into later seral stages under these conditions can be expected to take up to 20-25 years longer than with artificial regeneration " (FEIS at III-2). Field visits demonstrate that existing natural regeneration is well established and thriving within all of the proposed units. The FEIS fails to analyze or consider the impacts to existing naturally regenerated seedlings from salvage logging, fuels treatments, and the construction and reconstruction of temporary roads and landings. The FEIS also fails to provide any evidence or data to support the assumption that salvage logging will accelerate stand regeneration and succession by 20-25 years, and fails to disclose or consider available evidence that runs counter to this assumption.

5. The FEIS fails to provide sufficient information on actual timber volume to be removed under the action alternatives and the disposition of defective timber volume.

Although the FEIS project record includes a detailed analysis of the economic losses to be incurred from the deterioration of timber in the area, it fails to provide sufficient information on actual timber volume to be removed under the action alternatives and the disposition of defective timber volume. This has tremendous implications for fire and fuels loading within the area.

FIRE AND FUELS

1. The FEIS fails to provide site-specific quantitative estimates of total and available fuel loads by timelag size class, continuity, and profile structure within units and throughout project area.

The FEIS fails to provide site-specific information on fuels characteristics within the proposed units, instead replying on vague "tons/acre" generalizations for the entire area. This issue was not addressed in the response to public comments. This is critical deficiency. Although extremely intense forest fires potentially can consume all aboveground biomass, normally a much lower percentage of vegetative biomass is

consumed, even in stand-replacement fires (Agee 1993). For example, Fahnestock and Agee (1983) found that after a fire that had more than a 3-meter flame length, only 5 percent of stems were consumed, compared to 10 percent of branches, 100 percent foliage, 75 percent vegetation, 20 percent snag and downed logs, and 80 percent forest floor. The distribution of consumption among various vegetative and woody components obviously will differ among burned sites, depending on variables including fire intensity, topography, fuel moisture, stand composition, and structure.

The HLMTT WA, LSR Assessment, Megram Recovery Strategy, Phase I scoping document, DEIS, and FEIS make numerous references to fuel loading and future fire risk within the project area and affected watersheds. However, these documents provide little quantitative documentation of past, existing, or projected fuel loads in the area. They primarily rely on qualitative speculation, and provide only general figures for overall fuels loads across the area (i.e., average tons/acre). The FEIS fails to provide site-specific quantitative documentation on fuels loads within each unit in order to support these statements. Some fuels are more susceptible to burning than others, the smaller diameter material being more susceptible than larger diameter material. In addition, the fuel profile greatly affects fire behavior. The FEIS fails to assess both total and available fuels in the project area by timelag size class, type, and profile.

The FEIS also fails to compare these fuel load data with other areas closer to communities to adequately evaluate fire risk and the effectiveness of fuel reduction efforts to achieve the project's stated goals and objectives. The HLMTT WA acknowledges that "[a]djacent areas of untreated fuels in neighboring private inholdings, the Hoopa Valley Indian Reservation add to the equation of an extensive and continuous hazardous fuels situation at a landscape level." (WA, p. 4-20). However, the FEIS summarily rejects any consideration of treating these fuels, stating "[c]omparing the fuel loading data to areas closer to communities would be outside the scope of the proposal." (FEIS, p. B-10). This failure to assess fuels conditions in the wildland-urban interface and consider fuels treatments close to communities runs counter to available scientific information about the effectiveness of protecting communities (e.g., Cohen 1999).

2. The FEIS fails to analyze or disclose the effectiveness of the proposed actions in achieving the reducing fire risk, preventing large high-severity fires, protecting communities at risk, and reducing the scale/magnitude of air quality impacts (particularly in the context of other factors affecting fire behavior), and fails to disclose or consider available evidence which runs counter to the proposal.

Although the entire purpose of the proposed actions is to reduce fire risk and the effects of large fires, the FEIS fails to analyze or disclose the effectiveness of the proposed actions in actually achieving these objectives, particularly in the context of other factors affecting fire behavior and severity. The FEIS also fails to disclose or consider any information that runs counter to the stated claims of the proposed actions in meeting these objectives, (e.g. McIver & Starr 2000). This constitutes a critical failure of the FEIS.

3. The FEIS fails to analyze or consider the effects of logging and fuel treatments on future fire behavior (microclimate, fuels, vegetation).

The FEIS fails to provide any meaningful analysis of the impacts of logging and fuelbreak construction on future fire behavior, including effects on microclimate, fuel moisture, and vegetation composition, although the literature has abundant information on this (e.g., McIver & Starr 2000). This constitute a critical failure of the FEIS.

4. The FEIS fails to adequately address firefighter safety.

The FEIS claims that "firefighter safety is not a "connected" or "similar" action within this proposal and therefore is outside the scope of analysis for this project." (FEIS, p. B-10). However, the entire premise of the proposed fuelbreak construction is to facilitate future fire suppression, and many of the project's design features are supposedly geared towards providing for firefighter safety. For example, the FEIS claims that the fuelbreaks and fuel treatment areas are intended to "provide safe access for suppression forces during fire control operations." (FEIS, p. S-2). In addition, firefighter safety is one of the stated reasons for the severe reduction of snags from the fuel breaks, both now and in the future (e.g., "In the event of a wildfire, dead (snags) or dying trees will need to be removed to reduce the safety hazards to firefighters..." (LSRA, p. 6-21)). Considering that firefighter safety is one of the driving considerations for the project, the failure to analyze it constitutes a critical failure of the FEIS.

SOILS

1. The FEIS fails to provide site-specific information on soil type, slope, and existing soil cover for each proposed unit.

The FEIS fails to provide site-specific information on soil type, slope, and existing soil cover for each proposed unit. This information is necessary in order to properly evaluate the affected environment as well as potential impacts from the proposed actions. Average figures are not adequate for this purpose, as the range of conditions between the units is more important than the average conditions. Field inspection of the units indicates that soil cover is much higher than indicated in the FEIS (e.g., pp. III-8 & III-9), making the estimated predicted erosion rates in the FEIS inaccurate (FEIS, p. III-8). This lack of site-specific information renders the FEIS insufficient for decision-making, and fails to adequately disclose important information in a NEPA document which allows an independent assessment of its' adequacy.

2. The FEIS fails to analyze and disclose impacts to soil cover, organic matter, soil structure, soil productivity, erosion, sediment delivery, and post-fire vegetative recovery.

The FEIS fails to provide and consider all potential impacts to soil cover, organic matter, soil structure, soil productivity, erosion, sediment delivery, and post-fire vegetative recovery from logging, temporary road construction/reconstruction, landings, and removal of large high value trees. While focusing the analysis on short-term soil cover from the retention of slash, the FEIS completely fails to consider immediate, medium- and long-term impacts to soil structure, productivity, regeneration, and subsequent erosion and sediment delivery from soil compaction and displacement from the road

construction/reconstruction, landing construction, as well as the removal of high-value large woody debris and permanent alteration of stand structure and organic matter inputs. In fact, the FEIS completely fails to mention anything about landing construction, including the location, type, and amount of landings to be constructed or reconstructed during the proposed actions. In addition, the FEIS fails to consider soil impacts from all cumulative impacts within the project area, including grazing. As a result, the FEIS fails to ensure that timber will be harvested only where soils will not be irreversibly damaged, fails to insure that soil porosity will be maintained to at least 90 percent of its natural condition over at least 85 percent of the project area, in violation of the SRNF LRMP (pp. IV-78). In addition, the FEIS fails to identify and disclose technology and mitigation measures necessary to prevent irreversible damage to soils and site productivity from the proposed activities, in violation of the SRNF LRMP and National Forest Management Act.

AQUATIC CONSERVATION STRATEGY, WATER QUALITY, AND FISHERIES

1. The FEIS fails to identify or disclose any significant or sensitive features or special considerations and mitigation measures for conducting management activities in burned areas.

The FEIS apparently assumes that normal practices to minimize impacts from management activities such as logging or road construction are adequate to protect resource values in severely burned sites. The FEIS completely fails to consider, identify, or disclose any significant or sensitive features or special considerations and mitigation measures for conducting management activities in burned areas (especially severely burned sites). Because of the sensitive nature of burned soils, and because logging in severely burned areas is often associated with accelerated erosion and soil compaction and involves the removal of large wood which has multiple roles in recovery, Beschta et al. (1995) recommend a complete prohibition of post-fire logging in these areas. However, the FEIS fails to disclose or consider any such concerns and identify special mitigation measures to assure that soil and water resources are not adversely affected by the proposed actions.

2. The FEIS fails to identify, disclose, and protect all seeps, springs, wetlands, ground-water influence zones, and unstable and potentially unstable lands as Riparian Reserves (site-specific location of and protective measures) .

The FEIS erroneously states that "No riparian reserves would be managed in Horse Linto [Creek watershed] in the proposed or future actions " (FEIS at IV-27). According to the ROD, Interim Riparian Reserves (IRR's) include "unstable and potentially unstable areas." (ROD, p. C-31). According to SRNF GIS data provided to us (phase I units and geomorphic units), approximately 67.6 acres of the phase I units are located in headwall basins (CPA5 units 44,43,42,47,NM1,58,47,37,39,38, 36,21,32,19,31,22,54,55) and another 21.8 acres are located within landslide deposits (CPA5 units 40, 41, 42) (See Figure 1-4 in the HLMTT WA (pp. 1-9) for a map of the HLMTT geomorphic units). According to the HLMTT WA, "Landslide Deposits are translational types in the analysis area consisting of disrupted rock and soil. More coherent landslide masses are

differentiated as block slides." (p.3-134), and "Headwall basins are steep, generally concave slopes in the upper parts of some tributaries that have been formed by prolonged shallow mass wasting, in many cases inferred to be from a former, more intensive erosion regime. However, they are considered more susceptible to landsliding than comparably steep adjacent slopes." (p.3-134). Therefore, according to the ROD, these areas constitute "unstable or potentially unstable" areas that need to be identified and protected as IRR's (ROD, p. C-31). The FEIS does not disclose or analyze the fact that approximately 89.4 acres of the proposed units in Horse Linto are located in these unstable or potentially unstable areas, in violation of the Aquatic Conservation Strategy (ACS).

3. The FEIS fails to adequately document and justify changes to Riparian Reserves.

The FEIS includes site-specific prescriptions for Riparian Reserves, stating that these prescriptions "were based on a combination of terrain characteristics, identification of true riparian vegetation, and retention of decay-resistant conifer sizes and species." (FEIS, p. II-12). The proposed prescriptions include changes to standard IRR widths as defined in the ROD (pp. C-30 & C-31). However, no additional information or justification is provided in the FEIS, and no explicit link is made between the specific IRR prescriptions and information provided in the HLMTT WA. This constitutes a violation of the ACS, which requires that "[r]egardless of stream type, changes to Riparian Reserves must be based on scientifically sound reasoning, and be fully justified and documented." (ROD at B-16). The FEIS fails to fully justify and document the proposed changes to IRR's, in violation of the ACS.

4. The FEIS contains an inadequate CWE analysis.

The CWE analysis presented in the FEIS (FEIS, pp. IV-1 to IV-20, Appendix J) fails to analyze or consider all past, present, and reasonably foreseeable future actions in the affected watersheds, including grazing, temporary road construction, reconstruction, and decommissioning, landings, fire suppression and emergency rehabilitation actions, 1997-1999 blowdown salvage logging, landing construction and/or reconstruction, fuelbreak maintenance, phase 2 logging and road construction activities, prescribed burning, current and proposed logging on private lands, and future fire suppression actions. This renders the predicted cumulative effects in the affected area inaccurate and legally insufficient. In addition, the CWE analysis fails to provide data or supporting documentation to explain and justify ERA coefficients for harvest and road impacts, thresholds of concern, recovery rates, slope steepness, hillslope position, and "improvement" factors (these are not provided in LRMP EIS, as stated in the FEIS, p. J-6). There is no monitoring or other empirical data provided to justify the coefficients used, even though this is required in order for proper use of the ERA model. The FEIS does not provide any physical mechanisms for impacts, and does not explain how the coefficients or definitions used for "recovery" were derived. The FEIS does not provide any detailed information on the proposed Phase II project was incorporated into the ERA model, even though it was supposedly incorporated into the ERA model (FEIS, pp. J-5, J-6). The FEIS also fails to disclose and consider all weaknesses and limitations with the USLE and WEPP surface erosion models and the ERA cumulative effects model used.

These deficiencies render the CWE analysis scientifically insufficient and legally inadequate.

5. The FEIS fails to adequately analyze all erosion processes.

The FEIS claims that "[t]otal erosion rates are a combination of surface erosion and mass wasting processes." (FEIS, p. III-4). However, the SRNF has information that is never disclosed or analyzed that indicates that this is not true, and that other erosion processes are important in the project area. According to Ziemer (2000) which is listed in the "Literature Cited" section of the FEIS but never actually cited, "it appears that a dominant post-fire erosion process in the severely burned watersheds will be channel incision in the intermittent streams. This process does not appear to be discussed in the Erosion Processes section of the HLMTT WA. The intermittent channels that we observed appear to be influenced by extensive piping, with substantial subsurface erosion. The stability of these channels appear to be the result of a combination of LWD forming obstructions in the channel and a network of large and small roots occupying the swales, which either resists subsurface tunneling or forms a stable roof over the tunnel. In areas where the vegetation has been killed, over the next several years this root network will progressively decay and it is anticipated that these channels will experience accelerated gullyng. Once the soil is lost and a gully is formed, roots will be unable to occupy the void." The FEIS and project record fail to acknowledge or address these observations about an important erosion process in the area. Because many of the units and proposed roads are located in close proximity to these intermittent channels, they have the potential to severely impact these erosion processes. The failure of the FEIS to address this potential impact renders the analysis inadequate and legally insufficient.

6. The FEIS fails to adequately analyze and disclose the impacts on shade, water temperature, microclimate, hydrology, and LWD levels.

The FEIS fails to adequately analyze and disclose the impacts from burning, road construction and reconstruction, fuel break construction and maintenance, and landing construction, and logging in riparian reserves on shade, water temperature, microclimate, hydrology (especially peak flows during rain-on snow events), and LWD levels. This important omission from the analysis renders the FEIS inadequate.

7. The FEIS fails to adequately assess and disclose impacts on nutrients.

The FEIS fails to identify potential impacts on nutrient cycling and input into the stream system from logging, burning, road construction and reconstruction, fuel break construction and maintenance, and landing construction. This prevents an adequate assessment of all impacts to ensure compliance with the ACS.

8. The FEIS fails to assess potential impacts from stored oil, hydraulic fluid, and other hazardous materials.

The FEIS states that "Stored oil, hydraulic fluid, and other hazardous materials may be spilled on the ground or in streams and affect water quality. The possibility of a spill and the potential contamination of nearby water sources exist when these materials are stored

within the project area" (FEIS, p. I-13). However, this issue is not carried forward in the analysis. There is no information presented on the types or amounts of hazardous materials that may be stored within the project area, what risks exist from this situation, what potential water quality impacts may result from this situation, or what mitigation measures will be implemented to ensure these impacts do not occur. Finally, there is no information or analysis presented that addresses chemical fire retardants and their effects on water quality and beneficial uses.

9. The FEIS fails to analyze the effectiveness of mitigation measures, including IRR buffers, in preventing erosion and sediment delivery to stream channels (including existing conditions in IRRs).

The FEIS assumes that water quality will be protected if BMPs and mitigation measures are implemented. However, while prevention of minimization of adverse impacts at the project site is indeed necessary, it is not sufficient to avoid cumulative effects (CEQ 1971). The argument that applying a BMP while conducting a specific forest practice minimizes site specific effects and thus also minimizes cumulative effects is logically flawed. Every BMP is an action and has an effect. Thus generally, the more the BMPs are applied, the greater the cumulative effect. Only by minimizing the number of actions, i.e., the number of individual applications of BMPs, would cumulative effects be minimized (Beschta et al. 1995c). However useful BMPs are in minimizing effects of individual actions, they still do not address the cumulative effects of multiple actions occurring in the watershed which, though individually "minimized" through application of site-specific BMPs, may still be significant and have undesirable consequences for beneficial uses such as clean water and fish habitat. The FEIS fails to address the potential cumulative effects associated with all potential activities, despite the implementation of BMPs and other mitigation measures.

10. The FEIS fails to analyze and disclose the effectiveness of emergency fire rehabilitation mitigation activities.

The FEIS lists a number of fire rehabilitation actions that have occurred, and the estimated sediment savings from these activities (FEIS, p. K-5, K-6). However, there is no discussion of the actual effectiveness of these activities in achieving their objectives. Ziemer (2000) noted several problems with these emergency mitigation measures in the field, yet the FEIS never addresses these issues. This has implications for the predicted effectiveness of the mitigation measures and estimated erosion rates in the affected watersheds.

11. The FEIS fails to identify and limit all "controllable water quality factors" associated with the proposed project.

The project area is located within the Trinity River watershed, which is listed as impaired due to excessive sediment under Section 303(d) of the Federal Clean Water Act. The Trinity River and its tributaries are also part of an Evolutionary Significant Unit for which Coho salmon have been listed as endangered under the Federal Endangered Species Act. Due to the impaired condition of the Trinity River and its tributaries, any discharge or threatened discharge from project operations that are not reasonably

controlled in the watershed are considered to be in quantities deleterious to the beneficial uses in violation of the Basin Plan prohibitions. This project must therefore protect the watershed from further inputs of sediment from controllable sources and efforts must be made to restore any impaired beneficial uses.

The Basin Plan also states that *controllable water quality factors shall conform to the water quality objectives contained herein. When other factors result in the degradation of water quality beyond the levels or limits established herein as water quality objectives, then controllable factors shall not cause further degradation of water quality. Controllable water quality factors are those actions, conditions, or circumstances resulting from man's activities that may influence the quality of the waters of the State and that may be reasonably controlled.*

Controllable water quality factors include actions, conditions, and circumstances resulting from salvage or other activities. "Controllable" factors include, but are not limited to: significantly reducing the size of the timber sale; deferring logging and road construction; operating in other locations (e.g., close to communities, in unburned stands); prohibiting winter operations; and addressing watershed restoration needs and fuels reduction through other non-commercial activities. The FEIS does not identify and implement all reasonable "controllable" water quality factors, and hence fails to demonstrate that the proposed actions will meet water quality standards and objectives set forth in the Clean Water Act and Basin Plan.

12. The FEIS fails to adequately assess potential impacts to Proposed, Endangered, Threatened, and Sensitive (PETS) fish species.

Because of the above listed concerns and issues related to soils, erosion, sediment delivery, and subsequent effects to the aquatic system, we do not believe that the FEIS and administrative record adequately address potential impacts to PETS fish species. The watersheds in question are critical to anadromous fisheries in the Trinity River basin, particularly Horse Linto Creek. We do not believe that the proposed actions are consistent with the protection and recovery of these fisheries. The FEIS fails to provide sufficient evidence and documentation that the proposed logging and road construction will not adversely affect fish species in Mill, Horse Linto, Quinby, and Sharber Creeks.

The BA/BE for fish determined that the proposed actions may affect but will "not likely adversely affect" (NLAA) listed coho salmon. According to NMFS' management direction, a NLAA determination can only be made "when effects on the species or critical habitat are expected to be beneficial, discountable, or insignificant and should never reach the scale where take occurs". According to NMFS' direction, a "likely to adversely affect (LAA) determination is reached "when there is more than a negligible potential to have adverse effects on the species or its critical habitat as a direct or indirect result of the proposed action or its interrelated or interdependent actions" (*Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale, August 1996*).

It is clear that the proposed actions have a high likelihood of adversely affecting water quality, critical habitat elements, channel conditions and dynamics, hydrologic function,

and overall watershed condition within the analysis area. The proposed actions will certainly have more than a "negligible potential" to cause take of individual eggs and/or fish and adversely affect critical habitat for coho salmon in both the short- and long-term, thus warranting a LAA determination. It appears that the NLAA determinations have not been made after a careful and honest evaluation of potential direct, indirect, and cumulative effects of the proposed projects. Instead, the NLAA determinations appear to be based on a desire to move the two projects forward by circumventing the February, 2000 federal directive that prohibits NMFS from issuing new Biological Opinions on timber sales that are "likely to adversely affect" listed fish species or their critical habitat.

The FEIS and BA/BE for fish do not adequately address all potential cumulative effects associated with the proposed project, in combination with all past, present, and foreseeable future actions within the affected watersheds. Of particular note, the DEIS and BA/BE do not assess the potential impacts from this project in conjunction with on-going logging operations on the Hoopa Valley Indian Reservation. There is no evidence in the administrative record that either the Forest Service or NMFS adequately considered these activities. In addition, the Biological Opinion and Conference Opinion for the Six Rivers LRMP does not address the cumulative impacts of Forest Service activities in conjunction with Hoopa activities. This deficiency in both the LRMP BO as well as the DEIS and project administrative record renders the assessment of potential impacts to listed fish species unsupportable, and in violation of both the Northwest Forest Plan and federal Endangered Species Act. Finally, the failure to address all similar and connected actions associated with the project, as outlined in the Megram Recovery Strategy and fire suppression, renders the assessment meaningless and inadequate. Thus, both the FEIS and Letter of concurrence from NMFS (dated April 6, 2001) are error in their determination that the proposed actions will "not likely adversely affect" coho salmon or result in the destruction or adverse modification of designated coho critical habitat.

WILDIFE

1. The FEIS fails to adequately analyze impacts to wildlife species and ensure the viability of Proposed, Endangered, Threatened, Sensitive (PETS) and Management Indicator Species (MIS).

The FEIS states: "Dispersal habitat is generally defined as conifer forests that have a canopy of 40 percent or more and average at least 11 inches DBH. Generally, dispersal habitat is adequate if 50 percent or more of the a project area meets the dispersal habitat definition." (FEIS, p. I-15); "All alternatives would have no effect on existing travel and dispersal habitat within the project area." (FEIS, p. II-30); and "Habitat adequate for spotted owl dispersal is assumed adequate for other wildlife species such as marten and fisher. LRMP assumptions on canopy closure, travel corridor locations, and stand structure for suitable fisher and marten travel and dispersal habitat are in the LRMP B57 through B68." (FEIS, p. III-22). None of these statements are supported by data, scientific literature, or empirical data.

Tables 3-16 & 3-17 (FEIS, p. III-21) show desired snag/log densities by seral stage, but exclude shrub/forb and pole stands. The FEIS states: "The proposed activities will occur in areas of high fire intensity. These high fire intensity stands are now in the shrub/forb

seral stage, which do not currently provide nesting or roosting habitat for flying squirrel or other snag-dependent species associated with late-successional habitat.... LRMP standards and guidelines do not require retention snags or logs within the shrub/forb or pole seral stages. Therefore, all snags and logs retained in the treatment units would exceed LRMP standards and guidelines." (FEIS, p. IV-28) The FEIS also states that "Where vegetation treatments occur the actual number of snags and logs per acre will vary depending on wildlife needs, fire hazard, or human safety (LRMP IV-78)"(FEIS, p. III-21). These statements indicate that no snags or logs will be retained in the treatment units, and conflicts with the prescribed snag densities in Table 2-2 (FEIS, p. II-10). The prescribed snag densities in Table 2-2 are for snags >20"dbh. However, the FEIS admits that "The analysis of average snags per acre in the project area considers only snags greater than 18 inches diameter." (FEIS, p. IV-29). It is impossible to ensure that the >20" criteria is met if the analysis only looks at >18" snags. In addition, there does not appear to any prescribed log densities in the FEIS specific to the treatment areas (not by seral stage) like the snag prescriptions in Table 2-2.

The FEIS states that "desired numbers of snags and down logs should be achieved over a landscape or project area (e.g. 40 to 100 acres), but may vary depending on site-specific conditions and objectives "(FEIS, pp. III-21, III-22)". It goes on to state that "by managing for snags across the landscape (i.e. 100-acre area for each unit), there would be no snag-deficient units. All units would meet the 80-100% level of the expected LRMP average snag per acre and the minimum average snags per acre described in the LSRA when analyzed at the 100-acre landscape scale using pre-fire vegetation series and seral stage." (FEIS, p. IV-29). This appears to conflict with LRMP direction which requires that snag and log densities should be met "over any 40 acres contiguous area."(LRMP at IV-78).

The FEIS states: "Guidelines for managing snags and logs for individual species such as Pacific fisher and American marten, and the cavity nester assemblage (i.e. northern flying squirrel, woodpeckers, bats) to meet long-term viability objectives are in LRMP Appendix B (Tables B-18, B-19, and B-24 respectively). (FEIS, p. III-22). It does not appear from prescriptions in the FEIS that the requirements set forth in the Habitat Capability Models for all species of concern in the area will be met. The FEIS states that "pileated woodpecker needs are addressed in previous issues associated with the retention of snags and down logs in treatment units." (FEIS, p. III-24). It does not appear that snag retention guidelines in FEIS Table 2-2 meet size and density for pileated woodpeckers (LRMP, p. B-22). The FEIS also states: "Larger diameter downed logs are preferable, as they are expected to last longer over time." (FEIS , p. III-21). This is good, however, this recommendation is not carried forward in any specific PDF or prescription in the FEIS. This is especially important for species that require very large snags and logs for resting or denning (e.g., "Snags greater than 24" dbh were preferred for denning by martens (Simon pers. comm 1989), and snags greater than 44" dbh are preferred for denning by fisher (Buck pers. comm. 1989)" (LRMP, p. B-60).

The FEIS states: "While the construction and long-term maintenance of fuel breaks (i.e. suppression of understory vegetation) is not a desirable feature for some wildlife species dependent on late-successional habitat, it will not adversely impact the ability of wildlife species to travel and disperse in the project area. Desired canopy closures greater than

60% would provide adequate canopy cover for dispersing or travelling wildlife species dependent on late-successional habitat such as spotted owls, fisher, and marten. long-term treatment of understory components within the treatment areas is not likely to adversely affect these species." (FEIS, p. IV-27). However, the Regional Ecosystem Office review of the SRNF LSR Assessment states: "Treatments [for fuelbreaks] include reduced crown closure, reduced or modified surface fuels, removal of vertical continuity (ladder fuels), retention of fire-resistant large trees, and are to be linked with area treatment (primarily underburning). These wildfire risk reduction treatments often conflict with providing functional, interacting, and late-successional forest habitat. they reduce the desired habitat structures and become barriers to habitat connectivity. Impacts hinge on the scale of the treatment; the removal of snags to provide a "crownfire safe" landscape; size, quantity, and pattern of down woody debris; and the periodic retreatments to maintain these areas in low-fuel conditions. Retention of late-successional habitat features (large trees, large snags, and large diameter down wood) to the extent possible, excepted only during the event of a wildfire, are important to maintaining landscape habitat connectivity and "permeability" over time." (REO LSRA Review, pp.4-5, March 3, 2000). The FEIS and BA/BE do not acknowledge or consider the potential significant impacts from fuelbreak construction or maintenance that the REO lists here, nor does it provide the necessary detail of phase 2 fuelbreak treatments that the REO lists here e.g., scale, size, etc.) to properly evaluate potential impacts. The HCM for fisher (Table B-18) defines moderate to high quality vertical diversity for denning, resting, and foraging areas as 2-4 layers plus shrubs (LRMP, p. B-52). The HCM assumption for vertical diversity states: "Due to the variability in stand structure potential among the various habitat types some geographic areas may only have the potential for 3 layers while others may have 4 potential layers. Management, therefore, should be to create the maximum number of vertical layers possible under natural conditions as determined by the vegetation type and geographic location of the site (Buck 1989, Solis 1989)"(LRMP, p. B-62). The proposed fuelbreak treatments are intended to permanently remove this vertical diversity. Even if 60% average canopy closure is maintained over time to accommodate travel and dispersal, the number of snags, logs, and vertical diversity to be removed from the fuelbreaks renders the habitat unsuitable for denning, resting, and foraging for several species. It is also questionable whether travel and dispersal conditions are suitable for species which need vertical structure as well as total canopy closure.

It is ultimately not clear what exact snag and log densities will be left within the proposed units. In addition , the FEIS does not analyze future impacts to wildlife, soils, and habitat from the certain removal of snags during future fire suppression efforts, which is acknowledged and anticipated in the LSRA, HLMTT WA, and FEIS.

These deficiencies and inconsistencies in the FEIS makes the analysis of effects inadequate, and fails to ensure that all LRMP snag and log requirements and the viability of wildlife species will be met, in violation of the SRNF LRMP, NFMA, and Endangered Species Act.

LATE SUCCESSIONAL RESERVES

1. The FEIS fails to ensure compliance with LSR Salvage Guidelines.

54 units proposed in the FEIS are less than 10 acres. The proposal to log within these units does not comply with LSR Guideline # 1 of the Northwest Forest Plan, which states that "Salvage in disturbed sites of less than 10 acres is no appropriate because small forest openings are an important component of old-growth forests." (ROD at C-14). The FEIS must address this apparent conflict with the Northwest Forest Plan. The FEIS also fails to ensure compliance with LSR Salvage Guideline #4 ("retain adequate coarse woody debris quantities so that in the future it will still contain amounts similar to naturally regenerated stands." (ROD, p. C-14). The FEIS also fails to ensure that the project will not result in the degeneration of late-successional conditions (ROD, p. C-13).

SURVEY AND MANAGE

1. The FEIS fails to adequately identify and protect suitable habitat for Survey and Manage (S&M) species.

The FEIS claims that "The proposed activities would not occur in habitat considered currently suitable for any survey and manage species. Based upon loss of tree canopy and the consumption of litter and duff layer in high intensity burn areas, there is a consequent alteration or loss in suitable substrate, plant host associates and micro-climate conditions necessary for the survival and persistence of S&M species. In light of these changes within high intensity burn areas, such areas are no longer considered suitable habitat for S&M species." (FEIS at III-20). This claim can be made because the burn severity mapping conducted by the SRNF averages out burn severity for large areas, and fails to discriminate between severely burned areas and patches of green trees within and between those areas. Thus, for example, an area with 50% of its area burned at 100% mortality and the other 50% of its area only 10% mortality would still average out to be 60% mortality, and meet the high severity criteria used in the FEIS. Field inspection, as well as burn severity mapping conducted by Humboldt State University using high resolution (6m) color-infrared imagery indicates that substantial amounts of green trees and unburned patches remain within the proposed units. Even the ID Team meeting notes (10-10-2000) acknowledge the presence of these green portions within the units and cite several cases where suitable S&M habitat does indeed exist (primarily rocky substrate that can be used by DNS and mollusks). While we do not dispute that portions of the units that question the determination that no portions of the units are suitable S&M habitat. While areas that are indeed severely burned may not contain suitable habitat for S&M species, unburned patches within the units certainly may provide suitable conditions, and may serve either as critical refugia that provide source populations for recolonization of other areas as they recover or as areas that will recover more quickly and serve as future suitable habitat. The FEIS does not adequately address this issue, fails to provide more site-specific assessment of the potential presence and utilization of unburned patches within the proposed units by S&M species.

ROADLESS AREAS

1. The FEIS fails to adequately analyze and disclose potential impacts to the Orleans Mtn. "C" RARE II Roadless Area.

The FEIS provides no assessment of impacts to the Orleans Mtn "C" Roadless Area from the proposed actions. It is not justifiable to remove the issue as significant simply because the roadless Rule has been enjoined. The DEIS claims that the Roadless Area Conservation rule allows for the removal of material from substantially altered areas provided there is no additional classified road construction (DEIS at III-26). However, although 61 acres of the roadless area have not been substantially altered (DEIS at III-26), the DEIS does not adequately assess potential impacts to these areas or how the proposal complies with the roadless Rule in these areas. The DEIS asserts that the proposed activities will have minor impacts or will even contribute to roadless area characteristics such as high quality or undisturbed soil, water and air, sources of public drinking water, diversity of plant and animal communities, habitat for PETS species and species dependent upon large, undisturbed areas of land, reference landscapes, recreation, and natural appearing lansdscapes with high scenic quality (DEIS at IV-37, IV-38). However, the DEIS does not provide any evidence to support these claims. This does not constitute the "hard look" that NEPA requires. The FEIS fails to provide more detailed and thorough analysis of potential cumulative impacts to the Orleans Mtn "C" Roadless Area from all similar and connected actions, including Phase II and fire suppression activities.

2. The FEIS fails to disclose current Forest Service direction for Roadless Area management.

Recent direction from Forest Service Chief Bosworth states the following in regards to Roadless Areas: "Effective immediately, I am reserving to myself, the decision authority for timber harvest and road construction in inventoried roadless areas (those mapped in Volume 2 of the Roadless Area Conservation FEIS)." (From "Delegation of Authority/Interim Protection of Roadless Areas" - June 7, 2001) While the SRNF LRMP does not acknowledge that the proposed sale includes units in roadless areas (it moved the RARE II boundary in 1995), the Roadless Rule, and the map in Vol. 2 of the FEIS, includes several units in HL creek watershed which are within the original RARE II area (Lone Pine Ridge). So, according to this direction, only Chief Bosworth can sign the ROD for the project.

ECONOMICS

1. The FEIS fails to adequately assess all economic costs associated with the project.

The FEIS fails to consider or disclose all economic costs associated with the project including sale administration, fuels treatments, stand tending, road maintenance and repair, and fuelbreak maintenance. This renders the economic analysis meaningless.

CONCLUSIONS

1. The FEIS is legally inadequate.

The FEIS is not an objective and scientifically supported analysis as required by the National Environmental Policy Act (NEPA), and is not legally adequate. The FEIS and supporting project record (including the Forest-Wide LSR Assessment (LSRA), Horse Linto, Mill, and Tish Tang Creek Watershed Analysis (HLMTT WA), Megram Recovery Strategy, and project Biological Assessments and Biological Evaluations (BA/BE), and specialist's reports) do not satisfy the purpose, intent, or mandatory requirements of NEPA. The proposed Action Alternatives, if implemented, will result in a violation of the Northwest Forest Plan Record of Decision (ROD) and Standards and Guidelines (S&G's), Clean Water Act (CWA), Porter-Cologne Water Quality Control Act and North Coast Regional Basin Plan (Basin Plan), Endangered Species Act (ESA), National Forest Management Act (NFMA), and Administrative Procedures Act (APA).

2. We incorporate all previous comments.

Because the FEIS fails to adequately address previous comments, we incorporate by reference the following documents and materials into these comments. We request that you review and consider the following materials before making a decision about this project:

1. Beschta et al. 1995a
2. Frost 1999
3. Frost and Sweeney 2000
4. Brown 2000
5. McIver and Starr 2000
6. Agee et al. 2000
7. Everett 2000
8. Cohen 1999
9. SNEP 1999
10. ICBEMP 1997a - GTR PNW-GTR-406
11. ICBEMP 1997b - GTR PNW-GTR-405
12. Harling 1997
13. Reid 1994; 1999
14. Beschta et al. 1995b
15. CBF recommendations for HLMTT and New River Watershed Analyses 2000
16. Chief's Reconsideration of Emergency Exemption Request on the Daniel Boone NF
17. Region 6 Regional Forester's "direction" letter to consider Beschta et al. 1995.
18. QLG court ruling
19. Big Bar Complex Interim BAER Report (11/9/99).
20. New River Watershed Analysis, Shasta-Trinity National Forest.
21. Comments on the HLMTT and New River WA,
22. Draft EIS comments and DEIS supplemental comments - "Fuels Reduction for Community Protection - Phase 1"
23. CE/DN for Happyman Plantation Project, Six Rivers National Forest.
24. EA/DN/FONSI, Appeal, and Appeal Decision for "Megram Hazard Tree Removal Project", Six Rivers National Forest.

25. EA/DN/FONSI, Appeal, and Appeal Decision for "Big Bar Hazard Tree Removal Project", Shasta-Trinity National Forest.
26. Scoping notice and comments for "New River Community Protection and Burned Area Restoration Project", Shasta-Trinity National Forest.
27. Scoping notice and comments for "Plantation pre-commercial thinning, release, and fuels treatment" project, Six Rivers National Forest.
28. Scoping notice and comments for "Plantation planting, site preparation, and fuels treatment" project, Six Rivers National Forest.
29. Biological Assessment for threatened, endangered, and proposed wildlife species" Big Bar Complex Fire Suppression and Burned Area Emergency Rehabilitation Activity", Shasta-Trinity and Six Rivers National Forests (7/10/00)
30. Biological Assessment and Biological Evaluation for Threatened, Endangered, Proposed, and Forest Service Sensitive species, Big Bar Fire Complex Emergency Suppression and Rehabilitation Actions" Shasta-Trinity and Six Rivers National Forests (5/22/00)
31. EA/DN/FONSI for "Access and Travel Management Plan", Six Rivers National Forest
32. Maps

Sincerely,

Anthony Ambrose

On behalf of Ancient Forest International, Environmental Protection Information Center, Citizens for Better Forestry, California Wilderness Coalition, Northcoast Environmental Center, Klamath Forest Alliance, Center for Biological Diversity, Western Fire Ecology Center, American Lands, Redwood Chapter Sierra Club, Klamath-Siskiyou Wildlands Center, South Fork Mountain Defense, and Forest Conservation Council.