These comments on the proposed Kings River Project ("KRP" or "Project") are submitted on behalf of the Sierra Nevada Forest Protection Campaign and the Sierra Club. (collectively, the "Campaign"). The Campaign previously provided scoping comments on this Project on or about February 2, 2005.

The KRP proposes to conduct group selection and fuel reduction logging as part of adaptive management research on an area comprising 131,500 acres in two different watersheds. The KRP has not been subjected to the management standards of the 2004 Sierra Nevada Framework ROD (USDA Forest Service 2004a) or accompanying FSEIS (USDA Forest Service 2004b). As set forth below, the Campaign opposes this Project as presently proposed.

GENERAL SUMMARY COMMENTS

The Campaign does not believe the KRP presents an effective experiment to test the effects of the Forest Service's proposed logging. Further, the Campaign questions why the Service is focusing on adaptive management that implements more intense logging than that allowed under even the 2004 Framework, particularly in an area where habitat quality is already low due to past logging. The Campaign would support experimental adaptive management implementing the standards of the 2001 Sierra Nevada Framework ROD (USDA Forest Service 2001a) or accompanying FSEIS (USDA Forest Service 2001b). Under some circumstances, the Campaign might support limited experimental projects testing more intense logging, but certainly not at the scale proposed by the KRP and not in an area that is so critical to extremely sensitive wildlife species such as the Pacific fisher.

The Campaign supports carefully designed research that investigates issues such as forest restoration and the impacts of logging on old forest associated species. However, we believe that both the intensity and extent of proposed logging need to be significantly curtailed to ensure the viability of sensitive forest wildlife such as the fisher or California spotted owl, as required by the National Forest Management Act ("NFMA") and applicable regulations. Here, the specific aspects of the study design are inadequate and will prevent achievement of the stated research objectives. (*See* Barrett 2006, pp. 14-16).

In addition, the Forest Service's current analysis in the KRP Draft Environmental Impact Statement ("DEIS") is contrary to the National Environmental Policy Act ("NEPA") and other applicable laws. As discussed below, the KRP fails to take a "hard look" at the impacts of implementing the level of logging proposed. Further, the KRP fails to meet NEPA's

informational requirement to provide a complete description of both the environmental setting and overall Project, particularly with respect to how the Forest Service intends to assess the effects of its actions and implement so-called "adaptive management" in response to those effects. The Campaign notes that for the most part, the KRP dismisses potentially significant impacts to wildlife by suggesting that in the long term, old forest conditions will be restored and wildlife benefitted. Yet for many species such as the fisher or owl, it is precisely these near term impacts – over the next thirty to fifty years – that may jeopardize long term survival.

The KRP DEIS also fails to present a meaningful analysis of cumulative impacts in a number of ways. For example, the KRP either does not consider, or merely lists without analysis, other past, present and future projects in the Project area that will contribute to reduction of habitat for wildlife. Neither the DEIS nor the supporting documents provide a spatial analysis of the areas that will be logged and how such logging will affect habitat across the landscape.

Further, while the KRP pays lip service to the staggering scope of its intended action – logging on over 130,000 acres – it does little to assess the true impacts of this Project beyond a conclusory finding that since management units will be separated five years apart, the chances for cumulative impacts are low. However, as noted, the near term impacts of this Project -- 30 to 50 years -- will be significant. The Forest Service cannot avoid analyzing these effects by simply segmenting adjacent unit logging into five year intervals.

The Campaign also does not believe that the KRP is considering the overall effect of the Project to the Kings River fisher sub-population, which is a key link to the Yosemite sub-population to the north and more robust populations to the south. The KRP occurs in the middle of this drainage, which occupies a critical link in the Southern Sierra Fisher Conservation Area. ("SSFCA"). As discussed below, the fisher is in a critical state and to comply with NFMA's viability requirements, the Forest Service must avoid any possibility of fragmenting existing fisher populations in the SSFCA. Under the 2004 Framework, the Forest Service has been implementing projects in the SSFCA that harm fisher, while continually deferring or ignoring the potential that the overall cumulative effects of these projects are leading to the extirpation of this species in the Southern Sierra.

The Campaign believes the most fundamental flaw with the KRP DEIS is its failure to consider a reasonable range of alternatives, as required by NEPA. Astoundingly, the DEIS for the KRP, which purports to be a "research" project intended to develop useful information for the Forest Service, does not consider a single project alternative to the proposed action. Instead, the DEIS sets up an entirely false choice between intensive logging -- the proposed action -- and the "no project" alternative. Between these two endpoints, however, lie a number of reasonable alternatives that would meet the Forest Service's purported goal of reducing fire risk to communities and to wildlife. As discussed in previous Campaign comments, and in the submitted comments of Carol Rice, there is no evidence that the logging of trees between 20" to 35" dbh provides any fire reduction benefit. Instead, the likelihood is that by removing such dominant and co-dominant trees, the Forest Service will simply exacerbate fire risk without

continual returning understory treatments, a task for which the Forest Service lacks funding and has not implemented successfully in the past. (*See* Rice 2006, Britting 2006.)

Given the extreme sensitivity of wildlife in this area, the Campaign believes it is incumbent on the Forest Service – both as a legal and policy matter – to assess alternatives that will meet its fire reduction goals while minimizing impacts to sensitive species. The KRP rejects this reasonable approach based on what appears to be a pre-determined decision that it must implement a silvicultural model – the "Inverse J Curve" – that requires logging of larger trees up to 35" dbh. The Forest Service defends this approach based on the stated project purpose to restore the old-forest resembling pre-1850 conditions in the Project area. However, as the Campaign has previously demonstrated in meetings with KRP leaders, the evidence suggests that the Inverse J Curve, while admittedly an orderly mathematical model, bears little resemblance to pre-1850 conditions in which variation would occur between but not typically within stands, many of which were composed of almost exclusively large trees. (Britting 2006) Further, even if it were valid, the Forest Service provides no data to support the idea that the Inverse J Curve is the *only* available model to achieve old forest conditions. Given that the Inverse J Curve approach poses significant risk to old forest wildlife, the Forest Service cannot unreasonably limit its consideration of alternatives that would meet project purposes.

Given the stated purpose of the Project to gather information, the Campaign is surprised at how little information is provided for analysis in the DEIS and supporting documents. As discussed below, the impacts of treatment on wildlife are difficult to assess because the Forest Service has only provided a basic chart of pre and post project "suitable habitat" that will remain in the Phase I units, without any spatial assessment of how these treatments affect critical habitat areas for fisher, owl and other species across the landscape. To the extent the information can be gleaned from the documents, it appears to us that the Forest Service is failing to disclose substantial impacts to wildlife habitat over the next several decades, without any assessment of how sensitive species can remain viable in this time period. The same is true for other pivotal aspects of the Project, whether its presentation of fuel reduction models or need for the Inverse J curve. In every respect, the Forest Service has failed to take a hard look, use the best available science or even presented its position in a coherent manner that can be reviewed by experts in these fields.

The Campaign is further dismayed by the Forest Service's cavalier attitude towards adaptive management. The DEIS (p. 17) states that the nature of treatments on the overall 130,000 plus acre Project will be "dependent on monitoring and research results from treatment of the initial eight management units." However, nothing in the Project documents explain the criteria for how monitoring and research will translate into changes in proposed treatments. As discussed below, the Campaign does not believe that the Forest Service has presented a coherent research plan on such critical issues as effects of treatments on sensitive wildlife such as fisher or owl the effectiveness of fuel treatments across the landscape. Nor does the KRP explain how research results will lead to change on the ground.

To the extent that the Forest Service is proposing adaptive management as a mitigation to avoid significant impacts from this Project, it must present a fully reviewable research plan and set forth the criteria by which future treatments will be altered or eliminated. The Campaign strongly believes that the Forest Service may not simply begin implementing treatments where the impacts of the overall Project, as now proposed, violate applicable laws. In the absence of a real plan to accomplish the mutually compatible purposes of conducting effective and useful research while also preserving sensitive species, the Forest Service can not go forward with this Project. Instead, we urge the Forest Service to reconsider this Project and to propose instead research designed to produce useful information with beneficial as opposed to adverse impacts on wildlife in the area.

SPECIFIC COMMENTS

I. OVERVIEW OF THE KINGS RIVER PROJECT

The KRP proposes to begin implementation of a landscape level program of uneven silviculture, fire and herbicide treatments on approximately 131,500 acres in the Dinky Creek and Big Creek Watersheds. "Phase I" of the KRP will involving treatment on 13,847 acres within eight management units, including approximately a number of group selection clear cuts, over 5,000 acres of DFPZ creation and approximately 7,600 acres of non-commercial harvest and 6,200 acres of commercial logging. Phase II involves similar treatment for 60 additional units between 2011 and 2033. The DEIS states that it is providing "site-specific" analysis on Phase I and a more general cumulative impact analysis of the Phase II Project based on the "expectation the remaining 60 units will be treated similar to the initial eight management units between 2011 and 2033."

The KRP states that it is exempted from the 2004 Framework management standards and thus includes logging trees to 35" dbh (verses 30" in the 2004 ROD and 20" dbh in the 2001 ROD) and a lowering of the canopy cover standards in the Southern Sierra Fisher Conservation Area below the standards in the 2004 ROD. The KRP proposes an uneven-aged silviculture prescription applying group selection on parcels up to three acres in size. In the matrix lands between, the KRP proposes logging according to an inverse J-curve that retains one third of the landscape in large trees. For both groups and matrix lands, the KRP proposes to retain trees above 35" dbh, and where no such trees are present, four trees over 24" dbh in each group. DEIS, p. 19. Where no trees over 24" exist, no large trees would be retained in groups.

The stated purpose of the KRP is to "examine the response of key environmental concerns" to the KRP management prescription. The DEIS states that the treatments for Phase II of the Project will be "dependent on monitoring and research results from treatment of the initial eight management units." DEIS, p. 17.

II. THE KRP IS INCONSISTENT WITH THE NATIONAL FOREST MANAGEMENT ACT AND SIERRA FOREST PLAN

A. THE KRP THREATENS THE VIABILITY OF WILDLIFE IN THE PROJECT AREA

The National Forest Management Act (NFMA) directs the Forest Service to "provide for diversity of plant and animal communities" in the planning process. 16 USC 1604(g)(3)(B). The Forest Service's regulations that implement this statutory mandate require that "[f]ish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species." 36 CFR 219.19. "For planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area." *Id.* With respect to Forest Service designated sensitive species - which includes the California spotted owl, American marten, northern goshawk, and Pacific fisher -- the agency is further required "to insure their viability and to preclude trends toward endangerment that would result in the need for Federal listing." (Forest Service Manual 2672.1.) Through these steps in this process, NFMA imposes substantive constraints on the management of forest lands to insure biological diversity. *See Neighbors of Cuddy Mountain v. United States Forest Service*, 137 F.3d 1372, 1379- 1380 (9th Cir. 1998).

The KRP has the potential to harm and threaten the viability and distribution of wildlife species, including the Pacific fisher, California spotted owl and Yosemite toad. The KRP proposes to implement intensive logging under the guise of restoring the forest to pre-1850 conditions. Numerous studies show that the Sierra Nevada lacks old forest habitat with large trees and the KRP area is no exception, with only 35 acres of 5M stands and no 5D or 6 stands whatsoever. Yet rather than retain as many large trees on the landscape as possible, the KRP instead proposes to harvest large trees up to 35" to make the forest conform to a mathematical model that bears no relationship to the natural process or to the characteristics of what an old growth stand would look like in this region. In doing so, the KRP will eliminate future recruitment for large tree stands, substantially reduce canopy cover across the landscape and eliminate understory vegetation, with proposed return treatments to further the growth of conifers.

The Forest Service characterizes the KRP as experimental adaptive management, but justifies the significant impacts that will occur to fisher and other sensitive species by asserting that this level of harvest is necessary to protect the species from stand-replacing fire. While the Campaign agrees that fuel reduction is an important objective, however, the removal of large trees and logging at the proposed intensity is not required to reduce fire risk to safe levels. Since the Project itself is likely to have harmful effects on Pacific fisher, spotted owl, and other species that require such mature forest for long-term viability in this region, the Campaign reiterates it prior request that the FS consider and implement fuel reduction logging that minimizes impacts on old forest species.

As we have previously noted, the 2001 Framework found that if fuel reduction “treatments themselves compromise habitat and the habitat is considered lost or temporarily unusable, them the effects of the treatments that were designed to protect habitat from loss are

similar to the effects of losing habitat to wildland fire." 2001 FEIS Volume 2, Chapter 3, part 3.5—page 281. Here, as discussed below, the Forest Service's actions – purportedly undertaken in part to protect species – are likely to have the opposite effect.

1. The KRP Threatens the Viability of the Pacific Fisher

The Pacific fisher is a forest carnivore that is closely associated with older forests comprised of medium and large trees, dense canopy cover, and abundant large snags and down wood. The FWS has concluded that the fisher warrants protection under the Endangered Species Act. The FWS cited loss and fragmentation of habitat and further decline and isolation of populations as the primary threats to the fisher, and questioned the adequacy of the 2004 Sierra Nevada Forest Plan Amendment ("2004 Framework Amendment") to protect fisher habitat. (USDI Fish and Wildlife Service 2004, Federal Register April 8, 2004, p. 18788) The Service specifically mentioned "timber harvest, fuels reduction treatments, and road construction" on federal lands as threats to fisher "distribution, abundance, and recovery/recolonization potential." *Id*. Under these circumstances, the fisher's habitat in the Sierra Nevada requires protection and restoration, not further degradation.

The FWS, in its recent finding that the west coast population of the fisher warrants listing under the Endangered Species Act confirmed the imperiled status of the Sierra Nevada population. "Preliminary analyses indicate West Coast fisher populations, particularly in the southern Sierra, may be at significant risk of extinction because of small population size and factors consequent to small population size such as isolation, low reproductive capacity, demographic and environmental stochasticity." (USDI Fish and Wildlife Service 2004, p. 18789). The FWS stated that the southern Sierra fisher population "has a very high likelihood of extinction given reasonable assumptions with respect to demographic parameters." (USDI Fish and Wildlife Service 2004, pp. 18790-91, citing Lamberson et al. 2000).

A meeting of Forest Service and other forest carnivore experts convened by the Forest Service in 1999 concluded with respect to the southern Sierra fisher population: "Conservation biology tells us that the likelihood of this population being extirpated is high…. In a population this imperiled, loss of a few reproductive females may contribute toward a downward population spiral that culminates in extirpation." (Macfarlane and Frolli 1999, emphasis in original). As the Forest Service recognized in the Framework FEIS: "Given the current low density of fishers in the Sierra Nevada, the loss of even a small number of individuals … could significantly impact the population." (USDA Forest Service 2001a, Vol. 3, Chap. 3, part 4.4, p. 9).

The KRP has the potential for significant adverse effects on wildlife in the region, particularly on the Pacific fisher, as discussed below. The Project is located squarely within the Southern Sierra Fisher Conservation Area ("SSFCA") and acts as a crucial corridor for fisher to remain viable within the SSFCA. As we have previously noted (*see e.g.*, Campaign Appeal for the Sawmill Project in the Sequoia National Forest), the 2004 SNFPA ROD/FSEIS substantially weaken protections for the fisher in the southern Sierra Nevada from those found necessary under the 2001 Framework. The KRP proposes to further weaken the protections for fisher by

allowing for greater reduction of canopy cover and removal of larger trees than even that allowed under the 2004 Framework.

As stated above, even with the 2001 SNFPA the F&WS 12-month finding (USDI Fish and Wildlife Service 2004, Fed. Reg. p. 18788) concludes there is continued risk of loss of habitat due to timber harvest, fuels reduction and road construction. Considering the weakening of standards (above) in the 2004 SNFPA ROD/FSEIS a conclusion that the negative impacts to individual fisher will not lead to a trend towards Federal listing is not supported by evidence that, in fact, suggests that a serious negative trend already exists. (*See* Barrett 2006, p. 5).

a. The KRP Does Not Acknowledge the Precarious State of the Fisher in the Project Area and in the SSFCA

The KRP does not acknowledge that the fisher is currently in decline in the Southern Sierra due to a lack of adequate habitat. The BE states that there are 53 Fisher in project area of 131,500 acres. BE, pp 3, 26. Elsewhere the BE estimates 42-47 fishers in the KRP. BE pp. 14-15. The BE states that fisher "numbers are increasing as more individuals are discovered and reproduction occurs." BE, pp 3, 26. The BE (p. 24) also states that "Population appears on an upward trend."

The Campaign does not believe there is any scientific basis that fisher populations are increasing. Instead, more intensive surveying is demonstrating that the KRP is a critical area occupied by fishers within the SSFCA. The Forest Service lacks adequate information to determine how fisher are using this area, the survival, health and reproductive success of these individuals. The Campaign suggests that rather than showing that fisher are increasing, the recent monitoring numbers show that habitat quality is already low, requiring larger areas for individual fishers to survive.

The Forest Service's presentation does not adequately acknowledge that the number of 53 fisher refers not to the current population, but the *total* number of individuals detected over a four year period. Fisher populations may vary from year to year based on fisher female reproductive success. Presence-absence monitoring, without tracking of individual animals, provides information as to whether fisher still occur in the monitored area but little data on the vigor of the species:

> [T]his method does not record whether a fisher population is declining or any information about why that decline is occurring. Source versus sink habitat can only be determined by assessment of vital rates (reproduction, mortality, dispersal). Under presence-absence monitoring, the Forest Service will only have reason to act once fisher have been eliminated from the area.

(Barrett 2006, p. 14).

The KRP BE states that fisher numbers are "increasing" and that the local population "appears on an upward trend" In fact, there is no evidence to support this conclusion. Instead, recent tracking of fisher in the Project area shows that total fisher sightings dropped from 82 in 2002, to 71 in 2003 to 60 in 2004, an average 8.4% decline. Density estimates for the fisher also dropped during this time period. (Jordan 2006).

The Forest Service's assessment appears to be relying on the number of individual fisher detected but this figure is likely more a function of the number of studies conducted in this area over the last several years rather than any increase in population. (*See* Barrett 2006, p. 5). Further, the BE does not acknowledge the low rate of reproductive success for female fisher in the area, only 18% in 2003 and 36% in 2004. (Jordan 2006; Barrett 2006). These numbers are relatively low and indicate that fisher are not thriving under the current habitat conditions. In sum, the information that does exist suggests that the current population trend for fisher in the Project area is downward.

b. The KRP Management Approach Assumes that Fisher will Continue to Persist Despite Decreasing Habitat Quality

The KRP cites to Mazzoni 2002 for the estimation that approximately 1/3 of fisher female home range in the project area is unsuitable habitat. Rather than analyze whether this status quo is sufficient to maintain fisher in the area, the Forest Service instead adopts this as a baseline standard for further habitat degradation by assuming that a loss of 900 acres, the size of the average KRP Management Unit, will not have adverse impacts on fisher since it represents approximately 1/3 of a fisher home range. *See* DEIS Vol. 1, p. 54, Table 17; BE pp. 16, 26. ("no more than 1/3 of any fisher home range is treated at one time.") This approach does not ensure viability for fisher in the KRP area -- or the SSFCA for several reasons.

First, as discussed above, current population analyses show that the current fisher population is on a downward trend and that the loss of a few reproductive females could lead to a downward population spiral that culminates in extirpation. (Macfarlane and Frolli 1999; Lamberson et al. 2000). Thus the Forest Service cannot assume that the current status quo measured by Mazzoni - 1/3 of fisher home range habitat is unsuitable – will ensure that fisher can survive.

The KRP assumes that current habitat conditions are adequate for fisher but lacks information to make that assessment. The BE (p. 22) acknowledges that "habitat in this region is not as capable of supporting large populations of fishers in other areas." Thus, even before implementation of the KRP, the Project Area lacks high or even moderate quality habitat for fisher. Thus, the Forest Service may not simply assume that further logging on one third of the fisher home range will not cause potentially significant adverse impacts. Instead, the record shows that there is presently not enough quality habitat in the area to allow for any further harvesting of medium and large trees not essential to fuel reduction purposes. (*See* Barrett 2006, Britting 2006).

In fact, other studies suggest that fisher home ranges require a higher percentage of quality habitat. As noted by Dr. Barrett:

> The presence of unsuitable habitat within a fisher home range may not be an indication that this is a desirable condition, but instead an expression the low quality of habitat across the landscape. For example, in contrast to the Mazzoni (2002) study, research in the Sequoia National Forest, where I believe fisher populations are more robust, showed that female fisher had home ranges with an average of over 90% suitable habitat (Zielinski et al. 2004a). I believe the difference between these studies reflects a difference between a population that is stable and one that may be declining. Thus, even if the Forest Service had enough information regarding existing home ranges to make this kind of assessment, it should not rely on Mazzoni 2002 as the baseline that will ensure fisher viability. This conclusion is supported by Lamberson 2000, which finds that fishers in the Southern Sierra Nevada may disappear in 30-50 years given the status quo.

(Barrett 2006, p. 9). *See also* Britting 2006, p. 6 ("Absent any additional site specific demographic data, it can not be known if the habitat quality detected by Mazzoni is good enough to maintain the population and evidence suggests that habitat conditions might well be inadequate.")

Second, the Forest Service does not acknowledge that reducing habitat by one third of a current home range does not necessarily mean that two thirds of the remaining home range can be considered suitable habitat. The Forest Service has not collected necessary information on habitat distribution of individual fishers as recommended by the leading scientists. Thus the Forest Service does not know where current home ranges are in the KRP area for fishers that have been detected. Dr. Barrett notes:

> [T]he Forest Service does not know what constitutes the home ranges for fisher in the Project area. Thus, the Forest Service has no way of telling the importance of the 900 acres it intends to log as a component of any particular fisher home range. Given the lack of information provided, the Forest Service may well be harvesting the most critical one third of a fisher's home range habitat, as opposed to the one third deemed unsuitable. ...
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> [T]he Forest Service's lack of information about the fisher precludes it from conducting any meaningful impact assessment. For example, if the Forest Service does not know how reproductively successful female fishers use habitat in the Project area, it can not assess the impacts from its proposed logging. The Forest Service has not mapped the home ranges of fisher in the Project area and thus lacks information regarding the impacts of logging. In sum, in my review of the Project documents, I cannot discern the extent of impacts on reproductively successful female fishers in the Project area.

(Barrett 2006, p. 9). Of further concern is the fact that average unit size for Phase I is not 900 but rather over 1,700 acres. (*See* DEIS, Vol. 2, App. F). This area represents approximately 2/3 of a fisher home range as measured by Mazzoni (2002). Given the existing lack of quality habitat

in the Project area the Forest Service can not be assured that the removal of additional quality habitat will not threaten fisher.

Third, by simply measuring the amount of "suitable" versus unsuitable habitat, the KRP does not provide an adequate description of the post treatment landscape. The BE states that 10 years after logging, suitable habitat in the KRP will be reduced to 7,611 acres, or approximately 55% of the 13,700 KRP area. This does not provide information as to what kind of habitat will occur immediately post harvest. Further, the KRP does provide an explanation of the criteria it is using to determine what constitutes suitable habitat. The Forest Service's identification of suitable habitat does not distinguish between low, moderate and high quality habitat. The record shows that habitat quality across the landscape lacks old forest habitat required by fishers. The KRP BE shows that there are only 35 acres of sierra mixed conifer 5M and no 5D in the project area. BE, p. 60, Table 3. As noted by Dr. Barrett:

> The Project review documents do not provide adequate information regarding the existing environmental setting, particularly any description of the "suitable habitat." This is problematic since the Forest Service considers forests with canopy cover down to 40 % suitable, yet my research indicates that fisher greatly prefer habitat above 60% canopy cover, which made up over 70% of female home ranges in the Sequoia National Forest. Here, the Forest Service appears not to make a distinction between medium and dense canopy coverage, which research indicates may be critical to successful fisher reproduction....
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> [T]the vast majority of female fisher home ranges consist of habitat with canopy cover above 60% (Zielinski et al. 2004a). I submit that areas composed of forest with under 60% canopy should be considered "sink" habitat for fisher, meaning that, to survive, the residing fisher population must be continually replenished by fisher dispersing from "source" habitat in adjacent areas. Whatlittle information is provided on this Project – the low amount of 5M and 5D habitat, low density, low female reproductive success – all indicate that the Project area is primarily sink habitat which must be immediately improved if fisher are to survive in the area over the long term.

(Barrett, pp. 7-8.) The Campaign notes that these findings are actually consistent with Mazzoni (2002), who found that female fisher home ranges typically included over 60% of high quality (>60%) canopy cover. (*See* Britting 2006, p. 4.) Thus Mazzoni 2002 (p. 41) concluded that "females use areas with a larger proportion of high canopy cover."

These concerns are illustrated by Britting 2006, which shows that significant percentages of core fisher habitat will be rendered either unsuitable or of marginal quality. Dr. Britting created simulated fisher home ranges using Mazzoni's methodology and the KRP's presentation of where the Forest Service believes fisher will occur post-treatment. The results are striking. First, a comparison illustrates that fisher simulated home ranges are already in worse shape than those studied by Mazzoni:

> [B]ased on a comparison of the habitat quality found in the homeranges evaluated by Mazzoni (2002, Figure 4), the present habitat quality of the simulated home ranges in this evaluation in most cases is of substantially lesser quality. Here, all of the simulated home ranges have less dense habitat than all but one of the home ranges evaluated by Mazzoni. As a comparison, Mazzoni found that dense habitat covered greater than 60% of the home range for 5 out of 6 evaluated.

(Britting 2006, p. 5). Post-project implementation, the results are even more alarming:

> Comparison of the treatment units to the areas identified in the DEIS as important for fisher connectivity indicate that the Kings River Project proposes to mechanically treat approximately 5,330 acres in units containing riparian linkages (i.e. old forest linkages (OFL)) identified as important for fisher conservation and connectivity (Figure 1). As indicated in Table 2, the area occupied by stands with very low canopy cover (less than 30%) (i.e. 4P) increases by nearly 1,900 acres. Of the area logged surrounding the OFLs, over 50% of it would have very low canopy cover. The effect of such a large reduction in canopy cover in areas closely associated with the narrow areas designated to address fisher habitat needs is not discussed in the DEIS.

(Britting 2006, p.3). Of even greater concern, is the fact that in the simulated fisher home ranges, post-treatment dense canopy cover in simulated fisher home ranges was substantially reduced down to a range from 0 to 27% in >60% cover with an average of approximately 11%. (Britting 2006, p. 5 & Table 4.) This is nowhere near the amount of dense canopy cover required by female fisher. As a result, the Project as proposed renders these areas unsuitable habitat for fisher. (*See* Barrett 2006; Zielinski et al. 2004a (female fisher home ranges in the Sequoia measured at over 70% in dense canopy cover.)

To assess the potential impacts to fisher from the KRP, the Forest Service must 1) assess fisher home ranges according the best available science; and 2) provide more information than simply the amount of suitable versus unsuitable habitat.

To assess fisher home ranges, the Forest Service must consider a more refined model for determining how fisher use their habitat. As noted by Dr. Barrett:

> In my opinion, the Forest Service's basic premise that fisher occupy a home range that includes a substantial amount of unsuitable habitat, is not scientifically based. Mazzoni 2002's study identified fisher home ranges using the minimum convex polygon model, which draws straight lines between fisher detection points, leading to the inclusion of substantial areas within the designated home range that the individual fisher is not actually using. In my experience, a more refined home range based on the kernel density estimation (KDE) method would show that fisher home ranges in this area are actually smaller but with a considerably higher percentage of suitable and high quality habitat. (See e.g., Hemson et. al. 2005). Were the Forest Service to identify this type of more accurate home range information and compare it to the proposed treatments it would

> likely find that a considerable portion of quality habitatcurrently used by fisher will be adversely affected by the Kings River Project.

(Barrett 2006, p. 9). Dr. Britting also notes that:

> [T]he estimation of home range size using the minimum convex polygon (MCP) method is known to include areas that are not used by the species in question. (Hemson *et al*. 2005). Actual home range use is more appropriately modeled using contouring methods that "accommodate multiple centers of activity, do not rely on outlying points to anchor their corners and are less influenced by distant [detection] points, thereby excluding unused areas and leading to more accurate depictions of space use." (Ibid., p. 455). Thus, the creation of a design measure based on the assumption that the proportion of unsuitable habitat in a home range reflects the tolerable levels of unsuitable habitat across the landscape is inappropriate because the MCP method does not accurately depict the use of habitat.

(Britting 2006, p. 6.)

Further, the Forest Service must describe and account for the value of the habitat that occurs for fisher, and how such habitat will be retained. "The fisher is among the most habitat-specific mammals in North America, and changes in the quality, quantity, and distribution of available habitat can affect their distributional range in California (Buskirk and Powell 1994)." (USDA Forest Service 2001, Volume 3, Chapter 3, part 4.4, p. 2; USDI Fish and Wildlife Service 2001, p. 84). "Fishers in the western United States are habitat specialists associated with mature and late-successional forests with an abundance of large trees, snags and logs (greater than 100 cm), conifers and oaks with broken tops and cavities, coarse woody-debris, multiple canopy layers, high canopy closure, and few openings." (USDI Fish and Wildlife Service 2001, p. 83). In particular, "fisher denning and resting sites are forest stands with complex structural characteristics that are typical of late-successional forests." (USDI Fish and Wildlife Service 2003b, p. 41170). "It is unlikely that early and mid-successional forests, especially those that have resulted from timber harvest, will provide the same prey resources, rest sites, and den sites as more mature forests." (Powell and Zielinski 1994, p. 52; USDI Fish and Wildlife Service 2003b, p. 41170). (*See* Barrett 2006).

The KRP does not provide information about the relative quality of such habitat nor whether future habitat will contain needed habitat elements such as decadent old trees, high canopy cover and downed woody material. The KRP proposes the clearing and removal of snags and downed logs and decaying woody material, which offers important nesting and resting habitat for fishers. Neither the DEIS nor the BE provide meaningful analysis of the old forest habitat needs and uses of the local fisher population in the Project area, although 2004 ROD p. 53-54, 62, requires this in order to support its assumption that increased logging within the SSFCA will not harm fisher populations.

Research on fisher habitat use in the Sierra Nevada shows that fishers associate with the structural elements of old forests, such as large trees, dense canopy cover, and large snags and down logs. A recent study in the southern Sierra found that fisher "rest sites had greater canopy cover, log cover, basal area, crown volume, and canopy layering than random sites," as well as "higher large snag occurrence." (Mazzoni 2002, p. 24) The study noted the fisher's "selection overall for areas with a high density of large trees and snags." (Ibid., p. 40). Similarly, Truex et al. (1998) found that all located natal dens are "located in cavities of large diameter trees" (p. ii) and noted the fisher's "consistent use of large diameter trees for resting" (p. 63). In addition, canopy cover at all natal and maternal rest sites was extremely high, averaging 92.5 percent. (Ibid., p. 89, Table 7).

The KRP is likely to eliminate valuable habitat elements due to logging trees up to 35" dbh, excavator/tractor piling and prescribed burning. Nothing in the environmental review documents indicates that the specific habitat attributes for fisher in the area have been identified and measures designed to protect such elements. This lack of analysis is problematic since the FWS, in its recent finding that listing the fisher is warranted, concluded that logging and fuels reduction can adversely affect important habitat elements in fisher habitat. (USDI Fish and Wildlife Service 2004, p. 18779). As the Fish and Wildlife Service has stated, however, "for the fisher and marten, the removal of 'legacy elements' such as large snags and logs is of particular concern because these elements are important denning and/or travel areas." (USDI Fish and Wildlife Service 1999, p. 11). Here, there is good reason to believe that fuels treatments will reduce the densities of snags and down logs, because these forest structures are cited in the Project as contributing to the risk of stand-replacing wildfires. Thus, by providing broad discretion to remove large snag and down wood without any identification of the needs of fisher in the area, the Project risks having serious adverse impacts to the local fisher population.

In the face of evidence suggesting that habitat in the KRP is inadequate for fisher, the Forest Service relies on general conclusions that do not provide information critical to detemining whether fisher can survive. For example, the BE (p. 25) states that the KRP will "move the fisher habitat closer to high suitable habitat" including in "plantations because it helps move them toward foraging and eventually denning habitat over time." However, there is no evidence that forest plantations will grow into denning habitat at any point, and, as discussed below, the Forest Service's intent to subject such plantations to repeated understory treatments is unlikely to create any foraging habitat for fisher in the near term.

The BE also states that "lower canopy cover in the first 8 treatment units is a reasonable trade off for the gain in large trees and lower risk of wildfire." As discussed below, the best science indicates that logging of trees over 20" is not necessary to reduce fire risk. Further, the KRP does not explain how the "gain in large trees" will provide greater protection for the fisher than an option that preserved larger numbers of large trees, thereby ensuring adequate short term recruitment of large trees to create old forest habitat.

Fourth, as discussed below, the Forest Service does not consider the cumulative impacts of the KRP, particularly the effects of the KRP project as a whole. The KRP states that that there

will not be cumulative impacts to fisher because treatments are spread out in space and time, but this discussion does constitute a cumulative impact assessment. *See* Section II.A.5.a, *infra.* To the extent that information is presented, the cumulative effects on fisher appear to be significant. *See* Britting 2006, p. 6 ("A detailed examination of the residual canopy closure proposed for the approximately 71,979 acres mapped for the Kings River Project indicate that overall, residual canopy of greater than 60% would be found on only about 27% of the area. This is nowhere near the average dense canopy cover found by Mazzoni for home ranges in the project area.")

c. The KRP's Goal for Habitat Quality Threatens Fisher Viability

The KRP establishes a "long term goal" of maintaining 50% of the overall potential fisher habitat in CWHR 4 or higher with 50% canopy cover or greater. DEIS, pp. 52, 54, Table 17; BE, p. 20. This standard weakens the 2004 Framework (ROD p. 41) standard for the southern sierra fisher conservation area (50% of Landscape in canopy over 60%), which in turn is weaker than the 2001 Framework (ROD, p. 41) (60% of Landscape 5,000 to 10,000 ac watersheds outside WUI in 60% canopy cover of CWHR 4 or better.

A recent study of fisher home ranges in the southern Sierra found that fishers select for high canopy closure and that on average 66 percent of fisher home ranges in the southern Sierra are characterized by canopy closure of 60 percent or greater. (Zielinski. 2004a; USDA Forest Service 2001a, Vol. 3, Chap. 3, part 4.4, p. 11). Another recent study in the southern Sierra found that fisher "rest sites had greater canopy cover … and canopy layering than random sites," as well as "higher large snag occurrence." (Mazzoni 2002, p. 24). With respect to rest sites, Zielinski et al. (2004b) found that average canopy closure was greater than 90 percent, and that "resting fishers place a premium on continuous overhead cover, as reported previously."

The Framework established the SSFCA for the specific purpose of protecting and restoring the quality of habitat currently occupied by the fisher. The Framework required that 60% of each watershed within the SSFCA contain forests with medium-large or greater trees and 60% or greater canopy closure. (USDA Forest Service 2001b, p. A-45). This requirement was based on current research on the Sequoia National Forest, which shows that "66 percent of the average fisher home range was in 60 percent or greater canopy closure." (Zielinski et al. 2004a; USDA Forest Service 2001a, Vol. 3, Chap. 3, part 4.4, p. 11). Further research indicates that 72 percent of female home ranges contain forests with 60 percent or greater canopy cover. (Zielinski et al. 2004a, Barrett 2005.)

As a general matter, "all habitats used disproportionately by fishers have high canopy closure, and fishers avoid areas with low canopy closure." (Powell and Zielinski 1994, p. 53). In the Sierra Nevada, fisher rest sites are characterized by very high canopy cover (averaging over 90 percent, according to Truex et al. 1998), and fishers preferentially select for dense canopy cover (in excess of 70 percent) (Mazzoni 2002). Freel (1991) describes high quality fisher habitat as having greater than 80 percent canopy cover and low quality habitat as characterized by 40-60 percent closure (p. 3), and states that "cover less than 30% is considered

unsuitable for use." (p. 16). The FWS states, "reduction in canopy closure … down to 50 percent overall … is *below that observed over large areas of fisher home ranges in the southern Sierra*." (USDI Fish and Wildlife Service 2001, p. 133). (emphasis added.)

The 2004 Framework Amendment did not adopt these standards and guidelines. Instead, the 2004 ROD allows the SSFCA to be logged utilizing the same standards and guidelines as for general forest. (ROD, p. 62). The 2004 ROD (p. 41) adopts a "desired condition" for the SSFCA to retain a minimum of 50 percent of the forested area within each female fisher home range (or watershed) outside the WUI with at least 60 percent canopy cover.

By adopting a new long range standard of 50% of overall habitat in CWHR 4 or higher with 50% canopy cover or greater, the KRP further weakens long range protection for the fisher, without any analysis of the current science regarding fisher habitat preference or relevant data on fisher home ranges, resting sites, denning areas, dispersal and foraging routes within the Project area. (*See e.g.*, Zielinski. 2004a, 2004b.) Since the Forest plainly lacks this information, which is contrary to the 2001 and 2004 Framework, it is in no position to purport to conduct a "landscape level" assessment of cumulative impacts on the fisher from the implementation of fuel reduction and stand density thinning as is proposed in the KRP.

As stated by Dr. Barrett:

> Fisher populations in the Southern Sierra have been declining over the long term, and thus the fact that fisher may still persist in sub-optimal habitat does not mean that they can survive in the long term. Thus, while fisher may be detected in sub-optimal habitat, it is my experience that quality habitat -- i.e., habitat with at least 60 percent canopy coverage over 60 percent of the home range -- is necessary for successful reproduction, the key to ensuring survival and eventual recovery of the species....Further, the crude objective of a canopy cover average over the landscape does not address the overall quality of that habitat nor how such habitat is overlaid with fisher home ranges. As discussed above, in the Sequoia study, where fisher in my opinion are doing better, female fisher home ranges had greater than 70% of their habitat in dense (>60%) canopy cover (Zielinski et al. 2004a).

(Barrett 2006, p. 10). Dr Barrett concludes that "a landscape level assessment that does not ensure a minimum amount of dense (i.e., above 60%) canopy cover is not adequate to protect fisher." (*Id.*)

The KRP's weakened long term standard for the fisher habitat protection raises the likelihood that the cumulative impacts from this Project and other similar fuel reduction projects has the potential to jeopardize fisher populations in this area. The Campaign has set forth its objections to the 2004 ROD's weakening of protections within the SSFCA in its 2004 Framework Appeal, *see* SNFPC 2004, pp. 33-34. Not only is the reduction from 60 percent to 50 percent significant, but the new guideline also weakens the Framework standard by managing for 60 percent canopy cover within a given percentage "of the forested area," rather than within

each watershed. The 2004 ROD manages for 50 percent "of the forested area" in canopy cover of 60 percent or greater (ROD, p. 41), compared to the Framework standard which requires that 60 percent of each watershed be managed for 60 percent canopy cover. (USDA Forest Service 2001b, p. A-45). The KRP maintains this approach by limiting its calculation to fisher habitat, thereby already eliminating from protection areas that the Forest Service deems not to constitute "potential habitat."

The research upon which the Framework standard was based found that 60 percent of each watershed, not of the forested area within each watershed, was covered by dense canopy forest. (Zielinski et al. 2004a). Given that "forested area" only covers a portion of each watershed, managing for a given percentage "of the forested area" within each watershed is likely to include substantially less area than managing for the same percentage of each watershed. For example, in the SSFCA as a whole, the "forested area" covers approximately 83 percent of the total area, with non-vegetated areas, grasses, and brush-shrubs covering the rest. (FSEIS, p. 248). Using this percentage, the new standard of 50 percent "of the forested area" translates to 41.5 percent of each watershed, compared to the Framework's standard of 60 percent. The KRP does not clarify how it would make this calculation, but we assume it is the same for purposes of these comments.

Given that the fisher's status is indisputably imperiled, weakening an existing standard and aiming for a "desired condition" that falls short of the guidelines set forth in the 2001 FEIS and suggested by the best available research is unjustified. The KRP's only justification for its long range standard is that coniferous forest habitat dominated by pines typically has low canopy cover. However, this conclusion is unsupported in the record and conflicts with the experience of experts in the field who note that ponderosa pine canopy cover may easily reach 80%. (*See* Barrett 2006, p. 10.) Further, research indicates that fisher will selected mixed conifer forest and hardwood ecosystems over pure pine stands, thus making this vegetative type a false model upon which to base optimum fisher habitat conditions on the landscape. (*See* Zielinski et al. 2004a)

Given the precarious status of the Southern Sierra fisher population and the current science regarding fisher habitat needs, the KRP's long term desired condition does not represent a "cautious" approach but instead is likely to have significant impacts on and threaten viability of the local fisher population. (See e.g.,Barrett 2005.)

d. Removal and Thinning of Understory Will have Direct and Indirect Impacts on Fisher

The KRP does not address the effects on fisher of eliminating understory vegetation through repeated mechanical, fire and herbicide treatments. The Forest Service has previously recognized the particular impacts on the fisher of clearing understory vegetation.

> Concern…is raised for stands to be reduced in complexity at ground and mid-canopy layers in certain vegetative strata type which are typically associated with higher degrees of fisher and marten use. Where goshawk and California spotted owl may benefit from a

> slightly more open understory which improves habitat for flight and prey capture, fisher and marten are more ground based and could be negatively influenced through increases in predation if stands become significantly simplified at these levels.

(*See* Sawmill BE, pp.23-24.)

The KRP proposes to reduce canopy coverage by eliminating understory vegetation through thinning, prescribed fire, clearing and herbicide applications. In many areas of the Project area, however, this understory vegetation may form the protective canopy for fisher resting and foraging. Fishers may use understory or shrub as cover for habitat, but this habitat will be generally eliminated by the fuel treatments proposed in this Project. This includes chaparral, hardwood ecosystems, ponderosa pine and mixed conifer habitats that comprise the Project area.

In its recent finding that listing the fisher is warranted, the FWS concluded that logging and fuels reduction, including thinning, can adversely affect fisher habitat. "Fuels reduction treatments, including thinning and the removal of down woody debris, dense understory, snags, and low overstory tree crowns may significantly affect fishers in the immediate area." (USDI Fish and Wildlife Service 2004, p. 18779). "Clearcutting, selective logging, and thinning change the suitability of fisher habitat by removing overhead cover and insulating canopy, exposing the site to the drying effects of sun and wind or to increased snow deposition, removing prime resting and denning trees, and increasing exposure of the fisher to predators." (Id.)

Suitable fisher habitat is characterized not only by dense canopy cover, but also by multi-storied canopies. According to Freel (1991, p. 15), high quality fisher habitat is characterized by "the maximum number of vertical layers possible." Similarly, Mazzoni's (2002) study of habitat use versus availability found that the fisher selects for canopy layering, and that rest sites are characterized by "multiple crown layers" (p. 36). The effects of this Project will be to remove virtually all the lower and mid-story canopy, leaving a single canopy layer which is not consistent with the fisher's habitat needs. (Barrett 2005, 2004a, p. 5).

Here, the KRP does not assess the direct impact of intensive understory treatments on the fisher, nor indirect impacts such as the substantial reduction of the fisher prey base. The BE (p. 21) notes that “many of the prey species found in the diet of fishers occur primarily in large tree and dense canopy conifer and oak woodland habitats, chaparral and deciduous riparian areas.”

The farthest the KRP goes in considering these impacts is to note that the effect of clearing understory vegetation on the fisher are “unknown.” (BE, p. 25.) Given the lack of information and the potential for significant harmful impacts, the Campaign suggests a more cautious approach of retaining more understory habitat elements in a manner in a strategically placed manner that can avoid large scale fire risk while still maintaining valuable habitat. Given the stated purpose of the KRP as a research project, it is unclear why the Forest Service would not wish to explore methods of preserving understory habitat in a strategic manner in the KRP. Further, the Campaign does not agree with the Forest Service’s suggestion (BE, p. 25) that the

sighting of a fisher within a burn area means that this area is providing fisher with suitable habitat.

e. The KRP Will Fragment Fisher Habitat

The FS states that fisher habitat will not be fragmented because habitat in 100 meter stream zones will be protected as "old forest linkages." (OFLs) *See* DEIS, vol II. App C, pp. 38-40; BE, p. 16. According to the maps and descriptions, the OFLs follow major streams but appear to be disconnected in several areas. Further, the canopy cover levels for these areas (40% canopy cover - See App. C, p. 39) do not meet the levels required for even moderately suitable habitat. (Freel, 1991.) As noted by Barrett 2006:

> [S]uch relatively open forest does not offer quality habitat for fisher, which prefer dense overstory canopy exceeding 60%. My review of the documents indicates to me that the stream zone habitat will offer, at best, marginal 4M type habitat.

(Barrett 2006, p. 11)

Given that the KRP is proposed as a research project, the Campaign is dismayed that the Forest Service would adopt such a minimal approach to ensuring habitat connectivity for fisher in the Project area and beyond. Even the 2004 Framework, which substantially weakens protection for the fisher, requires defined habitat connectivity over ridgetops in order to insure that populations in different watersheds may interact. If riparian corridors are the only proposed linkage system, fisher may be required to travel great distances to move into different watersheds. As discussed above, however, the Forest Service lacks any information that fisher travel in this manner nor information as to how fisher travel generally in the Project area. As noted by Dr. Barrett:

> [R]eliance on riparian corridors alone does not ensure a sufficient degree of habitat connection to avoid habitat fragmentation. Instead, by limiting connectivity to stream channels, the Forest Service's approach requires fisher to travel long distances downstream, then reverse direction and travel upstream in a different stream corridor to connect to a different sub watershed. In my opinion, it is unlikely that fisher will travel in such a manner. The Forest Service's approach establishes a dendritic pattern of habitat connectivity that requires fisher to travel longer distances to access other sub watersheds, thereby putting greater stress on the population as a whole. In my experience, the agreed upon standards for ensuring habitat connectivity include the protection of habitat corridors at the headwaters of streams, and over ridges and saddles so as to establish more of a net pattern of connectivity across the landscape. This pattern more accurately represents the manner in which fisher, particularly males and dispersing juveniles, use the landscape where habitat is available.

(Barrett 2006, p. 11).

Further, the Campaign is unaware of any research that indicates that the preservation of stream corridors will preserve fisher habitat and avoid fragmentation in the fact of patchily distributed suitable habitat across the landscape. The KRP does not provide adequate information to determine whether such corridors actually connect to adequate habitat to sustain fishers in the Project area:

> In my experience, fisher movement across the landscape is typically associated with quality habitat sufficient for foraging and resting, not minimal corridors surrounded by unsuitable habitat. I am not aware of any study or observation that would support the idea that fisher will use the proposed riparian corridors in the manner assumed by this Project.

(Barrett 2006, p. 11). The KRP DEIS and BE imply that the detections of fisher in riparian areas show that some preservation of this habitat will protect fisher in the Project area. However, the research indicates that while fisher may commonly be found in riparian areas due to the dense canopy coverage, substantially more habitat across the landscape is necessary to maintain fisher populations.

f. Cumulative Impacts Threaten Fisher Viability

(1) Cumulative Impacts of the KRP Threaten Fisher Viability

The KRP states that there will not be cumulative impacts to fisher because "[t]reatments are spread out in space and time to further reduce impacts on an individual fisher. Treatments are scheduled so that no adjacent Management Units will be treated within a 5 year period." *See* DEIS Vol. 1, p. 54, Table 17; Vol. 2, App. C, pp. 44-45; BE p. 26. However, the Forest Service provides no information as to why separating treatments by five years will preserve adequate habitat for the fisher and thereby avoid significant impacts. Dr. Barrett explains:

> This statement does not provide spatial information on the cumulative impacts of this Project over time. The maps in the DEIS provide information about the location and timing of harvest, but nothing in that presentation explains how this phased logging is going to affect fisher. As discussed above, the review documents present no information through which I or the public could assess how this logging will progress across a landscape overlaid by fisher home ranges, corridors and core areas of activity. Given that areas that are treated may remain unsuitable habitat for fisher for 30 to 50 years, it is, in my opinion, critical that the Forest Service provide an assessment of whether fisher can survive on the resulting landscape during this time period. Without this type of detailed information, this Project has the potential to have significant cumulative impacts on the fisher by rendering large contiguous areas within the Project unsuitable for fisher.

(Barrett 2006, p. 12). As discussed above, Britting 2006 found proposed treatments would have significant impacts on fisher home ranges created according to Forest Service information and

methodology. To the extent that any information has been presented, the effects to fisher throughout the overall Project area are likely to be substantial. For example, Dr. Britting notes:

> A detailed examination of the residual canopy closure proposed for the approximately 71,979 acres mapped for the Kings River Project indicate that overall, residual canopy of greater than 60% would be found on only about 27% of the area. This is nowhere near the average dense canopy cover found by Mazzoni for home ranges in the project area. Tables 3 and 4 demonstrate that in the short term and long term, the project design measures for the Kings River Project fall far short of delivering the habitat known to be used by fisher in the project area.

(Britting 2006, p. 6.)

The BE (p. 25) states that there are 24,000 acres of suitable habitat outside the KRP area, which is approximately 20% of the remaining area. Further, the Forest Service's own data shows that moderate to high quality habitat will not be created for 30 years. *See* BE, p. 65, Table 15. Yet research indicates that by that time the fisher may have disappeared in the absence of short-term improvements to habitat quality in the KRP and SSFCA. (*See* Lamberson 2000). This expected residual habitat is inadequate to maintain fisher populations, yet nothing in the record indicates that the Forest Service has considered the short term impacts of the KRP on fisher populations.

(2) Cumulative Impacts of the KRP in Combination with Other Projects outside the KRP Threaten Fisher Viability

The isolation of the Southern Sierra fisher population is a major reason that the USDI Fish and Wildlife Service decided the fisher warranted listing as threatened or endangered. The KRP is centrally located between the San Joaquin and Kings River drainages, which occupy a critical link within the SSFCA. As noted by Dr. Barrett:

> [T]he Forest Service needs to assess cumulative impacts at a larger scale, corresponding to the area between the San Joaquin and Kings River drainages, which comprises the fisher sub-population affected by this Project. The Kings River fisher sub-population is critical to the survival of fisher in the Southern Sierra. If the Kings River sub-population were to disappear over the next three decades, this would lead, in my opinion, to the fragmentation and eventual demise of the Yosemite sub-population, which occurs north of the San Joaquin River. Were these events to occur, it is doubtful that the Southern Sierra fisher population would be able to recover without costly artificial reintroductions.

(Barrett 2006, p. 12). Dr. Barrett concludes by noting that the "project review documents do not analyze the effects of other timber projects in the larger area between the San Joaquin and Kings River drainages that comprises the fisher subpopulation that will be affected by this Project" nor

do they “provide any further assessment or describe the present habitat conditions in relationship to habitat needs of the fisher.” In Dr. Barrett’s opinion, “were fisher to disappear or decline significantly in the Project area, this could affect the stability of the entire Kings River sub-population, either by creating a landscape scale, habitat bottleneck or habitat sink that limits species viability.” (*Id.*)

The consequences of potentially fragmenting fisher populations within the SSFCA are significant. The vulnerability of the southern Sierra fisher population is a particular concern because of the ecological importance of the population for the viability of the fisher throughout the Sierra Nevada and the Pacific states:

> The southern Sierra Nevada population is considered vulnerable to disturbance yet essential is for the survival and recovery of the Pacific fisher. This is the only remaining Sierra Nevada population and represents the southernmost extent of the species' range. The southern Sierra Nevada population is therefore the population with the highest potential to recolonize the central and northern Sierra Nevada. Range expansion to previously occupied habitat, reestablishment of connectivity with California's northwestern subpopulations, and future reintroduction efforts, if they are to be successful, all depend on a robust southern Sierra Nevada population. (USDI Fish and Wildlife Service 2001, p. 86).

There is widespread agreement that the southern Sierra fisher population is not viable in the long term in the absence of efforts to expand the current range and to connect the population with the fisher population in northwestern California. (Barrett 2004, p. 6; Buskirk 2003). "The inability of extant fisher populations to support one another demographically, including those that are isolated by relatively small distances, or to colonize currently unoccupied areas within their historical range, are significant conservation concerns." (Aubry and Lewis 2003, p. 88). "Recolonization of the central and northern Sierra Nevada may be the only way to prevent fisher extinction in the isolated southern Sierra Nevada population." (Truex et al. 1998, p. ii).

Facilitating the fisher's dispersal to, and recolonization of, the central and northern Sierra Nevada requires that habitat be provided to promote connectivity and reduce fragmentation. "Retaining suitable habitat within and outside of the Southern Sierra Fisher Conservation Area is necessary to maintain linkage between the southern Sierra Nevada population and the population in northwest California." (USDI Fish and Wildlife Service 2001, p. 134). "To facilitate recolonization, the Forest Service must provide sufficient habitat for fisher denning, resting, and foraging, and that habitat must be located in a manner that will promote the fisher's occupation of, and movement throughout, the region." (Barrett 2004a, p. 6). "The curtailment of habitat connectivity and genetic interchange between the southern Sierra Nevada fisher population and those in northwestern California … may also result in the isolation of the southern Sierra Nevada fisher population, subjecting it to stochastic events and possible extirpation." (USDI Fish and Wildlife Service 2001, p. 134).

The 2004 Framework allowing for increased logging in the SSFCAdoes not address the cumulative impacts of such logging in combination with the KRP. The KRP does not acknowledge the impacts of these and other projects, including logging on private lands within the SSFCA and Kings River drainage. (Barrett 2006, p. 12). The Campaign has on file numerous BEs from different projects in the SSFCA, each of which state that the proposed project "may have an impact on individual fishers but will not lead to a trend to federal listing..." typically because there is habitat elsewhere for this species, i.e., outside the immediate project area. The KRP appears to further this trend on a larger scale.

The Campaign does not believe that the Forest Service has ever conducted a meaningful cumulative impacts assessment of its more intensive management approach set forth in the 2004Framework. The 2004 FSEIS discloses that 145,363 acres of forest within the SSFCA that currently have canopy cover in excess of 50 percent are "projected for treatment" under the new plan (USDA Forest Service 2004b, p. 248, Table 4.3.2.1a). Yet the 2004 ROD offers only general guidance on impact assessment, which is envisions will be implemented at the project level using the tools of adaptive management. The irony is that, given the opportunity to conduct research on a broader scale to further the adaptive management approach, the Forest Service has instead opted for a more intensive treatment approach that appears designed to maximize timber production over all other values, including protection of wildlife and creation of useful data.

For fisher, the Forest Service's current approach will lead to a loss of viability. In this sense, the KRP simply furthers this process, which by definition ignores significant near term impacts to critical habitat for this species on the brink of extinction, in favor of promised habitat benefits down the road in some uncertain future. As noted by Dr. Barrett:

> Both the 2004 Framework and the Kings River Project rely on the identification of long term desired conditions to establish old forest ecosystems to justify the elimination of quality habitat in the "short term," ostensibly in favor of a higher quality habitat in the future. The problem with this approach is that such a future may not exist for the fisher in the Southern Sierra. For the fisher to survive, I believe the Forest Service needs to avoid any actions that appreciably reduce habitat quality in the short term as well as the long term.

(Barrett 2006, p. 13).

g. The KRP Does Not Ensure that Adaptive Management Will be Implemented to Ensure Fisher Viability

The KRP states fisher will be protected through adaptive management by assessing the effects of treatments on fisher: "Monitor high quality fisher habitat in two or more of the initial eight KRP Management Units and untreated control sites before and after treatment." DEIS, p. 54, Table 17. The KRP proposes "a minimum of 35 baited track plate stations arrayed in a 200 meter grid in treatment and control sites, monitored for 10 days and sampled in spring and fall." Track plate monitoring should occur after each of the three major phases of treatments (logging,

mastication and prescribed fire) to determine if fishers still occupy habitat. Additional projects may occur, but FS must evaluate and adapt projects to reflect current monitoring. DEIS, p. 54, Table 17. The DEIS p. 35 also describes the Fisher study, stating "Research is currently working on the techniques to reliably detect presence or absence with adequate confidence....Upon completion of the sampling in 2005 and the analysis of these data, a more specific experimental design will be recommended for implementation in 2006 and beyond."

The KRP does not appear to have a plan in place to determine the impacts of the proposed treatments on fisher.

First, the study design is by definition inadequate, since it focuses on fisher presence or absence in the study area, without assessing how individual fisher are being affected by the Project. At this time, the Forest Service lacks sufficient information to know the location of fisher den sites, individual fisher home ranges or how fishers use the project area. Dr. Barrett notes:

> Most importantly, this method does not record whether a fisher population is declining or any information about why that decline is occurring. Source versus sink habitat can only be determined by assessment of vital rates (reproduction, mortality, dispersal). Under presence-absence monitoring, the Forest Service will only have reason to act once fisher have been eliminated from the area. At that point, however, the habitat that was necessary for fisher presence will have already been logged.

(Barrett 2006, p. 14).

Second, the area selected for grid monitoring is very small and would not provide spatially explicit information about fisher use of the Project area. Instead landscape scale monitoring are necessary to detect trends in fisher distribution. (Barrett 2006, p. 15.)

Third, the Campaign does not believe it is necessary to conduct a study at the scale proposed in the KRP to determine the effects of logging and fuel reduction on fisher. A more focused study over a substantially smaller area, based on better information as to how fisher use such area would allow the Forest Service to collect more meaningful information while avoiding the likely significant and potentially irreversible impacts to this species from the Project as presently proposed.

Fourth insufficient information has been provided to understand how the Forest Service will implement its monitoring program. The Campaign is aware that monitoring has failed to detect sufficient fisher in the proposed units to establish a large enough "N" for purposes of comparison to the control. (*See also* Barrett 2006, p. 15). To remedy this issue, the Forest Service may need an area with higher quality habitat than what currently exists in Units 1-8.

The DEIS says the Forest Service is currently researching "techniques to reliably detect presence or absence with adequate confidence" and that "a more specific experimental design

will be recommended for implementation in 2006 and beyond." However, without information explaining how the project will be implemented, the public cannot assess its ability to produce meaningful information.

Finally, the KRP does not set forth any mechanism whereby the results of a proposed study will be incorporated into an adaptive management approach that may respond to adverse outcomes by altering proposed treatment prescriptions. For example, if the KRP is intended to benefit fisher by creating high quality habitat in 30 years, how can monitoring in the short term provide meaningful information? If the monitoring shows that fishers are experiencing short term, immediate impacts, would that result be unexpected, leading to a change in project design, or would the FS rationale – that the KRP will have long term benefits -- still control decision-making? Without establishing thresholds based on current information that would require the Forest Service to take action in the future to *reduce* impacts to fisher, it is impossible to determine how the KRP is anything else but simply a large logging project that purports to be outside the management standards set forth in the current Framework.

The Campaign does not believe that the Forest Service is committed to using adaptive management to alter treatments based on adverse impacts to the fisher. For example, the Project review documents state that the Project will benefit fisher by creating 5D habitat 30 years down the road, but generally ignore the short term impacts on fisher. Given its demonstrated approach of ignoring near term impacts on fisher, the Forest Service's oblique suggestions that treatments will be altered prior to the implementation of the Project over the 25 year period. As noted by Dr. Barrett:

> I have real concerns about the Forest Service's commitment in this Project to adaptive management as far as wildlife issues are concerned....If the monitoring shows that fishers are experiencing short term, immediate impacts, the Project documents do not indicate that data would lead to any change in project design. Instead, the documents suggest that the Forest Service would simply again point to the long term benefits to the species, without any change in management.

(Barrett 2006, pp. 15-16). This point is particularly true given Forest Service's apparent pre-determined intent to implement an Inverse J curve model across the landscape as means of restoring pre-1850 stand and fuel conditions. As discussed below, the Inverse J curve model is unlikely to lead to pre-1850 conditions for a number of reasons, nor does the model correspond to those conditions. Even if it did correspond, however, the Forest Service must carefully consider other alternatives that can meet the stated project purposes due to the substantial evidence in this record that implementing the present model will have significant harmful effects on and threaten the viability of the fisher in this area. As noted by Dr. Barrett with respect to the Forest Service's J Curve approach:

> Of greater concern from my perspective as a wildlife expert, were this model to be implemented as a general management approach for fuel reduction and forest management projects within the SSFCA, it would have significant adverse impacts on the

> fisher. As noted by the 2001 and 2004 Frameworks, any defensible conservation and recovery strategy for the fisher in the Sierra Nevada must, at a minimum, provide effective protection for currently occupied habitat in the southern Sierra. The model for the Kings River Project, however, allows the Forest Service to harvest at levels well beyond those necessary to avoid fire risk and instead log significant amounts of trees up to 35" diameter, thereby permitting extensive reduction in canopy cover and loss of future essential habitat elements within fisher habitat.

(Barrett 2006, p. 14).

2. The KRP Threatens the Viability of the California Spotted Owl

The KRP also threatens the viability of the California spotted owl. As set forth in the Campaign's Framework appeal, fuel reduction treatments, particularly those allowing for harvest of trees above 20" dbh, have the potential for significant impacts on owl populations. (See SNFPC, 2004) Indeed, there is strong evidence that logging pursuant to the 2004 ROD, particularly logging of medium and large trees, reduction in canopy cover, removal of large snags and down wood, and logging within owl PACs, HRCAs and home ranges will degrade owl nesting and foraging habitat and threaten the owl's viability. (SNFPC et al. 2004, pp. 14-20).

The Sierra National Forest Kings River Project Biological Evaluation for the California Spotted Owl ("CSO BE") finds that owls will not be significantly affected by the KRP because 1) the yearly logging from the Project will be small compared to the overall project area; 2) Project impacts are dispersed and thus owls may find other areas for foraging habitat; and 3) the average acres affected annually represents only between one and two owl home ranges. *See* CSO BE, pp. 44-45. These conclusions do not, however, appear to be scientifically based.

As discussed below, the Forest Service has not assessed the individual or cumulative impacts of this and other fuel reduction projects on owl habitat. The KRP DEIS does not conduct a landscape level analysis to determine the habitat quality available to owls in home range and home range core areas, nor has it presented any specific information regarding the quality of assumed "foraging habitat" outside the areas where logging will occur. In the absence of this information, however, the Forest Service has no basis for claiming that the yearly reduction of habitat to owls equal to approximately two owl home ranges will not have significant impacts to owls and thereby threaten owl viability. Certainly, the reduction of critical habitat equal to two home ranges will have significant and potentially catastrophic impacts on owl populations.

The Campaign reiterates the fact that logging will be spread out in time and space will not prevent the cumulative effects of the KRP from threatening owl viability by eliminating habitat that may require 30 to 50 years to be restored. Here, the DEIS and CSO BE do not indicate whether that owl populations within the KRP are fully occupying currently identified PACs, nor does the KRP contains discussion about the quality or adequacy of potential owl habitat within the Project area. As discussed below, the FWS has found that the increased

logging allowed under the 2004 Framework may warrant listing for the species under the federal ESA. Here, the KRP allows for even greater levels of logging of trees up to 35" dbh, yet provides no analysis as to why this increased intensity does not threaten owl viability. In sum, in the absence of a more comprehensive analysis, the Forest Service may not conclude that this project will not have immediate and significant impacts on owl populations in the area.

a. Studies Indicate the Spotted Owl is Declining in the Sierra

Based in part on the 2004 Framework's weakening of protections for the California spotted owl, the Fish and Wildlife Service recently issued a positive 90-day finding that the petition presents substantial information indicating that listing under the Endangered Species Act may be warranted. (USDI Fish and Wildlife Service 2005).

Recent studies indicate there is substantial cause for concern regarding the owl's viability. The CSO BE (p. 2) acknowledges this fact, stating that, according to population models, "the California spotted owl has experienced significant population declines throughout most of its range. Primary concerns of the subspecies focus on habitat loss and modification due to logging and urbanization and the lack of regulatory mechanisms to prevent such loss and modification."

The new 2006 California Spotted Owl Meta Analysis strongly suggests a declining population trend. Blakesley and Noon (2003) noted that four measurements of population trends for California spotted owls showed declines over time: 1) projection matrix estimates; 2) estimates of T from a meta-analysis; 3) numbers of territorial owls in 68 territories surveyed consistently over time; and 4) a model of occupancy as a function of year and forest type. No analyses showed increasing trends. Similarly, a recent report summarizing the Lassen demographic study stated the following "key finding:"

> Several lines of evidence suggest the spotted owl population in the Lassen study area declined from 1990-2004. The number of sites occupied by territorial owls declined, two estimates of population change (lambda) were < 1, and models of site occupancy in relation to habitat included a declining trend over time. There was no evidence that the spotted owl population on the Lassen study area increased from 1990-2004. (Blakesley et al. 2005, p. 13).

In summarizing this data, Dr. Blakesley has emphasized what she characterized as an "alarming decline in the number of owls" within the Lassen demographic area. (Blakesley 2005).

The recent 2006 California Spotted Owl Meta-analysis is the most current and comprehensive summary of California spotted owl trends and it suggest that owls on the Sierra NF are currently in decline and the population viability assessment in the report (p. 4), points to a declining tend in the future years and a low probability of likely increase. The Sierra National Forest population was projected to show declines 7 years into the future – the probability of a >10 percent decline was nearly twice as great as the probability of a >10 percent increase (Blakesley et al. 2006).

There is strong evidence that logging pursuant to the 2004 ROD, particularly logging of medium and large trees, reduction in canopy cover, removal of large snags and down wood, and logging within owl PACs, owl HRCAs, old forest emphasis areas, and areas of concern, will degrade owl nesting and foraging habitat and threaten the owl's viability. (SNFPC et al. 2004, pp. 14-20). The Forest Service's Science Consistency Review concluded that the new plan "incurs greater risk" to the owl than the Framework (Stine and Keane 2003, p. 9), and the agency's Washington Office Director of Fish and Wildlife found that the new plan is "a prescription for continued owl declines." (Gladden 2003, p. 11). The owl scientists who have reviewed the plan have uniformly concluded that the plan increases the risks to the owl's population, threatening the owl's viability and distribution and contributing to a trend towards federal listing under the Endangered Species Act. (Noon 2004; Verner 2003; Blakesley and Noon 2004; Peery 2004; Bond 2003).

In response to the updated petition, on June 21, 2005, the FWS issued a 90 day finding that the updated petition presented substantial scientific information indicating that listing the species may be warranted and therefore initiated a status review. See 70 Fed. Reg. 35607 (June 21, 2005, Endangered and Threatened Wildlife and Plants: 90-Day Finding on a Petition To List the California Spotted Owl as Threatened or Endangered.) A primary reason for the FWS' decision to revisit the issue of whether the spotted owl should now be listed under the ESA was the FWS' finding that the 2004 Framework no longer provided the same level of protection from timber harvesting as had been afforded by the 2001 Framework. (See e.g., 70 Fed. Reg. 35611-35612.)

The FWS' finding that the 2004 Framework may be threatening owl viability indicates that the KRP, which increases logging to 35" dbh trees, with 40% canopy cover has an acceptable threshold, will have even more significant impacts. This is particularly true given the most recent evidence suggesting that owls in the KRP area are in decline and are thus may be significantly affected by further reductions in habitat.

b. The KRP Will Reduce Critical Owl Habitat

The KRP proposes intensive logging on 130,000 acres, including treatments within PAC and owl home range core areas (HRCAs). However, the KRP DEIS does not explain how lowered canopy levels, loss of old forest habitat and removal of large trees *etc.* will not have potentially significant impacts on the local owl population. Further, the KRP review documents do not adequately analyze the habitat use by owls in this area, nor how this Project will affect owl home ranges and HRCAs.

HRCAs are designed to include "the best available California spotted owl habitat in the closest proximity to the owl activity center." (USDA Forest Service 2004a, p. 39). Extensive logging within HRCAs is likely to adversely affect owl reproduction and occupancy. (Bond 2004). For example, a study by Bart (1995) of 102 northern spotted owl sites in Oregon found that fecundity and adult survival decreased with decreasing amounts of suitable habitat around

the core activity centers, and there was no threshold above which no increase in fecundity or survival occurred. The author concluded that "removing any suitable habitat within the vicinity of the nest tends to reduce the productivity and survivorship of the resident owls." As stated in the Forest Service's Sierra Nevada Science Review: "In the absence of clear reasons why these results would not apply to the California spotted owl as well, they need to be considered in planning for the owls in the Sierra Nevada." (USDA Forest Service 1998, p. 24).

The Forest Service has previously recognized that the 2004 Framework "would reduce the amount of multi-story canopy, stand complexity and canopy closure" within owl home range core areas, "which could affect owl reproductive output." (USDA Forest Service 2003, p. 187). The FSEIS projected that 20 percent of total HRCA acres would be logged within the first two decades across the region. (USDA Forest Service 2004b, p. 270)

Here, the KRP proposes to log significant acres of owl home range core areas (Britting 2006, p 8, Table 5. Based upon the vegetation analysis conducted by Dr. Britting, canopy cover was also severely affected, most HRCAs had serious drops in canopy cover and seven of ten owl sites had no dense canopy (>60%) after the treatments. (*Id*.)

As noted by owl biologist Monica Bond, this habitat loss within the HRCAs poses a real risk to the long-term productivity of owl territories within the analysis area. (Bond 2006.) Here, however, the Project does not provide adequate information about the amount of suitable habitat that will remain within owl HRCAs and home ranges once this and other fuel reduction treatments are implemented. Failure to disclose impacts to affected HRCAs significantly underestimates effects to owls in the KRP Project. FSM § 2672.1 "there shall be no impacts to sensitive species without an analysis of the significance of adverse effects on the population, its habitat, and on the viability of the species as a whole. It is essential to establish population viability objectives when making decisions that would significantly reduce sensitive species numbers."

In sum, the KRP will reduce substantial acreage of HRCAs without any real assessment of the impacts from this reduction of core habitat or what kind of habitat is left over the remainder of the owl's home range. As discussed, there is considerable evidence that HRCAs are minimal critical to maintain owl viability. The Campaign does not agree that the protection of limited amounts of HRCA habitat is adequate to ensure owl survival in the area. Instead all the studies on HRCAs suggest that, while it is true that the importance of habitat increases as one comes closer to the actual nest site, the HRCA is critical habitat within an owl's home range that must be protected to insure viability. Recent scientific studies have shown that 30—40 percent of spotted owl activity occurs in parts of the home range outside of the HRCA (Bingham and Noon 1997).

Rather than proceeding cautiously, the Forest Service instead dismisses the impacts to owl viability from logging co-dominant (>20" -35" dbh) trees and serious reduction in canopy cover and abundance in the HRCAs. It does not appear the Forest Service has any basis for that determination. As noted by Bond, 2006, "habitat loss within the HRCAs, locally and

cumulatively, poses a real risk to the long-term productivity of owl territories within the Project assessment area."

The DEIS offers no analysis of why such loss of quality habitat does not pose a high risk for the owl. Blakesley (2003) shows increase occupancy with increased habitat quality nearer the nest stand, yet the KRP fails to address habitat reduction in these critical HRCA areas.

A review of the population monitoring data and spatial layout of the PACs listed in the KRP reveals further cause for concern. The DEIS neglect to provide detailed information about the occupancy rates of individual PACs. The DEIS states (at p. 186) that "owl pairs have utilized the PACs in bear_fen_6, el_o_win, and KREW_prv_1 almost every year but have only used the PACs in glen_mdw_1, n_sopro_2, and providence_1 for 5, 2 and 1 year(s) out of sixteen, respectively." This is the only specific occupancy information about the owl PACs. The DEIS does not divulge the years of occupancy, whether the PACs were occupied by a single owl or a pair, and whether and when the PAC was reproductive. Given the paucity of highly suitable nesting habitat, this information is absolutely vital for conducting a scientifically valid analysis of impacts because some PACs support owl pairs and reproduction more consistently than other PACs, indicating that some areas likely have higher quality habitat than others. Differential impacts to these higher quality areas will potentially have longer term impacts to the broader population. Without such information, there is no foundation to support the CSO BE viability determination (Bond 2006).

Only 5 of the 8 PACs to be monitored in the CSO study have been consistently occupied in the plan area over the past 16 years (3 in bear_fen_6, and 1 each in e_o_win and KREW_prv_1). As noted in (Bond 2006), "such a small sample and such variable treatments across the PACs, it is questionable how the research study can adequately demonstrate treatment impacts."

Thus, based on current population monitoring, the Forest Service cannot rely on the preservation of PACs to ensure that owls are surviving in the project or Assessment Area.

The KRP will substantially reduce canopy coverage, eliminate large trees and remove understory habitat in spotted owl home range and home range core area, which may include valuable nesting and foraging habitat. The intensity of the proposed logging has the potential to harm the quality and connectivity of home range and home range core habitat not only at the landscape level, but also within the project area itself. In the absence of reliable data showing how remaining habitat will be adequate, this approach fails to ensure viability, as described by the Sierra Nevada Framework:

> Vegetation treatments that create openings or reduce suitable habitat will widen the gaps between habitat patches. Increases in the amount of discontinuous habitat and isolation of habitat patches are concerns within known owl home ranges as well as across the landscape. A reduction in the continuity of habitat between owl activity centers, including the habitat outside known owl home ranges, could limit successful mate finding and

> dispersal, increasing nearest neighbor distances and affecting population trends. In fragmented landscapes, the high survival costs associated with searching for low-density habitat can create a situation where populations may go extinct in the presence of suitable habitat due to constraints on successful dispersal. Reducing habitat fragmentation and maintaining patches of suitable but unoccupied habitat particularly in areas already identified as geographic areas of concern, is important from this standpoint.

(USDA Forest Service, 2001a, Chap. 3, part 4.4, p. 97.) The Forest and the District must proceed very cautiously to ensure that short-term habitat is being maintained, while also preserving medium to large trees for future old-growth recruitment in order to maintain connectivity with the HRCAs. Indeed, Framework scientists specifically found that timber harvesting poses serious short term risks to the owl due to habitat fragmentation:

> [R]etaining existing suitable habitat and improving habitat conditions over the next couple of decades may be particularly important for stabilizing owl populations. Research into population dynamics at larger scales has suggested the possible existence of habitat thresholds, below which populations may go extinct in the presence of suitable habitat due to constraints on successful dispersal. With current population declines, vegetation treatment impacts over a short time period may involve risks to the spotted owl population that are not evident by considering longer-term habitat projections alone.

(See e.g., USDA Forest Service, 2001a, Chap. 3, part 4.4, p. 95. See also id. at p. 96 ("[W]here a greater proportion of owl home ranges have less than desired amounts of habitat to begin with, reducing the amount of habitat within the few home ranges that exceed the habitat threshold, prior to increasing amounts of habitat in other owl home ranges, could increase the risk of worsening conditions and increasing nearest neighbor distances for owl sites within these areas.")

In the clear absence of data comparing habitat attributes (pre and post project) in PACs and HRCAs for the KRP analysis, information was gathered from the Forest Service GIS files to attempt to assess the impacts from the proposed logging on various species.

According to (Britting 2006), "[T]he analysis of effects displayed in Table 5 and the summary of desired conditions in Table 6 affirm that the Kings River Project intends to manage HRCAs at a lower habitat quality than previously identified as suitable and necessary. The DEIS fails to explain or describe the effects of such an approach on the persistence of CSO."

c. The KRP Does not Ensure that Owls Have Adequate Amounts of High Quality Habitat to Maintain Viability

The KRP provides little analysis of whether there is currently adequate habitat for owls to survive, including in units 1-8. As discussed, there are currently no stands of 5D and only 35 acres of 5M in the Project area. Yet research shows that a critical factor for owl persistence is high quality, 5D and 6 habitat, which supports adult survivorship.

Further, Dr. Britting's vegetation analysis reveals that the proposed treatments will most eliminate dense canopy coverage within owl HRCAs:

> The canopy cover of dense habitat was also strongly affected by treatment. In seven of the ten owl sites, there would *be no dense canopy cover remaining following treatment*. The existing high levels of dense canopy cover were maintained for only two CSO sites, FR027 and FR039. (emphasis added.)

(Britting 2006, p. 8, Table 5.)

Owl researchers report that, "the estimate of non-juvenile female survival rate is particularly important because this demographic rate most influences rates of population change (Noon and Biles 1990)." However, further reduction and increased fragmentation of this habitat will likely lead to lowered adult survival rates and increased nearest-neighbor distance. Blakesley and Noon (1999) state that, to the extent that survival rates (not reproduction) are affected by habitat loss and fragmentation, changes in management practices may lead to decreases in survival. Blakesley and Noon (2001) state that, "the most positive step that can be taken to reverse the apparent decline (in spotted owls) is to improve adult survival probabilities." Here, concern for the California spotted owl population exists because the survival rate for breeding adults (the key demographic parameter) was lower than the mean estimate for the listed Northern Spotted Owl (Franklin et al. 2004) (See also Bond 2005; Irwin et al. (2004). (use of a stand by spotted owls positively correlated to number of trees per acre greater than 26 inches diameter.)

Adequate amount of high quality, unfragmented habitat is also critical for owl survival since it increases an owl's ability to avoid predation. The owl BE notes that barred owls are likely to increase due to the proposed logging, but does not consider this impact to be significant. Further, dense, older forests play a key role in owl thermo-regulation. (Bond 2006) Studies have shown that as habitat quality decreases, the effects of climatic variation on survival increased (Franklin et al. 2000).

d. The KRP Does Not Ensure that Owls Have Adequate Foraging Habitat to Maintain Viability

The DEIS and BE lack adequate analysis of the quality and spacing of available habitat within owl home ranges associated with the PACs within the Project area. The DEIS does not provide information regarding the quality of habitat that is available in the Project and in the Project assessment area. While the DEIS (p. 186) claims that "All the land allocations provide at least the minimum canopy cover parameters for foraging, rousting (sic) and nesting habitat," there is no evidence to support this assertion.

The KRP not only removes a substantial percentage of quality habitat, it appears to rely on low quality habitat as a basis for finding that the owl will not be significantly adversely

affected. As set forth in the DEIS, most of the remaining habitat characterized as "suitable" by the Forest Service are 4M, which includes trees down to 11" dbh. The CSO BE (p. 24) assumes that this low end of 4M habitat is adequate for owl foraging, but the evidence does not support this assumption.

The record indicates that the habitat the Forest Service is relying on to support owl populations in the Project area is of lower quality (currently, and for 10 years there is no 5M and 5D stands (KRP Wildlife BE p. 60-62) and is unlikely to provide real benefits to owl in the coming decade.

Conditions in the PACs/HRCAs where owls depend upon high quality habitat are being summarily degraded to levels below identified desired conditions for management of these allocations. According to (Britting 2006 Table 5), it shows that their [KRP] conception of the desired condition results in substantial portions of the HRCA with canopy cover below even the lesser amount identified in the 2004 decision. The stated desired condition also provides for very little dense canopy cover for most of the owl sites reviewed."

e. The KRP Will Fragment Owl Habitat

There is considerable evidence that owls require home range habitat to retain certain minimal habitat components such as interior forest habitat, multiple canopy layers and minimum canopy coverage. Yet here, the Forest Service appears satisfied to relegate owls to 300 acre habitat blocks, the size of the PACs that are to be protected. As noted by the 2001Framework:

> PACs alone are not an adequate conservation strategy for maintaining a viable population of owls. They are important because they do provide protection to nest sites. However, the distribution and abundance of owl habitat around PACs and across the landscape are critical considerations that will determine the ultimate adequacy of a PAC-based conservation strategy for maintaining owl viability in the Sierra Nevada.

(USDA Forest Service, 2001a, Chap. 3, part 4.4, p. 85.) This finding is a continuation of the prior rejection by federal scientists of the SOHA strategy of isolating blocks of habitat from each other, which was found not to be a viable strategy for preserving owl populations. (See Verner 1992, p. 15 ("We expect that owl pairs in SOHAs would disappear at a relatively high rate, leaving the SOHAs unoccupied and at least temporarily nonfunctional."))

Here, the level of harvest was not set based on a habitat analysis of forest edge versus interior and the amount and arrangement of group selection openings that preserves continuous forest cover habitat created by the forest canopy openings resulting from group selection harvest. Instead, logging is dictated by silviculture models that do not consider the short term reduction in habitat to owls.

Group selection harvest was considered in 1992 by the CASPO technical team (Verner et al. 1992) and in the CASPO interim guidelines environmental assessment (USDA Forest Service

1993). In the CASPO interim guidelines, the technical team proposed a long term strategy for using small, even-aged groups of 0.25 to 2 acres to manage the forest for owl habitat. However the CASPO environmental assessment considered the effects of group selection on continuous forest cover by defining group selection harvests as occurring within stands that retained 50-80% canopy cover in trees > 20 feet tall. (USDA Forest Service 1993, p. IV-65). Group selection openings also were limited to 1,320 acres per year over the seven national forests covered by the decision. (USDA Forest Service 1993, p. IV-74). Based on these limitations, the CASPO environmental assessment determined that this level of group selection would continue to provide continuous forest cover. In contrast, the KRP estimates that canopy cover in treated stands adjacent to group selection openings could be reduced to 40%. As a result, the up to three acre openings in this Project do not function as potentially beneficial variations within a dense to moderately dense forest, but rather as a further contribution to an open forest structure that cannot support spotted owls.

In sum, the group selection logging proposed in this Project is far more aggressive and intensive than approaches historically proposed that were viewed as consistent with owl management. Further, the KRP alone contemplates creating almost as many acres of group selection openings as was contemplated for all 7 nationals forests in one year under the CASPO environmental analysis. (USDA Forest Service 1993, IV-74).

Under the KRP areas in which owls have been cited but not yet designated for protection may be logged unless site occupancy is reconfirmed prior to project implementation. However, as noted by the Sierra Nevada Framework, "[p]rotecting occupied, as well as suitable but unoccupied habitat, over the long term is important to insure species viability. (USDA Forest Service, 2001a, Chap. 3, part 4.4, p. 82.) According to the Framework:

> [C]onservation efforts should therefore consider not only occupied habitat, but also suitable unoccupied habitats, in developing conservation strategies for species for which dispersal may function as a primary limiting factor. (Id.)

The proximity of the treatment units within 0.25 miles of existing CSO HRCAs was not evaluated in the environmental analysis. (Britting 2006) Figure 2 shows the distribution of habitat with respect to CSO PACs and HRCAs. There is no consideration in the KRP DEIS of impacts to these HRCAs within a quarter mile of Phase I units although there is a high likelihood of effects given the proximity and overlap with the proposed logging.

The national forest also had information available to them from the CASPO technical report regarding the definition of edge versus interior forest habitat yet they failed to use this to quantify the effects of groups selection logging on the amount and arrangement of interior forest. (Verner et al. 1992, p. 15). Ultimately, the KRP DEIS fails to draw any conclusions about the absolute effects of the proposed group selection logging on forest fragmentation and instead merely concludes that future evaluation will direct treatment intensity in the larger landscape.

In light of previous conclusions by the Forest Service regarding the adverse effects of group selection harvest on owl habitat (Verner et al. 1992, USDA Forest Service 1993, USDA Forest 1999, USDA Forest Service 2004), the discussion in the DEIS is not adequate to assess impacts of the proposed action on spotted owl and other species dependent on interior forests or its effect on spotted owl viability. (See also Bond 2006; Britting 2006)

f. The KRP Will Have Significant Indirect Impacts to Owls

(a) Impacts to Prey Base

The KRP also fails to analyze adequately impacts to spotted owls by decreasing prey species such as wood rats and flying squirrel populations. The DEIS and BE does not acknowledge the impacts of group selection and large scale fuel reduction on flying squirrels or wood rats, the primary prey of the owl. (Verner 1992, p.69.) Flying squirrels would likely be absent within the group selection openings and thus these small openings within the forest may be marginal for foraging spotted owls due to isolation from the forest interior. The KRP CSO BE fails to address through any site-specific surveys or any characterization of prey-base responses in the previous 10S18 logging project, what the likely short or long term effects will be from the –even-aged management system as applied across the larger landscape.

(b) Impacts due to Increased Predation

The KRP does not adequately address the potential for significant impacts from creating a mosaic of forest openings to which barred owls, a spotted owl predator, are better adapted. Barred owls have been detected in the area and the potential for barred owls to become established and compete with California spotted owls within the KRP area is a potentially significant cumulative effect, which is not meaningfully discussed in the planning documents.

Concern for the California spotted owl population in the Sierra Nevada forests in interaction with barred owls is an important management issue. Competitive exclusion, increased aggression, predation, and hybridization between barred and spotted owls raise serious concerns for spotted owl survival in the Sierra Nevada. Barred owls are on the increase with 20 of the 33 barred owl records occurring between 2002-2004 (Plumas-Lassen Administrative Study Monitoring Report (FEIS 3-82). Barred owls have reached the Eldorado National Forest in the central Sierra Nevada in 2003, and the Sequoia National Forest in 2004 (G. Steger, pers. comm.). Barred owls have the potential to invade as far south as 38 N latitude (Peterson and Robins 2003). The authors recognize the effects of habitat fragmentation related to habitat invasion of Barred owl and also recommend more direct measures for combating the species invasion (Id. p. 1164).

Kelly et al. (2002), found dramatically increasing numbers of barred owls in her study area in western Oregon. She identified 706 barred Owl territories in Oregon between 1974 and 1998, with an average of 60 new territories found each year between 1989 and 1998. Kelly et al. results suggest, "that land managers and regulatory agencies should regard barred owls as a threat to spotted owls, particularly if barred owls continue to increase in numbers as they have during the past 25 years," (Kelly et al. p.45)

The Forest Service has confirmed increased sightings of barred owl recorded on the Plumas National Forest since 1992 (Feather River Ranger District, 2003). An increase in barred owls due to forest fragmentation in combination with reduced habitat could cumulatively reduced spotted owl numbers in the area. The reduction of spotted owl numbers in the area is a significant impact. Increased forest fragmentation in the KRP is likely to facilitate the invasion of barred owls and lead to potentially significant impacts to spotted owls in the planning area and beyond.

The KRP also fails to analyze the potentially significant impacts of increasing predation by Great Horned Owls. (See Verner 1992, p. 67) The FEIS does not acknowledge that group selection may allow for predation on spotted owls by great horned owls, which are known to occupy the open habitat. Id. ("Great horned owls tend to be more common in areas with lower tree densities than is the case for spotted owls, and the smaller size of spotted owls probably enables them to outmaneuver great horned owls in dense forests.")

g. The Cumulative Impacts of the KRP Threaten Owl Viability

The CSO BE p. 43 suggests because logging has declined, historically, from exceptionally high levels in the 1960s-1980s, that spotted owls today have lower risks of negative habitat impacts. These is no evidence of a documented recover and in fact the Fish and Wildlife Service in July 2005 determined that listing of the owl may be warranted. This is 13 years after the initiation of the CASPO Guidelines and measures to protect owl habitat across the range. This strongly suggests that a variety if impacts including effects to species from ongoing Forest Service actions reduce habitat to at, or below minimums, play a significant role in the owls continued decline. The Forest Service should not speculate on the past compared to today…past impacts and the loss of old growth forests in the Sierra Nevada were immense. The present, with implementation of projects such as KRP, propose logging more intense than the 1993 CASPO Guidelines and will likely set back owl habitat restoration in the future (Also See Bond 2006, Britting 2006, Heald 2006; Rice 2006).

Based on its review, the Campaign believes the Forest Service has failed to adequately consider cumulative impacts for several reasons.

First, the KRP DEIS and CSO BE make the astounding claim that there are no cumulative impacts (p.44) in spite of 6000 acres of private land in the heart of the project area and a list of past projects several pages long in the DEIS. A mere listing of projects in the DEIS (p. 68—73), does not constitute an adequate cumulative effects analysis. *See The Lands Council*

v. Powell, 379 F.3d 738 (9th Cir. 2004). There is no meaningful discussion of the actual effects of these past projects and current activities on a wide-ranging species such as the spotted owl. Breeding dispersal, juvenile dispersal, and seasonal (elevational) migration behavior are all impacted by fragmentation and habitat loss which in turn impact long-term adult survival (Bond 2006). This information is critical for any proper assessment of the indirect effects of each of the current projects on individual owl sites and long-term viability of the population within the project area.

Second, within the KRP area 131,500 acres there are a several current and past projects including South of Shaver, Indian Rock, and 10S18 plus a many more (see the Wildlife BE p.36 to 45 for all the past actions). The cumulative effects analysis for the KRP fails to consider past impacts from projects occurring in the 131,500 acre, 30-year project area even though several projects such as South of Shaver, 10S18 and Indian Rock all had findings of "may affect" for individual spotted owls in their planning documents. Spotted owl and other wildlife species exist in a population that must communicate with each other to maintain population viability. This is done through movement, migration and dispersal that can often encompass many miles (Blakesley 2006; Layman 1988). Impacts from past activities including logging, fires, urbanization, grazing and roads all generate cumulative impacts that effect spotted owls in the surrounding landscape within and outside the Phase I project area.

Third, the KRP DEIS assumes that cumulative effects occur on a particular discreet set of acres limited by a line drawn on a map. However, proper cumulative effects analysis must be conducted on the potential impacts to at-risk species in terms of all their behavioral life cycle functions such as foraging, nesting, dispersal, migration. For example spotted owls on the Sierra National Forest have an average juvenile dispersal distance of 9.9 miles (BE p. 23). Thus, the population is impacted by projects, roads, urbanization, fires, barred owls, other predators, disease and parasites, in the project and outside of it.. The DEIS p. 189 identifies a much larger CEA area (the San Joaquin river in the north to the Kings River in the south) than the KRP project area (131,500 ac) but fails to identify impacts on this larger landscape (such as reduction of suitable habitat from past logging and fires or the spatial relationship of development, roads and past logging) which have in the past and continue, to impact spotted owls and their nesting, foraging or dispersal habitat in the project.

Fourth, the KRP's attempt to conduct cumulative impact assessment for the Project is not based on science. For example, the the CSO BE (p. 38) states that since the Project is only impacting the equivalent of 2 owl homes ranges per year or 5000 acres and that this acreage is spread out and is only a small proportion of any given Home Range, there is limited impact from treatments. But this analysis lacks any discussion of the spatial arrangement of such treatments or the effects on specific owl activity area, each of which are necessary to understand the differential effects on a particular area. The Forest Service can not minimize the impacts by using averages to mathematically distribute effects differently than the real allocation of impacts that occurs in the proposed logging and fuels treatments. As discussed above, Dr. Britting's analysis shows that quality coverage habitat (>60% canopy cover) will be reduced below 10 % or even *entirely eliminated* in eight out of eleven owl HRCA's due to treatments in the proposed

action. (Britting 2006, p. 8, Table 5). The Forest Service's simplistic calculations do not account for these type of impacts.

Further, the KRP DEIS states there will be only 5 years before an adjacent opening is created so fragmentation will not increase significantly. As discussed above however in relation to impacts on the fisher, there is no basis for any supposed benefit of deferring future logging for 5-years between openings and nothing in the record suggesting that a 5 year period will have any ecological value.

Finally, the CSO BE statement (p. 37) that logging will not adversely affect the owl's dispersal ability is unsupported since the KRP lacks any analysis that looks at the quality of habitat at a larger scale corresponding to the average dispersal distance of 9.9 miles.

3. The KRP Threatens the Viability of the Yosemite Toad

a. Kings River Experimental Watershed or (KREW

The Kings River Project (KRP) initial Phase I implementation has several long-term research proposals embedded in it along with the Sierra National Forest vegetation and fire treatments in the KRP. Phase I treatments are associated with various Pacific Southwest Research Station experiments purporting to monitor impacts to at-risk wildlife and water quality. One such experiment is the Kings River Experimental Watershed or (KREW)

The purpose of the KREW study is to "quantify the existing condition and variability of, and to evaluate the effects of the implementation of the KRP on, the characteristics of headwater stream ecosystems and their associated watersheds (DEIS p.33). According to the DEIS, instrumentation (of stream measurement sensing equipment) occurred in 2000 and the baseline data collection began in 2002.

The KREW study seeks to answer specific questions related to:

- The effects of thinning on riparian and stream physical, chemical, and biological conditions.
- Does the use of prescribed fire increase or decrease the rate of erosion (long term verses short term) and effect soil health and productivity?
- Effectiveness of current stream buffers on protecting aquatic ecosystems.

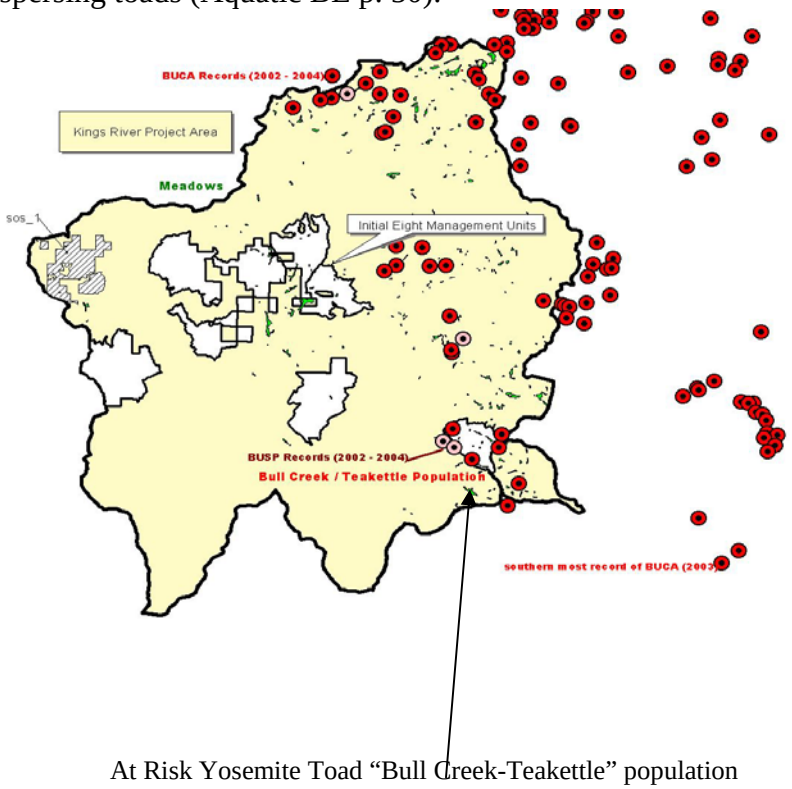
Unfortunately the poorly coordinated selection of KREW sites and continued resistance to proposed mitigation measures has raised several significant issues including the Kings River Project's likely violations of NEPA, NFMA, CWA and existing Forest Service Manual direction regarding the protection of rare species.

b. Impacts to Yosemite Toad

The Yosemite Toad is candidate species under the Federal Endangered Species Act and is warranted for listing, but precluded by higher priorities. Federal Register [Dec. 10, 2002 Volume 67, Number 237 p.75834].

Yosemite toads exist in several isolated locations in the larger 131,500 ac KRP planning area and are particularly affected in the isolated sub-population in the KREW_bul_1 watershed. The Yosemite toad over-winters in rodent burrows (Jennings and Hayes 1994). They emerge from hibernation as soon as snowmelt pools form near their over-wintering sites (Karlstrom 1962; Kagarise Sherman 1980; Jennings and Hayes 1994).
Observed emergence times range from early May to the middle of June (Kagarise Sherman 1980).

The high elevation meadow in the KREW_bul_1 unit is only accessible in the summer due to high snowfall at this elevation. Yosemite toad breeding activity and dispersal takes place at the same time as the proposed treatments adjacent to breeding meadows. A limited operating period and significant buffers are required to prevent, sediment, noise and crushing of dispersing toads (Aquatic BE p. 50).



At Risk Yosemite Toad “Bull Creek-Teakettle” population

The Determination in the Aquatic Species Biological Evaluation p.53

Yosemite toad	Federal Candidate and Forest Service Sensitive	***may affect individuals, and is likely to result in a trend toward federal listing or loss of viability*** *primarily in the Bull Creek & Teakettle watershed population**

The Rationale for the finding is based upon, "[T]he extent of the project, the other ongoing management activities and the proposed future management activities are expected to significantly impact meadow, stream, and upland habitats specifically for the Bull Creek & Teakettle population" (Aquatic BE p. 53).

*To change the determination on the Yosemite toad to one that is not likely to lead to listing or loss of viability, a 500 foot no mechanical activity zone on occupied meadows (instead of the currently proposed 100 foot zone on meadows) would be needed.

c. Conflicts with KREW Study placement

In May 7, 2004 District aquatic biologist Holly Sanders sent a memo to the KRP project file disclosing the level of mitigation require to protect sensitive species including the Yosemite Toad (see below).

1. In addition to the protection measures listed in #5 above, protection measures for the Yosemite toad located in the **krew_bul_1** management unit are to:
   a. Not conduct project activities within 0.6 miles of the occupied meadows between May 1 and August 15
   b. Not have treatments of herbicides/pesticides within 500 feet of the occupied meadows
   c. Not have mechanical treatments within 500 feet of the occupied meadows
   d. Not have ignition of fires within 500 feet of occupied meadows (fires are allowed to creep into meadows, though avoidance of burning the occupied meadows should be attempted)
   e. Not have any water drafting sites located within 0.6 miles of the occupied meadows

In a memo dated 11/16/04 to District Ranger Ray Porter from Phil Strand, Fisheries Program Manager and Hydrologist Rick Hopson the specialists identify the original mitigation measures recommended to protect the Yosemite toad in the KREW_bul_1 units as 0.6 of a mile (over 3000 feet) which was later reduced to 500' to allow 7 of 9 units to be logged closer to the sensitive meadows (Strand and Hopson 2004, p. 2).

The 0.6 mile buffer (estimated dispersal distance for the Yosemite toad) is a valid, conservative approach to maintaining a viable toad population in meadows associated with the isolated Bull creek/Teakettle population. Since there is little know about the dispersal behavior

of the Yosemite toad in these high elevation meadows there is a high risk of direct and indirect impacts (crushing, crushing burrows, siltation, noise) associated with the removal of the 0.6 mile activity buffer. The Strand and Hopson (2004) letter suggests limiting the buffer to 500' which will allow logging on seven of the nine KREW units.

There is no discussion, in the above letter, of risks to dispersing toads from the removal of the wider buffer, only that it will facilitate more logging. The Federal Register Notice 12/10/04 p. 75838 lists several factors leading to the decline of the Yosemite toad in the Sierra Nevada including *Roads and Timber Harvest.*

The KRP aquatic biologist states, "[I]n the meadows that are occupied by Yosemite toad the cumulative effect of this project with the planned future management activities of the Kings River project surrounding the occupied meadows may be detrimental to the local population in the Bull Creek/Teakettle watersheds. It appears that a core population of the Yosemite toad occurs I the meadows of the krew-bul-1 management unit (Bull Creek and Teakettle watersheds) and dispersal into other nearby over-wintering and breeding habitats occurs but is limited to within their potential dispersal distance. Currently, these meadows of krew-bul-1 provide good breeding areas however with continued management activities contributing sediment, noise disturbance, compaction of burrow habitat, and direct kills expected, Yosemite toads is this population may be lost and the habitat significant (sic) impacted, thus the core population may be reduced to a point where the species can no longer exist in that watershed (an irreversible effect). Other populations of Yosemite toads may not be able to repopulate the Bull Creek/Teakettle watersheds since they occur over 0.6 miles away (the distance estimated that a Yosemite toad can disperse). If the additional design measures are implemented, then some protection for this species in the known occupied meadows would be provided thus reducing some of the initial impacts on the project." DEIS p.90

The Federal Register 12/10/04 p.75835 cites Stebbins (1951) and suggested that isolation or semi-isolation of subpopulations of Yosemite toads is likely because they are unlikely to cross large, dry, forested areas between meadows.

Several additional mitigations were offered by aquatic specialists in the CWE analysis p. 13 which would significantly reduce risk to Yosemite toads in the project:

- Several potential mitigations could be considered to reduce the risk of a CWE. One is to use a logging system that has less of a ground disturbing impact than what is currently proposed in the proposed action. For example, helicopter, cable, or even cut to length logging systems will likely reduce the area and/or intensity of ground disturbing impacts, thereby reducing the potential for a CWE.

- Another option to reduce CWE is to repair erosion problems documented in the watershed improvement needs inventory (WINI). Each of the subwatersheds included in this analysis had between four and twenty five erosion problems (with the exception of one subwatershed with no recorded WIN sites). Repair of erosion problems would reduce the volume of sediment entering downstream reaches, and would at least partially offset increases in sedimentation from project activities.

- A third option to reduce CWE is to reduce the amount of area treated over successive years from the Kings River Project (KRP). Each of the subwatersheds analyzed was currently over the threshold of concern prior to treatments associated with the eight initial management units of the KRP. However, several subwatersheds have additional treatments planned that have yet to be analyzed. These future treatments are likely result in significant increases in CWE, potentially reaching as high as a 22% disturbance in 2018. Planning efforts could be designed to reduce potential future impacts that may lead to a CWE. (Emphasis added)

- A combination of the above and other mitigations is recommended to reduce the ecological impacts to aquatic system resulting from cumulative watershed effects associated with the Kings River Project. As currently planned, implementation of the KRP would result in cumulative watershed effects to seven subwatersheds. Given the inherent connectivity of watersheds, areas downstream from the seven CWE subwatersheds will also likely have cumulative impacts resulting from the KRP.

Clearly, reducing treatment intensity was not embraced as a design measure in the KRP DEIS. The 500' meadow buffer and LOP for operations to protect dispersing toads became the final recommendation of the aquatic biologist for the KRP project and KREW_bul_1 area (Aquatic BE p. 52: Sanders 1/27/06).

d. Design Measures for Yosemite toad rejected in the name of Research.

The 500' no activity buffer was **rejected** by the KREW project leader and replaced with a far narrower 100' buffer to allow for the logging disturbance and sediment movement desired in the proposed research.

In a letter written 11/15/04 Dr. Carolyn Husaker lead KREW researcher specifically rejects the design measures placed in the Kings River Project to protect the Yosemite toad by the aquatic biologist.

Dr. Hunsaker notes in her letter to the KRP planning team that, "it is rather frustrating and distressing to find that these needs have not been incorporated into the proposed action design measures in a more direct manner."

"To ensure consistency of the KREW research design, use a 100 ft. zone on either side of a stream or around a wet meadow even when species of concern are present."

"Limited operating period for Yosemite toad needs to be modified in the research watersheds to end earlier than August 15 so thinning treatments can be completed before September 1. 1 month is needed to reinstall soil instruments before snowfall (1 September – 1 October).

Hunsaker states, "[W]e have to perform treatments that MIGHT cause impacts. Thus there is a risk to some species in some parts of KRP."

Unfortunately, Dr. Hunsaker assumes that the "consistency with the KREW research design" takes precedent over compliance with Federal and state environmental protections for species at-risk of extinction.

e. The Kings River Project Biological Evaluation Determination for the Yosemite Toad

The resulting biological determination for the Yosemite toad of, **"may affect individuals and is likely to result in a trend towards federal listing or loss of viability"** (Aquatic BE p. 52) is a directly tied to the rejection of important design measures discussed above and in (Sanders and Hopson 2005). In addition, the Aquatic BE p. 38, discusses the low likelihood of recolonization, if the population were to be extirpated (see below).

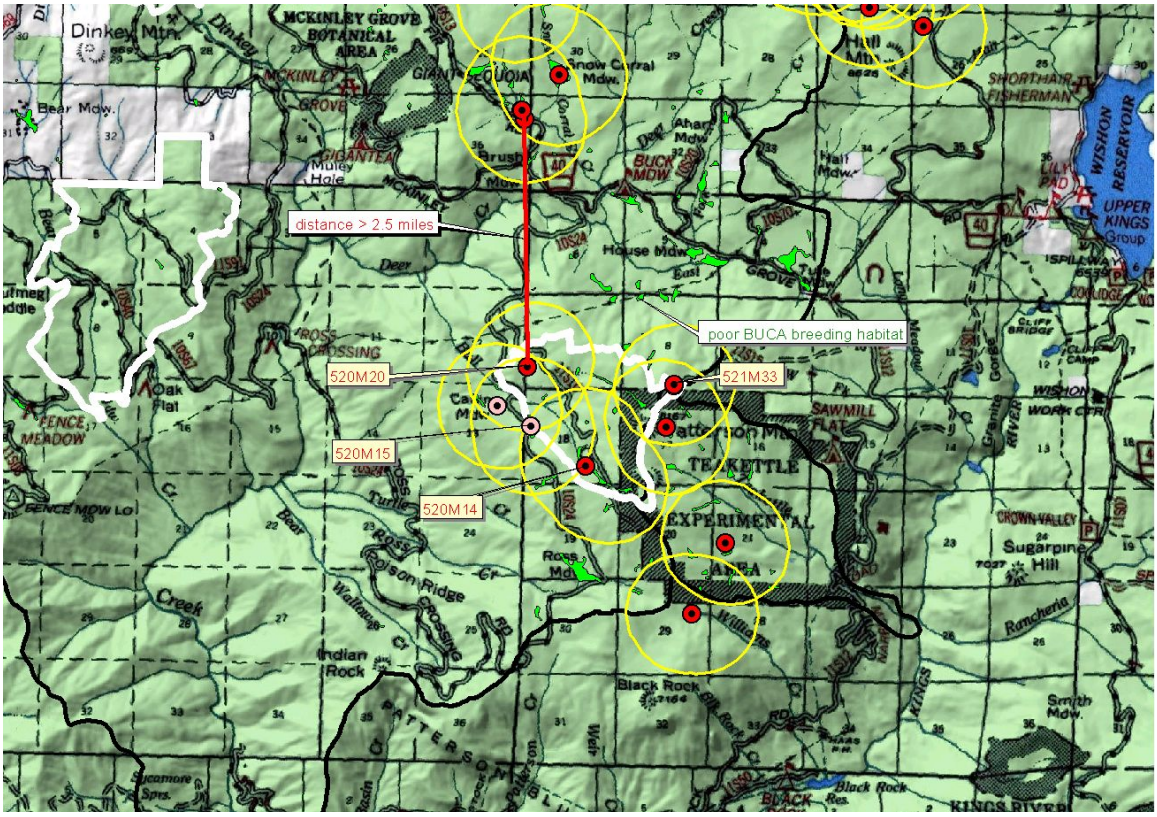


Figure 8c. The distance to the nearest occupied meadow from the Bull Creek / Teakettle population is more than 2.5 miles to the north with no suitable meadows in between to serve as dispersal zones. Roads and terrain would also be limiting factors in repopulating the Bull Creek / Teakettle population. Initial eight management units are outlined in white with the krew_bul_1

management unit shown next to the Teakettle experimental watershed. 0.6 miles around occupied meadow edges are shown as yellow circles. Occupied meadows of concern within the krew_bul_1 are 520M14, 520M15, 520M20, and 521M33. Map scale 1:85,000.

f. The Existing Regulatory Framework for Protection of At-Risk Species in the Kings River Project Area

The Sierra National Forest, Forest Plan of 1991

The 1991 Sierra NF Forest Plan (p. 3-5) is guided under NFMA (36 CFR § 219.19) which requires the selection of Management Indicator Species and the evaluation of the effects of alternatives on the viability and diversity of plant and animal communities.

The 1991 Sierra National Forest Plan p. 4-4, § 4.3.8 has, for 15 years, maintained a management direction goal to, "develop and implement management practices to ensure sensitive species do not become threatened or endangered because of Forest Service actions." The Forest Plan, p. 4-1 directs future plan implementers to "[M]anage fish, wildlife and plant habitats to maintain viable populations of all resident or indigenous fish, wildlife and plant species."

The 2004 Framework ROD

The 2004 Framework ROD/FEIS-Appendix E carry on the Sierra National Forest commitment to maintain viable populations of plant and wildlife species and the NFMA (16 USC 1604 (g)(3)(B) mandate to maintain diversity on our national forests (2004 ROD p. 21; 70). This obligation pertains to protection of sensitive species such as the Yosemite toad and carries a requirement to maintain diversity and prevent extirpation of at-risk species in the KRP.

Forest Service Manual Requirements (FSM 2672.4)

2672.41 - Objectives of the Biological Evaluation

1. To ensure that Forest Service actions do not contribute to loss of viability of any native or desired non-native plant or contribute to animal species or trends toward Federal listing of any species.

3. To provide a process and standard by which to ensure that threatened, endangered, proposed, and sensitive species receive full consideration in the decision-making process.

Based upon the Forest Service Manual 2672.4, the Forest Service must comply with the requirements of this section to "ensure' that projects to not contribute to a trend towards Federal listing. As noted above, the Yosemite toad is already found to be warranted for listing (FR

12/10/2002), in part from past impacts on this and other national forests within the range of the Yosemite toad. This project, with its "trend determination" added to the already perilous conditions faced by this rare amphibian provides the legal and moral obligation for the Forest Service to defer activities that would likely lead to extirpation of the Yosemite toad.

Protection of Beneficial Uses of Water

The Water Code § 13050(f) requires that the *beneficial uses* of the waters of California be protected from degradation. "Preservation and enhancement of fish, wildlife and other aquatic resources" are key responsibilities under the California Water Code and specifically the Central Valley Regional Water Quality Control Board Basin Plan for this region of the Sierra Nevada. Specific beneficial uses include:

- Cold Freshwater Habitat and uses that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

- Wildlife Habitat and uses of water that support terrestrial or wetland ecosystems including, but not limited to, preservation and enhancement of terrestrial or wetlands, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

- Rare, Threatened, or Endangered Species and uses of water that supports aquatic habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.

- Migration of Aquatic Organisms and uses of waters that support habitats necessary for migration <u>or other temporary activities</u> by aquatic organism.

It is clear from the requirements of the California Water Code § 13050(f) that the Forest Service and the Central Valley Regional Water Quality Control Board share a responsibility to protect certain beneficial uses of water in a manner that is not detrimental to the continued existence of the Yosemite toad. The KRP Aquatic BE (Sanders 2006) has clearly explained the rationale and design measures necessary, at a minimum, to not exacerbate the negative population decline of the Yosemite toad in the Sierra Nevada.

Waiver of Waste Discharge

The Central Valley Regional Water Quality Control Board adopted RESOLUTION NO. R5-2005-052 in 2005, a Conditional Waiver of Waste Discharge Requirement for Discharges Related to Timber Harvest.

Attachment A, p.3, Section I-B provides General Conditions for a Waiver and requires the Forest Service to conduct timber harvest activities in accordance with a final decision and NEPA document.

Attachment A, p. 12, Section II-E contains various Eligibility Requirements for a Waiver if Waste Discharge for timber harvest. The Sierra National Forest and the Kings River Project clearly do not meet the conditions for a waiver due to the rejection of design measures **(additional control measures as needed)** to protect the Yosemite toad from extirpation from high mountain meadow aquatic systems. Rejection of additional control measures as set forth by the aquatic biologist in the KRP mentioned above, clearly fails to "assure compliance with the applicable water quality control plan" for the Central Valley Region and violates the Water Code 13050(f) and the requirements to protect the beneficial uses of water and preservation of wildlife and aquatic habitats pertaining to the rare and highly at-risk Yosemite toad, surviving in a rare, isolated sub-population in the Sierra Nevada. The CVRWQCB should deny the timber harvest waiver based upon conditions mentioned above in the Kings River Project.

g. Summary of Yosemite Toad Issue

The Forest Service research proposal which claims to be designed in part to understand the effects of stream buffers on aquatic species appears to have turned a blind eye to the high likelihood of creating the very conditions (destruction of habitat and individuals of a rare aquatic species determined to be at risk of extinction) for the sake of learning about those very risks.

We find nothing in the record supporting the removal of the 0.6 mile buffer around all Yosemite toad meadows in the Kings River Project. We note with concern, that the aquatic biologist on the KRP was not an author of the (Strand and Hopson 2004) letter offering to narrow the buffer from 0.6 miles to 500' which allowed logging on 7 of 9 units impacting Yosemite toad dispersal habitat. We believe that the potential increased impact to the toad from logging in their dispersal habitat requires the reinstatement of the 0.6 mile design measure originally requested by the aquatic specialist on the KRP. The KRP DEIS has offered no evidence that the removal of the 0.6 mile buffer won't accelerate the current declining population trend for the Yosemite toad.

Limiting the intensity of treatments and mitigating excessive impacts does not seem to be acceptable in what appears to be a pre-determined decision to move forward with the various treatments in spite of the long term risks to this rare Sierra Nevada amphibian.

B. The Analysis of Management Indicator Species is Inadequate.

As the Ninth Circuit recently affirmed, NFMA "requires that the Forest Service identify [MIS], monitor their population trends, and evaluate each project alternative in terms of the impact on both [MIS] habitat and [MIS] populations." *The Lands Council v. Powell*, 379 F.3d 738 (9th Cir. 2004). In certain circumstances, the Ninth Circuit has allowed the Forest Service to utilize the so-called "proxy on proxy" approach, in which analysis of habitat trends for MIS can

substitute for analysis of actual population trends. "Crucial to this approach, however, is that the methodology for identifying the habitat proxy be sound…. If the habitat trend data is flawed, the proxy on proxy result, here species population trends, will be equally flawed." *Id.*; *see also Sierra Club v. Eubanks*, Civ. S 03-1238, Memorandum and Order, p. 21 (E.D. Cal. August 20, 2004)("Habitat analysis is an acceptable substitute for population trend data if there is enough underlying data to support such an analysis, along with any resulting conclusion that the project area includes enough habitat essential for survival of the MIS species in question…Here there appears to be a lack of such underlying data.")

The KRP's analysis of impacts on management indicator species (MIS) is legally inadequate. The Sierra National Forest lacks baseline data to support the conclusions in the DEIS. The National Forest Management Act and its regulations require the Forest Service to evaluate the habitat and population trends of management indicator species in the planning area. The Forest Service Manual (FSM 2620) also requires the Forest Service to monitor habitat conditions for MIS and to maintain their viability. The FSM and NEPA (40 CFR § 1508.7) requires that the Forest Service assess the cumulative impacts to MIS species. Here, however, the KRP DEIS lacks benchmark habitat and population data for the management indicator species. (Preston 2006). Without information on benchmark conditions for MIS in the planning area, the Forest Service cannot make a scientifically supportable finding as to the health or viability of the indicator species. Baseline data is essential to establishing any long-term monitoring program. Without pre-project monitoring and acquisition of data, it is impossible for the Forest Service to link the impacts with the activity (cause and effect). (Preston 2006)

As discussed by Preston, this informational gap is particularly critical regarding certain MIS such as avian guilds, mule deer, osprey and other harvest species identified in the 1991 Sierra NF, Forest Plan p. 3-5. (*Id.*) The 1991 Sierra Forest Plan has carried important management obligations for 15 years regarding the ongoing monitoring of key MIS identified in the Plan p. 3-5. Chapter 5 of the 1991 Sierra Forest Plan identified monitoring requirements for avian guilds and other MIS on the basis of 5 years and every 2 years during the life of the plan. None of this information was reported in the KRP DEIS.

The 2004 Framework ROD p. 70 incorporates the 2001 Framework, Vol. 4, Appendix-E into the management direction for the Sierra National Forest. Despite the fact that the SNFPA has been in place for over 5 years, there has been literally no attempt to incorporate the clear monitoring requirements of Appendix E into project planning of the Sierra National Forest.

Forest Service documents prepared for the Kings River project show that group selection and fuel reduction treatments may be expected to have substantial impacts on a variety of wildlife. The KRP DEIS and MIS report fail to provide any information as to the specific location of treatments in relation to important habitat elements or populations of MIS in the Sierra National Forest. According to Preston, cumulative impacts analysis for Harvest MIS is particularly critical because these species not only are impacted by logging (DFPZ, GS, and uneven-aged management prescriptions), road building, fire, urbanization, predation and other factors but they are also subjected to continued hunting pressure.

The KRP DEIS also fails to assess the cumulative impacts from Phase I treatments and other projects to Forest Plan MIS which migrate through, disperse young, and utilize habitat within and outside the Project area. There is literally no mention of potential cumulative impacts from the proposed action or past, current, and reasonably foreseeable future activities and their possible impacts to avian guild species (Preston 2006).

Further, the KRP DEIS fails to meet forest plan requirements for the monitoring of MIS in the 2004 ROD. The 2004 ROD incorporates and adopts the monitoring requirements of the 2001ROD. (USDA Forest Service 2004a, p. 70). The 2001 ROD identifies MIS and SAR where population tracking and monitoring of population trend is "expected annually." (USDA Forest Service 2001a, Vol. 4, Appendix E, Tables E9, E10, E11). As shown in Preston 2006, the KRP DEIS fails to mention or address impacts to the expanded MIS/SARs list in the 2001 ROD, which is part of the Forest Service's management responsibility under the 2004 SNFPA ROD. There is also no evidence in the record showing the region, forest or district has met the annual population monitoring requirement. Since the KRP DEIS lacks necessary monitoring or population trend data, its conclusions regarding impacts to wildlife are unsupported, and the project is not consistent with the 2004 ROD.

In sum, Preston concludes: "The Sierra National Forest has not supported the speculative conclusions with adequate scientific basis regarding the impacts of the project on MIS species." There is a serious lack of scientific integrity and necessary information regarding baseline conditions, population trend, species movement, habitat use and specific life cycle needs for the MIS species. "Without the necessary quantitative data on MIS on the Sierra National Forest lands the Forest Service can not support the conclusions for effect analysis for MIS in the Kings River Project DEIS" (Preston 2006).

C. The KRP Does Not Comply with the Sierra Forest Plan Regarding Protection of Soils

The Kings River Soils Report (7/26/2005) discloses that soil resources are managed by maintaining soil productivity using the Regional Soils Standard and Guidelines and management direction provided in the 1991 Sierra Forest Plan including FSH 2509.18.

The KRP Soils report (p.1) discloses that the project proposal could affect soil productivity by reducing soil porosity, soil cover, and large woody debris. The report mentions concerns over loss of soil porosity, reduced soil cover, and accelerated erosion from ground based logging and burning (p.2).

The Soils report p. 3 identifies several areas in the KRP with soils transect data which are below Forest Plan standards. El_O-Win has soil cover below forest plan standards (38%-should be 50%); Providence 4, does not meet Large Woody Debris (LWD) standards (1.1 pieces/ac-should be 5/ac); Stands in the Bear Meadows Project have 8 stands that currently do not meet soil compaction standards for the Forest Plan but the report fails to disclose if these are part of

the Bear_fen_6 management unit. If the area is in the Bear_fen_6 KRP unit then specific correction measures must be identified. NEPA requires that this disclosure be evident. The Forest Plan Guidelines are supposed to prevent detrimental soil compaction. The 1996 Bear Meadows project residual impacts must be corrected and not added to, in the Phase I project. Soils Report p. 17 states the Bear_fen_6 area has serious compaction problems that need to be addressed and rectified to be consistent with the Sierra Forest Plan and NFMA.

The Soils analysis reports soil cover levels for various units in the KRP but critical information regarding soil compaction levels is missing for units Glen_meadow_1, KREW_bul_1, KREW_Prov_1 (where concern for soil compaction was mentioned but no soil compaction data or soil disturbance information was presented), and N_Soaproot_2 (where concern for soil compaction was mentioned but no soil compaction data or soil disturbance information was presented) (p. 17-18).

In spite of this lack of data on soil compaction in various KRP units the Soil Report finding suggests, "no significant impacts to soil productivity are expected given the design measures incorporated in the Proposed Action" (p. 19). The Soils report concludes that there will be "no potential indirect effects if soil compaction is kept to less than 15% of the activity area."

This flawed conclusion rests on an analysis that lacked transect data and assessments of existing soil compaction levels for several of the units mentioned above in the KRP project area. Further, the soils assessment failed to provide maps or descriptions of layouts of planned landings, skid trails, or roads to compare with areas of past treatments and their residual impacts on forest soils. We are left to guess where at-risk conditions for soil resources currently exist on the planning landscape or what the effects will be from the proposed action to soil resources. Although Forest Plan soil quality standards were not measured in some units and were not met in others, the soils report and the DEIS find all is well regarding soil conditions in the KRP. This finding can not be supported by the information presented and it risks further violations of the Forest Plan soil quality standards.

D. The KRP Does Not Comply with Regional Direction that the Identification of Pre-1850 Desired Conditions Include an Assessment of the Historical Presence of Lower Westside Hardwood Forest Ecosystems

The 2001 Framework identified the identification and protection of Lower Westside Hardwood Forest Ecosystems as one of the five critical areas of concern for Forest Service planners. Hardwood ecosystems are divided into two categories: montane hardwood forests and blue oak woodlands. The Sierra Nevada Framework defines montane hardwood forests as"vegetation communities dominated (greater than 50% of the tree canopy cover) by California black oak, canyon live oak, Pacific madrone, tanoak or a mixture of these species are collectively known as montane hardwood forests." 2001 Framework FEIS, Vol. 1, Ch. 2, p 17. The regional strategy for sustaining lower westside hardwood forests is as follows:

> The lower westside hardwood forest ecosystem strategy ...involves comparing existing vegetation conditions with desired conditions during landscape analysis to determine needs for restoring and enhancing hardwood ecosystems. Potential natural vegetation communities, which would occur if stand succession were allowed to proceed under a natural fire regime in the prevailing climate, would provide the basis for desired conditions in hardwood ecosystems. Using potential natural vegetation as the desired condition would highlight areas where hardwood ecosystems have been lost due to past management and changes in fire regime. Management would then identify hardwood ecosystem enhancement or restoration projects in these areas during landscape analysis. Desired conditions, including distributions of seral stages and stand densities, would be derived from the local environmental conditions, and incorporated into the larger landscape. This strategy would expand the information base for hardwoods, while integrating hardwood ecosystem management with forest management.

2001 Framework FEIS, Vol. 1, Ch. 2, p. 180. In addition, "[t]reatments in new and existing plantations would give priority to California black oaks over conifers." *Id*., p. 181. The Regional strategy requires the Forest Service to compare existing vegetation conditions to desired conditions during landscape analysis to determine the need for restoring and enhancing hardwood ecosystems. Through post-disturbance management, the Forest Service would promote existing or former aggregations and stands of montane hardwoods by requiring "managers to verify and correct existing vegetation mapping and identify areas where hardwood ecosystems could be enhanced." 2001 Framework FEIS, Vol. 2, Ch. 3, pt. 3.3, p. 3-182. The 2004 Framework continues regional direction for management of Lower Westside Hardwood Forest Ecosystems:

> [S]ustaining westside hardwood ecosystems was identified in the FEIS to be one of the five management needs. A detailed assessment of hardwood ecosystems is presented in [Section 3.3] of the FEIS. A conservation strategy for these ecosystems, and standards and guidelines for management of hardwood species, were developed and adopted in the record of decision (ROD) for the FEIS. Chief among the standard and guidelines are retention requirements for large hardwoods. The proposed changes assessed in the SEIS would not alter the existing strategy or change the specific hardwood standards and guidelines. Therefore, no further assessment of impacts to hardwood ecosystems is needed.

2004 Framework FSEIS, p. 412. The 2004 ROD requires the Forest Service to:

> During or prior to landscape analysis, spatially determine distributions of existing and potential natural hardwood ecosystems (FSH 2090.22). Assume pre-1850 disturbance levels for potential natural community distribution. Work with province ecologists or other qualified personnel to map and/or model hardwood ecosystems at a landscape scale (approximately 30,000 to 50,000 acres). Include the following steps in the analysis: 1) compare distributions of potential natural hardwood ecosystems with existing hardwood ecosystems; 2) identify locations where existing hardwood ecosystems are outside the

natural range of variability for potential natural hardwood ecosystem distribution 3) identify hardwood restoration and enhancement projects.

2004 ROD, p. 53. The 2004 ROD also requires the Forest Service to manage hardwood ecosystems so as to ensure preservation of this critical element of the landscape habitat. *Id.*

The KRP DEIS does not appear to comply with there requirements. Numerous references in the DEIS and other planning documents reveal that oaks – particularly black oaks – are widespread throughout the lower elevations of the Project area, yet the Forest Service does not appear to have conducted any landscape level assessment to identify natural hardwood ecosystems based on pre-1850 disturbance levels. The Forest Service's failure to do so is ironic, give its heavy reliance on the purported Inverse J curve as a model for pre-1850 forest conditions. Given the Forest Service's emphasis in this "research" project on restoring pre-1850 conditions, its failure to designate lower westside hardwood ecosystem habitat across the landscape violates the regional direction as set forth in the Framework.

The Campaign notes that hardwood ecosystems provide important habitat benefits to a host of wildlife, including the Pacific fisher, which is threatened by this Project. Identification and retention of crucial hardwood habitat is thus necessary to ensure that impacts to these species are minimized.

III. THE KRP DEIS DOES NOT COMPLY WITH NEPA

The KRP DEIS is contrary to the National Environmental Policy Act ("NEPA") for a number or reasons.

First, the Project does not meet its proposed purposes and needs relating to research goals or the restoration of pre-1850 stand conditions and the historical fire regime across the landscape. Here, what little information is presented indicates that the proposed research will not yield useful information regarding the effects of fuel treatments, uneven-aged management and stand density reductions on wildlife. Further, the Inverse J curve proposed by the Forest Service does not correspond to historical conditions and thus is unlikely to reestablish the historical fire regime in which ground fires periodically burned through the area without affecting the crown.

Second, in only considering two alternatives, the proposed action and the "no project" alternative, the DEIS fails to consider a reasonable range of alternatives. As discussed below, there are a number of reasonable alternatives with lesser impacts on wildlife that would meet the Forest Service's purported goal of reducing fire risk while at the same time restoring old forest conditions over time.

Third, as discussed above and more fully below, the DEIS fails to take a "hard look" at the impacts to wildlife of implementing the level of logging proposed, particularly the cumulative effects of implementing this vast project within the middle of the Southern Sierra Fisher Conservation Area.

Fourth the DEIS fails to meet NEPA's informational requirement to provide a complete description of both the environmental setting and overall Project, particularly with respect to how the Forest Service intends to assess the effects of its actions and implement so-called "adaptive management" in response to those effects. Here, the KRP is proposed as a "research" project, yet fails to explain how the Forest Service will be able to determine the effects of its ongoing actions nor how such information will be incorporated into future Project implementation.

A. The KRP Does Not Meet its Proposed Purposes and Needs

1. The KRP Research Plan Does not Ensure that the Project Research Objectives will be Met

The Forest Service characterizes primary purpose of the KRP as research to gain knowledge about how to restore pre-1850 conditions to forest stands and fire regimes and the effects of such treatments to accomplish these purposes on wildlife and other natural resources in the Project area. However, as discussed in several parts of these comments, the research plans presently proposed are unlikely to yield useful information regarding how to recreate these historical conditions, nor the effects of treatments on wildlife.

As one example, the fisher expert Dr. Barrett found that the research plan for fisher would not provide useful information due to the limits of presence/absence monitoring that provides information on distribution but not on fisher numbers, habitat use or vigor, too small a sample area, and insufficient information provided to understand how the Forest Service will implement its monitoring program and use the results in adaptive management. (Barrett 2006.) Dr. Barrett concludes:

> Based on all these reasons, I believe the research program proposed in this Project will not provide meaningful information about the effects of this level of logging on fisher except to record its disappearance from the Project area. Given the imperiled status of this species and the overall lack of information we have on how fisher use the Project area, I am surprised that the Forest Service would authorize a research project so heavy on logging but with so little emphasis on creating and presenting an effective research plan.

(Barrett 2006, p. 15).

Another example is the KRP's research plan to "gain knowledge of …prescribed fire." The DEIS, p. 5 states only that "there are research questions that could provide answers and improve the current state of knowledge regarding timber management and fuel treatment effects on wildlife habitat, wildfire behavior and watershed condition." However, no study addresses the effects of the treatment on potential wildfire, or monitors the treatment of prescribed burning. Other aspects of the research plan appear similarly vague or undirected. For example, the DEIS (p. 33) asks whether uneven age tree thinning and prescribed fire can "be able to restore forests?"

The yes or no answer to this question, however, would not guide future fuel reduction treatments. (Rice 2006) Elsewhere, the DEIS states that research will track the effects of fuel treatments (thinning trees) on "physical, chemical and biological conditions." However, without information on the effectiveness of the treatments, future implementation lacks necessary feedback to adjust to any poor results that may come from initial treatments. In sum, without feedback, future treatments are not guided, which results in more severe potential impacts because improvements can't be made based on past experience. (Rice 2006)

Still another example is the Forest Service's failure to implement the Kings River Administrative Study (USDA Forest Service 2001) according to the terms of the 2001 Memorandum of Understanding (MOU). A fundamental purpose of the Administrative Study is to evaluate the ability of certain treatments to achieve desired results for forest structure and fire resiliency. Thus, the Forest Service's failure to implement the Study according to the terms of the MOU compromises the Forest Service's ability to achieve these project purposes.

A review of the MOU and relevant documents completed by Dr. Britting and summarized below indicates that "a number of the requirements agreed upon in the MOU have not been satisfied. These unsatisfied requirements are necessary to establish the scientific underpinnings and framework of the administrative study. In their absence, the integrity of the administrative study is questionable and the purpose and need for the project can not be met." (Britting 2006, p. 11).

Although required by the MOU (USDA Forest Service 2001, p. 10) principle investigators have not been assigned to all of the study modules. (Britting 2006, p. 11). Most alarming is the absence of principle investigators from both the uneven-aged silviculture and fire behavior study modules. Also required by the MOU is the development of study plans for each module that are peer reviewed. (USDA Forest Service 2001, p. 10). "The absence of principle investigators from the uneven-aged and fire study areas has lead to the failure to prepare study plans for these modules that have been peer reviewed. Bluntly stated, no research scientist is associated with these aspects of the administrative study.

While the Study was designed to achieve desired conditions for forest structure and fire resiliency, no one with scientific expertise in the areas of forest ecology or fire science has been assigned to design and lead these study modules." (Britting 2006, p. 11). This lack of scientific expertise appears to have led to the incorrect interpretation that the inverse J-curve reflects the historic pre-1850 distribution of trees. Similarly, the misrepresentation of Sudworth's data and the failure to expand this data from the quarter acre plots reported by Sudworth to estimates per acre may also be related to the lack of scientific expertise associated with the project." (*Id*.). For a third study plan that addresses the highly imperiled fisher, there remain "significant and unresolved barriers to developing a scientifically credible and relevant study design." (*Id*.)

In her review, Dr. Britting concluded that the "failure to accomplish critical elements of the MOU compromises the scientific integrity of the administrative study. These failings must

be remedied before the effects of the study can be properly evaluated. Further, in the absence of the basic underpinnings for the administrative study the purpose and need for the proposed action can not be met." (*Id*.)

2. The KRP Unevenaged Management Approach and Fuel Reduction Treatments Will not Restore the pre-1850 Conditions Across the Landscape

The Forest Service has not provided enough information to show how the KRP will achieve the Project purposes of restoring pre-1850 conditions across the landscape. Each of these issues confounds the stated purpose of the proposed action to restore pre-1850 forest conditions. In contrast, the information that we have reviewed suggests that the Forest Service's present approach will not achieve project purposes.

As set forth below, there are numerous significant issues that have not been addressed in the development of the proposed action including 1) lack of clarity in the description of pre-1850 forest conditions; 2) failure to substantiate or support the description of pre-1850 conditions that were adopted; 3) mischaracterizations of the data on which the KRP relied to formulate the pre-1850 conditions; and 4) and failure to provide the proper scientific oversight for the project.

a. The Pre-1850 Forest Conditions Are Not Adequately Defined

The first step in achieving the objective of restoring pre-1850 historic conditions is to define them. Surprisingly, this fundamental notion of creating a definition against which the success of achieving a restored forest can be measured was overlooked in the KRP. A review of the proposed action completed by Dr. Britting, a consulting biologist, identified that the DEIS and supporting documents described a variety of attributes associated with pre-1850 conditions that were drawn from the literature. (Britting 2006). These included tree size and density, within stand variability, stand basal area, mix of tree species, and fire regime. (*Id*.).

Despite the range of characteristics that should be considered in defining pre-1850 conditions, the KRP instead adopts "a simplistic approach to describing pre-1850 landscape conditions where the diameter distribution of the trees in the stand (a histogram of trees per acre versus diameter class) approximat[ing] an inverse J-shaped curve." (*Id*.). This approach fails to identify desired conditions for structures such as snags and down logs, basal area (Heald 2006, p. 2), and processes such as wildfire all of which were noted by KRP silviculturist Ramiro Rojas as important elements of the pre-1850 forest. (Rojas 2004).

Further, the KRP does not define the natural variation from stand to stand in average tree size and age across the landscape. By instead adopting the Inverse J curve as a uniform model for stands within the Project area, the Forest Service eliminates this natural historical condition, which included many stands of predominately large old trees well above the levels that would be allowed to occur under the Inverse J curve model. (Britting 2006, p. 10; Heald 2006, pp. 1-2.)

To the extent that the Forest Service does attempt to define pre-1850 conditions, its characterizations are inaccurate and not based on a careful review of the applicable research that has been done. As noted by Heald 2006:

> [T]he Sudworth data presented has erroneously not been properly expanded from the stated ¼ acre plots to obtain trees and basal area per acre. The correct average number of trees for Sudworth's six Sierra National Forest mixed conifer plots is 106 trees per acre (reported by Stephens as 111 TPA for eight plots) not 16 to 36 as stated in the appendix and DEIS). The correct average basal area per acre is 1031 ft2/acre basal area, not 152 to 358 stated as in the appendix and DEIS (reported by Stephens as 1166 ft2 / acre for eight plots).

Errors of interpretation were also noted for other data sets leading Heald (2006) to conclude that when "corrected for errors in presentation, the historic data clearly shows higher tree densities, greater basal area per acre and more large trees per acre than are characterized by the Inverse J curve proposed in the DEIS."

b. The Inverse J Curve Does Not Properly Characterize Pre-1850 Forest Conditions

Not only is the level of detail inadequate to describe the pre-1850 forest condition (Britting 2006, p. 9), but the actual shape of the Inverse J curve that is adopted does not reflect pre-1850 conditions in the Sierra Nevada. (Britting 2006, p. 10; Heald 2006, pp. 1-3)

The slope of the curve more closely reflects "tropical rainforests and humid temperate forests in the Eastern US and Europe." (Heald 2006, p. 1). Heald (Ibid., p. 2) notes that "In their current state, ~100+ years of fire suppression, the few old Sierran forests with data seem to approximate the inverse-J." Dr. Britting found in her review of the literature describing desired condition that was cited by the KRP:

> For those papers that actually characterize forest stands, forest structure is often described as having few small trees per acre and many more large trees per acre – the opposite of an inverse J-shaped curve. In fact, Minnich et al. (1995, see Figures 3 a and b, 4b, 5b, 6b) found that diameter distributions for the contemporary stands that had experienced fire suppression or logging in the past 60 years consistently exhibited an inverse J-shaped pattern.

Britting (2006, p. 10)

Thus, the tree distribution describe by the inverse J curve reflects not a restored forest, but a forest that has been subjected to fire suppression and/or logging. Fire specialist Carol Rice concluded that the inverse J-curve characterized a forest in which small trees were overly abundant and resulted in a stand that was not fire resilient. (Rice 2006).

Heald (2006, p. 2) also identified that the inverse J-curve does not provide for a sufficient number of medium sized trees to grow into large old trees large trees and that the model of tree size was arbitrarily constrained. He concluded that "the bottom line is that the Inverse J analysis process simply cannot adequately describe a stand structure and composition compatible with ecosystem processes essential to restore old Sierran forests." (*Id*., p. 3).

3. The KRP Project Will Not Achieve the Project Purpose of Restoring the Historical Fire Resiliency

The Inverse J curve model also does not accomplish the stated purpose and need of achieving the fire resiliency of the pre-1850 Sierra forest. As noted by Rice (2006) the Inverse J curve is incompatible with fire resistance. A stand with relatively frequent historic fire intervals cannot by definition support a preponderance of small-diameter trees that is inherent in an inverse J stand structure. Instead, frequent fires - even low-intensity surface fires - remove the small-diameter trees from the stand structure.

By establishing an inverse J-shaped curve distribution of stand age/size, "ladder fuels" are integral to the stand. Those trees that are reaching into the forest canopy are the sapling to 6-8 inches in diameter, which are abundant in this stand age/size distribution. The ladder fuels are conducive to torching and crown fire initiation; these trees reduce the height to live canopy. They are incompatible with the SNFPA ROD standard of a 15 ft height to live crown level in the WUI, and incompatible with the overall goal of reducing crown fire potential. (Rice 2006)

The DEIS (p. 19) states that the "desired canopy cover is achieved when all the diameter classes are represented in the stand." However, canopy cover can be achieved by several distributions other than J. As noted by Rice (2006) the "smaller diameter size classes should not comprise a larger proportion of the canopy, because they fuel surface fires and provide an enhanced avenue for fire to reach the forest canopy."

In addition, the uneven-aged treatments proposed in this Project are not consistent with uniform low-intensity fire. Rather, localized torching creates patch regeneration, (stand replacement) which occurs on a finer scale than the patches described in the DEIS of three acres or more. (Rice 2006).

B. The KRP DEIS Fails to Consider a Reasonable Range of Alternatives

NEPA and the CEQ regulations require that the Forest Service "[r]igorously explore and objectively evaluate all reasonable alternatives." 40 C.F.R. § 1502.14(a). The requirement that agencies consider all reasonable alternatives "is at the heart of the environmental impact statement." 40 C.F.R. § 1502.14. The purpose of this requirement is to "sharply defin[e] the issues and provid[e] a clear basis for choice among options by the decisionmaker and the public." *Id*. The KRP DEIS fails to comply with this requirement. Other than the "no action" alternative, which is specifically required by law, the DEIS fails to analyze in detail any

alternatives, despite the fact that numerous reasonable alternatives were suggested by commenters. Moreover, the reasons offered in the DEIS for eliminating alternatives from detailed review are neither persuasive nor legally sufficient.

NEPA requires that an EIS "specify the underlying purpose and need" for any project that it proposes. 40 CFR 1502.13. Under NEPA, the required environmental documentation insures the integrity of the agency process by forcing the agency "to face those stubborn, difficult to answer objections without ignoring them or sweeping them under the rug." *Sierra Club v. United States Army Corps of Eng'rs*, 772 F.2d 1043, 1049 (2d Cir. 1985). An EIS is not an opportunity to justify an action, but rather a forum to "provide full and fair discussion of significant environmental impacts and [to] inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." 40 C.F.R. § 1502.1. Thus, a stated purpose that does not allow for such discussion is invalid under NEPA. *See Westlands Water District v. United States Dep't of the Interior*, 376 F.3d 853, 867 (9th Cir. 2004). An agency must also not define its project purpose so narrowly as to preclude consideration of reasonable alternatives. *See Muckleshoot Indian Tribe v. United States Forest Serv*., 177 F.3d 800, 812-14 (9th Cir. 1999.)

The DEIS states that the proposed level of harvest is the only *project* alternative that can be considered due to the Forest Service's adoption of the inverse J-Curve as a thinning model that requires trees up to 35"dbh to be removed. As discussed below, there is no scientific basis for the Forest Service's belief the inverse J curve should be applied at the stand level, nor even whether it represents even an accurate portrayal of the range of tree sizes as measured across the landscape. For purposes of alternatives analysis, as discussed more below, there are alternative management prescriptions that will achieve the forest service's stated purpose to restore old forest conditions. The same can be said for the purpose of reducing the risk of landscape level crown fires. For each of these purposes there exist alternatives that can achieve the Forest Service's goals with substantially less impacts on sensitive wildlife. As discussed above, since the present proposed action threatens the viability of several of these species, the Campaign believes that the Forest Service is not only required to consider these alternatives under NEPA, it is required to choose a less significant alternative based to ensure compliance with NFMA.

Our review of the DEIS indicates that most of what is presented is based on pre-determined decisions already made by the Forest Service, which has not invested time and resources in certain courses of action. We note that, if this is an accurate characterization, the Forest Service should have conducted NEPA-required review at that time it was making irrevocable commitments to a particular management approach. To the extent that the Forest Service has done so, however, that does not excuse it from presenting a reasonable range of alternatives for public review under NEPA.

1. The KRP Should Consider an Alternative that Does not Threaten the Viability of Sensitive Wildlife Species

The KRP DEIS must assess alternative with less impact on sensitive wildlife such as the fisher and spotted owl. As stated in our prior scoping comments, the 2001 Framework is a reasonable alternative that must be included in the DEIS. The revised DEIS should consider alternatives with lower diameter limits (e.g., 12-20" dbh, depending upon land allocation)and higher canopy cover retention standards (e.g., 50 percent). As discussed below, Forest Service analysis of other logging projects has demonstrated that fuels reduction objectives can be satisfied utilizing a 20" dbh limit, rather than the 30" or 35" dbh limit.. Moreover, the best available research indicates that the Forest Service's fuels reduction objectives can be met without logging trees greater than 20" dbh or reducing canopy cover below 50 percent.(SNFPC *et al*. 2004, pp. 62-71).

An alternative based on the 2001 ROD is a "reasonable alternative" as that term is used in NEPA, for several reasons. First, there is strong support for the 2001 ROD within the scientific the public. As demonstrated in the Campaign's administrative appeal of the 2004 ROD, leading researchers on the California spotted owl and Pacific fisher have criticized the 2004 ROD and urged the Forest Service to implement the 2001 ROD instead. (*See, e.g.,* Verner 2003;Blakesleyand Noon 2004; Noon2004; Peery 2004; Bond 2003; Franklin et al. 2003; Barrett2004; Kucera 2004; Lewis 2003a,2003b; Buskirk 2003). The overwhelming opinion of leading wildlife experts in support of the 2001 ROD requires consideration in the DEIS for this Project.

Second, the U.S. Environmental Protection Agency, in its scoping comments on similar projects has specifically requested that the Forest Service evaluate an alternative that would implement the 2001 Framework and "include a description of the various environmental, social and economic issues, and the pros and cons of each management approach." (U.S. EPA management, environmental and social benefits of; and the adverse effect associated with the ROD versus the Sierra Nevada Framework." Therefore, EPA urged the Forest Service to "reconsider whether to evaluate an alternative which would implement the 2001" Framework.

Third, there is enormous public support for the 2001 ROD, including over 6,000 administrative appeals of the 2004 ROD.

Fourth, a 2001 ROD alternative needs to be considered to "sharply defin[e] the issues and C.F.R. § 1502.14. In our view, the evidence is overwhelming that an alternative based on the 2001 ROD will have significantly less impacts on sensitive forest species such as the fisher and spotted owl, based precisely on the different management direction given on critical issues such as tree size, canopy cover and land designation protections. The public has a right to view this alternative side by side with the proposed action in order to review and provide comment on the decisions the Forest Service is making on these public lands.

2. The KRP Fails to Consider Alternatives that Would Achieve the Project Purpose of Reducing Fire Risk

As discussed below, the Forest Service has not provided adequate information why logging large (up to 35" dbh trees) is necessary to avoid stand replacing fires. As stated by the Northern District Court in its recent decision in Sierra Club v. Bosworth, USND Case No. 05-00397, regarding the tradeoff between fuel reduction benefits and impacts on sensitive wildlife:

> There can be little dispute that fire poses a threat to the fisher and must be considered in an environmental analysis. However, the proper question given all the available science is not only whether a project protects the Forest from catastrophic fire, but also whether it does so in a manner that has the least impact on sensitive species. For example, a reasoned analysis likely would revisit the original canopy cover and tree diameter restrictions to determine--in light of all the new information--whether restrictions set at other levels would still protect the forest from fire while better protecting important habitat features.

Opinion, p. 14:9-17. (emphasis added.)

The Forest Service is required to consider alternatives that meet fuel reduction goals with lesser impacts on wildlife. Here, the Forest Service's failure to present an accurate picture of the fire risk, as discussed in Section ___below, undermines the conclusions in the DEIS that the proposed level of harvesting for fuel reduction purposes is necessary to avoid such catastrophic wildfire. The Forest Service's analysis ignores that resiliency to a wildfire means a greater ability to withstand a fire and that larger trees have a greater ability to withstand fire. The adaptations of larger pines and cedars are many, most notably a greater bark thickness and higher height of live foliage above the forest floor, and thus retaining the largest trees in the stand offers the greatest likelihood of increasing overall stand resiliency.

As set forth in more detail in the accompanying comments of Carol Rice, the DEIS does not consider an alternative that retains trees larger than 20 inches, with a resulting higher crown bulk density, but lower predicted surface fire characteristics. Under this alternative forests would be treated to achieve high height to live crown measurements and surface fuels would be treated to achieve a flame length shorter than 4 feet. Numerous studies demonstrate that this approach, based on thinning from below, rather than removing the larger trees in the stand, would be a preferred treatment to achieve fuel management objectives. (Rice 2006).

Further, a proper analysis of fuel reduction alternatives would look at different treatments (including the use of prescribed fire only, or thinning to a greater basal area in smaller size classes or canopy cover, or a different distribution of treatment locations and size). In fact the DEIS appears to ignore other successful, well-document treatments scenarios that would also meet other management goals more effectively. In fact, there is “little justification in terms of fire behavior for increasing diameter limits to reduce the chance of crown fire behavior. If one

agrees that reducing crown bulk density is needed, the desired crown bulk density could be achieved by taking more trees sized 20 inches and under." (Rice 2006)

The Forest Service appears to have paid only lip service to the goal of fuel reduction, while ignoring current fire behavior research that does not support the necessity of the proposed treatments to reduce the threat of spreading crown fires. (Rice 2006) In sum, the Forest Service violated NEPA by not considering alternatives available to achieve fuel reduction by removing of smaller trees below 20" dbh. The narrowing of alternatives limits the ability of the public to compare various fire behavior outcomes and the effects relative to other values such as wildlife and watershed impacts which are at play in this project. (Rice 2006) As Rice (2006) notes, "[b]ecause of an overemphasis on crown bulk density as a measure of crown fire behavior no alternative was designed to treat surface fuels to the extent that crown fires would drop, independent of crown bulk densities."

3. The KRP Fails to Consider Alternatives that Would Achieve the Project Purpose of Restoring Pre-1850 Forest Conditions

The DEIS does not adequately explain why stand density reduction adequate to restore pre-1850 conditions cannot occur through the removal of trees up to 11" dbh or even 20" dbh. The Forest Service's stated reason for harvest of trees up to 35" dbh is to reduce stand density in order to conform to a silviculture model for pre-1850 conditions that resembles an inverse "J" curve. The Campaign sees a problem with this approach with regards to NEPA's obligation to consider alternatives.

The Forest Service states that any alternative that retains trees below 35" dbh does not meet the project purpose because such treatment would not recreate the Inverse J curve on the landscape. But here, the project purpose is to restore pre-1850 conditions over time, not to implement the Inverse J Curve across the landscape. As discussed above, the Campaign does not believe the Inverse J Curve will meet this project purpose, both because it fails to correspond to pre-1850 conditions and because it create a fire regime similar to that resulting from fire suppression, which is not the historical condition.

For purposes of alternatives analysis, even if it were a valid model, the Inverse J curve is not the *only* method of achieving pre-1850 conditions. Given the significant impacts to wildlife from the proposed Inverse J curve based treatments, the Forest Service has an obligation to consider other alternatives capable of achieving pre-1850 stand and fire conditions. This is particularly true given that there are numerous significant issues related that have not been addressed in the development of the proposed action, as discussed above.

Since the Forest Service has not supported its position that there is no alternative to the Inverse J curve approach, it has failed to consider a reasonable range of alternatives under NEPA. Instead, as discussed above, the Forest Service should consider an alternative that also may restore pre-1850 conditions with substantially less impacts on wildlife. The Campaign believes that alternative management practices that satisfy the direction in the MOU to study

even-aged management in an effort to restore pre-1850 forest conditions can be developed. For example, Heald 2006 proposes an alternative that applies group selection over 50% of the land base and manages the remainder for old forest recruitment using prescribed fire and thinning from below to improve fire resiliency. (Heald 2006, p. 3). A key feature of Heald's approach is the limitation of group selection openings to 0.75 to 1.5 acres in size. (*Id*.). Further, alternatives that limit the size of trees removed and retain higher canopy cover are not inconsistent with the approach outlined by Heald (*Id*.) and can achieve the Forest Service's goals with substantially less impacts on sensitive wildlife.

In sum, it is arbitrary for the Forest Service to propose extensive logging of trees > 20" diameter when there are other models that could achieve the long term desired condition with considerably less impact on wildlife. Further, because the Forest Service has not considered such alternatives, the DEIS contains no real discussion of the trade-off and attempts to balance habitat protection versus the need for treatment. Instead, the Forest Service proceeds from the false assumption that the only choices warranting public review are intensive logging or no treatment at all. This approach violates NEPA and needs to be reconsidered.

B. The KRP Fails to Take a "Hard Look" at Impacts to Wildlife

The Forest Service cannot make conclusory assertions that an activity will have insignificant impact on the environment. *See Alaska Ctr. for Env't v. United States Forest Serv*., 189 F.3d 851, 859 (9th Cir. 1999). Instead, the Forest Service must take a "hard look" at the potential impacts of a project and must put forth a "convincing statement of reasons" that explain why the project will impact the environment no more than insignificantly. *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1212 (9th Cir. 1998). "General statements about possible effects" and some risk do not constitute a 'hard look' absent a justification regarding why more definitive information could not be provided." *Neighbors of Cuddy Mountain v. United States Forest Service*, 137 F.3d 1372, 1380 (9th Cir. 1998).

Here, the KRP planning documents fail to include important information and analysis necessary to a full and accurate assessment of impacts as set forth below. Further the planning documents do not take a "hard look" in finding that the Project poses low risk to fisher, owls and other sensitive forest species.

1. The KRP's Analysis of Cumulative Impacts On Wildlife is Inadequate.

In their scoping comments, the Campaign specifically requested a detailed cumulative effects analysis that examined the impacts of past, present, and planned logging on sensitive species, taking into account both public and private lands.

NEPA requires the Forest Service to assess the cumulative impacts of a proposed project in light of that project's interaction with the effects of past, current, and reasonably foreseeable future projects. See 40 C.F.R. " 1508.7, 1508.25; 1508.27(b)(7). *Native Ecosystems Council v.*

Dombeck, 304 F.3d 886, 894-895 (9th Cir. 2002); *Neighbors of Cuddy Mountain v. United States Forest Serv.*, 137 F.3d 1372, 1379-80 (9th Cir. 1998); *Muckleshoot Indian Tribe v. United States Forest Serv.*, 177 F.3d 800, 809-10 (9th Cir. 1999.) Cumulative impact "is the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions." 40 C.F.R. " 1508.7 Cumulative impacts "can result from individually minor but collectively significant actions taking place over a period of time." Id.

The KRP DEIS and BE do not provide an adequate discussion of the cumulative impacts in several ways.

First, the review documents do not discuss in a meaningful way the location of past, present, and planned projects within the Project area that are likely to affect fisher or owl habitat. As a result, the BE does not adequately disclose the extent to which such other projects may cumulatively affect the distribution and connectivity of habitat for these species.

The Ninth Circuit has recently clarified NEPA's cumulative effects analysis requirement as applied to timber sales proposed by the Forest Service. *The Lands Council v. Powell*, 379 F.3d 738 (9th Cir. 2004). As the Ninth Circuit held in overturning a timber sale EIS, "for the public and agency personnel to adequately evaluate the cumulative effects of past timber harvests, the Final Environmental Impact Statement should have provided adequate data of the time, type, place, and scale of past timber harvests and should have explained in sufficient detail how different project plans and harvest methods affected the environment." Here, as in Lands Council, the DEIS "generally describes the past timber harvests … and asserts that timber harvests have contributed to the environmental problems in the Project area." But, as the Ninth Circuit ruled, such a general discussion is not adequate to satisfy NEPA's cumulative effects requirement.

Second, it is not clear the KRP is even purporting to address cumulative impacts of the Project beyond Phase I involving treatments on approximately 13,000 acres. This is contrary to NEPA, however, since it is clear the Forest Service is intending to implement the Project on 130,000 acres and presently knows the locations and manner of proposed treatment. Thus, the Forest Service must provide landscape level analysis to assess the ongoing implementation of the KRP, as presently proposed, and its effects on existing habitat for forest species. Even if the Forest Service believes it can change treatments for this Project through adaptive management, if the cumulative impacts of implementing the proposed treatment approach on the entire 130,000 acre Project reveals unacceptable impacts to fisher, owl and other wildlife, the Forest Service must now redesign its project *prior to* implementation. Further, the Forest Service must assess the extent to which the overall Project design is dependent on implementation of treatments over a larger area than the Phase I units standing alone.

Third, as discussed in Section II above, the KRP's method of analyzing the cumulative impacts, whether applied to the Phase I area or to the entire Project area, is flawed. The DEIS states that there will be no cumulative impacts to wildlife because treatments will be "spread out

in space" such that "no adjacent Management Units will be treated within a 5 year period." However, this conclusion does not constitute a cumulative impact assessment. Areas that are treated may remain unsuitable habitat for fisher and owl for 30 to 50 years, or the life of the entire Project. Further, it may take many decades before habitat is created with the dense canopies (>60%) required by female fisher in the Southern Sierra to reproduce successfully or for owls to use as nesting habitat. In sum, the Forest Service's assumption that unit treatments spaced at least five years can avoid impacts to fisher instead highlights the lack of any coherent cumulative impact assessment in the Project review documents. Instead, the likely result is that large contiguous areas within the Project will be rendered unsuitable for old forest wildlife. Without any presentation of these cumulative impacts in the form of overall habitat that will exist over the implementation of the Project, and how that post-treatment condition compares to the existing use of this area by sensitive species, it is impossible for the public to assess whether or not cumulative impacts will be significant.

Fourth, the KRP must assess cumulative impacts based on a larger assessment area. For the fisher, the appropriate area needs to include all of the SSFCA between the San Joaquin river to the north and the Kings River to the south. This larger area encompasses the range of the Kings River fisher subpopulation, which must be treated as a unit for assessing cumulative impacts based on the importance of the subpopulation to fisher survival in the Southern Sierra and due to the potential that impacts from this Project can combine with other impacts occurring in the Kings River drainage that will have cumulative adverse effects on this sub-population. *See* Barrett, 2006.

For the owl, the KRP must assess the impacts of activities outside the Project area to account for the dispersal and migration of spotted owl in and out of the Project area. Juvenile spotted owls for example move on average 9 miles from the nest into new territories which could easily be impacted by additional projects outside the KRP assessment area that would have a cumulative impact on the sub-population. At this time, the KRP assessment area is based on watersheds, but not focused spatially and temporally on the species of concern in the Project. It is likely that other logging in the Kings River drainage adjacent to the KRP Project area will exacerbate the connectivity issues for dispersing or migrating owls, but the DEIS and BE do not include the information that would be necessary to assess this issue. As discussed above, there are existing projects outside the project area with the potential to have cumulative adverse impacts on wildlife located within the project area that need to be assessed.

2. The DEIS Does Not Take a Hard Look at the Impacts of this Project on Wildlife Habitat

a. The DEIS Does Not Take a Hard Look at Impacts to Pacific fisher

As discussed above in Section II.A.1, the DEIS does not take a hard look at the effects of the KRP on the pacific fisher. The range of these failures may be summarized as follows.

The DEIS does not provide accurate information regarding the current status of fisher in the Project area, nor any information whatsoever regarding fisher home ranges, connective corridors and/or important habitat elements that may be affected by the KRP. Instead, the DEIS implies that no significant impacts will occur by comparing post-treatment conditions with a no-project alternative that assumes the occurrence of a major fire 10 years after project implementation. Further, the DEIS states that no impacts will occur because treatments of adjacent units will be separated by five year intervals. These conclusory and unanalyzed assumptions do not constitute the requisite hard look required by NEPA.

This conclusion is particularly apt given the analysis by Dr. Britting, which shows that post-treatment dense canopy cover in simulated fisher home ranges was substantially reduced down to a range from 0 to 27% in >60% cover with an average of approximately 11%. (Britting 2006, p. 5 & Table 4.) Yet on this criteria alone (i.e., dense cover), the KRP renders fisher habitat unsuitable. (See Barrett 2006; Zielinski et al. 2004a (female fisher home ranges in the Sequoia measured at over 70% in dense canopy cover.) The fact that such impacts are not discussed in the DEIS or BE indicates that the Forest Service has not even begun to conduct a serious assessment of impacts to fisher from this Project. Given the precarious status of this species in the Southern Sierra, the Campaign is concerned that the Forest Service's inattention to this issue demonstrates a serious lack of commitment to ensuring the viability of this species.

Further, the KRP fails to include any discussion of indirect impacts to fisher due to the reduction of prey. The KRP does not assess the potential for substantial reduction of the fisher prey base, although the BE (p. 21) notes that "many of the prey species found in the diet of fishers occur primarily in large tree and dense canopy conifer and oak woodland habitats, chaparral and deciduous riparian areas." (*See* Preston 2006). The BE (p. 25) does state that the effect of clearing understory vegetation on the fisher are "unknown." (BE, p. 25.) Again, this assessment does not constitute the requisite hard look required by NEPA.

b. The DEIS Does Not Take a Hard Look at Impacts to Spotted Owl

(1) Impacts to HRCAs

The DEIS fails to analyze impacts to individual owl HRCAs and home ranges. As described earlier, California spotted owl home range core areas (HRCAs) are ecologically important because they include "the best available California spotted owl habitat in the closest proximity to the owl activity center." (USDA Forest Service 2004a, p. 39). The 2001 Framework strictly limited logging within HRCAs based on the recognition that spotted owls preferentially use core areas within their home ranges (Bingham and Noon 1997) and that degrading habitat within HRCAs will likely reduce owl survival and reproductive success (Bart 1995; USDA Forest Service 2001a, Volume 3, Chapter 3, part 4.4, pp. 92-93). As stated in the Framework FEIS, "increasing the number of owl sites with desired amounts of habitat is likely

important to stabilizing current population declines." (Ibid., p. 92). (See also Bond 2005, Tempel 2005a, 2005b).

The KRP does not provide any discussion of how the HRCAs function as a necessary habitat complement to the PACs in the project area. As demonstrated above and in Britting (2006), the KRP will have significant impacts on the quality of habitat within 8 out of the 11 owl HRCAs affected by this Project. Yet these impacts are neither presented nor discussed. Again, the Forest Service's conclusory and unanalyzed assumptions that owl habitat will be protected do not constitute the requisite hard look required by NEPA.

The Sierra Nevada Framework strictly limited logging within HRCAs based on the recognition that spotted owls preferentially use core areas within their home ranges (Bingham and Noon 1997) and that degrading habitat within HRCAs will likely reduce survival and reproductive success (Bart 1995; USDA Forest Service 2001a, Volume 3, Chapter 3, part 4.4, pp. 92-93). The FSEIS recognizes that "California spotted owl occurrence and productivity appears to be significantly correlated with canopy cover composition within own home ranges." (FSEIS, p. 270). Yet the KRP would allow group selection logging throughout owl home range core areas in the project and analysis area, which will "result in the removal of habitat attributes that provide quality nesting and foraging habitat." (FSEIS, p. 270).

Only by assessing impacts to individual owl HRCAs can the Forest Service determine the likelihood of adversely affecting owl pairs and the resulting impact on the broader owl population. As owl biologist Zach Peery explains: "For example, will the proposed action result in loss of occupied owl nest sites and an increase in nearest-neighbor distance? Will the degradation of owl habitat within areas of concern interfere with owl dispersal, potentially isolating subpopulations and reducing the owl's current distribution? Such landscape-scale questions need to be addressed if the effect of the proposed action on Spotted Owl viability is to be assessed in a rigorous manner." (Peery 2004, p. 7). Without analyzing habitat loss in individual HRCAs, it is impossible to assess accurately the project's potential impacts on the owls utilizing the HRCAs.

Not only did the DEIS fail to disclose impacts to individual owl HRCAs, it also did not analyze impacts at the broader owl home range areas. This is a particular concern because many owl home ranges in the project area appear to have marginal habitat quality. For example, in the QLG DEIS process, the Forest Service analyzed the percentage of suitable habitat within each owl home range, compared to a desired goal of 50 percent suitable habitat. (USDA Forest Service 1999a, pp. 76-82). The Forest Service then estimated the number of owl home ranges that would have less than 50 percent suitable habitat after project implementation as part of the assessment of likely impacts on the owl population.

As Britting concludes: "The analysis of effects displayed in Table 5 and the summary of desired conditions in Table 6 affirm that the Kings River Project intends to manage HRCAs at a lower habitat quality than previously identified as suitable and necessary. The DEIS fails to

explain or describe the effects of such an approach on the persistence of CSO." (Britting, 2006, p. 9).

(2) Impacts to High Quality Nesting Habitat

Further, the DEIS and BE fail to include accurate information and analysis regarding the location and amount of suitable spotted owl nesting habitat currently within the project area and the amount that will be rendered unsuitable if the project is implemented. The KRP proposes logging within PACs, HRCAs and owl home ranges. Given the critical importance of high quality habitat occurring *outside* of PACs within the Project area, the Forest Service should avoid treatments that reduce such quality habitat. However, as indicated by the Campaign's GIS analysis, the KRP treatment units 'overlap with some of the highest quality habitat in the region. Placement of the treatment units has targeted some of the best remaining habitat in the area. (Britting 2006.) As discussed, owls require home range habitat to retain certain minimal habitat components such as interior forest habitat, multiple canopy layers and minimum canopy coverage.

Research indicates that small pockets of large trees and old forest are important for associated wildlife like the California spotted owl (Blakesley 2003; Moen and Gutierrez 1997), Pacific fisher (USDA Forest Service 2004b, p. 139), and American marten. "Pacific fishers, American martens, and California spotted owls use small aggregates of large trees for denning, resting, and nesting sites," even within larger stands that do not constitute old growth. (USDA Forest Service 2001a, Volume 2, Chapter 3, part 3.2, p. 131). Failure to protect these small but important stands could degrade potential owl nesting habitat and reduce the likelihood of nesting success (Verner 2003, p. 4; Blakesley and Noon 2003) and eliminate potential denning and resting sites for fisher (Barrett 2004).

Because of their ecological importance, the 2001 Framework protected these small old growth stands from intensive logging. The 2004 Framework's removal of protection for old growth stands of 1 acre or larger was strongly criticized by the Fish and Wildlife Service and by the Forest Service's Washington Office. The Washington Office specifically cited this weakening of the Framework as a factor in its conclusion that the new standards "do not maintain owl habitat and substantially increase the risk that self sustaining owl populations will not be maintained." (Gladden 2003, pp. 10-11). According to the Fish and Wildlife Service, this change may "have significant effects on old forest habitats used by the owl" by allowing "reduction of structural complexity within treated habitats," which "could allow stands of potential owl nesting habitat to be removed." (USDI Fish and Wildlife Service 2003, pp. 4- 5). Therefore, it is critically important that the BE and DEIS contain accurate information and analysis regarding these small old growth stands and how they will fare if the KRP is implemented.

(3) Impacts to Spotted Owls by Due to Predation

As discussed, the KRP does not adequately address the potential for significant impacts from creating a mosaic of forest openings to which barred owls, a spotted owl predator, are better adapted. Barred owls have been detected in the area and the potential for barred owls to become established and compete with California spotted owls within the KRP area is a potentially significant cumulative effect, which is not meaningfully discussed in the planning documents.

The KRP also fails to analyze the potentially significant impacts of increasing predation by Great Horned Owls. (See Verner 1992, p. 67) The DEIS does not acknowledge that group selection may allow for predation on spotted owls by great horned owls, which are known to occupy the open habitat. *Id*. ("Great horned owls tend to be more common in areas with lower tree densities than is the case for spotted owls, and the smaller size of spotted owls probably enables them to outmaneuver great horned owls in dense forests.") Recent monitoring shows that great horned owls are in the Project Area. However, there is no analysis in the DEIS of how edges created by groups within suitable owl habitat may reduce the use of foraging habitat by spotted owls and increase use by great horned owls (an effective competitor and predator of the spotted owl.

(4) Impacts due to Reduction of Prey Base

The KRP also fails to analyze adequately impacts to spotted owls by decreasing prey species such as flying squirrel populations. The DEIS and BE does not acknowledge the impacts of group selection and large scale fuel reduction on flying squirrels, which are spotted owls preferred prey based in the mixed conifer and red-fir forest habitat above 4,000 feet. (Verner 1992, p.69.) Flying squirrels would likely be absent within the group selection openings and thus these small openings within the forest may be marginal for foraging spotted owls due to isolation from the forest interior. See USDI Fish and Wildlife Service 1999, p. 10 ("Due to the level of snag and large woody debris removal as proposed, the Service is concerned that [the pilot project] will remove suitable den sites and food sources of northern flying squirrels and consequently reduce the prey base for California spotted owls.") See also Tempel 2005a (DEIS (p. 112) fails to provide a real analysis concerning the habitat requirements for key prey species for the California spotted owl (woodrats and flying squirrels) and how they will be impacted by the proposed action.)

c. The DEIS Does Not Take a Hard Look at Impacts to MIS and SAR

As discussed above, the Sierra National Forest has not completed its monitoring obligations for Management Indicator Species and Species at Risk. Here, the DEIS lacks benchmark habitat and population data for MIS. (Preston 2006). Without information on benchmark conditions for MIS in the planning area, the Forest Service cannot make a scientifically supportable finding as to the health or viability of the indicator species. Further, the KRP DEIS fails to mention or address impacts to the expanded MIS/SARs list in the 2001 ROD, which is part of the Forest Service's management responsibility under the 2004 SNFPA ROD. (Preston 2006) There is also no evidence in the record showing the region, forest or district has met the annual population monitoring requirement. Since the KRP DEIS lacks

necessary monitoring or population trend data, its conclusions regarding impacts to wildlife are unsupported. Thus, the Forest Service has not taken the hard look required by NEPA regarding potential impacts to these critical species.

C. The KRP Fails to Take a Hard Look at the Impacts to Establishing the Inverse J Curve on Forest Fire Resiliency

As noted by Rice 2006, the KRP's fire and fuels analysis is inadequate in a number of respects. Further, as discussed above in relation to project purposes, the KRP DEIS fails to take a hard look at the impacts of using an Inverse J curve model on long term fire resilency::

> [The] inverse J curve is incompatible with fire resistance. A stand where the historic fire interval is 3-5 years could not support a preponderance of small-diameter trees that is inherent in an inverse J stand structure. Frequent fires - even low-intensity surface fires - would remove the small-diameter trees from the stand structure.

(Rice 2006). Rice (2006) concludes that the establishment of an Inverse J-shaped curve distribution will lead inevitably to the creation of "ladder fuels," which are integral to the stand. In other words, the very essence of the Inverse J curve structure ensures the constant presence of ladder fuels that are conducive to torching and crown fire initiation, a result directly contrary to the stated goals of the Project and certainly a potentially significant impact that must be addressed in the DEIS.

D. The KRP Fails to Take a Hard Look at the Potential Impacts of its Fuel Reduction Approach

Further, as noted by Rice (2006) the DEIS fails to take a hard look at a number of factors regarding the effectiveness of the KRP's approach to fuel treatment.

For example, the potential negative effects of thinning are not adequately discussed in the DEIS. The DEIS (p. 31) states that approximately one-third of the treatment area (3149 acres) is scheduled to be treated with lop and scatter surface-fuel treatments, which can exacerbate fire intensity. (Rice 2006) However, the potential increased hazard posed by this technique is poorly addressed in the DEIS. This failure is a significant flaw in the overall fire presentation. (Rice 2006).

Elsewhere, the KRP Fire and Fuels Analysis (p 20) notes that the "biomass of trees removed during thinning treatments would have a significant impact during a wildfire if left untreated" and that "slash, in combination with surface fuels, would have a major impact on fire behavior and intensity unless treated appropriately." However neither the FFA nor the DEIS explain how the Project will address these important issues. (Rice 2006) Substantial research

indicates, however, that the lop and scatter technique may produce fire behavior even worse than in untreated areas. (*See* Rice 2006 and references cited therein.)

Further, the DEIS does not address the potential that an emphasis on treatments to reduce crown bulk density and crown fire spread may lead to surface fire behavior in treatment areas being more severe in thinned versus un-thinned areas. (Rice 2006). In fact, dead fuels under more open canopies may be drier – and the rate of spread may be higher – because of the altered microclimate compared to more closed canopy forest with less understory. (Rice 2006) Since the crown fire will cease when the crown rate of spread is the same as the surface rate of spread, the removal of wind-sheltering mechanisms through thinning to a lower crown bulk density is an important factor that should have been discussed in the DEIS. (*Id.*) In fact, the KRP's emphasis on crown thinning reflects a failure to grasp the mounting research evidence that surface and ladder fuel treatments and small tree removal should be the primary focus of land management activities in these fire and vegetation types. (Rice 2006).

Further, the KRP Fire and Fuels Analysis did not conduct a fire-related landscape analysis.
This is a significant omission because the location of the treatments can be significant in determining the effectiveness of the treatment. (Rice 2006). The DEIS noted that fire history showed that most large wildfires started in chaparral and traveled to the forests. However, no analysis of the effectiveness of alternative placements (including placing the treatments around lower-elevation chaparral areas) was conducted. Failure to consider strategic landscape placement of treatments and the cumulative impacts of such decisions (landscape treatments v, more linear treatments) is a serious flaw in the KRP DEIS. (*Id.)*

Finally, the KRP Fire and Fuels Analysis records that the weather used in the analysis to predict fire behavior was the 97th percentile value for each variable (temperature, wind speed, humidity), which approximates a worse than worst-case scenario, in which three otherwise independent variables all line up simultaneously in the most extreme 3% of their range of values. (Rice 2006) In addition, FFA is based on a desired condition -- to avoid any crown fire under 200 mph winds -- that are unrealistic and entirely non-representative of real conditions on the ground. (Rice 2006). The result of these unrealistic assumptions and models is a fire analysis that concludes that the only way to avoid fire risk is to cause undue damage to the environment by removing large numbers of dominant and co-dominant trees from the forest. This is not the hard look that NEPA requires.

E. The KRP Fails to Take a Hard Look at Cumulative Watershed Impacts

NEPA "is our basic national charter for protection of the environment." 40 C.F.R. § 1500.1(a). "Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." 40 C.R.R § 1500.1 (a). A crucial element of the NEPA requirement is that impacts of a proposed action must be analyzed in conjunction with past, present, and reasonably foreseeable future activities, i.e., its cumulative effects.

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. 40 CFR 1508.7

The Sierra Nevada Ecosystem Project (SNEP) Report noted that "[t]he decline and loss of habitat types…is one of the principal reasons that so many species of invertebrate, fish, and amphibians in the Sierra Nevada are in decline" (Moyle 1996) and that aquatic and riparian systems are "the most altered and impaired habitats of the Sierra." (SNEP 1996). Nearly one quarter of Sierran vertebrate species are closely associated with or dependent on riparian or wet areas (SNEP 1996). Roughly 25% of the species dependent on riparian habitat are at risk of extinction (Graber 1996). These precarious findings call into question this or any other project whose design further impairs these habitats.

1. Cumulative Watershed Effects (CWE) and Aquatic Impacts Analyses

A cumulative watershed effects analysis (CWE) assessment was conducted for the Kings River Project following the direction set forth in the FSH 2509.22, the regional methodology for accessing cumulative watershed impacts. The watershed class HUC 8 for KRP ranges from 400 to 2700 acres.

Our references to specialists' reports and analyses performed for the DEIS do not imply endorsement of their validity, adequacy or underlying methodology. For example, no credible scientific justification is provided to support the Equivalent Road Acres (ERA) assumptions, methods or specific thresholds, which appear to have a large element of arbitrariness, for Cumulative Watershed Effects (CWE) analyses.

Although there is a fair amount of arbitrariness in the ERA assumptions, stream sensitivity assessment and TOC thresholds, the CWE, Stream Condition Inventory, V* Sediment, and species survey methodologies used are valid, the resource specialists have done a credible, professional job in applying them in the aquatics and CWE impacts analyses, with the exception that the full CWE analysis was performed only for a small sample of sub-watersheds deemed to be over their "threshold of concern" (TOC) on the basis of a preliminary Baseline Assessment, despite the fact that this preliminary assessment concluded that ***"the proposed project work would result in 45 of 51 subwatersheds analyzed exceeding their lower bound Threshold of Concern (TOC) and 13 subwatershed*** *[sic]* ***exceeding the upper bound TOC"*** (Gallegos 2005).

It is clear from these specialist reports and the KRP DEIS that this project proposes harmful activities at a large, landscape scale in habitats that are already heavily degraded and fragmented by similar past and ongoing activities – with evident past and continuing declines of dependent native species. For example, the limited CWE analysis notes several subwatersheds in which previously present western pond turtles (FS Sensitive Species) have not been found in surveys since 1998 or 1999. Stream surveys in several subwatersheds found **no** aquatic species or "only a single garter snake". CWE analysis also predicts ERA increases due to proposed activities -- extreme in some cases -- that will move some subwatersheds from below to above

their lower "threshold of concern" (TOC) and cause some to far exceed the ***upper*** TOC of 14% ERA ("risk of initiating adverse CWE greatly increases as this upper limit is approached and exceeded" [DEIS, p. 179] [Example: subwatershed 520.1001, p. 8, Sanders-Hopson2005; high natural sensitivity; lower TOC = 4%; projected increases with project implementation from 2005 ERA of 5.90% to 7.40% in 2007, **21.04% by 2011, and 22.32% by 2018**.]). The CWE analyses appropriately, if weakly, "suggest" that these subwatersheds "may" or "could" experience "significant cumulative watershed effect[s]". It is crucial to note, however, that by the Forest's own methodology, most of these subwatersheds have already experienced significant CWEs, which are ongoing, from past management.

Further, the specialist's reports show the proposed activities are likely to have significant additional negative impacts to this already-degraded landscape. For example, from the DEIS (emphasis added):

> The combined treatments proposed for the initial eight management units involves timber harvesting, small tree thinning, plantation upkeep, prescribed fires and fire lines, road construction and reconstruction, temporary roads and skid trails, herbicide treatments for noxious weeds and in other areas, and selected watershed improvements sites. Overlapped with these activities are a few studies that will look at the effects on the environment (e.g. the watershed study) and some wildlife species (e.g. the spotted owl study). ***All these activities individually and together will have risks and both short-term and long-term effects on aquatic species, even with the proposed action design measures in place.*** (DEIS, p. 85)

> Continued habitat fragmentation, sedimentation into stream systems, compaction of soil, changes in vegetation composition, decreases in streambank vegetation and bank trees, and loss of streambank stability as well as the potential to be harmed by herbicide applications, can be expected especially in those subwatershed that appear to have a cumulative watershed effects response likely. (DEIS, p. 89)

b. Inconsistencies in reporting ERA and TOC

The KRP DEIS and CWE analysis are inadequate and do not meet conditions for a timber harvest waiver due to inconsistencies between the specialist's CWE report and the manner in which the information is reported in the DEIS for sub-watersheds that may or will have cumulative effects. (see DEIS p. 181-182) and (Sanders and Hopson 2005) in the project record.

EXAMPLE:
519.0009 (As reported in Sanders and Hopson 2005)
Sub-watershed 519.0009 is approximately 1,335 acres in size and occurs along an un-named tributary to Big Creek between 3,280 and 5,120 feet in elevation. It has a high natural sensitivity with a TOC of 4.00%. It was calculated that the 2005 ERA would be 4.35% with a 2008 ERA of 3.90%. The calculations indicate that by 2016 the sub-watershed could have a high ERA rating of 19.33%.

Since this sub-watershed currently is over its TOC but does not contain a significant amount of acreage in the initial eight management units proposed for the Kings River Project, implementing the initial eight management units of the Kings River Project should not cause a cumulative watershed effect. However, since this sub-watershed has multiple other management activities occurring within it, shows signs of channel distress and pool filling with fines, and has a potential loss of the Western pond turtle, a cumulative watershed effect may occur as future projects in the Kings River Project (i.e., beyond the initial eight management units) are implemented. An inventory for the Western pond turtle and a stream channel classification and stability survey should occur in addition to monitoring the v-star sediment rating reach prior to the next set of proposed activities for the sub-watershed (refer to Appendix A for a list of the management units by sub-watershed).

519.0009 (As reported in the DEIS p. 181)

Cumulative effects are unlikely to occur in sub-watersheds 519.0006 and 519.0009 from the implementation of the eight management units. However there is a potential that CWE's could occur in the sub-watershed 519.0006 in the year 2012 and the sub-watershed 519.0009 in year 2013 from implementation of treatments proposed for those years.

The DEIS p. 181 fails to report that CWEs are currently ongoing and fails to discuss additional mitigations for treatments in the project area impacting this watershed.

519.3050 (As reported in Sanders and Hopson 2005)

Since this sub-watershed currently is over its TOC, contains a significant portion of a ongoing project (sos_1), is within one of the initial eight management units (n_soapro_2) proposed for the Kings River Project, and is host to the majority of segments of the annual Mt. Toppers – Blue Canyon OHV event, it can be suggested that by implementing the initial eight management units of the Kings River Project, a cumulative watershed effect may occur. An inventory for the Western pond turtle and a stream channel classification and stability survey, including monitoring the stream reach established within this sub-watershed for the Kings River Project (Sanders 2005) using the Stream Condition Inventory guidebook (USDA 2003) should occur within the next two years prior to n_soapro_2 being implemented in 2008 (refer to Appendix A for a list of the management units by sub-watershed).

519.3050 (As reported in the DEIS p. 181)

There is no mention that the watershed is currently over threshold.

519.1151 (As reported in Sanders and Hopson 2005)

Sub-watershed 520.1151 is approximately 837 acres in size and encompasses the lower half of Oak Flat Creek between 3,400 and 5,800 feet in elevation. It has a high natural sensitivity

with a TOC of 4.00%. It was calculated that the 2005 ERA would be 4.41% with a 2007 ERA of 10.06%. The calculations indicate that by 2011 the sub-watershed could have an ERA rating of 14.59% and by 2018 it would have an ERA of 17.27%.

Since this sub-watershed currently is over its TOC, contains one of the initial eight management units (bear_fen_6) proposed for the Kings River Project, and has a large percentage of the pools filling with fine sediment, it can be suggested that by implementing the initial eight management units of the Kings River Project, a cumulative watershed effect may occur.

519.1151 (As reported in the DEIS p. 182)

No mention of the watershed being currently over threshold of concern. The last proposed treatments for these sub-watersheds is in the year 2018 and by the year 2033 ERA's would be 4.73%, 5.08%, and 7.7 respectively. This is a misleading comparison which is inconsistent with the way the impacts are reported in the CWE specialist's report.

Based upon the above information, the NEPA document is inaccurate, inconsistent and fails to adequately disclose impacts to aquatic resources or provide appropriate design measures for logging treatments to lower current ERA/TOC levels. The DEIS p. 182 states for watershed 519.1151, "if these mitigations (cut-to-length-sub-soiling) CWEs could occur for a shorter time period." If the DEIS disclosed the current problems in the watershed, more attention and possibly remedies might have come to light during the NEPA review for these watersheds.

F. The KRP Fails to Meet NEPA's Informational Requirements

1. Project Does Not Adequately Describe the Affected Environment

The Forest Service's review of environmental impacts must provide a detailed description of the environment likely to be affected by this Project. 40 C.F.R. Section 1502.15. This description should include, at a minimum 1) discussion of the current location and status of threatened, endangered, sensitive and Management Indicator Species within the Project area and in the vicinity likely to be affected by this project; 2) a discussion of the different habitat types offered by the project area to wildlife in the area and how such habitat is currently used; 3) a discussion of land allocation according to the regulatory controls applicable to the Project Area, including the presence of PACs, HRCAs, SOHAs, Old Forest Emphasis Areas, wetlands, riparian zones, WUIs and inclusion within any comprehensive fuels reduction plans that may apply to this Project; 4) a discussion of how this Project area interacts with available habitat in the region, regional fragmentation of habitat, and the location and habitat characterization of any private lands in the region.

The KRP does not meet these standards.

First, the Project fails to describe the overall quality of habitat, including percentage of large trees and canopy coverage, within fisher and owl home ranges. As discussed above, both

fisher and owl have minimum requirements for home ranges and core areas, yet no detailed habitat information is provided here, indeed, no information on even the location of home ranges or core habitat is given.

For the fisher, research shows that "66 percent of the average fisher home range was in 60 percent or greater canopy closure." (Zielinski 2004a; USDA Forest Service 2001a, Vol. 3, Chap. 3, part 4.4, p. 11). Subsequent research indicates that 72 percent of female home ranges contain forests with 60 percent or greater canopy cover. (Zielinski 2004a). If current home ranges do not meet these conditions, as appears to be the case based on the Campaign's own independent research, (Britting 2006), this would be a critical factor that should affect the nature and location of proposed treatments, which should clearly have been disclosed by the Forest Service. Since female survival is key to maintaining fisher populations, the District must assess the impacts of fuel reduction treatments on female home ranges. In not doing so, the District lacks adequate information to conclude that no significant impacts are occurring or that viability is being insured.

The Project also does not provide information regarding the quality of habitat for spotted owls in this area. The Sierra Nevada Framework found that owl productivity was positively correlated with the proportion of individual owl home ranges having greater than 50% canopy-cover and negatively correlated with the proportion having less than 50% canopy cover. (USDA Forest Service, 2001a, Chap. 3, pt. 4.4, p. 73.) Yet here, no information is given regarding the current percentage of owl home ranges or HRCAs that have greater than 50% canopy. The Project does delineate some HRCAs but does not identify other HRCAs directly west of owl PACs that happen to be located in the area proposed for intensive commercial thinning. (See Maps 2 & 8.)

In addition, as discussed above, the Project does not describe the valuable habitat elements present in the areas proposed for treatments. For the fisher, this description is not only required by NEPA, but also by the 2004 ROD (p. 62) which requires the implementation of design measures to protect important wildlife attributes identified by the project biologist to protect the fisher. Instead of providing information regarding the identification of these habitat elements, the Project EA and BE simply provide conclusory statements that important habitat elements will be preserved. These statements do not satisfy the informational requirements of NEPA, however, since they provide no information for the public to assess whether in fact adequate habitat elements are being retained to preserve fisher, owl and other sensitive forest species.

Second, the Project fails to describe population trend information based on current monitoring of threatened, endangered, sensitive and Management Indicator Species likely to be affected by this Project. NFMA requires the Forest Service to insure continued diversity of plant and animal communities and the continued viability of wildlife in the forest, including the requirement that "wildlife habitat shall be managed to maintain viable populations of existing native and desired nonnative vertebrate species in the planning area." 16 U.S.C. § 1604(g)(3)(B); 36 C.F.R. § 219.19. Thus, "planning alternatives shall be stated and evaluated in terms of both

amount and quality of habitat and of animal population trends of the management indicator species." 36 CFR § 219.19(a)(2.) *See also Idaho Sporting Cong., Inc. v. Rittenhouse*, 305 F.3d 957, 971-74 (9th Cir. 2002).

The 2004 ROD readopts Appendix E of the 2001 SNFPA FEIS, including the annual monitoring plan for various Management Indicator Species and Species at Risk ("MIS/SAR") that are considered particularly vulnerable to impacts from National Forest management. (See 2004 ROD, p. 70; USDA Forest Service, 2001a, App. E.) The Project provides a general description of MIS species and available habitat, but neither the BE, nor the EA or other project documents present population trend information for any of these species as required by NFMA, as necessary to establish an adequate environmental baseline for assessing project specific and cumulative impacts, as specifically required by Appendix E of the USDA Forest Service, 2001a, incorporated into the 2004 ROD at p. 70. No trend analysis is presented for either at risk species or MIS.

Third, the Project fails to describe the affected regional environment necessary to assess cumulative impacts of fuel reduction projects in this area. The Sierra Nevada Framework found that to identify impacts to wildlife, it would be necessary to "identify "specific areas within the landscape that provide suitable habitat based on aerial photo interpretation, soil maps, or local knowledge for other threatened, endangered, and sensitive plant and animal species." (2001 ROD, App. A.) As discussed above, a landscape level cumulative impact analysis is necessary to identify potential impacts on wide ranging species at the population level such as the Pacific fisher, spotted owl, goshawk, marten, and other old forest species. Here, however, no information is given regarding habitat conditions within the vicinity of the Project, either within the SSFCA or within the Kings River drainage. *See Native Ecosystems Council v. Dombeck, supra*, 304 F.3d at 897; *Kern v. U.S. Bureau of Land Management*, 284 F. 3d at 1078-1079; 40 C.F.R. § 1508.7.

Further, the DEIS and BE fail to disclose the ecological significance of the project area. The KRP is situated within the Southern Sierra Fisher Conservation Area ("SSFCA"), the location of the last remaining fisher population in the Sierra Nevada. However, the KRP provides no discussion of the role of the KRP area in maintaining fisher within the SSFCA.

As noted by Barrett 2006, p. 12, the "Kings River fisher sub-population is critical to the survival of fisher in the Southern Sierra. If the Kings River sub-population were to disappear over the next three decades, this would lead, in my opinion, to the fragmentation and eventual demise of the Yosemite sub-population, which occurs north of the San Joaquin river. Were these events to occur, it is doubtful that the Southern Sierra fisher population would be able to recover." :

The KRP area also includes private forest lands, which the Forest Service has claimed can not be relied on to provide habitat for sensitive species when conducting impact assessment under NEPA. In sum, the DEIS does not adequately describe the importance of this area has a habitat corridor and how, given the relatively poor condition of regional habitat, the area affected

by the KRP will provide this critical function over the next three decades. Without this basic information, the environmental significance of the project area has not been adequately disclosed, and the project's adverse impacts have not been sufficiently analyzed, contrary to NEPA.

Fourth, as discussed above (Section II.D, *supra*), the 2004 SNFPA ROD p. 53 requires a landscape analysis (if not done prior) to analyze the distribution of the existing and potential hardwood ecosystem. The forest/district is to work with the province ecologists or other qualified personal to map and/or model hardwood ecosystems at the landscape level. Until this baseline is established it is impossible to conduct a proper cumulative effects analysis on the hardwood component in this project. Since hardwoods such as the black oak are critical to fisher for denning and resting, a proper analysis of hardwood species, seral stages, decadence characteristics, abundance and distribution, would aid in informing a proper cumulative effects analysis.

Fifth, the DEIS and BE did not provide accurate or complete information on sensitive species such as the fisher and spotted owl. For each of these species, the DEIS and BE present incomplete information regarding population status. For the fisher, the BE states that fisher numbers are "increasing" and that the local population "appears on an upward trend." However, the actual evidence suggests a trend in the opposite direction, with camera tracking of fisher in the Project area declining an average of 8.4% per year between 2002-2005. (Jordan 2005; Barrett 2006.)

Sixth, the KRP does not describe the environmental setting for purposes of a fuel reduction analysis. No where is there a map of fuels. In the affected environment, DEIS pp. 105 – 114) there is no quantification of existing fuel modes, even though there have been FIA plots used as input to Forest Vegetation Simulator (FVS). (Rice 2006) The Project documents also discuss fire regime, a qualitative description that describes fire regime, not fuels. Without a description of the existing conditions, the public cannot discern how far they are from desired condition.

Further, as discussed above, the KRP does not present the necessary landscape level description of fuel loadings in the Project Area, thereby precluding the necessary fire and fuels landscape analysis. Without this analysis, the resource manager cannot gauge the impacts of the proposed fuels treatments, which would vary based on whether existing or post-treatment low fuel loadings are nearest the ridge – making them more effective - or whether the treatment areas coincide with forest carnivore habitat, thereby increasing impacts. (Rice 2006) Without a landscape assessment, the Forest Service -- and the public -- do not know if the existing or post-treatment fuels are uniform or highly variable across the landscape, or whether the patterns of potential fire behavior occur in big blocks or small patches. (*Id.*) If the post-treatment fire behavior is uniform in big patches, fires can become larger and more severe with consequent larger impacts. As noted by Rice (2006):

If high fire hazard is interspersed with low fire hazard, the overall possibility of high fire severity is low. SPLATS are based on the ameliorating effect in adjacent locations of low fire hazard areas in large areas. The SNFPA RPD says" Managers consider historic fire regimes and the potential for severe wildfires (based on fuel loading, prevailing wind direction, and terrain features) in deciding where to place area treatments." If such areas already exist, the extent of fuel treatments could be minimized. The location of such low-fuel area should be incorporated into the overall design of the treatment. Without spatial depiction we can't know if managers have incorporated these considerations. Without a landscape analysis, the public cannot determine the impacts of fuel treatments.

In revising these informational deficiencies, the District should have included information on the following issues regarding fisher and owl habitat needs:

The Forest Service should disclose the amount of nesting and foraging habitat currently within the project planning area and the amount of nesting and foraging habitat that will be logged. Canopy cover less than 50 percent should not be considered as suitable owl or fisher habitat. (SNFPC et al. 2004.)

The Forest Service should disclose the number of PACs and HRCAs, and fisher home ranges within the project planning area and the number and acreage of these core habitat (both individually and cumulatively) that will be logged. If any PACs will be logged outside of the defense zone, the Forest Service should identify any replacement acres that will be added to the PACs, as directed by the 2004 ROD (p. 59). With respect to HRCAs and fisher home ranges, the Forest Service should identify the current amount of nesting and foraging habitat and the amount that will be degraded by the project, which was specifically identified by the Science Consistency Review as important information to be addressed in environmental planning. (Stine and Keane 2003, pp. 4, 6). The analysis should assess the percentage of suitable habitat within each HRCA and fisher home range both before and after project implementation.

The Forest Service should disclose the old growth habitat elements that will be logged. Both the FWS and the Forest Service's Washington Office have expressed concerns about the elimination of protection for these stands under the 2004 ROD. (USDI Fish and Wildlife Service 2003c, pp. 4-5; Gladden 2003, pp. 10-11).

The Forest Service should identify and disclose information on the Area of Concern that will be logged by this Project, including the existing amount of owl nesting and foraging habitat within such areas and the amount of nesting and foraging habitat that will be degraded. The Forest Service should analyze the extent to which such logging within areas of concern may affect the owl's distribution and dispersal in the Project area. (See SNFPC et al. 2004, p. 20).

The Forest Service should conduct a hardwood ecosystem landscape analysis and use it to assess the impacts of this fuels reduction project and also use it to define specific restoration and enhancement opportunities. The District should use this opportunity to identify existing and

future hardwood recruitment trees and areas as a means of enhancing fisher habitat in the planning area.

2. The Project Description is Inadequate

The Forest Service must provide a clear and detailed description of the project, including the nature, intensity, and extent of planned logging by unit. Here the Project description is inadequate in several ways.

First, the KRP does not describe the Research component of the Project in sufficient detail for the public to assess whether the research plan will be adequate to meet the research project objectives. For example, with respect to the fisher research plan, the DEIS states that the Forest Service is currently researching"techniques to reliably detect presence or absence with adequate confidence" and that "a more specific experimental design will be recommended for implementation in 2006 and beyond." DEIS p. 35. However, without information explaining how the project will be implemented, it is impossible to assess its ability to produce meaningful information. (Barrett 2006, p. 15). Since the monitoring component is a critical aspect of assessing the impacts of logging on fisher that may theoretically lead to changes in the treatment regime, this project component is akin to mitigation that must be discussed in the draft Project documents. As discussed above, Section III.A.1, *supra*,, the KRP also does not adequately present other aspects of its proposed research plan regarding achievement of pre-1850 stand and fire resiliency conditions. (Britting 2006, Rice 2006).

Second, the KRP does not describe the adaptive management component of the Project in sufficient detail. The DEIS does not provide sufficient information to understand how the Forest Service will implement its adaptive management response. The review documents do not provide any standards for how information will be assessed and what kind of data will trigger protection for the fisher. Since adaptive management is characterized by the Forest Service as a way to avoid significant impacts by altering treatments, this project component is also a form of mitigation that must be discussed in the draft Project documents for public review. (Barrett 2006)

Third, the Project does not describe the habitat that will be removed with sufficient detail. For example, the DEIS provides only a single chart describing the effects of the project, which is limited to providing information about how much "suitable" habitat will be removed from the general Phase I project area. This description does not detail how much high quality habitat (4D, 5M and 5D) will be converted to 4M or lower quality. The description also does not provide any information regarding the immediate post project conditions, or the number of larger trees (> 24" dbh) that will be removed. Further, the DEIS misleadingly averages the unit size to suggest that the Phase I unit average is 900 acres, when in fact it is over 1,700 acres per unit. DEIS, Vol. 2, App. F. This lack of disclosure is particularly disturbing given that the Forest Service relies in its analysis of Phase I impacts on the argument that 900 acres only represents one third of a female fisher home range, and thus, according to the Forest Service, not a significant amount of habitat to lose. Not only is this assertion contrary to science and common sense, as discussed

above, it also represents an inaccurate characterization of the amount of logging that will occur in the Phase I treatments.

Fourth, as discussed in detail above, the Project does not describe how it will affect home ranges, home range core areas or dispersal habitat, or how fuel reduction treatments may fragment such core habitat areas or reduce the quality of such habitat below threshold levels for sensitive wildlife including fisher, spotted owls, marten, goshawk, pileated woodpecker, and other MIS and SAR.

Fifth, the Project does not adequately describe how or which important habitat elements will be retained post-harvest, particularly in terms of how such habitat is used by wildlife. The Project does not describe whether snags to be retained offer any valuable habitat elements for sensitive species. Further, the Project also does not provide information regarding how oaks will be retained throughout the Project area given the fuel reduction treatments that are proposed. Oaks and oak communities profoundly affect the variety and abundance of wildlife in the area, and often form important habitat elements for fisher, owl, woodpeckers, and various prey species. The physical structure of oak communities determines the availability of shelter, nesting sites, and corridors for travel. Wildlife utilizes oaks as places to hide, shade, and escape from predators and from fires. (See SNFPC 2004.)

Sixth, the KRP does not provide an adequate description of the fuel reduction treatments that will occur. (Rice 2006) This is because the KRP's prediction of predicted post-treatment fire behavior are incorrect and thus the public cannot know how units will be classified into new post-treatment fuel models. Further, as discussed above, treatments are not located on the landscape, which limits the ability to determine treatment effects. (*Id.)*

Finally, the Project does not provide information regarding how this Project, in combination with other past, present and future projects will affect local populations of fisher, owl, and other MIS and forest species at risk. This includes the overall failure to describe the cumulative fuel treatment projects that may affect these species at the forest level, within the Kings River drainage and in the KRP area.

3. The DEIS Fails to Rely on or Present the Best Available Science in its Discussion of Impacts or How to Meet Project Purposes

As discussed, the KRP, characterized as a scientific research project, ironically fails to use the best available science on a host of issue relating to impacts to wildlife, necessity of the proposed fuel reduction treatments and/or the necessity to thin the forest according to the Inverse J curve model. (*See* Britting 2006, Barrett 2006, Bond 2006, Preston 2006, Rice 2006, Heald 2006.)

The Forest Service's failure to use the best available science is a violation of NEPA and of regional direction to implement ecosystem management in the Sierra Nevada. *See* 2001 Framework FEIS, Vol. 1, Summary, p. 2 ("The strategy will stand on the solid foundation of the

best available science. Our goal is to ensure the ecological sustainability of the entire Sierra Nevada ecosystem and the communities that depend on it."); 2004 Framework FSEIS p. 67 (2001 Framework identified as a source of "the best available science" relative to Sierra Nevada management").

IV. CLEAN WATER ACT ISSUES

As discussed above, the KRP has not assessed cumulative watershed impacts under NEPA and other related law. Further, activities affecting the waters of California are covered under the California Water Code § 13050 (f) requiring the "protection and enhancement" of potential beneficial uses of water throughout the state and in the Kings River Project area. Several beneficial uses in the KRP project area include, Cold Freshwater Habitat, Wildlife Habitat, and Rare, Threatened or Endangered Species protection.

Activities that cause soil disturbance and potential sediment (and other impacts) to the waters of California related to timber harvest require a waste discharge permit or, if the project meets certain conditions, a waiver may be granted (Waiver of Waste Discharge) by the permitting agency. The Central Valley Regional Water Quality Control Board (CVRWQCB) is the permitting agency for timber harvest in the Kings River Project area. The General Conditions for a waiver in Attachment A of the Waste Discharge Requirements hold that timber harvest on Federal land be guided by final NEPA document and decision (Attachment A p.3) and that the project meet certain eligibility requirements.

Eligibility Criteria (p. 12) include:

a. The USFS conduct an a multi-disciplinary review of the timber harvest proposal, including review by watershed specialists, and has specified best management practices, and additional control measures as needed, in order to assure compliance with applicable water quality control plans.

b. The USFS has conducted a cumulative watershed effects (CWE) analysis, where required or appropriate, and included specific measures need to reduce the potential for CWEs in order to assure compliance with applicable water quality control plans.

c. The USFS has allowed the public and other interested parties reasonable opportunity to comment on and/or challenge individual timber harvest proposals.

The Kings River Project fails to meet the Eligibility Criteria for two reasons:

(1) The rejection of recommend design measures to protect the Candidate Yosemite toad (described elsewhere in this comment letter) will lead to a "trend toward Federal listing and potential extirpation of this rare amphibian from several meadows in the KRP area. This is a clear violation of the Central Valley Basin Plan and California Water Code requirements to protect and enhance beneficial uses of water for wildlife, cold water habitats and rare, threatened

or endangered species. The information presented strongly suggests that, by the standards and procedures of SNFPA, a Critical Aquatic Refuge for the Yosemite toad should have been designated within the KRP area, but was not. This additional "control measure" should be adopted as part of timber harvest waiver conditions.

(2) The lack of an adequate NEPA document with a clearly articulated CWE analysis as mentioned above.

In conclusion, the CWE analysis is inconsistent with NEPA's requirement for accurate scientific information and fails to meet requirements of the forest plan and applicable laws to protect the beneficial uses of water in the State of California

V. REQUESTED ACTION

For the foregoing reasons, the Campaign urges the Forest Service to reconsider the proposed action in favor of a more moderate logging alternative to ensure that sensitive wildlife species are protected while necessary fuel reduction activities are implemented. The Campaign also requests the Forest Service to develop a new research plan that will produce useful information without threatening the viability of wildlife in the Sierra National Forest. Finally we request the Forest Supervisor direct that the Kings River Project DEIS be significantly revised to comply with all environmental laws.

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Respectfully submitted,

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