Sierra Nevada
Forest Protection Campaign

April 16, 2007

James M. Peña, Forest Supervisor
Plumas National Forest
P.O. Box 11500
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Dear Supervisor Peña,

These comments on the Draft Supplemental Environmental Impact Statement (DSEIS) for the Empire Vegetation Management Project (the "Empire Project" or "Project") are submitted on behalf of the Sierra Nevada Forest Protection Campaign, the Sierra Club, the Plumas Forest Project (collectively, the "Campaign").[1]

The Empire Project implements the 2004 Sierra Nevada Framework ROD (USDA Forest Service 2004a), and tiers to the accompanying FSEIS (USDA Forest Service 2004b). As demonstrated in the Campaign's appeal of the 2004 ROD and FSEIS (SNFPC et al. 2004), both the new plan and the FSEIS fail to comply with the National Forest Management Act (NFMA), the National Environmental Policy Act (NEPA), and other environmental laws. The Empire Project as presently proposed is also contrary to law for the reasons set forth in the Campaign's appeal (a copy of which was provided as part of the Campaign's scoping comments and incorporated by reference herein).

I. BACKGROUND

We have been actively engaged in this project since its onset in 2004. The Campaign commented on the Empire Project proposed action on July 29, 2004 and the Campaign submitted comments of the Empire DEIS and the Empire Science Consistency Review July 5, 2005. Based on significant flaws in the environmental documentation, on October 11, 2005, the Campaign filed an appeal of the Plumas National Forest Supervisor's Empire Project ROD/FEIS. In response to the Campaign's appeal, the Regional office reversed the Forest Supervisor's decision to implement Alternative D.

After issuance of a Supplemental Draft Environmental Impact Statement, the Campaign submitted supplemental comments on April 10, 2006. Based on similar significant flaws in the environmental documentation, the Campaign filed a second appeal, on October 2, 2006, of the Empire Project ROD/FSEIS. In response to the Campaign's second appeal, the Forest Supervisor withdrew his decision to implement

[1] On March 1, 2007, the Campaign changed its name to Sierra Forest Legacy. For continuity purposes, we will continue to use the "Campaign" as identification in these comments.

Alternative D. The Forest subsequently issued a second Draft Supplemental Environmental Impact Statement in March 2007.

The Campaign continues to believe that the proposed action, Alternative D is not appropriate given the potentially significant adverse impacts to wildlife effects and lack of necessity for meeting fuel reduction goals. The Campaign hereby incorporates its previous comments made in the prior NEPA and Appeal processes for this project, as set forth above. In addition, the Campaign submits the following additional comments on this second Draft Supplemental EIS for the Empire Project:

II. SUPPLEMENTAL COMMENTS ON SECOND DSEIS

A. The Empire Project Still Fails to Take a Hard Look at Impacts to California Spotted Owls

In our prior comments and appeals, we have set forth three areas in which the Empire Project does not take the requisite hard look at impacts to California spotted owls.

First, the Empire Project does not provide enough information or analysis regarding the impacts of Alternative D to spotted owl habitat at each of the relevant scales for assessing owls: the core area around the nest, the area designated as the home range core, the home range area and a larger area analyzing how different owl home ranges interact across the landscape.

Second, the Forest Service is not correctly analyzing the risk to owls from the proposed project since it 1) does not acknowledge the continued uncertainty regarding the owl's status, particularly in the northern Sierra and in the Empire Analysis area; 2) incorrectly assumes that the spotted owl population on the PNF appears to have an upward trend; and 3) does not assess impacts in a manner that takes into account the relationship between the absence of owls from formerly occupied habitat and the overall poor habitat conditions in the project area.

Third, the Forest Service has not conducted an adequate or accurate analysis regarding the potential for future habitat reduction under the proposed action to fragment owl habitat and isolate owl pairs in small blocks of nesting habitat, surrounded by marginal to unsuitable habitat.

The Campaign reiterates its prior comments on each of these points. In addition, the Campaign adds the following comments.

1. The DSEIS Does Not Consider the Owl's Need for High Quality Habitat for Survival and Reproduction

The DSEIS still does not adequately address the need to maintain the maximum number of large trees and quality nesting habitat consistent with legitimate Forest Service goals. As discussed in prior comments and further below, alternatives that limit fuel

reduction treatments to trees below 20" dbh meet the Forest Service's fuel reduction and forest health objectives .

As stated by previous comments, the poor performance of owls in the area can in part be attributed to the low quality of habitat in the area, particularly high quality habitat necessary for owl survival. As discussed in prior comments, a primary focus for management should be to avoid "actions which further reduce the survival probabilities for adult females (which) will have disproportionately large and negative effects on population growth rate" (Blakesley et al. 2001). As stated by leading owl scientists working on the nearby Lassen National Forest, "[G]iven the current trend in California spotted owl populations, the most positive step that can be taken to reverse the apparent decline is to identify, and implement, those actions that will lead to increases in adult survival probabilities. Owl studies to date suggest that this will occur with *increased retention and recruitment of large trees and retention of closed-canopy conditions* throughout the Sierra Nevada landscape." (Ibid) (Emphasis added).

Blakesley (2005) shows that site occupancy is positively associated with the amount of nest area dominated by larger trees and higher canopy cover (>70%) at a 203 hectare/500 acre nest area, and was negatively associated with non-habitat. Site occupancy was best predicted by the quality of habitat in the nest core area. *See* Blakesley (2005) ("Nest area (203 ha) composition was a much better predictor of site occupancy than core area (814 ha), but relationships to apparent survival and reproductive output were similar at both spatial scales.") High quality nesting habitat that supports adult survivorship is generally defined as areas of high canopy cover (> 70%) in large size 5 class trees averaging greater than 24" dbh. However, the Empire project continues to rely on lower quality habitat as the basis for finding that continued reduction in habitat quality will not threaten long-term persistence on owls in the project area and in the QLG Pilot area in general.

The DSEIS does not identify the amount of this habitat present, but instead generally assumes that all habitat with trees greater than 12" dbh and 40% canopy cover constitute "suitable" habitat, and thus there will be no impacts to owls as long as habitat is retained at these levels. However, owl scientists have documented that highly suitable habitat for nesting, roosting, and foraging consists of dense, multi-storied stands dominated by trees $\geq$ 24 inches, high numbers of snags and downed logs, and canopy cover $\geq$ 70%. Lower-quality habitat suitable for foraging and sub-optimal roosting and nesting typically consists of multi-storied stands dominated by trees $\geq$ 12 inches and canopy cover $\geq$ 50%, with a minimum of about 40%. The DSEIS continues to fail to differentiate between percent of high-quality and lower-quality owl habitat within PACs and HRCAs. The DSEIS' methodology of lumping all levels of 'suitable' habitat together into one broad category obfuscates important information about the occurrence of high-quality habitat in the project area. This information is necessary for an accurate and complete portrayal of the project's real impacts.

Studies illustrate such general habitat analysis does not satisfy the "hard look" standard under NEPA. For example, neither the DSEIS nor the revised BE presents

information regarding the availability of nesting habitat in the 500 acre nest core area described by Blakesley (2005):

> Land managers in the Sierra Nevada region should retain forest stands dominated by large trees with canopy cover >70% and minimize the amount of area unsuitable to spotted owls within 200 ha surrounding spotted owl site centers to promote site occupancy. Minimization of non-suitable habitat should also increase spotted owl reproductive output.

See also Bart (1995) (owl fecundity and adult survival decreased with decreasing amounts of suitable habitat around the core activity centers and that "removing any suitable habitat within the vicinity of the nest tends to reduce the productivity and survivorship of the resident owls."); USDA Forest Service 1998, p. 24, ("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.")

In comparison, Blakesley 2003 found that the average nest core area composed of forest stands with >70% canopy cover was 52%. Blakesley 2003. Here, as discussed in our prior comments, available data indicate that the proposed treatments will eliminate most of the dense canopy coverage within owl HRCAs. *See* Britting 2006a, p. 8, Table 5 ("In seven of the ten owl sites, there would be no dense canopy cover remaining following treatment.")

Blakesley 2003 also found 38% of the nest core area are in stands with large trees (>24" dbh) and >40% cover and that 24% of the nest core area are in stands with large trees (>24" dbh) and >70% cover, i.e., 5D habitat. Further, Blakesley found an average of 83% suitable habitat within the 500 acre nest area, with a standard deviation of 12% (Blakesley 2003). *See also Sierra Nevada Forest Protection Campaign v. Tippen, supra.* Here, the Forest Service does not provide information regarding the amount of suitable habitat within the 500 acre nest core habitat nor the harvesting that will occur within nor any analysis of potentially significant impacts to these areas. Here, the project area contains very little 5D habitat. The Forest Service's proposal to harvest in the nest core areas without assessing the quality of existing nest core habitat or impacts to that area from logging violates NEPA. *See e.g., Sierra Nevada Forest Protection Campaign v. Tippen, supra.*

Further, the Forest Service fails to take a hard look at the impacts to owl home range core areas from reductions in dense, higher quality habitat.. As discussed in previous comments, 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. *See e.g.*, Blakesley (2005); Bart (1995).[2] Here, the Empire

[2] 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).

project proposes to log significant acres of owl home range core areas, yet fails to provide information regarding the amount of high quality and/or dense canopy habitat (4D, 5M, 5D or 6) that will remain.

In contrast, Blakesley 2003 found that 32% of the larger core area – approximately the same size as the home range core area - were in stands with large trees (>24" dbh) and that 19% of the core area were in stands with large trees (>24" dbh) and >70% cover. Here, the HRCAs do not provide the amount of 5D nesting habitat, yet the Forest Service proposes to eliminate size 5 class habitat and remove 20-30" trees which will contribute to future 5D habitat in the future.

More recent research reviewing habitat characteristics of areas similar in size to HRCAs support the critical importance of retaining nesting habitat with large trees and high canopy cover. In Seamans (2005) found that "forests comprised of medium and large trees and having high canopy cover [i.e., CWHR 5D and 4D] were correlated with higher territory occupancy and higher individual survival rates." (*Id*., p. 91). Seamans found that forests with medium (12 to 24 inch) to large ($\geq$ 24 inch) trees and $\geq$70% canopy cover were positively associated with survival of and probability of site occupancy by adult ($\geq$1 year old) California spotted owls at the 400-ha (988-ac) scale, and amount of hardwood forest, brush-sapling, or pole coniferous forest was negatively associated with these parameters. Contrary to other studies of the northern spotted owl (e.g., Franklin et al. 2000), Seamans found that increasing habitat heterogeneity did *not* positively impact survival and reproduction. Amount of interior forest within an owl territory was important in explaining spatial variation in population vital rates, and habitat fragmentation was either "neutral or negative" for population growth rate, survival, and reproduction. Seamans (2005) concluded that "maintaining existing contiguous blocks of forest dominated by medium and large trees with high canopy cover in owl territories, and allowing forests in earlier seral stages to mature, would benefit California spotted owls. This should increase not only survival, but also encourage occupancy of these sites by owls." Seamans (2005) also states that "intensive thinning of forest patches within owl territories that results in a lowering of canopy cover may have negative impacts on survival, and may impact occupancy of territories."

Chatfield (2005) examined habitat within circular territories of about 1,135 acres around each nest stand. She found that the relative probability of spotted owl territory occupancy increased with increasing amounts of mid- to late-seral forests having high canopy cover [i.e., 70 percent or greater]." (*Id*., p. 40).

In sum, both Seamans (2005, pp. 118-119) and Chatfield (2005, pp. 52-53) concluded that thinning, such as allowed by the 2004 Framework and proposed in the Empire project, could greatly reduce habitat value for spotted owls by reducing canopy cover from dense to moderate. Together, this new research by Blakesley, Seamans and Chatfield raises serious concerns about the impacts on the owl of reducing canopy cover within dense stands. Instead, the studies support the use of 70% canopy cover as the

minimum threshold for nesting habitat and the need to maintain a reasonable percentage of such high canopy nesting habitat within owl territories to ensure owl occupancy and persistence. A truly science-based analysis of impacts to spotted owls from logging projects should examine the amount of pre- and post-treatment canopy cover ≥70% in stands with large trees within the 300-acre PAC, the 500-acre nest area around the nest/roost stands, the 1,000-acre home range core area, and the larger home range area. These designations have all been documented in the scientific literature to be important to adult survival, reproduction, and probability of site occupancy.

2. The DSEIS Still Does Not Ensure that Minimum Thresholds at the Three Relevant Spatial Scales for Owls are Being Maintained

The BE evaluates the 500-acre nest core area for habitat condition and the degree to which the Empire Project will harvest in suitable habitat within the nest core. The results of this analysis (BE, page 94, Table 22) indicates that very little area within the nest core will be harvested. This conclusion is not consistent with Britting (2006) who found that for nest location PL133 about 72 acres of suitable habitat fell within treatment unit boundaries. Additional analysis by Britting (2007) also indicates that several other owl sites appear to overlap with treatment units to a significant extent. Overlap between treatment units and owl nest cores is noted by Britting for PL018 and PL334. In contrast, the BE reports that no harvest will occur within suitable habitat for PL018. Further, the BE does not appear to recognize the existence of PL334. Further, the effects of treatments on other PACs occurring on private land but adjacent to project units (such as PL275) are not considered. *See* Britting 2007.

Based on these inconsistencies in analysis results between Britting (2006, 2007) and the Empire BE, the Forest Service should provide a map of the nest core area locations for each site evaluated, the treatment unit locations, and the location of suitable habitat

For HRCAs, the 2004 Framework states that desired conditions for California spotted owl 1,000-acre HRCAs are to achieve at least 50—70 % canopy cover, at least 24 inch diameter trees dominating the overstory, and a higher-than-average level of snags and downed woody debris. Treatments must be designed to avoid the highest quality habitat and existing suitable habitat must be retained (although some habitat may be modified to meet fuels objectives). 2004 ROD p. 46, Table 1.

Here, the project documents do not explain whether or how this desired condition is being met. The project documents do not discuss the amount of canopy cover that will occur within the HRCAs, either in the treatment or outside the treatment acreage. The public is unable to ascertain what levels of canopy cover occur currently and post-treatment from the information provided within the BE. Instead all the studies on HRCAs suggest that the HRCA area of 1,000 acres is critical habitat within an owl's home range that must be protected to insure viability. *See* Blakesley (2005) ("Within owl core areas (814 ha), increased amounts of habitat used by spotted owls for nesting, roosting and

foraging should increase owl survival"); Bond 2006. Further, as discussed below, it may be that in some PACs, the current nest core habitat is already degraded such that the HRCA habitat is critical to maintain to avoid an isolated "island" surrounded by unsuitable habitat. *See* Verner et al. 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.")

The Empire Project also still does not analyze impacts to owls at the broader home range scale. This is a particular concern because owl home ranges in the project area are likely to have marginal habitat quality. The Forest Service has 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. (USDA Forest Service 1999a, pp. 76-82). Here, however, it is likely that owl home ranges fall below that figure. Without such information, there is no way for the Forest Service to take a hard look at the impacts of this project.

The protection of PACs alone is inadequate to ensure owl survival and thus the Forest Service's failure to consider the project impacts on these critical habitat areas does not constitute the hard look analysis required under NEPA. 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.*)

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.")

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.

3. The Conclusions About California Spotted Owl Population Trend Are Not Supported By The Data.

The DSEIS still fails to consider the poor results of owl occupancy and reproductive success in the Analysis area. The BE (p. 31) and the forest wide MIS report (Plumas National Forest 2006, p. 37) claim that the population trend for California Spotted Owl (CSO) is stable. This claim is based on a comparison of a survey of the occupancy of SOHAs in 1991 compared to data collected on the Plumas Lassen Administrative Study. These surveys, however, are not comparable. The 1991 surveys were based on detecting the presence of an owl in a SOHA. Those results included areas that had been previously occupied, but not occupied during the time of survey. This amounted to 4% of the SOHAs. The PLAS results that were cited in the BE, however, did not include the number of areas not occupied in a given survey year. The result is that the BE and MIS report compare results that in fact are not comparable.

The annual report issued in March, 2007 for the PLAS does provide information on occupancy that can be reasonable compared to the results from the SOHA survey in 1992. As will be shown below, the PLAS results indicate that detections of CSO are down for 2006 indicating that far fewer sites are currently occupied than estimated by the BE and MIS report. The PLAS annual report provides results on the crude density for owls from 2004 to 2006. These densities are determined from the number of owls detected during surveys. The results are reported in the table below that was extracted from the annual report.

Table 2. Crude density of territorial California spotted owls across survey areas on the Plumas and Lassen National Forests in 2005 and 2006. Locations of survey areas are identified in Figure 1.

		Crude Density of Territorial Owls (#/km^2)		
Survey Area	Size (km^2)	2004*	2005*	2006*
SA-2	182.5	0.126	0.126	0.115
SA-3	218.5	0.093	0.093	0.093
SA-4	238.3	0.067	0.067	0.046
SA-5	260.3	0.077	0.077	not surveyed****
SA-7	210.4	0.071	0.071	not surveyed
SA-1A	190.5	not included***	0.047	0.042
SA-1B**	130.4	not included	0.023	not surveyed
SA-11	180.0	not included	0.056	0.033
SA-12	192.4	not included	0.088	0.068
SA-13	193.4	not included	0.067	0.067
SA-14	331.2	not included	0.054	0.042
SA-15	317.4	not included	0.041	0.022
Total Study	2,645.3	0.084	0.075	0.061

Taken from: Plumas Lassen Study Annual 2006 Report, March 2007, Sierra Nevada Research Center, Pacific Southwest Research Station, USDA Forest Service, p. 172.

These results indicate that while crude densities of owls within the five areas surveyed from 2004 to 2005 remained the same the overall density of areas surveyed in 2005 (including additional areas surveyed in 2005) was lower than the areas surveyed in 2004 (i.e. 0.084 in 2004 versus 0.075 in 2005). The overall crude density of owls is even lower in 2006 (i.e. 0.061) compared to 2004 and 2005. Furthermore, crude density dropped in 8 out of the 10 units that were surveyed in 2005 and 2006. The annual report concludes that "The lower crude density observed in 2006 may suggest a decline in CSO numbers or could reflect lower detection rates for individual CSOs during a second consecutive year of low reproduction and high Spring precipitation." (Sierra Nevada Research Center 2007, p. 172). These results indicate that there is a possibility that owl numbers have declined in the study area. The results in no way indicate that population numbers are stable.

4. The Empire Project Does Not Consider Impacts to Owls from Stand Density Based Thinning

The Empire Project also fails to take a hard look at how the Forest Service's adherence to its stand density prescriptions is likely to eliminate small pockets of large trees and old forest important for associated wildlife like the California spotted owl (Blakesley 2003; Moen and Gutierrez 1997). California spotted owls use small aggregates of large trees for 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).[3]

The Forest Service also still fails to analyze adequately impacts to spotted owls through large scale fuel reduction that decreases prey species such as flying squirrels, which are spotted owls preferred prey based in the mixed conifer and red-fir forest habitat above 4,000 feet. (Verner et al. 1992, p.69.) 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.")

B. The Empire Project Still Fails to Take a Hard Look at Impacts to American Marten

1. The Forest Service Has Still Not Considered or Assessed Impacts to the Marten in Light of the Information Showing the Absence of Marten in the Central Plumas National Forest

The Empire Project documents still do not take a hard look at the impacts of this project on the American marten. Our previous comments have continually raised the issue that the Forest Service project documents do not address the impact of this project and other OLG projects on the marten in light of the recent survey information presented by Zielinski *et al.* that martens are absent from much of their historic range in the northern Sierra Nevada, especially on the Plumas and Lassen national forests (USDA Forest Service 2001a, Vol. 3, Chap. 3, Part 4.4, p. 22; Zielinski 2002, 2004, 2005).

Throughout this process the Forest Service has not addressed this important information. *See Sierra Nevada Forest Protection Campaign v. Tippen, supra.* The Forest Service's failure to acknowledge and analyze the meaning of the marten population gap in this area renders their NEPA analysis of impacts to marten inadequate since the NEPA process is uninformed, the impacts to marten not properly assessed, yet the Forest Service still proposes significant reductions in marten habitat in the project area. *See* Kucera 2006, 2005a & b.

The DSEIS (p. 3-166) at least finally acknowledges this information, but then discards its significance by finding that "[b]ased on known detections of marten on the PNF, no changes in Marten occupancy or distribution on the PNF would occur."

This analysis does not meet the "hard look" required by NEPA because it

[3] Because of their ecological importance, the 2001 Framework protected these small old growth stands from intensive logging. In the 2004 Framework process, the FWS concluded that the removal of protections for these pockets of denser forest could "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).

assumes, without information, that further reductions in habitat quality will not limit marten survival in the Plumas National Forest. The Forest Service has not assessed how marten can survive over the next 30 years, isolated in the Lakes Basin area, without any connectivity to the northern populations in the Lassen National Forest. As indicated by Kucera (2005, 2006), and discussed below,, this approach is a recipe for local extirpation, similar to the fate that has befallen the Pacific fisher over the last century. In short, the Forest Service cannot rely on the local extirpation of marten to find that further reductions in habitat quality, including to the designated habitat corridor, will not have significant adverse impacts on marten.

In light of the population gap for marten in this area, the Forest Service's conclusion that further reductions in marten habitat will not cause significant impacts does not constitute the requisite hard look under NEPA. Zielinski 2005 describes areas such as the Empire Project where marten are now absent as having " relatively little forests with late seral/old growth attributes," which is probably due to "the influence of timber harvest and forest management during the historical and contemporary periods." As noted by Zielinski 2005, areas where marten are now absent "have relatively little forests with late seral/old growth attributes," whereas the areas where marten were detected "coincide with protected areas (national parks and wilderness)" with greater LSOG attributes. However, the Empire Project reduces 1,581 acres of 4D, 5D to unsuitable and reduces 3,398 acres of 4M, 5M to unsuitable. The BE still does not provide a meaningful discussion of the spatial arrangement of suitable marten habitat nor any statement regarding the on-the-ground quality of the 4M, nor any explanation of the amount or spatial arrangement of older, high quality forest with "late seral/old growth attributes."

The gap in marten distribution raises a serious and unexamined concern that the current north-south habitat corridor for marten is not adequate. *See* Kucera 2006, 2005a & b. The Empire Project states that the north-south corridor network for forest carnivores running through the project area is designed to allow for an unimpeded carnivore corridor between home ranges and allow for habitat population connectivity between the Tahoe NF and Lassen NF, which runs "southeast to northwest along Grizzley Ridge composed primarily of white fir and red fir habitat." This network "provides connectivity from the Beckwourth Ranger District to the south and connects with the Mt. Jura connection to the north." *Id*.

In light of the population gap for marten in this area, the Forest Service has not adequately considered why the current corridor network has not been adequate to maintain marten connectivity between the Lassen and Tahoe National Forests. Here, all that appears to be known is that the Plumas has become a habitat gap that threatens to isolate the northern and southern populations. *See* Kucera 2006, 2005a & b.

Despite these concerns, no information is presented why this is so or what can be done to correct this problem. Instead, the Forest Service simply relies on its reference to the existing network, without considering how the Empire project area might provide corridor habitat for the marten critical for future survival. Meanwhile, the Forest Service

allows such habitat to become further fragmented, thereby decreasing the likelihood that effective connected marten habitat can be successfully established.

> Alternative D will "break up larger blocks of contiguous habitat" thereby creating more small-habitat blocks. I believe this approach risks fragmenting marten habitat even more than already exists in this area. However, without more information such as how these habitat blocks function across the landscape, it is impossible to evaluate this important aspect of marten ecology. ...

Kucera 2005a 2005b. However, as discussed in prior comments, no information is given in the Empire Project documents regarding the percentage of open habitat in areas that would be assumed to function as marten home range were martens again to occupy this region.

The Forest Service's review of impacts of logging on the marten does not constitute the hard look under NEPA to determine what measures are necessary to avoid long term fragmentation of northern and southern marten populations. According to Kucera, the Forest Service should be assessing why marten are unable to disperse north or south through the corridor area. If the project area represents a critical bottleneck, the Forest Service must consider the necessity of adding more habitat, including habitat in the Empire Project area, to the existing north-south corridor network. *See* Kucera 2006. The Empire Project documents state that the project area "may not support habitat attributes needed to contribute to the potential recovery" for forest carnivores. However, if this is true, the Forest Service has not taken a hard look at how the Project area will be able to provide adequate habitat for the marten, or how further reductions of such habitat will not have significant adverse effects. Kucera 2005a notes that the project area appears to be extremely important to the marten population at a landscape scale. Instead of enhancing the corridor habitat, the project documents state that 2,148 acres of the forest carnivore network will be potentially treated and 224 acres of this habitat rendered unsuitable.

Further, the Forest Service still fails to consider the cumulative impacts of other projects to the existing corridor. *See* Kucera 2005a. The Empire project documents in fact do not assess the cumulative effects of different QLG projects on this habitat corridor. Instead, the project assesses cumulative effects to the marten using the assessment area derived for spotted owls, thereby ignoring the likely effects of several other QLG projects that will affect the quality and overall suitability of the marten's north- south habitat corridor, including such projects as Happy Jack, Freeman, Grizzley and Diamond. *See* Kucera 2005a & b, 2006; Britting 2006 & Figure 3.

The Forest Service does not appear to consider or propose any attempt at an adaptive management approach to understand the cumulative effects of this suite of projects, including Empire, on marten, Kucera 2006, even though the harmful effects of both the 2004 Framework and OLG were intended to be avoided through adaptive management. Here, however, the Forest Service is neither considering, collecting nor evaluation the information necessary to determine what is happening.

b. The Forest Service is Not Taking a Hard Look at the Impacts of Treatments On the Suitability of Marten Habitat

As set forth in our previous comments, American martens are associated with late-seral coniferous forests with abundant large structure, including live trees, snags, and logs, and relatively closed canopy cover. As described by Dr. Kucera, medium and large trees with diameter 20" and greater constitute an important structural element of marten habitat. (Kucera 2005a, 2005b). Particularly on the west slope of the Sierra Nevada, martens are closely associated with dense canopy forests. In general, martens prefer dense forests with canopy cover of 70 percent or greater and avoid relatively open forests with canopy cover of 40 percent or less. As noted in the BE (p. 41), research indicates that marten avoid stands with less than 50 percent canopy cover. Reducing canopy cover to 40 percent in such forests is likely to adversely affect the marten's use of the area.

Martens are known to avoid fragmented forest with many open areas. Hargis and Bissonette (1997) and Hargis et al. (1999) found that martens did not occur in forests that contained more than 25% openings, including natural openings and those resulting from timber harvests. Additional research (see e.g., Chapen et al. 1998, Potvin et. al. 2000) also documents the deleterious effects of extensive forest openings on marten distribution and habitat use.

In a similar manner to the spotted owl discussed above, the Empire project documents do not discuss how DFPZ and thinning activities do not leave multiple canopies necessary for “suitable” habitat can retain “suitable” habitat for marten. DFPZ treatments eliminate understory altogether, thereby eliminating prey species such as dusky-footed woodrats, flying squirrels and other small rodents needing cover and downed woody material. *See* Bond 2006, Preston 2005. Further, as discussed above and in prior comments, treatments" such as mastication, burning, and tree removal may eliminate snag retention and recruitment and downed woody materials, all critical habitat components for marten. *See also* Discussion *infra*; Kucera 2006, 2005a & b.

C. The Empire Project Still Does Not Provide Adequate Monitoring for Wildlife

The DSEIS still does not address the monitoring required by the Plumas Land and Resource Management Plan as originally adopted or amended by Appendix E. In several cases, the annual population monitoring required by the forest plan has not been completed. In addition, population monitoring required in Appendix E for species at risk is not addressed. The failure to address these monitoring issues violates the forest plan and the National Forest Management Act.

1. The Annual Monitoring Required By The Forest Plan As Adopted in 1988 Has Not Been Completed.

The Plumas LRMP, as first adopted in 1988, requires annual population monitoring for several of the MIS species including three that are addressed in the Empire Project documents – golden eagle, prairie falcon, and goshawk. The MIS report for the Plumas National Forest (Plumas National Forest 2006) lists 20 species and summarizes the monitoring results for these species. Golden eagle, prairie falcon, and goshawk are addressed in this report.

The LRMP requires the national forest to "Report on territory occupancy and reproductive success at selected sites annually" for both golden eagle and prairie falcon. (USDA Forest Service 1988, p. 5-9, Table 5-1). For golden eagle, the number of birds counted on five consecutive years (1988 to 1992) is displayed in Figure 11 of the forest wide MIS report. (Plumas National Forest 2006, p. 25). Results are not reported for "territory occupancy" or "reproductive success," as required by the LRMP, for the five years of monitoring displayed. The LRMP also requires that golden eagle sites be monitored "annually," and there is no data reported in the MIS report for the period 1993 to 2006. The situation is similar for prairie falcon. Annual counts of birds from 1988 to 1992 are presented in Figure 12 of the MIS report. (Ibid., p. 27). Results are not reported for "territory occupancy" or "reproductive success," as required by the LRMP, for the four years of monitoring displayed. The LRMP also requires that prairie falcon sites be monitored "annually," and there is no data reported in the MIS report for the period 1993 to 2006.

Goshawk also is addressed in the forest wide MIS report which states that there are currently 144 protected activity centers (PACs) established on the forest. (MIS report, p. 31). The LRMP requires the survey for occupancy in 25% of established nest groves annually. (USDA Forest Service 1988, Table 5-1, p. 5-7). Thus, the LRMP monitoring requirement is to survey 25% of the 144 nest stands or 36 nest stands. The MIS report indicates that between 38, 28 and 21 active nest were monitored in 2004, 2005, and 2006, respectively. In all but the first year of this monitoring, less than 25% of the PAC across the forest had been surveyed. Based on the data provided, it appears that the annual monitoring requirements of the forest plan as adopted in 1988 have only been met for one out of 18 years.

In sum, the type of monitoring and frequency required by the LRMP, as originally adopted in 1988, has not been completed for these MIS.

2. Monitoring For Species At Risk Has Not Been Completed.

Appendix E of the 2001 ROD (USDA Forest Service 2001a, Volume 4, Appendix E) was adopted by the 2004 ROD (USDA Forest Service 2004a, p. 70). This appendix outlines the monitoring requirements for a variety of species including forest sensitive, MIS, species at risk (SAR), and other species of lesser vulnerability. Ten species were

identified in the appendix as being of particular concern and they were addressed individually in the narrative. The monitoring requirements for the remaining species are summarized in a series of tables. The appendix also states that "Population and/or habitat monitoring will be conducted for all MIS and species at risk." (USDA Forest Service 2001a, Volume 4, Appendix E, pp. 62, 75, 96). Further, Appendix E makes clear that such monitoring is to occur annually.[4] Thus, annual monitoring of "population[s] and/or habitat", for SAR is required by Appendix E.

There are a number of species at risk that were addressed in the project level environmental documents for which the monitoring requirements of Appendix E for SAR have not been met. The following table lists these omitted species.

Table 1. Species at risk (SAR) considered in the Empire Project for which the monitoring requirements in the Plumas Land and Resource Management Plan (as amended in 2004) have not been satisfied in the environmental analysis.

Species	Project Document where Addressed
Swainson's thrush	Empire Project Supplemental Wildlife Report, p. 2
White-crowned sparrow	Empire Project Supplemental Wildlife Report, p. 3
Olive-sided flycatcher	Empire Project Supplemental Wildlife Report, p. 3
Band-tailed pigeon	Empire Project Supplemental Wildlife Report, p. 4
Western red bat	Empire Project BE, p. 56
Townsend's big eared bat	Empire Project BE, p. 57

For the four birds listed above, a habitat analysis is presented but the results of the annual population monitoring required in Appendix E are not presented. The two bats listed above and evaluated in the BE report on surveys and incidental sightings from 1991, 1992, 2001 and 2002. Annuals surveys were required by the LRMP as amended in 2001 and 2004. Despite this requirement, an annual survey on some portion of the national forest was only completed in 1 out of the five years since adoption of Appendix E.

There are additional SAR that may occur in the project area, based on their geographic range and the association of habitat types affected, for which the required monitoring has not been reported.

Table 2. Species at risk (SAR) from Appendix E (USDA Forest Service 2001a) that require population monitoring and that may be affected by the Empire Project. These species were not addressed in the environmental analysis.

CWHR #	**Common Name**	**Habitat Type[1]**
B129	Peregrine falcon	Woodland, forest riparian
M025	Long-eared myotis	Brush, woodland, forest; crevices, bark, snags

[4] See for example Appendix E, p. 63, in reference to "Management Indicator and Species at Risk Issue" for Old Forest and Associated Species, "It is possible that, after a period of annual population monitoring (distribution and abundance), we will have sufficient understanding of important habitat characteristics that we can confidently monitor habitat without annual monitoring of species' distribution and abundance." Similar statements are made on pages 75 and 96 of Appendix E.

CWHR #	Common Name	Habitat Type[1]
M026	Fringed myotis	Hardwood-conifer; crevices, mines
M027	Long-legged myotis	Woodland , forests, chaparral; rock tree bark, snags
M029	Small-footed myotis	Arid wooded and brushy uplands near water
M030	Silver-haired bat	Conifer, montane riparian
M034	Hoary bat	Dense foliage of medium to large trees
M037S1	Pacific western big-eared bat	Caves
M049S1	Sierra Nevada snowshoe hare	Montane riparian with thickets of alder/willow; young conifer with chaparral
M050	White-tailed hare	Early successional stages of various conifer
B272	Long-eared owl	Riparian, dense tree
B110	Osprey	Lakes, rivers; open forest for cover
B299	Red-breasted sapsucker	Montane riparian, montane hardwood-hardwood, mixed-conifer, aspen red fir; near meadows, lakes and slow streams
B430	Yellow warbler	Riparian (open canopy), montane shrub, open coniferous
FN02	Pacific lamprey	Stream

[1] Extracted from "California's Wildlife" edited by Zeiner, D.C. et al 1988-1990.

Additionally, the potential impacts of the Empire Project on these at risk species have not been evaluated in the environmental analysis. Such evaluation is warranted since elsewhere the Forest Service has determined that, for a majority of these species, a full viability analysis was required to satisfy NEPA and NFMA. (USDA Forest Service 2001a, Volume 4, Appendix E, p. 16).[5]

D. The Analysis of Cumulative Impacts is Still Inadequate.

As discussed above, 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 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

[5] See also the Table of Contents for the 2001 FEIS (USDA Forest Service 2001a, Volume 3, Chapter 3, part 4) that lists the species for which viability assessments were completed.

harvests and should have explained in sufficient detail how different project plans and harvest methods affected the environment." Here, as in *Lands Counc*il, the FEIS "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.

The Campaign reiterates its prior comments that the Empire Project documents do not provide an adequate discussion of the cumulative impacts and location of past, present, and planned projects in the vicinity of Empire that are likely to affect owl or forest carnivore habitat. As discussed above, 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.

First, as discussed above, the Empire documents still do not assess the cumulative effects of other projects on the habitat corridor designated by project documents to ensure long term north-south connectivity for the marten The Forest Service instead assesses cumulative effects to the marten using the assessment area derived for spotted owls. This ignores the effects of other QLG projects that will affect the quality and overall suitability of the marten's north- south habitat corridor. *See* Kucera 2005a & b, 2006; Britting 2006 & Figure 3.

Further, although the BE indicates the amount of marten habitat that may be degraded in other projects, it does not disclose the extent to which these projects will create additional forest openings, thereby potentially exceeding the marten's habitat threshold, blocking dispersal corridors or creating large areas in which marten are not present, thereby isolating populations and increasing the chances of local extirpation. As stated by Kucera, the reduction in overall quality marten habitat is "particularly problematic given that the marten has not been detected in the project area in recent years, thereby raising the likelihood that this project may further reduce or eliminate north-south habitat connectivity between the Plumas and Lassen National Forests, thus further isolating marten populations to the north and south." (Kucera 2005a). However, the Empire Project does not conduct any meaningful cumulative impact assessment regarding these potential impacts.

The Empire Project's failure to conduct any meaningful cumulative impact assessment regarding these potential impacts in light of the project's interaction with the effects of past, current, and reasonably foreseeable future projects is contrary to NEPA. *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.

Second, the project documents continued to avoid the requisite hard look for cumulative effects on spotted owls. As stated in our previous comments, cumulative impacts analysis is important for species migrate or disperse into and out of the Assessment Area. Juvenile spotted owls for example move on average 14-16 miles (Tempel 2005) from the nest into new territories which could easily be impacted by additional projects outside the Empire analysis area that would have a cumulative impact on the subpopulation. *See also* Blakesley 2006a. Unfortunately, the Empire cumulative effects analysis carries the flawed view that the cumulative effects analysis need not address the impacts of other logging activities outside the Assessment Area defined by the Project, instead of correctly focusing spatially and temporally, on the species of concern in the Project. It is likely that logging adjacent to the Empire Project area will exacerbate the north-south habitat connectivity problem identified in the BE. However, the BE does not include the information that would be necessary to assess this issue. (Britting 2005).

Further, as previously discussed, the Forest Service has implemented or is planning to implement a at least ten large (~1,000 acres) fuel reduction projects in the meadow valley region, treating a total of 52,675 acres would be treated (*See* Table 2, below.) (Britting 2005). Most of these acres would be turned into DFPZs where canopy cover in forest types suitable for CSO use can be reduced to 30 percent. Forest stands with canopy cover less than 50% are recognized in the Empire BE as being marginally to unsuitable for CSO foraging and nesting. (BE, p. 27). Thus, the cumulative effect of these projects, which are proposed for implementation at approximately the same time as the Empire Project, is to reduce the suitability of many thousands of acres of nesting and foraging habitat for CSO. (*See* Bond 2005, Temple 2005b).

Table 2. Summary information for seven timber EAs and EISs that cover more than 1,000 acres and that have decision documents signed or for which scoping has been initiated since the 2004 Record of Decision of the SNFPA.

Project	Total Area Treated (ac)	Group Selection (ac)	DFPZ Thinning (ac)	Individual Tree Selection (ac)	Status of Project
Freeman DFPZ/GS	5,792	175	3,066	2,727	NOI issued 8/25/05
Happy Jack DFPZ/GS	6,256	91	2,866	2,262	Decision to Implement 6/1/05
Mabie DFPZ	7,185		7,185		Decision to Implement in 2004
Basin Group Selection	1,750	1,750			Decision to Implement 8/30/04
Watdog DFPZ/GS	4,260	260	4,000		FEIS Issued 6/24/05
Slapjack DFPZ/GS	4,800	240	3,872	148	NOI issued 9/16/05
Empire Project	11,900	1,300	6,600	4,000	FEIS Issued 5/18/05
Meadow Valley DFPZ/GS	6,435	735	5,700		Decision to Implement 4/16/04
Grizzly DFPZ	3,482		3,482		Planned 2004/Proposed for 2006
Greenhorn	815				Planned 2004/Proposed 2009
TOTAL	**52,675**	**4,551**	**36,771**	**9,137**	

In addition, the Forest Service is still not conducting a meaningful assessment of the Empire project in combination with other projects within this region containing Areas of Concern within or adjacent to the Plumas National Forest. The projects set forth in Table 2 above are located directly between Areas of Concern identified in the CASPO Report (Verner et al. 1992). Concern for these areas includes known low densities of CSO, fragmented habitat, and impediments to north-south travel for owls and forest carnivores. (*Id.*, pp. 45, 48). The timing and scale of habitat degradation proposed in the projects listed in Table 2 could well lead to an expansion of existing AOCs 2 and 3 that are to the north and south of this area or the creation of a new AOC. This potential cumulative effect is not considered in the FEIS. (Britting 2005).

The presence of AOCs and potentially limited amounts of regional habitat demonstrate that the Forest Service needs to conduct a cumulative impact assessment to assess impacts to species due to activities occurring outside the Assessment Area. *See Native Ecosystems Council, supra,* 304 F.3d at 897 ("Because the amendments are reasonably foreseeable and may have cumulative impacts within the Gallatin National Forest, the Forest Service has a duty to consider them in its analysis of impacts within the Darroch-Eagle EA."); *Kern v. U.S. Bureau of Land Management,* 284 F. 3d 1062, 1078-1079 (9th Cir. 2002) (holding that cumulative impact analysis must include "reasonably foreseeable future actions" outside the geographic area but within the range of the Port Orford Cedar, the affected resource at issue); 40 C.F.R. ' 1508.7.

In addition to the particular sensitivity of this region containing AOCs and limited quality habitat, the life history of sensitive species such as the spotted owl indicates the need to assess the impacts of logging activities outside the Assessment Area. *See NRDC v. Hodel*, 865 F.2d 288, 299 (D.C. Cir. 1988); *Save the Yaak Comm. v. Block*, 840 F.2d 714, 720-721 (9th Cir. 1988); *Washington Trails Association v. United States Forest Service*, 935 F. Supp. 1117, 1122-23 (W.D. Wash. 1996).

Finally, as discussed above, the Forest Service's failure to provide spatially

relevant habitat information for the owl renders its cumulative impact analysis, even within the Assessment Area, invalid. As noted by Tempel:

> Because foraging and nesting habitat will be reduced in each of these projects (see table below) and spotted owls migrate and disperse over areas much larger than the individual analysis areas (see below), the Forest Service has failed to provide adequate documentation, at the appropriate scale, to support its conclusions that the projects will not significantly reduce the viability of the northern Sierra Nevada spotted owl population.

(Tempel 2005) The failure to obtain and analyze this important information violates the Forest Service's duty under NEPA to gather missing information or to analyze likely environmental consequences if the data cannot reasonably be obtained. 40 CFR 1502.22.

As discussed in prior comments, the Sierra Nevada Framework found that the California spotted owl utilizes and selects habitat at three different spatial scales: nest, roost, or foraging stand; home range or core area; and landscape. (USDA Forest Service 2001a, Volume 3, Chapter 3, part 4.4, p. 72. See also id. at 82 ("Conservation measures must consider habitat distribution, abundance, and quality at the landscape, home range, and stand-level scales.") The Sierra Nevada Framework also found that timber harvesting could have significant impacts only detectable at the home range scale:

> Reproduction would drop below replacement rate at some threshold percentage of suitable habitat between 30 and 50 percent in home ranges and in the larger landscape in general. Recently completed analysis in the Sierra National Forest demographic study area concludes that canopy cover composition within owl home ranges is significantly correlated with owl occurrence and productivity .... Productivity was positively correlated with the proportion of the analysis area having greater than 50% canopy cover and negatively correlated with the proportion having less than 50% canopy cover. The values ranged from 75% of the smallest analysis area (178 acres) with greater than 50% canopy cover to 60% of the largest analysis area (1,062 acres) having greater than 50% canopy cover.

(USDA Forest Service, 2001a, Chap. 3, part 4.4, p. 76.)

At the landscape scale, suitable habitat must be distributed across the Sierra Nevada in a manner that is consistent with spotted owl life history. The spatial distribution of owl home ranges was an important consideration in the development of both the conservation strategy for the northern Spotted Owl (Thomas et al. 1990) and the interim guidelines for the California Spotted Owl (Verner et al. 1992). Both plans considered it important that enough home ranges be located in close proximity so that dispersing juveniles had a high probability of locating vacant territories and recruiting into the population.

The Framework states the importance of assessing impacts to the owl at a regional landscape level:

> At the landscape scale, the issue is to provide for sufficient amounts and distribution of high quality habitat to facilitate natal and breeding dispersal among territories and to maintain California spotted owls well-distributed throughout their historic range in the Sierra Nevada. For this purpose, protecting occupied, as well as suitable but unoccupied habitat, over the long term is important at this scale. A species with obligate dispersal and experiencing habitat limitation would be expected to show a pattern of less than full occupancy of habitat due to the uncertainty of the search process and the survival costs associated with searching for low-density habitat. Conservation 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.

(USDA Forest Service, 2001a, Chap. 3, part 4.4, p. 82.) The need for a landscape level identification of suitable habitat is in part due to the recognition by federal scientists that owls may disperse across large areas encompassing many watersheds and that such dispersal can be expected to occur "in random directions, with no relation between dispersal direction and the geographic orientation of drainages or ridges." (See e.g., Verner 1992, p. 66 (Technical Report describes dispersing juvenile owls ranging from 2.1 to 68 miles from natal area). Recent FWS data suggest that the median dispersal distance of 42 juvenile owls within the HFQLG area was 14 miles for males and 16 miles for females (Federal Register 2005; Tempel 2005). *See also* Blakesley 2006a. The success of such dispersal may depend on the quality of matrix habitat between owl home ranges. Additionally, adult owls in the Sierra Nevada may migrate to lower elevations during winter for distances up to 36 miles (Laymon 1989). All of these factors reinforce the need to maintain habitat quality on matrix lands outside of designated HRCAs. Tempel 2005a & b. *See also* Verner, 1992, p. 66.

Third, the Empire Project planning documents avoid assessing the habitat quality, and activities affecting such habitat quality, outside the Assessment Area by tiering to the 1999 QLG FEIS and 2004 Framework FEIS. Thus, the Empire project documents continue to avoid a cumulative effects assessment of implementing the OLG project on owls, marten and other wildlife as further information is known about how such projects will be implemented with respect to the current population's status of these sensitive species. As discussed in prior comments, however, the Framework's analysis is incomplete and uncertain, and, moreover, cites the need for further regional cumulative impact assessment at the project level. For example, the Administrative Study, designed to assess impacts of the QLG Pilot Project, acknowledges the necessity of assessing impacts from forest management at the landscape level.

> Landscape fuels treatment strategies are implemented at large spatial scales and will be the dominant management activity affecting CSOs and the forest landscape. Resulting changes in vegetation structure and composition from treatments may affect [California spotted owls] and their habitat at multiple spatial and temporal scales. Key uncertainties regard the effects of landscape-

> scale fuels treatments strategies that thin large areas of forest on CSO density, population trends, and habitat suitability at the landscape scale and how thinning effects habitat quality at the core area/home range scale....It is necessary that research address management effects on CSOs at the appropriate scales at which management is being conducted. Proposed landscape treatments may have effects at either, or both, the individual territory or owl site scale as expressed through change in occupancy, diet, use of vegetation patches, survival or reproduction, or at the population level as expressed through change in the density or spatial distribution of territorial breeding pairs at the landscape-scale. The individual site scale and population level perspectives are complementary in that the population level provides context for interpreting change at the site scale. Most importantly, both perspectives are required by managers concerned with managing for high habitat quality sites, as well as, well-distributed, viable populations across landscapes while implementing management strategies to deal with large-scale fire and fuels issues.

(USDA Forest Service 2003b.)

Further, the QLG EIS also acknowledges the potential for cumulative impacts from implementation of logging projects under the QLG plan, stating that "[f]urther cumulative effects analysis on wildlife habitat will be conducted at the project level. *See* QLG App. AA, 12-13. As Tempel concludes:

> [T]he conclusion of the 2004 ROD was reached without any consideration of site-specific impacts, and despite a projected decrease of approximately 65,000 acres in suitable owl habitat after 20 years compared to the original 2001 ROD. In addition, the 1999 HFQLG EIS acknowledged that habitat loss due to implementation of the Pilot Project could pose a significant threat to the long-term viability of the spotted owl within the HFQLG Project area. (Tempel 2005a, 2005b).

Fourth, the Cumulative Impacts analysis in DSEIS is still flawed since it fails to take a "hard look" at impacts, as noted in the 2005 and 2006 Empire appeal decisions, which stated that "merely listing past, present, and reasonably foreseeable future actions does not constitute adequate cumulative effects analysis." Although the list of projects has been embellished, the Empire DSEIS still fails to explain how various past, present and future activities cumulatively impact wildlife in the analysis area and beyond. The DSEIS appears to list effects by activity type rather than disclose effects in combination…that is cumulatively. The Campaign reiterates its prior comments on this point. In sum, the cumulative effects analysis in the Empire Project FEIS, with respect to past, present, and reasonably foreseeable future logging, fails to comply with NEPA.

E. The Empire Project Does Not Provide an Accurate Assessment of How Applicable Soil Standards are Being Met

NFMA directs the Forest Service to promulgate regulations specifying guidelines for forest plans that "insure research and (based on continuous monitoring and assessment in the field) evaluation of the effects of each management system to the end that it will not produce substantial and permanent impairment of the productivity of the land." 16 U.S.C. § 1604(g)(3)(C). The guidelines must also "insure that timber will be harvested from National Forest System lands only where . . . soil, slope, or other watershed conditions will not be irreversibly damaged." *Id*. at 1604(g)(3)(E)(i). NFMA regulations further provide that "[a]ll management prescriptions shall . . . conserve soil and water resources and not allow significant or permanent impairment of the productivity of the land." 36 C.F.R. § 219.27(a)(1) (1999). In addition, "[m]anagement prescriptions that involve vegetative manipulations of tree cover for any purpose" must "avoid permanent impairment of site productivity and ensure conservation of soil and water resources." *Id*. at § 219.27(b)(5). The Plumas forest plan incorporates these NFMA and regulatory requirements with general direction to "prevent significant or permanent impairment of soil productivity." Plumas LRMP at 4-43.

In addition to NFMA, Region 5 soil quality standards are a recognized part of the regulatory framework governing this project and establish soil properties, conditions, and associated threshold values [that] are used to avoid detrimental soil disturbance. The 2004 Framework process indicated Forest Service intent to comply with these standards for QLG projects, which direction the Plumas National Forest has followed in other projects. However, as set forth below, the DSEIS still fails to provide an accurate analysis using the best available science whether the Empire Project is consistent with regional standards for soil compaction and downed woody material. Failure to evaluate these effects on soil quality is a violation of NEPA. It is also not known whether regional standards are met currently and following the project, and thus the project also violates NFMA. In addition, opportunities to mitigate the effects of the proposed action or remediate historic deficiencies have not been explored.

1. Levels of large woody debris were not adequately assessed.

The R5 Soil Quality Standards (FSH 2509.18,2[1]) require that "organic matter is maintained in amounts sufficient to prevent short or long-term nutrient cycle deficits, and to avoid detrimental physical and biological soil conditions." One element of the regional standards for organic matter is the retention of large woody material. Large logs are defined as those that are "at least 20 inches in diameter and 10 feet long." *Id.*.

The DSEIS does not provide any data regarding the amount or coverage of large logs on the Empire project. Instead, the DEIS (p. 3-202-203) provides statistically suspect data regarding the amount of coverage for woody debris greater than 6" in diameter. The DSEIS then refers to a study in a different forest (El Dorado National Forest) to conclude that its data on small downed woody material can be translated to a

finding that there is adequate "large" downed wood to satisfy the Regional 5 soil quality standards of five large (greater than 20" diameter) logs per acre.

As demonstrated by other projects, surveys for large down wood are routinely completed and discussed in project analyses. (See for example the Phoenix Project on the Sierraville District, Tahoe National Forest.). Estimates of large down wood per acre have also been reported. (*Ibid*.) The Region 5 soils quality standards require the survey of large wood during project planning. For reasons that have not been addressed in the analysis, the density (logs per acre) of large wood has not been determined in the Empire Project area. Such an assessment is necessary to determine if the Region 5 soils quality standards are being met and to further determine if the "changes in soil properties and soil conditions would result in significant change or impairment of the productivity potential, hydrologic function, or buffering capacity of the soil."

Even if one accepts the integrity of the analysis method used to estimate the amount of large wood in the project area, the soils analysis fails to identify that nearly half (16 out of 36) of the units to be treated currently do not have any large down wood. In fact, only 25% of the units have 2% or more of the transect points with large woody debris. The soils analysis makes an issue of comparing the survey data to a study describing the nature of down wood in circumstances where 2% of the area is covered (and by inference seems to suggest that sufficient large wood occurs in such units) (*Ibid*., p. 34); however, relatively few units in the Empire Project meet or exceed this inferred level of large down wood. The lack of down wood in nearly half of the affected units must be discussed in relation to the failure to meet regional soil quality standards and the effect this has on detrimental effects to soil condition. Further, the Project's failure to meet the regional direction for large downed wood has the potential for significant impacts on sensitive wildlife such as spotted owl and their prey flying squirrel, which have not been addressed.

The only mitigation measure addressing any potential deficit is to generally retain 10-15 tons per acre of large down woody material. Because this standard only requires retention of existing down wood, it does nothing to mitigate or redress any potential shortfall. The Region 5 soils quality standards identifies the following to alleviate detrimental effects: "Import organic material, incl. cull logs." (FSH 2509.18,2[1]). Once an appropriate analysis has been completed, the project or an alternative should be designed to include this mitigation measure.

In response, the DSEIS states that 'over time, falling snags and blowdown will contribute to additional woody debris inputs. However, nothing in the project documents provide any plan or mitigation measures proposed by the Forest Service to meet these minimum regional standards intended to implement NFMA requirements. *See Ecology Center v. Austin*, 430 F.3d 1057, 1069-1070 (9th Cir. 2006).

2. Soil Compaction Cannot be Measured by Estimating the Extent of Skid Trails and Landings

The regional soil quality standards set a threshold of 10% reduction in soil porosity; above this level, there is detrimental soil compaction. Detrimental compaction was not measured on any of the treated areas even though such monitoring is common practice in the larger Herger-Feinstein Quincy Library Group project area. (USDA Forest Service 2005, pp. 43-44; USDA Forest Service 2006, pp. 57-58).

The DSEIS still attempts to use an estimate of the area occupied by skid trails and landings as a surrogate for measuring soil porosity. The DSEIS concludes that if skid trails and landings are kept to less than 15% of the area that the extent of detrimental compaction would be at or below the existing pre-project condition. The Forest Service's approach is inconsistent with its obligation to use the best available science in assessing the impacts of the project and compliance with applicable standards. As noted by Johannson (2007)

> The Forest Service process used transects that only estimated the extent of detrimental compaction by visually characterizing whether a sample point was located on a skid trail, landing or non-system road. The standard for detrimental compaction analysis is quantitative; the threshold for detrimental soil compaction to occur is a 10 percent loss in soil porosity. This cannot be determined visually. It is insufficient to rely on visual recognition of old skid trails and landings and present that they are the only areas exceeding the standard. The accepted standard for conducting soil transects is at each transect point to dig into the soil and physically assess the soil structural characteristics. A further need is that for each area being transected, a baseline determination of what constitutes the undisturbed condition needs to be made by the sampler to calibrate themselves by sampling areas of undisturbed soils. This forms the basis to determine whether the threshold has been exceeded, i.e. porosity has increased more than 10 percent.

Here, the Forest Service's proxy approach does not analyze what proportion of the activity area has a loss of 10% or more of soil porosity as required by the standard. Further, there is no discussion about the failure to assess soil porosity. *See also* QLG Status Rpt. to Cong. FY 2004 at 43 ("The threshold that indicates a significant impairment to soil productivity is 15 percent or more of an activity area having detrimental compaction. Detrimental compaction occurs when soil porosity is reduced more than 10 percent as compared to undisturbed conditions.").

Using the location of skid trails and landings as a surrogate measure for detrimental compaction fails to recognize that compaction can occur in locations throughout the unit. Further, historic compaction may exist outside of the skid trail and landing system evaluated. In fact two recent status reports to Congress for the Herger-Feinstein Quincy Library Group Recovery Act (USDA Forest Service 2005, 2006) each show increasing levels of detrimental soil compaction as a result of project related activities.. *See* Johannson (2006, p. 3), The 2005 report (USDA Forest Service 2005, pp.

43-45), found that pre-treatment compaction for six stands covered 15% to 33% of the area and post-treatment compaction was occurring over 20% to 58% of the given stand. The 2006 draft report (USDA Forest Service 2006a) also found that following treatment there was a significant and consistent increase in detrimental compaction that exceeded regional standards.

Further, the Empire Project does not disclose the local monitoring data that also documents the repeated high levels of detrimental compaction that routinely results. The USDA Forest Service. 2002. Plumas National Forest Soil Resource Assessment for Implementation of Project Work, Plumas National Forest, Quincy, CA, states:

> Westmorland (1999) conducted an in depth study of the effects of thinning on soil porosity on 87 harvest units within the Lassen, Plumas and Tahoe National Forest. Nineteen of these units were evaluated for existing compaction and then thinned utilizing feller-bunchers; the same harvest method planned for units on this project. A separate analysis of the data from the 19 units generated Figures Two and Three. As Figure Two indicates, prior to harvest less than 10 percent of the units had detrimental levels of compaction greater than 5 percent. Following harvest, the shift in detrimental compaction is clear; 79 percent of the units have detrimental compaction levels greater than 15 percent.
>
> Soil monitoring is presently being conducted under the Herger-Feinstein Quincy Library Group Forest Recovery Act (HFQLG). Pretreatment data has been collected in field seasons 2001 and 2002 on 91 randomly selected units. Soil compaction levels range from 0 to 88 percent of the area detrimentally compacted. Average compaction within the units is 21 percent, and 53 percent of the units exceed the threshold of 15 percent detrimentally compacted prior to current planned entry (Johannson, W. and R. Westmorland, 2002). This is significant. More than half of all units have legacy compaction exceeding the thresholds before the current entry occurs. Given the expected increase from the current entry as demonstrated in the above shift, this is a real issue of soil productivity at risk.

See Johannson 2007.

3. Skid trail and landing density continue to be underestimated

The Plumas forest plan requires that "[t]o avoid land base productivity loss due to soil compaction, dedicate no more than 15% of timber stands to landings and permanent skid trails." Skid trail and landing density was estimated by the use of points sampled along a transect. (CWE and Soils Assessment, pp. 16-17). To evaluate this, transects "were designed to run across the slope." (*Ibid*., p. 17). Johannson identifies that this sampling approach is inadequate because it is not likely to include landings. He states:

> "My reading of the protocol was that since it was designed to travel between roads and on the contour, it would not be expected to encounter any landings. Yet there was no acknowledgement of this and corresponding adjustment to the data in Table 12 on page 48. There should have been an acreage added for the landings to the data to reflect this or state that it only included the observed skid trails." (Johannson 2006, p. 2).

Thus, the area estimated to be occupied by skid trails and landings is underestimated by some unknown amount. This has not been disclosed in the analysis.

Further, the Forest Service's attempt to characterize the amount of skid trails and landings as under the 15% threshold is contrary to the information in the record. Johannson 2007:

> [T]he Forest Service tries to hide the effects by presenting that only a portion of a planning area will be affected. This smoke and mirrors approach doesn't diminish the impact on the acres harvested. The overall average density of these features was 19 percent. Plus the unused existing (legacy) skid trails from previous entries, which would add another several percent.

The average density of trails and landings exceeding 15% violates the Forest Plan. Since the Empire Project contributes to this exceedance, it cannot be approved. *See* 16 U.S.C. § 1604(i); 36 C.F.R. § 219.10(e). Thus, in *Native Ecosystems Council v. U.S. Forest Service*, 418 F.3d 953, 961 (9th Cir. 2005)

4. The project violates the forest plan standard for skid trails and landings.

Setting aside the likely underestimate of existing skid trail and landing density noted above, skid trail and landing density as estimated in the analysis currently exceeds the forest plan standard of 15% of the stand on 3 units. (CWE and Soils Assessment, pp. 48-49). Action alternatives that include these units each result in increased density. (*Ibid*.) Following project implementation (including the application of mitigation measures), the analysis identifies that "these additional subsoiling practices would leave planning areas 6G, 7 G and 9 G in an improved state, trending towards levels that comply with the PNF LRMP." (*Ibid*., p. 46). It is clear that these units will not comply with the forest plan following the project. Lack of compliance with the forest plan is a violation of NFMA.

5. The effectiveness of mitigation measures is still unclear.

Mitigation measures to address detrimental soil conditions include the subsoiling of "all landings and skid trail approaches to landings" and "new temporary road" (FEIS, p. F-4) to reduce the effects of compaction. Subsoiling only a portion of the skid trail and landing system leaves skid trails farther than 200 feet from the landing intact and does

nothing to remediate legacy skid trails that may not be used in the project. Soil expert Johannson found in an assessment of skid trails and landings of projects located on the Plumas National Forest that the "first 200 feet from a landing represents on average less than 1-3% of the total skid trails in a unit." (Johannson 2006, p. 4). Thus, a significant portion of the skid trail system in the Empire Project will remain in place even after mitigation measures have been applied. Furthermore, detrimental compaction that may exist outside of these areas proposed for subsoiling (e.g. on legacy skid trails and landings not utilized by the project) will not be affected by the mitigation measure to subsoil certain areas.

Subsoiling as a mitigation measure is also further compromised by its likely effectiveness to reduce soil compaction. Recently, the Freeman DEIS (Plumas National Forest 2006a, p. 336) identified that "monitoring on the Plumas, Lassen and Tahoe has shown subsoiling to be only 66 percent effective."

F. The Empire Project Still Fails to Take a Hard Look at Alternatives

. The "touchstone" for courts reviewing challenges to an EIS under NEPA "is whether an EIS's selection and discussion of alternatives fosters informed decision-making and informed public participation." *Westlands Water Dist. v. U.S. Dep't of Interi*or, 376 F.3d 853, 872 (9th Cir. 2004). The Ninth Circuit has held that an agency's consideration of alternatives is inadequate where it does not examine a viable alternative using correct scientific analysis. *Natural Resources Defense Council v. U.S. Forest Service*, 421 F.3d at 814; *see also Alaska Wilderness*, 67 F.3d at 730-31.

As discussed in prior comments and further below, due to the real potential for significant impacts to wildlife, including the inability to ensure viability of such species as the spotted owl and marten, as discussed below, the Forest Service has an obligation to take a "hard look" at alternatives that will meet project objectives, but with less harmful impacts to wildlife. *See e.g.*, (Tempel 2005a); *Sierra Club v. Bosworth*, USND Case No. 05-00397, p. 14:9-17 ("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."); *Sierra Nevada Forest Protection Campaign v. Tippen.*

1. The Empire Project Fails to Take a Hard Look at Alternatives With Less Harmful Impacts

The Forest Service continues to claim that alternatives E & F, with lesser impacts on wildlife, do not meet project purposes, based on three grounds: 1) fire risk; 2) forest health and 3) economic recovery. The Forest Service's analysis on each of these points does not constitute the "hard look" required by NEPA.

a. The Empire Project Fails to Take a Hard Look at Alternatives that Can Meet Applicable Fuel Reduction Goals

The Forest Service's continued failure to present an accurate picture of the fire risk posed undermines the conclusions in the FEIS 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. As discussed in prior comments, retaining the largest trees in the stand offers the greatest likelihood of increasing overall stand resiliency. The Forest Service's failure to follow this basic proposition and to instead rely on a flawed methodology and analysis means it has failed to apply a hard look to its fuel reduction analysis, failed to use the best available science, failed to consider alternatives in a non-arbitrary manner and failed to consider the environmental impacts of its decision-making process, all contrary to NEPA. *See e.g., Sierra Nevada Forest Protection Campaign v. Tippen.,*

As discussed in prior comments, Alternatives E & F meet the stated fuel reduction standards for this Project. In response to prior comments, the FSEIS conceded that the potential for passive crown fire (torching) in Alternatives E and F would be similar to Alternatives A, C, and D. *See* FSEIS, p. 56. However, the DSEIS continues to claim 1) crown fire potential is relatively higher under Alternatives E & F; and 2) higher canopy cover may result in reduced penetration of aerial retardants through the canopy to surface fuels, which may result in a higher likelihood of a fire to escape initial attack.

In making these conclusions, the DSEIS and prior project documents do not meet the hard look standard required under NEPA. *See e.g., Sierra Nevada Forest Protection Campaign v. Tippen.,*

First, the project documents do not acknowledge nor use the criteria used by the Forest Service to determine whether fuel reduction objectives are being met. In fact, the forest-wide Standards and Guidelines for Fire and Fuels set forth in Appendix A of the 2004 ROD (p. 50) require the Forest Service to: "Design a sequence of fuel reduction treatments in conifer forest types... to achieve the following standards within the treatment area:

1. An average of 4-foot flame length under 90th percentile fire weather conditions.

2. Surface and ladder fuels removed as needed to meet design criteria of less than 20 percent mortality in dominant and co-dominant trees under 90th percentile weather and fire behavior conditions.

3. Tree crowns thinned to meet design criteria of less than 20 percent probability of initiation of crown fire under 90th percentile weather conditions.

As set forth in several prior submissions and in the declarations of Carol Rice, Alternatives E & F each meet these criteria. *See* Rice 2006, 2007. The 2004 ROD

criteria represent the Forest Service's determination as to what performance standards are relevant to acceptable fire risk and sets those standards. Here in contrast, the Empire project relies on different standards that are not part of the desirable fuel reduction condition.

The DSEIS claims there is a need for further thinning of the forest crown, despite the fact that the surface fuel conditions are met for each alternative. However, the Forest Service criteria do not address any such criteria for crown thinning beyond the need to reduce "the initiation of crown fire under 90th percentile weather conditions." Here, the Forest Service concedes that the possibility of crown fire "initiation" is the same for each alternative. In the Empire project documents, the Forest Service appears to have created a "ghost" standard that fails to recognize the physical linkage of surface and ladder fuels to crown fire initiation and behavior. *See* Rice 2007, 2006a & b, 2005.

The same is true for retardant drops. Nothing in the 2004 ROD or the 1999 QLG EIS ROD refers to the need for "increased penetration" of retardant drops. Instead, surface fire is controlled by the removal of surface and ladder fuels to ensure that flame lengths do not exceed four feet under 90th percentile fire weather conditions.

Second, since the Forest Service criteria do not apply to determine whether the project purpose of reducing fire risk is reducing project objectives, the Forest Service's conclusions are based on purely relative criteria, which are neither relevant under the Forest Service criteria discussed above, nor have any measurable standard against which a decision maker or the public would be able to assess whether the proposed project purposes were being met. The 9th Circuit has, however, found that the Forest Service analysis under NEPA must be conducted in relation to actual standards or thresholds.. *See Ecology Center v. Austin*, 430 F.3d 1057, 1067-1068 (9th Cir. 2005) ("Because the EIS does not disclose what this threshold is, much less explain how the threshold was determined, we cannot evaluate the Service's decision.")

Here, as described in Rice 2007, 2006, neither crown thinning nor flame retardant penetration have any acceptable standards against which one might measure project purpose success or failure. The Forest Service's failure to set forth, explain and defend such a standard renders its NEPA analysis inadequate.

Third, as set forth in Rice 2007, 2006b and prior comments, the Forest Service's analysis is not based on accurate, relevant or appropriate scientific information and thus does not constitute the hard look required under NEPA. For example, based on speculative visual observations (Moghaddas 2006) during a fire event the Forest Service presents a defense for increased logging absent any quantitative data or comparative study of 40% v. 50% canopy fire retardant performance (Rice 2006b). Further, wind speed factors presented in the Empire project fire analysis are projected by the Forest Service to be almost four times the theoretical gust as determined by NOAA and over ten times the 90th percentile value for 20-foot wind speed, the value specified in the 2004 ROD (Rice 2006b).

In addition, the Forest Service's entire analysis fails to acknowledge how the use of strategic landscape level fuel reduction planning could greatly reduce or even eliminate the threat of large scale, stand replacing fires with only a fraction of the logging proposed in the Empire project. *See* Rice 2007. This failure further undermines the Forest Service's fuel reduction methodology, which is to assume that a crown fire will initiate and then spread uncontrolled across the landscape, irrespective of surface fuel conditions or variations in natural topography. *Id.*

These are just the highlights of a number of technical and scientific inaccuracies presented by the Forest Service as it has continually refined its untenable justification of intensive logging to achieve artificial fuels reduction goals. *See* Rice 2005, 2006a; 2006b; 2007; Heald 2006, Campaign Comments and Prior Appeals. In sum, these unsupported and inflated positions of the Forest Service do not constitute the hard look required under NEPA. *See e.g., Natural Resources Defense Council v. U. S. Forest Service*, 421 F.3d 797, 812-813 (9th Cir. 2005) (Forest Service's presentation of misleading information significant to its evaluation of alternatives did not permit the public to allow an informed comparison of the alternatives considered in the EIS.)

b. The Empire Project Fails to Take a Hard Look at Alternatives that Will Meet Forest Health Objectives

The Forest Service argues that forest density must be reduced to meet forest health objectives, which the Forest Service claims are adversely affected once "density related mortality" occurs at from 55% to 60% of the maximum stand density index. This reasoning cannot be the basis to reject Alternatives E or F for several reasons.

First, as discussed in prior comments, the post-treatment stand densities for Alternative E or F are well below the 55-60% figure used by the Forest Service to define "forest health." *See e.g.*, Vegetation Report, p. 11, Table 6; p. 21, Table 9. Further, the project documents show that even 50 years after harvest, alternatives E or F would still be under this SDI threshold. *Id.* This is well beyond the Regional direction for lowering stand density, which suggests retaining SDI below the 60% level for at least 20 years post harvest. (*See* July 14, 2004 Memo from Jack Blackwell to Forest Supervisors.) Given the significant impacts to wildlife from the proposed level of harvest, the Forest Service's determination to reduce forest stands to such low density is contrary to law. *See e.g., Sierra Club v. Bosworth*, USND Case No. 05-00397.

The project documents do not provide any explanation or information to justify tripling this level of stand reduction beyond the Regional direction. The Campaign notes that, to the extent the Forest Service is intending to rely on Powel (1999) as supporting thinning to 35% SDI, this paper actually identifies a "lower limit of the management zone" (LLMZ) at about 40%. Powell notes that "stand densities below the LLMZ could be considered understocked because growing space is not fully occupied (utilized) by the trees." Thus, at best, the 35% SDI figure goes *below* the *minimum* level necessary to ensure normal growing rates for the forest. In no way does it provide any relevant information regarding the effect of density on "forest health." Instead, as noted by Heald

2006b, "the 35% to 45% canopy levels proposed in options A, C and D would likely significantly reduce stand growth hence reduce future harvest potential and future local economic viability unnecessarily."

Second, the Forest Service does not provide a reasoned explanation for why stand density must be lowered by removing co-dominant 20-30" dbh trees as opposed to a thinning from below prescription. As set forth in Heald 2006a & b, the Forest Service has improperly used landscape level averages to arrive an at artificial reverse "J" curve model for older forests, which is contrary to the data on which the Forest Service relies. (*See* also Campaign's Comments on DSEIS dated April 10, 2006.) This model does not account for the heterogeneity of stands across the landscape including ones with higher numbers of large trees based on site conditions and other environmental variables. Indeed, this is considered one of the purposes of group selection, to establish heterogeneity at the landscape but not the stand level by rotating even aged-groups over a 175 year rotation. *See e.g.*, Heald 2006a & b.

Finally, the Forest Service has not provided any evidence to support the idea that the threshold of "density related mortality," whether 55% as the Empire Project claims, or the 60% standard proposed by Region 5, is synonymous with forest health. "Density related mortality" is part of the natural thinning process in the forest. As stated by Heald, 2006b:

> Pest management experts agree that while very high stand density leads to poor individual tree vigor hence increased problems when pest epidemics occur, all the proposed residual stand densities (specifically including the >=50% canopy retention of alternative E) are well below that threshold and would likely remain so for the duration of an average ~20 year cutting cycle post harvest.

The only specific reference provided by the Forest Service relating to density related forest health impacts is susceptibility to bark beetles, yet the Empire project documents demonstrate that while most of the current stands currently exceed 55 or 60% SDI, the level of beetle related mortality is constant but considered to have insignificant impacts on forest health. As set forth in Heald, 2006b:

> [T]he DSEIS documents over a decade of surveys at the existing high density levels that show very few significant mortality problems. "All mortality, except one polygon, was attributed to bark beetles, which indicates that the level of mortality may be attributed to endemic levels of these common forest insects" (Supplemental DEIS Empire Vegetation Management Project, p. 19).

Heald notes that "for Sierra Mixed Conifer, the likely key to keeping native beetle pest complexes within acceptable ….levels is maintenance of a diverse species composition."

For other diseases, the Forest Service provides no information showing that such low stand densities are necessary to avoid outbreaks. Instead, as noted by Heald 2006b, "the primary pathogen of concern, annosum root disease in white fir, would likely be

increased by ITS." This point is supported by the project documents. *See* DSEIS, p. 20 ("Stands with repeated entry (typical of ITS prescriptions) in the Empire Project area have a higher incidence of the disease than un-entered stands".)

Again, the Forest Service provides no threshold or scientific information to explain the point at which forest density begins to harm forest health due to disease or insects.

The Forest Service's explanation of why ITS is necessary to achieve this condition is also contrary good science. As noted by Heald 2006b:

> [U]se of an Inverse J shaped project wide structure distribution either for the existing or desired future condition is inappropriate. In particular the display of the graph figure 3.1 (Supplemental DEIS Empire Vegetation Management Project, p. 15) inappropriately combines such diverse vegetation types as Sierra Mixed Conifer, White Fir, Red Fir and Ponderosa Pine. …This is exacerbated by displaying in figure 3.2 the combined distribution of all vegetation types in the planning area then inappropriately concluding "which indicates these species" (white fir, incense cedar, and red fir) "are generally comprised of smaller-diameter classes that may be characteristic of advanced regeneration" (Supplemental DEIS Empire Vegetation Management Project, p. 16).

Heald notes that the "real problem in these stands is not so much species composition as tree size," particularly "an excessive number of small diameter stems in the 1 inch to 9 inch diameter classes." However, ITS cannot effectively contribute to a multistory, fire-resilient forest without addressing this gross excess. *Id*.

The project documents also make offhand references to the need to regenerate shade intolerant conifers. However, the Forest Service provides no evidence that it is necessary to reduce canopy to 35% or 45% in order to encourage regeneration of intolerant conifers. *See also* Heald 2006a. Research at Blodgett Forest and elsewhere (Lilliholm, 1990) demonstrates that regeneration of all species in a Sierra Mixed Conifer forest is more than adequate following periodic harvesting, which occurs at post harvest canopy cover levels of 50% to 70%. Heald 2006a. Instead, it is the competition among excess small diameter trees that inhibits adequate growth of established regeneration. *Id*. Finally a key component of adequate regeneration is the retention of a sufficient number of species representatives. For the largest forest type in the planning area, Sierra Mixed Conifer, a typical well managed post harvest stand should have approximately five conifer species -- and Black Oak -- with two trees per acre on average of each species in the 20" – 29.9" dbh size classes and at least one tree per species > ~30" dbh to insure adequate current and future regeneration. Here, the existing stands average only 17 TPA between 20 and 29.9 inches dbh and five TPA >= 30" dbh. Nearly all these trees would need to be retained for seed tree purposes in a well designed ITS prescription. *See* Heald 2006a & b.

c. The Empire Project Fails to Take a Hard Look at Alternatives that Can Meet Economic Objectives

The Forest Service also states that Alternatives E & F do not meet the project purpose derived from the OLG to contribute to community economic stability. The problem with this analysis is that the Forest Service again identifies no threshold to determine whether the economic benefits of different proposed alternatives meet or do not meet the stated project purpose. The Campaign notes that all considered alternatives create full time jobs and generate income, thereby contributing to community economic stability. Thus the Forest Service is again rejecting alternatives based on the idea that one alternative goes farther in achieving a particular purpose than another. But this is not the standard for assessing alternatives under NEPA, particularly in the context of economics where the 9th Circuit has recently expressed its disapproval over "a disturbing trend in the Forest Service's recent timber-harvesting and timber-sale activities:"

> It has not escaped our notice that the USFS has a substantial financial interest in the harvesting of timber in the National Forest. We regret to say that in this case, like the others just cited, the USFS appears to have been more interested in harvesting timber than in complying with our environmental laws.

Earth Island Inst. v. U.S. Forest Serv., 442 F.3d 1147, 1178 (9th Cir. 2006). The Campaign also notes that under NFMA, economics cannot override other statutory mandates to maintain species viability and diversity on the Forest. *See e.g.,* 36 CFR 219.27(b)(3).

2. The Forest Service Did Not Consider a Reasonable Range of Alternatives

In addition to not taking a hard look at Alternatives E & F, the Forest Service improperly rejected Alternative H, which limits fuel treatments to trees 15" dbh or less based on its assertion that this alternative did not meet certain project objectives regarding economic feasibility and amount of board feet to be logged. As discussed above, these criteria lack any measurable comparable standards and thus cannot constitute grounds for rejecting a less harmful alternative, particularly in the face of potentially significant and at best uncertain adverse impacts to wildlife. *See e.g. Lands Council v. Powell*, 379 F.3d 738 (9th Cir. 2004) (NEPA was passed by Congress to protect the environment by requiring that federal agencies carefully weigh environmental considerations and consider potential alternatives to the proposed action before the government launches any major federal action.)

Second, the Forest Service improperly rejected an alternative based on the more protective standards of the 2001 Framework. Although the Campaign has repeatedly asked for the Forest Service to consider such an alternative, it declined to do so stating that the 2001 Framework has been superseded and thus as a matter of law cannot meet the project purposes involved in implementing a OLG project under the 2004 Framework amendment. As stated previously by the Campaign, this position is incorrect. As

recently set forth in *See Sierra Nevada Forest Protection Campaign v. Tippen*:

> To the extent that defendants assert that the 2004 Framework supersedes the 2001 Framework such that implementation of a plan in accordance with the 2001 Framework would be inconsistent with the 2004 Framework, they are mistaken. The 2004 Framework amended the 2001 Framework to provide the Forest Service with increased flexibility, but did not mandate more intensive logging measures. CR 00119-20 (setting more flexible maximum guidelines for logging, but not mandating minimum requirements). ….As such, an alternative applying the 2001 Framework would not necessarily be inconsistent with the 2004 Framework.,,

The Campaign reiterates its prior position that the Forest Service should consider a fuel reduction and forest regeneration alternative that meets the less intensive logging that was permitted under the 2001 Framework. Implementation of a 2001 Framework alternative could have considered alternatives in which group selection and ITS units are confined to areas of lesser habitat quality, as opposed to the critically sensitive habitat for owls, marten and other species that will be treated under Alternative D. For example, an alternative that implements the 2001 ROD standards would not allow group selection harvesting in HRCAs. (See USDA Forest Service 2001b, App. A, 40-44) and would limit the group selection amount to that allowed under the 2001 Here, instead, the DSEIS eliminates the less intensive logging Alternative F based on the argument that it does not meet the Forest Service's economic objectives, without ever considering a group selection option of lesser intensity and, as discussed above, without ever clarify the criteria that an Alternative must meet in order to meet an economic objective. This process thus does not allow the public to assess alternatives in the manner required by NEPA.

Third, the Campaign reiterates its prior comments that the project fails to provide a meaningful discuss alternative measures arguably superior to the group selection and reforestation proposed to insure an all aged, multistory, fire resilient forest. As discussed in prior comments, Group Selection is likely to establish an even-aged, single story canopy highly prone to crown fires. (*See e.g.,* Odion, 2005.) The Plumas National Forest has the least amount of old growth forest in Sierra Nevada (SNFPA FEIS Volume 2, Chapter 3, part 3.2, page 138). The Campaign notes that many of these parcels were subjected to thinning projects in the 1990s for these reasons. By implementing group selection on these previously treated stands, the Forest Service is simply restarting the cycle of even-aged, dense, small tree forest, with little habitat value and high potential for crown fire. (See Key, J. 2000; Odion et al. 2004; Stephens, 1998, Blakesley 2004.)

H. The Empire Project Has Not Adequately Analyzed Impacts to MIS

1. The DSEIS MIS analysis still fails to address similar flaws described in the Campaign's Empire DEIS comments (2005) and Empire Appeal (2005).

Reliance on habitat models does not satisfy the obligation under the NFMA to conduct population surveys for certain Management Indicator Species ("MIS") bird (or other) species. The NFMA requires that a forest plan "comply with substantive requirements of the [NFMA] designed to ensure continued diversity of plant and animal communities and the continued viability of wildlife in the forest. . . ." *Austin*, 430 F.3d at 1063; *see also* 16 U.S.C. § 1604(g)(3)(B).

The 2001 Framework identifies certain birds as MIS species, for which increased population monitoring is required (see Preston 2005). The 2004 Framework FSEIS (p. 70) incorporates the 2001 Framework's population monitoring requirements. There are a variety of snag/cavity associated species on the Plumas NF (DSEIS MIS report Table 7, p. 24) that require annual monitoring to be consistent with the 1988 Plumas Forest Plan p. 5-9 and the Plumas Forest Plan as amended by the 2001/2004 SNFPA ROD/FEIS/FSEIS.

Monitoring is critical because many of these snag dependent-cavity nesting bird species will likely be negatively impacted by the fuels reduction logging and group selection clear cuts which will remove key habitat components.

The 2001 Framework states, "[p]opulation and/or habitat monitoring will be conducted for all MIS and species at risk. Varying levels of monitoring will be conducted depending on the level of concern associated with each species; as the level of concern about a species increases, the investment in monitoring increases." The 2001 Framework allows for a very limited degree of habitat monitoring in lieu of actual population monitoring, stating that "coarse habitat relationships constitute a relatively insensitive index to the status of populations and would only be appropriate for species with a lower level of concern or for which the status of the population were also being monitored." (FEIS Vol. 4, Appendix E-19)

According to the 2001 Framework, the hairy woodpecker, Williamson's sapsucker, and pileated woodpecker are low-vulnerability MIS species. Low-vulnerability species are monitored to determine changes in their distribution. Distribution data consist of "changes in the presence of species across a number of sample locations" and is a "spatially explicit version of frequency of occurrence data." In addition, the 2001 Framework notes that in an area as large as the Sierra Nevada, "changes in the distribution of species represent ecologically significant information on the status and change of populations." Appendix E-64of the 2001 Framework makes explicit that population data must be collected for the hairy woodpecker, Williamson's sapsucker, pileated woodpecker and other snag associated species. The harm from aggressive logging and removal of key habitat elements (various snag classes, logs)

utilized by snag/cavity associated species is of primary concern to the Campaign (Preston 2005). This concern is born from the fact that intensive QLG DFPZ construction and Group Selection logging severely limits these critical habitat components and places these species at increased risk. Appendix E-64 identifies other old forest MIS/SAR avian species including the band-tailed pigeon and olive-sided flycatcher that require annual monitoring are potentially impacted by green tree and salvage logging and brush removal.

In the Empire Project, on the DFPZ and Group Selection acres, snag reduction would occur. Despite these low snag levels, and evidence in the DSEIS MIS report p.26 that low snag levels for cavity nesting or cavity associated species are inconsistent with the current best science (Bull 1997 and others), the Empire DSEIS MIS report concludes the sang retention levels will somehow "provide for habitat needs for woodpeckers" p. 27. As stated in (Preston 2005), each of the species in the woodpecker group has different habitat requirements, only one of those requirements being the presence of snags.

The analysis of impacts to gray squirrels in the DSEIS is equally inadequate. The MIS report lacks site-specific analysis and relies on population numbers for California-wide harvest levels and general statewide population estimates. It tells us nothing about population impacts in the Empire project area.

The Forest Service 2001 FEIS states, "[M]onitoring will serve as an early warning of declines in populations and habitat conditions to address some of the uncertainty" 2001 FEIS Appendix E-62. The DSEIS MIS report discloses general habitat proxy information related to cover types but fails to provide underlying population monitoring data on distribution for MIS species that could inform an adequate habitat analysis. Without this important data the cumulative effects analysis and population trend findings in the Empire lack a legal or scientific foundation.

2. The Cumulative Effects list of projects in the DSEIS MIS Report lacks several project categories that are discussed (see above) in the DSEIS document.

This inconsistency suggests a serious failure to disclose of important cumulative impacts to MIS/SAR wildlife in the MIS Report. Although we consider the cumulative effects discussion in the DSEIS inadequate, several potentially impacting programs and projects, mentioned in the DSEIS, are completely absent from the MIS report and not carried into the DSEIS discussion. This failure to fully assess potential cumulative impacts in not consistent with NEPA and fails to take a "hard look" at MIS/SAR cumulative impacts.

3. Using Models and Model-based assumptions.

In the Scientific Consistency Review for the Empire Project, Jeff Dunk concluded that there exists error in any sampling but much less so in the on-the-ground measurements. On-the-ground population monitoring is the most scientifically accurate

means of measuring the cause and effect of changes in habitat. Without pre-project monitoring of population trends it would be scientifically implausible to link the impacts with the activity (cause and effect) (Preston 2005). Without post-project monitoring it would be equally implausible to do the same. This is why the Forest Service is directed to monitor populations of MIS species.

There is a distinct difference between monitoring habitat and monitoring species activity and populations within the habitat. Models that use land cover to predict terrestrial species occurrence, have a variety of limitations. (Catanzaro and Smith 1996, Conroy and Noon 1996, Smith and Catanzaro 1996). CWHR and GAP models typically over-predict species occurrence, leading to a higher rate of commission than omission errors (Smith and Catanzaro 1996). The primary use of WHR models in California is to provide lists of species that might be found at a particular location (Block et al).

Letter and attachments Britting 2007 (+ Exhibit), Rice 2007, Johannson 2007 submitted 4/16/07 via email.

Thanks you for this opportunity to comment.

Sincerely,

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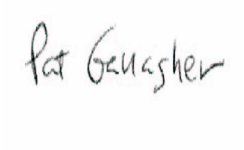

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