Sierra Forest Legacy
Protecting Sierra Nevada Forests and Communities

September 29, 2014

Land Management Plan Revision
USDA Forest Service
Ecosystem Planning Staff
1323 Club Drive
Vallejo, CA 94592

Submitted via Region 5 website

Re: Comments on Notice of Intent and Detailed Proposed Action for the Forest Plan Revisions on the Inyo, Sequoia and Sierra National Forests

To the Forest Plan Revision Team:

These comments are provided on behalf of Sierra Forest Legacy and the above conservation organizations. We have reviewed the Notice of Intent (NOI), detailed Proposed Action (PA), and supporting materials posted on the Region 5 planning website and offer the following comments on these documents.

We have submitted numerous comment letters since the forest plan revision process was initiated for the Inyo, Sequoia, and Sierra national forests. Specifically, we submitted comment letters on the forest assessments for each national forest (Sierra Forest Legacy et al. 2013a, Sierra Forest Legacy et al. 2013b, Sierra Forest Legacy et al. 2013c), comments on two need for change documents (Sierra Forest Legacy et al. 2014a, Sierra Forest Legacy et al. 2014b) and comments on detailed desired conditions (Sierra Forest Legacy et al. 2014c). We incorporate these comments by reference and attach the letters to these scoping comments. We have included these letters in our scoping comments because significant issues that we raised in these comments have not yet been addressed in the NOI, or the detailed PA creates significant conflict with resource areas on which we commented.

Organization of Comments

The following comments address first the content of the NOI, including the purpose and need for action, issues not addressed in the scoping notice, and regulatory compliance of the PA as written. Following this, we provide detailed comments on the PA with some recommendations on changes to those plan components to bring them into compliance with regulations and meet the direction

in the planning rule. This section also includes recommendations for new wilderness areas and the evaluation and management of Wild and Scenic Rivers. In the last section, we present information and plan components that we ask you to address and incorporate in the development of alternatives.

To improve readability, we have provided the following table of contents.

Table of Contents

I. Purpose and Need for Action

To a large extent, we agree with many of the purposes and needs for action. As a matter of policy, it is worth noting that the purpose and need for revision should be to alter existing plan components based on information provided in the assessment. Here we comment on specific purposes and needs that we believe should be clarified and reframed in the draft environmental impact statement (DEIS). We also provide additional purposes and needs for action that were not addressed in the NOI.

A. Defining an Economically-Viable Forest Products Industry

The NOI (p. 3) states a need, "to modify plan components to maintain levels of forest product and biomass production that support an economically-viable forest products industry, and to encourage local hiring." We did not find a definition in the NOI or PA that describes an "economically-viable forest products industry." A clear definition is needed because there are cases where the needs of the forest products industry, i.e., the demand for commercial timber, have been a stressor on ecosystems and in conflict with attaining ecological integrity. Examples of these conflicts include the removal of commercial timber from sensitive spotted owl habitat and salvage logging in areas recently burned by wildfire, e.g., American Fire, Aspen Fire and Rim Fire. It is important to emphasize here that there is a legal requirement for species viability, but not for economic viability. While the 2012 Planning Rule does require plan components for multiple uses, including timber, 219.10 is quite clear that those components must be compatible with sustainability and diversity requirements in 219.8 and 219.9. In addition to defining the term, the DEIS must evaluate the effects of plan components proposed for forest products industry viability on other plan components.

B. Carbon Storage

The NOI states "There is a need to modify plan direction for terrestrial ecosystems and fire, as described above, to increase the ability of forests to store and sequester carbon."(NOI, p. 4). As stated here, it is not clear if the purpose is to increase the storage and sequestration of carbon regardless of ecological capacity or instead to sustain the landscapes' ecological capability to sequester and store carbon. The desired condition provided in the PA (p. 4) provides an appropriate ecological context for carbon storage. Without this context, one could believe that the overriding goal was to increase stored carbon even at the expense of ecological sustainability. We ask that you clarify, consistent with the framing of the desired condition, that the focus is on supporting sequestration and storage of carbon that is ecologically appropriate. As an ecosystem service governed by 219.10, plan components for carbon storage must be evaluated against sustainability and diversity requirements to ensure compatibility.

C. Declining Trends and Poor Habitat conditions for At-Risk Species

The supplemental need for change document produced in June 2014 indicated that trends for population status and habitat condition were declining for a number of at-risk species. This situation should be identified as a purpose and need in changing the revised forest plans. Species in decline and with poor trend include those from terrestrial, riparian and aquatic ecosystems.

Developing a plan that seeks to reverse declines and trends needs to be clearly stated as a purpose and need.

D. Aquatic/Riparian Ecosystems

The NOI focuses on a need to change the forest plans to allow for more prescribed fire in riparian areas and to integrate desired conditions to improve management outcomes. We agree that these are areas that should be improved, but we find that additional aspects of the existing aquatic management strategy (AMS) should be revised to better address resource conservation and protection.

There are very few standards in the existing AMS for each forest plan. The current AMS is essentially an objective based strategy that allows activities to proceed near to these sensitive resources when they are consistent with a suite of goals and objectives. Currently, there are five elements to the AMS: 1) desired conditions; 2) land use allocations (RCAs and CARs); 3) a discrete salmon strategy for salmon-bearing areas of the Lassen NF; 4) adaptive management strategy focused on Yosemite toad and willow flycatcher; and 5) landscape analysis focused on restoration. Our concern with this approach, in large measure, is that the wording for some objectives allows management actions to slow or impede the rate of recovery in areas in poor condition and allows management actions that would limit the transition of a site from good to excellent condition. In addition, the plans provide for no accountability or requirement to take action in areas presently in poor condition, e.g., a poorly functioning road. These limitations jeopardize the ecosystem function and integrity of these sensitive resources. We recommend the AMS be amended to address these problems and specifically address the following:

- Roads and trails can have negative impacts on meadow and stream condition (e.g., erosion, altering drainage patterns). The forest plan needs to provide clearer direction on when the negative effects of roads must be eliminated. If negative condition exists, roads and trails should be closed until the conditions are fixed.

- Livestock grazing today can have negative impacts on meadow systems.The plan needs to provide direction that stops the trampling of meadows, springs and seeps by cows. The plan needs to state if grazing is not managed to avoid impacts, the cows must be removed.

- Livestock grazing can damage woody shrubs in meadow systems. These shrubs are essential habitat for some birds, e.g., willow flycatcher. The plan needs to change so that livestock are not allowed to damage woody shrubs.

- Great gray owls, a rare and at-risk species, depend on trees in meadow margins for nesting and foraging habitat. Some approaches to meadow restoration focus on logging these trees. The forest plan needs clearer direction on how to protect these important habitat areas for great gray owls in places where logging is proposed.

- Yosemite toad, an imperiled species, uses wet meadows and uplands for key parts of their life cycle.The forest plan needs to include standards to protect Yosemite toad from

habitat loss and direct killing of toads due to grazing, road construction and other operations.

- Dispersed recreation areas near streams and meadows can have negative impacts on these resources, e.g., trampling, loss of vegetation, and streambank damage. The forest plan needs to have clearer direction about limiting this damage and shifting recreational use to other areas as a means of control.

Lastly, the forest plans need to be revised to establish priorities for remediation and guidelines to direct the closure, removal or decommissioning of infrastructure when needed for resource protection.

E. Wild and Scenic Rivers (WSRs)

1. Previously Recommended WSRs

The NOI and August 25, 2014 scoping letter for the first time in this Plan Revision process accurately acknowledge the Forest Service's previous WSR suitability recommendations for segments of the San Joaquin, Middle Fork San Joaquin, North Fork San Joaquin, and the South Fork Kern. Further, the NOI and scoping letter affirm the intent of the agency to maintain the suitability of these recommended segments until Congress acts on the recommendations.

Recommendation: We concur with this statement and support the agency's stated intent to affirm and retain the suitability of previously recommended WSRs.

2. Process and Timeline to Develop Comprehensive River Management Plans (CRMPs) for 2009 WSRs

The NOI and scoping letter recognize the need to at least identify a process and timeline in the Plan Revision to develop and implement CRMPs for WSRs on the Inyo Forest designated by Congress in 2009.

Recommendation: We concur with this statement and support the agency's stated intent to identify a process and timeline in the Plan Revision to develop and implement CRMPs for recently designated WSRs.

3. Update Existing CRMPS In Plan Revisions

The NOI and scoping letter commit to review existing management direction to determine if existing CRMPs for the Kern and Kings WSRs on all three Forests require updates. The Kern and Kings CRMPs are now more than 20 years old. Changes and significant increases in visitor use, degradation of water quality, ESA listings, and a number of other factors underline the need for CRMP updates.

The need to update the CRMP for the North Fork Kern WSR was confirmed in the Sequoia National Forest Assessment (USDA Forest Service 2013b, p. 205), which noted that increased

visitor use of the North Fork Kern segment 4 "has resulted in effects to vegetation, sanitation issues, and loss of habitat. Overcrowding, congested parking and poor sanitation practices in the Upper Kern River corridor demonstrate the need for more intensive management of this area." (Ibid.)

Similarly, the need to update the CRMP for the Kings and Merced WSRs was highlighted in the Sierra National Forest Assessment (USDA Forest Service 2013a, pp. 204-205), which noted "a trend toward unmet public recreational demand in the corridor of the Merced WSR" and "increasing precious metal values increasing mining claims" on the Merced and other stream courses in the Sierra Forest. Further, the Assessment recognized gang activity, marijuana gardens, trash and sanitation issues, and other unauthorized or illegal activities in remote areas on WSRs that are difficult for law enforcement to address. In addition, the Assessment noted "heavier human pressures may lead to less sustainability in (WSR) areas where dispersed camping is popular."

The Inyo Forest Assessment identified grazing impacts along South Fork Kern WSR segments 4 and 5. Rest from livestock grazing has resulted in strong upward trend in meadow condition and stream bank stability in Templeton Meadows in segment 4. But Monache Meadows in segment 5 has the lowest proportion of sites meeting desired condition. The Assessment also noted that livestock grazing is one of the stressors on California golden trout, one of the outstandingly remarkable values of the South Fork. (USDA Forest Service 2013c, p. 187)

The Assessments for all three Forests clearly underscore a critical need to update existing CRMPs for the Kings and Kern WSRs. Instead of simply reviewing existing management direction to determine if the CRMPs require updating, we believe that there is more than sufficient evidence to commit to identify a process and timeline in the Plan Revision to update existing CRMPs to address these very real problems (as opposed to reviewing existing management direction).

Recommendation: We urge the Forest Service to include a process and timeline in the Plan Revisions to update existing CRMPs and further, the agency should identify and adopt interim measures in the Plan Revisions to improve WSR management and protection until the CRMPS are updated.

F. Designated Areas: Wilderness

We agree with the NOI (p. 6) about the need to "review existing plan direction for existing and recommended wilderness to determine if any updates are needed." We believe the purpose and need should be revised to include direct reference to the wilderness evaluation process now under way and ask that the following information on ecological representation be incorporated into the wilderness evaluation process and the DEIS of the forest plan revisions.

1. Regulatory Requirements to Evaluate Ecosystem Representation

The 2012 planning rule requires the assessment to identify and evaluate existing information relevant to the Sequoia, Sierra, and Inyo National Forests for existing wilderness and other designated areas and the potential need and opportunity for additional designated areas (36 CFR

219.6(b)(15)). The draft planning handbook (FSH 1909.12, sec. 14) provides the following additional direction for implementing this regulatory requirement:

> 2. To evaluate the potential need and opportunity for designated areas, the responsible official should identify and evaluate available information to answer questions such as:
>
> a. Are there published documents that identify an important need or potential for a designated area? For example, a research report may indicate a need for an experimental forest within a plan area.
>
> **b. Are there specific land types or ecosystems present in the plan area that are not currently represented or minimally represented within the wilderness system or system of research natural areas?** (emphasis added)
>
> c. Are there rare or outstanding resources in the plan area appropriate to specific types of designated areas?
>
> e. Is there scientific or historical information that suggests a unique opportunity to highlight specific educational, historic, cultural, or research opportunities?
>
> g. Are there known important ecological roles that could be supported by designation?

The draft planning handbook also provides direction for evaluation in section 72:

> 72.1 (4) **Evaluate the degree to which the area may also contain** ecological, geological, or other features of scientific, educational, scenic, or historical value.
>
> a. Rare plant or animal communities or **rare ecosystems**. Rare can be determined locally, regionally, nationally, or within the system of protected designations. (emphasis added)

We appreciate the consideration of under-represented and rare ecosystems as important criteria in evaluating the wilderness suitability of inventoried areas and encourage the Forest Service to consider the evaluation process as a crucial opportunity to maximize protection for the three forests' under-represented or rare ecological communities. **Please describe in subsequent planning documents, including environmental impact analyses and development of alternatives, how ecological representation was considered, what specific data were used in the analyses, and how conclusions were determined with respect to opportunity, need, and desired conditions of new wilderness area designation.**

2. Ecological Importance of Ecosystem Representation

Wilderness and other protected areas (PAs) are the cornerstones of most regional, national, and international efforts to conserve biological diversity and ecological processes of natural ecosystems (Bertzky et al. 2012). PAs are effective in reducing the loss, degradation, and fragmentation of natural habitats (Bruner et al. 2001; Naughton-Treves et al. 2005) and slowing the rate of extinction of threatened species that occur therein (Butchart et al. 2012). Recognizing the importance of PAs, Aichi Biodiversity Target 11 of the Convention on Biological Diversity (CBD) calls for at least 17% of the world's terrestrial areas to be conserved by 2020 (Woodley et al. 2012).

PAs, however, can help achieve biodiversity targets only if they are located in the right places—that is, they are ecologically representative of terrestrial ecosystems. The "representation" approach to conservation assumes that for PAs to conserve genetic, species, and community diversity—as well as the composition, structure, function, and evolutionary potential of natural systems—they must encompass the full variety of ecosystems (Olson and Dinerstein 1998; Margules and Pressey 2000). Protection of ecological communities will protect the species that rely on them and the natural ecological processes that are characteristic of those ecosystems (Rodrigues et al. 2004; Bunce et al. 2013). CBD has developed several indicators to evaluate the ecological representativeness of the global protected areas network, one of which is the percentage of terrestrial ecosystems protected by 2020 (Woodley et al. 2012).

As we commemorate the 50th anniversary of The Wilderness Act (signed into law on September 3, 1964), it is important to take inventory of the lands that have been designated as wilderness and evaluate how well the U.S. National Wilderness Preservation System (NWPS) represents the biological diversity of America's publicly owned and managed federal lands, both nationally and regionally.

In short, we believe that increasing the ecosystem diversity represented in the National Wilderness Preservation System (NWPS) should be a priority for the next 50 years of The Wilderness Act. The Sierra, Sequoia, and Inyo National Forests host many ecosystems currently under-represented at local and national scales and therefore possess a ripe opportunity to increase the diversity of ecosystems in the NWPS.

Because an assessment of ecological representation was missing from the forest assessments and bioregional assessment, Matt Dietz with The Wilderness Society conducted an analysis of ecosystem representation in wilderness at the national- and forest-level scales to provide the best available information for forest planning and development of alternatives. The analysis process and results are presented in Appendix A of these comments.

We urge the three California early adopter forests to use the representation information in the tables and maps in Appendix A to evaluate the importance of each roadless area in achieving diverse ecosystem representation in wilderness at the regional and national scales. We believe that this information is the best available science on ecosystem representation of currently designated wilderness areas and how representation can be enhanced with future wilderness designations. The agency is legally required to use best available science per NFMA:

> 219.3 Role of science in planning.
> The responsible official shall use the best available scientific information to inform the planning process required by this subpart. In doing so, the responsible official shall determine what information is the most accurate, reliable, and relevant to the issues being considered. The responsible official shall document how the best available scientific information was used to inform the assessment, the plan decision, and the monitoring program as required in §§ 219.6(a)(3) and 219.14(a)(4). Such documentation must: Identify what information was determined to be the best available scientific information, explain the basis for that determination, and explain how the information was applied to the issues considered.

Under-represented areas should receive special consideration for wilderness recommendation to achieve the goals set out in the NFMA regulations and directives. Ultimately, the primary goal in forest planning, as described in the NFMA regulations is to "guide management of NFS lands so that they are ecologically sustainable and contribute to social and economic sustainability; **consist of ecosystems and watersheds with ecological integrity and diverse plant and animal communities**; and have the capacity to provide people and communities with ecosystem services and multiple uses that provide a range of social, economic, and ecological benefits for the present and into the future." (219.1 (c)). (emphasis added)

Sufficient ecosystem representation in the National Wilderness Preservation System is crucial to achieving ecological integrity of the diverse plant and animal communities found in the three California early-adopter forests.

II. Issues Not Identified in Scoping Notice

A. Fire as an Ecological Process and Its Positive Benefits

Increasing the use of prescribed fire and managing wildfires for resource benefit are needed not only to anticipate a changing climate, but also to address the fire deficit of the landscape; a natural fire regime is a key functional characteristic of ecological integrity. Fire is an integral and important component of many forest ecosystems and the exclusion of fire has caused negative environmental consequences. There is a fundamental shift in fire management, both scientifically and operationally, that needs to change for restoring ecological integrity to forest ecosystems and leading to conditions that are resilient to climate change. The DEIS must evaluate plan components developed for wildland fire within the context of ecological integrity and species diversity, including providing necessary ecological conditions for at-risk species.

The NOI and PA do not directly address limiting salvage logging within areas that meet desired conditions and fall within the natural range of variation for fire. This includes prescribed fire and managing wildfire for resource benefit. There must be clear standards within the plan that evaluate conditions where salvage logging may be appropriate (i.e., public safety, ingress and egress, or critical infrastructure) and where outside of those areas or conditions, salvage logging would be prohibited. Plan components for salvage logging must be evaluated in the DEIS to demonstrate compliance with the planning rule's sustainability and diversity requirements.

B. Conflicts between Logging Practices and Maintaining Habitat Quality

The recognized conflicts between logging, for any objective, and maintaining habitat quality should be clearly addressed in the DEIS. This issue was not identified in the NOI even though it has been a significant driver in land management planning since the first forest plans were adopted. The conflict is a complex issue because habitat can be either degraded or enhanced, via logging activities, depending upon the intensity of the treatments, the spatial arrangement, and timing.

We also note that there are conflicts between salvage logging with a variety of resource objectives, e.g., those for postfire recovery, insects/disease, ecological integrity for important seral stages and at-risk species dependent on these habitats. These issues should have been addressed in the NOI and must be evaluated in the DEIS.

C. Analyzing Roadless Areas and Impacts to Roadless Areas in the DEIS

To meet the intent of 36 CFR section 219.17 and to fully address the management of roadless areas, the USFS should meet the following objectives:

- Provide a full description of every roadless area's wilderness qualities and social and ecological values;
- Provide full and fair evaluations of every roadless area's wilderness qualities and, if areas are found deserving, recommend them for wilderness designation in the LRMPs. Include an explanation as to why the USFS will or will not recommend to higher authorities that the areas be designated as wilderness in whole or in part; and
- Thoroughly examine the impacts of placing all or portions of an IRA or other roadless area under a non-wilderness prescription.

We will now explain these objectives in more detail.

Objective 1: Provide a full description of every roadless area's wilderness qualities and social and ecological values.

The USFS should fully describe the wilderness qualities and social and ecological values possessed by every roadless area. The list of at least some of these qualities and values are listed at 36 CFR section 219.17, in the RACR FEIS and in the April 14, 2009 letter from 127 scientists to President Barack Obama in support of the RACR. In addition, forest planners should include wilderness qualities and social and ecological values brought to their attention by members of the public.

Objective 2: Assess all roadless areas for their wilderness potential and, if areas are found deserving, recommend them for wilderness designation.

A roadless area should be found eligible for wilderness designation and forest planners should consider recommending it as wilderness if, as is stated in the Wilderness Act of 1964, it:

- "...generally appears to have been affected *primarily* by the forces of nature, with the imprint of man's work substantially unnoticeable" (emphasis added—as these qualifiers clearly illustrate, Congress did not intend for only pristine areas to be designated as wilderness);
- "...[has] outstanding opportunities for solitude *or* a primitive and unconfined type of recreation" (emphasis added—some have mistaken the "or" for an "and." Also, note that in the context of the Wilderness Act "unconfined" simply means outdoor);

- "...[has] at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition"; and
- "...may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value."

Forest planners should provide a full and fair evaluation of every roadless area's wilderness qualities, followed by an explanation of why the USFS will or will not recommend that the areas be designated as wilderness in whole or in part.

We emphasize the word "fair" because it has been rather common for forest planners to use external "sights and sounds" criteria, rather than an area's undeveloped character, to decide whether or not roadless areas should be recommended for wilderness designation. In so doing, the USFS acts contrarily to long-standing direction from Congress to avoid using external sights, sounds, and other external influences to judge an area's wilderness quality.

For example, during subcommittee hearings for the 1978 Endangered American Wilderness Act Congress found that:

> . . . many areas, including the Lone Peak [outside Salt Lake City] …, received lower wilderness quality ratings because the Forest Service implemented a "sights and sounds" doctrine which subtracted points in areas where the sights and sounds of nearby cities (often many miles away) could be perceived from anywhere within the area. This eliminated many areas near population centers and has denied a potential nearby high quality wilderness experience to many metropolitan residents, and is inconsistent with Congress' goal of creating parks and locating wilderness areas in close proximity to population centers. The committee is therefore in emphatic support of the Administration's decision to immediately discontinue this "sights and sounds" doctrine. House Report 95-540, 95th Congress, July 27, 1977, page 5.

During Senate hearings on the Endangered American Wilderness Act, Dr. M. Rupert Cutler, the Assistant Secretary of Agriculture, assured Senator Pete Domenici (R-NM) that "…there is no reference in the Wilderness Act to criteria for wilderness that includes such things as the sights, sounds, and smells of civilization which is a set of criteria which has been misapplied to wilderness areas" (Subcommittee on Parks and Recreation of the Committee on Energy and Natural Resources, United States Senate on S. 1180, September 19 and 20, 1977, Publication No. 95-88, Committee on Energy and Natural Resources, page 41).

Despite this, as recently as 2005 forest planners developing LRMPs for the Angeles, Cleveland, Los Padres and San Bernardino National Forests failed to recommend roadless areas for wilderness designation at least in part because of audible highway noises, the passage of aircraft overhead, and the fact that powerlines, communities or other developments outside of a roadless area can be seen or heard inside of them.

It is important to note that Congress has ignored such factors innumerable times when designating wilderness. Indeed, many of the jewels of the National Wilderness Preservation System provide views of settled areas and the sounds of roads, aircraft, etc.

Areas that are recommended for wilderness designation should be managed in a manner that is consistent with the Wilderness Act until such time as Congress decides whether or not to act on the recommendation.

Objective 3: Thoroughly examine the impacts of placing all or portions of a roadless area under a non-wilderness management prescription.

For those roadless areas or portions of roadless areas that are not recommended as wilderness, forest planners should include a thorough examination of the impacts of placing all or part of a roadless area under a non-wilderness management prescription.

The Roadless Area Conservation Rule FEIS (RACR FEIS) offers a detailed description of some of the issues that should be studied, described and discussed for each alternative in an land and resource management plan (LRMP)(see page 3-21 to 3-242), prior to placing roadless areas into a non-wilderness management prescription. These issues include:

- The projected amount and impact of road construction in roadless areas;
- The costs associated with maintaining new roads in roadless areas;
- The risks of reducing water quality in roadless areas;
- Impacts to air resources from roadless areas;
- Economic impacts;
- Consequences of, and for, fire and fuels management in roadless areas;
- Impacts of insects and disease in roadless areas;
- Impacts to the size of roadless areas (as the RACR FEIS states at 3-136, "There is a positive relationship between size of an area protected from human disturbance and maintenance of biodiversity");
- Impacts to roadless areas of development at various elevation distributions;
- Impacts to terrestrial animal habitat, including fragmentation and connectivity, edge effects, habitat suitability and effectiveness, early successional habitat, game species and late-successional habitat;
- Impacts to aquatic animal habitat and species in roadless areas, including fragmentation and connectivity, water hydrology and stream channel morphology, habitat complexity, water quality, pools, riparian vegetation, introduction of nonnative species and diseases, and over-harvest and illegal introduction;
- Impacts to terrestrial and aquatic plant species in roadless areas, including non-native invasives, habitat fragmentation and effects of temporary roads;
- Impacts to threatened, endangered, proposed and sensitive species in roadless areas;
- Impacts to research, monitoring and reference landscapes in roadless areas;
- Consequences for non-mechanized, mechanized and motorized recreation in roadless areas;
- Impacts to scenic quality;
- Consequences to heritage resources; and
- Impacts from roadless area development on existing wilderness and the possibility of future wilderness designation.

Lastly, if all or part of a roadless area is allocated to a non-wilderness prescription, the DEIS should discuss what mitigation, if any, the USFS proposes for the loss of wilderness characteristics and the effects on plant and animal communities.

D. The road system is a major issue that must be addressed in the land management plan revision.

The Forest Service's apparent decision to not revise the management direction for roads and transportation infrastructure in current Land and Resource Management plans seems arbitrary given that virtually every activity that occurs on the national forests utilizes the road system. Roads can cause serious and pervasive impacts to ecosystems, road systems will be significantly affected by projected climate-driven hydrologic changes, and the direction in the current LRMPs is outdated and in conflict with Forest Service policy to achieve a minimum necessary road system. Moreover, addressing the excessively large transportation system is one of the most meaningful restoration actions the agency could take over the lifespan of the forest plan to improve water quality, mitigate climate-induced stresses, and provide for sustainable and quality recreation. Without affirmative guiding direction in the revised land management plan, the road system will continue to undermine the ecological, fiscal, and social sustainability of the national forests and thwart the restoration goals of the 2012 planning rule.

1. The forest road system significantly affects the human environment, and therefore must be addressed in the NEPA process.

NEPA regulations require that all significant issues be addressed in a NEPA analysis, unless they have been addressed in a prior analysis (40 C.F.R. § 1501.7). The road system in the three national forests is a significant management issue and must be adequately addressed in the EIS and revised management plan, given that it has not been address in a prior analysis.[1] Roads have well-documented, significant, long-term, and widespread ecological impacts that extend across multiple scales and often far beyond the area of the road "footprint," with negative effects on biological integrity in both terrestrial and aquatic ecosystems.

The National Forests of the Sierra Nevada region provide outdoor recreation opportunities for literally millions of visitors and local residents each year. These federal lands are also pivotally important for providing clean water and air, as well as critical habitat for myriad wildlife species. A major challenge to the future ability of our National Forests to provide environmental benefits and recreation services is the amount of motorized use and the sheer extent and decaying condition of the Forest Service road system. National Forests in California contain over 47,000 miles of roads – more than the length of the entire U.S. Interstate Highway System, in addition to

[1] The forests recently published Travel Management Plans. However, the analyses completed in support of these plan revisions in no way serve as a prior analysis of the road system. The purpose of the travel management plans by the Forest Service's own admission, was to designate motorized vehicle use on the road system, and not to identify a sustainable roads system. For instance, the Sequoia National Forest Travel Management Plan's purpose and need statement at http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nepa/29996_FSPLT3_1406728.pdf makes it clear that the purpose was designating motorized vehicle use pursuant to subpart B of the Travel Management Rule.

over 10,000 miles of unclassified or non-system routes. Primarily a byproduct from the era of big timber, the overall road system in the National Forests of the Sierra Nevada region is convoluted and unmanageable.

Road management on the region's National Forest lands has not responded to the changing recreational needs of our nation, and road-related impacts are leading to a host of environmental problems. Although roads provide important services to society, their presence can also negatively influence the hydrology, geomorphology, and ecosystem processes on National Forest lands. A wealth of scientific literature exists describing the negative impacts of roads on the landscape and confirm that roads are a major stressor to ecosystems and cause a bevy of negative impacts to natural resources. For instance, roads fragment habitats, pollute waters, impede viability of fish and other aquatic species (some of which are federally listed), allow for increased human intrusion into sensitive areas resulting in poaching of rare plants and animals; and roads are the source of most human ignited wildfires, illegal waste disposal, and introduction of exotic species.

Roads have both direct and indirect ecological effects on terrestrial and aquatic ecosystems by changing the dynamics of populations of plants and animals, altering flows of materials in the landscape, introducing exotic elements, and changing the levels of available resources such as water, light and nutrients (Coffin 2007). The road networks on National Forest lands render vast areas of the landscape as "road-affected," with only small patches of isolated habitat uninfluenced by road networks (Coffin 2007). Roads are a significant cause of habitat fragmentation in Sierra forest ecosystems (Franklin and Fites-Kaufmann 1996).

Habitat fragmentation alters the distribution of wildlife species across the landscape and affects many life functions such as feeding, courtship, breeding, and migration. In fact, fragmentation from roads and other human infrastructure has been identified as one of the greatest threats to biological diversity worldwide (Wilcox and Murphy 1985, Noss 1987, Wilcove 1987, Noss and Cooperrider 1994). Global warming further compounds the threats of habitat fragmentation and biodiversity loss. As animals migrate due to changing climate, landscape connectivity will be increasingly important to best ensure the survival of many species (Hansen et al. 2001; Holman et al. 2005; Welch 2006; Kettunen et al. 2007). This is especially relevant for forests located along the dramatic elevational gradients in the Sierra Nevada.

We have attached two documents to these comments that provide detailed scientific information on the significant adverse effects of roads, at multiple scales, on terrestrial and aquatic ecosystems, water quality, and other forest resources. The first document is a detailed literature review on the role of roads as a landscape stressor and the specific impacts roads and motorized routes cause to forested environments (see Appendix B). The second document is a detailed literature review on the impacts of forested roads on California's water quality. The literature review was written by Dr. Mary Ann Madej (see Appendix C). We also refer you to the section on travel management in the Conservation Strategy submitted to the Forest Service in 2012 by a coalition of environmental organizations (Britting et al 2012; attached to comments as Appendix F).

2. Current plan direction is not adequate to achieve the 2012 planning rule's requirements related to road and transportation infrastructure, and the Forest Service's current road management policies including subpart A of the Travel Management Rule.

a. Current plan direction is not adequate to meet the 2012 planning rule's requirements related to road and transportation infrastructure.

The Forest Service planning regulation establishes substantive requirements related to roads, infrastructure, and access that the Forest Service clearly cannot meet without changing current management direction. The intent of the regulations is that the Forest Service establish plan direction for transportation infrastructure that will result in sustainable (fiscal and ecological) access and the restoration and maintenance of healthy aquatic and terrestrial systems and water resources (See 36 CFR 219.8(a) and (b)). It also requires that plan components ensure implementation of national best management practices for water quality (36 CFR 219.8(a)(4)), and take into account "Appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors." (36 CFR 219.10(a) and (b))

The draft handbook provides additional direction on addressing transportation infrastructure in the plan revision process. It directs that the land management plan should provide a framework for future road system management:

> The central consideration in land management planning for infrastructure is that the integrated desired conditions and other plan components set a framework for the management of the plan area's infrastructure…
>
> For forest roads, the desired conditions should clarify the intended nature of the road system for the plan area and for management and geographic areas. The plan should identify the major arterial road system that provides primary access to, and within, the plan area. Determining the desired conditions, including the intended desired uses for management areas or geographic areas within the plan area, helps identify what type of road system is needed for access to and within these management areas or geographic areas…
>
> Based on the desired conditions, other plan components can be developed for the road system. These include objectives either for modifying the road system such as decommissioning and restoring roads in areas where existing roads are no longer desired or improving roads in areas where the road system needs improvement. The objectives should recognize fiscal limitations and relative urgencies in determining objectives for the road system. Suitability can include identifying what types of roads are suitable or not suitable for certain management areas and geographic areas. Standards or guidelines for road management may restrict road management activities in certain situations such as in riparian zones or sensitive scenic areas." (Forest Service Handbook 1909.12, 23.22o, February 14, 2013 draft)

The existing direction in the three current forest plans falls drastically short of this regulatory mandate. Specifically:

- The Sequoia National Forest Land and Resource Management Plan provides road management direction starting on page 4-37. The section focuses on maintenance of roads and building roads, and does not address the future needs of the road system or include direction around decommissioning roads, moving towards a system that is sustainable fiscally and environmentally, or addressing climate change induced effects.
- The Sierra National Forest Land and Resource Management Plan provides road management direction starting on page 4-24. The section focuses on maintenance of roads and building roads, and does not address the future needs of the road system or include direction around decommissioning roads, moving towards a system that is sustainable fiscally and environmentally, or addressing climate change induced effects.
- The Inyo National Forest Land and Resource Management Plan provides road management direction starting on page 77. The section directs additions to the road system if needed, regulation of traffic for public safety and resource management, and closure or reconstruction of nonsystem routes to provide for public safety and resource protection.

Current plan direction emphasizes the expansion of the road system into unroaded areas, and does not offer direction on maintaining a minimum necessary road system that is affordable under current budgets, removing unneeded roads as an important landscape restoration strategy, and otherwise achieving a sustainable transportation systems. Moreover, current plan direction does not consider the effects of climate change, which will likely be dominant in road management decision-making over the course of the next 20 years.

Given the significant aggregate impacts of transportation infrastructure on landscape connectivity, ecological integrity, water quality, soils, etc., we cannot conceive how the Forest Service would meet its substantive requirements without providing management direction, including standards and guidelines, around transportation infrastructure in the revised land management plans. Revised land management plans must provide plan components, including standards and guidelines, that will ensure compliance with the planning rule's substantive provisions.

b. Current plan direction does not conform to current Forest Service roads policy 212.5(b) and direction.

Forest Service regulations at 36 CFR 212.5(b)(1) require the Forest Service to identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System (NFS) lands. In determining the minimum road system, the responsible official must incorporate a science-based roads analysis at the appropriate scale.[2]

[2] The regulation further defines the minimum necessary system as the road system needed:

Forest Service regulations at 36 CFR 212.5(b)(2) require the Forest Service to identify NFS roads that are no longer needed to meet forest resource management objectives.

To encourage forests to comply with these regulations, over the last two years, Forest Service leadership issued three directive memoranda[3] to the field requiring every national forest unit to conduct a travel analysis by 2015, with the eventual outcomes of using those reports to identify a minimum road system (MRS) and roads for decommissioning, and fully complying with 36 CFR 212 subpart A. The 2012 memorandum established the expectation that forests "maintain an appropriately sized and environmentally sustainable road system that is responsive to ecological, economic, and social concerns." (Memorandum at 1)

The Inyo, Sequoia and Sierra National Forests have yet to comply with this regulation, and the revised forest plan must include plan components that establish a framework for compliance. Forests must complete a travel analysis, identify a minimum road system, and identify a list of unneeded roads for decommissioning or conversion. The revised forest plan must also include plan components that actually move the forests towards meeting the expectation set forth by the Chief's office in the above-referenced directive memoranda to "maintain an appropriately sized and environmentally sustainable road system." It is important to note that a key element of sustainability is affordability; it is widely acknowledged that roads and trails that are not maintained adequately are more likely to fail, causing damage to aquatic systems and endangering public safety. According to the Roads Analysis Process Reports (RAP) for the three forests, current funding levels fall far short of those needed. For example, the Sequoia NF RAP states that in 2001 only 28% of the system was maintained to standard.[4] Similarly, the Sierra NF RAP states that the forest had $25 million deferred maintenance backlog plus an additional $35 million backlog needed in a one time investment to bring it up to standard.[5]

c. Current plans do not address the effects of climate change on transportation infrastructure.

The sustainability of the road system and transportation infrastructure is a difficult issue for these three forests even without the specter of climate change. However, when we consider climate change and its potential impacts on infrastructure, achieving sustainability is a much more

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- to meet resource and other management objectives adopted in the relevant land and resource management plan… ,
- to meet applicable statutory and regulatory requirements,
- to reflect long-term funding expectations,
- to ensure that the identified system minimizes adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance.

[3] See memorandum dated March 29, 2012 to Regional Foresters, Station Directors, Area Director, IITF Director, Deputy Chiefs and WO Directors entitled "Travel Management, Implementation of 36 CFR, Part 212, Subpart A (36 CFR 212.5(b)." See also memorandum dated December 17, 2013 entitled "Travel Management Implementation" from Leslie Weldon to Regional Foresters, Station Directors, Area Director, IITF Director, Deputy Chiefs and WO Directors.

[4] M. Emmendorfer and J. Grenz. 2003. Sequoia National Forest and Giant Sequoia National Monument Roads Analysis Process. September 16, 2003. Page 9.

[5] US Forest Service. 2003. Forest Scale Roads Analysis Sierra National Forest. January 12, 2003. Page 15.

daunting task. As a general matter, it is expected that climate change will be responsible for more extreme weather events, leading to increasing flood severity, more frequent landslides, changing hydrographs (peak, annual mean flows, etc.), and changes in erosion and sedimentation rates and delivery processes. Many roads in the national forests have not been designed to an engineering standard. Those that have were designed for storms and water flows typical of past decades, and may fail under future storm scenarios. The likelihood of failure is higher for facilities in high-risk settings—such as rain-on-snow zones, coastal areas, and landscapes with unstable geology.[6]

This new reality argues for a forest-wide systematic review and modification of transportation infrastructure so that it can withstand future storm events and be more sustainable in the long-term. Activities will have to include: addressing fish passage, replacing undersized culverts with larger ones, prioritizing maintenance and upgrades (e.g., installing drivable dips and more outflow structures), and obliterating roads that are no longer needed and pose erosion hazards. The only way that this significant body of work will get done in a relatively short amount of time is if the Forest Service proactively plans to do it in a coordinated and prioritized way. The place to make those recommendations about how to achieve this goal is in the revised forest plan. Moreover, because the previous forest plans for the three forests did not consider the hydrologic impacts of climate change on infrastructure, or how the ecological effects of infrastructure would be exacerbated in a climate change world, there is clearly a need to change management direction for transportation infrastructure in the plan revision.

3. The revised land management plan is the appropriate place to set long-term management direction for the roads system.

As the draft handbook 1909.12,20 states, the land management plan is the logical place to establish a framework for the future management of the roads system. It is a 10-20 year comprehensive document that enables managers to consider the road system in the context of the other aspects of forest management, including restoration, protection and utilization, and to identify an appropriate sized road system given current fiscal realities. In addition, land management plans should be the place where all existing regulatory direction (including external direction related, for instance, to the Clean Water Act and Endangered Species Act) is compiled into one place, taking national direction and identifying how it is best implemented at the forest level. By doing this, forest managers and the public will clearly understand the management expectations around the road system and develop strategies accordingly. With frequent turnover in decision-making positions at the forest level, it is even more important that the land management plan clearly articulate direction related to the road system and transportation infrastructure. In other words, the land management plan should be the one-stop shop where management priorities, requirements, and direction are clearly articulated.

Beyond the philosophical, as we described above, the 2012 planning rule and other regulations set out specific requirements that the Forest Service must meet related to the road system. For example, if the new plan does not incorporate the MRS and set standards/guidelines to move

[6] USDA Forest Service. 2010. Water, Climate Change, and Forests: Watershed Stewardship for a Changing Climate, PNW-GTR-812, June 2010, p. 72 (emphasis added), *available at*: http://www.fs.fed.us/pnw/pubs/pnw_gtr812.pdf.

them towards the MRS, then it will never happen, as evidenced by the lack of direction in existing land management plans and the inability of forests to achieve an environmentally and fiscally sustainable road system to date. Forests need forest-specific direction on how to balance achieving that desired road system with the other multiple uses of the forest. That is the job of the forest plan. It would be arbitrary and without basis for the Forest Service to not provide clear direction on how it intends to meet these requirements in the land management plan.

4. It is not sufficient to rely solely upon a piecemeal analysis of the impacts of roads and the forest transportation system that is completed under each individual resource topic.

We recognize that the Forest Service may try to address issues related to the road system in a piecemeal fashion by providing bits and pieces of road-related direction under individual resource topics. This approach would preclude a comprehensive approach to road management, would result in management decisions that only address a small portion of the problems caused by the road system, and may result in conflicting recommendations that fail to meet management needs and fiscal realities. Moreover, a piece-meal approach would not adequately address the need to comprehensively upgrade the road system to enhance climate resiliency, and how to prioritize that upgrade. This not only includes upgrading the system to withstand changes in hydrology, but also to rework the road system to enhance terrestrial and aquatic connectivity and reduce road-caused stress on biotic systems.

If the Forest Service can somehow provide justification for why the road system is not a significant issue that must be addressed as a stand alone element in the revised forest plans, it still remains a relevant factor and an integral portion of all elements that have been identified as significant in the scoping notice, and, as such, a detailed discussion of the road system must be included under each topic.

5. Priority should be given to reclaiming unauthorized routes and unneeded routes in important conservation areas including inventoried roadless areas, important watersheds, recommended wilderness areas, and critical habitat.

Moving towards an environmentally and fiscally sustainable road system involves removing unneeded roads (system or unauthorized) to reduce fragmentation in the area in the road affected zone, and reduces the long-term maintenance cost of the system. As discussed in Appendix B, reconnecting unroaded lands is one of the best actions land managers can take to enhance the forests' ability to adapt to climate change. Hence, the revised land management plan should, as part of its overall road management strategy, make it a priority to reclaim unauthorized and unneeded system routes in roadless areas (2001 roadless rule areas and newly inventoried areas pursuant to FSH 1909.12, 70), important watersheds especially for imperiled fish, and other important conservation areas.

6. Recommendations for plan components that would establish a framework for management of roads and transportation infrastructure.

In this section, we recommend a number of plan components that together would provide guiding road management direction in the revised land management plan.

- Provide in a background section information on the requirements in subpart A, related implementing memoranda, and other regulatory requirements (Forest Service and external) related to roads management (e.g., critical habitat requirements from USFWS, applicable Best Management Practices). Make sure to explain that the Forest Service is required to complete a science-based analysis to identify a minimum necessary road system (MRS) and unneeded roads for decommissioning or conversion to other uses, and implement the findings through subsequent projects and plans.
- In the Desired Future Conditions, state that the intention is to make the Forest road system as sustainable as possible by maintaining needed roads adequately, and reclaiming unneeded roads, including non-system roads, especially in IRAs and other ecologically important areas. Also state that the MRS should reflect long term funding expectations, and minimize adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance.
- Add the following standards:
    - Every road and trail has an approved Management Objective reflective of recommendations in the Travel Analysis Report.
    - Close and rehabilitate temporary roads as soon as they are no longer needed for project purposes;
- Add the following guidelines:
    - Annual progress is made toward achieving the MRS through maintenance, decommissioning, and reclamation.
    - Project level decisions with road related elements implement the TAP recommendations and the MRS.
- Add the following objectives:
    - Routes identified for decommissioning through the Travel Analysis Process or another process will be closed, decommissioned and reclaimed to a stable condition as soon as practicable.
    - Watershed restoration action plans identify and address road related impacts to watershed health.
    - Decommissioning priorities will be based on effectiveness in reducing fragmentation, and connecting unroaded areas and stream segments.

In addition, the revised plan should establish road density standards based on the best available science for important watersheds, migratory corridors, and general forest matrix. The best available science related to road densities is provided in Appendix B.

Recommendations: Revise the PA to include a need to revise road management direction in order to meet substantive requirements in the 2012 rule related to roads, the 2001 roads rule and associated Forest Service direction, and other applicable regulatory requirements, as well as to

ensure that the road system becomes considerably more sustainable and is retrofitted to be more climate resistant and to facilitate climate change adaptation. Reflect the Forest Service's direction to work towards a sustainable road system in plan components. Provide direction for removing non-system and unneeded routes, especially in IRAs and other areas of importance to the environment and to backcountry recreation. Establish road density standards based on best available science for areas important to wildlife and watershed health.

E. Condition of Sierra Nevada Meadows

We agree that the forest plans need to change direction on the management of meadow systems and associated species. Overgrazing, mining, logging and fire suppression have all contributed to the decline of meadow ecosystems in the Sierra Nevada, as evidence by gullying, desiccation, shrub encroachment and changes in plant species composition and diversity. Today, persistent channel incision in many meadows has drastically lowered streambeds and groundwater tables. A principle and continuing land use pressure on these meadows is livestock grazing. The forest plans currently lack ecological standards for meadow health and function. Plan components need to be designed to address the ecological health of meadows and to incorporate the needs of meadow associated species into these ecological standards. This issue was alluded to in the NOI, but the actual plan components that are presented do not adequately address the problem.

We are very concerned that comprehensive monitoring data has yet to be presented on meadow systems, especially those affected by livestock grazing and those intersected by roads and trails. As we have noted in previous comments on the forest planning process (see for example SFL et al. 2014a), we have yet to be provided the results of the long promised monitoring results for Sierra Nevada meadows. Despite the absence of this monitoring report, the recent need for change documents indicate that the resource condition for meadows and fens is "moderate to good." It appears to us from the timeline for the revision process reported to us in January that the monitoring results from livestock grazing will not be completed before the scoping notice is published and may not be available until after a draft forest plan has been issued. It is inconceivable to us that desired conditions and other plan components can be drafted without essential information, such as the monitoring results. Further, we believe that the monitoring results need to be presented in a comprehensive manner to provide a basis for assessing if those monitoring programs are effective in assessing the ecological health of the affected meadow systems. We have reason to believe that attributes important to assessing ecological health are not being collected, e.g., end of year vegetative condition (forb and shrub) and hydrological condition; this needs to change in the revised forest plans. A suite of metrics is needed to evaluate the ecological conditions of grazed watersheds, particularly wet meadows. For example, forage utilization standards are not adequate to protect riparian areas and streams from degradation (Herbst et al. 2012, Henrey et al. 2011, Henjum et al. 1994, Rhodes et al. 1994). Field reviews indicate that forage utilization standards are not consistent with restoration and protection of degraded reaches, wet meadows, seeps and travel corridors because the trampling and chiseling of banks and vegetation by livestock are causing much of the habitat damage rather than forage utilization.

F. Fire Prevention Program to Address Human-caused Ignitions

Scoping failed to recognize the need to establish a more robust prevention program for human-caused ignitions. There have been several recent large, uncharacteristic fires that have been the result of accidental or intentional human ignitions (i.e. Moonlight, McNally, Rim, King). The National Strategy, *The Final Phase in the Development of the National Cohesive Wildland Fire Management Strategy* (2014) outlined a national need to increase supportive educational efforts for fire prevention and to identify adequate and enforceable prevention programs and suggest that prevention programs are most successful when they focus on the underlying cause of human ignitions. The National Science and Analysis Team (NSAT) identified the need to focus prevention education to 1) reduce accidental ignitions and 2) reduce intentional ignitions. Both of these management options apply to the Sierra, Sequoia, and Inyo National Forests.

The DEIS needs to assess the risk of human caused ignitions and evaluate the recommendations in the Cohesive Strategy. The DEIS will need to identify the areas of each forest that are at risk of accidental and intentional ignitions based on wildfire occurrence data (Short, K. 2014[7]). Based on the analysis of high risk areas, standards and guidelines should be developed that issue permits during extreme fire behavior to forest users and provide a prevention type education as part of this permit process for access, increased patrols during extreme fire weather events, and consideration of closures to OHV and other users for areas that are in the highest risk of large and long duration fire events. The NSAT team also developed a risk map for areas most at risk to long duration and large events – these areas could be used in planning for future ignitions.

III. Adequacy of Proposed Action to Meet Regulatory Requirements

A. Poorly Defined or Missing Plan Components

The planning documents would benefit from an introductory statement about how the plan components will be used together to meet regulatory requirements and the purpose and need for revising the forest plans. As we raised in our comments in July 2014 on the desired conditions document (SFL et al. 2014c), it is particularly important to discuss the function of desired conditions under the new planning rule and the likely requirements when evaluating a project's consistency with the plan. To illustrate the potential planning conflicts, we offer a couple of situations for consideration. If desired conditions are being met, what situation justifies a management action? For instance as mentioned below, the fire effects for the Aspen Fire (Sierra National Forest) were within the desired conditions identified in the desired condition table for fire effects, yet the SNF has decided to remove the ecological benefit and degrade desired conditions by salvage logging a significant portion of the burned area. How would this activity be consistent with a desired condition to utilize the ecological benefit of managed fire? We also believe from our review of the desired condition table that more discussion is needed about how the desired conditions must be applied as a package and not as individual components. For instance, the desired conditions for canopy closure are derived from well-developed old growth

[7] Short, Karen C. 2014. Spatial wildfire occurrence data for the United States, 1992-2012 [FPA_FOD_20140428]. 2nd Edition. Fort Collins, CO: Forest Service Research Data Archive.
http://dx.doi.org/10.2737/RDS-2013-0009.2

stands (see for example Lydersen and North 2012) with significant numbers of large old trees. Logging a stand of smaller trees to achieve these canopy closures will not reflect the desired conditions for basal area or abundance of large trees. Because in many settings, the current condition is quite far from desired, more detailed guidance is needed to establish the timeframe and management pathway for moving toward the desired condition while at the same time not losing the species that currently utilize and depend on today's forest conditions.

As issued, the PA has a small suite of geographic areas, and a considerable number of desired conditions, strategies, standards, and guidelines. However, no objectives have been proposed. We are very concerned about this since the PA proposed to eliminate a variety of standards. Given a planning framework that lacks specific direction, i.e., the PA significantly reduces the number of standards, the objectives and the desired conditions then serve a critical role in governing or moderating action. We ask that you produce and circulate as soon as possible a draft of the PA that includes objectives so that the public can understand the fundamental structure of the plan you are developing and effectively comment on the PA.

B. Ecological Integrity and At-risk Species

The PA continues a tendency within this planning process to treat at-risk species as an afterthought and fails to present plan components that are likely to meet the requirements of 219.9. The PA also fails to identify and integrate the ecological conditions necessary for at-risk species into proposed ecosystem plan components. For example, presenting a desired condition for all vegetation types that simply states the requirements of 219.9(b)(1) cannot be considered as anything more than a placeholder (PA, p. 9). There is no meaningful way the DEIS could evaluate the effect of this plan component.

In fact, the discussion of species of conservation concern (SCC) (PA, p. 35) provides no indication of how the DEIS will evaluate the sufficiency of plan components in meeting the requirements of 219.9. Clearly the plan components for the vast majority of SCC have not yet been developed and therefore we cannot comment on their sufficiency in meeting regulatory requirements.

The presented desired conditions for at-risk species can only be construed as placeholders given the fact that they don't meet the definition presented in 219.7(e)(1)(i). In the context of at-risk species, a desired condition must meet a two part test: 1) "a description of specific…ecological characteristic," and 2) "that must be described in terms that are specific enough to allow progress toward their achievement to be determined." For at-risk species, the ecological characteristic must be the ecological condition necessary to meet the requirements of 219.9. "Healthy ecosystems" and "essential ecological processes,"to name two examples, do not meet either component of the test.

Furthermore, the rule requires standards or guidelines for at-risk species. The guidelines presented (PA, p. 36) miss the mark. Rather than refer to measures from other documents (i.e., recovery plans or conservation agreements), the conservation measures themselves need to be included as plan components in the plan, and evaluated individually within the DEIS. A guideline is a "constraint on project or activity decisionmaking that allows for departure from its

terms, so long as the purpose of the guideline is met" (219.7(e)(1). There is no way to evaluate the sufficiency of a guideline that does not spell out the constraint; nor is there a means to evaluate whether the guideline should be used rather than a standard.

There is a legitimate process to evaluate whether plan components meet planning rule diversity requirements, as described below.

Clearly the first step is to develop initial plan components that attempt to meet rule requirements by integrating the necessary ecological conditions for at-risk species into the ecosystem plan components. As discussed, the PA does not present these types of plan components. We have commented extensively on this issue; the following is reminder of our recommendations.

The combination of ecosystem and species-specific plan components must provide ecological conditions necessary for at-risk species. Given the importance of meeting this legal requirement, the early steps of the planning process should focus on how to accomplish this.

Ecosystem plan components are intended to maintain or restore the structure, function, composition and connectivity of ecosystems or watersheds and the diversity of ecosystems and habitat types (219.9(a)). Ecosystem components would generally be those that describe biological conditions at the scale of the selected ecosystems. It may be most appropriate to include them as desired conditions and objectives.

The only distinguishing characteristic of species-specific plan components in the planning rule is that they are designed for species not otherwise fully provided for by ecosystem plan components. Species-specific components may tend to be project components: standards and guidelines that provide mitigation for certain activities known to cause adverse effects on the species or its habitat. They may also be desired conditions for species populations or for conditions at a finer scale relevant to a species' needs. Plan components to address ecological conditions related to human uses and structures may also tend to be directed at the needs of specific species.

The distinction between ecosystem and species components is not particularly useful to make, because it is the combination of ecosystem and species components that must meet the species requirements of 219.9(b). Although the rule describes ecosystem and species plan components as if they are successive steps, an approach that is more integrated than iterative is likely to be more efficient, more effective at meeting diversity requirements, and less controversial.

A "coarse filter strategy" that relies heavily on ecosystem components is appealing because of the apparent efficiency of addressing multiple species in an integrated manner, and because it can be developed using familiar available metrics for vegetation attributes. However, a single, generalized characterization of habitat is unlikely to provide a reliable basis for multi-species

conservation efforts.[8] Reliance on habitat characteristics can be expected to conserve a species only if the following assumptions are met:[9]

- The selected characteristics are adequate as surrogates for the species.
- The selected characteristics include those threatening the species' persistence.
- The spatial resolution of the coarse filter matches the scale at which the species responds to environmental heterogeneity.

The likelihood of these assumptions being valid for most species is low[10], and therefore some or most at-risk species are likely to require species-specific plan components.

The coarse filter approach will be more defensible as a primary conservation strategy for at-risk species if a robust set of plan components is developed with an understanding of those species specific conservation needs. Rather than focusing first on ecosystems independent of species, the process of developing plan components will be more efficient if it generally moves from components that will benefit the most species to those that are most specific to individual species. In the case of the PA, the plan development process did not "first and foremost focus on the ecosystem and watershed level plan components, especially those that also support ecological conditions for at-risk species. The combination of plan components developed for these three sections must incorporate a complementary ecosystem (coarse-filter) and species-specific (fine-filter) approach, and be designed to maintain ecological sustainability, the diversity of plant and animal communities, and the persistence of native species within the plan area." (Proposed FS1909.12, Chapter 20, Version—02/14/2013)

Following the development of meaningful plan components that include the ecological conditions necessary to meet the needs of at-risk species, the DEIS can then perform an evaluation to determine and demonstrate whether plan components meet the rule requirements. The diversity evaluation results in a "status" determination for ecosystem diversity, ecological integrity and species persistence and viability.

The planning rule requires that plan components maintain or restore ecological integrity, which occurs (by definition, 219.19) when the dominant ecological characteristics (such as composition, structure, function, connectivity, and species composition and diversity) are within a range of reference conditions which would allow them to recover from perturbations. This set of reference conditions is referred to as the natural range of variation (NRV). NRV is generally based on natural disturbance regimes during a historic reference period, but may also include any additional information that indicates that something other than this historic range may be more appropriate as a future reference condition.

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[8] Cushman, S.A., McKelvey, K.S., Flather, C.H., McGarigal, K. Do forest community types provide a sufficient basis to evaluate biological diversity? Frontiers of Ecology and the Environment, Vol. 6, February 2008.
[9] Noon, B.R. 2003. An optimal mix of coarse- and fine-filter elements to conserve biological diversity (oral abstract). In 'Innovations in Species Conservation Symposium, Integrative Approaches to Address Rarity & Risk, April 28-30, 2003 (Portland, Oregon).
[10] *ibid*

The status of ecological integrity is determined by comparing the expected future conditions under proposed plan components for selected integrity characteristics to the NRV for those characteristics. In determining the status, the responsible official must consider the effects of *all* plan components on the characteristics; not just those intended to be beneficial. Departures from NRV indicate that the ecological integrity of the ecosystem is not sustainable (219.8(a)), and therefore diversity will not be achieved (219.9(a)). Changes in plan components must be adopted to achieve NRV.

For species, the DEIS should provide a connection between the species requirements and plan components to facilitate the species evaluation. If necessary ecological conditions for at-risk species (identified in the assessment) have been incorporated into plan components that describe habitat needs and address the most important stressors, and if components furthering competing uses of the plan area have been integrated with those for species, a plan should meet species persistence and viability requirements. We have completed a viability evaluation for California spotted owl as an example of the process (Appendix D).

The effects analysis in the DEIS should include effects on kinds and numbers of species as well as habitat. This effects analysis must include consideration of the effects of all plan components - not just those designed for diversity.

The species evaluation should use appropriate models to project effects and use best available science to interpret those effects on the at-risk species. In some cases a formal population viability analysis of future conditions may be appropriate. In others, the best available science may consist of professional opinions. This species evaluation is a key step where outside scientific review of conclusions about ecological conditions and species persistence will be extremely important because substantial credibility is required to demonstrate compliance with legal requirements for species at risk under NFMA and ESA, especially where there is a high degree of potential controversy.

It needs to be recognized that this species evaluation is probabilistic, depends on assumptions, and therefore may be highly uncertain. The assumptions should be clearly documented, as should the assignment of risk using the precautionary principle or other approaches. Monitoring related to these assumptions will be extremely important.

If the necessary ecological conditions have not been provided for one or more species, the responsible official must add, remove or change plan components, and reevaluate the effects of the plan. Components to provide ecological conditions for individual species at a fine scale may be needed, including project plan components, especially standards.

The following displays would facilitate the process of selecting plan components and evaluating their effects:

- Matrix showing which key ecological conditions are relevant to which species
- List of key ecological conditions, their stressors and trends, and the plan components that will address them
- List or matrix of species and plan components that may adversely affect each species

- List or matrix of species and plan components designed for or expected to benefit those species

The final product within the DEIS will be an evaluation of the effects of the complete set of plan components on each species, including a discussion of efforts made to integrate ecosystem and species-specific plan components with plan components for multiple uses. The documentation of effects includes two main conclusions. The first is about the effects of the plan components on the trend and status of key ecological conditions for each species. This should be included for public review as part of the effects disclosure in the NEPA documents. The second is a determination of whether those effects demonstrate that plan components provide the necessary ecological conditions for species at risk. This finding must be based on the effects analysis and documented in the decision document.

From the beginning of the planning process (over two years ago), we have emphasized the importance of providing basic information about the life requirements of species we know to be at-risk and that are likely to be affected by the forest plans. As noted above, little has been done to provide the basic information to evaluate species needs and requests to provide such information have been deferred by Forest Service Staff because of time constraints. The approach that has been taken is in direct conflict with guidance in the proposed directives, stating that the plan development should "first and foremost focus on the ecosystem and watershed level plan components, especially those that also support ecological conditions for at-risk species. The combination of plan components developed for these three sections must incorporate a complementary ecosystem (coarse-filter) and species-specific (fine-filter) approach, and be designed to maintain ecological sustainability, the diversity of plant and animal communities, and the persistence of native species within the plan area." (Proposed FS1909.12, Chapter 20, Version—02/14/2013).

We appreciate the willingness of members of the Regional Planning Team to meet and discuss these issues in August 2014 and to make plans to meet again in October 2014, but these efforts to address our concerns come too late in the planning process. As noted above, conflicts between species requirements and human demands have been central to management issues in the Sierra Nevada for decades. Because the PA does not specifically address species needs and in fact makes proposals that will undermine conservation outcomes for several species, e.g., Yosemite toad, fisher, spotted owl, northern goshawk) we find generally that the PA does not provide for "the ecological conditions necessary to contribute to the recovery of federally listed threatened and endangered species, conserve species that are proposed or candidates for Federal listing, and maintain viable populations of species of conservation concern within the plan area." (36 CFR 219.9(b)(1))

C. Ecological Integrity and the Integration of Plan Components

The concepts of ecological integrity and ecological sustainability are fundamental to the application of the new planning rule to the revision of these forest plans. Ecological integrity is defined as, "the quality or condition of an ecosystem when its dominant ecological characteristics (for example, composition, structure, function, connectivity and species composition and diversity) occur within the natural range of variation and can withstand and

recover from most perturbations imposed by natural environmental dynamics or human influence" and ecological sustainability is defined as, "the capability of ecosystems to maintain ecological integrity." (36 CFR §219.19)

As will be discussed throughout our comments, we find that the NOI and PA do not "provide an integrated set of plan components that provide for ecological sustainability" (Proposed FS1909.12, Chapter 20, Version—02/14/2013, section 23.11c). Here we provide an example to illustrate our concerns. The PA did not clearly address within the plan components the complexity (i.e., structure, function, composition, connectivity and species composition and diversity) inherent to old forest and complex early seral forest (CESF). As we note below, clear and measureable attributes are not presented in the desired conditions for these seral stages. We also note below that the PA fails to recognize and integrate into the plan components the life requirements of the species dependent on these unique seral stages. These omissions set the stage for internal inconsistencies within the PA. We commented on these inconsistencies in our response to the need for change and desired conditions document (Sierra Forest Legacy et al. 2013a, b, c), but the PA does not resolve the conflicts. For example, the PA includes plan components for CESF and for promoting the ecological benefits of fire, but then establishes a desired condition for timber directing that the "[s]alvage of dead and dying trees captures as much of the economic value of the wood as possible while providing amounts that provide for wildlife habitat, soil productivity and ecosystem functions." Because there are no plan components that clearly define the amount or nature of burned forests that "provide for wildlife habitat" or identify the life requirements for at-risk species that utilize burned forests, the desired condition directly conflicts with key attributes of CESF, i.e., primary and secondary cavity nesting birds, high densities of snags and large down wood, natural regeneration of native plant species, and vegetation community structure, function, composition and connectivity of this unique type. Furthermore, the guidelines for timber (PA, p. 42, 1-3) foster a reforestation vision that overrides snag retention in burned landscapes and emphasizes establishment of tree plantations. The emphasis on plantation management and the desire to accelerate tree production at the expense of complex early seral habitat is counter to the definition of ecological integrity established by the planning rule. At this point, the PA fails to clearly address the evolution and development of early seral forests as integral to biodiversity and ecological integrity.

D. WSR Inventory and Evaluation

1. Study Requirements in the Law, Regulations, and Guidelines

The Interagency Wild and Scenic Rivers Coordinating Council, which includes the Forest Service and other federal land management agencies, has outlined the Wild and Scenic River study process that federal agencies are expected to implement in their land and resource management planning. The Council notes that after rivers have been identified as eligible through agency planning processes, "A determination is made as to their suitability in the agency's decision document for the plan."[11]

[11] The Wild & Scenic River Study Process, Technical Report of the Interagency Wild and Scenic Rivers Coordinating Council, December 1999, pg. 9

This in effect formalized a two-step study process that the Forest Service and other federal agencies have used for years. The first step is to determine whether any stream segments are eligible (i.e., – Do they meet the two basic criteria of the Act – Are they free flowing and Do they possess one or more outstandingly remarkable values?). Any stream segment identified as eligible in the first step, undergoes further evaluation for suitability. A positive suitability determination results in a recommendation from the agency to Congress to protect the eligible river segment as a WSR.

The Forest Service and other federal agencies haven't always completed the suitability determinations in the Forest Plans or Plan Revisions. However, it makes sense to use the Plan Revision NEPA process to include suitability determinations and recommendations since these are major federal actions subject to NEPA. Completion of suitability studies outside of the planning process has been rare due to cost, staffing, and procedural issues.

The National Wild and Scenic Rivers Act requires federal land management agencies to identify, study, and recommend rivers and streams for potential inclusion in the National Wild and Scenic Rivers System. (16 USC Sec. 1276[d][1])

The 2012 Forest Rule requires Plan Revisions to "identify the eligibility of rivers in the National Wild and Scenic Rivers System, unless a systematic inventory has been previously completed and documented and there are no changed circumstances that warrant additional review. (36 CFR Sec. 219.7(c)(2)(vi)) Although this portion of the rule appears to be deliberately silent about suitability, the rule also requires standards and guidelines and other plan components that protect river segments determined eligible and *suitable* in the planning process. (36 CFR 219.10(b)(v))

Land management planning guidelines in the Forest Service Handbook (FSH) require a comprehensive evaluation of potentially eligible rivers using a wide variety of information sources and in collaboration with Tribes, other federal and state agencies, and the public. (FSH 1909.12, Chapter 80, Sec. 81.20) The FSH states, "The appropriate timing of the suitability evaluation may vary. The *preferred approach* is to proceed with determining suitability in land management planning process." (FSH 1909.12, Chapter 80, Sec. 83.2)

Collectively, the law, regulations, and guidelines clearly indicate that a comprehensive eligibility inventory of rivers and streams is required in Forest Plans, and if a comprehensive inventory hasn't been conducted previously, it should be completed in Plan Revisions. It is also clear that determining suitability of eligible streams in the Plan Revision, while discretionary, is the preferred approach. In fact, the Interagency Council has identified a number of problems with deferring suitability until after the Plan Revisions, including the requirement for a separate NEPA analysis, increased staff time (and presumably costs), and the fact that "stand alone" suitability evaluations limits the context of river decisions presented to the public.

2. WSR Studies in the Current Plan Revision Documents

In regard to identifying, studying, and recommending additional WSRs in the Inyo, Sequoia, and Sierra Plan Revision process, the NOI and scoping letter includes this short statement: "There may be new recommendations that result from the wild and scenic evaluations currently

underway." This implies that the Forest Service *may* determine both eligibility and suitability in the Plan Revisions. Additional information is provided in the Inyo, Sequoia, and Sierra Forest Assessments (FA) released to the public earlier this year.

The Inyo FA recognizes the direction provided by the Act and the FSH by simply acknowledging that a WSR inventory is required and will be completed. (Inyo FA pg. 188). There is no specific mention of completing suitability determinations for any eligible streams that may be identified in the inventory. It should be noted that the Forest Service in 1993 identified 19 eligible streams on the Inyo Forest for which the agency intended to complete suitability determinations.[12] This eligibility study was conducted to partially fulfill an appeal settlement agreement with Friends of the River and American Rivers.[13] The suitability studies were never completed and it is unclear whether the 19 eligible streams were identified as the result of a comprehensive eligibility inventory and evaluation.

Like the Inyo, the Sierra FA notes that a WSR inventory is required. But unlike the Inyo, the Sierra FA states, "It has not yet been determined if a suitability analysis of eligible rivers will be completed as part of the forest plan revision. If suitability analysis is completed, those rivers on the inventory found to be eligible will be evaluated and a decision will be made whether or not to recommend them for designation as wild and scenic rivers." (Sierra FA pg. 206) To avoid an appeal of 1992 Sierra Forest Plan, Regional Forester Ronald R. Steward included in the Sierra Plan Record of Decision a commitment to "conduct a comprehensive assessment of non-NRI Rivers within the next three years."[14] To our knowledge, this comprehensive assessment was never completed.

The Sequoia FA also recognizes the requirement for a WSR inventory and it notes that "an initial screening" of rivers "has discovered six more stream or river segments eligible." (Sequoia FA pg. 204) This section of the Sequoia FA also lists five previously identified eligible rivers and streams with details about segments, mileage, and outstandingly remarkable values (FA pgs. 207-208). The FA states that for these eligible streams, "The suitability study is pending." Just below this under the sub-title "Updated Wild and Scenic River Eligibility Inventory," the Sequoia FA lists six more rivers and streams (Seq. FA pg. 208). There is no mention of when or if a suitability study for these additional eligible streams will be completed. Presumably this is the list of "six more" eligible segment referred to on pg. 204. However, there appears to be some overlap with the list of five streams previously determined eligible and the six additional streams identified in the initial screening.

In a conversation at the public scoping meeting in Porterville on Sep. 16, 2014, Sequoia Forest landscape architect Mary Cole stated that the Forest Service did not intend to complete suitability determinations for any eligible stream segments in the Sequoia Plan Revision.

In an appeal settlement agreement with Friends of the River and American Rivers, the Forest Service committed to conduct an initial screening of potentially eligible rivers and to assess

[12] Public notice letter from Forest Supervisor Dennis W. Martin, dated June 7, 1993.
[13] Appeal settlement agreement letter from Regional Forester Paul Barker to Attorney David Dreher, Sierra Club Legal Defense Fund, dated Sep. 10, 1990.
[14] Record of Decision, Sierra National Forest Land and Resource Management Plan, Sep. 24, 1992, pg. 15.

suitability of "the five streams with the highest apparent potential for inclusion in the wild and scenic system" no later than the end of 1994. Remaining rivers and streams identified in the screening would be "reviewed for eligibility, and if eligible, suitability, not later than the revision of the Sequoia forest plan in accordance with Forest Service regulations."[15] An initial screening was conducted and is likely the source of the eligible river segments mentioned in the Sequoia FA. However, it is unclear to us whether the screening fulfilled the requirement of a comprehensive inventory and evaluation. No suitability determinations that we know of have been made of eligible streams.

In summary, it seems clear that the Forest Service has already or is currently conducting inventories of potential WSRs on all three early adopter Forests. It is unclear whether any eligible stream, either identified earlier or in the current inventory effort, will be subject to suitability determinations in the Inyo and Sierra Plan Revisions. Based on the conversation with Forest Service staff, it appears that at this time the Sequoia Plan Revision will not include suitability determinations for eligible river segments.

Recommendations: As collectively required by federal law and its own regulations and guidelines, the Forest Service should complete comprehensive inventories of potentially eligible streams on each Forest, and for streams identified eligible, determine their suitability and make recommendations to Congress in the Plan Revisions. Although suitability is discretionary under the 2012 Forest Rule, the Forest Service previously made legally binding contractual agreements to complete WSR studies, including suitability determinations, on these three Forests. The Plan Revisions are the most appropriate, economical, and timely process to fulfill these commitments. Eligibility inventories should be conducted in collaboration with Tribes, other government agencies, and the public, and utilize the most recent knowledge and studies of Forest resources. The public should have the opportunity to provide meaningful comments on the eligibility inventories and suitability evaluations throughout the plan revision process and particularly in response to the draft Plan Revisions when they are released for comment.

E. Climate Change

The 2012 Forest Rule explicitly states that plans must account for climate change and the "ability of terrestrial and aquatic ecosystems on the plan area to adapt to change" when developing plan components that maintain or restore ecological integrity (219.8). The PA makes passing reference to climate change resilience as an element in the "Desired Conditions" sections for most, but not all, vegetation types, and the aquatic ecosystems within the management area. While we agree conceptually that resilience to climate change is a "desired condition" in all of the various vegetation types within the planning area, the NOI and PA are sorely lacking in how such resilience will be achieved and measured, particularly in light of both the multiple types of stresses that climate change presents both on its own and in combination with other stressors. Resilience in the face of climate change should be a stated desired condition for all vegetation types and special habitats.

[15] Appeal settlement agreement letter from Forest Supervisor Jim Crates to Attorney Robert Dreher, Sierra Club Legal Defense Fund, dated April 2, 1990.

Furthermore, for most vegetation types, the PA provides no direction on what strategies, standards, guidelines, or objectives will be employed. Those few plan components that are described apply only to a small subset of tree species, and are wholly inadequate to the scope and magnitude of the threat. For instance, the PA contains a strategy of identifying whitebark pine refugia, but no direction on subsequent actions; and there is guideline that suggests considering climate in seed selection for oak restoration, but it is couched in highly discretionary terms and applies only to two tree species. There is also no recognition within the PA of the possibility that other human activities, including those provided for in the Plan, may interact with and exacerbate other drivers and stressors, including climate change.

Finally, there is no mention of climate change anywhere within the At-Risk Species section, despite the fact that the various species profiled are themselves subject to climate vulnerabilities associated not only with habitat quality, but also factors separate from vegetation condition, such as snowpack, melt timing, prey dynamics, and disease (Kershner 2014a).

For both the full suite of vegetation types, and all at-risk species, the PA should include objectives, standards and guidelines that articulate how the Forests will undertake restoration, adaptive management, and monitoring activities to achieve the desired conditions. Resources such as Kershner (2014b) are available and should be utilized in development of adaptation strategies.

IV. Specific Comments on Resource Areas in the Proposed Action

A. Management and Geographic Areas

1. Fires Management Zones

The four fire management zones presented in the NOI and PA appear to be a center piece of the PA. We have requested the analysis and criteria that were used to develop these zones and have been told that a description of the analysis process is not available for review. We find this highly disturbing given the central nature of the four-zone approach to the PA. It is not possible to comment constructively on the zones without understanding what drove their delineation. For instance, the wildland urban interface (WUI) designation in the prior forest plan amendments was driven by structural density. Thus, we can review that footprint and make general inferences about the location of structures on the landscape. We note that the Community Wildfire Protection and General Wildfire Protection (CWP/GWP) zones are located in areas that do not have structures based on our experience with the WUI delineation. We question what assets are to be protected in these areas outside of the existing Defense Zone and why they merit the same consideration now given to assets within ¼ mile of structures.

The PA indicates that the intention is to periodically update the zone delineation. It is unclear to us how such an update would be coordinated with the standards and guidelines for protected activity centers (PACs) and home range core areas (HRCAs) that are governed by the overlap with the zones. The specific procedure to be used to update the zones and relate them to the other plan components needs to be more clearly described for us to provide meaningful comments on the approach.

We support the use of zones to emphasize the use of fire to achieve management goals and to provide direction to practitioners. We are, however, concerned that the zones themselves might limit the use of managed or prescribed fire when environmental and staffing conditions would support those practices. More specifically, we were not able to understand from the NOI or PA what the suitable uses would be for each of the zones. A table not included with the NOI and PA (but received from the Forest Service) indicated that managed fire would be appropriate in all zones, but it is unclear to us if this is a finalized table that should be considered part of the NOI package. Early in the process of developing the plan components it is essential that we begin the discussion of suitable uses. This will help refine and clarify the intent of the management area.[16]

We note that the PA covers much of the planning and implementation function of the fire zones under strategies. "Strategies" in the lexicon of the planning rule are optional and in our view are not enforceable. Projects are also not required to be consistent with strategies. The types of information and direction currently presented in the strategy section (p. 43-44) would be more appropriately located in desired conditions and objectives.

2. Elimination of the Old Forest Emphasis Area (OFEA) Land Allocation

The PA would eliminate OFEAs from the forest plans. These areas were identified during the plan amendment process in 2001 and 2004 as part of a strategy to conserve late-successional forests and species dependent on this seral stage. The conservation approach evolved from the Sierra Nevada Ecosystem Project, a study commissioned by Congress to evaluate old growth conditions and other resources in the Sierra Nevada (Centers for Water and Wildland Resources 1996).

The intentionality and priorities with the existing OFEA allocation are clear. This is in contrast with the PA, which at first read appears to highlight in the desired conditions attributes for old forests but then sets desired conditions, standards, and guidelines for the Community Wildfire Protection zone and General Wildfire Protection Zone (CWP/GWP zones) that prevent attainment of desired conditions related to old forest conditions and values. For example, 50 percent of all mixed conifer and 68 percent of all ponderosa pine on the Sierra National Forest overlaps with the CWP/GWP zones. As can be seen from the maps, the location of the CWP/GWP zones on the Sierra National Forest is centrally located and essentially bisects the elevational band occupied by these forest types. As noted elsewhere in these comments, we do not believe that the disruption that could be provoked by the plan components related to the CWP/GWP zones would provide the life requirements for species at risk and maintain their viability. We also do not believe that the PA as designed would provide for ecological integrity. We believe that the PA provides less conservation for old forest values than provided by the existing forest plans.

We ask that a strategy for conserving old forest and associated species be developed that is more effective compared to previous strategies at maintaining and conserving these values.

[16] We note that in our comments on the Timber resource in the PA the need to present an evaluation of timber production as a suitable use.

B. Forest-wide Vegetation

We recommend that this section of the PA be combined with Westside Vegetation and Eastside Vegetation, be retitled "Terrestrial Ecosystems" and that the plan components for the vegetation and associated plant and wildlife species be addressed within a single section.[17] This approach would more likely achieve the integration identified as a need in the NOI and clearly link plants and wildlife to the landscapes that they depend upon. Presently, there is no meaningful reference to wildlife and other species of interest in the desired conditions in the various vegetation sections. As discussed above, as part of the ecosystem and species evaluation, the DEIS should crosswalk the plan components with the suite of at-risk species that utilize these plant communities and the ecological and habitat conditions necessary to support life requirements for these species, which would indicate where there are gaps in the plan components. Additional plan components that address both the condition of the landscape and species needs can more coherently be developed from such integrated plan components including desired conditions. This information will be needed to complete the review of the forest plan components and to evaluate whether or not the components are sufficient to address the habitat needs of the species at risk or if additional components need to be added to the revised plan. To illustrate the importance of this integration, our comments below address both the effectiveness of the plan component for the vegetation type and a representative number of at-risk species associated with the vegetation types. We also completed a more detailed review of the adequacy of the PA to provide for viable populations of spotted owl (Appendix D).

As we pointed out in our comments on the detailed desired conditions posted in June 2014 (SFL et al. 2014c), the vegetation types described in the desired conditions use an atypical classification scheme that is not represented or utilized by the Forest Service or other agencies. There is no common classification system or data set available to evaluate the vegetation classes noted in the desired conditions. The desired conditions in a forest plan are intended, in part, to drive the monitoring plan. If there is no means to assess current status or attainment of desired conditions, then it will not be possible to design projects that implement the plan nor will it be possible to assess whether or not a project is consistent with the desired conditions in the plan. Further, the plan is likely to be subjected to *ad hoc* interpretations of vegetation type and inconsistently applied between interdisciplinary teams, ranger districts, and national forests.

The proposed vegetation types also pose a problem for managing at risk species. Habitat relationships for species in the Sierra Nevada have been largely described by the California Wildlife Habitat Relationship (CWHR) system. Although an imperfect classification system, it is one that has been used consistently in wildlife studies and provides a significant amount of information to support conservation planning. We do not see a direct connection between the vegetation classification used in the desired conditions and CWHR forest and structural types. For instance, the desired conditions refer to canopy cover classes of greater than 50 percent or less than 50 percent, whereas the canopy cover classification in CWHR is divided into four classes for tree dominated types: 10-24%, 25-39%, 40-59%, 60-100%. Failing to harmonize the vegetation classification used in the plan to characterize landscape level conditions and habitat

[17] As discussed below, we also think a similar approach is in order for aquatic and riparian ecosystems, i.e., the landscape conditions must be integrated with the life requirements of species at-risk.

types for species at risk will create inconsistencies within the plan and make it nearly impossible to evaluate the plan's ability to provide for recovery, conservation and viable populations of target species. We can point to the recent forest plan for the Lake Tahoe Basin Management Unit for the pitfalls of using a vegetation classification approach that is unrelated to CWHR classification. The LTBMU plan has yet to provide an analysis that adequately discloses the potential impact of the plan on habitat quality for target species.

1. All vegetation Types

a. Desired Conditions

Forest-wide strategies have conflicts with the desired conditions for the community and general wildfire protection zones. For example, strategy 1 (p. 4) states, "Design projects to restore or enhance structural diversity (e.g. stem density, canopy cover, snag and downed log density, hardwoods as defined by desired conditions" and the first standard for the community and general wildfire protection zones states, "keep snags absent or their densities very low to maximize firefighter safety...." The overlap of mixed conifer vegetation with the community and general wildfire protection zones, i.e., areas where key wildlife species nest, den, and forage, are in conflict for achieving desired conditions forest wide and for the vegetation types within these management zones. Additional discussion as it relates to key wildlife is provided in the sections below and Appendix D. Please review desired conditions, strategies, standards, and guidelines within the vegetation management sections and revise the plan components for CWP/GWP to be consistent with the plan components for vegetation.

The characteristics of undesirable wildfires cannot be clearly understood from the statements in the desired condition sections for vegetation. For instance, the desired conditions indicate that mortality of greater than 75% of the basal area is desirable on some proportion of the landscape. This means that standing dead trees would be an acceptable outcome; however, the desired conditions for post-fire environments are not sufficiently clear or specific about the benefits of the standing dead trees. This creates a situation where interdisciplinary teams will not be able to judge the amount and distribution of the complex early seral environment created by wild or managed fire that is necessary to provide for ecological integrity. The plan should clearly convey for either prescribed fire or wildfire that if the desired conditions are met then there should be no need or a very limited need, e.g., to meet public safety concerns, to remove the burned structure or alter the post fire habitats that are created.

b. Strategies

Strategies 1 and 2 are inconsistent with the community and general wildfire management zones standard for creating conditions that are "absent or have minimal snags within both of the fire management zones." (PA, p. 45) Additionally, designing fuel treatments of these zones to achieve flame control under 97th percentile weather conditions and "under double the locally recorded wind speed" would require forest thinning at levels that would disrupt habitat connectivity in both zones, reduce structural diversity components for plant communities and significantly reduce habitat for at-risk species.

These more intensive treatments in 18-36% of the Sierra NF, Sequoia NF and the Inyo NF conflict with the Planning Rule requirements to maintain ecological integrity of terrestrial and aquatic ecosystems (36 CFR §219.9; §219.19) and the structure, function, composition, connectivity and species composition and diversity on these three national forests.

We believe strategies 2, 3, and 6 are necessary to support ecological integrity and ask that they be converted to guidelines.

c. Other Comments

The term "undesirable wildfires" is not clearly defined. A definition of this term should include discussion on natural range for post fire environments for a particular vegetation type and clearly limit the need for salvage logging within areas that meet desired conditions.

2. Old Forest and Complex Early Seral Forest

In the following section, we include the specific plan components in italics followed by comments on their effectiveness as a component and how they relate to assessing the ability of the plan to meet wildlife needs and provide for viable populations of selected at-risk species. These comments are excerpted from the viability analysis for California spotted owl provided in Appendix D.

a. Desired Conditions

1. *The composition, structure, and functions of old forests and surrounding landscapes are resilient to fire, drought, insects and pathogens, and climate change. Fire occurs as a key ecological process where possible, creating, restoring and maintaining ecosystem resilience and fire-related composition and structure.*

While we fully support the idea that old forests and complex early seral forests should be resilient to disturbance, the concept of resiliency is subjective and progress toward achieving resiliency cannot be determined without defining the parameters that constitute a resilient system or how such a desired condition would or would not contribute to viability. We also fully support the use of fire to create, restore, and maintain resiliency; however, the term "where possible" must be defined in order to determine if progress toward resiliency is being achieved and how such a desired condition would or would not contribute to viability. We know that spotted owl habitat can be resilient to significant disturbance, including wildfires like the Chips Fire, and fully expect that plan components are adopted that increase resiliency of these habitats without compromising ecological integrity and species viability.

2. *The landscape contains a mosaic of vegetation types and structures that provide foraging and breeding habitat, movement and connectivity for a variety of old forest-associated species such as goshawk, spotted owl, fisher and marten.*

A "mosaic" is characterized by the size, shape, composition, history, and boundary characteristics of the patches that comprise the mosaic. This desired condition is not specific enough to

determine the desired characteristics of the mosaic, therefore it will not be possible to determine if progress toward this desired condition is being made or if and how it contributes to or detracts from species viability. Mosaic features need to align with the best available science on habitat (i.e., specific amounts at appropriate scales), movement, connectivity, potential stressors and other factors that contribute to ensure wildlife viability.

3. *At least 40 but up to 80 percent of the forested landscape contains old forest components, usually in clumps and patches and including large or old trees, dead trees (snags), and large down logs. These clumps and patches are irregularly distributed across the landscape and interspersed with younger tree stands, shrubs, meadows, other herbaceous vegetation and non-vegetated patches.*

While this desired condition provides a specific target range for the percentage of the landscape that would include old forest components in an attempt to provide measurability, it is not clear how progress toward achievement will be determined as no parameters have been established regarding what level of old forest components are necessary to be counted toward achievement. This component includes concepts that could contribute to the viability of old forest associated species if parameters were set to provide the key ecological conditions necessary to ensure viability; however, it is not specific enough to ensure viability will be provided for old forest associated species.

4. *The number and density of old trees vary by topographic position and soil moisture (e.g., as described in the Forest Service general technical report (GTR) 220 and GTR 237). Large trees, used as a proxy for old trees, are well distributed, but are often clumpy, ranging from 0.5 to 20 trees per acre with a general area average of 5 trees per acre. Trees greater than 40 inches in diameter represent the oldest trees, generally from the pre-European settlement period and over 150 years old, and comprise the greatest proportion of large and old trees. In many areas of high soil productivity, trees grow to large sizes (e.g., around 30 inches in diameter) in fewer than 100 years. On very low and low soil productivity sites, the oldest trees may be smaller diameters. Sufficient numbers of younger trees are present to provide for recruitment of old trees over time.*

We agree with using GTR 220 and 237 to guide marking crews. However, the target average number of trees per acre greater than 30 inches dbh is significantly lower than has been found in reconstructed forests on the Sierra National Forest and should be revised upward to reflect NRV and provide ecological integrity. North et al. (2007) found there were an average of approximately 14 trees per acre greater than 30 inches dbh in an 1865 reconstructed forests on the Sierra National Forest, including 5.6 trees per acres from 30 to 39 inches dbh, 4 from 40 to 49 inches dbh, 2 from 50 to 59, and 2 greater than 60. Lieberg (1902) describes central Sierra mixed-conifer forests in which densities were low and most stems were greater than 25 inches dbh. These data suggest that providing an average of 5 trees per acre greater than 30 inches dbh would not provide the ecological conditions under which spotted owls evolved in the Sierra Nevada and therefore, would not support viability. It is interesting to note that North et al. (2007) found there was no difference between basal area of the reconstructed forest and contemporary fire suppressed stands, the primary difference between these forests was in the

number of trees per acre in each diameter class contributing to the average basal area (i.e., more large trees in historical condition vs. more small trees in contemporary forests). However, North et al. (2007) did find a difference in the average basal area of treated stands compared to historical conditions.

5. *Old forests are composed predominantly of vigorous trees, but declining trees are an important component, providing wildlife nesting and denning habitat and for future production of snags, down logs and other coarse woody debris. Older trees with larger branches and those showing signs of decadence provide the best potential to create cavities. Large tree clumps, snags, large logs and decadent older trees are maintained on the landscape to benefit wildlife and are distributed throughout the planning area pre and post-disturbance.*

Again, we conceptually agree with this desired condition, but it is not sufficiently specific to gauge if and when progress toward achievement is being made. In particular, it appears from the last sentence of this desired condition that all large tree clumps, snags, large logs, and decadent older trees will be maintained and not harvested or removed, which we fully support. However, the definition of a large tree clump has not been provided. Since tree density is a concern to silviculture, there needs to be clear guidance that large tree clumps are rare, critical for at-risk wildlife and should be preferentially retained on the landscape to microsite scale. A definition and specific management guidance as to the retention of large tree clumps is needed in order to determine how this condition would affect the viability of old forest associated species.

6. *Large snags are scattered across the landscape, generally occurring in clumps rather than uniformly and evenly distributed, meeting the needs of species that use snags and providing for future downed logs. The desired number and distribution of snags varies by major vegetation type, but old forests tend to have higher numbers of large snags than younger forests and can vary from single large snags to clusters of up to 20 snags per 10 acres in some areas.*

We agree that clumps of snags provide higher quality wildlife habitat than the same number of snags evenly distributed across the landscape. Based on other desired conditions, we assume large snags are 20 inches dbh or greater. We disagree that "young" forests have fewer snags per acre than old forests. In fact, under natural fire regimes, regimes that included mixed severity fire effects, young stands should have a significant numbers of snags for decades. The high number of snags in post-burn forests provides structure and is one of the key reasons why the term "complex" is used to describe these early seral forests. This desired condition basically states that snag distribution will vary by major forest type, ranging from 0.1 to 2 snags per acre. However, Lydersen and North (2012) conducted the only extensive Sierra Nevada-based study on large snag densities at reference sites, sampling 150 plots from 48 sample sites ranging over 400 km of the Sierra Nevada in yellow pine mixed conifer forests that had not been logged and had experienced at least two fires in the 65 years before the field work commenced. They found that the density of snags greater than 20 inches dbh averaged 3.7 per acre across these vegetation types, with the highest densities and volumes of snags occurring on lower, northeast facing slopes. These results suggest that the higher end of the range provided in this desired condition is not consistent with NRV and should be much higher. Verner et al. (1992) found that the average

number of snags per acre greater than 20 inches dbh within spotted nest sites was 3.7 snags per acre on the Sierra National Forest, identical to the average number of snags per acre Lydersen and North (2012) found at reference sites across the Sierra Nevada. This desired condition does not provide the ecological conditions necessary for spotted owl viability. A similar finding would be expected for fisher and marten, old forest species which are also associated with high snag levels (Spencer et al. 1983, Spencer 1987; Lofroth et al. 2010; Aubry et al. 2014; Long et al. 2014).

7. *Coarse woody debris, including large downed logs in varying states of decay, provides important wildlife habitat and can occur as single large down logs or in clusters depending on the source of tree mortality (e.g., single trees succumbing to age or resource stress or clusters of trees or acres of trees killed by insects or diseases). Coarse wood debris is patchily distributed and the density of large down logs varies by vegetation type by averages 1 to 5 tons per acre across the landscape. Surface dead wood levels provide for legacy soil microbial populations.*

The definition of coarse woody debris has not been provided making it impossible to determine if and when 1 to 5 tons per acres occur across the landscape. Although, Verner et al. (1992) found that large woody debris (greater than 35 inches) averaged 8.2 tons per acre in spotted owl habitat with greater than 70 percent canopy cover and averaged 9.3 tons per acre when canopy cover was from 40 to 69 percent, Roberts et al. (2011) found a negative effect of coarse woody debris on spotted owl occupancy. Therefore, it is not clear how this desired condition would affect viability for spotted owl. Habitat associations for other old forest associated species, e.g., fisher and marten, include levels of down wood that are higher than proposed in this desired condition (Spencer et al. 1983, Zielinski et al. 2006); the proposed desired condition is not likely to provide the ecological conditions necessary to support their viability.

8. *Complex early seral habitat created as a result of a disturbance (e.g., burned forest habitat) contains dense patches of snags as well as habitat elements characteristic of natural succession (e.g., regenerating shrub cover and herbaceous understory) that are important to early seral forest- associated species. Large areas of shrubs are managed in locations where they represent the potential natural vegetation considering fire risks over time to adjacent vegetation and resources. Aspen and oak sprouts are well distributed in areas where they occur.*

Because spotted owls have been documented using burned forests of all severities for foraging (Bond et al. 2009) and have been shown to be adversely affected by salvage logging (Lee et al. 2012, Clark et al. 2013), desired conditions that affect complex early seral habitats will also affect spotted owl viability. Conceptually, this desired condition could contribute to spotted owl viability or the viability of other old forest associated species; however it is not specific enough to determine how it may affect spotted owl viability.

9. *Snags, logs and live trees are widely distributed in large patches of high vegetation burn severity (greater than 75 percent mortality) to provide habitat while also considering the need for other resource objectives such as hazard tree removal,*

reforestation, strategic fuel treatment locations or management of fuels in and adjacent to the community wildfire protection zone.

The meaning of "widely distributed" or "large patches" is unclear; therefore progress toward achievement cannot be determined. Hazard tree removal and strategic fuel treatments that reduce canopy cover detract from spotted owl viability and the viability of other species that utilize burned forests. Reforestation techniques and intensities are by no means universal, therefore it is not clear how such an activity would affect spotted owl viability

b. Strategies

As a general matter, "strategies" are not required plan components and have little regulatory significance. We comment below on those strategies we believe sufficiently important to convert to guidelines.

1. *During prescribed fire and when managing fires for resource benefits, take actions designed to achieve a patchy mosaic of fire severity in old forests, with predominately low and moderate vegetation burn severity and with most high severity patches generally fewer than 200 acres in size. Due to the complexity of managing fires, on very large fires, some larger patches of high severity fire may occur due to localized weather and existing fuels conditions. The balance of benefits from restoring fire to large landscapes should be weighed against the effects to old forests. In areas where there are limited opportunities to manipulate fuels conditions other than with fire, these tradeoffs of accepting more or larger patches of high severity fire in old forests with managed fire are weighed against the risk of effects to old forests from unmanaged wildfire.*

We agree with this strategy and suggest these concepts be converted to standards or guidelines so that they may be considered in contributing to species viability.

c. Standards

1. *For vegetation management projects, design projects to restore, maintain or enhance structural diversity (e.g., large tree clumps, large and old tree density, and variability in tree density, canopy cover, snags, downed logs and the amount of hardwoods) of existing old forest stands as redefined by the desired conditions for each major forest type.*

A "mosaic" is characterized by the size, shape, composition, history, and boundary characteristics of the patches that comprise the mosaic. The desired conditions for each type are not specific enough to determine the desired characteristics of the mosaic and to apply this to the design of a vegetation management project. This desired condition is not specific enough to determine if necessary ecological conditions are provided or are spatially arranged in such a manner as to assure viability or connectivity for at-risk species.

d. Guidelines

1. *To protect old forest components from uncharacteristic fire, effective methods of fuels reduction should be considered, such as thinning or selective harvest, prescribed fire and wildfires managed for resource objectives. When conducting prescribed burning, firing patterns should limit mortality to old trees by managing smoldering at the base of large, old trees.*

Moderate intensity timber harvests, consistent with Forest Service fuels treatments, have been correlated to spotted owl declines on the Eldorado National Forest (Tempel et al. *In Press*). Similarly, a disturbance threshold for vegetation treatments in fisher habitat was suggested in Zielinski et al. (2013) of about 3 percent of a home per year. Unless this guideline also addresses the intensity of treatments, it is not consistent with maintaining viable populations of two key old forest associated species. We fully support use of prescribed burning that contributes to maintaining stand conditions that support the viability of old forest associated species, and recommend including this as a separate guideline. Also, in this guideline, we suggest including the caution to prevent mortality to old trees and smoldering also at the base of large low decay class snags.

2. *To perpetuate old forest components, the development of old forest conditions should be encouraged in areas where old forest is lacking. Projects should seek to restore patchiness within stands using approaches described in GTR-220 and 237. To promote old forest attributes consistent with desired conditions, also manage for large black oak trees, pine tree regeneration, and snags where present, to be sustained over time.*

We conceptually agree with this component. However, it is not specific enough to ensure the key ecological conditions necessary for persistence of old forest associated species will be provided and it is not clear how consistency of a project with this guideline will be easily determined.

3. *During wildfires in areas with large areas of identified old forest patches, a resource advisor should be consulted. The resource advisor should identify old forest and old forest associated wildlife resource values for consideration by the fire planning team and suggest opportunities to retain and protect large and old trees where feasible. When safe and feasible, ahead of burn operations prepare particularly highly valued old trees and den and nest trees using techniques such as targeted preparatory burning, removing large fuel away from the base of especially important trees, or providing direct protection to high value trees.*

We support this guideline. If effectively implemented, it would contribute to maintaining species viability in post burn landscapes.

4. *Restoration projects for large stand replacing events (wildfire, insect and disease infestations, windstorms and other unforeseen events) should establish restoration objectives considering: the need to provide for safety to people in the short and long terms; the need to limit fuel loads over the long term, including the need to restore fire to*

the recovering or restored landscape; the urgency to restore forested habitat to deforested areas, including restoring connectivity; the need to provide habitat for local wildlife species that use burned forest habitats; the need for other ecological restoration actions in the affected area; and the opportunity to recover economic value from dead and dying trees.

It is not clear how such a process would conclude and many of the restoration objectives run counter to the viability for a variety of at-risk species, e.g., fisher, spotted owl, black-backed and other woodpeckers, great gray owl, and northern goshawk. Therefore, this guideline would likely adversely affect species viability.

There are also numerous technical issues with this guideline. First, it appears to compel a process whereby all of these issues will be analyzed and weighed against one another. This is a process for which the effects to species viability and ecosystem integrity cannot be determined at this time. Guidelines are design criteria for projects and activities, which this is not.

Second, the need to limit fuel loads over the long-term should be clarified, as all dead material contributes to fuel loads but not all dead material affects fire behavior equally or would be considered outside of the range of natural variation. This should be revised to state that fuel load and fuel types should be managed to be within the natural range of variation and be resilient to fire under natural fire regimes. The fuel load and composition under natural fire regimes for each burn severity in each forest vegetation class should be stated to provide a measurable design constraint for this guideline.

Third, the term "urgency" must be defined. Is an additional 10 to 15 years to reach old forest conditions considered "urgent," when it takes, by the definition of an old tree defined in the plan, 150 years or more to reach old forest conditions? The time it takes for natural regeneration to reach pre-fire stocking levels is site specific; some sites may develop quickly, while others may take many decades. We are not aware of any metrics that foretell how long it may take for specific sites or areas; therefore, anyone can point to literature that suggests reforestation is "urgent" and anyone can point to literature that suggests that it is not. The plan should provide clear guidance on what factors constitute urgency as the term is ambiguous and consistency with this guideline will not be easily determined as there is considerable scientific uncertainty surrounding the factors that contribute to natural post-fire regeneration and composition.

Lastly, there is considerable lack of consensus as to the definition of the term "deforested" and this is not how this term is typically used in forestry. While to the layman "deforested" may simply refer to the death of all or most trees in a given area, as we believe the term is being used here, this is not how this term is commonly used in forestry. For example, a clear cut is not considered an activity that results in deforestation, as this practice is often referred to as a "regeneration harvest" by foresters. Stand replacing wildfire results in what is often referred to in forestry as a "complex early seral forest" or "stand initiation," which do not constitute a "deforested" condition as these events do not automatically type-convert a forest to some other vegetation type. We believe this term is misleading and charged and is not appropriate to describe the result of a natural event that results in stand initiation. The forest plans should clearly, and without ambiguity, define the conditions under which active reforestation may be

implemented. Addressing this issue now will undoubtedly result in a smoother, transparent, and more consistent implementation of the forest plans at the project level, something we all desire. Finally, all living trees will die, therefore what constitutes a "dying tree" must be specifically defined.

5. *Post-disturbance restoration projects should be designed to reduce potential soil erosion and the loss of soil productivity caused by loss of vegetation and ground cover. Examples are activities that would: provide for adequate soil cover in the short term; accelerate the dispersal of coarse woody debris; reduce the potential impacts of the fire on water quality; and carefully plan restoration and salvage activities to minimize additional short term effects.*

This guideline is ambiguous, as it is not clear the extent to which potential soil erosion and the loss of productivity should be reduced or what is meant by "accelerate the dispersal of coarse woody debris." Therefore, consistency of a project or activity with this guideline cannot be easily determined. In addition, salvage logging and the establishment of plantations and herbicide applications to release planted trees may have significant long and short term effects on future stand composition, biodiversity, and fire behavior, all of which may compromise ecological integrity. It is therefore unclear how these management activities can be used to minimize short term effects.

6. *Post-disturbance restoration projects should be designed to manage the development of fuel profiles over time. Examples are activities that would remove sufficient standing and activity generated material to balance short term and long term surface fuel loading and protect remnant old forest structure (surviving large trees, snags and large logs) from high severity re-burns or other severe disturbance events in the future.*

It is contradictory to suggest that the removal of standing fuel material (a.k.a., snags) can protect old forest structures such as snags. This guideline should provide specific design guidance that details how fuel profiles should be managed over time to maintain ecological integrity of complex early seral forests. Salvage logging in any form is not consistent with ecological integrity of **complex** early seral forests as salvage logging simplifies stand structure and adversely affects native species abundance and diversity which is inconsistent with ecological integrity.

7. *Post-disturbance restoration projects should be designed to recover the value of timber killed or severely injured by the disturbance. Examples are activities that would: conduct timber salvage harvest in a timely manner to minimize value loss; minimize harvest costs within site-specific resource constraints; and remove material that local managers determine is not needed for long term resource recovery needs.*

This guideline is in direct conflict with maintaining viable populations of several species as indicated by recent research. Lee et al. (2012) and Clark et al. (2013) found that salvage logging was negatively associated with spotted owl occupancy. Bond et al. (2009) found that spotted owls use burned forests of all severities for foraging. Roberts et al. (2011) found that low and moderate intensity fire had no effect on spotted owl occupancy. Black-backed woodpeckers

(Siegel et al. 2013) along with a suite of post-fire species (Hutto 2008, Bond et al. 2012b) depend on burned forests to sustain population levels. Therefore, specific plan components must be provided that place concrete design constraints on salvage logging if viable populations of these species are to be maintained.

If implemented widely, this guideline would result in salvage logging of almost all areas that experience wildfire, even if the wildfire burned within the range of natural variation and meets the desired conditions provided in the PA. If a landscape burns within the range of natural variation, then the landscape was resilient to the fire and this guideline is contrary to desired condition 2 for All Vegetation Types, which states that, "Vegetation conditions are resilient to climate change, the frequency, extent and severity of ecological processes such as fire in fire-adapted systems, drought, and flooding in riparian systems. Functioning ecosystems retain their components, processes and functions." As such, plan components should be developed that prohibit salvage logging in areas that burned within the natural range of variation because these forests do not require any restoration or fuels treatments.

There is no connection between this guideline and the desired conditions for Old Forest and Complex Early Seral Habitat, therefore it cannot be determined how this guideline maintains or achieves a desired condition. This component should be included under "Timber" in the forest plan as there is no relationship between this guideline and maintaining ecological integrity.

8. *Post-fire restoration projects should consider the landscape amounts of complex early-seral forests available on the forest and in the regional context. Restoration projects should provide for ecological conditions for complex early seral wildlife species by: retaining some areas of dense and connected patches of snags across a range of snag sizes, including the largest snag sizes; retaining some areas of regenerating vegetation such as the shrub layer, sprouting hardwood trees and herbaceous understory; and retaining some burned areas adjacent to or intermixed with unburned areas or areas with moderate or high tree survival. Large fires with more than 1,000 acres of contiguous blocks of moderate and high vegetation burn severity should retain at least 10 percent of the moderate and high vegetation burn severity area without harvest to provide areas of high snag density for species that use complex early seral habitat.*

This guideline is too ambiguous to determine if consistency of a project or activity has been achieved. Due to the ambiguity, it cannot be determined how this guideline would or would not provide for species viability. The notion that sparing 10 percent of a high-severity and moderate-severity burned vegetation will provide ecological integrity is not supported. In order to conclude that adequate amounts of complex early seral forest (i.e., unlogged burned forests) are being provided across the landscape and the plan meets the ecosystem diversity requirements outlined in the planning rule, the amount of high and moderate severity burn forest that will not be salvaged should be based on the natural range of variation relative to the level of complex early seral forest occurring in the planning area. Because complex early seral forests provide high quality habitat for a wide range of native flora and fauna, including fisher and spotted owls, standards and guidelines should also be developed that describe how unlogged burned forests will be spatially arranged in order to maximize species diversity and provide for ecological integrity. This guideline does not support spotted owl viability.

Complex early seral conditions should be valued as a rare, critical stage of biodiversity establishment and forest development, and a foundation for supporting ecological integrity and affirming the Forest Service's guidance on ecological integrity in the 2012 Planning Rule. Complex early seral conditions should not be view as a "troublesome" condition to be dealt with via "salvage"[18], extensive site-preparation often involving ripping and tilling, and extensive pre-and-post emergent herbicide use, actions that all lead to intensive, homogenous (and fire-hazardous) tree plantations. No action could be more counter-productive to the stated Forest Service desire to guide management with the use of recently published technical reports (PSW-GTR-220 and 237) and their emphasis on heterogeneity. Natural succession is an ecological process that often begins with fire, and proceeds through multiple stages of forest development, in various degrees throughout the forest depending upon fire severity and pre-existing forest composition (Franklin et al. 2002). Disruption of this process through salvage logging and planting results in simplified forests and reduced biodiversity (Lindenmayer and Franklin 2008). The rarity of naturally evolving early successional forests due to past management practices is now recognized by leading research scientists, for example, "Young forests growing within a matrix of unsalvaged snags and logs may be the most depleted forest habitat type in regional landscapes, particularly at low elevations" (Lindenmayer and Franklin 2002 in Brown, Agee, and Franklin 2004); and "Currently, early-successional forests (naturally disturbed areas with a full array of legacies, i.e., not subject to post-fire logging) and forests experiencing natural regeneration (i.e., not seeded or planted), are among the most scarce habitat conditions in many regions" (Noss, Franklin, Baker, Schoennagel, and Moyle 2006).

Most recently, Swanson and others sum up the management issues by finding that, "Natural disturbance events will provide major opportunities for these ecosystems, and managers can build on those opportunities by avoiding actions that (1) eliminate biological legacies, (2) shorten the duration of the ESFEs, and (3) interfere with stand-development processes. Such activities include intensive post-disturbance logging, aggressive reforestation, and elimination of native plants with herbicides" (Swanson et al 2011).

Part of the problem resides with the long pursued approach to silviculture in Region 5. A March, 2005 report to Congress from the General Accounting Office found large data reporting inaccuracy prevalent in the way the Forest Service determines reforestation needs. The report also found that:

> In some places, regional culture that reflects a former management emphasis and budgetary situation influences current practices. For example, when reforesting an area, **officials in the Pacific Southwest region almost always rely on planting—a more expensive method than natural regeneration—because they have always done so** and, according to agency officials, this practice has been reinforced by the regional culture. When the agency-wide management emphasis was timber production, reforestation standards called for prompt reforestation and tightly spaced trees to maximize timber volume; so officials rarely relied on natural regeneration, which does not necessarily ensure rapid

[18] Webster's Dictionary defines salvage as "save a piece of something that has been wrecked."

> reforestation or result in tightly spaced trees. In addition, when timber revenues were higher and reforestation efforts centered on harvested areas, the region could always afford to plant. Now, as the agency's management emphasis has shifted to ecosystem and forest health, and as budgets have become increasingly strained, officials in the Pacific Southwest region said they are beginning to encourage greater reliance on natural regeneration, but it remains to be seen whether forests and districts will adjust their practices, accordingly.

(GAO 2005, emphasis added).

In sum, the body of scientific literature finds that, overall, intensive salvage logging and reforestation produce greater adverse impacts on recovering ecosystems, rather than contributing to recovery (see Lindenmayer et al 2008). To ensure that the revised forest plans reached the goals for ecological integrity in the 2012 Planning Rule and Directives, the PA needs to abandon the bias against complex early seral forest development, reject all intensive salvage logging except as needed for public safety, infrastructure protection and science-based restricted fuel zones; and halt the unsustainable, intensive plantation forestry model that contributes to wildfire intensity, wastes human capital and takes a major toll on biodiversity in the short and long term.

3. Aspen

There are several issues with the PA as it relates to Aspen. First, Old Forest and Complex Early Seral Habitat desired condition 8 includes, "Aspen and oak sprouts are well distributed in areas where they occur." Such a desired condition is self-fulfilling therefore meaningless. We suggest more meaningful desired conditions be adopted, such as, "Aspen and oak regeneration is occurring at levels capable of sustaining or expanding existing populations, and sustaining or expanding the number of populations across the landscape," and, "Sufficient amounts of aspen and oak seedlings and saplings survive to reach maturity, such that they can maintain or increase the size of existing populations and increase the number of populations across the landscape."

The second desired condition for Aspen is not an appropriate desired condition because it directs taking action and indicates specific agency actions and tools. The third desired condition for Aspen is self-fulfilling, and therefore relatively meaningless. The first strategy for Aspen states that mechanical removal is the primary initial restorative treatment for aspen, yet desired condition number two is that aspen stands will be periodically regenerated through stand-replacing events such as wildfire. Therefore, it should be clarified when each is the appropriate tool. It is imperative that when mechanical removal of pines is used as a restorative tool, or any other technique for that matter, that the protection of the suckers will be provided (Shepperd et al. 2006). Direct protection of aspen reproduction may be the only way to successfully reestablish aspen in the many areas in the Sierra Nevada where aspen is a minor component of forested landscapes and browsing animals are present (Shepperd et al. 2006); as such, a guideline related to sucker protection following regeneration should be provided to ensure the ecological integrity of aspen stands is maintained. Guideline 1 for Aspen relates to the distance a slash pile should be from aspen trees to limit damage to aspen trunks. Yet intense heat penetration into the soil from the burning heavy logging slash can kill aspen roots beneath heavy fuel concentrations

if not conducted properly (Shepperd 2006). Shepperd et al. (2006) suggests that only branches and tops be left within stands and that in such cases burning is required to remove the slash that is left within the stand to allow for light to penetrate to the surface. As Shepperd et al. (2006) provides significant guidance to aspen management in the Sierra Nevada, we suggest using this document to guide the creation of plan components for this vegetation type. The plan components for Aspen do not provide a clear vision for desired condition or guide how management should reach those conditions.

4. Upper Montane

As a general matter, we are concerned about the lack of specificity and framing of the desired conditions for red fir. We cover these general concerns in more detail under our comments below for "Dry mixed Conifer" and ask that you consider those comments about framing of the desired condition relative to red fir as well.

Our specific comments for red fir focus on snags. We believe the snag and down wood levels identified in the desired conditions are too low and do not reflect the range of reference conditions. Meyer (2013) found that mean snags per acre was about 7 and range from 0 to 24 for a variety of sites. These amounts are far higher than the 5 to 40 trees per 10 acres referenced in the PA (p. 10). Snags are an important life requirement for species such as spotted owl and marten in red fir forests. We ask that these values be revised upwards to reflect reference conditions.

C. Westside Vegetation (Sequoia and Sierra National Forests)

Below we have focused on the "Dry Mixed Conifer" type as a means to illustrate concerns about the various plan components for the types of vegetation on the westside and how they would function in a plan, contribute to ecological integrity, and maintain viable populations. The other forest vegetation type-specific components for the westside use similar language and formats. Generally, the only significant differences for species associated with mature conifer forest are canopy cover, snag, basal area, and fuel loading targets; therefore, our Dry Mixed Conifer comments are applicable to the other forest vegetation types that these species also inhabit.

1. Dry Mixed Conifer

a. Desired Conditions

Landscape Scale (10,000 Acres or Greater)

1. *The dry mixed conifer vegetation type has a mosaic of patches of trees of varied sizes and ages. It is dominated by Jeffrey or ponderosa pine trees, with varying amounts of white fir, red fir, incense cedar or sugar pine, and understory plants.*

A "mosaic" is characterized by the size, shape, composition, history, and boundary characteristics of the patches that comprise the mosaic. This desired condition is not specific

enough to determine the desired characteristics of the mosaic, therefore it will not be possible to determine if progress toward this desired condition is being made. This desired condition is also not specific enough to determine if necessary ecological conditions are provided or are spatially arranged in such a manner as to assure viability or connectivity for spotted owls.

2. *Areas dominated by medium and large diameter trees comprise more than 60 percent of the landscape. These areas, in combination with areas dominated by small diameter trees with moderate canopy cover between 40 to 60 percent, comprise between 25 and 40 percent of the landscape. Trees are denser in some locations such as north-facing slopes and canyon bottoms. Areas with closed canopies greater than 60 percent cover occur on only 5 to 30 percent of the landscape.*

We are not sure how to interpret the first two sentences of this desired condition and ask that it be reworded for clarity. However, the possibility of having only 5 percent of every 10,000 acres being in either CWHR classes 4D or 5D is of significant concern for the viability of species dependent on closed canopy forests and ecosystem integrity. For example, spotted owl occupancy has been correlated with maintaining greater than 70 percent canopy cover over 70 percent of an owl territory (Seamans and Gutierrez 2007). Owl territories are approximately 749 acres on the Sierra National Forests (half the mean nearest neighbor distance, J. Keane pers. comm. 2014). Therefore, this desired condition would equate to providing enough high canopy cover habitat (534 acres per territory) to support a single spotted owl territory for every 10,000 acres of dry mixed conifer forest habitat on the landscape as long as all of the 4D and 5D habitat occurs in relatively contiguous block of about 600 acres. From this, it is clear that the proposed desired condition is not consistent with spotted owl viability. A similar evaluation can be made for fishers based on the association of fishers with home range having greater than 61 percent of the area dominated by canopy cover greater than 60 percent (Zielinski et al. 2004). The results of these evaluations also call into question if the proposed desired condition would truly provide for ecosystem diversity.

Mid-Scale (100 Acres)

1. *Trees of different sizes and ages, variably spaced, comprise an irregular, uneven-aged forest. Numbers of seedlings and saplings are sufficient to replace old trees over time. These areas are highly resilient to fire.*

There appear to be three separate desired conditions here. Although we conceptually agree with the first sentence, it is not clear how it would be implemented and support or detract from viability. The purpose of the second sentence should be more clearly articulated as climate change is likely to affect the distribution and composition of vegetation types and it is not clear how this desired condition would apply to areas affected by disturbance or areas that do not currently have an old tree component, but are capable of supporting one. Finally, in the last sentence, the term "highly resilient" to fire must be specifically defined in order to determine how such a condition would affect spotted owls. In addition, such a desired condition does not include enough detail so that progress toward achievement can be measured.

2. *Canopy cover ranges from 10 to 60 percent but is mostly open with less than 30 percent of the area having over 40 percent canopy cover. When black oak dominates*

the overstory, because of their wide crowns, canopy cover can be greater than 50 percent.

This suggests that there would not be any 100-acre patches or portions of any 100-acre patches of dry mixed conifer forest that would have canopy cover greater than 60 percent, which is in direct conflict with landscape desired condition number 2, which suggests that 5 to 30 percent of the landscape would have greater than 60 percent canopy cover. Regardless, Verner et al. (1992) found that spotted owl nest stands averaged 100-acres in size, with nest sites averaging 87 percent canopy cover, and that the nest stand plus surrounding stands averaged approximately 300-acres in size. Obviously, this desired condition directly conflicts with spotted owl viability due to the species reliance on large patches of high canopy cover forest. Similarly, fisher den sites are correlated with stands having dense canopy cover (Zhao et al. 2012) and rest sites are also characterized by canopy cover exceeding 50-60 percent (Zielinski et al. 2004; Purcell et al. 2009, Lofroth et al. 2010). These habitat associations indicate that the stated desired condition is not likely to provide for the life requirements for the viability of fishers.

3. *Large snags greater than 20 inches in diameter are at densities between two to twenty snags per 10 acres, and are well distributed, but highly irregular in spacing providing for future downed logs. Coarse woody debris, including large downed logs in varying states of decay is irregularly distributed and ranges from 1 to 5 tons per acre.*

Verner et al. (1992) found that the average number of snags per acre greater than 20 inches dbh within spotted nest sites was 3.7 snags per acre on the Sierra National Forest, identical to the average number of snags per acre Lydersen and North (2012) found at reference sites across the Sierra Nevada. However, Verner et al. (1992) and Lydersen and North (2012) did not separate the number of snags per acre into categories based on dry and moist mixed conifer, making it difficult to determine exactly how the desired condition would affect the species. Taylor (2010) reports that the mean density of snags greater than 20" is 4.6 snags per acre within the Beaver Creek pinery. The pinery is an area that has experienced periodic fire and is often considered a reasonable reference site for dry forest types. The range of 0.2 to 2 snags per acre is considerably less than that noted for reference sites and is not likely to support viability of populations or ecological integrity.

Fine Scale (10 Acres or Fewer)

1. Individual trees are variably spaced with some tight groups. Tree stocking (basal area) is highly variable with most stands having fewer than 150 square feet per acre but ranging between 20 to 200 square feet per acre.

This desired condition would be improved by including an explanation of what tight spacing means and some indication of trees per acre. Depending on the extent and location of "dry mixed conifer forest" this desired condition may not provide for the life requirements of species such as spotted owl and fisher which are strongly associated with dense canopy cover and higher basal area. Lydersen and North (2012) characterized reference conditions for stands that had not been harvested and had some degree fir fire disturbance. These mixed conifer stands, not classified as dry or moist, but characterized by topographic position, had a mean basal area of

235 (SD = 126) and a quadratic mean diameter of 26" (SD = 6.6). Such stands would be outside the desired condition stated above and would, presumably, be available for harvest in order to "log" to the stated desired condition. We don't believe that this would be consistent with providing for ecological integrity and would conflict with desired conditions in the old forest type. The dependence of some species on higher basal area and larger tree structures for life requirements (see e.g., Verner et al. 1992, Roberts et al. 2011, Lofroth et al. 2010, Zielinski in press) indicate that their life requirements may not be met by this desired condition.

2. *Small irregularly shaped openings with less than 10 percent tree cover make up from 10 to 50 percent of the area, and contain a mix of grasses, herbaceous plants and shrubs. Vigorous shrubs cover 10 to 60 percent of the area.*

Having 10 percent of stands composed of small irregularly-shaped opening (i.e., areas with low canopy closure) could increase prey abundance by increasing heterogeneity, which would benefit a variety of species including fisher spotted owl and northern goshawk as long as adequate canopy cover throughout the stand was maintained. As suggested in GTR 237, it is possible to create openings through and increase heterogeneity while maintaining relatively high canopy cover. However, it may not be possible to provide for life requirements for species associated with closed canopy forests, e.g., spotted owl, fisher and northern goshawk, and maintain occupancy if 50 percent of a stand were composed of areas with low canopy closure as it is likely this would reduce overall canopy cover. It is questionable whether this plan component would assure that necessary ecosystem conditions will be provided to maintain viable populations of at-risk species.

3. *Litter and surface fuel is patchy with fewer than 5 to 10 tons per acre in fuel loading on average over 30 to 70 percent of the area. There are some small areas of up to 30 tons per acre and others with fewer than 5 tons per acre.*

Depending on the extent and location of "dry mixed conifer forest" this desired condition may not provide for the life requirements of species such as spotted owl and fisher which are strongly associated with large down wood. For instance, Verner et al. (1992) found that the average amount of downed woody debris (tons/acre) in spotted owl habitat on the Sierra National Forest was 18.2 when canopy cover was greater than 70 percent and 17.2 when canopy cover was 40 to 60 percent. Habitat associations for other species associated with this type, e.g., fisher, include levels of down wood that are higher than proposed in this desired condition (Zielinski et al. 2006).

b. Guidelines

1. *Where possible, snags and downed logs should be retained along edges of openings and within groups and clumps of large trees to provide habitat and roost sites for wildlife species such as small mammals, cavity-nesting birds and tree-dwelling bats.*

To provide sufficient snag habitat for dependent species, all snags should be retained, not just those along the edges of openings and within groups and clumps of large trees. It is not clear what constitutes an "edge of an opening" or a "clump of large trees" or why it was determined

that snags in such locations provide superior habitat to such an extent that all other snags are expendable and could be removed without affecting ecosystem integrity. Snag-roosting bats and cavity nesting birds often use isolated snags, especially in areas where snags are limited. Allowing for the removal of "isolated" snags, at will, would compromise ecological integrity and is not consistent with providing viable spotted owl populations.

2. *Management activities that generate accumulations of green slash should be planned to minimize potential impacts from bark beetles.*

No comments.

3. *Where possible, projects should remove trees to create crown space around existing mid-aged California black oak and canyon live oak to allow crown development of the oaks. Where replacement age classes are missing, projects should create openings near mature oaks to stimulate natural regeneration.*

This should include additional guidance from GTR 220. Only trees that suppress oaks and smaller ladder fuels and conifer regeneration in the understory should be removed from around oaks, with removal prioritizing white fir and cedar, and maintaining pine when appropriate to site conditions and life requirements for at-risk species There is also a trade-off between providing for growing space for oaks and removing hiding cover from the base and around oak trees. Depending on the amount and distribution of oaks in a project area, a combination of increasing growing space around some oaks and retaining cover around others may be more appropriate.

4. *Mechanical vegetation treatments, prescribed fire, and salvage operations should retain all large hardwoods except where large trees pose a threat to human life or property, or losses of large numbers of large trees are incurred due to prescribed or wildland fire. Large montane hardwoods are trees greater than 12 inches in diameter and large blue oak woodland hardwoods are trees greater than eight inches in diameter.*

It is not clear why large hardwoods snags should be removed if "large numbers of large trees" (unclear how to interpret "large") are killed by fire. This highlights the lack of value the PA gives to the structures that provide the "complexity" in "complex early seral forests." It is not clear why simply having large areas with large hardwood snags would automatically trigger their removal. Please provide the biological basis for such a strategy.

4. Eastside Terrestrial Vegetation (Inyo and Sequoia National Forests)

Thank you for including eastside vegetation types and adding eastside oak habitats. The planning rule requires the Forest Service to develop plan components that reverse and restore damaged habitats, and standards and guidelines must reflect this direction. We ask that the following be revised to address this:

Standard 1- this standard should also include sagebrush and pinyon-juniper habitats, which also have fragile biological soil crusts.

Guidelines 2- Projects should always include using native species seed appropriate to the project area. Native seed is needed to support each and every restoration activity. Locally sourced, native seed will be the most resilient to climate change.

Guideline 4- Restoration projects need to include post-project monitoring. Hand removal operations should be a first consideration on each project area "to leave large extents of undisturbed vegetation" and "minimize the risk of non-native species spread".

D. At-Risk Species

The management direction in the existing forest plans has not resulted in a reversal of declining trends for a variety of at-risk species, including California spotted owl, fisher, willow flycatcher, Yosemite toad, Sierra yellow-legged frogs, and great gray owl. Forest Service Manual 2670 directs the agency to avoid contributing to a trend toward federal listing and to provide for recovery of listed species. The current plans do not accomplish this direction for a significant number of at-risk species and the revised plans must address this.

Unfortunately, we find the treatment of at-risk species in the PA generally to be inadequate to meet regulatory requirements. As noted above, the habitat needs and life requirements for species are not adequately integrated into plan components that address terrestrial and aquatic ecosystems. This failure to integrate information impedes the development of an adequate plan. As a result, the PA does not identify the proper suite of plan components to "provide the ecological conditions necessary to: contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern within the plan area." (36 CFR 219.19(b)(1))

In 2012, we developed a conservation strategy (Britting et al. 2012; see Appendix F of these comments) to inform the forest plan revision process in the Sierra Nevada. The strategy addresses a variety of topic areas, including at-risk species. In Appendix B of the strategy, we provide species accounts and conservation recommendations for ten species of amphibians, mammals and birds considered at-risk in the Southern Sierra Nevada. We also highlight habitat conditions necessary to support life requirements for these species and recommendations on desired conditions. We ask that you use this information to develop plan components that address habitat needs for species at risk.

1. Lack of Integration Among Fire Management, Ecosystem Integrity, and Species Viability

The plan components for Fire Management conflict with providing ecosystem integrity and species viability (see for example Appendix D). Based on a GIS analysis, the Community and General WPZs significantly overlap with the range of the spotted owl and fisher and the ponderosa pine and mixed conifer forest types. For instance, of the 216 spotted owl Protected Activity Centers (PAC) on the Sierra National Forest, 144 (67 percent) have more than 25 percent of their PAC area within one of these two zones, and approximately 50 percent of the mixed conifer and 70 percent of the ponderosa pine vegetation types are within these zones.

The plan components for the Community and General WPZs call for a forest structure that would have less than 4 foot flame lengths during 97th percentile weather conditions over 75 percent of the zones, meaning very large and relatively contiguous blocks of fisher and spotted owl habitat would no longer provide the key ecological conditions necessary to support that species, including as many as 67 percent of all spotted owls within the Sierra National Forest. These treatment objectives would produce stands that are very open, with low amounts of down wood and snags. The standards for mechanical treatment within these zones also allow for the removal of trees greater than 30" dbh (the current diameter limit) and the expectation that snags would be "absent" from these two zones (PA, p. 45).

Managing a large proportion of the ponderosa pine and mixed conifer forest types to meet these fire behavior conditions is not consistent with the desired conditions for these vegetation types presented in the PA. The PA establishes desired conditions for these vegetation types as complex mosaics of varied tree sizes, densities, and understory vegetation with canopy cover ranging from less than 30 percent up to 90 percent, with 80 percent of the moist mixed conifer landscape with greater than 60 percent canopy cover. Variable densities of snags and down wood are also described. These desired conditions are not likely to provide for the fire behavior standards presented in the PA (p. 45). Because of the intensity of treatment directed by the fire management standards and the extent of the overlap of the intensively managed fire protection zones with mixed conifer and ponderosa pine, it is clear that ecological integrity and diversity would be compromised by these plan components.

While we understand that operability due to slope and distance from roads constrain the ability to mechanically treat fuels and harvest timber over a significant portion of the Community and General WPZs (which calls into question the ability to ever reach these desired conditions over much of the area, an issue in itself), the yet-to-be-developed components that assure spotted owl and fisher viability will also likely further constrain the treatments within the Community and General WPZs. Based on all of these yet-to-be acknowledged or analyzed constraints within the WPZs, it is evident the fire management components, the ecosystem components, and the species-specific components have been and continue to be developed separately and there has been little attempt at integration. Until such a time that these components are developed in a coordinated manner, a balanced solution with positive outcomes for each of these resources will remain elusive.

2. Broad Numerical Ranges of Ecological Conditions

While it is acceptable for plan components to be stated in terms of a numerical range of conditions, we caution against including plan components that include a broad target range, without additional plan components to focus management activities within the range. For instance, a desired condition at the landscape scale for the dry mixed conifer vegetation type states, "Areas with closed canopies greater than 60 percent cover occur on only 5 to 30 percent of the landscape." Such a plan component would allow for managers to reduce canopy cover within dry mixed conifer forests to five percent across the entire landscape, which would not provide ecosystem integrity and would undoubtedly compromise viability of several old forest species-associated species (see Appendix D for example) that require extensive areas with canopy cover greater than 60 percent, including fisher, spotted owl, and goshawk. A

consequence of providing a target range for ecological conditions, without including plan components to focus management within the range, is that the ecosystem diversity and species viability evaluations must consider the effects of managing for both ends of the range across the landscape because it cannot be assumed that management will result in an average unless otherwise stated. In other words, it must be clearly demonstrated that ecological integrity and species viability will be provided if either end of the range is managed for across the landscape.

3. Habitat Connectivity

The 2012 planning rule defines connectivity as, "Ecological conditions that exist at several spatial and temporal scales that provide landscape linkages that permit the exchange of flow, sediments, and nutrients; the daily and seasonal movements of animals within home ranges; the dispersal and genetic interchange between populations; and the long distance range shifts of species, such as in response to climate change." The PA mentions providing "connectivity" for terrestrial habitats and wildlife on several occasions, but we are unable to identify any instances in which it describes how vegetation types or seral stages would be spatially arranged to provide landscape linkages or how progress towards achievement can be determined.

Several attempts were made to suggest that connectivity would be provided by managing for specified ranges of forest conditions across the landscape. For example, there is a desired condition for the montane conifer and hardwood vegetation types that states, "At least 30 percent of the landscape provides greater than 40 percent tree or shrub cover for connectivity of wide-ranging forest-associated species." This example is one of the few that attempted to provide measurability. However, it cannot be determined from this how tree and shrub cover would be spatially distributed across the landscape in order to provide landscape linkages. Habitat connectivity, and therefore ecosystem integrity, cannot be assured without providing plan components that describe and ensure that vegetation types and/or seral stages are spatially distributed in such a manner that landscape linkages are provided.

Using the best available science, plan components should be developed that provide clear and measurable guidance as to how vegetation types and/or seral stages should be spatially arranged to provide linkages across the landscape in order to provide habitat connectivity and viability for all species of conservation concern. For example, the Conservation Biology Institute developed a least-cost path model of fisher habitat connectivity throughout the plan area (Spencer and Rustigian-Romsos 2012). This model represents the best available science on fisher habitat connectivity in the plan area and plan components should be developed to guide management activities, including salvage logging, within the least-cost path. At a minimum, such components would ensure that high canopy cover, shrub cover, and structural diversity are provided at the appropriate scales within the fisher least-cost path. When one compares the fisher connectivity model to the Community and General WPZs, where canopy cover and shrub layers will be significantly reduced, it is immediately apparent the WPZs directly conflict with the fisher connectivity model spatially. The plan requires species-specific plan components to ensure fisher connectivity.

4. Dry versus Moist Mixed Conifer

We remain concerned regarding the PA's separation of the dry and moist mixed conifer vegetation types, without providing specific criteria used to define each and not providing maps depicting the locations of these two vegetation types across the landscape. Without defining where these vegetation types occur across the landscape, it is not possible to conduct species viability analyses for species of conservation concern that rely in these vegetation types. In addition, the literature on spotted owl, fisher, and goshawk (species of conservation concern with relatively large home ranges that rely extensively on mixed conifer vegetation), do not typically separate mixed conifer into these separate vegetation types or discuss how these species differentially use dry and moist mixed conifer forest types, making it difficult to apply a significant body of scientific literature to the viability analysis (see Appendix D for an example).

5. Snags

It is indisputable that having sufficient numbers of large snags is essential to ecological integrity and maintaining population viability for numerous at-risk species within the plan area. The PA targets 2 to 20 snags (greater than 20 inches dbh) per ten acres (0.2 to 2 snags per acre) in dry mixed conifer and ponderosa pine and 5 to 40 snags (greater than 20 inches dbh) per ten acres (0.5 to 4 per acre) in moist mixed conifer. As discussed below, our review of the best available science information indicates that these criteria would provide too few large snags to meet life requirements for species at-risk or provide for ecological integrity.

Lydersen and North (2012) conducted the only extensive Sierra Nevada-based study on large snag densities at reference sites, sampling 150 plots from 48 sample sites ranging over 400 km of the Sierra Nevada in yellow pine mixed conifer forests that had not been logged and had experienced at least two fires in the 65 years before the field work commenced. They found that the density of snags greater than 20 inches dbh averaged 3.7 per acre across these vegetation types, with the highest densities and volumes of snags occurring on lower, northeast facing slopes. Considering Lydersen and North (2012) combined ponderosa pine with moist and dry mixed conifer in their study, their results suggest that the targets of large snag in the desired conditions for ponderosa pine and moist and dry mixed conifer are insufficient to provide ecological integrity, even if managers focused on providing snags at the higher end of the target range. We suggest snag targets for these vegetation types reflect the reference conditions outlined by Lydersen and North (2012) and that desired conditions also provide an average snag density per 10 acres so that it is assured that sufficient amounts of large snags are provided across the landscape.

Because approximately 50 percent of the mixed conifer and 70 percent of the ponderosa pine vegetation types on the Sierra NF, and 21 percent of the mixed conifer and 61 percent of the ponderosa pine within the plan area on the Sequioia are within the Community and General WPZs, the Fire Management standards that propose to eliminate snags from the Community and General WPZs would undoubtedly compromise the ecological integrity of the ponderosa pine and dry and moist mixed conifer vegetation types and compromise the viability of the at-risk species and more common species that rely on snags to complete their life-cycles within these vegetation types. While we agree that protecting firefighter safety to the extent practicable is desired, it cannot be at the expense of ecological integrity and maintaining viable populations of at-risk species. There are many ways to protect firefighter safety that do not include

compromising ecological integrity or species viability. Arguably the most efficient and safest way to protect firefighter safety and provided for ecological integrity is significantly increasing the use of prescribed fire across the landscape to reduce the need to suppress wildfire and make it easier to suppress wildfire when necessary. We suggest that a more thoughtful approach to large snag management and firefighter safety be developed within the Community and General WPZs, one that assures ecosystem integrity and species viability by maintaining sufficient numbers of large snags at all scales across the landscape. Such plan components would also include compensating for the loss of large snags to protect firefighter safety by creating and managing for the appropriate number of large snags in a safe location in close proximity to where snags have been removed.

6. Willow Flycatcher

The current condition of willow flycatcher in the plan area is unquestionably poor. It has been known for decades that willow flycatcher populations in the plan area have been declining due to adverse effects of grazing and hydrological degradation (Sierra National Forest LRMP 1991). According to the 2001 Sierra Nevada Forest Plan Amendment, since 1982 willow flycatcher declined on the Inyo, Sequoia, and Sierra National Forests by 29, 85, and 50 percent, respectively. Since that time, the willow flycatcher has been all but extirpated from the Sierra Nevada south of Lake Tahoe (Mathewson et al. 2012), including within the planning area. It is clear from these data that current management practices have not been sufficient to ensure the viability and recovery of this species. We find it to be inconsistent with the requirements of the 2012 planning rule that despite the near total extirpation of the species under the 2004 Amendment and the National Forest-specific LRMPs, the proposed action does not propose any changes to the species-specific components provided in the 2004 Amendment. The ecosystem components in the PA that may affect meadows are too ambiguous to determine consistency of a project or action with the standard or guideline, lack sufficient detail to determine if progress toward the condition is being made, or simply conflict with species viability. Regardless, the key ecological conditions necessary to support viable populations of willow flycatcher are not provided in the PA. Studies have found that the key ecological conditions necessary for viability are:

- Dense and tall (five to six feet) shrubs for nesting, almost exclusively willows in the Sierra Nevada (Green et al. 2003).
- Standing water through mid-June for successful nesting (Green et al. 2003, Vormwald et al. 2011).
- Meadows greater than or equal to 10 acres in size.
- 60 percent willow shrub cover across a flycatcher territory.

Assurances that these key ecological characteristics will be provided for the species must be included in all action alternatives to meet the requirements of the planning rule. At this time, plan components provide no such assurances. Also of consequence are the spatial scales at which these key ecological components are provided. Based on the best available science, important spatial scales for willow flycatcher are:

- Meadow complex (several >10 acre meadows within a watershed).

- Meadow (>10 acres).
- Breeding territory (1.5 acres in southern Sierra; Flett and Sanders 1987; Green et al. 2003).
- Post-fledgling territory (1 to 8 acres).
- Nest shrub (>5 feet tall with dense foliage).

The reasons for willow flycatcher declines are relatively straight forward and include: Direct loss of nesting habitat and nest cover from cattle grazing and trampling; meadow desiccation following grazing, road building, timber harvest, mining, water diversion, and recreational activities that lead to gullying. Meadow desiccation also leads to reductions in meadow habitat quantity and quality by decreasing willow foliar density and increasing conifer encroachment into meadows. It also decreases prey availability for breeding birds, increases grazing pressure on willow shrubs (Green et al. 2003), and nest parasitism by brown-headed cowbirds, which is associated with meadow desiccation. Nest predation is strongly associated with meadow desiccation, reductions in willow foliar density, and proximity to even a single conifer tree (Green et al. 2003). Off Highway Vehicle use within meadows reduces the quality and/or quantity of willow cover. Finally, because any remaining population would be extremely small and isolated, willow flycatchers are susceptible to extirpation from stochastic events.

Because meadow hydrology and/or the meadow shrub component have been compromised to the point at which the relative extirpation of the species has occurred within the plan area, the plan must include proactive measures (i.e., objectives) for restoring the key ecological conditions on which the species depends to a sufficient number of formerly occupied willow flycatcher meadows in order for the plan to support viability; otherwise, it cannot be assured that species specific standards and guidelines will have any effect on species viability over the planning period. We propose that the following objectives be included to ensure species viability is attained within the planning period and the Forest Service's obligation to provide for species viability is met:

- Provide all of the key ecological characteristics on which the species depends at the appropriate scales to provide enough habitat to support 15 territories over 2 meadow complexes within 10 years, and 20 territories over 3 meadow complexes within 15 years by restoring meadow hydrology, mitigating current erosion sources, as well as mitigating or removing factors that result in a loss of shrub habitat quality and quantity.

- Develop and implement a conservation strategy that includes site planning, action accountability, budgeting, and implementation and monitoring within 5 years.

Related to the impacts of livestock grazing on the Inyo National Forest, we object to the adoption of the Forest-wide Range Utilization Standards related to willows. These standards allow for up to 40 percent of willow shrubs to be removed. This is twice the threshold value currently allowed under the forest plan amendments of 2001 and 2004. A shift to this more aggressive standard will degrade the willow structure that is critical to the life requirements of willow flycatcher and the health of meadow ecosystems.

In addition, we believe the best available science supports the inclusion of the following plan components to begin to return the species to the planning area and provide for viable willow flycatcher populations:

Desired Conditions

- Willow flycatcher populations are increasing in the plan area.
- Historic sites are reoccupied.
- Meadows remain wet throughout the willow flycatcher breeding period.
- Wet meadow habitat is:
    - resilient to climate change,
    - protected from activities that compromise hydrologic function,
    - restored where lost to erosion and other habitat degradation, and
- Nest predation and parasitism rates are reduced to sustainable levels.

Standards

- Conduct willow flycatcher surveys of all wet meadows greater than or equal to 10 acres every five years to determine status and habitat condition (Green et al. 2003).
- Protect all meadows with breeding season occupancy since 1982 by avoiding any and all hydroelectric projects, infrastructure development, and grazing.
- Allow mechanical activity in potential or occupied habitat only when it is conducive to willow flycatcher recovery.
- Close, reroute, or redesign all poorly functioning roads and stream crossings that degraded habitat during meadow restoration and project planning, and prohibit new roads in willow flycatcher habitat (Green et al. 2003).
- Fence stream and meadow areas to prevent cattle from entering areas within 500 feet of hydric soils of wet meadows occupied since 1982.

Guidelines

- Actively plant willow in restored meadows to accelerate establishment (Burnett 2009).
- Prioritize restoration efforts starting with meadows within dispersal distance of occupied meadows (Green et al. 2003).
- Lessen the influence of cowbird parasitism on willow flycatcher by reducing cowbird numbers through limiting pack stations, recreational areas, and livestock grazing in willow flycatcher range and in suitable breeding areas regardless of occupancy status (Green et al. 2003).

7. Ecosystem Components and Viability Evaluations

We completed a viability evaluation for the California spotted owl based on the PA (see Appendix D for details). As part of such an evaluation, one must define the ecosystem components that provide the key ecosystem characteristics on which the species relies. Our attempt to do so revealed that desired conditions for many of the ecosystem components are not written with enough detail so that the intent is clear or progress toward their achievement can be

measured. Furthermore, the standards and guidelines are too ambiguous for consistency of a project or action to be easily determined. Many of the issues we define in the spotted owl viability analysis are ubiquitous in the PA, indicating that one would not be able to demonstrate that the PA provides species viability for any of the species of conservation concern.

One of the primary reasons the ecosystem components do not provide for species viability can be traced back to the forest assessments. According to the planning rule, "The responsible official should base the design of plan components on the key ecosystem characteristics related to the composition, structure, ecological processes, and connectivity of plan area ecosystems and ecological conditions necessary to sustain the at-risk species that were identified in the assessment phase (FSH 1909.12, ch. 10, sec. 12)." Since the forest assessments made no attempt to define the key ecosystem conditions necessary to sustain the at-risk species, it is no wonder the ecosystem plan components fail to provide such conditions. In effect, the species of conservation concern, and for that matter federally listed and candidate species, have been an afterthought and have yet to be fully considered in plan development. We repeatedly hear from Forest Service staff that single species management is undesirable and management should focus on providing healthy ecosystems and the 2012 planning rule is the vehicle by which to accomplish this. We agree that an ecosystem approach is more desirable than single species management, but only when it provides for ecosystem integrity and the viability of all the species that rely on the ecosystem. The process under which these forest plans are being developed, however, is contradictory to the spirit and intent of the 2012 planning rule as it relates to providing for species of conservation concern since wildlife remain an afterthought in planning.

8. California Spotted Owl

We conducted a in-depth species viability evaluation based on the PA (see Appendix D for details). While we realize the species specific plan components are likely to change as a result of the spotted owl assessment and interim guidelines due to range-wide declines (Conner et al. 2013, Tempel and Gutierrez 2013, Tempel et al. 2014) that have been shown to be correlated to Forest Service fuel treatments (Tempel et al. *In Press*, Stephens et al. 2014), it is troubling that given a defined need to modify plan direction to improve ecological conditions for the California spotted owl in the notice of intent, it is unclear why similar, yet less protective, spotted owl plan components have been included in the PA. From our review of the PA, the following changes have been made to the spotted owl protections provided in the 2004 Amendment that would have significant adverse effects on the species and increase the pace and scale of the spotted owl declines in the planning area:

- No 30" dbh diameter limit within CWP/GWP zones (NOI, p. 13-14)
- No standards for managing canopy cover in HRCAs located within these zones (NOI, p. 13-14)
- Salvage logging allowed in PACs within CWP (PA, p. 34)
- "Keep snags absent or their densities very low" in these two zones (PA, p. 45).

- Setting expectations that fuel treatments in these zones will be designed to achieve 4 (or 6 foot flame length) under 97th percentile conditions and double the locally recorded wind speeds. Today's standard is 90th percentile weather conditions. These new design criteria will result in removing significantly more canopy to meet the standards. (PA, p. 45)

- PACs in Community Wildlife Protection zone can be treated to meet fuels objectives. The footprint for Community Wildlife Protection is significantly larger than the Defense Zone and many more PACs are likely to be treated to meet the fuel standards described in item 5 above than under the current standards and guidelines.

We recognize that the PA indicates this approach may be changed based on information and recommendations expected from owl scientists and experts. Nonetheless, we think it reckless and inconsistent with the requirement to provide for viable populations to propose significant changes that undermine the existing conservation strategy—a strategy that can only be viewed as inadequate since populations on national forest lands continue to decline.

9. Forest Carnivore Conservation Management

For reasons similar to those noted for California spotted owl, we find that the PA would not assure that the life requirements for fishers would be met especially in the Community Wildfire and General Wildfire Protection zones. This is because a significant portion of the habitat for fishers overlaps with the CWP/GWP zones and important standards that moderate adverse changes to habitat quality have been eliminated from these zones and new standards that promote removal of all key habitat attributes such as snags have been incorporated in to the PA. As a result, we do not believe that the viability requirements for fishers would be met in the plan area.

We appreciate that the PA indicates that information and recommendations from the Fisher Conservation Strategy that is in development will be considered in the further revision of the PA and the development of alternatives. We find however that the proposals to waive canopy cover requirements, diameter limits, and snag retention within the CWP/GWP zones reckless given the dependence of this candidate species on closed canopy habitat.

10. Yosemite Toad Frog and Yellow-legged Frog Management

a. Yosemite Toad

According to Forest Service data from Sierra Nevada Amphibian Monitoring Project (SNAMPH), as cited by the USFWS, "the species has declined from historical levels, with Yosemite toads occurring in approximately 13 percent of watersheds where they existed prior to 1990," and toads are now assorted in small populations across their range (79 FR 24287-24288, citing Brown et al. 2011; Brown 2012; Brown and Olsen 2013). In its Assessment, the INF reports having 276 known locations of the toad assorted in 22 sites; of which, "238 (or 86 percent) are located within designated wilderness areas and 38 are found outside designated wilderness" (INF undated: 89). The Sierra NF Assessment reports the species occurring in 355 meadows.

The INF identifies climate change, livestock grazing, and pack stock use as risk factors for the species, and notes that no grazing allotments occur in Yosemite toad habitat. The INF should specify whether this refers to known occupied habitat or also suitable habitat that could be reoccupied. The INF also claims to have reduced pack stock grazing in breeding areas (INF undated), though not in other habitat types. The Sierra NF Assessment lists as risk factors mortality in adults, livestock grazing, climate change, and meadow encroachment by conifers caused by wildfire suppression.

The species' habitat is in a degraded condition across the planning area, largely due to historic and current livestock grazing (cf. Martin 2008). "Currently, approximately 33 percent of the estimated range of the Yosemite toad is within active USFS grazing allotments (USFS 2008, geospatial data)" (79 FR 24290). In its 2014 listing rule, the USFWS concluded,

> "Although we lack definitive data to assess the link between Yosemite toad population dynamics and habitat degradation by livestock grazing activity, in light of the documented impacts to meadow habitats (including effects on local hydrology) from grazing activity in general, we consider this threat prevalent with moderate impacts to the Yosemite toad and a potential limiting factor in population recovery rangewide. In addition, given the potential for negative impacts from heavy use, and the vulnerability of toad habitat should grazing management practices change with new management plans, we expect this threat to continue into the future. (79 FR 24291)."

Based on this, in order for the forest plan to contribute to the recovery of the Yosemite toad, the direct and indirect effects of grazing on meadow hydrologic recovery must be avoided through the development of additional plan components. The notice of intent states there is a need to incorporate new information and conservation practices into plan direction to contribute to the recovery of federally-listed species, which is consistent with the requirements of the 2012 planning rule. However, we are not aware of what new information the NOI is referring to as the PA made no attempt to change any plan components as they relate to Yosemite toad, so it is not clear how this new information is being incorporated. It is unclear how the same plan components that were in place for the past decade and at the time the species was listed will contribute to recovery.

We would also like to point out that in the final rule listing the Yosemite toad, Fish and Wildlife Service found that the study by Allen-Diaz et al. (2010) did not provide sufficient information on the impacts of grazing on Yosemite toads above the prescribed management guidelines due to flaws in the study design, which excluded areas where the utilization standards and guidelines of the 2004 Amendment were exceeded. In fact, Allen-Diaz et al. (2010) reported annual utilization by cattle ranging from 10 to 48 percent, while individual meadow use ranged from 0 to 76 percent, yet the 2004 Amendment caps allowable use at 40 percent; this demonstrates that the standards and guidelines of the 2004 Amendment are regularly exceeded. Penalties for overutilization can be non-existent, negligible, or arbitrary. If these standards and guidelines are regularly exceeded, then the standards are ineffective at best and meaningless at worst, making a viability analysis for species that rely on meadow habitats impossible to accurately complete. As

such, standards must be developed that require monitoring by Forest Service employees, not ranchers, and clearly defined triggers for the removal of cattle and the revocation of grazing rights if standards are exceeded. Such standards are also required for the Forest Service to complete a section 7 consultation on the Forest Plans because Fish and Wildlife Service cannot complete a jeopardy analysis on standards and guidelines that have been shown to be routinely exceeded. And, of course, forage standards do not prevent other structural and functional damages caused by livestock trampling, urination, and defecation. Sub-adult toads can get trapped in deep pock holes created by hooves walking in mud. Livestock can also trample toads. The USFWS also listed the following as additional threats: roads, timber harvest, conifer encroachment from fire suppression packstock, dams and water diversions, that could be controlled under Forest Service management.

As cited in the Final Rule listing the Yosemite toad, in an addendum to the initial report, Lind et al. (2011b, pp. 12–14) report statistically significant negative (inverse) relationships for tadpole density and grazing intensity (tadpole densities decreased when percent use exceeded between 30 and 40 percent) (79 FR 24291) This result supports the hypothesis that grazing at intensities approaching and above the 40 percent threshold can negatively affect Yosemite toad populations. Therefore, based on the best available scientific information, the utilization standard must be reduced to 30 percent to provide for adequate tadpole densities that maintain species viability and promote recovery.

The 2004 Amendment is silent on maintaining or restoring ecosystem connectivity (36 CFR 219.8(a)(1)), for example. The Amendment ROD generally includes broad, vague, immeasurable goals. It includes a standard and guideline (p. 56) for excluding livestock in occupied habitat but not potential suitable habitat to allow recovery, and moreover, this standard and guideline can be waived. The ecosystem components in the PA that may affect meadows are too ambiguous to determine consistency of a project or action with the standard or guideline, lack sufficient detail to determine if progress toward the condition is being made, or simply conflict with species viability.

In reference to Yosemite toad, the PA states that, "…opportunities to clarify or improve direction may be proposed in consultation with the U.S. Fish and Wildlife Service." In our discussion with Forest Service staff on the Yosemite toad and the requirement that the Forest Plans contribute to recovery, we have been told that the section 7 consultation with Fish and Wildlife Service will fulfill such requirement. However, we caution that a section 7 consultation with Fish and Wildlife Service should not be viewed as meeting the obligations of the 2012 planning rule that requires that Forest Plans contribute to the recovery of listed species. The primary purposes of a section 7 consultation are to ensure proposed federal agency actions do not jeopardize the continued existence of a listed species and that the effect of the take be minimized. This by no means equates to contributing to the recovery of a listed species as Fish and Wildlife Service is not authorized to significantly alter any portion of a PA unless it has been determined such an action jeopardizes the continued existence of the species.

We would also like to point out that the Forest Service has not lived up to its obligation to section 7 of the ESA and has likely been in violation of section 9 of the Endangered Species Act since June 30, 2014 because take authorization and a non-jeopardy biological opinion have yet to

be issued by Fish and Wildlife Service for almost all Forest Service authorized activities, including all cattle grazing within the range of the Yosemite toad, that are likely to adversely affect the Yosemite toad. The Forest Service did not initiate formal consultation with Fish and Wildlife Service until eight business days prior to the listing of the Yosemite toad, despite knowing that such listing was extremely likely for more than a year.

The Forest Service should develop science-based desired conditions, standards, and guidelines that lead to measurable outcomes to support Yosemite toad persistence and meet ecological integrity requirements on the Forests. A desired condition should reflect the goals of, for example: growing toad populations that are well-distributed throughout their existing and former ranges and genetically diverse to allow natural evolution of the species; increasing suitable and occupied habitat; high-quality, functional habitats that are protected from disturbance and degradation; connectivity to allow movement through seasonal habitats and to prevent inbreeding; and habitat resiliency to climate change. Standards and guidelines should provide direction, for example, for: regular population surveys; regular inventories of occupied and suitable habitat; restrictions on anthropogenic disturbance; restrictions on habitat stressors, such as livestock grazing; and restoration activities.

b. Sierra Nevada Yellow-legged Frog and Distinct Population Segment of the Mountain Yellow-legged Frog

The Forests do not currently support viable populations of the Sierra Nevada yellow-legged frog (*Rana sierrae*) (SNYLF) or the mountain yellow-legged frog (*Rana muscosa*) (MYLF) DPS, both listed as Endangered under the ESA (79 FR 24256). Once common, the population of the SNYLF has dwindled by as much as 93% and the MYLF by as much as 92% (79 FR 24262). They are distributed in small, remnant populations in high elevation aquatic and riparian ecosystems. As reported in their planning Assessments, the Sierra NF contained 48 known locations of SNYLFs (Sierra National Forest undated: 74), and the INF had 29 occupied areas that "range from a few frogs to over a hundred adult frogs" (INF undated: 88). MYLFs on the INF occur, "in small areas in Bullfrog Meadow and in Mulkey Meadows in an abandoned beaver dam pool" (INF: 87). MYLFs also occur on the Sequoia NF, but the Forest provided no data about distribution or population in its Assessment.

The PA includes no management direction for the frogs and defers to "current forest plan direction" to guide future management. The current plan direction under the 2004 Amendment is insufficient to help recover and maintain viable populations of these amphibians. The 2004 Amendment is silent on maintaining or restoring ecosystem connectivity (36 CFR 219.8(a)(1)), for example. The Amendment generally includes broad, vague, immeasurable goals and only 2 provisions specific to the species: Standards and Guidelines 98 (p. 63) and 114 (p. 65), which do nothing toward the requirement to maintain or restore ecological integrity to the specific habitats where frogs occur or where they can be restored. Management change is necessary to comply with regulatory requirements regarding the SNYLF and MYLF. We also believe the Forest Service should have completed a Section 7 consultation with the USFWS before issuing the PA. At this time, the Forest Service has not received incidental take authorization for these species, in violation of section 7 of the ESA and is likely in violation of section 9.

The frogs are largely aquatic and inhabit high mountain glacial lakes, ponds, pools created by beaver dams, streams, springs, tarns, marshes, and wet meadows at elevations between 4,500 to 12,000 feet, though they have been found as low as 3,500 feet (79 FR 24259). Plan components should be incorporated to support, to the greatest extent possible, the ecological conditions necessary to sustain and recover the species, including but not limited to:

- Fishless waters.
- Ponds and lakes sufficiently deep (>5.6 to 8.2 feet deep) to not completely freeze in winter. (Matthews and Pope 1999)
- Aquatic and riparian habitats that do not dry out in the summer. (Lacan et al. 2008)
- Open shorelines with shallow water (2 to 3 inches deep) as foraging and sun basking sites that limit access to predatory non-native fish. (Mullally and Cunningham 1956)
- Streams with overhanging, vegetated banks for egg-laying habitat and refugia at lower elevations.

All 3 Forests fault factors beyond the Forest Service's management control, including: the historic introduction of non-native trout to Sierra mountain lakes, the disease chytrid fungus, climate change, and population fragmentation for the species' decline and vulnerability. However, the Forest Service should focus on limiting and eliminating stressors it can control. Anthropogenic threats that occur on the Forests include: water diversions and dams, livestock grazing, packstock use, mining, roads, timber harvest, fire management, and motorized recreation. Though most known frog occurrence sites exist in Forest Wilderness Areas, mining, road construction, timber harvesting, fire management, and motorized recreation can have localized impacts in non-Wilderness Areas, usually in lower elevations within the species' range (79 FR 24267-24282).

Livestock grazing, for example, degrades aquatic and riparian frog habitats. According the USFWS,

> Grazing of livestock in riparian areas impacts the function of the aquatic system in multiple ways, including soil compaction, which increases runoff and decreases water availability to plants; vegetation removal, which promotes increased soil temperatures and evaporation rates at the soil surface; and direct physical damage to the vegetation (Kauffman and Krueger 1984, pp. 433–434; Cole and Landres 1996, pp. 171–172; Knapp and Matthews 1996, pp. 816–817). (79 FR 24268)
> …
>
> Grazing within mountain yellow-legged frog habitat has been observed to remove vegetative cover, potentially exposing frogs to predation and increased desiccation (Knapp 1993b, p. 1; Jennings 1996, p. 539), and to lead to erosion which may silt in ponds and thereby reduce the water depth needed for overwinter survival (Knapp 1993b, p. 1). (79 FR 24268)
> …
>
> Aquatic habitat can also be degraded by grazing. Mass erosion from trampling and hoof slide causes streambank collapse and an accelerated rate of soil transport

> to streams (Meehan and Platts 1978, p. 274). Accelerated rates of erosion lead to elevated instream sediment loads and depositions, and changes in stream-channel morphology (Meehan and Platts 1978, pp. 275–276; Kauffman and Krueger 1984, p. 432). Livestock grazing may lead to diminished perennial streamflows (Armour et al. 1994, p. 10). Livestock can increase nutrient-loading in water bodies due to urination and defecation in or near the water, and can cause elevated bacteria levels in areas where cattle are concentrated (Meehan and Platts 1978, p. 276; Stephenson and Street 1978, p. 156; Kauffman and Krueger 1984, p. 432). (79 FR 24268)

Regarding water quality, see also Myers and Whited (2012). Grazing removes vegetation that shades ponds and pools in meadows, leading them to dry out more rapidly than no grazing. Despite range utilization standards, guidance does not exist to monitor for over-utilization in frog occupied or suitable habitats. Penalties for overutilization can be non-existent, negligible, or arbitrary. And, of course, forage standards do not prevent other structural and functional damages caused by livestock trampling, urination, and defecation. Sub-adult frogs can get trapped in deep pock holes created by hooves walking in mud. Livestock can also trample frogs.

The Forest Service should develop science-based Desired Conditions, Standards, and Guidelines that lead to measurable outcomes to support SNYLF and MYLF persistence and meet ecological integrity requirements on the Forests (cf. Semlitsch 2002). A Desired Condition should reflect the goals of, for example: growing MYLF and SNYLF populations that are well-distributed throughout their existing and former ranges and genetically diverse to allow natural evolution of the species; increasing suitable and occupied habitat; high-quality, functional breeding, summer, and winter habitats that are protected from disturbance and degradation; connectivity to allow movement through seasonal habitats and to prevent inbreeding; and habitat resiliency to climate change. Standards and Guidelines should provide direction, for example, for: regular population surveys; regular inventories of occupied and suitable habitat; restrictions on anthropogenic disturbance; restrictions on habitat stressors, such as livestock grazing; and restoration activities.

11. Northern Goshawk Management Protected Activity Centers (PACs)

For reasons similar to those noted for California spotted owl, we find that the PA would not assure that the life requirements for northern goshawks would be met especially in the Community and General Wildfire Protection zones. As a result, we do not believe that the viability requirements for northern goshawk would be met in the plan area.

12. Bi-State Distinct Population Segment of Greater Sage-Grouse (Inyo National Forest)

The U.S. Fish and Wildlife Service ("FWS") has proposed to list the Bi-State Distinct Population Segment ("DPS") of Greater Sage-Grouse ("sage-grouse") as "threatened" under the Endangered Species Act (78 FR 64373). In its proposed listing rule, the USFWS concluded that "existing regulatory mechanisms are inadequate to protect the Bi-State DPS" (78 FR 64358). The INF "Sage-grouse Interim Management Policy" concurred (USDA Forest Service 2012: 2). The USFWS also expressed concern about federal land management plans:

> Existing land use plans, as they pertain to sage-grouse, are typically general in nature and afford relatively broad latitude to land managers. This latitude influences whether measures available to affect conservation of greater sage-grouse are incorporated during decision making, and implementation is prone to change based on managerial discretion. While we recognize the benefits of management flexibility, we also recognize that such flexibility with regard to implementation of land use plans can result in land use decisions that negatively affect the Bi-State DPS. Therefore, we consider most existing Federal mechanisms offer limited certainty as to managerial direction pertaining to sage-grouse conservation, particularly as the Federal mechanisms relate to addressing the threats that are significantly impacting the Bi-State DPS… (78 FR 64372).

We are concerned that the PA is missing important information and key components "to provide the ecological conditions necessary to: contribute to the recovery" (36 CFR 219.19(b)(1)) of Bi-State sage-grouse on the INF. The following comments and supporting information are offered to help improve development of alternatives in the PA that will achieve sage-grouse conservation goals.

The Inyo National Forest supports a significant proportion of the global Bi-State DPS population. Parts of three out of six Population Management Units ("PMUs") overlap with the Forest—the Bodie, South Mono, and White Mountains PMUs. The INF manages 63,425 (18%) of the 349,620-acre Bodie PMU, 327,860 (74%) of the South Mono PMU, and 450,960 acres (26%) of the White Mountains PMU. Planning assessment documents prepared for the current planning process did not include information about sage-grouse populations or distribution on Forest Service lands. These data—which predict range-wide and sub-population declines across the region—should be incorporated into forest planning.

According to the INF Assessment (undated: p. 90), "The population of sage-grouse within the bi-state area is considered stable and rising in some portions of the area." We are concerned that this assumption will lead to a forest plan that fails to conserve sage-grouse.

The USFWS estimates a total of 1,833-7,416 birds are distributed across the six PMUs (78 FR 64362). The population has declined by over 50 percent from historic abundance and has lost more than half of its original range (78 FR 64373). FWS notes that the global population is small and "below the theoretical minimum criteria for long-term persistence" (78 FR 64362). None of the individual PMU populations rise close to this persistence threshold. The Bodie (population estimate: 522-2,400) and South Mono (population estimate: 857-2,005) PMUs have the largest populations. FWS describes these two populations as "relatively stable" (78 FR 64362), but they are hardly secure. The USFWS notes that the global population is small and "below the theoretical minimum criteria for longterm persistence" (78 FR 64362). None of the individual PMU populations rise close to this persistence threshold. The Service warns, "…the Bodie and South Mono PMUs have experienced prior habitat losses, population declines, and internal habitat fragmentation. Significant connectivity between the populations within these two PMUs is currently lacking" (78 FR 64362) and "the Bodie PMU is expected to fall below 500 breeding adults within the next 30 years (Garton et al. 2011, p. 310)" (78 FR 64362-64363). A study by

Oyler-McCance et al. (2014) found genetic differentiation between the White Mountains PMU, the most southerly PMU, and the subpopulations to the north, supporting the notion that White Mountains subpopulation is experiencing detectable isolation.

FWS identifies the following threats to the Bi-State DPS as, "infrastructure (i.e., fences, power lines, and roads) …; grazing and rangeland management …; nonnative and native, invasive plants (e.g., pinyon-juniper encroachment, cheatgrass) …; wildfires and altered fire regime …; and the small size of the DPS (both the number of individual populations and their size …" (78 FR 64364). The agency subsequently stated, "Taken cumulatively, the ongoing and future habitat-based impacts in all PMUs will likely act to fragment and further isolate populations within the Bi-State DPS. Current or future impacts caused by wildfire, urbanization, grazing, infrastructure, recreation, woodland succession, and climate change will likely persist and interact in the near-term…" (78 FR 64373).

Forest planning must address these individual and synergistic effects on sage-grouse and sagebrush steppe. The INF Assessment lists "key risk factors" to sage-grouse that are generally in accord with those identified in the proposed listing rule; they include pinyon-juniper expansion and conifer encroachment into sagebrush, invasive species and noxious weeds, habitat loss from wildfires, predation by ravens, and human development (p. 90). The PA did not recognize and address the direct and indirect impacts of domestic livestock grazing, primarily by cattle and sheep, on sage-grouse and sagebrush ecosystems, especially when acting synergistically with other stressors on sage-grouse habitat. Information on grazing and other effects and stressors are summarized below.

a. Livestock Grazing

Sagebrush steppe in the Great Basin region did not evolve with significant grazing pressure by large ungulates (Mack and Thompson 1982). Grazing management was identified as a threat to sage-grouse by three expert panels and in recent reviews (Connelly et al. 2011b: 555-556, Tables 24.1, 24.2). Federal government scientists suggested that "livestock grazing across the public lands of western landscapes has impacted and will continue to impact the quality of those habitats and their ability to support source populations of sagebrush bird species" (Rich et al. 2005: 592).

Decades of livestock grazing have altered plant communities and soil and reduced productivity in sagebrush steppe (Knick et al. 2003; West 2000; Braun 1998; Dobkin et al. 1998; Knick et al. 2005). Stock animals remove native vegetation and spread invasive species in sagebrush steppe (Mack and Thompson 1982; Braun 1998; Dobkin et al. 1998; Knick et al. 2005; Reisner et al. 2013). Livestock grazing reduces water infiltration rates (Braun 1998: 147; Dobkin et al. 1998: 213). These impacts change the proportions of shrubs, grasses, and forbs in affected areas and also increase the propensity for invasion by nonnative invasive plant species (Mack and Thompson 1982: 761; Knick et al. 2011: 232; Reisner et al. 2013: 10). This can inhibit maintaining and restoring sagebrush ecosystem structure, function, composition, and connectivity sustain the ecological integrity of the Forest, which pertains to 36 CFR 219.8(a)(1).

Cattle or sheep grazing in sage-grouse nesting and brood-rearing habitat can negatively affect habitat quality; nutrition for gravid hens; clutch size; nesting success; and/or chick survival (Connelly et al. 2000;Connelly and Braun 1997; Beck and Mitchell 2000; Barnett and Crawford 1994; Coggins 1998; Aldridge and Brigham 2003). Livestock may directly compete with sage-grouse for grasses, forbs and shrub species; trample vegetation and sage-grouse nests; disturb individual birds and cause nest abandonment (Vallentine 1990; Pederson et al. 2003; Call and Maser 1985; Holloran and Anderson 2005; Coates 2007; Gregg et al. 2008). Manier et al. (2013) reviewed the multiple effects of grazing on sage-grouse habitat.

Holloran et al. (2005: 648) documented the importance of herbaceous cover, including residual grass, to sage-grouse nesting success and concluded that "annual grazing in nesting habitat, regardless of the timing, could negatively impact the following year's nesting success [by reducing residual vegetation]." Tall, dense, vegetational cover provides scent, visual and physical barriers to predation on nesting sage-grouse hens, sage-grouse nests and chicks, and may enhance nest success (Gregg et al. 1994; Rebholz 2007; Herman-Brunson et al. 2009). See also Kuipers (2004) and Hagen et al. (2007). In a study of a sample of the Bi-State DPS in Mono County, Kolada et al (2009a: 1345) found, "Sage-grouse in Mono County selected nest sites with greater overall shrub canopy cover than what was available, both within 200 m of nests and at the subarea scale, suggesting that females attempted to maximize concealment of their nests under shrubs (Kolada et al. 2009[b])". Hens also selected sites with a diversity of sagebrush and other shrubs (Kolada et al. 2009a; Kolada et al. 2009b). Hagen et al. (2007) conducted a quantitative meta-analysis of existing research on greater sage-grouse nesting and brood-rearing habitat and confirmed that female sage-grouse typically select nesting sites with greater sagebrush cover and grass height compared to random locations, and that brood areas usually had less sagebrush, taller grasses, and greater forb and grass cover than at random sites.

Aldridge and Boyce (2007: 522), citing Manier and Hobbs (2006), suggested that removing cattle or reducing livestock intensity may result in increased shrub cover and/or plant diversity in shrubsteppe. They also suggested that eliminating water impoundments (such as earthen livestock watering holes) may allow water to recharge former mesic sites in sagebrush steppe, which would benefit sage-grouse (Aldridge and Boyce 2007: 523).

Sage-grouse management guidelines recommend that grazing maintain a minimum of 7 inches (18 cm) grass height in nesting and brood-rearing-rearing habitat (Connelly et al. 2000; Hagen et al. 2007; see also Braun et al. 2005 and Kaczor 2008). USFWS supports the 7-inch standard for the Bi-State DPS (BSSG Assessment 2013: 58-59). Gregg et al. (1994: 165) noted that "[l]and management practices that decrease tall grass and medium height shrub cover at potential nest sites may be detrimental to sage grouse populations because of increased nest predation. … Grazing of tall grasses to <18 cm would decrease their value for nest concealment. … Management activities should allow for maintenance of tall, residual grasses or, where necessary, restoration of grass cover within these stands." Because sage-grouse nesting generally begins prior to the onset of the growing season, residual vegetation from the previous year dictates available hiding cover (Cagney et al. 2010). Consequently, management should ensure that grass height averages 7 inches after the growing season to support sage-grouse nesting the following year.

The potential conflict between livestock grazing and sage-grouse intensifies near riparian and mesic habitats due to the importance of these areas to sage-grouse, particularly during brood-rearing and in summer. Heavy cattle grazing near springs, seeps, and riparian areas can remove grasses used for cover by grouse (Klebenow 1982). According to Call and Maser (1985:17), "rapid removal of forbs by livestock on spring or summer ranges may have a substantial adverse impact on young grouse, especially where forbs are already scarce." USFWS (2013: 59) described the impacts of cattle and sheep grazing on food availability for sage-grouse:

> Cattle feed mostly on grasses, but seasonally use forbs and shrubs like sagebrush (Vallentine 1990, p. 226). Domestic sheep consume large volumes of grass, shrubs (including sagebrush (Vallentine 1990, pp. 240–241)), and forbs in occupied sage-grouse habitat (Pederson *et al.* 2003, p. 43). Because forbs provide essential calcium, phosphorus, and protein for pre-laying hens (Barnett and Crawford 1994, p. 117), the absence of sufficient forbs can impact a hen's nutritional condition, thus affecting nest initiation rate, clutch size, and subsequent reproductive success (Barnett and Crawford 1994, p. 117; Coggins 1998, p. 30). More specifically, livestock grazing can reduce the available food sources needed during breeding and brood-rearing periods (Braun 1987, p. 137; Dobkin 1995, p. 18; Connelly and Braun 1997, p. 231; Beck and Mitchell 2000, pp. 998–1,000). (USFWS 2013: 59)

In comments to USFWS on the proposed listing rule for the Bi-State DPS, the INF reported that it had adopted livestock grazing management "design features" to address livestock grazing effects.

> The Inyo National Forest has implemented many design features to reduce impacts from livestock grazing within sage-grouse habitat. These include: 1) adjusting on-dates to avoid the breeding and nesting season, 2) lowering utilization standards within brood-rearing meadows and upland habitats, and 3) implementing deferred and rest-rotation grazing systems which allow for rest during and in between grazing seasons. The current grazing standard in these areas falls within the appropriate grazing standards (defined as light and moderate) which allow for the continuation of understory cover as presented by Crawford et al 2004. We will continue to work with our livestock permittees in implementing these design features to allow for both livestock and sage-grouse use. Given these adjustments in livestock management, we feel that livestock grazing is not a significant threat to sage-grouse for the Bi-State DPS on the Inyo NF. (INF 2014: 2)

It is not clear from the comments that these features have been implemented on the Forest. They may have benefits to sage-grouse, although they lack specificity, and area-specific monitoring data so their actual effects are unclear.

b. Anthropogenic Disturbance

In 2009, the INF had 1,355 miles or authorized roads, 1,700 of unauthorized roads, and a travel management plan that authorized close to 1,000 miles of those unauthorized roads (USDA Forest Service 2009: iv). The Forest has a mean road density of 1.5 miles per square mile (INF 2013: 27). The sagebrush vegetation type has the second highest road density of all vegetation types in the Forest. Due to its vast road network and recent large fires, over 50,000 acres of sagebrush habitat are considered disturbed (INF 2013: 28). "Development of wind, solar, and geothermal energy can be expected to increase in the coming years, potentially resulting in additional impacts to sagebrush ecosystems on the Forest" (INF 2013: 30).

New land use and development should be restricted in priority habitat on Forest Service lands. The Sage-Grouse National Technical Team report recommends excluding new rights-of-way, including wind energy development in priority habitat; withdrawing priority habitat areas from entry for locatable minerals; closing priority habitat to new fluid minerals leasing; finding unsuitable all surface coal mining in priority habitat; closing priority habitat to new non-energy fluid minerals leasing; closing priority habitat to mineral material sales; avoiding vegetation treatments that reduce sagebrush canopy cover below recommended minimums; and limiting motorized travel to designated roads, primitive roads, and trails in priority habitat (SGNTT 2011: 11-26). The COT report also recommends avoiding anthropogenic disturbances in key sage-grouse habitat (USFWS COT 2013: 32), including new infrastructure, energy development, and mining (USFWS COT 2013: 51, 43, 49). "It is imperative that no PACs are lost as a result of further infrastructure development or other anthropogenic impacts" (USFWS COT 2013: 37).

Where new anthropogenic disturbance cannot be avoided (e.g., due to valid existing rights), impacts should be minimized by limiting discrete disturbance to one site per section of priority habitat (see SGNTT 2011: 23) affecting less than three percent of the land surface, regardless of ownership and including existing disturbance (SGNTT 2011: 7-8). Disturbances identified in the NTT report include "paved highways, graded gravel roads, transmission lines, substations, wind turbines, oil and gas wells, geothermal wells and associated facilities, pipelines, landfills, homes and mines" (SGNTT 2011: 7-8). Planners should also consider heavily grazed areas, range developments and vegetation treatments that reduce sagebrush cover as discrete disturbances. The Humboldt-Toiyabe National Forest has observed that "[l]ivestock concentration can represent a discrete impact" in sage-grouse habitat (USDA Forest Service 2013). Holechek et al. (2004, citing others) described the effects of water developments on forage production and native bunchgrasses in Idaho, Montana and New Mexico, noting that nearly all forage is used around water developments, decreasing with increasing distance from water. They reported that, under moderate grazing intensities, forage production was most severely reduced in the zone 0.5 miles from water. Finally, as the Wyoming plan recognized, vegetation treatments that reduce sagebrush cover below a certain threshold, rendering the habitat unsuitable for sage-grouse, should also be considered disturbance (Wyoming 2-181, Table 2-1).

Sage-grouse are very sensitive to habitat disturbance (SGNTT 2011: 8, citing Johnson et al. 2011, Naugle et al. 2011a, b). While the NTT report recommends limiting discrete anthropogenic disturbances to less than 3 percent of total sage‐grouse habitat (SGNTT 2011: 7), even this prescription may be inadequate to conserve the species. Analysis by Knick et al. (2013) suggests

that sage-grouse leks are largely abandoned as development reaches 3 percent of disturbance within 5 km of leks (see also Baruch-Mordo et al. 2013: 237, Figure B). In fact, data in Knick et al. (2013: 9, Figure C) suggest that the majority of leks were in landscapes with less than or equal to 0.5 percent anthropogenic disturbance.

In addition to development density and disturbance caps, anthropogenic disturbance and occupancy should also be prohibited within 4.6 miles of sage-grouse leks (Coates et al. 2013), where possible. Sage-grouse breeding sites and associated nesting and brood-rearing habitat are especially important to the species' life cycle. The grouse have high fidelity to leks and most hens will nest within four miles of the lek where they mated (SGNTT 2011: 21, Table 1) (and 4.6 miles for Bi-State sage-grouse, Coates et al. 2013). Anthropogenic disturbance and disruptive activities, noise, and habitat degradation in breeding, nesting and brood-rearing habitats can influence sage-grouse productivity (Connelly et al. 2011a; Holloran 2005; Patricelli et al. 2013; Lyon and Anderson 2003). Nesting success, which is key to population growth, is higher in relatively unaltered habitat compared to altered habitat (Connelly et al. 2011a).

c. Conifer Encroachment

Livestock grazing and fire suppression, among other factors, have been implicated in the encroachment of conifers in sagebrush steppe (Knick et al. 2011, citing Miller and Rose 1999; Kerr and Salvo 2007, unpublished report). Climate change is also expected to drive conifer encroachment. Approximately 12% of the current distribution of sagebrush steppe is expected to be replaced, primarily by expansion of woody vegetation, with each 1° C increase in temperature (Miller et al. 2011). Sage-grouse habitat will be reduced as woody species eliminate sage-grouse habitat at higher elevations in sagebrush steppe (Miller et al. 2011).

In its proposed listing rule, the USFWS identified conifer expansion into sagebrush habitat as a significant threat to sage-grouse persistence and states, "Woodland encroachment is causing significant, measurable habitat loss throughout the range of the Bi-State DPS. While techniques to address this habitat impact are available and being implemented, the scale of such efforts is currently inadequate" (78 FR 64365). The threat is also documented in the scientific literature (cf. Commons et al. 1999; Doherty et al. 2008; Freese 2009; NRCS 2009). The USFWS (2013: 67-68) reports that:

> Land managers in the Bi-State area consider pinyon-juniper encroachment a significant threat to sage-grouse because it impacts habitat quality, quantity, and connectivity, and increases the risk of avian predation to sage-grouse populations (Bi-State Local Planning Group 2004, pp. 20, 39, 96; Bi-State TAC 2012, pp. 18, 25, 30, 36, 40, 47). Previously occupied sage-grouse locations throughout the Bi-State area are thought to have been abandoned due to woodland succession (Bi-State TAC 2012, pp. 18, 25, 30, 36, 40, 47). Pinyon-juniper encroachment is occurring to some degree within all PMUs in the Bi-State area…

The INF Assessment (2013: 68) adds that the White Mountains and Bodie PMUs have experienced an estimated 40 percent conversion from sagebrush to woodlands.

The INF recognizes the problem of past and present native conifer invasions into historic sage-grouse habitat. The Forest assessed the extent of expansion and found that 41,300 acres (9%) of 435,310 acres of proposed critical habitat had been lost to encroaching pine trees (INF 2014: 5). This habitat modeling included the South Mono PMU, which is the least affected by conifer encroachment of the 6 PMUs. The INF (2013: 34) reports 47,270 acres (11%) of Bi-State sage-grouse habitat has been lost to conifer expansion.

The Forest has treated conifers on 600 acres in hopes of increasing sage-grouse habitat and has proposed treating another 200 acres but does not give a timeline for the proposed treatment(s). The INF (2013: 30) states:

> Under the current Forest Plan, the Inyo NF will continue to manage for sage grouse habitat, but projects will likely not keep pace with the expansion of woodlands into the sagebrush type. Sagebrush shrublands are likely to experience continued conversion to pinyon-juniper woodland where site conditions are conducive to pinyon establishment.
>
> The current Forest Plan, particularly the Sierra Nevada Framework (2004) encourages pro-active management of NNIS; however, budgets have been inadequate to successfully address the issue. This is likely to continue into the future.

This is discouraging and almost assures the continued loss of sage-grouse habitat. Therefore, in order to ensure species viability within the plan area, the forest plan must include objectives to prevent conifer encroachment into existing sagebrush habitat and restore historic sagebrush areas that are now in significant tree cover. New and developing information are available for identifying, prioritizing and managing conifer encroachment (cf. NRCS 2013).

d. Invasive Species

The INF states,

> It is highly likely that non-native invasive annual grasses will continue to spread through the sagebrush ecosystems on the Forest, particularly following fires and with a warming climate. Finch (2012) predicted that drought, large fires, pests, and non-native invasions will increase over the next century in arid shrublands in the bioregion, and that cheatgrass in particular is expected to continue to move northward and upward in elevation. (INF 2013: 30)

Disturbance, including from livestock grazing, contributes to the spread of cheatgrass. Reisner et al. (2013) found that, even after controlling for other factors that may contribute to the spread of cheatgrass, there was a strong correlation between grazing effects and cheatgrass incursion.

> If the goal is to conserve and restore resistance of [big sagebrush] systems, managers should consider maintaining or restoring: (i) high bunchgrass cover and structure characterized by spatially dispersed bunchgrasses and small gaps

> between them; (ii) a diverse assemblage of bunchgrass species to maximize competitive interactions with *B. tectorum* in time and space; and (iii) biological soil crusts to limit *B. tectorum* establishment. Passive restoration by reducing cumulative cattle grazing may be one of the most effective means of achieving these three goals. (Reisner et al. 2013: 1)

The use of livestock to control cheatgrass is also not recommended, as the Bureau of Land Management noted in the Idaho and Southwestern Montana Greater Sage-Grouse Draft Land Use Plan Amendment and Environmental Impact Statement:

> Intensive livestock grazing is often suggested for controlling cheatgrass competition. Although targeted grazing may have some applications for fuels management, it is not effective in reducing cheatgrass competition (Hempy-Mayer and Pyke 2008). During the short time when cheatgrass is highly palatable in the spring, a sufficient number of livestock cannot be concentrated on a small enough area to reduce the cheatgrass seed significantly or reduce cheatgrass seed lying on the soil surface. In addition, this type of grazing can be detrimental to remaining perennial grasses, opening the site up for further cheatgrass expansion in the future. (Idaho: 3-64 – 3-65)

Manier et al. (2013: 97), reviewing the literature, noted that resting areas from spring grazing helps restore herbaceous understory in sagebrush steppe.

e. Climate Change

Climate change is a threat to sage-grouse (Connelly et al. 2011b: 556, Table 24.2; van Kooten et al. 2007) and is predicted to have deleterious impacts on sagebrush steppe (Neilson et al. 2005). Most climate change simulations predict sagebrush steppe will contract as mean temperatures increase and the frost line shifts northward (Neilson et al. 2005). In the worst case scenario, sagebrush species are simulated to shrink to just 20 percent of current distribution (Wisdom et al. 2005b: 206, citing Neilson et al. 2005). The largest remaining areas will be in southern Wyoming and in the gap between the northern and central Rocky Mountains, followed by areas along the northern edge of the Snake River Plateau and small patches in Washington, Oregon and Nevada. Climate change is also expected to drive conifer encroachment. Approximately 12% of the current distribution of sagebrush steppe is expected to be replaced, primarily by expansion of woody vegetation, with each 1° C increase in temperature (Miller et al. 2011). Sage-grouse habitat will be reduced as woody species eliminate sage-grouse habitat at higher elevations in sagebrush steppe (Miller et al. 2011). Land use plans should account for the multiple effects of climate change on sage-grouse and sagebrush steppe.

f. Loss of Habitat Connectivity

We are concerned the PA does not recommend specific conservation measures to provide necessary and sufficient habitat connectivity to support sage-grouse populations. The historic and current trend in habitat loss and degradation in the region has caused and is contributing to fragmentation and isolation of the small populations within the Bi-State range. The FWS

proposed listing rule states,

> All six PMUs include poor connectivity within and among PMUs; the current trend in connectivity is slowly deteriorating, and this is of critical concern to the Bi-State DPS because it increases the risk of loss of individual PMUs via stochastic events. (78 FR 64373)

Oyler-McCance et al. (2014) found genetic differentiation between the White Mountains PMU, the most southerly PMU, and the subpopulations to the north, supporting the view that the White Mountains subpopulation is experiencing detectable isolation. They stated,

> Habitat management actions that promote connectivity between the outer subpopulations (PNa [Pine Nut Mountains] and WM [White Mountains]) to other areas within the Bi-State DPS may be crucial to increase gene flow and maintain genetic diversity within subpopulations. For example, both subpopulations would benefit from reduction in conifers to promote sagebrush-dominated corridors linking the subpopulations. Further, conservation measures that reduce habitat fragmentation within the PNa and WM subpopulations, such as targeted removal of trees within areas of recent conifer expansion, may help preserve connectivity of seasonal habitat within the subpopulations. Oyler-McCance et al. (2014: 11)

Maintaining habitat connectivity and limiting fragmentation in sagebrush steppe is imperative for the long-term welfare of sagebrush-associated species (Hanser and Knick 2011, Connelly et al. 2004, Hagen 2011). Protecting core regions and maintaining connectivity between sage-grouse populations may help stabilize or reverse the processes of range contraction and isolation that have resulted in long-term population declines (Knick and Hanser 2011). Connectivity also prevents inbreeding (Hagen 2011), which reduces genetic fitness. Connectivity between core habitat areas should be conserved, enhanced, and restored to promote movement and genetic diversity.

Connectivity habitat must be sufficient to facilitate sage-grouse movement throughout the year. Similar to other essential sage-grouse habitats (cf. SGNTT 2011, USFWS COT 2013), management should maintain and restore habitat quality, limit disturbance, and eliminate deterrents to movement in designated corridors.

Federal reports emphasize the need to maintain and restore habitat connectivity (SGNTT 2011: 7, 9; USFWS COT 2013). A variety of spatial analyses are available for identifying sage-grouse connectivity habitat (Knick et al. 2014; Knick and Hanser 2011; Carroll, unpublished). Land use plans should designate protect connectivity habitat in sage-grouse management plans (and include a mechanism for designating additional corridors that may be identified in the future). Failure to protect connectivity habitat could contribute to the continued decline and eventual extinction of sage-grouse (Knick et al. 2011; Knick and Hanser 2011; Johnson 2011).

Several factors hinder sage-grouse movement between and within the Bi-State sage-grouse PMUs on the INF, including conifer encroachment and roads. Management actions should include maintaining and restoring connectivity between PMUs.

g. Sage-Grouse Priority Habitat

Sage-grouse are a landscape species (Connelly et al. 2011a). Migratory populations have large annual ranges that can encompass >1,042 square miles (Knick and Connelly 2011, citing Dalke et al. 1963; Schroeder et al. 1999; Leonard et al. 2000) (the species may use up to 2,500 square miles per population (Rich and Altman 2001)). Large-bodied birds are generally more strongly affected by habitat loss and fragmentation (Winter et al. 2006). Although conclusive data on minimum patch size is unavailable (Connelly et al. 2011a), conserving large expanses of sagebrush steppe is the highest priority to conserve sage-grouse (Aldridge et al. 2008; Connelly et al. 2011b; see Manier et al. 2013: 25-26).

Draft plans developed as part of the National Greater Sage-Grouse Planning Strategy have identified and designated sage-grouse "priority habitat" on public lands, including on national forests (Salvo 2014, unpublished report). The NTT report describes priority sage-grouse habitat as "[a]reas that have been identified as having the highest conservation value to maintaining sustainable sage‐grouse populations. These areas would include breeding, late brood‐rearing, and winter concentration areas" (SGNTT 2011: 36). While the PA references "key areas" (pp. 28, 38, 39), it is unclear what key areas are or how the concept would apply to management of sagebrush steppe.

Sage-grouse winter habitat must provide sufficient sagebrush cover and food to support the birds throughout the season, especially during periods with above average snow cover (Braun et al. 2005; Connelly et al. 2011a, citing others). Wintering areas are often on wind swept ridges, south-facing slopes or in protected draws (Braun et al. 2005). These landscape features may be limited in some areas (e.g., Beck 1977). Sage-grouse typically show high fidelity to winter habitat areas, and a single area may support several different breeding populations (Oregon: 8-39). Consequently, the loss or fragmentation of wintering areas can have a disproportionate impact on sage-grouse population size (Caudill et al. 2013; Oregon: 8-39). Moynahan et al. (2007) also observed that the quality of winter habitat appears to influence the abundance and condition of female sage-grouse and their nesting effort and clutch sizes in spring.

Sage-grouse conservation strategies should identify and specially protect wintering areas (Braun et al. 2005, citing Connelly et al. 2000 and others; Moynahan et al. 2007; Carpenter et al. 2010). Notably, a federal court has held that the failure to map sage-grouse winter habitat could be grounds for remanding a land use plan back to the responsible federal agency to address the omission (WWP v. Salazar, 4:08-CV-516BLW, Slip Op. at 3). Management prescriptions should protect winter habitat from occupancy throughout the year, not just in winter when the birds are present (see SGNTT 2011: 21). These should include restrictions on energy development (see Doherty et al. 2008) and vegetation management that reduces sagebrush cover (Caudill et al. 2013).

The forest plans must identify, designate, and protect priority habitat of sufficient size to conserve sage-grouse throughout the year and to support sustainably reproducing populations, including areas that should be maintained or restored to improve connectivity between sub-populations. It must be demonstrated in the viability analysis that the best available scientific

information on nesting and rearing habitat correspond to the parameters outlined in the tables under the desired conditions for Fine to Mid-Scale (10 to 100 acres). It must also be demonstrated in the viability analysis that the grazing utilization levels currently in place will provide for the key ecological characteristics necessary for sage grouse viability.

h. Proposed Plan Components and Recommendations

The standards presented in the PA are not adequate to meet the life requirements for sage-grouse. We do not support Standards 3, 4, 9 and 10 in the PA (p. 36-37), which allow "short-term (1-10 year) impacts to deviate" from important habitat standards even if the goal is to achieve desired conditions in the longer term.

The Bi-State sage grouse is at serious risk of extinction (USFWS 2013). Given all the stressors identified in the existing research and federal listing process, the PA fails to meet Forest Service direction to design plan components that maintain viability of at-risk species and meet the diversity requirements in (36 CFR § 219.9). The Forest Service Manual places "conservation and recovery of threatened, endangered, and proposed species and their habitats" as the "top priority" for the agency, and compliance with this direction is not discretionary (FSM 2670.31). Annual habitat improvements (i.e., improvement in structure, function, composition, and connectivity of habitat), is the only path available for the Sage Grouse on the Inyo National Forest. Allowing degradation in 1-10 years from uses, such as grazing, which have no benefit to habitat restoration, is inconsistent with providing for conservation and recovery.

Standard 4 is also inconsistent with Forest Service direction by proposing that "long-term negative impacts in habitat from discretionary or non-discretionary activities shall be mitigated to the extent practicable." (emphasis added). The appropriate standard is to halt all discretionary activities that are causing long-term impacts to sage grouse habitat.

Standards 9 and 10 continue to perpetuate the Forest-wide Range Utilization Standards for the Inyo National Forests for utilization levels, season of use, numbers of livestock and management practices that have failed to protect sage grouse from grazing impacts since their adoption in 1995 (USFWS 2013). The best available science needs to inform how (and if) a range program continues on the Inyo National Forest. The continued loss of habitat of this key and iconic sage grouse species is a clear indication that the ecological integrity of the sagebrush ecosystem on the Inyo National Forest is unraveling do to a number of factors cited above. You now have guidance in the 2012 Forest Planning Rule (36 CFR §219.9) to maintain or restore the ecological integrity of these ecosystems by halting and reversing this ecosystem degradation fostered by discretionary actions permitted under you authority.

We recommend the following additional desired conditions, standards, and guidelines in the PA based on the best available science on sage-grouse.

Desired Conditions

- The long-term conservation of sage-grouse and healthy sagebrush shrub and native perennial grass and forb communities by maintaining viable, connected, and well-

distributed populations and habitats across their range, through threat amelioration, conservation of key habitats, and restoration activities.

- Sage-grouse leks and associated nesting and brood-rearing habitat, and wintering areas are protected from disturbance.
- Sagebrush habitat is resilient and supports sage-grouse under all climate change scenarios.

Strategies

- Identify and conserve sage-grouse priority habitat.
- Work with private and government landowners to collaboratively to restore, connect, and protect sagebrush habitat across jurisdictional boundaries to attain a healthy sage-grouse population that is well above minimum viability estimates.[19]
- Utilize adaptive management to adjust livestock grazing management, including operating periods and levels, when habitat conditions do not meet recognized standards from best available science.
- Use spatial tools to identify and prioritize areas for conifer removal in priority habitat.
- Continue and expand habitat restoration projects that decrease conifer cover in historic sagebrush areas.

Standards

All standards should be based on the best available science and be revised as research provides new information. The metrics in Table 1, (below) from Connelly et al. 2000 presents a range of conditions for sagebrush (height and % cover) and grass (height and % cover). Managers should utilize the full range of local conditions and not manage for minimum level of conditions. Sampling from reference, least degraded sites should set the standards. Managing for mean levels also risks homogenizing ecological integrity associated with a range of conditions.

[19] Regarding Strategy 1 (p. 36), we support engaging in these ongoing institutional processes, but it is insufficient to rely on specific processes (Bi-State Action Plan, local area working groups) that have a risk of breaking down during the life of plan.

Table 1. Habitat characteristics associated with sage grouse nest sites.

	Sagebrush		Grass		
State	Height[a](cm)	Coverage (%)[b]	Height(cm)	Coverage(%)[c]	Reference
Colo.	52				Petersen 1980
Id.		15		4	Klebenow 1969
Id.	58–79	23–38			Autenrieth 1981
Id.	71	22	18	3–10	Wakkinen 1990
Id.			19–23	7–9	Connelly et al. 1991
Id.	61		22	30	Fischer 1994
Id.		15–32	15–30		Klott et al. 1993
Id.	69	19	34	15	Apa 1998
Mont.	40	27			Wallestad 1975
Oreg.	80	20			Keister and Willis 1986
Oreg.		24	14	9–32	Gregg 1991
Wash.		20		51	Schroeder 1995
Wash.		19		32	Sveum et al. 1998a
Wyo.	36				Patterson 1952
Wyo.	29	24	15	9	Heath et al. 1997
Wyo.	31	25	18	5	Holloran 1999
Wyo.	33	26	21	11	Lyon 2000

- The nest and brood reading habitat targets (PA p. 35-36) should support a range of conditions for sage grouse habitat to maintain viability of this at-risk species.
- Maintain residual grass height at 7 inches or higher in sage-grouse nesting and brood-rearing habitat.
- Implement protective buffers that exclude anthropogenic disturbance within 4.6 miles of leks year-round.
- Limit discrete anthropogenic disturbance to 1 site per section in priority habitat.
- Limit discrete anthropogenic disturbance to less than 3 percent of the land surface area in priority habitat.
- Remove water impoundments (such as earthen livestock watering holes) in areas designated for sage-grouse conservation to allow water to recharge former mesic sites in sagebrush steppe.

Guidelines

- In areas of conifer encroachment, avoid treating old-growth or persistent woodlands.
- Where sagebrush is prevalent or where cheatgrass is a concern, utilize mechanical methods rather than prescribed fire to treat encroaching trees.
- Utilize methods for containing non-native invasive species, including limiting or eliminating livestock grazing in areas where cheatgrass persists and is likely to spread.

13. Great Gray Owl

The southern Sierra Nevada is home to an extremely small population of great gray owls. Recently, it has been determined that this population represents a genetically distinct subspecies of great gray owl with an effective population size of 14 individuals, an overall population size of only 100 to 200 birds, and has recently experienced a population bottleneck (Hull et al. 2009). At such low numbers, the population is vulnerable to inbreeding as well as stochastic events such as disease, uncharacteristic wildfire, and unmonitored grazing prevalent in breeding territories on Forest Service land (Hull et al. 2009). Therefore, in order to ensure great grey owl viability, the overall population size must be increased.

Habitat degradation is a management concern for the great gray owl. The loss of large trees needed for nesting, the effects of conifer encroachment, and overgrazing of meadows have likely reduced the population from historical numbers (Winter 1986, Hayward and Verner 1994). Based on the exceedance of utilization standards we discuss in the Yosemite toad section of these comments, it is clear overgrazing is a significant issue on Forest Service-managed lands under the standards and guidelines of the 2004 Amendment, this issue must be addressed in order to provide for viable and increasing great gray owl populations.

The key ecological characteristics that great grey owl depends on are high canopy cover (greater than 65 percent) nest stands in mixed conifer, red fir, or lodgepole pine forest adjacent to meadows (greater than 25 acres in size with a high rodent prey base and high quality meadow vegetation throughout the breeding season (Winter 1982, Winter 1986, and Green 1995) and all forested lands within 900 feet of meadow edges (Winter 1982). One of the best predictors of great gray owl presence and reproduction is vole abundance (Green 1995, Winter 1986). A recent study found a negative correlation between grazing and vole abundance in wet meadows within great gray owl territories in the Sierra Nevada and recommends not grazing cattle when managing for vole habitat (Kalinowski et al. 2014). At this time, there are no plan components in the PA that ensure such meadow conditions will be provided; therefore species viability cannot be assured. In order to increase great gray owl populations, and therefore provide for great gray owl viability, standards and guidelines removing or significantly restricting grazing within currently and historically occupied meadows must be developed to support large populations of voles and to provide for high quality meadow vegetation throughout the breeding season. We also recommend that the desired conditions, conservation measures, and land management allocation we outline in our conservation strategy be incorporated into species specific plan components for great gray owl.

14. Black-backed Woodpecker

The number of black-backed woodpeckers occupying recent fire areas (fires that burned from years 2000 to 2010) throughout the Sierra Nevada appears not to exceed several hundred pairs and the number of pairs in the unburned forests of the Sierra is estimated to be between a few hundred to a few thousand (Bond et al. 2012a). The primary key ecological characteristics on which this species relies are areas that burned at moderate and high severity within the past 8 to 14 years, an average snag basal area greater than 17 meters squared per hectare, low decay class snags, and burned forest greater than 50 meters from unburned forest for nesting. Because

black-backed woodpeckers are most often associated with complex early seral forests that were composed of high canopy cover medium and large trees pre-fire that then burned at high and moderate severity, areas that are the primary target of salvage logging operations, there is a significant conflict between providing for BBWO viability and the economic incentives to salvage log their habitat. As we illustrate in our comments on the plan components for complex early seral habitats, these ecosystem components are too ambiguous or do not provide for ecosystem integrity and therefore do not provide for black-backed woodpecker viability. The PA does not assure the key ecological conditions necessary for species viability will be provided. The PA should outline the post-fire management actions that are necessary to retain sufficient amounts of high-quality habitat in the planning area for all new fires that burn greater than 49 hectares of conifer forest at moderate to high intensity. Where post-fire snag removal is to occur, patches retained to support black-backed woodpeckers should incorporate areas with the highest densities of the largest snags to provide foraging opportunities (Siegel et al. 2012) as well as high density patches of medium- and small-diameter snags in the interior of the fire area to support higher nesting success in the early post-fire years (Saab et al. 2011).

Guideline 1 for At Risk Species states, "To improve the status of species of conservation concern and prevent federal listing, management activities should comply with species conservation agreements and strategies completed or sponsored by the Forest Service." There is a conservation strategy for the black-backed woodpecker (Bond et al. 2012a) with an author from the Forest Service Region 5 Office, Diana Craig. However, the logos of the affiliation of two of the three authors appear on the document, but the Forest Service logo does not, so it is not clear if this conservation strategy is considered a strategy sponsored by the Forest Service or not and if this guideline applies to this document. In addition, the language contained in the strategy is particularly loose and uncommitted, which provides little assurance that species viability will be maintained if it is followed. Considering the conservation strategy was written by a Forest Service staff person and six other Forest Service staff contributed to its development, we suggest that the foundational concepts of the goals and recommendations outlined in the conservation strategy be reworded and converted to plan components that assure that black-backed woodpecker viability will be provided throughout the planning area.

15. Bighorn Sheep

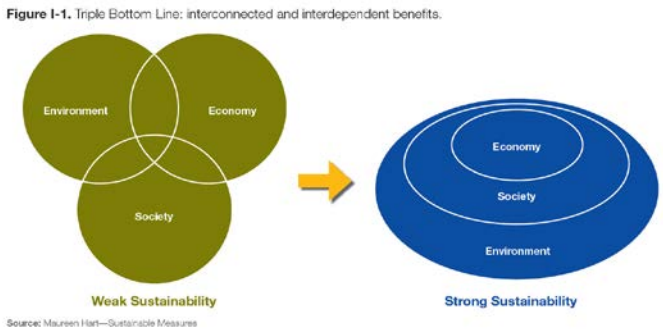
Both the Sierra Nevada and desert bighorn sheep are listed under the Endangered Species Act as endangered. The 2012 planning rule directs that the revised forest plans are to contribute to recovery of listed species. The forest plan itself must affirmatively address conservation of this species and should integrate the recovery measures found in the recovery plans completed for these species[20] into the revised forest plan for the Inyo National Forest. Furthermore, we are aware of a draft conservation plan for the desert bighorn sheep and ask that conservation from this plan be incorporated into the forest plan.

[20] Sierra Nevada bighorn sheep: http://ecos.fws.gov/docs/recovery_plan/080213_1.pdf
Desert bighorn sheep: http://ecos.fws.gov/docs/recovery_plan/001025.pdf

E. Timber

The Timber Section of the PA (p. 41-42) contradicts and conflicts with the ecological integrity and sustainability language in the 2012 Planning Rule, the proposed directives and the Forest Service's current policy on sustainability described in the National Report on Sustainable Forests—2010 (USDA Forest Service 2011).

In that document, the Forest Service has made a fundamental policy shift regarding the agency's position on sustainable forest management. This is depicted in the figure below where weak sustainability on the left is contrasted with strong sustainability on the right.[21]



In an older sustainability report issued by the Forest Service in 2003, the three intersecting circle model defined the relationship between the environment, economy and society. Triple bottom line metaphors are commonplace in natural resource dialogs but little attention is paid to the very weak intersection of real sustainability represented in the center of the three concentric circles. While support for sustainability (rarely defined with solid measures and accountability) is a popular natural resource culture buzzword, the triple bottom line image on the left is a flawed construct that depicts society and the economy as functioning mostly outside of the environment. The revised "strong sustainability" vision presented in the recent sustainability report (USDA Forest Service 2011) describes an updated model and new understanding "that the environmental realm is the foundation of strong sustainability because the environment provided natural goods and services that cannot be obtained through any other means" (Ibid., p. 1-2). The report further states that, "the core concept of strong sustainability is that the benefits of nature are irreplaceable and that the entire economy is reliant on society which in turn is entirely dependent on the environment."

Pointing the way toward strong sustainability, *An Ecological Basis for Ecosystem Management* published by the Rocky Mountain Research Station over twenty years ago, stated "Ecosystem management involves a shift in focus from sustaining production of goods and services to sustaining the viability of ecological, social and economic systems now and into the future . . . by bringing ecosystem capabilities and social and economic needs into closer alignment" (Kaufmann et al 1994). In *Forest Resilience, Biodiversity and Climate Change* (Thompson et al. 2009) the authors (including Forest Service) state, "The available scientific evidence strongly supports the conclusion that the capacity of forests to resist change, or to recover from disturbance, is dependent on biodiversity at multiple scales."

[21] http://www.fs.fed.us/research/sustain/what-is-sustainability.php

The only conclusion left for us to draw from this accumulation of Forest Service writing is that a truly sustainable timber harvest program would serve to foster forest restoration, ecosystem resilience and the enhancement of biodiversity at all seral stages. The ecological integrity and sustainability language in the Planning Rule and Proposed Directives require plan components that maintain or restore structure, function, composition and connectivity (36 CFR §219.8) and species composition and diversity (36 CFR § 219.19) to ensure sustainability and ecological integrity over time. The Region 5 Ecological Restoration Leadership Intent[22] clearly states (p. 3) that vegetation and fire management activities are "grounded in concern for biodiversity and ecological process before and after disturbances like fire."

We do not support the Desired Conditions for Timber (p. 41) as written because they contradict (work against) and are not consistent with the 2012 Planning Rule. The Planning Rule requires that timber harvest must meet the requirements of 219.8 through 219.10 and ensure the protection of fish and wildlife habitat, meadows, soils, watershed, recreation, aesthetics and other multiple use values to meet the sustainability and ecological integrity language of the rule. Words like "predictable" and "sustainable yield" in Desired Condition 1 set up conflict and contradict the intention and clear language of the Planning Rule, Draft Directives, the Regional 5 Ecological Restoration Initiative and the "Strong Sustainability" vision in the National Report on Sustainable Forests—2010.

> *Predictable and sustainable forest product yields contribute to maintaining and improving local and regional industry infrastructure sufficient to meet the needs of the desired pace and scale of ecological restoration over the next several decades.*

(PA, p. 41). We ask that this desired condition be changed to the following:

> The removal of timber and other forest products, such as biomass, are undertaken to support and enhance ecological integrity, biodiversity, at-risk species habitat, and other watershed values. The sustainable outputs of such products are variable across the landscape, and are based upon meeting a broad range of multiple use values.

We are also concerned about the economic drivers embedded in Desired Condition 2:

> *Production of timber contributes to the ecological, social and economic sustainability and associated desired conditions. A sustainable mix of forest products (including both saw timber and non-saw timber) is offered under a variety of harvest and contract methods in response to market demand and restoration needs.*

(Ibid.) We ask that this desired condition be re-written to strike "market demand" since demand driven resource extraction has historically conflicted with ecological integrity and sustainability values. Market driven decision making has forced restrictions on land managers, damaged important resources such as soils, water quality, and wildlife habitat and contributed to an increasing list of species at-risk of extinction.

[22] http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5351674.pdf

We ask that you include in a desired condition statement the following:

> The Forest Service contributes to ecological, social and economic sustainability in the context of a strong sustainability vision that places management actions in the context of a strong environmental foundation. This foundation recognizes that social and economic outcomes are entirely dependent on the natural environment and arise from knowledge "that the benefits of nature are irreplaceable and that the entire economy is reliant on society which in turn is entirely dependent on the environment" (USDA Forest Service 2011).

We strongly object to Desired Condition 3 with the emphasis on "capturing as much economic value as possible" of dead and dying trees. This desired condition contradicts and works against the ecological integrity and sustainability language in the Planning Rule (36 CFR § 219.8-§219.9) and the Region 5 Ecological Restoration Leadership Intent with its emphasis on ensuring "vegetation and fire management efforts are grounded in concern for biodiversity and ecological process both before and after disturbances like fire" (USDA Forest Service 2011, p. 3).

We recommend adding language to Strategy 3 that prioritizes Forest Service support of recent legislation in California, SB 1122, that supports the development of biomass facilities that are 3 megawatts or less, access the pending feed-in tariff, and have broad social support.

We also recommend adding a strategy that promotes the support of post-and-pole operations that provide jobs and wood products from what is generally considered non-commercial material (i.e., <10" in diameter). This would increase the value and likelihood that ladder fuel material and plantation thinning projects would have some economic benefit. This type of work also has strong social support.

In Standard 2, we object to the use of timber harvest on unsuitable lands for salvage and insect and disease management. These areas are likely to be unproductive areas and prone to resource damage. We do support the use of timber harvest to reasonably protect public safety, administrative sites and other infrastructure.

In Guideline 1, we reject the idea that snag retention should be discouraged adjacent to plantations. Dense, homogenous plantation forestry should be avoided. As stated elsewhere in these comments, high-density plantation forestry and the elimination of complex early seral vegetation/habitat is contrary to the best available science and the PA's promotion of managing for heterogeneity and the use of recent technical reports issued by the Forest Service (e.g., PSW-GTRs 220 and 237) as guidance to improve diversity, heterogeneity, and the resilience associated with patchy, diverse landscapes. Snags should be largely retained and distributed in a clumped and variable manner. If the best scientific information and expertise suggests moving beyond natural regeneration for forest recovery, planting strategy should be patchy and variable, with significantly lower densities then in the past to support fire use and adapt to drier conditions projected due to climate change. The clumped and variable distribution of patches helps worker safety and promotes improved ecological outcomes.

We expected that the PA would include a determination of the land suitable for timber production and to clearly define what such a purpose would entail. During previous forest plan amendments in 1992, 2001 and 2004, the original determinations of lands suitable for timber production were carried forward from the original forests plans despite the fact that additional land allocations were identified where timber production was not a suitable or principle use. Protected activity centers (for spotted owls, northern goshawk and great gray owls) is one example of a land allocation that arose from the previous forest plan amendments that is not suitable for timber production due to habitat objectives. We ask that you provide as soon as possible an evaluation of timber suitability suitable uses for the existing land allocations and those presented in the PA. This information is critical to developing plan components to satisfy regulatory requirements.

F. Fire Management

1. Desired Conditions

Desired conditions do not discuss prescribed fires or wildland fires (for resource benefit) that burn within the natural range of variation to be considered desirable and managed for natural regeneration and early seral habitats. There is little integration within the desired conditions for vegetation to fire management. We suggest that there be reference made to the desired conditions outlined in the forest wide landscape scale vegetation types (i.e., Upper Montane (p. 9), Montane Conifer and Hardwood (p. 18), and Lower Montane and Eastside Jeffrey Pine (p. 26). There needs to be clear direction in the plan that the desired conditions outlined in the vegetation types for fire as an ecological process be honored and limits the use of salvage logging to areas that directly impact community and public safety, and infrastructure. Desired condition statement and standard should be applied to both prescribed fire and wildfires managed for resource benefits.

2. Strategies

Forest-wide

We support the strategies outlined for evaluating desired conditions based on changing fuel conditions pre and post fire season. However, it remains unclear how an annual risk assessment would change the management zones related to fire. These zones appear to be land allocations and changes in their location would need to be approved in a forest plan amendment. Such an amendment would also affect special designations such as PACs since in the PA they have different standards and guidelines depending on their location within CWP/GWP or FR/FM.

Please provide a more complete explanation of how these zones would be revised over time and how their effect on overlapping designations, e.g., PACs, would be managed.

Community Wildfire Protection Zone and General Wildfire Protection Zone

The following strategy outlined for both zones should be considered a standard based on the definition of a standard in the 2012 Planning Rule:

Where feasible, use mechanical treatment and/or prescribed fire to reduce risk of damage from wildfire (p. 44).

This is a more measureable target that will move the landscape into a desired condition and move areas within the protection zones into a more resilient condition. There is a strong need to place emphasis on the need for surface fuel removal following mechanical treatments which contributes to flame length, fire line intensity, and rate of spread (Long et al. 2014 in Chapter 4.1). Areas that will be managed mechanically should have a follow-up treatment component of prescribed fire and/or managing wildfire ignition if conditions are appropriate. In areas where treatments are constrained (i.e. slope, wildlife habitat requirements, etc.) it should be noted that the Science Synthesis highlights several studies that all found prescribed fire alone is effective at reducing surface ladder fuels, and modeling that suggested a reduction in rates of spread, fire line intensity, and flame length under varied weather conditions (Long et al. 2014 in Chapter 4.1).

3. Standards

Community and General Wildfire Protection Zone

Standards in these zones do not support desired conditions in the vegetation sections or in the at-risk species sections. This is apparent in the risk assessment developed and the overlap between the Community and General Wildfire Protections Zones with mixed conifer vegetation and fisher and owl habitat areas (see comments on at-risk species for more detail). This in no way will support ecological integrity of the landscape and will degrade habitat further by limiting key features and habitat attributes (Proposed Directives 190.12 Ch. 20, section 23.11c) We suggest that to integrate ideas between resources and focus areas the forest wide standards be tiered into vegetation types as described within each zone (i.e., Sierra National Forest has foothill, mixed conifer, and upper montane vegetation types within the Community and General Wildfire Protection Zones) and specific standards on how to meet the desired conditions for fire management be discussed.

The snag standard in both protection zones does not support habitat requirements and the need for snags outlined in the vegetation types or within the at risk species sections. Since there is high level of overlap within these zones standards should be developed to replace habitat structure lost from mechanical treatments and suppression efforts. Removal of snag patches should be thoughtful and snags should be replaced in areas where risk to public and firefighter safety is less critical for fire management.

Both standards for treatment in these zones are discussed at 97th percentile weather conditions. There is no information provided to explain why this extreme change from 90th percentile weather conditions in the existing plans to extremely aggressive 97th percentile weather (and a doubling of the wind speed) in the PA. We also do not see information provided in the science synthesis, bioregional assessments and forest assessments that point to a need to change the target weather conditions that drive fuel treatments or any recommendation that these parameters should be changed. Please provide a complete analysis and discussion to support this change and explain how this change is necessary to meet the purpose and need.

These zones should consider a range of acceptable conditions that can be reached from 90th percentile weather conditions (especially in areas that are critical for at risk species) to 97th percentile weather conditions. Examples of areas that 97th percentile weather conditions may be appropriate include managing strategic ridgelines that are adjacent to communities and critical infrastructure, areas in close proximity to structures (e.g., within 100 ft – California Public Resource Code 4291 requirements), and along heavily used roads (class 2 and above). In other areas, higher consideration for wildlife habitat needs should be designed to meet 90th percentile weather conditions as outlined in the 2004 Framework Standards and Guidelines (USDA Forest Service 2004).

4. Guidelines

Based on the definitions in the 2012 planning rule, there are several guidelines that better fit a standard definition. Guidelines 3-6 (p. 46) are all guidelines that we suggest be placed into the standards category. Guideline 3 on tribal importance areas and the need for consultation during fire management operations is critical because there have been several instances where tribal resources have been damaged due to dozer line construction, e.g., Aspen Fire on Sierra National Forest. Forest Service personnel should be required to consult with tribal leadership on areas of importance to limit degradation. Standards on fuels treatment locations and identification of high priority watershed are required plan components (36 CFR 219.7 (f)(i)) and should have more clear measureable outcomes that can be used to monitor progress toward desired conditions.

Also, in Guideline 3 we support the emphasis on pre-burn activities to protect large trees that may have significant fuels accumulations from missed fire return intervals. This Guidance should include reference to the recent general technical report on mitigating old tree mortality in fire dependent forests (Hood 2010).

We also request addition of a Standard that is tied to the pre-burn guidance for protection of large trees in prescribed or managed fire actions requiring that no large fire-killed trees resulting from these management activities be salvage logged or removed.

Additionally, the 2012 Planning Rule outlines the need to identify watershed(s) that are priority for maintenance or restoration (36 CFR 219.7 (f)(i)). In addition to guidelines 4-6 being more appropriate as standards, they also all are statements that will help to identify priority watersheds for maintenance or restoration.

It is not clear how Guideline 7 would be considered within the GWP zone. The standard for GWP currently is driven by defining treatments based on fire behavior outcomes at 97th percentile fire weather conditions, and there would be very limited if any inclusion of the concepts described in GTR 220 and GTR 237.

5. Other comments

We suggest that the term “wildland fire” be clearly defined. Presently, it is unclear to us if this term refers to both prescribed fire and wildfires. We recommend using “managed fire” to describe both prescribed fires and wildfires managed for resource benefit.

We would like to see more support identified in plan components for homeowners and community associations who take responsibility for home and property safety through collaboration with the Forest Service, Fire Safe Councils and programs such as Firewise and Fire adapted communities. We believe that substantial fire clearing around homes and fire-adapted community planning can increase the likelihood of structures surviving wildfire. Positive community actions, as described above, can foster more managed fire use near communities and lessen the impacts to at-risk species and other resources in the community and general wildfire protection zones.

As noted earlier in these comments, we ask that the management of unplanned human ignitions be a priority consideration during the revision of the forest plans. We ask that the following plan components be incorporated into the PA and alternatives:

Desired Condition

1. Fire preventions programs are focused on reduction in accidental and intentionally human caused ignitions.

Strategies

1. Partner with adjacent land management agencies and local fire safe councils to increase effectiveness of prevention programs. Consider using a volunteer based program that helps increase patrols for high recreational areas and areas that are at high risk of human ignitions. Patrolling should include areas of high visitor use, large group camp through special use permits, recreational camping sites, OHV areas.

Standards

1. Risk assessments for human-caused ignitions are performed on an annual basis to assess areas that are highest risk to human-caused ignitions and are modeled to be in areas that will support large, long duration fire events. Risk assessments focus on high-use recreation areas for visitors, special use permits, and high OHV areas.

2. During extreme fire weather conditions (i.e. red flag warning days, Foehn wind events, continuous drought years, etc.) increase law enforcement patrols on the forest to assist in prevention efforts.

3. Limited operational periods for contractors during extreme fire danger days and requirements to have a dedicated crew person attending to fire patrol with water and fire extinguishers on site while operating.

Guidelines

1. During extreme weather conditions (i.e. red flag warning days, Foehn wind events, continuous drought years, etc.) consider temporary closures for OHV areas, certain special

use permits for large groups, and/or other highly used recreational campsite locations based on risk assessment and predicted large, long duration fire events.

2. Coordination with local and state agencies for an updated fire prevention program that coordinates efforts across jurisdictions and supports a unified message. Target audience should include local residents and out of area forest users.

G. Air

Outlined in the NOI (p. 3) is the need for plans to include direction that analyzes smoke tradeoffs to communities from prescribed fire or wildland fire (resource benefit fire) and uncontrolled wildfires. We consider this a huge need and information gap that will help inform plans on how to successfully mitigate undesired health consequences from large smoke episodes related to uncontrolled wildfires. The level of detail and attention that is required in the forest plans suggests that more detailed standards and guidelines be developed to include smoke trade off analysis in project planning. We support the incorporation of this analysis and think it requires more direct standards to help facilitate measureable outcomes.

We ask that you address the basic conflict of utilizing the NRV for various vegetation types while at the same time relying on outdated concepts such as a "pristine air shed" for the Sierra Nevada. Recent research clearly demonstrates that pre-settlement fire regimes produced significantly more fire (and smoke) on the landscape used to characterize natural ranges of variation for vegetation in the Sierra Nevada (Stephens et al. 2007). This condition should be reflected in the establishment of desired conditions for air quality.

H. Aquatic/Riparian Ecosystems and Streams

We believe that the desired conditions for aquatic and riparian ecosystems appropriately focus on ecosystem function, composition and structure. As we noted for terrestrial systems above, we ask that the at-risk species associated with this ecosystem type be referenced and addressed in this section of the plan. Identifying and relating the dependent species that are at-risk will strengthen the link between the quality and quantity of the habitat and the life requirements for the dependent at-risk species. This linkage will facilitate the required viability evaluations and support the development of plan components that will ensure that species needs are met. The purpose and need identified the importance of developing plan components that are integrated across resources, so it is highly surprising to us that the life requirements of specific at-risk species are not integrated into the plan components that are presented.

We believe strategies 1-6 are inappropriately classified as strategies. We agree that the intent embodied in these statements is important to maintaining the health of these ecosystems and should be included as plan components. Because of their value, we ask that the statements be revised and included as standards or guidelines. In particular, the following should be included as standards or guidelines:

- Maintain and restore the hydrologic and ecological connectivity of streams, meadows, wetlands and other special aquatic features by identifying roads and trails that intercept,

divert or disrupt natural surface and subsurface water flow paths. Implement corrective actions where necessary to restore ecological connectivity and aquatic organism passage.

- Use of mechanical treatment in riparian conservation areas and critical aquatic refuges may be considered, if the area is resilient to ground disturbance, as long as the treatment moves the area toward desired conditions, and water and soil quality can be adequately protected.

- Enhance hardwood tree and shrub cover, density and vigor through reduction of conifer density and use of patchy prescribed fire. Fire effects objectives should be determined in collaboration with ecologists, biologists and earth scientists.

- At either the landscape or project scale, determine if the age class, structural diversity, composition and cover of riparian vegetation are within the range of natural variability for the vegetative community. If conditions are outside the range of natural variability, consider implementing mitigation or restoration actions that will result in an upward trend. Actions could include restoration of aspen or other riparian vegetation where conifer encroachment is identified as a problem.

- Design prescribed fire treatments to minimize post fire erosion and water quality impacts. In determining which mitigation measures to adopt, weigh the potential harm of mitigation measures, for example fire lines, against the risks and benefits. Projects should recognize the role of fire in ecosystem function and identify those instances where fire suppression or fuel management actions could be damaging to habitat or long term function of the riparian community, and where restoring fire is beneficial. Use ignition patterns during prescribed burning to create a mosaic of fire in patches of varying intensities in the riparian areas. Evaluate if ignitions are needed in the riparian conservation area and whether soil and water resources protection can be achieved.

It appears that existing standards to protect the hydrological function of meadows have been proposed for removal from the forest plans. These standards have, to date, been instrumental to requiring that actions not disrupt the hydrologic function of meadows. The lowering of the water table and drying is one of the most significant stressors on meadows. The plan needs proper monitoring and management of recreational resources, roads, trails, grazing allotments and other activities that are stressors on meadow systems and may be degrading hydrologic function.

It is unclear to us if the PA intends to eliminate the grazing management standards that currently exist in the forest plans for the Sequoia and Sierra national forests or to carry them forward. Regardless, we believe, as indicated in our comments on Yosemite toad, great gray owl, and willow flycatcher, that the current management direction for grazing does not provide for the life requirements for these meadow dependent species. Furthermore, strong guidance is needed to reverse the poor condition and decline trends meadow and riparian systems.

We object to the adoption of the Inyo National Forest Forest-wide Range Utilization Standards related to willows. These standards allow for removal of up to 40 percent of willow shrubs.

This is twice the threshold value currently allowed under the forest plan amendments of 2001 and 2004. A shift to this more aggressive standard will undermine further habitat attributes that are critical to the life requirements of willow flycatcher and the health of meadow ecosystems. As noted above, we don't believe that the current standards from 2004 provide for ecosystem integrity and the more permissive standards for the Inyo National Forest are even greater departure from what is required.

The forest plan revision process is an opportunity to evaluate and improve upon the aquatic refuge systems. We have mentioned previously in our comments the importance and need to identify high value watersheds and develop management approaches to those areas that ensure those values are sustained. Trout Unlimited completed an evaluation of watersheds for the three national forests. This analysis emphasized biodiversity and watershed integrity and developed a ranking system to characterize the condition of watersheds within the plan areas. We ask that you use this information to support the identification of additional areas to incorporate into the Critical Aquatic Refuge (CAR) system already in place on these forests. We have included the TU analysis in Appendix E of these comments.

I. Recreation

1. Winter motorized designations must comply with Executive Order on off-road vehicles 11989 as amended.

The Forest Service has a duty to minimize impacts to resources and other users when designating trails and areas for off-road vehicles, including snowmobiles.[23] The Executive Order's minimization requirement must be taken into account in a forest plan revision process, even when over-snow area and trail designations are ostensibly outside the scope of the planning process. This is because the proposed OSV rule (Use by Over-Snow Vehicles (Travel Management Rule), 79 Fed. Reg. 34678 (proposed June 18, 2014) (to be codified at 36 C.F.R. pts. 212 and 261)) allows units to designate extremely large open areas for OSV use, and there is the high potential that management areas designated under a forest plan revision process could conceivably substitute for winter planning. Given this uncertainty in the OSV rule, we are requesting that the agency demonstrate application of the minimization criteria when making management area allocations for OSVs in forest planning. (*See also* Wildlands CPR v. Forest Service, CV 10-104 (D. Mont. 2012) applying Executive Order minimization criteria to area designations for over-snow vehicles that were made during forest plan process).

2. ROS designations should be made proactively and should be enforceable.

[23] Section 3 of Executive Order 11644 as amended by Executive Order 11989 requires that the designation of off-road trails and areas be in accordance with the following:

(1) Areas and trails shall be located to minimize damage to soil, watershed, vegetation, or other resources of the public lands.

(2) Areas and trails shall be located to minimize harassment of wildlife or significant disruption of wildlife habitats.

(3) Areas and trails shall be located to minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors…

The Forest Service should establish recreational settings using ROS categories that are based on the recreational niche statement, physiography, and other factors, and that in aggregate add up to a system of recreational zones. ROS categories should not result by default after timber, grazing and other extractive designations have been made. Instead, the Forest Service needs to prescribe ROS zones based on what makes sense to ensure a quality recreation system for the visiting public in both winter[24] and summer. Moreover, the Forest Service must make the ROS settings enforceable by establishing a standard to that effect.

3. Adopt a winter time "closed unless marked open" policy.

Given that the draft OSV rule did not propose establishing a consistent approach to whether forests should be "closed unless marked open" or "open unless marked closed," the Forest Service should adopt a "closed unless marked open" approach for winter time motorized recreation in the revised land management plans. The approach makes sense for a number of reasons. First, having inconsistent approaches within and between the forests will create confusion between neighboring districts and neighboring forests. Snowmobile management decisions can be made at the district or smaller level which could lead to some districts adopting a closed unless marked open policy and others adopting the opposite approach.

Second, we have learned from our experience in managing summertime motorized use that a "closed unless marked open" approach is the only practical approach. For years, summertime motorized recreation was managed with an inconsistent ad hoc approach that led to confusion and difficulties in enforcing designations – so much so that the 2005 summer time travel management rule (36 cfr 212 subpart B) adopted a national "closed unless marked on a map" approach. Experience has clearly shown that it is not possible to maintain signs everywhere saying whether a motorized user could access or not access, and that without a consistent approach users simply cannot know whether an area is "open unless marked closed" or "closed unless marked open". Also, the "open unless marked closed" policy may create an incentive for irresponsible motorized users to remove closure and boundary signs. When the management scheme places the burden on the land manager to maintain signs and barriers that indicate where closure boundaries exist, enforcement fails and the natural resources, wildlife, and other forest users face the consequences.

Lastly, closed unless marked open is more consistent with the intent of the Executive Orders 1989 and 11644 by requiring that, before motorized use is allowed, the Forest Service must show that impacts to resources have been minimized. Hence, the only tenable approach is to clearly establish that winter motorized travel is allowed only in those places where the Forest Service has specifically verified that wildlife, such wolverine, and other forest resources such as water, air, and forest soundscapes, will not suffer.

4. Mechanized travel off designated routes

[24] The Forest Service has summer ROS settings defined in a technical guide but as far as we know does not have winter ROS settings defined in a consistent way. Nevertheless, it is important in this planning process that the Forest Service identify an appropriate spectrum of winter recreational settings, and allocate them across the forest in a way that will provide quality winter time recreation.

Bicycle riding is a great way to visit and enjoy National Forests. However, just like any recreational use, it is important that it is managed sustainably. To that end, we recommend that the Forest Service require mountain bikes to stay on a designated system. For the same reasons it makes sense to disallow motorized vehicle use off a designated system – namely that trails should not be created by users without the benefit of environmental and public review, and that off-trail riding can lead to the creation of unauthorized trails and resource damage –it makes sense to require that mountain bikes stay on a designated system of roads, trails, and areas. The White River National Forest adopted this position in its recent travel management plan decision.[25]

5. Mechanized use should not be allowed in recommended Wilderness areas.

The standard in Forest Service policy for managing recommended Wilderness is as follows:

> Any inventoried roadless area recommended for wilderness or designated wilderness study is not available for any use or activity that may reduce the wilderness potential of the area. Activities currently permitted may continue pending designation, if the activities do not compromise the wilderness values of the area.[26]

Hence, the Forest Service has the discretion to allow mechanized and motorized use in recommended Wilderness. However, it is our experience that allowing incompatible uses in recommended wilderness areas can lead to a reduction in Wilderness potential because the use becomes accepted and expected in these areas, which can lead to a lower likelihood of designation. In a recent report, the Idaho Conservation League examined the effects of allowing incompatible modes of access in recommended wilderness areas and concluded that allowing incompatible uses in certain circumstances can lead to a diminishment in Wilderness potential.[27]

In order that the Forest Service not adopt management schemes that may reduce the Wilderness potential of recommended Wilderness areas, we recommend that the Forest Service disallow mechanized and motorized use in these areas.

Recommendations: Ensure that winter off-road vehicle designations made in the final LRMP comply with Executive Order 11644 as amended by Executive Order 11989. Establish enforceable ROS prescriptions for summer and winter, and adopt a closed unless marked open policy for motorized use. Require that bicycles, like motorized vehicles, stay on designated routes. Do not allow mechanized or motorized use in areas recommended for Wilderness designation.

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[25] See Page 16 of White River National Forest Travel Management Record of Decision at http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nepa/1118_FSPLT2_048796.pdf. "During the summer season all motorized and mechanized travel is restricted to routes designated for each particular use type—full-sized vehicles, all-terrain vehicles, motorcycles, mountain bikes, and all other mechanized vehicles used for human transport. Other designations include pack and saddle, and foot."

[26] FSM 1923.03

[27] Idaho Conservation League. *In Need of Protection: How Off-Road Vehicles and Snowmobiles Are Threatening the Forest Service's Recommended Wilderness Areas.* 2011.

J. Wilderness

The following are comments and recommendations that should be incorporated into the ongoing evaluation of areas that are suitable and should be recommended for wilderness designations in the forest plans.

Roadless areas provide many important ecological and social values. Chapter 3, pages 3-7 of the *Roadless Area Conservation FEIS* (RACR FEIS) offers an excellent summary of these values:

- Clean water for domestic, agricultural, and industrial uses, that helps to maintain abundant and healthy fish and wildlife populations, and that provides the basis for many forms of outdoor recreation;
- Undisturbed or less disturbed habitat that conserves native biodiversity by providing areas where nonnative invasive species are rare, uncommon, or absent;
- Habitat for threatened, endangered, proposed, candidate, and sensitive species and for those species dependent on large, undisturbed areas of land;
- Opportunities for people to enjoy high-quality non-motorized recreation activities, including hiking, camping, mountain biking, picnicking, wildlife viewing, hunting, fishing, cross-country skiing, swimming and whitewater boating;
- "Reference landscapes" that can provide comparison areas for scientists seeking to evaluate and monitor the differences between natural settings and more intensely managed areas;
- High quality scenery that contributes directly to local tourism and to real estate values in neighboring communities; and
- Many important Native American cultural sites and valuable historical resources.

The Wilderness Evaluation map issued by the SNF, SQNF and INF at http://my.usgs.gov/ppgis/studio/launch/16850 is largely accurate. The map captures most of the roadless areas in the three forests, both inventoried roadless areas and other roadless lands identified by the public. In fact, the map is the best wilderness evaluation map we have ever seen issued by any national forest during a forest plan revision process. On September 16, 2014 while attending a celebration of the 50th anniversary of the Wilderness Act at the Smithsonian National Museum of Natural History in Washington, DC, we were pleased to tell Chief Tidwell how much we appreciated the relative accuracy of the Wilderness Evaluation map, and that we hoped that it boded well for the treatment of roadless areas by the early adopter forests.

However, there are some roadless lands that are portrayed as completely roaded on the map, when in fact they are only crossed by a small number of routes. For example, the Woodpecker Inventoried Roadless Area (included in what we call the "Domeland Proposed Wilderness Additions," below) on the SQNF remains mostly roadless, yet it is shown in grey (see the northern portion of polygon 1394 on the Wilderness Evaluation map). Also, the Rincon Inventoried Roadless Area (included in what we call the "Golden Trout Proposed Wilderness Additions," below) on the SQNF remains mostly roadless, yet it is also shown in grey (see the eastern portion of polygon 1387 on the Wilderness Evaluation map). These errors should be corrected.

We hope that the relative thoroughness of the Wilderness Evaluation map will be matched by an equally thorough and fair wilderness evaluation process. According to the FSM, the determination of the significant resource issues shall be developed with public participation and, at a minimum, consider:

- The values of the area as wilderness.
- The values foregone and effects on management of adjacent lands as a consequence of wilderness designation.
- Feasibility of management (FSH 1909.12, sec. 72.1) as wilderness, in respect to size, nonconforming use, land ownership patterns, and existing contractual agreements or statutory rights.
- Proximity to other designated wilderness and relative contribution to the National Wilderness Preservation System.
- The anticipated long-term changes in plant and animal species diversity, including the diversity of natural plant and animal communities of the plan area and the effects of such changes on the values for which wilderness areas were created.

The following narratives offer our own wilderness evaluation for the roadless areas in the SNF. SQF, and INF.

1. Evaluations and Recommendations for the SQF and SNF

Please note that we do not discuss the size or naturalness of the areas described below. The reason for this is that these areas were mapped by the California Wilderness Coalition (CWC) between 1998-2001 and again between 2010-2012. The CWC's survey methods included the preliminary identification of potential roadless areas using USFS maps (both hardcopy and GIS) and high-resolution aerial photographs. These potential boundaries were verified in the field by a contractor who drove or walked all of the boundaries to the maximum extent possible. In its aerial photograph analysis and other research and field surveys, CWC sought to exclude the following from the roadless areas shown on the maps below:

- All legally-open roads and motorized trails (using maps available at the time, which may be outdated at present)
- Areas that were excessively marred by illegal vehicle use
- Heavily-logged areas
- Obvious plantations
- Heavily-developed private land
- Campgrounds
- Reservoirs (not including a few small stock ponds)
- Areas covered by extensive type-conversions
- Maintained fuelbreaks sometimes described as "shaded fuelbreaks" or defensible fuel profile zones (this does not include mere bulldozer lines constructed during fires)
- Helispots
- Drafting sources

- Communication sites
- Heavily mined areas
- Utility corridors

Despite this, please note that some of the wilderness-eligible areas we surveyed include:

- A small amount of forest that may have been logged. Our intention was to exclude all heavily-logged areas and obvious plantations but it is quite possible that a few areas were overlooked. In our experience, USFS records of the locations, extent and condition of plantations is often incomplete at best. Regardless, please note that the National Wilderness Preservation System (NWPS) includes many areas that were either partially or completely logged, so the Wilderness Act does not require that an area be unlogged for it to be designated as wilderness.
- Minor historic mining disturbances. Major disturbances were excluded. Please note that old mines and other signs of mineral development exist throughout the NWPS, so we left some minor disturbances inside of our wilderness-eligible areas.
- Roads and motorized trails that are no longer legally open to the public. For the most part these routes are recovering because they are rarely or never used. However, some of them continue to experience a certain degree of unauthorized use.
- Developments associated with grazing allotments. These features exist throughout the NWPS, so they were not excluded.
- Bulldozer lines constructed during fires. Since bulldozers are allowed in designated wilderness during fires and because there are ridges scarred by these machines throughout the NWPS, we did not exclude all of these lines.

All of the areas discussed below therefore meet at least the minimum level of apparent naturalness and the minimum size criteria described in the Wilderness Act of 1964.

Ansel Adams Proposed Wilderness Additions, San Joaquin unit

Wilderness evaluation polygon number(s): 819, 821 (eastern portion only) and 822.
Social and ecological values: The Ansel Adams Proposed Wilderness Additions, San Joaquin unit is in three pieces. All three units are adjacent to the Ansel Adams Wilderness. Ancient forests and meadows characterize this classic Sierra mid-elevation wild land. Large granite boulders and domes dapple the area, and deep, cold creeks flow from here into the San Joaquin River. According to the California Department of Fish and Wildlife's (CDFW) Natural Diversity Database (NDD), the following species of interest have been either been recorded or have suitable habitat in the region: American pine marten, American peregrine falcon, bald eagle, California condor, California spotted owl, California wolverine, Congdon's sedge, fisher, Fresno County bird's-beak, great gray owl, northern goshawk, osprey, sharp-shinned hawk, short-leaved hulsea, Sierra Madre yellow-legged frog, Sierra Nevada red fox, three-ranked hump moss, willow flycatcher, Yosemite ivesia and Yosemite toad. The roadless lands serve as a portal for the Ansel Adams Wilderness. Trails pass through the area to access the San Joaquin River, Cattle Mountain, Portuguese Flat, Cora Lakes, Jackass Lakes, Norris Lake, Timber Creek and Lillian Lake.

Special note: We request that the USFS examine the area's wilderness values and character not in isolation, but in light of the fact that it borders the existing Ansel Adams Wilderness.
Recommended management: We request that the USFS manage the area as a recommended wilderness, minus authorized motorized vehicle routes. The recommended wilderness would help to protect the existing wilderness from the impacts of human activities.

Bright Star Proposed Wilderness Additions

Wilderness evaluation polygon number(s): 1426
Social and ecological values: Four different bioregions come together in this region, including the Sierra Nevada, Transverse Range, Mojave Desert and the Central Valley. Plant and animal species are found living together here that mingle together nowhere else on Earth. The area offers unique opportunities to study rapid evolution and ecosystem development. Rare Piute and Bodfish cypress trees grow in the area. Both of these species have extremely limited ranges. The upper slopes of the wilderness area and the additions are dotted with piñon pine and juniper, while the lower slopes are brushy and broken by large granite outcroppings. Joshua trees dot the lowest slopes. The region offers an outstanding opportunity to protect the kind of diverse transitional habitat that will become increasingly important in an era of climate change. According to the CDFW's NDD, the following species of interest have been either been recorded or have suitable habitat in the region: adobe yampah, alkali mariposa-lily, American badger, Bacigalupi's yampah, Bendire's thrasher, Breedlove's buckwheat, California androsace, California spotted owl, coast horned lizard, Comstock's blue butterfly, Death Valley sandmat, fisher, foothill yellow-legged frog, fragile pentachaeta, golden eagle, grey-leaved violet, inland gilia, Kelso Creek monkeyflower, Kern Canyon clarkia, Kern Canyon slender salamander, Kern County evening-primrose, Kern County milk-vetch, Kern red-winged blackbird, Kern River evening-primrose, large-flowered nemacladus, limestone dudleya, lodgepole chipmunk, long-legged myotis, Mojave paintbrush, Mojave tarplant, Mount Pinos larkspur, northern goshawk, pallid bat, Palmer's mariposa-lily, Palmer's spineflower, Parish's checkerbloom, Piute cypress, Piute Mountains jewelflower, Piute Mountains navarretia, prairie falcon, rose-flowered larkspur, round-leaved filaree, San Bernardino aster, San Joaquin pocket mouse, Shevock's golden-aster, Sierra Nevada monkeyflower, Tehachapi monardella, Tehachapi Mountain silverspot butterfly, Townsend's big-eared bat, Tracy's eriastrum, Transverse Range phacelia, tricolored blackbird, unexpected larkspur, western pond turtle, white pygmy-poppy, willow flycatcher and yellow-eared pocket mouse.
Special note: We request that the USFS examine the area's wilderness values and character not in isolation, but in light of the fact that it borders the existing Bright Star Wilderness.
Recommended management: We request that the USFS manage the area as a recommended wilderness, minus authorized motorized vehicle routes. The area includes ecosystems and species that are not currently well-represented in the NWPS.

Cannell Proposed Wilderness

Wilderness evaluation polygon number(s): 1384
Social and ecological values: This wild area rises steeply up from the eastern banks of the Kern River. Its slopes are cloaked with chaparral, oak woodlands, grasslands, boulder fields and old-growth coniferous forests. The area is traversed by the Cannell National Recreation Trail, Rincon

Trail and the Salmon Falls Trail. According to the CDFW's NDD, the following species of interest have been either been recorded or have suitable habitat in the region: alkali mariposa-lily, American peregrine falcon, bald eagle, bluish spike-moss, calico monkeyflower, California condor, California spotted owl, Clokey's cryptantha, coast horned lizard, Cooper's hawk, crowned muilla, cut-leaf checkerbloom, Fairview slender salamander, few-flowered eriastrum, fisher, golden eagle, grey-leaved violet, Hoover's eriastrum, Kelso Creek monkeyflower, Kern Canyon clarkia, Kern ceanothus, Kern County evening-primrose, Kern Plateau salamander, Kern red-winged blackbird, Kern River evening-primrose, Kernville poppy, lark sparrow, Lawrence's goldfinch, Lewis' woodpecker, limestone dudleya, Mason's neststraw, Mojave tarplant, Mount Pinos sooty grouse, Nine Mile Canyon phacelia, northern goshawk, northern harrier, northern sagebrush lizard, Nuttall's woodpecker, Onyx Peak bedstraw, osprey, Pacific marten, pallid bat, Piute cypress, prairie falcon, prairie wedge grass, red-breasted sapsucker, redhead, relictual slender salamander, rose-flowered larkspur, rufous hummingbird, San Emigdio blue butterfly, San Joaquin kit fox, San Joaquin pocket mouse, sharp-shinned hawk, Shevock's copper moss, short-bracted bird's-beak, Sierra Nevada monkeyflower, Sierra Nevada mountain beaver, Sierra Nevada red fox, Sierra Nevada yellow-legged frog, slender clarkia, southern Sierra woolly sunflower, southwestern willow flycatcher, summer tanager, The Needles buckwheat, Townsend's big-eared bat, Tracy's eriastrum, Transverse Range phacelia, tricolored blackbird, Tulare grasshopper mouse, Virginia's warbler, western pond turtle, western yellow-billed cuckoo, white pygmy-poppy, wine-colored tufa moss, yellow warbler, yellow-breasted chat and yellow-headed blackbird.

Recommended management: We request that the USFS manage the area as a recommended wilderness, minus authorized motorized vehicle routes. The area includes ecosystems and species that are not currently well-represented in the NWPS.

Cats Head Mountain Roadless Area

Wilderness evaluation polygon number(s): 304

Social and ecological values: Cats Head is something that is quite rare in the Sierra Nevada: a low-elevation roadless area on public land. Most federal wild places are at mid to high-elevations because of the homesteading, logging, mining, and other development activities that removed low-elevation lands from the public domain. The roadless area ranges in elevation from 3,460 feet atop Cats Head Mountain to 1,124 feet near Sycamore Creek. The area's rugged slopes are covered with oak woodlands, grasslands and chaparral, with small groves of cedar and ponderosa pine in shaded pockets. Given its low-elevation and plentiful forage, the area is important winter deer habitat. Deep Creek dominates the central portion of the area, and despite its seasonal nature, pools of water can be found in the canyon year-round. According to the CDFW's NDD, the following species of interest have been either been recorded or have suitable habitat in the region: bald eagle, California condor, California spotted owl, Cooper's hawk, Farnsworth's jewel-flower, fisher, Fresno ceanothus, great gray owl, northern goshawk, osprey, prairie falcon, sharp-shinned hawk, streambank spring beauty, thread-leaved beakseed, western mastiff bat and western pond turtle. The roadless area contains the popular Deep Creek Trail and Bobs Flat Trail. Unlike many of the SNF's trails, these routes remain open when other trails are covered in snow.

Recommended management: We request that the SNF manage the roadless area under a semi-primitive non-motorized (SPNM) recreational opportunity spectrum (ROS) class in order to

maintain its roadless character, important low-elevation habitat and non-motorized recreation opportunities.

Chico Proposed Wilderness

Wilderness evaluation polygon number(s): 1408
Social and ecological values: The wild area encompasses the slopes rising steeply up from the western bank of the North Fork Kern River. Three plant species live here and nowhere else on Earth. Huge boulders, steep cliffs, grasslands, oak groves, chaparral and other habitats create a habitat mosaic in the area. Visitors to the area are greeted with expansive views of the Kern Plateau. The Kern is one of the most popular fishing and whitewater boating streams in the United States. According to the CDFW's NDD, the following species of interest have been either been recorded or have suitable habitat in the region: alkali mariposa-lily, American peregrine falcon, bald eagle, bluish spike-moss, Bolander's bruchia, California condor, California spotted owl, California wolverine, Call's angelica, coast horned lizard, cut-leaf checkerbloom, delicate bluecup, Fairview slender salamander, few-flowered eriastrum, fisher, Fresno ceanothus, golden eagle, Greenhorn fritillary, grey-leaved violet, Kern Canyon clarkia, Kern ceanothus, Kern Plateau salamander, Kernville poppy, Lawrence's goldfinch, Lewis' woodpecker, limestone dudleya, lodgepole chipmunk, marsh claytonia, Mojave phacelia, Mojave tarplant, Mount Pinos sooty grouse, Muir's tarplant, Nine Mile Canyon phacelia, northern goshawk, northern sagebrush lizard, osprey, Pacific marten, pine fritillary, Piute cypress, prairie falcon, prairie wedge grass, red-breasted sapsucker, relictual slender salamander, rose-flowered larkspur, San Joaquin kit fox, sharp-shinned hawk, Shevock's copper moss, Shirley Meadows star tulip, short-bracted bird's-beak, Sierra Nevada monkeyflower, Sierra Nevada mountain beaver, Sierra Nevada red fox, Sierra Nevada yellow-legged frog, southern Sierra woolly sunflower, southern mountain yellow-legged frog, The Needles buckwheat, Townsend's big-eared bat, Tracy's eriastrum, Transverse Range phacelia, unexpected larkspur, western pond turtle, white pygmy-poppy and wine-colored tufa moss.
Recommended management: We request that the USFS manage the area as a recommended wilderness, minus authorized motorized vehicle routes. The area includes ecosystems and species that are not currently well-represented in the NWPS.

Devils Gulch Proposed Wilderness

Wilderness evaluation polygon number(s): 772
Social and ecological values: The roadless area is composed of steep slopes rising up from the banks of the Wild and Scenic South Fork Merced River from 1,398 feet to 6,989 feet. The area borders Yosemite National Park on the east. The roadless area is both a rare and extremely valuable priority for conservation because it is one of the lowest-elevation wild places in the southern Sierra where most protected landscapes are sub-alpine or alpine and most low to mid-elevation areas have been mined, logged, developed or roaded. The Bishop Creek drainage in the roadless area contains a particularly fine stand of old-growth ponderosa pine forest. According to the CDFW's NDD, the following species of interest have been either been recorded or have suitable habitat in the region: Bacigalupi's yampah, black swift, California spotted owl, coast horned lizard, Congdon's woolly sunflower, cut-leaved monkeyflower, fisher, flammulated owl, Fresno ceanothus, fringed myotis, great gray owl, Hall's daisy, hoary bat, Jepson's dodder, long-

legged myotis, mountain lady's-slipper, pallid bat, short-bracted bird's-beak, Sierra bolandra, Sierra clarkia, Sierra Madre yellow-legged frog, Sierra pygmy grasshopper, Sierra starwort, silver-haired bat, small bur-reed, spotted bat, thread-leaved beakseed, Tompkins' sedge, Vaux's swift, western mastiff bat, western pond turtle and Yuma myotis. The South Fork Trail follows the river and is very popular for its spectacular spring wildflower displays. The Merced is also popular among rafters, kayakers and swimmers.
Special note: We request that the USFS examine the area's wilderness values and character not in isolation, but in light of the fact that it borders Yosemite National Park.
Recommended management: We request that the USFS manage the area as a recommended wilderness, minus authorized vehicle routes and reasonable setbacks for nearby developed areas. The area's low-elevation habitat would increase the ecological diversity of the lands managed as wilderness in the SNF. Managing the area as recommended wilderness would also increase the recreational diversity of the wilderness experience available on the SNF by including an area that has trails that are accessible when the Sierra high country is blanketed by snow.

Dinkey Lakes Proposed Wilderness Additions

Wilderness evaluation polygon number(s): 539
Social and ecological values: The area contains dozens of lakes and meadows situated in glacier-carved bowls. Between these flow cold, gushing streams surrounded by forests of hardwoods and old-growth conifers. The roadless area serves as a habitat connection between the John Muir and Kaiser wilderness areas. Dinkey Creek is a V-shaped, deep whitewater stream with waterfalls and is a major tributary of the North Fork Kings River. Dinkey Dome and Marble Point and are both large, impressive edifices that rise above Dinkey Creek and one of its tributaries. According to the CDFW's NDD, the following species of interest have been either been recorded or have suitable habitat in the region: American marten, American peregrine falcon, bald eagle, California condor, California spotted owl, California wolverine, Cooper's hawk, fisher, Fresno County bird's-beak, great gray owl, gregarious slender salamander, Lahontan cutthroat trout, marsh claytonia, northern goshawk, osprey, Sierra Madre yellow-legged frog, Sierra Nevada red fox, three-ranked hump moss, Volcano Creek golden trout, western pond turtle, White-headed woodpecker, willow flycatcher and Yosemite toad. Trails in the area access Hatch Lake, Mystery Lake, Rockhouse Meadow, Weldons Camp, Big Creek, Beryl Lake, Tocher Lake and other features.
Special note: We request that the USFS examine the area's wilderness values and character not in isolation, but in light of the fact that it borders the existing Dinkey Lakes Wilderness.
Recommended management: We request that the USFS manage the area as a recommended wilderness, minus authorized vehicle routes. The area's lower-elevation habitat would complement the existing wilderness and further buffer it from the impacts of human activities.

Domeland Proposed Wilderness Additions

Wilderness evaluation polygon number(s): 1394
Social and ecological values: The area has astonishing botanical diversity, including red fir forest, foxtail pine, wet meadows, dry meadows, riparian habitat, chaparral and oak woodlands. The area also contains several species endemic to Sirretta Peak, which is the highest mountain on the Kern Plateau that makes up part of the Great Western Divide. The tributaries of Fish Creek

contain golden trout, and the roadless area includes one of only three spotted owl nesting sites in the Kern Plateau. The region also shelters a population of the fierce Pacific fisher. According to the CDFW's NDD, the following species of interest have been either been recorded or have suitable habitat in the region: alpine dusty maidens, American badger, Blandow's bog moss, California condor, California spotted owl, California wolverine, Cooper's hawk, cut-leaf checkerbloom, few-flowered eriastrum, field ivesia, fisher, golden eagle, Greenhorn fritillary, grey-leaved violet, hidden rockcress, Kern ceanothus, Kern Plateau salamander, limestone dudleya, Mojave tarplant, Muir's tarplant, northern goshawk, northern sagebrush lizard, Onyx Peak bedstraw, pinyon rockcress, sharp-shinned hawk, short-bracted bird's-beak, Sierra Nevada red fox, southern mountain yellow-legged frog, The Needles buckwheat, Transverse Range phacelia, Tulare County buckwheat, Tulare County rockcress, Twisselmann's nemacladus and Yosemite lewisia.

Special note: We request that the USFS examine the area's wilderness values and character not in isolation, but in light of the fact that it borders the existing Domeland Wilderness. The northern portion of the additions are shown as being roaded on the Wilderness Evaluation map. Only a small portion of the area is affected by open vehicle routes.

Recommended management: We request that the USFS manage the area as a recommended wilderness, minus authorized vehicle routes. The area's lower-elevation habitat would complement the existing wilderness and further buffer it from the impacts of human activities.

Golden Trout Proposed Wilderness Additions

Wilderness evaluation polygon number(s): 1387

Social and ecological values: This area is part of the largest complex of unroaded lands in the Sierra Nevada. It has great ecological diversity due to its wildness, size, and elevations ranging from 3,000 feet along the Kern River to almost 10,000 feet atop Lookout Mountain. Protecting this area would preserve a continuous uninterrupted transition of ecosystems from the drier brushy areas along the North Fork Kern River to the conifer forests of the Kern Plateau. Protecting such transition zones is especially important during a time of climate change. Durrwood Creek is an untouched watershed that contains golden trout. The stretch of the Kern within this area contains the Kern River rainbow trout. The proposed additions are also summer range for deer migrating from Sequoia-Kings Canyon National Park. The Kern is popular among whitewater boaters. According to the CDFW's NDD, the following species of interest have been either been recorded or have suitable habitat in the region: Abram's onion, American peregrine falcon, bald eagle, black-backed woodpecker, Blandow's bluish spike-moss, California spotted owl, California wolverine, clustered-flower cryptantha, Cooper's hawk, cut-leaf checkerbloom, Dedecker's clover, Fairview slender salamander, few-flowered eriastrum, fisher, foothill yellow-legged frog, golden eagle, Greenhorn fritillary, grey-leaved violet, Hall's daisy, hidden rockcress, Kern Canyon clarkia, Kern ceanothus, Kern County milk-vetch, Kern Plateau bird's-beak, Kern Plateau horkelia, Kern Plateau milk-vetch, Kern Plateau salamander, Kern River daisy, Lewis' woodpecker, limestone dudleya, Little Kern golden trout, Madera leptosiphon, marsh claytonia, marten, Mount Pinos sooty grouse, Nine Mile Canyon phacelia, northern goshawk, northern sagebrush lizard, osprey, prairie wedge grass, pygmy pussypaws, relictual slender salamander, San Joaquin kit fox, sharp-shinned hawk, Shevock's milk-vetch, Shevock's rockcress, short-bracted bird's-beak, Sierra marten, Sierra Nevada monkeyflower, Sierra Nevada red fox, Sierra Nevada yellow-legged frog, southern mountain yellow-legged frog, southern

Sierra woolly sunflower, spotted bat, The Needles buckwheat, Transverse Range phacelia, Tulare County rockcress, willow flycatcher, Wright's jeffueliobryum moss, and Yosemite lewisia.
Special note: We request that the USFS examine the area's wilderness values and character not in isolation, but in light of the fact that it borders the existing Golden Trout Wilderness. The area is shown as being roaded on the Wilderness Evaluation map. Only a small portion of the area is affected by open vehicle routes.
Recommended management: We request that the USFS manage the area as a recommended wilderness, minus authorized vehicle routes. The area's lower-elevation habitat would complement the existing wilderness and further buffer it from the impacts of human activities.

Graham Mountain Roadless Area

Wilderness evaluation polygon number(s): 586
Social and ecological values: The roadless area consists of the south-face of Graham Mountain and it is drained by Salter and Pines creeks. The area is characterized by wet meadows, chaparral, exposed granite outcrops, old-growth forests, oak thickets and chaparral. According to the CDFW's NDD, the following species of interest have been either been recorded or have suitable habitat in the region: bald eagle, California spotted owl, fisher, northern goshawk, osprey, sharp-shinned hawk, short-bracted bird's-beak, Sierra Nevada red fox, western pond turtle and Yosemite evening-primrose. While it has no official trails at this time, it could provide non-motorized recreation opportunities in the future for the communities and campgrounds around Bass Lake.
Recommended management: We request that the SNF manage the roadless area under a SPNM ROS class in order to maintain its roadless character, non-motorized recreation opportunities and valuable low-elevation habitat.

John Muir Proposed Wilderness Additions

Wilderness evaluation polygon number(s): 781, 795, 797 and 1378 (northern portion only).
Social and ecological values: These small roadless areas are adjacent to the John Muir Wilderness and are thus part of a vast network of wild lands that extends unbroken for hundreds of square miles. All three roadless areas are covered with meadows, streams and very rich old-growth forests that provide clean water and important habitat links to the wilderness and lands beyond. According to the CDFW's NDD, the following species of interest have been either been recorded or have suitable habitat in the region: American pine marten, American peregrine falcon, aquatic felt lichen, bald eagle, California condor, California spotted owl, California wolverine, cascades frog, Cooper's hawk, fisher, Fresno ceanothus, Fresno County bird's-beak, golden eagle, great gray owl, Howell's tauschia, Kings River slender salamander, Lahontan cutthroat trout, northern goshawk, osprey, prairie falcon, sharp-shinned hawk, Sierra Madre yellow-legged frog, Sierra Nevada red fox, streambank spring beauty, thread-leaved beakseed, three-ranked hump moss, Tulare County bleeding heart, western pond turtle, willow flycatcher and Yosemite toad. Trails to the Rancheria Creek drainage, Corbett Lake and Statham Meadow pass through the roadless areas.
Special note: We request that the USFS examine the area's wilderness values and character not in isolation, but in light of the fact that it borders the existing John Muir Wilderness.

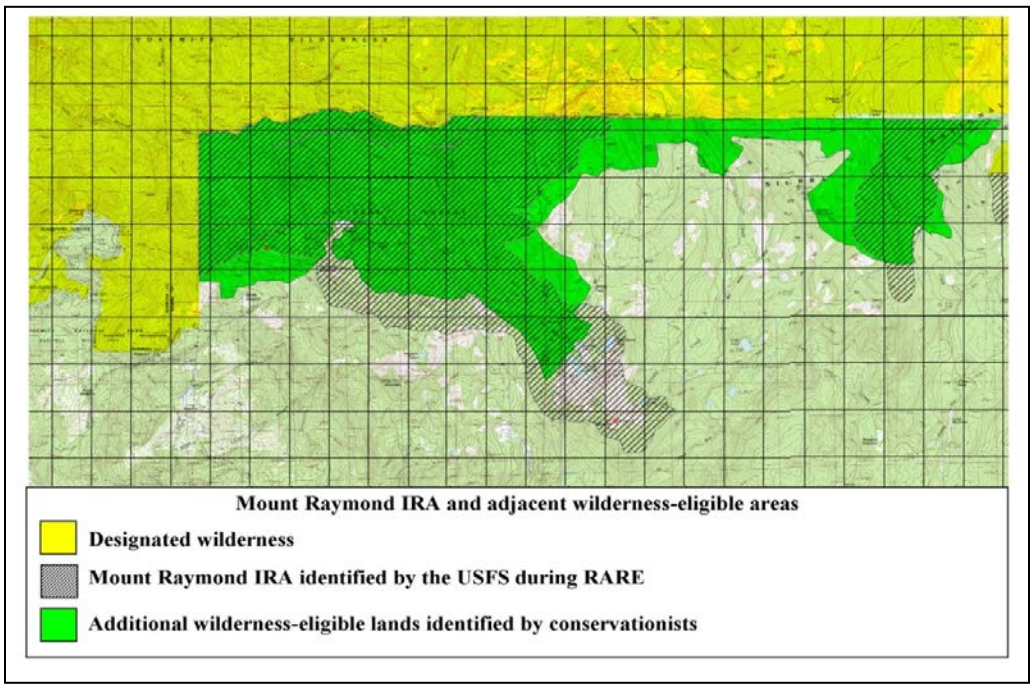
Recommended management: We request that the USFS manage the area as a recommended wilderness, minus authorized motorized vehicle routes. The recommended wilderness would help to protect the existing wilderness from the impacts of human activities.

Kaiser Proposed Wilderness Additions

Wilderness evaluation polygon number(s): 577
Social and ecological values: The roadless area is characterized by rich meadows, rushing streams and beautiful, classic Sierra old-growth mixed conifer forest. According to the CDFW's NDD, the following species of interest have been either been recorded or have suitable habitat in the region: American marten, American peregrine falcon, bald eagle, California condor, California spotted owl, California wolverine, common loon, cut-leaved monkeyflower, fisher, foothill yellow-legged frog, Fresno ceanothus, Fresno County bird's-beak, golden eagle, great gray owl, Mono Hot Springs evening-primrose, northern goshawk, northern goshawk, osprey, Rawson's flaming trumpet, sharp-shinned hawk, short-leaved hulsea, Sierra Nevada red fox, small-flowered monkeyflower, three-ranked hump moss, western pond turtle, willow flycatcher, Yosemite evening-primrose and Yosemite toad.
Special note: We request that the USFS examine the area's wilderness values and character not in isolation, but in light of the fact that it borders the existing Kaiser Wilderness.
Recommended management: We request that the USFS manage the area as a recommended wilderness. The recommended wilderness would help to protect the existing wilderness from the impacts of human activities.

Mount Raymond Proposed Wilderness

Wilderness evaluation polygon number(s): 821
Social and ecological values: This roadless area borders the Wild and Scenic South Fork Merced River and Yosemite National Park on the north. It contains several large lakes and meadows and rich old-growth forests of pine and fir. Six trails cross through the area and access Chiquito Lake, South Fork Merced River, Iron Creek, Dutchman Lake and other destinations both in the roadless area and Yosemite National Park. According to the CDFW's NDD, the following species of interest have been either been recorded or have suitable habitat in the region: alkali ivesia, American pine marten, bald eagle, California spotted owl, fisher, fringed myotis, great gray owl, hoary bat, long-eared myotis, long-legged myotis, mud sedge, northern goshawk, pallid bat, Sierra Madre yellow-legged frog, silver-haired bat, spotted bat, three-ranked hump moss, western mastiff bat, western red bat, Yosemite toad and Yuma myotis.
Special note: We request that the USFS examine the area's wilderness values and character not in isolation, but in light of the fact that it borders designated wilderness in Yosemite National Park.
Recommended management: We request that the USFS manage the area as a recommended wilderness, minus legally-open vehicle routes. The recommended wilderness would help to protect the existing Yosemite Wilderness from the impacts of human activities. However, polygon 821 as shown on the Wilderness Evaluation appears to indicate that several portions of the area are filled with vehicle routes. In contrast, our interpretation of what is and is not roaded is shown in green on the map below. We would like an opportunity to review with the USFS the information it used to show some of the areas in green below as roaded.



Oat Mountain Proposed Wilderness

Wilderness evaluation polygon number(s): 227.
Social and ecological values: Oat Mountain is one of the few low-elevation roadless areas on the western slope of the Sierra. It is characterized by oak woodlands (including blue oak woodlands, an ecosystem threatened by development and firewood cutting on private lands), grasslands and chaparral. Migrating deer find important winter habitat in the area. According to the CDFW's NDD, the following species of interest have been either been recorded or have suitable habitat in the region: American manna grass, American peregrine falcon, bald eagle, Berry's morning-glory, California spotted owl, Call's angelica, elongate copper moss, fisher, flammulated owl, foothill yellow-legged frog, golden eagle, great gray owl, Kaweah monkeyflower, Kings River buckwheat, limestone dudleya, Madera leptosiphon, osprey, Sierra Nevada red fox, southern Sierra woolly sunflower, streambank spring beauty, thread-leaved beakseed, Tompkins' sedge, Townsend's big-eared bat, valley elderberry longhorn beetle and western pond turtle.
Recommended management: We request that the USFS manage the area as a recommended wilderness. The area includes ecosystems and species that are not currently well-represented in the NWPS.

San Joaquin River Roadless Area

Wilderness evaluation polygon number(s): 819.
Social and ecological values: The San Joaquin River flows for seven miles through a deep gorge in the heart of this roadless area between Mammoth Pool and Dam Six. The area is characterized by plunging slopes, exposed granite formations, roaring side-streams, oak forest, patches of old-growth conifer forest and chaparral. According to the CDFW's NDD, the

following species of interest have been either been recorded or have suitable habitat in the region: American pine marten, American peregrine falcon, bald eagle, California condor, California spotted owl, California wolverine, common loon, cut-leaved monkeyflower, fisher, foothill yellow-legged frog, Fresno ceanothus, Fresno County bird's-beak, golden eagle, great gray owl, Mono Hot Springs evening-primrose, northern goshawk, osprey, Rawson's flaming trumpet, sharp-shinned hawk, short-leaved hulsea, Sierra Nevada red fox, small-flowered monkeyflower, three-ranked hump moss, western pond turtle, willow flycatcher, Yosemite evening-primrose and Yosemite toad. The French Trail passes through much of the area from north to south on the steep western side of the San Joaquin River. The path is known for its wonderful spring wildflower displays. The area's conservation value is greatly enhanced by its relatively low-elevation.

Recommended management: We request that the SNF manage the roadless area under a SPNM ROS class in order to maintain its roadless character, non-motorized recreation opportunities and valuable low-elevation habitat.

Shuteye Proposed Wilderness

Wilderness evaluation polygon number(s): 646.

Social and ecological values: This extremely scenic and ecologically-diverse area is characterized by jumbled domes and shell-like rock formations with meadows, chaparral, old-growth forests and streams situated between them. The area also contains several ponds. According to the CDFW's NDD, the following species of interest have been either been recorded or have suitable habitat in the region: American pine marten, bald eagle, California spotted owl, cascades frog, fisher, Fresno ceanothus, golden eagle, great gray owl, northern goshawk, osprey, Rawson's flaming trumpet, sharp-shinned hawk, short-leaved hulsea, Sierra Madre yellow-legged frog, Sierra Nevada red fox, three-ranked hump moss, western pond turtle and Yosemite toad. Two trails cross the area from east to west.

Recommended management: We request that the USFS manage the area as a recommended wilderness, minus authorized motorized vehicle routes.

Soaproot Roadless Area

Wilderness evaluation polygon number(s): 357.

Social and ecological values: The Soaproot region is a rare resource: a low-elevation Sierra roadless area. It is characterized by chaparral, dry meadows, oak woodlands and patches of conifers along drainages. According to the CDFW's NDD, the following species of interest have been either been recorded or have suitable habitat in the region: gregarious slender salamander, foothill yellow-legged frog, Sierra Nevada yellow-legged frog, Coast Range newt, northern goshawk, sharp-shinned hawk, bald eagle, osprey, American peregrine falcon, great gray owl, California spotted owl, willow flycatcher, Sierra Nevada red fox, Sierra marten, fisher, long-legged myotis, Yuma myotis, western pond turtle, southern Sierra woolly sunflower, orange lupine, tree-anemone, marsh claytonia, Yosemite lewisia, Fresno County bird's-beak, slender-stalked monkeyflower, small-flowered monkeyflower, cut-leaved monkeyflower, Madera leptosiphon, Ewan's larkspur, Fresno ceanothus and Yosemite ivesia.

Recommended management: We request that the SNF manage the roadless area under a SPNM ROS class in order to maintain its roadless character, non-motorized recreation opportunities and valuable low-elevation habitat.

Sycamore Springs Proposed Wilderness

Wilderness evaluation polygon number(s): 315.
Social and ecological values: Dinkey Creek flows through this roadless area just two miles before the stream joins the North Fork Kings River. Numerous waterfalls exist on Dinkey and its tributaries in the area, followed by eroded, deep plunge-pools. The wild place includes some of the finest ancient forest on the western slope of the southern Sierra Nevada. Black Rock, Patterson Bluffs and Indian Rock are highly scenic granite features that rise from its chaparral, oak groves and ancient forests. According to the CDFW's NDD, the following species of interest have been either been recorded or have suitable habitat in the region: American pine marten, American peregrine falcon, aquatic felt lichen, bald eagle, California condor, California spotted owl, cascades frog, Cooper's hawk, fisher, Fresno ceanothus, Fresno County bird's-beak, golden eagle, great gray owl, Howell's tauschia, Kings River slender salamander, Lahontan cutthroat trout, northern goshawk, prairie falcon, sharp-shinned hawk, Sierra Nevada red fox, streambank spring beauty, thread-leaved beakseed, three-ranked hump moss, western pond turtle, willow flycatcher and Yosemite toad.
Recommended management: We request that the USFS manage the area as a recommended wilderness, minus authorized motorized vehicle routes. Existing wilderness areas in the Sierra Nevada tend to be located at high-elevations where world-class old-growth mixed-conifer forest does not exist. By managing the area as a recommended wilderness, the USFS could increase the ecological diversity of lands managed as wilderness in the SNF.

2. Evaluations and Recommendations for the INF

The following comments on for the INF are excerpted from comments developed by the Friends of the Inyo.

In the comments below, we adopt a naming convention to facilitate the identification of each area that was evaluated. We utilized the original Forest Service Inventoried Roadless Area (IRA) names (ALL CAPS) when commenting. The following comments were crafted utilizing the pdf maps available at the Regional Planning website (http://www.fs.usda.gov/detail/r5/landmanagement/planning/?cid=STELPRD3803608) downloaded on September 15th, 2014.

Values – mainly ecological and cultural values – for each specific area are described below. For each area, regardless of if a given area is recommended by the Forest for federal Wilderness designation, the values – such as diverse conifer assemblages, wildlife habitat, connectivity – described below must be sustainably managed by the Forest. Both the evaluation and final planning documents should detail for each area how areas specific values and resources will be sustained.

MOUNT OLSEN

Containing steep slopes of metamorphic ocean sediment along the northern wall of Lundy Canyon, the Mount Olsen area supports good forage and escape terrain for Endangered Sierra Nevada bighorn sheep. Sheep are often spotted here in winter where these south facing slopes melt off early. This polygon is contiguous with Hoover Wilderness on the west and the Hoover East Roadless Area on the north. The FS recommendation for inclusion in the evaluation is sound.

LOG CABIN-SADDLEBAG

Owing to much of it's land begin added to the Hoover Wilderness in the 2009 Omnibus Public Lands Bill, it is now broken into three remaining tag ends. Inclusion of the remaining western polygon (rising above the west shore of Mono Lake) and central polygon (west of Saddlebag Road) is sound. The central polygon contains a wild stretch of Upper Lee Vining Creek and supports abundant opportunities for diverse primitive recreation along with habitat for Yosemite Toads and Sierra Nevada Bighorn Sheep.

Recommended management: As recommendations for this area evolve, the Forest should ensure that existing facilities, such as Tioga Pass Resort, the Nunatak Trail and Sawmill Walk-in campground are excluded with minor boundary adjustments.

HORSE MEADOWS

While we are saddened to see northeastern blob of this IRA excluded (the piece that includes Wilson Butte) we acknowledge that this section is divided from the main body of the IRA by a system road. The Horse Meadows IRA includes the transitional slope from the floor of the Mono Basin to the mid-slope boundary of the Ansel Adams Wilderness. Lands in this polygon support with mature, mixed conifer forests in Gibbs, Bloody and especially Sawmill canyons. Extensive, old-growth mixed conifer forest of this transitional zone is currently poorly represented in Wilderness on the Inyo National Forest. This mixed conifer zone is also unique for it's diversity and inclusion of relatively rare conifer species in this zone of the Inyo National Forest – namely healthy limber pines in Bloody Canyon. We strongly support the Forest's acknowledgement of the roadless character of the Parker Bench area south of the previously identified IRA. This southern section of the IRA includes extensive aspen groves, old-growth lodgepole forests and numerous isolated riparian systems. Of note, an isolated population of Southern Alligator Lizards (historically documented and recently rediscovered) exists in aspen groves along the Parker Bench trail (Inyo NFST 2603). Minor boundary modifications to the currently polygon would create a very manageable, defined eastern boundary for the Ansel Adams Wilderness. In particular, the Forest should exclude the currently unauthorized route up Bohler Canyon to a point in the center of Section 6 (edge of Upper Bohler Meadow) as this route, while unauthorized is currently being used and may be added to back to Inyo road system in the near future. Also, Forest Route 01S24 running up Sawmill Canyon is a closed road that has been restored, this expanded Horse Meadows IRA polygon should be extended to include the small orange polygon shown between 1s24 and 1s23 to create a contiguous finger of roadless to the eastern forest boundary. Additionally, the southeastern boundary of the polygon should follow the trace of the

Parker Bench Trail from Rush Creek Trailhead up to Parker Bench to end of Parker Road 1s01 (Inyo NFST #2603 as southeastern boundary) with a 30' setback to the west; this trail is used by mountain bikes, as well Frontier Pack Station for commercial day rides. There are no known developments or other non-conforming features within this polygon, while the area definitely supports outstanding opportunities for exploration. Inclusion of Bloody Canyon west of the private lands of the Little Walker Lake Land Company, LLC would enhance protection for this scenic canyon that has supported the main route from Yosemite to the Mono Basin for hundreds, perhaps thousands, of years.

Recommended management: We support thoughtful evaluation of this polygon (with the adjustments described above), and believe this area should be recommended by the Forest for Wilderness protection.

EXCELSIOR

As visitors to this IRA know, the Excelsior IRA lives up to its name. An amazingly wild, untouched chunk of the western Great Basin, this IRA contains extensive pinyon-juniper woods, isolated ephemeral lakes, dune systems and locally limited but ecologically critical springs and associated riparian systems. When taken together with the contiguous IRAs on the Humboldt-Toiyabe National Forest east of the CA-NV line, this roadless complex contains over 200,000 acres of primeval public lands rich in Native American and settlement area history.

The Forest has potentially erred in its exclusion of many of the smaller polygons to the north and west of this large IRA. First the orange polygon on the northern tip is contiguous with the Excelsior East IRA to the east and should be included. Continuing south, the first polygon along the west is contiguous with the Excelsior Wilderness Study Area managed by the Bishop Field Office of the BLM. We cannot determine what justifies the excluded corridor cutting the southwestern corner of the southwestern most orange polygon.

The large orange polygon north of INF 01N13 is unjustifiably excluded from the Inventory. There are no known outstanding developments west of 1N43-1N113 and the eastern edge of this polygon to preclude inclusion within the evaluation. Additionally, this polygon contains unique dune systems, ephemeral lakes and is contiguous on the north with the large Huntoon IRA on the Humboldt-Toiyabe National Forest. Just east of the CA-NV border, the Inventory maps show an open polygon south of the mapped Huntoon IRA and the green INF boundary. This polygon is managed by the INF and is contiguous with the large orange polygon discussed above, as well as the Huntoon IRA. This empty hole should be filled with purple and included in the contiguous polygon to the south, west and east for the purposes of the evaluation.

Recommended management: The Excelsior area, especially when viewed at the landscape level with the adjacent IRAs in Nevada, present an excellent candidate for inclusion in the National Wilderness preservation system.

MONO CRATERS

The Forest's inclusion of the wild, roadless northern portion north of the existing IRA is welcome and sound. The Mono Craters, a north-west string of volcanic craters, form one of the most unique and striking landforms in the Inyo National Forest. The national youngest stand-alone mountain range, the Mono Craters house an isolated population of pika, surprising conifer diversity, unique plants and outstanding exploration potential.

DEXTER CANYON

The Dexter Canyon IRA is perhaps the most geographically varied and ecologically rich IRA on the north zone of the Inyo National Forest. A landscape of rough hewn granite knobs, rolling uplands, and flat volcanic mesas deeply incised with steep-walled canyons reminiscent of the desert southwest, Dexter is unlike anywhere on the Forest. The western potion supports old-growth lodgepole and Jeffrey pine forests dotted with sedge/rush-dominated meadows (Crooked Meadow, Dead Horse Meadow, Sagehen Meadow Sentinel Meadow, Johnny Meadow) while the northern and eastern portion are defined by open sagebrush plains, extensive snowbank aspen groves and narrow riparian aspen filled canyons. Within the Dexter IRA, free-flowing North Canyon Creek, Dexter Canyon Creek, Wild Cow Creek and Wet Canyon Creeks support locally-limited but ecologically critical riparian habitat. Goshawk, greater sage grouse, black-backed woodpeckers, willow flycatchers and nesting golden eagles join badgers, abundant mule deer, and brook trout as wild citizens of this area.

The Dexter Canyon IRA supports abundant upland snowbank aspen groves. Isolated from any surface water source, these groves are distinct from riparian aspen. Extensive groves exist on northeast facing slopes east of Sagehen Peak and Dead Horse Meadow, as well as the walls of upper Dexter Canyon east of Crooked Meadows.

As to the inventory polygons, the northwestern portion of the original Dexter IRA appears to be excluded due to a north-south corridor. We are unaware of any existing development or right of way that exists in this location to justify this exclusion. Similarly, the southwestern corner of the IRA is shown as excluded west of a constriction between FS routes 01N02 on west and 01S17 on the east. The longitudinal distance between these two system routes is larger than a ½ mile. This constriction contains a set of two, parallel 500' deep canyons supporting a unique mix of confers and flowing streams (Dexter and Wet Canyon creeks); this constriction does not rise to level of justifying excluding this southwestern potion of the polygon. From the bottom of these canyons, one would be hard pressed to describe the surrounding aspen groves and sheer volcanic walls as anything but wilderness. This southwestern orange blob, as the wildest and wettest portion of the Dexter Canyon Roadless Area, contains the Roadless Area's highest ecological value and outstanding opportunities for exploring an unexpected landscape unlike any other on the Inyo National Forest; it should be added back to the larger purple polygon for the purposes of this Wilderness evaluation.

Recommended management: We believe the Dexter Canyon area, with adjustments to exclude motorized system routes and INCLUDE the southwestern portion, presents a strong candidate for

inclusion in the National Wilderness Preservation System and should be recommended as such by the Forest Service.

Indiana Summit Sand Flat

Recommended management: While not considered for Wilderness, this roadless sand flat shown as an orange polygon located in Sections 1, 2, 11 and 12 southwest of FS road 1S05 should be considered for an RNA as it is the largest unroaded pumice flat in the Glass Mountains.

GLASS MOUNTAINS

Unique for the Eastern Sierra, the Glass Mountains IRA (expanded purple polygon running along east-west along the Glass Mountain ridgeline) form a transverse highland. Unlike most ranges in the Eastern Sierra, the Glass Mountains run east-west connecting the Sierra Nevada biogeographic province to the Great Basin. Inclusion of a portion of this large roadless landscape would fill a current Wilderness hole geographically, biologically and recreationally in the heart of the Inyo National Forest. At this polygon's core, the 2041 acre Sentinel Meadow RNA is already closed to motorized use and is surrounded by inaccessible, heavily forested sheer slopes to the north, south, east and west extending along the ridgeline around Bald Mountain to the Indiana Summit RNA. The current inventory map does not include motorized trails in this area. We support the current purple polygon and it's extensions with the note that minor boundary adjustments should be made to show FS motorized trails in the southern portion of this area. All polygons overlapping the original IRA should be evaluated as one complex for the purpose of this evaluation.

Recommended management: Of all the large, currently roadless, wild, non-wilderness landscapes on the Inyo National Forest, the varied ecological resources, cultural history and recreational diversity of the Glass Mountains beg for a special management under some designation, such as a National Conservation Area.

SAN JOAQUIN

While much of this Roadless Area was designated as the Owens River Headwaters Wilderness, the current inventory maps show red polygons along Minaret Summit at the southwest, as well as along Dry Creek at the southern boundary. Both of these red polygons should be excluded from evaluation. While ecologically viable as Wilderness, the Minaret Summit polygon is riddled with ongoing snowmobile traffic and the southern polygon is separated from the Wilderness by a popular designated bike trail – the Mountain View Trail. We also support the Forest's exclusion of the pink polygons along the northern boundary of the Wilderness.

However, the Forest should include (and make contiguous) the pink polygon bounded on the west by the eastern boundary of the Wilderness between Glass and Deadman Creeks. This pink polygon should be merged with the orange polygon to the northeast to create a contiguous red polygon from the Wilderness boundary on the west to 02S11 on the north and 02s23A/02S49 on the southeast to the powerline excluding the motorized routes. This contiguous polygon includes

old growth mixed conifer forest of Jeffrey pine, red fir, white fir, lodgepole pine and western white pine, as well as a unique pygmy grove of Jeffrey pine growing in poor pumice soils along 2S17.

WHITE MOUNTAINS

The remainders of this large IRA are shown on the current inventory map as three distinct complexes: 1) the purple polygons surrounding Boundary Peak and extending south to Leidy Creek, 2) the purple polygons at southwestern (north of Silver Canyon) and southeastern (north of Wyman Canyon) ends of the White Mountains RNA and 3) red and pink polygons south of White Mountain Peak and along the western Wilderness boundary. These will be discussed separately.

Boundary Peak polygons – Unlike the abrupt western escarpment of the White Mountains, the northeastern slope – east of Boundary Peak Wilderness and the CA-NV line – forms a gradual transitional zone from the alpine tundra along the crest down to through lodgepole, limber and bristlecone forest to mountain mahogany shrubland down sagebrush steppe out to saltbrush dominated lowlands. Evaluation of these polygons should consider that habitat does not recognize state boundaries. Protection of these transitional slopes would complete – from an ecological perspective – the conservation gains achieved through the designation of the existing White Mountain and Boundary Peak wilderness areas. We support the Forest's current purple polygon boundaries and encourage an evaluation of the areas east of Pinyon Mountain north to Queen Canyon as a single unit.

Southern Polygons – Just as the northeastern White Mountains Wilderness boundary follows an ecologically arbitrary stateline, the southern White Mountains Wilderness follows an equally arbitrary east-west county line. The large purple The purple polygon north of Silver Canyon should be redrawn to follow a more definable boundary – i.e. 75' north of the centerline of Silver Canyon Road (FS 6S02) east to the junction with the 'Old Silver Canyon Toll Road (FS trail #?) all the way to 75' east of the Ancient Bristlecone Pine Scenic Byway (6S01). This is basically the original IRA boundary. The current straight line exclusion along this polygon's southern boundary appears arbitrary and does not follow the Forest's own guidelines for crafting evaluation boundaries as discussed in FSH 1909.12 Chapter 70 72.5. This area contains stands of bristlecone pine and provides habitat for desert bighorn sheep.

The southeastern purple polygon west of the Forest boundary and north of Wyman Canyon similarly should have its southern boundary modified to follow 75" north of the center line of Wyman Canyon Road or the powerline (whichever is farther north). This polygon contains granite and volcanic highlands with riparian areas such as Dead Horse Meadow, Crooked Creek and Black Birch Canyon. This polygon should be bounded on the west by Dead Horse Meadow Rd (35E301) and separated from the Blanco Mountain Roadless Area to the west.

Central and Western Polygons – We strongly support the Forest's inclusion of the red polygon running along the western edge of 4S01 west to the current Wilderness boundary with the caveat that the red polygon be excluded from consideration north of the White Mountain Trailhead at

the boundary of Sections 32 and 33. This northern exclusion will ensure limited conflicts with the ongoing operations of the Barcroft laboratory. The southern portion includes the flanks of Paiute and Sheep mountains as well as the extensive alpine wetland complex between them.

We support the exclusion from review of the pink polygons in Montgomery Creek, Queen Dick, Pellsier to Birch Creeks, Jeffrey Mine Canyon, Milner Creek, and along the Moulas Mine Road (5S112). We also support the evaluation of the red polygon north of the Gunter Canyon Road as the current Wilderness boundary in this area could be modified to improve manageability.

Recommended management: We support recommending the southern portions of the White Mountain and Blanco Mountain IRAs between the current country line boundary south to Silver and Wyman Canyon Roads for Wilderness preservation.

BLANCO MOUNTAIN

As with the southern boundary of the Whites, the ecological continuity of the Blanco Mountain Roadless Area was severed by the east-west Inyo-Mono County line during the designation of the White Mountains Wilderness. Lands within the Blanco Mountain Roadless Area are currently included in the large purple polygon extending east from the Ancient Bristlecone Pine Scenic Byway to the eastern Forest Boundary. As discussed above, this polygon should be split in two by the Dead Horse Meadow Road (35E301); the western portion will then contain the Blanco Mountain Roadless Area. Blanco Mountain contains a scenically varied mix of granite hoodoos, open sagebrush steppe and limber-bristlecone forests. The western portion of this polygon also includes the congressionally-designated Ancient Bristlecone Pine Forest.

Recommended management: As discussed above, we encourage the Forest to recommend as Wilderness the remainder of the Blanco Mountain IRA south of the current county line Wilderness boundary.

BLACK CANYON

Located at the southwestern corner of the White Mountains, the Black Canyon Roadless Area contains abundant pinyon forests, scattered bristlecone and limber pines and unique riparian systems in Black Canyon Creek, Marble Canyon and Upper Redding Canyon. Owing to locally abundant water, the area houses many Native American cultural sites – from milling complexes to petroglyph panels. Marble Canyon is of particular interest as a deep, marble-walled canyon reminiscent of Death Valley canyons supporting a rich cottonwood-birch-cattail riparian corridor.

The current purple polygon should be modified to exclude the three main motorized trails through the area – Poleta to Black, Black Canyon to the spring and Black Canyon to the Bristlecone Road. Despite these exclusions this area should be evaluated for it's wild character as a complete complex made up of three units.

BIRCH CREEK

The ecological highpoint of the Birch Creek IRA is Birch Creek itself. A lush riparian corridor at the boundary of the Mojave and Great Basin deserts, Birch Creek's rich birch-cottonwood riparian forests host a recently discovered isolated population of Black Toad, a California Fully Protected Species. The Roadless Area also includes a portion of the Ancient Bristlecone Pine Forest, extensive pinyon-juniper forest and transitional desert habitat from saltbrush scrub up through sagebrush steppe.

The purple polygon should be slightly modified to exclude route 35E313 in the southwestern corner, but otherwise the boundaries are sound and defensible and contain no developments that could conflict with Wilderness designation.

Recommended management: To reiterate this area contains outstanding ecological values that deserve special protection; interim management should be put in place for this spectacular area to ensure these values persist.

SOLDIER CANYON

Straddling the low gap between the highlands of the White Mountains to the north and the Inyo Mountains to the south, the Soldier Canyon IRA presents a unique designation opportunity to conserve both an east-west corridor for species moving from the Mojave to the Sierra, but also a north-south bridge connecting the Whites and Inyos.

The current purple polygon should be modified to exclude designated motorized trails but evaluated for wilderness quality as a single unit including the red polygon in the southeastern corner contiguous with the Piper Mountains Wilderness. However, the red polygon should include the small pink polygon to the southeast.

Recommended management: Owing to this area's placement as a low bridge between the White and Inyo ranges and the Eureka-Deep Springs valley complex and the Owens Valley, some measure of site-specific management to protect this area should be put in place. One method to protect the ecological connectivity of this area is through a Zoological or Botanical Area designation.

PAIUTE & ANDREWS MOUNTAIN

The remainder of the Paiute IRA left out of the California Desert Protection Act of 1994 is shown as two distinct purple polygons on the current inventory map – the large polygon extending south from the Big Pine-Eureka Road to the Forest boundary and the northeastern most polygon bounded on the northeast by the Saline Valley Road. These two units are shown as connected to the Andrews Mountain IRA. These polygons contains an abundance of Native American cultural sites, as well as ecosystems ranging from sagebrush scrub up to pinyon-juniper woodland to bristlecone and limber pine forests. Geographically varied, ecologically rich and beautifully expansive, these polygons should be modified to exclude currently designated motorized routes but evaluated as a single unit along with the Andrews Mountain Roadless Area.

We support the inclusion of the red polygon surrounding the Bee and Willow Springs area with the note that route 36E401 and associated designated spurs be shown as a cherrystem. Cherrystemming this route does not affect the area's continuity with the existing Inyo Mountains Wilderness.

COYOTE NORTH & COYOTE SOUTHEAST

Taken together these two IRA's contain a unique alpine island removed from the Sierra crest. With alpine lakes, whitebark forests and expansive subalpine fell fields, the Coyote Plateau embodies the classic ideal of Wilderness. Currently numerous designated motorized routes divide the area. This evaluation should strongly evaluate the southern portions of the Coyote Southeast IRA (Green and Brown Lakes, the Hunchback east to Piper Peak) as contiguous with the existing John Muir Wilderness.

Recommended management: Like the Glass Mountains, the Coyote Plateau requires some form of special management to preserve its abundant ecological, cultural and recreational values.

SOUTH SIERRA

Encompassing the transition zone from the Mojave Desert up to the Sierra, the South Sierra IRA contains two polygons – one on the east containing the steep Sierra escarpment and one on the west facing the Kern River and containing Monache Meadow. The eastern polygon would benefit from excluding a wider buffer around the Sage Flat area at the Olancha Trailhead. With this larger exclusion, the area contains outstanding scenic variety, ecological diversity ranging from Joshua Tree-creosote bajada to alpine Sierra and lacks any known non-conforming structures. Boundary allowances should also be made around any developed private land in Long Canyon, as well as around developed facilities at the Kennedy Meadows Trailhead. This eastern polygon is contiguous with both the South Sierra Wilderness and the Sacatar Trail Wilderness.

The western polygon contains outstanding old growth forest along Kingfisher Ridge and outstanding scenic and recreational resources – all contiguous with the South Sierra and Golden Trout wilderness areas north of FS route 20S06.

Recommended management: We recommend this area – with the boundary changes discussed above – presents an outstanding and seemingly conflict free addition to the National Wilderness Preservation System.

K. Wild and Scenic Rivers

The following river specific comments and recommendations should be incorporated into the ongoing review and planning for WSRs identified in the PA (p. 59).

Lower Kern River – Sequoia Forest

The lower Kern River was identified in the Sequoia FA as eligible for WSR protection. The Sequoia FA fails to mention that the Bureau of Land Management (BLM) manages the upper 3.2 miles of the lower Kern River and that the BLM recommended this segment for Recreational River designation in the Bakersfield Proposed Resource Management Plan and Final Environmental Impact Statement (August 2012).

Recommendation: The Forest Service should consult with the BLM when it conducts its suitability study of the lower Kern to ensure that both agencies are in agreement on the specific outstandingly remarkable values and joint future management of the river.

North Fork and North Fork Middle Fork Tule River – Giant Sequoia National Monument

These segments were identified as eligible WSRs prior to the establishment of the Giant Sequoia National Monument (GSNM). Friends of the River raised the issue of completing suitability studies for these eligible segments in comments responding to the draft GSNM Management Plan in December 2010. Although we appreciate that their status as eligible WSRs is recognized in the Sequoia FA, we are concerned that suitability determinations will not be made for these streams because the GSNM is excluded from the Plan Revision.

Recommendation: The Forest Service should determine the suitability of these Tule River segments in the Plan Revision to fulfill the commitment made in the Sequoia appeal settlement agreement.

Kings River – Sierra and Sequoia Forests

We assume that since the WSR eligibility of the Kings River is documented in the Sequoia FA, this means that the Sequoia Forest will take the lead on determining suitability of this river, which forms the boundary between the Sequoia and Sierra Forests. The concurrent Sierra and Sequoia Plan Revisions using a single EIS provides the appropriate opportunity to complete the suitability study for this segment of the Kings and to make a recommendation to Congress for its protection.

Recommendation: The Forest Service should determine the suitability of the unprotected segments of the Kings River in the Plan Revision.

Dinkey Creek – Sierra Forest

Only rivers identified in the 1980 Nationwide Rivers Inventory (NRI) were studied for WSR protection in the 1992 Sierra Forest Plan. Dinkey Creek was not identified in the NRI, and therefore was not evaluated as a potential wild and scenic river in the 1991 Forest Plan.

In 1990, the Dinkey Alliance and Friends of the River produced its own assessment of the eligibility of Dinkey Creek. The Alliance determined that Dinkey Creek (from its source to its confluence with the North Fork Kings River) is free flowing and possesses outstandingly

remarkable scenic, recreational, cultural/historical, geological, botanical, fisheries, and wildlife values. An evaluation of Dinkey Creek conducted today would undoubtedly further validate the outstanding nature of these values and perhaps identify new ones.

Although the Sierra FA correctly notes that the Dinkey Alliance and Friends of the River submitted their own assessment of the eligibility of Dinkey Creek, there is no mention of whether the creek's eligibility will be confirmed and a suitability determination made in the Plan Revision.

An eligibility determination of Dinkey Creek should include up to date resource information in regard to outstandingly remarkable values, including the fact that Dinkey Creek flows through essential habitat for the Pacific fisher. In addition, lower Dinkey Creek has become a world-class destination for expert whitewater kayakers.

Recommendation: The Sierra Plan Revision provides the appropriate opportunity for the Forest Service to fulfill the appeal settlement agreement in regard to Dinkey Creek by confirming its eligibility and determining its suitability. The Forest Service should determine Dinkey Creek's eligibility and suitability in the Plan Revision.

Hot Creek and Rock Creek – Inyo Forest

After the Inyo Forest identified 19 eligible streams in 1993, the Bishop Field Office of the BLM identified as eligible segments of Rock Creek and Hot Creek directly downstream of the eligible segments identified by the Forest Service.

Recommendation: The Forest Service and the BLM should coordinate and complete joint suitability studies of all the eligible segments on Rock Creek and Hot Creek in the Plan Revision.

Mono Lake Tributaries – Inyo Forest

When the Inyo Forest identified 19 eligible stream segments in 1993, the court mandated restoration of flows in tributaries to Mono Lake had not yet been fully implemented. Restoration of flows in Lee Vining, Rush, and Parker Creeks warrants consideration of these segments for WSR eligibility and suitability in the Plan Revision. Restoration of flows and aquatic habitat in these stream segments certainly meets "the changed circumstances that warrant additional review" criteria in the 2012 Forest Rule. Similarly, a combination of FERC relicensing and water rights decisions have restored flows on lower Mill Creek and there may be new resource information available, so reconsideration of this stream is warranted as well.

Recommendation: The Plan Revision provides the appropriate opportunity to complete eligibility and suitability studies for these streams, which are vital to Mono Lake – a nationally recognized natural resource icon. The Forest Service should complete eligibility and suitability determinations for these streams in the Plan Revision.

Big Pine, Lone Pine, George, and Independence Creeks – Inyo Forest

Another changed circumstance that warrants additional review is the unfortunate disparate timing of the Forest Service and BLM eligibility assessments in the eastern Sierra. Because the Forest Service and BLM failed to coordinate their WSR study efforts, there are four instances where stream segments flowing on both National Forest and BLM lands are identified as eligible by one agency but not the other. Segments of Big Pine Creek and Lone Pine Creek were identified as eligible by the Forest Service, but downstream segments managed by the BLM were not. Similarly, segments of George and Independence Creeks were determined eligible by the BLM but upstream National Forest segments were not. It's reasonable to assume that the free flowing condition and outstanding values of these streams do not end at relatively arbitrary jurisdictional boundaries.

Recommendation: As part of the WSR study process in the Inyo Plan Revision, the Forest Service and BLM should consult and coordinate on joint eligibility and suitability determinations for these shared stream segments.

Deadman Creek – Inyo Forest

Congress designated the Owens River Headwaters Wild and Scenic River in 2009. The federally protected river includes segments of Glass and Deadman Creeks from their sources high on San Joaquin Ridge downstream to Big Springs and the Owens River.

The 1994 eligibility study conducted by the Forest Service identified only a short segment of Deadman Creek, between its confluence with Glass Creek and Big Springs, to possess outstandingly remarkable recreation value. According to the Forest Service analysis, segments of Deadman Creek upstream of the Glass Creek confluence lacked outstandingly remarkable values and were therefore ineligible for protection. However, Congress chose to protect all of Deadman Creek from its source on San Joaquin Ridge as part of the Owens River Headwaters Wild and Scenic River, which constitutes a de facto finding that the upper segments of Deadman Creek do indeed possess outstanding values.

As part of the development of the Inyo National Forest Plan Revision, the Forest Service has acknowledged the need to establish the protected river corridor for the Owens River Headwaters Wild and Scenic River and complete a Comprehensive River Management Plan (CRMP) for the river. One of the important functions of the CRMP is to identify and provide detailed information about the specific outstanding values of the river requiring protection under the Wild and Scenic Rivers Act.

Since the Forest Service's 1994 eligibility study, the agency and the public have grown increasingly aware of the unique wildlife-botanical-ecological values of the San Joaquin Ridge, which encompasses the upper watershed of Deadman Creek. It is critical that the specific outstanding values of the entire creek be formally recognized by the Forest Service if the agency is to meet its commitment under the Wild and Scenic Rivers Act to protect such values.

The outstanding remarkable values of upper Deadman Creek include:

- Recreation – An outstanding value shared with lower segments of the Owens River Headwaters, upper Deadman Creek offers two developed campgrounds, a group campground, plenty of opportunities for dispersed camping, and a trail, which provides outstanding opportunities for backpacking and hiking.

- Geological – Deadman Creek also shares identical geological values with Glass Creek. The unique geologic feature of White Wing Peak, a specific outstanding geological value of Glass Creek, forms the divide between Glass and upper Deadman Creeks. Assigning this outstanding geological value just to Glass Creek and not Deadman Creek is simply arbitrary (particularly when the streams are tributaries to each other).

- Wildlife –Yosemite toad, one of the specific outstanding wildlife values cited for Glass Creek is also found in upper Deadman Creek. In addition, the creek is a significant migration corridor for mule deer and provides important summer habitat and fawning areas. The ridge and creek also provide a trans-Sierran corridor for furbearers, including marten and possibly wolverine. The area may provide foraging habitat for the California spotted owl, which have been sighted just over the San Joaquin Ridge crest.

- Botanical-Ecological – Upper Deadman Creek encompasses a portion of the Forest Service-identified "largest Jeffrey pine forest in the world" as well as rare eastside stands of old growth red fir. The area also supports a highly diverse and rich understory of plant species representing seven floristic zones. The relatively low elevation of the Sierra crest at Deadman Pass (a.k.a. the Mammoth Gap) is an effective migration corridor for the post-volcanic disturbance colonization of flora from west to east. The area is also home to two rare plants, one of which may have originated in this area.

Recommendation: The Forest Service should identify outstandingly remarkable recreational, geological, wildlife, and botanical-ecological values for upper Deadman Creek as part of the Inyo Plan Revision and in preparation for a Comprehensive River Management Plan for the Owens River Headwaters Wild and Scenic River.

Dexter and Wet Canyons – Inyo Forest

Dexter and Wet Canyons were not included in the 1993 list of eligible streams. It is not known whether these ecologically unique streams were considered at all.

The relative wetness of Dexter and Wet Canyons in a distinctively dry area is due in part to the Pacific moisture plume that makes its way east over Deadman Pass in the Sierra crest to a unique part of the eastern Sierra transverse range formed by Bald and Glass Mountains and their associated highlands. Dexter and Wet Canyons are the primary drainages in the most geographically varied and ecologically rich region of the northern Inyo National Forest. The streams have created deeply incised steep-walled canyons reminiscent of the desert southwest, flowing through a landscape of rough hewn granite knobs, rolling uplands, and flat volcanic mesas.

Major meadows complexes (Crooked Meadows, Sentinel Meadows, and Wet Meadow) are the sources of Dexter and Wet Canyons and their tributaries. Locally limited but ecologically critical riparian habitat, including aspen groves, willow thickets, bunch grasses, and sedges are thick along the banks of both creeks. The uplands are dominated by old-growth lodgepole and Jeffrey pine forests, open sagebrush plains, and extensive snowbank aspen groves (distinct from riparian aspens). The incredibly diverse habitat provided by these streams supports goshawk, greater sage grouse, black-backed woodpeckers, willow flycatchers, nesting golden eagles, badgers, abundant mule deer, and brook trout.

An as yet unpublished report from Trout Unlimited indicates that Dexter and Wet Canyons are a subset of drainages flowing northeast from the Bald-Glass transverse range that possess some of the highest aquatic integrity scores in the eastern Sierra region.

Recommendation: The Forest Service should determine the eligibility and suitability of Dexter and Wet Canyons in the Plan Revision.

Black and Marble Canyons – Inyo Forest

Draining the southwest corner of the White Mountains, Black Canyon Creek and its tributary, Marble Canyon sustain locally abundant flows that support unique riparian systems. The dependable flows in these canyons also sustained Native Americans for hundreds of years. Because of this, the canyons are rich in Native American heritage. Marble Canyon is of particular interest as a deep, marble-walled canyon reminiscent of Death Valley canyons supporting a rich cottonwood-birch-cattail riparian corridor.

Recommendation: The Forest Service should determine the eligibility and suitability of Black and Marble Canyons in the Plan Revision.

Birch Creek – Inyo Forest

Draining the southeast corner of the White Mountains, Birch Creek supports a lush riparian corridor at the boundary of the Mojave and Great Basin deserts. The creek's rich birch-cottonwood riparian forests host a recently discovered isolated population of Black Toad, a California Fully Protected Species. Upland vegetation includes a portion of the Ancient Bristlecone Pine Forest, extensive pinyon-juniper forest and transitional desert habitat from saltbrush scrub up through sagebrush steppe.

Recommendation: The Forest Service should determine the eligibility and suitability of Birch Creek in the Plan Revision.

Other Streams Identified In the 1993 Eligibility Assessment

Big Pine Creek, Bishop Creek (including its South Fork), Convict Creek, Cottonwood Creek (in the Sierra Nevada), Golden Trout Creek, Hot Creek, Laurel Creek, Lee Vining Creek, Lone Pine Creek, McGee Creek, Mill Creek (including its South Fork), Parker Creek, Rock Creek, and

Walker Creek were all identified as eligible streams in the Inyo's 1993 assessment. New information may result in the identification of additional outstanding values.

Recommendation: The Forest Service should reassess these streams for eligibility and determine their suitability in the Plan Revision. As previously noted, the assessments of Big Pine Creek, Hot Creek, Rock Creek, Lone Pine Creek should be conducted in collaboration with the BLM. Also as previously noted, the Forest Service should collaborate with the BLM in assessing George and Independence Creeks.

L. Pacific Crest National Scenic Trail Corridor

We support the designation of this trail corridor and the development of plan components to address management. It will be important that the establishment of the corridor be based on agency tools including the Scenery Management System (SMS) and the Recreation Opportunity Spectrum (ROS) to meet the desired conditions, standards, and guidelines presented in the PA. these tools will be especially important in applying desired conditions 2, 3, and 4 (PA, p. 59), standards 5 and 6 (PA, p. 60), and guideline 3 (PA, p. 61).

Based on suggestions from the Pacific Crest Trail Association (PCTA), we recommend the following revisions to the PA.

We ask that you include an introductory narrative in the plan that presents the nature and purposes for the PCT as required and referred to in the National Trails System Act (NTSA) and following agency policy. This is important because these are the controlling elements for the trail corridor as described in the legislation.

Desired Condition 1 (PA, p. 59)
1st bullet, suggested edit in bold:
Roads, motorized **and mechanized** trails, including snowmobiles, do not intersect the trail except at designated crossings which should be minimized, preferably fewer than one crossing per 5 miles of trail;

3rd bullet: This is written in a way which is hard to decipher the intent of the point. We think that this refers just to visitor use decisions and the need to protect both the PCT experience and other forest resources. Some clarification would be useful here.

Desired Condition 4 (PA, p. 59)
Suggested edit in bold
4. The emphasis will be on providing remote backcountry recreation settings in a **scenic**, predominately natural or natural-appearing landscape. Development levels and levels of use vary by location **but** do not detract from those experiences.

Standard 3 (PA, p. 60)
Edit in bold below – this brings the standard into alignment with the long standing closure order regarding mechanized transport and the PCT, and makes enforcement feasible, and deals with incorrect sentence structure.

3. The **possession** of bicycles and other **vehicles for** mechanized or motorized transport is prohibited on the PCT tread and within the trail corridor, except **at designated crossings on trails** where such use is allowed.

Standard 5 (PA, p. 60)
We support the inclusion of the direction that is embodied in Standard 5, however since this may refer to lands beyond the PCT Management Area it should appear both in the Standards for the PCT Management Area and also in Standards that apply Forest-wide.
5. The PCT is a concern level 1 travelway, and middle ground and background areas on National Forest System lands seen from the PCT must be managed to meet or exceed a scenic integrity objective of at least moderate for scenery in accordance with scenic integrity objectives identified through the scenery management system.

Standard 7 (PA, p. 60)
Edit in bold – delete "PCT" – these are not PCT permits, which usually refer to permits for recreation users of the PCT, as opposed to permits for mineral extraction.
7. For leasable minerals such as oil, gas and geothermal energy, **[PCT]** permits and activities within the trail corridor are available for leasing but must contain a "no surface occupancy" stipulation within the foreground and immediate foreground visual zones, based on the Forest Service Scenery Management System.

Standard 12 (PA, p. 61)
Edit in bold -
12. New utility lines or rights-of-way are prohibited within the PCT corridor unless they represent the only feasible and prudent alternative to meet an overriding public need. Project design and mitigation will be sufficient to protect trail values. This includes required mitigation measures such as screening, feathering and other visual management techniques to mitigate visual, **auditory** and other impacts of new or upgraded utility rights-of-way. Mitigation measures apply to facilities as well as vegetation.

At the recommendation of the PCTA, we propose two additional standards to clarify the role of timber operations in this designation:

> 14. These lands are not suitable for timber production. Timber harvest may occur as a secondary purpose as part of ecological restoration projects.
>
> 15. Timber harvest on these lands may occur for such purposes as salvage, fuels management, insect and disease mitigation, protection or enhancement of biodiversity or wildlife habitat, or recreation and scenic resource management consistent with other management direction, providing it meets the goals for ecological integrity found in 219.1 (c) .

V. Alternatives to Consider in DEIS

In preparation for a new cycle of forest planning on national forests in the Sierra Nevada, Sierra Forest Legacy and our conservation partners have developed a conservation strategy designed to set a new standard for conservation planning in the region, one that meets the challenges of the

critical issues of our time. The resulting document, *National Forests in the Sierra Nevada: A Conservation Strategy* (Britting et al. 2012), was released in 2012. The strategy contains detailed information and recommendations on a variety of topic areas relative to conservation in the forests of the Sierra Nevada. Topics addressed in the strategy include:

- Ecological sustainability
- People and the Sierra Nevada
- Restoring Fire as an Ecological Process
- Structural Diversity of Forests and Adjacent Habitats
- Old Forest Habitats and Associated Species
- Restore and Maintain Aquatic Ecosystems
- Conservation of Species at Risk and Conservation Measures
- Species Movement and Habitat Connectivity
- Management of Invasive Species
- Roads, Trails, and Travel Management
- Protecting Roadless Areas and New Wilderness Areas
- Wild and Scenic Rivers: Evaluation and Recommendation
- Special Interest Areas and Research Natural Areas
- Forest Planning and Integration
- Adaptive Management and Monitoring

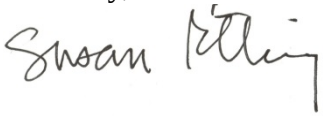
Each resource section includes with specific proposals for desired conditions, objectives, standards, and guidelines. Appendix A of the strategy document includes accounts for 18 wildlife species of interest and makes recommendations on plan components and conservation measures to include in the revised forest plans in order to meet the life requirements of these species.

We ask that you utilize the information and recommendations in the strategy (Britting et al. 2012; attached as Appendix F of these comments) combined with the contents of this letter, including attachments, to develop an alternative to the PA that addresses the purpose and need for action and the issues we have identified.

VI. Conclusion

We appreciate the opportunity to comment on the NOI and supporting package. Numerous organizations and individuals contributed to these comments. If you have questions about these comments or would like to discuss them in more detail, please contact Sue Britting (britting@earthlink.net; 530-295-8210) and she will be able to direct you to the appropriate contact for further discussion.

Sincerely,



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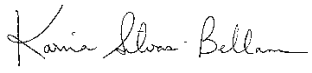

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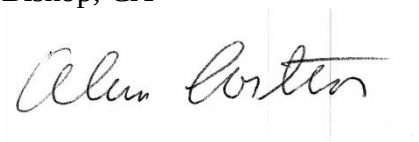

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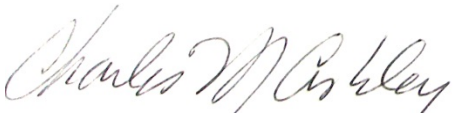

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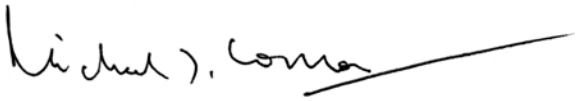

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Appendices

Appendix A: Ecosystem Representation in Designated Wilderness Areas in Sierra, Sequoia, and Inyo National Forests

Appendix B: Transportation Infrastructure and Access on National Forests and Grasslands A Literature Review

Appendix C: A Primer on Impacts of Forest Roads on Water Quality and Quantity in California

Appendix D: Viability Evaluation for California Spotted Owl

Appendix E: Aquatic Refuge Areas on the Sequoia, Sierra, and Inyo National Forests

Appendix F: Britting et al. 2012, National Forests in the Sierra Nevada: A Conservation Strategy.

Appendix G: Comment letters submitted on forest assessments, need for change and desired conditions.