



September 26, 2019

Planning Team Leader  
Forest Plan Revision  
Pacific Southwest Region  
USDA Forest Service

Sent via comment portal and [r5planrevision@fs.fed.us](mailto:r5planrevision@fs.fed.us)

**Re: Comments on the Sequoia and Sierra National Forests Land Management Plans  
Revision #3375**

To the Planning Team:

These comments are submitted on behalf of the listed organizations. We have reviewed the draft forest plans and revised draft environmental impact statement issued on June 28, 2019 and offer the following comments. We also incorporate by reference our prior comments submitted on August 25, 2016 as well as comments submitted since the forest plan revision effort was initiated in 2013.

We appreciate the improvements in clarity and organization of the draft plans, and the changes you made in response to our comments on the prior drafts and DEIS. We find Alternative C, with the changes recommended in these comments, to be the best land management approach for these two forests based on our detailed review of the plan documents. Highlights of changes that we recommend to Alternative C are:

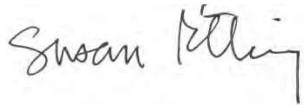
- Adopt the Fuel Management Zones described in Alternative B
- Include additional recommended wilderness areas noted in comments below with boundary adjustments recommended in separate comment letter and spatial data submitted by Sierra Forest Legacy and others

- Adopt Backcountry Management Areas described in Alternative E
- Adopt additional plan components described below for species at-risk and aquatic and terrestrial ecosystems
- Revise the Species of Conservation Concern list to include black-backed woodpecker, Western pond turtle, and the South Fork Merced population of the Central Valley steelhead

We also recommend in the following comments revision to the supporting evaluations and environmental analysis to correct deficiencies in meeting the intent of the National Environmental Policy Act, National Forest Management Act, and other Forest Service guidance on implementing these Acts.

Please contact Susan Britting (530-295-8210; [britting@earthlink.net](mailto:britting@earthlink.net)) if you have questions about these comments.

Sincerely,



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## I. Fire Management

Sierra Forest Legacy and our Coalition partners appreciate the hard work of USFS fire managers and feel that the revised draft plans represent a significant improvement in the way that fires will be managed across the plan area. We are especially encouraged by the plans' emphasis on managing wildfires for resource benefit. We hope that the framework presented in these plans can be a model for returning beneficial mixed-severity fire to appropriate vegetation types throughout the Sierra Nevada when and where it is safe to do so.

While we support Alternative C overall, we urge the USFS to incorporate the four Strategic Fire Management Zones from Alternative B into the final revised forest plans. These zones provide fire managers with clearer direction than the other alternatives and are consistent with the National Cohesive Wildland Fire Management Strategy. This clearer direction will help influence sound decision making that we believe will help restore the structure, function, and composition of fire-adapted forests across the southern Sierra.

Attention to fire management issues, both locally and across the country is currently at an all-time high. In the time since the release of the 2016 Draft EIS, California has experienced the two largest wildfires (Mendocino Complex and Thomas fires), as well as the two most destructive fires (Camp and Tubbs fires) in state history. These fires, along with dozens of others, have helped catalyze a series of actions that we hope will help build resiliency in forests across the state. These include:

- Governor Jerry Brown's Executive Order B-52-18: Acknowledges the natural role of fire in California's ecosystems and tasks state agencies with planning and implementing more forest treatments including prescribed fire.
- California Senate Bill 1260 (Jackson 2018): Requires Cal Fire to cooperate with public and private landowners on prescribed burns, instructs Cal Fire to create a pre-certification program for certifying burn bosses, and enhances the California Air Resources Board's ability to monitor smoke emissions.
- California Senate Bill 901 (Dodd 2018): Provides Cal Fire with \$35 million per year for five years for prescribed fire and other fuel reduction activities.

We hope that the USFS will use this forest plan revision as an opportunity to build on the current level of public interest in fire and to help stimulate a fire-forward cultural shift within the agency.

Finally, we want to acknowledge that while we are supportive of science-based "restoration" activities intended to increase the pace and scale of ecologically beneficial fire, our support ends when these activities are designed to increase commercial timber output without a clear scientific basis for action. Forest treatments designed to increase stand resilience to high severity fire should focus on removing the surface and ladder fuels that drive ~90% of fire behavior in Sierra forests, while retaining the larger fire-resistant trees that are missing from much of the southern Sierra landscape (Stephens et al. 2015).

See the sections below for critiques and recommendations for improvements to the revised draft plans and RDEIS.

## A. Restoration Goals and Objectives Should Acknowledge Fire Regime Need

While the revised draft plans represent an encouraging step towards improved fire management, the plans still fail to lay out an achievable plan for restoring fire at ecologically-significant scales. The very first step of such a plan needs to be a set of science-based objectives that restore fire to appropriate vegetation types at the scale, frequency, and severity that these forests would have experienced prior to the Forest Service's policy of fire suppression. Without an acknowledgement of fire regime need, the plans will most certainly fail to achieve the much-needed increase in burning acknowledged by fire ecologists.

Fire scientists estimate that approximately 4.45 million acres burned annually in California prior to Euro-American settlement (Stephens et al. 2007), with approximately half a million acres burning annually on Forest Service lands in the Sierra Nevada alone (North et al. 2012). In 2016, Sierra Forest Legacy completed an analysis of fire return intervals in different vegetation types on the Inyo, Sierra, and Sequoia national forests, which estimates that approximately 150,000 acres should be burned annually across these three forests excluding the Giant Sequoia National Monument (see Attachment A). Adapted to exclude the Inyo, this analysis suggests that approximately 110,000 acres should be burned annually across the Sierra and Sequoia national forests based on fire regime and fire frequency.

The draft plans currently include the following objectives TERR-FW-OB-01 and TERR-FW-OB-02, which are summarized in the following table:

Forest	Treatment	Acreage	Time Frame
Sierra NF	Fire	50,000 acres	Within 15 years following plan approval
	Mechanical	30,000-60,000 acres	
Sequoia NF	Fire	32,000 acres	
	Mechanical	7,500-12,000 acres	

Converted to annual amounts, while conservatively assuming that the USFS achieves its upper-end goals for mechanical treatment, these treatments would total approximately 10,000 acres/year across both forests (also assuming unrealistically that the fire and mechanical treatments won't overlap). If achieved, this amount would only be approximately 10% of the treatments needed yearly for ecosystem resilience, leaving a significant backlog each year.

As participants in a wide variety of efforts to increase the pace and scale of fire restoration in California (Fire MOU Partnership, Southern Sierra Prescribed Fire Council, Dinkey Landscape Restoration Project, Governor's Forest Management Task Force), we realize that achieving the restoration goals in the revised draft plans will be a significant lift for an already-strained USFS fire staff. The amount of hard work and dedication to the southern Sierra landscape already demonstrated by fire managers is remarkable and does not go unnoticed by the conservation community. Despite the significant gap between USFS fire staff's current capacity and that needed to burn at ecological levels, we feel that the objectives for restoration acreage should (1) acknowledge annual as well as 15-year targets, and (2) aim for acreage targets much closer to the ecological background levels of burning that would have occurred prior to fire suppression. See the recommendations below, as well as Section E below on capacity.

**Recommended changes:** 1) Include in the RDEIS and draft plans an estimation of annual fire in different vegetation types across the two forests prior to Euro-American settlement; 2) Include the following plan components:

**Objective:** Change TERR-FW-OBJ-02 to state: Restore low and moderate severity fire mosaics of beneficial fire on (Sequoia NF 15-20,000 ac/yr.; Sierra NF 20-25,000 ac/yr.) within 10 to 15 years following plan approval.

**Goal:** Build the forest's capacity to implement prescribed burns and manage wildfires for resource benefit to the level needed to restore fire to (40,000 ac/yr on the Sequoia NF; 70,000 acres/yr on the Sierra NF).

## **B. RDEIS Discussion of Fire Trends**

Though several small clarifications have been made to the RDEIS discussion on fire trends, we are disappointed to see that the overall discussion remains largely the same as in the 2016 DEIS. More specifically, we are concerned that the discussion (1) overly relies on the Westerling et al. 2015 analysis, (2) does not adequately distinguish between beneficial fire effects within and outside of the natural range of variation, and (3) uses arbitrary treatment thresholds (15%, 30%, and 60%) to anticipate the effects of the various alternatives. Our concerns with the Westerling et al. 2015 analysis are summarized by the excerpt below from page 18 of our comments on the 2016 DEIS:

“The setting is further complicated by the analysis prepared by Westerling et al. (2015a and b). One of the main conclusions from this analysis is that the amount of area expected to be affected by wildfire is unacceptably high and that “treatment” can reduce the affected area. This is, however, not consistent with other perspectives in the science community that increasing the extent and frequency of wildfire in more moderate conditions will have a beneficial effect on the forest ecosystem. A “bad” (undesirable) outcome in the Westerling analysis is one that results in an increase in the annual acres burned of any intensity or extent. For instance, the annual area burned during an historic period (1961-1991) is used as a threshold to measure the performance of the several “treatments” under various climate scenarios projected into the future. The annual area burned in the historic setting is about 24,000 acres for the three forests combined (Westerling et al. 2015a, Table 5). These plan areas cover about 4.47 million acres and have a variety of plant community types with specific fire return intervals. A review of those forest types and fire return intervals indicates that for the three national forest combined we would expect the annual area burned under a natural fire regime would be about 150,000 acres burned per year – five times the value used by Westerling to judge an outcome from “treatment” to be good. Aside from the analysis implications that we will discuss in a following section, the basic framing in Westerling et al. is at cross purposes with the desired condition to reestablish a natural fire regime on this landscape. This is emphasized by the assumption in the Westerling et al. analysis that fires greater than 1,000 acres are to be avoided and actions that reduce this amount to less than 20 percent of the annual area burned expected under the natural range of variability will result in the desired condition. Because fire is an essential

process in this fire-dependent landscape and intimately tied to providing for ecological integrity (North et al. 2015), the draft plans and environmental analysis need to redirect the management emphasis to increased use of fire under conditions that are moderate, evaluate the capacity for each alternative to accomplish this, and evaluate the incremental benefits of doing so over time. In reality, none of the alternatives will result in increased use of managed or prescribed fire compared to current levels (which in fact are far lower than reported for Alternative A), unless the plans direct this outcome and funding is directed to its accomplishment.”

Our concerns with the 2019 RDEIS remain the same as stated above. There is broad agreement within the scientific community that increasing the extent and frequency of wildfire in moderate conditions will have a beneficial effect on the forest ecosystem (Stephens et al. 2007, Hurteau et al. 2014; North et al. 2012, 2015). Further, the impact of prior fires can have a moderating effect on fuel availability and predicted emissions of wildfires (Hurteau et al. 2019). The RDEIS should acknowledge the likelihood of beneficial fire effects (including within fires >494 acres) and should not assume that most future fires will burn at high severity.

**Recommended changes:** 1) Improve the RDEIS fire trends discussion to more accurately anticipate beneficial fire effects from wildfires, even for fires over 494 acres; 2) Remove the assumption that Alternatives C and E will only result in 15% restoration across the landscape.

## **C. Fire Management and Protected Areas**

While we are encouraged by the revised plans’ direction for fire management and restoration, we are deeply concerned by the RDEIS discussion around fire management and protected areas such as recommended wilderness areas. In comparing the consequences of the five alternatives on fire management, the RDEIS repeatedly asserts without support that elements of Alternatives C and E intended to protect ecological or recreational resources will hamper the agency’s ability to effectively suppress wildfires and return beneficial fire to the landscape. The RDEIS then presents the alternatives as a choice between short term impacts to these resources and long term benefits to the landscape as a whole for fire managers. We feel that this is a false choice. Many of the elements in Alternatives B and D designed to facilitate wildland fire management and manage uncertainty could easily be incorporated into a final plan that also protects sensitive resources.

### **1. System of Strategic Fuel Breaks**

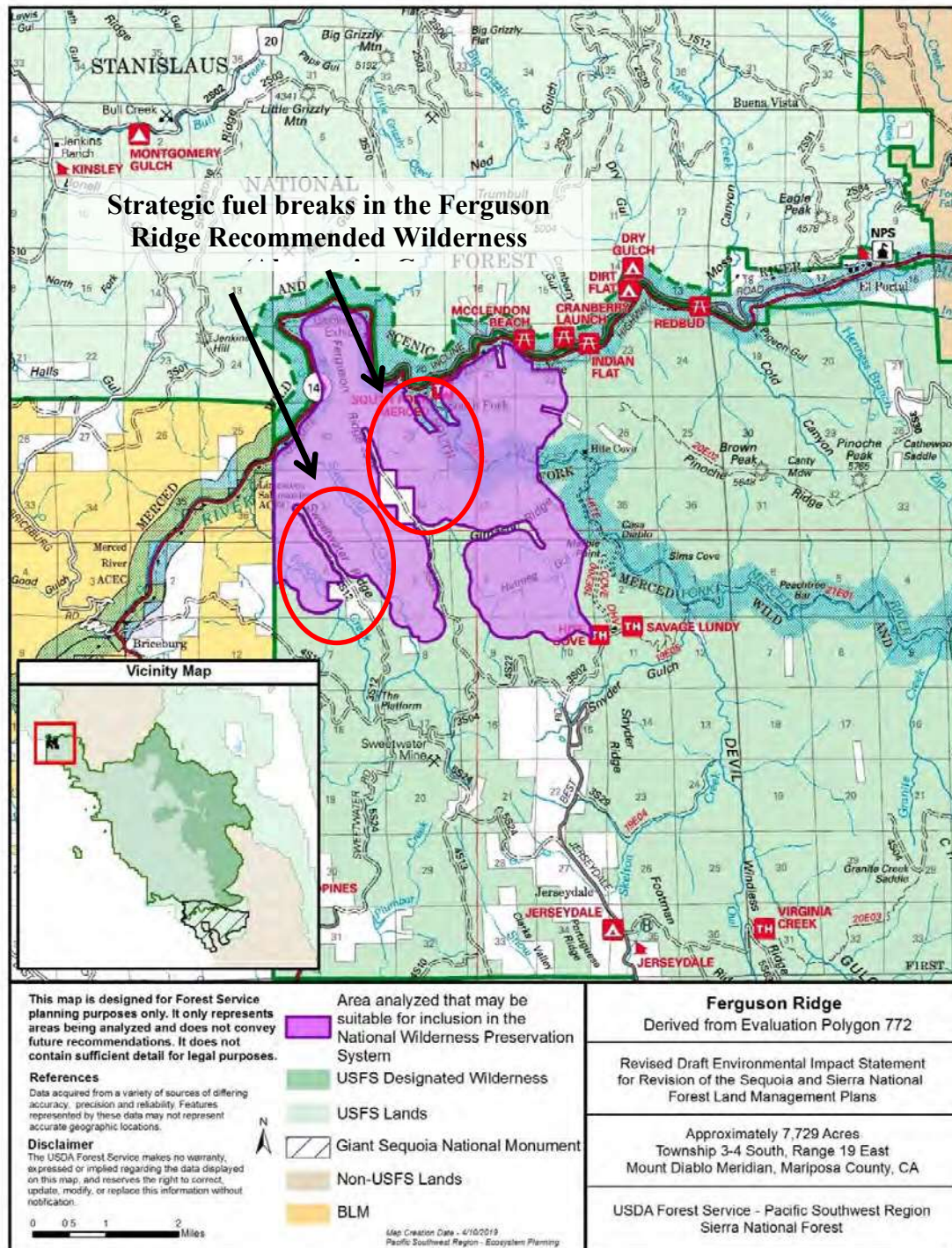
In describing Alternative B, page 20 of the RDEIS states that:

Proposed plan direction for both national forests emphasizes treating vegetation along key roads and ridges and connecting natural openings, such as rock outcrops. This could make it easier to implement larger prescribed burns and manage or suppress fires.

This strategy is both logical and consistent with recommendations from leading fire scientists in the Sierra Nevada (North et al. 2015). We are unsure, however, why this strategy is limited to Alternative B, and feel that strategic fuel breaks could easily be incorporated into a plan that also applies protective designations like recommended wilderness and backcountry



management areas. For example, the boundaries of the Devil Gulch and Ferguson Ridge Recommended Wilderness Areas in Alternative C have already been carefully drawn to incorporate a system of strategic fuel breaks that were effective in stopping or slowing the progression of the 2018 Ferguson Fire. Two of these fuel breaks (atop Ferguson Ridge and Sweetwater Ridge) are circled below in Map B-41 from the RDEIS Appendices:



We also find it confusing that the revised draft plans do not include a map of these proposed fuel breaks or any sort of plan direction for how these areas will be identified beyond the direction quoted above. As stakeholders who are intimately involved in several USFS collaboratives, we recognize that this type of spatial planning does not occur overnight, and that strategic fire planning requires input from multiple perspectives. Sierra Forest Legacy and our Coalition partners would gladly engage in a collaborative process devoted to identifying a strategic system of fuel breaks to facilitate wildfire managed for resource benefit.

**Recommended changes:** 1) Incorporate plan direction to create a system of strategic fuel breaks from Alternative B into Alternatives C and E; 2) add the following plan components:

**Objective FIRE-FW-OBJ-01:** Create a network of reduced fuels along ridgelines, roads, or other natural or man-made features to support the use of large prescribed fires and in managing wildfire for ecological benefits in ten large landscapes (greater than 10,000 acres) within 10 to 15 years following plan approval.

**Potential Management Approach:** Engage fire scientists and forest stakeholders in a collaborative process to identify strategic fuel breaks along roads, ridgelines, and other features in order to facilitate wildland fire use within potential operational delineations (PODs).

## **2. Emphasize Surface and Ladder Fuels**

In describing Alternative C, the RDEIS repeatedly asserts that the treatments allowed in this alternative will be less effective than under other alternatives due to the restrictions on cutting trees above 24” as well as restrictions on thinning in various protected areas including habitat for California spotted owl and fisher (RDEIS pg. 136-138). For example, page 137 of the RDEIS states that

...since treatments would be restricted to removal of smaller diameter trees, these treatments would be less effective than under Alternative A.

Missing from the RDEIS, however, is a discussion of how logging trees greater than 24” will affect fire behavior. Considerable research has established that surface and ladder fuels play the largest role in affecting fire resilience in frequent-fire forests (North et al. 2009, Stephens et al. 2009, Thompson and Spies 2009, Collins et al. 2011, Stephens et al. 2012). The excerpt below from Stephens et al. 2009 captures this issue well:

Surface fuels include all dead and down woody materials, litter, grasses, other herbaceous plant materials, and short shrubs, which are often the most hazardous fuels in many forests. This is particularly true in seasonally dry forests, where vegetative species composition, density, and structure have been influenced by decades of fire suppression and harvesting (Fulé et al. 2001, Agee and Skinner 2005). Ladder fuels are small trees or tall shrubs that provide vertical continuity from surface fuels to the crowns of tall trees and are generally the second most hazardous fuel component. Crown fuels are those in the overstory and are a small component of fire hazards in these forests (Stephens et al. 2009). The potential for passive crown fires (initiated by the torching of a small group of trees) is reduced most efficiently by the reduction of

surface fuels followed by a reduction of ladder fuels. Reducing surface fuels by prescribed fire is a very effective treatment for reducing the potential for passive crown fires. The potential for active crown fires (fire spreading in crown and surface fuels simultaneously) is reduced most effectively by a combination of mechanical and prescribed-fire treatments, because these treatments can target ladder and surface fuels and intermediate-size trees. However, prescribed fire alone can greatly increase the wind speed needed to initiate a passive crown fire, which effectively reduces stand vulnerability to torching and the transition to active crown fire (Stephens et al. 2009). This result is not only supported by modeling of fire behavior but by empirical studies of wildfires burning through treated stands (Ritchie et al. 2007).

With surface and ladder fuels constituting the majority of hazardous fuels, USFS has not established that the treatments allowed by Alternative C will be any less effective than those allowed in other alternatives. We feel that the various protective restrictions in Alternative C (recommended wilderness areas, protected areas for spotted owl and goshawk, critical aquatic refuges, etc.) are entirely compatible with effective fire management including restoring and maintaining landscapes through the use of prescribed and managed wildfire, supporting fire-adapted communities, and improving a safe and effective fire response.

**Recommended changes:** 1) Improve the RDEIS to include a discussion on treatment effectiveness for wildfire resilience in relationship to logging trees greater than 24” dbh to prevent crown fires and to facilitate wildfires managed for resource benefit; 2) add or revise the following plan components:

**Objective:** Revise TERR-FW-OBJ-01 to say “Restore forest structure and composition on 30,000 to 60,000 acres of the montane, upper montane, and portions of the foothill landscapes, using primarily mechanical treatment of **surface and ladder fuels**, within 15 years following plan approval.”

**Guideline:** Mechanical vegetation treatments in forested vegetation types should focus primarily on the removal of surface and ladder fuels generally less than 16” dbh when the purpose is to increase stand resilience to high severity fire.

### **3. Fire Management in Wilderness and Roadless Areas**

As mentioned above, the RDEIS including the Wilderness Evaluation and Analysis is replete with statements and implications that the recommended wilderness areas in Alternatives C and E will impede the agency’s ability to effectively manage wildfires. This assumption seems to apply to both fire suppression and to proactive efforts to restore vegetation communities to their natural range of variation. For example, RDEIS page 84 states that:

...the greater amount of recommended wilderness under alternative C would provide lower flexibility in wildfire management options over a greater proportion of the landscape. This is particularly the case for recommended wilderness areas in close proximity to communities (such as the Devil Gulch and Ferguson Ridge recommended wilderness areas in the Sierra National Forest under alternative C) that would provide

greater uncertainty in restoration treatment rates involving prescribed fire and wildfire managed for resource objectives.

We reject this premise and contend that with careful planning, stakeholder engagement, and appropriate attention to wilderness resources, these areas can be safely managed to promote ecosystem health and to protect adjacent communities. Roadless areas, by their very nature, are well suited for enabling fire restoration over large landscapes. Further, we have heard from several USFS fire managers that they are not comfortable sending fire suppression crews into the rugged, remote terrain typical of roadless areas in the southern Sierra Nevada.

In terms of fire suppression, the Wilderness Act allows for a full range of suppression activities under section 4(d)1. Fire managers can also complete proactive fuel reduction projects in wilderness areas upon completion and consideration of a *minimum requirements analysis* that determines whether an otherwise prohibited use of wilderness may be “*necessary to meet the minimum requirements for the administration of the area for the purpose of this Act*” (Wilderness Act section 4(c)). Given the revised draft plans’ emphasis on wildfire managed for resource benefit, well-planned prescribed fire likely complies with Forest Service objectives that fire management activities in wilderness should (1) Permit lightning caused fires to play, as nearly as possible, their natural ecological role within wilderness, and (2) Reduce, to an acceptable level, the risks and consequences of wildfire within wilderness or escaping from wilderness (Forest Service Manual 2324.21).

Page 141 of the RDEIS notes that:

The National Park Service emphasizes fire restoration and has cooperated with the Forest Service numerous times on management of wildfires to meet resource objectives in the southern Sierra Nevada (Meyer et al. 2015). The cumulative effect has been that on adjacent National Park Service lands there is a high level of restoration that has been accomplished in the last 15 years, greatly reducing the probability of large, high-intensity fires in this area.

We emphasize this here because the National Park Service has been able to accomplish high levels of restoration despite the fact that the vast majority of all three national parks in the southern Sierra Nevada are designated as wilderness. Yosemite National Park has completed a programmatic minimum requirements analysis for using prescribed fire to reduce fuels in the entire Yosemite Wilderness, which comprises nearly 95% of the park. During the 2018 Ferguson Fire, fuel-reduced areas from a series of wilderness prescribed fires helped stop the fire on its eastern end along Wawona Road (Attachment B).

At least two wilderness prescribed fire efforts already exist on Forest Service lands in the Sierra Nevada. On the Eldorado National Forest, the Caples Ecological Restoration Project (decision memo signed in 2016) plans to apply prescribed fire to approximately 8,800 acres of old growth mixed conifer forest largely within the Caples Recommended Wilderness. Farther north, the Lassen National Forest has formed a diverse stakeholder group to explore prescribed fire options for a large (>15,000 acres) planning area including portions of the Ishi Wilderness. These projects can serve as models for future efforts on the Sierra and Sequoia national forests

to restore fire to appropriate ecological settings within roadless areas including recommended and designated wilderness areas.

**Recommended changes:** 1) Improve RDEIS fire management discussion to acknowledge fire restoration potential in recommended wilderness areas, backcountry management areas, and inventoried roadless areas; 2) Remove language from RDEIS fire management discussion implying that restoration goals cannot be achieved in Alternatives C and E; 3) Add the following plan component:

**Potential Management Approach:** Form a collaborative group to plan and implement a large scale (>5,000 acre) prescribed fire project in a roadless area.

#### **D. Monitor, Accept, and Communicate Beneficial Mixed-Severity Fire Effects**

We hope that the revised draft plans' emphasis on managing natural fires for resource benefit will inspire the USFS to better accept the effects of wildfires that burn within the natural range of variation (NRV). In Sierra Nevada yellow pine and mixed conifer forests, fire is an essential ecosystem process that creates heterogeneity at both the stand and landscape scales (North et al. 2009, Safford and Stevens 2017). Wildfires managed for resource benefit in the southern Sierra have been shown to track closely with NRV compared with wildfires managed under a full suppression strategy (Meyer 2015). We are glad to see that the plans address monitoring fire effects from wildland fires (Table 17 in the Sequoia Draft Plan and Table 18 in the Sierra Draft Plan) and agree with the associated indicators (fire return interval departure, number and acres of fire by ecosystem type, and fire severity by ecosystem type).

This monitoring strategy should be accompanied by a communications strategy that helps the general public (especially those exposed to wildfire smoke) to understand when a fire is burning within or outside of NRV. A considerable portion of the general public tracks the development of wildfires while they are occurring through Inciweb and other online tools. The USFS has already improved its public messaging during wildfires to incorporate positive messages around the natural role of fire in California. For example, see this excerpt from the Inciweb update on the Cow Fire, which is burning on the Inyo National Forest at the time of this writing:

“The ecosystem within the Cow Fire footprint will benefit from the low-intensity fire effects observed on the landscape. Lightning-caused wildfires have a natural role to play in Eastern Sierra forest ecosystems. Burned materials recycle nutrients back into the soil which enriches it and stimulates vegetation growth. New grasses, shrubs and trees replenish and grow stronger while old growth stands become more resilient. Wildlife habitats are created and an increase in food becomes available for animals to forage. The hazardous accumulation of logs and overgrown surface fuels on the forest floor are reduced which diminishes the risk of severe wildfires in the future. Heat from fire opens the strong resin which holds seeds inside of the serotinous cones of Lodgepole Pine, allowing the species to reproduce.”

This sort of information plays an invaluable role in helping the public understand and appreciate USFS decision making. By monitoring fire effects during and after a wildfire, the

forests have a significant opportunity to build public understanding of the nuance around “good” or “bad” fire. We recommend making NRV data public through messaging during fires when possible, and as an accompaniment to the release of Rapid Assessment of Vegetation Conditions (RAVG) data following a fire.

**Recommended changes:** 1) Include the definitions and thresholds for the three monitoring indicators (fire return interval departure, number and acres of fire by ecosystem type, and fire severity by ecosystem type) to assist in monitoring fire effects from wildfires; 2) Add the following plan components:

**Potential Management Approach:**

- Work with fire scientists and USFS communications staff to develop a system for communicating beneficial wildfire effects to the public both during and following a wildfire.
- Actively engage fire scientists in public and media outreach, fire science information transfer, and in discussions with policy makers regarding increases in fire use.
- Coordinate with Fire MOU Partners<sup>1</sup> to develop consistent, positive messages regarding fire ecosystem benefits, public health and safety, fire safe living, smoke management, collaborative planning and the “net public benefits” of a scaled up fire program.

**E. Increase Capacity for Burning**

While we are encouraged by the revised plans’ framework for restoring beneficial fire to the landscape, we also realize that planning alone will not achieve the needed increase in pace and scale of restoration of beneficial fire. Simply achieving the objectives written into the revised draft plans – which would return fire to just 10% of what is needed annually – would require a dramatic increase over current levels of burning. This dilemma is not new or unique to the southern Sierra Nevada. A 2018 study, which interviewed 60 professionals intimately involved with fire management throughout the west (land managers, air regulators, state agency officials, and NGO partners), found lack of capacity and funding, and challenges with sharing resources across agencies to be the most significant barriers to accomplishing more prescribed fire (Schultz et al. 2018). This report also suggests that reforming internal incentive structures and agency practices within the USFS may alleviate some capacity issues around prescribed burning (*Ibid.*).

One major challenge for USFS fire programs across California and the west is that capable, well-trained fire practitioners are often not available during good burn windows due to being called away for fire suppression activities or training or time off requirements. Burning at ecologically-significant scales will require a consistent workforce across the forests that are available prepare sites for burning and to burn when conditions are right. We suggest that forests plan to invest in wildland fire modules. Wildland fire modules are generally made of 7 or more highly trained fire professionals. The primary purpose of a wildland fire module is managing rather than suppressing fires to reduce costs, assisting other units with resource benefit fires and prescribed fires, meeting the agency project preparation objectives, and

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<sup>1</sup> See Attachment C: Fire MOU Communication Plan.



executing prescribed fires within narrow burn windows. Modules can also monitor fire effects, manually reduce fuels in management units, and assist other agencies with fire use and fuels treatment projects.

Finally, we would like to acknowledge that barriers to burning within the USFS are in some part cultural. We have seen firsthand from our work with collaborative restoration projects that enthusiasm and expertise around prescribed burning and managing wildfires varies greatly between fire managers, ranger districts, and forest units. We urge the planning team to treat the forest plan revision process as an opportunity to reform the fire program on these forests in order to create a socio-cultural environment within the agency that encourages burning.

**Recommended changes:** 1) Include in the draft plans and RDEIS a plan to increase the capacity to burn across the two forests; 2) add the following plan components:

**Desired Conditions:**

- The network of agencies and stakeholders creates a stable socio-cultural environment that fosters the collaborative management of fire for resource benefits.
- Social investment and financial resources support the decrease in fire exclusion and an increase in the use of prescribed and managed fire necessary to achieve desired conditions for ecological restoration and public health and safety.

**Goals:**

- Establish at least one wildland fire module per ranger district on the national forest.
- Wildland fire modules serve as a dedicated team of specialists and practitioners to lead to the application of prescribed and managed fire and are supported by fire suppression staff as needed.
- Work with adjacent land management agencies to identify methods to reduce costs and increase effectiveness in restoring fire to the landscape.
- Report prescribed fire activities to the Prescribed Fire Information Reporting System (PFIRS).
- Develop and implement a collaborative fire training program, e.g., like Prescribed Fire Training Exchange (TREX), to expand prescribed fire opportunities and create a skilled public and private work force to support the use of fire for resource benefits.
- Planned prescribed and managed fire projects over large landscapes to increase efficiency and readiness to utilize or apply ignitions when environmental conditions are appropriate.

**Objective:** Wildland fire modules – one per ranger district – will be established on the national forests within the first two years of plan implementation to support increased prescribed fire and managed wildfire pace and scale needed to reach desired conditions.

**Potential Management Approach:**

- Participate in the Fire MOU Partnership to build a broad base of support for the increased use of managed wildfire and prescribed fire for resource benefits through intensified outreach and education efforts.
- Work with the Fire MOU Partnership to expand collaborative efforts to support multi-jurisdictional burn projects via cost-share agreements and strategic fire planning.

- Establish a collaborative group with air regulators, air quality scientists, interested stakeholders and public officials to facilitate information exchange, collaborative outreach and education efforts, and joint media response efforts focused on presenting the “net gain” in public benefits from expanded fire use.

## **F. Fire Management and Sustainable Recreation**

Fire management activities such as suppression, prescribed fire use, and site preparation have the potential to negatively impact important recreation infrastructure. We recommend that the USFS plan proactively incorporate recreation infrastructure into fire management planning.

**Recommended Changes:** 1) Change the existing Potential Management Approach (e.g., Sierra National Forest Draft Plan Page 67) to state “*Where feasible and suitable, consider all available tools and methods to reduce vegetation buildup to lower the risk of unwanted wildfire, including grazing, mechanical treatment, system trail maintenance, prescribed fire, or wildfires managed to meet resource objectives.*”; 2) Add the following Potential Management Approach:

Consider re-routing or re-aligning existing system trails to provide for better fire management solutions, to improve maintenance of existing recreation infrastructure, and to support sustainable recreation opportunities.

## **G. Air Quality**

The Revised DEIS for the Sierra and Sequoia National Forests does not address anew the issue of air quality. Therefore, we incorporate here, by reference and attachment, the comments that we submitted on August 25, 2016: SFL et al. comments on the DEIS for draft forest plans on the Inyo, Sequoia, and Sierra National Forests.

## **II. Terrestrial Ecosystems**

The RDEIS addresses some but not all of the issues we raised in our 2016 comments. We appreciate those that have been resolved and highlight here issues that remain to be resolved or have emerged in our review of the draft plans.

### **A. Flexibility, effectiveness of treatments and barriers to restoration**

The effects analysis in the RDEIS repeatedly concludes that Alternative D and to some extent Alternative B are “better” because they treat more area and are more flexible (i.e., fewer constraints). The assumption here is the lack of “flexibility” in the current forest plans is a barrier to restoration. Principle to this argument is the belief that canopy cover requirements and diameter limits in the current forest plans are barriers to increasing the pace and scale of restoration. For instance with respect to Alternatives B and D, the RDEIS finds that:

...these alternatives promote the greatest degree of effectiveness, in part due to more strategic treatment prioritization and ecological monitoring, and the highest restoration treatment rates and most flexibility.



(RDEIS, p. 281) This strongly held belief, however, is not supported by any specific analysis or examples to support these claims.

The guidance on diameter limits and canopy cover retention have been a part of existing forest plans for over 27 years, and the most recent amendments have been in place for 15 years. Since 2001, over 407,000 acres of hazardous fuels treatments<sup>2</sup> have been registered with the Forest Service’s national activity database for the Sierra National Forest.<sup>3</sup> Table 1 reflects the type of treatments since 2001 on the Sierra National Forest.

Table 1. Hazardous fuels treatments planned and completed on the Sierra National forest since 2001.

<b>Treatment</b>	<b>Area (acres)</b>	<b>Proportion of Total (%)</b>
Biomass Removal	11,038	2.7
Broadcast Burn	30,827	7.6
Chemical	943	0.2
Chipping	2,491	0.6
Crushing	8,174	2.0
Fire Use	43,261	10.6
Grazing	7,186	1.8
Jackpot Burn	1,076	0.3
Lop and Scatter	5,853	1.4
Machine Pile	83,747	20.6
Machine Pile Burn	95,771	23.5
Wildfire that meets resource objectives	54,375	13.4
Thinning	62,445	15.3
<b>TOTAL</b>	<b>407,187</b>	

Over the past 18 years, about 3,500 acres of thinning has occurred on average each year. This pace of thinning for a total of 35,000 acres over 10 years is at the higher end of the range proposed under Alternative B, i.e., 20,000 to 40,000 acres over 10 years. The treatment data indicates that the additional conservation measures related to retaining canopy cover in Alternative A, and that are often reflected in Alternative C, have not been a barrier to the implementation treatments at the pace proposed in Alternative B, the Preferred Alternative.

The RDEIS also claims that “treatment effectiveness” will be greater under Alternative B and D because they have greater flexibility than the other alternatives. This presumption of

<sup>2</sup> These are cumulative acres treated and likely include multiple treatments in the same location in some, e.g., thinning followed by broadcast burning. This reflects only one activity database and others, e.g., “Timber Harvests”, could be the source of information on additional area treated.

<sup>3</sup> See link for data source: <https://data.fs.usda.gov/geodata/edw/datasets.php?xmlKeyword=fire>; Hazardous Fuel Treatment Reduction: Polygon (date of last refresh: Sep 9, 2019)

increased effectiveness is not accompanied by any data or examples of failed effectiveness for Alternative A despite having over 400,000 acres on the Sierra National Forest (and some amount on the Sequoia National Forest) to evaluate this. We note that there are studies of the types of treatments applied under the current forest plans (Alternative A) that evaluated their effectiveness in reducing extreme fire effects (see for example Collins et al. 2011) and reducing impacts from beetle-related drought induced mortality (Restaino et al. 2019) finding that these practices, i.e., Alternative A, improved stand and landscape level conditions.

We also note here and in the section on Old Forests below that the belief that limiting the removal of large trees by applying diameter limits would result in a significant impediment to restoration is simply unsubstantiated. The discussion of the barriers that diameters limits might provide is simply speculative and not based on current conditions in the plan area. Any discussion of barriers to effectiveness for specific diameter limits should be accompanied by specific inventory data identifying areas where effectiveness would be limited. This data should be combined with documentation where diameter limits caused treatments to be ineffective during the past 27 years.

Funding and availability of technical capacity are barriers to implementing restoration that were not addressed in the RDEIS. We are repeatedly told that Forest Service budgets have declined and are expected to continue to decline for the foreseeable future. Given this situation, we suggest that there is a high risk that harvest under Alternative D, a 1.5 times increase over current levels, would not be realized due to inadequate funding and lack of technical capacity. We see these limitations playing out today in the Dinkey Collaborative Forest Landscape Restoration Project. The Dinkey CFLRP was initiated in 2010 and was designed to treat a significant portion of a 120,000 acre landscape over 10 years using mechanical treatments like logging combined with prescribed fire. Despite making significant progress in project planning and decision making, many treatments in this landscape remain unfunded or staff work priorities have been directed away from completing these tasks. Recent estimates indicate that more than \$14 million is needed to pay for vegetation and fuels treatments that are “NEPA ready,” i.e., already completed environmental review and decision making. Limitations on the technical capacity to design and assess projects, layout projects, oversee their implementation and actually conduct the treatments are other barriers that the RDEIS does not evaluate. For example, the implementation of projects can be delayed or prevented because a contractor chooses to redirect their work to other activities and defer implementation of a specific contract, as allowed under contract provisions. Such delays will only become more acute as the area covered by such contracts expands. Thus, there is a higher risk that treatments under Alternative D have a greater risk of not being implemented compared to alternatives with lower levels of implementation because there is not likely to be the funding or capacity to implement them.

**Recommendations:** 1) Revise the analysis in the RDEIS to include the actual implementation rate under Alternative A and evaluate the “barriers” to implementation and effectiveness of this alternative in light of the actual work that occurred over the last 27 years; 2) revise the analysis in the RDEIS to address lack of funding and technical capacity as barriers to implementation that leads to a greater risk that the higher levels of thinning under Alternative D will not be implemented compared to other alternatives.

## B. Best available science information

We support the use of best available science information to guide the development of forest plans. We also agree that the peer review process applied to scientific journals creates an environment in which new ideas and approaches can be debated and tested. Unfortunately, we find that the RDEIS has inconsistently applied criteria with which to evaluate the best available science information relevant to the development of the forest plans and RDEIS.

The RDEIS (p. 172) oversteps its authority in passing judgment on several studies that have been peer reviewed and published in scientific journals, e.g., *Ecology*, a long-standing journal of the Ecological Society of America. This section of the RDEIS dismisses out of hand several studies without specifically discussing the issues or counter points offered by other scientists. This type of discourse has no place in an environmental impact assessment and as presented is purely social commentary with no grounding in the facts of the scientific debate.

We find the use of Peery et al. (2019) in the RDEIS especially inappropriate because this article is an opinion piece published in *Frontiers in Ecology and Evolution's* "Write Back" section. This section of the journal is devoted to "letters to the editor regarding the contents of past issues and comments on topics of current concern to *Frontiers* readers."<sup>4</sup> This opinion piece is about a social situation among research scientists who happen to disagree. In this disagreement both sides claim of the other has conflicts of interest, inappropriate use of data and scientific literature, and inappropriate professional behavior. It is questionable whether this was an appropriate opinion piece for a professional journal, and it certainly has no place in an environmental impact statement.

We also want to point out that the RDEIS inconsistently applies the filter of "best available science information" in its analysis of effects. For example, the RDEIS relies upon Westerling et al. (2015) and Westerling and Keyser (2016) to support the analysis of the effects of restoration on fire effects. As we mentioned in our 2016 comments, we have reviewed these studies and reports and find no clear basis of support for the statement in the RDEIS that Westerling et al. (2015) and other studies indicate that 60 to 75 percent of the landscape is an appropriate threshold for a resilient condition. The Westerling et al. (2015) is particularly challenging to review since it does not meet the standards for a published paper, i.e., the methods are incompletely described, figure legends and figures not fully described, results only superficially described and no formal discussion of the results included. The study was also not peer reviewed. Westerling and Keyser (2016) is even briefer than the former report with only an abstract from a presentation at a conference, some bullet points, sentence fragments, and some graphs. The studies and reports do not meet the standards noted in the RDEIS (p. 172) and FSH 1909.12. Another example of the questionable use of "science information" is the eBird inventory source that the Species of Special Concern evaluations rely upon without qualification. As we pointed out in detail in our objection to the final Inyo forest plan<sup>5</sup>, this user created database is known for repeated observations of the same birds within the same day and often over longer periods of time. The species of conservation concern (SCC) rationales

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<sup>4</sup> See front matter of any issue of *Frontiers* for this statement.

<sup>5</sup> See a detailed analysis of eBird records in our Inyo objection:

[https://www.sierraforestlegacy.org/Resources/Conservation/ProjectsPlans/ForestPlanRevisions/SFL\\_objection-INF\\_revision\\_10-3-18.pdf](https://www.sierraforestlegacy.org/Resources/Conservation/ProjectsPlans/ForestPlanRevisions/SFL_objection-INF_revision_10-3-18.pdf)

make no effort to explain this limitation in the accounts that use this information or to estimate the likely repeated observations in the summary statistics reported in the rationale. This is especially troubling when the information is used, as in the case of black-backed woodpecker, to justify not including a species on the list. These are not the only examples of science information usage that does not strictly meet the criteria in FSH 1909.12.

**Recommended change:** The last two paragraphs of the “assumptions” section on pages 172-173 of the RDEIS should be removed. If there is an interest in qualifying why some studies are not relied upon whereas others are, then a full analysis of those studies and the reasons they are not used should be provided. Such an evaluation should be an objective and dispassionate review of the science information. We suggest that the agency review recent species reports prepared by the US Fish and Wildlife Services as an example of the type of dispassionate review and acknowledgement of a range of studies that is required when applying science information to conservation planning. As an example, the recent conservation objectives report for California spotted owl reviews the range of scientific studies related to fire and wildlife mentioned in the RDEIS.<sup>6</sup>

### C. Evaluation of restored conditions

We mentioned this point in our 2016 comments. The analysis of effects mistakenly judges that some alternatives will fully restore landscapes within the life of the plan:

The higher rates of treatment, more flexibility, strategic prioritization, increased effectiveness, and emphasis on treating across larger areas would be more likely to result in **entire landscapes that are restored within the next 10 to 15 years.**

The beneficial effects of alternative D are substantially greater than under alternative B. Under alternative D, slightly more than half of the landscape is likely to be **restored fully to desired conditions.**

(RDEIS, p. 226, emphasis added). These are incorrect statements and illustrate the ongoing confusion in the analysis about the progress of restoration and the change to conditions that a treatment will cause. The presumption above that the condition is “restored” after logging illustrates that the analysis in the RDEIS is actually evaluating the achievement of lower tree density, lower canopy cover, and lower surface fuel conditions (possibly) since these are the only changes that can be realized by logging in the first decade. The restored condition of higher numbers of large trees and greater extent of old forests are ones that will take decades or more to achieve.

This interpretation of “restored” condition also leads us back to consider the Westerling et al. (2015) analysis. Treatment benefit in that model is achieved when FRCC 2 or 3 is moved to FRCC 1. The analysis in the RDEIS assumes that any treatment applied accomplishes the transition to FRCC 1 and that the only differences among the alternatives is the amount of area treated. Given this, an increase in the acreage of the management approach in Alternative C would achieve the same level of benefit to fire trend and resiliency compared to Alternative B.

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<sup>6</sup> See report at: [https://www.fws.gov/sacramento/documents/CSO\\_COR\\_Final\\_Oct\\_2017.pdf](https://www.fws.gov/sacramento/documents/CSO_COR_Final_Oct_2017.pdf)  
*SFL et al. comments on Sequoia and Sierra draft plans and RDEIS (9/26/19)*

**Recommended change:** We ask that the RDEIS be revised to address what will actually be occurring – a transition to desired conditions over time – under all alternatives and recognize that this transition will take longer than the life of the plan.

#### **D. “Overabundance” of large trees is not substantiated with data**

We raised this issue in our 2016 comments. Our concern essentially remains the same; the RDEIS asserts that there is an overabundance of trees over 30 inches in diameter on the landscape in locations that had been railroad logged without providing any data to support this (RDEIS, p. 199). In our prior comments, we provided specific examples of inventory data associated with projects in areas that had been railroad logged that demonstrated large trees were not over represented in these areas.

These claims about over-abundance of large trees in 2016 and now again in 2019 still have not taken into account the tree mortality event that has certainly reduced the numbers of large trees. These claims also conflict with statements elsewhere in the RDEIS that there are, in fact, not many large trees in the plan areas:

Also, large tree densities are generally lower than desired conditions in most landscape areas. (RDEIS, p. 272)

It is unknown how many large trees would be harvested, but the Forest Service assumes that it would be low. This is because many areas are below desired condition levels for large trees.” (RDEIS, p. 281)

Recent bark beetle outbreaks in all ecosystem types have further reduced the large tree component. (RDEIS, p. 470)

Failing to assess and report on the baseline condition of large trees on the landscape only contributes to the mythology that using a diameter limit to constrain their removal substantially limits treatment effectiveness and the ability to restore desired conditions.

**Recommendations:** 1) Remove unsubstantiated information about abundance of large trees (e.g., RDEIS, p. 199); 2) provide information on current conditions of large tree density using inventory data that has been updated with information on tree mortality in the plan areas.

#### **E. Lack of Clarity in Some Plan Components**

We raised this concern in our 2016 comments. An assumption in the RDEIS is that all of the plan components would be followed during project planning and implementation (RDEIS, p. 66). For this assumption to be realized, the plan components need to be unambiguous and have a well-defined approach for application or implementation. These plans rely heavily on desired conditions to guide restoration. If it is not clear how to interpret and apply an evaluation of the desired conditions at the project and landscape scale, implementation of the plan is likely to be inconsistent and could degrade forest resources.

Plan components that are not sufficiently clear include and that we identified in our 2016 comments are<sup>7</sup>:

**Seral stage desired conditions (e.g., SNF draft plan, Table 4, p. 37)**

First, this table is labelled “amount of seral stage patches (>10 acres). . . .” The table then reports percentages for the values. It seems the table would more appropriately be labeled “Proportion of seral stage patches (>10 acres). . . .” Second, the title refers to “patches (>10 acres).” It is not clear how this affects the estimate of seral stage distribution. Does this mean that all patches less than 10 acres in size should be excluded from the estimate of seral stage? Please clarify the intention and specify the method to apply when estimating. Third, how do these categories relate to desired conditions for Complex Early Seral Forests and Old Forests? In this table, are complex early seral forests the same as “early seral”? With respect to Old Forests, how does Table 4 relate to the column in Table 7 “proportion of landscape with large and/or old trees”? In both cases, the terms and conditions should be associated, but the linkage is not clear.

**Application of broad ranges in desired conditions**

Many of the desired conditions are represented by broad ranges. For example, tree density for “ponderosa pine dry mixed conifer” identifies ranges from 20-200 square feet of basal area per acre at the stand scale. What moderates the repeated application of the lower end of the range when projects are being designed? The same question could be asked of any of the tables in the “Terrestrial Ecosystems” section of the draft plans.

We also appreciate the use of photos to illustrate the desired conditions. These images would be enhanced by the visualizations provided by Forest Vegetation Simulator (FVS), especially the overhead view of a stand. An overhead view would convey the smaller scale variability that is intended by desired condition plan components. As an example, Johnson et al. (2007) used FVS simulations to convey pre-treatment and a range of post-treatment stand conditions for dry forests in the Western States.

**Recommendations:** 1) Improve the clarity of the desired conditions with a focus on establishing the scale at which they should be applied and under what conditions the low or high end of a range applies; 2) develop an implementation guide to ensure the consistent application and measurement of desired conditions; 3) develop FVS simulations to portray the overhead view of the desired stand conditions to guide project planning and implementation.

**F. Old forests**

We raised similar concerns in our 2016 comments. Table 7 in the draft plan displays desired conditions for “large/old trees at the landscape scale” (see e.g., Sierra draft plan, p. 44). The table presents desired tree densities and amount of Old Forest as a range of conditions, but does not indicate how to apply the range in assessing if a landscape meets desired conditions. This is a similar comment that we made about the desired condition attributes for all vegetation types. Clarity about how to apply this table is essential since guideline TERR-OLD-GDL-01 addresses directly what actions could be taken when desired conditions are met.

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<sup>7</sup> We also raise concerns about clarity of plan components and their application in the section on at-risk wildlife species.

The guideline referenced above is also not entirely clear. It speaks to actions to take when desired conditions are met, but does not address actions that should be taken if desired conditions are not met. The implication is that one would not remove trees in certain size classes if the desired conditions had not been met. This is the interpretation taken in the RDEIS stating in reference to Alternative D: “It contains **guidelines to meet those desired conditions** in vegetation management, such as restoration thinning or timber harvest, instead of the current, more-constrained diameter limits under alternative A” (RDEIS, p. 272; emphasis added). Since all alternatives have a 24” or 30” diameter limit, Table 7 informs the retention of trees 20 to 29 inches in diameter. This intention should be clarified in the guideline by stating that trees between 20” and 30” should not be removed unless the desired conditions have been met. The plan components for Old Forests should also be integrated with the standard limiting the removal of large trees (e.g., Sierra draft plan, p. 27, TERR-FW-STD-01) to improve clarity and limit confusion.

We are confused by repeated reference to canopy retention guidelines in the Wildlife Habitat Management Area (WHMA) referenced in the effects analysis for Old Forests (see for example RDEIS, p. 260, Table 44). This table implies that there is direction to retain at least 30 percent canopy cover in the WHMA. However, the guideline that addresses canopy retention in the WHMA is limited to fisher linkage areas which cover a very small portion of the landscape with only four linkage areas represented across the two forests (see RDEIS, p. 54, Figure 10). Nonetheless, the RDEIS finds for Alternative B that:

Wildlife habitat management areas would have additional protection for large trees, including wildlife habitat canopy cover and large tree clump retention guidelines.

The effects analysis appears to reflect greater protection of canopy cover and its benefits to old forests than is actually provided for in the draft plans and alternatives.

We also believe that the RDEIS is mistaken about the plan components included in Alternative B. The following statement from the RDEIS refers to diameter limits, canopy cover limits, and limits on treatment amount in spotted owl habitat:

Where **areas are outside of the fire restoration and maintenance zones**, the direction for large trees changes, **but the canopy cover retention direction for fisher and owl habitat remains the same**. Here, **there is no limit on the diameter of large trees that can be removed and instead desired conditions for large tree densities apply**. In most of the montane likely treatment areas, the greatest limitations on implementation to reach vegetation and old forest desired conditions is the plan direction **limiting removal of canopy cover and treatment amount in spotted owl** and fisher habitat. In these areas, there would be a limited movement toward vegetation and old forest desired conditions because relatively few trees could be removed. This would result in less total area treated, since it would cost more per acre to treat and no timber or biomass receipts would be available to treat nearby areas in the landscape.

(RDEIS, p. 206) Our interpretation of Alternative B is that there are diameter limits across all areas, and the canopy retention requirements are limited to fisher linkages, treatment in PACs, and not reducing habitat quality in CWHR types 5M, 5D, and 6 when high quality nesting

habitat is less than desired conditions for a territory. Cumulatively, these “constraints” affect a very small percentage of the plan area.

The effects analysis conveys the general belief that Old Forests will be enhanced under Alternative D and to some extent B compared to other alternatives because they cover more ground and provide fewer constraints. For the reasons we mention above (see Section II.A), the claim that the existing constraints in the forest plans limit treatment effectiveness is speculative and not based on analysis that is specific to the plan area or the bioregion.

**Recommendations:** 1) Identify criteria to use in determining the specific desired conditions for a site to provide a consistent application of Table 7 to project planning; 2) revise guideline TERR-OLD-GLD-01 to include a statement that trees between 20” and 30” should not be removed unless the desired conditions have been met; 3) integrate plan components for Old Forests with standard that limits the removal of large trees (TERR-FW-STD-01); 3) revise the analysis in the RDEIS to accurately reflect the direction in each alternative; 5) revise the analysis in the RDEIS emphasize that the main differences among alternatives related to in improving resiliency and reducing the risk of fire is due to the increase in area treated and not a difference in the treatments themselves; 6) adopt Alternative C with increased objectives for the use of fire managed fire to best provide for the conservation of Old Forests.

#### **G. Burned Forests and Complex early seral forests**

##### **1. Desired conditions for snags conflict with desired conditions for moderate severity fire effects.**

The revised forest plans include the following desired condition for all montane vegetation types (TERR-MONT-DC-02):

At the landscape scale, fire is a key ecological process restoring and maintaining patchy fuel loads, and increasing heterogeneity and understory plant vigor. Fires occur regularly, generally every 10 to 20 years. Fires in this zone burn with low, moderate, or mixed severity, with dispersed patches of high severity (greater than 75 percent basal area mortality) generally less than 10 acres and rarely greater than 200 to 250 acres in size. The proportion of areas burned at high severity within a fire is generally less than 10 to 15 percent.

We support the desire to return low and moderate severity fire to the landscape. Moderate severity fire effects are an essential component to natural functioning forest ecosystems in the plan area. Moderate severity fire reduces stand density, consumes surface fuels, increases canopy base height, and produces a flush of snags and large woody debris that provide habitat for numerous wildlife species.

Although moderate severity fire effects are clearly a desired condition in the plan areas, the revised plans do not allow for the attainment of moderate severity fire effects in many circumstances due to inherent conflicts between the desired conditions for snags in low to moderate severity burn patches outlined in Table 3 of the forest plans (Sierra Forest Plan, p. 33) and the actual effects of moderate severity fire on basal area. In other words, moderate



severity fire effects result in tree mortality levels (i.e., snag levels) that would be outside of desired conditions under many circumstances, even when forests are within desired conditions before they burn at moderate severity.

Based on TERR-MONT-DC-02, which states that high severity fire effects have greater than 75 percent basal area mortality, one can assume that moderate severity fire effects are those that have less than 75 percent basal area mortality. However, Table 3 (Sierra Forest Plan, p. 33) suggests that it is desired for in ponderosa pine and dry mixed conifer forests to have 2-40 snags >20 inches dbh for every 10 acres ( $\leq 4$  snags/acre) and for moist mixed conifer to have 5-40 snags >20 inches dbh for every 10 acres ( $\leq 4$  snags/acre). Table 7 of the revised plans (Sierra Forest Plan, p. 44) finds that it is desired to have 4-32 trees live trees >20 inches dbh/acre in dry mixed conifer, 2-16 live trees per acres >20 inches dbh for Jeffrey pine, and 4-40 tree per acre >20 inches dbh for moist mixed conifer. Given that a moderate burn severity is when less than 75 percent of the basal area is killed, a moist mixed conifer stand with 40 trees/acre greater than 20 inches dbh that experiences 75 percent basal area mortality would have 30 snags/acre (300 snags/10 acres). Such a stand would have been within desired conditions for trees >20 inches dbh and experienced a desired burn severity, yet be far outside of desired conditions for snags. This situation is also true for lower fire severity effects. For example, a dry mixed conifer or moist mixed conifer stand with more than 20 trees per acre >20 inches dbh could be outside of desired conditions for snags if 25 percent of the overstory vegetation is killed and this same stand is highly likely to be outside of desired conditions if 50% of the overstory vegetation is killed in a fire. For Jeffrey pine, a stand with 50% basal area mortality and more than 8 trees per acre >20 inches dbh could be outside of desired conditions for snags and would likely be outside of desired conditions for snags if 70 percent of the overstory vegetation were killed in a fire.

**Recommended Change:** 1) Increase the desired number of snags per 10 acres >20 inches dbh (Table 3) to allow for moderate severity fire effects when stands have the desired number of trees per acre.

## **2. The Desired Conditions Fail to Make Key Distinctions Between “Early Seral” and “Complex Early Seral” Forest**

Desired condition TERR-MONT-DC-2 states:

At the landscape scale, fire is a key ecological process restoring and maintaining patchy fuel loads, and increasing heterogeneity and understory plant vigor. Fires occur regularly, generally every 10 to 20 years. Fires in this zone burn with low, moderate, or mixed severity, with dispersed patches of high severity (greater than 75 percent basal area mortality) generally less than 10 acres and rarely greater than 200 to 250 acres in size. The proportion of areas burned at high severity within a fire is generally less than 10 to 15 percent.

The fact that fire naturally burned as a mosaic of low, moderate, and high severity, with some patches as large 200 to 250 acres in size, demonstrates that complex early seral forests were a natural and well-distributed component of the forest system within the plan areas. In contrast to this basic principle of the natural fire regime in the Sierra Nevada, the DEIS states (p. 245), “There is no historical (NRV) proportion of complex early seral forest, because this habitat

type is largely derived from unnaturally dense forest stands that lack a historical analog.” Such a statement represents a fundamental lack of understanding of the effects of a mixed severity fire regime and lack of familiarity with the vast pool of literature on the subject. To say the least, this statement should be stricken from the DEIS.

Table 4<sup>8</sup> (Sierra Forest Plan, p. 37) defines how much “early seral” forest is desired within each vegetation zone, but the plan does not make a clear distinction between an early seral and a complex early seral forests. Only early seral forests that have not been mechanically treated should be categorized as “complex” (Swanson et al. 2014). Complex early seral forests include many large snags and downed wood, especially when mature forests burn at high severity. These legacies provide habitat for a different suite of plant and wildlife species than an early seral forest that has been salvage logged. Early seral forest may include salvage logged areas that have been treated with herbicide and densely planted with trees (Swanson et al. 2014), while complex early seral forests would be areas not salvage logged. The revised plan should clearly define the difference between a complex early seral forest and early seral forests that lack complexity.

Nowhere in the DEIS is it stated how much complex early seral forest habitat is desired, if forests dominated by larger trees that burn at high severity provide higher quality habitat than forests dominated by smaller trees, and to what degree salvage logging degrades the quality of complex early seral forest habitat. These issues must be resolved in the forest plan in order for it to be determined that the revised plan provides for ecosystem integrity and species that rely on complex early seral forests.

**Recommended Changes:** 1) Provide and justify a numerical desired condition for how much complex early seral forest is desired at the landscape scale. 2) Provide an analysis in the DEIS defining where and how much complex early seral forest currently exists across the landscape. 3) Remove this unfounded statement from the DEIS (p. 245): “There is no historical (NRV) proportion of complex early seral forest, because this habitat type is largely derived from unnaturally dense forest stands that lack a historical analog.”

### **3. The Forest Plans do not Adequately Protect Complex Early Seral Forests When Fires Burn within Desired Conditions**

The forest plans provide no protection for complex early seral forest habitat in fires or portions of fires that burn within desired conditions. Arguably, any fire or portion of a fire that burns within desired conditions is beneficial to ecosystem function and integrity and should be hailed as such. However, we have repeatedly seen the Forest Service salvage log small patches of high severity fire effects in smaller fires (e.g. Minerva Fire<sup>9</sup>) or portions of fires (e.g., Big Bar

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<sup>8</sup> The ecosystem desired conditions are to be based on the Natural Range of Variation. If complex early seral forests did not exist historically, as stated in the DEIS (p. 245), then why do the forest plans include desired conditions for the amount of the landscape that should be composed of early seral forest?

<sup>9</sup> The Minerva Fire was a small mixed severity fire on the Plumas National Forest that burned within this forest plan’s definition of NRV. Despite fire effects within desired conditions that had ecological benefits, the U.S. Forest Service salvage logged most accessible economically viable portions of the fire, including moderate severity patches away from roads: <https://www.fs.usda.gov/project/?project=52726>

Project<sup>10</sup>) that burn within desired conditions for no other reason than to meet timber volume targets. The only plan component that limits salvage of complex early seral habitat is:

Guideline TERR-CES-GDL-05 states (Sierra Forest Plan, p. 45):

Large fires with more than 1,000 acres of contiguous blocks of high vegetation burn severity in forest vegetation types (ponderosa pine, Jeffery pine, dry or mesic mixed conifer, and red fir) should retain at least 10 percent of the high vegetation burn severity area without harvest to provide areas of complex early seral habitat.

It is unclear why this guideline is limited to fires larger than 1,000 acres or how it was determined that retaining 10 percent of the complex early seral forest in such fires is adequate to provide for ecological integrity. A desired condition for all montane vegetation types that we strongly support is TERR-MONT-DC-02:

At the landscape scale, fire is a key ecological process restoring and maintaining patchy fuel loads, and increasing heterogeneity and understory plant vigor. Fires occur regularly, generally every 10 to 20 years. Fires in this zone burn with low, moderate, or mixed severity, with dispersed patches of high severity (greater than 75 percent basal area mortality) generally less than 10 acres and rarely greater than 200 to 250 acres in size. The proportion of areas burned at high severity within a fire is generally less than 10 to 15 percent.

When this desired condition is achieved, it is unclear why “salvage” logging would be necessary. The effect of or need to salvage log fires or portions of fires than burn within this desired condition has not been analyzed in the RDEIS.

**Recommended Changes:** 1) Include a guideline in the forest plans stating that salvage of dead and dying trees should not occur in portions of fires that meet desired conditions for fire severity effects, except in areas that are determined to be strategic to future fire suppression operations or where public life and property are at risk; 2) Provide rationale in the RDEIS demonstrating why guideline TERR-CES-GDL-05 is limited to fires larger than 1,000 acres and how it was determined that retaining 10 percent of the complex early seral forest in such fires is adequate to provide for ecological integrity across the plan areas; 3) Provide an analysis in the RDEIS on the short and long-term ecological effects of salvage logging portions of fires that meet desired conditions.

#### **4. The Forest Plans Inappropriately Mandates Salvage Logging Occur and Economic Value Recovered be Maximized**

Guideline TERR-CES-GDL-04 (Sierra Forest Plan, p. 45) states:

Post-disturbance restoration projects should be designed to recover the value of timber killed or severely injured by the disturbance.

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<sup>10</sup> Big Bar Project is a salvage project in the portion of the Camp Fire dominated by low and moderate severity fire effects. Much of the project was roadside hazard, but many smaller patches of moderate and high severity outside of roads and ridge tops were included in the salvage: <https://www.fs.usda.gov/project/?project=56140>  
*SFL et al. comments on Sequoia and Sierra draft plans and RDEIS (9/26/19)*

This plan component may be read to suggest that forest managers must salvage log following disturbances and that the economic potential of the salvage be maximized. The need for and the ecological effects of such a mandate have not been analyzed in the RDEIS. The Forest Service often suggests that forest plans should be flexible, but this plan component does not allow for flexibility.

**Recommended Change:** 1) Include a guideline that states, “Recovering the economic value of timber killed or severely injured following disturbances should not be a purpose of post-disturbance restoration projects;” 2) Modify TERR-CES-GDL-04 to state –

Post-disturbance restoration projects may be designed to recover some of the value of timber killed or severely injured by the disturbance.

### **III. Aquatic Ecosystems**

We appreciate the improved organization and clarity of the approach to conservation of aquatic ecosystems in the draft plans. Appendix F is a useful addition to convey the integrated nature of the various plan components and is a helpful overview. We also appreciate and agree with the decision to exclude riparian conservation areas from the suitable timber base.

We remain concerned that a number of plan components for the Preferred Alternative (Alternative B) related to riparian areas and other special aquatic features do not adequately protect these sensitive areas and provide less protection than the existing plans. The draft plans set an inappropriately low standard for ecological status and still allow activities that impede the improvement of the conditions of meadows, fens and other special aquatic features. We asked in our DEIS comments that standards and guidelines be developed to limit or prohibit activities, e.g., livestock grazing, in meadows that are in less than excellent condition or not in “properly functioning condition.” We also asked that plan components be designed to maximize an upward trend toward properly functioning condition in places where conditions are less than properly functioning.

While the plan components in these drafts now state more clearly when restorative action should be taken, Alternative B still does not provide sufficient protection for special aquatic features that are functioning at risk or nonfunctional. Alternatives A and C include plan components that provide greater protection of special aquatic features from impacts due to management activities like grazing, roads, and trails compared to Alternative B. This greater benefit to riparian conservation is recognized in part in the RDEIS (see for example RDEIS, pp. 316 and 328). Alternative C also directs far more restoration of meadows and streams compared to the other alternatives. For these reasons, Alternative C provides greater conservation benefit to aquatic ecosystems and should be adopted as the final plans.

#### **A. Delineating management buffers for riparian areas**

The draft plans do not identify “riparian conservation areas” as management areas nor do they include a plan component that establishes their delineation. The draft plans (e.g., Sierra draft plan, p. 15-16) defines riparian conservation areas (RCA) and provides guidance for their

delineation. This direction is presented as an introduction to the plan components making its relationship to the plan components ambiguous. This direction needs to be properly integrated into the plan components of the final plans as is the case for the current forest plans for the Sierra and Sequoia (Standard 91; USDA Forest Service 2004, p. 62) and was done in the revised forest plan for the Flathead National Forest (USDA Forest Service 2018, p. 19).

**Recommendations:** 1) Move the text defining the RCAs (e.g., pp. 15-16 of the Sierra draft plan) to the glossary; 2) add the following standard:

WTR-RCA-STD-01

Designate riparian conservation areas (RCA; see Glossary) based on the type of aquatic feature encountered. Riparian conservation area widths may be adjusted at the project level if interdisciplinary analysis demonstrates a need for different widths to meet or improve desired conditions for riparian conservation areas.

## **B. Greater damage to special aquatic habitats compared to the current plans**

The draft plans allow management activities to continue to adversely affect meadows and special aquatic features that are not properly functioning. In contrast, the existing forest plans require that these features be properly functioning. Standard and guideline 117 in the current forest plans requires:

Assess the hydrologic function of meadow habitats and other special aquatic features during range management analysis. **Ensure that characteristics of special features are, at a minimum, at Proper Functioning Condition**, as defined in the appropriate Technical Reports (or their successor publications): (1) “Process for Assessing PFC” TR 1737-9 (1993), “PFC for Lotic Areas” USDI TR 1737-15 (1998) or (2) “PFC for Lentic Riparian-Wetland Areas” USDI TR 1737-11 (1994). (emphasis added)

(USDA Forest Service 2004, p. 65) This means that action must be taken to prevent these features from becoming not properly functioning and to restore features to the condition of proper function. Management activities that contribute to the condition of not properly functioning or impede the recovery to a properly functioning condition (PFC) would need to be modified or halted to “ensure” that PFC is met. Grazing practices and road condition and location are examples of types of management activities that could impede or retard recovery of systems that are not properly functioning, i.e., functioning at risk or nonfunctional.

By comparison, the revised draft plans allow for meadows and other special aquatic features to be not properly functioning as long as the feature is trending toward this condition:

MA-RCA-STD-12

Assess the hydrologic function of riparian areas, meadows, fens, and other special aquatic features during rangeland management analysis. Ensure that characteristics of special features are, at a minimum, at proper functioning condition **or functioning at risk and trending toward proper functioning condition**, as defined in appropriate technical report. If systems are functioning at risk, assess appropriate actions to move them towards proper functioning condition. (emphasis added)

(Sierra draft plan, p. 18; Sequoia draft plan, p. 19) This is a far more permissive standard that allows grazing and other management actions to impact meadow habitats and other special aquatic features that are not properly functioning.

This change is especially damaging to sensitive meadow resources since a significant proportion of the meadows and special aquatic features that have been evaluated are not properly functioning on the Sierra National Forest.<sup>11</sup> The Sierra forest assessment (USDA Forest Service 2013c, p. 133) does not distinguish between meadows and other special aquatic features, but reports that 45 percent of these features combined are not properly functioning.

**Recommendations:** We ask that you remove the phrase “or at functioning at-risk and trending toward proper functioning condition” from this standard and others where it exists in the final forest plans. If you are not willing to remove this phrase, then we ask that you include the following as a final sentence in MA-RCA-STD 12:

Ensure grazing practices are not retarding the rate of recovery and implement appropriate actions to support recovery.

This phrase should also be inserted in other plan components that allow management activities that impact special aquatic features that are functioning at risk.

#### **C. Impacts from managing to the lower standard of “functioning at risk”**

The RDEIS does not evaluate the difference between current management (Alternative A) that does not permit actions in systems that are less than “properly functioning” and the other alternatives that allow management to occur within special aquatic features that are functioning at risk.

**Recommendations:** The RDEIS should be revised to evaluate the differences between the alternatives with respect to only “proper functioning” (Alternatives A and C) and including “functioning at-risk” (Alternatives B and D).

#### **D. Greater damage to sensitive fen systems than the current plan**

The threats to fens from livestock grazing are clearly stated by Weixelman and Cooper:

The land uses occurring on or adjacent to fens can threaten fens. Livestock management can impact peatlands by trampling, compacting peat, creating bare areas in the fen or in adjacent uplands, altering hydrologic conditions, and initiating erosion and gully formation (headcutting).

(Weixelman and Cooper 2009, p. 7)

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<sup>11</sup> We note that no PFC evaluation data was reported in the Sequoia forest assessment. We conclude from this that the data does not exist.

Damage to the fen surface can occur when large herbivores or people walk through fens and by motorized vehicles driving on the fen. In the case of livestock, the animal's weight can cause shearing that in turn results in direct exposure of the peat layer. Animals walking through the fen may increase the amount of peat exposed to the air or cutting through the moss or litter layers and exposing peat and/or soil. Excessive trampling can cause increased exposure of the peat layer, which in turn results in oxidation of the organic layers and decomposition of the peat. Trampling and/or hoof punching is considered damage when there are hoof prints, tire tracks, or human prints that cause shearing and expose bare peat or bare soil and are causing water channels to form or are causing visible signs of erosion.

(Weixelman and Cooper 2009, p. 17-18) Despite these clear statements of threat in the guide used by the Forest Service to assess proper functioning condition for fens, the revised plan includes standards that allow increased damage to fens relative to the existing plan. For example, MA-RCA-STD-08 allows an annual disturbance of up to 20 percent from livestock or packstock:

**MA-RCA-STD-08**

In fen ecosystems, limit disturbance from livestock and packstock to no more than 20 percent annually. Reduce disturbance further if a fen is nonfunctional or functional at risk with a downward trend.

The RDEIS provides no analysis of the effects of this level of disturbance and no discussion of the science-basis to support its adoption as an acceptable threshold. In contrast, the existing forest plans prohibit or require mitigation for ground-disturbing activities that adversely affect fens (USDA Forest Service 2004, p. 65, standard 118). We also find it especially disturbing that grazing could continue if “a fen is nonfunctional or functional at risk with a downward trend.”

Standard MA-RCA-STD-8 also conflicts with the following two standards:

**MA-RCA-STD-10**

Prohibit or mitigate ground-disturbing activities that adversely affect hydrologic processes that maintain water flow, water quality, or water temperature critical to sustaining fen ecosystems and the plant species that depend on these ecosystems.

**MA-RCA-STD-11**

Prevent activities from causing significant degradation of fens from trampling, such as by livestock, pack stock, wheeled vehicles, and people.

Adverse effects to hydrologic processes and significant degradation of fens could occur with less than 20% disturbance. The revised plan does not provide a means to resolve these conflicting standards.

We also note that it is unclear the area to which standard MA-RCA-STD-08 would apply. The introduction to the section on RCAs indicates that:

Riparian conservation area plan components apply to the entire riparian conservation area, as well as the specific riparian and aquatic environments contained within them, such as rivers, streams, meadows, springs and seeps.

(Sierra draft plan, p. 16) Does the 20% disturbance threshold apply to the area consisting of the fen plus RCA, as suggested by the citation above? Or, does it only apply to an area defined by the “fen ecosystem” mentioned in MA-RCA-STD-08?

**Recommendations:** 1) Eliminate Standard WTR-RCA-STC-08 from the final plans; 2) evaluate in the RDEIS the impact of allowing up to 20% disturbance of a fen ecosystem and provide the science basis for proposing this as a threshold; 3) clarify the specific footprint to which the threshold applies.

#### **E. Grazing in RCAs that are functioning at risk with a downward trend or nonfunctional**

We do not support grazing in RCAs that are nonfunctional or functioning at risk. Standard RANG-FW-STD-09 addresses this in part by stating: “Move or remove livestock in riparian conservation areas that are not properly functioning or functioning at-risk with a downward trend.” As stated above, grazing should be limited in RCAs when they are functioning at risk regardless of trend, or if grazing occurs it should not impede or retard achievement of PFC.

Setting aside our issue of management actions occurring in RCAs that are not properly functioning, RANG-FW-STD-07 (and e.g., Table 8 in the SNF draft plan, p. 81<sup>12</sup>) conflicts with RANG-FW-STD-09. This is because RANG-FW-STD-07 allows grazing in RCAs<sup>13</sup> that are functioning at-risk with a downward trend. To be consistent with RANG-FW-STD-09 the following should be changed:

RANG-FW-STD-07

When grazing in riparian conservation areas under season-long use:

- For meadows and riparian areas that are **functioning at risk with a downward trend and/or are** in low to mid-seral condition with a downward trend, limit livestock utilization of deep-rooted herbaceous plants to 30 to 35 percent. For stream channels and drainways, maintain a minimum 6-inch residual stubble height on the greenline.

#### **F. Equipment exclusion zones in RCAs**

Standard WTR-RCA-STD-15 appropriately directs the designation of equipment exclusion zones in RCAs:

WTR-RCA-STD-15

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<sup>12</sup> Table 8 in the Sierra forest plan (p. 81) requires more explanation. This is in a section called “potential management” but there is no narrative to explain its application. It also appears to set thresholds that have not been discussed elsewhere in the draft plan. It is unclear if or when Table 8 would be applied.



Designate equipment exclusion zones within riparian conservation areas when designing projects. The exclusion zone width is within 150 feet of perennial streams, meadows springs, and seeps; and 75 feet for intermittent streams. These widths will increase as slope increases, or if soils are unstable. Adjustments will be made only after consultation with experts in soils, hydrology, fisheries, and/or aquatic ecology. Any project, occurring within the exclusions zone will repair any damage, including stabilizing soils.

This standard however omits designation of an exclusion zone for RCAs delineated for ephemeral streams. The exclusion zone for ephemeral streams is instead addressed in a guideline:

**WTR-RCA-GDL-09**

Mechanical exclusion zones of 25 feet on either side of an ephemeral stream with structure should be designated to protect soils and streams from sedimentation and subsequent erosion. The necessity of increasing buffers on these headwater streams with structure should be analyzed by specialists in soils, hydrology, aquatics, and/or fisheries where slope, aspect, recent fires, soil conditions, or species occupancy raise concerns.

Both plan components should be combined into one standard for clarity and improved integration. Furthermore, WTR-RCA-STD-15 allows for adjustments in the zone after consultation with experts, which appears to be a main point in the guideline. Lastly, it is unclear what is meant by an “ephemeral stream with structure.” What type of structure is this meant to address – wood, rocks, understory vegetation, tree structures (live or dead), etc.?

**Recommendations:** 1) address equipment exclusion for all RCAs, including one based on ephemeral drainages, in a single standard; 2) apply the 50-foot equipment exclusion zone to ephemeral drainages included in Alternative C to “do a better job of protecting soils, species habitats, and water quality” compared to alternatives A, B, and D” (RDEIS, p. 328).

**G. Management in RCAs is not prohibited under the current forest plan (Alternative A)**

The effects analysis for Alternative A in the RDEIS incorrectly assumes that “[i]n the long term, no reduction in the fuels or restoration of riparian associates would occur.” This is a misreading of direction in the existing forest plan. The current standard allowing for management action is:

113. Allow hazard tree removal within RCAs or CARs. Allow mechanical ground disturbing fuels treatments, salvage harvest, or commercial fuelwood cutting within RCAs or CARs when the activity is consistent with RCOs. Utilize low ground pressure equipment, helicopters, over the snow logging, or other non-ground disturbing actions to operate off of existing roads when needed to achieve RCOs. Ensure that existing roads, landings, and skid trails meet Best Management Practices. Minimize the construction of new skid trails or roads for access into RCAs for fuel treatments, salvage harvest, commercial fuelwood cutting, or hazard tree removal.

(USDA Forest Service 2004, pp. 64-65) Active restoration is also contemplated in another standard in the existing plan:

105. 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 and/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.

(USDA Forest Service 2004, p. 64) We are also aware of projects on the Sierra National Forest that have undertaken restoration and fuels reduction in RCAs and Critical Aquatic Refuges (CARs). For example, the Bald Mountain Project on the High Sierra Ranger District was designed to remove conifers from a meadow system with perennial, intermittent and ephemeral drainages. The purpose was to reduce the encroachment of conifers in the meadow, improve habitat conditions for great gray owl, and reduce fuels around the meadow. A portion of the project was also designed to improve fuel conditions in the Cow Camp CAR.

It is likely that for purposes of expedience, many interdisciplinary teams have avoided designing treatments in RCAs or CARs, but it is incorrect to state that active management does not occur because direction in the forest plan prevents it. In reality, the plan components in Alternative B are about the same for fuel reduction and restoration as the current plan with the exception of lighting prescribed fire. That is to say, the current plan (Alternative A) directs that prescribed fire can only back into RCAs.

**Recommended change:** The RDEIS should be revised to more accurately reflect what the current plan (Alternative A) allows.

## **H. Conservation Watersheds and Critical Aquatic Refuges (CARs)**

We support the use of management areas to elevate the protection and restoration of aquatic ecosystems as a whole and their unique processes, composition (species, etc.), structure, and function. We recommend adoption of the components in Alternative C because it provides a more comprehensive effort to integrate maintenance and restoration of high quality watersheds, i.e., Conservation Watersheds, with additional direction for high value areas that support at-risk species, as with the enhanced system of Critical Aquatic Refuges.

The RDEIS attempts to make the case that most of the existing or new CARs are included in the Conservation Watersheds and that because of this, the protections provided for aquatic ecosystems and species is nearly comparable (RDEIS, p. 319). This rationale fails for two reasons. First, the overlap between CARs (existing and new), and Conservation Watersheds, roadless areas, and Wilderness Areas is significant on the Sequoia National Forests; however, there is far less overlap on the Sierra National Forest. There are significant areas outside of Wilderness and roadless areas on the Sierra National Forest at lower elevations that are included in CARs under Alternative C. Second, the plan components for Conservation Watersheds, across all alternatives, are quite limited and lack standards or guidelines to comprehensively

address activities in this management area. In contrast, the CARs under Alternative C would receive enhanced protection from the plan components that focus on implementing actions to attain desired conditions and avoiding management activities that prevent attainment or retard achievement of desired conditions.

The management in Conservation Watersheds would be significantly improved if the plan components addressed additional management activities beyond road-related actions and siting of new recreational facilities. Livestock grazing should be analyzed as a stressor and driver of ecosystem processes and addressed in plan components (we note that grazing is not listed as a stressor in the RDEIS, p. 67). Plan components similar to those provided for RCAs and CARs in Alternative C should be added for Conservation Watersheds to more comprehensively address conservation of aquatic species.

**Recommendations:** To address management actions more broadly and to focus on the purposes of the management area, i.e., to provide high quality habitat for native species, we recommend the following for Conservation Watersheds in the final plan:

MA-CW-STD-03

Prohibit activities that prevent or retard attainment of desired conditions. Exceptions are allowed when specialists in soils, hydrology, aquatics, and/or fisheries determine that the long term benefit of a restorative activity outweighs short term impacts.

MA-CW-STD-04

Design management activities to attain the management area specific desired conditions for Conservation Watersheds.

**I. Managing beavers as an important engineer of aquatic ecosystems**

The management of beavers (*Castor canadensis*) and the positive modifications they can make to aquatic habitats should be addressed in the forest plans. The work of this species has been associated with “higher water tables; reconnected and expanded floodplains; more hyporheic exchange; more diversity and richness in the populations of plants, birds, fish, amphibians, reptiles, and mammals; and overall increased complexity of the riverine ecosystems,” which results in contributing to high levels of species diversity (USDI Fish and Wildlife Service et al. 2018). These benefits prompted the interagency Climate Change Adaptation and Beaver Management Team to conclude and recommend that the Forest Service should increase recognition of beavers in planning revisions (Beaver Management Team 2014).

This species of beaver is also known to occur in the southern Sierra Nevada (Lundquist and Dolman 2018). As part of an ongoing interest in supporting the beneficial modifications to riparian habitat and stream conditions that can be made by this species, a site evaluation tool is in development and has been applied to portions of the Kern River drainage (Ibid.).

**Recommendations:** Based on the beneficial contributions that beavers can make to ecosystem function and climate adaption of aquatic ecosystems, we ask that the following plan components be included in the final forest plans.

## Desired Conditions

- Riparian ecosystem composition, structure, and function is restored and enhanced by beaver habitat.
- Beaver habitat (including wetlands and riparian areas), which benefit and enhance groundwater, surface water, and floodplain and riparian complexity, is present forestwide in suitable areas.
- The presence of beavers and the persistence of beaver habitat, contributes to channel recovery and floodplain function.

## Potential Management Approaches

- Conduct a beaver restoration assessment across the plan area and to evaluate locations where beavers can help improve instream flows and attenuate late summer flows.
- Evaluate opportunities to support expansion of beavers from known locations.
- Cooperate with federal, tribal, and state governments and other stakeholders to identify potential stream areas for beaver reintroduction.

### J. Restoration objectives are significantly better for Alternative C

Alternative C directs far more restoration of aquatic ecosystems types compared to the other alternatives.

**Recommendations:** The following objectives for Alternative C should be adopted in the final plans to provide improved conservation and climate resiliency for these finite aquatic resources.

Objective	Alternative B, D, & E	Alternative C
Enhance or improve conditions on meadows of any size (RDEIS, p. A-64)	10 meadows	30 meadows
Enhance or restore the structure, composition, or function of habitat for fisheries and other aquatic species along streams (RDEIS, p. A-66)	10 miles	30 miles
Restore the structure and composition of riparian areas (RDEIS, p. A-56)	800 acres (Alt. B & E) 2,000 acres (Alt. D)	6,000 acres

## IV. Wilderness Recommendations and Roadless Areas

The opportunity to inventory and evaluate wilderness-quality lands is an integral component of the forest planning process and presents a rare opportunity to provide administrative protection to some of the most spectacular and ecologically important undeveloped lands on our national forests. These areas provide our drinking water, habitat for imperiled wildlife, physical, mental, and spiritual renewal for millions of Americans, and a buffer to the impacts of climate change. Thus, we are extremely disappointed to see, in the preferred alternative for the revised draft forest plan, only one addition of 4,906 acres on the Sequoia National Forest being recommended for wilderness designation and not a single acre recommended for wilderness designation on the Sierra National Forest. This despite many deserving areas on both forests

that, if recommended, would greatly enhance the forests' ecological health and integrity, opportunities for sustainable recreation, and protection of imperiled species, among other social and ecological benefits.

While deserving of wilderness recommendation, those 4,906 acres on the Sequoia NF represent only about 0.58% of the final 841,700-acre inventory of wilderness-quality lands on the Sierra and Sequoia National Forests. By contrast, Alternative C, while not perfect, would recommend 452,627 acres over 36 areas across the two forests (about 54% of the final inventory), including many (but not all) of the most deserving areas.

For the reasons described below, the Record of Decision for the final plans should include at least all areas in Alternative C for recommended wilderness and apply a Backcountry Management Area designation (as in Alternative E) to protect all remaining roadless areas that are not recommended for wilderness protection. In addition, the Sequoia NF recommended wilderness areas should include the Golden Trout Wilderness Additions, Stormy Canyon, Oat Mountain, Cannell Peak, Domeland Wilderness West Addition, and the Bright Star-Piute Mountains addition using boundaries developed by our coalition of conservation organizations to reduce conflicts with motorized trails and mountain bike trails. Likewise, the Sierra NF recommended wilderness areas should include the Kings River-Monarch Wilderness Addition, Sycamore Springs, Bear Mountain-Dinkey Lakes Addition, San Joaquin River-Ansel Adams Wilderness Addition, Mount Raymond-Ansel Adams Addition, and Devil Gulch-Ferguson Ridge using boundaries developed by our coalition of conservation organizations to reduce conflicts with motorized trails and mountain bike trails.

#### **A. Background and Regulatory Framework**

The 2012 Planning Rule requires forests undergoing a plan revision to “[i]dentify and evaluate lands that may be suitable for inclusion in the National Wilderness Preservation System [NWPS] and determine whether to recommend any such lands for wilderness designation.” 36 C.F.R. § 219.7(c)(2)(v). Chapter 70 of the Forest Service Land Management Planning Handbook (FSH) 1909.12 prescribes a four-step process for doing so: (1) inventory all lands that may be suitable for inclusion in the NWPS based on their size, roadless nature, and lack of improvements that are substantially noticeable in the area as a whole; (2) evaluate the wilderness characteristics of each inventoried area pursuant to the criteria in the Wilderness Act of 1964; (3) analyze a range of alternatives for recommended wilderness in the plan EIS; and (4) decide which areas or portions of areas to recommend for inclusion in the NWPS. Chapter 70 requires opportunities for public participation “early and during each step of the process.” FSH 1909.12, ch. 70, § 70.61.

Given the myriad ecological and social benefits of wilderness and other highly protected lands (described in detail in subsection D, below), the wilderness recommendation process is a key component of satisfying the substantive requirements of the 2012 planning rule. The overarching purpose of the rule is to provide for the development of plans that:

will guide management of [National Forest System] 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.

36 C.F.R. § 219.1(c). To accomplish these ecological integrity and sustainability goals, the rule imposes substantive mandates to establish plan components – including standards and guidelines – that maintain or restore healthy aquatic and terrestrial ecosystems, watersheds, and riparian areas; air, water, and soil quality; and the diversity of plant and animal communities, ecosystems, and habitat types. *Id.* §§ 219.8(a)(1)-(3), 219.9. Plans also must provide for sustainable recreation. *Id.* §§ 219.8(b)(2), 219.10(b)(1)(i). The Forest Service must use the best available scientific information to comply with these substantive mandates, *id.* § 219.3, and include in the decision document “[a]n explanation of how the plan components meet [those] requirements, *id.* § 219.14(a)(2).

For areas recommended for wilderness designations, plans must include plan components, including standards and guidelines, “to protect and maintain the ecological and social characteristics that provide the basis for their suitability for wilderness designation.” 36 C.F.R. § 219.10(b)(1). “Any area recommended for wilderness or wilderness study designation is not available for any use or activity that may reduce the wilderness potential of an area.” Forest Service Manual 1923.03(3).

We have provided numerous comment letters and input throughout the wilderness inventory and evaluation process on the Sierra and Sequoia. While the forests’ *inventory* process was rigorous, comprehensive, transparent, and objective, the subsequent *evaluation*, determination of areas to carry forward into the RDEIS alternatives, and NEPA analysis have been fraught with problems, as described below and in the attached letters that we have submitted previously.<sup>14</sup>

**B. The wilderness evaluation and determination of areas to carry forward for analysis are flawed.**

We are pleased to see that the Forest Service corrected some of its earlier errors in initially identifying only a small proportion of the final wilderness inventory to carry forward for analysis, and that the agency properly adjusted polygon boundaries in some cases (as opposed to excluding entire areas from analysis). *See* RDEIS Appx. B.

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<sup>14</sup> The Wilderness Society, *et al.*, Comments on Ch. 70 wilderness evaluation process (Oct. 30, 2014) (identifying numerous deficiencies with the “Wilderness Evaluation Narrative Outline”) (Exhibit IX.1); The Wilderness Society, *et al.*, Comments on Ch. 70 wilderness evaluation (June 3, 2015) (identifying process and range of alternatives deficiencies) (Exhibit IX.2); The Wilderness Society, *et al.*, Comments on Ch. 70 wilderness evaluation (Aug. 28, 2015) (identifying numerous deficiencies with the wilderness evaluation process paper) (Exhibit IX.3); The Wilderness Society, *et al.*, Comments on wilderness evaluation process (Dec. 1, 2015) (reiterating our process and range of alternatives concerns) (Exhibit IX.4); California Wilderness Coalition, Comments on early adopter forests wilderness evaluation process (Dec. 1, 2015) (providing site-specific comments on the evaluation of specific areas) (Exhibit IX.5); The Wilderness Society, *et al.*, Comments on wilderness evaluation process and areas identified for DEIS analysis (Feb. 1, 2016) (identifying deficiencies in application of wilderness evaluation criteria, identification of areas to carry forward for analysis, and range of alternatives) (Exhibit IX.6).

Nevertheless, Appendix B to the RDEIS reveals that the agency misapplied a number of the wilderness evaluation criteria in section 2(c) of the Wilderness Act and section 72 of the Chapter 70 directives to inappropriately exclude areas or portions of areas from analysis in the RDEIS.

The proper evaluation criteria are: (1) apparent naturalness, or the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable; (2) outstanding opportunities for solitude *or* for a primitive and unconfined type of recreation in at least some portion of the unit; (3) whether an area less than 5,000 acres is of sufficient size to make practicable its preservation and use in an unimpaired condition; and (4) the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value. 16 U.S.C. § 1131(c); FSH 1909.12, ch. 70, § 72.1. The Chapter 70 directives add a fifth evaluation criterion that is not grounded in the Wilderness Act: the degree to which the area may be managed to preserve its wilderness characteristics, based on the geographic shape and configuration of the area and any governing legal requirements. FSH 1909.12, ch. 70, § 72.1(5). Because the determination of areas to carry forward for analysis must be "[b]ased on the evaluation and input from public participation opportunities," FSH 1909.12, ch. 70, § 73, it is critical that the evaluation criteria are properly applied.

In addition, the analysis contained in Appendix B of the RDEIS fails any reasonable test of good science or sound methodology. The methodology is not rigorous, not consistent, not repeatable, not fully transparent, and not quantifiable. The agency produced hundreds of pages of documents yet does not anywhere reveal precisely, or even obtusely, how decisions were made to choose the one area in the preferred alternative over any of the other roadless areas. There is no way that the public can independently verify the process for recommending wilderness areas. We know what factors were considered, but we do not know how those factors were used to make decisions.

For example, there is no ranking system to distinguish one roadless polygon from the next. All decisions were binary; either an area was recommended for wilderness or it was not. There is no quantitative scoring system or even an ordinal system (e.g., high, medium, low as recently utilized for example by the Rio Grande National Forest and the Grand Mesa-Uncompahgre-Gunnison National Forest) of comparison for the factors considered. There isn't even a threshold given for when a roadless polygon meets the criteria to be recommended as wilderness.

This arbitrariness and lack of rigor is evident in the process to evaluate wilderness characteristics (discussed below) and in the "rationale explaining why some areas were not analyzed for recommended wilderness." For example, 18,318 acres of polygon 1394 adjacent to Domeland Wilderness were not analyzed, according to the rationale on page B-15, because "[t]his area has the remoteness of an Inventoried roadless ae [sic] and an area protected from much development. The area is steep and sound disapates [sic] quickly." Similarly, polygon 1390 (Osa Meadows-Adjacent to Golden Trout Wilderness) did not analyze "most of the" acres for the following reason: "Inventoried roadless area with steep slopes make this area a difficult teeain [sic] to traverse [sic; no punctuation] The remote nature of the area limit [sic]

any otorized [sic] sounds.” (p. B-14). It is unclear, to say the least, how these are valid rationales for why the areas were *not* analyzed.

In addition, there is no indication of how the reasons for *not recommending* a roadless area for wilderness were different from the reasons for *not analyzing* a roadless area; therefore, all of the arguments that we outline below apply equally to the roadless areas that did not advance to the analysis stage of the RDEIS.

The wilderness evaluation of areas that were analyzed suffers from inconsistent application of available data. There is no consistent level of detail with respect to all the factors considered. For example, one roadless area may be described as “includ[ing] non-native species,” another area may be described as having “a few invasive species,” and a third may not contain any information at all on invasive or non-native species. Setting aside for now the problem of insufficient detail *about* the invasive species (e.g., what proportion of the roadless area is affected?), one cannot compare the roadless area descriptions that do not mention invasive species with roadless area descriptions that do mention them. The public has no idea if the data were inadvertently omitted, if surveys were conducted in one area but not the other, or if no mention of invasive or non-native species means they do not exist there. This inconsistency of data often leaves one with no basis for “apples to apples” comparison.

Given that there is only a single roadless area across the two forests that was recommended for wilderness in the preferred alternative, it is difficult to, in the absence of a written methodology, “reverse-engineer” a standard for recommending wilderness. That roadless area—polygon 1377—includes the following characteristics, according to the evaluation:

- Significantly impacted by past timber harvest activity
- Includes many plantations and level 1 roads
- Opportunities for solitude or primitive and unconfined recreation are limited in this area
- Difficult to manage as wilderness due to an extensive network of authorized forest system roads that are open to the public
- Difficult to manage as wilderness due to potential for future fuels management needs in the plantations
- Presents a limited opportunity to protect ecological groups that may be minimally represented in the NWPS
- Several private property parcels along the southern border.

The evaluation states, however, that “reshaping the area to eliminate the southern 50 percent would make it more manageable and improve the overall wilderness character” (p. B-166). Could one not apply that standard to any number of other roadless polygons across the two forests? The sole area recommended for wilderness in the preferred alternative was reduced in size from the original roadless polygon, yet no other roadless polygons in the preferred alternative were similarly reduced to minimize conflicts or to eliminate parts of the polygon that putatively lacked wilderness character so that a portion of the polygon could be recommended as wilderness. It is not stated in the evaluation why no other areas were reshaped in this manner and recommended as wilderness.



Conversely, other roadless areas that contain a *greater degree* of wilderness character than polygon 1377 are *not* recommended for wilderness in the preferred alternative. For example, polygon 822 has the following characteristics (B-238):

- Naturalness, undeveloped quality and opportunities for solitude or primitive and unconfined recreation are generally intact
- The area has great vistas, access to lakes, existing trails, and endangered species and habitat.

In fact, the evaluation states that “once the area is reshaped to remove existing motorized trails, it is suitable for inclusion in the National Wilderness Preservation System.” Yet, this area is not recommended for wilderness, even though it compares favorably to the smaller polygon 1377 which was recommended.

As another example, polygon 315 (Sycamore Springs) includes the following (in its entirety) “summary of potential suitability for inclusion in the National Wilderness Preservation System”:

*There are numerous waterfalls on Dinkey Creek, highly scenic granite features, rare plants and aquatic wildlife. Due to the size of the polygon and lack of motorized roads or trails within the polygon, there are opportunities for solitude or primitive and unconfined recreation. This polygon presents a moderate opportunity to protect ecological groups that may be minimally represented in the NWPS. Ecological groups with less than 5 percent of their national extent in the NWPS comprise a low number of acres. Ecological groups with between 10 and 20 percent of their national extent in the NWPS, however, comprise 10,600 acres. (p. B-208)*

There is not a single word in this entire summary that indicates why the polygon is *not* suitable for wilderness recommendation. Nor is there a description of the methodology employed to choose this area or not for recommendation to the NWPS—here or anywhere else in the RDEIS.

Overall, it is unclear how the agency made their draft decision whether to recommend an area or not based solely on the presence or absence of activities, features, or wilderness characteristics. The decisions are arbitrary and capricious.

In addition to the lack of methodological rigor and transparent and measurable standards, the RDEIS incorrectly applies the wilderness evaluation regulations in several ways, outlined below.

## **1. Apparent naturalness versus ecological integrity**

The Forest Service appears to have corrected many of the draft evaluation narratives that improperly evaluated the naturalness criterion by focusing in large part on the area’s ecological or historical naturalness or integrity, rather than its *apparent* naturalness, as required under the Wilderness Act and Chapter 70 directives. The evaluation of naturalness must focus on whether the area generally *appears* natural to the average, reasonable visitor who is unfamiliar with the area’s historical or ecological conditions. Chapter 70 makes clear that the agency is to

evaluate “[t]he extent to which the area *appears* to reflect ecological conditions that would normally be associated with the area without human intervention” and whether “plant and animal communities *appear* substantially unnatural.” FSH 1909.12, ch. 70, § 72.1(1)(a) & (b) (emphasis added).

While we appreciate the effort to correct this deficiency in the revised draft evaluation narratives, many of those corrections appear to be largely superficial or semantic. In addition, while the *language* may have been changed in most cases, the *standard* for apparent naturalness is never explained. For instance, polygon 781 (Adjacent to John Muir Wilderness) reads, in its entirety, with respect to apparent naturalness:

Contiguous habitat for fisheries and wildlife species exists within the area. The California Department of Fish and Wildlife stock trout in adjacent waterways. No grazing is currently permitted. Fire suppression has altered vegetation density and composition. Adjacent waterways are stocked with non-native trout. The hydrological regime in the adjacent area is extensively manipulated by the Pacific Gas and Electric hydropower system. Invasive species include bull thistle and woolly mullein. (B-226)

This “evaluation” of the polygon is deficient in several ways. Most importantly, not once does the description mention how the area *appears to the average visitor*—an astonishing oversight given that this should be the heart of the evaluation standard. Despite the shift in terminology from “natural conditions” to “apparent naturalness” in some descriptions, there is still no indication here of how the putative presence or absence of naturalness affects how the area would be perceived by the average visitor. In addition, there is no mention of the *degree* to which an area appears affected primarily by the forces of nature. We know that invasive species “include” bull thistle and woolly mullein, but we have no idea to what degree. Is it one plant? Five percent of the polygon? The entire polygon? And finally, the description includes a mention of the stocking of non-native trout in “adjacent waterways.” What occurs outside of the polygon, with respect to apparent naturalness, is not relevant for this evaluation criterion.

While the Forest Service appears to have diligently scrubbed the final evaluation narratives of the term “ecological integrity” and replaced it with terms evoking “apparent naturalness,” it is still unclear in most cases how ecological conditions *appear* to the average visitor in a significant number of the descriptions of the areas analyzed for recommended wilderness in the RDEIS. To the extent that apparent naturalness *was* a factor, the Forest Service must make that clear to the public and describe *how* the area appears to the average visitor and *to what degree* it appears natural or unnatural. Simply listing items without any metrics or evaluation is clearly deficient.

## **2. Consideration of human activities and improvements**

Many of the final evaluation narratives still improperly rely on the presence of past or current human activities or improvements – such as mining, grazing, fish stocking, restoration activities, timber harvest, recreation developments, historical sites, or wildlife improvements – when evaluating naturalness. The relevant inquiry, however, is not the presence of these activities or improvements, but rather their effect on the area’s apparent naturalness, as judged

by the average visitor. FSH 1909.12, ch. 70, § 72.1(1)(c) (“Consider such factors as . . . [t]he extent to which improvements included in the area . . . represent a departure from apparent naturalness.”). Areas need not be pristine or untouched to be suitable for wilderness designation, and an area may include any number of past or present activities or improvements – as long as they are substantially unnoticeable.<sup>15</sup>

Yet statements about the mere presence of grazing or restoration activities, among other examples, still pervade many of the narratives without an evaluation of how those activities or improvements affect the areas’ apparent naturalness. Numerous narratives mention the presence of historical and current grazing. For instance, the narrative for Soaproot (Polygon 357) on the Sierra NF mentions an active allotment in which a corral, fencing, and salt blocks are present, but does not evaluate the effect of that activity and infrastructure on the area’s apparent naturalness. (RDEIS Appx. B at 212). It is unclear whether grazing influenced the determination to exclude Soaproot from wilderness recommendation. Grazing and associated infrastructure is permissible and commonplace throughout many designated and recommended wilderness areas in western national forests.<sup>16</sup>

Other narratives mention past and ongoing restoration activities, without any explanation of how or why those activities – which are generally designed to restore forest resources and ecosystems to a more natural state – might detract from apparent naturalness. For instance, the evaluation for polygon 772 (Devil Gulch) states that “prescribed burning has been conducted in the Gimasol and Nutmeg Gulch area.” (p. B-224) It is unclear whether that fact is being used to demonstrate that the area would appear *more natural* to the average visitor (because fire is a natural process) or that it would appear *less natural* to the average visitor (because the “hand of man” is apparent in association with these prescribed burns). Similarly, the evaluation also mentions that “fires in this area have been known to travel rapidly with high intensity with little to no vegetation remaining.” (p. B-224) Does that assertion provide evidence of diminished apparent naturalness? One would suspect not, as this area is fire-adapted, but once again, it is unclear how this information is being used to recommend a polygon for wilderness or not.

### **3. Opportunities for solitude *or* primitive and unconfined recreation**

The Forest Service has often in the past improperly conflated the criterion that an area has *either* outstanding opportunities for solitude *or* primitive and unconfined recreation. Both the plain language of the Wilderness Act, 16 U.S.C. § 1131(c)(2), and the Chapter 70 directives make clear that this is an either/or criterion: “an area only has to possess one or the other” and “does not have to possess outstanding opportunities for both elements, nor does it need to possess outstanding opportunities on every acre.” FSH 1909.12, ch. 70, § 72.1(2). Thus, the

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<sup>15</sup> See Wilderness Evaluation Process Paper, Attachment B: Guidance for Consideration of Evaluated Areas for Recommendation in an Alternative, at 1 (listing numerous types of activities and improvements that may be included in recommended wilderness areas).

<sup>16</sup> Congressional grazing guidelines provide that: (1) “[t]he maintenance of supporting facilities, existing in the area prior to its classification as wilderness (including fences, line cabins, water wells and lines, stock tanks, etc.), is permissible in wilderness,” and (2) “[t]he placement or reconstruction of deteriorated facilities or improvements should not be required to be accomplished using ‘natural materials.’” Forest Service Manual 2323.22 - Exhibit 01. *SFL et al. comments on Sequoia and Sierra draft plans and RDEIS (9/26/19)*

evaluation must consider them separately and cannot aggregate, average, or otherwise conflate the two.

Unfortunately, while the Forest Service has been diligent in now using the “either/or” language for this evaluation criterion in the evaluation subheadings, the agency continues to conflate the two in the narratives. The majority of rationales for areas not recommended as wilderness state that “opportunities for solitude or primitive and unconfined recreation are limited” (often due to the presence of motorized uses within or adjacent to the polygon, as addressed in detail in subsections 4-6, below). This language – which serves as the primary rationale for excluding most of the areas not recommended – suggests that opportunities for one or the other (but not both) are limited, meaning that the area should not be disqualified. Instead, opportunities for both solitude *and* primitive and unconfined recreation would have to be limited throughout the unit to disqualify it. [If a polygon must have opportunities for either solitude *or* primitive recreation to qualify as wilderness, then one must find that *both* factors are absent to disqualify an area]. To the extent the Forest Service meant to express the latter, its evaluation does not support such a finding. For instance, the sort of pervasive outside sights and sounds that might limit opportunities for solitude (see subsection 4, below) do not impact whether portions of the unit have outstanding opportunities for primitive and unconfined types of recreation.

For example, over 37,000 acres of potential additions to the Ansel Adams Wilderness (polygon 819) were deemed unsuitable for wilderness due (ostensibly; it is difficult to tell with certainty given the lack of a written methodology) to “limited” opportunities for solitude *or* primitive and unconfined recreation.

Opportunities for solitude or primitive and unconfined recreation are limited in the area with unauthorized motorized trails; sights and sounds penetrate this small area. (B-234)

There are four problems with this statement.

1. Outside sights and sounds must be “pervasive” to disqualify an area from wilderness recommendation (see section 4 below).
2. Even if sights and sounds are pervasive in one area, that fact does not disqualify the entire polygon (in this case, the area in question is “small”).
3. Even if outside sights and sounds are pervasive *and* penetrate the entire polygon, the polygon is not necessarily disqualified, because it must have *either* the opportunity for solitude *or* the opportunity for primitive and unconfined recreation.
4. The statement links sights and sounds to both solitude *and* primitive recreation without any justification why primitive recreation is impacted by sights and sounds.

The same polygon (819) description states that “primitive recreation includes hiking and horseback riding on a few infrequently maintained trails.” That statement implies that there is, in fact, opportunity for primitive and unconfined recreation. If that is not the case, the description must make clear precisely why.

The evaluation narrative for this polygon improperly lumps opportunities for solitude with opportunities for primitive and unconfined recreation, and neither explains how nor why the presence and use of unauthorized motorized trails in certain portions of the polygon limit *both*

opportunities for solitude *and* opportunities for primitive and unconfined recreation throughout the entire polygon. Indeed, the narrative suggests that outstanding opportunities for both exist in portions of the polygon. Nor did the Forest Service attempt to adjust the polygon boundary to exclude the areas it believes are disqualifying; instead, they disqualified the entire 37,000 acres – the majority of which are entirely free of motorized uses or their sounds.

#### 4. Outside sights and sounds

The Forest Service appears to have disqualified numerous areas due to the improper consideration of outside sights and sounds – often related to motorized activity on roads or trails outside the polygon. Outside sights and sounds are relevant to the evaluation of opportunities for solitude only to the extent that they are “pervasive and influence a visitor’s opportunity for solitude” throughout the unit. FSH 1909.12, ch. 70, § 72.1(2)(a).<sup>17</sup> While many of the narratives refer to “pervasive” motorized use (inside and/or outside the unit), the narratives generally lack an evaluation of whether the sights and sounds originating from that use are themselves pervasive and how they influence a visitor’s opportunity for solitude throughout the unit. Instead, many of the narratives make the unsupported conclusion that sights and sounds “would likely penetrate throughout much of the polygon.” None of the assertions are supported by empirical data, models of noise attenuation, or surveys from within the roadless polygons. The rationales for areas not carried forward for analysis repeat these same errors.

Of particular concern is the fact that many narratives and rationales rely on sights or sounds associated with motorized use of the roads that necessarily define the boundaries of the polygon, or are cherry-stemmed, to disqualify all or portions of the unit. Many designated wilderness areas, however, are closely bordered by high-traffic roads. For example, California State Route 120 bisects the Yosemite Wilderness in Yosemite National Park. This two-lane, paved expressway with a 50-m.p.h. speed limit and an average annual daily traffic count of 2,450 vehicles at Tioga Pass is buffered from the Yosemite Wilderness by less than 0.05 miles. California State Route 108, another two-lane, paved expressway, runs along the Emigrant Wilderness in the Stanislaus National Forest with an average annual daily traffic count of 630 vehicles at the Tuolumne/Mono County line, yet is only 0.25 miles from the wilderness boundary.<sup>18</sup> This situation is ubiquitous throughout designated wilderness in California and around the country.<sup>19</sup> If Congress saw fit to use these highways and other major thoroughfares

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<sup>17</sup> See also Bureau of Land Management Manual (BLM) 6310.06(C)(2)(c)(i)(1) (“Only consider the impacts of sights and sounds from outside the inventory area on the opportunity for solitude if these impacts are pervasive and omnipresent.”).

<sup>18</sup> *2014 Traffic Volumes on the California State Highway System*. State of California, California State Transportation Agency, Department of Transportation, Division of Traffic Operations, Sacramento, CA 95814. Prepared in Cooperation with the U.S. Department of Transportation, Federal Highway Administration.

<sup>19</sup> Other examples from the Sierra Nevada include the Ansel Adams Wilderness (bordered by Kaiser Pass Road and Edison Lake Road), Hoover Wilderness (bordered by Highway 120), Mokelumne Wilderness (bordered by Highway 4 and Blue Lakes Road), Carson-Iceberg Wilderness (bordered by Highway 4 and Highland Lakes Road), John Muir Wilderness (bordered by Rock Creek Road, Pine Creek Road, Horton Creek Road, Bishop Bowl Road, Highway 168, Onion Valley Road, Horseshoe Meadows Road and Florence Lake Road), John Krebs Wilderness (bordered by Mineral King Road), Sequoia-Kings Canyon Wilderness (bordered by the Generals Highway), Yosemite Wilderness (in addition to Highway 120, mentioned above, it is also bordered by Evergreen Road, Tioga Road, Oak Flat Road, Glacier Point Road, Wawona Road and Mariposa Grove Road), Kaiser Wilderness (adjoins Kaiser Loop Road and Kaiser Pass Road), Monarch Wilderness (bordered by Highway 180), *SFL et al. comments on Sequoia and Sierra draft plans and RDEIS (9/26/19)*

as wilderness boundaries, we do not see how, especially in the absence of real data, the Forest Service can justify the claim that the noise caused by lesser roads or even motorized trails can create a “pervasive” loss of wilderness values across large, rugged, and usually trackless landscapes.

Disqualifying an area based on outside sights and sounds is also contrary to longstanding direction from Congress. For instance, during subcommittee hearings on the 1978 Endangered American Wilderness Act, Congress found that:

[M]any 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.

H.R. Rep. No. 95-540, at 5 (1977). During Senate hearings on the same Act, then Assistant Secretary of Agriculture assured Congress 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.” Hearings on S. 1180 before the Subcomm. on Parks and Recreation of the S. Comm. on Energy and Nat. Res., 95th Cong. at 41 (1977) (Statement of M. Rupert Cutler, Assistant Sec., U.S. Dep’t of Agric.).

Thus, the Forest Service bears a high burden to show that outside sights or sounds are in fact pervasive and limit a visitor’s opportunity to experience solitude throughout the unit. And even where the agency can meet that high burden, it must also show that the area *also* fails to possess outstanding opportunities for primitive and unconfined recreation prior to disqualifying the unit. The information in Appendix B to the RDEIS does not come close to demonstrating that the Forest Service has satisfied that burden. Unfortunately, improper consideration of sights and sounds is the most frequently cited rationale by the Forest Service for not recommending some of our highest-priority areas for recommended wilderness in Alternative C, including the Golden Trout additions (Polygon 1387), Oat Mountain (Polygon 227), Bright Star additions (Polygon 1426), Soaproot (Polygon 357), and Cat’s Head (Polygon 304).

## **5. Consideration of motorized uses**

The Forest Service’s treatment of authorized motorized uses throughout the evaluation and determination of areas to carry forward for analysis and areas to recommend as wilderness has been deeply flawed, as we have repeatedly pointed out. The primary rationales for this blanket exclusion of areas with motorized trails appears to be that the presence of the motorized uses

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Sacatar Trail Wilderness (adjacent to Nine Mile Canyon Road), Owens Peak Wilderness (bordered by Kennedy Meadows Road, Sherman Pass Road and Highway 178), Kiavah Wilderness (bordered by Highway 178 and South Kelso Valley Road) and the Domeland Wilderness (bordered by Kennedy Meadows Road).

within the unit limit “opportunities for solitude or primitive and unconfined recreation” and/or would frustrate management of the unit as recommended wilderness. Both of these rationales are faulty.

First, the presence of authorized motorized activity in an area does not necessarily impede its wilderness character. Indeed, Congress, the Forest Service, and other agencies have routinely determined that areas with authorized motorized activity possess wilderness characteristics and managed them to maintain their suitability for inclusion in the NWPS.<sup>20</sup>

Second, as described in subsections 3 and 4, above, the Forest Service has not demonstrated how or why the presence of motorized uses degrades *both* opportunities for solitude *and* primitive and unconfined types of recreation throughout the entire unit. In many instances, the Forest Service appears to have disqualified areas or large portions of areas due to the presence of only a handful of motorized trails and without making the requisite showing of how that use would affect a visitor’s ability to experience solitude elsewhere, taking into account factors such as topography, presence of screening, and distance from impacts. *See* FSH 1909.12, ch. 70, § 72.1(2)(a). Importantly, as with outside sights or sounds, impacts originating within the unit must be “pervasive and influence a visitor’s opportunity for solitude” throughout the area. *Id.* Moreover, authorized motorized uses within a unit are irrelevant to whether there are opportunities to engage in primitive and unconfined recreational activities “that lead to a visitor’s ability to feel a part of nature.” *See id.* § 72.1(2)(b).

Third, as described in detail in subsection 6, below, the presence of motorized uses is not a proper manageability consideration at the evaluation stage. Instead, consideration of how to balance motorized recreational opportunities with protection of wilderness values is a management trade-off that should be analyzed in the RDEIS.

Finally, we are deeply concerned that portions of polygons containing system roads identified as “likely not needed” in the Sequoia’s Travel Analysis Process that are currently open to public use were, as a blanket matter, not carried forward. This appears to have affected a large number of areas and significant acreage.<sup>21</sup> This approach is contrary to the language and intent of Forest Service laws, policies, and objectives aimed at restoring roaded areas to a more ecologically and fiscally sustainable condition. The travel analysis process under subpart A of

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<sup>20</sup> *See, e.g.*, Public Law No. 96-550, § 103, 94 Stat. 3221 (Dec. 19, 1980) (designating six wilderness study areas in New Mexico National Forests to be managed “to maintain their presently existing wilderness character and potential for inclusion in the [NWPS]: *Provided*, [t]hat . . . current levels of motorized . . . uses . . . shall be permitted to continue subject to . . . reasonable rules and regulations”); Payette National Forest, Land and Resource Management Plan, ROD-9, III-74, III-82 (2003), *available at* <http://www.fs.usda.gov/detail/payette/landmanagement/planning/?cid=stelprdb5035589> (recommending over 200,000 acres for wilderness designation and permitting existing motorized uses to continue in those areas unless it degrades wilderness values or causes resource damage or user conflicts); BLM Manual 6320.06(A)(2)(d)(v) (BLM-identified Lands with Wilderness Characteristics may include motorized uses on designated routes); BLM, Little Snake Field Office, Record of Decision and Approved Resources Management Plan at 33 (Oct. 2011), *available at* [http://www.blm.gov/pgdata/etc/medialib/blm/co/field\\_offices/little\\_snake\\_field/rmp\\_revision/rod.Par.83246.File.dat/01\\_LS-ROD\\_Approved-RMP.pdf](http://www.blm.gov/pgdata/etc/medialib/blm/co/field_offices/little_snake_field/rmp_revision/rod.Par.83246.File.dat/01_LS-ROD_Approved-RMP.pdf) (motorized activity permitted on designated roads and trails within Lands with Wilderness Characteristics).

the Forest Service travel management regulations is a key component of the agency's restoration agenda.

Recognizing the significant ecological and fiscal liabilities associated with the current, unsustainable forest road system, subpart A directs 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 lands," as well as roads "that are no longer needed to meet forest resource management objectives and that, therefore, should be decommissioned or considered for other uses, such as for trails." 36 C.F.R. § 212.5(b). As a first step in achieving compliance with this regulation, forests were required by the end of fiscal year 2015 to conduct a science-based analysis (referred to as a travel analysis report) of their road system that includes recommendations for roads likely not needed for future use. March 29, 2012 Memorandum from Leslie Weldon to Regional Foresters *et al.* Re Implementation of 36 CFR 212.5(b). As the Forest Service properly recognized when promulgating the Chapter 70 directives, roads identified in a travel analysis report as likely unneeded do not disqualify an area from the wilderness inventory and evaluation. FSH 1909.12, ch. 70, § 71.22a(1)(b). This provision is specifically aimed at ML2 or greater roads (since areas with ML1 roads are already included in the inventory under section 71.22a(1)(a)) that might otherwise be disqualifying, but will likely be decommissioned or converted in the future, thereby restoring the affected area to a roadless condition. While the Sequoia National Forest properly applied this criterion when conducting its inventory, the blanket determination not to analyze areas including such roads in the RDEIS undermines the whole intention behind linking the travel analysis process to the Chapter 70 process – as well as the Forest Service's broader restoration agenda.

While we appreciate that the relevant roads are currently open to public use on the forest's Motor Vehicle Use Map, that in no way precludes consideration of those areas as recommended wilderness. Travel management decisions must be periodically revisited to meet changing conditions and ensure consistency with the governing land management plan. 36 C.F.R. §§ 212.54, 212.57, 219.15. And the forest plan revision is the appropriate place to take a high-level look at restoration needs and objectives related to roads. More specifically, the RDEIS is the appropriate place to weigh the tradeoffs associated with permitting ongoing public use of roads identified through a rigorous, scientific analysis as likely unneeded because they pose a high risk and/or have low benefit, versus restoring the affected area to a more ecologically and fiscally sustainable condition and managing it to protect its wilderness characteristics. Should the agency decide to pursue a restoration and wilderness protection strategy in some of the affected areas, it can then revisit any preexisting travel management decisions to ensure consistency with forest plan direction. *See* 36 C.F.R. § 219.15(e) ("[Travel management] plans developed prior to plan decision must be evaluated for consistency with the plan and amended if necessary."). But by failing to carry forward any of these areas into the RDEIS, the Forest Service has prematurely precluded that important opportunity.

## **6. Manageability considerations**

The Forest Service had previously improperly evaluated manageability and excluded areas or portions of areas from analysis due to premature and unsupported conclusions that "recommending additional wilderness areas in the proposed revised plans might unnecessarily



prohibit and further geographically constrain management activities and uses, including restoration activities and tribal uses that would otherwise be allowed.” (RDEIS Summary p. 7). It appears that the Forest Service has changed the rationales in the RDEIS so they now refer to wilderness character instead of management issues—features such as solitude, primitive recreation, developments, etc.

The narratives and rationales still mention these manageability issues, yet fail to show how those activities would necessarily interfere with preservation of wilderness characteristics. As a general matter, the Wilderness Act tasks agencies with managing wilderness for a range of public purposes, including recreational, scenic, scientific, educational, conservation, and historical uses, 16 U.S.C. § 1133(b), and a number of management activities such as ecological restoration and wildfire management may continue if they do not interfere with preservation of wilderness characteristics.<sup>22</sup>

**Recommended Changes:** The Forest Service must correct the errors in its application of the wilderness evaluation criteria. This will require additional revisions to the evaluation narratives and the rationales for areas not carried forward for analysis. To the extent the rationales rely on improper criteria, the excluded areas must be reconsidered for inclusion in one or more alternatives in the FEIS. Criteria that are routinely misapplied in the narratives *and* rationales include:

- Conflating opportunities for solitude or primitive and unconfined recreation;
- Improper reliance on outside sights or sounds, often associated with motorized use on boundary roads;
- Excluding areas with authorized motorized trails;
- Excluding areas with roads identified as “likely unneeded;” and
- Improper consideration of management tradeoffs – such as ongoing and potential future restoration or fire management activities and motorized uses – to exclude areas.

### **C. The RDEIS fails to analyze a reasonable range of alternatives.**

The analysis of alternatives under NEPA is the “heart” of an EIS. 40 C.F.R. § 1502.14. An agency must “[r]igorously explore and objectively evaluate all reasonable alternatives” to a proposed action. *Id.* § 1502.14(a); *see also* 42 U.S.C. § 4332(2)(E) (agencies must “study, develop and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources”). Consistent with NEPA’s basic policy objective to protect the environment, this includes more environmentally protective alternatives. 40 C.F.R. § 1500.2(e) (agencies must “[u]se the NEPA process to identify and assess reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment”); *see also, e.g., Kootenai Tribe of Idaho v. Veneman*, 313 F.3d 1094, 1121-22 (9th Cir. 2002) (citing cases), *abrogated on other grounds by The Wilderness Soc’y v. U.S. Forest Serv.*, 630 F.3d 1173, 1178-80 (9th Cir. 2011) (en banc). “The existence of a viable but

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<sup>22</sup> *See, e.g.,* Wilderness Evaluation Process Paper, Attachment B: Guidance for Consideration of Evaluated Areas for Recommendation in an Alternative, at 1 (“Congress has recognized the need to provide for passive or active restoration in previously modified areas that have wilderness characteristics.”).

unexamined alternative renders an [EIS] inadequate.” *Mont. Wilderness Ass’n v. Connell*, 725 F.3d 988, 1004 (9th Cir. 2013) (quotations and citation omitted). The “touchstone” of the inquiry is “whether an EIS’s selection and discussion of alternatives fosters informed decision-making and informed public participation.” *Id.* at 1005 (quotations and citation omitted).

While the inclusion of 452,627 acres as recommended wilderness in Alternative C represents a significant improvement over the earlier proposals to carry forward for analysis only very small amounts of qualifying lands, the range of alternatives still does not satisfy NEPA because: (1) the upper end of the range (between 54% and 100% of the final inventory) and intermediate (between 0.58% and 39% of the final inventory) alternatives are still missing, and (2) Alternative C fails to include qualifying areas on the Sierra and Sequoia National Forests that the public recommended at scoping.

**1. The upper end of the range and intermediate alternatives are missing.**

Alternatives that range from 0 to 452,627 acres (out of 841,700 potential acres) of recommended wilderness, with the preferred alternative of 4,906 acres, do not constitute a true range that satisfies NEPA: nearly the top half of the range is missing, as well as the portion of the range between 0.58% and 39% (Alt. E). *Compare California v. Block*, 690 F.2d 753, 765, 768-69 (9th Cir. 1982) (despite considering an alternative that allocated 100% of inventoried roadless areas to wilderness, “it was unreasonable for the Forest Service to overlook the obvious alternative of allocating more than a third of the RARE II acreage to a Wilderness designation”), with *Mont. Wilderness Ass’n*, 725 F.3d at 1004-05 (range of alternatives that included opening between 0 and 10 of 10 existing airstrips, with three intermediate options, was reasonable). Similar to the situation in *California v. Block* – where the Ninth Circuit invalidated an EIS that “uncritically assume[d] that a substantial portion of the [roadless] areas should be developed and consider[ed] only those alternatives with that end result,” 690 F.2d at 767 – the RDEIS assumes that nearly half the inventoried areas should not be protected as recommended wilderness and considers only those alternatives with that end result.

By adding an alternative that includes all, or the vast majority of, the 841,700-acre inventory (and ideally at least one more intermediate-acreage alternative), the Forest Service would ensure an adequate range of alternatives and a robust analysis of the trade-offs and impacts associated with recommending most (if not all) of the inventoried areas. *See, e.g., Council on Environmental Quality, NEPA’s Forty Most Asked Questions*, 46 Fed. Reg. 18,026 (Mar. 23, 1981) (“When there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. An appropriate series of alternatives might include dedicating 0, 10, 30, 50, 70, 90, or 100 percent of the Forest to wilderness.”). This is comparable to the range of alternatives in the Flathead National Forest DEIS, which recommend for wilderness designation 0, 15, 29, and 78% of the final 644,847-acre inventory. Adding an alternative that includes all or most of the inventoried areas would also ensure that the current Alternative C provides an appropriate intermediate alternative.

**2. The RDEIS fails to analyze qualifying areas that the public recommended at scoping.**

While Alternative C includes many ecologically significant areas with outstanding wilderness characteristics, several equally deserving areas or portions of areas that we recommended at scoping were improperly excluded on the Sierra and Sequoia National Forests. The Wilderness Society and California Wilderness Coalition specifically recommended significantly more areas as wilderness for each national forest in 2014.<sup>23</sup> Our recommendations provided detailed information about the wilderness characteristics of the areas and asked that they be included in the preferred alternative. Under NEPA, the Forest Service is obligated to consider and analyze this reasonable proposal in at least one alternative. *See Mont. Wilderness Ass’n*, 725 F.3d at 1004 (“The existence of a viable but unexamined alternative renders an [EIS] inadequate.” (quotations and citation omitted)).

Excluded areas include the Bright Star Wilderness addition, Rattlesnake/Durwood Creek watersheds in the Golden Trout addition, Slate Mountain, Long Canyon, and Oat Mountain on the Sequoia, and Cat’s Head Mountain and Soaproot on the Sierra, among other areas.

**Recommended Changes:** The Forest Service should analyze an alternative that includes all, or the vast majority of, the 841,700-acre inventory in the FEIS. In addition, the Forest Service should include in Alternative C all the areas that The Wilderness Society and California Wilderness Coalition, and other members of the public, recommended for wilderness designation during scoping and other relevant public participation opportunities. *See* 40 C.F.R. § 1502.9(a) & (c).

**D. The RDEIS and draft plans fail to analyze or account for the ecological benefits of recommended wilderness.**

Undeveloped natural lands provide numerous ecological benefits. They safeguard biodiversity, enhance ecosystem representation in protected areas (Dietz *et al.* 2015), facilitate connectivity (Loucks *et al.* 2003; USDA forest service 2001b; Crist *et al.* 2005; Wilcove 1990; The Wilderness Society 2004; Strittholt and DellaSala 2001; DeVelice and Martin 2001; Belote *et al.* 2016), and provide high-quality or undisturbed water, soil, and air resources (Anderson *et al.* 2012; DellaSala *et al.* 2011). They also serve as ecological baselines to facilitate better understanding of our impacts to other landscapes and as reference areas for ecological restoration (Arcese and Sinclair 1997).

Forest Service roadless lands, in particular, are heralded for their conservation values. Those values are described at length in the preamble of the Roadless Area Conservation Rule (RACR), 66 Fed. Reg. 3244, 3245-47 (Jan. 12, 2001), and in the Final Environmental Impact Statement (FEIS) for the RACR.<sup>24</sup> They include: high-quality or undisturbed soil, water, and

<sup>23</sup> The Wilderness Society & California Wilderness Coalition, Recommendations for management of roadless areas in the Sequoia National Forest (Nov. 17, 2014) (Exhibit IX.7); The Wilderness Society & California Wilderness Coalition, Recommendations for management of roadless areas in the Sierra National Forest (Nov. 17, 2014) (Exhibit IX.8).

<sup>24</sup> Final Environmental Impact Statement, Vol. 1, 3-3 to 3-7, available at <http://www.fs.usda.gov/roaddocument/roadless/2001roadlessrule/finalruledocuments>.

air; sources of public drinking water; diverse plant and animal communities; habitat for threatened, endangered, proposed, candidate, and sensitive species and for those species dependent on large, undisturbed areas of land; primitive, semi-primitive non-motorized, and semi-primitive motorized classes of dispersed recreation; reference landscapes; natural appearing landscapes with high scenic quality; traditional cultural properties and sacred sites; and other locally identified unique characteristics (e.g., uncommon geological formations, unique wetland complexes, exceptional hunting and fishing opportunities).

Numerous articles in the scientific literature similarly recognize the contribution of roadless and undeveloped lands to biodiversity, connectivity, and conservation reserve networks. For example, Loucks *et al.* (2003) examined the potential contributions of roadless areas to the conservation of biodiversity, and found that more than 25% of Inventoried Roadless Areas (IRAs) are located in globally or regionally outstanding ecoregions<sup>25</sup> and that 77% of IRAs have the potential to conserve threatened, endangered, or imperiled species. Arcese and Sinclair (1997) and Aycrigg *et al.* (2016) highlighted the contribution that IRAs could make toward building a representative network of conservation reserves in the United States, finding that protecting those areas would expand ecosystem representation, increase the area of reserves at lower elevations, and increase the number of large, relatively undisturbed refugia for species. Crist *et al.* (2005) looked at the ecological value of roadless lands in the Northern Rockies and found that protection of national forest roadless areas, when added to existing federal conservation lands in the study area, would: (1) increase the representation of virtually all land cover types on conservation lands at both the regional and ecosystem scales, some by more than 100%; (2) help protect rare, species-rich, and often-declining vegetation communities; and (3) connect conservation units to create bigger and more cohesive habitat "patches."

Roadless lands are also responsible for higher quality water and watersheds. Anderson *et al.* (2012) assessed the relationship of watershed condition and land management status and found a strong spatial association between watershed health and protective designations. DellaSala *et al.* (2011) found that undeveloped and roadless watersheds are important for supplying downstream users with high-quality drinking water, and that developing those watersheds comes at significant costs associated with declining water quality and availability. The authors recommend a light-touch ecological footprint to sustain healthy watersheds and the many other values that derive from roadless areas.

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<sup>25</sup> Loucks *et al.* utilized an ecosystem ranking system developed by Ricketts *et al.* (1999):

Ricketts *et al.* (1999) classified the biological importance of each ecoregion based on species distribution, i.e., richness and endemism, rare ecological or evolutionary phenomena such as large-scale migrations or extraordinary adaptive radiations, and global rarity of habitat type, e.g., Mediterranean-climate scrub habitats. They used species distribution data for seven taxonomic groups: birds, mammals, butterflies, amphibians, reptiles, land snails, and vascular plants (Ricketts *et al.* 1999). Each category was divided into four rankings: globally outstanding, high, medium, and low. The rankings for each of the four categories were combined to assign an overall biological ranking to each ecoregion. Ecoregions whose biodiversity features were equaled or surpassed in only a few areas around the world were termed "globally outstanding." To earn this ranking, an ecoregion had to be designated "globally outstanding" for at least one category. The second-highest category, or continentally important ecoregions, were termed "regionally outstanding," followed by "bioregionally outstanding" and "nationally important" (Ricketts *et al.* 1999).

The U.S. Forest Service, National Park Service, and U.S. Fish and Wildlife Service recognize that protecting and connecting undeveloped areas is an important strategy to enhance climate change adaptation. For example, the Forest Service National Roadmap for Responding to Climate Change establishes that increasing connectivity and reducing fragmentation are short- and long-term actions the agency should take to facilitate adaptation to climate change (USDA Forest Service 2011). The National Park Service also identifies connectivity as a key factor for climate change adaptation, along with establishing “blocks of natural landscape large enough to be resilient to large-scale disturbances and long-term changes.” The agency states that “[t]he success of adaptation strategies will be enhanced by taking a broad approach that identifies connections and barriers across the landscape. Networks of protected areas within a larger mixed landscape can provide the highest level of resilience to climate change.”<sup>26</sup> Similarly, the Climate Adaptation Strategy adopted by a partnership of governmental agencies including the U.S. Fish and Wildlife Service calls for creating an ecologically connected network of conservation areas (National Fish, Wildlife and Plants Climate Adaptation Partnership 2012).<sup>27</sup> The 2012 planning rule’s substantive ecological sustainability provision sanctions this reserve design and landscape connectivity approach, requiring the Forest Service to formulate “plan components, including standards and guidelines, to maintain or restore [the] structure, function, composition, and connectivity” of terrestrial and aquatic ecosystems and watersheds, taking into account stressors such as climate change. 36 C.F.R. § 219.8(a)(1).

The designated areas chapter of the forest assessment report for the Rio Grande National Forest does an exceptional job cataloguing the ecological – as well as social and economic – benefits associated with wilderness and roadless area protection.<sup>28</sup> The assessment recognizes that

“[i]ncreasing the size of current designated wilderness areas is . . . an important option that can help support biological diversity and protect habitat for rare and endangered plant and animal species.”

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<sup>26</sup> National Park Service, Climate Change Adaptation webpage, <http://www.nps.gov/subjects/climatechange/adaptation.htm> (last visited Sept. 8, 2015). *See also* USDOJ National Park Service (2010) (Objective 6.3 of agency’s Climate Change Response Strategy is to “[c]ollaborate to develop cross-jurisdictional conservation plans to protect and restore connectivity and other landscape-scale components of resilience”).

<sup>27</sup> Relevant goals and strategies include:

Goal 1: Conserve habitat to support healthy fish, wildlife, and plant populations and ecosystem functions in a changing climate.

Strategy 1.1: Identify areas for an ecologically-connected network of terrestrial, freshwater, coastal, and marine conservation areas that are likely to be resilient to climate change and to support a broad range of fish, wildlife, and plants under changed conditions.

Strategy 1.2: Secure appropriate conservation status on [high priority areas] to complete an ecologically-connected network of public and private conservation areas that will be resilient to climate change and support a broad range of species under changed conditions.

Strategy 1.4: Conserve, restore, and as appropriate and practicable, establish new ecological connections among conservation areas to facilitate fish, wildlife, and plant migration, range shifts, and other transitions caused by climate change.

<sup>28</sup> Rio Grande National Forest, Assessment 15: Designated Areas at 20-22 (March 2016), *available at* <http://www.fs.usda.gov/detail/full/riogrande/landmanagement/projects/?cid=fseprd479414&width=full>.

Despite these benefits, the RDEIS primarily treats recommended wilderness as a management/use issue, *see, e.g.*, RDEIS at 9, and fails to meaningfully analyze the significant ecological and wildlife impacts associated with recommending qualifying areas for wilderness designation, or protecting them through other conservation-oriented designations or management prescriptions. Indicative is the issue summary on recommended wilderness:

The proposed management direction offers an opportunity to manage more areas as recommended wilderness to protect them from development for future generations. However, recommending additional wilderness areas in the proposed revised plans might unnecessarily prohibit and further geographically constrain management activities and uses, including restoration activities and tribal uses that would otherwise be allowed. (p. 9).

The RDEIS section on environmental consequences for recommended wilderness is almost completely devoid of analysis of the ecological benefits of recommending new wilderness areas. Three of the five categories of analysis are concerned with management: 1) ability to conduct vegetation, fire, watershed, and wildlife habitat management; 2) special use permit authorizations; and 3) ability to manage recommended wilderness. One other category, “recreation activities and access,” is concerned only with human recreation and solitude. The final category is concerned with protection of wilderness characteristics, which focuses on the ability to allow and prohibit various uses to preserve solitude, primitive recreation, and undeveloped character. There is no substantive analysis of how wilderness recommendation would provide benefits for plants, animals, natural processes, air and water quality, or climate.

We appreciate the Forest Service meaningfully addressing ecosystem representation, as required under the 2012 planning rule. *See, e.g.*, 36 C.F.R. § 219.1(c) (“Plans will guide management of [National Forest System] land so that they . . . consistent of ecosystems and watersheds with ecological integrity and diverse plant and animal communities . . .”); *id.* § 219.9(a)(2) (plans must “maintain or restore the diversity of ecosystems and habitat types[, including rare] . . . plant and animal communities”).<sup>29</sup> However, ecosystem representation is just one component of the ecological benefits associated with recommended wilderness and other conservation oriented designations, and the RDEIS generally fails to meaningfully address the others.

The RDEIS contains only a short wilderness sub-section under Revision Topic 2: Ecological Integrity. RDEIS at 483-484. The sub-section correctly notes that wilderness areas “can benefit species...by preventing certain ground-disturbing management activities that might reduce habitat quality” and that “limiting mechanized and motorized activities, such as mountain biking and off-highway vehicle use, could avoid disturbance of individual wildlife during sensitive times of the year, such as breeding periods.”

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<sup>29</sup> *See also* FSH 1909.12, ch. 10, § 14(1)(4)(c) (in assessing the potential need and opportunity for additional designated areas, assessment should address whether there are “specific land types or ecosystems present in the plan area that are not currently represented or minimally represented”); FSH 1909.12, ch. 70, § 72.1(4) (in evaluating the degree to which potential wilderness areas “may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value,” Forest Service to address “[r]are plant or animal communities or rare ecosystems,” with “rare” being “determined locally, regionally, nationally, or within the system of protected designations”).

It also notes that wilderness management areas are also locations where wildfires are often managed to meet resource objectives, such as restoring fire as a key ecosystem process in Sierra systems, which “can substantially improve habitat condition, heterogeneity, structural diversity, and vegetation species composition.”(p. 483) Yet, the RDEIS goes on to make two counter-arguments that lack scientific references and specific examples. The first is that “recommended wilderness management direction can also impact species by precluding or limiting restoration activities.” This statement contradicts the previous statement that wildfire itself is a key restoration tool and does not specify how wilderness recommendation would limit other effective restoration activities, such as prescribed fire. Second, the RDEIS states that “in areas where vegetation and fuels have been impacted by past management, wildfires are becoming increasingly large and have high-severity impacts.” It does not explain, however, how, if past management is a driver of increased fire severity, future management will decrease fire severity.

The ecological benefits of choosing Alternative C rather than Alternative B for recommended wilderness are likely to be highly significant – particularly given the Forest Service’s failure to consider any meaningful protections for roadless areas not recommended for wilderness designation in Alt. B. The failure to meaningfully analyze those impacts is a violation of NEPA, which requires the Forest Service to take a “hard look” at the environmental consequences of a proposed action, including its direct, indirect, and cumulative effects. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348 (1989); 42 U.S.C. § 4332(2)(C); 40 C.F.R. §§ 1502.16, 1508.7, 1508.8. The required hard look encompasses effects that are “ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative.” 40 C.F.R. § 1508.8. For instance, when analyzing the consequences of Alternative B, the RDEIS acknowledges that wilderness recommendations would enhance connectivity between large protected areas, thereby maintaining wildlife corridors and bird migration routes and benefiting species richness. (citing Bio-Regional Assessment finding that “connectedness of open space, species habitat, and ecological processes are important to biodiversity and ecological integrity”). Yet the analysis does not address the enhanced connectivity, biodiversity, and ecological integrity benefits that would be achieved through additional wilderness recommendations under Alternative C, instead focusing on how that alternative “would limit future development of mountain bike and off-highway vehicle recreation.”

**Recommend Change:** The final EIS must recognize and analyze the significant ecological benefits associated with recommended wilderness and other conservation designations and integrate that information into the analysis of alternatives for recommended wilderness and into the analysis of how the plans provide for ecological sustainability and species diversity.

**E. The Forest Service should adopt a strengthened Alternative C for recommended wilderness.**

Areas included in Alternative C, as well as those improperly excluded from Alternative C on the Sierra and Sequoia National Forests, are highly deserving of wilderness recommendation. As the RDEIS recognizes, Alternative C would increase the range of elevations and increase

the biodiversity of recommended wilderness areas along the west slope of the Sierra Nevada – critically important components of achieving ecological integrity, habitat connectivity, species diversity, and climate change resiliency.

For instance, there are a number of rugged and unique roadless areas comprised of oak woodlands and other low-elevation ecosystems. These areas – which include, but are not limited to, Cat’s Head Mountain, Oat Mountain, Soaproot, and Devil Gulch – present an important opportunity to protect ecosystems that are currently under-represented in the NWPS – a key conservation strategy in the face of climate change. *See* Dietz *et al.* 2015; Belote *et al.* 2016. These areas also provide opportunities for hiking and other forms of primitive recreation during the winter and spring months when higher elevation areas are snow-covered, as well as important wildlife habitat and linkages.

**Recommended Changes:** The final plans should adopt a strengthened Alternative C for recommended wilderness that includes important areas that were improperly excluded, including the Bright Star Wilderness addition, Rattlesnake/Durwood Creek watersheds in the Golden Trout addition, Slate Mountain, Long Canyon, and Oat Mountain on the Sequoia, and Cat’s Head Mountain and Soaproot on the Sierra.

#### **F. Management of Recommended Wilderness**

We are pleased to see that the Sequoia National Forest is proposing to treat recommended wilderness as unsuitable for motorized and mechanized transport: “Mechanized transport and motorized use are not suitable in recommended wilderness areas; motorized travel and uses shall not be allowed unless specifically authorized for administrative use.” (Revised Draft Plan at p. 99). This approach is consistent with the agency’s obligation to manage those areas to preserve their suitability for wilderness designation by Congress. *See* 36 C.F.R. § 219.10(b)(1) (plans must “protect and maintain the ecological and social characteristics that provide the basis for [a recommended wilderness area’s] suitability for wilderness designation”); FSM 1923.03(3) (“Any area recommended for wilderness . . . designation is not available for any use or activity that may reduce [its] wilderness potential.”).

Permitting non-conforming uses to continue in recommended wilderness imposes a significant barrier to achieving permanent protection through congressional designation by developing a constituency for the continuation of that use. Time and again Congress has shown that it is far less likely to designate an area as wilderness that contains long-established motorized or mechanized uses, regardless of whether the agency has recommended the area. This impediment constitutes the sort of clear reduction in wilderness potential that the Forest Service must avoid in managing recommended wilderness.

We are also pleased to see that the Revised Draft Plan makes specific mention that “nonconforming projects or activities may be suitable if they are temporary in nature and are for the purposes of ecological restoration for at-risk species habitat or for administrative purposes, and do not have lasting effects on the wilderness characteristics.” (Revised Draft Plan at p. 99). This approach is consistent with the Wilderness Act and demonstrates that recommending new wilderness areas does not prevent the agency from conducting ecological



restoration work, including prescribed fire, habitat management for vulnerable species, and control of exotic species.

**Recommended Change:** The Sierra National Forest should adopt and include the same language as the draft plan for Sequoia NF on management of recommended wilderness in their Revised Draft Forest Plan, as these general principles apply to areas recommended for wilderness in two alternatives in the RDEIS for the Sierra NF.

### **G. Inventoried Roadless Areas (and “Chapter 70” Roadless Areas)**

National forest roadless areas provide a host of social and ecological benefits, including clean air and drinking water, diverse plant and animal communities, habitat for imperiled species, backcountry recreation opportunities, and reference landscapes, among others. *See* Roadless Area Conservation Rule (RACR), 66 Fed. Reg. at 3245- 47 (Jan. 12, 2001). Due to those benefits, we identified roadless area management as a significant issue in our scoping comments that must be analyzed under NEPA, requested that the Forest Service thoroughly examine the impacts associated with placing inventoried roadless areas under non-wilderness management prescriptions, and articulated why protective management of those areas is necessary.

While we have found major problems with the wilderness recommendation process, we are pleased to see that the Inventoried Roadless Areas are at least identified on a map (Fig. 20 in Appendix A of the Sierra draft plan; Fig. 21 in Appendix A of Sequoia draft plan) and that desired conditions, suitability, and guidelines are described in the draft forest plan. We believe that new roadless areas identified through the Chapter 70 wilderness inventory should have similar desired conditions, suitability standards, and guidelines as IRAs. These areas were delineated under NFMA regulations and directives and provide the same social and ecological benefits that IRAs do.

Furthermore, we are disappointed that the preferred alternative in the RDEIS and the draft plan components provide no special management designation (such as Backcountry Management Area) for Inventoried Roadless Areas and newly inventoried areas under the Chapter 70 process (see comments on wilderness recommendations above).

In addition, Recreation Opportunity Spectrum (ROS) alternatives should account for and reflect roadless values, with important IRAs that are not recommended for wilderness designation subject to a year-round primitive, or semi- primitive/non-motorized prescription. Yet, the current draft plans would allocate significant proportions of roadless areas – including highly deserving areas that would be recommended as wilderness under Alternative C – to motorized ROS prescriptions. On the Sequoia NF, only 39,314 acres (out of 528,860 acres [7.4%] of roadless land) outside of designated wilderness would be classified as non-motorized under the preferred alternative. On the Sierra NF, only 59,280 acres (out of 312,840 acres [18.9%] of roadless land) outside of designated wilderness would be classified as non-motorized under the preferred alternative. Thus, not only are the vast majority of roadless lands not being recommended for wilderness, but they are also being classified as motorized—allowing possible degradation of their roadless character.

**Recommended Changes:** The Forest Service should protect the roadless values of “Chapter 70” roadless areas with at least the same prescriptions as it does for Inventoried Roadless Areas, incorporating all of the desired conditions, suitability standards, and guidelines as are written for IRAs. In addition, the Forest Service should consider a wider range of ROS alternatives so that roadless areas that are not recommended for wilderness are analyzed under a broad range of ROS classes, including a non-motorized designation for all or most roadless areas in the final inventory.

## **H. Access to Recommended Wilderness Areas for Native American Tribes**

The 2016 Wilderness Evaluation contains several statements noting that various tribes in the southern Sierra requested that no new recommended wilderness be added on either forest. In the time since the 2016 comment period, several of our Coalition partners met with representatives from several of these tribes to learn more about their concerns and perspectives regarding recommended and designated wilderness.

The existing draft forest plans already include the following Desired Condition:

TRIB-FW-DC 03: Native Americans have access to areas that provide them an opportunity to practice traditional, cultural, and religious lifeways, such as plant gathering, fishing, hunting, and ceremonial activities that are essential in maintaining their cultural identity and the continuity of their culture.

We recommend retaining TRIB-FW-DC 03, and also adding other plan components clarifying that tribes can access recommended wilderness areas when this access does not require building new roads into otherwise roadless areas. We provide suggestions for this below. The language was drafted based on information from the 2016 Wilderness Evaluation for the Sierra and Sequoia National Forests, and based on conversations with representatives from several tribes in the Southern Sierra.

**Recommended Changes:** 1) The plans should specify that Tribes have access to Backcountry Management Areas for “*activities of importance to Native American culture and identity, including ceremonial activities, cultural burning, reburial activities, and gathering of forest resources such as plants and acorns*”; 2) Add the following plan components:

Desired Conditions:

- Native Americans have access to resources of cultural or traditional importance, and areas with special or sacred values within Recommended Wilderness Areas. Cultural practices including gathering of plants, fishing, hunting, ceremonial activities, and cultural burning are appropriate uses of Recommended Wilderness Areas.
- The Forest recognizes the role that Native American cultural burning played in shaping some wilderness ecosystems and values traditional ecological knowledge in its management of Recommended Wilderness Areas.

## **I. Fixed Anchor Use in Recommended Wilderness Areas**

The Forest Service currently lacks an agency-wide policy on fixed anchor use in wilderness areas, leaving the impact of wilderness designations uncertain for both climbers and wilderness advocates. We urge the Forest Service to adopt an agency-wide policy on the use and placement of fixed anchors that is similar or identical to Directors Order #41 within the Department of Interior<sup>30</sup>.

**Recommended change:** The Forest Service should adopt an agency-wide policy on the use and placement of fixed anchors that is similar or identical to Directors Order #41 within the Department of the Interior.

## **J. Sequoia National Forest - Wilderness Recommendation Process**

We appreciate the recommendation to add 4,906 acres to the Monarch Wilderness on the Sequoia National Forest. (DEIS Vol. 2, App. pg. B-2) However, this recommended addition represents less than 1% of the 528,860 acres of roadless areas on the Sequoia Forest that qualify for wilderness protection.

### **1. Cannell Peak (Polygon 1384) –**

We support the Alt. E boundary for this area (Map B-13, DEIS Vol. 2, App. pg. B-40), which includes more roadless land east of the Rincon Trail and in Salmon Creek canyon west of Horse Meadow. We don't understand why this area isn't recommended in Alt. B since the Forest Service evaluation found that the wilderness characteristics of a majority of the area are intact, it provides opportunities for solitude and primitive recreation, and includes ecosystems under-represented in the wilderness system. (DEIS Vol. 2, App. pgs. B-170-171) In addition, the evaluation noted that the area supports stands of endemic Piute cypress, habitat for rare salamanders and frogs, and rich cultural values. (DEIS Vol. 2, App. pgs. B-37-38) The area contributes to the North Fork Kern's high biotic integrity.<sup>31</sup>

The value of this area is well documented by the Forest Service's own evaluation, which states:

Salmon Creek Falls is a spectacular waterfall during years of high rainfall. The variety of plants and animals in the area is extraordinary as the elevation changes so dramatically from 4,400 feet to 9,500 feet at the top of Cannell Peak. Habitat preservation for a few animals and plants is important in this unit, including the large open wet meadows of the Kern Plateau for several species of salamanders and the mountain yellow-legged frog, and habitat for the Piute Cypress... This unit has a rich archaeological history. It was and is extensively used by the Tubatulabal Tribe to access the plateau from Fay Ranch in the lowlands to the south. It has a rich prehistoric and historic history that belies the fact that it is in almost pristine condition today. (DEIS Vol. 2, App. pg. B-172)

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<sup>30</sup> [https://www.nps.gov/policy/DOrders/DO\\_41.pdf](https://www.nps.gov/policy/DOrders/DO_41.pdf)

<sup>31</sup> Biotic Integrity of Watersheds by Peter B. Moyle & Paul J. Randall; Sierra Nevada Ecosystem Project (SNEP) Vol. 2, Report 34, University of California Davis, 1996.

Military overflights do affect the area but they also impact nearby designated wilderness. Alleged “sights and sounds” from beyond the area is not a legitimate reason to reject a wilderness recommendation for this area. Alt. E boundaries were purposely designed to exclude popular motorized and mountain bike routes (Rincon Trail, Cannell Meadow National Recreation Trail) and avoid any conflict with nearby hydroelectric facilities. The proposed wilderness does include the Salmon Creek Trail, which is open to hikers and equestrians, but not mountain biking or motorized use.

The evaluation fails to fully document the diverse ecological and wildlife values of this area. According to the California Department of Fish and Wildlife's (CDFW) Natural Diversity Database (NDD), the following species of interest have been either 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.

## **2. Dome Land Wilderness Additions (Polygons 1394, 1431)**

We support the Alternative E boundary for this area (Map B-24, DEIS Vol. 2, App. pg. B-65), which excludes the Cannell Meadow National Recreation Trail (a popular motorized route) and relatively popular rock climbing routes on Church Dome. Alt. E also provides for the long-promised closure to motorized use of the Sirretta Trail which traverses the heart of the sensitive Twisselmann Botanical Area. The area contributes to the South Fork Kern's high biotic integrity.

We don't understand why the Dome Land West addition isn't recommended in Alt. B since the Forest Service evaluation found that the majority of the area generally appears natural with ecological integrity largely intact, providing opportunities for solitude or primitive and unconfined recreation. (DEIS Vol. 2, App. pgs. B-62-63) We disagree that motorized use on roads and trails near the boundary “limit opportunities for solitude.” Use of “sights and

sounds” to disqualify a potential wilderness is illegitimate. Our experience is that adjacent noise diminishes quickly as you hike further into the wilderness. A short hike up the Sirretta Trail or down the Trout Creek Trail into the roadless area quickly removes you from any audible non-wilderness intrusion.

The evaluation fails to fully document the diverse ecological and wildlife values of this area. According to the California Department of Fish and Wildlife's (CDFW) Natural Diversity Database (NDD), the following species of interest have been either 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.

### **3. Golden Trout Addition Southwest (Polygon 1387)**

We support the Alternative E boundary for this area (Map B-19, DEIS Vol. 2, App. pg. B-52), which was carefully drawn to reduce conflicts with motorized and mountain bike use of some trails and to maintain loop routes between the Sherman Pass Road and the southern boundary of the recommended wilderness, while expanding protection surrounding the North Fork Kern Wild River and Rattlesnake Creek (a major tributary of the North Fork). The entire area contributes to the North Fork Kern's high biotic integrity.

The Alt. E boundary does close the Rattlesnake Creek Trail (33E22) west of Bonita Flat and the Rincon Trail north of Durwood Creek. This will discourage illegal motorized entry into the existing Golden Trout Wilderness while providing motorized users opportunities to drive loop routes south of the Alt. E wilderness addition boundary. The Forest Service evaluation confirms this, stating “In the area east of the Rincon Trail (33E23) and north of the Schaeffer Trail (33E24 and 33E26), the cherry stemmed motorized routes dead end and make this area most feasible for wilderness management.” (DEIS Vol. 2, App. pg. B-177)

We don't understand why the Golden Trout Southwest addition isn't recommended in Alt. B since the Forest Service evaluation found that the area appears primarily affected by the forces of nature with an overall natural character providing opportunities for solitude and primitive recreation (DEIS Vol. 2, App. pgs. B-53-54). We disagree that existing development, roads, and motorized use near the boundary limits solitude. Noise from outside activities generally diminishes quickly as one walks further into the wilderness. If loss of solitude were a real issue, then why has the Forest Service allowed motorized use on the Rincon and Rattlesnake Creek Trails right up to the existing Golden Trout Wilderness boundary? Further, an area without solitude can qualify for wilderness as long as it provides opportunities for primitive and unconfined recreation (or vice versa).

Again, the Forest Service presents the best argument to recommend wilderness for this area. Here are a few choice excerpts from the agency's analysis:

The wilderness characteristics of this area are largely intact...Given the steepness and remoteness of the terrain, it has large areas with no effect from humans...The polygon provides habitat connectivity and habitat for a number of rare plants and animals. A grove of important Giant Sequoia trees also grows within the unit. The natural fire regime governs the ecosystem and the result is natural processes that provide enhanced habitat opportunities to the rare plants and animals within the unit. This polygon presents an opportunity to protect ecological groups that may be minimally represented in the National Wilderness System...Outstanding landscape features include waterfalls, pinnacles, granite domes, columnar basalt flows on the Kern River and the Rincon Fault. Native species have connectivity and habitat in the areas away from the impacts of man. These include rare plants, mountain yellow-legged frog, Kern River rainbows, spotted owl, fisher, and goshawk. The Freeman Creek Giant Sequoia grove is a treasure. (DEIS Vol. 2, App. pgs. B-174, 176-177)

The evaluation fails to fully document the diverse ecological and wildlife values of this area. 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: 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 jeffeliobryum moss, and Yosemite lewisia.

#### **4. Oat Mountain (Polygon 227)**

We support the wilderness recommendation for this area under Alternative E. We dispute the reasons provided as to why the area would be difficult to manage, including its location to human influences, its shape, surrounding roads, private lands, power transmission lines, and the adjacent Pine Flat Reservoir (DEIS Vol. 2, App. pg. B-163) The boundaries of virtually all roadless areas and many existing wilderness areas are defined by these kinds of human development. This logic would preclude most new and existing wilderness. Even with this long litany of characteristics that make this area "difficult" in the mind of the agency, the

description grudgingly admits that Oat Mountain possesses ecosystems under-represented in the wilderness system

The evaluation fails to fully document the diverse ecological and wildlife values of this area. 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 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.

## **5. Stormy Canyon (Polygon 1408)**

We support the Alternative E boundary for the Stormy Canyon area, with a correction. The boundary should be drawn east of the motorized trail 32E39. Otherwise, the Alt. E boundaries for this area were carefully drawn to exclude all mountain bike and motorized trails, including the Whiskey Flat, Baker Point, Tobias Canyon trails, as well as the communication site and fire lookout on Baker Point. The area contributes to the North Fork Kern's high biotic integrity.

We don't understand why the Forest Service doesn't include this area as a wilderness recommendation in Alternative B. The agency's evaluation confirms that the area provides opportunities for primitive and unconfined recreation, that the area supports rare plants and possesses numerous cultural resources (DEIS Vol. 2, App. pg. B-73)

The evaluation fails to fully document the diverse ecological and wildlife values of this area. 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: 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.

## 6. Bright Star Addition (Polygon 1426)

Encompassing part of the original Woolstaff roadless area in the Piute Mountains, this potential addition to the existing Bright Star Wilderness is not included in either Alternative B, C, or D. Once again, “sights and sounds” from existing roads and motorized trails is the primary reason used to discount wilderness. The evaluation repeatedly mentions the network of “authorized motorized trails” and yet little is said about the proliferation of unauthorized and illegal trails, particularly motorized (dirt bike) trails that have magically appeared throughout much of the area in the last few years, without any kind of environmental analysis or agency authorization.

Reading most of the agency’s description of this area, one would be left with the impression that nothing is left of the roadless area, when in fact there is substantial unroaded area in the northeast portion of the roadless area that is largely not impacted by authorized and unauthorized motorized use. This potential wilderness encompasses Heald Peak, Dry Canyon, Bob Rabbit Canyon, lower Woolstaff Creek, and Cortez Canyon, and is located east of the Long Canyon and Woolstaff Meadow motorized trails (numbered differently on various USFS maps as trails 34E40, 34E31, and 34E42).<sup>32</sup> This wilderness candidate is even more viable because it is contiguous to the northwest corner of the BLM’s Bright Star Wilderness.

Despite the impacts of authorized and unauthorized motorized trails alike, the Forest Service analysis best sums up the values of this potential wilderness:

The area offers unique opportunities to study rapid evolution and ecosystem development. There are a number of rare and important plants and animals such as goshawk, spotted owl, Hall’s daisy, and several species of slender salamander. Congdon’s lewisia may be present. The area is important habitat connectivity for the Pacific fisher. The area includes the Long Canyon Research Natural Area...” (DEIS Vol. 2, App. pg. B-194)

The Long Canyon Research Natural Area (RNA) is another resource that adds to the area’s wilderness value. Located entirely within the proposed wilderness, the Long Canyon RNA is highly varied topographically and geologically. There is great elevational range and a variety of slope exposures. Rock types vary from metamorphic schists, gneisses, and marbles to granitics. The RNA was established to represent Piute cypress, California juniper and single-leaf pinyon pine target elements for the Southern Sierra Nevada province. The Piute cypress stands in the RNA, though small in extent have varied fire history. This variation in age is one of the most significant aspects of the local population.<sup>33</sup>

The evaluation fails to fully document the diverse ecological and wildlife values of this area. 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: adobe yampah, alkali mariposa-lily, American badger,

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<sup>32</sup> Trail number designations vary between USFS maps. The Sequoia Forest recreation map, the Woolstaff Creek quad map in the Sequoia National Forest atlas, and the quad map downloaded from <https://data.fs.usda.gov/geodata/rastergateway/states-regions/states.php> all have different numbers for portions of this trail system.

<sup>33</sup> Ecological Survey of the Proposed Long Canyon Research Natural Area, Sequoia National Forest, Kern County, California, by Todd Keeler-Wolf, Dec. 1990.



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.

## **K. Sierra National Forest - Wilderness Recommendation Process**

No wilderness is recommended in the draft Sierra Forest Plan, out of the 312,840 acres of roadless lands that qualify. We support the wilderness recommendations in Alternative C, although Alt. E boundaries should be used for those areas recommended in Alt. E.

### **1. Kings River-Monarch Wilderness Addition West (Polygon 1378)**

We support wilderness for this area, using adjusted Alt. E boundaries. The Alt. E boundaries for the southwest portion of the area (Map B-53, DEIS Vol. 2, App. pg. B-134) should be adjusted northward to generally follow the Special Management Area boundary but excluding motorized trails 27E05 and 27E04, the Crabtree Rancheria Site in the northeast corner of section 5, and roads 12S02 and 12S01 to Mill Flat on the Kings River.

The Kings River Canyon is truly spectacular. This wild area has perhaps the most dramatic elevation profile in California. If permanently protected, it would provide an unbroken landscape corridor for wildlife and plant species to migrate in response to climate change from approximately 1,100 feet in elevation to the 14,000 foot-high crest of the Sierra Nevada. In addition, the proposed wilderness provides a scenic backdrop to thousands of whitewater rafters and campers who visit the Kings River every year. Scientists believe that the Kings River possesses a high level of biotic integrity, due in part to its largely roadless watershed.

We don't understand why the Forest Service chose not to recommend this area for wilderness in the draft plan/preferred Alternative B, given these key excerpts from the agency's evaluation:

Large portions of the area might be suitable for inclusion in the National Wilderness Preservation System due to relatively intact wilderness qualities and rugged terrain limiting access. Large blocks of the unite are unaffected by human activities. There are old-growth forests, rare plants and endangered aquatic species and habitat in the area...This polygon presents an opportunity to protect ecological groups that may be minimally represented in the National Wilderness Preservation System...The areas was

noted for its significant old-growth forest in the Sierra Nevada Ecosystem Project Report...Large blocks of the unit are unaffected by human activity and the steep terrain limits access...Potential encounters with other visitors are low throughout most of the area...There are opportunities for challenge and self-reliance in this area along the Kings River and traveling off-trail through steep rugged terrain...The area has high opportunities for solitude or primitive and unconfined recreation due to its large size...Native species have connectivity and habitat in areas away from human impacts...There is a rare plant, the Kings River buckwheat (*Eriogonum nudum* var. *regirivum*) on limestone and marble outcrops (Forest Service sensitive species)...Aquatic species and habitats include potential habitat, suitable habitat, and occupied habitat for Yosemite toad; potential and suitable habitat for Sierra Nevada yellow-legged frog and California red-legged frog (Endangered Species Act listed); potential and suitable habitat and occupied habitat for western pond turtle; and potential habitat for the foothill yellow-legged frog (Forest Service sensitive species)...This area is culturally sensitive and is considered a special interest area from Tribes in the area...Much of the area is manageable for preservation of wilderness characteristics due to its larger size and rugged terrain. (DEIS Vol. 2, App. pgs. B-239-242)

The evaluation also mentions potential or alleged wilderness detractions, including the need to “reshape” the unit to avoid motorized activities, existing grazing allotments, the potential for fires in the area to become large, past logging activities in the Converse Basin, developments such as communication sites and range improvements, high visitor volume in nearby national parks and monuments. We believe we have addressed these problems with the Alt. E boundaries as adjusted.

The evaluation fails to fully document the diverse ecological and wildlife values of this area. According to the California Department of Fish and Wildlife's (CDFW) Natural Diversity Database (NDD), the following species of interest have been either recorded or have suitable habitat in the region: American manna grass, American peregrine falcon, bald eagle, Bolander's clover, broad-nerved hump moss, California condor, California spotted owl, California wolverine, Congdon's lewisia, Cooper's hawk, Farnsworth's jewelflower, few-flowered eriastrum, field ivesia, fisher, flammulated owl, foothill yellow-legged frog, Fresno County bird's-beak, golden eagle, great gray owl, Hall's daisy, Howell's tauschia, Keil's daisy, King's Creek parapsyche caddisfly, Kings River buckwheat, Kings River slender salamander, Lahontan cutthroat trout, limestone dudleya, Madera leptosiphon, Muir's tarplant, northern goshawk, osprey, Pacific marten, prairie falcon, Robbins' pondweed, sharp-shinned hawk, Shevock's copper moss, Sierra Nevada monkeyflower, Sierra Nevada red fox, Sierra Nevada yellow-legged frog, southern Sierra woolly sunflower, streambank spring beauty, subalpine fireweed, three-ranked hump moss, Tompkins' sedge, Townsend's big-eared bat, Tracy's eriastrum, Tulare County bleeding heart, valley elderberry longhorn beetle, western pond turtle, western waterfan lichen, willow flycatcher, Yosemite bog orchid, Yosemite ivesia and Yosemite toad.

## **2. Devil Gulch-Ferguson Ridge (Polygon 772)**

We support wilderness for this area, using Alt. E boundaries, which were drawn to avoid existing motorized routes, fuel breaks, and other non-wilderness developments.

The Devil Gulch-Ferguson Ridge roadless area is composed of steep slopes rising from the banks of the South Fork Merced Wild and Scenic 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 area includes ecosystems underrepresented in the wilderness system. Special attributes of this potential wilderness include the Bishop Creek Research Natural Area, which was set aside for scientific research of old-growth ponderosa pine. The area also includes the Devil's Peak Botanical Area, which was established to protect its unique geology, ecology, and vegetation, including three rare plants (Yosemite onion, Congdon's woolly sunflower, and Congdon's lewisia. The Hite Cove Trail is a popular destination for spring wildflowers and to enjoy the South Fork Merced Wild & Scenic River.

In its evaluation, the Forest Service found the area provides opportunities for solitude or primitive and unconfined recreation, there is minimal evidence of civilization within a majority of the polygon, and the potential for encounters with other visitors is low. In addition, soils are in good condition and the six watersheds within the area are in good hydrological condition. Key excerpts from the agency's evaluation include:

Recreational opportunities include hiking, horseback riding, fishing, wildlife viewing, wildflower viewing, hunting and camping, especially along the South Fork Merced River Trail...Geologic features include caves and metamorphic roof pendants. Devil's Peak provides a great viewing point. The rare limestone salamander may be present as well as the rare plants Congdon's woolly sunflower, Congdon's lewisia, Yosemite onion, Merced clarkia (state listed endangered), Mariposa clarkia (Forest Service sensitive species), and Thompkin's sedge. There is potential habitat for western pond turtle and California red-legged frog...Other designations include the Bishop Creek Ponderosa Pine Research Natural Area and the Devil's Peak Botanical Area...There are known traditional areas used by the South Fork of the Merced MiWuk People to conduct gathering for basket weaving and tribal burial areas in the area between Yosemite and Hites Cove access. The area just west between Hites Cove access and the Bureau of Land Management lands is culturally sensitive and considered a special interest area from Tribes in the area...There are cultural and historical sites adding to the wilderness characteristics of this area by providing important scientific and cultural values. (DEIS Vol. 2, App. pgs. B-224-225)

Given all these obvious wilderness values, we don't understand why the Forest Service isn't recommending the area for wilderness. Our Alt. E boundaries were carefully drawn to exclude motorized routes, fire breaks, tree plantations, and old mine facilities – all of which the agency claims detracts from the wilderness. With these detractions removed by judicious boundary adjustments, this is no longer the case.

The evaluation fails to fully document the diverse ecological and wildlife values of this area. 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: 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.

### **3. Sycamore Springs (Polygon 315)**

We support wilderness for this area, using Alt. E boundaries, which were drawn to avoid existing motorized routes, fuel breaks, and other non-wilderness developments.

The area's primary features are Dinkey Creek and the dominating rock formations of Patterson Bluffs, Indian Rock, and Black Rock. The area is probably best known for Dinkey Creek's whitewater. Expert kayakers come from all over the world to challenge the class V-V+ whitewater in this segment of Dinkey Creek. Vegetation ranges from chaparral to oak woodlands, to old growth conifer forests, and includes ecosystems underrepresented in the wilderness system

Key excerpts from the Forest Service's evaluation include:

There are numerous waterfalls on Dinkey Creek, highly scenic granite features, rare plants and aquatic wildlife. Due to the size of the polygon and lack of motorized roads or trails within the polygon, there are opportunities for solitude or primitive and unconfined recreation... Recreation activities include whitewater kayaking, canyoneering, hiking, fishing and hunting. Dinkey Creek provides an outstanding opportunity for challenge and self-reliance for kayakers and canyoneers... Rare plants include *Tauschia howellii* at Patterson Mountain. Rare ecosystems include fens in many of the meadows at higher elevations of the unit. There is potential and suitable habitat, occupied habitat, and proposed critical habitat for the Yosemite toad; potential and suitable habitat for the Sierra Nevada yellow-legged frog and California red-legged frog (Endangered Species Act listed); potential and suitable habitat for western pond turtle; and potential habitat for foothill yellow-legged frog (Forest Service sensitive species)... The area is culturally sensitive and is considered a special interest area from Tribes... There are cultural and historical sites providing important scientific and cultural values. This unit is part of the homeland of the Holkoma Mono people. Ethnographic reports identify areas of significant cultural value including Indian Rock. There are numerous prehistoric archaeological sites and reported Indian trail systems in the Dinkey Creek drainage. (DEIS Vol. 2, App. pgs. B-208-209)

The evaluation notes that the area is surrounded by an extensive network of roads (as are most roadless areas – that's how they're defined), two grazing allotments are included in the area and there are cattle fences, the Fence Meadow Lookout is visible on the northwest corner of the area, and fire exclusion has resulted in the build-up of fuels. But none of these concerns disqualify the area for wilderness. Given the values documented in the Forest Service's own evaluation, we don't understand why the area isn't recommended for wilderness.

The evaluation fails to fully document the diverse ecological and wildlife values of this area. 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, 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.

#### **4. Bear Mountain (Polygon 539)**

This area should be considered an addition to the existing Dinkey Lake Wilderness, separated from the wilderness by the existing Swamp OHV Route. We support the Alternative E boundaries for this area.

The most prominent features of this proposed wilderness are Dinkey Creek, Dinkey Dome, and Marble Point. Although relatively small and compact, the area provides plenty of opportunity for solitude and primitive recreation. Expert whitewater kayakers carry their boats into the area to challenge the class V-V+ "SuperDink/Infinislides" run downstream of Dinkey Dome. Rock climbers enjoy the numerous class 5.6 or higher climbing routes on Dinkey Dome. Visitors to the downstream Dinkey Creek Recreation Area hike up the stream to fish, swim, and enjoy the spectacular view of the glaciated bare granite canyon of Dinkey Creek dominated by Dinkey Dome. The forested portion of the area provides prime habitat for the Pacific fisher.

The Forest Service evaluation confirms that the area possesses intact ecosystems, provides opportunities for solitude and primitive and unconfined recreation, and is culturally sensitive and is considered of special interest by local tribes. Given this, we don't understand why the area is not recommended for wilderness.

The evaluation fails to fully document the diverse ecological and wildlife values of this area. 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 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.

#### **5. San Joaquin River-Ansel Adams Wilderness Addition (Polygon 819)**

We support wilderness for this important area, using Alternative E boundaries. The boundaries are intended to avoid all above-ground hydroelectric infrastructure.

This proposed wilderness addition would extend the existing Ansel Adams Wilderness southward past Mammoth Pool reservoir to encompass the steep and rugged lower canyon of the San Joaquin River between Mammoth Pool Dam and Mammoth Pool Powerhouse. Here, the San Joaquin River and its tributaries have carved a dramatic and scenic, but little visited, canyon. Virtually every tributary to the river tumbles over waterfalls on its way to the San Joaquin. The area is characterized by plunging slopes, exposed granite formations, roaring side-streams, oak forest, patches of old-growth conifer forest and chaparral. Portions of the French Trail, which has been used for Native American trade since prehistoric times, are located in the area. Ranging from 6,400 to 1,600 feet in elevation, the area not only possesses ecosystems underrepresented in the wilderness system, it provides an important migration corridor for species adjusting to climate change.

The Forest Service evaluation admits that the area possesses intact ecosystems, provides opportunities for solitude and primitive and unconfined recreation, is contiguous with existing wilderness, and is culturally sensitive and considered a special interest area by local tribes (DEIS Vol. 2, App. pgs. B-115-116), and yet, the Forest Service has not recommended it for wilderness in its preferred alternative. “Sights and sounds” associated with recreation on Mammoth Pool Reservoir seems to be the primary reason for the agency not recommending the area. What’s odd about that is that the Sierra National Forest has at least five large reservoirs surrounded by or adjacent to existing wilderness. Apparently Congress has no problem with wilderness next to reservoirs.

The evaluation fails to fully document the diverse ecological and wildlife values of this area. 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, 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.

## **6. Mt. Raymond-Ansel Adams Wilderness Addition (Polygon 821)**

We support the wilderness recommendation for this area included in Alternative C. This area’s northern boundary is the South Fork Merced Wild & Scenic River. It is critical to providing a protected buffer for not only the South Fork but also for Yosemite National Park to the north. The South Fork Merced has been identified as possessing a high level of biotic integrity, in part due to the roadless nature of its watershed (including this area). The area also possesses ecosystems unrepresented in the wilderness system.

According to the Forest Service:

The area is bordered by the South Fork of the Merced Wild and Scenic River and presents opportunities for personal challenge and self-reliance typically associated with recreational activities. There are opportunities for solitude or primitive and unconfined

recreation...The area is characterized by timbered slopes dropping down to the South Fork of the Merced River on the west and lower slopes of Red Top and Madera Peaks to the east. There are several large lakes and meadows and rich old-growth forests of mixed conifer and fir with areas of barren rock and montane chaparral...Six hiking trails cross through the area and access Yosemite National Park...There are several meadows with fens (peat lands) present...The area is culturally sensitive and is considered a special interest area from Tribes...Aquatic species and habitats include potential habitat, suitable habitat, occupied habitat, and proposed critical habitat for Yosemite toad; and potential and suitable habitat for Sierra Nevada yellow-legged frog (federally listed)...This area would be very manageable as wilderness with the boundary of the South Fork of the Merced River to serve as an anchor for this wilderness. (DEIS Vol. 2, App. pgs. B-226-228)

Accordingly, we don't understand why the Forest Service is not recommending this important area for wilderness protection in the draft plan/preferred alternative. Again, "sights and sounds" associated with motorized use of OHV trails, which have been excluded from the proposed wilderness appears to be the primary (but not legitimate) reason.

The evaluation fails to fully document the diverse ecological and wildlife values of this area. 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: 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.

## **7. Cat's Head Mountain (Polygon 304)**

This area is not recommended for wilderness in any alternative, apparently due to illegitimate "sights and sounds" criteria. The boundaries of virtually all roadless areas are defined by roads and other development. "Sights and sounds" is not a legitimate criteria to disqualify this area. The area's rugged topography dilutes any sound from outside activities. At the minimum, the roadless character of this area should be protected.

Although small, this potential wilderness includes ecosystems underrepresented in the wilderness system. According to the Forest Service evaluation, this area includes ecosystems underrepresented in the wilderness system, potential habitat for the California red-legged frog and foothill yellow-legged frog, and occupied habitat for the western pond turtle. The area is culturally sensitive and is of special interest to local tribes. There are cultural and historical sites that provide opportunities for important research and traditional ceremonial use. (DEIS Vol. 2, App. pg. B-207) Not mentioned in the evaluation are the Deep Creek and Bob's Flat trails, two trails that offer outdoor recreation during the winter when other areas are inaccessible due to snow.

The evaluation fails to fully document the diverse ecological and wildlife values of this area. 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: 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.

## **L. Summary of Recommended Areas**

In summary, we support wilderness recommendations for the following areas in Alternative C, with some areas using Alternative E boundaries, and including some areas not recommended in any alternative (marked with \*).

<b>SEQUOIA NATIONAL FOREST</b>	<b>SIERRA NATIONAL FOREST</b>
Cannell Peak (Alt. E boundaries)	Ansel Adams Wilderness Addition San Joaquin River (Alt. E boundaries adjusted)
Bright Star Addition Piute Mountains*	Ansel Adams Granite Creek Additions 1
Dennison Peak	Ansel Adams Granite Creek Additions 2
Dome Land Addition South	Ansel Adams Mount Raymond Additions 1
Dome Land Addition West (Alt. E boundaries)	Ansel Adams Mount Raymond Addition 2
Dome Land Addition Fish Creek	Bear Mountain (Alt. E boundaries)
Golden Trout Addition Southwest (Alt. E boundaries)	Cat's Head Mountain*
Golden Trout Addition 1 (Alt. E boundaries)	Devil Gulch (Alt. E boundaries)
Golden Trout Addition 2	Dinkey Lakes Wilderness Addition 1
Golden Trout Addition 3	Dinkey Lakes Wilderness Addition 2
Golden Trout Addition 4 (Alt. E boundaries)	Dinkey Lakes Wilderness Addition 3
Hatchet Peak	Ferguson Ridge (Alt. E boundaries)
Jennie Lakes Addition	John Muir Wilderness Additions Southwest (Alt. E boundaries)
Long Canyon	John Muir Wilderness Additions West 1
Saturday Peak	John Muir Wilderness Additions West 2
Slate Mountain	Monarch Wilderness Addition West (Alt. E boundaries adjusted)
South Sierra Wilderness Addition 1	Shuteye
South Sierra Wilderness Addition 2	Sycamore Springs (Alt. E boundaries)
Stormy Canyon (Alt. E boundaries adjusted)	

## **V. Other Designated Areas**

### **A. Lack of Consideration for Designated Areas**

We are extremely disappointed that the RDEIS and revised draft plans do not consider other administrative designations, beyond recommended wilderness and eligible Wild & Scenic Rivers. The 2012 Planning Rule requires plans to “[i]dentify existing designated areas [other *SFL et al. comments on Sequoia and Sierra draft plans and RDEIS (9/26/19)*]



than recommended wilderness and eligible Wild and Scenic Rivers], and determine whether to recommend any additional areas for designation.” 36 C.F.R. § 219.7(c)(2)(vii). The rule defines designated area broadly as “[a]n area or feature identified and managed to maintain its unique special character or purpose.” *Id.* § 219.19. Areas designated through the forest planning process have traditionally included research natural areas (RNAs) and special interest areas such as botanical, geological, scenic, zoological, paleontological, historical, or recreational areas. *See* FSH 1909.12, ch. 20, § 24 – Exhibit 01. The intent behind the requirement is to “[r]ecommend areas where doing so would help carry out the distinctive role and contributions of the plan area in the broader landscape or contribute to achieving desired conditions for the plan area.” *Id.* § 24(1)(b). Plans “must include plan components, including standards or guidelines, to provide for . . . [a]ppropriate management of other designated areas or recommended designated areas in the plan area, including research natural areas.” 36 C.F.R. § 219.10(b)(1)(vi).

The requirement to consider special designations and determine whether to recommend additional designated areas is just one of the non-discretionary duties enumerated in section 219.7(c)(2) of the planning rule, which include determining whether to recommend areas found suitable for inclusion in the NWPS, identifying the eligibility of rivers for inclusion in the National Wild and Scenic Rivers System, and identifying the maximum quantity of timber that may be removed from the planning area. Collectively, the requirement to consider a suite of conservation-oriented designations presents an important opportunity to identify the most special and unique places on our national forests and create a network of inter-connected protected areas that will help forests achieve the overarching ecological sustainability, species diversity, sustainable recreation, and climate change adaptation goals of the 2012 planning rule. Indeed, the best available scientific information demonstrates that designated and connected conservation reserve systems are critically important in conserving biological diversity and ecological processes and in mitigating system stressors. Special designations provide an opportunity to address unmet ecological goals such as protection and enhancement of habitat connectivity and ecosystem representation.<sup>34</sup> For instance, the Forest Service should consider designating a network of RNAs that represent the full diversity of ecosystems found across the forests and whose size and number are sufficient to adequately represent botanical and other ecological features and to be resilient to natural disturbances, climate change, and other anthropogenic stressors.<sup>35</sup> Because of their high conservation value, the Forest Service should consider for RNA or other special designation, areas suitable for inclusion in the NWPS that it chooses not to recommend for wilderness designation. *See* Section G, above (addressing failure of the plans to consider protections for inventoried roadless areas).

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<sup>34</sup> *See* FSH 1909.12, ch. 10, § 14 (relevant considerations in assessing the need and opportunity for special designations include, among other things, whether there are “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” or “important ecological roles that could be supported by designation”).

<sup>35</sup> *See* FSM 4063.02 (objectives of RNAs include “[m]aintain[ing] a wide spectrum of high quality representative areas that represent the major forms of variability . . . that, in combination, form a national network of ecological areas for research, education, and maintenance of biological diversity;” “[p]reserv[ing] and maintain[ing] genetic diversity;” “[p]rotect[ing] against human-caused environmental disruptions;” and “[s]erv[ing] as a baseline area for measuring long-term ecological changes”).

Despite the mandatory planning rule requirement, there is no indication in the RDEIS or draft plans that any determination whether to recommend additional designated areas was made, much less meaningful consideration or analysis of opportunities for additional administrative designations. This is both a planning rule violation and a NEPA violation, as we have repeatedly raised the requirement to consider special designations as a significant issue that must be analyzed in the plan EIS. *See* 40 C.F.R. § 1501.7 (EIS must analyze in depth all “significant issues”); *id.* § 1502.1 (EIS “shall provide full and fair discussion of significant environmental impacts” and “shall focus on significant environmental issues and alternatives”).<sup>36</sup>

To remedy these deficiencies, the Forest Service must revise its alternatives to include recommendations for additional designated areas such as RNAs and special interest areas. Recommendations for designated areas should incorporate a range of ecological needs and values, including ecological representation, supported by the best available scientific information, as well as recreation, scenic, and visitor experience opportunities. The Forest Service should prioritize special designation of areas that are suitable for inclusion in the NWPS that the agency chooses not to recommend for wilderness designation. The agency should also prioritize areas currently identified in the RDEIS and draft plans as having important ecological values, such as wetlands, meadows, and critical aquatic refuges. Meaningful analysis of potential recommendations for additional designated areas will require a revised or supplemental EIS. *See* 40 C.F.R. § 1502.9(a) & (c). Based on that analysis, the Forest Service can then determine whether to recommend any additional areas for designation, as required.

**Recommended Changes:** The forests must meaningfully consider and analyze recommendations for designated areas such as RNAs and special interest areas, and make a supported determination whether to recommend any additional areas. This will necessarily require a revised or supplemental EIS. The Forest Service should prioritize special designation of areas suitable for inclusion in the NWPS that are not recommended for wilderness designation in the final plans, as well as other areas currently identified in the RDEIS and draft plans as having important ecological values, such as wetlands, meadows, and critical aquatic refuges.

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<sup>36</sup> We have raised the need to address administrative designations throughout the planning process, including in the following comment letters: Sierra Forest Legacy *et al.*, Feedback on Draft Sierra Forest Assessment at 36-37 (Sept. 19, 2013); Sierra Forest Legacy *et al.*, Comments on Draft Sequoia Forest Assessment at 51 (Oct. 16, 2013); Sierra Forest Legacy *et al.*, Comments on Draft Inyo Forest Assessment at 45-47 (Dec. 16, 2013); Sierra Forest Legacy *et al.*, Comments on Preliminary Need for Change at 5-8 (Jan. 31, 2014); Sierra Forest Legacy *et al.*, Comments on Need to Change Analysis, Desired Conditions, and Wilderness Inventory at 26-28 (June 30, 2014); Sierra Forest Legacy *et al.*, Scoping Comments at 7-8 & Appx. A; The Wilderness Society *et al.*, Consideration of Special Designations in Plan Revisions for Sierra, Sequoia, and Inyo National Forests (Nov. 18, 2014) ; Sierra Forest Legacy *et al.*, Comments on the Draft Environmental Impact Statement for Revision of the Inyo, Sequoia, and Sierra National Forests Land Management Plans (Aug. 25, 2016) (Exhibit XI.1).

## **B. Backcountry Management Areas**

We support the Backcountry Management Area (BMA) designation described in Alternative E, which reinforces existing protections under the Roadless Area Conservation Rule. Unlike the Roadless Rule, however, the BMA designation applies to the more-accurate roadless area boundaries identified in the wilderness evaluation process while precluding the construction of new motorized trails. We recommend that the USFS apply the BMA designation to all roadless areas not recommended as wilderness. However, our support for the BMA concept should not be interpreted as a change in our support for any specific wilderness area. The Wilderness Act better guarantees that an area's wild character and ecological integrity are protected over the long term and we would prefer that an area be recommended for wilderness protection in most cases.

**Recommended Changes:** The revised plans should apply the backcountry management area designation to all roadless areas not recommended as wilderness.

## **VI. Wild and Scenic Rivers: Sierra Draft Plan**

### **A. Eligible or Recommended Wild and Scenic Rivers**

The draft plan notes that the Forest Service has determined 13 river segments encompassing approximately 48.2 miles eligible for inclusion in the National Wild and Scenic River System. (RDLMP pg. 97) This is sharply reduced from the 633 miles of eligible streams identified in the 2016 draft. We believe that a number of eligible streams have been wrongfully eliminated from eligibility between the 2016 and 2019 drafts. Please see detailed comments on DEIS Vol. 2, Appendix C.

**Recommended Changes:** Standard (MA-EWSR-STD) – Revise standard on RDLMP pg. 98 to include specific protection of the free flowing condition and preliminary classification of eligible and recommend rivers. Revise to state:

- 01 Management of Forest Service-identified eligible or recommended suitable rivers, are managed to protect *free flowing condition, preliminary classification, and* outstandingly remarkable values.

### **B. Wild and Scenic Rivers (Existing)**

Standards (DA-WSR-DC) – The standard concerning structural improvements in wild segments is too restrictive. Limiting structural improvements to existing structures goes beyond existing guidance for the interwould preclude construction of a trail footbridge within and over a wild segment that did not replace an existing bridge. New trail bridges are permitted in existing wilderness. In the case of potential conflict between the WSR Act and Wilderness Act, Congress specifically directed that the “more restricted provisions” of the Wilderness Act applies to WSRs within wilderness (16 USC 1281[b]).

**Recommended Changes:** Standard 03 (RDLMP pg. 104) should be revised to state:

- 03 Within the wild segment, structural improvements will be limited to existing structures *except if needed to improve recreation opportunities (see standard 07) and limit or avoid resource damaged associated with recreation, and to protect outstanding values.*

No existing Wild and Scenic River standard is proposed to revise and update comprehensive river management plans when needed to address changing conditions and to protect the free flowing condition and outstandingly remarkable values of existing WSRs. We recommend adding this new standard:

- 08 Monitor the conditions of existing wild and scenic rivers and revise and update comprehensive river management plans when needed to address changing conditions and prevent resource damage.

This standard is needed because the Final Sierra National Forest Assessment, which was published as part of the initial planning process for the RDLMP, identified a number of issues that should be addressed in a revision of the 28 year-old Merced and South Fork Merced Wild and Scenic River comprehensive river management plan. These issues include a trend toward unmet public recreational demand on the Merced WSR, more mining claims on streams in the Sierra NF, gang activity and limited law enforcement, illegal marijuana gardens, trash and sanitation issues associated with high public use, and less sustainability in areas popular for dispersed camping. (Final Sierra National Forest Assessment 2013, pgs. 204-205)

### **C. RDLMP Appendix B – Designated Areas**

The sole proposed/possible action for designated Wild and Scenic Rivers is to “Implement comprehensive river management plans for any newly designated wild and scenic river within 5 years of designation.” (RDLMP Appendix B, pg. 140) This violates the WSRs Act mandate that comprehensive river management plans be completed within three years of designation. (16 USC 1274[d][1]) The standard should be revised to simply state that a comprehensive river management plan will be developed for newly designated rivers.

**Recommended Changes:** An additional proposed/possible action should be added, stating:

- Monitor designated rivers and revise/update comprehensive river management plans when needed to address changing conditions and prevent resource damage.

## **VII. Wild and Scenic Rivers: Sierra National Forest Inventory and Evaluation**

### **A. Reduction in eligible WSR miles between 2016 and 2019 draft plans**

The Sierra Forest’s 2016 draft plan included a WSR inventory that evaluated 1,482.4 miles of rivers and streams and identified 633.5 miles as eligible (2016 DEIS pg. 531).<sup>37</sup> The Sierra Forest’s 2019 draft shrank the WSR inventory to 35.5 miles of eligible streams and rivers

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<sup>37</sup> This mileage does not include the 65 miles of the North Fork, Middle Fork, and main stem San Joaquin River upstream of Mammoth Pool, and the upper South Fork San Joaquin above Florence Reservoir previously found eligible and suitable in the 1991 Sierra Forest Plan, which has been carried through in both the 2016 and 2019 Sierra draft forest plans.

(2019 DEIS Table 123, pg. 618) – a shocking 94% reduction of eligible river miles. The 2019 DEIS Appendix explains the reduction this way:

In this initial screening step, values that may be unique, rare, exemplary, or significant at a regional or national scale were identified, but a determination was not made about the relative significance of the values. (pg. C-238)

Sierra National Forest Planning Staff Officer Judi Tapia confirmed this was the reason for the eligible mileage reduction in a phone conversation (July 2019) – that is the 2016 inventory identified river-related values but failed to identify which values were outstandingly remarkable.

As a result of this additional screening, many streams nominated by the public and others identified as eligible in the 2016 draft by the Forest Service Inter-Disciplinary Team (IDT) were moved from the eligible category to the ineligible category in the 2019 draft. Although some streams originally determined in the 2016 draft remain eligible, important outstandingly remarkable values (ORVs) were eliminated for many eligible streams remaining in the 2019 draft.

## **B. Unique, Rare, Or Exemplary Values**

A mis-interpretation of the Forest Service’s WSR study guidelines in its Land Management Planning Handbook may have contributed significantly to this reduction, particularly in regard to identifying “exemplary” values. The Forest Service’s planning guidelines define ORVs as:

A scenic, recreational, geological, fish and wildlife, historic, cultural, or other similar river-related value that is unique, rare, or exemplary feature and is significant when compared to similar values for other rivers at a regional or national scale. (FSH 1909.12\_80.5, pg. 4)

The Interagency WSR Coordinating Council’s technical paper outlining the WSR study process also uses this definition, noting:

There are a variety of methods to determine whether certain resources are so unique, rare, or exemplary as to make them outstandingly remarkable.” (IAWSRCC 1999)

When assessing streams for their potential ORVs, it’s important to keep in mind that “rare, unique, or exemplary” are separate criteria connected by the word “or.” In other words, an ORV may be rare, unique or exemplary and need not meet all three criteria. Not all values need be exemplary to be outstandingly remarkable.

Many streams identified as eligible in the Sierra’s 2016 evaluation were determined ineligible in the 2019 draft because their values were supposedly not “exemplary.” More than 186 miles encompassing 20 previously eligible streams were eliminated, including multiple segments of Dinkey Creek, Iron Creek, lower Mono Creek (below Vermillion Dam), NF Kings River, Piute Creek, two segments of the San Joaquin River below Mammoth Pool, and the lower SF San Joaquin River below Florence Reservoir. The most common “non-exemplary” value cited was scenery, although wildlife populations was also frequently categorized as non-exemplary. In

most cases, the stream was found ineligible, although some eligible streams were carried through to the 2019 draft but with reduced ORVs.

Over-reliance on “exemplary” criterion in the guidelines not only can lead to the kind of bizarre results found in the 2019 draft, it arguably would have prevented the past protection of some of California’s most cherished WSRs in the Sierra Nevada. For example, the Tuolumne WSR was designated by Congress in 1984, following a joint federal agency study commissioned by Congress in 1975. The Merced WSR was studied as part of the draft Sierra National Forest Plan of 1986 and subsequently designated by Congress in 1987. The Tuolumne and Merced watershed are directly adjacent to each other and both rivers originate in Yosemite National Park, flow through spectacular glaciated valleys, and rugged Sierra foothills. Both rivers share similar if not identical outstandingly remarkable scenery, recreation, and history/prehistory values.

If the Tuolumne and Merced were studied today, mis-interpretation of the “exemplary” criterion would likely mean that one of the rivers, but not both, would be determined eligible. Taken to its extreme, use of the exemplary criterion would likely mean that only the Yosemite Valley segment of the Merced would be found eligible in regard to outstandingly remarkable scenery because no other part of the river rivals the valley’s precipitous granite cliffs, domes, and waterfalls. Hence, our concern that the agency guidelines defining ORVs are appear to be mis-interpreted and without appreciation that they are intended to simply provide guidance – they are not hard and inviolable regulations.

Narrowly focusing on the most exemplary stream of a group of streams is not the intent of the National Wild & Scenic Rivers Act or the Forest Service guidelines. When it comes to recreation and scenic values in particular, the bottom line is that you know a river to be outstandingly remarkable when you see and experience it.

### C. 2019 Sierra NF WSR Eligibility Findings Not Comparable To Other Forests

When compared with the 2016 WSR evaluation in the first Sierra Forest draft plan and with WSR evaluations in other Sierra Nevada forests, the limited results of the 2019 evaluation stand out as an aberration.

### COMPARISON OF ELIGIBLE WSR MILES IN SIERRA NEVADA FOREST PLANS

FOREST	DOCUMENT/DATE	MILES
Sierra	Revised Draft Forest Plan/DEIS – June 2019	35.5
Sierra	Draft Forest Plan/DEIS – May 2016	633.5
Sequoia	Draft Forest Plan/DEIS – June 2019	341
Inyo	Final Forest Plan/FEIS – Aug. 2018	112.9
Stanislaus	Final Forest Plan/FEIS – Oct. 1991	299
Tahoe	22 Westside Rivers WSR Study Report/FEIS – May 1999	355.8 (total)
	8 Eastside Rivers WSR Study Report/FEIS – July 1998	

Comparing the results of other comprehensive WSR assessments conducted on other National Forests is the Sierra Nevada underscores the questionable results of the eligibility assessment in the 2019 Sierra draft plan. The 2019 Sierra draft identified the least amount of eligible river miles when compared to other plans, including fellow “early adopter” plans for the Sequoia and Inyo Forests.

Given the Sierra Forest’s existing designated WSRs (Merced, Kings) and existing suitable WSRs (North, Middle, upper South Forks and main stem San Joaquin), we would expect a relatively lower number of eligible river miles identified in the evaluation, compared to other forests. But all the forests listed in the table also possess designated WSRs. Comparing the results of the Sierra’s 2019 evaluation raises serious questions about the process used to evaluate potentially eligible WSRs.

#### **D. Public Comments Ignored**

In the drive to eliminate seemingly non-exemplary streams, the 2019 evaluation ignored other important provisions of the agency’s guidelines. This includes direction to consider public comments, including input from organizations and individuals familiar with resources:

The determination that a river area does or does not contain one or more outstandingly remarkable values is a professional judgement on the part of the Responsible Office as informed by the Interdisciplinary Team, best available scientific information, and public participation. As part of this determination process, the Responsible Official should solicit and document input from organizations and individuals familiar with river resources. (FSH 1909.12\_82.73, pg. 40)

A case in point is Dinkey Creek. The public has expressed strong support for the WSR eligibility of Dinkey Creek for nearly 30 years, including the submission of a 10 page eligibility report for Dinkey Creek completed in 1990 by local activists and submitted to the Forest Service for consideration in the original Sierra Forest Plan. Unfortunately, the 1991 Sierra Forest Final Plan only considered streams identified in the Nationwide Rivers Inventory (which did not include Dinkey Creek). In response to public concerns, the 1992 Record of Decision for the final plan promised to conduct a comprehensive assessment of non-NRI rivers by 1995. The assessment was never completed.

With the initiation of the Sierra Forest Plan Revision process two decades later, the Forest Service received substantial and detailed comments from the public documenting the outstanding values of this 31 mile-long creek during the 2014 scoping for the plan. In response, the 2016 draft plan found the upper 15 miles of the creek to be eligible, but failed to even mention the lower creek. The 2016 draft also failed to identify all of the creek’s ORVs documented by the public.

Once again, the public responded to the 2016 draft with substantial documentation of the creek’s ORVs and WSR eligibility. But Dinkey Creek’s status as an eligible WSR was significantly reduced in the 2019 revised draft plan. The most scenic upper segments of the creek were eliminated as non-exemplary. Consequently, the 15 miles of eligible segments identified in 2016 were reduced to 4.7 miles in two disjunct and unconnected segments in the

2019 draft. Once again, 15 miles of lower Dinkey Creek was also completely ignored in the 2019 draft.

The Forest Service's complete failure to consider substantial public input about Dinkey Creek's eligibility over the past 30 years is discouraging given the guidance in the FSH directing the Responsible Official to make eligibility decisions informed by public participation and input from knowledgeable individuals and organizations.

#### **E. Consideration Of The Entire River System Ignored**

The provision in the guidelines encouraging the agency to look beyond small discrete river segments has also been ignored. Here is the relevant direction:

Consider the entire river system, including the interrelationship between the main stem and its tributaries and their associated ecosystems which may contain outstandingly remarkable values. (FSH 1909.12\_82.61\_2, pg. 8)

Reducing Dinkey Creek's eligibility down to two disjunct segments totaling .7 miles and 4 miles, out of the entire 31 mile-long creek is perhaps the most egregious example of the 2019 evaluation's mis-interpretation and overly rigid implementation of the guideline's ORV definitions. This process most certainly did not "consider the entire river system" when determining ORVs. Agency eligibility findings for several other streams on the Sierra Forest also seem to ignore this important watershed approach.

**Recommended Change:** Reconvene the Inter-Disciplinary Team to review the eligibility/ineligibility findings in the draft plan, review and consider public comments, adjust the findings accordingly, and document in the final plan/FEIS. More information about the ORVs of specific streams is detailed below.

#### **F. Stream Specific Comments**

##### **1. Dinkey Creek – GIS Number 3.68.1-6 (segments 1-6)**

As noted previously, the 2019 DEIS identified only two short disjunct and unconnected segments of Dinkey Creek to be eligible. We believe that the Forest Service misinterpreted guidelines in defining and identifying ORVs for Dinkey Creek and ignored public comment documenting multiple ORVs for all segments. We urge the Forest Service to consider and identify the following outstandingly remarkable values for Dinkey Creek.

**Segment 1:** Island Lake to Upper Falls in Dinkey Creek Roof Pendant Geological Area (DCRPGA)

Scenery – The DEIS claims that this segment's "spectacular views of granite domes and lakes" are similar to scenic values on other streams in the region of comparison and therefore are not exemplary (DEIS Vol. 2, App. C-149). We believe that the distinctive diversity of landforms, vegetation, and water in this segment and throughout the 31 mile length of Dinkey Creek qualifies as an outstandingly remarkable scenery value.



**Recreation** – The DEIS notes that a “Popular day hiking trail follows the creek from the trailhead to Island Lake” but this is not an outstanding recreation value (DEIS Vol. 2, App. C-149). The popularity of the Dinkey Lakes Trail is confirmed by the allocation of wilderness permits – 30% of wilderness permits for this area are allocated to the trailhead servicing the Dinkey Lakes Trail, making it the most popular trailhead accessing the wilderness. We believe that wilderness recreation in this distinctive subalpine setting attracts visitors from outside the region and adds to the outstanding diversity of recreation opportunities found along all segments of the creek. More than a quarter mile of the creek and at least a half mile of Dinkey Lakes Trail are located in the DCRPGA. Accordingly, segment 1 shares the same outstanding recreation value associated with viewing the unique geology of this area as segment 2. Segment 1 is eligible due to its outstandingly remarkable recreation value, contributing to the overall diversity of recreation values found throughout the creek.

**Geology** – As previously noted, more than a quarter mile of segment 1 is located in the DCRPGA. The DEIS claims that the DCRPGA does not constitute an outstandingly remarkable geological value because “interesting geologic forms” exist in this area and in the region of comparison (DEIS Vol. 2, App. C-151). However, the document that authorized the establishment of the DCRPGA, the 1991 Sierra Forest Plan, noted that “Other roof pendants are found in nearby parts of the Sierra Nevada Range. However, few are as accessible or show the variety of features found here.” (1991 FEIS App. 7N-3) The unique character of the DCRPGA was identified in a 1966 USGS report, which noted that “The distinctive lithologies of the formations, the presence of crossbeds in a quartzite formation, and a spectacular display of minor structure features in the Dinkey Creek roof pendant make it possible to determine the stratigraphy, geometry, and history of folding rocks in the north end of the (Central Sierra) belt.”<sup>38</sup> Since the lower portion of segment 1 is located in the DCRPGA, we believe that segment 1 possesses an outstandingly remarkable geological value as well.

**Ecology & Wildlife** – From its subalpine source at Island Lake (est. elevation: 9,760 feet), Dinkey Creek drops more than 8,400 feet over 31 miles to the blue oak woodlands and chaparral of the western Sierra Nevada foothills, transecting a broad elevation range in the Sierra Nevada with no reservoirs or diversions. Along the way, the creek flows through fir and white pine forests, yellow pine forests, chaparral, and oak woodlands. This habitat diversity supports more than 800 plant species (including three rare plants) and four plant communities, as well as the McKinley Grove of Giant Sequoias. Old growth forests along Dinkey Creek provide important habitat for the Pacific fisher, American martin, and other animals dependent on large trees. The creek’s diverse habitat also supports more than 121 species of birds, including the threatened Peregrine Falcon, willow flycatcher, California spotted owl, northern goshawk, great gray owl, and bald eagle. Dinkey Creek also provides crucial habitat for the North Fork Kings River deer herd and supports an excellent cold water trout fishery.

**Segment 2:** Upper falls in the DCRPGA to lower falls in the DCRPGA

**Scenery** – Although not as spectacular as upstream and downstream segments, this segment of is part of a continuum of diverse scenery found throughout the 31 mile length of Dinkey Creek.

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<sup>38</sup> Stratigraphy and Structure of the Dinkey Creek Roof Pendant in the Central Sierra Nevada, California by R.W. Kistler and P.C. Bateman, Geological Survey Professional Paper 524-B, 1966.

Recreation – Recreation associated with visiting the DCRPGA was identified as an outstandingly remarkable recreation value (DEIS Vol. 2 App. Pg. C-150). We concur but also note that this specific value undeniably adds to the diversity of recreation opportunities found throughout the 31 mile length of Dinkey Creek.

Geology – The DCRPGA is not simply one roof pendant among many. Please see comments under segment 1 about the DCRPGA’s outstandingly remarkable geological value in the discussion.

Ecology/Wildlife – Same as segment 1.

**Segment 3:** Lower falls in the DCRPGA to Rock Creek confluence.

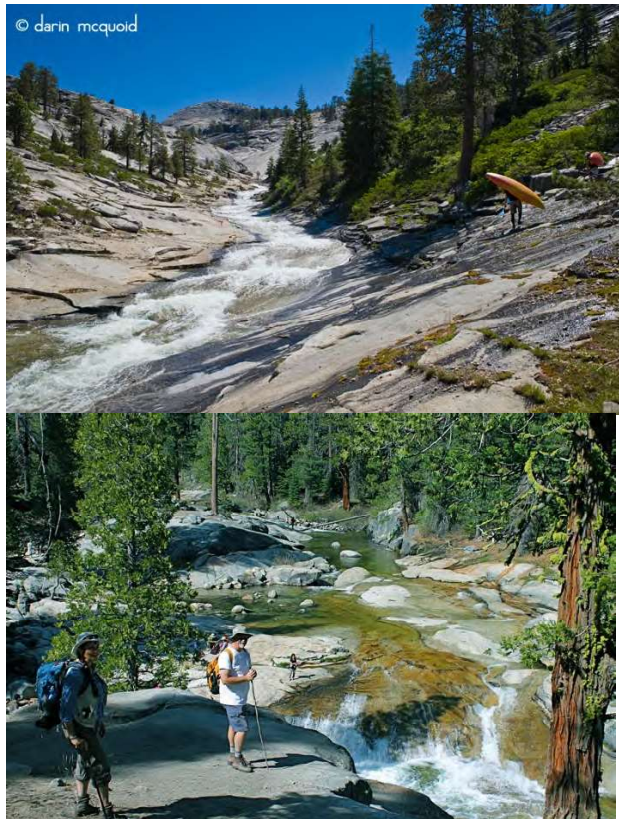
Scenery – The DEIS notes that nearly half the segment has “Variety Class A (Distinctive)” views but claims that similar views exist elsewhere and that these views are not exemplary (DEIS Vol. 2, App. Pg. C-151). We believe that the outstanding views in this segment are rare for a relatively small stream that is accessible to the public in the region of comparison. Further, the specific scenic value of this segment is part of the continuum of diverse scenery found throughout the 31-mile length of Dinkey Creek.



*Notable and distinctive scenery in Dinkey Creek segment 3. Photos: Steve Evans/CalWild.*

Recreation – The DEIS says that only “A small number of visitors hike cross country to access geological formations along the creek” and that recreation is not an outstandingly remarkable SFL et al. comments on Sequoia and Sierra draft plans and RDEIS (9/26/19)

value. This is simplistic assessment of segment 3's outstanding recreation values. Located on segment 3, Dinkey Dome is a popular rock climbing destination. Rockclimbing.com lists nine separate class 5.6 or higher routes on Dinkey Dome.<sup>39</sup>



*Kayakers carry their boats up segment 3 to enjoy the SuperDink/Infinislide run. Campers from the Dinkey Creek Recreation Area hike upstream to fish, swim, or simply enjoy the creek. Photos: (left) Darin McQuoid, (right) Steve Evans/CalWild.*

Segment 3 is also the location of a class V expert kayak run known as SuperDink/Infinislide that attracts kayakers from beyond the region of comparison.<sup>40</sup> American Whitewater describes the SuperDink run as “an amazing section of paddling on Dinkey Creek.”<sup>41</sup> The lower portion of segment 3 attracts hundreds of campers from the downstream Dinkey Creek Recreation Area, who hike the Dinkey Creek Trail, fish and swim in the creek, look in wonder at the upstream glaciated bedrock canyon dominated by Dinkey Dome, and to watch kayakers complete their run. Segment 3 provides high quality recreational opportunities that attract visitors from beyond the region of comparison and therefore qualifies for an outstandingly remarkable recreational value. This is part of a continuum of diverse recreation found throughout the 31 mile length of Dinkey Creek.

Geology – The first ¼ mile of segment 3 is within the DCRPGA and therefore possesses the same outstanding geological value as segments 2 and 1.

<sup>39</sup> [http://www.rockclimbing.com/routes/North\\_America/United\\_States/California/Western\\_Sierra/Shaver\\_Lake/Dinkey\\_Dome/](http://www.rockclimbing.com/routes/North_America/United_States/California/Western_Sierra/Shaver_Lake/Dinkey_Dome/)

<sup>40</sup> <http://darinmcquoid.com/superdink.html>

<sup>41</sup> <https://www.americanwhitewater.org/content/River/detail/id/3960/>



Ecology/Wildlife – Same as segments 1-2.

**Segment 4:** Rock Creek confluence to stream gauge north of Strawberry Meadow

Recreation – The DEIS states that “Dinkey Creek is a popular destination that offers camping, picnicking, fishing, water play, horse riding, organization camps, rental cabins, and recreation residences” but then simply concludes that “Recreation is not an outstandingly remarkable value.” (DEIS Vol. 2 App. pgs. C-152-153) This is perhaps the most misguided finding in the WSR evaluation. The Dinkey Creek Recreation Area is a major recreation destination for people within and far beyond the region of comparison.



*Camp Fresno has been hosting Fresno family campers since the 1920s. Camp El-O-Win has been introducing girls to Dinkey Creek and the great outdoors for sixty years. Photos: (left) Steve Evans/CalWild, (right) Camp El-O-Win website.*

The wide variety of outdoor opportunities available along the creek contributes to this outstandingly remarkable recreation value and adds to the overall diversity of the continuum of recreation supported by the entire creek. More importantly, generations of families from the Fresno region and beyond have been camping at and enjoying Dinkey Creek, staying overnight at public campgrounds, organizational and city camps, as well as cabins at the Dinkey Creek Resort. The Dinkey Creek Recreation Area is so special, it is the only stream-based recreation area that has a detailed inset map on the Forest Service’s standard recreation map for the Sierra National Forest since 2003. This segment of Dinkey Creek also provides class IV-V kayaking through “an impressive narrow and difficult gorge” from Rock creek to Honeymoon Pool and then “a variety of bedrock and rocky drops” that are “generally not super steep or difficult.”<sup>42</sup>

Scenery – The DEIS notes that segment 4 has nearly 2 miles of distinctive Variety Class A scenery but this is discounted as non-exemplary (DEIS Vol. 2 App. pg. C-152). The scenery changes dramatically in this segment, from a granite bedrock stream to a cobble/boulder stream bordered by deep forest. Although not as spectacular as the scenery found upstream and further downstream, the visual value of this segment is part of a continuum of outstanding scenery found throughout the 31 mile length of Dinkey Creek. In any case, the FSH notes that “Outstandingly remarkable scenic features may occupy only a small portion of a river corridor.” (FSH 1909.12\_82.73.1)

<sup>42</sup> <https://www.americanwhitewater.org/content/River/detail/id/177/>

History/Prehistory – We concur that the National Register-listed Dinkey Creek truss bridge is an outstandingly remarkable history value. We’re surprised that the DEIS mentions no other historic values, including early explorers and residents (Jedidiah Smith, John Fremont, Frank Dusy), sheep grazing and gold mining, Dinkey Creek resorts providing evening and weekend recreation for workers at the nearby Pine Logging Camp and Mill, creek resorts that provided services to the first generation of valley residents who visited the McKinley Grove of Giant Sequoias and to escape the summer heat, which morphed into the diverse recreation opportunities and facilities found along Dinkey Creek today. Taken together, we feel that this rich and diverse history is outstandingly remarkable. We also concur with the DEIS identification of outstandingly remarkable prehistory values. The creek’s history values are well documented by the Forest Service.<sup>43</sup>

Ecology/Wildlife – Same as segments 1-3.

**Segment 5** – Stream gauge to one mile downstream of Ross Crossing (includes all of 3.68.5 and about 3 miles of 3.68.6)

This segment either was not studied in the 2016 and 2019 DEIS or it was discounted as ineligible early in the screening process. We believe this segment possesses outstandingly remarkable values.

Scenery – As stream progresses downstream, it begins again to carve its way into bedrock. Although not as spectacular as the scenery found further downstream, the visual value of this segment is part of a continuum of outstanding scenery found throughout the 31 mile length of Dinkey Creek. In any case, the FSH notes that “Outstandingly remarkable scenic features may occupy only a small portion of a river corridor.” (FSH 1909.12\_82.73.1)



*Muley Hole is a popular destination for swimmers in segment 5. Dinkey Creek looks placid immediately downstream of Ross Crossing but it soon drops through a series of cascades.*

<sup>43</sup> [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5344057.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5344057.pdf)

*Photos: (left) Muley Hole by Fresnoexplorer.com; (right) Dinkey Creek below Ross Crossing by Steve Evans/CalWild.*

Recreation – Between the stream gauge and Ross Crossing are a number of pools prized by swimmers. Fresnoexplorer.com describes the Muley Hole as “a couple of nice swimming holes along Dinkey Creek” and “A great spot for a picnic!”<sup>44</sup> This segment also provides class IV-V kayaking. Although not as intensely visited as segment 4, the recreation value of this segment is part of a continuum of outstanding recreation value found throughout the 31 mile length of Dinkey Creek.

History/Prehistory – Shares the same values as segment 4.

Ecology/Wildlife – Same as segment 1-4.

**Segment 6** – One mile downstream of Ross Crossing to one mile upstream of the North Fork Kings River at Balch Camp (GIS Number 3.68.6).

This segment either was not studied in the 2016 and 2019 DEIS or it was discounted as ineligible early in the screening process. We believe this segment possesses outstandingly remarkable values.

Scenery – Below Ross Crossing, Dinkey Creek cuts its way through spectacular bedrock cascades, waterfalls, and pools, all the way to the North Fork Kings River. The visual value of this segment is part of a continuum of outstanding scenery found throughout the 31 mile length of Dinkey Creek.

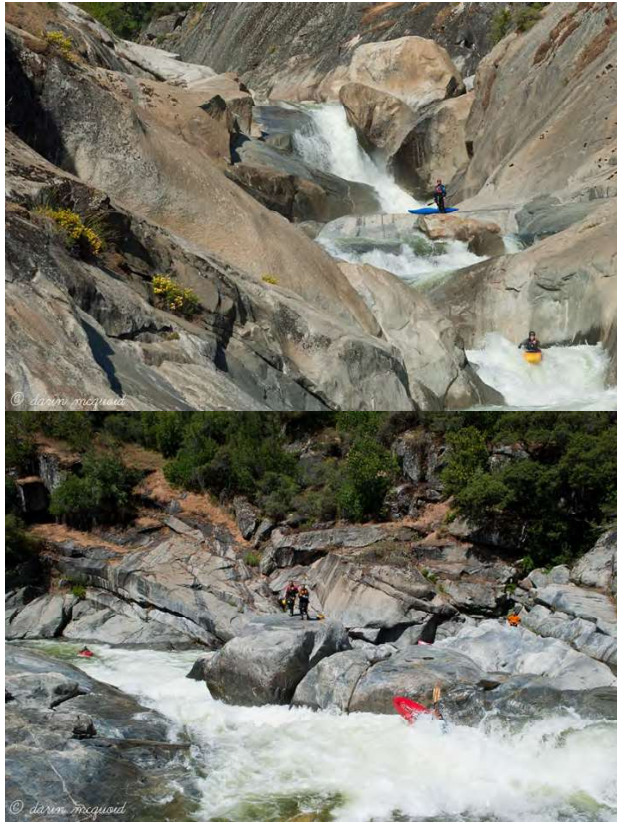
Recreation – This segment provides class V-V+ whitewater kayaking for expert kayakers who come from all over the world. According to American Whitewater, “This section is now boated each year by expert boaters and is considered an outstanding run. Dinkey has become a favorite for many. Canyoneers will find this section fun and plenty challenging at low flows in the summer.” According to expert kayaker and photographer Darin McQuoid, “Dinkey Creek has made the transition from hardcore expedition paddling to a modern classic. This once rarely paddled run has become a marquee destination for both out of state boaters and local paddlers. With warm weather almost guaranteed due to the lower elevation and somewhat southern Sierra location, Dinkey Creek is a true gem of California.”<sup>45</sup> Although not addressed in Appendix C, Appendix B of the DEIS describes this segment of Dinkey Creek: “Numerous waterfalls with eroded, deep plunge pools exist on Dinkey Creek. Black Rock, Patterson Bluffs, and Indian Rock are highly scenic granite outcrops.” (DEIS Vol. 2 App. pg. B-81)

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<sup>44</sup> <http://fresnoexplorer.blogspot.com/2017/06/muley-hole-short-hike-swimming-hole.html>

<sup>45</sup> <http://darinmcquoid.com/dinkeycreek.html>





*Segment 6 provides rare springtime lower elevation class V-V+ whitewater kayaking that attracts expert boaters from around the world. Photos: Courtesy of Darin McQuoid.*

**History/Prehistory** – Appendix B also notes the area surrounding Dinkey Creek is “Culturally sensitive and considered by the Tribes to be a special interest area” and has “cultural and historic sites.” (DEIS Vol. 2, App. pg. B-81) Given the documented outstanding history/prehistory values of upstream segments, this segment represents a continuum of outstanding history/prehistory values throughout much of Dinkey Creek.

**Ecology/Wildlife** – Same as segments 1-5.

**Recommended Changes:** The final plan/DEIS should find all 31 miles of Dinkey Creek to be eligible for WSR protection. We recommend the following segmentation, classification, and ORVs for Dinkey Creek:

SEG	DESCRIPTION	MILES	CLASS	ORVS
1	Island Lake to Upper Falls in DCRPGA	4	Wild	Scenery, Recreation, Geology, Ecology
2	Upper Falls in the DCRPGA to Lower Falls in DCRPGA	0.7	Rec.	Scenery, Recreation, Geology, Ecology
3	Lower Falls in the DCRPGA to Rock Creek confluence	6.9	Wild	Scenery, Recreation, Geology, Ecology
4	Rock Creek confluence to river gauge north of Strawberry Meadow	4	Rec.	Scenery, Recreation, History/Prehistory,

				Wildlife, Ecology
5	River gauge to unnamed confluence one mile below Ross Crossing	7	Scenic	Scenery, Recreation, History/Prehistory, Wildlife, Ecology
6A	Unnamed confluence one mile below Ross Crossing to one mile upstream of Balch Camp	8	Wild	Scenery, Recreation, History/Prehistory, Ecology
6B	One mile upstream of Balch Camp to North Fork Kings River confluence	1	Rec.	Scenery, Recreation, History/Prehistory, Ecology

## 2. Mono Creek – GIS Number 3.166.1-2, 4

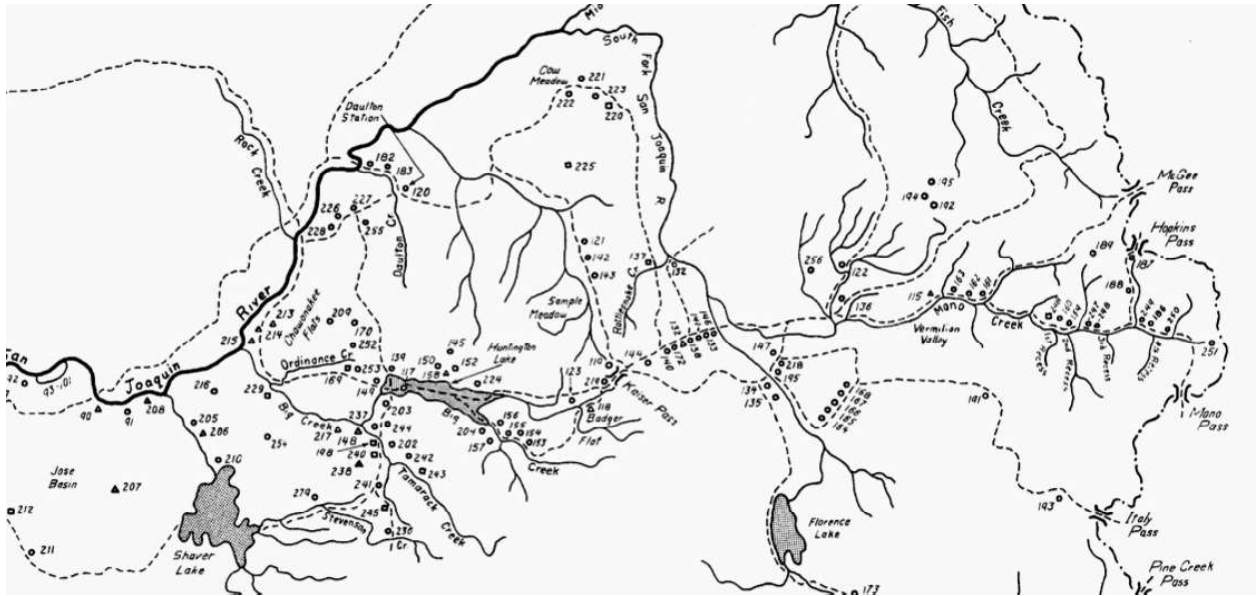
The 2016 DEIS identified two segments of Mono Creek upstream of Edison Reservoir to be eligible due to outstanding scenery, recreation, geology, wildlife, and prehistory. The segment of Mono Creek from Vermillion Dam to its confluence with the South Fork San Joaquin River was found eligible due to an outstanding prehistory value. The 2019 DEIS eliminated all outstanding values for the upper 2 segments except for prehistory. The prehistory value was also eliminated for the segment downstream of Vermillion Dam.

Scenery – The outstanding scenery value of the upper two segments in the 2016 DEIS was described as “Mono Recesses/peaks and granite-walled river canyons are unique visual features of the Sierra Crest.” (2016 DEIS Vol. 2, App. C, pg. 514) This description was edited in the 2019 DEIS to remove the word “unique” – which basically allows the OR scenery value to be eliminated on the grounds that “similar views also exist elsewhere within the region of comparison and these views are not exemplary.” (2019 DEIS Vol. 2, App. pg. C-181-182) Please explain the provenance of the change from “unique visual features” to just “visual features?” We believe that the scenery of Mono Creek upstream of Edison Reservoir is indeed unique and should be considered an outstandingly remarkable scenery value.

Prehistory – Both the 2016 DEIS and 2019 DEIS agree that Mono Creek segments 1-2 is described in the possesses an outstanding prehistory value associated with traditional Mono Tribe use for trade of the Mono Trail between Mono Hot Springs and the Mammoth area in the eastern Sierra. The 2016 DEIS identifies this identical prehistory value for segment 4 downstream of Vermillion Dam. The trail historically followed Mono Creek to a spot called today Mono Crossing, upstream of the Mono Creek/SF San Joaquin confluence, where it continued in a westerly direction to what is now Huntington Reservoir. Before the Mono Trail reached Mono Crossing, a spur trail headed south over the low watershed divide to Mono Hot Springs on the lower South Fork San Joaquin River. A map from a report on Native American sites and trails confirms that the historic Mono Trail continued downstream from Vermillion Dam to Mono Crossing and connected to a spur trail leading to Mono Hot Springs on the lower South Fork San Joaquin.<sup>46</sup>

<sup>46</sup> A Report on Indian Sites and Trails Huntington Lake Region, California, by Margaret G. Hindes, 1959.  
<http://dpg.lib.berkeley.edu/webdb/anthpubs/search?all=&volume=48&journal=7&item=2>





*This map of Native American trails and sites clearly shows the Mono Creek Trail continuing past what is now Edison Reservoir (not marked on map) to parallel lower Mono Creek and the spur trail that heads south to Mono Hot Springs (directly north of Florence Reservoir) on the lower South Fork San Joaquin River. This is evidence of outstandingly remarkable prehistory values for the lower segments of Mono Creek and the South Fork San Joaquin River.*

There is no explanation as to why Mono Creek segment 4 in the 2019 DEIS does not possess an outstanding prehistory value associated with the Mono Trail continuing downstream from Vermillion Dam. Prehistory isn't even listed in the DEIS for Mono Creek segment 4.

**Recommended Change:** Reinstate the outstandingly remarkable scenery value for Mono Creek segments 1-2. Reinstate the outstandingly remarkable prehistory value for Mono Creek segment 4.

### 3. Lower South Fork San Joaquin River – GIS Number 3.260.2

The 2016 DEIS identified this 28 mile segment of the South Fork San Joaquin from Florence Lake Dam to its confluence with the main stem San Joaquin River to be eligible for its outstanding scenery and geology values. (2016 DEIS App. C pgs. 552-553) The outstanding scenery and geology values are eliminated in the 2019 DEIS with the finding that “similar views exist elsewhere within the region of comparison and these views are not exemplary.” (2019 DEIS Vol. 2 App. pg. C-218)

**Scenery/Geology** – The lower South Fork San Joaquin River possesses identical outstandingly remarkable scenery and geology values as the main stem San Joaquin. Due to these values, the main stem San Joaquin was found eligible and suitable in the 1991 Sierra Forest Plan and FEIS. Unfortunately, the South Fork San Joaquin was not considered in that document because it had not been identified in the Nationwide Rivers Inventory and only rivers in the inventory were considered for WSR study in the plan. Since then, flows in the lower South Fork San Joaquin River have been improved through the Big Creek relicensing process and both the 2016 DEIS and 2019 DEIS determined the lower river to be free flowing.

We believe that the eligibility of the lower South Fork San Joaquin River should be reinstated due to its outstanding scenery and geology value, which is identical to the values of the main stem San Joaquin into which it flows. This would comply with FSH direction to “consider the entire river system.” It also adds to and complements the existing eligibility/suitability decision for the San Joaquin and its Middle and North Forks, and the upper South Fork San Joaquin above Florence Reservoir.

Prehistory – Mono Hot Springs is located on the lower South Fork San Joaquin River. The prehistoric Mono Trail led to Mono Hot Springs, which is specifically mentioned in the 2019 DEIS as a destination of the Mono Trail in the outstanding prehistory findings for Mono Creek. Mono Hot Springs is also specifically cited in the constitution of the North Mono Tribe as “the sacred ground of Mono Hot Springs” in the section describing the Tribe’s territorial jurisdiction.<sup>47</sup> Clearly Mono Hot Springs is a significant cultural property of the Mono Tribe. Its presence on the lower South Fork San Joaquin, along with the connection to the prehistoric Mono Trail, constitutes an outstandingly remarkable prehistory value.

Recommendation: The final plan/DEIS should find the 28 mile segment of the lower South Fork San Joaquin River from Florence Lake Dam to its confluence with the main stem San Joaquin River to be eligible due to outstandingly remarkable scenery, geology, and prehistory values.

#### **4. San Joaquin River – GIS Number 3.233.1**

Described as a two mile long segment from Hells Half Acre to the Mammoth Pool Reservoir in the 1991 Sierra Forest Plan, it was determined eligible but not suitable in the 1991 plan to allow for possible expansion of Mammoth Pool Reservoir. However, the 1991 Sierra Plan ROD specific stated that “If no flooding occurs after the dam is raised or if Southern California Edison Company or the Federal Energy Regulatory Commission decides not to raise the dam, this segment will receive further consideration as a potential wild and scenic river.” (1991 Sierra Forest Plan FEIS ROD, pg. 3, Sep. 24, 1992) Both the 2016 DEIS and the 2019 DEIS acknowledge the 1991 findings of eligibility – the segment possesses the same outstanding scenery, geology, and fisheries value as the rest of the main stem upstream that has been recommended to Congress for designation. (2016 DEIS Vol. 2, App. C, pg. 566, 2019 DEIS Vol. 2 App. pg. C-230)

The dam hasn’t been raised and the segment has not been flooded. But we doubt that the “further consideration” promised in the 1991 ROD meant that the 2019 would find the segment, or at least half of the segment, ineligible due to an alleged lack of ORVs. (2019 DEIS Vol. 2 App. C-207) The first thing that needs to be resolved here is whether the segment in question is 2 miles long, as documented in the 1991 final plan/ROD, or 1 mile long as noted in the 2019 DEIS.

The second thing that needs resolution is whether the segment lacks ORVs. It seems unlikely that the scenery, geology, and fishery ORVs that made the 12 miles of the main stem San

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<sup>47</sup> Constitution of the North Fork Mono Tribe, <http://jareddahlaldern.net/lessons/ConstitutionoftheNorthForkMonoTribe-1.pdf>

Joaquin eligible and suitable in 1991 have suddenly disappeared from the 1-2 mile segment downstream of Hell's Half Acre. Please clarify.

**Recommended Change:** Clarify whether segment 2 of the main stem from Hell's Half Acre to Mammoth Pool is 1 or 2 miles long. Reinstatement of its eligibility due to its previously documented scenery, geology, and fishery ORVs. If SCE or FERC ever revisit the potential Mammoth Pool expansion, a suitability evaluation of segment 2 could be conducted at that time.



*Taken from Tennessee Point on the road to Mono Hot Springs, this picture shows the watershed connections of the upper San Joaquin River system, including the lower South Fork San Joaquin (cutting across the picture from lower right to middle left), the Granite Creek System (middle left to horizon) and the eligible/suitable segments of the San Joaquin and its Middle and North Forks (cutting across from middle left to upper right). All these streams share the same values and should simply be considered different segments of the same eligible river. Photo: Steve Evans/Calwild*

#### **5. Granite Creek – (GIS Number 3.107.1-3), East Fork Granite Creek (GIS Number 3.83), West Fork Granite Creek (GIS Number 3.294.1-2)**

The East and West Forks Granite Creek were found eligible in the 2016 DEIS due to their outstanding geology, described as “Glaciated landscape, glacial scoured bedrock and valleys, moraines, significant and unique glacial landforms as spectacular as Yosemite National Park.” (2016 DEIS Vol. 2, App. C, pgs. 487, 561). A short 2 mile segment of Granite Creek was determined eligible with outstanding prehistory value described as “...a NRHP eligible Late Archaic period prehistoric trans-Sierra economic exchange corridor. This is a unique trans-Sierra corridor.”

The 2019 DEIS determines the East and West Forks to be ineligible due to a lack of ORVs, finding that “Although there are many beautiful and interesting geologic forms in this area, they also exist elsewhere with the region of comparison. Therefore, these features are not unique and not considered outstandingly remarkable.” (2019 DEIS Vol. 2, App. pgs. C-158, C-226) The 2019 DEIS also finds that Granite Creek’s prehistory value is not outstandingly remarkable, stating that “Although there are prehistoric sites within the segment, similar

prehistoric sites also exist elsewhere within the region of comparison. Therefore, the sites are not unique and not considered outstandingly remarkable.” (2019 DEIS Vol. 2, App. pg. C-166)

Again, the evaluation fails to follow guidance in the FSH to consider the entire river system. The Granite Creek system is one of the largest upper tributaries to the San Joaquin River. Together, the East and West Forks Granite Creek, and the entire main stem Granite Creek from the East/West Forks confluence to the creek’s confluence with the San Joaquin River, possess outstandingly remarkable geology values that add to and complement similar values in the eligible/suitable segment of the San Joaquin River into which Granite Creek flows. Further, the prehistory value on Granite Creek is described in the 2016 DEIS as a “unique” trans-Sierra corridor. And yet, the 2019 DEIS says its similar to other prehistory sites and is not unique. Please explain how this value was downgraded from unique to non-unique.

We assume the unique trans-Sierra corridor mentioned is the French Trail. A Forest Service fact sheet documents both the prehistory and history value of the trail, which follows the San Joaquin River canyon and crosses Granite Creek and was used by the Mono people for thousands of years and became a major wagon road in the late 1800s.<sup>48</sup> The French Trail will be incorporated into the San Joaquin River Trail System, which will eventually connect the Millerton State Recreation Area with the Pacific Crest Trail near Devil’s Postpile National Monument. Once completed, the trail will provide unique east/west access from the lower elevations of the Sierra Nevada foothills to nearly its crest in the eastern Sierra. We believe this constitutes an outstandingly remarkable recreation value

**Recommended Change:** Find all of the East Fork, West Fork, and main stem Granite Creek to possess an outstandingly remarkable geology value and the main stem to possess outstandingly remarkable prehistory and recreation values associated with the French Trail.

#### **6. California Creek (GIS Number 3.34.2), Nelder Creek (GIS Number 3.173.2)**

Short segments of these creeks within the Nelder Grove Historic Area (NGHA) were determined eligible in both the 2016 and 2019 DEIS due to outstanding scenery, recreation, and botany associated with Giant Sequoia groves. We agree with this ORV findings but believe that the eligibility evaluation was unnecessarily restricted to just the segments in the NGHA. Streams are linear systems. What happens upstream and downstream on stream can affect the segment in between. Again, please consider the entire river system.

**Recommended Change:** At the minimum find eligible all of Nelder Creek and California Creek from their sources north of the NGHA to the Nelder/California Creek confluences south of the NGHA.

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<sup>48</sup> [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5344047.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5344047.pdf)

## **7. Iron Creek (GIS Number 3.126.1-2), Bishop Creek (GIS Number 3.24)**

The 2016 DEIS found 4.1 miles of Iron Creek from its Iron Lakes headwaters to its confluence with the South Fork Merced Wild & Scenic River to be eligible due to its outstandingly remarkable scenery, described as “exemplary visual features” and a “unique diversity in landscapes.” (2016 DEIS Vol. 2, App. pg. 501) The 2019 DEIS determines the creek ineligible because its “Scenery is similar to the South Fork Merced Wild and Scenic River.” (2019 DEIS Vol. 2, App. pg. C-171) What is astounding about this finding is reference to the South Fork Merced without recognition how the scenery value of Iron Creek complements the South Fork. Again, the DEIS is failing to “consider the entire river system.” Iron Creek not only contributes to the outstanding scenery of the South Fork, it is an important source of clean water that contributes to the overall biotic integrity of the Wild and Scenic River.

The 2016 DEIS found 1.7 miles of Bishop Creek from the Yosemite National Park boundary to its confluence with the South Fork Merced Wild and Scenic River to be eligible due to its outstandingly remarkable prehistory value, described as “NHRP eligible Early Archaic occupation. A notable change in the archaeological record for this period is a dramatic increase in the number of ground stone tools, suggesting an increased dependence on plant resources. Archaic period dart points have been discovered on sites across the forest.” (2016 DEIS Vol. 2, App. C, pg. 467) The 2019 DEIS states that there are “similar prehistoric sites” elsewhere and that these “sites are not unique.” However, the specific description of the prehistory value in both the 2016 and 2019 DEIS seems unique compared to others. A cultural resources volunteer with the Forest Service confirms the outstanding prehistory value of Bishop Creek.

Bishop Creek also flows through the Bishop Creek Research Natural Area, which was established as a research area for the Pacific ponderosa pine forest type. The ponderosa pine forest is described as the “distinctive feature” of the RNA, along with “extensive stands of scrub forest that form ecotones between conifer forest and the chaparral, mixed evergreen forest, and oak woodland communities occurring at lower elevation.”<sup>49</sup> The RNA burned to varying degrees in the 2018 Ferguson Fire, which will increase the research utility of the RNA to assess post-fire natural recovery of the ponderosa pine forest. We believe that this constitutes an outstandingly remarkable ecology value.

**Recommended Change:** Reinstate the eligibility of Iron and Bishop Creeks. Add an outstandingly remarkable ecology value for Bishop Creek associated with the purposes of the Bishop Creek RNA.

## **VIII. Wild and Scenic Rivers: Draft Sequoia Plan**

### **A. Eligible or Recommended Wild and Scenic Rivers**

The draft plan notes that the Forest Service has determined 51 river segments encompassing approximately 328.3 miles eligible for inclusion in the National Wild and Scenic River System. (RDLMP pg. 99) This is substantially improved from the 75.5 miles of eligible streams identified in the 2016 draft. We believe that the evaluation has correctly followed guidance to

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<sup>49</sup> Bishop Creek RNA General Technical Report, [https://www.fs.fed.us/psw/rna/bishop\\_creek\\_ponderosa.shtml](https://www.fs.fed.us/psw/rna/bishop_creek_ponderosa.shtml)

identify eligible streams, particularly by considering entire river systems. Please see detailed comments on DEIS Vol. 2, Appendix C.

**Recommended Changes:** Standard (MA-EWSR-STD) – Revise standard on RDLMP pg. 99 to include specific protection of the free flowing condition and preliminary classification of eligible and recommend rivers. Revise to state:

- 02 Management of Forest Service-identified eligible or recommended suitable rivers, are managed to protect *free flowing condition, preliminary classification, and* outstandingly remarkable values.

## **B. Wild and Scenic Rivers (Existing)**

Standards (DA-WSR-DC) – The standard concerning structural improvements in wild segments is too restrictive. Limiting structural improvements to existing structures would preclude construction of a trail footbridge within and over a wild segment that did not replace an existing bridge. New trail bridges are permitted in existing wilderness. In the case of potential conflict between the WSR Act and Wilderness Act, Congress specifically directed that the “more restricted provisions” of the Wilderness Act applies to WSRs within wilderness (16 USC 1281[b]).

**Recommended Changes:** Standard 03 (RDLMP pg. 106) should be revised to state:

- 04 Within the wild segment, structural improvements will be limited to existing structures *except if needed to improve recreation opportunities (see standard 07) and limit or avoid resource damaged associated with recreation, and to protect outstanding values.*

No standard for existing Wild and Scenic Rivers is proposed to revise and update comprehensive river management plans when needed to address changing conditions and to protect the free flowing condition and outstandingly remarkable values of existing WSRs.

**Recommended Changes:** We recommend adding this new standard:

- 08 Monitor the conditions of existing wild and scenic rivers and revise and update comprehensive river management plans when needed to address changing conditions and prevent resource damage.

This standard is needed because the 2013 Final Sequoia National Forest Assessment, which was published as part of the initial planning process for the RDLMP, identified a number of issues most appropriately addressed in a revision and update for the existing 25 year-old North and South Forks Kern Wild and Scenic River comprehensive river management plan. According to the Assessment:

North Fork Kern segment 4 – Over the last twenty years, resource effects from recreational activities has escalated because there are no limits on the number of guests and the number of vehicles at locations where visitors are allowed to camp outside of developed campgrounds. This 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. The Kern River Ranger District has developed an Upper Kern River Action Plan to address resource impacts, public concerns, and current policies to strategically regain management control within the river corridor (USDA 2010). (Sequoia National Forest Final Assessment 2013, pg. 205)

The Assessment also notes that “Because of rather limited opportunities for whitewater recreation, the recreation demand is projected to continue and increase into the future.” (Assessment pg. 204).

The serious issue of recreation impacts on resources in the North Fork Kern Wild and Scenic River segment 4 and likely increase in such use in the future needs to be addressed in a revised/updated comprehensive river management plan.

**Recommended Changes:** To address the problem of high public recreation use impacting river values as documented in the Sequoia NF Assessment, the following management approaches should be added:

RDLMP Appendix B – Designated Areas – Wild and Scenic Rivers (RDLMP pg. 144)

- As soon as possible, revise and update the North Fork Kern Wild and Scenic River comprehensive river management plan to address changing conditions and resource damage associated with high levels of recreation use.
- Monitor all designated rivers and revise/update comprehensive river management plans when needed to address changing conditions and prevent resource damage.

## **IX. Wild and Scenic Rivers: Sequoia National Forest Inventory and Evaluation**

Eligible wild and scenic rivers increased from 75.5 miles from an inventory conducted in the 1990s and accepted as is the 2016 DEIS to 328.3 miles in the revised 2019 DEIS. This increase is largely responsive to public comments to the 2016 DEIS/plan, and it mostly fulfills the direction in Forest Service guidelines to “Consider the entire river system, including the interrelationship between the main stem and its tributaries and their associated ecosystems which may contain outstandingly remarkable values.” (FSH 1909.12\_82.61[2])

The “entire river system” approach has resulted in finding eligible tributaries of the Little Kern River that contribute to the Little Kern’s golden trout fishery. The system approach also successfully identified other tributaries of the North Fork Kern Wild and Scenic Rivers that support or have a high restoration potential for Kern River rainbow trout. Altogether, this river system approach not only protects tributaries with outstanding native trout values, it also protects the water quality and biotic integrity of the North Fork Kern. The North Fork Kern has been identified as possessing a high level of biotic integrity because of its largely roadless watershed, few water diversions, and presence of multiple species of native trout.<sup>50</sup> The contributions of these eligible tributaries to the high biotic integrity of the North Fork Kern, particularly their native trout values, should be recognized in the description of each eligible stream.

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<sup>50</sup> Biotic Integrity of Watersheds by Peter B. Moyle & Paul J. Randall; Sierra Nevada Ecosystem Project (SNEP) Vol. 2, Report 34, University of California Davis, 1996.

However, the river system approach stumbled with the Middle Fork Tule River system.

#### **A. The Middle Fork Tule River System**

Middle Fork Tule River – GIS Number 2.138: Eligible

South Fork Middle Fork Tule River – GIS Number 2.213: Eligible

Belknap Creek – GIS Number 2.20: Eligible

North Fork Middle Fork Tule River – GIS Number 2.159.1: Eligible

North Fork Middle Fork Tule River – GIS Number 2.159.2: Ineligible, but should be Eligible

A true “entire river system” approach would evaluate the Middle Fork Tule and its North and South Forks as one system and consider the interrelationship and complementary values of all three rivers as one. The South Fork Middle Fork Tule and its tributary Belknap Creek were found eligible, along with the Middle Fork Tule downstream of the South Fork/North Fork confluence. A short 2.7 mile segment (GIS Number 2.159.1) of the upper North Fork Middle Fork (NFMF) Tule River was determined eligible due its outstandingly remarkable ecology/botany associated with Giant Sequoias in the Moses Mountain Research Natural Area and Moses Giant Sequoia Grove. But more than 11 miles of the NFMF Tule apparently remain ineligible due to alleged lack of outstandingly remarkable values, despite substantial public comment about the river’s values provided during plan scoping and in response to the 2016 DEIS.

Ecology/Botany Value – All of the NFMF Tule River Possesses An Outstandingly Remarkable Ecology/Botany Value. Below the Moses RNA boundary and the existing eligible segment, there are extensive streamside Giant Sequoias located along the NFMF Tule nearly to Doyle Springs, including two designated groves – Silver Creek Grove and Wishon Grove. The river’s outstanding ecology/botany value clearly doesn’t end at the southern boundary of the Moses RNA. The entire stream should be found eligible for its outstandingly remarkable ecology/botany value associated with Giant Sequoias.

Recreation Value – All of the NFMF Tule River Possesses An Outstandingly Remarkable Recreation Value. The NFMF Tule provides a wide variety of recreation opportunities, from true wilderness to developed recreation sites, that attract locals and visitors from beyond the region. The upper NFMF Tule is paralleled by a trail that begins at Summit Lake in Sequoia National Park and proceeds downstream through the Moses RNA and the USFS recommended Moses Wilderness, though state land managed as the Mountain Home State Demonstration Forest, and then back into the recommended Moses Wilderness on the Sequoia National Forest, continuing downstream to the trailhead near Doyle Springs. This trail provides important access to Giant Sequoia Groves and offers diverse scenery and recreation opportunities, including viewing groves, waterfalls, and cascades, hiking, backpacking, horseback riding, angling, and hunting. The Wishon Cabin and the popular year-round Wishon Campground provide overnight accommodations for those wishing to explore the river. Downstream of Wishon Campground, there are no developed recreation facilities, but this section of the river is popular with day visitors seeking relief from the summer heat. Although not located on the National Forest, the Mountain Home State Demonstration Forest offers a wide variety of recreation opportunities associated with the NFMF Tule and that lead upstream and



downstream into the National Forest. The diverse recreation opportunities include streamside trails that lead into the Moses RNA and recommended Moses Wilderness, campgrounds, picnic areas, and a pack station.

Prehistory/History Value – It is difficult to believe that the Middle Fork Tule’s outstandingly remarkable prehistory/history values end at the confluence of the NFMF and SFMF Tule. Please confirm that the NFMF Tule in particular has no outstandingly remarkable prehistory/history values.

**Recommended Changes:** Find all of the NFMF Tule from the Sequoia National Park boundary to its confluence with the South Fork Middle Fork Tule to be eligible in recognition of its outstandingly remarkable ecology/botany, recreation, prehistory/history values. Maintain eligibility status for the Middle Fork Tule, South Fork Middle Fork Tule, and Belknap Creek.

## **B. The North Fork Kern River System**

The “consider entire river system” approach worked well in the North Fork Kern watershed. The Little Kern River and 16 of its major tributaries were deemed eligible, largely due to their outstandingly remarkable Little Kern golden trout fish value. In addition, Salmon Creek and eight other tributaries of the North Fork Kern were determined eligible, many due to their restoration potential for the native Kern River rainbow trout (an outstandingly remarkable fish value).

Two North Fork Kern tributaries that have been identified as supporting remnant populations of native Kern River rainbow trout are not listed as eligible. These are:

Rattlesnake Creek – GIS Number 2.181

Determined ineligible (2019 DEIS Vol. 2, App. pg. C-93), this large 14.7 mile long tributary of the North Fork Kern was identified by the California Dept. of Fish and Wildlife (CDFW) as one of the few North Fork tributaries that support a remnant population of native Kern River rainbow trout (KRRT).<sup>51</sup> CDFW considers the KRRT a California Fish Species of Special Concern.<sup>52</sup> In addition to the other North Fork Kern tributaries determined eligible for their KRRT restoration potential, all of Rattlesnake Creek from its source north of the Sherman Pass Road to its confluence with the North Fork Kern should be eligible because it still supports a remnant population. Since the creek mostly flows through the Rincon roadless area, it should be preliminarily classified as wild. Rattlesnake Creek’s contribution to the biotic integrity of the North Fork Kern Wild and Scenic River should be acknowledged.

Osa Creek – GIS Number 2.163

Not listed in the 2019 DEIS, this smaller tributary of the North Fork Kern has also been identified by CDFW as one of the few North Fork tributaries still supporting a remnant population of KRRT. It too should be eligible from its source in Osa Meadows to its confluence with the North Fork Kern. The creek’s source in Osa Meadow is a recommended

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<sup>51</sup> <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=104325&inline>

<sup>52</sup> <https://www.wildlife.ca.gov/Conservation/SSC/Fishes>

wilderness in Alternative C and the creek downstream flows through the Golden Trout Wilderness. Osa Creek should be preliminarily classified as wild. Osa Creek's contribution to the biotic integrity of the North Fork Kern Wild and Scenic River should be acknowledged.

**Recommended Changes:** Add Rattlesnake Creek and Osa Creek as eligible wild and scenic rivers with outstandingly remarkable fishery values.

#### Comments About Eligible North Fork Kern Tributaries:

Little Kern River – GIS Number 2.118-2.119  
Fish Creek – GIS Number 2.78  
Clicks Creek – GIS Number 2.45  
NF Clicks Creek – GIS Number 2.155  
Mountaineer Creek – GIS Number 2.146  
South Mountaineer Creek – GIS Number 2.215  
Alpine Creek – GIS Number 2.7  
Soda Spring Creek – GIS Number 2.205  
Shotgun Creek – GIS Number 2.199  
Pistol Creek – GIS Number 2.173  
Rifle Creek – GIS Number 2.186  
Tamarack Creek – GIS Number 2.224  
Willow Creek – GIS Number 2.242  
Sheep Creek – GIS Number 2.197  
Lion Creek – GIS Number 2.114  
Table Meadow Creek – GIS Number 2.223  
Deep Creek – GIS Number 2.60

We concur with the eligibility findings for the Little Kern River and its tributaries, all of which possess outstanding fishery value associated with the Little Kern golden trout. The watershed approach to WSR protection for fishery values has proven effective. In 1982, segments of the Smith, Klamath, Scott, Salmon, Trinity, Eel, and Van Duzen Rivers were added to the federal system to protect their outstandingly remarkable anadromous fishery values. Today, the healthiest anadromous fishery among these rivers is the Smith River. One of the reasons why the Smith's anadromous fishery is better than the other rivers is because WSR protection was conferred on the Smith, all of its major forks, and most of its tributaries – essentially providing WSR protection at the watershed level.

Salmon Creek – GIS Numbers 2.190 and 2.252

We like to express our appreciation for Forest Service consideration of previous public comments supporting the wild and scenic eligibility of Salmon Creek. The diversity of this creek is striking. We concur with the eligibility finding. However, we recommend a different classification for some of the segments. The upper ends of both segments in the vicinity of Big Meadow flow through culverts beneath roads 23S07 and 22S12. The exit culvert from the meadow under road 22S12 is quite large and the embankment holding the culvert acts a seasonal dam. For this reason, the Salmon Creek segments in the vicinity of Big Meadow are more appropriately classified as recreational, not scenic. The very upper segment of Salmon

Creek near Sirretta Peak is located in the Woodpecker roadless area and in the Dome Land West wilderness addition recommended in Alt. C and E. Much of Salmon Creek downstream of Horse Meadow and upstream of the Rincon Trail is located in the Cannell Peak roadless area, which is recommended for wilderness in Alt. C and E. These segments are more appropriately classified as wild.

#### Little Kern Lake Creek – GIS Number 2.117

We concur with the eligibility finding. The role of this tributary in maintaining the biotic integrity of the North Fork Kern Wild and Scenic River should be noted.

#### Brush Creek – GIS Number 2.30

We concur with the finding that 9.9 miles of Brush Creek from its source near Mosquito Meadow to its confluence with the North Fork Kern is eligible due to its outstandingly remarkable scenery, recreation, fish, wildlife, and geology values. Its contribution to the biotic integrity of the North Fork Kern Wild and Scenic River should be noted.

#### Bull Run Creek – GIS Number 2.32

A 12.4 mile segment of this North Fork Kern tributary from Fox Meadows to its confluence with the North Fork was identified as eligible due to its outstandingly remarkable geology, prehistory, and history values. We concur. However, knowledgeable local residents report that Bull Run Creek supports native KRRT. This should be reflected as an outstandingly remarkable fish value. The creek's contribution to the biotic integrity of the North Fork Kern Wild and Scenic River should be noted.

The entire eligible segment has a preliminary classification of recreational (2019 DEIS Vol. 2, App. pg. C-34). Motorized use is limited to a trail that parallels Bull Run Creek upstream of its confluence with Deep Creek. From the Deep Creek confluence to the National Forest boundary near the Mill Ruins, Bull Run Creek flows through the Stormy Canyon roadless area and it should be given a preliminary classification of wild. The upstream segment is more suitably classified as scenic and the lower segment downstream of the Forest boundary, recreational.

#### Deep Creek – GIS Number 2.61

The description on pg. C-40 describes the eligible segment ending at its confluence with Calf Creek. Map C-7 (pg. C-14) shows the eligible segment ending just a short ways downstream at its confluence with Bull Run Creek. It makes more sense to end the eligible segment at the Bull Run Creek confluence. The description should mention that Deep Creek is a tributary of the eligible Bull Run Creek.

#### Dry Meadow Creek – GIS Number 2.70.1-2 & Alder Creek – GIS Number 2.136

We concur with the eligibility finding for both segments of Dry Meadow Creek. However, it must be noted that the Alder Slabs – the specific outstandingly remarkable recreation value for Dry Meadow Creek segment 1 – is actually located on Alder Creek, just feet upstream of its

confluence with Dry Meadow Creek. The description should be revised to note that both lower Alder Creek and Dry Meadow Creek segment 1 provide a popular water play destination. We recommend that Alder Creek, from a point just downstream of Road 107 to its confluence with Dry Meadow Creek be found eligible for the same outstandingly remarkable recreation value. It is important that most of Alder Creek be protected against diversions that could harm the downstream recreational use at Alder Slabs. Dry Meadow Creek's contribution to the biotic integrity of the North Fork Kern Wild and Scenic River should be mentioned.

Nobe Young Creek – GIS Number 2.153 & Bone Creek – GIS Number 2.25

We concur with the eligibility finding. The description of this eligible creek should note that it is a tributary of Dry Meadow Creek (also determined eligible) and that its tributary, Bone Creek, is also eligible. The description of Bone Creek should also note that it's a tributary of Nobe Young Creek. Recreation classification of Nobe Young Creek is appropriate given adjacent roads and the small flow-through retention dam at Camp Whitsett.  
Freeman Creek – GIS Number 2.81

We concur with the eligibility finding for Freeman Creek. However, we believe a 3 mile segment of Freeman Creek from the confluence with the unnamed tributary in the southwest corner of section 32, T20S, R32E to the Lloyd Meadow Road should be classified as wild since it is located in a roadless area recommended for wilderness in Alternative C. Freeman Creek's contribution to the biotic integrity of the North Fork Kern Wild and Scenic River should be mentioned.

**Recommended Changes:** Find Rattlesnake Creek and Osa Creek eligible and continue the eligibility of the other North Fork Kern tributaries. Apply wild classification for specified segments located in wilderness and roadless areas.

### **C. The Lower Kern River System**

Lower Kern River:

GIS Number 2.104.2 (Isabella Dam to Borel Powerhouse)

GIS Number 2.104.3 (Borel Powerhouse to Democrat Dam)

GIS Number 2.104.4 (Democrat Dam to National Forest boundary)

We appreciate and concur that these segments of the lower Kern River are eligible.

We remain mystified as to why the plan/DEIS continues to ignore the fact that the first 3.2 miles of lower Kern downstream of Isabella Dam are managed by the BLM and were determined eligible and recommended as suitable by the BLM in 2014.<sup>53</sup> This decision should be documented in the final plan.

Acknowledging the BLM eligibility/suitability decision for the first 3.2 miles of the first segment of the lower Kern is important. BLM's evaluation identified an outstandingly remarkable cultural/historic value not recognized in the Forest Service evaluation. The OR

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<sup>53</sup> BLM Bakersfield Resource Management Plan Record of Decision 2014, pg. 162.

cultural/history value is associated with the discovery of gold by Richard M. Keyes in the mid-1850s and the establishment of the mining town of Keyesville. In addition, this segment of the river has a high occurrence of prehistory resources associated with the occupation of the river area by the Tubatulabal Tribe. Many of these cultural sites may be eligible for the National Register.<sup>54</sup> This OR prehistory/history value should be added to Kern River segment 2.104.2.

The Forest Service evaluation finds an OR scenery value along this segment and the two other eligible segments of the lower Kern. It should be noted that the Greenhorn and Mill Creek roadless areas, which encompass the north and south canyon slopes of the lower Kern, contribute greatly to the OR scenery value.

The lower Kern segments are described in a manner that implies that Democrat dam/reservoir associated with SCE's Kern River 1 Project and PG&E's Kern Canyon dam may be included in the eligible segments. The segments should be described to exclude these dams and associated reservoirs.

The evaluation appears to have followed the "entire river system" approach suggested in agency guidelines. Five tributaries of the lower Kern were also identified as eligible, including Greenhorn Creek, Lucas Creek, Stark Creek, Middle Fork Erskine Creek, and South Fork Erskine Creek.

#### Greenhorn Creek – GIS Number 2.81

We concur with the eligibility finding for Greenhorn Creek, although we believe that in addition to its outstandingly remarkable prehistory and history values, the stream possesses outstandingly remarkable geology and recreation values. A short article By Richard Breisch in the National Speleological Society Bulletin (Vol. 42, Number 2, April 1980) suggests that the Greenhorn Caves could be one of the deepest granite caves in the United States. This is an outstanding geological value. An internet search documents the high quality recreation opportunities provided by the Greenhorn Caves, which attract visitors from outside of the region. This is an outstandingly remarkable recreation value. This recreational value need not be "unique or exemplary" as the evaluation implies (2019 DEIS Vol. 2, App. pg. C-53). In addition, Greenhorn Creek is crossed by the Kern Canyon Trail, a popular mountain bike route that also attracts visitors from beyond the region.<sup>55</sup> Geology and recreation ORVs should be attributed to Greenhorn Creek.

Greenhorn Creek was given a preliminary Recreation classification. Much of the middle segment of the creek flows through the Greenhorn Creek roadless area, which is protected under the Roadless Area Conservation Rule. The middle segment should be classified as Wild. The role of the Greenhorn roadless area in protecting this eligible tributary, as well as the lower Kern's water quality and OR scenery, and complementing the lower Kern's OR wildlife values should be noted.

#### Lucas Creek – GIS Number 2.126

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<sup>54</sup> BLM Draft Bakersfield Resource Management Plan DEIS 2011, Appendix H-3, pg. 716.

<sup>55</sup> <http://www.kernriversierra.com/bike/kerncanyon.html>

We concur with the eligibility finding. The middle 4 miles of this 7.6 mile long creek are located within the Mill Creek roadless area and should be classified as wild. The role of the Mill Creek roadless area in protecting this eligible tributary, as well as the lower Kern's water quality and OR scenery, and complementing the lower Kern's OR wildlife values should be noted.

#### Stark Creek – GIS Number 2.219

We concur with the eligibility finding. Portions of Stark Creek are located within the Mill Creek roadless area and should be classified as wild. The role of the Mill Creek roadless area in protecting this eligible tributary, as well as the lower Kern's water quality and OR scenery, and complementing the lower Kern's OR wildlife values should be noted.

#### Middle Fork Erskine Creek – GIS Number 2.137

We concur with the eligibility finding for this important stream in the Piute Mountains. However, we disagree with the scenic classification. The motorized trail used to justify this classification actually crosses the lower segment of the MF Erskine Creek. The creek on National Forest land is completely undeveloped and qualifies for wild classification.

#### South Fork Erskine Creek – GIS Number 2.210

We concur with the eligibility finding for this stream.

**Recommended Changes:** Recognize BLM's suitability recommendation for the upper 3.2 miles of the lower Kern River, continue eligibility of all 3 segments of the river and its five eligible tributaries. Consider adding outstanding geology and recreation values for Greenhorn Creek. Apply wild classification for segments located in roadless areas and for the MF/SF Erskine Creek segments that are untouched by motorized trails.

### **D. The South Fork Kern River System**

The South Fork Kern Wild and Scenic River has a high level of biotic integrity due to the roadless areas in its watershed, lack of dams and diversion, and native fish species. Protecting eligible tributaries of the South Fork will also protect the South Fork's biotic integrity and complement its river values.

#### Trout Creek – GIS Number 2.233.1-2

We concur with the eligibility findings for both segments. However, segment 2.233.2 flows through the Dome Land Wilderness and shares identical OR scenery values with the South Fork Kern WSR. This segment should be identified as possessing OR scenery. In addition, the DEIS establishes a preliminary classification of scenic for both segments. The lower portion of segment 2.233.1 is located within the Woodpecker roadless area, which is also part of the Dome Land West Wilderness addition in Alternatives C and D, and it should be classified wild. All of segment 2.233.2, which is entirely located in the Dome Land Wilderness, should be classified wild.

Fish Creek – GIS Number 2.79

We concur with the eligibility finding. However, the DEIS establishes a preliminary classification of Recreation. Lower Fish Creek within the Dome Land Wilderness should be classified as Wild. Fish Creek's contribution to the biotic integrity of the South Fork Kern Wild and Scenic River should be mentioned.

Bitter Creek – GIS Number 2.22 & Lost Creek – GIS Number 2.125

We concur with the eligibility findings for Bitter Creek and Lost Creek in the DEIS.

Jacks Creek – GIS Number 2.99

Although this creek does not flow directly into the South Fork Kern, it is located in the South Fork Kern watershed. We concur with the eligibility finding for this stream. Jack Creek's vital riparian habitat and importance as a water source in the dry Scodie Mountains cannot be overstated.

**Recommended Change:** Continue the eligibility of all four tributaries to the South Fork Kern. Apply wild classification to segments located in roadless areas and wilderness.

#### **E. The Kings River System**

Kings River – GIS Number 2.106.1

Kings River – GIS Number 2.106.2

Kings River – GIS Number 2.106.3

The Kings River has been recognized by Congress a nationally significant river, with the wild and scenic designation of the Middle and South Forks, and the upper main stem in 1987. The downstream eligible segments identified in the DEIS will provide full protection of this magnificent river. We concur with the eligibility findings for all three segments and the two upstream tributaries (Boulder & Grizzly Creeks). The role of the Kings River roadless area, which is also a recommended wilderness in Alternatives C and E, in protecting the high biotic integrity, water quality, and outstanding values of the Kings River should be noted. The end point of Kings River segment 1 and start point of segment 2 is described as "Granite Dike." Previous descriptions of the river and several Forest Service documents and older maps call this point "Garnet Dike." We suspect that "Granite" is a typo. The proper name should be used to describe this end/start point to avoid future confusion.

Boulder Creek – GIS Number 2.30

We concur with the eligibility finding. However the Forest Service proposes a preliminary classification of wild. This is correct for the upper segment located in the Jenny Lakes Wilderness and potential wilderness addition and the lower segment in the recommended Monarch South addition and the Monarch Wilderness. But the middle section from a point upstream of Road 14S11 to the Monarch South Recommended Wilderness boundary is more

appropriately classified as scenic. Boulder Creek's contribution to the biotic integrity of the South Fork Kings River should be noted.

Grizzly Creek – GIS Number 2.90

We concur with the eligibility finding for Grizzly Creek. The creek's contribution to the biotic integrity of the South Fork Kings River should be noted.

**Recommended Changes:** Continue eligibility for all three segments of the Kings River and its two tributaries. Apply scenic classification to the middle segment of Boulder Creek. Clarify segment point on the Kings (Garnet Dike or Granite Dike?).

## **X. Wildlife Species At-Risk**

### **A. Fisher**

Pacific fisher is a forest carnivore closely associated with closed canopy, late-successional forests. Due in part to logging practices, the fisher's distribution in the Sierra Nevada has been reduced to a small, isolated population in the southern Sierra Nevada.

We commented about the coverage of fisher in the draft plans released on 2016. The main points of our comments at that time were:

- The draft plans did not include essential habitat information and conservation measures identified in the fisher conservation strategy (Spencer et al. 2016); and
- The draft plans did not provide for the ecological conditions necessary to provide for fisher.

The revised draft plans are quite similar to the drafts issues in 2016, and still suffer from the problems identified in our prior comments which we incorporate here by reference.

Below we reiterate some of our comments from 2016 and provide additional comments on the revised draft plans. We find that these revised draft plans still do not provide sufficient direction to ensure that fisher persist in the plan area.

#### **1. Recommended tree diameter limits were not adopted**

An abundance of large trees with cavities and decadence have consistently been identified as essential habitat components for fisher denning and resting (Purcell et al. 2009, Naney et al. 2012). Recruitment of large trees is a process that takes a long time. "Large live trees are among the most slowly-renewing elements of the forest and are 'dominant' elements ... in forest communities. It may take hundreds of years for conifers and hardwoods to develop the size and the decadence necessary to be used by fishers for resting." (Zielinski et al. 2006). In addition, research has indicated that denning and resting habitat, not foraging and travel habitat, appears to be the limiting factor for fisher:



Fishers have at least one daily resting bout and often use a different resting structure for each occasion. Resting locations protect forest mustelids from unfavorable weather and predators, thus choosing a resting site may be one of the most important choices made outside the breeding season. Previous work indicates that fishers and American martens ... are most selective about choosing natal den and resting sites, and the least selective about foraging locations. **This suggests that resting and denning sites may be the most limiting habitat element across the species' range.**

(Zielinski et al. 2004, emphasis added, citations omitted). Moreover, “re-use of rest sites is relatively low..., indicating that habitats providing suitable resting structures need to be widely distributed throughout home ranges of fishers...and spatially interconnected with foraging habitats.” (USDI Fish and Wildlife Service 2004, p. 18774). These findings and others led to the conclusion in the science synthesis for the Sierra Nevada that:

Thus, any management actions or disturbance factors (e.g., logging of large-diameter trees, high-severity fire) that further reduce the abundance of large conifers (>76 cm [30 in] dbh), particularly ponderosa pines, sugar pines and white fir, as well as black oaks, will negatively affect fishers.

(Zielinski 2014, p. 411). The fisher conservation strategy addressed the need to protect rest and den structures by evaluating the range of diameter limits for rest structures and selecting a diameter threshold for protection based on the upper three quartiles (i.e., the largest 75%) of trees and snags used by denning or resting fishers (Spencer et al. 2016, p. 58). From this analysis the fisher strategy recommends “mechanical treatments should retain conifer trees and snags >30 in dbh, including pines >27 in dbh.” (*Id.*)

There are two points of divergence for Alternative B from the fisher conservation strategy – where the diameter limit applies and what the diameter limit is. First, Alternative B adopts a 30 inch tree diameter limit within spotted owl territories and allows exceptions for the removal of trees up to 40 inches in diameter outside of territories. We examined the potential cumulative footprint the territories that would be delineated in Alternative B using the spotted owl data base maintained by California Department of Fish and Wildlife. There were 312 activity centers in this database that occurred within the boundaries of these two national forests and outside the boundary for the Giant Sequoia National Monument. The total area encompassed by a circular territory of 800 acres centered on an activity center was just over 270,000 acres. To evaluate the extent of the area outside of the spotted owl territories that might be utilized by fisher, we compared this footprint of the spotted owl territories with the Wildlife Habitat Management Area included in Alternative B and the extent of fisher hexagons used in the fisher conservation strategy (Figure 1).

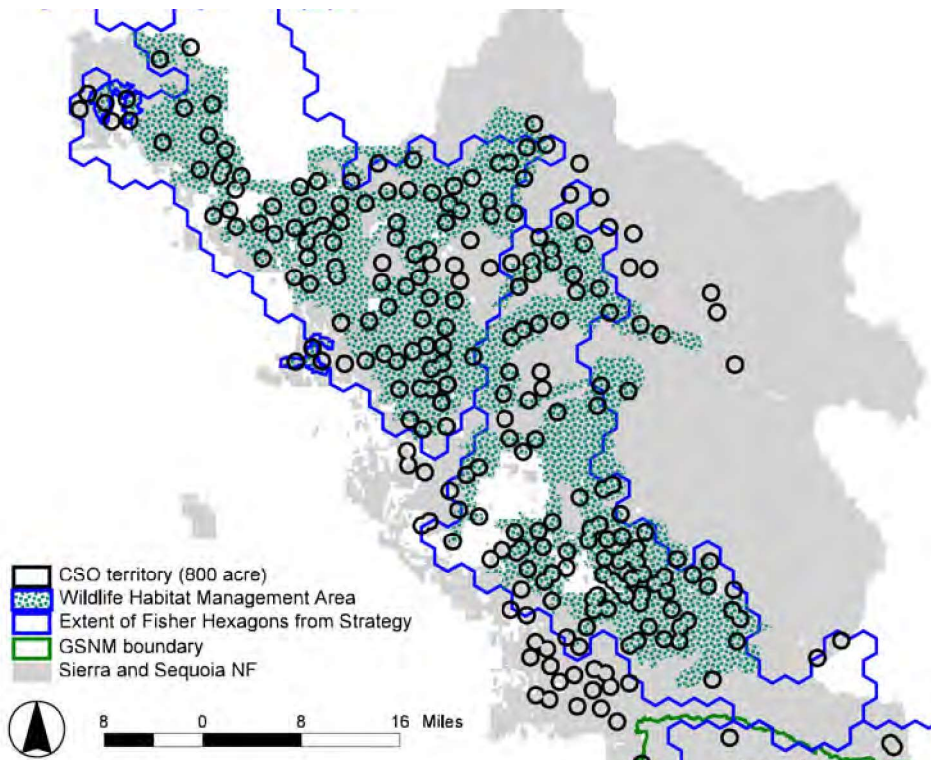


Figure 1. California spotted owl territories (800-acre) in relation to proposed Wildlife Habitat Management Area and strategy area in the fisher conservation strategy. Centroids for spotted owl territories taken from activity centers contained within the spotted owl database maintained by California Department of Fish and Wildlife.

We found that a significant portion of area occupied by fishers is outside of the spotted owl territories. These areas would be available for the harvest of trees up to 40 inches in diameter to reduce stand density and create openings. This conflicts with the recommendation in the fisher conservation strategy to limit the removal of trees over than 27 inches within the fisher hexagons (see Figure 1).

The second point of departure of Alternative B from the fisher conservation strategy is the diameter limit itself. The fisher strategy recommends a limit of 30 inches for mixed conifer species generally, and a 27 inches limit for pines species. These values are derived from den and rest sites used by fishers. Alternative B provides no direction about retaining pines from 27 to 30 inches and allows removal of all species up to 40 inches diameter outside of territories.

The area where trees up to 40 inches could be removed can also be compared to the habitat maps contained in the fisher strategy (Figure 2).

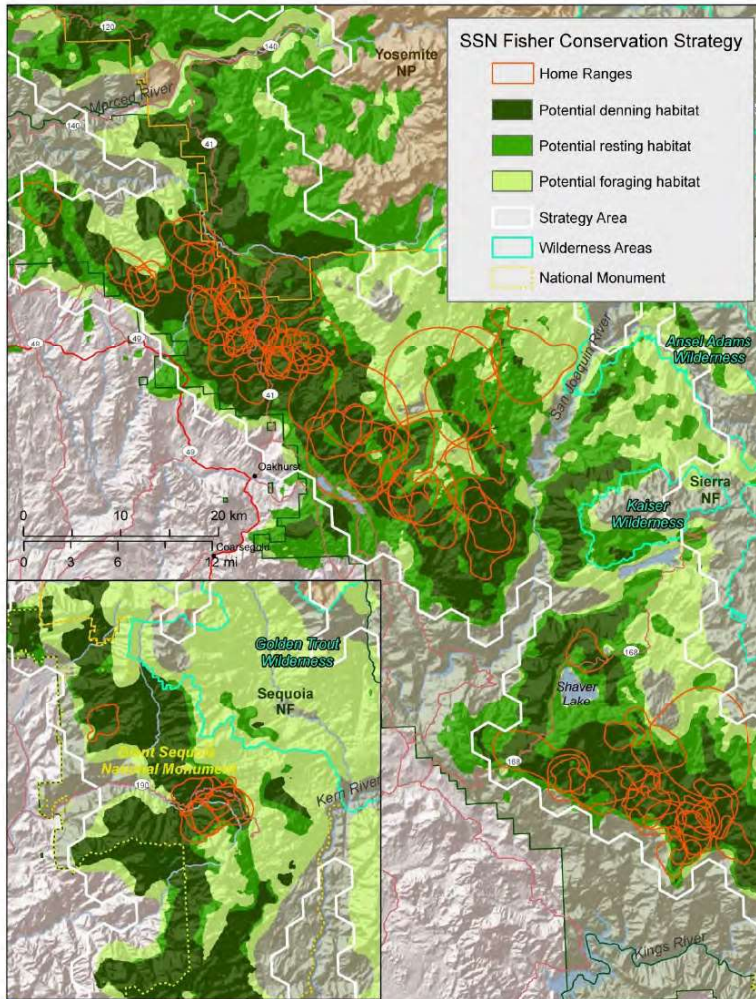


Figure 2. Fisher foraging, resting, and denning habitat illustrated in Cores 4 and 5 (large map) and Core 2 (inset). Female home ranges from three fisher telemetry studies covering multiple years are shown in orange to illustrate that they are strongly associated with denning habitat. Figure taken from Spencer et al. (2016).

Using the hexagon boundary (Figure 1) and Strategy Area (Figure 2) as points of reference, it can be seen that significant area identified as potential denning and resting habitat occurs outside of the spotted owl territories. Logging of trees up to 40 inches in diameter would be allowed in these areas and is contrary to the recommendations of fisher experts.

**Recommended Changes:** 1) Adopt the diameter limits in Alternative C; 2) estimate the impacts of the removal of trees up to 40 inches in diameter of fisher habitat quality and the availability of denning and resting structures using spatially explicit data on fisher habitat and fisher locations.

## 2. Recommended habitat requirements are not adopted

The fisher conservation strategy includes specific habitat conditions that denning female fishers require. None of the alternatives mention these conditions and all alternatives avoid

identifying dense, mature forests as a habitat requirement for this species. The draft plans simply refer to high value reproductive habitat and large trees structures, but make no mention of the universally recognized association with forests with dense cover.

Specific recommendations in the draft strategy not addressed in the draft plans (Alternative B) include:

### **Fisher reproductive habitat**

- At least 60% of each target cell is in CWHR fisher high reproductive habitat value (CWHR classes 5M, 4D, 5D, and 6).

### **Tree canopy cover**

- At the home range scale, >50% of a target cell supports tree canopy cover >70% (as measured by EVEG), with dense stands patchily distributed in mosaic with patches of more open (<40% cover) and moderate (40-69%) canopy forest to provide habitat heterogeneity.
- At finer scales, dense canopy stands are punctuated by small gaps (~0.1-2.0 ac each with an overall average of ~0.25 ac) to increase forest structural diversity (Knapp et al. 2012, Lydersen et al. 2013, Safford 2013).

### **Basal area**

- Within each fisher target cell, basal area of mixed-conifer forest averages  $\geq 150 \text{ ft}^2/\text{ac}$ , ranging from  $\sim 100 \text{ ft}^2/\text{ac}$  to  $>400 \text{ ft}^2/\text{ac}$  at finer scales, depending on site conditions.
- Basal area of black oaks increases where site conditions allow. Black oaks are well-distributed within mixed-conifer and conifer-hardwood stands and are growing and reproducing vigorously (Spencer et al. 2016, p. 49).

These characteristics are essential for denning and resting and are essential habitat elements to support reproductive fishers.

**Recommended Changes:** 1) Integrate the habitat conditions noted above into the desired conditions for fisher; 2) adopt plan components from Alternative C that promote the habitat conditions above; 3) develop additional plan components to limit the activities that would reduce existing conditions below desired conditions; 3) evaluate in the EIS in the potential impact of degrading habitat conditions for fishers using spatially explicit techniques.

### **3. Disturbance thresholds exceed those in the fisher conservation strategy**

The draft plans allow for disturbing through mechanical treatment up to 30% of an estimated fisher home range during a 5-year period with an exception to exceed this after conducting a cost-benefit analysis. In contrast, the fisher strategy allows up to 13% disturbance with

exceptions for up to 30% disturbance or more in limited situations to achieve resilience goals (Spencer et al. 2017).

The level of disturbance allowed by the draft plans (Alternative B) is based on the highest amount of disturbance experienced by fisher in Zielinski et al. (2013). Application of the maximum amount disturbance as a threshold in Alternative B is a concern by itself that is exacerbated by an increase in treatment intensity compared to those evaluated in the study. The treatments examined in the study were conducted between 2000 and 2011. Treatments conducted during this time period would have followed canopy and tree retention guidelines that are not included in the draft forest plans. This means that the disturbance thresholds in the draft forest plans will be used to allow logging that is more intensive than practices conducted in the underlying research.

**Recommended change:** Adopt the disturbance limits included in Alternative C.

## **B. California spotted owl**

The revised forest plans provide clearer plan direction for California spotted owl than the 2016 draft revised plans did. However, we are concerned that the spotted owl plan components will not deliver the necessary conditions on which the species depends at the territory or activity center scales and will not provide for population viability at the plan scale. We are also concerned that aspects of several key plan components are not based on the best available science, are too subjective to be consistently implemented from project to project, and/or the effectiveness and rationale of key plan components is not analyzed in the RDEIS.

### **1. Retirement of PACs Occupied by Territorial Singles is not Justified or Analyzed**

The revised plans incur significant changes to how PACs are designated and maintained in the system. Current forest plan guidance is for spotted owl PACs to be established for territorial individuals or pairs and PACs cannot be removed from the system unless a disturbance significantly modifies habitat quality and the PAC is abandoned. Under the revised plans, PACs would no longer be established for territorial individuals and existing PACs would be removed from the system if they were not occupied by a pair. No evaluation has been provided in the planning materials how this proposed change would affect the number of PACs over time across the plan areas based on the current demographic trends. No analysis has been provided in the RDEIS demonstrating how frequently PACs move between pair occupancy and occupancy by territorial singles and how habitat quality within a PAC affects occupancy of a pair vs. a single. And, no analysis has been provided in the RDEIS demonstrating the potential importance that territorial singles have in maintaining population viability.

Of considerable concern for changing the requirement to only establish PACs for pairs and no longer establish PACs for singles is the trend on National Forest Service lands that spotted owl abundance has been declining at a faster rate than spotted owl occupancy and this is due to fewer PACs being occupied by pairs and more PACs becoming occupied by territorial singles (Conner et al. 2016). It is not entirely clear what is responsible for the trend in loss of pair status on the National Forests, it may be the result of habitat loss and degradation from the

interaction between past forest management, current forest management, high severity fire, and climate change, but there are also likely other factors at play (e.g., competition with barred owls and rodenticide poisoning). Because one cannot say for sure what is causing the trend for loss of pair status across the National Forests, it is reckless to begin to purge the system of spotted owl territories occupied by singles, as this practice could compromise the ability of the species to recover from ongoing population declines if the cause(s) of the loss of pair status were ameliorated.

Spotted owls are a territorial species, actively defending a portion of their home range. Franklin et al. (2000) showed that spotted owls follow the ideal despotic distribution theory of habitat selection. Therefore, in general, one should assume that the highest quality habitat is being actively defended from conspecifics by the fittest and most experienced individuals and this habitat is not available to young inexperienced owls. The species is also long-lived, exhibiting relatively high survival and low reproduction. Years with higher reproduction are viewed as important to maintaining the overall population. However, when juveniles fledge the highest quality habitat is not available because it is being actively defended by fit experienced owls. Yet, there must be places on the landscape for young inexperienced individuals to live, learn to hunt, and survive until their fitness increases and space becomes available in higher quality habitat where they may mate and reproduce. Therefore, lower quality territories suitable to occupancy by territorial singles are essential to population persistence and species viability and require management protections.

**Recommended Changes:** 1) Establish spotted owl PACs for territorial singles, as well as territorial pairs; 2) If the forest plan is not changed to continue establishing PACs for territorial singles, analyze how changing from designating PACs for territorial singles and pairs to only designating PACs for territorial pairs will affect the overall spotted owl population, including survival and occupancy of territorial singles.

## **2. Ensuring Spotted Owl PACs and Territories are Established**

The RDEIS determined that species-specific plan components are necessary to ensure that spotted owl viability is provided in the plan areas, including standards and guidelines that limit activities within spotted owl nest stands, PACs, and territories. Although the draft revised forest plans define the characteristics of spotted owl PACs and territories, this information is presented as an introduction to the plan components making its relationship to the plan components ambiguous. In addition, the revised plans do not include plan components requiring the establishment of spotted owl PACs or territories. Likewise, the revised plans do not define what information should be used to determine if and where spotted owl PACs and territories should be established. Without ensuring that PACs and territories will be established and what information will be used to determine where they should be established, there are no assurances that new PACs and territories will be created. Direction for establishing PACs needs to be properly integrated into the plan components of the final plans.

**Recommended Changes:** 1) Include a standard requiring the establishment of spotted owl, PACs<sup>56</sup> and spotted owl territories based on current and accurate science information;<sup>57</sup> 2)

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<sup>56</sup> We note here that we make a similar recommendation for great gray owl and northern goshawk protected activity centers in these comments.



Include a potential management approach stating that a current and accurate science method for determining if and where PACs and territories should be established is the most recent Regional protocol surveys methods.

### **3. Defining Essential Ecological Conditions in Spotted Owl Activity Centers**

Considerable science information is available on the ecological conditions on which spotted owls depend. The draft revised plans define the specific characteristics or desired conditions that should be used to establish PACs (Sierra draft plan, p. 49), but this information is not stated as a plan component. Instead, the information below appears simply as an introduction to the plan components for spotted owl:

**California spotted owl protected activity centers** are defined by the following characteristics:

- California Wildlife Habitat Relationship (CWHR) system classes 6, 5D, 5M, 4D, and 4M (in descending order of priority);
- Two or more tree canopy layers;
- Trees in the dominant and co-dominant crown classes averaging 24 inches diameter or greater; and
- 60 to 70 percent tree canopy cover, including hardwoods.
- Contains some very large snags greater than 45 inches in diameter and higher than average levels of snags and down woody materials.

In contrast to this specific information defining high quality habitat in spotted owl PACs and the habitat components used to delineate PACs, the habitat desired conditions for PACs are subjective and lack adequate detail. For instance, SPEC-CSO-DC-01 (Sierra RFP, p. 50) simply states:

California spotted owl protected activity centers provide high quality habitat that contributes to their successful reproduction. Protected activity centers encompass habitat that is most likely essential for nesting and roosting. The habitat has a high canopy cover with multiple layers of tree canopy and many large trees and snags.

It is unclear why the draft revised plans did not include the more detailed and clearly available information on habitat quality as desired conditions for spotted owl PACs. Current forest plan direction includes this information as desired conditions for PACs (USDA Forest Service 2004, p. 37). This is an issue because standard SPEC-CSO-STD-02 (e.g., Sierra draft plan, p. 51) defines circumstances where mechanical treatments cannot reduce habitat quality in PACs and this standard is not tied to a desired condition that provides adequate guidance for what conditions provide high quality habitat and ensure PACs provide the necessary conditions for successful nesting, roosting, and continued occupancy.

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<sup>57</sup> This is similar to our request that you adopt a standard to delineate riparian conservation areas as was done in the newly revised forest plan for Flathead National forests.

**Recommended Change:** 1) Include the specific characteristics that managers are to use to establish PACs (e.g., Sierra draft plan, p. 49) as desired conditions for PACs.

#### **4. Defining Conditions where PAC Habitat Modifications are Necessary and Analyzing Effects of Habitat Modification**

In reference to the ability to conduct mechanical treatments in spotted owl PACs, SPEC-CSO-STD-2 (Sierra draft plan, p. 51) states that:

...mechanical vegetation treatments that reduce habitat quality are limited to no more than one third of the protected activity center. If habitat quality reduction is necessary, treatment must increase the stand quadratic mean diameter and maintain a minimum of 50 percent canopy cover, habitat quality must be maintained in the highest quality nesting and roosting habitat (CWHR 6, 5D, 5M), and habitat quality must increase again after treatment.

However, the draft revised forest plans do not define conditions where “habitat quality reduction is necessary” in PACs and the RDEIS does not provide an analysis of how logging trees up to 30 inches diameter and reducing canopy cover to 50% across up to one third of a PAC would affect the probability of occupancy of a territorial single, pair occupancy, reproduction, or survival in PACs and across the PAC network in the plan areas.

The forest plans must clearly define the forest conditions that could allow habitat modifications in a PAC and analyze the effects of such modifications on occupancy of a territorial single and pair, reproduction, and survival within PACs and across the PAC network in the plan areas. Considerable science literature is available finding that it is not necessary to significantly modify canopy cover or reduce larger tree density to impart stand resilience to high severity wildfire (Fiedler and Keegan 2003, Perry et al. 2004, Thompson and Spies 2009, North et al. 2009, Collins et al. 2011, Stephens et al. 2012, Lesmeister et al. 2019). The most hazardous fuels in these forests are surface fuels, followed by ladder fuels. The threat of passive crown fire can be ameliorated without modifying crown fuels (Stephens et al. 2012).

We are not aware of any studies finding that it is necessary to cut trees larger than 16 inches dbh for ladder fuel reduction, and it is often the case that few trees larger than 12 inches need to be removed to reduce wildfire hazard (North et al. 2009, Collins et al. 2011). In fact, based on a simple comparison of the amount of high severity burned forests in evergreen closed tree canopy vs. evergreen open tree canopy forests for contemporary fire in the Sierra Nevada, open canopied forest are just a likely, if not more likely, to burn at high severity than closed canopy forests (Attachment D).

Because spotted owls rely on forests dominated by trees larger than 12 inches diameter, there should not be a need to significantly reduce this aspect of habitat quality to provide fire resilience within territories or at the landscape scale. The recent results of Jones (2019, Chapter 3, emphasis added) confirm this, finding that:

**Owls benefited most when fuel treatments occurred within territories but treatments were designed to avoid [converting CWHR 5D to 5M].**



When fuel treatments occurred in owl territories, but were simulated to have no effects on key owl habitat (e.g., because treatment designs that avoided modifying large tree/high canopy forest), benefits were nearly universal and larger than alternative scenarios (Figs. 2B and 3B).

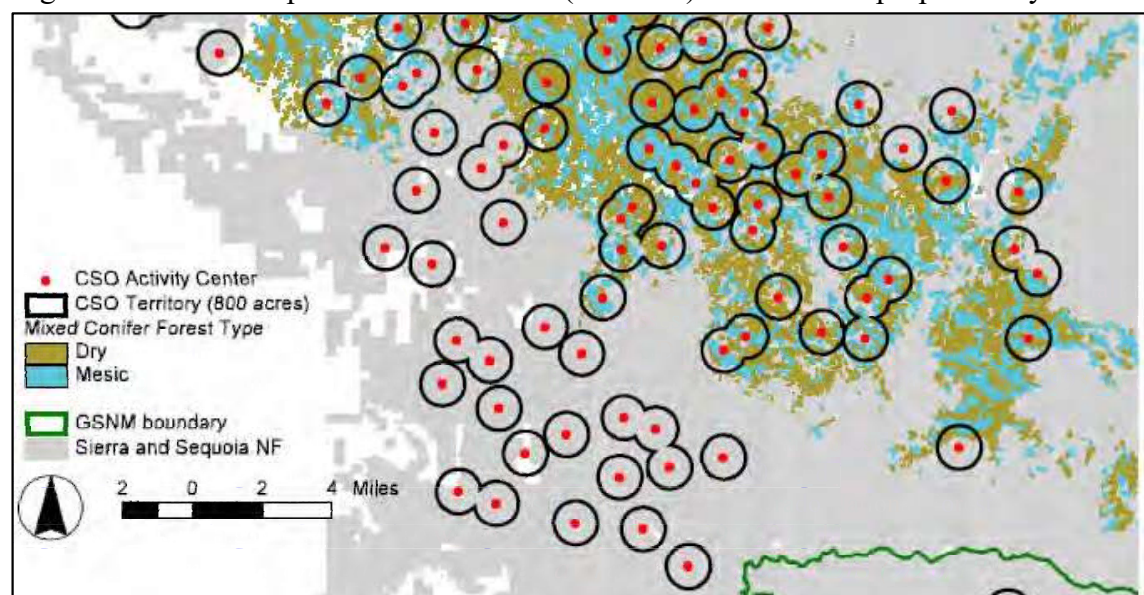
...steeper and more remote terrain **in national forest lands of the southern Sierra Nevada** make implementation of treatments more difficult (North et al. 2015a), but **owls in this region also show strong negative costs of within territory treatment.**

The forest planning materials should clearly acknowledge the studies we cited in this section. Some modest modifications of structural complexity may be necessary to reduce surface and ladder fuels, but if thoughtfully implemented these activities would be unlikely to cause abandonment or reduced survival and reduced reproduction.

In contrast to reducing wildfire hazard, information is lacking on conditions that require reductions in habitat quality to increase resilience to climate-related tree mortality (e.g., bark beetle outbreaks). It is our experience that many Forest Service foresters believe that Stand Density Index should be  $<60\%$  of SDImax to be resilient to climate-related tree mortality. This index is relied on as the primary justification for forest health treatments. First, we do not believe that SDI should be the sole metric relied on to determine if a stand or landscape is resilient to climate-related mortality because SDI is not site-specific and does not incorporate many of the principles of GTR 220. That is, SDI and SDImax do not change based on slope position, aspect, elevation, latitude, soil characteristics, climatic water deficit, etc.

Second, we sometimes find that foresters inappropriately<sup>58</sup> use a SDImax value developed for single-species even-aged stands of ponderosa pine and apply this value to all stands regardless of diameter distribution or species composition (e.g., Scotti<sup>59</sup> and Panther<sup>60</sup> Projects). Most high quality spotted owl habitat has a SDI value that is  $>60\%$  SDImax developed for even-aged ponderosa pine. Therefore, managers are likely to, although inappropriately, determine that treatments that reduce habitat quality are necessary within almost all CWHR 4M and 4D habitat within PACs across the plan areas.

Figure 2. California spotted owl territories (800-acre) in relation to proposed dry and moist



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mixed conifer forests in the southern portion of the Sierra National Forest. Centroids for spotted owl territories were taken from activity centers contained within the spotted owl database maintained by California Department of Fish and Wildlife.

Of the major forest types in the plan areas, moist mixed conifer is the forest type with desired condition ranges that most overlap the necessary ecological conditions on which spotted owls depend (e.g., higher canopy cover and higher large tree densities). Even then, there is no guarantee that managers will choose to manage toward the end of the ranges that would support spotted owls. Regardless, it is important to understand the relationship between spotted owl territories and moist mixed conifer at the landscape scale. Based on a GIS analysis of 800-acre spotted owl territorial circles in relation to moist and dry mixed conifer in the plan areas, 52% of the 312 territories across the plan areas contain less than 200 acres of moist mixed conifer forest. In other words, even if all of the moist mixed conifer in these territories provided the highest quality nesting and roosting habitat, desired conditions for the territories could not be achieved within the territorial circle. Moreover, many territories with the plan areas do not provide any moist mixed conifer forest (Figure 2). In PACs where CWHR 4M and 4D habitat occurs on areas not defined as moist mixed conifer, managers may determine that treatment is necessary due to the lack of overlap with desired condition.

Verner et al. (1992), Blakesley et al. (2005), Seaman and Gutiérrez (2007), Tempel et al. (2014), Tempel et al. (2016), Jones et al. (2018) and Blakey et al. (2019) all concluded that California spotted owls select territories with a high proportion of forest dominated by medium and large trees with >60-70% canopy cover. For example, Tempel et al. (2016) state, “we caution that forest with 40-69% canopy cover cannot simply be substituted for forest with >70% canopy cover. The importance of >70% canopy cover forests as nesting and roosting habitat for California Spotted Owls has been well documented (Bias and Gutiérrez 1992, Gutiérrez et al. 1992, Moen and Gutiérrez 1997, Bond et al. 2004).” There is also a significant proportion of spotted owls that nest in CWHR 4M and 4D habitat and the relative importance of these forest stands for continued occupancy, survival, and reproduction is not debatable.

Despite numerous studies over the past 25 years finding that spotted owls depend on high canopy cover forests dominated by medium and large trees for nesting and roosting and the importance of PACs for protecting the species from management activities that are likely to compromise habitat attributes essential to occupancy, survival, and reproduction (Bergian et al. 2012), the draft revised forest plans allow a third of each PAC to have canopy cover reduced to 50% and trees as large as 30 inches diameter removed within the PAC. No rationale for why this level of habitat modification will result in conditions that continue to provide for occupancy by pairs or singles, reproduction, and survival has been provided. The EIS should disclose how many spotted owl PACs would be affected by this provision over the next 10 years in each of the plan areas and the probability that these PACs will continue to be occupied by pairs or singles post-treatment.

Based on the well-documented association between spotted owls and >70 % canopy cover and higher densities of medium and large trees, we are extremely concerned that the ability to reduce canopy cover well below 70% and reduce the density of medium and larger trees on up to 100 acres of PAC habitat that is relied on for nesting and roosting, will have significant adverse effects to PACs across the landscape. The best available science suggests that such

activities are likely to result in a loss of occupancy of a pair or single, a condition that the proposed action allows managers to remove a PAC from the system, resulting in a downward spiral. This will compromise species viability at the plan scale, which requires that additional plan components be developed to limit reductions in habitat quality within PACs.

**Recommended Changes:** 1) Include a standard that mechanical treatment intensity or extent within PACs should not cause a loss of occupancy by a territorial spotted owl pair or single; 2) Include a standard that when mechanical treatments are determined to be necessary within PACs, treatments should not remove trees >18 inch diameter or reduce stand average canopy cover by more than 10%; 3) Analyze in the RDEIS the effects of authorized habitat modifications within PACs, disclose how many PACs would be affected by habitat modification over 10 years, and determine the probability of loss of occupancy, reproduction, survival and removal from the system due to loss of occupancy.

## **5. Maintaining Habitat Quality in CWHR 5M, 5D, and 6 in Activity Centers and Territories**

Standards SPEC-CSO-STD-2 and SPEC-CSO-STD-3 include provisions that mechanical treatments should not reduce “habitat quality” in CWHR 5M, 5D, and 6<sup>61</sup>. However, the plans do not define how mechanical treatments within this habitat could reduce habitat quality or provide plan components that limit the effects of mechanical treatments on larger tree density or canopy cover. We are extremely concerned that the forest plans do not state how mechanical treatments could reduce habitat quality and how to maintain habitat quality because we have recently been hearing managers erroneously state that spotted owls do not select for high canopy cover forests or trees <48 meters tall, and incorrectly citing North et al. (2017) to justify this claim.

If habitat quality is left open to interpretation, projects designed by managers who believe that spotted owls do not select for trees <48 meters tall or high canopy cover could remove all trees <48 meters tall and reduce canopy cover well below levels numerous studies have found to be associated with occupancy, reproduction, and survival (see e.g., Verner et al. 1992, Blakesley et al. 2005, Seaman and Gutiérrez 2007, Tempel et al. 2014, Tempel et al. 2016, Jones et al. 2018 and Blakey et al. 2019). The belief that the results of North et al. (2017) somehow suggest that spotted owls are only associated with trees >48 meters tall ignores more than 25 years of studies. As stated in GTR 254, a compilation of the current state of knowledge on the species (Gutiérrez et al. 2017, emphasis added):

California spotted owls are habitat specialists that are strongly associated with older, **closed-canopy forests with multiple layers in the mid and upper canopies.**

Nest stands of California spotted owls typically have **high canopy closure and cover (≥75 percent for both)... an abundance of large (>61 cm [24 in] d.b.h.) trees, and multiple canopy layers comprising trees of different sizes,**

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<sup>61</sup> SPEC-CSO-STD-3 does not include CWHR 6 as a forest class that provides the highest quality nesting and roosting habitat for the species. We believe this to be a simple error of omission that should be corrected in the final plans. If this is not an error, the omission of CWHR 6 from this standard should be justified and analyzed. *SFL et al. comments on Sequoia and Sierra draft plans and RDEIS (9/26/19)*

but numerically dominated by medium-sized trees (30 to 61 cm [12 to 24 in]) (Bias and Gutiérrez 1992, Blakesley et al. 2005, Chatfield 2005, Moen and Gutiérrez 1997, North et al. 2000, Roberts et al. 2011, Seamans 2005) (fig. 3-1).

The complex vertical structure in late-successional forests (e.g., multiple layers in the mid- and upper canopy) provides deeper shading and protects juvenile and adult owls from overheating in areas that frequently reach 38 °C (100 °F) in summer (Barrows 1981, Weathers et al. 2001). This complex vertical canopy structure may also protect owls from predation.

All of the research strongly indicates that large, old trees are important aspects of spotted owl habitat, providing complex vertical structure and canopy layering as well as potential nesting cavities. Although **the presence of large trees alone is insufficient for the persistence of spotted owls**, restoration treatments that prioritize the retention of large and old trees, even in marginal habitat, can form the foundation for future high-quality habitat where the site potential is adequate.

We ask that it be made clear in either a desired condition or a standard that high quality habitat includes multiple canopy layers, higher densities of large trees, and high canopy cover and canopy closure and modifications of these stand attributes may reduce habitat quality.

In contrast to SPEC-CSO-STDs 2 and 3, SPEC-CSO-STD-7 states (emphasis added) that when designing prescribed fire fuel treatments in PACs, managers are to, “Design fuels treatments in protected activity centers to manage for lower intensity fire effects (generally flame lengths averaging 4 to 6 feet) to reduce surface and ladder fuels and **minimize impacts to overstory canopy, which will provide conditions for continued use of nesting and roosting.**” We believe that the same habitat modification requirements for prescribed fire within PACs should apply to mechanical treatments in PACs. That is, managers should design mechanical treatments in high quality spotted owl habitat to reduce surface and ladder fuels and minimize impacts to overstory canopy cover, because canopy cover provides conditions for continued use of nesting and roosting habitat.

**Recommended Changes:** 1) Include a desired condition or standard defining high quality habitat, including high canopy cover and closure (often >70%), multiple-canopy layers, and an abundance of trees >24 inches dbh; 2) Include a standard stating that vegetation treatments in high quality spotted owl habitat should be designed to reduce surface and ladder fuels, minimize impacts to overstory canopy cover, and maintain a multiple-layered forest structure because canopy cover and habitat complexity provide conditions necessary for the continued use of nesting and roosting habitat.

## **6. Defining what it Means that Habitat Quality Must Increase after Treatment**

Standard SPEC-CSO-STD-2 requires that “habitat quality must increase again after treatment” within PACs. While we support this idea, no plan direction or analysis has been provided defining how the requirement that habitat quality must increase after treatment in PACs is

likely to minimize or reduce adverse effects of the treatment. For all almost all thinning projects, regardless of thinning intensity, habitat quality will begin to increase after treatment as the stand recovers, the residual trees grow in size, and canopy cover increases. Therefore, it is unclear to us how this provision would affect the design of a treatment in a PAC.

**Recommended Changes:** 1) Modify SPEC-CSO-STD-2 to more specifically identify or provide examples of how habitat quality within a PAC must increase after treatment and how this might affect project design; 2) Provide an analysis in the RDEIS for how requiring that habitat quality must increase post-treatment will minimize or reduce adverse effects of the proposed treatment.

## **7. Frequency that Habitat Quality Can be Reduced Across One-third of a PAC**

The draft revised forest plans allow habitat quality to be reduced across as much as one-third of a PAC. However, it is not clear if habitat quality could be reduced across one-third of each PAC but once during the life of the revised forest plan or if habitat quality could be reduced across one-third of each PAC multiple times during this time. While we believe that habitat quality should not be reduced to the level allowed within the draft revised plans, as doing so would compromise species viability, we also believe that reducing habitat quality across one-third of each PAC multiple times during the life of the draft revised forest plan would only compound the negative effects of reduced habitat quality and further compromise species viability. Alternative C also includes a provision limiting the number of PAC-acres per year and per decade that may be modified by mechanical treatments. We support such limits to habitat modifications that would reduce habitat quality.

**Recommended Changes:** 1) Modify SPEC-CSO-STD-2 to specifically state that habitat quality cannot be reduced across as much as one-third of PAC more than once over the life of the forest plan; 2) Adopt SPEC-CSO-GDL-04 from Alternative C which states – “Mechanical treatments in protected activity centers should not exceed 5 percent per year and 10 percent per decade of the total acres of California spotted owl protected activity centers.” 3) Analyze in the RDEIS the effects of modifying habitat quality across one third of each PAC multiple times over the life of the plan and the effects repeated treatment would have on habitat quality over time, as well as occupancy, reproduction, and survival.

## **8. Determining How Much High Quality Habitat to Provide within Territories**

Desired condition SPEC-CSO-DC-4 states that (emphasis added), “**At least** 40 to 60 percent of each occupied California spotted owl territory consists of the highest quality nesting and roosting habitat.” From this, one must assume that it is necessary to ensure species persistence and viability in the plan areas that having 40 percent of a territory in the highest quality habitat may not be sufficient in many cases to provide for stable occupancy, reproduction, or survival and that it will be necessary to have many territories where >50 percent of the territory is composed of the highest quality habitat, including some with nearly 60 percent of the territory providing the highest quality habitat. However, the plan fails to provide any criteria or

information managers should use to determine the biologically appropriate amount of the highest quality habitat to provide in a territory.

There are inherent conflicts between providing adequate levels of the highest quality spotted owl habitat, meeting administratively-mandated and ecologically unjustified timber volume targets, and providing a volume of timber per acre that is acceptable to timber contractors. It is our experience that without more specific guidance managers will tend to manage most spotted owl territories to have 40 percent of the territory consist of the highest quality habitat in cases where providing greater amounts of the highest quality habitat would conflict with timber volume production. This is an extremely important issue and represents a critical flaw in the spotted owl conservation strategy. Without providing clear guidance, through plan components, for how much of a territory should be composed of the highest quality habitat, the Forest Service cannot claim that the plan provides for spotted owl viability.

There is science information available that can be used to assign habitat amounts based on physiographic attributes. Hobart et al. (2019a) found that spotted owl territories have higher occupancy rates at lower elevations, but the reasons for this are not entirely clear. The results of Hobart et al. (2019b) found that spotted owl home ranges were smaller, and therefore likely of higher quality, when a greater proportion of their diet was dominated by woodrats and pocket gophers. The authors also correlate having more hardwoods, being at lower elevation and lower latitude, having less medium forest cover, increased forest heterogeneity, and some young forest with spotted owl diets rich in woodrats and gophers. However, Hobart et al. (2019b) also found that “Spotted owls in national parks consumed a high proportion of woodrats and pocket gophers despite a relative paucity of habitat features (e.g., young forest and hardwoods at low elevations) that our stable isotope analyses suggested promoted consumption of these two species.” In contrast, the spotted owl population on the Eldorado demographic study area is a mixed-ownership landscape that includes ample amounts of young forest and relatively high levels of heterogeneity provided even-aged management on private lands, but the spotted owl population has been in steep decline, even before the King Fire (Tempel et al. 2014).

Of the variables analyzed in Hobart et al. (2019b), the least subjective<sup>62</sup> and seemingly most-strongly associated with spotted owl occupancy is elevation (Hobart et al. 2019a). Therefore, we recommend that SPEC-CSO-DC-4 be modified to direct managers to use elevation as a primary metric for determining the amount of the highest quality habitat that should be provided within a spotted owl territory.

**Recommended Changes:** 1) Modify SPEC-CSO-DC-4 to include the following – Elevation is an important metric to consider for determining the appropriate amount of a spotted owl territory that should be composed of the highest quality habitat. At lower elevations in the species range, maintaining 40 percent of a territory in the highest quality habitat may be adequate for persistence, but as elevation increased the proportion of a territory in the highest quality habitat should increase; 2) If clear guidance is not included for how managers are to determine the necessary amounts of the highest quality habitat to be managed for in the spotted owl territories, assume that all territories that may be subject to logging will be managed for no

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<sup>62</sup> Latitude is also a variable that is not subjective and associated with territory sizes, but this metric was factored into the conservation strategy when territory sizes were developed for the southern Sierra.

more than 40 percent of the territory to be composed of the highest quality habitat and provide an analysis in the RDEIS of the likely effects such a scenario would have on occupancy, reproduction, and survival.

## **9. Patch Sizes of Territorial High Quality Nesting and Roosting Habitat**

Desired condition SPEC-CSO-DC-4 states that patches counted toward the target of having 40 to 60 percent of each territory composed of the highest quality nesting and roosting habitat must be “large enough patches to provide interior stand conditions, generally 1 to 2 tree heights from an edge.” Based on a 150 feet tall tree, this provision would result in patches as small as 1.5 to 3 acres in size being counted toward territory habitat goals. There are several issues with the idea that patches this small should be counted toward habitat targets.

First, no information has been provided demonstrating that patches as small as 1.5 acres provide interior stand conditions that spotted owls commonly use for successful nesting and roosting. It must also be recognized that, other variables being equal, the larger the patch of high quality nesting and roosting habitat, the greater the proportion of interior stand conditions capable of supporting nesting and roosting. Therefore, it should be assumed that larger patches are likely to provide higher quality nesting and roosting habitat and the forest plans should recognize this.

Second, it does not consider the forest structure surrounding the highest quality patches. For example, if a 2-acre patch of the highest quality habitat were surrounded by moderate or dense medium tree forest, the entire inclusion of moderate to high canopy cover large tree patch would provide interior stand conditions that may support nesting and roosting and density reduction activities in the surrounding medium forest stand could be detrimental to habitat quality within the highest quality habitat. Indeed, many spotted owl nests are in smaller inclusions of large tree forest within moderate and dense medium sized tree stands. The converse would also be true, if the highest quality habitat were surrounded by sparse or open forest the amount of interior forest conditions provided by a small patch of highest quality habitat would be extremely limited and would likely have a low probability of use for nesting and roosting.

**Recommended Changes:** 1) Desired condition SPEC-CSO-DC-4 should be modified to state that forest management adjacent to the highest quality nesting and roosting habitat should be designed to maintain habitat quality within the highest quality nesting and roosting habitat and smaller inclusions of the highest quality habitat should only be counted toward territory habitat targets if they are likely to support nesting or roosting; 2) Provide an analysis of spotted owl use of small patches of CWHR 5M, 5D, and 6 for nesting and roosting and the condition of the surrounding forest when small patches of such habitat have been used for nesting and roosting.

## **10. Territory Circles vs. Best Available Habitat**

Biologically, a territory is the portion of a home range that is actively defended from conspecifics and sometimes other species. However, determining each individual spotted owl's true biological territory for statistical analysis would be extremely difficult. Because spotted owls are territorial and central place foragers, scientists have been using a circular area equal to half the mean nearest neighbor distance as a surrogate for defining true territories (e.g.,



Seamans and Gutierrez 2007, Jones et al. 2018). Using half the mean nearest neighbor distance as a surrogate for a true territory allows for defensible statistical analyses to be possible across a study area.

However, in reality spotted owl territories are not circles and activity centers may not be found at the center of the territory, even though the species is a central place forager. For example, below is Figure 3 from Atuo et al. (2019) where the true activity center is clearly not located at the center of the home range or territory:

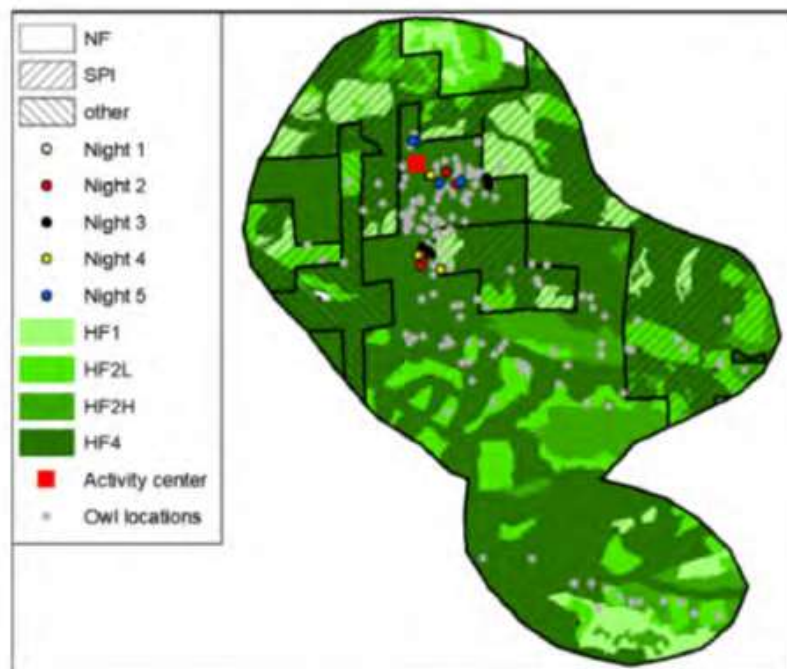


Fig. 3. Distribution of GPS locations within 95% kernel home range across different cover types and landownership categories. Circular symbols of the same color indicate locations collected on a single night for five different nights and grey symbols represent locations from all other nights.

Identifying areas of concentrated use within a home range is relatively predictable using common habitat associations (e.g., highest quality nesting and roosting habitat), expert judgement, and field observations from protocol surveys. Identifying high quality habitat this way is not a new construct. This is how Home Range Core Areas are delineated under current forest plan direction and is similar to the methods used to delineate PACs under the proposed action.

However, under the revised forest plans, managers are to identify the highest quality habitat within an 800-acre territorial circle surrounding the activity center. The only exception provided allowing managers to adjust the boundary to be outside the 800-acre circle is “to include the most sustainable areas of high-quality habitat and exclude areas less likely to support suitable habitat.” However, because an 800-acre circle may not be biologically appropriate in many situations (e.g., Atuo et al. (2019, Figure 3), we believe the forest plan should encourage managers to define territorial habitat by including the highest quality habitat



that is most likely to be used for nesting, roosting and foraging, regardless if the habitat is located within the 800-acre territorial circle. Recent GPS locations for foraging owls are finding them using areas at considerably longer distances from activity centers than previously thought (Blakey et al. 2019).

**Recommended Change:** 1) Include language in a plan component encouraging territory boundaries to be adjusted and be non-circular to include the best available habitat with the highest probability of use based on expert judgement and field observations from any recent protocol surveys.

## **11. Allowing Territories to Overlap**

As we discuss above in greater detail, a territory is the actively defended portion of a home range. Therefore, it would be biologically inappropriate to construct territories that overlap. In addition, habitat use may not be evenly distributed outward from the nest site or central roosting area (e.g., Atuo et al. 2019, Figure 3). Adjacent spotted owl territories with overlapping territorial circles are likely to have non-overlapping and non-circular biological territories, with the nest site or central roosting area located off-center from the geometric territory center. Not only would it be biologically inappropriate to have territories overlap, allowing territories to overlap would allow for double-counting territorial acres necessary to meet targets provided in SPEC-CSO-DC-04, thereby reducing the conservation value provided by this desired condition and SPEC-CSO-STD-03. We also note that this issue would be less likely to occur if territories were adjusted to include the best available habitat with the highest probability of use. It remains unclear how often circular territories will overlap and the effects this would have on the conservation value of SPEC-CSO-STD-03 as the effects have not been analyzed.

**Recommended Changes:** 1) The revised forest plans should not allow for territories to overlap; 2) If the forest plans continue to allow territory acres to overlap, provide a biological justification and analyze the effects that overlapping territories could have on the conservation value provided by SPEC-CSO-STD-03.

## **12. Minimizing Effects of Salvage Logging**

The draft revised forest plans provide no limitations on salvage logging within spotted owl territories and provide no analysis of the effects that salvage logging is likely to have on the species. This approach ignores the affirmation in the U.S. Fish and Wildlife Service's Conservation Objectives Report that salvage logging negatively affects the species (USDI Fish and Wildlife Service 2017b, p. 18):

Salvage logging has few short-term ecological benefits (Wagenbrenner et al. 2015), though longer term trade-offs are less clear (Peterson and Dodson 2016). Because CSO can persist in low-moderate severity fires, salvage logging of remaining suitable habitat may negatively affect occupancy (Peery et al. 2017). In high-severity fires, salvage logged CSO sites had a slightly lower probability of being occupied than sites that only burned and did not undergo salvage logging treatment (Lee et al. 2013, Lee and Bond 2015b). Recent work on NSO

found that high severity-fire interacts with salvage logging to jointly contribute to declines in site occupancy (Clark et al. 2013). Salvage logging may reduce the quality of foraging habitat through the removal of legacy snags in particular, although it is difficult to disentangle the effects of salvage logging from high-severity fire.

The effects of wildfire, and more specifically, high severity fire on spotted owl is nuanced. Most studies have found that the effects of low and mixed severity wildfire on spotted owl demographic parameters are neutral or beneficial. However, there remains uncertainty over the short- and long-term effects of larger patches of high severity fire. It has been demonstrated that spotted owls will forage in severely burned forests that have not been salvage logged (Bond et al. 2009, Eyes et al. 2017), with one study finding that some owls disproportionately selected for severely burned forest for foraging (Bond et al. 2009). However, habitat selection, use, and occupancy do not necessarily equate to adequate survival (Rockweit et al. 2017). High severity fire likely negatively affects the species when enough habitat within a territory burns severely (Lee et al. 2013, Jones et al. 2016, Rockweit et al. 2017). Although Rockweit et al. (2017) suggest that severely burned territories may act as population sinks, sink territories may help support population viability by providing “life boat” habitat for individuals to occupy and emigrate from in the event nearby source habitat becomes available.

Although the effects of high severity fire are nuanced, there is no debate that salvage logging negatively effects the species (USDI Fish and Wildlife Service 2017b) and nearly all forest and fire ecologists and spotted owl biologists agree that fires that burn within NRV have beneficial ecological effects and are unlikely to negatively affect the species. Despite this, the U.S. Forest Service routinely salvage logs dead and “dying” trees from occupied spotted owl territories that burned within NRV, including low- and moderate-severity fire effects. The agency also salvage logs portions of occupied spotted owl territories that burn at high severity, regardless of the proportion of the territory that burned at high severity or the sizes of the high severity patches. In other words, there is relative consensus that low-, moderate-, and mixed-severity fire effects are consistent with NRV, do not negatively affect the species, increase forest resilience to future wildfires and climate-related tree mortality, and salvage logging negatively effects the species, yet the Forest Service is unwilling to accept the beneficial effects of NRV-fire in areas accessible to salvage logging.

Service’s Conservation Objectives Report states (p. 28, emphasis added): “California spotted owls persist in territories that experience low-moderate and mixed severity fire”, and “in situations where over half a territory has burned at high severity (Jones et al. 2016a) and individuals have abandoned the territory, astute salvage could be warranted.” This suggests that salvage logging may not be warranted in occupied territories, regardless of the post-fire habitat conditions.

**Recommended Changes:** 1) A standard should be developed stating that the removal of dead and fire-damaged trees should not occur within occupied spotted owl territories, except to address hazard trees and to provide for firefighter safety in strategic locations to facilitate landscape fire use for ecological benefits; 2) Provide an analysis of spotted owl use of burned forest and the effects of salvage logging, including an acknowledgment of the threat of salvage logging in Service (2017).

### **13. Waiving LOPs when Benefits Outweigh Risks**

Guideline SPEC-CSO-GDL-02-e allows managers to waive or modify Limiting Operating Periods (LOPs), “when benefit to California spotted owl habitat resilience outweighs potential short term risk.” This exception to the spotted owl LOPs is a change to forest planning direction that could have significant adverse effects on occupancy and reproduction, factors that could lead to PAC removal from the system, and this change in plan direction has not been analyzed in planning materials. It is important to provide additional guidance for when it is appropriate to waive the LOP for the sake of resilience, as is not entirely clear to us how removing an LOP would provide resilience. If the purpose is to expedite mechanical treatments, we do not believe such a rationale is justifiable if it has the potential to cause territory abandonment and loss of reproduction, when mechanical treatment contracts typically allow 5-7 years for contractors to complete the work after the contract sells. If the Forest Service is truly committed to expediting treatments, the time allowed for contract purchasers to implement treatments should be shortened.

### **14. Rational for and Effects of Not Applying SPEC-CSO-STD-3 in Community Wildfire Protection Zones that do not Overlap Wildlife Habitat Management Areas**

It is unclear why it was determined that SPEC-CSO-STD-3 should not apply where the Community Wildfire Protection Zone does not overlap with the Wildlife Habitat Management Areas. If it is not necessary to apply this measure in some places but is necessary in others, the rationale for this distinction should be provided in the DEIS. Why would one portion of the Community Wildfire Protection Zone have an exception while other portions do not? Regardless, as we have demonstrated in these comments and in SFL et al. (2016), community wildfire protection does not necessitate the degradation of spotted owl habitat. Treatments of surface and ladder fuels are sufficient to provide for community wildfire protection, especially when Community Buffers are managed appropriately.

There are a number of CSO territories that occur outside of the Wildlife Habitat Management Zone and in the Community Wildfire Protection Zone. Yet, no analysis has been provided on the effects this situation would likely have on the ecological conditions that provide for occupancy, reproduction, and survival in these territories or the effects this would have on the species at a landscape scale.

**Recommended Changes:** 1) Remove the exception to implementing SPEC-CSO-STD-03 where the Community Wildfire Protection Zone does not overlap with the Wildlife Habitat Management Areas or justify in the DEIS why it is not necessary to apply SPEC-CSO-STD-3 in some places in the Community Wildfire Protection Zone but it is necessary in others; 2) Analyze the effects in the DEIS of not implementing SPEC-CSO-STD-03 where the Community Wildfire Protection Zone does not overlap with the Wildlife Habitat Management Areas on spotted owl occupancy, reproduction, and survival, and the effects it would have on the species at a landscape scale.

## **15. Ensuring that 30 inch DBH Limit Applies to All Designated Spotted Owl Territories, Regardless of Occupancy**

Standard TERR-FW-STD-01-b states (emphasis added):

Outside of **occupied** California spotted owl territories, trees greater than 30 inches but less than 40 inches in diameter may be removed, felled for coarse woody debris, or girdled for snag creation under the following circumstances...

Due to the inclusion of the qualifying term “occupied”, this standard may be interpreted to mean that several exceptions to the 30 inch diameter limit apply in designated spotted owl territories and PACs that are not physically occupied by a spotted owl in a given year. We do not believe that lack of occupancy for a single year would warrant exceptions to the 30 inch diameter limit and would be at odds with the the purpose of the territory designation. No effects analysis or rationale has been provided in the planning materials to justify such an action. Due to the species reliance on larger trees for nesting and roosting, the probability of territory colonization may be reduced in territories where larger trees are removed.

**Recommended Changes:** 1) Replace the term “occupancy” in TERR-FW-STD-01-b with “designated”; 2) If “occupancy” is not removed from TERR-FW-STD-01-b, provide an analysis in the DEIS of the effects that the exceptions to the 30 inch diameter limit would have on the probability of colonization of unoccupied territories.

## **16. Proving for Reduced Fuel Loads in Spotted Owl Territories**

Standard SPEC-CSO-STD-07 states (emphasis added):

Design **fuels treatments** in protected activity centers to manage for lower intensity fire effects (generally flame lengths averaging 4 to 6 feet) to reduce surface and ladder fuels and minimize impacts to overstory canopy, which will provide conditions for continued use of nesting and roosting.

Under the revised forest plan, treatments in spotted owl PACs have not limited to fuel treatments. Therefore, managers can justify treatments for forest health purposes. In such cases, this standard would not apply. It is important that all treatments in spotted owl PACs result in a more fire resilient stand condition.

**Recommended Changes:** 1) Replace “fuels treatments” in SPEC-CSO-STD-07 with “vegetation treatments”; 2) If the recommended change is not made, please analyze in the DEIS the effects of potential fuel increases following vegetation treatments in spotted owl PACs as a result of vegetation management activities.

Our comments above on spotted owl identified science information that should be considered in the design of plan components for spotted owl. We summarized additional science information in the tables in Attachment E that also consistently conclude that California spotted owls select territories with a high proportion of forest dominated by medium and large trees with >60-70% canopy cover. The studies emphasize the importance of >70% canopy

cover forests as nesting and roosting habitat, including spotted owls that nest in CWHR 4M and 4D habitat. The relative importance of these forest stands for continued occupancy, survival, and reproduction is not debatable and should be reinforced in the final forest plans and EIS.

### **C. Great gray owl**

We are pleased that the proposed action includes the idea of having great gray owl PACs. However, the proposed action does not include plan components requiring the designation of PACs or plan components that define how large a great gray owl PAC should be to support nesting, successful reproduction, and foraging; the specific habitat conditions within a PAC that are necessary to support nesting and successful reproduction (e.g., what are the meadow conditions necessary to provide adequate prey or how large a nest stand should be and how dense canopy cover should be), or the protections afforded to PACs as a result of designation. The desired conditions for great gray owl do not define the specific ecological requirements of great gray owl nesting and foraging habitat. Instead, the desired conditions of the proposed action simply state that the species requires dense canopy cover for nesting and roosting and meadows that support a sufficient prey base. It is unclear why the planning documents continue to ignore the science from current planning direction and the newer science information we have provided that defines how large a nest stand should be, how dense the canopy cover in the nest stand should be, or the size and condition of meadows that are associated with successful reproduction.

Throughout the planning process we have provided information on the specific habitat needs of great gray owl recommended by species experts from findings in the science literature (most recently in SFL et al. 2016, pgs. 151-169). Despite our considerable time and effort, the planning materials continue to fail to acknowledge these findings and recommendations. We ask that the Forest Service review our previous comments on great gray owl related to specific habitat requirements, the justifications for those requirements, and how management activities conflict with the requirements and include this information in the FEIS.

As we outlined in much greater detail in previous comments during the plan revision process, some of the key ecological characteristics that great gray owls depend on are:

Nesting Habitat: Large, broken-topped snags and trees >24 inches in diameter within >50-acre forest stands with many large snags and canopy cover averaging 80% (Wu et al. 2015). Nest trees and snags are often within 600 feet of meadows or large meadow complexes that are >26 acres, but often between 100 and 1,120 acres in size (Winter 1986; Sears 2006, Wu et al. 2015).

Foraging Habitat: Meadows or large meadow complexes that are >26 acres, but often between 100 and 1,120 acres in size (Winter 1986; Sears 2006, Wu et al. 2015) and within 600 feet of nesting habitat. Greene (1995), Wu et al. (2016, p. 51), Kalinowski et al. (2014), and the US Forest Service (2001) all found that >12 inch stubble heights and >8 inch sward heights were associated with successful great gray owl reproduction.

Based on the prevailing science on great gray owl habitat selection, finding that great gray owls require approximately 50 acres of forest with approximately 80% canopy cover for nesting and high quality meadow foraging habitat, current plan direction for PACs is to establish and maintain great gray owl PACs to include:

“...the forested area and adjacent meadow around all known great gray owl nest stands. The PAC encompasses at least 50 acres of the highest quality nesting habitat (CWHR types 6, 5D, and 5M) available in the forested area surrounding the nest. The PAC also includes the meadow or meadow complex that supports the prey base for nesting owls.”

This plan direction is included in the glossary of the Draft Revised Forest Plans, not as desired conditions. The current forest plan also includes a standard and guideline requiring that, “In meadow areas of great gray owl PACs, maintain herbaceous vegetation at a height commensurate with site capability and habitat needs of prey species.” As we have provided on numerous occasions, vegetation heights recommended in the science literature to provide for prey species are >12 inch stubble heights and >8 inch sward heights. Again, we ask that the Forest Service acknowledge this data in the planning materials and provide an analysis demonstrating that sufficient high quality habitat for prey species will be provided through forest plan components. Unless there is new information available we are not aware that is not included in the RDEIS, this is the best available science on habitat needs for great gray owl nesting, foraging, and successful reproduction.

There are several important differences between current plan direction, Alternative B, and Alternative C and the planning materials do not analyze the effects of these differences. For example, it is not clear to us if SPEC-GGO-GDL-2 in Alternative B includes a LOP for vegetation treatment activities that could cause breeding failure. If it does not, then such a change in forest plan direction could have significant adverse effects on the species and would require thorough analysis. To support reproduction and occupancy of great gray owls in the project area, and therefore provide for species viability, the revised forest plan should continue implementing the current LOP for vegetation management activities.

We also see that Alternative C includes this proposed guideline:

Guideline (SPEC-GGO-GDL) 01- In meadow areas of great gray owl protected activity centers, manage to enhance habitat for prey species. Refrain from grazing between February 15 and August 15 unless meadow assessment indicates vegetation height standards and range condition and trend standards appropriate to the meadow type are met.

We support the inclusion of this guideline as we believe it will help provide for higher quality prey habitat and support successful great gray owl reproduction. The planning materials should discuss why this plan component was created and why it was not included in the proposed action and how the effects of the proposed action would differ from Alternative C.

**Recommended Changes:** 1) Include a standard that great gray owl PACs will be established; 2) Include a desired condition reaffirming the specific definition of a great gray owl PAC

included in the glossary; 3) Include a guideline stating that multiple use activities within PACs should not compromise the structure and function of the PAC; 4) Include a standard that states that in meadow areas of great gray owl PACs, maintain herbaceous vegetation at a height commensurate with site capability and habitat needs of prey species, including >12 inch stubble heights and >8 inch sward heights; 5) Recognize science literature and numerical thresholds provide in literature for canopy cover associated with nesting habitat, size of nest stands, size of meadow complexes associated with foraging, stubble and sward heights associated with prey base and nesting success; 6) Analyze the differences between current forest planning guidance and the proposed changes on nesting and foraging habitat and how the changes could affect reproductive output and occupancy.

#### **D. Northern goshawk**

We are pleased that northern goshawk has been included as an SCC and that species-specific plan components have been provided in the proposed action. However, the proposed action neglects to provide plan components that require the designation of a goshawk PAC, identify how large a goshawk PAC should be to support nesting and successful reproduction, or the specific habitat conditions within a PAC that are necessary to support nesting and successful reproduction (e.g., what constitutes “dense canopy cover”). In addition, the only protections afforded goshawk PACs is a Limited Operating Period. Unlike great gray owl, goshawk PACs have not been defined in the glossary.

Current forest plan direction states that goshawk PACs are delineated to:

(1) include known and suspected nest stands and (2) encompass the best available 200 acres of forested habitat in the largest contiguous patches possible, based on aerial photography. Where suitable nesting habitat occurs in small patches, PACs are defined as multiple blocks in the largest best available patches within 0.5 miles of one another. Best available forested stands for PACs have the following characteristics: (1) trees in the dominant and co-dominant crown classes average 24 inches dbh or greater; (2) in westside conifer and eastside mixed conifer forest types, stands have at least 70 percent tree canopy cover; and (3) in eastside pine forest types, stands have at least 60 percent tree canopy cover. Non-forest vegetation (such as brush and meadows) should not be counted as part of the 200 acres.

(USDA Forest Service 2004, p. 38) Current Goshawk PAC size is based on Woodbridge and Detrich (1994), finding that short-term reoccupancy rates approached 100% for core areas that had approximately 200 acres of suitable nesting habitat. In addition, Squires and Reynolds (1997) suggest that canopy closure in goshawk nest stands is >70%. Unless there is new information available, this remains the best available science on habitat needs for nesting and successful reproduction. Therefore, consistent with current forest plan direction, the revised forest plans should ensure that goshawk PACs are 200 acres in size, are dominated by larger trees, and provide >70% canopy cover.

The “protection” of goshawk activity centers assumes that within areas designated as such key ecological conditions on which the species depends will be “protected” from management

activities that are likely to modify such conditions and cause adverse effects to vital demographic parameters. The RDEIS (Vol II, p. D-73) states that “Goshawks require a minimum threshold amount of nesting habitat in mature forest condition to maintain occupancy” and on the Sierra National Forest “at least two northern goshawk territories were abandoned immediately following harvest activities.” Despite acknowledging that threshold habitat requirements exist and timber harvest is a threat to the species that may cause abandonment of activity centers, the proposed action does not ensure that the minimum threshold amounts of nesting habitat will be provided in goshawk PACs.

Current forest plan direction is for treatments to “maintain habitat structure and function of the PAC.” This is an essential conservation measure, given that Alternative B does not ensure that the ecological conditions on which the species depends will be maintained within any goshawk activity center. This circumstance is compounded by the inherent conflict between the essential ecological conditions (i.e., denser high canopy cover forest) and timber targets. Therefore, the revised forest plan should include a standard or guideline ensuring that habitat structure and function, including the maintenance of 65-70% canopy cover on each 200 acre PAC, will be maintained and that treatments should be designed to achieve fire and fuels resilience. This would also be consistent with Alternative C.

We fundamentally disagree with the determination in Table D-3 (RDEIS, Vol. II) that the ecosystem plan components will support population viability of goshawks in the plan areas. Without ensuring the protection 200 acres blocks of relatively contiguous high canopy cover nesting and rearing habitat for goshawks, the proposed action does not provide the necessary ecological conditions on which the species depends nor does the RDEIS provide an adequate analysis demonstrating otherwise. In the proposed action, the desired conditions for canopy cover in moist mixed conifer is 20 - 75%, suggesting that most of the moist mixed conifer forests will not provide higher quality goshawk reproductive habitat. As a standard prescription, most commercial logging projects proposed on the Sierra National Forest under the current forest plan have resulted in forest stands with 40-50% canopy cover, a condition that does not provide high quality goshawk nesting and rearing habitat.

The persistence analysis for goshawk claims that (RDEIS, Vol. II, p. D-74), “Population estimates for northern goshawk on the Sierra National Forest suggest a stable to increasing trend due to the number of protected activity center locations, although the number of active goshawk territories on the Sierra National Forest is unknown.” This statement is nonsense. The number of PACs on the landscape is in no way representative of the overall population. In fact, under the current forest plan PACs are maintained regardless of occupancy. All of the PACs on the Sierra National Forest could be unoccupied and the species extirpated from the forest, but with this logic one could claim the population to be stable.

The RDEIS, Vol. II (p. D-74) also claims that, “During the next 10-20 years, the suitable habitat acreage for goshawks is expected to remain stable or continue to increase, under current management.” It is not clear how this determination was made, as the analysis also states that the recent bark beetle tree mortality event “put this species’ primary ecological conditions at-risk” and “current and future warming and drying climate trends increase vulnerability to high intensity fires and further fragmentation of old forest habitat.” Indeed, it is likely that the recent climate-related tree mortality event reduced habitat quality and quantity in many goshawk



PACs across both forests and goshawk occupancy, reproduction, and survival are likely to decline at the landscape scale. As a result, the remaining high quality habitat on the forests are more important to species persistence than they were before the tree mortality event.

It is not clear if the LOPs for goshawk PACs applies to vegetation treatment activities or not. Current forest plan direction and Alternative C include an LOP for vegetation management activities during the breeding season. Allowing vegetation treatments that have been known to cause abandonment and disruption of reproduction should not be permitted and the likely effects of such activities must be analyzed so that it can be demonstrated that species viability would not be compromised by the proposed change in management direction.

**Recommendations:** 1) Include a standard that goshawk PACs will be delineated using the 2004 Amendment plan direction; 2) Include a standard or guideline that ensures that treatments within goshawk PACs maintain the structure and function of the PAC; 3) Analyze the effects of logging on goshawk PACs, including likely number of PACs treated over the life of the plan and the extent of treatment within treated PACs, as well as effects on occupancy and reproduction under all alternatives; 4) Analyze the effects the recent climate-related tree mortality event had on goshawk nesting and roosting habitat, including canopy cover, in the plan areas; 5) Determine the current occupancy rate of goshawk PACs in the plan areas, based recent survey data.

#### **E. Willow flycatcher**

We are pleased that the revised forest plans include species-specific plan components for willow flycatcher. However, over the past 15 years of management under the current forest plan, all of the Great Basin willow flycatcher and little willow flycatcher breeding populations in the southern Sierra Nevada have been extirpated, except for small and fragmented populations in Inyo and Mono counties outside the plan areas. Therefore, because the willow flycatcher plan components in the revised forest plan only apply to occupied meadows, the overall strategy for willow flycatcher and the ability of the forest plans to provide for species viability, is critically flawed and will have little effect on providing the necessary conditions on which the species depends.

We disagree with the conclusion in Table D-3 (RDEIS, p. D-11) that “it is beyond the authority of the Forest Service or not within the inherent capability of the plan area to maintain or restore the ecological conditions to maintain a viable population of the [willow flycatcher] in the plan area.” It is unclear what this determination is based on, as no analysis has been provided to support this conclusion. We provided a detailed analysis of the ecological conditions on which the species depends in SFL et al. (2016, pgs. 136-151). Highlights from our 2016 comments include:

The DEIS incorrectly suggests that the willow flycatcher population decline in the Sierra Nevada is outside the authority of the Forest Service to address because “*recent population declines of E.t. brewsterii [were] observed in relatively pristine and seemingly unaffected habitats in Yosemite National Park.*” (DEIS, p. 332) This statement is based on a single study, Siegel et al. (2008), where multi-territory sites in Yosemite were extirpated; however, in the

published journal article, the authors actually conclude that “ *direct effects of recent land-management practices have contributed substantially to the decline of the species across the Sierra Nevada*” (Id., p. 8). And, “*Most of the potential causes of the Willow Flycatcher decline discussed above suggest that improved management of the species’ riparian and meadow breeding grounds throughout the Sierra Nevada could aid its recovery*” (Id, p. 15).

And

Another concern is that the DEIS, BE and proposed plan components for meadows and RCAs ignore very specific willow flycatcher reproductive habitat needs including (Green et al. 2003, Loffland et al. 2014):

- 20-30% riparian deciduous shrub cover,
- 40% meadow cover by water,
- 2-4 meter high riparian deciduous shrubs, and
- 525 m<sup>2</sup> average shrub area.

Proposed plan documents do not quantify habitat needs or habitat suitability thresholds for willow flycatcher including meadow shrub density, cover, and height used for nesting even though they are known from the literature. The Forest Service should incorporate quantitative, specific information about the habitat needs of at risk species when it exists in the literature.

The U.S. Forest Service is clearly capable of restoring and maintaining riparian deciduous shrub cover extent and height, as well as hydrologic function, to the numerical targets we have previously outlined for meadows historically occupied by willow flycatcher. In addition, one of the most effective and long-term solutions to reduce cowbird parasitism is to increase habitat quality and quantity for willow flycatchers (Siegle and Ahlers 2004). Also noted in the RDEIS (Vol. II, p. D-81), “Brown-headed cow birds have a commensal relationship with domestic livestock.” Domestic livestock occupancy in potential willow flycatcher habitat is under the control of the Forest Service. Therefore, the threat of brown-headed cowbird nest parasitism is not outside the control of the U.S. Forest Service, contrary to the claim made in the RDEIS.

In contrast to the revised forest plans, current forest plan direction recognized the need to provide habitat restoration in historically occupied willow flycatcher sites. For example, standard and guideline 60 in current forest plan states (emphasis not added):

For **historically occupied willow flycatcher sites**, assess willow flycatcher habitat suitability within the meadow. If habitat is degraded, develop restoration objectives and take appropriate actions (such as physical restoration of hydrological components, limiting or re-directing grazing activity, and so forth) to move the meadow toward desired conditions.

However, it is not clear to us the extent to which this standard and guideline was actually implemented in the plan areas over the past 15 years and the effect this standard and guideline may have had on riparian deciduous shrub cover, extent, and height and hydrologic function of the historically occupied sites. We believe it is necessary to provide an analysis of the extent

that this plan component was implemented in the plan areas, and the effectiveness this plan component has had on improving habitat quality. This information is required to determine how removing this plan component will affect the necessary ecological condition on which the species depends.

Loffland et al. (2014), a document developed by willow flycatcher species experts, including U.S. Forest Service biologists and that we cited in SFL et al. 2016, includes recommendations for recovering the species within the plan areas. We again ask that the recommendations provided in this document (Loffland et al. 2014, pgs. 17-21) be recognized and incorporated into plan components, including:

3-tiered approach of 1) hydrogeomorphic habitat restoration, 2) passive restoration through improved grazing management, and 3) experimenting with conspecific attraction to lure Willow Flycatchers back to meadows where suitable habitat has been restored.

And

This three tiered approach should be implemented at clusters of large meadows (preferably greater than 200 acres) rather than single isolated meadows, whenever possible.

For the Sierra National Forest, Loffland et al. (2014) specifically mention implementing the 3-tiered approach in Markwood, Dinkey, and Lost meadows. We also ask that the DEIS demonstrate that standard and guideline 60 from the current forest plans was implemented in these meadows.

Although the revised forest plans include standards and guidelines that are to be implemented in occupied willow flycatcher sites, the plan does not ensure that any meadow will be surveyed to determine occupancy. The revised forest plans should include a plan component directing that surveys be conducted to determine occupancy. If the plans do not include direction for determining occupancy, the DEIS should provide an analysis of the likelihood that these plan components would ever be implemented if meadows were reoccupied by the species.

**Recommendations:** 1) Recognize the necessary ecological conditions provided in Loffland et al. (2014) and provide an analysis in the DEIS supporting the determination that it is outside of the Forest Service's capability to restore the ecological conditions on which the species depends in the plan areas; 2) Provide an analysis of the extent that standard and guideline 60 from the current forest plan was implemented in the plan areas, the effectiveness this plan component had on improving habitat quality, and how removing this plan component will affect the necessary ecological condition on which the species depends; 3) Include an objective directing that each historically occupied willow flycatcher meadow will be surveyed twice within 4 years of plan approval to determine occupancy; 4) Incorporate the 3-tierd restoration approach recommended in Loffland et al. (2014) into plan components.

## **F. Yosemite toad**

We are pleased with the vast improvements in forest plan direction for Yosemite toad and are highly supportive of the Yosemite toad plan components provided in the forest plans (Sierra Forest Plan, pgs. 60-61). However, there are several threats to the species that have not been addressed in the DEIS or forest plans and we offer some suggested changes to help minimize those threats.

### **1. Minimizing the Effects of Road Maintenance**

Yosemite toads are known to occupy roadside drainage ditches in the plan area. Roadside drainage ditches are often a focus of annual maintenance activities that may injure or kill individual Yosemite toads. Minimizing potential take as a result of roadside work may include instituting a Limited Operating Period during the time of year when Yosemite toads are actively foraging and dispersing above ground.

***Recommended Change:*** 1) Include a guideline stating – Roadside maintenance work that may kill or injure Yosemite toads should not occur within 0.5 mile<sup>63</sup> of an occupied breeding site for 60 days following metamorphosis.

### **2. Minimizing the Effects of Timber Harvest**

As a species that spends the majority of their lives in upland terrestrial habitat, often within 0.5 mile of a breeding site, the species is susceptible to being killed or injured during mechanical timber vegetation management operations. Minimizing the potential for being injured or killed, without foregoing the activity entirely, would be limited to flagging and avoiding areas where Yosemite are most likely to be found. Liang (2013), a study telemetry study conducted on the Sierra National Forest, found that the species is often found in rodent burrows and, “Occupied sites were more open than were surrounding areas; there were fewer trees and shrubs and less canopy cover and woody litter in toad-occupied sites compared to random sites in the watershed.” These areas are not as likely to be targeted for timber harvest or other vegetation management activities. However, these areas may be inadvertently used as equipment staging areas or for timber harvest landings. To minimize the effects of potential vegetation management activities on the species, higher quality habitat in upland areas should not be used for staging or for landings.

***Recommended Changes:*** 1) Include a guideline stating – Within 0.5 mile of a Yosemite toad breeding site, higher quality upland terrestrial habitat (e.g., open areas with high concentrations of rodent burrows) should be flagged and avoided by vehicles and mechanical vegetation management equipment.

### **3. Table 8 (Sierra Forest Plan, p. 81)**

In the Range management section of the draft revised Sierra Forest Plan is Table 8 (p. 81) titled, “Yosemite toad probability of occupancy or reproduction and rangeland management practices”. This table provides important numerical forest plan direction that clarifies under

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<sup>63</sup> Liang (2013) found that mean maximum distance traveled by Yosemite toads was 0.5 mile.  
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what range conditions to modify grazing practices. We support following the disturbance thresholds outlined in Table 8, with several important modifications/clarifications. How managers differentiate between Highly Suitable, Moderately Suitable and Low Suitability must also be defined. It should also be clear that authorized grazing is not appropriate in meadows that are Functional at Risk and trending downward or Non-Functional.

**Recommended Changes:** 1) Include a guideline in the Yosemite toad section of the revised Sierra Forest Plan stating that - Managers should follow the Yosemite toad habitat disturbance thresholds outlined in Table 8. 2) Define Highly Suitable, Moderately Suitable and Low Suitability and modify Table 8 as follows (deletions in strikethrough, additions in bold/underlined):

**Table 8. Yosemite toad probability of occupancy or reproduction and rangeland management practices**

<b>Proper Functioning Condition of Meadow Habitats</b>	<b>Known Occupied Meadows and/or Highly Suitable Breeding and Rearing Habitats (Utilization)</b>	<b>Known Occupied Meadows and/or Highly Suitable Breeding and Rearing Habitats (Disturbance)</b>	<b>Moderately Suitable Breeding and Rearing Habitats (Utilization)</b>	<b>Low Suitability Breeding and Rearing Habitats (<del>Disturbance</del>) (<u>Utilization</u>)</b>
Properly Functioning	Utilize no more than 35% of herbaceous vegetation.	Alter breeding habitat no more than 20%	Utilize no more than 30% of herbaceous vegetation.	Utilize no more than 40% of herbaceous vegetation.
Functional at Risk with Upward, Static or Unapparent	Utilize no more than 20 % of herbaceous vegetation.	Alter breeding habitat no more than 10%.	Utilize no more than 30% of herbaceous vegetation.	Utilize no more than 30% of herbaceous vegetation.
Functional at Risk and Trending Downward or	Utilize no more than 0- <del>5</del> <b>15</b> % of herbaceous vegetation.	Do not alter breeding habitat	Utilize no more than <del>5</del> <b>15</b> % of herbaceous vegetation.	Utilize no more than <del>5</del> <b>15</b> % of herbaceous vegetation.

#### **G. Sierra Nevada red fox**

It has come to our attention that the Sierra Nevada red fox has recently been observed on the Sierra National Forest (California Department of Fish and Wildlife 2019). Until these new observations, the entire population in the southern Sierra Nevada was estimated to include approximately 29 adults. With such a small population size, and the threat of outbreeding depression from demonstrated hybridizations with non-native red foxes, native red foxes in the southern Sierra Nevada may be on the brink of extinction.

At this time, the revised forest plans do not recognize this candidate for federal listing as an at-risk species occurring in the plan area. The U.S. Fish and Wildlife Service issued a species assessment for Sierra Nevada red fox in 2016

([https://ecos.fws.gov/docs/candidate/assessments/2016/r8/A0AY\\_V02.pdf](https://ecos.fws.gov/docs/candidate/assessments/2016/r8/A0AY_V02.pdf)), outlining much of what is known about the species, including potential threats. However, this document was issued prior to the recent observation on the Sierra National Forest and threats unique to the area where the species was observed may exist.

It should also be noted that, according to California Department of Fish and Wildlife (2019, p. 12):

A team of agency representatives and researchers has convened to develop a Conservation Strategy for the SNRF. This document will detail research needs and management priorities, and will guide SNRF conservation throughout its range. A draft Conservation Strategy is slated for completion by the end of 2019.

**Recommended Changes:** 1) Identify Sierra Nevada red fox as an at-risk species on the Sierra National Forest. 2) Work with the team of agency representatives and researchers to identify habitat potential and threats to the species within the plan area, including any threats that may be unique to the area, and develop plan components that provide for species viability and conservation.

## **H. Bats**

We disagree with the determination in Tables D-1 and D-3 (RDEIS, Vol. II) that it is beyond the authority of the Forest Service or not within the inherent capability of the plan area to maintain or restore the ecological conditions to maintain a viable population of the fringed myotis or Townsend's big-eared bat in the plan area. The failure to document a maternity colony of either of these species, when adequate surveys of potential maternity roosting habitat for these species has not been conducted, does not provide evidence that it is not within the capability or the authority of the USFS to provide for population viability. In addition to maternity colonies, these species require other roost types (e.g., winter hibernacula, night roosts, and day roosts) and an adequate prey-base for persistence. Because roosting habitat surveys have been limited to non-existent in the plan areas the Forest Service cannot assume it is not obligated to ensure species viability.

Fringed myotis and Townsend's big-eared bat are species known to use subterranean habitat as roosts to complete their life-cycles. Roost availability is often noted as a limiting factor for many bat species (Humphrey 1975). In addition to potential roost-availability issues, white nose-syndrome, a non-native fungal disease that has been spreading across North America killing millions of bats in its wake, was recently identified for the first time in the Sierra Nevada in Plumas County. It is reasonable to conclude that white-nose syndrome will continue to spread throughout the Sierra Nevada and into the plan areas, threatening the long-term viability of many bat species across the bioregion. Of the seven bat species most affected in the eastern U.S. by white-nose syndrome, five are in the genus *Myotis* (USDI Fish and Wildlife Service 2017a). As a result, fringed myotis should be a priority to focus preventative management.

Conservation of important roosting habitat has been identified by USDI Fish and Wildlife Service (2016) as a strategy to decrease the threat of white-nose syndrome. For these reasons,

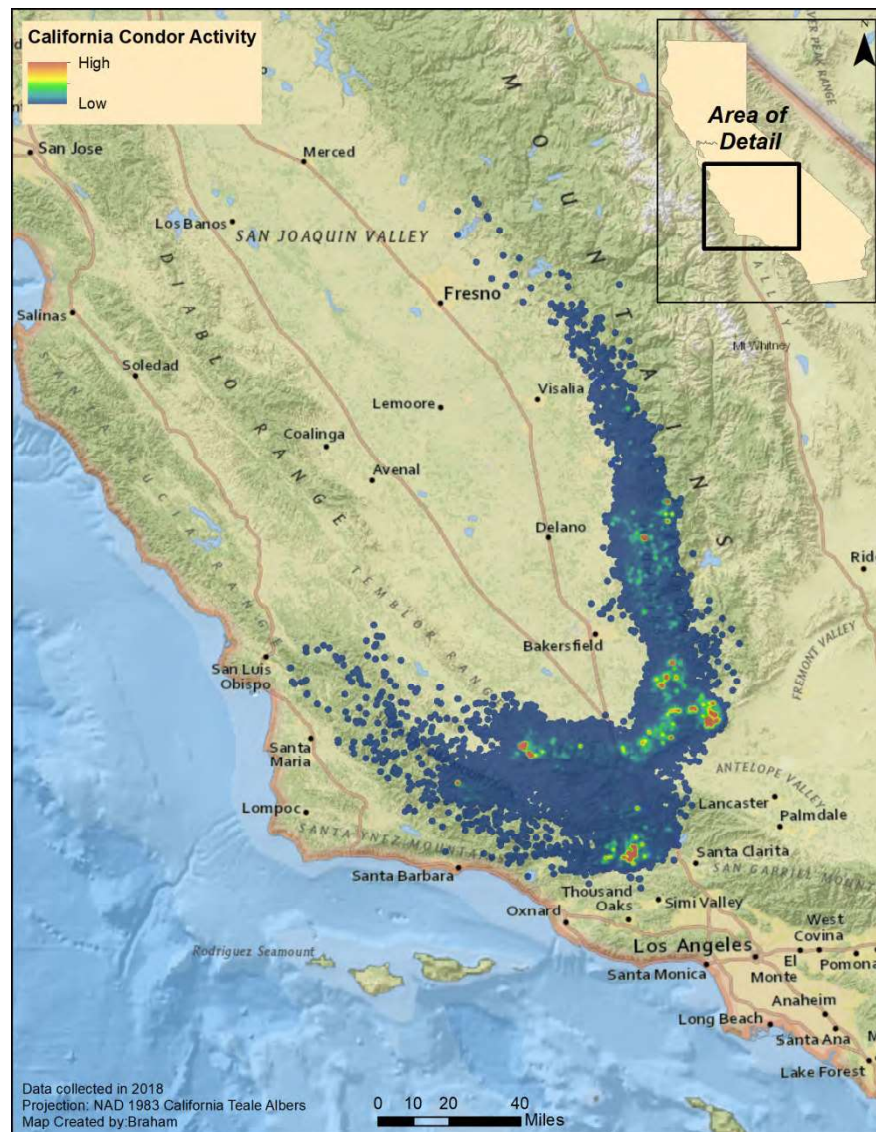
we recommend the revised forest plans include a management approach for minimizing adverse effects of white-nose syndrome in the plan areas. Although the revised plan includes a measure to protect known hibernacula or maternity roosts, neither roost type is known in the plan area due to lack of surveys and there are no provisions included in the revised plan to survey for these species prior to conducting activities that may adversely affect such habitat if it unknowingly exists.

**Recommended Change:** The plan should include a potential management approach to limit the spread of white-nose syndrome and provide high quality subterranean bat roosting habitat, and managers should maintain the availability of subterranean habitat for bats wherever as possible. Bat use of potential subterranean habitat should be assumed until an internal survey has been conducted demonstrating otherwise. Internal surveys should document evidence of use (e.g., bat scratch marks, insect parts brought into the cave or mine by bats, roof staining, and guano), the availability of potential roosting structures (e.g., crevices, old stopes in abandoned mines, high cave ceilings, etc. (Sherwin et al. 2009), and a suitable microclimate for hibernation or rearing young. Survey protocols should be established and implemented that avoid the spread of white-nose syndrome when conducting internal surveys. In the event a surveyed subterranean feature is determined to provide high quality bat roosting habitat and the feature represents a hazard to public safety, the feasibility of installing bat-compatible gate should be analyzed.

#### **I. California condor**

We raised this issue in our 2016 comments, which we incorporate by reference. The Forest Service can and should include plan components to avoid and minimize adverse effects to, as well as help recover, federally endangered California condors and not only within formally designated critical habitat.

There is no mention of the federally endangered California condor nor species-specific plan components included the revised draft forest plans, other than a brief mention in the Lower Kern River Conservation Watershed species list in the Sequoia plan. This is a significant oversight considering the species' known occurrence and increasingly frequent use of the Sequoia and Sierra national forests over the past five years, including a nesting attempt on the Sequoia NF near Lake Isabella.



Data from the US Fish and Wildlife Service (FWS) also suggests that the condor's range is expanding into the southern Sierra Nevada. The condor field program at Hopper Mountain National Wildlife Refuge Complex produces a map of condor activity each year<sup>64</sup>. These maps are Kernel Density Estimates (KDE) which produce a heat map based on annual condor activity. The 2018 condor activity map – pasted above – shows significant condor activity across the Sierra and Sequoia national forests. Further, FWS biologists documented a condor

<sup>64</sup> Maps from previous years can be found at [https://www.fws.gov/refuge/Hopper\\_Mountain/About\\_the\\_CACO\\_Recovery\\_Prog.html](https://www.fws.gov/refuge/Hopper_Mountain/About_the_CACO_Recovery_Prog.html)  
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nesting attempt on the Sequoia National Forest in 2018. These biologists also documented flights just south of Yosemite National Park in 2019 (Joseph Brandt, personal communication).

While the RDEIS (at p. 392) acknowledges that condor collisions with human-built structures are among the primary stressors under Forest Service control, and goes on to state that “[a]ny future project proposals for power lines or wind energy development within the condor range would consider the risks to condors” (at p. 410), there are no plan components included in either revised draft forest plan to include provisions for raptor safety when issuing permits for new power lines or communication tower sites. The RDEIS also notes that “[i]f condors establish nest or roost sites in the plan areas, all action alternatives include plan components that would provide guidance to evaluate the effects of recreation and other activities on condors and consider mitigations, including restrictions on activities that could disturb condors.” However, the revised draft plans are devoid of such specific plan components.

Further, the RDEIS includes information on threats to condor survival from the U.S. Fish and Wildlife Service 5-year review including micro-trash ingestion but dismisses micro-trash ingestion as “not likely to be [a] factor[s] for the plan area” (at p. 392) yet provides no information to substantiate that assumption. The RDEIS also states that McKinley and Nelder giant sequoia groves “are not expected to provide nesting sites due to their generally small size” and that “these groves are relatively small and disjunct, and it is unlikely that they would provide nesting areas for condors” without providing any citations to support these statements.

**Recommendations:** 1) Acknowledge that within the planning horizon of the revised forest plans, California condors are likely to more frequently utilize the Sequoia and Sierra national forests for foraging and potentially roosting and nesting; 2) Include plan components to avoid, mitigate or minimize known impacts to California condors in the forest plans specifically from collision with human-built structures and micro-trash ingestion, which could be done in conjunction with updating existing or developing new communication site plans, as well as adverse effects from recreation and other activities on nesting or roosting sites; 3) Provide citations to support assertions made in RDEIS regarding micro-trash not likely being a factor in the plan area and condors not utilizing small, disjunct sequoia groves for nesting sites.

## **J. Sierra Nevada bighorn sheep**

West-wide, bighorn sheep populations have declined by more than 90% since the mid-nineteenth century, and bighorn sheep overall distribution has been reduced to less than 30% of the species’ historic range (USDA Forest Service 2009). The primary causes of historic bighorn sheep declines include livestock diseases, overhunting, and forage competition with livestock (Besser et al. 2013). Bighorn sheep remain at risk of disease from livestock pathogens throughout the West, with authorized grazing on public lands a limiting factor for many populations. Large areas of historic bighorn sheep habitat are unavailable for recolonization or artificial restocking due to the presence of livestock, including in California.

The Sierra Nevada subspecies of bighorn sheep was reduced to approximately 100 animals by the mid-1970s, and was added to the U.S. Fish and Wildlife Service Endangered Species list through an emergency declaration in 2000. Since this time, the population of Sierra Nevada bighorn sheep has grown to roughly 600 animals.

Cattle grazing has the potential to negatively impact bighorn populations: cattle are known to carry pathogens that can be transmitted to bighorn sheep, cattle may displace bighorn sheep from optimal habitats, reducing foraging efficiency, and cattle contribute to the spread of noxious weeds which outcompete native vegetation, degrade bighorn sheep habitat, and increase fire risk.

Cattle have been implicated in pneumonia-related die-offs of bighorn sheep (Wolfe et al. 2010), as well as in outbreaks of Bovine Viral Diarrhea and other diseases impacting wild sheep. Bovine respiratory syncytial virus (BRSV) and bovine parainfluenza virus 3 have been identified as co-agents in pneumonia outbreaks in bighorn sheep populations, affecting bighorn herds exposed to primary agents *Mycoplasma ovipneumoniae* and *Mannheimia haemolytica* (Spaker and Otterman 1986; Dassanayake et al. 2010). *Mannheimia haemolytica* originating in cattle is believed to have been a primary respiratory disease agent in at least one bighorn sheep pneumonia outbreak (Wolfe et al. 2010).

The RDEIS and forest plan identify domestic sheep and the transfer of disease as a threat to this species. The RDEIS concludes that since domestic sheep are not grazed on the Sequoia and Sierra National Forests the threat of disease is not present. The analysis, however, overlooks the potential for infection from domestic cattle as demonstrated by Wolfe et al. (2010) and the infection of sheep of the bovine strains noted in Spaker and Otterman (1986) and Dassanayake et al. (2010).

**Recommendations:** 1) Evaluate potential threat from disease and domestic cattle in the RDEIS; 2) include the evaluation of cattle in the disease transmission risk assessment; 3) evaluate in RDEIS potential for livestock grazing to impact habitat quality of Sierra Nevada big horned sheep.

## **K. Species not designated as Species of Conservation Concern**

### **1. Black-backed woodpecker**

We appreciate that the black-backed woodpecker (BBWP) account has been revised to include information on the positive ESA 90-day finding this species received in 2015 and its designation by the California Department of Fish and Wildlife as “imperiled” (S2) in California.<sup>65</sup> The update also includes recognition of post-fire logging and habitat modification as threats and other more recent information on BBWP in the bioregion and for the two forests. Below we provide additional information that should be included in the rationale. We find that this additional information combined with the information provided in the rationale supports designation of BBWP as a Species of Conservation Concern.

Two recent papers have evaluated the occurrence of BBWP in recent large fires with significant amounts of high severity fire. White et al. (2019) examined BBWP detections in the 2013 Rim and 2014 King fires. They “detected few Black-backed Woodpeckers. Positive

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<sup>65</sup> California Department of Fish and Wildlife, Special Animals List, August 2019:  
<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline=1>

detections of Black-backed Woodpeckers at broadcast points were positively associated with increases in the percent of surrounding forest that burned at high-severity and with the distance to the fire perimeter, indicating that the severity and scale of the fire per se did not affect use by Black-backed woodpeckers within the fire area. However, we suggest that the timing of these fires late in the fire season may have limited colonization of prey resources, leading to more limited use of these fires by Black-backed Woodpeckers.” Ray et al. (2019) sampled woodborers in 16 sites affected by wildfire or bark beetle outbreak in the previous one to eight years. They “reported preliminary evidence that the current trend toward more frequent wildfires might not stimulate larger woodboring beetle populations if those fires increasingly occur outside the historical fire season.” These papers indicate that while a significant amount of suitable habitat may be present in some recent fires, because the habitat became available late- in the season it was not available to the species at the right time for colonization. Such constraints on the use of suitable habitat should be evaluated in light of the assumptions that burned forest habitat will not be limiting in the future.

We continue to be very disturbed by the Forest Service’s effort to dismiss the ranking in the Animal Species of Concern List produced by the California Department of Fish and Wildlife. For over 3 years, the agency has been claiming to work with CDFW to update their database and seek additional review for this species. We can only presume from this that this state wildlife agency does not agree with the Forest Service’s perspective on population status and threats for this species. The BBWP rationale seems to presume that the simple inclusion of additional records would change the ranking. There is little evidence to support that conclusion, since determination of the rank is a combination of occurrence records, habitat conditions and threat. Furthermore, to suggest that a decision not to list BBWP under the California Endangered Species Act (CESA) in 2013 justifies not including it as a Species of Conservation Concern conflates the purposes of these designations. CESA’s purpose is to limit the extinction of a species, whereas the Species of Conservation Concern are designed to prevent the future listing of a species.

**Recommendations:** 1) We ask that you include this species on the final SCC list and develop forest plan components, including standards and guidelines, to provide the necessary ecological conditions and maintain viability; 2) We also ask that you include BBWP as a focal species for the Sierra and Sequoia National Forests. This species is identified in the broad-scale monitoring for the bioregion. Specific inclusion as a focal species for these two forests would ensure that the status and trend of this species is monitored at the southern extent of its range.

## 2. Western pond turtle

Western pond turtle is considered by state and federal agencies in California, Oregon and Washington to be at-risk. California has also designated it as a Species of Greatest Conservation Need. As evidence of the level of concern, the US Fish and Wildlife Service issued a State Wildlife Grant in 2017 to advance western pond turtle conservation in Washington, Oregon, and California to produce a comprehensive, range-wide population assessment using new genomic and field data.<sup>66</sup> A state purpose of this grant was to support

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<sup>66</sup> <https://wsfrprograms.fws.gov/subpages/GrantPrograms/SWG/SWG2017FundedProjects.pdf>

actions that may reduce the need for listing under the Endangered Species Act and provide vital information for the Service's status review.

The rationale in the plan documents appropriately identifies that most of the habitat for this species in the Central Valley has been lost. This means that low elevation habitats on the Sierra and Sequoia national forests are especially important to its persistence. There is also concern about the reliability of the intermittent, headwater reaches in these lower elevation forest and woodland habitats to provide sufficient water to support the life requirements of the species. This concern about habitat availability in these already marginal areas will only increase with the more variable weather patterns anticipated with changing climate. The California Department of Fish and Wildlife identified this as a species that is clearly at risk, but not experiencing substantial and immediate threat of extirpation. Earlier evaluation of this species by the Forest Service also found that the species to be at-risk because "populations are isolated and not able to connect with one another" (Evelyn and Sweet 2012).

Despite having identified numerous factors that indicate concern about persistence of this species in the plan area, it was not listed as an SCC. Furthermore, there is no clear explanation about why the species should not be listed as an SCC.

**Recommendations:** We ask that you include western pond turtle as an SCC and develop plan components to address the essential habitat conditions identified by California Department of Fish and Wildlife and others.<sup>67</sup>

### **3. Central Valley steelhead – South Fork Merced population**

Central Valley steelhead is listed as a district population segment (DPS) under the Federal Endangered Species Act. This DPS applies to individuals that occur below specific dams on the eastside of the Central Valley. Recovery of this steelhead DPS depends in part on reintroductions in targeted locations (National Marine Fisheries 2016). The criteria for a source population for such a reintroduction program include adequate genetic diversity, low levels of genetic mixing from hatchery stock, and evidence of anadromy (Meek et al. 2014). Reaches in the San Joaquin Valley no longer contain native steelhead trout. Any successful reintroduction program in this region depends on locating an appropriate source population.

Recent genetic analysis of the steelhead populations above the large reservoir on the Merced River found that:

...many populations retain largely indigenous ancestry. Furthermore, populations located above the large dams with reservoirs in the study area potentially support adfluvial life history variants, and contain genomic variation for a major chromosomal polymorphism associated with anadromy. These results support the potential to re-establish anadromous *O. mykiss* within the upper Tuolumne River and upper Merced River utilizing locally adapted gene pools.

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<sup>67</sup> See for example: <https://bioaccumulation.files.wordpress.com/2015/05/wpt-brochure-05122015.pdf>  
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(Pearse and Campbell 2017). The populations evaluated in this study include fish within the South Fork Merced River. These results indicate that an isolated or disjunct population of Central Valley Steelhead Trout (i.e., Southern Sierra Nevada DPS) exists in the Merced River drainage. It is highly likely that it is the last population from which the Merced River native trout can be rescued and restored. The information on this native trout population is relevant to management on the Sierra National Forest, since the DPS definitely occurs in Yosemite National Park, around Wawona, and likely in the tributaries to the South Fork of the Merced, including Big Creek, Alder Creek, Rail Creek, Iron Creek, Bishop Creek, and Chilnualna Creek (Michael Martin, personal communication).

This disjunct population of steelhead should be evaluated as a Species of Conservation Concern due to its limited distribution, small population size, and lack of anadromy for the Sierra National Forest. Its importance to providing genetic material to support recovery of the Central Valley DPS of steelhead should also be considered. Even if not identified as an SCC, the species should be categorized as a species of special interest and plan components adopted to ensure its conservation and protection in order to contribute to the recovery of the federally listed Central Valley steelhead trout DPS through the restoration of below rim-dam salmonid populations (e.g., below New Exchequer Dam), which are all non-native rainbow trout populations, including resident or migratory rainbow trout.

Due to the importance of the native trout population in the South Fork Merced River to conservation the recovery of the Central Valley steelhead trout DPS, we ask that plan components that directly address the conservation of this population be included in the final plan of the Sierra National Forest plan.

**Recommendations:** 1) identify the disjunct population of South Fork Merced steelhead trout as an SCC for the Sierra National Forest; 2) include the following plan components in the final plan for the Sierra National Forest:

**Desired Condition**<sup>68</sup>

Maintain genetic diversity and population stability of Lahontan cutthroat trout, Paiute cutthroat trout, golden trout, and native rainbow trout genetically related to the Central Valley steelhead trout DPS.

**Standard**

Limit streambank disturbance from management activities in reaches occupied by native rainbow trout that are genetically related to the Central Valley steelhead trout DPS to less than 10 percent. Exceptions are allowed for actions designed to restore essential conditions and are determined by an aquatic specialist to be of greater long term benefit to the species.

**Goal**

Partner with California Department of Fish and Wildlife, National Marine Fisheries Service, tribes, and other stakeholders to prepare and implement a conservation strategy

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<sup>68</sup> We also recommend adding the other at-risk trout species mentioned in the draft plan to this desired condition to emphasize the importance of protecting the native genetic diversity to the conservation of all these species.

for the native trout in the South Fork Merced River and to support recovery of the listed steelhead trout in the San Joaquin Valley.

#### **4. Greenhorn Mountains slender salamander**

The Greenhorn Mountains slender salamander should be included on the Species of Conservation concern list for the Sequoia National Forest. The limited range of this species and occurrence in areas affected by recent drought and fire were not considered in the rationale for this species. The additional new information below should be address in the species rationale.

For slender salamanders dependent on snowmelt, the changing snow-rain elevation, warming temperatures and loss of snow earlier in the spring have negatively influenced their habitat. Loss of pine trees has led to less shade and less pine duff for shelter. The projected earlier timing of snow melt; potential for less precipitation; and higher evaporation from the ground will reduce activity time for feeding, breeding, dispersal, and increase the possibility of desiccation during the summer months. *Batrachoseps altasierrae* should be listed as a Forest Service Region 5 Species of Conservation Concern despite its ranking of G3. This ranking does not acknowledge the changed conditions on the forest due to tree mortality, recent fires within their range, and drought, coupled with the limited range of this *B. altasierrae*.

The recent 2012–15 drought; projected and current patterns of warming temperatures; beetle and drought killed tree mortality; earlier snow melt; higher elevations for the snow-rain interface; recent fires; and removal of hazard trees from throughout the range for *B. altasierrae* are all conditions that were not considered in 2011 (Jockusch et al. 2012); when conditions were stable for the *B. altasierrae*. Between 2014 and 2017 over a 50 % decline in trees per hectare occurred due to drought and insect mortality. With pine mortality comes the loss of pine duff and loss of shade making forested ground habitats warmer. During the drought, the loss of snow may have curtailed their active season and limited breeding success for over four years. Fire may have an effect on the species by burning pine duff and in places heating the soil.

#### **Threats**

*Batrachoseps altasierrae* is endemic to the Greenhorn Mountains and adjacent areas of the Kern Plateau. In 2012, (Jockusch et al. 2012) split *Batrachoseps relictus* into two separate species.

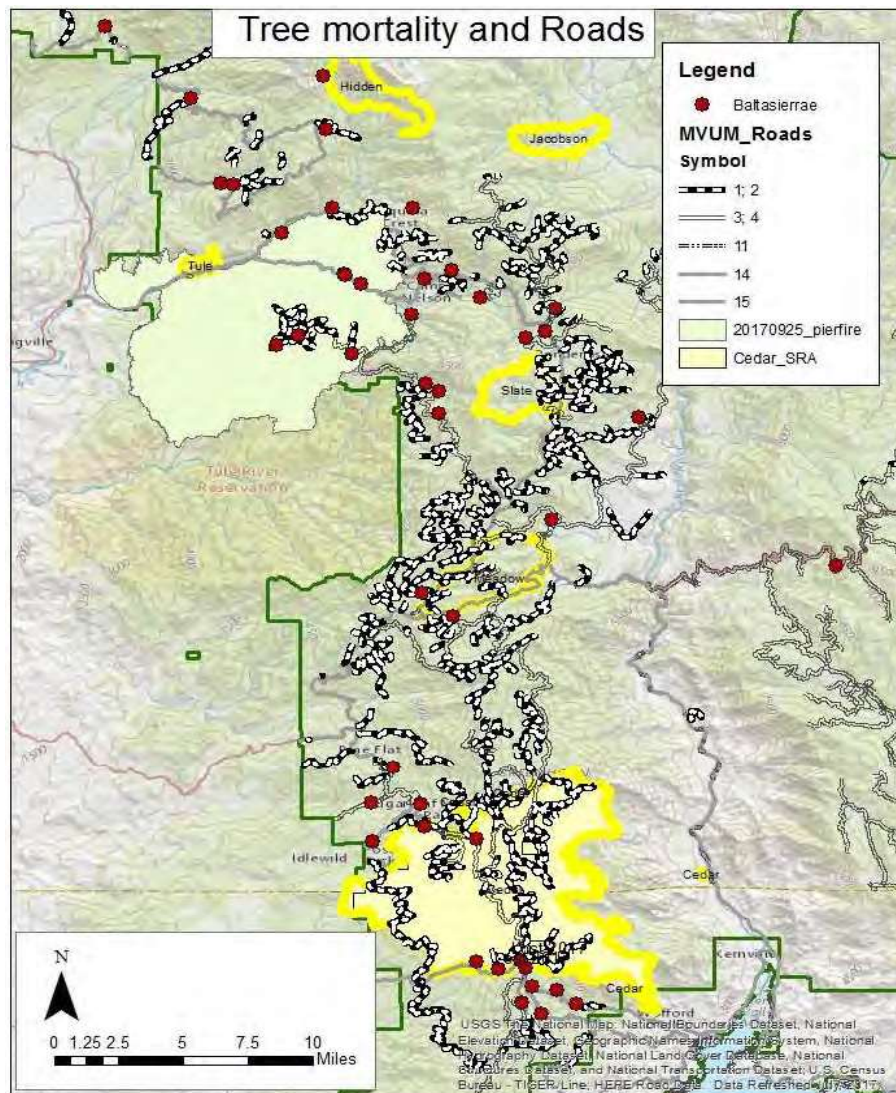
The new species *Batrachoseps altasierrae* (common name greenhorn mountains slender salamander) is in the group of species that are distributed to the north, *B. kawia*, *B. regius*, *B. diabolicus* called the diabolicus group (Jockusch et al. 2012). While greenhorn mountain slender salamanders were considered to be stable (Jockusch et al. 2012); several recent changes such as tree mortality, fire history, drought, and shifts in climate in the Greenhorn Mountains were not evident in 2011. *B. altasierrae* has only 44 known occurrences across the Greenhorn Mountains and most of these are in areas that have lost over 60 % of the pine trees.



## Tree Mortality

Between 2014 and 2017 over a 50 % decline in trees per hectare occurred due to drought and insect-related mortality across the Sequoia National Forest and in the Greenhorn Mountains (Fettig et al. 2019). This involved declines in pines trees of over 67 % (Fettig et al. 2019). With pine mortality comes the loss of pine duff and loss of shade making forested ground habitats warmer and drier. Much of this mortality was in the Greenhorn Mountains where slender salamanders occur. For slender salamanders that use pine duff; the loss of pine trees is critical because this habitat component protects them from desiccation and predators, as well as providing food. Effects on *B. altasierrae* are compounded by the need to remove hazard tree from a 300 foot buffer alongside roads over much of the range for *B. altasierrae* (see map 1).

Map 1. Showing range of the *B. altasierrae* on the Sequoia National forest and the level 1, 2, 3 and 4 roads which are being cleared of hazard trees in preparation for reforestation.



Since recent surveys of all suitable habitat have not been conducted, mechanical incursions into the high elevation draws and ephemeral streams can crush salamanders residing in these areas.

### **Drought**

The 2012–15 California drought was both warm and dry. Less precipitation occurred and evaporative losses increased due to warmer conditions. Drought associated pine mortality and wildfire thinned the forest and decreased evapotranspiration, which increased 2016 stream flows (Bales et al. 2018). Currently, across the Sierra Nevada, over 40% of the leading snowstorms occur in February; and the largest snowstorms each season provide about 27 % of the total snow accumulation (Huning and Margulis 2017). Atmospheric rivers contribute 60–100% of the most extreme storms (Lamjiri et al. 2017) and may come as rain or snow. The Sierra Nevada historically have been strongly snow dominated from November through March (Klos et al. 2014). For slender salamanders that use snowmelt moisture for feeding or breeding; the change in timing of snow melt and drought effects causing reduced snowpack are significant. *B. altasierrae* depend on snowmelt to create the moist microhabitats they use for feeding, breeding, and possibly oviposition (C. Evelyn personal communication). During drought the loss of snow has dried their habitat much earlier curtailing their active season and potentially reducing breeding success. The loss of moisture can also degrade habitats and increase desiccation and reduce the ability to disperse even short distances.

### **Recent Fires**

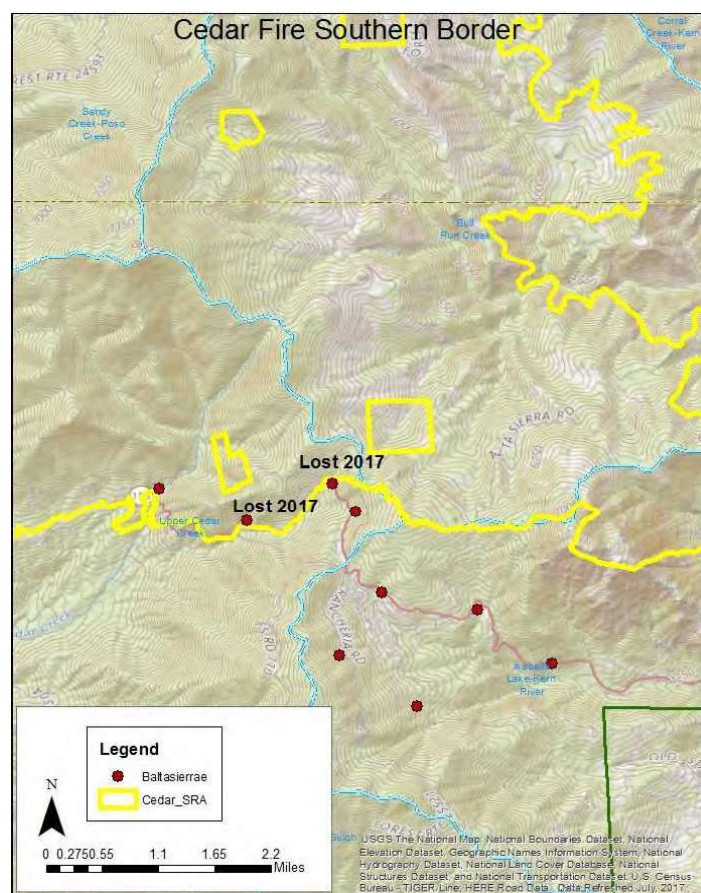
The relationship between seasonal temperatures and precipitation in the Sierra Nevada and annual variation in area burned was investigated (Keeley et al. 2017). Fire can alter slender salamander habitat by burning duff, logs, and other refugia and causing debris flows which reach their habitat alongside streams. Drier years resulted in greater area burned at higher montane elevations (Keeley et al. 2017). Patterns of timing of fires changed over time; winter and spring precipitation were the primary drivers in the first half of the 20th century, but after 1960 spring and summer temperatures were the drivers (Keeley et al. 2017). The Cedar, Pier, Meadow and Hidden Fire in 2016 and 2017 burned 26 % of known *B. altasierrae* locations. In 2017, after the Cedar Fire, salamander surveys indicated that the slender salamander was present but the number of locations where they were found previously was reduced (see Map 2). See Map 3 for recent fires and Map 4 for fires since 1900. Fire history indicates that until the recent fires much of the range for *B. altasierrae* has been fire free since the early 1900s (Map 4). *Batrachoseps* have low dispersal ability; once a local population is extirpated it may not be possible for the salamanders to recolonize, or could take a very long time (Evelyn and Sweet 2012 ). Drying conditions can further curtail connectivity among habitats.



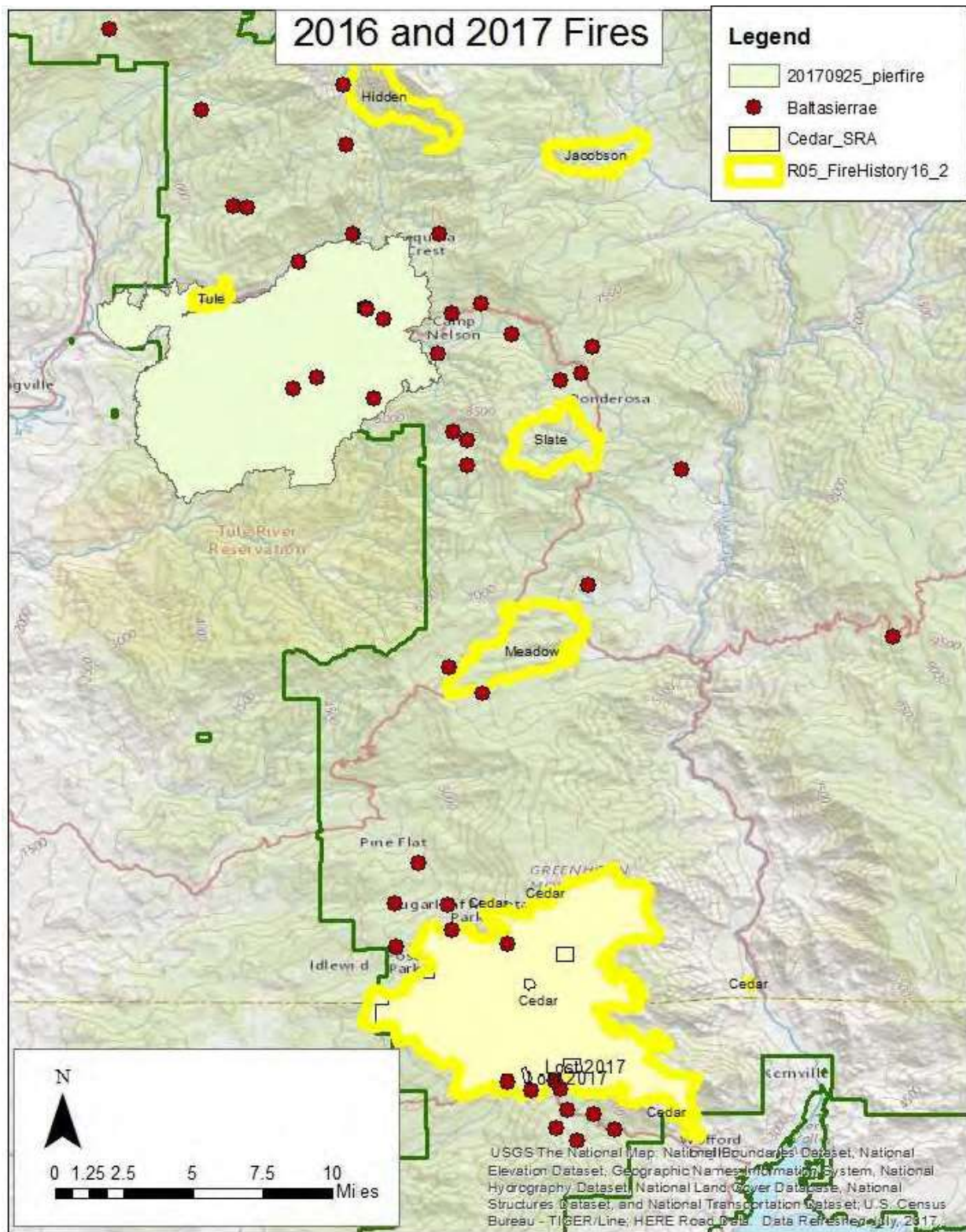
Table of Indicators for slender salamanders dependent on Mixed Conifer-Pine forests

Indicator	Poor	Fair	Good	Very good	Weight	10 year projection	10-year rank	50 year projection	50-year rank
Number of years of drought in last 10 years	5-8	4	3	1-2	Very High	5	poor	6	Poor
Percent overall pine tree mortality	80	40	15	10	Very high	75	Poor	85	Poor
Percent of range burned in last 5 years	50	35-40	30	20	High	35	Fair	45	Poor
Months of Snow Cover	3	4	5	6	Very High	3	Poor	2	Poor
	Unsustainable		Sustainable						

Map 2. Showing the southern end of the Cedar Fire and an area that was resurveyed the year after the fire. Salamanders were not found in several locations at the same abundance or were absent from locations they were previously found.

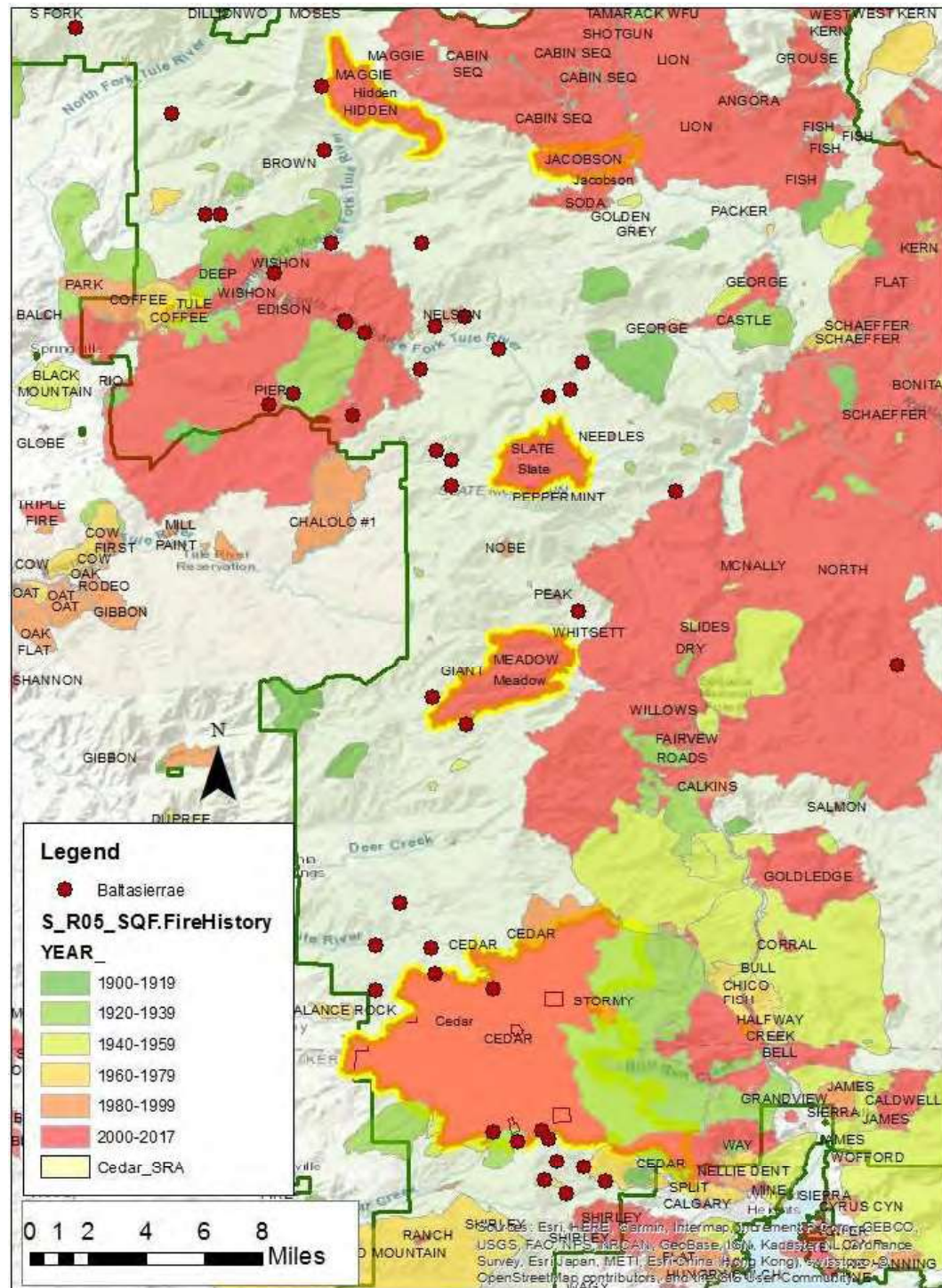


Map 3. The locations of the 2016 and 2017 fires in the Greenhorn Mountains. Twenty-six % of the known locations were burned in two years, 2016 and 2017.





Map 4. The locations of the fires in the Greenhorn Mountains from 1900 to 2017



### Projected Conditions

In the Sierra Nevada increases in precipitation from the largest storms and declines in the smaller storms are projected to lead to an overall decline in precipitation (Dettinger 2016).

Increased warming has led to significant changes in hydrology in the west side of the southern Sierra (Safeeq and Hunsaker 2016). In the Greenhorn Mountains projected warmer temperatures will reduce snow cover from five (November–March) to approximately three (December to February) months of the year (Klos et al. 2014). Evapotranspiration can increase with warming temperature and with vegetation growth (Goulden and Bales 2014). Reduced snowpack and earlier shift in snowmelt timing (Hunsaker et al. 2012) may also reduce headwater snow persistence.

Temperature increases and water loss were significant factors relating to surface activity and subsequent energy intake of salamanders (Peterman and Semlitsch 2013). Since these terrestrial slender salamanders depend on snow melt to keep their habitat moist, including breeding habitat, the changing snowmelt timing and the rising snow – rain interface elevation will degrade their habitat. The projected earlier timing of snow melt, potential for less precipitation, and higher evaporation from the ground will reduce slender salamanders' activity time for feeding, breeding, and dispersal, and increase the possibility of desiccation during the summer months.

### **Ecological context**

Montane salamanders reach their highest endemism and species richness in mountainous areas. Even small changes in climate might cause range constriction in high-elevation salamanders (Gifford and Kozak 2012). *B. altasierrae* occur at the top of their watersheds and their connectivity is restricted by their slow dispersal ability as well as drying conditions out on the landscape. Species' populations and the environments where they occur are dynamic. However, metapopulation literature is mostly based on highly mobile species and their ability to disperse among habitats (Hanski and Gilpin 1997, Hayward et al. 2016) as they are destroyed or remade. Dispersal in *B. altasierrae* is thought to be limited given their small size, high surface to volume ratio and dependence on moisture which makes them prone to desiccation (Evelyn and Sweet 2012) if they disperse away from their preferred habitat. When habitat trend and vulnerability to modification was evaluated; fire was considered the major threat to habitat for *Batrachoseps altasierrae* because these fires deplete the pine duff used by this species and open up the canopy which increases soil temperature and lowers soil moisture ((Evelyn and Sweet 2012)). The threats to *B. altasierrae* and negative changes in the environment in the Greenhorn Mountains have gone well beyond ordinary stochastic events.

Decreases in abundance as seen in the Cedar fire area are important for the small endemic populations. *B. altasierrae* has 44 known occurrences across the Greenhorn Mountains, and all are in areas that have lost over 60% of the pine trees. The ecological context and the threats to *B. altasierrae* have altered with recent tree mortality and drought. These changes have exceeded typical stochastic events. In addition, the long term warming trend has led to earlier snowmelt and a rising elevation change in the rain snow interface. *Batrachoseps altasierrae* should be listed as a Species of Conservation despite its ranking of G3 because the ranking does not acknowledge the changed conditions on the forest due to tree mortality, changing snow/rain interface, and drought. Without this designation, further stressors to the

species and its habitat can occur with forest restoration activities, in the montane areas of the Sequoia National Forest.

**Recommended changes:** We ask that you 1) incorporate the information above in the rationale for this species; 2) that you include this species as a Species of conservation Concern for the Sequoia National Forests; 3) evaluate in the RDEIS the potential effects of management actions on this species; 4) design plan components that provide for its essential habitat conditions.

#### **L. Identification of species covered by the draft plans in the final plans**

This is the same comment we made on the draft plans in 2016. The RDEIS (p. 14) states that the draft plans were designed to provide for the ecological conditions to support the at-risk species identified during the plan revision process. The complete list of species of conservation concern is provided in the RDEIS and in reports posted at the forest plan revision website. Federally listed species are only identified in the DEIS and draft biological assessment. The draft plans themselves do not identify the specific at-risk species they were designed to address. We believe that since the draft plans are intended 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” (39 CFR 219.9(b)(1)) the at-risk species covered by the plan should be named in the plan.

**Recommended change:** We ask that you include an appendix to each plan that lists, at a minimum, the at-risk species the plans were designed to address. This appendix would serve as a point of reference for future updates to the plan. Such an appendix is also the most efficient mechanism to let Forest Service staff and stakeholders know about key wildlife species covered by the plan.

#### **M. Survey requirements**

The existing forest plans require surveys for a variety of species, including California spotted owl and northern goshawk. These surveys are needed to support conservation measures required by the plan, e.g., delineating protected activity centers, and evaluate impacts of proposed projects on these species. Alternatives B, C, D, and E do not appear include requirements to survey for any at-risk wildlife species (see summary table, RDEIS, p. 56). We find this confusing since elsewhere in the RDEIS, there is a presumption that surveys are required for some at-risk species. In reference to Alternative B, the draft states:

Alternative B provides a more cautious approach than alternative D by tempering the pace of restoration and implementing more species-specific plan components, including requiring more pre-project surveys and applying more stringent limited operating periods to protect potentially reproducing individuals and reducing short-term impacts on habitat for terrestrial wildlife species of conservation concern.

(RDEIS, p. 437) The requirement or lack thereof for surveys should be addressed more clearly in the RDEIS and the consequences of not conducting surveys should be disclosed, especially for

species that require habitat designations, such as spotted owl, northern goshawk, and great grey owl.

In addition to our recommendations above that the draft plans include a standard that requires delineation of protected activity centers, we also believe there should be a standard that requires surveys, especially for species for which their location is key to the establishment of an area that is to be managed to provide essential habitat conditions.

**Recommended changes:** 1) Clarify the survey requirements for each alternative and ensure that the effects analysis in the RDEIS reflects these requirements; 2) include a standard that requires completion of surveys for California spotted owl, northern goshawk, great grey owl, willow flycatcher, and any other species for which their presence triggers the application of conservation measures to provide for their essential habitat conditions.

## **XI. Plant Species At-Risk**

### **A. General comments**

Draft plan components for at-risk plants rely predominantly on coarse-filter, systems properties thinking. There is an intentional and profound movement away from monitoring for individual species. While the 2012 Planning Rule indicates this movement away from species-centric monitoring, the Rule also provides for the development of Plan components that address both system properties and species properties.

In their systems properties approach to species conservation, the revised draft plans make the assumption that maintaining or restoring the integrity and sustainability of coarse-level features, i.e. forest systems, will benefit at-risk species such that viable populations of these species will be maintained in their resident forests. Aerial extent of special habitats, soil and hydrologic conditions, and invasive species are examples of forest system properties that represent monitoring surrogates and indicators for at-risk plant species in the draft plans. For a systems properties focus to be an effective management approach for at-risk plants, we would have to know a good deal about the full distribution of each plant, and their ecological needs and behaviors, and have confidence that the indicators used to monitor at-risk plant conditions represent suitable surrogates for the species. For many of the plants on the Species of Conservation Concern list, we do not yet have this degree of knowledge, and so our ability to create a link between population needs and surrogate monitoring indicators is limited.

The revised draft plans allude to this limitation when describing the Forest Service's management vision for small scale, special habitats that support at-risk plant populations:

Given the localized nature of these special habitats, they are challenging to address comprehensively at the forest scale since they may be uniquely affected by different activities or trends in ecological conditions. (Sierra revised draft plan, pp. 45-46; Sequoia revised draft plan, p. 47)

Not only is the localized nature of *special habitats* a challenge to address comprehensively at the forest scale, but the localized occurrences and distribution of at-risk plant populations *within* special habitats add still more challenge to the task of assessing the species properties for rare plants through a systems properties lens. The revised draft plan components and RDEIS go only part way towards addressing species properties requirements for at-risk plants when describing desired conditions for at-risk species and special habitats. By failing to include component language for quantitative, time-bound survey and monitoring of at-risk plants, and remedial action requirements when monitoring determines conditions are in decline, the revised draft plans and RDEIS fail to meet requirements to provide for the maintenance of viable at-risk plant populations.

While there are plan components that recognize the need to conserve the integrity of forest ecosystems and special habitats, no analysis in the RDEIS explains how this approach can ensure that micro-habitat scale ecological requirements more commonly indicative of narrowly distributed, specialist plants, like many on the SCC list, will be met, nor are there components in the revised draft plans that direct how at-risk plant population trends will be monitored and managed over time.

What is more, there are areas of these forests where few botanical surveys have been performed. Future surveys will likely discover additional occurrences of SCC plant species, and even plants new to science. For example, botanical surveys performed on the Sierra National Forest following the Ferguson Fire have documented new occurrences of two rare plant species, (*Cuscuta jepsonii* and *Eriophyllum nubigenum*) – one documented for the first time on the Sierra NF (*Eriophyllum nubigenum*). We recommend both these plant species be added to the Sierra National Forest SCC plant list.

Therefore, the more broadly focused, systems properties approach is too coarse a management tool to resolve and address the presence and needs of at-risk plants. Without performing timely botanical surveys, the chances of overlooking the needs or even the presence of at-risk plants at the project level will increase over time, along with the risk of losing populations of those species either from project impacts, or general mismanagement, or both. The only way to understand the ecological needs, and to assess trends in the conditions of at-risk plants is to survey for them regularly; to go out and see where they live and assess what is happening in the areas where they live. To ensure this, the revised draft plans must provide standards for managing at-risk plants that include a means by which information on the status and trends of at-risk plant populations are tracked over time, and remedial actions that must be followed where findings determine conditions are in decline. The current revised draft plans and RDEIS fail to provide these plan components.

If the Forest Service adopts the overly-broad and often vague components for at-risk plants, then implementation of the plans will likely lead to further decline in conditions of at-risk plant populations over time. At the project level, crews will run over a plant they didn't know was there because vague or nonexistent standards failed to track, disclose, and plan for current at-risk plant conditions on a project site. Based on the too-general nature of plan components for at-risk plants, project-level damages to at-risk plants are foreseeable and predictable, even though such

actions would clearly not help achieve desired conditions, and could exacerbate downward trends in conditions.

By choosing to rely predominantly on system properties to develop plan components, the draft plans fail to ensure for the viability and persistence of at-risk plants needing a species-focused approach to management. The predominantly systems properties approach, along with a move away from current requirements, creates an unacceptable risk where the needs of at-risk plants will be overlooked at the project level, leading to mismanagement of the requirements for persistence, and an accelerated trend toward listings.

**Recommended Change:** The revised draft plans must be revised to include component language that addresses species-specific management actions and activity restrictions for at-risk plants, and include mandatory monitoring and remedial action requirements.

We recommend revising Forest Plan narrative related to Forestwide Components for Animal and Plant Species (Sierra revised draft plan, p.46; Sequoia revised draft plan, pp.47-48) to reference a requirement to follow botanical protocols articulated in Forest Service Handbook (FSH) 2609.26, after revising FSH 2609.26 to include references to SCC plant lists and other 2012 Planning Rule requirements. We further recommend incorporating plan component language for at-risk plant species from the 2019 Final Inyo National Forest Plan into both the Sierra and Sequoia NF Plans (See section C below).

## **B. Management needs and requirements that must be met for at-risk plants.**

The Forest Service's June 5, 2014 Supplemental Need for Change document found that conditions for at-risk plants are "moderate to poor" and their trend is "stable to slightly declining." (p. 18). This suggests that the present and past management standards and guidelines have not been effective at conserving and recovering many sensitive plant populations, and/or that management directions have not been adequately implemented. The revised draft plans should therefore provide guidance on how to reverse the trends in these conditions. Regarding at-risk plant species, the Supplemental Need for Change document states:

There is little direction in the current plans specific to at-risk plant species; however, current practices require consideration of species needs at the project planning level (p. 18, Supplemental Need for Change).

Forest Service Manual (FSM) 2670 details these requirements. Under the current planning conditions, the Forest Service is required as per FSM 2670 to analyze potential impacts to sensitive plants - those on the Regional Forester's Sensitive Species (RFSS) list - at the project level by way of a biological evaluation specific to the RFSS species. Projects should be designed and implemented so that project actions do not result in changes to an RFSS plant's population (plants and their habitats) that can lead to the population's loss of viability within the Forest Service management area. Forest Service Manual 2670 clearly defines the responsibilities of the agency in this regard:



Regional Foresters must “Ensure that specific management objectives and legal and biological requirements for the conservation of endangered, threatened, proposed, and sensitive plants and animals are included in Regional and Forest planning, and ensure that planning for those species common to two or more Forests is coordinated among concerned units.”

Forest Supervisors must “Develop quantifiable recovery objectives and develop strategies to effect recovery of threatened and endangered species. Develop quantifiable objectives for managing populations and/or habitat for sensitive species.”

Forest Plan Objectives for designated sensitive species (2672.32) require development of “objectives in Forest plans to ensure viable populations throughout their geographic ranges. Once the objectives are accomplished and viability is no longer a concern, species shall not have ‘sensitive’ status.”

1. Develop and implement management practices to ensure that species do not become threatened or endangered because of Forest Service actions.
2. Maintain viable populations of all native and desired nonnative wildlife, fish, and plant species in habitats distributed throughout their geographic range on National Forest System lands.
3. Develop and implement management objectives for populations and/or habitat of sensitive species. (FSM 2670.22).

Further, FSM 2670.31 directives for Threatened and Endangered Species also list the following requirements:

1. Place top priority on conservation and recovery of endangered, threatened, and proposed species and their habitats through relevant National Forest System, State and Private Forestry, and Research and Development activities and programs.
2. Establish, through the Forest planning process, objectives for habitat management and/or recovery of populations, in cooperation with states, the Department of the Interior, Fish and Wildlife Service (FWS) or the Department of Commerce, National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries), and other federal agencies.
3. Review, through the biological evaluation process, actions and programs authorized, funded, or carried out by the Forest Service to determine their potential for effect on threatened and endangered species and species proposed for listing.
4. Avoid all adverse impacts on threatened and endangered species and their habitats, except when it is possible to compensate adverse effects totally through alternatives identified in a biological opinion rendered by the Department of the Interior, Fish and

Wildlife Service (FWS) or Department of Commerce, National Oceanic and Atmospheric Administration Fisheries

In the 2001 (and affirmed in the 2004) Sierra Nevada Forest Plan Amendment the agency standard for threatened, endangered, proposed, and sensitive (TEPS) species was to:

Conduct field surveys for TEPS plant species early enough in the project planning process that the project can be designed to conserve or enhance TEPS plants and their habitat. Conduct surveys according to procedures outlined in the Forest Service Handbook (FSH 2609.25.11). If additional field surveys are to be conducted as part of project implementation, survey results must be documented in the project file. (See Chief Bosworth's memo, November 18, 2004).

We supported the above standard in 2001 and 2004, and recommended that it be carried forward in the current forest plan revisions, at a minimum, in order to meet the agency's responsibilities.

Thus, the Forest Service has a responsibility to provide sufficient objectives, standards and guidelines for at-risk plant and plant diversity management in the new forest plans to ensure that the agency's actions do not continue to contribute to species endangerment, and to ensure that species do not become rare or threatened or progress down a trajectory leading to endangerment and extinction.

Finally, Forest Service Handbook (FSH) 2609.26, recently approved for 18-month extension (extension approved May 6, 2019), provides forest managers further direction on management of botanical resources on R5 national forests. FSH 2609.26 itself references FSM 2670 as part of FSH 2609.26's purpose. Both these documents were implemented under the previous Forest Planning Rule and both refer to the Regional Forester Sensitive Species lists. FSH 2609.26 must be updated to include reference to both FSS lists (which are still applicable to R5 national forests which have yet to revise their plans as per the 2012 Planning Rule) and newly developed Species of Conservation Concern (SCC) lists.

We provide this review of current planning conditions in order to juxtapose existing plan guidance and the findings of the Supplemental Needs to Change document, with the management guidance provided in the revised draft plans for at-risk plants.

**Recommended Changes:** 1) Revised draft plans for the Sierra and Sequoia NFs must be further revised to include component language that addresses the need to track current conditions and on-going trends of at-risk plants; 2) FSH 2609.26 must be revised to reflect the on-going transition from RFSS lists to SCC lists so its directives apply to both lists of species as long as either list remains active on Region 5 national forests.

**C. Draft Plans fail to provide plan components that explain how desired conditions for at-risk plants can be achieved.**

While the revised draft plans provide specific rationale for the inclusion of plants on the SCC lists, the draft plan components fail to provide sufficient guidance on how changes from existing

plans would help guide management of National Forest System lands so they are ecologically sustainable. Specifically, plan desired conditions, goals, and guidelines related to at-risk plants are too broadly described to ensure at-risk plant species occurrence status and potential project impacts are adequately addressed prior to project implementation. Plan standards that directly or indirectly address at-risk plants are vaguely written and contain no standards instructing how forest managers shall track current conditions and on-going trends of at-risk plant species.

The public is left to question how these forests are to manage for the persistence of SCC plants throughout the term of the Sierra and Sequoia forest plans. This ambiguity is a critical failing of the revised draft plans to provide clearer management guidance and will likely result in ineffective and /or insufficient treatment of at-risk plant species during project-level planning and implementation.

The current draft plan components are a significant departure from previous plans, and represent a significant erosion of current requirements, especially should the directives provided by FSM 2670 and FSH 2609.26 be eliminated rather than revised and extended.

The following are the revised draft plan components that address management of at-risk plants.

**Desired Conditions Forestwide (SPEC-FW-DC)**

01 Persistent populations of native and desirable non-native, plant and animal species are supported by healthy ecosystems, essential ecological processes and land stewardship activities, and reflect the diversity, quantity, quality and capability of natural habitats on the National Forest. These ecosystems are also resilient to uncharacteristic fire, climate change, and other stressors, and this resilience supports the long-term sustainability of plant and animal communities.

02 Ecological conditions for at-risk species support self-sustaining populations within the inherent capabilities of the plan area, including minimizing impacts from threats (such as disease and other site-specific threats). Ecological conditions provide habitat conditions that contribute to the survival, recovery, and delisting of species under the Endangered Species Act; preclude the need for listing new species; and improve conditions for species of conservation concern.

03 The structure and function of the vegetation, aquatic and riparian system, and associated microclimate and smaller scale elements of special habitats (like carbonate rock outcrops) exist in adequate quantities within the capability of the plan area to provide habitat and refugia for at-risk species with restricted distributions. (Sierra revised draft plan, p. 47; Sequoia revised draft plan, p. 48)

**Objectives:** There are no Plan Objectives specific to the management of at-risk plants. We recommend revising draft plans to change the Plan Goal (SPEC-FW-GOAL), to a Plan Objective (SPEC-FW-OBJ), as plan objectives are clearly defined plan components where plan goals are left largely to a future, currently undefined process.

**Goal:** Forestwide (SPEC-FW-GOAL)

01 Communicate, collaborate, and cooperate with other agencies, Tribes, partners and private landowners to encourage resource protection and restoration of ecological conditions that benefit wildlife, fish, and plants across ownership boundaries.

03 Work with the California Department of Fish and Wildlife (following the memoranda of understanding) and U.S. Fish and Wildlife Service to restore and maintain essential habitat for at-risk species and implement other recovery actions according to species recovery plans. (Sierra revised draft plan, p. 47; Sequoia revised draft plan, p. 49)

04 Participate in development of the regional white bark pine conservation and restoration strategy in collaboration with other Federal agencies, research organizations, and other partners. (Sierra revised draft plan, p. 47; Sequoia revised draft plan, p. 49)

**Standards:** There are no Plan Standards specific to the management of at-risk plants. CNPS and the USFS jointly developed proposed at-risk plant Standards and Management Approach component language as part of the Inyo National Forest Plan revision process (during the NEPA objection phase). This proposed language is still pending incorporation into the revised Inyo Plan and is language that is applicable to both Sierra and Sequoia NF Plans as well.

**Guidelines:** Forestwide (SPEC-FW-GDL)

01 Design features, mitigation, and project timing considerations should be incorporated into projects that may affect habitat for at-risk species where they occur to minimize impacts to ecological conditions that provide for the persistence of at-risk species.

04 Habitat management objectives and nonhabitat recovery actions from approved recovery plans should be incorporate, if appropriate, in the design of projects that will occur within federally listed species habitat to contribute to recovery of the species.

05 Habitat management objectives or goals from approved conservation strategies or agreements should be incorporated, if appropriate, in the design of projects that will occur within at-risk species habitat. (Sierra revised draft plan, p. 48; Sequoia revised draft plan, pp. 49-50)

**Potential Management Approaches:**

- Develop and implement a consistent, systematic, biologically sound program for plant species of conservation concern and their habitat.
- Incorporate the conservation of at-risk species into all program areas at appropriate times and scales, including but not limited to recreation, fire and fuels, vegetation management, minerals, range, engineering, facilities, and special uses.
- Develop a regional whitebark pine conservation and restoration strategy in collaboration with other Federal agencies, research organizations and other partners. (Sierra revised draft plan, pp. 48-49; Sequoia revised draft plan, pp. 50)

We are uncertain what the difference in intent is between the SPEC-FW-GOAL 04 for developing a whitebark pine conservation and restoration strategy, and the Potential Management Approach specifying the same goal.

Plan components specific to forest Special Habitats could indirectly provide management guidance and conservation benefits for at-risk plants. Desired conditions for Special Habitats acknowledge the often small-scale nature of at-risk plant habitat;

Special Habitats (TERR-SH-DC)

01 The integrity of special habitats is maintained or improved from current conditions. Composition, diversity, and structure of unique plant assemblages are maintained in all areas, including those with multiple use activities.

02 Microclimate or smaller scale habitat elements provide habitat and refugia for species with a specific geographic or restricted distribution.

03 Conditions remain suitable for long-term sustainability of the suite of native plants adapted to special habitats and their associated symbiotic associations, such as insect pollinators. rocky and gravelly habitats and the insect pollinators that rely upon them. (Sierra revised draft plan, p. 46; Sequoia revised draft plan, p. 47)

Special Habitats (TERR-SH-STD)

01 At the project scale, evaluate and incorporate maintenance and enhancement needs for special habitats into project design and implementation. (Sierra revised draft plan, p. 46; Sequoia revised draft plan, p. 47)

Individually and collectively, Forestwide plan components for animal and plant species, and components for Special Habitats fall short of providing sufficient direction for forest managers, especially forest botanists, to track current status and trends of at-risk plant species at the project level. While the revised draft plan components could potentially provide benefits to at-risk plant species and their habitats, the simple fact remains that at the project level, forest managers must determine whether or not an at-risk plant species occurs within a project footprint, and if so, where it occurs and how project activities might affect the species in order for the intent of plan components to provide benefit. Plan component language that directs forest managers to identify at-risk plant occurrence status on a project site prior to project implementation is simply optional according to the current wording of plan components for at-risk plants.

**Recommended Changes:** 1) Revised draft plans for the Sierra and Sequoia NFs must be further revised to include component language that addresses the need to track current conditions and on-going trends of at-risk plants. Further, FSH 2609.26 must be revised to reflect the on-going transition from RFSS lists to SCC lists so its directives apply to both lists of species as long as either list remains active on Region 5 national forests; 2) California Native Plant Society and the USFS jointly developed proposed standards and management approach components for at-risk plants as part of the Inyo National Forest Plan revision process during the objection phase. We recommend this language (Inyo National Forest Plan, September 2019, pp. 35-37) copied below, be incorporated into both the Sierra and Sequoia forest plans as well.

**Standards (SPEC-FW-STD)**

02 Avoid or mitigate impacts on known and unknown occurrences of at-risk plants and lichens that would limit their persistence or recovery in the plan area.

03 Use information that is current, accurate, and precise enough to avoid or mitigate impacts on at-risk plants and lichens when designing projects. If such information cannot be obtained, assume occupancy of the project area by one or more at-risk species within suitable habitat and apply resource protection measures to avoid or mitigate impacts throughout the project area. In order to promote beneficial effects of fire and other disturbances on some at-risk plants and lichens, this standard does not apply to the following activities:

- a. The fire itself when conducting a prescribed under-burn.
- b. Temporary or light disturbance created by use of hand tools, such as construction of fireline with hand tools or hand piling or scattering of residual woody material. Only scatter residual woody materials when neutral or beneficial to at-risk plants and lichens.
- c. Time prescribed burns to avoid active growth and reproduction of at-risk plants unless the species is known to be resilient to in-season burning.

### **Potential Management Approaches**

- Gather necessary information early in the planning process to locate unknown occurrences and confirm known occurrences of at-risk plants and lichen in order to avoid or mitigate project impacts on these species (see SPEC-FW-STD 02 and 03). This may include:
  - Pre-project surveys to locate, map, and record suitable habitat and occurrences of at-risk species.
  - Information from partners.
  - High resolution remote sensing data (accurate at the project scale).
  - High resolution soil, geology, and vegetation surveys (accurate at the project scale).
  - Existing records of at-risk plants and their habitat in Forest Service and other databases.
  - Lower resolution imagery and older survey data may be useful for determining the likelihood of occurrence of at-risk species in the project area, but is not adequate for avoidance or mitigation of impacts.
- Carry out pre-project surveys efficiently by combining efforts when possible, such as surveying for at-risk plants or special habitats while surveying for invasive species. Invasive species surveys are an essential element of an integrated pest management approach (see INV-FW-STD 03).
- Use the following example resource protection measures, or others as appropriate, to avoid or mitigate impacts on suitable habitat for at-risk plants and lichens (see SPEC-FW-STD 02):
  - Do not construct new facilities in suitable habitat.
  - Do not construct new roads, landings, parking and equipment staging areas in suitable habitat.
  - Avoid road and trail maintenance during active growth and reproduction for at-risk species that occur along existing roads and trails.
  - Do not use meadows for landings, staging areas, or contractor camping.
  - Following temporary disturbance in suitable habitat, seed with genetically appropriate native species.

- When conducting prescribed burning within suitable habitat, adjust timing and extent so that islands of suitable habitat are left unburned or lightly burned.
- When operating in suitable habitat, fell trees that present an imminent hazard to service workers or road traffic, but leave them in place. Lop and scatter branches if recommended by a fuels specialist.

## **XII. Roads, Infrastructure and Travel Management**

The Revised DEIS for the Sierra and Sequoia National Forests does not address anew the issues of roads, infrastructure, and travel management. Therefore, we incorporate here, by reference and attachment, the comments that we submitted on August 25, 2016: SFL et al. comments on the DEIS for draft forest plans on the Inyo, Sequoia, and Sierra National Forests.

## **XIII. Pacific Crest Trail**

### **A. Pacific Crest Trail in Designated Wilderness**

This direction in MA-PCTW is the same for MA-PCT and our comments apply to both Management Areas. We are pleased that the first Desired Condition is the same for the management area of the PCT both in and outside of designated wilderness. This consistency makes sense for a National Scenic Trail, which is continuous by nature and should provide an overall consistent trail experience. However, the 2016 Draft Plan version of this statement included the essential phrase “nature and purposes” when describing the Desired Conditions. The phrase “nature and purposes” has been deleted from the Revised Draft Plan, and it should be re-inserted. The Planning Directives for the 2012 Planning Rule specifically call out the need for clarity regarding the nature and purposes for which Designated Areas, including National Scenic Trails, were established in sections 24.2b and 24.431.b.and f (as cited on page 2 and 3 above). The phrase “nature and purposes” comes directly from the National Trails System Act. The Act mandates that other uses and activities should not, “substantially interfere with the nature and purposes of the trail.” This is clear management direction from the Act, in which the phrase “nature and purposes” is synonymous with Desired Conditions.

**Recommended Change:** The Revised Draft Plan should include National Scenic Trail Corridor plan components and language that adheres to National Trails System Act language.

### **1. MA-PCTW-Desired Conditions**

When articulating the PCT’s nature and purposes, it is important to capture all the essential characteristics. The PCT’s primitive and scenic characteristics are currently addressed in the Revised Draft Plan Desired Conditions—MA-PCTW-DC 02, 03, and 04, which we strongly support. However, the key words “wild” and “spectacular” were deleted from the Revised Draft Plan’s Desired Condition 01 statement and should be re-inserted. For reference to language that was deleted from the 2016 Draft Plan, MA-PCTW-DC 01 is found on page 65 of the Draft Plan:

“The Pacific Crest National Scenic Trail’s nature and purposes are to provide for outstanding journeys on foot or on horseback amongst the spectacularly wild

landscapes of high Pacific mountain ridges. Tranquility and closeness with nature can be found consistently along the trail, evoking a feeling of extended retreat from civilization, even if only venturing out for a day.”

This specific language is important because Desired Condition 01 will be understood as defining the PCT’s fundamental nature and purposes. Current wording of MA-PCTW-DC 01 is inadequate in describing the key elements of the PCT’s nature and purposes. Without the word “wild” or some synonym (e.g. undeveloped, primitive), this Desired Condition is missing a core social and ecological value that makes the PCT experience distinctive. Without the word “spectacular” or some synonym (e.g. scenic, grand, awe-inspiring), the current revision of Desired Condition 01 gives no indication of the scenic values for which the PCT is designated as a National Scenic Trail. Our proposed remedy does not introduce substantially new concepts beyond those already appearing in the Revised Draft Plan.

The RDEIS supports the rationale to explicitly use the term “nature and purpose” as well as addressing the corridor in the Desired Condition. The RDEIS states in Vol.1 page 621:

“The “Pacific Crest National Scenic Trail Comprehensive Plan” was signed by the Chief of the Forest Service in 1982 and set forth direction to guide the development and management of the PCT (United States Department of Agriculture 1982). The primary policy is to administer the PCT consistent with the *nature and purposes for which this national scenic trail was established* [emphasis added]: to provide for high-quality scenic, primitive hiking and horseback riding opportunities and to conserve natural, historic, and cultural resources along the *corridor* [emphasis added].”

We support the retention of this direction, but the second sentence is more appropriate to be captured as a Guideline instead of a Desired Condition; we recommend this change and retaining this direction in the Revised Plan.

**Recommended Change:** We recommend the following language for the PCT Corridor’s most fundamental Desired Condition (DC 01) both in and outside of Designated Wilderness:

*“Favoring landscapes that appear wild and free from development by humankind, the Pacific Crest Trail’s nature and purposes are to provide for outstanding journeys on foot or horseback along the high and spectacular spine of the Pacific mountain ranges. These primitive forms of travel hearken back to a simpler and more rugged time. Tranquility and closeness with nature can be found consistently along the trail’s protected corridor, evoking a feeling of extended retreat from civilization, even if venturing out only for a day.”*

## **2. MA-PCTW Standards and Guidelines**

As directed in the 2012 Forest Planning Directives in section 24.43 1. a. and as cited above on page 3 of this comment letter, there needs to be a clear Guideline in the Forest Plan that reflects direction in the PCT Comprehensive Plan. This is most easily accomplished by including the Comprehensive Plan or its successors by reference in the Forest Plan.



This suggested Guideline is supported by the analysis presented in the RDEIS, “The Comprehensive Plan directed that each ‘National Park, Bureau of Land Management District and National Forest will integrate the direction and guidance provided by the Comprehensive Plan into their respective land management planning processes.’”

**Recommended Change:** Add the following guideline:

MA-PCTW-GDL 02: Management decisions will comply with direction found in the Comprehensive Management Plan for the Pacific Crest National Scenic Trail (1982) or current revised versions of this congressionally required planning document.

## **B. Pacific Crest Trail outside Designated Wilderness**

### **1. Desired Conditions**

We urge Desired Condition MA-PCT-DC 02 to be retained in the Revised Plan but with modifications. The phrase “and humans” is confusing because it could be construed as negating the direction in MA-PCT-DC 03, that landscapes be “natural appearing.” Even in cases where a landscape has been undeniably shaped by humans, the agency’s scenery management system provides for visual mitigation strategies that can ensure human manipulations generally repeat the form, line, color and texture typical of natural landscapes. This is the essence of the term “natural appearing”, that human alterations to the land don’t necessarily stand out as something unnatural or artificial. In order to clarify this Desired Condition, we recommend deleting the phrase “and humans.”

### **Recommended Changes:**

1) Change MA-PCT-DC 02 to state:

“The Pacific Crest National Scenic Trail corridor *is publicly owned. It retains a natural, forested or pastoral landscape character shaped by both natural processes and humans. Emphasis will be on providing a natural appearing landscape as setting for the PCT.* Management practices are modified to recognize the nationally significant scenic attributes and recreational *experiences intended for these lands.* Vegetation management is appropriate to *achieve* the long-term goals and stewardship objectives of the Pacific Crest Trail management area and provide for ecosystem restoration, public safety, and enhancement of the trail environment.”

2) Adopt the following Desired Condition for MA-PCT from the proposed Inyo National Forest Revised Plan:

MA-PCT-DC 06: The recreation experience is consistent with or complements a nonmotorized recreation setting. The trail may intermittently pass through more developed settings to provide for a continuous route. In winter, the trail has a naturally appearing setting with few to no sights, sounds, and resource impacts from motorized use.

## 2. Suitability

**MA-PCT-SUIT 04:** In general, we support the direction in this Suitability Statement, however there is one critical wording issue; instead of stating that designated roads and trails, “are suitable” the statement should read that roads and trails, “*may be suitable*” and should refer to MA-PCT- GDL 03. We recommend that the Suitability Statement end with “... *may be suitable as described in MA-PCT-GDL 03.*” In some cases, roads and trails will be suitable and not interfere with the nature and purposes of the Trail; however, there may also be cases when some roads and trails will not be suitable because they will interfere with the PCT’s nature and purposes.

**MA-PCT-SUIT 05:** This is critical management direction pertaining to the PCT. We recommend the following changes to the Suitability Statement to bring direction in line with direction found in the National Trails System Act and PCT Comprehensive Plan and to restrict motorized use to designated routes: “Year-round motorized or mechanized transport *by the public along the Pacific Crest National Scenic Trail or within the corridor, with the exception of designated routes for those uses,* is not suitable.”

**Proposed New MA-PCT-SUIT 06:** A Suitability Statement regarding timber harvest is critical to clarify how vegetation management may be used within the MA-PCT. We recommend the following:

*“Timber harvest for the purpose of achieving timber production goals is not suitable. Vegetation management including timber harvest, to protect or restore trail values including for the purposes of ecological restoration, fuels reduction, improving scenic character, restoring connectivity for wildlife, increasing carbon storage and improving watershed conditions is suitable.”*

This rationale is supported by the description of areas suitable for timber management in Appendix E (p.155) in the first and last bullets.

### **Proposed New MA-PCT-SUIT 07:**

*“Electrical transmission lines and other utility corridors are suitable only when they are the only prudent and feasible alternative to serve a critical public need. Preference is given to locating these facilities within corridors that are already compromised or impacted.”*

The RDEIS acknowledges the impacts that utility corridors can have on sensitive resources, such as the PCT and supports PCTA’s rationale to adopt the suggested Suitability Statement. The RDEIS states on page 631, “Cleared rights-of-way and utility structures contrast and may be incongruent with existing landscapes. Cleared rights-of-ways generally contrast highly with the surrounding landscape.” The RDEIS continues on page 636, “Utility rights-of-way would be located where impacts already exist and would be limited to a single crossing of the PCT unless documented as the only prudent and feasible alternative.”

### **Recommended Changes:**

1) Change MA-PCT-SUIT 04 to state that roads and trails “*may be suitable*”. Change this suitability statement to refer to MA-PCT- GDL 03 by ending with “... *may be suitable as described in MA-PCT-GDL 03.*”

2) Change MA-PCT-SUIT 05 to state “Year-round motorized or mechanized transport *by the public along the Pacific Crest National Scenic Trail or within the corridor, with the exception of designated routes for those uses,* is not suitable.”

3) Add the following suitability statement:

**MA-PCT-SUIT 06:** Timber harvest for the purpose of achieving timber production goals is not suitable. Vegetation management including timber harvest, to protect or restore trail values including for the purposes of ecological restoration, fuels reduction, improving scenic character, restoring connectivity for wildlife, increasing carbon storage and improving watershed conditions is suitable.

4) Add the following suitability statement:

**MA-PCT-SUIT 07:** Electrical transmission lines and other utility corridors are suitable only when they are the only prudent and feasible alternative to serve a critical public need. Preference is given to locating these facilities within corridors that are already compromised or impacted.

### 3. Standards

**MA-PCT-STD 03:** We support most of this critical direction for the PCT Management Area; however, there is a significant problem with the parenthetical wording describing a “new road”. As it is currently proposed, if there is a “footprint”, those routes are not subject to the criteria and direction in this Standard. A “footprint” could be anything from an old designated roadbed that has been decommissioned, to the remains of an old skid trail. It is possible that this direction is unintentional (the Standard is improperly written), but the reuse of any decommissioned or abandoned roadbed which is not a part of the current designated transportation system, must be subject to the “only prudent and feasible” criteria before it is used as a designated part of the road system. This does not mean that an old roadbed might not be the only prudent and feasible alternative, but it must meet that criteria. The recommended solution is to drop the words “and there is no existing footprint” from the wording of this important Standard.

**Proposed New MA-PCT-STANDARDS relating to Wildland Fire Management:** We believe the nature and purposes of the PCT would be better protected by adding specific direction for fire management for the PCT Management Area, or in other parts of Chapter 2 (including fire). Applicable wording in existing Forest Service documents can be found from Standards from the Jefferson National Forest Plan in relation to the Appalachian National Scenic Trail (AT); there is almost identical direction in the other Region 8 Forests (i.e. Chattahoochee, Cherokee). The AT Prescription Area includes Standards for wildland fire management, included prescribed fire. We recommend adopting the following modified Standards found in the Jefferson National Forest Plan below and organizing them in a similar manner in the Sequoia Revised Plan.

**Recommended Changes:** 1) Remove the words “and there is no existing footprint” from the wording MA-PCT-STD 03; 2) Add the following standards related to fire management:

Proposed MA-PCT-Standards: Wildland Fire Management

- Suppression strategies will strive to minimize impacts on Pacific Crest Trail values.
- Prohibit heavy equipment line construction on the Pacific Crest Trail footpath, unless necessary for emergency protection of public property and safety. (Currently found as MA-PCT-STD 01)
- Implement restorative measures in areas damaged by fire-suppression efforts after fire-suppression efforts have ceased.

MA-PCT-Standards: Prescribed Fire and Wildland Fire Use

- Prohibit heavy equipment line construction on the Pacific Crest Trail treadway. (Currently found as MA-PCT-STD 01)
- Implement needed restorative measures after prescribed fire or wildland fire use projects.

#### 4. Guidelines

**Proposed New MA-PCTW-GDL 05:** As directed in the 2012 Forest Planning Directives in section 24.43 1. a. and as cited above on page 3 of this comment letter, there needs to be a clear Guideline in the Forest Plan that reflects direction in the PCT Comprehensive Plan. This is most easily accomplished by including the Comprehensive Plan or its successors by reference in the Forest Plan.

Recommended MA-PCT-GDL 05: *“Management decisions will comply with direction found in the Comprehensive Management Plan for the Pacific Crest National Scenic Trail (1982) or current revised versions of this congressionally required planning document.”*

This suggested Guideline is supported by the analysis presented in the RDEIS, “The Comprehensive Plan directed that each ‘National Park, Bureau of Land Management District and National Forest will integrate the direction and guidance provided by the Comprehensive Plan into their respective land management planning processes.’”

**Recommended Change:** Add the following Guideline:

MA-PCT-GDL 05: Management decisions will comply with direction found in the Comprehensive Management Plan for the Pacific Crest National Scenic Trail (1982) or current revised versions of this congressionally required planning document.

#### 5. Designated Areas

##### Pacific Crest National Scenic Trail

The description of the PCT and embedded direction for its protection and management are critical to fulfilling the direction in the Forest Planning Rule and Directives and the National Trails System Act. It must be retained in the forthcoming Revised Plan. We have one suggested

addition in the last sentence of the first paragraph that we feel will clarify the delineation of the PCT management area.

**Recommended Change:** Change the description of the PCT in the revised plans to state:

*“The Sequoia National Forest manages 47 miles of the Pacific Crest Trail, and its associated corridor, 34 of which are in wilderness (figure 20, appendix A). Two management areas have been developed in the Management Area section of the Plan. While these MAs are distinguished between Wilderness and non-Wilderness it is possible that since the MAs are defined by the foreground distance zone that portions of the MA-PCTW are seen from non-Wilderness viewpoints on the trail and that portions of MA-PCT are seen from vantage points within Wilderness. It is also possible that there are portions of these MAs that are seen from the PCT where the tread is in adjacent federal agency lands (BLM or Inyo NF).”*

#### **XIV. Plan objectives and rates of restoration**

##### **A. Passive versus active restoration**

The Executive Summary and RDEIS characterize Alternatives B and D as “active restoration” and label Alternatives C and E as “passive restoration.” The restoration of fire, improvements to meadows and streams, and mechanical treatments directed in Alternatives C and E are far from passive actions and in several cases the area to be restored far exceeds the area in Alternatives B and D. We summarized in the table below the actions directed in the objectives for each alternative. This table reports only on those objectives that differ among the alternatives, and reports these as the total values across both forests for the 15-year time period.

<b>Objective</b>	<b>Alternative B</b>	<b>Alternative C and E</b>	<b>Alternative D</b>
Restore forest structure and composition	37,500 to 72,000 acres	10,500 to 21,000 acres	54,000 to 108,000 acres
Restore low and moderate severity fire mosaics	82,000 acres	93,000 acres	125,000 acres
Number of meadows improved (RDEIS, p. A-64)	10	30	10
Miles of stream improved (RDEIS, p. A-66)	10 miles	30 miles	10 miles
Riparian area restored (RDEIS, p. A-56)	800 acres	6,000 acres	2,000 acres

To characterize significant increases in fire restoration and restoration of streams and meadows in Alternatives C and E as “passive restoration” indicates a strong bias towards timber related

activities. We also note that the Executive Summary omits reference to the objectives to restore aquatic ecosystems while focusing on terrestrial ecosystem actions.

**Recommended change:** We ask that you revise the characterization of the alternatives as “passive” or “active” in the final EIS. We suggest that, at a minimum, these terms be eliminated from the Executive Summary and that the objectives for riparian areas and rivers be mentioned in the table summarizing the alternatives in the Executive Summary.

## **B. Approval of projects that exceed objectives – proposed MOTOR M2K**

The revised plans include measurable objectives for a variety of actions including thinning and group selection. Objectives in the 2012 planning rule are defined as “a concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions.” (36 CFR 219.7(e)(1)(ii)) This means that the estimate of effects of the plan on the environment would be based on this rate of disturbance or activity.

We find the proposed rate of thinning in the draft forest plan at odds with a project being proposed by the Stanislaus and Sierra national forests. These forests have teamed together to propose a project to treat 1.5 million acres of the two national forests over a period of 15 years.<sup>69</sup> If one assumed that half of the area to be treated was in the Sierra National Forest, this would mean that the project would permit logging and other actions on about 50,000 acres each year. This extreme rate of logging and other vegetation management is about 12 times the annual rate of thinning and prescribed fire combined in the revised draft plan for the Sierra National Forest.

The timeline for this project is nearly identical to the forest plan revision and approval process. Both are expected to have decisions finalized by the end of 2020. The effects of this massive level of activity have not been addressed in the environmental analysis for the revised draft forest plans. Please explain how the approval of such a vast project would be consistent with the objectives of the revised draft forest plan for the Sierra National Forest.

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## **XVI. Attachments**

Attachment A: Fire estimate by forest types Sierra, Sequoia and Inyo National Forests

Attachment B: Memo on the Ferguson Fire and the Devil Gulch – Ferguson Ridge Roadless Area

Attachment C: Fire MOU Communication Plan (4-18-17)

Attachment D: Summary of fire effects from large fires in Sierra Nevada bioregion from 2000 to 2018.

Attachment E: Summary of habitat studies for California spotted owl.



# Attachment A: Fire estimate by forest types Sierra, Sequoia and

Estimates based on acreage from 2001 Framework (Volume 2, p. 62-63). HFRI from North et al. (2012) for all types except brush/grass/nonveg, hardwood, and pinyon pine. HFRI from those types estimated from 2001 Framework (volume 2, p. 69). See second table for specific tables used from these publications.

We estimate for these forest plan areas that about 150,000 acres should be burned annually. This value is based on discounting the annual value estimated from the mean FRI by the brush and non-vegetation types on the three national forests.

	brush grass nonveg	hardwood	subalpine	Eastside Pine	Pinyon- Juniper	Lodgepole	Mixed- conifer	Giant Sequoia	Ponderos a Pine	Red fir	Western White Fir	total (ac)	Total (chart)	Ar co by rev
mean HFRI (yr)	30	20	50	5	20	30	12	15	5	45	25			
high HFRI (yr)	60	35	150	15	35	110	25	20	12	90	45			
INF	1,285,247	23,973	149,734	100,464	339,999	83,184	0	0	0	25,374	32,684	2,040,659	2,039,000	2,
SQF	306,246	130,745	0	100,685	94,745	12,792	73,090	15,036	65,196	137,157	174,758	1,110,450	1,112,000	
SNF	286,097	139,977	218,207	35,245	0	17,327	140,354	2,243	148,999	163,944	163,944	1,316,337	1,319,000	1,
												4,467,446	4,470,000	4,
	brush grass nonveg	hardwood	subalpine	Eastside Pine	Pinyon- Juniper	Lodgepole	Mixed- conifer	Giant Sequoia	Ponderos a Pine	Red fir	Western White Fir	total (ac/yr)		
mean HFRI	ac/yr	ac/yr	ac/yr	ac/yr	ac/yr	ac/yr	ac/yr	ac/yr	ac/yr	ac/yr	ac/yr			
INF	42,842	1,199	2,995	20,093	17,000	2,773	0	0	0	564	1,307	88,772		
SQF	10,208	6,537	0	20,137	4,737	426	6,091	1,002	13,039	3,048	6,990	50,552	Note GSNM a	
SNF	9,537	6,999	4,364	7,049	0	578	11,696	150	29,800	3,643	6,558	80,373		
												219,696	Grand total al	
	brush grass nonveg	hardwood	subalpine	Eastside Pine	Pinyon- Juniper	Lodgepole	Mixed- conifer	Giant Sequoia	Ponderos a Pine	Red fir	Western White Fir	total (ac/yr)		
high HFRI	ac/yr	ac/yr	ac/yr	ac/yr	ac/yr	ac/yr	ac/yr	ac/yr	ac/yr	ac/yr	ac/yr			
INF	21,421	685	998	6,698	9,714	756	0	0	0	282	726	41,280		
SQF	5,104	3,736	0	6,712	2,707	116	2,924	752	5,433	1,524	3,884	23,024	Note GSNM a	
SNF	4,768	3,999	1,455	2,350	0	158	5,614	112	12,417	1,822	3,643	36,337		
												100,641	Grand total al	

From forest plan revision DEIS, Chapter 2, Tables 6, 7 and 8

Alternative B	Rx fire	managed fire
INF	25,000	170,000
SQF	15,000	83,000
SNF	60,000	49,000
	100,000	302,000
acres/year	10,000	30,200

0.97% annual over national forest area

## **Memo on the Ferguson Fire and the Devil Gulch – Ferguson Ridge Roadless Area**

### **Takeaways Regarding Roadless Areas and Fire Management**

The Ferguson Fire burned 96,901 acres between July 13<sup>th</sup> and August 22<sup>nd</sup>, 2018, in rugged topography surrounding the South Fork Merced River on the Sierra National Forest and upslope into Yosemite. The fire burned the entirety of the Devil Gulch – Ferguson Ridge (DGFR) Roadless Area, which the conservation community considers a priority for wilderness protection. Fire suppression in the Merced River Canyon is THE major concern mentioned by the Forest Service in their 2016 Wilderness Evaluation for DGFR due to the potential for a fire to spread into Yosemite Valley or the nearby communities of El Portal, Yosemite West, Wawona, and Jerseydale. These concerns around fire and restoration are echoed for other low-elevation potential wilderness areas throughout the west side of the Sierra Nevada.

The following notes document Sierra Forest Legacy's work to analyze whether and how the roadless areas surrounding the South Fork affected fire crews' response to the Ferguson Fire, and how this might change under a future wilderness designation. The notes are generated from 2018 meetings with Sierra National Forest and Yosemite National Park fire staff, as well as geospatial analysis by SFL.

#### **General Takeaways:**

- The South Fork Merced area remains roadless in 2018 for a reason: roughly 70% of the potential wilderness consists of slopes >40% and just 37% of the area has been identified as tentatively suitable for timber production. While the lack of roads, remoteness, and steep terrain made the fire difficult to contain, these features will exist regardless of protective designations.
- Though the fire will always be remembered for the tragic deaths of heavy equipment operator Braden Varney and Hotshot Captain Brian Hughes, the Ferguson Fire was considerably less destructive than other fires occurring at the same time. In total, the Ferguson Fire only destroyed 10 structures despite threatening over ~3,500 structures. By contrast, the Carr and Ranch Fires, which were also burning during August 2018, destroyed 1,604 and 280 respectively.
- Neither USFS nor NPS staff noted any realistic possibility of putting new roads into DGFR for fire suppression purposes. This area is so large, steep, and remote, that maintaining fire lines in the interior of the roadless area would be impractical from a resource/benefit standpoint. Fire managers also expressed an unwillingness to send fire crews into the South Fork Canyon due to the danger of working in such a steep, inaccessible setting.
- Fire crews used a network of existing ridgetop roads and firebreaks to stop the fire from spreading into the surrounding communities. Most if not all of this fire management infrastructure is excluded from the potential wilderness boundary and would not be affected by the current wilderness proposal.
- USFS and NPS staff agreed that future fires in the South Fork area will likely burn a similar footprint due to the area's rugged character and inaccessibility. Fire managers could build on any positive fire effects from the Ferguson Fire by pursuing a landscape scale restoration project in the same area through the use of prescribed fire or managed wildfire.

#### **Fire Management**

- The Ferguson Fire coincided with several other large fires in California (notably the Mendocino Complex and Carr Fires). This made it difficult to draw resources to Ferguson, where the fire was threatening fewer homes and structures.
- The existing system of roads and fire breaks generally worked to contain the fire with some exceptions. Fire crews originally hoped to stop the western end of the fire atop Ferguson Ridge but wind-driven embers helped the fire spot over the ridge into the Sweetwater Creek basin. A nearby firebreak along Sweetwater Ridge Road, which had been maintained during the 2017 Detwiler Fire, ended up stopping the western end of the fire. On its eastern end, the fire jumped another established fire line along Henness Ridge as it headed towards El Portal. Embers from the fire also helped the fire spot over Highway 140, causing the fire to spread into the Trumbull Peak Roadless Area on the Stanislaus National Forest.
- The ridge stemming from Chowchilla Mountain to the confluence of Devil Gulch and the South Fork Merced is the only feature within DGFR that USFS staff noted could potentially be maintained as a fire break (this is already 50% excluded from the wilderness inventory boundary).

- A persistent air inversion in the South Fork Canyon helped keep the rate of spread low throughout much of the Ferguson Fire. This inversion can be dangerous for fire crews because it “lifts” at some point in the early afternoon causing conditions to change quickly.
- Wawona Road served as an effective fire break, except in one area near Glacier Point Road. Firefighters were able to back fire along the road during cooler nighttime temperatures and higher relative humidity. Where the fire did cross Highway 41, it stopped in the footprints of the 2011 Avalanche Fire and two prescribed burns.
- Proactive fuel reduction work by the communities of Jerseydale and Yosemite West gave firefighters confidence that they could contain the fire and protect structures in these communities. Fire crews utilized backburning around Jerseydale and Yosemite West to defend these communities during the fire.

#### **Vegetation and Fire Effects:**

- According to Cal Fire vegetation data, DGFR is:
  - 13,693 acres conifer forest (29.5% of the roadless area)
  - 23,278 acres hardwoods (50.3% of the roadless area)
  - 1,695 acres herbaceous (3.6% of the roadless area)
  - 7,461 acres shrubs (16.1% of the roadless area)
- RAVG data for the Ferguson Fire lists the following stats on burn severity:
  - 0-<25% basal area loss: 12,188 acres (13% of fire)
  - 25-<50% basal area loss: 31,387 acres (32% of fire)
  - 50-<75% basal area loss: 21,403 acres (22% of fire)
  - 75-100% basal area loss: 31,942 acres (33% of fire)

#### **Wilderness:**

- Though the Wilderness Act prohibits new road construction, it allows for a full range of fire suppression activities under section 4(d)1. A wilderness designation in itself does not limit the range of strategies that firefighters can use to suppress a fire.
- Fire managers can also complete proactive fuel reduction projects in wilderness areas. Even if the Wilderness Act expressly prohibits a fuel reduction activity (ex. use of chainsaws), it may still be allowed as “*necessary to meet the minimum requirements for the administration of the area for the purpose of this Act*” (Section 4(c)). For this to happen, the land manager must complete a [minimum requirements analysis](#) to prove that the project is necessary and couldn’t be accomplished through actions outside of wilderness.
- Yosemite National Park has already completed a programmatic minimum requirements analysis for using prescribed fire to reduce fuels in the entire Yosemite Wilderness, which comprises nearly 95% of the park. In the Ferguson Fire area, a prescribed fire had already been completed between Wawona Road and Badger Pass, near where the fire stopped.
- The potential wilderness boundary for DGFR excludes all of the fire breaks shown on the Ferguson Fire Public Information Map, including Henness Ridge, Ferguson Ridge, and Sweetwater Ridge.
- The Sierra National Forest is currently working on a forest-wide decision (i.e. a Categorical Exclusion) for prescribed fire use outside of wilderness areas. If DGFR were ever designated as a wilderness area, it would no longer be covered by this decision.

#### **Future of the South Fork Merced Watershed:**

- The network of roads and fire lines that were used to suppress the Ferguson Fire will likely be used to contain a future fire in the same area. USFS and NPS fire managers both confirmed that a future fire in the South Fork Merced drainage will likely burn a similar footprint.
- The Ferguson Fire area could provide an ideal setting for a large-scale fire restoration project to help restore a natural fire regime in the South Fork Merced area. This could build on any positive fire effects from the Ferguson Fire, and could help maintain a strategic fuel-reduced area around two major entrance points to Yosemite. One manager mentioned considering the effects of the Ferguson Fire as a first treatment and to be built upon.
- The closure of Yosemite National Park during the Ferguson Fire had an enormous impact on tourism for gateway communities on the west side of the Park. Tourism agencies and local businesses may be interested in promoting a future prescribed fire project that would reduce fuels outside of the prime tourist season.

## **FIRE MOU PUBLIC INFORMATION AND EDUCATION PLAN 4-18-17**

The Fire MOU Outreach and Communications Working Group provides high-quality science-based fire *information responses* for identified target audiences (see list below). The Fire Information Response and Education (FIR&E) Program will emphasize the major goals of the Fire MOU Partners to increase public awareness and support for increasing fire use for multiple resource objectives in California<sup>1</sup>

### **Contents**

**Goals**  
**Other Important References**  
**Staffing**  
**Key Messages**  
**Target Audiences**  
**Communication Methods**  
**Annual Plan by Season**

### **Goals**

The FIR&E Program has four goals:

GOAL #1 – Offer year-round education on fire ecology, fire history, and fire effects in the Sierra. Communicate how prescribed fire and managed natural ignitions meet natural resource management and community protection goals for land management agencies and private landowners which provide multiple resource benefits for Californians.

GOAL #2 – Provide accurate and timely incident information for local, regional, and national fire operations as needed.

GOAL #3 – Work with local communities to promote fire safety, fire prevention, defensible space, *fire wise* community planning, and fuels management. Help them to understand that restoring fire on the landscape, well-planned and when safe to do so, is also a key tool to protect public health and safety.

GOAL #4 – Build and maintain interagency, educational, and community partnerships to improve fire education activities.

### **Key Messages**

The FIR&E Program will provide target audiences with accurate information about fire management from both the national and local perspectives.

These key messages are broad and leave room for individual agency missions and identity:

Fire is an essential, natural process

<sup>1</sup> The Fire MOU Section III includes language supporting our commitment to public outreach and education. The Outreach and Communication Working Group utilized and synthesized the information in the meeting notes from our June 2016 and March 2017 Fire MOU Partnership meetings to create this document. This Communication Plan is a living document offered to all our partners to utilize as they wish in support of our general goal of increasing the use of fire in California for ecological and other resource benefits.

## Attachment C: Fire MOU Public Information and Education Plan (4-18-17) (C-2)

- There is NO - NO FIRE OPTION in California: Fire is a reality in the fire-prone and fire-adapted ecosystems in California. We choose to use fire when we can to reduce fire hazard and gain the ecological benefits from this agent of change that has long been part of the California landscape.
- Annual rainfall and frequent fire both provide ecosystem resilience.
- Fire is a powerful force and *Living With Fire*<sup>2</sup> requires education, preparedness, and precaution to gain the benefits of fire and prevent loss of life and property.
- There is NO-NO RISK OPTION: Fire Escapes (Little Valley Fire), Logging-related fires (Moonlight Fire), power line fires (the Round Fire), poorly tended campfires (Rim Fire), arson, (King Fire), auto-related fire (Cleveland Fire), lightning-related fire (Rough Fire) all have circumstances that can be challenging to manage.
- Fire regulating fire is the story of natural (and Native American) fire history in California.

There are results from a century of fire suppression which shape how we respond.

- Society's influence has altered historic fire cycles, leading to a dangerous build-up of vegetation in our wildlands.
- Land management agencies are committed to a balanced fire program that will reduce risks and realize benefits of fire.
- Fire managers respect the force of fire and take their responsibilities very seriously.
- Improving the health of the land and reducing risks to communities requires partnerships among federal and state agencies, tribal governments, fire departments, communities, and landowners.
- Fire suppression defers risk.
- No loss of human life is acceptable while managing a fire event.

Fire is a natural process that we talk about in clear scientific terms, not emotionally driven terms:

- For example: fire behavior is within the natural range of variability, uncharacteristic in size and intensity, has beneficial fire effects, providing an effective fuel break for upcoming years, fire managers or fire crews vs. firefighters, crews are seeing active spotting on the western flank, etc., instead of: battling the fire, a raging wildfire, a path of destruction, a forest destroyed, firefighters are "fighting the monster" in the woods.
- We chose language that will foster understanding, confidence and security in the fire programs in California. We avoid terms that increase confusion, inaccuracy, fear and insecurity in the professionalism of the fire cadre or in the scientific basis for their work. Only reporting wildfire acres does not support public understanding of fire's role.
- Discussion of the scale, intensity, net public benefits, and fire effects compared to the natural range of effects in a functioning fire-restored environment is helpful in fostering public understanding and acceptance.
- We respect the missions and differences of the Fire MOU participants and work to support each other's decisions based upon this mission direction.

<sup>2</sup> *Living With Fire* is fundamental to the vision of the Wildland Fire Leadership Council (WFLC) and the National Cohesive Wildland Fire Management Strategy (April 2014). The three National Cohesive Strategy goals are: Restore and Maintain Landscapes, Fire-adapted Communities, Wildfire Response, p.3.

## **Smoke**

Managing smoke levels:

- We monitor our smoke levels with the local air district and work with them to pick the best days for smoke dispersal. Just like small fires prevent big fires, so do small smoke events prevent bigger smoke events. By actively managing our fuels, we are trying to reduce a larger, smokier fire event.
- Small fires prevent larger fires. Therefore, smaller smoke events prevent larger smoke events.
- Every acre that burns under favorable conditions helps prevent the larger, unwanted fire and its smoke event.
- There's far less smoke and fewer health problems with smaller managed burns than with uncontrolled mega-fires.
- Smoke associated with fire is part of the natural fire cycle that makes our forests resilient and healthy.
- Early fire notification helps communities and at-risk populations (elderly, children, people with respiratory problems) better protect themselves and reduces risk.

Thank you—acknowledging that our management has impacts.

- We appreciate the patience of visitors, residents, and gateway communities during the incident and its associated smoke event.
- The fire management program considers smoke management in every step of the program. We know that our visitors and the mountain communities surrounding the forest are affected by our management decisions. We attempt to find a balance in the program that addresses your concerns while also returning natural fire to the landscape to reduce the risk of larger, unwanted fires and to achieve the ecological benefits of natural fire. The forest appreciates your patience and understanding during this period.
- Fire managers and air quality regulators are working together to lessen impacts to valley residents from unwanted smoke events such as the Rough Fire. Planning and working together we can limit long-lasting mega-emissions while using fire to reduce fuels.

## **Target Audiences**

- Land Management Agency (LMA) Visitors (including on site visitors, internet visitors, and special groups)
- Employees (including LMA employees, concessions, and volunteers)
- Local communities including the medical community, air quality regulators, recreation groups, etc., (this would need to be tailored case by case)
- Students/Teachers (including K-12 students, college students, elder hostel groups, and teachers)
- Professional peers (including other federal, state, and county agencies and policy makers, professional associations, and academics)
- Media (including print, television, radio, internet and film). While multiple media venues offer a valuable communication opportunity to reach a broad and diverse audience, it is also listed as a target audience due to the amount of time and energy that goes into facilitating interviews, film projects, etc.

## **Communication Methods**

The following methods will be used to communicate with the six target audiences listed above. There are both personal and non-personal methods which will facilitate reaching the greatest number of people. The parks will continue to improve and expand this list.

### **Personal**

Interpretive Programs –integrate fire messages into hikes, walks, campfire programs, and special off-site presentations.

Education Programs –Incorporate fire ecology concepts into standards-based education programs, student field research experiences, and in-class programs.

Employee Training –Coordinate employee training sessions to improve staff understanding of the fire and fuels management program.

Roving – During fire operations, station employees in high-use visitor areas, including trails, to answer questions about the current activity and/or explain the fire and fuels management program.

Conference Presentations –Give peer presentations at conferences about current fire research, planning, or operations. These presentations will share information, generate feedback, and ultimately improve the parks' fire and fuels management program.

Public Meetings and tours – As needed, conduct special public meetings or tours related to a specific fire event, planning effort, or to share general program information.

Media Interviews –Complete in-person or phone interviews for print, radio, and television outlets. When necessary, facilitate special media projects (books, documentaries, media tours or events, etc.) by guiding research, scheduling interviews with park staff, and coordinating filming schedules. Work with media to help redefine how they cover wildfire

### **Non-Personal**

News Releases / Updates – Email, post to webpages, social media accts, and bulletin boards to reach target audiences as needed.

Publications –Research, write, and design additional handouts specifically about fire and fuels management such as newspapers, student materials, videos, photos, animations, and brochures.

Recorded Phone Message – Incident specific

### **Share Fire Success Stories** (develop year-round messaging)

In any media presence (personal or non-personal), share fire success stories from prescribed fire or wildfire managed for multiple resource benefits to build support for our work.

Share events where previous fires helped contain the spread of current wildfire events.

## Attachment C: Fire MOU Public Information and Education Plan (4-18-17) (C-5)

Develop a Fire MOU media presence where fire science, visuals, fire event history and other background information is accessible for Fire MOU Partners and the public.

Report annual outcomes for all units including (acres, effects, smoke management, priorities).

Conduct annual discussions with PAO/PIO partners during training periods.

Develop inter-agency team to share beneficial information during fire season (re: information from fire managers and air districts relevant to shared resources, collaborative burning, the value of air monitors and modeling tools to assess smoke impacts with increased accuracy).

Fire focused “guest opinion” effort across the region/state to highlight fire managed for resource benefit and the collaborative efforts of the Fire MOU Partnership.

Fire managed for resource benefit can save taxpayers money as we re-establish appropriate fire in California’s fire-associated landscapes.

### **Annual Plan by Season**

For six to seven months of the year, the FIR&E Program is largely in a reactive mode disseminating information about actual fire events. While this is the “nature of the business,” stay focused on larger goals and prevent individual incidents from defining the entire fire education program. Strategic timing of the messages is necessary. For example, talking about smoke ecology (plants that germinate with smoke or smoke cued germination), are not messages that will be well received during a substantial smoke event. This message will be better times in the spring prior to a smoke event.

### **Outreach Recommendations:**

- Outreach to the local community and downwind neighbors is key
- Go where the audience is - vacation rental agencies, vacationer’s local news outlets, real estate offices
- Consider partnering with local real estate offices to share proactive management messaging & provide new home buyers with info on ways to reduce fire risk around their homes
- Capture the audience emotionally, and utilize visuals to help get the messages across
  - Use time-lapse, video, web cams
  - Use before & after photos, comparisons between different events
- Talk with people you don’t normally talk to and share a positive fire message. This will help to build evangelicals.
- Additional audiences may include: County supervisors, air quality districts, county sheriffs depts., public health officials, neighboring forests/air districts, hospitals, vacationers/vacation rental managers, the tourism industry, schools, chambers of commerce, outdoor recreation groups, special event coordinators and participants, fire safe councils
- Evaluate what each of the above group’s value, and message around that (EX: safety, health, economic impacts, etc.)
- Develop a network of partners that can respond to media inquiries and share incident information with them so that they can speak to the specific event using the MOU’s shared messaging.
- Develop a social presence to represent the Fire MOU Partnership and the MOU Outreach and Communication Plan.



### **Messenger Cadre**

Recruit an issue-specific cadre of scientists, community leaders, air quality regulators, public health officials, policy makers, agency leaders, fire staff, recreation group representatives, water-focused spokespeople and others who are willing to work with the Fire MOU Partners to address critical fire topics during each fire season.

- Forest Service, Cal Fire, NPS and other agencies who support fire programs.
- Scientists-fire and vegetation ecologists, air quality experts, public health officials, watershed and water quality experts (both agency and academic).
- Water agency and water purveyors.
- Wildlife ecologists (academics) and other wildlife regulatory agencies.
- Local, state and federal policy makers who can articulate fire need to the public.
- Community fire safe councils who can offer two messages: (1) do the work around homes to protect property from fire and, (2) Fire managed for resource benefit enforces community protection both as an initial treatment, where possible, and for maintenance of existing fuel breaks targeting surface and ladder fuels.
- Air regulators: EPA, CARB, and local districts.

## Attachment D: Summary of fire effects from large fires in Sierra Nevada bioregion

Comparison of the amount of high severity burned forests in evergreen closed tree canopy vs. evergreen open tree canopy forests on non-wilderness lands for fires that burned greater than 20,000 acres (all ownerships) between 2008 and 2018 on the west-side Sierra Nevada bioregion and western spotted owl.

Fire Name	Year	Forest	Fire Size (Acre of All Ownerships)	Evergreen Closed Tree Canopy (Non-Wilderness FS Ownership Only)			Evergreen Open Tree Canopy (Non-Wilderness FS Ownership Only)	
				High Severity	Total Acres Burned	High Severity %	High Severity	Total Acres Burned
Cub Complex	2008	Lassen	20,860	1,830	11,984	15%	1,167	4,483
BTU Lightning Complex	2008	Plumas/Lassen	58,337	792	6,482	12%	3,512	14,442
Canyon Complex	2008	Plumas	39,793	2,808	16,709	17%	1,610	15,374
Piute	2008	Sequoia	37,258	981	3,064	32%	9,530	16,170
American River Complex	2008	Tahoe	21,284	2,721	10,622	26%	1,816	6,465
Chips	2012	Plumas	76,328	11,142	45,539	24%	4,395	14,803
Reading	2012	Lassen	28,055	3,530	7,748	46%	920	2,840
Rim	2013	Stanislaus	257,619	13,409	47,882	28%	38,362	74,704
American	2013	Tahoe	27,416	4,016	13,083	31%	2,070	8,028
Aspen	2013	Sierra	22,700	1,414	6,998	20%	2,909	11,316
King	2014	Eldorado	96,513	14,195	26,687	53%	16,297	32,800
Rough	2015	Sequoia/Sierra	145,908	6,519	24,304	27%	29,181	64,052
Ferguson	2018	Sierra	96,940	2,954	14,814	20%	19,087	53,820
Donnell	2018	Stanislaus	36,728	4,566	10,385	44%	3,413	10,568
<b>Total</b>			<b>965,739</b>	<b>70,877</b>	<b>246,301</b>	<b>29%</b>	<b>134,269</b>	<b>329,865</b>

### Other Recent Fires of Note

French	2014	Sierra	13,819	729	1,983	37%	3,984	8,939
Railroad	2017	Sierra	12,380	2,169	6,851	32%	1,546	4,127

RAVG data was obtained from the USFS's Post-Fire Vegetation Conditions webpage 2/25/2019:

<http://www.fs.fed.us/postfirevegcondition/index.shtml>

The following terms are defined in the RAVG glossary:

<http://www.fs.fed.us/postfirevegcondition/glossary.shtml>

**Closed Tree Canopy** - A class of vegetation that is dominated by trees with interlocking crowns (generally forming 60 to 100% crown cover).

**Evergreen Open Tree Canopy** - This vegetation group describes an open tree canopy condition dominated by evergreen tree species. Evergreen tree species cover 75% of the total tree cover. Forest covers associated with this group are described in Forest Cover Types of the United States (Society of American Foresters).

**Evergreen Closed Tree Canopy** - This vegetation group describes a closed tree canopy condition dominated by evergreen tree species. Evergreen tree species cover 75% of the total tree cover. Forest covers associated with this group are described in Forest Cover Types of the United States (Society of American Foresters).

# Attachment D: Summary of fire effects from large fires in Sierra Nevada bioregion

This analysis was provided by Jay Miller, Remote Sensing Lab.

Veg data are CALVEG circa 2000

CWHR types = DFR, EPN, JPN, MHC, MHW, PPN, RFR, SMC, WFR

CWHR SIZE = 4-6 (small, medium/large, multi-layered)

Severity data from the R5 vegetation burn severity database <http://www.fs.usda.gov/detail/r5/landmanagement/gis/?cid=STELPRDB53>

High Severity ≥ 50% BA mortality

Fires within CSO range

NOTE: Blank entries indicates there were not any data (i.e., value = zero)

Fire	CWHR Density = M,D (≥40% cover)			CWHR Density = S,P (10% to 40% cover)		
	Total (ha)	High Severity (ha)	% High Severity	Total (ha)	High Severity (ha)	% High Severity
2000ARNOT	456	35	8	99	27	27
2000HARLEY	15	0	0	36	0	0
2000HIGHWAY	32	11	33	5	3	5
2000KING	783	6	1	799	55	55
2000MANTER	5043	2430	48	4441	2521	57
2000MILLWOOD	66	1	1			
2000STORRIE	40770	14453	35	2392	867	36
2001BRICEBURG	187	105	56	61	54	89
2001CREEK	3	0	4			
2001DARBY	1996	688	34	888	384	43
2001GAP	980	760	78	138	105	76
2001HIGHWAY	1269	506	40	84	29	33
2001HIGHWAY70	128	47	37	0	0	0
2001MOORE	597	63	10	1	0	0
2001MUSIC	100	25	25	50	10	20
2001NORTH_FORK	2354	985	42	338	189	56
2001POE	378	120	32	9	1	11
2001SALT	5	0	0	0	0	0
2001STAR	9423	3628	39	403	254	63
2001STREAM	2943	2260	77	188	129	68
2001TREASURE	254	151	59	43	9	21
2001WHITE	148	50	34	39	22	56
2001WHITE_SQF	194	32	17	160	26	16
2002ELLIS2	54	1	3	6	1	17
2002MCNALLY	50575	25697	51	17018	8046	47
2002PLUM	761	31	4	19	0	0
2002ROCK_CREEK2	456	0	0	6	0	0
2002SAINTPAULI	0	0	14	2	0	0
2002SHOWERS	178	80	45	121	67	55
2002SPI3SOURGRASS	193	14	7	13	0	0
2003ALBANITA	759	102	13	371	72	19

## Attachment D: Summary of fire effects from large fires in Sierra Nevada bioregion

2003BASIN				48	34	7
2003COD_FISH	760	103	14	48	13	2
2003COONEY	1059	361	34	615	245	4
2003KIBBIE	648	260	40	793	369	4
2003MOUNTAIN	878	73	8	514	51	7
2003ROYAL	186	0	0	151	0	
2003SALT	147	8	6	5	0	
2003SNAKE_CARGYLE2	598	51	9	157	18	
2003WEST_KERN	39	9	23	330	4	
2003WHIT	709	100	14	1	0	
2003WILLIAMS	4	0	0			
2003WOODLOT				0	0	
2004DEEP	274	141	51			
2004EARLY	58	25	44	139	97	6
2004FREDS	2224	1639	74	163	127	7
2004NEHOUSE	127	68	53	65	13	2
2004POWER	7363	4170	57	602	371	6
2004SOURCE	340	75	22			
2004TUOLUMNE	79	57	73	20	12	5
2005COMB	882	222	25	117	26	2
2005CORRAL	287	8	3	6	0	
2006BASSETTS	1856	525	28	17	1	
2006BOULDER_CMPLX	1987	796	40	1525	1113	7
2006BRODER_BECK	253	11	4	107	22	2
2006MAGGIE	405	0	0	555	1	
2006RALSTON	4465	233	5	841	48	
2006RUBE	252	6	2	69	3	
2006TAMARACK	1588	179	11	1724	456	2
2007ANGORA	1329	1065	80	791	476	6
2007ANTELOPE_CMPLX	14344	10883	76	4421	2599	5
2007COLBY	222	53	24	22	6	2
2007GOLDLEDGE	311	78	25	518	115	2
2007GROUSE	142	51	36	474	193	4
2007MOONLIGHT	35944	24990	70	2049	1239	6
2007VISTA	294	168	57	80	14	7
2008BEAR	620	2	0	9	0	
2008BELDEN	469	19	4	1	0	
2008CASCADEL	292	125	43			
2008CELINA	162	1	1			
2008COLD	3285	1556	47	263	175	6
2008CUB	11287	3313	29	349	83	2

## Attachment D: Summary of fire effects from large fires in Sierra Nevada bioregion

2008DOME_ROCK	290	61	21	191	62	3
2008FALL	897	84	9	9	0	2
2008FOX	2350	16	1	22	0	1
2008FRIENDDARNELL	552	38	7	9	2	2
2008GOVERNMENT	11822	4987	42	1075	519	4
2008HARTMAN	218	0	0	13	0	1
2008LITTLE	1348	20	1			1
2008MOSES	121	4	3	10	6	6
2008NORTHMOUNTAIN	27	0	0	542	38	1
2008OLIVER	2035	501	25	260	74	2
2008ONION2	1671	333	20	54	13	2
2008PEAVINE	312	5	2	24	2	1
2008PIT	17366	4806	28	1034	333	3
2008PIUTE	9502	5550	58	11865	7640	6
2008RICH	3549	1175	33	603	108	1
2008SCOTCH	19096	2353	12	236	52	2
2008SCOTCHMAN	491	107	22			1
2008SILVER_KNOB	459	19	4	29	0	1
2008SMOKEY	384	6	2	5	0	1
2008SOLO2	102	0	0	71	0	1
2008STAR	360	11	3	89	4	1
2008TEHIPITE	6679	837	13	76	47	6
2008TELEGRAPH	517	376	73	141	64	4
2009BIG_MEADOW	81	70	86	1	0	1
2009ELEPHANT	249	34	14	0	0	1
2009GRANITE	741	46	6	394	41	1
2009KNIGHT	1649	62	4	831	92	1
2009LION	1679	33	2	585	12	1
2009SHOTGUN	342	62	18	417	95	2
2009SILVER	297	171	58	24	14	5
2009SUGARLOAF	812	298	37	8	2	2
2010BAR	171	37	22	251	42	1
2010BUCKHORN	442	2	1	48	3	1
2010BULL				6	4	1
2010BULLARDS	300	12	4			1
2010CANYON	37	11	30	20	7	3
2010SHEEP	4910	966	20	282	15	1
2011LION	11337	2639	23	6497	2229	3
2011MOTOR	129	52	40	250	86	3
2012BEAR	265	157	59	325	171	5
2012CHIPS	56010	21378	38	4774	1380	2

# Attachment D: Summary of fire effects from large fires in Sierra Nevada bioregion

2012CLEAR	22	0	0	235	132	5
2012GEORGE	638	276	43	345	114	3
2012MILL_CDF	647	113	17	4	0	2
2012RAMSEY	519	207	40	61	17	2
2012READING	8282	3674	44	302	104	3
2013AMERICAN	16382	7503	46	1507	844	5
2013ASPEN	11878	3382	28	4645	1437	4
2013CARSTENS	539	322	60	41	20	2
2013FISH	1388	659	48	494	243	4
2013PANTHER	1587	463	29	192	104	5
2013POWER	609	289	47	115	33	2
2013RIM	51258	19815	39	17025	8625	5
2014EILER	6145	4565	74	82	64	7
2014EL_PORTAL	331	67	20	210	79	3
2014FRENCH	8739	4479	51	920	435	4
2014KING	43594	22395	51	2690	1494	5
2014SODA	1353	29	2	173	3	4
TOTAL	530780	219263	41	105432	47698	4

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Veg data are CALVEG circa 2000

CWHR types = DFR, EPN, JPN, MHC, MHW, PPN, RFR, SMC, WFR

CWHR SIZE = 4-6 (small, medium/large, multi-layered)

Severity data from the R5 vegetation burn severity database <http://www.fs.usda.gov/detail/r5/landmanagement/gis/?cid=STELPRDB53>

High Severity ≥ 50% BA mortality

Fires within CSO range

NOTE: Blank entries indicates there were not any data (i.e., value = zero)

Fire	CWHR Density = D (≥60% cover)			CWHR Density = S,P (10% to 40% cover)		
	Total (ha)	High Severity (ha)	% High Severity	Total (ha)	High Severity (ha)	% High Severity
2000ARNOT	266	24	9	99	27	27
2000HARLEY	10	0	0	36	0	0
2000HIGHWAY				5	3	5
2000KING	279	2	1	799	55	55
2000MANTER	2491	1095	44	4441	2521	57
2000MILLWOOD	66	1	1			
2000STORRIE	34122	12104	35	2392	867	36
2001BRICEBURG	16	10	66	61	54	89
2001CREEK	0	0	0			
2001DARBY	585	111	19	888	384	43
2001GAP	227	154	68	138	105	76
2001HIGHWAY	630	266	42	84	29	34
2001HIGHWAY70	98	47	48	0	0	0
2001MOORE	597	63	10	1	0	0
2001MUSIC	72	24	33	50	10	20
2001NORTH_FORK	1662	658	40	338	189	56
2001POE	317	98	31	9	1	11
2001SALT				0	0	0
2001STAR	5479	2116	39	403	254	63
2001STREAM	1968	1556	79	188	129	68
2001TREASURE	111	71	63	43	9	21
2001WHITE				39	22	56
2001WHITE_SQF	9	0	1	160	26	16
2002ELLIS2	31	1	5	6	1	17
2002MCNALLY	33127	17029	51	17018	8046	47
2002PLUM	497	3	1	19	0	0
2002ROCK_CREEK2	414	0	0	6	0	0
2002SAINTPAULI				2	0	0
2002SHOWERS	7	0	1	121	67	55
2002SPI3SOURGRASS				13	0	0
2003ALBANITA	379	45	12	371	72	19

## Attachment D: Summary of fire effects from large fires in Sierra Nevada bioregion

2003BASIN				48	34	7
2003COD_FISH	216	17	8	48	13	2
2003COONEY	530	144	27	615	245	4
2003KIBBIE	1	0	0	793	369	4
2003MOUNTAIN	435	18	4	514	51	7
2003ROYAL				151	0	
2003SALT	62	1	1	5	0	
2003SNAKE_CARGYLE2	336	17	5	157	18	
2003WEST_KERN				330	4	
2003WHIT	304	21	7	1	0	
2003WILLIAMS	4	0	0			
2003WOODLOT				0	0	
2004DEEP	182	85	47			
2004EARLY	38	19	50	139	97	6
2004FREDS	729	524	72	163	127	7
2004NEHOUSE	35	18	51	65	13	2
2004POWER	3770	2261	60	602	371	6
2004SOURCE	338	75	22			
2004TUOLUMNE	23	11	49	20	12	5
2005COMB	640	169	26	117	26	2
2005CORRAL	235	7	3	6	0	
2006BASSETTS	1736	464	27	17	1	
2006BOULDER_CMPLX	891	248	28	1525	1113	7
2006BRODER_BECK	127	9	7	107	22	2
2006MAGGIE	54	0	0	555	1	
2006RALSTON	1746	56	3	841	48	
2006RUBE	184	5	3	69	3	
2006TAMARACK	877	76	9	1724	456	2
2007ANGORA	128	110	86	791	476	6
2007ANTELOPE_CMPLX	8417	6713	80	4421	2599	5
2007COLBY	113	20	18	22	6	2
2007GOLDLEDGE	190	61	32	518	115	2
2007GROUSE	31	5	16	474	193	4
2007MOONLIGHT	28730	20038	70	2049	1239	6
2007VISTA	72	60	83	80	14	7
2008BEAR	561	1	0	9	0	
2008BELDEN	465	19	4	1	0	
2008CASCADEL	269	115	43			
2008CELINA	162	1	1			
2008COLD	2723	1243	46	263	175	6
2008CUB	10530	3115	30	349	83	2



## Attachment D: Summary of fire effects from large fires in Sierra Nevada bioregion

2008DOME_ROCK	124	47	37	191	62	3
2008FALL	883	81	9	9	0	2
2008FOX	2136	11	1	22	0	1
2008FRIENDDARNELL	364	11	3	9	2	2
2008GOVERNMENT	6814	2840	42	1075	519	4
2008HARTMAN	218	0	0	13	0	1
2008LITTLE	1293	19	2			1
2008MOSES	103	1	1	10	6	6
2008NORTHMOUNTAIN	2	0	0	542	38	2
2008OLIVER	1112	282	25	260	74	2
2008ONION2	1092	217	20	54	13	2
2008PEAVINE	132	1	1	24	2	1
2008PIT	13031	3560	27	1034	333	3
2008PIUTE	4396	2509	57	11865	7640	6
2008RICH	2341	866	37	603	108	1
2008SCOTCH	17035	1863	11	236	52	2
2008SCOTCHMAN	490	107	22			1
2008SILVER_KNOB	353	15	4	29	0	1
2008SMOKEY	328	4	1	5	0	1
2008SOLO2	68	0	0	71	0	1
2008STAR	292	3	1	89	4	1
2008TEHIPITE	5870	623	11	76	47	6
2008TELEGRAPH	53	49	92	141	64	4
2009BIG_MEADOW	71	63	88	1	0	1
2009ELEPHANT	194	21	11	0	0	1
2009GRANITE	489	30	6	394	41	1
2009KNIGHT	1355	35	3	831	92	1
2009LION	596	15	2	585	12	1
2009SHOTGUN	48	10	21	417	95	2
2009SILVER	119	67	56	24	14	5
2009SUGARLOAF	684	247	36	8	2	2
2010BAR	57	12	21	251	42	1
2010BUCKHORN	348	2	0	48	3	1
2010BULL				6	4	1
2010BULLARDS	298	12	4			1
2010CANYON	9	0	0	20	7	3
2010SHEEP	3908	810	21	282	15	3
2011LION	3851	876	23	6497	2229	3
2011MOTOR	37	10	27	250	86	3
2012BEAR	56	25	44	325	171	5
2012CHIPS	45672	17811	39	4774	1380	2

# Attachment D: Summary of fire effects from large fires in Sierra Nevada bioregion

2012CLEAR	14	0	1	235	132	5
2012GEORGE	261	107	41	345	114	3
2012MILL_CDF	562	106	19	4	0	5
2012RAMSEY	116	46	39	61	17	2
2012READING	6185	2842	46	302	104	3
2013AMERICAN	8226	3517	43	1507	844	5
2013ASPEN	7600	2290	30	4645	1437	4
2013CARSTENS	155	105	68	41	20	2
2013FISH	548	259	47	494	243	4
2013PANTHER	898	183	20	192	104	5
2013POWER	16	10	60	115	33	2
2013RIM	12222	5422	44	17025	8625	5
2014EILER	4937	3657	74	82	64	7
2014EL_PORTAL	128	10	8	210	79	3
2014FRENCH	5289	2574	49	920	435	4
2014KING	21665	10377	48	2690	1494	5
2014SODA	944	21	2	173	3	4
TOTAL	335435	135905	41	105432	47698	4

Table 2. Summary of the results from studies on California spotted owl demographics and habitat selection.

Study	Study Location(s), Sample Size and Unit, and Period	Parameter	Habitat Selection
Blakesley et al. (2005)	Lassen Demographic Study Area, 63 territories, 11 years	Occupancy (pair or single)	The amount of nest area dominated by large trees (>24 in dbh) and canopy cover >70% was positively associated with site occupancy. The amount of nest area dominated by medium- trees (12-24 in dbh) with canopy cover >70% and the amount of area unforested or dominated by small trees (6-12 in dbh) were negatively associated with site occupancy.
		Survival	Apparent survival increased with greater amounts of forest dominated by large trees (>24 in dbh) with normal (40-70%) to good (>70%) canopy cover containing large (>30 in dbh) remnant trees.
		Reproduction	Reproductive decreased as the amount of nest area that was unforested or dominated by small trees increased.
		Nest Success	Nest success was higher when large remnant trees were present in the nest stand higher in stands dominated by medium-sized trees than by large trees.
Seamans and Gutierrez (2007)	Eldorado Demographic Study Area, 66 territories, 15 years	Extinction	The amount of conifer forest dominated by medium (12-24 in dbh trees) and large trees (>24 in dbh) with >70% canopy cover was negatively correlated with the probability of territory
		Colonization	Extinction. The amount of conifer forest dominated by medium (12-24 in dbh trees) and large trees (>24 in dbh) with >70% canopy cover was positively correlated with the probability of territory colonization.
Roberts et al. (2011)	Yosemite National Park, 16 burned and 16 unburned territories, 2-14 years post-fire	Occupancy (pair)	The top model suggested that nest and roost site occupancy were best predicted by the combined positive effect of basal area and the negative effect of coarse woody debris. However, there was also support for an alternative model suggesting that higher canopy closure and tree basal area were also useful predictors of nest and roost site occupancy.
Tempel et al. (2014)	Eldorado Demographic Study Area, 70 territories, 20 years	Reproduction	Reproduction was negatively related to the area of hardwood forest with <10% conifer canopy cover.
		Survival	The amount of high (>70%) canopy cover forest dominated by 12-24 in and >24 in dbh trees occurred in the top-ranked models for survival, territory extinction, and territory colonization rates, and explained more variation in population growth rate and equilibrium occupancy than other covariates. Forests dominated by trees >24 in dbh and <30% canopy cover were not associated with demographic parameters.
		Extinction	
		Colonization	
		Occupancy (single or pair)	

Table 2 (continued). Summary of the results from studies on California spotted owl demographics and habitat selection.

Study	Study Location(s), Sample Size and Unit, and Period	Parameter		Habitat Selection
		Extinction	Colonization	
Tempel et al. (2016)	Lassen, Eldorado, Sierra, and Sequoia- Kings Canyon demographic study areas, 275 territories, 19 years		Occupancy (single or pair)	Forests with high (>70%) and medium (40–70%) canopy cover were the only habitat covariates that were consistently identified as important for all four study areas. Occupancy reached its lowest value when high and medium canopy cover were minimized and occupancy reached its highest value when these covariates were maximized. Occupancy for the 40–49% canopy cover class was lower than occupancy for the 50–59% and 60–69% canopy cover classes. Occupancy rates are likely to be negatively affected if canopy cover is consistently reduced to 40%.
North et al. (2017)	Sequoia-Kings Canyon, Eldorado, and Sierra demographic study areas and Tahoe National Forest, 316 territories, sites that were occupied by an owl pair at least once between 2001 and 2013	Occupancy (pair)		Across the four study areas, the average values of total canopy cover and cover in trees >48 m (157 ft) was highest at nest sites, and consistently decreased as area expanded to PACs, territories and then the surrounding landscape. A similar trend of decreasing values from nest sites to landscape was identified for the 32–48 m (105–157 ft) strata on the three National Forest study areas but not on Sequoia-Kings Canyon. The amount of cover of trees in the 2–16 m (7–52 ft) height strata was lowest near nest sites and decreased as area expanded to PACs, territories, and then the surrounding landscape.
Jones et al. (2017)	Lassen, Eldorado, Sierra, and Sequoia- Kings Canyon demographic study areas, 275 territories, 19 years	Extinction	Occupancy (pair or single)	Extinction rates increased as the amount of forest characterized by large trees (≥24 in dbh) and high canopy cover (>70% cover) decreased. Median proportion of an owl site containing large trees and high canopy cover forest on national forests ranged from 0.03–0.06, corresponding with higher predicted rates of local extinction and ongoing declines in occupancy. The median proportion of forest characterized by large trees and high canopy cover in owl territories on Sequoia-Kings Canyon was 0.19, which had a lower predicted extinction rate and stable occupancy.

Table 3. Summary of results from studies on the effects of logging on spotted owl demographics.

Study	Study Location(s), Sample Size and Unit, and Period	Disturbance Type(s) Evaluated	Parameter	Response (Effect on Demographic Parameter)	
				Parameter	Response
Seamans and Gutierrez (2007)	Eldorado Demographic Study Area, 66 territories, 15 years.	High Severity Fire (including salvage), Logging	Extinction		<b>Negative</b> - Alteration of ≥50 acres of mature conifer forest was positively correlated with territory extinction probability.
			Colonization		<b>Negative</b> - Probability of colonization was related to the amount of mature conifer forest habitat in the territory and the alteration of such habitat reduced the probability of colonization.
Clark et al. (2013)	Southwest Oregon, 31 burned/103 unburned territories, up to 15 years pre-fire and 4-5 years post-fire.	Logging, High Severity Fire, Salvage Logging	Extinction		<b>Negative</b> - Probability of extinction increased due to the interactive effect of past timber harvest, high severity fire, and salvage logging.
			Colonization		<b>Unclear</b> - Few colonization events were observed.
			Occupancy (pair)		<b>Negative</b> - Declines in occupancy were driven by increases in extinction, attributable to past timber harvest, high severity fire, and salvage logging.
Tempel et al. (2014)	Eldorado Demographic Study Area, 70 territories, 20 years.	High- intensity Logging, Wildfire (including salvage), and Medium- intensity Logging.	Reproduction		<b>Negative</b> - "[M]edium-intensity timber harvests characteristic of proposed fuel treatments were negatively related to reproduction of Spotted Owls in our study. Reproduction appeared sensitive to modest amounts of medium-intensity harvests, and was predicted to decline from 0.54 to 0.45 when 20 ha were treated." (pg. 2101)
			Survival		<b>Negative</b> - Medium-intensity logging, when implemented in high canopy cover forests, was associated with reductions in survival.
			Extinction		<b>Positive</b> - Extinction was negatively correlated with the area of high-intensity timber harvest. High intensity timber harvest occur on 5.4% of the total area within owl territories in the study.
			Colonization		<b>Negative</b> - Medium-intensity logging, when implemented in high canopy cover forests, were associated with reductions in colonization.
			Occupancy (single or pair)		<b>Negative</b> - Equilibrium occupancy was negatively correlated with wildfire.
Stephens et al. (2014)	Plumas National Forest, 8 territories, 4-5 years pre- treatment, 3-4 years post- treatment.	Group Selection and Fuels Treatments	Occupancy (single or pair)		<b>Negative</b> - By 3–4 years post-treatment, the number of occupied sites declined by 43% from the pretreatment numbers.

Table 3 (continued). Summary of results from studies on the effects of logging on spotted owl demographics.

Study	Study Location(s), Sample Size and Unit, and Period	Disturbance Type(s) Evaluated	Parameter	Response (Effect on Demographic Parameter)
Tempel et al. (2015)	Tahoe National Forest, 4 territories, modeled 30 years post-treatment.	Fuels Treatment, Wildfire	Fitness	<p><b>Negative</b> - Fuels treatment had a negative effect on fitness, an effect that was still present after 30 years of simulated forest growth. <b>Negative</b> - Simulated wildfire without fuels treatment negatively affected fitness.</p> <p><b>Negative</b> - Fuels treatment with simulated wildfire negatively affected fitness, but the effect was not as great as the effect of simulated wildfire without fuels treatment.</p>
Tempel et al. (2016)	Lassen, Eldorado, Sierra, and Sequoia-Kings Canyon demographic study areas, 275 territories, 19 years.	Wildfire (including salvage on National Forests), Prescribed Fire, Logging	Occupancy (single and pair)	<p><b>Negative</b> - Fuels treatment alone had a negative effect on equilibrium occupancy, an effect that was still present after 30 years of simulated forest growth. <b>Negative</b> - Simulated wildfire without fuels treatment negatively affected equilibrium occupancy.</p> <p><b>Negative</b> - Simulated wildfire with fuels treatment negatively affected equilibrium occupancy, but the effect was not as great as the effect of simulated wildfire without fuels treatment.</p>
			Extinction	<p><b>Positive</b> - On the ELD study area, logging less than 1% of a territory in the previous 3 years was negatively correlated with extinction. <b>Neutral</b> - No support for an effect of logging less than 1% of a territory in the previous 3 years was detected for the LAS or SIE study areas. <b>Positive</b> - On the SKC study area, wildfire was negatively related to extinction.</p> <p><b>Neutral</b> - No support for an effect of wildfire was detected on the ELD, LAS, or SIE study areas.</p>
			Colonization	<p><b>Neutral</b> - No support for an effect of logging less than 1% of a territory in the previous 3 years was detected for the ELD, LAS, or SIE study areas. <b>Negative</b> - On the SKC study area, prescribed fire was negatively associated with colonization.</p>
			Occupancy (single or pair)	<p><b>Neutral</b> - No support for an effect of logging when less than 1% of a territory was logged in the previous 3 years for the LAS, or SIE study areas.</p> <p><b>Positive</b> - On the ELD study area, logging less than 1% of a territory in the previous 3 years was positively associated with occupancy.</p>

Table 4. Summary of the results from studies on the effects of fire and salvage logging on spotted owl demographics.

Study	Study Location(s), Sample Size and Unit, and Period	Disturbance Type(s) Evaluated	Response (Effect on Parameter)	
			Parameter	
Bond et al. (2002)	Shasta-Trinity, Klamath, San Bernardino, Coconino, and Gila National Forests, 11 burned and >300 unburned territories, 9-16 years for unburned and 1 year post-fire for burned territories.	Wildfire	Survival	<b>Neutral</b> - No difference in survival was detected between burned and unburned territories.
			Reproduction	<b>Positive</b> - Reproductive success was higher in burned territories the year following fire than in unburned territories.
			Fidelity	<b>Neutral</b> - No difference in fidelity was detected between burned and unburned territories.
Jenness et al. (2004)	Coconino, Gila, Coronado, and Lincoln National Forests, 33 burned and 31 unburned territories, 1-4 years post-fire.	Wildfire and Prescribed Fire	Reproduction	<b>Negative</b> - Unburned territories tended to be occupied by pairs and more reproductive pairs than burned territories.
			Occupancy (single or pair)	<b>Negative</b> - Probability of occupancy was higher in unburned sites compared to burned sites.
Seamans and Gutierrez (2007)	Eldorado Demographic Study Area, 66 territories, 15 years.	High Severity Fire (including salvage), Logging	Extinction	<b>Negative</b> - Alteration of ≥50 acres of mature conifer forest was positively correlated with territory extinction probability.
			Colonization	<b>Negative</b> - Probability of colonization was related to the amount of mature conifer forest habitat in the territory and the alteration of such habitat reduced the probability of colonization.
Clark et al. (2011)	Southwest Oregon, 23 radio-marked birds, years 3 and 4 post- fire.	Wildfire (including salvage)	Survival	<b>Negative</b> - Average annual survival of owls living inside burn perimeters (also salvage logged) was lower than outside the burn perimeters and was lower than survival rates of spotted owls in all other areas with survival estimates at the time of the study.
Roberts et al. (2011)	Yosemite National Park, 16 burned and 16 unburned territories, 2-14 years post-fire.	Wildfire and Prescribed Fire	Occupancy (pair)	<b>Neutral</b> - Fire did not reduce the probability of occupancy.

Table 4. Summary of the results from studies on the effects of fire and salvage logging on spotted owl demographics.

Study	Study Location(s), Sample Size and Unit, and Period	Disturbance Type(s) Evaluated	Response (Effect on Parameter)	
			Parameter	
Lee et al. (2012)	Sierra Nevada-wide, 41 burned/145 unburned territories, up to 7 years post-fire.	Wildfire (including salvage)	Extinction	<b>Neutral</b> - No significant difference between burned and unburned sites in probability of local extinction.
			Colonization	<b>Neutral</b> - No significant difference between burned and unburned sites in probability of colonization.
			Occupancy (single or pair)	<b>Neutral</b> - No significant effect of high severity fire on occupancy.
Clark et al. (2013)	Southwest Oregon, 31 burned/103 unburned territories, up to 15 years pre-fire and 4-5 years post-fire.	Logging, High Severity Fire, Salvage Logging	Extinction	<b>Negative</b> - Probability of extinction increased due to the interactive effect of past timber harvest, high severity fire, and salvage logging.
			Colonization	<b>Unclear</b> - Few colonization events were observed.
			Occupancy (pair)	<b>Negative</b> - Declines in occupancy were driven by increases in extinction, attributable to past timber harvest, high severity fire, and salvage logging.
Lee et al. (2013)	San Bernardino National Forest, 78 unburned/58 burned territories, 9 years for unburned and 8 years post-fire for burned territories.	High Severity Fire, Salvage Logging	Extinction	<b>Negative</b> - Average annual extinction probability was higher in burned territories, increased as the amount of habitat that burned at high severity increased, and increased as the amount of habitat that was salvage logged increased.
			Colonization	<b>Negative</b> - Mean annual probability of colonization was lower in burned sites than unburned sites, but was not affected by salvage logging.
			Occupancy (single and pair)	<b>Negative</b> - When >50 ha of forested habitat burned at high severity, site occupancy probability decreased by 0.003 for every additional hectare of forested habitat severely burned and post-fire salvage logging exacerbated the effect by decreasing occupancy probability an additional 0.05.



Table 4 (continued). Summary of the results from studies on the effects of fire and salvage logging on spotted owl demographics.

Study	Study Location(s), Sample Size and Unit, and Period	Disturbance Type(s) Evaluated	Response (Effect on Parameter)	
			Parameter	
Tempel et al. (2014b)	Eldorado Demographic Study Area, 70 territories, 20 years.	High- intensity Logging, Wildfire (including salvage), and Medium- intensity Logging	Reproduction	<b>Negative</b> - "[M]edium-intensity timber harvests characteristic of proposed fuel treatments were negatively related to reproduction of Spotted Owls in our study. Reproduction appeared sensitive to modest amounts of medium-intensity harvests, and was predicted to decline from 0.54 to 0.45 when 20 ha were treated." (pg. 2101)
			Survival	<b>Negative</b> - Medium-intensity logging, when implemented in high canopy cover forests, was associated with reductions in survival.
			Extinction	<b>Positive</b> - Extinction was negatively correlated with the area of high-intensity timber harvest. High intensity timber harvest occur on 5.4% of the total area within owl territories in the study.
			Colonization	<b>Negative</b> - Medium-intensity logging, when implemented in high canopy cover forests, were associated with reductions in colonization.
			Occupancy (single or pair)	<b>Negative</b> - Equilibrium occupancy was negatively correlated with wildfire.
Lee and Bond (2015a)	Stanislaus National Forest, 45 territories, 1 year post-fire.	High Severity Fire	Occupancy (single and pair)	<b>Neutral</b> - Probability of occupancy of a single individual 1 year post-fire was relatively high, compared to other studies on the species in burned or unburned forest in the Sierra Nevada, with most sites being occupied by pairs.
Lee and Bond (2015b)	San Bernardino National Forest, 76 unburned/52 burned, 9 years for unburned and 4-8 years post-fire for burned territories.	High Severity Fire, Salvage Logging	Reproduction	<b>Neutral</b> - No significant effect of fire or logging on reproduction were detected.
			Occupancy (single or pair)	<b>Negative</b> - Significantly lower occupancy in burned vs. unburned sites. <b>Negative</b> - Occupancy was further reduced by the amount of salvage logging that occurred.

Table 4 (continued). Summary of the results from studies on the effects of fire and salvage logging on spotted owl demographics.

Study	Study Location(s), Sample Size and Unit, and Period	Disturbance Type(s) Evaluated	Parameter	Response (Effect on Parameter)	
Tempel et al. (2016)	Lassen, Eldorado, Sierra, and Sequoia-Kings Canyon demographic study areas, 275 territories, 19 years.	Wildfire (including salvage on National Forests), Prescribed Fire, Logging	Extinction	<b>Positive</b> - On the ELD study area, logging less than 1% of a territory in the previous 3 years was negatively correlated with extinction.	<b>Positive</b> - On the ELD study area, logging less than 1% of a territory in the previous 3 years was negatively correlated with extinction.
				<b>Neutral</b> - No support for an effect of logging less than 1% of a territory in the previous 3 years was detected for the LAS or SIE study areas.	<b>Neutral</b> - No support for an effect of logging less than 1% of a territory in the previous 3 years was detected for the LAS or SIE study areas.
				<b>Positive</b> - On the SKC study area, wildfire was negatively related to extinction.	<b>Positive</b> - On the SKC study area, wildfire was negatively related to extinction.
				<b>Neutral</b> - No support for an effect of wildfire was detected on the ELD, LAS, or SIE study areas.	<b>Neutral</b> - No support for an effect of wildfire was detected on the ELD, LAS, or SIE study areas.
Jones et al. (2016)	Eldorado demographic study area, 15 unburned/30 burned territories, 22 years pre-fire/1 year post-fire.	High Severity Fire	Colonization	<b>Neutral</b> - No support for an effect of logging less than 1% of a territory in the previous 3 years was detected for the ELD, LAS, or SIE study areas.	<b>Neutral</b> - No support for an effect of logging less than 1% of a territory in the previous 3 years was detected for the ELD, LAS, or SIE study areas.
				<b>Positive</b> - On the ELD study area, logging less than 1% of a territory in the previous 3 years was positively associated with occupancy.	<b>Positive</b> - On the ELD study area, logging less than 1% of a territory in the previous 3 years was positively associated with occupancy.
				<b>Negative</b> - Probability of extinction increased as the proportion of high-severity fire increased and extinction was 7 times more likely in territories that burned with >50% high severity.	<b>Negative</b> - Probability of extinction increased as the proportion of high-severity fire increased and extinction was 7 times more likely in territories that burned with >50% high severity.
				<b>Negative</b> - Sites that burned at <50% high-severity were more likely to be colonized after the fire than unburned territories or territories that burned with <50% high severity.	<b>Negative</b> - Sites that burned at <50% high-severity were more likely to be colonized after the fire than unburned territories or territories that burned with <50% high severity.
Rockweit et al. (2017)	Klamath Province, 24 burned/70 unburned territories, 26 years for unburned and 4-26 years post-fire for burned territories.	Wildfire	Occupancy (single or pair)	<b>Negative</b> - Probability occupancy was nine times lower for territories that burned with >50% high-severity fire effects than unburned sites.	<b>Negative</b> - Probability occupancy was nine times lower for territories that burned with >50% high-severity fire effects than unburned sites.
				<b>Negative</b> - As the total amount of high severity and moderate severity fire effects increased, apparent survival decreased.	<b>Negative</b> - As the total amount of high severity and moderate severity fire effects increased, apparent survival decreased.
				<b>Neutral or Positive</b> - There was no significant difference between post-fire recruitment rates and the control group, except for owls affected by wildfire in 2008, where recruitment rates increased.	<b>Neutral or Positive</b> - There was no significant difference between post-fire recruitment rates and the control group, except for owls affected by wildfire in 2008, where recruitment rates increased.

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