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SERAL Interdisciplinary Team
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Submitted via: https://cara.fs2c.usda.gov/Public//CommentInput?Project=63557

Re: Comments on Draft Environmental Impact Statement (DEIS) for Social and Ecological Resilience Across the Landscape 2.0 (SERAL 2) (https://www.fs.usda.gov/project/?project=63557)

The Center for Biological Diversity submits the following comments regarding the SERAL 2.0 Project.[1] As discussed below, the Project fails to meaningfully protect the habitat of the California spotted owl, a species that is overdue for listing under the Endangered Species Act. The Project also violates NEPA's requirement to conduct site-specific analyses, as contains other actions that should be modified or clarified.

A. The Project-Specific Forest Plan Amendments Provide Less Conservation for CSO than the Recently Adopted Forest Plans for the Sierra and Sequoia National Forests.

The Forest Service recently adopted revised forest plans for the Sierra and Sequoia National Forests that are immediately adjacent to and south of the Stanislaus National Forest. Revision of these forest plans included plan components to implement the Forest Service's CSO strategy. The Records of Decision issued in May 2023 for the Sierra and Sequoia National Forests state that the adopted plan components are required to "provide the ecological conditions necessary to maintain a viable population of each species of conservation concern in the plan area."

Contrary to the revised forest plans, the project-specific forest plan amendment for the SERAL 2 Project includes numerous plan components that are not consistent with the revised forest plans adopted in May 2023. The Project would allow habitat to be degraded to a greater extent than the newly revised forests plans. The following are examples of key differences between the revised forest plans and the SERAL 2 Project that result in less conservation and greater risk to CSO viability as compared to the revised forest plans.

1. Desired Conditions for Territories

The revised forest plans establish the following desired conditions for CSO territories:

[1] The comments are largely the work of Sue Britting.

SPEC-CSO-DC 02
At least 40 percent (for dry vegetation type and site conditions) or at least 60 percent (for moist vegetation type and site conditions) of each California spotted owl territory **consists of the highest quality nesting and roosting habitat** (see definition above) in large enough patches to provide interior stand conditions, generally 1 to 2 tree heights from an edge. [Emphasis added]

In contrast, the SERAL 2 Project conflates the ranking of habitat quality within the territory with the desired condition, mistakenly allowing lesser quality habitat to satisfy the desired condition in a territory. For example, even when only low-quality habitat currently exists within a CSO territory, the SERAL 2 Project considers that habitat to be the desired condition for the territory.

This is a critical difference between the revised forest plans and the SERAL 2 Project. If the desired conditions are not met in the territory, then the revised forest plans limit how logging can modify habitat. The SERAL 2 Project, on the other hand, allows lower quality habitat to satisfy the desired condition and therefore allows more intensive logging, and consequently more habitat reduction and degradation. Even though over 90% of the territories within the SERAL 2 Project boundary have far less than 40% in highest quality habitat, limits to logging, as can be seen by reviewing the "notes" column of Table B.02-4, are rarely invoked because the table concludes that desired conditions have been met.

The Forest Service's explanations in defense of the SERAL 2 Project do not make sense and contradict the agency's own finding with respect to the revised forest plans for the Sierra and Sequoia National Forests.

2. Definition of "Maintain or Improve Habitat Quality"

Several plan components related to protected activity centers (PACs), territories, and survey requirements are linked to the requirement to "maintain or improve" habitat quality. The revised forest plans define maintain and improve as follows:

Management activities that maintain or improve habitat quality in the highest quality and best available nesting and roosting habitat would:

- Retain existing CWHR canopy cover class (e.g., do not reduce 5D to 5M);
- Retain clumps of the largest available trees greater than 24 inches diameter at breast height; and
- Retain at least two canopy layers at the stand/patch scale in areas where large trees occur.

In contrast, the SERAL 2 Project defines "maintain or improve" to include actions that reduce habitat quality, e.g., reducing canopy cover class. For instance, the SERAL 2 Project information suggests that CWHR 5D would be reduced to CWHR 5M, a reduction in canopy class, on over 800 acres in CSO territories. And, roughly 250 acres in territories could be reduced from CWHR 5M to CWHR 5P. The DEIS acknowledges this level of habitat degradation, but simply relies on statements about meeting NRV to justify this habitat loss.

The definition of "maintain or improve" in the SERAL 2 Project also affects another plan component in ways that expose CSO to more risk and habitat degradation or loss. The Project includes a standard about surveys indicating that pre-implementation surveys are not required for actions planned outside of PACs that "maintain or improve" habitat. This means that pre-implementation surveys are not required for actions that reduce habitat quality, e.g., change canopy cover class. This increases the risk that occupied owl sites will be negatively affected by logging either from disturbance or habitat alteration and destruction. The DEIS did not directly address this, but rather indicated that surveys were being completed prior to all activities. If it is the intention to complete surveys prior to all actions, then the sentence on pre-implementation surveys should be removed:

> For vegetation treatments that maintain or improve habitat quality in California spotted owl nesting and roosting habitat outside of protected activity centers, pre-implementation surveys are not required.

If this sentence is not removed, then the potential impacts of habitat alteration in areas where birds may occur should be disclosed.

3. Standard for Management in a Territory

The desired condition in the revised forest plans is linked to a standard that directs how habitat within the territory is to be maintained if desired conditions are not met. This standard requires that if desired conditions are not met, then highest quality habitat must be maintained. Further, the standard requires that for territories with pair status, best available habitat must be maintained to meet desired conditions with CWHR 4D prioritized over 4M.

The standard in the SERAL 2 Project (SPEC-CSO-STD-07) only requires the retention of highest quality habitat if the desired condition that includes lower quality habitat has not been met. The standard also does not address retention of the next best habitat available, CWHR 4D, if there is insufficient highest quality habitat. The omission of retaining CWHR 4D habitat is especially concerning, since there is so little CWHR 5M and 5D habitat in the project area and CSO are likely depending on CWHR 4D to a much greater extent to meet reproductive requirements.

The combined effect of the misstated desired condition for the territory and the more liberal standard for territory management is to reduce the quality and quantity of reproductive habitat. To get a sense of the potential for habitat degradation, the habitat quality in territories under Forest Service ownership with at least 600 acres within the project boundary were examined. **Of the 44 territories examined using the data provided in the SERAL 2 Project, only 4 meet the desired conditions as stated in the revised forest plans.[2] In contrast, 42 of the 44**

[2] This lack of highest quality habitat is confirmed by the analysis provided in the Case Study (p. 23) that was included in the SERAL project file (https://usfs-public.app.box.com/v/PinyonPublic/file/1445723937236)

territories meet the desired condition as stated in the Seral 2 Project.[3] This means that the SERAL 2 Project will result in greater reduction in habitat quality and less constraint on habitat reducing activities compared to the agency's revised forest plans.

4. Landscape Analysis: Moist Mixed Conifer Versus Dry Mixed Conifer

For both the SERAL 2 Project and the revised forest plans, a landscape analysis is needed to determine if territories are dominated by moist or dry conditions and to establish the range of 40% to 60% of the territory in a specific desired condition. The revised forest plans include an appendix that establishes a method for assessing conditions and assigning the desired condition for each territory. This method uses the Sierran Mixed Conifer and Red Fir WHR types established in the Existing Vegetation along with topographic position data to assign a territory to "Moist Mixed Conifer" or "Dry Mixed Conifer." The distinction between "moist" and "dry" is primarily based on topographic position, i.e., moist = drainage bottom, northeast slope; dry = ridge, southwest slope.

In contrast, the SERAL 2 Project relies on an analysis that assigns "Moist Mixed Conifer" or "Dry Mixed Conifer" to the landscape, but does not specifically identify the criteria that were used to distinguish "moist" from "dry." The project file includes a case study that compares the approach in SERAL 2 to the approach adopted in the revised forest plans for the Sierra and Sequoia National Forests. The Case Study claims that the determination of Moist Mixed Conifer versus Dry Mixed Conifer was based on the methods in Huang et al. (2018) and Safford and Stevens (2017). This assertion is incorrect for a number of reasons. First, Huang et al. (2018) does not define the attributes that separate "Moist Mixed Conifer" or "Dry Mixed Conifer" as forest types. The reference cited describes the method (commonly called F3) to process remotely sensed data and apply it to landscapes. In fact, the only citation provided that defines "Moist Mixed Conifer" or "Dry Mixed Conifer" is Safford and Stevens (2017). The definitions of "Moist Mixed Conifer" or "Dry Mixed Conifer" are based on LANDFIRE BpS descriptions.

Second, the seral stage analysis used in Safford and Stevens (2017) also used LANDFIRE data to evaluate the abundance of seral stages. If the method used in Safford and Stevens (2017) is applied to Seral 2, a significantly different distribution of desired seral stages would result with substantially greater amounts of Moist Mixed Conifer estimated on the landscape. We would also expect that the Safford and Stevens (2017) method would identify that the amount of CWHR 5M/5D is underrepresented on more of the landscape compared to the method used in Seral 2.

Figure 1 illustrates the differences in distribution of "Moist Mixed Conifer" and "Dry Mixed Conifer" for the method used in Safford and Stevens (2017) versus Seral 2. Two points of comparison are important to note. First, the overall amount of "moist mixed conifer" is greater using the method applied by Safford and Stevens. Second, territories themselves generally contain more "moist mixed conifer" type using the method applied by Safford and Stevens.

[3] These numbers regarding desired conditions in territories are roughly confirmed by the Forest Service in the Case Study.

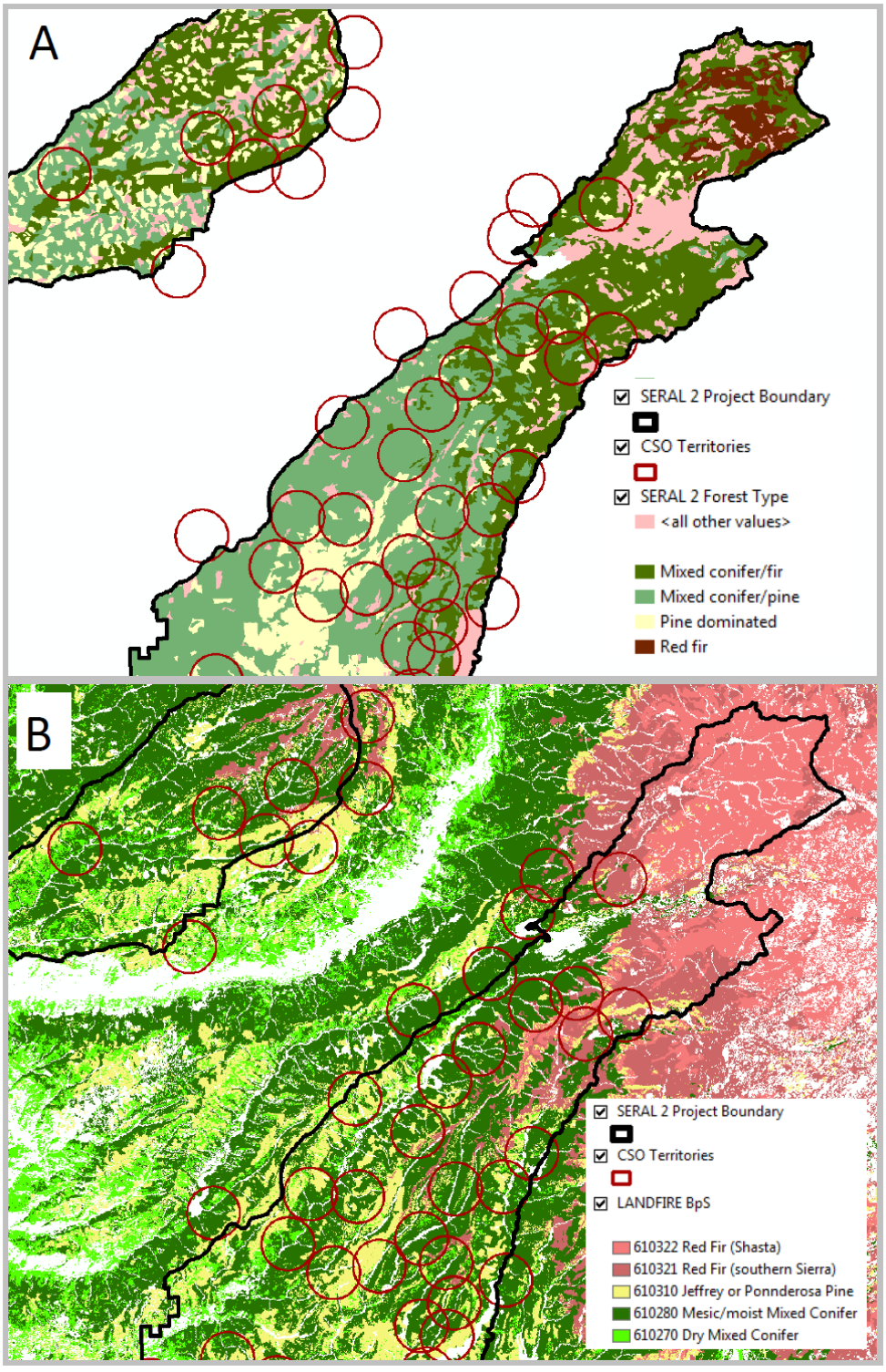

Figure 1. Northern portion of the SERAL 2 project area comparing distribution of "Moist Mixed Conifer" and "Dry Mixed Conifer" using the method in SERAL 2 (A, top panel) and Safford and Stevens (2017) (B, bottom panel). Maps also reflect pine type and red fir. Data for Safford and Stevens (2017) method taken from LANDFIRE BpS and data for SERAL 2 taken from the project file.

Third, the SERAL 2 Project analysis also diverges from Safford and Stevens (2017) in how each seral stage is defined. Safford and Stevens (2017) based their definitions on those provided in the LANDFIRE BsP for seral stage that have different diameter breaks and canopy cover breaks compared to CWHR which is used in SERAL 2. The following table summarizes the seral stage ("successional class") used in Safford and Stevens (2017).

Table 1. Dry mixed conifer and mesic mixed conifer used in Safford and Stevens (2017) and defined by LANDFIRE BpS descriptions #0610270 and 0610280, respectively. See Attachment A of these comments for full BpS descriptions for these types. SERAL attributes taken from Case Study.

Stage	**Overstory canopy cover breaks (Safford and Stevens 2017)**	**Tree diameter classes (Safford and Stevens 2017)**	**Overstory canopy cover breaks (SERAL 1 and 2)**	**Tree diameter classes (SERAL 1 and 2)**
Early development		<5" DBH		<6" DBH
Mid Development Open	0% to 50%	9"-21" DBH	10-40%	6" - <24" DBH
Mid Development Closed	51% to 100%	9"-21" DBH	>40%	6" - <24" DBH
Late Development Open	0% to 50%	>33" DBH	10-40%	>24" DBH
Late Development Closed	51% to 100%	>33" DBH	>40%	>24" DBH

The method used in SERAL 2 (and SERAL 1) failed to adjust their canopy breaks and diameter breaks to account for these differences and failed to discuss how the differences in definitions impact the analysis. This is especially important since the diameter class breaks used in Safford and Stevens (2017) that are derived from the BpS descriptions are not continuous and have a gap for diameters 22" to 33" DBH that need to be interpreted and explained. The revised plans for the Sierra and Sequoia National Forests recognized these differences and used information in Safford and Stevens (2017) and LANDFIRE information along with other science information to develop the seral stage descriptions and distributions that align with CWHR descriptions in those recently approved forest plans.

The Case Study also completed an evaluation of "Moist Mixed Conifer" and "Dry Mixed Conifer" using the methods identified in the revised plans for the Sierra and Sequoia National Forests. This method found that 20 of the 56 CSO territories in the SERAL 2 project area fit the definition of "Moist Mixed Conifer." In contrast, SERAL 2 elected not to determine if a territory was "dry" or "moist," but chose to determine desired condition by their delineations of "Moist Mixed Conifer" and "Dry Mixed Conifer." Since the SERAL 2 method underestimates the amount of "Moist Mixed Conifer," greater reduction in habitat quality is allowed and lesser amounts of higher quality habitat result in SERAL 2 compared to the recently revised forest plans.

The underestimation of "moist mixed conifer" in SERAL 2 translates into desired conditions for territories that provide a lesser amount of suitable habitat compared to the approach used for the revised forest plans or the method used in Safford and Stevens (2017).

Despite the claims in the DEIS and project file, the SERAL 2 (and SERAL 1) analysis does not follow Safford and Stevens (2017) or Huang et al. (2018) with respect to defining "Moist Mixed Conifer" and "Dry Mixed Conifer" and quantifying seral stage distribution in the project area. This misapplication of methods results in the underestimation of "moist mixed conifer" in SERAL 2. It also translates into desired conditions for territories that provide a lesser amount of suitable habitat compared to the approach used by the Forest Service for the revised forest plans or the method used in Safford and Stevens (2017).

5. Failure to Provide for Consistent Conservation

The project-specific forest plan amendments in the Seral 2 Project provide for less conservation for CSO compared to the recently revised forest plans for Sierra and Sequoia National Forests. The response to the differences are illogical and arbitrary and result in even greater harm to a species about to be listed under the ESA. Moreover, this lack of consistency makes no sense.

B. Treatments in CSO PACs Result in Habitat Degradation When Habitat Quality is Already Low

The DEIS does not consider the existing lack of high-quality habitat in PACs when evaluating impacts to CSO. On average, PACs in the project area have about 60 acres of high-quality nesting and roosting habitat, i.e., CWHR 5M/5D. Thirty-eight of the 51 PACs have 100 acres or less of high-quality nesting and roosting habitat. In PACs with low amounts of high-quality habitat, dense habitat with moderate tree sizes, i.e., CWHR 4D, should be retained in greater amounts to compensate for their lack of high-quality habitat. This is especially important in the following twelve PACs with low amounts of CWHR 5M/5D where larger amounts of CWHR 4D is targeted for logging: TOU0261, TOU0241, TOU0239, TOU0215, TOU0165, TOU0156, TOU0132, TOU0126, TOU0101.

The low existing habitat quality combined with the logging proposed in PACs increases the risk that nest sites will be abandoned. The scale of treatments proposed for SERAL 2 combined with SERAL 1 is unprecedented. It is unknown from the literature how CSO will respond to up to 100 acres of habitat alteration in PACs. Only three studies have investigated experimental logging impacts to California spotted owls. They consistently showed negative impacts to CSO occupancy and other demographic parameters (Keane et al. 2017), and these studies did not treat PACs as intensively as proposed here.

Combined with the habitat alteration and degradation proposed in CSO territories outside of PACs, these actions pose the risk of territory abandonment and long-term negative impacts to CSO (Seamans and Gutierrez 2007; Tempel et al. 2016; Tempel et al. 2014; Stephens et al. 2014).

C. Woodrat Habitat

Woodrats are a valuable prey item for CSO. The creation of woodrat habitat requires more than simply creating forest openings as suggested in the DEIS. To support woodrats the habitat needs to be at the right elevation (generally elevations less than 5,000 feet) and have the right habitat structure and food sources. Important among these are large down logs and large black oak to produce mast (Innes et al. 2007). Woodrats are also associated with well-developed riparian areas and shrubs/understory (Sakai and Noon 1997). Areas that presently support flying squirrels cannot be converted into woodrat habitat by simply logging. Reducing canopy cover and opening up stands can result in abandonment of habitat occupied by flying squirrels as was shown following logging in and adjacent to the Stanislaus-Tuolumne Experimental Forest (Sollman et al. 2016).

D. High Risk to CSO Persistence, Yet No Monitoring Is Proposed

SERAL 2 far exceeds the scale and intensity of any experimental treatments to date on CSO. Combined with SERAL 1, these two projects introduce significant uncertainty regarding the persistence of CSO across over 304,000 acres occupied by at least 100 owl pairs. These two projects threaten the sustainability of CSO on this landscape at a time when declines in CSO have been recognized and listing under the Endangered Species Act is imminent.

The DEIS points to impacts from wildfire as likely to affect PAC occupancy raising concerns about negative effects on 10% of the PACs. Yet, here in SERAL 1 and 2, logging will reduce habitat quality in roughly 65% of the PACs on the Stanislaus National Forest. The potential for negative impact is much larger than that reported on the Lassen National Forest.

Despite the risk and threats from the SERAL projects, no coherent monitoring program has been designed or implemented. The DEIS (Volume 2) reports completing owl surveys, but this is not monitoring or the examination of cause and effect of treatments on CSO persistence. Before any further logging actions are taken that impact CSO and its habitat, a monitoring plan to evaluate treatments impacts on CSO should be designed and implemented.

E. American Goshawk

There are 23 American goshawk (AMGO) PACs in the project area (BE, p. 19-20). It is unclear what is being proposed in these PACs. According to the forest plan, no logging is allowed in PACs that occur outside of the defense and threat zones of the wildland urban interface (WUI). We assume that this forest plan direction is being followed, but ask that this be confirmed.

We also note that there is no pre- and post-treatment effects analysis of habitat for AMGO. We are especially concerned that AMGO sites in the North Fork Tuolumne and Clavey watersheds retain sufficient nesting habitat with appropriate structure. In this area, white fir stands often dominate the area and provide the ecological conditions necessary to support AMGO. We are concerned that thinning in SERAL 2 will target these areas and degrade habitat conditions for these important habitat areas. This should be addressed in the DEIS.

F. Use of Herbicides to Maintain Fuel Breaks

The Project includes the application of herbicide to control shrubs and other plants on up to 13,000 acres in fuel breaks. The herbicides and associated surfactants proposed for use are known to be hazardous to humans and wildlife. For example, glyphosate has been identified by the World Health Organization as a potential carcinogen and a ban on its sales and use has been proposed by the European Union (Agathokleous 2022). Please minimize the use of herbicides by first prioritizing the use of other methods.

G. Fuel Reduction in Inventoried Roadless Areas (IRAs)

The Project includes 3,344 acres of mastication and mechanical treatment for fuel breaks in IRAs. The Roadless Area Conservation Rule states that actions in IRAs must be evaluated based on site specific conditions. The DEIS provides no information about the specific conditions of the site.

H. Future Salvage Logging

The Project includes post-disturbance logging to salvage trees affected by fire, insects and disease. This speculative decision-making is referred to as condition-based management (CBM). We object to the use of this approach as it is contrary to the site-specific analyses required by NEPA. Central to our concern is the identification of the locations for the proposed treatments and disclosure of the site-specific impacts of the proposed treatments on the affected resources.

Sincerely,

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