Planting Plan for Board Camp Grove

Purpose

This planting plan provides planting prescriptions, including the densities, species mixes, and distribution of those mixes across planting areas as necessary to re-establish tree seedlings in the Board Camp Grove where the decision tree described and approved through the *Re-establish Tree Seedlings in Severely Burned Giant Sequoia Groves and Adjacent Fisher Habitat Environmental Assessment (EA)/Finding of No Significant Impact (FONSI)* demonstrates insufficient regeneration. Please see attached map of SEKI Planting Units in this area. We will use these planting prescriptions in conjunction with internal guidance and mitigations outlined in the EA to guide on-site training of planters.

Planting Prescriptions

Board Camp Grove totals 48 acres, with 38 acres burned at high severity, and is located in the John Krebs Wilderness on south-facing slopes in the South Fork drainage of the Kaweah River. Board Camp Grove will be replanted at a density of 75-200 trees per acre with different planting densities and species mixes for identified planting units. Please see attached map of SEKI Planting Units and Tables 1-3 for details on planting densities and compositions.

Planting spacing will follow the individuals, clumps, and openings pattern using a field fit approach rather than plantation style planting with set spacing. Within each planting unit, planters will plant 30% of seedlings as scattered individuals and 70% of seedlings in clumps, prioritizing microsites as described below. We will determine clump location, size, and spacing based on microsites. Clumps will typically be made of 3 – 15 individuals of the same species spaced 6 – 24 inches apart depending on the type and size of microsite (e.g., we will put more individuals in larger microsites like wet areas or along larger logs creating shade). Because seedlings planted near shade objects are more likely to die if the object combusts during a fire, roughly 20% of all seedlings (both individuals and clumps) will be planted away from combustible shade objects (e.g., we will plant by boulders and in open areas). Planting scattered individuals and clumps will naturally create openings of different shapes and sizes throughout the planting units. These openings are important in creating heterogenous stand structure rather than a homogenous structure typical of plantation planting. We will not plant in areas that are determined to have significant regeneration (final determination to be verified in the field). We will generally not plant within 50m of a living mature giant sequoia tree that is expected to provide ample seed rain within that range into the future. Again, see attached map of SEKI Planting Units for context of these locations.

We will prioritize planting in microsites including the north side of shade/nurse objects (e.g., snags, logs, stumps, rocks), depressions (e.g., giant sequoia potholes), and wet areas (e.g., stream edges). Shrubs can either facilitate or inhibit seedling establishment dependent on environmental conditions. We will plant some seedlings directly within small shrub patches, on all aspect types, to ensure that seedlings are distributed throughout the landscape and not just on the edges of large shrub patches.

We split the landscape into five (5) landscape units (ridge, canyon bottom/drainage and Northeast mid-slope <30 percent, Southwest mid-slope <30 percent, Southwest mid-slope >30 percent, and Northeast mid-slope >30 percent) that have different planting densities (see Table 1). We will

generally plant at higher densities in canyon bottom/drainages and northeast aspects and lower densities on ridges and southwest aspects. Transitions zones between aspect types, canyon bottom/drainages to southwest aspects, and ridges to northeast aspects occur across the planting units, and we will make field-based decisions on planting density in these zones (e.g., plant more individuals in a canyon bottom/drainage and fewer individuals where it transitions to a Southwest aspect).

We used the dominant vegetation type, as mapped before these wildfires, to create species mixes (Table 2). Together, we used the dominant vegetation and landscape unit to create the planting prescription for each planting unit (Table 3). We will use planting unit maps and a field fit approach to plant appropriate species and densities within a planting unit, as there is variation within a planting unit (e.g., transition zones, increasing or decreasing slope, different vegetation types or suitable habitat). For planting units called shrub dominant on the map, we will plant at a lower density of 100 tree seedlings per acre (tpa)). If no snags are present within the shrub patch, we will not plant in the shrubs but rather in areas around the shrub patch, but if snags are present, then we will plant within the shrub patch. We will generally not plant further than 50m (distance of most seed distribution) from dead or dying giant sequoia trees (e.g., those trees that are not anticipated to continue to contribute seed rain into the future).

For giant sequoia of nonlocal genotypes, we will only plant within designated locations and mark where they are in the field. We will not mix the nonlocal genotypes throughout the entire landscape but rather have them contained to discrete identifiable locations. We will not mix seedlings of local and nonlocal genotypes at any given location (i.e., they will be planted separately from each other).

Table 1. Planting Acreage, Density, Species Mixes and Proportions for Each Landscape Unit in Board Camp Grove

Landscape Unit	**Planting Acreage**	**Planting Density (tpa)**	**Species Composition in Comparison to Table 2 Percentages**
Canyon bottom/drainage and Northeast mid-slope <30 percent	35	200	More giant sequoia, white fir, and incense cedar
Northeast mid-slope >30 percent	0	150	More giant sequoia, white fir, and incense cedar
Southwest mid-slope <30 percent	0	100	Less white fir and incense cedar, more ponderosa pine
Southwest mid-slope >30 percent	2	75	Less white fir and incense cedar, more ponderosa pine
Ridge	1	75	Less giant sequoia, more ponderosa pine and sugar pine
Total	38		

Table 2. Approximate Species Mixes and Proportions for Different Vegetation Alliances

Vegetation Alliance	Giant Sequoia	Sugar Pine	Ponderosa Pine	Jeffrey Pine	White Fir	Incense Cedar
Giant Sequoia	70%	10%	5%	5%	5%	5%
White Fir – Sugar Pine	30%	25%	5%	5%	25%	10%

Table 3. Approximate Species Mix Proportions of Different Vegetation Alliances and Landscape Units for Board Camp Grove

Site	Vegetation Alliance	Landscape Unit	Giant Sequoia	Sugar Pine	Ponderosa Pine	Jeffrey Pine	White Fir	Incense Cedar
Board Camp	Giant Sequoia	Canyon/ NE < 30	66.67%	9.52%	4.76%	9.52%	4.76%	4.76%
Board Camp	Giant Sequoia	SW > 30	66.67%	9.52%	14.29%	9.52%	0.00%	0.00%
Board Camp	Giant Sequoia	Ridge	52.38%	9.52%	14.29%	14.29%	4.76%	4.76%
Board Camp	White Fir-Sugar Pine	Canyon/ NE < 30	30%	25%	5%	5%	25%	10%

SEKI Planting Map
Board Camp

Sequoia and Kings Canyon National Parks
National Park Service
U.S. Department of the Interior