Coffee Complex BAER
Ecology
Specialist Report

Elevations within the Coffee Fire range from approximately 3,200 to 7,200 feet above sea level. On the southern half of the fire the vegetation was primarily mixed conifer with montane shrublands and true fir (red fir or white fir) in the upper third of slopes. The northern half of the fire is higher in elevation that the southern half and is dominated by true fir forests transitioning to montane shrublands and subalpine conifer forests on the upper third of slopes. Some riparian, wet meadow and grassland communities are distributed throughout the fire, but are mostly in the northern half.

Fire regimes varied within the fire perimeter. The mixed conifer, pine and hardwood vegetation types are generally characterized as having frequent low severity fires. Mean fire return intervals ranged from 7 to 25 years depending on vegetation type and topographic position. The montane shrublands are characterized by a frequent high severity fire regime with mean fire return intervals around 25 years. True fir forests are generally characterized as having a mixed severity fire regime with fire frequencies around 25-40 years. The high elevation subalpine forests experience infrequent fire that usually burns at high severity, however there are instances of low severity burns in these forests. Fire return intervals in subalpine areas generally exceed 100 years. Based on the fire return interval departure geodatabase, most of the fire area had not burned within the past 100 years. However, there were approximately 390 acres that burned in the 1930s and another 300 acres that burned in the 1940s within the fire perimeter.

Vegetation recovery after fire can be a long term process. Trees and shrubs within low and moderate severity areas will likely benefit from the nutrients present in the ash as well as the reduction in competition for key resources (water, sunlight, nutrients). Many of the species present in montane shrublands will re-sprout from root crowns within a year after the fire and will be reestablished within 5-10 years. Forested areas that experienced high mortality will take longer to recover. Often montane shrubs and/or hardwoods establish in the burned area and remain as the dominate vegetation for several decades before the conifer trees grow large enough to begin to outcompete the other vegetation types. Therefore, it can take 50 years or more for the site to return to conifer forest. Short growing seasons, poor soil, inadequate resources and larger patch sizes can drastically increase this recovery time.

In some instances BARC soil burn severity mapping using dNBR algorithms is similar to results of RAVG vegetation burn severity mapping that uses RdNBR algorithms. However, they can also be very different. Therefore, it is not appropriate to use the BARC severity mapping to assess vegetation conditions and response at this time. Below are some photographs taken of the fire area depicted the range of fire effects to vegetation. Due to high fuel loadings and the conditions under which most of the fire burned it is likely the mixed conifer, true fir, pine, and subalpine vegetation types experienced more intense fire than would have occurred under historical fire regimes.

Example of fire effects in Mixed Conifer, Montane Chaparral and Subalpine vegetation

Fire effects in Mixed Conifer on the southern end of the fire. Note increasing severity with increase in elevation.

Southwest facing slope with mixed conifer and true fir vegetation types.

Aerial view of low to moderate severity fire effects.

Fire effects on southwest corner of fire with mixed conifer at lower elevations and montane chaparral at higher elevations.

Ground view of representative low-moderate severity stand.

Burn through grass and bracken fern. Note it did not have enough intensity to burn where trail had packed down vegetation.

View from the ground of a stand that burned at high severity.

View of moderate severity burn from the East Fork Coffee Creek Trail.

High severity fire in true fir and subalpine vegetation above Granite lake.

Adjacent landscape to give an idea of what the pre-fire landscape looked like.

Adjacent landscape to give an idea of what the pre-fire landscape looked like.

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