



Large and old Jeffrey pine trees in areas of the Inyo National Forest are often characterized by elevated small tree densities and ground fuels that contribute to decreased wildfire resistance and increased insect risk and drought stress.

Inyo National Forest Large Jeffrey Pine Inventory

Large (≥ 40 in dbh) and old (≥ 150 year) Jeffrey pine (*Pinus jeffreyi*) trees are important but relatively rare habitat structures for many wildlife species, including old forest associated species. I conducted a preliminary inventory of forest structural conditions (e.g., ladder and surface fuels) surrounding 38 large and old Jeffrey pine trees in two areas (June Lake Junction, Voorhis) where forest restoration treatments were being planned or considered by the Inyo National Forest. I evaluated whether large trees are experiencing high neighboring conifer densities, elevated ground fuel loads, and other issues (e.g., bark beetle activity) arising from long-term fire exclusion.

Key Findings

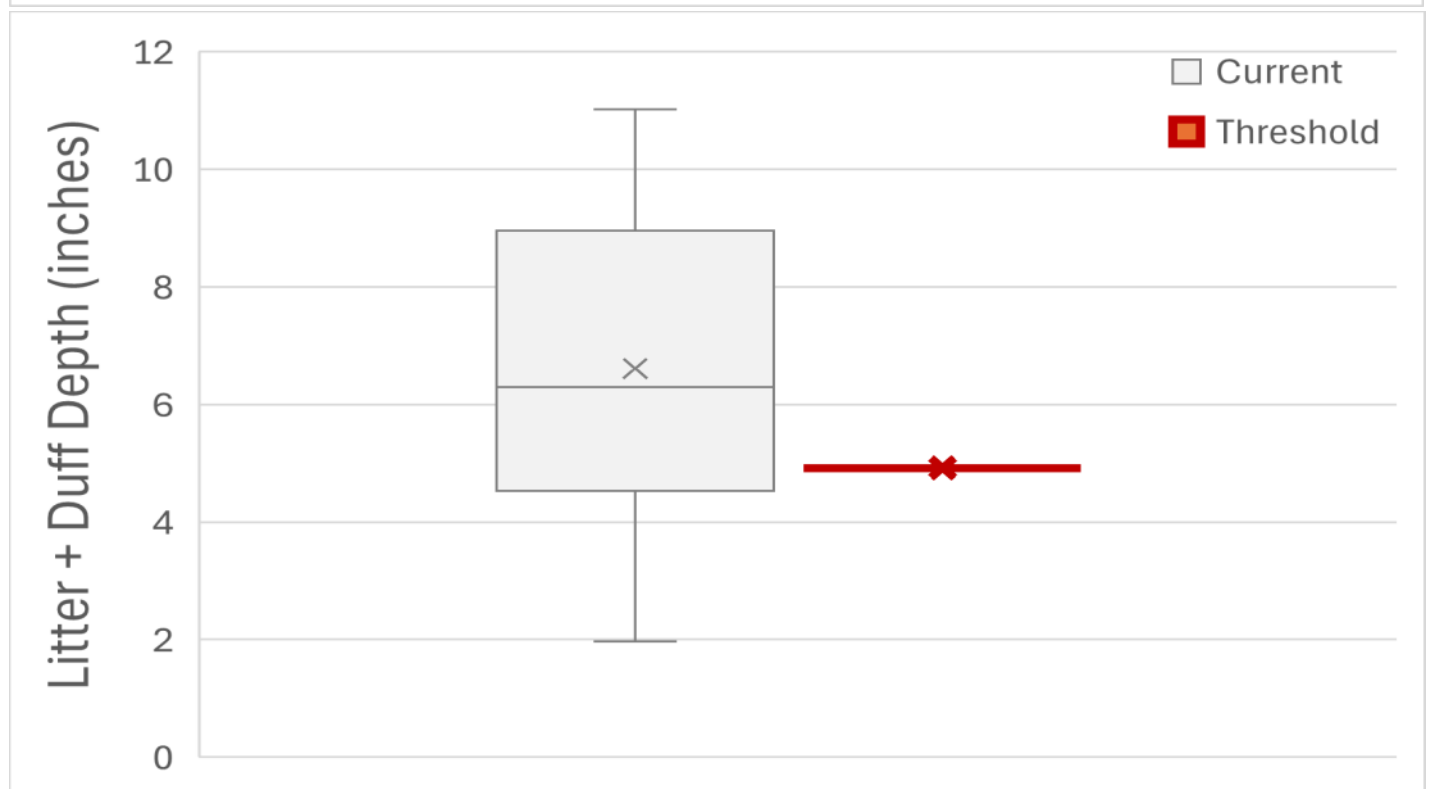
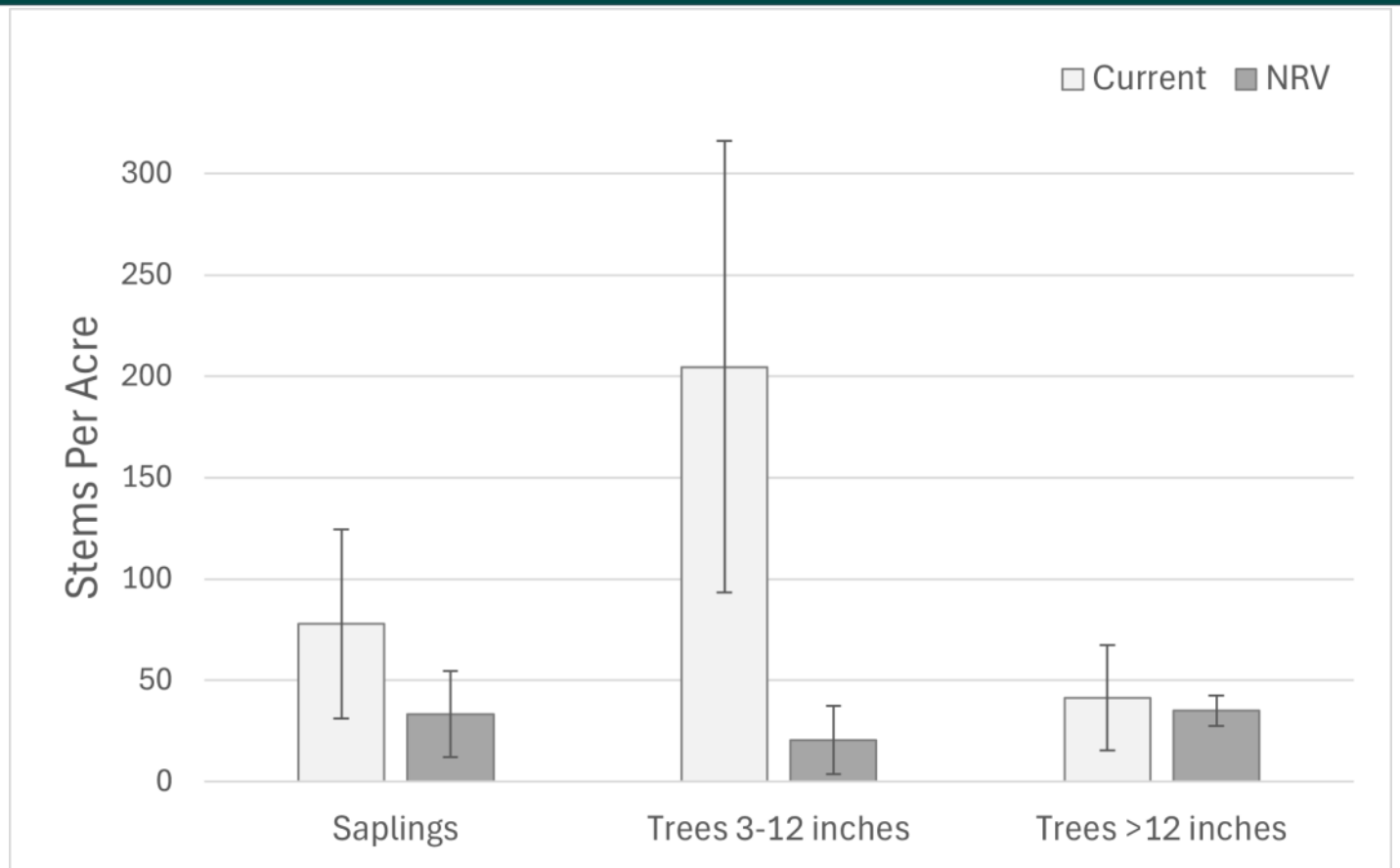
- Across both sites, about 87% of large Jeffrey pines inventoried were characterized by stem densities that exceeded the upper end of the Natural Range of Variation (NRV) of 92 small (< 12 in dbh) stems per acre. Large Jeffrey pine trees averaged 49 ± 7 (SD) inches dbh and 1.7 ± 0.7 stems per acre. Ongoing active Jeffrey pine beetle activity in large Jeffrey pines was observed throughout both areas.
- Litter and duff depths at the base of large Jeffrey pines exceeded the threshold of concern (i.e., > 5 inches) in 74% of large trees across both sites. These trees have a high risk of basal cambium damage if subjected to a slow-moving prescribed fire.
- These results suggest that stand-scale thinning treatments and prescribed burning combined with localized ground fuels removal (i.e., tree raking) would benefit large and old Jeffrey pines at June Lake Junction and Voorhis Camp areas by reducing tree densities and surface fuels that increase wildfire/insect risk & drought stress.



Fire-excluded Jeffrey pine stand with elevated small conifer densities and high surface fuels (especially litter and duff) surrounding a large (> 40 inch dbh) Jeffrey pines in the Voorhis Camp area of the Inyo National Forest.

Source:

Meyer, M., D. 2025. Inyo National Forest Large Tree Inventory. Unpublished brief. USDA Forest Service Pacific Southwest Region. Bishop, CA.



Top graph: Mean $\pm$ SD densities of saplings, small trees (3-12 in dbh), and larger trees (12-24 in dbh) within 0.12 ac inventory plots (current conditions) compared to the Natural Range of Variation (NRV). Plots are centered on large (>40 in dbh) Jeffrey pine trees in the Voorhis Camp area. **Bottom graph:** Box plot of current litter plus duff depth at the base of large Jeffrey pine trees (June Lake Junction area) relative to the threshold depth of concern (>5 in) with respect to future fire effects.