Since 2007, the SNAMP California Spotted Owl team has been working to understand if the potential long-term benefits (reduced fire risk) of Strategically Placed Landscape Area Treatments (SPLATs) outweigh potential short-term impacts (habitat simplification) to spotted owls. They conducted a two-part analysis to assess the effects including: 1) a retrospective analysis using 20 years of demographic data collected at 74 spotted owl territories and 2) a prospective analysis (30 years into the future) of the effects of SPLATs and wildfire on spotted owl habitat and demography. Their results come at an important time with the increase in severe fires at large scales. Forest managers are looking at how to address fire severity by reducing fuels while keeping functional habitat for wildlife.

The retrospective analysis assessed the effects of forest conditions, timber harvest, and wildfire on spotted owl reproduction, non-juvenille survival, and territory occupancy. All habitat and timber harvest variables were time-varying and could change annually because of natural disturbance, timber harvest, or regrowth. Timber harvest was categorized into three broad categories —low-intensity, medium-intensity, and high-intensity. SPLATs and other USFS treatments conducted prior to the adoption of SPLATs were considered to be medium-intensity harvests. The owl team’s research showed that owl territory fitness and occupancy were positively correlated with the amount of high-canopy-cover forest (canopy cover > 70% and dominated by trees greater than
help to regulate the thermal conditions that are beneficial to the owls. Reproductive success was negatively associated with the area of medium-intensity timber harvests characteristic of SPLATs.

The prospective analysis used the SNAMP forest health team modeling results where forest conditions were projected 30 years into the future under four different scenarios: no SPLATs and no fire; no SPLATs with fire; SPLATs and no fire; and SPLATs with fire. For each scenario, the owl team compared the amount of nesting habitat over the entire study area and projected occupancy and fitness rates at four owl territories. The results suggest that fuels-reduction treatments, as currently implemented by the U.S. Forest Service, have the potential to provide long-term (30-year) benefits to spotted owls in the event of fire under extreme weather conditions, but can have long-term negative effects on owls if fire does not occur.

The owl team recommends that the U.S. Forest Service continue its current policy that restricts timber harvest within spotted owl Protected Activity Centers (PACs), which contain ~125 hectares of the best habitat for nesting and roosting over long periods (up to 24 years). Whenever possible, SPLATs should be implemented in forests with canopy cover lower than 70% and in moderately dense stands; treatments can emphasize thinning from below while maintaining sufficient canopy cover and some vertical stand structure. Retaining large residual trees may allow owls to use intermediate-aged forests for nesting and roosting when they otherwise would not use them except as foraging habitat. As owl utilize large areas, it is also important to maintain landscape connectivity between PACs.

Monitoring of owl populations in the Sierra Nevada has shown a decline by as much as 50% over the last 20 years, so a cautious approach is warranted regarding the placement and nature of any fuels-reduction project near owl territories. Fuels-treatment arrangements should be designed and implemented in areas to limit the potential for high-severity fire to spread into PACs.

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