PRELIMINARY RESULTS FROM HAZARDOUS FUEL REDUCTION AT YOSEMITE NATIONAL PARK, CALIFORNIA

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ABSTRACT

Long-term vegetation monitoring of the effects of mechanical hazard fuel reduction and subsequent broadcast prescribed fires began in Yosemite National Park in 1996. Resource objectives for the work include target conditions of total fuel loads at 10–30 tons/acre, 5–25 pole-sized conifers per acre, and 90–150 overstory conifers. Another objective is to minimize mortality of pole-sized and overstory oak (*Quercus*) within 1 year of broadcast burning. Ten plots have been installed using a modified method from the 1992 National Park Service *Fire Monitoring Handbook*. The two-phase treatment starts with mechanical removal and piling of all ponderosa pine (*Pinus ponderosa*), incense cedar (*Calocedrus decurrens*), and white fir (*Picea alba*) smaller than 6 inches diameter breast height (DBH) and burning of the piles. The second phase is to execute a broadcast under burn within 2 years of the pile burning between March and December. Currently, five plots have been thinned and the piles burned, and one plot has been broadcast burned. After the thinning and pile burning, 1000-hour fuels were reduced by 21%. The flashier fuels increased: 1-hour fuels by 75% and 10-hour fuels by 17%. Average total fuel load was reduced by 26%, but is still above target levels. Pole-sized conifers, 1–6 inch DBH, were reduced by 76%. These results and others have helped to refine target conditions and better instruct field crews. Initial conclusions are that thinning and pile burning did not reduce the immediate threat from wildland fire, because while total fuels were reduced, the 1- and 10-hour fuel loads were increased. Total fuel load reductions were not met by thinning alone. Only one plot has been broadcast burned—it showed significant fuel load reduction, but more units will have to be burned before definitive conclusions can be made. The post-thinning monitoring was very helpful in evaluation of the thinning prescription and how closely that prescription was followed in the field. Current work based on preliminary results includes development of a "rapid assessment" methodology to better understand these treatments across the landscape and the use of stand visualization models predicting the changes in forest structure over time. Incorporation of this work will be used to better understand how the treatment is changing stand structure. The information will assist in refining project prescriptions, and with developing more realistic target conditions and field evaluations of future hazard fuel reduction projects.

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