

Summary Findings

An Ecosystem Management Strategy for Southern Sierran Mixed-Conifer Forests North, M.1, P. Stine¹, K. O’Hara², W. Zielinski³, and S. Stephens²

Fundamentally we believe that an ecosystem management strategy using a multiage silvicultural system is appropriate for managing southern Sierra National Forests. Some important facets of this strategy are:

FUELS MANAGEMENT: When stands cannot be burned, reducing fuels to moderate fire behavior is still a key priority because wildfire is likely to burn the area eventually. A few of the ecological benefits of fire are achieved with mechanical fuel reduction, but thinning is not an effective substitute for fire in affecting ecosystem processes. Reduction of surface fuels should be an equal priority with reducing ladder fuels.

LIMITED USE OF CROWN SEPARATION FUELS TREATMENTS: Reducing crown bulk density and increasing tree crown separation should be sparingly applied only to key strategic zones. More research is needed, but current models suggest its effects on reducing crown fire spread are limited, and the regular leave-tree spacing does not mimic tree patterns in active-fire regime forests.

STAND-LEVEL TREATMENTS FOR SENSITIVE WILDLIFE: Areas of dense forest and high canopy cover will be needed for California spotted owls and Pacific fishers. We suggest identifying those areas as places where historically fire would have burned less frequently or at lower severity, due to cooler microclimate and moister soil and fuel conditions.

LANDSCAPE-LEVEL TREATMENTS FOR SENSITIVE WILDLIFE: In the absence of better information owl and fisher preybase habitat may best be met by mimicking the variable forest conditions that would be produced by frequent fire. Reductions in stem density and canopy cover would emulate how a site’s slope, aspect, and slope position might have affected fire behavior and the stand structure that would have resulted from that fire behavior.

TREE SPECIES SPECIFIC PRESCRIPTIONS: Hardwoods and pines, with much lower densities in current forests compared with historical distributions, would rarely be thinned. The emphasis of thinning would be focused on firs and incense cedar. Pine plantations need to be addressed separately.

ALLOCATION OF GROWING SPACE: A large proportion of the growing space would be allocated to the largest tree stratum.

SPATIAL DISPERSION OF TREATMENTS: Trees within a stratum (i.e. canopy layers or age cohorts) would often be clumped, but different strata, for fuels reasons, would often be spatially separated. Particular attention should be given to providing horizontal heterogeneity to promote diverse habitat conditions.

TREATMENT OF INTERMEDIATE SIZED TREES: In most cases thinning 20-30" dbh trees will not affect fire severity and therefore other objectives for their removal should be clearly identified. Where those objectives are identified, silvicultural prescriptions would only remove intermediate-sized trees when they are shade-tolerants on mid or upper slope sites.