

ABUNDANCE OF SNAGS IN WESTERN MONTANA FORESTS^{TWS}

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Standards for snag retention and recruitment in managed forests are often based on models of species specific habitat requirements. If maintenance of the entire biota is the goal, an ecosystem approach, using historic patterns as a guide, may be more appropriate. I used plot data from the USFS continuous forest inventory program to characterize the abundance of snags from western Montana forests. I classified plots by whether or not they had a history of timber harvest, as well as by dominant species and habitat types. I characterized snag abundance by dbh class and species. On unharvested plots, total snag (9"+) density varied from under 3/acre on dry Ponderosa pine (*Pinus ponderosa*) types to approximately 24/acre on mesic spruce and fir types as well as warmer sites supporting grand fir (*Abies grandis*) and western red cedar (*Thuja plicata*). Abundance of large (21"+) snags was much lower but showed similar trends, varying from as low as 0.45/acre on dry Ponderosa pine sites and 0.19/acre on lodgepole pine (*Pinus contorta*) dominated sites, to 2.07/acre on warm, mesic sites. Snag abundance on young, recently disturbed stands was lower than on older, sawtimber stands. However, snag dynamics differed from those of live trees during the process of stand aging. Unharvested stands had higher mean snag abundance than those with a history of timber harvest. I interpret the generally higher snag abundances in uncut stands to reflect not only an unharvested condition, but also a lack of fire, and probably an attendant excess of mortality from insects and disease. Such influences would be manifested more strongly in smaller, than larger dbh classes. Thus, snag abundances in the larger dbh classes of these uncut stands should closely resemble those that would generally occur on the landscape in the absence of intervention by mechanized mankind, if accounting for a small upward bias caused by fire suppression. These latter figures can be used as rough targets for landscapes where managing for biodiversity or emulating natural disturbance patterns is an important objective. I also offer suggestions for snag retention/recruitment guidance in regeneration harvest units.