BIG GAME BROWSE PROBLEMS AND CONTROL IN THE PACIFIC NORTHWEST

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ABSTRACT

Damage to reforestation caused by deer (Odocoileus sp.) and elk (Cervus elaphus) browsing can result in plantation failures or significant reduction in growth of commercial tree seedlings. The amount of damage and reduced growth is highly variable in different areas and dependent on many factors. Elk damage is the most destructive when they pull seedlings out of the ground and when heavy browsing causes mortality, particularly in high winter use areas. Most black-tailed deer (O. hemionus columbianus) browsing damage to Douglas-fir (Pseudotsuga menziesii) occurs during late spring or early summer before adequate forage is available in plantations. The main coniferous species damaged are Douglas-fir, western redcedar (Thuja plicata), and ponderosa pine (Pinus ponderosa). Cottonwood (Populus sp.) plantations are also damaged. Damage to Douglas-fir is usually most severe on sites having low growth potential; seedlings on more productive soils appear to tolerate more damage because trees are capable of rapidly growing new terminal stems that help overcome losses to browsing. Many Douglas-fir plantations can tolerate early summer deer browsing on about 30 percent of the seedlings, but browsing much in excess of this amount and additional browsing in winter can seriously reduce plantation growth. Competitive browsing and grazing by livestock on available forage can intensify browsing by big game on conifers. Brush species may outgrow browsed tree seedlings and reduce growth or prevent the establishment of well stocked plantations. Combined browsing by big game and clipping by rodents or lagomorphs can compound the brush competition problem.

Big game damage to conifers can be anticipated in second or third rotation plantations where nearby units have been browsed. Newly planted units having 15 or 20 percent of the seedlings browsed the first year can expect heavy browsing for several years. Plantations with adequate winter browse for deer, usually trailing blackberry (Rubus ursinus), should have little winter damage to Douglas-fir. Plantations with adequate late spring forage consisting of specific forbs, should not experience significant browsing.

Damage control provided by physical barriers such as Vexar-type plastic mesh tubes will provide the most effective protection and tree growth. Relatively inexpensive fences can be used to protect small areas from deer or elk, but large exclosures will require more expensive fencing. Physical protection costs more than other protection but will provide the most seedling growth. Bud cap materials provide short term protection similar to repellents. Knowledge of the season of damage is critical to effectively apply repellents. Only a few foliar type repellents are registered for big game; most rely on decomposition of organic material to produce a bad taste

and odor. An evaluation of seedling protection materials tested in western Oregon for 3 years has been prepared for publication. No systemic type repellents are registered. The period of protection needed for new plantations usually must be estimated from existing plantations and can help determine the type of protection needed.

Intensive removal of big game may reduce damage, but will be most effective only where there is heavy winter damage by deer. Habitat manipulation by introducing an abundance of preferred forage on freshly prepared sites should reduce spring-summer browse damage problems caused by deer. Similar damage reductions may occur on some areas used by elk, but investigations are incomplete. Removal of all vegetation other than conifers can make trees more susceptible to damage. Undamaged plantations occupied by big game should be evaluated to help assist in replication of those conditions in plantations with low levels of damage to conifers.

REFERENCE

Campbell, D. L., and J. Evans. 1984. Wildlife-reforestation problems and seedling protection in western Oregon: review and current knowledge. USDI, Bureau of Land Management Tech. Note OR-4, Portland, OR. 46 p.