











thinning response can possibly be attributed to two factors. First, many other studies have shown that an increase in growth in older Douglas-fir stands may not show up until as late as 25 years following a thinning. Second, trees can experience thinning shock when their shade-adapted needles and bark are suddenly exposed to sunlight following a reduction in overstory. Further study is needed here. While the larger trees did not significantly increase their growth rates following harvest, those immediately adjacent to patch cuts did sprout an abundance of **epicormic branches** that help create fuller crowns and, consequently, better wildlife habitat.

## Wildlife Response

Researchers looked at small bird and small mammal communities before and after harvest. Surveys indicated that the species mix in group selection stands was similar to the species found in uncut stands, especially when compared to clearcuts. There was a larger variety of bird species in group selection stands than in clearcuts, and the total number of birds was also greater in group selection stands. The variety of small mammal species was also greater in group selection stands compared to clearcuts, but the total number of small mammals was higher in clearcuts. This is probably because two common species, deer mice and Oregon voles, thrive in the dense grass and shrub layer present after a clearcut. More research is needed to explore the long-term wildlife response to group selection harvests.

## Lessons Learned

- These group selection stands show that regeneration growth is significantly impeded when small patch cuts are utilized. However, growth and survival can still be adequate to regenerate the stand. Growth rates would be greater if group opening size were increased to 1 to 2 acres; but this increase would come at the expense of wildlife habitat and the aesthetics of a closed forest canopy.
- Group selection silviculture provides quality habitat for many wildlife species, especially songbirds, and may improve the aesthetics of a site compared to even-aged management methods.
- Harvesting costs are slightly higher than clearcutting under a group-selection regime (and higher still when the ground is steep and cable logging is necessary). Extensive pre-harvest planning by a skilled forester is necessary in order to mark harvest openings, skid trails, and/or skyline corridors.
- Herbicide applications were limited to ground-based applications (hose and reel, backpack sprayer, or hack-and-squirt/basal spray). Achieving good coverage and effective vegetation control using these methods requires skill and attention to detail. In small group openings, vegetation will likely need to be controlled for longer periods of time due to planted seedlings' slower growth rates.
- Under a group selection regime, harvests are smaller but occur more frequently, depending on the number of age classes desired and the period of time between harvests. This could be beneficial if one desires a more steady income over time from a single stand of timber.

### epicormic branch—

A branch that sprouts from a dormant bud on the stem or branch of a tree, often following increased exposure to light

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