



WASHINGTON STATE DEPARTMENT OF  
**Natural Resources**

## **VARIABLE DENSITY THINNING FOR WILDLIFE AND WOOD PRODUCTION**

Jim Bottorff

DNR Stewardship Wildlife Biologist

*Revised 2009*

Variable density thinning has been around awhile, but only recently is it being tested and more commonly considered. It is usually considered in a landscape context, but has application to small woodlands to develop more microsites for many species of forest dwelling birds and mammals. Applied appropriately, it will protect and accelerate the development of a much greater habitat benefit by increasing diversity both horizontally and vertically. It can promote the development of more ground cover, hardwood trees and shrubs, more edge (which has a downside due to potentially increased predation-but that does benefit the predators!), more escape and thermal cover, and definitely more foraging habitat spread over small woodlands. Variable density thinning also applies to pruning regimes.

This approach retains clumps and patches of both more heavily thinned and lightly (or not at all) thinned trees. Again, this retains the food, shelter, and cover requirements of those species needing very dense vertical cover in the un-thinned or lightly thinned patches, as well as small sites that warm up quicker in spring and summer and that develop and maintain good ground cover in the heavily thinned portions of the stand. There is no well-established standard for this approach. Anecdotal information paired with diversity studies has shown that, on average, at least two patches each of both heavier and lighter thinned (with each patch about 50 feet in diameter) on a per acre basis, will supply a more diverse wildlife habitat in stands to be pre-commercially or commercially thinned. Heavily thinned means taking it down to no more than a 40% canopy closure (it can be less than 40% or even clearcut in small patches). This approach means that about one-eighth acre will be heavily thinned and one-eighth acre lightly or not thinned at all for each acre in the unit. Light or no thinning should supply hiding and some thermal cover to birds and mammals from the forest floor up to the mixed canopy layer. This prescription does not need to be applied uniformly on each acre in the entire thinning unit, but can be somewhat dispersed and random. However, the more it is applied to a forest stand slated for thinning and/or pruning, the greater the benefits to wildlife. Furthermore, snags may be created in the more heavily thinned portions and those large and dangerous snags presently existing, or to be created, may be identified and centered in the lightly or non-thinned portions. This is an important consideration as many trees that are or would become snags (or “wildlife trees”) without management are usually removed during thinning regimes-thus a net decline in snags and associated wildlife species occurs. Snag protection and creation is an integral part of this approach. Even in the more heavily thinned portions, high stumps and small diameter snags can be created. An opportunity exists to create coarse woody debris in both the more heavily thinned and lightly thinned portions. In the openings, grasses, forbs, and/or hardwood

shrubs and trees may be planted if desired to accelerate development. Patches may overlap from one acre to the next-combination approaches can be applied. The final prescription for the stand will need to reflect stand characteristics, wildlife habitat needs on the ownership and landscape, and the long-range financial goals for the forest.