

Variable-Density Thinning - What the heck is it, and why should I care?

About 15 years ago, people started talking about variable-density thinning, especially on land managed by public agencies or environmental organizations. This type of thinning deliberately creates non-uniform conditions through a stand. Non-uniform thinning — often called variable-density thinning — has some advantages over uniform thinning in accelerating the development of wildlife habitat and in preserving or developing biodiversity. Let me provide an example and explain how it works.

Results of the Gaps

One type of variable-density thinning called "thinning with skips and gaps" was used in the Olympic Habitat Development Study on the Olympic Peninsula in western Washington. The "skips" are areas skipped over in the thinning (and in this example were also no-equipment entry zones). These areas allowed snags to be retained for wildlife habitat without risking worker safety. They also protected any ground vegetation, large downed logs, and associated animals that might be sensitive to disturbance (for example, most amphibians do better in cooler, moister areas such as would be found in unthinned patches).

The "gap" part of the thinning creates small openings to encourage development of understory vegetation and also provides areas in the stand that would result in especially good tree growth as the trees around the gaps would gain additional growing space. The largest trees removed in the project were removed from the gaps (as all trees were cut in the gaps other than those of species being favored or those too small to be merchantable); thus, much of the volume in this project came from the gaps. The gaps also provided an opening in which to fall trees from dense areas outside the gaps. The general thinning outside the skips and gaps in this project was a light thinning from below, designed to promote residual tree growth and favor development of understory vegetation.

Why Go to the Trouble?

"Yeah, yeah," I can almost hear some of you say. "Why should I care about this type of thinning? Sounds like more trouble than it's worth." It's true that many of the variable-density thinnings that have been accomplished are relatively light, and the volume removed is low. However, there are probably tens of thousands of acres in the Western United States that are fairly uniform now and could be thinned in this manner to achieve wildlife goals as well as provide employment opportunities in the forest products sector. There are

many acres that will only become available for thinning if the early examples go well.

Some people are skeptical that the benefits from any type of thinning outweigh the potential risks, and they need to be convinced by the results of successful projects. For projects that depend on public acceptance to move forward, it's important there be early successes.

From the Ground

So, what does variable-density thinning look like on the ground? It differs, depending on the requirements of the landowner and the landowner's past experience with the logger. In some cases, the skips are marked on maps and on the ground with tags stapled to trees indicating the boundary of the partial-cut unit. It is possible, however, the skips could be "logger's choice" with the number, size, and general location specified (for example, no more than so many in a certain percentage of the area).

As mentioned above, skips can help preserve snags while protecting logger safety, so locating them in areas of the stand with large or numerous snags can make sense. Gaps can also be marked with paper tags on trees (marking the boundary of the "clearcut") or delineated with paint. Although all trees to be cut in a gap could be painted, I haven't seen that done as

it takes a lot of extra paint and time — even when the gaps are small.

Once again, the actual location of gaps could be pre-determined or "logger's choice," depending on the landowner's specifications and trust in getting the work done right. It is also possible that the locations of skips and gaps could be given to the contractor in a GPS (global positioning system) file. The area between the skips and gaps is usually thinned. Once again, the trees to be cut could be painted or could be specified, as they would be in any other

type of thinning. Some prescriptions are very complex (specifying the spacing by species and requiring a level of clumping in residual trees), but others have been pretty straightforward and simple to apply. Not all variable-density thinning includes skips and gaps — some just vary the level of removal (or level retained) in different parts of the stand.

So, in a nutshell, that's variable-density thinning. It's a long name, but not really such a hard nut to crack.

Constance A. Harrington is a Research Forester at the Pacific Northwest Research Station's Forestry Sciences Laboratory in Olympia, Wash. www.fs.fed.us/pnw/Olympia/silv/ TW

