

WHITTLER HARVEST PRESCRIPTIONS

COMMERCIAL THINNING

Commercial thinning is applied to overstocked or potentially overstocked stands. It allows for harvest of imminent mortality and maintains stand growth and vigor by increasing available moisture, nutrients, and light to the remaining trees. Thinning tends to extend the time period during which the remaining trees are growing at an optimum rate for site conditions.

Commercial thinning is prescribed to meet a variety of objectives, including maintenance of stand health, holding stands at high volumes for future regeneration harvests, and enhancement of wildlife habitat. These objectives can be met by varying residual stand densities. Opening the stand allows more sunlight and moisture to reach the forest floor. This promotes understory growth and ground cover, increasing the vegetative diversity. Thinning can also increase horizontal and vertical diversity while maintaining interior habitat conditions and fostering stand vigor. Diameter growth of the residual stand is maintained thereby hastening the development of immature stands to mature and old-growth stages.

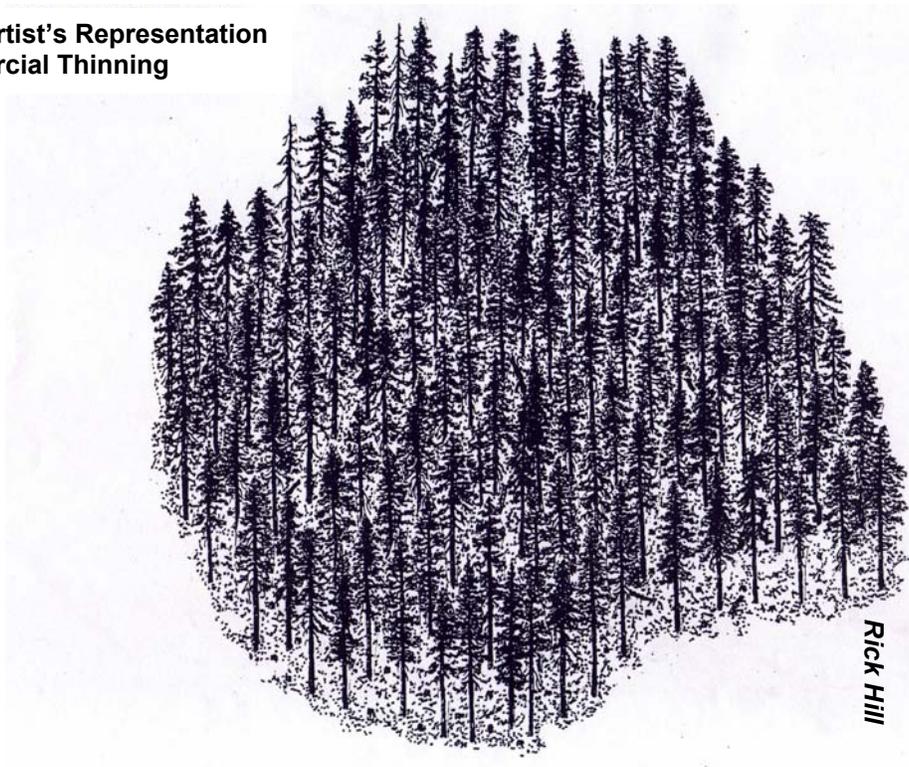
Commercial thinning can reduce hazardous fuels by reducing tons per acre of fuels on the site and opening crowded understory and crown conditions to reduce flame length and rate of spread.

After thinning the density of the remaining stand is normally determined by stand age, condition, and management objectives. Whittler stands would be thinned to the lowest density that would still fully meet site capacity (i.e., if it was determined by a certified silviculturist that the site can support 200 trees per acre and it currently has 800 trees per acre the difference would be removed).

Snag densities are expected to remain relatively unchanged; although, logging damage or fuel treatment activities may increase the densities of snags in the long-term. Activity associated with fuel treatments will consist of hand and/or tractor piling, and underburning depending upon the amount of existing and created fuels and site conditions. Standards for coarse woody debris (CWD) would be met by retaining large down wood on site and recruitment from snags.

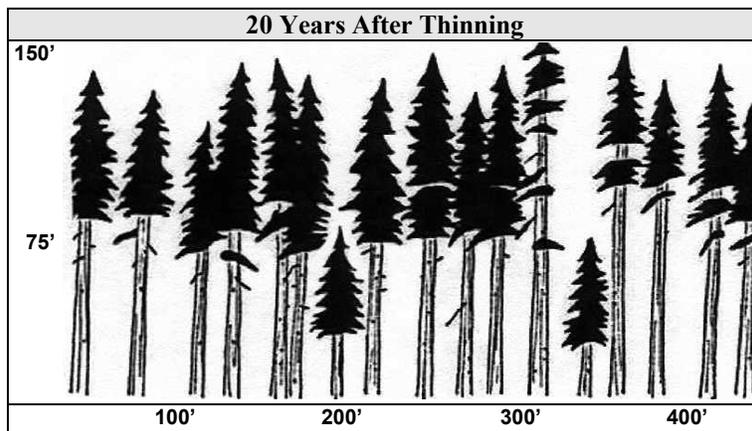
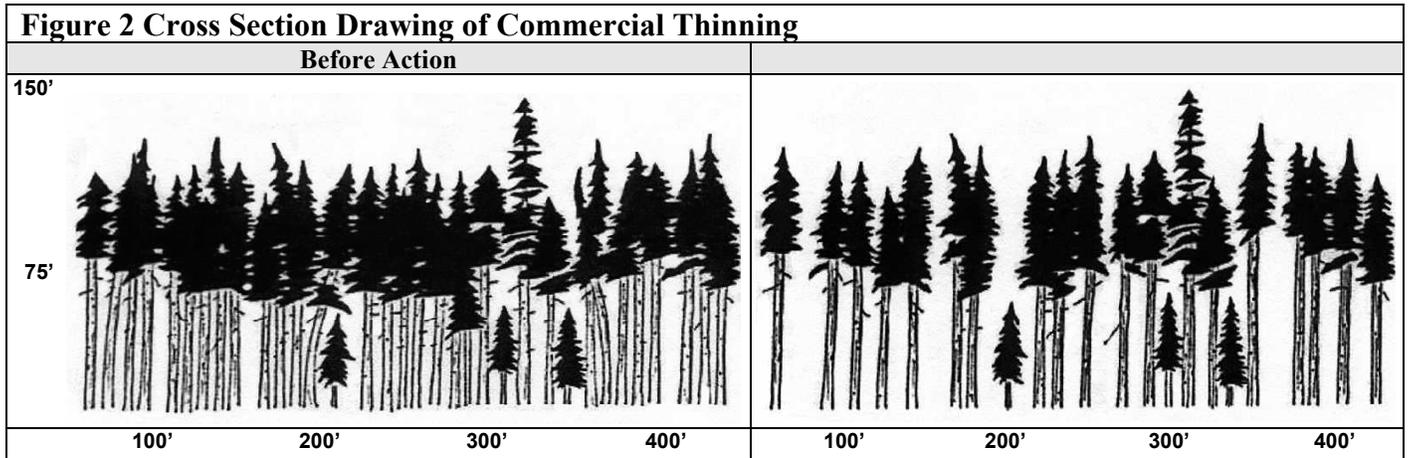
Figure 1 of this appendix shows an artist's representation of thinning after implementation. **Figure 2** of this appendix provides cross sectional representations of how the thinning prescription is applied to forest stands and stand development over time. The numbers on the side indicate tree height and the numbers on the bottom indicate horizontal distance to depict spacing and provide a sense of scale. (*Actual stands may vary from artist's representations throughout document.*)

Figure 1 Artist's Representation of Commercial Thinning



Rick Hill

Figure 2 Cross Section Drawing of Commercial Thinning



SANITATION

Sanitation cutting is the removal of poor vigor or diseased trees to maintain the health of the stand. Generally, individual trees with poor health and vigor are removed to maintain the healthy development of the remaining trees. Standards will be met for snag distribution by identifying snags and future snags to be retained on the site. Standards for CWD would be met by retaining large down wood on site and recruitment from snags.

SINGLE TREE SELECTION

Single Tree Selection is prescribed for stands with areas of large trees and areas of heavily stocked smaller trees or saplings. There are enough healthy trees to occupy most of the site.

Large trees would be retained unless they meet sanitation criteria described previously. Smaller trees or saplings would be thinned to the fewest trees which would fully meet site capacity as with the thinning prescription described previously.

In general, suppressed trees, trees heavily infected with mistletoe, trees of low vigor, and white fir will be targeted for removal. A fully stocked stand over most of the area will remain after harvest. An average of 75 percent of the large trees will remain.

Single Tree Selection is prescribed to maintain a diverse stand that includes snags, down logs, and healthy large trees. Current dense stocking is reduced to the point where remaining trees are reasonably healthy. Growth rates at or above those expected for the site capability can be sustained over the next 30 to 50 years. Dwarf mistletoe is reduced to the level where its impact on growth and vigor is minimal. The chance of a stand replacing fire is reduced to a low level. And the amount of white fir in the lower layers where pine and Douglas-fir are the predominant overstory species is also reduced.

Fuel treatments consist of hand and/or tractor piling, underburning, or lop and scatter depending upon existing and created fuel levels and site conditions, including access, proximity to sensitive views or recreational use, and boundary defensibility. Standards for CWD would be met by retaining large down wood on site and recruitment from snags.

If larger trees are added, the artist's representation of thinning (**Figures 1 and 2**) is also a good representation of the look of single trees selection. The large trees wouldn't get much larger; but smaller trees would grow to a similar size.

SHELTERWOOD

This prescription is used for stands or portions of stands for the following two reasons:

- 1) Most of the trees in the stand are of poor vigor. There are pockets of dead trees and/or very heavy infestations of mistletoe. Shelterwood treatments are applied to reduce the numbers of trees with poor vigor while leaving the most vigorous trees on site.

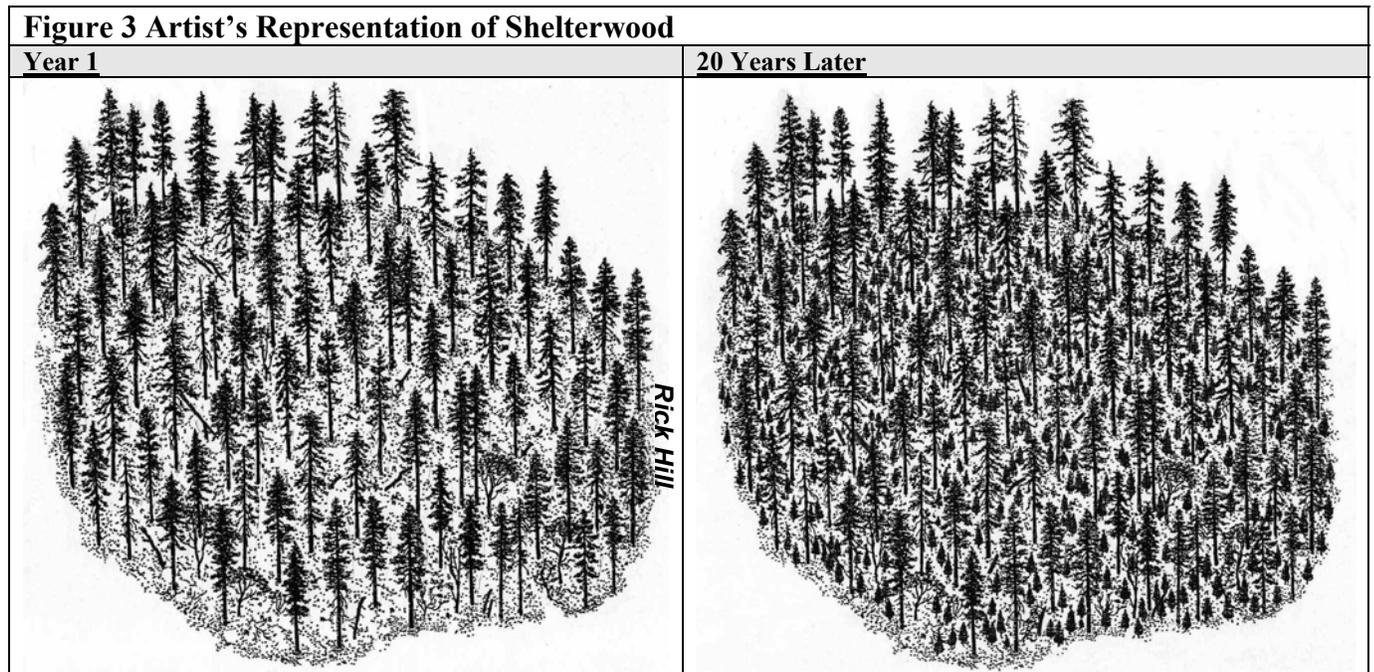
- 2) Effective fire suppression has encouraged growth of shade tolerant white fir that is out competing natural pine and Douglas-fir regeneration. Shelterwood treatments are applied to reduce the amount of white fir and increase the percentage of pine and Douglas-fir in the understory.

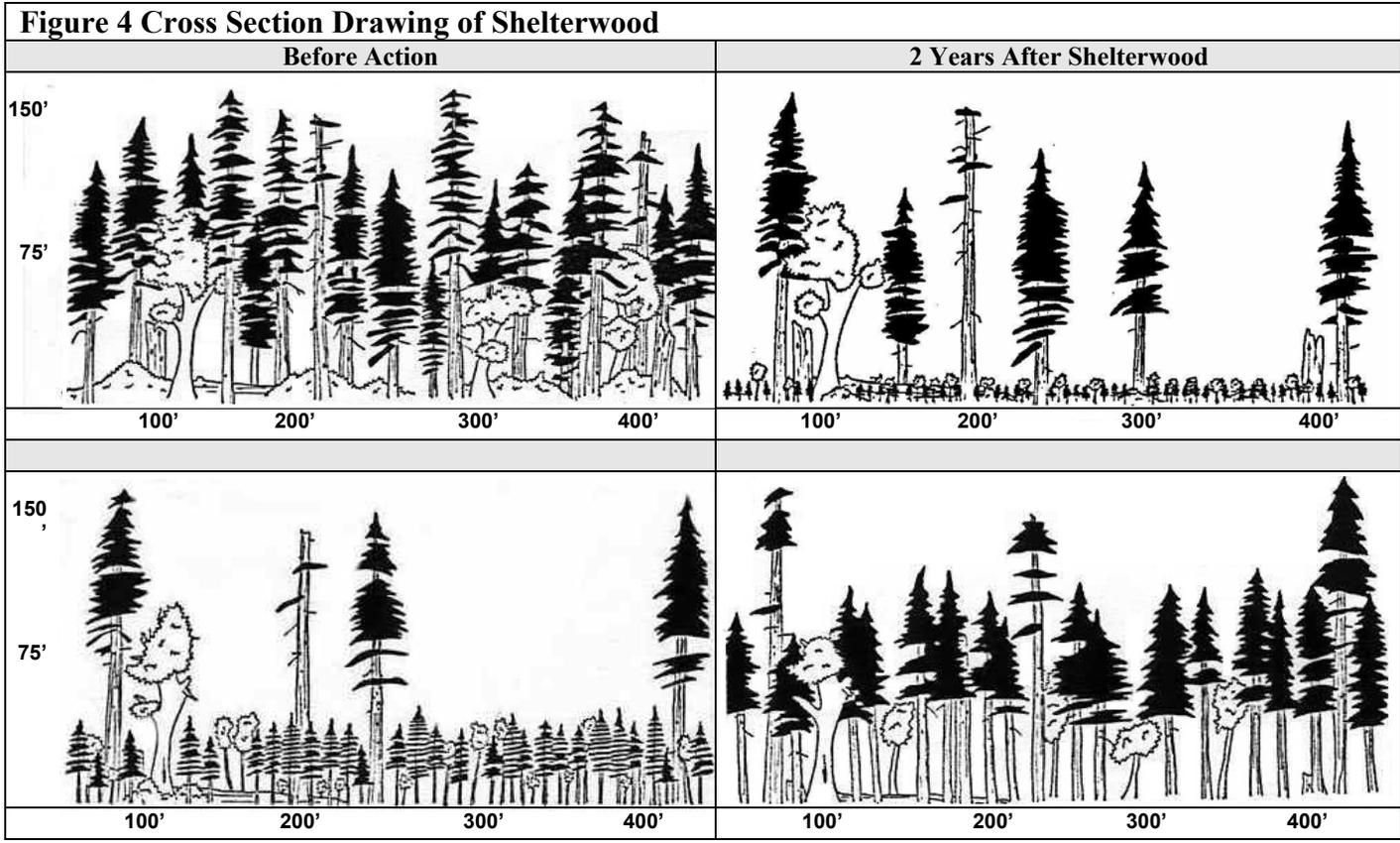
Most of the stands are proposed for Shelterwood treatments due to reason number one.

Reserve trees are left for structural diversity, seed production for natural regeneration, to supplement planting, site protection, visual texture and/or screening, wildlife habitat, and recruitment of CWD. This method is used primarily to provide a protected environment to enhance seedling survival through the establishment period.

The healthiest, most vigorous trees will be retained to achieve 10 to 35 percent crown cover within shelterwood areas. Fuels treatments consist of hand piling or underburning. After treatment, the site would be planted with a mix of conifer seedlings.

Figure 3 shows an artist's representation of a stand immediately after Shelterwood and fuels treatment, and 20 years after. **Figure 4** provides cross sectional representations of how the Shelterwood prescription is applied to forest stands and stand development over time.





In some Douglas-fir stands, the shelterwoods would be scattered small openings from ¼ to two acres in size. Some trees would be left in the small openings. In most cases, shelterwoods would be five contiguous acres in size or less

The Shelterwood prescription normally removes trees left on the site after seedlings are established. For the Whittler Project all remaining trees would be left on the site until the next regeneration entry in 80 to 150 years as shown in the picture labeled “50 Years After Shelterwood” where the shelter trees remain. The artist’s depiction is intended to show trees retained on-site after proposed activities are complete.

