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Extension Forestry Information Series

In forestry, we often tend to focus on what is going on above ground (ex. trees, wildlife, people), more than below ground. However, forest soil stewardship is just as critical. One of the most important qualities of healthy forest soil is adequate pore space, which is the part of the soil occupied by air and water. Pore space is necessary for tree root growth and feeding as well as nutrient cycling.

Soil Compaction. Pore space is reduced when soil is compacted. Skidders, tractors, and other heavy machinery used in forest practices may compact soils considerably, depending on the type of equipment used, soil characteristics, and other factors. Compaction can take many years to heal, depending on the level of damage and many environmental conditions.

Compaction can slow tree growth and may even cancel gains from thinning and similar efforts to improve stand growth. The slower growth on compacted soils also makes trees more vulnerable to insects and disease. Compaction becomes much more serious if different trails are used during subsequent harvest from the stand.

Designated Skid Trails. Compaction may be lessened by logging with different equipment, leaving duff in place, logging during different seasons, and other techniques. However, one of the surest ways to reduce compaction is to *limit the area over which compaction occurs* by reducing the amount of skid trails.

Timber sale contracts can specify a maximum area covered with skid trails. A more active approach is to use *designated skid trails*. This involves strategically laying out skid trails and landings *prior* to harvest, and felling the trees to these trails. Designated skid trails usually result in much less compacted ground than trails made "as needed" during harvest. They can also be designed for use in *future* harvests.

An Extension publication from Oregon State University titled *Designated Skid Trails Minimize Soil Compaction*, EC1110, provides more details on laying out designated skid trails. For more information on forest soil compaction, see PNW217: *Compaction of Forest Soils*. Both publications are available through your local Extension Office.

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