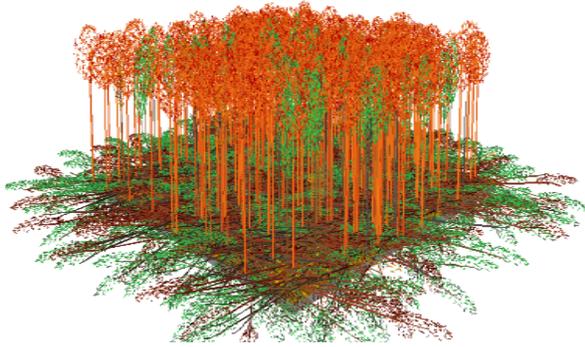




**FOREST STAND IMPROVEMENT  
 USING NON-COMMERCIAL THINNING**

**Thinning Considerations**



Drawing courtesy of Penn State University,  
 School of Forest Resources

**Background**

The purpose of this job sheet is to improve the benefits provided by a forest stand by using a **non-commercial thinning**. This intermediate thinning will be used to adjust tree density to improve habitat characteristics for Greatest Conservation Need (GCN) species identified as indigenous to this area by the Tennessee Wildlife Action Plan. This practice will benefit species in one of the following three targeted wildlife groups: **(A) Forest canopy species, (B) Forest understory species, or (C) Forest floor species**. Trees removed from the stand will include low-quality or undesirable species to encourage development of midstory and understory canopy and ground cover, thus improving “vertical structure” for wildlife.

Specific wildlife species targeted include those recognized by the State of Tennessee as species of Greatest Conservation Need due to state and/or regional declines in their numbers and habitat. Some individual species currently targeted in the NRCS Environmental Quality Incentive Program include the common and pygmy shrew (forest floor), Wood Thrush and Kentucky warbler (forest understory), and Yellow-billed Cuckoo (forest canopy).

In a non-commercial thinning, trees to be cut are not marketable. Therefore, it is not necessary or cost effective to remove from the site the cut or deadened trees. Leaving them in the stand will contribute to nutrient recycling, buildup of the soil, and provide cover and perching sites for wildlife.

Harvest roads and trails will be located and installed according to design criteria contained in the Forest Trails and Landings Standard (655), Access Road Standard (560) (<http://www.tn.nrcs.usda.gov/technical/practices/practices.html>), and the *Guide to Forestry Best Management Practices in Tennessee*. (<http://www.tennessee.gov/agriculture/forestry/bmps/html>).

Tree species to be released should be selected based upon their value for contributing to the needs of the GCN species being protected or enhanced with this practice. It is recommended that a variety of hardwood tree species be retained to maintain stand diversity. These should include a good representation of hickories, oaks, and maples, which are beneficial to a variety of GCN wildlife.

In order to preserve the commercial productivity of the site, the secondary selection criteria for species to release should be their commercial timber potential.

This practice should be applied to stands where the average tree diameter is 2 to 10 inches DBH (diameter at breast height measured at 4.5 feet above the ground), with high stocking levels and a closed canopy lacking midstory and understory development (i.e all the trees in the stand are of similar height and overstocked, resulting in insufficient sunlight and a lack of vertical structure that is beneficial to wildlife). If the stand contains larger trees (i.e. 8” and 10” DBH) that are marketable, this practice is not applicable (refer to ‘Commercial Thinning’).

Discontinue thinning operations and stand disturbance during the May-July nesting season.

## *Forest Stand Improvement (Non-commercial Thinning)*

This practice will be implemented within the guidelines provided in the *Guide to Forestry Best Management Practices in Tennessee*. This practice will NOT be implemented within the first 35 feet of any perennial or intermittent stream, waterbody, seasonally flooded or ponded wetland, or within streamside management zones (SMZ) with slopes in excess of ten percent. Streamside management zone widths for slopes exceeding ten percent are as follows:

<u>Slope - %</u>	<u>SMZ width</u>
10-19	45 feet
20-29	65 feet
30-39	85 feet
40-49	105 feet

Ephemeral streams, wet weather conveyances, and sensitive areas such as wetlands, sinkholes, and other fragile soils will also be avoided and/or protected from log skidding, road locations, road runoff, and exposure or compaction of soil.

### Construction Specifications

The stand will be reduced to approximately 60 percent stocking (approximate average 50-70 square feet of basal area, BA) per acre. This will encourage development of understory vegetation and add vertical structure to the stand. The table below describes the residual stand AFTER the non-commercial thinning.

<b><u>THINNING GUIDE</u></b>			
<u>Average Diameter</u>	<u>Average Spacing</u>	<u>Trees Per Acre</u>	<u>Average BA Per Acre</u>
2"	6' x 7'	1000	N/A
4"	8' x 9'	600	50
6"	12' x 12'	300	60
8" **	15' x 16'	175	65
10" **	18' x 19'	125	70

\*\* These size trees are often marketable. If so, this practice treatment is not applicable or eligible for EQIP.

Use of herbicides for deadening trees will be in strict accordance to the manufacturer's label.

### Operation and Maintenance

The stand will be inspected the year following thinning to determine if the release was successful. Retreat the site if release was not complete.

Roads, trails and other areas of ground disturbance that are unvegetated at this first inspection will be treated with a wildlife-friendly erosion control mixture of grasses and/or legumes that should be partial to shade tolerant. Possible species include subterranean clover, Virginia wildrye, annual lespedeza, or Deertongue panicum.

The stand should be re-examined approximately 10 years after the application of this practice. To encourage continuation of the desired vertical structure, the stand may require a commercial thinning within 10 to 15 years, depending on site quality.

**USDA cost share program participants must comply with contract requirements. This job sheet may not meet contract requirements.** Other job sheets are available from the Natural Resources Conservation Service. For additional information, contact your local USDA Service Center, Natural Resources Conservation Service office or your local County Soil Conservation District office.

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