ASPEN

Cover Type Guidelines

ROTATION AGES

Site index	Pulp & Wildlife	Sawtimber
50-60	30-35 yrs	-
60-70	35-50	-
70 +	45-60	50-70

If more than 15% of the aspen stems have *Phellinus tremulae* conks use a rotation age of 35-40 years.

If more than 25% of the aspen stems have *Hypoxylon* cankers harvest as soon as possible and convert to another species.

HARVEST SYSTEMS

Clearcut all stems greater than 2" dbh. Leave up to 15 sq. ft. basal area of live residual trees or hard snags for wildlife purposes. Reserve oak clumps or scattered individual oaks.

Use natural features such as timber type, topography and soil type to delineate sale boundaries.

Severe disturbances from harvest operations, such as soil compaction and rutting can seriously impair re-sprout potential.

Consult with soils specialists if the site has one of the following:

- somewhat poorly drained soil conditions.
- soil properties that cause extended wet conditions following rains.
- concave or toeslope landscape position.

Winter harvest if one of the following:

- parent stand has low stocking (50 sq.ft. basal area).
- parent stand has 15-25% incidence of *Hypoxylon* canker.
- soils are wet during the growing season.

If practicing clonal selection, delineate desirable clones:

- for grouse, favor male clones.
- for improvement, favor clones with superior growth and form.
- for disease resistance, favor bigtooth or trembling aspen clones resistant to *Hypoxylon* canker.

REGENERATION SYSTEMS

A minimum of 20 sq. ft. basal area (or 50 evenly distributed aspen trees/acre) in the parent stand is needed to assure adequate regeneration of root sucker sprouts.

Adequate sprouting after 2 years is > 3000 stems per acre. Dense sucker stands provide the best protection from insects and disease.

If a stand is understocked, determine the cause and remedy if possible, or convert to another species.

Maintain minimum stocking and the annual mortality rate should be less than 7.5%.

PEST CONSIDERATIONS

Two defoliators and wood boring beetles are the major insects of aspen. The forest tent caterpillar, *Malacosoma disstria* and the large aspen tortrix, *Choristoneura conflictana* occasionally defoliate areas of several thousand square miles. Severe defoliation reduces growth but rarely causes mortality unless coupled with other stress. Wood boring beetles of the genus *Sperda* cause increased wind breakage and lumber and veneer degrade. Upwards of 64% of all mature aspen may be attacked. Larval tunnels serve as infection points for canker-causing and wood rotting fungi.

The major diseases of aspen are the canker *Hypoxylon mammatum*, and white rot *Phellinus igniarius*. *Hypoxylon* causes annual losses which approach the net annual aspen growth. White rot decay can reduce gross merchantable yields by up to 10% with 50% of the trees infected.

Management recommendations are as follows:

1. Check all aspen stands routinely for insects and disease.
2. If *Saperda* infested trees are found, remove and destroy these brood trees before more trees are infested.
3. Aspen stands growing on poorly drained soils and repeatedly defoliated by forest tent caterpillars are high risk.
4. Rotation: As stand age increases volume losses due to insects and disease increase.
   a. If 15 to 25 percent of the trees are infected with *Hypoxylon*, harvest the stand early and treat the site to encourage good aspen reproduction.
   b. If more than 25 percent of the trees are infected with *Hypoxylon*, harvest immediately and convert to other species.
   c. Lightly infected stands can be managed on rotations longer than 40 years.
   d. If surveys indicate heavy white rot infection over 30% of basil area/acre of trees (with rot) a pathological rotation of 35-40 years is required to minimize losses.
   e. To estimate the total amount of white rot in an aspen stand, first determine the basil area of trunks with visible conks and then add 90% of this area to account for hidden decay.
   f. In stands that have sustained 2 to 3 years of successive defoliation, rotation age can be

adjusted with years added if maximum fiber production is desired in the absence of severe *Hypoxylon* or white rot infection.

5. Stocking: If 30 to 40 thousand new stems per acre are produced after cutting or burning and densely stocked, uniform stands of pure aspen are maintained throughout the rotation, insect and disease losses will be reduced.
   a. Conduct harvesting operations during winter to regenerate dense stands.
   b. Remove all residual species to regenerate pure and dense stands of sprouts.

6. Site index: Low site index aspen (50) is more susceptible to insect and disease loss than high site aspen (70); good sites for aspen production should be favored.

7. Species and Clonal Varieties: The extent of losses due to insects and diseases varies within aspen species and between clones.

   a. Since bigtooth aspen is five times as resistant to *Hypoxylon* as quaking aspen, and balsam poplar is rarely infected, these species should be promoted in heavily infected areas.
   b. Selection of superior clones for their expansion in stands should include rating of their susceptibility to white rot and *Hypoxylon*.

WILDLIFE CONSIDERATIONS

Aspen communities have a good to excellent overall rating for wildlife. They are an important source of food and cover for a wide variety of game and non-game species.

Reserve snags in clearcut areas for non-game wildlife.

A balanced age class structure evenly distributed and interspersed with openings is most desirable.

Refer to the Forestry-Wildlife Habitat Management Guidelines for habitat compartment goals and timber sale design.

PREFERRED SITE CONDITIONS

Trembling aspen is managed on a wide range of soil textures (sandy loam through clay) and drainage classes (somewhat poor through well drained). Best growth occurs on medium textured soils (loam through silt loam) which are somewhat poorly to moderately well drained. This species is sensitive to water saturated and droughty conditions. Best growth occurs on soils with a high water holding capacity and good aeration.

A rooting zone of 18 to 24 inches or deeper is required. Growth is good on sites with moderate fertility but is best on sites with high fertility. Soils high in calcium and magnesium have longer biological rotation age, superior growth, and lower incidence of heart rot.

Bigtooth aspen tolerates coarser, drier, and slightly less fertile sites than trembling aspen.

CONVERSION TO ANOTHER SPECIES

Convert only if:

- compartment analysis reveals the need for more conifers.
- the stand has greater than 25% *Hypoxylon* canker infection.

Avoid conversion near known deer yards.