OAK

Cover Type Guidelines

ROTATION AGES

Site Index	Rotation Age	Diameter
75+	60-75 years	24-28 inches
55-74	75-90 years	20-24 inches
40-54	90-125 years	16-18 inches

The less productive sites are relatively easy to manage since there is little competing vegetation and the oak may maintain itself in a pure state. As site productivity increases, so does the difficulty in maintaining the oak component in a stand because the tolerant competition increases.

HARVEST SYSTEMS

Manage oak on an even-aged basis because it is relatively intolerant. Final harvest must be a clear cut. Eliminate competing understory vegetation before the harvest by herbicide treatment, discing or other preparation.

REGENERATION SYSTEMS

A four step regeneration system is recommended:

1) controlling understory vegetation, probably with a herbicide.
2) creating a medium density shelterwood with 60% residual crown cover.
3) underplanting large-diameter nursery stock with clipped tops.
4) removing the shelterwood through clearcutting three growing seasons later.

The planting may be supplemented by fast-growing oak stump-sprouts after the clear cut or by acorns.

PEST CONSIDERATIONS

The greatest volume losses in oaks are the result of disease organisms which discolor, decay, or deform standing timber. To reduce the amount of decay over the life of a rotation, efforts must reduce the size and frequency of tree wounds. The common causes of wounds that result in eventual decay are fire, grazing, logging injuries, pruning, and storm damage.

Mortality within the oak type is caused by shoe string shoe root rot, *Armillaria spp*.; the two-lined chestnut borer, *Agrilus bilineatus*; and oak wilt disease, *Ceratocystis fagacerum*. *Armillaria* can live for many years on stumps and dead roots in the soil. Like oak wilt, it can

spread through root grafts.

Trees that become stressed by drought, insect and disease defoliation, overstocking, over maturity, or other detrimental site conditions are attacked and killed by shoe string root rot and the two-lined chestnut borer.

Oak wilt disease causes mortality in individual trees and groups of trees root grafted together. Intensive detection and control efforts are recommended for oak wilt disease.

Spring defoliators including cankerworms, the oak leaf roller, the oak leaf tier, and the forest tent caterpillar, can cause periodic outbreaks of heavy defoliation in early spring. Consecutive years of defoliation can stress stands resulting in possible mortality.

In some years early spring defoliation by Anthracnose leaf diseases on white oak species can be severe and extensive. There is little impact as long as disease outbreaks are not repeated in consecutive years.

Gypsy moth defoliation occurs in midsummer, late June and early July. Widespread outbreaks last 3 to 10 years and occur every 8 to 10 years. Two or more years of heavy defoliation will cause widespread decline and mortality.

Late summer defoliators including the oak skeletonizer, the red humped oakworm, the orange-striped oakworm, the variable oakleaf caterpillar, walkingsticks, and the oak grasshopper, can cause infrequent outbreaks that seldom last for more than one season. Late season defoliators generally will not impact oak stands.

Wood borers including the white oak borer, the red oak borer, and the carpenter worm can cause serious lumber degrade. However, the damage is associated with stressed and diseased trees.

Management recommendations are as follows:

1. Provide fire protection.

2. Eliminate livestock from forest stands by fencing.

3. During clearcut regeneration, incorporate pre- or post-sale timber improvement to remove culls.

4. Where selective harvests are conducted, minimize contact with the residual stand through layout of skid trails and directional felling. Incorporate post-sale timber stand improvement to remove culls.

5. When pruning quality hardwoods, start when the trees are young, use proper techniques, and prune only during the dormant season.

6. When selecting crop trees in sprout regenerated stands, favor sprouts of low origin over sprouts of high origin.

Oak Mortality

Shoestring root rot and two-lined chestnut bore.

1. Maintain vigorous well stocked stands.

2. Following periods of drought, monitor oak mortality for loss assessment, salvage, and historical data.

Oak Wilt Disease

1. Do not prune, wound, or disturb oak trees or stands between April 15 and July 1.

2. Identify active oak wilt disease by aerial survey during July and August.

3. Establish root graft barriers for control using mechanical or chemical methods.

4. Monitor mortality from oak wilt disease for loss assessment and historical data.

Gypsy Moth

1. Conduct male moth detection trapping.

2. Risk rate stands for impact. Develop long range plans for population management and silvicultural strategies.

3. Favor northern hardwood species regeneration over oak species in all operations where adequate northern hardwood regeneration is present.

Spring Defoliator

1. Maintain vigorous, adequately stocked stands.

2. Monitor defoliation levels annually for assessment and to maintain historical data.

Late Summer Defoliator

1. Monitor defoliation levels annually for historical data.

WILDLIFE CONSIDERATIONS

Whenever possible, manage oak inclusions in aspen and other types as an entity rather than

clear cut with the other species. This helps maintain age and type diversity. Oak mast is an important source of fat for deer and other wildlife in preparation for winter. Old stands may be desirable in some areas. Leave scattered den and wildlife trees in harvested areas.

PREFERRED SITE CONDITIONS

Best growth will occur with the following site conditions:

- medium to fine soil textures.
- well drained soils.
- constant moisture supply.
- good soil aeration.
- rooting zone greater than 3 feet.

Oak is a complex type. Refer to the bibliography references for more detailed information.