

# FACT SHEET

No. 14

## Timber & Timber Harvesting in West Virginia

Summer, 2001

### Logging In West Virginia: Silvicultural Systems.

In the last few years government cost sharing for good forest management practices on non-industrial woodlands has been available in West Virginia. Since successful implementation of good forestry practices depends on careful planning at all stages of forest management, the majority of the available resources have been spent on the preparation of forest management plans. However, once the plan is in place, there has been additional money made available for the installation of good forest practices.

A good silvicultural practice protects the soil, water and air; minimizes harm to wildlife habitats; provides for worker safety; provides for the protection of stand components; limits invasive species and encourages sustainable forest management.

There are several basic rules. The good practices include harvesting only when the ground is frozen or dry, harvesting to avoid critical nesting and breeding periods for wildlife, using directional felling to lessen damage to the residual stand, locating landings on well-drained sites away from streams, avoiding harvesting around springs and seeps and stream banks, leaving a buffer around open fields, and using well-trained personnel to do all of the tree marking. Bad practices include harvesting before a complete pre-harvest assessment has been conducted and explained to the landowner, allowing livestock to graze in forest stands, use of inappropriate equipment and using the immediate economic value as the harvest guide.

Silvicultural systems are a planned series of treatments carried out during the entire life of a stand. They are named for the harvest technique used and are divided into uneven- and even-aged systems. Even-aged stands are those with trees within 20 years of the same age. Uneven-aged stands have intermixed trees of all ages and sizes. These stands are managed by maintaining a balance of trees in each of the diameter classes from seedlings through to mature trees.

There are three major silvicultural systems, but each has modifications. The three are selection systems used in uneven aged management and shelterwood and clearcut systems used in even-aged management.

The choice of a particular system depends primarily on the long- and short-term goals for the stand.

A knowledge of the current stocking and structure of the stand are necessary before choosing a silvicultural system. Stocking refers to the density of trees in the stand. It is usually measured as the sum of the cross sectional areas in square feet of all trees measured at DBH (4 1/2' above the ground) and given as basal area. Structure is the distribution of size and age classes among trees in the stand.

#### Selection Systems:

These systems favor trees that grow well in the shade. Examples are sugar maple, American beech and hemlock and, to a lesser extent, wild black cherry, red oak and yellow birch. The proper selection of trees for harvest is difficult and requires considerable training.

Single tree selection: Single trees are selected and cut and the subsequent regeneration that occupies the growing space is thinned over time to produce another single mature tree.

Group selection: Trees are selected and removed in small groups. The result is even age patches within an uneven aged stand. Group selection is mostly used for mid-shade tolerant trees as red oak, white ash, yellow birch and black cherry. Considerable skill is required to select the trees to cut to form the group openings.

#### Shelterwood Systems:

This involves the removal of the entire stand through a series of partial cuttings. The result is often an even aged stand. By partial cutting, reproduction can develop in the stand over time while other mature trees are being removed. The final cut is made when the regeneration is of a size to be worked with. The shelterwood system consists of a preparatory cut, a regeneration cut and one or more removal cuts.

Uniform shelterwood: Usually used where aesthetics are important. Trees are removed periodically throughout the entire stand.

Strip shelterwood: The forest is cut in strips, starting on one side with a seeding cut. This is followed in a few years by a removal cut on the first strip and a seeding cut on the second strip and so on until the entire stand has been worked.

Group shelterwood: The trees are removed in groups or clumps instead of in strips.

#### **Clear-cut Systems:**

**The existing forest is all removed, often in blocks, strips or patches. Regeneration is from seed in the soil, stump sprouts, root sprouts, already established seedlings or by planting. These**

**systems are best for shade intolerant species, i.e., black cherry. The size of the area cut acreage is important if regeneration from seed is anticipated because of the average seed dispersal distance from parent trees.**

Seed tree modification: The stand is cut except for a few trees left to supply seed.

Forest managers generally select the silvicultural system that most nearly follows the natural process for the trees being managed. Considerations are overall goals for the stand, environmental limitations, current stand characteristics and contribution to aesthetics, local climate, fish and wildlife concerns and the nature of current and predicted markets.

It is important for a landowner to ask his forester why he has selected the technique he is going to use in harvesting his stand. It is also important to remember that diameter limit cuts, which target the largest and fastest growing trees in a stand, when repeated in harvest after harvest, are thought to result in a lowered genetic quality for the future stand.

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