



CENTRAL HARDWOOD NOTES

Forest Regulation Methods And Silvicultural Systems: What Are They?

“Forest regulation methods” and “silvicultural systems” are important forest resource management concepts but there is much confusion about them. They often mean different things to different individuals. Confusion exists in part because “forest regulation methods” and “silvicultural systems” often use the same terminology. Also, the regulation methods described in forestry literature were conceived and developed to produce regular sustained yields of timber products from a forest. Now, there are often resources or values other than timber that may be more important to a forest landowner. Here is how we interpret and use these terms in the Central Hardwood Notes.

Forest Regulation Methods

The regulation method details the way cuttings over the entire forest property will be controlled. There are two methods for regulating cutting—*even-age* or *uneven-age*. In the *even-age* method, cutting is regulated by dividing the forest property into stands that are regenerated as they reach the specified rotation age (maturity). Thus, all trees in each of the stands are of approximately the same age. In a fully regulated forest there is the same total area in each age class. In the *uneven-age* method (sometimes called *all-age* or *uneven-size*), trees of many ages or sizes form a relatively homogeneous mixture in a stand. Cutting is regulated by periodically removing trees of all sizes to achieve and maintain a specified diameter distribution. Enough reproduction must be obtained at each cutting to sustain the diameter distribution. In a fully regulated uneven-aged forest all stands have about the same character, but vary in appearance with time of last cutting.

In theory, strict adherence to either of these methods to control cutting lead to regular, sustained timber yields, provided they satisfy the ecological requirements of the species being grown. When regular, sustained timber yields are not the primary objective, the controls can be adjusted to achieve other objectives. In fact, a forest can be managed using a mixture of both *even-age* and *uneven-age* management methods and silvicultural systems, although this is a much more complex and difficult approach to forest management.

Silvicultural Systems

A silvicultural system is applied to individual stands and is designed to grow specific tree species for specific purposes. It details the whole set of cultural treatments that will be applied to a stand, including weedings, cleanings, thinning, salvage, sanitation, and improvement cuttings, pruning, site preparation, and finally the regeneration method for either natural or artificial regeneration. For convenience, silvicultural systems are commonly named for the regeneration harvest method and may result in *even-aged* or *uneven-aged* stands.

Forestry literature defines three standard even-age regeneration harvest methods (silvicultural systems) and two uneven-age regeneration harvest methods (silvicultural systems). Clearcut, shelterwood, and seed tree are even-age regeneration methods. Single tree selection and group selection are uneven-age regeneration methods.

You as a resource manager have much flexibility in designing silvicultural systems and it is not critical that a system conform exactly to the described standards if regular, sustained timber yield is not primary. This flexibility allows you to successfully manipulate forest stands to attain single or multiple-use objectives. The major requirements are that the system applied will: (1) produce the environments required for regeneration, (2) yield acceptable growth of the species wanted, and (3) satisfy the forest property ownership objectives.

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