

FOREST MANAGEMENT 101

A handbook to forest management in the North Central Region



This guide is also available online at:

<http://ncrs.fs.fed.us/fmg/nfgm>

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Management Objectives

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Landowner objectives for properties can vary widely. As examples, some may simply want to enjoy the vegetation as it is, manipulate it to improve wildlife habitat for certain species, derive income from the sale of products, or a combination of these. These objectives illustrate the different ways in which owners may "value" the forest. Regardless, forest vegetation is not static--tree size, value, health, and habitat conditions can change markedly in a decade. The long-term objective of forest management is to achieve the owner's objectives while recognizing the limits of the ecosystem and economics, guidelines or rules for practices, and the dynamics of forest vegetation.

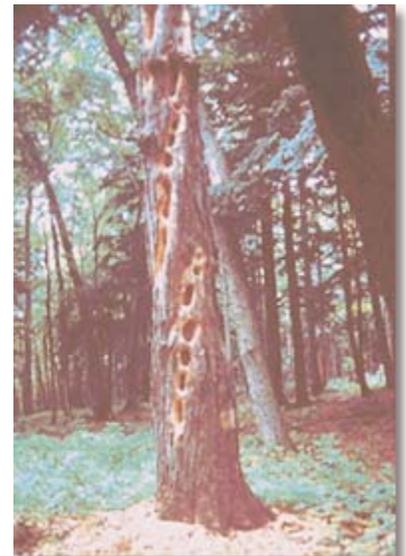
While silviculture (the actual on-the-ground practices used to achieve the management objectives) is applied at the scale of forest stands, it is important to consider the implications of stand management within the context of varying ownership objectives across the landscape. A useful approach for doing this is to consider different intensities of management for the typical objectives of income, habitat improvement, and/or recreation. The actual management used to achieve these objectives may involve similar silvicultural treatments, perhaps varying in their frequency or degree of application.

Income-focused management is often associated with high capital investments to ensure rapid dominance by desired species and includes treatments such as precommercial and commercial thinning to maximize growth and pruning to improve the quality of wood. Fertilization, irrigation, site preparation, control of competition, and planting of genetically improved stock are tools used in production management. The establishment and tending of plantations is typically income focused management.



Sawlogs at landing. Forest County, WI (Terry Strong).

Habitat-focused management is increasingly being applied in North Central forests. Compared to an income focus, this management typically has lower impacts as well as costs and economic returns. The management of aspen to foster young stands that provide favorable ruffed grouse habitat is an example. The management of mixed hardwood stands for diverse forest conditions that favor songbird species is another example. In ecological jargon, managing on extended rotations, managing for old growth characteristics, and managing for increased ecological complexity and heterogeneity are similar examples.



Wildlife tree. Argonne Experimental Forest, Forest County, WI (Terry Strong).

Recreation/Aesthetics-focused management can be either intrusive or non-intrusive in its impacts. When the objective is to protect a natural area from human-caused disturbances, such management is non-intrusive. When the objective is to restore a condition or process, the management applications may be quite intensive. Treatments such as harvesting or fire might be applied to retain early successional species, to create desired structural features, to reduce the threat of insect and disease outbreaks, to control exotic species, or to accelerate the growth of large diameter trees. Intrusive management can also be helpful in developing recreational access, e.g., trails and attractive viewing areas.

When adopting one of these objectives, there are still many choices in silvicultural treatments for a specific forest stand. There are probably more

choices than the novice has thought about. First, the choices at any point in time are heavily dependent on the existing stand conditions. Below is a list of some considerations for existing stands :

- Native ecosystem, habitat type, or plant community
- Size or acreage of the stand
- Conditions (upland, lowland, slope, inherent productivity)
- Species composition
- Age of the trees
- Location on the property or in the landscape
- Density of the trees (e.g., stems per acre)
- Access for use, equipment, or security
- Tree size and health and risk
- Availability of markets
- Proximity to neighbors

In practice, stands are typically delineated as forest areas of several to many acres with similar species-tree size-density composition. Stands in the Great Lakes Region are typically 10-40 acres in extent. Given this background, owners may then develop a plan for the stand. A typical management plan consists of the specification of owner objectives, a description of the stand (as above), and a schedule of practices or silvicultural treatments to be applied to achieve the objectives. Common treatments are planting, weeding and cleaning, thinning, harvest, etc. The management plan for an entire property pulls together the individual stand plans and may adjust them in light of nearby stands or overall ownership needs. Importantly, a plan does not have to include harvesting. A landowner may be quite content to allow a forest to grow, mature, undergo replacement, etc. However, various practices including harvesting may be essential to meet other ownership objectives, e.g., to produce large and scenic trees as soon as possible, foster ruffed grouse populations, or produce income. The income can also pay for these practices. Importantly, active management can greatly speed the achievement of objectives, limit undesirable conditions that might develop (e.g., accumulation of forest fire fuel loads), and increase outputs such as wildlife numbers or amounts and quality of saleable forest products.