



Supporting Sustainable Management of Private Woodlands

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Harvesting Aesthetics and Forest Sustainability

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Forest harvesting, or logging, happens throughout New York. Harvesting is often described with unfavorable terms, but those terms or labels need to be considered relative to some standard or measure of performance. Labels such as good, bad, or ugly are subjective. As with any endeavor, the outcome of any individual harvest will exist somewhere along the full spectrum of results. However, there are attributes of harvesting, aesthetics, and sustainability that tell an important story about the practice of forestry in New York.

In all cases, the first rule of harvesting is that the cutting of trees should support the owner's objectives. Harvesting is a means to an end. Harvesting can simultaneously support multiple objectives that might include revenue, wildlife habitat, recreational access or forest health. Proper planning and execution of the harvest help ensure the objectives are satisfied.

One aspect of harvesting is that it necessarily applies economic principles and must satisfy some measure of financial or personal accountability. Harvests range from a woodlot owner cutting a few cords of firewood to large intensive harvests that remove all of the trees on dozens of acres. In all harvests, the people working on the job have invested some amount of time, energy, machinery, labor and often money. They rightfully expect a return; the return might be non-monetary and as simple as the pleasure of heating your home with your wood. Or, the return might be part of a complicated business structure of acquiring a raw material for processing and eventually delivery of value-added products. The former example of firewood may not pass muster with your accountant, but the later must be financially defensible.

Loggers are an inextricable part of forest practices. Loggers need to purchase and maintain equipment, make payroll for employees, buy



Figure 1. The logging crew on this harvest includes 3 to 4 workers, 6 pieces of equipment, and contracts with two log truck drivers. They take pride in sustainable harvesting, but also sustaining their livelihoods.

and then sell the logs, and more (Figure 1). In this regard, the logger is not different from a farmer or plumber or dental hygienist. Each invests in their skill, acquires the resources they need to do their job, and anticipates some personal gain. Every logger is commercial in that they engage in commerce. As with any profession, just because money is involved doesn't presuppose a problem, nor should the influence of money justify mistreatment of other people or resources.

The question then becomes what constitutes mistreatment of the forest resource, and might contribute to a change in aesthetics or unsustainable practices. Aesthetics are important to most woodland owners, and harvesting changes the aesthetic of the woods. Aesthetics can be defined as judgements of sentiment and thus of beauty. The aesthetics of the harvest is in the eye of the beholder. The way a forest looks after a harvest may be a result of differences in the number of trees, the heights and diameter of trees that remain, the amount and height of woody material (known also as "slash") left behind, if there is damage to the residual trees, or the length and depth of ruts. The extent of disturbance in a forest harvest is not different, and maybe less so, than new house construction or the annual harvest of agricultural crops. Judging the aesthetic of a harvest is complicated by the decades of almost imperceptible changes that precede the harvest. Our attachment, context and expectations for a woodland influence our judgement of the harvesting activity.

The assessment of sustainability depends on how the forest changes relative to the outputs it will provide in the future. Will the future forest have at least the same benefits as the current forest? Forests are constantly changing, or in forester jargon as "developing." Most eastern forests originated after agricultural lands were abandoned. The trees of these second-growth forests are all about the same age (Figure 2), but have trees of different species and different sizes (think about a class of 6th graders...all the same age and species, but all different sizes). Eventually, many even-aged forests are harvested and replaced by the next forest.

This pattern is similar to your even-aged vegetable garden that is weeded, and eventually harvested and replaced. While your garden is replaced annually, your forest might exist for a century or more before the final harvest.

Broadly, there are two types of harvesting. One type should improve the residual forest, the trees remaining after the harvest, by reducing the amount of disease, increasing the growth rate on the best quality stems, and/or adjusting the mixture of species to favor some species over other species. These changes relate to composition, quality and growth and are equivalent to the weeding you do in your garden. This type of forest harvesting includes the "intermediate harvests" (intermediate between the beginning and ending points of the forest as it develops) that have technical names such as: thinning, timber



Figure 2. These hardwoods all started growing after agricultural lands were abandoned. Although different sizes, they are all the same age. The bigger trees are the "winners" and should be retained to produce the seed to grow the next forest.

stand improvement, sanitation, or crop tree release to name a few. The other type of harvest removes the current mature cohort or age classes during one or more entries and allows a new age class to establish, or if already established to further develop. This second type of harvest might include several harvests over a decade or more and are called "regeneration harvests." The common technical names of regeneration harvests include: clearcut, seed tree, shelterwood, or selection. All regeneration harvests ultimately involve the removal of the most mature age-class of trees to allow a younger age class to establish or to further develop if already established.



Figure 3. This seed tree harvest retained the best quality sugar maple having full crowns and no evidence of dieback. These trees will provide seed to grow the next forest.

By knowing these types of harvests, and their intended outcomes, one assessment of sustainability can consider whether the intended outcome was attained. As an additional tool to assess sustainability, the misuse of the language of harvesting may indicate an unsustainable activity. For example, someone suggesting the need to "thin the woods to let some new trees establish" is mixing the language of intermediate and regeneration harvests, and suggesting they will accomplish an ill-conceived outcome. If the intent is to improve the current forest, then the trees selected for harvest may exclude trees have one or more desirable criteria (Figure 3). In intermediate harvests, the average size of residual trees should typically increase as should their health and vigor. If the intent is to regenerate or favor an established new age class, then the harvest should provide appropriate conditions of sunlight and soil disturbance to ensure success.



Figure 4. Deer can significantly and negatively impact the sustainability of the forest. The fence in the harvested area shows what can happen if deer are excluded. By selective browsing, deer can impair or prevent the regeneration of the next forest. (Photo courtesy of Dr. Gary Alt)

There are some unfortunately common examples of unsustainable harvests. One example is typified by statements such as "just cut some of the over-mature trees", or "cut the big ones to let the little ones grow." These imply, usually falsely, that the larger trees are older than the smaller trees of about the same height. Certainly a seedling is younger than a canopy tree, but two trees in the canopy are almost certainly the same age. These examples of cutting practices are exploitive, and occur by cutting all trees above a certain diameter threshold or only the most valuable trees. These are called "diameter-limit" or "selective" harvests. Another example, increasingly recognized as unsustainable, is a regeneration

harvest that fails to manage the impacts of deer or the abundance of interfering vegetation. Deer and interfering vegetation are an article each, but either can result in an unsustainable regeneration harvest (Figure 4).

Aesthetics and sustainability are both important, and both can be managed to satisfy the objectives of the landowner. The first step is to hire a forester who understands your values relative to aesthetics and your commitment to sustainability. Then, if your forester doesn't suggest it, ask to participate in a New York Forest Owner Association walking tour of a managed woods (Figure 5) so you can visualize different types of harvests and how the forest changes with time after a harvest.



Figure 5. Chapters of The New York Forest Owners Association sponsor walking tours of managed woodlands, called woods walks, to help members and others learn about sustainable woodland management.

For additional information on woodland management go to:

www.ForestConnect.com

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