

FOREST MANAGEMENT BEGINS WITH AGS AND UGS

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Conduct timber stand improvement to remove UGS such as this elm. Photo Courtesy: David Mercker

There are three rules for young foresters trundling through the woods: 1) only a brisk cadence allows one to keep pace with the forest supervisor, 2) property lines aren't always accurate, and 3) forest management *begins* with defining the "AGS and UGS."

Forests, and trees in particular, are often classified, grouped, evaluated and judged based on many characteristics. These characteristics, in the simplest and most broad sense, can be either acceptable or unacceptable. Professional foresters are complete with their own vocabulary, and they quickly refer to those trees with favorable qualities as **AGS, short for "acceptable growing stock."** Trees that don't meet forest ownership objectives are termed UGS, or "unacceptable

growing stock." So in general, AGS are good; UGS are not so good (or so it may seem).

In your woods, there are many AGS and UGS. Knowing the difference and taking the time to separate them can be challenging. Creating a clear picture begins by explaining the term "growing stock" and how growing stock can be either acceptable or unacceptable.

GROWING STOCK

When the meaning of a word or phrase is not understood, often one breaks it into its parts. The word "growing" needs no explanation, but "stock" might. Think of stock as the amount of something held in reserve for future use. So in

the cattle industry, livestock are not yet ready for market. Consumers stock cupboards for future consumption. Retailers make sure that they are well-stocked with salt prior to an anticipated ice storm, and so on. In forestry, live standing trees in a forest are known as growing stock. Growing stock is acceptable when it meets the landownership objectives. Typically AGS includes trees that are held for future harvest and are still adding wood volume. These trees are retained for future benefit or sale.

The concept becomes a little less clear when describing what constitutes the word acceptable. How is acceptable classified? Says who? When left to training, knowledge and experience, foresters typically refer to AGS as follows:

- Desirable species (such as oaks, walnut, maple, poplar, cherry, hickory etc.),
- That are with good form (relative straightness) and grade (few defects),
- Vigorously growing with expanding crowns,
- Increasing in value,
- Of the right size,
- Found on the appropriate site, and
- Meeting the demands of the local wood industry.

There's much to consider. Indeed defining AGS is complicated, especially when the above considerations are folded together. For instance, white oak (*Quercus alba*) is commonly considered AGS. However, if a certain white oak tree is deformed, suppressed from overhead competition, damaged by previous abuses (such as fire or livestock), or growing off-site (for instance on a site that is too wet), then that tree is tallied as an UGS. So, a would-be AGS can become a UGS.



A Timber Inventory helps evaluate the AGS and UGS in your stand.
Photo courtesy: Jeff Lannon

Of course qualifying AGS vs. UGS depends on the standards by which the trees are judged. And who's the judge?

WHO'S THE JUDGE?

Landowners, much like the woodlands they own, are a diverse group. Ultimately it is the owner of the trees who has the say on which trees are acceptable and which ones aren't.

The previous criteria that foresters use to constitute AGS is only a template. It assumes that the primary ownership objective is to grow top-quality trees, of high value, as rapidly as possible, to meet the demand of the local wood-using industry. Many landowners embrace these criteria. But some do not. And that's fine. In fact, reports have continuously showed that woodland owners often place wildlife and non-consumptive uses of their forest higher than monetary return. Non-consumptive uses can include: aesthetics, recreation, mental restoration, heritage, etc. Consider Table 1 and how the determination of AGS varies according to the alternative wildlife and aesthetic objectives.

INVENTORY YOUR GROWING STOCK

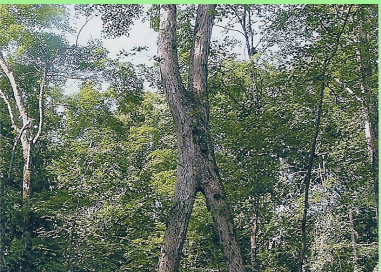
By now you are likely beginning to imagine your own woodland, what it presently looks like, and what it could become. Perhaps your ownership objectives are more in focus too. But before you can achieve your objectives, you must know what your woodland currently contains. What do you have to work with?

So let's return to the example of "stock," specifically the metaphor on stocking your cupboards. Before you can properly stock your cupboards, you must first know what is already there. You could say that you inventory your cupboards before making the list of wares that are needed. The same is true of your woodland. A timber inventory, like any inventory, involves taking stock of what is already available.

The process of inventorying your woodland is much too involving to address here. You are encouraged to read the following publication for more information:

Henning, J. and D. Mercker 2009. Conducting a Simple Timber Inventory. utextension.tennessee.edu/publications/documents/PB1780.pdf.

Table 1. Determination of Acceptable Growing Stock Based on Ownership Objectives.

Ownership Objective	AGS - Trees to Favor
Wildlife Diversity  <i>Wildlife dens can be AGS. Photo courtesy: David Mercker</i>	Wildlife diversity requires habitat diversity, so aside from oaks and hickories (hard mast fruit producers), AGS can include blackgum, persimmon, dogwood, etc. (soft mast producers); trees classified for culls, dens and perching can be AGS as well as understory trees that are important for nesting and browse; a forest that is too well-manicured often is not preferred for wildlife. Example of wildlife AGS: a large hollow tulip tree, complete with many den holes and producing seeds.
Aesthetics  <i>Trees with special slopes may be AGS for their aesthetic value. Photo courtesy: Joe Pulley</i>	Trees with aesthetic appeal are as varied as the ones doing the looking; AGS can include crooked and forked trees, those that are hollow and with den holes, those with pleasing flowers or fall color; although such AGS may not have much monetary value, their intrinsic value can be priceless. Example of Aesthetics AGS: two trees that have fused together creating a contorted form.
Both  <i>Photo courtesy: David Mercker</i>	Sumac can be AGS by meeting both aesthetic and wildlife objectives.

Professionals are needed and recommended. But private woodland owners can conduct a cursory inventory to help in taking stock of what is present. Follow these steps:

1. Establish your AGS and UGS criteria and have a tally sheet.
2. Randomly traverse your woodland and measure 1/10 acre plots; these are circle plots with a 37-foot radius from the plot center.
3. Record your AGS trees and UGS trees; use a simple slash-tally; each tree tallied represents 10 trees per acre.
4. Add up all your data then divide by the number of plots taken to determine the composition of the average plot; since measurements are for 1/10 acre, multiply this answer by 10 to get a per acre representation which

can then be expanded for the total woodland acres; the results will provide baseline information that will aid in achieving your objectives.

OFTEN IT'S NOT EITHER/OR

There is a tendency to think that woodlands are managed solely for crop trees — or for wildlife — or for aesthetics. But they are not mutually exclusive. Indeed they can occur at the same time. More often than not that is the case for most landowners. For instance, even the most hard-core timber producers can leave occasional UGS to benefit wildlife and aesthetics.

And the opposite can be true too for those landowners whose objectives focus primarily on non-timber uses. With this option, often the AGS favored are the lower value “D” trees: defective, dying, deformed, diseased, damaged and dwarfed. Beware though. Not having some higher value crop trees could limit the utility for future generations and even lead to woodland conversion to non-forest uses. In other words, if woodlands have such poor quality trees that they become poor investments, conversion to other non-forest uses could result. And that’s not what this is about. So for a more holistic, stewardship-centered focus, the criteria for AGS and UGS could be broadened.



Hidden treasures! Photo Courtesy: David Mercker

A WOODLAND EXAMPLE

To help you visualize some of what has been discussed, here’s an example of AGS and UGS as it relates to a typical forest (Refer to Table 2 below). This assumes all the trees tallied on a 1/10 acre plot (37-foot radius) located in the hardwood region. Note: this example only includes one inventory plot. For a more accurate representation, several plots would be required.

Condition and Recommendation: Seven of the 11 trees are considered AGS and since this is a 1/10 acre plot, that would yield approximately 70 AGS trees per acre, normally a very favorable stocking level for AGS. However, the 40 UGS trees per acre are competing with the AGS and to enhance the vigor and insure the survival of the AGS, timber stand improvement (TSI) is recommended. With the TSI, the UGS trees should be harvested (if possible) or deadened (if not). The reason the UGS trees did not meet the ownership objectives are as follows:

12-inch elm — Elm are subject to Dutch elm disease, have low monetary value, produce little wildlife mast, and compete with an AGS oak tree.

14-inch box elder — Very low market value, produce little wildlife mast, growing off-site.

8-inch white oak — A stunted (overtopped tree) that is dying due to broken top.

24-inch beech — Although potentially a good wildlife tree, this one is hollow and is completing heavily with the AGS; plus, other excellent quality beech exist on the site to produce wildlife mast.



Conduct timber stand improvement to remove UGS such as this elm. Photo Courtesy: David Mercker

Table 2.
Objective: Grow top-quality hardwood timber to produce periodic income.

Species	Diameter (in.)	Condition	AGS	UGS
White oak	14	Excellent	x	
Elm	12	Cull		x
Red oak	12	Excellent	x	
Hickory	10	Average	x	
Box elder	14	Cull		x
Tulip tree	18	Excellent	x	
Tulip tree	8	Average	x	
White oak	8	Crooked, broken top		x
Red oak	14	Average	x	
Beech	24	Cull (hollow)		x
Beech	14	Excellent	x	
Total			7 (or 70 per acre)	4 (or 40 per acre)

WHERE TO GO FROM HERE

“I like to see a man proud of the place in which he lives. I like to see a man live so that his place would be proud of him.”

- Abraham Lincoln

Feeling a bit overwhelmed? That's not necessary. Sure there is much to be known, but that's why professional foresters exist. **Trained broadly in the natural resource disciplines, professionals can help you establish your objectives. From the objectives can come the inventory. The inventory helps determine the AGS. Then action steps are established. Action steps ultimately help you achieve your objectives.** Just like putting one foot in front of the other. Take a moment to read the above again, for it summarizes what this is all about.

Finding a professional forester isn't that difficult. Foresters are either publically or privately employed. Each state has a forestry agency whereby public foresters administer conservation programs, fight wildfires and, to limited extent, assist landowners in the development of forest stewardship plans. Plans contain steps to help achieve objectives. Normally landowners are then turned over to private foresters to assist in carrying out the recommendations. Private foresters are either independently employed consultants or are employed by forest industry. As always, it is beneficial to seek the counsel of many.

CONCLUSION

Some days, if you stop, attentive and listening very closely, you might hear the sounds of foresters way off in the woods,



Mature White Oak Veneer Tree.
Photo Courtesy: David Mercker



An AGS tree based on aesthetic objectives.
Photo Courtesy: Allan Houston

their tools rattling, their persistence as they scurry across the hills, and the thunder as they sound off trees in their plots.

“Give me a white oak, 22 inches x 3 logs, AGS

... a honey locust, 16 inches x 2 logs, UGS

... a red oak 18 inches x 2.5 logs, AGS ...”

It's your woods. Get to know it. The privilege of woodland ownership also carries the opportunity of stewardship. Forest management begins by defining your AGS and your UGS. Without this knowledge, you're just another landowner. With it, you're one step closer to becoming a steward.

David Mercker is the original author.
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