



FORESTRY, WILDLIFE & FISHERIES UPDATE NEWSLETTER

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HARDWOOD ANALYSIS AND TRENDS (HAT – JULY 2013)

David Mercker, Extension Specialist

As **HAT** has regularly reported, it is normal for hardwood sawmills to have low log inventories during late spring and early summer, a result of curtailed logging activity due to spring rains. But this year the problem is actually a “problem.” Many sawmills throughout the region are reporting tight log inventories. Two other obstacles are exacerbating the situation:

- Shortage in qualified logging contractors to harvest the timber needed by the sawmills; some loggers are finding work in competing services, including the oil and gas fracking industry;
- Cash flow - not all loggers and mills have adequate cash flow to purchase standing trees and logs in order to rebuild their inventory.

Although problematic for sawmills, the above difficulties are actually good for private woodland owners. Demand for wood products is gradually improving with more residential construction starts and completions. Greater usage coupled with tight supplies is driving price upward. The economy seems to be gradually rebounding.

For now, **HAT** shows strong demand for oak species and white woods (including maple and poplar). Demand for RR ties remains firm with supporting price. Walnut and cherry are stable, but well off pre-recession prices. The pine market in our regions is weak, including both chip-n-saw and sawtimber, with supply far surpassing demand.

WOOD INDUSTRY ROLLING TO A “SUPER CYCLE”?

Adam Taylor, Associate Professor, Forest Products

The forest products industry has experienced hard times over the past decade. A combination of the housing bubble bursting, the global recession and changes due to globalization resulted in reduced demand for American wood products. As a result, hardwood lumber production, the backbone of the Tennessee industry, dropped by half, 1/3 of Tennessee sawmills shut down and 2/3 of the wood industry jobs were lost.

Especially in comparison with this dismal past, the future of the wood industry in Tennessee looks very bright. As with many commodities, the market for wood products experiences cycles of ups and downs. However, just as the wood industry has recently experienced an unusually bad down cycle, there are indications that the industry is poised for an unusually good up cycle: a so-called ‘super cycle’.

The outlook for a ‘super cycle’ for the wood products industry in North America was recently assessed by Russ Taylor, the President of WoodMarkets, an industry consulting group. Mr. Taylor pointed to economic recovery, especially in the US, and the continued growth of the Chinese market as leading to increased demand for wood products. However, in contrast with normal cycles where the wood supply could easily be increased to meet increases in demand, there are a few factors limiting the ability of the industry to supply more wood:

- The mountain pine beetle in western Canada will reduce wood production in that area
- Changes in forest management policy are decreasing available supplies from eastern Canada
- Tariffs and infrastructure problems have reduced the availability of wood from Russia

An increase in demand, with limitations on supply, should mean increases in prices. This is a good thing for the Tennessee wood industry, which has seen prices trending down for years. And, because Tennessee has abundant and growing forest resources, the local industry has room to grow in response to the help supply the world with wood.

The wood industry will always be competitive and dynamic, and ups and downs will keep coming. However, the fundamentals of demand (more and richer people need more wood) and supply (Tennessee has productive forests) look good for our local forest products industry.

THE USE OF STONES IN THE WOODS

David Mercker, Extension Specialist

Figuratively speaking, foresters like “getting stoned,” and so should woodland owners.

In this sense, “stoned” doesn’t mean euphoric, but rather gravel or rocks or the like. There are many advantages to using stone in forest operations, and in most cases, the expense is offset by improved access, cleaner water, higher productivity, and fewer complaints. The *Guide to Forestry Best Management Practices in Tennessee* (TDA 2003) makes several references to use of stones in stream crossings, culvert inlets, access roads, and highway entrances.

Stone, if used properly, can stabilize soft soil. Generally mid-sized (fist-size) stone is used as a base for logging roads and larger rip-rap is necessary in areas where higher water velocity can wash smaller stone away. Smaller stone has a tendency to settle and disappear, leading to an unnecessary second dressing. If considerable vehicular activity is to occur, and for creating something that will endure, 4” to 6” of stone depth is needed. Greater depth may be required in soft soils or in more sensitive areas. Geotextile material can also be used as an underlayment in such areas.

Stone is valuable for lessening the effect of rain and surface run-off and the resulting soil erosion. By slowing and dispersing water, more water infiltration into the soil occurs leading to a gradual release into water bodies. This is much preferred to concentrated and accelerated run-off. Culverts are more likely to remain functional when supported with stone at inlets and exits.

Loggers typically like stone because it can increase production by allowing for more working time and, when placed at highway entrances, can help clean mud from tires prior to entering public roads. This improves community safety and helps reduce grumbling.

“Getting stoned” is a very effective way of managing land, particularly when equipment, water, soil, and silvicultural operations all come together. Further, it is an investment that remains long after the logging ends, the forest resprouts, and the community drives away.

Ref. (Warner, M. The Woodland Steward, Fall 2012)

FUSARIUM CANKER IN YELLOW POPLAR

Wayne Clatterbuck, Professor, Silviculture and Forest Management

Fusarium canker on yellow-poplar has been reported at several locations across Tennessee. This canker is caused by the fungus *Fusarium solani*, which also produces cankers on sweetgum, red and sugar maples, and true poplars (*Populus* sp.). Cankers are localized regions of necrosis in the bark of stems or branches of trees.

The canker most often appears on stressed yellow-poplars that are growing off-site. Favorable sites for yellow-poplar growth are those well-drained, deep, and moist sites found in coves, stream valleys and lower slopes. Yellow-poplar, with its wind-disseminated seed and the ability of the seed to remain viable in the forest duff for up to 7 years, often germinates and grows well initially on poorer sites (south slopes and ridges) when environmental conditions (primarily moisture availability) are favorable. However, after several drought years where moisture is not so readily available, these trees become stressed and are focal points for Fusarium infection. These areas are not yellow-poplar sites, but the trees seeded in and grew when weather/climate was favorable. Generally the affected trees are less than 25 years old and are 2 to 8 inches in diameter.



John H. Ghent, USDA Forest Service

The fungus enters the tree through broken branches and bark wounds. Small vertical cracks first form in the bark. These cracks become cankers that are often a foot in length. Foliage does not appear to be damaged in the early stages of the disease, but as the cankers enlarge and kill more bark, the crown of the tree becomes progressively sparse and begins to dieback.

The degree and seriousness of canker damage is closely related with host vigor. Trees weakened by one or more stresses are more severely damaged. Cankers are frequently located on the lower bole of the tree, the portion of the tree with the greatest potential wood value. Predisposition of stems to break from wind, ice, and snow at the weak, cankered area is common. The cankers are also entry points for wood staining and decaying microorganisms.

Within the same stand, greater incidence of the canker appears on the dry upper slopes (off-site) with little or no infection for trees on the moist lower slopes. On sites where trees are declining or dead, a self-thinning naturally occurs releasing growing space to other trees (primarily oaks) that are more conducive to the resident site conditions and more adaptable than yellow-poplar to the environmental stresses. Although oaks are not as prominent on these sites initially with the greater proportion of yellow-poplar, the proportion of oaks increases as the number of yellow-poplar diminishes.

Historically, yellow-poplar did not inhabit these drier sites because of the frequency of wildfire. However, with the advent of fire control programs, yellow-poplar has been able to colonize these areas, increasing the probability of Fusarium incidence, especially under adverse environmental conditions.

FOREST OPENING SIZE

Wayne Clatterbuck, Professor, Silviculture and Forest Management

A publication by Chris LeDoux (Forest Products Journal 49(3): 34-37 --- 1999) evaluated effective size of forest openings from biological and economic perspectives by integrating logging studies with regeneration studies. LeDoux is a harvesting engineer and used his own work with cable and ground-based logging systems with the regeneration work of Martin Dale who assessed 89 openings ranging in size from 0.04 to 1.61 acres in the upland oak area of West Virginia, Illinois, Ohio, and Kentucky. The results 30 years after harvesting are not surprising.

- There was a higher proportion of shade-tolerant species in small openings, particularly those less than 0.1-acre. As opening size increased up to one acre, the proportion of shade-intolerant and intermediate species increased.
- Smaller groups have less trees/acre and smaller trees, while larger openings had more trees/acre and larger trees.
- Economic success depends on product markets, tree species, tree quality, and logging costs
- Total harvesting costs increase as size of opening decreases.
- Small openings have a large proportion of their area influenced by the surrounding forest compared to larger openings resulting in reductions in total height and merchantable height growth of the new regeneration.
- Larger openings had larger trees, of shade intolerant species which are more valued.

The study suggests that financial yield is maximized when an opening size of 1.25 acres or larger is implemented, from both financial and biological aspects.

Note that I have not used the term “group selection.” This phrase/term in the silviculture texts is part of the uneven-aged system. The maximum opening size or diameter associated with a group selection is two times the total height of the overstory trees. For example, if tree height is 100 feet, the maximum opening size would be 0.72 acres. Thus, larger opening size should be considered even-aged management.

Too often, group selection is used in terminology to denote small opening size. If that phrase is used, then the intent is to practice uneven-aged management, i.e., groups are not maintained or differentiated in the stand. However, If opening size is large enough to be maintained, even-aged management prevails and the harvest area should be referred to as an even-aged opening.

DESIRED FUTURE FOREST CONDITIONS AND MANAGEMENT

Larry Tankersley, *Extension Specialist, Forestry*

A recent conversation among some folks.

"We'd like to burn."

"What?"

"Yeah, We'd like to burn our woods."

"How come?"

"We heard it was the thing to do."

"Oh."

Prescribed fire and just burning are really very different things. It is easy enough to set a fire. Just apply a match to a dry forest and some type of a fire will usually happen; often with disastrous results. But a prescribed fire, set according to carefully considered conditions, produces a predictable event with predictable results. Prescribed burning is one of a number of tools that land managers can use to manage vegetation. Reasonable objectives for prescribing a fire are to:

Remove unwanted debris, Reduce potential fuel. For this we'll need adequate heat or fire intensity to consume a portion of the available fuel.

Knock back excessive vegetation and facilitate access. For this we will also need adequate heat or fire intensity, to consume a portion of the fuel and affect "girdling" of certain typically smaller woody stems, without damaging desirable residuals.

Improve vegetation as habitat for certain wildlife species. Influence plant species composition, physical structure, spatial arrangement and size, and forage plant palatability.

To affect these objectives we also want to:

Minimize/eliminate collateral damage, smoke. What are we burning? Define the area; burn here not here. Consider/construct fire lines. Consider surrounding area, structures, fences, culverts (Note: plastic culverts will burn!), barns, houses, anything that could be damaged by the fire.

Minimize damage to desirable timber. Consider strategies to control fire intensity and rate of movement; remove large debris likely to smolder after the fire line passes.

Minimize smoke production/maximize dispersion. Consider fuel moisture to reduce smoldering combustion, consider mixing height, atmospheric stability, wind direction and speed, Where are the adversely affected targets, roads, houses, livestock, hospitals, airports, neighbors with asthma etc,

We control fire by knowing when to set it and when not to set it. We also control fire by starting it at the right location so that it burns the way that we want it to.

It is impossible to know too much about fire if you own forestland in Tennessee. Read more about it at

http://www.srs.fs.usda.gov/pubs/su/su_srs054.pdf

Let us know if we can answer any questions.

TIMING GRAZING ON NATIVE GRASS PASTURES

Patrick Keyser, Professor, The Center for Native Grasslands Management

Native grasses break dormancy in late March but will not begin to grow appreciably until late April. In a typical spring, eastern gamagrass and switchgrass will be ready to graze in late April, big bluestem by early May, and indiagrass and little bluestem in early to mid-May.

Regardless of species, it is important to delay stocking your pasture until there is enough growth of new vegetation to ensure that the plants can sustain grazing. If grazing begins too soon, the energy needed for regrowth will be drawn from root reserves rather than from active photosynthesis. If too much stored energy is pulled from the roots, the stand could be weakened. There must be enough leaf area to provide forage as well as to support photosynthesis at a level that allows for continued plant growth and replacement of forage consumed by grazing animals.

A good rule of thumb for initiating grazing in native grasses is to wait until average canopy height of the stand has reached 13 to 15 inches. Depending on grazing strategies, though, you may want to adjust this timing. For instance, under rotational grazing, which provides a good deal of within-season rest for the stand, you could start sooner. The earlier start will allow you to keep up with the rapid spring growth of these grasses as you move through your rotation. On the other hand, if you plan to stock the pasture at a high rate, you could allow more growth to accumulate before initiating grazing.

Balancing warm- and cool-season grazing: One other key consideration is to decide whether you want to graze cool- or warm-season pastures **during May and June**. Both are actively growing at this time and both can provide good grazing. Unless you have access to additional stockers during this period, you should harvest the excess cool- or warm-season forage that accumulates at this time as hay.

During June, animal performance on cool-season pastures drops, while on native grasses it remains high. Furthermore, most cool-season pastures in our region are dominated by endophyte-infected tall fescue and develop increased levels of toxins (ergovaline) during this period. **Because recently bred cattle can be particularly sensitive to fescue toxocosis**, **moving them off of tall fescue during June can contribute to improved calving rates**. Thus, it may be better to conserve cool-season forage produced after late May as hay. Furthermore, ergovaline levels drop in hay when it is harvested and that hay can be fed at a time when animals are less sensitive.

An early cutting of native grass hay, before May 20, will produce very high quality forage and will allow ample regrowth by early June to support grazing. Some of your warm-season pasture could be left unharvested for hay if additional forage is needed as you first move onto the native grass pasture. You will need to stock this material heavily though since by this time it will have become tall.

ROTATIONAL GRAZING ON NATIVE GRASS PASTURES

Patrick Keyser, Professor, The Center for Native Grasslands Management

Like any forage grass, native warm-season grasses (NWSG) must be properly managed to get the most out of them. Regardless of species, native or otherwise, grasses must be maintained in the correct stage of development to ensure optimum quality, quantity, and stand vigor. There are two basic mistakes that made in grazing management: grazing too close and not grazing close enough. Rotational grazing provides an excellent way to achieve the desired balance and is perhaps the best approach for grazing NWSG.

The height range for grazing NWSG will be taller than for most other forage grasses. This is because they have higher growing points and have an upright, tall growth habit. Big and little bluestem and indiagrass should generally not be grazed closer than about 12 – 14 inches. Eastern gamagrass and upland varieties of switchgrass should not be grazed closer than about 14 – 16 inches and lowland switchgrass should not be grazed closer than 15 – 18 inches.

All of these species can get too tall if enough grazing pressure is not used. Once they get stemmy, quality and palatability will decline and, along with that, animal performance. With the exception of lowland switchgrass, none of the natives should be allowed to get beyond 24 – 26 inches tall or to develop seedheads. Lowland switchgrass may get as tall as 30 – 36 inches in a grazing setting without detriment.

Rotational grazing allows you to maintain the NWSG stand within the canopy height ranges mentioned above simply by moving cattle from one pasture to another. It also allows rest periods during the growing season that will help maintain vigorous stands and, as a result, minimize weed pressure. Rotation frequency will depend on the stocking level and pasture size. Heavier stocking on smaller pastures will require shorter rotations while lighter stocking and larger pastures will require longer rotations.

Arriving at the proper stocking rate will take some trial and error, but based on UT research, for big bluestem and indiangrass about 1200 – 1800 lbs/ac, depending on stand quality and soil productivity, is about right. For eastern gamagrass and switchgrass, you will need about 2,000 – 2,600 lb/ac. These figures are for continuous grazing, so you will need to adjust for the acreage in your entire rotation. For example, with three 5-ac switchgrass pastures (15 ac total), you would need a group of cattle that weighs about 30,000 lb (15 X 2,000).

A rotational grazing system for NWSG could involve as few as three pastures. Movement among pastures should be based on grass height and **not** on a fixed number of days/weeks. When grass is growing faster (May and June), rotations will be shorter than late in the summer when growth has slowed. The amount of rest between entries should vary based on how close your defoliation is but may require as much as 42 days where grazing is close (i.e., below the height criteria mentioned above). Using the heights indicated above, spring grazing could involve as little as two weeks of rest.

CONTINUOUS GRAZING ON NATIVE GRASS PASTURES

Patrick Keyser, Professor, The Center for Native Grasslands Management

Most recommendations for grazing native grass forages are based on some form of rotational grazing. However, continuous grazing may also be used effectively with native grasses. In fact, in the Great Plains where a great deal of native grass grazing occurs, this is a common practice. As is the case with rotational grazing though, the key to successful continuous grazing of native grasses is maintaining the proper canopy height.

Native grasses are tall growing and to remain vigorous they require maintenance of a higher canopy – especially under continuous grazing – than what is required by most other common forage species. For big bluestem and indiangrass, canopies should be maintained between about 15 - 20 inches tall throughout the summer grazing period. For switchgrass, canopies should be kept between 20 - 30 inches for lowland varieties such as Alamo and Kanlow. Eastern gamagrass heights should fall between that for switchgrass and the other natives, about 18 - 24 inches.

Under continuous grazing, maintaining canopy heights lower than those described above will result in weakened stands, reduced gains, reduced yields, and increased weed pressure. However, research conducted at the University of Tennessee and elsewhere has demonstrated that continuous grazing is a viable strategy – as long as minimum canopy heights are diligently maintained.

Two other cautions should be observed in continuous grazing with native grasses. First, do not allow the canopy to get too tall or the grass will get stemmy and unpalatable. In that case, grazing will be concentrated on the more heavily grazed portions of the pasture where the grass is shorter and more vegetative. If not corrected, the result will be patches that are overgrazed ('grazing camps') and others that have gone to seed and are not grazed at all. Of course, the key to managing canopies that are not too short or too tall is appropriate stocking. And this leads to the second caution for continuous grazing.

Native grasses grow rapidly during early summer and then slow down in mid- to late-summer. This is particularly true of switchgrass, but also occurs with the other species. You need to be prepared to make some adjustments in stocking during late June to ensure that you do not 'overshoot' the carrying capacity for the later part of the grazing season. Typically, stocking will need to be reduced by about one third during this time. Also, be sure to rest the stand after September 1 under continuous grazing.

Continuous grazing will allow you to effectively manage your native grass pastures with less time invested in moving cattle during the summer than is required under rotational grazing. However, you **must** still carefully monitor the condition of the pasture and be prepared to adjust stocking as needed (especially in late June). Remember, it's all about canopy height.

WILDLIFE MANAGEMENT CALENDAR FOR JUNE

Craig Harper, Professor, Wildlife Management

Wildlife Notes

Blackberries ripen in early July

July is peak breeding season for black bears

July is also peak time for the second litter of squirrels

Lots of bobwhite poults using fields in July. **DO NOT MOW** early successional areas (old-fields)!

Grassland songbirds incubating second nests of season

Ducks and geese molt in June and July and are flightless for a couple weeks

Bullfrog breeding peaks in July

Habitat Management

DO NOT mow old-fields and associated early successional areas!

- destroys cover for wildlife at a time it is needed most (nesting and raising young)
- stimulates grass and leads to reduced forb cover (which means less food and cover)
- increases thatch at ground level and makes travel through the field much more difficult for wildlife
- manage old-fields by burning or disking in late March/early April or September; **don't mow them!**
- refer to [Chapter 6](#) in *Native Warm-Season Grasses: Identification, Establishment, and Management for Wildlife and Forage Production in the Mid-South*, PB 1752, for additional information on managing early successional areas

Instead of mowing early successional areas, spot-spray undesirable plants instead

- Roundup and other glyphosate products work well
- Garlon 3-A, PastureGard, and Cimarron work well for many undesirable broadleaf plants, such as sericea lespedeza
- Garlon 3-A and Arsenal AC work well for undesirable woody plants, such as sweetgum, red maple, and green ash,
- drive across field with tractor and sprayer as you would when mowing; spot spray undesirable species with a spray gun as you see them
- composition of field will change over time, developing into an early successional area with desirable plant species
- refer to [Appendix 4](#) in *Native Warm-Season Grasses: Identification, Establishment, and Management for Wildlife and Forage Production in the Mid-South*, PB 1752, for additional information

Burn unharvested wheat fields that have been left standing for doves.

Mow and spray perennial forage food plots for weed control if necessary

- refer to [A Guide to Successful Wildlife Food Plots: Blending Science with Common Sense](#), PB 1769, for specific herbicide and additional management information

Collect soil test samples from plots to be planted this fall and lime now as needed

Plant wild or browntop millet and/or buckwheat around beaver sloughs and other areas that will be flooded in November for ducks

Construct/repair dikes and water-control structures for flooding fields/woodlands for waterfowl this fall/winter

Wildlife Damage/Population Management

Put up chicken-wire fence 2 feet high around vegetable gardens to protect them from rabbits

Put up a 2- or 3-strand electric fence (one strand 6 inches above ground and the other 6 inches higher) to keep groundhogs and raccoons out of vegetable gardens

To repel deer from vegetable gardens, erect a single-strand electric fence (2 ½ feet above ground) with aluminum tabs attached every 3 – 5 feet.

- Smear peanut butter on the aluminum tabs.
- Deer are attracted to the peanut butter. When they touch the aluminum tabs with their mouths, they learn to stay away.

Nuisance crawdads in the yard may be remedied by pouring boiling water down the spout of the mound

To keep bats out of attics and out from under vinyl siding and other areas, close or cover up all holes and cracks so they can't get in!

- do this at night after bats have left the roost; it may be necessary to open the hole the following night to allow any bats that were trapped inside a chance to leave
- maternal colonies will migrate to hibernation sites in the fall. If you wait until then to close holes and cracks, you will avoid trapping any inside.

“Repel” snakes by cleaning up around the house – mow more often, remove piles of wood, brush, and trash. There is no reliable repellent for snakes; only “snake oil”

Refer to *Managing Nuisance Animals and Associated Damage Around the Home*, PB 1624, and visit <http://icwdm.org> for additional wildlife damage management information.

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