



FORESTRY, WILDLIFE & FISHERIES UPDATE NEWSLETTER

FEBRUARY 2011

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HEALTHY HARDWOODS FORESTRY FIELD DAYS ANNOUNCED

The events will occur at the following locations. There is no fee to attend. Participants will learn about steps to making a hardwood tree planting successful. Please register in advance for meal purposes (but, walk-ins are welcome) . To register, call the TN Forestry Association office in Nashville (800) 893-7403. State the location you will be attending, the number in your party, plus your address and phone number.

March 26, Natchez Trace State Forest

April 30, Ellington Ag Center (Nashville)

April 2, Standing Stone State Forest

June 4, East TN Nursery (Delano)

NEW PUBLICATIONS - PROFESSIONAL HARDWOOD NOTES SERIES

Wayne K. Clatterbuck, Professor, Forest Management and Silviculture

Two new UT Extension publications are now available in print and on the web as part of the Professional Hardwood Notes series, technical information on hardwood silviculture. The titles are:

1. Uneven-age Management in Mixed Species, Southern Hardwoods: Is it Feasible and Sustainable?, PB1798
2. Site Preparation for Natural Regeneration of Hardwoods, PB 1799

These publications may be accessed on the web at

<https://utextension.tennessee.edu/publications/Pages/hardwoodSilviculture.aspx> or a print copy can be obtained at your local county Extension office or at the UT-FWF office in Knoxville.

FORESTRY WEBINARS – EDUCATIONAL PROGRAMS

Larry Tankersley, Extension Specialist, Forestry

Forestry Webinars– Educational programs for austere times. With shrinking travel budgets it is often difficult for extension specialists to travel for traditional meetings with groups of forest landowners. With this in mind, more and more Extension programs have shifted to program delivery via the internet.

Welcome to the Forestry Webinar Portal! <http://forestrywebinars.net/> (Go ahead, point your cursor at the website address in this article, now right click on the website and choose open hyperlink and the webpage will automatically open for you!)

The Southern Forestry & Natural Resources Webinar Portal is a service of the Southern Regional Extension Forestry Office, North Carolina State University's Extension Forest Resources, Texas AgriLife Extension Service, and other participating land-grant universities in the South. This portal serves as a launching point for current and archived natural resource webinars. The site also hosts information on upcoming webinars and webinars from other organizations that are relevant. Be sure to check out this site for all your webinar needs.

What is a Webinar and How Do I Use It? Webinar is short for "web-based seminar". These seminars are on a variety of topics, of any length and for any audience. While most webinars are designed for live audiences, many are archived or saved for future viewing. Webinars are conducted by many different sponsors, so usage instructions will vary. For previous webinars, click on the "view this webinar" link to watch an archived video feed, or view a summary of the presentation. For upcoming webinars, follow the "join us" link to the sponsor's website. There you can find information on registering for and participating in the webinar of your choice. If you still have questions, visit our FAQ page.

Many of the webinars do require the installation of a particular viewing software and hardware specifications but many of these would be available at county extension offices and local libraries. I don't consider myself particularly computer savvy, but I did watch the session on using Google Earth for Natural Resource and found it to be useful and cheap (only cost me a little time).

Check this technology out and let us know how it goes. Don't be denied the information that you need for successful Forest Stewardship.

MARK YOUR PROPERTY BOUNDARIES

David Mercker, Extension Specialist, Forestry

Winter is a good time to mark your property boundaries..... In a sound forest management program, few things are more important than clear delineation of your property boundaries. Landownership begins with knowing "what you own," not only the *assets* (your timber) but the *area* (your boundary). Management plans cannot be created and inventories cannot be conducted without first confirming the bounds of that to be examined. So when forestland is purchased, inherited or gifted, priority one is marking your boundary.

Winter is an ideal time to identify and mark property boundaries. Foliage is gone, allowing for more easily locating landmarks. In some cases, property boundaries may be clear, such as with an existing fence, road or creek. In other cases, they may be vague or nonexistent. When a boundary is not obvious, the landowner (or designated forester) should meet with adjoining landowners and agree on a location. When these actions fail, a survey will be necessary.

The property boundary must be clearly designated with highly visible paint or flagging. Paint is best, because of duration, and it should be reapplied on 3 – 4 year intervals. You may also wish to post your property against trespass.

A marked boundary helps in your management planning, and allows loggers whom are unfamiliar with your property to remain on the specified sale area. This will minimize cutting or damaging neighbor's timber. The state of Tennessee imposes penalties, referred to as **timber trespass**, for accidentally or intentionally cutting trees that belong to someone else. For additional information refer to Timber Theft (Mercker 2002): <http://www.utextension.utk.edu/publications/spfiles/SP595.pdf>.

BIO-ENERGY IN TENNESSEE

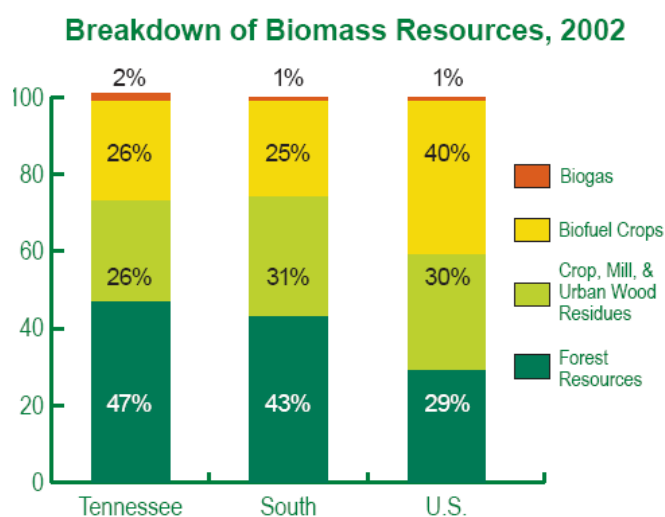
Adam Taylor, Associate Professor, Forest Products

SAFER, the Southeast Agriculture & Forestry Energy Resources Alliance, has recently put together interesting summaries of bio-energy production in the Southern States. The summary for Tennessee can be found at this link: <http://saferalliance1.files.wordpress.com/2010/12/tn-roadmap-data.pdf>.

The summary shows that Tennessee uses mostly non-renewable fuels such as coal for its energy needs, as does the country as a whole. At the same time, Tennessee has large potential biomass-energy resources in its forests (52% of the land area) and farmland (see the figure).

Many sawmills use wood processing residues to heat lumber dry kilns. A number of pulp and paper mills also use wood 'waste' to generate electricity as well as provide steam for their mills. However, there are currently only a few dedicated bio-energy production facilities.

The challenges to expansion of this capacity include conversion technology, logistics and economics but there are significant bio-mass resources (e.g. leftovers from forest harvests) in the state that could help reduce our dependence on fossil fuels. Time will tell if this potential becomes a reality in Tennessee.



WHY SHOULD WE BE INTERESTED IN SITE PRODUCTIVITY

Wayne K. Clatterbuck, Professor, Forest Management and Silviculture

Growth, yield and quality of hardwoods depend greatly on site productivity. Knowing site productivity will determine what species to favor and the level of management intensity and investment that the land will support. There are several advantages to more intensive management on the sites with better productivity.

- Good sites support higher valued species such as red and white oaks, ash, black walnut and black cherry
- Good sites generally require shorter rotations thus reducing interest costs on long-term forestry investments
- Good sites may produce a better return on investment for silvicultural practices such as thinning and timber stand improvement
- Good sites are typically more diverse in woody and herbaceous understory plants and produce more food and habitat for wildlife

Hardwood forests cover a large geographic area with great differences in climate, topography and soil. These differences may cause considerable variation in site quality. Most hardwood species respond similarly to the same favorable site conditions, although the importance of any one site factor or combination of factors may vary among species.

The best hardwood sites are usually on deep, well-drained soils. Soil texture affects available moisture, nutrient levels, internal drainage and aeration. Coarse-textured soils generally are of lower site quality because soil moisture holding capacity and nutrient levels are limited. Medium-textured soils are good sites because they have adequate available soil moisture and nutrients, good structure, internal drainage and aeration which favor root development. Fine-textured soils generally have adequate soil moisture and nutrients, but are often poorer sites because they have clay subsoils that impede internal drainage, aeration and root development.

Topographic variables associated with site productivity are aspect, slope position, slope gradient, slope shape and elevation. The best hardwood sites are generally north- and east-facing, gently sloping, concave or lower slope positions. The poorest sites are on narrow ridge tops or south- and west-facing, steep, convex upper slopes. Topographic features are often closely associated with soil depth, available soil moisture and nutrients, and microclimate. In hilly and mountainous terrain, topographic features have the strongest relationship with site quality. On more level terrain, site quality is influenced more by soil properties and drainage.

Site productivity is estimated through direct and indirect measurements of site index. For more information on how to measure site index, refer to the next article. One of the more serious mistakes in forestry is managing or planting species that are not appropriate for the site. Evaluating site productivity is an essential aspect in determining whether a forest investment in growing trees is profitable.

MEASURING FOREST PRODUCTIVITY WITH SITE INDEX

Wayne K. Clatterbuck, Professor, Forest Management and Silviculture

Site index is the average height of dominant and co-dominant trees of a particular species or group of related species (ex. upland oaks) growing in a well-stocked, even-aged stand at a given base or index age. Fifty years is the most commonly used index age for most hardwoods, although an index age of 25 years is used for fast-growing species such as southern pine or short-rotation bottomland hardwoods. Site index is used to measure site productivity. Knowing productivity of the site will assist in determining the longevity of various biological treatments as well as levels of economic investments.

Site index is determined directly by measuring heights and ages of sample trees and then estimating tree heights at the index age from a set of tables or curves.

To measure site index of a well-stocked, even-aged stand:

1. Delineate a stand of uniform site quality
2. Select 5 to 10 sample trees evenly distributed over the area that best represent site productivity. Sample trees should be of the same species and should be:
 - Healthy dominant or codominant trees
 - Straight, vertical, single-stemmed trees
 - Trees that have never been suppressed
 - Trees that have not been damaged by fire, wind, ice, insects, disease, lightning, etc.
3. Measure tree heights with a measuring pole, clinometers or similar optical device
4. Determine tree ages from increment cores, stand records or stump ring counts. Increment cores should be taken at breast height (4.5 feet) and add 2 to 5 years to obtain total age. If the core indicates that the tree has been suppressed at any time, reject the tree as an indicator of site index
5. Use site index curves or tables appropriate for the species and the physiographic region. The same species grows at different rates in different regions due to variations in soil and climate. Site index curves are also species specific because most species have different rates and patterns of height growth. For example, on a particular mesic site, the site index for yellow-poplar is probably greater than the site index of northern red oak because yellow-poplar is taller than northern red oak at the same ages due to faster growth rates

Although direct measurement of site index is best, suitable sample trees are not always available, especially on cutover sites and areas that are void of trees that are being afforested. Some indirect measure of site productivity is usually required to make sure that the favored species is appropriate for the site. Indirect methods are used as an indicator of site productivity and include indicator species, ecological site classification and soil-site relationships.

Indicator species give broad generalizations of site productivity based on moisture availability on xeric, mesic and hydric sites. Vegetation such as greenbrier, azalea and post oak indicate fairly low site productivity (xeric) because of low moisture. Devil's walkingstick, spicebush, buckeye, yellow-poplar and basswood indicate better productivity on more mesic sites. Overcup oak, buttonbush, cottonwood, willow and water tupelo are found on hydric sites.

Ecological site classification systems give average site indexes by species for specific physiographic regions based on landform or landtype, aspect, topography, geology and soils. Several of these site classifications have been developed for Kentucky, Tennessee and Alabama by Smalley. Soil and topographic factors are often

included in soil-site correlations using soil depth, soil texture, aspect, slope position, gradient, elevation and drainage classes. A soil-site classification composed by Baker and Broadfoot is used in bottomland systems where various site factors are assigned numeric values, and the sum of the values equals the site index.

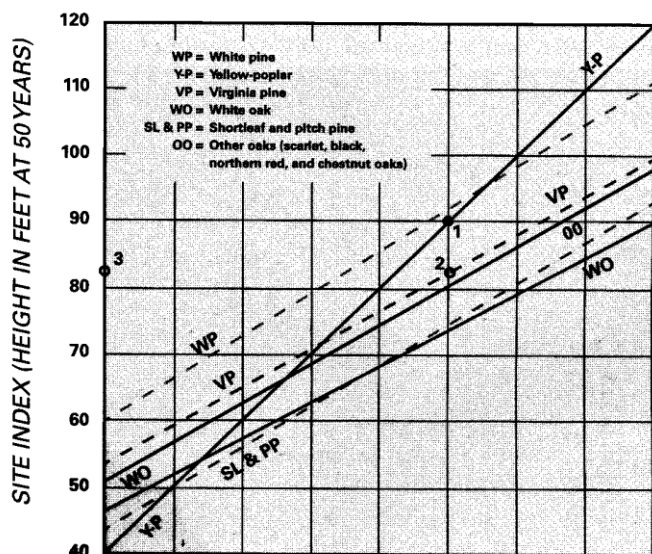
Site productivity assessments are necessary for determining growth and yield as well as ensuring the appropriate species are for site conditions. Site index is a method to directly measure site productivity based on average heights of dominant and codominant trees in fully-stocked, even-aged stands. Indirect measures are indications of site productivity, though perhaps not as accurate as direct measures.

Adapted from Central Hardwood Notes, USDA Forest Service, North Central Forest Experiment Station. 1989.

SITE CLASSIFICATION RESEARCH AT BENT CREEK STANDS THE TEST OF TIME

W. Henry McNabb, Research Forester, U.S. Forest Service, Southern Research Station

When Iowa State University forestry graduate and WWII veteran Warren Doolittle reported for work at the Southeastern Forest Experiment Station in 1946, he likely did not realize that his pioneering research in forest site classification at Bent Creek Experimental Forest would continue to be widely used over 50 years later. In his work with forest site quality, Doolittle developed some of the first prediction models for oak site index that utilize measures of soil and topographic variables. He is best known, however, for the “Doolittle curves” that allow foresters to convert site index among tree species.



Doolittle’s curves, which are really a graph with many lines, are widely used by landowners for management decisions in Southern Appalachian upland hardwood stands. Perhaps resulting from past high-grade cutting, many high-quality hardwood sites are now dominated by yellow-poplar instead of northern red oak, which is more desirable economically and for wildlife. Using the Doolittle curves, a forest owner can easily determine that a measured site index of 110 for yellow-poplar is equal to 93 for northern red oak, 84 for white oak, and similar equivalent values for eight other species. Doolittle’s conversion curves provide landowners with information to make

informed management decisions for a stand managed for differing species composition.

Changing technology often means early obsolescence for many published forest research findings. This 50 year old research, however, has withstood the test of time. As long as site index continues to be used for evaluation of forest site quality, the conversion curves developed by Dr. Warren T. Doolittle while at Bent Creek and published in 1958, will likely remain on the research “best-seller” list.

After leaving his research post, Doolittle moved into Forest Service administration and eventually served as Associate Deputy Chief for Research from 1975-1980. He retired from the Forest Service in 1980 but continued activities in forestry as a volunteer until 2003. He was president of the Society of American Foresters in 1986 and president of the International Society of Tropical Foresters from 1983 to 2003. In his mid-eighties, Doolittle lives in Virginia and enjoys an active lifestyle.

Adapted from Forest Landowner magazine, January/February 2011.

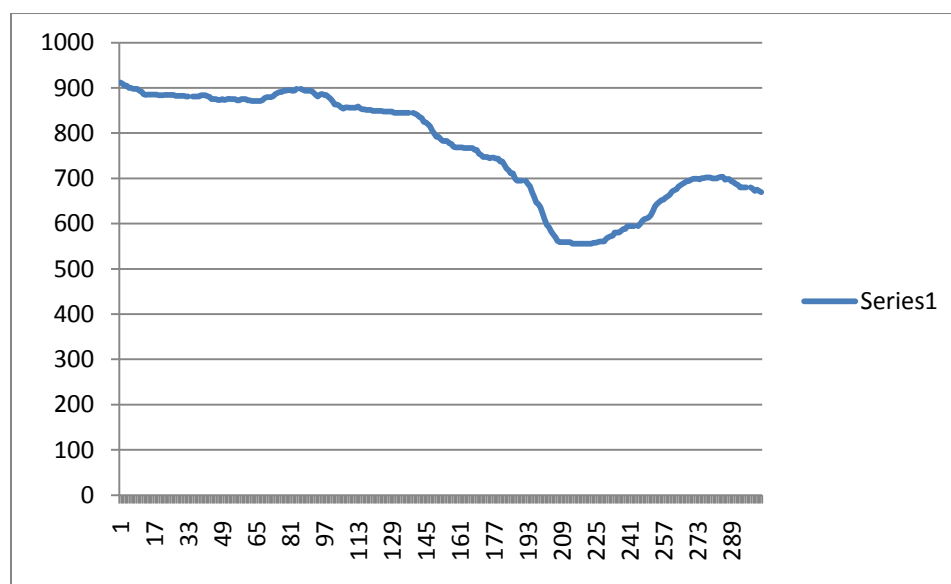
HARDWOOD ANALYSIS AND TRENDS (HAT) – FEB 2011

David Mercker, Extension Specialist, Forestry

In Dec 2011, **HAT** predicted additional downward pressure on lumber prices for species more commonly grown and sold in Tennessee. Since that report, red oak, white oak and tulip poplar have all experienced price declines, cherry and hard maple have remained stable, while black walnut edged up slightly. It is a reach to find any optimistic news for hardwood lumber, logs or stumpage. There is ample supply, perhaps even excess capacity, to meet consumer demand both in the domestic and international markets. Mills entered the autumn months plush with logs and many have remained so through the winter. Simply put, lumber production continues to outpace demand. With current existing home inventory (nationally) exceeding 3 million units (a 7 – 8 month supply); it could be 2 – 3 years before hardwood lumber price increases are once again driven by demand. The excess home capacity has to be pressed through the system.

HAT began tracking hardwood lumber prices the week of April 5, 2005. Six species have been followed, including: red and white oaks, tulip poplar, black walnut, cherry and hard maple. Specifically, #1 common 4/4 lumber is observed. Recently **HAT** developed a table that summarizes the average price for these species, i.e., a compilation of the six. The intent was to develop a “hardwood lumber barometer” to better measure a composite of prices. The table is below. The Y axis is lumber price in MBF; the X axis indicates number of weeks since inception (April 5, 2005). In studying the table, readers will note: the onset of the recession, a gradual rebound, and more recently, another downturn.

Table 1. Hardwood Lumber Barometer: average value of six species



If the weather delivers prolonged wet conditions, and the economy continues its gradual improvement, prices should begin stabilizing and then improve in the spring. The housing bubble has hit our industry with a very strong punch. A very strong one

Summarized with permission of the Hardwood Market Report, Memphis, TN.

WILDLIFE MANAGEMENT CALENDAR FOR MARCH

Craig A. Harper, Professor, Wildlife Management

Wildlife Notes

White-tailed deer finish shedding antlers

Cottontails begin breeding

Bears emerge from dens

River otters are born

Male wild turkeys begin strutting and gobbling

Male ruffed grouse begin drumming

Mourning doves begin nesting

Crows are nesting in TN

Male woodcock courtship flights can be observed at dusk

Wood ducks and Canada geese begin nesting

Great horned owls, red-tailed hawks, and bald eagles are nesting

Purple martins begin to arrive

Tiger salamanders may be seen searching for ephemeral ponds

Southeastern chorus frogs, spring peepers, American toads, Southern leopard frogs, and crawfish frogs are calling and breeding.

Habitat Management

Burn woods and old-fields using prescribed fire to enhance conditions for wildlife

- Secure burning permit and develop burning plan with Tennessee Division of Forestry
- make sure firebreaks are in place
- get help from experienced personnel if you don't have experience burning
- burning fields is **much** more beneficial for wildlife than mowing!
- 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 habitats

Disk fields to encourage early successional growth

- disking is especially good to set back succession if you can't burn
- disk one-third of the field in a block or strips
- blocks are better than strips – makes it more difficult for predators to find nests
- strips should be **at least** 30 feet wide

Disk strips around field edges to encourage early succession growth

- disk strips the width of your sprayer to facilitate killing undesirable plants if needed
- can be used as firebreaks for fields managed with prescribed fire
- leave a soft edge buffer between woods and the field edge – at least out to the drip-line of the trees

Plant firebreaks for additional forage, seed, bugging opportunities

- alfalfa, clovers, and annual lespedezas can be planted in mid-to late February
- warm-season plantings can be made later in May
- see *A Guide to Successful Wildlife Food Plots: Blending Science with Common Sense*, PB 1769, for seeding rates and additional information

If you won't burn or disk fields, mow in late March – just before spring green-up

- for best results for wildlife, disk the area after mowing to facilitate litter decomposition, improve travel for small wildlife and stimulate the seedbank
- mow now, but don't mow during the growing season or you'll disrupt nesting and reduce fall recruitment of wildlife that use early successional cover in summer

Spray tall fescue, orchardgrass, and other perennial cool-season grasses

- spraying now is not as effective at killing these grasses as spraying in October/November; however, a 70% reduction in grass coverage can be expected following spring sprayings
- spray a glyphosate herbicide @ 2 quarts per acre (with surfactant) when grass is 6-10 inches tall and actively growing in late March/early April (just prior to warm-season plants germinating or sprouting)
- after grass is killed, burn the field (if needed), then disk to stimulate the seedbank
- when disking in the spring, a preemergence application of imazapic (6-10 ounces of Plateau[®]) may be necessary after disking to control johnsongrass, crabgrass, broadleaf signalgrass, and other undesirable species germinating in late spring
- Refer to Chapter 5 in *Native Warm-Season Grasses: Identification, Establishment, and Management for Wildlife and Forage Production in the Mid-South*, PB 1752, for additional information on eradicating perennial cool-season grasses and other undesirable species

Finish planting trees/shrubs for wildlife

- establish hedgerows across fields with soft-mast bearing trees and shrubs
- hedgerows can be used to break-up fields into sections
- also plant tree shrubs in blocks at end of fields or in "odd" areas
- apple, pear, crabapple, persimmon, wild plum, elderberry are good choices
- refer to *Improving Your Backyard Wildlife Habitat*, PB 1633, for a list of other trees and shrubs to consider

Fertilize/prune trees/shrubs for increased soft mast production

- this is for trees out in the open, not those in the woods
- fertilizing oaks in woods is a waste of time and money; to increase mast potential for trees in the woods, Timber Stand Improvement practices are needed

Erect boxes for wood ducks and bluebirds

- 1 box per 100 yards of shoreline is adequate for wood ducks
- clean out old wood duck boxes and replenish fresh wood shavings (about 4-6 inches)
- repair/install predator shields if necessary
- in Tennessee, wood ducks may begin searching for nest sites in February/March
- bluebird boxes should be no closer than 80 yards apart

Build brushpiles from thinned trees and pruned limbs

- put large limbs on bottom and small limbs on top for crevice space and overhead protection
- this is best done, and the effect greatest, along the edges of and within high-quality early successional habitat (native forbs and grasses with scattered brambles and shrubs) where good cover already exists
- building brushpiles along a woods edge adjacent to a tall fescue pasture or hayfield may do more harm than good because all rabbits present will then be isolated for predation

Keep bird feeders full

- black-oil sunflowers are a favourite of many birds
- thistle seed is preferred by goldfinches
- suet provides energy for lots of birds during winter
- refer to *Improving Your Backyard Wildlife Habitat*, PB 1633, for information on specific feeders and seed for birds

Finish strip-mowing or silage chopping grain fields to provide seed

Spray Chinese privet and Japanese honeysuckle

- spraying the green foliage of these species now prevents harming dormant desirable species
- 5% solution of Garlon[®] 3-A or 1% solution of glyphosate herbicide and water works well for honeysuckle
- 1% solution of Arsenal[®] AC works well for privet
- for privet too large to spray foliage, cut stem and treat cut stump surface with 1% Arsenal AC or 50% Garlon[®] 3-A; ALSO, stems may be treated with basal application of 20% Garlon[®] 4 with commercially available basal oil with a penetrant

Plant perennial clover and alfalfa plots

- Ladino white clover, alsike clover, red clover, chicory, and alfalfa do well when sown in March
- refer to *A Guide to Successful Wildlife Food Plots: Blending Science with Common Sense*, PB 1769, for information on planting and soil amendment

Spray weeds in cool-season food plots before the weeds get too large

- most cool-season weeds are best killed when sprayed before they reach 3-5 inches tall
- refer to *A Guide to Successful Wildlife Food Plots: Blending Science with Common Sense*, PB 1769, for herbicide recommendations
- always read and follow directions on the herbicide label before using

Fertilize cool-season forage plots

- those containing oats, wheat, and/or cereal rye will respond to 30 pounds of N per acre
- fertilize perennial forage plots with P and K according to soil test recommendations

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

- applications of lime require about 6 months before full effect on pH is realized

Establish salt/mineral licks for white-tailed deer

- this is especially helpful to attract deer to sites that will be used with an infrared-triggered camera survey later in August
- do NOT expect increased weights, reproductive success, or larger antlers following establishment of mineral sites; there are no data to support such

Complete drawdown of fields flooded for waterfowl in mid-February

Wildlife Damage/Population Management

Skunks are on the move

- skunks mate in February and March
- live traps work well
- once skunk is trapped, approach slowly, cover with a tarp, carry to water sources (in truck bed) and drown the skunk
- it is illegal to release a live skunk or raccoon on someone else's property without written permission

Close crawl spaces under the house and check for openings in the attic

- helps keep snakes, skunks, and squirrels from getting into places where they are not welcome

Set traps correctly to catch moles!

- make sure runway (tunnel) is active before setting traps
- excavate 6-inch by 6-inch square exposing runway and determine exact depth of runway
- replace dirt firmly, but not compacted
- set trap at exact depth so mole will be caught

Vultures can present a real problem for calving by plucking out eyes and eventually killing calves

- try scare tactics as soon as vultures appear during calving season
- contact USDA- Wildlife Services if problems continue; they can give you a referral to the US Fish and Wildlife Service for depredation permit if warranted

Refer to *Managing Nuisance Animals and Associated Damage Around the Home*, PB 1624 for additional information on wildlife damage management.



RECENTLY ASKED QUESTIONS . . .

Dr. Harper,

I know how beneficial Timber Stand Improvement (TSI) and hinge-cutting is on deer, but how do turkeys respond? Our woods are filled with pole-sized red maples and we plan to use a prescribed burn to control them. I was planning on hinge-cutting these areas before and after the burn to give the deer food and cover—especially around known bedding areas. Will the turkeys, other than for nesting purposes, shy away from these somewhat thick areas? Also, what effect will a prescribed burn have on a freshly hinge-cut area?

Thank you for your help!

Answer:

Turkeys respond very favorably with TSI. TSI should provide more structure on the forest floor, which provides better cover for poult and more substrate for invertebrates. TSI also stimulates more soft mast, especially blackberry and pokeberry. Better structure also provides better nesting cover. When implemented correctly, TSI should lead to more hard mast, if high-quality mast producers are identified and released (instead of killed or cut down) during TSI.

I would not recommend hinge-cutting hardwoods when implementing TSI. Hinge-cutting can be useful to provide increased cover around field edges (especially for quail and rabbits, and also for turkeys, which will nest amongst the resulting cover), and it can be useful up north to cut certain evergreens and provide more browse, particularly as an emergency food in areas where deer density exceeds nutritional carrying capacity. However, I would much rather have natural regeneration, not only from woody species, but also from forbs, that result from the increased light generated through TSI than I would the downed stems (many still alive) that result following hinge-cutting.

To answer some of your questions directly, according to how many trees you hinge-cut, turkeys would not use the area much (except for nesting) if the stand is very thick with downed trees. Also, if you burn a stand following hinge-cutting, you will kill the trees that were hinge-cut. The only reason to hinge-cut is to keep the tree alive, but at the ground level to provide additional cover.

For your situation, I would recommend you kill undesirable/unwanted stems via girdling-and-spraying or hack-and-squirt. Burning will not kill pole-size stems unless you have a “hot” fire. And if you have a fire that hot, you will also kill desirable species. After thinning, I would wait one to two years, then implement a “cool” fire, with flame heights no more than about 12 inches. All you are then wanting to do is consume the litter layer, continue to set back woody growth as appropriate, and stimulate forage and cover germinating from the seedbank.

Hope this helps. Good luck with your efforts!

CH

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