

Forestry, Wildlife & Fisheries Update Newsletter

Department of Forestry, Wildlife and Fisheries
Larry Wilson, Interim Department Head

January 2006
Website: <http://fwf.ag.utk.edu>

In This Issue

Notes from the Web -	Page 1
Central Hardwoods Forest Conference Announced.....	Page 2
Wildlife Management Calendar for February	Page 3
Ethanol From Wood - Can It Pay?.....	Page 5
The Curious Silvical Characteristics of Yellow-Poplar	Page 6
Chinese Privet: Problematic to Forest.....	Page 7
Fixing a Mudhole	Page 7
Reforestation Tax Incentives Have Changed.....	Page 8
Hardwood Analysis Trends (HAT) in December.....	Page 9

Dates to Remember

Feb 9	Annual Boyettes Forester's Dinner
Feb 27 - Mar 1	15 th Annual Central Hardwood Forest Conference - Knoxville, TN
Mar 9	Wayne County Forestry Association - Forest*A*Syst Program
Mar 11	Forestry and Wildlife Reunion - multi-county forestry field day - Jackson, TN

NOTES FROM THE WEB

Features two websites this month. USDA Natural Wildlife Research Center and The Internet Center for Wildlife Damage Management.

<http://www.aphis.usda.gov/ws>

The U.S. Department of Agriculture's National Wildlife Research Center (NWRC) is the federal institution devoted to resolving problems caused by the interaction of wild animals and society. The Center applies scientific expertise to the development of practical methods to resolve these problems and to maintain the quality of the environments shared with wildlife. The NWRC seeks to protect wildlife from the adverse effects of human activities while also reducing the damage and hazards that wildlife causes to agriculture, forests, industry, and other areas of human involvement.

At this site you can access publications by author, news on development methods, research topics, information on workshops and conferences, and wildlife services provided by the NWRC. Access to an on-line library catalogue is also available. Wildlife damage photographs are posted for you to investigate damage done to crops and property. There is also a “Living With Wildlife” section with activity sheets for children you can download. You may also click on links to wildlife services by state to get access to state reports, fact sheets, tech notes and a preservation and control handbook.

<http://icwdm.org>

The Internet Center for Wildlife Damage Management is a non-profit grant funded site that provides *research-based* information on how to responsibly handle wildlife damage problems.

Need to identify the cause of the damage? . A “decision tree” will ask you various questions to help you identify the animal causing damage to your property which are native to the continental United States.

Need to learn how to control the damage? It details identification, control and management of over 90 species of wildlife, written by almost as many authorities in their respective wildlife areas.

Need more control techniques? Listed here a wide assortment of literature related to wildlife and its control.

Need to find equipment? A list of management equipment vendors which include bird, mammal and reptile control, general suppliers, intellectual resources and specialty products.

Need to find a service provider? Even though the Internet Center for Wildlife Damage Management provides a great deal of do-it-yourself information, sometimes you just want or need to hire a professional. Information is provided to help evaluate a business that may be able to help.

Forest Conference Announcement

The UT Forestry, Wildlife & Fisheries Dept. and the Forest Service Southern Research Station is hosting the **15th Central Hardwood Forest Conference** in Knoxville, TN at the Knoxville Hilton Hotel on February 27 – March 1. The conference will have 85 oral presentations and 44 poster presentations about current forest research in the Central Hardwood Region.

For more information about the conference (facilities, agenda, fees), refer to the conference website at **Error! Hyperlink reference not valid.** or contact Wayne Clatterbuck (wclatterbuck@utk.edu) or 865-974-7346.

###

WILDLIFE MANAGEMENT CALENDAR FOR FEBRUARY

Craig Harper, Associate Professor, Wildlife Management

Habitat Management

It's time to burn – get out the drip torch!

Burn woods and old-fields to enhance conditions for wildlife

- make sure firebreaks are in place
- **much** more beneficial for wildlife than bushhogging!

If you won't burn, do not bushhog or disk old-fields yet – wildlife need the cover for another month!

Disk strips around field edges to encourage early successional growth

- disk strips 2 tractor-widths wide (12 – 15 feet)
- can be used as firebreaks

Continue 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 trees/shrubs in blocks at end of fields or in “odd” areas
- crabapple, persimmon, wild plum and others 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 woods
- fertilizing oaks in woods is a waste of time and money; to increase mast potential for trees in the woods, refer to TSI activities

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 put in fresh wood shavings (about 4 – 6 inches)
- screech owls and squirrels may use the boxes through winter
- 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
- up to 9 or more bluebirds may roost in a single box on cold nights

Finish Timber Stand Improvement activities

- stimulate growth among oaks, beech, cherry, persimmon, and other mast producers by killing surrounding competitors
- girdle unwanted trees and spray wound with a mixture of Garlon and Arsenal AC
- use 1 quart Garlon 3A and 6 ounces Arsenal AC filled to 1 gallon of water
- work should be finished for the season this month – any later and herbicide effectiveness will be reduced as sap begins to flow

Build brushpiles

- put large stems on bottom, small stems on top

Keep bird feeders full

- black-oil sunflowers are a favorite of many birds
- thistle seed is preferred by goldfinches
- suet provides energy for lots of birds during the 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 dove fields to provide seed

Plant perennial clover and alfalfa plots

- ladino white clover, alsike clover, white-dutch clover, red clover, alfalfa, and birdsfoot trefoil do well when sown in February
- prepare seedbed and amend soil with lime and fertilizer as recommended from soil test
- inoculate seed (if not pre-inoculated)
- use cultipacker to firm seedbed and get good seed-to-soil contact

Fertilize winter forage plots, especially those containing oats, wheat, and/or rye

- 30 pounds of N per acre
- P and K according to soil test

Soil test now for spring plots

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

Begin drawdown of fields flooded for waterfowl

Wildlife Damage/Population Management

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
- rodents are beginning to cache food for the coming winter; take action now to keep them out of your house
- glueboards are very effective in trapping mice, snakes, and lizards looking for a warm place inside your basement or garage

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

###

Ethanol From Wood – Can It Pay?

Adam Taylor, Assistant Professor, Wood Products Management

Recently there has been a push by the federal and state governments to increase the production of fuels from biomass as a substitute for fossil fuels such as oil, coal and natural gas. However, a recent headline announced that more fossil fuel energy is used to produce ethanol from corn and wood than the energy provided by the ethanol produced. This is a disturbing thought, given that each year over a billion bushels of corn are converted to ethanol! It would also mean that efforts to make ethanol from wood in Tennessee should be stopped. But is it true?

The controversial headline comes from a recent study by David Pimentel at Cornell University and Tad Patzek at the University of California/Berkley. This study reported that ethanol production from corn required 29% more fossil fuel energy inputs than the energy contained in the ethanol produced. The numbers for other feedstocks were even worse: 50% more for switchgrass and 57% more for wood.

Dr. Pimentel has produced other reports critical of ethanol production from corn in the past. However, there have been a number of other researchers that have pointed out possible errors and shortcomings in his methods, and have contradicted his conclusions. In general, other researchers have concluded that ethanol produced from corn provides a net energy surplus of about 30%.

But what about wood as a source of ethanol? One of the advantages of wood products is that wood requires relatively little energy to grow and process. Thus it is surprising that wood could be a less efficient energy source than other feedstocks. A closer look at Pimentel and Patzek's recent study reveals a number of problems with their analysis of using wood for ethanol production. For example, they assume that large amounts of nitrogen fertilizer (made using natural gas) will be required to replenish the forest soils. However, because wood is very low in nitrogen content, fertilization of forest soils is not necessary. Pimentel and Patzek also assume that the steam used in the ethanol production process would be generated by burning fossil fuels. However, steam for current wood processing steps – e.g. for kiln drying lumber and for pulp and paper making – is usually generated by burning wood waste. Steam for ethanol production from wood is likely to come from wood waste also.

A final, fundamental shortcoming of Pimentel and Patzek's ethanol-from-wood analysis is that they assume that ethanol would be the only product from the trees. This means that all of the energy "costs" are carried by the ethanol produced in their analysis. But this is very unlikely. Currently, harvesting of a forest stand produces a number of different products: veneer, grade lumber, railway ties, pulp chips, hog fuel and mulch. If ethanol production from wood becomes a reality, it will probably be just one more product in the mix – not the only product. This makes the 'energy efficiency' of ethanol production much higher.

The forests of Tennessee cover more than ½ of the state and represent an enormous natural and renewable resource. Efforts are underway to try to convert some of this resource into liquid fuels. Whether the final product is ethanol or bio-oil or something else, wood from Tennessee may become an important substitute for fossil fuels.

For more information contact: Adam Taylor at 865-946-1125 or
adamtaylor@utk.edu

###

The Curious Silvical Characteristics of Yellow-Poplar (*Liriodendron tulipifera*)

Wayne K. Clatterbuck, Associate Professor, Forest Management and Silviculture

Yellow-poplar was designated as the state tree of Tennessee by the 1947 General Assembly. The yellow coloration of its leaves during autumn and the yellow cast of the wood in older trees give the tree its name. Yellow-poplar is also known as “tulip tree” and “tulip poplar” because of the shape of its leaves and flowers. The Latin name of *Liriodendron tulipifera* means “lily tree with tulip flowers.” Contrary to its name, yellow-poplar is actually in the Magnolia family and is the only member of its genus, *Liriodendron*, native to North America.

Yellow-poplar was one of the first hardwood species that evolved following the gymnosperms. In contrast to most hardwood species, yellow-poplar is insect pollinated. Approximately 10 percent of the seeds produced are fertile suggesting that the insects, primarily bees, that accomplish fertilization are inefficient in transferring pollen or that insects are less abundant or possibly of a different species from those that accomplished this task in the geologic past. Fortunately, seed production in yellow-poplar is so abundant that the 10 percent of seed that are fertile are more than sufficient for abundant natural regeneration. The winged seeds are spread readily by the wind. More recently evolved hardwood species have discarded their dependency on insects and are wind pollinated.

Another unusual feature of the seeds of yellow-poplar that aids in regeneration is that the seed that are fertile remain viable and can germinate up to seven years after they fall to the ground. Foresters have learned that they do not need to leave seed trees for regenerating a new stand when harvesting this species. If parent trees and a seed source are nearby, plenty of fertile seed accumulates over many years (seed bank) in the organic litter layer at the soil surface. Once the soil is warmed after being exposed to full sunlight, the seed germinates initiating a new yellow-poplar forest. Yellow-poplar seeds do not germinate in the shade.

Yellow-poplar is very sensitive to site quality (soil fertility, available moisture, texture and structure). On moist, fertile soils, it is one of the fastest growing trees in the eastern United States, while on dry, poor soils, it generally will not survive. Yellow-poplar is commonly found on fertile sites that have been disturbed as indicated by its abundance today. Regardless of the mechanism of disturbance, whether tornado, farming, fire, or logging, once full sunlight reaches the forest floor, if it is a fertile site and a seed source is available, yellow-poplar will be a dominant species in the forest. When yellow-poplar germinates and begins to grow and develop on a poor site, environmental stresses such as drought usually cause *Nectria* or *Fusarium* fungal and canker incidences which usually cause death of the tree.

Interestingly, yellow-poplar is the classic pioneer species best suited for establishment on disturbed sites where the surface soil is exposed and full sunlight is required for growth and development. It is also a component of late successional, old forests that generally contain tolerant species that are capable of regenerating in deep shade. With its fast growth, yellow-poplar is able to grow in small openings where large trees have succumbed or where windthrow is evident. These openings are mini-sites that are large enough for fast-growing yellow-poplar to gain canopy dominance without being overtopped by adjacent trees. Yellow-poplar is one of the few species that can be considered both an early successional pioneer species and a component of late successional, gap-forming forests.

For more information contact: *Wayne Clatterbuck at 865-974-7346 or*
wclatterbuck@utk.edu

Chinese Privet: Problematic to Forests

David Mercker, Extension Specialist, Forest Management

When a plant species is found beyond its natural range, it is termed *invasive*. Invasive species can threaten forest stability and biodiversity. Invasives can be either native or nonnative. Chinese privet (*Ligustrum sinense*), also called “common privet,” is a *nonnative invasive* plant. It was introduced from China in 1852 and has gradually spread throughout much of the southeastern United States. It has been successful at displacing some native trees and plants, and has brought difficulty in regenerating forests.

Chinese privet is a semi-evergreen shrub (retaining most of its leaves in the dormant season) reaching 30 feet tall. The growth habit produces multiple basal stems that arch in all directions, forming dense thickets, particularly in bottomland forests and along fencerows. When mature, the dark purple fruits are consumed – then spread – by birds. Privet is tolerant to shade, existing quite well under the forest canopy. It also sprouts prolifically.

Chinese privet, in contrast to two other common privets (glossy privet and Japanese privet), has small leaves that average 1.0 inches long. The leaf is arranged oppositely, is elliptical in shape, is lustrous green above with a hairy midvein below, and is entire (without lobes along edges).

Because privet retains most of its foliage during the dormant season, it is capable of producing and storing sugars from photosynthesis even in the winter months when most other plants have become inactive. This gives privet a competitive advantage against other native vegetation.

Privet is controllable by either mechanical or chemical measures, depending on the level of infestation and a landowner’s time and resources. Forms of treatment can include: prescribed burning, tractors with rootrakes and shredder-mulcher heads, pulling and digging, and herbicides. Herbicides are effective in one-of-four ways: cut-stump treatment, tree injection via hack-and-squirt, basal stem spraying, and foliar spraying. A number of herbicides are registered as safe by the US Environmental Protection Agency for treatment of privet. Be sure to follow the label recommendations when using herbicides.

Cost-share assistance is sometimes available to address invasive species control, such as privet. Contact your local Natural Resource Conservation Service or TDA Division of Forestry for more information. Finally, privet control is never complete. Be sure to continually treat new, unwanted arrivals.

Reference: Miller, James. 2004. Privet Is a Plague: How Can You Help Stop It. USDA Forest Service Southern Research Station.

For more information contact: David Mercker at 731-425-4703 or dmercker@utk.edu

###

Fixing a Mudhole

Larry Tankersley, Extension Forester

Who has a “mudhole” in one of their roads? Everyone does so don’t be embarrassed. Over the years, I have recommended that persons with mudholes along a road identify the tree(s) shading the spot and remove them. This technique, called “daylighting” works, if the hole isn’t too bad, such as a flat spot on a road that otherwise drains pretty good.

The dilemma that arose the other day concerned a beautiful, orange sugar maple that the folks just couldn’t remove. Gravel came up and is certainly a good option to make the mudhole passable.

Recently, I used geotextile to underlay some gravel that was needed for a muddy spot and it has been great. Cheap as I am, I don't remember the material being very expensive and my gravel as barely sunk a bit, in over a year's daily use.

Give it a try and let us know how it goes.

For more information contact: Larry Tankersley at 974-7977 or
ltanker1@utk.edu

###

Reforestation Tax Incentives Have Changed

Larry Tankersley, Extension Forester

Money spent to reforest Tennessee and the Country has been qualified for special treatment by the IRS for since the late Seventies. Many will recall the "Reforestation Tax Credit" and the "Amortization" during the last couple of decades. The Jobs Creation Act of 2004, however changed these incentives. Reforestation expenses paid after October 22, 2004 should be treated according to these changes. Under the new rules, expenditures up to \$10,000 in any tax year can be deducted from that year's return. Amounts exceeding \$10,000 should be amortized according to the rules over an 84-month period.

Let's assume you spent \$14,000 planting black walnut in old pasture, this money was spent on seedlings, herbicide and associated paid help. The first \$10,000 would come off would be an adjustment to income if your were not a farmer or do not considered yourself "in the business" of growing timber. This would be line 36 on your Form 1040. Write in RFST for reforestation. If you do use a Schedule F or C, the deduction would be under "other expenses".

The remaining \$4,000 should be "amortized" which means we receive a deduction for the next several tax years according to a schedule. We must start claiming the amortization in the year that we spend the money otherwise we will miss the opportunity. We declare the amortization by filing a Form 4562 with our return. Complete part VI, on page 2 of this form.

Basically the deduction the first year is 1/14th of the amount over \$10,000, in our case, \$4,000/14 or \$286. For the next 6 years we deduct 1/7th of the amount over \$4,000 or \$572. In the last or eighth year we deduct the final 1/14th or \$286. We are allowed to miss/forget a deduction once we start the "schedule" the first year, but if you plan to amortize your reforestation expenses you must remember to start the year you pay for the reforestation.

The National Timber Tax website as always is very helpful in explaining these Reforestation Incentives. Check it out at <http://www.timbertax.org/getstarted/reforestation/reforestation.asp> or let us know if we can help.

For more information contact: Larry Tankersley at 974-7977 or
ltanker1@utk.edu

###

Hardwood Analysis and Trends (HAT)– January 2006

David Mercker, Extension Specialist, Forest Management

After the rapid decline in price for red and white oak lumber through the first half of 2005, price has mostly stabilized. Concurrent to the early 2005 oak drop, was price increase for maple, cherry, walnut, and poplar lumber. **HAT** reports that overall there seems to be confidence in future hardwood markets. Strong numbers in housing starts indicate steady demand for flooring, cabinet, molding and furniture industries. Even the production of lower grade pallets and crossties looks favorable due to solid shipments of manufactured goods and planned repair and maintenance projects on railroads. Brief comments on six hardwoods important to Tennessee follow:

Red Oak – lumber price has stabilized and orders are in-line with shipments for this abundant Tennessee species; The center cuts (middle portion of the log that typically contains poorer quality lumber due to knot abundance) is experiencing robust demand, mostly for crossties and cants for pallets; Overall, the present market for mid-level grade is favorable, but concern exists for the long-term;

White Oak – White oak is the only species reported in **HAT** to have experienced a price change this month; #1 common lumber dropped 3 percent in December; Domestic markets are weak and many mills are limiting production; One favorable note is that the truck trailer flooring industry continues to absorb white oak as a favorable choice due to durability;

Poplar – both domestic and export markets for this species are solid; Asian countries are the primary source of total demand for #1 common stock; despite the steady activity in supply and demand, much resistance is met when attempting to raise prices, likely due to the substitutability of the species;

Black Cherry – business is more concentrated in the Appalachian region of the state, becoming notably stronger in the Penn-York states; supplies of the common grades are abundant, keeping price static; stock with superior quality is more limited, making cherry the highest price domestic lumber throughout much of the nation.

Sugar Maple – there is a very active market for this closed-grain, white wood; it has become a popular fashion for new and remodeled homes; it also finishes well, allowing for mix-n-match with similar-grained walnut and cherry;

Black Walnut – demand is firm, prices are strong yet unchanged.

Summarized with permission from Hardwood Market Report, Memphis, Tennessee.