

GREEN HORIZONS

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First U.S. Industrial Biofuel Plant to be in Missouri

Hank Stelzer, MU Forestry Extension

Dynamotive Energy Systems Corporation and its subsidiary, Dynamotive USA, Inc., announced Dec. 5 its plans to invest \$24 million to build the first fully commercial in-



Dynamotive's BioOil plant in Guelph, Ontario

dustrial biofuel plant in the U.S. The facility will be located in the northern Howell County town of Willow Springs. According to the Associated Press, the plant is expected to open mid-2009 and will employ 27 people.

The company is in the final stages of completing its first commercial, second-generation biomass-to-biofuel plant in Guelph, Ontario. That facility will utilize fast pyrolysis technology to convert 200 tons per day of wood residues from nearby sawmills into 34,000 gallons per day (12.4 million gallons per year) of BioOil. The Willow Springs plant will be of similar design.

Pyrolysis is a very old process. One could rightly claim that Missouri was (and still is) the epicenter. That is because pyrolysis is simply burning wood in an air-limiting environment; a process at the very heart of making charcoal.

Charcoal production is dependent on heating wood without enough air for complete combustion. Under these conditions, water is expelled from the wood and volatile substances such as tars and oils are released, leaving charcoal containing up to 90 percent carbon. In most charcoal production processes, some of the wood in the kiln is burnt

to produce the necessary heat. Four tons of air-dried wood will yield one ton of charcoal. Depending upon the type of kiln used, the process of making charcoal can take from two to four weeks.

Flash forward (and I literally mean 'flash') where you take the same basic process, but instead of burning the wood fiber in a limited oxygen environment you burn it in a chamber where the oxygen is replaced with an inert gas, such as nitrogen. And instead of taking weeks to 'burn' the wood you take two seconds! The byproducts of this fast pyrolysis are 70-80 percent BioOil, 10-15 percent light gases (such as carbon monoxide), and 10-15 percent (cont. pg. 10)

Agroforestry and Wildlife

Dusty Walter, University of Missouri Center for Agroforestry

Agroforestry has traditionally involved the establishment and management of trees, shrubs and grasses in various configurations to conserve water, air and soil resources. Agroforestry practices have also offered farms the opportunity to earn income from alternative crops; either those directly from trees, such as nuts and fruit crops, or from products that thrive in shade environments, such as shiitake mushroom or ginseng. A new publication has been produced by the MU Center for Agroforestry in cooperation with MU Fisheries and Wildlife Extension Specialist, Dr. Bob Pierce. This publication (cont. pg. 12)

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Preserving the Family Forest: Communicating with Heirs

Kirk Fine and David Watson, Financial Planners and Missouri Tree Farmers

Regardless of the primary reason we own our woodlands (i.e. timber production, hunting, recreation) we soon learn they provide us much more in return. Managing and nurturing our forests quickly becomes part of who we are. There will come a time, however, that we will need to transfer the management and/or ownership to a new generation of woodland owners. For many of us, the intent is to transfer that property to our children and their families.

Planning for that succession of the family forest is as important, if not more so, than the timber stand improvement we do today. Statistically, most family-owned businesses of any type do not successfully make it to the second generation. Often, this is due to poor planning, and a poor understanding of the differences between the facts and circumstances surrounding the first and second generation of owners.

Understanding the Generation Gap

What makes you and your spouse tick may not be the same things that motivate your kids. They might not feel the same inherent attachment to the land as you do.

What allowed you to be successful as a tree farmer may not be present in the lives of your heirs. They may live far away from the woodland. With today's hectic lifestyles, they may not have as much "free" time to spend working and recreating on the property.

Distance and varying lifestyles among the children may also lead to different perspectives and them not always seeing "eye-to-eye" with their siblings and fellow heirs on management matters. They might have differing recollections or interpretations of what mom and dad wanted.

Your children could be facing financial turbulence you never encountered. Divorce, college loans, healthcare issues, even extravagant lifestyles, might make that offer from a developer too tempting to pass up.

Finally, let's not forget fear. Your kids might be harboring "silent" concerns or apprehensions about owning the woodland, especially if you never let them in on all the "fun."

Understanding and anticipating what pitfalls may challenge your plans to transfer ownership may be a little painful, but it may help to keep the family tree farm intact, and in the family.

An honest assessment of the strengths and weaknesses of your children, their lives and the world they live in may help you to craft a successful succession plan. Once you have done this assessment and built your plan, the fun part is communicating your plans and dreams to your loved ones.

Bridging the Communication Gap

When we think of estate planning, most of us see lawyers and financial advisers...we see stacks of complex documents and insurance policies. As important as these tools are, they only provide the framework for your transition to the next generation. They do not speak to your legacy. That can only be provided by you, the current owner. Without your vision and enthusiasm, the woodland may be nothing more than a financial asset to be liquidated when your heirs need cash.

I pna!b!Gbn jra!Nff!joh/ Arrange a date/time with all heirs (and spouses) to discuss the details of your vision statement, wills/trusts and timber management plan. Discuss why you made the plans you did, why this is important to you and what your dreams are for the woodland. Be honest. This is an important meeting, so minimize distractions by turning off the television and arranging for young children to spend the time with a friend or neighbor. Try to avoid having different meetings with different heirs. It is important for all heirs to hear the same things, in the same manner, at the same time.

Jouspevdf!Zpvs!Bewjfst!up!Zpvs!I fjst/ Having some "face time" with your attorney, CPA, financial adviser, and your consulting forester will make everyone more comfortable with the plans you have laid out. Your heirs may be working with them in the future.

Fodpvsbhf!Rvft!jpot!boe!Dpodf!sot!Up!Cf!Wpjdf e/ Whether it is during the family meeting, or in the weeks and months afterward, encourage open discussion of your heirs' thoughts and feelings. It is important to have a two-way conversation about the woodland, and what the future holds. **(cont. pg. 12)**

Phoenix Rising... The Missouri Forest Resources Advisory Council

Hank Stelzer, MU Forestry Extension, and Mike Hoffman, Missouri Department of Conservation

With the current plethora of forestry issues in Missouri (forest certification, bio-energy, carbon trading, revision of the State Forestry Law, national direction to develop a state Comprehensive Forestry Strategy, expansion of the forestry title in the Farm Bill, to name just a few) there is a strong consensus among a wide array of the state's forestland stakeholders to re-energize a dormant coordinating council.



Forty state and Federal agencies and non-governmental organizations representing a wide array of natural resource interests are members of MoFRAC.

The purpose of this council is to serve as a sounding board for issues and programs pertinent to member agencies, organizations and associations, as well as a venue for information sharing and more general discussions of important state-wide forestry issues. It will be broad-based with representation from all agencies, organizations and associations who have authority, responsibilities, reliance or interest in forestry and/or the forest resources of Missouri.

Historical Perspective

To prepare for the future, it is important that we understand the past. The next few paragraphs provide a brief historical review of similar past efforts.

The Missouri Forest Resource Planning Committee (MFRPC) began as an informal group assembled in the late 1960s to share information about agency and organization activities related to forestry. There was no formal charter or by-laws, and the group met on an ad hoc basis to share information and coordinate activities. They occasionally hosted field trips.

In 1986, they proposed a charter and by-laws, (it is unclear if these were ever adopted), and began to function in a more formal capacity. The charter indicated their purpose was "Ensuring coordination among agencies and organizations involved in the management and use of Missouri's forest resources." The committee also coordinated multi-agency/organization projects needing special

emphasis or promotion.

At that time, the committee included representatives from the Forestry Division of the Missouri Department of Conservation, Missouri Department of Agriculture, Missouri Department of Natural Resources, Missouri Department of Economic Development, Mark Twain National Forest, U.S. Forest Service North Central Forest Experiment Station, University of Missouri School of Natural

Resources, Missouri Society of American Foresters, Soil Conservation Service, Missouri Forest Products Association, Missouri Consulting Foresters Association, Conservation Federation of Missouri, and the Missouri State Tree Farm Committee.

In 1988, the MFRPC initiated work to develop a comprehensive statewide forest resource plan for Missouri. The Committee expanded planning efforts by hosting the Forests for the Future Conference in Jefferson City Feb. 4-5, 1991. The planning effort concluded with the publication of "A Plan for Missouri's Forests" in 1991.

The MFRPC met infrequently following the completion of the plan until it was reinvigorated in 1999 in response to issues raised during hearings by the Governor's Chip Mill Advisory Committee.

At this time, the committee was expanded to include broader representation, including University of Missouri Extension Forester, Missouri Community Forestry Council, Eastern Ozarks Forestry Council, Forest Re-Leaf of Missouri, Sierra Club, Missouri Coalition for the Environment, Audubon, The Nature Conservancy, Ozark Regional Land Trust, Missouri Farm Bureau, and Westvaco, in addition to the members listed above. It was renamed the Missouri Forest Resources Committee (MFRC). There was no formal charter **(cont. pg. 11)**

Macon County Landowner Attitudes Toward Timber Sales

Brian Schwiess, Missouri Department of Conservation

Landowners have many reasons for conducting a timber sale. A properly conducted sale can improve the growth of the remaining trees, benefit wildlife and generate income. A recent survey of forest landowners in Macon County, Missouri, sheds some interesting insight into landowner objectives when selling timber.

Roughly 19 percent of landowners surveyed had a timber sale in the past five years.

Selling timber was most popular with landowners who had a strong agricultural background. Absentee landowners, or those who bought property for recreational reasons, were less likely to have a sale.

There was not necessarily one single reason landowners had in selling their timber; in fact, some had several. Seventy-four percent said they wanted to sell mature trees before the trees died. This was followed by improving the growth of remaining trees (59 percent) and benefiting wildlife (45 percent).

Liquidating the timber resource to pay for purchasing the property was cited by 20 percent of those surveyed. Fourteen percent sold their timber just prior to selling the land.

Finally, selling timber to clear the land for more pasture or crop acres was only cited by 11 percent of the respondents.

It is apparent that many landowners are interested in improving their forested resources through the sale of timber. However, assistance from a professional forester in many cases is absent in the sale's process. The Macon County survey reflects a disturbing, long-standing statewide fact: professional foresters are involved in fewer than 12 percent of the timber sales occurring on private forestland.

This begs the question, "Who is managing the forest?" In many cases, the decisions on which trees to cut and which ones to leave are made by the individual running the chain saw: the logger. Loggers are not an inherently bad lot. In fact, more loggers every year are taking the time to learn about forestry and professional harvesting techniques through the Missouri Forest Products Association's Professional Timber Harvester program.

However, professional foresters work for the landowner and not for the sawmill. Marking trees to be harvested, estimating volume, and determining income potential before the sale are all valuable services that help landowners get the most value from their timber (**cont. pg. 12**)

The Bid Box

(All volumes reported in Doyle Scale)

Knox County

- 40 acres
- 250 mixed hardwoods (soft maple, pin oak, honeylocust, swamp white oak, ash and a few walnut)
- Estimated volume: 48,140 bd.ft. (20% soft maple, remaining volume was a mix)
- Consulting forester valued the sale at \$8,500
- 2 bids
 - o \$9,327.91
 - o \$6,301
- **Return: \$233 per acre**

Saline County

- 10 acres
- 45 walnut trees
- Estimated volume: 14,066 bd.ft.
- Consulting forester valued the sale at \$25,000
- 5 bids
 - o High bid \$25,555
 - o Low bid \$12,050
- **Return: \$2,556 per acre**

Do You Have a Timber Sale for The Bid Box?

If you have competitively sold your timber in the past few months and would like to share the information with other landowners, we would welcome your input. All sales will be reported at the county level as shown above and no personal information will be divulged.

Black Walnut Soil Suitability Index: A New Tool for Landowners

Doug Wallace and Fred Young, USDA-NRCS

A frequently asked question at Natural Resources Conservation Service (NRCS) field offices around the state is: “What is a good walnut soil?”

Current NRCS information rates soils only as “suitable” or “unsuitable” for black walnut. We have recently led a team that has developed a more extensive model that uses 12 soil and site factors from the National Soil Information System database (NASIS). This interpretive model generates a Black Walnut Suitability Index (BWSI) for each soil component within each soil survey map unit. It is a rational, objective method of rating soils based on their inherent potential for black walnut growth.

Currently, the BWSI is available only for Missouri soil map units.

Soil properties in the model include effective soil depth, available water capacity, water table depth, percent clay, percent sand, pH and surface rock fragments. Site properties include flood frequency and duration, position on the landscape and historic native vegetation.

A computer model converts the NASIS values for these soil and site properties into numeric scores on a continuous scale from 0 to 1, with higher values indicating better suitability. The model then weights these values according to their relative importance for growing high-quality walnut and a composite score is then used to group the soil into one of six suitability classes: unsuited, poorly suited, somewhat suited, moderately suited, well suited and very well suited.

One can access the BWSI from two NRCS Web sites. One site is low-tech and produces only tabular information. It also requires you to know the specific soil series you wish information about. The other site is high-tech and produces an interpretive map as well as tabular information. You do not need specific soil series information as for the other Web site. All you need to know is where you want to go and you can “fly” directly to your property using the site’s GIS (geographical information system).

Both Web sites work best using high-speed internet access, especially the GIS-based site. Also, for both sites, be sure that you turn off any pop-up blockers.

The low-tech option is the Soil Data Mart (<http://soildata-mart.nrcs.usda.gov/>). Upon entering the Web site: (1) select Missouri (remember that the BWSI is only available for Missouri at this time), (2) select your county of interests, (3) click ‘Generate Report’ button, (4) select your five-digit soil map unit ID and the “Selected Soil Interpretations” from the drop-down report menu, (5) click ‘Generate Report’ button, (6) select the “FOR-Black Walnut Suitability Index” from the Soil Interpretation Name menu, (7) click ‘Generate Report’ button, (8) print or save resulting PDF file.

The high-tech option is the Web Soil Survey (<http://web-soilsurvey.nrcs.usda.gov/app/>). Upon entering the Web site: (1) click the green ‘Start WSS’ button at the top of the page, (2) the ‘zoom’ feature will be active, so simply select an area in Missouri, (3) find your area of interest using the zoom and grab features on the toolbar, (3) click on either the rectangle or polygon AOI button to generate an Area of Interest, (4) click on the ‘Soil Data Explorer’ tab along the top of the page, (5) open the ‘Vegetative Productivity’ drop-down menu to the left and select the Black Walnut Suitability Index, (6) click ‘View Rating’ button, (7) click the ‘Printable Version’ button at the top of the page, (8) print or save the resulting PDF file. This site asks that you use the ‘Logout’ button at the top of the **(cont. pg. 10)**

Don’t Forget... MOWOC Coming This February!

Make your plans now to attend the 2008 Missouri Woodland Owners Conference, or as we affectionately call it around here, MOWOC. All the arrangements have been made and the speakers are all lined up. The only thing we are missing is your registration.

The conference will be Feb. 22-23 at the Marriott Courtyard Hotel here in Columbia.

Registration for the Saturday conference is \$50 per person and \$90 with spouse/guest if made before Feb. 16; after that date a \$10 late fee will be tacked on. Registration for the Friday Field Day is an additional \$15 per person and will be limited to the first 125 individuals who sign up.

A special conference rate of \$79 (plus tax) is available at the Marriott Courtyard if you make your reservation before Feb. 1.

You can register online at moforest.org or by calling Glenda at (573) 634-3252.

Let’s bust the doors this year by inviting a fellow woodland owner to the conference. You’ll be glad you and your friends came!

The Carbon Corner

Mike Crist, Dogwood Carbon

Editors' Note: Since our first article on carbon credits, we have come to realize that this is a rapidly evolving and ever-changing opportunity for forestland owners. While we realize that some question the ecological value of carbon trading, our intent is one of providing the latest information so our readers can make informed decisions. With this in mind, the "Carbon Corner" has become a regular feature. We welcome specific questions from landowners wishing to learn more about becoming players in this emerging market.



Forestry and forest carbon stocks have been center stage in the world of climate change recently. For several weeks, representatives from 190 countries have been meeting in Bali, Indonesia, to form a framework for the next stage of the Kyoto agreements. Originally enacted to last through 2012, and only triggered two years ago when Russia signed the agreements, the Bali discussions are the beginning of a two-year process to renegotiate and update the original agreement.

Several key items from the Bali conference of interest to Missouri woodland owners are:

- Two weeks ago Australia signed the Kyoto accords, bringing to 171 the number of countries who have signed the agreement.
- Of the developed countries, only the U.S. has not joined the accord. Whatever model is adopted in the U.S. as a national program in the future, it will be certain to mesh with the second-round structure.
- European and some Asian countries are pushing for aggressive goals, as high as a 50 percent reduction in greenhouse gas emissions over the next 20 years. This would require a huge worldwide effort, and can only be achieved with high carbon credit prices and a very active role for forestry and grass carbon capture.
- Forestry and forest carbon sequestration has now gained a leading role in the process with many countries seeking to find ways to preserve their existing forest through carbon credit sales.
- Unlike previous conferences focused on evolving the Kyoto agreements, the Bali meeting had a large emphasis on finding ways to quantify carbon storage in uneven aged, managed forests. This will be of huge benefit to landowners in the Ozarks with existing forests.

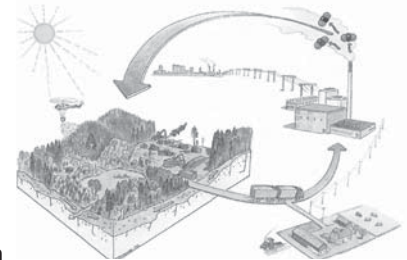
In other news, The Chicago Climate Exchange has just issued its first attempt at measuring and quantifying carbon

stocks in managed forests. We are still analyzing those new rules, more to come in the next issue of Carbon Corner.

And lastly, Tatanka Resources and Dogwood Carbon have capped their first forestry carbon offset pool, just last week. A total of 93 landowners in six states, nearly 24,000 acres, signed up. Site sampling and modeling is beginning now, but it is expected the total carbon pool will be in the 300,000 to 400,000 tons of CO₂ range. This would make it one of the largest forestry carbon trades in the history of the exchange and more importantly the first to accumulate tens of thousands of acres of small land holdings into one trade.

Reminder: Wood-to-Energy Town Hall Meetings Coming in February-March

Plans are still in the works for a series of wood-to-energy town hall meetings in Fredericktown, Steelville, and Thayer, Mo. While we won't have the final logistics nailed down until early January, you can keep abreast of developments by contacting:



Hank Stelzer, MU State Forestry Extension Specialist, stelzerh@missouri.edu or (573) 882-4444

John Tuttle, MDC Forest Products Specialist, john.tuttle@mdc.mo.gov or (573) 751-4115 ext. 3304

Fredericktown: Celeste Vanderbrugen, MU Madison County Extension, (573) 783-3303

Steelville: Will McClain, MU Crawford County Extension, (573) 775-2135

Thayer: Stacy Hambelton, MU Oregon County Extension, (417) 778-7490

A Crisis is Growing in America's Vast Forest Lands

Tanya Mohn, reprinted from the International Herald Tribune

NEW YORK – There is a crisis growing in America's vast forest lands, but it has little to do with the health of the woods: the acreage is essentially the same as it was a century ago, and there is over 30 percent more wood volume per acre than in 1952.

At stake are large tracts of private forest that are at risk of falling into mismanagement, subdivision, or being sold for development.

"It's a ticking time bomb," said Brett Butler, a research forester with the U.S. Forest Service Family Forest Research Center in Amherst, Massachusetts. He says the situation could jeopardize things like the wood used to build homes as well as jobs, clean water and fresh air.

Nearly 60 percent of America's forests are privately owned, the majority by families and individuals, and most of these owners are 55 or older. A huge amount of forest land is about to change hands as aging landowners pass the land to heirs or buyers.

"Without a doubt, it is the largest intergenerational transfer of forest land in our nation's history," said Al Sample, president of the Pinchot Institute for Conservation, a non-profit environmental policy research organization, "and we are not ready for it."

Already, he said, forest land is rapidly disappearing. "We're losing four acres a minute," or 1.6 hectares per minute, he said.

The institute, in cooperation with the Forest Service, recently completed a survey of the next generation of family forest owners. It found that heirs who will inherit the land are often professionals living far away in cities, have weak bonds to the land, and have little involvement in management of family forests.

High taxes were a top reason heirs cited as deterrents to keeping the land.

"The first time Wal-Mart or a developer makes an offer, they are going to take it," Sample said. "They often feel that they have no choice."

Steve Presley remembers spending time growing up on land his father owned in Palestine in East Texas: watching the sun go down, listening to the crickets, frogs, and

coyotes, and picking blackberries with his high school sweetheart. (The bushes are still there, and the girl is now his wife of some 30 years.)

But Presley, who now owns the land, worries that high inheritance and property taxes may prevent future generations from experiencing similar pleasures.

"My children are faced with selling part of the property to pay for taxes," he said.

Subdividing the land is a major obstacle to practicing responsible forestry, said Edward Steigerwaldt, president of the Association of Consulting Foresters. Parcels must be a certain size to harvest economically and to sustain water quality and wildlife habitats.

Presley harvests much of his 750 acres, but he said that increased regulations and negative public opinion make tree farming difficult.

In recent years, landowners have been criticized for cutting down trees.

"Trees are absolutely the best way to take carbon out of the atmosphere," Presley said. "What environmentalists don't understand is that as trees get really, really big, the growth rate goes down. Slow growth results in less carbon absorption."

Harvesting mature trees and replanting younger, faster growing trees "helps the small forest owner and the environment."

Laurence Wiseman, president and chief executive of the American Forest Foundation, a nonprofit conservation organization, said private forest owners played a critical role in protecting water and air quality and habitats for rare and endangered animals.

"They preserve the environment, but don't get credit for it," he said.

"Seventy percent of the eastern watershed flows through family forests – all outside of public view," he said. "It's a paradox. The public enjoys the benefits but doesn't help pay any costs." **GH**

Think 'Top Down' When Pruning Fine Hardwood Trees

Harlan Palm, Missouri Walnut Council

Proper pruning of young, fine hardwood trees (such as black walnut, red oak and white oak) can potentially increase log value 10- to 20-fold. The objective is to develop a straight, single-stemmed tree with a solid trunk free of side branches up to 10 to 24 feet. Here are some helpful tips that the Missouri Chapter of the Walnut Council shares with new members.

General Tips

Buying low-end equipment will give you low-end results. Always purchase good quality sharp clippers, pruning saws and telescopic pole pruners with the cutting blade and saw blade combination.

Ever saw something with a dull saw? If you have then you know the value in proper tool maintenance. Take the time to clean your clippers and pruning saws at the end of the day and to sharpen them before beginning any pruning task.

This debate seems to be as old as the Missouri Ozarks. Most experts agree the best time to prune is during the dormant season (late November to early March) and the worst time is during sap flow (mid-March to late June).

After confirming the lower stem on young trees is healthy and undamaged, make pruning decisions starting at the top and work down. Assist the central leader by assuring its tip or apical bud is taller (higher) than any other leaders or branches that are competing for dominance. Totally remove or at least tip-prune any competitive leaders.

Remove no more than one-third of the tree canopy in any single year season. Remember that the key to a healthy root system is a healthy crown. If you remove too much of the tree's ability to make food, root growth will suffer and set the stage for reduced crown growth the following year, that will lead to reduced root growth... well, you get the picture.

Do not prune flat to the stem. Instead, make an angled cut just outside of the branch

collar (the donut-shaped growth surrounding the branches' attachment to tree) so that the wound is about the same diameter as the branch. Do not leave stubs.

Size-Dependent Tips

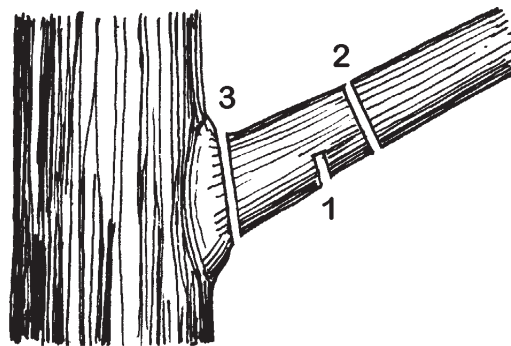
Resist unnecessary pruning the first couple of years. You will want to prune only to develop a single, straight, central leader.

As with seedlings, prune to maintain the single, straight, central leader. If a fork exists, save the shoot that is most vertical. Assuming they are nearly identical, save the one that has a strong lateral branch underneath which will influence the remaining single leader to straighten up. One-year old leaders will straighten up considerably but two- or three-year old wood is too rigid to straighten very much. A splint can be taped to support and straighten a crooked leader but this is time consuming.

If a tree is hopelessly crooked, cut off near ground level (a technique known as coppicing) and start over. The root collar and strong root system will produce multiple sprouts the following season. After a couple of years, select the straightest sprout and remove the rest.

Continue pruning with the same techniques as above. If a tree has never been pruned, prune so it has a single stem and remove the largest branches. But, limit pruning to no more than one-third of the tree's total crown.

If the tree is hopelessly crooked, coppice and start over.



Follow these three simple steps to prevent tearing the bark down the tree: (1) make an initial undercut six inches away from the branch collar, (2) complete the cut from above, and then (3) make a finish cut just outside the branch collar.

If planted or volunteer walnut trees are densely populated, start selecting the best ones, and spend time on only those that are 25 to 35 feet apart so there is ample space for crown development.

With large trees one must really ask the question "Is it worth the effort?" Even if you are taller than six feet, it is almost impossible to accurately handle a telescoping pruner, not to mention extremely tiring. Plus, a large tree that has never been pruned (cont. pg. 9)

Think 'Top Down,' (cont. from pg. 8)

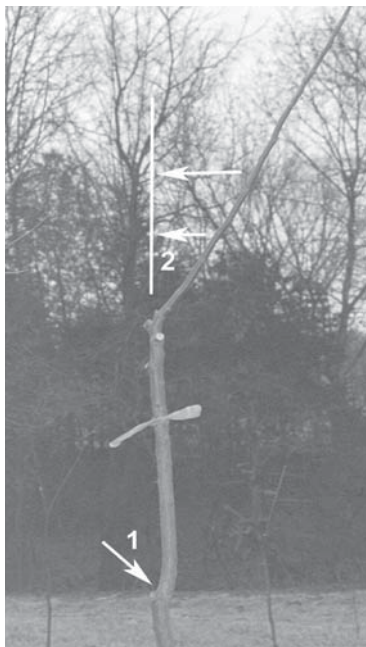
will, in all likelihood, have somewhere in that first, 16-foot log (1) a major fork, (2) a large branch exceeding two inches in diameter, or (3) both. The old adage "You can't make a silk purse out of a sow's ear" is very true in these cases.

These basic tips should easily take care of 80 percent of the situations you might find yourself in this pruning season.



While a central leader is present, the tree is wasting too much energy growing 'out' rather than 'up'. Remove some of the lateral branches so that the tree can put its energy into the terminal shoot.

The tree below shows how the leader straightened after pruning one year ago (1). The selected leader (2) will also straighten and, over time, this young tree will yield a high-quality log.

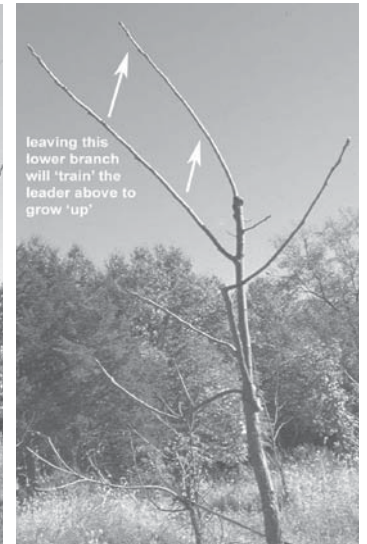


A late-spring frost or insect damage can result in the death of the terminal shoot and it should be removed. Also remove the lateral branch on the left, but leave the one on the right to train the 'new terminal' shoot above.

And for the other 20 percent, help from the Missouri Walnut Council is only a phone call away. **GH**

*Gps!n psf!jogpsn bujpo!bcpvulu f!ObujpobrtX bmvuDpvo.
djntboe!ui f!N jt t pvsj!Di bqf s!hp!porjof!up!x x x/x bm
ovudpvodjr!psh!ps!dpoubduI bsrho!bu)684*993.2513!ps!
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While one might be tempted to favor the larger leader on the right, the smaller leader on the left has less of a dog-leg to overcome and should be the one to leave. This smaller leader is new (1-year-old) growth and will straighten up, especially since it has a branch below to force it upright.



You cannot teach an old dog a new trick. The severe low forks in the older wood of the tree to the left will never straighten up. This tree would be an excellent candidate for coppicing except for the fact that there are two good trees within 35 feet, making this spot in the planting irrelevant.

First U.S. Industrial Biofuel Plant (cont. from pg. 1)

char. I have oversimplified the process by some \$24 million dollars, but you get the general idea.

BioOil is said to be a price-competitive replacement for No. 2 and No. 6 heating oil, widely used in industrial boilers and furnaces. The char can be made into activated charcoal, or the char can be mixed back into the BioOil to increase BTU content.

When BioOil and BioOil Plus are combusted they reportedly produce substantially less smog-precursor nitrogen oxides emissions than conventional oil as well as little or no sulfur oxide gases, which are a prime cause of acid rain. These fuels have been awarded the coveted EcoLogo in Canada, meaning they are certified as meeting the stringent environmental criteria for industrial fuels as measured by Environment Canada's Environmental Choice Program.

Char also can be used as a soil amendment, and the company is currently conducting field tests in Iowa. The goal there is to mimic the highly fertile "terra preta" or black soil found in the Amazon basin. These soils were created hundreds of years ago by native South Americans to grow crops in their infertile soils.

The new plant is not expected to immediately affect local forest practices because it will initially use mill residues rather than feedstock directly from forests. However, later expansions could generate a demand for forest residues.

Reaction to the announcement has been mixed. Some are excited at the prospect of using waste sawdust to compete with foreign oil. Some existing mill operators are concerned there might not be enough sawdust to meet everyone's needs.

That's because the days of huge piles of sawdust and chips being burned, buried or simply left lying around are gone. Most sawmills and flooring mills use a portion of their wood waste to fuel boilers that generate steam for generating electricity or heating their drying kilns. They also sell slabs to the charcoal industry, chips to the paper mills, bark mulch for landscaping, and sawdust for processing into wood pellets and charcoal briquettes.

According to John Tuttle, wood utilization specialist with the Missouri Department of Conservation (MDC), the biofuel plant's daily appetite for 200 dry tons of sawdust per day should not tax the resources within the 40- to 50-mile radius sourcing area from which they will be purchasing their wood fiber. He said 200 dry tons works out to roughly

11 semi-truckloads of green sawdust or about eight truckloads of dry sawdust. However, if construction of additional facilities boosted demand to 400 to 600 tons per day, mill residue supply "could become an issue," Tuttle said.

Others have expressed guarded optimism that using no- and low-value small-diameter trees for renewable energy will provide an opportunity to thin the Ozark's overcrowded forests if it can be done in a sustainable manner and not lead to a rash of forest liquidations as seen with the arrival of the chip mills in the Ozarks back in the late 1990s.

The Eastern Ozarks Forestry Council (EOFC), Van Buren, which represents landowners to promote sustainable forestry, issued this statement: "The council hopes that Dynamotive will see the value of working closely and early with local and regional stakeholders other than their feedstock suppliers to ensure that the implications of this initiative are fully understood and that environmental and economic development benefits are delivered to Ozark residents."

Top of the Ozarks' RC&D President Richard Stricklin said, "Oil production from wood is going to come. There's no stopping it. Our concern is that it be done in a sustainable way so it leaves us with healthy forests."

The Top of the Ozarks RC&D and the EOFC are partners with John Tuttle and the MDC in developing a set of voluntary guidelines, or "Best Management Practices" (BMPs), for the harvest of trees for woody biomass in Missouri. The guidelines will provide information on conserving soil and water quality during forest harvests, protecting wildlife habitat, and will encourage practices that will maintain long-term viable forests. Stricklin said the group hopes to complete the harvest guidelines before Dynamotive or any other such plant is up and running. **GH**

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Soil Suitability (cont. from pg. 5)

page to properly exit the site. If you do not log out, upon entering the WSS from the same computer or internet portal, you will be placed at your previous AOI. **GH**

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Phoenix Rising (cont. from pg. 3)

or by-laws and the group met irregularly.

In 2001, the committee reported on progress toward the “Plan for Missouri’s Forests.” The committee continued to function as an open forum to discuss issues pertinent to Missouri’s forests. The committee had broader representation than the Missouri Forest Stewardship Coordinating Committee (MFSCC), but all members of the MFSCC were also on the MFRC.

Despite the focus on the state’s forest resources that the chip mill controversy created and efforts to meet on a “regular” basis, the MFRC once again fell silent.

Where Are We Now?

On Oct. 30, the Missouri Department of Conservation, MU School of Natural Resources and the Conservation Federation of Missouri hosted a facilitated meeting with representatives from 30 natural resource organizations to raise the committee from the ashes. The new group chose to call itself the Missouri Forest Resources Advisory Council (MoFRAC).

The facilitator earned his day’s pay when he got everyone in the room to realize that the perceived notion of widely varying (and often directly opposite) views as being a critical weakness was in fact the group’s strongest asset! It is the charge of this group to encourage critical debate on whatever issue that challenges the long-term health and sustainability of Missouri’s forest resources and the communities they support.

MoFRAC will not have any specific authority to direct, regulate or manage any land, agency, program or individual. But, it will serve as an advisory group for the member organizations, the legislature and possibly, the Governor. While consensus will be sought on important issues, dissenting minority opinions will be included so decision-makers will have all perspectives before setting policy or crafting legislation.

The council’s first officers are: Chair, Gene Garrett (MU School of Natural Resources), Vice-Chair, Dave Murphy (Conservation Federation of Missouri), and Secretary, Sam Orr (private consulting forester and former Energy Program Manager with the Missouri Department of Natural Resources). By-laws have been crafted and are set to be approved at the council’s next meeting Jan. 24, 2008. **GH**

Charter members of the Council include

- State Forester, Missouri Department of Conservation
- Missouri Department of Natural Resources
- Missouri Department of Agriculture
- Missouri Legislative Forestry Caucus
- University of Missouri Extension Forester
- University of Missouri - Forestry Department
- USFS – North Central Experiment Station
- USFS – Mark Twain National Forest, Forest Supervisor
- Natural Resources Conservation Service
- Missouri Consulting Foresters Association
- Missouri Tree Farm Committee
- Missouri Society of American Foresters
- Conservation Federation of Missouri
- Missouri Forest Products Association
- The Nature Conservancy
- Sierra Club
- Pioneer Forest (L.A.D. Foundation)
- Missouri Farm Bureau
- Non-Industrial Private Forest Landowner (i.e., Woodland Owners Association)
- Eastern Ozarks Forestry Council
- RC&D Council representative (SW, Top of the Ozarks or Big Springs)
- Farm Services Agency
- DOD – Ft. Leonard Wood staff forester
- Missouri Community Forestry Council
- Industry representative (Outside MFPA)
- Logger representative
- Missouri Coalition for the Environment
- Audubon Society
- Missouri Department of Economic Development
- University of Missouri Center for Agroforestry
- Walnut Council
- National Association of Consulting Foresters
- Land Trusts
- Missouri Association of Soil and Water Conservation Districts
- Resort and Tourism Industry Representative
- National Wild Turkey Federation
- Ruffed Grouse Society
- USDA APHIS PPQ
- Forest Commodity Group
- Missouri Farmers Union

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Preserving the Family Forest (cont. from pg. 2)

Jowpmf!Zpvs!I fjst!jo!ü f!Usff!Gbsn / Spending time with your heirs and their families is the best way to increase their understanding of the management of the woodland, as well as your passion for the woods. Remember, your excitement is contagious! Give them an opportunity to experience what you love and why you love it.

Ubrh!Bcpvuti f! Cvtjof tt !Tjef!pgPx ojoh!b!X ppe.
rhoe / Discuss with your heirs the costs and challenges of owning and managing timberland. Talk about future costs and management issues and how you will deal with them. Remember, someone in the future will have to be responsible for the business side of the woodland and not everyone is comfortable with these responsibilities.

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Qhot / Just because you made the plans does not necessarily mean you are going anywhere soon. You will probably own and control the woodland for years to come. Over that time, your family situation may change, and your plans may need to change too. Keep your heirs informed of your wishes. You may need to repeat some of the above steps, from time to time.

Communication is the “grease to the gears” of your estate plans. The investment of time and energy to doing good communication will pay off. This is your opportunity to leave a meaningful legacy to your family, and to safeguard the family forestland you love. You owe this to your woodland and you owe it to your family. **GH**

To successfully prepare heirs for the transfer of ownership, you must have your affairs in order. This includes:

- A written “vision” statement for the woodland
- Properly executed estate-planning documents (wills, trusts, healthcare directives, etc.)
- Adequate life insurance in place and funded
- An up-to-date Forest Management Plan

It takes a fair amount of time and effort to get these things in place. However, the above steps will not be worth a stand of honeylocust timber if your dreams, desires and passion are not clearly communicated to your heirs.

Agroforestry and Wildlife (cont. from pg. 1)

emphasizes the integration of agroforestry and farming practices specifically for the benefit of wildlife species.

This publication provides information on white-tailed deer, eastern wild turkey, bobwhite quail, waterfowl and mourning doves. It is not designed to provide comprehensive information on habitat for all of those species, rather it briefly describes the needs of each species and provides ideas on how agroforestry can be applied to help meet habitat requirements and improve the likelihood of a farm keeping populations of the desired wildlife. And, should you want more information on any of those wildlife species, there is a good list of resources at the end of the document. Most of the additional information is available through links to Web sites.

The goal of this publication isn't to remove farm land from production. At the MU Center for Agroforestry we believe that active and productive farms can also be managed to support a wide spectrum of wildlife species. Our hope is

that it will give landowners and farmers ideas on how to incorporate management of trees, shrubs and grasses with their current farm practices so wildlife will benefit.

For more information on the publication “Integrating Agroforestry Practices for Wildlife Habitat,” go to www.centerforagroforestry.org **GH**

Timber Sales (cont. from pg. 4)

ready for harvesting. Sale monitoring by a forester can help reduce damage from rutting and excessive damage to remaining trees. Foresters also work to ensure other landowner objectives, such as improved wildlife habitat, are not compromised. Most important of all though is their ability to see beyond the tip of the chain saw and select trees to leave for future harvests. **GH**

Green Horizons readership survey

We like to survey our readership from time to time to find out if what we publish in **Green Horizons** is meeting your needs. The following questions are designed to solicit your input on the current content of our newsletter and to learn what types of articles you would like to see in future issues.

Please complete this survey, fold it over so the address on page 14 is on the outside, and mail it back to us.

Indicate your level of agreement where 1=strongly disagree, 2=disagree, 3=agree, and 4=strongly agree

1 2 3 4 There is a good balance of agroforestry, community forestry and general forestry articles.

1 2 3 4 The articles are unbiased.

1 2 3 4 The articles are too long.

1 2 3 4 The articles are too short.

1 2 3 4 Each issue contains at least one piece of useful information that I can apply to my woodland.

1 2 3 4 The 'Bid Box' is a useful tool to raise awareness that trees are a valuable commodity.

1 2 3 4 I like the recurring series, such as "The Carbon Corner" and "Preserving the Family Forest."

Indicate your interest where 1=no interest, 2=little interest, 3=fair interest, 4=strong interest

1 2 3 4 How to market timber

1 2 3 4 Woodland owner spotlights

1 2 3 4 Carbon credits

1 2 3 4 Profiles of Missouri's professional foresters and how they work with landowners

1 2 3 4 Herbicide use and safety

1 2 3 4 Woodland trespass issues

1 2 3 4 Timber theft issues

1 2 3 4 Agroforestry practice: forest farming

1 2 3 4 Agroforestry practice: wind/odor breaks

1 2 3 4 Agroforestry practice: silvopasture

1 2 3 4 Agroforestry practice: riparian corridors

1 2 3 4 Agroforestry practice: alley cropping

1 2 3 4 Tree planting

1 2 3 4 Recreational and hunting leases

1 2 3 4 Best Management Practices

1 2 3 4 Evaluating the payout for various forest management practices

1 2 3 4 Federal/state forest policies affecting private woodland owners

1 2 3 4 Woodland valuation and appraisals

1 2 3 4 Characteristics of Missouri's important forest trees

1 2 3 4 Determining the best strategy in managing your forest

1 2 3 4 Tax laws relating to forestland owners

1 2 3 4 Estate planning

1 2 3 4 Managing your woodland for wildlife

1 2 3 4 Wood-to-energy technologies

1 2 3 4 Nut crop management

1 2 3 4 Fine hardwood (walnut, oak) management

1 2 3 4 Federal/state incentive and cost share programs

Other topics you would find interesting: _____

Please take the time to note any address changes below. In addition, although we enjoy sending Green Horizons to you, free of charge, we understand if you would no longer like to be on our mailing list. Or, if you'd rather go paperless, you can receive Green Horizons in your Inbox instead of your mailbox. Please note these changes below.

I would like to change my address on the Green Horizons mailing list. *To make an address change, please list both your old and new address below so we can match to our records.*

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The Back Page

2008 Deadlines for Newsletter Submissions

Spring Issue: March 15
Summer Issue: June 15
Fall Issue: September 15
Winter Issue: December 15

GH Online! www.missouri.edu/extension/greenhorizons

Ice Storms Hit Yet Again

The Show-Me State seems to be in the crosshairs lately when it comes to ice storms. Not only did Southwest Missouri get whacked again in early December, but northern Missouri got in on the act; particularly the St. Joseph/Maryville area. Remember that MU Forestry Extension published a Guide Sheet last year, G6867: First Aid for Storm-Damaged Trees, to assist homeowners in assessing next steps following this natural disaster. You can download a PDF file from the MU Extension Web site, www.extension.missouri.edu.

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Calendar of Events

Jan. 30-Feb. 1, 2008: Missouri Natural Resources Conference, Tan-Tar-A Resort, Lake Ozark, Mo. For more information, go to <http://www.mnrc.org/>

Feb. 22–23, 2008: Missouri Woodland Owners' Conference, Courtyard by Marriott Hotel, Columbia, Mo. Contact Glenda Fry at (573) 634-3252 or Glenda@moforest.org. For more information go online to <http://www.moforest.org> or <http://www.snr.missouri.edu/forestry/extension>

March 2-4, 2008: 2008 National Farmers Union Convention, Bally's, Las Vegas, Nev. Visit www.NFU.org to register, reserve hotel rooms and stay up-to-the-minute as more convention information becomes available.

March 25-27, 2008: National SARE Conference, Kansas City, Mo. Theme is "Advancing the Frontier of Sustainable Agriculture." For more information, go to www.sare.org/2008conference/

April 8-9, 2008: 16th Central Hardwood Forest Conference, Purdue University, West Lafayette, Ind. Contact Liz Jackson at 765-583-3501 or visit www.fnr.purdue.edu/CHC2008/ for more information.