green horizons
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Mike Gold and Katie Moritz, editors

2012 Tree Farmer of the Year Ed Keyser to host field day

Ed Keyser was surprised to hear he was selected as the 2012 Tree Farmer of the Year. While he has worked tirelessly managing his tree farm and promoting sound forest management throughout his life, he did not consider his small farm worthy of such attention. However, his actions, both in the woods and outside of them caught the attention of the Missouri Tree Farm Committee.

Ed's 89 acres of woods have been managed for both recreation and revenue. Purchased in 1969, it provided excellent deer and turkey hunting opportunities. These have been enhanced through forest thinning practices to improve food and cover. Trees from the property provided wood heat for his home and logs used for shiitake mushroom production.

After 33 years of ownership, trees had grown to the point that a timber sale was needed.

"I recognized faster growth on my oaks (resulting from thinning practices) and in 2002, I conduced my first hardwood timber sale," Keyser said.

Sealed bids were taken on 600 marked trees. Ed feels the high bidder paid an excellent price for the trees due to the years of active management.

A good morning hunt! Ed Keyser (right) with friends Tom Ronk and Duane Parker.

"A good tree farmer cares for his forest. A great tree farmer is also concerned for the health of our state's forest resource," said Mark Nussbaum, Forest and Woodland Association of Missouri board president. "Ed Keyser is undoubtedly a great tree farmer."

As a practicing, professional forester for over 34 years with the Missouri Department of Conservation, Ed participated in and gave many landowner programs. He also hosted a farm tour in 2010 consisting of general oak management, black walnut improvement practices and wildlife management practices including the benefits of den trees and food plots.

He has been active in many organizations that promote private forest management. He chaired the Forestry Committee of the Conservation Federation of Missouri since 2007. He also chaired the steering committee to establish the Forest and Woodland Association of Missou-

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ri, and served as vice president of the organization since its formal establishment in 2011 to the present.

Ed will host the 2013 Missouri Tree Farm Conference on his farm just outside of Kirksville, Mo., on May 31 and June 1. Participants will learn about shiitake mushroom production, control of autumn olive and other invasive species, along with sound forest management for deer and turkey. We will recognize Ed as the Tree Farmer of the Year and thank him for all of his hard work promoting healthy Missouri Forests. If you are interested in receiving registration information, contact Jim Summers with the Forest and Woodland Association of Missouri at (818)645-5399 and visit the association's website at www.forestandwoodland.org.

BMP cost-share funds available for loggers and landowners

By Joe Jerek
Missouri Dept. of Conservation

Photo by David Stonner, courtesy Missouri Department of Conservation

Loggers and landowners can both benefit from a Missouri Department of Conservation pilot cost-share incentive program called the Best Management Practices Conservation Innovation Grant. The grants are focused on encouraging timber harvesters to use good practices that protect soil and water on private land timber sales in 57 counties across the state.

BMPs were developed as a guide for loggers and landowners to combine safe logging practices with steps that avoid damage to water quality and soil erosion associated with timber harvesting. By taking steps to learn and implement BMPs, MDC hopes the grant will encourage loggers and landowners to work together to maintain the best possible forest health and productivity.

According to MDC Forest Products Program Supervisor Jason Jensen, the CIG is designed to be a partnership between loggers and landowners as they do business together. If approved, the cost share pays loggers $10 to $20 per acre and landowners $5 per acre to implement BMPs on their timber sales.

"The concept behind splitting the incentive is that the logger has the equipment and responsibility for establishing erosion prevention measures and the landowner maintains the BMPs for a reasonable period of time," Jensen said.

To participate loggers can sign up for the cost share program at their local MDC office. The program requires the logger to complete the Professional Timber Harvester course offered by the Missouri Forest Products Association, or attend a BMP training class through MDC. The deadline for completion of projects is Sept. 1.

For more information, contact Jensen at 573-522-4115 Ext. 3110, or Jason.Jensen@mdc.mo.gov. To find a local MDC office, visit mdc.mo.gov.

Agroforestry academy wins national award

By Mike Burden
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An innovative program designed to train the next generation of agroforestry practitioners earned a national award from the USDA.

The project, titled Increasing Agroforestry Adoption and Networking in the Midwest through Targeted Professional Development was named the 2012 Paula Ford Professional Development Program Proposal of the Year. The North Central region selects the project that best exemplifies Ford's contributions and passion for evaluation, professional development and science-based research.

The project is a joint effort among five Midwestern states — Nebraska, Missouri, Minnesota, Iowa and Wisconsin — that compose the Mid-America Agroforestry Working Group (MAAWG).

"There's great potential for farmers to earn a living through agroforestry practices and they have tremendous environmental and natural resource benefits," said Mike Gold, principal investigator on the project and associate director of MU's Center for Agroforestry. "But the reality is that adoption has been slow even though we have some great programs throughout the North Central region, including our Center for Agroforestry at MU."

The integrated practices of agroforestry include forest farming, alley cropping, silvopasture, upland and riparian forest buffers and windbreaks. The practices are tailored to fit the unique needs of individual landowners and their farms, and offer multiple benefits allowing landowners to diversify markets and farm income; improve soil, water and air quality; sequester carbon; mitigate and adapt to climate change; enhance and conserve land and water habitats for fish and wildlife; and increase biodiversity while sustaining land resources for generations to come.

However, in terms of agriculture's history in the Midwest, the practices are young and a knowledge gap exists.

"If land owners want to use cost share programs and visit their local Natural Resources Conservation Service or Farm Service Agency agent it's probably a three in 100 chance the person you talk to is familiar with agroforestry," Gold said. "It doesn't come up as an option because advisors don't recommend what they don't know."

This Academy is designed precisely to address this issue by working across the five-state region to train the trainers, such as NRCS staff, extension agents, university educators, certified crop advisors and representatives of agricultural groups, such as the Missouri Farmers Union.

Mark Coggeshall, research assistant professor of forestry at MU, discusses black walnut hybrid collection at HARC during the North American Agroforestry Conference Field Tour.

The first Academy will take place Aug. 5 through 9 in Columbia, Mo. About 30 participants will engage in intensive classroom work, visit area farms employing agroforestry practices, such as Ozark Forest Mushrooms and Shepherd Farms, and design an agroforestry improvement plan for a local land owner.

Gold said among most Missouri agricultural fields, such as corn, soybeans or beef, an extensive knowledge network exists to support farmers. His team aims to create such a network for agroforestry to share information across industries and disciplines. Agroforestry practices haven't been a part of the National Agricultural Statistics Service agricultural census, so little data exists in the Midwest. By training trainers, the Academy will create a network that will both fill knowledge gaps and provide data on what's happening in the field.

Several colleagues from CAFNR's Center for Agroforestry contributed to the project including Mihaela Cernusca, Shibu Jose, Larry Godsey and Dusty Walter, in association with a large group of colleagues affiliated with MAAWG.

Advancing agroforestry through certification of agroforesters: Should the Society of American Foresters have a role?

By Andy Mason, Catalino Blanche, Tom Crowe, Mike Gold, Mike Jacobson, Shibu Jose, Scott Josiah, Eric Norland, Kome Onokpise & Bruce Wight

Adapted from commentary originally published in the Journal of Forestry

Is agroforestry important? Is agroforestry a useful option for landowners? Why should forestry professionals care about or understand agroforestry?

Agroforestry is the intentional mixing of trees with crop and/or animal production systems to create economic, environmental, and social benefits. For a land-use practice to be called agroforestry, it typically must satisfy the four "i's": intentional, intensive, integrated, and interactive. There are five widely recognized categories of agroforestry practices in the United States:

(1) field, farmstead, and livestock windbreaks;

(2) riparian and upland buffers that act as sponges and filters to protect water quality;

(3) silvopastoral systems with trees, livestock, and forages growing together;

(4) alley cropping, which integrates annual or perennial crops with high-value trees and shrubs; and

(5) forest farming where food, herbal (botanicals), and decorative products are grown under the protection of a managed forest canopy.

Tree-based buffers will support agricultural production by reducing soil erosion and nutrient runoff and conserving natural resources.

These five practices can be designed to accommodate other purposes such as mitigating odor, improving pollinator habitat, trapping snow, or producing biomass feedstock.

The first step in implementing forest farming is to develop a forest management plan for your timber. Following that, turn your eyes from the tree tops to the forest floor to search for additional value in your woodland. That describes the added value agroforesters bring to the table.

Why does agroforestry deserve a professional certification designation and the added attention that comes with it? Steve Wilent, Editor, The Forestry Source, in his December 2011 commentary, "Seven Billion Reasons to Manage Forests" notes: "… all seven billion of us rely to some degree on forests for wood for heat and fuel; as a source of food; for lumber, paper, andother forest products; and for less tangible but no less important values such as recreation." All true! How will we sustainably produce the food, fiber, and bioenergy demanded by a global population that the United Nations estimates will exceed 9 billion by 2050 and over 10 billion by the end of the century? While enhancing environmental services and at the same time supporting agricultural production, agroforestry can be an important part of the answer.

Are America's foresters or other natural resource professionals equipped to help our farmers, ranchers, woodland owners, and communities considering agroforestry as an option? The short answer is NO.

Agroforestry illiteracy is widespread and exacerbated by the traditional separation of agriculture and forestry in policies, government organizations, in most universities, and in practice on our agricultural and forested landscapes. The science and practice of agroforestry have made significant advances in the United States since the 1980s; however, application of agroforestry practices is generally low with the exception of windbreaks and riparian buffers. Recent surveys show that less than 20 forestry schools across the country teach an agroforestry course and only about one-quarter of the states have an active agroforestry program.

The good news for Missouri is: The University of Missouri has one of the nation's strongest programs in agroforestry including very active teaching, research and outreach programs. We even offer a complete online graduate certificate and master's degree in agroforestry.

With the release of the USDA Agroforestry Strategic Framework in June 2011, the USDA and two key partners (National Association of State Foresters and

National Association of Conservation Districts), with input from a diverse group of stakeholders, created a roadmap for advancing the science, practice, and application of agroforestry as a means of enhancing America's agricultural landscapes, watersheds, and rural communities. A major focus of the new Framework is educating foresters and other natural resource professionals so they are able to provide technical, financial, and marketing assistance in planning and applying agroforestry systems.

Anecdotal evidence suggests that America is losing some of its hardest "working trees" in agricultural landscapes. Recent high-crop and agricultural land prices, driven by the demand for biofuels and exports, have provided incentives for farmers to remove windbreaks and riparian buffers and expand the acreage of row-crop agriculture. Tree-based buffers, well designed and strategically placed, will support agricultural production by reducing soil erosion and nutrient runoff and conserving natural resources such as water and wildlife. These buffers also can do "double duty" when they are designed to produce economically valuable products (e.g., elderberry or "woody florals").

On smaller farms, unable to compete in large commodity markets, agroforestry may provide opportunities to produce specialty crops and livestock that can help make these operations profitable, while providing jobs and increasing wealth in rural communities. The public is demanding more food from local and regional systems, as evidenced by the increase in farmers markets. Agroforestry can be part of the means for our working lands to sustainably produce the food and other products that are likely to be demanded by local and regional markets. Again, agroforestry can certainly be part of the answer.

In addition to the collegiate-level requirements for a bachelor's degree in forestry, agriculture, or a related discipline, a "Certified Agroforester" would be expected to meet specific educational requirements in both the biophysical and the socioeconomic foundations of agroforestry. Additional training in horticultural crops, business, marketing, forage and livestock management, and agroforestry farm design would also be required.

As certified agroforesters, foresters and other natural resource and agriculture professionals will be better equipped to help landowners manage their working lands to most effectively meet landowner objectives.

Learn to naturescape

Naturescaping is landscaping based on nature's model — local, native nature, that is. While exotic horticultural favorites can add instant color to your spring and summer landscape, they can't sustain native wildlife the way native flowers, shrubs, vines, grasses and trees can. These species are adapted to Missouri's soils and climate, and they are an irreplaceable part of many native animals' life cycle.

So if you want more birds, butterflies and other fun-to-watch wildlife in your yard, plant more native plants.

Attend a naturescaping workshop

Several nature centers around the state offer a naturescaping workshop between January and May. Most include a native plant sale.

Explore web resources and print publications

The Grow Native! website (www.grownative.org) is designed to help you learn about Missouri's rich array of landscape-worthy native plants and how to use them to create beautiful landscapes on your property. Explore the site to discover the many benefits of well planned native landscaping.

Go to www.mdc.mo.gov/landwater-care/homeowners/naturescaping to access two free online publications, Native Plants for Your Landscape and Butterfly Gardening and Conservation.

Submitted by Peter Maki, forestry communication specialist at Top of the Ozarks Resource Conservation & Development.

Malinmor Hunt Club hosts woodland management workshop

By Hank Stelzer
MU Forestry Extension

Over 100 landowners from Pike and Ralls Counties in Northeast Missouri attended a woodland management workshop, March 16th. The event was jointly sponsored by the Missouri Tree Farm Committee, the Soil & Water Conservation Districts of Pike and Ralls Counties, the USDA NRCS, and the Missouri Department of Conservation. Indoor morning sessions were held at the Bowling Green High School (Go Bobcats!) and covered such topics as invasive species, basic tree establishment, tree diseases, things to know before selling timber, woods and taxes, and chainsaw maintenance.

After a hearty lunch, workshop participants headed out to the Malinmor Hunt Club to see first-hand the results of 27 years of active forest management that has been overseen by the hunt club's manager, Rick Merritt. A roaring fire kept participants warm as they rotated through various stations on basic tree identification, trail maintenance, tree pruning, timber stand improvement, timber tree value, and proper tree felling.

Throughout the day, I overheard nothing but praise for the workshop and the opportunity for landowners to gain knowledge and learn new skills they will be able to immediately use in better managing their woodlands.

When professional logger, Kenny Brown, talks…people listen! Here Kenny was describing the importance of creating the proper hinge cut to drop a tree where you want it to go.

NRCS Forester, Joe Alley, points out the features of a properly installed water diversion structure, aka a 'water bar'.

What happened to the timber birds?

By Bill White
Missouri private lands services field chief

While we frequently hear this question, I was reminded of it again this weekend while we were hunting a timbered area on our farm. A covey of quail flushed from one of the many brush piles we created while restoring the woodland.

A history of Missouri's woodlands

Missouri's woodlands and forests have changed since the arrival of European settlers. Changes in land use, fire frequency and type, open range livestock grazing and other human impacts have changed the character and structure of Missouri's forests and woodlands. Before the settlement of Missouri, it is estimated that 70 percent of what is now dense tree growth was a mixture of savannas, glades and woodlands all with an abundant grass and wildflower understory. The average tree density then was 10-60 trees per acre. Today if you look at our forests you may see anywhere from 200 to 600 stems per acre. In areas where hard maple have invaded the stem density approaches 2,000 per acre.

The lack of properly timed disturbance including fire or timber harvest on the landscape has created a shaded understory with a dense leaf layer. This suppresses seed producing plants and eliminates bare ground that quail require. It also keeps the oak species from producing new replacement trees and encourages shade loving hickories, elms, maples or cedars to take over, thus producing even more shade. Historically, the Missouri Ozarks woodlands on south and west facing slopes saw fire once every 3 to 11 years depending on the location.

How to manage woodland

The woodland community on my farm in Osage County is typical of the poor condition of much of Missouri's oak woodlands. Dense shade, no young oaks, lots of shade loving trees and a thick layer of leaves. I wanted to get it suitable for quail and back to health. My first task was to knock down all the cedars in the forest understory. Most of these were less than 40 years old and averaged about 50 cedars per acre… no sunlight EVER reached the forest floor in some locations. Now I can see to the other side of the woodland!

Next, I girdled all the trees that were not going to contribute to the health of the forest. I girdled all the trees that had been overtopped by the largest oaks and then the elms and honey locust. This amounts to about 35 trees per acre on average. I thinned the shagbark hickory down to about 10 trees per acre by girdling. I then thinned the oaks in areas where they were competing against each other for canopy space.

All told, I have knocked 100 to 150 stems per acre out of my forest and I have somewhere between 50-120 stems per acre of good oak and hickory left with some dogwood and redbud in the understory. I also brought the quail back to the timber… real timber birds. Two coveys that became one before winter's end stayed in a 10 acre patch of trees in 2007. They used a large area of gooseberry shrubs in the understory and the cedar piles in the woodland. Whenever the quail flushed they didn't fly far — a few feet, and then back under the gooseberry. We have had quail in the timber ever since.

When the winter let up, I burned half of the woodland area, which removed the leaf layer and you should see the response of the wildflowers, legumes, and woodland grasses that came back. I did not burn the gooseberries so I could keep the covey headquarters. This fire knocked out much of the small elms and cedars, which are way too numerous to tackle with a chainsaw. The deer and songbirds have responded to the burn and the lush new vegetation.

Finally, we pulled or sprayed all of the invasive shrub honeysuckle. I plan to keep thinning the timber by picking on the hickories and crooked oaks. I will burn at least every few years to keep the leaf litter and baby cedars at a minimum. If I get some oak seedlings going I will need to back off the burning for a few years until they are big enough to tolerate fire. What I have done ensures the long-term health and sustainability of my oak woodland community and the presence of quail in the trees once again.

Consult with a forester or biologist to get the most from your timber stand improvement efforts. Improving your woodland may add a little money to your pocket and a return of the timber birds.

The proper equipment for low-impact logging

By Dave Boyt
Pottershop Hollow Tree Farm manager

Hopefully, your timber harvests are carefully thought out and planned, and the loggers who work with you show care and respect for the land. On a smaller scale, you may have harvested some firewood or logs for a small sawmill, using an ATV, farm tractor or pickup truck. It is easy to assume that, because you are only taking smaller logs, you won't risk damaging your woodlot. The potential to improve or damage your woods, however, is still there.

Low impact logging hinges on having the proper tools and knowing how to use them. There are a number of tools that make woodlot management and extraction of sawlogs and firewood on a small scale safe and practical. Logging attachments for ATVs and small tractors allow you to move logs out of tight spots with barely a scratch to the soil. This article will discuss some of the techniques for using chain saws, log arches and winches.

Chainsaws

Chainsaws have the capability to cut through flesh and bone far more easily than through wood. Even with chain brakes, they can cause serious injury before you have time to react. According to the U.S. Consumer Products Safety Commission, there were over 28,500 chain saw injuries in 1999. The average injury required 110 stitches, and the average medical cost (for the year 2000) was estimated to be over $12,000 — amounting to roughly $350 million. A large number of these are from kickback, where the tip of the bar climbs up out of the cut pivoting the saw toward the operator. Even if you avoid cutting with the tip, it can contact a log by accident and kick the saw back. Take a cue from the pros – get yourself some steel toe boots, chainsaw chaps, and a logger's helmet, and wear them when you use a saw. Chaps have fibers that will stop a chain before it can cut into you. The logger's helmet combines a fine mesh screen for face protection, hearing protection, and a hard hat. Finally get training. The Game of Logging is excellent, and has both professional and landowner programs. If there isn't a landowner's program in your area, take the professional training.

A four-wheel drive ATV can skid firewood and small sawlogs, with the assistance of a log arch. Filling the tires with fluid gives the ATV more traction and stability. The arch bears some of the weight of the log, and lifts the front of the log off the ground.

Even an old 8N Ford tractor can be an effective logging machine when fitted with a PTO-powered winch. It isn't fast, but it is inexpensive, and it gets the job done.

Tractors and ATVs

Again safety is the main concern when extracting

A chainsaw-powered winch is a safe, effective way to bring down a hung tree. Directional felling is so accurate I had to stage this photo, since I rarely have this problem.

logs with small equipment. The conventional wisdom is that it takes big iron to move logs. Can your tractor or ATV do with finesse what a ten-ton skidder does with brute force? The most important thing is to understand the limitations of your equipment. Most ATVs are not designed for serious pulling. They lack rollover protection, and the frame, clutch, and transmission are not built to handle the stress of pulling loads. Risk of flipping a tractor or ATV over backwards is greatest when starting out pulling a load, but it can happen if a log digs into the ground or catches on a stump. The torque from the wheels tries to lift the front end, and can flip the tractor/ATV before the operator can hit the clutch. While pulling, I've noticed that the front end of my old 8N Ford is light, and sometimes I have to steer with the brakes. This is my cue to keep a foot on the clutch and be ready for the front end to lift off the ground. Front weights and liquid-filled wheels do a lot to help the stability. The rule of thumb for ATVs is not to pull more than the weight of the machine. Four-wheel drive is necessary for ATVs and helpful on tractors.

Log-skidding arches

Log-skidding arches greatly extend the usefulness of a tractor/ATV for moving logs and reduce damage to the forest. These are frames that lift the log off the ground, similar in design to propane tank haulers. Since the weight of the log is supported by the arch, a lot of stress is taken off of the tractor/ATV. There is less torque required to pull the log, so the danger of rollover is much less, and pulling the log puts less stress on the machine. My first experience with a log arch was moving a log that my old Ford couldn't budge by skidding it on the ground. I backed the arch up to the log, hitched it up, and started to pull. My first thought was, "Dang it, the grapple slipped off the log again." But when I looked back, the log was still in the arch, following along with such a light load that it was barely noticeable. Since arches lift the front end of the

log off the ground, there is less chance of snagging on a root or stump, and the back of the log barely scratches the soil. Norwood Sawmills has an extensive line of small-scale log skidding equipment designed for use by private landowners with small tractors and ATVs. They also offer a log arch which has a unique feature that lifts the log as it is pulled, and lowers it to the ground when backed up.

Winches

Getting logs to the tractor/ATV is often easier than getting the mawchine to the log. Winches allow me to get logs to trails with a minimum of disturbance to the woods. I use two winches. One is a tractor-mounted PTO winch that I bought used. It has enough power to stall the tractor engine, and will pull a 30-inch diameter oak log, if I rig it right. It is especially useful in pulling logs up out of ravines where it would be too dangerous to drive a tractor and in stands where I don't want to build additional trails. I also have a Lewis chainsaw-powered winch. The winch attaches in place of a bar in a few minutes, and has a 4,000 pound straight line pull that can be doubled with snatch blocks. In addition to skidding, it is handy for getting hung-up trees safely on the ground and pulling cars out of the ditch after snowstorms. Winching drags the log along the ground. To reduce the impact and to help keep the log from gouging into the ground or hanging up on stumps, I use a skidding sled that I cut from a plastic barrel. When the ground is dry, it hard to see where the log was skidded out.

With the right equipment, it is possible to pull firewood and sawlogs out of the woods with scarcely a scratch to the soil. But the equipment is only part of the equation. It takes careful planning of skid trails, and the selection of trees for harvest needs to fit into your overall management plan. Small harvesting equipment does not always mean small impact. You can still gouge out ruts and scrape logs against valuable crop trees. And even with a fair-sized farm tractor, you probably will not be able to do commercial harvests. But you will be able to harvest your own firewood and sawlogs with the potential to make some income. With the right equipment and careful operation, your woodlot operations will be the better for it.

To persuade a tree to fall against the lean, a couple of wedges is usually all it takes. Wedges can exert tremendous force, when used correctly.

The author's home-made skidding sled for winching logs out of tight places. The sled was made from a plastic 55 gallon barrel, and keeps the end of the log from plowing into the ground and hanging up on stumps.

Using the directional felling technique taught by Game of Logging, the author bores into the tree just behind the notch to make a hinge. Precision felling is the first step to low impact logging.

green horizons editorial board

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Calendar of events

May 4 — MNGA Grafting and Scionwood Exchange Meeting — Pleasant Hill, Mo.
Dr. Bill Reid will demonstrate various grafts on nut trees at Phil Moore's orchard. Visit www.missourinutgrowers.org for more information.

May 17-19 — Chestnut Growers of America Annual Meeting — Gainesville, Fla.
Visit www.chestnutgrowers.com for more information.

May 31-June 1 — Missouri Tree Farm Conference — Kirksville, Mo.
Visit www.forestandwoodland.org for more information.

June 9-14 — First International Symposium on Elderberry — Columbia, Mo.
Horticulturists, botanists, food scientists, economists and others from all over the world will gather to study the elderberry plant and fruit and its uses. Visit muconf.missouri.edu/elderberrysymposium for more information and to register for the conference.