

# GREEN HORIZONS

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Growing Tomorrow's Future Today

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## Herbicides for Weed Control in Tree Plantings

Hank Stelzer, Extension Forester

In the last issue of GH, I talked about selecting which tree species you were going to plant this coming spring before it was too late to place an order. This same advice holds true in planning your weed control strategy for the coming growing season.

Without timely weed control you will be robbing your young trees of valuable sunlight, water and nutrients; all three are needed in abundance for a seedling to become established and be allowed to grow freely.

While mowing might look nice and satisfy some innate need to be on a tractor, it does little good for the seedling. True, available sunlight is increased. But, water and nutrient availability may actually be decreased because mowing stimulates weed growth. You also run the risk of injuring the seedling if you try to mow too close.

Chemical weed control is the most cost effective weed control method.

The choice of a herbicide depends upon: (1) the time of chemical application, (2) the tree species planted, (3) the kind of weeds to be controlled, and (4) the site.

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Herbicides are either pre-emergent, applied before weed seeds germinate, or post-emergent, applied after weed seed germination. Pre-emergent herbicides are soil-applied and control weeds by inhibiting seed germination and seedling development. Post-emergent herbicides are generally applied to the foliage of established weeds to be absorbed and translocated. Often pre- and post-emergent herbicides are mixed to control both existing vegetation and newly germinating seeds.

(cont. pg 2)

## 2007 Missouri Woodland Owners Conference Features Timber Improvement, Cost-Share Incentives (Feb. 23-24)



The Missouri Woodland Owners Conference Field Day will feature talks on tree identification, soil properties important to tree growth and timber stand improvement techniques.

Anyone who owns forest land, this conference is for you! The conference begins on Friday, Feb. 23, with an optional field day at the MU Horticulture and Agroforestry Research Center in New Franklin. There will be coffee and donuts from 8:30 – 10:00 a.m., and the round-robin

sessions will begin at 10 a.m. Participants will learn about basic tree identification, forest soils and timber stand improvement.

The Friday evening "Ask the Experts" at the Stoney Creek Inn in Columbia will provide you the opportunity to ask our panel of forestry professionals any questions on your mind and connect with other forestland owners. The conference continues on Saturday, Feb. 24, at Stoney Creek with presentations on green

(cont. pg 2)

## Herbicides for Weed Control (cont from page 1)

Select an herbicide with specific label directions for use on the kinds of trees in the planting. An herbicide recommended for one species may not be safe for another. The age of the seedlings and how long they have been planted also should be considered.

Most herbicides used in tree plantings are effective against a particular group of weed species; grasses vs. broadleaves, annuals vs. perennials. One size does not fit all. Your best strategy is to select the herbicide that will control your most pressing problem.

The herbicides on page 6 are grouped according to time of application and age of the planting. The common names are listed alphabetically within each group. After the common name, the active ingredient, or chemical name is listed in ( ). The application rate is the range per treated acre listed on the label. Increase the rate as the weed pressure increases, but NEVER EXCEED THE MAXIMUM RATE. The remaining information gives the relative effectiveness of the herbicide and any special application notes.

For complete and up-to-date herbicide labels, as well as Material Safety Data Sheets (MSDS), visit [www.cdms.net](http://www.cdms.net). *GH (See herbicides, pg. 6)*

### Common Sense Rules for Herbicides

***Herbicides are safe for the environment if one follows some common sense rules.***

1. READ THE LABEL and follow instructions for precautions and application rates.
2. Spray herbicides with low pressure (10-20 p.s.i. max) on calm days only.
3. Use lower rates of herbicide on coarse, sandy soil.
4. When mixing two different chemicals, be sure to determine their compatibility by checking the labels or consulting your local MU Extension specialist.
5. Wettable powder formulations require constant agitation for uniform application.
6. Application equipment should be in proper working condition, calibrated, and free of contamination.
7. Most pre-emergence herbicides require sufficient moisture to activate them. Dry soil conditions will require shallow cultivation if significant rainfall is not received within two weeks of application.
8. Do not spray the foliage of desirable trees with post-emergence herbicides.
9. Clean equipment immediately after use. COLLECT RINSE WATER and apply to treated area. DO NOT DUMP IN STORM DRAIN OR ANY WATERWAY.

## Missouri Woodland Owners Conference (cont. from pg. 1)

certification, conservation easements, maps and technology, incentive and cost-share programs, and designing trails for recreation and property access.

Registration for the Friday field day and Saturday conference sessions is \$60; for the Saturday conference only it is \$50. A late fee of \$10 will be added to any registration received after February 16, 2007. For conference agenda and to register online, visit: [www.moforest.org/education/treefarm.html](http://www.moforest.org/education/treefarm.html). To register by phone, call Glenda Fry at the Missouri Forest Products Association, (573 ) 634-3252. *GH*

### We Goofed!

Our article, "Now is the Time to Order Your Forest Tree Seedlings," contained an error. The seedling on the right in the picture was planted in 1990; not 1992, as stated in the text. The nuts that produced the two trees on the left, however, were in fact sown in 1992. The bigger, healthier-looking, younger trees from seed collected on the farm should really drive home the point of local vs. far-away sources for seed/seedlings.



Charlie and Ellen Lebold's Tree Farm, northwest Missouri, is a good demonstration of the importance of selecting the right location for seedlings. The tree on the right is from a non-Missouri source and was planted as a seedling in 1990. The two trees on the left are from local seed collected on the Lebold Farm and sown in 1992.

# Initiative Launched to Restore Imperiled Ozark Chinquapin Species

*Once an abundant and important source of lumber, nuts and wildlife habitat, the Ozark chinquapin species has been reduced to small, shrubby trees (mostly root-suckers) that produce few, if any, seeds. This article explains a new initiative to save the imperiled and valuable tree, a project funded by a grant from the Northern Nut Growers Association.*

*By Andrew L. Thomas, Research Assistant Professor, University of Missouri Southwest Center; Patrick L. Byers, Fruit Grower Advisor, Missouri State University; and Skip Mourglia, USDA-NRCS forester. Reprinted with permission from the University of Missouri Southwest Center "Ruminations" newsletter, Vol. 12, No. 4, Oct. – Dec. 2006.*

The Ozark Chinkapin (*Castanea ozarkensis*) is a well-known nut tree native to southwest Missouri and northwest Arkansas that is facing extinction. The once vigorous natural stands of Ozark chinkapin have been devastated by chestnut blight, the same disease that killed billions of related American chestnut (*Castanea dentata*) trees in eastern North America over the last century. This fungal disease was accidentally introduced to New York from Asia in 1904 on imported nursery stock of resistant oriental chestnut species.

The blight spread throughout the natural range of the American chestnut, and eventually reached the Ozarks in the 1960's. Within a decade, the Ozark hills were littered with the dead, rot-resistant carcasses of Ozark chinquapin trees that sometimes reached 60 feet high and 24 inches in diameter. Today, the chinkapin survives mostly as root suckers that re-sprout after the above-ground portion of the tree is killed, and therefore, very few seeds are produced to repopulate the species. To date, no truly blight-resistant Ozark chinkapin trees have been identified.

One can only imagine the historical and ecological significance of this species. Many Ozark natives fondly remember stuffing



*Now considered an "imperiled" species, the once abundant Ozark chinquapin is the focus of a restoration initiative funded by the Northern Nut Growers Association. Ozark chinquapin leaves are sharp and coarsely toothed; dark green on top and whitish underneath. They are 5-9 inches long. Burs are often in grape-like clusters, with only one small, pointed nut per bur.*

***But is it chinquapin or chinkapin? Either spelling is considered correct.***

their pockets with chinkapins on their walks to school. They were a seasonal, sweet, nutritious treat eaten by humans, livestock, and wildlife. Small trees were used for fence posts due to their natural rot resistance. Ozark chinkapin is listed as "Imperiled" by the Missouri Natural Heritage Program, yet no formal recovery plan is in place, and the plight of this important Ozark species has been seriously neglected.

Despite long-term research focused on American chestnut, no cure for chestnut blight has been found. Until a treatment or resistant trees are developed, ex situ conservation (carefully-managed cultivation) is probably the best hope for the survival of this species. Before much can be done to resurrect the species, we must first learn how to cultivate and propagate the tree, especially through grafting. Indeed, very little published information on chinkapin propagation and cultivation is available, and most of our current "knowledge" on propagation is based on unproven hunches. No known research orchards of Ozark chinquapin are presently in existence.



*Ozark chinquapin nuts are comparable in size to native Missouri hazelnuts and are crackable with a handheld nutcracker (or even your teeth.) Project researcher Skip Mourglia has allowed herself to taste only 2 or 3 nuts, and describes the taste as delicious; similar to a "pecan dipped in honey."*

Thanks to a grant from the Northern Nut Growers Association (NNGA), three orchards of Ozark chinkapin will be established this fall and winter in southwest Missouri. The grant was received by a consortium of people and institutions: University of Missouri's Southwest Research Center at Mt. Vernon; Missouri State University's State Fruit Experiment Station at Mountain Grove; and the USDA-NRCS-RC&D (Resource Conservation and Development) office in Republic. The orchards will be established at Mt. Vernon, Mountain Grove, and a private forest in Barry County.

This timely grant comes on the heels of the recent launch of the "Ozark Chinkapin Initiative" of the American Chestnut Foundation, as well as the establishment of the "Ozark Chinquapin Foundation," both of which promise to bring public interest and funding to the critically threatened Ozark chinkapin tree. Realistically, we know that resurrecting the Ozark chinkapin will be very challenging and costly, and that we (**cont. pg 7**)



# Wildlife Focus: Landscaping for Wildlife; Christmas Trees for Pond Habitat

The following article with recommendations for landscaping that encourages wildlife is reprinted from "Missouri Environment and Garden" newsletter, Volume 12, No. 12, December 2006.

**Author: Mary Kroening**, University of Missouri Extension Associate, Plant Sciences division. View current and past issues online at: <http://agebb.missouri.edu/hort/meg/>



## Landscaping for wildlife

In an attempt to attract the most variety of birds to my yard, I have planned my landscape to enhance bird habitat including food and shelter. In addition to bird feeders, an ample food supply of tree and shrub berries is critical in attracting birds to your yard. I recommend native plant species as they are better adapted to Missouri soils and climate. Additionally, research has shown that foraging birds seek out the familiar plants over the exotic species. Favorite shrubs with appealing berries for attracting birds include viburnum, holly, dogwood, sumac, cedar, spicebush, hawthorn and shrub roses.

During fall clean-up, don't dead-head flowers such as coneflowers, black-eyed susans, zinnias, marigolds, coreopsis, sunflowers and cosmos. Also, leaving plant materials provides additional shelter for birds. Winter refuge is also critical for protecting the birds from predators and the cold winter, especially this winter. Last summer, I lost a huge maple tree during a windstorm. It landed within 10 feet of my largest bird feeder. I have yet to clean up the debris, and it has been a haven for birds this year, especially the finches and cardinals. Birds love dead branches and trees as perching locations, so avoid pruning these out if you can.

Another favorite is to recycle the Christmas tree near the bird feeder - there is not a bird within the neighborhood that doesn't use the Christmas tree as a hangout. Other favorite shrubs in my yard for bird habitat are the hollies, viburnums, shrub roses and cotoneaster.

Water is an overlooked component that plays a key role in the survival of birds through the winter. A shallow water dish to an elaborate bird bath all serve the same purpose, supplemental water through the winter that will attract birds. Place the water near the bird feeders, or under overhanging branches or near dense shrubbery. I have noticed that the most untidy parts of my yard are the most popular for the birds. Plant an abundance of native plants, and plant in groupings for maximum food and protection.

A note on recycling your Christmas tree: I place mine in the backyard under the bird feeders, and the birds come in masses to hang out on the branches of the dead tree. The tree can be ground for mulch to place in flowerbeds or gardens.

## Give the gift of wildlife habitat by recycling Christmas trees

**Source:** Bob Pierce, Univ. of Missouri Extension Assistant Professor, Fisheries and Wildlife Dept., email: [PierceR@missouri.edu](mailto:PierceR@missouri.edu)

Whether it's a Douglas fir, a Colorado blue spruce or Scotch pine, all Christmas trees can make great wildlife habitat after the holidays, a University of Missouri specialist said.

According to the National Christmas Tree Association, Americans purchase 30 to 35 million real Christmas trees each year. These trees all have the potential to become fish or wildlife habitat, said Bob Pierce, MU Extension fish and wildlife specialist.

"One Christmas tree alone won't provide a lot of habitat, but three or four trees grouped together can make great habitat in a pond for young bluegill, crappie and even catfish," he said. "They also can provide protective cover for wildlife."

Bundles of brush and trees "provide an opportunity for the entire food chain to exist," Pierce said. "The structure attracts aquatic insects, which attract the larval fish, which attract the predatory fish, which attract the fishermen."

"Because many ponds around the state are several feet below normal, areas that are usually underwater are now visible, offering you a chance to really see and assess your existing habitat," he said. Missouri ranks No. 2 in the nation in the number of manmade impoundments, around 500,000 ponds and small lakes in all.

"It's better to group your trees and brush together than to spread everything out," he said. "Placing one large brush pile for every 2 to 3 acres of water is a good rule of thumb for larger lakes."

When placing structure, "sink the brush with rocks or concrete blocks in a vertical position in no deeper than 10 to 12 feet of water," Pierce said. "This way, the fish will be able to use the cover year-round."

He added it's important to be mindful of normal water depths so that structure isn't placed too deep in the pond.

For more information on pond management, Pierce said the Missouri Department of Conservation's Missouri Pond Handbook is the "single-best publication out there." The handbook is available online at [www.mdc.mo.gov/documents/fish/pondhb.pdf](http://www.mdc.mo.gov/documents/fish/pondhb.pdf)

Christmas trees also make effective cover for wildlife such as rabbits, quail and other birds because the trees' limbs create usable space for hiding from predators or protection from the elements, Pierce said.

"The best places to create brush piles are where two habitats come together," he said. "This would include areas such as fencerows where agricultural fields and woodlots come together." *GH*

# Landowner Spotlight – Landowner endows acreage, resources for agroforestry research to build rural Missourians’ future

Rural Missourians will learn from demonstrations of agroforestry, timber management and land stewardship at the Allen Research and Education Project Site, a gift of 521 acres near Laurie, Mo., endowed to the University of Missouri Center for Agroforestry by landowner Doug Allen. Allen is working with the Center on land management plans, including a teaching/research center with lodging on-site. The complete story appeared in the fall 2006 issue of *The Resource*, published by the MU School of Natural Resources; email story author Rachel McCoy at [mccoyr@missouri.edu](mailto:mccoyr@missouri.edu) for a copy.



Valued forest species, fertile soils and an array of wild-life are hallmarks of the acreage landowner Doug Allen, above, has endowed to the University of Missouri Center for Agroforestry. The 521-acre plot, offering hill and valley terrain, is the future home of the Allen Research and Education Project Site. Photo: Greg Horstmeier

Like an Ozark stream, Doug Allen is tranquil, purposeful – and utterly intriguing.

His simple demeanor solidly carries a tremendous commitment toward land stewardship and the welfare of rural Missourians, a combination that makes the landowner most unforgettable.

In 2004, Allen began translating this passion for conservation and land stewardship into the endowment of 521 acres of forested land near Laurie, Mo., to the University of Missouri Center for Agroforestry. Final details of the agreement were completed in the fall of 2006, declaring that Allen will endow the acreage to University of Missouri Curators on behalf of the Center to serve as the location of the Allen Research and Education Project Site. A corresponding Allen Endowment Fund will maintain and support the property for agroforestry research.

Gene Garrett, director, Center for Agroforestry, explains the significance of Allen’s generous gift as an outstanding location for agroforestry research that represents Missouri’s diverse soil and land conditions. “Primary agroforestry research is currently conducted at the Horticulture and Agroforestry Research Center near New Franklin, Mo., in what we call River Hills conditions,” says Garrett. “It’s a particular type of soil you can only find in other River Hills areas – but Missouri, as a state, is wonderfully represented by forested acreage more similar to that found on Doug Allen’s property. Here, we will complement our New Franklin research site with the clear demonstration of agroforestry practices in an environment very different from the River Hills and more representative of what is found in other parts of our state.”

## Farming that fits the land

The acreage, comprised of 521 predominantly wooded acres in the Ozark region near Laurie, Mo., is hilly and contains many desirable tree species, including black and white oak, shagbark hickory, northern red oak, white ash, river birch and eastern red cedar. Approximately 83 acres of the site are bottomland fields

and represent some of the most fertile ground on the property. Portions of the property feature soil well-suited to growing the Missouri native shortleaf pine – a species the Center has invested fifteen years of research into as a potential source of short and long-term income for landowners.

## Integrating conservation and profit

Allen’s interest in natural resources conservation, timber management and production of niche agroforestry crops will be realized on multiple levels at the site. “My hope is to create a model for rural Missourians that demonstrates that they can make extra money off their land and also practice good stewardship,” he says.

Garrett and his team at the Center for Agroforestry have already begun putting this vision into place with the implementation of a riparian forest buffer surrounding one of the property’s creeks. Five species of native shrubs have been planted near the streambank to help stabilize the soil and enhance quail populations. These blocks of species include wild plum, rough leaf dogwood, false indigo, smooth sumac and elderberry.

“One of the first priorities is to return this property to as natural a state as possible, and paralleling this objective is to encourage as diverse a level of native species as can reasonably be established,” says Allen. “A truly natural environment on this property means the reversion of some fields to forest, which is locally believed to be the ‘original’ ecotype for the entire property. However, recognizing that some of the ‘artificial’ fields that currently exist on the landscape more than double the property’s diversity of species, the careful maintenance of these fields will also be regarded as a priority.”

A natural passion for somewhat lesser-cultivated agricultural crops – such as gourmet mushrooms, ginseng, black cohosh and other botanicals with medicinal properties – attracts Allen to the agroforestry practice of forest farming. Both Garrett and Allen look forward to evaluating areas for a range of forest farming crops and botanicals. “What we’ll be able to do here is show the local land and forest owners possibilities for additional income they might not have ever considered,” says Allen. “And they can teach us the invaluable knowledge from their own experiences.”

(cont. pg. 9)



Timber management and forest farming demonstrations will show landowners opportunities for economic gain from forested land at the Allen Research site. (Left): Doug Allen discusses land management options with Gene Garrett, director, MU Center for Agroforestry (right), and Dusty Walter, Center for Agroforestry technology transfer specialist.

## Pest Update: USDA Expands EAB Quarantine in Illinois

Effective December 1, 2006, the USDA's Animal and Plant Health Inspection Service (APHIS) has expanded the emerald ash borer (EAB) quarantine to include the entire states of Illinois, Indiana, and Ohio.

This federal order prohibits the interstate movement of regulated articles that originate within the quarantine area. These items include: ash nursery stock, ash green lumber, and any other ash materials including logs, stumps, roots, branches, as well as composted and uncomposted wood chips. Due to the difficulty in distinguishing between species of hardwood firewood, ALL hardwood firewood, including ash, oak, maple and hickory are included in this quarantine.

APHIS is taking this action in response to the extremely destructive nature of this invasive plant pest and the significant threat it poses to the ash resource in our nation's forests and residential landscapes. The quarantine regulations will help mitigate the spread of the pest while the science community continues to develop solutions to combat EAB.

For more information on EAB and APHIS' expanded quarantine, please visit [www.aphis.usda.gov](http://www.aphis.usda.gov). *GH*

### Pre- and Post-Emergent Treatments for New and Established Plantings (cont. from pg. 2)

#### **Pre-emergent Treatments in New Plantings**

- Dacthal F (DCPA): 7-8 qt/ac. Controls annual grasses and certain broadleaf weeds. Apply prior to bud break. May need to re-apply for season-long control.
- Goal T/O (oxyfluorfen): 2-8 pt/ac. Controls certain annual grasses and broadleaf weeds. Apply prior to bud break. May need to re-apply for season-long control.
- Pendulum (pendimethalin): 3.3-6.6 lbs/ac. Controls most annual grass and certain broadleaf weeds. Apply before weeds emerge and after the soil settles around the roots.
- Surflan AS (oryzalin): 2-4 qt/ac. Controls many grass and broadleaf weeds. Apply after the soil has settled around the roots, but before weeds emerge.

#### **Pre-emergent Treatments in Established (1- to 3-yr-old) Plantings**

- Dacthal F: same rate as in new plantings
- Goal T/O: 5-10 pt/ac otherwise same as for new plantings
- Oust: 0.5-1.0 oz/ac. Controls many grasses and broadleaf weeds. Apply in fall or spring before weeds emerge or shortly thereafter. May be ineffective on soils with pH above 6.9. Use lower rate on sandy soils.
- Pendulum: same rate as in new plantings
- Princep L (simazine): 2-4 qt/ac. Controls wide variety of annual grasses and broadleaf weeds. Apply in late fall or early spring before weeds emerge. Do not use until one year after planting. Use lower rate on sandy soils.

#### **Post-emergent Treatments in Established Plants**

- Fusilade II (fluazifop-P-butyl): 16-24 oz/ac. Controls annual and perennial grasses.
- Goal T/O: 5-10 pt/ac
- Poast (sethoxydim): 1.5-2.5 pt/ac. Controls many annual and perennial grasses. Add an oil concentrate at 2 pts/ac. Do not use in conifer plantings.
- Roundup (glyphosate): 1-2% solution. Spray to wet foliage. Kills on contact any grass or broadleaf weed.
- Transline (clopyralid): 0.25-0.33 pt/ac. Controls many broadleaf weeds. Can be applied over the top of actively growing trees. Excellent rescue treatment in thistle-infested fields.
- Vantage (sethoxydim): 2.2-3.75 pt/ac. Controls many annual and perennial grasses. It will slow or stop grass growth within 2 days. Burnback may take 3 weeks.



## Ozark Chinquapin Initiative Launched (cont. from page 3)

may very well fail. But we are pleased to be taking this simple but major first step in establishing three diverse research orchards in Missouri, and are confident that this generous NNGA grant will inspire other individuals and institutions to provide additional and more substantial resources for this cause.

### *What's happening now?*

A key purpose of the research grant awarded by NNGA to the Southwest Missouri RC & D, the University of Missouri (MU) and Missouri State University (MSU) is to address Ozark chinquapin propagation. Using direct seeding methods and RRM® container tree stock when possible, researchers are seeking volunteers to establish experimental orchards of Ozark chinquapin. While there are several Ozark chinquapins in forests today, they are small understory shrubs or small trees and do not live long enough, nor have the proper light conditions, to result in successful fruiting and nut production.

In 2005, Skip Mourglia, USDA-NRCS forester with Southwest Missouri Resource Conservation and Development in Republic, Mo., collected two sources of nuts and gave them to Wayne Lovelace of Forrest Keeling Nursery, Elsberry, Mo., to grow. Nuts came from trees that were blight free and over 15 years old. Lovelace and Mourglia donated the surviving RPM trees to the initiative. This research marks the first attempt to address the Root Production Method (RPM) process for this species. Forrest Keeling Nursery of Elsberry, Mo., is the originator of this highly successful method, in which trees are grown in a series of containers. The roots are air pruned and a mass of feeder roots develops – resulting in outstanding plant survivability and growth rate.

Since the NNGA grant that initiated the chinquapin project, researchers have gathered enough chinquapin nuts to start 60 seedlings in three Ozark chinquapin nurseries - located at the University of Missouri's Southwest Center near Mount Vernon, the Missouri State University Fruit Experiment Station at Mountain Grove and at Mourglia's Barry County tree farm. In 2008, experts from MU and MSU will graft Ozark chinquapin onto Chinese chestnut rootstock to test grafting compatibility. (Fifty Chinese chestnut seedlings were donated by the University of Missouri Center for Agroforestry). Mourglia's experimental chinquapin orchard, located in an Ozark forest where blight exists, will serve as a source for additional research seed. Methods to protect direct seeded trees will be tracked (especially to determine if any are bear-proof)\*\*. Mourglia reports that Ozark chinquapins are either picked by animals from the bur at the base of the tree, or the naked nuts are collected near the base of the tree.

Planting of two RPM chinquapin trees at the MDC Springfield Nature Center was set for Dec. 2nd, but will be rescheduled due to snow and ice. The Center is hosting a display of Ozark chinquapin nuts, burs, and carcasses for the next year. Project researchers stress that *all* available chinquapin nuts are needed for species rescue and restoration; eventually, upon species restoration, markets for chinquapins may have excellent potential due to their delicious flavor.

### *A commonly confused species (See images, p. 10)*

According to the Ozark Chinquapin Foundation, Ozark chinquapin trees might be mistaken for chinkapin oak (*Quercus*

*muhlenbergii*). Unlike Ozark chinquapin, the chinkapin oak has bluish-green leaves, the teeth on the leaves are rounded, buds are clustered at the apex of the stem, and they have a distinct bowl-shaped cap on the acorn nut – a key indicator the tree is not an Ozark chinquapin. The bark on the chinkapin oak is also flat, not deeply furrowed like the bark on mature Ozark chinquapin trees.

Another tree Ozark chinquapin might be mistaken for is the Allegheny chinquapin (*Castanea pumila*) which usually has smaller leaves of less than 6 inches, shallower teeth, and a smaller, spiny seedpod that is usually less than 1 inch in diameter (*see p. 10*). Nut size is usually around 1/2 inch. Allegheny chinquapin will grow in sandy lowland conditions, often near waters edge, and sometimes occur in thickets. They usually do not attain heights over 30 feet, and tree diameters are usually less than 4-5 inches. Allegheny chinquapins are rare in the Ozark Plateau.

Some foresters have mistaken the Ozark chinquapin for Chinese chestnut, (*Castanea mollissima*), a non-native chestnut species that is blight-resistant and grows well in Missouri. The University of Missouri Center for Agroforestry is one of the nation's leaders in orchard and market development for Chinese chestnut. The jagged-edge Chinese chestnut leaves resemble Ozark chinquapin leaves, but the spiny burs of Chinese chestnut (**cont. pg 10**)

*\*\*Note: The Ozark region of Missouri is home to black bears, and residents recall that black bears loved Ozark chinquapins when the sweet nuts were numerous. In eastern states, bears are known to dig up direct seeded American chestnuts.*

### ***How can you help?***

According to Mourglia, "we first need nut collectors before we need growers." **You can volunteer to become a trained collector**, and learn how to direct seed the nuts to become a grower. Volunteer orchards are needed because, as Mourglia explains, limited genetic crossing occurs in the wild as many trees are not located near a cross-pollinator. Greater genetic crossing may one day produce the right combination of genes that will transfer blight resistance. By planting trees in volunteer orchards under high light conditions, earlier flowering (than flowering that typically occurs in shady, forested conditions) can be achieved. Mycorrhizal fungi will need to be added as an inoculant to crop and pasture areas that are utilized for new plantations.

To learn more, attend the **Ozark Chinquapin Initiative educational meeting on Jan. 18, 2007**, at the MDC Springfield Nature Center, 7-9 p.m. Presenters will explain what the species looks like, site and soil preferences and challenges with the restoration. For more information about the meeting, contact **Skip Mourglia at (417) 732-6485**, Mon-Fri.

**Get involved with the Ozark Chinquapin Foundation.** For information on becoming a member, visit **[www.ozarkchinquapin.com](http://www.ozarkchinquapin.com)**; or email [stvbost@yahoo.com](mailto:stvbost@yahoo.com). The Foundation's mailing address is: Ozark Chinquapin Foundation, 135 Rolling Hills Dr., Poplar Bluff, MO., 63901.

## The Bid Box

(All volumes reported in Doyle Scale)

### Adair County

- 80 acres
- 79 black walnut trees; 14,002 bd. ft.
- 311 mixed oak; 60,340 bd. ft. (low quality due to age and unregulated grazing)
- Consulting forester valued the sale at **\$23,500**

#### 6 bids received:

\$15,000  
\$18,019  
\$19,687  
\$21,100  
\$25,034  
\$25,100

**Return: \$314 per acre**

### Henry County

- 30 acres
- 77 walnut trees; 13,920 bd. ft.
- Consulting forester valued the sale at **\$18,100**

#### 9 bids received

\$12,550  
\$12,600  
\$13,660  
\$13,690  
\$14,020  
\$14,050  
\$15,561  
\$18,150  
\$18,620

**Return: \$621 per acre**

*Remember: You cannot know if you are receiving a fair price if you don't know what you are selling!*

## Beta-testers Wanted for Woodland Steward Independent Study

We are seeking 15 landowners in the counties of Boone, Callaway, Cole, Moniteau, and Osage to help us beta-test a new Missouri Woodland Steward format.

Participants will register for the short course through the MU Center for Distance and Independent Study. They will receive by mail a set of four high-quality DVDs; supporting publications from the Missouri Department of Conservation and MU Extension; and easy-to-follow instructions. After completing the indoor segment, we will provide participants the opportunity to take a "Walk in the Woods" with a professional forester. Students will have access to a secure, online bulletin board to ask questions and discuss topics with other participants. The cost for this study is \$75, a 25% reduction from the course fee once it is offered state-wide.

For more information and to view a sample of the DVDs, go to [www.snr.missouri.edu/forestry/extension/woodland.php](http://www.snr.missouri.edu/forestry/extension/woodland.php), or contact Hank Stelzer, (573) 882-4444, [stelzerh@missouri.edu](mailto:stelzerh@missouri.edu).

## New Forestry Extension Website

Forestry Extension has joined the World Wide Web!

Visit <http://snr.missouri.edu/forestry/extension/> to find:

- Helpful Tips On How To Manage Your Forest
- Forestry Related Fun Facts
- Urban Forestry
- Forestry Education For Youths
- Links To Other Forestry Websites
- Past Issues Of Green Horizons
- MU Forestry Guide Sheets
- Latest Woodland Steward News

## Our Readers' Respond

Our article on marketing marginal timberland in the fall issue prompted Randy Herberg from Glencoe, Mo., to write, "The information about the sale, the condition of the timber, the hiring of a forester, etc. were (sic) well done and informative. But, I have one problem with the use of the money. Hank wrote, '... \$52,595 for the farm that helped fund the new educational building.' Was any of the money put into any cultural practices for the timber such as TSI, planting, follow-up firewood sale, etc? One of our major problems in forest management in our Missouri woodlands is the lack of investment of some of the harvest money back into the stand to help improve the stand and prepare it for a future harvest."

I could not have said it better myself, Randy. That earlier timber sale happened before my time. I can assure you that had I been on board at the time, a portion of that money would have been re-invested back into forest management activities on the farm. Even though our income was not what we expected from this last sale, every dollar is being set aside in a farm timber account that will fund the very activities you mentioned in your letter.

Thanks for bringing this important follow-through point to everyone's attention!

*Do you have a question or comment after reading a GH article?*

We welcome your letters and email and will respond in future GH issues as time and space permits. All we ask is that you include your name and address.

### Send correspondence to:

Green Horizons  
Attn: Editor  
University of Missouri  
203 ABNR  
Columbia, Mo. 65211

Or email Hank Stelzer at [stelzerh@missouri.edu](mailto:stelzerh@missouri.edu)



## Landowner Spotlight (cont. from pg. 5)

### *Honoring wildlife habitat, and local community*

The Allen site is already habitat for indigenous and migratory wildlife populations, including dove, quail, deer and turkey, as well as waterfowl and some uncommon birds that are attracted to the lakefront areas. Approximately 35 acres of the property have been converted from tall fescue to warm season grasses and forbs. Native grasses offer better nesting and mobility for quail populations than cool season grasses such as tall fescue.

In keeping with Allen's vision, the cultivation of large-scale conventional row crops for "pure agricultural research," as Allen describes, will not be pursued, favoring instead land-use practices such as agroforestry that integrate management systems for optimum production, wildlife and conservation benefits.

"My vision for this gift is that it be a showplace to demonstrate to future generations that man can live in harmony with his environment while successfully providing for his family," says Allen.

This remarkable desire to share an appreciation of natural places and wildlife can be called a part of Allen's family legacy. His father, the late H.W. Allen, an avid bow hunter, invented and patented the technology for the compound bow in 1966. His mother, the late Mrs. Elizabeth Allen, created an endowment in the University of Missouri School of Natural Resources to support students in the fisheries and wildlife programs, a \$250,000 fund that helps provide scholarships. Allen's older brother is a master's level graduate of the wildlife program at MU.

A manifestation of this cooperative philosophy, Allen requests that the community be invited to participate in educational workshops and events hosted on the property. Plans for the site include the establishment of a teaching/research center with lodging for students and research faculty to utilize while conducting research and participating in training programs.

"Meaningful interaction is a goal," says Allen. "We'd like to see interaction between researchers and academia with as many residents of the local community as possible, especially those with limited agricultural income opportunities who may benefit the most from knowledge gained at the site."

Noting that the property is one of the most beautiful places to see a night sky, Allen says he hopes that "those who will be working, researching, learning and living on this property can be very happy in the process, while the knowledge gained and applied here will benefit all Missourians and our natural environment."

**GH**



*Darcy Wells, executive director of advancement (left), Gene Garrett, director, Center for Agroforestry and Doug Allen share a laugh while surveying a grassland portion of the property.*

## Tax Talk: Changes for 2006 Taxes

Larry Godsey, Economist, MU Center for Agroforestry

As 2006 comes to a close, most people are thinking about the holidays and not about taxes. However, even the Internal Revenue Service can have a giving spirit when it comes to tax benefits for private forest landowners. New for 2006, the Conservation Security Program (CSP) has been added to the list of small watershed programs that qualify for the section 126, Cost Share Exclusion. This means that all or a portion of cost share payments received under this program can be excluded from taxable income. In 2005, cost share payments received under the Conservation Reserve Program (CRP) were also included in the list of small watershed programs qualifying for section 126 treatment.

Another change was the increase in section 179 deduction dollar limits. Section 179 property is tangible personal property used more than 50 percent in a business or trade. The maximum amount that you can elect to deduct for section 179 property placed in service in 2006 is \$108,000. This limit is reduced by the amount by which the total cost of section 179 property placed in service during the year exceeds \$430,000. Qualifying property includes machinery and equipment, agricultural structures, and single purpose horticultural structures.

Finally, the Reforestation Amortization and Deduction rules changed in 2005 but should be mentioned again for 2006. Under section 194, Reforestation Amortization and Deduction, a landowner may deduct up to \$10,000 of reforestation or afforestation expenses incurred during the year on each qualifying property. Additional reforestation or afforestation expenses above the \$10,000 limit may be amortized over an 84-month schedule. Those expenses include site preparation; seedling and seed costs; labor and tool expenses; depreciation on equipment used for seeding or site preparation; and replanting costs. In order for a property to qualify it must be at least one acre in size and located in the United States. Potentially, a landowner with fifteen acres could have fifteen qualifying tracts, each with a \$10,000 deduction limit and the associated amortization.

For more information about these and other tax changes visit the National Timber Tax web site at [www.timbertax.org](http://www.timbertax.org), or obtain a copy of the Farmer's Tax Guide, Publication 225, Department of the Treasury, Internal Revenue Service ([www.irs.gov](http://www.irs.gov)).

## Ozark Chinquapin Initiative (cont. from pg 7)

contain up to 3 nuts, while Ozark chinquapin has only one nut in each bur. The burs of the chinquapin are much smaller than the larger-sized burs of the chestnut, averaging about 1 ½ inches in diameter. Chinese chestnut bur averages 3-4 inches in diameter.

### **The Ozark Chinquapin Foundation: Restoration Partner**

The Ozark chinquapin Foundation is a non-profit organization working to restore the Ozark chinquapin to its native range. Seed is available to volunteers who want to help reestablish this tree to its native range.

According to the Foundation, the historic range of the Ozark chinquapin included approximately 40 percent of Southern Missouri (the area south of Missouri River), many regions of Arkansas that have some elevation, a portion of the eastern fourth of Oklahoma, and portions of northern Louisiana, Mississippi, and Alabama. Typically the trees grow on acidic rocky cherty soils, with non-swelling clays and are found with pine/oak/hickory. Hill-sides and hill tops in the Ozarks are preferred growing sites. Interestingly, the term Ozark chinquapin does not appear in most early 1900s tree books. The trees were often lumped in with the Allegheny chinquapin. Tree book authors made specific comments that in Southern Missouri and Arkansas the trees reached heights up to 65 feet tall and 2-3 feet in diameter. The word “Ozark chinquapin” did not become commonly used until after the 1930s and 40s; before this they were considered incredibly large Allegheny chinquapins that grew in the Ozarks.

### **The Foundation has collected testimonials of those who fondly remember the abundant Ozark chinkapin tree:**

*“The Ozark chinquapin nuts were delicious and we waited for them to fall like you would wait on a crop of corn to ripen ... they were that important. Up on the hilltop the nuts were so plentiful that we scooped them up with flat blade shovels and loaded them into the wagons to be used as livestock feed, to eat for ourselves, and to sell. Deer, bears, turkeys, squirrels, and a variety of other wildlife fattened up on the sweet crop of nuts that fell every year. But, starting in the 1950’s and 60’ all of the trees started dying off. Now they are all gone and no one has heard of them.”* - Quote from an 85 year old Missouri outdoorsman describing the trees before the chestnut blight reached the Ozark Mountains.

*“The wood produced some beautiful furniture and musical instruments, even today things made from the chinquapin wood are highly prized. Ozark people were able to make a little money selling railroad ties made from chinquapin trees. Farmers used the tree for corner posts and fence posts because it was highly rot resistant. Even the empty burs were used for fertilizer.”*

Visit [www.ozarkchinquapin.com](http://www.ozarkchinquapin.com) to learn more about the Foundation’s restoration efforts and this unique tree species. **GH**



Chinkapin oak leaves and acorns.



Chinkapin oak leaves (left) are oblong, 3 to 6 inches in length and 1-1/2 to 3 inches wide, coarsely and sharply toothed. They are thick and firm, light yellow-green above to silvery white below. The acorn is broadly oval, chestnut brown in color and enclosed for one-half its length in the cup.



Allegheny chinquapin leaf.



Chinese chestnut leaf.



Ozark chinquapin leaf.

**Allegheny chinquapin leaf:** Smaller leaves of less than 6 inches, with shallower teeth and a smaller, spiny seedpod usually less than 1 inch in diameter.

**Chinese chestnut leaf:** Chinese chestnut leaves are oval-shaped with smaller teeth. The base of the leaf blade is rounded; leaf is waxy and thick-feeling.

**Ozark chinquapin leaf:** Ozark chinquapin leaves are sharp and coarsely toothed; dark green on top and whitish underneath. They are 5-9 inches long.

### **Ozark Chinquapin in the Media**

*Arkansas Democrat Gazette*, 10/2/06 “Group hopes to repopulate Ozarks with chinquapins.”

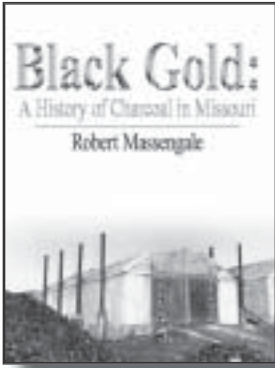
*Springfield News-Leader*, 12/2/06, “A new beginning for the imperiled Ozark chinquapin.”

*Region and State newspaper*, 12/3/06, “Volunteers Setting Imperiled Tree on Comeback Trail.”

*Ruminations*, the newsletter of the University of Missouri Southwest Research Center, “Ozark Chinkapin Project Initiated in Southwest Missouri.” Vol. 12, No. 4. (Fall 2006)

*Columbia Daily Tribune*, 12/3/06, “Volunteers work to save tree.”

# The Back Page



## Black Gold: A History of Charcoal in Missouri

by Robert Massengale

The production of charcoal is one of the oldest industries in Missouri, beginning before it became a state in 1821. Learn about the fascinating history of the wood charcoal industry in Missouri, methods of making wood charcoal, the influence of the industry in the state and changes during the past 200 years. Read about the inventor of the charcoal briquette who

made charcoal in Missouri.

Robert (Bob) Massengale graduated from the University of Missouri with B.S. and M.S. degrees in Forestry. He spent the majority of his working career with the Forestry Division of the Missouri Department of Conservation. In 1962, he transferred to the central office to head up the Forest Products Marketing and Utilization Program. Bob has authored 15 publications including directories and industry studies and the popular "Missouri Woods" publication of the Conservation Department. Black Gold is available by calling (888) 280-7715; or online at [www.authorhouse.com/BookStore](http://www.authorhouse.com/BookStore). Author House can be reached at (888) 519-5121.

## Prescribed Burn Workshops

Information from the **Missouri ForestKeepers Network**  
(web site: <http://216.119.79.248/index.asp>)

If you are a landowner needing a burn plan written, and assistance with conducting a prescribed burn, you should plan on attending one of these workshops. (No plans or assistance can be given without first attending one.) Contact Randy Hass with the Missouri Department of Conservation at (417) 629-3424 for more information on prescribed burn workshops, or to register.

### Feb. 3, 2007

9 a.m. to 12 noon  
Memorial Hall basement,  
Lamar, Mo.  
Register by Jan. 29, 2007

### Feb. 10, 2007

9 a.m. to 12 noon  
Jasper County Annex Building #1, 205 Lincoln,  
Carthage, Mo.  
Register by Feb. 5, 2007

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Missouri Chapter  
Walnut Council



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## Calendar of Events

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**Jan. 18, 2007: Ozark Chinquapin Initiative Informational Meeting**, MDC Springfield Nature Center, Springfield, Mo., 7-9 p.m. Presenters will explain what the species looks like, site and soil preferences and challenges with the restoration. For more information about the meeting, contact Skip Mourglia at (417) 732-6485, Mon-Fri.

**Jan. 26 – 27, 2007: Missouri Farmers Union Convention**, West Plains, Mo. The Missouri Farmers Union 100th Anniversary Homecoming Convention focuses on the future for rural Missourians through a variety of workshops and guest speakers. Event takes place at the Civic Center and Opera House in West Plains, Missouri. For more information, call (573) 659-4787; or visit [www.missourifarmersunion.org](http://www.missourifarmersunion.org)

**Jan. 31 – Feb. 2, 2007: Missouri Natural Resources Conference**, Tan-Tar-A Resort, Osage Beach, Mo. This year's theme is "Conserving All Natural Resources: Implementing the Comprehensive Wildlife Strategy." Workshop topics include the Farm Bill, stream advocacy, managing forests for wildlife and invasive species. For more information, call 573-882-9909, ext. 3275; or visit [www.mnrc.org/registration.html](http://www.mnrc.org/registration.html).

**Feb. 2 – 3, 2007: Missouri Nut Growers Annual Winter Meeting and Nut Show**  
Nevada, MO. For more information, call 573-875-5341 ext.233; or email [jvansambeek@fs.fed.us](mailto:jvansambeek@fs.fed.us).

**Feb. 3 and Feb. 10, 2007: Missouri Department of Conservation Prescribed Burn Workshops**. Required for land-owners needing a burn plan written or assistance with prescribed burns. See page 11 for locations and registration information.

**Feb. 23 – 24, 2007: Missouri Woodland Owners Conference (Formerly the MO Tree Farm Conference)**, Stoney Creek Inn, Columbia, Mo. For more information, contact Hank Stelzer at [StelzerH@missouri.edu](mailto:StelzerH@missouri.edu) or (573) 882-4444.

**March 16 – 18, 2007: Missouri Conservation Federation Convention**, Lodge of Four Seasons, Lake Ozark, Mo. Information available at [www.confedmo.org](http://www.confedmo.org).