



# FORESTRY, WILDLIFE & FISHERIES UPDATE NEWSLETTER

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## Celebrating the Centennial of Knoxville's Conservation Expo

One hundred years ago, Knoxville held a Conservation Expo led by famed naturalist Gifford Pinchot. More than a million people attended the expo, which sought to create a climate of conservation for the region's abundant natural resources.

Now Knoxville is celebrating the centennial, with a Conservation Expo of its own set for Saturday, Oct. 12, at Chilhowee Park. The guest of honor is CASNR alumna Leila Pinchot, who earned a Ph.D. in forestry and continues her great-grandfather's work through the Pinchot Institute in Connecticut.

The expo is free and open to the public. Learn more at the [event's website](#) and see [an announcement posted at the city's website](#).



**CONSERVATION  
E · X · P · O**

**CHILHOWEE PARK  
KNOXVILLE**

**• 10.12.13 •**

## UT Wildlife Research Team Earns International Award

Patricia McDaniels, Editor, Marketing and Communications, UT Extension

*Efforts are helping tiny songbird to reverse population decline.*



*Partners In Flight, an international bird conservation organization, has recognized the Cerulean Warbler Research Group for its Outstanding Research Award for 2013.*

*Drs. Patrick Keyser (shown left) and David Buehler of the University of Tennessee Department of Forestry, Wildlife and Fisheries led the eastern regional research team studying Cerulean Warbler response to forest management. (Photo courtesy UT Institute of Agriculture.)*

Two University of Tennessee Institute of Agriculture researchers with the Department of Forestry, Wildlife and Fisheries have received an international award for their work leading a team of scientists studying Cerulean Warbler response to forest management.

Partners In Flight, an international bird conservation organization, has recognized the Cerulean Warbler Research Group with its Outstanding Research Award for 2013. Patrick Keyser and David Buehler, both of whom are professors, along with scientists from five other institutions, designed and implemented one of the largest forest management experiments ever conducted. The eastern regional research team studied Cerulean Warblers at seven study sites in four states to examine the songbirds' responses, and those of associated species, to commonly applied forest management practices.

The Cerulean Warbler is of high conservation concern in the eastern United States because of its small total population and because the species has significantly declined in number throughout its range. Tennessee is near the southern edge of the species' North American breeding range.

A Neotropical migrant species, the Cerulean Warbler breeds in mature deciduous forests in eastern North America and overwinters in the forested Andes Mountains of South America. The distinctive blue songbird has been under consideration for listing as an endangered species and is already listed on the Audubon watch list.

In addition to the UTIA scientists, researchers from West Virginia University, the Ohio State University, Indiana University of Pennsylvania, the U.S. Forest Service Northern Research Station and the National Council for Air and Stream Improvement have participated in the effort.

The Cumberland Mountains, located just north of Knoxville, are among the sites where the scientists have studied the birds. The Tennessee sites contained both the greatest densities of ceruleans recorded across their breeding range and the greatest breeding productivity.

Throughout the six-year effort, the Cerulean Warbler Research Group has graduated 13 graduate students and trained hundreds of undergraduates in field wildlife research techniques. In addition to graduate student theses and dissertations, the project has published more than 10 peer-reviewed publications, with several more still in preparation. The important results and significant conservation impacts discovered to date have led to publication of the monograph *Forest Management Guidelines for Cerulean Warblers*. One of the key discoveries discussed in the publication, which is written for forest managers, is that certain forest management strategies can be beneficial to maintaining appropriate forest structure for nesting Cerulean Warblers.

When asked about the significance of the work, Keyser remarked, “Finding science-based solutions to both conservation and productive forest management are essential to ensuring that all of the components of our natural resources are managed in a way that ensures sustainability of these resources for future generations.”

The scientists’ work has been funded in part by UTIA Department of Forestry Wildlife and Fisheries. In addition to its agricultural and natural resource research programs, UTIA also provides instruction, research and public service through the UT College of Agricultural Sciences and Natural Resources, the UT College of Veterinary Medicine and UT Extension offices in every county in the state.

For more information contact: Dr. David Buehler, Professor of Wildlife Science, Department of Forestry, Wildlife and Fisheries at 865-974-8845 or E-mail @ [dbuehler@utk.edu](mailto:dbuehler@utk.edu).

## Burning Wood Safely

*Adam Taylor, Associate Professor, Forest Products*

As the days get shorter and the nights start to cool off, you might begin to think about having a fire in the wood stove or fireplace. Wood is an economical, environmentally-friendly and pleasant way to heat a home. However, there are a few simple steps required to ensure that your wood-burning experience is safe and efficient.

**Start with a clean, safe system.** Wood burning systems should be cleaned and inspected before being used for the first time of the season. The components of the system – especially the chimney – must be in good repair and meet the relevant standards, and the system must be free of build-up or obstructions that could cause smoke to back up in the house or lead to chimney fires.

**Use dry firewood.** Dry firewood burns hotter, more efficiently and thus more cleanly and safely. Burning wet firewood wastes potential heat evaporating water, and can burn incompletely. The unburned residue causes unpleasant smoke and can accumulate inside of chimneys, leading to the risk of a chimney fire. The best way to ensure that your firewood is dry is to get it in the spring and let it dry over the summer. If you are late getting your wood supply for this winter, try to find firewood that was cut to length and split *before* this summer – wood that was recently split will almost certainly still be too wet, even if it was ‘seasoned’ for years in log form.

**Burn hot.** Relatively cool wood fires can lead to incomplete combustion, resulting in excess smoke and the build-up of the ‘creosote’ inside pipes that is the potential fuel for dangerous chimney fires. If the weather outside is not that cool, it is better to have a small fire that burns hot for a short time than to keep a low fire smoldering for a long time. Of course, the “hot” fire should be within the safe limits of the wood burning system that you have – *never* use gasoline or other non-wood materials to ‘get the fire going’!



## Estimating Financial Maturity of Timber

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David Mercker, *Extension Specialist, Forestry*

Landowners often ask, “when is timber ripe for picking?” Essentially what they desire to know is, at what point is timber mature? Foresters often consider two types of maturity: financial and biological. *Financial maturity* is the point where the value increase in timber no longer exceeds the interest rate that can be earned on an alternative investment. So the investment (timber) is liquidated (harvested). *Biological maturity*, in contrast, generally occurs much later and is the point where total wood growth is maximized and begins to decline.

So which one is right? Which should landowners strive to manage? They are both acceptable; it strictly depends on the desired outcome. Financial maturity is the choice of most foresters, simply because we are trained to maximize investment return. The growth of a forest has a somewhat predictable outcome. Based on site characteristics and species, foresters can estimate the amount of wood that can be produced on a given acre, when the increase in value will be maximized, and when eventual decline will occur. Obviously, for many landowners, maximized wood production is not the only (or even marginally important) objective. But for some it is.

Timber increases in monetary value three ways: 1) increase in wood growth, 2) improvement in wood quality, and 3) improved market value. Therefore, the return on investment will typically be greatest on trees that are rapidly growing, adding wood through increases in both diameter and height, and in periods of high market demand with low market supply.

Professional foresters understand this complexity and that’s why it is normally advantageous to seek their advice and services prior to marketing then selling timber. For more information on the topic of financial maturity, see:

Jeuck, J. and R. Bardon. 2012. When to Cut your Woodlot: Maximizing the Economic Returns. *National Woodlands*. Spring 2012.

## The Forest Land Use Triad

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Wayne Clatterbuck, *Professor, Silviculture and Forest Management*

The triad of forest land use as introduced by Seymour and Hunter in 1998 consists of ecological reserves (public forests), extensively managed forests (private forests) and intensively managed plantations (forest industry). As in the history of agriculture, a managed plantation can produce 4 or 5 times the wood volume compared to extensively managed lands. If more wood volume is grown and harvested from these intensively managed plantations, this allows more of the extensively-managed private and public forests to be used for other purposes.

Forests in Tennessee cover an estimated 14.4 million acres or about 54 percent of the land area. About 15 percent or 2 million acres are owned by federal, state and local governments. Most of the federal land is in National Forests, National Parks, National Wildlife Agencies, National Recreation Areas, Corp of Engineers, Department of Defense installations and the Tennessee Valley Authority. State lands include State Parks, State Forests, State Natural Areas, and Wildlife Management Areas. Presently, Tennessee has more acreage in state-owned land than any other southeastern state except for Louisiana where the majority of state-owned land is in wetland systems and estuaries.

Approximately 12 million acres of the forest land in Tennessee is privately-owned, with about 20 percent (2.4 million acres) controlled by corporate entities and partnerships. Plantations compose about 6 percent of the forest in Tennessee or about 600,000 acres. These can roughly be considered the intensively managed forests in the state. The remaining 9 million acres is owned by private individuals, sometimes referred to as family forests. Unlike many western forests that are primarily in public ownership, the forests in Tennessee are privately-owned.

On a nationwide level, the federal government is a large player in land ownership. The United States contains about 2.5 billion acres of land. The Dept. of Interior which includes the Bureau of Land Management, the US Fish & Wildlife Service, the National Park Service, Bureau of Indian Affairs and the Bureau of Reclamation controls 500 million acres of land, or one-fifth (20 percent) of the land surface. These totals do not include USDA Forest Service land or installations from the Dept. of Defense. Some of these lands are not forests.

Approximately 737 million acres of land are classified as forests. The USDA Forest Service controls 191 million acres of which 73 percent (139 million acres) is forested. Wilderness areas designated by several federal agencies compose 107 million acres or about 14 percent of the federal land ownership excluding Department of Defense ownership.

The land ownership statistics cited above indicate that a great amount of land is in public ownership (whether forests or not) composing the reserve lands in the land ownership triad. Most of the private land is extensively managed for multiple uses and values depending on the landowner's objectives. Usually family forests do not approach the inherent productive capacity of the land or soil. Less than 12 percent of the land is intensively managed, usually through corporate entities even though some family forests are also intensively managed. From just a strict productivity standpoint, most of the forest land in the United States is growing less volume than it could under progressive or more intensive management. For example, the average rate of growth (production) of US forests is approximately 40 cubic feet/acre/year which include poorly-stocked and degraded forests. Contrast that production to a southern pine plantation that grows 200 to 250 cubic feet/acre/year. If through better forest management, the rate of forest growth was doubled to 80 cubic feet/acre/year, twice the amount of wood (a renewable and sustainable resource) would be available.

According to USDA Forest Service Forest Inventory and Analysis data, forest land in Tennessee is producing timber at about half of its potential (extensively managed forest land). Opportunities to grow more timber exist on some 6 million acres of forest land that are poorly stocked, have competing undesirable vegetation or are over mature. These less productive areas could be managed for greater yields of preferred species for higher-valued wood products. Treatments to improve productivity include regenerating non-stocked or cutover sites, regeneration of mature stands, and stocking control through thinning, cleanings, and timber stand improvement. Of the 6 million acres where improvement treatments would increase productivity, nearly 82 percent occur on private non-industrial forests, i.e., family forests.

When viewing the forest land use triad, the balance of what is desired by society is a myriad of forest benefits, uses, and values. More wood volume can easily be grown on fewer acres which could allow more acres for other multiple uses. The triad can easily be modified based on demand and supply market conditions. Public ownership in Tennessee already encompasses a large amount of forested land, more than 2 million acres. The question is what is the most beneficial balance of government (reserves), private (extensive), and corporate private (intensive management and investment) forest land.

## Protecting Ash Trees from Emerald Ash Borer with Insecticides

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*Wayne Clatterbuck, Professor, Silviculture and Forest Management*

Several insecticide products are available to homeowners for control of Emerald Ash Borer (EAB). Treatments are suggested for ash trees within quarantine counties or in counties adjacent to quarantine areas. Refer to the following web address for the 21 counties that are currently quarantined in Tennessee: [http://www.tn.gov/agriculture/publications/regulatory/eab\\_map.pdf](http://www.tn.gov/agriculture/publications/regulatory/eab_map.pdf) Not all ash trees within these areas should be treated. Because the insecticide treatments must be applied each year, the intrinsic and monetary value of a particular ash tree in relation to the insecticide treatment cost should be considered. The location and health of the tree should also be evaluated. Research has indicated that insecticide treatments are more effective on ash trees with less than 50% canopy dieback. Trees with greater than 50% crown dieback are not likely to recover and should be removed and disposed of properly using established local guidelines. EAB can reside inside a dying tree for a period of time, so timely disposal of the wood is necessary to ensure that the insect does not spread to other areas.

Unfortunately, a long-term control of EAB has not been discovered. However, the life of an ash tree can be prolonged indefinitely with the annual application of systemic insecticides. The most commonly available insecticide contains the chemical imidacloprid (available as Bayer Advanced Products and other manufacturers in most hardware and home & garden stores) which is applied as a granular or liquid soil drench around the base of the ash tree in April and May. The chemical is absorbed by the tree through the roots and is transported to the branches and leaves. The adult beetles emerge in May and June from under the bark, feed on the ash leaves for 3 to 6 weeks before they mate, and lay their eggs on the surface of the bark in cracks and crevices. The insecticide likely impacts the beetle when they are feeding on the leaves. Imidacloprid is the same systemic insecticide used to control hemlock wooly adelgid that feeds on sap at the base of the hemlock needles.

Whether the insecticide impacts the larvae located underneath the bark of ash trees is unknown. Most of the damage to the ash tree occurs when the larvae feed in the S-shaped tunnels of the phloem disrupting the transport of nutrient and water within the tree, effectively girdling the tree. Translocation of the insecticide through the cell walls of the conducting tissue (cambium --- xylem and phloem) has not been established. The systemic insecticide does translocate to the leaves and impacts the beetles when they are feeding on the ash leaves, but the influence on larvae as they are feeding in the cambium/phloem has not been verified.

Research suggests that soil applications of systemic insecticides on ash trees less than 16 inches in diameter provides excellent EAB protection. However, on trees greater than 16 inches, the results are less than desired. Current recommendations are to treat the larger diameter ash trees twice a year (spring and fall) and treatment of a large tree should begin before the tree becomes infested.

Another EAB treatment option is to contact a certified arborist. These professionals have access to some products that are not available to homeowners, primarily tree injection. If a systemic, soil-applied insecticide is chosen, be aware that many products at hardware and home & garden stores look alike. Carefully check all product labels before purchase to make sure the correct product or active ingredient is selected. Always read and follow the label directions.

Purdue University has an excellent website on insecticide guides and options for protecting ash trees from EAB: <http://extension.entm.purdue.edu/EAB/index.php?page=faq> Information provided in this article is for education purposes only. References to commercial products or trade names do not imply endorsement by the author or institution.

## Managing Native Grass Forages – Advanced Competition Control, a Key to Success

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*Patrick Keyser, Professor and Director, Center for Native Grasslands Management*

Successful establishment of native warm-season grasses (NWSG) requires good competition control. As is the case with any perennial forage establishment, your chances of success are greatly increased by dealing with competing species AHEAD of time. Waiting to control perennial warm- and cool-season competitors just a few weeks ahead of planting is never a good idea and can make establishment much more difficult – and less likely to be successful - than it needs to be.

Warm-season perennials such as johnsongrass, dallisgrass, and broomsedge are all much more easily controlled during August and September than during spring. During late summer, control is more effective and can be accomplished with lower herbicide rates. The same thing is true for cool-season perennial competitors such as tall fescue, orchardgrass, plantains, curly dock – and biennial thistles. In the case of these cool-season species though, the ideal time for control is a bit later in the fall – October and early November.

Another important warm-season perennial competitor is common/coastal bermudagrass. The most effective control for bermudagrass is to treat with a high rate of glyphosate (4 – 5 qts/ac) in late summer (August). As is the case with the other warm-season perennials, spring treatment has very poor success. Failure to achieve complete control of bermudagrass though, can be far more detrimental to successful NWSG establishment. This is because its growth habit prohibits good seed placement when drilling, suppresses germination, and presents severe competition for young seedlings. Furthermore, controlling bermudagrass in established NWSG is extremely difficult.

Another advantage of treating perennials ahead of time is that you leave yourself the opportunity to conduct follow-up treatments. By treating warm-season species in August, skips, new seedlings, or regrowth can all be treated again prior to a frost if needed. In the case of cool-season perennials, follow-up treatments can be applied during late March/April. Also, perennial vegetation suppresses the growth of other weeds. Once the perennials have been controlled, those other weeds become quite abundant. Advanced removal of perennials creates the opportunity to address this flush of new weeds in a timely manner, before they can overtop a new NWSG planting.

While it is less important to control annual weeds ahead of time, it is still beneficial to deal with them early. Most cool-season annuals will be controlled with the final seedbed prep prior to planting. Warm-season annuals, on the other hand, can be present severe competition to NWSG seedlings. The most effective way to deal with them is through 1) limiting seeding the prior year, which may be accomplished partially when you control summer perennials, or 2) delaying planting until after killing the initial flush of summer annuals.

Dealing with weed competition ahead of time is really just agronomy 101 – things that should be done prior to establishing any perennial grass. And it pays huge dividends for successful establishment of NWSG forages.

## Establishing Mast Producing Trees for White-tailed Deer

Larry Tankersley, Extension Specialist, Forestry

Taken from <http://www.mast-producing-trees.org/>

Mast is the botanical name for nuts, seeds, buds, or fruits of trees and shrubs that are eaten by species of wildlife. There are two main types of mast:

**Hard mast** includes hard nuts and seeds such as acorns, hickory nuts, and walnuts.

**Soft mast** includes berries and fruits such as crabapples, blueberries and service berries.

The definition of mast sometimes includes winged seeds of trees such as maple and elm, as well as pine seeds and nuts and even buds, catkins, and hips. Both types are important year-round food sources for certain wildlife species, but hard mast is often considered more important, especially as a winter food, due to its higher energy content.



### Why plant mast-producing trees and shrubs?

Mast is one of the most important food sources for hundreds of species of mammals and birds, including game animals such as white-tailed deer and wild turkey. Some species are almost entirely dependent on it. Mast is especially important food in autumn and winter, where it helps animals prepare for and survive the cold.

Mast-producing trees provide other types of food in the form of leave, buds, bark, and more. Many fruit and berry producing trees and shrubs are an important source of nectar for honeybees and other pollinators, and more than 500 caterpillar species alone use the oak family as host plants. These caterpillars and other insect herbivores become food for hundreds of species of birds, mammals, reptiles, amphibians, and beneficial insects.

Food is not the only benefit mast-producing trees provide for wildlife species. They are also an important source of shelter for many smaller mammals and birds. Butterflies and other flying insects may shelter under tree leaves during summer storms, and many different types of insects overwinter in tree bark, where they help sustain woodpeckers, bears, and other species through the winter.

Many types of mast favored by wild species are also enjoyed by humans as well. Planting mast producing trees and shrubs is a good way to supplement your diet with fresh, delicious and healthy nuts, fruits, and berries, such as elderberry, serviceberry, persimmon, pawpaw, walnut pecan and hazelnut. Acorns use to be a major source of food for many American Indian tribes, who collected them and pounded them into flour, which was used to make mush or bread.

### Mast production for white-tailed deer.

Hard and soft mast is a major food source for white-tailed deer throughout the year. You can create a low maintenance permanent food plot for deer by planting a diverse mix of mast-producing trees and shrubs.

The most important single type of mast for deer is acorns, which can make up as much as 70% of their diet in autumn. At this time of year, deer feast on the acorns of white oaks (*Quercus alba*) and similar species, which help the animals put on weight for the winter. In the winter, various red oaks become more important. Red oak acorns are bitterer than white oak acorns and less preferred by deer and other wildlife species, but their high fat content helps deer survive the cold winter in good condition for the spring breeding season.



Because acorns produce in cycles, the best way to ensure a steady supply of acorn mast for your deer every fall and winter is to plant several different species each of white and red oak. You can also improve the consistency of autumn and winter food supplies by planting other hard mast producing trees. Other hard mast species favored by deer include beech (*Fagus sp.*), chestnut (*Castanea sp.*) and hickory (*Carya sp.*) nuts. Hickories tend to be particularly consistent producers in many regions of North America.



White oak acorns



*Blackberries - a favourite autumn fruit*

Some mast-producing trees and shrubs also provide good sources of browse for deer. A few favored browse species include hackberry, plum, grape, hawthorn, and some species of viburnum, buckthorn and oak.

By planting a diverse mix of oaks and other mast-producing trees and shrubs, you can ensure a consistent and year round source of food for deer. Permanent food plots of this sort also require less maintenance once established than food plots of annual grains and attract a wider variety of other game, including wild turkey, squirrels and black bears.

Soft mast is also an important food source for deer, especially in summer. Some of their favorite soft mast sources include: Common persimmon (*Diospyros virginiana*), wild grapes (*Vitus sp.*), Pawpaw (*Asimina triloba*), Pears (*Pyrus sp.*), Apples (*Malus sp.*), Honeylocust (*Gleditsia triacanthos*), Sumac (*Rhus sp.*), Osage orange (*Maclura pomifera*), Blackberry (*Rubus sp.*), American beautyberry (*Callicarpa americana*), and Elderberry (*Sambucus sp.*).



Osage orange (*Maclura pomifera*)

## Wildlife Management Calendar for October

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Craig Harper, Professor, Wildlife Management

### Wildlife Notes

Groundhogs are preparing for winter hibernation  
 Black bears are feeding heavily in preparation for denning  
 Wild turkeys begin forming flocks  
 Bobwhites form coveys  
 Juvenile ruffed grouse are dispersing  
 Woodcock begin migration  
 Crows begin to congregate in roosts  
 Chimney swifts may begin congregating in chimneys  
 Marbled salamanders lay eggs in dry vernal pools

### Habitat Management

Spray perennial cool-season grasses (such as tall fescue and orchardgrass)

- October through mid-November is the optimum time to kill these grasses
- spray in order to stimulate the seed bank and enhance habitat for wildlife associated with early successional communities; spray also in preparation to plant native warm-season grasses and forbs or food plots next spring, or to control these grasses in existing food plots
- use 1.5 – 2 quarts per acre of a glyphosate herbicide (such as Roundup) if spraying to release the seed bank or in preparation to plant native grasses or a food plot; use a grass-selective herbicide, such as 12 ounces of Clethodim per acre, if controlling these grasses in a clover/chicory forage plot
- refer to *Native Warm-Season Grasses: Identification, Establishment, and Management for Wildlife and Forage Production in the Mid-South*, PB 1752 for additional information on eradicating perennial cool-season grasses

**Burn** and/or disk old-fields and other early successional areas

- will stimulate forb growth next spring, which will provide brooding cover for wild turkeys and bobwhite, and will improve forage availability for white-tailed deer
- disking will reduce grass dominance where nwsgr have become too dense
- will reduce woody encroachment by undesirable woody saplings in the field
- don't be afraid to burn; prepare adequate firebreaks by disking around the perimeter of the field and burn against the wind
- Smokey Bear actually likes for you to burn – it provides him with more food!
- refer to *Native Warm-Season Grasses: Identification, Establishment, and Management for Wildlife and Forage Production in the Mid-South*, PB 1752 for additional information on managing early succession for wildlife

Prepare firebreaks this fall/winter if you plan to burn fields next March/April

- disking now will stimulate forbs next spring
- firebreaks can be planted to cool-season food plots if desired

Plant firebreaks and other disked strips not left for natural vegetation

- annual cool-season grains (especially wheat) with annual legumes (crimson and arrowleaf clover) are excellent choices
- refer to *A Guide to Successful Wildlife Food Plots*, PB 1769 for additional information

Finish planting cool-season food plots

- refer to *A Guide to Successful Wildlife Food Plots*, PB 1769 for additional information on seeding rates and management recommendations

Spray perennial forage food plots for weed control if necessary

- refer to *A Guide to Successful Wildlife Food Plots*, PB 1769 for specific information

Continue to silage-chop or strip-mow dove fields to provide seed and hunting opportunities

- strips can be disked and top-sown with winter wheat (2 bushels per acre) to provide additional forage opportunities

Continue watching and identifying good acorn producers

- one-third of the oak trees produce roughly 75% of all the acorns
- if you are interested in improving acorn availability in your woods, distinguishing good producers from poor producers will help you identify which trees to favor
- once acorns begin to fall, walk through the woods and mark trees with good acorn crops with aluminum tags or tree marking paint near the bottom of the tree
- continue this for at least 3 years and a pattern will begin to develop identifying those trees that do not ever produce many acorns (even in a good acorn year)
- good producers can be released by killing or removing unwanted adjacent competitors, allowing the crowns of favored trees to expand and produce more acorns

Continue timber stand improvement (TSI) work

- October is a great time to kill unwanted trees; herbicides applied via girdle-and-squirt or hack-and-squirt are readily transported to the root system as trees prepare for winter senescence
- stimulate growth among oaks, beech, blackgum, cherry, persimmon, and other mast producers by killing surrounding competitors
- girdle unwanted trees and spray wound with a 50% mixture of Garlon 3-A and water or a 20% solution of Arsenal AC and water; refer to herbicide labels for efficacy on various tree species

**Burn** upland forested areas where adequate sunlight is sufficient to stimulate understory groundcover for wildlife

- burning during late growing season (Aug – Oct) helps reduce dominance of woody species in the understory and encourages more herbaceous groundcover
- burning in closed-canopy woods does little to stimulate understory; allow 20 – 40% sunlight into the stand by reducing canopy cover through TSI

Build brush piles from thinned trees and pruned limbs

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

Sow winter wheat along edges of flooded fields to provide important forage for migrating Canada geese and American wigeon later this winter

Clean out bluebird boxes to allow more room for roosting bluebirds when cool weather arrives

- 10 or more bluebirds may roost in a single box on cold nights

Clean out wood duck boxes and replace old wood shavings with fresh shavings

- screech owls and squirrels may use the boxes through fall and winter
- repair/install predator shields if necessary

Put up bird feeders

- refer to *Improving Your Backyard Wildlife Habitat*, PB 1633, for information on specific feeders and seed for birds

## Wildlife Damage/Population Management

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

- helps keep snakes, skunks, chipmunks, and squirrels from getting into places where they are not welcome
- rodents are beginning to cache food for the coming winter; take action now to keep them out of your house

Bats are leaving summer hang-outs for winter hibernacula

- allow bats to leave attics before closing crevices, then make sure all openings are closed so they can't get back in next spring/summer

Blackbirds and starlings are gathering into large winter flocks

- don't allow them to roost in your trees; if they start, they'll form a habit
- repel them with noise makers (shotguns, firecrackers, banging metal pans together)
- be persistent

Deer hunting season is underway

- allow hunters access to your land if you have a problem with too many deer
- shoot the females (does); concentrating on bucks does nothing to control overpopulation
- in areas that are highly overpopulated, it may be necessary to kill 1 doe per 10 acres (sometimes more) before the population is reduced to acceptable levels
- where Quality Deer Management is desirable, reduce the population so plenty of forage is available, shoot does to even the sex ratio, and allow bucks to reach 3 years of age before shooting them

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

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Extension Associate in Wildlife — Vacant

Fisheries Specialist — Vacant

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