PRACTICAL WILDLIFE MANAGEMENT INFORMATION

Wildlife Trends JOURNAL

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Earl Says...

It's the opening weekend of deer gun season and I hope I'm ready but as usual, I'll be scrounging around last minute looking for bullets, gloves and flashlights. But it doesn't matter because we'll be in the woods and it just doesn't get any better than hunting with your buddies and eating camp house food. Between ballgames, eating and telling lies I hope to sit in a tree long enough this weekend to see a few deer.

For all you Quail folks out there, check out the advertisement on Page 24 for a new book published by the Game Bird Program at Tall Timbers Research Station. This is a compilation of all the printed material produced by Clay Sisson and Dr. Lee Stribling when they were with the Albany Quail Project from 1992 – 2007. Included are several articles they wrote for us at Wildlife Trends Journal. This is a great resource for helping your quail population.

It's getting real close to Christmas and if you know someone who did you a special favor during the year or they're just too hard to shop for, consider giving them a subscription to Wildlife Trends Journal. We'll send them several back issues, the library binder and a card announcing your gift. It's the perfect present for the person who has everything!

Lastly, it's hard to believe but 2010 is just around the corner and I know we're all looking forward to a more prosperous and successful year. I've seen some improvements in attendance at Trade Shows and Field Days lately but it seems most folks are afraid to spend much money these days, (except my wife). But the hard work of managing our properties is an ongoing endeavor. We'll do our part to help you by offering more articles to help you save money while at the same time improving your wildlife habitat. Our money may be tight but the critters we've been entrusted to manage are still looking to us to keep up our management practices. Please don't ever hesitate to let me know how we can help you make the most out of your property.

Andy Whitaker
Publisher/Editor

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Cover photo by Tes Randle Jolly, Jolly Outdoor Visions 334-727-4327.

Hardwood Savannahs: Are They Worth Managing?

By Ted DeVos

Ted DeVos is co-owner of Bach and DeVos Forestry and Wildlife Services and a Certified Wildlife Biologist and Registered Forester. Contact him at 334.269.2224.

An older, well established savannah has many of the characteristics of prairie and open pineywoods with a well developed understory of grasses and weeds.

Hardwood savannahs, oak glades, oak ridges. This habitat type is little known and seldom managed, but is a very welcome addition to forest managers with an interest in wildlife and aesthetics. Savannahs or glades are defined by an open tree canopy characteristic and depend on regular burning to maintain them. BUT, you say, you can't burn in hardwoods, you damage the trees! We burn several thousand acres every year and regularly hear that you can't burn hardwoods. Hardwood stands can be burned without damage, however if not careful when burning hardwoods you can cause a lot of damage. A lot depends on timing and moisture conditions to burn correctly and care must be taken to burn correctly.

Woodlands are, obviously, well stocked with trees and the canopy of the timber shades the ground. Often, woodlands have a well developed mid-story of saplings and shrubs (dogwoods, sapling hardwoods, wax myrtle, etc) which further capture

and inhibit sunlight from reaching the ground. Prairies are defined as essentially treeless grasslands where the groundcover receives full sunlight. Savannahs basically fall in between these 2 descriptions with 30-70% of the groundcover receiving full sunlight at mid-day. Savannahs can be wooded with pine, hardwood or both pine and hardwood, but the characteristic that makes them beneficial for wildlife as well as extremely aesthetically pleasing is the grassy understory they support.

Historically, savannahs and prairies were very common prior to white settlement in the southeast. Early explorers described vast acreages in the piedmont and coastal plain that were "scatteringly planted with large trees" and covered with prairie grasses on the ground. While it is commonly thought that the "virgin" forests that early settlers found were dark hardwood forests from the Mississippi to the Atlantic, more common were descriptions of sunny, open woodlands of pine and oak where deer, turkeys, panthers, bears, elk and bison abounded. Indian settlements and fields were scattered throughout and the woodland burning conducted by these native people as well as lightning strikes kept these woods in this open condition. Tree species that the early explorers described also indicate this same condition with "fire-tolerant" species being most common. Various pine species, especially longleaf, as well as post, blackjack, southern red, white, and black oaks, dogwood, hickory, and various other "thick barked" hardwood species were very common.

Over thousands of years of human and natural fire, these savannahs were developed. Indians used fire to maintain the open, grassy conditions to both produce abundant game and also to help their visibility for hunting. Regular burning over vast acreages kept regeneration of trees to a minimum and the species that survived had high tolerance for regular fire. Some species like longleaf pine developed reproduction strategies (grass stage seedlings) that took advantage of fire to perpetuate themselves and control competitors. Some species developed the thick bark required to tolerate fire and lived a long time so that very little reproduction was required to replace them. In regards to oak regeneration, recent research has indicated that many upland oaks respond well to burning. Occasional fires in hardwood stands will often kill weaker species like maple and ash and species like oaks will resprout from roots after a fire. These root sprouts often grow faster into the midstory where they can better tolerate fire.

For those of you that have regularly read *Wildlife Trends* have seen plenty of articles that extol the virtues of managing "open" pineywoods for wildlife habitat, and quality and quantity of habitat that can be created to all game species and most non-game species. Hardwood savannahs, however, are a little different and not seen as often. For creation and maintenance of wildlife

A candidate site identified for creation of an oak savannah. Plenty of thick underbrush with an established stand of bigger oaks.

Underbrush cleared with a woodland grinder to open up the stand and remove unwanted saplings and trees.

The following summer the understory of weeds and grasses begins to develop providing food and cover for wildlife.

habitat though, they are similar to pine savannahs. To review, the open nature of these stands allows the growth of a prairie ecosystem or early-successional weeds and grasses. The benefits of this lush, grassy understory are many. Food production for deer and turkey is plentiful as many of the weeds growing on the ground are high protein deer foods and the seeds of these plants are a staple for quail and turkeys. These grassy habitats are also the best nesting habitat available to turkeys and quail. Additionally, fawn production in grassy "prairie" habitats is superior to any other habitat type. Many more benefits can be noted in a review of past issues of this magazine.

You may ask, "what is wrong with unburned, closed canopy hardwood stands?". The answer is nothing, however, as is often noted a variety of habitat types scattered across a property is the best way to manage for wildlife and usually the best way to manage for timber as well. Closed canopy hardwood stands with a well developed mid story of shrubs and saplings provides for various songbirds and other small wildlife. They also provide a lot of cool shade in mid -summer and usually plenty of acorns in winter. However, they do tend to lack cover for game species (deer, turkey and quail) through most of the year and lack food production for the same species outside of acorn productions months (October – April). By opening up the stand, the understory is allowed to develop which increases cover and food production.

So how do we go about identifying good candidates for creating this habitat type? Just like in the pre-settlement days, hardwood savannahs were not everywhere. Bottomland hardwoods, historically, were similar then as now. Shady, full canopy, mixed species bottoms occurred along stream, creek and

Burning the first time needs to be careful due to a lot of fuel on the ground from grinding debris and old leaf litter.

Burning in hardwoods can be done without damage but it must be done carefully with a cool fire and light winds.

river banks as well as wet natured soils where fire did not enter often. Thinner barked tree species usually populate moist-soil zones. Species such as maples, gums, ash, poplar, as well as water, shumard, overcup, swamp chestnut, willow, pin, and cherrybark oaks tend to have thinner bark, an affinity for moist soils and are not particularly fire tolerant. Drier soils and uplands that can be burned is usually the first requirement. Bottomland hardwoods also tend to be the more valuable timber species and have a tendency to "epicormic" branch when opened up enough so that sunlight falls on the main bole of the tree. This habit of branching reduces the quality of the timber for grade sawlogs and is in most people's opinion not very attractive.

Often in todays woodland environment, landowners who have neglected upland pine stands and allowed "nature to take it's course" without fire, the pines have died out and hardwoods have regenerated in the newly created openings. Logging practices that go through upland mixed stands and remove pine also create the same condition. It is not uncommon to find old longleaf stands that have not been burned in many years and have had most of the longleaf cut out to be regenerating in upland hardwoods. Many regenerating upland hardwoods tend to be those that are fire tolerant such as hickory, dogwood, chestnut, laurel, post, white, southern red, black, and live oaks. Typically, these stands are candidates for reforestation in pine or creating hardwood savannahs. It is hard to create these hardwood savannahs by planting because most hardwood saplings are intolerant of fire, however if left to grow to larger size classes when thick bark develops, they can be returned to a burn interval.

Once a good candidate site is identified, decisions need to be made as to what trees should remain and what should be removed. In existing upland hardwood stands with some pine (especially longleaf), it is a good practice to leave scattered pine existing on site to provide additional fuel to help carry regular fire. Typically, the best method to establish the open nature required to create the savannah is to identify the "leave" trees and remove remaining trees and saplings. Leave trees can be marked with marking paint. Removing unwanted material can be done with a logger if the trees to be removed are of merchantable size and volume or woodland grinders can be used if unwanted trees are small and/or scattered. Selection for trees to be left should be ranked by

- species that tolerate fire
- species that produce acorns and other fruits/nuts
- higher quality trees with straight boles
- a residual density that will allow AT LEAST 50% sunlight on the ground at mid-day

Because of the lack of historical fire on most sites, once the tree density is

While high value hardwood stands can be "opened up" enough to grow an understory, care must be taken not to "overthin" and encourage epicormic branching. Burning in this stand has been every 2-3 years but under carefully controlled conditions.

reduced, resprouting can be a problem for controlling what species regenerate under the canopy. Ideally the same oak species that occupy the canopy will regenerate at a low rate but species like sweet gum often become a problem, resprouting in the understory and shading out the weeds and grasses we are attempting to encourage. To address this, a one-time herbicide application can be used to kill out unwanted sprouts. Herbicides that do not have residual soil activity and/or do not affect the larger leave trees on site need to be used so as to not damage the canopy trees.

Once these areas are set up and tree density is adjusted, fire can begin to be applied on a regular basis (every 1-5 years). Hot fires in any hardwood stand should be discouraged. Intense heat built up at the bases of hardwood trees can often induce but rot and damage root systems. Cooler fires applied in a controlled manner are more appropriate. Head fires under cool/moist conditions or backfires are the best techniques. The idea is to simply remove the old grasses, leaves and fuel buildup on the ground without scorching the bases of larger trees. This stimulates regrowth of the weeds and grasses as well as scarifying seeds of desirable understory plants held in the soil bank.

While not for everyone, hardwood savannahs make a very aesthetically pleasing woodland that is productive for a variety of wildlife and allows for excellent year-round wildlife viewing opportunities. If timber production is your chief concern then it is probably not for you but in the well rounded recreational property it can fit into the management scheme of most properties in the southeast that practice prescribed fire. We encourage you to give it a try!

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What to Expect from My Pond When...

By Matt Euten

Matt Euten works as fisheries biologist for Southeastern Pond Management in Birmingham, AL. He earned his Masters degree in fisheries science from Auburn University where he studied the recruitment and growth of largemouth, smallmouth and spotted bass. Contact him at meuten@sepond.com

Could this be possible in your pond?

I would have never thought of writing an article concerning the expectations of pond owners three years ago. I guess I should thank my wife and the library of books I have read describing the expectations of becoming a first time parent! Owning a pond or lake can be like parenting in a sense; you get to watch it grow, feel you have no clue what you are doing, hate to enforce rules and regulations and in the end you truly have enjoyed every aspect of the experience.

As a fisheries biologist, it is so rewarding to hear a pond owner describe catching the first trophy largemouth bass from their lake. For a "fish head" like myself, there is nothing better than to take a pond that has never seen a bass over 5 pounds landed and consistently produce catchable quality and trophy bass. However, the toughest part of this job is convincing pond owners that changing the dynamics of a fish population doesn't happen over night. Almost every conversation during my initial pond

evaluations begins with the question, **"When can I expect to have bigger fish?"** This particular question is warranted given the time and resources that go into managing private ponds or lakes. Is there even a note worthy answer? I think yes and in this article I plan to discuss the results I have seen from managing ponds and lakes over the years.

...it is initially stocked with fish.

Probably one of the most exciting aspects of building a pond, besides catching that "wall hanger", is seeing the fingerling bass swim off for the first time. I can only imagine what the pond owner is thinking because my thoughts are, "Which one of you is going to be the next state record!" What can you really expect after that last little bass swims off? As a fisheries biologist, newly constructed ponds or total lake renovations are two of my favorite types of projects. The reason for this is that if a pond has never been stocked with fish or they have been eradicated with rotenone, then you're working with a clean slate. For most fish species, especially largemouth bass, your best growth rates occur early in the life of the fish. Coupled with the correct ratio of predators to prey species, the largemouth bass will have a smorgasbord of food and can reach their top potential. This leads to a lake teaming with highly aggressive fish ready to eat everything in site!

Newly stocked ponds are exciting for me because I see nothing but potential, given the young healthy bass and robust forage population. However, for a pond owner, the waiting period before successfully catching of quality and trophy sized fish in newly stocked pond can be a little frustrating. We stock all new ponds with fingerling sized fish and this means that for about the first year rarely is there a fish large enough to consume the latest, greatest lure lining the aisles of your favorite outdoor store. After year one the fishing is usually fast and furious simply because these fish are now big enough to consume a never before seen artificial lure and the robust forage population seems to stimulate the natural aggressive behavior of a largemouth bass. In my experience, fishing success in newly stocked ponds reaches its peak by year five and many of my clients begin catching those true trophy bass, those above 7 pounds, sometime between year four and six. Of course, every pond is different and results vary depending on an array of factors such as pond location and size, water and soil quality, the type of management program implemented and so on. In almost every instance though, the one constant I have noticed for newly stocked fishing lakes that are managed correctly is great fishing early in the life of the pond.

Usually the first spring after the largemouth bass are initially stocked our electrofishing evaluations reveal that these bass, which were only 2 inches upon introduction, have grown to at least 10 to 12 inches and averaging around a pound. In many of my new pond stocking projects, during these initial evaluations, I have collected bass measuring up to 15 inches and almost pushing 2 pounds. These ponds are usually covered with intermediate (3-5 inches) sized forage, bluegill and threadfin shad, which are the size critical for growing those quality and trophy-sized bass. A vast majority of the bluegill in a newly stocked pond seldom reach 7-8 inches by these initial evaluations. However, I have recently seen increased growth rates among bluegill in ponds when the pond owner has implemented an intensive supplemental feeding program.

In August of this year I was completely amazed at the results seen from an evaluation of a 13-acre lake in Greene County, AL. I initially stocked this lake with forage fish, bluegill and threadfin shad, in the spring of 2008 and the bass were stocked that summer. The lake was adequately fertilized throughout the growing season and a supplemental bluegill feeding program was implemented. During our initial electrofishing evaluation, every bass collected in our sample was over 2 pounds, with the two largest bass topping the scales at 3.4 pounds each. For me, growth rates like this just solidifies the idea that largemouth bass are eating machines and if you feed them, they will grow!

What does all this mean to a pond owner? If you are planning on constructing a new lake or renovating an existing one by establishing a new fish population, as a pond owner, expect to take about 12 to 18 months off from fishing the pond after the bass are initially stocked. Expect for your mouth to water every time your feeder goes off and the water churns with feeding bluegill and an occasional explosion from a lurking largemouth looking for an easy

Fingerling bass are most often the sized stocked in new ponds.

Supplemental feeding programs help increase faster growth rates among bluegill.

meal. You can also probably expect a phone call from every fishing buddy you know looking to get their hook wet. However, with patience comes rewards and as soon as the fish population is well established and reproducing, you can expect to have some of the most remarkable fishing days of your life.

...you are dealing with an existing fish population.

Not every lake can be drained and restocked and the thought of killing every fish in a pond usually makes a pond owner cringe with disgust. Many times my clients have either just purchased a pond and have no idea of the management history or have just not had the time over years to keep up a management program. Therefore, I am usually working with fish populations that have had minimal to no management since the lake was constructed. It never fails though, during almost every initial evaluation, I get that same question, **"When can I expect to catch bigger fish?"** Again every lake varies, but in my experience, by implementing an intense management program based on the basic pond management principles, a pond owner can usually expect to catch bigger fish within two to three years of the start of the management program.

I am sure you are asking, "What are these basic pond management recommendations and how does it work". It goes back to creating a similar environment to the forage crowded condition created when a new lake is initially stocked. By increasing the pond's fertility, increasing the forage base and limiting the abundance of predators; catching big-

ger fish can be in a pond owner's future.

Most ponds I shock for the first time have the same diagnosis, "bass crowded". A "bass crowded" pond can be defined as an over abundance of small stunted bass and a forage population that can not reproduce fast enough to sustain these predators. In most cases, the owner of a poorly managed lake can expect to have this "bass crowded" condition. Extremely high catch rates of small bass weighing no more than a pound and relatively high catch rates of larger bluegill is usually the product of a bass crowded condition. The forage population under these conditions can not produce enough food for the ever growing bass population and the condition perpetuates itself over years of neglect. Implementing a management program that focuses on reducing the over abundant predator population and increasing the forage fish's productivity increases the ability to grow bigger fish faster.

My first true success story of converting this bass crowded condition to a more balanced fish population was in an 18-acre lake in located in Shelby County, AL. The initial evaluation indicated that the lake had a relatively low fish population, low fertility level and was severely bass crowded. A typical day of fishing consisted of the pond owner catching very few adult bluegill and very skinny stunted bass. We began management with increasing the lakes fertility by adding agricultural limestone and initiating an intensive fertilization program. The pond owner and I implemented an intensive bass harvest program where all the smaller bass caught either by angling or electrofishing were removed from the population. Because of the relatively low forage fish population, supplemental forage in the form of intermediate coppernose bluegill and threadfin shad were stocked in the spring. The pond owner began an intensive supplemental feeding program for the bluegill after the forage stocking was completed.

Later that spring after the forage fish were stocked, the pond owner began catching slightly larger fish and was ecstatic about the results. In the initial evaluation of the lake, the largemouth bass population was dominated by 11 inch bass and only 2 percent of my sample contained bass greater than 14 inches in length. During the follow-up evaluation two years later, the largemouth bass conditions had increase dramatically and 13 percent of the bass in the sample measured between 15 to 18 inches. The growth rates have continued to climb in the lake this year and my last "angling" evaluation produced several bass in the 2 to 4 pound range.

I have encountered several ponds since my first true "success story" and when pond owners get serious about management, similar growth rates as stated above are oftentimes the result. Focusing on bass harvest and creating conditions conducive to growing robust forage fish populations almost always produce the trophies pond owners dream about. Whether you are stocking a new pond or working with an established fish population, patience is definitely a virtue, but the results of an intensive management program can be rewarding.

Buckets of small stunted bass are oftentimes the product of a bass crowded pond.

Would you believe this bass reached 3.4 pounds in only 15 months?

Building a Pole Barn

Pole barn at Towerhouse Farm in Meriweather County, Georgia

By Keith Summerour

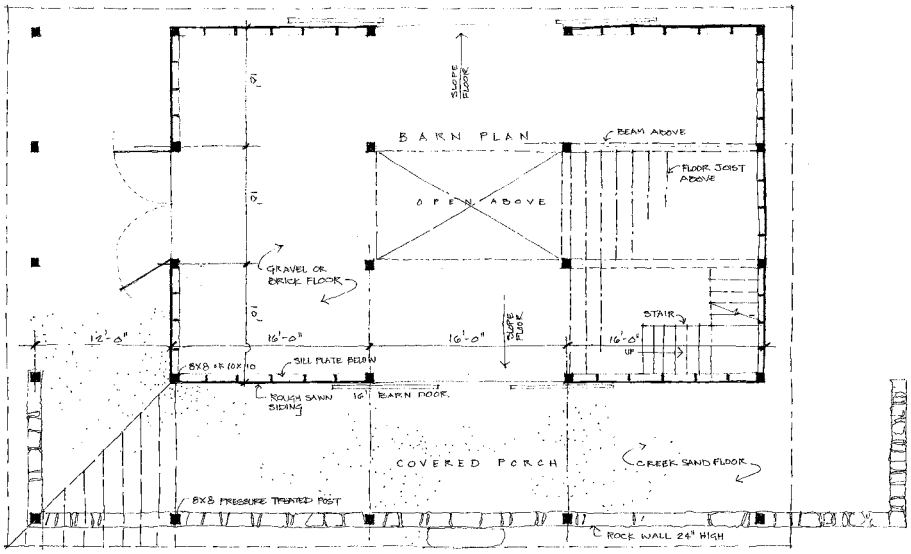
Keith Summerour, a graduate of Auburn University, founded Summerour Architects. Since 1991, the firm has been designing high end residential and commercial projects throughout the country but with a strong presence in the Southeast.

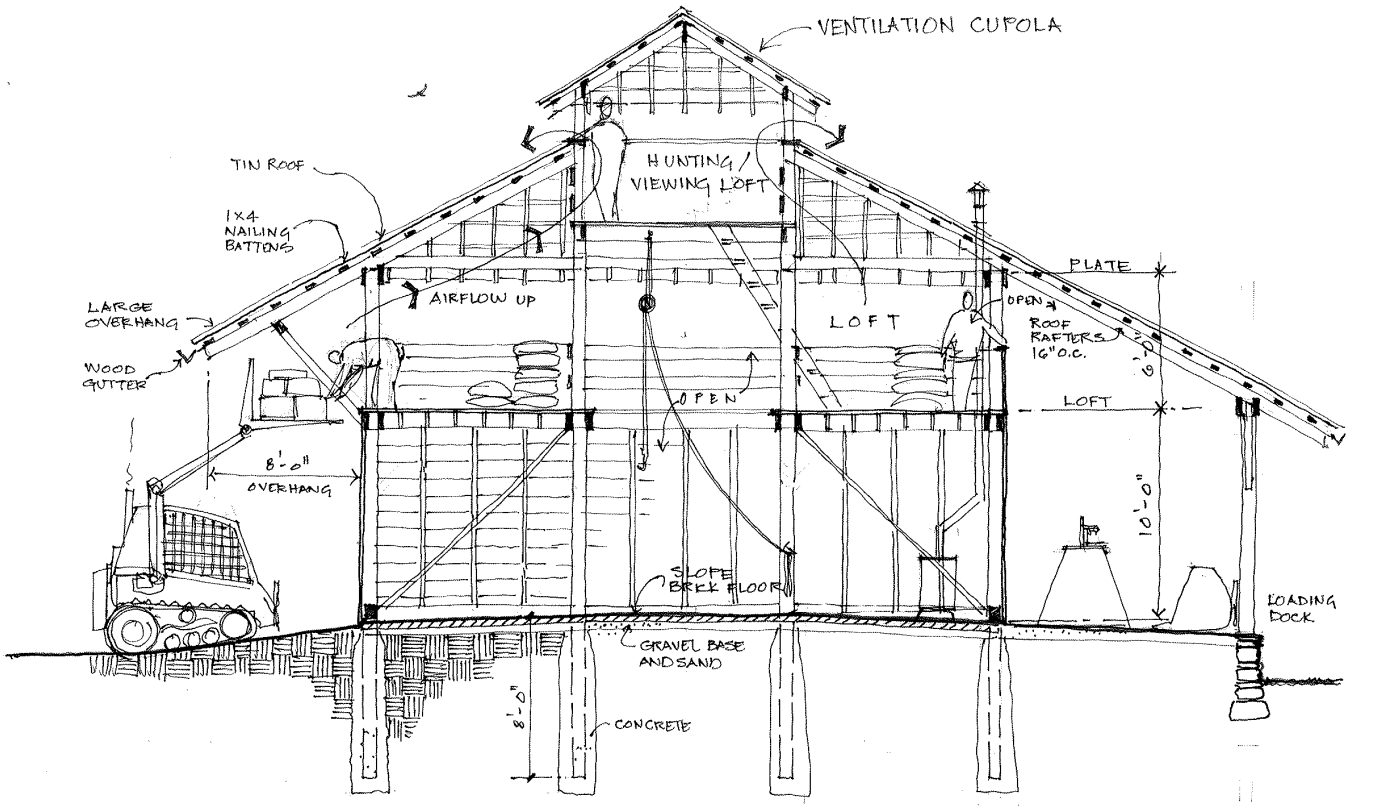
The Pole Barn is the most basic and versatile edifice that can be built on the land. It is the Mr. Potato Head of buildings in that anything and everything can be added to the main structure. For all of its old school charm, it remains a bit underappreciated for its utility and beauty. I, however, am enamored with the statement it makes about the owner and outward purpose for which it is constructed.

The first critical building step is locating the pole barn on the property or "siting" the structure. It should be on a slightly sloping grade, perhaps two or three feet per one hundred feet. This slope will allow for good drainage around the building and a potential loading dock on the downhill side. You will also need a lot of space to maneuver tractors and trailers but consider tucking a corner of the building into a treed area so that you have more shade to work under and so the tall roofline does not dominate the surrounding fields. It will also give the barn a sense of age, as if

the trees were planted in association with the barn yard years ago. (see sketch of pole barn section)

The primary building block of the barn is the pole and it is the most important and most difficult of the components to construct. Because it is a structural column, I would use recycled telephone poles that are either pressure treated or treated with creosote to resist termites and rot. Each pole can be round or squared off; however, I prefer resized square poles for ease of handling during construction. Space poles ten to twelve feet apart in one direction and sixteen feet in the other. This will leave ample room for maneuvering inside the structure (see floor plan). The vertical pole should be buried in the ground approximately one third of the overall length of the pole. It must be dead level and plumb (which is hard to do) and should have compacted gravel or concrete poured around it after it is set into the hole and braced to the ground. Beams, joists and rafters





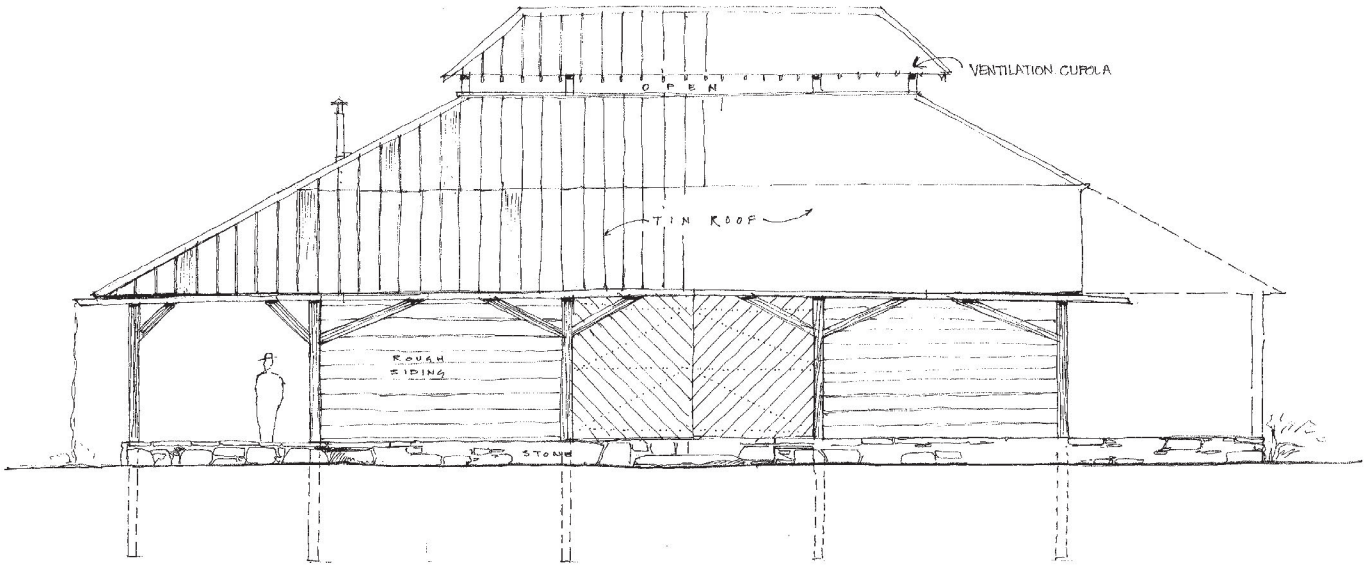
POLE BARN SECTION

are also recommended to be cut from pressure treated recycled telephone poles. This material resists borer bees but rough sawn, mill grade lumber will work well too. I have found these materials to be the least costly option to date.

Floor plan for a pole barn

The roof material should be both practical and aesthetic. In the Southern United States, a 5V crimp, tin roof is the most traditional and inexpensive roof cover, however many pre-painted metal roofs are also available. Soft gray colors tend to last the longest and are less noticeable from a distance. They also tend to fade less due to sun exposure. If you wish to create instant age for your tin roof, prior to roof installation you can mop on a 2% solution of muriatic acid then wash and neutralize the acid with baking soda. This will etch the tin roof and lead to premature oxidization (or rusting). Also provide large overhangs for additional shelter and built in architectural character. I would suggest five feet on all sides.

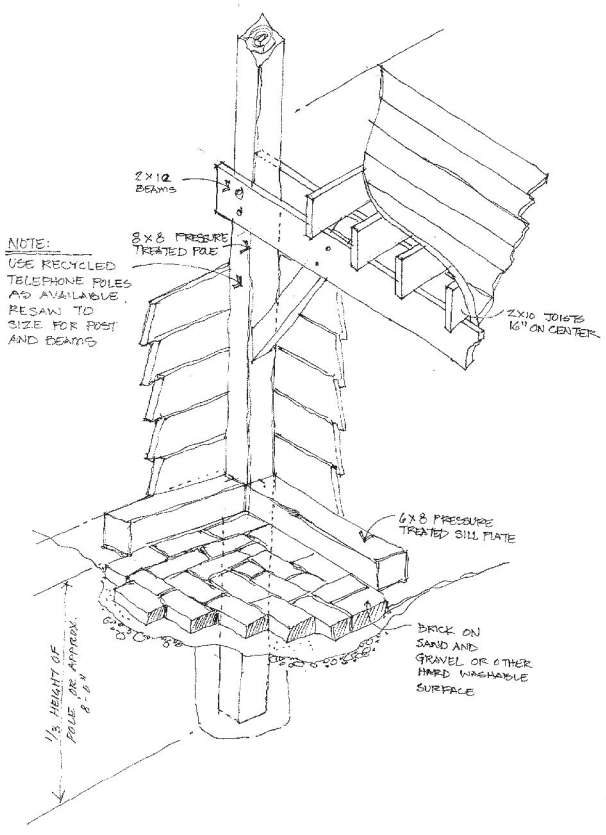
There are endless features that can be incorporated into the pole barn once the main building is complete. The most important practical feature of the barn should be good ventilation. As illustrated, (see diagram on next page) a secondary, raised section will provide great updraft in the hot summer months. A viewing platform



can also be constructed to hunt from or to string a hammock. The barn floor should be a drainable, hard surface such as brick pavers which can be laid in a sand bed or mortared to a gravel base. This will provide for future flexibility if you decide to remove sections of floor. A concrete slab is less variable but also gives good utility.

Other important points to take into account are water and power. Try to combine your utilities in one area so that you minimize time repairing and running power to other locations. As well, consider orienting the barn north-south: solar panels could be added to the southern exposure of the roof to run the well pump and other "off the grid" necessities.

The pole barn is one of the most practical and enjoyable aspects of the farm life. It is a work place, a social place, a place to create childhood memories with hay bales, store equipment and keep material dry. It is the hub of farm activity and as such demands quality thought in planning and quality assembling for a lifetime of use.



Are Non-Native Invasive Species Devaluing Your Property?

European Starling
Credit: Wikipedia-http://www.naturespicsonline.com/, 2006

By Anna Huckabee Smith

Anna Huckabee Smith is a TWS certified Associate Wildlife Biologist with Innovative Wildlife Management Services, LLC out of Mt. Pleasant, SC (IWMS_Smith@comcast.net). She has worked for both South Carolina and North Carolina state governments, first as the SC Department of Natural Resources' Forest Stewardship Biologist and the Comprehensive Plan Coordinator. She then moved on to become the NC Wildlife Resources Commission's first Urban Wildlife Biologist. Smith has a BS degree in Biological Sciences, a Minor in Anthropology, and a Masters in Zoology, all from Clemson University. She is also a 2006 Fellow of the Natural Resources Leadership Institute (North Carolina State University, Raleigh).

If you own or lease property for hunting or other outdoor recreation, considering the impacts from non-native invasive species is crucial for maintaining the integrity of that property for wildlife habitat and personal enjoyment. Species that are not part of the natural ecosystem in an area are considered non-native. If there are no natural controlling factors to limit their spread, these same species can become invasive and out-compete native flora or fauna. Non-natives can include aquatic and terrestrial plants, animals, insects, diseases, fungi, fish, and bivalves. Usually, the worst offenders are from overseas and include hundreds of plants as well as some animal species that were deliberately or accidentally imported to the United States and were released or escaped. Most people have at least heard the horror stories about some type of invasive species such as the Burmese pythons eating endangered species in the Florida Everglades and threatening people. Others don't make the news as often

but still take their toll on the environment and cost landowners and the government millions to control. If non-native invasives are not controlled on a property, that tract will not reach its full potential and wildlife will suffer as a result. Hunting and viewing opportunities invariably will decline as well.

The most species on the government's non-native invasive "hit list" are plants. Typically, exotic trees, shrubs, grasses, and forbs replace the native vegetation that wildlife use for nesting, food, and shelter, leaving wildlife more vulnerable to predation or nutritional stress. Some non-native invasive plant fruits and forage are either lower in nutrients than their native counterparts or are outright poisonous. Therefore, in the case of non-native invasive plants, there are several that landowners especially need to consider as they can affect wildlife habitat on their property. One of the best known is kudzu. Although this vine is known as relatively good deer forage and fawn bedding cover, it overruns native vegetation, smothering and killing it. When it interferes with plant diversity, all wildlife suffers. Other vines of concern are English ivy, Chinese wisteria, and Japanese wisteria. As ivy climbs over vegetation, it strains the host so that vigor is decreased while the possibility of windthrow is increased. Ivy also harbors the bacteria that causes leaf scorch in oaks, maples, and elms. These mast-producing species are critical to mammalian and avian species, and without them, stand diversity and habitat quality decrease. The exotic wisterias (not to be confused with our milder-mannered native wisteria) are stranglers that can kill the host tree they engulf, again reducing natural cover and food for wildlife species.

Several trees and shrubs of concern include Chinese tallow (popcorn tree), tree-of-heaven (Chinese sumac), privet, autumn and Russian olive, and sericea lespedeza, and bicolor lespedeza. Tallow trees are prolific re-seeders in bottomlands and coastal areas that can quickly invade previously undisturbed forests and shift the regeneration of native trees to this less preferred exotic with little wildlife value. Tallows even take it a step further by altering the soil composition with their leaf litter which is high in tannins. The tree-of-heaven is a thicket forming species that can quickly transform an opening to a monoculture of worthless saplings while the various exotic privets invade the understory and shade out regenerating native species.

Unfortunately several species that were once recommended for wildlife plantings have been found to be invasive. "Quick fixes" for enhancing wildlife habitat can create more problems than benefits. For example, autumn and Russian olives produce fruits that were recommended as quail and black bear food but have demonstrated a propensity to form suckers that can quickly spread and take over natural areas. Also, recent research shows that sawtooth oaks are able to escape cultivation and may pose a threat to native oak communities. Instead, choose to plant or enhance native thicket-forming species like wild plum and native soft and hard mast species like persimmon and white oak. Many of these species can be transplanted from one part of the property to another or ordered from commercial vendors.

Two other non-native plants often touted in the past as great for wildlife are sericea lespedeza and bicolor lespedeza. Although still widely utilized as quail cover and a food source, both species often encroach into other natural areas and form dense monoculture stands that prevent forest regeneration. Bicolor can be further spread by prescribed fires, making it a nuisance in pine plantations especially areas utilized for pine straw harvesting or native grass/forb cover for wildlife. Sericea seeds can remain viable even after lying dormant in the soil for decades, making eradication difficult due to the constant germination of new stands. The lesson learned here is don't take a chance with exotic species; stick to the natives and err on the side of caution!

Grasses such as cogongrass can form dense mats with which native vegetation cannot compete for space. Congongrass is probably the most feared of the grasses as it is so prolific and is so final in its takeover of native habitat. A relative of this *Imperata* species even lurks in our gardens—Japanese blood grass—which is available commercially for landscaping. Buyer beware for those wanting to protect the integrity of the surrounding landscape from homesite escapees! Cogongrass can invade pine plantations

Wild pigs
Credit: Wikipedia-NASA, 2005

Hydrilla
Credit: Wikipedia-Scott Ehardt, 2006 Credit: Wikipedia-Stephen Ausmus, USDA, 2006

Kudzu
Credit: Wikipedia-Scott Ehardt, 2006 Credit: Wikipedia-Stephen Ausmus, USDA, 2006

causing timber production to decrease up to 20%. It spreads by rhizomes and seeds, the latter of which have been known to travel several miles on the wind. Rhizomes of less than ¼ inch in length have been known to re-sprout. Not only does cogongrass survive fire, it thrives when burned. Where it occurs, it is considered a fire hazard as it burns hotter and can increase the risk of crown fires when it occurs in woodlands. Cogongrass leaves contain a lot of silica and are therefore not a forage wildlife can utilize. In addition, dense stands impede quail chick and turkey poult movement.

Another mat-forming grass is tall fescue. Commonly known for being too thick to allow quail chicks to travel through or ground-nesting birds to nest in, it also harbors an endophytic fungus known to decrease the reproductive potential of any rabbit that feeds on it. For the rabbit hunter, this can be a serious concern. Bahiagrass and Bermuda grass are two other non-native invasive grasses that provide little for wildlife as compared with their native warm-season counterparts such as the bluestems.

Whether it is a forest or an opening that is altered, the wildlife species that depend on these specific habitats for their life cycles suffer as native vegetation, with which they co-evolved, declines as noxious plants take over. Fortunately, there are herbicides that can control or eradicate these plants when applied correctly to leaves, stems, or stumps. Proper rates, conditions, and times also are important for the success of the treatment. Remember to always read and follow label instructions. If you find any of these above mentioned non-native invasive plants on your property, take immediate steps to control them before they spread further.

Non-native invasive plants are not limited to the terrestrial variety. Several aquatic species are making their mark—a scar—on the landscape. Most notable are the fast-growing hydrilla and water hyacinth. Both can form dense mats that clog waterways and inhibit the growth of native water plants by shading them out. When native plant species are diminished, so are the fish and aquatic insects that feed on them or find shelter in their roots. Water temperatures and pH levels can rise while oxygen levels decrease, further making the water body

inhospitable to native aquatic life forms. For the landowner who has worked hard to establish a quality bass pond, the arrival of such noxious weeds can spell disaster for the fish populations and trying to navigate a boat through the mess. As if to add insult to injury, mat-forming exotics can effectively shelter mosquito larva that, once in adult form, can become an unbearable nuisance for the fisherman. Aquatic herbicides are the best option for removing hydrilla and water hyacinth.

There are even non-native, disease-causing fungi that can infect native tree species and reduce vigor or kill the tree. Some have treatments available while others are still being researched. It is important to be aware of spreading threats such as these so that you, the landowner, can be vigilant and encourage researchers to develop control methods. When trees that are essential for wildlife are lost, the loss of mast can be devastating on the animal species that depend on them and for the long-term survival of the tree communities themselves. One of the *Sirococcus* fungi causes a disease called butternut canker that girdles the tree, eventually killing it. It is estimated that 80% of the butternut trees in some states have died due to the disease. Butternut (white walnut) produces a nut that is eaten by squirrels, rodents, and deer during the early Fall. Without this important source of mast, the variety and availability of food options declines for wildlife in canker-infested areas.

The threats to important wildlife trees don't end there, though, as Dutch elm disease, chestnut blight, and sudden oak death continue to decimate forests. Additionally, one of the *Ophiostoma* species of fungi is responsible for the death of redbay and sassafras trees across the South. The vector for the fungi is an exotic Asian insect known as the redbay ambrosia beetle. Redbay trees are an important wildlife food in that deer browse the leaves and the fruit is consumed by turkey, quail, and deer.

Cogongrass under pines
Credit: Bill Lamp, Georgia Forestry Commission, 2007
http://www.gfc.state.ga.us/ForestManagement/Cogongrass.cfm

Sassafras is also browsed by deer and the fruit is consumed by squirrels, raccoons, black bear, turkey, quail, and several songbirds. The USDA is working on ways to combat these and other diseases in our forests and woodlands.

Obviously, insects can be vectors of a disease as in the case of the redbay ambrosia beetle, or they can be the problem themselves. Red imported fire ants are responsible for the destruction of the eggs and nestlings of many ground and shrub-nesting birds including species of conservation concern such as the Bobwhite quail and endangered species such as the golden-cheeked warbler and black-capped vireo. Even cavity nesters are not safe. Woodpeckers, Eastern bluebirds, purple martins, and great-crested flycatchers have succumbed to fire ant attacks. Fire ants also attack wild and domestic mammals and the nests of reptiles. They can be a headache for landowners who have to dodge mounds in fields on their properties in or to avoid painful stings. Several products are on the market to help control this species but in the meantime, the red imported fire ant continues to expand its range northward.

Gypsy moths are also expanding their range south and west. The current estimate is that by 2005, they could reach Georgia. The larvae of these moths preferentially feed on the foliage of oaks, birch, poplar, sweet gum, and hawthorn (to name a few) but are know to attack hundreds of other tree species as well. Entire sections of forest can be defoliated by an infestation which can stress the trees over time and eventually kill them. The loss of large sections of mass-producing hardwoods as well as the shelter they provide can greatly impact wildlife species. Several pesticide options are available but be aware that they can also kill non-target, beneficial species like bees if not used appropriately. Along the advancing front of the range, the USDA is using pheromone traps to locate and then eradicate or suppress colonies.

Moving from the plants and fungi to the animal kingdom, one of the biggest problem species in the Southern states and California is wild pigs. Many of these pigs are descended from domesticated stock that escaped or were turned

loose to forage for themselves (especially in the Southern swamps and bottomlands). Unfortunately, many nearsighted individuals and even a few state game agencies released Russian boar into areas to enhance hunting opportunities. These bred with the local population creating hybrids in some places. The wild pig is a formidable animal to hunt, but their detrimental impact on the natural environment has since become crystal clear, albeit too late. Being omnivores, feral pigs will eat acorns and other plant material (wild and cultivated) that deer, ducks, bear, and turkey rely on to survive. Wild pigs also eat the eggs of ground nesting birds such as turkeys and quail, small reptiles and amphibians, and fungi that box turtles and squirrels utilize for food. They have even been known to dig up and devour endangered sea turtle eggs along beaches! Rooting by feral pigs can destroy sensitive habitats while they consume rare plants and animals in the process. Pig wallows foul water sources important to aquatic life and used as drinking holes by other wildlife species. Many landowners know the frustration of planting a food plot (e.g. chufas) only to have it torn up by feral pigs. Because of the damage they can do to habitats and the way they compete with native wildlife for food, landowners should eradicate this pest species from their property. Trapping and hunting have proven to be successful, especially if the neighboring landowners are involved as well. Check your local game laws in case there is a season on wild pigs. In some instances, depredation permits may be issued.

Even the avian world has its share of exotics that wreak havoc on our local habitats and species. Resident Canada geese fowl waterbodies and openings with their feces and compete with native species for foods. European starlings take over nest sites typically used by bluebirds and purple martins, often forcibly removing or killing the occupants (eggs, nestlings, and even the brooding females). House sparrows also compete with native cavity nesters for sites. Like most exotics, they also compete with native birds for food resources such as become naturalized in the Southeast include the coyote from the Midwest, nine-banded armadillo from Mexico, and several common wildflowers from various regions. Sometimes these species are incorporated into the ecosystems they enter while other times they disrupt them. Also, native species can become overly abundant and limit diversity. Two prime examples are the plant genus *Baccharis* and the green sunfish. *Baccharis* species are shrubs that are nesting substrates for songbirds and can be utilized for erosion control. However, they can multiply quickly and form dense stands in undesirable locations. Green sunfish are an undesirable bream species that often show up in stocked ponds. They often prey on other species' young and can outcompete desirable species for food and spawning grounds. Then there are the wildlife-friendly but "misplaced" species such as in the example of a food plot overrun with maypops (passion flower).

THE ALBANY QUAIL PROJECT TALL TIMBERS MISCELLANEOUS PUBLICATION NO. 18

The Game Bird Program at Tall Timbers Research Station is proud to announce a new book by Clay Sisson and Dr. Lee Stribling. The Albany Quail Project became part of Tall Timbers in January of 2008 with the book being a compilation of all the printed material produced by this project during their tenure with Auburn University from 1992-2007. Included in the 446 page book are all 23 issues of their newsletter, two dozen popular articles from outlets such as Quail Unlimited and ***Wildlife Trends***, 20 scientific papers from various outlets, and the abstracts from their graduate students Theses and Dissertations. To obtain a copy visit ***talltimbers.org*** and look under Information Resources for Tall Timbers Miscellaneous Publication #18.

Learning how to read the layout of your property is essential to best utilize natives where they already naturally occur in abundance as well as where they are most wanted and needed.

Ways that the landowner can avoid bringing non-native invasives onto his/her property include familiarizing themselves with what the USDA considers the most noxious weed species in your area. Each state's list of non-native invasive plant species and the laws governing them are available online at http://aquat1.ifas.ufl.edu/node/634. In addition, many Native Plant Society websites have more extensive lists of plant species to avoid. Use native species of plants to enhance wildlife habitat. These species are already acclimated to the growing conditions of the regions in which they occur and often require less maintenance (fertilization and water). Plus, the wildlife are already used to them as a food or shelter source. In addition, clean all boats, equipment, boots, etc. before moving from an infected site to your property. Never import/relocate for release non-native wildlife. In many states, it is illegal. As for aquatic species, never empty bait fish into a body of water unless that is where they derived. Get involved with local and national initiatives to ban the import and transport of non-native invasive species. Remember, a responsible property owner takes care of the environment and takes pride in his/her land.

References

Center for Invasive Species and Ecosystem Health. 2009. University of Georgia. http://www.invasive.org.

Davidson, W. R. and V. F. Nettles. 1997. Field Manual of Wildlife Diseases in the Southeastern United States, 2nd ed. Southeastern Cooperative Wildlife Disease Study. University of Georgia. Athens, GA. 417 pp.

Miller, J. H. 2004. Nonnative Invasive Plants of Southeastern Forests. USDA Gen. Tech Report SRS-62. 93 pp.

Outdoor Alabama. 2008. Green Sunfish. Online at http://www.outdooralabama.com/Fishing/freshwater/fish/bream/green/.

United States Forest Service, Northeast Research Station. 2003. Gypsy Moth in North America. http://www.fs.fed.us/ne/morgantown/4557/gmoth/spread/.

United States Department of Agriculture, Natural Resource Conservation Service Plants Database. 2009. Online at http://plants.usda.gov.

Whitaker, J. O., Jr. and W. J. Hamilton, Jr. 1998. Mammals of the Eastern United States, 3rd ed. Cornell University Press. Ithaca, NY. 583 pp.

Wynne, F. Removal of undesirable fishes from warmwater ponds. Kentucky State University Cooperative Extension Program. http://ces3.ca.uky.edu/westkentuckyaquaculture/. (Link to article is on this page.)

Buck Limits vs. Antler Restrictions

By Stephen Ditchkoff

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The 6-point in this image would be protected under an antler size restriction where there must be 4 points on a side. However, it is the same age as the 8-point on the left. This is an example of one flaw with antler restrictions

In the last few decades, we have witnessed some dramatic changes in the philosophies employed for managing white-tailed deer. The era of not harvesting does has been replaced by an emphasis on doe harvest. Not too long in the past, most hunters would have harvested the first antlered deer that presented itself. But today, many hunters critically evaluate a buck prior to making a decision regarding its acceptability for harvest. The driving force behind these changes has been the push towards quality deer management (QDM), originally proposed by Al Brothers (former wildlife biologist in the state of Texas), and more recently popularized and championed by the Quality Deer Management Association.

Since the idea of QDM was originally cast, two strategies to achieve improved deer population quality have received considerable attention and risen to the forefront. The first is antler restrictions, where only bucks that meet a minimum antler size can be

legally harvested. The second is buck limits, where the number of bucks harvested by any individual hunter is limited. The goal of both of these management strategies is to reduce buck harvest and/or to increase the number of bucks that are able to survive to older age classes. Ultimately, it is hoped that by allowing more bucks to reach maturity, the proportion of large-antlered bucks available for harvest will increase.

In most cases, the QDM philosophy is well-embraced. Most hunters, hunting clubs, and state wildlife agencies have a desire to develop deer populations that provide the opportunity to harvest mature bucks. (It should be noted that the philosophy of QDM, as proposed by the Quality Deer Management Association, is to produce quality deer, quality habitat, and quality hunting. Large-antlered deer are just one aspect of this management philosophy and are a by-product of effective management). However, the opinion regarding the best strategy to reach this goal differs. As a result, one of the biggest debates among deer hunters, managers, and biologists is the relative effectiveness of buck limits and antler restrictions.

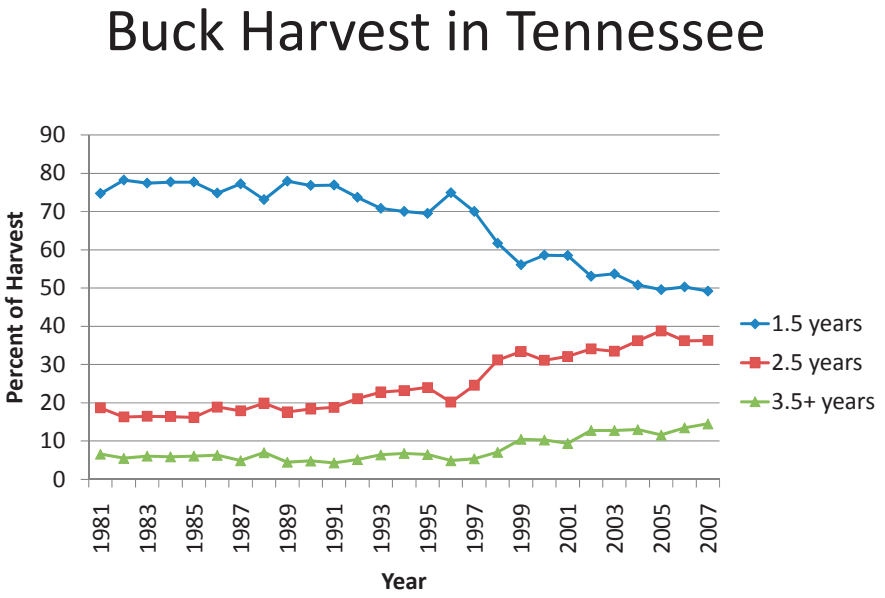
So…which management strategy is most effective at achieving its goals? There are proponents for each strategy, and both sides of the argument can point to data that suggest that their strategy of choice is the road to success. This article will discuss both of these management strategies, highlight their respective successes, discuss their limitations, and explore options for deer managers.

Buck Limits

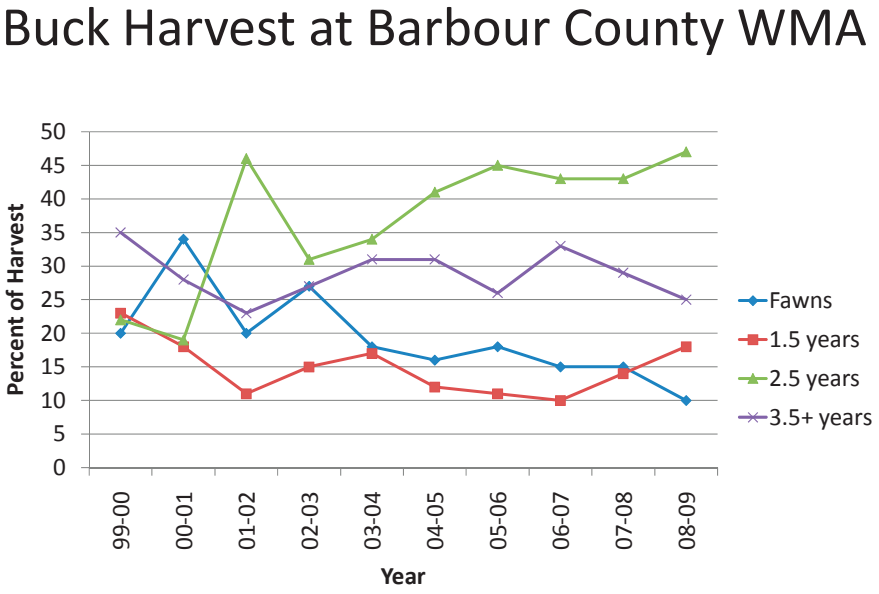
The intent of buck limits is to reduce the number of bucks harvested. Whether this is a state-mandated restriction, such as has recently been enacted in the state of Alabama (In 2007, Alabama's buck limit was reduced from one per day to 3 per season – one of which must have 4 points on one side), or a rule enforced on an individual parcel of land, the goal is to reduce the number of bucks harvested. The belief is that by reducing the number of bucks that can be legally harvested by each hunter, more bucks will survive each year and have the opportunity to express their genetic potential.

Without question, this management strategy has merit. Each buck that is not harvested will express greater antler development than it did the year before. By reducing the number of bucks that can be legally harvested, it is assumed that hunters will be more selective, and less young bucks will be harvested each year. Bucks that avoid the harvest then have the opportunity to age another year and exhibit greater antler development. It's universally accepted that antler size of an individual buck will be greater each successive year (assuming that there are not extreme climatic factors at play, or the individual deer is not past senescence: 7.5 – 9.5 years of age). By this logic, more large-antlered bucks will be present in a population than if a more liberal buck harvest had been in place.

The success of a properly-implement-



Age classes of bucks harvested in Tennessee from 1981-2007, after reduction of the state-wide buck limit from 11 to 3 per season.



Age classes of bucks harvested at Barbour County WMA in Alabama from 1999-2009, after implementation of a 3-point antler size restriction.

Both antler size restrictions and buck limits actually serve to decrease harvest of younger deer such as the buck in this image.

ed state-wide buck limit can be best illustrated by examining deer harvest data from the state of Tennessee. Prior to 1998, deer hunters in the state of Tennessee were legally able to harvest 11 bucks per season. In 1998, this changed when the buck limit was reduced to 2 bucks per year, and later increased to 3 bucks per year (no more than 2 bucks may be harvested during each of archery, muzzleloader, and firearm deer seasons). Prior to implementation of the more restrictive buck limits, approximately 75% of the buck harvest was comprised of 1.5-year-olds. Since that time, harvest of yearlings (1.5 years old) has declined to approximately 50% of the harvest. During this same period, harvest of 2.5 year olds has increased from approximately 20% to just less than 40%, and harvest of deer 3.5 years old or older has increased from approximately 5% to just less than 15%. One of the most telling signs that this program is working, is that there has been a steady improvement in the number of older bucks in the harvest, and a steady decline in the number of yearling bucks in the harvest. All indications are that these trends will continue.

It should be noted that buck limits are not designed to produce trophy deer, but rather to provide a framework that allows some bucks to age another year. The rest is up to individual landowners. The Tennessee data illustrate that the vast majority of the buck harvest (~85%) is still comprised of bucks less than 3.5 years of age. In other words, the quality of the deer herd is ultimately going to be a function of the restraint that hunters are willing to demonstrate. It should also be noted that just because more older bucks aren't being harvested doesn't mean that they aren't out there. Harvest data do not accurately reflect standing deer herd characteristics. It is entirely possible that there is a healthy proportion of mature bucks in the herd, but they are not showing up in the harvest because they are difficult to kill. Either way, the Tennessee data illustrate that buck limits are effective at reducing buck harvest and improving harvest characteristics.

Antler Restrictions

Antler restrictions are designed to restrict the harvest of certain age-classes of bucks. Most deer populations have predictable relationships between antler size and age. By analyzing data on relationships between antler size and age in white-tailed deer, it's possible to set a restriction on a particular antler characteristic that protects a specific segment of a buck population from harvest. By protecting that age class, it is assumed that the majority of that age class of bucks will survive another year and have larger antlers the next year. Furthermore, it is also believed that because deer become wiser with age, they may be less susceptible to harvest the next year and may survive more than one year. This in turn will lead to more mature, large-antlered bucks in a population…in theory.

So how successful are antler restrictions at improving the proportion of large-antlered deer in a population? Antler size restrictions are a relatively new tool compared with buck limits, and because of this most people seem to think that antler restrictions are more effective. In fact, the majority of state wildlife agencies in the Southeast have imposed some form of antler restriction into their deer hunting regulations in addition to the buck limits that were already in place. But are they successful?

In Arkansas they have a 3-point rule, where a buck must have at least 3 antler points on one side to be legal. This antler restriction serves to protect the majority of 1.5 year old bucks. Dr. Bret Collier examined the Arkansas deer harvest data as part of his dissertation research. Collier's data suggests that antler restrictions accomplish what they are designed to accomplish: harvest of 1.5 year old bucks has dropped substantially in Arkansas since inception of the 3-point rule. However, the majority of deer that were spared from harvest as yearlings were harvested the next year when they were 2.5 years of age. Although the data indicated that there was an increase in 3.5 year old and older bucks, the impact of the antler size restriction was not what was expected in these older age classes. In reality, the antler restriction did exactly what it was designed to do…it protected yearling bucks.

Another good example of an antler size restriction can be found at the Barbour County Wildlife Management Area in Alabama. Beginning in the season of 1999-2000, hunters were restricted to harvesting only bucks that had at least 3 points on one side: prior to this rule being implemented there were no antler size restrictions. This rule was exactly the same as that imposed in Arkansas. Similar to Arkansas, the goal

was designed to protect 1.5 year old bucks and some 2.5 year old bucks. As can be seen in the Figure, harvest of 1.5 year old bucks has declined from about 23% at the beginning of the antler restriction period to 10%, before showing a slight rise in the last two years of data. These data illustrate close to a 60% decrease in the harvest of 1.5 year old deer. Similarly, there has been a decrease in the harvest of buck fawns, possibly due to hunters carefully examining deer for antlers before pulling the trigger. As in Arkansas, there has been a dramatic increase in the number of 2.5 year old deer, while harvest of deer 3.5 or older has remained relatively stable throughout the period of antler restriction.

Do the data from Arkansas and Barbour County WMA indicate that antler restrictions don't work? No. The antler restrictions imposed in both states have worked very well. They have accomplished exactly what they were designed to do…protect a certain segment of the population. In this case, that segment was 1.5 year old bucks. The problem with antler restrictions lies in our expectations. Antler restrictions have received lots of publicity in the recent past as they have sprung up across the Southeast and the rest of the country. They have been hailed as the next great management tool, and our expectations of them have become skewed. We have forgotten that most state-imposed antler size restrictions are only designed to protect yearling bucks. In order for these antler restrictions to make further strides in producing large-antlered deer, they will need to be modified to protect a greater segment of the herd. Until then, they will continue to do what they were designed to do.

Conclusions

Both of these management philosophies are sound approaches for improving the age structure of a buck population. They just take different approaches. Buck limits reduce buck harvest across all age classes, and probably have a greater reduction on harvest of young bucks than they are credited for. In contrast, antler restrictions protect one entire cohort (normally the youngest deer) from harvest and allow them to survive. However, contrary to popular opinion, antler restrictions probably do not get more bucks to mature age classes than do buck limits.

Keep in mind that all of the examples described in this article were state-wide regulations or regulations designed for public property. The goal of most state wildlife agencies is not to produce trophy bucks, but rather to produce a healthy herd that has the potential, with the proper management, to produce some high quality deer. It is up to the private landowner to implement their own antler restrictions or buck limits if they want to make the next step. In short, it is up to the landowner to exercise restraint in some fashion: to stop harvesting young bucks; to refrain from harvesting too many bucks; to pass up 3.5 year old deer because they are still not close to their potential.

There is probably little difference between antler restrictions and buck limits. They both reduce buck harvest and allow some bucks to age another year. While preferences for these two management approaches will always differ between groups of hunters and managers, they can both be effective. In the end, a combination of buck limits and antler size restrictions that are designed for a specific piece of property is the best way to maximize the quality of any deer herd.

Also, keep in mind that you won't see changes over night. The Tennessee data illustrate this well. After more than 15 years they continue to see improvement. As more and more hunters begin to believe in the system, they impose even tighter restrictions on themselves and the herd naturally improves. So….if you have a new system in place, give it a chance to work. Or if you have a piece of property where you want to see improvements in herd quality, tighten up your regulations and prepare to wait a few years to see results. In the end, it will be worth it.

Literature Cited

Collier, B. A., and D. G. Krementz. 2007. Uncertainty in age-specific harvest estimates and consequences for white-tailed deer management. Ecological Modelling 201:194-204.

Studies Show New Chinese Tallowtree Treatment Not Harmful to Hardwoods

By BASF

Chinese tallowtree flowers from April to June with drooping spikes of tiny flowers.

Slash, spray, trudge, repeat – used to be the treatment prescription for controlling invasive Chinese tallowtree (Spium sebiferum) without risking collateral damage to the surrounding natural habitat. The time-consuming drudge through a muggy marsh, hacking Chinese tallowtree with an ax to spray herbicide into the targeted trees can now be replaced by broadcast or helicopter application with the same selective effect.

Study results streaming in from across the Southern United States show Clearcast® herbicide, a new technology from BASF Professional Vegetation Management, to be the long-awaited treatment option for rapidly reproducing Chinese tallowtree threatening Southern coastal states. Clearcast is being hailed for its low-use rate and versatile application for controlling the tree without threatening desirable hardwoods such as oak, maple and cypress. Approved for aquatic use from

the U.S. Environmental Protection Agency, the herbicide can be used near water without irrigation restrictions or additional permitting.

Franklin's Folly

While many invasive species have been introduced accidentally, it is rumored that Chinese tallowtree was intentionally introduced to the United States in the 1700s by Benjamin Franklin. The tree was planted not only for its highly priced seed oil and waxy seeds used to make soap and candles, but also for its beauty. Chinese tallowtree continues to be sold and planted for its keen aesthetic appeal and heart-shaped leaves that turn a vibrant shade of red come autumn.

Chinese tallowtree shed seeds resembling pieces of popped corn that easily float in water. The "Popcorn Tree", as it's commonly called, quickly spread throughout Southern coastal states as its buoyant seeds cruise through rivers and wetland areas where it grows so prominently.

The popcorn seeds quickly sprout into trees that root themselves tightly amongst native hardwoods. A mature Chinese tallowtree will stand nearly 60 feet tall, three feet in diameter and can produce over 300,000 seeds.

"If just one tree can produce 300,000 seeds, just think about how many seeds are already in the ground ready to sprout at first chance," said BASF representative Jonathan Smith. "These trees are growing everywhere and are threatening the livelihood of our natural ecosystem."

Stunning Selectivity at LSU

Dr. Dearl Sanders from Louisiana State University (LSU) has been studying Clearcast's effect on a variety of plants since 2006, focusing a portion of his study on the herbicide's impact on baldcypress (Taxodium distichum). After numerous trials, Sanders determined the labeled use rates for Clearcast caused little to no damage to the trees.

Sanders treated areas using a foliar treatment with backpack sprayers, and

Chinese tallowtree (Triadica sebifera), also called popcorn tree, is an aggressive invader spreading throughout Southeastern states.

in doing so, the team could easily track the treated plants and the effectiveness of the herbicide. Though the team discovered certain susceptibilities, they also saw strong resilience in hardwood trees such as oak, cypress and hickory.

"For a herbicide to selectively control Chinese tallow, and only minimally brown the leaves of very few desirable trees, is an exciting and promising outcome for us," Sanders said. He pointed out that some trees are particularly sensitive to herbicidal treatment, and plants such as sumac, willow and sweetgum have shown susceptibility to moderate herbicide injury.

"We tried a 'worst case scenario' with many plants ranging from trees to grasses and came up with hardly any impact," Sanders said. "The yellowing and browning we witnessed, mainly in saplings, peaked about three months after treatment and quickly healed afterwards."

Since Chinese tallowtree often grow in hard-to-reach places, aerial treatments were also tested on two five-acre sites in Texas; one moderately infested, one heavily infested. These application trials were meant to test the reliability of the data received from the handgun tests conducted by Sanders in Louisiana. Dead Chinese tallowtree littered the test sites while desirable hardwoods including oak, cypress and hickory remained unharmed.

Concurrent results at Clemson

At the same time that Sanders was conducting his research, Jack Whetstone, an associate professor at Clemson University in South Carolina, began testing Clearcast near Georgetown, S.C. Whetstone has also tested Clearcast on a variety of invasive and natural trees, shrubs and grasses.

A study by Dearl Sanders at Lousiana State University showed no difference in the mortality of Cypress at any rate of Clearcast herbicide tested. The treatment was made over the top of seedlings one year prior.

Reproducing quickly, non-native Chinese tallowtree crowds out native plants and threatens wildlife habitat.

Whetstone and his team tested Clearcast using a low-volume helicopter application along a hardwood shoreline area trying to reach invasive shoreline plants. Preliminary trials on aquatic shoreline species were done cautiously, knowing the herbicide had very little activity on hardwoods and minimal residual soil activity. The herbicide was applied by Quality Vegetation Management™ (QVM) certified applicator Summit Helicopters.

"We noticed some interspersed dead trees in the area, so we went back for a closer look, and lo and behold Chinese tallowtree were being controlled," Whetstone said. "It appeared that there was very little collateral damage on any of the other larger deciduous trees."

Whetstone continued to analyze almost all other shrubs and trees in the area, finding no damage.

"Clearcast has been one of the more truly amazing herbicide applications for a specific invasive species that I've seen in my 30-year career," Whetstone said.

Research Results Support Refuge Efforts

Hearing about the results in nearby Georgetown, the Cape Romain National Wildlife Refuge was ready to wage war on the invasive trees overtaking the large barrier island, Bulls Island. Ten years ago, the island was home to maritime forest habitat and centuries-old live oak trees. Year after year, and millions of Chinese tallow seeds later, more than 70 percent of the island is now covered with the invasive trees.

When first controlling Chinese tallowtree, the refuge manager Kevin Godsea and staff would hand spray and inject Chinese tallowtrees with herbicide, but with marsh, mud and above-knee

Clearcast® herbicide offers a new solution to selectively target the troublesome Chinese tallowtree while leaving more desirable hardwoods unharmed.

Studies have shown good control of Chinese tallowtree with little to no activity on a mix of hardwood species.

water levels in so many places, many of the trees could not be reached, and treated areas were quickly re-infested.

"There were huge areas where it was literally impossible to bring backpacks in on foot, so an aerial application was necessary to have a fighting chance of restoring the island," Godsea said.

Godsea sought help in his fight from QVM Certified Advisor, Marshfield Forest Service and Summit Helicopters. The team worked together to treat more than 100 acres of highly infested portions of the island by helicopter and broadcast treatments.

A year after treatment, refuge staff were stunned by a skeletal tree line where thick groves of tallow once stood.

While they were taking short, cautious breaths and looking at the dead trees scattering the area, they noticed something exciting. Sable palmettos and pines were peaking through the dead trees and understory vegetation was already filling in areas that hadn't seen sunlight in many years.

"We knew the island was overrun," Godsea said, "but seeing the trees like that hit a whole new level of understanding of what it will take to get a handle on the tallow."

The refuge is seeking additional funding to expand treatment areas and hopes to continue restoring the maritime forest community of loblolly pines, sabal palmettos, live oaks and cedar that once dominated the island.

Prescription: burn after treating

Unlike other herbicide treatments with fall or winter application timing, Clearcast can be applied to Chinese tallowtree as early as June. Early application with Clearcast can cut into the tree's high-production seeding season. After applying, it is recommended to burn away understory litter and actually encourage the prolific seed bank to sprout.

"With sunlight reaching the forest floor, there's a massive amount of tallow seeds waiting to sprout," said Smith, "Let those seedlings sprout up and then treat the area again in about two or three years. This two-pronged approach will provide control for both the parent plants and that prolific seed-bank."

Chinese tallowtree may be seen with admiration when its heart-shaped leaves turn red in the fall, but it is still an invasive species spreading rapidly. It is important to treat and control the spread to allow the natural ecosystem to thrive and develop, rather than being overshadowed and choked out.

Always read and follow label directions.

Kevin Godsea, Refuge Manager at Cape Romain National Wildlife Refuge.

Jonathan Smith, BASF, and Kevin Godsea, Cape Romain National Wildlife Refuge, discuss selective removal of Chinese tallowtree using Clearcast herbicide.

Management Calendar

By Dave Edwards
Westervelt Wildlife Services

December/January 2009

Strip disk areas to promote natural, desirable weeds for wildlife.

Some of you have seen this task on the calendar several times in the spring and winter issues. It is simply one of those management practices that I firmly believe in. It is one of the cheapest management strategies to implement and it works; often resulting in high quality food and cover for wildlife. Lightly disking the ground will provide enough disturbance to stimulate the natural seed bank which will often result in a diversity of wildlife friendly weeds the following spring and summer. Although this is a common practice used to produce quality quail habitat, many of the resulting forbs will be used by deer and turkeys. Strip disking at different times of the year will result in different plant communities. While disking can be conducted anytime of year, it is normally done in spring or fall. Fall/winter disking normally results in a broadleaf plant response, while spring/summer disking will result in more native grasses. Altering the season in which you strip disk will add diversity to your property. Strip disking can be done in thinned pine plantations, relatively open mature pine stands, along the edges of food plots, or in open fields. Basically anywhere sunlight can reach the ground will work. To optimize the benefit of strip disking, avoid disking straight lines. A serpentine pattern that winds through the habitat will provide the most edge and diversity. Also, to stimulate desirable wildlife friendly weeds, you do not need to disk like you were preparing a clean seedbed for planting a food plot. One pass is generally enough to stir the ground up and expose bare soils that will promote germination of desirable weeds.

If possible, collect fetal data from harvested whitetail does.

If your breeding season or rut occurs before or around Thanksgiving, and your hunting season extends into late December of January, you should be able to find and measure fetuses. The age of the fetuses is determined by their length. A fetus scale is very helpful in determining the age of the fetuses. Once you know the age of the fetus and the date of the harvest, you can determine the day of conception. This information can provide much insight to your deer herd's reproductive performance as well as the length and peak of the rut in your deer herd. This not only helps you determine when to put in for vacation next year, but the length of the

breeding season will shed light on the adult sex ratio of the herd. A tighter sex ratio will result in a shorter more intense rut due to increased competition for mates, while an unbalanced sex ratio will likely be represented by a long, weak rut due to less competition and the length of time it takes bucks to "service" the abundant doe population. This information, along with hunter observation data, is a great and free way to assess the status and success of your deer management program.

Collect hunter observation and deer harvest data.

This information is the "backbone" of your deer program and allows you to monitor/assess its success and make sound management decisions/ adjustments if needed to reach your deer management goals. Collecting this information each year is important because it will allow you to assess trends in the harvest and observation data which will help you determine if your program is working and/or dictate adjustments that need to be made. Without this information, you are simply guessing and are less likely to achieve your goals.

Tend to deer stands once hunting season closes.

Once deer season ends, it is a good idea to "summerize" them. That is, to ensure they are in good working order next season there are a few things to do. Ladder and lock on stands should be slightly loosened from the tree to allow the tree to grow during summer and prevent it from absorbing the attached chain or strap of the stand. This not only protects the stand for potential damage, but is good for the tree. Some folks remove all ladder stands from the woods and store them at the camp over the summer. If left out, remove any cushions or seat straps and burlap/camo covers that may be on a stand. This will prolong their life and prevent the weather or critters from ruining them before the next season. Cushions and covers should be removed from tripods or other stands as well. Although they should already be secured, double check the tie downs and anchors of a tripod. There are two kinds of tripods – those that have blown over and those that will. Making sure they are securely anchored will reduce the chances of a tripod getting blown over. Shooting houses should be cleaned out and sealed up as much as possible. Sealing them (meaning closing the door and windows) will reduce damage by squirrels, owls, etc. It will also reduce wasp as well (notice I said reduce). Cleaning shooting houses out in late winter is much nicer than trying to do it in August! Obviously, all climbing tree stands and pop-up blinds should be removed from the woods and stored over the summer. When "summarizing" ladders and lock on stands, it is VERY important to revisit these stands just before hunting season starts again the next year to reattach the chains/straps and tighten everything. One trick we use to identify stands that are ready is to tie a piece of flagging onto the stand once it has been tightened and checked. Use the same color flagging for each season. For example, this year we are using blue flagging. Next year we will use orange flagging. So if a hunter gets to a stand this season and does not see the blue flagging, he will know that the stand has not been checked and is not secure.

Prepare dormant season prescribed burn plans and initiate burns as weather permits.

Like strip disking, fire is a management strategy that is relatively cheap to implement and the results are very obvious for wildlife. If you have pines on your property, fire is an essential tool to improve wildlife habitat and should be on your annual task list. However, burn plans need to be well thought out and completed well ahead of time. With the exception of longleaf pine/coastal plain areas, most understory burning in the Southeast is conducted during the winter dormant season. Acceptable relative humidity, temperature, fuel moisture, and steady, persistent winds often occur during this period. Cool season burns are generally conducted between December and spring green up. In the deep south, try to conduct burns before March 15 to

Road maintenance is a never ending project for a landowner. Winter is a great time to identify areas that need work.

Road border- notice the difference from the left side of road to the right. Right side was strip disked and has more broadleaf forbs and cover for wildlife.

avoid destroying turkey nests. Cool season or winter burning is not only a good way to reduce fuel loads and control undesirable hardwoods in a pine stand (which reduces the chances of a wildfire that can be detrimental), but is also a great way to stimulate new understory plant growth which will result in quality food sources for wildlife. Fire rotations (interval of time between burning the same area again) vary depending on your goals and habitat types but are generally every 2-5 years to promote quality wildlife habitat. It is also a good idea to strategically plan your burns so that you always leave some areas unburned. How much area to burn will depend on your specific property and habitats. However, do not feel that you have to burn large areas (50-100 acres or more) to make a difference and create quality wildlife habitat. Relatively small burn areas in the 5-10 acre range are easily done in a couple hours and will make a difference. Always check local burning laws and consult with an experienced burn manager before lighting a woodland fire. The U.S. Forest Service or your state forestry commission are great sources for obtaining more information regarding burning in your area.Check with the US Forest Service for information regarding prescribed burning as well as examples of a burn plan. It is also a good idea to coordinate your burns with a professional land manager who has experience burning.

Identify roads on your property that need attention.

Much of the Southeast got their share of spring and summer rains this year. It is hard to complain when we have been in somewhat of a drought for the past three summers, but we are unusually wet headed into fall and winter. We have been handicapped this summer in getting roads repaired due to all the rain. It seemed like as soon as things began to dry up and we scheduled the work, it would rain again. Winter is often very wet in the mid-south which makes this a great time to identify and assess problem areas along roads where work will be needed next summer. Make notes or identify areas on maps that you can refer back to when you start to repair roads next spring or summer. You will be glad you did. Once your property dries out, it can be difficult to remember and/or find the areas that were bad during the hunting season. Although many landowners/hunters access properties during hunting season on 4-wheelers, electric carts, or other gas powered ATV's that will certainly get through wet and slippery roads, roads are an important part of managing a property. If you are actively managing your property, you will need to be able to drive or transport large equipment such as spreader trucks,

tractors, and agriculture buggies throughout the property. Thus, having good roads is essential.

If you intend to plant trees this year, now is the time to start planning, ordering supplies, and planting.

Besides actually planting the trees, site preparation is important to reduce competing weeds to enhance tree seedling survival during the first growing season. There are a number of fruit trees you can plant that will benefit wildlife on your property. A few I have had good success with include sawtooth oaks, Chinese chestnuts, pears, apples, persimmon, crabapples, and plums. Fruit tree plantings not only provide additional food resources for wildlife on your property but can provide exceptional enhancements to the aesthetics. Areas commonly planted in fruit trees include road intersections, roadside management areas, and in or along the edge of fields or food plots. The key is to plant them in areas that will receive sunlight. Some trees require cross-pollination to produce fruit so, if needed, be sure to plant them in small groups. I recommend contacting your tree supplier/nursery, such as the folks at **The Wildlife Group**, well ahead of planting time. They can help you develop a planting plan based on your goals and ensure the trees are ready when you are.

Knowing how wind reacts on your property will increase your hunting success.

If your property is rolling or hilly, or near a large body of water, create a wind map of your property to help you have more successful deer hunts.

A deer's nose is its best defense. I have been fortunate to have worked with hunters that harvest trophy bucks every year. These are the guys you see in magazines standing under a barn wall full of mounted bucks. The common strategy that they all have is that they hunt the wind. That is, they only hunt areas when the wind is right. Although I often wear ScentLok and spray myself with odor neutralizers before heading to a stand, I am a firm believer that if a deer gets downwind, it is over (at lease in most cases). On properties that have hills or draws wind will behave differently across the property. As wind hits ridges or treelines it is diverted and results in the wind changing directions at given points on the property. To create a wind map, simply record the true wind (wind direction without interference – wind the weatherman reports), then visit various spots on the property where deer stands are located and record the actual wind at these spots. You may be surprised that a true north wind can generate a south wind in some locations on a property. Something else to consider is large bodies of water such as a lake or river. In the morning, cool air in the woods is often drawn out to the warmer water area creating different wind currents than the true wind reported. The opposite can occur in the evening. These situations often occur under light wind conditions. Many hunters collect and record wind information over time, like while they are hunting, then compile what they have collected to create a wind map. Once generated, a wind map is a valuable tool that will help you have more successful hunts.

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