



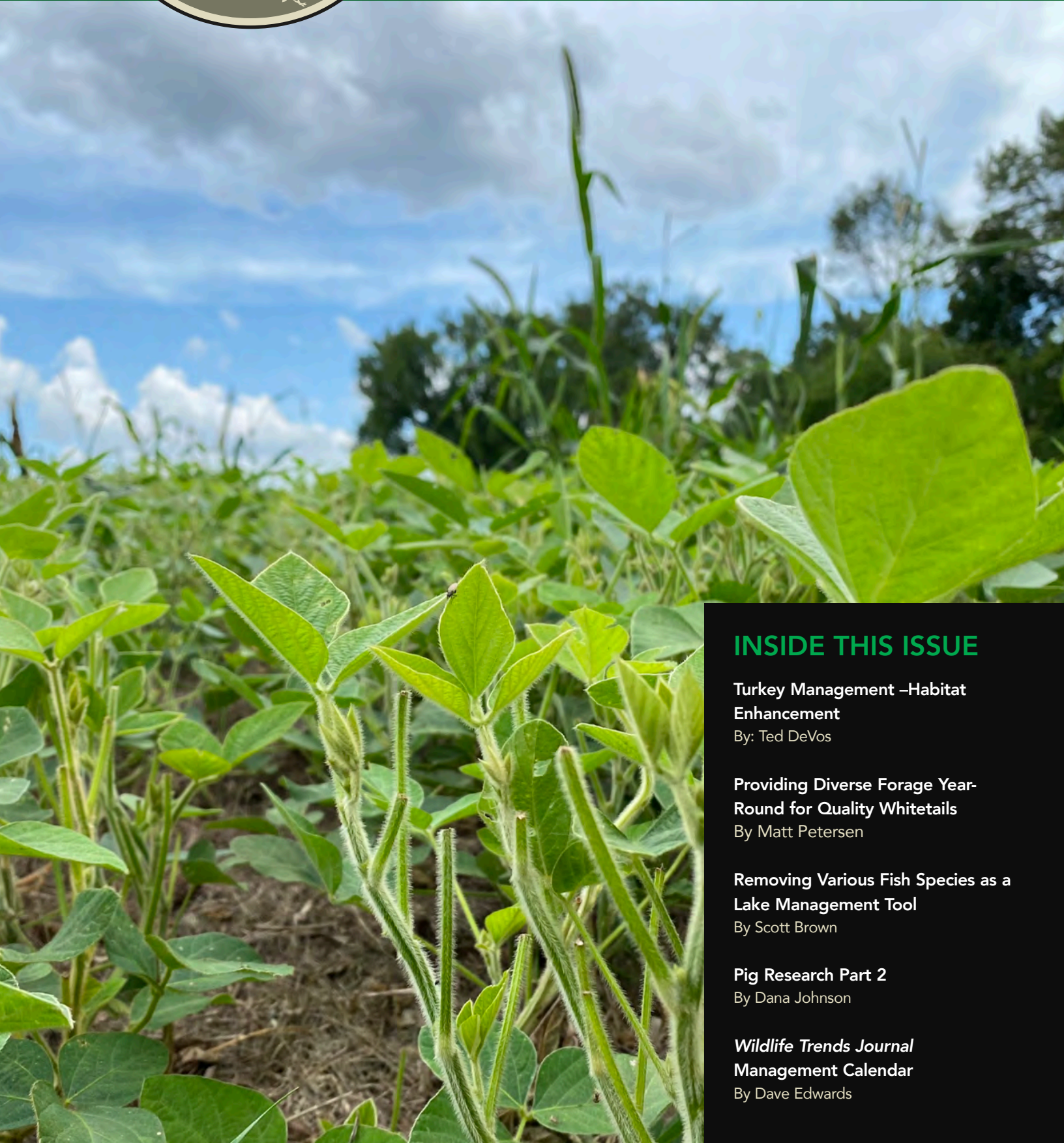
PRACTICAL WILDLIFE MANAGEMENT INFORMATION

# Wildlife Trends

## JOURNAL

JULY/AUGUST 2022

VOLUME 22, ISSUE 4



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## Earl Says...

**H**ere it is the beginning of August and I've got turkeys on my mind. Can't help it and proud of it. And in this issue Ted DeVos has written a great article on Turkey Management that helps us manage for turkeys year-round.

There are many studies in progress by universities and private groups as we speak today funded by groups such as the National Wild Turkey Federation, TFT and state Wildlife Agencies to help us know more about the decline of wild turkey populations. We've written about the many possibilities for this including lack of predator trapping, habitat changes, fire ants, etc. But I was floored the other day when I heard about some early finding.

In one study coming out soon on a large property, 26 hens made nests and laid eggs. Not only were all 26 nests destroyed, but all 26 hens were killed. How can we have any kind of turkey population at all when these kinds of things happen? We'll be sure to report on the results of this and other studies when the final results are produced.

The bottom line is we all have to do a better job to manage for wild turkeys through predator control and habitat management through a cooperative effort between landowners and state agencies.



## Wildlife Trends JOURNAL

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Wildlife Trends Journal is published to provide landowners, land managers and wildlife enthusiasts the latest research-based information in wildlife and game management. Article authors are carefully selected for specific expertise in their respective fields. Subscribers receive six bi-monthly issues and a handsome library binder to save their past issues.

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# TURKEY MANAGEMENT

## Habitat Enhancement

By Ted DeVos



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*Hens with poults seek out areas with lush herbaceous vegetation and plenty of insects for poults. Burned pineywoods are ideal for this habitat type.*

**F**or most of us avid turkey hunters, a crisp spring morning in April with multitudes of songbirds and frogs providing background noise and the woods ringing with mature gobblers is hard to beat and what drives us out of bed at ungodly early hours! The general consensus among both hunters and biologists is that the turkey population in the Southeast is trending down in the last few years, in some places for a decade or so. There are plenty of examples of well managed and well-placed properties that have as many turkeys as ever, but many places are suffering lower numbers. So, what is causing this decline and is it an issue that needs addressing?

It is well understood that turkey populations fluctuate due to various factors, mostly weather, predators

and habitat quality. The simple equation is that we HAVE to recruit as many or more turkeys into the fall population than are lost to hunters, weather and predators. Most states collect reproductive data in the early summer in the form of poult counts and record the number of poults and hens to derive a “poult per hen” ratio that gives an estimate of reproduction. In the Southeast, this number has been going down for years and, in places that are declining, we are no longer replacing losses.

Bear in mind that gobblers are only a small part of the population, albeit, the most important to turkey hunters. When hens are declining, it is not because of hunting (at least in states that don't allow hen harvest). So, something besides hunter harvest is going on where

these declines are occurring. Although still to be proven, hunter harvest early in the spring before most hens are incubating may have an effect on reproduction and various research projects are studying this.

We can't control the weather and have to live with what we get. Predation is a touchy subject that has been discussed in other issues of *Wildlife Trends*. Nests are lost to various critters from raccoons to crows, poults are lost to critters from foxes to Cooper's hawks and hens are lost to critters from bobcats to owls. I will note that predator control can be effective at lessening nest and poult loss.

That leaves us with habitat management as our most effective tool to maintain or increase turkey

populations. While most turkey hunters (and often managers) feel that the favorite habitat type of turkeys is hardwoods, woodland management is often much more complex. The most important concept for turkey management is that for abundant populations, a mix of three primary habitat types is necessary. While turkeys can exist in solid, young, pine plantations; expansive hardwood bottoms; large agricultural environments; and open, burned, quail plantation pineywoods, none of these habitat types generally yield optimum populations in and of themselves. An approximately even mix of open fields and pastures, pine stands, and hardwood bottomland is the best way to sustain quality turkey populations.

Turkeys will not only utilize, but thrive in many different habitat types (such as residential areas) that were previously thought uninhabitable. Take intensive pine plantations for instance. While not exactly what someone might recommend as a turkey management technique, some pine plantations are utilized quite extensively by turkeys and their broods. However, without hardwood bottoms for roosting and winter habitat, and available quality nesting habitat, extensive pine plantations are often void of turkeys. When the ground is bare after clearcutting, turkeys utilize the clearcut as they would any opening. From first growth after planting through the thick/brushy stage, hens use the area for nesting. Once the stand begins to shade out turkeys use it very little (very little food or cover is available in the shade) but will travel through it and use it for cover. Once a stand is thinned, and especially if it is burned, turkeys again use it for finding food, nesting and brood rearing. Where hardwoods are



*Turkeys and hardwoods are linked closely together. Turkeys use hardwood bottoms extensively during winter for food and roosting.*

limited, as in the above scenario, they are extremely important to the turkey population and turkeys will travel long distances if necessary to find them during certain times of the year.

A brief life history is in order to illustrate how turkeys utilize these three habitats throughout the seasons. Usually the large winter flocks, often numbering from 15-50 or more, seek out large acreages of bottomland hardwoods interspersed with grassy openings. These open bottoms are often full of easy to access winter carbohydrate type foods – acorns. Turkeys can fatten up on acorns of various species and scratching the leaf litter in these open bottoms is easy. This is the time of year when these hardwood bottoms are at their most productive. The large winter flocks also like to roost in the bottomland hardwoods in large groups.

As the winter progresses into spring, several things begin to occur at once. Gobblers and hens begin to feel the seasonal changes and begin to prepare for breeding season. The large flocks begin to break up, acorns begin to become scarce, and the woods begin to

green up. Hardwood bottoms, when they have their leaves on, are a low productivity habitat. With little sunlight available to grow plants on the ground, no food is available until fall when the oaks begin to drop acorns. As spring progresses, hens begin to feel the urge to search out nesting cover and begin to use upland habitats more (hence the common malady of lots of turkeys in the winter but can't find any spring gobblers). Burned, grassy, open, upland pine stands are a choice habitat type at this time. The birds will roost in pine trees in both the uplands and bottoms and often feed all day in openings or pineywoods without being near large bottoms. Hens with poults in the summer use fields and open woods and by fall when regrouping begins to occur and the acorns start falling, they begin to prepare to winter in the nearest large hardwoods.

Generally, if a property is broken up with shady hardwoods in the creek bottoms, 10-30 % of the property in pastures and oldfields, and the uplands are well managed, turkeys do well with 30-60 % of the habitat in bottomland hard-



*Natural mixed pine/hardwood stands are almost a rarity these days but turkeys use them extensively when they are available and deserve to be protected for turkey management.*



*Maintaining hardwoods scattered throughout open, burned pineywoods is an excellent technique to improve usability as well as aesthetic value of pine stands and add diversity to a property.*

woods. Much more hardwood and the property develops too little understory vegetation (nesting, brood rearing, and spring/summer feeding habitat) and cannot support a large turkey flock. Much less and there is too little winter habitat and spring roosting areas. If your property is composed of less than 20 % hardwood creekbottoms, turkeys may also leave in the winter for neighboring properties where the hardwoods compose more of the habitat or you may find yourself without turkeys at all.

Turkeys use pine stands throughout the year depending upon pine density, species, age, style of management, and season of the year. As noted before, low density, grassy, burned pine stands are highly important for turkey nesting. This type of “quail woods” pine management entails having a maximum of 100 trees per acre if the trees are 6-8” in diameter and as low as 15-30 trees per acre in a mature sawtimber scenario. Burning every few years keeps the woodlands open and grassy while leaving scattered thicket cover. Turkeys actively seek out these “roughs” in grassy pineywoods to hide their nests. Newly sprouted grasses provide food, burning exposes seeds and nuts, and the

clean nature of fresh burns allow turkeys to feed without worrying about being ambushed by predators. Turkeys will often fully move into these woodlands in the spring, roosting in pines and feeding in burned woods. Later in the early summer, low growing grasses provide abundant insects and excellent cover for hens raising broods. Longleaf pine is especially suited to this type of management, being tolerant of fire throughout their life cycle.

Not all pine stands on the property, however, need to be managed in an open nature. While grassy woodlands are imperative for good nesting habitat, turkeys also utilize more heavily stocked, shady pine or mixed pine/hardwood woodlands with a scattering of weeds and grasses. Transitioning pine stands from more heavily stocked along drain and hardwood edges to more open, and grassy on ridges is an excellent way to provide both stand types. This is especially productive when trying to maximize timber income by allowing these heavier stands to exist on the more productive soils of the mid and lower slopes of ridges and allowing the thinner stands to exist on the drier, less productive ridge tops.

As noted above, when the ground is

freshly clearcut, turkeys utilize the area as a standard opening. Clean ground is easy to feed in and turkeys in the middle of large openings feel secure from ambush. While thick, young plantation pines are not a great turkey habitat type on a large scale, small clearcuts growing up with thick briars and brush as well as young pines provides security cover and limited nesting habitat. Unfortunately, most clearcuts become too thick for turkeys to enter beyond the immediate edges after a few years of growth and people often clearcut too large of a block.

Turkeys typically do best when timber stand management units are kept to less than 100 acres and it is best in the 30–50-acre range. This allows better usage of the blocks throughout their life. Although turkeys have home ranges in the thousands of acres, smaller block size increases diversity of the property and keeps from having poor habitat (i.e., 5-year-old planted pine) composing large portions of their home range. This applies to burns as well. Although turkeys love a burn, large burns over hundreds of acres are poorly used by turkeys. Research has shown that turkeys only use the edges of large burns and often stay less than

200 yards from burn edges so the middle of large burn areas are not used much.

Natural mixed pine/hardwood is another type of timber stand that does not have much attention paid to it and its value. Most foresters don't like mixed stands nor natural stands and they are, typically, the first stands on a property to be converted to planted pine. They are usually upland and these sites grow pine well. They don't return much income and are hard to manage. A few decades ago, there was a lot of mixed stands that had been clearcut and simply allowed to regenerate in whatever came back. Stands cut in the early 1900's and grown for 80 years or so were magnificent. This process takes decades and the timber is usually slow growing.

From a wildlife perspective, however, these stands have a lot of different species both in trees as

well as mid-story saplings and shrubs. Pines are scattered among the hardwoods and often are composed of multiple species. Various types of oaks, hickory, black cherry, beech, elm, maple, poplar, pecan, gum, and persimmon are found. Mid story hardwoods are often hornbeam, chinkapin, dogwood, paw paw, mulberry, sassafras, red bud, locust, mayhaw, holly. Shrubs like blueberries, buckeye, beautyberry, chokecherry, wax myrtle, sumac and azaleas flourish in these woods. The beauty of these stands is in the species diversity and food being produced in multiple seasons. Make no mistake, turkeys LOVE these natural

stands. Sadly, most all natural stands have been clearcut and converted and it is one of the types of timber that we seldom see anymore.

Hardwoods are another issue. While hardwood acres across the Southeast are reported to be stable, the size and quality is probably not. Large scale loss of mature hardwood areas are probably contributing to declines in turkeys in certain



*Turkeys use open fields extensively for foraging and display. Larger openings should be part of any turkey management plan.*

areas. Clearcut hardwood takes decades to become mast producing and roost trees and get back to being useful to turkeys. In the interim, they become great places for predators to live. If turkey management is part of a landowner's objective, hardwood stands scattered throughout the property should be protected and any harvesting should be evaluated with a critical eye for its impact on turkeys. In mature hardwoods, the best way to regenerate oaks is to clearcut since oaks love sunlight and don't regenerate well with any shade. If you have the need to regenerate a stand of hardwood, small clearcuts is the best way to go to provide quality habitat and reduce any negative impact on turkeys.

The bottom line here is that in the Southeast, turkeys are inextricably linked to hardwoods. Again, large blocks (hundreds of acres) of hardwood are not the best turkey habitat and tend to be devoid of turkeys in spring and summer. However, tracts without hardwood rarely have great turkey populations. The best way an avid turkey manager can maintain hardwoods correctly on their property is to retain the natural drainages and hardwood flats in predominantly hardwood stands and manage the uplands in pine. A few upland hardwood ridges allow a nice mixture of hardwood species to retain a place within a property (some species of oaks are totally bottomland and some upland). In addition, retaining a scattering of upland, fire tolerant oaks and other hardwoods in a burned pine stand also add to the diversity of turkey woods.

Managing openings is the final "habitat" issue. Both plantings and "fallow" management is the optimum. Turkeys utilize openings in all seasons for a variety of reasons.

Winter flocks will forage through harvested crop fields like corn, beans, etc. as well as greenfields planted to winter grains (wheat, oats, rye, etc.) and clovers. Turkeys tend to feel comfortable in low growth fields where they can get 100 yards or more from a woodline edge and avoid being ambushed by predators and hunters. Gobblers can readily be seen strutting and gobblers travel well in openings with low vegetation, both important characteristics for a gobbler who wants to advertise his presence to hens. Pastures with rolling terrain are especially well used (even better if the pasture has cows on it to keep it mowed and deposit patties which turkeys will "flip" looking for insects and undigested corn). This is an animal that relies heavily on their eyesight to prevent them from being eaten. Scattered pine and hardwoods (a couple per acre) throughout large pastures makes the field more attractive to turkey use. Hens with broods not only use pastures but also weedy fields where there is a low weed canopy that protects the chicks but the hen can still see over. Weedy fields and pastures usually have an abundance of insects that are necessary for growing chicks.

In general, turkey openings should be no less than an acre and 3-5 acres is a good average. Openings are important and should compose anywhere from 5-30% of a property and be well distributed throughout the property. Pastures and agricultural fields are well used in larger formats (up to 30 acres), again provided that they are narrow. Agricultural fields that are planted to a single, harvested crop can be significantly improved by allowing an unplanted 30-50-foot edge to exist along the perimeter of the field as well as leaving a few rows of standing crop unharvested along this border. Fields larger than

2-3 acres can be multiple cropped with two or more types of plantings existing in a single field. Fields smaller than this should have only one type of planting, provided that they can withstand existing deer browse pressure.

Fall disking a portion of your openings usually promotes an annual complex of ragweed, partridge pea, pussley and the like the following summer and is the primary way to manage "fallow" fields. This habitat type is highly insect productive and is good cover for chicks and hens. Portions of fields left fallow for a few years often result in broomstraw, Indian grass, blackberry, and other perennial natives and shrubs that provide good nesting habitat. One third to 1/2 of the openings scattered throughout the property left in this condition will provide for good reproductive habitat.

Annually planted fields in the remainder of the openings can be anything from winter greenfields to clovers or summer legumes if deer browse will allow them to be planted. Clovers are particularly well used by turkeys all spring and summer. They provide good green forage for turkeys as well as bugs for poult. Most plantings for wildlife have value for turkeys. Chufa, corn, beans, sorghum, millet, etc., all have value. What is planted in a field won't necessarily make or break your turkey population. The fact that the fields are planted with something useful is the requirement.

Bottom line is that a top-notch turkey property all seem to have these components and a diverse structure. Hardwood drains and/or large bottoms, open and burned upland pine stands, Multiple aged and species pine stands from young longleaf to loblolly, scattered fallow openings, planted openings all in sized and spaced patches that allow

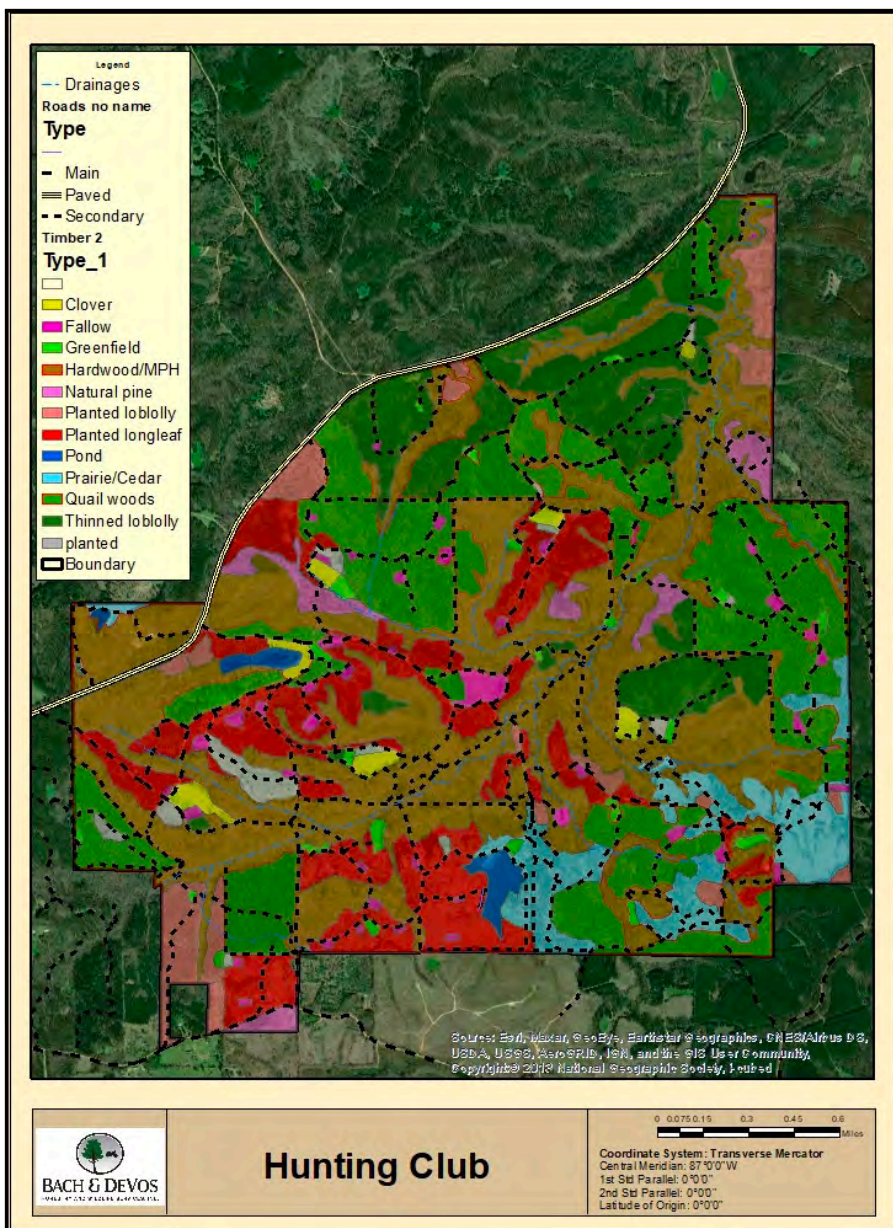


turkeys to use all of the available habitat.

The property on this map is a good illustration.

Understandably not everyone has the means to have a 3,000-acre tract with the habitat structure in place to create something like this. However, it is a good illustration of an incredibly diverse property with exceptional turkey numbers.

The bottom line is that habitat management, structure and diversity is the key to maintaining good turkey numbers. Like quail, turkeys may no longer be simply a byproduct of standard land management practices. While many are still blessed with good numbers without any concerted effort to maintain them, many are finding that to keep good turkey populations, they need to focus more on habitat management, burning and timber structure as well as things like predator control.



| Type             | Total acres | Number | average size | % of property |
|------------------|-------------|--------|--------------|---------------|
| Hardwood         | 992         | 9      | 110          | 34.2          |
| Quail woods      | 645         | 20     | 32           | 22.2          |
| Planted longleaf | 418         | 15     | 28           | 14.4          |
| Thinned loblolly | 320         | 16     | 20           | 11.0          |
| Prairie          | 170         | 6      | 28           | 5.9           |
| Planted loblolly | 123         | 16     | 8            | 4.2           |
| Natural pine     | 57          | 5      | 11           | 2.0           |
| Clover           | 34          | 7      | 5            | 1.2           |
| Fallow           | 49          | 44     | 1            | 1.7           |
| Greenfield       | 32          | 24     | 1            | 1.1           |
| Planted fields   | 35          | 12     | 3            | 1.2           |
| Ponds            | 26          | 3      | 9            | 0.9           |
| <b>2,901</b>     |             |        |              |               |

# Providing Diverse Forage Year-Round for Quality Whitetails

By Matt Petersen



Matt Petersen is Wildlife Manager and owner of Petersen's Wildlife Management. Contact him at [petersenwildlife@yahoo.com](mailto:petersenwildlife@yahoo.com).

*Whitetail nutrition includes spring blend of cowpeas, lablab, sunn hemp, buckwheat, and sunflowers*

The main question I get asked on a weekly, if not daily, basis is “what should I plant for deer?”. For a deer manager, the response is often “well, it depends” and is followed by a series of questions to help determine land use practices on the specific property, as well as neighboring lands, deer density, seasonal shifts in populations, timber and native and invasive plant management practices, harvest goals, and time and equipment limitations to name some of the most basic factors. Taking this brief description and included variables of the specific property, a manager can then give some pointed advice on different forages that can be planted to meet the goals provided by the client, as well as to overcome any limiting factors provided by the property, local wildlife, equipment, etc. With all this said, I've developed a new answer over the years that

attempts to invoke a certain response by information seekers to open the door to a new way of thinking when it comes to feeding wildlife. In short, my response is “Everything.” When I provide this answer to the greenest land manager or new hunter all the way to the well experienced versions, I often get a puzzled look, with the reply, “everything?”. I often give a smile and say “yep, everything!”. The goal of this interaction with hunters and deer managers is to plant a seed of thought that wildlife, deer in particular, thrive in highly diverse plant communities, and we, as stewards of land and wildlife, should strive to produce these diverse plant communities. I also take this response a step further and say, “don't think of feeding wildlife in terms of what can I plant but in terms of what can I provide?”. By shifting your focus from planting to

providing, you can not only use the practice of planting food plots, but create high-quality and highly desirable food sources through prescribed fire, removal of invasive plant species, managing timber on large and small scales, the planting of wildlife preferred trees and shrubs, and even controlling deer and other wildlife populations to ensure that the remaining animals are provided with more resources. By shifting your thoughts from just planting to providing, it opens up new possibilities and methods that allow a land manager to expand his scope and use all of his land to feed deer, and other wildlife species.

## Whitetail Nutrition

Studies conducted by Mississippi State University have shown that deer need to consume up to 6%-8% of their body weight a day

in green foliage to maintain a healthy body weight condition. According to that math, a 150 lb. deer can eat from 9-12 lbs. of forage a day. That is a lot of food, and although the amount, type, and quality of forage consumed will vary according to the time of year, this quantity of food can be a major challenge for a manager to provide. Also, forage quality is key when feeding whitetails. When deer have to consume low-quality forages, when high-quality forage isn't available, it takes longer for the low-quality forage to be digested, thus limiting the total amount of food that a deer can take in. This alone can limit how many nutrients a deer can intake and will severely impact the overall health of the animal. Also, protein requirements are often discussed when talking about whitetail nutrition. Deer have varying levels of protein requirements depending on their age, growth stage, time of year, reproductive cycle, etc. To put it in short, if you can provide deer with a diet that includes 20% protein year-round, and especially in the growing season, deer will thrive. The obvious goal for any individual that wishes to maximize the quality of wildlife, especially deer on their property, would be to provide year-round nutrition to meet these daily requirements in forage. Taking a holistic approach of what plants can we provide versus what forages we can plant will help hit this mark.

### **Forage Selectivity/Nutritional Wisdom**

In whitetails, it can be seen that they have strong preferences in certain plants, in regard to selecting one plant to forage on and completely disregarding another. Deer are concentrate selectors that choose to forage on the most nutrient rich and palatable parts of plants. This tends to be the growing



*Spring blend of cowpeas, lablab, sunn hemp, buckwheat, and sunflowers.*

parts of plants and deer will browse around, selecting this specific forage. That said, deer have strong preferences for certain plants, both planted and native. In the Mid-South planted crops such as soybeans, Alfalfa, clovers, oats, and corn seem to be the highest selected plantings consumed by deer. Native plants such as asters, prickly lettuce, young ragweed, and strawberry bush are highly selected. The criteria for deer selectivity, as we know it, is based on the nutritional content of the plant (which often depends on its growth stage, time of year, etc.), palatability, and its availability across the landscape. It's obvious that we want to provide our deer with the highest-selected plants possible but often it's hard to know exactly what specific nutrients an individual deer needs at a certain time. That's where providing very diverse plant communities comes into play. By providing lots of diverse plants, we allow the deer to use their nutritional wisdom to select the type of nutrients they need at the time. Nutritional wisdom is simply a deer's ability to choose what types of plants to eat

at any given time that will provide them with a proper balance of nutrients to maximize body condition and everything that goes with that. A deer's first goal is to survive above everything else and it has developed this nutritional wisdom to ensure just that. By targeting diversity as our main goal in providing food for wildlife we allow the animals to put this nutritional wisdom to work and select the exact plant with the proper nutrients according to what their body is craving.

### **Diverse Wildlife Plantings**

Creating a diverse food plot system on your farm can, and often will, involve some trial and error to meet the specific conditions on your property and the wildlife's needs. That said, there are tactics that can be utilized on any property to provide diversity when planting wildlife forages.

In this article, whitetails will be the main focus of our food plot planting and for good reason. More food plots are planted for whitetail deer



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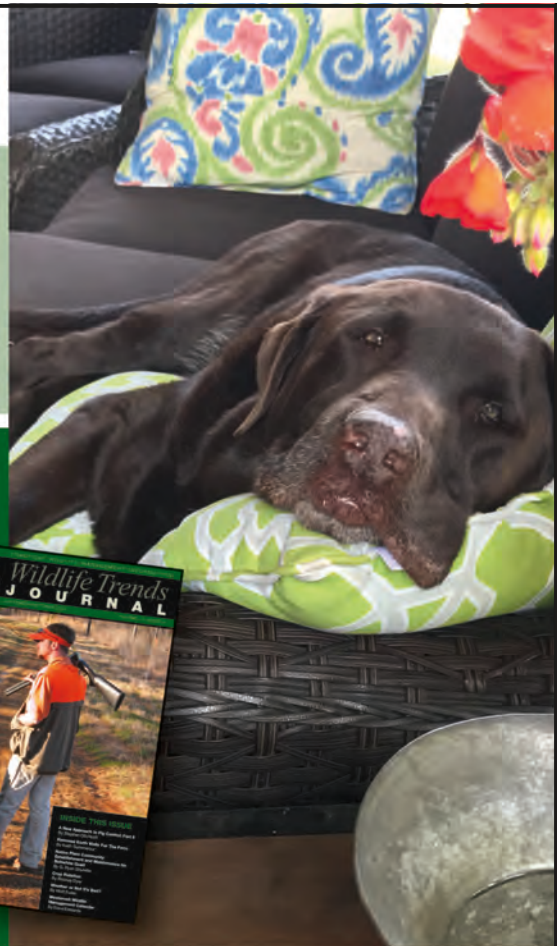
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than all other game species combined. With whitetail being the main focus, providing year-round quality nutrition is the goal. In order to achieve this on the majority of properties, warm and cool season plantings are the norm. My go-to warm season planting is **soybeans** due to the highly nutritious and selected forage and grain they produce. Depending on species, varieties, maturities, fertilization, and growing conditions, soybeans can produce upwards of 7,000 lbs. per acre of high-quality forage and 2,000 lbs. of highly selected grain per acre. As far as production of high-quality forage

grazing by deer early on after planting. Soybeans are very susceptible to early browse pressure during the first couple of months after planting. Combine this browse pressure with low fertility and poor growing conditions, such as drought, and you can have a plot failure in a hurry. Providing enough acreage of soybeans (in most areas 5+ acres) that the local deer can't decimate, or if you have local farms in the area planting soybeans also can be a great help in keeping soybean plots from being overgrazed early and allowing them to provide forage while still meeting their full potential. As stated earlier,

grasses from emerging into plots and becoming a problem. For these reasons soybeans can also be a great choice to clean up past weed problems produced by farmers or managers.

In areas where soybeans can't be grown due to plot size limitations or high deer densities, my go-to is a blend of forage **cowpeas, lablab, sunn hemp, sunflowers**, and a touch of **buckwheat**. All these plants are foraged on by deer and will provide a unique set of nutrients on to the landscape. Although these plants are highly selected, they aren't as highly selected as soybeans and most handle browse pressure better. They do a great job of quickly establishing and providing food and cover. This blend is also all legumes and can be sprayed with grass herbicides to limit grass competition.

Also having plantings of grass crops that will provide energy sources in fall through late winter, such as **corn** or **grain sorghum**, are great ways to increase diversity in your planting program. Like soybeans, corn has lots of post and pre-emergent herbicides listed to help with weed and grass control. Corn is very highly selected for its grain and can be an excellent source of nutrition and attraction for wildlife. Grain sorghum has similar qualities as corn but does have less herbicide flexibility and less grain production than corn. That said, it also has fewer nutrient requirements and is less expensive to plant and manage overall.

My go-to cool season blend in larger fields is a blend of **cereal rye, annual clovers** such as **crimson, berseem**, and **balansa, brassicas** such as **kale, radish**, and **turnips**, along with **forage oats** and **wheat**. This diverse blend of fall planted crops



*No-till planting of fall forage blend into standing soybeans.*

and nearly year-round availability of such, soybeans are hard to beat when it comes to a high-quality planting. Soybeans also match the stress periods of late summer and late winter that deer often encounter by providing great forage in the form of leaves in summer and grain in winter.

The main issues I see when it comes to planting soybeans and getting them to maturity is over

soybeans are very highly selected by deer, and it's no surprise that they can often eat them to death.

Soybeans also allow managers lots of flexibility in weed control. Many varieties are glyphosate tolerant, and newer varieties are even Dicamba tolerant, allowing further post-emergent weed control. Also, there are many pre-emergent herbicides labeled for soybeans that can be applied to prevent weeds and

likes full sun, is highly attractive, produces forage soon after planting in early fall, and will continue to do so through late spring, and also helps with soil health. I often either no-till drill this blend in early fall into spring plots such as the blend of cowpeas and other legumes mentioned earlier or soybeans that did poorly and didn't produce grain. If I want to plant this blend into a good stand of soybeans that produced lots of hard seed or a stand of corn, I simply broadcast it into the spring plantings ahead of a good rain. Using this broadcast method, we tend to use 25%-50% more seed than normal due to less consistent germination by spreading the seed on top of the ground. In the case of standing soybeans and corn, you'll have the best of both standing grain and diverse green forage underneath the standing grain. This is a huge benefit to deer that they can access lots of different forage in one location. As a deer manager, it allows us to get maximum forage production out of one plot versus having just standing grain or fall planted plots alone. It's also great for soil health by keeping living roots in the soil as much as possible and helping to prevent erosion.

In smaller plots that would get browsed to death in either spring or fall planted forages I like to use **perennial clovers**. If the plot is a bottomland heavy soil that holds moisture, a blend of **ladino clovers**, a touch of **red**, and **chicory** do well. In a drier ridgetop or sunnier plot, I'll often use a blend of **durana clover**, **Alfalfa**, red clover, and a heavier dose of chicory. Both of these plantings will produce well in their respective conditions/sites and add another mix of diversity on the landscape. Clover is often the first planting to green-up in early spring and, from the Mid to Deep South,



*Fall blend of balansa, crimson, arrowleaf and red clovers with beardless wheat.*

will provide forage year-round. Chicory is highly selected and often is producing in droughts when the clover is dormant. Alfalfa shines in the hot and dry also and is very highly selected and nutrient dense. Another tactic I use is to no-till drill 40 lbs. or broadcast 50 lbs. of forage oats into my established perennial clover blends. This adds even more forage that will persist through winter and helps to remove excess nitrogen in the plot produced by the clovers that will fuel future weed/grass growth.

Another great fall planting that can be utilized in larger dry and sunny sights is a blend of annual clovers (Balansa, berseem, crimson, arrowleaf, and red), Alfalfa, chicory, and beardless wheat. It's planted in mid fall and the components in this blend will produce high-quality, diverse forage through late summer most years. This blend can be a great alternative to spring blends if the establishment of spring plantings can't be realized.

Other fall plantings of oats, wheat, annual clovers, winter peas, and

brassicas are great as well to increase diversity of species and fill in any holes in planted nutrition. These fall food plots are typically followed by a spring crop or allowed to go fallow to provide cover and natural encroachment of native plants.

Be sure to keep in mind that your food plot plantings should always be changing in order to meet the requirements of your local wildlife, farming practices around you, timber management, and planting conditions. For example, if you have a drought in early summer you may have to re-plant forage crops in late summer or plant different fall crops in fall to be sure you can meet the nutritional requirements of your deer. Not getting into a one-size-fits-all plan and keeping diversity at the fore front is key.

### **Native Plants**

The real stars of the diversity world for wildlife are **native plants**. Deer have been documented to eat over 400 plant species in the



*Strawberry bush*



*Beauty Berry*

Southeast region of the country alone. Going back to the selectivity of whitetails, we know that deer prefer certain plants over others, but we should strive to keep these diverse native plant communities thriving to allow them to use their nutritional wisdom and select the plants that include the nutrients they require to balance their health. The great aspect of producing lots of diverse native plants is that it's often easy and cheap. There is typically no inputs of seed and fertilizer involved and can be as easy as simply doing nothing and allowing nature to take its course. The most



*Chestnut*

widely utilized method of encouraging native plant growth in the Southeast is managing timber. In the Southeast, every opening that is left to its own devices will eventually revert back into closed canopy forest. This closed canopy forest will eventually block the sunlight and limit the disturbance needed to create the early successional plant communities that deer need to forage on to thrive. By conducting a timber harvest, whether it be a clear cut, micro clear cut, thinning, etc. you can open up the forest canopy, allowing sunlight to reach the forest floor. The sunlight, coupled with the ground disturbance provided by forestry equipment or prescribed fire, will allow a myriad of plants to germinate and grow that would have been suppressed in the closed canopy timber. This plant community can be maintained with prescribed fire, physical disturbances (such as disk-ing), or even herbicide application. Point being that the native seed-bank will respond with more diverse plant communities than we could ever plant in a food plot. The key is providing the right conditions to allow it to do so and to maintain

this plant community with disturbance and herbicide. Also, it can be as easy as not doing anything in order to create diversity. For example, we often allow native plants to repopulate the previous year's corn or wheat plantings. Plants such as **ragweed, asters, pokeweed,** and others tend to re-colonize these plots and provide great forage and cover while boosting diversity. Another method includes removing certain plants such as **sericea lespedeza, tall fescue, or Japan grass,** to name a few. By removing these plants and often causing disturbance through fire or disking, the native plant community can respond and often will produce plants beneficial to wildlife.

### **Planting Trees/Bushes**

Another diverse planting I like to offer on farms is fruit and mast producing trees and bushes. Trees such as **apples, crabapples, pears, persimmons, plums,** and **chestnuts,** and bushes such as **Allegheny chinkapin, strawberry bush, Chickasaw plum, beauty berry,** and others, offer another diverse food source for

deer to consume. Often these plantings will provide high levels of certain nutrients/vitamins at different times of the year when they can be scarce on the landscape elsewhere. Again, this thought of providing these unique food sources allows deer to do what they do best and use the nutritional wisdom that they have built up over many generations and have allowed the most fit of the species to survive and thrive. These tree and shrub plantings also add a unique food source to farms that deer will often seek out and travel to when they are available. Also, once established, trees and shrubs tend to not require lots of maintenance over a given year (especially compared to food plots).

### Deer Density

Deer density is also a huge factor that will determine how diverse of a diet a manager can provide to his deer herd. Deer tend to decimate highly selected plants and often can completely remove them from the landscape. In the Mid-South one plant I often look for on a new farm to gauge for deer density is strawberry bush. Strawberry bush is very highly selected by deer and is common in the timber and field edges of the Mid-South. If strawberry bush isn't present, it often means that the local forage quality and overall habitat is very poor, we are dealing with a high deer density, or worse, both. By simply keeping the deer density in check with the specific property's habitat and carrying capacity, you will be providing the remaining deer and other wildlife with more resources. Yearly trail camera surveys, in-field sightings, keeping harvest records, and regular maintaining of trail camera data are great ways to gauge population densities and sex ratios that will allow managers and property owners to make wise deci-

sions on lowering and maintaining deer numbers.

### Conclusion

In conclusion, the main takeaway from this article should be that diversity is key for healthy deer and wildlife in general. Wildlife has a great resource in their ability to use their nutritional wisdom and we, as land managers and stewards of wildlife, should strive to create diverse plant communities to allow them to use this gift year-round. This article barely scratches the

surface of possibilities in how to provide these plant communities, but books such as *Forest Plants of the Southeast and Their Wildlife Uses* by James H. Miller and Karl V. Miller, *A Guide to Wildlife Food Plots and Early Successional Plants* by Craig A. Harper, *Nourishment* by Fred Provenza, *Managing Early Successional Plant Communities for Wildlife in the Eastern US* by Craig A. Harper, and many others can be valuable resources in understanding diversity, nutritional wisdom, and how to apply this knowledge practically for wildlife.

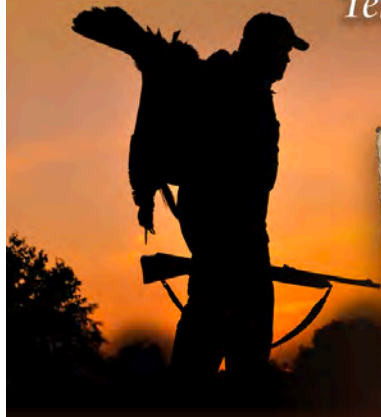


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*A nice mess of bluegill and redear from a pond once overrun with bullheads and very few desirable fish species or quality sizes.*

## Removing Various Fish Species as a Lake Management Tool

By Scott Brown

As a lake manager, growing fish is what we do, but on occasions to improve a fishery, techniques to remove fish may be required. Everyone who owns a lake with largemouth bass has someone preaching to them to remove small bass. In some instances, a new lake owner discovers his pond is full of small crappie, bullheads or common carp. As a lake owner you may discover your cousin or neighbor has been helping you out by bringing you free “catfish” and he has really introduced bullheads that have taken over your pond. Or in the Deep South, someone has stocked tilapia that do not die in the winter, but quickly get too large for bass forage and they become a liability as opposed to an asset. And the most recent is a lake or aquatic plant management company or

lake owner had stocked triploid grass carp a few years ago and now wants some of them out, because they are hurting the lake more than helping it. Lastly, there may be an infestation of invasive or exotic undesirable fish species and a total restart is needed and all the fish need to be removed.

### **Largemouth bass**

Removing large numbers of largemouth bass is easiest done by angling and/or electrofishing. The smaller your waterbody the easier to achieve your annual removal number/pounds of bass. On average the number of largemouth bass to remove is about 20 per acre, but in a more productive lake it could be as high as 30 per acre and in a less productive waterbody it may be

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10-15 per acre. With a couple acre waterbody those numbers are very obtainable over the year. When lakes get 10 acres or more, those numbers can seem unachievable, but they are still reachable with some work. When using angling for collecting your unwanted bass, remember you want to usually remove the smaller individuals, so use tackle appropriate for that size. Throwing a large Zara Spook, walking the dog at sunset, on a glass-like lake looks pretty, but the 14-inch and below bass have a harder time getting that into their mouth where your hooking success is high. Small topwater plugs, beetle spins, small crank baits, small plastic worms, live small night-crawlers, minnows and crickets can be effective at catching large numbers of small bass. Spring and fall are the best times to target small bass followed by summer mornings and evenings because they are generally feeding more actively as opposed to hot summer or cold winter days.

The largemouth bass is a literal zone species and since it prefers the shoreline and structure (vegetation or woody snag) that makes it easier to electrofish large numbers than other open water species. They can be collected in large numbers most of the year in the South and spring, summer and fall farther north. We have removed hundreds of small bass in a day with electrofishing when conditions are right. If it is an already quality lake, you will have to pick through several bigger individuals above the target size, but electrofishing is a very effective tool to collect small largemouth bass.

### **Crappie**

The crappie is another species that can overrun a waterbody becoming overpopulated and stunted, even



*This largemouth bass is going back. He is larger than the target size for removal. The “single line sampling method” may be a little slower at removing fish, but it is still the most enjoyable.*



*On occasions, a fish species in too great of numbers can cause water chemistry issues. This water with a slight algae bloom looks perfect.*

more so than largemouth bass. At times of the year when schooling, small ones can be caught with light tackle either with beetle spins, jigs or minnows. On small waterbodies (under 10 acres) we recommend keeping every crappie that is caught, whether it's large enough to eat or not. Due to their open water preference and quickness, there are not a lot of predators that forage on them regularly, other than cormorants. But when cormorants target them, they are very efficient at catching them.

Electrofishing most of the time is very unproductive at collecting small crappie. In certain waterbodies, during their spawn in late winter, they are susceptible to electrofishing, but usually the more desirable size to keep and not the smaller individuals. In winter, they can be caught in unbated hoop nets or trap nets. Gill nets are fairly efficient at catching large numbers of crappie, but have a lot of bycatch (collateral damage) in small waterbodies, catch a lot of desirable non-target species, and can cause unwanted death to those species if

not run properly. A small trawl has been effective at collecting them, but is usually not a tool lake owners have easy access to.

### **Catfish and Bullheads**

Bullhead and catfish (channel or blue) do become a negative issue in some situations. I have seen thousands of bullheads come out of a quarter acre pond that we killed out with the fish toxicant, Rotenone. They were not allowing other species to grow, prosper and reproduce, and the water chemistry was always poor due to the constant turbid (muddy) water. We have also on rare occasions observed channel or blue catfish reproduce in manmade lakes at a highly successful rate and overpopulate, which is very rare, but can happen. Besides rotenone, which kills all the fish and a total restart is required, angling, trotlines and hoop nets work well for removing catfish and bullhead species. Again, your fishing tackle needs to match the target size. Hooks big enough to hold 20-plus-pound catfish cannot be swallowed by a six-inch bullhead. For bait, traditional catfish dough balls, worms, pieces of hotdogs, cut bait, and balls made of soft fish feed being dispensed all work. Cast netting at a feeder does catch a lot of catfish and bullheads, however, removing a large number of catfish or bullheads from a cast net is a nightmare, and is not recommended. Electrofishing large numbers of catfish or bullheads is rarely effective as they tend to be in deeper water with poor conductivity and not affected by the field.

### **Common Carp and Suckers**

In some areas of the country, common carp and suckers infest a waterbody through flooding or establish in an old, neglected pond

decades prior. If the waterbody is not too deep, electrofishing is an effective tool for removing large numbers of common carp and suckers. If the waterbody is not conductive enough or majority too deep, angling (including trotlines), baited hoop nets, gill nets, and cast nets have all been successful techniques to collect large numbers. Bowfishing can collect carp and suckers, however, it can be a slow process compared to other techniques, and nighttime with lights works better than during daylight. Angling or running trotlines requires a dough ball and treble hook. Again, use tackle size appropriate for target sized fish. Trotlines are less labor intensive only requiring to be run and rebaited at daylight and dark. Throwing a cast net at a well-placed fish feeder after dispensing, where they have become accustomed to come, can also be effective, unless they are excessively large. Baited hoop nets work fairly well on catching



*The hoop net is a great tool for removing certain species of fish in large numbers when used during certain times of the year.*



*Tilapia, in most of the country, get stocked and die-off every winter, which is why they are a great largemouth bass forage. However, in the Deep South they do not die-off and in under two years can become too large for even trophy largemouth bass to consume. Too many adult tilapia can prevent bream and bass spawning success and suppress their populations.*



*It is not uncommon for lake owners to overstock grass carp, then they try and remove some, which is not an easy task. Research shows angling is one of the most successful ways to remove them, which means the less labor-intensive trotlines will help you reduce grass carp numbers and not require as much time.*



*This four-acre lake was drained and treated with the fish toxicant Rotenone three years ago, but it still is infested with walking catfish and a few tilapia.*



*Gill nets are rarely used in private lake management, but can be a useful tool for removing certain species of fish during certain times of the year. Catfish and black crappie were the target species. These gizzard shad were a bycatch, but were almost already too large for quality bass to consume.*

common carp and suckers. We have observed them being attracted to cat/dog foods, fish feed and cornmeal cake. Again, gill nets catch them, but there is some bycatch and this needs to be considered if this technique is used. If they are large, gill nets may be an option, since the mesh size will need to be large, allowing most fish to swim through without getting entangled.

### **Gizzard Shad**

In the South, large gizzard shad can overpopulate a waterbody. They grow faster in the South and quickly become too large for even trophy largemouth bass to consume. These fish cannot be removed by angling or trotlines and are usually difficult to electrofish unless water is highly conductive and shallow since they prefer open water. These fish are susceptible to low doses of the fish toxicant Rotenone, where other species are

not affected. A trawl is an effective tool for collecting gizzard shad if the lake bottom is clean, free of woody snag, rock and vegetation

### **Exotics**

Exotic fish species are generally in the South, but some can survive

winters in the North. Identifying the species and consulting your professional lake manager or your State Fish & Game agency is advised. Depending on the species, you may be advised to do nothing and live with them, catch and remove as many as possible, but that means annually, or perform a

total restart with Rotenone to eliminate the species and start over restocking with only native, desirable species.

### **Grass Carp**

Every state has different rules regarding stocking triploid grass



*These grass carp were collected while electrofished from a lake with too many. Pre-baiting the shoreline with fish feed two hours prior helped increase the success rate.*

carp. Some states require the landowner to obtain a permit, have a barrier (so fish cannot escape down-stream) and even lake inspected, and then will be told by a state biologist how many fish you are allowed to buy and stock, while other states only require the hatcheries selling the fish to have a permit to sell certified triploid grass carp and let you decide on your own how many to stock. Check with your State Game and Fish/ Department of Natural Resources agency for rules, regulations and how to obtain triploid grass carp if they are needed in your waterbody.

We rarely stock triploid grass carp as a sole way to solve an aquatic vegetation infestation. We perform a herbicide treatment and follow-up with a low rate triploid grass carp stocking as maintenance to keep the problem vegetation managed and from coming back as bad as the original scenario. We have witnessed where other management companies recommended stocking large numbers of triploid grass carp to solve a vegetation problems without prior herbicide treatment. Over the course of a year the problem plants vanish, but in less than two years, the bottom is continually stirred up, with zero fish habitat present in the form of vegetation, and in some instances a strong planktonic algae bloom occurred because there was no vegetation to absorb excess nutrients. When this occurs, landowners, Home Owner Associations and golf courses contact us to reduce their numbers.

Retrieving triploid grass carp has proven to be difficult. Many state agencies and universities have researched the most efficient ways to remove them from a waterbody. Gill nets, hoop nets, electrofishing, hook & line, bow & arrow, and guns at a feeder have been tried to

remove them when too many were present. All methods will catch a few, but no method has been deemed a great success.

With a multi-technique approach, we have had more success than most at removing triploid grass carp from smaller lakes (25 acres and smaller) where overstocking had occurred. The amount of success and which technique works best depends on the physical layout of the waterbody and if any vegetation is present.

The one fact most people do not understand is that triploid grass carp are smart when they are pursued. They quickly change their habits and location in a waterbody when they feel pressured from electrofishing or identify traps in the water such as hoop and gill nets. Electrofishing with good conductivity will only be effective to about 10 feet deep in water. Once these fish know they are being pursued they will move into deeper water and not be reachable with electrofishing. Traditional thought is cooler weather with some submerged vegetation is a good scenario for successful electrofishing, but in many situations, there is no vegetation. The first trip around the lake with an electrofishing boat will render a few triploid grass carp. Normally we use a dip net while electrofishing, but carp sometimes do not shock well and fight through the field and escape, so we use large fish gigs on an 8-10 ft pole, which makes it a little easier to harvest them. Once it appears that the traditional shoreline electrofishing is not working, trying the open water (if not too deep with good conductivity) to try and catch a few is performed. Also, as time and days go by, the triploid grass carp become “educated” and begin avoiding the shocker boat and success drops drastically. Once it

appears the fish “felt” us we begin baiting the shoreline and any vegetation and/or structure present with fish feed. When electrofishing to remove triploid grass carp, I recommend doing it for a few days, then letting the lake rest for several weeks before returning.

A more practical method for lake owners is fishing 300-foot trotlines with quality #2 treble hooks, baited with dough balls every 20 ft apart. Hooks should be 15-18 inches below the main line. Depending on the dough ball consistency, springs can be added to the hooks if it will help hold bait on the hook longer. The #2 hook seems to be small enough they can get it into their mouth, yet strong enough to hold a 10-20 lbs. fish for 10-12 hours without breaking. If your fish are greater in weight, then you will have to go up one more hook size, particularly in metal thickness. Dough balls can be homemade or store bought. There are many good dough ball recipes on the internet from carp anglers that fish and have great success in the Midwest and South. We use a mixture of grits, cornmeal and peanut butter and on occasion mash in some fish feed if they are used to it. Hooks should be placed farther apart than on a normal trotline, as these fish may not bite if another fish is already hooked too close. Finding the correct depth to fish takes some time. Although they are usually near the bottom and vegetation in shallow water, at certain times of the year the surface water temperature may be colder and push fish into the deeper warmer water. The deepest parts of the lake in summer and winter may not have adequate dissolved oxygen for the fish to stay at that depth for extended periods of time to feed, so placing hooks deep will not work in that situation. Earlier I stated angling was probably the best method of removal,



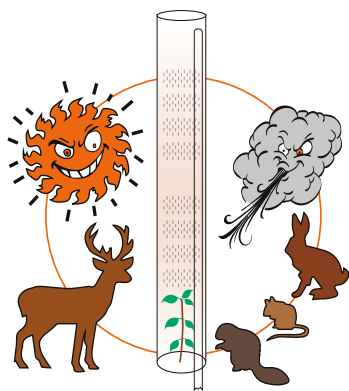
which is why we use trotlines, as it is angling, but requires less man hours than rod & reel. This method can be used by lake owners themselves and requires less time commitment and not a large budget while fishing several hooks simultaneously, and over a long period of time where several carp can be removed. If there are no catfish present, you should only catch carp, or possibly an occasional turtle. Baiting the trotline in the morning and running and re-baiting in the evening will give you the opportunity to remove more fish. Some lake/ponds may only need a few removed, while some may need hundreds removed, which is why trotlines make the most sense over the long periods taken to remove several.

All these methods have been performed with various success depending on who is performing the work and the physical characteristics of each waterbody. The most successful removal method is draining the lake and applying Rotenone in any left in any holes with water. We have seen the targeted undesirable species return or was never completely eliminated when only draining was performed and it was not completely dry. Many undesirable fish can survive low dissolved oxygen for extended periods of time and shallow water holes during a drawdown allows them to survive until refill begins. Some methods discussed can easily be performed by the landowner and/or their staff, while others can be handled with the help of most

professional lake management companies, and a few techniques are only performed by a few lake management companies. One technique that is very successful in one waterbody may not be in another, or even different successes in different times of the year in the same waterbody. Each state has different regulations on removing fish species from private waterbodies. Please check with your agency to verify the species and techniques you will be using are legal. Some techniques discussed may be legal but require an easy to obtain free permit. The saying, "Sometimes to build it up, you must tear it down first" holds true, even in lake management.

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## Pig Research Part 2

By Dana Johnson



Dana Johnson has a Bachelor's Degree in Wildlife Science and is employed with the USDA as a Wildlife Specialist. Dana has over 20 years of field and research experience managing wildlife and assisting landowners with producing quality wildlife habitats. He has authored numerous articles on issues ranging from animal damage to food plot preparation. For more information about feral hog management, call Dana at 334-301-1417 or email [dana.k.johnson@usda.gov](mailto:dana.k.johnson@usda.gov).

**T**here are many factors that go into a successful year-round feral hog management program and knowing when to use a specific technique can be the difference between success and wasted time. Whether one is trapping, aerial gunning, or opportunistic shooting/hunting, the success can be impacted by many factors. Aerial gunning may be more productive in open habitats where pigs can be pushed into areas for easier shooting. While deciduous forests, young pine plantations and hilly areas can be very difficult to locate and remove hogs. Trapping with cellular equipment is very popular but may be difficult where signal is low. Hunting and opportunistic shooting can be quite the challenge

during the hot summer months when hogs aren't moving during the day. Dog hunting may not be feasible on smaller acreages where crossing property lines is inevitable. Each method of feral hog removal is just another tool in the toolbox and a successful program may use all of them over the course of a year.

One of the most successful techniques that results in the removal of a large number of hogs in a short amount of time is known as **corral trapping**. The ability to catch 20 or more hogs at a time makes corral trapping very attractive to landowners with acreages of all sizes. A trap, with a simple wooden guillotine door, can cost

less than \$350 to build and be used for years. If a landowner has cellular service, then a more expensive trap that allows one to close the door at his convenience may be a better choice. Once the type of trap has been decided upon, another critical decision is where to locate it for maximum results. Whatever the setup, corral trapping is a method that has proven to be very productive (The Alabama Cooperative Extension Program has a YouTube page that provides detailed instructions on how to build a guillotine door and corral trap.).

Over the past 20-50 years, Macon County, Alabama has seen its feral hog population grow in uncontrol-



lable numbers, doing damage to many acres of farm and hunting land. Dr. Mark Smith, a Professor at Auburn University, and I worked for several years conducting research on the effectiveness of corral trapping. We tested many factors including the location of each trap, how many pigs were caught, and time of year we were trapping. Even though the parameters changed based on what research was being done, we wanted to keep up with how many pigs were removed. All of the data from 2014 to 2016 was collected and filed. And after the numbers were compiled, the data showed an interesting trend in trap success.

### **Project Site**

A 4500-acre site was agreed upon by a cooperative effort between several landowners. This acreage consisted of both agricultural and timber land. Agriculture included row crops, hay, and cattle. Soil type and topography varied throughout the property. Black belt soils with pH's 7.5 and higher were scattered amongst the loam and sandy loams soils. The land was flat with little elevation change. Some of the fields were in the Conservation

Resource Program and have been fallow for years with prescribed fire used as the only tool to keep succession down. A swamp with old growth hardwoods, clearcuts, and pine plantation were scattered throughout the properties. The pine plantations were being select cut for wildlife purposes and "quail woods" were being established throughout. Some clear cuts were left to natural regeneration while

others were replanted in pine. Natural regeneration areas were kept to 15 acres or less to provide bedding and fawning areas for various wildlife.

No hog hunting or opportunistic shooting was allowed during the deer or turkey seasons. Landowners, with the guidance of their biologists, strategically placed wildlife openings for winter and summer food plots. Prescribed fire, on a 3-year rotation in the pines, allowed for a wide variety of vegetative sites to aid in maximum habitat and hunting opportunities for the landowners. Any large field not used for food plots, were burned in late winter and early spring to provide bugging habitat for turkeys and to keep hardwoods from taking over. The natural plant growth provided an abundance of insects and by the time hens had poults, there was sufficient cover from avian predators. Landowners frequented their properties mainly during deer and turkey hunting seasons. During the spring and summer months, they would visit



*An example of some of the damage pigs can do to a property*

on occasion to work on their cabins, move hunting tree stands and to maintain road systems. In the fall, wildlife openings were planted and hunting stands were checked or moved.

Properties used in this research project already had a long history of feral hog management techniques applied, but the amount of trapping and techniques employed between landowners was not consistent. Some landowners used more active methods such as hunting and opportunistic shooting. Others allowed dog hunters access at any time. Others trapped but only on a small scale and only ran traps sparingly when time allowed. Some properties allowed day rides and night hunting at their discretion.

corral traps. Traps had an approximate 15-foot diameter and were equipped with a guillotine door. Triggers included a trip line with a snap shackle or root stick. A game camera was mounted to a tree near the trap to monitor pig activity before and after any capture. Trap monitors were used to determine if a trap was shut or not. These monitors did not give information on what, if anything, was caught, but rather emitted a beacon that could be heard with radio telemetry equipment to know if a door was shut. The 17-mile trip to visit all traps could take up to 4 hours. The telemetry equipment allowed all the traps to be checked in 4 minutes from a single location.

Traps were continuously set from May to October from 2014 to

site if the trap became too difficult to bait. This happened on occasion when the ground was wet and rooting behavior caused the inside of the trap to be too muddy to put the bait. If the trap was moved, it was moved a short distance, usually less than 20 yards. Many of the traps stayed at the same location for the duration of the project.

Bait type was not constant. Corn, soured corn, and sweet feed were the most common baits used. Molasses, fruit drinks, and other scents were used to add to the “attractiveness” of the bait. No research on the effectiveness of adding these scents had been done to this point so catch success cannot be attributed to the baits. Also, we did not maintain data on what types of bait were used in any trap.



*Example of the size of wallows pigs can make*

### **Project Method and Data Collection**

Dr. Mark Smith, lead project researcher, and I examined several different types of data. We compared the changes in the number and frequency of wild pig captures looking for how landscape, human movement, trap location, and duration of trapping had an impact. Thirteen locations were identified to place 3-inch panel

2016. April trapping only resumed on properties if the landowner said all turkey hunting had ceased. All captured pigs were euthanized in the traps and the date, trap location, gender, and number of pigs were recorded. At no time were other scents put in the traps to mask the scent of any blood, feces, or urine.

Traps would only be moved to another location on the research

Quite often, the bait used was based on available finances and what was on the shelf at the local feed store.

Pigs use of habitats varies throughout the year, so we made sure all areas a pig might roam during the year was covered. Many trap locations were already in areas where they had historically been placed, so new ones were spread out to have coverage of the entire area.



When possible, a trap was put near a year-round water source as pigs use these areas heavy during the heat of the summer.

During the research project time period, 723 pigs were removed from the project site. In 2014 there were 359 hogs removed with 232 removed in 2015 and 132 removed in 2016. June turned out to be the best month for trap success with 158 pigs captured during the 3-year span. This was followed by August, September, November, July, and January. The least successful months were February followed by April, May, October, and December. No pigs were caught in March as no traps were set.

### **Discussion and Findings**

As one might suspect, pig removal

was highest during the summer months. Radio telemetry research conducted by Mr. Wes Gaston, graduate student at Auburn University, showed during months where temperatures are high, home ranges decrease significantly. During months where temperatures are colder, pigs roamed further distances to forage. Feral hogs also moved out of thickets and loafed and bedded down in open fields where sunshine could keep them warm. Winter soils are also usually softer making it easier to root for food.

It's hypothesized that trap success during the hot summer months was better because the population was forced to smaller areas. A year-round water source, soft ground, and shade during the day is essential. As temperatures warmed up,

the home ranges decreased, making it easier to trap. The hotter temperatures forced hogs to hold near water sources so they could wallow to stay cool. Pigs do not sweat like other mammals and needed to stay near their wallows to help in thermoregulation. When pigs wallow in mud, the water evaporates from their skin, carrying away heat much in the same way sweat does in humans. The presence of wallow areas can be a sure indication of pig presence. Radio telemetry also showed that during summer month extended rain events, pigs moved further distances, temporarily, out of their normal summer areas.

Trapping success in the fall and early winter decreased significantly. Project sites contained trees that produce bumper acorn crops and provided the hogs a preferred food

source over corn. Photographs showed hogs feeding under acorn trees even around piles of corn. The fresh mast provided a much better nutritional value to the hogs. Therefore, baiting with corn to get them into traps was very difficult. November through January months were successful after most of the mast had been consumed or rotted. December was low in trap success but during this time many of the researchers were on winter vacation and the traps were not being run on a regular basis.

Late winter and early spring saw the lowest trapping success. One could reason that since the population had been decreased significantly during the summer months, there weren't as many to trap. Another factor could have been the constant harassment by humans during hunting season pushing them from their home range to other areas. Finally, during the spring green up, an overabundance of food, low temperatures, and soft ground allowed the pigs to feed during the day and night and corn was not a primary food choice.

Trap location played a significant role in trap success. Traps located within 50 yards of a primary creek system or permanent water sources were more successful than those that were 200 or more yards away from water. Of the 723 pigs caught, 5 traps accounted for 521 of those. Three of those traps were within 50 yards of a year-round creek in swamp lowlands. While the other two were adjacent to a year-round water source, such as a pond.

Catch success in these traps reaffirms the previously discussed radio telemetry study showing that, during the summer months, pigs congregate near a year-round water source. They need these areas too so they can wallow and stay cool in

the summer months. Without sweat glands, the pigs still need to stay near areas where they can wallow to cool down after feeding. The more preferred natural food sources may be too far to travel. Also, heavy clay soils are too hard to root. Even though traps located far away from water sources had a food source, the pigs weren't traveling those distances for food.

### **Project Analysis**

Pig trapping is a simple task if you know what to look for. Many individuals put traps in areas because they see fresh pig sign. They might see signs such as rooting, tracks or wallows, but that doesn't mean it's a good place to put a trap. Pigs travel more during winter months because the temperatures allow them to stay in the sun during the day. I am contacted frequently by landowners thinking they need a trap because they caught a picture of a lone boar on their game cameras. We discuss their habitat, and many times I advise them to wait and see. If their habitat is not conducive for a pig to survive during the hot summer months, I usually tell them to save their money and enjoy trying to remove it with opportunistic shooting or hunting.

Those that have a history of feral hog presence and damage, I recommend putting traps near a summer water source. No matter what happens, pigs will migrate back to areas where they can wallow and stay out of the heat. Pigs, if left in a trap in the open, can die from heat exhaustion by 10 am in the summer. Even though removing pigs from properties is important, it's more important to make sure they don't suffer while in the trap.

As this project continues to be analyzed, I must mention a study

that was conducted around the same time frame that examined whether or not feral swine had a "favorite" bait. As mentioned in the Project Method earlier, various types of baits and scents were used in the corral trapping study, which led researchers to ask the question, "Were pigs attracted to specific scents?" Every trapper has their favorite pig bait, right? Dry corn, soured corn, sweet feed, cattle pellets, powdered fruit drinks, molasses, soured fruit, old beer, and the list goes on. Many trappers even soak their corn in motor oil and mix it with dog food. The newest scent on the market is an attractant like deer scents that mimic a doe in estrous.

Dr. Mark Smith and Shannon M. Lambert decided to test some of these products to see if they had a significant impact on trap success. Some scents are expensive and take time to make. Were they worth it? They hypothesized certain scents decreased the amount of time it took for pigs to locate them. Their objective was to determine if detection time of wild pigs to a bait station differed by adding molasses or pig urine to corn piles verses having no scent at all.

Areas were chosen where there had never been a bait site. They set up 22 molasses, 23 pig urine, and 30 corn only sites. Researchers placed cameras on each site and monitored activity for two weeks. They documented the first time a pig was seen, frequency of visits, identifying characteristics and size of the sounder.

Pigs detected molasses on 10 of 21 sites or 48% of the time. Pigs visited 8 of the 23 urine sites and 5 of the 22 corn sites. Visitation time varied between each site. They stayed the longest at the urine site averaging 77.7 hours. Molasses and

no scent were close at 51.4 hours and 49.4 respectively. The data suggests the molasses and pig urine scents do not significantly impact a pig's bait station visiting times. This is important because pig trapping can be expensive, and every trapper has a budget.

There are still other questions that need to be answered regarding bait scents. Do pigs in other areas respond differently? If bait stations were placed differently would that have made a difference? Research on these and other feral swine behavior continues so that land-owners and biologists will have the most effective tools in their toolbox to control this ever-growing nuisance.

### **Conclusion**

Since this study was conducted over three years ago, the property site still experiences feral swine issues. Years of pig trapping has shown that if 150 to 200 hogs a year can be removed, there is far less damage to winter wildlife food plots and much better wildlife sightings of deer and turkeys. Combining rigorous trapping during the summer months with other methods in the winter or fall, the population can be controlled, but never eliminated.

Where are these pigs coming from? Areas where no pig management is taking place get crowded and the lack of food sources causes them to move and look for new areas. As a population increases, the young often roam until they find a good habitat. Often this happens along natural corridors following river and creek systems in lowland areas.

Unfortunately, there are those that move pigs to their hunting areas so they can make a profit off a weekend hog hunt. This is a bad idea, because a released hog, unfamiliar with the area, most likely will not remain in that spot. In most states it is illegal to relocate hogs, but it is still being done for recreation and money-making purposes. If the habitat is not conducive, the population may not reproduce well and be eliminated naturally over time. On the other hand, if they are moved into an area where the habitat can support a year-round population, they multiply radically, making it very difficult to eradicate them.

More research into population densities and movements in primary habitats could help develop strategies to slowly reduce pig damage by targeting habitat in prime trapping times. Feral hogs are not going to be eradicated

anytime soon so using all the tools in the tool bag in a strategic way is the only option.

Trapping is the most effective method to remove large numbers of hogs with little effort in a short period of time. Time of year, trap location, and bait type all can influence pig trapping success. There are many factors that affect whether a pig is caught. Many times, that group of hogs you think got "smart" and are avoiding you got caught in the neighbor's trap and they never told you. A sounder of pigs may show up one day on your camera and move on never to be seen again. The habitat type may be favorable for pigs in the winter and not summer. There are many questions when it comes to pig trapping and fewer answers. The only rule to pig trapping is if the trap's not set, you can't catch.



# Wildlife Trends Journal Management Calendar

Dave Edwards



## Start preparations for fall food plots.

It is difficult, if not impossible, to establish successful food plots without planning and adequate soil preparation. Planting quality food plots is a process that may span over several months, not a weekend. There are several factors that influence the success of a food plot program. Among the most important are establishing a well thought out food plot plan, ensuring proper soil fertility and pH, ensuring hardpan does not exist, preparing a firm, smooth seed bed (if broadcast method is used), only planting under favorable conditions, and controlling weeds. Each of these activities plays an important role in the success of your food plots. Here are a few tips on planting this fall:

- Test soil early and apply required lime (preferably at least 6 months prior to planting). It takes time for the chemical process to take place and effectively change the soil pH. If you didn't lime in spring or early summer, go ahead and apply it now...better late than never.
- Use the results of the soil test to create the best fertilizer blend for your specific soil needs. Many people use balanced fertilizers such as 13-13-13 because it's easy. However, it is well worth your time to custom blend fertilizer to match your needs versus applying a balanced fertilizer that often requires applying extremely high amounts of some nutrients to compensate

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*Planting quality food plots is a process that may span over several months, not a weekend.*

for the lack of others in the soil – which results in wasted fertilizer/ wasted money.

- Order seed and fertilizer as early as possible to ensure it is ready when you are.
- Ensure plots are relatively smooth. This takes time and should be done well ahead of planting dates. If you are broadcast planting, simply drag the field just before planting to loosen the soil to provide good seed-soil contact. Once broadcast, cultipack the field to “mash” the seed into the soil (If you've never seen or used a cultipacker, check them out. In my opinion it is a “must have” implement that has many applications in food plot planting). Do NOT drag food plots



*Pre-season conditioning will ensure your four legged hunting partner is ready for action when hunting season arrives.*

- if they are somewhat unsmooth or if you planted small seed such a clover. Dragging will result in burying seed too deep.
- Have seed beds ready, but don't fall into the trap of planting too early. September is often a very dry month. Mid-October is ideal in most areas of the Southeast. This is when we start getting regular cold fronts that bring rain. Planting too early normally results in disease (mostly army worms), poor planting success due to droughty conditions, or if you receive adequate rain the food plot is knee high and less attractive to deer by the time gun season arrives.
- Adding annual reseeding clovers such as crimson or arrowleaf into your fall plantings will increase the quality, nutritional value, and longevity of your food plots. With proper management, these clovers will produce food well into summer then regenerate again next fall which will save you money on seed costs.

- Use exclusion cages to monitor deer use and plot performance. An exclusion cage is a small "tube" of fence staked to the plot that prevents deer from eating the crop within the exclusion cage which allows you to assess plot growth and deer use of the plot. Cages are normally 2-3' foot in diameter and 3-4' tall. I've seen many food plots where the manager thought the crop did not do well, where in fact it did but deer simply mowed it down and never gave it a chance to grow.

### **Prepare skinning shed for deer data collection.**

Deer season is right around the corner. Collecting information from deer harvested on your property can provide valuable insight to the status of your herd, the progress of your management strategies, and assist in making harvest decisions that will improve the deer herd and ultimately the hunting. Making sure your skinning shed is fully stocked and ready should be an annual pre-season activity. At a minimum, you

should be collecting age (jawbone), weight, antler measurements, and reproductive data. Supplies needed include jawbone extraction tool, pruning loppers, wire basket to air-dry/store jawbones, sharp knives, permanent markers, pencils, weight scale, gambrel/rope for hanging deer, flexible measuring tape, instructions on how to collect and store harvest data (recommended if more than one person will be collecting the data), and harvest data sheets to record the information collected. General preparations may include sharpening and lubricating pruning loppers, calibrating weight scales, inspecting and/or replacing rope or cables used to hang deer, ensuring water source is working properly, and stocking/organizing the data collection area. The Quality Deer Management Association (QDMA) or Forestry Suppliers are great places to purchase supplies to collect harvest data including harvest data sheets. Collecting and analyzing harvest data is often the backbone to the success of a deer management program.

Manage mid-rotation pine stands with herbicides to improve food and cover for wildlife.

Although thinning pine plantations improves wildlife habitat by promoting development of food and bedding/escape cover, the responding vegetation often includes species such as sweetgum, waxmyrtle, gallberry, etc. that shade out and reduce desirable forage plants/vegetation over time. An effective technique to control undesirable hardwood competition, and promote quality deer foods, is through the use of herbicides. An application of selective herbicide will minimize hardwood competition and promote development of higher quality wildlife food and bedding/escape cover within

treated areas. While you can apply this herbicide throughout the growing season, it is most effective if applied from late summer until leaf drop in the fall. Furthermore, research has shown that a single treatment can significantly increase growth and production of the remaining pine trees by final harvest, hence, generating a return far outweighing the cost of the treatment. Treating entire stands may be most practical from a timber production standpoint, but is not necessary from a wildlife perspective. For example, in a thinned pine plantation, simply applying herbicides via skidder/tractor down select thinned rows into the adjacent pine rows can significantly increase the quality and quantity of deer browse and ultimately raise the nutritional carrying capacity of the area. Once pine stands are treated, a prescribed burning rotation should be established thereafter. This technique is often referred to as a “mid-rotation” release. It is reducing hardwood competition and ‘releasing’ the pines for better growth. I often use this strategy (herbicide followed by fire) to create natural food plots within middle aged pine plantations. These areas create lots of great habitat and thus exceptional hunting opportunities for deer and turkey.

### **Condition and train hunting dogs.**

Each September thousands of hunters and their dogs go afield and begin their hunting season. In many parts of the United States, particularly in the Southeast, September is the opening month for dove and early teal season, with shooting preserve quail season starting in October in many areas. In the Southeast, where temperatures in the nineties are not uncommon, all hunting dog owners need

to condition their four-legged friends beforehand and be familiar with the dangers a working dog can face in these conditions.

Many professional gun dog trainers recommend a warm weather training regimen of an hour in the morning and another in the evening. Run your dog and work on retrieving drills, building slowly as you go. Just as when you are starting a fitness program, workouts should start out slow and easy. Make the workouts fun and if needed take frequent rest and water breaks. As in any training process you want to increase the duration gradually as the dog increases his endurance and becomes accustomed to the heat.

The onset of heat related problems can be quite subtle, so it is important to keep a watchful eye on your dog while training or hunting in warm weather. The different types of common heat-related problems that may be encountered while training and hunting are, heat stress, heat exhaustion and heat stroke. If your dog is not performing at his normal level, slow in reacting to your commands, panting, or simply lays down and does not want to get up, get him out of the sun and into a shaded area, allow him to rest and give him water in small quantities frequently. If there is a waterhole nearby, encourage the dog to get in it to cool its body temperature. We often provide our dogs with Gatoraid or Pedialyte which helps replace electrolytes – similar to a drained athlete.

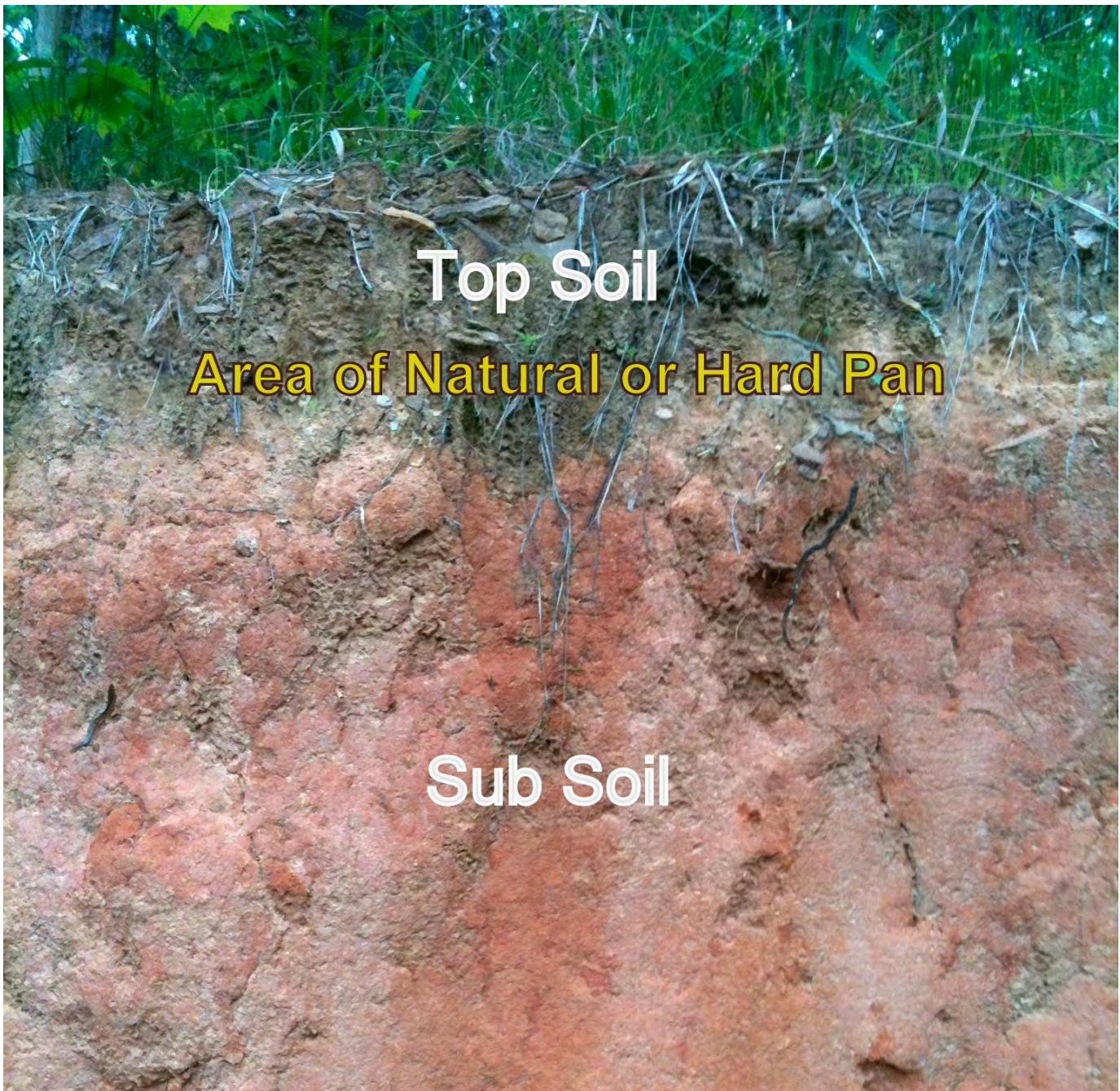
### **Check, repair and prepare deer stands for hunting season.**

While the best time of year to re-locate or place new deer stands on your property is in late winter after the deer season has ended or

very early spring (before green up), late summer or early fall is when you need to revisit these stands to tighten them back up, inspect for loose nuts/bolts, rotten or loose wood, or any other safety hazards. Just prior to hunting season is a good time to check the shooting rails, padding, replace pull up ropes, and trim shooting lanes where needed in preparation for the upcoming hunting season. However, do not over do the shooting lanes which is a common mistake I see hunters make. Small openings are all that is normally needed to identify and shoot deer, particularly for bow hunting stands. Because we have so many deer stands on the property I hunt, we have started using flagging as a way of communicating that each stand is safe. That is, once a stand is checked, tightened, etc., we simply tie a piece of colored flagging on the base of the stand or the ladder. We use a different color each year. For example, this year we are using yellow flagging. So, if you get to a stand this fall that does not have a piece of yellow flagging on it, you know that it has not been through “final inspection” this year and to use caution if you use it.

### **Mow under and around fruit trees and orchards.**

Mowing around fruit trees will not only enhance the growth of the trees by reducing competition for resources by surrounding plants, but will enhance the aesthetics of your property. Mowing will also help “clean” the understory around the fruit trees so wildlife can find the fruit as it drops in the fall (acorns, persimmons, apples, etc.). As fruit or nuts begin to fall, these areas provide great places to hang a trail camera to get photos of wildlife using the trees and/or a great place to hang a deer stand!



*Many “wildlife farmers” are not aware of the effects of a hardpan. The benefits of periodically sub-soiling food plots can be significant.*

**Check food plots for hardpan and subsoil if needed.**

If your food plots seem to either dry up quickly or stay wet longer than expected under normal rain conditions, or if you’ve been planting the same food plot for many years, your food plots may have developed a hardpan. Soil compaction, also called hardpan, may limit or constrain forage production and

plant survival in food plots. A hardpan is a densely compacted layer of soil that lies between the topsoil and the subsoil. Depth of hardpans vary but are often 4”-12” below the surface of the soil and are caused by the weight and pressure of tractors (and other equipment) on the soil and repeated disking/tillage over several years that loosen top soil allowing the finest particles of the soil (clay) to migrate downward,

accumulate, and bind, creating a very dense layer. Imagine it as a layer of concrete below the surface of the soil. As you would expect, water and oxygen do not travel well through hardpans, thus during periods of adequate rainfall, water may lie in puddles on the surface of the compacted soil and evaporate before it can seep down into the soil. Similarly, during periods of low rainfall the topsoil of food plots

that have a hardpan dries out quickly due to the shallow layer of topsoil and inability to draw moisture from subsoil resulting in stressed or dead food plot crops. Hardpans can be easily detected in food plots using a soil probe, which is a 2' to 4' metal rod - sharpened on one end to penetrate the soil, and a handle on the other end to assist in pushing the probe through the soil. As the probe is inserted, the force required to move it through the soil should remain about the same until a hardpan is reached. Upon hitting a hardpan, it will take much more effort to push the probe. From my experience, hardpans in food plots are often 4"-6" below the surface, which is the depth at which most disks plow, and may be 2"-10" thick depending on soil type and age of the field. Breaking the hardpan is often referred to as "subsoiling" which breaks up the soil to depths of 6"-12" and fragments compacted soil allowing water and roots to penetrate into the subsoil. To subsoil, you will need to use a subsoiling chisel plow. Most chisel plows have 1-5 shanks that are set 9" to 12" apart. When pulled by a tractor, the chisels dig deep into the soil and rip or break the hardpan below the surface. Subsoiling every 2-3 years will benefit soils, keep hardpans from developing, and enhance plant growth in food plots. If you do not own a subsoiler, many companies rent them. However, it is a valuable food plot implement I recommend owning if you manage many acres. Obviously, this is something you want to do before initiating fall disking for planting food plots.

### **Install trail cameras to capture photos of deer.**

Depending on where your property is located within the whitetail's range, antler hardening (shedding



*Deploy trail cameras during late summer and early fall while bucks are still in bachelor groups.*

of velvet) has already taken place or will shortly. Late August or early September is a great time to begin installing trail cameras around your property to capture photos of bucks. During this period, bucks are congregated in loose bachelor groups allowing you to photograph multiple bucks together. Where to place the cameras depends on local food sources and deer activity. In most cases, feeders are a great place to hang cameras. However, mineral licks that were created earlier in the year often make great camera locations, particularly if you have experienced wet conditions. Other locations that may be effective in late summer or early fall include entrance trails to large agriculture fields, along the edge of smaller food plots of perennial crops, summer food plots, or small water holes (if weather is warm and conditions are dry). Naturally, most hunters are anxious and excited to plug the SD card into a computer and run through the photos to see what kind of bucks they have, which is what I do. However, take time afterwards to

do a little analysis of the photos. By counting the number of bucks and does in the photographs you can get an idea of the existing adult sex ratio which will help you make harvest decisions. Estimating the age of the bucks you photographed will shed light on the buck age structure. Obviously, a full-scale camera survey will provide the most accurate and comprehensive information about the deer herd, but "random" trail camera photos certainly have a story to tell and can help you better understand the status of the deer herd on your property. All of this allows you to make better management decisions that lead to desired results. Photos from trail cameras will also help reduce "mistakes" when judging bucks in the woods while hunting (where judgments are often made in seconds while your heart is racing 200 beats per minute!)

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