

INSIDE THIS ISSUE

Cogongrass Revisited: King of the Weeds By Ryan Shurette Common Mistakes of Properties that are Struggling By Matt Petersen

Pond Algae By Scott Brown Wildlife Trends Journal Management Calendar By Dave Edwards



MAKE FOOD PLOTS EASY.

FIRMINATOR" G-3

RT MODEL

FIRMINATO



RT MODEL & G3 MODEL

Ranew's Outdoor Equipment offers the ideal equipment to make food plot planting easier and more effective. The Firminator is the best all-around equipment for hunting food plots and deer management. Ranew's is ready to serve all hunting and agriculture needs across the USA and abroad.

> MADE IN AMERICA. BUILT TO LAST.

678.544.4400 WYANCY@RANEWS.COM

THEFIRMINATOR.COM

G3 MODEL



Earl Says...

It's always a great day when I receive feedback from our subscribers. We always like to know what you want or need in the way of new articles.

I recently received a text from a long-time subscriber who read my "Earl Says" column last month. He said, "The best suggestion I have for hunters trying to establish a large stock of turkeys on their property.....read each issue of Wildlife Trends Journal thoroughly! Provide a good habitat and the birds will make themselves at home". This really made my day.

In this issue you'll find just what he is talking about. From the latest information on Cogongrass to algae control in your ponds to learning from other landowner mistakes. I hope the articles we produce are helping you as well.





P.O. BOX 640596 PIKE ROAD, ALABAMA 36064 www.wildlifetrends.com 800-441-6826

> PUBLISHER/EDITOR Andy Whitaker

DESIGN Walker360 2501 East 5th Street Montgomery, AL 36107 (334) 832-4975

CONTRIBUTING AUTHORS Dave Edwards Dana Johnson Brant C. Faircloth Wes and Leslie Burger Dr. Wes Wood Theron Terhune Marion Barnes Ted DeVos Bryan Burhans Keith Gauldin Rodney Dyer Dr. Keith Causey Ron Jolly Dr. Stephen Ditchkoff Tes Randle Jolly Kevin Patterson Ryan Basinger G. Ryan Shurette D. Clay Sisson Kent Kammermeyer Allen Deese Scott Brown Jason R. Snavely Steve Tillmann Mark Thomas

For Wildlife Trends editorial, advertising, or change of address: 1-800-441-6826 <u>info@wildlifetrends.com</u>

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.

Articles may be reprinted with the permission of Wildlife Trends editorial staff.

Cogongrass Revisited: King of the Weeds



Desirable native herbaceous wildlife plants like these don't stand a chance when infested with cogongrass. Any seeds from native plants or trees are lost in its devouring thatch, never to see the light of day. (Photo R. Shurette)

f you have spent any time riding along the highways or interstate roads that run through southern Mississippi, Alabama, Georgia, or almost any part of Florida, you have almost certainly seen cogongrass (Imperata cylindrica). It can be observed lining pasture fences, encroaching into front yards, even encompassing entire rights of way in many parts of the Southeast. Twenty years ago, the forestry and wildlife management world was abuzz about this infamous invasive species. Many periphery states put cogongrass on their radar at that time, and onto their noxious weed lists. Fast forward to today however,

and at least in some circles, the new has seemingly worn off its name. Extension agents, wildlife managers, and foresters did a good job of getting the word out about how to identify it, its threats, and how to treat this exotic grass. Several cooperative control projects have had some success with knocking infestations back in some places. But make no mistake about it, plenty of cogongrass is still out there and doing well on the landscape. After millions of dollars and thousands of man-hours spent on control efforts thus far, the question remains; can we really make a difference with this invasive plant? For many

By Ryan Shurette

G. Ryan Shurette is a Certified Wildlife Biologist and Owner/ Guide of DragSmoker Fishing Guide Service. Contact him at 256-404-5814.

farmers and virtually all managers of quality wildlife habitats, native plant communities, and working forests at risk in the South, the only viable answer is that we must keep trying.

The picture I painted in my opening paragraph might have been a bit on the pessimistic side. The truth is there are many landowners and cooperative weed management groups who have indeed successfully controlled, and even eradicated in some cases, cogongrass from their respective part of the Southeastern landscape. And many others who, through early detection and rapid response, have

stopped it from spreading northward and outward from its core infestation range. It is possible to kill it after all. The USDA Forest Service reported in 2014, "For the first time since the Southern Region's Forest Health Protection Program began funding cogongrass control in 2004 for the state of Georgia, there are more dead cogongrass spots in the state than new areas of cogongrass being reported." Landowner assistance programs in several southern states have had some successes. The Mississippi Forestry Commission, for example, helped treat cogongrass infestations for rural landowners using Forest Service grant funding. In Mississippi they were "able to provide the treatments free of charge to the landowner (\$400 per acre) and have treated over 24,000 spots equaling 3,175 acres of cogongrass." The Alabama Forestry Commission has administered federal grant funding in the

past from the Forest Service and more recently, the USDA Animal and Plant Health Inspection Service, to assist landowners with cogongrass treatment on rural lands.

But unfortunately, there are far more infestations, that have either not been treated at all, or have been treated only to come back later and spread into larger patches or multiple spots. We have some estimates on how much has been treated across the Southeast over the past two decades, but we do not have a solid measurement of how much has come back since we called it dead, is still lying dormant, has spread farther into the stand, or has been re-introduced into areas around the core. Some counties within the "epicenter" zone have given up such an overwhelming idea of eradicating cogongrass from their lives. There's simply too much of it to warrant any widescale control efforts. If only this

adversary was easier to kill, it might be a different story, but physiologically speaking this plant has proven over time to be nearly indestructible. In this article we will briefly review the origins of this grass and its identification in the field, and then examine some lessons learned and how the biological resilience (not just the biomass) of cogongrass is proving to be more than some land managers can overcome.

First let us revisit the reason we are at war with this species. What's the big deal anyway? Afterall it is just a grass. Cogongrass is technically a member of the Poaceae family of grasses, and there are many native members of the family here in the Southeast. Cogongrass however, is native to tropical and subtropical regions of Asia (including Japan, Korea, and China), India, Australia and Africa. Even there it can occur in dense monoculture stands. In some regions of its native range, it has been utilized by the local



If you have spent any time riding along the highways or interstate roads that run through the coastal plains of the Southeast, you have almost certainly seen cogongrass (Imperata cylindrica). (Photo R. Shurette)



Cogongrass has the ability to efficiently and totally outcompete and displace native vegetation and natural habitats over time. In other words, it can erase the required habitat components of pretty much any terrestrial wild animal found on a property. (Photo in public domain)

cultures for several purposes. In remote low density grazing regions for example, it is sometimes used as a livestock forage (primarily the younger sprouting vegetation following burning). More commonly however, cogongrass is used in its native range for its thatch. Cogongrass is an effective roofing thatch and is often used for this purpose in southeast Asia. Locals also use it for stuffing pillows and making mats and baskets. Other known uses include "paper making, medicinal tonics, fuel, and packing material" (Hubbard et al. 1944). Cogongrass is believed to have first escaped into the Americas, colonizing the coastal habitats around Grand Bay, Alabama, in 1912. Reportedly in this first introduction, it was used as packing material for a cargo of orange tree rootstocks (Tabor,

1949). Other documented introductions include intentional import for use as a forage grass, originating from the Philippines and delivered to Mississippi, in 1921. It has been suggested that these two genetic linages later merged, possibly creating a more vigorous form of cogongrass. Cogongrass was also planted for livestock grazing and erosion control in Florida during the 1930's and 1940's. A similar species called Brazillian satintail (Imperata brasiliensis), with which cogongrass is known to hybridize, is native to the southern Baja Peninsula, parts of Mexico, Brazil and into Argentina. Some taxonomists consider it a single species complex with cogongrass, but genetic and geographical differences probably warrant its separation as a separate species. It is also exotic and invasive in some parts of the southeastern Gulf



Cogongrass is now known to reproduce from seed more readily than was previously believed. Viability can be as high as 90% in some populations where genetically different lineages occur close enough to cross pollinate. In other areas where the infestations are just one massive clonal colony with no genetic variation, few viable seed are produced. (Photo R. Shurette)

Coast where it has now colonized. For the purposes of this discussion, we will not distinguish it further from cogongrass, regarding its physiology, ecological threats, or treatment.

But back to the question of why we even need to worry about Imperata. There are a few big reasons. First, cogongrass has the ability to efficiently and totally outcompete and displace native vegetation and natural habitats over time. In other words, it can erase the required habitat components of pretty much any terrestrial wild animal found on a property. Second, it can also do this with non-native desirable vegetation too, like agricultural crops and hay pasture grasses. I realize I did previously mention that it had some forage utility in some parts of the world. But unfortunately, in the typical modern range operations of the southern US, it is a non-starter. Cogongrass probably couldn't sustain more than a few animals per hundred acres, and even then, it would require frequent rotational burning and processing to maintain enough young shoots on the pasture to provide usable forage (the older leaves store silica and are unpalatable to grazing animals). Infestations usually start small but can grow and spot into more infestations eventually merging and creating a monoculture across landscapes. Cogongrass can eventually even replace forests given enough time, since it strangles tree seeds and seedlings before they can build any roots. Any seeds from plants or trees are typically lost in its devouring thatch, never to see the light of day. In a nutshell, cogongrass is an extremely effective invasive plant that threatens the fundamental components of the forestry and wildlife industries. And virtually no naturally occurring event, including fire, will get rid of it. Fire actually

6

expands its ability to spread. Cogongrass builds and stores incredible carbohydrate energy reserves underground in the form of abundant starchy segmented rhizomes, each equipped with rootlets and the ability to generate a new clonal plant. It prefers open sunny spaces, and following a fire, it quickly runs outward in all directions and claims the surrounding open habitats. Cogongrass, like some of our own native pyrophytic plants and trees, self-promotes frequent fire. Its thatch contains flammable triterpenoids (including arundoin, cylindrin and fernenol) that allow it to ignite quickly and easily and consume at very hot temperatures, often killing the trees and vegetation around it (Nishimoto et al, 1968). It is able to successfully outcompete so many other species by creating a dense mat of aggressive underground rhizomes, with each inch of them sucking up nutrients and occupying physical space in the soil. Above the ground an even denser arrangement of fast-growing foliage shades and chokes out competitors. Due to these finely tuned traits, cogongrass is simply able to physically outperform its neighbors. Through allelopathy, it can also chemically affect the surrounding vegetation. Koger and Bryson (2003) showed that biochemicals in the soil (leachates) produced by cogongrass foliage and roots inhibited the germination and growth of other grasses like bermudagrass. It can tolerate drought, various soil types and pH levels, seasonal flooding, and grazing.

Perhaps one of the most impressive characteristics of cogongrass is its ability to multiply into new infestations and jump across the land. This is achieved either asexually by the transport of rhizome segments, or sexually by seed dispersal. Both avenues can pose problems to land



Even after a cogongrass patch has been treated with herbicide there will almost always be some viable rhizomes underground that can be spread along the road. Pushing rhizome-laden soil down a road simply trades one infestation for another, make eradication impossible. (Photo R. Shurette)

managers. Rhizome segments are most commonly transferred by ground-moving equipment like motor graders, dozers, and farm tractor implements. In moist soil on a piece of equipment, a cogongrass rhizome segment can remain viable for weeks or even months. This is why we have heard so much about the importance of cleaning any kind of equipment if it is being moved from one location to the next, especially if it was known to have been operated in cogongrass. While equipment cleaning can help prevent long distance spread, the local movement of dirt on-site, as is common along roadsides when blading or ditching, is still an issue. Even after a patch has been treated with herbicide there will almost always be some viable rhizomes underground that can be spread along the road. Pushing contaminated soil down a road simply trades one infestation for another, making eradication impossible. This scenario has been the biggest bane for many land managers.

They can usually kill cogongrass within three or four treatments when it occurs well inside the stand. But when there are infestations along a dirt or gravel road that must be regularly maintained with equipment, often it seems there are always new spots popping up due to the movement of rhizome segments. This can be extremely frustrating, and the only viable solution often becomes treating entire segments of roadsides where cogongrass patches have been observed, not just the spots. In addition to road building and maintenance situations, rhizomes are also commonly spread during tree planting operations, agricultural plantings, food plot preparation, fire line construction and maintenance, and in the movement of contaminated fill dirt. I once inspected a borrow pit where fill was being taken out daily for various road maintenance and construction projects, only to find healthy infestations of cogongrass growing all over the site.

7



Cogongrass builds and stores incredible carbohydrate energy reserves underground in the form of abundant starchy segmented rhizomes, each equipped with rootlets and the ability to generate a new clonal plant. (Photo R. Shurette)

Obviously, this is not a good situation, so always think about what might be hiding in any fill material coming onto your property.

Cogongrass is now known to reproduce from seed more readily than was previously believed. It typically flowers in spring (May to June) in its native ranges in Japan for example, but like many adaptable plant species, it can flower year-round in tropical areas. In the far South (like peninsular Florida) it can have multiple flowering seasons but in most of the infested range across the Southeast it mainly blooms April to June, with occasional minor fall blooms sometimes observed. Flowers are also sometimes sent up after a disturbance event such as a fire or mowing. An abundant supply of seed can be produced from even a small patch although they are not always viable. Viability can be as high as 90% in some populations where genetically

different lineages occur close enough to cross pollinate. In other areas where the infestations are just one massive clonal colony with no genetic variation, few viable seed are produced. For example, many large clonal infestations occur throughout central Florida and these populations do not typically produce fertile seed (MacDonald 2007). Seeds can hitch a ride on the radiators of equipment, tops of bush-hogs, grills of cars, inside hay bales, or even on boots and clothing.

Now that we have refreshed our memory about the threats this species poses to our native forests, farms, and open areas, let's discuss modern control and treatment efficacy. The first step of controlling an exotic plant is knowing how to recognize it. Since we have all most likely seen publications depicting the identifying characteristics of congongrass, I won't get into all the redundant details but there are a few characteristics that will allow it to be correctly identified in almost any situation. Foliage and individual leaf characteristics can be tricky, so it might not be best to depend on leaf characters alone for identification. Yes, the midrib of the leaf is typically offset from center, but so is the case with some other native grass species. Yellow Indiangrass (Sorghastrum nutans), Purpletop (Tridens flavus), and Pineland woodoats (Chasmanthium spp.) are a few native bunchgrasses that are commonly mistaken for cogongrass, and they're sometimes sprayed with herbicide because of this misidentification. Leaf color and plant habit (growth form) however, can be very helpful at spotting new patches along the road or in a forest stand or field. Look for the telltale yellowish green hue and dense spiky foliage of the growing infestation, often emerging amongst its previous year's thatch. Older infestations will usually spread outward via the clonal rhizomes to form a circular infestation until it hits a barrier like a sidewalk, paved road, or a dark shaded timber stand. Recently moved rhizomes which are producing new young sprouts growing among all kinds of other grasses however, are almost impossible to spot. Once you do spot a suspected patch or plant however, there are some other ways to confirm what you are looking at is cogongrass. Look for small terete (round) "stems" arising straight from the ground. The leaves themselves do not branch off the main stem (leafstalk) as in most other grasses. Cogongrass leaves simply grow upward from the basal sheath. At the point the leaf curls around the stem (the ligule) there will be abundant fine hairs. While these are reliable identifiers, taking a sample of the rhizomes will ultimately



Cogongrass, like some of our own native pyrophytic plants and trees, selfpromotes frequent fire. Its thatch contains flammable triterpenoids that allow it to ignite quickly and easily and consume at very hot temperatures, often killing the trees and vegetation around it. (Photo R. Shurette)

confirm the identity. Unless you are pulling it up out of soft sand, the tough rhizomes will usually break off underground. Using a shovel or spade will make this test much easier. Cogongrass rhizomes are about 3/16" in diameter and they are different from any of our native grass species. They grow at an incredibly dense network in the top 12' of soil, and are scalecovered. When these scales (cataphylls) are scraped back the white starchy rhizome segments, with rootlets at each segment, are evident. Be careful performing this inspection because the rhizome tips are hard and very sharp, and they will easily pierce your finger. These rhizome characteristics will confirm whether the grass is cogongrass or not. If it is still not clear just ask a

local extension agent to come check it out.

Once a positive identification is made, a strategy to treat the infestation can be developed. As I stated earlier it is possible to kill cogongrass. After 20 years of dealing with it across the Southeast however. I believe it is almost impossible to completely kill it with a single treatment. Several patches I thought I had killed (after no live cogongrass was observed for two or three years) have now come back to life and are waiting to be treated again! While most cogongrass control publications include tillage as a potential treatment option, seldom does this method (outside of intense agricultural crop situations) result in the complete eradication of the target infestation without spreading rhizomes into other areas. However, the chemical treatment protocol is not overly complicated, and it will be effective if, and only if, a commitment is made to monitor and perform subsequent treatments. Although there are a few herbicides that have been shown to have some efficacy (including the grass-selective herbicide fluazifop-P-butyl), the two most common and most proven cogongrass herbicides are still good old glyphosate and imazapyr. In the concentrated forestry herbicide products that contain around 53% total active ingredient, a tank mix rate (with water) of 4 to 6% glyphosate, and 1.5 to 2% imazapyr is standard, and effective. Choosing whether to use one or the other, or a mix of both, of these broad-spectrum herbicides is usually a fairly logical process, due to the fact that glyphosate is not soil-active and imazapyr is very soil-active. In other words, do not use imazapyr if you are treating under (or anywhere near the dripline of) desirable hardwoods or other non-target vegetation that

you don't want dead. Even huge 200-year-old oaks are no match for imazapyr when it is applied at siteprep concentration rates within their driplines. In addition to desirable hardwood situations, glyphosate is also recommended when treating cogongrass on sandy soils, or on slopes, where nontarget plants could be affected by imazapyr's movement in the soil. And finally, do not use imazapyr where there will be sensitive crops, plants, or hardwood trees planted within the following 18 to 24 months. The residual traces in the soil could harm the non-targets up to two years post-application. So why not just use glyphosate in every situation? You could in fact always use glyphosate alone, but imazapyr offers the added benefit of resilient ground activity when you are aiming to sink the herbicide down into as much of the rhizome as possible. And sometimes it is more effective at killing it. Many studies have shown different results based on infestation location, age, soils, seasonality, weather conditions at the time of and following treatment, etc., regarding the efficacy of glyphosate versus imazapyr but most land managers will agree if there is no reason not to use it, it is preferable to include imazapyr



At the point the cogongrass leaf curls around the stem (the ligule) there will be abundant fine hairs. (Photo R. Shurette)

9



The two most proven cogongrass herbicides are still glyphosate and imazapyr. In the concentrated forestry herbicide products that contain around 53% total active ingredient, a tank mix rate (with water) of 4 to 6% glyphosate, and 1.5 to 2% imazapyr is standard, along with surfactant and dye. (Photo R. Shurette)

either alone or in the tank mix at the above suggested label rates. Regardless of which herbicide you use, plan on doing at least three years' worth of treatments at a minimum, especially if the infestation is not a young one. A nonionic surfactant (0.5%) is also typi-

References

Dickens, Ray. 1974. Cogongrass in Alabama after sixty years. Weed Science. 22(2): 177-179.

Dickens, Ray; Buchanan, G. A. 1975. Control of cogongrass with herbicides. Weed Science. 23(3): 194-197.

Koger, C. H. and C. T. Bryson. 2003. Effect of cogongrass (Imperata cylindrica) residues on bermudagrass (Cynodon dactylon) and Italian ryegrass (Lolium multiflorum). Proc. South. Weed Sci. Soc. 56: 341

Lucardi, Rima D.; Wallace, Lisa E.; and Ervin, Gary N. 2020. Patterns of Genetic Diversity in cally recommended, along with a dye so that you can clearly see what has been sprayed and what has not. And as many of you already know, when treating a patch of cogongrass using the added benefit of Imazapyr, it is important to spray several feet (at least 5 feet) outside

Highly Invasive Species: Cogongrass (Imperata cylindrica) Expansion in the Invaded Range of the Southern United States. *Biological Sciences Faculty Publications.* 408.

MacDonald, G.E. 2007. "Cogongrass (Imperata cylindrica): Biology, Distribution and Impacts in the Southeastern U.S. In: A Cogongrass Management Guide." Loewenstein N.J. and J.H. Miller eds. Alabama Cooperative Extension System, Auburn School of Forestry and Wildlife Sciences, US Dept. Agric. Forest Service. Nov. 7–8, 2007. Mobile Alabama.

Nishimoto, K., M. Ito and S. Natori. Tetrahedron. 1968. The structures of arundoin, cylindrin the observed perimeter since there are likely underground rhizomes that have already spread out past the above-ground foliage. If only using glyphosate there is no benefit of doing this other than maybe hitting some unseen small sprouts. The initial herbicide application is pretty simple, but the yearly followup inspection and retreatment applications can be surprisingly hard to do for many people. And it is usually further complicated by finding several new spots to add to the list, trading one here for two there. This frustration can be even greater when the patch you finally "killed" two years ago is now once again sending up sprouts! Unless you're situated well outside the epicenter zone and you only have maybe just a couple spots to worry about, it really takes commitment to track the progress of your eradication program across several years, and to be ultimately successful in killing the "King of the Weeds".

and fernenol : Triterpenoids of fernane and arborane groups of imperata cylindrica var. koenigii. 24(2): 735–752.

Ohwi, Jisaburo. 1965. Flora of Japan. Washington, DC: Smithsonian Institution. 1067 p.

Shilling, Donn G.; Bewick, T. A.; Gaffney, J. F.; McDonald, S. K.; Chase, C. A.; Johnson, E. R. R. L. 1997. Ecology, physiology, and management of cogongrass (Imperata cylindrica). Publication No. 03-107-140. Gainesville, FL: University of Florida. 128 p.

Tabor, Paul. 1949. Cogon grass, Imperata cylindrica (L) Beauv., in the southeastern United States. Agronomy Journal. 41: 270.

Common Mistakes of Properties that are Struggling



By Matt Petersen

Matt Petersen is Wildlife Manager and owner of Petersen's Wildlife Management. Contact him at petersenswildlife@yahoo.com

This picture is of a hunter who's enjoying the rewards of years of habitat work that include the trapping of nest and fawn predators as well as the creation of exceptional nesting and brooding habitat.

Poor Soil Management

This is probably the most common shared issue I see with folks that are struggling to produce quality forage in the way of food plots on their farms. I would bet that over half of the advice I give to folks is on the topic of growing food plots, and Lord knows I've heard of just about every imaginable way that a plot can be established and managed with widely varying types of equipment. I tend to allow folks to explain to me what they have been doing and methods they have implemented to plant their plots before I offer some advice on potential pitfalls. I normally start with "When was the last time you

n an almost daily basis, my phone rings or alerts me to a text message with a customer on the other end of the phone that has a question and is seeking guidance on some facet of wildlife management. The questions cover a wide range of topics such as timber management, food plots, wildlife trees, etc., with the most common being "What should I plant?" and "I've got this weed in my plots. What herbicides should I use?". These phone calls often lead to a greater explanation of landowners, and in turn, their farm's overall situation and allows me to gauge whether they are struggling to create or maintain quality wildlife habitat on their property. In some

cases, these phone conversations end up revealing the need for me to come out and cruise the property to evaluate the habitat quality and formulate a plan that coincides with the landowner's goals for the farm and will get them on track to reach them. These opportunities really allow me to see firsthand some of the struggles and sticking points that keep managers from reaching their ultimate goal of creating high-end wildlife habitat that allows game species to thrive and be abundant on their farms. The focus of this article will be to highlight some of the common mistakes that I've observed over the years that often lead to these struggles.

soil tested the plot?". This is often where I see folk's eyes glaze over. Of course, not everyone is this way, but it seems to be that food plotters have an aversion to soil testing. I don't understand this myself because I'm the type of person that if I really care about something and want it to be successful, I'm going to gather as much information as possible on the subject, formulate a plan, and try to get the best result possible. In the food plot and farming world, identifying your soil type and testing it for pH and fertility levels is the absolute first place to start. I can't tell you how many properties I've been on where the landowner says, "The soil is bad here", or "We can't get anything to grow here". My first course of action is to pull a soil sample, and often those sites have an extremely low pH with very poor fertility. I was recently on a farm that was newly purchased by a client where the previous leaseholders were attempting to grow food plots. The new landowner was concerned that the soil was very poor because the food plots were very thin with bare dirt everywhere and short and stunted plants of both the planted and volunteer varieties alike. After pulling soil samples and analyzing the results, my suspicions were confirmed. The pH was 4.8 in the plots and the nutrient levels were extremely low. In order to get a spring planted forage/soil builder blend of legumes to thrive, the soil test recommended upwards of 2 tons per acre of lime and 600 lbs. of NPK fertilizer. That's a fairly high amount of inputs required to make a plot thrive. But after these inputs are applied and the lime has time to raise the pH, these plots can be very productive. This leads me to another facet of soil management limiting tillage (especially deep tillage). These same food plots that had the low pH and low nutrient

levels had also been planted year after year through deep tillage. The previous leaseholders had come in with a plow, cutting deep into the subsoil layer and flipping it up onto the field's surface, effectively burying the topsoil and any organic matter that the subsequent crop would have derived nutrients from. This left the subsoil layer exposed to be planted into and subsoil is typically less nutrient dense than topsoil. Also, this constant tillage kills lots of soil life, such as earthworms, bacteria, fungi, protozoa, etc., that help the soil function as one and increase fertility naturally. Tillage also increases erosion by both water and wind that will further damage your topsoil layer and make it harder to increase organic matter and retain nutrients. By, at a minimum, limiting tillage and eliminating deep tillage, you can reduce these effects on soil.

Another aspect of managing soil is limiting the use of synthetic inputs such as herbicides and fertilizers. Herbicides and fertilizers are often high in salts and chemicals that lower pH and can damage naturally occurring producers of soil nutrients such as earthworms and others. By limiting tillage, the proper rotation of crop/food, plot species, and planting diverse blends of plants that build soil and feed on one another, we can naturally increase soil fertility and limit the use of synthetic inputs.

Not Managing Timber

An unwillingness to manage timber is another common pitfall I see landowners fall into. I hear a lot of "We can't cut the big trees", or "I just like the way that stand of trees looks", and even "A clear cut looks like a bomb went off and I don't want it to look like that". I can speak from the experience of a landowner who has had his farm clear cut that I can understand what it feels like to watch 100-yearold trees being cut, hauled out and a desolate landscape of stumps and debris left where a once large stand of mature trees grew. Even for a wildlife guy like me who has seen the complete cycle of harvest, reforestation, thinning, and another clear cut, it can be unsightly to look at a fresh cutover. All that said, it's important to really prioritize your goals and be sure what comes first. Are esthetics high or even top priority on the farm? Does the production of game species and, in turn, the making of high-quality habitat for that game reign supreme? I tell folks to really think on this topic and to be sure they can be honest with themselves in hopes that they can stomach the first few years of an unsightly clear cut. A method that seems to work well to help folks visualize how the timber will look is for me to find some farms that have varying ages of timber cuts and methods in place in the area. That way clients can look at new clear cuts all the way through mature forests of pines or naturally regenerated hardwoods. Also, thinning operations on various age stands of pines/hardwoods with varying amounts of trees per acre left to grow for future years. This tends to manage expectations of what the timber stands look like over the years. The reasons for managing or cutting timber are very well documented in wildlife management literature. The removal of nonwildlife beneficial tree species, reintroduction of sunlight to the forest floor allowing for new plant growth at ground level, as well as thinning the trees to allow the reintroduction of fire into the timber stands are just a few reasons that forest should be managed, and often, harvested. I often remind folks that trees are a renewable resource and will grow back. Yes, they have a much longer growth cycle to maturity than your

lawn or a food plot, but they are a renewable resource and should be managed as such. Trees will often become stagnant if not managed properly, slowing their growth, and typically reducing their overall health, leading to increased mortality from insects, blights, and ultimately self-thinning of trees.

In my opinion, allowing the trees to slowly grow, die, and self-thin is a poor use of a resource and a real shame. Why not manage the timber for tree and wildlife health at the same time and get the tax and income benefits that growing timber can produce? The majority of wildlife species, and especially our favorite game species of deer, turkey, quail, rabbits, etc., depend on young forests and old field settings to provide high value cover and forage naturally on the landscape. Landowners and managers that are unwilling to remove some timber often don't have these habitat types on their properties, and rest assured that if the neighbor does, he will often have the first chance at the deer that are bedding/feeding in those areas and other game that seek this habitat out. To illustrate this point, when I'm on site with landowners, I'll often ask them to kneel down in a stand of an open hardwood or pine timber and tell me what they see. If they can see a few 100 yards in either direction, with very little green growth at the forest floor, it's a safe bet that some timber needs to come out. On the other end of the spectrum, we'll go into an "old field" of early successional growth or a 3+ year old timber harvest and replicate the test. Often times, the landowner can't see 5 feet in front of them, with more plant life being within reach of their position that would have been spread out across a $\frac{1}{2}$ acre in the mature stand of timber. This test does a great job of illustrating the differences in cover

and forage production in a managed stand of timber versus a mature stand that's left unmanaged. In wildlife management "It depends" is a common answer, and it's the same when it comes to managing timber. But having a plan that will help meet your goals and a willingness to harvest timber is necessary if one wishes to keep quality habitat as a top priority.

Not Incorporating Prescribed Fire

Another common trend I see with farms that are struggling to produce quality habitat and ultimately wildlife populations is a lack of understanding and implementation of prescribed fire. Seasonal fire was common in North America before man, when lightning strikes occurred, and the landscape was dry enough to carry a fire. This would lead to the fire burning naturally without humans here to put it out, resulting in areas of diverse habitat shaped by fire.

As modern man's capability to control these naturally occurring fires grew, along with monocrop agriculture, houses with yards and other land uses grew in prevalence, large areas of these diverse habitats created by periodic fire were lost. As land managers, we have the ability to replicate these natural fires and time fire intervals, intensities, and fire types to obtain the desired result from prescribed fire. For example, I thoroughly enjoy spraying old pastures of non-native grass such as fescue or rye grass when they are dormant in the cool season and return a month or so before spring green up and burning them. I like a low intensity, slow moving fire in this situation so that all of that old dead grass that will be consumed, exposing the bare soil in the field by using the proper site prep, fire intensity and type,

coupled with the right timing, I often get old pastures full of new forb growth, such as ragweed, goldenrod, pokeweed, asters, etc. that makes excellent forage and fawning for deer, turkey nesting and brooding for turkeys and quail, and generally great habitat for all wildlife species. Had the landowner been afraid to implement prescribed fire, that land would have continued to be mowed, probably for years to come, and offered very little benefit to wildlife.

Another great aspect of prescribed fire is that it's fairly easy to implement and it's very cost effective. Had that landowner wanted to convert those pastures into food plots to increase the forage production and not wanted to use fire, the cool season grasses would have still required an herbicide application and since they are often very thick and clumpy once mature, the whole pasture would have had to be tilled with a disk harrow or other large piece of tillage equipment in order to turn under and incorporate the residual dead vegetation. This often takes multiple passes to achieve and would require the use of multiple implements to ensure a proper seed bed for the new plantings. Food plots also require the proper inputs such as herbicides, lime, fertilizer, seed, etc. and can be very time consuming throughout the year. While they certainly have their place and we incorporate them on all our farms to fill gaps in naturally occurring drops of quality forage and cover, native vegetation is much cheaper to propagate on a large scale. There are many great sources of education on the private, state, and federal level on the topic of prescribed fire. I encourage everyone to become educated in best practices and uses of fire and look to incorporate it in their management strategies.

Managing Expectations

Setting unreasonable goals and expectations is commonplace in my part of the mid-South. Guys will make comments like, "I'm not going to kill a buck off the farm unless it's 150 inches", or "We only had three toms on the farm all spring". When you consider that the majority of private property's hunters have access to areas less than 100 acres in the mid-South. setting goals such as shooting 150 inches plus bucks every season and having enough long-bearded turkeys for all the hunting buddies, in-laws, and coworkers to kill one a piece each season is typically unrealistic. On my best farms that are often 500 acres plus and/or are well located with habitat and guality management minded neighbors adjacent to them, highly managed with year-round food and cover being a focal point, and controlled harvest, it's realistic that you'll have 5-10 bucks every year that are 4.5 years or older, and possibly have 5-10, if not more, Tom turkeys to hunt. Some of these bucks will likely break 150 inches every year, and in some cases every 2-3 years can go 160 inches plus. In cases of absolute "rockstar" bucks with unlimited nutrition, excellent genetics, age, and a year with good rainfall, you can get deer over the high bar of 170 inches to reach the minimum Boone & Crockett score. All this said, it's not common to see those results and being sure you set goals and expectations accordingly will help limit disappointment and burn-out. Don't get me wrong, I like to set my goals high and strive to reach them because God often has bigger plans for us than we can dream but do so knowing that it may take many years to get there.

Taking Bad Advice

Whew! This one is tough for folks like me that work with landowners

and clients on their properties. Anytime someone starts out with "I was reading", "My neighbor said the best thing to plant", or "I saw on YouTube", I brace myself for what's coming next. Sometimes these folks follow those words with a well-informed statement or question that is very pertinent to the situation or management practice we're discussing. More often than not, though, they have either taken information out of context, been given information by someone who doesn't fully understand the topic has relayed, or someone is sharing something they have been told, and an especially common one is that they are listening to someone on YouTube or on a podcast that manages in a whole different region of the country than where they are located. Oftentimes the person who has been reading, if they've been reading from a reputable source and the information pertains to their region, is fairly informed and has some questions specific to their farm that need to be clarified or troubleshot. These folks can often be easy to get on the right track and get dialed in according to the specific situation and goals. The folks that have often been talking to a friend, neighbor, or even a farmer tend to come in with a strong preconceived notion and can be a bit tougher to get on the right path. For example, I had a customer recently for whom I planted a perennial clover/chicory plot. The plot was looking great, and I had just finished spraying it to kill grass and weed competition when he pulled up to ask me about future maintenance. I was explaining to him the maintenance requirements of clover and what to look for, and even sent him a cheat sheet on the maintenance requirements throughout the year. This customer told me that his good buddy had great looking clover and has been planting clover for years. His buddy had told him that you had to lime your clover heavily every year to keep it healthy. He said he put one ton of lime on his plots every year. Now after some further questions and unpacking on my part I was able to surmise that the friend was planting annual clovers, that his farm was an hour north of this customer's farm and was comprised of heavy red clay (this customer's farm was a sandy loam), that the guy didn't soil test, and also he didn't know if he was putting a ton of lime out total on all of his plots or a ton per acre. I was able to help the customer come to the realization that his conditions, soil type, crop type, etc. were site specific and only a soil test would reveal the proper inputs required to allow the plot to thrive. Simply spreading a ton of lime per acre every year would have been a huge waste of time and money and likely detrimental to his planting in the long run.

Of all of these, though, the worst case tends to be YouTube, podcasts, or any other media type that has been giving out information that's not specific to the landowner's region. Although the mid-South of Tennessee, Virginia, North Carolina, Southern Kentucky, northern South Carolina, north Georgia, and southern West Virginia are similar to southern and deep south regions, there are many differences in planting dates, plant species, soil types, land use practices, invasive species, etc. and they should be treated as such. I would never make large blanket statements about these areas because I don't manage there. Obviously, there is a vast difference from the deep South and mid-South as compared to the Midwest and Northern states. Certainly, there are similarities and overlaps in management practices and methods throughout the country, but the

devil is in the details and in the instance of habitat management this is without a doubt the case. Why in the world would a landowner in South Carolina begin planting their fall food plots at the same time as a YouTuber in Ohio? Laugh if you will, but I deal with it all the time. I had a customer years ago that wanted me to plant food plots on their farm in southern Virginia. This customer had hired a well-known consultant from the Midwest to cruise this farm and make recommendations for habitat work there. This customer asked me to come plant fall plots (brassicas in. particular) in mid-June at his farm. When I asked him where he had come up with that planting date, he was quick to point out that the land specialist from the Midwest had selected all the plantings and set the plant dates. I was quick to inform him that brassicas in southern Virginia, planted in June, would very likely go to seed, and mature before the first frost and leave his deer with no palatable food source as he intended throughout the winter. Also, cereal grains would likely end in the same result, and winter peas and clovers that were suggested likely wouldn't survive our harsh, hot, dry summers in the mid-South. I referred the customer to a trusted planting date chart for his county and he realized the advice he was given was based on what would have worked in the Midwest, not what would work in his area. As I mentioned earlier, there are a lot of management practices that overlap, and a great amount of information can be gained from folks that aren't in your region. That said, be careful who you're taking information from, their background, experience level, and where their habitat and hunting experience was derived.

Buying the Wrong Land

The last article I wrote for Wildlife Trends was titled "Choosing a Hunting Property". It goes into detail on various often overlooked considerations by folks when choosing a wildlife property. I don't want to go into the detail here I did in that whole article but it's worth a quick revisit. Again, goals play a large part here... if you want to grow and eventually harvest large antlered bucks, it often requires year-round, high-quality forage on your farm, ideally mixed in with good cover and access. Taking this into consideration, it's very hard to grow quality food plots in certain areas of the mid-South that have poorer soils, lack of complementary agricultural food sources, flat enough ground to farm, or vast areas of undisturbed mature timber that can't or will never be managed. Giving a buck quality food year-round in these areas that will allow him to grow the best set of antlers his genetics will allow is just plain tough. Couple that with areas of the mid-South having a ban on supplemental feeding and you've got a really hard problem to solve. There are ways to increase the forage, but you're starting in a hole right out of the gate. Take into consideration the same type of habitat for quail.

Quail thrive in patchwork habitat types of thin or newly regenerating forest, old fields, with lots of diversity in cover with open under stories they can easily traverse, but at the same time have enough overhead cover at ground level to shield them from aerial predators. If you've ever been in the mountains of North Carolina, Tennessee, or Virginia, with their seemingly endless tracts of mature hardwood timber, mountain Laurel, etc., you know that's not what I described as quail habitat. If a landowner wants

quail on his farm, the majority of these areas aren't going to work. Another good example would be a die-hard turkey hunter who buys a tract that has a 5-year-old naturally regenerated stand of hardwoods, or a similar age stand of planted pine that represents the majority of the habitat on his farm. This young clear cut/regenerating forest is often great for lots of game species, but if there aren't proper roost trees in good locations on the farms coupled with strut zones and trail systems for turkeys to utilize, a farm that is that thick is seldom going to produce many hunting opportunities for the spring turkey hunter. Also consider the distance from your home and your hunting property and the time and cost it will require to get it into shape and reach your goals. If you live 2 hours away from the farm, have limited time and don't have the cash to have the farm managed locally, it's going to be tough to keep the farm (depending on your goals and desires) in great shape. Maybe you sell the farm and downsize to have more cash to manipulate and manage the land, or even buy one close to home. Just make sure you're making a wise choice before your purchase so that the property can eventually meet your goals.

Buying the Wrong Equipment

I often think I've seen this one from every angle, and then I'll still end up being surprised by folks at times. I've seen folks buy giant cab tractors (120 HP) That won't even fit down the trails of the farms. I have seen 30-foot batwing bush hogs purchased to mow one acre clover plots that have to have the openings to the fields widened so the tractor and the bush hog can even get through. The rig is so long and wide it can barely be turned around in the small plots, and so

heavy it compacts the soil and often ruts up the plots if they aren't bone dry. I've seen folks buy skid steers with brush cutters just to use them one time. And people that claim to be wildlife-first folks buy flail mowers to mow every possible inch of their farm, robbing fawns, poults, quail, rabbits, etc. of cover and food. On the other end of the spectrum, I've seen guys buy small, compact tractors that often are large lawn mowers but aren't suited for food plots just to realize this too late and have to trade up to larger models. I also have seen folks buy older tractors that end up being broken down more than running and end up being a burden, causing them to miss important planting windows and habitat projects. My advice on equipment is consider what you want to be doing on the farm and the maintenance and establishment of food plots and other specialized chores. As mentioned earlier, find a reputable source of information on these practices who ideally owns or has owned the equipment you're considering. Get an idea of what options you have in the area for equipment rental. Where I'm located in the mid-South, there are plenty of rental dealers that have skid steers, excavators, box blades, augers, post drivers, bush hogs, etc. We also have a few private tractor dealers, a few different county soil and water offices, as well as cattlemen associations that rent no-till drills. Once you get an idea of what you want to do on the property in the way of habitat work, what equipment is locally available to rent and, in your budget, buy a reliable tractor that can handle the locally available no-till drill and other implements you wish to rent or purchase and still traverse the farm. Slowly but surely, add the equipment needed and rent the rest.

Not Managing Deer and Predator Populations

As a man who takes a large part of his income from planting food plots, people that are unwilling to attempt to manage their deer populations is a huge pet peeve of mine. I can't count all the times that an overpopulated deer herd has wiped out food plots I planted only for me to be blamed by the landowner for doing something wrong. I tend to put out seclusion cages to show what the plots would have looked like in the absence of deer browse pressure, but this often is still met with skepticism. Having too many deer is a bad thing. It is all too common in areas of the South where we have mild winters and abundant food. Deer are absolute survivors who have a fantastic ability to survive just about anywhere that provides a patch of bedding cover and some green to eat on. That said, there is a difference between surviving and thriving. I would much prefer a medium to low deer population comprised of healthy deer that have an abundant amount of food throughout the year allowing for their genetic potential to be expressed. Quality over quantity every time for me. This allows us to plant less food plots, saving time and money, and keep deer-preferred native plants on the landscape. In areas where deer numbers are high to extreme, lots of food plots and native plant species simply can't grow and especially reproduce due to over browsing by deer. This affects all types of wildlife species, including bugs, reptiles, and small mammals. Again, like trees, deer are a renewable resource, and they should be managed as such. Each spring a new "crop" of deer will be born, and each fall a "crop" of deer should be harvested to make way for the spring crop.

Not managing predators is often a problem, especially for species of ground nesting birds such as turkeys and quail. I hate to get on my high horse or soapbox here, but it gets under my skin when I see hunters I know who can't wait to get on social media to announce that they've tagged out on spring turkeys, while I know for a fact they haven't done a thing to help continue to propagate the wild turkey throughout the year – not an inch burned; not a raccoon or opossum trapped; no food plots planted – nothing but show up opening week, kill at all cost and see you next spring turkeys to take and not give back. Taking a few days or a week to trap some nest predators is very easy as far as time and practice. Dog proof traps are bulletproof and highly effective on raccoons, opossums, and even skunks. They are cheap, as is the bait, and most guys hunt with cellular cameras now, which can be deployed over the traps, allowing the trapper to prevent wasted time checking empty traps. If you're reading this article in this magazine, you likely already know this and are dedicated to making your property the best it can be and giving back to the wildlife you pursue, but my challenge is to spread the word for the betterment of all wildlife.

Coyotes and foxes are a whole different story when it comes to trapping and hunting. They are much more difficult to control than most predators but should still be managed. I often recruit a seasoned local trapper to trap the farms I manage or a group of veteran hunters who have thermal capabilities to hunt coyotes at night. Often, we use a mix of both practices to keep predator populations low and not much of a factor for game species numbers.

Not Championing Diversity

Diversity is key in the year-round production of quality food and cover for wildlife. You likely already know that most all game require different habitat types at different times of the year depending on conditions. Hen turkeys need certain cover types to successfully nest and hatch eggs, as well as protect young poults from predators. Deer need specific habitat to hide their young, have access to quality forage, and to survive bad weather events and cold/hot times of the year. This is why we strive to have diverse cover and food types on all our properties. Uneven age classes of pine and hardwood timber in various densities mixed with "old fields", food plots, hedgerows, etc., all can be found on a quality wildlife property's ideal landscape.

The same can be said with food plot plantings. I often see folks who want to plant all of the same blend or species in their plots. While this will make management and planting easy, it's not ideal due to a low diversity blend or single plant species limited ability to cover all the nutritional requirements wildlife requires. In an effort to cover all the bases, coupled with native habitat management, we strive to plant diverse blends in plots, mixed in with dedicated single species plantings, like perennial clovers, corn, soybeans, etc. All of these different species thrive at certain times for various reasons and should be used as if they were a tool in the toolbox of a wildlife manager looking to fix any gaps in quality forage on their farms.

Conclusion

If any of the trends that I've mentioned that occur on farms that are struggling sound familiar to your place, take the time to examine them further. Gauge their severity and work to eliminate all of them over time, starting with the problems that present the greatest impact. Remember, it's a marathon and not a sprint, and it's meant to be fun, although I've had days where it's much more fun than others. We owe it to future generations of wildlife and hunters alike to protect the wildlife resource and be complete stewards of the land on which they live.

EARL SAYS:

Give your friends, family and neighbors the perfect gift this year, a subscription to Wildlife Trends Journal!

Call us at 800-441-6826

to order and we will send your friend a binder filled with two years of back issues as well as include a Gift Card announcing your generous gift.

This is the perfect gift for the person who has everything! Wildlife Tren

Pond Algae



ne of the most common types of aquatic plants in private lakes, and the smallest, is algae, which also can be the biggest benefit, downfall, and most frustrating to manage. Algae can occur in both fresh and saltwater. Algae comes in three forms planktonic (phytoplankton microscopic plants), filamentous (single-cells forming chains or strands), and rooted plants known as Chara (musk grass) and Nitella (stonewort). Most phytoplankton and filamentous algae species need to be identified with a microscope as there are thousands of species throughout the world, but in most instances, general identification is acceptable for freshwater lake management. Only on rare occasions does algae need to be identified down to the species level. The most common issues we see are phytoplankton (green water),

filamentous (sometimes referred to as pond slime or scum) and Chara. All are associated with excess nutrients whether naturally occurring or man-made, and warmer water. Most freshwater algae grow when water temperatures get above 60o F and thrive as temperatures get warmer. An 87 – 920 F water temperature creates a prime environment for both phytoplankton and filamentous algae growth. In small freshwater ponds, we rarely see any of the toxic algae species, most commonly blue-green algae. Blue-green algae is more common in larger lakes, reservoirs or in saltwater near the coast. Algae can occasionally appear or be a chronic problem depending on the age of your waterbody and activities currently or historically occurring around and/or upstream of your lake. Remedies range from doing nothing

By Scott Brown

Scott Brown is a Biologist and regular contributor to Wildlife Trends Journal with over 35 years experience in research and managing natural resources throughout the Southeast. Scott founded Southern Sportsman Aquatics & Land Management in 2007 and now has clients from Texas to Florida and into the Carolinas. Contact him at tazmanlabs1@ gmail.com or 336-941-9056.

Some algae (phytoplankton or green water) and filamentous in your lake is a good thing. It can be beneficial to the aquatic ecosystem. But excess algae is a sign of nutrient overload, and is detrimental to the aquatic ecosystem.

and letting it run its course to continually treating with herbicides and/or biological treatments.

Phytoplankton

Most have heard a lake manager say an algae bloom is good for fish production. Green water has been proven to support up to 400%more fish than clear water. This is in the form of planktonic algae which turns the water green (also blue-green, brown, red and many other color variations), can be a slight tint with visibility down several feet to a heavy paint-like color with almost zero visibility. Many species of algae are involved in algae blooms and these species change over time based on temperature, light, nutrients, and other factors. Most phytoplankton are harmless and in moderation benefit fish populations. Phytoplankton are the foundation of the food



If you have too much algae, locating the source of nutrients and reducing it is required prior to treating with herbicides. Otherwise, it will be a cycle you cannot break of repeat treatments.

chain. Phytoplankton (microscopic plants), feeds zooplankton (microscopic animals), that feed small fish, that feed larger fish and wildlife. Most 24-48-hour old fish hatchlings, regardless of species, they feed on phytoplankton and zooplankton. From there, depending on the species, may continue to feed on those, or they may progress up through the food chain changing forage many times like a toplevel predator such as the largemouth bass. The more food available for fry and fingerlings, the faster they grow and higher their survival rate.

For algae to flourish you need sunlight, adequate water temperature and nutrients which can come from agricultural runoff (animal waste, plant fertilizers), residential

fertilizers (homes, golf courses), natural areas (flooded woods, prairies, wetlands, fields, etc.), where large amounts of dead plant material have built up, and the lake bottom itself, where large amounts of organics have built up over the years/decades from natural lake progression. Besides nutrients, planktonic algae need certain water chemistry parameters to fall within certain ranges, otherwise this type of algae cannot utilize the nutrients to grow and multiply. Water chemistry parameters such as hardness, alkalinity and pH need to be above 20 ppm, 20 ppm and 5.5, respectively, for an algae bloom to occur. This is why it is always advised to have water chemistry checked prior to initiating a fertilization program to ensure an algae bloom will occur. We have witnessed liming a lake to

raise the pH prior to beginning a fertilization program triggering a natural algae bloom with nutrients already present in the ecosystem, and no fertilizer was necessary to achieve the desired results.

An ideal algae bloom restricts water visibility from 18-36 inches. Any visibility less, and the bloom is too intense. Any greater visibility, and sunlight penetrates farther into the water column and can promote undesirable submerged vegetation growth. Planktonic algae raise the amount of dissolved oxygen in the water during daylight hours, but dissolved oxygen levels subside over night as some cells die off and the remaining do not photosynthesize. Algae blooms can cause issues after they become established with a sudden die-off. Sudden die-offs occur when a lake dye or herbicide is applied to them, or subsequent days of overcast (no sunlight) weather can trigger a phytoplankton die off. This die-off creates decomposing plant material and lowers dissolved oxygen levels, sometimes stressing or killing fish. As air temperatures cool and daylight hours shorten, algae blooms subside and may disappear during winter, but if natural conditions are right, will occur again the following spring.

If an undesirable algae bloom exists and you want to stop or reduce it, the nutrient source must be identified and removed to be successful. Depending on where the unwanted nutrients are coming from, or if they are already in the waterbody, this may be a simple fix or require major work. An example of a simple fix is placing barriers (fence) up excluding livestock, to drawing a lake down, scraping out the organic muck and refilling is major work. Caution must be used to treat algae blooms with herbicides or lake dye. Once the

bloom becomes established, killing the bloom will greatly lower dissolved oxygen levels and will probably kill fish. Use only aquatic labeled herbicides, as some have used homemade concoctions and inadvertently killed fish and desirable plants in the process to stop algae blooms. The active ingredients that have been successful in treating planktonic algae include copper-based compounds, sodium carbonate peroxyhydrate, alkylamine salts of endothall, and flumioxazin. If a lake dye is desired, apply it in late winter when the bloom is less established or nonexistent and maintain the dark color throughout the growing season to avoid any fish stress or die-offs.

Allowing a buffer of plants to grow around and in a lake will also help reduce nutrients entering the system. The more plants utilizing nutrients, the less available for phytoplankton. We have seen many times in fertilization programs, the landowner/manager get behind on adding fertilizer which allows submerged plants to flourish. The more submerged plants present, the clearer the water, due to submerged plants using the nutrients, and phytoplankton having none to grow.

Filamentous Algae

Filamentous algae are single-cell plants that connect to other cells that are usually identified by being

"stringy" or "hair-like" (referred to by some as pond slime or scum), in appearance located on the lake bottom, attached to other emergent or submerged plants or floating in mats on the surface. Filamentous algae start growing from sunlight reaching the lake bottom feeding off nutrients in water or organic materials on bottom. These organic materials can be in the form of decomposing plant or detritus (bottom muck) material. Filamentous algae create habitat for many micro and macro invertebrates (bugs, worms, snails, etc.). These invertebrates are used as food by fish and other wildlife species (e.g. amphibians, reptiles, ducks, etc.)



Sometimes treating one species of plant and being successful will trigger an algae bloom in the form of phytoplankton and/or filamentous algae. Then a follow up treatment will be required to treat the algae being fed by the original treatment's dead plant material.

Filamentous algae begins its life cycle underwater attached to the bottom or structure (plants, logs/ brush, rock, etc.). After a period below the surface, it eventually breaks free and floats to the surface. This is when it becomes visible, aesthetically undesirable and an issue for lake managers. This also becomes the time it is harder to treat and control. If you are conducting a fertilization program, you will experience a small amount of filamentous algae around the edges. This is normal, but should it become a larger problem, it will have to be addressed. Once filamentous algae comes to the surface it can float around and is usually wind driven.

A common and one of the worst filamentous algae is Lyngbya. A blue-green algae that lives on the lake bottom, but eventually breaks free and floats in thick mats on the surface. It may get a crust on it with a dark green or even black coloring. Lyngbya initially forms as a dense, carpet-like layer on the bottom of the pond and this is the best time to start addressing the issue with herbicides. The cyanobacteria produce gases which then cause pieces of the mat to break loose and float to the surface. It is slimy to the touch due to a gelatinous coating that it produces. The gelatinous coating makes the Lyngbya resistant to algaecide applications. There are currently no products that have been proven to be 100% effective in penetrating this coating. Even when the coating is penetrated and the algaecide kills the internal cells, the mucuslike layer prevents the Lyngbya from decomposing and sinking to the bottom. In this case, you end up with dead, white or gray colored remnants that continue to float on the pond surface for weeks after treatment.



It has been proven that an algae bloom (green water) present can grow up to 400% more fish than a clear lake.

Lyngbya thrives in shallow, clear water that has high amounts of nutrients (phosphorus and nitrogen), and little or no water movement. A lake dye (if desired), can be the first step in controling Lyngbya to prevent the initial growth and is the best way to control the spread. The dye will limit the amount of sunlight that reaches the pond bottom; thereby making it difficult for the Lyngbya to become established. Lake dyes are available in a few different colors (Black, Blue-Green, Blue). In ponds with low water movement, a surface fountain or aerator can be very beneficial. Reducing available nutrients in the pond with commercial binding agents like Phoslock is

another option. And finally, routine algaecide applications help keep the growth in check. But in the end, there is no simple solution for permanent removal and grass carp are not an effective tool for control.

When treating an algae bloom, always be aware of the potential for fish kills from dissolved oxygen depletion. Treating smaller portions of the lake during cooler temperatures is recommended for filamentous algae. Herbicide control should begin with an application of copper crystals or granular endothol early in the growing season while the Lyngbya is still on the bottom and at the first sign of the



The perfect algae bloom is invaluable to a lake and lake manager, whether it naturally occurs, or liming and a fertilization program is being conducted.



Both Gizzard shad and threadfin shad (in photo), need phytoplankton to survive. An algae bloom is the foundation for any high-quality aquatic food chain.

plant, following labeled rates. Once Lyngbya reaches the surface either dead or alive it can be beneficial to break up mats with the boat motor prop, to help speed up the decay process or facilitate an effective follow-up liquid herbicide application. A liquid herbicide application should be completed with a good surfactant/penetrant to help overcome the outer layer of the plant. The following is a list of recommended tools/herbicides (always follow labeled rates): • Lake Dyes - Once a dye program is begun it is important to constantly monitor and re-apply as necessary to prevent submerged vegetation growth.

- Granular Copper Cutrine (use medium size crystals as it is easier to apply)
- Granular Endothol Hydrothol (can kill fish, do not exceed labeled rates)
- Liquid Copper We recom-

mend Captain XTR and EarthTec (will act as surfactant) tank mix

• Surfactant/Penetrant – We recommend LI700 if using Captain XTR only.

Once filamentous algae reach the surface, mechanical removal is best. This removes the plant material and the nutrients from dying plants that would be created from chemical treatment. Once it gets to the surface it's hard to kill with either liquid or granular because if you don't kill it all in a short period of time, it grows off its dead self and becomes a vicious cycle of treating/growing/treating/growing. Treating floating mats on top and from underneath (sticking nozzle under mat and spraying under side), and churning spray into the mats with the motor prop may be necessary to get herbicide in contact with living plants. Dead filamentous algae feed and protects living algae from coming in contact with herbicide. This is why it is very important to treat early and address nutrient sources. Despite common belief, grass carp do not consume filamentous algae at a rate to make them a successful control method. Tilapia have been documented consuming filamentous algae; however, they do perish in winter in most areas and need restocking annually. Installing a bottom aeration system will also help reduce filamentous algae growth by keeping nutrient molecules in motion, not allowing plants to utilize it. Adding blocks of bacteria and enzymes have also proven to help control algae growth in certain situations. Adding Alum post treatment binds with phospho-



Lyngbya is one of the toughest algae to manage. It can repel herbicides and when only the surface layer is killed, will continue to grow from underneath, feeding off the nutrients from the dead plant material above. It clogs outboard motor intakes and navigational paths due to its thick surface trait.

rus molecules preventing it to be utilized by algae, hindering its growth.

Aeration can deter filamentous algae from growing. Water movement keeps molecules moving so algae cannot use nutrients as easily. You can still have a phytoplankton (green water) bloom with an aeration system installed, but it does help combat filamentous algae growth.

Rooted Type Algae

Chara (musk grass or skunk weed) and Nitella (stonewort) are multi cell algae commonly misidentified as other plant species. Chara has no flower, will not extend above the water surface, and often has a "grainy" or "crunchy" texture. Chara has cylindrical, whorled branches with 6 to 16 branchlets around each node. The name Musk Grass is derived from its foul, musty almost garlic-like odor. This plant is often confused with coontail and both need to be properly identified for chemical treatment as what treats one, does not affect the other. Stonewort has no odor and is soft to the touch. It is light to dark green in color with forked, bushy branches 1/16 to 1/8 inches in diameter. This species is the least common of the two.

Mechanical raking is fairly easy to remove both species. If herbicides are desired, the active ingredients that have been successful in treating Chara and Nitella include copperbased compounds and alkylamine salts of endothall. As always, follow label instructions, as salt of endothall at higher than label recommendations are toxic to fish. Again, grass carp do not prefer these plants, but tilapia have been documented to consume them.

Although some lakes have chronic algae problems, having some algae

present is not a bad thing for the fishery. Managing it in some aquatic ecosystems is harder than others. Those with a naturally occurring algae bloom where visibility always falls in the desirable range, consider yourself lucky, use it to your advantage and manage to its full potential.





Land Clearing- Logging Clean-up - Firelanes - Roads call us at 334-269-2224



Bach & DeVos operates two woodland mulchers/grinders on forestry based carriers.

Other services include timber sales, forestry/wildlife plans, burning, site preparation and planting, GPS and mapping, land sales.



WHEN A PASTIME BECOMES A PASSION. SOME DON'T GET IT, BUT WE DO.

Looking for your own place to hunt, fish, enjoy 4-wheeling—even a building site for a cabin or home? Alabama Ag Credit is the original land lender and your local expert in recreational real estate financing. We understand the unique requirements of long-term rural real estate lending, and can custom build loan packages with competitive rates and flexible terms. So you can enjoy the great outdoors for years to come!



AlabamaAgCredit.com Call 800.579.5471

f 🖸 🎔 🛅



Wildlife Trends Journal Management Calendar



By Dave Edwards

Dave Edwards is a certified wildlife biologist and regular contributor to *Wildlife Trends Journal* and other hunting/wildlife publications. Dave was honored as QDMA's 2007 Deer Manager of the Year and nominated in 2011 as Alabama Wildlife Federation's Wildlife Conservationist of the Year. Dave is President of Tall Tines Wildlife & Hunting Consultants, Inc. Contact him at TallTinesConsulting@gmail. com or 912-464-9328.

Widen roadsides to create enhanced wildlife habitat

Widening roadsides can add wildlife and aesthetic value to your property by increasing the amount of early successional and edge habitat. Widened roadsides that are being managed are often referred to as roadside management areas. These areas are widened roadsides that allow various management to be applied, resulting in enhanced wildlife value. To create a roadside management area, simply clear the understory and undesirable trees along a roadside, then periodically apply management such as mowing, disking, or burning to maintain control of encroaching tree species and maintain a relatively low understory (avoid keeping a "manicured" look by mowing roadways often - this does not offer as much wildlife value). How wide you make the area is site-specific, but 10-20 yards wide is generally wide enough to accomplish the goal. Be sure to leave desirable mature trees within the managed area. These trees will provide shade to conserve soil moisture in the summer and will add aesthetics along the road. There are many

Widening roadsides can add wildlife and aesthetic value to your property by increasing the amount of early successional and edge habitat.

ways to widen roadsides, but the practice of choice will be determined by the existing conditions (habitat type, age of trees, etc). In some cases, roadsides can be widened by simply mowing. However, if the existing roadside is thick or forested, heavier equipment will be required. A forestry mulcher can open roadsides quickly in most cases and is an excellent choice for many situations. I often incorporate widening roadsides into timber harvest plans. That is, when an area is being thinned or cut I simply include removal of trees within the desired roadside area.

Regardless of how intensely you manage these areas, they will create more "edge" habitat, which is preferred and used by most game animals. If you desire to manage roadsides intensively, you can seasonally disk or burn them to promote desirable weeds and/or install wildlife plantings such as clovers, sorghum, or wildflowers. Wildflowers provide both esthetics as well as bugging areas for turkeys. Managing roadsides not only increases the aesthetics of the property and adds wildlife value but will increase wildlife viewing opportunities throughout the property. Another advantage of widening roadsides is that doing so allows more sun and wind to reach roads which helps dry them out.

Take care of new fruit trees or other tree plantings

Many landowners, wildlife managers, and hunters incorporate fruit trees into their wildlife management program to provide additional food sources and aesthetics to their property. Many have taken great care in deciding where to plant these trees, dug the appropriately sized hole, loosened the surrounding dirt, added timereleased fertilizer and moisturizer packets, firmly packed soil around the root ball, and added a tree tube to protect the tree and enhance growth - then walked away to later find the tree died. Due to the transplanting process itself, which causes a good bit of stress on a tree, some trees do not make it. However, in many cases, the tree died from a combination of being stressed from transplanting and not being taken care of (TLC - tender loving care). Simply planting a tree is not enough in many cases. After planting a tree in late winter, tree survival is much higher if you ensure weed competition is eliminated (normally done via applica-

tion of herbicide) in the immediate area of the tree. Weeds compete with the trees for nutrients and water. Speaking of which, it is important to monitor rainfall and water trees when needed during their first year after being transplanted. Most trees have been propagated and grown in a nursery where they grew in ideal conditions - adequate nutrients, water, and sun. Some trees do not fare well with the struggles of the "real world" where irrigation is not providing daily water. Thus, taking a little extra care of them during their first year will help them adapt and develop a root system that can better handle periodic droughts. Another helpful tip is to place 3-4" of mulch around the base of the trees. Mulching will reduce weed problems due to the unfavorable germination conditions under the mulch (no sunlight) and will also conserve soil moisture. I mention this in the June/July calendar because this seems to be when the highest mortality occurs, which makes sense due to the very hot and dry conditions during this time.

Control feral hog populations

"Control" may be the wrong word to use here, but you get the point. Although removing hogs could be on your management calendar throughout the year, summer is a good time to put extra effort into this since it often causes a moderate disturbance on your property. Hog populations are rapidly growing in many areas and are causing significant damage to wildlife habitats, food plots, roads, etc, wherever they exist. One reason it is difficult to "control" hog populations is that they are very productive and may have up to 3 liters of young per year! Thus, exponential population growth can and does happen if resources are adequate. The most effective way to remove hogs is

through trapping. Be sure to do some research before you simply throw a few traps out. Specific trapping techniques have proven to be more effective than just baiting a trap and catching a hog or two each time. Since converting to using corral-type traps with remote user-deployed gates, I have abandoned the use of "old school" single traps. The corral traps have proven to be quite effective and efficient. Another effective strategy, but more costly, is hiring professional hog hunters who use either night vision equipment and/or dogs to harvest hogs. Simply shooting hogs when opportunities present themselves helps but is not as effective as an "all-out war" against them.

Allow wildflowers to mature and go to seed before mowing.

Managing wildflower areas is a great addition to your property management strategies, particularly if one of your goals is improving the habitat for turkeys and quail. They not only add aesthetics that add to your outdoor experience, but the flowers attract an abundance of bugs and insects that are eaten by turkeys and other birds. If you have planted or are managing wildflowers on your property, avoid mowing these areas until seedpods have matured. Allowing the wildflowers to produce seed before mowing will ensure adequate reseeding for a good crop the following year. If you are not currently managing wildflowers on your property but want to do so, do your homework to determine the best wildflower blend for your particular soil and climate, and begin preparing seed beds well before planting time (fall) to create a smooth, firm seedbed, and plan to plant them this fall. Due to the small seed size of many wildflowers, a smooth seedbed is critical to

success. Rough seedbeds often result in seeds getting covered too deep and will result in low germination rates even if broadcasted by hand. Once established and with periodic management, such as mowing, wildflower areas can persist for many years.

Attend wildlife and land management seminars

Generally speaking, educational events peak in summer because everyone is hunting during fall and winter. As a result of COVID, there are many more podcasts, online events, etc., available. Take advantage of these educational opportunities to further your knowledge and learn how to best management your land and enhance hunting success. There are also many wildlife seminars, short courses, and field days offered around the country during summer. One of the best ways to find out about these events is to search the internet, contact your local extension office, state wildlife agency, wildlife federation, or a national organization geared towards your interest (e.g., National Turkey Federation, Ducks Unlimited, National Deer Association (NDA), etc). As a landowner and wildlife manager, you should be constantly learning new ways to improve wildlife and habitat, experimenting with various wildlife and land management practices on your property, and sharing your results. If you attend some of these events, don't be surprised if you see me there. Even as a veteran wildlife and land manager, I continue to seek better ways to do things and to learn better ways to manage wildlife to achieve desired results.

Monitor and control weeds in summer food plots

If you planted summer food plots (which I hope you did), it is impor-

tant to monitor weed encroachment to ensure you get the most benefit out of your food plots. If you are new to planting summer crops, you will soon become an expert at weed identification and herbicides. Just by nature of the warm conditions and excellent growing conditions, food plot managers have a tougher weed battle to fight during the summer. There are many summer weeds that will take advantage of the lime and fertilizer you have applied to the soil for your summer food plot plants. If left unattended, these weeds can, and will, take over your summer food plot, resulting in less quality forage for your wildlife. Make food-plot-specific notes of the weeds you are having problems with so that you can adjust your planting the following year. For example, if you have grass-type weed problems, such as Johnson grass, plant a broadleaf crop on that plot so that you can spray grass-selective herbicide to control the problem grasses without harming your crop. Vice versa, if you have broadleaf weeds, plant grass or grain crops so that you can spray broadleaf-selective herbicides. Obviously, another option is to plant "RoundUp Ready" summer crops. Doing so allows you to apply glyphosate (RoundUp) after germination of your crop to kill all competing weeds, whether they are grasses or broadleafs. While weeds are persistent, we are smarter!! Anticipating your site-specific weed problems and planning/planting accordingly will help you make the most of your summer food plots and efforts.

Conduct summer quail call counts.

Call counts conducted in May and June provide an estimate of the number of males available for breeding and an evaluation of winter survival. This information allows you to monitor the quail population's response to habitat management efforts and quail production. In much of the bobwhite's range May and June are peak months that males will be actively calling as part of the breeding season. To obtain an index of male birds, set up several "listening points" on your property that can be used each year. Preferably space these locations far enough apart that you could not hear the same quail from different listening points. Call counts should be conducted at or shortly after daylight. To standardize the call count, arrive at the first station at sunrise, wait one minute to allow vehicle disturbance to settle, then listen for five minutes and record the number of quail heard whistling. Count and record the number of different individuals you hear. Continue until all stations have been monitored. For each survey, start the survey at a different listing point. You will need to conduct the call counts at least 5 different days for the most accurate estimates. The more counts you conduct, the more accurate your estimates will be (statistically speaking). We often conduct 10 call counts (10 different mornings) each May -June. After completing the call counts, calculate the average number of calling males heard per station. This is your "index" and the number in which you will compare against future call count data to assess increases or decreases in the quail population. The key to accurate year-to-year counts is to be consistent about everything you can control: same people listening, same locations, same kind of weather (clear, windless days) same week of the year, and the same time of day.



To ensure optimal survival and growth, provide newly planted trees TLC during their first year.

Initiate management of beaver ponds for creating and attracting waterfowl this winter.

Like cultivated duck ponds and green tree reservoirs equipped with water control structures, beaver ponds can be managed to produce duck food to attract waterfowl and provide great hunting opportunities. If quality mast-producing trees are still alive in the beaver pond, manage the pond as a green tree reservoir - meaning apply a slow draw down before spring green up. While most oak species can tolerate being flooded over dormant season, few do well and often die if their feet stay wet well into summer. If few quality trees exist or if trees are already dead (from constant/ unmanaged flooding), you have a few options for management strategies. First, you could drain the pond early in the growing season (at spring green-up or very early summer) to allow natural wetland/ moist soil plants to germinate and grow throughout the summer. Many moist soil plants produce seeds, which are quality duck foods. A slower drawdown over several weeks will result in a more diverse species composition of plants providing a variety of seeds/food. Another option would be to hold water on the pond until early summer, drain the pond by breaking the beaver dam, and then broadcast small grains such as millet. Keep in mind that unless you install a "beaver deceiver" or Clemson Leveler type pipe to prevent beavers from repairing the dam, you will need to routinely check the dam and manually rake debris out to keep it open. I personally like Japanese millet because it easily germinates on mud flats with little or no site preparation, grows well in wet soils, produces an abundance of seeds, and if water is properly managed, it will often

reseed the following year. Planting grain in a beaver pond is relatively easy. Simply broadcast seed at the recommended seeding rate per acre onto exposed mud flats. Although fertilizing is not essential to success, it can help. I rarely fertilizer broadcasted crops in beaver ponds and have had great success without it.

Now to the hard and messy part – water control. To consistently manage a beaver pond successfully for ducks, it is necessary to drain the pond by breaking the dam and installing a drain pipe. Generally speaking, this means a 10-20 foot corrugated pipe that extends well into the pond with many perforations along its length to prevent beavers from patching the leak. Although it is messy, and certainly watch out for water moccasin/ cottonmouth snakes, breaking a beaver dam is often not as difficult as it seems and can normally be done with a fire rake. Break the dam on the downstream side of the existing channel in the form of a narrow, deep "V". The initial flow of water through the dam will help clear excess dam materials. Place the drainpipe deep into the break so that at least 10' of pipe extends both upstream and downstream of the dam. The final level of the pond will be determined by the height of the downstream end of the pipe or the standpipe position height. There are many options for beaver pond drainpipes. The key is to install a pipe that is designed to prevent beavers from "patching the hole", yet does not drain the pond completely so that beavers remain in the pond. Always leave at least 1/3 to 1/2 of the pond area un-drained during drawdown, as over-draining may cause the beavers to seek new areas. There are many homemade and fabricated designs that can be found by doing a little internet research. If you do not use a drainpipe that

allows you to adjust the water level, you will need to remove the drain pipe approximately 45 days after natural moist soil plants or your planted crop germinates. This will allow beavers to patch the break in the dam, resulting in the pond flooding. Using this method often requires re-breaking the dam and re-installing a drain pipe higher in the dam to maintain the desired water level. I like the Clemson Pond Leveler as it is a great and relatively permanent design that allows you to control water levels by adjusting a standpipe on the downstream side of the dam.

HEAR BETTER. BREATHE BETTER. HUNT BETTER.

Gotcha



"It's a Tough World Out There!"

STOP Wildlife, Wind and Weeds from Killing your Habitat Seedlings



Choose Plantra® to make sure they *Survive, Thrive, Succeed!*™

Grow Tubes • Tree Bark Guards • Mesh Tubes Mulch Mats • Fertilizer Packets • Animal Repellents



www.plantra.com 800-951-3806

©2016 Plantra, Inc.

IMPROVING WILDLIFE HABITAT ONE TREE AT A TIME!



Late drop Chestnuts, Persimmons, Pears, Apples, & Crabapples!

Hard mast Trees including early producing Chinkapin & Dwarf Chinquapin oak!

SEE US ON FACEBOOK! THE WILDLIFE GROUP 2858 COUNTY ROAD 53 | TUSKEGEE, AL 36083 | 800-221-9703 WWW.WILDLIFEGROUP.COM | ALLEN@WILDLIFEGROUP.COM



We Finance Land | Land Improvements | Hunting & Fishing | Recreational Tracts | Country Homes



First South is how you buy land.

First South

Contact the office nearest you

Albertville Andalusia Anniston/Oxford Athens Auburn/Opelika **Bay Minette**

Birmingham Cullman Demopolis Enterprise Luverne Montgomery

Moulton **Muscle Shoals** Northport Ozark

> 800-955-1722 FirstSouthLand.com





Why Westervelt?







Lifelong memories and experiences have been created on Westervelt lands for over 50 years. Why would you look anywhere else?



www.westerveltwildlife.com

Follow us @ Westervelt Wildlife Services & @lifeonthehunt