



Wildlife Trends

JOURNAL

JANUARY/FEBRUARY 2018

VOLUME 18, ISSUE 1



INSIDE THIS ISSUE

Burning the Woods: Still a Hot Topic
By Lynn Lewis

**A Bird's Eye View – Drone Flying:
What You Need to Know.**
By Ron Jolly
Photos by Ron & Tes Jolly

The Golden Shiner
By Scott Brown

Lyme Disease: Ninjas in Tanks
By Jason R. Snavelly

**Wildlife Trends Journal
Management Calendar**
By Dave Edwards

The **FIRMINATOR™**

PERFECT PLOTS

BEGIN HERE



The NEW FIRMINATOR RT by Ranew's Outdoor Equipment combines a rugged gear-driven tiller with the proven seed delivery and cultipacking systems that made the Firminator famous!

BY Ranew's
OUTDOOR EQUIPMENT

thefirminator.com | 678.544.4400 | wyaney@ranews.com



Earl Says...

Thank you to all the folks who took the time to let me know how much you enjoyed the articles from the last issue. I really appreciate hearing from subscribers and especially like to know what is helpful to you and how our articles have made a difference in your land management efforts.

This issue offers a few different ideas from some of our past articles. Technology can be helpful to all of us and I hope you enjoy Ron Jolly's thoughts about incorporating Drones on his property. Although the costs can limit what you can spend on new "toys", new technology is becoming more affordable. I look forward to getting into some of this soon myself.

And speaking of different kinds of article, Jason Snavelly tells us about his ordeal with Lyme disease and how it has affected his daily life. It's amazing to me that a tiny creature like a tick can wreak such havoc on your body the way it did his. Here's hoping Jason gets better and we all learn from his experience.

Lastly, I wanted to congratulate my friend, Phil Savage, on being elected to the National Board of Directors of the National Wild Turkey Federation. Thank you to everyone who voted for him and I know he will do an outstanding job.

Andy Whitaker
Publisher/Editor



Wildlife Trends JOURNAL

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

PUBLISHER/EDITOR
Andy Whitaker

DESIGN
Kim Koellsted/Craftmaster Printers, Inc.
Craftmaster Printers, Inc.
687 North Dean Road, Auburn, AL. 36830
(800) 239-3293

CONTRIBUTING AUTHORS

Dave Edwards
Dana Johnson
Brant C. Faireloth
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
Dr. Larry W. Varner
Jason R. Snavelly
Steve Tillmann
Mark Thomas

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

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.

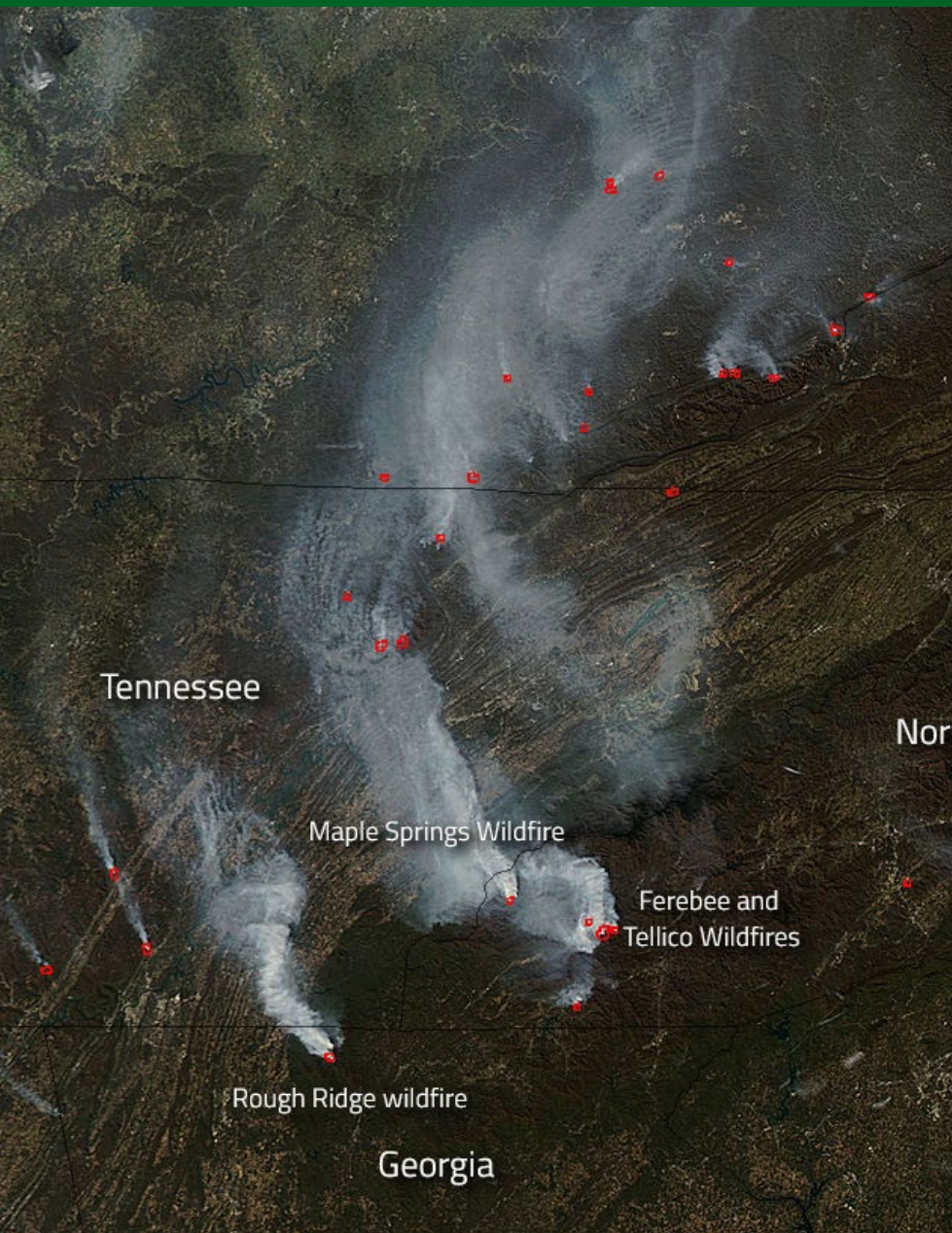
Articles may be reprinted with the permission of Wildlife Trends editorial staff.

Cover photo by Dave Edwards

Burning the Woods: Still a Hot Topic

By Lynn Lewis

Lynn Lewis is a Certified Wildlife Biologist® with 20 years of experience in wildlife and forest management working in academia, state agency, private consulting and non-profit areas. Lynn is currently the Chair of the South Carolina Prescribed Fire Council. Lynn is a Double Dawg with both her B.S. and M.S. degrees in Forest Resources/Wildlife Management from the University of Georgia's Warnell School of Forestry and Natural Resources.



Wildfires that devastated communities across four southeastern states in 2016.

It's that time of year... hunting season is winding down (except for you cold-loving waterfowl hunters) and land managers across the Southeast are taking advantage of the "off season" to get trees in the ground, post boundaries, clear roads and all those other things that are just better when it's cool and bug/snake free. But most managers this time of year are thinking about one thing in particular, setting the woods on fire! The Southeast is a "hot spot" for using controlled burning, also called prescribed burning or prescribed fire, for forestry and wildlife benefits that no other area in the U.S. can claim (2012 National Prescribed Fire Use Survey Report). That sounds awfully scary to the lay person, but for fire-lighters in the South it's a tradition that has been practiced for generations and is perfectly acceptable and certainly not controversial. Or is it?

Truth be told, the way we burn in the South is changing drastically as we try to manage more holistically and in-line with naturally occurring systems in an increasingly fragmented landscape with significant human implications. The public is certainly at full attention with the recent uptick in catastrophic wildfires that seem to be occurring more frequently in our part of the world. Unfortunately, the public just sees red/orange flames and doesn't discern the difference between a purposefully set controlled fire and an out-of-control wildfire. From a forest agency standpoint fighting these wildfires, east and west, are decimating much needed basic operating funds, a term referred to as "fire borrowing". For the Southeast it seems like it started back in 2007, when over 560,000 acres were scorched in and around the Okefenokee Swamp that almost burned up my hometown of Waycross, Georgia. More recently, the high profile fires in north Georgia, North Carolina, and Tennessee that resulted in major economic losses and, more importantly, devastated families who lost loved ones. Part of the reason these wildfires become so devastating is because even in the fire-loving South, controlled burning is still not used

enough.

We can debate the nuances of whether or not controlled burning in the spring is better than in the winter or if an aerial ignition of over a 1,000 acres is appropriate. That mainly depends on the management objectives and what resources you have to work with. But to be honest, it's gotten to the point that we need to promote controlled burning and other forms of active forest management even if it's not the perfect application. Otherwise we'll be very limited in making any inroads improving wildlife habitat and forest health and minimizing negative impacts of catastrophic wildfires on our communities. Recently, the lack of active forest management, including the use of controlled burning and its negative outcomes, is now in the national spotlight. Thanks to the leadership of the US Department of the Interior Secretary Ryan Zinke, US Department of Agriculture Secretary Sonny Perdue and US Representative Bruce Westerman of Arkansas who introduced the Resilient Federal Forests Act last summer, we're hopefully going to see some major changes in how we use and deal with fire.

But let's back track a little and lay

some ground work for those not as familiar with the history of fire, its uses and the issues surrounding it.

History of Fire in the Southeast Fire vs. No-Fire

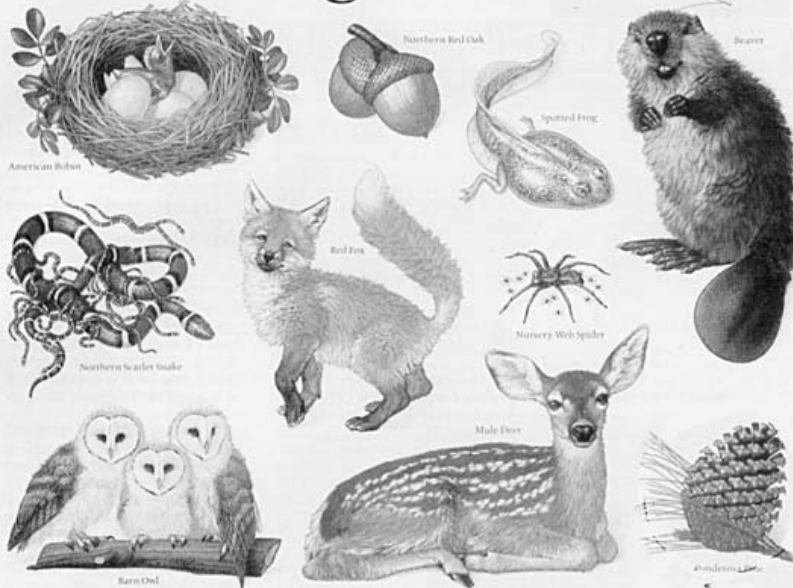
The Southeast was once a fire-dominated system with the uplands made up primarily of mature stands of longleaf pine in the coastal plain or in the mountains and piedmont shortleaf pine with fire-tolerant hardwoods mixed in. Fire created a ground-level understory made up of small shrubs, bunch grasses and "weedy" plants that provided plenty of food and cover for wildlife and naturally burned every 2-5 years at a relatively low intensity. The animals and plants associated with this ecosystem adapted through eons of evolution and developed ways to cope with the fires. Many of the wildlife and plant species now in the most peril are the ones that depend on this type of habitat – Georgia aster, Bachman's sparrow, Northern bobwhite quail, gopher tortoise, and red-cockaded woodpecker amongst many others.

Historically, fire in the Southeast was caused by lightning strikes in the summer, but later on the Native Americans and early Europeans also influenced the fire regime as they burned to clear land



The Okefenokee Swamp wildfires of 2007 that endangered the town of Waycross, Georgia.

How life begins in the forest.



How it ends.

One match.
That's all it takes to destroy
a forest and every creature,
great and small, who lives there.
So it's especially important to
be careful with fire when you're
in the forest.

Always make sure your

campfire is out cold before
you leave it. If you see
someone being careless
with fire, call an adult.
And never, ever play with
matches.

Remember, only you can
prevent forest fires.



A Public Service of the Forest Service, USDA, and your State Forestry.

FOREST FIRE PREVENTION CAMPAIGN
MAGAZINE AD NO. FFP-2816-90-7" x 10"-4/C (120 Screen)
Volunteer Agency: Foote, Cone & Belding, Inc., Campaign Director: Dennis Higman, Weyerhaeuser Company

Old Smokey Bear flyer with all-fire-is-bad messaging.

for hunting, pest-control, agriculture and living space. But with the introduction of Smokey the Bear, the Dixie Crusaders and other anti-fire messaging in the early 1900's, the use of controlled fire on the landscape dropped dramatically and generations were taught that fire of any kind was bad. More recently concerns regarding liability, lack of training, public perception, air pollution, etc. have limited controlled burning. As a result, the woods have gotten thick and woolly, leaving fewer good places to live and reproduce for those species adapted to the historical fire-dependent system. Thick and woolly also means lots of fuel for a fire whether it starts from a cigarette butt, careless

campers or a lightning strike. Ironically, this state of affairs has now set the stage for devastating wildfires like we've seen of late that are causing major economic issues, loss of human life and habitat destruction.

Public and private land managers now use controlled fire to mimic the natural fire regime. Benefits associated with its use include: releasing nutrients making them available for plants, stimulating seed germination and succulent new plant growth, increasing plant diversity, reducing wildfire risk by reducing fuel, controlling undesirable plants, producing high-quality habitat for wildlife and improving forest health. Fortunately, focus on the benefits of controlled

burning is on the upswing as more groups recognize that fire in the Southeast is like water to the rainforest, and without fire our precious flora and fauna are lost and along with them our communities will suffer.

The formation of state, regional and national pro-fire groups like prescribed fire councils that are made up of a wide-range of natural resource professionals and their organizations, as well as privately run prescribed burn associations that focus on private lands are a testament to the importance of keeping fire on the landscape. But we still have some challenges when it comes to educating and informing the media and general public about controlled burning and why it's better to have it than not. A recent article out of South Carolina is a great example of messaging that at a minimum causes confusion about wildfires vs controlled fires, paints a negative picture of controlled burning in general and has an underlying message that may inadvertently incite public fears of controlled burning (https://www.postandcourier.com/news/in-age-of-wildfires-some-south-carolina-forest-managers-seeking/article_033ed8fa-e67f-11e7-970d-bb5c57368d29.html).

The Controversy of Controlled Fire: Seasonality, Ignition Type and Size Does Matter

Most land managers would probably agree that when used wisely controlled fire has multiple benefits, but even amongst those in the controlled fire community there is a lot of debate that causes some divisiveness. When you use fire and how you use it does make a difference. Seasonality, intensity, ignition type, frequency, and size of burns are frequently and sometimes hotly debated. The bottom-line, all of these parameters really depend on the specific property, what the management objectives are and what resources you have to work with (funding, expertise and man-power). Are you managing for bobwhite quail? Are you restoring long-

leaf pine or an oak savannah? Are you simply trying to keep fuel loads low to minimize wildfire risk? Are you mandated to manage for an endangered species or to provide open training areas for our military? Do you have multiple objectives and stakeholders that are all a high priority and require a balanced approach? Often the public doesn't realize the complexity and finesse that land managers in both the public and private sectors have to consider when it comes to controlled fire. Not to mention the weather conditions that are needed to achieve the type of burn you're looking for. Relative humidity, fuel type, ground wind speed and direction, mixing height, air temperature, etc. that can change drastically during a single burn. Even hunters who for the most part are very knowledgeable about wildlife and habitat management really struggle with using controlled fire in the spring or summer when they think it could negatively impact turkey nesting and/or poult and deer fawning.

The most controversial topics sur-

rounding controlled burning that I hear most frequently nowadays is seasonality (time of year), ignition source/type and size of burn. So let's dive into those a little more.

Seasonality: Dormant Season (winter) Burns vs. Growing Season (spring/summer/fall) Burns

Dormant season (winter) burns are the most common type of prescribed fire and usually takes place from November-March before plants start to green-up. The weather patterns at this time of year are pretty predictable, cooler temperatures make burning more enjoyable, and risk of timber mortality is reduced because fire intensity is usually lower. Dormant season burns are also great for beginning burners that need to practice the craft and are especially useful to reduce fuel loads. There is almost zero chance of impacting any ground nesting birds like turkeys or quail. But when only winter burns are conducted, we see less plant diversity (sometimes even a negative shift

towards a monoculture of non-desirable plants like bracken fern) and hardwoods (maples, yellow poplar, and sweetgums) are not adequately controlled and can shade out or compete with more beneficial trees, shrubs, grasses and "weeds". This is the time to consider using some growing season fire.

Growing season (spring/summer/fall) burns aren't used as often although that is changing. These burns are usually done March-May, maybe into June and July and recently more practitioners are experimenting with burns in September and early October before first frost. The idea is to burn while plants are actively growing so that you get more hardwood control and more closely mimic the fires of old that were ignited by lightning. Naturally fire-tolerant hardwoods like blackjack oak, bluejack oak, sand post oak, runner oak, etc. are still perfectly fine and provide acorns in the uplands while the less fire-tolerant trees like water oak, maples, sweetgum, etc. are kept down in the bottoms where they actually are supposed to be.

THE ROAD TO PARADISE IS PAVED WITH DIRT.

Hunting? Fishing? Or just muddin'? Alabama Ag Credit and Alabama Farm Credit offer financing for any type of rural recreational land, so you can enjoy your home away from home. Or your home away from everything. We can help with a loan for a weekend cabin or permanent home, as well as improvements such as wells, fences, new lakes or land clearing. If you choose to build on your land, we'll roll your construction and real estate loan into one easy mortgage, at terms that meet your personal needs. Call us today to check out your financing options. Then head for the country to live life at your own pace.

FINANCING LAND & FARMS SINCE 1916



AlabamaAgCredit.com

1-800-579-5471



AlabamaFarmCredit.com

1-877-681-6087



Land purchasing and refinancing

Operating expenses

Livestock financing

New and used equipment purchases

Varying terms and rates



Restoration of the longleaf-wiregrass ecosystem is also an objective in which growing season fires are paramount. Wiregrass must have summer burns to produce viable seed. Growing season burns can be an excellent tool when trying to control many of our nasty exotic, invasive plant species. By adding the late spring, summer and fall fire season, you greatly expand the number of available burn days when weather conditions are good to burn. This is a major limiting factor for many fire-lighters that have a lot of acres to get burned within a very small winter time window. Expanding the available burn days also provides the opportunity to reduce the size of burn blocks or units because you have more time to burn them. But like everything there's a flip side. Growing

season burns can be intense because of higher temps and unpredictable weather patterns which increases the risk of losing timber and smoke/air quality issues can be problematic. Growing season burns don't need to be conducted by the novice. There is a higher risk of impacting ground-nesting birds. However, many studies have shown that turkey nests lost during spring growing season burns are minimal, if there are any at all, and improved habitat that is a result provides more benefit to turkeys than no fire.

I always tell folks who want more wildlife, no matter what it is, the key is habitat diversity. You have to provide everything an animal needs (food, nesting habitat, escape cover, brood rearing habitat, etc.) all year-round, not just

when you want to hunt them. A part of that model is using all the tools in the tool box. Prescribed fire during both dormant and growing seasons is a must when managing lands in the Southeast.

Ignition Source

How do you light a controlled fire? This isn't something that traditionally gets a lot of attention. I'm sure the public hasn't even thought about it. There are many ways to ignite a controlled fire, from stringing fire walking with a drip torch to flame throwers from an ATV to aerial ignition from a helicopter using ping pong balls. Drones are even entering the picture as a new way of firing it up. Each technique is used in different scenarios again based on your circumstances, objectives and resources.



A private landowner in Georgia strings fire with a drip torch through a young longleaf pine stand. (credit Lynn Lewis)



An aerial ignited prescribed fire using a helicopter.

The debate focuses on wildlife primarily and whether or not the ignition sources lead to a fast-moving or slow-moving fire. Does wildlife have time to react and avoid direct impacts? A natural lightning ignited fire will start at one or several localized points and then move outward maybe slowly or quickly depending on prevailing weather and habitat conditions at the time. Does it rain immediately after and put the fire out? Was it late in the afternoon during an upcoming thunderstorm and the fire burned during the high humidity of the night? Or was it in front of strong winds that pushed the fire fast and furious? Then think of the fire lighted via hand-strung or slow moving vehicle drip torch. Even a head fire (fire set with the wind pushing it quickly forward) set this way can move very fast. What about aerial ignition? Usually set in a grid where many small fires converge together relatively quickly. Until more

research is done regarding impacts of ignition sources practitioners need to use what's available to help them most efficiently get their burns done.

Size of Burn

Yes it does matter. If you're managing for bobwhite quail, which is very dependent on early successional habitat throughout the year, then you want to burn on a small scale. Burn blocks of 250 acres or less, even down to 25 or 30 acres, creates more "edge" and different stages of weedy plants and bunch grasses. And if you can set up a checkerboard burn rotation where you have a mosaic of small burn blocks with habitat that is only one or two years removed from seeing a fire, all the better. But that takes a tremendous amount of time, effort and money that most land managers/owners, whether public or private, do not have. On the other end of the spectrum is our Federal agencies that

have to manage and burn in a given year thousands and thousands of acres. They're looking at trying to burn at a scale of 1,000 acres per burn block. And that's often all they can handle given the man-power and burn days they have to work with. Small burn blocks are just not feasible in that particular instance. Is this the best case scenario? Maybe not, but the fact they're still burning deserves a kudos and we as a fire community can assist when possible to create a better burn regime.

Whether you're talking about seasonality (time of year), ignition source/type or size of burn, one big take home point is this, when you burn, no matter the time of year how big or how it's lit, you will have areas that will burn really well and some not burn at all. This is not the case with wildfires that burn with wicked speed and high intensity leaving nothing but scorched earth in their path. Those that burn know this

from on-the-ground experience, but most don't think about. If you're burning in a monoculture pine stand you may see a uniform burn across the stand, but typically you have micro-habitats within the stand that burn differently. Maybe a small wet spot or an intermittent stream that stops the fire cold. Maybe a small group of live oaks or other hardwoods that aren't conducive to a fire. Maybe a north facing slope where things aren't as dry. Maybe the wind died down and a small back-fire burned out. This leads to an unintentional, but wildlife friendly mosaic of burned and unburned areas. This is where many wildlife that are more mobile can seek refuge. Others that are not so mobile, like salamanders and snakes, do have some tricks up their sleeve. Seeking shelter underground is a great disappearing act. Gopher tortoises in the sandy soils of Alabama, Florida, Georgia, Louisiana and Mississippi build impressive fire-escape bunkers that many species use to avoid fires, even bobwhite quail. This is just one of

the adaptations that many species living in a fire-dependent ecosystem have developed. Until we see some more research surrounding size of burns and ignition sources I'm not sure we can really come to a conclusion on which one is better than the other. We also need to remember; wildlife and forest management is about the population as a whole and not individuals. If we lose a few turkey nests during a spring burn, but the broods that did hatch have a better chance of making it to adulthood, I'd say that's a good trade off. Same can be said for single or small groups of tree mortality caused by controlled burning. The good outweighs the bad.

The Coup de Grâce - Thin AND Burn

Thin AND Burn should be every land manager's mantra if you're interested in boosting wildlife numbers and improving forest health. The true key in today's world of forest and wildlife management is the word "ACTIVE". We can't leave it to Mother Nature anymore

because the natural system has been disrupted and doesn't function as it has historically, not to mention we have to meet the needs of a growing human population, maintain private landowner rights, and still protect and conserve our natural resources. To accomplish this, we must actively manage our forest lands to maintain healthy, productive forests, plentiful, diverse wildlife populations and maintain the safety of our communities. So what exactly does that action look like?

If you want wildlife, whether it's deer, turkeys, songbirds and/or gopher tortoises, you need to provide for them year-round. Just like us, wildlife need the basics: food, shelter and water. For a majority of wildlife in the Southeast, the limiting factor is early successional habitat. Places that to us look, as my Moma likes to say, "snaky" or "full of weeds" (think the opposite of a golf course) are actually beneficial habitat. To a white-tailed deer doe, it's the perfect place to hide her fawn when it's most vulnerable. To a turkey poult it's a smorgasbord of

Celebrating 10 years in business!

We are a full service lake and land management company with over 50 years combined experience researching and managing natural resources throughout the southeast. We offer high quality service and proven products to help you achieve your fish and wildlife management goals.

Visit us on the Web:

southernsportsmanaquaticsandland.com



“Creating quality fish & wildlife habitat from Texas to Florida”

**North Carolina: Scott Brown
(336) 941-9056
Florida: Steve Lopez
(904) 484-6773**

protein-rich insects that will help grow flight feathers so he can fly into the safety of the trees. To a bobwhite hen it's the thick bunch grasses where she can create a small cave-of-a-nest, and where succulent, easily-digestible "greens" are followed up by large, heavy seeds that are available as food way into the winter for a variety of wildlife.

Bottom-line, the easiest way to get that much needed early successional habitat for wildlife and improve the health of your pine stands is to Thin AND Burn. I still get calls from amazed landowners after they implement my recommendations to thin and burn their upland pines. Within a year, usually a matter of months, they not only see and harvest more game species, like turkeys, but also see a noticeable increase in other wildlife species, especially songbirds. Not to mention the aesthetic benefits of the practice that creates a park-like pine savannah with showy, native wildflowers in full bloom. Then there's the benefits of forest health. Trees that have been thinned



Wildfire damage is much less in an actively managed forest that includes thinning and controlled burning than one that is not managed. (credit Healthy Forests, Healthy Communities)

High quality & affordable game bird hunts and continental pheasant shoots on our property or yours.



Hunts start at \$200 per person on our property. 15 quail per person.

Located in South Montgomery County, Alabama
Call now to reserve your dates!

www.facebook.com/TwistedOakTaylorDeese
Owner: Taylor Deese (334)-850-5747

and burned are not as stressed and the risk of insects and disease is less. So is the risk of wildfires since prescribed burning keeps the fuel loads low.

But you must do these two things together. One without the other is like peas without carrots and you will not see the full-benefits or you may not see any noticeable improvements at all. The thin, which needs to be <70ft² basal area or at least 50% of the ground in full sunlight at mid-day, allows sunlight to hit the forest floor for understory plants to grow. The controlled burn, which needs to be every 2-3 years starting off with dormant season burns and culminating with a mix of dormant and growing season burns. Follow up with another thin every 5-7 years, or when the tops of the trees start to grow together, to keep the early successional habitat in good shape and provide a steady economic return on your trees.

A Paradigm Shift: Proactive Instead of Reactive

Another thing to consider when it

comes to fire is the recent movement by federal, state, non-profit conservation organizations and private landowners to proactively manage for high priority ecosystems and the species that use them in an attempt to keep them from being listed as Federally threatened or endangered. Instead of waiting for a species to be listed and have potential regulatory issues impact how we manage our properties, the forestry and wildlife communities are trying to be proactive by improving habitat on a landscape scale BEFORE government regulations must be put into place. And of course Thinning AND Burning on lands is a no brainer for improving habitat and hopefully preventing a species listing. It's also a good idea to be proactive when managing your forests. Trying to deal with a beetle outbreak or catastrophic wildfire after the fact is much more costly and troublesome than some preventative measures on the front-end. This proactive habitat movement is not just talk. There's significant funding for work on both public and private lands

that landowners can tap into. Not to mention the recent national discussions surrounding the Resilient Federal Forests Act that I mentioned earlier.

Long story, short, we as land managers, conservation professionals and armchair biologists need to stop bickering about the nuances of controlled burning and do all we can to make sure fire stays in our management tool box. Without it we are certainly making things harder and more expensive than they have to be. If you can still conduct a safe burn, then do it when you can. If you have the latitude and luxury to burn in 50-acre blocks, then by all means do so. But if you have to burn 1,000 acres at a time with a helicopter you still get a blue ribbon in my book. Might not be ideal, but a damn sight better than letting it lay another year until conditions are perfect or waiting until you can create smaller burn blocks. Next thing you know it's been 10 years and you've got a much more difficult situation to deal with and heaven help if somebody flicks out their cigarette into the tinder-

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





An actively managed mixed pine-savannah in South Georgia where timber thinning and controlled burning are used. Healthy, actively growing timber and a diverse plant understory providing excellent wildlife habitat. (credit Lynn Lewis)

box that has been created.

On the bright side there are a lot of options to promote controlled burning and for our fire-lighters in the Southeast a world of possibilities. Just please keep burning and as my friend and fellow fire-lighter, Johnny Stowe, likes to say “Share the Flame”.

So what can you do?

Learn more about fire, if you don't know. State wildlife/forestry agencies and conservation groups conduct prescribed fire trainings periodically across the Southeast.

Don't be so quick to criticize our fellow fire-lighters. Find out what their bottleneck is and help them overcome it.

Support your state/federal agencies as they try to conduct more burning, even if it's not how you would do it. Keep in mind they have challenges of their own to work through.

Support any local prescribed fire asso-

ciations whether it's through funding, a place to burn, or just moral support.

Stay up to date with current research. Only through science based information can we make educated decisions.

Attend your state's Prescribed Fire Council meeting. <http://www.prescribed-fire.net/membership/state-councils>.

Go out with a wildlife/forestry professional that does this every day because it's their passion (it's certainly not for the pay). They truly care about what they're doing and do this for a living, not just as a hobby.

If you are fire savvy, be an advocate. Mentor someone interested in becoming a certified burner. Influence your legislators. Educate your neighbors and colleagues. Practice the art on your own property.

Some Additional Resources

Cox, J. and B. Widener. 2008. *Lightning-Season Burning: Friend or Foe of Breeding Birds? Tall Timbers Research Station and Land Conservancy.*

Humphries, Rebecca. *It's Time for Congress' to Fight Wildfires. The Hill. Contributed piece. Oct 2017. <http://thehill.com/opinion/energy-environment/357560-its-congress-turn-to-fight-wildfires>*

Kilburg, E. L., et al. 2014. *Wild Turkey Nest Survival and Nest-Site Selection in the Presence of Growing-Season Prescribed Fire. The Journal of Wildlife Management. 78(6):1033-1039.*

Little, A. R., et al. 2014. *Eastern Wild Turkey Reproductive Ecology in Frequently-burned Longleaf Pine Savannas. Forest Ecology and Management. 331:180-187.*

Martin, J. A., et al. 2012. *Wild Turkey Habitat Use in Frequently Burned Pine Savannah. Forest Ecology and Management. 285:179-186.*

Melvin, Mark A. 2012. *National Prescribed Fire Use Survey Report. Technical Report 01-12 Coalition of Prescribed Fire Councils, Inc.*

Resilient Federal Forests Act 2017. <https://naturalresources.house.gov/hr2936/>

Stowe, J. 2016. *Whither the Fire-Oaks? Longleaf Alliance, Longleaf Leader. Spring 2016:40-42.*

A Bird's Eye View Drone Flying: What You Need to Know.

By Ron Jolly
Photos by Ron & Tes Jolly

Ron Jolly (ronjolly22952@mindspring.com) is an award winning outdoor writer and video producer living with his wife, Tes, on their farm near Tuskegee, Alabama. Tes (www.jollysoutdoorvisions.com) is herself an award winning writer and outdoor photographer. You've seen lots of her work in each issue of *Wildlife Trends Journal* including this issue's cover photo.



Drones, or unmanned aerial aircraft, are fast becoming a useful habitat and wildlife management tool for the landowner and hunter.

Aerial views have long been used to help land and wildlife managers make good decisions. A look from above reveals many facts that cannot be seen from ground level. Satellite images offer great perspectives of areas we manage and hunt but often leave us longing for a closer look. A drone fitted with a camera and in the right hands gives us that added advantage of close-up observation.

My interest in drones sprang from my work as a video producer. There is simply no shot more dramatic than a moving perspective from above the subject. These shots are always unique and add motion to every scene. A shot properly set up and framed adds a view that can only be achieved from above. I call it the “bird’s eye view”.

Before the invention of camera-wielding drones, these shots could only be achieved by the use of ultra-expensive helicopters or airplanes. Even those options

often left a lot to be desired.

As with any high-tech equipment, a learning curve must be mastered to achieve the best results. You will learn to actually fly a drone. That is only the first in a long line of skills you must develop to become a remote operator in charge.

Drone Rules and Regulations

Drone is the common name for unmanned aerial vehicles. The FAA, (Federal Aviation Administration), refers to them as *sUAS*, or, *small Unmanned Aerial Systems*. The FAA bundles all drones weighing more than 0.55 pounds and less than 55.0 pounds into two categories, **hobbyist** and **commercial**. If you benefit monetarily from the use of a drone in any way, it is considered commercial by the FAA and you must comply with their rules to fly legally.

The rules are:

1. Anyone owning a drone weighing between 0.55 and 55.0 pounds must register it with the FAA. The registration fee is \$5. Failure to register could result in civil and/or criminal penalties and jail time.

2. A person must be at least 13 years of age to legally operate a drone.

3. Drones must be operated at an altitude of 400 feet or less.

4. Drones can only be operated during daylight hours.

5. Drones must remain within the line of sight of the operator to be legal.

6. Drones cannot be flown over federal lands, groups of people, sporting events, emergency operations or near other aircraft.

7. It is illegal to operate a drone while under the influence of drugs or alcohol.

8. Drones cannot be operated within 5 miles of an airport without the permission of the Air Traffic Controller and Airport Manager.

To avoid problems, download the app, **B4UFLy**. It provides users with situational awareness and considers the users current or planned location in relation to operational restrictions to derive a specific status indicator. These indicators inform the remote pilot if the aircraft operation is prohibited.

Note: Policy Memorandum 14-05, released by the National Park Service (NPS) director in June 2014, directed each superintendent to use the authority under 36 CFR 1.5 to prohibit the launching, landing, or operation of unmanned aircraft, subject to the certain conditions and exceptions set forth in the memo. This is still in force with



Drones are capable of shooting stunning photos and video. Landowners can use these images and clips to inspect for bug damage in planted pines, feral hog destruction, assess food plot status and select treestand locations.



A drone can provide a close-up view of annual mast production such as on this Chinese chestnut tree.

very few exceptions. This action applies to launching, landing and operation of unmanned aircraft on lands and waters administered by the NPS.

Drone Statistics

With more and more drones filling the skies it is hardly surprising that the government weighed in with rules and regulations. In fact, it is estimated that by the year 2020 there will be 7 million drones in our skies. The Federal Aviation Administration, (FAA), is the governing body when it comes to drones and predicts two classifications of drones will prevail, commercial and hobbyist. The agency predicts 4.3 million hobbyist drones and 2.7 million commercial drones in use by 2020.

The price for higher end drones will average upwards of \$40,000 and the lower end drones around \$2500. The lower priced drones are estimated to make up 90% of the demand.

My drone falls in the lower end category. I have around \$2500 invested in the aircraft, case, batteries, lens filters,

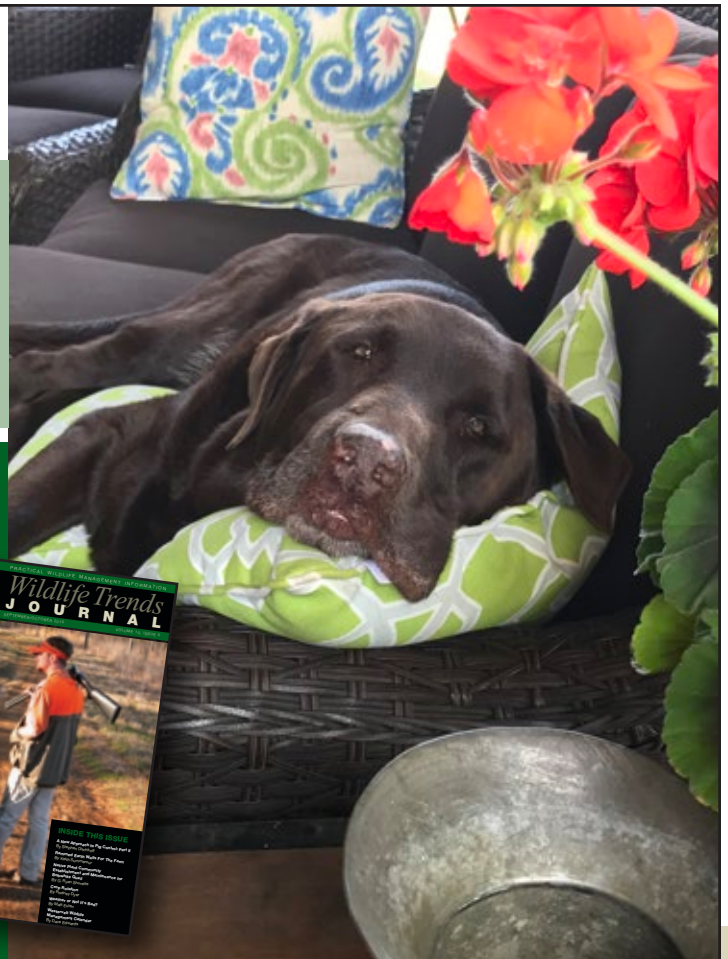
EARL SAYS:

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!



prop guards, chargers, and the list goes on. As with any gadget the number of accessories available is endless.

I use my machine as a mobile aerial camera platform for video production. In addition, I use it around our farm to survey timber for bug damage, monitor food plots for feral hog damage, survey water sources, locate pinch points for stands, monitor controlled burns and locate game trails. Here again, the uses are only limited by your imagination, needs and federal restrictions.

Learn to Fly

Today's sUAS's are nothing less than a modern marvel. There are so many features and options that it is literally impossible to learn them in a short time, at least for me! With this in mind the manufacturers of many models give you tools that help you master flying the drone.

One manufacturer, DJI, produces the drone I operate so I will discuss their products. I am certain these facts vary from manufacturer to manufacturer but most provide assistance with learning to fly the drone and operate the camera.

DJI offers a beginner mode for those just learning. This mode limits the height and distance the drone can fly. As



Photos or video shot from above provide an advantageous perspective to assess seed and fertilizer coverage when planting crops.

you get more proficient, height and distance are adjustable within the app simply by changing the values. They also offer a flight simulator option. It allows you to simulate flying the drone without it ever leaving the ground. Flight simulation mode allows the operator to learn the controls and see their effects on the drone's flight. It also eliminates the risk of losing or crashing it.

Another neat feature is the "come home" option. This function automatically returns the drone to where it was launched when the battery reaches critical level or when the drone loses contact with the controller. The important thing here is to set the height at which the drone returns home to ensure it flies above any obstacle on its path home.

My DJI Phantom III Pro offers three



Aerially captured photos and video give landowners a unique view of management operations such as prescribed burns.



The list of accessories available for drone flying is endless. Certain things like lens filters, extra batteries, spare props and a launch pad are necessary for many situations.

flight modes. Each has its own benefits and requires different levels of skill to master. Sport Mode allows the drone to fly at a much faster speed and respond to the controls more dramatically. ATTI Mode slows speed and response time while demanding the pilot to be in control at all times. GPS Mode is similar to ATTI Mode but relies on a minimum of 12 satellite connections to help steady and control the drone. In GPS mode the aircraft will hover exactly where you want it without any assistance from the pilot.

Within these flight modes are options that give the pilot options that would be difficult to perform manually. Point of View allows the drone to fly a perfect circle at the desired height and distance around a target. Way Point allows the drone to fly a specific path set by the pilot automatically, then return to point of launch.



Aerial photography is a great hobby for landowners and outdoor enthusiasts too, as shown in this beautiful fall scenic. It offers unique angles and perspectives that can only be captured by a view from above.

Know Your Camera

The fact that a small drone can give you a “bird’s eye view” of your property is part of what makes them so appealing and valuable as a management tool. Many of the drones available today feature a camera capable of shooting stunning video and still photos, but to capture those images you, the operator, must know how to adjust the camera to different conditions.

These cameras are operated via an app that is downloaded to a tablet or smartphone. In order to shoot the best photos or video you have to properly set exposure, ISO, shutter speed and white balance. You also have to frame the shot properly for dramatic shots. This is no easy task when you are also concentrating on flying.

Another thing to know is these cameras normally feature a fixed wide-angle lens. That means you need to move the camera closer to the subject to get close up shots.

It is imperative that you learn the control menus featured in the app. It is through these menu options that you control camera settings and shoot the best photos or video. Cameras on many drones are capable of shooting JPEG and RAW still images as well as video ranging from standard definition all the way to 4K.

Get Help

In reality, unless you are a geek extraordinaire, learning the options and settings can be daunting for the novice. That is where today’s online services come into play.

YouTube is loaded with short tutorials and almost everything drone related. Once I began to get comfortable with the basic operation I also began to want it to do more. A Google search using the make and model of my drone revealed “How To’s” on almost anything drone related. In most cases there are multiple videos on a single subject, giving you opinions on how to accomplish your goal.



The camera on most drones has a wide angle, fixed power lens. In order to get close-up shots you have to position the aircraft close to the subject. This is useful when inspecting fields or food plots for damage from hogs, insect pests, weeds or disease.



By watching and listening to someone explain how a function worked or a camera setting improved a shot, you will soon begin to see huge increases in proficiency and the quality of photos and videos. The good news is, it's all free! You just have to know how to find it then take the time to learn.

Be Legal, Pass the Test

To be completely legal even as a hobbyist there are rules you must comply with. (listed earlier). The grey area between hobbyist and commercial operator is often vague. To avoid serious penalties, (fines and even imprisonment), you have to assume the Remote Pilot in Command role. That means you need to take and pass the Part 107 Remote Pilot Knowledge Test offered

A smartphone or tablet app that's specific to each drone brand is used to control its flight, the onboard video/still camera and other features. To avoid damage or worse, it is imperative that you become proficient with the controls before actually flying the drone.



Blanton's

LONGLEAF CONTAINER NURSERY
MADISON • FLORIDA

850-973-2967 PH & FAX

blantonsnursery@earthlink.net

SINCE 2001, THE LARGEST
PRIVATELY OWNED
PRODUCER OF
CONTAINERIZED PINE
SEEDLINGS IN THE STATE
OF FLORIDA.

GROWERS OF 6" PREMIER
CONTAINERIZED PINE SEEDLINGS

*Improved & Natural Stand Longleaf
Advanced Generation Slash & Loblolly*

www.blantonscontainernursery.org



LOCATED IN NORTH FLORIDA ONLY MINUTES FROM VALDOSTA, GA & I-75

C. J. (JAY) BLANTON III
850-566-1884

JASON M. BLANTON
850-566-7175

C. J. BLANTON JR.
850-673-7421

by the FAA. Once you have passed the test you will be issued a remote pilot license.

The test is no pushover. It consists of 60 plus multiple-choice questions on everything relating to the operation of a remote aerial vehicle. To pass you will have to have knowledge of weather. Under that heading are subjects like METARS, TAFS and NOTAMS. You will be quizzed on airspace with questions on AGL (above ground level) and MSL (Median Sea Level) and military air routes. Radio communications will also be covered in the test as will Loading and Performance, Crew Resource Management and Preflight Procedures and Maintenance.

All this blew me away at first. I had no prior knowledge or experience with most of the subjects listed above. Research led me to an online tutorial that educated me on these topics. Remote Pilot 101 is the name of the program and I found it invaluable in my quest for a license. The course is organized in a way that takes you step-by-

step through the maze of learning what you need to know to pass the test. There are more classes online but Remote Pilot 101 came highly recommended and I found the instructor pleasant and knowledgeable.

To pass the test you must score 70% or above. After several weeks of study and preparation I passed with a score of 82%. Of the questions on my exam, over 70% had been covered by Remote Pilot 101. The cost of the tutorial was \$150 but worth every penny and can be found at www.remotepilot101.com.

Summary

In the high-tech world we live in today it is hardly a surprise that someone invented a gadget that affords the operator a bird's-eye view of our environment. Intense drone popularity has resulted in the government stepping in with regulations on their operation.

If you think owning a drone could be in your future, I highly recommend that you educate yourself before you buy. Buy the best drone you can afford.

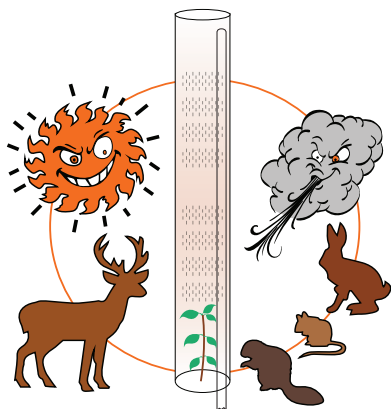
There is a huge selection to choose from and each has its own selling points.

Start the process of sUAS ownership by going to www.faa.gov/uas/. This is the Federal Aviation Administration's official website and a great place to start your education on properly owning and operating a drone. Remember, violations of these rules and regulations can result in serious fines and/or jail time. It is imperative that you understand what you can and cannot do with your drone.

Beyond all the rules and regulations, there awaits limitless opportunities to enjoy and utilize your sUAS. Whether you are a land manager, a hobbyist or a commercial operator, a drone can add a perspective to your operation that could only be imagined a few years ago. There is something magical about flying over your property or hovering in place over a scenic view, shooting high definition video or high quality still photos to analyze or share. It is possible and the only limits are your imagination and your skill as a remote pilot in charge.

"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**

 **Plantra**
Plant Like You Mean It

www.plantra.com
800-951-3806

The Golden Shiner

By Scott Brown

Scott Brown is a biologist and regular contributor to *Wildlife Trends Journal* with over 30 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. Scott can be reached at scott@southernsportsmanaquatic-sandland.com or (336) 941-9056.



The golden shiner is used nation-wide as largemouth bass bait because they prefer them. Why wouldn't you use the golden shiner as a forage food for your largemouth bass?

The most common live bait used for trophy largemouth bass throughout the country is the **golden shiner** (*Notemigonus crysoleucas*). Over the years in private lake management, everyone has heard the pros and cons from hatchery owners, private lake managers and the weekend pond manager regarding the golden shiner as a largemouth bass, crappie and/or striped bass hybrid forage fish in small ponds and lakes. Fish hatchery personnel have argued with me and our clients when calling around for a golden shiner supplier. Every waterbody is unique with water chemistry, habitat and fish species assemblage. Being a professional research fisheries biologist for over 31 years, I have never observed a negative impact where golden shiners were present, whether naturally occurring or through introduction. That does not mean it hasn't occurred, but we have not yet observed it. We have seen situations

where there were too many large golden shiners in a waterbody, but this was due to largemouth bass mismanagement, not the shiners taking over. The two most common reasons given by private lake owners who do not want them present are that they can take over a small waterbody or that bass, crappie and striped bass hybrids will not bite artificial lures once they are exposed to shiners as forage.

Life History

Golden shiners are native to the eastern half of the U.S., but have been widely distributed throughout much of the rest of the country stocked as a forage or released after fishing used as a bait fish. The golden shiner is identified by its deep body, triangular head, deep forked tail and usually golden color. The gold color is darker, depending on the water color they live in and more prominent during the spawning season. The maximum size is around 12 inches, but most golden shiners are less than 6 inches long. These native fish do have a cold-water threshold of approximately 35° F. Once water temperatures reach this level, they become stressed and can die if it remains this low for a few days. Many times they can be found in areas farther north than expected to survive, but they have access to warm water refuges during winter which helps with their survival. The farther south the water body, the faster they grow and the larger they get, due to longer growing seasons.

Golden shiners scatter adhesive eggs on submerged vegetation. No care is given to the young. Spawning starts in the South about mid-March at 68 °F and fish spawn periodically until water temperatures exceed 81 °F, typically around June. It has been documented that they have spawned in the fall as temperatures fall into the desirable range.

The main food source for golden shiners is zooplankton (microscopic animal) and phytoplankton (microscopic

plant), but also feed on many other food items such as insects, algae, snails and tiny fish. Golden shiners will consume commercial fish feeds. Although they feed primarily by sight, golden shiners tolerate plankton-rich (green water) ponds and are found in a wide variety of water clarity types. Given their small size as adults, their high fecundity, and their omnivorous food habits, golden shiners are considered an excellent forage species. They have been documented to occasionally eat fish eggs, which is why we recommend not stocking until other species have established. In waterbodies with balanced largemouth bass populations, a golden shiner population may not be sustainable and may require to be periodically restocked.

Some ponds have never been stocked with the golden shiner, yet have them present. These came from a nearby waterbody upstream or through flooding of a nearby lake, creek or river. If you have them without stocking, I would consider yourself lucky. They are a great source of protein for desirable predator fish such as largemouth bass,

black crappie and others.

Management

When managing trophy largemouth bass, abundant forage is necessary to keep growth rates high and carry bass from hatchling to 8 – 15 years-of-age, and depending on how far north your waterbody is' 6 – 15 lbs. A 10 lb. largemouth bass can consume an eight-inch golden shiner, but a 14-inch largemouth bass will need 2-3-inch-long shiners to help it with growth. Relying on only one forage species places a lot of pressure on that population. Fostering multiple species of forage, such as bluegill, threadfin shad and golden shiner, offers a better chance of creating a naturally, self-sustaining forage base. This approach always offers forage at various sizes, locations in the lake, and during the largemouth bass's entire life cycle. With these three forage species, forage is available off-shore in open water, and near shore around structure and vegetation. As the golden shiner population numbers dwindle, bass will refocus on bream and/or threadfin shad. This moving from forage species to for-



Golden shiners can reach up to 12 inches in length in the Deep South, but most areas stay the size many largemouth bass age classes can utilize. A double digit largemouth bass will consume this golden shiner.



This eelgrass (tape grass) is very beneficial for many fish species including the golden shiner. They can disperse eggs on the vegetation while juveniles and adults can hide in it and feed off it.

age species gives the depleted species a chance to repopulate naturally without restocking.

We have rarely observed good populations of black crappie and striped bass hybrids without a mix of small forage species. Again, that mix is usually bluegill, threadfin shad and golden shiners. Although these two predator species are traditionally open water feeders, they will move around a pond or small lake and feed where the forage is available. Large black crappie love one-to-three-inch golden shiners as food. Striped bass hybrids up to four pounds love

three-inch golden shiners.

There are as many different recommendations on when to stock and the stocking rate as there are people who do and do not want them in their waterbody. If it is a new pond, and you want harvestable bream as part of the population, we recommend stocking golden shiners three-to-five years after the initial stocking of other species. Allowing the bream population to become established before stocking golden shiners seems to work best for both species. If you only desire trophy largemouth bass, stock bream, threadfin shad and golden

shiners 6 – 12 months before the largemouth bass get stocked. Golden shiner stocking rates range from 100 to 1,000 fish/acre. Generally, stocking size is approximately two inches, but some suppliers offer them up to six inches. You should stock sizes and numbers according to the predator species and numbers present. If not a new lake and largemouth bass are already present up to 16 inches, stock various sizes of golden shiners to help with some surviving and spawning without being consumed. If you are trying to jump start a stunted largemouth bass population, stock higher numbers of smaller individuals that can be consumed shortly after stocking, but also include stocking individuals too large for consumption which creates a breeding stock. As stated earlier, these fish do have a cold-water threshold of about 35° F and should a die-off occur, or predators consume the majority of them, restocking golden shiners may be necessary.

Golden shiners will consume commercial fish feed. Offering small pellet or mixed-size pellet feed allows more individuals to benefit from a supplemental feeding program. Feeding will increase growth rates and numbers in the waterbody. Feeding will also concentrate forage where some predators will follow-up and prey on the easy meals.

Where we have seen golden shiners



This quality black crappie was in a lake with many other individuals the same size that has abundant bluegills, threadfin shad and golden shiners.



This is a typical scenario where golden shiners have “taken over.” This waterbody had no quality size largemouth bass, only poor-quality bass and very large golden shiners present. If large bass were present, there would be very few big shiners.



**DISTRIBUTION OF HERBICIDES • AERIAL APPLICATION OF HERBICIDES USING HELICOPTERS
FORESTRY, RIGHTS OF WAY, AQUATIC, RANGELAND AND PASTURE • AGRICULTURE**

HEADQUARTERS: LOUISVILLE, MS • 662.779.2183





Every quality hybrid striped bass fishery we see also has a good number of small golden shiners present.

“take over” a pond is generally in the Deep South. With long growing seasons, they spawn in spring and fall, and harvesting largemouth bass was not being conducted. When we conducted electrofishing surveys, we discovered a large number of big shiners, with no big

largemouth bass in the fish population to consume them. In my opinion, the golden shiner didn’t take over, the largemouth bass were mismanaged. If this happens, removing several largemouth bass from the bottleneck-size-group and stocking small shiners or

another small forage species to get them through their current size and into larger sizes to consume the larger shiners will be necessary. Electrofishing results can help determine more advanced management decisions and help you achieve your goals in a shorter period of time by knowing exactly what state the entire fish population is in, and not just one species.

Another concern mentioned was that largemouth bass, black crappie and striped bass hybrids cannot be caught on artificial lures once golden shiners are introduced. We have several clients around the country with balanced fish populations, golden shiners present, quality-size predator species, and can still catch sportfish on artificial lures. The best bait for crappie is the minnow from your local bait shop. It is best to use artificial lures when angling for quality largemouth bass and striped bass hybrids in small ponds and lakes to reduce hooking mortality from shiner fishing. I have never seen a waterbody where the fish did not bite because

A FIELD OF DREAMS

IF YOU PLANT IT,
THEY WILL COME.

The Firminator is the ideal piece of equipment for hunting food plots and deer management. Regardless of your food plot needs and demands, the Firminator should be your top choice with industry leading features like:

- 3" heavy wall square tube frame
- 18" heavy-duty center ripper
- 18" 9 gauge disc harrow blades on 6" centers
- Durable powder-coat finish
- True agricultural grade cast iron cultipacker

The **FIRMINATOR**



BY **Ranew's**
OUTDOOR EQUIPMENT

thefirminator.com | 678.544.4400 | wyaney@ranews.com

there was too much forage whether bluegill, threadfin shad, golden shiners or another minnow or forage species. That doesn't mean it has not happened, but that would be an anomaly and I am not concerned about it. I have caught lots of very fat, healthy fish that would still bite when their natural food was unlimited.

The golden shiner is not the cure all for growing quality sport fish in smaller waterbodies, but it is another option lake managers have to increase the forage base, which will expedite predator growth rates and increase numbers of various, desirable predator species. We always preach forage diversity for many reasons, but mostly because it is successful. You or your lake manager just need to figure out what forage species will work best in your waterbody.

These young largemouth bass came from a lake with a good mix of bluegill, threadfin shad and golden shiners as forage, along with quality (15-inch-long) black crappie.



**Receive a FREE \$25 Cabela's gift card when you
JOIN QDMA TODAY!**



To receive this special offer for just \$35, call (800) 209-DEER and use code WILDLIFE



QDMA

WHERE DEER HUNTERS BELONG

Lyme Disease: Ninjas in Tanks

By Jason R. Snavely

Jason Snavely is a consulting wildlife biologist from Pennsylvania and President of Drop-Tine Wildlife Consulting, a private food plot consulting and wildlife management firm that works with private and corporate landowners and hunting clubs. Contact Jason at (570) 204-4064, Jason@droptinewildlife.com, or www.droptinewildlife.com.



The author on a successful hunt after months of intense training. This picture helps to motivate him when the effects of Lyme disease reoccur.

It's an epidemic. I'm here to tell you, your family doctor is wrong, **ALL** ticks carry nasty microbes that have the potential to wreak havoc on your health if given the opportunity. If you've been bitten, it's highly likely that you have been infected with Borellia bacteria that causes Lyme disease. After struggling with Lyme disease for many years and exhaustively employing my passion for reading scientific literature, I've come to the conclusion that tick-borne infections are about to demand mainstream attention, if they haven't already. While Lyme disease is NOT a common cause of death, it will cause you to age faster and the symptoms will wreak havoc on the quality and enjoyment of your life.

I love everything about white-tailed deer; especially their management and ecology. As deer managers, we regularly assess the effects of parasite loads on animal health

so I understand their negative impact on overall health and fitness. I never could have imagined that a bite from a tiny arthropod could so greatly affect the quality of my own health. It's ironic that the animal I have developed a career around plays a significant life cycle and hosting role for microscopic but nasty stealth microbes that make me sick with ever-changing symptoms. I'm not alone. In fact, since you're reading this article in a hunting/management magazine it's highly likely that you are harboring microbial parasites that were introduced into your body by an insect bite. The truth is, we all respond to them differently. Some who are exposed to Lyme disease never get sick while others deal with it their entire lives. We also know that lightning can strike at any time!

My motivation for writing this article was simple, to educate and debunk. I've seen more specialists than I care to discuss and I've discussed Lyme disease with my family doctor until he exhausted his referral options to specialists who told me I didn't even belong in

their office because my symptoms were not consistent with their respective area of focus. My livelihood puts me in contact with so many who love to live outdoors and share a strikingly similar story about their frustrating battle with Lyme and Lyme-illiterate doctors.

I've spent a small fortune on Lyme specialists and synthetic antibiotics because my costly insurance plan does not cover it. I was spending nearly \$12/day, out of pocket, on antibiotics. Knowing what I know now, I would have skipped that expensive treatment in lieu of a program designed to proactively improve my immune system to maintain a winning edge over my personal Lyme war. I would replace, through supplementation, the lost collagen that these microbes feed on in effort to minimize or eliminate the symptoms most commonly associated with my joints, brain, muscle, skin and eyes. At the same time, I would have gotten more active through regular exercise, learned how to manage stress and cleaned up my diet much earlier in life! I certainly

wouldn't take advice from anyone who is Lyme **ILLITERATE** simply because of the initials before and/or after their name. I wish I could turn back time. Maybe there's still time for you!

Origin of Lyme Disease

Let's debunk a huge myth right now: Lyme disease is not new. While it's true that we only discovered and began researching Lyme disease in the mid 1970's to early 1980's, it has been infecting humans for a very long time. In 1993, an ancient human was found frozen and preserved in the Italian Alps. The mummy was 5,300 years old and you will never guess what was found preserved in his body: the genetic signature of *Borrelia burgdorferi*, the cork-screw shaped bacteria that cause Lyme disease after a tick injects it into your blood stream! The microbe was a strikingly similar version to the one that bores into my cartilage and joints causing constant discomfort and pain. It's a fact that the stealth microbes that cause Lyme symptoms have been around for





A picture of me scouting a bedding area recently... explains why I have Lyme and a few other tick borne illnesses! I do this for a living.

several thousand years. This disease is not new, we just don't know much about it!

We once thought it's beginning traced back to Lyme, Connecticut where in November 1975, 51 people became ill after being bitten by ticks. Medical scientists attempted to treat the illness with antibiotics that had proven effective on similar illnesses at the time. Unfortunately, this wouldn't be the case for Lyme disease. Lyme is not black and white and it's extremely difficult to treat. The findings of researcher Dr. Willy Burgdorfer revealed why this illness was different. Dr. Burgdorfer identified a corkscrew-like bacteria, known as a spirochete, in the blood of infected patients. To honor his discovery, the corkscrew-like microbe was named *Borellia burgdorferi*, commonly referred to as simply *Borellia*. Unlike other known microbes, *Borellia* microbes exhibited a unique ability to trick the immune system by altering its genetic makeup. This tactic tricks the immune system that was designed to fight off such microbes, thus the common reference to *Borellia* being a "stealth microbe." Further complicating matters, *Borellia* employ their corkscrew shape to drill into your cells and then alter their form by becoming round

cysts: an antibiotic resistant, immune system-evading protective sheath. It's like a Ninja with a tank!

In 2013 the CDC finally admitted that at least 300,000 people are infected with Lyme disease every year in the United States alone. This statistic made me chuckle considering just 9 years prior the CDC insisted that number was no greater than 20,000; one example of increased awareness and acceptance that Lyme disease is no joke! Older doctors, possessing antiquated training, would disagree. The truth is, many practicing doctors today were trained with old information regarding tick borne infection.

There's a tremendous amount of information out there on Lyme disease. My relentless research reveals that much of it is bad information. Further complicating matters, most doctors don't understand the disease so they opt to write it off by simply prescribing synthetic antibiotics, as the CDC protocol demands. In fact, if a tick bite sent you to your family practitioner and antibiotics were prescribed for 14-30 days, you still possess the spirochetes that caused the symptoms that sent you there in the first place. The nasty microbes may be on the defensive and in hiding mode; however, symptoms can resurface (albeit completely differ-

ent) at any point in time. Stealth microbes will lay dormant waiting for your immune system to be compromised (stress, illness, another tick bite, poor diet, etc.) and a new battle in the war begins.

My Lyme War

My personal Lyme war is so extensive that I could write a book on it! I have just about checked off all of the common symptoms of Lyme, as reported in the medical journals. My joint pain never goes away and my hectic personal and professional life leaves me completely drained and exhausted at the end of the day. Occasionally, brain fog hits me and for three months I experienced night sweats that ceased only two months later, this time lasting only a month. As I type this article the joints of my fingers ache, my lower back hurts and I roll my head/neck every 10-15 minutes to keep from stiffening up. Tonight, I fought back by exercising at the gym for an hour, the best thing I've found to maintain an edge on my tug of war match with tick borne infection. If you're anything like I was before Lyme, you don't take a tiny tick all that serious. Think again!

My story and battle with the medical community over Lyme is very typical of hundreds of thousands of others. Unfortunately, most of them lack an avenue to be heard. I'm extremely fortunate to be able to work for hundreds of private landowners across the white-tail's range. They are all successful and motivated people who have just as much to offer me as I do them. During one of my rants over my search for what the heck is wrong with me, one of my clients, a very bright individual with a PhD in Pharmaceuticals, urged me to do whatever it takes to be **PROPERLY** considered for having Lyme and/or associated coinfections. It turns out, lab testing is unreliable at best but more on this later. I shrugged it off initially until my family doctor left me hanging which sent me on a mission to find the

answers myself (more on this later). I wish I had listened to my client sooner because as it turns out, my symptoms were the result of multiple tick-introduced stealth microbes that entered my blood stream to bore into and feed on my collagen rich tissues, including my joints, brain, muscle, eyes and skin.

My family doctor (*Lyme illiterate*) has referred me to a host of specialists over the years, all of which told me tests/diagnoses were negative. My doctor has thrown his hands up and opted to close the file stamped PSORIATIC ARTHRITIS. What?! How is this possible, I asked, when the **SECOND** Rheumatologist (arthritis specialist) he referred me to said “I will see him but since he does not exhibit any of the symptoms of psoriatic arthritis I can’t diagnose him with psoriatic arthritis”. The first Rheumatologist he sent me to chuckled as I walked into his office then immediately said, “you DO NOT have arthritis...you are free to go.” I shook my head in disbelief as I came to the realization that my doctor, a man who I trusted to oversee my health and fitness, couldn’t figure out what’s wrong with me. Perhaps he knew but the system that signed his checks didn’t want to enter the potentially profit draining arena of battling a disease that is not text book perfect when it comes to treating it. Fault was a moot point, I was getting extremely concerned about my health and no one had answers. Even after presenting a file folder full of Lyme-related research (I like research), my family doctor argued that there is no such thing as chronic Lyme disease. Wrong! There’s a great chance that your Lyme illiterate family doctor feels the same way and he’s wrong too!

When I left his office that day I was less than 9 months from the biggest hunt of my life: a Dall’s sheep/mountain caribou backpack hunt in the Northwest Territories. That day, during the drive back to my office I made a commitment to myself and my family to intensively research and understand Lyme disease

to disallow it from greatly affecting my quality of life and fitness level.

Specifically, I was not going to allow the disease to keep me from climbing the McKenzie Mountain range in pursuit of the animal I’ve always wanted a chance to hunt. That hunt was two years ago and I’ll never forget my guide looking me in the eye after day one and saying “we are a lot further along than I had planned for the first day, let’s set up camp and eat.” On day two, while we glassed the band of sheep that included my massive ram, my guide informed me that since we are three hours from being within shooting range we will set up camp and go after them first thing in the morning. I glanced at my watch and calculated that we had 4 hours of daylight remaining and questioned “Why don’t we go after them now and kill one?” My guide laughed and said “after hiking all day, I’m honestly not used to hunters who want to keep going”. How did I go from frustrated with joint pain, brain fog, night sweats, headaches and back pain to hanging in there with a professional sheep guide who was in phenomenal sheep shape? I simply improved my immune system by eliminating the disruptors from my life, as defined by Dr. Rawls in his best-selling book, *Unlocking Lyme*.

After paying a Lyme literate doctor to partially educate me and confirm my suspicion of infection, I immediately cleaned up my diet (with the help of my wife) and addressed my chronic immune dysfunction. I began running and exercising regularly (thanks to my wife). I hiked with weights and my gear in my pack. I ran my first half marathon and several other organized running events. I tried to manage stress as best I could and I slowly improved my immune system, suppressing the spirochetes in my body.

Like most chronic Lyme sufferers, I do not remember the specific tick or bite that changed my life and the way I care for my body. I don’t recall any rashes after yanking ticks from my

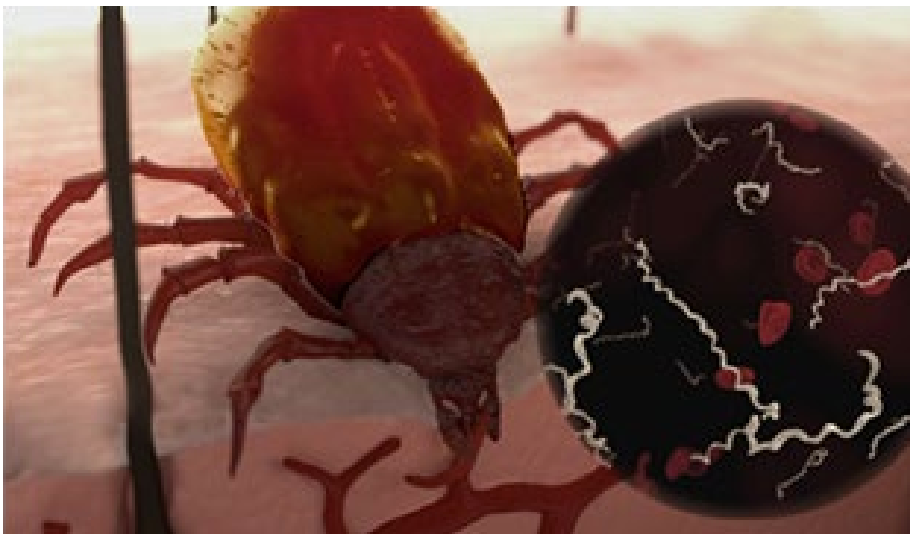
body. It’s a fact that as many as 2 in 3 infected with Lyme never get a bullseye rash. The fact is, I’ve had countless ticks feed on me from the piney woods of New Jersey to the Peace River in British Columbia. Since I do not recall acute Lyme-related illness at the time of the bite, I’m a classic case for late stage symptoms common in chronic Lyme disease. I’ll never forget the thousands of ticks that emerged from a cooling bear carcass during a photo session after a successful bow hunt in Manitoba. I make a living and I feed my passion in the outdoors. As a result, I’m accustomed to peeling ticks off my flesh and I never got overly excited over rashes left after tick bites; until recent years.

Immune System/Lyme Tug of War

I was once told by an acquaintance that he was dying as a result of his Lyme disease. I was uneducated at the time but I recall thinking that I’ve never heard of Lyme disease as a cause of death in a human! As a biologist, it just didn’t make sense to me. Deer, rabbits, mice, birds and humans are hosts for ticks and the nasty stealth microbes that they inject into us. They rely on us to complete their life cycle. Ticks simply want a blood meal and the microbes that take up shop in the saliva of ticks want to hop on board and infect a new target (you). Once they settle in to target areas of your body, they reproduce then await another tick bite where they

Dr. Rawls’ system disrupting factors that play a role in virtually ALL chronic illnesses

- Unnatural food
- Toxin overload (environmental)
- Chronic emotional stress
- Physical stress
- Artificial energy stress (cell phones, computers, etc.)
- Oxidative stress
- Microbiome imbalance (adding stealth microbes to our bodies)



Pictured above: A tick and an enlarged image of the spirochete borrelia bacteria in the bloodstream.

hitch a ride on a new tick in hopes of finding a new host to live on. If they

kill us, they disrupt a good thing they have going on. That's not job security and it certainly doesn't sound like the highly adaptive and creative spirochetes Dr. Burgdorfer identified and studied.

Your immune system is like an NFL Super Bowl championship defense. It works together, as a team, with a well-established game plan for attacking and defending an offensive assault designed to find an area of weakness. Occasionally, an offensive scheme is able to work together and exploit a weakness. Likewise, an unbalanced and compromised immune system opens up the door for an attack. If your immune system is robust and you are bitten by a tick that transmits a stealth microbe such as Borellia, you may simply experience a rash and flu like symptoms followed up by what appears to be a full recovery. Likewise, a compromised immune system may allow chronic infection to set in. In the later scenario, stealth microbes can continually wreak havoc when conditions allow.

Lyme is NOT a Standalone Pathogen

I often hear people talking about Lyme disease as though it's the only pathogen spread by ticks. We may very well have a handle on the disease if it were that simple! The fact is we don't quite know how many species of tick-borne microbes are

lurking in the various species of ticks that bite humans. This is one reason that testing for tick borne illnesses is virtually useless, a discussion most general practitioners lack accurate input on. While Borellia is the most common tick-borne microbe associated with Lyme, Mycoplasma, Bartonella, Babesia, Ehrlichia, Anaplasma, Rickettsia and Chlamydia are also common. Throw in the fact that we know each group of microbes has several species and an unlimited number of different strains and you begin to see why testing is a waste of time and money and more often than not provides false hope. We know Borellia is not alone, and further complicating the mess, we also know that there are many species of Borellia that cause Lyme-like syndrome. If the symptoms are present, treat for Lyme disease.

Antibiotics

Research has proven that although synthetic antibiotics may help you gain traction (and there is a time and place for them), the stealth microbes that cause Lyme disease are extremely resistant to antibiotics. If your doctor disagrees, ask him what science he's been reading. The fact is, many doctors today are triple booked and they don't have the time to stay on top of newly emerging science (on an extremely difficult microbe to study) while managing a very busy and demanding medical practice.

There is no scientific evidence that synthetic antibiotic therapy "cures" Lyme disease. The microbes that cause Lyme disease merely go into hiding and return to their normal parasitic lifestyles once antibiotic treatment stops. All the while, synthetic antibiotics make a mess of your beneficial gut flora. Additionally, antibiotic resistance is a given when an antibiotic is used long-term. Furthermore, when environmental conditions become hazardous for the survival of stealth microbes like Borellia, they have an amazing ability to surround themselves in protective cysts and become dormant until the

SYMPTOMS OF CHRONIC BORRELLIA INFECTION **adapted from Rawls 2017**

- Chronic fatigue
- Migrating arthritis/joint pain
- Muscle pain
- Chronic back pain and disc degeneration
- Chronic flu-like symptoms
- Headache/neck stiffness and creaking
- Bell's palsy
- Brain fog/decreased cognitive function
- Noise and sound intolerance
- Ringing in ears
- Disturbed sleep
- Blurry vision/floaters/eye discomfort
- Eye pain
- Tooth pain
- Dizziness and instability
- Muscle twitching
- Burning, tingling in feet and hands
- Tremor
- Chest pain/irregular heartbeat
- Shortness of breath/difficulty catching breath
- Unstable bladder
- Gastrointestinal dysfunction

coast is clear. As a result, some Lyme literate doctors (including one of mine) feel that antibiotics administered in high concentrations indefinitely or until symptoms cease is the way to go. I tried this method but abandoned it after a few months because I am not favorable to long-term synthetic antibiotics due to havoc they can wreak on the body. I do agree that the antibiotics jump started me; however, a few months after taking them my symptoms kicked back in. As a result, I've chosen more natural herbal medicinal protocols developed by Stephen Buhner and Dr. William Rawls. The likelihood of herbal toxicity is very low and the benefits are great.

Testing

There exist volumes of research on testing for Lyme and tick-borne infection. All of it reports that testing for Lyme disease is terribly poor. The reasons are too numerous to include in this article; however, be prepared to inform your doctor that false positives and false negatives are so common that testing is futile. You might add that it's discouraging that most labs only test for one or two species of *Borellia* considering we know of at least a dozen *Borellia* species that cause Lyme! I've had two negative ELISA tests administered by two different family doctors only to find out three years later, after spending \$980 of my own cash on a western blot test, that I'm dealing with at least three tick-borne infections, including Lyme disease. It will take several years, if I'm lucky, to repair the damage that has been done to my joints and nerve coatings (myelin). I wish I could have those 3 years back!

The most common test done in doctors' offices across the country is the ELISA test and unless you are presently showing a rash (doesn't always have to be a classic bulls-eye) or Bell's Palsy (numbing of the face) it will likely show negative results. Many doctors are aware that false negatives are commonplace from ELISA tests and as a result they don't give it often. My father in

law came down with flu-like symptoms after pulling a tick off himself. His doctor shrugged off a skin rash because it lacked the bulls-eye. He was initially sent home without antibiotics or testing. These signs and symptoms were screaming Lyme disease. The research shows that Lyme rashes do not always possess the bulls-eye rash and in fact can be any shape at all! Only when he went back for a second visit because half of his face went numb (Bell's Palsy) was a test administered with positive results. There's no excuse for a doctor to fail his patient like that.

Reliable Lyme Information

Since Lyme and associated tick borne illness are terribly misunderstood and inaccurately reported on I initially became frustrated when my research uncovered contradicting information. It would be dishonest if I did not mention a few reliable resources that I leaned on during my recovery and again for this article. These resources guided me as I developed my own plan for managing and one day beating my chronic misery. I believe I'm well on my way since I took matters in my own hands and committed to my plan. Since Lyme disease and tick borne infection is so misunderstood and difficult to study, trustworthy material can be challenging to find. Ironically, many times the worst place to find it is in your doctor's office! The two books that I've added to my library and have changed the way I think and treat my illness include *Unlocking Lyme* by Dr. William Rawls and *Healing Lyme* by Stephen Buhner. I have also found a massive amount of reliable data from the web site for the International Lyme and Associated Diseases Society, a nonprofit advocacy group that fights for acceptance of chronic Lyme disease. www.ilads.org. Be VERY careful about Lyme information found on social media and the internet in general.

Winning the Battle

There remains a lot to be learned about Lyme disease and tick borne

infections. The truth is there is great research out there; however, scientists are just scratching the surface. When you add the unnecessary resistance from the medical and insurance industries the pace of advancement and treatment options slows to a snail's pace. Those of us who deal with it don't sit back and wait for Lyme illiterate family doctors, but instead opt to seek the best approach to good health. I hope this information is helpful to fellow hunters who may also be following the frustrating path of Lyme-illiterate medical doctors. I've also written this article to present recent information that you won't likely hear from your family doctor.

Moving forward, I'm optimistic in what I'm finding on the topic of treating Lyme (and ALL infection/illnesses) with herbal supplements. Essentially, when your immune system is strong, many nasty microbes can lay dormant in your body without causing too much havoc. Allow your immune system to slip due to any of the disrupting factors as defined by Dr. Rawls, you are likely to experience problems. The good news is that it is possible to successfully treat and heal Lyme. Although I occasionally slip backwards I now know and understand the exact causes of my joint pain and brain fog. For me, it's a failure to exercise, minimize stress and avoid processed foods. The fact is, there is a huge amount of reputable research to support nonpharmaceutical treatments (herbs) that is being swept under the carpet by the medical and insurance communities. I have found great pleasure in the fact that the wild game my family harvests each year is as good as it gets when cleaning up our diet. Processed foods and mass produced commodity beef that Americans consume in giant amounts are feeding the diseases we are all struggling with. I'm energized by the fact that the herbal protocol designed to manage Lyme disease will also positively impact fibromyalgia, cancer, diabetes, depression, anxiety and many more.

Wildlife Trends Journal Management Calendar

By Dave Edwards

February/March 2018

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 General Manager for Cabin Bluff Lodge and President of Tall Tines Wildlife & Hunting Consultants, Inc. Contact him at Dave.Edwards@CabinBluff.com or 912-464-9328.



Obtain an updated aerial photograph of your property

Updated aerial photographs are an invaluable tool in land/wildlife management. In fact, it is the first thing I want to see when someone asks me to help them improve their property for wildlife or create a management plan. In my opinion, aerial photographs are best if taken during the dormant season when deciduous trees have lost their leaves (i.e., late winter or early spring before

green up). This allows you to distinctly see differences in pine or evergreen habitats and hardwoods. Infrared images taken during the growing season can do this as well, but I prefer color photos taken during winter. An aerial photo puts everything into perspective by allowing you to see the various habitats and how they lay across a property. While this may sound odd, it also allows you to see habitat diversity and layout of your neighbor's land which

Strip disking is an exceptional strategy to promote quality wildlife habitat.

may play a role in how you manage your property. For example, if your goal was to manage for turkeys and you see on an aerial that your neighbor's property is primarily mature timber, increasing nesting habitat on your property will likely attract nesting hens (and gobblers) from the surrounding property in the spring (not that you want to "steal" turkeys from your neighbor. Ha!). Also, aerial photographs often become my "drawing board" when devising plans to

improve a property. That is, having a map of the entire property in front of me, I can see everything, where various habitats are on the property, where food plots are located, etc. Having this, I can visualize how hunters, deer or other wildlife use the property and/or how we can improve the property to not only ensure quality habitat is provided across the landscape, but where habitat management can be used to direct wildlife to areas for improved hunting. There are many companies that specialize in taking aerial photographs, adding geographic features (roads, property lines, habitats, etc.), and providing a custom aerial map to the customer's specifications. While using these companies is obviously more expensive than pulling your property up on something like GoogleEarth, the resulting map/photo will be of high quality, up-to-date, customized to your liking, and can be uploaded into GIS type programs that allow you to pull useful information about your property (e.g., number of acres of each habitat type) and create detailed habitat management plans. While I prefer professionally flown custom maps to work with, I often use free online satellite imagery such as GoogleEarth, Bing Maps, etc. if needed. The downside of these images is that they are often outdated, particularly if you are actively managing habitats.

Initiate Late Winter/early Spring Strip Disking

Are you looking for an inexpensive management strategy that can significantly improve the wildlife value of your property? Strip disking is an excellent management practice that can produce exceptional food and cover for various wildlife. If you have a tractor and a disk the only expenses of strip disking are fuel and time. Simply find areas within relatively open habitat, drop the disks, and drag them. Obviously, the tractor operator needs to pay attention to avoid stumps or other obstacles to prevent damaging the tractor or disks. The goal is

to just “stir” the soil to promote germination of seeds in the natural seed bank.

Generally speaking, one pass is all that is needed. Disking can be done along roadsides, in or around old fields, and within thinned pine plantations or mature longleaf stands. Disking strips 10-30 feet wide in late winter and early spring will stimulate the growth of desirable native quail food plants such as partridge pea and beggarweed. The new succulent vegetation that grows in the strips will also attract insects. Late winter – early spring is also the best time to disk to promote high quality deer browse as it promotes broadleaf weed growth. These areas can be managed by re-disking every other year. The time of year you disk will influence the types of plants that colonize. For example, winter disking produces heavy-seeded quail foods such as partridge pea and ragweed, while disking in April increases the production of important seed-producing grasses such as panic grass. Disking in June favors grasses and green vegetation that attracts insects and a number of major seed plants that turkeys and quail readily feed upon in the fall. In general, seasonal disking can provide a diversity of seed producing plants for quail and turkeys as well as quality browse plants for deer.

Mow early or wait until early summer

If you have areas that need to be mowed, mow them before turkey nesting season (which is generally March-May in most of the Southeast) to prevent destroying nests. Unless necessary, I recommend leaving as much of roadsides, fields, and other openings unmowed to provide additional nesting habitat for turkeys and other birds. Much turkey nesting research shows that these areas are valuable and heavily used for nesting by hen turkeys. Even if turkeys do not use all of the unmowed areas, these areas will host an alternate food source (small mammals – rats, mice, and rabbits) for potential turkey nest predators. Having this “extra habitat” also increases the “search area” and reduces predator success in finding turkeys and their nests giving turkeys a better chance of producing a clutch and surviving. This strategy is more valuable for landowners whose property has limited nesting habitat.

Make preparations for spring turkey season

One of the best ways to ensure you have gobblers in the spring is to manage your property throughout the year to promote quality nesting cover (see tur-



Managing for quality nesting cover will result in better spring gobbler hunting on your property.

key habitat management article in the January-February 2009 issue for more detail on creating nesting habitat). I have worked with many landowners that had gobblers on their property most of the year, but they disappeared during the spring. After closer inspection, their property didn't have good nesting habitat and the hens had moved to adjacent properties carrying the gobblers with them. Quality nesting habitat is created by maintaining a patchwork of early successional habitat throughout your property. Burning, herbicide applications, strip disking, timber harvest, and roadside management strategies are all tools that can help you create quality nesting habitat for turkeys. Besides the key element of creating nesting habitat, creating strutting zones in strategic areas around your property will help put turkeys where you want them to be. February or early March is a good time to create strutting areas. A mower, disk, fire or combination of these are the tools of choice for this task. Fire is my preferred tool if it can be used. Strutting areas are simply areas that have relatively little or open ground cover that will be attractive to turkeys for breeding courtships. I often create these areas

between roosting and nesting areas and preferably near a food source such as an old field, chufa patch, or food plot. Areas that often lend themselves well to creating strutting areas are powerlines, thinned pine rows, and roadsides. Lastly, mowing hunter access trails will help you slip into areas to hunt without making a bunch of noise. If these trails go through thick habitat, don't be surprised if turkeys use the same trails.

Plant supplemental fruit trees and/or other wildlife friendly plantings.

Supplementing your property with plantings of oaks, chestnuts, pears, crabapples, plums, autumn olive, etc. is a great way to enhance both the esthetics and wildlife value of your property. Late winter through early spring (before spring green up) is the best time to plant most wildlife friendly trees/shrubs. Planting a variety of trees/shrubs will ensure that a variety of food sources are available throughout the year. The plantings should be strategically placed around food plots or fields, along roadsides/ intersections, or other areas that will receive adequate sunlight. If quail management is one of

your goals, and your property has lots of open land, you may consider establishing hedgerows for additional quail habitat. Hedgerows are often created using wildlife friendly plantings such as plums, dwarf chinquapin or sawtooth oaks along with other shrubs. Hedgerows can be enhanced by planting adjacent strips of partridge pea or food strips of corn, Egyptian wheat, sorghum, or millets this spring/summer. *The Wildlife Group* is an excellent source for obtaining beneficial wildlife trees/shrubs as well as getting advice on planting strategies and tips.

Prune fruit trees.

Pruning is a management strategy that will improve the health of fruit trees as well as enhance fruit production. Moderate pruning is usually best. Heavy pruning dwarfs trees and may delay fruit bearing, and is especially undesirable for young trees. Proper pruning shapes the tree's structure for life. Prune young trees to establish a strong scaffold system with wide-angled, well-spaced branches that will not split from high winds or heavy crops. A well-trained young tree bears heavy crops early and continues to bear efficiently. The dormant season is the best time to prune fruit trees, although dead or diseased branches may be removed any time. Prune bearing fruit trees regularly, preferably every year. It is a mistake to neglect trees for years and then prune them severely. Old trees, however, can sometimes be rejuvenated with heavier pruning than younger trees require.

Fertilize select roadside areas to increase browse and nutritional value for wildlife.

Roadsides and right-of-ways generally have more native plant growth than areas within the forest. This is because of the additional sunlight these areas receive. Coincidentally, areas along roadsides are usually areas that are easy to manage by disking, mowing and fertilizing to enhance the quality and quan-



Incorporating mast and fruit trees into your management plan is a great way to add additional diversity and wildlife value to your property.

tity of plants beneficial to wildlife. Once spring green up begins, select areas that have wildlife friendly plants such as ragweed, greenbriar, honeysuckle, etc., and apply fertilizer to enhance their growth and nutritional value. A side or directional broadcasting spreader is the implement of choice for this task. It slings the fertilizer to one side of the tractor allowing the user to simply drive down the roadside broadcasting fertilizer. Although some people take soil tests to assess soil nutrient levels to determine how much fertilizer to apply, a general application is 200 lbs. per acre of a balanced fertilizer.

Plan and schedule timber harvest activities

If you have timber that needs to be harvested, cutting it during the dormant season (winter) or early in the growing season (spring) enhances its wildlife value during the first year after the harvest. Harvesting timber during this period gives plants the entire growing season to regenerate resulting in increased

desirable food and cover for wildlife. Conversely, if timber is harvested in the middle of summer (mid-growing season) plants do not have as much time to germinate and grow. Thus, the resulting vegetation will not provide as much benefit to wildlife. Obviously, local timber markets and timber prices play a significant role in the decision to harvest timber, but if markets are right, harvesting during winter or spring will increase the wildlife value of the area during the first year.

Calculate acreage of food plots

Late winter can be a down time for many landowners. Most deer seasons are close to being over and many hunters are already thinking about what can be done to improve their property and hunting for next season. In the world of food plots, knowing the size of your fields can be critical to growing successful crops. Technology has come a long ways since I was a young biologist. One of the easiest ways to determine acreages of areas such as food

plots, timber stands, or lakes is by using Google Earth Pro. I have found this free software program very user friendly and accurate. If you are not familiar with it, simply search the internet and download it. The program is relatively easy to learn/navigate but has help/tutorials if needed. If you are more “old school” and need to “put your hands on it” there are several other ways to measure and determine acreage. A few of these include using a handheld GPS and simply make a lap around the plot, using a range finder to shoot/determine lengths of plot perimeters, or simply using the old tried and true pacing method. The ability to pace off a distance with reasonable accuracy is useful for many applications when managing a property. In fact, I still use the pacing method for many applications, particularly when roughing in new food plots. To determine the length of your pace, follow the steps below. Once you know the length of your pace, simply measure the length and width of a food plot to determine its acreage.



BACH & DEVOS
FORESTRY AND WILDLIFE SERVICES, INC.



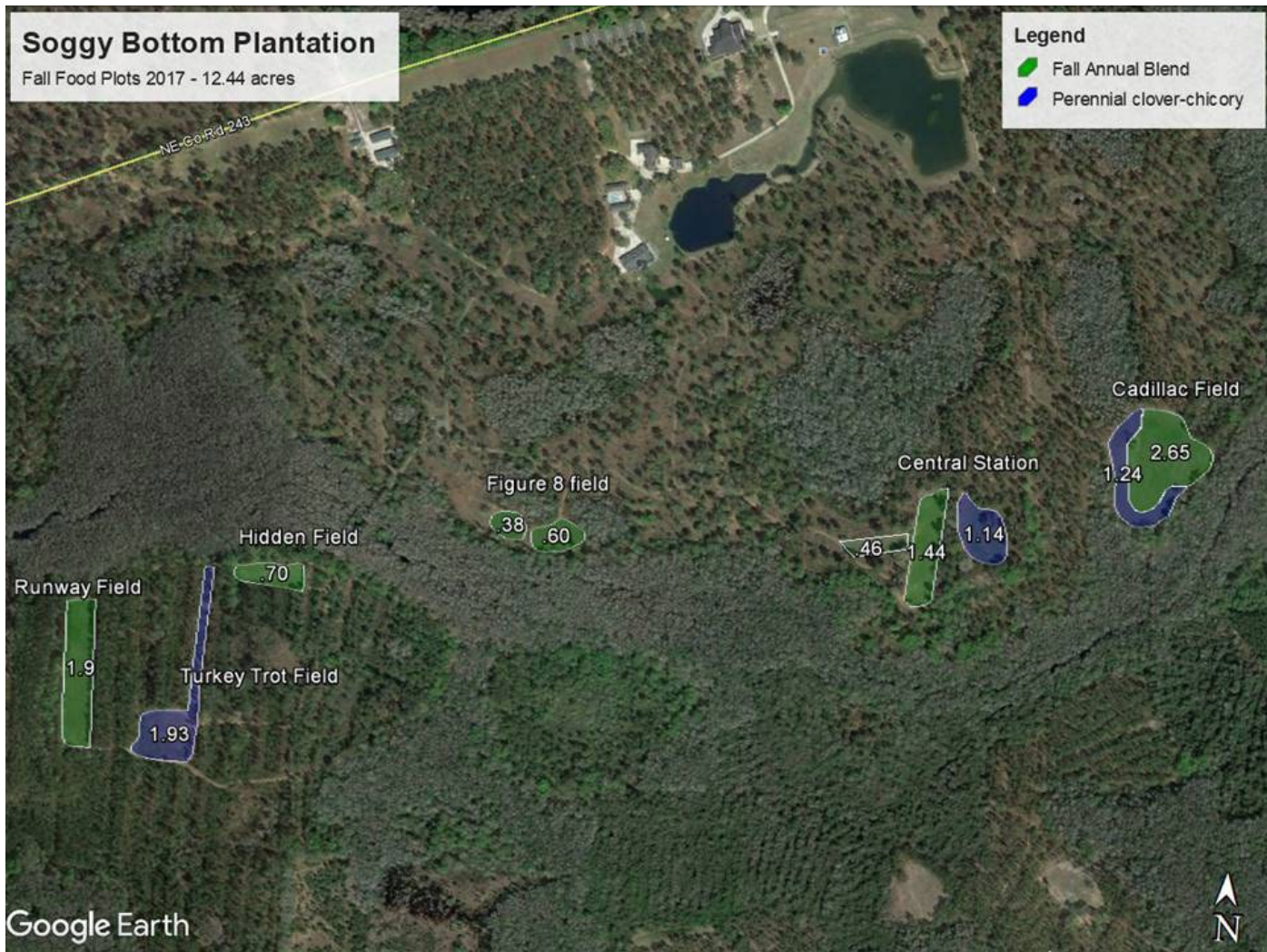
Woodland Mulching: It Can Be Addictive!

**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.



Understanding food plot acreage is important to successfully managing them. Late winter is a great time to determine acreage of each area you plant.

Determining the length of your pace:

1. Starting with one foot, count a pace every time the opposite foot is put down. With a measuring tape or length of rope, mark off 100 feet along a dirt road or on a food plot.
2. Using a normal, comfortable stride, pace the 100 feet about 4 times, noting each time the number of paces it takes to cover the distance. (Note: For the best accuracy, it is important to walk at a normal pace rather than exaggerated steps.)
3. Divide the sum of the total number of paces by the number of times you paced the distance. This figure represents the average number of paces it took to walk the 100 feet.
4. The length of your pace will be equal to 100 feet divided by the average number of paces it took to

travel the 100 feet (calculated in step 3).

An example of stepping off measurements to calculate the acreage of a food plot:

A person with an average pace of 5.6 feet found that a rectangular food plot measured 64 paces by 97 paces. What is the acreage of the food plot?

1. First convert paces to feet: 64 paces x 5.6 = 358.4 ft., and 97 paces x 5.6 = 543.2 ft.
2. Next calculate the area of the food plot in square feet: area of a rectangle = length x width, so area = 358.4 ft. x 543.2 ft. = 194,682.9 sq. ft.
3. Then divide the area of the compartment by the number of square feet in an acre (43,560 ft.): thus

194,682.9 sq. ft. divided by 43,560 sq. ft. = 4.5 acres.

Knowing the exact size of a food plot is extremely useful when it comes to figuring up proper amounts of lime, fertilizer, and seed. Over applying any of these is not only a waste of money, but also can negatively impact your crop performance. Many times, seed is put down too heavy on food plots because no one knows the actual size of the area being planted. “More is better” does not apply to food plot planting. Crops need to be planted at or close to the recommended rate. Too many seeds per square foot results in a poor stand when plants begin competing for moisture and nutrients. Take a day this winter to make a lap around your plots and get an accurate reading of the areas you plant, it will pay off.

WHAT DOES
The
FARM
MEAN TO YOU?



WHATEVER *The Farm* MEANS TO YOU, LET FIRST SOUTH FINANCE IT.

First South is your reliable lender. We've been financing *The Farm* since 1916, so we have the knowledge and expertise to help you own the perfect piece of land for whatever *The Farm* means to you. Contact us today.

Your Rural Lender | FIRSTSOUTHLAND.COM | 800-955-1722



First South
Farm Credit



Memories won't fade away if you keep telling the stories

*Commitment, Stewardship,
Passion & Management*



Westervelt Recreation

est. 1951