PRACTICAL WILDLIFE MANAGEMENT INFORMATION

Wildlife Trends JOURNAL

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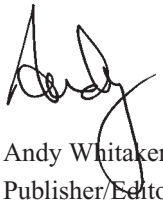
Earl Says...

Tree planting time! For most of our subscriber base your deer hunting season is either finished or about to be done. Either way lots of folks are planting both hard and soft mast trees to add wildlife value to their property. Here are a few reminders from our friends at The Wildlife Group to help you achieve greater success with your trees:

- If you're planting seedlings, be sure to make the hole large enough so that you don't smash the root. For larger trees, make the hole twice as large as the root ball.
- Oak and Chestnut trees should be planted 30-40 feet apart with rows at least 25 feet apart and staggered. Fruit trees should be planted in groups 20-25 feet apart. Planting in groups and in many varieties aids in pollination.
- If you plant a tree without protecting it with a tree tube you are pretty much wasting your money. Deer love newly planted, fertilized trees and will eat the entire plant if not protected. Tree tubes also act as a "greenhouse" for seedling trees and most trees will grow out of the top of the tube by the end of the first year.
- In mid-May or early June, spray Round Up around the base of your trees to kill off any weed competition.

Good luck with your tree planting efforts and hopefully Mother Nature will be kind to us this year!



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Calculating Proper Seeding Rate for Food Plot Success

By Craig Harper and Ryan Basinger

Ryan Basinger is a Certified Wildlife Biologist and serves as the Wildlife Consulting Manager and Hunting Lease Manager for Westervelt Wildlife Services. He received his B.S. in Wildlife Science from Mississippi State University and an M.S. in Wildlife Science from The University of Tennessee.

Craig Harper is a Professor of Wildlife Management at the University of Tennessee. He has conducted research on food plots for more than 20 years and recently published a new book, "**A Guide to Wildlife Food Plots and Early Successional Plants**", available through the University of Tennessee at https://secure.touchnet.com/C21610_ustores/web/product_detail.jsp?PRODUCTID=764.

Crimson clover and wheat that shows plant population that should be expected following using the proper seeding rate and properly inoculated (or preinoculated) seed. The plants are very green and healthy. The plot was properly amended with lime and P and K as recommended from a soil test. The rate of wheat was 40 pounds PLS. The rate of clover was 20 pounds PLS. The wheat was top-sown, lightly disked in, cultipacked, clover then was top-sown and then the plot cultipacked again.

Have you ever gone to great lengths to make sure you are planting your food plots correctly, but they don't turn out as you had hoped? Perhaps too thin, choked with weeds, or failed altogether? There are many reasons why food plots may not establish or grow well. Poor seedbed preparation, improper seeding technique or seeding depth, inadequate moisture or soil nutrients, incorrect timing, lack of weed control, and excessive grazing pressure are common reasons why many food plots fail or do not perform as you had hoped. Here, we will cover an insidious reason for poor food plot performance that is often overlooked.

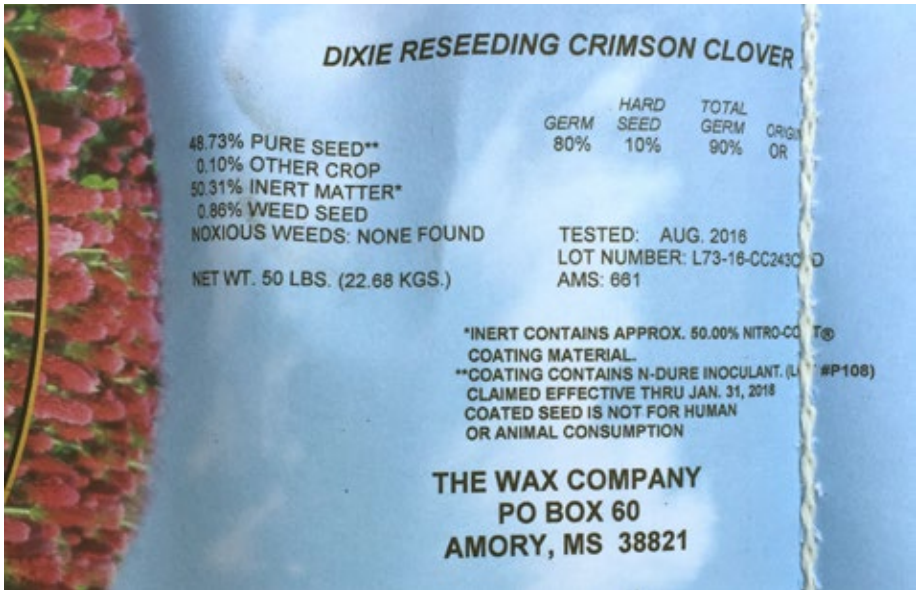
Let's assume you have used proper agronomic practices. You have prepared an adequate seedbed and planted properly. You planted in a relatively moist seedbed and it rained not long after you planted. Germination was good and the plot established well. You installed an exclusion cage after planting, and you know grazing pressure is

not excessive because there is not a big difference in forage height outside and inside the cage. However, you notice your forage planting is relatively thin, and you notice weeds are taking advantage of the exposed area. Why is your planting thin? In this scenario, the most likely reason is improper seeding rate.

Even though you calculated the area of the food plot before planting, and you weighed the seed and are confident you planted the recommended pounds per acre of seed, you still did not use enough seed unless you calculated what we call **Pure Live Seed (PLS)**, which is the amount of live seed in the bag that is likely to germinate. In fact, it was stated on the bag of seed you planted that the contents would cover one acre, and you planted one acre. So, your seeding rate surely was accurate, correct? Wrong.

Do not be misled by advertisements on commercial food plot mixtures that claim the bag will cover "X" acres. You must read the seed tag attached to the bottom of the bag and calculate PLS in order to know how much of the seed that is in that bag to plant per acre. By law, when selling certified seed, seed suppliers must provide information to consumers about the seed, such as the variety, where it was grown, lot number, percentage of pure seed in the bag, the germination rate of the seed, and the date it was tested. This information is provided on a seed tag, which is either attached to the bag or printed on it. If the seed does not contain a seed tag, do not buy it.

Beyond knowing seed origin, date of testing, and germination rate, important information related to seed coating is provided on the tag. Nowadays, it is common for seed to be coated prior to packaging. Legumes often come preinoculated with the proper bacteria to help ensure nodulation for nitrogen production. Other seed may be coated with various materials, such as fungicide, insecticide, or micronutrients. Preinoculated legume seed (such as clovers and alfalfa) are relatively convenient because you do not have to inocu-



late the seed yourself. Seed are coated with a protective material (usually lime) that contains the inoculant with live bacteria. This coating is usually gray, blue, pink, or off-white in color. However, the coating material is relatively heavy and the extra weight must be considered when calculating seeding rates for your food plots. This factor is overlooked by most people, which causes many plots to be under-seeded.

Recommended seeding rates for each crop species are established by various state and university agricultural Extension agencies after extensive testing to determine the amount of seed necessary for a healthy, productive stand. The seeding rate is calculated in pounds per acre. However, the rate given represents PLS, which does not factor in the germination rate or the weight of

Pre-inoculated ladino clover seed. Notice the pinkish coating. The seed on the left is wheat for comparison.

coating material. This is important!

Preinoculated clover seed typically contains 34-50% coating material, depending on the producer. This means that if you purchase a 50-pound bag of preinoculated clover that contains 50% coating material, there is only 25 pounds of seed in the bag. The rest of the weight (25 pounds) is coating material. Furthermore, if the germination rate of this bag of seed is 80%, then there is only 20 pounds (0.8 x 25 lbs.) of viable clover seed in the 50-pound bag!

As previously discussed, seed should be sown according to the percentage of PLS. Determining PLS is simple, but requires some basic math from the information contained on the seed tag. In the example used below, the seed tag is from a bag of crimson clover that was recently purchased, which is an excellent forage for deer. This seed has been preinoculated as specified by the percentage of "inert matter" or "coating material" listed on the tag, which is 50%. The recommended seeding rate (broadcast, not drilled) for crimson clover is about 25 pounds of PLS per acre if planting a pure stand.

To determine the appropriate seeding rate from the crimson clover seed above, multiply the percentage of pure seed contained in the bag (48.73%) by the germination rate of the seed (80%).

0.4873 X 0.80 = 0.39

Next, divide the desired seeding rate for crimson clover by 0.39 (this number determined above).

25 lbs. per acre / 0.39 = 64 lbs. of crimson clover seed in that bag per acre.

Based on the crimson clover seed in this example, with an 80% germination rate and roughly 49% pure seed contained in this bag, you would need to plant about 64 pounds of the seed in this bag (or in this lot) per acre to be equivalent to the recommended seeding rate of 25 pounds per acre of crimson clover. That is more than double the stated seeding rate for crimson clover! Therefore, if you only planted 25 pounds of this seed per acre, you would have applied less than half the seed that is needed for a successful stand.

Do not let someone tell you that you can plant the recommended rate and disregard the weight of the seed coating because the seed coating leads to increased germination rates, increased seedling survival, and thicker stands. It is possible that the coating can lead to increased seedling survival, especially if the coating contains a fungicide or insecticide and there was a problem with a fungus or insect pest on the site (more common with grains, such as corn). However, seeding rates are based on the assumption that the seedlings will live. If you do not plant enough seed to realize a sufficiently dense planting, do not expect the stand to "thicken" over time just because the seed had a coating around it! Notice in the picture on the bag that it shows the germination rate is 80%, "hard seed" is 10%, and the total germination rate is 90%. The total germination rate provided is misleading. Although some people may tell you to use the "total germination rate" stated on the seed tag to calculate PLS, we recommend against it. **Hard seed represents those seed that are dormant and are not expected to germinate until they experience freezing and thawing.** These seed will not germinate after a rain or two when you expect your seed to germinate. We do not care how much of the seed may germinate after winter, or in another year. We want to know what can be expected to germinate now so the deer and turkeys can begin using the plot! **Do not include the percentage of hard seed into your PLS calculation.**

You should calculate PLS for all of your plantings, not just clovers. In general, cool-season grains, such as winter wheat and oats, usually have an 80% germination rate, which actually is convenient because it just so happens that 80% of 50 pounds is 40 pounds, which is a perfect complement to a clover mixture. The PLS of clovers, alfalfa, and other seed, such as chicory, vary greatly. One bag may have a 90% germination rate, whereas the next bag may have a 60% germination rate. Therefore, if you mix seed yourself to form a blend, and you do not calculate and plant according to percentage of PLS, then some of the seed mixture (such as wheat or oats) may appear relatively thick and as it should, but the clovers, for example, may be relatively sparse (because the clover had a low germination rate).

Planting methods can be very influential with regard to thin coverage of clover or other small seed. If, for example, you cover the clover seed by disking, you will cover it too deep and germination will suffer. This is another problem with some commercial blends that contain both large and small seed in the same bag. You cannot plant all of the seed at the correct depth. Relatively large seed, such as wheat, oats, or winter peas, will germinate best if they are covered ½ - 1 inch deep. Clovers should not be covered any more than ¼ inch. Therefore, if you are planting with conventional cultivation, to sow relatively large seed, cover by disking, tilling, or dragging, then cultipack to get a good firm seedbed, then sow the small seed, then cultipack again to ensure good, firm, seed-to-soil contact.

Considering the example above, it's easy to see how failing to calculate the proper seeding rate using PLS can lead to sparse coverage of planted forages and less than desirable results. Not only does it result in less forage being available in your plots for wildlife, it also provides an avenue for weeds to invade the "empty space" created from a low seeding rate. Additionally, if you rely on the reseeding capabilities of annual clovers (such as crimson and arrowleaf) to reduce annual planting costs, not planting enough seed initially will result in lower clover seed production that would be available in the seedbank to germinate the following year. Don't let this simple step limit you from realizing the fruits of your labor and achieving successful food plots to benefit your deer or turkey management program.

Not if, but when... CWD

By David Long

Before his recent retirement, David Long served as the Arkansas Game and Fish Commission (AGFC) Private Lands Supervisor over 9 Private Lands Biologists, targeting technical assistance to private landowners. David is a Certified Wildlife Biologist and currently serves as 2nd Vice President of the Arkansas Wildlife Federation. He also owns and actively manages 80 acres of land. Contact him at josephdavidlong@gmail.com.

CWD Positive Whited-tailed Deer- Note head down position and weight loss (Photo Courtesy of Arkansas Game and Fish Commission) Symptoms of CWD include loss of body condition and behavioral abnormalities to include staggering, standing with very poor posture, and loss of fear of humans.

While working for Arkansas Game and Fish Commission for the past 38 years and retiring in October of 2015, we as a wildlife agency noticed that Chronic Wasting Disease (CWD) started showing up in a few states, then multiple states. In our discussions with each other we always guardedly commented," It's not if we get CWD, but when". And then in late October of 2015 it was discovered in Arkansas. Thankfully, there was an agency plan ready with action items to address the containment and management of the disease. Today more than 20 states have CWD.

Even though hunters knew little about the disease when it was discovered in Arkansas, they knew it could be catastrophic on deer populations, "could" being the operative word. They were extremely concerned and attended numerous public meetings across Arkansas to learn more. The purpose of this article is to provide information about what the disease is and educate landowners and hunters about the dis-

ease. As serious as CWD is, it does not mean the sky is falling. Several states have been living with the disease for decades and as new states discover it and more research is conducted, management is improving. However, realize there are still a lot of unknowns about the disease.

What is CWD?

Chronic Wasting Disease (CWD) is a transmissible neurological disease of cervids that produces small lesions in the brains of infected animals. Cervids known to be impacted include white-tailed deer, elk, mule deer, red deer, sika deer, axis deer, fallow deer, moose and caribou. CWD is classified as a transmissible spongiform encephalopathy (TSE), and is similar to mad cow disease in cattle and scrapie in sheep.

States at this writing with confirmed Chronic Wasting Disease shown in orange (source- www.cwd-info.com)

Symptoms include loss of body condition and behavioral abnormalities to include staggering, standing with very poor posture, and loss of fear of humans. Animals lose weight quickly and often seek out water sources where they drink and urinate excessively. Animals may also walk in repetitive patterns, stand with a wide stance, may exhibit head tremors, and walk with their head and ears lowered. Animals continue to eat but eat less than healthy animals which leads quickly to mortality when excessive salivation and drooling occurs. The disease is always fatal and currently there are no vaccines or other treatments to prevent infection. Realize, however, that many of these symptoms can be exhibited by other diseases effecting deer and elk. But be sure to let your state wildlife agency know if you observe deer or elk with these signs.

Infectious agents of CWD are neither bacteria nor viruses, but are still believed to be prions. Prions are infectious proteins without associated nucleic acids. Prions generally show up in the brain, eyes, spinal cord, lymph nodes, tonsils and spleen of infected cervids. Cattle, pigs and other domestic

A CWD positive elk. Notice the poor body condition.

CWD Positive Whited-tailed Deer- classic sign of CWD- excessive salivation (Photo Courtesy of Arkansas Game and Fish Commission) Deer also seek out water sources where they drink and urinate excessively.

livestock are resistant to natural transmission. Currently there have been no verified cases of humans contracting CWD. However, public health officials recommend not consuming meat from known infected animals or any animal that appears sick.

There is not a testing protocol for live animals suspected of having the disease. Currently, testing is possible only from dead cervids using a portion of lymph nodes and the brain stem. Samples should be taken as soon as possible after harvest and kept refrigerated 35 to 45 degrees F and will keep up to five days. (Contact your state wildlife agency if you harvest a cervid that you feel might need to be tested and let them decide on the need for testing and provide instructions.)

CWD has been found in mule deer kept in enclosures dating back more than 30 years and may have been in free ranging populations of mule deer for more than 40 years.

Origins of CWD

The origin of CWD is simply not known and more than likely will never to be known. Scrapie, a similar TSE of domestic sheep, has been recognized in the United States since 1947, and biologists speculate it may be possible that CWD somehow originated from scrapie. It also may be possible that CWD is a spontaneous TSE that arose in deer in the wild or in captivity and has biological properties promoting transmission to other deer and elk.

How is it spread?

The disease is transmissible and infectious, exactly how it is transferred is not really known. However, studies

indicate it appears to be spread directly from animal to animal and indirectly through the soil. The most likely mode of transfer is believed to be through saliva, feces and possibly other body secretions. Concentrating animals in high fenced areas or by artificial feeding probably increases transmission between individuals. From the time of disease exposure to death is not accurately know since it is difficult to know when the animal was infected in the wild. However, deer have been known to live more than 7 years and elk more than 15 years before dying from the disease.

Controlling and Containing the Disease, Can We Do It?

In captive facilities, management options currently are limited to quarantine or depopulation of the CWD-affected herds. However, attempts to eradicate CWD from cervid research facilities failed. The reason for failure was not determined, however, residual soil contamination is likely the cause. Hence, movement out of commercial captive facilities should be restricted to prevent the spread to other populations. The difficulties in managing infected herds in these facilities highlight the need for aggressive surveillance to prevent movements of infected animals. In facilities without positive tests for animals, regular testing of harvested or animals dying in the facility should be conducted. Many states now require this testing by facilities.

Managing CWD in free-ranging animals presents even greater challenges. Long-term, active surveillance programs to monitor CWD distribution and prevalence have been implemented in most states finding the disease. Many states are being proactive and currently monitor to check for the disease.

Management programs established to date focus on containing CWD by reducing its prevalence in localized areas. In states where CWD has been found, eradication has been considered as part of the ultimate goal for CWD management. In states like Colorado and Wyoming however, managers have refrained from committing to eradication because it appears unattainable in their situations.

In Arkansas, several regulations have been passed to manage CWD including making it unlawful to use natural scents and lures that contain deer and elk urine or other body fluids beginning January 1, 2017. Whether or not your state has a no urine-based attractants regulation, I encourage hunters to refrain from using these urine-based attractants to reduce risks until more research tells us how the disease can be spread. After all, do you want to risk introducing it to your woods? I believe we need to take every precaution possible to prevent the disease until more conclusive information is available.

Other regulations some state wildlife agencies have passed include restricting the movement of harvested deer and elk outside of existing CWD Management Zones except for meat with all bones removed, antlers and cleaned skulls, cleaned teeth, hides, and finished taxidermy products to assist in containing the disease. Some states have also made it illegal to bring deer, elk or other cervids in from out of state in an attempt to prevent the spread of the disease. The other CWD regulations involve the out-

right banning of baiting and/or limiting baiting to specific periods of the year.

CWD is a serious disease. States are brainstorming all possible options to contain and prevent the disease and passing regulations for this purpose. Hunters and landowners need to be patient as states work through improving control measures and conduct more research for answers to best management practices needed to be successful.

Hunter health and safety- Is the meat safe to eat?

The Centers for Disease Control and Prevention (CDC) along with the World Health Organization (WHO) have studied CWD and have found no evidence that CWD poses a serious risk to humans or domestic animals. Years of monitoring in affected areas have found no increases in similar diseases of people or cattle living there. However, as a precaution, CDC advises that no part of a deer or elk with evidence of CWD should be consumed by people or other animals.

Precautions for Hunters

It is recommended that hunters take the following precautions when harvesting cervids in known CWD areas.

- Wear latex or rubber gloves when field dressing your deer or elk.
- Debone the animal. Avoid sawing through bone and avoid cutting through the brain or spinal cord (backbone).
- Minimize the handling of brain and spinal tissues.
- Wash hands and cutting devices thoroughly after field dressing is completed. Hunters wishing to disinfect home butchering equipment may clean all surfaces with a 50/50 solution of chlorine bleach and water.
- Do not consume brain, spinal cord, eyes, spleen, tonsils and lymph nodes of harvested animals. Normal field dressing coupled with deboning a carcass will remove most, if not all of these body parts. Cutting away all fatty tissue will remove remaining lymph nodes.
- If you have your animal commercially processed, request that your animal is processed individually, without meat from other animals being added to meat from your animal. (This may be a hard sell with some processors and may add to your cost.)
- Avoid consuming the meat from any animal that tests positive for the disease.
- Do not eat any animal that was thought to be sick at the time of harvest. Avoid/limit handling of carcasses of sick animals.
- Contact your state wildlife agency if you encounter an animal that appears sick.

Disposal of carcass

Little is known about whether infected cervid parts pose a risk to the environment. However, researchers have discovered that prions readily adhere to various elements in the soil and remain infectious for many years. Therefore, it is recommended that bones and other parts of the carcass of a deer or elk suspected or known to have CWD be double bagged in strong garbage bags and disposed of at a landfill with an approved dead animal disposal area.

If an approved landfill is not available in your area, carcasses should be double bagged and buried at least two feet (deeper is always better) to prevent scavengers from reaching the remains. Check with your state to see if there are regulations specific to this issue.

What can hunters and landowners do to help prevent and/or manage future outbreaks?

FIRST, know and strictly abide by state wildlife agency CWD regulations.

BE PROACTIVE- Don't unnecessarily concentrate animals using supplemental feeds. Use your money to develop and/or improve wildlife food plots and other food producing practices such as prescribed burning and forest stand improvement which does not concentrate animals. These practices help produce huge amounts of natural foods.

Properly dispose of animals and/or carcasses. (Minimum actions already noted should be followed).

Manage both sexes of deer on your land to help keep populations within safe carrying capacity of the habitat. You can seek advice from your state's Private Lands Biologist or a wildlife consultant.

Don't use deer or elk urine to attract animals to your hunting properties. Start now- to reduce CWD risk even if this is not regulated in your state!

Hope for the Future?

Our Creator provided an extremely complex creation and a way for species to adapt. Many also refer this to the natural selection process. Going back to Science 101, natural selection is the process by which certain species that possess genetic traits best adapted to their environment tend to survive and pass these genetic traits to offspring. Animals without these genetic traits tend to die off.

Natural selection may just be the only ace in the hole to overcoming CWD in the long run. Wisconsin whitetails have seen huge CWD impacts since 2002. The Wisconsin wildlife agency attempted to eradicate CWD by hiring sharpshooters to eradicate all whitetails in the CWD core area without success.

Recently, researchers at the University of Wisconsin-Madison studied tissue samples of harvested deer collected for six years in a CWD area to identify a set of genes that appear to make some whitetails genetically resistant to CWD. Modeling showed that deer with a particular genotype were four times less likely to contract CWD, and if they did become infected, they lived over 8 months longer than deer without the genotype. They estimated about 41 percent of all deer in the original CWD core area have CWD-resistant genes, which they will pass on to offspring. If natural selection follows its normal progression, deer that are CWD-resistant should become dominant. But that could be many, many years into the future.

Although this is but one piece of the CWD puzzle, adjusting CWD management from attempting to eradicate deer populations totally to harvest strategies that integrate this finding into the overall management direction could be a better approach. Realize this is only one study, but adds to considerations for the future of management policies. So, absent an effective vaccine being discovered in the short term, there is long-term hope for the future- that natural selection may just be our "ace in the hole" to overcome CWD. Let's hope we find answers sooner rather than later to quicken the eradication of the disease since natural selection is a very long process.

For more information about CWD, visit the Chronic Wasting Disease Alliance website at www.cwd-info.org and/or your wildlife agency contact information. There is a link to all state wildlife agencies on this website with state deer coordinator contact information.

Folks, the sky really is not falling. CWD is here to stay for now but lots of energy across the continent and beyond continues to look for answers to stop it by researchers and wildlife professionals alike. I am confident that this dark cloud of CWD will continue to brighten as new and innovative management solutions are found. With hunters and landowners working cooperatively with state wildlife agencies and other partners, we will get through this!

The Dreaded Drought and Your Lake

A drought doesn't always mean disaster for a waterbody and fish population. This nice bass is experiencing accelerated growth during this low water period.

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.

This past year, many lake owners in the South experienced a pretty substantial drought. Depending on the severity and time of year the drought occurs determines if it will have negative, positive or no effect on your aquatic habitat and/or fish population.

Drought Effects

Whether the result of a natural or man-made (drawdown) event, a drought can facilitate many positive benefits when spaced 8-12 years apart. And just like anything, when droughts occur too often or last too long they can be detrimental to a waterbody and a fish population.

Generally, water chemistry will remain stable until too many fish are crowded for too long of time or water levels become shallow and water temperatures rise or fall beyond normal ranges. As water levels decrease, the waterbody becomes smaller and

shallower. The slope, bottom contour, bottom sediment composition and how many fish are present all determine if any water chemistry issues will occur. A high organic substrate will have a more negative effect than a cleaner clay, sandy or gravel bottom as water depth decreases. The more fish are confined, the more Dissolved Oxygen (DO) is required. The warmer the water in summer, the less DO the waterbody can hold. Other parameters can be elevated such as ammonia and nitrogen levels from concentrated fish waste or sediment. Ponds with abnormally high salt content along the coast can experience even higher salinity as water evaporates and salt remains, raising salinity levels.

As the waterbody gets shallower, both shoreline and submerged vegetation can increase. If it does not, an algae bloom (green water) may appear. The concentration of nutrients will be expressed somewhere either as shoreline vegetation, submerged vegetation or algae (filamentous or planktonic, or both). As water recedes, aquatic plants high on the bank will start to die and terrestrial plants may begin to grow if the dry period is excessively long. If the drought occurs in the spring, plant growth can be an issue. During a fall or winter drought, plant growth will be much slower or nonexistent depending on water and air temperatures. Drought is the reason we advise lake owners when they are building, to build their lake so that during extreme drought, water remains a minimum of six feet deep. Shallower water can create weed and high temperature fish stress issues.

A drought during summer can elevate water temperatures and winter can drop temperatures abnormally below average. Water too hot or too cold can stress fish and kill them depending on the species, severity, and longevity of lower water levels. A lake that normally kept threadfin shad or golden shiners alive during winter with deep thermal refuges may no longer have those. Water temperatures may drop to where those species become stressed or perish. Summer may present the opposite problem where once deeper, cooler water aided fish during excessively hot periods may no longer be present and the hot water temperature stresses or kills fish.

The fish population will change during extreme drought. Bigger fish (predators like largemouth bass, catfish and big panfish) experience a growth spurt as forage is pulled out of shoreline habitat and exposed. Thus, forage numbers decline faster during a drought. If the drought lasts too long, predators can

This water has been down a long time and upland plants are starting to grow where water and aquatic plants once were.

These perfect size golden shiners have been consolidated for largemouth bass to feast on during a drought.

deplete forage numbers to a level where they cannot repopulate and eventually the predator's growth rates slow to even slower than prior to drought conditions, due to lack of food. A drought that occurs during the spawning season can leave nests exposed, isolated from the main waterbody or dry up completely prior to hatching. Droughts can eliminate whole year classes. Another issue with drought is fish disease that can become more of an issue as individuals become crowded and readily pass bacteria or viruses to one another more frequently. These fish population dynamic changes can affect species diversity in your waterbody in upcoming years.

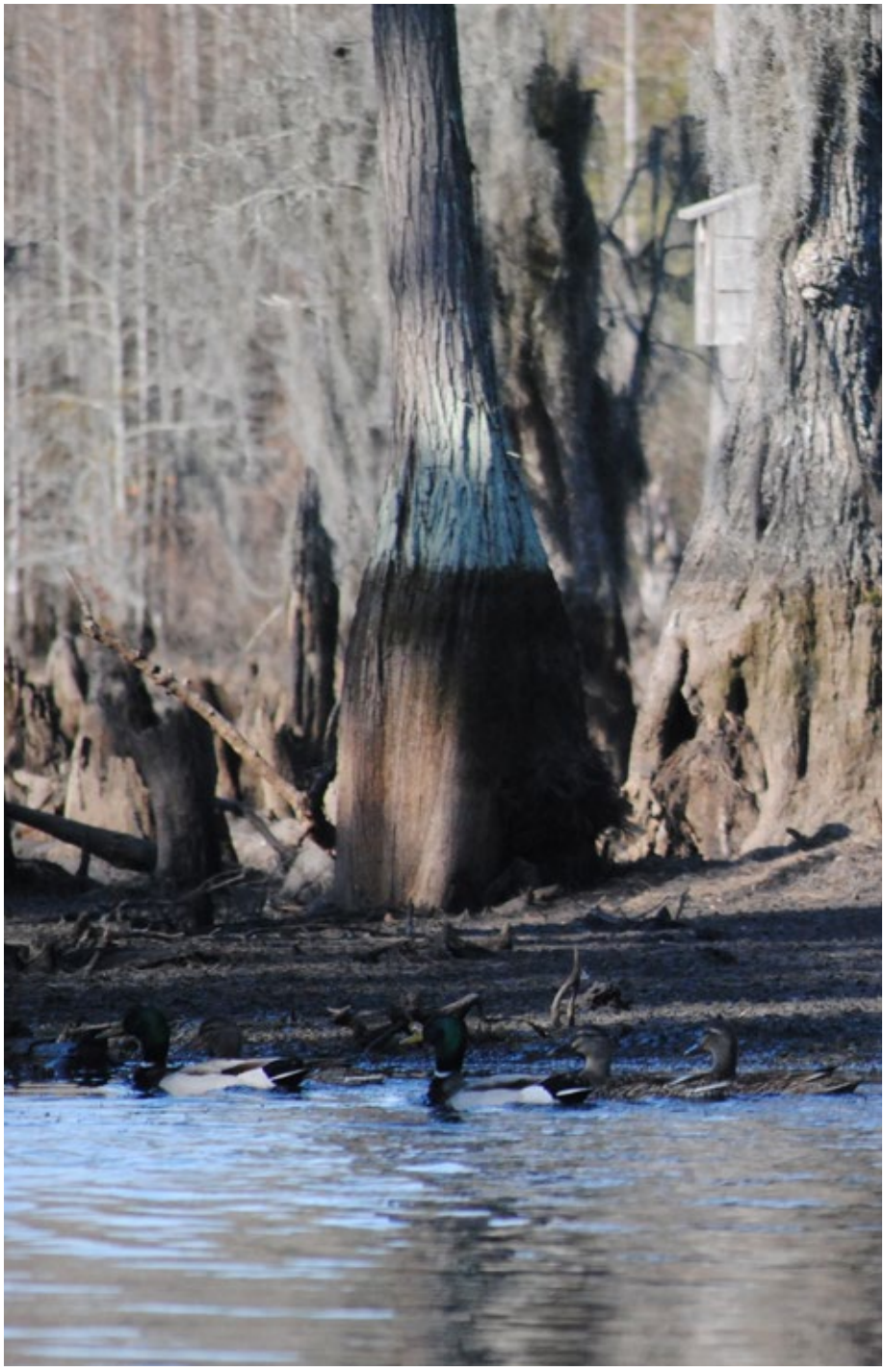
Angling success will temporarily improve. If present, the number of quality bass, bream, black crappie and catfish will also go up. At the time, you

may think it is the best angling ever experienced from that waterbody. Prior to drought a poor fishing lake can become a great fishing lake. Again, this is due to the concentration of fish, not an improvement in population numbers.

Actions That Can Be Taken During Drought

If available, well water to maintain an acceptable water level is recommended. This should only be done in emergency situations to save the fishery and to keep water levels at the minimum height. Well water should not be used to keep your pond at full pool during drought. Again, an occasional fluctuation in water level is good for your waterbody. Do not withdraw large amounts of water while adding well water, this will create a situation that endangers the fish due to being exposed to excessively high concentrations of well water. Well water needs time to be exposed to the atmosphere, otherwise high levels can stress or even kill fish. Well water has little oxygen and can have other water chemistry parameters not similar to existing lake water fish are acclimated to.

These bass are gaining weight, growing and look extremely healthy at this point in time during this low water event. However, that could change once the forage disappears.



Besides consolidating fish, these ducks are temperately displaced out into the open water during a drought. Depending on vegetation growth they may stay, more may come, or they may leave due to temporary lack of food.

If during a drought you notice a green area of vegetation anywhere on the back side of the dam amongst lots of pale or brown vegetation, this may indicate there is a leak. If repairs to the dam, overflow valve or drain pipes are needed, make arrangements to do the work to alleviate having to drawdown again in the near future. Remember that if you decide to make repairs, a procedure to keep the water down must be ready or put in place in case rains come and begin filling up the waterbody prior to work being completed.

Low water is a great time to improve slope, deepen or remove organic material (muck) that has built up along the shore from decomposing vegetation. A good slope deters excess vegetation growth. Proper shoreline slope allows some plants to grow, but doesn't allow them to grow too far out into the lake. If Hydrilla or other nuisance submerged vegetation is present, lightly scraping the dry lake bottom where nuisance plants are present removes tubers and seeds to prevent them from coming back when refilling occurs.

Repair or install a dock or pier. It is much easier to conduct this work yourself if you can stand on the bottom and work as opposed to working from a boat. Especially when installing pylons. Remember the water is down, so place the dock height above average water height. Place in an area where a boat can be pulled up to it, a feeder placed on it, and people can jump off into deep water to swim if you wish.

If feeders are no longer throwing feed into the lake, move or turn them off. If possible, move to other areas where if a sudden rise in water level occurs, they do not get flooded. We have seen temporary floats/docks or feeders attached to trees out in a lake work until they can be moved back to the normal locations. Just because you're seeing more fish, do not feed more. Feed similar amounts, or slightly cut back until water levels return to normal. Your goal during this stressful time for the fish is to maintain until the water comes back up, not expedite growth or increase carrying capacity. If fish are not coming to your feed, stop feeding, as they are already stressed and more nutrients will only add to a declining water chemistry. Too much feed and too much fish waste contributes to declining water quality.

Depending on the time of year, treating excess aquatic vegetation may be necessary and/or beneficial. Again, some plants are good, but the more shallow areas there are, the more submerged vegetation may grow. As water recedes, the upland plants (weeds) will make their way down the old dry lake bed. These can be left to grow, as they will become a big part in the re-flooded waterbody's food chain. If a treatment with Floridone (Sonar) was being con-

sidered, treating during a drought reduces the amount of herbicide required and can greatly reduce treatment costs.

If the drought lasts an extended period, removing more bass and bream/panfish will be necessary to alleviate predation on forage species. During extended drought, a supplemental stocking of small forage may help maintain the larger remaining fish after they have consumed the majority of forage. This is only required in an absolute devastating long drought. Adding too much forage during the drought will contribute to declining water chemistry and must be performed with caution.

Actions Taken During Refilling and Beyond

When you can finally launch a boat after refilling, consider evaluating the fish population. If the event was extensive, whether you observed a fish kill or not, get an electrofishing survey conducted as it refills to see numbers present, how robust or skinny your large-mouth bass are, and identify forage species, sizes and estimate their numbers. This will help you determine if restocking any species is necessary. Ideally, if the fish start spawning and it gradually refills to where large post spawn areas of high quality habitat of flood-ed shoreline vegetation rich in forage for fry and fin-gerling fish is present, restocking most species may

not be necessary. Remember, if you do your electrofishing while the water is still down considerably it may look good, but in reality, it may not be for the acreage the lake is normally. This decision needs to be made with a professional fishery biologist who has experience in these situations. Just stocking to be stocking doesn't improve the fishery and it uses funds from your budget that can be used elsewhere. You may need to stock a species as a temporary improvement until the desired species and numbers can be acquired from a hatchery or naturally repopulates.

We like to stock forage after a drought on larger waterbodies. You almost never have to restock largemouth bass, unless you witness a severe fish kill. Species like fathead minnows, mosquitofish (where feasible), Tilapia (where feasible in summer) threadfin shad, golden shiners and bluegill can all be considered. These will give bass a boost with immediate forage, reproduce and provide forage for various sized bass in the future as the population explodes post refilling. Not stocking extra forage is economically cheaper, and the population will respond, but not as fast, and a couple years can be lost on progress to a quality fishing lake. Other than Tilapia (that die off in winter) stocking native, naturally reproducing species for your area is recommended.

Not allowing back to back extreme low water levels is feasible by landowners who can utilize wells to maintain lake levels. However, every 10 years or so, refrain from keeping it full and allow nature to do its work and improve your lake. If a lake is being used for irrigation and filled with well water and pumped onto agricultural crops, be sure to gradually add and remove water as to not stress or kill fish.

As stated earlier, during a drought, fishing will get good. We recently drew down a 100-acre lake in south central Georgia, that was thought to have very few quality fish in it. However, once the lake got down to 30 acres, fishing was the best it had ever been in this 65-year-old lake for bluegill, black crappie and largemouth bass. But when the water was raised back to 100 acres, fish dispersed, were hard to find and fishing success greatly dropped off for a year until the bass numbers exploded. The point is, enjoy some quality angling during the drought. There are some things to worry about, there are some things to be doing, but don't forget to enjoy it at the same time.

In extreme extended drought, this can happen, but it is rare if the lake continues to have adequate depth. Fish kills related to low water are usually caused by poor water chemistry. But with quality habitat and restocking, the population will rebound.

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Managing Woodlands for Wild Turkeys

By Ted DeVos

Ted DeVos is co-owner of Bach and DeVos Forestry and Wildlife Services and a Certified Wildlife Biologist and Registered Forester. Contact him at 334-269.2224.

Hens with poults require insect rich, relatively clean habitats to raise their chicks successfully. Burned environments are perfect for this.

Woodlands, whether pine, hardwood, or mixed pine hardwood, are often the staple habitat for turkey hunting, but openings and plantings are usually the main focus of turkey management. However, when you look at what habitat types turkeys use most and what habitat is most important to a turkey population, woodlands get the nod. Turkeys are a woodland bird, especially in the southeast US. While they exist in the prairie states, they still are most often associated with woodlands in some form or another.

In the Southeast, turkeys require large trees for roosting and heavily utilize mast and fruits of mature trees as well. Suffice it to say, turkeys are inextricably linked to woodlands throughout the year. There are plenty of situations, however, that poorly managed woodlands are either not used by turkeys or used only seasonally. It is fairly common to begin working with a landowner on establishing timber and wildlife

management priorities and find out that "we have plenty of turkeys in winter but come spring turkeys leave the property". While many properties are not big enough to contain the full home range of a turkey population, it is still usually possible to provide plenty of seasonal habitat to maintain a huntable population. Gobblers home ranges average over 2,000 acres in spring so it takes a lot of area to manage the total needs of a turkey population,

In reality, there is only one type of Southeastern woodland that turkeys don't use – thick ones! Pine, pine/hardwood, hardwood, cypress and gum swamps, and cedar are all examples of woodlands that turkeys will use to some extent, but if the stand is young and very thick or older with a thick shrub/sapling midstory, turkey use can be zero. So that leaves more open woods being the primary woodland type turkeys prefer.

Turkeys are hunted by various predators in all seasons and all stages of their life from eggs to adults. Therefore, they are very wary of places that they can be ambushed from thick cover. The majority of their food is also scratched from leaf litter and picked up from the ground so they need to be able to see the ground while feeding. Bottom line is they need fairly open habitats to get at their food and also be able to see around them to keep from being eaten themselves.

The amount and mixture of woodland types is very important to turkey habitat quality. The same landowners who complain of losing their turkeys in the spring are also, typically, the landowners who think that maintaining a solid hardwood forest on both uplands and bottomland is a good idea! No one habitat type is good for any species of wildlife. While oaks are excellent winter food for turkeys and winter flocks use hardwood bottoms extensively, a 500 or a 1,000 acre forest of oaks will hold few, if any, turkeys throughout the year. Just like while Partridge peas are excellent food and cover for quail, a 50 acre Partridge pea field can be considered poor quail habitat. The main reason for this is that seasonal needs change and turkeys have different requirements depending on what foods are available and what stage they are in reproduction.

It is important to realize that, while hardwoods and acorns are used extensively by turkeys and deer, they are not the only woodland type used, or even preferred by turkeys and deer. Pine and mixed pine/hardwood forests are just as important and used as extensively at certain times of year. We encounter hunters and managers regularly that only think in terms of hardwoods and acorns in wildlife management. However, turkeys respond well to a diversity of habitat types and do best when they have a variety of woodland types available to them in different seasons. A good diversity of

Thinned, open woodlands should be burned regularly, even those with upland hardwoods. These can be burned carefully without any hardwood damage.

Open woodlands that are burned regularly provide two highly important habitat types, nesting and brood rearing cover. Here, on the left is unburned pineywoods nesting cover, adjacent to the right, recently burned pineywoods brood habitat.

habitat types will have both pine and hardwood as well as planted fields, fallow fields, disked fields and open grasslands. All will be used by turkeys at some point in the year.

Seasons

Seasonally then, what kind of woodlands do turkeys prefer? Let's start out with the nesting season and the beginning of the life cycle of a turkey. Hens MUST have nesting cover to successfully lay and hatch a nest. The better the quality and quantity of cover, the better the chance that a nest will hatch a brood of poults. In addition, turkey hens are known to pack up in the spring and travel MILES to access good nesting habitat if it is not available where they wintered. Unfortunately, they will have the gobblers in tow, leading to the common problem of turkeys on the property in February and none in April!

While turkeys will occasionally nest in poor cover, the success rates of these nests is low. However, if quality nesting cover is available, turkeys will use it heavily. On average, only 50% of the nests laid will result in a hatched brood of poults. The remainder are lost, mostly to predation. Nest success is vastly increased in the best quality habitats and much lower in poor nesting habitat. Grassy areas with broomstraw and other native grasses interspersed with light shrubby cover or blackberry thickets are the most often selected and successful. While fields and field edges that have not been planted or mowed for several years characterize this habitat type, nesting cover can be created and maintained in woodlands as well. Large blocks of good habitat also result in higher nest success and narrow nesting habitat (like field edges and powerline ROW's) usually result in lower nest success. This is due to the ability of predators to easily hunt narrow habitat types for nests. Large blocks of habitat are much harder for predators to search.

Typically, good turkey nesting cover is found in mature, open, burned pineywoods. Pine stands need to be maintained at a low basal area (low density of trees) with ample sunlight coming through the canopy of the trees to grow the grasses necessary for nesting. To maintain these conditions, they need to be burned on a 2-4 year rotation. Managed like this, pineywoods can offer a turkey population an abundant supply of some of the best nesting habitat available. Pine stands that are too shady will either have only sparse weed growth with little grass or nothing but pine straw on the forest floor. Pine stands that are unburned will have a thick midstory of sapling hardwood and pine shading out the good plants that grow close to the ground.

Prescribed Fire

Regular prescribed fire is the best way to maintain quality nesting cover. While to some, burning nesting cover

seems counter-intuitive. Fire and turkeys, especially nesting turkeys, are closely related. Without fire, ground cover becomes too sparse for quality nesting cover and the shrub/sapling layer takes over. Regular burning maintains the grasses, forbs, and the shrub/sapling layer in a condition that is ideal for good nesting habitat. Burning on a 2-4 year rotation in pine or pine/hardwood stands is ideal to maintain this cover. Even burning during the nesting season, while possibly burning a nest or two, has a much greater positive effect on overall nesting success than not burning at all.

An excerpt from "Lightning-Season Burning: Friend or Foe of Breeding Birds?" notes Sisson et al. (1990) found that 62% of all nests occurred in mature pine forests that had been burned within the past two years. Moore et al. (2005) monitored 22 hens in areas subjected to lightning-season fires and found only two nests destroyed by the burns, and one of these hens re-nested. Similarly, for 64 turkey nests monitored in Mississippi (National Wild Turkey Federation 2006), only four were located in areas scheduled to be burned and only two nests were actually destroyed by lightning-season fires. Allen et al. (1996) also found that areas not burned within the past two years were almost entirely avoided by hens. The point here is that the best nesting cover is created and maintained with fire, even fires that may occur in the nesting season.

Once poults hatch and for the first 2 weeks of their life, they need access to abundant insect populations to fuel high body and feather growth rates. Only after reaching 2-3 weeks of age and ability to fly, do they begin to switch over to more vegetation and seeds in their diet. These first few weeks are critical in the life of a turkey and brood habitat can often make or break a fall population. While the poults are flightless, they are susceptible to predators of all sorts and suffer high rates of predation, often losing up to 75% of the chicks hatched. Because of this, brood habitat that supplies plenty of cover to hide poults while they are feeding and plenty of insects to feed on are essential.

Once again, open, burned pineywoods can provide quality brood habitat. While fields of annual weeds such as ragweed can be ideal brood habitat producing large, easy access bug populations and cover, burned pineywoods with an open canopy also provide the essentials for protecting and feeding poults. The difference, however, is that the best brood habitat in pineywoods are areas that were burned the same year that the poults hatch. Areas burned in February and March are usually greened up by April and May when nests begin to hatch and the lush growing vegetation is a natural producer of high insect populations. In addition, in a well-managed pine woodland, the stand should be broken up in burn blocks so that unburned nesting cover is immediately adjacent to good, burned brood habitat. This indicates the importance of burning some of your woods every year.

So, the bottom line for pineywoods is it needs to be open and burned! From

Prescribed fire is one of the most important and cost effective techniques used for managing turkey populations and habitat

replanted clearcut to about 3-4 years of age, there is nesting value in young stands of loblolly, shortleaf and slash pine, but as they grow out to 8-10 years old or so, are often too thick for any usage by turkeys. However, as the stands mature and become merchantable, timely and regular thinnings to a low enough density to get plenty of sun on the ground and grow lush, grassy understories are in order. Burning these stands regularly will keep the understories in good shape and promote quality plant species. Young stands of pine can be burned at 5-7 years of age and will receive a little usage by turkeys. However, they will not create good habitat until the first thinning and then only if thinned enough and not choked out by hardwood brush.

Another degrading factor in what would otherwise be good habitat, is mid story hardwoods being allowed to grow in a pine stand. Species like sweetgum, privet and other sapling hardwood need to be controlled by growing season burns, woodland mulchers and/or herbicides. The problem with these species is that they compete for sunlight, moisture and nutrients with both the overstory pine and the understory weeds and grasses you should be growing in the

Hardwoods, especially upland hardwoods, can be burned carefully and regularly without damage. Here, White oak and Southern Red oak as well as post oaks and other thick barked hardwoods have been burned for decades every few years.

pine stands. While the structure of a pine stand may be perfect, (i.e. low density of trees, plenty of sunlight, thinned and burned regularly), the quality of the habitat can be ruined by allowing a thick midstory of hardwood brush, saplings and tall shrubs to shade out the ground.

Food

As turkey poults mature, family groups gather and male flocks begin to segregate through summer and fall, turkeys use a wide variety of woodland habitats. Their foods are a large mix of growing vegetation, seeds, insect and other animal life. Soft mast and fruits like persimmons, blackberry and other high sugar fruits are used when available. Since there is an abundant supply of foods, turkeys tend to forage where the feeding is easy and can be found in woodland/field transition edges, crop fields, pastures and regularly use burned areas and hardwood drains. This is the time of year when you can find turkeys in nearly any type of woodland available as long as it is open enough for turkeys to be able to see well.

Winter is the time that turkeys begin to settle in to "classic" hardwood woodlands that most people associate with turkey habitat. Large family groups and male groups move into larger hardwood bottoms and flats to feed on acorn crops. While these groups use open fields and pineywoods to some extent, large blocks of hardwood become a magnet for turkey flocks.

Hardwoods

While these hardwood and mixed pine/hardwood stands are attractive in a "natural" state, managing these woodlands to improve their quality is still possible. Hardwoods that are left to grow out without active management are often a mix of species, sizes and age classes. As larger pine and hardwood mature, they tend to fully occupy the canopy and create shady conditions on the ground which inhibits growth of saplings and understory weeds and grasses. When larger trees die or suffer from windthrow, they open small gaps in the canopy which allows sapling hardwoods to fill in the opening. The problem with this scenario is that most of the species that fill in these gaps are low value hardwood like sweetgum, ash, elm and other shade tolerant species. Eventually, the stand becomes stocked with low value hardwoods with poor form. Unmanaged stands also tend to exhibit poor growth rates due to high competition between trees. While hardwood stands with a lot of "vertical diversity" and a strong under and mid-story of shrubs and saplings can be productive for various songbirds, they can often become too thick for good turkey use.

Managing these stands most often entails occasional thinning and burning. Hardwoods respond well to light, very selective thinnings. By thinning undesirable species out of the stand and removing poor quality and damaged trees, the remaining trees grow better due to less competition for nutrients and water. Thinning around oaks that have full crowns and have a history of producing good crops of acorns is productive, especially if these individual trees are fertilized every few years. While entering a stand for thinning, removing over-mature trees that are declining or getting too big for local sawmills can be accomplished to ensure the stand is productive. As long as the canopy is not opened up too much, the stand will respond positively. These thinnings also make the forest more aesthetically pleasing because an observer can see farther through and under the mature trees. First thinnings are usually the hardest because the trees are smaller and the harvesting equipment needs lots of room to move around through the stand. Thinnings in areas with lots of sawtimber sized trees is usually easily accomplished and recommended.

Regenerating quality hardwood such as oak should also be considered, especially in mature stands. Oak and other good timber species regenerate best in very open clearcut situations and do not regenerate well under the canopy of mature trees. Small clearcuts of 5-10 acres can be created to begin regeneration of the stand in pockets as well as creating the brushy habitat that nesting turkeys will use for nesting and deer will like to bed. Care should be taken when clearcutting small blocks in areas with a high deer density. Deer can and will browse oaks out of small clearcuts leaving you with only poor value and quality species regenerating in the area.

Maintaining a productive understory in a hardwood stand can be accomplished by using herbicides to control unwanted saplings and shrubs and occasional, cool burning. Even bottomland hardwoods can be burned but must be done carefully with cool, low intensity fires to prevent basal damage. However, thinned and occasionally burned hardwood stands are productive for both timber and wildlife as well as being very aesthetically pleasing.

The bottom line in managing woodlands for wildlife is that an actively managed stand is usually better than one that is not managed. Regular activities using loggers, herbicides, fire and mulchers all have a place in the management of timber stands and can be used to create ideal conditions for turkeys.

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Building a Pole Barn

Pole barn at Towerhouse Farm in Meriweather County, Georgia

By Keith Summerour

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

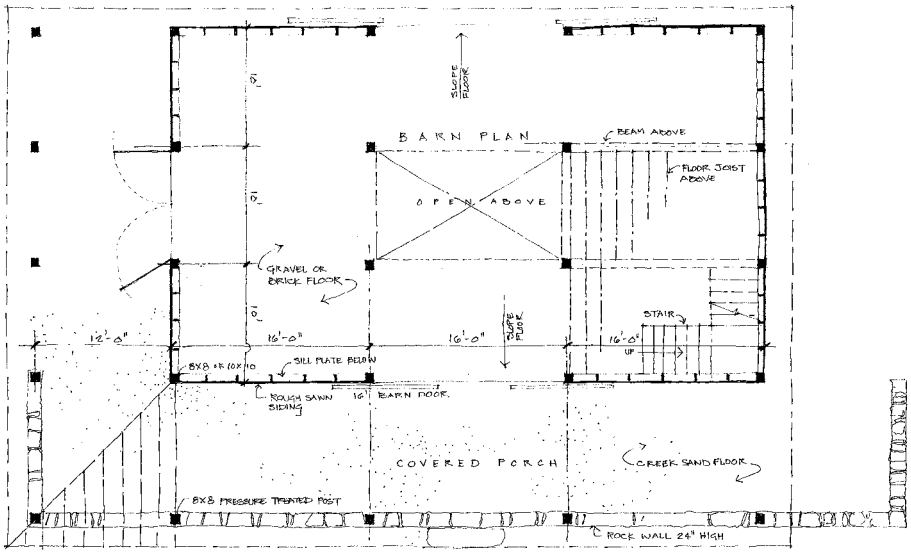
Editor's Note: I've had so many requests for copies of this article from 2009 on Pole Barns that I decided to rerun it for you here.

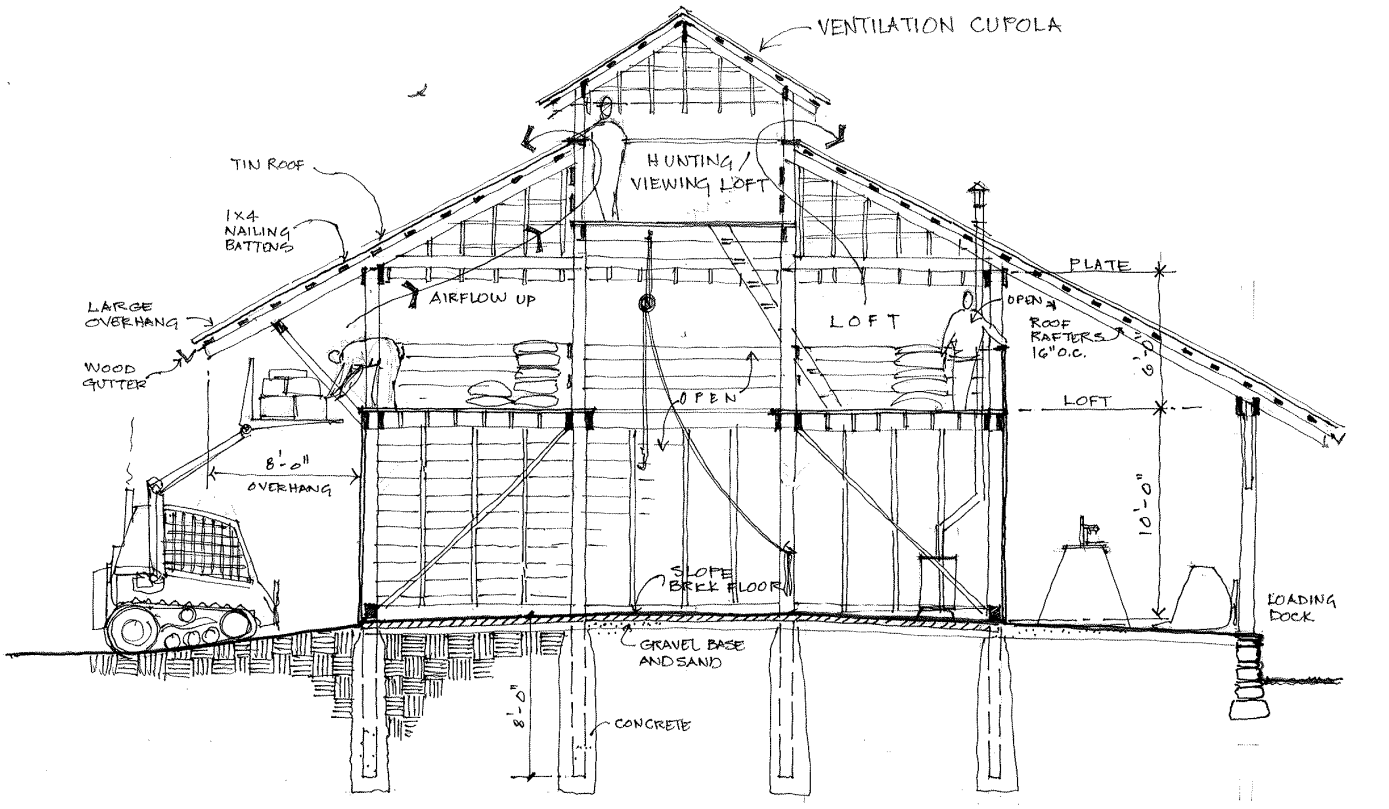
The Pole Barn is the most basic and versatile edifice that can be built on the land. It is the Mr. Potato Head of buildings in that anything and everything can be added to the main structure. For all of its old school charm, it remains a bit underappreciated for its utility and beauty. I, however, am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

The first critical building step is locating the pole barn on the property or "siting" the structure. It should be on a slightly sloping grade, perhaps two or three feet per one hundred feet. This slope will allow for good drainage around the building and a potential loading dock on the downhill side. You will also need a lot of space to

maneuver tractors and trailers but consider tucking a corner of the building into a treed area so that you have more shade to work under and so the tall roofline does not dominate the surrounding fields. It will also give the barn a sense of age, as if the trees were planted in association with the barn yard years ago. (see sketch of pole barn section)

The primary building block of the barn is the pole and it is the most important and most difficult of the components to construct. Because it is a structural column, I would use recycled telephone poles that are either pressure treated or treated with creosote to resist termites and rot. Each pole can be round or squared off; however, I prefer resized square poles for ease of handling during construction. Space poles ten to twelve feet apart in one direction and sixteen feet in the other. This will leave ample room for maneuvering inside the structure (see floor plan). The vertical pole should be buried in the ground approximately one third of the





POLE BARN SECTION

overall length of the pole. It must be dead level and plumb (which is hard to do) and should have compacted gravel or concrete poured around it after it is set into the hole and braced to the ground. Beams, joists and rafters are also recommended to be cut from pressure treated recycled telephone poles. This material resists borer bees but rough sawn, mill grade lumber will work well too. I have found these materials to be the least costly option to date.

Floor plan for a pole barn

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

There are endless features that can be incorporated into the pole barn once the main building is complete. The most important practical feature of the barn should be good ventilation. As illustrated, (see diagram on prior page) a secondary, raised section will provide great updraft in the hot summer months. A viewing platform can also be constructed to hunt from or to string a hammock. The barn floor should be a drainable, hard surface such as brick pavers which can be laid in a sand bed or mortared to a gravel base. This will provide for future flexibility if you decide to remove sections of floor. A concrete slab is less variable but also gives good utility.

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

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

Wildlife Trends Journal Management Calendar

By Dave Edwards

February/March 2017

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.

Late winter is the best time to scout and find new deer stands for next year.

Improve deer hunting next year… SCOUT NOW

How many times have you heard (or said to yourself), "Those dang deer know when deer season starts – we've been seeing them all summer and now they have gone into lock down"? Deer do not have deer season on their calendar. Hunters are their alarm clock. It happens every year and we have all been guilty of it. The woods have been quiet with no humans walking around, no ATV's, no chainsaws, no trucks or tractors, no loud voices or other odd noises and then a month (or week) before the season the woods are inundated with LOTS of these unnatural disturbances – Hunters busting through the woods doing lots of things associated with preparations for hunting season. This is the alarm clock that triggers deer to alter movements to avoid these disturbances and potential dangers. All of these things are described by two words – disturbance and pressure. I have spent most of my career helping hunters manage for better deer and better hunting. Generally speaking, growing "big bucks" is relatively easy when hunters follow management recommendations. However, getting these bucks in front of hunters is often the most challenging task I have. One thing that I have learned and have seen play out time and time again is that hunting pressure (which is a culmination of all

the unnatural disturbances described above) plays a significant role in hunting success. So, if you want to see and harvest more deer (improve your deer hunting experiences) intensively manage hunting pressure (and other disturbances) on the property you hunt. One of the best ways to reduce pressure is to be ready well before hunting season. Late winter (just after hunting season) is one of the best times to learn more about your property, find areas that could be improved, and figure out how deer or other wildlife use your property. Learning these things will help you maximize the value and use of your property. As I have mentioned in past Calendars, February and March is my favorite time to learn how deer use a property and strategize on new stand locations. Because deer have been exposed to a great deal of hunting pressure over the past few months, they are using areas that they are most comfortable in and feel safe. If you find out where they are "hiding" now, you will know where to find them next season once the hunting pressure builds and deer seem to disappear. During this time of year, buck sign such as trails, rubs and scrapes is still fresh. Erecting or relocating stands now reduces that amount of "pressure" you will need to apply just before deer season and allows deer to get used to seeing them over the summer. Although you will have to touch them up before the season starts next year, late winter is also a good time to trim shooting lanes around deer stands. Having done all this in late winter, you will significantly reduce pressure just before the season starts next year which will enhance your opportunities to see and harvest the big bucks you've worked so hard to grow.

Fertilize perennial clover plots to provide a jump start for spring growth

Although I am a fan of planting annual summer crops to provide maxi-

Fertilizing perennial clover during early spring will give it a jump start and enhance growth.

mum nutrition through the summer months, I also like to include perennial clover plots in my food plot strategies for diversity and as a year-round crop that will be available when other crops fade out or are being planted. Perennial clover plots will start growing rapidly once spring green up begins and daily temperatures exceed 65 degrees. Fertilizing clover can add a significant growth/nutritional boost to clover and other perennials. Because clover produces its own nitrogen, apply a fertilizer that does not contain nitrogen, such as 0-20-20, during early-mid spring to provide adequate nutrients for clover growth. If you add nitrogen, you are simply feeding competing grasses. Although I strongly recommend pulling soil samples and applying fertilizer accordingly, a "common" fertilizer application rate for clover in the spring is 200 lbs. /acre. Once the growing season begins, monitor the plot for undesirable weeds and grass. Pre-emergent herbicides are a fantastic tool that will kill weeds before they have a chance to become a problem. If you are unable to apply pre-emergent herbicide, mowing will help reduce undesirable weeds (do not mow too low…your mower should be set to cut just over the clover). However, if weeds and grasses persist, apply selective post-emergent herbicides for control. Although herbicides are more expensive than mowing, they

An updated aerial photo of your property is a valuable tool for developing management plans

are often the most effective. Mowing is used to give the clover a better chance to out-compete the weeds while herbicide kills the weeds.

Spring is a good time to check soil pH and apply lime to food plots if needed

To check the soil pH, simply collect soil samples and send them to a soil laboratory (see previous Wildlife Trends articles on how to properly collect soil samples). Your local farmers cooperative will often have soil collection bags (which normally have directions on how to collect soil samples) and will also know where you can send the soil to be tested. Although there are exceptions, most crops grow best in a relatively neutral soil pH of 6.5 – 7.0. Thus, lime is often needed to enhance the soil. Because it can take several months for lime to effectively change the soil pH, checking the soil in the spring will give you ample time to enhance the soil before the fall planting period. Incorporating lime during late winter (Jan/Feb) will likely enhance soil pH for summer plantings. Remember, ensuring proper soil pH is often more important than what you plant or how much you fertilize. In fact, proper soil pH is essential for fertilizer to be available to the plants. Although lime can be spread any time of year, applying it at least 4-6 months before planting will allow time for it to properly enhance the soil pH to desirable levels. Lime can be broadcast directly on top of the soil where rain can work it into the growing zone of the soil, but disking it into the soil will speed up the process and is recommended.

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 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 that 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, and harder to work with in professional mapping programs which can handicap your map building/management planning process.

Ensure deer have quality nutrition during late winter through spring green up.

Late winter through spring green up is a nutritional stressful period for deer in most regions. Deer have spent much of the fall going through the stresses associated with breeding activities which have worn them down. Does are pregnant, much of their quality food sources have dwindled, and energy demands increase with a colder climate. By ensuring deer have access to quality nutrition during this period will ensure they enter spring green up in good condition. This gives them a jump start as they enter the spring green up period (one of the highest natural nutritional periods – fresh new growth of plants). As such, deer can use the high nutrition from spring green up for body growth verses maintenance. Healthy deer entering spring results in bigger antlers, healthier does, increased fawn survival, etc. which is the goal of most deer management plans. This recommendation/activity is directed towards landowners or managers that have done a good job managing natural habitat, food plots, and deer herd conditions. That is, before thinking about starting a supplemental feeding program for deer on your property, you need to take care of the "more important" things first. In other words, you cannot hang shutters if you do not have a house – and you will not grow big bucks and a healthy herd

with supplemental feed alone. It is a supplement to other management strategies and activities. However, when done in combination with other core management practices, supplemental feeding can be valuable for deer. Be sure to check your local game laws before providing feed on your property. Many states do not allow the use of feed during hunting season. Ideally, providing supplemental feed throughout the year is best, but supplemental feed will be most used and most valuable for deer in late winter and late summer. These are periods when natural food availability is at its lowest. So if you have a limited budget and cannot or do not want to feed throughout the year, provide it during the periods deer need it most.

Assess the success of management strategies being applied, review or develop a plan, & make preparations for projects of the upcoming year.

Good planning and preparation ensures you will have everything needed and be ready to initiate projects this summer. I heard a saying that has stuck with me over the years that always reminds me to plan – "People don't plan to fail, but often fail to plan". Planning also allows you to prioritize projects, create a budget for the upcoming year, and develop timelines for completion to help you stay on track. Many landowners simply tackle projects as they come up or as they think of them. This strategy can work, but without planning they may overlook or run out of money before addressing a more needed project. Spring is busy times for

Late winter through spring green up is a nutritional stressful period for deer in most regions

us at Tall Tines Wildlife Consultants helping landowners develop a plan of action for the coming year to improve the wildlife value and hunting on their property. We conduct what we call "property management assessments". During this consultation, we review projects that had been completed the previous year, review harvest data or other information that provides insight to how the wildlife we are trying to manage is responding to management, re-assess progress towards goals, assess the habitat and property in general to determine its limiting factors, and develop a prioritized list of activities that need to happen to help the landowner achieve their goals. While this is a professional service we provide, it is a process that I feel all landowners should go through each year, whether they hire a professional biologist or not, to keep them on track and moving forward. This reminds me of another saying – "Don't keep doing the same thing and expect different results". Now (late winter/spring) is the time to assess your management program, determine needs for improvements, and develop a plan to address these needs.

Plant shrubs to screen unnatural structures or objects

While this has nothing to do with wildlife management, it may enhance experiences around the property you hunt. Late winter is a great time to install or transplant shrubs or other plants to hide unnatural objects around your camp or property. Examples of such items may include electric boxes, AC units, pump houses, clay target throwers, etc. While purchasing shrubs or plants is always an option, consider transplanting natural plants that exist on your property. These plants are well adapted for the soils and climate of your property and best of all they are free. Choose shrubs/plants that are evergreen or will provide the "cover" needed to do the job. A few plants I have had great success with include wax myrtle, broomsedge grass, and various holly and ferns. When digging up plants keep as much of the root ball intact as possible. That is, leave plenty of room around the base of the plant and cut a circle around the plant with a shovel working deeper and under the plant until the root mass (full of dirt) breaks free. Handle the root mass with care while transporting to its new home. The goal is to keep as much of the existing soil around the roots in place as possible – which protects small feeder roots of the plant. A large plant container (black pot that shrubs or trees are grown in) is useful to have when transporting to protect the root ball. Dig the new hole larger than the original and loosen soil in and around the hole. After placing the plant in its new home, use soil from the hole to pack around the root ball. Ensure no air pockets exist and firmly pack the soil (firm not compact) around the plant. If possible, water the plant in. During its first year of life (particularly the first summer), the shrub may need a little TLC. Make sure it has plenty of water and keep competing vegetation under control.

Intense localized predator control can increase survival/recruitment rates of species such as rabbits, quail, turkeys, and deer

Depending on the situation, native shrubs can provide a great screen along property lines where needed.

Trap Predators

Hunters are quick to blame predators such as raccoons, opossum, skunks, coyotes, fox, or bobcats where populations of game wildlife are declining. However, in most cases the cause for game species population decline is often caused by reduced reproductive performance or survival of their young due to poor habitat or harvest management strategies. That is, it's foolish to blame predators for poor quality deer hunting if your deer herd is "crashing" as a result of being overpopulated and is experiencing poor fawn production due to poor overall herd health. Or blame predators for a declining turkey population if you are not managing or providing quality nesting and brood rearing habitat to promote good poult survival. So before initiating efforts to remove predators, consider habitat quality and/or strategies you are applying to improve it. If habitat quality is not good, your time and money may be best spent managing habitat verses predator control. Having said this, on properties where habitat quality is generally good, intense localized predator control can increase survival/recruitment rates of species such as rabbits, quail, turkeys, and deer. Intense is the key word here. Simply throwing a few traps out on the weekends will not have much effect on predator populations. Having a significant impact will require intense trapping over a period of time that results in many predators being removed. It is also worth noting that predator populations can re-bound quickly. Similar to the response of a deer herd after an aggressive harvest, a reduced predator population with less competition for quality resources will have increased reproductive rates. Thus, trapping efforts need to be applied every year to be most effective and produce the best results.

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