



PRACTICAL WILDLIFE MANAGEMENT INFORMATION

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Earl Says...

Football is back, we're finally getting some cooler weather and now it's fall food plot planting time. It sure feels good to get back into hunting season and working in the woods.

This time last year we all were in a strange new world with Covid and politics so I'm planning to concentrate on the things I can control. And hopefully that means more time in the deer stand and less time watching the news with all the political mess going around. Time on a tractor can do wonders for your soul so please stay safe out there and have fun with Mother Nature!



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Tree Plot Planning, Planting, and Care

By: Allen Deese



Allen Deese is the Nursery Sales Manager for The Wildlife Group. Contact him at 800-221-9703 or visit their website at www.wildlifegroup.com.

With hunting season approaching, many of you have already planted your food plots or are preparing to do so. It's also a great time to plan to add trees to your property this winter. As we are prepping our land and bushhogging, we often find areas that we constantly mow and can't seem to decide what to do with it. It's these areas that I would concentrate on getting some small orchards of mast-producing trees started. At our nursery, we've worked extremely hard all year to provide you, the landowner, with the best quality seedlings and trees. My hope is the following article will help you plan, plant, and care for your trees because we take great pride in providing you with great trees and information. If you are

not successful at growing trees, then we are not doing our job. The only way any nursery can be successful is if the customer is successful. We all need to plant more trees, and I need you to be successful, so you return and purchase more. Or at least tell someone how successful you were so that they will plant also. Below is a brief guide that will help you be more successful with your plantings.

Whether you have container trees or bare-root seedlings delivered to you or you visit a nursery and pick out your trees, here is an excellent guide to go by on what to look for:

- Look for healthy one-year-old whips 3' to 4' tall, 1/2" to 3/4" in diameter fruit trees
- For oak or other trees that are

Dolgo crabapple.

grown from seed, look for 12"-36" saplings

- Plants grown in pots should be 4' to 8' tall and 1" to 2" in diameter
- Closely check labels to make sure of variety and rootstock on fruit trees
- Select trees that will grow in the soils that you have, wet, upland dry, alkaline all are significant and tree specific

Seedling Care

When you receive your trees, be sure to pay special attention when handling your plants that you not allow the roots to dry out. Planting dates are fall, winter, and spring if you have to. We do not suggest any



Chestnut in Plantar Tube



A beautiful tree orchard. Notice the spacing used.

plantings during the summer months unless you plan to water them regularly. Plant your seedlings as soon as you can upon receiving them. If you plan to plant your seedlings within one week of receiving, you can leave them in the original package and store them in a cool place out of direct sunlight. Check the roots every couple of days to make sure they are moist, do not allow the seedlings to freeze or be left in an area that could get too hot. If you feel moisture could be a problem, wet some paper towels or newspaper and wrap around the roots in the box to retain moisture.

Another way to store your seedlings is to heel them in, this works well for longer storage. Dig a trench in the ground deep enough and wide

enough to insert the bundle of seedlings roots into the ground and cover with soil. Next, you would want to water the ground to settle the soil and to keep them moist. Water the seedlings at least once a week unless you have had adequate rainfall. The seedlings will keep much longer this way, and you can remove and plant as needed. Before planting, I like to soak the roots in some water for a couple of hours to hydrate the root system.

Site and Soil Requirements

If you are planting fruit trees, sunlight is the key ingredient in maximizing fruit production. Early morning sun is ideal in helping to dry the dew from the plants, thereby reducing the incidence of disease. Choose a site on your property that is in the sun most of the

day. Otherwise, expect reduced performance from your trees.

Well-drained soil is more important than soil fertility. If planting fruit trees, avoid soils where water is still standing 24 hours after a good rain. In these areas, the roots will die from a lack of oxygen and too much moisture. If you must plant in these areas, you will need to plant on raised or terraced beds. Or choose plants that are suitable for the wet area.

And lastly, never plant apple trees in high alkaline soils. Apples develop many minor element problems when planted in soils with a pH above 7.



Bareroot Pear trees about to be shipped.

Planting Your Trees

The hole that you dig is just as important as the seedling that you are planting. The hole that you dig will need to be deep and wide enough so you can easily place the seedling without J-rooting or smashing the roots together. Please make sure the hole is deep enough so that you can plant your trees at the same depth they were at the nursery. You will see a slight color change from the tree trunk to the root system. Plant at that depth, maybe slightly deeper, but **do not leave any root above ground.**

Potted plants should be planted about 1" above the soil line.

All fruit trees will grow better on well-drained soils. Some oaks are suited for wetter soils and will do great. But keep in mind that not all trees will grow in moist bottomland. Sunlight is vital for most trees and plants. Plant in full sun where possible and remember that morning sun is more important than evening sun. So, if you will only be getting 4-6 hours of sunlight, **plant for morning sun if possible**; again, wets soils are not acceptable for fruit trees.

Most of all, take your time and plant your trees the right way. Rushing through this job causes poor plantings with poor results. I know this will sound crazy coming from a tree salesperson, but I had instead you plant fewer trees and plant them right. Set up a five-year plan for your property and plant in sections so that you can give your trees some extra care the 1st season and not be overwhelmed trying to keep them all alive.

Tree Spacing

Oak and Chestnut trees spacing should be at least 30-35 feet apart. Plant these trees in groups to ensure pollination and provide more considerable food support in the area once the trees start to produce. Chestnuts typically start making within 5-7 years. Oak trees will vary widely depending upon the species. **Early producing oaks include Sawtooth, Gobbler Sawtooth, Chinkapin Oaks, Dwarf Chinkapin Oaks, Live Oaks, and Water Oak.** From my experience, you could have acorns within 5-8 years on the above species. Always use Plantra tree tubes and a quality fiberglass stake in ensuring survival and increasing growth.

Apples and crabapples planted at 15'-20' spacing is ideal. Most but not all wildlife nurseries either use semi-dwarf or standard rootstocks. Pears grow much larger and faster so the minimum spacing on them would be 20'-25' feet. It's best to plant fruit trees in groups mixing apples and crabapples to aid in pollination. Also, grow pears together and mix varieties for pollination. Combining different types of fruit in bunches not only gives you excellent pollination but also offers an extended drop of fruit. Keep in mind that some fruit trees will produce within three years. At the same time, this is not always opti-

mum because heavy fruiting slows growth and can damage trees. **We recommend removing fruit from your trees for the first 3-4 years**, if possible, to allow the tree's energy to go to the trunk as well as helping to avoid broken branches from the heavy fruit. Most fruit trees will be large enough to withstand a good fruit crop around five-seven years after planting.

Fertilization

At the time of planting, dig a larger than average hole to soften the surrounding soils. Large soft holes will allow the root system to spread quickly; watering the trees when planting will remove air pockets and settle the soil. The 1st season I suggest omitting fertilizer in the hole unless using a product such as 3-0-3 Bio-Nutrition or Nutri-packs with low nitrogen and great root boosting organics. If not, do not fertilize at the time of planting. Spring green-up is always tempting the 1st season to push the tree and get quick, explosive growth. While this may seem like a great idea, that early boost may very well kill your trees in August/September. Early spring rain and lots of vegetative growth can mean big trouble late summer when the rain subsides and temperatures soar. Small newly planted trees need the root system to explode in the ground, not the tree above ground—this is why low nitrogen fertilizers and the correct pH are so important. If you are confident that you cannot supplementally water in times of need, I would wait until the second growing season for any top-dress fertilization. If you still feel the need to fertilize the 1st year, only add about one tablespoon of 10-10-10 around the tree's base about one foot from the trunk in early March and again in mid-June, and only if you are getting adequate rainfall. The 2nd

year use about one cup at the same time of year, increasing each season by ½ cup. Use no more than one cup and no more than 5 pounds on a mature tree.

If you are in an area where fire blight is a problem or has been a problem, cut your application rates in half on apples and crabapples. Pears do not require a lot of fertilizer, so if you have any doubts about pears, do not fertilize at all. Treat persimmons much like you

would pears. Be sure to soil test the areas you plan to plant. Soil Testing is the most overlooked and essential aspect in any planting situation!!!!

Weed Control

One of the most limiting factors for all newly planted trees is weeds. Weed competition can result in death or poor growth of young trees. It is essential to keep a 3'-4' circle cleaned at the base of each tree. You can do this by mulching,



Pear tree in October.

use of a weed mat, or use of chemicals. When using a product such as RoundUp, be careful not to get it on the tree. It is also beneficial to mix a pre-emergent with the RoundUp to prohibit regrowth for approximately three months. Again, **weeds are the most limiting factor for newly planted trees.**

Spray Schedule for Pest and Disease

- Read The Label! No matter what any article tells you or what we recommend, always read the label on any product you intend to use and follow the directions on the label.
- Wintertime is the ideal time for dormant spray. The month of February is a great time for winter pruning and applying a dormant horticultural oil. Using dormant season oil mixed with 1 ounce of Permethrin will protect all of your fruit trees, berry bushes, as well as pecans and chestnuts. Dormant oil will be the first spray of the season, and it's imperative to coat the entire tree or as much as possible to protect from overwintering pests. Adding Permethrin will contact kill any existing insects and take care of any overwintering borers that have established a home inside the tree's trunk. Be sure to get this done before spring bud break. Neem Oil is an excellent organic insecticide, miticide, and fungicide used as a dormant spray.
- Your next application is the only spray that you would ever apply to your fruit trees during bloom. The active ingredient in the spray is streptomycin sulfate

for fire blight in apples, pears, and crabapples. Fire Blight is a bacterial disease that infects these species. Spraying during bloom is crucial for the complete protection of your trees. My advice would be to spray early morning or late evening to avoid as many pollinating insects as possible.

- Copper Fungicide is excellent for fungus, leaf spot, leaf curl, and rots. Wait until petal fall to start applying copper fungicide.
- Pest and disease control sprays are to be used any time after the pollination period has ended. Once all flowering blooms (Petals) have fallen from the tree, you can then treat them. We recommend applying early morning or late evening to avoid killing any beneficial insects.
- Systemics work great for pest control over an extended period. But it's imperative to only apply after petal drop. Also, only use recommended amount and products specifically for fruit trees. (Bayer Citrus and Fruit) This one-time application can control Japanese beetles, aphids, thrips, whiteflies, scale, termites, and other harmful insects.

Wildlife enthusiasts should be picking trees with the absentee landowner in mind. Try and select the most disease-resistant trees that you can get to help with the problems that may arise while you are gone. However, disease resistance does not mean immune, and some spraying will be necessary at times.

Pollination

Many trees are self-fruitful. But

why take that chance? It is always best to plant two or more varieties of the same fruit type together with overlapping bloom periods. Doing so will guarantee pollination while also offering an extended drop of fruit. Some varieties bear heavy crops when pollinated by another pollen-producing variety. Keep in mind that I suggest always plant some crabapples with your apples to aid in pollination. The Whitney Crabapple, Chestnut Crabapple, Callaway Crabapple, and the Dolgo are all excellent pollinators and great producers. Plant pears with pears, persimmons with persimmons, and so on.

Pruning and Training

The day you plant your trees is when you should begin to prune and train them for future production. Neglect results in poor growth and delayed fruiting.

- **1st year** -Pruning a young tree controls its shape by developing a robust, well-balanced framework of scaffold branches. Remove or cut back unwanted branches early to avoid the necessity of significant cuts in later years. Remove inside limbs as well as heading the central leader. Heading brings the top and the roots back into balance and causes buds just below the cut to grow and form scaffold branches.
- **2nd year**- Again, top the central leader to encourage another group of scaffolding branches. Remove all inside limbs and tip-prune all existing limbs. Limb spreaders are encouraged to get the desired limbs spread (45-degree angle with the main trunk). Doing so will ensure sufficient sunlight reaches the interior portion of the tree. Remember to always keep the central leader as the highest point of the tree. Keep the

Please be sure to read the label and follow all precautions and directions on any product that you choose.

ends of the scaffolds and primary limbs below the top of the tree—**prune trees every year during the dormant season. Light summer pruning is ok to remove suckers and excessive growth.**

In Summation

- Purchase your trees from a reputable company. Remember that buying trees is a long-term relationship, much like purchasing a piece of land. The trees that you plant on your property will benefit you and your family for a long time.
- Soil Test!
- Diversify -plant varying species of Apples, Crabapples, Pears, Persimmons, and Plums not only for pollination but for a sustained fruit drop from early summer into late December.
- Spend a little time with your trees each season in late February, removing old dead limbs, crossing limbs inside the tree, and heading back the leaders. Remember to make pruning cuts above outward-facing buds.
- Fertilization- always lean on the side of a little is enough. Remember that Pears and Persimmon do not require a lot of nitrogen, especially after about three-four years. Fertilization during the early years is beneficial in getting young trees established and soil testing for correct pH.
- Weeds – use weed mats, spray, mulch, or all of the above. Weeds are the most limiting factor to establishing newly planted trees.
- Dormant oil on a warm February day will help protect from insect damage. The best



McKelvey Pear

spray to apply and the least toxic of all sprays.

- Lastly, be patient! I repeatedly hear that someone at a nursery told them that they have trees that will produce in 2-3 years. We do, but in reality, even if buying large trees, you will still have about a 4 – 5-year window that the tree must develop a sound limb structure and a healthy thriving root system. Only then will you start to benefit fully from your orchard. So, plant with a long-term purpose in mind and only plant as

many trees as you can care for each season.

Planting trees can be a gratifying project for you, your property, and your hunting buddies or as a great family outing. Seeing the results of your labor is very rewarding. When following our recommendations, we fully expect that you would have 85% survival or better. Things will happen out of your control, and you will lose some trees, it happens to all of us. Be patient and give them time, and you will be planting trees for years to come.

Where Did My Fish Go?

By Scott Brown



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

Some lakes have a fishery that may slow down in the South. If you have theories that your fish are not there due to fishing not picking up in the fall, get an electrofishing survey done in the fall or following spring to see if the fish are really gone, or if their feeding slowed down and you couldn't catch them.

Every year in late summer we receive phone calls, emails and texts from concerned lake owners telling us their great fishing in spring has dwindled and to some extent been non-existent during June, July and August, particularly in the South. Few bass are being caught, no quality fish have been seen in months, and fish stopped coming to the fish feeders. The question we frequently hear from these people are, “where did my fish go?” Most of the time, the fish have not gone anywhere, but their

feeding habits have drastically changed from the days of spring and last fall when bass were being caught with ease, quality fish were plentiful, and the feeders could not throw out enough feed to feed all the bream, shiners and catfish coming to the surface morning, noon and night. To add mystery to this occurrence, some years are worse than others, where some it is barely noticeable and others an extreme shutdown of any fish being caught, and sometimes rarely even seen while walking the shoreline.

The good news is, most of the time the fish have not gone away, unless you have had a family of otters move in, a flock of cormorants take up residency, flooding or a fish die-off. **Otters** and **cormorants** can quickly reduce a fish population in a small pond, but otters leave signs and cormorants in the South do their most damage in the winter while south during migration. Otter predation can be detected by finding lake entry points, fish carcasses laying nearby, the “latrine” where the otters have designated as a

bathroom site, or visible observations of them in early morning or at dusk. Cormorant predation is observed by watching them swim in the lake, watch them dive and resurface with a fish in their mouth. If several are present, they target schooling fish, small bass, crappie, newly stocked channel catfish, etc., while otters will take anything, including large bass when the opportunity arises. Flooding obviously allows fish to physically leave the lake and a die can occur usually with floating evidence, but on occasions with few are no floaters as fish die slowly and never surface, but rot on bottom undetected. The usual cause for not being able to catch summertime fish is poor water quality, stress on bass in particular and lack of feeding during this time period.

As water temperatures rise and peak during summer months, water begins to separate (become stratified) in deeper lakes where water in deep areas may be cooler than surface water, but may be low or completely void of Dissolved Oxygen (DO). With a bottom aeration system this is avoided, and dissolved oxygen is present from top to bottom in the water column, and water may be slightly cooler at the surface than without bottom aeration. If water gets too warm, it loses the ability to hold as many oxygen molecules, which also results in DO levels being low in the shallow, stagnant areas. Depending on where you are, water may rise or fall during summer months. Summer rains in the South can also contribute to deteriorating water chemistry with high nutrient run off from agricultural areas or highly fertilized lawns that can lower dissolved oxygen levels stressing or killing fish. But steady summer rains maintaining higher than normal water levels can improve water chemistry in the long run

over the entire summer by keeping water up, moving, slightly cooler and better oxygenated near the surface and slightly deeper than during drought years.

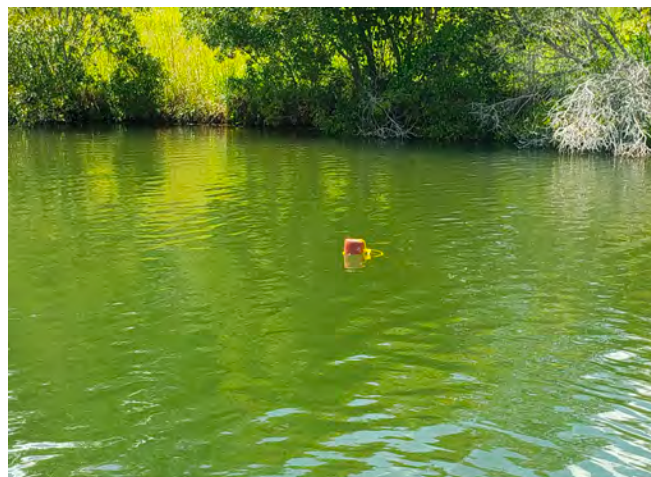
This stratification process becomes more prevalent and important when determining how your fish are doing during the summer. A **hypertrophic** (excessive algae bloom, green water) lake will have a smaller area in the water column for fish to live than a clear lake during the summer in the South. A green lake in summer may only have the top four-to-six feet with acceptable levels of dissolved oxygen while a clear lake may have fair DO levels down to 8-10 feet, depending how deep it is and how often rains come. When a waterbody that normally has 12 feet of water column available for fish becomes restrictive to only five feet, the entire fish population becomes compressed and dense in that five feet of water, and the individuals stress being overcrowded with low DO from too many individuals and excess waste being excreted, and they cannot go deeper to cooler water due to lack of oxygen down there. This stress triggers the fish to reduce or stop feeding, until the stress subsides. Even if this happens on a regular basis, the green lakes are more productive than the clear lakes with a temporary feeding reduction or stoppage.

Algae blooms usually get denser in the summer. A combination of high-water temperatures, lower oxygen levels and stress may cause your fish to slow down feeding or stop all together for a period of time.

Evaporation takes place at a faster rate during summer in areas where summer is a dryer period. Some water chemistry components (ammonia and chlorine) in water can be lowered from evapotranspiration. Another influence is how much bottom organics (muck) are in your lake. A small amount of organic build up is acceptable, but excessive organics can lower Dissolved Oxygen and elevate temperatures, which are side effects of decomposition. In extreme cases of organic buildup, dredging or draining and scraping is the only way to alleviate the harsh summertime conditions having a negative impact on the fish population.

Water chemistry and good water quality is the foundation for any good fishery. But many lake owners do not realize that means good water quality all year, not just during fall and spring. A lot of good intentions have been diminished or eradicated with poor water quality during the summer. Knowing how the heat affects each waterbody on your property is very important as to not implement management strategies that get derailed from hot temperatures in the summer.

Water chemistry data taken in the summer is the most critical time to look at it. Most waterbodies in warmer climates have good water





Dissolved Oxygen will cycle daily with the highest levels at dark and the lowest at daylight. Normally this cycle does not harm fish unless the level is going below 3 milligrams per liter (mg/l) from top-to-bottom daily. A more dangerous cycle is the pH, where it will also fluctuate at its highest at dark and lowest at daylight. If this fluctuation is greater than 2.0-2.5 daily, it can stress fish

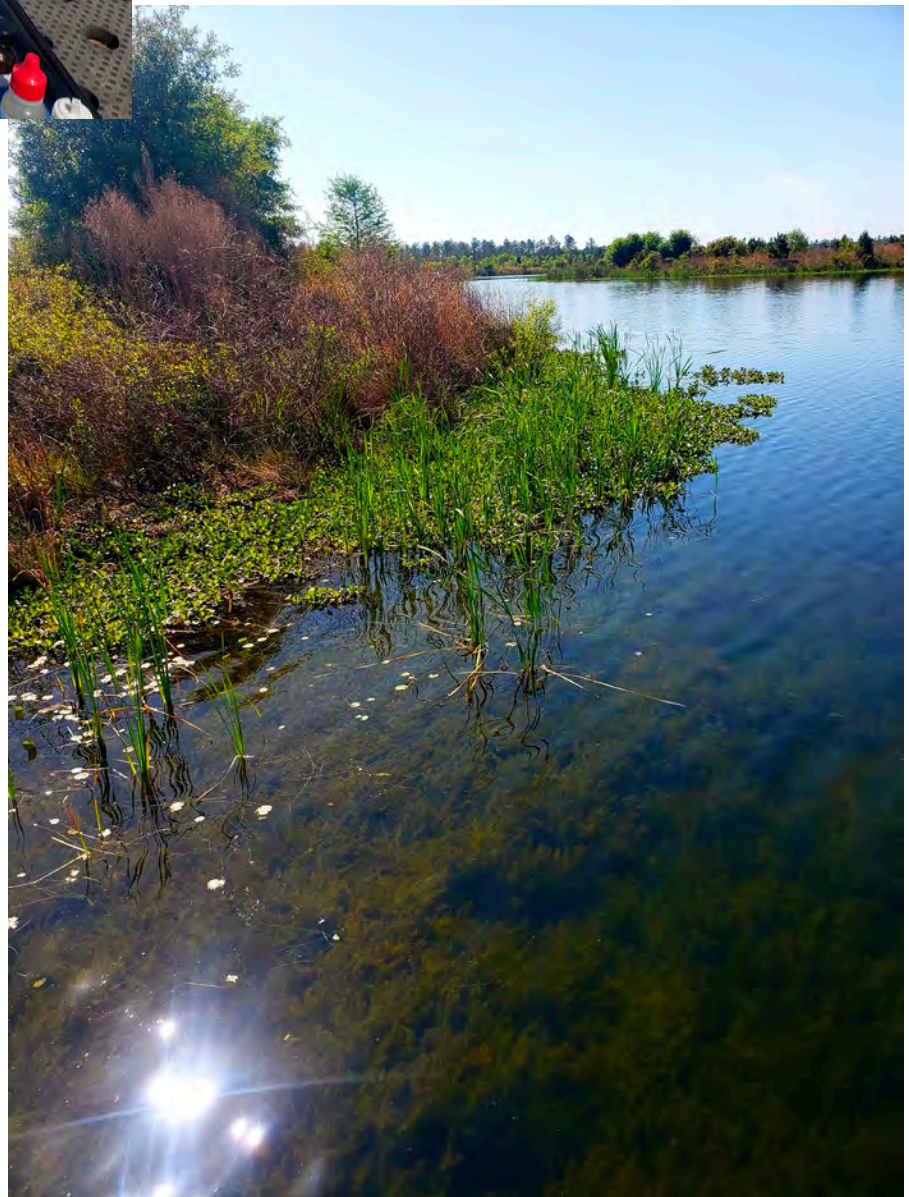
and even kill them, which many times is overlooked. If discovered, this can be fixed with liming to bring the pH up and stabilize it so the daily fluctuation does not occur. A greater top to bottom difference of DO and pH is much more common in hypertrophic lakes than ones with desirable or no algae bloom.

As water temperature rises in the spring, vegetation begins to grow. Some vegetation will actually slow its growth as temperatures peak, some grow strong all growing season, and some accelerate growth when water is hottest. Knowing the

Water chemistry in the summer in the South, or summer and winter in the North should be checked to see if any issues are occurring to prohibit maximum carrying capacity and fish growth of desirable species.

chemistry fall through spring. In extremely cold climates, waterbodies may experience poor water quality in both winter and summer, especially if no aeration system has been installed. As the water temperature rises, so does the amount of Dissolved Oxygen to a point, but once the temperature gets above certain levels, dissolved oxygen will start to come down. Hot water and lower Dissolved Oxygen levels can stress summer spawning bluegill, young-of the-year, juveniles and adult desirable sportfish species.

As summer progresses, so does vegetation growth. Leaving some vegetation for habitat is advised, but if needed spot treating nuisance vegetation during summer will help maintain a better water chemistry balance and reduce fish stress or potential die-off. Once water temperatures cool, a larger treatment of nuisance vegetation can be executed if needed.



plant species present and its habits is critical for good lake management. The earlier in the growing season a plant is identified as a future issue, the better. You want some vegetation, but early spring intervention with herbicides makes it easier and cheaper to treat than later. If you have an algae bloom, it may intensify during the summer which helps feed fry and threadfin shad, but becoming too intense (hypertrophic) becomes a negative instead of a positive. When treating nuisance vegetation during the summer months, try to spot treat only, to avoid lowering the DO any further and placing additional stress on fish.

Fish transitioning from spring to summer varies by location. Top predators may continue to feed all summer long and not slow down until winter, while in the Deep South where water temperatures may reach upper 80's or low 90° F near the surface, causing all species to slow consuming food. Surface water temperatures above 85° F can start causing issues depending on your waterbody's makeup. Most fish spawn once or twice in spring, while bluegill may spawn several times or all summer long. Bluegill spawning will stop in extreme heat conditions or have lower nesting success rate due to hot water and/or lower DO levels.

Fish may change from an all-day feeding pattern to loafing in darker, cooler, deeper water where sufficient oxygen is available, coming to the surface and shoreline to feed as the sun sets when the surface water temperatures are slightly cooler. If the lake stratifies, fish may be located in the deepest part of the water column where DO levels are high enough to support them. If the water is de-stratified with bottom aeration, fish will be in the deepest

If an excessive number of rough fish such as bowfin, gar, bullheads, etc. are caught during angling or dominate electrofishing surveys, there is probably a water chemistry issue some time during the year affecting desirable sportfish reproduction, growth and/or survival.

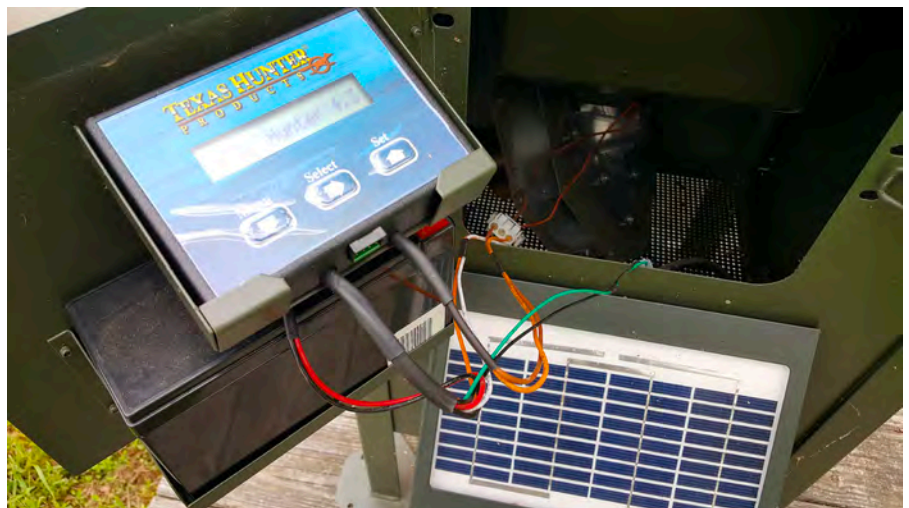
holes out of the sunlight and heat. When angling during summer months, have baits at the depths of the water column where good DO is present. Fish are not below the line where it transitions from good DO to poor. And even then, if fish are too stressed, they may not bite.

If your spring electrofishing results show abundant undesirable rough fish species such as gar, bowfin, carp, suckers, bullheads, etc., that can tip a manger off that even though the water chemistry is perfect in the spring, there could be a time period when it is less desirable and even detrimental to quality/desirable fish species such as largemouth bass, bluegill, redear sunfish, threadfin shad, brook silversides and black crappie. Poor summer water quality can hinder these species' numbers and growth, while

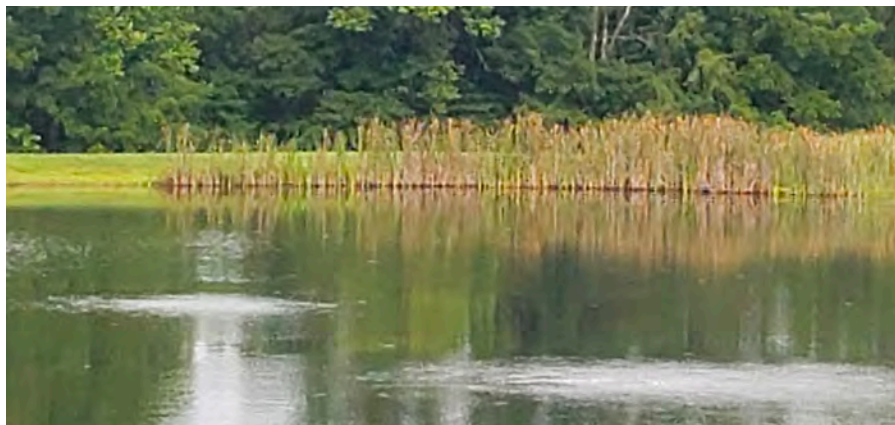


the previously mentioned rough fish species can thrive under less desirable conditions. Before introducing a new native sport or forage species, make sure it can survive the summer in your waterbody. Signs of summer stress may appear on or in the fish tissue as sores or parasites. These stress signs usually start appearing during the spawn as spawning stress, but may continue and increase if your waterbody puts additional undue stress on the fish during the summer.

During the summer, phytoplankton and zooplankton (microscopic plants and animals, respectively) both increase which helps feed



If water temperatures are high and fish are not feeding as much, set feeders to feed at dawn and dusk. If they still are not consuming feed, shut off for two weeks and restart. Poor water quality stress reduces feeding habits of all sport species including bream and bass.



Aeration will eliminate stratification of the water column, slightly reduce water temperatures, allow fish to use the entire water column instead of the top few feet and cause crowding, and reduce summer algae growth.

newly hatched bluegill, threadfin shad, silversides and bluegill fry. If water temperatures stay in an acceptable range, they will continue to feed on fish feed and small fish all summer and into the fall. When feeding fish with automatic fish feeders, they should be set to come on before or at first light and just prior or after dark if water temperatures get hot and feeding slows. If feed is not being consumed at all, turn off feeders and restart in a couple weeks to see if they return.

If your waterbody is experiencing this summertime shut down, you have documented a problem with poor summertime water chemistry and you are asking, “Where did my fish go?”, consider installing a bottom aeration system. Yes, it adds some dissolved oxygen molecules to the water, but will de-stratify the water column, cool water at surface and raise oxygen levels from top-to-bottom allowing the fish to use all the water column, remain stress free and stay on full feed all year long, without a growth slowing or

A quality bass population needs to be feeding all summer long to maximize numbers of quality fish and growth rates. Interruptions due to poor summer water quality reduces management success.

stoppage period.

If you feel your fish have disappeared for any reason, get an electrofishing survey conducted in the fall to evaluate what is present and what was lost. But, before restocking, figure out what caused the problem and fix it first, then restock as needed. Many times, we start with a new pond that looks great in the spring, but just doesn't have the quality bass, bream or forage base that it should, given the design, habitat, current water chemistry status, and past management practices. We recommend a summer water chemistry test a few years in a row to see how the fish are doing during that period, and frequently, the summer water chemistry is causing stress (particularly in shallower lakes), slowing growth and even causing die-offs the owner was unaware of until we investigated.

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

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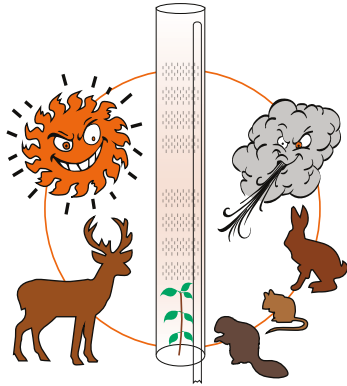


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That Dog Will Hunt

Balancing disturbance impacts on wild bobwhite

By Dr. Theron M. Terhune



Dr. Theron Terhune is a Wildlife Biologist and Research Scientist at a privately-owned property near Wilmington, NC and a Research Fellow at the Spatial Informatics Group – Natural Assets Laboratory (SIG-NAL). He received a B.S. and M.S. degree from Auburn University in Wildlife Science and a Ph.D. in Forestry and Natural Resources at the University of Georgia. Theron has studied gamebirds and fire-affiliated species for more than 20 years during which he has published 65 scientific articles in peer-reviewed journals and 34 popular magazine articles.

I remember it like it was yesterday, when my first ever bird dog, Gerti, had the light-bulb moment. In her first hunting season at 7-8 months old, she busted coveys as if she were baying hogs, treeing squirrels, and proudly driving deer all at the same time. I cringed at each covey encounter when I heard her high-pitched bark as she gave chase! I recall numerous frustrating training events and hunts like this during the first season. It was apparent though that she was having the time of her life. She simply could not get enough of it—heck, it looked like so much fun, I almost begrudgingly gave into the chase myself. She did eventually learn that the best way to get a quail bird in her mouth was for her

to hold point and for me to shoot one down, although this took time. Owning and training my own bird dogs over the years has changed the pursuit for me. Today, I enjoy watching dogs work as much as harvesting the Prince of Game Birds. In the journey over the years, I have found the adage “*it takes wild birds to make a good wild bird dog*” is very much true. Getting bird dogs into wild birds has obvious benefits such as tuning their senses and honing their understanding to the presence or absence of a covey. As we see the world, dogs smell it. Thus, for good reason experienced dog trainers understand the importance of getting their dogs in on real, wild bird action. However, much debate exists, and opinions

vary as much as dog breeds, about whether working dogs on wild birds has negative consequences.

A great deal of research exists on the range of potential negative impacts of anthropogenic recreation on wildlife and habitats. Given that disturbance is defined as an animal’s avoidance response to a stimulus resulting from the presence of humans in its habitat (Frid and Dill 2002), we can begin to appreciate that our impact on wildlife is real yet oftentimes inevitable. Although the assumption is often made that non-lethal disturbance have minor consequences on population status, a growing number of studies have shown that non-lethal effects can have similar, or even

larger, influence than direct mortality from either hunting or natural predation (Preisser et al. 2005, Creel et al. 2007). One study (Gaynor et al. 2018) published in *Science* magazine demonstrated that human activities, including non-lethal pastimes such as hiking or birdwatching, has forced animals to make use of hours where humans are less active to the extent that many mammalian species are becoming more nocturnal. This phenomenon is often experienced by deer hunters hunting that savvy buck such that the more they are hunted the more nocturnal they become. In Gaynor's study, they submitted that the impact of human recreational activities affected daily patterns of wildlife activity with shifts from natural patterns and salient consequences for fitness (e.g., survival or reproduction). Other recent studies have shown

that when using simple playback speakers, broadcasting human voices, significantly reduced activity of large and meso-mammalian predators. Among certain songbirds and raptors, human recreational disruptions have also been shown to impact habitat use, foraging behavior and fecundity resulting in suppressed production and, in some cases, population declines. Even among invertebrates (e.g., insects) and aquatic species dozens of manipulative experiments have remarkably demonstrated that fear or perception of predation risk associated with human-mediated disturbance resulted in reduced demographic performance. A principal way human disturbance of wildlife can have negative impacts is by altering the ability of animals to exploit important resources. Zanette and Clinchy (2019) posited that: "Regardless of whether it is fecun-

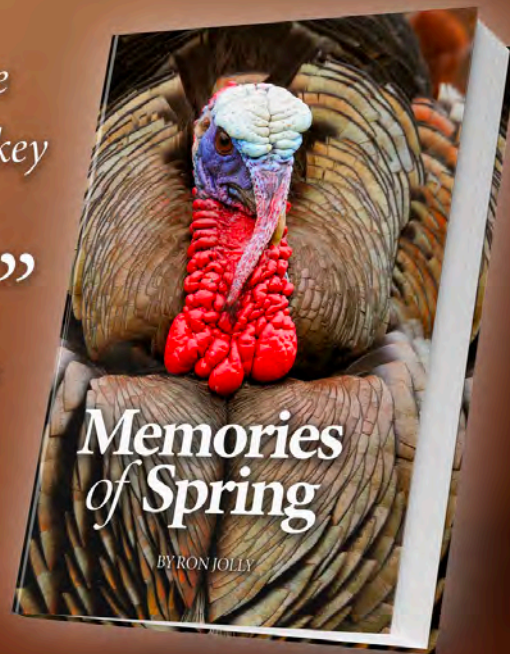
dity, offspring survival, or adult survival, that is most affected, the most compelling reason to expect that fear is likely to almost universally affect prey populations is because scared prey eat less.

Grasshoppers, elk and most elephants alike all have to divert attention from eating to pay attention to predators, and if eating is significantly impaired for protracted periods this will definitively reduce fecundity and survival."

Among bobwhites, several studies have shown that human disturbance can elicit behavioral, physiological and demographic consequences. **Behavioral adjustments** by bobwhite may result from restricted access to resources such as food, nesting or roosting sites, or altering perceived risk and quality of certain areas. A recent study in the Southeast acknowledged that increased activity of hunting pressure, training dogs or

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field trials is a valid concern (Sisson and Terhune 2017). Although no survival differences were observed during this study associated with field trial activity containing large galleries of horses, people and bird dogs, covey behavior was altered such that they retreated to denser cover during the trial event in attempt to avoid being encountered. In another study, behavioral changes exhibited by bobwhite coveys resulted from increased encounters with humans during hunts (see Figure 1). In this study, hunting activity negatively influenced feeding resulting in a decrease in foraging duration and restricted foraging area as well as an increase in the number of foraging events (McGrath et al. 2017). They also found that vegetation density impacted covey behavioral response, indicating quality habitat may be key to minimizing disturbance impacts. Interestingly, coveys shot into during this study tended to shift foraging times by 30 minutes or more compared to coveys not shot.

We often operate under the premise that disturbance comes only from the direct pursuit of a target species, in this case, bobwhite, but recent research has shown impacts of disturbance from pursuing a target species may have consequences on a non-target species. For instance, one such study demonstrated that human disturbance from rabbit hunting on public lands in Georgia altered bobwhite move-

ment and distance to escape cover (Mohlman et al. 2019). They stipulated that observed “*decreased movement and increased use of poor habitats may also have negative effects on foraging time and increased susceptibility to other predators.*” These modifications in behavior underscore how disturbance impact bobwhite and their perceived risk of humans and other predators on the landscape.

Although many activities, like training dogs or hiking, appear to be innocuous, sub-lethal impacts may go unnoticed and elicit **physiological change**, potentially impacting demographic performance. A recent study conducted by E. Prosser, in collaboration with The University of Georgia, demonstrated that an elevated stress hormone, glucocorticoid or corticosterone, was observed to be associated with

increased encounters with hunters. Interestingly, despite elevated stress levels minimal survival differences were observed among bobwhites hunted compared to not hunted. However, the increased stress levels did result in reduced productivity such that individuals with higher stress hormone concentrations incurred delayed nest incubation compared to non-hunted individuals and reduced production of offspring (Figure 2).

In yet another study conducted in the Southeast, weekly survival rates decreased during increased hunting activity whereby majority of mortality was a result of natural predation and not direct harvest (Figure 3). Noticeably, in this study we observed that not only did cover quality and edge density impact movement, home range size and

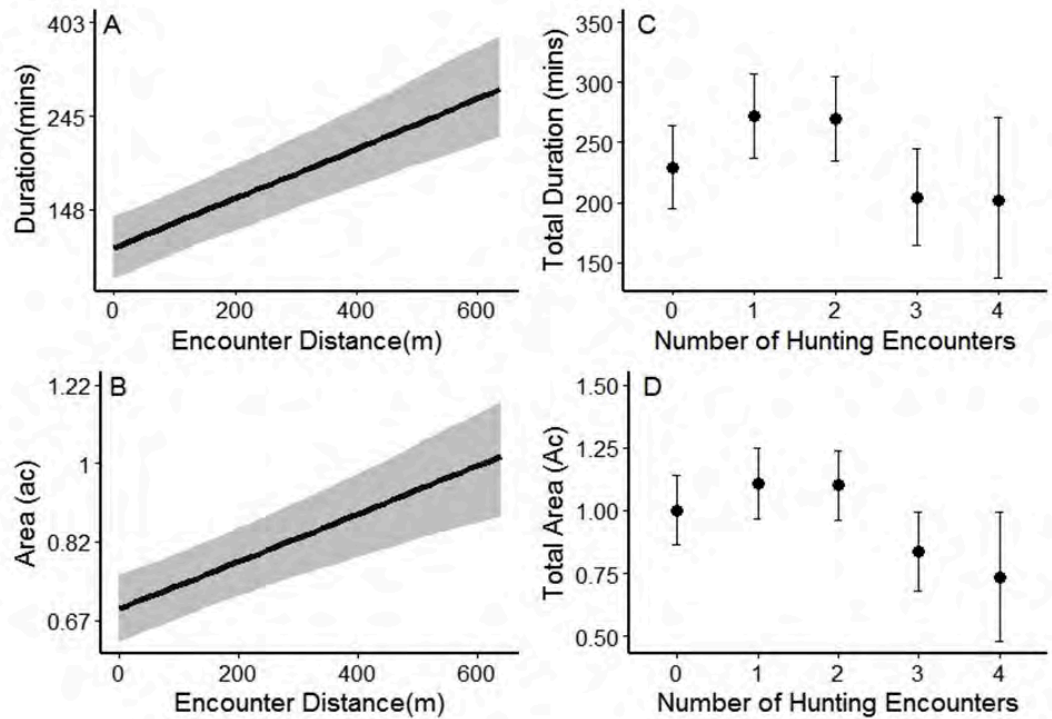


Figure 1. Effects of hunting pressure on foraging duration and area (A&B) such that a decrease in foraging duration and decrease in foraging area was observed coupled with an increase in frequency of foraging events (C&D), especially by the third encounter. This suggests shorter, more frequency foraging events limited bobwhite exposure to human hunting pressure. Encounter distance represents the distance between a pointing dog and bobwhite covey and therefore, as hunting pressure decreases as encounter distance increases indicating that coveys learn to respond earlier to hunting activity to avoid being encountered.

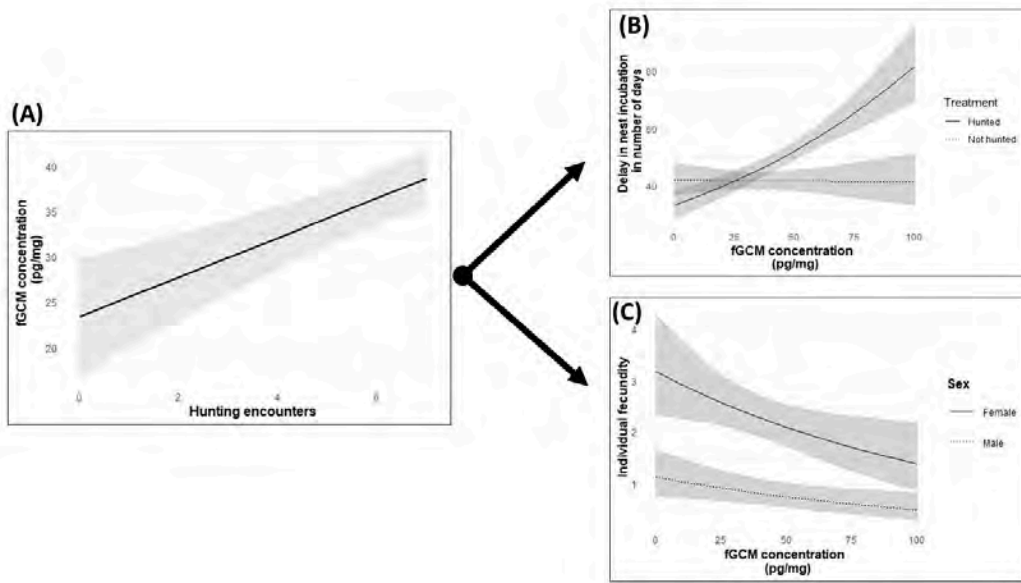


Figure 2. The effects of hunting activity on stress hormone, corticosterone, levels of radio-tagged bobwhite coveys. (A) as the number of hunter-covey encounters increases concentration of stress hormones also increase. The increased stress levels negatively impacted nest incubation timing (B) where non-hunted coveys exhibited lower stress concentration levels and tended to initiate nesting 30-40 days earlier than hunted coveys with higher stress concentration. Similarly, fecundity (number of offspring produced) decreased as concentration of stress hormone levels increased for both males and females.

survival, but the sustaining impact of highly repeated (weekly) disturbance from hunting resulted in an

extended (~20 days) increase in mortality beyond the immediate hunting period. These studies both

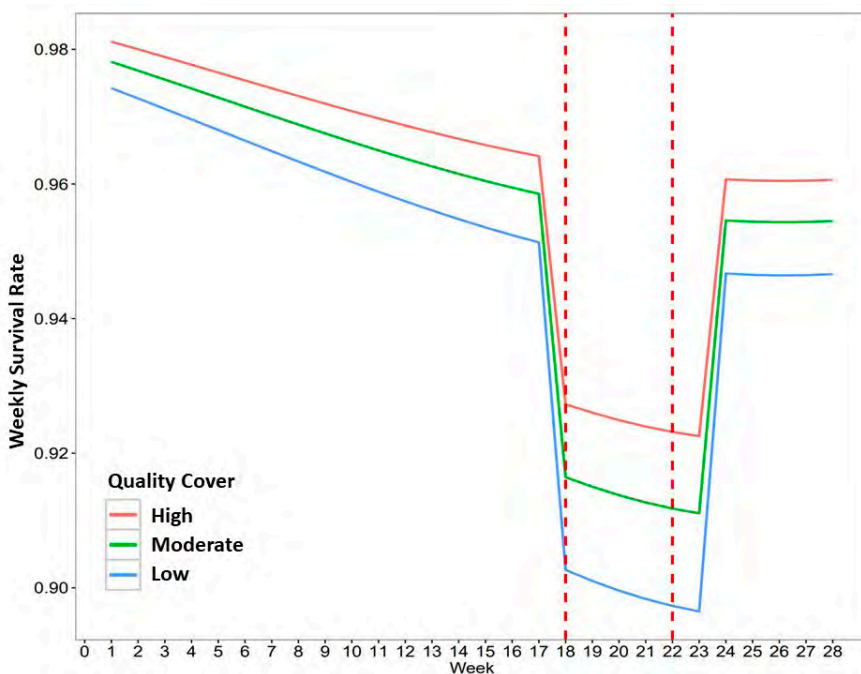


Figure 3. Weekly survival rate for bobwhites prior to an intensive hunting period (represented by red-dashed lines) during weeks 18 – 22. Weekly survival due to natural predation (i.e., indirect effects of disturbance from hunting) decreased substantially during the hunting period and post-hunting period whereby weekly survival rates did not return to normal for nearly 3 weeks (~20 days) indicating that frequent (weekly) disturbance from hunting activity should be avoided if possible. Increasing the hunt return interval to 2-3 weeks should allow the coveys to adjust back to normal daily routines.

game and non-game species represent a burgeoning body of literature and scientific work highlighting the impacts of human disturbance on wildlife, in general, and bobwhite specifically. Taken collectively, the notion that consumptive or non-consumptive recreation or human disturbance has little-to-no environmental impact or has inconsequential impact on animal behavior is untenable.

So, does this mean you should never work or train dogs on wild birds? This is not the case! What it does

mean, however, is we should be intentional and judicious in how frequently, when and where we work dogs. A conservative approach, until research demonstrates otherwise, is that the disturbance from working or training dogs should be considered similar to a hunt and treated as such. In other words, the combination of working dogs and hunting should

DID YOU KNOW?

The average number of coveys found during a hunt is only about 38% of the total coveys residing on a course. However, of those coveys available to be detected (i.e., close enough to be encountered by the hunt party) covey-detection by a dog is 45-50%.

Depending on scenting conditions, dog quality, time of day, cover conditions and numerous other factors detection rate can vary up or down by as much as 30%.

collectively inform how often a course and its birds are disturbed. However, there are still a lot of unknowns associated with disturbance impacts on bobwhite. That said, I am a firm believer that working bird dogs on wild birds is paramount in developing and fine-tuning high-quality, high-performing bird dogs. In fact, in recent years I have become enamored with the complexities of dog olfaction, researching various elements of their sniffer over the past decade.

A tremendous amount of a dog's brain tissue is dedicated to olfactory cells; studies indicate that a dog has more than 220 million olfactory receptors compared to approximately only 5-6 million found in the average human brain, resulting in a canine sniffer that is thousands to millions of times the ability of a human. The average dog's brain is one-tenth the size of a human's, yet the olfactory region of a dog is four times the size of humans. Despite their innate ability to identify and catalog scent, however, dogs must learn to process the meaning of the vast array of the millions of scent compounds lingering in the air, at which they inhale each minute. This is why wild bird dog training is irreplaceable and very difficult to recreate or simulate, especially with pen-reared birds. One can only imagine the complexity and infinite interactions of scent molecules in space and time that a bird dog encounters with each step, and each breathe. Whereas we smell the "woods" when we go hunting, a dog smells soil, decaying leaves, oils in leaves, bark, berries, acorns, skin cells, new and old scent of birds, insect pheromones, and so on. Complicating matters more, numerous variables are known to obscure a dog's olfaction ability—from vegetation, to genetics, to age, and beyond. Only

through the tapestry of experience can they begin to weave together the fabric of the environment(s) they are exposed to and begin to associate specific scent(s) to specific targets, while disassociating other scent(s), such as the smell of quail bird from that of a Bachman's sparrow. For dogs, scent also marks time! They notice subtle changes in smell over time which allows them to distinguish old scent from new scent or the presence of a covey compared to the covey once there and now long gone. Getting bird dogs into wild birds in natural conditions, provides unparalleled opportunity for them to learn and get ready to perform at game time!

Whereas the common question we often want to ask is does dog training impact wild bobwhite, perhaps the better questions are, given that we know disturbance impacts bobwhite: (a) how much disturbance from working or training dogs can bobwhite sustain without negative consequences? and (b) what alternatives are there to reducing

human-mediated disturbance to improve hunt success?

How much disturbance can bobwhite sustain without negative consequences? The honest answer is we do not definitively know. But the number of times a course is disturbed should be closely monitored and regulated much like the timber density or canopy closure.

Philosophically speaking, the evolutionary construct of predation and everyday predator-prey interactions is what facilitates the sportiness of wing shooting. But Stoddard imputed "*the very conditions that make it easier and quicker for us [humans] to find birds, of course, make it easier for meso-predators, owls and hawks to find them also.*" Thus, from grid-blocking to timing of prescribed fire to timing of herbicide application to disking fields to working bird dogs the experienced manager must delicately and carefully employ management actions to minimize disturbance effects on wild birds. While there

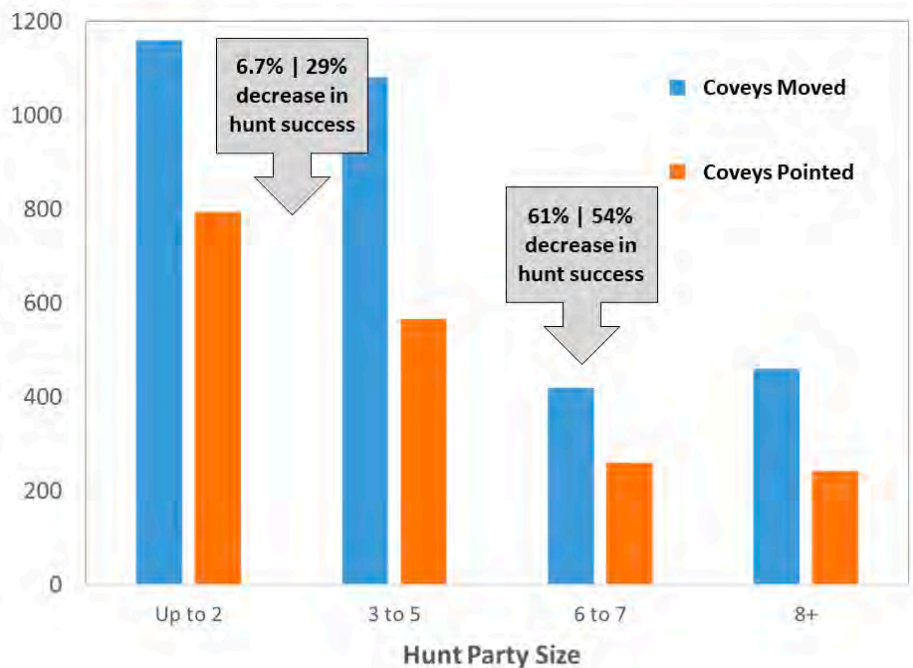


Figure 4. Influence of hunt party size on hunt success. As the number of hunters in a hunt party increased the number of coveys moved and the number of coveys pointed decreased indicating that as cues (noise, etc.) to hunting activity increases coveys avoid hunters better.

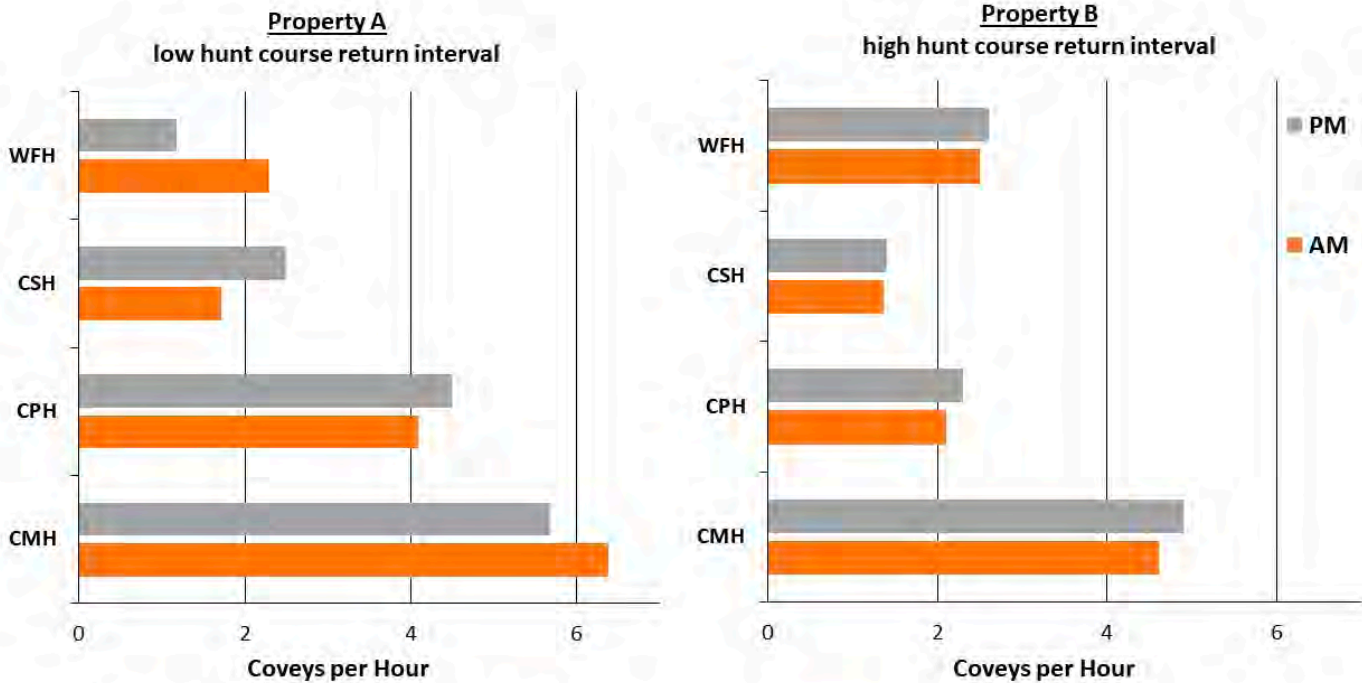


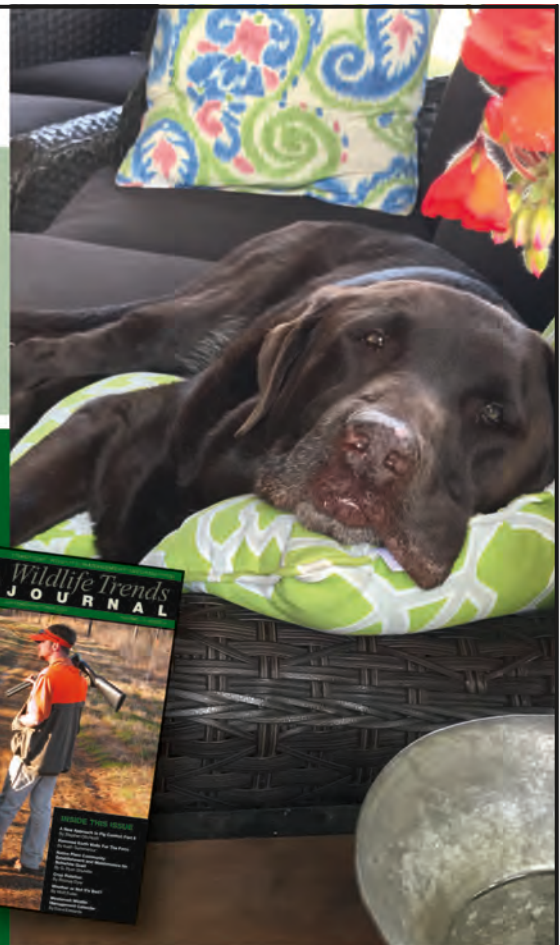
Figure 5. Hunt success on 2 properties of similar fall bobwhite density (1.5 birds per acre) in the Southeast with a low hunt return interval (property A; hunted each course an average of 3 times during the season) and a high hunt return interval (property B; hunted each course an average of 7 times). On average, a 45% reduction in coveys pointed per hour (CPH) and 60% reduction in coveys shot per hour (CSH) compared to coveys moved per hour (CMH) is observed. However, when hunting and dog training activity is low (property A) only a 25% reduction in coveys pointed per hour is observed compared to a 54% reduction in coveys pointed per hour on the site (property B) with high hunting activity. IN addition, the number of wild flushes per hour (WFH) also increases with increased hunting activity.

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are still many unknowns, there are many knowns when it comes to disturbance impacts on quail.

First and foremost, disturbance impacts are a matter of magnitude not so much an **if** they exist proposition. The research I have been involved with and other research, some reported earlier in this article, unequivocally demonstrate that disturbance is a reality and too much disturbance can and will elicit negative, undesired consequences. I have also observed where overharvest has had deleterious impacts on bird populations with extended multi-year consequences. Indirect pressure from hunting or working dogs can have similar negative consequences, if not regulated or limited. One manager in the Red Hills region recently said to me: *“I have seen firsthand the effects of too much pressure from working dogs on our hunt success.”* Another manager in the Carolina region submitted: *“I like to work dogs twice on every course to know where my coveys are and learn how best to hunt them. ... Working dogs more than that puts too much pressure on my birds.”* It is common sense to take a con-

servative approach to the amount of disturbance we exert on wild birds while recognizing there is no “industry standard” applicable for everyone.

Like other management actions, the amount of disturbance on wild birds from training dogs should be dictated by your objectives such as, but not limited to, (a) how often you plan to hunt, (b) do you wish to lease hunts, and (c) how do you define hunt success? Depending on your objectives, the amount of disturbance from working dogs may have minimal or excessive impacts on your wild birds. For example, if your objective is to point and shoot into as many coveys as possible then lower disturbance levels is likely going to produce more desirable results, whereas the number of coveys moved (seen) per hour may be similar under higher disturbance levels (Figure 5). Similarly, if you only plan to hunt a handful of times on each course, then working dogs as many as 4 or 5 times may be justifiable. Beyond working dogs, numerous factors such as noise and hunt party size can provide context

cues signaling bobwhite coveys to hunter activity (Figure 4). Other factors such as climatic conditions, property size, number of hunt courses, course size, surrounding landscape, cover quality, and overall bobwhite abundance will impact how often a course can be worked be it hunting or training dogs. As property size decreases and becomes more isolated and resources become more limited (e.g., lower quality soils) the effects of disturbance may be exacerbated. Alternatively, during years of plenty (high population abundance) courses may potentially sustain higher levels of disturbance from hunting and working dogs. Stoddard and Komarek (1941) said: *“Experience has shown that, for best results, coveys should not be moved by dog and-or gun more than once a week.”* A general rule followed among the plantation community is to not return to the same course or hunt the same birds more than once every 2 weeks. A dog trainer in the Albany area once told me: *“you cannot hunt the same birds too much or they become jumpy, and success goes down.”* These sentiments are supported by past research where



in extreme hunting intensity scenarios (returning to a course 1 or more times per week) resulted in extended negative behavioral and weekly survival consequences, indicating that somewhere between the 2–3-week hunt-course return interval is likely a reasonable target.

This would suggest from a purist standpoint that a given course could be visited (hunted or working dogs) 8 to 9 times in a single season. A more conservative approach would be to establish hunt-course visitation frequency based on (1) course size, (2) bobwhite abundance and (3) realistic harvest goals set from population surveys like fall covey counts.

Generally, about one-third (38%), on average, of the coveys on a given course are encountered during a single hunt and in order to locate or encounter nearly every covey on a course would require 2-3 hunts. Of course, some coveys will never be detected while others will be detected multiple times over the course of a season. Data from research shows that covey behavior, movement and physiological responses increase with increasing encounter rates especially at about the third encounter. Therefore,

hunting and-or training dogs on a course 6 – 9 times in a season is a conservative target. The smaller a hunt course the greater the impact of disturbance and encounter rates will typically be during hunting and working dogs. Also, how you hunt (walk vs horseback, fast vs slow, etc.) can determine course coverage and covey encounter rates. In addition, natural population swings are common and may be associated with weather patterns and-or management actions. During times of plenty – the good years – more coveys are available to hunt distilling the encounter rate and covey detection rate for any given hunt. However, during times of scarcity fewer coveys are available and a course is more easily “chewed up” by the dogs; as well as covey detection rate increases due to higher course coverage resulting in higher frequency of repeated hunter-covey encounters in few hunts. Putting all this together provides a conserva-

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tive benchmark that when bobwhite density is greater than 1.5 birds per acre a course may be visited (from either hunting or training) 5 – 7 times without adverse impacts and smaller (<250 acres) courses being visited less frequently than large (>500 acres); and when bobwhite density is less than 1 bird per acre a reduction of visits by about 50% would be prudent. At higher densities (2+ birds per acre) and large courses, higher course-return intervals (8-9 visits) may be allowable without negative consequences. These are not hard lines in the sand rather a starting point, but an important aspect is including dog training events and hunting events when regulating course visitation and disturbance impacts on bobwhite.

What alternatives are there to reducing human-mediated disturbance when training bird dogs?

As properties are passed down to future generations, sold to multiple managing entities or the desire for some owners to develop income to offset management costs, the inherent need to produce more hunting days on the same ground is growing. Along with this comes the challenge of minimizing disturbance on

wild birds while maintaining an effective bird dog training program. Thus, the balance of hunting versus working dogs on a course becomes even more challenging. Thus, some alternatives to consider in alleviating pressure and potentially “freeing up” hunting days on a course include:

- Establish dedicated Training Grounds Area – a couple of properties I have worked with have developed dedicated training grounds using a combination of wild and pen-reared birds to work and train dogs. This is a nice, simple solution if the land is available to do so.
- Set a hunt course aside for training – working with a couple of properties over the past few years, setting aside a single course that is rotated annually to work dogs reduces the impact of working dogs on other courses.
- Go up north during the summer – it is common practice among many to go to the Dakotas or Canada during the summer to work dogs and train up and coming young dogs. This is a great way to get a lot of bird contacts for your dogs

without disturbing your own birds as often.

- Lease land to train dogs – it is not uncommon for folks to lease land to extend their hunting opportunity. Leasing land provides a good alternative to work dogs while saving the more productive grounds for actual hunts.
- Purchase fully trained or started bird dogs – for various reasons such as lack of time several properties are now purchasing started dogs and finishing dogs on their own. While there are some downsides to this approach, it reduces the amount of time and effort per dog in the kennel as well as decreases the total ground time on your wild birds needed for training.

Take Home Message

Bobwhites are simply good at dying! On average, annual survival is only 20-25% on intensively managed plantation landscapes and lower on fragmented landscapes or public lands not being intensively managed. Natural predators of bobwhites such as meso-mammals, snakes and Cooper’s hawk present

a background level of predation year-round creating unique patterns of predation pressure that may alter bobwhite behavior, movement and home ranges. On one hand this natural disturbance as well as working dogs creates the desired qualities in wing-shooting quail so enjoyed through many generations. On the other hand, however, too much disturbance can negatively impact your birds. As such, everything we do in the field should be evaluated as to the potential impact it might have on the wild birds, we work so hard to produce.

While there is no perfect “industry standard” for working or training dogs that applies across the board, on every property, there can be more than one approach to success – just because a diet works well for one person does not mean it will work well for you. Excessive disturbance, be from hunting or working

dogs, can result in behavioral responses by bobwhite coveys to curtail exposure and predation from hunters. These behavioral modifications or physiological responses may have negative consequences in vital rates or population performance. Minimizing disturbance and covey interactions requires a delicate balance of training and hunting so as not to create too much disturbance, tipping the scale toward poor population performance or reduced hunt success. If you hunt less frequently you can afford to work dogs more often but maximizing the number of hunts and harvest rate may limit the number of times you can safely work dogs on a given course. Finding the sweet spot in disturbance levels on wild birds is no different than finding the sweet spot in burn percentage, grid-blocking density, timber density and extent of predator control needed to meet your objectives. Implementing

proper habitat management, judicious harvest rates, and the use of supplemental feeding to help offset natural predation may curb the indirect effects of disturbance from hunting and working dogs rendering more recreational opportunity.

Training dogs on wild birds is not a necessity to any good hunting program on the working plantation but encouraged so long as disturbance is judiciously regulated, and course-return interval remains reasonable and conservatively distributed through time. Perhaps the best “nutrition” we can give to a young bird dog’s nose is a regular dose of natural odorants, generated from the fields to woodlands to plenty of interaction with birds. Watching a bird dog work out the scent of a quail is truly remarkable, and to me, the close-knit interaction we have with wild birds and a bird dog is indeed what makes the hunt!

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Wildlife Trends Journal Management Calendar

Dave Edwards



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

Although management of duck ponds is certainly important, now is a good time to make final preparations of things related to the hunt itself.

Make final equipment preparations for duck season.

By early November, flooding strategies on managed duck ponds should be well underway. Teal are generally the first to arrive in September followed by the fall migration of other waterfowl in October and November. In most areas the general duck season opens in November. Outside of managing the water levels and ponds themselves, now is a good time to make final preparations of things related to the hunt itself. There is nothing worse than looking forward to the first duck hunt

and before daylight of opening morning realizing that your waders have dry rotted or that your duck blind is full of fire ants! Make preparations now to ensure you are ready to have a fun and successful hunt. While everyone's situation is different, a few items I recommend checking include waders or rubber boots, boats (lots of things to check here), paddles or push poles, lights, decoys and rigging, obstacles along paths to and from duck hunting blinds, the blinds themselves, platforms for dogs, and shotguns...to name a few. I say all these things from experience!

Prune and clear hunter access trail to deer stands

Hunters that consistently experience successful hunts "micromanage" how they navigate a property and their access trails. That is, these trails are pruned and established during the initial set up (which often takes place right after hunting season), but as the season approaches, they take time to prune and completely clear the path of all debris including leaves. The goal of clearing the path is to remove vegetation that may rub against a hunter walking in or out on the trail (scent management) and provide a

silent walking path. Clearing the trail is done with a leaf rake or even a leaf blower. The result is often a bare dirt trail that allows hunters to silently sneak to and from stands. Clearing access trails, particularly to food plot stands, is

something that needs to be done periodically throughout the season. When providing hunting guidance to clients I often describe it this way – if there were 8 deer already on the food plot when you arrived, you should be able to sneak in and slip

into the stand undetected. If you can do this, you will apply significantly less disturbance (particularly

Installing exclusion cages is a great way to assess food plot success and deer use.





Sneak trails are just as the name implies. They allow hunters to access and exit stands with minimal disturbance.

when leaving a stand at dark with a field full of deer) and will have better hunts throughout the season.

Build and install excluder cages on your food plots.

Excluder cages are simply small fenced structures that are placed on food plots to “exclude” or prevent deer from accessing food plot crops inside the excluder cage. Doing so allows you to observe or monitor deer use of the plot and food plot success. Excluder cages do not need to be big, just enough to prevent deer from eating a small area of the food plot. In general, excluder cages are nothing more than a

short length of 4-foot hog-wire fence that is “rolled” and fastened with either wire or zip-ties to create a tube with a 2-3’ diameter opening. The excluder cage can then be placed on a food plot and anchored down with a T-post or a couple pieces of rebar. Excluder cages are particularly helpful if you have a high deer density. I’ve often seen food plots in areas with a high deer density appear as though the plants never germinated. The landowner or land manager is beating himself up because he is thinking that he did not plant the food plot correctly, or that the particular seed mix he planted isn’t growing well on his property. When in reality, deer had

literally eaten the plot to the ground before it had a chance to grow (in this case, I would consider installing more food plots or, depending on your goals, or planting lead to reduce the herd!). I religiously use excluder cages because they help assess plot success and provide insight when seemingly crop failure occurs.

Calibrate deer scales before hunting season.

Whether the scales you use to weigh harvested deer at your hunting property are 10 years old or right out of the box, they should be calibrated each year before hunting





season to ensure accurate weight data is collected. To calibrate scales, simply hang an object of known weight from the scale (e.g., 25 lbs. dumbbell, tractor weight, etc.), along with your gambrel (normally a triangular metal hanger used to attach deer to scale), then adjust the scale to the known weight if needed. Although there are many makes/models of scales available most have a calibration screw that can be easily adjusted. Also note that it is not uncommon for a calibrated scale to read something other than “zero” when idle. Recording accurate weights from harvested deer provide insight to the health of deer on your property and will assist in making management decisions (herd and habitat) to achieve overall goals.

Utilize standing corn to enhance deer hunting experiences.

Although I never recommend planting corn for feeding deer (except in the North), it can provide great “cover” value for deer in the winter and creating exceptional hunting opportunities. Regarding planting corn for feeding deer in the Southeast, it’s simply not worth the farming time and effort when you can get more for your money out of a 50-pound bag of whole corn from the feed store (or even Walmart now days!). However, planting corn to create exceptional hunting set ups is a different story. If you have corn planted on your property, particularly larger agricultural fields, strategically leave some standing for deer. Standing dead corn is not only attractive to deer from a food standpoint but the cover it creates provides great travel corridors to connect woodlots or mature timber. In some situations,

deer will “funnel” through mature woods to enter the standing corn as their travel path. This can make for some fun hunting in the mature woods near the corn. Mowing a wagon wheel pattern or hub & spoke design in the corn also makes for great hunting. This strategy is nothing more than mowing 8-10 ft strips through the corn as spokes that radiate out away from the hunting stand (hub). Depending on the skill level of hunters using the property, particularly guests that may hunt the spot, I often only mow spokes out to 125 yards from the stand. However, if the situation allows and hunters are skilled, spokes can be mowed out to 300 yards. The resulting spokes can either be left as is to simply provide shooting lanes through the standing corn or planted in fall food plot crops – or a combo of these. This set up is particularly successful during the rut and/or on cold mornings. Standing dead corn also provides great winter habitat for quail and turkeys. Leaving a border of standing corn around a field provides valuable wildlife habitat and creates a soft edge along abrupt woodlines.

Record and utilize deer hunting observations.

Quality deer management involves more than producing quality bucks. It should create quality hunting experiences as well. Collecting hunter observation data (where hunters record the number of deer and quality of deer they see while hunting) allows you to monitor the hunting quality of the property. Adjustments in management and/or hunting strategies can be implemented accordingly to promote better quality hunting if needed. Additionally, hunter observation

Early fall is a good time to give perennial clover plots their final mowing and a boost of fertilizer



Leaving corn standing through winter can provide great “cover” value for deer as well as create exceptional hunting opportunities.

Keep notes from deer hunting experiences

One thing I’ve learned working with landowners/hunters across the country is that the consistently successful deer hunters keep good notes and apply what they have observed to enhance future hunting experiences. Whether they keep a personal journal of hunting observations or formally fill out hunter observation cards, they have records to reflect on and analyze after the season to help make adjustments to hunting strategies and stand man-

agement. That is, observations made this season help these hunters prepare for a successful season next year. Keeping notes is particularly useful on properties with multiple hunters where some of the seemingly less important information may not be shared around the fire at night, but when combined with other observations at the end of the season may provide great insights for adjusting a setup for more successful hunts. An example of a seemingly unimportant observation may be “bumped 3 deer in oaks on the way in”. If this was observed by only one hunter on one hunt, it may not be meaningful. However,

data is a great (and cheap) method to help assess some parameters of the deer herd. Although a camera census is, by far, the most accurate way to collect information regarding the deer herd, trends in population parameters such as the adult sex ratio, buck age structure, and fawn recruitment can be monitored through hunter observation data. However, for this data to be meaningful, it must be collected accurately each year to track trends in the data. Hunter observation data is also a good way to assess hunting strategy success. When recording this information, hunters generally record when and where they were

hunting (e.g., PM-food plot, AM-woods, AM-clear cut, etc.) and what they saw. When the data is analyzed, it provides insight as to which hunting methods and which areas are most productive for the property. For example, through hunter observation data collected throughout the season, you may find that hunters saw more mature bucks per hunt in thinned pine stands in the morning verses the afternoon. Thus, you can adjust your hunting strategies to enhance the productivity of your hunting time.

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if “bumping deer” was noted on 6 hunts to this stand it deems further investigation. Should the access trail to this stand be moved to avoid bumping deer? Deer are there for a reason. Do we need a stand in the area we keep bumping deer? Another example may be that at a particular ladder stand many mature bucks were seen, but most bucks seemed to skirt the edge of a slough that was 150 yards to the west. Rather than writing this off as bad luck, this stand would be moved closer to the action with careful consideration of hunter access, winds required to hunt it, etc. Moving this stand may happen during the season or during post-season efforts depending on the situation. Although deer movement varies, numerous hunter observations on a stand without much action calls for removing and relocating that stand.

Implement timber stand improvements – kill undesirable tree species

Removing undesirable trees is an effective habitat management strategy to enhance wildlife and/or timber value. Killing undesirable trees is commonly used to remove non-native invasive species or to “release” desirable tree species like oaks (often referred to as timber stand improvement or TSI). Removing undesirable trees reduces competition for resources such as sunlight, nutrients, and water resulting in better health and growth of remaining desirable trees. In some cases, removing undesirable trees stimulates natural understory vegetation growth providing quality food and cover for wildlife. One of the simplest and most effective techniques for removing select trees without cutting them down is called the “hack-and-squirt” method. Implementing the hack-and-squirt method is as

simple as it sounds. Simply hack small cuts in the trunk of target trees and squirt an herbicide solution into the cut. One advantage of this method is that you can target trees you want to remove and leave those you want to promote or encourage. Using a sharp machete, brush axe or hatchet, chop into the trunk being sure to penetrate the cambium layer below the bark. With the blade still in the cut, twist the blade downward to open the cut and spray herbicide into the cut. The cut should form a “cup” that will hold the herbicide. If the cut is too shallow, herbicide will leak out reducing the effectiveness of the application. A common plastic utility spray bottle works well and generally delivers 1 milliliter of herbicide mixture per trigger pull. The number of cuts made in the tree will vary depending on the herbicide used and size of the tree. Although there are several effective herbicides available, I normally use Arsenal AC (imazapyr) because it controls a wide range of species. Arsenal AC’s label recommends one cut per 3 to 4 inches of tree diameter at breast height (DBH). The mixing rate for Arsenal AC is 10 percent, or one part herbicide to nine parts water. Regardless of which herbicide you choose, always read the label for appropriate dosages, cut spacing, and mixing instructions. For example, Arsenal is soil active which means you would not want to apply it if there is a desirable oak tree adjacent to the tree you are treating. Also be sure to wear appropriate clothing and protective equipment as recommended by the label. It may be worth noting that the “hack & squirt” method is effective almost any season except early spring when trees are experiencing heavy sap flow/sap rise. However, I typically schedule hack & squirt treatments during late summer and before leaf drop of fall.

Mow and fertilize perennial clover food plots.

While preparing fall annual food plots, do not neglect perennial plots that you have managed through the summer. Early fall is a good time to give them their final mowing and a boost of fertilizer. With cooler temperatures and fall rains, clover will start recovering from the stress associated with heat of summer. Do NOT mow the clover too low. Just above the clover plants is good (clipping the flowers and other weeds). If you will be tackling this project after mowing roads, pond dams, and other areas on your property, be sure to clean weed seeds and thatch from your mower deck before mowing any food plots. Unwanted weed seeds have a sneaky way of collecting on mower decks then jumping off onto your well managed fertile food plots. Cleaning a mower deck off is easy to do with a handheld blower. While a blower is more effective, keeping a small broom on your tractor is better than nothing. Taking 2 minutes to clear weed seeds from a mower deck is much easier than fighting the weed once it gets established in your food plots. Also, do not use a fertilizer with nitrogen. Clover is a nitrogen fixer meaning it makes its own nitrogen. Adding nitrogen will only feed undesirable weeds; particularly grasses. As a rule, 200 lbs. of 0-20-20 per acre is a typical application if soil tests are not available. However, it is always best to test the soil fertility and apply recommended rates. If lime is needed, apply this as well.

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