

PRACTICAL WILDLIFE MANAGEMENT INFORMATION



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INSIDE THIS ISSUE

**Oh Water, Where Art Thou?
Libation of the Bobwhite's Soul**
By: Dr. Theron M. Terhune

**Chronic Wasting Disease:
Myths & What We Should
Be Doing**
By Jeremy Meares

Electrofishing
By Scott Brown

Plant Pears Today
By Allen Deese

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

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Earl Says...

Well, it was bound to happen. We finally had our first case of CWD reported here in our great state of Alabama. I suppose it has been with us for a while but now it's a reality. And it's timely that Jeremy Meares was writing an update on CWD when this was found. I hope you get a better understanding of this disease from his article in this issue.

With the end of dear season upon us it's tree planting time again! Be sure to call our friends at The Wildlife Group to place your orders as soon as possible. Planting times for wildlife trees will still be going on through the end of March for many of us in the South so let's get dirty.



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Oh Water, Where Art Thou? Libation of the Bobwhite's Soul

By Dr. Theron M. Terhune



“There’s plenty of water in the universe without life, but nowhere is there life without water.” — Sylvia A. Earle

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.

Water is life’s elixir ... and quail are no exception. Yet, one of the most common questions regarding bobwhite quail conservation and management is whether they need water. Is it a *geographical oddity* that bobwhites were once ubiquitous in nearly 30 states with average annual rainfall varying by region ranging from 55+ inches to <5 inches per year? Or is it that bobwhite density and distribution is not limited by the availability of “free-standing” water?

Despite being one of the most studied game birds in North America, much debate still exists today about their need for water. Much of this confusion likely stems from the literature containing contradictory

opinions on the role of free-standing water in the ecology and management of bobwhites. For example, Stoddard (1931: 503) stated that “surface water is not essential to the bobwhite for drinking purposes in the Southeastern States, and except as it affects the food supply, its presence or absence upon quail lands is immaterial.” However, others have observed bobwhite readily drinking from accessible free-standing water, especially during drought conditions (Lehman 1984), and bobwhite coveys are commonly observed nearby accessible free-standing water during hunting season. In Texas, Guthery (1999) explicitly investigated the need for

free-standing water and found that “no direct or indirect evidence indicate[d] that addition of surface water to management areas is beneficial to bobwhite populations.” However, Guthery and Koerth (1992) observed the rate of egg laying was lower for quails provided ad libitum free-standing water compared to those only receiving water from food. And others more boldly stipulated that “bobwhites do not need to drink water” and indicated that

Did you know?

A quail egg is 80% water so the moisture demand on a nestling hen is much higher. Increased consumption of insects while egg-laying will provide not only rich essential amino acids and other nutrients but are high in fat content and an additional source of water for laying hens.

bobwhites “require no water at all, not even dew” (Davison 1949). Rosene (1969), however, contended the latter statement was misleading because bobwhites need water for biological functions. More recently, research in Oklahoma indicated that bobwhite selected for areas less than 750 yards and 700 yards during the breeding and non-breeding seasons, respectively (Anderson et al. 2019). Taken collectively, it is not hard to see why uncertainty exists around bobwhite’s need for water and whether the provision of free-standing water as a management practice would profit bobwhite.

So, do bobwhites need water?

In the movie *Oh Brother, Where Art Thou?* Delmar shouted “C’mon in boys, the water is just fine” after discovering the Life-giving power of the ultimate source of water ... so too bobwhite need water for life. Yes, bobwhite ABSOLUTELY do need water to survive and reproduce. Indeed, bobwhites are no different than other animals in that physiological function depends on a proper balance of water income and water loss for sustaining life. Water serves as the fundamental transport medium for nutrients as well as the dilution and removal of body waste. This might cause one to surmise that free-standing drinking water, therefore, is essential to facilitating physiological and biological systems such as brain and nerve activities, or functioning of the heart, eyes, and muscles. But, as Ulysses Everett McGill eloquently stated in the aforementioned movie, “it’s a fool that looks for logic in the chambers of the human heart.” Although one can anthropomorphize birds and presume that we are like them and they like us, birds are quite different than mammals. Indeed, the birds’ need for water is as “Bona fide” as mammals but the source of that

water might surprise you, especially for bobwhite.

Water income for birds comes from 3 primary sources: (1) free-standing water; (2) water in food; and (3) metabolic water, whereas water loss comes at the expense of (a) evaporative cooling, (b) dilution and excretion of toxic body wastes (such as defecation) and (3) egg production. In general, birds lose less water than mammals. Birds also have advantages over mammals when dealing with heat such that the normal temperature of birds is generally higher than that of mammals. Dilation of blood vessels on the scaly legs of birds affords the release of excess heat to the environment, and because birds have no sweat glands, they require less water than mammals. However, birds do lose water through respiration and micturition just like mammals. Most birds drink water daily to replace lost water, and research shows that small songbirds drink water at least twice per day to replace water lost through respira-

tion and droppings. But quails are different! Unlike many songbirds, quails are not migratory and are rasorial – that is they are preferably ground-dwellers, habitually scratching for food and usually take flight only to evade danger (e.g., being chased by a Cooper’s hawk).

Quails are preprogrammed with a host of instinctive behaviors and biological mechanisms suited to adapt to varying geographical conditions. Bobwhite, like many birds, are well adapted to habitats lacking free-standing water, and some quail (e.g., Gambel’s and Montezuma) are very well adapted to desert conditions. Bobwhites obtain nearly all (~85%) their water income from preformed water – water in foods such as succulent vegetation, insects, seeds, and berries (see Figure 1). The balance (~15%) of their water needs is typically obtained from metabolic water – a byproduct of metabolism or breaking down food. Typically, the natural metabolic process and the quail’s diet provide enough water for comfort, repro-

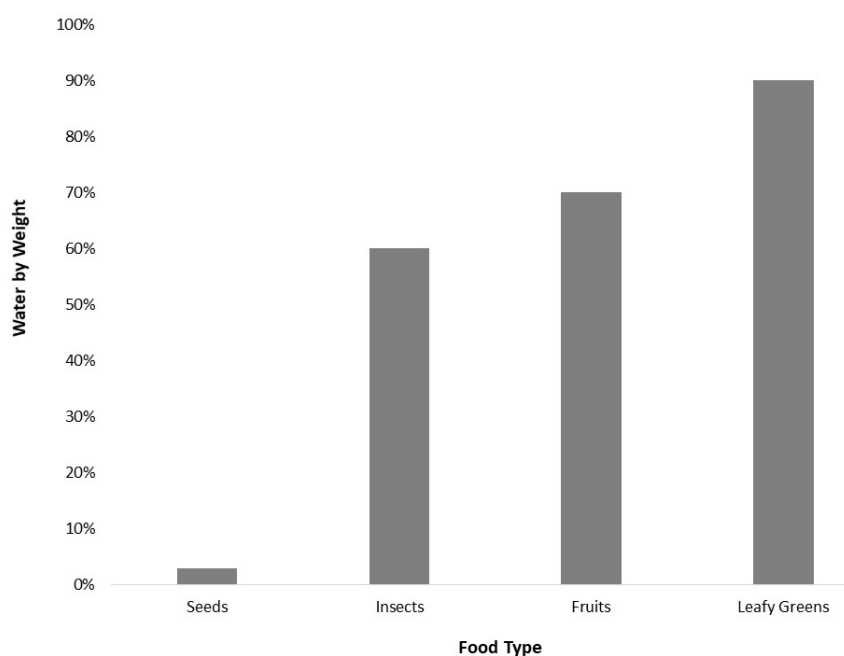


Figure 1. Preformed water occurs in food items of bobwhite quail where dry seeds contain up to 3% water by weight, depending on humidity whereby insects contain ~60%, fleshy fruits contain 70% and leafy greens contain up to 90% (Guthery 2002).

duction, and survival. However, in semiarid environments, dangerous conditions may be caused from high evaporation rates, high temperatures and low rainfall, which may force quail to imbibe free-standing water to offset deficient water in food sources.

Climate and geographical location impact the amount of water on the landscape, in the environment and in food. Although water produced from the metabolic process is consistent for bobwhite through time and space, seasonal fluctuations in the amount of water required by bobwhite does exist. For instance, nesting hens require extra water during the egg-laying period. Similarly, late-winter and early-spring marks a critical time-period when “water availability” in food can be limited, as insects are less abundant and accessible and moisture-laden greens and berries are often lacking. Insufficient water availability in food can result in increased stress on bobwhite causing physiological problems such as reduced appetite, decreased weight, inefficient muscle performance, or reduction in reproductive output. For example, if adequate water is not available to bobwhite during the breeding season, egg production will be low – one study found an ~40% reduction in the rate of egg laying during drought conditions when free-standing water was not provided (Guthery and Koerth 1992).

Management Considerations

Most of the preformed water from food in the bobwhite’s diet comes from insects (10-15%) and moist greens and berries (85-90%), indicating that these foods are most crucial to water balance for bobwhites (see Figure 1; Guthery 2002). As such, management of habitat to ensure adequate food resources is critically important.

During the winter, when insects become more scarce and less accessible, moist greens are even more crucial. In contrast, during the breeding season (May – September), bobwhite chicks must have insects to grow, develop and survive during the first few weeks of life. Since insects require succulent plants for forage, deficiencies in this vegetation would result in lower chick survival and reduced fall recruitment. High plant diversity will help to ensure a good supply of insects and fleshy fruits that provide high water content

unnecessary. Much of the bobwhite range, particularly in the Southeast, falls into this category. Here managing habitat for a diverse vegetative understory to promote seed and fruit producing plants is desirable. For example, in the Southeast, implementing a matrix of burned and unburned habitat on a 2-year fire return interval will foster a healthy balance of structure and native food (e.g., berries, greens, insects, etc.). I also recommend promoting mast (e.g., dwarf chinquapins, runner oaks) and fruit (e.g., dwarf varieties of huckleberry,

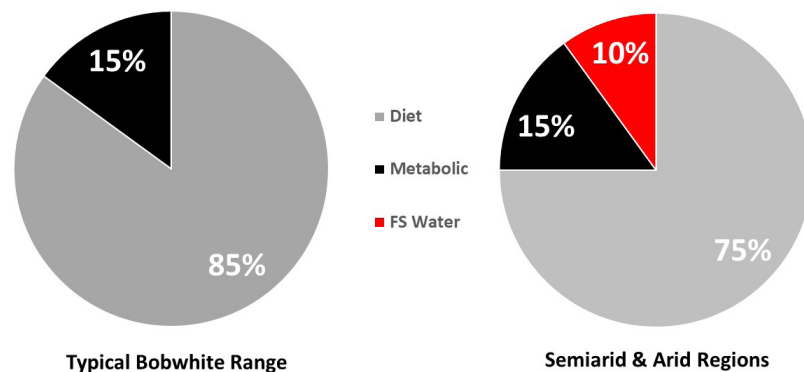


Figure 2. Bobwhites derive water from 3 sources: (a) food items in their diet [Diet]; (b) metabolism; and, (c) free-standing water [FS Water]. On average, approximately 85% of the water comes from free-standing water and water extracted from food whereas 15% comes as a byproduct of metabolism (breakdown of food). For most of the bobwhite range, where average rainfall is above 20 inches annually, the amount of free-standing water consumption by bobwhite is negligible compared to as much as 10% of water consumption is from free-standing sources in semiarid and arid sites.

needed by quail. Depending on region, plant diversity can be increased by proper application of prescribed fire, rotational disking or fallow field management, conservative grazing, and-or judiciously planned brush management.

Where rainfall (>20 inches of rainfall annually) is sufficient to produce a healthy and desirable vegetation understory comprised of forbs/legumes, woody-shrub, and bunch grasses, supplementation of free-standing water sources is

blueberry, American beautyberry, etc.) producing ground shrubs as well as briars, vines, and brambles (e.g., blackberries, smilax, etc.) by implementing a 2–3-year fire return interval in the Southeast. This is because such shrubs do not bear well the year of the burn, despite the occasional pruning back by fire being highly beneficial to overall production. In addition, leaving modest amounts of mast-producing hardwoods (e.g., live oaks, white oaks, etc.) and the occasional midstory soft mast-producing



Fleshy fruits, buds, and berries such as (a) prickly pear cactus buds, (b) American Beauty, and (c) blackberries contain lots of moisture for adults and growing chicks. During the hot summer months, and especially during periods or sites with lower humidity, bobwhite obtain moisture from insects or any available fruits such as berries. During late-summer brood captures in September or October, chicks' (as seen in the photo) beaks would be covered in purple residue from blackberries or American beautyberries.

tree (e.g., serviceberry, black cherry, American holly, dogwood, etc.) in the uplands will provide not only protective and loafing cover for broods and adults during late summer days, but will provide nutritious, moist mast during the fall and winter. Although adding free-standing water has not been shown to increase quail populations or improve quail survival in areas that receive annual rainfall in excess of 20 inches, bobwhites are attracted to water locations and greenscapes associated with water.

In more arid regions, free-standing water may be more beneficial. Where poorer edaphic (sandy) and less desirable climatic (high evaporation rates, low annual rainfall) conditions collide, such as in semi-

arid environments in Texas, free-standing water may be provided to offset the deficiencies of water supply found in insects and succulent vegetation. However, supplementation of free-standing water is not a panacea to drought conditions and ensuing population declines but can nonetheless help to curb stress levels of bobwhite. That said, management of habitat, predators, and food resources should take priority ahead of water supplementation, even in semiarid environments.

If providing supplemental free-standing water is a desirable and an economically viable option, capitalizing on natural overflow areas from traditional livestock water sources, ground-level watering

devices, or modified livestock water troughs can be effective. In areas where green vegetation, insects and bunchgrasses are scarce, the creation of ditches, spreader dams, and depressions that catch runoff can concentrate limited rainfall to produce desirable quail habitat and attract insects. When using artificial watering methods such as guzzlers, water troughs, windmills, and catchment ponds take precaution to:

- Place at ground level, where possible
- Create ramps in and out of troughs, stock tanks, etc. to prevent drowning
- Create cover for concealment from predators around water sources



Water sources such as (a) guzzlers and (b) windmills provide free-standing water for quail in semiarid and arid environment sites. When providing water supplementation for quail it is important to provide protective cover where possible to minimize predation rates as well as ramps (c) out of the water to prevent drowning.



Just Add Water?

There is no evidence that supplementation of free-standing water on management areas increases bobwhite abundance. Thus, focusing management priorities on habitat structure and vegetation diversity, predator abundance, and food supply will best profit wild bobwhite.

- Create multiple watering stations distributed throughout the property to prevent creation of predator traps
- Clean watering stations regularly to reduce transmission of disease and parasites

Take Home Message

Quail absolutely do require water for basic body requirements and physiological function. However, in nearly the entire bobwhite's geographic range, free-standing water is unnecessary and is not a limiting factor. Although bobwhite quail will readily use free-standing water sources from ponds, creeks, rivers, puddles, dew, water troughs, etc., a quail's water requirements are typically satiated by the food they eat and the natural metabolic process. Thus, supplementation of free-standing water for wild bobwhite quail is not warranted nor recommended in the Southeast.

In semiarid and arid environments, supplementation of free-standing water may help to mitigate stress during periods of extended drought but is not essential for survival and reproduction. There is no evidence that water supplementation increases the abundance of bobwhite quail. Thus, if free-standing water supplementation is a desirable and affordable option, do not expect miracles or huge dividend returns. Supplementation of free-standing water should never be higher than 4 on the bobwhite management priorities list. First, develop ideal habitat structure by implementing the proper application of prescribed fire, mechanical and-or chemical management actions. Second, monitor meso-mammal abundance and composition and implement meso-mammal predator control if necessary. Third, carefully monitor and manage the native food supply and, depending on objectives, imple-

mentation of nutritional supplementation using broadcast feeding of milo, wheat, and-or corn can be beneficial. If employing water supplementation using artificial structures, do so judiciously to reduce unwanted exposure to disease and parasites and minimize predation.

Chronic Wasting Disease: Myths & What We Should Be Doing

By Jeremy Meares



Jeremy Meares is the Wildlife Services Manager for The Westervelt Company. He holds Bachelor and Master of Science degrees from The University of Georgia and is a certified wildlife biologist with 15 years of experience working with hunting clubs and private landowners helping them to maximize the recreational value of the lands they lease or own.

Given CWD's long incubation time, hunters likely will not see a deer showing actual symptoms of CWD.

By now most hunters and deer managers should be at least somewhat familiar with chronic wasting disease (CWD). For those that are not, hopefully you will have a better understanding of a very complex disease that presents significant management challenges on the landscape. Before we get started, let's start with a review of some of the basics of CWD.

The Basics

CWD is an always fatal disease attacking the nervous system of cervids (deer, elk, moose, and reindeer). Disease transmission can occur via animal to animal contact, contact with saliva, feces, urine, carcass parts of an infected animal, and can even spread through

contaminated soil. Unfortunately, there is no known cure for CWD, making it a real threat to our free-range deer herds. Without getting too technical, the disease is caused by a naturally occurring protein (prion) that becomes misfolded so it resists being broken down the way normal proteins are. Once the prions are present, they multiply by causing an animal's normal prion proteins to misfold which initiates nervous system damage. It may take as long as two years before an animal shows outward signs of disease. As a result, hunters would likely not see a deer showing actual symptoms of CWD. Animals in the later stages of the disease are often emaciated, exhibit erratic behavior, and neurological irregularities. In

many cases, infected animals are often killed by predators, vehicles, hunters, or other diseases before CWD symptoms would be recognizable. To date, CWD has not been shown to be infective to humans. However, the CDC recommends not consuming meat from infected animals. With the newest case being recently detected in Alabama, CWD has now been found in 28 US states and four Canadian provinces in free-ranging cervids and/or commercial captive cervid facilities.

With a disease like CWD, we typically have more questions than answers unfortunately. What we do know is both natural movements of captive and wild deer as well as

those aided by humans presents one of the biggest risk factors for CWD reaching new areas. Once CWD is established, natural movements certainly play a role in the spread. However, when you add people transporting live deer into the equation, this greatly increases risk of spread. Most states have added legislation related to the movement of live deer attempting to mitigate this risk. Carcass transport is another significant risk factor for CWD being introduced into new areas. Again, legislation has been passed by most states prohibiting the transport of intact carcasses and high-risk tissues. If you hunt out of state, it would be wise to review the regulations in the state you are hunting, states you are traveling through, and your home state for guidelines on safe and legal transport of meat and antlers. Another risk factor that stirs much debate is artificially congregating deer which would include bait, supplemental feed, and minerals. This does not mean bait or supplemental feed causes CWD but it does help facilitate the spread once the disease is present. Once an area becomes CWD positive, part of most state agency response plans is a ban on bait and supplemental feed within a certain radius of the infected area.

We are often asked “why should we be concerned about CWD?” If it is not already apparent based on what we have discussed above, CWD presents significant challenges for all of us that manage deer and the implications for our free-ranging herds is not something that gives you a warm fuzzy feeling. In areas heavily infected with CWD, negative population-level impacts are being documented. Once an area is infected, management of wild populations changes. In most cases, harvest regulations are adjusted to allow more deer to

be harvested by hunters in an effort to determine the extent to where the disease has spread. Bucks typically carry the highest risk of spreading CWD due to their tendency to make large excursions during the rut. For decades now, quality deer management (QDM) has been applied at landscape levels in efforts to allow bucks to reach maturity and bring populations back in balance with habitat conditions. If mature bucks are spreading the disease at higher rates, management programs promoting older age bucks may need to be adjusted to help slow the spread once an area is infected. Another reason we should all be concerned is if hunters begin to perceive hunting in CWD areas as a health risk, we could begin to lose deer hunters at a rapid pace.

Aside from the potential population-level impacts of CWD, there are also economic impacts to consider. In 2016, deer hunting contributed nearly \$21 billion to the US GDP and supported over 300,000 jobs. These numbers do not take into account the small rural economies that depend on the seasonal business deer hunting provides. Taxidermists, deer processors, small town restaurants, and local motels all rely heavily on viable populations of white-tailed deer. When these populations are threatened or when there are fewer people hunting deer, there are ripple effects that these local businesses will likely not be able to weather.

Another common question we hear is “what is being done about CWD?” Given the impacts seen in highly infected areas along with all the questions we still have about how to fight this disease, research is ongoing all over the country. The bipartisan bill recently passed (Chronic Wasting Disease Research

and Management Act) authorizes \$70 million annually from 2022-2028 for research and management of CWD. These funds will be administered by USDA.

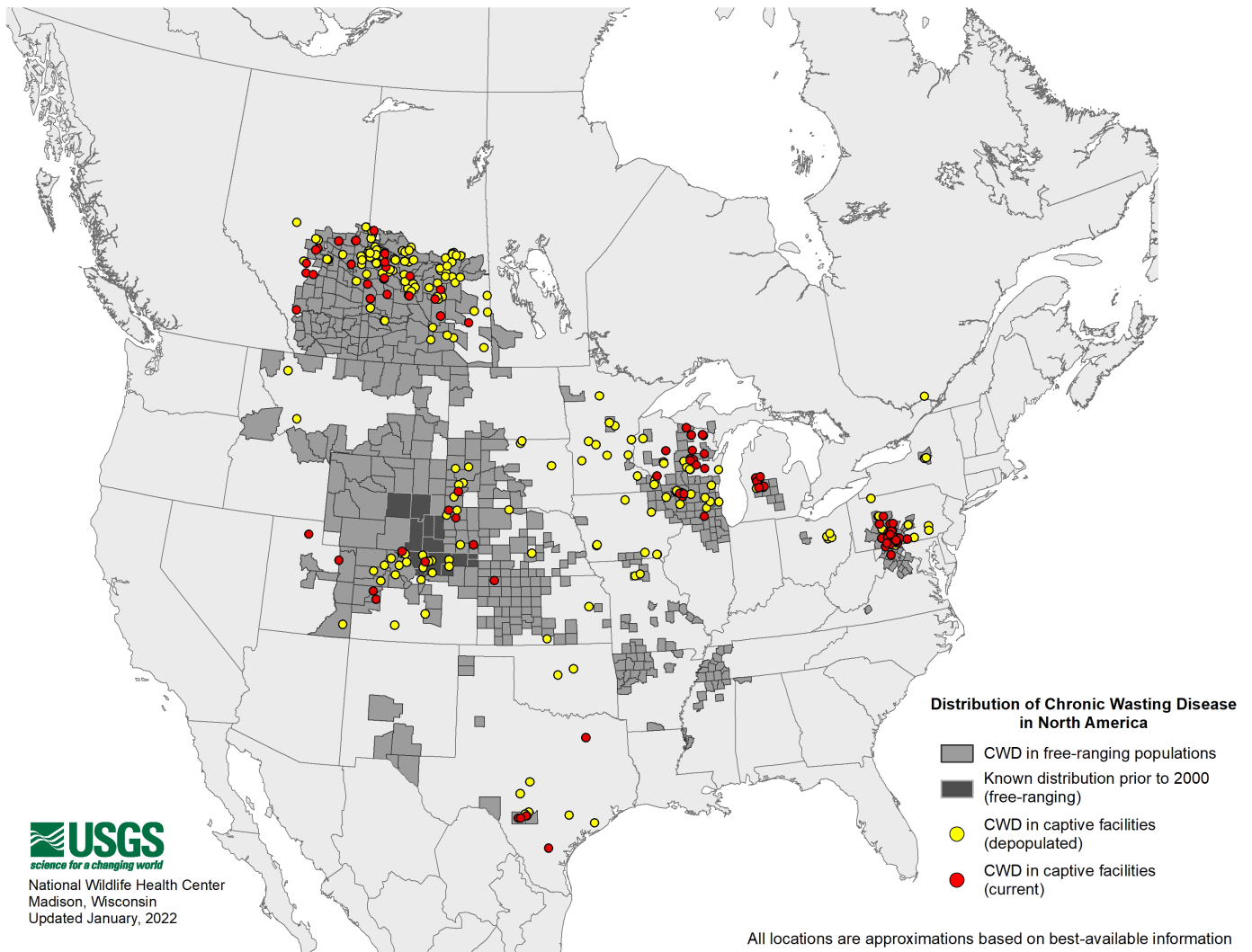
The research section authorizes funds to be spent on:

- Methods to effectively detect CWD in live cervids and the environment
- Testing methods on non-live cervids
- Genetic resistance to CWD
- Sustainable cervid harvest management practices to reduce CWD occurrence
- Factors contributing to local emergence of CWD

The management section authorizes funding for state or tribal wildlife agencies and departments of agriculture with the priorities listed below:

- Areas with the highest incidence of CWD
- Jurisdictions demonstrating the greatest financial commitment to managing, monitoring, surveying, and researching chronic CWD
- Efforts to develop comprehensive policies and programs focused on CWD management
- Areas showing the greatest risk of initial occurrence of CWD
- Areas responding to new outbreaks of CWD

Representatives Ron Kind (D-WI) and Glenn Thompson (R-PA) spearheaded this bill and we are appreciative of their efforts in bringing a much needed focus on combating this disease. In 2018, The Association of Fish and Wildlife Agencies developed a list of science-based CWD best management practices (BMPs), which we discuss further later. Most states have now moved to science-based CWD surveillance, response,



With the recent discovery in NW Alabama, CWD has now been found in 28 US states and four Canadian provinces.

and management plans. Surveillance and sampling within most states are being determined using models to direct efforts based on a variety of risk factors. Sampling and surveillance efforts along with the carcass transport laws mentioned earlier are the main methods agencies have to detect and/or attempt to prevent/contain the spread of CWD.

CWD Myths

There is likely not a more divisive topic among deer hunters and managers over the last decade than CWD. A quick stroll through online deer hunting forums or state agency social media pages reveals significant gaps between what is

myth and what is reality (not only when it comes to CWD!). We will run through some of the more common myths tied to CWD.

There are many conspiracies around states using CWD as a “money grab”, “another government scare tactic”, or “a way to de-value land so it can be bought by a state agency”. Contrary to what some may think, state deer program coordinators are not sitting by the phone with great anticipation of receiving the phone call that their state is now CWD positive. In fact, it is arguably one of the most dreaded phone calls agencies can receive. What hunters need to understand is, once

detected, this disease takes a huge toll on agency personnel as it becomes an “all hands on deck” mentality to attempt to get a handle on the extent of spread and work through response plans. This comes at a price to other wildlife programs as resources are pulled and reallocated to fight CWD. It also causes burnout of many talented wildlife professionals after dealing with this disease year in and year out.

Another myth we hear commonly is that CWD is not a real threat to our deer herds and that EHD (epizootic hemorrhagic disease) kills way more deer. During significant outbreaks, EHD can have a major



Bucks can carry the highest risk of spreading CWD due to large excursions during the rut. Photo courtesy of Mississippi Department of Wildlife, Fish, & Parks

impact on deer herds at a local level, but over time deer rebound. These outbreaks typically occur during summer and early fall and are dependent on weather factors and midge (disease vector) populations, which we as managers cannot control. Deer with EHD may succumb to the disease quickly, struggle with it for a period of time before dying, or some may survive. As we discussed earlier, CWD is always fatal and has a much longer incubation time during which infected animals can spread prions over a large area. In addition, EHD is typically cyclical in nature and is not spread through deer to deer contact like CWD. A Wyoming study in 2016 showed at a prevalence rate of over 27%, populations will start to decline if hunting pressure is not reduced. Reduction of hunting pressure results in our state wildlife agencies being forced to reduce bag limits and/or shorten seasons to compensate for loss to CWD.

These levels are being approached in Wisconsin, where CWD has been confirmed for 20 years. In certain parts of the state, prevalence rates in adult bucks have surpassed 50%. Let that sink in for a minute, over half of the adult bucks in those areas are walking around with this disease. However,

high prevalence rates are not always the norm. Illinois, which has been CWD positive nearly as long as Wisconsin, has been able to hold prevalence rates in the low single digits for several years. This highlights the importance of early detection and active management once discovered to keep it contained.

EHD is serious and can impact our deer herds, but there is little we as hunters and managers can do to help. Like previously mentioned, EHD is dependent on factors outside of our control. Conversely, there are measures we can take to slow the spread of CWD while researchers continue work towards finding more answers.

What Should We Be Doing?

One aspect of CWD we have yet to discuss is the political component. As with many things in today's world, politics are heavily involved. The politics of CWD tend to parallel what we are seeing with COVID. So many different polarizing, outspoken opinions on both

sides coupled with state agencies having to bend policy to political pressures makes it difficult to decipher fact from someone's personal agenda. So with our state agencies not always able to use all the tools in their toolbox to fight this disease, where does this leave us? We as landowners, deer managers, and hunters can no longer afford to sit on the sidelines hoping our agencies alone will be able to handle this issue. It is our responsibility to support their efforts whether that be following new regulations in an infected area or helping supply much-needed samples to reach statistical thresholds for detecting CWD in the county you hunt. In addition to supporting these initiatives, we should be reaching out to legislators to be sure they are aware of CWD and the potential impacts to our white-tailed deer resource. As mentioned above, the Association of Fish and Wildlife Agencies (AFWA) developed a list of science-based CWD best management practices addressing all aspects of CWD management; prevention, surveillance, and management.

Prevention is really the category the general public can influence the



All hunters should support state agency CWD sampling initiatives in the state you hunt in. Photo courtesy Tennessee Wildlife Resources Agency

most. The prevention of introduction and establishment includes primary risk factors mentioned earlier such as live animal movements and carcass transport; most states have legislation in place addressing these risks. Also mentioned in this section is the prohibition of products of cervid origin like deer urine which can contain prions. Unnaturally congregating deer (bait, supplemental feed, minerals) is also discussed here with a recommendation of moving away from any practices that would congregate wild deer.

As you transition to surveillance and management BMPs, these are primarily handled by our state wildlife agency personnel with regard to sampling programs and implementing response plans when a positive is discovered. Hunters and managers should do everything we can to support these initiatives

and communicate the importance to our peers.

While there have been no confirmed cases of humans contracting CWD, there are human health BMPs around handling and cleaning deer. To be sure you and your family take precautions, the following practices are recommended:

- Wear protective gloves and wash hands
- Disinfect equipment when handling deer or any other wildlife
- Avoid sawing through bone and cutting through brain and spinal cord
- Do not consume meat from animals appearing sick or found dead of unknown causes
- Do not consume meat or tissues from CWD-positive deer
- Follow wildlife and public

health agency guidelines

The CWD BMP recommendations developed by AFWA can be found in their entirety at www.fishwildlife.org.

It is in our best interest to educate ourselves using credible sources like the CWD Alliance, USGS, and NDA instead of blindly following the social media talking heads who are driven by the number of views, likes, and shares that helps build their brand and number of followers. Much like COVID, CWD is likely here to stay until we are able to make breakthroughs around potential vaccines or other ways to effectively manage this disease. CWD is a politically and emotionally charged topic but there is too much at stake not to work together to keep it out of where you hunt or do everything we possibly can to prevent further spread.

“Memories of Spring just may be the latest and greatest insight into turkey hunting that members of the Tenth Legion will salute!”

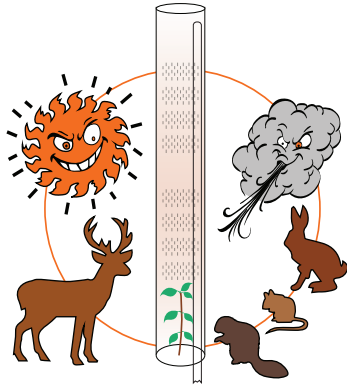
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Properly operating a standard electrofishing rig is an excellent way to evaluate a fish population as a starting point to create a management strategy and track changes as techniques are implemented.

Electrofishing

By Scott Brown

One of the best tools a lake manager has is the electrofisher, also known as The Shocker Boat. Paired with angling data, a biologist can get a very good idea of what species of fish are present, in what numbers, and make sound decisions for creating a management strategy to improve a fishery and achieve the landowner's objectives. It is not a cure all for sampling all species though. Species such as crappie, catfish, and shad (any open and/or deep-water species) are usually too deep to observe many in an electrofishing sample. You will get some of these species, and at times of the year or time of day or night will also increase the opportunities to collect these species. Crappie are more susceptible during their spawning period (late winter/early spring) and

catfish during darkness when both species are more likely to be in the littoral zone. Another use of the electrofisher, it can help with removing small bass to help you reach your annual target number. It is not very efficient removing grass carp from a waterbody that has too many in it or for eliminating an exotic or undesirable species such as gar, bowfin, suckers, bullheads, etc.

Lake owners are constantly inquiring about the electrofishing boat, how it works, how it can help them and is the procedure worth the expense. Yes, a good electrofishing sample is not cheap, but most of the time when performed by good fishery biologists, it is worth it. The rig itself new can cost between \$50,000 and \$90,000. Upkeep on those boats is time consuming and

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Whether on a remote waterbody at a quail plantation or on a lake behind a fancy resort in downtown Orlando, electrofishing generates a snapshot of the fish population when properly performed.

repairs when needed can be expensive. Even if one is purchased, fully assembled, using it, repairing it, maintaining it and analyzing the data is better when a qualified professional does it. There is more to it than starting a generator, stepping on a peddle and watching the fish float. You must understand how the equipment works, conductivity, AC verse DC, voltage, amperage and how your target species reacts to the various options and combinations. After almost 40 years of electrofishing, I can almost tell from the generator sound if the settings are correct or not for a particular waterbody. There is a wide range of “professional” lake managers out there, please interview multiple companies and choose the most qualified, which will probably not be the cheapest. There are many folks who have sub-par equipment, do not know how to operate it, nor know how to analyze the data collected, even if it is good equipment. Older verses new equipment really does not

matter, the people maintaining and operating it does.

Our boat is a 16 ft. x 54-inch wide, heavy gauged, welded, flat bottom Jon boat with a 40 hp motor. With the heavy gauge aluminum and all the equipment in the boat, it is very heavy and requires a good slope to launch from. You do not easily slide the boat off trailer into shallow water, even though once the boat is off the trailer it does float in surprisingly shallow water. The boat itself is the ground and the booms sticking out the front with the 3/8-inch diameter stainless steel droppers are the positive. Some rigs use separate cables over the sides for the ground, but by using the boat, you produce a better electrical field. On older electrofishing boats where the boat is used as the ground, white pitting may be visible at the waterline and below. The higher conductivity and/or more salt in the water, the more over the years the hull pits. With a quality hull though, it will still outlast your work years. The padded railing

around the front deck is placed in a manner that people can lean out and dip fish without falling in. Although safety is a priority when shocking, I have seen someone fall in a couple times in my 35-year career. No one has ever been killed as far as I know from electrofishing, but if you touch the water and the boat simultaneously with the peddle down, you will feel it. If the water is highly conductive, the shock is mild, but if the water is soft and has very low conductivity, the volts being used are very high, even though the amps produced are low, and you will really feel it. We always wear rubber soled shoes, and the deck and in front of the driver’s seat has a rubber mat for additional insulation. Sometimes we use one dipper and other times two, depending on the sample objective and numbers of fish expected. The driver always wears ear protection and sometimes the dippers do also. Most use 6-8 ft long plastic or fiberglass handled dip nets. If we are targeting catfish, the net webbing may be rubber to eliminate their spines getting tangled in the traditional nylon nets. Some shocker boats have lights on them for sampling at night. Depending on the habitat type and waterbody, night sampling reveals more fish and a wider assemblage of species present versus a daytime sample where some species may not be in a water depth suitable for shocking due to lack of cover until after dark. Our generator puts out up to 7,500 watts and up to 1,000 volts. The “Shocker Box” controls everything including various pulses ranging from 7.5-120 per second and amperage from 1 - 62. The settings we use depend on the objectives for sampling, the water’s conductivity and species of fish being targeted. It is important to have knowledge and experience to assure you are operating the electrofisher unit to



Many landowners think the electrofisher will help remove old, large grass carp, when in reality, they are very difficult to remove with any technique, including grass carp.

its optimal capability and knowing the habitats the fish will most likely be in. If not, you are not seeing fish surface and the sample is not a good representation of the population present. There is a peddle in front (some boats have one in front and back) that when pushed, puts electricity into the water while a timer keeps track of the seconds sampled, which we convert into a fish per minute or hour index that gives us the CPUE (catch-per-unit-effort).

Electrofishing is usually performed in the littoral zone (shallow areas along the shore and islands), along or above structure and along shallow to deep transition areas. The size of the electrical field and its effects depends on the fish species, their size and water conductivity. In some waterbodies, fish need to be within four feet of the booms and less than four feet deep. Other times fish are stunned as far away as 15 feet outside the booms, and greater than 10 feet below the surface. Some fish are completely

stunned and easy to dip, while others fight the electricity and can be very difficult and sometimes almost impossible to dip. Research has shown that less than 1 % of all fish shocked perish, and generally those are fry, which is why we let off the peddle if we notice a ball of fry getting close to the booms. All remaining fish wake up and swim away unharmed. When the “Shocker Box” is adjusted to target catfish only in the proper conductivity, they come to the surface as far away as 100 yards. It does not stun them, just makes them come to the surface and swim erratically, sometimes long enough to be dipped, and sometimes getting away at the last minute as they upright and orient themselves.

After fish are dipped, they are placed into an aerated tank with fresh water, salt to reduce stress and skin/scale damage until measured, weighed, and then released. After each sample the tank water is pumped out and refilled. The water temperature can rise in the tank

when crowded with fish from the sun, fish depositing waste, regurgitating their last meal, and putting out carbon dioxide into the tank which is why it is changed so frequently. Generally, larger fish get hit (shocked) harder than smaller ones as they have more surface area to transmit electricity and occasionally take longer to wake up. Most fish by the time we measure and weigh, eagerly swim away. Occasionally a big fish will float or lie nearby and eventually wake up, or it is helped upright and water flushed over its gills until it swims away.

The electrofisher can affect turtles, snakes, alligators, birds and even manatees. If we encounter a non-fish animal, we simply release the peddle and allow it to move away and we resume. The larger the gator, the more thrashing they do. I have seen them up to about 12 feet get shocked and those are dangerous that close, especially to the driver. Gators have a tendency to try and climb into the back of the



Most of the time, in small lakes and ponds with low conductivity, catfish species do not respond to electrofishing, but in higher conductivity waters, you can turn the water white with them after the peddle is pushed.



Electrofishing gives lake managers the opportunity to evaluate not only sport fish, but undesirable and smaller forage species in the population, unlike angling only.

boat by the driver. That makes it interesting during night sampling. The guys in the front think it's funny, but when you see teeth and a webbed, clawed foot coming at you out of the dim light, it scares you know matter how used to it you are! Manatees also cause a threat as they can literally flip a large boat if they are in shallow water.

The term Monkey Rig is an old term frequently used when describing illegal electrofishing. Those were and are still today designed to specifically be used for catfish and most are built from old crank telephone generators. The reason this device works so well on catfish is because it produces low amperage, medium volts, with low pulses per

second, which catfish are very susceptible.

Electrofishing data is a snapshot of the fish population at the time it is performed and helps biologists/managers to develop management prescriptions for landowners to achieve their lake goals. Electrofishing is best for a lake evaluation when done in the spring or fall, and in my opinion best in spring. Water temperatures are more conducive for big fish to be near shore and largemouth bass closer in preparing to spawn. It allows managers to create a starting point, and then provides important information on progress once a management strategy is implemented. It samples all types of habitats, from shallow water to fairly deep, in vegetation and around structure both manmade and natural. However, it does not work well on open water species, as they are usually below the depth the machine can work. Electrofishing can be used as a lone sampling method or as a part of a suite of sampling tools by adding seine, hoop nets, gill nets, minnow traps, trawls and angling results. In most private lake situations, electrofishing combined with angling results are the best fish population evaluating techniques, however, in larger waterbodies more sampling methods may be employed to get the best possible representation of the entire fish population present.

Data collected during sampling can be used to create a **Species Present** list, a **Species Composition** of what percentage (by number and/or weight) of each species is represented, **Length Frequency** within a species and **Relative Weight Index** (condition of fish) can be calculated. Other information that can be collected includes stomach samples, usually done by “tubing” on large-



mouth bass which does not require hurting the fish to identify food sources for various sized fish and drawing blood samples to document various genetic traits or impurities in the individuals caused by pollution. Tagging largemouth bass to track growth rates and repeat catch rates of individuals has become popular with some lake owners. Some of these should be standard in any pond evaluation and some are very advanced and expensive to have done and only necessary in intense research or environmental impact monitoring.

Two of the basic data analyses done for largemouth bass are

Good electrofishing rigs are always crowded no matter the size of boat. The generator, shock box, livewell, fuel tank and sometimes coolers when collecting specimens for tissue samples leave barely enough room for three biologists.

Length Frequency and Relative Weight Index. We believe this is best achieved by combining electrofishing results with angling results. In some waterbodies, despite the best efforts, electrofishing does not do well documenting big fish (usually steep bank, deep lakes). Angling during the spring, collecting lengths and weights and turning the data over to your pond manager can help make the picture more accurate and aid in the deci-

sion-making process to implement the best management practices. Unfortunately, some landowners do not like to keep records of this valuable data, but are encouraged to.

The **Length Frequency** tells the biologist/manager if all size groups are well represented in the population. Where there are gaps, it needs to be determined if overharvesting or lack of food suitable for fish below or in those gaps (which is usually too many fish and not enough proper sized forage just below the void) are the cause. In private lakes, it is almost always too many predators and not enough forage. With those results, harvest guidelines can be set and a supplemental stocking of various forage species will also be implemented. Once a Length Frequency is established this can be recreated each time another electrofish sample is taken and compared to previous sample results to track improve-

ments or shortfalls in the population structure as time goes on.

The same can be done with **Relative Weight Index** to monitor improvements or declines in various sized bass from previous results. These results help us determine how many bass (actually pounds) per year should be removed from the population and in what size class. Generally, the size bass needing to be removed is 12-15 inches (about one pound each) and is around 25 per acre depending on how productive your waterbody is. However, this varies in each lake and can change after each sample conducted depending how well the harvest and or forage stocking recommendations were followed. We have seen lakes needing 10-14-inch bass, 30-35 per acre needing removed and also 17-19-inch bass, 6-8 per acre needing removed. When dealing with fish removal, it is based on weight

(called biomass), so when prescribing larger fish being removed, a lot fewer per acre is the target.

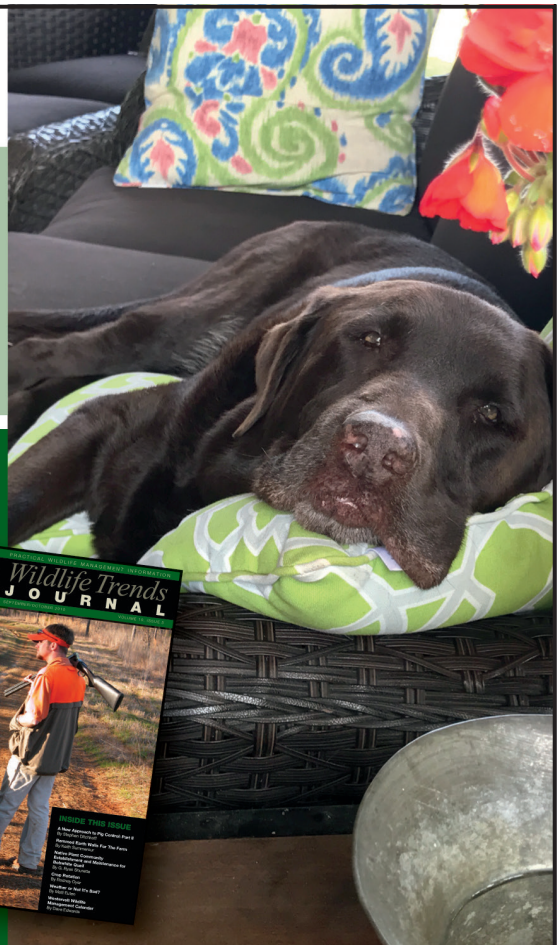
How often to electrofish is a widely varied topic between management companies. We recommend electrofishing annually if you have incorporated an intense management plan and feel every two years at minimum to document your progress. Some implemented management techniques need more time than one year to show a detectable change in the population/data. Not electrofishing annually reduces annual management costs, which allows for funds to be used for direct management such as new feeders, fish stockings, habitat improvement, plant management, etc. Obviously on research projects electrofishing may be done annually, bi-annually or even quarterly (during each season) to document changes depending on the research objectives.

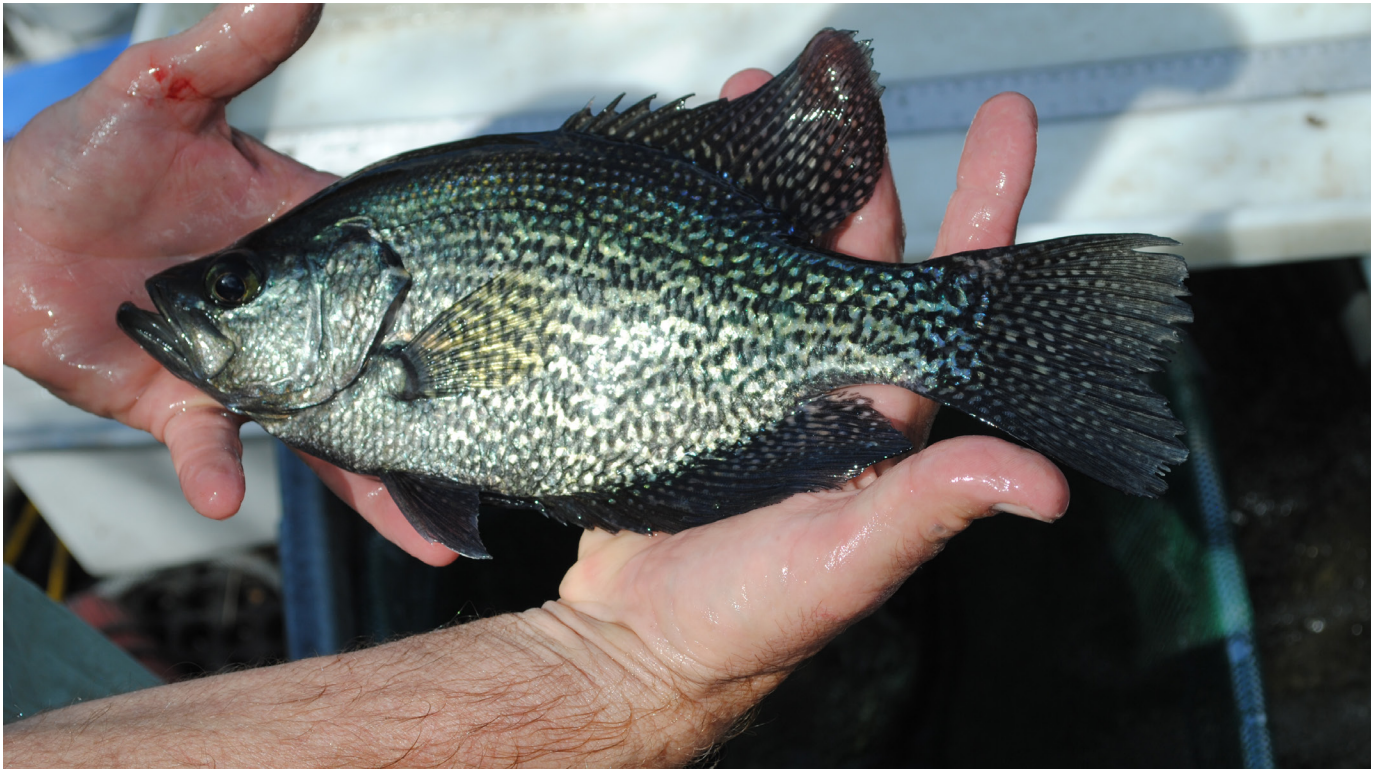
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Electrofishing can also be used to help with the removal of small bass to help you reach your target number to annually be removed. Please check with your state fish and game agency, as each state is different on this technique being used on private property. Depending on the size of your lake, the numbers of small bass prescribed to be removed can be in the hundreds or even thousands. This is hard for many landowners to accomplish every year, and they request help from the electrofishing boat. These bass can be removed any time of year with electrofishing, but when bass are more probable to be in the shallower water is best for the effort. Another use for electrofishing is moving forage from an unmanaged waterbody on your property to another waterbody on your property being intensely managed. Landowners will occasionally find pond too small to manage for quality fish on their property, but full of bluegill, golden shiners or other desirable forage fish that can be collected by electrofishing and moved to benefit

Although black crappie in open water are hard to sample with electrofishing, when they move into shallower water to spawn, they can be observed and numbers evaluated from year to year.

another lake on the same property. Again, check with your state game and fish agency to see what the rules are in your particular state. One use for an electrofishing rig that is not very successful is grass carp removal. Many times, landowners overstock grass carp, only to find out, that they are almost impossible to remove with any of our fish collecting techniques.

Recently landowners have been coming to us talking about building their own electrofishing rigs. As stated earlier, even if money is no object, it still requires years of experience to build a functional and safe boat, properly operate, maintain, and analyze the data collected. We are aware of a few private landowners who own their own electrofishing boats, and all have reverted back to hiring an experienced professional to still do the fisheries work. We are always completely up front when a non-fishery biologist brings this topic up. Yes, you can purchase a ready

to launch electrofishing boat, but the headaches and lack of experience will cause your management to suffer.

Prices for electrofishing services vary depending on your location and how thorough the data analysis and management strategy is that you desire. When performed properly, electrofishing is the most valuable tool to evaluate a fish population and help make management decisions for your waterbody and monitor changes in the future after you have implemented a management strategy. Whether you prefer to just ride around and be given recommendations from the boat deck, want a one-or-two-page summary, or a thorough data summary with detailed management strategy easy to follow so you and/or your staff can perform some or all the work yourself, know what the end product is for your dollars.

Plant Pears Today

By Allen Deese



Allen Deese is the Nursery Sales Manager for The Wildlife Group. Contact him at 800-441-6826 or visit their website at www.wildlife-group.com.

Pears are the ideal tree for habitat improvement. How many old home sites have you visited or have found on your property that has Pears growing and is a hotspot for wildlife activity? Most everyone you know can tell you where an old pear tree is that has been there as long as they can remember. Why is this? Because pears have been a staple in households as long as any of us can remember. Pears are very resilient, and once established are very tough and resistant to most diseases. Listed below are some of the reasons we should all plant pears for eating, making preserves, making pies, jams, jellies, but most importantly, to feed the wildlife.

- Pears are very drought tolerant
- Pears are very hardy & disease resistant
- Pears are the easiest fruit tree to grow
- Pears are very consistent producers
- Pears will grow in varying soil conditions

Okay! Which pear should I plant? Even though pears are self-pollinating, it is always better to plant more than one variety. It is my belief that having more than one type makes your trees more prolific producers, more abundant fruit, juicier fruit, and by mixing varieties, an extended drop period. If our whole objective is to increase the food source & productivity of our land,

we need to supply food & cover all year, not just during hunting season. So, let's just say we plant ten varieties of pears spaced 25 x 25 ft. You are looking at planting $\frac{1}{4}$ acre and having production from August until December. Planting many different types also ensures that you will have some pears even on off years. Fruit trees, as well as acorn producing trees, can and will be unpredictable at times. So, mixing the varieties will almost always ensure that you will have some pears each season.

Now how do we choose what varieties and the size of plants that we need to purchase? Several considerations should go into your plant selections.

- Size of plants to purchase
- Water needs the first summer
- Different varieties needed for pollination & overlapped drop period
- Correct spacing
- Correct care & pruning tips
- Protection required to help with survival

All of these questions should be answered by your Wildlife Tree Nursery. But for starters, the trees can be purchased bareroot or in a container.

Bareroot plants will require the smallest amount of effort. The bareroot trees will be a one-year grafted plant removed from the ground in December and shipped to your door via UPS. The roots will be dipped in moisture management polymer to retain moisture during shipment. Simply keep the roots moist and out of direct sunlight and wind until the planting date, which should be as soon as possible.

Potted/container plants would be the next choice. Container plants will obviously be greater in size and closer to production. When purchasing containers, you are buying years. A 7-gallon container plant is a two-year-old plant, and a 15 gallon is a three-year-old plant and typically will be of producing age. But keep in mind that it is essential after planting to give these plants at least three years of new growth before allowing them to fruit. What this means is that during the following growing seasons, it is crucial to remove the fruit so that the tree can put all of its needed energy into growth and survival. Also, keep in mind that these plants will require more care and water the first year than the bareroot plants.

Protection – Regardless of which type of trees you decide to go with, please make plans to protect them from the deer, rabbits & mice. Even though you are planting them for the wildlife, they will destroy them. Purchasing Plantra Sunflex Tree tubes for the bareroot or Tree Bark Protectors for the larger trees are critical to keep bucks from rubbing the trunks or eating the new growth. You can also build 5ft. x 4ft circular fences to put around each tree. However you decide it is imperative that you protect them.

Spacing, Planting & Care – Space all fruit trees at least 20 – 25 ft apart. Plant during late fall or winter months, do not wait until March to decide to plant. Planting late will almost ensure that you will have poor results (this applies to all trees); if planting in poor soil (clay, clumpy soil, deep sand), you may benefit by amending the soil in the planting hole and dig a larger hole to give the plant more desirable area to get established. Be sure to add a moisture management product along with organic bio-stimulant products to the soil at planting to increase the tree's survival. NEVER add a regular fertilizer to the hole while planting (13-13-13); this will kill the tree. My suggestion would be, do not fertilize at the time of planting. Unless you can water the trees do not fertilize the first season. If the trees are in or around a food plot that is getting fertilizer you will not need to do any additional fertilizing to them directly. Year two, if you do decide to fertilize, use 10-10-10 and add about one cup around the drip line in Late Feb early March. Do Not over-fertilize any tree! Pears in general, as well as persimmons, do not require much fertilizer, and in fact too much nitrogen can cause disease as well as early fruit drop. So, if in doubt, just eliminate nitrogen fertilizer altogether.



Pruning is a top discussion on all fruiting trees. Pears are a unique plant in that they tend to grow with multiple leaders. While young, it's essential to try and shape the trees in an umbrella form with spreading limbs rather than tight growing vertical limbs. So, thinning the inside limbs and adding spacers between limbs or a little weight to the ends of some limbs to get them to grow more horizontal is preferred. I personally have trees that I have never pruned that are great producers but are not as productive as they could be had I spent a little more time pruning at a young age.

Let's all keep in mind that nothing happens overnight. But if you don't plant this season, you will be another year behind. Planting on standard years and following the correct procedure for care & planting you should expect an 80% survival rate at the minimum. Most pears should be producing fruit within 4 -6 years of the planting date. Start your habitat plan this season even if it's only a few trees, you will not be sorry.

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.

Prepare dormant season prescribed burn plans and initiate burns as weather permits.

Fire is a management strategy that is relatively cheap to implement and results in better habitat for wildlife. If you have pines on your property, fire is an essential tool to improve wildlife habitat and should be on your annual task list. However, burn plans need to be well thought out and completed well ahead of time. With the exception of longleaf pine/coastal plain areas, most understory burning in the Southeast is conducted during

the winter dormant season. Acceptable relative humidity, temperature, fuel moisture, and steady, persistent winds often occur during this period. Cool season burns are generally conducted between December and spring green up. In the Deep South, try to conduct burns before March 15 to avoid destroying turkey nests. Cool season or winter burning is not only a good way to reduce fuel loads and control undesirable hardwoods in a pine stand (which reduces the chances of a wildfire that can be detrimental), but is also a great way to stimulate new understory plant growth which will

Fire is one of the most effective tools to create and/or improve quality wildlife habitat in southern pine forests.

result in quality food sources for wildlife. Fire rotations (interval of time between burning the same area again) vary depending on your goals and habitat types but are generally every 2-5 years to promote quality wildlife habitat. It is also a good idea to strategically plan your burns so that you always leave some areas unburned. How much area to burn will depend on your specific property and habitats. However, do not feel that you must burn large areas (50-100 acres or more) to make a difference and create quality wildlife habitat. Relatively small burn areas in the 5-10-acre range are easily done in

a couple hours and will make a difference. Always check local burning laws and consult with an experienced burn manager before lighting a woodland fire. The U.S. Forest Service or your State Forestry Commission are great sources for obtaining more information regarding burning in your area. Check with the US Forest Service for information regarding prescribed burning as well as examples of a burn plan. It is also a good idea to coordinate your burns with a professional land manager that has experience burning.

Trap and remove nest predators

If managing for wild turkeys and quail are goals on the property you hunt, don't overlook the value of removing nest predators such as raccoons and opossums. Having said this, attempting to control predators should not be a priority if you are not actively managing the land to promote quality turkey habitat. Creating and maintaining quality habitat should be the highest strategy on the list for managing turkeys. Wild turkey is a species that responds quickly to good habitat management such as thinning timber, burning, understory control, food plots, roadside management, etc. However, research has clearly demonstrated that nest predators, particularly raccoons, can significantly impact nesting success rates and thus turkey population growth. Not only will they eat the eggs, but they may even kill the vulnerable hen turkey while incubating the nest. Winter is a great time to trap and remove nest predators. This is also when hunters spend the most time at a property. Trapping offers a great mid-day management activity during a weekend at the camp. The key in being successful and efficient is to pick good trap locations. Water sources, feeders, and

food plots can be good places to start. There are many effective traps available. The most common are live traps (cage traps) and steel traps (leg hold traps). If you use leg hold traps, I recommend "soft-catch" or offset jaw traps. These traps do not damage the foot of the trapped animal in the event that you catch a dog or other non-target critter. If you have never trapped before, you will learn a lot by trial and error. I recommend doing a little homework by surfing the web and YouTube to learn effective techniques. One more thing to know is that nest predators are prolific and have relatively high reproductive rates. This means that populations can rebound quickly. To be effective in controlling nest predators and helping turkeys and quail, you must significantly reduce nest predator populations and continue to aggressively remove them each year.

Conduct maintenance to equipment

As a land manager, quality/working equipment is essential to success. While the list of equipment used to manage hunting/recreational properties is wide ranging, most managers have, use, and need the basics such as farm tractors, tractor implements (such as harrows, mowers, grain drills, spreaders, sprayers, etc.), UTVs, chainsaws, and other mechanical "hand tools". To remain in good working order, this equipment will require proper maintenance. Without maintenance, these tools will begin to wear down until they eventually break. This can result in costly repairs and added downtime in which nothing can be done until the machinery or equipment is fixed. Nothing is more frustrating than planning a food plot planting project, getting everything ready, finally getting the right weather and

soil moisture, then having a tractor or implement breakdown. There are two forms of maintenance. The first being repair maintenance, which is conducted once the equipment has started to malfunction or has completely broken down. Preventative maintenance is a program designed to prevent equipment from failure – resulting in less repair maintenance. Preventative maintenance varies depending on the equipment but generally consists of checking/replacing fluids, seals, filters, hoses, blades, batteries and/or electrical parts, screws/bolts, etc. In a nutshell, it is giving equipment some love before neglect results in breakdowns. Winter is a great time to conduct preventative maintenance on equipment. Doing so can be a relatively easy project between hunts. Of course, there's absolutely no way to avoid breakdowns and damage in the long term. No matter how much care you give your equipment, it will ultimately breakdown. However, preventative maintenance certainly slows down functional decline but also helps keep equipment in reasonably good shape in the event that you decide to trade it in or sell for new. On larger more complicated equipment like farm tractors, skid steer machines, back hoes, etc., keep in mind that maintenance must be done properly to be effective. For this equipment, consider an annual "checkup" by a professional. Although hiring a professional mechanic to perform preventative maintenance and checkups will be an expense, it is money well spent. Part of your preventative maintenance program may include hiring a mechanic each winter to visit your "equipment shed" to perform checkups. One of my philosophies is that if you take care of your equipment, it will take care of you.

Prepare deer stands for the off-season.

Once deer season ends, it is a good idea to “summer-ize” your hunting stands. That is, to ensure they are in good working order next season there are a few things to do. Ladder and lock on stands should be loosened or removed from the tree to allow the tree to grow during summer and prevent it from absorbing the attached chain or strap of the stand. This not only protects the stand from potential damage, but is good for the tree. If the stand is not going to be removed from the woods, remove any cushions or seat straps and burlap/camo covers that may be on a stand. This will prolong their life and prevent the weather or critters from ruining them before the next season. Cushions and covers should be removed from tripods or other stands as well. Although they should already be secured, double check the tie downs and anchors of a tripod. There are two kinds of tripods – those that have blown over and those that will. Making sure they are securely anchored will reduce the chances of a tripod getting blown over. Shooting houses should be cleaned out and sealed up as much as possible. Sealing them (meaning closing the door and windows) will reduce damage by squirrels, owls, etc. It will also reduce wasps as well (notice I said reduce). Cleaning shooting houses out in late winter is much nicer than trying to do it in August! Obviously, all climbing tree stands and pop-up blinds should be removed from the woods and stored over the summer. When “summarizing” ladders and lock on stands, it is VERY important to revisit these stands just before hunting season starts again the next year to reattach the chains/straps and tighten everything up. One trick we use to identify stands that

are “safe and ready to hunt” is to tie a piece of flagging onto the stand once it has been tightened and checked. Use the same color flagging for each season. For example, this year we are using blue flagging. Next year we will use a different color, say yellow flagging. So, if a hunter gets to a stand this season and does not see the blue flagging, they will know that the stand may have been overlooked and/or has not been checked and secured.

Assess and flag or mark wildlife improvement projects such as new food plots, plot expansions, wildlife clearcuts, new roads, and roadsides that will be widened.

Because temperatures are cool (or cold) and the leaves are off trees where you can generally see better in the woods, winter is a great time to assess and mark areas where trees will be harvested or dozier work will be needed. Having the leaves off is certainly a big help because you can see what you are doing and visualize areas that you are flagging. Projects that may need to be marked or flagged include small bedding areas that will be created with chainsaws (can run the chainsaw during the winter too while it is cooler), new food plot areas or expansions on existing plots, areas along roadsides that need attention next spring, etc. Besides flagging areas that will require heavy equipment and drier conditions, winter is also a good time to mark areas that will be planted in wildlife friendly orchards, supplemental hardwoods, areas to plant hedgerows for quail through fields, etc. Marking these areas in winter will not only be more pleasant for you and allow you to see what you are doing, but will ensure you are ready to tackle these projects when conditions are right. Also, flagging in winter gives

you time to think more about the areas you have flagged out before the project is implemented. The last thing you want is to be flagging just ahead of a logging crew and having to make hasty decisions on where you want a new food plot to be created.

Create a wind map of your property to help you have more successful deer hunts.

A deer’s nose is its best defense. Through my career as a wildlife biologist, I have been fortunate to have worked and hunted with many “lucky” hunters – those that seem to cross paths with the biggest bucks on the property year in and year out. These are the guys you see in magazines standing under a barn wall full of mounted bucks. Generally speaking, I am not one that believes in “luck”. To me, luck is where preparation and opportunity meet. All of these hunters did their homework to understand how and why deer (particularly the mature bucks they were hunting) used the property and set up stands accordingly. They all seem to have different thoughts on where and when to hunt the stands. However, the single common strategy used among ALL of these hunters was they closely monitored wind and only hunted stands under favorable winds. That is, they only hunt areas when the wind is right – carrying their scent away from where they expected deer to come from. Although I routinely wear ScentLok and spray myself with odor neutralizers before heading to a stand, I am a firm believer that if a deer gets downwind, it is over (at least in most cases). On properties that have hills or draws, wind will behave differently across the property. As wind hits ridges or tree lines it is diverted and results in the wind changing directions at given points on the property. You may be

surprised that a true north wind can generate a south wind in some locations on a property. Something else that will cause “odd” winds is large bodies of water such as a lake or river. In the morning, cool air in the woods is often drawn out to the warmer water area creating different wind currents than the true wind reported. The opposite can occur in the evening. These situations often occur under light wind conditions. To create a wind map, simply record the true wind (wind direction without interference – wind the weatherman reports), then visit various spots on the property where deer stands are located and record the actual wind at these spots. Many hunters collect and record wind information over time, like while they are hunting, then compile what they have collected to create a wind map. Once generated, a wind map is a valuable tool that will help you select which stand to sit resulting in more successful hunts. Of course, you still need to be in the right place at the right time. But these “lucky” moments happen more often when you have prepared and selected a stand where your scent is not a factor.

Provide supplemental feed for deer.

Even in the South, late winter can be a nutritionally stressful period for deer. They have endured the rigors of breeding season and natural food sources can be limited. Providing supplemental feed during this time can boost energy and nutrition. This recommendation/activity is directed towards landowners or managers that have done a good job managing the 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

“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 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.

Collect fetal data from harvested whitetail does.

If breeding season or rut occurs in your area before or around Thanksgiving, and your hunting season extends into late December or January, you should be able to collect and measure fetuses from does harvested later in the season. Similar to human fetuses, the age of deer fetuses is determined by their length. Commercially produced fetus scales are essentially rulers that can be used to measure and ultimately determine age of the fetuses. White-tailed deer fetal scales can be obtained from the National Deer Management Association. Knowing the date of harvest along with the age of the fetus allows you to determine the day of conception. With an adequate sample size of fetal data, this information can provide much insight to your deer herd’s repro-

ductive performance as well as the length and peak of the rut in your deer herd. This not only helps you determine when to put in for vacation next year (during the rut), but the length of the breeding season will shed light on the adult sex ratio of the herd. A tighter sex ratio will result in a shorter more intense rut due to increased competition for mates, while an unbalanced sex ratio will likely be represented by a long, weak rut due to less competition and length of time it takes bucks to breed the abundant doe population. This information, along with hunter observation data, is a great and free way to help assess the status and success of your deer management program.



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