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Building Your New Lake From Scratch

Scott Brown



Building a lake from scratch is an opportunity to create a dream lake, but also an opportunity to make a lot of mistakes and create headaches for yourself in the future. Seeking technical advice, planning and patience prior to starting is advised. Photo Credit: Ryan Engel

We get several calls a year regarding how to build a new lake or pond. Careful planning on the front end makes for an easier to manage and longer lasting waterbody later on. There are many things to consider when building a lake, from location to the type of fish you want, and everything in between.

We recommend inviting a professional lake manager to meet with you on site to look first hand at your property to determine where the best location will be. Many times, we have gotten involved after construction of a lake and many things completed could have been done differently that would have made the waterbody more productive for fish and wildlife, more aesthetically pleasing and more functional for alternative uses such as irrigation, stormwater retention, and even retriever training. It is advised to use both a local lake digging company and a fisheries consultant from the start to achieve the best possible outcome. Both

have knowledge and expertise beneficial to achieve the best outcome feasible to achieve your goals and objectives.

If possible, even before you purchase your property, have a professional fisheries and wildlife consultant tour the property with you to talk and discuss management options and possibilities. If not before, from the very beginning of picking a location, design, etc., get a professional fishery biologist involved. I recently toured a property with a client who just built his lake. We provided him and his lake digger with technical advice on everything from location, shape, slope, depth, bottom contour and other physical characteristics. We like to meet and even create a **Management Strategy** prior to the waterbody being dug, so the landowner and construction company doing the work have guidelines to follow to assist in making the best possible waterbody to fit the landowners needs and achieve his goals. A fisheries biolo-

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gist and lake construction company compliment each other, (may not always agree on every detail), but usually turn out a better product than if one is working alone without the other.

The first step is identifying a location. Don't force a lake into an area that is not suitable for one. If your cabin is at the top of a hill, your waterbody probably cannot be located there due to no water coming in, (suitable watershed to keep it full). The location you desire may dictate depth and size, which need to be considered to achieve your goals and the physical needs to create a productive fishery. What is the primary reason for the waterbody – fishing, waterfowl hunting, livestock watering, irrigation of crops, flood control or a combination? Will the waterbody be an embankment pond, (where a dam is built across a stream, creek or drainage ditch), or excavated pond, (a depression dug out and water sheet flows in from surrounding areas). I have seen lakes constructed



Depth, bottom contour, and shoreline slope are all important to create a waterbody that promotes a high-quality waterbody from water chemistry to the fish themselves. Photo Credit: Ryan Engel

at the highest point on the property that, once went dry, never refilled to full pool. Check the acreage of drainage your location will receive. Enough volume of runoff must flow in, to keep water levels acceptable, while the outflow must be large enough to safely discharge what excess flows out. Check up and down stream for potential flooding issues from either backed up water or a dam failure. What are the surrounding activities? A lake that receives 100% of its runoff from certain industrial, agricultural or residential activities may not be the best location and flooding or water chemistry problems may arise from those influences once the lake is complete and full. If a duck marsh is desired, place it downstream of the lake, if possible, as marsh water is filtered, but can be low in dissolved oxygen initially during a flood event. Your duck pond water level can be raised from water out of the larger upstream lake, so you have water when you need it to maximize waterfowl presence. Identify the soil types to assure once it fills, it will stay that way, and if there is enough clay

present to construct a dam, if needed. Will the waterbody be kept full by underground water seepage or spring? Some areas where lakes are built require clay to be brought in or an artificial liner be installed, which both increase costs. Digging a few test holes prior to starting construction is advised to identify soil types and clay presence. We suggest **Ponds - Planning, Design, Construction** Agriculture Handbook 590 by the

USDA as a reference for landowners/lake builders to use when constructing a new lake or pond. It goes into great detail on much that I will touch on in this article. Obviously, the internet is also another endless source of information, but identifying good information from hobby lake managers and builders can be difficult, so be careful.

Locating a qualified company to construct the lake is sometimes easy and other times difficult. We recommend using a local company that is familiar with the area soils and permitting requirements while not requiring long distance travel, which increases costs. Start by talking with neighbors who have had lakes constructed. The County or State may have a list of permit requests in your area to help you identify who has recently built lakes. Were those landowners happy with their company? Have there been any problems with leaks, excessive weed growth and how is the fish population? Was the price reasonable? Another place to find quality construction companies is by interviewing local heavy equipment dealers and repair shops. They know a lot about their customers and who is reliable and



How long construction takes depends on the size of the waterbody, weather and the amount of equipment working on the project. Photo Credit: Ryan Engel



Many habitat improvements are easier done when the lake is dry. This riprap will secure a shoreline prone to erosion and provide hiding for small fish and crawfish.

not. Another source to locate pond builders is the local Agriculture Extension Office, the State Game and Fish Fisheries Staff or the nearest Natural Resource Conservation Service (NRCS) office.

Another thing to consider is funding. How will you pay for the new lake? In some instances, dirt is a valuable commodity either to be sold for roads or housing developments, or used as a pad site for your own home, cabin or lodge. We have several clients, (especially in the South and low-lying areas), that have had lakes dug for free in return for the dirt to be used in home or commercial property construction or City, County or Interstate Highway construction. This doesn't always work out, but it is an option to explore prior to starting. Otherwise, a location for the removed dirt to be deposited is required, and it cannot be used to alter wetlands into uplands or agricultural lands. There are also government programs for County, State and Federal cost share programs available for new lake construction. Contact your County Ag Extension and NRCS offices for any available types of programs in your area that may assist with fund-

ing. It will take you a few hours of time, but may be worth it in the long run.

Prior to construction, someone, (you, fisheries professional or your construction company), needs to check if any County, State or Federal permits are required for construction. Contacting an Ag Extension or County Permitting Officer would be a good place to

start. They will know if any other agencies need to be contacted prior to construction. Each state and some counties within states are different in regard to new lake construction. Permit prices can range from free to several hundred dollars depending on the location and lake size being constructed. Permits are cheaper than fines issued by County, State or the Federal Government.

The final step prior to construction is determining the physical aspects of the waterbody such as size, shape, depth, bottom contour, shoreline slope, outflow and consider amenities such as dock, fish feeders, fish attractors, and aeration system or fountain. We recommend building nothing smaller than one acre for a quality catfish and bream/panfish pond, not smaller than three acres for a pond with a few quality largemouth bass in it, and no less than 10 acres for a trophy bass and/or black crappie fishery.

Most desired species such as bream



Natural and artificial materials make great underwater fish structure. Place in 4-8 feet deep water, but not in the deepest holes, unless bottom aeration is installed. Many deep holes have no Dissolved Oxygen in winter and summer, and fish will not go to these deep areas until the oxygen levels rise, maybe in the spring and fall. Photo Credit: Ryan Engel



Simple Dissolved Oxygen monitoring told this lake owner that the lake that refilled almost exclusively with underwater springs in just a couple months needed a boost in oxygen, and now it is ready to stock forage fish. Photo Credit: Ryan Engel

and bass are edge species, so the more irregular the shoreline, the more edge and habitat available for those species. Those species spend most of their time hiding, feeding and reproducing in the **Literal Zone**, (area between land and deep water where aquatic vegetation is located). There is a lot more shoreline where it zigzags in and out than a rectangular or circle shaped lake.

Depth is usually under or over done for various reasons such as cost, poor estimation of depth after completion, or lack of knowledge of how important depth is during summer and winter, (depending on where you are located). During a drought, some of the water needs

to be eight feet deep, while no area (unless an aeration system is installed) needs to be greater than 15 feet. Water less than eight feet deep in the South during the hottest part of the year can foster poor water quality with elevated temperatures and low Dissolved Oxygen (DO) either stressing or killing fish. This same scenario can happen with excessively cold water and low DO during the winter in northern areas. Water over 15 feet deep in warmer climates becomes stratified, where low DO water is at the bottom and can be for more than half the water column, rendering no fish using these areas when DO is low to a point where it stresses fish. If the lake rolls over, the fish can die.

Bottom contour should not be smooth nor should there be isolated deep holes not connected by deep-water trenches. Adding “catfish holes” is acceptable as long as they do not exceed recommended depths and are not just deep holes randomly dug. The water in these areas without connecting trenches to mix with higher oxygenated water become unusable areas by fish due to lack of dissolved oxygen. If these areas have connecting trenches and/or bottom aeration, they become additional usable areas by all fish during different times of the year, increasing your lake’s carrying capacity.

Shoreline slope needs to be 4:1 and 3:1 is better. The reason being



Getting a good forage base of bream, mosquitofish and fathead minnows prior to predators like largemouth bass being stocked is a must. Always think backwards when growing quality fish, from the bottom of the food chain up. What species are you managing for, and what will they need in abundance to excel in growth and numbers. Bass need lots of various sized forage throughout their life span, from a fry to a 10-plus-pound trophy.

anything less encourages vegetation growth farther out into the lake and can cause problems in the future that require constant herbicide use or scraping. Some shoreline vegetation is good, but too much too far out from shore can hinder angling and navigation, or create an aesthetic problem of undesirable weeds at or above the water surface. A steeper slope discourages weed growth out from shore, but still promotes fish spawning by bass and bream/panfish. Many new lake owners feel the need to create large shallow shelves or whole lake ends for spawning, but these areas inevitably become problems in ponds with aquatic vegetation, and are not necessary unless your waterbody is large and can afford such areas of space.

The type of outflow you have is usually decided on by the type of lake you have and costs. For an excavated pond, a low depression

with large gravel is sufficient. The use of gravel is advised to reduce erosion and any erosion at the outflow results in a lower lake level. For an embankment lake the ideal situation is a standpipe with gate valve and emergency overflow. The standpipe allows water to flow out when it becomes full and normal rains are present. The emergency overflow is a slightly lowered area at one end of the dam, covered in concrete or large gravel for flood control that allows large amounts of water out during flooding without eroding the dam. The gate valve is a nice additive, but does increase cost, for lowering lake levels as needed to do work on dam, dry up organics, (muck), along the edge in the future or lower water levels to dry out weeds or spray excessive submerged vegetation reducing the acreage needing treated and lowering herbicide costs.

Most extras such as dock, fish attractors, fish feeders, adding lime and aeration system or fountain can be installed either with lake empty or full. A dock is easier to install while water is down. We recommend installing the posts only, (leaving extra at top), prior to filling and installing the dock decking and cutting off posts after water has raised to full pool. This way you can place the dock as high or low as you want above the water at full pool. If you know the waterbody will fluctuate a lot, placing it as close to water when full is advised, because most of the time it will be lower than full pool. If water will stay fairly steady despite rainfall amounts it can be placed higher knowing the water level will never be much lower than it currently is. If fish attractors will be made from natural materials such as brush, stumps or gravel (spawning beds), riprap, or concrete culverts installed prior to filling so material can be driven to the spot, weighted down or spread with a tractor or dozer. If artificial materials are used, they can be easily thrown overboard and sank from a boat once the lake is full and exact depths will be known. Shoreline or dock feeders can be temporarily installed closer to water if fish are stocked early, and permanently installed once water levels stabilize at full pool. They should be placed high enough not to get flooded should an excessive rainfall event occur. Installing a small gravel boat ramp is easiest before the lake is at full pool. Extend the gravel several feet down into the lakebed to assure a safe launch site even during low water. Make the ramp slope usable for all types of boats, large and small. Check the soil pH around the lake site as you would for a food plot. Have your samples tested and whatever the pH is, that is what it will be in the lake. If the pH is

below 6.5 add agricultural limestone as directed by the testing company to get your pH in the desirable range. It is much easier to add agricultural lime to an empty lake than full. Aeration and fountains can be installed prior to filling, but are easily installed once the lake has filled. Install electrical outlets or pump motors at a level that are not susceptible to water damage during a flood. Electrical motor, plugs and switches need to be placed a minimum of three feet above the emergency outflow to assure they are protected. As soon as refilling starts, grass can be planted everywhere exposed dry dirt is. This slows erosion, because you do not know how long it will take for it to fill.

The final tasks are checking water chemistry, adding desirable plants and stocking fish. Have water chemistry checked prior to stocking to assure the fish will survive when they go in. On rare occasions we have seen elevated Ammonia or lower than normal pH upon filling that took a short time to stabilize and then fish were stocked. Recently, we had a new lake dug and refilled exclusively with spring water due to lack of rainfall. The Dissolved Oxygen was below 1.0 parts/million (PPM). Aeration was installed to raise the oxygen and then fish could be stocked without worry. Plants need to be planted or transplanted in specific times of the year. Trees in and around your lake should be planted in late winter, just prior to the start of the growing season. Trees to consider are cypress in the water and on edge and others near shore and up the hill for aesthetics, shade and to attract wildlife. Fruit and nut trees around a lake provide shade, food for wildlife and look good, especially when in bloom. Soft tissue plants should be planted in early spring just after the growing season begins, so they have

the full growing season to establish a good root system before the following winter and they become dormant and die back. Only choose native, non-invasive plant species to ensure low maintenance in the future. Fish can be stocked any time, but the hatchery has to have them to do it. Usually bream/panfish and minnows are stocked in the fall or spring and bass 6-12 months later. Catfish can be stocked whenever the hatchery has them available, but are cheaper when they bring other fish. For new lake stockings we also add either fathead minnows, mosquitofish or both, for small bass and large bream/panfish forage to start, knowing eventually the fathead minnows will probably disappear later from being consumed, but the mosquitofish should continue to repopulate. Once bream, minnows and/or catfish are stocked, turn feeders on immediately dispensing small pellet size, high protein feed to expedite growth and encourage reproduction

prior to predators, (largemouth bass, Morone Hybrids or crappie), being stocked. Threadfin shad can go in just prior to predators, but golden shiner stocking should be held off until year three, giving bream and bass time to grow, establish and need the additional forage. Stocking a predator with no proper size forage present is a waste of money and time. Also, bringing in fish from outside waterbodies usually doesn't expedite anything, it just slows things down and may require additional stocking later to regain a balanced population between predators and prey.

It does take a little time before you will see large bluegills, redear sunfish, largemouth bass, catfish, crappie or whatever your desired species are, but following proven guidelines and performing management tasks to upkeep the waterbody once complete will ensure a long successful time to enjoy your lake.



Planning, executing and being patient will give some great years of fishing in your lake. Within 4-8 years, you can achieve quality and in 8-10 years, a trophy fishery. Many have tried shortcuts, and most have failed. Create a quality well thought out plan, stick with it, and you will not be disappointed.

Climbing The Wildlife Habitat Staircase

Matt Petersen



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For some folks, killing a large antlered mature buck on their piece of ground would be the ultimate goal they could achieve. Regardless of the goal set, reaching a goal must start with the setting of one.

My work as a wildlife manager and wildlife management consultant allows me the unique opportunity to look at properties and work with landowners in various stages of habitat manipulation and creation. This has afforded me the ability to see farms that are all different in their makeup of terrain, timber, soil types, wildlife populations, etc., and to work with the landowner to manipulate these factors to meet their goals for wildlife. I view this process just like the title of this article and often refer to this work as climbing the wildlife habitat staircase. I use this reference because I often see clients that want to skip steps in the journey of getting the most out of their property to meet their goals and, as we all know, trying to skip steps on a tall staircase can lead to a fall and often require starting from the bottom again and working your way back up. This scenario more often than not leads to lost time and poor results that can cause burnout

in the client's willingness to spend hard-earned time or money to work their property. I focus on helping folks limit this effect and to take the proper steps in the correct order to ensure goals are met and the process remains enjoyable.

Identifying Goals

Before I travel to a client's farm to conduct a habitat consultation, I send each client a pre-consult questionnaire. The reason I do this is to gather background information about the property to be sure that we get any questions answered before the day of the visit, as well as to allow me to be as prepared as possible to cruise the farm. This questionnaire also forces the landowner to sit down and spell out his goals for the property. I find that all too often it's the first time the landowner is writing down a list of goals for the property while filling out this questionnaire. A wise man once said that it's hard to get somewhere if you don't know where you

want to go. I couldn't agree more. It's vital that we start out by setting goals in order to build a plan to reach them.

It's also wise to consider if your set goals are realistic and/or contradictory to one another. For example, a common goal of the majority of my clients in the Mid-South is the ability to grow, view, and ultimately harvest mature bucks, (4.5 years old plus), on an annual, or at least semi-annual, basis. This goal is often achievable, but it tends to be contradictory to other goals set by the landowner. The same landowner that wants to have a mature buck on his property also wants to have a dove hunt the week before opening day of bow season for deer. Or he wants to leave the majority of the farm in mature hardwoods that are unsuitable for bedding/cover that a mature buck requires. I've also had landowners who want to walk their whole property with their wife each morning to get exercise and enjoy the scen-

ery on their farm. All of these activities are great and make owning recreational land fulfilling and enjoyable, but all these activities are very detrimental to holding mature bucks on your farm, more less actually harvesting them. Another example is that I had a landowner that had a roughly 100-acre farm that's number one goal was to create quail and turkey habitat. This gentleman knew enough about these animals to understand that creating early successional cover for nesting, as well as brooding habitat was key for both species' success, and especially quail. We encountered one major problem with this goal that could not be overcome – this landowner lived on his farm and had a house and barn standing in the middle of the farm. He and his wife really liked to keep the long driveway area and fields mowed down clean and neat. These field and driveway areas were expansive and ran through the center of the property from one end to the other. Picture the filling in the center of an Oreo and you'll understand the concept. These grass areas were a monoculture of tall fescue and comprised around 30 acres in the center of the farm. This tall fescue was mowed but often would get thick and clumpy if areas became too wet to cut or if equipment broke down. These tall fescue areas did nothing to benefit wildlife and it became a roadblock between the two sides of the farm. While turkeys could often be seen strutting and feeding in these areas, they offered little food for the birds, and zero cover for them. They also would be unpassable to young quail chicks and turkey poults, and even mature quail when thick. The large acreage of fescue in the center of the farm did look nice to the untrained eye, but to folks looking to promote wildlife it was a missed opportunity to create cover and

forage opportunities, and greatly reduced the landowner's ability to sustain healthy populations of game birds.

Managing expectations in goal setting is also wise. If a landowner wants to perennially produce 150" bucks in a county or area that very rarely, if ever, has done so, this can be a tall order. I try to always remain positive in the pursuit of goals, but also want to keep them based in reality. I am certainly a "if there's a will, there's a way" type of guy, but at the same time recommend keeping the goals realistic in order to prevent burnout. With this being the consideration, I advise the setting of short-term and long-term goals. A good example of a short-term goal would be that if a landowner just purchased a 50-acre property, was on a limited budget but wants to get the property in good order for the approaching hunting season in a few months, let's get some supplemental food plots in place where we can to provide wildlife viewing and hunting for fall. Be sure not to bite off more than you can chew and install plots where they make sense and in the proper manner. Get to know the property that fall and gain understanding of your equipment situation and what it will take to reach your long-term and short-term goals.

A good example of a long-term goal would be to create diverse and varying-aged timber stands on your property. Timber takes long periods of time to grow back after harvest, and harvest alone presents its own challenges of dealing with loggers, debris, reforestation, site prep, and tree planting. To be conducted properly, managing timber takes a well thought out plan and time to be executed properly and goals realized.

Choosing A Property

Now that we have our goals set, we can choose a property that has the potential to achieve them. Choosing a property with wildlife potential could be an article in itself but I'll mention a few thoughts here to consider.

When it comes to purchasing property for wildlife, one of the most important factors that I see often overlooked is the farms and land that surrounds it. This factor's importance is compounded by the size of the property as well. For example, if you are buying a 500-acre farm you'll have the land to manipulate and therefore control more of the wildlife usage of the area compared to a 50-acre piece. If your desire is to grow and harvest mature bucks or promote wild quail populations, it's vital that the surrounding habitat and landowners are suitable and like-minded for this to become a reality, especially on smaller acreages.

Another consideration I see that's often not thought through is "can this property be manipulated to provide that habitat required to reach my goals for wildlife?" Example being that deer certainly, but really all forms of wildlife, need quality year-round forage to thrive. Deer in particular have requirements such as high-protein content in their diets at certain times of the year, and often native habitats can't meet those needs. As a wildlife manager we tend to plant supplemental food plots in order to be sure that deer and other wildlife species never go without quality forage and specifically target these plantings to provide a food source in the lean times of native forage production. I've worked on and cruised many farms that don't have enough acreage of open land to create food plots. The reasons vary, but a common one is that the land

isn't flat enough to be suitable for planting. The areas of flat land on some properties can be so limited on some farms that any forage planted there quickly gets eaten up and has no real effect on providing nutrition to wildlife. Also, did the landowner max out his budget on the purchase of the property, and if fields aren't in place, do we have the money to clear and create them? Does the farm, or only fields/openings on the farm, consistently flood each year and therefore limit our ability to provide forage in them? Another example would be the timber existing on the property. If the property is a 50-acre clearcut with very few, if any, mature trees on it, a turkey hunter will have very few opportunities to have turkeys roosting on his farm until the trees that are replanted have time to provide the proper height and branches for turkeys to utilize them to roost. Setting your goals first and matching the correct property to them will greatly speed up the process in realizing them.

Make A Plan

As I mentioned earlier, I get to cruise a lot of unique and interesting properties dedicated to the production of wildlife. Sometimes these properties are still under contract or have just been purchased when I get to consult on them. More often than not though I'm brought in by a landowner that's owned the property for a while, and he's started to manipulate habitat and work the farm to increase wildlife. A trend that I often encounter is the obvious lack of a plan in the work that was conducted in the past and even the present. I often see field creation and timber management work that doesn't make sense to meeting the landowner's stated goal. Tree plantings, digging of ponds, permanent stand placement, trails, placement

of sheds or home sites, etc., all can often be seen with the obvious lack of planning to reach a goal. The really unfortunate aspect of this lack of planning is that once some of those permanent attributes are put in place, (cabins, barns, timber cutting, etc.), they are often very hard, if not impossible, to correct and leave landowners facing the harsh reality that they will have to start over to an extent or the goals they have set can't be realized if their current land usage or situation continues. A few examples would be field and food plot creation and placement. I can't tell you how often I see food plots, or even native plant fields, that naturally congregate deer and make for excellent hunting sites placed on the farthest point of access on the property. What ends up happening is that deer in particular will use these areas heavily and often in daylight due to their seclusion deep in the farm. Hunters often see this activity via trail cams and will walk all the way through their whole farm to hunt these secluded fields at the back of the property. In doing so, allowing their wind to blow throughout the farm, deer seeing them get in and out, as well as leaving a long scent trail to and from the stand. Even worse, there is no safe area to blow your scent in these secluded plots, thus alerting deer at a high rate to the hunter's presence. By planting and hunting these fields at the back of the farm, a hunter is not only affecting that small hunting area but is also pressuring the whole farm in his entry and exit by his scent, sound, and physical presence. This issue could easily be prevented by creating these plots or openings toward the front of the farm, making them much less intrusive for deer and allowing the deer to feel safe in a larger portion of the property.

Another example is having a cabin or building deep into the body of the farm. I've seen many properties that have structures and road systems deep into them and make it very hard to provide animals with a safe space where they rarely are bothered by humans on the property. This effect is much worse if a client doesn't live on the farm full time, allowing the deer and other wildlife to be conditioned to the coming and going of vehicles, equipment, and ultimately people at the homesite. If the sight and sound of vehicles around the house equals hunting pressure to animals, they will quickly respond negatively to a vehicle entering the farm.

Planning for the financial requirement of managing property to reach your goals is also needed. Equipment, fuel, fertilizer, herbicide, seed, etc., all are expensive and can add up quickly. If faced



Enclosed blinds are a fantastic addition to any hunting property due to their ability to allow multiple hunters to hunt together, scent capture, all weather use, etc. That said, these blinds should be considered a luxury and, in most cases, should be purchased after more important equipment or improvements are completed on the farm.

with the decision to buy a 100-acre farm but you won't have any cash left over to manage it properly versus a 75-acre farm with cash to manage it, I would take the smaller farm every time. Also consider how your budget is spent. If you spend a large chunk of your budget on enclosed permanent blinds and can't afford to plant food plots or conduct prescribed fire, was your budget best utilized to reach your goals?

Make sure your habitat work is executed in proper order and included in your overall plan. For example, if the Mid-South we frost seed, prune, and plant trees, and conduct TSI in January-February. This is the best time to conduct these practices and also doesn't interfere with hunting seasons or spring/fall planting times. We plant spring plots in the months of May-June typically with September and early October being ideal for fall plots. We install permanent blinds in the summer as well as creating new fields and access trails, etc. All this work falls into its planned time frame for best results and hunting seasons to limit conflict with other chores. Having a yearly plan such as this really helps to make your management time productive and ensures the work gets done.

Also, don't be scared to ask for help. Bring in experts in their field to build a plan for your farm and to help execute it, if need be. Most states have county foresters, agricultural extension agents, biologists, etc. that often will come out and cruise your property and consult with you on best practices. These folks are paid by your tax dollars, and I advise my clients to take advantage of this knowledge. Also, there are private consultants such as myself that charge for time and travel to inspect your farm and, in

most cases, provide a detailed plan on how to manipulate it to meet your goals. I have seen countless scenarios where I've been able to tweak a landowner's plan and allow them to achieve success where they have been struggling to do so. I've also been able to get new landowners on track right out of the gate, allowing them to save time and money in their journey of land management. Knowledge is power and bringing in experts to help build a plan is a great idea. That said, bad advice is expensive so choose your sources wisely.

Equipment

Choosing to purchase the right type, size, and quality equipment to match your property and capability is also very important. We have our goals set, have found our property that they can be achieved on, and have come up with a plan to reach those goals. Now match your equipment that will be needed to conduct the work to fulfill your plan. We all have a budget to stick to, but I always advise buying quality equipment and building up everything you'll need over time. A tip I give to landowners on equipment is to be sure we have what we need to complete tasks but not break the budget is to consider the most vital piece of equipment they need on the farm and start there. Should they rent or buy? If a landowner has a 100-acre piece and wants to plant 10 acres of food plots annually, maintain trails, install enclosed blinds, mow, etc., a vital piece of equipment to complete these tasks would be a tractor. The perfect size tractor for this work will be in the 40-60HP range. This size tractor is not too heavy so that it's hard to trailer from place to place and also that it won't make a mess of wet farm roads during the wet winter season on the farm. If the ability to move



Prescribed fire, when implemented properly and with a goal in mind, is an excellent tool to manipulate plant species growing on a site and further the diversity of vegetation types and ages.

brush piles or down trees, and even installation of elevated blinds is needed, adding a front-end loader to the tractor is a great idea. I also personally prefer a four-wheel drive tractor for food plot and farm work. Having the extra traction it provides is often needed around the farm and especially for food plot work. These type and size tractors often range from \$25-60K depending on the age and options selected on them. This large purchase often can take a large bite out of a manager's budget and can make the option of renting a tractor more attractive in the short term. Although I would advise that, owning a tractor is certainly the best option for long term use on the farm. With that said, renting implements for a tractor that only get used once or twice a year can be a great idea. An example I often use is the renting of a no-till drill to plant food plots. These planters can often be rented at private tractor or equipment dealers, local soil and water conservation offices, or organizations such as a local cattlemen's association. For the example given of a 100-acre property that's planted twice a year, a no-till drill



Equipment such as a tractor is typically needed for a wide variety of management chores and practices on a farm. This normally leads to them being a wise purchase, but often implements such as the no-till planter above, are used on an annual or semi-annual basis and can be rented.

can be utilized and easily plant 10 acres in one day. If the drill rental is \$200 a day, that's \$400 a year for its use with no up-keep or maintenance required by the user. A new no-till drill can easily be \$20k+ for a 6' model and will take many years of use to pay for itself. Also, that 40-60HP, 4WD tractor can easily pull a 6' pull type planter, allowing renting a drill to be a viable option. Other equipment to manage food plots, such as sprayers, spreaders, and tillage equipment can be matched with the plan for your specific property to see if they are warranted. These items are less costly than a tractor or planter and can be accumulated over time. Another example of purchasing versus renting would be the need for clearing work, such as a skid steer with a mulching head, or excavation work, etc. to be conducted. After seeing this equipment can be many thousands of dollars, it's easy to see that renting or hiring this work done can be much more economical, especially

considering work such as this is often a one-time deal. Equipment such as chainsaws, drip torches, side-by-sides, and ATV's can also all have the same logic applied to them as the forementioned above. Match what you need most to your specific property's plan and you'll be much better off versus collecting random pieces of equipment that may not be needed or rarely used.

Creating Diverse Habitat

As I visit and work on properties across the Southeast, I often notice a lack of diverse habitat types on the landscape. Even on highly managed farms there is a tendency, it seems, for folks to set their sights on promoting a target species to reach a certain goal, and this often can result in a type of habitat monoculture on a farm. An example of this would be if a landowner's main goal was to grow and harvest mature bucks. He has 10 acres of food plots on his farm and timbered the remaining acreage in

order to create thick body cover for mature bucks to feel safe in and bed often. This is a great start by the landowner, and this will go a long way to meet his stated goal with his food plot acreage and timber work to create thick bedding. That said, the large cutover, while often having a diverse amount of plant species growing in it, will represent one type of cover and often provide forage opportunities mainly limited to the growing season. In an effort to create diversity it would be wise to leave a portion of the timber to remain in mature trees and, if possible, species such as oak and nut/forage-providing species for wildlife. Those trees will also provide shade when needed, thus providing summertime bedding as well as different forage selections that grow in mature timber. Also, should we section off a portion of this cutover that won't be reforested and allow early succession to take over and provide an increase of diverse forage and bedding oppor-



Providing diverse habitat is vital when building and maintaining a wildlife property. Open fields of nutritious and high-quality plantings that are often referred to as food plots can further diversify a property.

tunities? If so, does it make sense to install a burn block in that area to manage the plant communities and successional stage with fire? Some mature bucks are often seen selecting bedding habitats that consist more of native grasses versus the brushy habitat of regenerating forest, such as the large cutover. Is the planting of native grass fields a good idea and is there a suitable location to do so? All of these questions and practices should be considered and completed in an effort to create diverse habitat they prefer, but all wildlife thrive in diverse habitats of mature, middle-aged, and young timber mixed with open fields, quality planted forages, grasslands, brushy areas, etc. When buying, planning for habitat work, or just assessing your own property, the promotion of diverse habitat is key.

Conclusion

We have barely scratched the surface of what it takes to climb the wildlife habitat staircase, but the key points mentioned in this article will all play a big role in helping a manager do just that. Setting goals, taking an honest assessment of the property and your budget, acquiring the proper equipment, and ultimately creating diverse habitats will go a long way to getting your farm in tip-top shape. Also, and again, knowledge is powerful. Never stop learning and don't have too much pride to ask for help. Good luck and manage away!

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Habitat Arrangement And Patch Size

Ted DeVos



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Retaining and protecting hardwood bottom lands is important for those species that need and use hardwoods extensively like deer and turkeys and increases habitat diversity.

The concept of what and how habitat is used by wildlife is poorly understood by many hunters and managers. You often hear anecdotal information about how particular animals utilize habitat types but rarely hear how much of that habitat type is available to these animals. Countless research papers describe “habitat use vs availability” or “habitat selection” in scientific literature and this is usually the realm of this information, with little filtering down to the landowner/manager in understandable terms.

Wildlife researchers gather, analyze and study this information to figure out if wildlife search out certain habitat types or avoid them and in what seasons are they useful. Essentially, habitat selection is how much an animal uses the habitat types available to it, (within its home range), relative to how much of it is available. Habitat can be selected for or against and even

though a particular animal or species might use a particular habitat type much of the time, they still may select against it if there is an abundance of this type.

A rough and NOT statistically valid example will illustrate. A hen quail and her brood live in 100 acres of open pineywoods interspersed with ragweed fields. Fifty acres (50%) of the pineywoods were burned in the spring and 30 acres (30%) were left unburned for nesting cover. There are 4 ragweed fields totaling 20 acres (20%). They find that the brood spent 33% of their time in the burned pineywoods, 33% in the unburned woods and 33% in the ragweed fields. They are selecting against the burned woodlands because there is so much available despite the fact that this habitat type is well used and an excellent habitat type for quail broods. Consequently, they are selecting for the ragweed fields because it is also

well used but is available in more limited supply. They are neither selecting for or against the unburned woodlands because it is being used in the same proportion to its availability. It would be a common mistake to manage all 100 acres of this area in one habitat type, such as ragweed, because quail are selecting for it. However, this would create a lack of good cover, nesting habitat and food resources by managing this one, good habitat type. Weekend managers often see usage of a habitat type and decide to manage strictly for this one need to the neglect of all other seasonal and daily needs.

This is the general concept, so how does this apply to land management? First and foremost, we try to manage properties within a framework and plan that sets management priorities regarding timber and wildlife. How a property is



Fire, even in hardwood or mixed hardwood pine, is the cheapest and most efficient way to maintain and increase diversity and habitat quality for wildlife.

structured and arranged in various habitat types will have a lot to do with whether timber is the main priority, wildlife is the main priority or if there is to be some median where both are integrated. Habitat structure will also have a lot to do with which wildlife species are to be managed for or given priority. For instance, managing for grey squirrels will entail a lot of bottomland hardwoods and mixed pine/hardwood stands with occasional burning. Management for Fox squirrels, however, will entail a lot of open, burned mature pine stands with a smaller percentage of hardwood and mixed pine/hardwood and a lot of burning.

Managing to maximize timber on a property is fairly straight forward and if wildlife is a low priority, habitat structure will not need a whole lot of consideration. Habitat structure based on wildlife species, and especially multiple wildlife species, takes a lot of forethought and constant modification. The problem most often encountered is when landowners and managers try to manage for the types of habitats

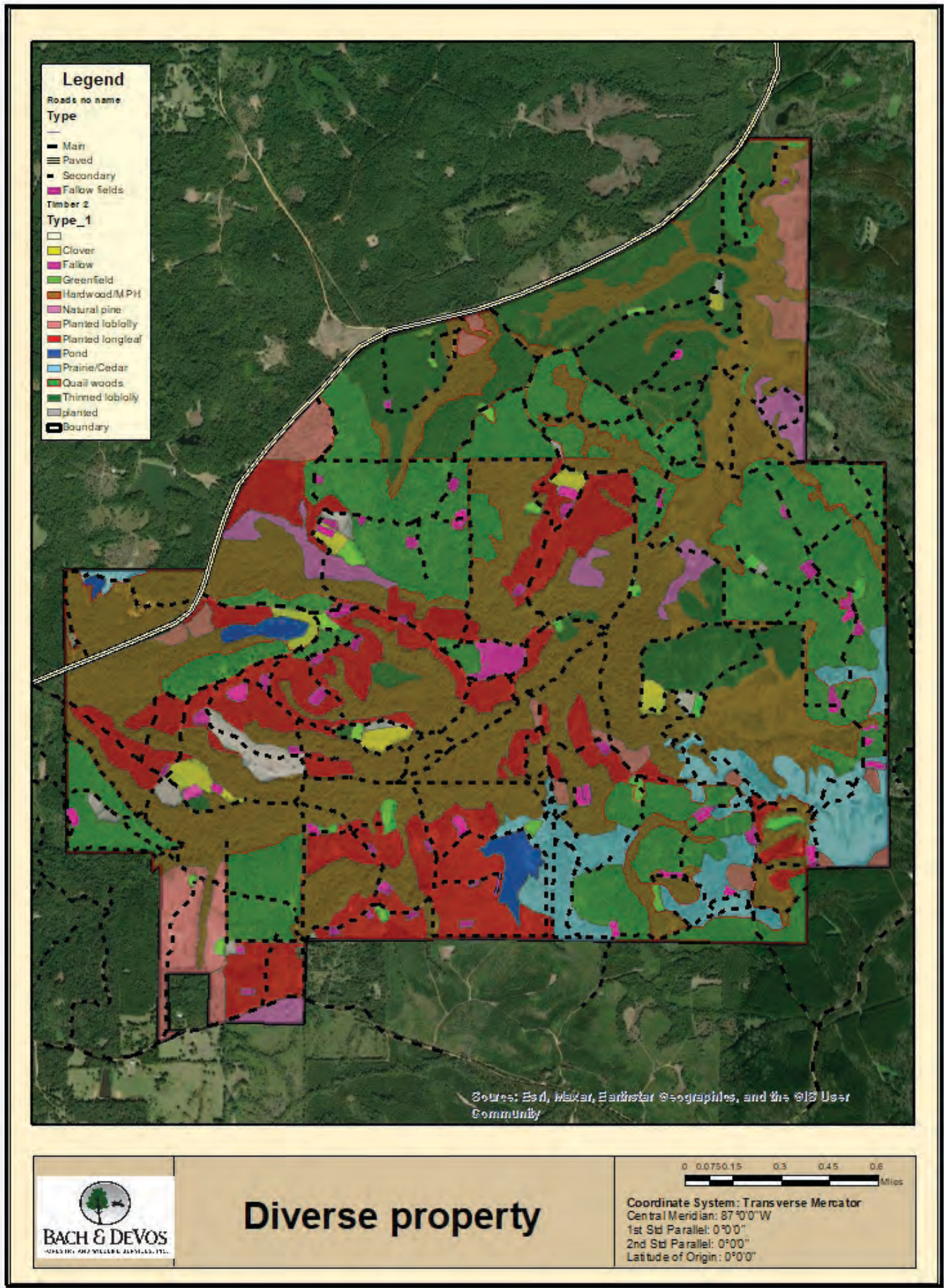
that they see particular wildlife in and forgetting those types they don't see them in. This often leads to having too much of what people think they need (or having too much of a good thing) and not enough of what they really do need. It also leads to an over-reliance on a few management practices and a lack of habitat diversity. Properties with a homogenous

stand of mixed, unburned pine/hardwood and well managed fields are a common example. I think we have all been guilty of this, I know I certainly have.

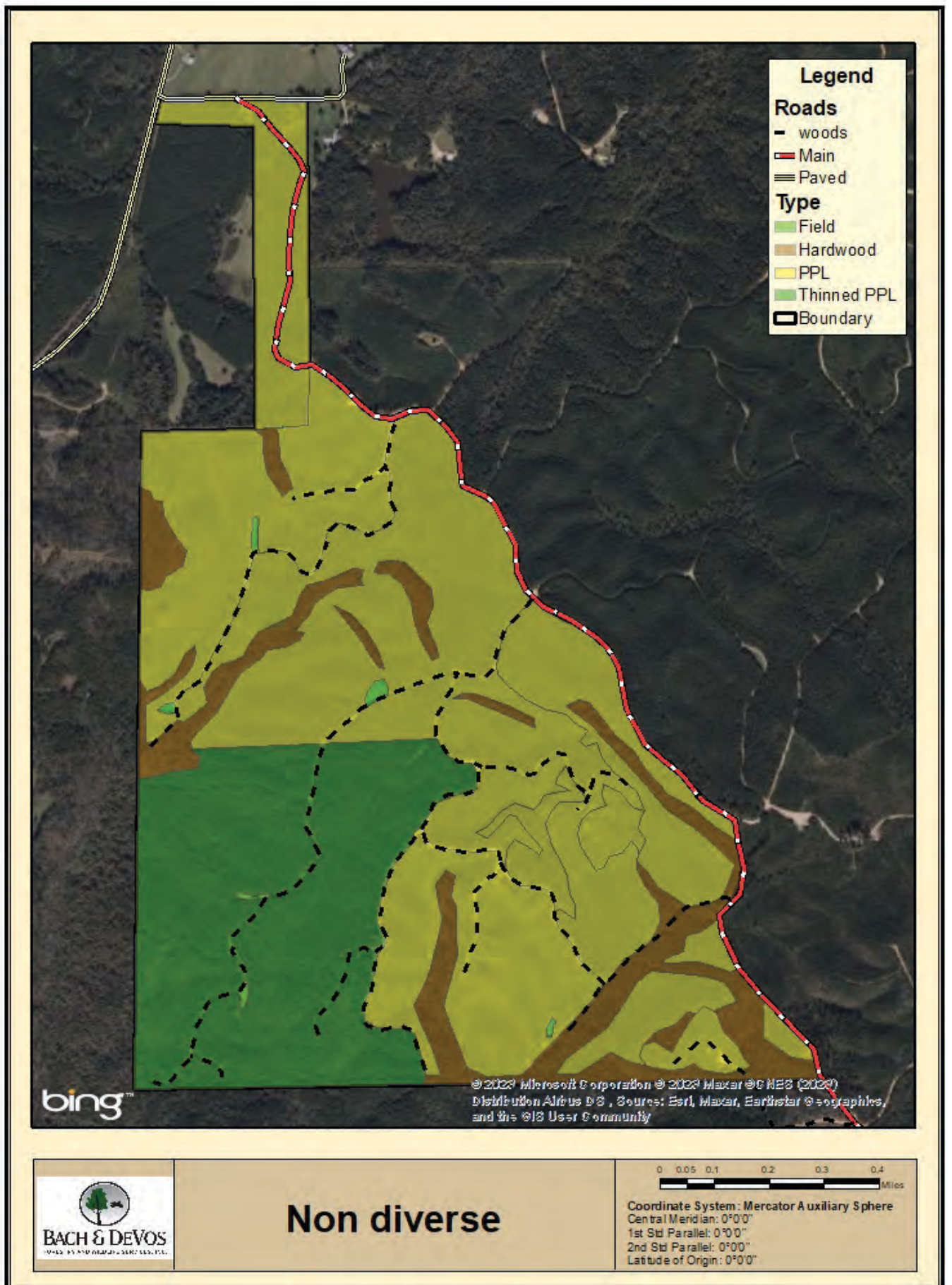
A common example is “deer need thick areas to bed in, especially bucks”. While it is true that bucks will often bed in thick, brushy areas, they still need a higher percentage of their habitat that is managed for browse/weed production and deer populations need abundant, grassy bedding areas for fawns to ensure high survival and protection and this is not thick/brushy areas! We often look at properties that are managed for deer that are covered with rough, grown-up clearcuts, unburned, overstocked and shady pine or pine/hardwood stands that provide nothing for deer except “thick buck bedding areas”. Inevitably, these properties have too many deer for the habitat quality, (although they may not have a lot of deer), and are often too thick to hunt with anything but a bow since you can't see farther than 30 yards anywhere but open fields. Deer in these areas usually rely on agricultural plant-



Even hardwood stands of white/post oak can be thinned and burned to create a wildlife friendly and aesthetically pleasing environment that provides cover and food.



An example of a highly diverse, well managed piece of property where the seasonal needs of most species of wildlife is available throughout the property.



An example of a common problem of a low diversity property with few habitat types available.



Diversity in habitat types allows critters to use habitat types as they need them seasonally. Here, burned pineywoods for brood habitat sit next to unburned woods for nesting and cover.

ings for the majority of their food except for winter acorns and the amount of deer this habitat type can support is usually low. Our recommendations are usually to thin the pine stands, burn all pine and pine/hardwood stands and generally “open” the place up. In essence, start creating more grassy/weedy woodlands for native food production and prime, highly selected bedding areas for does and fawns. Not only can you see and hunt the property better, but you then have the ability to carry a higher population of healthier deer while still maintaining scattered “thick bedding areas for bucks”. In the initial scenario, even though managed for thick bedding areas, bucks would probably be selecting against thick areas, whereas after modifications, they would probably

be selecting for these areas, which would also make hunting them near these thick spots more productive.

In a case like this, both habitat and availability need to be modified so that there is an opportunity for deer to exhibit selection and preference. When the habitat is too thick and homogenous, there is a loss of diversity in habitat types. Any grassy openings would be highly selected for by does with fawns for bedding as well as feeding on the weeds available there and over-browsing is probable. Once a property is broken up with a variety of habitat types, there is less pressure put on any one habitat type. The theoretical objective is to have all habitat types used in proportion to their availability, although this is an

impossibility considering the year-round needs of any one species like deer. It is especially impossible when considering multiple species management like deer/turkey/quail. It should still be a goal to provide all habitat types in proportion to their seasonal needs.

Another example we commonly encounter is that “turkeys like hardwoods”. This often leads to us visiting properties that are solid hardwood and pine/hardwood. Quite often, pines are allowed to either die out in the upland stands or are cut out in a thinning, leaving the hardwoods to take over the site. Winter flocks of turkeys commonly frequent the property but, come spring, there is a lack of gobblers and few hens are encountered. The few nests that are found are in old

fencerows or a small opening or beetle spot where there is a remnant patch of broomstraw and blackberry leading to the conclusion that turkeys like to nest on the “edge” near an old fencerow or beetle spot. Classic misinterpretation of habitat selection vs availability! In reality, turkey hens would prefer to nest in the middle, or at least farther from the edge, of a grassy woodland near a small thicket or blackberry patch where their nest has a lower chance of being found and eaten by a coon but in this case, that option was not available.

In a case like this, the reason the turkeys are not there in spring is that the hens left to find nesting cover somewhere else and the gobblers followed – the punishment for not providing available habitats of the type that turkeys need and managing for one aspect of turkey life history. The solution is to break up the habitat types and open up the property. Turkeys need grassy pine woods for nesting, hardwoods for loafing and winter food sources, open fields for breeding and strutting, etc. They tend to move to the uplands in spring anyway and often begin roosting in large pines in spring. Our recommendations in a scenario like this is often to restore the pine stands, either through thinning or planting and get upland woods open and burned to create good nesting and brood rearing cover. What is sometimes met with skepticism is the recommendation to cut most of the hardwood out of the upland pine stands! We do, however, tend to leave a nice mix of fire-tolerant hardwood, (white, southern red, post oaks, etc.), in burned pine stands.

Using fire and burn block size also is a good illustration of this concept. Managing and burning private lands is mostly focused on

particular objectives. Burn type, season and block size is different depending on which wildlife species is being managed for or the predominant habitat type. For instance, on quail managed properties, burn block size must be small, however, 40-60% of the pine woods need to be burned each spring. In addition, most of the managed habitat in this scenario is open pine woodlands. Managing for deer and turkey takes a difference approach as these creatures are more mobile and a more significant amount of hardwood is usually managed for.

The variable is home range size. With most wildlife species that are not highly mobile, all efforts must be taken not to burn their entire home range. For ground nesters like turkeys and quail that have well established home ranges, burn block size is highly important. If their entire or the majority of their home range is burned in a given year, they may not nest or are put at an extreme disadvantage in survival and hatching off a successful nest. They will often not move out of their known core area to find better conditions.

For quail as an example, home range size can be as much as 200 acres year-round but seasonally, home range may be only 30-40 acres. Researchers at Tall Timbers found greater nest success, survival, and reproduction and smaller home ranges on sites that had burn block size of 6 acres vs block size of 20 acres. Other studies have noted higher mortality, especially from hawks, in areas that had large burn blocks compared to smaller block burning. In the case of quail management, burn blocks of 10-20 acres is probably optimal from a practical standpoint.

Looking at wild turkeys, their home

ranges can be as much as 3,000 acres or more annually and hens can have ranges of several hundred acres in spring when nesting. Similar to quail, burning out all of a hen’s home range prior to nesting is ill advised but having some of their range burned each year is beneficial for turkey poults after hatch and is heavily used by foraging hens. Research using modelling of telemetry data, found that turkey use of burn areas was greatest in blocks of 60 acres and least at the top end of the burn block scale of 3,000 acres in a research project using data from across the south-east. For turkeys, burn blocks in the range of 20-100 acres is probably acceptable with the smaller scale being better.

Obviously, when managing for a particular species, concessions must be made between the best burn block size and the practicality of burning multiple blocks. On 2,000 acres of private quail land for instance, it is practical to burn 1,000 acres in 50 blocks of 20 acres each separated by unburned blocks. This would also be beneficial to both deer and turkeys. On a national forest, for instance (let’s say 84,000 acres), where landscape scale management is occurring for longleaf ecosystem restoration and red-cockaded woodpeckers this may not be practical.

The issue in any of these scenarios is that any burn over 40 acres isolates quail in an area with complete lack of cover. Any burn over 200 or 300 acres isolates turkey hens or does in complete lack of cover. This is probably most important for a species like quail that have inherently high mortality already and removing cover in the spring not only removes nesting cover but protective cover at a time when migratory hawks are at near annual highs.



Even though a plant like partridge pea is excellent for wildlife, too much of a good thing can be bad. Thinning and soil disturbance made partridge pea the dominant plant in these woods losing nesting cover value and decreased habitat diversity.

Size is important but shape can make up for large blocks. A narrow 200-acre block that is 150 yards wide at max makes up for its large size. Mixing in smaller blocks, burning at different seasons and making sure to leave unburned blocks next to burned blocks is the best way to make sure to provide not only protective cover after a fire but to make sure that nesting cover is available for nesting hens.

The take-home message is that it is easy to create too-much-of-a-good-thing in wildlife management. Quail like Partridge peas and bicolor lespedeza, but 50 acres of Partridge peas or bicolor are terrible for quail. Turkeys like bahaia fields, but a 100-acre bahaia field will get used very little in propor-

tion to its availability. The concept must be to create a diverse structure of habitat and timber types scattered throughout the property. If you are doing optimal deer and turkey management and do not occasionally see a covey of quail, you are not doing as good a job as you could. We often use quail as an indicator of good habitat and, typically, what is good for quail populations is good for deer and turkey as quail require a more diverse and high-quality habitat of any species commonly managed for. The grassy woodlands quail spend most of their life in are optimal for deer bedding, fawn production, browse production as well as turkey nesting, feeding and spring strutting grounds when burned. The thicket cover quail require are often those

areas bucks bed in and turkeys use to loaf in the heat of the day. Less than optimal deer and/or turkey habitat can often be void of quail, but optimal deer and turkey habitat WILL have quail in it and turkey and deer will have a variety of habitat types to select from depending on the season of the year.



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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.

Annual clovers are excellent re-seeders and with proper management can produce another great food plot this fall.

Ensure doe harvest goals are met.

Based on observations during my travels this fall, many areas of the Southeast have experienced another abundant crop of acorns. Deer populations in these areas will have increased fawn production and survival. This means that increased harvest may be needed on some properties to maintain deer populations at desired levels. A very simple law of nature taught in college Wildlife Population Dynamics courses is that $\text{Population Growth} = \text{Births} - \text{Deaths}$. Thus, with an increase in "births", (more fawns), some managers will need to increase harvest rates unless growth is desired.

Ideally, it is best to harvest does early in the season and/or before

the rut. Doing so will save food resources for remaining deer and immediately improve the sex ratio for the upcoming breeding season which will conserve energy for your deer herd. An unbalanced sex ratio will result in an extended breeding season where bucks can lose up to 30% of their body weight from excessive breeding activities. Consequently, under these conditions, bucks enter spring needing to recover. The highly nutritious spring food then goes towards body maintenance verses body/antler growth for the following year. The extended breeding season associated with an unbalanced sex ratio also results in poor hunting due to the lack of breeding competition. That is, there are so many does that bucks do not need to compete. In this case, hunters generally do not see much breeding activity such

as chasing, rubs or scrapes. We often refer to this as a diluted rut.

By the time you get this issue of *Wildlife Trends* it will be late in the hunting season in most states. If you have not met your doe harvest goals, get to work. If needed, recruit the help of friends. Holding a "doe harvest weekend" is a great way to get participation from club members or friends. Make a big deal out of it by having a cookout at the camp with "awards" for those that harvest the largest doe, oldest doe, or most aggregate weight.

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 and quail habitat. Creating and maintaining quality habitat should be the highest strategy on the list for managing game birds. 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.

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

Fire is an effective 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 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 2-4 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, say 50+ acres, to make a difference and create quality wildlife habitat. Relatively small burn areas in the 5-to-20-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.



Dormant season burns are typically conducted between December and spring green up.

Tree planting activities - start planning, ordering supplies, and planting.

Strategically adding beneficial trees to your property adds habitat diversity, wildlife value, aesthetics, and can be a very gratifying project – especially once the trees mature and you see the value they provide. However, planting trees is more than just randomly plopping trees in the ground. For the best results, plantings should be well thought out with the future in mind. Besides the obvious “where” to plant trees, you need to consider which species are suitable and do well in your soils/climate, how large they get, and future maintenance needs. Once trees are planted, they will require a bit of care to ensure good survival and growth during their first couple growing seasons. Site preparation is important to reduce competing weeds and enhance tree seedling survival during the first growing season. Depending on the situation, an initial mowing may be needed to provide a clean working area and reduce weed competition. There are many species and varieties of soft, (e.g., fruit trees), and hard mast, (e.g., oaks), trees available that will benefit wildlife on your property. I generally like to plant a diversity of trees that will provide various food sources throughout the year. Supplemental tree plantings not only provide additional food resources for wildlife on your property but can provide exceptional enhancements to the aesthetics. Common areas to add supplemental tree plantings include road intersections, roadside management areas, old field habitats, and in or along the edge of fields or food plots. The key is to plant them in areas that will receive sunlight. Some trees require cross-pollination to produce fruit so, if needed, be sure to plant them in small groups. I recommend



Supplemental tree plantings not only provide food resources for wildlife but can enhance the aesthetics of a property.

contacting your tree supplier/nursery, such as the folks at **The Wildlife Group**, well ahead of planting time. They can help you determine which trees will grow and produce best on your property, help you develop a planting plan based on your goals, and ensure the trees and other supplies are ready when you are.

Assess the progress of your management program and create a plan for improvements.

With hunting season winding down, it's time to revisit the wildlife management program on your property to assess whether or not your management strategies are working to help you achieve desired goals. Doing so may reveal limiting factors that may be preventing you from reaching your management

goals or maximizing your efforts. In some cases, addressing a couple of limiting factors that may not seem so impactful can be a game changer for the overall success of the program. Unfortunately, many landowners and hunting clubs keep doing the same thing and expect different results. Depending on the wildlife species you are managing for, late winter or early spring is generally a great time to assess habitat needs, review current management strategies and how wildlife or habitat has responded to these strategies, and devise a plan for addressing any needs that are identified. While a general property assessment is easily done by a landowner, I recommend getting the assistance of a professional experienced wildlife biologist to help identify less obvious and often times overlooked strengths and weak-



Great hunting doesn't happen by accident. Late winter is a great time to assess the progress of your management program and develop a plan for improvements.

nesses of your property or wildlife management program. I can't tell you how many times I have been helping a client where I made what I thought was an obvious recommendation that turned out that they had never thought about or recognized as a limiting factor. My point is that it is always good to get another set of eyes when assessing your property, particularly from someone that does not see the property often and/or someone that is an experienced wildlife/land manager. With the property wildlife management goals in mind, and from this assessment, you and/or your wildlife consultant can develop a list of several to many management activities that will address limiting factors identified.

Depending on the property, this can be a relatively short list or a very long list of activities that need to be addressed. Many of you have heard me say this before, but consistent good hunting doesn't happen by accident. It takes planning, hard work, patience and an understanding that Mother Nature is dynamic and things are constantly changing requiring adjustments in management strategies to reach desired results.

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.), UTV's, 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 projects fall behind 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



Once deer season ends, take time to “summerize” stands to extend their life.

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 tripod stands. 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! Of course, all climbing tree stands and pop-up blinds should be removed from the woods and stored over the summer. When “summerizing” 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.

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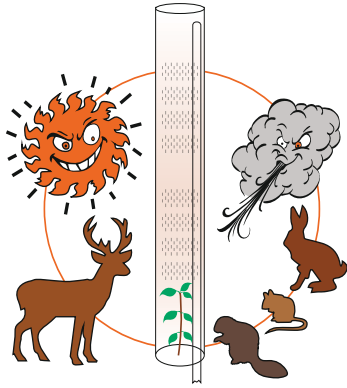
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