PRACTICAL WILDLIFE MANAGEMENT INFORMATION

Wildlife Trends JOURNAL

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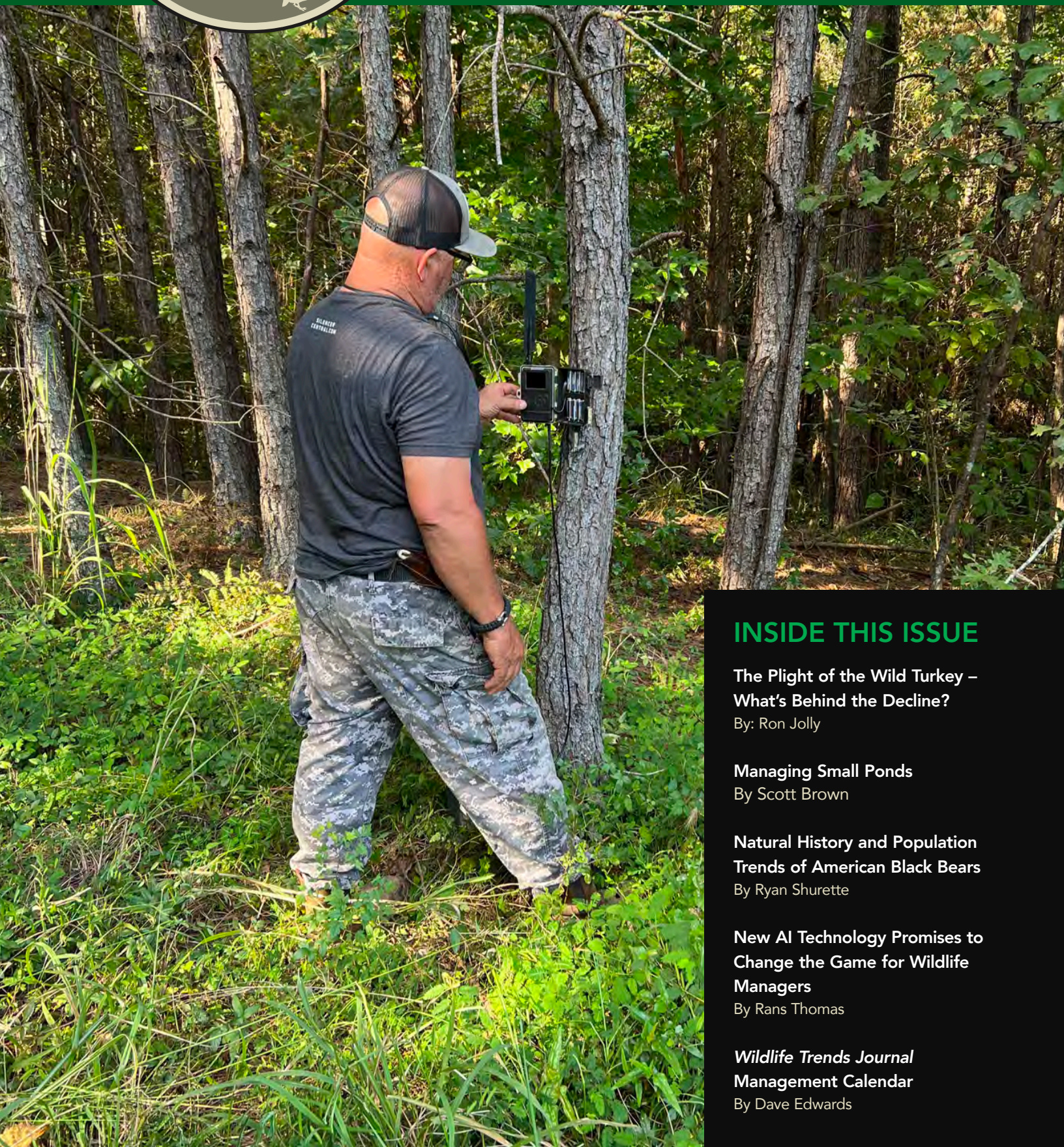

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Earl Says…

I take seriously our pledge to provide, you, our subscribers, the latest research-based information to help you better manage your property. In addition, we strive each issue not to "sell" product or service in our articles. In this issue is an informational article which is about a product by one company. We provide this article to give you the latest information on Game Cameras using AI (Artificial Information).

Rans Thomas is a well-respected and experienced wildlife biologist who is working with HuntPro and tells us about this new tool for landowners. It may save you time and money and help you know your property better.

And Ron Jolly brings us up to date on some new research on turkey populations. We are learning more about gobbling activity through recording devices as well as diseases, fertility and parasites. With these studies, funded by the Alabama Wildlife Federation, Turkeys for Tomorrow, the Alabama Farmer's Federation, and the Alabama state chapter of the National Wild Turkey Federation, hopefully we can help bring back the wild turkey to the numbers we had just a few years ago.

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

PUBLISHER/EDITOR
Andy Whitaker

DESIGN
Walker360
2501 East 5th Street
Montgomery, AL 36107
(334) 832-4975

CONTRIBUTING AUTHORS
Dave Edwards
Dana Johnson
Brant C. Faircloth
Wes and Leslie Burger
Dr. Wes Wood
Theron Terhune
Marion Barnes
Ted DeVos
Bryan Burhans
Keith Gauldin
Rodney Dyer
Dr. Keith Causey
Ron Jolly
Dr. Stephen Ditchkoff
Tes Randle Jolly
Kevin Patterson
Ryan Basinger
G. Ryan Shurette
D. Clay Sisson
Kent Kammermeyer
Allen Deese
Scott Brown
Dr. Larry W. Varner
Jason R. Snavely
Steve Tillmann
Mark Thomas

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

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Cover Photo by Andy Whitaker

The Plight of the Wild Turkey – What's Behind the Decline?

By Ron Jolly

Ron Jolly (ronjolly22952@mindspring.com) is an award-winning outdoor writer and video producer living with his wife, Tes, on their farm near Tuskegee, Alabama. Tes (www.jollysoutddorvisions.com) is herself an awardwinning writer and outdoor photographer. You've seen lots of her work in past issues of Wildlife Trends Journal.

Photo by Tes Randle Jolly.

Everyone knows the cyclical nature of ground nesting birds, especially wild turkeys, is a fickle matter. A good hatch results in a bright future while a poor hatch brings clouds of doubt about the future. Despite the ups and downs of population swings, wild turkey populations across the United States increased and spread from the late 1970's until early 2010's. Then something happened. It was a gradual process that was mostly ignored. When it was discussed, it was generally dismissed as natural ups-and-downs due to the inconsistency of wild turkey reproduction.

In April of 2020 a group of 14 veteran turkey hunters banded together to ask the question, "What is happening to our turkeys?" Those 14 veteran turkey hunters each contributed $300 to form a nonprofit organization named Turkeys For Tomorrow (TFT) and applied for 501(c)3 non-profit status. In February of 2021 the organization received its 501(c)3 non-profit status and began pressing the wild turkey decline issue across the United States.

In September of 2021 Turkeys For Tomorrow announced a partnership with Auburn University, (AU), the Alabama Wildlife Federation (AWF) and the Alabama chapter of the National Wild Turkey Federation (NWTF) with the intention of putting research on the ground in Alabama that might find answers to some of the issues causing wild turkey declines in the state.

Will Gulsby Ph.D., associate professor of wildlife ecology and management at Auburn University, was chosen to lead the research. Under Dr. Gulsby's leadership, another alliance was formed with Michael Chamberlain, Ph.D., Terrrel distinguished professor of wildlife ecology and management, who leads the Wild Turkey Lab at the University of Georgia's Warnell School of Forestry and Natural Resources, and The Hunting Public, (THP), a well known public land advocacy group. The idea was to combine resources and conduct the research on public and private land in Alabama.

The Path Forward

Phase One

Gobbling Chronology

"We've broken the research into different phases," said Dr. Gulsby. "Phase one is the deployment of

A wild turkey hen and her brood taking advantage of a managed clover field. The end goal of this research is to determine why poult recruitment has declined in recent years. Photo by Tes Randle Jolly.

autonomous recording devices, (ARU's), across the state to listen for and record gobbling activity. These results will give us information on flock conditions in regional areas of the state and let us compare gobbling activity on public versus private lands, in various habitats, and in areas with varying hunting pressures. Gobbling activity is also one of the main indicators of breeding activity and will tell us when peak reproductive activity occurs.

These recording devices were deployed on private and public lands across the state to record gobbles. Dr. Gulsby and his team deployed 28 ARU's on private lands in Jackson, Hale, Macon and Bullock counties. Dr. Chamberlain deployed 30 ARU's at Skyline, Oakmulgee and Barbour Wildlife Management Areas. Another 10 ARU's were deployed on a private property and 10 more on a large military base, Fort Rucker, both in south Alabama.

Each ARU was programed to record six hours each morning for four months. In all 56,160 hours of audio was recorded. That data is currently being run through a Convolutional Neural Network,

Matt Day prepares an Autonomous Recording Unit (ARU), are programmed to record audio at specific times each day over a two month period. Photo by Tess Randle Jolly.

Matt Day and George Goto program specific start and stop recording times into ARU's to capture audio during likely gobbling periods over a two month period. Photo by Tess Randle Jolly.

Matt Day uses a climbing treestand to place ARU's above the reach of someone standing on the ground to prevent theft. Climbers are also used to check battery levels and exchange SD cards on a regular basis. Photos by Tess Randle Jolly.

Auburn University graduate students Kevin Ostrander (L) and Matt Day working with a hen turkey captured for the research project. Photo by Chase Grubbs.

Turkeys captured for the research project are fitted with a metal leg band with identification numbers. Photo by Chase Grubbs.

(CNN), at the University of Georgia. This program is essentially a software program that uses machine learning/artificial intelligence, to flag likely gobbles in the audio. The flagged audio is then listened to by human ears to verify the identified sound is a gobble.

The analysis of ARU data will help determine:

- The differences in gobbling activity on private versus public land.
- The effect of hunting pressure on gobbling activity.
- The effect of landscape composition/management on gobble counts.
- The effect of hunting season dates on gobbles heard by hunters.

Phase Two
Disease, Fertility and Parasites

There were other questions that Dr. Gulsby felt if were researched and answered, issues contributing to the decline of wild turkeys in Alabama and beyond might be discovered. Turkeys For Tomorrow and The Alabama Wildlife Federation agreed to fund the effort to answer those questions and plans were made to implement additional phases of the Alabama Project.

The key to the success of phase two was the involvement of turkey hunters across Alabama. Individual turkey hunters volunteered to head collection teams across the state. The team leader recruited friends and acquaintances who agreed to collect harvested gobblers from their area. Hunters could remove the meat, feet and beard from their bird. One wing had to remain on the bird and the entrails could not be removed. Hunters could report their harvested bird online or fill out an identification tag that showed where and when the bird was harvested. They were also required to fill out a hunt details survey designed to reveal how the turkey acted, if he was alone or with other male turkey. Were decoys used and what type? What tactics were used to harvest the turkey. Did they gobble or come in silent? This survey will reveal information that the team hopes will help identify and compare trends from different areas to determine breeding success.

In all, 401 hunter-harvested gobblers were collected in the spring of 2022. Carcasses were turned in from 48 counties or approximately 71 percent of the state. These carcasses will be tested for four fairly common diseases found in wild turkey flocks. Preliminary observations revealed it was obvious that a small number of these birds were clearly diseased. A necropsy will be performed on each bird by collecting samples of bone marrow, liver and spleen. Testing will be done to determine if the gobbler is infected with Lymphoproliferative disease virus, (LPDV), select hemiparasites, (blackhead disease), and/or Reticuloendotheliosis virus (REV) and Hemoparasites.

In addition to pathogen testing, birds will have their testes dissected and tested for fertility. Results are pending at this time but Dr. Gulsby reports a clear difference in testicle size among adult gobblers. It isn't clear if this size difference has an impact on fertility and the gobbler's ability to successfully mate.

Phase two of the study will help determine:

- Variation in fertility of gobblers.
- Disease distribution and prevalence.

Phase Three
Poult Survival, Nesting Success

Phase three of the study is designed to determine:

- Nest timing and success.
- Brood survival rates
- Factors influencing both

In the winter of 2022, twenty mature hens were captured with rocket nets and fitted with GPS backpack transmitters that allowed the team to monitor their activity throughout the spring season. The data collected from those transmitters allowed the team to determine when and where nesting activity occurred and when hens ended incubation.

Of those 20 hens, 18 hens survived and 15 attempted to nest. Of those 15 hens only two successfully hatched at least one poult. The remaining 13 nests were either abandoned or destroyed. None of the poults from either successful nesting survived.

"You have to take it in proper context," said Dr. Gulsby. "We know that turkey reproduction is cyclical with natural peaks and valleys. This was a small sample size from one year, so other areas or future breeding seasons may have completely different results."

In the winter of 2023, the team plans to attach transmitters to an additional 20 hens. "One thing I am excited about is the new battery technology in these new transmitters," said Dr. Gulsby. "Hopefully, it will allow us to monitor these same hens over a three-to-four-year period."

One surprise from the first year's data was that the bulk of nesting activity occurred later than expected. The majority of nesting activity began in mid to late April.

Questions we hope to answer:

- Are some hens better at successfully nesting and rearing poults than others?
- Are some hens more prone to re-nesting if original nests are destroyed?
- When do the majority of hens go on nest each year?

Dr. Gulsby admits this is a small sample size but agrees the results are concerning. Combine these findings from the states of Iowa and Oklahoma who had very similar results in their states and it becomes obvious that nesting success and poult recruitment are problematic.

Dr. Gulsby sums it up by saying, "One thing I want to stress is that, as hunters, we need to stop looking for that one big answer that explains the decline of wild turkeys. Most likely, it's due to a combination of factors. Those factors might be different in different areas, even different combinations of factors from one location to the next might be to blame."

PROJECT EXPANSION

Turkeys For Tomorrow, the Alabama Wildlife Federation, the Alabama Farmer's Federation, and the Alabama state chapter of the National Wild Turkey Federation recently agreed to increase funding for ongoing research in Alabama led by Dr. Will Gulsby at Auburn University. The multi-faceted research project includes objectives related to determining factors driving gobbler abundance and distribution across the state, gobbling activity and timing, nest success and poult survival, gobbler fertility, and the prevalence and distribution of wild turkey diseases across the state.

Key components of the project expansion include increasing the number of autonomous recording units (ARUs) across the state, increasing the number of sites where ARUs are being deployed, capturing and GPS tagging additional hens to determine nest success, poult survival, and factors affecting those, and providing additional funding for disease and toxicant exposure testing. Researchers will also attach micro transmitters to a limited number of poults in each brood to obtain better estimates of poult survival and cause-specific mortality, similar to ongoing work in other states.

This work is in addition to the three-year Alabama research project AWF and TFT agreed to fund last year. Special thanks to The Hunting Public, the University of Georgia, Alabama Wildlife and Freshwater Fisheries Division, and several generous landowners throughout the state.

"I'm excited and extremely grateful to all the cooperators who made the original project and this expansion possible," said Dr. Gulsby. "The additional funding we received will allow us to examine factors influencing turkey populations across a greater diversity of areas throughout the state, making the results more widely applicable to turkey populations throughout Alabama and beyond. I am also encouraged by the cooperative nature of this research. It shows how much organizations and individuals care about wild turkey conservation, and it's going to take all of us to collect the information we need to reverse the declines we're seeing in some areas."

Managing Small Ponds

By Scott Brown

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

Small ponds under one acre are very common, and if managed the right way can bring years of fun for the whole family. Managed incorrectly, they can create a nightmare and money pit.

We have clients all throughout the Southeastern United States with waterbodies ranging from less than one acre to over 2,700 acres. There are management techniques that will be prescribed/implemented to manage both types big and small waterbodies, and some techniques that will either work on one and not the other, or may be financially unachievable on big waterbodies. For this discussion, small is defined as less than one acre.

Landowners love ponds and lakes on their property, usually near the house or cabin for visual/aesthetics and/or for nearby fishing. Whether you inherit a small pond already on the property that you bought, or you build one, there are management techniques that will help you maximize your small pond's fishery potential. No, you will probably not grow several, if any largemouth bass over 10 ponds in a half-acre pond, but you can grow a few nice sportfish that can share the same waterbody that will provide enjoyable light tackle angling.

If you are starting from scratch and building your small pond, space and budget will usually dictate how big and deep you can make it. I recommend building any lake for quality fish production a minimum of three acres or larger. This allows you enough surface acreage, create a good shoreline slope, and enough depth to grow some quality fish, whether it be largemouth bass, bream, catfish or other sportfish such as the striped bass hybrid.

If you are building your own small pond, consider location, and make sure it will receive enough runoff to stay full. Many times, landowners place the residence near the highest point on the property, then build a pond nearby, but because it is near the highest point, it does not receive enough runoff to keep near full pool all year around. Since it is already small and cannot be deep, you cannot afford it being low every year, greatly reducing the depth of something that is already shallow due to its small size. With small ponds it is hard to get creative with shape, but creating

gently irregular shoreline looks better than a square, rectangle or circle. Make the shoreline slope as steep as possible (3:1 or steeper), to reduce a lot of vegetation from growing out towards the middle. In small ponds, you cannot afford large vegetated areas of habitat like desired in larger waterbodies.

If your property came with a small pond already on it, try and find the year it was built, assess the physical characteristics (exact size, use GPS or Google Earth), shape, depth, shoreline slope, bottom makeup (sand, clay, rock, muck), depth of muck, whether it leaks, water chemistry, vegetation species present, and fishery deemed good, bad, native or if exotic species are present before proceeding. It may already be too shallow to support any quality fishery. There may be a deep layer (foot deep) of organic material (muck) over the bottom causing water chemistry issues, stressing fish, or even causing fish die-offs, and/or preventing fish from having a high spawning success rate. Too shallow, excessive vegetation, poor water chemistry, undesirable fish species such as bullheads, a stunted largemouth bass and/or crappie population, exotics species in the Deep South have taken over, etc. are all reasons to consider a restart. After the evaluation the decision needs to be made whether to work with what you have, or start over, which may require draining, digging out, mechanical vegetation removal, and/or killing out all the fish and restocking. The good news, since it is a small waterbody, all these techniques are much cheaper than when working on larger waterbodies. If a full restart is required that includes draining, consider enlarging it if financially and spatially possible. If the problematic fish species are rough fish such as catfish, bullhead, carp, sucker, bowfin, gar, gizzard shad, and many exotic species, then the water must be drained 100% or lowered as low as it can go and then be treated with Rotenone. These species can survive extreme poor water chemistry conditions and if

Small waterbodies are very fragile and need good clean runoff for the pond to reach its full potential.

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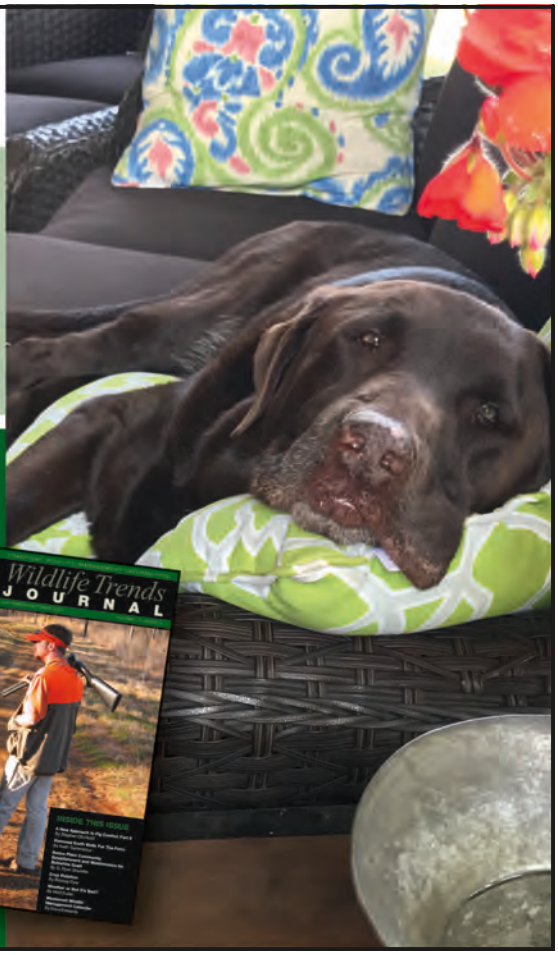

Sometimes a restart is required like in this small pond where it was killed out with the fish toxicant Rotenone, then restocked with fathead minnows, mosquitofish, smallmouth bass, and later small golden shiners.

Offshore fish habitat for small ponds needs to be thick and short as too not stick out above the water during a drought.

not eradicated with a partial drawdown, can quickly repopulate the pond when it refills.

If the pond is under a half-acre, it may be possible to remove any organics or undesirable vegetation with a large backhoe or long-arm dredge, without draining it. However, if the fish are scheduled to be irradicated, draining reduces and possibly alleviates any fish toxicant costs.

Any waterbody should have the pH of its surrounding upland soil tested unless it is receiving an unnatural source of runoff, something was dumped into the pond or unearthed when originally built. If the pH is below 5.5, spreading agricultural lime around the pond should be done. Small ponds, if they can be driven around, can be done by spreader truck, just like a food plot, dispensed out the and side shot out into the pond. We recommend one-to-two tons per acre. You will have to calculate the amount needed for your pond size. If your pond is 0.5 acres and you want to add lime at a two-tons per acre rate, you would add one-ton of lime to achieve the desired rate.

Due to lack of depth, investigating whether surface or subsurface aeration would benefit your pond is advised. Normally, subsurface aeration is prescribed in ponds and lakes deeper than eight feet. However, if your pond is less than eight feet deep and under one acre it may benefit from either or more from one or the other. In smaller, shallower ponds, a fountain will slightly help with aeration in addition to adding day and night aesthetics. Water movement in small ponds prevent them from becoming stagnant and has proved to reduce both planktonic and filamentous algae growth. You should consult a fish management biologist to see which will best benefit your pond and fit within your budget.

If your small pond is spring fed or has a well that can be used short term to keep the water up, you are lucky. In winter, spring water keeps the pondwater temperature warmer and in summer keeps the pondwater temperature cooler than other waterbodies in your area without those influences. This is usually a big benefit as small ponds are usually shallower than bigger lakes. However, remember when using the well to keep water up or to add some heat, it also is void of dissolved oxygen and oxygenating it will be a big benefit since the volume is small in these micro-aquatic habitats.

It is common that an older, neglected, small pond has become

Some vegetation around your pond helps with water chemistry, erosion and can add some forage for bream and other small predators during some times of the year.

There are a few options for slow or non-reproducing sport fish (predators) in your fish population when managing small ponds.

choked out with vegetation such as cattails or other invasive plants and removing them with a backhoe is the best solution. This removes the undesired plant, its root system, and plant tubers with other species, slows down their return, and can also be an opportunity to increase the shoreline slope and/or deepen a shallow pond. In larger waterbodies you want the depth to be 8–14 feet throughout the year, but on most small ponds that cannot be achieved, but 6-8 feet is the maximum as the slope is too great and the sides tend to slough off towards the middle and the pond quickly loses its depth. If a backhoe is not available or cannot financially be used, a combination of herbicide, burning and/or manually removing the nuisance plants will be required. Leaving the minimal amount of dead plant material behind is best in small ponds to reduce muck buildup and/or add to water chemistry issues. Each nuisance plant must be properly identified and proper herbicides chosen to best reduce or eliminate the target species. It may take multiple applications to eliminate an undesirable plant. Applying pond dye in late winter through late fall is also a good technique for reducing growth of unwanted submerged vegetation in small ponds.

Whether a restart or reclamation, introducing desirable, native plant species whether purchased from a commercial supplier or collected from a donor site is advised. Choose slow growing, plants that

Channel catfish are either loved or hated. If you desire them, stock at a low rate and stock every-other or every-third year to prevent a boom/bust situation and create a more natural population where there are always various sizes to catch and eat.

will both add habitat for fish and wildlife, and aesthetics. A good reference source is your aquatics county extension agent or lake management consultant. They can help identify plant species that are native, slow growing and easy to manage in the future, that will not become a problem. There are now companies that offer manmade materials to look like vegetation, lilies and shoreline grasses that never need herbicide application, but still offer fish habitat. Whether restarting or reclaiming, always be aggressive at keeping vegetation managed in small ponds. In small ponds it can get out of control quickly and alter angling, water chemistry and be costly to treat the majority of the pond. Which you will need to do in small sections to not cause a fish kill from low dissolved oxygen. Know the plants you have, how fast they grow and best way to keep them present, but not allow to become a nuisance.

Small areas of offshore underwater fish habitat (fish attractors) can create structure and areas for fish that may not be along the shoreline due to lack of vegetation. It is advised to use only artificial materials to not add more decomposing material to the pond. There are many artificial fish attractor designs online you can build, or companies that sell structure that you assemble and place out into the pond. Remember to use shorter or shortened homemade offshore fish habitat so it does not stick out above the waterline. You do not need a lot, but a couple areas help. Be sure to place underwater fish structure away from your dock if kids will be jumping in. However, if deep enough, it can be placed up under a dock nearby, but not interfering with swimming.

Installing one automatic fish feeder can greatly help with bream growth and increase the pond's carrying capacity for fish. Unless a waterbody is extremely irregular shaped with various coves or sections, we recommend one fish feeder for up to five acres. Feed the pellet size for fish present. If a restart, feed fingerling or grow-out feed the first six months. If no fish consuming feed is larger than bream, continue with small feed size. If channel catfish are present, then feeding a multi-size, floating/sinking feed mix is advised. Do not over feed, too much feed unconsumed can contribute unwanted nutrients promoting algae or other plant growth.

If reclaiming, a fishery evaluation with electrofishing, traps, rod and reel, or seines needs to be conducted to identify what species are present and in what numbers. Typically, small ponds have had largemouth bass stocked on purpose or inadvertently from flooding. This is not a good practice with any waterbody less than one acre. Knowing what is there helps prepare a strategy whether to kill it out and restock or start removing predators and stocking forage. If species such as the Georgia Giant, bullhead, largemouth bass, green sunfish, or exotics are present, then lowering the water as far as possible and killing all fish with the fish toxicant Rotenone should be considered. If largemouth bass are present, there are probably a lot of them, but very small (stunted) so do not add more bass of any genetic makeup or size. Restocking bluegill, redear and/or minnows may be necessary to get the population to where you want it with quality bream, channel catfish or non-reproducing predator/sportfish such as hybrid striped bass or all female largemouth bass.

If you perform a restart either by draining or fish toxicant, only stock

An automatic fish feeder and a sub-surface aeration system help the fishery and aeration improves water chemistry and can slow down algae growth, reducing herbicide use.

species that will grow to quality sizes, but numbers will stay relatively low and the population will not become stunted. Small ponds do best with bluegill, redear sunfish and a few channel catfish. You can try non-reproducing all female largemouth bass, hybrid striped bass or hybrid non-reproducing crappie. These fish still need forage that are specific to their sizes, but they will not reproduce, become stunted and overpopulated. If one of these are tried, stock a low number every other year to recreate a more natural population and not all present are the same age

A 1.5-pound bluegill is always a welcome sight for small pond owners. Kids and adults enjoy catching big bream on light tackle or flyrod for dinner.

and size, and only restock after they are fished out or died from age. All three of these species will feed on bream, fathead minnows, golden shiners and crayfish. In cooler climates, smallmouth bass or trout (rainbow or brown) can be stocked and may meet your angling desires. A bluegill (75%)/redear sunfish (25%) mix stocking at 500 per acre can be performed. Fathead minnows can be stocked at 2,000 per acre (annually or bi-annually). Another option for small forage is mosquitofish, which tend to reproduce and populate better than fathead minnows in most situations. Small golden shiners can be stocked at 200 per acre if a predator species is present. Non-reproducing predators, including channel catfish, should not be stocked at more than 30 per acre every third year. Small ponds can benefit from stocking grass carp.

First, identify the problem plant species and make sure the plant is on the grass carp's preferred consumption list. If not, stocking grass carp can cause more problems than solutions. Stock a low number of five per acre. Again, you will have to calculate the number needed based on pond size. Grass carp are a tricky management tool because they get larger as time goes and eats more as they get bigger, until a certain size, then they start eating less despite their continued growth. Overstocking triploid grass carp will eliminate the problem vegetation quicker, however, that will cause major issues in the future.

In small ponds, harvest is as important as anything to keep the fishery at a quality level. Harvesting big bream is even required in small ponds to allow the remaining individuals to grow, even with a supplemental feeding program. If reproducing largemouth bass are present, removing any bass caught under 14 inches is advised. If any of the non-reproducing predators are removed for table fare, you will have to keep track of harvest numbers and restock when numbers get low from the numbers stocked.

Small ponds can be fun for the whole family, and managed properly, easier than bigger waterbodies, but if neglected, even for a short period of time, they can become a real headache and money pit. Knowing what you are doing or consulting with a quality lake manager who knows small waterbody management is required to maximize the fun you can get from your small pond.

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

— Will Primos

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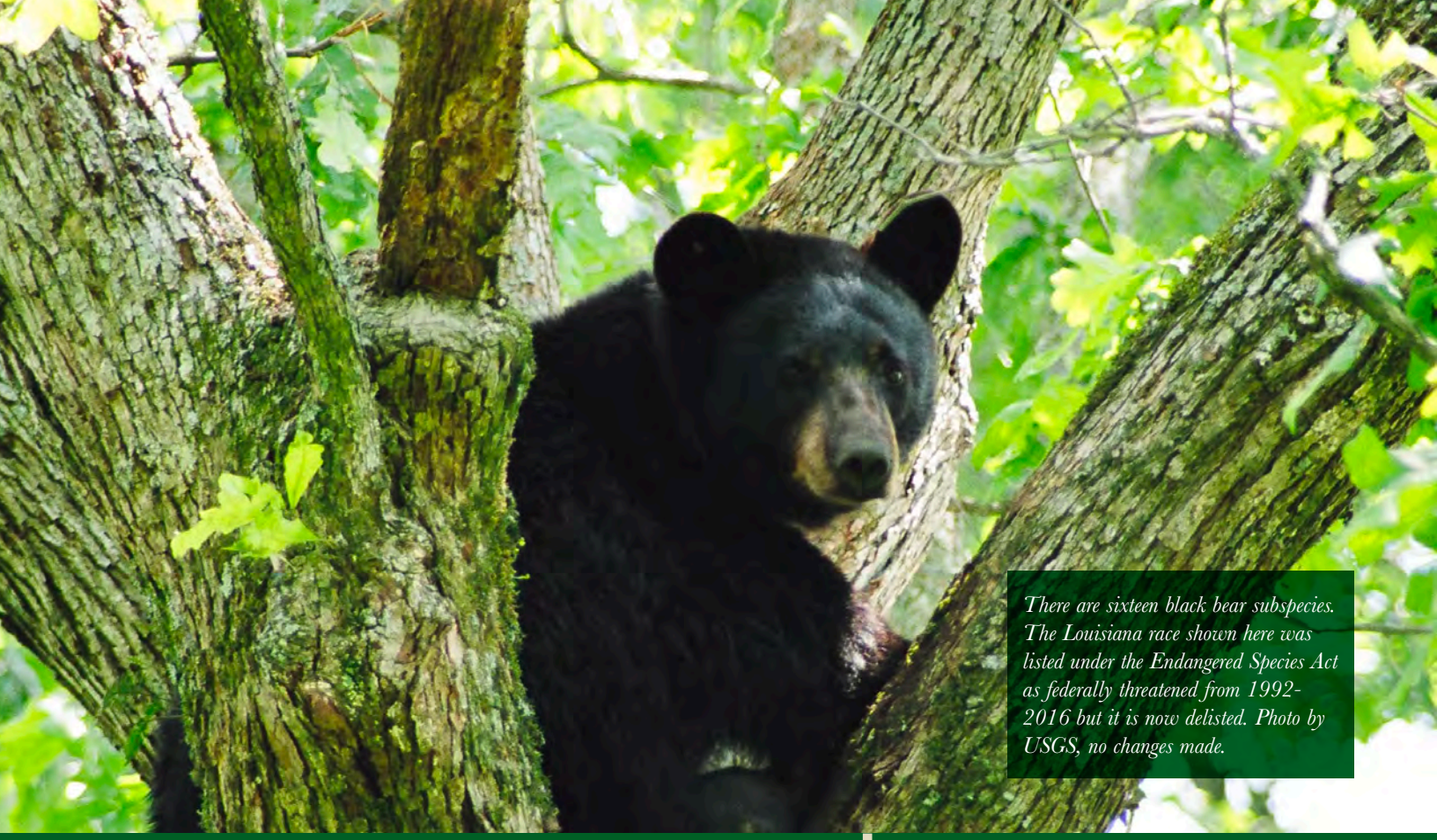

There are sixteen black bear subspecies. The Louisiana race shown here was listed under the Endangered Species Act as federally threatened from 1992-2016 but it is now delisted. Photo by USGS, no changes made.

Natural History and Population Trends of American Black Bears

By Ryan Shurette

Bears are fascinating animals. They have been the inspiration for several famous cartoon characters through the years, as well as millions of cute and cuddly teddy bears. In the real world however, a wild bear is one of the toughest, strongest, and sometimes most dangerous creatures to roam North America. Bears have been a part of this continent's natural history for many thousands of years. Right up until the relatively recent end of the last Ice Age (only about 12,000 years ago), the massive giant short-faced bear was fairly common across most of the United States, even in the Southeast. This purely carnivorous species stood 6 feet tall at the shoulders, almost 12 feet tall when on its hind legs, and weighed as much as a ton. With its huge crushing jaws (that could even access the bone marrow of its large prey animals), they fed on large herbivores of the Pleistocene era, including bison, caribou, mammoths, and ground sloths. It is no doubt that this large carnivorous animal struck absolute fear into the early native peoples who lived alongside the beasts, and they were almost certainly taken as prey from time to time. The short-faced bears began to die out rather suddenly, however, as the massive glaciers began to retreat, along with most of the other Pleistocene megafauna. Now they are gone.

Only the bear species that were able to adapt to changing conditions and human competition survived. There are actually three extant species of bears in North America; the **brown bear**, the **polar bear**, and the **American black bear**. Brown bears are found mainly in western mountain states, Canada, and Alaska. They feed on a variety of prey items including deer, elk and bison calves, beavers, ground squirrels and other small mammals, berries, roots, seeds, herbs, grasses, and fish. **Brown bears** and **grizzly bears** are actually the same species (Ursus arctos) and grizzlies are just a

G. Ryan Shurette is a Certified Wildlife Biologist and Owner/Guide of DragSmoker Fishing Guide Service. Contact him at 256-404-5814.

The typical black bear litter is two or three cubs, but can sometimes be as many as five or six, and they are usually born in a maternity den in winter. The cubs are weaned at around seven months old but remain for another year with the female before dispersing. Photo by USFWS.

subspecies of brown bear. Grizzlies typically live inland in dense mountain forests and meadows, as opposed to foraging along marine and coastal habitats. **Coastal brown bears** (which feed heavily on salmon during their spawning seasons) can weigh over half a ton, while grizzlies typically weigh less than 800 pounds. **Kodiak** bears are another subspecies of brown bear (*U. a. middendorfii*) and they are found only on the Kodiak Archipelago in southern Alaska. Kodiaks are the largest of the brown bear subspecies and, in North America, they are second in size only to the mighty polar bear. **Polar bears** (*Ursus maritimus*) are in fact the largest bear, and largest land carnivore, in the world. They can weigh as much as 1500 pounds and measure ten feet in total length. The polar bear (also called Nanook by many natives) is completely carnivorous and usually feeds on seals and other marine mammals. It has no natural fear of humans throughout most of its range, which makes it quite dangerous to people in those areas. Genetically, polar bears are more closely related to brown bears than American black bears.

The most abundant and widespread species of bear in North America is of course the **American black bear** (*Ursus americanus*). This species is currently found in 32 states and throughout the majority of Canada, as well as northern Mexico. They typically inhabit heavily forested areas but can be found in a variety of habitats including southern swamps and maritime forests along the coastal regions. They are usually absent in extensively open habitats, most likely because they were historically predated in those environments by the larger brown bears. This medium-sized bear species is typically all black in color with a tawny or brown muzzle, and rarely a white chest patch. Some black bears, however, have cinnamon or brown color phases and can potentially be confused with brown bears. But black bears do not have the prominent shoulder hump that is seen in brown bears. And the face (from the forehead to the tip of nose) is essentially straight in black bears while it is stepped down in brown bears. Interestingly, there are also white color phases of black bears. The Kermode subspecies, for example, which inhabits the central and northern coastal regions of British Columbia, can have all white pelage, and this morph is sometimes referred to as the spirit bear. It is estimated that only about 250 bears (about a third of the subspecies population) exhibit the white fur color (Bear Conservation, 2022). Black bears are smaller and less carnivorous than their brown and polar cousins. The average black bear male weight is from 120 to 550 pounds, and they average 4 to 6 feet in total length. Females are typically smaller, with weights on average from 100 to 200 pounds. Like the brown bear, this highly adaptable species also has several subspecies; sixteen in fact. Most of the black bear subspecies are very similar to one another in appearance and are chiefly split by regional boundaries rather than significant physical differences; like the Louisiana and Florida black bears in the East, and the New Mexico and California black bears in the West. Several other races, like the aforementioned Kermode bear, exist across the vast and varied habitats of the Canadian and Alaskan wildernesses. Some of the subspecies are rare, with the Louisiana race being listed under the Endangered Species Act as federally threatened from 1992-2016. Seemingly the only measurable differences, however, in this subspecies and the type subspecies

Black bears typically inhabit heavily forested areas but they can be found in a variety of habitats including southern swamps and maritime forest along the coastal regions. Florida black bear shown here. Photo by Florida FWC, in public domain.

Some black bears have cinnamon or brown color phases and can potentially be confused with brown bears. But black bears do not have the prominent shoulder hump that is seen in brown bears. And the face (from the forehead to the tip of nose) is essentially straight in black bears while it is stepped down in brown bears (adult brown bear shown here). Photo in public domain.

are slight differences in skull and teeth morphology, and it has been argued by some biologists as genetically insignificant. The Asian black bear is even closely related to our American black bear.

Black bears are generally a bit more omnivorous than brown bears. They can survive on a diverse and extensive list of foods including flowers, berries, nuts, seeds, grasses, tubers and roots, insects, fruits, acorns, fish, carrion, and a myriad of small and medium-sized animal prey items. They will also take moose and elk calves and deer fawns across parts of their range. The region and habitat type typically dictate the composition of their diet. Black bears are also notoriously able to adapt to whatever food source is available. In the Yellowstone National Park area, black bears are known to predate and feed on elk calves. But when elk become scarce, they can easily shift to alternative resources. Whitebark pine nuts were shown by a study by Kendall (1983) to be a primary food in the Yellowstone region when elk calves were unavailable. In turn, white pine appears to be readily replaced by false-truffles when the pine nut crops fail (Fortin et. al., 2013). Another recent study (in the Sonoran Desert of Arizona) examined the diet (using dissection of scats) of black bears living in riparian habitats along a perennial river. In this study cicada nymphs were the most common component (present in 90% of all scats found and 59% of the average mass, Lundgren et al, 2022). Surprisingly, even ants can sometimes make up a significant portion of their diet. As with brown bears in and around the coastal regions of Alaska and British Columbia, salmon are a major seasonal prey item for black bears. But they have been shown to avoid the most productive salmon runs where concentrated feeding by brown bears occurs. Black bears have also recently been documented to predate white-tailed deer fawns more frequently than once believed. Researchers with the Pennsylvania Cooperative Fish & Wildlife Research Unit in the late 2000's, saw predation rates from bears as high as those caused by coyotes in some deer study sites. It is not clear to what extent this is happening in other regions where bear densities are lower. The species also has a sweet tooth. They are known to love doughnuts and other pastries. Many bear hunters use cracked corn, oats, and bread,

In the coastal regions of Alaska and British Columbia, salmon are a major seasonal prey item for black bears. But they have been shown to avoid the most productive salmon runs where concentrated feeding by brown bears occurs. Photo in public domain.

Unlike black bears, polar bears (also called Nanook by many natives) typically have no natural fear of humans, which makes them quite dangerous to people. Black bears evolved with brown bears and other larger predators and are much more wary of potential danger. Black bears will almost always flee or climb a tree when startled by a human.

sometimes coated with molasses, for bait. And the internet is filled with deer-cam pictures of them coming to deer feeders. Other hunters swear by beaver or other animal meat, even when it becomes rancid. The point is they are very versatile and can make a living hunting, fishing, foraging, or just digging through the trash can.

Black bears are very strong animals. They can dismantle a semi-rotten log like it is butter, as they lick up ants, beetle larvae, or termites. Although they might appear to be clumsy and sluggish animals, they are in fact capable of amazingly quick movements and can run at a sustained speed of 35 mph. They can quickly climb trees and their muscles do not seem to deteriorate or atrophy during prolonged hibernation. They are good swimmers, and they are equipped with strong recurved claws for climbing and foraging in logs, dirt, and other debris. Black bears, like all bears, have an extraordinary sense of smell. It is used both as a primary defense from predators (against other bears and humans) and as a critical sense for scavenging, foraging, and hunting for prey. A common misconception is that bears have a poor sense of vision. Biologists suggest they actually can see on about the same level as humans, and their sense of hearing is probably about twice as sensitive as ours and occurs over a broader frequency range.

Black bears reach sexual maturity at three to five years, with males lagging behind females for a year or so. Gestation is around 220 days. Mating occurs in the summer and the typical litter is two or three cubs, but sometimes as many as five or six, and they are usually born in a maternity den in winter. In colder climates this occurs during hibernation, but the mother bear becomes alert enough to birth and briefly care for the cubs before going back into the full hibernating state and slowing her metabolism and heartbeat. Populations in warmer climates typically have plenty of food resources and therefore do not need to hibernate. The cubs are weaned at around seven months old but remain for another year with the female before dispersing. Males will move a significant distance away from the maternal territory, but sometimes the young females will establish an overlapping territory with their mother. Other than this time with cubs, female black bears are typically territorial and solitary, as are the males. A female territory is normally 5 to 20 square miles, while males cover much larger distances (from 10 to 60 square miles). One adult Canadian black bear male's home range was recorded at over 4000 square miles. This is not common, however, and in that case, it was attributed mainly to sparce food resources. Young males are also wanderers. They can travel hundreds of miles looking for a potential mate. Often

There around 800,000 bears in North America. Bear sightings are more and more common in many areas that have not seen established populations in many decades. Young male bears are often the first to move into unoccupied areas. Photo in the public domain.

these wandering males venture into areas that do not have established black bear populations. One such young male (presumably from the established populations in north Georgia or eastern Tennessee) was observed wandering through my small hometown in central Alabama in the summer of 2016. A few days later he wound up 60 miles west in a populated neighborhood in Opelika, Alabama. He was eventually tranquilized, tagged, and released in a nearby National Forest. He then retraced his way back north for about 75 miles before being illegally shot and killed and confiscated by authorities.

There around 800,000 bears in North America, with about 100,000 living in Alaska and more than 350,000 in Canada. Bear sightings are more and more common in many areas that have not seen established populations in many decades. This is most often due to the simple fact that bear populations are growing in many areas and spilling over into new uninhabited spaces. This is especially true in many eastern states where the original populations were extirpated, or nearly so, as European settlers colonized the regions. Arkansas is one such state. They began repatriation there in the 1950's. With a current population of around 5,500 black bears (mostly in the Ozark and Ouachita Mountains), they now have a stable hunting season for the species and around 500 are harvested annually. It is believed that there were as many as 50,000 bears in Arkansas a few hundred years ago. Florida, (estimated to have a population of 4,000), has always managed to maintain viable populations in some areas but numbers are increasing in lower populated regions. States like Missouri (estimated at 800) and Georgia (estimated at 5,100) are also seeing increases. In Georgia healthy black bear populations occur in the mountains of the northern part of the state, along the Ocmulgee River drainage (in central Georgia), and in the Okefenokee Swamp area in the southeastern part of the state, but they can sporadically show up anywhere. Georgia also has an annual hunting season. Alabama hosts a small population of around 175 to 200 individuals, with the majority occurring in the southernmost part of the state in Mobile and Washington counties. The remainder occur around the Little River Canyon area. Other select southeastern states' populations include Mississippi with only about 40 individuals, Louisiana with about 800, Texas with 5,000, Tennessee with 6,000, and South Carolina with 1,000 bears. North Carolina populations have expanded at about 6% per year over the past few decades to a whopping 15,000 bears today. This phenomenon is not unique to the East. Some midwestern and western states are seeing growth as well. California's population, for example, has gone from around 15,000 in the 1980's to about 40,000 today. These numbers indicate increased hunting opportunity in many states with black bear seasons, and possibly new seasons opening up in the not-so-distant future for some states that don't presently have them.

States with abundant bear populations can definitely have their share of bear-human conflicts. The overwhelming majority of interactions with black bears, however, are benign and result in no harm to either the bear or human life, limb, or property. According to the North American Bear Center (NABC) only 61 people have been killed black by bears since 1900. Black bears do have a habit of getting into trash cans, raiding bird feeders, and stealing pet food and they can wreak havoc on supplies or food caches if left out in bear country. They frequently come close to people in campgrounds in search of food scraps or handouts. But they can almost always be chased away by being loud or aggressive towards them, although that is sometimes easier said than done, especially when the bear is a big male. Contrary to popular belief, female black bears with cubs rarely attack when they encounter humans. Bear researchers, when capturing black bear cubs, report that the mother bear will usually show aggressive bluffs and growls, but she almost never attacks them unless she is cornered. This is not the case with brown bears, and they will aggressively attack and defend their cubs. Black bears evolved with short-faced bears, brown bears, and other larger predators, however, and so they typically are wary of potential attackers and will usually head for the trees when danger is near. Surprisingly there are no records in the past 120 years of a mother black bear killing a human in defense of her cubs. According to the NABC, the best practice is to stand your ground or slowly retreat if you encounter a black bear family, but do not climb a tree. Climbing a tree seems to evoke a defensive response in some individuals, and in a few cases the mother has been known to climb up after the person and bite them.

Black bears have also recently been documented to predate white-tailed deer fawns more frequently than once believed. Researchers with the Pennsylvania Cooperative Fish & Wildlife Research Unit in the late 2000's, saw predation rates from bears as high as those caused by coyotes in some deer study sites. Photo in the public domain.

In summary, the American black bear is an intelligent and adaptable species. Black bears occupy a diverse assemblage of forested habitat types across North America, and they can shift to different plant and animal food sources as others become scarce. They are omnivorous but can play a significant predatory role in the ecosystems they inhabit. Many local populations are expanding, and the species has reclaimed territories in some areas that have been void of bears for more than a hundred years. These trends suggest that this iconic mammal species will be more prevalent, and visible to humans, in the future.

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New AI Technology Promises to Change the Game for Wildlife Managers

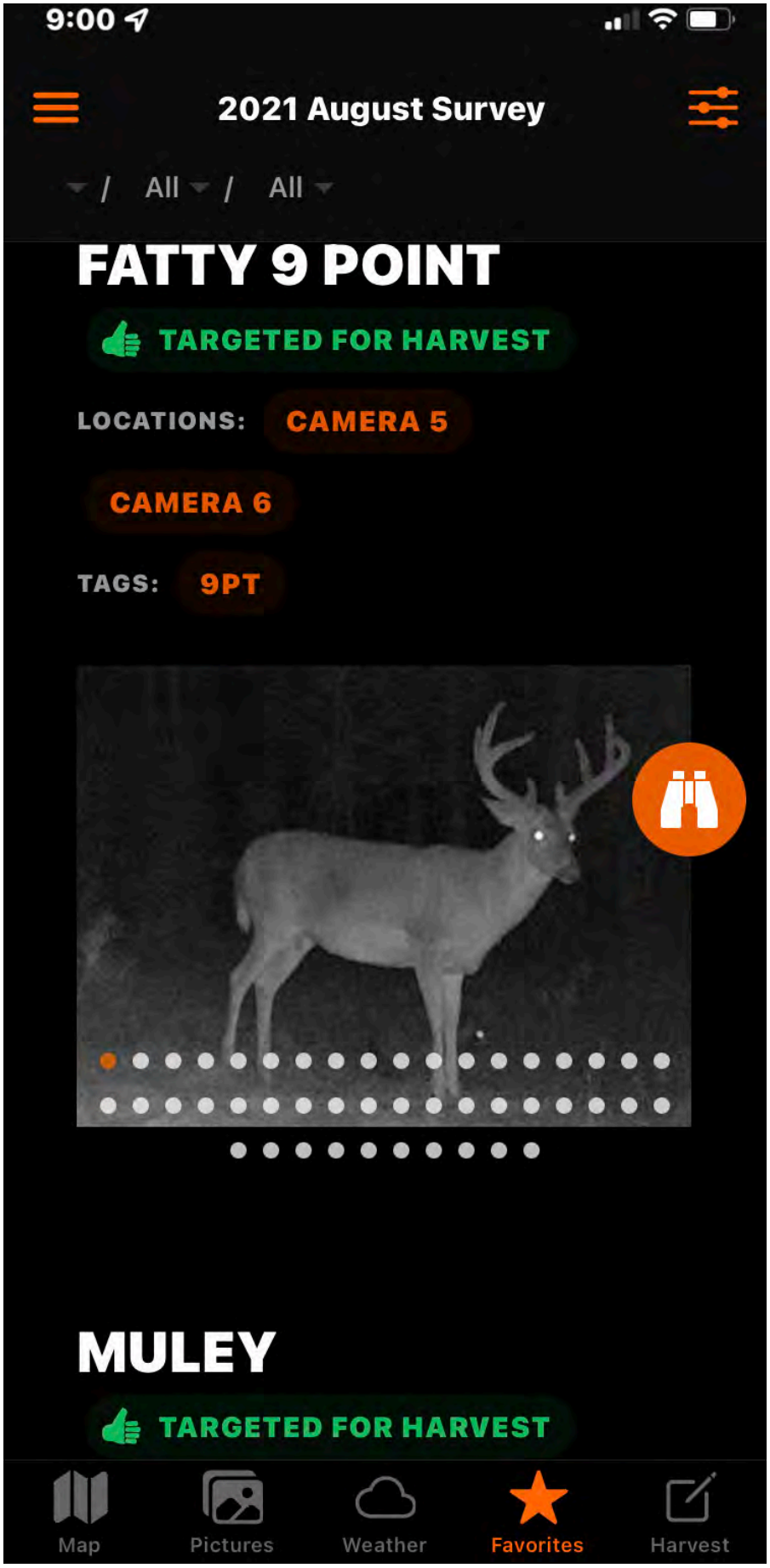
By Rans Thomas

Rans Thomas is a Wildlife Biologist and Consultant with over 25 years of experience developing and managing private hunting properties across the United States. He is a Consulting Partner and Strategic Advisor for HuntPro, providing real-world insight and expertise for the company's technology development strategy and system capabilities. Rans is a proud graduate of the University of Georgia's Warnell School of Forestry and Natural Resources and 2009 recipient of the Quality Deer Management Association's Professional Deer Manager of the Year Award.

Today's digital trail cameras have made collecting massive volumes of images much easier for us avid outdoorsmen and wildlife professionals. Trail cameras went digital and started becoming smaller, cheaper, and easier to use a couple of decades ago. Along that same timeline, they began to be used routinely for whitetail surveys on private lands as well as for academic and government agency research projects to study not only whitetails, but other game and non-game wildlife populations. In most cases, the cost of purchasing quality cameras, checking cameras, baiting camera traps, and doing the work required in the field during a survey period or through the scouting/hunting season is not a limiting factor. For most trail cam users these days, it is a Big Data problem!

How do we better manage, organize, and filter tens of thousands of images while compiling the valuable on-the-surface data they contain in a more efficient and less time-consuming manner? Also, how do we tap into an enormous amount of below-the -surface data (meta data) we know is there but locked away in enormous batches of photos? I have some answers to those questions you may find very interesting. First, allow me to share some backstory so that you can understand why a farm-raised country boy like me with a wildlife degree is writing an article about high-technology.

As a wildlife biologist and private land consultant, I have been processing big data from whitetail deer trail camera surveys for almost 20 years now. Around 2006, I started working with a new client who had retired from the software development world and purchased a nice hunting property in the Florida panhandle. When my team and I completed the trail camera survey, I provided him with the whitetail herd survey analytics and a unique buck catalog including photos. The client asked me how it was done and, after I explained the arduous process, he said that I "need to be using image recognition." At that time, after asking many of his colleagues, he informed me that it would have



Named Animals shown on mobile app.

been entirely too cost prohibitive to bring Artificial Intelligence (AI) and Image Recognition (IR) technology into the world of wildlife trail cameras. However, he did plant a seed in the right hemisphere of my grey matter. I never stopped thinking about it and even began to develop my own concepts for how such a platform might function, including the integration of user interface tools. Now . . . let's fast forward.

In the summer of 2019, I was introduced to a very successful team of web developers and serial entrepreneurs who were building a new AI driven trail camera image management platform. The company is 121G, LLC located in Carrolton, GA. They are also avid sportsmen and big game hunters using trail cameras to manage wildlife on their own Texas ranch. What started for the group to make their lives easier by manually viewing, sorting, grouping, extracting population study data, and creating management lists from tens of thousands of images, was on its way to becoming a very powerful platform called HuntPro. After years of dreaming about this opportunity - and soon after our initial meeting - I became part of the team.

Johnathan Samples, Lead Developer for 121G, built a custom high-powered AI technology that could accurately identify and photo tag multiple wildlife species, humans, and vehicles as well as determine species sex, and even age class, in some cases. After several long days of ink board sessions, I was able to lay out my concepts and ideas that he and his team were then able to integrate into the system in ways far better than I had ever imagined. Johnathan and I then presented on the technology at the Southeastern Deer Study

HuntPro customer using system.

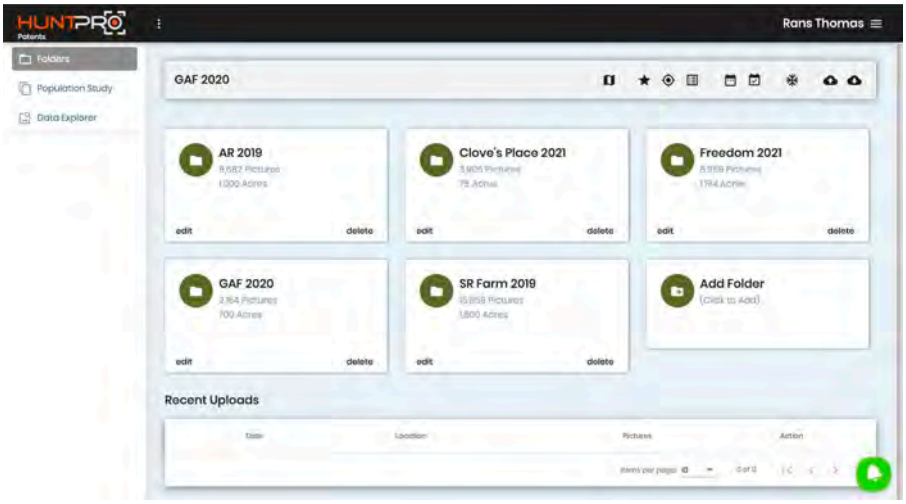
Group (SEDSG) meeting held February 2020 in Auburn, AL. This was the last SEDSG face-to-face gathering before COVID. It was around that time our team realized advancements in Information Technology (IT) in the wildlife management field were vastly far behind relative to other natural resource industries such as forestry and agriculture.

Identifying that readers should be made aware of advancements in wildlife management IT, *Wildlife Trends Journal* has graciously allowed me to write openly about HuntPro. With their permission, allow me to walk you through some basics on how it works.

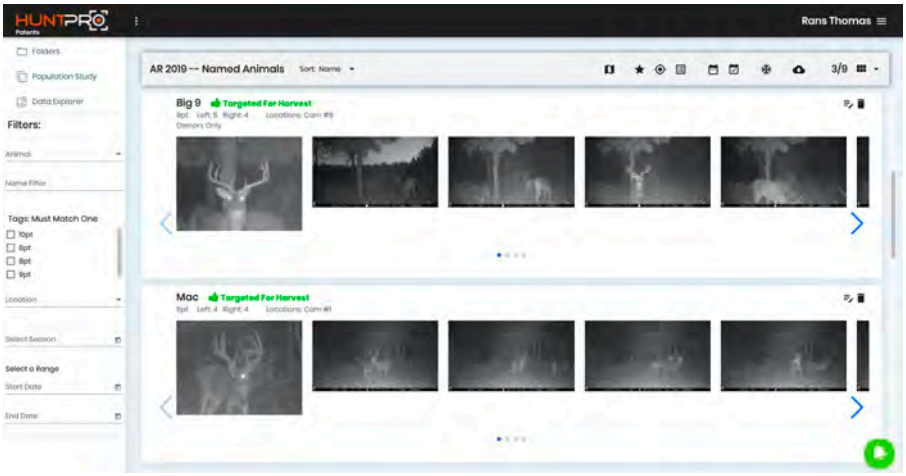
HuntPro is a patented, powerful, scalable, cloud-native, technology platform. Users can access their dashboard on any web browser or via the mobile app on any device. All data is completely private and protected. Images can be uploaded from SD cards used in any camera brand and some cellular cameras can send images directly into HuntPro. With our speed loader app, images from SD cards are rapidly uploaded into the cloud. As they travel through the portal before landing on your dashboard, the AI engine tags each image in milliseconds with what it identifies. Currently, our AI has been trained to detect 10 different wildlife species as well as humans and vehicles. Whitetails are tagged as buck, doe or fawn and turkeys as gobbler or hen. The acronym tags are B for buck, D for doe, F for fawn, C for coyote, T for turkey and so on. For this article, I will focus on whitetail deer.

After logging in, the Folders page will open. Folders can be added as needed. I generally create a folder for a single property for each year. Gone are the days of having to create dozens of digital folders for any project to manually break out image groups and unique bucks. As I like to say, "foldering is now filtering." Opening a folder will access the Data Explorer page where all images uploaded to that folder will be displayed. Image batches can be filtered by species, sex, camera location, date range, tags, and other criteria. The desired AI confidence level can also be selected. The "None" filter will display all those frustrating images with nothing present. They can be reviewed by scrolling down the columns and deleted, or simply ignored. They will not appear in any of the other filters. "None" is one of my favorite filters and where I usually start with a project to quickly clean them out.

Clicking on any image in the batch will open that specific photo in the user interface window. It is here that AI tags are visible on the photo and will be near the animal, person, or vehicle identified. By mouse clicking on tags they can be moved or changed, and buck point class can be added. For example, a B tag for a 9-point buck would become B9. All buck point class



Screen grab of Folders Page.



Named Animals page, buck catalog.

tags created can be filtered later into point class groups. Numerical tag data is statistically analyzed on the automated, Population Study page where robust reporting and graphs are presented.

Now, let me answer the question we are always asked: Can the AI recognize and tag images of the same buck? Currently the answer is no; however, our ID Mode user-interface tools are the next best thing in profiling, matching, and tagging multiple images of a unique buck. With an image of a buck opened in the user interface window, left clicking on the tag will open a profile information box where you add name, point class, estimated age, tags and Target for Harvest if it qualifies under harvest management goals. The tag will then change to the buck's given name. The first image and profile information are added to the Named Animals page which is the buck catalog and harvest management list.

Once you create the buck profile, you then open the ID Mode user-interface window. The image you start with appears to the left and images from the batch you are working in appear to the right. As you scroll left or right through the batch images to the right, a circular, check tag will be present on the images near the animal. You can zoom in or out and change brightness or contrast to both images. If there is a match, clicking the check mark will add that photo to target buck's profile in the management list and tag the matched buck with its given name and profile information. The unique buck catalog can be edited and filtered in the web app on the Named Animals page. It can also be viewed and filtered on the mobile app with Targeted for Harvest or Do Not Shoot classification clearly shown. With any mobile device, deer hunters have a handheld hunting guide with them in the stand.

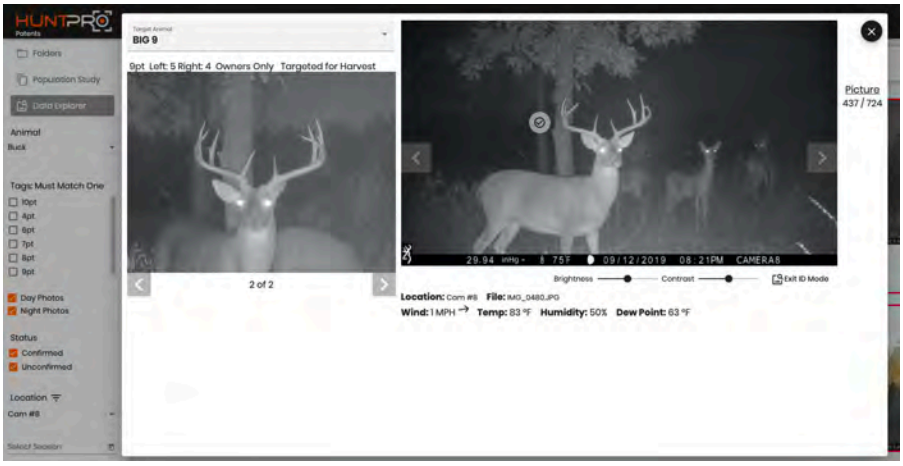
I mentioned earlier, a point class can be assigned to all buck tags in the user interface window. By doing so, when in ID Mode you can filter the search batch for those point class groups. This makes the process move along even faster by compressing the size of the batch with more likely matches. In my professional opinion, using ID Mode is the fastest possible way to build an extensive, unique buck catalog from a large volume of trail camera images and add numerous photos of each buck to their profile.

In addition to the trail camera image management features I have covered, HuntPro also offers digital, property mapping tools. Property, tax map lines and parcel data are available. A user's property parcels can be selected and highlighted. Pins can be dropped for camera locations, stands and many other features. Geo location and weather data is assigned to all camera location images uploaded. For this reason, it is important to add camera locations to the map before uploading. This allows heat map activity for any species or unique buck to be illustrated. Heat maps allow the user to easily see where any species, does or bucks appeared more often on cameras during any date range as well as where and when an individual buck is spending more of its time. This will also indicate its travel patterns.

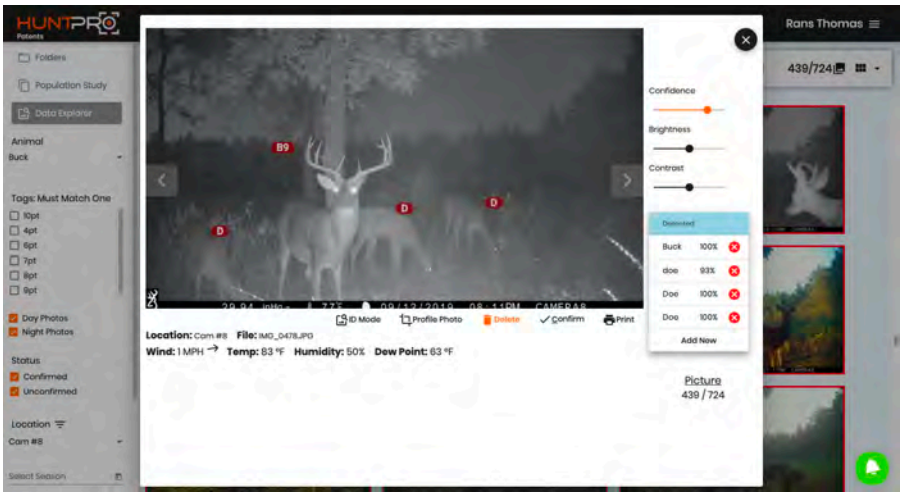
Weather and wind direction is also provided on the property map for any time throughout a multiple day forecast. Wind direction preferences for stands can be selected on a 360-degree circle around each stand and assigned the color codes red, yellow, and green. The stand locations on the web or mobile app will be colored accordingly throughout the daily/hourly forecast range indicating which stands offer good (green), bad (red), or in between (yellow) wind direction for hunting.

HuntPro also offers a digital harvest data log on the web or mobile app. Data from harvested animals can be recorded and is statistically analyzed presenting detailed reports and graphs. This is yet another technology advancement that makes our lives as deer managers easier as there are no more blood-stained, water-smudged, torn, or lost written records to deal with at the game shed! Observation data from the stand or in the field can also be recorded in real time and the same level of data analysis will soon be available. Heat activity maps can also be produced from harvest or observation data. I find this very useful in determining which stand locations are producing more encounters versus those that are not which, in turn, may need to be relocated.

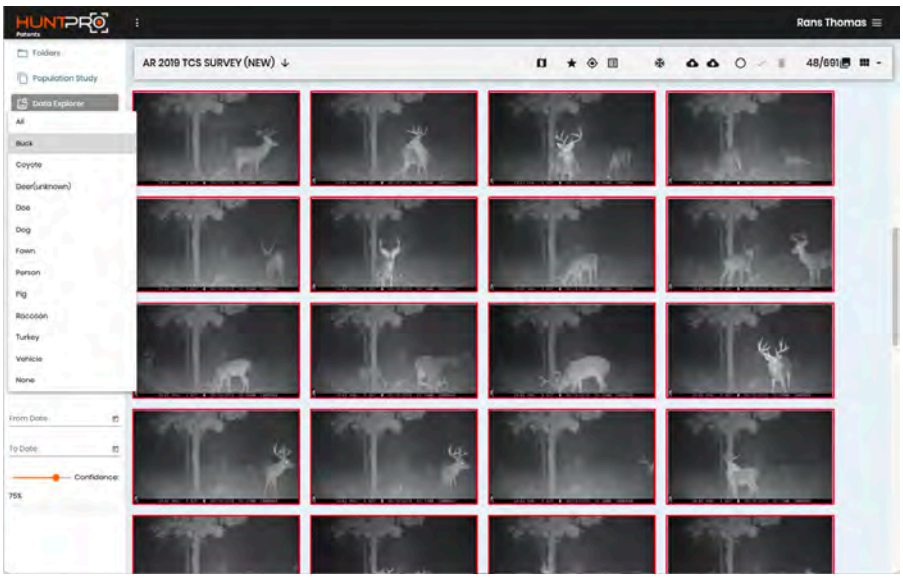
Most of what I have covered until now is included in our Professional package. A higher-level package called Ranch is now available and offers state-of-the-art guest management tools. Stands or other features such as boats or lodging can be reserved, blocked, and/or grouped. Digital liability waivers can be signed by guests on the mobile app and members can communicate within a group or with managers through the mobile app. User locations and track routes on a property can also be revealed if so desired. Ranch subscribers now include relatively larger private or commercial hunting properties. Some ranches, farms, or plantations now using the system are regionally well-known by name.



ID Mode user-interface window



User Interface window showing tags on deer.



Screen grab Data Explorer page.

Heat activity map for bucks seen on camera during photo period and stand wind preference.

Where the rubber meets the road is cost. Both packages are reasonably priced given the ROI gained in major time savings, accessibility, user-friendly features, and big data management. An unlimited number of users can be added to any account with administrator, user, or view-only access. Any number of properties can be added, and pricing is determined solely by the volume of trail camera images that are uploaded annually. You can find all this information (and more!) on our website www.huntpro.app.

Technological advancements in the wildlife management industry will allow us all to work smarter, not harder! With HuntPro in the tool-box, hunters and managers gain a new window into multiple forms of valuable data not previously obtainable. Our goal is to continue to bring advanced IT into the wildlife management industry and make it accessible to anyone.

I will end with one last note and important take-away for readers. This technology will allow you to spend less time in front of a computer and more time where we all want to be – which is in the field. Many of you can likely relate to what we call "Trail Camera Noise." Jpeg after Jpeg of crows, squirrels, wind-blown brush, etc., etc. Like me, you have probably spent countless hours staring at images on the screen, hitting that right arrow key, scanning through tens, if not hundreds of thousands of images looking for a few needles in a giant haystack. You may be trying to consolidate images of a few top-end bucks, scouting for turkeys, hunting for trespassers, or conducting a trail camera survey for whitetails. In the great state of Alabama, like many other southern states, you may be looking for where wild pigs are spending most of their time to place a trap, monitor a trap, or you may just be sick of looking at them. Whatever the case may be, with IT we now have a solution for that problem and much more.

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.

Screening hunters as they enter and exit stands will help minimize hunting pressure.

Conduct pre-season projects that will help reduce or minimize deer hunting pressure and disturbance.

Hunting pressure and disturbance on a property significantly impacts the hunting quality or number of deer you will see. I have thousands of hunter observations over many years that show as more pressure is applied fewer deer (particularly mature bucks) are seen. Here are a few things that will help minimize hunting pressure: 1) Position stands around food plots so that hunters can enter and exit them without spooking deer that are in the field. By this I mean place stands slightly inside the woods and/or plant a "screen" that will protect the hunter from being seen by deer in the field. Good screens include standing summer crops such as corn, Egyptian wheat, Sorghum Sudan. Other more permanent screens (which I prefer) include switchgrass, or evergreen type shrubs, or conifers (e.g., pines or cedars). Simply leaving a small portion or strip of the food plot fallow for a couple years will allow natural vegetation to grow and create a good screen. Once stands are placed inside the woods, simply cut shooting "windows" for hunters to see and harvest deer on the food plot. 2) Inspect stands to make sure they are safe, but from a disturbance standpoint, check for noises. Oil squeaky chairs, windows, doors, etc. Move around in the stand. Does it creak? Find the source and fix it. Ladders may simply need to be tightened. These little noises can ruin a hunt and disturb deer for future hunts. 3) Cut and clear trails for hunters to get to and from the stand without making a lot of noise. Clean these trails regularly with a rake or leaf blower if needed. 4) Determine favorable wind directions for each stand and do not hunt the stand unless the wind is right. At my camp, we have a list of stands for each wind direction. We check the wind, review the list, and hunt accordingly. 5) Look at a map of your property and determine if there are roads that may impact or disturb deer or other wildlife. Close these roads down before and during hunting season and only travel them on a "need to" basis. Besides effectively managing the deer herd, the key to having high quality hunting experiences it to keep hunter-based disturbance on the property to a minimum. For more detailed information on managing hunting pressure refer to an article

Creating and using a "seed measuring bucket" will ensure proper seeding rates are applied on the acreage you are planting.

titled "Steady Under Pressure" that was published by Wildlife Trends.

Create a seed scale to ensure accurate seeding rates are applied when planting food plots.

How many times have you ever been in the woods planting a food plot and had to guess on the amount of seed to pour into the spreader for that particular food plot? I am certainly guilty of doing this. Here's a tip that will help you more accurately measure the amount of seed to put in the spreader. Before going to the field, use a bucket (3- or 5-gallon size works fine) to weigh the various types of seeds/blends you are using. Once you are at the desired weight for each seed type (e.g., 10 lbs. of oats), use a sharpie to place a mark (and weight) on the bucket. It helps to use a relatively clear bucket so you can see the amount of seed from the outside. Due to the size and weight variations in different seeds or blends, you will need to follow this process for each of the different seeds or blends. For example, you may have a mark for 10 lbs. of oats and another for 5 lbs. of crimson clover. Once marked, the bucket can serve as an accurate "measuring cup" to measure seed being placed in the spreader. This will ensure proper seeding rates are applied on the acreage you are planting.

Coordinate food plot planting with good soil moisture.

October through early November are often the best months to plant fall food plots in the Southeast. The goal is to plant when conditions are favorable for maximum seed germination and plant growth. Do not fall into the trap of planting too early. Unfortunately, many landowners and hunters plant in early-mid September. Some hunters, particularly hunting clubs, even pick a specific weekend that food plots will be planted well ahead of time and do not have a clue what the soil conditions will be like…. but they plant anyway because "that's when we plant every year". This is often a very dry period across the Southeast which could lead to food plot failure. If planted in September and you are lucky enough to receive adequate rainfall, food plots may grow rapidly which will result in over mature (i.e., high/tall) food plots by the time hunting season arrives. If an abundance of acorns are present during this time, plots receive less browsing pressure by deer which allows the plots to grow even more. I commonly get calls from hunters in November asking why deer are not really using their food plots. The most common reason is the crops were planted 2 months ago and the crop/food plot plants are mature, not vigorously growing, and "hardened" up making them less palatable. There is also increased chances of army worm problems in September when temperatures are warm. In most areas of the Southeast more consistent rainfall events begin in October as cold fronts move south. Planting "later", (meaning in October-November). will also result in young, tender food plots that are extremely attractive to deer and other wildlife during hunting season. When planted under the right conditions (adequate soil moisture), plots germinate quickly and deer will begin using them within two weeks after planting. My point is to not feel rushed to get seed in the ground. Focus more on planting under favorable conditions. There have been several articles related to food plots and planting strategies in past issues of Wildlife Trends. Refer to these articles for more detailed information.

Make final preparations to deer stands.

When deer stands are being properly managed most of the work is done well ahead of the opening day of deer season. There is no mad rush to get things ready. There is no scouting needed just before or during the season that sets the alarm off to every deer in the woods (because you did all the scouting last winter). The only things left to prepare stands for the season should be making a final visit to each stand to tighten and/or replace straps, ensure everything is secure and safe, shooting lanes are clear, pull up ropes, cushions and other accessories such as lifelines are in place, and access trails are cleared of obstacles and trimmed where needed. If possible, tie these final trips to hunting stands in with food plot work. While you and others are already in the area and making lots of noise plowing and planting the plots, slip in and make final adjustments and checks. As a tip, use colored flagging to mark stands that

have had their "final check" and are ready to hunt. If you do this, simply use a different color each year. That is, if you used blue tape last year remove it during final inspection and use orange flagging this year. When a hunter sees the orange flagging at the base of the stand, they know it has been checked and is ready to hunt.

Harvest Deer – from a management standpoint.

Although biologists provide guidance on how many and which deer to harvest, hunters are the real deer managers. Remember that each time you pull the trigger you are making a deer management decision. In fact, not harvesting a deer is a management decision. Unfortunately, I see many landowners with goals of producing high quality or trophy bucks that are allowing the deer herd to overpopulate because they like to see 20+ deer when they go to a stand. This situation often results in a poor-quality deer herd with significant dispersal of deer to surrounding properties, less reproduction and fawn recruitment, and ultimately poor-quality antlers. If your goal is to manage for a quality or trophy deer herd, harvesting an adequate number of deer each year is essential to keep the deer herd and habitat healthy. In addition to maintaining a desirable deer density, harvest is the primary tool used to manage the adult sex ratio of a herd. Maintaining a balanced sex ratio will result in a much healthier deer herd, better quality bucks, increased fawn survival, and exciting hunting. Balancing the adult sex ratio is also one of the tools I use to increase breeding competition and get mature bucks on their feet so that my clients can see or harvest them (which is always more challenging than growing them!). When harvesting does, especially early in the season, make attempts to do so in a way that minimizes hunting pressure and preserves hunting quality on the property. When possible, avoid harvesting lots of does on food plots before the rut if you plan to hunt the food plots for mature bucks later. There are always "low impact" options for taking does. Places such as woods stands, powerlines/gas lines, or clearcuts are great choices.

Collect data from harvested deer.

This information is the "backbone" of your deer program and allows you monitor/assess its success and make sound management decisions/ adjustments if needed to reach your deer management goals. Collecting this information each year is important because it will allow you to assess trends in the harvest and observation data which will help you determine if your program is working and where adjustments are needed. Without this information, you are simply guessing and are less likely to achieve your goals. Contact your local state wildlife biologist or a wildlife consultant to determine

Collecting data from harvested deer allows you to monitor the health of a deer herd and assess trends data leading to sound management decisions to achieve desired results.

what information/data you need to collect. Be sure to stock your skinning shed with the needed data sheets and tools needed to record data before the season starts. Other preparations include calibrating scales, inspecting/repairing and oiling the winch used to hoist deer, checking water hoses and nozzles, cleaning walk in coolers if needed, etc.

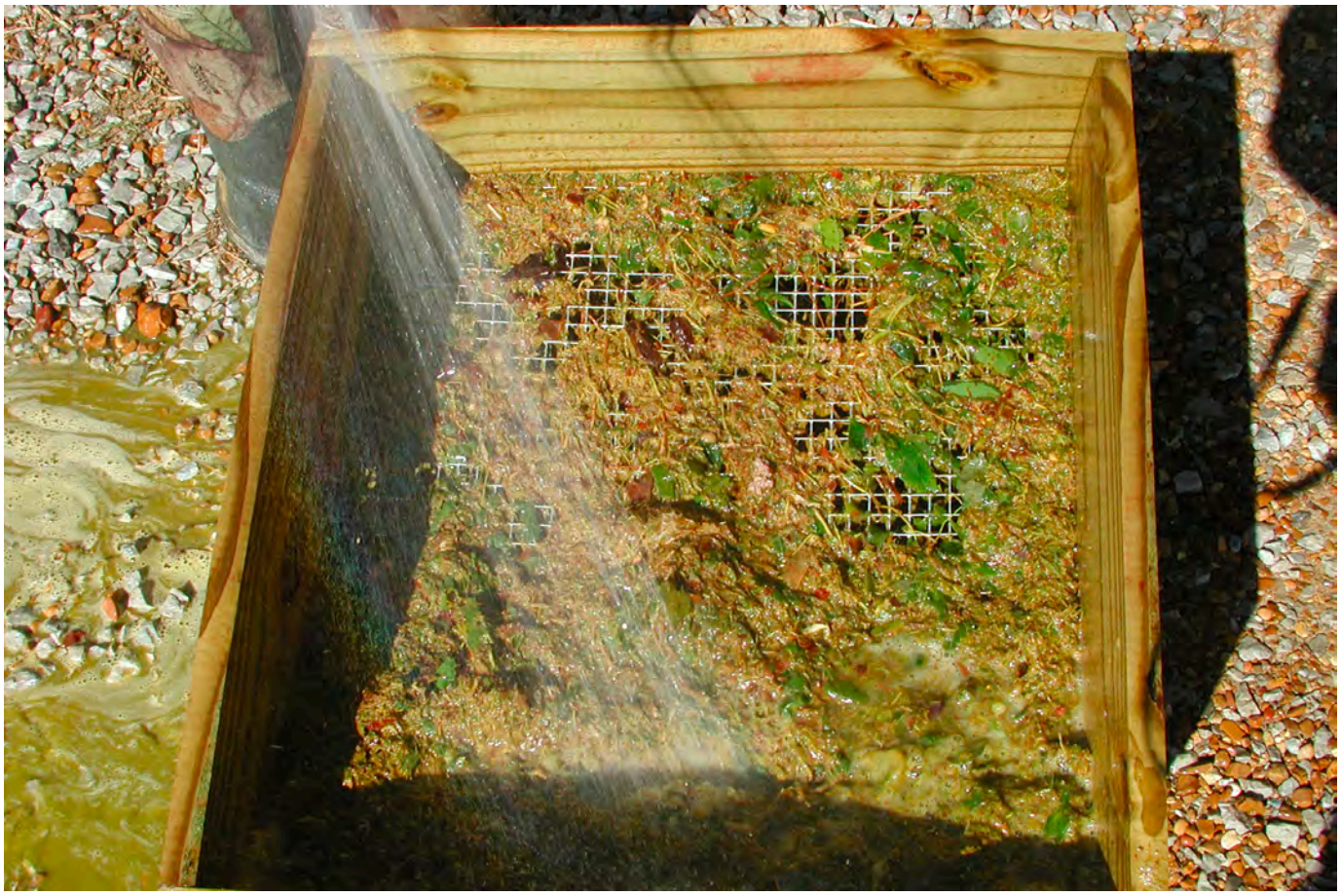
Develop a winter burn plan.

Because most landowners and/or hunters will be spending a good bit of time on their property this time of year, October is a great time to identify areas needing fire and to develop winter prescribed burn plans. Burn plans do not have to be super complicated. However, the detail required in the plan will depend on whether you will be burning yourself, or if you are hiring a contractor to conduct the burns. If you are hiring someone, like the Division of Forestry or a private forestry consultant, your goal is merely to identify the areas you think needs to be burned. Once you have a rough idea of areas to burn, I recommend spending some time touring the property with the contractor to further discuss each area and ultimately to get aligned on specific areas to burn this winter. Once each area is identified, a more detailed burn plan can be developed. Such a plan would include prioritizing areas to burn, what type of management is required before burning (such as installing or refreshing fire breaks), which burning techniques or strategies to use to achieve desired results, and the range of fire weather that would allow safe burning of each burn area. A burn plan is a written prescription for conducting a prescribed fire including critical elements such as the weather conditions under which the burn will be conducted, number of personnel and duties of each, and the type, amount and placement of equipment needed to safely conduct the burn. As most know, fire is an exceptional tool for creating and managing for quality wildlife habitat. Developing a prescribed burn plan will provide a guide to ensuring burns are conducted under favorable and safe conditions. Developing burn plans now will ensure that you are ready once conditions are right this winter.

Photographs from trail cameras are a great tool to assess buck quality and assist in making harvest decisions.

Conduct a camera survey to assess the status of your deer herd.

Monitoring the status of your deer herd is very important to the success of a deer management program. Collecting and recording harvest data (weights, measurements, ages, etc.), hunter observation data (number, sex, and quality of deer you see while hunting), as well as population surveys provide information about the deer herd that will allow you to make sound deer management decisions and adjustments in strategies where



Scouting from the skinning shed will minimize the need to scout the woods for the best areas to hunt.

needed to accomplish your goals. Without this information you are simply guessing. If you are like me, you spend way too much time, money, and energy managing your property to just guess on how many and which deer to harvest. I want to know. Conducting a camera survey is the best tool available to assess the status of your deer herd (number of deer, buck quality, fawn recruitment, etc.) and make buck harvest decisions before you head to the woods. The best times of the year to conduct a deer survey is when natural food availability is at its lowest which is generally late summer/early fall and late winter before spring green up. Most managers conduct fall surveys (September through early November) because they also use the photographs to make buck harvest decisions before hunting season. The ideal period to conduct a fall survey is soon after bucks shed velvet but before many acorns start to drop.

Regardless of whether you conduct a full-scale survey or simply use cameras to scout, photographs from trail cameras are a great tool to assess buck quality and make buck harvest decisions before the moment of truth in a deer stand. I have seen many young bucks with great potential make it another year because they were placed on a "do not shoot" list. If you are using the trail camera photographs to make buck harvest decisions, late summer or early fall is when you need to deploy them.

Scout from the skinning shed.

How many times have you found a great place on your property to hunt that had everything – great food sources, cover, maybe a few deer trails and rubs… set up a stand, sit there all day with anticipation and never see a deer? Or worse yet, have you ever convinced yourself that "this is the place, it's just a matter of time" and spent a weekend committed to a single stand and not see much of anything? I have, and it isn't much fun! Don't get me wrong. I don't have to kill a deer every time I go to the woods, but I certainly like to see some action. It was very likely that the area I was hunting was indeed a "good area" and had all the ingredients of a prime spot, but the deer simply weren't using it at the time. It is also very likely that there were either abundant food sources or more preferred food sources available somewhere else on the property. Like me, deer are slaves to their stomachs (or rumens). They feed many times each day. Thus, food is what drives most deer movement. Deer movement results in successful hunts. The key is to know where deer are bedding or loafing, which food

Using the time lapse may be the most overlooked feature of modern trail cameras.

source they are using, and position yourself in a strategic location near the food source, bedding area, or between the two. This sounds easy, right? However, it is difficult when and if various food sources are available for deer.

Effectively scouting by traditional techniques is certainly necessary to consistently have successful hunts. However, traditional methods require a good bit of time and energy on your part, which for most of us is limited. Besides the time required, traditional scouting techniques require the hunter to "ramble around" the woods disturbing deer and leaving a lot of scent behind. This is where scouting from the skinning shed comes in handy, will minimize "scouting pressure", and can save precious time that can be spent on stand.

Scouting from the skinning shed simply refers to inspecting the rumen contents of harvested deer to determine available and preferred food sources that deer are using at that particular time of the season. "At that particular time" is important because food sources change from week to week. To do this, simply cut the rumen (stomach) open and look to see what's inside. A word of caution: if the rumen is bloated or tight, release pressure slowly with the point of your knife before slicing….and turn your head or you may be inspecting your own stomach contents! Although the contents often look like a green gooey mess, with some inspection, the primary food sources the deer has been eating should be obvious. It helps to dump the contents on the ground or concrete pad and run some water over it. I keep a "scouting box" at the skinning shed that makes the job easier. The scouting box is nothing more than a wooden box with a hardware cloth bottom. This box allows you to dump the stomach contents onto the screen and wash away the more digested/fine particles leaving only the larger pieces behind. Stomach contents often include various leaves and acorns. Simply identifying what deer are eating will help you focus on specific areas of your property leading to more productive hunts.

Use the time lapse feature of trail cameras to scout food plots.

Using the time lapse may be the most overlooked feature of modern trail cameras. If you have not used it before, it essentially triggers the camera to take photos at set intervals. For example, you may set the time lapse to trigger the camera every 30 seconds during a specified time period. That is, photos are triggered by a time interval verses animal movement across the infrared sensor. This feature has opened up a whole new way to effectively scout fields, food plots or other openings. In the not-so-distant past, the only way to scout these areas was physically watching these areas either from a hunting stand or another vantage point. This not only took time, but was done at the risk of alerting deer or turkeys and adding "hunting pressure". However, using trail cameras set to operate on time lapse feature only requires two quick visits to the area (ideally during mid-day to reduce chances of disturbing deer or turkeys) – one to set the camera up; and after a period of time, one to pull the SD card. Installing a trail camera to monitor a field or food plot requires a different set up than the standard set used to monitor trails, scrapes, or bait. For best results, I have found that installing cameras 10-12 feet high and slightly angled down towards the field works well. Although you could use a small ladder (which is the safest method), I normally pull the ATV, tractor, or cart (whatever I'm driving) up to the tree then stand on top of it to install the camera. Depending on the make of the camera, there are many "delay"/or interval options for the time lapse. Obviously, shorter delays will result in more photos but will consume batteries quicker. I have found that setting the time

lapse to operate the first couple of hours after daylight and the last couple before sunset at intervals of 1 to 2 minutes work well. At this setting, you will get enough photos to identify where and when deer enter the field over a week or so. Although the time lapse feature is great to determine when and where deer enter and use a field, it is generally not good for identifying details of a particular animal unless they are relatively close to the camera. If I see a specific animal I am interested in (like a buck that is a potential "shooter"), I use the time lapse to identify where he is entering the field, then find the trail and install a trail camera in the normal fashion.

Flood duck ponds to "full pool" by early to mid-November.

Monitor water levels in duck ponds as fall arrives. Many areas in the Southeast have been fortunate and have gotten abundant rains so far. However, too much water too early can be bad for growing duck pond crops/plants. Water control structures allow managers to regulate water levels and are valuable tools when a rain event such as a tropical storm comes through. Once your crop matures, allow ponds to slowly flood to "full pool" as November approaches. Ideal water depths for dabbling ducks such as mallards, gadwalls, wood ducks, etc. is 12-18" with pockets of 4"-6" depths. The reason to have ponds flooded 2-4 weeks before the hunting season opens is to give ducks a chance to find your ponds and get used to using them. Flooding too early (more than a month before the season) may result in seed deterioration resulting in less food later during the late season. For good hunting throughout the season, do not over-hunt your duck pond and allow a "rest" period between hunts. If you have several duck ponds, designate one as a "no hunt area" to provide a place for ducks to loaf. This will keep them on your property.

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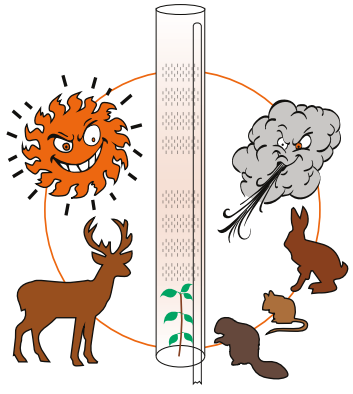

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