Dr. Deer's™ PRESCRIPTION

Population Management

By Dr. James C. Kroll

In the last issue, I pointed out the most critical component of deer management is nutrition. Without good nutrition, no amount of culling and even stocking deer will enhance the quality of bucks on your property. However, once you develop a sound, sustainable nutrition management program, it is time to turn your attention to managing your population. This article will discuss what you can realistically expect from your herd, both from a production and a genetics standpoint. We also will discuss what is going on across the range of the whitetail, and what landowners and biologists (both private and public) should know about their herds.

The Modern History of White-tailed Deer

You often read about there being only 300,000 to 500,000 whitetails in North America at the turn of the 20th century. Like most biologists I have thrown that number around for most of my career, but I must admit I do not have a clue where that number actually arose. We do know that at the beginning of the last century there were very few whitetails, most of which were living in inaccessible places or so sparsely distributed across the landscape, they were not worth going after. Sometime between 1900 and the 1920s, hunters and landowners began the first efforts to restore the species to huntable numbers. By the 1940s, scientific game management was enjoying an increase in popularity, as deer were being restocked with support from conservation organizations and private individuals. I keep emphasizing the role of private landowners and individuals in all this, as we seem to have forgotten that most of the deer restocked, particularly in Texas, came from mostly private ranches. I began my career working at Boggy Slough Hunting and Fishing Club here in eastern Texas. Residing at Boggy were deer descended from a handful of the Kansas subspecies, which had been protected by a Captain Ray from poachers and other predators.

By the time I reached East Texas in 1973, deer were well on their way to making a comeback, as they were in many areas in the U.S. Game agencies enjoyed great popularity, since they were the instruments of the restoration movement. Bag limits



Josh Kinser Photo

and seasons were added to the practice of restocking, and our favorite game animal responded well. Yet, most of the wildlife management profession remained locked into a restoration mentality, rather than considering a future requiring management of the species. Whereas, our grandfathers and great-grandfathers would have shot any deer, buck or doe, for the table, the new movement stressed protection of does and gave rise to what we call "Traditional Deer Management."

Scientific deer management, practiced by college-trained game managers is touted as one of the great conservation victories in modern history. I was one of these idealistic young people who wanted to spend my life managing deer. Classically trained, I was taught that solid, reliable data were the keys to successful management. Education at that time was focused on training biologists according to tried-and-true principles of natural history studies. As I was entering my career a new movement came on the scene, the Environmental Movement. I enthusiastically embraced the movement, even be part of the original organization of Earth Day. Then along came the Endangered Species Act, which we all heralded as the equivalent of game restoration efforts. Now in 2014, the movement somehow took a different direction. Rather than integrating game and non-game management, the thousands of students flocking to the profession were taught, either overtly or covertly that working with game somehow was for "dummies." Sound natural history studies and data gathering gave way to computer models, and what I have gotten into trouble many times calling "cocktail conservation." Government became the solution to every woe faced by nature, and setting aside land taken from the private sector the solution, as well.

Although game, particularly deer, continues to provide the financial support for wildlife management, less and less effort goes to train game managers who are not only versed in the principles of management, but also no longer go to the field. Today, deer populations already have peaked and in at least 31 states on the decline. Game agencies, having focused on conservation biology and computer modeling, have been caught totally by surprise and know little about what is causing the problem. The few who admit there is a growing problem, proclaim publicly that this all is just an "adjust" by populations to the carrying capacity of the land—as capacity, by the way that has deteriorated under the onslaught of over-population for decades. So, with that "cheery" thought, let's proceed to what should be done to manage whitetail populations and how you go about doing it.

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The Basics

The question arises: What do we need to know about deer herds and how do we obtain this information? Whether public or private land, you need to know the following:

1. What is the recruitment rate?
2. What is the age and sex structure?
3. What is the health of the herd?
4. How is the herd affecting habitat productivity?

Several years ago, I wrote an article for *The Journal* called, "Irrational Numbers." It was about how biologists have to have an estimate of the deer population, and cling to the numbers they get with irrational confidence. Freshmen wildlife students continue to be taught that population census is the first step in managing wildlife. However, if you research the various ways biologist attempt to estimate deer populations, *and* the statisti-

cal reliability of these methods, you will find that most are no better than guessing! A striking example is what I ran into during my stint as "Deer Trustee" for the State of Wisconsin. Hunters and landowners were to the point of revolt, as the DNR continued to implement regulations to increase deer harvest in order to reach a population goal, established using a simple computer program (Sex-Age-Kill, SAK) affected heavily by yearling buck harvest. The DNR was totally unaware that hunters had begun to protect yearling bucks in order to produce larger antlered trophies. These target population goals seldom were achieved, and the public grew tired of a growing complexity of seasons and rules such as "Earn-a-Buck." This approach required a hunter to take a doe before he/she could take a buck. It works fairly well for private landowners, but not for the public. Deer populations in northern Wisconsin have plummeted under this type of management. So, the Trustee Team recommended abandoning the SAK and put boots-on-the-ground; that is, get the biologist away from their computers and into the field, working side-by-side with the public.

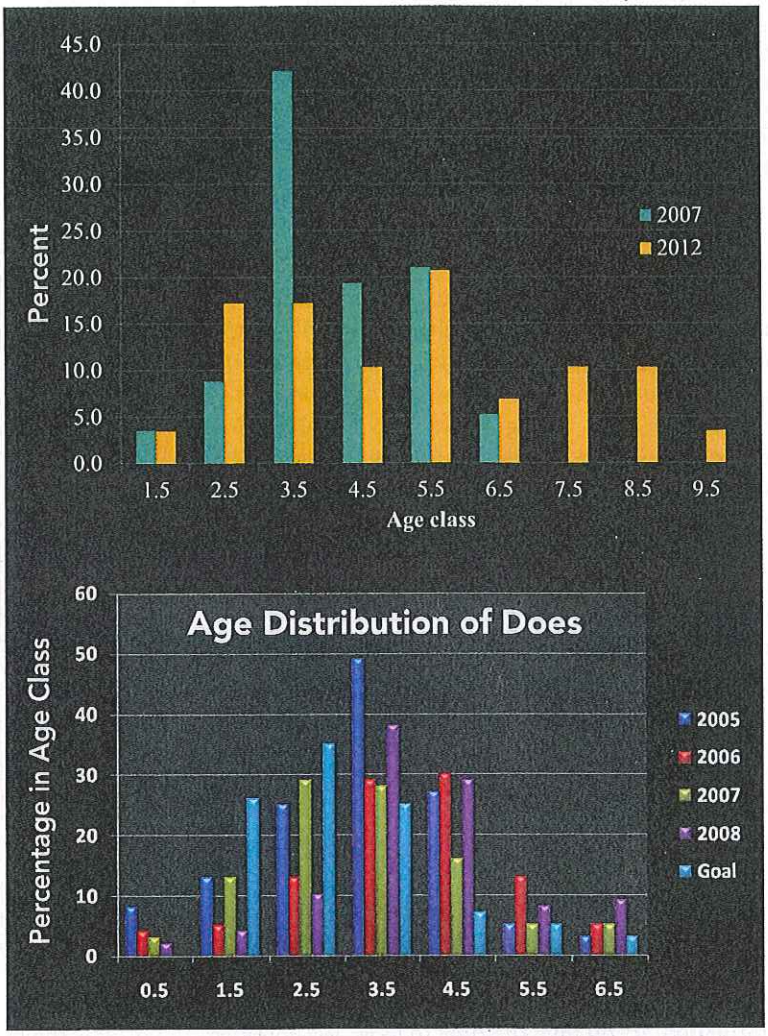
In Texas, millions of dollars are wasted every year conducting spotlight and helicopter counts to satisfy MLDP requirements. Yet, I have no clue to whatever happens to these numbers. Studies again have shown very high statistical variation in these methods, and they represent at best an *index*. So, what should we be doing? I have said many times, the deer and their habitats are more than "happy" to tell you how they are doing, only if you ask the right questions. The most valuable data on deer herds are a reliable estimate of herd recruitment—the number of fawns born this year that live to be one year of age (53 percent of which are yearling bucks). There are various ways to arrive at a reliable estimate of recruitment. I prefer to combine two of these. First, I conduct a two-week trail camera census at the rate of one camera per 100 acres during September for most geographic areas. In states where legal, I prefer to use bait strategically placed about 10 feet in front of each camera. Where baiting is illegal, we have to rely on placing cameras along trails or edges of food plots. Using photos from this study, we can obtain our first estimate of the fawn crop (different from recruitment), expressed as a percentage of the does. A 70 percent fawn crop means, for every 100 does there are 70 fawns still alive in September. A good check on this estimate comes from incidental sightings collected by individuals regularly visiting the property during late summer-early fall. We give people cards on which to record what they see on the property.

A second camera survey should be conducted during later winter-early spring in the same manner. The exact month varies geographically. From this study, you can obtain information about how many of the fawns are still alive at that time. You also can learn a lot about your buck survival in the process. My experience has been that you have to have at least 40 percent recruitment for there ever to be mature bucks in your herd. In well-managed properties, it's not unusual to see 70 percent recruitment or higher.

The age and sex structure of your herd can be obtained in the same manner. Non-professionals learned some time ago how to age live deer, in spite of the fact my colleagues criticized my early books and videos on how to age deer. Yet, today those same critics are seen on TV "pontificating" about the age of some buck! In reality, you do not need to know the exact age of a deer; rather to what age class it belongs: fawn, yearling, immature (2.5-3.5 Years), mature (4.5-5.5 years), and over-mature (6.5+ years). My experience is individuals can easily be trained to be at least 80 percent accurate.

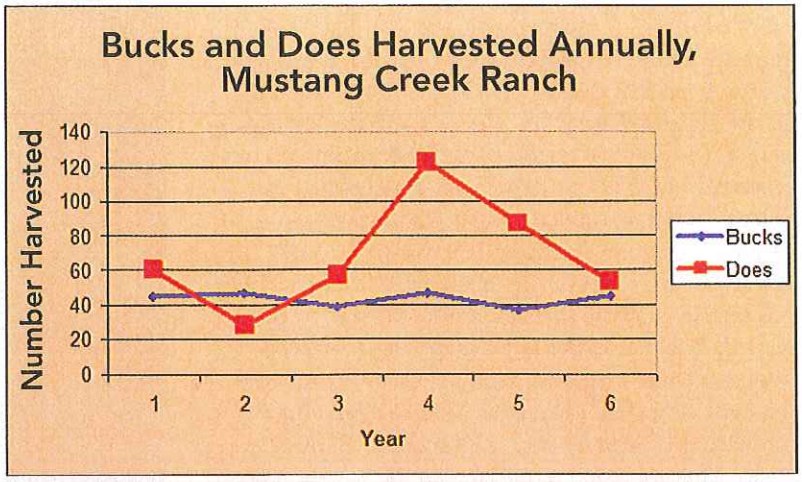
Sex ratio is simply estimated by counting the number of doe photographs (even duplicates) and dividing by the total number of buck photographs. However, you cannot obtain an accurate sex ratio estimate by placing cameras on your feeders. Bucks dominate feeders and you cannot get a reliable sex ratio from feeders. Instead, we place bait in front of cameras where legal and along trails and edges where not.

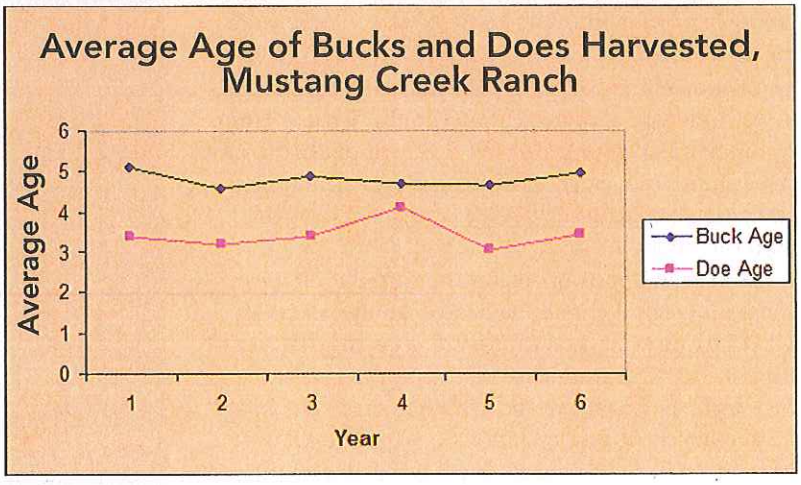
Herd health is a bit more tricky, but within the reach of most landowners, and certainly biologists. Unfortunately, one of the many agency shortcomings has been the absence of data on age-specific weights for each geographic region. For example, what should a mature buck weigh in Gillespie County, Texas? In order to find out, biologists should have long ago captured deer and placed them on optimum nutrition for at least three



TOP: Record-keeping on critical diagnostics allows the deer manager to assess progress in a management program. (Courtesy Ben Koerth, SFASU). BOTTOM: Record-keeping, analysis, and feedback are critical components to any white-tailed deer management program, whether it be on private or public land.

Keeping track of the number of bucks and does harvested over the same time period clearly supported management decisions at Mustang Creek Ranch. The goal was to maintain a sustained yield of bucks, while harvesting the right numbers of does to keep recruitment high and doe age averaging 3.5 years.





generations. Then, we would know what a deer should weigh by its age class.

How many hunters kill a deer, rip it open and throw the insides on the ground and drive off with the carcass? Simply taking a little time to examine the outside of a deer's body for parasites and anomalies can teach you a lot. Going further, take a look at the liver and the kidneys, looking for flukes (repulsive flat worms encysted in the liver) in the former and the amount of fat around the kidneys for the latter. Break open a leg bone and examine the texture and color of the marrow. If it's white and firm, your deer is in good shape. If it's reddish and gelatin-like—not so good! If you really want to be thorough, cut into the rumen (paunch) and examine the lining. If you see scars in the lining, it indicates that deer had contracted and survived epizootic hemorrhagic disease (EHD) or Blue Tongue (BT). Finally, cut open the rectum and take a look at the pellets. If they are dry and have the appearance of sawdust, that deer was not on very good nutrition.

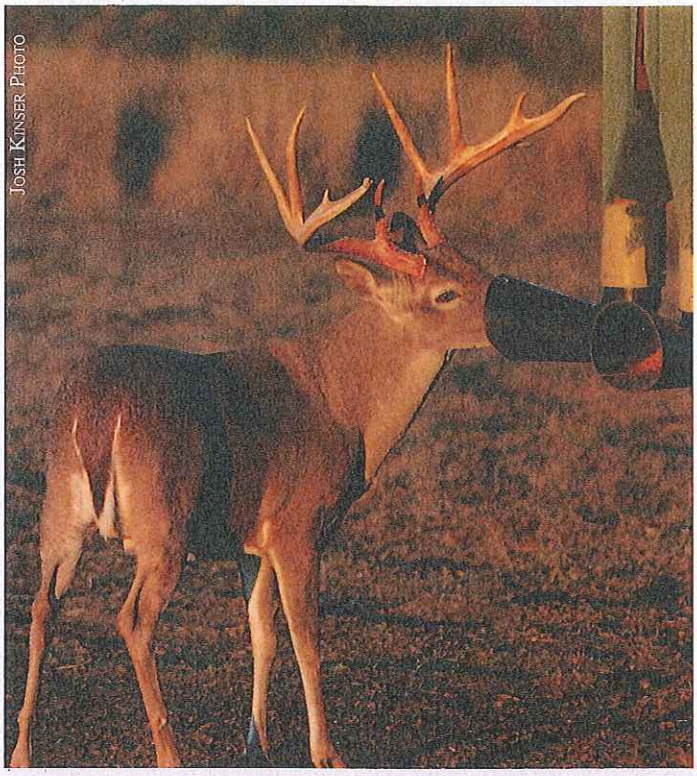
In states where we have very long deer seasons or, as in Texas a deer management assistance program (DMAP or MLDP), you can hunt well into the winter. In such areas and program, does are a gold mine of information, if you take the time to look. We conduct health checks (usually under state permit) in February all over the country for this very purpose. We not only collect the health indicators discussed earlier, but we remove the fetuses from the uterus and measure the distance from their forehead to their rump. Using a simple measurement card obtained from Forestry Suppliers in Jackson, Miss., you can estimate with good accuracy the date of conception. With a good sample size, you can determine when you rut occurred and how concisely it was organized. A distinct rut means a herd was in good condition; while a long, protracted rut suggests problems. Counting the number and sex of fetuses will tell you even more. If the average fetal count of mature does is less than two, you may have a problem, most often nutrition. If you have a percentage of your fawn does have a fetus, that's an indicator your herd is doing very well.

Whether public or private, biologists should be spending a great deal of time in the field. If you are a landowner, your biologist should be collecting or helping you collect all of the above data. You should be getting timely feedback, based on these data; showing changes over the years.

Finally, you should conduct a browse survey at the end of the winter. Anyone can learn to recognize what I call the "mainstay" browse plants in their area. They only represent a small number of shrubs and young trees, and there are excellent publications that show photographs and key identification cues. The Caesar Kleberg Wildlife Foundation has an excellent booklet on this very topic, and I recommend it for South Texas. Many extension services also provide booklets and posters for you to use in your area.

The technique is simple. Establish permanent, monumented survey lines on your property that provide a starting point for your survey. Walk in a random direction from the monument, stopping every 100 feet or so to examine the indicator plants. Choose about 10 stems and record the number that has been browsed. There is a difference between the appearance of a twig pulled off by a deer and one cut off by a rabbit. Deer do not have upper incisors and have to pinch

the stem between the palette and lower incisors. This leaves a string of the stem, clearly indicating deer browsing. Only cattle can frustrate this process, but they also have to be considered. If the average utilization is above 30 percent, you may have a habitat health problem; above 70 percent definitely causes concern.



What *Should* Biologists Be Doing?

Whether public or private, biologists should be spending a great deal of time in the field. If you are a landowner, your biologist should be collecting or helping you collect all of the above data. You should be getting timely feedback, based on these data; showing changes over the years. Back in the early 1980s, here at the Institute for White-tailed Deer Management & Research, we began a cooperative deer management program, modeled after the Deer Management Assistance Program, created by Dr. David Guynn at Mississippi State University. As an aside, we urged Texas Parks and Wildlife for years to adopt such a program, which they finally did with the creation of the Managed Lands Deer Program. The "genius" of the program is if we involve the landowner in data collection (ownership); provide a timely report (accountability), showing changes over time; and provide a comparison of progress to other properties in the area, the landowner or public will more likely support deer management activities.

Indeed, this approach works very well. When a landowner gets his/her report and it shows recruitment below the average of other landowners, the landowner is going to ask, "Why the difference?" That creates a teachable moment. But that relates to the final installment topic in the next issue. The key is the word "timely." Once deer management became popular in East Texas, the timber companies owning the lands leased by our cooperators started hiring biologists; and, they naturally wanted to take control of this program. Unfortunately, however, there is a lot of enjoyment in selling deer management; yet, quite another in delivering on promises. Reporting went from timely, to sporadic, to non-existent. The result was less management.



I certainly wonder where are such reports in state-operated programs? Mississippi continues to do a good job at timely reporting, but in some states, the data submitted by landowners seems to go in a "black hole." This creates mentality that focusing on just satisfying regulatory requirements, instead of assisting landowners in managing their deer.

Public versus Private

There certainly is a big difference between professional management of private properties and those in the public trust. So, what should you expect for each? Most stage agencies lack the funding to carry out deer management at the local level; even though all deer management is site specific. However, agency biologists have two options. First, they can involve the public in data gathering; and, second they can develop ways to monitor the critical population health indices discussed above. The use of trail cameras should be incorporated into a geographically related inventory system. Most states also do not have a disease and health unit within their department. Texas once led the nation in having a fantastic Wildlife Disease Unit, but that went away a long time ago. Mississippi requires their biologists to conduct health checks in their region, and that is a good model.

The most important aspect of population management on public or private grounds is establishment of harvest-based and health goals, rather than population goals. My Native American friends in northern Wisconsin practice such a system. Each year they meet to decide on the harvest needed to support the members, and then establish goals and strategies to achieve this harvest. On other public grounds, the same strategy could be used to better manage deer herds in the public trust. In either case you cannot remove private landowners from the equation. Yet, in almost every state, biologists continue to ignore the differences and impacts for private versus public lands. In Wisconsin, for example, the private landowners resent public hunters for "over-shooting" deer on public properties adjacent to their land; while the public hunters feel the private landowners are "hogging" the deer on their lands and going to public lands to shoot does! Public and private lands cannot be managed separately. The number one reason for a private landowner building a deer-proof fence is *frustration*!

On private lands, biologists should be more than what I referred to earlier as "form filers" and "helicopter jockeys." I am not saying a biologist who works with several landowners should be personally gathering population data each year. That is not realistic. What I *am* saying is the best system is for biologists to train landowners and hunters to collect sound data, then provide detailed analyses of what these data are revealing about the deer population, and provide them in a timely manner.

When I consider where we seem to be going with deer populations in the U.S., I become depressed! Agencies and professional biologists gleefully rode on the backs of a rapidly expanding deer herd for over 50 years. Management success was measured in "body count," rather than healthy deer herds and habitats. How many times has the term "record harvest" shown up in headlines? Sooner or later record harvests have to come to an end; and, that time is NOW. *If* we are to have the quality hunting experienced during the days of herd expansion in the future, we truly have to manage deer herds. In the next and final installment, I will talk about the third leg of the management stool—people management.

