BUILDING YOUR OWN
'DEER FACTORY'

How To Survey Your Deer Herd

One of the first steps to managing your property is figuring out the size and composition of the herd. Here are some ways to do it.

by David Morris

The more you know about the deer on your property, the more effective you can be in your efforts to return the herd to a healthier, more natural state. As discussed last month, the herd information you need takes the form of five parameters that can tell you what's going on with the herd — total resident deer population, buck:doe ratio, age structure, recruitment rate and natural mortality.

Of these parameters, only the total population is a specific number; the others are ratios and percentages. A representative sampling of the herd usually gives meaningful numbers for buck:doe ratio, age structure and recruitment rate, while reasonably good estimates of natural mortality must be reached through trial and error or extrapolation.

You don't need perfect data to manage deer effectively. Of course, the better your data are, the easier it is to devise a sound management plan and measure the progress you're making. With good data, you can work up a population model for your herd, then make management decisions, set specific goals and determine the ultimate end-product of management: a specific harvest.

But how do you get the herd data you need for making real progress? The options are many and varied.

TRIED-AND-TRUE METHODS

Spending time observing deer on a piece of land has always been a good way to come up with herd data, and it always will be. There certainly are high-tech options for acquiring data, but you can achieve excellent results simply through careful observation and compiling good records of what you find.

When we started gathering herd data on a large property I managed back in the early 1970s, we did it in just that fashion. I'd station our biologists and guides on bean fields late in the day from July through October and have them record the number of does, fawns and bucks seen. Buck sightings were broken into three age-classes: 1 1/2-year-olds (yearlings); 2 1/2s; and 3 1/2-pluses.

We'd also conduct a three-night spotlight survey annually. I found this to be a worthwhile way to gather data, once I figured out that it worked best in fairly open cover and around major food sources. The night survey was conducted on the same days in September every year along the same routes through the property. From this accumulation of data, we estimated our pre-season buck:doe ratio, age structure and fawn recruitment.

I tried other ways to come up with estimates of the total population but found nothing that worked better. Among them was the track-count method, which was a waste of time. It might work in places with few deer, but the high density in our area led to a confusing maze of tracks. Plus, the number of tracks varied too much over time, depending on weather, hunting pressure, food sources, etc., for me to have much confidence in what the tracks were telling me about herd size.

My best numbers for the total population came from extrapolating state data to our own situation. First, I got the wildlife agency's estimates of deer "carrying capacity" for the local area. ("Carrying capacity," or "productive capacity," generally is expressed in "acres per deer" or "deer per square mile" and refers to the number of deer the land will support without suffering habitat damage from overbrowsing.)

Once we had the state's figure, we conducted studies to determine the degree of browse damage to primary and secondary browse species, in an effort to see where our herd stood relative to that carrying capacity. From this, we derived a population estimate relative to the "known" carrying capacity for our area.

This was useful early on, but as our management program improved the habitat, a relative comparison to the area norm grew less meaningful. Later, we found that this method consistently *underestimated* the number of deer on our property.

From the cumulative total of all data, I'd make a population estimate. I'd then plug in the percentages from the other herd parameters to reach estimates for the number of does, fawns and bucks, as well as the number of bucks by age-class.

Of course, before we could decide on harvest numbers, we needed to know natural mortality. That was a hard one. I had no strategy for gathering field data, so I went to the scientific literature. In time, I arrived at a figure I was somewhat comfortable with for does and fawns and another for bucks. Then, I

plugged the whole ball of wax into a population model and determined my target harvest.

Over time, what I expected based on my assumptions was either proved or disproved by reality. We never stopped gathering data, and we recorded everything. We'd even take sighting reports from the hunters we were hosting on the property.

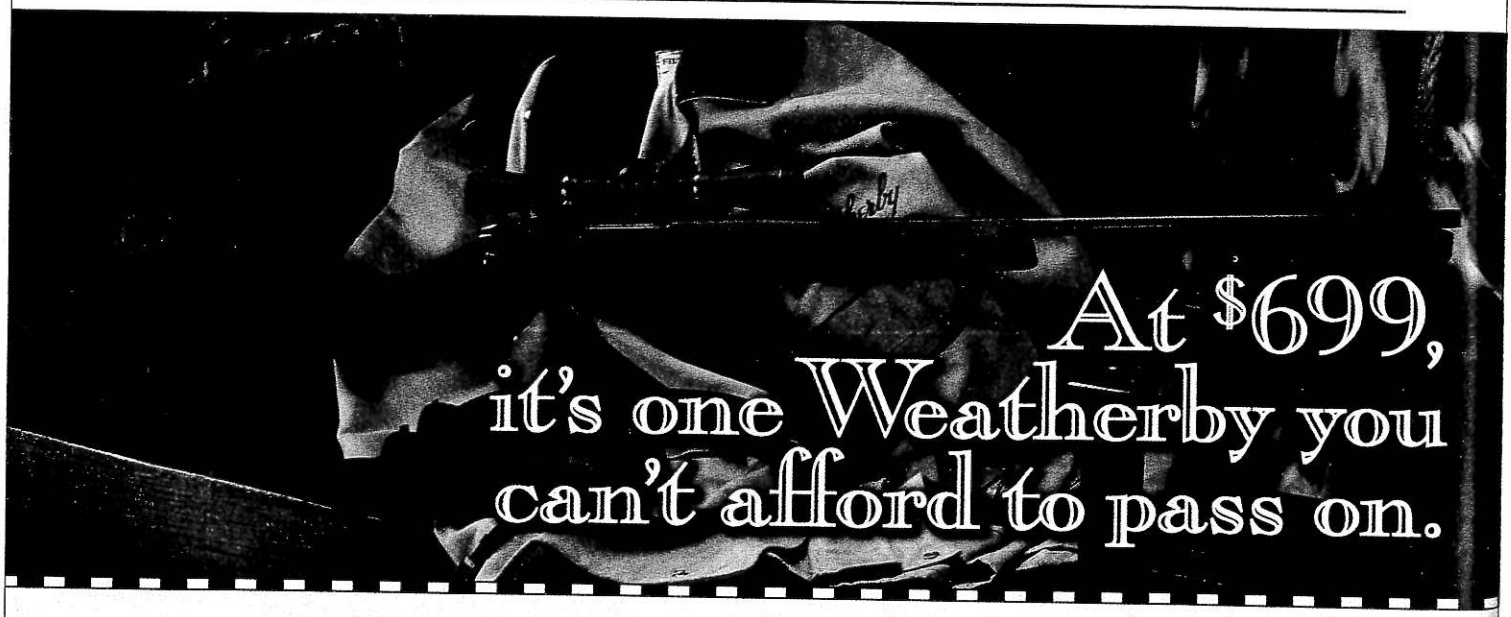
Harvest figures eventually told us much. During the first few years, our harvest was largely non-selective, allowing us to use the percentage of yearling bucks in the harvest as the key index in a "herd reconstruction formula" designed to back-estimate pre-season population totals. But I soon lost faith in the accuracy of this system, because even in a seemingly non-selective harvest, younger bucks are selected for, due to the inherent difficulty in killing older bucks. Still, the relative numbers we got from the herd-reconstruction formula told a story that was useful in the overall scheme of things.

We found that field observations — especially those made while watching prime feeding areas in late summer and early fall — provided us with some of our most accurate data. Fortunately, a food-source management program such as we at ***WHITETAIL*** advocate is ideal for direct observation, either in daytime or at night with spotlights.

If you maintain well-distributed, attractive year-round food plots, they will give you a decided advantage in censusing your herd. Prior to hunting season, spend as much time as you can observing deer in and around the plots. Keep notes on what you see, then use the information to estimate total deer numbers, the buck:doe



Counting tracks in an area and then using a mathematical formula to extrapolate the deer population is one possible way to census the herd. But it doesn't work well when there's a high deer density. Photo by Len Rue, Jr.



THE MARK V® LIGHTWEIGHT. The strength and integrity of the Mark V action. The velocity of a full 24" barrel. The lightest full size production rifle you can buy. All for less than $700. Compare the quality features of the Weatherby Mark V Lightweight with any other popular rifle, and you'll see why it's one Weatherby you can't afford to pass on.

MODEL	Weight	Barrel Length	Bolt Lift	Velocity	1-Piece Receiver	Bolt	Magazine Capacity
Weatherby Lightweight Synthetic	***6 lbs. 8 oz.***	***24"***	***54 degrees***	***2950***	***Yes***	***Yes***	***5+1***
Browning A Bolt II Composite Stalker without BOSS	6 lbs. 11 oz.	22"	60 degrees	2910	No	No	4+1
Remington 700 ADL Synthetic	7 lbs. 6 oz.	22"	90 degrees	2910	No	No	4+1
Winchester Model 70 Black Shadow	7 lbs. 4 oz.	22"	90 degrees	2910	Yes	No	5+1

Velocities taken from Federal 150 grain Nosler Ballistic Tip loads, chambered for .30-06 Springfield. Difference in velocities determined by SAAMI specifications. Mark V Lightweight also available in .22-250 Rem., .243 Win., 7mm-08 Rem., .308 Win., .25-06 Rem., .270 Win., .280 Rem. and .240 Weatherby Mag.

Weatherby®

3100 El Camino Real, Atascadero, CA 93422

ratio, age structure and recruitment rate.

The point is that practical means can be used to gather herd data upon which to make management decisions. Don't worry that your estimates might not be accurate enough; time either will support or discredit them, leading to new and hopefully better sets of assumptions as you go.

INFRARED CAMERAS

Food-source management also is very conducive to another censusing method, one that's only recently become available: infrared-triggered photography. As Dr. James C. Kroll discussed in detail in his three-part series in the Aug.-Oct. 1997 issues, these devices have tremendous potential for helping you learn more about your herd.

The setup is nothing more than a conventional auto-focusing flash camera rigged so that an infrared sensor trips the camera when a deer moves within a certain distance of it. (This range is determined largely by the range of the flash.) The rig can be set up on a tree or a post. On all the better systems, a specific time delay between shots can be set to prevent shooting a whole roll of photos of the same lop-eared doe.

With this technology, you can monitor your herd 24 hours a day, seven days a week, without spooking deer in the way direct observation can. That can be a great advantage, especially in situations that don't lend themselves well to glassing deer in daytime or censusing with a spotlight at night.

Again, these cameras are quite effective when used in conjunction with food-source management — especially when direct feeding is employed. Some managers "train" deer to come to feeding stations, even though they don't depend on it for nutrition, just for the purpose of attracting the animals within range of cameras for censusing.

While this is an excellent idea, direct-feeding stations aren't the only places such units will work. High-use areas (such as trails) leading to/from major food sources, scrapes or even the edges of food plots can provide good data. Of course, most of the action will be at night. In fact, it won't take you long to realize just how nocturnal deer are — big bucks in particular.

Because antlered bucks usually are highly identifiable, the photos are particularly effective in helping you determine the herd's age structure. Such numbers always have been hard to gather, but because this outfit works under the cover of darkness, it's a great tool for spying on shy old boys that only come out at night.

Infrared cameras also are effective in determining buck:doe ratio and fawn recruitment. However, because it can be hard to distinguish one doe or fawn from another, the sample size and geographic area must be big enough to provide good averages.

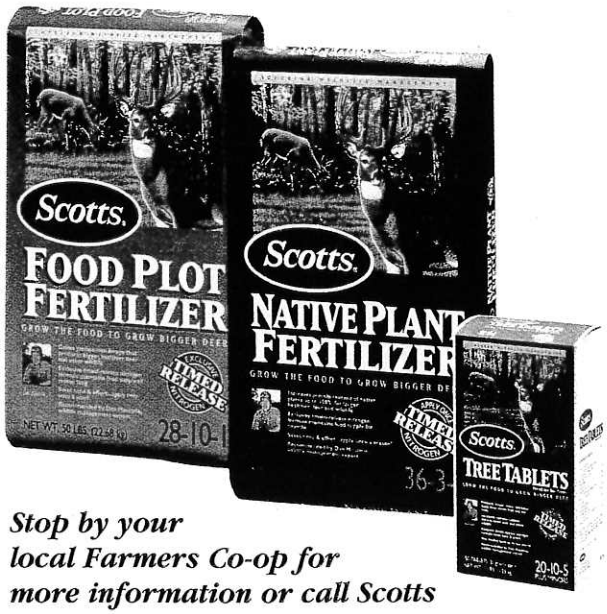
Arriving at firm total numbers is also hampered by the problem of identifying individual does and fawns. A partial sampling of the herd won't give firm totals, but with enough camera work and some figuring, you can come up with a close estimate. "Enough camera work" means a near-100 percent census of the bucks, which are largely identifiable in photos.

When's the best time to census with cameras? Anytime from late summer into early fall is OK. We've used this method at various times of the year at Fort Perry Plantation,

RACK Scotts BUILDER

GROW THE FOOD TO GROW BIGGER DEER™

Most Wildlife experts agree that white-tailed deer need food sources with crude protein levels of at least 16%. They also agree that if native plants and planted food plots are properly fertilized the crude protein levels can be increased by up to 150%. The Scotts® Company is introducing a revolutionary new way to manage these and other types of wildlife habitats that saves time and effort. Scotts Food Plot, Native Plant, and Tree Tablet fertilizers provide extended fertilization to your favorite hunting spot without the hassle of making multiple applications of fertilizer. The secret is in our exclusive timed-release coating technology that provides continuous fertilization for months. Now you can make as little as one application and go do what outdoor enthusiasts really enjoy.



Stop by your local Farmers Co-op for more information or call Scotts at 1-800-811-2545.

WHITETAIL's deer-research facility in Georgia, and have settled on October as best. If at all possible, you want to have recent census data in hand before hunting begins, so you can decide how many of which deer to harvest.

When we set up for a census, we usually run it for at least two weeks. Because we try to get a 100 percent census on Fort Perry, our rule of thumb is one camera for every 160 acres, but you certainly can get by with less coverage. On large tracts, you might census only part of the area at a time. This will drag out the census, but it will greatly reduce the number of cameras needed.

Some managers balk at infrared censusing because of the cost (an average of $300 to $400 per unit, plus film and processing). But it works. Plus, it has an incomparable benefit: It gives you proof of what's out there! Photos take a lot of the guesswork out of management and provide a permanent record of what you've produced. You not only can study and admire bucks you otherwise might never have known existed, but you can also see year-to-year changes in individual bucks, giving you valuable insight into the nature of your herd. You might even find a *big* reason to get excited about the upcoming hunting season!

Camera surveying is here to stay, and it's likely to become the standard way to census deer in the future. We'll soon see digital cameras that will eliminate film and processing costs, and there will be more use of video cameras. These and other advances will make camera surveys even better options for managers.

HELICOPTER SURVEYS

Surveying from a helicopter has long been a popular way to census deer on some Texas ranches, but under the right conditions, it also has application elsewhere. Such surveys involve flying grid lines (usually about a quarter-mile apart) back and forth across the property, recording the estimated number, age and sex of deer seen in the process.

This method of censusing has the advantages of being quick — most ranches can be surveyed in a day or two — and reasonably accurate. Plus, as with infrared-triggered monitors, still photos and/or video footage are normal byproducts of helicopter surveys.

Studies in the South Texas Brush Country have shown that on average, "good" helicopter surveys result in a count of between 30 and 60 percent of the deer present. Although not all of the herd is counted, the resulting numbers still are good enough to let the manager make excellent estimates of the buck:doe ratio, buck

CENSUSING YOUR WHITETAIL HERD

The goal of censusing is to come up with reasonably accurate estimates of a number of herd parameters, using one or more means of observation. Among the questions to be answered by censusing are:

1. How many deer live on my land?
2. What's the buck:doe ratio?
3. What's the herd's age structure?
4. What's the recruitment rate?
5. What's the mortality rate?


Actual 5-shot, 50-yard group

There's a new champion in shotgun slugs!

New from Brenneke®: Power and precision at an incredibly low price!



Brenneke invented the modern shotgun slug in 1898. Now, we've reinvented it as K.O.™, a brand new line of 12 gauge slugs. A dramatic improvement on Foster-type slugs, they're priced to compete with the least expensive rounds on the market, yet outperform most high-dollar slugs. They incorporate the exceptional accuracy, penetration and knockdown power that have made Brenneke® the world's most popular slug.

Now you don't have to sacrifice quality to shoot a reasonably priced slug. If you're a hunter, ask your dealer. If you're a dealer, call your distributor. But ask for K.O.™ ...they're a knockout!

BRENNEKE K.O.™



shotgun slugs with a punch

BRENNEKE OF AMERICA, LTD.
P.O. Box 205 • Irvine, KY 40336

age structure and recruitment rate.

Of course, estimating the total population requires a "guesstimate" as to what percentage of the herd was counted. The manager takes the number of deer counted from the air and expands it by some amount to come up with an estimate of the actual number of deer present. Over time, this "guesstimate" is refined.

Helicopter surveys are considered to be largely non-selective, meaning it's assumed they don't lead to biased conclusions about the herd. I agree in general, but the more frequently an area is surveyed, the lower the percentage of the herd observed as the helicopter passes. Many deer learn to hide from it or — especially in open country — move out far ahead of the survey team.

If a herd as a whole can learn to some degree how to reduce their exposure to the helicopter, I must assume that the older, wiser bucks, which are inherently the most reclusive animals in the population, will be at the top of the avoidance curve. Many other deer managers share this belief, for two reasons: (1) They often fail to spot big bucks from the air, after seeing them from the ground; and (2) they sometimes have huge bucks mysteriously appear despite never having been seen in years of helicopter surveys on the same land.

The main drawback of helicopter surveys is that they're fairly expensive (though not prohibitively so, given the total expense of managing a large tract). Another problem is that these surveys aren't effective in every type of habitat. For example, low-flying helicopters and thick, tall trees just don't mix.

I experimented with this survey method in the Southeast some years ago and succeeded only in scaring the bejabers out of both the pilot and me. In those tall pines and leafy hardwoods, we caught glimpses of only a few deer, and the ones we did see were impossible to shake out of the heavy cover. Our results were inadequate for drawing any real conclusions about the herd.

Airplanes also have been used for surveying deer, but they must fly too fast and high to be very effective. About the only situation in which they're halfway useful for censusing is in open habitats, and even then only when snow provides a good background for seeing deer.

I even know managers who've tried using high-tech infrared equipment from planes to detect the heat signatures of whitetails and thus come up with a total count. The results thus far have been less than desirable, though, because the canopy of vegetation tends to block detection of hidden deer.

CONCLUSION

This is by no means all there is to say about censusing your herd, but it should give you an overview of what the process involves. Just remember that the more good information you have on the herd, the more likely you are to be able to make better decisions about how to manage the herd and the more effectively you can measure the progress you make.

A key part of managing deer obviously involves determining the number, age and sex of deer that should make up the harvest. But how do you turn your census information into a harvest plan that fits your management goals? Next month we'll start to answer that question, showing how the decisions you make can shape your deer herd — and your hunting future.

