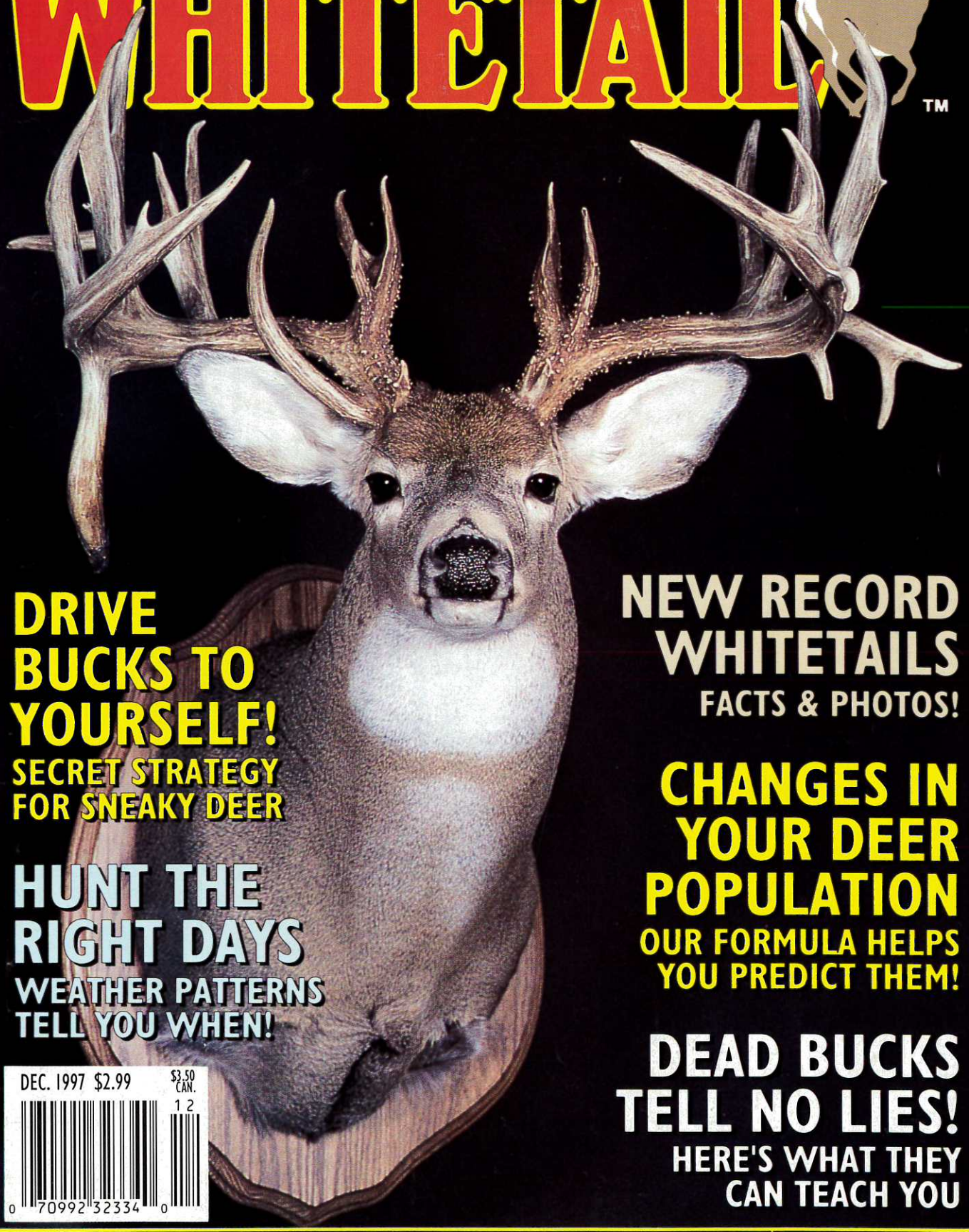
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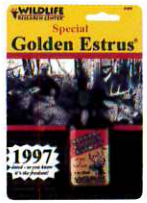
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Part 2

How To Become A Deer Detective

Through careful examination of the buck you've just harvested, you can learn plenty about him and the rest of your local deer herd — and it just might pay dividends next season!

by Dr. James C. Kroll

You can learn a lot from a dead deer.

There is far more to do at the site of your kill than merely field dress the animal, and what you learn in those important minutes after you recover the deer you've downed can have a significant effect on your future hunting results. Last month, we discussed how to reconstruct a successful hunt, based on evidence at the scene of the kill, to improve our skills as trophy hunters. Now, let's see what we can learn from the animal itself that will help us be more successful in future seasons.

Over the years, I have found that taking a few minutes to thoroughly examine a dead buck can yield amazing amounts of information about the whitetail herd in that area. It is natural to invest most of your efforts in finding deer and their sign, but never overlook the vast potential of a freshly killed deer for providing you with valuable insights as well.

RIGHT AFTER THE KILL

Most of the time, the happy hunter is so eager to show his buddies what he has shot that little time is spent alone, studying the dead deer. This is a mistake.

My Alberta hunting buddy, Dave Bzawy, has instituted a ritual as part of his guide service. After your deer is down, Dave leaves you alone with him for a short time to, as he puts it, "get to know your buck." Although this might seem a bit too "mushy" for the hardened trophy hunter, it does have its practical side.

I have noticed over the last decade that deer hunters are becoming far more sensitive to the image they project. Each year, ***WHITETAIL*** receives countless photos of hunters proudly displaying their trophy bucks, and the quality of these shots continues to improve. Although we all are aware of the less aesthetic aspects of hunting and should not have to apologize for killing animals, it serves no good purpose to show a hunter with a knife in his teeth and a bloody deer hanging in the background! You longtime readers no doubt have noticed the particular photographic style we prefer to use for displaying trophy bucks in the field, so take the time to document your hunt with a photo of which we all can be proud.

After these photos have been taken and your hunting buddy has congratulated you on your buck, it is well worth the extra time it will take to conduct what I call a "forensic" examination of the deer. Many of you will remember that last month I wrote about backtracking a buck to study his movements in the moments leading up to the kill. Well, you also can learn a great deal about his last hours and days through a close examination of his physical traits and condition.

This process is for all practical purposes no different from that used by pathologists to determine the cause of death in humans. I still can see Dr. Quincy on television methodically piecing together bits of information to finally nab the felon who thought he had committed the "perfect" crime, and the steps taken to reconstruct details of a buck's life are similar.

FEET AND LEGS

I start with the deer's hooves, which can provide a great deal of information. There are three things to consider. First, let's take a look at the soil (and possibly mud) on the deer's feet. Look around you. Is this soil different in color and/or texture from that on the deer? Are the hooves completely dry and clean? If mud is present, does it occur high on the legs, possibly indicating that the deer had come through a swamp minutes earlier? The answers to such questions can help you determine whether or not the buck had come from a specific area prior to your seeing him.

I once harvested a magnificent buck near Catarina, Texas, which is not exactly the mud capital of the world. This area is typical of the dry South Texas Brush Country; in some areas, a deer practically has to carry a canteen to stay alive! However, this particular buck had mud up to his knees, which proved to be significant. Within a reasonable distance of where I had shot him, there was only one place he could have picked up that mud: a large slough bordering the ranch. In December, when I was hunting, this slough had dried up to only a small area of no more than 20 acres. The buck had to have been there recently.

Two years later, I harvested another buck with mud on his legs, so I decided to go into the area in

Stop every few feet to listen and watch for 10 minutes or so, scanning in both directions. You also can hang a garment or bag of human hair in a strategic place, which will increase your chances of moving the deer where you want them to go. These methods will work for both archers and gun hunters.

If you have two hunters, of course, you have more options in trying to move deer. For instance, you can increase your chances by putting a hunter at a corner or end of the suspected deer hide-out and then, starting at the opposite end and moving through, throwing rocks to your right and left and barking like a dog hot on a deer track. This usually will send deer out of their beds in a hurry. Other hunters might think you're nuts and give you some strange looks — but after they hear you shoot, maybe they'll try it, too!

12 PROVEN TIPS FOR DRIVES

Here are a dozen points for making your small drives succeed:

1. Think about where the deer are most likely to be before you ever start the drive, and try to figure out all of their possible escape routes.

2. Many deer are accustomed to human sounds. It's often possible to use your voice or other human sounds to move them into position before the drive starts.

3. When trying to sneak through dry leaves to get into position on a drive, shuffle your feet to imitate the sounds of squirrels playing.

4. If deer can track you with their ears, they usually will stay put.

5. Try keeping the deer's attention on yourself while a friend sneaks into position for a drive.

6. Be patient. It might take several drives to get a big buck moving.

7. When looking for the best corn field to drive, scout the edges for fresh tracks leading in but not out, or climb a tree for a bird's-eye view.

8. Watch your backtrail. Deer that have been driven before often will double back (even if you've put human scent there).

9. In standing corn, get down on your hands and knees and scan each row. Look for legs. When you see deer, throw rocks to move them.

10. The best time to hunt a corn field is a windy day. If you're alone, hunt into the wind, so the rattling of stalks will cover your noise. Be ready for some short-range action!

11. Use open sights or low-power scopes (3X or less) when driving corn fields or other very thick cover.

12. Learn all you can about your hunting area. It's better to know every inch of a 50-acre farm than to hunt a brand-new area every day.

(**Editor's Note:** Before conducting a drive through a corn field or other agricultural planting, always get the landowner's permission.)



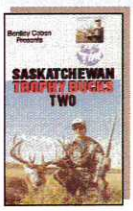
The author fooled this Pennsylvania buck by throwing rocks into thick cover, then moving to the end of the brush and waiting. The deer finally broke from cover on the third try. Photo courtesy of Mark Stuart.

Canadian Deer Hunting Videos



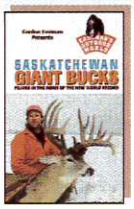
SASKATCHEWAN TROPHY BUCKS III

This new video produced by Bentley Coben is another action-packed video that features trophy bucks taken on camera with archery, muzzleloading and rifle. The video contains a realistic view of what this province has to offer for hunters looking for their dream buck. You will also view some of the largest bucks taken in the 1996 season. Don't miss the action! * ?? minutes * **$29.95**



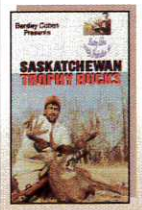
SASKATCHEWAN TROPHY BUCKS II

Feel the excitement as you witness men and women from novice to expert pursue trophy bucks. View a wild Boone and Crockett whitetail so close you'll think it may jump out of the screen! See first time hunters empty their guns, as herds of deer prance by at close range. Then the experts come through and put the Boonies on the ground. Critics are saying this is Bentley's best video yet. Don't miss the action!
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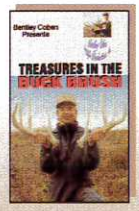
SASKATCHEWAN GIANT BUCKS

Bentley Coben and Gordon Eastman teamed up to bring you, the viewer, the most action-packed deer hunting video ever produced. Among the many whitetail bucks taken on the film, two net score over 200 points. Over 80 Saskatchewan whitetail bucks are filmed in the land where the new world record whitetail was taken. If you are an avid hunter of big whitetail bucks this film is a must. Also includes footage of some great mule deer bucks.
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SASKATCHEWAN TROPHY BUCKS

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This film is a guide for the shed antler enthusiast. Bentley Coben, being a consultant and master shed antler hunter with the North American Shed Hunting Club, joins up with his family and friends. Together they hit the deer trails searching for hidden treasures in the aspens and buck brush of Saskatchewan. View what shed hunting has done for these trophy hunters and could do for you! * 97 minutes * **$29.95**

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Many parts of a buck, from his antlers to his hooves, can reveal secrets of where and how he has lived. The clues are there for anyone to unravel. Photo by Mike Searles.

late winter to investigate. There I found a small island of dry land with numerous signpost rubs and scrapes. Those bucks were using the slough as a sanctuary. And even today, that pattern holds true; every year, you will find at least one mature buck in that vicinity.

Next, look at the condition of the front hooves. Dominant bucks make many scrapes during the rut, and this constant use of the front hooves wears them down dramatically. Are the front hooves sharply pointed, or is each rounded and heavily worn? This can give you an idea of the deer's social ranking in the herd.

A final examination of all four hooves is often rewarding as well. Track size is always of interest to hunters, but many bucks also have unique hoof characteristics worth noting. One toe might be shorter than the other on the same hoof, or it might bend peculiarly inward. Noticing such things will allow you to backtrack the deer better — especially if tracking conditions are good — and perhaps will tell you if his hooves match tracks you have seen in your hunting area.

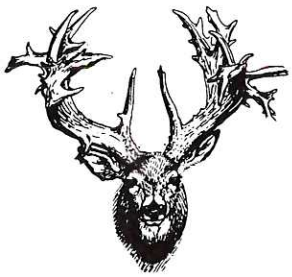
Now, let's proceed up the rear legs, to the tarsal "glands" on the inside of the knees. I put quotes around the word "glands" because they are not really glands per se; rather, they are tufts of long, waxy hairs that provide a place for bacteria to digest urine and other chemicals. Most of you are well aware that a rutting buck has dark-brown, smelly tarsals — but beyond merely noting whether or not they have a strong smell, what else can an attentive hunter learn from them?

A subdominant or subordinate buck will attempt to lick off any hint of smell from his tarsals. He does not want to be out there reeking of scent when the big boys are about, because this indicates he thinks he is one of them! So, if the buck has significantly stained tarsal glands, he probably is in the higher social structure, regardless of his age.

Next, examine the extent of the staining. Does it extend down the length of the leg? If so, that means the buck was in full rut when shot,

(Continued)

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THE BEST OF NORTHERN VISIONS - VOL. 1
Join whitetail hunter/videographer Craig Larson on a 4 year odyssey into the world of the Canadian whitetail. Features 10 Manitoba bucks killed on-camera, with 8 deer scoring 146-171 B & C pts. and weighing up to 370 lbs. View the best big buck footage from the original videos Wild Whitetails, Hunting Canadian Whitetails, Manitoba Big Buck Challenge I & II. Spectacular, up-close live video of more than 30 big Canadian bucks. View massive antlered non-typical and typical whitetails with many bucks captured on tape at less than 30 yards. See 4 bucks mature into trophy class deer and observe the yearly development of each buck's antlers over a 4 year period. **60 minutes $29.95**



MANITOBA BIG BUCK CHALLENGE IV
Craig Larson spent hundreds of hours during the fall of 1994 hunting and capturing awesome live video footage of more than 30 Manitoba bucks. Scenes of big Canadian whitetails sparring and posturing for dominance, making scrapes, coming into rattling, and chasing does are shown throughout the video. Ultimately, Craig takes a huge Canadian non-typical whitetail gross scoring 198 pts. (B&C) with an estimated live weight of 400 lbs. and a tall, heavy antlered 10 pt. buck grossing 164 pts. and netting 160 pts. (B&C). Both bucks are killed on-camera in late November. Also shown just after being harvested are four Manitoba bucks including a non-typical deer. *Plus* New additional whitetail footage (43 minutes) from the 1995 season including a 153 pt. buck killed on-camera with muzzleloader by Craig and live footage of another 30 Manitoba bucks. See, alive in the wild, some of the biggest Canadian whitetail bucks ever recorded on tape including 3 huge typicals. More non-stop action, now with over 60 bucks. **98 minutes $29.95**



CANADIAN WHITETAIL OUTFITTERS II
See giant bucks from Saskatchewan and Alberta including 10 non-typical deer. Eight whitetail outfitters are featured with updates on outfitters shown in the first Canadian Whitetail Outfitters video. Footage of more than 60 big bucks including record book whitetails. Hear the story of the hunt from the hunters and comments on their experience in Canada. **60 minutes $11.95**

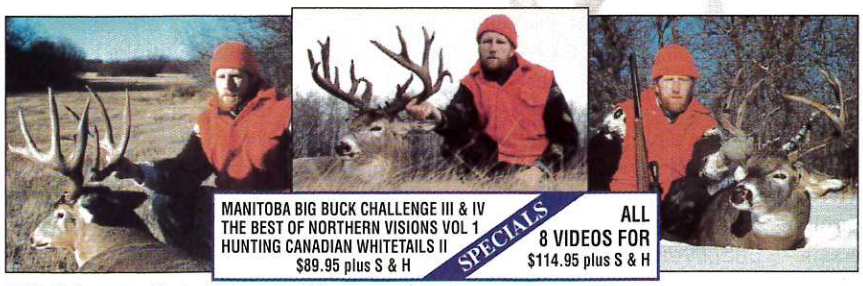


MANITOBA BIG BUCK CHALLENGE III
Features 2 big Manitoba whitetail bucks killed on-camera. A massive antlered typical buck scoring 165 pts. (B&C gross) is dropped in his tracks as he crosses an alfalfa field coming to rattling and a buck gross scoring 154 pts. (B&C) with a 23" spread is also taken on-camera. Live footage is shown throughout the video including bucks sparring, fighting and chasing does. **55 minutes $24.95**

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Features outfitters from Manitoba, Saskatchewan and Alberta. See more than 50 bucks including Boone & Crockett deer from the fourteen outfitters featured. Also included is video footage of 2 bucks with locked antlers and the release to freedom of one of the bucks. **60 minutes $11.95**

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Many of Saskatchewan's greatest whitetails are featured, including massive drop-tine non-typicals scoring up to 254 pts. (B&C). More than 30 Boone & Crockett bucks highlight this collection of giant Canadian whitetails. Hear the story on how these great bucks were taken. **60 minutes $14.95**

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Features 35 huge non-typical and typical Boone & Crockett bucks, over 50 trophy whitetails. See many of the largest bucks killed in Manitoba, Canada, including the No. 1 typical which gross scored 212 pts. (B&C) and many deer scoring over 200 pts. (B&C). **60 minutes $14.95**



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or at least had been quite recently. This also can help you backtrack the buck if there is snow cover; a tell-tale trail of dark-brown-stained tracks often will be in evidence.

THE COAT

Proceeding with the "autopsy," note the condition of the animal's coat. Is it smooth and shiny or noticeably dull and shaggy? The latter indicates an animal in poor physical condition. This means he either was very old and unable to get adequate nutrition, or that your area has some serious overpopulation problems. In some areas of the South, for instance, deer cannot shed their summer coats until late in the fall, because they simply cannot muster the nutrients to grow a winter coat before then.

THE HEAD

Pay very close attention to the deer's head. Dominant bucks tend to rub their heads against their tarsals, leaving noticeable brown streaks above each eye. These streaks even smell. Subordinate bucks do *not* exhibit this behavior.

Also, smell the center of the forehead. It contains a gland that is used to mark signposts; if there is a noticeable smell, it confirms the buck's breeding status and condition.

One of the most educational aspects of the head involves the bases of the antlers. There often is debris around the bases, and it obviously comes from the trees the buck has been rubbing. Bucks have been shown to have definite preferences for certain species of trees, so I commonly extract some of this material and examine it with a magnifying glass for identification purposes. (It also is possible to identify some tree species by smelling the bark.)

You might even develop a collection of bark and wood from the various tree species in your area, strictly for this purpose. Using such a collection, it often is easy to determine which types of trees the buck was rubbing. That, in turn, could aid you in reconstructing and backtracking to find out what he had been doing and where.

OPEN WIDE!

Now it is time to look into the mouth, before *rigor mortis* sets in. (It practically takes an act of Congress and a pry bar to get in there after that happens!)

I constantly am amazed at how many hunters have no clue as to the age of the deer they shoot. It seems logical to me that most hunters would want to know such things, but the evidence suggests otherwise.

Aging a buck by tooth wear is quite simple; I have found that an interested person can learn the technique in only an hour or so. Nonetheless, teaching you to do this would require more text and illustration than is available in this overview. (Fortunately, there are many sources of aging information, including my book, *A Practical Guide to Producing and Harvesting White-tailed Deer,* in which I included color plates of each age-class' jaw teeth.)



A soaked buck obviously has just crossed a waterway or gone through tall, wet vegetation. But even muddy hooves can tip you off to his habits. Photo by Leonard Lee Rue, III.

Basically, estimating age by tooth wear involves examination of the jaw teeth (molars and premolars, not the incisors up front). Older deer tend to have significant wear on the fourth and fifth teeth (counting from front to back).

The age of the deer you harvest is important, both for management and hunting, for it tells you something about the age structure and age-related antler quality on your land. For example, a buck with a small set of 6-point antlers often turns out to be young; however, he also could be mature. If he is a yearling (1 1/2 years old), he obviously had good nutrition. (Of course, in managing for mature bucks, you should have let him walk, so he could realize his potential, but that is another story.) If he is a mature buck, on the other hand, you might have a nutrition problem, or perhaps he simply

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lacked the genetics for a big rack.

If the deer you shot is a doe, you can learn a great deal about the herd from her as well. Is she lactating (in milk)? If so, she still is nursing at least one fawn. Knowing the lactation rate for the area thus can tell you a lot about fawn survival. Squeeze the udder to see if any milk is still being produced.

Take a final look over the deer's body for anything odd. The presence of a heavy parasite load (ticks, lice, etc.); scars; and/or skin problems also can teach you much about the individual deer and your overall herd condition.

For example, I often get calls from hunters concerned about having shot deer that have large, dark "warts" on the body. These are caused by a virus and are little different from warts in humans. They do not affect the quality of the meat, but they do give a less than aesthetically pleasing image of the deer.

Other things to look for include something you might have noticed earlier while checking the deer's feet: hooves that appear to have been sloughed off and then regrown. This is one of the diagnostics I use in assessing the presence of bluetongue, or epizootic hemorrhagic disease (EHD), in a herd. An infected animal tends to have stomach problems, and this in turn can affect hoof growth.

THE INSIDE STORY

Now, finally, it is time to field dress the deer. Rather than ripping out the insides, loading the viscera into the truck and heading to camp, take a little extra time to learn more.

One of the most important things you can determine is the effect of your shot. Whether it was made with bow or gun, there are tell-tale signs to look for that will help you the next time you take aim at a deer. I like to look at the entry wound and, if there is one, the exit wound. If there is no exit wound, that can give hints as to the performance of the projectile used.

When another hunter in my camp saw me examining the bullet hole in my buck last season, he queried, "What are you doing, admiring your work?" I told him that I actually was studying what the bullet had done. I write all of this down and, if possible, even retrieve the bullet or arrow for future study. If bone was

penetrated or broken, I study the effect this had.

The next thing to examine is the overall body condition of the deer. Hunters often challenge my assertion that their herd is in poor condition by arguing that there is plenty of fat present in the whitetails they shoot. But deer deposit fat obligatorily, meaning they put on fat in the fall whether they have adequate nutrition or not. (Summer would be a better time to check fat, but shooting deer then obviously is illegal in most places.) So, we need to examine the amount and location of fat present.

Kidney fat has long been the standard used by biologists, but I also look at the amount of fat elsewhere in the body cavity and even the intestines. As a buck goes through the breeding cycle, he can lose as much as 40 percent of his pre-rut body weight. By the end of the rut he often has no fat reserves, whereas a doe has plenty. By looking at the amount of kidney and abdominal fat, you can learn: (1) the breeding status of the buck and (2) the overall condition of your herd.

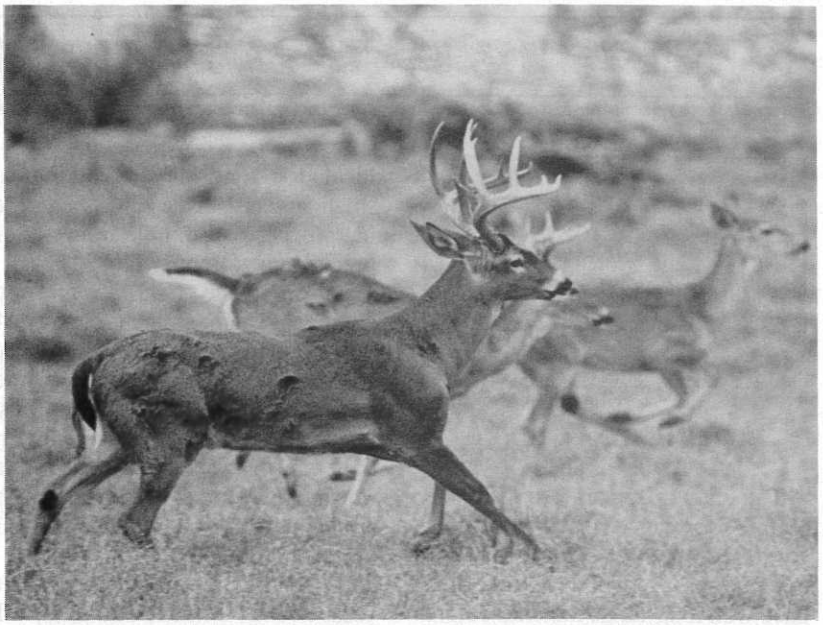
Last fall in Alberta, I noticed that most of the bucks we were harvesting had little or no kidney fat, even in mid-November. This meant that the deer would have to make it through the rest of the long Canadian winter with virtually no fat reserves. Such information can give you an early indication of the next season's buck availability and/or quality.

Now comes the *really* messy part. Most hunters avoid breaking the paunch at all costs, because there is nothing more disgusting than the smell of *eau de rumen* on your hands! But once the viscera are on the ground, a brief examination of the first stomach's contents will prove most rewarding.

Cut into the rumen and, using a small stick (or your hand, if you are really brave), look over the contents. If, for example, there is corn present, but the nearest corn field is two miles from where you shot your buck, that gives you a clue as to what the animal was doing and where. (If there are no fields at all present, it also might tip you off that someone in the area is baiting.)

Many hunters think acorns are responsible for growing antlers. They aren't. But where available, they are a preferred fall food of deer. Of course, not all of the many oak species are equally preferred, so examine the pieces to determine which acorn species are being eaten.

Also look for other items, such as apple skins, seeds and bits of browse. These can tell you about the final meal of the buck. If you take the time, a detailed rumen analysis might even tell you *exactly* where the buck had been in the hours prior



Dark staining of the hocks (tarsal "glands") on a rutting buck is easily seen evidence that the deer has achieved some status as a breeder. But as this photo shows, adult does also can have dark hocks, indicating that the breeding season has gotten under way. Photo by Judd Cooney.

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For more information, please write to Lyman Products Corp., 475 Smith St., Middletown, CT 06457 or call (800) 22-LYMAN.

WEAVER'S V24 RIFLESCOPE IS IDEAL ON THE BENCH OR AFIELD

Weaver continues its tradition of offering high-quality scopes for precision shooting at the bench or in the field with the introduction of its V24 Riflescope. With its broad range of magnification, the V24 is equally well suited for hunting in the deep woods, competing in a benchrest match or shooting varmints on the Western prairies.

The new Weaver scope is the big brother to the V16, one of Weaver's most popular scopes ever. The V24 zooms from 6 to 24 power and has a 42mm adjustable objective lens for zero parallax from 50 feet to infinity without a change in bullet impact. Its special Varminter reticle, a variation of the Dual-X with a thin inner cross hair and a .667-minute center dot, is ideal for long-range shooting at small targets. Reticle adjustments are in precise 1/8-minute clicks for precision positioning.

Its one-piece tube design and intelligent engineering make the V24 lighter than comparable high-quality scopes. Like the V16, the new scope has a generous eye relief, fully multi-coated optics for maximum light transmission, and a black matte finish. An optional 4-inch sunshade is available for shooting in critical light conditions.

For more information, contact Weaver, P.O. Box 39, Onalaska, WI 54650 or call (800) 635-7656.

LIMITED EDITION MODEL 700™ 'CLASSIC' CHAMBERED FOR .280 REMINGTON

Remington® has announced that the 17th in its series of "Classic" limited edition rifles will be chambered for the .280 Remington.

Since its introduction in 1958, the .280 Remington has built a very loyal, dedicated following among serious, knowledgeable shooters. The same could be said for the Model 700™ Classic rifle design. Consequently, it seems both appropriate and timely that the 1997 Limited Edition Model 700™ Classic will be chambered for the .280 Remington. This is a marriage of rifle and cartridge whose time has come.

The Model 700™ Classic has always appealed to tradition-minded shooters who prefer its clean, unfettered lines. This year's non-magnum version continues the classic stock design of satin-finished American walnut, with a straight-line comb and no cheekpiece. It will have a 22-inch clean barrel with no sights. However, the receiver is drilled and tapped for scope mounts.

This is the 17th of a limited edition series that began in 1981. Both shooters and collectors are reminded that these rifles, in the selected classic caliber, are produced for one year only. This is the first and only time a Model 700™ Classic rifle has been available in a .280 Remington chambering.

to your shooting him. You can build a collection of local browse plants for this type of analysis.

Take a final look through the viscera for anything unusual. I like to check for flukes: disgusting flat worms that invade the liver tissues. Although flukes have little effect on the health of the animal, they come from only one place: wet areas.

Several years ago, on the same South Texas ranch where I shot that muddy-footed buck, I conducted an autopsy for my deer-biology class at Stephen F. Austin State University. As I cut into the deer, I lightly remarked that it was unfortunate there would not be any flukes to examine. Then, I glanced down at



Often, checking a buck's stomach contents can tip you off to when and where he ate his last meal, and that's great information to file away for future hunts in the area. Photo by Judd Cooney.

the liver and saw that it was riddled with flukes. Oops! It turned out the deer was from — you guessed it — the same slough as the buck noted earlier!

If the deer you shot is a doe, you can examine her reproductive tract to see whether or not she has been bred. With practice, anyone can look at a fetus and backdate it to get at least a rough idea of when breeding occurred. (See the Oct. 1996 issue for more on this method.)

* * *

I hope this has convinced you that if you conduct a forensic analysis of each whitetail you or your buddies harvest, it will greatly improve your chances of shooting a good buck again the *next* season.

Isn't it time you became a "deer detective"?

Key Fundamentals Of Managing Your Deer

If you're trying to improve the whitetail population on your land, it's critical that you understand the factors that will determine your results. Here's an overview of what every private-land hunter needs to know.

by Dr. James C. Kroll

Interest in deer management is now spreading like a tidal wave across North America. However, among hunters and landowners, there is still much confusion over what can and cannot be done to improve a herd.

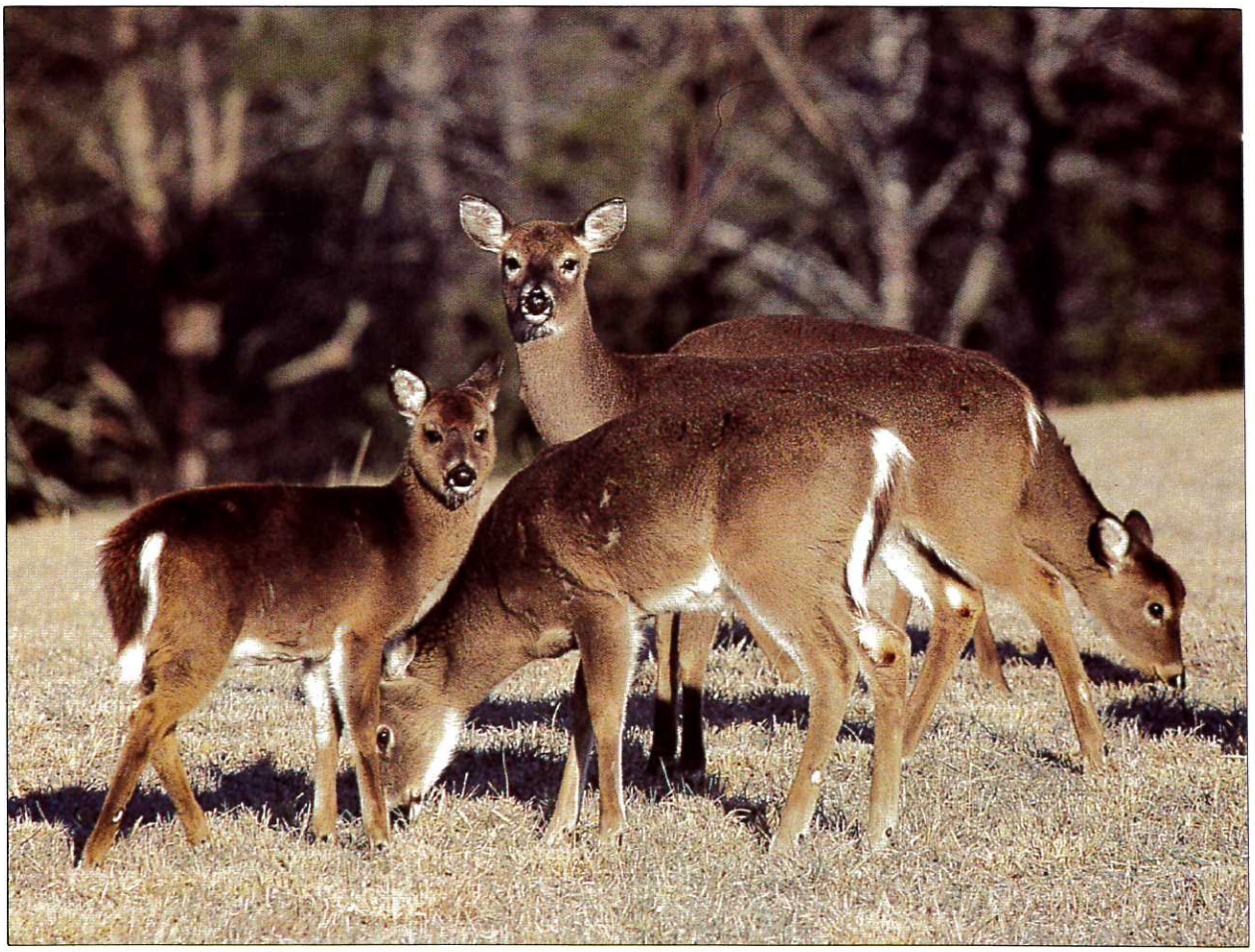
WHITETAIL's new emphasis on management is aimed at providing this information, to empower *you* to be in control of *your* deer hunting. Unfortunately, in many cases we biologists have been of little help in this regard. Almost every time we have discussed deer management over the years, we have ended with "Be sure to consult a professional biologist." In other words, "Don't try this at home . . . leave it to the pros."

As director of the Institute for White-tailed Deer Management and Research, I know many of you have both the interest and field experience to become effective managers of private lands, if you are not already. You really can build a "deer factory" on your property, no matter what its size or other limitations — if you have the right knowledge.

WHY YOU NEED TO KNOW HOW POPULATIONS WORK

In building your own "deer factory," the first step is to recognize the factors that influence a herd's size and composition. In my travels

A badly skewed buck:doe ratio is undesirable for several reasons. For starters, it's unnatural, disrupting the social structure of the herd. And, it makes harvesting trophy bucks even more difficult than it otherwise would be. Photo by Bill Lea.



but '96 was the first year in which he'd put a tree stand there. Why? Previously, none of the trees was large enough to *hold* a stand! The setup consists of a stand of aspen ("popple") trees on the edge of point that extends into a field.

Rick says there have always been numerous antler rubs on those popples. So in June '96, he put a homemade platform 12 feet above the ground in an aspen with a diameter of just 4 inches, utilizing tree steps to get up to the stand.

When the season opened in October, the veteran bowhunter hunted there only when the wind was favorable. Nonetheless, deer still managed to wind him the first couple of times he sat in the stand. He saw an 8-pointer behind him one evening, but wasn't able to get a shot. Then, three days before he got his Halloween trophy, a buck came in when it was too late to shoot.

"I got caught in the stand," Rick says. "A doe and a rabbit had been playing around in front of me, and I was waiting for the doe to leave before I climbed down. That's when the buck came in. It was getting so close to dark, all I could see was a lot of white on its head. The deer might have been the one I later got."

On Halloween evening, the wind was from the west, which was favorable, so Rick decided to hunt the location again. At 5 p.m. a yearling came from the west, moving downwind. Even without the wind advantage, however, the young deer somehow knew Rick was there. Seeing this, he naturally became concerned that a big buck would detect him. But the events of the next few minutes would allay those fears.

Soon after the yearling left, Rick turned around to see the big buck standing in the field. The buck was looking in the direction of the stand, but fortunately he didn't detect the bowhunter hiding there.

"Within five minutes, I had my shot, and it was over," Rick recalls. "I watched my arrow make a perfect hit. He ran 55 yards one way and then turned and came back at an angle toward me. I got to watch him go down."

* * *

Southern Michigan has produced a wave of great bucks in the past few years; in fact, whitetails from the farmlands west of Detroit have broken the state bow record for non-typicals three times now in the past four seasons, and the overall state typical record has been beaten once. (See the Aug. '95, Sept. '96 and July '97 issues.) Rick's great buck easily could have been a fourth No. 1 whitetail from the region during that short span. When it comes to big deer, perhaps the "good old days" are still here.

FOR YOUR INFORMATION

Bowhunters and gun hunters alike know how important good trailing skills can be in recovering whitetails after the shot. The author's book, *Tracking Wounded Deer*, is a good source of information on the subject. Included is the detailed story of how one of bowhunting's highest-scoring typical whitetails was recovered.

Autographed copies of the 160-page softcover book are $19.50 U.S. (postpaid). To order, contact: Smith Publications, 814 Clark St., Dept. WT, Marquette, MI 49855.



across North America, I hear many questions directly related to this topic, among them the following:

"How many deer are on my land?"

"How many deer can my land carry?"

"How many deer can I harvest from my land?"

Not knowing the answers to these questions leaves you powerless to control the quality of your deer hunting. (Never look to your wildlife agency to solve problems on your land; it has far less control than you do over what happens there.) Indeed, most private-land hunters are missing out on the opportunity to greatly increase their harvest, for the simple reason that no one ever has taught them how to manage their herd.

WILDLIFE IS A CROP

The late Aldo Leopold, considered the father of wildlife management, understood that wildlife is simply an agricultural crop. As such, it is controlled by many of the same factors that determine land's ability to grow corn, wheat or cotton.

"How many deer will my land carry?" is the wrong question. The correct one is "How many deer will my land *produce*?" There is a real difference; after all, the productivity of agricultural land is measured in bushels per acre, not in the number of plants the land will hold!

It is safe to say a deer population grows only if fawns are born. But not all does bring fawns into the herd. Recent studies have shown that in many areas, only a small portion of the does actually have fawns that survive through their first year. In fact, in some places it now takes three does to get one fawn to its first birthday. Why? A lack of food results in undernourished does, which then cannot produce enough milk for rearing young. Many fawns — bucks and does alike — die in their first few weeks or months of life, never making a positive contribution to your hunting. Who cares how many wheat plants sprout in your field if they all wither and die before bearing a crop?

GETTING STARTED

As a manager, you ideally need to know: (1) the current herd size; (2) the number of deer being added each year; (3) the number of deer being removed each year; (4) the age structure; (5) the buck:doe ratio; and, most important, (6) your management goals. Let's examine these one by one, starting with the last.

Your Goals

The first question I ask any prospective deer manager is "What are your goals?" This is not always easy to answer.

I define "success" as achieving a goal; if the goal is not well-stated, success seldom follows. "Why, we want to shoot a whole lot of big bucks" is the most common answer to my question. However, that is not a goal; it is an *expectation*. A more correct statement of the goal would be something such as "We want to harvest eight mature bucks per year off this particular piece of land."

Now, that might be achievable under the circumstances, or it might not. Suppose you have only 10 acres. Is the goal realistic? Because deer are a crop, we must determine the ability of the land to produce them, with or without your help. It would be like "wanting" to produce 1,000 bushels of wheat from those 10 acres — not a reasonable expectation.

As David Morris noted last month, the production capacity of any land can be increased, and this clearly affects how attainable your goals are. But whether you improve your habitat or not, the fundamentals of how a deer herd works are the same.

We will be talking in much more detail about management goals as we get deeper into our coverage. For now, just be thinking about what you want out of your deer land and what you are willing to do to achieve that level of success. *(Continued)*

A BASIC MODEL FOR YOUR HERD

In order to get a handle on your land's deer population, you ideally need to know the following: (1) the current herd size; (2) how many fawns are being added each year; (3) how many deer are dying each year; (4) the herd's age structure; and (5) the buck:doe ratio. If you have at least fair estimates of these, it's simple to make projections of the herd's growth rate and harvest potential.

In the example below, we will begin with a herd of 80 adult deer in the fall of 1998 and show what that population would become by fall 2001, assuming a 50 percent fawn crop, 10 percent annual natural mortality for both sexes and all age-classes, and no harvest by hunters. The beginning buck:doe ratio will be 1:3 (20 bucks, 60 does).

	BUCKS	DOES	TOTAL
Fall 1998 adult deer	**20**	**60**	**80**
Fawns added	+15	+15	+30
Natural mortality	-4	-7	-11
Hunter harvest	-0	-0	-0
Fall 1999 adult deer	**31**	**68**	**99**
Fawns added	+17	+17	+34
Natural mortality	-5	-8	-13
Hunter harvest	-0	-0	-0
Fall 2000 adult deer	**43**	**77**	**120**
Fawns added	+20	+19	+39
Natural mortality	-6	-10	-16
Hunter harvest	-0	-0	-0
Fall 2001 adult deer	**57**	**86**	**143**

This shows that if no deer are taken by hunters, in just three years the adult population will almost double (from 80 deer to 143). Also, with half of the fawns being male, the buck:doe ratio will improve from 1:3 to 1:1.5. (The 20 antlered bucks we started with made up 25 percent of the original adult population, while the 57 antlered bucks we will end up with in fall 2001 will be 40 percent of our 143 adult deer at that time.)

Now, try coming up with a basic population model for your own land, estimating your starting numbers and then factoring in various levels of hunter harvest of both bucks and does.

How Many Deer Do You Have?

Counting deer has long been a perplexing problem for managers; indeed, few other "facts" have generated more distrust of biologists than have census results. The truth is, we seldom have a really accurate count of the deer on any piece of land. On a state/provincial level, the population sizes we see displayed so prominently in many magazines are merely the result of someone's "best guess." Only quite recently have we developed reliable techniques for counting deer, including using infrared-triggered monitors. (See the August, September and October issues for more on this new technology.)

But there is plenty of information to help you come up with a fair estimate of your herd's size, which can then be fine-tuned. For example, almost every wildlife agency has done studies on the ability of various types of land and habitat conditions to support deer. These estimates are often expressed by agency biologists as "deer per square mile," but from the perspective of the private-land manager, "acres per deer" is more relevant. While a biologist might say there are 20 deer per square mile, it makes more sense for a landowner to view that as 1 deer per 32 acres. (There are 640 acres in a square mile; dividing 640 by 20 gives us 32 acres per deer.)

When do we begin to count a deer as part of our herd: as soon as it is born, during its first fall, after it has survived its first hunting season or when it reaches its first birthday? Virtually all wildlife agencies refer to "fall" populations, which reflect estimated deer numbers just before hunting season opens. These figures include fawns (which are then only a few months old) as part of the herd. Because this method is so widely used, we at ***WHITETAIL*** also will refer to "fall" populations in our coverage of management topics.

Let's look at average densities for various habitat types and regions of North America, so you can start to get a feel for the number of deer on your land. Here are some ranges:

South and Southeast: 1 deer per 10 to 30 acres (21.3 to 64 acres per deer).

Woodland habitats without extremely harsh winter conditions or agriculture, such as Eastern U.S. woodlands: 1 deer per 10 to 20 acres (32 to 64 deer per square mile).

Semi-arid habitats without agriculture, such as South Texas: 1 deer per 20 to 30 acres (20 to 32 deer per square mile).

Extremely harsh habitats on the fringe of whitetail range, such as parts of Mexico or Canada: 1 deer per 50 to 100 acres (6.4 to 12.8 deer per square mile).

Fertile delta or intensively farmed habitats, such as many parts of the Midwest: 1 deer per 2 to 10 acres (64 to 320 deer per square mile). Note that this includes only true deer habitat, not open fields.

Because these are broad numbers, the deer population on your land might be quite different from what I have suggested for your region as a whole. Perhaps most of your acreage is made up of cattle pastures, while your neighbor's land is virtually all productive deer habitat. That clearly makes a difference. But these ranges at least give you a starting point for developing a management strategy.



When a buck enters his second year of life, he grows his first rack and gets figured into the herd's buck:doe ratio. Photo by Dick Mermon.

How Many Are Being Added?

There are several ways to estimate the number of deer being added to your herd each year. One of the best is through direct observation; keeping a written record of how many does and fawns are seen has been shown to give a good estimate of the fawn crop.

Estimates of the reproduction rate most often are expressed on a percentage basis; for example, if during late summer and fall you see only 2 fawns for every 5 adult does, you'd call it a 40 percent fawn crop. This "recruitment," as it's often called, can vary widely; it ranges from 10 percent to something over 100 percent (more fawns than does).

Any fawn that has survived until fall has effectively been recruited into the herd. This is far more relevant than trying to figure out how many fawns are being born; all that matters is how many actually survive to reach the cut-off date selected for determining the fall population.

How Many Are Being Removed?

Deer die in a variety of ways, and assessing annual non-hunting mortality is a rather inexact process. Even so, for the purpose of modeling, we can come up with average mortality rates that paint a reasonably accurate picture of what is going on with the herd.

In our sample population model on page 35, we have assumed an average annual natural mortality rate of 10 percent across the board. For getting started in managing your herd, this figure is accurate enough, even though actual mortality varies by sex and by age-class. (Fawns, both male and female, suffer from higher natural mortality rates than do adult deer, and bucks are more vulnerable to natural mortality than are does.) We will get into the specifics of these differences later.

What Is The Age Structure?

Every big buck obviously was once a yearling. Sadly, in most herds, the majority of these 1 1/2-year-olds are shot, while the does are allowed to live; the result is a population of old females and young males. If your desire is a well-balanced herd with good hunting for mature bucks, you need just the opposite.

Regardless of what else you do to manage your deer, a balanced age structure is paramount to producing more and better bucks, and letting young bucks walk is the only way to achieve this goal. The odds of a buck on your land living to at least age 3 1/2 must be considered as you develop a set of realistic goals for your management program.

Sex Ratios

The sex ratio of a herd, commonly expressed as the "buck:doe ratio," is another big piece of the population puzzle. This compares the number of antlered males to the number of adult females; that is, neither buck fawns nor doe fawns are included in

it. A buck:doe ratio of 1:4 thus indicates that the adult population is around 20 percent male, 80 percent female.

Across North America, the sex ratio ranges from around 1:1 (seen only in intensively managed herds) to around 1:8. The majority of herds have ratios somewhere in the middle of this range, as you might expect.

The same hunting pressure that eliminates many bucks as yearlings tends to skew the buck:doe ratio heavily toward the female side. But while herds often are said to have 15 or 20 does per buck, in truth such unbalanced numbers are impossible to create — even with very heavy pressure on bucks. Remember, roughly half of the fawns born each year are male, so there are almost always enough yearling bucks in a herd to keep the buck:doe ratio tighter than 1:8 (89 percent female).

Good observation records can give you a feel for the buck:doe ratio on your land. But remember that due to the nocturnal nature of bucks, there generally are more of them than daytime observation alone would indicate. Infrared-triggered cameras can help you literally get a clearer picture of the true ratio. In addition, your wildlife agency might have county-wide or regional estimates that would serve as a starting point.

The sex ratio obviously is critical in figuring out how many bucks are potentially available for harvest. And it greatly affects the intensity of observed rutting activity.

A REAL-WORLD EXAMPLE

Let's examine an actual situation to see how a population model can help us assess a herd. The tract is one I recently visited, a 1,280-acre Arkansas deer-hunting club that is managed by its members.

Any fawn that has survived until fall has effectively been recruited into the herd.

The two square miles ("sections") of land have been managed for about 10 years now and have produced some fine bucks. But members never had really analyzed their land to see if they were doing a good job of managing the herd. My job was to help them arrive at an answer.

From the state agency, we learned that this type of habitat (mixed pine-hardwood) could support as many as 70 deer (adults and fawns combined) per square mile. That means the club *could* have 140 deer on their 1,280 acres (a deer per 9.1 acres). Of course, the animals can come and go at will, and they spend some time on neighbors' land. But this club has done an excellent job of protecting deer, so there is no reason for them to want to be on neighbors' land any more than on the club's land.

This club also keeps excellent records, including incidental deer sightings made by members as they travel about the acreage during the year. Amazingly, the 10 members (one per 128 acres) had accumulated some 1,000 observations of deer from August through October. From these sightings, we calculated the buck:doe ratio at 1:3 and a doe:fawn ratio of 2:1 (a 50 percent fawn crop).

Having this information allowed us to estimate that the club's land held an opening-day population of roughly 140 deer, approximately 100 of which were adults (non-fawns). Sightings suggested a buck:doe ratio of 1:3, so we broke these 100 adults into an estimated 25 bucks (100 divided by 4) and 75 does (100 minus 25) present. And finally, because bucks and does are born in almost equal numbers, on average, of the 40 fawns that had made it to Oct. 1, we assumed 20 were bucks and 20 were does.

You no doubt can see from this that compiling good records of deer sightings is a valuable way to learn a lot about your herd. Your original assumptions and estimates will not always prove correct, but as you observe and work with the herd, you can fine-tune the accuracy of your model, resulting in increasingly effective management. And the sooner you start, the sooner you will have the deer herd you want.

RAISING THE BAR

A biologist's traditional advice to a hunting club or private individual wanting to increase the number of mature bucks on a given piece of land has always been to reduce the buck harvest and learn to live within the limitations of the herd. That will work — but is it the best solution?

While reducing buck harvest is definitely one way to have more big bucks, we must recognize that it can have a downside. In the case of the club I visited, the total annual lease price is $4,500, so the 10 members each pay $450 per year for hunting privileges. For that, each expects to be able to shoot a mature buck every season. If they simply reduce the membership in order to produce more mature bucks, every remaining member will have to pay proportionately more to stay in the club. And dumping some members likely would cause hard feelings.

Good observation records can give you a feel for the buck:doe ratio on your land.

Conventional wisdom is that the club must take this route or simply live with things the way they now are. But as David Morris noted in our last issue, we have found that there is a better way. Through many years of research at Fort Perry Plantation, ***WHITETAIL***'s deer-management research facility in Georgia, we now know it is possible to grow not only bigger deer, but also more of them. The secret is to combine the right harvest strategy with elevated nutrition.

Depending on the situation, this strategy, which we call "food-source management," can involve planting agricultural crops, managing native habitat and/or providing direct supplemental feed for deer. When these efforts are combined with a harvest strategy that removes the right number of the right deer at the right time, the result is more *and* bigger whitetails. In the case of the Arkansas club, that could well make the difference between successful long-term management and years of frustration.

Most deer hunters and landowners have not tapped the full potential of their acreage, simply because of a lack of knowledge about what can be done to improve their herds. Now, we at ***WHITETAIL*** are determined to change that, by giving you the know-how to control your hunting destiny. So join us next month as we get into the process of figuring out just how many of which deer you should be harvesting off your land.

8 Is Enough!

Elisha Hugen's amazing buck, shot on an Iowa deer drive last December, looks to be the highest-scoring true 4x4 in history. Here's the story of a hunt that went the way every hunter dreams.

by Bill Winke

Whitetail hunting in Iowa during the regular gun season is different from regular-gun-season deer hunting in most other places.

Extended families gather the night before the December opener, and friends show up in the pre-dawn darkness the next morning. The season is split into two segments, both after the rut, so the No. 1 tactic is drives; almost no one relies on natural movement to bring deer past a stand. All over the state, 4-wd vehicles brimming with blaze orange crawl along back roads, depositing standers and drivers in traditional hunting spots. Enough logistical maneuvering goes into some drives to make a four-star general envious.

In keeping with Iowa deer-hunting tradition, Elisha and Brad Hugen hunted with three other family members during the 1996 season: Brad's father, Lyle, and brother David, along with Elisha's cousin Greg Carpenter. On opening morning of the second slug season, Dec. 14, the group hunted near the Hugens' home outside Knoxville. Greg took a nice 8-pointer that morning, but despite several more drives, that was the sum total of the day's action. The next day, they'd hunt an uncle's farm farther south.

This farm consists of a pastured valley with a creek bottom running through the middle and narrow, brushy draws extending up the slopes on both sides. Underbrush is limited, but a large number of cedar trees make up one portion of the farm and serve as security cover. There is also a narrow band of trees following the creek itself.

Some nice bucks had been seen in this area in past seasons, but it wasn't as if it were an isolated sanctuary where the group always filled tags. In fact, the entire farm had been hunted hard by another party during the first gun season, which had concluded only a few days earlier.

The day dawned with the temperature in the low 30s but without snow to make spotting and tracking deer easier. On the day's first drive, Brad and Elisha would do the "dog" work, while David, Lyle and Greg waited on stand.

"We were about three-fourths of the way through when I saw a coyote standing on a fallen log, unaware of me," Elisha says. "I was deciding whether or not to shoot when he disappeared over a hill.

"I was proceeding cautiously, hoping to get a shot at him on the other side, when I heard a noise in a ditch. To my surprise, a nice buck jumped up and took off out of the ditch. I shot once as he went up the bank. He ran another 40 yards and stopped and fell over backwards. The shot had gone through his chest, hitting his lungs. He was the biggest buck I had ever shot."

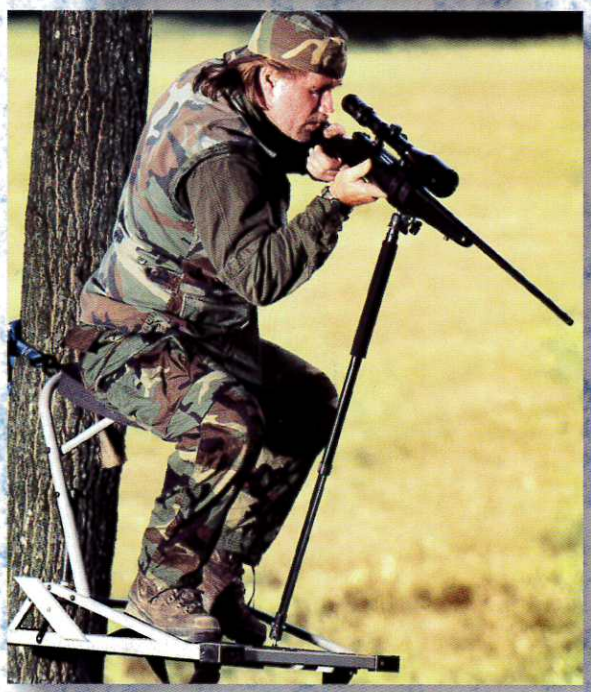
Lest you think I dispatched this monster-buck story a bit too quickly, it's important to note that party hunting is legal in Iowa. As long as at least one tag remains open, every member of the party can continue to hunt. The buck Elisha had just shot was not the world-class 8-pointer

180-PLUS AS '8-POINTERS'

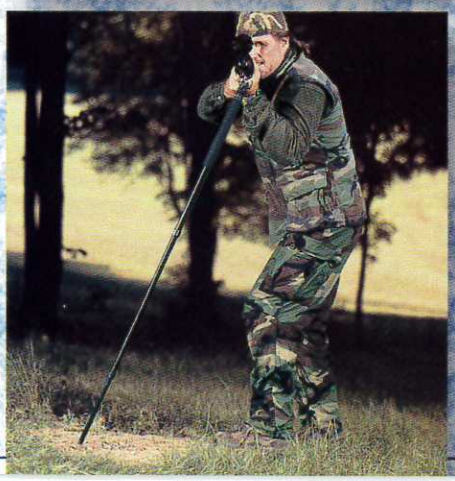
Score	Hunter	Location	Year	Typical Pts.
187 6/8	Lonnie Copeland	Arkansas	1992	6x4
182 3/8	**Elisha Hugen**	**Iowa**	**1996**	**4x4**
181 4/8	Richard Engelken	Kansas	1996	4x4
180 6/8	Walter Lesley	Indiana	1973	4x4
180 3/8	Ron Wadsworth	Illinois	1993	5x4
180 3/8	Vernon Winter	South Dakota	1965	4x4
180 1/8	Bob Haney	Ohio	1987	4x4

Elisha's trophy is apparently the highest-scoring true 4x4 typical ever; the Copeland buck is really a 6x6 typical with the G-4 and G-5 tines broken off the left antler. (Unmatched typical points are not figured into the net Boone and Crockett score, so that deer is in effect a 4x4.) The Engelken buck listed here, the apparent No. 2 true 4x4 ever, was featured in our October issue. Several years ago, a collector turned up a Minnesota 4x4 with a net score of 181, a buck rumored to have been shot in 1909. However, an investigation revealed that the rack had been altered to remove non-typical points, thus increasing the net score.









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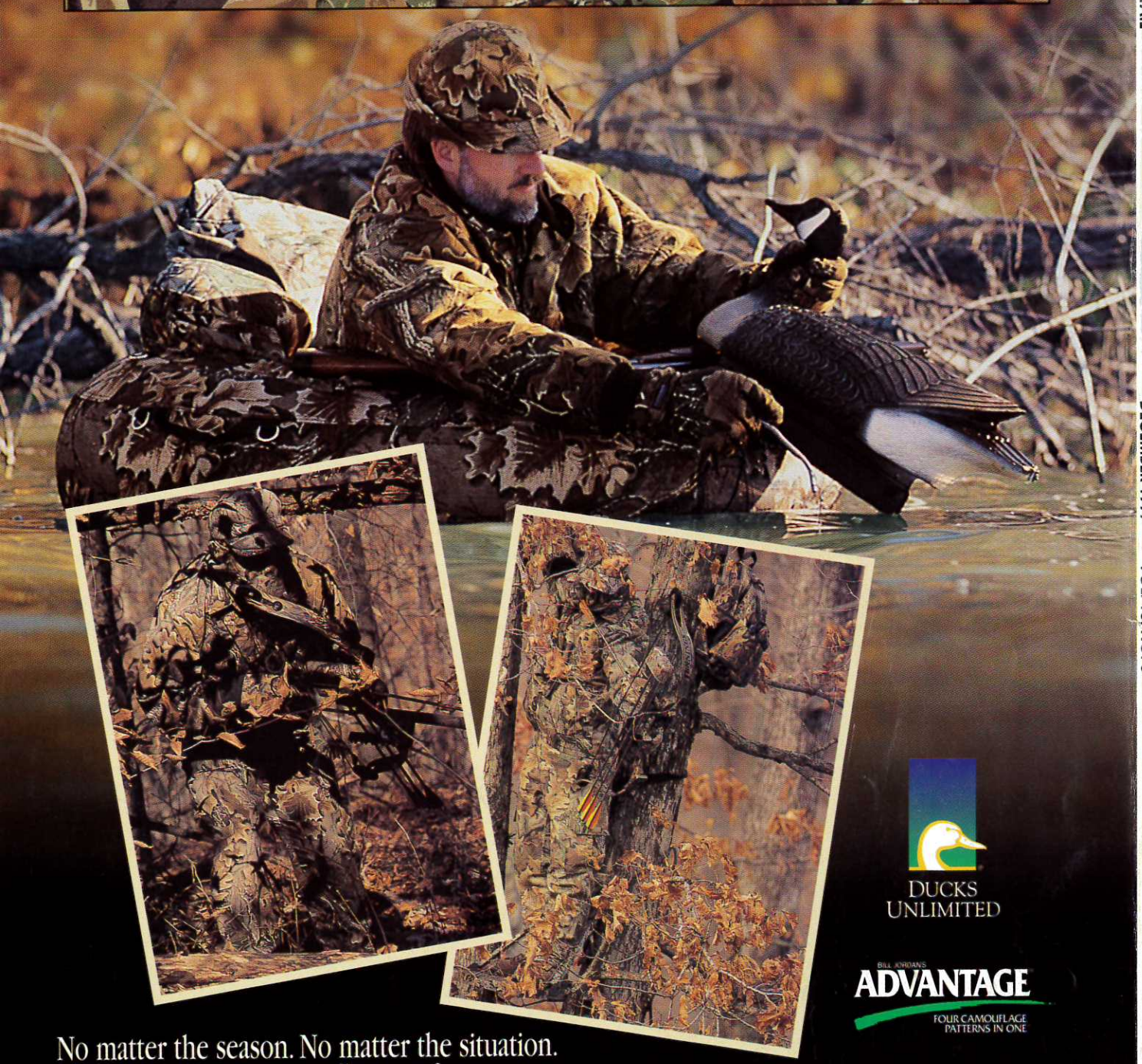
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