

Dr. Deer's Whitetail World

BY DR. JAMES C. KROLL

Mature-Buck Behavior: A Lifetime Of Research

In 1975, very little was known about mature-buck behavior. Unfortunately, most of the behavior and radio-telemetry studies at that time were based on observations of immature bucks. In much of the U.S., heavy bucks-only harvest created herds with very few mature bucks, making it nearly impossible to conduct such studies. Also, the techniques available to us in the 1970s for capturing deer were not very effective.

I remember working with Dr. Harry Jacobson, a respected deer researcher at Mississippi State University, in an attempt to capture bucks on Davis Island near Vicksburg. He was using a revolutionary and exciting new technique involving pushing deer into a long net. The net was about 8 feet high and several hundred yards long. We used dozens of students to push deer out of dense habitat into the net. When a buck hit the net, the poles holding it up would collapse, *theoretically* wrapping the animal up in the net. You have no idea what it's like to grab a 200-plus-pound buck with only his antlers caught in a net!

TRIAL-AND-ERROR LEARNING

Later, we began using drop nets and dart guns as well. However, we quickly found that both of these techniques were extremely inefficient. For one thing, you had to get the deer to walk under the net (which was about 75 feet square). We used bait (corn) to get them there, but this only worked during the winter, since the minute spring green-up occurred, the deer stopped coming to the bait.

Also, you had to catch just the right moment to drop the net or the deer would escape. We used blasting caps wired into ski rope holding up the four corners of the net. Believe me, it's quite nerve-wracking to wire up a bunch of these explosive devices, and more than one biologist lost digits in the process. In spite of the fact that the net was only about 4 feet above the ground, I've seen a buck eating corn right under the center and escape before the net could reach the ground!

Tranquilizer darts may look efficient on TV, but they are far from it when it comes to capturing whitetails, especially mature bucks. It makes bowhunting look easy! After the shot, there is no blood trail to follow. You have to develop tracking skills akin to those used in Africa. Later, we came up with a radio-dart that made things easier. I had been designing radio-telemetry equipment since my graduate days in the 1960s, and we designed a crystal-controlled device for this purpose. The only problem was that if you hit a bone or missed, there was a strong likelihood the crystal would shatter, rendering the transmitter useless. Since they cost $125 each, this could be expensive.

The drugs we used then were terrible. We started with nicotine; it immobilized the deer all right, but it also caused convulsions. This was not very



PHOTO BY MIKE BIGGS

In 30 years of doing cutting-edge research about the behavior of mature bucks, Dr. Deer and his associates have contributed tremendously to the deer hunting community and to whitetail management.

good for the deer, but it did make it easier to find them! Later we switched to 1099, a severely restricted narcotic. This is the drug often used in African wildlife shows. It's quick, it's effective and it can be reversed in a matter of seconds. There is a *slight* drawback, however. The drug can be absorbed through your skin. One little mistake and they may find you sitting on top of a windmill howling at the moon!

THE PRICE OF KNOWLEDGE

According to my data we expended an average of 112 man-hours per buck captured. But the data we obtained from these studies revealed much of the information that a whole lot of folks now take for granted about buck behavior. Included among this information would be the debut of such terms as sanctuaries, travel corridors, staging areas, mid-day movements, dominant "floater" bucks and dominant resident bucks.

Early on, we were lucky enough to develop a transmitter that would last several weeks. To this day we have made incredible advances in the electronics involved in animal tracking, but we've made very little headway in the use of batteries. Limitations included weight and longevity. Eventually, the lithium battery was developed, which prolonged radio-collar effectiveness. We also tried a solar recharge system that seemed like a good idea at the time. What we forgot was that deer live in subdued light and move mostly after dark!

Only a handful of the yearling bucks we captured were tracked throughout their lives. I was fortunate in 1976 to capture a buck fawn that gave me our first insights into what a buck does during his life. This buck made a strange trip outside his very small home range (less than 100 acres) during his second spring. It was a brief trip due north of his normal range, a distance of about two miles. He returned home, and I wrote it off as "bad" data or a spurious event.

The next October, however, he took off and returned to that very same spot. We were learning that yearling bucks do disperse. Over the next 20-plus years, this pattern would be repeated in every behavior study we conducted. A large percentage of young bucks migrate away from their birthplace. This makes sense, since a buck's "job" is to keep genetic diversity in the herd. In a more recent study, only about 12 percent of young bucks stayed on a 9,000-acre ranch in south Texas.

Over his life my buck began to explore a larger and larger area, moving annually several miles and often swimming a river in the process. Dr. Harry Jacobson was finding the same thing in Mississippi. He even had one buck swim the Mississippi river annually. This confounds deer management significantly.

CONTINUING EDUCATION

Our next discovery showed us that mature bucks tended to frequent places where hunting pressure was light. It led to what we called the "1,500-foot effect." If you take a hunting property and draw lines 1,500 feet from a road or right-of-way, you'll almost always find areas where bucks can hide. Even the most heavily hunted properties often contain these pockets. Our telemetry studies were supporting this by showing us those places favored by mature bucks. We conducted habitat studies of such places, eventually giving them the name *sanctuaries*.

We soon discovered that none of these places really had anything in

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common from a habitat standpoint. They were simply areas with dense vegetation or cover from which bucks could go or come without being detected. We once observed a buck using a small, 30-foot-diameter patch of brush in the middle of a prairie of at least 500 acres. I would later use this information to harvest a buck I named the Boggy Slough monster, a big buck I shot on one of the most challenging hunts I ever experienced. The massive buck, boasting 9-inch bases and 4 separate drop tines, had a sanctuary within a 35-acre pine plantation so dense you couldn't walk through it.

We noticed something really interesting about sanctuaries. They all had special types of rubs surrounding them. Each would be rubbed only on one side, inscribing a circle about the main bed. We combined data from our telemetry of these bucks with an on-the-ground mapping of rubs to discover yet another phenomenon, *travel corridors*. Each buck tended to have several such travel corridors, generally in an elliptical formation. These trails divulged much about a buck's life because they led to additional bedding areas, feeding areas and breeding grounds. The latter was our next discovery.

SOLVING A BIG PUZZLE

One interesting aspect of travel corridors is that generally they are associated with drainages, no matter how subtle. Doe groups tend to be related and associate outward from drainages, while bucks use them to travel across the landscape, crossing into new drainages through geographic features called saddles.

We learned that travel corridors leading away from sanctuaries tended to be used year after year. In one study, even after the first deer got removed, another soon took its place. As the buck left his sanctuary, he would tend to rub less and less as he walked along the trail. But as he approached certain areas, the number of rubs would increase. His destination would always be adjacent to a major feeding area for does.

We likened this to a young boy approaching a playground. As he gets close his entire demeanor changes. He stands taller, puffs out his chest and generally acts somewhat aggressively until he sees which boys are there. Likewise, a mature buck will become more aggressive as he approaches such areas. Our telemetry told us that he arrives just at dark, and then tended to stay in the general area throughout much of the night. Sometime prior to daylight, he would return to his sanctuary by the same or another travel corridor. We began to refer to these places as *staging areas*.

But what about the buck rubs themselves? Were there indeed different kinds? Was size an important factor? We learned there were two basic types of rubs. The first appeared in the same general areas just after velvet stripping. We called these *exercise rubs*, meaning they were used to build up the neck muscles of bucks during the pre-rut.

The second type of rub was used to advertise a buck's presence and social position. These rubs provided both visual and scent cues to confirm this. We began to use the term *signpost rubs* for these rubs because that's what they were.

This work led to the publication of my book *The Art and Science of Patterning Whitetails*, co-authored with ***North American Whitetail*** executive editor Gordon Whittington. Amazingly, in spite of being out for many years, the book is just now is catching on with hunters. Apparently





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some of the material in it may have been ahead of its time.

A DIFFERENT ANIMAL

Once we started learning about what mature bucks were doing, it was time to study hunters themselves. Talk about an interesting creature to study! Essentially what we learned was that hunters were doing everything possible *not* to be in the same place as mature bucks. In fact, deer tended to pattern hunters faster and much more effectively than vice versa. Part of this easy patterning was because of time spent on stand. We found that the average hunter would go out before daylight, climb into a stand, stay until about 9 a.m. (if he was really hunting hard), and then goes back to camp. He would eat, nap, and return to his stand at 3 p.m. and stay until dark.

Our research showed us that the average mature buck is a late riser. He gets up around mid-day, loafs around his sanctuary area for a while, and then moves deliberately toward a staging area just before dark. He often arrives after it's too late for a hunter sitting in a stand to see him. Before daylight he then would return to his sanctuary. We also learned that bucks sometimes make adjustments to their location by moving during mid-day hours. I later published an article in ***North American Whitetail*** on this very topic called "Lunchtime Trophies."

It's impossible to cover everything we've learned over the last 30-plus years of doing research. But I hope this gives you some idea of what was going on during those years and how we accumulated and arrived at some of the hard-won knowledge and terms that have found their way into the modern lexicon of deer hunting and management. Believe me, there is plenty more!

(Author's Note: Next month I'll discuss some of the high-tech devices that we came to use to further our knowledge. After that I'll discuss one of our most important studies to date, one in which we followed bucks throughout their lives to see what happens to antlers with age. Then, in the final installment, I'll present some new thoughts about what we still need to learn about deer, and how we might go about doing this.)