

Dr. Deer's Whitetail World

BY DR. JAMES C. KROLL

The Trail-Camera Story

I've been blessed to be part of a growing national movement — private deer management — for almost 40 years. It's difficult to contemplate a world where most of the commonly known information about whitetails and the extensive lexicon of terms and concepts were unknown. But that's how it was when I began my career. Thanks to my long-term involvement with ***North American Whitetail***, a young deer scientist was given the unprecedented opportunity to share his research with thousands of folks hungry for knowledge.

This series of columns over the past few months has been a remarkable walk down memory lane for me, bringing to mind events and discoveries long since faded into that hazy world we call memory. In this installment, I'd like to discuss how we came about discovering some new technologies — namely those involving the use of cameras.

Back in mid-'70s I was working with a colleague, Dr. Mike Legg, on recreational use of forested lands in eastern Texas. Mike has remained a trusted friend and colleague since that time, and I view him as a real pioneer in outdoor recreational research. At the time we were involved with trying to measure how much human use various parts of the forest was getting. Our purpose was to find ways to manage our forests to attract even more users.



PHOTO BY BILLKINNEY.COM

There is no question that modern trail cameras have allowed us to record and study a wide array of deer behavior. Dr. Deer's first makeshift "trail camera" was an expensive non-waterproof Nikon body with a flash and motor drive, set off by an infrared triggering device. Trail camera technology has come a long way since the 1970s.

APPLYING INFRARED BEAMS

The U.S. Forest Service found a device that would do just that. It was a simple plastic box containing electronics that produced an infrared beam. Using a Fresnel lens, the beam was focused on a simple automobile tail light reflector positioned on the other side of the hiking trail. The beam bounced off the reflector and back to a receiver lens. When the beam was broken, a counter would be triggered. The counts would serve as an indicator of use.

About two years later, I discovered a place on North Boggy Slough Hunting and Fishing Club where something was eating the exposed dirt along the cut bank of a creek. The tracks were telltale, suggesting that most of the users were deer! North Boggy is part of a 25,000-acre forestry-wildlife research area operated by what was then the Temple-Eastex Lumber Company. Mr. Arthur Temple, president of the company, was not only the largest landowner in Texas, but an avid sportsman as well.

Through his wildlife department director, Gene Samford, I'd been given free reign to design a deer management program for North Boggy, the purpose of which was to produce trophy bucks. Considering the fact that deer management was a very new concept at that time, plus my being a young deer biologist, this was a huge and significant step!

Using the technology from our infrared counter, we were able to record the number of visits to the natural mineral station along the creek bank, but we still had no idea if the visitors were exclusively deer or some other animals. That's when it hit us that we might use a similar triggering device to take an actual photograph. As

luck would have it, I was teaching nature photography at the time and I ran across an advertisement for a remote trigger for Nikon cameras.

A PRICEY "TRAIL" CAMERA

The device was simple: two cigarette-pack-sized plastic boxes, one sending out an infrared beam and the other serving as a receiving unit. When the beam was broken, the receiver closed a circuit that attached to a Nikon camera with a motor drive and flash. The camera I was using at the time cost over $600, which in the mid-'70s was a serious investment!

Battery life for the flash unit was very short. To make things worse, we were putting a very expensive, non-waterproof camera out in the woods. We designed a cover for the camera, but in most cases I retrieved the camera if rain was imminent.

However, we did indeed obtain photographs of deer using the natural mineral lick. We quickly discovered that there were significant sex-related differences in time of use. Bucks tended to use the minerals more in late summer while does used them more during the time when they were nursing fawns. Both observations were totally logical, since bucks are mineralizing their antlers at this time, and does use a tremendous amount of sodium, calcium and phosphorus in producing as much as 72 ounces of milk per day. (This research actually led to the development of the first minerals ever designed just for deer.)

I'm not sure what became of the California manufacturer of the camera trigger, but it's a shame they never benefited from the current boom in infrared-triggered cameras. When our work was completed we went on to other studies. Later, Grant Woods, a student in Kansas, presented a paper at the Southeast Deer Study Group on buck behavior at rubs and scrapes, using a newly developed active infrared camera system.

Grant was working with a company named Goodson & Associates in Kansas. To my knowledge, they were the first to really develop a scientifically functional camera system for wildlife studies. We competed heavily to entice Grant to do his doctoral work here at Stephen F. Austin State University, given my long-term interest in the cameras, but we lost out to another university. Since then, Grant (now Dr. Woods) has contributed a great deal to our knowledge about deer and is a well-known figure in the whitetail community.

By the mid-1980s we were again working with cameras. We developed a relationship with one of the first companies to develop a passive system. The difference between active and passive infrared-triggered camera systems is that active systems must use a sending and receiving unit, while a passive system uses an infrared sensor that requires only one unit. Unlike the active systems, a passive system "senses" the change in heat caused by a moving animal's body, thus triggering the camera. Both have pluses and minuses, but the passive system is simpler to operate.

MUCH TRIAL AND ERROR

Our initial strategy was to use the passive systems to try to monitor habitat use. We placed cameras within certain habitats with the idea of catching passing deer. We hoped this system might replace the use of some of our rather crude telemetry studies back then. (Only recently has the use of telemetry become reasonably accurate.) However, we ran into problems with this experimental design because it required so many cameras that it was cost-prohibitive. Then along came Mr. Temple again.

In 1987, the deer herd of eastern Texas collapsed. The reasons were many, but poor management headed the list. The Piney Woods of east Texas was one of the last bastions of resistance to shooting does. Following an explosion of leasing in the middle to late 1970s, deer herds multiplied tenfold. An April freeze that killed all new vegetation combined with an outbreak of disease sealed the fate of the herd.

Of course, the hunting public would not easily accept lack of herd control as the primary cause of the crash. The logical blame was placed on timber companies, since clear-cutting also had gained widespread popularity about that time. The culprit had to be the way forests were managed. Mr. Temple and the other managers of the company wanted to know if that was true. So in 1991 they awarded us a significant grant to conduct an objective study on the cause(s) of the previous disaster.

One aspect of our work was to be an accurate assessment of deer populations. Anyone who ever has had anything to do with a deer census knows full well that none of the methods commonly used are very accurate. Estimating deer numbers and densities has probably been the cause of more lack of credibility for state agencies than almost any other single activity. Working with my colleague, Dr. Harry Jacobson, Ben Koerth and I launched a major study in Mississippi to determine if infrared-triggered cameras could be used for this purpose.

NUMEROUS APPLICATIONS

Ben had joined me as my research partner in 1991 (as mentioned in an earlier column), as part of the Temple project. Ben and another graduate student, Randy Browning, did the majority of the fieldwork on this project. We later published three scientific articles directly stemming from this work. What we had discovered was that when properly used, cameras could give us an accurate assessment of deer numbers.

In our study we were able to photograph 95 percent of all deer on the study area in only 14 days! From this we learned that we could obtain a portfolio on almost all of our bucks, which could then be used for many purposes. Among these were: 1) assessing age structure; 2) measuring success of your management program; 3) developing a "hit" list for bucks you want to remove from the herd; and, 4) identifying bucks you want to protect for breeding.

That work opened up a host of new projects, all of which benefited private landowners and deer managers through our "Building Your Own Deer Factory" series, which ran in ***North American Whitetail*** during the early '90s. We even used cameras in a study to test the effectiveness of various scents and chemicals on deer.

In my early writings for ***North American Whitetail***, I discussed my strange practice of urinating in buck scrapes to influence deer movements for harvest. At the time, a great many of our readers simply wrote off my recommendations as being those of some *kooky* outdoor writer, since *everyone*

knew that human urine spooked deer. Yet, when we placed the cameras over mock scrapes treated with human urine, we got just as many visits by mature bucks as when we used commercial scent preparations. We even tested "new car" smell and achieved the same results. It seems that bucks will investigate a variety of odors in the forest. In this case, the argument was settled by our cameras!

GRADUATING TO VIDEO

In 1998, I began work on a device that would give video images of deer. Again, we used a simple triggering device connected to a video camera. We could set the camera for day or night, but not for both. This device evolved into a system housed in one case that could sense the amount of light available and switch a filter to allow for day or night videography. Using this instrument, Ben and I obtained some exciting results.

For example, we had relocated a young south Texas buck to our east Texas research area. Still images from traditional cameras always showed the buck alone at a bait pile (used to attract deer to the cameras). We concluded that this particular buck was not being accepted by the native buck social groups. To our surprise, however, video obtained by our new camera system clearly showed that this buck was fighting off the resident bucks. The video clearly showed that instead of being "picked on" like we had originally thought, he was the dominant buck!

Since our first work with infrared triggers and cameras, a host of commercial and scientific concerns have contributed to this technology. It is pleasing to know that we had an impact in our own way. Today, there are more than 100 models of trail cameras on the market. Infrared-triggered cameras are commonly used by both scientists and private managers.

In my career I've gone from spending long hours in the field with notebook in hand to being able to monitor deer movements using radio collars. Then the marvelous addition of actually seeing images of deer behavior — both still and moving — became a reality. In our next installment, I'll discuss how we are taking technology to an even higher level. Don't miss it!



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NORTH AMERICAN WHITETAIL HALL OF FAME



S.T. Childress of Depew, Oklahoma, was hunting in Creek County, Oklahoma, on Nov. 25, 2006, when he ran into this gnarly brute. The heavy-beamed buck sported a 21-inch spread and scored 155 2/8.



On Nov. 2, 2006, David Kamysiak (right) and Joel Styma (left), both of Posen, Michigan, participated in a muzzleloader hunt with Interlake Safaris out of Fisher Branch, Manitoba. David took an outstanding 11-pointer scoring 167 5/8. The very next day, Joel shot an awesome 15-pointer scoring 155 3/8 from the very same stand!



Pat Sasse of Sanford, Michigan, filled a 33-year dream on Nov. 5, 2006, when he arrowed this 135 7/8-inch-net P&Y bruiser. Pat was hunting on public land and had seen the buck two times before. Pat made the 20-yard shot with his 70-pound High Country bow.

HAVE YOU SHOT A TROPHY BUCK? If so, mail a clear photo and full details of the hunt to: Whitetail Hall Of Fame, 2250 Newmarket Parkway, Suite 110, Marietta, GA 30067. (Photos cannot be returned.) See www.NorthAmericanWhitetail.com for details on e-mailing photos for use in print or online.