Dr. Deer's™ PRESCRIPTION

THE SPIKE WARS

Part 4: The Final Battle?

By Dr. James C. Kroll

"Choose your rut carefully, you will be in it for the next 200 miles!" Sign at the entrance of a dirt road in Saskatchewan.

The quote above is one of my favorites. I saw the sign as a teenager on a visit to southern Saskatchewan, and its meaning has regulated a great deal of what I have done in life. Too often we are so hard headed and determined to do something—even though poorly thought out—we get deeper and deeper into trouble. Nowhere is this more true than the conduct of scientific experiments.

I was fortunate to be taught by some of the greatest biologists in the business. One professor was the editor of the Journal of Mammalogy (mammals), another the Journal of Herpetology (reptiles and amphibians), another the Journal of Ornithology (birds), and yet another headed up the Journal of Ichthyology (fish). Even as an undergraduate, these gentlemen would call me into their offices to make me read something another scientist had submitted for publication. "This guy is as objective as a Dallas Cowboys fan," one professor exclaimed. And, it was objectivity that was hammered into my brain time and again. A good scientist must be different from the layman; how generally conforms to biologist Don Wilson's law: "If I hadn't believed it, I wouldn't have seen it with my own eyes!"

What does this have to do with this four part series? You may be one of the growing number of people who distrust science and scientists. It was not always that way. When I was that young student, scientists were in the top five most trusted people in America. The scientist had no "dog in the fight," and science was bringing forth wondrous new technologies to better humanity. Then the environmental movement came along (I was one of the leaders and regret much of my efforts), and ushered in agenda-driven science.

Science is founded on the scientific method. Put simply, it begins with an observation that leads to a possible explanation as to why this thing happened. A good scientist then designs an experiment, doing everything in his power to eliminate bias from the experimental design. In fact, unlike laymen, we design our experiments to prove ourselves wrong.

Fact and truth is our goal, and why should we care what the results are? Yet, modern science is not only agenda-based on many occasions, but also exciting results and discoveries can lead to fame, power, and fortune. The above phrase, "... then designs an experiment," is really important. Quality science starts with a design, then and only then collection of data. Poor quality science, on the other hand, starts with data and a design is dreamed up to use these data to prove a point. That precisely is how you have come to hear so many news reports that contradict whether or not coffee is good or bad for you! The first type is called *a priori* science (Latin for "in advance"), and the latter *a posteriori* (after the fact). Again, you soon will understand why I'm presenting all this.

The Austin Ambush

Last issue, Ben Koerth and I presented the results of our landmark study on antler development in whitetails under free-range conditions—landmark in that it took over a dozen years and a million-plus dollars to conduct. So far, we have captured 6,648 bucks, representing 3,985 unique animals. Our study concluded there was no relationship between a buck's first set of antlers and the one he produces as a mature buck. Parts 1&2 of this series presented works by Texas Parks & Wildlife at the Kerr area, and Mississippi State University

(Dr. Harry Jacobson) at their research facilities. One (Texas) concluded spike yearlings were "vermin" needing total removal; the other (Mississippi) that spike yearlings would grow into equally good bucks. We also pointed out other studies conducted in Alabama, Louisiana and Texas tended to substantiate the Mississippi results. In fact, no study to date has replicated the Kerr results; and, science is founded on replication of results.

Whether or not to support spike shooting has turned into a loyalty test in Texas. I will discuss some possible reasons later, but suffice to say, our refereed publication on our work in the Journal of Wildlife Management did not go over well with the Department and some practicing biologists. We ended Part 3 with a short story of how we were invited to present our peer-reviewed results to the TPWD White-tailed Deer Advisory Committee (on which I serve); only to find out other scientists were there to present non-peer-reviewed results. As one trained to be a good scientist I certainly do not mind criticism; but this was a bit much. [I cannot help but wonder if a Freedom of Information Act request would reveal who paid for their expenses.]

Suspecting something was afoot, I had prepared an addendum on some things I never have discussed in public. "I'm keeping this section as a knife in my boot," I told Ben. "I won't use it unless someone pulls something." And something was indeed pulled." Leaving the meeting, I informed the group I would keep this information to myself, as long as we just let the whole spike dispute die a slow death. Why not let YOU make up YOUR own mind and stop fighting over it? It has generated too much animosity as it is. In my mind, it was time to move on to other more important deer management issues. The last thing I said was, "If you don't, I will fire the last shot!"

One of the presenters, Dr. Stephen Demarais, quickly co-authored an opinion paper in the Journal, with Bronson Strickland, criticizing our work. As a matter of policy, the Journal allows authors a chance to publish their responses to criticisms immediately following the paper. So, we prepared a response and published it along with the Demarais and Strickland paper in 2010.

Kerrville, we have a problem!

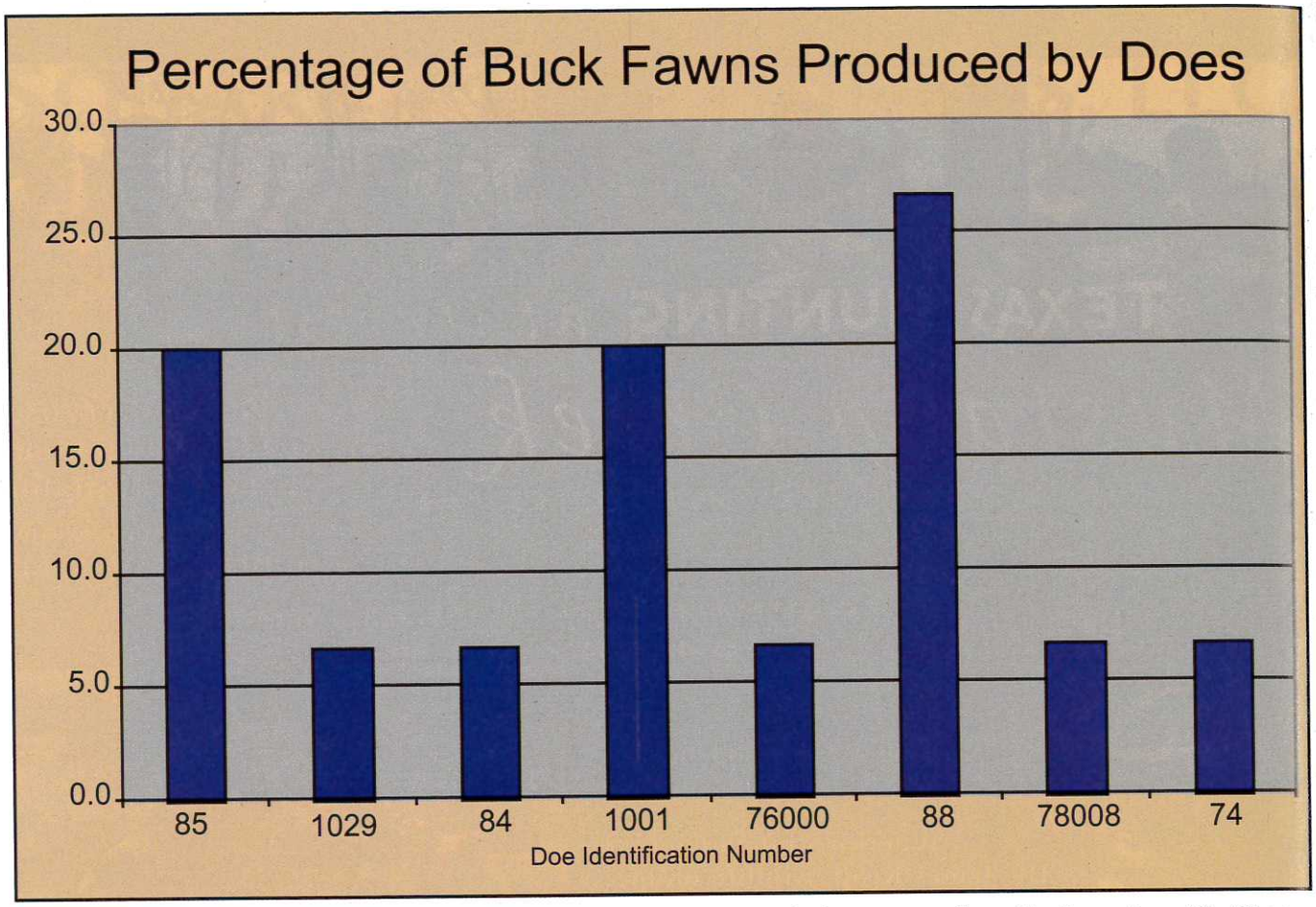
The remainder of this article will include a summary of the material I presented at the Austin meeting, along with summaries of the JWM exchange between Demarais and Strickland, and Ben and I. The primary criticism by Demarais and Strickland was landowners cooperating in the project were allowed to harvest bucks. Since the project lasted many years, we thought it unreasonable to think these generous folks would forego killing any buck for this amount of time. In our earlier paper, we clearly disclosed this information and our critical analysis of it. Demarais and Strickland argued we had allowed the ranchers to "cull" bucks, thereby biasing our study. In other words, the ranchers shot the "sorry" bucks, leaving only the better ones to grow up for our study. That's a legitimate criticism; and, the very reason why we made a point about this in the original paper. We certainly did not hide this fact from the reviewing scientists. Obviously they found our explanation and analyses adequate to recommend publication.

We pointed out in our response the mistake made by Demarais and Strickland, was assuming: 1) the ranchers were indeed "culling" bucks, and 2) bucks with spikes as yearlings had smaller antlers at 2 or 3 years, when they may have been killed. To compound this error, they used a computer model generated in part from Kerr data (along with undocumented data from Georgia and Mississippi), which dictated most of the harvested ("culled") bucks had to have been spiked yearlings. We might add the data and format of this computer model never has been revealed in any refereed or non-refereed publication. The amount of Kerr data in their "model" will be more relevant after reading further.

Getting to the point, statistical analyses of our data revealed no significant difference in the number of bucks killed by hunters that had three points or fewer, or four points or greater as yearlings. A buck that started out with forked antlers was just as likely to be killed by a hunter as one with spikes. Furthermore, when we analyzed the Boone and Crockett scores for these bucks, there also was no significant difference between those captured (not harvested and alive) and those killed. In other words, we had not changed the available population. Lastly, the number of 2½-year-old bucks killed versus what these bucks had on their heads as yearlings were not significantly related; again showing no bias. Bottom line, the criticism was fair, but unwarranted. But, our response paper in the Journal necessitated revealing some things about the Kerr study for the first time; things I had revealed only at the Austin meeting for the first time.

The Kerr Wildlife Management Area study began in the early 1970s. It had three phases. Phase 1 examined the role nutrition plays in antler development (1974-1978). Buck fawns were picked up around the state, some from the wild, most from other

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Of the 15 total buck fawns produced by Big Charlie (No. 73005), the majority were produced by three does. Big Charlie was bred mostly to mature does.

sources. Very few actually came from the wild. In all, 13 bucks were part of this study. Phase 2, begun in 1973, involved 16 bucks, all born in 1973. This study also dealt with nutrition, mostly long-term effects, but also looked at yearling antlers and produced some of the bucks later used in the spike study (Phase 3). Nine of the bucks were reported as having spikes and seven as forked at 1½ years of age, including the famous "Big Charlie." Six bucks were selected from the Phase 2 study to serve as a "Spike Line;" only Big Charlie was used as the "Fork Line" sire. This is where it gets interesting!

Remember, a good scientist always designs his experiments to eliminate as much bias as humanly possible. Further, recall I noted above the best science is *a priori*, meaning the experiment is designed, then data are collected. The proper way to have done Phase 3 would have been to randomly select buck fawns brought in from several wild sources. Instead, the Kerr research team are very open and clear that their goal was "... to produce a genetic line of deer known as the 'spike line.'" They already knew what most of the bucks, and even some of their offspring, had done before selecting them. So, *a priori* science went out the window! But wait, there are still more confusing facts.

For the spike line, researchers dropped four bucks (Nos. 63068, 70, 40 and 41) from the Phase 2 spike group. The average number of points for these bucks at 3.5 years was 8.25; no Boone & Crockett scores were given. The bucks included in the Phase 3 study averaged 6.4 points at 3.5 years. In an earlier report, TPWD researchers also reported they added two more bucks to the group (75064 and 77037); and some how another buck (73068) also was included to produce the final spike group. Number 73068 was a bottle-reared fawn from Kerr County; 75064 ("Murph Jr.") was the son of "Little Murph" (one of the worst bucks in the program); and, 77037 ("Scrawny") was a back-cross to 73068. These three bucks had an average of six points at 3.5. Of the 146-buck offspring produced by this group from 1975-1980 almost one-third came from these three bucks. The potential fork line sires included seven bucks (73005, 73007, 1973, 0081, 7334, 7304 and 0707), but only 73005 (Big Charlie) was chosen. By the way 73007 was a brother to 73005.

They report, "In 1976, a large-bodied, 10-point, 3.5-year-old buck was noted in the pens. This deer had six antler points as a yearling and much of his genetic history was known." Big Charlie was the son of "A&M Charlie" and his mother was produced by "Salty." This was done in 1977, two years after the spike line already had sired 48 sons (a priori) or one-third of the total buck offspring. At this time, they really got busy breeding Big Charlie (see graph), mostly to mature (3.5+ years) does. From 1977-1980, Big Charlie produced 77 buck and 56 doe offspring (35 percent of all offspring during the study). He was a busy buck all right, but 67 percent of buck fawns were produced by only three does (85, 88 and 1001).

If you are getting confused, let me

make it simple. The TPWD researchers set out to breed a line of spike and fork-producing deer. For their sires, they chose to look at bucks at 3.5 years, and perhaps even some of the spike line offspring. They did not include some deer for both lines, used only one sire (Big Charlie) for their fork line, and added two bucks that were a son of the worst buck and a back-cross to another. Once they had these study subjects, they bred the bucks to mostly older does for Big Charlie and younger ones for the spike sires. Offspring were only evaluated to 3.5 years; and, remember Ben and I found differences between the three-point and fewer, and four-point and greater yearlings disappeared at maturity (4.5 years).

Since their publicly stated goal was to produce true breeding lines, I can only guess who these does were! Two-thirds of the bucks produced by Big Charlie came from three does. Finally, when we look at the birth dates of fawns produced by the nine bucks in the study, guess whose sons generally were born earlier? That is right, Big Charlie. I hope you have been able to follow most of this.



A Texas Parks and Wildlife study concluded spike yearlings were "vermin" needing total removal. According to the author, whether or not to support spike shooting in Texas has turned into a loyalty test.

Take a look around this issue of TTHA's magazine and study the various advertisements from deer breeders. By selective breeding and back-crossing, they clearly show you can produce lines of great deer using these techniques. They also prove empirically, the opposite also can be done—produce a line of "sorry" bucks. THAT is what the Kerr study proved, and I remain adamant that is all they did. Just as with the deer breeders, there is little relevance to what YOU are doing on your hunting property with free-ranging animals. That also is what Ben and I discovered from our antler study.

The first four sets of antlers from Little Murph (left) and Big Charlie (right). It's a stretch to say Big Charlie's yearling antlers have six measureable points.



What now?

No one ever has been able to replicate the Kerr results! Why? It's important to point out the vast majority of research projects start with peer-review of the methodology, long before results are submitted for publication. It's the best way to prevent or reduce "bad" science. Every scientist seeking outside funding must subject a proposal to such review. Unfortunately, to my knowledge no independent review took place for the Kerr study; and, if it did, someone was not paying attention! Furthermore, the first peer-reviewed article from this work was not until 1994, for the British journal Heredity. This was followed recently by a report in the Journal of Wildlife Management (1998). Both studies were done using the closed herd generated from the work discussed above, rendering, in my opinion any findings misleading. If you breed the white rat, why publish a paper proving white rats produce white rats?

But, let's be good scientists and take the opposite side. Is there any evidence to support the Kerr position? Since all this took place, we discovered one study conducted by Texas A&M University at Kingsville (but never published), in which for nine years they heavily culled deer on one 10,000-acre pasture of the King Ranch and not in an equal sized adjacent pasture. The nine-year result was no significant difference in antler size between the two areas. One reason might have come from something we saw in our research, and reported by other studies. A high percentage of yearling bucks migrate off even large ranches. This creates a significant "fly in the ointment," in that even if the Kerr research was right, the young bucks you leave on



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your property probably will end up on another property. Furthermore, we conducted a culling simulation study on our yearling antler data, factoring in peer-reviewed, published year-to-year mortality rates. We learned, if you cull all yearling bucks with eight or fewer points, you end up with NO 2-year-old bucks! Drop back to six or fewer points, and you get one! A paper given at the 2010 Southeast Deer Study Group Meeting in San Antonio found essentially the exact same thing, only with on the ground application. If you intensively cull yearlings, you can end up with few mature bucks!

This has been a lot for you to digest about spike culling. The basic question remains: why on Earth is there such disparity in results? As you have just learned, sometimes the answer lies in the design and conduct of the experiment. I have learned over the last four decades never to trust *a posteriori* results! In these days of agenda-driven science, the public has come to distrust almost all science, and I do not blame you.

In the rearview mirror, probably all research projects could have been done better. Remember that muddy road I talked about above? The lesson I learned from that trip was, there are times when you start down a bad road, then due to hard-headedness or ego you fail to admit it is time to turn back. Research is no different. And, there are other motivations that can cloud a scientist's judgment, including financial return, fame and political agendas. The expanding ground-roots movement towards antler restrictions in many states has made agency biologists nervous. They like control and antler restrictions are being seen as loss of control. But, in every state where antler restrictions to protect all yearling bucks have been implemented, the public approval rate is off the charts! Mississippi is one of these states, as well as Texas.

I ended our presentation at the "Austin Ambush" by asking for an independent review of the Kerr project; one in which I would have no role. My request appears to have fallen on deaf ears. I still think it would be a good idea; after all, by my estimates more than $20 million have been spent one way or another on this study. Even more important is the animosity and misinformation generated by these studies. Will this issue ever be settled?

Too much time, money and effort have been wasted on this approach to deer management. This controversy has taken the focus off the truly effective tools of deer management. Of the four tenets for quality deer management—age, nutrition, proper harvest and genetics—which ones can YOU do something about? To be honest, I firmly believe if the Lord himself were to show up one day and give us the answer, there still would be those who would not agree. Only time and good science will tell. As Ben Stein said in his documentary, "Expelled," "A lie cannot live forever!"