Dr. Deer's™ PRESCRIPTION

THE SPIKE WARS

Part 1: The Kerr Study

By Dr. James C. Kroll

Special Note: This is a sad day for science! I saw the results of a Rasmussen Poll indicating 59 percent of the American public distrusts science and scientists. This unfortunate news follows behind recent discoveries that climate scientists have been caught "fudging" their data to fit their expectations. Of course, if you only watch network news, you probably are unaware of this. It is sad, in that I remember only a short time ago scientists were listed at the top of trusted people, along with parents and teachers. The pressures to produce grants, promotions and fame have, in my opinion, brought us to this sad state. So, ironically I begin this series on what I have called, The Spike Wars. In writing this series, I am not setting myself up as a perfect scientist. I am an imperfect human being, but I was trained to be, and always strive to be an unbiased scientist. My colleagues and I must always guard against bias and "have no dog in any fight." It is in this spirit that I begin.

No issue, with the possible exception of shooting does, causes more arguments around campfires that the shooting of spikes. I remember vividly it came up very early in my career. In those days, giving a talk about deer management was a new thing and folks were clamoring for information. I tended to focus on the issue of herd control, and in the process generated considerable animosity in some East Texas counties.

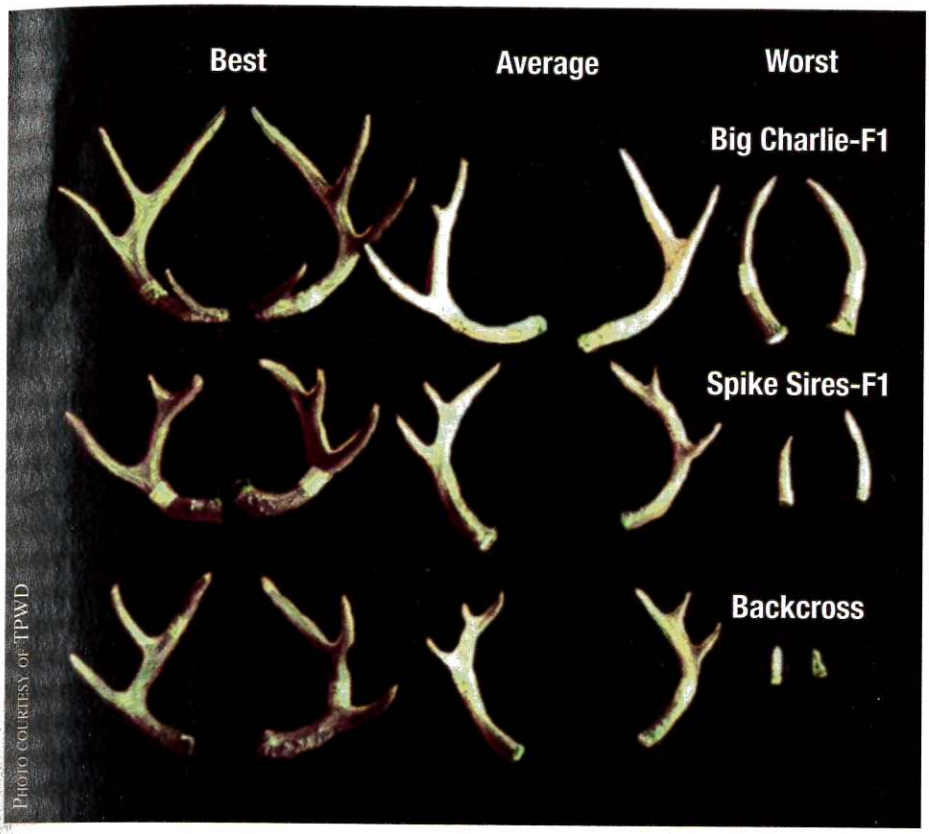
One fellow stopped a friend of mine on an east Texas hunting lease one day and asked, "Are you Dr. Kroll?" My friend assured him he was not. The guy spit on the ground, turned away and walked off! Yet, once we got by that contentious issue, the next one involved shooting spikes.

In 1973, much of the game regulations were being made by county commissioners. You might think this odd, but that was the way it was. I remember having a javelina and chachalaca season in Angelina County! That is why we worked so hard later to get the "Uniform Regulatory Authority" bill passed in the legislature, giving Texas Parks & Wildlife the say over seasons and bag limits.

What those early folks were trying to do was protect young bucks. The "wisdom" at that time was you could age a buck by the number of points; a spike being one year old. Of course, we all know better now, but as I said we were still learning in those days.

Up to that time, spikes were illegal to harvest in many counties, including Kerr—the county where the Kerr Wildlife Management Area resides. Although flawed, the reasoning behind protecting spiked bucks had some merit, and is not unlike that now in play for counties with antler restrictions. It was at this time, TPWD decided to begin a long-term study at the Kerr.

The Kerr study originally was set up as a three-phase study. The first was to study the impacts of nutrition on antler development. It all began in 1974, when TPWD researchers set up pens at the Kerr Area, filling them with deer obtained from around the state. All were buck fawns. Phase I of the study dealt with nutrition. Again, at that time we knew very little about this topic. The fawns were hand-reared on a ration of 50:50 condensed milk and water. At weaning, the fawns were switched to a 16 percent pelleted ration until 6 months of age. At that time, bucks were randomly separated into groups. Other



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than protein quality (eight percent and 16 percent), the deer were fed and treated the same way.

Five deer were fed the high protein diet for four years, and served as a control. Another group, made up by four deer, were fed low protein all four years, serving as the main treatment group. Another group of four deer were fed high protein their first year, then switched to the low protein diet the second year; back to the high protein the third year and back to the low protein the final (fourth) year. Apparently, this was done to simulate differences in years on free-range. A final group (four deer) was started on low protein, then switched to high protein, then back to low and then high; again, simulating range conditions. By the end of the study, the following numbers of deer had survived: 1) all high protein, 5; 2) all low protein, 2; 3) high-low-high-low protein, 4; and 4) low-high-low-high, 3. All protein shifting occurred in February, prior to antler development.

Phase II of the Kerr study involved the role both of nutrition and genetics in antler development and body size. Sixteen bucks born in 1973 were included in study, and fed high protein. As before, these bucks came from around the state, either from the wild or captivity. Nine had spike antlers as yearlings and seven were forked. These bucks were monitored for six years, primarily comparing antler sizes and body weights. Of the 16 bucks, only five of the forked group were compared through 3.5 years (two had injured their antlers at 3.5 years).

Phase III of the initial Kerr study was focused solely on genetics. Six bucks born in 1973 and that were spikes as yearlings were bred to groups of does. The reported purpose of this was to produce a "spike line" of deer. Some doe fawns from these breedings were kept in the pens with their sires to "back-cross." During the study, two of the spike sires died and were replaced by other bucks produced in the pens (sons of the original group). In 1976 (three years after the study began), a particularly large-antlered buck ("Big Charlie") was selected from the original group (Phase I). He is reported to have had six points as a yearling. He became the single sire for the "fork-buck" group, which also involved back-crossing to produce the "fork line" of deer.

So, in summary of 16 bucks chosen for the study on effects of a high protein diet, nine were spikes and seven were forks. One forked buck was chosen to father the fork line and eight spikes (six from the high protein group and two of their offspring) produced the spike line. Each group then was back-bred to their offspring.

During the same period of time, several of us "young" deer biologists had formed a subgroup of The Wildlife Society, known as the Southeast Deer Study Group. Each year we all would meet in a different state to present our findings so as to get the latest information into the management process. There was no peer-review of material, other than the abstracts submitted by potential presenters. These were heady and exciting times. A great deal of what we now know about whitetails was developed during the years following creation of the SEDSG. Needless to say, when the TPWD researchers showed up to present their findings from the Kerr study—dealing with one of the questions most often asked by laymen—the result was a "bomb shell!" Texans became the darlings of the meeting, especially since we already were known for being way ahead of the management curve.

Table 1. Comparisons of spiked and forked line bucks (15 fork, 49 spike) produced at the Kerr Wildlife Management Area.*

	LWT	ISS	MBL	MBR	CRL	CRR	AWT	TPTS
Fork Line	166	16.3	19.7	19.4	3.8	4.0	1.969	9.3
Spike Line	141	13.6	16.0	16.1	3.5	3.5	1.397	7.3
Difference	118%	120%	123%	121%	109%	114%	141%	128%

*LWT= Live Weight; ISS= Inside Spread; MBL= Left Main Beam Length; MBR= Right Main Beam Length; CRL= Left Beam Basal Circumference; CRR= Right Beam Basal Circumference; AWT= Antler Weight; TPTS= Total Points.

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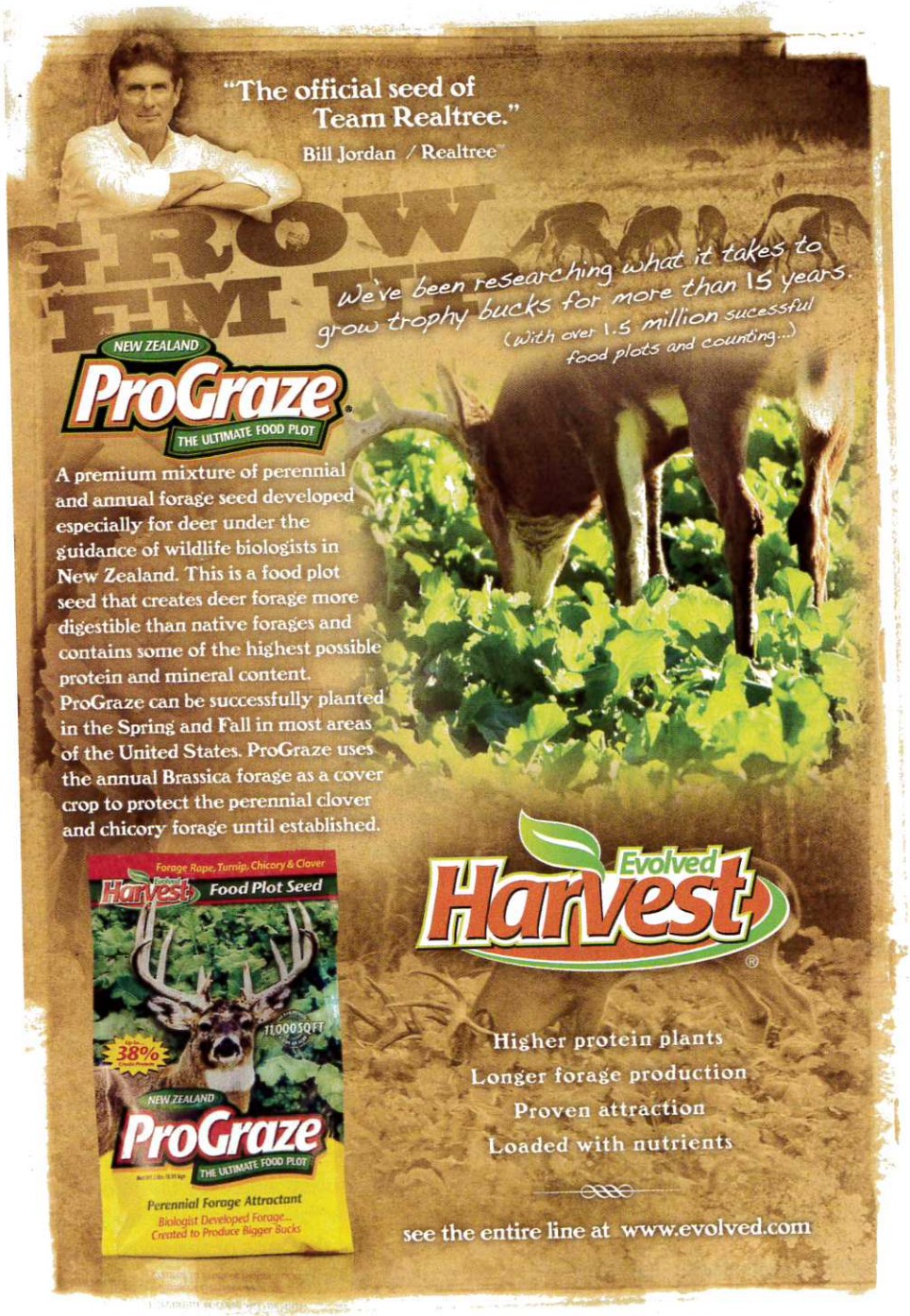


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Phase I results (although fairly small sample sizes) clearly showed the role of nutrition in antler development. The high protein bucks were indeed superior to the low protein bucks. Phase II, the nutrition-genetics study, garnered the greatest interest. Table 1 presents the 3.5-year data for the two groups of bucks.

This was exciting stuff! Clearly the spike line was inferior to the fork line. I was beginning to give a lot of management talks then, and quickly added the new information to my talks. "Removal of spike yearling bucks is a sound management practice," I said a thousand times over the next few years.

Papers were presented over this and subsequent work from 1983 to the present. By my count, at least 10 papers were published from the Kerr work, not counting the various magazine articles and progress reports. The vast majority were state reports and publications, and symposium proceedings (including the Southeastern Association of Fish & Wildlife Agencies). As far as I can tell, only two of these were fully peer-reviewed. One was published in 1994 in the journal, Heredity, entitled: "Heritabilities for antler characteristics and body weight in yearling white-tailed deer (Williams et al., 1994, Vol. 73, pages 78-83). The second was in The Journal of Wildlife Management in 2007, entitled "Genetic and environmental interaction in white-tailed deer" (Lockwood, et al., 2007, Vol. 71(8), pages 2732-2735.) I will discuss the relevance of this information in Part IV of this series.

The general public and private deer managers jumped on this information like a "duck on a June bug!" If you wanted bigger bucks, all you had to do was cull spiked yearlings. To believe otherwise was like being a member of the Flat Earth Society. But, things were about to become somewhat complicated; for science is based on replication, and the young band of deer biologists who started the SEDSG were about to attempt just that! In the next installment, I will cover subsequent studies in the Southeast that tested the spike hypothesis. Stay tuned; it gets real interesting.