Dr. DEER

BY DR. JAMES C. KROLL

4 COMMON RUT MISCONCEPTIONS

Of the hundreds of questions I am asked each year, the most frequent involve the rut in some manner. There still seems to be a great deal of confusion about the breeding biology of whitetails, and there remains considerable misinformation about the rut. In this article, I will address four of the greatest misconceptions I have noticed among hunters. We begin with the No. 1 misconception.

COLD WEATHER TRIGGERS THE RUT

Whitetail deer are short day breeders, meaning as days become shorter, certain physiological changes take place that prepare them for breeding. Their brain keeps track of day length in a curious "reverse" manner, using the concentration of melatonin (a chemical produced at night) in the blood. Production of various sex-related hormones then is stimulated to affect the testes and ovaries.

My research supports an odd relationship between the full moon and whitetail breeding. Most races of whitetails "want" to breed shortly after a full moon. Exactly which moon is dependent on the subspecies or race. The most well known full moon is the "Harvest Moon," occurring sometime in September. The next full moon has been called the "Hunter's Moon" for at least 400 years in Europe. That is because red deer tend to breed on or about this moon. The succeeding full moons have no names, but are involved in whitetail breeding. The Avery Island race of whitetails, occurring from southern Louisiana along the Gulf Coast to just north of Corpus Christi, Texas, tends to breed in late September to early October (Hunter's Moon), while other races will key on later moons. Doing so allows whitetails to fawn at a time that, in turn, leads to the proper time for fawns to wean. At this time, they are on their own in regard to food.



The rut is surrounded with mystery, intrigue and, more often than not, misconceptions about buck and doe behavior. PHOTO BY RUSSELL GRAVES/WINDIGOIMAGES.COM.

Cold weather has no real effect on when deer breed. The reason so many hunters think it does is that, just like humans, deer feel more comfortable when the temperatures are cooler. There also is an increased need to acquire calories during cold weather. So, the fact that you see more deer moving during colder weather does not mean temperature triggered the rut. Does manage to get pregnant perfectly well, even during unusually warm fall conditions.

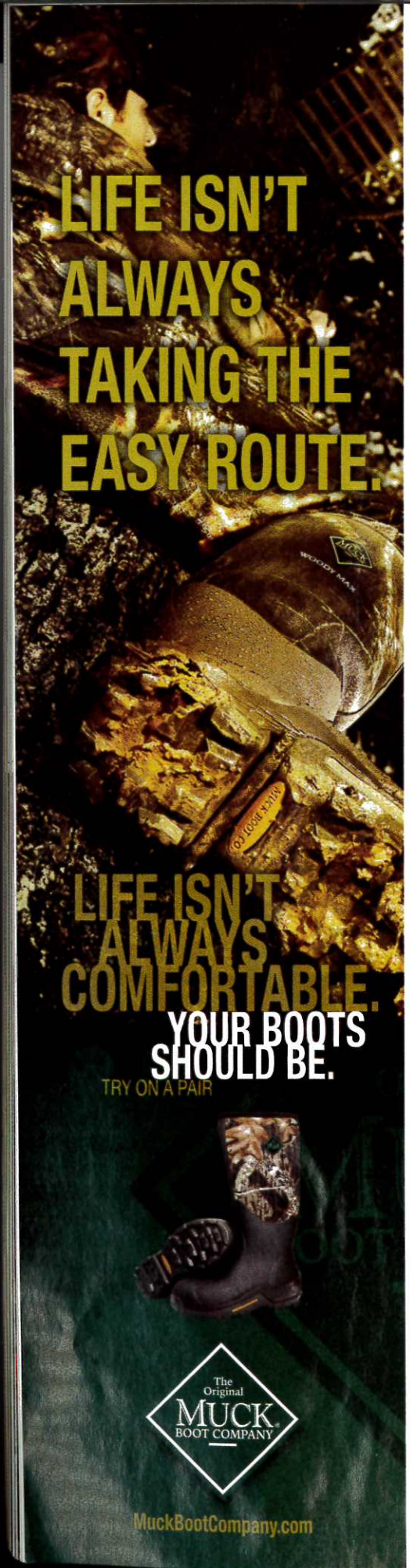
ALL BUCKS BREED

There has been a lot of press lately about DNA studies on how many offspring individual bucks produce. One study (R.W. DeYoung, S. Demarais, K.L. Gee, R.L. Honeycutt, M. Hellickson and R.A. Gozales, 2009 Journal of Mammalogy) in particular drew a lot of attention. The study concluded yearling and two-year-old bucks breed and contribute 30-33 percent of offspring to the population. The study was conducted in three geographic areas — King Ranch (Texas), Nobel Foundation (Oklahoma) and Noxubee Refuge (Mississippi). The authors were "surprised" to discover not all offspring were produced by "dominant" bucks. This was not surprising to me!

If we examine the results of this study, it does indeed fit what we have known for some time about whitetail breeding, especially in places where poor sex and age structure are encouraged by traditional deer management.

There are two important aspects of this study. First, the herds at the Noble Foundation and King Ranch progressively contained a higher proportion of older bucks. Second, the populations with more mature bucks resulted in more offspring from this age class. It is obvious to me under more natural buck age structure — that occurring prior to European hunting in North America — produces a breeding system favoring older bucks. Second, the "name of the game" in natural selection is getting more of your offspring into the next generation. It is about differential reproduction, not total dominance of breeding. Furthermore, we tend to forget that more than half the surviving offspring of bucks are does.

The take-home message is that natural deer herds favor more offspring from mature bucks, and overharvest of bucks leads to poor age structure and heavy stress on immature bucks. This certainly is a case for managing for older bucks.



OLD DOES COME INTO ESTROUS FIRST

This is a natural extension of the previous discussion. For years, "old time" deer biologists have insisted older does are necessary for successful production of fawns, especially in colder climates. The typical rut curve shows three peaks, one for older does, a smaller one for young does and, in some cases, a small peak as much as two months later for doe fawns. The reality is when deer herds are in good condition and under proper nutrition, there is little difference in timing of estrous for old and young does!

I also have seen as much as 60 percent breeding in a later estrous by doe fawns under such conditions. I have been working for years at the Turtle Lake Club in northern Michigan. We discovered when the herd was reduced to productive capacity and provided adequate nutrition, younger does were just as successful as the "old girls" left by years of inadequate doe harvest. So, the answer to this misconception is young does are just as likely to breed early in the rut, provided the herd is being managed for younger age structure. This promotes a more pronounced rut.

BUCKS FOLLOW ESTROUS SCENTS TO FIND DOES

I saved this one for last, because it is the one that intrigues me the most. We have done considerable research on scent communication in whitetails, much of which contradicts common "wisdom" about the topic.

First of all, we have been conducting artificial breeding for almost 20 years to support our genetics research. Part of this work involves bringing does into estrous at an exact time so we can artificially breed them. An offshoot of this work clearly involves the vaginal tract of mucus produced when a doe is about to ovulate. Out of curiosity, we decided to conduct field research on the attractiveness of this material. After all, if anything contains estrous scent, it would have to be vaginal mucus. We collected the liquid directly from the doe and placed it immediately into an ultra-freezer. Later we took the material to the field in a special cold container and deposited it in mock scrapes. To date, we never have gotten bucks to pay much attention to the material!

This and other research we have conducted over the years bring us to the following thoughts. First of all, pure logic would dictate that the chemicals produced when a doe comes into estrous have to be short-lived. If not, the woods would turn out to be a pretty confusing place! Courting and breeding observations support the idea that a buck gains interest in a doe from both physical postures and behavior, followed by close contact with the external portion of the doe's reproductive tract.

It is well known that does do not stand for mounting immediately on approach by a buck. Rather, they tend to be coy and run off, with the buck in hot pursuit.

This probably guarantees several important biological events, including battle for her favor among other bucks joining the chase. We commonly have folks tell us of seeing a doe running by their stand, followed a few minutes later by a buck with his nose to the ground. The observation is sound, but the interpretation is weak.

The hunter presumes the buck is tracking estrous scent left behind as the doe runs. What we now think is that he actually is following scent from her inter-digital gland, which essentially is unique to each deer. That precisely is why that same hunter will report another buck coming by later and completely ignoring the trail taken by the doe and her suitor.

Since he wasn't there to observe the behavior or to investigate the doe personally, he just assumes it is another deer that passed by.

Finally, the gangs of bucks that assemble around a doe approaching estrous are erroneously thought to be attracted by a scent in the air. We now think they come to the sound of the growing chase more than from any scent in the air.

Hopefully, this article has cleared up some of the misconceptions I commonly encounter over the range of whitetails. In spite of science, there still will be firm belief in some of the five misconceptions discussed above. A lot of folks conform to a good friend's scientific law: "If I hadn't believed it, I wouldn't have seen it with my own eyes!"