



# CULLING DEBATE

It's time to put this hot topic to rest — maybe.



**- MATERNALLY  
EXPERIENCED DOES**

A doe's genetics and nurturing ability are prime factors determining yearling buck antler size. Maternally experienced does invariably conceive more progeny, successfully raise a higher percentage of them, and tend to raise superior males that ultimately grow the largest antlers.

by John J. Ozoga

In recent years, no aspect of white-tailed deer management has caused more debate than the practice of culling to improve antler quality. Conflicting deer research findings have fueled this controversy.

Culling is the selective removal of presumably inferior deer in order to improve the quality of the remaining population. Among whitetails, the culling harvest strategy generally involves targeting those bucks with inferior antlers for removal to improve overall antler quality of those left to do the breeding and for harvest at older age.

### **CULLING CONTROVERSY**

Some researchers claim antler traits are genetically linked and inherited. If so, they say, yearling (1-1/2-year-old) antler characteristics are reliable predictors of future antler quality. In their view, spiked-antlered yearlings are genetically inferior to fork-antlered yearlings and will continue to grow small antlers even at maturity.

Meanwhile, other investigators have shown that genetics play a relatively minor role in antler traits of mature bucks. In their view, true genetic effects are often obscured by a host of other factors — especially nutrition — making it difficult to predict a young buck's antler potential.

Until recently, the culling debate has been founded almost entirely upon studies using captive deer held at unnaturally high densities and fed high-quality or restricted artificial diets.

### **PENNED DEER STUDIES**

Study results on captive deer have produced recommendations ranging from removing all spike-antlered (presumably genetically inferior) yearlings, to complete protection of all yearling bucks regardless of their antler traits.

The practice of culling bucks with small antlers, as a management strategy, originated in Texas during the 1980s. Presumed benefits of such harvesting were based upon penned deer research. These early studies indicated the removal of spike-antlered yearling

PHOTO BY CHARLES J. ALSHEIMER

should be viewed as a temporary solution to chronic age-structure problems.

### ANTLER GROWTH PATTERNS

Although their findings have been challenged, studies conducted in Texas showed that a whitetail buck's first set of antlers was a poor predictor of antler growth at maturity in wild populations. In other words, selective removal of small-antlered yearling bucks will not increase overall mature buck antler size.

Bucks that started out with 3 or less antler points remained smaller in all measured antler traits at 2-1/2 years of age and in most antler traits at 3-1/2 years of age. However, by 4-1/2 years of age there were no differences in any antler measurements regardless of their yearling antler-point category.

Although antler measurements increased for all males as they matured, small-antlered yearlings added antler mass at a faster rate in succeeding years, as compared to large-antlered yearlings. This resulted in no difference in antler

size, regardless of their yearling antler size, by the time bucks grew their fourth set of antlers when 4-1/2 years old.

Hence, in this particular study, yearling antlers did not serve as a reliable predictor of antler growth potential, meaning selective removal of yearling bucks with small antlers is not likely to improve overall mature buck antler quality.

### THE LATEST

Recent published findings by David Hewitt and a group of Texas A&M researchers may have finally answered this rather intriguing question: Do yearling antlers serve as a predictor of antler growth potential? These researchers used capture and harvest records from an impressive sample of 2,940 male whitetails on five study sites in Texas over a 10-year period to track antler development among bucks from yearling age to 5 years of age.

In their study, yearling deer with 3 or fewer antler points had antlers at ma-

turity that were 32 centimeters smaller (on the Boone and Crockett scale) than deer with 4 or more antler points at yearling age.

According to Hewitt and his cohorts, "Our data shows clearly that yearling male deer with small antlers have, on average, smaller antlers at maturity." In their view, "the correlation between yearling and mature antler size was unequivocal."

As expected this latest study found that yearling body size was positively related to yearling antler size. This suggests that yearling deer with small antlers may have experienced poor nutrition early in life. However, the relationship between yearling antler size and body size became weaker at older ages. As a result, this suggests that deer have compensatory growth capability in body size or that factors other than early life nutrition have a greater influence on body size in older deer.

Since whitetails exhibit segregation of the adult sexes, this also implies that

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SEASONAL VARIATIONS IN CLIMATE, NUTRITION, DEER POPULATION STRUCTURE, DENSITY, BIRTH DATE AND NURTURING ARE FAR MORE IMPORTANT THAN GENETICS IN DETERMINING THE QUALITY OF A YOUNG BUCK'S FIRST SET OF ANTLERS.

habitat management designed to favor one sex may not necessarily favor the other. Obviously, nutritional conditions on the fawn's natal range are critically important, as growth and development at a young age will impact the deer's development throughout life. This does not mean antler genetics are unimportant. But this is a complex subject deserving far more discussion than allowed here.

Given their study findings, the authors conclude the following: "Because of a positive relationship between yearling and mature antler size, selective harvest of juvenile males can either increase or decrease average antler size of the cohort, depending upon harvest criteria."

**CONCLUSION**

Managing antler genetics is difficult,

and the selective harvest of yearling bucks based upon antler size can yield potential consequences. In my view, there are many factors that can impact a yearling buck's physiology, quality of life, and ultimate physical development. Seasonal variations in climate, nutrition, deer population structure, density, birth date and nurturing are far more important than genetics in determining the quality of a young buck's first set of antlers.

Remember, antlers are secondary sex characteristics and that body growth takes precedence over antler growth. Invariably, the healthiest and largest yearling bucks will carry the largest antlers.

Also, the doe's genetics and nurturing ability are prime factors determining yearling buck antler size. Maternally experienced does invariably conceive

more progeny, successfully raise a higher percentage of them and tend to raise superior males that ultimately grow the largest antlers. That's especially true when compared to younger does that are nutritionally or socially stressed.

If the management goal is to raise large antlered bucks, my advice is to concentrate efforts on habitat improvement to best meet the whitetail's seasonally changing nutritional needs, while controlling herd density and sex/age composition to assure that bucks achieve maximum size at maturity.

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