Caesar Kleberg WILDLIFE Research Institute
Texas A&M University-Kingsville
DEER ASSOCIATES eNEWS
News from the Deer Research Program at Caesar Kleberg Wildlife Research Institute

Changes in Antler Size of Mature Bucks

By David G. Hewitt **May 2014**

If you look at a graph of average antler size of white-tailed deer at different ages, it is clear antler size increases until 5 years of age. Average antler size then remains relatively constant, suggesting antler size does not change much after a buck reaches 5 years old.

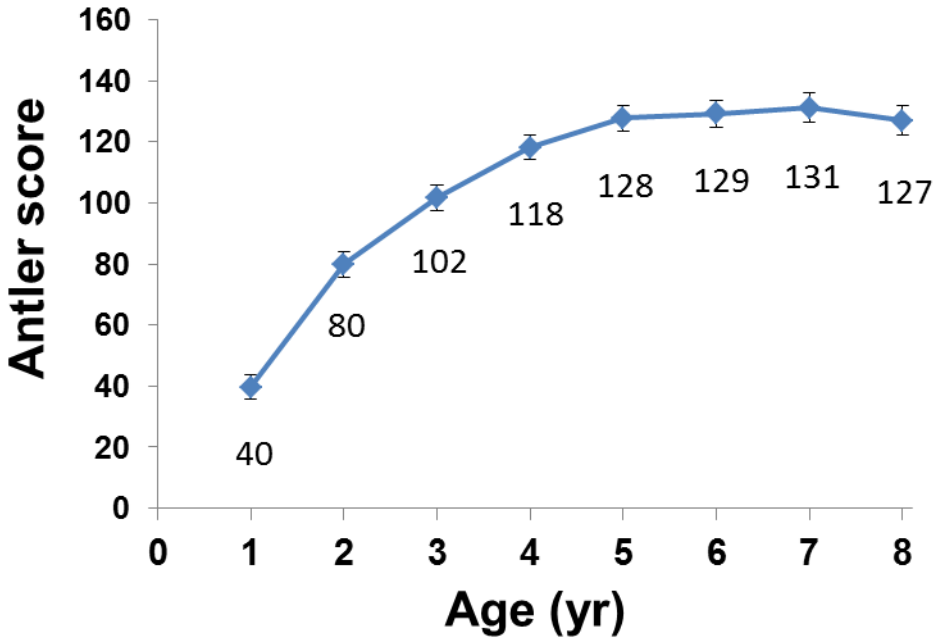

Figure 1. Changes in average antler size of white-tailed deer with age in South Texas.

Aaron Foley and several colleagues calculated the repeatability of antler size of bucks 3+ years of age. A repeatability value of zero means there is no relationship in antler sets of a buck from one year to the next. Repeatability of 1 means antler characteristics do not change from one year to the next. Aaron found repeatability of total antler score varied from 0.59 to 0.82, depending on variability of rainfall and presence of pelleted feed. Aaron's data supports the idea that, on average, antler characteristics do not change much from one year to the next in mature bucks.

Data in Figure 1 and Aaron Foley's conclusions apply to an "average buck" and do not give an indication of how much variation there is in antler sets from an individual buck from one year to the next.

Using data from 170 bucks captured more than once while they were mature, I constructed a distribution of the magnitude of change in antler size for bucks 5 to 8 years of age. The figure below shows the distribution of 211 instances in which antler-size change was measured in subsequent years. For example, there were 47 bucks that gained 0-5 inches in antler size from one age to the next and there were 37 bucks that lost -5 to -0.1 inches. These data come from the South Texas Buck Capture project with captured bucks on 5 ranches in Webb and Kleberg Counties over a 10-year period.

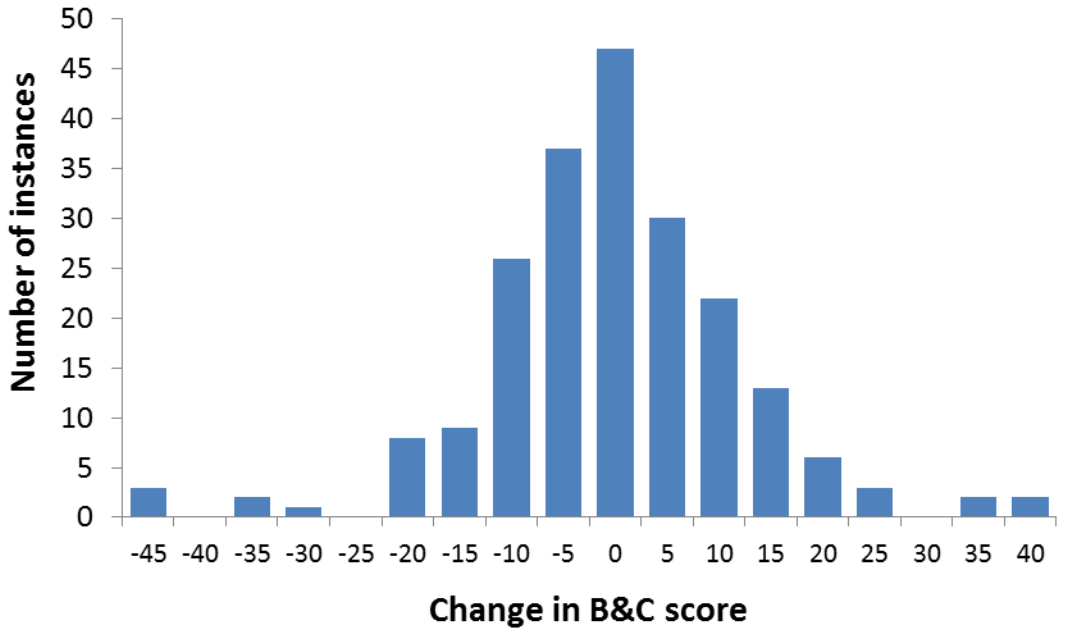

Figure 2. Distribution of the change in antler size of mature white-tailed deer between one year and a subsequent year in South Texas.

From these data, it is clear that successive antler sets of individual mature deer vary by less than 20 inches in 90% of the instances. However, in 3% of instances, antler size changed by more than 40 inches. We will use 40 inches as our criterion to define an outlier in antler-size change of mature bucks. This Deer Assocaites eNews describes instances in which we have documented 40 inch changes in antler size of mature bucks. These anecdotes come from various deer capture studies conducted in South Texas by the Caesar Kleberg Wildlife Research Institute.

Buck 1 – Webb County. We measured this buck's antler size in 3 successive years. From 5 to 7 years of age, his antlers changed from 210 to 166 to 208. Unfortunately, he died after growing his antlers at 7 years of age.

Buck 2 – Jim Hogg County. This buck was captured in 2012 and estimated as 4 years old. He scored 200. One year later we captured him again and he scored 161.

Buck 3 – Webb County. This buck was first captured at a 5 year old with 160 B&C score. One year later, we captured him again and he was 116.

Buck 4 – Webb County. This buck scored 160 when first captured at 6 years of age and when he was harvested one year later he scored 119.

Buck 5 – Dimmit County. This buck was moved into an enclosure with supplement feed as part of the Comanche-Faith research project when he was 5 years old. The next year he grew antlers that scored 108. His 6 antler sets from 7-12 years of age ranged from 136 to 158. At 13 years of age, his final year, his antlers scored 79 points. For photos see Inside Deer Research Article.

Buck 6 – Dimmit County. This buck was also part of the Comanche-Faith research project and was in an enclosure with supplemental feed. He grew 4 sets of antlers from 9 to 12 years old that scored 141 to 154 points. He was an estimated 13 years of age during the drought of 2009 and his antlers shrunk to 92 B&C points. During the last 2 years of his life, his antler size was in the mid 120s. For additional photos see Inside Deer Research Article.

Buck 7 - Dimmit County. This buck was first captured as a small 8-point 3-year old buck and was placed in an enclosure on the Comanche-Faith research project. He remained in an enclosure with no feed for the next 6 years and was a 160-class buck in his best year. In March 2013, as part of a new phase of the study, we moved him to an enclosure with supplemental feed. Despite the stress of being moved, at 10 years of age, he blossomed into a 216 behemoth.

Some interesting observations:
- Buck 5 had a large increase in antler size when he was at least 10 years of age. Bucks 5 and 6 largely maintained antler size until 11 or 12 years of age. Thus, contrary to conventional wisdom, not all bucks decline in antler size after 8 years of age.
- Some mature bucks increased 40 inches, others decreased 40 inches, and buck 1 decreased 40 inches and the next year returned to his original size. What nature giveth, nature taketh away.
- Bucks 3 and 4 went from respectable 160-class bucks to below average bucks of less than 120 inches. Bucks 5 and 6 showed large drops at 13 years old, probably a combination of old age and drought.

It is not wise to base management on anecdotes, and so in some ways the changes in antler size described in this eNews edition are simply curiosities. On the other hand, if you are managing for exceedingly rare animals, for example white-tailed deer with antlers that score over 200, then rare events such as unusually large changes in antler size may be meaningful. Noting such changes and the circumstances under which they occurred could provide insight into the multifaceted process of antler development. In the meantime, these observations illustrate that every autumn is a new year and until you spend some time the pasture, you won't know what pearls grew on your land over the summer.

The observations in this eNews came from projects conducted collaboratively with
- Mickey Hellickson, John Lewis, and Fred Bryant
- Charles DeYoung, Timothy Fulbright, Kim Echols, and Don Draeger
- Kory Gann, Randy DeYoung, Poncho Ortega-S., Poncho Ortega-S. Jr., and Tyler Campbell

and funded by
- A.R. Sanchez, Jr., Carl Rush, Carlos Y. Benavides, II, International Bank of Commerce, Joe Finley, King Ranch, Inc., and Texas Parks and Wildlife Department
- Comanche Ranch, T. Dan Friedkin, the Faith Ranch, and the Stedman West Foundation
- East Wildlife Foundation