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El Niño, Dished Molars, and Deer Dynamics in South Texas

by Charles A. DeYoung and Don Draeger

Ever wonder what the buck age structure of a natural, unmanaged south Texas deer population would look like? Whereas this subject may interest deer aficionados, it also has some value for practical deer managers. Knowledge of a "natural" age structure and what factors influence it help one understand the buck age structure created through management. To some extent, managers are fighting natural tendencies in populations in order to create quality (i.e. large antlers).



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A recent example was obtained from a 2-day buck capture on 10,000 acres. This property had experienced a very light buck harvest (2-3 per year), but otherwise was unmanaged for over 10 years. No doe harvest, no buck culling, no supplemental feed, no introduced deer. In other words, except for the negligible buck harvest, this deer population was untouched for more than a decade.

Bucks (157) were captured at random by helicopter and net gun, aged by tooth replacement and wear, measured for B&C score, and released. The first figure below shows the age distribution for captured bucks. There are two important messages in this graph. First notice the low number of yearlings (1.5 years) and the large number of 2-year olds. Also, the relative paucity of bucks aged 4.5-7.5 years. This is the result of varying fawn survival greatly influenced by seasonal rainfall, which is largely a result of the influence of the Southern Oscillation (El Niño-La Niña episodes). There are enough low survival years that such a natural population seldom grows totally out-of-control. On the other hand, there are frequent enough El Niño years of good rainfall to put high fawn crops into the population. The El Niño infusions help keep the unmanaged population from going extinct.

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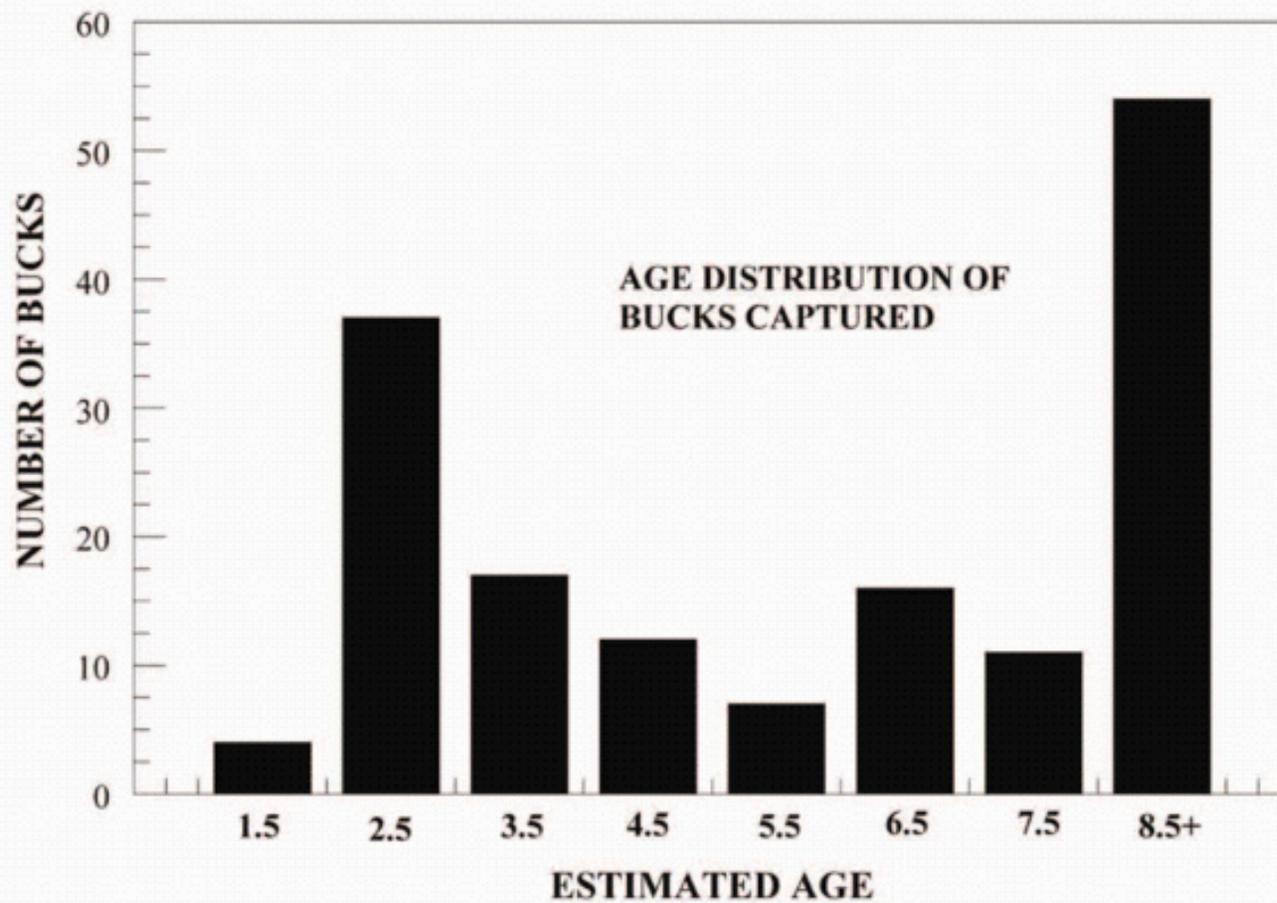
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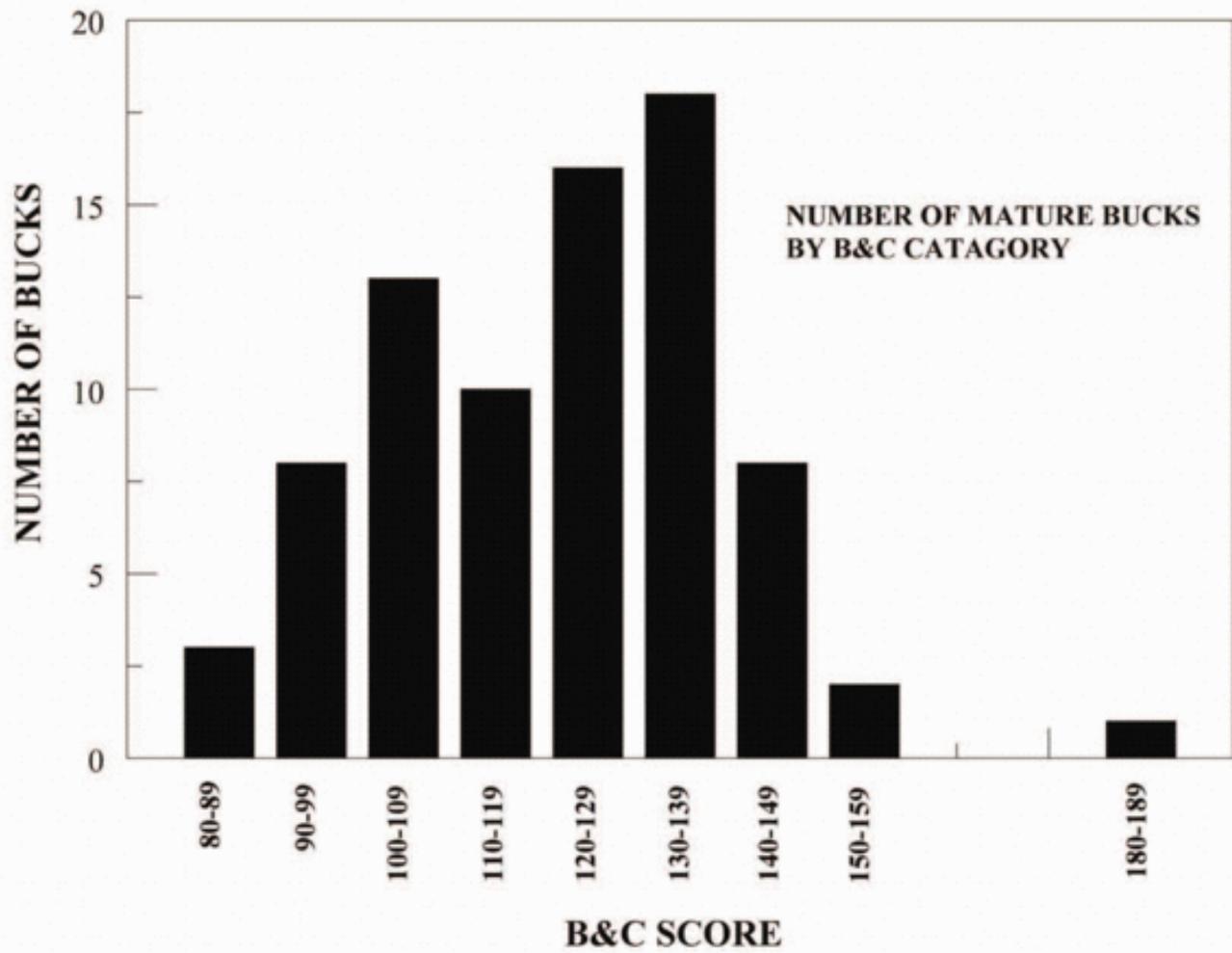
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The other phenomenon to notice in the first graph is the large number of bucks in the 8.5 years and older category (the last bar). Whereas tooth replacement and wear aging is not exact (See [Fall 2010 edition of Inside Deer Research](#)), there is no question these are old deer because they all have at least two “dished” molars. Cementum annuli analysis of south Texas bucks in this age category results in ages up to 15 years or more! So, in a natural population such as this, there is typically a large cadre of old bucks. We have seen this over and over with other captures of lightly managed populations. This is another buffer helping prevent natural south Texas populations from going locally extinct. Even if there are several La Niña years in a row (low rainfall), many of the large number of old deer are still there to sustain the population.



The distribution of B&C scores of mature bucks (5.5 years and older) in this sample is shown in the second graph below. This is the “bell curve” distribution popularized by Stuart Stedman from captures the Caesar Kleberg Wildlife Research Institute did on the Faith Ranch in the 1980s and 1990s. As is typical of real-world data, this buck capture did not produce a perfect “bell”. Nevertheless, it is clear there is a wide range of B&C scores for mature bucks from this property ranging from the 80s to the 180s!



What happens to the natural dynamics when south Texas managers practice their art? Moderate to low deer density and good habitat would help even out the yearly lows in fawn survival. Likewise, a good supplemental feed program will do the same at higher density. (However, our research has shown that even with intensive feeding there can still be significant yearly variation caused by the Southern Oscillation). Buck culling by managers would likely significantly reduce the number of old bucks, although some of them score well (the 180 class buck in the sample was aged at 8.5+). Culling would also reduce the left side of the second graph. Management practices like habitat improvement, food plots, and protein feed that increase the level of nutrition would shift the curve to the right.

Clearly, this example of a cross-section of a natural deer population in south Texas helps managers put into perspective the impacts of management practices.

About the Authors: Dr. Charles A. DeYoung is a research scientist and professor emeritus with Caesar Kleberg Wildlife Research Institute. Don Draeger is the biologist for the Comanche Ranch. The Comanche Ranch has collaborated extensively with scientists at the Caesar Kleberg Wildlife Research Institute.

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