

Antler Regulations

Part 3 of 3



NAVIGATING THE TANGLED THICKET

BY STEVE DEMARAIS AND BRONSON STRICKLAND

What lies ahead for the use of antler regulations as part of deer management programs? To fully answer this question, we need to step back and get a better understanding of the historical context of antler regulations.

Antler regulations (ARs) are merely a specialized type of selective-harvest criteria – tools used to fulfill management objectives. They require hunters to harvest, or not harvest, the types of animals needed to fulfill management goals. Historically, selective harvest criteria have been used until they were no longer needed and then revised to meet new management challenges.

Selective harvest criteria have been used to fulfill deer management goals for hundreds of years. In 1646, the Portsmouth Colony of Rhode Island limited doe harvest during the fawning season to improve recruitment. Deer restoration efforts during the 1930s to 1960s required that does be protected. As deer restoration succeeded, prohibitions on doe harvest were reduced, and then doe harvest was promoted. The pattern is clear – harvest criteria adapt to changing conditions and management goals.

During the 1990s the need to protect young bucks from over-harvest was identified, and antler regulations were promoted. Given that young bucks generally have smaller antlers than old bucks, smaller-antlered bucks were protected with simple

ARs that rely on a single antler feature, such as Mississippi's 4-point regulation. In Part 2 of this series in the August issue, we explained some biological problems with simple ARs. Simple ARs have generally increased the age structure of deer populations, but now it is time to pursue alternative approaches that fully incorporate the biological realities described in Parts 1 and 2.

Improved education must be the foundation of future selective harvest systems designed to promote older buck age structure. Hunters must fully accept their role as deer population manager with a commitment to continuing education. Policy makers must fully understand and accept biological realities when developing ARs. If antler-based regulations are to be used in a management program, they must be based on knowledge of the antler characteristics of the population and a full understanding of landowner's goals and related issues.

In buck management we want to differentially protect some bucks while allowing the harvest of other bucks. Generally, we want young bucks to grow older, so age is the most basic grouping factor. Therefore, we must be able to place bucks into age groups prior to harvest. This is the basic intent of an AR.

The problem is that aging bucks based on a single physical feature leaves much room for error. Figure 1 shows the high

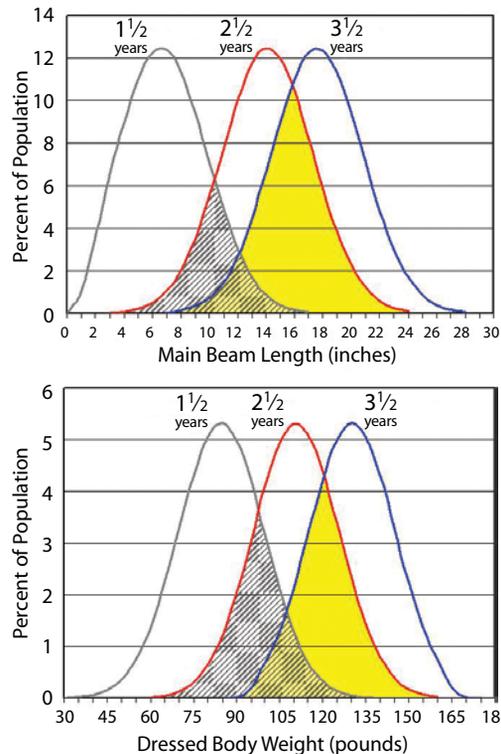
degree of overlap among age classes using either beam length or body weight as a single criterion. Longer beam lengths in the 1½ year class overlap the shorter beam lengths in the 2½ year class. Longer beam lengths in the 2½ year class overlap the shorter beam lengths in the 3½ year class. The pattern is identical when using body weight as the physical criterion – there will be a high proportion of inaccurate aging when using any single physical feature to age (and selectively harvest) a buck. To compound the problem with inaccurate aging, any harvest based on these criteria could result in high-grading of the younger age class, as discussed in Part 2.

Aging deer prior to harvest is difficult, but it's critical to the success of advanced deer management programs and should not be based on a single antler-based harvest criterion. Otherwise, the problems described in Part 2 will eventually catch up to you and limit your success. It's like trying to walk through a stream that is 10 feet deep with waders that are 4 feet high – you can only get so far. If you want to address unfulfilled management goals, then you need to consider new approaches to your management program.

Aging bucks prior to harvest requires using a combination of physical features. This approach is not exactly quantum physics, but it does require a commitment to learn identifying features. Several publications and videos are available through the QDMA to assist you with this task. Using a combination of features does not guarantee total accuracy, but it certainly improves your odds.

The simplest approach to age-structure management is to avoid harvesting any 1½- and 2½-year-old bucks. Such a prohibition on harvest of young bucks will solve many management problems. However, due to the problems with ARs, this can only be accomplished by aging on-the-hoof using a variety of physical features. Many hunters are satisfied with the size of antlers on older bucks, so all they need to do is protect all younger bucks. We like to tell hunters that the best way to double the average antler size of harvested bucks is to let them age from 1½ to 2½.

Once an age is estimated, antler-based harvest criteria can be effectively applied within an age class with minimal potential for high-grading. In fact, properly designed ARs applied within age classes can potentially increase average antler size in older age classes. Relative antler size within an age class is generally predictive of future antler size, so preferential removal of smaller-antlered



1. – Physical Variability by Age Class

These graphs depict the range of variability of individual physical characteristics within an age class. Notice the overlap in main beam length and body weight among 1½ and 2½ (thatched area), 2½ and 3½ (yellow area) and 1½ and 3½ age classes (thatched and yellow area). Using a single physical characteristic could result in incorrect aging and the harvest or protection of the wrong type of buck. Data for these graphs are from a medium-quality soil region in Mississippi.

bucks within an age class and protection of larger-antler bucks within an age class could increase average antler size at subsequent ages. Figure 2 shows that in research pens under optimum nutrition, bucks with larger antlers at 1½ years will continue to have larger antlers through 4½ years.

If you are going to remove young bucks from your population, it makes sense to remove ones that have relatively smaller antlers within an age class.

It's very important to note that differentially targeting smaller-antlered young bucks for removal should only be attempted when:

- 1) there is an adequate supply of larger-antlered young bucks, and;
- 2) there is a need to harvest excess bucks.

For example, removal of all spike bucks in lower-quality habitats in Mississippi could eliminate the majority of the yearling age class, thus dooming your buck age structure improvement program to failure.

Antler restrictions designed to differentially remove smaller-antlered young bucks must be developed with careful consideration of their potential impacts. We have made that case for any differential removal of bucks using antler-based criteria, but it is especially true for these circumstances. All antler-based harvest criteria should be developed with

Continued.

2. – Antler Potential



Data from bucks raised on optimum nutrition in research pens indicate that young bucks with larger antlers will have relatively larger antlers when older. We ordered 1½ year-old bucks by Boone & Crockett score and placed them into three groups of equal number (smaller, medium, and larger groups) and calculated the average B&C score for those groups through 4½. At 4½ years of age, average antler size of the larger group exceeded the smaller group by about 20 inches.

extensive, specific knowledge of landowner goals, habitat quality, population characteristics, and factors affecting expression of genetic potential for antler development – in other words, they are site specific.

We emphasize that there is no single approach to antler-based harvest criteria that can be universally applied. Examples in this article are presented to clarify the variety of approaches available and are not necessarily appropriate to your specific management context.

If you decide to use ARs as part of your management program then make sure an appropriate AR is developed. No AR at all is better than a poorly designed AR. To say it another way, you can do more harm than good with a poorly designed AR. The general goal of an AR is to protect young bucks from harvest. In more specific cases they are designed to protect the higher-quality, younger-aged bucks and allow the harvest of lower-quality bucks at any age and the harvest of higher-quality, older-aged bucks.

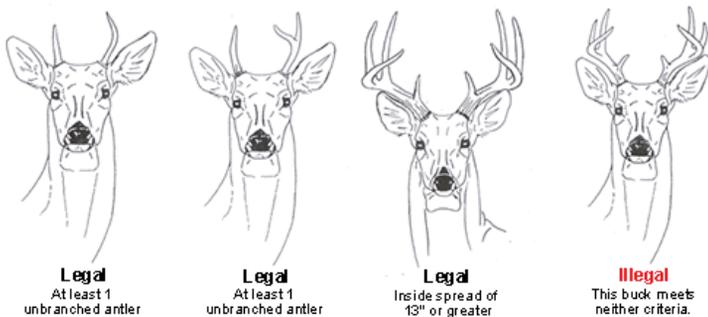
The limitations of an AR such as the 4-point regulation in Mississippi were discussed in Part 2, but it's worth a quick review. The 4-point AR does a good job of protecting most of the yearling age class throughout most of the state, but it allows the harvest of the very best 1½-year-old bucks, and perpetually protects older-aged bucks with less than 4 points.

A “slot-limit” approach can alleviate some of these problems. Slot limits are harvest restrictions commonly used by fisheries biologists to protect medium-sized fish. The slot-limit approach to ARs allows managers to be more specific when protecting or targeting certain types of bucks for removal. A slot-limit AR can allow the removal of lower-quality bucks, both young and old, and protect higher-quality, younger bucks from harvest. Figure 3 represents a slot-limit that could be used under certain circumstances. It allows the harvest of bucks with only 2 antler points (spikes) and bucks with an inside spread of 13 inches or greater. This AR will allow the removal of low-quality yearlings while protecting the best yearlings.

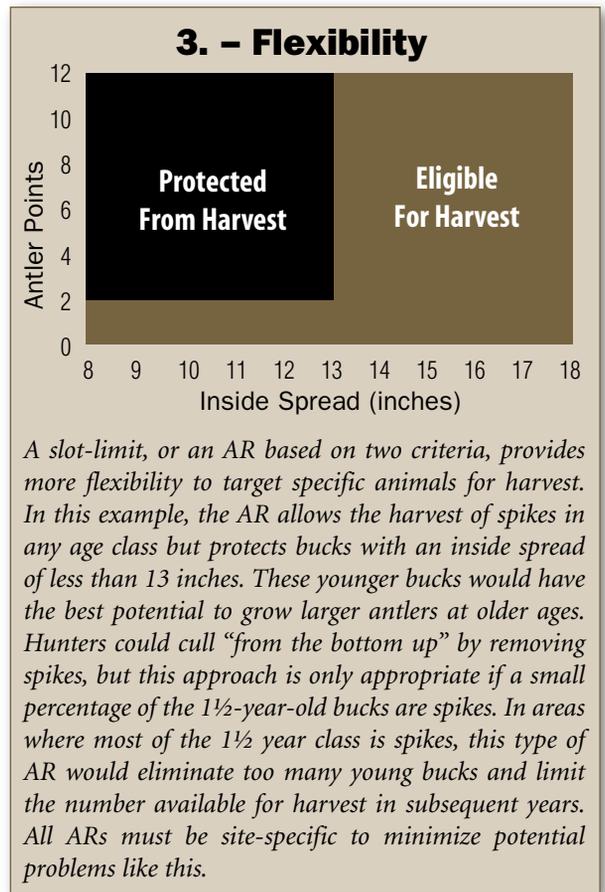
Additionally, this AR would allow the harvest of many older-aged bucks that have 13 or greater inches of inside spread, regardless of how many points.

There are potential pitfalls even with a slot-limit AR. In some areas of Mississippi, about 60 percent of 1½-year-olds have only 2 points. Under intense harvest pressure, removing this portion of this age class would significantly limit recruitment of bucks into older age classes. Another potential pitfall is the inability to harvest some older-aged bucks with a very narrow antler spread (for example, a 3½-year-old buck with a 10-inch spread). To address this second issue an additional criterion can be added, such as: an inside spread of at least 13 inches OR a main beam length of at least 15 inches. Any further exceptions would be rare and should not significantly impact your deer herd.

A similar slot-limit approach was incorporated in several counties in south central Texas. In those counties a legal buck must have at least one unbranched antler, or an inside spread of 13 or greater inches – see the illustration on this page. Mitch Lockwood, Texas Parks and Wildlife White-tailed Deer Program Coordinator, said the slot-limit AR has been a success by decreasing the percentage of



An example of a “slot-limit” style AR that allows the harvest of bucks with one unbranched antler or an inside spread of 13 or more inches (this illustration was created by Gene Fuchs with the Texas Parks & Wildlife Department for an experimental area in Texas where a slot-limit AR has been successful). This type of AR protects younger bucks with desirable antler characteristics and allows the removal of those with undesirable antler characteristics. Keep in mind this example of an AR is site-specific and may not be appropriate for many areas.



young bucks in the harvest and increasing the absolute number of older-aged bucks harvested. They have not documented any negative effects of the slot-limit AR, but they are constantly monitoring the status of the herd and will modify the AR as needed.

On private lands, managers have the flexibility to design a very specific and complex AR appropriate for their unique management situation. However, greater complexity requires increased effort and education of hunters. The complexity of an AR may be limited on public lands by lack of ability or willingness of hunters to make informed harvest decisions. Attempts to apply “one size fits all” ARs at the regional or statewide level have been based on this hunter-based limitation. The management reality is that the most biologically valid ARs will only be successful if properly applied by the hunter.

A simple alternative to ARs when managing for buck age structure is to limit the number of bucks harvested on a property. South Texas developed a reputation for produc-

tion of trophy whitetails during the 1970s. What special antler-based harvest criterion was used to establish this reputation? The answer is absolutely none. Older buck age structure was due to one aspect of harvest – restraint! A typical buck harvest regulation was “hunter’s choice,” but only one trophy buck harvested per 1,000 acres. A hunter might pass up dozens of bucks before finding his target. Was this approach the most efficient? No – plenty of bucks died of natural mortality.

Although significant loss of bucks from natural mortality may not seem reasonable to most people, buck harvest efficiency was not a management goal in South Texas during the 1970s. An important point to remember is management goals vary and harvest recommendations need to reflect these differences.

Summary

We’ve navigated quite a “tangled thicket” over the last three issues as we explained the complex issues related to antler restrictions. Clearly, the many benefits from an older buck age structure justify the management effort. However, using a single-feature, one-size-fits-all AR can create some biological problems. A properly-developed AR must fit an area’s unique biological and social circumstances. Hunters must be able to apply the criteria to their harvest decisions. There must be a commitment to continuing education and self restraint by the hunter-manager. The ideal approach is to age bucks on-the-hoof and apply appropriate selection criteria within age classes. Lastly, it must be understood that selection criteria and harvest recommendations will typically change over time in response to new circumstances.



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Customizing an A.R. For Your Property

When developing an AR for a specific area you must keep in mind the “big picture.” Harvest guidelines must allow protection and harvest of the correct bucks based on your management situation. Generally, an AR should maximize protection of young bucks and minimize potential for high-grading young bucks and protecting smaller-antlered, older bucks. Your specific circumstances will determine how liberal or restrictive to make the AR.

You should start by determining the age-specific antler growth patterns for your area using long-term, unbiased harvest data (Figure 5). If your primary goal is protection of the best yearling bucks, you could use a 13-inch inside spread OR a 15-inch main beam length AR to protect 100 percent of the yearling age class. This combination AR also protects about 70 to 80 percent of 2½-year-old bucks,

40 to 50 percent of 3½-year-old bucks, and 20 to 30 percent of the 4½ and older bucks.

There are two reasons for using a main beam OR inside spread AR. First, two antler criteria gives the hunter greater flexibility when making a harvest decision (the hunter may not be able to see one or the other criterion). Second, it allows the removal of older bucks that are protected by a single criterion. For example, only rarely would you find an older buck with a narrow spread that does not have 15-inch beams.

Even with a more complex AR there is still opportunity to high grade. The 13/15 combination AR mentioned above still allows the harvest of larger-antlered 2½-year-old bucks. Harvesting the 20 percent of 2½-year-old bucks with the largest antlers would high grade this age class! This is where aging on-the-hoof is so valuable. You don’t have to harvest every eligible buck. If a buck meets the minimum requirements of the AR but appears to be young then DON’T SHOOT! This is the buck you want to protect!

You may want to remove smaller-antlered bucks with limited potential to fulfill future expectations. You could apply a criterion to yearling bucks to remove them before they get older with a slot limit as discussed in the main article, or address the problem at older ages (a more conservative approach). Emphasizing the removal of bucks exceeding the 13/15-inch minimum that ALSO have less than 8 points is one possible solution. However, the best solution to this problem is aging on-the-hoof and removing older bucks with smaller antlers.

5. – Protecting Bucks

Percentage of bucks protected from harvest with incremental increases of total antler points, main-beam length, and inside spread in a medium-quality soil region in Mississippi. For example, a 15-inch main beam length AR would protect 100 percent of yearlings, 70 percent of 2½-year-old bucks, 41 percent of 3½-year-old bucks, and 18 percent of 4½-year-old and older bucks.

