



Weather and food supply in the weeks leading up to velvet stripping can make a real difference in a buck's rack. Photo by John R. Ford

FINISHING STRONG

Each spring, walking among the freshly emerged trillium and mayapple, I'll see the hint of an antler tip sticking from the leaf litter. The moment I touch the antler, it's as if I've opened a link to the buck that so cavalierly dropped it a month earlier. *There you are*, I'll say to myself. *So this is where you ended up!*

BY DR. JAMES
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The antler then is deposited in a stack with many others found in years past. It's a monument, I guess, to the old guys and wannabees that have grown up and died at our Texas research facility. And it stands like a white pillar greeting all who come to visit.

A whitetail antler is a simple, elongated cone, broad at the base and tapering to its tip. But only under perfect growing conditions can it realize its true potential.

During the growing season, right after a significant rainfall event there's a corresponding spurt of plant growth. And in turn, there's a spurt in antler growth. The demand an antler has for the essential nutrients is satisfied by new plant growth.

Antler growth occurs in at least three stages: initial growth; interval growth; and

the finish. Let's discuss the last of these.

One of the misconceptions about antlers is that they're preformed in cartilage, which then is replaced by bone. The reality is that the antler is formed as a group of growth fronts, aligned at the growing tips and radial surfaces. If we remove a velvet antler and cut it first longitudinally and then in cross-section, we can see how it works.

Longitudinally, there's a small growing tip on each tine or beam. It's represented by cartilage (chondroblasts), followed immediately behind by specialized cells that create bone-like tissue (osteoblasts). Cartilage-creating cells form the antler tip but then quickly are destroyed by special cells (chondroclasts). This creates opportunity for the bone-formation cells.

A cross-section of the body of the antler shows the same thing happening on the outer edges of the beam. So there are two fronts of growth: the antler tips and the beam itself. If we measure the temperature of the growing antler, it's much warmer at the tips, where there is active growth. Cells produce heat as they grow, and you literally can feel the heat generated in growth areas.

The same thing is happening with such critical minerals as zinc and selenium. We've taken plugs from velvet antlers over their entire length, and the concentration of zinc and selenium is highest at the growth fronts. These nutrients and others, such as copper, magnesium and manganese, are the unsung heroes of antler growth. Most of the antler ultimately will be calcium and phosphorus, but the amount of demand for a particular nutrient is not a true measure of its importance.

The physical condition of a buck when he casts his antlers is a big determinant of initial antler growth. If he holds his rack until late March, he's obtained abundant nutrients during late summer, plus those carried over through the rut and winter. So he's set for a better start.

In years with even rainfall over the warm season, the average diameter of

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The author's pile of sheds and "deadheads" tells a story of each year's growing conditions on his research facility in the East Texas Pineywoods. Photo courtesy of Dr. James C. Kroll

the first 60 percent of antler will be higher. An antler in most areas reaches this level in late June or early July. If we closely examine an antler beam over its length, one that tapers to a point quickly after the 60 percent phase indicates that the buck finished antler growth under rapidly drying conditions.

Temperature also plays a role. Our studies show feed consumption is directly related to ambient temperature; a whitetail eats less in extreme heat.

Even if you can irrigate your food plots, you can't reduce air temperature. However, you can arrange habitat in a way that mitigates some of the negative effects of tough summer conditions.

A good warm-season food plot program can significantly increase antler growth. This is especially true if you locate your plots adjacent to summer thermal cover, minimizing the effort bucks must make to feed. Planting small "satellite" plots within summer thermal cover will increase feeding activity.

Summer thermal cover is characterized as a stand of trees with 60-70 percent canopy closure, with little woody vegeta-

tion beneath. Herbaceous cover (weeds and grasses) provides a cool area with good air movement. Bucks will flock to such areas during the heat of summer.

Of course, it takes time to produce such conditions. So we begin planning our deer landscape immediately after timber harvest. We employ prescribed burns to manipulate understory species composition. Frequent burns leading to a grass/weed-dominated understory, while burning every 5-10 years favors production of woody browse.

Can you totally eliminate the negative effect of difficult summer growing conditions? No. But you can increase antler growth significantly over what would have taken place without management. The last 40 percent of growth can mean the difference between an average rack and a real wall-hanger.

I hope this has cleared up some of the confusion surrounding antler growth and has given you some ideas for managing your land. Start working now to improve antler-growing conditions, so your bucks can finish strong next year and beyond. **NAW**

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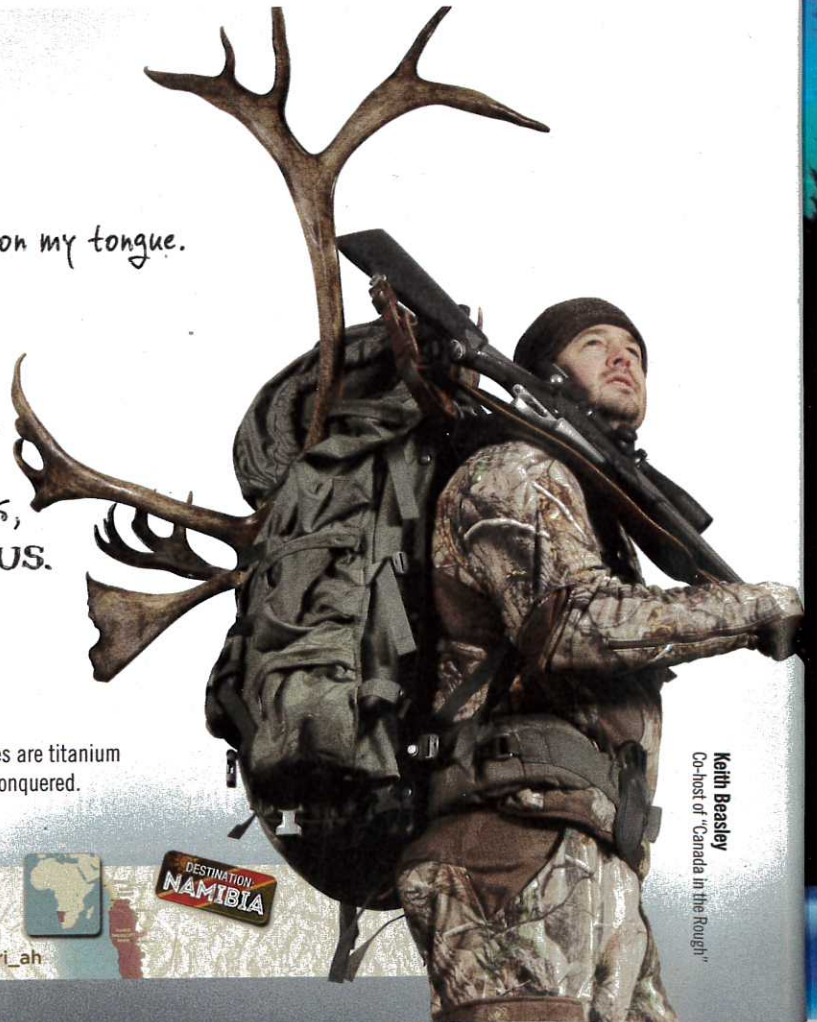
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