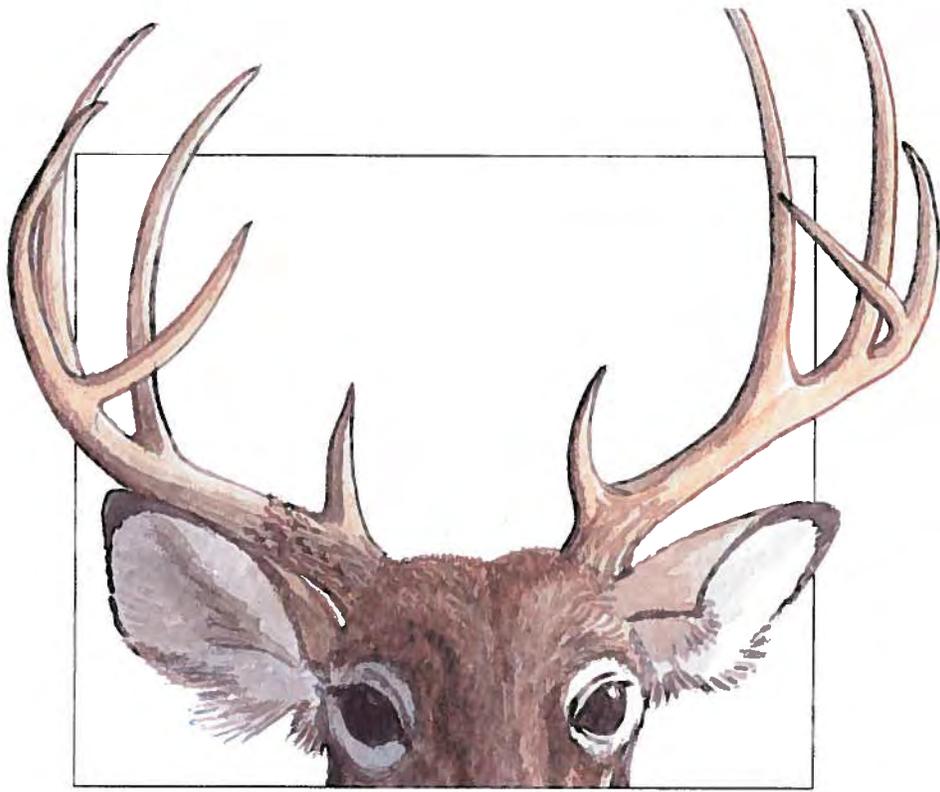


# Deer by the Dozen

by Carol Heiser and Sally Mills  
illustrations by Spike Knuth



**F**rom the peaks of Virginia's Blue Ridge Mountains to the shores of the Chesapeake Bay, our landscape is made a bit brighter by the native white-tailed deer. It is a favored game species that plays a key role in the Virginia Department of Game and Inland Fisheries' (VDGIF) wildlife management efforts. Deer populations—meaning the herds from all Virginia counties—fluctuate over time and are affected by changing land uses, by weather (as it impacts plant growth and food availability), and by changing human attitudes or perceptions. In fact, an intricate web of factors has shaped the status of the white-tailed deer throughout Virginia's history.



During periods of limited food sources or overpopulation, however, the numbers of young born will drop to half that amount. This is because the overbrowsing of available food sources and the stress of increased competition result in physiological changes in the deer herd that slows their overall reproductive rate. Poor quality food sources translate into less fat re-

The quality of a buck's antlers, which are regrown and then shed each year, are an indication of the quality of its nutrition.

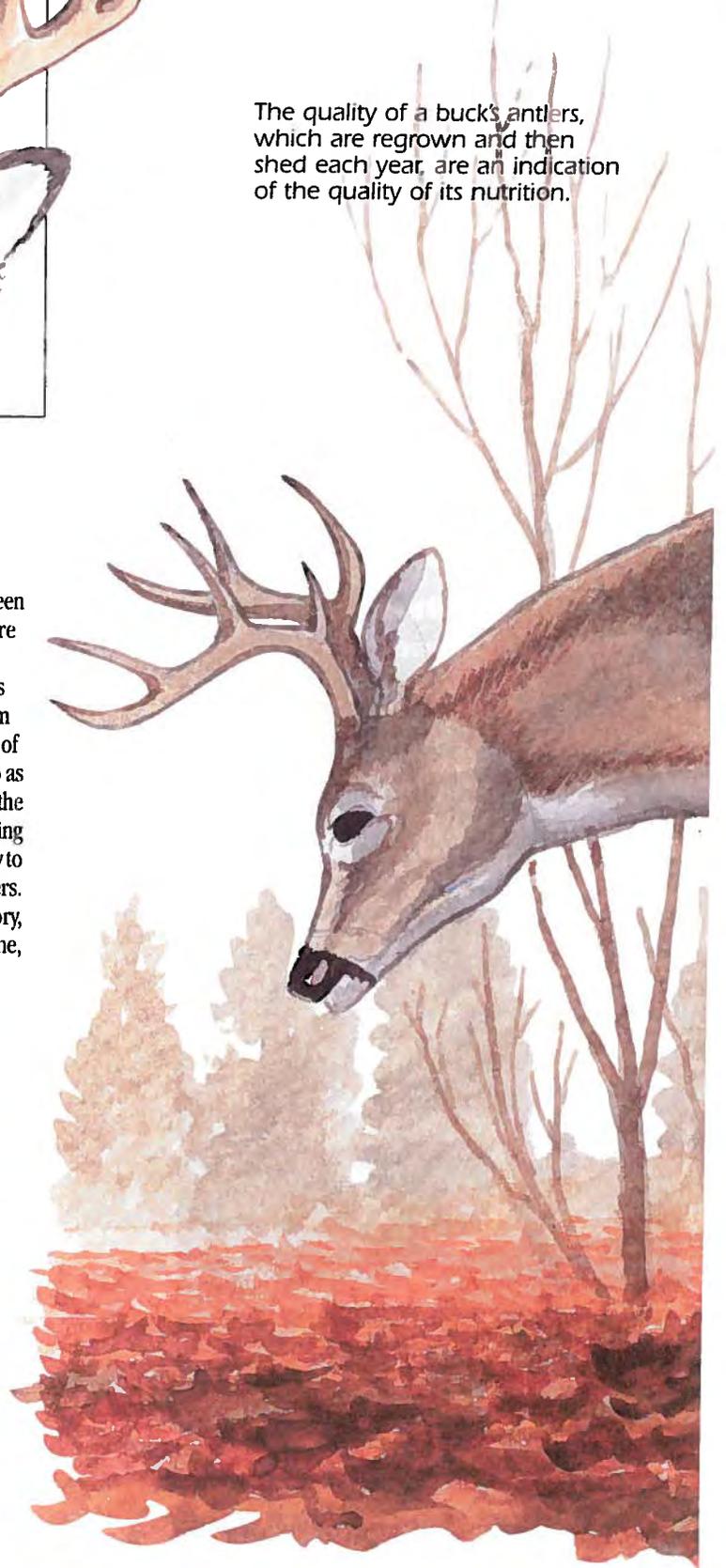
## Deer on the Land

White-tailed deer occupy every county in Virginia. They are commonly seen at dawn and dusk browsing in the forest or in adjacent cropland, and deer are increasingly spotted in suburban backyards.

Healthy bucks grow to an average weight of 68 kg or 150 pounds (does weigh slightly less), and the average deer reaches a shoulder height of 91 cm or 36 inches. Each year during the summer months, males grow a new set of antlers. Initially, the new bone is covered by a soft, cushiony tissue referred to as "velvet." When the antlers are fully developed, blood supply is cut off and the velvet begins to dry up. At this point, bucks will rub their antlers against sapling trees, a process that leaves markings and stripped bark in the forest. Contrary to popular belief, you cannot age a deer by the number of points on its antlers. While overall antler size gives you an indication of a deer's nutritional history, you age a deer by examining the wear on its teeth. Hence the genus name, *Odocoileus*, meaning "hollow teeth."

## Populations: A Numbers Game

Like all wildlife species, white-tailed deer exhibit behaviors and physiology directly related to their environmental conditions, and the number of offspring produced in a given year that survive to reproduce, called *recruitment*, is one such environmental indicator. Under suitable conditions, for example, adults breed in the fall, and two offspring are born in the following early summer.



serves for the deer. As the amount of energy per animal decreases, reproduction is less and less successful. Combined with disease and other *limiting factors*, the reduced reproduction results in an overall population decline. Proper deer management is, therefore, crucial to minimizing or eliminating die-offs and to maintaining healthy animals.

## Virginia's Deer History

When the Virginia Department of Game and Inland Fisheries was formed in 1916, there were so few deer in Virginia that one of the first goals of the agency was to restore the

deer population. The restocking program officially began in 1926, primarily in the counties west of the Blue Ridge. Between 1926 and 1956, all of the deer restocked came from out of state. This means that the deer we see today in the western part of Virginia, which tend to be larger than those in the eastern part of the state, are hybrids comprised of about six different





Deer jaws examined at check stations offer an easy way to learn about the age and structure of a herd, since the amount of wear on the teeth is an indicator of age. Hooves are also examined for any sloughing or splitting that would be an indicator of hemorrhagic disease.

subspecies. Restocking continued in far southwestern Virginia until 1992. During the past 10 years, as a result of liberal hunting seasons and bag limits, Virginia's deer population has stabilized at approximately 900,000 animals (see Virginia's Deer: Then and Now).

## Deer Management 101

How do biologists actually determine the number of deer out there? They calculate a *deer density index*, county by county, based on a

ratio between the number of antlered bucks harvested in a county to the number of square miles of deer habitat in that area. For example, the density index in the Northern Virginia counties of Clarke, Frederick, Loudoun, and Warren is quite high, at 6.4 to 6.8, while the density index in the southwestern coalfields of the state (Buchanan, Dickenson, and Wise), where there are less than 10 deer per square-mile, is less than 1.0.

The primary factor that determines the health and reproductivity of a given deer herd is the *habitat* on which it depends. Having adequate thermal cover to protect them from winter winds is necessary, as is adequate water availability. However, **food** is by far the most important "ingredient" in the recipe: poor

quality food equals poor quality deer. White-tailed deer are voracious *herbivores*, or plant eaters, that consume stems, buds, acorns, and other *mast* (fruits of woody plants) in the forest understory, between the ground level and four feet up. On average, an adult deer consumes from three to five percent of its body weight in forage each day! The total deer population is, therefore, a function of the quantity and quality of the food available.

Wildlife biologists, like Matt Knox with VDGIF, monitor deer herds and help establish management policies for the Commonwealth. There are basically three deer management options used: either increase the herd, decrease the herd, or stabilize it. Deer management is the manipulation of a deer population and its *attributes*, such as birth rate, mortality rate, age structure, sex ratio, and density. Because deer are *polygamous*, which means there is one male to many females, it is the number of **females** that influences the breeding population. Deer season regulations, therefore, attempt to manage the **doe** harvest, and hunting seasons are established based on hunter harvest data, condition indices, and age structure studies conducted in each county. Adjustments to the regulations are made every two years that address the dates of the hunting season, the daily and seasonal bag limits, and either-sex deer hunting days.

## "Clean Trees" Discourage Deer Feeding!

Well, not really. But commercial growers of evergreens and fruit trees recommend hanging bars of soap every three feet, up to six feet high, in your favorite young trees. Leave the wrapper on and simply drill a hole in the middle of the bar through which to loop a string. Both deodorant and non-perfumed soaps are said to work. However, remedies such as these serve only to make it less desirable for deer to feed in an area, not to completely repel or deter them.

Deer foraging choices are based on their nutritional needs, plant palatability, and other factors. The most damage usually occurs in winter when fewer food sources are available. Repellents on the market reduce the palatability of plants but vary in their effectiveness and are relatively short-lived after application.

When deer populations are high and natural food sources scarce, just about any planting is vulnerable to deer browsing. Below is a list of shrubs and trees considered least favored by the white-tailed deer. They represent good choices for suburban gardens in Virginia:

**Best Bets**

American holly  
Common barberry  
Common boxwood  
Paper birch  
Indigo bush

**At Slight Risk of Damage**

Flowering dogwood  
Forsythia  
Inkberry  
Junipers (Chinese, blue and green)  
Mountain laurel  
Norway spruce

Odor-based repellents are also available. When deer are moderately hungry, however, even the best products fail to deter browsing.

Another way to try to exclude deer from a home garden is to build an eight-foot high

woven wire fence or use a high-tensile, four- to five-strand, grounded electric fence. Unfortunately, fencing may provide only temporary behavioral modification as deer learn to avoid fences or browse elsewhere in the yard.

The best prevention, particularly in urban and suburban areas, is **DO NOT FEED DEER!** Supplemental feeding, with such items as corn or old apples, serves only to increase the likelihood that deer will become a nuisance in your neighborhood. Once they are attracted to your area, they will also feed on available azaleas, dogwoods, and other preferred landscape plants.

## Did You Know?

From a distance antlers and horns may look alike, but they are actually quite different from each other: The antlers or *rack* of a male deer, elk, or caribou are made of bone and are shed and re-grown each year. The horns of such animals as goats and sheep, in contrast, are permanent and made of *keratin*, which is laid down in narrow rings throughout the life of the animal. Keratin is a strong protein substance that is also found in fingernails, feathers, and claws.

## Deer Folklore

In a legend about how deer came to acquire their antlers, the whitetail was pitted against the swift rabbit in a race. The rabbit, so the story goes, asked to scout the trail before the race and was caught tearing down understory and vines to clear its path. The rabbit was subsequently declared a cheater by the other forest animals, and the coveted antlers were presented to the deer.



# Learning More

The Virginia Department of Game and Inland Fisheries website has many resources to assist Virginians in managing the deer on their property and to answer questions concerning the life cycle and other aspects of the White-tailed Deer's role in our ecosystems.

Every 10 years, the Department's deer biologists update the Deer Management Plan with input from landowners, hunters and others who have a stake in a healthy deer population. This plan describes the history of white-tailed deer management, current status (supply and demand) of the deer resource and management programs, and the future of the deer management program in Virginia. The plan identifies a framework of what needs to be done, how it should be done, and when it should be done.

To learn more about White tailed Deer's Life History and Management in Virginia visit: [www.dgif.virginia.gov/wildlife/deer](http://www.dgif.virginia.gov/wildlife/deer)

*Sally Mills is an outdoor writer and editor for Virginia Sea Grant at the Virginia Institute of Marine Science. Carol Heiser is a Wildlife Habitat Education Coordinator at the Virginia Department of Game and Inland Fisheries.*

## Virginia's Deer: Then and Now

1607 Jamestown settled. Deer population estimated at 400,000.

1699 Virginia one of the first colonies to set a closed season for hunting deer.

1700 Commercial trade in deer hides peaks.

1900 Federal Lacey Act outlaws the buying and selling of wildlife.

1916 Virginia Commission of Game and Inland Fisheries is formed.

1920-30's Virginia's deer herd reaches its lowest level of approximately 25,000. Native deer extirpated (wiped out) from nearly all of western Virginia.

1926 Commission initiates a deer restoration program. In all, more than 4,200 deer will be stocked over the next 60+ years.

1938 Over half the state described as devoid of deer.

1947 Big Game Check Station system initiated.

1950 Virginia deer population estimated at 150,000.

1952 Virginia Game Commission initiates statewide deer coordination program.

1970 Virginia deer population estimated at 215,000.

1980 Virginia deer population estimated at 422,000.

1988 Virginia deer population estimated at 575,000.

Late 1980's and early 1990's Rapid liberalization of deer seasons and bag limits.

2000 Virginia deer population estimated at approximately 900,000 and stable.

Timeline highlighting major benchmarks in Virginia's white-tailed deer population and management by the Virginia Department of Game and Inland Fisheries.

Virginia  
Naturally

