White-Tailed Deer  
(Odocoileus virginianus)

The white-tailed deer is aptly named because the white undersurface of its flaglike tail is about all that we see in the fleeting glimpse we get of this superb mammal as it bounds across an opening in the woods.

Description. A popular game species, the whitetail is so well known that it needs only a brief description. Antlers normally occur only in males and are formed and shed each year. Growth of the antler starts in April or May when the base of the antler, located on the skull, begins to enlarge. During the growth period, the soft skin and short hair which cover each antler have a plushlike quality, giving this stage the name of "velvet." Full antler size is reached in August or September, shortly before the breeding, or rutting, season. The velvet then begins to dry and peel. The buck rubs his antlers against trees and shrubs, which helps remove the skin. When all the skin has been shed, the bony core hardens and with continued rubbing is polished. The antlers are carried in this condition throughout the rut. Sometime toward the end of the breeding season, usually from the last of December to mid-February, resorption of bone around the base causes the antlers to become loose and they are shed. After falling to the ground, they are gnawed and eventually consumed by rodents and rabbits for their minerals and protein.
the "red" coat); the color pattern of the winter coat is similar to the summer one but is grayish to grayish brown (often called the "blue" coat). Fawns are reddish brown or reddish yellow spotted with white. They gradually lose their spots and acquire uniform coloration between 3 and 5 months of age.

The record weight for a buck in Missouri is 369 pounds (167 kg). Among similar-aged individuals, female weight averages lighter than male. Deer from the fertile soils of north Missouri weigh more than those of the same sex and age from south Missouri.

The sex of a deer cannot be determined by its track, because there is no constant difference between the size and shape of buck and doe hoofs. During the breeding season, the necks of males swell to approximately twice their nonbreeding size, reaching a maximum in mid-November. The factors causing this enlargement are not fully understood.

Deer are in the prime of life between 2½ and 7½ years of age. Some may live for about 15 years in the wild and up to 25 years in captivity. In Missouri more than 90 percent of the annual hunting take consists of deer under 4 years of age.

The tarsal glands, marked by a tuft of long, coarse hair on the inside of each hind leg at the ankle, or hock, produce an oily secretion with a pronounced ammoniacal smell. Another set of glands, the metatarsals, occurs on the outside of each hind leg between the ankle and hoof. They give off an oily substance with a pungent, musky odor which scents and possibly serves to identify the resting spots of the deer. Pedal glands, lying between the two main toes on each foot, secrete a strong and offensive odor throughout the year. This secretion is conducted to the hoofs by long hairs and doubtless scents the tracks of the animal. Small preorbital glands lie just in front of each eye. They probably scent twigs and branches where the deer feeds.

Distribution and abundance. In primitive times, there was an estimated population of 40 million white-tailed deer in the 2 million square miles (3,200,000 square km) of original range north of Mexico. The most populated regions were the Mississippi Valley and what is now the eastern United States. With settlement and conquest of the continent by Europeans, the deer population was greatly reduced. Between 1875 and 1915, deer were at their lowest level. Restocking and redistribution were begun around the turn of the century and, with added protection, the deer began to increase.

Coincident with the original population decline, the range also was altered. Because of destruction of large sections of the native forests and clearing for agriculture, considerable territory was lost in the east and center of the primitive range; but new areas to the north and northwest were made habitable by the favorable variety of plant growth which often followed clearing.

The history of the white-tailed deer in Missouri parallels that for the rest of the range. At the beginning of the 19th century, when range conditions in Missouri were still in primitive conditions, white-tailed deer occupied about 69,000 square miles (110,400 square km) and numbered between 345,000 and 690,000. By 1890, they had disappeared from the northern and western counties where extensive cultivation eliminated their habitat, and soon the population was greatly lowered.
everywhere. In 1925, an estimate showed only 395 deer in the state, and the season was closed for the first time.

From 1931 through 1937 the season was reopened, but the largest season’s take was 149 legal bucks. Hunting was forbidden again from 1938 through 1943. During this period, deer were trapped in areas of abundance and transplanted to likely habitat in other parts of the state. This transplanting program and the accompanying protection from illegal shooting proved fruitful. By 1944, an increasing population permitted a two-day open season on bucks only. This type of selective hunting continued through 1950, and the legal take increased from 583 in 1944 to 1,622 in 1950. In many parts of Missouri, the deer population continued to increase at such a rate that it warranted opening the season on any deer (does and fawns as well as bucks); in areas of lower population, the take was restricted to bucks only as previously.

Recent harvests in Missouri have ranged from 40,000-60,000 deer, hunter numbers exceeding a quarter million.

At present, white-tailed deer occur in every county of the state although they are most abundant in the Missouri River hills in east-central Missouri, the river drainages of northeastern Missouri and in the Upper Osage River watershed.

**Habitat and home.** Deer live primarily in timbered areas, selecting the borders or edges more than dense, uniform stands. One of the main reasons for this habitat preference is that the variety of foods deer like grows best along the margins of timbered areas or in clearings in the timber. Another reason, especially true in the more agricultural sections of the country, is that the deer can utilize the forage offered by agricultural crops adjacent to timbered lands and still have the sanctuary and other attractions of the timber itself.

They have no permanent structure for a home.

**Habits.** White-tailed deer tend to have an average annual home range from ½-1½ square miles (.8-2.4 square km). Some individuals, particularly bucks during the rut, may cover a larger area. Local movements of deer are related primarily to the seasonal changes in food sources or cover. When acorns are not abundant in their summer area, some deer may shift to localities where they are available in fall and winter.

Deer usually spend the day in concealing cover and rarely move about, but toward evening come out to feed and drink. On bright moonlight nights they may feed all night, but on dark nights they are more active in the evening and again early in the morning. During winter when food is scarce, they may feed longer hours and even during the day. In stormy, windy weather they are restless; they browse more than usual and often change their bed spot several times a day.

The location of the bed spot depends largely upon the weather. On sunny, warm days, some shady place is selected; on cloudy, windy or cool days, a sunny spot or one protected from the wind is picked out.

Bucks commonly fight each other during the rut. Only rarely, however, do their antlers become entangled permanently. When this happens, the bucks are unable to feed properly and die of weakness and starvation.

**Foods.** Deer are browsing animals, feeding chiefly on the leaves, twigs and fruits of trees and shrubs, and the foliage of herbaceous plants. They also take seeds, fungi, mosses, lichens, succulent grasses, farm crops and sometimes small amounts of animal food like snails and fish.

Whitetails show a definite selection of plants and seemingly take first those that are most nutritious and palatable. This selectivity can have serious effects. In ranges having concentrations of deer, overbrowsing occurs. The results are a lower level of nutrition of the herd and elimination of these desirable foods from the range.

Deer require water in some form daily. They frequent any mineral licks in the vicinity, especially in spring.

**Reproduction.** Bucks are capable of mating successfully from September through February and possibly later, but the peak of the mating or rutting season is in November. Pregnancy lasts 6½-7 months; the young are born most often in late May or early June. A doe usually has twins, but sometimes has a single offspring or triplets.

At birth, each fawn weighs between four and seven pounds (1.8 and 3.1 kg). Its eyes are open and it can stand feebly. The fawns begin to follow the doe when about 3 to 4 weeks old and start to eat their first solid foods. Weaning may begin about this time although some fawns nurse until they are 6 months old. The young continue to accompany the
female until they are old enough to breed. About one-half of the young females in Missouri become sexually mature at 6 to 8 months of age and consequently breed in the year of their birth. Other females and young males breed first at 1½ years of age.

**Importance.** For the Indians and early settlers, deer provided food; hides for clothing, shelter and bedding; sinews for bowstrings and implements of war, fish lines and the stitching of bark utensils; brains for bleaching and tanning; and bones and antlers for awls, needles, scrapers, implement-making tools and ornaments.

Deer now provide us considerable food, sport and pleasure. Since approximately 57 percent of the live weight of a deer is edible, the venison acquired from legal hunting provides many pounds of meat. The tanned hide, or buckskin, has a limited use for sport jackets and gloves. Deer hunting has become a big commercial enterprise and a source of income to many: to manufacturers of arms, ammunition and hunting apparel as well as to persons providing food, lodging, transportation and a place to hunt. From another dollars-and-cents angle, deer can be considered an asset to vacation sites as their attractive presence influences the stay of visitors in an area.

Where deer populations are heavy, their feeding may damage domestic crops and the understory of forested lands.

**Management.** The major aspects of deer management in Missouri have been controlling the annual harvest by hunters, transplanting live-trapped deer to stock new ranges and preventing illegal kills. It is not practical to give detailed management plans here, but a few suggestions are presented for those who wish to make their land more attractive to deer.

Since heavy grazing by livestock in timbered areas may result in the loss or removal of certain deer food plants from the range, the reduction of livestock grazing will improve the food supply for deer. While prescribed burning improves deer foods under certain conditions, indiscriminate annual burning in forested areas, as usually practiced in Missouri, causes harm to the forest and should be eliminated. The creation of small openings in heavily wooded cover will stimulate the growth of food species choked out by the dense canopy of trees. The important thing to remember is that natural plant succession ultimately will cause these openings to close and lose their productivity for deer. Therefore, these openings must be maintained on a rotation basis, which may encompass a span of 10-15 years in any given deer area. Likewise, within large expanses of uniform cover, the establishment of small, well-fertilized fields planted to wheat and rye and Ladino clover will attract and hold deer. The development of small ponds is also advantageous.

Where it is desirable to exclude deer from an area, the erection of fences high enough to keep deer from jumping them is recommended. Electrically charged fences may discourage deer, but not for long. To reduce deer damage to nurseries, orchards and vineyards, certain chemical sprays can be used as repellents.

**Hunting.** A deer hunter goes into the deer's environment to pit his skill as a hunter against the animal's skill in survival. Consequently, the more the hunter knows about the country, the deer and the proper use of his equipment, the better his chances of success. Realizing this, the serious hunter will take advantage of every opportunity to increase his store of knowledge; and although much of the veteran's ability can be gained only through long years of actual woods experience, any conscientious person can get himself out of the novice class in a relatively short time. The area to be hunted should be selected well in advance of the open season and should be studied carefully. The knowledge of topography, cover conditions and deer use that can be picked up on several early fall visits will pay big dividends when hunting time rolls around.

The two basic deer hunting methods in Missouri are the drive and still hunting. In the drive, hunters take turns watching from selected stands, which surround a given area, and driving or pushing the deer past the stands. Still hunting, or some modification of this system, is the more common practice and, in its true form, is an art which requires both knowledge and skill. The still hunter who studies his territory to determine the location of feeding and bedding areas, deer trails and crossings, and applies this knowledge and shooting skill in bringing down his deer can rightfully be proud of his trophy.