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The white-tailed deer, *Odocoileus virginianus*, received its name from the white hair on the underside of its tail which it occasionally holds erect so that the white undersurface is visible. Whitetails belong to the Cervidae family, split hoof mammals with no incisor teeth in the upper jaw, which in North America includes the elk, moose, caribou and mule deer. They are classed as ruminant animals, meaning they have a four-chambered stomach and frequently chew a "cud." Adult male whitetails grow and shed a set of antlers each year. The northern woodland whitetail is the subspecies which occurs commonly throughout Pennsylvania.

In Pennsylvania the average adult buck weighs about 140 pounds live weight and stands 32 to 34 inches at the shoulder. He is about 70 inches long from the tip of his nose to the base of his tail. Does tend to average less in weight and body length than males of the same age from the same area. Hair color is alike in both sexes. Fawns are born with white spots in the upper coat. When a fawn is lying on the ground or in dry leaves its coat provides excellent camouflage for the fawns.

Deer can run at 40 miles per hour for short bursts and maintain speeds of 25 miles per hour for longer periods. They are also good jumpers capable of clearing obstacles up to nine feet high or 25 feet wide. The air-filled hairs of their coats enable them to swim easily. They mark trails with scent glands and have an excellent sense of smell.

Although antler growth is evident on male fawns, a buck's first set of antlers begins to grow when it's about 10 months old. Each year after the buck reaches this age, it will grow and shed a new set of antlers. If the yearling buck comes from an area with poor food conditions, his first set of antlers may be only "spikes" -- antlers consisting of single main beams only. Spikes are more common in yearling deer than older ones because antler growth starts at a time when the young buck's



body is still growing rapidly. But because antler development is tied in closely with the animal's nutritional status, older bucks might also carry spikes if they come from an area with poor food conditions.

Antlers generally begin to grow in March or April. Growing antlers are covered by a skin called "velvet." This velvet is covered with soft hairs and contains blood vessels which supply nutrients to the growing antlers. The solid bone-like substance which makes up the polished antler is secreted by cells on the inside of the velvet. By August or early September antler growth ceases and the velvet is shed or rubbed off by the buck as he rubs saplings or rocks with his antlers. Polished antlers are carried throughout most of the breeding season, which can last into late February. The antlers are shed at the end of this period, and a new set begins to grow in March or April.

Social Organization

The social organization of the whitetail is largely matriarchal. The most common social group is an adult doe, her fawns and her yearling female offspring.

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Sometimes three or four generations of related does are present in a family group. When fawning season rolls around in late May, adult does leave the family group and remain alone to bear and rear their fawns.

Siblings tend to remain together throughout most of summer. Sibling groups with yearling bucks separate in September as the rut approaches. Yearling bucks tend to disperse from the mother's home range at this time. Yearling does remain in the mother's home range and generally rejoin their mother and her new fawns between September and October.

During the breeding season adult and yearling bucks tend to stay alone except when in pursuit of a female approaching estrus. After the breeding season in late January, yearling and adult bucks form loose associations of small groups, usually two to four animals, which remain together throughout most of the winter and summer months. These groups break up around September when the rut starts.

The mating season of white-tailed deer begins as early as September and can last into late January. Breeding activity reaches its peak in mid-November, and most adult females have been bred by the end of December.

Food Habits

Whitetails eat a wide variety of herbaceous and woody plants. In a Pennsylvania study, more than half the food eaten by deer were tree, shrub or vine species, the remainder, herbaceous plants. Whitetail food preferences are largely dependent on plant species occurring in an area and the time of year. Green leaves, herbaceous plants and new growth on woody plants are eaten in the spring and summer. In late summer, fall and early winter, both hard and soft fruits such as apples, pears and acorns are a major component of their diet. In winter, evergreen leaves, hard browse and dry leaves

are eaten. Good supplies of a variety of natural foods at all times of the year are essential if an area is to carry a healthy deer population.

Habitat

Deer prefer to eat the buds, stems and leaves found in the forest understory. Young forests in the seedling/sapling stage especially provide an abundance of food and hiding space. These forests are created when a disturbance such as a fire, insect outbreak or timber harvest kills or removes mature trees, allowing space for new trees and plants to grow. Even-age forest management practices such as clear-cutting and shelterwood harvests help create these young forests that deer prefer. To ensure a sustainable forest, timber harvests should account for “regeneration,” the young trees and plants that will make up the future forest. Also, snags, den trees, mast trees and unique tree species should be left behind to assure a good habitat diversity for an abundance of wildlife.

Management

Deer are not only part of our beautiful wildlife heritage but they are a valuable natural resource to Pennsylvania. They are at the heart of a rich hunting and wildlife-watching tradition for millions of Pennsylvanians. Hunting, fishing and wildlife-related recreation approaches \$6 billion for the state's economy. Deer have adapted readily to the changes in land development. Without natural predators and hunting, they can quickly overpopulate the range they inhabit.

Since the early 1990s, the deer population has grown from 1.2 million to nearly 1.6 million. They occupy every habitat from forests, farmlands, wetlands, suburban neighborhoods and urban lands. When overpopulation occurs, deer strip their habitat of its life-supporting qualities, not just for deer, but for many woodland

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wildlife species. Deer invade backyard gardens for food as well as regenerating forests. Crop damages and other farm property problems relating to deer have been increasing. Deer-vehicle collisions have escalated. Up to 100,000 deer-vehicle collisions occur each year. This translates into 3,200 to 5,000 human injuries and \$220 million in vehicle damage.

Every three years more than 350,000 acres of rural and forested habitats are being converted to other uses in Pennsylvania. Deer herds are adapting to this changing landscape. Land development can sometimes offer additional food sources for deer and refuges to survive hunting season. This dynamic can lead to ballooning populations that can wreak havoc on surrounding forests. The dilemma must address the impact of land development on the deer herd, its impact on the surrounding forest, and efforts to control them through hunting. Foresters are concerned about the impact of deer on regenerating forests. Currently, less than 50 percent of Pennsylvania's forests are regenerating. Alleviating deer impacts will help ensure more forests regenerate to provide clean air, clean water, plant and wildlife habitat, and provide wood products to society through the state's \$4 billion forest products industry.

In some areas, deer herds impact agricultural crops and gardens. Farmers report losing an estimated \$9,000 a year to deer damage. The key to managing deer is keeping their populations at healthy levels. This essentially entails ensuring they don't exceed their range's ability to support them. As development occurs, the pressure on deer populations grow.

Managing the deer population brings controversy. In Pennsylvania, hunting is a primary tool to adjust deer populations. There are pros and cons to the issue of doe and buck seasons as well as to the success of hunting. Population control can be facilitated through a rationed harvest of female deer. Deer populations and density goals based upon habitat, along with hunter success rates, are used to gauge how many hunting permits should be issued. Public support of a sound management program which includes addressing habitat management is essential to maintaining the deer population as a public asset to be enjoyed by future generations of Pennsylvanians and visitors to Pennsylvania