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Deer

Figure 43 *White-tailed deer*

TODAY DEER ARE ONE OF the most easily recognized and frequently encountered wild animals in North America. Yesterday it was a something of a credit to one's woodland skills simply to get close enough for a fleeting glimpse. Like other species adjusting to city and suburb, deer now abound in many of the places where the densest human settlements occur, and some argue that they have expanded beyond acceptable limits, surpassing human tolerance, damaging yards and gardens, affecting natural plant communities in parks and reserves, and posing hazards on roads as collisions with vehicles become more frequent.

In consequence, much debate, controversy, and turmoil surround the issue of what to do about "too many deer." As generations of researchers labored over studies aimed at improving deer habitats and increasing the size of deer herds, few focused on the role and place of deer as members of ecological communities. Some with experience in looking at other herbivore-plant relationships predicted that things would sort themselves

- **In winter mule deer may form small herds of both sexes, but the usual social group includes a doe, her fawns, and her yearlings.**
- **Plant eaters? One study reports observing deer eating dead fish washed up on the lake shore. Perhaps this unusual behavior was caused by the fish's mineral content, perhaps it was just to scandalize the observer.**
- **The deer's hair is hollow, making it a superb insulator that protects the animal, even in brutal cold.**

out, vis-à-vis deer and forests. Others suggested ecological disasters of long standing. The jury is still out, and, in a sense, that discussion has less relevance for readers than what to do about deer browsing in the garden. That, we can offer some help with, even as traditional deer managers insist that the herds have to be "thinned" to correct the current situation. Not so.

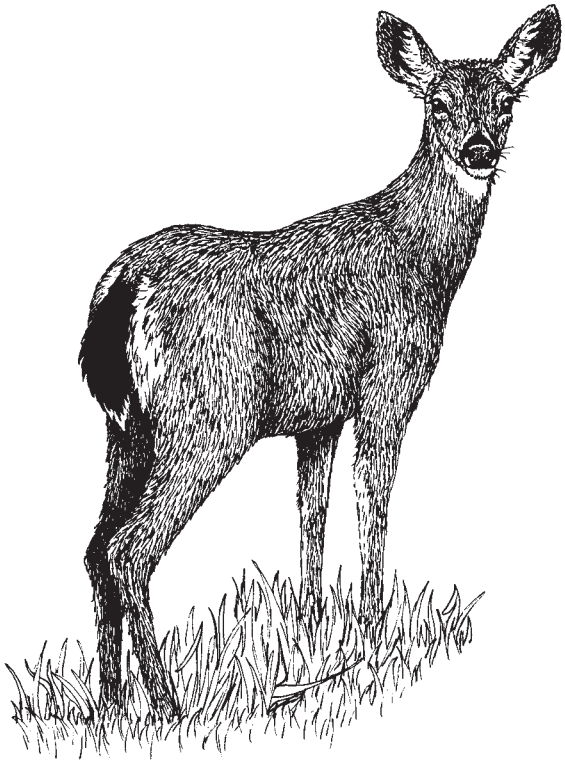

Figure 44 *Black-tailed deer*

Classification and Range

The term "deer" can apply to several different kinds of animals in North America, including such well-known species as moose, elk, and reindeer. The "deer" people typically think of belongs to the genus *Odocoileus*. Mule and black-tailed deer (*O. hemionus*) are restricted mostly to the middle to western parts of the continent, while white-tailed deer (*O. virginianus*) are found almost continent-wide, except for the northern tier of Canada and parts of the far west in the United States (Figures 43, 44). Deer are highly variable in size. The endangered Key deer of south Florida rarely exceed 60 pounds, while male deer in other states to the North can exceed more than 400 pounds.

Habits

Mule deer appear more tolerant of semiarid grasslands than the white-tailed deer, but both species occupy a wide variety of habitats. Deer traditionally are thought of as a woodland species, but they are actually ideally suited to exploiting "edge" habitat. Edges are created at natural or human-made habitat breaks, from woods to croplands or pasture, or from woods to marshlands. One area (the woods) provides cover and shelter, while the other (farmland, field, or backyard) provides food. In more northerly latitudes, deer may have summer and winter home ranges that can be as much as thirty miles apart. Where winter snows are significant, large numbers of deer congregate in "yards" under evergreen cover. Deer are faithful to home ranges, believed to be shared by related females who form matriarchies. Deer can be active at any time of day or night, but they are seen most commonly around sunset and sunrise, an activity pattern denoted by the term crepuscular.

Deer are primarily herbivores whose feeding habits and preferences vary widely from one location to another. Usually described as "browsers," they favor terminal branches on trees and shrubs, whose buds may be winter and spring forage and whose leaves summer foods. Fruits and seeds may also be consumed as they become available, and what is called "hard mast" (foods such as hickory nuts and acorns) is extremely important in fall and early winter diets, when deer are establishing fat reserves. Deer can be quite selective about certain foods and are known to favor heavily fertilized ornamental and garden plants above others that have not been as well fertilized (Figures 45, 47).

Deer breed from October to January, with the onset varying slightly in different geographic areas. This period, termed the rut, involves dramatic physiological and behavioral

changes in males. For example, the neck of a male in rut can swell to more than twice its normal size, in preparation for the serious antler-to-antler contests of strength that usually determine mating rights. Nervous and almost constantly active, males are often oblivious to vehicles and frequently are so driven by the urge to mate that they wander into places where they would never be seen otherwise. Gestation takes about two hundred days, with one to three fawns born in the spring. The number of fawns conceived depends in part on the nutritional condition of the does at the time of mating (Figures 46).

Public Health Concerns

Deer may be an important host for the ticks that carry Lyme disease; however, their role in contributing to the spread and prevalence of this disease is debated. Mice and other small mammals are important hosts of pre-adult ticks, and fluctuations in small mammal numbers are currently thought to be more important than deer numbers to Lyme disease prevalence in humans. Small-mammal numbers are often largely dependent on acorn production, so that, ultimately, oak trees may be the determining factor. It may be easy—and often convenient—to point to deer as the "cause" of Lyme disease when, in fact, the ecology of this wildlife disease is more complex than simply counting deer.

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Figure 45 *These daylilies are up and growing early in the spring and likely to be sampled by deer, along with other garden plants. The damage is slight and temporary, as deer focus their browsing on the woods nearby once they open up with spring growth.*

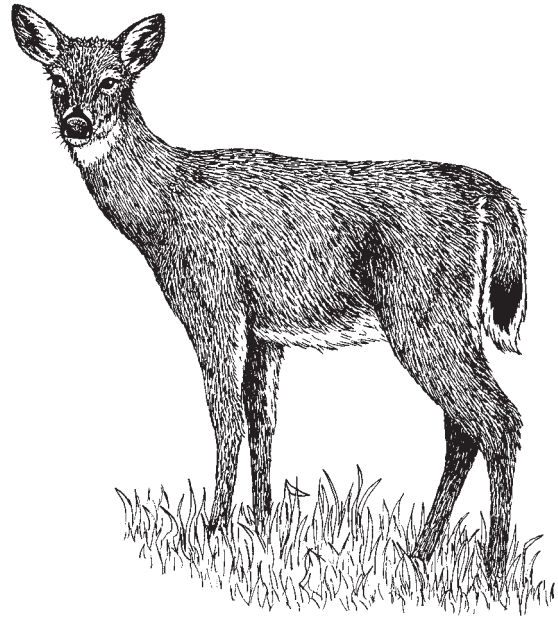

Figure 46 *White-tailed deer*

Problems

Deer damage to plants is usually not difficult to identify, as these large herbivores are capable of significant and widespread effects, especially on small gardens or formally landscaped areas. Where deer damage might be confused with rabbit or woodchuck damage, look for a ragged, square, torn appearance at the end of browsed twigs. Deer do not have upper incisors, so they do not clip-browse neatly, as do other species. Another fairly obvious sign that deer are at work is the height of browsing—three to five feet from the ground (or even higher where snow accumulates). Woodlands in areas heavily populated with deer may exhibit a "browse line" in which the vegetation will have a neatly trimmed appearance up to the height they can reach. The forest floor is denuded of vegetation or completely dominated by plants that deer do not eat, such as certain ferns. (The same situation may occur where cattle and other domestic livestock have been pastured for any length of time.)

Deer sometimes damage small elm trees by stripping their bark for food, but this is relatively rare. More frequently deer damage small trees when males rub their antlers along trunks to scrap off their velvet (the outer growth from hardening antlers), stripping the

trees of bark in the process. These "buck rubs" occur most frequently in the fall, just before the start of rut.

Solutions

Tolerance

One of the best ways to address current problems, as well as to look ahead to future coexistence with deer, is to encourage understanding of and a tolerance for these animals and the effect they sometimes have on resources that human beings seek to protect. This is not to say that all deer damage has to be accepted, only that it is inevitable that some will occur where deer and people share living space. Farmers seem to understand this, and a similar understanding may come to suburbia as well.

Plant Selection and Placement

Deer damage can be lessened considerably, and in some cases possibly eliminated, by thoughtful landscape design that gives care to the selection and placement of plants. Deer will eat some plants (hollies and barberries are good examples) only when succulent growth is appearing, if at all. Others (such as impatiens) are almost irresistible to deer all the time. More and more publications are appearing with lists of plants that are tolerant of, or even resistant to, deer browsing. We encourage homeowners to contact local nurseries, landscaping companies, or gardening clubs for advice, as well as neighbors, if they are just moving in to a new home. Deer feeding habits and preferences vary so widely, even within relatively small geographic areas, that the more local the advice you receive, the better.

An important factor in landscape planning is the actual browsing "pressure" deer are exerting. When damage is slight to moderate, a wider variety of plants can be grown and simpler strategies used. Under heavy browsing conditions, our recommendation is either to use deer-proof fencing or to limit plantings to those species that are the most resistant to deer browsing. To the extent that it is possible, we advise landscaping with native plant species that are know to be resistant to deer.


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Figure 47 *Ideal deer habitat is created when trees are cut down for farmland, which is then abandoned and goes through an explosive phase of secondary growth. This creates lots of food and provides cover for deer.*

Another key to minimizing deer problems is taking steps to deter deer before they cause damage. Seeing deer or signs of them (tracks and scats) around the yard can be a distinct warning to the homeowner to be alert to early signs of browse. It is when browse first starts that it is easiest to control. Young plants set out in spring can be very susceptible to damage because wild vegetation has not yet "greened up," and the garden plants, with their new growth, are especially attractive and palatable. Later, as their growth hardens and alternate foods become available in field and woods, deer may naturally shift away from the yard. Plant covers and protective netting can provide good protection at these times.

Fencing

Where deer are a serious and chronic problem, the most effective and permanent way to protect crops or landscape plants is with fencing. Over the long term, no other method, whether it involves lethal or non-

Elk and Moose

Elk and moose are the heavyweights of the North American ungulate division. Elk (Cervus elaphus) *are found throughout much of the west; the moose's* (Alces alces) *distribution is more northerly, but it is more even throughout available habitat than is the elk's. Moose range from New England, north through all of Canada, and into Alaska. In the west, they range as far south as Idaho. Moose can stand up to six feet tall at the shoulders and weigh a thousand pounds or more, while the elk, at less than half that weight, still remains a formidably large animal. The most serious conflicts with either of these animals are collisions with vehicles. As dangerous as deer-vehicle collisions are, the greater size of elk and moose make such encounters even more so.*

lethal means, will be as effective. A variety of fence designs have been developed, ranging from high-tensile strand wired to solid posts to woven mesh chain link or various types of electric wiring. The best type for any given area depends on the situation, and local extension agents or wildlife specialists should be consulted before any expense is incurred. Where deer have other forage available, simple fences can sometimes keep them out of yards and gardens. However, when they are stressed for food, they may jump fences up to ten feet in height.

Electric fences can be highly effective in deterring deer, and the simplest and least expensive of these are single-strand fences that work on the unusual principle of attracting rather than repelling the animals (Figure 48). Deer are large and well insulated, thanks to their dense hair coats and poorly conducting hooves. Where they might just walk through a single strand of electric fencing, they can be enticed with a scented "bait" to approach the fence and contact it with nose or tongue, ensuring that a much more objective lesson is delivered via these more sensitive parts of the body. Aluminum foil with a dab of peanut butter or cups (actually metal bottle caps) wired to the fence with cotton fillers impregnated with apple or other fruit scents have proven quite effective in keeping deer out of small gardens.

Tree Protection

"Buck rubs" can be prevented by wrapping trees with any commercial product sold for that purpose or placing corrugated plastic sleeves around them. Perhaps even simpler

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Figure 48 *This garden is protected from deer by a simple one-strand electric fence. The deer are lured in to investigate the fence by an attractant placed at intervals along the wire. They get a shock when their tongue or nose touches this and a lasting memory of an unpleasant experience that keeps them away from the vegetables (see Figure 17, which illustrates how this fence is baited).*

is erecting a temporary fence surrounding vulnerable trees (usually smaller, two- to three-inch-diameter trees that stand alone) or surrounding them with two-inch garden stakes that deflect any rubbing.

Repellents

A variety of products (including some homemade remedies) can repel deer. The key to using any repellent is to begin applying it as soon as you see the first signs of damage. Deer are extremely wary animals who will avoid places in which they feel threatened or insecure. If the gardener immediately launches a concerted effort to repel these animals when the first signs of their presence appear (tracks or early browse), success is more likely. Home remedies, such as soap, hair, and garlic, have traditionally been used in smaller gardens and orchards. Some gardeners have noticed that products such as fish emulsion fertilizer and insecticidal soaps, applied as a foliar spray, can have repellent properties, even though they are not labeled or sold for that purpose.

Scare Devices

Scarecrows and effigies may repel deer under limited circumstances, especially if the effigies move so they appear threatening. Lights, sprinklers, and noisy alarms on motion sensors may help protect gardens, or at least alert the homeowner to the presence of something outside that should be checked. Scare tape or balloons may also be effective in frightening deer. The key to using scare devices is to couple them with other strategies and to vary them, moving them around or changing the place from which the frightening stimulus comes (when this can be done).

Collision-Avoidance Devices

Deer-vehicle collisions have become a much greater concern in the past few years, as new roads are built through deer habitat, deer populations increase, and deer move increasingly into suburban areas. Strategies to deal with this issue must occur at the community level and be imitated through cooperative work with transportation agencies. For some years experiments with roadside reflectors have taken place in communities across the country, and even more sophisticated technology that allows sensors to pick up possible animal movement near roads and warn oncoming drivers is now being tested (Figure 49). These technologies have their detractors, but so did the first automobiles when they were being developed. Time will tell whether any of them is truly successful.

One opinion we can render now, however, relates to deer warning whistles mounted on a car's hood or bumper. As for ultrasonic devices, no information exists at this time to suggest they work. What may be true about them, though, is that people who go to the trouble to mount them on the car are likely to be more alert to the possibility of deer on roadways, and their attentiveness might reduce the chances of their colliding with deer.

Orphaned or Kidnapped?

Every year people call wildlife agencies and wildlife rehabilitators about "orphaned" fawns they stumbled across in woods, fields, backyards, or roadsides. Worse, agencies and rehabilitators often face a concerned individual at their door with the animal in his arms! It is perfectly natural in the spring to come across a deer fawn by herself in the woods. The fawn is actually not alone; her mother is nearby, aware, and attentive. The strategy deer have evolved to deal with their primary predators (which once were wolf and bear) is to leave their young hidden except when feeding them. If anyone encounters a fawn like this, leave her alone, with the assurance that a solicitous and anxious mother is nearby and will take care of her once you move off.


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Figure 49 *The roadside reflector (Streiter-Lite®) reflects headlights as a series of light beams (an "optical fence") to keep deer from crossing in the path of oncoming vehicles. This and other technologies to help prevent deer-vehicle accidents are important in addressing this growing issue.*

Dogs

Some commercial nurseries, as well as homeowners, have reported that dogs ranging at large keep deer away, while the dogs are kept from straying behind an "invisible" fence. We have concerns for dogs when owners rely on these fences and serious problems with letting dogs run at large and be off leash in other circumstances. There is little doubt, however, that deer acknowledge dogs as antagonists and avoid areas where they are active. With this in mind, having a dog "mark" your yard as her territory may deter deer. The dog will want to do this anyway, and it may mean nothing more than a routine walk around the yard before setting out onto neighborhood sidewalks. It also costs nothing, unless you have a budget that actually takes into account the amount of water your dog might be consuming each day. The message can be reinforced by scattering the hair your dog donates as you groom her around property boundaries.

A Last Word

One thing we have neglected to mention about deer is that they are big business in North America. Many millions of dollars are spent every year on deer hunting, as deer are by far the most popular game animal in the United States. During difficult economic times, state wildlife agencies become increasingly dependent on the income generated from deer licenses and the federal monies that come to them from taxes on certain sporting goods. Their focus, understandably, is on how much income these animals can provide to *them*. Everything from research to managing conflicts with deer is influenced by this reality, making all decisions about how to manage deer aptly describable as biopolitical.

We must comment on the claimed "problem" of deer becoming so tame that they do not flee on seeing human beings and often appear quite bold in standing and staring at such fellow travelers as they hike by. Enjoy these moments and take the time to look back. What you see will be pleasing to the mind as well as the eye.

Resources

There are many popular books and websites that provide information on deer. A technical paper that we recommend is Allen Rutberg's chapter "The Science of Deer Management: An Animal Welfare Perspective," in *The Science of Deer Management* (Smithsonian Institution Press, 1997). Copies can be requested directly from the Wildlife and Habitat section of The HSUS (2l00 L Street, NW, Washington, DC 20037).

We recommend *www.mydeergarden.com* among websites, of which there are many.