
DEER

Integrated Pest Management for Home Gardeners and Landscape Professionals

Most people enjoy seeing deer in the wild. Unfortunately, however, deer can be very destructive to gardens, orchards, and landscaped areas, particularly in foothill and coastal districts where nearby woodlands provide cover. Mule deer, *Odocoileus hemionus*, (Fig. 1) and blacktailed deer, *O. hemionus columbianus*, are the two most common subspecies in California.

BIOLOGY AND BEHAVIOR

Deer eat a variety of vegetation including woody plants, grasses, and forbs (small broadleaved flowering plants). They also consume fruit, nut, and ornamental trees, shrubs, vines, and garden vegetables. Deer trample plants and damage young trees and shrubs by rubbing their antlers on trunks and limbs. Because most deer feed in the late evening and very early morning, it is not always easy to observe them. A good way to determine their presence in the garden or orchard is to look for hoof prints. Deer hooves are split, pointed at the front and more rounded at the rear, and are about 2 to 3 inches long (Fig. 2). Deer droppings are another good indicator of their presence.

LEGAL STATUS

The California Fish and Game Code classifies deer as game animals. If you find them damaging property or crops, you may request a permit from your local game warden to shoot them, although this method is not generally recommended for problems around homes and gardens. Traps and poisons of any kind are illegal and cannot be used.

MANAGEMENT

Deterrents such as fences, barriers, frightening devices, and various repel-

lents are recommended and can all be used without a permit. Physical exclusion is by far the best and most reliable way to protect gardens, orchards, and ornamental plantings from deer.

Detection

The first step in preventing damage from deer is to know if they are in or around your garden. Although deer are large and easily seen, their nocturnal habits may make it necessary to check the garden at night with a flashlight. Also look for physical signs of deer such as tracks, droppings, trails, and damage to foliage from deer browsing. Because a few deer can do a lot of damage to a garden or landscaped area, take action when signs of deer are first detected. If you know deer have caused problems nearby, consider using exclusion methods such as fences before damage occurs.

Fencing

Properly built and maintained fencing is the most effective method for preventing deer damage. Deer normally will not jump a 6-foot fence, but if chased or threatened, they can clear an 8-foot fence on level ground. Because of this ability, a 7- or 8-foot fence is recommended, especially in the Sierra Nevada mountain areas where larger deer are found. On sloping ground, you may need to build fences 10 or 11 feet high to guard against deer jumping down slope.

The kind of fence you build depends on the cost, terrain, and your needs. Both high-tensile wire and woven mesh, full-height fences are effective. Deer will crawl under or through a fence if they can, so make sure you secure the fence close to the ground

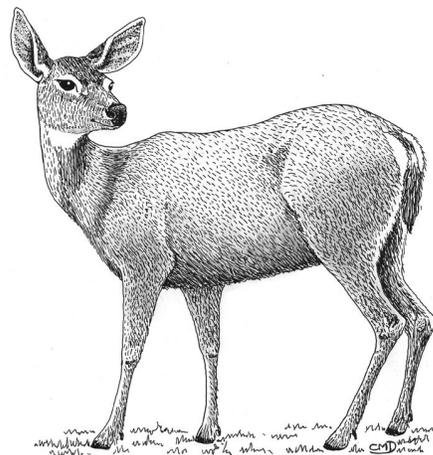


Figure 1. Adult female blacktailed deer.

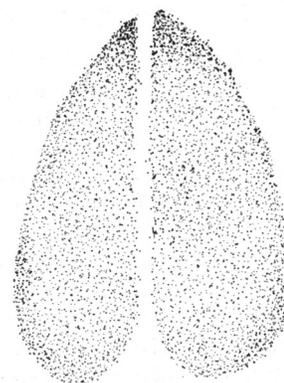


Figure 2. Blacktailed deer footprint.

and repair any breaks. An extra strand of wire stretched along the ground of a conventional fence will help prevent deer from crawling under the fence. Stake the wire or mesh firmly to the ground in any depressions between posts, or fill the depressions with materials that will not deteriorate or wash away. If you need to economize, you

can stretch two or more strands of 9- or 10-gauge smooth wire spaced 4 to 6 inches apart above a 6-foot mesh fence to make it higher. There is no advantage to using barbed wire for these top strands. In order for the wire to remain tight, the vertical stays on mesh fences should be no more than 6 to 8 feet apart. High-tensile wire fences are less expensive and can be very effective, although their construction requires special techniques. For more information on these types of fences, contact an agricultural fencing contractor or supplier.

Remember, a good deer fence is built to work in both directions. If an animal gets in, it needs to be able to get out without difficulty. A removable section in an uphill corner on sloping ground or a corner farthest from human activity if on level ground can be very helpful in allowing deer to be driven out of the fenced area.

Gates. The height of any gates should be equal to that of the fence. Keep weight to a minimum; a wire mesh gate made with a light wooden frame is often satisfactory. If you use factory-made aluminum gates, you can bolt on metal extensions and stretch mesh wire over them to add height. It is advisable to sink a wooden base or concrete apron in the ground below the gate to make a uniform sill so that deer won't work their way under the gate.

Converting an Existing Fence. To convert an existing fence, attach uprights vertically or at an angle sloping away from the area you want to protect. Fasten mesh wire or smooth wires above the fence with no more than 4 to 6 inches between them. Most fences can be made deer-proof with an upright extension of 3 or 4 feet, provided the lower portion is well constructed and fitted tightly to the ground. An often unrecognized fact is that deer are more likely to crawl under or through a fence than jump over it.

Electric Fences. Standard electric fences used for livestock have not proven very effective for deer control

in California. However, the New Zealand-type electric fence, built specifically for deer with its high-tensile-strength wire and more intense charge, may be effective. One addition that can improve an electric fence for deer is to attach a hot wire near the ground to prevent crawling under the fence. It is best to have this type of fence constructed by an experienced professional fence contractor. Electric fences need constant monitoring because they short-out when contacted by vegetation and can otherwise become non-functional.

Maintaining Fences. Deer fences of any design must be checked regularly. Make necessary repairs to damaged wire, broken gates, soil washout beneath fences, or any weakness in construction that would permit deer access. The job becomes increasingly difficult as fences age and become vulnerable to breakage.

Individual Plant Protectors

In many places, protecting individual plants may be more practical and economical than fencing an entire area. For example, young fruit or nut trees in a home orchard can be individually fenced until primary branches grow above the deer's reach, usually 5 to 7 feet above the ground. Poultry wire, heavier woven wire, or strong plastic netting can be attached to two stakes to form a circle around the tree. Plastic trunk protectors are especially useful for young vines and trees. Inspect individual protectors regularly because they can restrict plant growth. In addition, care must be taken to ensure the protector itself does not damage the vine or tree by causing an accumulation of excess heat or moisture.

Repellents

Various chemical repellents are sold for reducing or preventing deer damage to trees, vines, and ornamentals, although their effectiveness in most situations is not very good or long lasting. Deer repellents are designed to impart objectionable odors or tastes. Most are not allowed on food crops, so if that is its intended use, make sure

the repellent is registered for that purpose. When deer are hungry and a garden area contains highly preferred foods, repellents are much less likely to be effective. It is important to remember that some repellents can be injurious to certain trees or shrubs, especially to the new growth. If in doubt, test the repellent on a single plant to make sure it is not phytotoxic (harmful to the plant). When you use deer repellents, follow product label directions carefully.

Most repellents should be applied before damage occurs and must be reapplied frequently, especially after a rain, heavy dew, or sprinkler irrigation. Likewise, to be effective repellents must usually be applied to new foliage as it develops. Some repellents produce odors thought to frighten or repel deer from an area. Examples are human hair, soap bars with an intense aroma, and mountain lion urine or other types of predator odors available commercially. Although these substances may repel deer for a day or two, they have not proven to be satisfactory in protecting gardens from deer damage in California.

Frightening and Other Control Methods

Because deer rapidly adjust to noise-making devices such as propane cannons and electronic alarms, these devices are ineffective. This is particularly true in areas where deer have frequent human contact. In addition, not only are these devices ineffective, they can disturb the neighbors.

Since deer can travel great distances to seek food and shelter, modifying their habitat to make it less desirable is usually impractical. Planting less-preferred plants in your garden or working with neighbors to plant them over large areas might be effective in reducing deer numbers in the area. Garden and landscape trees, shrubs, and vines often provide highly attractive browse, especially when new foliage is forming. Planting alternative attractive foods away from the garden will not prevent damage to more valued plants

and might even make the whole area more attractive to deer.

Deer, like all animals, do have certain food aversions. You can often take advantage of this fact by using deer-resistant plants for ornamental plantings. Various factors can make a plant resistant to deer. For instance, many of the most resistant plants, such as oleander, are poisonous—some at all times and others only at certain stages of growth. In addition, plant preferences may vary depending on the time of year and where in the state your garden is located. This is why one gardener will find some ornamentals resistant to deer and other gardeners will

find the same ornamental attractive to deer. Repellency to deer is also related to the availability of other food. If there is a surplus of attractive native forage, ornamental plantings may be largely untouched. If the naturally occurring food supply is low, there will be increased pressure to browse in domestic gardens. Under conditions of extreme food shortage, few plant species will be totally resistant to deer. A heavy deer population also increases competition for forage, with the result that plants normally unpalatable to deer may be eaten.

Several published lists of deer-resistant plants are available. One of the most

useful can be found in *The Sunset Western Garden Book* (2000, Sunset Publishing Co.). These lists should be used as a general guide. Local nurseries or other gardeners will often have information specific to your area, and landscaping or gardening catalogs may designate deer-resistant plants.

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To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products that are not mentioned.

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WARNING ON THE USE OF CHEMICALS

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits or vegetables ready to be picked.

Do not place containers containing pesticide in the trash nor pour pesticides down sink or toilet. Either use the pesticide according to the label or take unwanted pesticides to a Household Hazardous Waste Collection site. Contact your county agricultural commissioner for additional information on safe container disposal and for the location of the Household Hazardous Waste Collection site nearest you. Dispose of empty containers by following label directions. Never reuse or burn the containers or dispose of them in such a manner that they may contaminate water supplies or natural waterways.

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