

College of Agriculture & Life Sciences
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DEER PROBLEMS IN THE LANDSCAPE

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Introduction

Deer are among the most beautiful and graceful — but troublesome — wildlife in North Carolina. Over the past 10 to 15 years, damage to ornamental plants in landscapes and nurseries, by white-tailed deer (*Odocoileus virginianus*) has increased dramatically in all 100 counties. This situation has become a problem due to the increase in the size of the deer population in N.C. (currently estimated at nearly one million) and to the urbanization of rural areas. Conflicts between deer and landscaped spaces are expected to increase, as more rural areas will be developed. Since 1987, an estimated 300,000 acres have been lost to urbanization across the state.

Currently, no one, known remedy exists for this problem. The solution is complicated, and it usually involves a combination of the following management strategies:

- Discouraging deer from entering the property
- Selecting plants that deer do not prefer
- Applying chemicals or organic materials to the plants periodically that discourage deer from browsing
- Eliminating the deer

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Deer can damage plants in an assortment of ways. The buck deer can damage trees and shrubs by rubbing his antlers in the late summer, fall, and early winter. The rubbing can cause the bark, and lower limbs of small trees (usually

1- to 3-inch caliper) and shrubs to be disfigured. This problem leads to considerable aesthetic damage and sometimes death of an ornamental. Nurserymen and Christmas tree growers have had numerous trees ruined by buck deer.

Deer are nocturnal, selective feeders. Factors that affect their feeding behavior include: population, weather, food availability/attraction, and distance from cover. They are browsers, often consuming their total food intake, in many different locations, throughout the night. It is estimated that deer can eat up to 6 to 8 lbs. of plant material per day. They seem to prefer lush foliage such as leaves, stems, flowers, fruit and buds of woody plants, naturally being attracted to feed regularly on fertilized landscape plantings and cultivated croplands. These plantings are usually the beginning of the buffet line in the winter when natural, native food is scarce. There are, however, many plant species which are resistant to this browsing problem. When thinking about plant selection in areas with a high deer population, it is advisable to select plants that are on the “non-preferred” list by deer.

The following is a list of woody ornamental plants categorized according to the browsing severity of deer. This list was composed from university studies from several northeastern and southeastern states.

Trees and Shrubs Seldom Damaged

Botanical Name	Common Name
<i>Berberis sp.</i>	Barberry
<i>Betula</i>	Birch
<i>Buddleia davidii</i>	Butterflybush
<i>Buxus sp.</i>	Boxwood
<i>Cotinus coggygris</i>	Smoketree
<i>Cytisus scoparius</i>	Scotch Broom
<i>Elaeagnus angustifolia</i>	Russian Olive
<i>Ilex opaca</i>	American Holly
<i>Leucothoe sp.</i>	.Leucothoe
<i>Picea pungens</i>	Norway Spruce
<i>Pieris japonica</i>	Japanese Pieris
<i>Cornus florida</i>	Flowering Dogwood
<i>Cornus kousa</i>	Kousa Dogwood
<i>Crataegus sp.</i>	Hawthorn
<i>Forsythia sp.</i>	Forsythia
<i>Gardenia jasminoides</i>	Gardenia
<i>Gleditsia tricanthos</i>	Honey Locust
<i>Ilex cornuta</i>	Chinese Holly
<i>Ilex glabra</i>	Inkberry
<i>Juniperus sp.</i>	Juniper
<i>Kalmia latifolia</i>	Mt. Laurel
<i>Kerria japonica</i>	Japanese Kerria
<i>Ligustrum sp.</i>	Privet
<i>Mahonia sp.</i>	Mahonia
<i>Myrica cerifera</i>	Waxmyrtle
<i>Nandina domestica</i>	Nandina
<i>Nerium oleander</i>	Oleander
<i>Pinus sp.</i>	Pine
<i>Pittosporum tobira</i>	Pittosporum
<i>Podocarpus macrophyllus</i>	Podocarpus
<i>Pyracantha sp.</i>	Firethorn
<i>Robinia pseudocacia</i>	Black Locust
<i>Sassafras albidum</i>	Sassafras
<i>Syringa vulgaris</i>	Lilac
<i>Taxodium distichum</i>	Bald Cypress
<i>Thuja sp.</i>	Arborvitae
<i>Vinca minor</i>	Periwinkle
<i>Yucca sp.</i>	Yucca
<i>Vitex agnus-castus</i>	Chastetree
<i>Wisteria floribunda</i>	Japanese Wisteria

Trees and Shrubs Occasionally Damaged

Botanical Name	Common Name
<i>Acer griseum</i>	Paperbark Maple
<i>Acer rubrum</i>	Red Maple

Botanical Name	Common Name
<i>Acer saccharinum</i>	Silver Maple
<i>Acer saccharum</i>	Sugar Maple
<i>Amelanchier arborea</i>	Downy Serviceberry
<i>Campsis radicans</i>	Trumpet Creeper
<i>Chaenomeles speciosa</i>	Flowering Quince
<i>Cotinus coggygria</i>	Smoketree
<i>Cotoneaster sp.</i>	Cotoneaster
<i>Crypomeria japonica</i>	Japanese Cedar
<i>Hibiscus syriacus</i>	Rose of Sharon
<i>Hydrangea paniculata</i>	Panicle Hydrangea
<i>Ilex crenata</i>	Japanese Holly
<i>Magnolia soulangiana</i>	Saucer Magnolia
<i>Parthenocissus quinquefolia</i>	Virginia Creeper
<i>Quercus sp.</i>	Oak
<i>Salix sp.</i>	Willow
<i>Spiraea (x) bumalda</i>	"Anthony Waterer" Spiraea
<i>Tsuga canadensis</i>	Eastern Hemlock
<i>Viburnum rhytidophyllum</i>	Leatherleaf Viburnum
<i>Weigela florida</i>	Old Fashioned Weigela

Trees and Shrubs Frequently Damaged

Botanical Name	Common Name
<i>Abies fraseri</i>	Fraser Fir
<i>Acer platanoides</i>	Norway Maple
<i>Cercis canadensis</i>	Redbud
<i>Clematis</i>	Clematis
<i>Cornus mas</i>	Comelian cherry Dogwood
<i>Euonymus alatus</i>	Winged Euonymus
<i>Euonymus fortunei</i>	Wintercreeper
<i>Hedera helix</i>	English Ivy
<i>Malus sp.</i>	Apple
<i>Prunus sp.</i>	Cherries
<i>Pyrus calleryana 'Bradford'</i>	Bradford Pear
<i>Rhododendron sp.</i>	Rhododendron/Azalea
<i>Rosa x hybrida</i>	Rose
<i>Sorbus aucuparia</i>	Mountain Ash
<i>Taxus cuspidata</i>	Japanese Yew
<i>Thuja occidentalis</i>	American Arborvitae

Annuals, Perennials and Bulbs Seldom Damaged

Botanical Name	Common Name
<i>Achillea sp.</i>	Yarrow
<i>Aconitum sp.</i>	Monkshood
<i>Ageratum hostonianum</i>	Ageratum
<i>Allium sp.</i>	Allium
<i>Anemone (x) hybrida</i>	Japanese Anemone

Botanical Name	Common Name
<i>Aquilegia sp.</i>	Columbine
<i>Antirrhinum majus</i>	Snapdragon
<i>Arisaema thiphylum</i>	Jack-in-the-Pulpit
<i>Ceratostigma plumbaginoides</i>	Plumbago
<i>Cimicifuga racemosa</i>	Snakeroot
<i>Colchicum sp.</i>	Colchicum
<i>Consolida ambigua</i>	Larkspur
<i>Coreopsis verticillata</i> "Moonbeam"	Threadleaf Coreopsis
<i>Dicentra spectabilis</i>	Bleeding Heart
<i>Digitalis sp.</i>	Foxglove
<i>Dryopteris marginalis</i>	Wood Fern
<i>Echinacea purpurea</i>	Purple Coneflower
<i>Euphorbia sp.</i>	Euphorbia
<i>Fritillaria sp.</i>	Fritillaria
<i>Galium odoratum</i>	Sweet Woodruff
<i>Hyacinthus orientalis</i>	Hyacinth
<i>Lavandula sp.</i>	Lavender
<i>Linaria vulgaris</i>	Toadflax
<i>Lobularia maritima</i>	Sweet Alyssum
<i>Nicotiana sp.</i>	Flowering Tobacco
<i>Pelargonium sp.</i>	Scented geranium
<i>Pervoshia atriplicifolia</i>	Russian Sage
<i>Rudbeckia sp.</i>	Coneflower
<i>Salvia sp.</i>	Sage
<i>Santolina chamaecyparissus</i>	Lavender Cotton
<i>Stachys byzantina</i>	Lamb's Ears
<i>Tagetes sp.</i>	Marigold
<i>Tannacetum vulgare</i>	Common Tansy
<i>Thymus sp.</i>	Thyme
<i>Tropaeolum majus</i>	Nasturtium

Annuals, Perennials and Bulbs Frequently Damaged

Botanical Name	Common Name
<i>Clematis sp.</i>	Clematis
Hybrid roses	Roses
<i>Rubus sp.</i>	Blackberry and Raspberry
<i>Aegopodium podagaria</i>	Bishop's Weed
<i>Aquilegia sp.</i>	Columbine
<i>Athyrium niponicum var. pictum</i>	Japanese Painted Fern
<i>Hedera helix</i>	English Ivy
<i>Helianthus sp.</i>	Sunflower
<i>Hosta spp.</i>	Hosta
<i>Hemerocallis sp. and hybrids</i>	Daylily
<i>Iberis sempervirens</i>	Candytuft
<i>Lilium sp.</i>	Lily
<i>Pelargonium sp.</i>	Geranium
<i>Polygonatum biflorum</i>	Solomon's Seal

<i>Ranunculus asiaticus</i>	Buttercup
<i>Trillium sp.</i>	Trillium
<i>Vinca minor</i>	Periwinkle
<i>Viola sp.</i>	Pansies and Violas

Chemical and Physical Repellents

Many methods can be used to discourage deer from damaging plants. Plant selection is vital, but like all other solutions, is not a 100% guarantee. Several commercial spray repellents are available that are specifically designed with an offending scent or taste to keep deer from foraging on plants. Most are applied directly to the foliage and must be reapplied periodically. (some more often than others):

- Hinder
- Deer Off (consists of Ammonium Soaps) (EPA approved on vegetable crops)
- Tree Guard
- Deer Away
- Plant Protec (Garlic odor)
- Predator Urine (Coyote urine)
- Hot Sauce

Several home remedies have been reported to be somewhat effective. Hanging soap or human hair on trees at 3-ft intervals, or mixing egg with hot sauce deters deer. Several commercial products which contain predator urine are also available. All of the repellants must be re-applied at regular intervals.

Scare tactics are another way of attempting to prevent deer from foraging on ornamentals. Some have tried leaving the radio on in the yard or using ultrasonic sound units that only animals can hear. Deer will eventually decide to withstand the noise in order to tackle their hunger. Motion detectors can be used on these devices, as well as on sprinklers and floodlights. Some have even recommended using heavy, deep-sea fishing line run 3 ft above the ground around the perimeter of the planting area. Dogs are another deterrent that have been found to be valuable to keeping deer away^{1/4} but very annoying to neighbors. If sprays and scare tactics are one's only option, it is best to rotate the tactics regularly to keep these foraging animals off balance.

Fencing

Fencing is the only foolproof option of stopping the deer from entering the property. Unfortunately, most of the time it is not practical to construct an 8-ft tall barricade around a residential property. It is expensive and unsightly, and becomes tiresome to open gates for pedestrian traffic.

Here are a few designs ideas of fencing that have been found to be useful.

- Upright; 8 ft tall (minimum), as deer can jump very high
- Slanted; facing 60° outward; 5-ft tall; confuses deer's depth of vision
- Double; two 5- to 6-ft woven wire fences placed 4 to 5 ft apart. This provides no place for the deer to land when jumping the first fence.)
- Electric; run an electric fence wire 30 inches off the ground; bait the wire with peanut butter and wait for the deer to take a lick and scurry.
- Black and green mesh; this 8-ft-tall invisible fence is supported by trees or posts

Decoy Crops

Crops such as corn, soybeans, alfalfa, and clover have been known to attract deer to adjacent areas for feeding. This solution could prove to be a two-sided sword, as after the deer eat all the decoy food, they'll move back into the landscaped areas.

Deer reduction

The elimination of deer by increasing the length of the hunting season, increasing hunting quotas or reducing

other hunting restrictions will help. But hunting is not an end-all solution. It is not practical or safe to use firearms in urban, highly populated areas. In fact, many planned communities and housing developments specifically restrict hunting or the shooting of firearms. According to deer report surveys by the N.C. Wildlife Commission, 150,000 deer are reported killed each year. Even with this amount of annual decrease in the deer population, the impact is negligible for urban damage, as most of the deer harvested are from rural, low-populated areas. Some homeowner association have approved of bow and arrow hunting methods within the confines of the community. This is much safer than guns, and much more discreet.

Summary

The battle between deer and humans will increase with future rural development and increase in deer populations. A strategy should be selected to accommodate the size and needs of the desired landscape. It will require a combination of strategies, requiring a constant monitoring of the seasonal movement and pressure from the deer herd.