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Resistance of Woody Ornamental Plants to Deer Damage

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Damage to ornamental plants by white-tailed deer (*Odocoileus virginianus*) has increased during the past decade. This has been associated with: (1) increasing deer abundance, (2) human population shifts to rural and suburban homesites, (3) the maturing of abandoned agricultural lands into deer habitat, (4) landowner decisions to prevent deer hunting, and (5) restrictions on firearms use in suburban regions.

In the short run, this situation is largely irreversible. Damage problems, particularly in suburban areas having good quality deer habitat, are likely to intensify in the future. Clearly, elimination of hunting, due to firearms restrictions, safety concerns, and changed landowner values, will only increase damage in these areas.

Deer Feeding Habits

Deer are selective feeders; they forage on plants or plant parts with considerable discrimination. Their obvious preference for and apparent avoidance of certain plants can be turned to our advantage. Costly browsing damage may be reduced or eliminated by planting less-preferred species or by establishing susceptible plants only in areas protected from deer. Under most circumstances, landscaping based on a knowledge of deer feeding preferences can provide an alternative to the use of expensive chemical repellents and unsightly physical barriers.

Whether or not a particular plant species or variety will be eaten depends on the deer's previous experience, nutritional needs, plant palatability, seasonal factors, weather conditions, and the availability of alternative foods. Deer are creatures of habit, and prior movement patterns or foraging experience can foretell where damage will occur. Deer also are known to feed selectively on fertilized plantings and managed croplands. New plantings added to an existing landscape already severely damaged by deer will likely suffer extreme browsing pressure.

In general, the most damage takes place when winter snow cover has reduced food availability. Rather than face starvation, deer will browse even the most resistant plants during periods of food shortage. Under such conditions, other damage control measures should be combined with careful plant selection. Ultimately, a reduction in deer herd size is the most effective solution to the damage problem. Information on repellents, physical barriers (i.e., fencing), and deer population control are

available from Cornell Cooperative Extension agents, New York State Department of Environmental Conservation (DEC) regional biologists, and from the following Cornell publications: *Pest Management Recommendations for Control of Vertebrates* and *Control of Wildlife Damage in Homes and Gardens*.

Plant-damage Comparisons

The following tables provide a guide to the relative likelihood of deer damage to many ornamental woody plants used by New York landscape contractors and property owners. This information can be useful both for selecting plants that are unlikely to be damaged by deer, as well as for identifying those ornamentals that frequently require protection. The four categories identified below are based on the combined experiences and numerical rankings of nursery operators, landscape contractors, Cornell Cooperative Extension personnel, research staff, and other professional horticulturists from the northeastern states. The information was derived from personal communications, published articles, and unpublished reports. The user is cautioned that the deer-browsing resistance of any plant species may change due to fluctuations in deer populations, alternative food availability, and environmental factors mentioned previously. No plant species will be avoided by deer under all conditions.

Plants listed in the "Rarely Damaged" category are infrequently fed upon by deer, and are the best candidates for landscapes prone to deer damage. Deer sometimes feed on ornamentals listed as "Seldom Severely Damaged," but damage is usually minor and has limited effect on the shape or attractiveness of the plant. The category "Occasionally Severely Damaged" includes plants which may be severely damaged by deer. Finally, ornamental plants in the category "Frequently Severely Damaged" appear to be preferred by deer, and usually require physical or chemical protection whenever deer are present. Check before planting any of the species listed below to ensure that they are adapted for your local climatic and soil conditions.



Plants Rarely Damaged:

<u>Botanical name</u>	<u>Common name</u>
<i>Berberis</i> spp.	Barberry
<i>Berberis vulgaris</i>	Common Barberry
<i>Betula papyrifera</i>	Paper Birch
<i>Buxus sempervirens</i>	Common Boxwood
<i>Elaeagnus angustifolia</i>	Russian Olive
<i>Ilex opaca</i>	American Holly
<i>Leucothoe fontanesiana</i>	Drooping Leucothoe
<i>Picea pungens</i>	Colorado Blue Spruce
<i>Pieris japonica</i>	Japanese Pieris

Plants Seldom Severely Damaged:

<u>Botanical name</u>	<u>Common name</u>
<i>Betula pendula</i>	European White Birch
<i>Calastrus scandens</i>	American Bittersweet
<i>Cornus sericea</i>	Red Osier Dogwood
<i>Cornus florida</i>	Flowering Dogwood
<i>Cornus kousa</i>	Kousa Dogwood
<i>Crataegus laevigata</i>	English Hawthorn
<i>Enkianthus campanulatus</i>	Redvein Enkianthus
<i>Fagus sylvatica</i>	European Beech
<i>Forsythia</i> spp.	Forsythia
<i>Gleditsia triacanthos</i>	Honey Locust
<i>Ilex cornuta</i>	Chinese Holly
<i>Ilex glabra</i>	Inkberry
<i>Juniperus chinensis</i>	Chinese Junipers (green)
<i>Juniperus chinensis</i>	Chinese Junipers (blue)
<i>Kalmia latifolia</i>	Mountain Laurel
<i>Kolkwitzia amabilis</i>	Beautybush
<i>Picea abies</i>	Norway Spruce
<i>Picea glauca</i>	White Spruce
<i>Pinus nigra</i>	Austrian Pine
<i>Pinus rigida</i>	Pitch Pine
<i>Pinus mugo</i>	Mugo Pine
<i>Pinus resinosa</i>	Red Pine
<i>Pinus sylvestris</i>	Scots Pine
<i>Prunus serrulata</i>	Japanese Flowering Cherry
<i>Salix matsudana tortuosa</i>	Corkscrew Willow
<i>Sassafras albidum</i>	Common Sassafras
<i>Syringa vulgaris</i>	Common Lilac
<i>Wisteria floribunda</i>	Japanese Wisteria

Plants Occasionally Severely Damaged:

<u>Botanical name</u>	<u>Common name</u>
<i>Abies concolor</i>	White Fir
<i>Acer griseum</i>	Paperbark Maple
<i>Acer rubrum</i>	Red Maple
<i>Acer saccharinum</i>	Silver Maple
<i>Acer saccharum</i>	Sugar Maple
<i>Aesculus hippocastanum</i>	Common Horsechestnut
<i>Amelanchier arborea</i>	Downy Serviceberry
<i>Amelanchier laevis</i>	Allegheny Serviceberry
<i>Campsis radicans</i>	Trumpet Creeper
<i>Chaenomeles speciosa</i>	Japanese Flowering Quince
<i>Cornus racemosa</i>	Panicled Dogwood
<i>Cotinus coggygria</i>	Smokebush
<i>Cotoneaster</i> spp.	Cotoneaster
<i>Cotoneaster apiculatus</i>	Cranberry Cotoneaster
<i>Cotoneaster horizontalis</i>	Rockspray Cotoneaster
<i>Cryptomeria japonica</i>	Japanese Cedar
<i>Forsythia (x) intermedia</i>	Border Forsythia
<i>Hamamelis virginiana</i>	Common Witchhazel
<i>Hibiscus syriacus</i>	Rose of Sharon
<i>Hydrangea arborescens</i>	Smooth Hydrangea
<i>Hydrangea anomala petiolaris</i>	Climbing Hydrangea
<i>Hydrangea paniculata</i>	Panicle Hydrangea

<i>Ilex crenata</i>	Japanese Holly
<i>Ilex (x) meserveae</i>	China Girl/Boy Holly
<i>Juniperus virginiana</i>	Eastern Red Cedar
<i>Larix decidua</i>	European Larch
<i>Lonicera (x) heckrottii</i>	Goldflame Honeysuckle
<i>Ligustrum</i> spp.	Privet
<i>Magnolia (x) soulangiana</i>	Saucer Magnolia
<i>Metasequoia glyptostroboides</i>	Dawn Redwood
<i>Parthenocissus quinquefolia</i>	Virginia Creeper
<i>Philadelphus coronarius</i>	Sweet Mock Orange
<i>Pinus strobus</i>	Eastern White Pine
<i>Potentilla fruticosa</i>	Bush Cinquefoil
<i>Prunus avium</i>	Sweet Cherry
<i>Pseudotsuga menziesii</i>	Douglas Fir
<i>Pyracantha coccinea</i>	Firethorn
<i>Pyrus calleryana 'Bradford'</i>	Bradford Callery Pear
<i>Pyrus communis</i>	Common Pear
<i>Quercus alba</i>	White Oak
<i>Quercus prinus</i>	Chestnut Oak
<i>Quercus rubra</i>	Northern Red Oak
<i>Rhododendron</i> spp.	Deciduous Azaleas
<i>Rhododendron carolinianum</i>	Carolina Rhododendron
<i>Rhododendron maximum</i>	Rosebay Rhododendron
<i>Rhus typhina</i>	Staghorn Sumac
<i>Rosa multiflora</i>	Multiflora Rose
<i>Rosa rugosa</i>	Rugosa Rose
<i>Salix</i> spp.	Willows
<i>Spiraea (x) bumalda</i>	Anthony Waterer Spiraea
<i>Spiraea prunifolia</i>	Bridalwreath Spiraea
<i>Syringa (x) persica</i>	Persian Lilac
<i>Syringa reticulata</i>	Japanese Tree Lilac
<i>Syringa villosa</i>	Late Lilac
<i>Tilia cordata 'Greenspire'</i>	Greenspire Littleleaf Linden
<i>Tilia americana</i>	Basswood
<i>Tsuga canadensis</i>	Eastern Hemlock
<i>Tsuga caroliniana</i>	Carolina Hemlock
<i>Viburnum (x) juddii</i>	Judd Viburnum
<i>Viburnum rhytidophyllum</i>	Leatherleaf Viburnum
<i>Viburnum plicatum tomentosum</i>	Doublefile Viburnum
<i>Viburnum carlesii</i>	Koreanspice Viburnum
<i>Weigela florida</i>	Oldfashion Weigela

Plants Frequently Severely Damaged:

<u>Botanical name</u>	<u>Common name</u>
<i>Abies balsamea</i>	Balsam Fir
<i>Abies fraseri</i>	Fraser Fir
<i>Acer platanoides</i>	Norway Maple
<i>Cercis canadensis</i>	Eastern Redbud
<i>Chamaecyparis thyoides</i>	Atlantic White Cedar
<i>Clematis</i> spp.	Clematis
<i>Cornus mas</i>	Cornelian Dogwood
<i>Euonymus alatus</i>	Winged Euonymus
<i>Euonymus fortunei</i>	Wintercreeper
<i>Hedera helix</i>	English Ivy
<i>Malus</i> spp.	Apples
<i>Prunus</i> spp.	Cherries
<i>Prunus</i> spp.	Plums
<i>Rhododendron</i> spp.	Rhododendrons
<i>Rhododendron</i> spp.	Evergreen Azaleas
<i>Rhododendron catawbiense</i>	Catawba Rhododendron
<i>Rhododendron periclymenoides</i>	Pinxterbloom Azalea
<i>Rosa (x) hybrid</i>	Hybrid Tea Rose
<i>Sorbus aucuparia</i>	European Mountain Ash
<i>Taxus</i> spp.	Yews
<i>Taxus baccata</i>	English Yew
<i>Taxus brevifolia</i>	Western Yew
<i>Taxus cuspidata</i>	Japanese Yew
<i>Taxus (x) media</i>	English/Japanese Hybrid Yew
<i>Thuja occidentalis</i>	American Arborvitae

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