

CONTROL MEASURES

Scare Devices

Scare devices usually do not reduce or prevent deer depredations. Instead, these devices annoy neighbors and often are expensive to purchase and maintain, and deer normally habituate to them in a short time (Wildlife Management Institute 1984).

Chemical Repellents

The most effective nontoxic repellents contain putrefied egg products. Their trade names are Big Game Repellent (BGR), Repel, Deer-away, and Hinder (Wildlife Management Institute 1984). At best, repellents give only short-term protection and most cannot be used on food crops (Palmer et al. 1983). In addition, repellents are unsuccessful in substantially reducing deer damage under heavy browsing pressure (Conover 1984). Palmer et al. (1983) came to the conclusion that what works at one time in a particular place does not necessarily work again in the same or other areas.

Fencing

A fence that is 2.1 to 2.4-meters (6.9 to 7.9 feet) of woven wire provides a barrier that is considered to be deer-proof; however, they are expensive (Palmer et al. 1985).

Slanting-type fences, approximately 1.32 meters (4.33 feet) tall and slanting away from the protected area at a 45-degree angle, effectively exclude deer from crop fields. Deer may try to crawl under the fence, but overhanging wire deters them from jumping over the fence (Wildlife Management Institute 1984).

Other Techniques

Soap is presumed to be an odor repellent. Spacing bars of soap at 1-meter intervals has been found to provide protection for all plants; however, protection was weak or not evident at greater distances (Swihart and Conover 1990).

A successful technique for protecting seedlings and young trees involves wrapping terminal buds with plastic in autumn and removing it prior to spring growth (Wildlife Management Institute 1984).

Neither the Indiana Dunes National Lakeshore, nor the National Park Service endorses or recommends the products mentioned in this brochure. This publication is intended to provide general information only and in no way claims to be an exclusive or complete source of "deer-proofing tips."

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REFERENCES

- Conover, M.R. 1984. Effectiveness of repellents in reducing deer damage in nurseries. *Wild. Soc. Bull.* 12:399-404.
- Conover, M.R., and G.S. Kania. 1988. Browsing preference of white-tailed deer for different ornamental species. *Wildl. Soc. Bull.* 16:175-179.
- Davis, C.R. 1991. "Plants for the Deer-Infested Garden." *Horticulture*. February:11-13.
- Harris, M.T., W.L. Palmer, and J.L. George. 1983. Preliminary screening of white-tailed deer repellents. *J. Wildl. Manage.* 47(2):516-519.
- Jescavage-Bernard. 1991. "Deer-Tracks, Part II." *Horticulture*. May: 8, 10.
- Palmer, W.L., R.G. Wingard, and J.L. George. 1983. Evaluation of white-tailed deer repellents. *Wild. Soc. Bull.* 11(2):164-166.
- Plampin, B. 1991. List of "Deer-Proof" Plants and Something About Native Plants. Brochure to Dune Acres residents.
- Schlitz Audubon Center. 1946. Some Deer Food Preferences. Compiled by W.S. Feeney. *Wis. Wildlife Research-Progress Reports*. V(1):January.
- Swihart, R.K., and M.R. Conover. 1990. Reducing deer damage to yews and apple trees: testing Big Game Repellent®, RO-PEL®, and soap as repellents. *Wildl. Soc. Bull.* 18:156-162.
- Wildlife Management Institute. 1984. White-tailed Deer: Ecology and Management. Ed. by L.K. Halls. Stackpole Books, Harrisburg PA. 870 p.
- Wilhelm, G.S. 1990. Special Vegetation of the Indiana Dunes National Lakeshore. National Park Service, Indiana Dunes National Lakeshore, Porter IN. 373 p.

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DEER-PROOFING TIPS

WHY A BROCHURE?

This brochure was compiled by the Indiana Dunes National Lakeshore (INDU) to help the general public deal with white-tailed deer in a domestic setting. The biggest concern of homeowners recently has been damage caused to lawns and gardens by deer browsing. Included in this brochure is a list of plant species that some researchers have found to be non-preferable to white-tailed deer. Our list contains only plants that are native to the Indiana Dunes National Lakeshore. INDU hopes this information will help homeowners to create a natural landscape that is compatible with surrounding wildlife.

ABOUT THE LIST...

The plants listed on the following pages are identified by their **common names**, as well as by their *scientific names*. The third and fourth columns designate **soil** and **sun exposure** conditions that are conducive to the optimal growth of each species. A fifth column was added to indicate the **commercial availability** of these native plants.

DEFINITIONS

Soil moisture and exposure to sunlight are important factors to consider when deciding which plants will do well in a particular area. The terms used in this brochure to describe these conditions are defined as follows:

SOIL MOISTURE

- Dry** -- those soils in which water drains readily, even after a heavy rain; this includes sandy and gravelly soils.
- Moist** -- soils that have standing water for a short time after a hard rain, including well drained loams and clay.
- Wet** -- soils that may have some standing water in the spring and fall; ample moisture is available in the subsoil throughout the growing season.

SUNLIGHT

- Full sun** -- direct sunlight for most of the day.
- Partial sun** -- some direct sunlight and a large amount of bright indirect light.
- Shade** -- no bright light most of the growing season; being under the closed canopy of trees or other structures.

WOODY SPECIES

COMMON NAME	SCIENTIFIC NAME	SOIL	SUN	\$\$
SPECKLED ALDER	<i>Alnus rugosa americana</i>	W	F-P	*
JUNEBERRY, SHADBUSH	<i>Amelanchier arborea</i>	W	F-P	
SERVICEBERRY				
LOW SHADBLOW	<i>Amelanchier humilis</i>	W	F-P	
DWARF SHADBLOW	<i>Amelanchier interior</i>	W	F-P	
ALLEGHENY SHADBLOW	<i>Amelanchier laevis</i>	W	F-P	*
BEARBERRY	<i>Arctostaphylos uva-ursi</i>	D	F	*
	<i>coactilis</i>			
FLOWERING DOGWOOD	<i>Cornus florida</i>	D-M	P-S	*
GRAY DOGWOOD	<i>Cornus racemosa</i>	M-W	F-P	*
WITCH HAZEL	<i>Hamamelis virginiana</i>	D	P-S	*
EASTERN RED CEDAR	<i>Juniperus virginiana crebra</i>	D	F-P	*
TAMARACK,	<i>Larix laricina</i>	W	F	*
AMERICAN LARCH				
NINEBARK	<i>Physocarpus opulifolius</i>	M	F	*
WHITE PINE	<i>Pinus strobus</i>	D-M	F-P	*
COMMON BLACKBERRY	<i>Rubus allegheniensis</i>	D-M	F	*
COMMON DEWBERRY	<i>Rubus flagellaris</i>	D-M	F	*
SWAMP DEWBERRY	<i>Rubus hispidus obovalis</i>	M-W	P-S	
RED RASPBERRY	<i>Rubus idaeus strigosus</i>	M-W	F-P	*
BLACK RASPBERRY	<i>Rubus occidentalis</i>	W	F-P	*
YANKEE BLACKBERRY	<i>Rubus pennsylvanicus</i>	D-M	F-P	
DWARF BLACKBERRY	<i>Rubus pubescens</i>	M-W	P-S	
PEACH-LEAVED WILLOW	<i>Salix amygdaloides</i>	M-W	F	
BEAKED WILLOW	<i>Salix bebbiana</i>	M-W	F	
HOARY WILLOW	<i>Salix candida</i>	M-W	F	
PUSSY WILLOW	<i>Salix discolor</i>	M-W	F	
BLUE-LEAVED WILLOW	<i>Salix glaucophylloides</i>	D-M-W	F	
	<i>glaucophylla</i>			
PETIOLED WILLOW	<i>Salix gracilis textoris</i>	M-W	F	
PRAIRIE WILLOW	<i>Salix humilis</i>	M	F	*
SANDBAR WILLOW	<i>Salix interior</i>	M-W	F	
SHINING WILLOW	<i>Salix lucida</i>	M-W	F	
BLACK WILLOW	<i>Salix nigra</i>	M-W	F	
BOG WILLOW	<i>Salix pedicellaris hypoglauca</i>	M-W	F	
HEART-LEAVED WILLOW	<i>Salix rigida</i>	M-W	F	
SILKY WILLOW	<i>Salix sericea</i>	M-W	F	
DUNE WILLOW	<i>Salix syrticola</i>	D	F	
MEADOWSWEET	<i>Spiraea alba</i>	M-W	F	*
STEEPLE BUSH,	<i>Spiraea tomentosa rosea</i>	M-W	F	*
HARDHACK				
NANNYBERRY	<i>Viburnum lentago</i>	M	P-S	*
DOWNY ARROW-WOOD	<i>Viburnum rafinesquianum</i>	M	P-S	

PERENNIAL SPECIES

COMMON NAME	SCIENTIFIC NAME	SOIL	SUN	\$\$
GRASSES	Many genera and species		F-P	*
WILD ONION,	<i>Allium canadense</i>	M	F-P	*
WILD GARLIC				
NODDING WILD ONION	<i>Allium cernuum</i>	M	F	*
RED WILD LEEK	<i>Allium tricoccum</i>	M	P-S	*
GREEN WILD LEEK	<i>Allium tricoccum burdickii</i>	M	P-S	
BEACH WORMWOOD	<i>Artemisia caudata</i>	D	F	*
WILD GINGER	<i>Asarum canadense</i>	M	P-S	*
BUTTERFLY WEED	<i>Asclepias tuberosa</i>	D-M	F	*
TURTLEHEAD	<i>Chelone glabra</i>	M-W	F	*
SAND COREOPSIS	<i>Coreopsis lanceolata</i>	D	F	*
NORTHERN CRANESBILL	<i>Geranium bicknellii</i>	D-M	F-P	
CAROLINA CRANESBILL	<i>Geranium carolinianum</i>	W	P-S	
WILD GERANIUM	<i>Geranium maculatum</i>	D-M-W	P-S	*
VIRGINIA WATERLEAF	<i>Hydrophyllum virginianum</i>	M	P-S	*
GAY FEATHER,	<i>Liatris spicata</i>	D-M	F	*
MARSH BLAZING STAR				
WILD LUPINE	<i>Lupinus perennis</i>	D	F	*
	<i>occidentalis</i>			
VIRGINIA BLUEBELLS	<i>Mertensia virginica</i>	M	P-S	*
MAY APPLE	<i>Podophyllum peltatum</i>	M	P-S	*
SMOOTH SOLOMON'S SEAL	<i>Polygonatum canaliculatum</i>	M-W	P-S	*
DOWNY SOLOMON'S SEAL	<i>Polygonatum pubescens</i>	M	P-S	
SMALL-FLOWERING	<i>Ranunculus abortivus</i>	M-W	P-S	
BUTTERCUP				
EARLY BUTTERCUP	<i>Ranunculus fascicularis</i>	M-W	P-S	*
YELLOW WATER	<i>Ranunculus flabellaris</i>	M-W	F	
BUTTERCUP				
ROUGH BUTTERCUP	<i>Ranunculus hispidus</i>	M-W	F	
BRISTLY BUTTERCUP	<i>Ranunculus pennsylvanicus</i>	M-W	F-P	
HOOKEED BUTTERCUP	<i>Ranunculus recurvatus</i>	M-W	P	
CURSED CROWFOOT	<i>Ranunculus sceleratus</i>	M-W	F	
SWAMP BUTTERCUP	<i>Ranunculus septentrionalis</i>	M-W	P-S	

KEY TO PLANT LIST

WOODY - trees and shrubs	SUN - optimal exposure to sunlight
PERENNIAL - living more than two years	F - full sun
	P - partial sun
SOIL - optimal soil moisture type	S - shade
D - dry soil conditions	\$\$ - commercial availability
M - moist soil conditions	* - species currently available commercially
W - wet soil conditions	

NOTE: Although only some of these plant species are currently available commercially, new plants are continuously being added to nursery stocks. Therefore, it would be advisable to ask dealers which species they carry, and how often they update their stocks.