

Many of the trees and shrubs planted in North Dakota are damaged to varying degrees by deer. Browsing or buck rubbing can severely injure, deform, or kill the plants.

Impacts of deer browsing vary considerably from one location to another. The severity of browsing is affected by surrounding habitat, the number of deer, and the presence of alternate browse species. This fact sheet addresses common methods used to reduce deer damage (browsing and buck rub). A short list of species universally favored by North Dakota deer and a list of species usually ignored by them is included.

Generally, the most effective controls are the most expensive. Due to costs, they are used mostly for nurseries, orchards, or gardens where there is a need to protect high value vegetation. Their high costs restrict widespread use on conservation plantings. In descending order of cost and effectiveness, these control methods include several fence configurations, individual tree protectors, repellents, or natural regeneration.

Methods of Damage Prevention or Reduction:

Fence – Fences must enclose the entire planting and be specifically designed and installed to prevent entry by deer. They are usually more expensive than fences for livestock. When properly designed, installed and maintained, fences are quite effective. They are subject to damage from animals, machinery, and weather. There are several configurations and sizes that are effective. Less expensive, shorter fences may work during the growing season, when deer pressure is low.

Refer to “Prevention and Control of Wildlife Damage,” Hygnstrom, S. E., R. M. Timm, G. E. Larson, 1994. http://icwdm.org/handbook/mammals/mam_d25.pdf for design considerations for each of the following fence types. See also the North Dakota Game and Fish (NDG&F) publication, “Preventing Deer Depredation.”



Individual wire cages protecting young trees.

Fence types include:

1. Buried electronic fence with radio-collared herding dogs.
2. Tall (8-10') metal woven or net fence.
3. Tall (8-10') plastic mesh fence.
4. Tall (8-10') vertical electric or high tensile fence.
5. Angled electric or high tensile fence.
6. Double fences.
7. Peanut butter fence (effective in specific situations).
8. Electric tape fence (effective in specific situations).

Each type of fence has advantages, disadvantages and cost differences. Maintenance varies from infrequent to daily

depending upon the fence type and the particular situation. Longevity varies from a few years to several decades. Installed costs vary from about \$.50 per foot to over \$10 per running foot.

Note: State permits may be required to haze ungulates with dogs (fence type 1, above).



Southern Forest Insect Work Conference Archive, Bugwood.org UGA2733036

Apical bud of pine nipped by white-tailed deer.



Tree shelter protecting black cherry.

Individual Plant Barriers – Materials are installed around each plant to prevent access by the deer. Barriers include: tree shelters, wire mesh, Vexar®, drain tile, spiral wraps, paper tree wraps, snow fence, or other material. Deer may still browse plants that grow out the top of shorter barriers, but if the barrier is 5-6 feet tall the plant can often grow past the reach of deer. Individual barriers can cost \$2 to more than \$10 per plant and require annual maintenance.

Repellents – A wide assortment of repellents have been developed and tested. Many of the commercial varieties repel through odor and/or taste. Several commercial varieties have worked well during the growing season, with mixed results during the winter. Research has shown that bar soap hung from the limbs has some effectiveness. Some folks claim home remedies of egg solutions have worked, but research has not proven their consistent effectiveness. Repellents require several applications per growing season. Growth that occurs after repellent application

is usually not protected. Most repellents have reduced efficacy during the winter season or after rains. The effectiveness of repellents is considerably reduced during times of short food supply as deer will eat what is available, treated or not, to stay alive. See NDG&F “Preventing Deer Depredation.”

Natural Regeneration — In areas with high deer numbers, the only affordable afforestation method that shows promise in North Dakota is managing for natural regeneration. On appropriate riparian sites, this method produces in excess of 10,000 seedlings per acre the first year. Deer still browse some of these new seedlings, but within a few years, large numbers of plants grow past the height of deer browsing. A suitable seed source of riparian species must be close by and timely soil preparation is needed for successful reforestation. The site will usually be quite weedy until tree crowns grow past the deer and shade the weeds. Costs are primarily site preparation and weed control, prior to seed dispersal. Refer to page 6 in “Tree Care and Management” http://efotg.nrcs.usda.gov/references/public/ND/Tree_Care_and_Management.pdf for specifics about site selection and site preparation. Invasive sod-forming grasses, along with the deer, can negatively affect the success of this method.



Naturally regenerated cottonwood, boxelder, and shrubs initially protected from deer by a dense stand of Canada thistle. Trees are just growing past the reach of browsing deer.

Population Control – Hunting is often cited as a method to reduce the number of animals that remain to damage trees and shrubs. It may also scare deer from certain areas. Hunting must be focused on antlerless deer, consistently intense, and cover a fairly wide geographic area. When deer damage occurs near urban areas, local ordinances may restrict the types of hunting permitted. Depending upon the level of browsing, hunting may be effective in reducing damage to acceptable levels. Hunting may be more effective in combination with other browse reduction methods. Work with local game management officials to increase hunting pressure.

Interceptor Food Plots – Nurseries and others have established interceptor plots to lure the damaging animals away from plants that need protection. Food in the interceptor plots must be equal to or more desirable than the plants needing protection from the offending animal. Most successful interceptor plots involve unharvested grain at locations away from plants needing protection. Little or no success has been reported by trying to establish perennial tree and shrubs as an interceptor plot. They are hard to get established with the pressure from the offending animal and are not substantially different from the plants being damaged.

There are many more negatives with interceptor feeding than positives:

- Expenses and labor charges could amount to several thousand dollars per year.
- Weed seeds could be spread if screenings are used.
- Diseases could be spread through the concentrated deer or to surrounding livestock.
- Additional deer may be drawn to the area, exacerbating the problem.
- Well-fed deer will result in greater fawning success.
- Intercept feeding should be considered a temporary solution, for only 1-2 months.
- It should be used as a last resort to protect trees and shrubs.

Species Preferences – In some situations, it is possible to plant species that are not a preferred food for deer. Species preference may vary across the state. Preferences or non preferences should be modified based on local experiences. However, high deer numbers and a harsh winter force deer to eat whatever is available in order to stay alive. See NDG&F publication, “Gardening Around Deer.”

Species rarely browsed by white-tailed deer in North Dakota include:

caragana, false indigo, common lilac and Russian olive

Depending upon the year or the location, even these species may be damaged.

Species preferred by white-tailed deer include:

*oaks, hackberries, apples, hawthorns, walnuts,
white pines, redosier dogwood, and all prunus*

Fences or tree shelters will be required in areas of intense deer pressure.

Species browsed by mule deer:

*pines, skunkbush sumac and juniper as well as
the preferred species of white-tailed deer*

When deer numbers are high, assume all species are subject to browsing.

Buck Rub Damage

Individual plants within all of the species can be subject to damage from buck rubbing. The same plant may be damaged for several years, sometimes to the point of death. At other times, bucks may rub and break several plants in a row. Certain species appear to be especially attractive for buck rubbing such as *caragana*, *Scots pine*, *Rocky Mountain juniper*, *poplars*, and *eastern redcedar*. Applying the control measures previously listed can also reduce the incidence of buck rubbing.



Buck rub damage on young sapling.

Interesting Side Note:

A reforestation study from south central Minnesota found that red oak, planted with fabric mats to prevent weed growth, showed considerably more browse damage than trees without mats. This may have been due to the higher visibility of the trees with the mats, or perhaps a greater palatability, or easier access without the hindrance of weedy vegetation.

Documents to Review Before Design

Details about all protection practices, excluding electronic containment fence, can be found in, “Prevention and Control of Wildlife Damage” http://icwdm.org/handbook/mammals/mam_d25.pdf (See complete listing in references.) *This is a very thorough resource and appropriate sections should be read before beginning deer control or management projects.*

“Prevention and Control of Wildlife Damage” also addresses most other types of animal damage to crops, trees, and shrubs. Other wildlife species noted to cause problems in North Dakota and addressed in this reference, are beaver, rabbits, and porcupines.

Information regarding electronic containment fences can be found at: “Dogs for Reducing Wildlife Damage to Organic Crops: A Case Study” (See complete listing in references.) http://www.aphis.usda.gov/wildlife_damage/nwrc/publications/05pubs/vercauteren056.pdf

“Reducing Deer Damage at Home and on the Farm”, from Clemson University, addresses the philosophy and methodology of effective deer control. <http://virtual.clemson.edu/groups/psapublishing/pages/afw/afw6.pdf>

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