



MI-6946-S
1998

UNIVERSITY OF MINNESOTA
Extension
SERVICE

Valuing Your Shoreland Trees

SHORELAND BEST MANAGEMENT PRACTICES

NUMBER 11 IN THE SERIES

What Are Shoreland BMPs?

Best Management Practices (BMPs) are actions you can take to reduce your impact on the environment. BMPs have been described for agriculture, forest management, and construction. This fact sheet describes BMPs you can adopt on your shoreland property to help protect and preserve water quality. In many cases, the best management for shorelands may be retaining the natural characteristics of your property.

Why Are Shoreland Trees Important?

Trees and shrubs are an excellent inexpensive and attractive way to control runoff and erosion. Roots hold soil and help stabilize slopes by trapping and using precipitation that would otherwise run off. They also increase soil porosity, allowing water to infiltrate rather than run off. Vegetation helps protect water quality by filtering out nutrients and pesticides that could otherwise reach a lake or stream and cause algal blooms or excessive plant growth. Trees and shrubs also improve air quality by taking in carbon dioxide and giving off oxygen.

In addition, trees provide shade and help moderate weather extremes such as hot sun or strong winds. Trees and shrubs offer habitat for wildlife and privacy for humans by screening adjacent property.

This fact sheet offers guidelines to shoreland property owners who are growing a limited number of trees and shrubs on their recreational property, rather than those who are managing larger forest areas. Fact sheet #10 offers more information for managing shoreland woodlots.

Why Retain Existing Trees and Shrubs?

Natural vegetation is best because it is adapted to the local climate and usually has strong, well-established root systems that provide better erosion control, water-cleaning capacity, and stability for plants. Existing trees and shrubs also offer more typical habitat for wildlife and are more resistant to pests and disease.

Planning your property development in advance to save existing vegetation is very important. If native trees and shrubs were removed in the past, planting and nurturing replacements will help increase your property value and enjoyment while helping to protect water quality.

Establishing Filter Strips

Filter strips are vegetated areas of land adjacent to shorelines that help minimize runoff to a lake or stream. The most effective filter strips include a variety of low plants, shrubs, and trees, preferably native or existing vegetation.

Research on agricultural land adjacent to water bodies has indicated that all nitrate was removed from ground water flowing under 90 feet of woods, and 80% of phosphorus and nitrate was removed from surface runoff. Thus, filter strips are a wise investment to protect your lake or stream, even on property that is not used for intensive agriculture.

In Minnesota, filter strips of 50-150 feet are recommended for most effective water quality protection. For new development, the required width for filter strips depends on how a lake or river is classified. Contact your local zoning official for information on classifications. Re-establishing vegetative strips along the shore on property that has been developed is recommended because a filter strip of even a few feet will help minimize runoff and provide some water quality protection.

BMPs for Existing Trees

- Protect bark, limbs, and roots during construction; tie planks around trees to protect them from equipment; do not drive or park equipment over the root area.
- Safeguard roots because they are the most important part of a tree; avoid filling, compacting, or removing soil from the root area; root area is at least as large as the area under the crown of a tree.
- Trim dead and dying limbs and remove diseased growth, but never trim oaks between April 15 and July 1 because of risk of oak wilt; properly dispose of diseased limbs and bark to avoid providing an opportunity for the disease to spread.
- Scout for pests and diseases; treat early to avoid widespread damage.
- Water during times of low rainfall; trees should receive 1 inch of water per week under the crown canopy.
- When trees are too crowded, remove some to allow more light and water to reach other remaining stems.
- Contact your local zoning office for restrictions related to thinning trees in the shoreland area.

Establishing New Trees

- Use native species when available because they are hardier, more resistant to disease and pests, and provide natural habitat for wildlife.
- Include a variety of trees and shrubs; emphasize diversity of species, heights, and ages.
- Plant in the spring or fall.
- When planting, dig a hole 1 to 2 feet wider than the root system and backfill with original soil; water root area thoroughly, add a 3- to 6-inch layer of mulch, and stake only if necessary (see Figure 1).
- Nurture new vegetation (simply planting a tree is not enough to ensure it will survive); water regularly and deeply; avoid short, frequent watering because it promotes shallow root systems; fertilize and prune as necessary; provide winter protection.

Suggested Species for Northeastern Minnesota

HARDWOODS

red maple (*Acer rubrum*) - Needs full sun, well-drained soil with ample moisture; intolerant of poorly aerated soils, high pH, and hot, dry site conditions; gray squirrels eat the buds and seeds in late winter/early spring.

silver maple (*Acer saccharinum*) - Fast-growing, large size; needs full sun; tolerates a wide range of soil types but prefers deep moist soil; large vigorous root systems; seeds prolifically.

sugar maple (*Acer saccharum*) - Needs fertile, well-drained soil with ample moisture; full sun or partial shade; grows poorly in compacted soils.

paper birch (*Betula papyrifera*) - Prefers well-drained soil and cool, moist conditions; full sun; needs irrigation and fertilization to stay vigorous; intolerant of compacted soil, dry conditions, and high temperature.

river birch (*Betula nigra*) - Needs fertile, slightly acidic soil; transplant in spring only; susceptible to birch leaf miner (skeletonizes leaves).

black ash (*Fraxinus nigra*) - Needs full sun and ample soil moisture; tolerates poorly drained areas.

green ash (*Fraxinus pennsylvanica*) - Needs full sun, but well adapted to a variety of soil types; easily established; pruning may be needed to improve form.

swamp white oak (*Quercus bicolor*) - Tolerant of heavy soils with poor drainage; likes acidic soils; drought tolerant; specify **swamp white oak** if purchasing, because white oak does not do well in northeastern Minnesota.

northern pin oak (*Quercus ellipsoidalis*) - Prefers sandy soil and full sun; drought tolerant.

burr oak (*Quercus macrocarpa*) - Large tree tolerant of a wide range of soil conditions; likes full sun.

northern red oak (*Quercus rubra*) - Tolerant of a wide range of site and soil conditions but needs well-drained soil; faster growing oak; do not prune April through July.

laurel leaf willow (*Salix amygdaloides*) (also known as *peach leaf willow*) - Tolerant of a wide range of sites, even poorly drained areas.

black willow (*Salix nigra*) - Likes moist site, otherwise not demanding of site conditions; needs frequent pruning.

weeping willow (*Salix babylonica*) - An introduced species that does well in northern Minnesota.

linden (American basswood) (*Tilia americana*) - Tolerant of a wide range of soils but prefers well-drained soil with ample moisture; will grow on clay soils.

CONIFERS

balsam fir (*Abies balsamea*) - Needs rich, well-drained soil with adequate moisture; intolerant of hot, dry conditions.

larch/tamarack (*Larix laricina*) - Performs well on a variety of sites; tolerant of poorly drained soils and dry sites; loses its foliage each year.

white spruce (*Picea glauca*) - Tolerates a wide range of soil conditions but prefers moist, well-drained soil; likes full sun.

black spruce (*Picea mariana*) - Tolerates a wide range of soil conditions, including wet areas.

Norway pine (*Pinus resinosa*) - Needs full sun; tolerates dry, sandy acidic soils; intolerant of compacted or poorly drained soils.

eastern white pine (*Pinus strobus*) - Fast-growing species, grows well on heavy or sandy acidic soil; must be managed to prevent loss to white pine blister rust which is especially prevalent in shoreland areas; a favorite of deer and red squirrels.

northern white cedar (*Thuja occidentalis*) - Suitable for shorelines and low wet areas; very shade tolerant; a favorite of deer and rabbits.

SHRUBS

alder (*Alnus* sp.) - Likes moist, cool soil; full sun or partial shade; good for wet soil sites.

serviceberry (juneberry) (*Amelanchier* sp.) - Needs well-drained soil; full sun or moderate shade.

gray dogwood (*Cornus racemosa*) - Tolerant of a wide range of soil moisture and fertility conditions; full sun or partial shade.

red-osier dogwood (*Cornus stolonifera*) - Tolerant of a variety of soil types, but does not like hot, droughty conditions; full sun or light shade.

american hazel (*Corylus americana*) - Needs moist fertile soil; full sun or partial shade; intolerant of dry areas; squirrels and bears use the nuts.

winterberry (*Ilex verticillata*) - Needs moist, acidic soil; prefers full sun; grows well in wet soil near ponds or streams.

chokecherry (*Prunus virginiana*) - Prefers well-drained soil with ample moisture.

sumac (*Rhus typhina*) - Tolerates poor, dry soils; prefers full sun.

willow (*Salix* sp.) - Various varieties; smaller types good for stabilizing banks; pussy willows like moist soils and tolerate wet areas; prefers full sun.

viburnum (Cranberry) (*Viburnum* sp.) - Likes rich soils with ample moisture; sun or shade.

BMPs for Maintaining Shoreland Vegetation

Adding a filter strip will help preserve water quality, and there are other BMPs to follow as you care for near-shore vegetation. Follow these guidelines to help protect your lake or stream:

- Rake dead leaves and brush away from the water; compost vegetation in a sturdy structure away from the shoreline.
- Never dump leaves or vegetative debris into a lake or stream because this releases nutrients and organic acids into the water.
- Avoid burning on the beach or near shore because the remaining ash is highly alkaline and may change the pH of the lake and promote growth of undesirable plants.
- Use lake water for irrigating trees, shrubs, and lawns; lake water usually can supply the nutrients your near-shore vegetation needs to promote healthy growth.
- When treating diseases or insect pests, use chemicals responsibly and use only the required amount.

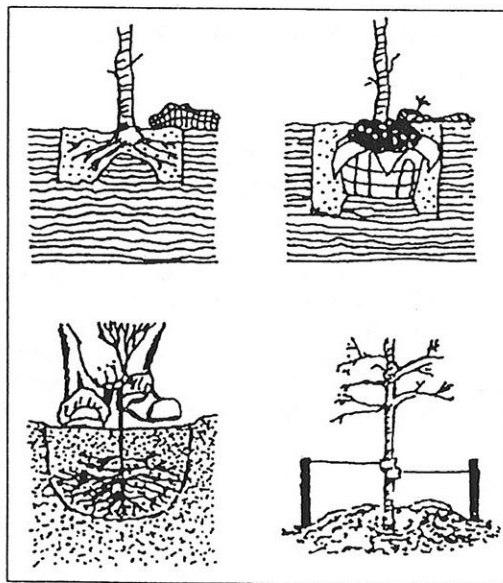


Figure 1: When planting a tree, dig a hole 1-2 feet wider than the roots, water well, and add 3-6 inches of mulch. For more specific instructions, refer to *Planting and Transplanting Trees and Shrubs* bulletin.

Encouraging Wildlife

Planting certain trees and shrubs will attract wildlife to your property and enhance your enjoyment. Keep in mind the need for shelter and habitat as well as food. Offer a diversity of plants with flowers, fruits, nuts, or cones and include deciduous as well as evergreen species. For more information, contact the MN Department of Natural Resources (DNR) Area Wildlife Manager or your county office of the University of Minnesota Extension Service.

Regulations that Apply

Filter strips are required on all new shoreland property development. The width depends on slope and lake or river classification, but the minimum requirement is 38 feet. Some local zoning ordinances may be more restrictive than the minimum state regulations, so check with your local zoning office for requirements in your area.

For More Information...

call

county offices:

- University of Minnesota Extension Service
- Soil and Water Conservation District (SWCD)

regional offices of MN State agencies:

- MN Department of Natural Resources, Division of Fish and Wildlife (DNR)
- MN Board of Water and Soil Resources (BWSR)

federal agencies:

- U.S. Forest Service (USFS)

read

Minnesota Tree Handbook. Minnesota Association of Soil and Water Conservation Districts Forestry Committee.
ISBN 0-934860-45-9

The Right Tree Handbook. University of Minnesota, Northern States Power Company, and Minnesota Power.

Fitting Trees and Shrubs Into the Landscape. Bulletin FO-0604. Available at your county offices of the University of Minnesota Extension Service.

Planting and Transplanting Trees and Shrubs. Bulletin FO-3825. Available at your county offices of the University of Minnesota Extension Service.

Tree Owner's Manual. Minnesota Department of Agriculture bulletin.

Landscaping for Wildlife. Carol Henderson, Minnesota DNR Nongame Wildlife Program.

PART OF A SERIES...

This fact sheet is one of a series designed to assist shoreland property owners in protecting and preserving water quality. The series includes:

- 1 Understanding Shoreland BMPs
- 2 Maintaining Your Shoreland Septic System
- 3 Installing a Shoreland Septic System
- 4 Ensuring a Safe Water Supply
- 5 Limiting Impact of Recreation on Water Quality
- 6 Developing Shoreland Landscapes and Construction Activities
- 7 Stabilizing Your Shoreline to Prevent Erosion
- 8 Minimizing Runoff from Shoreland Property
- 9 Caring for Shoreland Lawns and Gardens
- 10 Managing Your Shoreland Woodlot
- 11 Valuing Your Shoreland Trees**
- 12 Preserving Wetlands
- 13 Managing Crops and Animals Near Shorelands
- 14 Reducing the Use of Hazardous Household Products
- 15 Preventing the Introduction of Exotic Species
- 16 Accessing Information to Protect Water Quality
- 17 Shoreland Stewardship Scorecard
- 18 Conserving Water

This series of fact sheets is a cooperative effort of the following agencies:

University of Minnesota Extension Service of the Arrowhead counties
College of Natural Resources, University of Minnesota
Water Plan Coordinators of the Arrowhead counties
Minnesota Board of Water and Soil Resources
Minnesota Department of Health
Minnesota Department of Natural Resources, Division of Fish and Wildlife, Division of Waters, Division of Forestry
Minnesota Pollution Control Agency
Minnesota Sea Grant Extension Program
Mississippi Headwaters Board
St. Louis County Health Department, Environmental Services Division
Soil and Water Conservation Districts of the Arrowhead counties
Natural Resources Conservation Service
Environmental Protection Agency
Western Lake Superior Sanitary District

USE OF PUBLICATION...

Copyright © 1998 Regents of the University of Minnesota. All rights reserved.

These publications may be photocopied for local distribution. The addition of commercial names, products, or identifiers is not permitted. Please do not add or delete any text material without contacting:

University of Minnesota Extension Service, Distribution Center
20 Coffey Hall • 1420 Eckles Ave
St Paul, MN 55108-6069 • 612-625-8173

You may add information about contact persons or regulations specific to your county, region, or lake association.