

Maintaining Your Naturalized Shoreline

SHORELINE VEGETATION STEWARDSHIP MANUAL



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This manual is intended for landowners participating in the Natural Edge Shoreline Naturalization Program.

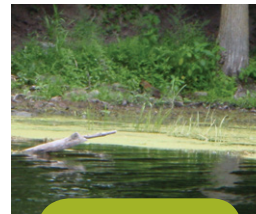
While native vegetation will be largely maintenance-free after two to five years, the first few years will require occasional watering or pruning to help the new vegetation establish. This manual provides landowners with instruction on maintaining their new vegetation to *ensure a healthy shoreline buffer for years to come.*

Restoring the *Ribbon* of Life

THE IMPORTANCE OF SHORELINE VEGETATION

Vegetation along shorelines of any body of water, including lakes, rivers, creeks, ponds, and wetlands, are buffer zones.

With changing land use and increased development along waterways, natural vegetation is often removed. With the loss of this vegetation, landowners often face undesirable consequences, including the overabundance of algae on surface water, loss of land due to erosion, or mess created by unwanted geese. These negative impacts can reduce the valuable aesthetic appeal and recreational opportunities of shoreline properties.



Overabundance
of algae on
surface water.



Loss of land
due to erosion.



Mess created
by unwanted
geese.

To help landowners address these common concerns, Watersheds Canada partnered with organizations in several regions to deliver The Natural Edge Shoreline Naturalization Program. This program encourages and assists landowners in creating or re-establishing shoreline buffers of native vegetation on properties across Ontario.

Shoreline buffers of native vegetation have several benefits for the environment and landowners. The ideal buffer width is at least 30 metres; however, any buffer is better than no buffer, and the bigger the buffer the better!

NATURAL SHORELINE BUFFERS HAVE 6 KEY BENEFITS, INCLUDING:

1. Maintaining Water Quality: Shoreline vegetation filters runoff before it enters a water body. Runoff contains pollutants and contaminants that can negatively impact water quality by altering water chemistry and providing extra nutrients that promote excessive aquatic plant growth or algae blooms. Shoreline vegetation causes surface water to slow down and infiltrate the soil layer so these pollutants and contaminants can be properly filtered.



2. Moderating Temperatures: Shoreline vegetation aids in temperature regulation during summer months on land and in water. The shade cast by plants of various sizes provides fish, wildlife, and people with relief from heat and sun exposure. Shade also reduces water evaporation from the soil, which is especially beneficial during times of drought for plants that require moist or wet conditions for survival.

3. Creating Wildlife Habitat: Shoreline environments are referred to as the ribbon of life. Over 70% of land-based wildlife and 90% of aquatic life depend on shorelines during some point in their life. These areas are used by reptiles, amphibians, fish, birds, insects, and mammals for mating, rearing young, food, shelter, and protection from predators.



4. Mitigating Flood Frequency and Impacts: Buffers can help reduce flooding by slowing the velocity of surface runoff and allowing it to be absorbed into the ground. When water is absorbed into the ground, it becomes groundwater and enters the water body much slower than surface water. This reduces the amount of surface water draining directly into a water body, thereby lessening the potential for flooding overland, and allowing the water body to more easily regulate water levels naturally.

5. Reducing Erosion: Diverse shoreline vegetation creates a vast network of underground roots, which holds soil in place, stabilizing shorelines against slumping and washing away. While the roots hold soil in place underground, leaves aboveground reduce the flow and impact of rain and surface water on the soil surface, and also reduce the severity of wave action from water currents and boat wake along the shoreline.



6. Maintaining or Increasing Property Values: Natural shorelines can protect property values from decreasing due to loss of land, wind or water damage, and poor water quality. The appeal of waterfront views and access are important, but buffers can be created or maintained to keep sightlines and access points to the water, while also positively contributing to shoreline protection, wildlife habitat, and water quality.



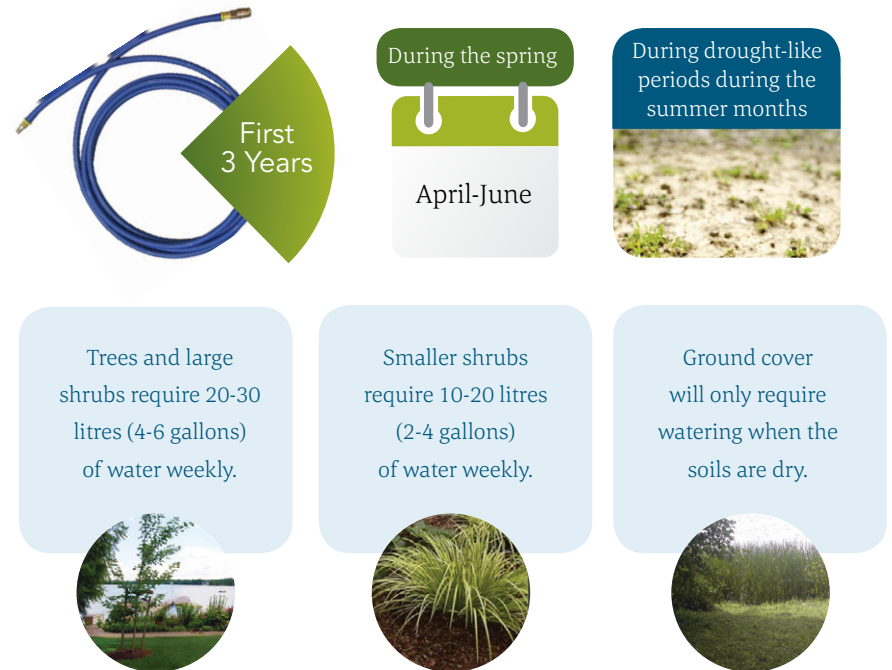
MAINTAINING HEALTHY, NATURAL SHORELINES

Native vegetation is naturally suited to withstand the climate, soil types, and environmental conditions of local and regional areas.

Some vegetation is native to wide expanses of land, even across continents, while other vegetation is suited to specific climate, soil, or hardiness zones. The new vegetation planted on your property is native and was chosen because it is appropriate for the soil, light, and drainage conditions determined during the site visit.

WATERING

Your new shoreline vegetation should be watered for:



The best method for watering trees and shrubs is at the base of the trunk or main stems, early or late in the day. This will ensure water reaches the roots before evaporating from the surface, and will limit surface runoff. During times of considerable rain, weekly watering may not be necessary.

Summer watering is only required during periods of drought when all trees and shrubs should receive between 30-40 litres (6-8 gallons) of water weekly.

Observable signs of drought can include: small, yellow or brown leaves, drooping leaves, loss of crown leaves, and blistering or cracking bark.

MULCHING

Mulch plays an important role to the successful establishment of new shrubs and trees.



Natural
Mulch

Mulch helps new plants to establish by:

- Suppressing unwanted weeds that could compete with new shrubs and trees;
- Reducing water evaporation from the first few inches of soil, thereby maintaining soil moisture;
- Providing valuable nutrients to the new plants; and,
- Insulating and protecting roots from extreme effects of heat and cold.

Spring is the best time to re-mulch trees and shrubs, if required. Old mulch should be removed before new mulch is placed, or can be mixed together instead of layered. When initially placing mulch, it should cover the spread of the roots underground. When adding mulch, it should extend as far out as the bottom branches of the shrub or tree, with a depth of 5-10 centimetres (2-4 inches). The mulch should form a conical shape, being thicker at the perimeter to funnel water inward to the base of the trunk or main stems. However, the mulch should not touch the trunk or main stems to avoid rotting at the base of the plant.

Mulch can be made out of wood chips, leaf mould, hemp, compost, or a mix of any of these materials. When purchasing mulch, be sure that it is partially composted. If mulch is too fresh, it can remove nitrogen from the soil during its decomposition process. Ideally, mulch should be decomposing for at least six months prior to being placed around plants.



Hemp Mulch

Compost
Mulch

Leaf Mould
Mulch

PRUNING

Pruning is a technique used to help support the growth of trees and shrubs.

Most native shoreline vegetation will require little to no pruning at all. However, some pruning may be desirable to maintain sightlines or access to the water or to keep the plant healthy.



WHAT TO PRUNE

Branches that are dead, diseased, or damaged should be removed to protect the plant from further health risks. If necessary, branches can also be removed to thin a shrub if it has obstructed pathways or sightlines to the water. It can be helpful to observe a shrub or tree throughout all seasons to get a better idea of which branches to be removed without compromising the natural shape of the plant.

Some shrubs and trees produce suckering branches that emerge from underground roots near the trunk or base of the main stem of the plant. Some suckers can be desirable, as they aid in stabilizing and naturalizing a shoreline. However, some suckers can be undesirable or limit the nutrients reaching the canopy layer of the main shrub or tree and should be pruned to ensure the main plant does not die off.

WHEN TO PRUNE

Pruning can cause stress to trees and shrubs, and should therefore only take place during the dormant season, usually between late fall and early winter. This will minimize sap loss and the threat of fungal or insect infestations. Leaf loss in the fall is a good indicator that a plant has entered dormancy. The loss of leaves also helps access the branches easier. Dead branches can be removed at any time.

However, some shrubs, usually those that flower, should be pruned in the early spring before the buds emerge, or after the flowers have died. Removing the dead flowers can help the shrub leaf out nicely by encouraging nutrients to access the leaves.

HOW MUCH TO PRUNE

For both shrubs and trees, pruning should be done as little as possible; often no pruning is necessary at all.



Pruning should never remove more than 25% of the crown of the shrub or tree. This will reduce its vulnerability to fungal or insect infestation. Branches should compose at least two-thirds of the shrub or tree, to ensure that the vegetation has enough mature leaves to support growth and survival.

Once shrubs begin to show signs of aging, rejuvenating pruning can be done to encourage new growth to emerge. Gradual rejuvenation involves removing old growth by one-third every year until all old growth has been removed. Complete rejuvenation involves cutting the entire shrub back until just the stump remains, about 15-25 centimetres (6-10 inches) above the ground.

HOW TO PRUNE

Pruning removes unwanted branches while protecting the trunk and other branches from damage or disease.

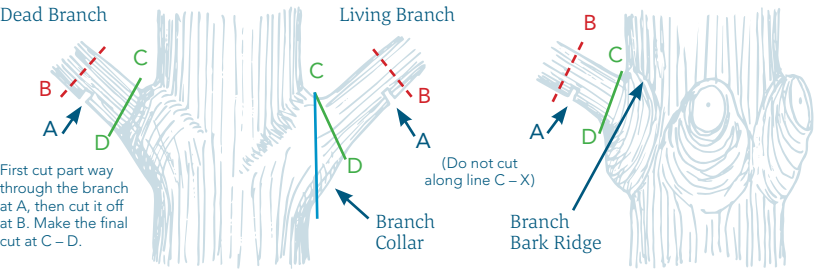
Proper pruning technique will ensure the survival and health of plants while minimizing susceptibility to fungal or insect infestation. Before pruning begins, the entire shrub or tree should be looked at to determine the right branches to trim. Cuts should be made on the branch that is to be removed at the branch collar. Pruning at the branch collar reduces the risk of unwanted damage and infestation, and allows for faster healing.

Tools and materials required to successfully prune shrubs and trees can include: pruning shears, a hand saw, step stool or ladder, gloves, eyewear protection, a bucket, and tool cleaning solution. Infection and disease can spread from plant to plant via pruning tools. Be sure to clean tools after every tree or shrub before starting on another one. Possible disinfecting solutions can include one part bleach, dish soap, or pine oil cleaner in three parts water.

To successfully prune shrubs and trees without tearing bark or splitting wood, and to limit infection or infestation, follow these steps:

- 1 Determine which branches to cut before starting to prune.
- 2 Make a wedge shape cut, roughly one-quarter of the branch diameter, on the underside of the branch, and approximately 12 cm (5 inches) from the branch collar. This wedge-cut is not intended to remove the branch.
- 3 Approximately 20-30 cm (8-12 inches) away from the branch collar, further than the wedge-cut, cut the branch completely, starting at the topside of the branch. This will leave a branch stub with the initial wedge cut.
- 4 Cut off the stub by cutting parallel to the branch collar. Do not cut the collar. Cutting the collar can damage the tree or shrub by increasing healing time and susceptibility to infection.

PROPER PRUNING PRINCIPALS



HARDWOODS

CONIFERS

PLANT SPECIFIC PRUNING REQUIREMENTS

The following table lists shoreline vegetation species you may have on your property, and the pruning requirements each species may require.

Species	Vegetation Type	Potential Pruning Requirements
American Mountain Ash (<i>Sorbus Americana</i>)	Tree	Limited Suckers
Bearberry (<i>Arctostaphylos uvaursi</i>)	Groundcover	None
Black Cherry (<i>Prunus serotina</i>)	Tree	Limited Suckers
Black Chokeberry (<i>Aronia melanocarpa</i>)	Shrub	Spring pruning; Gradual rejuvenation
Black Elderberry (<i>Sambucus nigra</i>)	Shrub	Spring pruning; Gradual rejuvenation

Species	Vegetation Type	Potential Pruning Requirements
Black Willow (<i>Salix nigra</i>)	Tree	Limited
Bracken Fern (<i>Pteridium aquilinum</i>)	Groundcover	None
Balsam Fir (<i>Abies balsamea</i>)	Tree	Limited
Bur Oak (<i>Quercus macrocarpa</i>)	Tree	Limited; Suckers
Bunchberry (<i>Cornus canadensis</i>)	Groundcover	None
Buttonbush (<i>Cephalanthus occidentalis</i>)	Shrub	Fall pruning; Complete rejuvenation
Chokecherry (<i>Prunus virginiana</i>)	Shrub	Fall pruning; Gradual rejuvenation
Christmas Fern (<i>Polystichum acrostichoides</i>)	Groundcover	None
Climbing Prairie Rose (<i>Rosa setigera</i>)	Shrub	Spring pruning; Complete rejuvenation
Common Polypody (<i>Polypodium virginianum</i>)	Groundcover	None
Eastern Red Cedar (<i>Juniperus virginiana</i>)	Tree	Limited; Shape
Gray Dogwood (<i>Cornus racemosa</i>)	Shrub	Fall pruning; Complete rejuvenation
Hemlock (<i>Tsuga canadensis</i>)	Tree	Limited; Shape
Bush Honeysuckle (<i>Diervilla lonicera</i>)	Shrub	After flowering; Gradual rejuvenation
Eastern White Cedar (<i>Thuja occidentalis</i>)	Tree	Limited; Shape

Species	Vegetation Type	Potential Pruning Requirements
Highbush Cranberry (<i>Viburnum trilobum</i>)	Shrub	After flowering; Complete rejuvenation
Ninebark (<i>Physocarpus opulifolius</i>)	Shrub	Spring pruning; Complete rejuvenation
Saskatoon Serviceberry (<i>Americanchier alnifolia</i>)	Shrub	Fall pruning; Gradual rejuvenation
Silver Maple (<i>Acer saccharinum</i>)	Tree	Limited; Suckers
Snowberry (<i>Symphoricarpos albus</i>)	Shrub	Fall pruning; Gradual rejuvenation
Sugar Maple (<i>Acer saccharum</i>)	Tree	Limited; Suckers
Swamp Rose (<i>Rosa palustris</i>)	Shrub	Spring pruning; Complete rejuvenation
Paper Birch (<i>Betula papyrifera</i>)	Tree	Limited; Suckers
Sweet Woodruff (<i>Galium odoratum</i>)	Groundcover	None
Meadowsweet (<i>Spiraea alba</i>)	Shrub	Fall pruning; Gradual rejuvenation
Virginia Creeper (<i>Parthenocissus quinquefolia</i>)	Groundcover	None
White Oak (<i>Quercus alba</i>)	Tree	Limited; Suckers
Nannyberry (<i>Viburnum lentago</i>)	Shrub	Fall pruning; Gradual rejuvenation
Red Maple (<i>Acer rubrum</i>)	Tree	Limited; Suckers

Species	Vegetation Type	Potential Pruning Requirements
Winter Green (<i>Gaultheria procumbens</i>)	Ground Cover	None
Witch Hazel (<i>Hamamelis virginiana</i>)	Shrub	After flowering; Gradual rejuvenation
Red Oak (<i>Quercus rubra</i>)	Tree	Limited; Suckers
Red Osier Dogwood (<i>Cornus sericea</i>)	Shrub	Fall pruning; Complete rejuvenation
Staghorn Sumac (<i>Rhus typhina</i>)	Shrub	Spring pruning; Gradual rejuvenation
Sweet Gale (<i>Myrica gale</i>)	Shrub	Fall pruning; Gradual rejuvenation
Tamarack (<i>Larix laricina</i>)	Tree	Limited; Shape
White Pine (<i>Pinus strobes</i>)	Tree	Limited; Shape
White Spruce (<i>Picea glauca</i>)	Tree	Limited; Shape
Wild Raisin (<i>Viburnum cassinoides</i>)	Shrub	Fall pruning; Gradual rejuvenation



For more information contact:

Courtney Allison
Watersheds Canada
613-264-1244
allison@watersheds.ca



Watersheds
C A N A D A

Watersheds Canada is a federally incorporated non-profit organization and registered Canadian charity committed to providing programs in communities across the country to engage and help shoreline owners enhance and protect the health of lakes and rivers.

www.watersheds.ca

Photography by Simon Lunn

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