

EXTENSION NOTES



RESTORING SHORELINES WITH WILLOWS

Once common along the shores of Ontario's lakes and rivers, willows are an ideal native plant for restoring degraded shorelines to a more natural state. Restoration of our waterfront is important because natural shorelines protect water quality, prevent erosion and provide habitat for wildlife.

This Extension Note provides information on how to plant willows along shorelines.

GETTING STARTED

Rehabilitating a waterfront requires time, research and careful planning.

Start by contacting the Ministry of Natural Resources office in your area. Staff can provide specific information about how to restore your site, as well as details concerning the laws and regulations governing shorelines.

You should also visit an existing natural shoreline in your area. Looking at its shape and native plant species will tell you a lot about what to expect from your own waterfront.

WHY WILLOWS?

There are more than 75 varieties of willow in North America. Most grow no bigger than a shrub.

Willows are an ideal choice for the first stage of a shoreline rehabilitation program because:

- they thrive in damp, boggy soil common along riverbanks and flood plains
- they can be reproduced from whips or cuttings
- they grow quickly (most willows are mature enough to reproduce in only four years)
- their extensive root systems anchor soil together along fragile river banks
- their stems slow the velocity of flood waters and winds, reducing soil erosion



Willows stabilize fragile shorelines, reducing soil erosion and flood damage.

WHERE TO GET WILLOWS

Willows are available from the Ministry of Natural Resources' tree nurseries, private nurseries and from non-profit organizations, such as the Mutual Association for the Protection of Lake Environments in Ontario Inc. (MAPLE).

Depending on available stock, you may be able to choose from the tree-sized, peach-leaved willow or the shrub-sized willow (*Salix eriocephala*), slender willow (*Salix petiolaris*) and pussy willow (*Salix discolor*).

For information about MNR's tree nursery stock, call your local ministry office. To get in touch with MAPLE, an organization dedicated to the preservation and restoration of natural shorelines, write to:

MAPLE Inc.
P.O. Box 271
Perth, Ontario
K7H 3E4

SITE PREPARATION

The best sites for willow have a slope less than 2:1 (see Figure 1.) When a river bank has a higher slope or when it has been damaged by construction, farm machinery or livestock, grade the area to achieve the right slope and repair the damage.

If willows can't be planted immediately after grading, plant grasses or clover to stabilize the area and prevent soil erosion until willows or other native shrubs are available.

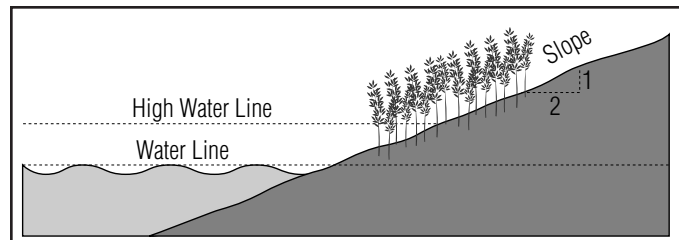


Figure 1 — Willows grow best when the river bank slope is about 2:1 (twice as long as it is high).



Wave action and flooding can erode shorelines that are not protected by natural shoreline plants.

PLANTING

Willows should be planted in the spring.

Plant rooted willow cuttings in rows, parallel to the waterway and 0.75 to one metre apart. A minimum of three rows is desirable. Rows should be staggered (see Figure 2). Plant the first row just below the high water mark of a river or lake.

Caution should be used when planting in natural ditches or pathways. Willows may stop or slow the flow of water through these drainage areas which could result in flooding upstream.

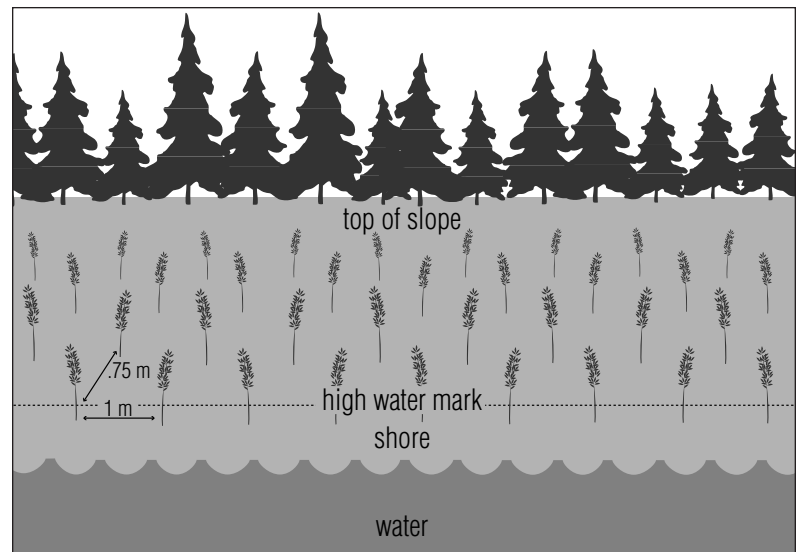


Figure 2 — Plant the lowest row of willows just below the high water mark of a stream, river or lake.



Plant the lowest row of willows just below the high water mark of a stream, river or lake.

MAINTENANCE

PRUNING

In November, after one growing season, the plants can be pruned back to five centimetres above the surface. This encourages coppicing (a spreading out of the shrubs), which improves their ability to prevent erosion.

WEEDING

In the early stages of shoreline rehabilitation, the amount of ground cover is more important than the quality. However,

if weed control is needed to enhance the growth of the willows, hand tending is best. A mulch can also be used, but only on the higher areas of the bank where it won't be carried away by spring floods. Herbicides should never be used, particularly in sensitive shoreline areas.

THINNING

Planting willows close together helps to produce immediate benefits. However, some thinning may be

needed as the plants grow. Ideally, you should strive to create a 50-50 mix of sun and shade over the water's surface. Cool water is not only vital to fish survival and spawning, but it also discourages the growth of

undesirable algae and aquatic plants. If new willow growth threatens to overshadow the shoreline entirely or if there are large gaps in the cover, you may need to thin the growth or to fill in the gaps with new plants.

PLANNING FOR THE FUTURE

Planting willow shrubs is the first step in rehabilitating a shoreline. When native grasses and clovers are added, an effective ground cover can be produced in as little as one season. However, healthy shorelines are complex. What they need most is time. Given the opportunity, nature will take over, creating habitat for countless plants, insects, birds and mammals.



Rooted willow cuttings are available from MNR tree nurseries, private nurseries and MAPLE — the Mutual Association for the Protection of Lake Environments in Ontario Inc.

Produced by the Land Owner Resource Centre and the Ontario Ministry of Natural Resources' Southern Region Science and Technology Transfer Unit.

