

# EXTENSION NOTES



## EASTERN WHITE CEDAR

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Eastern white cedar is one of Ontario's most valuable trees for wildlife habitat. Also known as "arborvitae" or "tree of life," it provides shelter and food to deer, small mammals and many species of birds. With its dense, evergreen foliage and cone shape, white cedar is a beautiful landscaping tree and a popular choice for hedges and windbreaks. We also value white cedar wood for its resistance to decay and its distinctive aroma. This Extension Note provides information on identifying and managing white cedar.

### THE USES OF EASTERN WHITE CEDAR

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Aboriginal people used the leaves to treat scurvy. Today, we use cedar leaf oil in medicines and perfumes.

White cedar wood is light, soft, brittle, uniform in texture and comparatively weak. Because it is resistant to rot, we use it for posts, cedar-strip canoes, shingles and other structures that are exposed to water or soil. We also use white cedar for cabin logs and particle board. The heartwood is light brown with a tinge of red. Rows of white cedar are effective windbreaks for sheltering homes, farm buildings, roads, crops and livestock. White cedar is also one of the best tree species for protecting soil from erosion and for stabilizing stream banks and lake shores.

During severe winters, white-tailed deer live in the shelter of white cedar stands. Here they feed on the leaves which are one of their favorite foods. Small mammals, like snowshoe hares, porcupines and red squirrels, also rely on white cedar for food and shelter. Many species of birds use white cedar groves in the summer. Among them are white-throated sparrows, hermit thrushes and several warblers, including the yellow-rumped, the black-throated green, the black and white and the Nashville warblers. Pileated woodpeckers create cavities in mature white cedar trees to feed on carpenter ants.

Mature white cedars provide seeds for birds and squirrels. Seedlings, saplings and young trees provide the most food for deer and small mammals, which feed on both the leaves and the bark.



## IDENTIFYING EASTERN WHITE CEDAR

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### TREE SHAPE

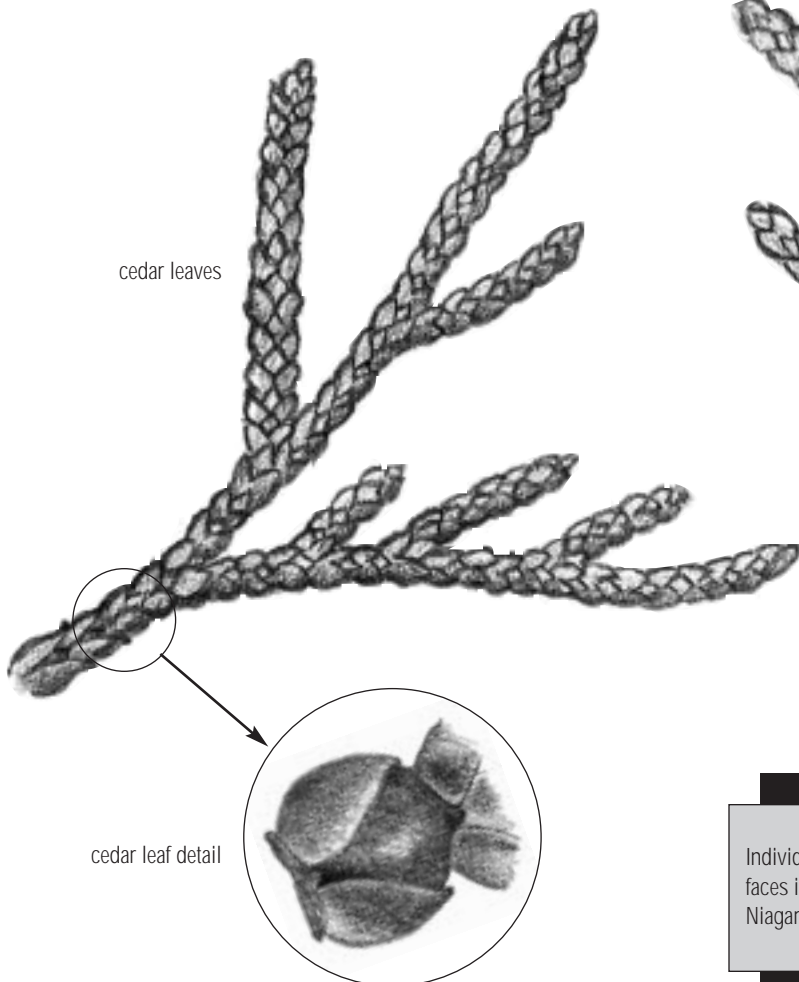
White cedars have a narrow cone shape. When they grow in open areas, the dense foliage extends almost to the ground. When they grow in forests, they can lose their bottom branches on up to half the trunk. The branches bend slightly downward near the trunk and arch upward near the tips.

### TREE SIZE

Eastern white cedar is a medium-size tree. Mature trees are about 12 to 15 metres tall and 30 to 60 centimetres in diameter. The largest trees are more than 30 metres tall and 80 centimetres in diameter. Eastern white cedars growing in swamps and other lowland sites can live for 400 years.

### LEAVES

The leaves are flat, tiny, yellowish-green and dull, with conspicuous oil-filled glandular spots. They are four to five millimetres long.



### BUDS

There are no visible buds on the twigs.

### BARK

The bark is thin and reddish brown. On young trees, it is smooth and thin. On mature trees, it forms narrow, flat ridges and shreds into thin strips that hang off the tree.

### CONES

The tiny, inconspicuous cones are seven to 12 millimetres long and grow in clusters. The seeds ripen and disperse in early autumn but the cones may stay on the branches for several months.



Individual trees of up to 800 years old have been found growing on cliff faces in various locations in Ontario, such as the limestone cliffs of the Niagara Escarpment.

## WHERE EASTERN WHITE CEDAR GROWS BEST

### SPECIES RANGE

White cedar is found throughout southern Ontario and northward to the southern part of James Bay, where the Boreal forest begins changing to tundra.

### SOIL

White cedar grows on a wide variety of soils, ranging from sphagnum bogs, which are common in northern Ontario, to limestone plains in southern Ontario. It grows best in moist, well-drained soil over limestone bedrock, where the water is not too acidic. In sphagnum bogs, it grows more slowly than in other areas. In limestone areas, white cedar often grows in pure stands in old fields and pastures. The species is ideally suited to grow in shallow soil because it can tolerate periodic floods and short periods of droughts.

### SHADE OR SUNLIGHT?

White cedar functions like a shade-intolerant plant when it reproduces sexually through seeds, because its seedlings develop best in sunny conditions. White cedar functions like a shade-tolerant plant when it reproduces vegetatively through the layering of shoots from its branches and stems. This kind of growth develops best in partial sunshine. It is common in sphagnum bogs and swampy areas. As the seedlings and shoots grow older, they need at least partial sunlight to thrive.

### STAND COMPOSITION

In moist areas, white cedar is commonly found with eastern white pine, yellow birch, eastern hemlock, silver or red maple, black ash and white elm. In sphagnum bogs, it is often found with black spruce and tamarack. On drier sites it can often form dense, pure stands.

RANGE OF EASTERN WHITE CEDAR IN ONTARIO



## MANAGING STANDS OF EASTERN WHITE CEDAR

Eastern white cedar can be managed effectively by using the shelterwood silvicultural system or patch cutting. For more detailed information, see Extension Note *Choosing a Silviculture System*.

The shelterwood method involves a series of partial cuts that allows for the natural regeneration of cedar while permitting the harvest of mature merchantable trees. A preparatory cut is completed first to promote the development of the crowns of the trees left on the site and encourage seed production. A reproduction cut should follow about ten years after the preparatory cut. The reproduction allows more light to reach the seedlings on the forest floor. The removal cut should be completed

when the seedlings are well established, usually 10 to 15 years after the preparatory cut. All the merchantable trees are then harvested.

Patch cutting involves the harvest of all trees in a series of clearcuts made in small patches or blocks of 20 to 30 metres square. No trees should be removed from the uncut areas. The cutover areas will regenerate from seeds of the adjacent uncut areas. The next set of patches can be harvested when the regeneration of the cut areas are growing well above the surrounding vegetation. This can be as early as 25 years on good sites.

White cedars are hardy trees. In most areas, they can maintain themselves without your help. However, managing a pure or mixed stand can increase wildlife habitat for deer and other wildlife species, as well as the quality and quantity of cedar wood products you can harvest from the site.

The following guidelines will help you improve wildlife habitat in a white cedar stand.

- Provide separate areas for mature and young growth, which offer different types of habitat for wildlife.
- If you have a mixed stand, cut some of the hardwoods to provide space for eastern white cedar, hemlock and

spruce to grow. Together, these three species provide excellent winter habitat for wildlife.

- If balsam fir dominates the understorey, harvest all the trees of this species. If they remain, they will eventually dominate the stand and inhibit the reproduction and growth of cedar and hemlock.
- Protect all white cedar trees that are growing along streams, rivers or lakes. By preventing erosion and cooling the water, they help to maintain water quality and aquatic life.

Careful logging practices should be followed to protect the future crop of cedar seedlings.

## KEEPING EASTERN WHITE CEDAR HEALTHY

White cedar is susceptible to drought, salt-damage, animal-browsing in winter and flooding caused by beaver damming or road construction. Compared to other tree species, it is relatively free of insect pests and diseases. The most common insect pests are carpenter ants and leafminers. When white cedar foliage withers and turns brown, one of five species of leafminers could be the cause. However, drought or production of a heavy cone crop can cause similar symptoms.

Cedar leafminers feed on the leaves, beginning on the outside of the tree and working their way toward the trunk. To check for leafminers, hold a leaflet up to the light and look for feeding tunnels. Feeding causes the leaves to turn yellow and later brown. Most trees infested with leafminers recover. Trees can lose up to 80 per cent of their leaves to leafminers and survive. Unless a tree is severely infested, there is no need to control this pest. Natural controls, such as parasites, will eventually reduce the leafminer population.

The following Extension Notes will assist you to grow and care for eastern white cedar:

- *Choosing a Silviculture System*
- *Cedar Leafminer*

For further reference:

- Schaffer, W.W. 1996. *Silvicultural Guidelines for the Eastern White Cedar*. Ontario Ministry of Natural Resources, Southern Region Science and Technology Transfer Unit Technical Report TR-006. 62 p.

For more information contact:

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