



🌿 PREVENTION FROM INFECTION

Pruning, sanitation and watering

- Prune dead, dying and rubbing branches to remove elm bark beetle habitat outside the pruning ban period of April 1 to August 31. Be sure to dispose of pruned branches by either burning or burying the wood to a minimum depth of 20 centimeters of top soil.
- Water the tree during drought periods and avoid mechanical damage to the roots, trunk and branches of the tree.

DED Surveys

- Regularly monitor your elm trees on your property and neighbouring properties for symptoms of DED. If your community is not currently completing a DED survey, then encourage it to start!

Basal Spraying

- Elm bark beetle basal spraying using insecticides has been known to be effective for beetle population management. This work must be completed by a licensed pesticide applicator. The bottom 1 to 1.5 meters of the tree are sprayed with an insecticide in the late summer or early fall. Elm bark beetles that burrow through this area to overwinter get the insecticide on their bodies and then die soon after.

🌿 OTHER FOREST HEALTH AGENTS THAT CAN AFFECT ELMS

- Dothiorella and Verticillium wilts are 2 other fungal diseases that can be found in American elm trees in Saskatchewan. Symptoms include wilting leaves, staining in the vascular tissue and mortality of the trees. Dothiorella can be managed by pruning if diagnosed early.
- Bacterial wet wood/slime flux is a common condition found on deciduous tree species and is caused by bacteria infecting wounds or pruning cuts on the trees. This disease can affect the structural integrity and vigour of the tree. Be sure to remove branches that are severely affected in the spring.
- Insect infestations by cankerworm or forest tent caterpillars can affect the health of your elm trees due to severe defoliation. The more stress the tree sustains, the higher the likelihood it will attract elm bark beetles carrying the DED fungus.



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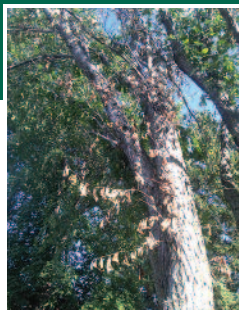
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🌿 DUTCH ELM DISEASE





DED HISTORY

- This disease was first introduced to eastern Canada in about 1940. Since then it has spread westward via firewood movement and regionally by elm bark beetle flights and root grafting.
- Dutch elm disease (DED) was first diagnosed in Saskatchewan in 1981. Since then it has moved westward and become endemic throughout many municipalities in the Souris, Qu'Appelle, Saskatchewan, Red Deer and Assiniboine River watersheds.
- Many municipalities have slowed the spread by employing comprehensive management programs.

WHAT IS DED?

- DED is a fungal disease caused by the pathogenic sac fungus *Ophiostoma ulmi* or the more virulent strain *Ophiostoma novo-ulmi* that grows within and inhibits the function of the vascular tissue in American elms and on occasion Siberian elm trees.
- The infection results in death of elm trees within a few weeks to several years.

SYMPTOMS OF DED

- Early season symptoms include green wilted leaves (June).
- As the disease progresses the leaves turn yellow and then brown and curled.
- As the fungus grows and spreads within the vascular tissue of the tree, the wilting symptoms continue to spread throughout the canopy.
- The tree may also shed its leaves prematurely or if infected the previous year, may not flush out leaves at all the following season.
- The vascular tissue of a DED infected elm tree, when viewed in cross-section, may have brown staining within it.

VECTORS OF DED

- DED fungal spores are spread by three main vectors: elm bark beetles (Native and smaller European elm bark beetles), root grafts between adjacent elm trees and by unsterilized pruning tools.
- Firewood movement by residents can transport diseased wood and also elm bark beetles to new areas within the province. It is against the law to move elm wood without a permit.



DO YOU HAVE AN ELM ON YOUR PROPERTY?

- American elm trees (*Ulmus americana*) are a large, native shade tree species found throughout Canada. They are a hearty species that can withstand the harsh growing conditions of Saskatchewan.
- The leaves of the American elm have asymmetrical bases, are dark green in colour, oval shaped and rough to the touch and have double toothed margins. The buds alternate on the branchlets.
- The bark on mature trees is deeply ridged with diamond-shaped grooves that can be grey to brown in colour.
- The growth form of these large shade trees can be either umbrella or vase shaped.

