

DOGWOOD ANTHRACNOSE (*DISCULA DESTRUCTIVA*) IN ONTARIO

INTRODUCTION:

Dogwood (*Cornus* sp.) trees in Canada and the U.S. have periodically suffered from an unusual amount of unexplained dieback and mortality since the mid-1970s. In 1988, Hibben and Daughtrey demonstrated that a fungus in the genus *Discula* was the responsible agent. In 1991 S.C. Redlin fully described and identified the anthracnose disease as *D. destructiva*. The origin of the disease is unknown; it is widely considered to be an introduced or exotic fungus. Another possibility is that a change in the environment may have altered host parasite relationships, enabling a previously innocuous fungus to become a significant pathogen. The disease kills dogwoods of all sizes, but is most severe on young seedlings and in understory forest trees. Infection is most likely to occur during cool, wet weather in spring and fall, but can occur at any time during the growing season. Drought and winter injury appear to increase host susceptibility.

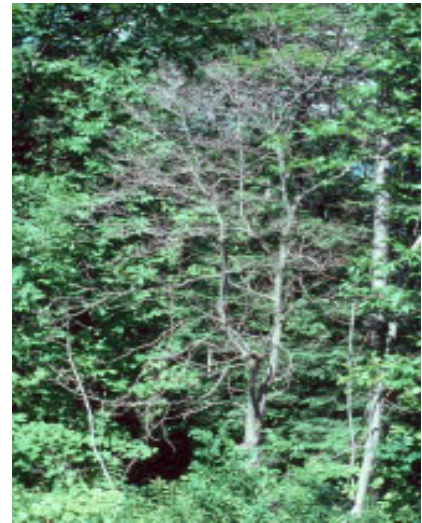


Eastern Flowering Dogwood

LOCATION:

Dogwood anthracnose has been reported affecting both eastern flowering dogwood (*C. florida* L.) and Pacific dogwood (*C. nuttallii* Audub.). Symptomatic infections have been reported on Pacific dogwood from Washington, Oregon, and Idaho in the western United States and from British Columbia in western Canada. In the east, infections have been reported on eastern flowering dogwood in Massachusetts, Connecti-

cut, New York, New Jersey, Pennsylvania and Delaware. Recently the disease has been detected in Maryland, Virginia, West Virginia, North and South Carolina, Tennessee and Georgia. The presence of dogwood anthracnose has been suspected in Ontario since the mid-1990s. The disease was confirmed in 1998 from a sample collected in South Walsingham Township in southwestern Ontario.



Severely infected Eastern Flowering Dogwood

The sample was collected from an area that had experienced a severe drought for several years and the trees had been showing symptomatic signs of the disease.

The range of eastern flowering dogwood in Ontario is limited to a narrow band in Southwestern Ontario, extending from the south eastern shore of Lake Huron, south eastward to the west end of Lake Ontario. The heaviest concentration of the host occurs in a narrow sandy plain along the north shore of Lake Erie.

Initial symptoms of dogwood anthracnose are found on the leaves in the lower portion of the crown, progressing upward throughout the tree. Tan colored leaf spots, that often develop a purple border between the dead and healthy leaf tissue, coalesce into large blotches. These spots may fall out leaving shot holes. Infected leaves may also develop necrotic vein and leaf margins. Heavily infected leaves may drop prematurely, or cling to the twigs



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long after normal leaf fall. Infections often grow down the leaf petioles to the shoot developing brown elliptical cankers on the shoots and branches. Multiple cankers can girdle and kill individual branches. Twig mortality may also occur as a result of direct shoot infection in either the spring or fall. Heavy twig dieback results in the development of epicormic branching on the lower trunk and main branches. These succulent shoots are very prone to infection and the disease quickly progresses back into the main stem, killing the entire tree. Bracts may



Dogwood anthracnose leaf infection

be infected when flowering occurs during wet periods.

MANAGEMENT IMPLICATIONS:

Several years of infection have resulted in extensive mortality in both woodland and ornamental eastern flowering dogwoods. At an ecological monitoring site in

Backus Woods, South Walsingham Township, a mortality rate of 46% was recorded on a 70 tree plot from 1995 to 2000 (B. Craig, MOE, personal communication). Unchecked, Dogwood anthracnose has the capability

to destroy most of the eastern flowering dog-wood in Ontario within the next five to ten years. Unchecked, Dogwood anthracnose has the capability to destroy most of the eastern flowering dog-wood in Ontario within the next five to ten years.

SOURCES OF RELEVANT INFORMATION:

Hibben, C.R; Daughtrey, M.L. 1988. Dogwood anthracnose in northeastern United States. *Plant Dis.* 72: 199-203

Knighten, J.L; Anderson, R. L. 1993. Distribution of dogwood anthracnose in the southeastern United States. USDA Forest Service FPM Rep. 93 - 1 - 30. 11 p.

Redlin, S.C. 1991. *Discula destructiva* sp. Nov., cause of dogwood anthracnose. *Mycologia*, 83 (5): 633-642

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