

# DOTHISTROMA NEEDLE BLIGHT OF PINES IN BRITISH COLUMBIA

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During 1963 a foliage disease seriously affected several species of exotic pines on Vancouver Island (Molnar, 1963). In the spring of 1964, the organism responsible was identified as *Dothistroma pini* Hulbary<sup>2</sup>. Subsequent random surveys have shown the disease to be widespread throughout British Columbia on three native pines (Table 1), and present on six species of exotic pines grown on Vancouver Island (*Pinus radiata*, *P. muricata*, *P. pinaster*, *P. nigra* var. *calabrica*, *P. contorta* x *banksiana*, and *P. echinata* x *taeda*).

*Dothistroma pini* was described in 1941, although Thyr and Shaw (1964) traced the fungus under the name *Actinothyrium marginatum* to a collection made from ponderosa pine in Idaho in 1917. The fungus is now reported to occur on exotic pines grown in Britain (Murray and Batko, 1962), East Africa (Gibson *et al.*, 1964), and in the midwestern United States (Hulbary, 1941; Rogerson, 1953, 1954; Peterson, 1965). Thyr and Shaw (1964) divided *Dothistroma pini* into two varieties, var. *pini* and var. *linearis*, on the basis of the size of conidia and stromata. All collections from British Columbia fit the description given for the larger spored variety, *linearis*, although the spore length upper limit was 64 microns rather than 42 microns.

The first obvious symptom of the disease is the appearance of small chlorotic areas on infected needles during the fall, followed by larger areas of necrosis. In spring, bright red bands are apparent in the necrotic areas and shortly thereafter the small black fruiting bodies of *Dothistroma pini* rupture the dead epidermis. Infected needles are usually cast in the summer and fall but severe-

TABLE 1  
NUMBER AND LOCATION OF *Dothistroma pini* COLLECTIONS

Species	Collections	
	Number	Location by Forest District
<i>Pinus contorta</i>	16	Kamloops, Nelson, Prince George, Prince Rupert, Vancouver
<i>P. monticola</i>	6	Kamloops, Nelson
<i>P. ponderosa</i>	4	Kamloops, Nelson, Prince Rupert, Vancouver

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ly attacked *Pinus radiata* may retain dead needles for 1 or 2 years. Needles of all ages are susceptible, although the older needles are usually more severely infected. Heavily infected trees have a scorched appearance with healthy needles concentrated at the outer ends of branches or near the tops.

Trees under 10 years of age appear most susceptible but infected lower branches of 16-year-old lodgepole pine and 31-year-old ponderosa pine have been found. In natural stands of lodgepole pine on southern Vancouver Island and near Cinema, in the southern part of the Prince George Forest District, death of a number of 4- to 5-year-old trees and a reduction in diameter growth of 10-year-old trees were attributed to repeated attacks by the fungus. However, only 1 to 2 acres in each of the two areas were heavily infected. In other areas where collections from native pines have been made, infection was relatively light. Mortality of 7- and 8-year-old *P. radiata* in eight small plantations on Vancouver Island averaged 60% in 3 years, with all trees being killed by the disease in one 7-acre plantation. In the same area mortality of *P. muricata* averaged 13%.

Gibson *et al.* (1964) listed 27 species of pine known to be susceptible to the disease, *P. radiata* being the most susceptible. Native pines listed are *P. contorta*, *P. flexilis*, *P. monticola*, *P. ponderosa*, and *P. strobus*. Until more is known of the conditions required for infection, the planting of exotic pines susceptible to *Dothistroma pini*, particularly *P. radiata*, within the range of susceptible native pines involves considerable risk.

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