

TECHNICAL NOTE

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BUTTERNUT CANKER - A FIRST RECORD FOR NEW BRUNSWICK

Introduction

Butternut (*Juglans cinerea* L.) in New Brunswick is at the northeastern limit of its natural range where it grows along the fertile valleys of the Saint John and Miramichi rivers. Butternut ranges from New Brunswick in eastern Canada, west through southern Quebec and Ontario to Minnesota and as far south as Louisiana in the west and Georgia in the east. Although butternut is not a major component of our forest, Hosie (1979) describes butternut habitat as follows: "It grows in a variety of locations, including dry rocky soils (particularly those of limestone origin) but it makes its best growth on moist, well-drained, fertile soils in shallow valleys and on gradual slopes. Butternut is commonly found as a scattered tree, or in small groups among other species of hardwoods and conifers." Planted specimens occur elsewhere in New Brunswick and throughout the Maritime Provinces at isolated locations in Nova Scotia and Prince Edward Island. Butternut is not known to occur in either Newfoundland or Labrador.

Butternut is being killed throughout its range in North America by the butternut canker fungus, *Sirococcus clavigignenti-juglandacearum* Nair, Kostichka & Kuntz. Although only described from Wisconsin in 1979, it is believed that the butternut canker fungus was introduced from outside of North America much earlier. The disease is so serious that butternut canker has caused an 80% decrease in living butternut in some States. Butternut is now listed under Category 2 on the list of Endangered and Threatened Plants under the U.S. Federal Endangered Species Act of 1973. Ostry (1997) states: "This category implies that there is some evidence of vulnerability, but not enough data to support listing at this time."

Butternut canker was first found in Canada in southwestern Ontario in 1991 and again in Quebec in 1992. Since then, the disease has been found to be widespread on butternut in southern areas of both provinces.

An introduced forest insect or disease can have a dramatic impact on the structure and diversity of the forests in Canada. Within the past century, a number of virulent diseases have been introduced and the consequences of these introductions are still reverberating through the affected ecosystems in the Atlantic Maritime Ecozone. For example, chestnut blight has eliminated American chestnut entirely from the landscape and Dutch elm disease is currently doing the same to elms throughout eastern North America. European larch canker and beech bark disease have a less obvious impact since their host trees persist, but in deformed and weakened condition with continuing growth loss and mortality. With the discovery of butternut canker in New Brunswick in 1997, the diversity and stability of forested ecosystems with a butternut component are being challenged.

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PLANTATIONS

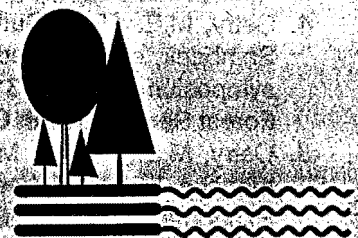
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Detection

Locating butternut trees in mixed hardwood stands is a challenge and once located the stem and branch cankers produced by the disease are subtle and difficult to detect. In the early stages of the disease, the distinctive bleeding cankers may only be present on branches high in the crown of large trees and this makes detection especially difficult. As the disease intensifies, multiple cankers are formed on the branches, stems, and buttress roots and the infected tree stops producing crops of nuts. The cankers grow and coalesce, and on branches this results in branch mortality or, in the case of the stem, the tree may be girdled and die.

Distribution In New Brunswick

The closest known location for infected butternut was in Houlton, Maine, USA. Search effort was concentrated in areas in western Carleton County along the Maine-New Brunswick border, near the site in Maine. In June 1997, butternut canker was found on trees in the Saint John River watershed within 20 km of the Maine border.

The disease was confirmed at the following locations: Stickney, Upper Brighton, Peel, Riverbank, and Jackson Falls in Carleton County (Figure 1). The stem cankers at Peel suggest that butternut canker has been present for at least 7 years in New Brunswick. Numerous other sites were examined along Route 105 between Florenceville and Hartland, Carleton County and at Ritchie, York County but no symptoms were observed. Further searches are planned for 1998 to determine the status of this newly detected disease throughout the range of butternut in New Brunswick.

Acknowledgements

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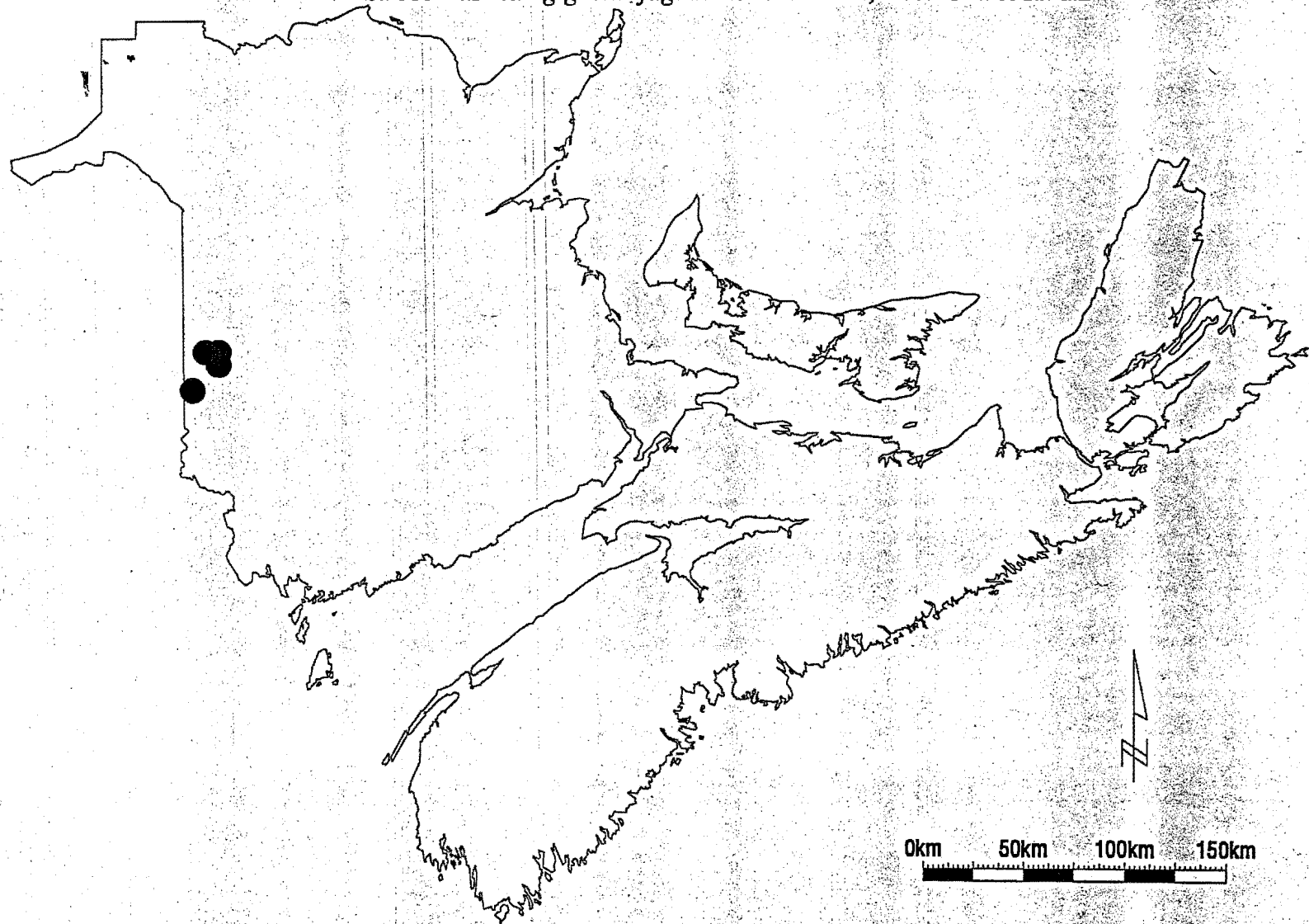
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February, 1998

Distribution of Butternut Canker in the Maritimes - 1997

Sirococcus clavignenti-juglandacearum Nair, Kostichka & Kuntz



● Positive locations for Butternut canker - 1997