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Note – Tiedonanto

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## Pinewood nematode, *Bursaphelenchus xylophilus*, found in packing case wood

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TIIVISTELMÄ: MÄNTYANKEROISTA, BURSAPHELENCHUS XYLOPHILUS, PAKKAUSLAUDASSA

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Living third dispersal stage juveniles of pinewood nematode, *Bursaphelenchus xylophilus*, were found infesting pine boards in Finland. The boards had been used as building material in a packing case to hold imported machinery. Total numbers of nematodes extracted from the boards did not exceed 4 per gram of dry wood. When cultured on *Botrytis cinerea* the nematode reproduction resumed rapidly.

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Mäntyankeroisen, *Bursaphelenchus xylophilus*, eläviä kolmannen asteen dispersaalitoukkia on löydyntä pakkauslaudoista Suomessa. Lautoja oli käytetty ulkomailta tuotujen koneenosien pakkaamiseen. Ankerosten lukumäärä puun kuiva-ainegrammaa kohti ei ylittänyt neljää. Kun ankeroisia siirrettiin harmaahomeelle, *Botrytis cinerea*, ne alkoivat nopeasti lisääntyä.

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Pinewood nematode (PWN), *Bursaphelenchus xylophilus* (Steiner and Buhner 1934) Nickle 1970 (Nematoda: Aphelenchoididae), is a very destructive forest pest in Japan attacking native pine trees resulting in considerable losses every year (Mamiya 1983, 1984). The nematode also occurs widely distributed in North America (Dropkin et al. 1981, Mamiya 1984). European and Mediterranean Plant Protection Organization (EPPO) recommends its member countries to take precautionary measures to prevent PWN from being accidentally introduced into Europe (Report of the panel... 1989).

It has been suggested that serious effort should be made to ensure that packing cases and dunnage leaving the areas in the world where PWN is known to occur do not contain wood infested with *Monochamus* pine sawyer (Coleoptera: Cerambycidae) larvae or PWN if the country of destination is free of this pest (Wingfield et al. 1984). Up to the present there is no reported incident of packing case wood harboring PWN. However, PWN has been found to infest green lumber and dunnage in international lumber trade (Tomminen and Lahtinen 1990, Tomminen and Nuorteva 1992).

This paper is to report the discovery of the third dispersal stage juveniles of PWN infesting pine boards of 138 × 17 × 17 mm in Finland. The boards had been used as building material in a packing case to hold imported machinery of unknown nature. According to the National Board of Agriculture, Plant Quarantine Service

the country of origin of the boards was Canada. The quality of the boards was adversely affected by pine sawyer larvae (Figure 1). In addition, blue stain was found to be widely distributed in the boards. The moisture content of the boards based on the oven dry weight ranged from 8.7 to 16.1 %. Nematodes were extracted from the

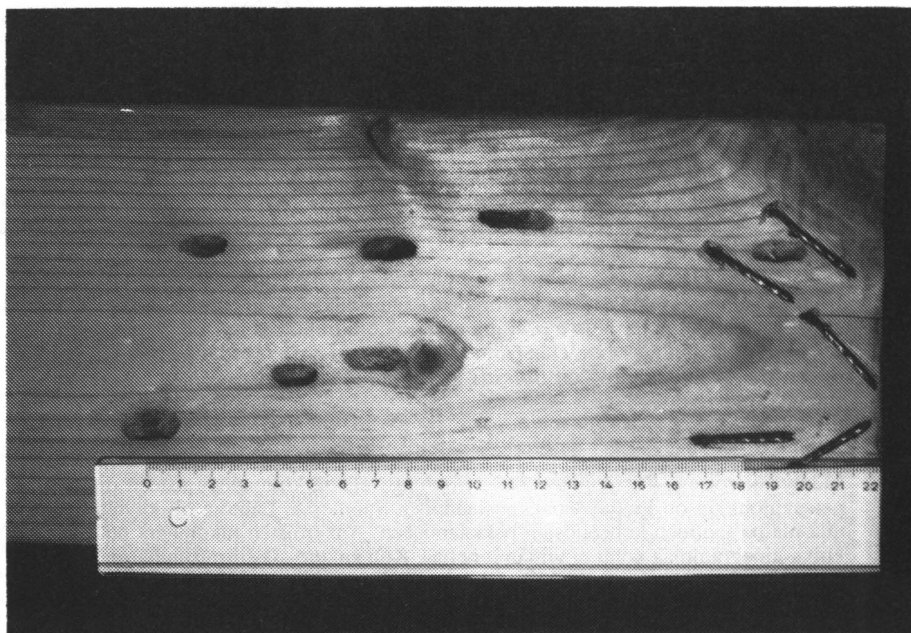


Figure 1. Pine (*Pinus* sp.) board used as building material in a packing case imported to Finland from Canada. Larval galleries of *Monochamus* pine sawyers (Col., Cerambycidae) can be seen as large holes in the board. (Photo Matti Nuorteva).

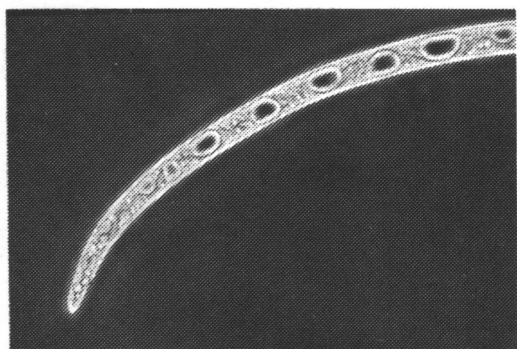


Figure 2a. Posterior part of the body of the third dispersal stage of the pinewood nematode, *Bursaphelenchus xylophilus*, extracted from the pine board used as building material in the packing case. (Photo Jyrki Tomminen).



Figure 2b. Posterior part of a male of the pinewood nematode extracted from a culture started with the third dispersal stages. (Photo Jyrki Tomminen).

boards by cutting the wood into smaller pieces followed by immersion in tap water in decanting vessels (initial temperature 30 °C) for 24 hours. Subsequently, the wood pieces were removed from the vessels and the nematodes in the water identified and counted. The total numbers of PWN dispersal stages were low not exceeding 4 per gram of dry wood. It was obvious that the nematode populations were already in the stage of decline as many dying and dead nematodes were observed. Majority of the nematodes still alive had remarkably large granules in their intestinal cells (Figure 2a) which was suggested to indicate an early stage of deterioration of nematodes' metabolism. However, when the living dispersal stage juveniles were transferred to *Botrytis cinerea* petri plates (roughly 20–30 per plate) and incubated at 27 °C they rapidly resumed molting and eventually in two weeks thousands of normally developing nematodes including adults (Figure 2b) were extracted from the plates.

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