forest management note

Note No. 26 Northern Forest Research Centre Edmonton, Alberta

INTRODUCED PINE SAWFLY IN MANITOBA

Introduced insects are of particular concern in forest entomology because they often arrive in new habitats without their normal complement of natural enemies, thus having the potential of becoming serious pests. Since 1914 four destructive conifer sawflies have been introduced into North America from Europe: the introduced pine sawfly, *Diprion similis* (Hartig), introduced in 1914; the European spruce sawfly, *Gilpinia hercyniae* (Hartig), introduced in 1922; the European pine sawfly, *Neodiprion sertifer* (Geoffrey), introduced in 1925; and the nursery pine sawfly, *Gilpinia frutetorum* (Fabricius), introduced in 1932. The first two of these species are now present in Manitoba.

The European spruce sawfly was first recorded near Ottawa, Ontario, in 1922. It had spread into eastern Manitoba by 1969, and by 1982 it was found near Winnipeg. The introduced pine sawfly was first recorded in North America in 1914 in a nursery at New Haven, Connecticut, and in Canada in 1931 near Oakville, Ontario. It has since spread from Maine to North Carolina, across the central and Lake States into the Northern Great Plains in the United States, and to the southern parts of Ontario and Quebec. This insect was detected for the first time in 1982 in Manitoba, where it caused light to moderate defoliation of Scots pine (*Pinus sylvestris* L.) in shelterbelts of the Pineland Nursery near Hadashville and in plantations in and near Birds Hill Provincial Park.

The European spruce sawfly was a major pest when first introduced, but a virus has since provided effective natural control. The introduced pine sawfly, however, threatens to cause serious defoliation to pines in the Canadian prairies because of a lack of effective natural controls. The purpose of this note is to alert foresters and extension entomologists to the insect's presence in our area and to help recognize and control it.

LIFE HISTORY

Adults of the introduced pine sawfly are fly-like in appearance, with two pairs of membranous wings. The female (Fig. 1) has saw-like antennae, measures about 8 mm in length, and has a black head and thorax and a black and yellow abdomen. The male (Fig. 2) is slightly smaller (about 7 mm in length) and can be distinguished from the female by the feathery antennae and the black to brown abdomen.

The female cuts as many as 10 slits in a row along the edges of old needles and deposits a pale blue egg in each slit. The eggs turn bluish green to dark green in color just before hatching. The young larvae are brownish green with black heads and feed in colonies on the tender outer parts of old needles. Older larvae, which are lighter green with a few yellowish spots, consume the entire needle. Mature larvae (Fig. 3 and 4) have shiny black heads, dark brown to black bodies, yellow and black areas on the sides, and a pair of black stripes along the back. They measure about 25 mm (1 inch) in length.

The presence of larvae of this insect in late September in Manitoba suggests that there are two generations. The first generation is probably completed in midsummer, and the cocoons may be spun on foliage, twigs, or in bark crevices. The second generation probably appears in late summer, and the cocoons are found on the ground among dead leaves and litter.

HOSTS

The insect feeds on a number of pines. The common hosts are eastern white pine (*Pinus strobus* L.), red pine (*Pinus resinosa* Ait.), jack pine (*Pinus banksiana* Lamb.), and Scots pine. The preferred host is eastern white pine.

CONTROL

Infestations of the introduced pine sawfly can be controlled by applying carbaryl WP, diazinon EC, or malathion EC at the feeding stage. The first two chemicals should be applied at a rate of 25 g/100 L, and the third is applied at a rate of 50 g/100 L. Malathion should not be applied when the air temperature is below 20°C. Insecticides are poisonous to humans and animals, and all instructions and precautions listed by the manufacturer should be followed.

H.R. Wong
R.C. Tidsbury
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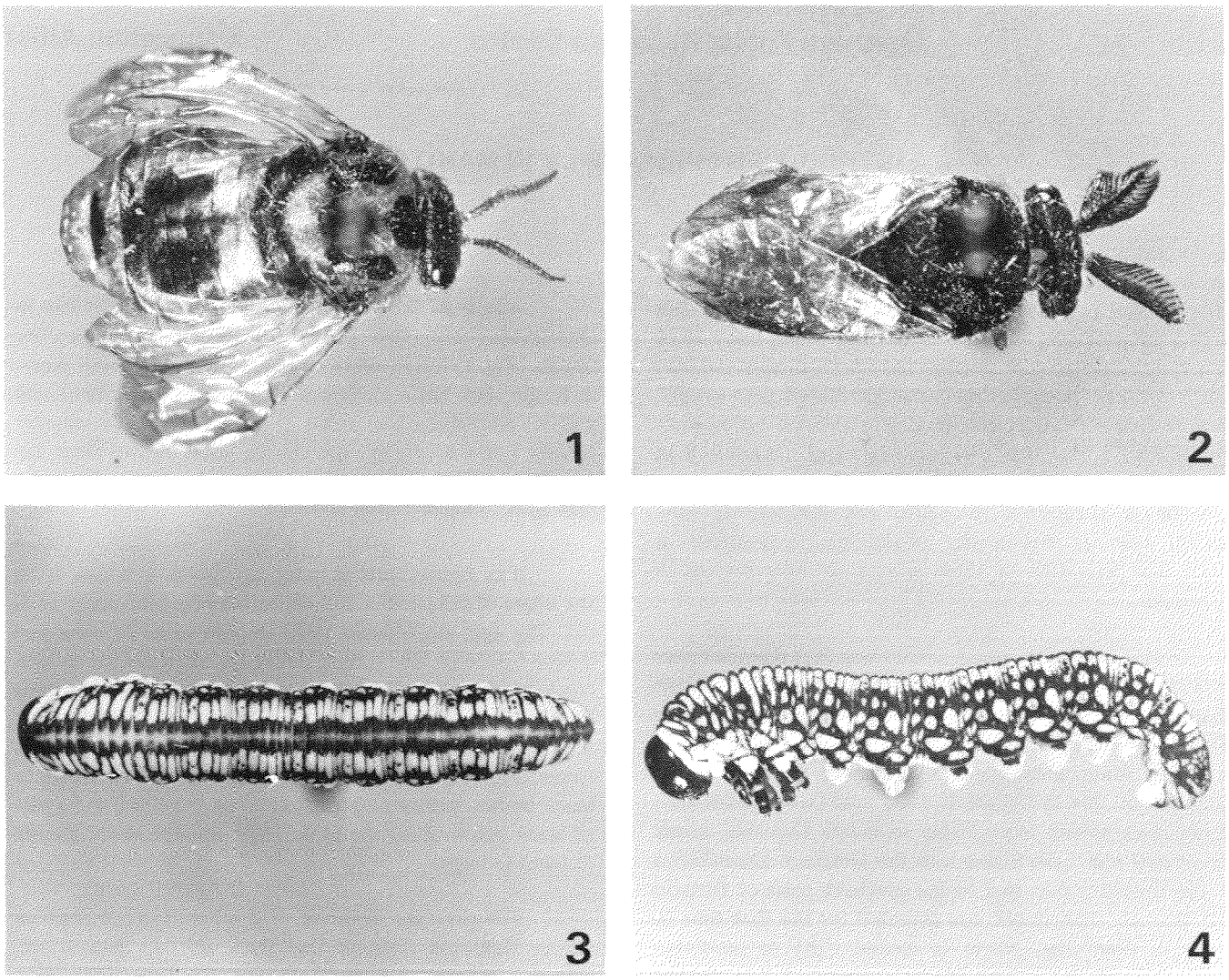

Figures 1-4. Adults and larvae of the introduced pine sawfly. Fig 1. Top view of adult female. Fig. 2. Top view of adult male. Fig. 3. Top view of mature larva. Fig. 4. Side view of mature larva.

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Northern Forest Research Centre
5320 - 122 Street
Edmonton, Alberta
T6H 3S5 (403) 435-7210

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