

Identifying pests in Tasmania's forests: information sheet 7

Sirex wood wasp

Scientific name: *Sirex noctilio*

Characteristic damage

The trunk of attacked pine trees (e.g. *Pinus radiata*) have characteristic resin beads (Fig. 1) after the initial attack, then the foliage progressively wilts, turns yellow and then brown (Fig. 2). After the tree dies the trunk has round exit holes 3 – 7 mm in diameter (Fig 3).



Figure 1. Resin beads on pine trunk in response to *Sirex* female drilling under the bark to lay eggs

Severe damage: the tree dies.

Less severe damage: occasionally only part of the tree dies or the tree resists the attack.

Effect on the trees

Trees generally die as a result of toxic mucus and fungus introduced by the wasps. The wood is riddled with tunnels and stained with fungus; wasps will continue to emerge for several years to attack surrounding trees.



Figure 2. Foliage of *Pinus radiata* attacked by *Sirex* turning brown in spring



Figure 3. Emergence holes of adult *Sirex* wasp



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Trees most at risk

Radiata pine trees that are over 10 years old with more than one main shoot growing in dense, unthinned stands or on poor sites are the most susceptible. Mechanical damage or other insect attack increase susceptibility. If *Sirex* infestations are uncontrolled, they can build up to high populations so that healthy trees are also killed. Other introduced *Pinus* species may also be attacked.

Time of damage: Egg laying occurs in summer and early autumn, December to April. Foliage discoloration occurs throughout the following winter but is most noticeable in early spring.

The insect

Adult wasps: chew a neat round exit hole in the bark to emerge in summer, mostly one but sometimes two years after the tree was attacked; they are metallic blue with amber wings, from 1 - 4 cm long; females have pointed abdomens and amber legs (Fig. 4) while males have a wide orange band on their abdomens and dark brown legs.



Figure 4. *Sirex noctilio* female wasp (life-size)

Eggs: The female wasp drills through the bark into the wood to lay 1 – 5 eggs with mucus and associated fungal spores. White beads of pine resin are extruded by the tree in response to the damage.

Larvae: are white with a small spine at the end of their abdomen; they bore into the wood, feeding on the wood and fungus for one to two years, growing up to 3 cm long before pupating in chambers under the bark (Fig. 5).

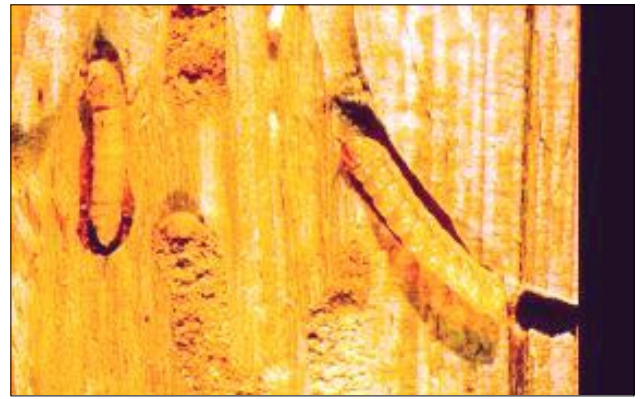


Figure 5. *Sirex* larva and tunnels (life-size)

Controlling damage

Natural control

Attack can be minimised by maintaining healthy trees with appropriate site selection, thinning and hygiene regimes. Minimise disturbances such as thinning and pruning in susceptible stands over 10 years old during the summer egg laying season.

Biological control

Since *Sirex* was introduced from Europe into Tasmania in 1952, several species of wasps that parasitise *Sirex* eggs and larvae have also been introduced and are now established in Tasmania (Fig. 6). A species of roundworm (nematode) has also been introduced that specifically infects and sterilises male and female *Sirex* wasps. The nematodes spread from the sterile eggs to infect other larvae in the attacked tree, which in turn mature to adults and spread more nematodes. This reduces the infestation in an area over the next two years, but the infestation must continue at a low level to maintain the parasitic wasp populations. The location of any *Sirex*-infected trees should be reported to entomology staff in Forestry Tasmania so that the infestation can be monitored and controlled if necessary by inoculation of nematodes.



Figure 6. Adult *Megarhyssa nortoni* wasp parasitising *Sirex* larvae in the wood (about life-size)