



Willow Resource Sheet : 3

Willow sawfly (*Nematus oligospilus*)

What is it?

Willow sawfly is an insect which has recently arrived in Australia. The larval stage of the life cycle feeds on willow leaves, and large populations of larvae can defoliate adult willow trees.

Where did it come from?

Willow sawfly is native to much of the northern hemisphere. It was first recorded in South America in 1980, then in southern Africa in 1993 and New Zealand in 1997.

How did it get here?

It is unclear how willow sawfly arrived in Australia, but it was not introduced deliberately. It is possible that adult sawflies were blown across from New Zealand or that cocoons were accidentally imported, for example on shipping containers.

Where is it now?

Willow sawfly was first reported in Canberra in 2004 and, by April 2006, it had arrived in the ACT, NSW, South Australia, Victoria and Tasmania.

Willow sawfly adults can fly 50-60 km, and the insects can also hitch a lift with human couriers, so it is expected that willow sawfly will soon spread to all suitable areas.

What conditions suit willow sawfly?

Rapid population increases seem to be associated with warm, dry spring conditions. It is not known if high temperatures affect survival and reproduction of willow sawfly.

In ideal conditions, willow sawfly can develop from an egg through its life cycle to an adult within four weeks. Several generations can develop each season, from about October to April.

Can willow sawfly be controlled?

On a large scale, it is not possible to protect willow trees from willow sawfly with insecticide sprays. It may be possible to protect individual trees - check with the relevant department in your State for registered insecticides.

At this stage it is not known if there are any natural enemies of willow sawfly in Australia that may limit its population.

Which willows does sawfly prefer?

Willow sawfly prefer some types of willows, with tree willows being more favoured than shrub willows.

Tree willows:

- crack willow (*Salix fragilis*)
- black willow (*S. nigra*)
- matsudana (Peking) willow (*S. matsudana*)
- white willow (*S. alba* var. *alba*)
- golden willow (*S. alba* var. *vitellina*)
- Chilean pencil willow (*S. chilensis*)
- weeping willows (*S. babylonica*)

Shrub willows:

- purple osier (*S. purpurea*)

Willow sawfly does not seem to attack grey sallow (*Salix cinerea*) or other shrub willows.



Defoliated matsudana willow, ACT
(DPI Victoria)

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Willow sawfly (*Nematus oligospilus*)

Will the sawfly affect native species?

It is extremely unlikely that willow sawfly will attack native plants.

What is the impact of sawfly?

Each willow sawfly larva can eat 1-2 willow leaves in its short lifetime, and sufficient numbers of larvae can defoliate large willow trees. These trees often grow new leaves, which are then eaten by the next generation of willow sawfly.

This pattern of defoliation, new leaf production and subsequent defoliation may occur several times a season. Willow trees can die after 2-3 years of repeated defoliation events.



Defoliated crack willow, NE Victoria (NECMA)

Defoliation

- initially larvae chew a key-hole along leaf margin
- when all leaf blade eaten, only mid-rib remains
- tree defoliation starts in lower canopy, but total tree defoliation can occur



Partially defoliated willow leaves
(DPI Victoria)



Completely defoliated willow leaves with new growth developing at top of branch
(DPI Victoria)

What does the sawfly do over winter?

Willow sawfly forms a cocoon over winter which are found on tree bark or in leaf litter at the base of the tree.

For more information go to:

www.weeds.org.au/WoNS/willows/
www.hortnet.co.nz/publications/guides/willow_sawfly/wsawfly.htm

What does a sawfly look like?

Egg

- 1-2 mm long
- oval or kidney-shaped
- bright green to yellow-green
- often found on upper leaf surface
- laid on fully expanded leaves



(DAFF: www.insectimages.org)

Larva

- grows to 20mm long
- caterpillar-like body
- yellow-green when young
- green when older
- green to brown stripes down body
- head cream-coloured, with dark eyes
- brown stripes behind each eye to the top of the head
- brown triangle on front of head



(DAFF: www.insectimages.org)

Pupa

- up to 10mm long
- domed, with a flat bottom
- lime green (or sometimes yellow-brown)
- found on willow leaves, bark and on ground at base of tree



(DPI Victoria)

Adult

- 7-8mm long, plus antennae
- head and thorax yellow-orange/brown, shiny
- green abdomen
- wings transparent
- prominent dark eyes



(DAFF: www.insectimages.org)

If you see willow leaves being chewed, it is very likely willow sawfly is present.

Please report all sightings to:

Willow Project

Reply Paid 48

Frankston Vic 3199 (no stamp required)

Ph: 03 9785 0111

fiona.ede@dpi.vic.gov.au