

A New Introduction to Tasmania

The Monterey Pine Aphid, *Essigella californica* was recently found for the first time in Tasmania, in the Plenty Valley near Hobart. It is thought to have been brought in on plant tissue from South Australia. It was first detected in Australia (Canberra) in March 1998. It has since spread very rapidly throughout New South Wales, Queensland, Victoria and South Australia.

E. californica is a native of the West Coast of the United States of America. As the aphid causes minimal impact in its native range in the United States, there is little information available on its biology or any measures previously used in its control.

The aphid is greenish in colour and small compared to other aphids, being only 1.5 mm long. It has a cigar-shaped body and long legs. Aphid populations peak during autumn/winter and decline over spring/summer. In Victoria no aphid activity was recorded from July-September. They are found on 1 year-old up to 30 year-old trees.



Fig 1: tree discolouration

Defoliation is patchy in that there can be totally defoliated trees and trees with partial and nil needle loss interspersed on the same site. Damage is first evident as older needles turn yellow. In younger age classes (4-6 year old trees) it is the needles along the main trunk in the upper crown. In older age classes damage is seen in the upper third to quarter of the tree, mainly in older needles along lateral branches, typically starting in needles closest to the trunk.

The yellowing needles are actually mottled green and yellow. The tree retains them for some time before being shed. Once shed the entire floor can be carpeted in yellow needles (characteristic of *Essigella* defoliation).



Fig 2: mottled needles with tiny aphids

Defoliation of *Essigella*-infested *P. radiata* seems more severe in Australia than New Zealand, and it is suggested that there is a relationship between severity of drought stress and *Essigella* needle cast.

Dieback of plantation eucalypts

(Tim Hingston, North Forest Products)

In March this year, North Forest Products' Forest Health Surveillance team investigated a joint-assistance 2-year-old *Eucalyptus nitens* block at Blackwood Creek (near Cressy). While the trees appeared to be growing vigorously in the plantation, some were showing symptoms of dieback in the crown and oozing cankers on the stems, indicative of fungal attack.

European wasps (*Vespula germanica*) were much in evidence, feeding on the exudate from the cankers. Symptoms were present on approximately 5% of trees in the plantation.

Dr Zi Qing Yuan from CSIRO identified the fungus as *Botryosphaeria dothidea*. While *Botryosphaeria* has been recorded as a widespread weak pathogen of eucalypts in other states of Australia, this was the first time the pathogen has been recorded in a eucalypt plantation in Tasmania.



Fig 3: canker on *Eucalyptus nitens* stem being invaded by European wasps

Symptoms of the disease include the death of tree crowns, which can lead to an infection of the pith and a core of discoloured wood surrounded by a sheath of healthy outer wood that can extend throughout the length of the tree. Stems cankers can develop, particularly on trees that are drought stressed.



Fig 4: dieback in the crown of a 2 year old *Eucalyptus nitens*

Stem swelling, bark cracking and exudation of black kino are typical of this type of canker. While the disease is widespread in other states of Australia and overseas, it doesn't cause widespread mortality or dieback.

Botryosphaeria is a pathogen that typically infects trees under environmental stress such as drought, early or late frosts, cold or hot winds, pruning and insect damage. The disease observed in the plantation at Blackwood Creek has most likely been a result of drought, given the low rainfall in the area of the past few months. While the disease will probably not cause significant damage to the

plantation, the problem will require follow up monitoring to assess the impact of the damage.

Drought damage in *P. radiata* plantations

(Tim Wardlaw)

In the Summer 2000 issue of the Forest Health Bulletin we reported widespread drought damage of eucalypts in native forests throughout the southeast of the state. Aerial surveys recently conducted in Mersey District found signs of drought damage in several older (generally >15 years) *P. radiata* plantations. Typically, drought damage in *P. radiata* is indicated by death of the apical shoot. This symptom was readily visible from the air with the tops of

affected trees being either red-brown, if the tops had been dead for some time, or yellowish if the tops were currently dying. In the majority of the affected trees seen during the aerial survey the tops were currently dying coinciding with the protracted drought conditions continuing right through autumn.

In the majority of the plantations affected trees were scattered throughout at very low incidence (< 1 tree/1000). However, on steeper slopes in the drier plantation areas of the eastern half of the District, affected trees coalesced to form patches.

There were scattered drought deaths of eucalypts in native forests in the Branch's Creek-Virginstowe area. However, there was no evidence of drought damage in any eucalypt plantations in Mersey District.

What's eating my eucs?

At this time of year, Autumn gum moth larvae (*Mnesampela privita*) are feeding and may be starting to cause extensive damage on juvenile or young adult foliage. Eggs are laid from February to June, with most of the damage occurring in late autumn and winter. The young larvae skeletonise the surface of the leaf, while the older larvae (4th instar) feed on the whole leaf.



Fig 5: skeletonised leaves by AGM

The larvae are greenish brown with black and red markings and a characteristic pair of cream spots on a hump in the middle of the body. The larvae pass through five instars over two to three months, and reach about 35 mm in length.

The larvae tie leaves together with silk to form shelters where they hide during the day. Heavy infestations of older larvae can quickly defoliate whole trees, leaving only the larval shelters at the ends of the branches.



Fig 6: autumn gum moth larvae

It is important to monitor populations of eggs and larvae on the trees for early indications of an outbreak, because it is more effective to spray before the larvae have caused a lot of damage. If defoliation occurs in autumn or winter, it can cause considerable growth loss, and trees may die if severe defoliation occurs over consecutive years. Most broad-spectrum insecticides will kill the autumn gum moth, but will also kill natural predators and parasites. The entomology staff at Forestry Tasmania are currently researching environmentally friendly insecticides.

A fungal pathogen new to eucalypts

(Tim Wardlaw)

Health surveys during the past 12 months have found a distinctive leaf and shoot disease of young *E. nitens* and *E. globulus*. The disease has been found in several locations throughout the State at a very low incidence. Leaf lesions appear initially as a purple discolouration along the midrib starting from the leaf axil. These lesions eventually change to a light brown colour with a purple

margin as the leaf tissue is killed. Shoot lesions develop in a similar manner.



Fig 7: lesions along midrib

Culturing from leaf and shoot lesions by Dr Zi Qing Yuan at the CRC-SPF consistently isolated a fungus identified as *Gloeosporidina* sp. similar to *G. moravica* or *G. platani*. Recent DNA studies in Germany have shown that *Gloeosporidina* is a developmental stage of the genus *Apiognomonina*. This genus contains several significant pathogens that cause leaf and shoot diseases on a number of Northern Hemisphere deciduous hardwoods. Two of those diseases - oak anthracnose (*A. quercina* [= *G. moravica*]) and sycamore anthracnose (*A. veneta* [= *G. platani*]) - have been present in Tasmania for several decades. Neither pathogen, however, has been found before on eucalypts.

Nothing is known about the potential of *Apiognomonina* (*Gloeosporidina*) as a leaf and shoot pathogen of eucalypts. On its native hosts in the Northern Hemisphere, disease severity is dependent upon climatic conditions. Severe leaf infection is favoured by warm, moist conditions during periods of active growth. Severe dieback of sycamore following shoot and twig infection by *A. veneta* is favoured by mild winters followed by late spring frosts.

What to look out for in winter

Potassium deficiency symptoms intensify during late winter

Uraba, the gum-leaf skeletoniser larvae will be starting to cause damage on eucalypts, and autumn gum moth larvae may also be found at this time.

Fireblight beetle larvae will be feeding on acacia.

References

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