

## CLEOBORA ALIVE AND WELL IN THE SOUTH ISLAND

The introduced eucalyptus tortoise beetle, *Paropsis charybdis*, has been a thorn in the side of New Zealand eucalypt growers ever since it first caused problems early in the 1900s. *Paropsis* feeds ravenously on the leaves of certain eucalypt species resulting in growth loss, malformation, dieback, and sometimes death of severely attacked trees. Over the years a number of insect predators or parasitoids have been introduced as potential biological control agents with mixed results, one of the most successful until now being a tiny wasp, *Enoggera nassau*, which parasitises the eggs of *Paropsis* (FHNews 117:1, 130:1).

Another potential control agent, the Tasmanian ladybird *Cleobora mellyi*, feeds on the eggs and larvae of *Paropsis*. This insect was deliberately introduced several times into eucalypt plantations in the central North Island, Christchurch, and the Marlborough Sounds during the late 1970s and early 1980s. Although not recovered from the other release areas, *Cleobora* adults were subsequently found overwintering beneath loose bark in the Marlborough Sounds plantation, a mixed stand of *Eucalyptus nitens* and *Acacia melanoxylon* (blackwood). The effect on the *Paropsis* population was unknown, as there was no follow-up work, and research on *Cleobora* was abandoned. However, in March 2004 members of the Eucalyptus Action Group of the Farm Forestry Association found a specimen confirmed by John Bain (Forest Research) as *Cleobora mellyi* in a plantation of *Eucalyptus botryoides* and *E. saligna* trees near Havelock. Shortly after, Dean Satchell (Eucalyptus Action Group) discovered that *Cleobora* was plentiful on trees at the original release site in Maori Bay in the Marlborough Sounds. Sap-sucking insects on which *Cleobora* also feeds, such as blackwood psyllids (species of *Acizzia*), were hard to find, and the black sooty mould fungus (which grows on the honeydew excreted by psyllids) was absent. The blackwood trees were healthy, and the *E. nitens* crowns were dense, despite moderate chewing damage to foliage.

It is not clear why *Cleobora* failed to establish in the North Island plantations, where the climate is not dissimilar to that in its natural habitat. In Tasmania the beetles commonly overwinter beneath the loose dead bark of suitable trees, and it was initially thought that such sites may have been lacking in the young eucalypt plantations in the North Island. However, this explanation was invalidated when *Cleobora* was found overwintering under bark in the Marlborough Sounds stand. It now seems that the survival of the Marlborough Sounds liberations was due primarily to an adequate food supply provided by an abundance of psyllids on the adjacent acacias. It is known that *Cleobora* does not mate and reproduce readily on a diet solely of *Paropsis* eggs and larvae.

Although *Cleobora* may not contribute greatly to the decline of *Paropsis* populations, it is likely to provide some level of control of other pests, such as acacia and eucalypt psyllids (e.g., the brown lace lerp, *Cardiaspina fiscella*; FHNews 95:1), scale insects (e.g., species of *Eriococcus*), and the blackwood tortoise beetle (*Dicranosterna semipunctata*, FHNews 79:2, 117:2). In addition, a number of new psyllids have become introduced into eucalypt plantations since the early attempts to introduce



Adult (above) and larva (right) of *Cleobora mellyi* found in the Marlborough Sounds plantation earlier this year.



*Cleobora*, when only the blue gum psyllid (*Ctenarytaina eucalypti*) was present. These new insects may provide a more balanced fare for *Cleobora*, should attempts again be made to spread it more widely within eucalypt plantations throughout New Zealand.

For further information, see What's New in Forest Research 184:1-4 (New Zealand Forest Research Institute, 1990), New Zealand Tree Grower 25 (2):26-27, or visit: [www.nzffa.org.nz/Eucalypt\\_pest\\_control/index.htm](http://www.nzffa.org.nz/Eucalypt_pest_control/index.htm)

(Dean Satchell, Eucalyptus Action Group, and Ian Hood and John Bain, Forest Research)

## LEPTOGRAPHIUM IN RADIATA PINE

When *Pinus radiata* trees are felled and left too long in the forest, undesirable blue or blackish discoloration soon develops in the sapwood, degrading the sawn timber and reducing its value. Sap stain is caused by the growth within the sapwood of certain dark-coloured fungi belonging to a number of different species and genera. Most of those identified in New Zealand-grown *P. radiata* are also known from conifer species in the Northern Hemisphere. Although some are true saprophytes that can spread only within the sapwood once the tree has been cut down, others are also implicated as agents of root and stem disease. One important genus of sapstain fungi is *Leptographium*, which, with a steady stream of additions described in recent years, now contains over 40 species. The first species of *Leptographium* to be found in New Zealand was *L. procerum*, isolated in 1976 from extensive blue-stained wood in the roots and butts of dead and dying trees associated with wet soil conditions in a stand of *P. strobus* growing in Hawke's Bay.

The *L. procerum* complex has been widely investigated overseas. This group of fungi has been associated with root decline of *P. strobus* in Europe and North America and also occurs on a wide range of other conifers. However, their role in tree death has been a matter of debate, since pathogenicity tests performed with isolates of these fungi have yielded contradictory results. In each case where there has been evidence of pathogenicity, the affected trees have also been subjected to some form of stress,

such as unfavourable soil moisture levels, air pollution, insect infestation, or root disturbance.

A number of isolates of *Leptographium* assigned to *L. procerum* are somewhat atypical in their cultural characteristics and the need for a taxonomic review has been recognised for a long time. In a recent evaluation of 29 of these isolates three new species were separated from *L. procerum* and formally named and



Wood stained by species of *Leptographium* in the root collar region of a *Pinus radiata* tree.

described. Two are present in New Zealand, *Leptographium euphyes*, which has been recorded only in this country, and *L. alethinum*, which has also been found in England. Nothing definite is known about the pathogenic capability of either of these species in New Zealand. They have often been found in roots of dying pines (particularly *P. strobus* as well as *P. radiata*) along with other blue-stain fungi, and generally occur where site conditions are less than favourable. Episodic waterlogging of the soil is a common site characteristic when *Leptographium* species are present in the lower stem or roots, or both. They are also often found in association with insects such as the European bark beetles *Hylastes ater* and *Hylurgus ligniperda*, and it is possible that they were carrying *Leptographium* species as contaminants at the time of their introduction.

Five species of *Leptographium* are now known to occur in New Zealand. Besides *L. procerum*, *L. alethinum*, and *L. euphyes*, two other widely distributed species are *L. lundbergii* and *L. huntii*. In our investigation of root and butt infections it is not unusual to find several species of *Leptographium* together in the same stem.

(Margaret Dick, Forest Research)

## NEW RECORDS

New to New Zealand – Fungus: *Stilbospora* sp.; Bioregion: Auckland; Host: *Ulmus glabra*; Coll: B Rogan, 04/03/2004; Ident: K Dobbie, 11/03/2004; Comments: Specimens of *Stilbospora* in the Forest Research and Landcare herbaria are all from Europe and North America. Species of *Stilbospora* are not known to be pathogenic. The fungus reported here was fruiting on a dead twig of the host.

New host record for New Zealand – Fungus: *Phaeophleospora eucalypti*; Bioregion: Auckland; Host: *Eucalyptus glaucescens*; Coll: B Doherty, 31/03/2004; Ident: M Dick, 22/04/2004; Comments: A common leaf spot fungus on a wide range of *Eucalyptus* spp.

New distribution record for New Zealand – Fungus: *Sawadea bicornis*; Bioregion: Bay of Plenty; Host: *Alectryon excelsus*; Coll: B Rogan, 07/04/2004; Ident: M Dick, 22/04/2004; Comments: A powdery mildew fungus previously recorded from Auckland and Waikato.

New distribution record for New Zealand – Fungus: *Coleroa senniana*; Bioregion: Wellington; Host: *Protea* sp.; Coll: B Doherty, 14/04/2004; Ident: J Gardner, 19/04/2004; Comments: This species has previously been recorded from Auckland, Wanganui, Taranaki, and Bay of Plenty. It is considered to be a significant disease of *Proteaceae* grown for the cut flower trade.

New host record for New Zealand – Insect: *Uraba lugens* (Nolidae); Bioregion: Auckland; Host: *Eucalyptus gunnii*; Coll: B Doherty, 31/03/2004; Ident: D Jones, 02/04/2004; Comments: Another addition to an already lengthy host list.

New host record for New Zealand – Insect: *Nambouria xanthops* (Pteromalidae); Bioregion: Auckland; Host: *Eucalyptus gunnii*; Coll: B Doherty, 31/03/2004; Ident: D Jones, 02/04/2004; Comments: This Australian species was first found in New Zealand in 1999. It is common on *Eucalyptus nicholii* and *E. cinerea*.

New host record for New Zealand – Insect: *Nambouria xanthops* (Pteromalidae); Bioregion: Auckland; Host: *Eucalyptus cypellocarpa*; Coll: B Doherty, 31/03/2004; Ident: D Jones, 02/04/2004; Comments: This Australian species was first found in New Zealand in 1999. It is common on *Eucalyptus nicholii* and *E. cinerea*.

New host record for New Zealand – Insect: *Acrocercops laciniella* (Gracillariidae); Bioregion: Auckland; Host: *Angophora cordifolia*; Coll: B Doherty, 31/03/2004; Ident: D Jones, 02/04/2004; Comments: This Australian species was first recorded from New Zealand in 1999. It has been recorded from a wide range of *Eucalyptus* species.

New host record for New Zealand – Insect: *Cardiaspina fiscella* (Psyllidae); Bioregion: Auckland; Host: *Eucalyptus goniocalyx*; Coll: C Inglis, 01/04/2004; Ident: D Jones, 05/04/2004; Comments: This Australian species was first found in New Zealand in 1996. It is common on *Eucalyptus botryoides* and *E. saligna*.

New host record for New Zealand – Insect: *Diaspidiotus perniciosus* (Diaspididae); Bioregion: Auckland; Host: *Banksia spinulosa*; Coll: B Doherty, 02/04/2004; Ident: J Bain, 14/04/2004; Comments:

A cosmopolitan species first recorded in New Zealand in 1908. It is polyphagous, but prefers rosaceous fruit and nut trees.

New host record for New Zealand – Insect: *Callidiopsis scutellaris* (Cerambycidae); Bioregion: Bay of Plenty; Host: *Angophora costata*; Coll: B Rogan, 07/04/2004; Ident: J Bain, 15/04/2004; Comments: This Australian species was first recorded in New Zealand in 1935. It is usually associated with *Eucalyptus* spp. but has been recorded from *Angophora intermedia* in Australia. The larvae were in a large, fallen branch.

New host record for New Zealand – Insect: *Hemiberlesia lataniae* (Diaspididae); Bioregion: Waikato; Host: *Laurelia novae-zelandiae*; Coll: C Inglis, 06/04/2004; Ident: J Bain, 14/04/2004; Comments: This cosmopolitan, polyphagous species was first recorded from New Zealand in 1979. It has been recorded from quite a range of native and exotic plants.

New host record for New Zealand – Insect: *Icerya purchasi* (Margarodidae); Bioregion: Northland; Host: *Casuarina equisetifolia*; Coll: C Inglis, 14/04/2004; Ident: D Jones, 21/04/2004; Comments: A polyphagous Australian species that was first recorded from New Zealand in 1879. It is now found virtually throughout the world, particularly where citrus is grown.

New host record for New Zealand – Insect: *Liothula omnivora* (Psychidae); Bioregion: Northland; Host: *Quercus velutina*; Coll: C Inglis, 15/04/2004; Ident: D Jones, 23/04/2004; Comments: This native caterpillar has been recorded from a very wide range of native and exotic trees and shrubs.

New host record for New Zealand – Insect: *Planotortrix notophaea* (Tortricidae); Bioregion: Auckland; Host: *Cedrus atlantica*; Coll: C Inglis, 19/04/2004; Ident: D Jones, 23/04/2004; Comments: This is a polyphagous native species with a preference for hosts with narrow leaves (or needles). It has been found on both native and exotic species.

Extension to known distribution – Insect: *Poropezia dacrydii* (Coccidae); Bioregion: Northland; Host: *Podocarpus totara*; Coll: P Gosling, 01/04/2004; Ident: J Bain, 08/04/2004; Comments: This native scale insect has previously been recorded from the Kermadecs, Auckland, Wellington, Nelson, Buller, and Fiordland. Hosts are various species of podocarps.

Extension to known distribution – Insect: *Anisoplaca cosmia* (Gelechiidae); Bioregion: Gisborne; Host: *Lagunaria patersonii*; Coll: B Rogan, 24/03/2004; Ident: J Bain, 15/04/2004; Comments: This introduced species is apparently restricted to *L. patersonii*. It has previously been recorded from Auckland and Hawke's Bay.

Extension to known distribution – Insect: *Pleistodontes froggatti* (Agaonidae); Bioregion: Gisborne; Host: None, insect caught on wing; Coll: B Rogan, 26/03/2004; Ident: J Bain, 16/04/2004; Comments: A *Ficus*-pollinating wasp. First found in New Zealand in 1993 and now quite widespread in the upper half of the North Island.

(John Bain, Forest Research)