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FRST TAKES A NEW APPROACH TO FUNDING BIOSECURITY RESEARCH

The Foundation for Research, Science and Technology (FRST) has recently started an experiment in funding long-term (up to 12 years) collaborative research. The experiment has been termed outcome-based investments or OBIs. The OBI research vehicles are composed of groups of research providers and their stakeholder/client groups, who collectively undertake to manage the research programmes over the 12 years to achieve big goals that make the stakeholders more effective in carrying out their national responsibilities. That is, the research "outputs" have to be translated into stakeholder "outcomes".

The establishment of the OBIs signals that FRST is seeking a more mature relationship with research providers, and wishes to step back from the role of intermediary or research broker between the stakeholders and providers — investing in stakeholder outcomes rather than more narrowly-defined research projects. In doing so, FRST is taking great care to ensure that the stakeholders become fully engaged in responsibly managing the research that is being undertaken for national benefit.

For the forest industries, the advent of the OBIs provides some fairly imminent changes. The most important of these concerns B^3 ("B-three"), or the Better Border Biosecurity OBI. This collaborative venture is being led by Crop & Food Research, and includes AgResearch, Forest Research, HortResearch, and the Lincoln CORE* as research providers, and Biosecurity NZ, Department of Conservation, ERMA†, and FBRC‡ as stakeholders.

The biosecurity research programme of B^3 has four research themes ("intermediate outcomes" in FRST terms): sectoral (agricultural and silvicultural), cross-sectoral, natural ecosystems, and ERMA. The sectoral theme is a combination of two existing FRST programmes (one objective from Forest Biosecurity and the entire Improved Biosecurity programme). By combining these programmes we hope to be able to deliver greater benefits to forest industries by being part of a broader-scale research programme, addressing pest invasion pathways, pest detection and eradication, and the human dimensions of biosecurity. The cross-sector biosecurity theme is where the exciting new detection and eradication technologies will be developed. This area is labelled cross-sectoral, because the research products should be applicable across more than one sector of the economy. The natural ecosystems theme will leverage off the first two themes to adapt and apply the technologies to natural ecosystems contexts (including native forests). This theme will also develop an offshore early warning system for devastating pests such as Sudden Oak Death. The ERMA theme will provide ERMA with a better foundation for making safe decisions regarding biological control systems — a significant tool in our pest control toolbox when pests slip through the biosecurity net.

For the forest industries, B^3 promises to equip the stakeholders to reduce the incidence of pest incursions, detect more incursions early enough for eradication to be feasible, provide a wider range of tools with which to eradicate unwanted organisms, and reduce uncertainty regarding ERMA decisions to approve release of biological control agents.

At present, the contracts for B^3 are being finalised, so that we can start operating under this system on 1 July 2005.

(Darren Kriticos, Forest Research)

* Centre of Research Excellence
† Environmental Risk Management Authority
‡ Forest Biosecurity Research Council

BIOLOGICAL CONTROL OF *URABA LUGENS* — PROGRESS REPORT

In September 2004 Forest Research was granted approval by the Environmental Risk Management Authority (ERMA) to import four parasitoids of *Uraba lugens* from Australia into containment (FH News **143**: 2). Several collections were made in Tasmania and South Australia from November 2004 to January 2005. Three of the four solitary parasitoids are now in containment at Forest Research: *Cotesia urabae* (Braconidae), *Euplectrus* sp. (Eulophidae), and *Eriborus* sp. (Ichneumonidae). All three species readily attack *U. lugens* in containment although breeding cultures are not yet fully established. A high level of hyperparasitism meant that the fourth species, *Dolichogenidea eucalypti* (Braconidae), did not survive.

Cotesia urabae attacks first to sixth instar *U. lugens* larvae and the parasitoid larva emerges before the host caterpillar reaches pupation (*see* Figure). This species has two generations for every *U. lugens* generation in Australia. *Euplectrus* sp. is the smallest of the four species (< 3 mm) and attacks only first instar larvae. This parasitoid develops externally, hidden beneath its host. Although small, the adults can live for up to 120 days. The last species to be imported, *Eriborus* sp. is also the largest, at approximately 12 mm. Females are thought to attack medium to large larvae; however, the preferred age-size range is not known. The adult wasp emerges after the host has spun its cocoon.

Host specificity tests have begun with *C. urabae* and *Eriborus* sp. against the following non-target moth species: *Celama parvitis, Metacrias erichrysa, Nyctemera annulata*, and *Helicoverpa armigera*. These species have been chosen because they are related to *Uraba* sp. Preliminary results show no evidence for attack on these non-target species; however, the testing programme is at a very early stage.

Cotesia urabae larva emerging from its host, *Uraba lugens*.

Sarah Mansfield, Forest Research

Newsletter of the ***Forest Biosecurity and Protection Unit****, and the* ***Forest Health Reference Laboratory*** *(incorporating the Forest Research Mycological Herbarium (NZFRI-M), the Forest Research Culture Collection (NZFS), and the National Forest Insect Collection (FRNZ). Edited by John Bain, New Zealand Forest Research Institute Ltd, Private Bag 3020, Rotorua. <john.bain@forestresearch.co.nz>*
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CURRENT STATUS OF *PAROPSIS CHARYBDIS* IN THE CENTRAL NORTH ISLAND

Enoggera nassaui is an egg parasitoid introduced into New Zealand in the late 1980s and again in 2000 for the biological control of the eucalyptus tortoise beetle *Paropsis charybdis.* In 2001 an obligate hyperparasitoid of *E. nassaui, Baeoanusia albifunicle,* was detected in New Zealand. That same year, another egg parasitoid of *P. charybdis* was recorded in New Zealand, the wasp *Neopolycystus insectifurax*. Attack rates of the two egg parasitoids and the hyperparasitoid have been monitored since the summer of 2001–02. Each summer *P. charybdis* egg batches have been collected from several *Eucalyptus nitens* plantations in the Bay of Plenty/Taupo region (*see* FH News 130:1 & 141:1). For the 2004–05 summer, three plantations were monitored (Lake Rotoiti, Atiamuri, and Waikite Valley, Figure 1). Parasitism by *E. nassaui* increased from November to January then declined in February at all three sites. At Lake Rotoiti and Waikite Valley the hyperparasitoid followed a similar trend in abundance to *E. nassaui* but *N. insectifurax* was not collected until January, when it too began to increase in abundance. Neither *B. albifunicle* nor *N. insectifurax* have been recorded from Atiamuri. These trends are generally similar to those observed in previous summers, although *B. albifunicle* was recorded earlier in the summer at Lake Rotoiti than previously.

It appears *E. nassaui* will be effective in reducing *P. charybdis* populations in early summer and that *N. insectifurax* can provide some control of the second pest generation in late summer. In previous years *E. nassaui* attacked the second generation, but the hyperparasitoid now reduces the impact of *E. nassaui* on this second generation. *Neopolycystus insectifurax* (where it is present) appears able to compensate to some extent for the decline of *E. nassaui* populations.

(*Diane Jones, Toni Withers, and Sarah Mansfield, Forest Research*)

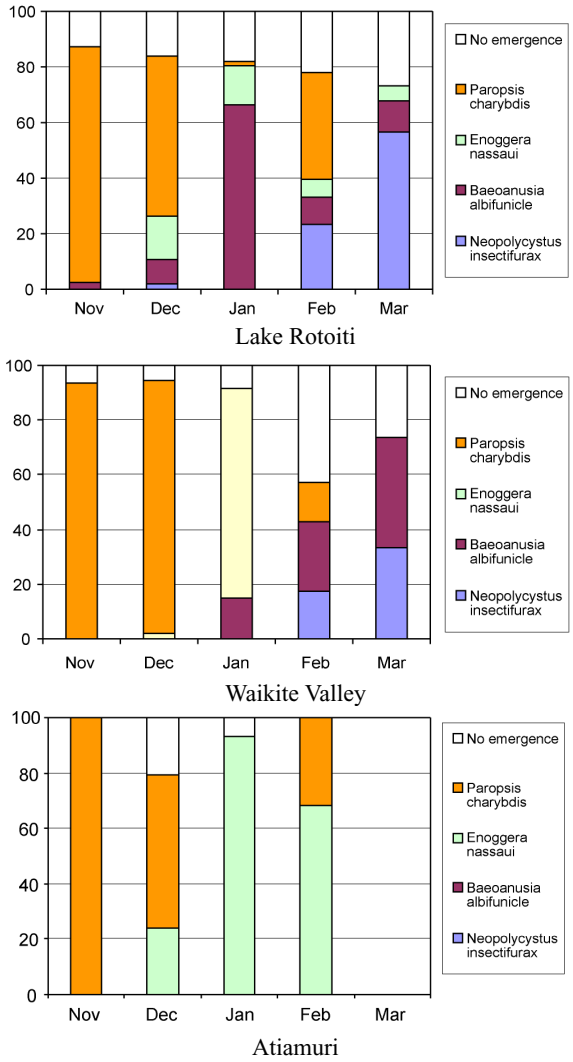

Figure 1. *Paropsis charybdis* eggs and their parasitism rates by *Enoggera nassaui, Neopolycystus insectifurax,* and the *Enoggera* hyperparasitoid *Baeoanusia albifunicle* over the 2004–05 growing season.

NEW RECORDS

New distribution record for New Zealand – Fungus: *Hysterographium fraxini*; **Bioregion:** North Canterbury; **Host:** *Fraxinus excelsior*; **Coll:** B Doherty, 26/03/2005; **Ident:** R Tetenburg, 31/03/2005; **Comments:** This saprophytic fungus has previously been recorded from Taranaki, Wairarapa, Wellington, Marlborough Sounds, Marlborough, Nelson, and South Canterbury. In New Zealand it has been recorded from only *Fraxinus* spp.

New distribution record for New Zealand – Fungus: *Lepteutypa podocarpi*; **Bioregion:** Wanganui; **Host:** *Podocarpus totara*; **Coll:** M Twaddle, 16/03/2005; **Ident:** M Dick, 05/04/2005; **Comments:** This is a native fungus that is also found in Australia and Chile. It was first found associated with *Podocarpus totara* in the early 1980s and has since been recorded from *P. acutifolius, P. hallii, P. nivalis,* and *P. elatus* (an Australian species). Pathogenicity testing has indicated that it could be an endophyte and is unlikely to be responsible for any twig or branch dieback.

New distribution record for New Zealand – Insect: *Stigmella microtheriella* (Nepticulidae); **Bioregion:** Central Otago; **Host:** *Corylus avellana*; **Coll:** M Redpath, 07/04/2005; **Ident:** D Jones, 15/04/2005; **Comments:** This European leaf miner was first found in New Zealand in the 1950s. It was not seen again until 2000 in South Canterbury. In January 2005 it was found in the Bay of Plenty causing considerable damage to its host. It has also been recorded from mid Canterbury.

New host record for New Zealand – Insect: *Hierodoris atychioides* (Oecophoridae); **Bioregion:** Taupo; **Host:** *Pinus halepensis*; **Coll:** M Twaddle, 30/03/2005; **Ident:** D Jones, 05/04/2005; **Comments:** This native species feeds on a wide variety of native and exotic trees and shrubs. This record was from the "Anzac Cove" tree at the Waiouru Army Museum.

New host record for New Zealand – Insect: *Epiphyas postvittana* (Tortricidae); **Bioregion:** Auckland; **Host:** *Zelkova serrata*; **Coll:** C Inglis, 31/03/05; **Ident:** D Jones, 06/04/2005; **Comments:** This south-eastern Australian species was first found in New Zealand in 1891. It is also established in Western Australia, New Caledonia, Hawaii, and the British Isles. It is extremely polyphagous.

New host record for New Zealand – Insect: *Leucaspis ohakunensis* (Diaspididae); **Bioregion:** Wellington; **Host:** *Hedera* sp.; **Coll:** L Renney, 24/03/2005; **Ident:** R Henderson, 14/04/2005; **Comments:** This native armoured scale insect has previously been recorded from *Neopanax, Collospermum, Cyathodes, Grislinia, Astelia, Hoheria,* and *Myrtus.* This is probably the first record of an endemic *Leucaspis* species on an exotic host.

New host record for New Zealand – Insect: *Lindingaspis rossi* (Diaspididae); **Bioregion:** Wellington; **Host:** *Acacia pravissima*; **Coll:** L Renney, 26/03/2005; **Ident:** D Jones, 14/04/2005; **Comments:** This armoured scale insect, which is probably native to Australia, is sub-cosmopolitan in the tropics and sub-tropics. It was first found in New Zealand in 1895 and has been found on a wide range of exotic and native plants here.

New host record for New Zealand – Insect: *Lindingaspis rossi* (Diaspididae); **Bioregion:** Wellington; **Host:** *Fatsia japonica*; **Coll:** L Renney, 24/03/2005; **Ident:** D Jones, 14/04/2005; **Comments:** *See* record above.

New host record for New Zealand – Insect: *Lindingaspis rossi* (Diaspididae); **Bioregion:** Wellington; **Host:** *Laurus nobilis*; **Coll:** L Renney, 24/03/2005; **Ident:** D Jones, 14/04/2005; **Comments:** *See* comments above.

(*Editor*)