

Last month *Forest Health News* reported on recent introductions of unwanted exotic moth pests in the Auckland region. Even as we went to press, there was news of yet another new pest detection, this time the potentially serious Asian gypsy moth (*Lymantria dispar*). This discovery is described in this month's issue, which also features an update on progress in the Ministry of Agriculture and Forestry (MAF) campaign to eradicate the painted apple moth (*Teia anartoides*).

• ASIAN GYPSY MOTH IN HAMILTON

The last decade has seen the sporadic detection of viable eggs and larvae of Asian Gypsy moth (*Lymantria dispar*) during routine inspections of imported items of cargo (*FHNews* 82:1). However, as far as is known this insect has never penetrated beyond the biosecurity barrier protecting New Zealand from exotic pests and diseases. Nevertheless, because of the potential for considerable economic loss should the moth ever become established, a national early-warning gypsy moth trapping programme was put in place in 1993 by the then Ministry of Forestry around all major ports and selected inland high risk sites. The programme is now maintained by MAF, who coordinate the inspection of over 1000 traps at least once every 10 days from November to April. The traps are baited with a sex pheromone to attract any male moths that develop from earlier stages should these escape border interception.

Nothing significant was found during the first ten years of the programme, until last month when a curious single male moth was trapped in Hamilton. When Forest Research entomologists received this specimen they recognized it as a species of *Lymantria* and forwarded it to Dr Robert Hoare, Landcare Research, who identified it as *Lymantria dispar* subspecies *praeterea*. This subspecies occurs naturally in Siberia and Japan, and preliminary DNA work by Dr Karen Armstrong (Lincoln University) indicates that the specimen is likely to have come from Iwate Prefecture in Japan. The males of *L. dispar* ssp. *praeterea* are lighter in colour than typical gypsy moths (see Figure).



The male moth of *Lymantria dispar* ssp. *praeterea* trapped in Hamilton on 26 March 2003 (distance between wingtips, 47 mm)

Within days of the discovery, additional traps were deployed in a series of concentric bands extending out from the site where the moth was found, using recommendations contained in a contingency plan formulated in 1996. There are now 16 traps/km² present within a 2km radius of the detection site, 8 traps/km² within a 2-4 km radius, and 2 traps/km² within a 4-

7 km radius. In addition to this a further 75 traps have been placed alongside main routes in and out of Hamilton extending out to a 30 km radius. So far none of these traps has yielded any further moths. Intensive ground searching in the area where the moth was trapped failed to find any evidence of other life stages of the insect. Host trees and high-risk sites were targeted during this survey out to a radius of 1.5 km.

What was the source of the specimen, and why was only one moth trapped? Possible scenarios include:

- A larva pupated on a vehicle or container in Japan, which was then shipped to Hamilton; the moth emerged and was caught in the trap. Timing makes this scenario unlikely. In the northern hemisphere we would not expect gypsy moth pupae until about June.
- One or more egg masses were transported from Japan to Hamilton and at least some eggs hatched but most of the larvae perished. The moth trapped was the only one, or one of very few, that survived.
- There is a population of Asian gypsy moths elsewhere in New Zealand that we are not aware of; a pupa from this population was transported on a vehicle to Hamilton where the moth emerged and was trapped.

It is hoped that the last of these possibilities is not the correct one. We will be watching further developments closely.

Among the more than 5000 web sites reporting on Asian gypsy moth the following are helpful:

- http://www.exoticforestpests.org/english/Detail.CFM?tblEntry_PestID=11
- <http://www.agf.gov.bc.ca/cropprot/gypsymoth.htm>
- <http://www.fs.fed.us/ne/morgantown/4557/gmoth/>

For a concise summary, see also the Forest Research website: <http://www.forestresearch.co.nz/>.

(John Bain, Forest Research, Mark Ross, MAF)

• PAM ERADICATION PROGRAMME

MAF has been managing an eradication programme for painted apple moth (*Teia anartoides*) from the time of the initial detection in Glendene, Auckland, on 5 May 1999 (*FHNews* 85:1). Since October 2002, the campaign has focused on a core infestation zone covering 8,500 ha in west Auckland, and in December 2002 a further area of 1,500 ha comprising a population hotspot at Hobsonville was also included. The programme incorporates three complementary approaches: removal of host vegetation, ground and aerial spraying to kill larvae, and the use of sterilised insects to decrease the reproduction rate of the pest population.

The bulk of the aerial spraying is undertaken with a Fokker Friendship aircraft, while a small plane and a helicopter are used to target small or difficult areas. The product being applied is Foray 48B, a Btk-based formulation with over 30 years of safe international use (*FHNews* 116:1). Despite treatment, the infestation initially persisted at Waikumete Cemetery until the dense vegetation was removed and thinned over an area of 37 ha to allow effective spray penetration. Thousands of infertile male moths have been released weekly since 15 February 2003, after being treated with cobalt 60 using a sterilization technique applied to a range of imported food products such as herbs and spices. Sterile male moths have been released at sites where infestations persisted, such as

at Waikumete Cemetery and Hobsonville. Sampling indicates that a high proportion of male moths is now infertile within the wild population.

The effectiveness of the eradication campaign is being monitored by means of ground surveys together with a widely distributed grid of 1600 traps employing female moths to attract males. Progress is being made (see Table), and as a result the core treatment zone has been reduced to an area of ca. 6,600 ha. In January, February, and March, 30, 24, and 9 moths, respectively, were trapped, compared with 1300, 2300, and 996 moths for the same months in the previous year. For the first time during the campaign, no moths were caught in any trap, during the week to 11 April 2003. However, a sustained zero result, especially during the summer months, is needed to affirm the success of the project.

Week ending (2003)	Total for week	By location			
		Waikumete Cemetery	Hobson -ville	Ranui	Other
21/03	1	0	0	1	0
28/03	1	0	0	0	1
4/04	1	0	0	0	1

Weekly trap catches of male painted apple moths to 4 April 2003

MAF is aware of the anxiety that aerial spraying has aroused among members of the public. Since its establishment in January 2002 some 10,000 people have telephoned the PAM Health Service with a health concern. Of these, some have merely required information over the telephone, but others were referred back to their own GP, while ca. 850 have undergone clinical assessment to determine whether the spray could affect them. Where a clinical assessment identifies that a householder should avoid the spray, an individualised 'practical support plan' (PSP) for that householder is developed. This may include spray-day warnings, a meal programme, motel accommodation, or in-home support. To date some 600 PSPs have been initiated.

MAF operates a comprehensive PAM communications programme. Television, radio and print advertising provide public advice and information on operational activities, the health service, and restrictions on the movement of vegetation and household items. The operational headquarters, based in west Auckland, runs a public telephone service 24-hours a day, 7 days a week (0800 96 96 96). The project is also advised by several groups, which currently include a science and technical advisory group, whose purpose is to provide independent scientific advice, and a Community Liaison Group, which includes among its tasks the canvassing of views from within the community. A telephone survey in November 2002 found that 70% of 300 randomly selected adults within the PAM zone agreed or strongly agreed that the aerial operation was necessary, despite its inconvenience. In addition, there are potential Treaty of Waitangi issues associated with the eradication campaign. Local Maori have been consulted and a memorandum of understanding is being developed.

(Rebecca Martel, MAF).

• PAM PROGRAMME SPRAY MONITORING

In order to eradicate the painted apple moth, it is important to ensure that sufficient spray product deposits where it will most effectively reach the pest larvae. Spray monitoring in the Auckland area has been conducted by Forest Research using a technique developed by John Ray (Forest Research), to



disclose the deposits of Btk. Sheets of plain white paper placed in the field during spraying are returned to the laboratory, immersed in a solution of ninhydrin, and baked until dry. The development of a purple colour indicates deposition of Btk spray droplets and enables the quantity to be determined. Interpretation can be challenging, because other amino acid sources also react positively with ninhydrin, such as those present in fingerprints, bird droppings, or raindrops, and as Btk is soluble in water, deposits may redistribute in rain or dew if retrieval is delayed. To reduce these effects, field staff are asked to wear latex gloves and avoid coughing or sneezing.

(Mike Haslett, Forest Research)

• NEW RECORDS

The following records reported by the Forest Health Reference Laboratory (Forest Research) result from a general surveillance programme comprising public enquiries, and small block and risk site surveys, funded by the Ministry of Agriculture and Forestry. Members of the public are encouraged to submit to this laboratory any samples of pests or pest damage on trees or shrubs that they suspect might be new to New Zealand. This is a free service funded by Ministry of Agriculture and Forestry for the detection of new pest introductions.

New to New Zealand – Fungus: *Coleroa senniana*; **Bioregion:** Taranaki; **Host:** *Protea nerifolia*; **Coll:** L Renney, 28/3/02; **Ident:** G Ridley, 26/3/03; **Comments:** This African fungus is considered to be a significant disease of Proteaceae grown for the cut flower trade. The fact that it has infected Australian Proteaceae (*Banksia* spp.) suggests that it might be capable of infecting NZ Proteaceae (*Toronia toru* and *Knightia excelsa*). However because of the wide dispersal of South African Proteaceae around the world as garden ornamentals it may possibly have been in NZ for some time.

Extension to known distribution and new host record for New Zealand–Fungus: *Coleroa senniana*; **Bioregion:** Bay of Plenty; **Host:** *Protea cynaroides*; **Coll:** B Rogan, 18/3/03; **Ident:** G Ridley, 26/3/2003; **Comments:** See above. Also found in Taranaki. This suggests that it might be widely distributed in NZ.

Extension to known distribution – Insect: *Stegommata sulfuratella* (Lyonetiidae); **Bioregion:** Nelson; **Host:** *Banksia integrifolia*; **Coll:** B Doherty, 3/4/2003; **Ident:** R Crabtree, 8/4/03; **Comments:** This is the first record of this species from the South Island.

Extension to known distribution – Insect: *Stegommata sulfuratella* (Lyonetiidae); **Bioregion:** Marlborough; **Host:** *Banksia integrifolia*; **Coll:** B Doherty, 10/4/2003; **Ident:** R Crabtree, 15/4/03; **Comments:** Previously only known from Nelson in the South Island, very widespread in the North Island.

Extension to known distribution – Insect: *Nematus oligospilus* (Tenthredinidae); **Bioregion:** Marlborough; **Host:** *Salix fragilis*; **Coll:** B Doherty, 10/4/2003; **Ident:** R Crabtree, 15/4/2003; **Comments:** This species is now widespread in the North and South Islands.

Extension to known distribution and new host record for New Zealand–Fungus: *Vermisporium obtusum*; **Bioregion:** Coromandel; **Host:** *Eucalyptus macarthurii*; **Coll:** C Inglis, 18/3/03; **Ident:** K Dobbie, 1/4/2003; **Comments:** This fungus is widespread and found on a number of *Eucalyptus* spp. It has an insignificant effect on tree health.

New host record for New Zealand – Insect: *Nambouria xanthops* (Pteromalidae); **Bioregion:** Auckland; **Host:** *Eucalyptus rubida*; **Coll:** C Inglis, 26/3/2003; **Ident:** R Crabtree, 27/3/2003; **Comments:** This species has been recorded from quite a few species of *Eucalyptus*, and is quite common on *E. cinerea* and *E. nicholii*.

New host record for New Zealand – Insect: *Oemona hirta* (Cerambycidae); **Bioregion:** Bay of Plenty; **Host:** *Hibiscus rosa-sinensis*; **Coll:** B Rogan, 28/3/2003; **Ident:** R Crabtree, 2/4/2003; **Comments:** Another addition to an already long host list.

New host record for New Zealand – Insect: *Uraba lugens* (Nolidae); **Bioregion:** Auckland; **Host:** *Eucalyptus camaldulensis*; **Coll:** C Inglis, 27/3/2003; **Ident:** T Withers, 1/4/2003; **Comments:** *E. camaldulensis* is a favoured host in Australia.

Extension to known distribution – Fungus: *Microthyriella hibisci*; **Bioregion:** Auckland; **Host:** *Hibiscus* sp.; **Coll:** J Bartam, 20/9/01; **Ident:** G Ridley, 26/3/03; **Comments:** Apart from the original description very little has been written about this fungus. No deleterious effects have been noted and it would appear that it is of little significance. It was associated with small black specks on the leaf. It is also known from Gisborne.

Extension to known distribution – Fungus: *Microthyriella hibisci*; **Bioregion:** Northland; **Host:** *Hibiscus* sp.; **Coll:** J Bartram, 31/1/03; **Ident:** G Ridley 26/3/03; **Comments:** Previously known from Gisborne, Auckland.

Extension to known distribution – Fungus: *Microthyriella hibisci*; **Bioregion:** Bay of Plenty; **Host:** *Hibiscus rosa-sinensis*; **Coll:** B Rogan 28/3/03; **Ident:** M Dick, 31/3/03; **Comments:** Previously known from Gisborne, Auckland, and Northland.

New host record for New Zealand – Fungus: *Marssonina betulae*; **Bioregion:** Waikato; **Host:** *Betula papyrifera*; **Coll:** L Renney, 10/4/2003; **Ident:** M Dick, 17/4/2003; **Comments:** This is a common leaf spot on *Betula pendula* from many locations in the North and South Islands

(John Bain, Forest Research)