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PIGS, GODS, EARTHWORMS, MOSQUITOES AND BEAUTIFUL RED BIRDS
(Or something to ponder on)

Pigs are Hawaii's worst forest pests. They churn up the forest floor, eliminate rare ground plants, remove the tree fern layer, generally trash the understorey and accelerate run-off. Where they are present in large numbers, their abundance appears to be linked with the presence of masses of earthworms in the forest soil. The worms are their major source of protein.

To some native Hawaiians, especially those who live off the land, the pig is an important cultural icon. At its most intense, the pig is sacred as a god who is the necessary mate for Madam Pele, the goddess of fire who creates the volcanoes. This union is essential for the creation of new land (a continuing consequence of volcanic activity). On a more practical level, the pig is crucial in the native Hawaiians' social culture. At several celebrations in an individual's life-birth, first birthday, coming of age, marriage, death-the feast must include a wild pig, necessarily a black one. A breadwinner who cannot put a pig on the table for such an occasion is shamed by his inadequacy. Against this background, the conflict between culture and conservation has at times been extreme and remains unresolved.

To get at the nutritious core of tree ferns, the pigs "ride" them down, strip off the outside and eat out the centre. The hollow trunks left on the forest floor, together with the pig wallows, increase the places where rain water accumulates and provide favoured breeding places for *Culex quinquefasciatus*, the introduced vector of avian malaria. In this way, feral pigs play a major role in the spread and maintenance of avian malaria.

Having evolved in the absence of malaria, Hawaii's native birds are highly susceptible to it. Research has shown that being caged for one night with a single infected mosquito is enough exposure to kill an I'iwi, (scarlet honeycreeper, *Vestiaria coccinea*) one of the beautiful red native birds. More than half the native bird species have become extinct, and there seems no doubt that malaria has been an important factor in their demise, although certainly not the only one. Conversely, introduced birds are much more tolerant and, of course, brought the malaria into Hawaii.

These facts raise several questions in relation to New Zealand. Why is the pig so much less important a forest pest here? Is it because, by good luck or good management, we don't have the same wealth of earthworm species? (There seem to be over 40 species in Hawaii, all of which are thought to have been introduced). We have bird malaria in some New Zealand native birds, and its mosquito vector in some localities — has it been a factor in the bird extinctions here? Is the malaria strain a mild one or a virulent one? What safeguards do we have to prevent the importation of infected birds that may introduce more virulent malaria strains?

The complex relationships that can spring up between such diverse creatures as earthworms, pigs, mosquitoes, tree ferns, birds and human culture are a reminder that we cannot foresee the consequences when we allow new organisms to come into an ecosystem.

Colin Bassett - Wellington

COMMENT ON NEW RECORDS IN FH NEWS 191 (JANUARY 2009)

Rosa Henderson, Landcare Research, Auckland, has kindly pointed out some dubious records that were reported in last issue of FH News. *Carmichaelia* and *Pseudopanax* were listed as hosts of *Leucaspis cordylinidis* (Diaspididae). These records are almost certainly based on mis-identifications. They were old records in the Forest Health Database but because no voucher specimens were kept there is no way of checking. The same applies to the records of *Pseudaulacaspis cordylinidis (*Diaspididae) on *Asplenium*, *Eucalyptus* and *Pseudopanax*. These days voucher specimens are kept for all new records so instances of dubious records are rapidly diminishing. Apart from setting the records straight I was pleased to receive Rosa's comments because it was proof that people do read these new records.

John Bain

*Newsletter of the **Scion Forest Protection team**, 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@scionresearch.com> Web site < http://www.ensisjv.com/biosecurity >*

NEW RECORDS

New host record for New Zealand – Insect: *Ochrosopsis subfasciata* (Chrysomelidae); **Region:** Wairarapa; **Host:** *Eucalyptus pauciflora*; **Coll:** B Rogan, 01/02/2009; **Ident:** J Bain, 03/02/2009; **Comments:** This Australian species was first found in New Zealand in 1980.

New host record for New Zealand – Insect: *Paropsis charybdis* (Chrysomelidae); **Region:** Wairarapa; **Host:** *Eucalyptus pauciflora*; **Coll:** B Rogan, 01/02/2009; **Ident:** J Bain, 03/02/2009; **Comments:** An Australian defoliator, common on *Eucalyptus* spp.

New host record for New Zealand – Insect: *Ctenopseustis obliquana* (Tortricidae); **Region:** Auckland; **Host:** *Paraserianthes lophanta*; **Coll:** J Goodenough, 16/01/2009; **Ident:** S Sopow, 04/02/2009; **Comments:** This native caterpillar has a very wide host range.

New host record for New Zealand – Insect: *Phloeophagosoma dilutum* (Curculionidae); **Region:** Wellington; **Host:** *Phormium tenax*; **Coll:** B Rogan, 29/01/2009; **Ident:** S Sopow, 09/02/2009; **Comments:** This native species has been recorded from the dead wood of a great variety of hosts. It was boring inside dead stalks.

New host record for New Zealand – Insect: *Ctenopseustis obliquana* (Tortricidae); **Region:** Bay of Plenty; **Host:** *Syncarpia glomulifera*; **Coll:** J Bartram, 14/01/2009; **Ident:** S Sopow, 10/02/2009; **Comments:** This native caterpillar has a very wide host range.

New host record for New Zealand – Insect: *Ceroplastes sinensis* (Coccidae); **Region:** Auckland; **Host:** *Punica granatum*; **Coll:** C Inglis, 04/02/2009; **Ident:** S Sopow, 02/02/2009; **Comments:** This introduced species is found in mostregions in the northern half of the North Island. It has a wide host range.

New host record for New Zealand – Insect: *Hemiberlesia rapax* (Diaspididae); **Region:** Wellington; **Host:** *Hebe topiaria*; **Coll:** B Rogan, 29/01/2009; **Ident:** R Henderson, 10/02/2009; **Comments:** This cosmopolitan species has a very wide host range.

New host record for New Zealand – Insect: *Saissetia coffeae* (Coccidae); **Region:** Auckland; **Host:** *Schefflera actinophylla*; **Coll:** C Inglis, 29/01/2009; **Ident:** S Sopow, 03/02/2009; **Comments:** This very polyphagous, tropicopolitan species was first reported from New Zealand in 1879. It is often a pest on ornamentals.

New host record for New Zealand – Insect: *Pseudococcus longispinus* (Pseudococcidae); **Region:** Auckland; **Host:** *Schefflera actinophylla*; **Coll:** C Inglis, 29/01/2009; **Ident:** R Henderson, 10/02/2009; **Comments:** This cosmopolitan species was first recorded from New Zealand in 1890. It has been recorded from a wide range of hosts.

New host record for New Zealand – Insect: *Coccus hesperidum* (Coccidae); **Region:** Auckland; **Host:** *Schefflera actinophylla*; **Coll:** C Inglis, 29/01/2009; **Ident:** R Henderson, 10/02/2009; **Comments:** This cosmopolitan scale insect was first found in New Zealand in 1878. It is extremely polyphagous and is found on native and exotic plants. It is a serious pest of ornamentals, both indoors and outdoors.

New host record for New Zealand – Insect: *Mitophyllus arcuatus* (Lucanidae); **Region:** Auckland; **Host:** *Prunus* sp.; **Coll:** C Inglis, 14/01/2009; **Ident:** S Sopow, 19/01/2009; **Comments:** This native stag beetle is found in the northern half of the North Island. It feeds in dead and rotten wood of a variety of hosts.

New host record for New Zealand – Insect: *Mitophyllus arcuatus* (Lucanidae); **Region:** Auckland; **Host:** *Stranvaesia davidiana*; **Coll:** C Inglis, 28/01/2009; **Ident:** S Sopow, 04/02/2009; **Comments:** See above.

New host record for New Zealand – Insect: *Oemona hirta* (Cerambycidae); **Region:** Wellington; **Host:** *Euonymus japonica*; **Coll:** B Rogan, 13/02/2009; **Ident:** S Sopow, 17/02/2009; **Comments:** This native stem and branch borer has a very extensive host range.

New host record for New Zealand – Insect: *Prionoplus reticularis* (Cerambycidae); **Region:** Wellington; **Host:** *Pinus nigra*; **Coll:** B Rogan, 16/02/2009; **Ident:** J Bain, 18/02/2009; **Comments:** *P. reticularis* is usually associated with the dead wood of conifers but there are a few records from hardwoods, e.g. *Acacia, Beilschmiedia, Eucalyptus and Nothofagus.* These hardwoods are often partly decayed.

New host record for New Zealand – Insect: *Ochrosopsis subfasciata* (Chrysomelidae); **Region:** Wellington; **Host:** *Syzygium smithii*; **Coll:** B Rogan, 17/02/2009; **Ident:** S Sopow, 18/02/2009; **Comments:** This Australian species is found throughout much of the North Island. It is usually associated with *Eucalyptus* spp.

New host record for New Zealand – Insect: *Ctenopseustis obliquana* (Tortricidae); **Region:** Wellington; **Host:** *Crataegus monogyna*; **Coll:** B Rogan, 16/02/2009; **Ident:** S Sopow, 24/02/2009; **Comments:** This native caterpillar has a very wide host range.

New host record for New Zealand – Insect: *Oemona hirta* (Cerambycidae); **Region:** Wellington; **Host:** *Crataegus monogyna*; **Coll:** B Rogan, 16/02/2009; **Ident:** S Sopow, 17/02/2009; **Comments:** This native stem and branch borer has a very extensive host range.

New host record for New Zealand – Insect: *Lepidosaphes ulmi* (Diaspididae); **Region:** Wellington; **Host:** *Crataegus monogyna*; **Coll:** B Rogan, 16/02/2009; **Ident:** S Sopow, 23/02/2009; **Comments:** This cosmopolitan scale insect has a very wide host range.

New host record for New Zealand – Insect: *Lindingaspis rossi* (Diaspididae); **Region:** Wellington; **Host:** *Protea cynaroides*; **Coll:** B Rogan, 19/02/2009; **Ident:** S Sopow, 23/02/2009; **Comments:** This armoured scale insect is sub-cosmopolitan in tropics and sub-tropics. It has been recorded from a wide range of native and exotic plants.

New host record for New Zealand – Insect: *Essigella californica* (Aphididae); **Region:** North Canterbury; **Host:** *Pinus coulteri*; **Coll:** M Hansen, 18/02/2009; **Ident:** S Sopow, 26/02/2009; **Comments:** This aphid was first found in New Zealand in 1998 and is now found throughout most of the country where its hosts (*Pinus*) are grown.

New host record for New Zealand – Insect: *Hemiberlesia rapax* (Diaspididae); **Region:** Wellington; **Host:** *Halocarpus bidwillii*; **Coll:** B Rogan, 19/02/2009; **Ident:** R Henderson, 27/02/2009; **Comments:** This cosmopolitan species has a very wide host range.

New distribution record for New Zealand – Insect: *Ochrosopsis subfasciata* (Chrysomelidae); **Region:** Wairarapa; **Host:** *Eucalyptus pauciflora*; **Coll:** B Rogan, 01/02/2009; **Ident:** J Bain, 03/02/2009; **Comments:** This Australian species was first found in New Zealand in 1980 and is now found throughout much of the North Island.

New distribution record for New Zealand – Insect: *Ochrosopsis subfasciata* (Chrysomelidae); **Region:** Wellington; **Host:** *Syzygium smithii*; **Coll:** B Rogan, 17/02/2009; **Ident:** S Sopow, 18/02/2009; **Comments:** See above.

New distribution record for New Zealand – Insect: *Stegommata sulfuratella* (Lyonetiidae); **Region:** Wairarapa; **Host:** *Banksia integrifolia*; **Coll:** B Rogan, 01/02/2009; **Ident:** S Sopow, 03/02/2009; **Comments:** This Australian leaf miner was first found in New Zealand in 1999. It is now found throughout most of the North Island and the upper part of the South Island.

New to New Zealand – Fungus: *Ophionectria* sp.; **Region:** Waikato; **Host:** *Banksia* hybrid; **Coll:** J Bartram, 10/11/2008; **Ident:** P Gadgil, 10/02/2009; **Comments:** Ascocarps of the fungus were superficial amongst the tomentum on the undersides of the leaves. There are only two described species of *Ophionectria* which are recorded as saprophytes on wood and plant debris from Central and South America. This species is clearly different.

New host record for New Zealand – Fungus: *Phyllosticta concentrica*; **Region:** Wellington; **Host:** *Ilex* x *altaclerensis*; **Coll:** B Rogan, 29/01/2009; **Ident:** K Walbert, 05/02/2009; **Comments:** This fungus is associated with minor dieback. The identification is based on morphology; molecular work is being carried out to confirm the identification.

New distribution record for New Zealand – Fungus: *Pseudocercospora handelii*; **Region:** Westland; **Host:** *Rhododendron* sp.; **Coll:** P Bradbury, 12/02/2009; **Ident:** K Walbert, 17/02/2008; **Comments:** This fungus is restricted to *Rhododendron.* It causes leaf spots and can be serious on some varieties in nurseries.

New host record for New Zealand – Fungus: *Bionectria ochroleuca*; **Region:** Nelson; **Host:** *Quercus robur*; **Coll:** B Doherty, 15/10/2008; **Ident:** K Walbert, 28/01/2008; **Comments:** This species has been recorded from a range of hosts. It is not a known pathogen.

John Bain

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