



BORDER HEALTH NEWSLETTER - MAY 2011

WELCOME!

Hi everyone. I hope you are enjoying the warmer and wetter (in many places) than usual winter so far. With a warmer long term winter forecast, make sure you keep an eye out for unusual activity and plan for larger than usual numbers in early spring and possibly summer if the forecast proves to be accurate. As always, report any unusual biting activities to the lab via the taxonomy email.

INCURSIONS/INTERCEPTIONS

There were two interception callouts during May. The first was on the 4th May when *Culex quinquefasciatus* larvae were found in a hopper and a dump truck from a ship ex Brisbane at Ports of Auckland.

The second was on the 31st May when an adult male *Culex quinquefasciatus* was found in the MAF arrivals area at Auckland International Airport.

WEBSITE

Octenol (1-Octen-3-ol) is available for purchase from the online shop in 100ml aliquots. It can be found in the light trap section.

Many other products which assist with attracting, catching or killing pest invertebrates are also available as a response to the nuisance pest enquiries received from the public and our clients. Make sure you take the time to familiarise yourself with what's on offer from time to time.

We hope you are finding this on-line service useful and as always are interested to hear about other products you may wish us to include. Please feel free to contact us through the website, or email us directly at enquiries@smsl.co.nz or taxonomy@nzbiosecure.net.nz.

SAMPLES

During May, 399 samples were collected by staff from 11 District Health Boards, with 64 positive. Sampling numbers were down on last month which is expected at this time of year, however the sample numbers were down but the number of positive samples was increased on this time last year. The specimens received were:

Species	Adults	Larvae
NZ Mozzies		
<i>Aedes antipodeus</i>	4	0
<i>Ae. notoscriptus</i>	11	826
<i>Culex pervigilans</i>	3	329
<i>Cx. quinquefasciatus</i>	30	310
<i>Opifex fuscus</i>	0	6
Exotics	0	0
TOTAL MOSQUITOES	48	1471

BORDER HEALTH COURSE

Just a reminder that the National Border Health Protection Course is being run 25-29th July at the Blue Skies Conference Centre, Kaiapoi (north of Christchurch).

The course is limited to 13 students and registrations close on the 24th June so those of you needing to renew their certification better get on to your managers and get booked in soon.

For more information, go to the training section of the SMS website www.smsl.co.nz.





NEW ZEALAND BIOSECURE

Entomology Laboratory



MOSQUITO-BORNE DISEASES

MURRAY VALLEY ENCEPHALITIS - WESTERN AUSTRALIA

Source: Sydney Morning Herald 27 May 2011, reported on ProMED Mail 29 May 2011
<http://news.smh.com.au/breaking-news-national/toddler-and-cop-contract-mosquito-disease-20110527-1f7pg.html>

A toddler and a policeman have become the latest victims of a potentially deadly mosquito-borne disease in Western Australia. The 2-year-old child contracted Murray Valley encephalitis (MVE) in the Kimberley and is now in Royal Darwin Hospital in a stable condition.

Constable Ryan Marron, 29, has come out of a coma in a Perth hospital but is still unable to communicate. The policeman contracted the disease during a 2-week relief stint at an Aboriginal community. It is not known whether the pair will fully recover.

Last month [April 2011], a man who had been travelling in WA's northwest became the 1st person in the state to die from the disease in 3 years. A 19-year-old Canadian tourist also died after contracting MVE while travelling through the Northern Territory earlier this month [May 2011, see ProMED-mail archive no. 20110526.1610].

A Health Department spokeswoman said 9 West Australians had contracted MVE this year [2011]. Several people remain very ill in hospital, she said.

Medical entomologist Sue Harrington said initial symptoms of MVE include fever, drowsiness, headache, a stiff neck, nausea and dizziness. In severe cases, people could experience fits, lapse into a coma and could be left with permanent brain damage or die, she said.

Ms Harrington said it was important for people to prevent mosquito bites by avoiding outdoor exposure at night, securing insect screens and wearing protective long-sleeve clothing outdoors.

CASES OF DENGUE FEVER DOUBLE AMONG UK TRAVELLERS

Source: Reuters (London), 11 May 2011
<http://www.reuters.com/article/2011/05/11/us-britain-dengue-idUSTRE74A1TP20110511>

Cases of dengue fever, a mosquito-borne infection, have more than doubled in Britain in the past year with the majority of infections linked to travel to India, health officials said on Wednesday

Data from the Health Protection Agency (HPA) showed there were 406 cases of the disease among Britons who travelled abroad during 2010, up from 166 reported cases in 2009.

Dengue fever does not naturally occur in Britain, and the highest proportion of cases were associated with travel to India -- with 84 cases or 21 percent and Thailand -- with 61 cases 15 percent, the HPA said.



"These figures demonstrate that the importance of taking precautions to avoid mosquito bites extends to protecting against other infections, not just malaria," said Dr Jane



NEW ZEALAND BIOSECURE

Entomology Laboratory



Jones, head of the HPA's travel and migrant health section.

Global incidence of dengue fever has grown dramatically in recent decades. According to the World Health Organization, around 2.5 billion people -- two fifths of the world's population -- are now at risk from dengue and there are an estimated 50 million dengue infections worldwide every year.

The increase in dengue cases in Britain was also coupled with a 34 percent rise in the number of reported cases of chikungunya, another mosquito borne infection, the HPA said, with half of the 79 chikungunya cases in 2010 also associated with travel to India.

Both dengue and chikungunya are endemic in Asia and Africa and dengue is also common in many other parts of the world including South America, Central America and the Caribbean and the Western Pacific.

The diseases are not spread from person to person but only through the bite of an infected mosquito. Symptoms for both dengue and chikungunya include sudden onset of a flu-like illness with fever, muscle pain, headache and a rash.

There is no vaccine or drug to prevent or treat either disease, and unlike for malaria where people can take medication to prevent infection, there is no drug prevention option for dengue or chikungunya.

French drugmaker Sanofi-Aventis is one of various groups and firms seeking to develop a dengue vaccine and is currently testing it in late stage clinical trials.

Jones said tourists and other travelers should wear covering clothing and use insect repellents to minimize the risk of being bitten by mosquitoes, since those that spread dengue and chikungunya bite during the daytime, while

those that spread malaria are mainly active at night.

MOSQUITO RESEARCH

SMELLY CHEMICALS CONFUSE MOSQUITOES

Source: James Gallagher, Health reporter, BBC News 1 June 2011 <http://www.bbc.co.uk/news/health-13614781>

Chemicals which interfere with a mosquito's ability to sniff out humans have been developed by US scientists, according to research in Nature.

It is hoped they could be used to develop the next generation of mosquito traps and repellents.

A UK expert said the discovery could be a "major step forward" if the chemicals were safe and cheap.



Female mosquitoes follow a trail of carbon dioxide

Blood sucking female mosquitoes use carbon dioxide in exhaled breath to track down humans. They can detect minute changes in the concentration of the gas.

This knowledge is already used in carbon dioxide traps, but requires dry ice or gas cylinders - which mean they are rarely used in developing countries.

Researchers have been looking for chemicals which can disrupt or confuse a mosquito's carbon dioxide sense.



NEW ZEALAND BIOSECURE

Entomology Laboratory



Deception

Scientists at the University of California, Riverside, tested smelly chemicals on three species of mosquito: *Anopheles gambiae*, which spreads malaria; *Culex quinquefasciatus*, which spreads filariasis and West Nile virus; and *Aedes aegypti* which spreads dengue and yellow fever.



***Anopheles gambiae* is responsible for the vast majority of malaria cases in Africa**

The researchers say that these insects combined infect half a billion people each year, some in at risk countries will be infected multiple times in their lifetime, and cause millions of deaths.

The researchers identified three groups of chemicals, which disrupt a mosquito's carbon dioxide receptors.

One mimicked carbon dioxide and could be used as bait in insect traps, another prevented the mosquito from detecting carbon dioxide and the last group tricked the mosquito's brain into thinking it was surrounded by huge quantities of the gas - so it could not pick which way to go.

Professor Anandasankar Ray, from the University of California, Riverside, said: "These chemicals offer powerful advantages as potential tools for reducing mosquito-human contact, and can lead to the development of new generations of insect repellents and lures.

"The identification of such odour molecules, which can work even at low concentrations, and are therefore economical, could be enormously effective in compromising the ability of mosquitoes to seek humans, thus helping control the spread of mosquito-borne diseases."

Carbon dioxide is not the only way mosquitoes can find their dinner however, as the smell of human sweat and skin can also be used.

Dr James Logan, from the London School of Hygiene and Tropical Medicine, said: "Whilst this is an exciting study, the authors are yet to show that the chemicals are capable of protecting a human being from being bitten.

"Although carbon dioxide is an important cue for mosquitoes, we know that mosquitoes respond differently to a trap releasing carbon dioxide than to a real human being, which releases a complex mixture of many attractive chemicals, heat, visual cues and moisture.

"The key question is - do the 'response modifying odours' actually protect a human being?"

The chemicals also need to be used at high concentrations, which could be hazardous to human health. The researchers say their next step is to develop safer chemicals.

Dr Nikolai Windbichler, from Imperial College London, said work needed to be done to ensure they were safe and could be produced at low cost.



NEW ZEALAND BIOSECURE

Entomology Laboratory



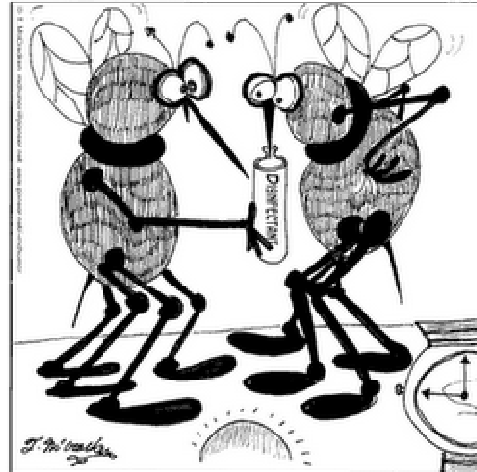
He added: "These compounds have novel and desirable properties because they can confuse the mosquitoes' host seeking behaviour even when the substances are no longer present or the mosquitoes have left the area of application."

"This, if realised, could be a major step forward and could protect large groups of people or large areas, something that is not currently feasible with existing repellents."

Mark Stopfer, from the US National Institutes of Health, said the study offered "a promising line of defence."

Photo of the Month

McHEUMOR.com by T. McCracken



"I try to be considerate and always sterilize my stinger before biting into a new victim."