



# BORDER HEALTH NEWSLETTER – April 2014

## WELCOME!

Welcome everybody! We hope you all had a great break and enjoyed lots of Easter eggs. New Zealand’s weather becomes noticeable cooler and the days are shorter. April temperatures and rainfall were average or below average for the north and west of both Islands while in the eastern regions of both Islands, rainfall has been above average, including Christchurch which is still feeling the effects of recent floods. It is nice to see the sun after heavy rainfall and the extra-tropical cyclone (ETC) Ita. Mosquito numbers are decreasing as expected cold snaps and frosts occur in some parts of the country as autumn progresses.

If you would like to see NIWAs full outlook for your area you will find it here:  
<http://www.niwa.co.nz/node/110036>

## INCURSIONS/INTERCEPTIONS

There were two interception events during April, involving a non-mosquito (Crane fly) and one exotic saltmarsh mosquito *Aedes taeniorhynchus* (Wiedemann, 1812) found at Mt. Wellington in Auckland.

## SAMPLES

During April, 941 samples were collected by staff from 12 District Health Boards, with 252 positive. Samples collected, including positives, were similar to last month but below this time last year. The number of larvae were well below last month but above April last year.

Adults were significantly lower than both, last month and this time last year. The specimens received were as follows:

Species	Adults	Larvae
<b>NZ Mozzies</b>		
<i>Aedes antipodeus</i>	1	50
<i>Ae. notoscriptus</i>	40	1304
<i>Culex pervigilans</i>	59	1297
<i>Cx. quinquefasciatus</i>	353	477
<i>Cq. iracunda</i>	0	0
<i>Opifex fuscus</i>	6	62
<i>Ae. australis</i>	0	13
<b>TOTAL MOSQUITOES</b>	<b>459</b>	<b>3203</b>

## WEBSITE

New species profiles and information sections for nuisance pests and vector organisms including bedbugs, black flies and ticks continue to be added too.

The SMS training pages have also been updated including the National Border Health and Ship Sanitation Certificate course at Blue Skies Conference Centre, Kaiapoi on 28 July - 1 August 2014. For those wanting to be nominated for the Border Health & SSC course at Kaiapoi please check the SMS website for details of pre-course requirements and pre-course reading. Everyone wishing to attend the course this year needs to register for the on-line training package through [ihrht@who.int](mailto:ihrht@who.int).

Don't forget newsletters and reports are all able to be downloaded from the website and if you can't find something please let us know. Please send us an email ([enquiries@smsl.co.nz](mailto:enquiries@smsl.co.nz) or [taxonomy@nzbiosecure.net.nz](mailto:taxonomy@nzbiosecure.net.nz)) with any feedback or requests we may be able to assist you with.

## CONTACT DETAILS

For all mosquito enquiries during business hours (7.30am-4.30pm):  
Phone: NZBEL 021 522 476 or 021 0299 7503  
Email: [taxonomy@nzbiosecure.net.nz](mailto:taxonomy@nzbiosecure.net.nz)  
(a landline will be provided as soon as possible).

**For suspected exotic mosquitoes after hours**  
**Call "0800mozzie"** – Refer EH Manual Procedures

Current NZBEL staff member details  
Julia Kasper (021 0299 7503) - [julia.kasper@smsl.co.nz](mailto:julia.kasper@smsl.co.nz)  
Matthew Chaplin (021 104 6293) - [matthew.chaplin@smsl.co.nz](mailto:matthew.chaplin@smsl.co.nz)  
Monica Singe (021 220 9556) - [monica.singe@smsl.co.nz](mailto:monica.singe@smsl.co.nz)  
On Call - 021 522 476

### Postal Details for NZBEL have not changed

New Zealand BioSecure      NZB Entomology Laboratory  
2-4 Bell Road South      PO Box 38 328  
Gracefield Lower Hutt      Wellington Mail Centre 5045

*A BIG THANK YOU to Mark, Jess and Rochelle and MCS, Almost 13 years! We hope you stay in touch!*



INSECT-BORNE DISEASES

World Health Day 2014: small bite, big threat

"Mosquitoes, flies, ticks and bugs may be a threat to your health – and that of your family - at home and when travelling. This is the message of this year's World Health Day, on 7 April."

More than half the world's population is at risk of these diseases, which include malaria, dengue, leishmaniasis and yellow fever. The poorest people in the world are the most affected. However, environmental change and the rapid and increased movement of people and goods around the world means that the risks are now much more widespread. The World Health Day 2014 campaign focuses on vectors, the diseases they cause and simple precautions we can all take to protect ourselves and our families.

See the great response at Heathrow Airport:

<https://www.youtube.com/watch?v=WgEJDkHskUQ&list=UU07-dOwzA1IguKA86jqxNA>

(viruses). While the mosquitoes that plagued northern Brisbane recently have started to die off, the Brisbane City Council fears high tides this weekend could mean more outbreaks. The council's entomologists will start spraying to kill the larvae if needed. Meanwhile, Queensland Health has already reported an increase in cases of the mosquito-carried diseases Ross River virus (RRV) and Barmah Forest virus (BFV) in Brisbane. There have been 23 RRV cases this year (2014), including 9 in the past month (approx. 21 Mar to 21 Apr 2014), as well as 16 BFV. QH public health physician Heidi Carroll said while it was only slightly above average for this time of year, they were preparing for more cases. "What we worry about is when there's significant rain events," she said. "More mosquitoes means they're more likely to bite people and that leads to increases in Ross River virus and Barmah Forest virus [infections]." Symptoms of RRV and BFV infections include painful and swollen joints, sore muscles, skin rashes, fever, fatigue and headaches, which can last from weeks to months. Dr Carroll said there were no treatments for it, other than rest. A council spokeswoman said insect repellent, mosquito coils and lanterns can be used outdoors, while 240V plug-in devices can be used indoors.

[Byline: Matthew Killoran]

Communicated by:

ProMED-mail from HealthMap Alerts <promed@promedmail.org>



An info sheet designed like a boarding pass informs travelers.

Source: <http://www.who.int/campaigns/world-health-day/2014/en/>

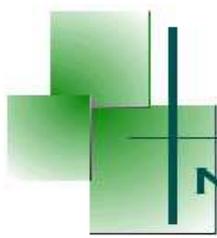
ROSS RIVER VIRUS

Increase-in-cases-of-mosquitocarried-diseases-ross-river-virus-and-barmah-forest-virus

Health authorities are preparing for a spike in mosquito-borne viruses following a population explosion of the blood-sucking insects. A long, dry spell mixed with recent rains has set off eggs dormant in the ground. Queensland Health has warned holidaymakers to take precautions because the mozzies could be carrying disease

Ross River virus has been actively transmitted in Western Australia this year (2014). RRV transmission to humans, although sporadic in Australia, occurs during the wet season when vector mosquitoes are abundant. RRV is a zoonotic alphavirus transmitted by a wide range of mosquitoes including *Aedes* and *Culex* species. Although not fatal, it causes acute polyarthritis in humans. An extensive summary of Barmah Forest virus epidemiology in Australia and the disease it produces can be found in ProMED-mail archive no.20130417.1653395.

BFV is endemic in the country, and future outbreaks can be expected when there are periods of higher than usual rainfall that often bring an increase in mosquito populations, with



corresponding increases in transmission of endemic arthropod-borne viruses, including BFV, in those areas. This is the cause of concern for Queensland health authorities currently. No vaccines are commercially available for either of these viruses. The only preventive measures available are vector control and avoidance of mosquito bites. A Health Map/ProMED-mail map showing the location of Queensland can be accessed at <<http://healthmap.org/r/1kJr>> and at <<http://healthmap.org/r/1z>>. - Mod.TY]

Source: The Courier-Mail [edited]  
Date: Mon 21 Apr 2014  
<http://www.couriermail.com.au/news/queensland/queensland-health-reports-inc>

### Chikungunya – Fact sheet of the WHO

Chikungunya is a viral disease transmitted to humans by infected mosquitoes. It causes fever and severe joint pain. Other symptoms include muscle pain, headache, nausea, fatigue and rash. The disease shares some clinical signs with dengue, and can be misdiagnosed in areas where dengue is common.

There is no cure for the disease. Treatment is focused on relieving the symptoms.

The proximity of mosquito breeding sites to human habitation is a significant risk factor for chikungunya. Since 2004, chikungunya fever has reached epidemic proportions, with considerable morbidity and suffering.

The disease occurs in Africa, Asia and the Indian subcontinent. In recent decades mosquito vectors of chikungunya have spread to Europe and the Americas. In 2007, disease transmission was reported for the first time in a localized outbreak in north-eastern Italy.

Chikungunya is a mosquito-borne viral disease first described during an outbreak in southern Tanzania in 1952. It is an RNA virus that belongs to the alphavirus genus of the family Togaviridae. The name 'chikungunya' derives from a word in the Kimakonde language, meaning "to become contorted" and describes the stooped appearance of sufferers with joint pain (arthralgia).

### Signs and symptoms

Chikungunya is characterized by an abrupt onset of fever frequently accompanied by joint pain. Other common signs and symptoms include muscle pain, headache, nausea, fatigue and rash. The joint pain is often very debilitating, but usually lasts for a few days or may be prolonged to weeks.

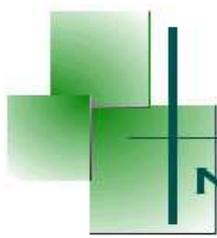
Most patients recover fully, but in some cases joint pain may persist for several months, or even years. Occasional cases of eye, neurological and heart complications have been reported, as well as gastrointestinal complaints. Serious complications are not common, but in older people, the disease can contribute to the cause of death. Often symptoms in infected individuals are mild and the infection may go unrecognized, or be misdiagnosed in areas where dengue occurs.

### Transmission

Chikungunya has been identified in nearly 40 countries in Asia, Africa, Europe and also in the Americas.



The virus is transmitted from human to human by the bites of infected female mosquitoes. Most commonly, the mosquitoes involved are *Aedes aegypti* and *Aedes albopictus*, two species, which can also transmit other mosquito-borne viruses, including dengue. These mosquitoes can be found biting throughout daylight hours, though there may be peaks of activity in the early morning and late afternoon. Both species are found biting outdoors, but *Ae. aegypti* will



NEW ZEALAND BIOSECURE



Entomology Laboratory



also readily feed indoors. After the bite of an infected mosquito, onset of illness occurs usually between four and eight days but can range from two to 12 days.

### Diagnosis

Several methods can be used for diagnosis. Serological tests, such as enzyme-linked immunosorbent assays (ELISA), may confirm the presence of IgM and IgG anti-chikungunya antibodies. IgM antibody levels are highest three to five weeks after the onset of illness and persist for about two months. Samples collected during the first week after the onset of symptoms should be tested by both serological and virological methods (RT-PCR).

The virus may be isolated from the blood during the first few days of infection. Various reverse transcriptase-polymerase chain reaction (RT-PCR) methods are available but are of variable sensitivity. Some are suited to clinical diagnosis. RT-PCR products from clinical samples may also be used for genotyping of the virus, allowing comparisons with virus samples from various geographical sources.

### Treatment

There is no specific antiviral drug treatment for Chikungunya. Treatment is directed primarily at relieving the symptoms, including the joint pain using anti-pyretics, optimal analgesics and fluids. There is no commercial chikungunya vaccine.

### Prevention and control

The proximity of mosquito vector breeding sites to human habitation is a significant risk factor for chikungunya as well as for other diseases that these species transmit. Prevention and control relies heavily on reducing the number of natural and artificial water-filled container habitats that support breeding of the mosquitoes. This requires

mobilization of affected communities. During outbreaks, insecticides may be sprayed to kill flying mosquitoes, applied to surfaces in and around containers where the mosquitoes land, and used to treat water in containers to kill the immature larvae.

For protection during outbreaks of chikungunya, clothing which minimizes skin exposure to the day-biting vectors is advised. Repellents can be applied to exposed skin or to clothing in strict accordance with product label instructions. Repellents should contain DEET (N, N-diethyl-3-methylbenzamide), IR3535 (3-[N-acetyl-N-butyl]-aminopropionic acid ethyl ester) or icaridin (1-piperidinecarboxylic acid, 2-(2-hydroxyethyl)-1-methylpropylester). For those who sleep during the daytime, particularly young children, or sick or older people, insecticide treated mosquito nets afford good protection. Mosquito coils or other insecticide vaporizers may also reduce indoor biting.

Basic precautions should be taken by people traveling to risk areas and these include use of repellents, wearing long sleeves and pants and ensuring rooms are fitted with screens to prevent mosquitoes from entering.

### Disease outbreaks

Chikungunya occurs in Africa, Asia and the Indian subcontinent. Human infections in Africa have been at relatively low levels for a number of years, but in 1999-2000 there was a large outbreak in the Democratic Republic of the Congo, and in 2007 there was an outbreak in Gabon.

Starting in February 2005, a major outbreak of chikungunya occurred in islands of the Indian Ocean. A large number of imported cases in Europe were associated with this outbreak, mostly in 2006 when the Indian Ocean epidemic was at its peak. A large outbreak of chikungunya in India occurred in 2006 and 2007. Several other countries in South-East Asia were also affected. Since 2005, India, Indonesia, Thailand, Maldives



NEW ZEALAND BIOSECURE

Entomology Laboratory



and Myanmar have reported over 1.9 million cases. In 2007 transmission was reported for the first time in Europe, in a localized outbreak in north-eastern Italy. There were 197 cases recorded during this outbreak and it confirmed that mosquito-borne outbreaks by *Ae. albopictus* are plausible in Europe.

In December 2013, France reported 2 laboratory-confirmed autochthonous (native) cases of chikungunya in the French part of the Caribbean island of St Martin. Since then, local transmission has been confirmed in the Dutch part of Saint Martin [St Maarten], Anguilla, British Virgin Islands, Dominica, French Guiana, Guadeloupe, Martinique and St Barthelemy. Aruba only reported imported cases.

This is the first documented outbreak of chikungunya with autochthonous transmission in the Americas. As of 6 March 2014, there have been over 8000 suspected cases in the region. Both *Ae. aegypti* and *Ae. albopictus* have been implicated in large outbreaks of chikungunya. Whereas *Ae. aegypti* is confined within the tropics and sub-tropics, *Ae. albopictus* also occurs in temperate and even cold temperate regions. In recent decades *Ae. albopictus* has spread from Asia to become established in areas of Africa, Europe and the Americas.

The species *Ae. albopictus* thrives in a wider range of water-filled breeding sites than *Ae. aegypti*, including coconut husks, cocoa pods, bamboo stumps, tree holes and rock pools, in addition to artificial containers such as vehicle tyres and saucers beneath plant pots. This diversity of habitats explains the abundance of *Ae. albopictus* in rural as well as peri-urban areas and shady city parks.

*Ae. aegypti* is more closely associated with human habitation and uses indoor breeding sites, including flower vases, water storage vessels and concrete water tanks in bathrooms, as well as the same artificial outdoor habitats as *Ae. albopictus*.

In Africa several other mosquito vectors have been implicated in disease transmission, including species of the *A. furcifer-taylori* group and *A. luteocephalus*. There is evidence that some animals, including non-primates, rodents, birds and small mammals may act as reservoirs.

Source: <http://www.who.int/mediacentre/factsheets/fs327/en/>

## Photo of the Month

A landscape of used tires. Each single one a perfect breeding site for mosquitoes. Source: Introduction of Chikungunya Virus into the Western Hemisphere By: Dr. Ann Powers, US Centers for Disease Control and Prevention

