

BORDER HEALTH NEWSLETTER – JUNE 2021

WELCOME!

Kia Ora Koutou,

This month we welcome Mary Paul to the NZB lab team! She has been with us just for a week but we can already tell that her skills and talents will be a great addition to lab, its great to have you join us!

In the news this month, we bring you the freshly launched Manual for Surveillance and Control of *Aedes* vectors in the Pacific produced by the Pacific Community and the World Health Organization. Read about the latest breakthrough regarding the elusive dengue vaccine. Following that, read about the new and faster method for collecting malaria parasites. Finally, learn about how China became the first of the Western Pacific Region countries to be awarded by WHO a malaria-free certification.

After reading the news, learn a bit about *Culex alis*, a mosquito that was detected at the border this month, and have a chuckle at the comic strip by Gary Clark in the Bite of Humour section.

Happy reading!

SURVEILLANCE

During June 890 samples were collected by staff from 12 DHBs (Figure 1). The samples included 69 positive larval samples and 18 positive adult samples, leading to a total of 30 adults and 3750 larvae identified over the past month (Table 1). As is common over the cooler months, *Aedes notoscriptus* is now the dominant larval species (Table 1).

Table 1. Adult and larvae sampled by the New Zealand surveillance program during June 2020 & 2021

Species (common name)	Adults		Larvae	
	June 21	June 20	June 21	June 20
<i>Aedes antipodeus</i> (winter mosquito)	-	6	-	39
<i>Ae notoscriptus</i> (striped mosquito)	-	68	2672	1223
<i>Ae subalbirostris</i> (no common name)	-	-	-	4
<i>Culex asteliae</i> (no common name)	-	-	-	6
<i>Cx pervigilans</i> (vigilant mosquito)	5	2	387	334
<i>Cx quinquefasciatus</i> (southern house mosquito)	21	22	550	835
<i>Culex sp.</i>	4	2	-	1
<i>Maorigoeldia argyropus</i> (no common name)	-	-	7	-
<i>Opifex fuscus</i> (rock pool mosquito)	-	-	134	37
Total	30	100	3750	2479

In total, five mosquito species have been collected this month (Table 1), that is one less than last month.

Compared to this same month last year, the total number of larvae has shown a 34% increase and the adults a 233% decrease (Table 1).

Compared to last month, mosquito larval numbers have shown a 44% increase, and adult numbers have shown a 92% decrease.

The highest number of larvae sampled this month was obtained in Northland DHB (3145 larvae) followed by Hawkes Bay DHB (171 larvae) (Figure 1).

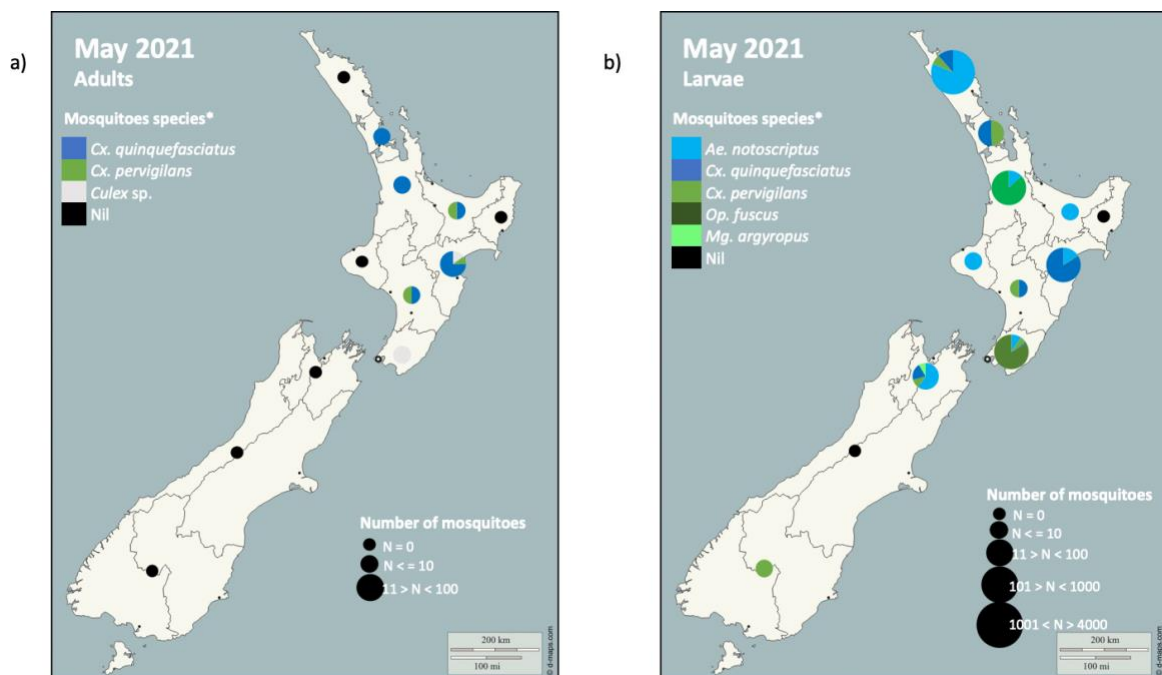


Figure 1. Total mosquito adults (a) and larvae (b) sampled in New Zealand during the June 2021 surveillance period.

* The mosquito species are listed in order from the most abundant to the least abundant.

Please note that the markers represent the DHBs and not the specific sites where the samples have been taken.

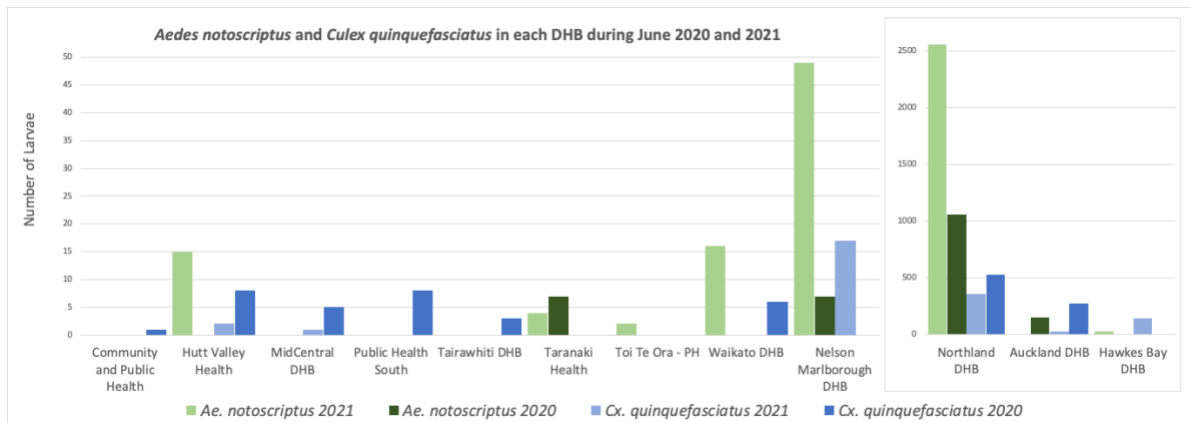


Figure 2. Comparison between introduced mosquitoes sampled in each DHB during June 2020 and 2021.

*Please note the different scale for the number of larvae present in Northland DHB, Auckland DHB, and Hawkes Bay DHB in comparison to the other DHBs.

Culex quinquefasciatus larval numbers have shown a decrease in eight DHBs from this same month last year and an increase in two DHBs. *Culex quinquefasciatus* has not been found this month in Public Health South (Figure 2).

Aedes notoscriptus larval numbers have shown a decrease in two DHBs from this same month last year and an increase in six DHBs (Figure 2). As expected *Aedes notoscriptus* has not been recorded this month, this year or last year in Public Health South (Figure 2).

Disclaimer: Note that all comparisons made have not been statistically tested and can be due to sampling effort.

INCURSIONS AND INTERCEPTIONS

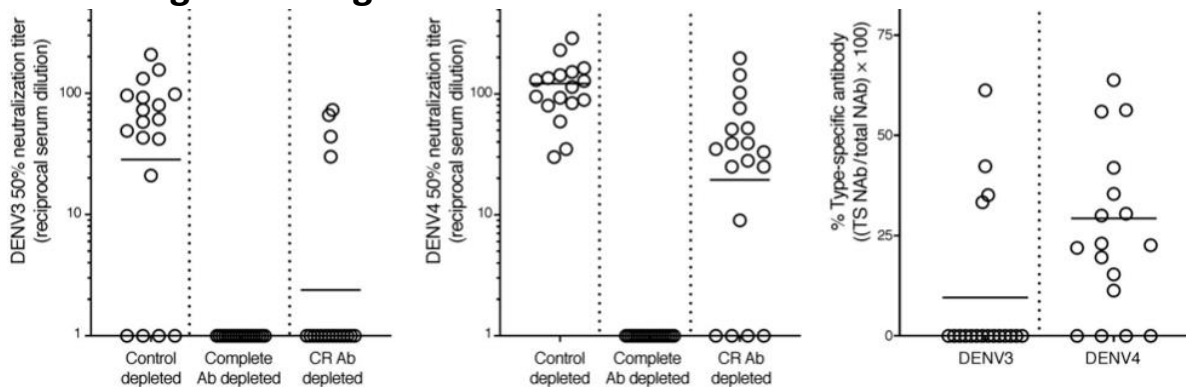
During June, MidCentral HPOs responded to the detection of one exotic *Culex* mosquito found dead in a container of plane parts ex Germany via Singapore (Table 2). The mosquito was identified as *Culex alis*, a common mosquito in Singapore.

Table 2. Suspected interceptions during June 2021.

Date	Species	Location	Circumstances
24.05.2021	1 Male <i>Culex alis</i>	Ohakea Transitional Facility	Found dead in a container of plane parts originated in Germany via Singapore.

NEWS ARTICLES FROM AROUND THE WORLD

UNC study provides important information for developing a viable vaccine against dengue



Developing a viable vaccine against dengue virus has proved difficult because the pathogen is actually four different virus types, or serotypes. Unless a vaccine protects against all four, a vaccine can wind up doing more harm than good. To help vaccine developers overcome this hurdle, the UNC School of Medicine lab of Aravinda de Silva, PhD, professor in the UNC, investigated samples from children enrolled in a dengue vaccine trial to identify the specific kinds of antibody responses that correlate with protection against dengue virus disease. In doing so, the researchers discovered that a small subpopulation of antibodies binding to unique sites on each serotype are linked to protection. [Read more. Access original article.](#)

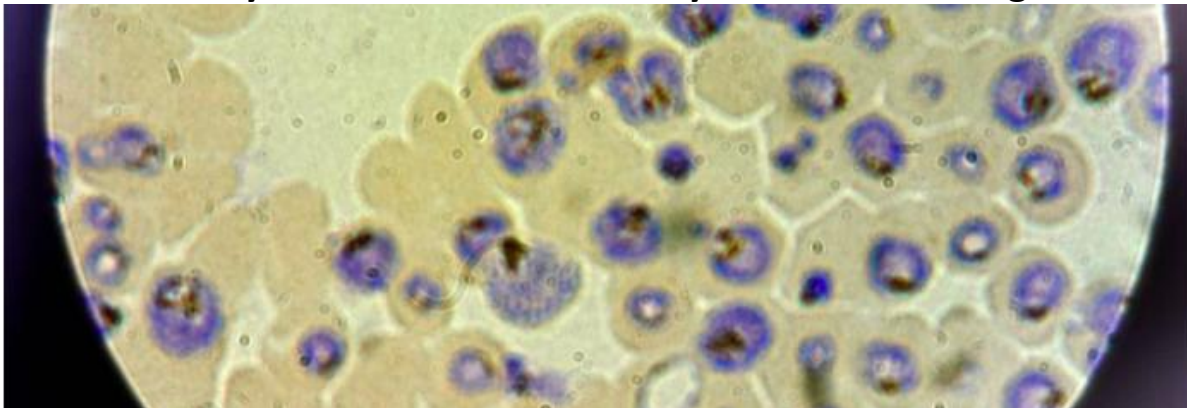


SPC and WHO launch manual on surveillance and control of *Aedes* mosquitoes' vectors in the Pacific



The Pacific Community (SPC) and the World Health Organization (WHO) launched a manual for surveillance and control of *Aedes* mosquitoes' vectors in the Pacific during a virtual meeting today. Mosquitoes of the *Aedes* genus can transmit viruses that cause dengue, Zika and chikungunya disease. Three diseases that have taken their toll in the Pacific region in recent years, with 95 outbreaks (68 dengue outbreaks, 12 Zika virus and 15 Chikungunya) reported between January 2012 and 13 May 2021. This manual is designed for programme managers, operational staff and collaborating partners responsible for planning, implementing, monitoring, and evaluating national vector control programmes. [Read more. Access the manual.](#)

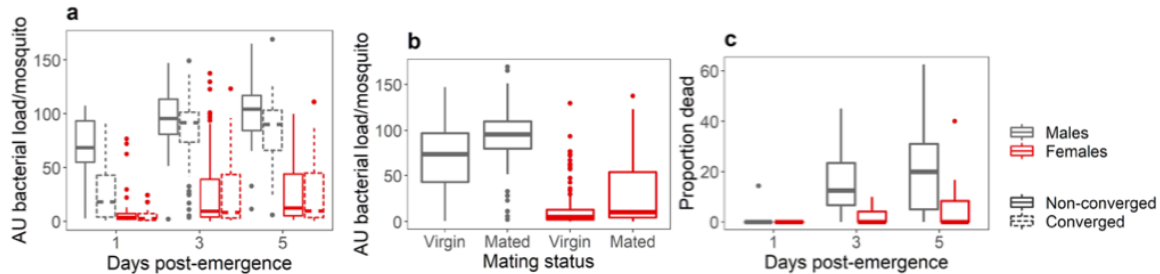
China officially declared malaria-free by World Health Organisation



China has officially been declared malaria-free by the World Health Organisation (WHO). The feat has been applauded by the health organisation, which said the country reported 30 million cases of the mosquito-borne illness annually during the 1940s. The country is the first in the WHO Western Pacific Region to be awarded a malaria-free certification in more than three decades. [Read more.](#)

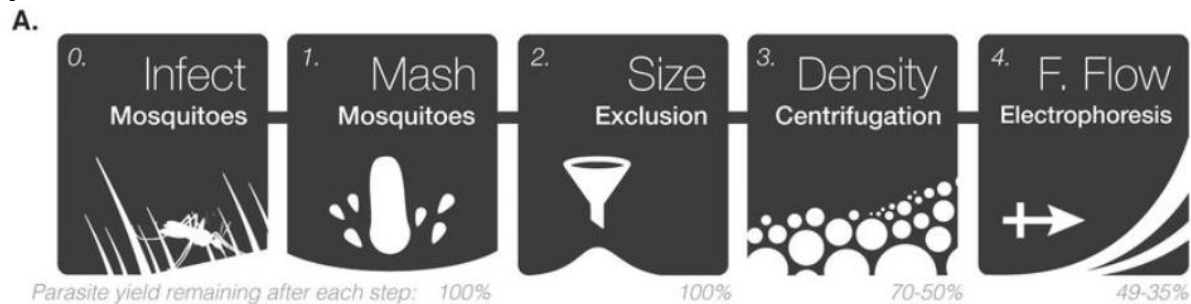


Mosquito love songs send mixed message about immunity



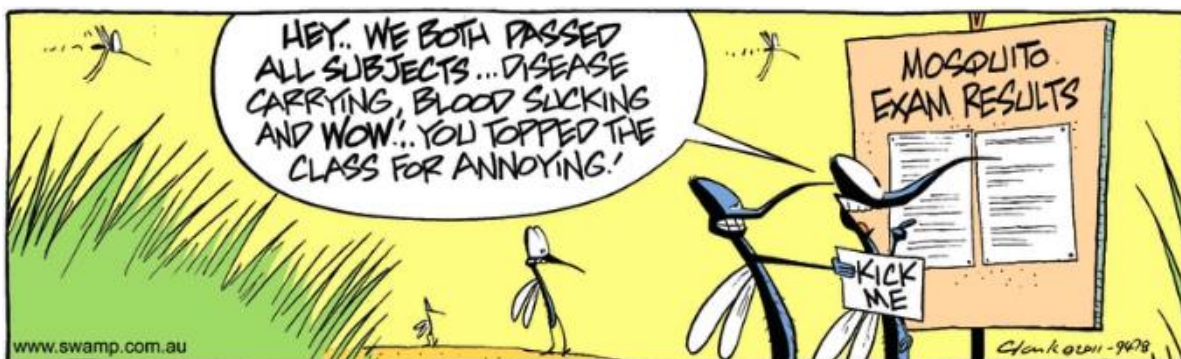
As mosquito-borne diseases pose risks for half the world's population, scientists have been releasing sterile or genetically modified male mosquitos in attempts to suppress populations or alter their traits to control human disease. But these technologies have failed to spread very rapidly because they require successful mating of modified mosquitoes with mosquitoes in nature and not enough research exists to fully explain which male traits females seek when they choose a mate. [Read more. Access the original article.](#)

‘Mosquito smoothie’ innovation boosts future malaria vaccine potential



A faster method for collecting pure malaria parasites from infected mosquitos could accelerate the development of new, more potent malaria vaccines. The new method, developed by a team of researchers led by Imperial College London, enables more parasites to be isolated rapidly with fewer contaminants, which could simultaneously increase both the scalability and efficacy of malaria vaccines. [Read more. Access original article.](#)

A BITE OF HUMOUR





KNOW YOUR MOSQUITO

Culex alis

- Known as the Coastal House Mosquito
- Breeds in fresh, brackish and even sea water
- Is a part of the Sitiens Subgroup
- Is very similar in appearance to other species in the Sitiens Subgroup
- Was first described on Christmas Island and is found throughout Southeast Asia
- Not a medically important species



RISK MAPS

[Dengue Map](#) – Centres for Disease Control and Prevention

[Zika Map](#) – Centres for Disease Control and Prevention

[Malaria](#) – Centres for Disease Control and Prevention

[Malaria](#) – World Health Organisation

DISEASE OUTBREAKS

To find out where the latest disease outbreaks have occurred visit:

[Epidemic and emerging disease alerts in the Pacific region](#) - Produced by the Pacific Community (SPC) for the Pacific Public Health Surveillance Network (PPHSN).

[Disease Outbreak News](#) - World Health Organization.

[Public Health Surveillance](#) - Institute of Environmental Science and Research (ESR) - Information for New Zealand Public Health Action.

[Communicable disease threats report](#) - European Centre for Disease Prevention and Control