

## BORDER HEALTH NEWSLETTER – MAY 2019

### WELCOME!

Kia Ora Koutou

As the weather continues a generally downward trend towards winter, mosquito numbers have decreased.

In the news this month, the first malaria vaccine is being rolled out in immunisation programmes in Malawi, Ghana and Kenya, while Algeria and Argentina are recognised as being malaria-free, researchers found out what the main vectors for West Nile virus are in Iowa, and more!

### SURVEILLANCE

During May, 1041 samples were collected by staff from 11 DHBs with 261 positive samples. This included 35 adult samples and 261 larval samples, leading to a total of 496 adults and 3019 larvae identified over the past month (Table 1). The dominant larval species this month, and this month last year was *Aedes notoscriptus*.

Compared to this same month last year the total number of adults and larvae have shown a decrease (91% and 13% respectively) (Table 1).

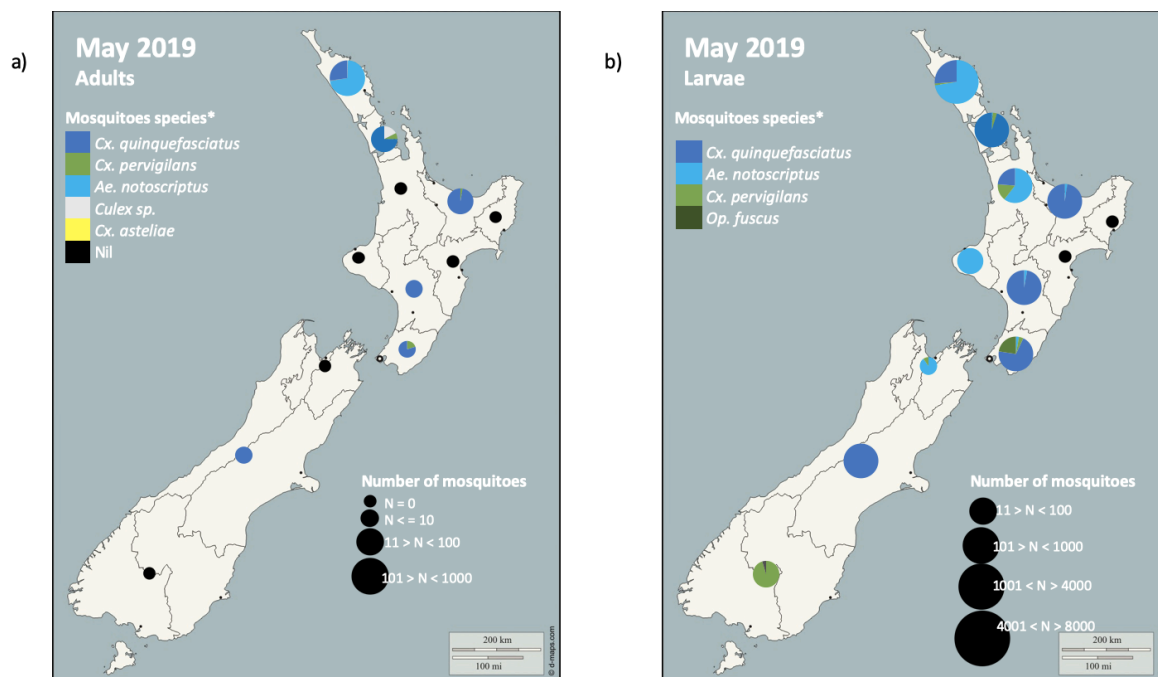
In total six mosquito species have been collected this month (Table 1), that is one more than last month. Hutt Valley Health DHB and Northland DHB detected the highest number of mosquito species (4; Figure 1).

**Table 1.** Adult and larvae sampled by the New Zealand surveillance program during May 2018 & 2019

Species (common name)	Adults		Larvae	
	May 19	May 18	May 19	May 18
<i>Aedes notoscriptus</i> (striped mosquito)	237	390	1413	2101
<i>Aedes antipodeus</i> (winter mosquito)	-	16	-	1
<i>Aedes australis</i> (saltwater mosquito)	-	-	-	3
<i>Aedes subalbirostris</i> (no common name)	-	-	-	18
<i>Coquillettidia iracunda</i> (no common name)	1	-	-	-
<i>Culex pervigilans</i> (vigilant mosquito)	12	115	154	310
<i>Cx. quinquefasciatus</i> (southern house mosquito)	226	365	1395	915
<i>Culex sp.</i> (likely to be <i>quinquefasciatus</i> / <i>pervigilans</i> )	20	56	-	-
<i>Culiseta novaeseelandiae</i> (no common name)	-	-	3	-
<i>Culiseta tonnoiri</i> (no common name)	-	5	-	-
<i>Opifex fuscus</i> (rock pool mosquito)	-	-	54	73
<b>Total</b>	<b>496</b>	<b>947</b>	<b>3019</b>	<b>3421</b>

Compared to last month larvae and adult mosquito numbers have shown a decrease (12% and 48% respectively).

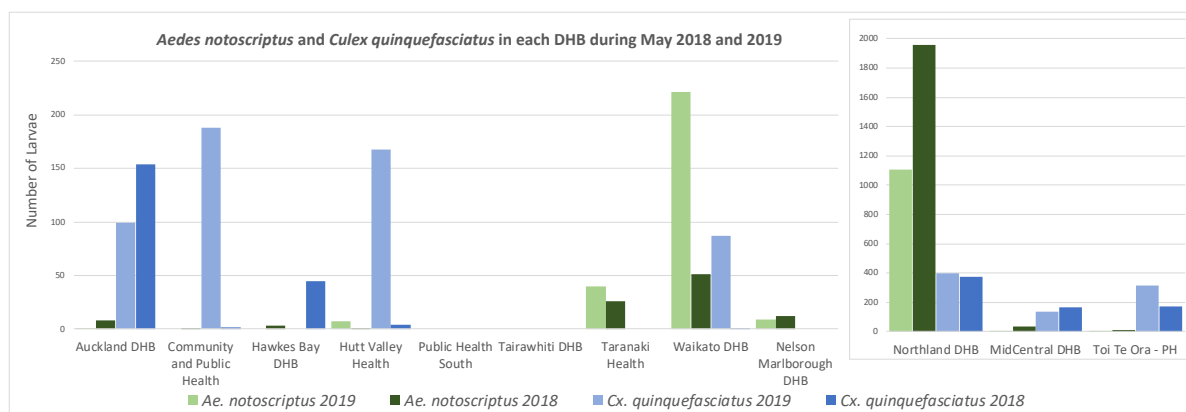
Northland DHB had the highest number of larvae this month (1527), followed by Waikato DHB (365) (Figure 1).



**Figure 1.** Total mosquito adults (a) and larvae (b) sampled in New Zealand during the April 2019 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 New Zealand during May 2018 and 2019. \*Please note the different scale for the number of larvae present in Northland, Auckland, Mid Central and Toi Te Ora – PH, in comparison to the other DHBs.

As expected *Aedes notoscriptus* has not been recorded this month, this year or last year in Public Health South (Figure 2).

*Aedes notoscriptus* larval numbers have shown an increase in three DHBs from this same month last year and a decrease in seven DHBs (Figure 2).

*Culex quinquefasciatus* larval numbers have shown an increase in five DHBs from this same month last year a decrease in three (Figure 2).

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

## INCURSIONS AND INTERCEPTIONS

During May, four suspected interceptions have been recorded (Table 2).

Table 2. Suspected interceptions during May 2019

Date	Species	Location	Circumstances
21-05-2019	1 Male <i>Culex pervigilans</i>	CFR Line Ltd, Onehunga	Found alive in car imported from the UK
12-05-2019	1 Female <i>Culex quinquefasciatus</i>	Arrivals at Wellington International Airport Ltd.	Found alive by MPI at arrivals area
07-05-2019	1 Female <i>Culex pervigilans</i>	MPI inspection bench at Wellington International Airport Ltd.	Found alive by Hutt Officer during routine surveillance
01-05-2019	1 Male <i>Culex quinquefasciatus</i>	Yogji Foodstuffs Transitional Facility, Christchurch	Found dead in a consignment of foodstuff/plant materials from India

## NEWS ARTICLES FROM AROUND THE WORLD

### How the malaria vaccine could change world health



A nurse administers a vaccine to a child at Ewin Polyclinic in Cape Coast, Ghana (Credit: Getty Images)

Malaria is humanity's curse. It is among the oldest of human diseases, infecting our earliest ancestors, influencing our recent evolution, and causing an estimated half of all deaths since the Stone Age. Today, nearly half of the world's population is at risk from malaria – it kills more than 400,000 people a year, most of them in Africa, where a child dies every two minutes from the disease. But now hopes have been raised of an end to the scourge: the first malaria vaccine is being rolled out in immunisation programmes in Malawi, Ghana and Kenya. [Read more.](#)



## GM fungus rapidly kills 99% of malaria mosquitoes, study suggests



Researchers have modified a fungus that is naturally occurring in mosquitoes to produce venom from a funnel web spider to increase the fungus's natural lethality for mosquitoes. The researchers found that the modified fungus was incredibly effective, with a very low number of spores being required to kill the mosquitoes. The trials were conducted on insecticide resistant mosquitoes, meaning that this could be a useful tool in controlling mosquitoes that have developed resistances as the unmodified fungus occurs in the population already. As the fungus infects mosquitoes only, it reduced the harm to non-target insect populations such as bees as well. [Read more.](#) [And more.](#)

## Egg yolk precursor protein plays key role in regulating mosquitoes' attraction to humans



Female mosquitoes must feed on blood to provide energy and nutrients for their developing eggs, but they can also supplement their diet with sugars by drinking plant nectar or sap. The team fed young female tiger mosquitos (*Aedes albopictus*) sugar solutions, and found it reduced their attraction to human skin. Female energy levels constantly increase after feeding sugars, and they are not related to the insects' motivation to find a host. This only applied to young females who had not had a blood meal. [Read more.](#) [And more.](#)

## Fifteen years of mosquito data implicate species most likely to transmit West Nile virus in Iowa

Researchers have used information gathered from 15 years' worth of mosquito surveillance in the state of Iowa to look at the spread of West Nile Virus and to determine which species are important vectors in the transmission of the disease. They found that within the state of Iowa, *Culex tarsalis* is an important vector for the virus, with them being the most common *Culex* species in the areas that West Nile Virus is prevalent. The study shows how long-term surveillance can be used to understand the dynamics of how mosquito borne diseases are transmitted. [Read more.](#) [And more.](#)



## Algeria and Argentina certified malaria-free by WHO

Algeria and Argentina have both been officially recognised as being malaria-free. This certification is given when a country proves that indigenous transmission no longer occurs and that they are able to prevent the return of malaria from outside countries. [Read more.](#)

## A BITE OF HUMOUR



## 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

## 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).

[World Health Organization](#) – 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