

BORDER HEALTH NEWSLETTER – FEBRUARY 2019

WELCOME!

Kia Ora Koutou. This month *Culex quinquefasciatus* larvae have achieved a new record with 20938 individuals recorded in 10 DHBs, that is 21% more than last year (Table 1, Figure 1). 32% of these mozzies were sampled in Canterbury by Community and Public Health, many of them during the mega survey carried out this month.

In the news; More evidence relating anthropogenic climate change and increasing mosquito numbers and diseases, Scientist found that the Zika virus has been circulating in Thailand for at least 16 years and Mosquitoes help find new hearing mechanisms not related to eardrums. We are introducing a new section called “Spot the differences” to help remind us all what the current best practices for sample collection and handling are. Also, we hope you enjoy “A bite of humour” with another Gary Clark cartoon.

SURVEILLANCE

During February 1234 samples were collected by staff from 12 DHBs with 490 positive samples. This included 100 adult samples and 390 larval samples, leading to a total of 1784 adults and 26803 larvae identified over the past month (Table 1). The dominant larval species this month, last month and this month last year was *Culex quinquefasciatus*.

Compared to this same month last year the total number of adults have shown a decrease (143%) and larvae have shown a slight increase (8%; Table 1).

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

Species (common name)	Adults		Larvae	
	Feb 19	Feb 18	Feb 19	Feb 18
<i>Aedes notoscriptus</i> (striped mosquito)	244	360	2511	4523
<i>Ae. antipodeus</i> (winter mosquito)	-	3	-	-
<i>Ae. australis</i> (saltwater mosquito)	-	-	1	-
<i>Culex pervigilans</i> (vigilant mosquito)	76	455	3306	2736
<i>Cx. quinquefasciatus</i> (southern house mosquito)	1361	3507	20938	17352
<i>Cx. asteliae</i>	1	-	-	-
<i>Culex sp.</i> (likely to be <i>quinquefasciatus</i> or <i>pervigilans</i>)	98	301	-	-
<i>Culiseta tonnoiri</i>	-	1	-	-
<i>Cs. novazealandiae</i>	-	-	1	-
<i>Coquillettidia iracunda</i>	3	9	-	-
<i>Opifex fuscus</i> (rock pool mosquito)	1	-	46	58
Total	1784	4636	26803	24669

In total nine mosquito species have been collected this month (Table 1), that is one less than last month. Northland DHB detected the highest number of mosquito species (6) per DHB this month, followed by Toi Te Ora – PH (Figure 1).

Compared to last month larvae numbers have shown a 49% increase and adults a 76% decrease.

Community and Public Health DHB had the highest number of larvae this month (7826, 285% more than last month). These high numbers are due to the mega survey at Christchurch Airport and Lyttelton Port carried out on February the 13th and 14th, followed by MidCentral DHB (4760, that is 13% more than last month, Figure 1).

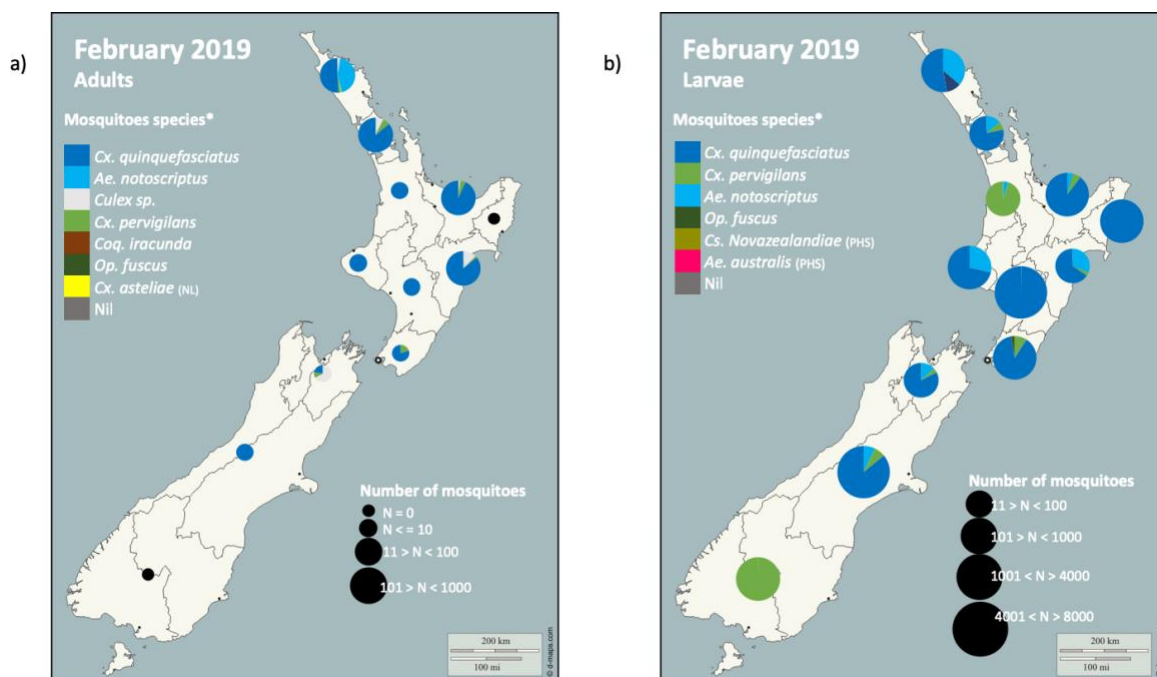


Figure 1. Total mosquito adults (a) and larvae (b) sampled in New Zealand during the February 2019 surveillance period.

* 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.

As expected *Aedes notoscriptus* has not been recorded this month, this year or last year in Public Health South. No further *Culex quinquefasciatus* larvae have been recorded in Queenstown this month (Figure 2).

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

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

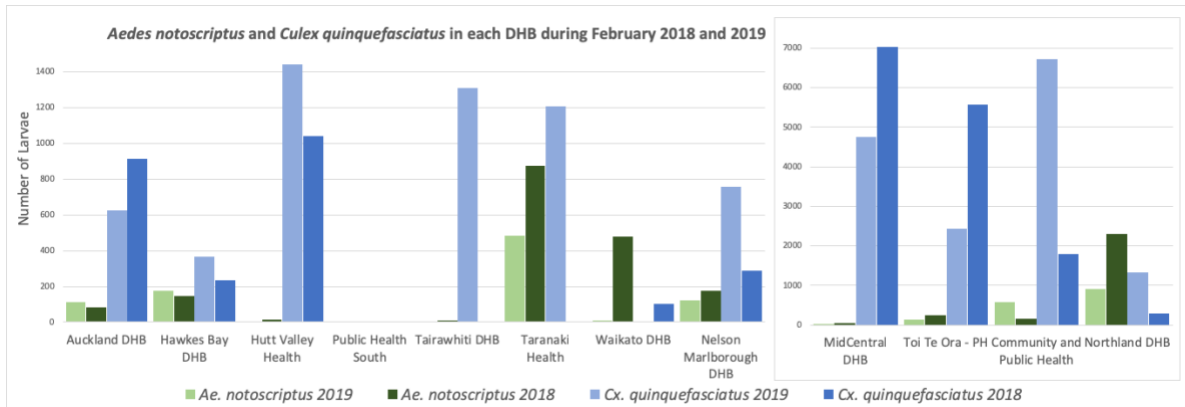


Figure 2. Comparison between introduced mosquitoes sampled in each DHB New Zealand during February 2018 and 2019. *Please note the different scale for the number of larvae present in MidCentral, Toi Te Ora – PH, Community and Public Health and Northland in comparison to the other DHBs.

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

INCURSIONS AND INTERCEPTIONS

During February, two suspected interceptions have been recorded (Table 2).

Table 2. Suspected interceptions during February 2019

Date	Species	Location	Circumstances
08.02.2019	1F <i>Culex quinquefasciatus</i>	Wellington Airport	Found alive on desk in Air New Zealand Cargo.
23.02.2019	1F <i>Culex quinquefasciatus</i>	ITB at Auckland international airport	Found alive in risk assessment area.

SPOT THE DIFFERENCES - Labelling Pencil vs Pen

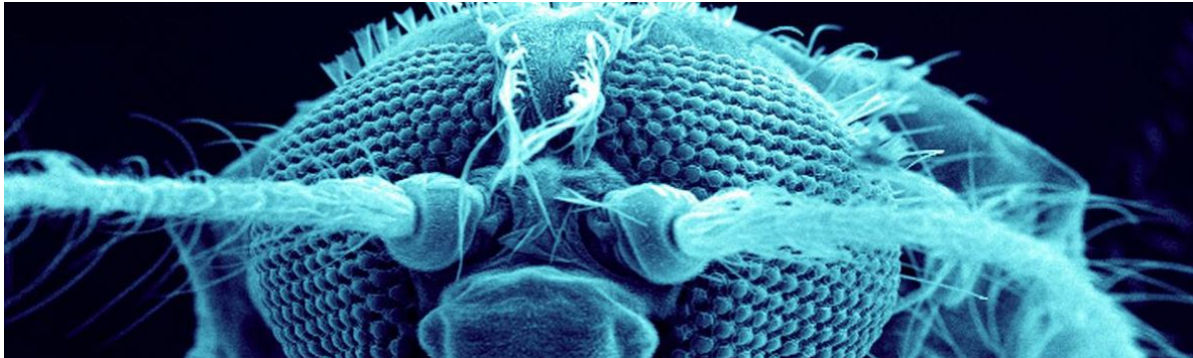
Please write all the sample labels in pencil (including adult ones).





NEWS ARTICLES FROM AROUND THE WORLD

Mosquito control could slow the spread of disease in a warming world



Anopheles gambiae mosquito. Photo by BSIP / UIG via Getty Images

Climate change has already expanded the reach of mosquitoes that carry certain illnesses. More extreme weather events are also part of the package, and more severe storms, stronger hurricane seasons, more floods and droughts also increase the risk of disease after a natural disaster. According to the WHO, climate change could increase the number of people who are at risk of malaria by over 100 million [Read more](#).

Mosquito-Borne Disease Could Threaten Half the Globe by 2050



Female *Aedes aegypti* feeding on a human host. Credit: James Gathany CDC

By 2050, half the world's population could be at risk of mosquito-borne diseases like dengue fever or the Zika virus, new research suggests. Climate change may put even more people at risk further into the future. A combination of environmental change, urbanization and human movements around the world are helping mosquitoes spread into new areas, according to the [findings](#), reported in the journal *Nature Microbiology*. [Read more](#).

Scientists shed light on the history of Zika virus in Thailand

The circulation of the dengue virus for the past sixty years in South-East Asia is relatively well known. For Zika, the situation is much less clear. In an attempt to shed light on Zika circulation, scientists from the Institut Pasteur and the CNRS, in collaboration with US teams and the Thai National Institute of Health, decided to investigate the history of the Zika virus



in Thailand. They made the surprising discovery that it has been circulating in the country for at least 16 years and probably longer. [Read more.](#)

Study: Mosquitoes can hear up to 10 meters away



Professor of Neurobiology and Behavior, discusses the hearing of *Aedes aegypti* mosquitoes.

Until now, it was believed that organisms required eardrums for long-range hearing, and that the feathery antennae with fine hairs that mosquitoes and some insects use to hear only worked at close distances of several centimeters (a few inches). Cornell and Binghamton University researchers report for the first time that mosquitoes can hear over distances much greater than anyone suspected. [Read more.](#)

Diseases Transmitted By Insects And Ticks In Europe

Europe has several native insects and tick species capable of transmitting diseases. Non-native mosquitoes (e.g. *Aedes* spp) have also become established, increasing the risk of locally acquired mosquito-borne diseases previously rare in Europe. As insect activity increases during the spring, summer and autumn in Europe, travellers may be at risk of insect or tick-borne diseases, some are highlighted in this article. [Read more.](#)

A BITE OF HUMOUR



Thanks very much Gary Clark for this cartoon!

If you wish to know more about Gary and the Swamp [click here.](#)



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
