

BORDER HEALTH NEWSLETTER - MARCH 2018

WELCOME!

Kia Ora Koutou,

This month the Ministry of Health has released a new video to launch the campaign with tips on how to prevent mosquito bites. If you travel overseas remember to Fight the bite – day and night! [Watch the video here.](#)

Mosquito numbers have decreased in comparison to last month, and with the weather getting cooler it seems this tendency will continue over the next few months.

During March three *Culex quinquefasciatus* larvae have been found in Queenstown, Public Health South. This is the second time PHOs have collected this species this far South, last time was in October 2003, with two 4th instar larvae sampled. Hopefully, this is an isolated event and this mosquito has not yet established that far south. We will keep you updated.

Happy Easter to you all and enjoy our Easter egg mozzie hunting!!

SURVEILLANCE

During March 1390 samples were collected by staff from the 12 DHBs with 543 positive samples. This included 155 adult samples and 388 larval samples, leading to a total of 2314 adults and 20404 larvae identified over the past month (Table 1).

Table 1. Adult and larvae sampled by the New Zealand surveillance program during March of last year and this year.

<i>Species (common name)</i>	Adults		Larvae	
	Mar. 18	Mar. 17	Mar. 18	Mar. 17
<i>Aedes notoscriptus</i> (striped mosquito)	61	394	4276	3014
<i>Ae. antipodeus</i> (winter mosquito)	24	3	0	0
<i>Ae. australis</i> (saltwater mosquito)	0	0	100	5
<i>Coquillettidia iracunda</i>	0	15	0	0
<i>Coq. tenuipalpis</i>	0	1	0	0
<i>Culex pervigilans</i> (vigilant mosquito)	344	129	2740	3751
<i>Cx. quinquefasciatus</i> (southern house mosquito)	1884	1787	13263	14883
<i>Cx. asteliae</i>	0	0	0	2
<i>Culiseta tonnoiri</i>	0	1	0	0
<i>Opifex fuscus</i> (rockpool mosquito)	1	0	25	61
Total	2314	2330	20404	21716

Compared to February, both adult and larvae number have shown a significant decrease (87% and 21% respectively).

Compared to this same month last year, both adult and larvae numbers have shown an insignificant decrease (0.7% and 6.4% respectively, Table 1).

In total six mosquito species have been collected this month, one less than last month. Four was the maximum number of mosquito species detected this month in Hawkes Bay DHB, Hutt Valley Health, Public Health South and Toi Te Ora – PH, followed by the rest of DHBs with 3 mosquito species and 0 mosquitoes in Tairāwhiti DHB (Figure 1).

MidCentral is the DHB with the highest numbers of larvae this month and last month (5128, 27% less than last month) followed by Northland DHB (3554, 36% more than last month) and Community and Public Health (2863, 28% more than last month).

Auckland DHB had the highest numbers adults this month (1600, 61% more than last month) followed by Hawkes Bay DHB (290 Figure 1).

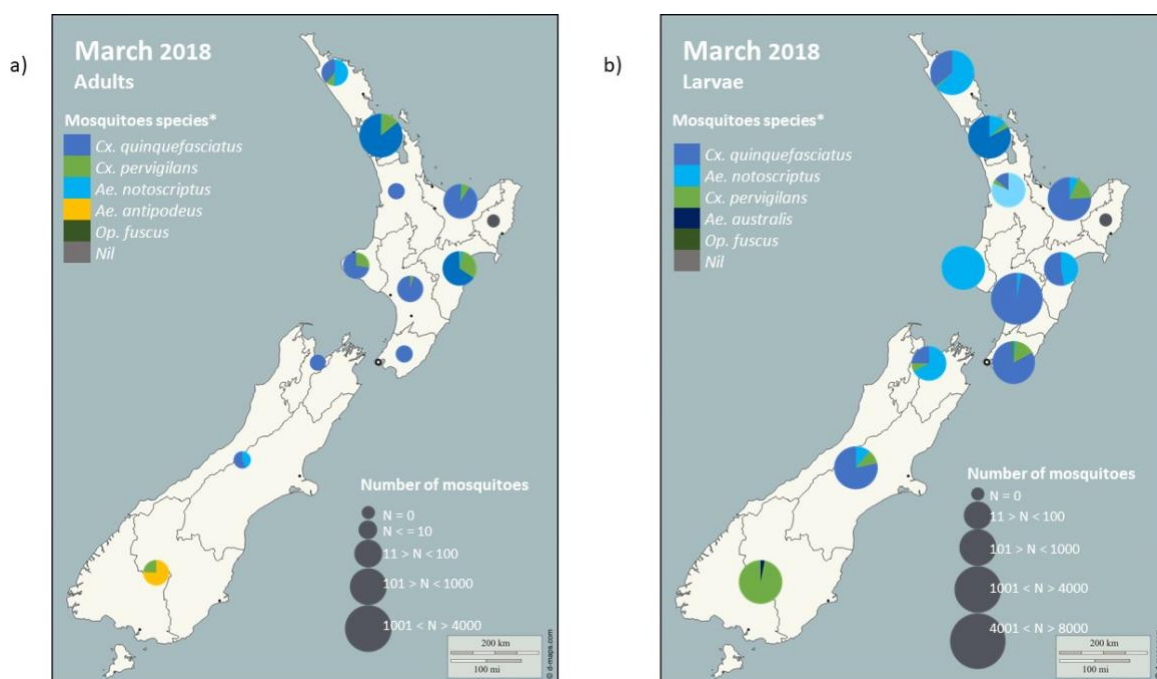


Figure 1. Total mosquito adults (a) and larvae (b) sampled in New Zealand during the March 2018 surveillance period.

* The mosquito species are listed in order from the most numerous to the least numerous. Please note that the markers represent the DHBs and not the specific sites where the samples have been taken.

All three-introduced species *Aedes notoscriptus*, *Aedes australis* and *Culex quinquefasciatus* have been found this month (Table 1, Figure 1).

As expected *Aedes notoscriptus* have not been recorded this month, this year and last year in Public Health South. In contrast 3 *Culex quinquefasciatus* larvae have been recorded in Queenstown. We will keep an eye on this population to monitor its progress (Figure 2).

Larvae numbers for the introduced mosquitoes *Aedes notoscriptus* have shown a 42% increase this month compared to the same month last year, while *Culex quinquefasciatus* larvae have shown a 11% decrease this month compared to the same month last year (Table 1).

Aedes notoscriptus larval numbers have shown an increase in 9 DHBs from this same month last year (Auckland, Community and Public Health, Hawkes Bay, Hutt Valley Health, Taranaki Health, Waikato, Nelson Marlborough, MidCentral and Toi Te Ora), and shown a decrease in Northland (Figure 2). In comparison with this same month last year, *Ae. notoscriptus* has been undetected in Tairāwhiti (Figure 2).

Culex quinquefasciatus larval numbers have shown an increase in 5 DHBs from this same month last year (Auckland, Community and Public Health, Hutt Valley, Waikato and Northland), and shown a decrease in 4 DHBs (Hawkes Bay, Nelson Marlborough, MidCentral, and Toi Te Ora, Figure 2). 3 *Cx. quinquefasciatus* larvae have been detected in Queenstown, Public Health South. Last time this species has been detected there was on October 2003 (2⁴ instar larvae). No *Cx. quinquefasciatus* larvae have been detected in Taranaki Health this month this year in contrast with this same month last year. 0 *Cx. quinquefasciatus* have been registered in Tairāwhiti this month or this same month last year (Figure 2).

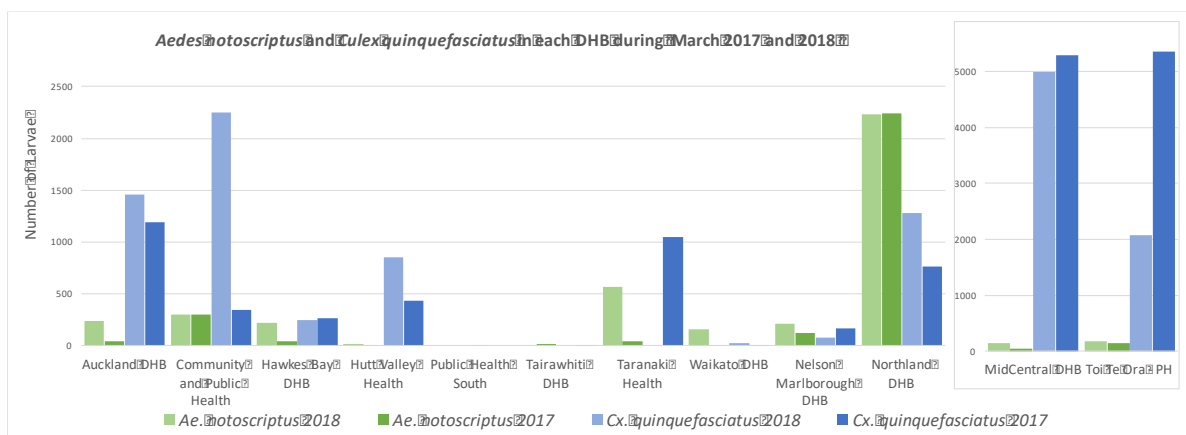


Figure 2. Comparison between introduced mosquitoes sampled in each DHB New Zealand during March 2017 and 2018.

* Please note the different scale for the number of larvae present in MidCentral DHB and Toi Te Ora – PH 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 March, 8 suspected interceptions have been recorded (Table 2). The exotic species are highlighted in pale blue.

Table 2. Suspected interceptions during March 2018

Date	Species	Location	Circumstances
02.03.18	64 Male <i>Aedes vexans</i> 80 Female <i>Aedes vexans</i> 1 Male <i>Aedes aegypti</i> , 2 Male <i>Culex</i> sp.	Freyberg Wharf, Auckland	Found dead inside an empty container from Tonga after fumigation
04.03.18	1 Female <i>Culex quinquefasciatus</i>	ITB of the Auckland International Airport	Found alive by MPI at risk assessment area at ITB AKL
07.03.18	1 Male <i>Aedes aegypti</i>	Port of Auckland, Shed 8	Found during enhanced surveillance in a Dominator trap at Ports of Auckland
07.03.18	1 Female <i>Culex quinquefasciatus</i>	ITB of the Auckland International Airport	Found dead by MPI by X-ray machine inside ITB
08.03.18	1 Male <i>Culex quinquefasciatus</i>	ITB of the Wellington International Airport	Found alive inside Wellington International Airport
08.03.18	1 Female <i>Culex quinquefasciatus</i>	ITB of the Auckland International Airport	Found alive by MPI in the MPI lab at ITB
09.03.18	1 Female <i>Culex pervigilans</i>	ITB of the Auckland International Airport	Found alive at MPI lab at ITB AIAL
22.03.18	1 Female <i>Aedes notoscriptus</i>	ITB of Christchurch International Airport, X-ray area	Found alive by an MPI officer near the X-ray area

NEWS ARTICLES FROM AROUND THE WORLD

Climate change promotes the spread of mosquito and tick-borne viruses

Spurred on by climate change, international travel and international trade, disease-bearing insects are spreading to ever-wider parts of the world. This means that more humans are exposed to viral infections such as Dengue fever, Chikungunya, Zika, West Nile fever, Yellow fever and Tick-borne encephalitis. Global warming has allowed mosquitoes, ticks and other disease-bearing insects to proliferate, adapt to different seasons, migrate and spread to new niche areas that have become warmer. [Read more.](#)

Mosquito saliva vital to the discovery of future drugs

By mimicking the anti-clotting properties of the proteins in a mosquito's saliva, scientists could develop new drugs to treat conditions like deep vein thrombosis or stroke, according to new University of Sydney research. Blood-feeding insects such as ticks, mosquitos and flies are widely regarded as pests given their role in disease transfer, but new research led by the University of Sydney and the Charles Perkins Centre has discovered the beneficial role of molecules produced by these bugs. [Read more.](#)



New \$3.2 million grant funds research to advance promising malaria vaccine

The Global Health Innovative Technology Fund has awarded the University of Florida and partners in the United States and Japan \$3.2 million to advance a promising vaccine to prevent transmission of malaria. Rhoel Dinglasan - an associate professor of infectious diseases in UF's College of Veterinary Medicine and the university's Emerging Pathogens Institute - has spent years developing a malaria transmission blocking vaccine, or TBV. The blood mosquitoes get from immunized humans would prevent the insects from becoming infected by the *Plasmodium* parasite that causes malaria, thus breaking the cycle of disease transmission. [Read more.](#)

Introduction of the *Anopheles bancroftii* Mosquito, a Malaria Vector, into New Caledonia

In June 2017, an *Anopheles* mosquito species was detected in New Caledonia. Morphologic identification and genomic sequencing revealed that the specimens tested belong to *An. bancroftii* genotype A1. This introduction underscores the risk for local malaria transmission and the vulnerability of New Caledonia to vector introduction. [Read more.](#)

Mosquitoes spreading Zika virus in parts of U.S.: CDC



(HealthDay)—Zika infections are on the rise in parts of the United States where mosquitoes spread the virus, according to the U.S. Centers for Disease Control and Prevention. The CDC reported 5,168 cases of Zika-related illness in 2016. Of those cases in 50 states and Washington, D.C., more than 90 percent were in people who had visited Zika-risk areas outside of the continental U.S., especially the Caribbean. But 224 people were infected with Zika from local mosquitoes in small areas of Florida and Texas in 2016. [Read more.](#)



THE BEST INTERCEPTION MOZZIE PICTURE OF THE MONTH



Female *Culex pervigilans* found alive at MPI lab at the International Terminal Building AIAL, Auckland.

About the photographer: Joey Chang is a Health Protection Officer working in the Auckland Regional Public Health Service.

Characteristics of a good Mozzie picture:

- Picture is in focus
- The light allows the viewer to interpret the different colours.
- All body parts are distinguishable.

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. Choose a country to display the current distribution of Malaria.

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.



THE EASTER EGG MOZZIE HUNTING

There are three female mosquitos from three different genera: *Anopheles*, *Culex* and *Aedes*. Join the female mosquito with its eggs and their favourites oviposition habitats (it could be more than one oviposition habitat).

Eggs



Female mosquito



Oviposition habitat



Answers will be available in the April Newsletter.