



## BORDER HEALTH NEWSLETTER - MAY 2018

### WELCOME!

Kia Ora Koutou, as the weather continues a generally downward trend towards winter, mosquito numbers have decreased and interceptions have become less frequent over May. No further *Culex quinquefasciatus* larvae have been found in Queenstown.

In the news this month - scientist have discovered how DEET works and are ready to create new repellents; learn more about mosquitoes that transmit malaria, the *Plasmodium* parasite, and how deforestation increases malaria cases; read about the health challenges associated with climate change; about which traits make humans susceptible to chikungunya virus infection and more!

Do not forget to check who is the winner of the best picture of the month and a bite of humour section. Happy reading!

### SURVEILLANCE

During May 1146 samples were collected by staff from the 12 DHBs with just 170 positive samples. This included 64 adult samples and 106 larval samples, leading to a total of 891 adults and 3421 larvae identified over the past month (Table 1).

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

<i>Species (common name)</i>	Adults		Larvae	
	May 18	May 17	May 18	May 17
<i>Aedes notoscriptus</i> (striped mosquito)	390	40	2101	743
<i>Ae. antipodeus</i> (winter mosquito)	16	18	1	0
<i>Ae. australis</i> (saltwater mosquito)	0	0	3	0
<i>Ae. subalbirostris</i>	0	0	18	0
<i>Culex pervigilans</i> (vigilant mosquito)	115	12	310	276
<i>Cx. quinquefasciatus</i> (southern house mosquito)	365	159	915	1120
<i>Cx. asteliae</i>	0	0	0	1
<i>Culiseta tonnoiri</i>	5	0	0	0
<i>Opifex fuscus</i> (rockpool mosquito)	0	0	73	25
<b>Total</b>	<b>891</b>	<b>229</b>	<b>3421</b>	<b>2165</b>

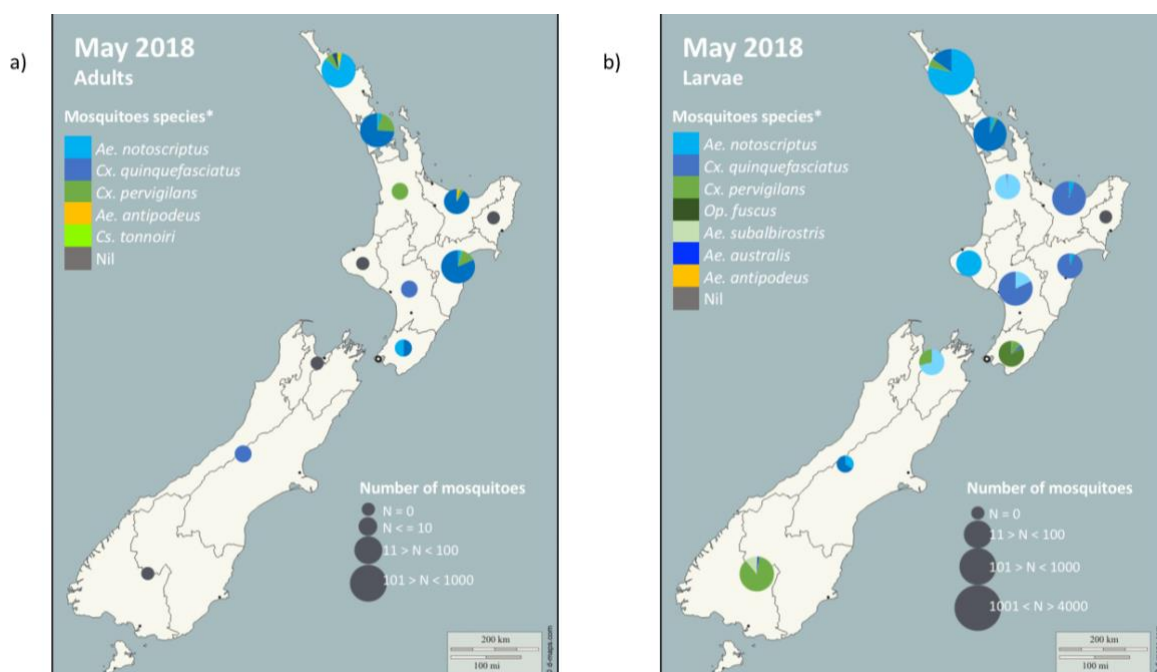
Compared to this same month last year, total adult numbers and total larvae numbers have shown a significant increase (289% and 58% respectively Table 1).

Compared to April, both adult and larvae number have shown a significant decrease (42% and 4% respectively).

In total 8 mosquito species have been collected this month, three more than last month. 5 was the maximum number of mosquito species detected this month in Northland, followed by Auckland DHB, Hutt Valley Health, Public Health South and Toi Te Ora – PH with 3 mosquito species (Figure 1).

Northland is the DHB with the highest number of larvae this month (2482, that is 69% more than last month) followed Toi Te Ora - PH (178, 74% less than last month).

Northland DHB had the highest adult numbers this month (447, 371% more than last month), followed by Auckland DHB (272, 44% less than last month Figure 1).



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

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

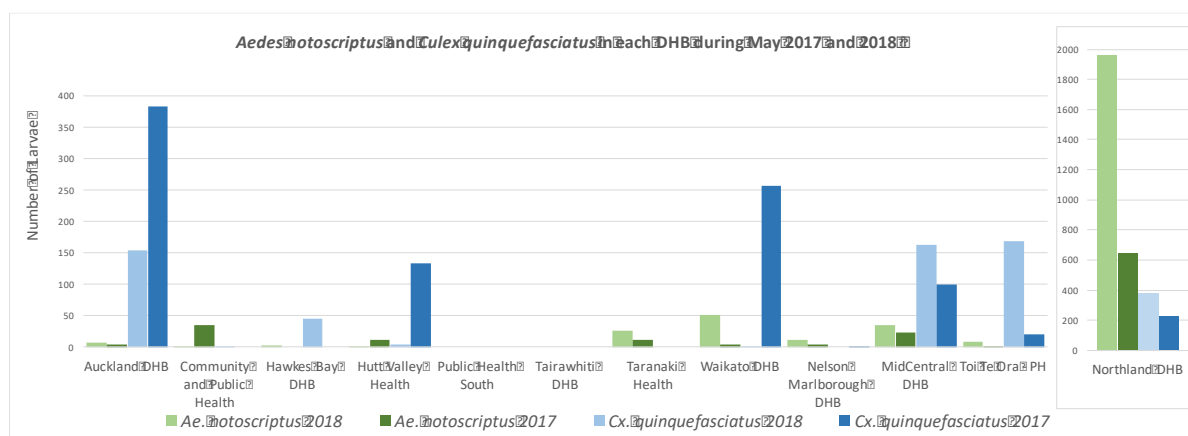
Please note that the markers represent the DHBs and not the specific sites where the samples have been taken.

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. Nil *Culex quinquefasciatus* larvae have been recorded in Queenstown (Figure 2).

*Aedes notoscriptus* larval numbers have shown an increase in 8 DHBs from this same month last year (Auckland, Hawkes Bay, Taranaki Health, Waikato, Nelson Marlborough, MidCentral, Toi Te Ora and Northland), and shown a decrease in Community and Public Health and Hutt Valley Health (Figure 2).

*Culex quinquefasciatus* larval numbers have shown an increase in 5 DHBs from this same month last year (Community and Public Health, Hawkes Bay, Toi Te Ora, MidCentral and Northland), and shown a decrease in 3 DHBs (Auckland, Hutt Valley and Waikato, Figure 2). No *Cx. quinquefasciatus* larvae have been detected in Nelson Marlborough this month this year in contrast with this same month last year. Nil *Cx. quinquefasciatus* have been registered in Tairāwhiti or Public Health South this month or this same month last year (Figure 2).



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

\* Please note the different scale for the number of larvae present in MidCentral, Northland and Public Health South 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 May, 6 suspected interceptions have been recorded (Table 2). The exotic species are highlighted in pale blue.

Table 2. Suspected interceptions during May 2018

Date	Species	Location	Circumstances
25.05.18	5 Non-mosquitoes	Transitional Facility, Masterton	Found alive in relation to a container caring Steel framing from Taiwan
15.05.18	1 Male <i>Culex quinquefasciatus</i>	Auckland International Airport	Found alive flying around after looking at consignment of mushrooms from Thailand
08.05.18	1 Male <i>Culex quinquefasciatus</i>	Ports of Auckland	Found dead inside a car from Australia
08.05.18	1 Female <i>Culex quinquefasciatus</i>	628 Innovation Drive, Christchurch	Found dead on a bit of tape
03.05.18	1 Female <i>Aedes taeniorhynchus</i>	POA – Bledisloe Wharf MPI Inspection	Found dead inside a caravan from the USA
02.05.18	1 Male <i>Culex quinquefasciatus</i>	Wellington International Airport	Found flying around by MPI near the x-ray area



## NEWS ARTICLES FROM AROUND THE WORLD

### NZ gives funding to boost Fiji's fight against dengue



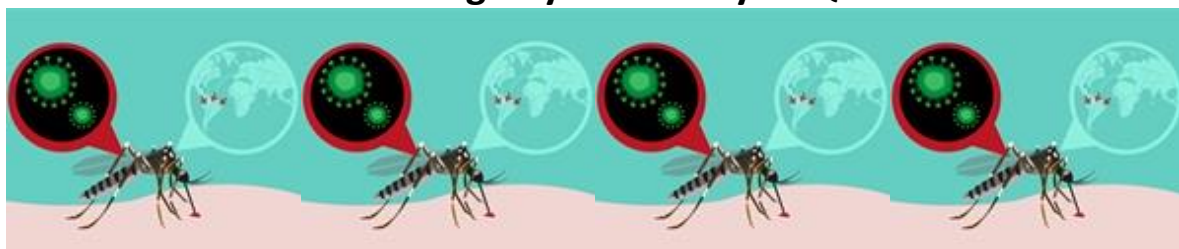
New Zealand is to give \$2.7 million (\$US1.9 million) to help fight the dengue fever epidemic in Fiji. [Read more.](#)

### Three ways climate change might affect your health



A report just out from a Government-owned science company details the health risks to New Zealanders from climate change, helping to illustrate why it has been called the biggest contemporary health issue. [Read more.](#)

### Zika detection breakthrough by University of Queensland



A cheap and effective tool that could save lives by helping health authorities target mosquitoes infected with Zika virus has been developed by researchers from the University of Queensland and colleagues in Brazil. [Read more.](#)

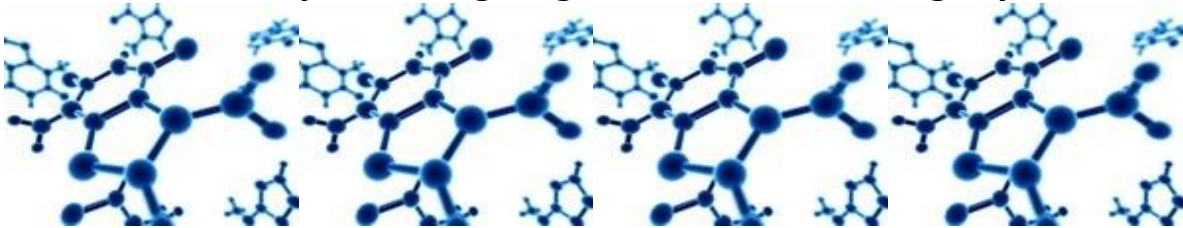


## Edmonton's mosquito expert has the answers to some common questions



What you need to know about mosquitoes, the tiny insects which put billions of lives at risk. [Read more. Original article.](#)

## Scientists identify new drug target to combat chikungunya virus



Scientists have identified a molecule found on human cells and some animal cells that could be a useful target for drugs against chikungunya virus infection and related diseases, according to new research published in the journal *Nature*. A team led by scientists at Washington University School of Medicine in St. Louis conducted the research, which was funded in part by the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health. [Read more.](#)

## Study brings fresh insights into biology of malaria parasite



A team of researchers led by a University of California, Riverside, scientist has found that various stages of the development of human malaria parasites, including stages involved in malaria transmission, are linked to epigenetic features and how chromatin -- the complex of DNA and proteins within the nucleus -- is organized and structured in these parasites. [Read more.](#)



## Study links malaria to deforestation in the Amazon



For their study, researchers at institutions in Brazil and the U.S. attempted to find patterns between deforestation and malaria infection in nine states in the Brazilian Amazon. [Read more.](#)

## THE BEST INTERCEPTION MOZZIE PICTURE OF THE MONTH



Female *Aedes taeniorhynchus* found dead in a caravan from USA at Bledisole Wharf, Ports of Auckland

**About the photographer:** Aaron Guanlao is a Health Protection Officer / Technical Officer working in the Environmental Health Team at 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.

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## 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.

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## 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.

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## A BITE OF HUMOUR

