



NEW ZEALAND BIOSECURE

BORDER HEALTH NEWSLETTER – JUNE 2020

WELCOME!

Kia Ora Koutou,

We hope you enjoyed the great mozzie quiz last month. Would you like to learn what question most people got incorrect? Well scroll down and find out!

If you have not completed the quiz yet, fear not! Just click on the button below and take the quiz.

Take the great mozzie quiz

In the news this month, read about how the Zika virus alters genes of babies whose mothers were infected while pregnant. Next, learn about the plan to release genetically modified mosquitoes in Florida. Also in the USA, the mosquito season is beginning, and Eastern Equine Encephalitis has been detected in mosquito samples in Massachusetts. Following that, learn about a Dengue outbreak in Indonesia and a Zika outbreak in Brazil, happening simultaneously during the COVID-19 pandemic. Finally, read about how Hydroxychloroquine, a drug used to treat malaria, fails to prevent COVID-19.

SURVEILLANCE

During June 834 samples were collected by staff from 12 DHBs as well as samples collected from Great Barrier Island.

For the analysis, the data collected on Great Barrier Island has been included under Auckland DHB, however it is shown in its own pie in the New Zealand Surveillance (Figure 1). The samples included 90 positive larval samples and 17 positive adult samples, leading to a total of 100 adults and 2479 larvae identified over the past month (Table 1). In contrast to last month where *Culex quinquefasciatus* was the dominant larval species, the dominant larval species this month this year, and last year, is *Aedes notoscriptus*.

Compared to this same month last year, the total number of larvae and adults has shown an increase (25% and 76% respectively, see Table 1).

Table 1. Adult and larvae sampled by the New Zealand surveillance program during June 2019 & 2020

Species (common name)	Adults		Larvae	
	June 20	June 19	June 20	June 19
<i>Aedes notoscriptus</i> (striped mosquito)	68	1	1223	471
<i>Ae subalbirostris</i> (no common name)	-	-	4	-
<i>Ae antipodeus</i> (winter mosquito)	6	-	39	-
<i>Culex pervigilans</i> (vigilant mosquito)	2	-	334	100
<i>Cx quinquefasciatus</i> (southern house mosquito)	22	23	835	386
<i>Cx asteliae</i> (no common name)	-	-	6	-
<i>Culex</i> sp. (missing their abdomens, likely to be <i>quinquefasciatus</i> or <i>pervigilans</i>)	2	-	1	-
<i>Culiseta novaezealandiae</i> (no common name)	-	-	-	3
<i>Opifex fuscus</i> (rock pool mosquito)	-	-	37	52
Total	100	24	2479	1012

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

Compared to last month, mosquito larval and adult numbers have shown a decrease (39% and 24% respectively) (see Table 1).

The highest number of larvae sampled this month was obtained in Northland DHB (1768) followed by Auckland DHB (570 larvae) (Figure 1).

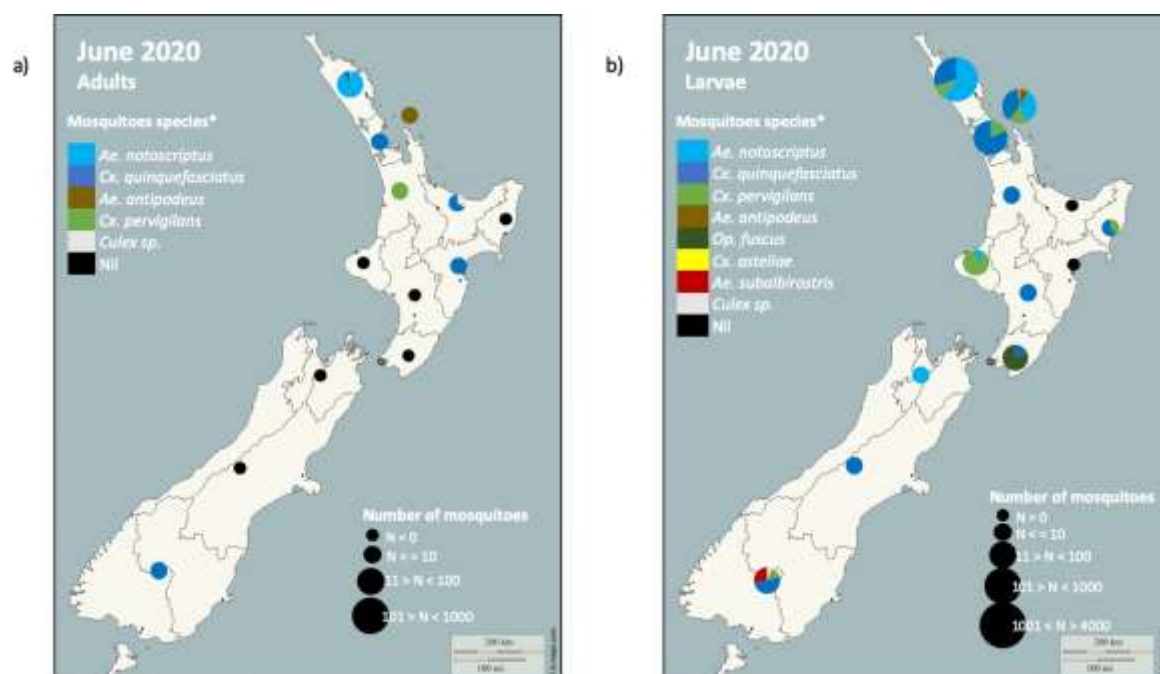


Figure 1. Total mosquito adults (a) and larvae (b) sampled in New Zealand during the June 2020 surveillance period.

* 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.

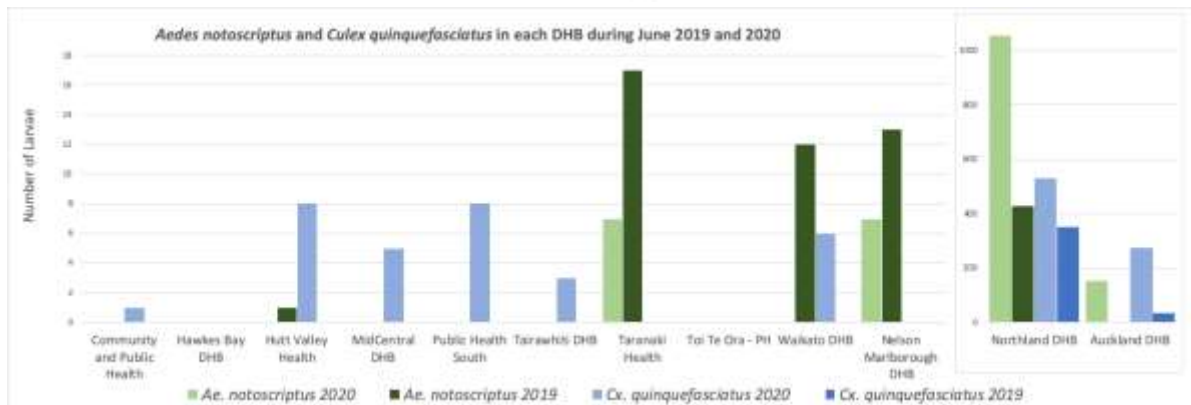


Figure 2. Comparison between introduced mosquitoes sampled in each DHB New Zealand during June 2019 and 2020.

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

Culex quinquefasciatus larval numbers have shown an increase in eight DHBs from this same month last year. *Culex quinquefasciatus* has been found this month in Public Health South at Dunedin Port (Figure 2).

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 two DHBs from this same month last year and a decrease in four DHBs (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 nil suspected interception have been recorded.

NEWS ARTICLES FROM AROUND THE WORLD

Zika virus during pregnancy can hamper vital collagen development in babies' brains

New research reveals what happens to the brains of babies whose mothers were infected with the disease while pregnant. Zika alters the genes that are related to collagen development. Mutations in these genes are associated with a higher risk of intercranial bleeding. [Read more.](#)



New approach to reducing spread of mosquito-borne diseases



Researchers conducted a survey of water storage containers in a county in coastal Kenya in an effort to increase awareness of the risk of *Aedes aegypti* and the disease risk they pose, as much education regarding mosquito risk is focused on night biting *Anopheles* and malaria. The survey combined assessing the water containers in the villages they visited, as well as interviewing the women of the house to assess the purpose of the containers and the households knowledge of mosquitoes. They found that many of the containers that held mosquito larvae had no immediate purpose, with the most larvae being found in tyres. From the interviews they found that many of the people were not aware what mosquito larvae were, just that they were not good in water that was for consumption. The researchers summarised that while malaria measures and control remain the priority for this area, breeding site reduction, and education about *Aedes aegypti* breeding and biting habits can reduce the number of these mosquitos and decrease the disease risk. [Read more. Access the original article.](#)

Plan to release genetically modified mosquitoes in Florida gets go-ahead



A plan to release a horde of 750 million genetically modified mosquitoes in Florida and Texas is a step closer to fruition after a state regulator approved the idea, over the objections of many environmentalists. Oxitec, a British-based biotechnology company, has targeted the US as a test site for a special version of *Aedes aegypti* mosquitoes. The mosquitoes contain



a protein that, when passed down to female offspring, will kill them and, it is hoped, prevent them from biting people and spreading diseases such as dengue fever and Zika. [Read more.](#)

EEE Detected In Mosquito Sample From Orange, Mass., State Health Officials Say



A sample of mosquitoes in Massachusetts tested positive for the Eastern Equine Encephalitis (EEE) virus. The sample was collected on July 1 near the town of Orange in Franklin County, the Massachusetts Department of Public Health said in a statement released Friday. [Read more.](#)

Brazil's Zika Epidemic Worsens



As the COVID-19 disease pandemic dominates the world media headlines, the Zika virus has steadily put women and children at grave risk in the Federative Republic of Brazil. Recently, Brazil's Ministry of Health identified 579 new suspected cases of Zika between December 2019 and February 2020. [Read more.](#)

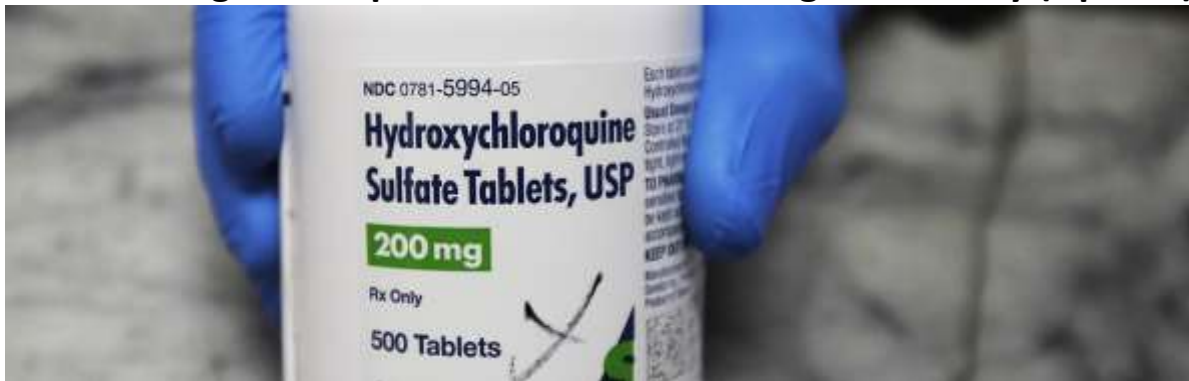


Becoming malaria free by 2020



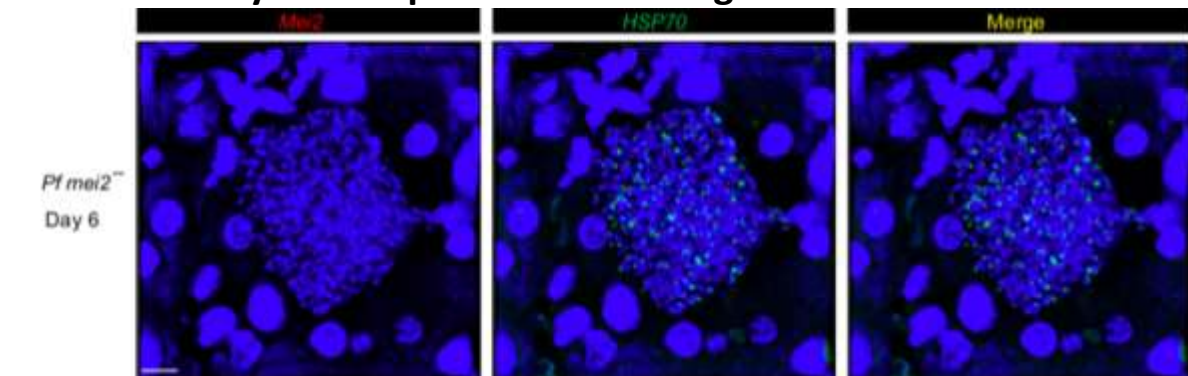
China hosted the third E-2020 global forum of malaria-eliminating countries from 18-20 June, with a focus on eliminating malaria among populations at risk. [Learn more.](#)

Malaria drug fails to prevent COVID-19 in a rigorous study (Update)



A malaria drug President Donald Trump took to try to prevent COVID-19 proved ineffective against COVID-19 in the first large, high-quality study to test it in people in close contact with someone with the disease. [Read more.](#) [Check the original article.](#)

New discovery could open door to next generation malaria vaccine



Scientists from Seattle Children's Research Institute have developed a genetically attenuated parasite (GAP) that arrests the malaria parasite *Plasmodium falciparum* in the liver by deleting genes in the parasites DNA. The idea is to create an immune response while the



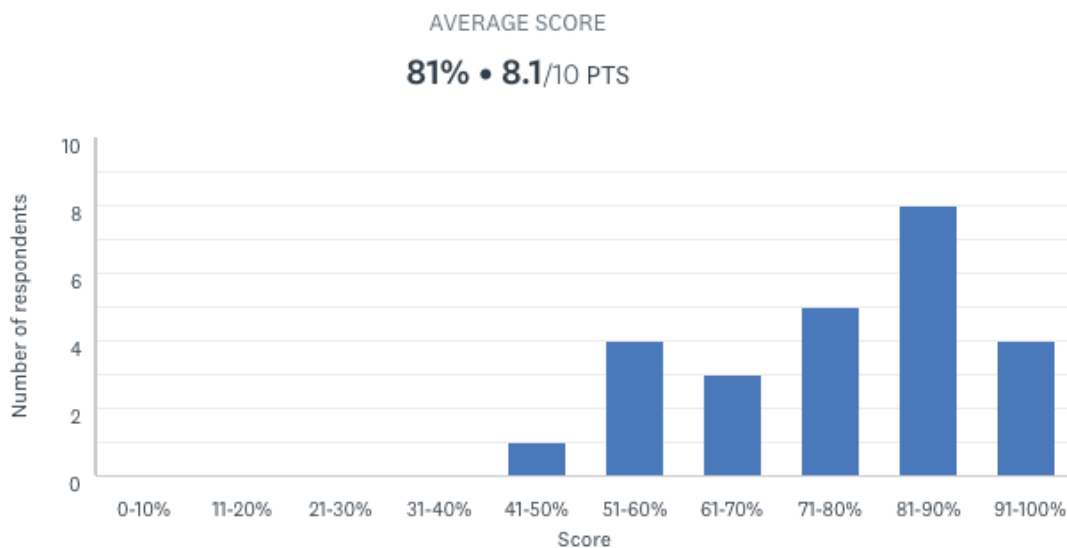
parasite is in the liver and stop it before it reaches the dangerous stage of the infection, the blood stage. The hope is that this can be used to advance the development of a malaria vaccine. [Learn more.](#) [Access original article.](#)

Indonesia: Areas with increased dengue cases are also experiencing high COVID-19 cases

Just like the COVID-19 outbreak, the addition of new cases and deaths from dengue haemorrhagic fever (DHF) continues. In addition, areas with many dengue cases are also areas with high COVID-19 cases, such as West Java, Lampung, NTT, East Java, Yogyakarta, and South Sulawesi. [Read more.](#)

THE GREAT MOZZIE QUIZ

Congratulations! You all did very well in the great mozzie quiz. The graph below shows the average score of all the participants who have taken the quiz so far.



The most tricky question of the quiz was number three 'How many species of mosquito do we have in New Zealand?'

The right answer is fifteen (12 endemic species + 3 introduced species), which was chosen by only 56% of the participants. The introduced species in New Zealand are *Culex quinquefasciatus*, *Aedes notoscriptus* and *Aedes australis*. People who answered 16 (12 endemic species + 4 introduced species) may have forgotten that *Aedes camptorhynchus* was successfully eradicated in 2010 following its discovery in New Zealand in 1998.



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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).

[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

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