New Zealand BioSecure

BORDER HEALTH NEWSLETTER

JUNE 2023

NAU MAI, HAERE MAI - WELCOME!

Kia ora koutou katoa,

We hope everyone has been keeping safe and warm over the past month! With the weather getting colder and most surveillance moving to fortnightly, there is no better time to get your surveillance equipment checked. Be sure to contact us and send in your regulator and light trap to be checked if you have not already done so. (taxonomy@nzbiosecure.net.nz).

In the news this month, read about how Belize became the third country this year to be declared malaria free. Learn how rising temperatures and flooding in Europe are leading to an increase in mosquito numbers and mosquito-borne diseases. Also, look at how the largest Dengue outbreak in Peru's history has forced the resignation of their health minister. Finally, read about a warning from the CDC to doctors in Florida and Texas, regarding the United States' first locally transmitted cases of Malaria in 20 years.

This month you will find answers to last month's Mozzie-logic-Puzzle, take a look how you went below! Taking quality photos is just as important for non-mozzies as it is for mozzies, this time we decided to showcase some great photos of a non-biting midge taken by Aleksandr Shnyrov, scroll down and check out the (non) mozzie photos of the month. Finally, scroll down to get some insight into why we use tyre traps, and the correct methods for processing your tyre traps.

Happy reading!

SURVEILLANCE

During June 1042 routine, enhanced surveillance and survey samples were collected by staff from 12 PHUs (Figure 1). The samples included 120 positive larval samples and 31 positive adult samples, leading to a total of 7654 larvae and 62 adults identified over the past month (Table 1). *Culex quinquefasciatus* is the dominant larval species this month, which is different to last month and this month last year (Table 1).

In total, five mosquito species have been collected this month (Table 1), one less than collected last month.

Compared to this same month last year, the total number of larvae have shown an increase (190%) and adults have shown a decrease (44%) (Table 1).

Table 1. Adult and larvae sampled by the New Zealand surveillance program during June 2022 & 2023

Species (common name)	Adults		Larvae	
	June 23	June 22	June 23	June 22
Aedes antipodeus (winter mosquito)	1	3	-	-
Ae australis (saltwater mosquito)	-	-	-	2
Ae notoscriptus (striped mosquito)	4	5	842	2109
Cx pervigilans (vigilant mosquito)	7	9	1871	330
Cx quinquefasciatus (southern house mosquito)	49	83	4931	176
Culex sp.	1	10	-	-
Opifex fuscus (rock pool mosquito)	-	-	10	23
Total	**62**	**110**	**7654**	**2640**

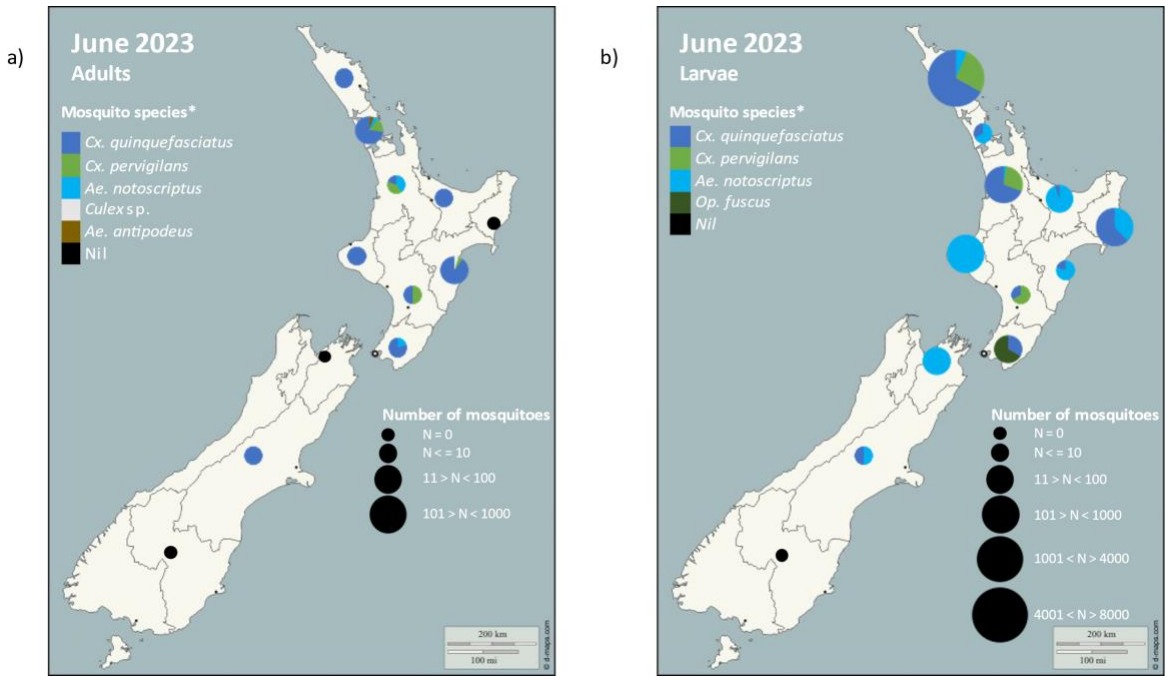


Figure 1. Total mosquito adults (a) and larvae (b) sampled in New Zealand during June 2023 surveillance period. Please note that the markers represent the PHUs and not the specific sites where the samples have been taken.
* The mosquito species are listed in order from the most abundant to the least abundant.

Compared to the previous month, mosquito larval numbers have shown an increase (182%) and adult numbers have shown a decrease (62%).

The highest number of larvae sampled this month was obtained in Northland (6,758 larvae) followed by Tairāwhiti (421 larvae) (Figure 1).

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

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

Culex quinquefasciatus larval numbers have shown an increase in eight PHUs and a decrease in one from this same month last year.

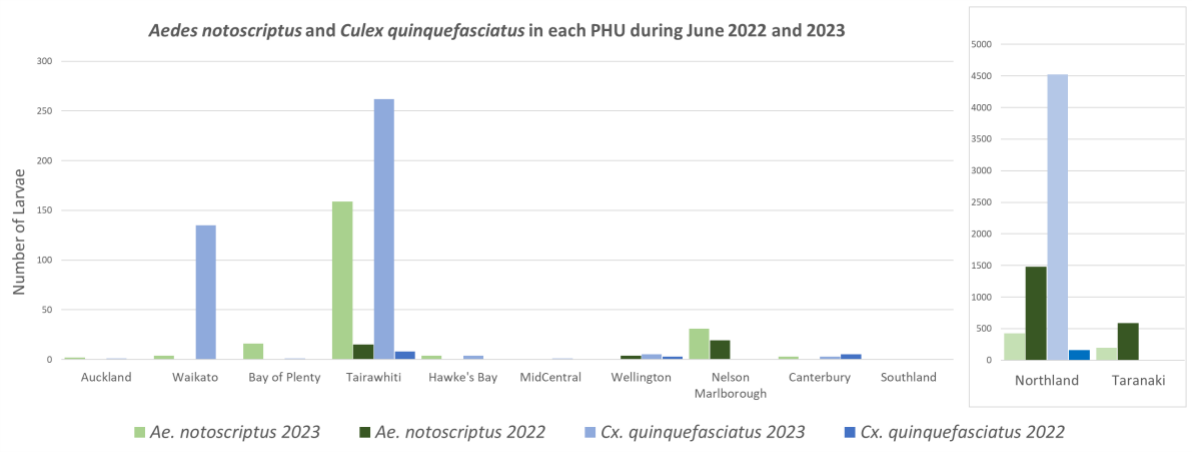


Figure 2. Comparison between introduced mosquito species sampled in each PHU during June 2022 and 2023.
*Please note the different scale for the number of larvae present in Northland & Taranaki in comparison to the other PHUs.

INCURSIONS AND INTERCEPTIONS

During June, HPOs responded to two suspected interceptions (Table 2).

Table 2. Suspected interception during June 2023

Date	Species	Location	Circumstances
03.06.2023	1 Non mosquito (Fungus gnat)	Pyrotechnics Events, Auckland.	Found dead in a container of fireworks from China.
21.06.2023	5x 4th instar and 1 male *Culex quinquefasciatus*	Rydges Hotel, Wellington International Airport.	Found by WIAL Ops in a pipe holding water by the Rydges Hotel docking/refuse area at Wellington International Airport.

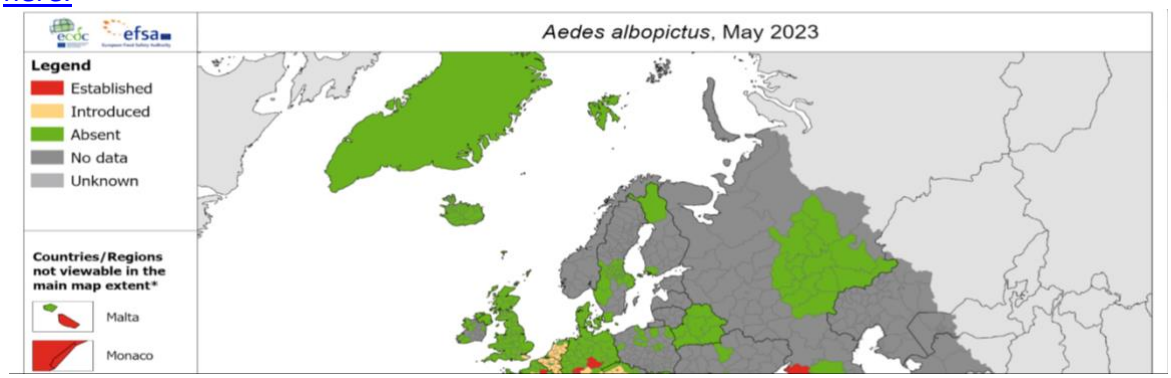
NEWS ARTICLES FROM AROUND THE WORLD

Belize declared free from malaria by health chief

Belize joins Azerbaijan and Tajikistan in becoming the third country of 2023 to be certified as malaria free, a status that is obtained after it has been rigorously confirmed that no indigenous transmission of malaria has occurred in the country for at least 3 consecutive years. The fight against malaria was a high priority in the country's public health agenda with the World Health Organization saying that trained community health workers had played an important role in ensuring timely diagnosis and treatment of malaria cases. Read more about this achievement here.

Increasing risk of mosquito-borne diseases in EU/EEA following spread of Aedes species

With heat waves and flooding becoming more severe and frequent in Europe, the conditions for invasive mosquito species have become even more favourable, with their numbers increasing. This has officials concerned as the spread of vectors such as *Aedes albopictus*, the primary vector of Dengue fever in Europe, has also seen an increase in mosquito-borne diseases. Maps showing the spread of both *Aedes albopictus* and *Aedes aegypti* can be found along with the original report from the European Centre for Disease Prevention and Control here.



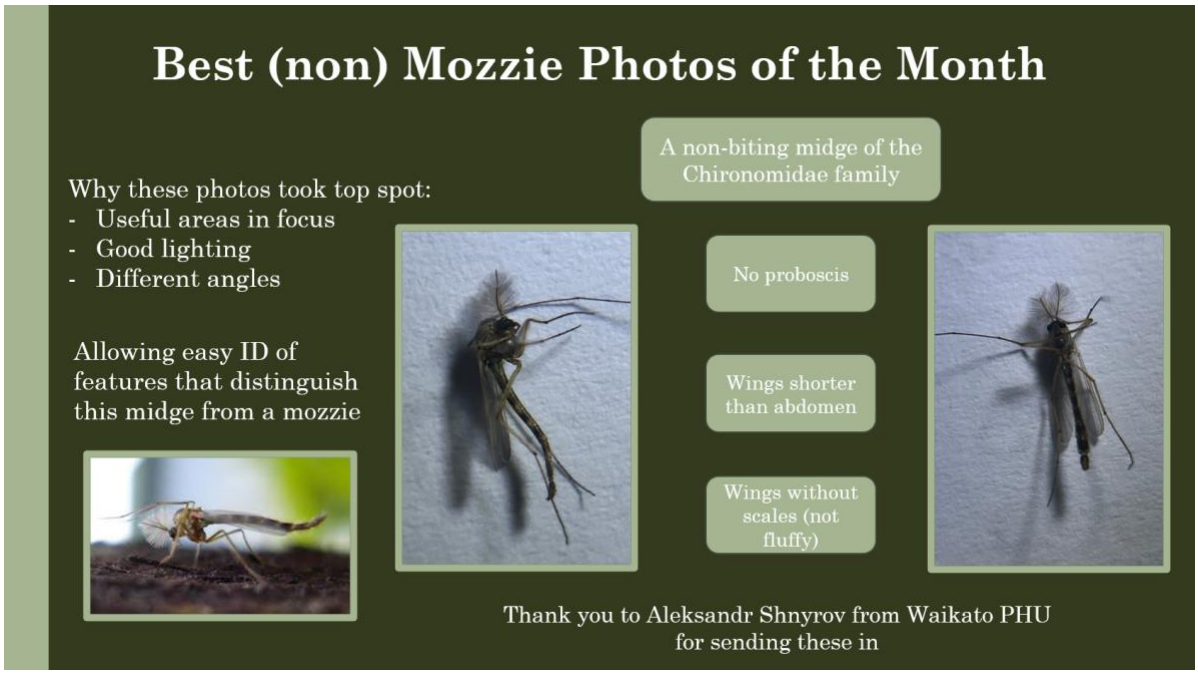
Peru's health minister steps down as dengue death toll jumps

The health minister of Peru has resigned as the outbreak of dengue in the South American country continues to grow. The outbreak is now the largest in Peru's history, with a state of emergency declared in 18 of its 24 regions. An increase in flooding following a cyclone has not helped the situation, with floodwaters increasing the amount of breeding habitat available for mosquitoes, such as dengue vector *Aedes aegypti*, to breed in. Read more about the outbreak here.

Malaria cases in Florida and Texas are first locally acquired infections in U.S. in 20 years, CDC warns & Malaria confirmed in Florida mosquitoes after several human cases

The CDC has suggested that doctors should be on the look-out for malaria in Florida and Texas following a small number of cases which are the first locally transmitted cases in the United States in 20 years. Four cases were identified in Florida and one case in Texas though there is no evidence to suggest that the cases in each state are related. Following this, multiple *Anopheles* mosquitoes have been collected and tested for malaria in the area surrounding the reported cases. None of the mosquitoes collected in Texas have tested positive for malaria, however three collected in Florida were found to be carrying the parasite. Mosquito control to prevent the parasite spreading further is underway. Read more about the malaria cases here. Read more about the malaria being found in mosquitoes in Florida here. And the health advisory from the CDC can be found here.

BEST (NON) MOZZIE PHOTOS OF THE MONTH



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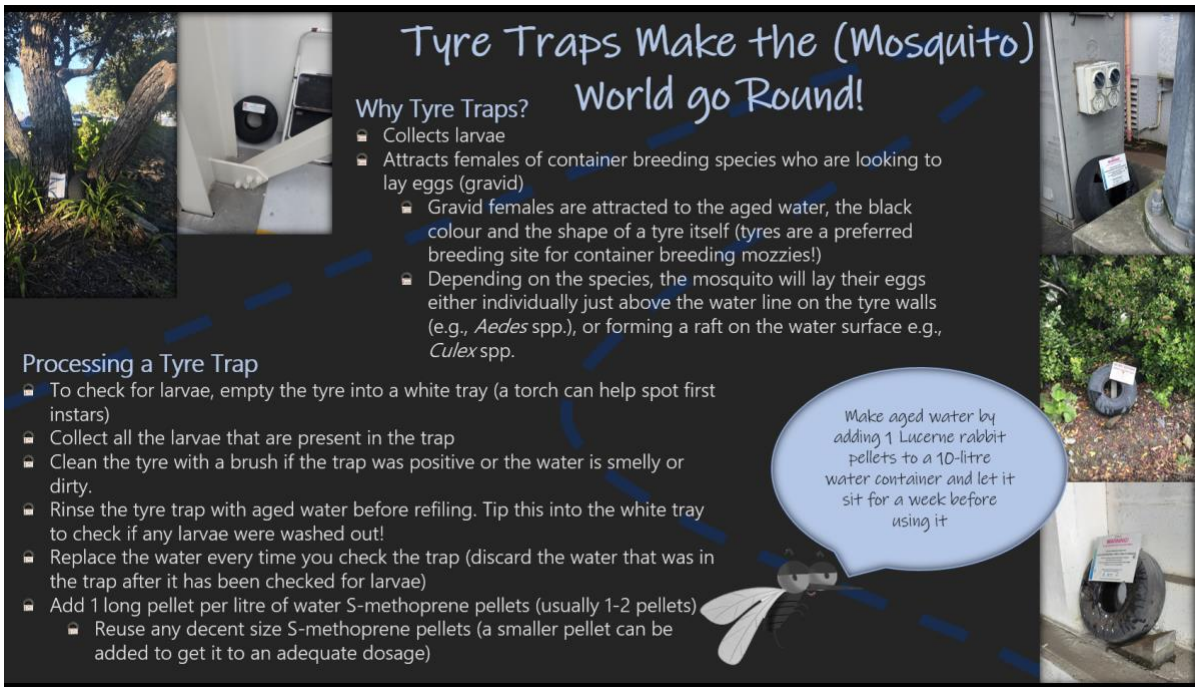
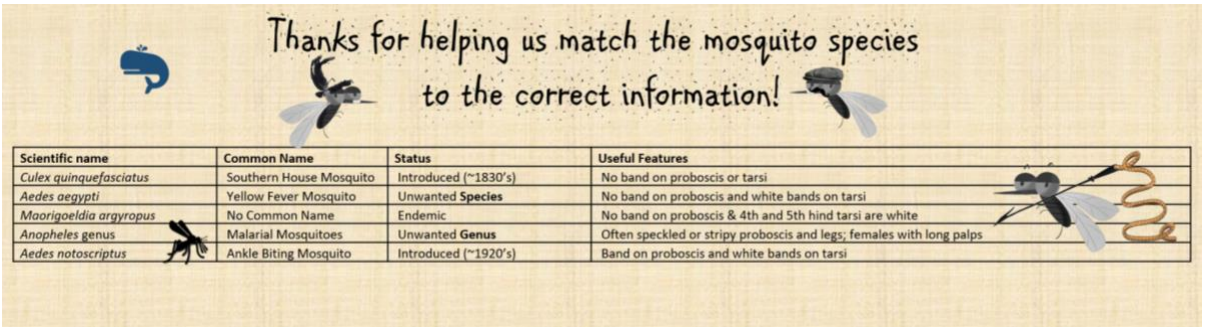
KNOW YOUR MOSQUITO TRAP



MOSQUITO LOGIC PUZZLE - ANSWERS



Scientific name	Common Name	Status	Useful Features
Culex quinquefasciatus	Southern House Mosquito	Introduced (~1830's)	No band on proboscis or tarsi
Aedes aegypti	Yellow Fever Mosquito	Unwanted **Species**	No band on proboscis and white bands on tarsi
Maorigoeldia argyropus	No Common Name	Endemic	No band on proboscis & 4th and 5th hind tarsi are white
Anopheles genus	Malarial Mosquitoes	Unwanted **Genus**	Often speckled or stripy proboscis and legs; females with long palps
Aedes notoscriptus	Ankle Biting Mosquito	Introduced (~1920's)	Band on proboscis and white bands on tarsi

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
Malaria – World Health Organisation

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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