



BORDER HEALTH NEWSLETTER

JUNE 2025

NAU MAI, HAERE MAI - WELCOME!

Kia ora koutou katoa,

Winter is settling in with its crisp air and shorter days. As the temperatures drop, so do mosquito numbers, offering a brief seasonal reprieve. We hope you are staying warm and enjoy this latest update in our newsletter. We wish you all Mānawatia a Matariki! We hope you take some time for acknowledging the past year, honouring those who have passed, and looking forward to the new year with hope and aspirations.



Mānawatia a Matariki

In the news this month, read about a breakthrough in detecting malaria in asymptomatic patients, and a potential targeted vaccination for chikungunya virus. Also have a look at how the US freezing funding for malaria prevention is affecting prevention efforts throughout Africa. Then take a look at an interesting study on how some common pesticides (including ones to control *Anopheles* mosquitoes) can disrupt gut microbes.

In honour of pride month, learn about mosquitoes that share characteristics of both female and male in the bite of information section.



Happy Pride month 2025

Finally, take a peek and have a chuckle at the bite of humour section about some prime mosquito real estate.

Happy reading!



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SURVEILLANCE

During June 1039 samples were collected by staff from 12 NPHUs (Figure 1). The samples included 47 positive larval samples and 46 positive adult samples, leading to a total of 1057 larvae and 166 adults identified over the past month (Table 1).

Aedes notoscriptus is the dominant larval species this month, which is the same as the previous month and June last year (Table 1).

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

Compared to this same month last year, the total number of larvae have decreased (14%) and the total number of adults have shown an increase (11%) (Table 1).

Compared to the previous month, mosquito larval and adult numbers have shown a decrease (67% and 30% respectively).

Table 1. Adult and larvae sampled by the New Zealand surveillance program during June 2024 & 2025

Species (common name)	Adults		Larvae	
	June 25	June 24	June 25	June 24
<i>Aedes australis</i> (saltwater mosquito)	1	-	-	-
<i>Ae. notoscriptus</i> (striped mosquito)	2	86	516	679
<i>Culex astelliae</i> (no common name)	-	-	3	-
<i>Cx. pervigilans</i> (vigilant mosquito)	16	4	193	102
<i>Cx. quinquefasciatus</i> (southern house mosquito)	96	53	301	371
<i>Culex</i> sp. (damaged)	37	6	-	49
<i>Culex</i> sp. (inc. mixed features & <i>Cx pipiens</i> sp.)	15	-	36	-
<i>Opifex fuscus</i> (rock pool mosquito)	-	-	0	24
Total	166	149	1057	1225

The highest number of larvae sampled this month was obtained in Northland (883 larvae) followed by Bay of Plenty (99 larvae) (Figure 1).



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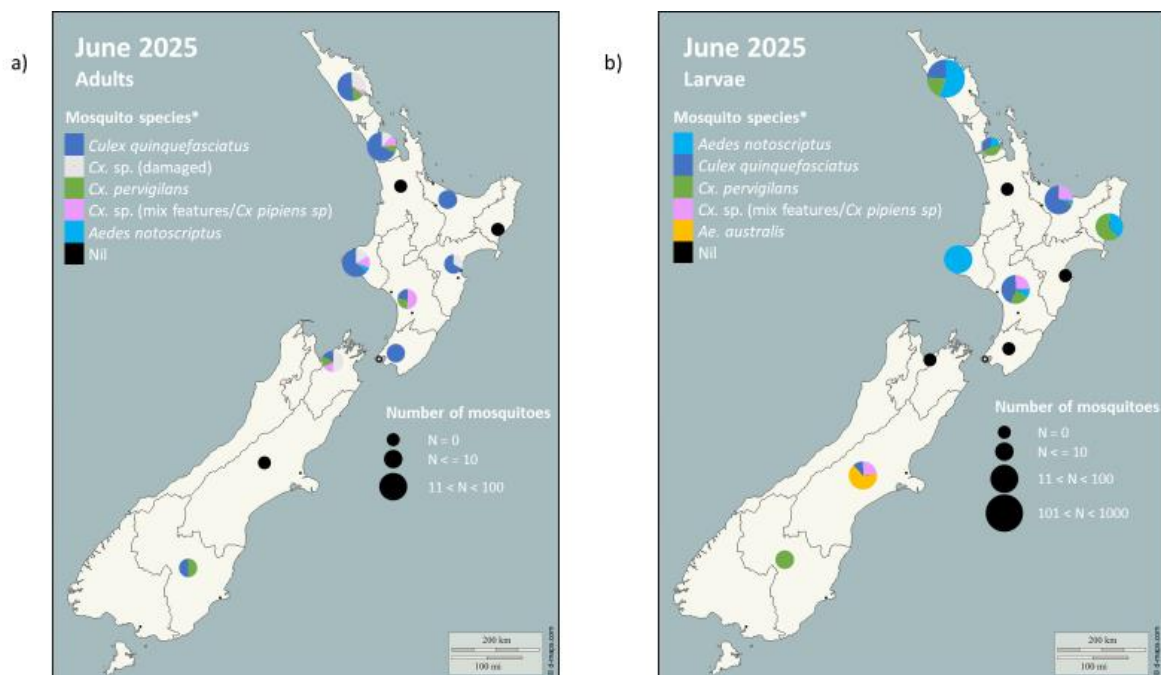


Figure 1. Total mosquito adults (a) and larvae (b) sampled in New Zealand during June 2025 surveillance period.

Please note that the markers represent the NPHUs 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.

The *Culex pipiens* sp. and *Culex* sp. showing mixed features are included under *Culex* sp. (inc. mixed features & *Cx pipiens* sp.). *Culex* sp. are mosquitoes that are damaged and cannot be identified to the species level.

Aedes notoscriptus larval numbers have shown an increase in three NPHUs and a decrease in seven NPHUs and remained the same in two NPHUs compared to the same month last year (Figure 2).

Aedes notoscriptus was not recorded in Southland in June of this year or last year (Figure 2).

Culex quinquefasciatus larval numbers have shown an increase in four NPHUs, a decrease in three NPHUs, and remained the same in five NPHUs compared to the same month last year (Figure 2).

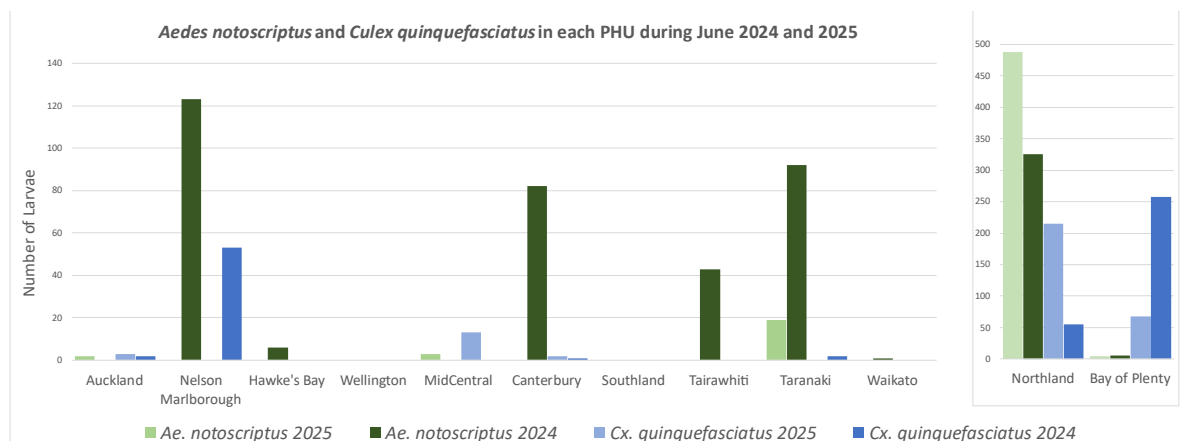


Figure 2. Comparison between introduced mosquito species sampled in each NPHU during June 2024 and 2025.

*Please note the different scale for the number of larvae present in Northland and Bay of Plenty in comparison to the other NPHUs.



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INCURSIONS AND INTERCEPTIONS

During June, HPOs responded to three suspected interceptions (Table 2), including a **locally occurring of exotic origin** species, an **exotic** damaged specimen, and various non-mosquitoes.

Table 2. Suspected interception during June 2025

Date	Species	Location	Circumstances
13.06.2025	1 female <i>Culex quinquefasciatus</i> , 3 craneflies	SKU Limited Transitional Facilities, Auckland	Found dead in grapes from Australia. Grapes had been treated (Radiation).
19.06.2025	1 female <i>unidentifiable</i>	Wellington International Airport	Found dead in a cardboard box that containing dried fish inside a passenger's luggage. Luggage from the Philippines, flight from Australia.
26.06.2025	8 non-mosquitoes	Transitional Facility Airport Oaks	Found dead in parts of diesel generator engine inside a big box alongside two live spiders. Vessel Capitaine Tasman berthed at POAL 18/06/2025.

CULEX PAPIENS AND MIXED FEATURES UPDATES

During June, further *Culex pipiens* sp. and *Culex* sp. showing mixed features were detected in 8 Points of Entry. In total 51 mosquitoes were collected, including 36 larvae and 15 adults (Table 3).

Table 3. *Culex pipiens* sp. and *Culex* sp. showing mixed features detected during June 2025

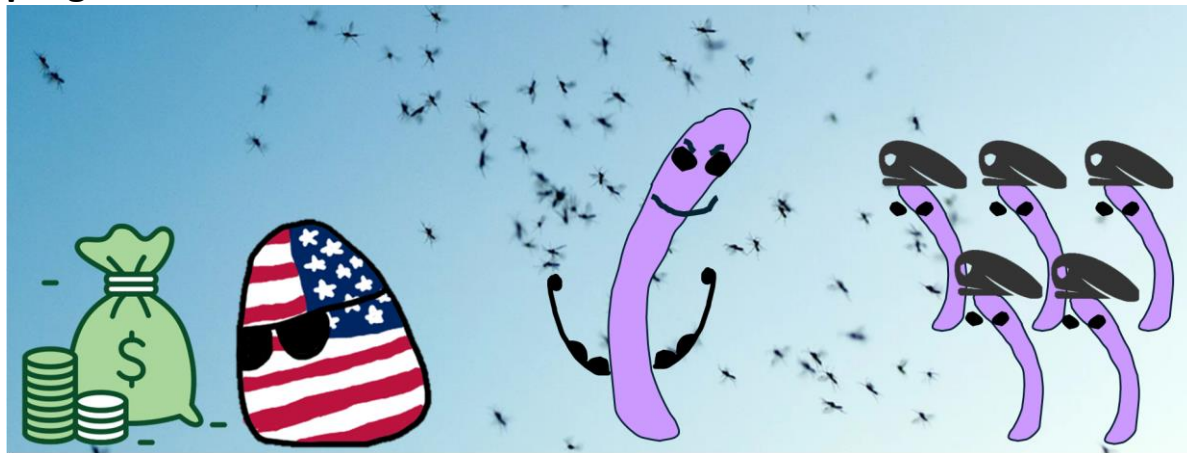
June 2025	<i>Culex</i> sp. showing mixed features			<i>Culex pipiens</i> sp.			Total
	Larvae	Male	Female	Larvae	Male	Female	
Northland							
Kerikeri Airport			1		1	1	3
Auckland							
Auckland Port		1	1				2
Auckland International Airport		2					2
Bay of Plenty							
Tauranga Port	25						25
Taranaki							
Port Taranaki		2				3	5
MidCentral							
RNZAF Ohakea	1			6		2	9
Nelson Marlborough							
Nelson Port					1		1
Canterbury							
Timaru Port	4						4
Total	30	5	2	6	2	6	51



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NEWS ARTICLES FROM AROUND THE WORLD

Malaria prevention at risk: US funding freeze threatens global progress and innovation



The recent freeze on US funding for malaria, particularly the dissolution of the President's Malaria Initiative, has severely disrupted prevention efforts across Africa, causing shortages of bed nets, diagnostics, and treatments, with projections of up to 18 million new cases and 160,000 deaths annually. This setback also threatens crucial genomic and AI-driven research, which underpins modern malaria control strategies such as tracking drug resistance, designing targeted treatments, and predicting outbreaks. Without sustained investment, transformative tools like gene-drive mosquitoes, eco-friendly larvicides, and new vaccines risk stagnating. Beyond health, the crisis poses economic and ethical challenges, including concerns about equity in drug development and the exclusion of local researchers. Despite the setbacks, growing African leadership and shrinking malaria maps as signs that elimination is still possible — but only with urgent, sustained global commitment.

Discover the full interview of Jane Carlton, director of the Johns Hopkins Malaria Research Institute [here](#)

Paper-based malaria test offers breakthrough in remote diagnostics for asymptomatic patients



A low-cost, paper-based diagnostic device has shown superior accuracy in detecting malaria among asymptomatic individuals in Ghana, outperforming traditional methods such as microscopy, rapid diagnostic tests, and even PCR. Developed by Abraham Badu-Tawiah's team at Ohio State University, the test uses layered paper strips embedded with antibodies and ions to trigger a chemical reaction with a drop of blood, enabling antigen detection



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prevent 4,400 infections, 0.35 deaths, and 17 disability-adjusted life years (DALYs), particularly in epidemic-prone areas. Transmitted primarily by *Aedes* mosquitoes, CHIKV causes fever and chronic joint pain, with neonates, infants, and older adults at highest risk. Researchers emphasize the need for tailored, timely vaccine deployment based on outbreak patterns, vector distribution, and regional health infrastructure to reduce CHIKV-related suffering and mortality effectively.

Read more [here](#) or discover the scientific article [here](#).

A BITE OF HUMOUR



A BITE OF INFORMATION – MOSQUITO INCLUSIVITY

Although extremely rare in nature, unusual cases of mixed male and female traits have been observed in mosquitoes. These unusual traits—where an individual has both male and female features, or something in between—are called gynandromorphs or intersex respectively.

Gynandromorphs are specimens with a combination of pure male and pure female tissues, i.e. mosaics of male and female DNA that show a morphologically distinct demarcation between their male and female body parts. They are often the results of chromosome/s being damaged in the early stages of development of the embryo.

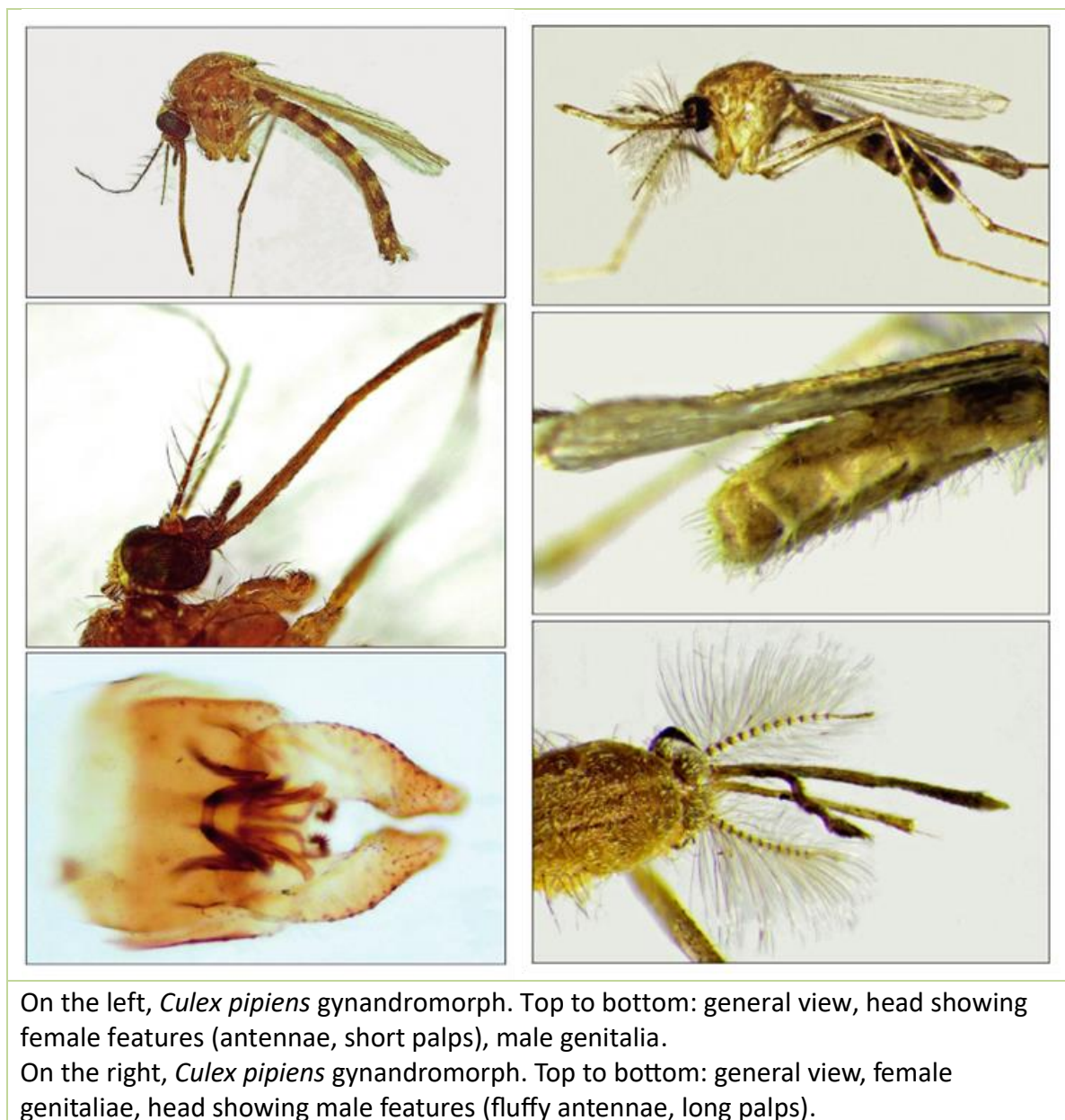
By contrast, intersex specimens have features that are intermediate between those of males and females. Their genetic sex can also be fully suppressed. All cells have the same DNA content, but factors such as temperature, parasitic infections, hormone deviations or mutations can lead to different degrees of intersexuality. As opposed to gynandromorphism,



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where the reason for the malformation is in the early embryonic stage, intersexes are produced by factors that take effect in the larval or pupal stages.

Discover more about this topic [here](#) and have a look at the pictures below.



On the left, *Culex pipiens* gynandromorph. Top to bottom: general view, head showing female features (antennae, short palps), male genitalia.

On the right, *Culex pipiens* gynandromorph. Top to bottom: general view, female genitalia, head showing male features (fluffy antennae, long palps).

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

Biosecurity Specialists



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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.

[Communicable disease threats report](#) - European Centre for Disease Prevention and Control
