New Zealand BioSecure

BORDER HEALTH NEWSLETTER

AUGUST 2025

NAU MAI, HAERE MAI - WELCOME!

Kia ora koutou katoa,

Now that the weather has finally decided to stop sulking and the sun has made a surprise comeback, things are looking a lot more spring-like around here! If you haven't already sent your Light Trap and Regulators in for their spa day (a.k.a. deep clean and calibration), there's still a little time to give them the TLC they deserve before things get busy. In the meantime, we hope everyone is enjoying the warmer weather.

We were delighted to meet everyone on the Pest and Vector Course that was held in Auckland. A special thank you to Aaron Guanlao (Te Whatu Ora Auckland) for lending us their equipment for HPOs to practise on! We hope you learnt plenty!

In the news this month, discover an overview of the dengue outbreak in Samoa and the Pacific region, and an update on the spread of chikungunya from the Indian Ocean to other parts of the world. Learn about a new malaria vaccine that trains the immune system to produce antibodies that block the parasite's fertilization process in mosquitoes and discover the WHO-approved innovative "spatial emanator" technology as a new step forward in accessible long-term mosquito protection. Finally, read about how short-term climate variability may be creating favourable conditions for mosquito-borne disease outbreaks much earlier than previously anticipated.

In the bite of information section this month have a look at the Te Whatu Ora Dengue Factsheets that have been translated in five Pacific languages to support Pacific communities with information to help prevent the spread of dengue.

This month in the "Know your entomologist" segment, meet Carolyn Edgecumbe, whose dedication, reliability and deep knowledge have been the backbone of the lab for several years now.

Happy reading!

SURVEILLANCE

During August 998 samples were collected by staff from 12 NPHUs (Figure 1). The samples included 56 positive larval samples and 11 positive adult samples, leading to a total of 1972 larvae and 18 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 August last year (Table 1).

In total, five mosquito species have been collected this month (Table 1), same as last month.

Compared to this same month last year, the total number of larvae and adults have increased (9% and 21% respectively) (Table 1).

Compared to the previous month, mosquito larval and adult numbers have shown an increase (82% and 64% respectively).

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

Species (common name)	Adults		Larvae	
	Aug 25	Aug 24	Aug 25	Aug 24
Aedes notoscriptus (striped mosquito)	-	1	1418	834
Ae subalbirostris (no common name)	-	-	1	-
Culex pervigilans (vigilant mosquito)	5	-	381	167
Cx quinquefasciatus (southern house mosquito)	11	8	87	75
Culex sp. (damaged)	1	2	-	-
Culex sp. (inc. mixed features & *Cx pipiens* sp.)	1	-	-	-
Opifex fuscus (rock pool mosquito)	-	-	85	6
Total	**18**	**11**	**1972**	**1082**

The highest number of larvae sampled this month was obtained in Northland (1707 larvae) followed by Canterbury (175 larvae) (Figure 1).

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

Aedes notoscriptus and *Culex quinquefasciatus* were not recorded in Southland in August of this year or last year (Figure 2).

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

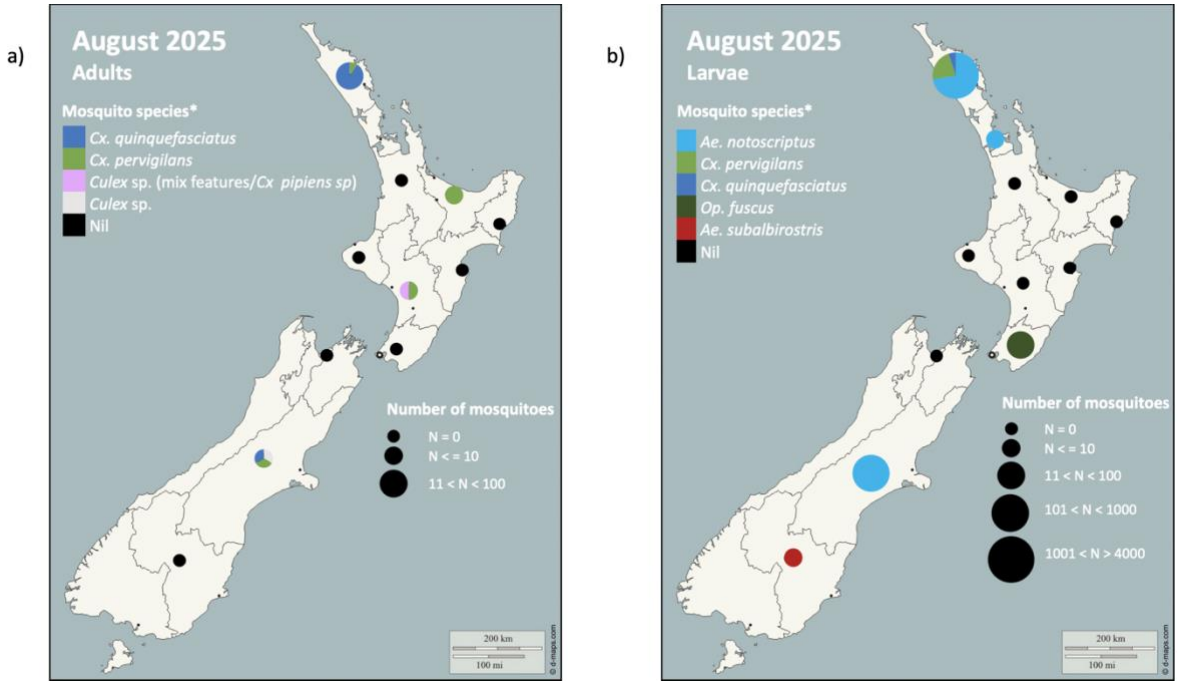


Figure 1. Total mosquito adults (a) and larvae (b) sampled in New Zealand during August 2025 surveillance period. Please note that the markers represent the NPHUs and not the specific sites where the samples have been taken.
* The mosquito species are listed in order from the most abundant to the least abundant.
Culex sp. (damaged) refer to mosquitoes that are damaged and cannot be identified to the species level.

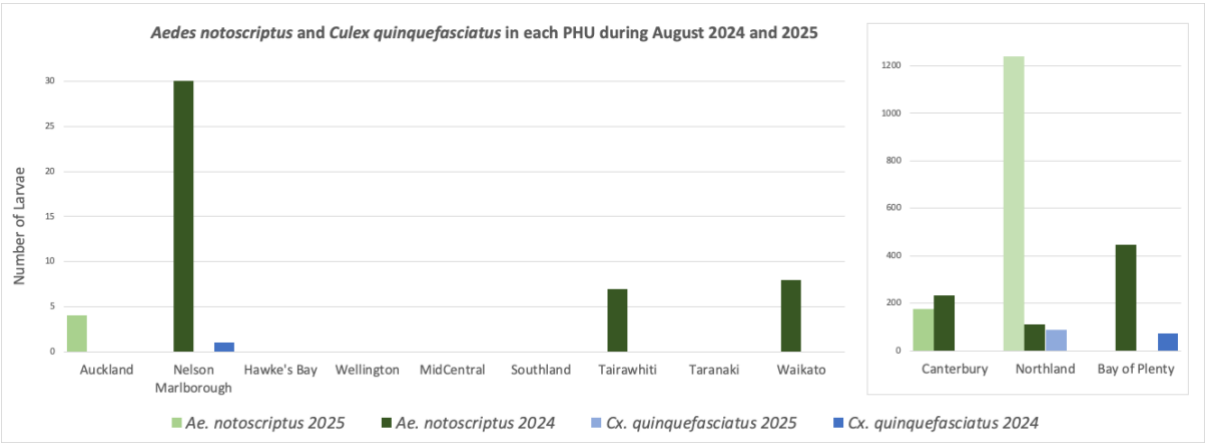


Figure 2. Comparison between introduced mosquito species sampled in each NPHU during August 2024 and 2025.
*Please note the different scale for the number of larvae present in Canterbury, Northland and Bay of Plenty in comparison to the other NPHUs.

INCURSIONS AND INTERCEPTIONS

During August, HPOs responded to four suspected interceptions (Table 2), including various non-mosquitoes and a local mosquito specimen.

Table 2. Suspected interception during July 2025

Date	Species	Location	Circumstances
11.08.2025	1 non-mosquito (chironomid)	Simple Freight Services Inspection area, Transitional Facility, Auckland	Found dead in grapes from Korea. Cargo hadn't been treated and was put on hold by MPI for further assessment as a live spider was found. Cargo was shrink-wrapped to prevent anything from being able to escape before the further assessment was completed. No other flying insects were found.
18.08.2025	3 non-mosquitoes (chironomids)	MG Marketing, Transitional Facility, Christchurch	Found dead in a shipment of grapefruit and oranges from Melbourne. The shipment left the Port of Melbourne on ANL Rotorua – arrived into Lyttelton on Friday 15/8/25 in the afternoon and delivered to MG Marketing on Friday evening. The shipment was chilled at 0.5 degrees.
27.08.2025	1 female *Culex quinquefasciatus*, 3 non-mosquitoes	BL Stringer & Co Ltd Transitional Facility, Christchurch	Found flying around after the container had been opened. Container of adult diapers, not for distribution, arrived at BL Stringer on 22/08, opened on 27/08. Container vents have been sealed. Items that were removed from container have been wrapped and stored in facility. Bins, auto wrecker with tyres nearby to local site where container was opened. Vessel name: Maersk Rio Negro. Last port of call overseas Australia (10/08/25)
29.08.2025	1 non-mosquito (cranefly)	Ferguson North Wharf, Ports of Auckland	Insect found on the underside of a container while MPI were conducting a 6-sided inspection. Vessel name: Neptune Matua. Container had not been opened when insect was found. Container remained closed until final identification given.

CULEX PIPIENS AND MIXED FEATURES UPDATES

During August, 1 female *Culex pipiens* sp. was detected in MidCentral.

NEWS ARTICLES FROM AROUND THE WORLD

Update on Samoa dengue outbreak

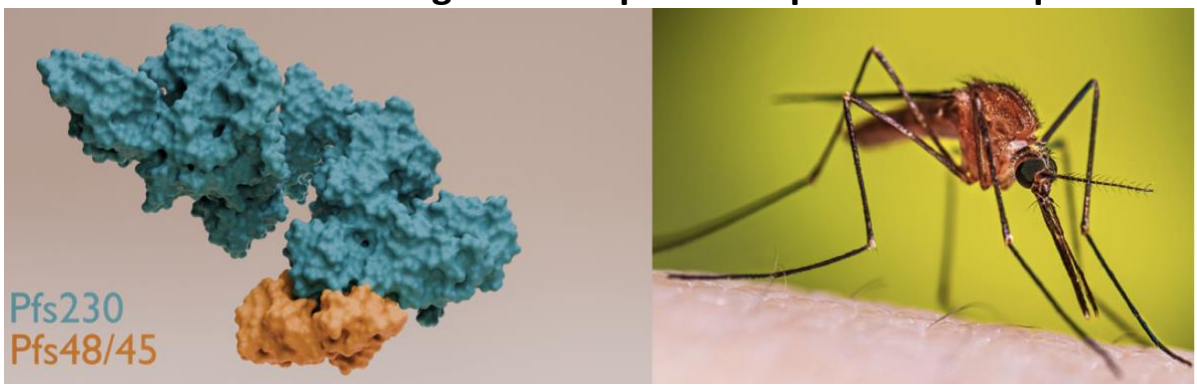
Samoa's health authorities are tackling a substantial dengue outbreak with broad measures: case tracking, school closures, widespread fumigation, public campaigns, and blood donation

drives. Public health interventions remain often reactive rather than preventive, limiting their effectiveness. Although cases have started to taper, sustained vigilance is essential, especially with the 29th of August general elections. As of 25 August 2025, Samoa's Ministry of Health reports a total of 10,982 clinically diagnosed dengue cases since January, including 3,379 laboratory-confirmed infections. Encouragingly, the weekly incidence for 18–24 August dropped by 19% compared to the previous period, with 1,307 clinically diagnosed cases from health facilities across Upolu and Savai'i. While Tonga and Fiji have declared their outbreaks over, cases continue in other parts of the region (e.g. American Samoa, Nauru and French Polynesia). Read more here or here. For information on other parts of the Pacific, read here and here. If you plan to travel to Samoa or elsewhere in the Pacific, read Te Whatu Ora's recommendations here or SafeTravel's recommendations here.

Chikungunya outbreak 2025: From Indian Ocean islands to global concern

The chikungunya virus—a disease spread by *Aedes* mosquitoes—has exploded in 2025, starting with major outbreaks on Indian Ocean islands like Réunion, Mayotte, and Mauritius, and now affecting around 119 countries with roughly 5.6 billion people at risk. The illness typically brings a sudden high fever, intense joint and muscle pain, rash, and headache—rarely fatal but often debilitating, especially for infants, the elderly, or those with existing health issues. Without a specific antiviral treatment, control relies on mosquito control, disease surveillance, preparedness in healthcare, and international coordination. Meanwhile, France has seen its earliest-ever local chikungunya transmissions, traced to imported cases from Réunion Island, putting European surveillance and response systems to the test. Read more here or here. For more details on the French situation putting Europe to the test, read more here. (Re)discover WHO's Chikungunya factsheet here.

New malaria vaccine target blocks parasite spread in mosquitoes

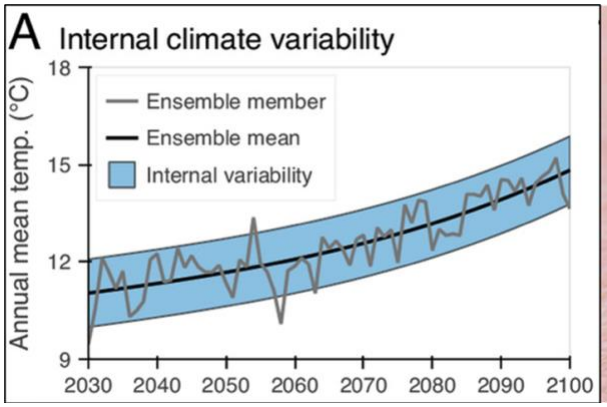


Australian scientists have mapped the structure of key malaria proteins that help the parasite reproduce inside mosquitoes. Using this knowledge, they created an mRNA vaccine that trains the immune system to produce antibodies that block the parasite's fertilization process. In early tests, this stopped up to 99.7% of transmission from humans to mosquitoes. Researchers hope this approach, combined with existing vaccines that protect people directly, could be a powerful new step toward eliminating malaria. Read more here or discover the full scientific article here.

New insecticide device offers year-long protection against mosquitoes

Scientists at the University of California, San Francisco have developed a new class of mosquito control tool called a "spatial emanator", continuously dispersing a volatile pyrethroid active ingredient into the air, proven to impact several mosquito behaviours. Unlike traditional sprays or treated bed nets, these devices are small, lightweight, and can function without heat or electricity, making them easy use in remote areas in Africa, South America, and Southeast Asia, where malaria is prevalent. Their meta-analysis of 25-years-worth of data show that spatial emanators can prevent more than half of mosquito bites. Current products last 3–4 weeks, but a new version called 'Guardian' has been shown to remain effective for up to a full year. WHO has endorsed this approach—the first approval of a new mosquito control product class in over 40 years—marking an important step forward in protecting people from mosquito-borne diseases. Read more here or discover the meta-analysis article here. Learn more about these devices here.

Climate variability could speed up mosquito-borne disease outbreaks



A new study warns that short-term shifts in rainfall, humidity, and temperature—called "internal climate variability"—can create favourable conditions for mosquito-borne diseases much earlier than predicted by gradual climate change models. These temporary swings may speed up the spread of *Aedes* mosquitoes, which transmit dengue, chikungunya, and Zika, among other diseases. Already hotspots for dengue, tropical regions could see more frequent and severe outbreaks as fluctuating rainfall boosts mosquito breeding and warmer temperatures shorten parasite incubation times. Subtropical regions like southern U.S, the Middle East or southern Europe are becoming increasingly suitable for seasonal outbreaks, as warmer winters and wetter summers allow mosquitoes to survive and expand their range. Although still less affected, temperate regions could experience sudden warm and wet years that could trigger unexpected outbreaks, especially in urban centres with dense populations such as Paris or London. The study emphasizes that public health planning must account not just for long-term climate change, but also for unpredictable climate swings, which can create sudden windows of high risk. Read more here and discover the study here. Have a look at another study that investigate Ae. albopictus potential establishment in the UK here.

A BITE OF INFORMATION

As mentioned in the news section, a dengue outbreak has been sweeping through Samoa. The actions we take over the next two years will support Pacific families and communities in New Zealand to stay well, and to enable Pacific people to access the care they need, where they need it.

Priorities for Pacific health are informed by lessons learned from the COVID-19 pandemic, as well as what Pacific communities have told us, with the shared aim of improving health outcomes for Pacific peoples in Aotearoa.
In reaction to the dengue outbreak currently happening in Samoa and the Pacific region, Te Whatu Ora has translated Dengue Factsheets in five Pacific languages to support Pacific communities with information to help prevent the spread of dengue.

Dengue Factsheet translations available here:

Dengue information is available here in Samoan to support our communities with clear advice on how to stay safe, prevent bites, and know the signs of the disease. In addition, a video in Samoan has also been created for social media, focusing on dengue prevention and symptom awareness (available here).

MOZZIE PHOTO PRACTICE TIME

Enjoy some of the great captures taken during the Medical Vectors Surveillance Workshop.

BORDER HEALTH NEWSLETTER

KNOW YOUR ENTOMOLOGIST

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

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