New Zealand BioSecure

# BORDER HEALTH NEWSLETTER

## OCTOBER 2025

## NAU MAI, HAERE MAI - WELCOME!

Kia ora koutou katoa,

Happy Halloween and Feliz Día de Muertos. With warmer weather beginning to show itself, the mosquitoes are also becoming more abundant. Have a look at the surveillance results below to see how they compare to previous numbers.


In the news this month read about the discovery of a wild population of mosquitoes in Iceland for the first time as the country experiences increasingly high temperatures. Also read about how increasing temperatures are increasing the risk of mosquito borne diseases in Europe. On the topic of mosquito borne diseases, read about the ongoing outbreak of chikungunya in China, how New York has recorded the first locally acquired chikungunya case in the USA since 2019, and how Western Australia has had the first detection of Ross River virus for the season. Finally, take a look at some nifty genetic work that has been done which has determined that the origin of the London Underground mosquito (AKA *Culex pipiens* f. *molestus*) is older than initially thought.

This month we have our final instalment of the "Know your entomologist" segment. We finish this segment with the newest member of the lab, Claire Zucchetta. Claire joined the lab in 2024 and has brought funky beats, excel magic, and high levels of excitement about all of the different species of insect we may see in samples.

Happy reading!

## SURVEILLANCE

During October 1130 samples were collected by staff from 12 NPHUs (Figure 1). The samples included 113 positive larval samples and 33 positive adult samples, leading to a total of 4894 larvae and 83 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 October last year (Table 1).

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

Compared to this same month last year, the total number of larvae and adults have increased (129% and 245% respectively) (Table 1).

Compared to the previous month, mosquito larval and adult numbers have shown an increase (109% and 173% respectively).

The highest number of larvae sampled this month was obtained in Northland (3458 larvae) followed by Bay of Plenty (710 larvae) (Figure 1).

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

| *Species* (common name) | Adults | | Larvae | |
|---|---|---|---|---|
| | Oct 25 | Oct 24 | Oct 25 | Oct 24 |
| *Aedes antipodeus* (winter mosquito) | 66 | 1 | - | - |
| *Ae notoscriptus* (striped mosquito) | 1 | 5 | 2246 | 1469 |
| *Culex asteliae* (no common name) | - | - | 4 | - |
| *Cx pervigilans* (vigilant mosquito) | 10 | 7 | 1595 | 610 |
| *Cx quinquefasciatus* (southern house mosquito) | 3 | 7 | 951 | 27 |
| *Culex* sp. (damaged) | 2 | 4 | - | - |
| *Culex* sp. (inc. mixed features & *Cx pipiens* sp.) | 1 | - | 93 | - |
| *Opifex fuscus* (rock pool mosquito) | - | - | 5 | 27 |
| **Total** | **83** | **24** | **4894** | **2133** |

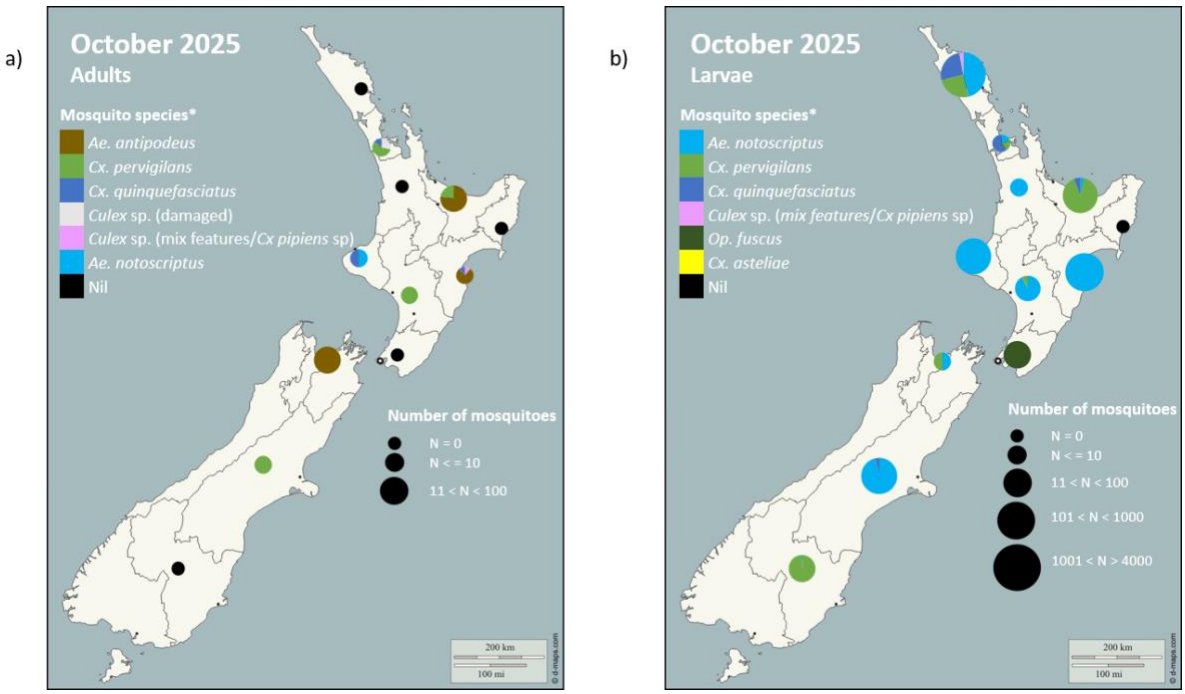


**Figure 1.** Total mosquito adults (a) and larvae (b) sampled in New Zealand during October 2025 surveillance period. Please note that the markers represent the NPHUs and not the specific sites where the samples have been taken.
* The mosquito species are listed in order from the most abundant to the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

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

*Aedes notoscriptus* were recorded in Southland in October this year, whereas it was absent at the same time last year. *Culex quinquefasciatus* remains to be absent this month, same as last year (Figure 2).

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

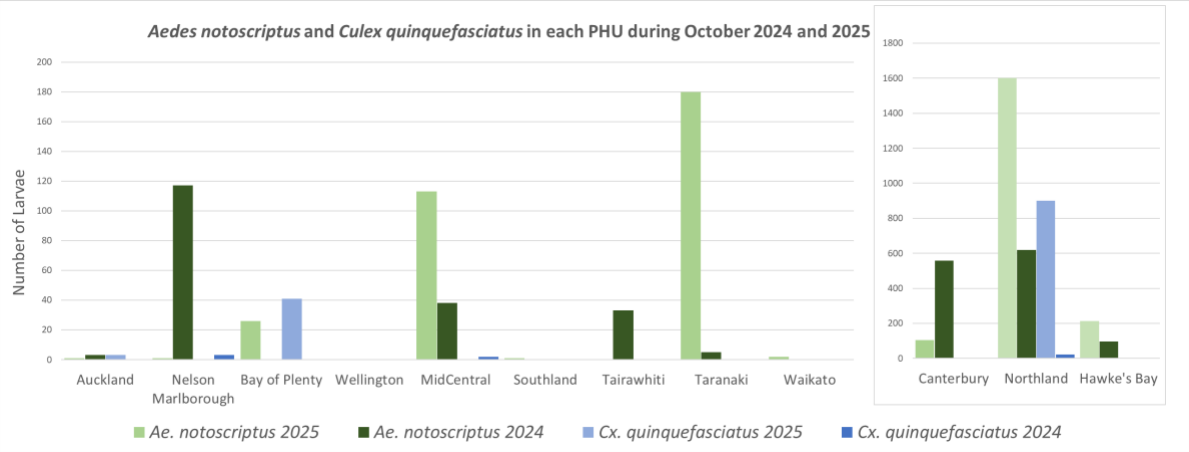


**Figure 2**. Comparison between introduced mosquito species sampled in each NPHU during October 2024 and 2025. *Please note the different scale for the number of larvae present in Hawke's Bay, Canterbury, and Northland in comparison to the other NPHUs.

## INCURSIONS AND INTERCEPTIONS

During October, HPOs responded to six suspected interceptions (Table 2), including various non-mosquitoes and one of a locally occurring mosquito species from exotic origin (in blue).

Table 2. Suspected interception during October 2025

| Date | Species | Location | Circumstances |
|---|---|---|---|
| **01.10.2025** | 1 male *Culex quinquefasciatus* | Mainfreight, Mangere, Auckland | Found dead on top of the first layer of untreated boxed eggplants in an aircan from Fiji. Aircan opened inside MPI's quarantine refrigerated room. No other organisms found. |
| **07.10.2025** | 1 non mosquito (1x cranefly) | Springfree NZ, Avondale, Auckland | Found alive at the back of a transitional facility on wooden pallet. Associated with trampolines. Likely a local species. |
| **14.10.2025** | 1 non-mosquito (1x cranefly) | Auckland International Airport | Found on flight DHL HJ2 from Sydney. |
| **16.10.2025** | 1 non-mosquito (1x window gnat) | Taspac Energy, Hobsonville, Auckland | Found alive during the unloading of a shipping container carrying solar panels from Singapore (vessel Cotsco Hamburg, voyage number 290). Sprayed dead, no other insect found. |
| **22.10.2025** | 5 non-mosquitoes (3x chironomids, 2x winged ants) | Auckland International Airport | Caught from swarm following the cargo being removed from the airplane hold. The hold was sprayed prior to departure and the swarming insects were only noticed once the whole hold was empty. |
| **30.10.2025** | 1 non-mosquito (1x assassin bug) | SEW-Eurodrive (NZ) Ltd, East Tāmaki, Auckland | Suspected mosquito caught on site while devanning container unloaded in New Zealand at the Port of Tauranga on 24/10/25 from vessel Maersk Buton |

## CULEX PIPIENS AND MIXED FEATURES UPDATES

During October, multiple larvae and one adult *Culex pipiens* sp./*Culex* sp. showing mixed features were detected in two PHUs (see table below).

| October 2025 | *Culex* sp. showing mixed features | *Culex pipiens* sp. | | Total |
|---|---|---|---|---|
| | Larvae | Larvae | Female | |
| **Hawkes Bay Public Health** | | | | |
| Napier Port | 0 | 0 | 1 | **1** |
| **Nga Tai Ora - Public Health Northland** | | | | |
| Opua | 1 | 92 | 0 | **93** |
| **Grand Total** | **1** | **92** | **1** | **94** |

## NEWS ARTICLES FROM AROUND THE WORLD

### Mosquitoes found in Iceland for the first time in the wild

Scientists in Iceland have confirmed the country's first discovery of wild mosquitoes, identifying three specimens of *Culiseta annulata*—a cold-tolerant species found across Europe and Asia. The mosquitoes were captured near Reykjavík by local naturalist Björn Hjaltason and verified by entomologist Matthías Alfreðsson of the Natural Science Institute of Iceland. While a single mosquito had previously been intercepted at the airport, this marks the first time mosquitoes have been found in Iceland's natural environment. Experts say the species' ability to overwinter in sheltered areas may have allowed it to survive the country's harsh climate, though it remains uncertain whether it will establish a permanent population. Researchers caution against directly linking the discovery to climate change but note that warming temperatures could make Iceland increasingly hospitable to mosquitoes in the future. Read more on this here.

## ‘London Underground mosquito’ is actually much older than previously thought

A new *Science* study has revealed that the “London Underground mosquito,” *Culex pipiens* form *molestus*, did not evolve recently in response to urbanisation, as long believed, but instead has an ancient origin dating back over a thousand years. By analysing genomes from hundreds of modern and historical specimens, researchers found that this mosquito lineage likely diverged from surface-dwelling *Culex pipiens* populations in the Mediterranean or Near East, long before the advent of modern cities. The traits that allow *molestus* to thrive underground—such as human-biting behaviour, year-round breeding, and tolerance of confined habitats—appear to have evolved earlier in human-associated environments, enabling it to later colonise subways and basements. These finding challenges traditional ideas of rapid urban adaptation and suggests that pre-adapted mosquito lineages may play a key role in the spread of vector species in modern environments. Read more on this topic here. Access to the full scientific paper here.

## West Australia health urges mosquito bite prevention after virus detection

WA Health has issued a warning to residents and travellers in Western Australia’s Southwest after mosquitoes collected through the state’s surveillance program tested positive for Ross River virus (RRV), marking the first detection of the season. Managing Scientist Dr Andrew Jardine said the program serves as an early warning system to alert communities when mosquito-borne viruses are active. With 24 human RRV cases reported statewide since July—six from the Southwest—residents are reminded to take precautions such as using repellents, wearing protective clothing, and eliminating standing water around homes. Barmah Forest virus (BFV) has also been detected in local mosquitoes, though no recent human infections have been reported. As there are no vaccines or cures for either virus, WA Health urges the public to take preventive measures to avoid mosquito bites. Read more here.

## Chikungunya spreads in Southern China as mosquito-borne diseases expand globally

Chikungunya fever, a mosquito-borne illness spread by *Aedes* mosquitoes—the same species responsible for dengue and Zika—has been reported spreading in southern China, highlighting the global expansion of mosquito-borne diseases. The infection causes fever, rash, and severe joint pain, and while rarely fatal, symptoms can persist for weeks or months. With no vaccine or specific treatment available, prevention relies on reducing mosquito breeding sites and using repellents. Experts link the rise of chikungunya to climate change, urbanization, and international travel, while the World Health Organization's Global Arbovirus Initiative calls for stronger surveillance, community engagement, and global cooperation to curb future outbreaks. Read more here.

## Warming climate boosts mosquito threat in Europe


Europe is facing a record-breaking season for mosquito-borne diseases, with Italy reporting its first-ever locally acquired West Nile virus cases in the southern province of Latina and France seeing an unprecedented surge of chikungunya infections. Experts attribute the rise to increasingly hot summers, climate change, urbanization, and the spread of *Aedes albopictus*, the Asian tiger mosquito, which now thrives across much of Europe. France recorded 228 locally transmitted chikungunya cases—more than all previous years combined—while Italy logged over 400 West Nile virus cases and 27 deaths. Scientists warn that these outbreaks mark a "new normal" for Europe as warming climates enable mosquito-borne viruses to expand their range, urging better surveillance, prevention, and long-term adaptation to emerging infectious disease threats. Read more here.

# New York confirms first locally acquired chikungunya case since 2019


New York State has confirmed its first locally acquired case of chikungunya, detected in Nassau County on Long Island, marking the first local transmission reported in the U.S. since 2019. The New York State Department of Health's Wadsworth Center verified the case, which likely resulted from a bite by an *Aedes albopictus* mosquito—the same species that transmits dengue and Zika—though the exact source of exposure remains uncertain. Health officials emphasize that the current risk of spread is low due to cooler autumn temperatures but urge residents to take preventive measures such as using insect repellent, wearing protective clothing, and eliminating standing water. Read more here.

## 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