



BORDER HEALTH NEWSLETTER

MARCH 2026

NAU MAI, HAERE MAI - WELCOME!

Kia ora koutou katoa,

We sincerely hope everyone is safe and dry after the weather event this weekend.

As we move into autumn, we're pleased to report that mosquito numbers are finally starting to take the hint and slowly disappear from our surveillance areas. April also brought the Easter period, with plenty of travel and movement across regions (and possibly a few chocolate-fuelled adventures), serving as a timely reminder that strong biosecurity and health measures are just as important as ever—even when the mosquitoes seem to be packing up for the season.

In the news this month, explore how genetic research is revealing early signs of insecticide adaptation in South America's primary malaria vector, and how climate-driven extreme weather is fuelling major dengue outbreaks. Learn about the worrying slowdown in global child mortality progress, with mosquito-borne diseases like malaria still playing a significant role, and discover how changing climate conditions are allowing diseases such as dengue to expand into new regions, including parts of the United States.

We hope you enjoyed a well-deserved Easter break, in case you didn't get to do one we leave you here our Easter egg mozzie hunt. Scroll down to play the game!

Happy reading!

SURVEILLANCE

During March a total of 1387 routine and enhanced surveillance, and various survey samples were collected by staff from 12 PHUs (Figure 1). The samples included 237 positive larval samples and 179 positive adult samples, leading to a total of 9631 larvae and 1037 adults identified over the past month (Table 1).

Aedes notoscriptus was the dominant larval species this month (3007 specimens) and *Culex quinquefasciatus* in March last year (9632 specimens). For adults, *Culex quinquefasciatus* was the dominant species this month and March 2025 (519 and 922 specimens respectively) (Table 1).

In total, eight mosquito species* have been collected this month (Table 1), which is the same number than last month.

**Culex* sp., *Culex* sp. showing mixed features and *Culex pipiens* complex sp. are not included in this count as they are not considered species *per se*.

Compared to the previous month, the total numbers of larvae have shown a decrease (18%) while adults have shown an increase (7%).



BORDER HEALTH NEWSLETTER

Compared to this same month last year, the total numbers of larvae and adults have shown a decrease (32% and 4% respectively) (Table 1).

Table 1. Adult and larvae sampled by the New Zealand surveillance program during March 2025 & 2026

Species (common name)	Adults		Larvae	
	March 26	March 25	March 26	March 25
<i>Aedes antipodeus</i> (Winter mosquito)	10	4	-	-
<i>Aedes australis</i> (Saltwater mosquito)	-	2	-	-
<i>Aedes notoscriptus</i> (Striped mosquito)	31	41	3007	3112
<i>Coquillettidia iracunda</i> (No common name)	1	-	-	-
<i>Culex</i> sp.	78	77	2179	1
<i>Culex asteliae</i> (No common name)	1	-	24	-
<i>Culex pervigilans</i> (Vigilant mosquito)	21	15	1251	791
<i>Culex pipiens</i> sp. (Common house mosquito)	97	4	104	114
<i>Culex pipiens</i> complex sp.	203	-	1792	-
<i>Culex</i> sp. showing mixed features	75	10	96	7
<i>Culex quinquefasciatus</i> (Southern house mosquito)	519	922	1155	9632
<i>Opifex fuscus</i> (Salt pool mosquito)	1	-	23	607
TOTAL	1037	1075	9631	14264

The highest number of larvae sampled this month (all instars included) was obtained in Bay of Plenty (3804 larvae) followed by Northland (3036 larvae). Considering only third and fourth instars, the highest number of larvae sampled this month was obtained by Northland followed by Bay of Plenty (Figure 1).

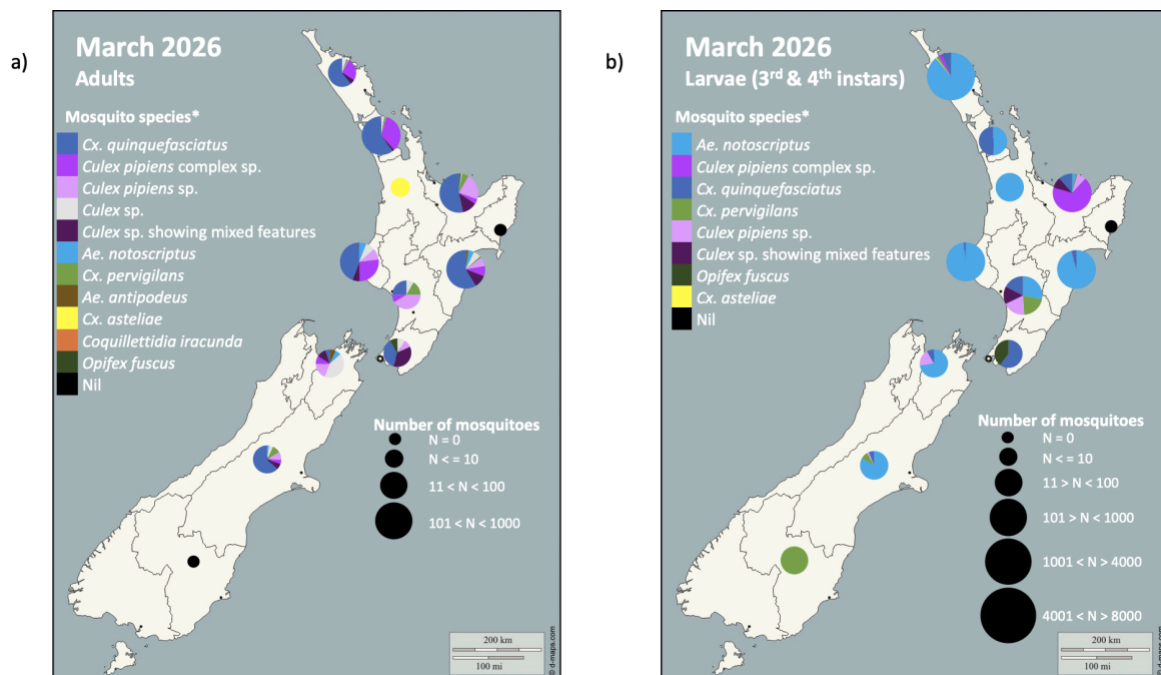


Figure 1. Total mosquito adults (a) and 3rd and 4th instar larvae (b) sampled in New Zealand during March 2026 surveillance period.

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. *Culex* sp. refers to adult or larvae that are damaged or cannot be identified to the species level.



BORDER HEALTH NEWSLETTER

As expected, *Aedes notoscriptus* has not been recorded this year in Southland. Please note that *Culex quinquefasciatus*, a member of the *Culex pipiens* complex has been recorded this year in Southland (Figures 1 and 2).

Figure 2 shows the 2025-2026 evolution of adult and larval specimens of introduced species collected including *Aedes notoscriptus*, *Aedes australis* and members of the *Culex pipiens* complex.

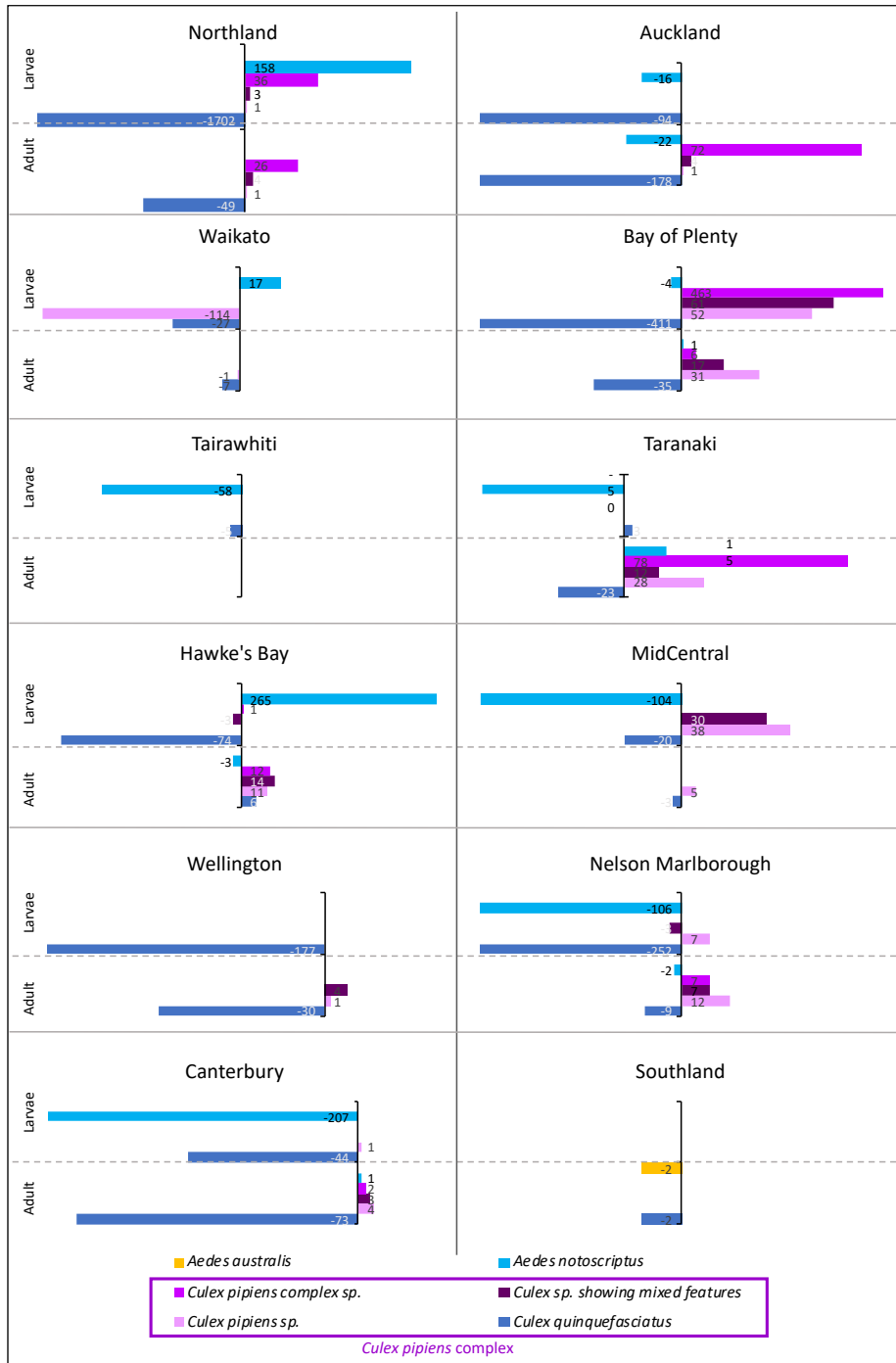


Figure 2. Comparison between the number of introduced mosquito species sampled in each PHU during March 2025 and 2026.



BORDER HEALTH NEWSLETTER

*Please note the different scale is different for each PHU. Species in the purple box are all members of the *Culex pipiens* complex. Larval ID is based on third and fourth instar only for species in the *Culex pipiens* complex while *Aedes notoscriptus* and *Aedes australis* are all larval stages.

The largest increase for *Culex quinquefasciatus* adults was seen in the Hawke's Bay with an increase of 6 specimens compared to last year. The largest decrease was seen in Auckland with a decrease of 178 adult specimens. For third and fourth-instars *Culex quinquefasciatus* larvae, a decrease was noted across all locations except Taranaki where the numbers increased by 3. The largest decrease occurred in Northland with 1702 larval specimens less than March 2025. Though present, no *Culex quinquefasciatus* adults were collected in Tairāwhiti in March this year or last year.

An increase of *Culex pipiens* sp., *Culex pipiens* complex sp. and *Culex* sp. showing mixed features adults and larvae has occurred in all locations they have been detected, with the exception of Waikato (1 less *Culex pipiens* sp. adult collected and 114 adults); Hawke's Bay (3 less *Culex* sp. showing mixed features larvae); Nelson Marlborough (3 less *Culex* sp. showing mixed features larvae).

The largest increase for *Aedes notoscriptus* adults was seen in Taranaki (15 more specimens compared to last year). The largest decrease was seen in Auckland with a decrease of 15 specimens. For *Aedes notoscriptus* larvae the largest increase was in the Hawke's Bay (256), and largest decrease was in Canterbury (733). Though present, no *Aedes notoscriptus* adults were collected in Tairāwhiti in March this year or last year. In March 2025 and 2026 nil *Aedes notoscriptus* larvae were collected in Southland

Aedes australis adults were collected in Southland in March last year however no specimens of *Aedes australis* have been collected there this year.

Disclaimer: Please note that the identification and reporting processes for adult male and female mosquitoes, as well as first and second-instar larvae of *Culex* species found in New Zealand, were adjusted since the start of 2026. To identify males of the *Culex pipiens* complex to species level, the genitalia must be processed — a technique that is highly time-consuming. For this reason, the NZB laboratory identified only a sub-sample of male mosquitoes from each collection to species level. The remaining males in each sample were identified using the palps and classified as either *Culex pipiens* complex sp. or any other endemic *Culex* species (*Culex pervigilans*, *Culex asteliae*, ...). Females were placed in the *Culex pipiens* complex when one or more key identification features were missing (for example a wing, abdominal scales, or the abdomen itself). *Culex* larvae in the first or second instar are not always identifiable to species level; when this happens, these are reported as *Culex* sp. The term *Culex* sp. is also used when specimens are too damaged to be identified beyond the genus level.



BORDER HEALTH NEWSLETTER

INCURSIONS AND INTERCEPTIONS

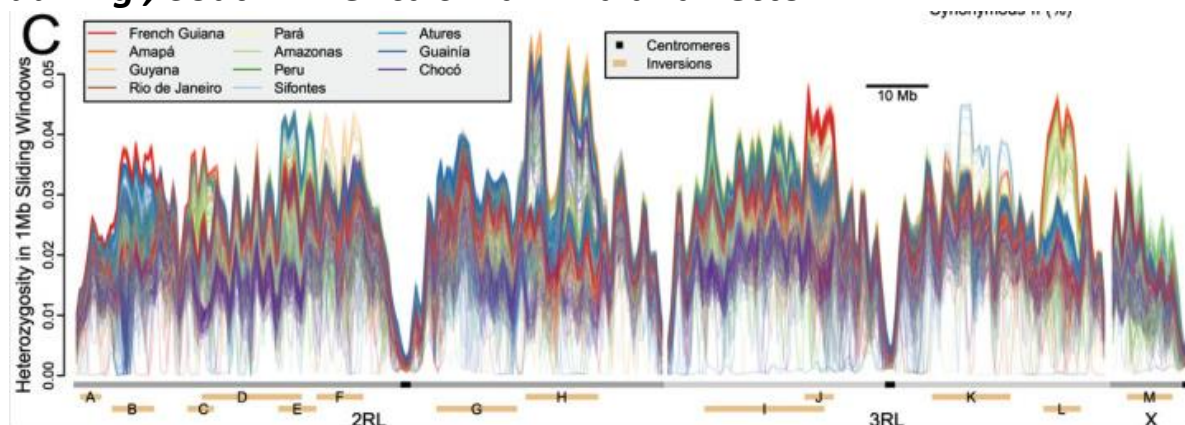
During March, HPOs responded to six suspected interceptions (Table 2), including one unwanted mosquito (in red) one locally occurring mosquito species (in black), three locally occurring mosquitoes from exotic origin (in green).

Table 2. Suspected interceptions during March 2026

Date	Species	Location	Circumstances
05.03.2026	1x Male <i>Culex quinquefasciatus</i>	Primore Produce (Transitional Facility)	Found dead inside a box of oranges during a MPI inspection. Container was loaded in California USA.
10.03.2026	1x Female <i>Culex quinquefasciatus</i>	Mainfreight Air & Ocean Auckland (Transitional Facility)	Found alive during inspection of nursery stock imported from China. Two fully shrink-wrapped boxes were examined inside the temperature-controlled MPI inspection room. The specimen was not observed flying out of the shipment itself.
16.03.2026	1x Male <i>Culex quinquefasciatus</i>	Hellmann Worldwide Logistics Ltd (Transitional Facility)	Found alive during inspection of fresh taro produces from Fiji at secure MPI holding area. Other insects were also found. Mosquito was sighted inside plastic wrapping around the goods on the pallet after removal from aircan.
21.03.2026	1x Male <i>Culex astelliae</i>	Hamilton International Airport	Found alive at the xray bench at Hamilton Airport prior to the arrival of the international flight for the morning.
23.03.2026	1x Female <i>Culex quinquefasciatus</i>	Hellmann Worldwide Logistics Ltd (Transitional Facility)	Found dead in a box of watermelon from Melbourne Australia. MPI officer had opened one of the large boxes for inspection out of approximately 90 when the insects were found. The inspection was stopped and consignment held due to the dead fruit flies that were also present.
30.03.2026	2x 3rd instars <i>Aedes aegypti</i> larvae	Ports of Auckland	Found in routine surveillance sample (tyre trap POA011 Queens. Tyre) which is located at the edge of the port.

NEWS ARTICLES FROM AROUND THE WORLD

Genomic insights reveal early insecticide adaptation in *Anopheles darlingi*, South America's main malaria vector



Anopheles darlingi, the primary malaria vector in South America, exhibits strong regional genetic differences and high genome diversity across populations. While no evidence was found for separate cryptic species, researchers detected early signs of adaptation to insecticides, especially in genes involved in detoxification. This suggests that resistance could emerge if insecticide use continues unchecked. The study highlights the importance of



BORDER HEALTH NEWSLETTER

region-specific surveillance and carefully targeted vector control strategies to maintain the effectiveness of malaria prevention efforts. Read more about this topic [here](#).

Extreme weather drives mosquito-borne disease, Stanford study shows



Researchers led by Stanford University linked extreme weather events driven by climate change to a major dengue fever outbreak in Peru. They found that about 60 % of cases in the 2023 outbreak were associated with unusually heavy rainfall and heat caused by climatic conditions, illustrating a direct connection between extreme weather and mosquito-borne disease spread. This kind of climate-linked risk is now becoming more common, giving health officials data to support investments in mosquito control, vaccination, and strategies to make communities more resilient to flooding and heat. Read more on this topic [here](#)

Nearly half of under-five deaths occur in newborns, progress stagnates



Global child mortality has declined since 2000, but progress has slowed, with 4.9 million children under five dying in 2024, largely from preventable causes. Among older children, infectious diseases remain major drivers of death, including mosquito-borne illnesses such as malaria, which is still the leading cause in this group and is heavily concentrated in sub-Saharan Africa. Progress in reducing malaria deaths has stalled in recent years, with factors like climate shocks, conflict, insecticide resistance, and invasive mosquito species affecting control efforts. The report highlights that strengthening vector control, access to treatment, and primary health care systems is critical to reducing these preventable deaths. Read more on this topic [here](#).









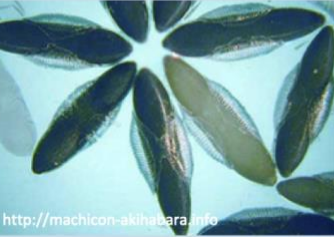


BORDER HEALTH NEWSLETTER

Climate change and cyclones fuel rising dengue risk in the U.S.

Diseases once rare in the United States are beginning to appear in states like Florida, Texas, and California. A new study links a 2023 cyclone in Peru to a major dengue outbreak, with researchers estimating that 60% of cases were driven by unusually warm, wet conditions. Heavy rainfall created ideal mosquito breeding sites, while higher temperatures accelerated transmission. As climate change increases the likelihood of these conditions, the risk of dengue and other mosquito-borne diseases spreading into new regions continues to grow. Read more on this topic [here](#). Access the full scientific article [here](#).

THE EASTER EGG MOZZIE HUNT

There are three female mosquitos from three different genera: *Anopheles*, *Culex* and *Aedes*. Join the female mosquito with its eggs and their favourites oviposition habitats (it could be more than one oviposition habitat).

Eggs	Female mosquito	Oviposition habitat
 <p>© Martin Dohrn / naturepl.com</p>	 <p>Anopheles</p>	 <p>Pond</p>
 <p>http://www.zanzara.fondazionemcr.it/</p>	 <p>Culex</p>	 <p>River</p>
 <p>http://machicon-akihabara.info</p>	 <p>Aedes</p>	 <p>Pot</p>

Answers will be available in the April Newsletter.

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



BORDER HEALTH NEWSLETTER

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 Dashboards](#) - The New Zealand Institute for Public Health and Forensic Science (PHF Science) - formerly named the Institute of Environmental Science and Research (ESR).

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