New Zealand BioSecure

BORDER HEALTH NEWSLETTER

APRIL 2026

NAU MAI, HAERE MAI - WELCOME!

Kia ora koutou katoa,

April the 25th was the World Malaria Day, an international observance that recognizes global efforts to control malaria. Click on the image below and watch a message from Dr Tedros Adhanom Ghebreyesus, Director-General of World Health Organization.

47

countries

have been certified malaria-free

In the news this month, mark World Malaria Day 2026 by exploring both the progress made and the ongoing global challenges in combating one of the world's most important mosquito-borne diseases. Discover how climate change is reshaping mosquito distributions, with mosquitoes now detected in Iceland for the first time, highlighting the growing importance of surveillance as warming temperatures open new regions to arthropod invaders. Learn about innovative research using mosquitoes' own immune responses to uncover hidden viruses missed by conventional detection methods, potentially transforming the future of mosquito-borne disease surveillance. Explore new findings on mosquito reproduction, where scientists have identified promising targets for more environmentally responsible mosquito control strategies. Finally, read about cutting-edge laser technology being trialled in the United Kingdom to remotely detect and identify invasive mosquito species, offering exciting new possibilities for real-time biomonitoring and vector surveillance.

Don't forget to scroll down to check the answers for our Easter egg mozzie hunt. How did you do?

Happy reading!

SURVEILLANCE

During April a total of 1656 routine and enhanced surveillance, and various survey samples were collected by staff from 12 PHUs (Figure 1). The samples included 153 positive larval

samples and 111 positive adult samples, leading to a total of 4221 larvae and 685 adults identified over the past month (Table 1).

Aedes notoscriptus was the dominant larval species this month (2399 specimens) and *Culex quinquefasciatus* in April last year (5057 specimens). For adults, *Culex quinquefasciatus* was the dominant species this month and April 2025 (609 and 362 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 and adults have shown a decrease (56%, 34% respectively).

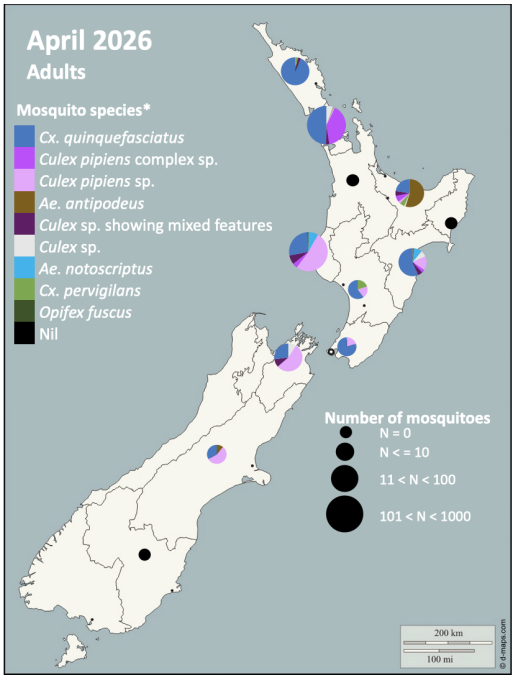
Compared to this same month last year, the total numbers of larvae have shown a decrease (54%) while the number of adults has shown an increase (59%) (Table 1).

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

Species (common name)	Adults		Larvae	
	April 26	April 25	April 26	April 25
Aedes antipodeus (Winter mosquito)	41	1	-	-
Aedes australis (Saltwater mosquito)	-	2	3	-
Aedes notoscriptus (Striped mosquito)	15	18	2399	3072
Culex sp.	27	35	403	-
Culex asteliae (No common name)	-	-	3	66
Culex pervigilans (Vigilant mosquito)	9	8	343	644
Culex pipiens sp. (Common house mosquito)	91	2	108	13
Culex pipiens complex sp.	164	-	3	-
Culex sp. showing mixed features	28	2	117	87
Culex quinquefasciatus (Southern house mosquito)	309	362	796	5057
Opifex fuscus (Salt pool mosquito)	1	-	46	193
TOTAL	**685**	**430**	**4221**	**9132**

The highest number of larvae sampled this month (all instars included) was obtained in Northland (2392 larvae) followed by Bay of Plenty (333 larvae). Considering only third and fourth instars, the highest number of larvae sampled this month was obtained by Northland (1611 larvae) followed by Auckland (249 larvae) (Figure 1).

a)



b)

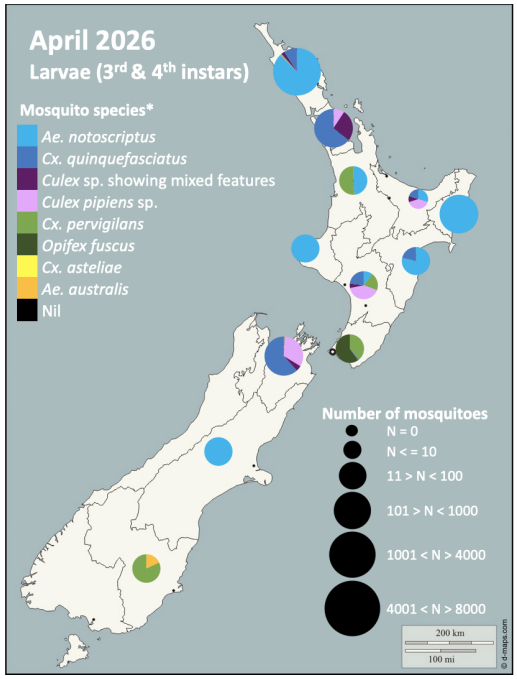


Figure 1. Total mosquito adults (a) and 3rd and 4th instar larvae (b) sampled in New Zealand during April 2026 surveillance period.
Please note that the markers represent the PHUs and not the specific sites where the samples have been taken.
* The mosquito species are listed in order from the most abundant to the least abundant. *Culex* sp. refers to adult or larvae that are damaged or cannot be identified to the species level.

As expected, *Aedes notoscriptus* has not been recorded this month in Southland. This month nil *Culex quinquefasciatus*, a member of the *Culex pipiens* complex, have been recorded this month in Southland (Figures 1 and 2).

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

The largest increase for *Culex quinquefasciatus* adults was seen in Auckland with an increase of 126 specimens compared to last year. The largest decrease was seen in the Bay of Plenty with a decrease of 50 adult specimens. For third and fourth-instars *Culex quinquefasciatus* larvae, a decrease was noted across all locations except Auckland where the numbers increased by 91. The largest decrease occurred in Northland with 562 larval specimens less than Aril 2025. Although it is present, no *Culex quinquefasciatus* adults were collected in Tairawhiti in April 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); Northland (17 less *Culex* sp. showing mixed features larvae); Bay of Plenty (22 less *Culex* sp. showing mixed features larvae).

The largest increase for *Aedes notoscriptus* adults was seen in Taranaki (5 more specimens compared to last year). The largest decrease was seen in Nelson/Marlborough with a decrease of 7 specimens. For *Aedes notoscriptus* larvae the largest increase was in

Canterbury (198 specimens), and largest decrease was in Northland (385 specimens). Though present, no *Aedes notoscriptus* adults were collected in Wellington in April this year or last year. In April 2025 and 2026 nil *Aedes notoscriptus* larvae were collected in Southland

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

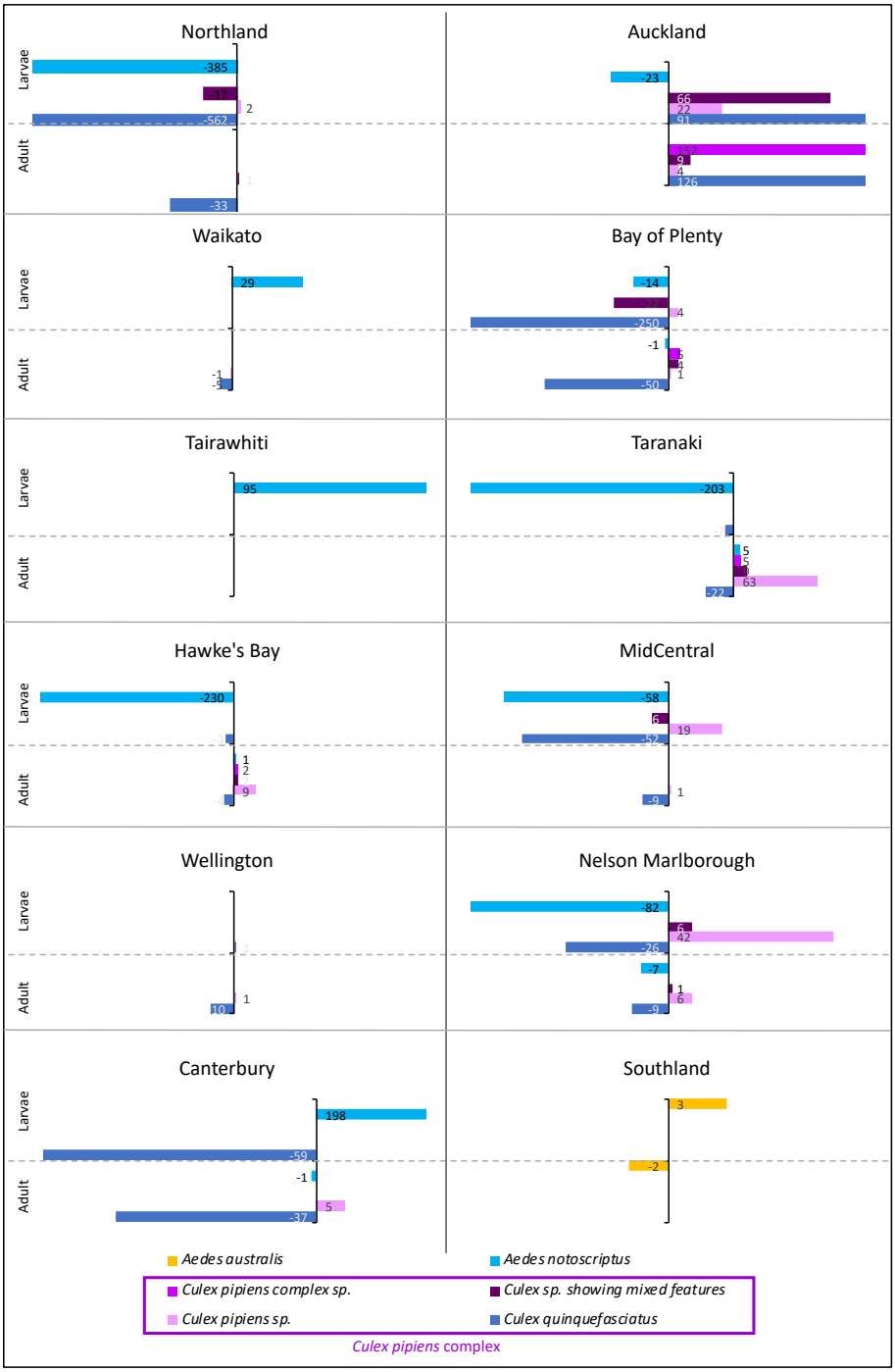


Figure 2. Comparison between the number of introduced mosquito species sampled in each PHU during April 2025 and 2026.
*Please note the different scale is different for each PHU. Species in the purple box are all members of the *Culex pipiens* complex. Larval ID is based on third and fourth instar only for species in the *Culex pipiens* complex while *Aedes notoscriptus* and *Aedes australis* are all larval stages.

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.

INCURSIONS AND INTERCEPTIONS

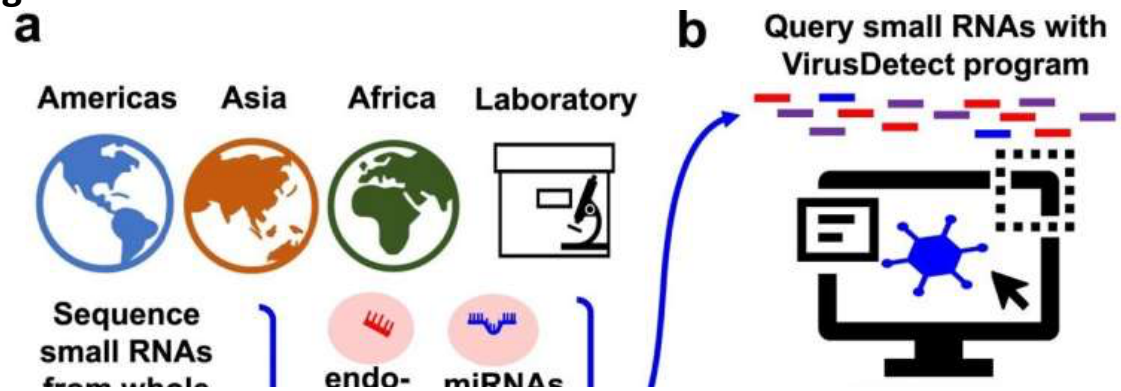
During April, HPOs responded to one suspected interception (Table 2).

Table 2. Suspected interceptions during April 2026

Date	Species	Location	Circumstances
28.04.2026	Various non-mosquitoes	The Warehouse Distribution Centre (Transitional Facility)	Live insects were spotted while the AP was opening a container of fabric softener liquid from Vietnam

NEWS ARTICLES FROM AROUND THE WORLD

Hidden mosquito viruses emerge as RNA immune signals map global infections



In many parts of the world, mosquitoes are routinely tested as part of routine surveillance to detect and track viruses in the local populations. This is primarily done using conventional reverse transcription polymerase chain reaction (RT-PCR), which is limited to detecting known pathogens which have genetic primers developed. Researchers at Boston University Chobanian & Avedisian School of Medicine looked at using the mosquitoes own immune response instead of already known viruses and found that there were some viruses that were able to slip past detection and in some cases the viral load was larger than expected. This research has the potential to create more effective ways to monitor viruses in mosquito populations. Read more here or visit the original journal article here .

World Malaria Day

World Malaria Day for 2026 occurred on the 25th of April. Malaria continues to be significant disease in many parts of the world, with many challenges to overcome in its eradication. Despite this, much progress has been made, and continues to be made, to eradicate this disease. Learn more here about Malaria, and the successes and challenges faced in the battle against this mosquito borne disease.

Scientists identify potential new target for disrupting mosquito reproduction

Juvenile hormone has long been known as the signal that tells a female mosquito when to begin producing eggs. Until recently scientists believed that there were two separate receptors to work, one inside the cell which was identified many years ago, and one outside the cell that until recently has remained elusive. Recently researches from Virginia Tech have found that the receptor, called Methoprene-tolerant or MET receptors operate in both locations. The researchers hope that by understanding how both the inner and outer MET receptors work together, they may be able to develop more effective and environmentally responsible control strategies. You can read more about this research here.
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.

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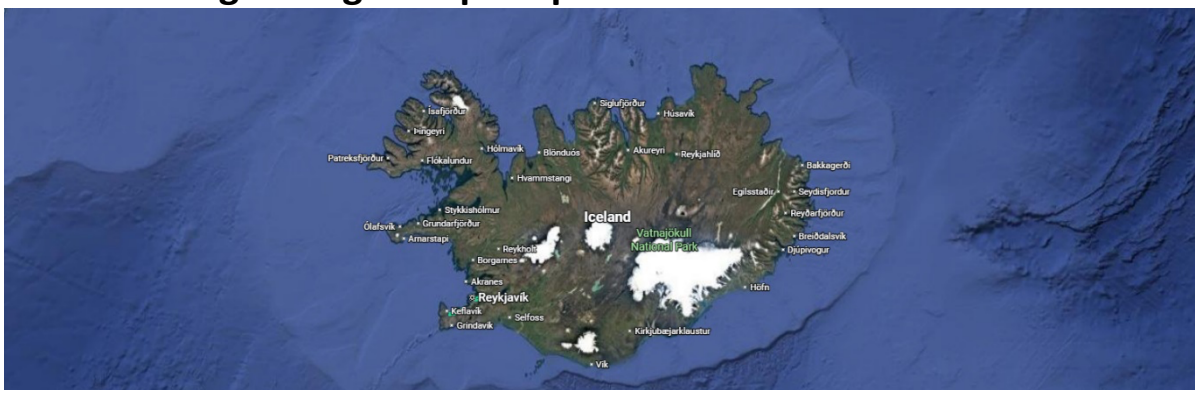
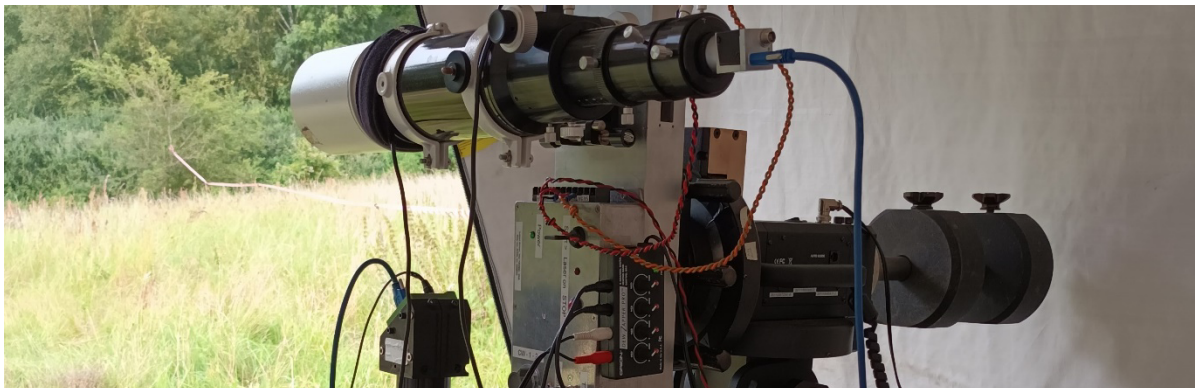
The Arctic's growing mosquito problem



In 2025, just north of Reykjavík, Iceland, mosquitoes were detected in the environment, ending Iceland being the only Arctic nation without them. This discovery reflects an ecological shift and acts as a reminder that as the climate shifts, monitoring for arthropod invaders is important as new locations open up for them to move into. Read more here.

Laser technology to track and identify invasive mosquitoes in the UK



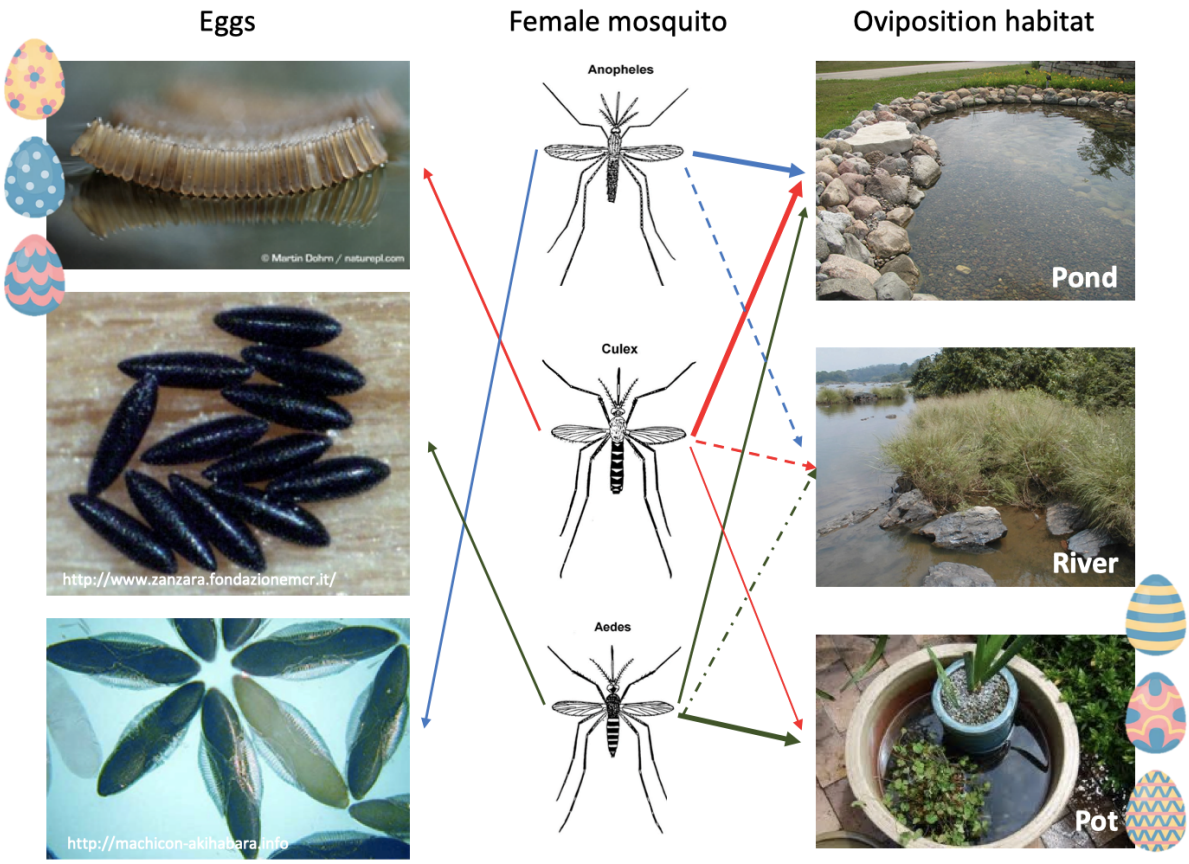
A project led by Liverpool School of Tropical Medicine and Lund University is using the latest advances in optical remote sensing technology called entomological lidar to detect and identify important endemic species, and invasive species in the UK. The goal of the project is to determine if entomological lidar can become a useful biomonitoring tool to enhance entomological monitoring in the UK and possibly track the spread of invasive species. Read more about the project 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).

The answer to the oviposition habitat is not that straightforward and is species specific. Species in the same genera have a range of different preferred habitats to lay eggs.

Here are some examples.



Aedes females will generally lay their eggs on different surfaces above the water line, humid or dry ones, in natural or artificial water bodies including containers. The eggs will hatch after the habitat is full of water. *Ae. antipodeus* breeds in freshwater ground pools; *Ae. camptorhychus* eggs are usually laid on a damp substrate, but are also laid on the water surface; *Ae. aegypti* eggs are laid inside containers just above the water line, prefers to breed in artificial containers including water drums, roof guttering, rain water tanks, pot plant saucers, tanks, tins, vases, tyres, subterranean waters and refuse filled by rain. This species will also breed in natural containers such tree holes and leaf axils of bromeliads.

Anopheles mosquitoes lay their eggs individually on the water surface. *Anopheles bancroftii* breeds in freshwater swamps, water holes and stream margins, *A. amictus* breeds in natural or human made ground pools, *A. annulipes* in ground and rock pools with clear and permanent water and *A. farauti* prefers swamps, lagoons and ponds. *A. gambiae* is restricted to the extensive alluvial areas along rivers.

Culex females lay their eggs on water surfaces in rafts. *Cx. annulirsotsis* breeds in fresh water swamps, lagoons and pools. *Cx. sitiens* prefers brackish saltmarsh pools. *Cx. gelidus* larvae are commonly found in freshwater ground pools, rivers, marshes, open drains and containers, and also in artificial containers. *Cx. quinquefasciatus* breeds in fresh to brackish water in artificial and natural containers.

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KNOW YOUR MOSQITO

Aedes aegypti

The yellow fever mosquito

- A small dark mosquito with white banding on the legs and a lyre shape pattern on the top of the thorax.
  - Both the adults and larvae of this species look similar to a locally occurring introduced species *Aedes notoscriptus. Aedes notoscriptus* adults can be distinguished from this species by having a white band on the proboscis, a different pattern on the top of the thorax, and a complete white stripe down the femur and tibia.
- A very domesticated mosquito with a preference to breed in domestic breeding sites.
  - This includes artificial containers such as plant pots, tyres, and gutters and will also breed in natural containers such as tree holes, leaf axils and bromeliads.
- Aggressive daytime biter which is commonly found indoors.
- *Aedes aegypti* has been intercepted a number of times at the NZ border, with most recent interceptions coming from the Auckland International Airport and the Ports of Auckland.
- Generally this species will only fly a short distance from breeding sites (~80m) however they have been recorded being able to travel up to 800m over a 6-day period.
- Is a vector of dengue fever, yellow fever, Barmah Forest virus disease, Chikungunya, and Zika virus and laboratory studies have shown that this species can transmit Murray Valley encephalitis and Ross River virus.

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 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