



## BORDER HEALTH NEWSLETTER – NOVEMBER 2021

### WELCOME!

Kia ora koutou,

This month was New Zealand's warmest November on record, and with temperatures going up, mosquito numbers have risen as well. Scroll down to see what the mozzie numbers are doing around New Zealand.

In the news this month read about; the relentless invasion of *Aedes notoscriptus* in California, and the discovery of rare mosquito-borne viruses in Florida. Also, have a look at the development of a novel vaccine which offers protection against Lyme disease and other tick-borne diseases and check out the results gathered during three years by citizen scientist using the "Mosquito Habitat Mapper" app around the globe.

On the 3<sup>rd</sup> November the sixth annual One Health Day was observed. One Health is a global campaign that celebrates and brings attention to the need for a One Health approach to address shared health threats at the human-animal-environment interface. More down in the news section!



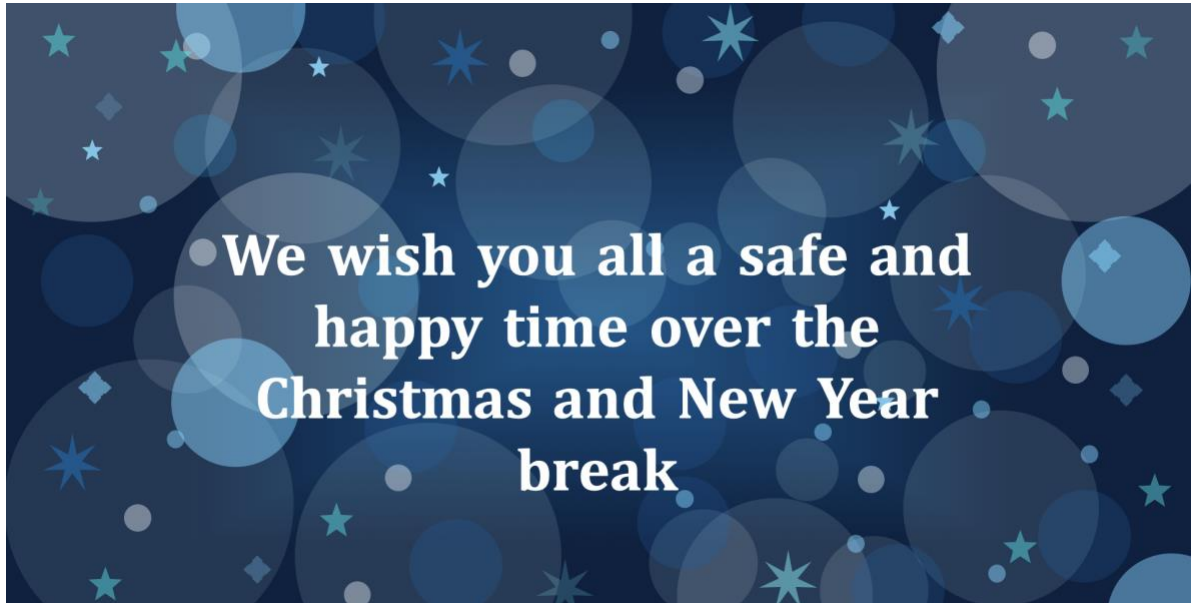
Don't forget to get your laughter dose with the Bite of Humour section and see what Shadow (the Lab's Lab) has to say this summer.

Happy reading!

★ The NZB lab is closed for routine activities during Statutory Holidays and open on days between and following.

As always, the on-call response is available throughout the period including Public Holidays.

As always, *Aedes aegypti*, *Ae albopictus* and friends are not welcome in New Zealand



## SURVEILLANCE

During November, 1161 routine samples were collected by staff from 11 DHBs (Figure 1). The samples included 112 positive larval samples and 47 positive adult samples, leading to a total of 1488 adults and 3870 larvae identified over the past month (Table 1). *Culex pervigilans* are the dominant larval species this month, compared to last year in which *Aedes notoscriptus* was the dominant larval species (Table 1).

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

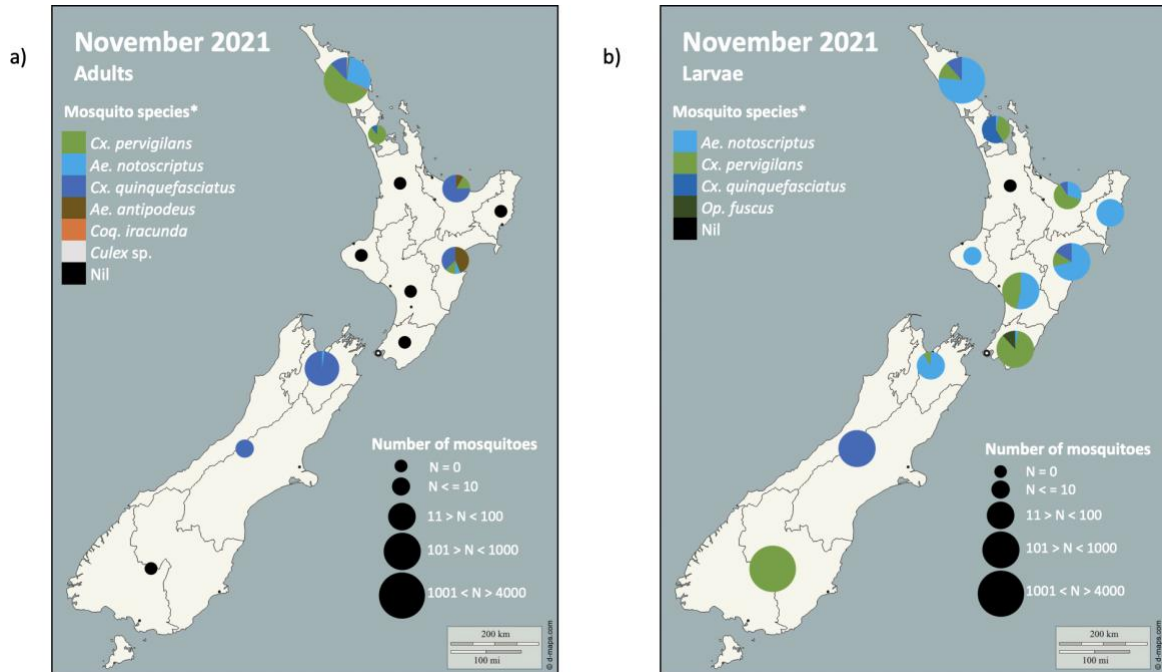
Compared to this same month last year, the total number of larvae has shown a decrease (35%) while the total number of adults has shown an increase (7,340%) (Table 1).

Table 1. Adult and larvae sampled by the New Zealand surveillance program during November 2020 & 2021

Species (common name)	Adults		Larvae	
	Nov 21	Nov 20	Nov 21	Nov 20
<i>Ae antipodeus</i> (winter mosquito)	20	5	-	-
<i>Ae notoscriptus</i> (striped mosquito)	404	-	1872	2458
<i>Coq iracunda</i> (no common name)	15	-	-	-
<i>Cx pervigilans</i> (vigilant mosquito)	744	6	1563	2077
<i>Cx quinquefasciatus</i> (southern house mosquito)	297	7	417	1354
<i>Culex</i> sp.	8	2	-	-
<i>Opifex fuscus</i> (rock pool mosquito)	-	-	18	33
<b>Total</b>	<b>1488</b>	<b>20</b>	<b>3870</b>	<b>5922</b>

Compared to the previous month, both mosquito larval and adult numbers have shown an increase (114% and 18,500% respectively).

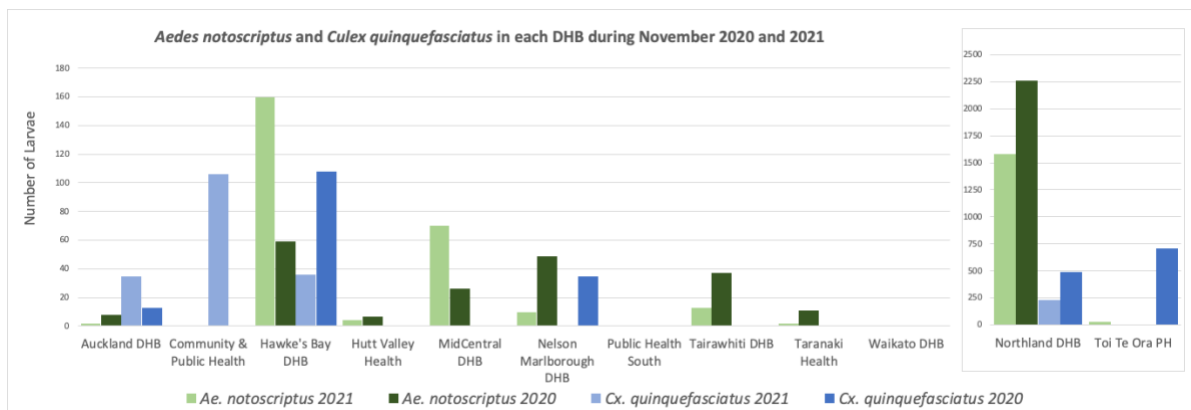
The highest number of larvae sampled this month was obtained in Northland DHB (2059 larvae) followed by Public Health South (1023 larvae) (Figure 1).



**Figure 1.** Total mosquito adults (a) and larvae (b) sampled in New Zealand during the November 2021 surveillance period. Please note that the markers represent the DHBs 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.

*Aedes notoscriptus* larval numbers have shown a decrease in seven DHBs and an increase in three DHBs from this same month last year (Figure 2). As expected, *Aedes notoscriptus* has not been recorded this month, this year, or last year in Public Health South (Figure 2).

*Culex quinquefasciatus* larval numbers have shown a decrease in five DHBs and an increase in two from this same month last year. *Culex quinquefasciatus* has not been found this month in Public Health South (Figure 2).



**Figure 2.** Comparison between introduced mosquito species sampled in each DHB during November 2020 and 2021.  
\*Please note the different scale for the number of larvae present in Northland DHB in comparison to the other DHBs.



## INCURSIONS AND INTERCEPTIONS

During November, HPO's responded to one suspected interception involving a non-mosquito. A second suspected interception was reported by a member of the public, in which a locally occurring species of exotic origins was found dead in goods purchased online (highlighted green in Table 2).

Table 2. Suspected interceptions during November 2021.

Date	Species	Location	Circumstances
08.11.2021	1 non-mosquito ( <i>crane fly</i> )	Auckland International Airport	A crane fly was found dead on board flight EK448 ex Dubai.
19.11.2021	1 female <i>Culex (Culex) quinquefasciatus</i>	Forest Lake, Hamilton	A mosquito was found dead in a sealed package of cat toys from China, purchased online from Kmart NZ. The package was sent from Hamilton to the customer in Forest Lake. Public enquiry was reported via the 0-800-Mozzie phone line.

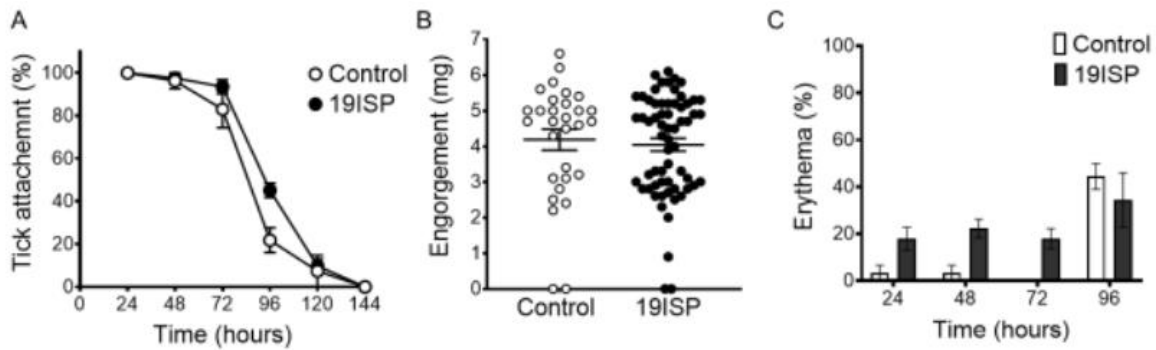
## NEWS ARTICLES FROM AROUND THE WORLD

### How an Invasive Species Spreads: The Case of *Aedes notoscriptus* in Southern California



*Aedes notoscriptus* was first introduced to California in the Los Angeles County in 2014, marking its first appearance outside of Australasia and the Southwest Pacific. Since its introduction, *Aedes notoscriptus* has been found in 44 cities in three different counties in California. The California study, led by Marco Metzger, Ph.D., at the California Department of Public Health, looked at data on larval habitat, seasonality of adults, and adult trap preferences to track the progress of this mosquito's spread, and the researchers attempted to determine the origin of the mosquito in the United States. [Read more. Access the original article.](#)

## Novel Lyme vaccine shows promise



Researchers have developed a novel vaccine that in guinea pigs offers protection against infection by the bacterium that causes Lyme disease and may also combat other tick-borne diseases, they report. Instead of triggering an immune response against a particular pathogen, the new vaccine prompts a quick response in the skin to components of tick saliva, limiting the amount of time that ticks have to feed upon and infect the host, the study shows. [Read more. Access the original article.](#)

## App tracks harmful mosquitos with help from crowdsourced science



A recent technical paper describes the results from the first three years of the use of the "Mosquito Habitat Mapper" in Africa, Asia and the Pacific Islands, and Latin America and the Caribbean. Part of the GLOBE Observer application, it is a free citizen science mobile tool that allows volunteers to share on-the-ground observations about mosquito populations, including habitat documentation, larvae counts, and photos of habitats and specimens. The Mosquito Habitat Mapper program is designed to gather meaningful data regardless of a volunteer's ability or interest level. Volunteer scientists can record observations without an Internet connection, and they can complete as many or as few questions as they like at a given time. [Read more. Access original article.](#)



## Rare mosquito-borne viruses found to be widespread in Florida Everglades



A two-year study by researchers lead by the Yale School of Public Health in the Florida Everglades has found that several rare viruses that were discovered in the area over 50 years ago, were prevalent in mosquitoes in a third of the 105 sites of the study. These include Everglades virus, Mahogany Hammock virus, Shark River virus, and Gumbo Limbo virus, along with others, with the public health significance for these viruses being mostly unknown. [Read more. Access the original paper.](#)

## One Health Day: The buzz of a mosquito highlights the risk of vector-borne diseases



On One Health Day 2021 (3<sup>rd</sup> November 2021) Australia's Chief Veterinary Officer Dr Mark Schipp is highlighting the importance of Australia's disease surveillance and preparedness activities as vital to protecting people and animals from vector-borne diseases – those diseases spread by biting insects such as mosquitoes, biting midges (sandflies), ticks and fleas. Dr Schipp said vector-borne diseases highlighted the important reality of the One Health concept, how the health of people, animals and our shared environment is interconnected. "Examples of vector-borne diseases include Japanese encephalitis, a rare but serious infection of the brain which is spread by mosquitoes; and canine ehrlichiosis, a potentially fatal disease of dogs, caused by the bacterium *Ehrlichia canis* which is spread by brown dog ticks," Dr Schipp said. [Read more.](#)

For more information about One Health visit: [One Health - OIE - World Organisation for Animal Health](#)



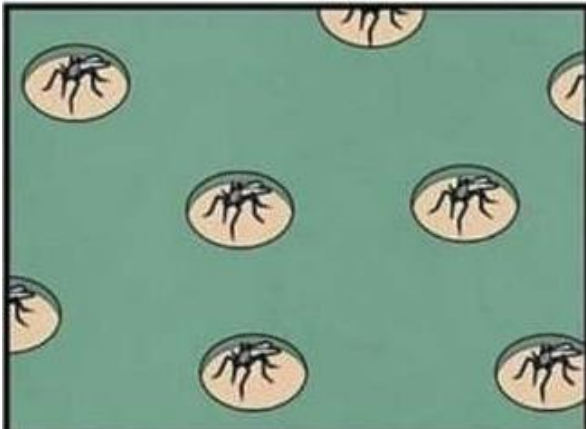
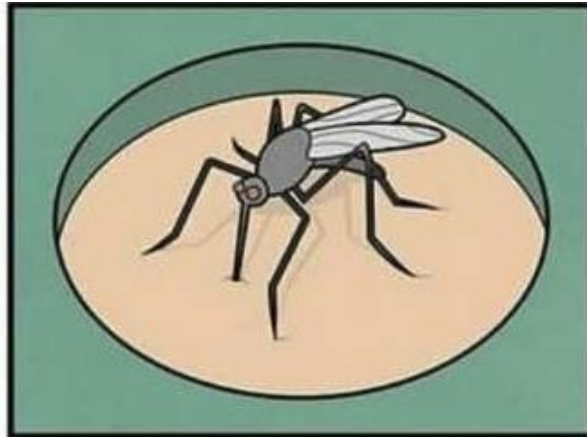
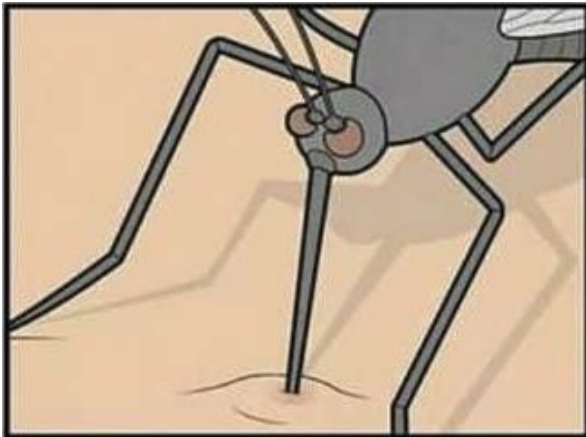
## NEW ZEALAND BioSECURE



**THIS SUMMER, REMEMBER TO GET RID OF STANDING WATER TO HELP KEEP MOZZIES AWAY**



### A BITE OF HUMOUR





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## 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

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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.

[Public Health Surveillance](#) - Institute of Environmental Science and Research (ESR) - Information for New Zealand Public Health Action.

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

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