



BORDER HEALTH NEWSLETTER – June 2017

WELCOME!

Kia Ora Koutou, as the winter is here our mosquito's numbers have dropped. Interceptions have become really scarce with only three during last month. This month the principal topics are related with research and efforts to control mosquito's populations. Last week was the National Mosquito Control Awareness week with many activities around the world. The aim is to educate the public about the significance of mosquitoes in their daily lives and the importance of the surveillance activities. We warmly welcome Rosamund Mckenzie to our team, Roz was a biodiversity Ranger at the Department of Conservation and her last job was related to pest eradication with Te Ngahere, and was routinely involved in the surveillance program around the Auckland Airport. We are sure that Shaun Maclaren will miss her.

SURVEILLANCE RESULTS

During May 517 samples were collected by staff from the 12 DHBs with 62 positives, which is a significant decrease from last month. Not many adults have been found (almost half compared to last year). The number of *Culex quinquefasciatus* larvae dropped compared to last month (3 times) and is similar with the previous year (just 4.5% more than last year).

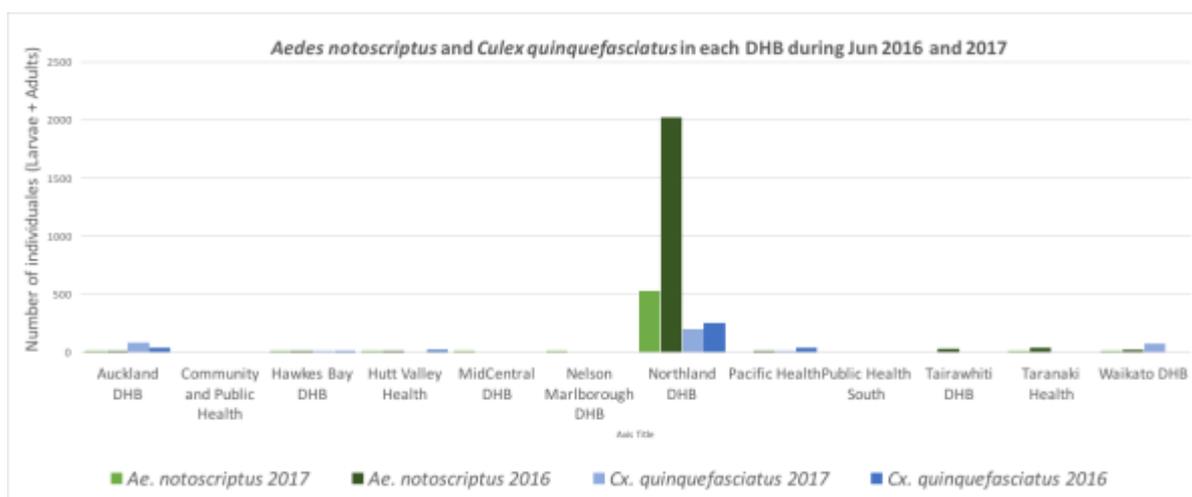
Recently we have been seeing a decrease in the number of *Culex asteliae* compared to last year, but this month is high again (38 times compared to last year).

Adults and larvae numbers found by the surveillance program during June of last year and this year.

Species (common name)	Adults		Larvae	
	June 17	June 16	June 17	June 16
<i>Aedes antipodeus</i> (winter mosquito)	1	3	Nil	Nil
<i>Ae. australis</i> (saltwater mosquito)	Nil	Nil	Nil	Nil
<i>Ae. notoscriptus</i> (striped mosquito)	Nil	22	578	1527
<i>Coquilletidia iracunda</i>	Nil	Nil	Nil	Nil
<i>Coq. tenuipalpis</i>	Nil	Nil	Nil	Nil
<i>Culex asteliae</i>	Nil	Nil	76	2
<i>Cx. pervigilans</i> (vigilant mosquito)	9	1	61	71
<i>Cx. quinquefasciatus</i> (southern house mosquito)	16	23	355	339
<i>Culiseta tonnoiri</i>	Nil	1	Nil	Nil
<i>Maorigoeldia argyropus</i>	Nil	Nil	Nil	Nil
<i>Opifex fuscus</i> (rockpool mosquito)	Nil	Nil	34	20
Total	26	50	1104	1972

The number of *Opifex fuscus* population showed an 41% increase in relation to last year and a 26% increase in relation to last month. Meanwhile *Culex pervigilans* larvae numbers have decreased 14% compared to last year and declined 78% compared to last month.

Aedes notoscriptus numbers are very low for all DHBs except for Northland. However, this number is 4 times smaller than last year (see graphic below). A slight increase of *Ae. notoscriptus* numbers have been recorded in four DHB's compared to last year, while seven showed a decrease. The numbers of *Cx. quinquefasciatus* increased at Auckland and Waikato, but decreased in all the other DHBs (see figure below).



Comparison between introduced mosquitoes sampled in each DHB during June 2016 and June 2017.

INCURSIONS AND INTERCEPTIONS

During June, 3 suspected interceptions have been recorded.

Suspected interceptions during May 2017			
Date	Species	Location	Circumstances
29	1 Female <i>Culex pervigilans</i>	Hellmann Worldwide Logistics, Magere, Auckland.	Alive in the warehouse.
27	1 non-mosquito Anisopodidae	FM Cave Ltd, 15 Old north Road, West Auckland.	Alive in aluminum ladders from Indonesia.
06	1 Female <i>Anopheles stephensi</i>	TF Auckland – Air NZ Cargo, \$ Ogilvie Crescent.	Dying in a consignment of fresh roses from India.



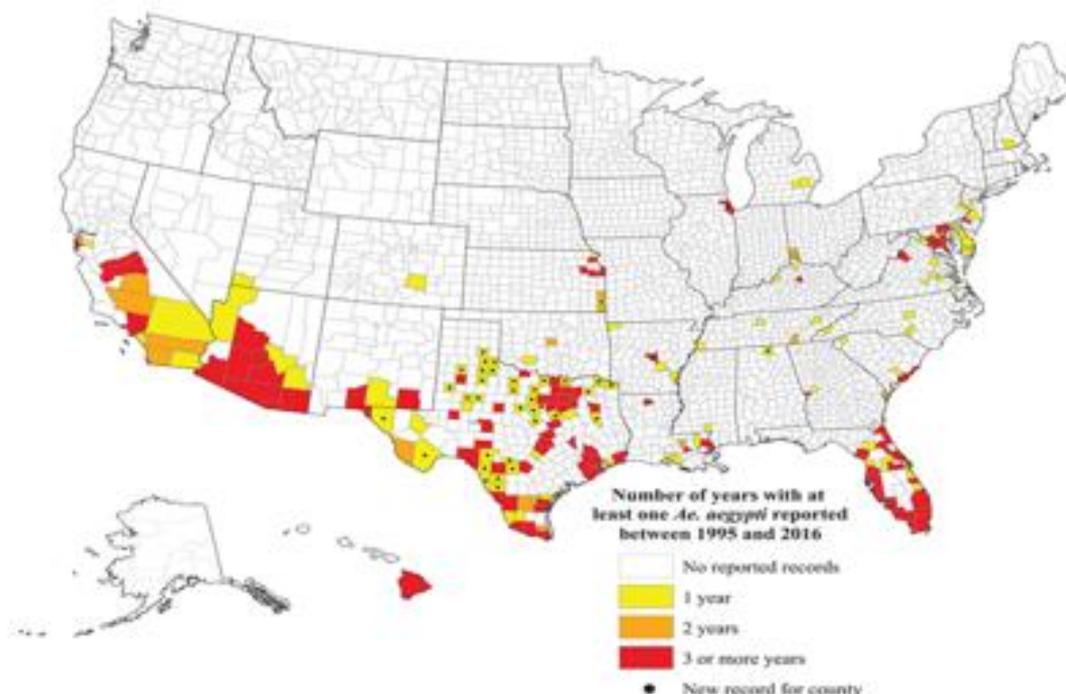
NEWS ARTICLES FROM AROUND THE WORLD

Mutant mosquitoes make insecticide-resistance monitoring key to controlling Zika

One of the most common insecticides (Deltamethrin) used in the battle against the *Aedes aegypti* mosquito has no measurable impact when applied in communities where the mosquito has built up resistance to it. The result of the randomized, controlled trial is important because some public health departments in places where Zika and dengue viruses are endemic do not necessarily monitor for insecticide resistance. [Read more.](#)

Centers for Disease Control and Prevention (CDC) Releases new data showing gaps remain in surveillance for mosquitoes that transmit Zika

Local Public Health Professionals and the CDC have compiled data on distribution of the two primary mosquito species capable of transmitting the virus, *Aedes aegypti* and *Aedes albopictus*. Their findings highlight both the potential widespread presence of the mosquitoes as well as gaps in local surveillance capabilities crucial to understanding the threat of Zika and other mosquito-borne diseases such as dengue and chikungunya. [Read more.](#)



Historic occurrence of *Aedes aegypti* mosquitoes between Jan. 1995 and Dec. 2016. Image credit: CDC.

Neighborhood watch: how Asian tiger mosquito habitat varies from block to block in an urban setting

Columbia University researchers examined how socio-economics, ecological and climatic factors interact to drive populations of the Asian tiger mosquito (*Aedes albopictus*) in an urban environment. They suggest keeping an eye out for small pockets of water that collect in objects like discarded food containers. Recycling bins and garden planters. These water sources attract unwelcome visitors that can make your neighborhood an itchier, less healthy place. [Read more.](#)



Aedes albopictus. Photo credit: Ary FARajollahi, Bugwood.org

National Mosquito Control Awareness Week 2017 (June 25 – July 1)

Each year the American Mosquito Control Association creates a week to educate the public about the significance of mosquitoes in their daily lives and the important service provided by mosquito control workers throughout the United States and worldwide. [Read more.](#)



National MOSQUITO
Control Awareness Week 2017

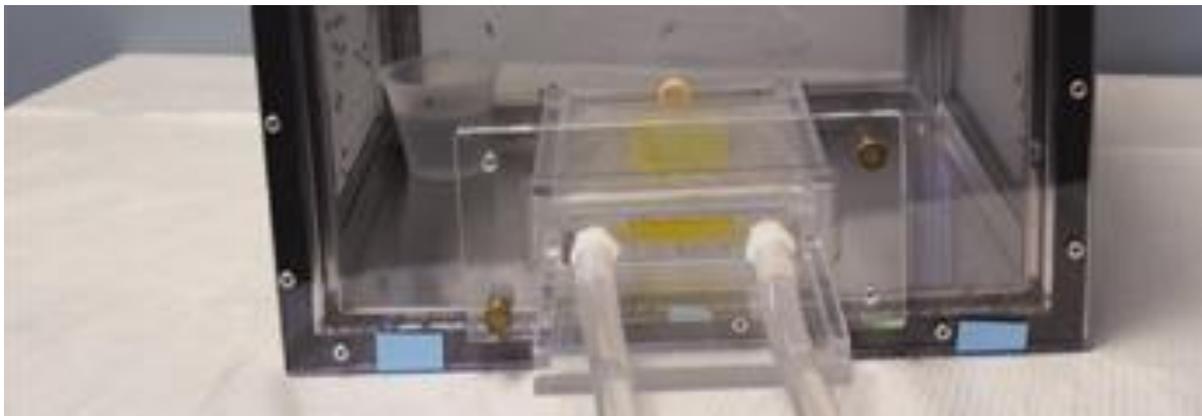
Each year the week of June 26 is declared National Mosquito Control Awareness Week by the American Mosquito Control Association. AMCA's "Mosquito Week" educates the general public about the significance of mosquitoes in their daily lives and the important service provided by mosquito control workers throughout the United States and worldwide.

NATIONAL MOSQUITO CONTROL AWARENESS WEEK 2017 | JUNE 25-JULY 1, 2017



Researchers develop improved lab-testing system for mosquito repellents

Lab-testing systems for mosquito's repellents varies from using volunteers to shove an arm treated with the compound into a box and let the mosquitos to have a go, to heat sources to mimic a warm body and collagen membrane as a substitute for human skin, placed over a container holding human blood, within what amounts to a small plastic box. The small size inhibits mosquito flight, an indicator of repellence. So, researchers at the University of Mississippi developed and standardized a new large cage A&K bioassay systems that is efficient, accurate and has the capability to do an increased number of replications in a shorter period with limited resources. [Read more.](#)



A&K cage. Photo cretic: Abbas Ali, Ph.D.

New gene editing technique could drive out mosquito-borne disease

Scientists at UC Berkeley and UC Riverside have demonstrated a way to edit the genome of disease-carrying mosquitoes that brings us closer to suppressing them on the continental scale. The proof-of-concept study was demonstrated in fruit flies; but the researchers believe this technology could be used in mosquitoes to help fight malaria and other mosquito-borne diseases in the next decade, pending public and regulatory approval. [Read more.](#)

Researchers use light to manipulate mosquitoes

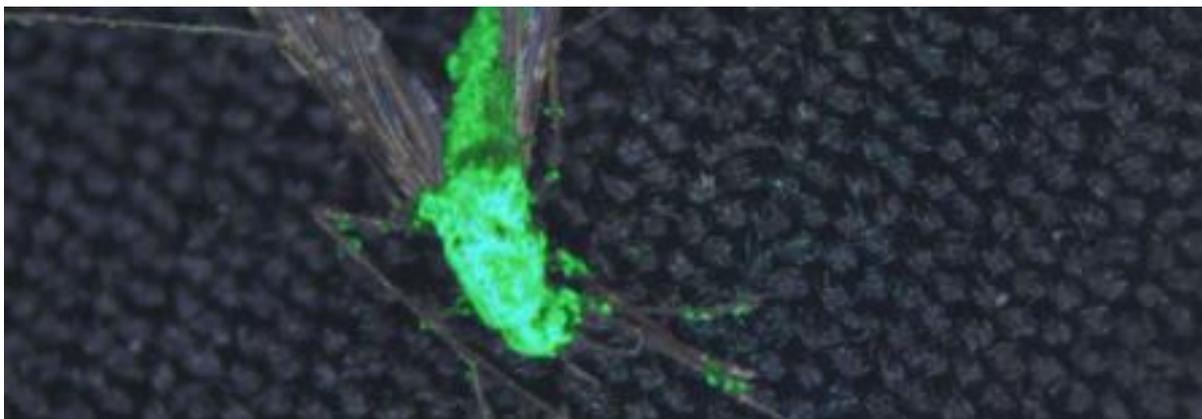
Scientists at the University of Notre Dame have found that exposure to just 10 minutes of light at night suppresses biting and manipulates flight behavior in the *Anopheles gambiae* mosquito, the major vector for transmission of malaria in Africa. Critical behaviors exhibited by the species, such as feeding, egg laying and flying, are time of the day specific, including a greater propensity for nighttime biting. [Read more.](#)



Anopheles gambiae. Credit: University of Notre Dame.

Mosquito-killing fungi engineered with spider and scorpion toxins could help fight malaria

Malaria kills nearly half a million people every year, according to the World Health Organization. A new study from the University of Maryland and researchers from Burkina Faso, China and Australia suggests that a mosquito-killing fungus genetically engineered to produce spider and scorpion's toxins could serve as a highly effective biological control mechanism to fight malaria-carrying mosquitoes. The fungus is specific to mosquitoes and does not pose a risk to humans. [Read more.](#)



Composite image of a dead female *Anopheles gambiae* mosquito covered in the mosquito-killing fungus *Metarhizium pingshaense*. Credit: Brian Lovett.



NEW ZEALAND BioSECURE



RISK MAPS

[Dengue Map](#)

[Zika Map](#)

DISEASE OUTBREAKS

To find out where the latest disease outbreaks have occurred visit:

[World Health Organization](#)

[Public Health Surveillance](#)- Information for New Zealand Public Health Action
