



## BORDER HEALTH NEWSLETTER – July 2014

### WELCOME!

Some of you have had chilly but hopefully exciting hours at the Blue Skies Boy's Camp to learn all about Ship Sanitation and medical vectors. I am glad I met so many of you and I hope you are keen to put out some mozzie traps. But be careful that you don't get the kind of attention our colleagues from Wyoming received...

The numbers of mosquitoes were low this month and I cannot wait to find heaps of them as it means the end of the winter season!

### INCURSIONS/INTERCEPTIONS

There were five interceptions during July. Fortunately the four interceptions found in Auckland where *Cx quinquefasciatus* (from containers of Australia and Philippines) and *Cx. pervigilans*, both found alive at Bunnings Warehouse – devanning site in containers, shipped from China. The specimens found in Wellington on a jet ski from Australia turned out to be craneflies.

### SAMPLES

During July 691 samples were collected by staff from 12 District Health Boards with 56 positive. Samples collected, including positives, were similar in numbers to last month and this time last year. But the number of adults was almost double as high as compared to last month and almost three times higher than last year. The number of larvae was slightly below last month and well above July last year. The number of *Ae. notoscriptus* was stable in June and July 2014 (ca. 750) . Both months last year had approximately 550 larvae.

Species	Adults		Larvae	
	July 2014	July 2013	July 2014	July 2013
<b>New Zealand Mozzies</b>				
<i>Aedes antipodeus</i> (winter mosquito)	Nil	Nil	Nil	Nil
<i>Ae. australis</i> (saltwater mosquito)	Nil	Nil	Nil	Nil
<i>Ae. subalborostris</i>	Nil	Nil	Nil	Nil
<i>Ae. notoscriptus</i> (striped mosquito)	Nil	Nil	773	514
<i>Culex astilae</i>	Nil	Nil	Nil	Nil
<i>Cx pervigilans</i> (vigilant mosquito)	19	Nil	83	33
<i>Cx. quinquefasciatus</i> (southern house mosquito)	55	26	17	7
<i>Opifex fuscus</i> (saltpool mosquito)	Nil	Nil	21	8
<b>Total</b>	<b>74</b>	<b>26</b>	<b>894</b>	<b>562</b>



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## PHOTO OF THE MONTH



### **Mosquito trap causes bomb scare at power plant**

ROCK SPRINGS, Wyo. (AP) - A suspicious device at a southwest Wyoming power plant turned out not to be a bomb, but it might have hurt a mosquito or two. Security guards spotted the object at the Jim Bridger Power Plant around midnight Wednesday. The device had wires connected to a small battery. A bomb squad was called out to the coal-fired power plant. Sweetwater County sheriff's officials say bomb experts looked over the device and even X-rayed it. It was a mosquito trap. Weed and pest officers routinely put out the traps to check for mosquitoes that carry the West Nile virus.

*Jul 18, 2014 1:37 PM NZST, Copyright 2014 The Associated Press*

### **Did you know?**

**German scientists at Dachau concentration camp researched the possible use of malaria-infected mosquitoes as weapons during World War Two, a researcher has claimed.**

Dr Klaus Reinhardt of Tuebingen University examined the archives of the Entomological Institute at Dachau.

He found that biologists had looked at which mosquitoes might best be able to survive outside their natural habitat.

He speculates that such insects could have been dropped over enemy territory.

According to medical historian Paul Weindling, almost 25,000 victims of Nazi scientific experiments have now been identified.

Dr Weindling says there were different "phases" to the Nazis' experiments. The first was linked to eugenics and forced sterilisation.

The second phase coincided with the start of the war. "Doctors began experimenting on patients in psychiatric hospitals," Prof Weindling writes. "Sporadic experiments were made in



concentration camps like Sachsenhausen near Berlin, and anthropological observations at Dachau."



The third phase began in 1942, when the SS and German military took greater control of the experiments. There was a surge in the numbers of experiments, with lethal diseases including malaria and louse-borne typhus administered to thousands of victims. During a fourth phase in 1944-45, explains Dr Weindling, "scientists knew the war was lost but they continued their experiments".

The organisation's work was believed to have focused on insect-borne diseases such as typhus, which afflicted the camp inmates.

Dr Reinhardt, writing in the journal *Endeavour*, has found evidence that the unit's researchers investigated a particular type of mosquito which could live without food and water for four days.

That means it could be infected with malaria and then dropped from the air - and survive long enough to infect large numbers of people, he says.

He speculates that the scientists were investigating the possible use of malaria - transmitted via mosquitoes - as a biological weapon.

It is not known whether there is a connection between the work of the Entomological Institute at Dachau and the experiments carried out by Dr Claus Schilling at the camp.

Schilling used prisoners as experimental subjects in his research on malaria - deliberately infecting them - and was sentenced to death by hanging at the Dachau trials held after the war.

## INSECT-BORNE DISEASES

### Recent Local News

Excerpts from ESR's monthly report:

***Chikungunya fever:*** Six cases of chikungunya fever were notified in June 2014 (all probable). Five of the cases were females and one of the cases was male. The cases occurred in the 50-59 years (2 cases), 10-14 years, 20-29 years, 30-39 years, and 40-49 years (1 case each). The cases were from Auckland (3 cases), Waitemata (2 cases) and Counties Manukau DHBs (1 case). All of the cases were in Tonga during the incubation period.

***Dengue fever:*** 12 cases of dengue fever were notified in June 2014 compared to three cases notified during the same month of the previous year. All of the cases had travelled overseas during the incubation period. The countries visited were Fiji and Indonesia (3 cases each), Tonga (2 cases), and Cambodia, Cook Islands, French Polynesia, New Caledonia, Vanuatu and Vietnam (1 case each). Some cases visited more than one country.

***Zika virus:*** 13 cases were notified in June 2014 (11 confirmed and 2 under investigation), after further investigation one of these cases has since been found to not meet case criteria. Seven cases were female and five male. The age range for cases was 30-75 years with the highest number of cases in the 40-49 years age group (4 cases). Cases were distributed by DHB as follows: Auckland (5



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cases), Waitemata, Counties Manukau and Bay of Plenty (2 cases each), and Northland (1 case). All cases travelled during the incubation period and all, except one, travelled to the Cook Islands. The remaining case had travelled to New Caledonia.

Pacific syndromic surveillance report - Week 28, ending 13 July, 2014:

Dengue: Currently there are several dengue outbreaks occurring in the Pacific including New Caledonia, French Polynesia, Tuvalu, Solomon Islands and Fiji.

As of 15 July 2014 there have been 243 dengue suspected cases in Nauru that have been tested by IgM ELISA and/or rapid test with NS1/IgM; 88 have tested positive. There was one new suspected case in Epi week 28 that was DRT +ve. The number of cases continues to decrease. Samples have been sent to Institut Louis Malarde, French Polynesia for confirmatory serotyping.

Ebola: As of 19 July 2014 Ebola virus disease has killed 632 people, out of 1048 cases reported in the three affected countries, Sierra Leone, Guinea and Liberia since January 2014. The current epidemic trend of EVD outbreak in Sierra Leone and Liberia remains serious, with 67 new cases and 19 deaths reported from 15 – 17 July 2014. For more information please refer to <http://www.who.int/csr/disease/ebola/en/>

*The Samoa News Copyright © 2014 By Joyetter Feagaimaalii-Luamanu: 1 Dead, 100+ Sickened From Dengue-Like Outbreak In Am. Samoa Specimens flown to CDC to determine cause of illness*

PAGO PAGO, American Samoa (The Samoa News, July 22, 2014) – A young man has died from an illness outbreak, which the Department of Health and LBJ hospital have detected as an illness with symptoms that include fever, rash and joint pains, according to a health alert issued by DoH Director, Motusa Tuileama Nua. There have been "more than 100 patients with several hospitalizations and one death which have occurred on Tutuila in the past 20 days," says the health alert, titled: "Dengue-like Illness." DoH physician, Dr. Mark Durand said that specimen tests are to be flown out Monday night (last night) to the Centers for Disease Control to determine what type of disease "we are dealing with in American Samoa." He pointed out that it appeared that this was dengue fever, however when physicians conducted tests, the test for dengue came out negative.

## More about Chikungunya in the US

Florida health officials said there were two cases: a 41-year-old woman in Miami-Dade County and a 50-year-old man in Palm Beach County.

"Since 2006, the United States has averaged 28 imported cases of chikungunya (chik-un-GUHN-ya) per year in travelers returning from countries where the virus is common. To date this year, 243 travel-associated cases have been reported in 31 states and two territories," CDC said.

"However, the newly reported case represents the first time that mosquitoes in the continental United States are thought to have spread the virus to a non-traveler. This year, Puerto Rico and the U.S. Virgin Islands reported 121 and two cases of locally acquired chikungunya respectively."



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"More chikungunya-infected travelers coming into the United States increases the likelihood that local chikungunya transmission will occur."

"It is not known what course chikungunya will take now in the United States. CDC officials believe chikungunya will behave like dengue virus in the United States, where imported cases have resulted in sporadic local transmission but have not caused widespread outbreaks," CDC said. Dengue has been seen in Florida and South Texas.

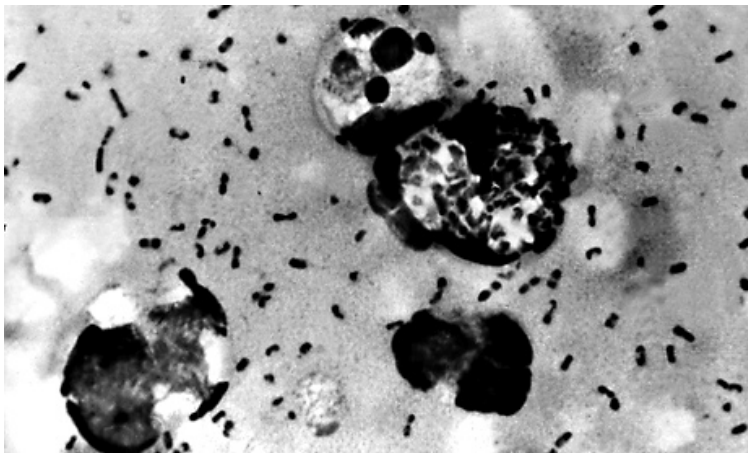
"None of the more than 200 imported chikungunya cases between 2006 and 2013 have triggered a local outbreak. However, more chikungunya-infected travelers coming into the United States increase the likelihood that local chikungunya transmission will occur."

And a recent study suggests the United States has a bit of time on its side. The strain of chikungunya circulating in the Caribbean is the Asian strain, and it's only adapted to be carried by the *Aedes aegypti* mosquito, says Scott Weaver of the University of Texas Medical Branch, who's been studying the virus for years. And so far, that mosquito can only be found in the far southern U.S.

*First published July 18th 2014, 8:58 am*

## **Not only mosquitoes: Chinese city sealed off after bubonic plague death**

30,000 residents of Yumen are not being allowed to leave and 151 people have been placed in quarantine after man's death



Bubonic plague bacteria. Photograph: AFP/Getty Images

A Chinese city has been sealed off and 151 people have been placed in quarantine since last week after a man died of bubonic plague, state media said.

The 30,000 residents of Yumen, in the north-western province of Gansu, are not being allowed to leave, and police at roadblocks on the perimeter of the city are telling motorists to find alternative routes, China Central Television (CCTV) said. A 38-year-old man died last Wednesday, the report said, after he had been in contact with a dead marmot, a small furry animal related to the squirrel. No further plague cases have been reported. CCTV said officials were not allowing anyone to leave. The China Daily newspaper said four quarantine sectors had



been set up in the city. "The city has enough rice, flour and oil to supply all its residents for up to one month," CCTV added. "Local residents and those in quarantine are all in stable condition." No further cases have been reported. Bubonic plague is a bacterial infection best known for the Black Death, a virulent epidemic that killed tens of millions of people in 14th-century Europe. Primarily an animal illness, it is extremely rare in humans. The US Centres for Disease Control and Prevention (CDC) says modern antibiotics are effective in treating plague, but that without prompt treatment the disease can cause serious illness or death.

*Agence France-Presse in Beijing, theguardian.com, 22 July 2014 12.59 BST*

### WORLD OF MOSQUITO-SCIENCE

#### **Mosquito 'invisibility cloak' discovered**

*By Melissa Hogenboom, Science reporter, BBC News*

A naturally occurring substance found in human skin could yield a viable alternative to existing mosquito repellent, scientists say.

They say the chemical could help render people "invisible" to the insects.

At the American Chemical Society meeting, they revealed a group of compounds that could block mosquitoes' ability to smell potential targets.

When a hand with these chemicals was placed in a mosquito filled enclosure, it was completely ignored.

The team says their work could help prevent the spread of deadly diseases.

Mosquitoes are among the most deadly disease-carrying creatures. They spread malaria, which in 2010 killed an estimated 660,000, according to the World Health Organization (WHO).

Ulrich Bernier of the United States Department of Agriculture (USDA) who presented the work, said his team was exploring other options to Deet - a repellent which some do not favour.



A hand in a mosquito cage was not attractive when covered with the chemical

In fact, earlier this year a team of scientists said that the widely used repellent was losing effectiveness. "Repellents have been the mainstay for preventing mosquito bites... [but] we are exploring a different approach, with substances that impair the mosquito's sense of smell. If a mosquito can't sense that dinner is ready, there will be no buzzing, no landing and no bite," said Dr Bernier.

It has long been known that some people are more attractive to mosquitoes than others, but now the team has pinpointed a group of chemical components secreted naturally, that can mask human smell from the blood-sucking insects.



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Dr Bernier explained that hundreds of compounds on the skin makes up a person's smell. In order to see what smells attracted mosquitoes, his team sprayed various substances onto one side of a cage.

It was the compounds that didn't attract any mosquitoes that they looked at further and when sprayed on a human hand, the insects did not react or attempt to bite.

### 'Invisible hand'

These chemical compounds, including 1-methylpiperazine, were found to completely block their sense of smell.

The compounds could be added into many cosmetics and lotions, Dr Bernier added.

"If you put your hand in a cage of mosquitoes where we have released some of these inhibitors, almost all just sit on the back wall and don't even recognize that the hand is in there. We call that anosmia or hyposmia, the inability to sense smells or a reduced ability to sense smells."

"If a new repellent can be developed which is more effective, longer lasting and affordable, it would be of great benefit to travellers and people living in disease endemic countries," Dr Logan told BBC News.

But he said that it would take many years before a new product would make it to market.

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### AFTER HOURS

For suspected exotic mosquitoes after hours  
Call "0800mozzie" – Refer EH Manual Procedures  
Oncall Entomologist – 021 522 476

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use the PO Box, there is no letter box. Thank You.