

NSW Arbovirus Surveillance & Mosquito Monitoring 2019-2020

Weekly Update: 27 March 2020

(Report Number 14)



Summary

Arboviral Detections

- **Sentinel Chickens:** there have been no detections for Murray Valley encephalitis virus and Kunjin virus in the current surveillance season.
- **Mosquito Isolates:** Ross River virus and Barmah Forest virus were detected in mosquitoes trapped at Port Macquarie, Barmah Forest virus was detected in mosquitoes trapped at Liverpool.

Mosquito Numbers

- **Inland:** HIGH at Griffith and Leeton, LOW elsewhere.
- **Coast:** VERY HIGH at Tweed Heads and Kempsey, HIGH at Byron Bay, Ballina, Coffs Harbour, Bellingen, Port Macquarie, Lake Macquarie and Gosford, LOW elsewhere.
- **Sydney:** VERY HIGH at Parramatta and Liverpool, HIGH at Sydney Olympic Park, Georges River (Bankstown and Illawong areas), Penrith and Hawkesbury, LOW at Blacktown.

Environmental Conditions

- **Climate:** the past week has seen moderate rainfall in the north-east of NSW. The outlook for April is for usual rainfall across NSW and higher than usual temperatures in north eastern NSW.
- **Tides:** high tides between 6-13 April 2020 could trigger hatching of *Aedes vigilax*.

Human Arbovirus Notifications

- **Ross River Virus:** 4 cases were notified in the week ending 14 March 2020.
- **Barmah Forest Virus:** 3 cases were notified in the week ending 14 March 2020.

Comments and other findings of note

In the past week, Stratford virus was detected in mosquitoes trapped in Kempsey, Port Macquarie and Tweed. Edge Hill virus was detected in mosquitoes trapped in the Central Coast, Kempsey, Port Macquarie, Tweed and Coffs Harbour. Human cases of these viruses are rarely reported in Australia and infection usually presents as a mild self-limiting febrile illness.

Mosquito trapping at inland and Sydney sites has now ceased for the 2019-2020 season. Mosquito trapping at coastal sites and sentinel chicken surveillance in inland sites will continue until further notice.

Weekly reports are available at:

www.health.nsw.gov.au/environment/pests/vector/Pages/surveillance.aspx

Please send questions or comments about this report to:

Surveillance and Risk Unit, Environmental Health Branch, Health Protection NSW: nswh-envepi@health.nsw.gov.au

Testing and scientific services were provided by the Department of Medical Entomology, NSW Health Pathology (ICPMR) for the mosquito surveillance, and the Arbovirus Emerging Diseases Unit, NSW Health Pathology (ICPMR) for the sentinel chicken surveillance.

The arbovirus surveillance and mosquito monitoring results in this report remain the property of the NSW Ministry of Health and may not be used or disseminated to unauthorised persons or organisations without permission.

SHPN (HP NSW) 190738

Cover photos: **Bottom left** - Common banded mosquito, *Culex annulirostris*
Top and bottom right - Saltmarsh mosquito, *Aedes vigilax*
(Copyright 2019)

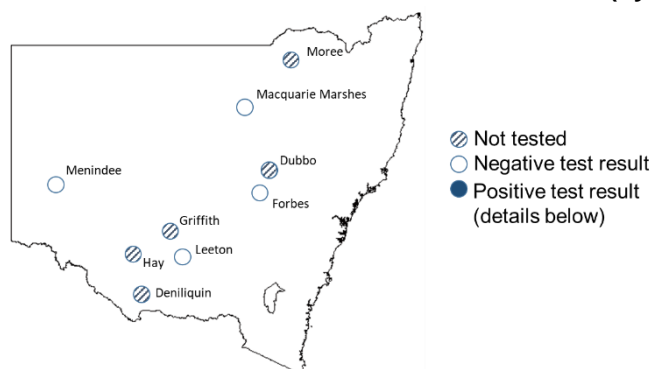
Arboviral Detections

This section details detections of Murray Valley encephalitis virus, Kunjin virus, Ross River virus and Barmah Forest virus in the NSW Arbovirus Surveillance and Mosquito Monitoring Program.

Sentinel chickens

Chickens are bled for detection of antibodies directed against Murray Valley encephalitis virus and Kunjin virus, indicating exposure to these viruses. A test result is shown if it has been reported in the last two reporting weeks. *No collection* indicates there has been no collection for the last two reporting weeks.

Test results in the latest week to 27 March 2020 (by date of report)



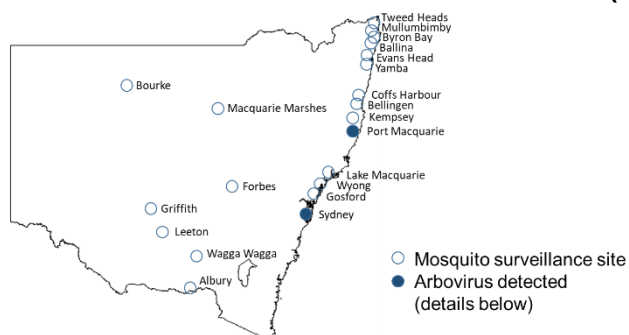
Positive test results in the 2019-2020 surveillance season

Date of sample collection	Location	Positive test results
There have been no detections in the 2019-2020 surveillance season		

Mosquito isolates

Whole grinds of mosquitoes are tested for arboviral nucleic acids (including Ross River virus and Barmah Forest virus).

Test results in the latest week to 27 March 2020 (by date of report)



Ross River and Barmah Forest viruses detected in the past three weeks

Date trapped	Location	Virus
9 March 2020	Port Macquarie	Ross River
9 March 2020	Port Macquarie	Barmah Forest
16 March 2020	Port Macquarie	Ross River
16 March 2020	Port Macquarie	Barmah Forest
18 March 2020	Sydney (Liverpool)	Barmah Forest
23 March 2020	Port Macquarie	Ross River
23 March 2020	Port Macquarie	Barmah Forest

Mosquito Abundance

This section details counts of mosquitoes in the NSW Arbovirus Surveillance and Mosquito Monitoring Program. Each location represents the count average for all trapping sites at that location for the most recent week that collections were provided prior to preparation of this report. *No collection* indicates there has been no collection for the last two reporting weeks.

Mosquito counts in the latest week to 27 March 2020

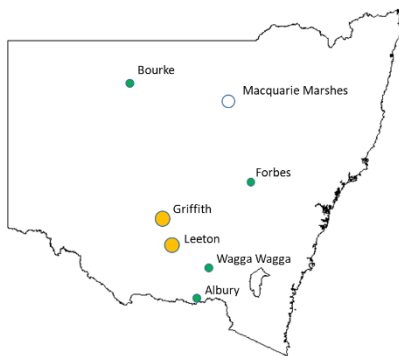
Key:

- No collection
 - Low (<50)
 - Medium (50-100)
 - High (101-1,000)
 - Very high(1,001-10,000)
 - Extreme (>10,000)
- ↑ Increase from previous week
 - ↓ Decrease from previous week

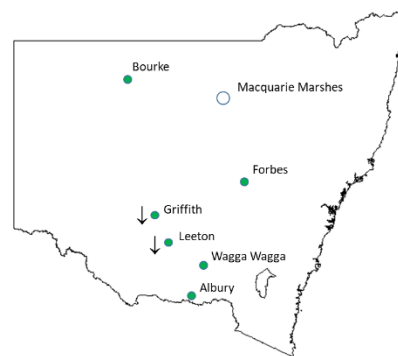
Culex annulirostris and *Aedes vigilax* are vectors of interest for Ross River virus and Barmah Forest virus.

Inland sites

Total mosquito counts

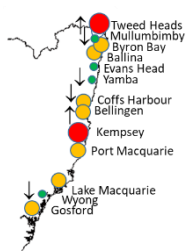


Culex annulirostris counts

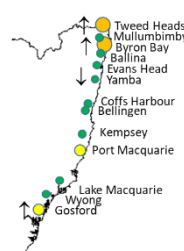


Coastal sites*

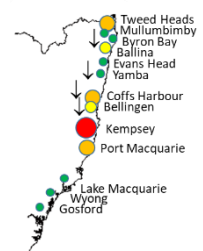
Total mosquito counts



Aedes vigilax counts

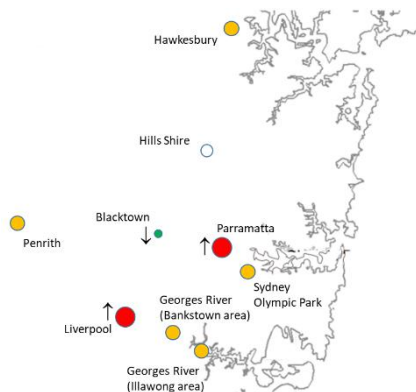


Culex annulirostris counts



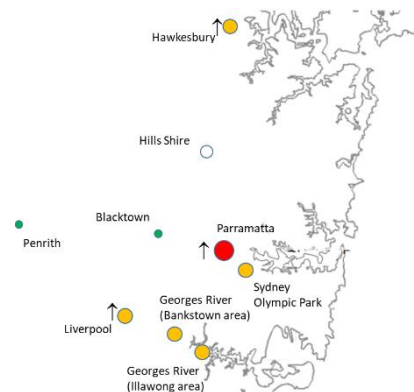
Sydney sites

Total mosquito counts



Aedes vigilax counts

(*C. annulirostris* for Blacktown, Hawkesbury, Hills Shire, Penrith)

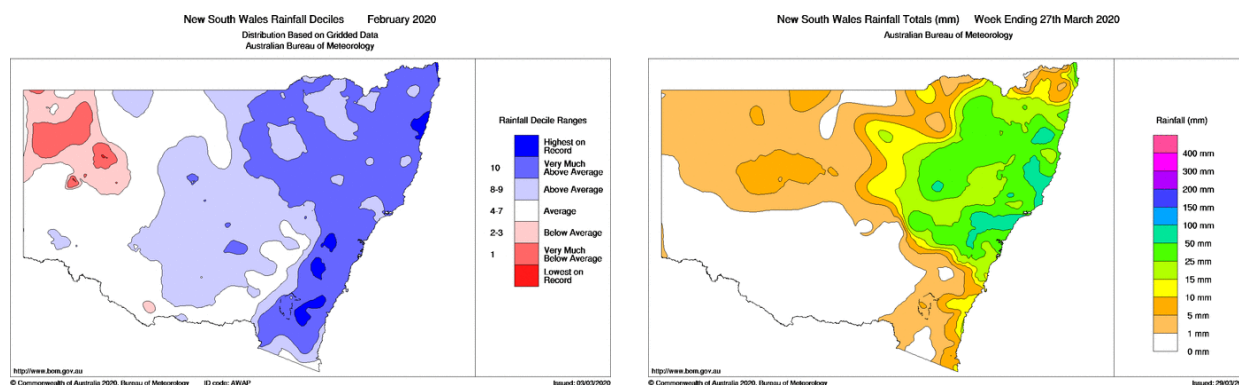


Environmental Conditions in NSW

Mosquitoes require water to breed. Rainfall and tides (for the salt marsh mosquito) are important contributing factors for proliferation of mosquito numbers. Unseasonably warm weather can also contribute to higher mosquito numbers.

Rainfall

In February, rainfall was very much above average in eastern NSW and above average in parts of central NSW (left). In the week ending 27 March 2020, moderate rainfall was recorded in the north-east (right).



Source: Australian Government, Bureau of Meteorology: <http://www.bom.gov.au/jsp/awap/rain/index.jsp>

Next month's rainfall and temperature outlook

The Bureau of Meteorology's rainfall outlook map for April predicts that most of NSW is likely to receive usual rainfall.

www.bom.gov.au/climate/outlooks/#/rainfall/median/monthly/0

The Bureau of Meteorology's temperature outlook maps for April predict that maximum and minimum temperatures are likely to be higher than usual in north eastern NSW.

www.bom.gov.au/climate/outlooks/#/temperature/maximum/median/monthly/0

www.bom.gov.au/climate/outlooks/#/temperature/minimum/median/monthly/0

Tides

Tidal information is relevant for the prediction of the activity of the salt marsh mosquito, *Aedes vigilax*. Typically for NSW, high tides of over 1.8 m, as measured at Sydney, can induce hatching of *Aedes vigilax* larvae. Predicted tide heights can provide some indication of when this is likely to occur.

Dates of predicted high tides of over 1.8 m at Sydney (Fort Denison) for the next month

6-13 April 2020

Source: Australian Government, Bureau of Meteorology: <http://www.bom.gov.au/australia/tides/#/nsw-sydney-fort-denison>

Note: Measured tides at Sydney Port Jackson for the current week are available from the NSW Government, Manly Hydraulics Laboratory: <https://mhl.nsw.gov.au/data/realtime/oceantide/Station-213470>.

Human Vector Borne Disease Notifications

Under the *NSW Public Health Act 2010*, public health laboratories, general practitioners and hospitals are required to notify of any case of human vector borne disease listed as a scheduled medical condition. The NSW Health's Communicable Diseases Weekly Report (CDWR) (www.health.nsw.gov.au/Infectious/reports/Pages/CDWR.aspx) details cases by the week that they are received by NSW Public Health Units.

The data for Ross River virus and Barmah Forest virus from the CDWR for the latest 3 weeks are in the following table.

Recent notifications of Ross River virus and Barmah Forest virus in humans

(by date of case report received)

	Week		
	Latest week (8-14 Mar 2020)	1-week prior (1-7 Mar 2020)	2-weeks prior (23-29 Feb 2020)
Ross River virus	4	7	7
Barmah Forest virus	3	5	2

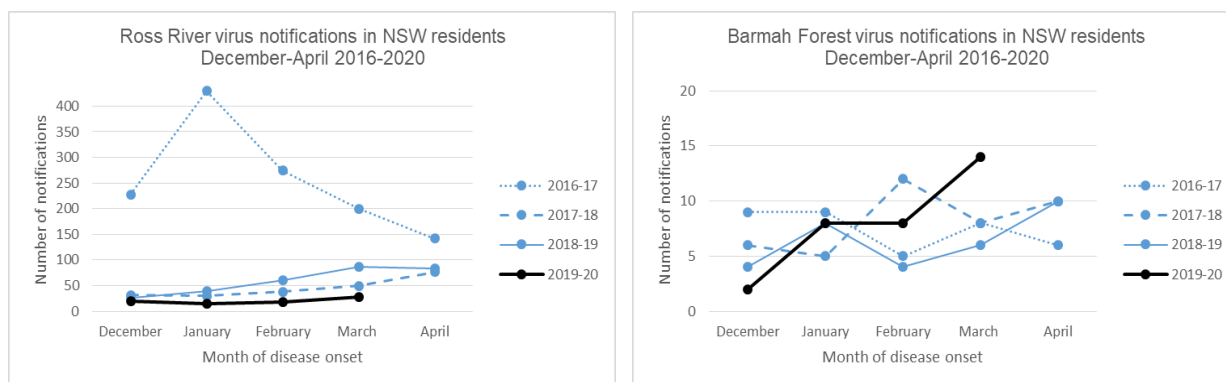
Source: CDWR, Communicable Diseases Branch, Health Protection NSW, NSW Health
Notifications are for NSW residents, infection may have been acquired outside NSW

Monthly Ross River virus and Barmah Forest virus notifications, by month of disease onset (the earlier of patient-reported onset, specimen, or notification date), are available at the following NSW Health websites:

www1.health.nsw.gov.au/IDD/#/ROSS

www1.health.nsw.gov.au/IDD/#/BF

The following figures, show the monthly number of notifications of Ross River virus and Barmah Forest virus for the current NSW Arbovirus and Mosquito Monitoring season (December 2019-April 2020), and the same period in the previous three years.



Source: NSW Health Notifiable Conditions Information Management System (NCIMS), Communicable Diseases Branch and Centre for Epidemiology and Evidence, NSW Health

The data for the current month are the notifications to date (data extracted on 30 March 2020).