

NSW Arbovirus Surveillance & Mosquito Monitoring 2019-2020

Weekly Update: 13 December 2019

(Report Number 1)



Summary

Arboviral Detections

- **Sentinel Chickens:** There have been no detections for Murray Valley encephalitis virus (MVEV) and Kunjin virus in the current surveillance season.
- **Mosquito Isolates:** There have been no Ross River virus or Barmah Forest virus detections in the current surveillance season.

Mosquito Numbers

- **Inland:** LOW at all locations.
- **Coast:** HIGH at Tweed Heads and Ballina and LOW elsewhere.
- **Sydney:** HIGH at Parramatta, MEDIUM at Sydney Olympic Park and Bankstown, and LOW elsewhere.

Environmental Conditions

- **Climate:** it continues to be dry in NSW. The outlook for January is for lower than usual rainfall in Southern NSW and warmer than usual temperatures across NSW.
- **Tides:** high tides between 12-16 December could trigger hatching of *Aedes vigilax*.

Human Arbovirus Notifications

- **Ross River Virus:** notifications in December to date are low.
- **Barmah Forest Virus:** notificatoins in December to date are low.

Comments and other findings of note

Severe lack of rainfall continues across much of NSW and mosquito numbers have been low at most locations for the start of the current monitoring season. Numbers have been higher on the North coast where there has been more rain and in some Sydney locations.

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*
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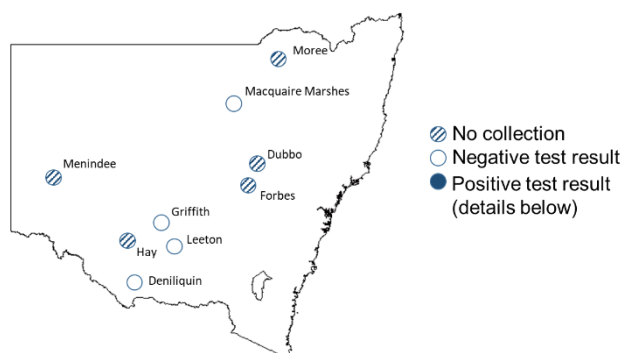
Arboviral Detections

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.

Latest test results (week ending 13 December 2019)



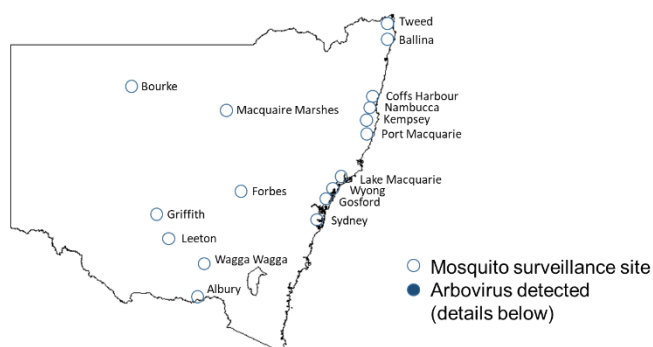
Positive test results in the 2019-2020 surveillance season

Date of sample collection	Location	Positive test results
There have been no positive results 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).

Latest test results (week ending 13 December 2019)



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

Date trapped	LOCATION - Site	Virus
There have been no detections in the 2019-2020 surveillance season		

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 more than two weeks.

Mosquito counts in the latest week to 13 December 2019

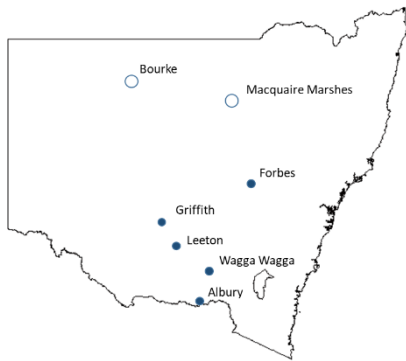
Key:

- 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

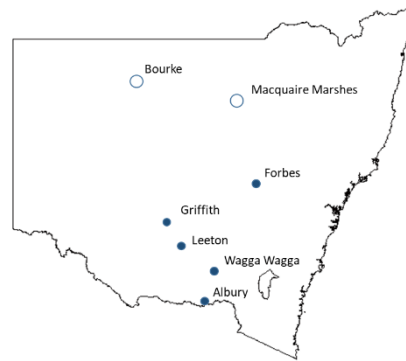
Culex annulirostris and *Aedes vigilax* are vectors of interest for Ross River virus and Barmah Forest virus

Inland sites

Total mosquito counts

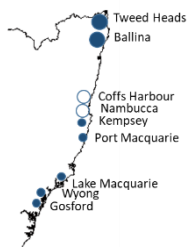


Culex annulirostris counts



Coastal sites

Total mosquito counts



Aedes vigilax counts



Sydney sites

Total mosquito counts



Aedes vigilax counts

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

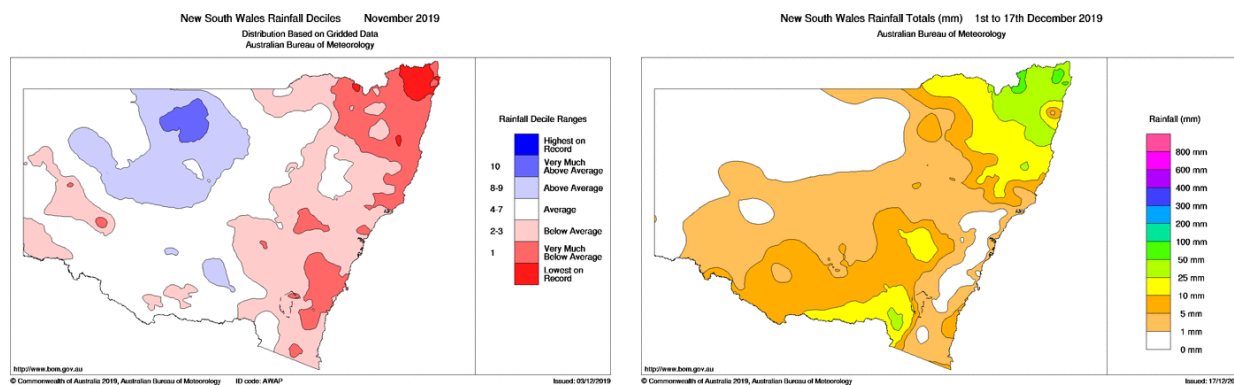


Environmental Conditions in NSW

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

Rainfall was lower than usual in Eastern NSW in November (left). In December, rainfall totals have generally been low, with slightly higher totals in the north-east (right).



Source: Australian Government, Bureau of Meteorology

Next month's rainfall and temperature outlook

The Bureau of Meteorology's rainfall outlook map for January has Southern NSW unlikely to exceed usual rainfall:

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

The Bureau of Meteorology's temperature outlook maps for January have maximum and minimum temperatures likely to be higher than usual.

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 1.8m, 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 the next predicted high tides at Sydney (Fort Denison) of over 1.8m

12-16 December 2019

Source: Australian Government, Bureau of Meteorology

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 (1-7 Dec 2019)	1-week prior (24-30 Nov 2019)	2-weeks prior (17-23 Nov 2019)
Ross River virus	5	3	3
Barmah Forest virus	0	1	0

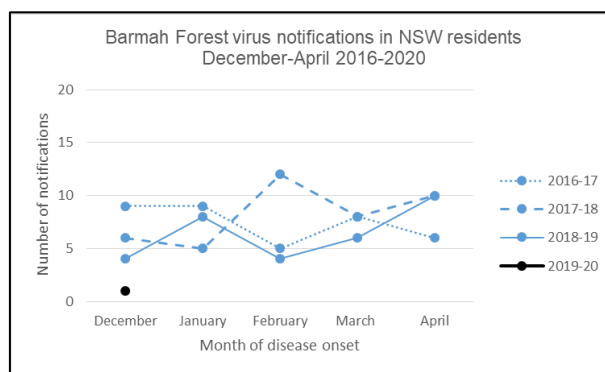
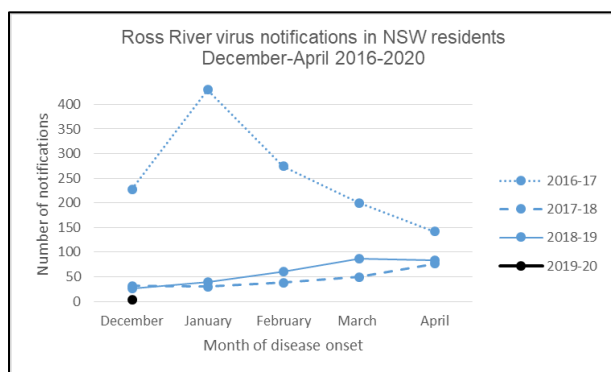
Source: CDWR, Communicable Diseases Branch, Health Protection NSW, NSW Health
Notifications are for NSW residents, infection may have been acquired outside NSW

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.