NSW Arbovirus Surveillance & Mosquito Monitoring 2020-2021

Weekly Update: Week ending 16 January 2021

(Report Number 10)

NSW GOVERNMENT

Summary

Arbovirus Detections

- **Sentinel Chickens:** There were no arbovirus detections in sentinel chickens.
- **Mosquito Isolates:** There were no arbovirus detections in mosquito isolates.

Mosquito Abundance

- **Inland:** HIGH at Macquarie Marshes and Albury. LOW at Bourke, Forbes and Wagga Wagga.
- **Coast:** VERY HIGH at Kempsey. HIGH at Tweed, Ballina and Gosford. MEDIUM at Port Macquarie. LOW at Byron and Wyong.
- **Sydney:** HIGH at Penrith, Parramatta, Bankstown and Liverpool. MEDIUM at Hills Shire, Blacktown, Canada Bay and Sydney Olympic Park. LOW at Georges River and Northern Beaches.

Environmental Conditions

- **Climate:** In the past week, there was less rainfall than usual throughout most of NSW, with the exception of the north coast where there was low to moderate rainfall. About usual rainfall is predicted across most of NSW for the remainder of January, with less rainfall than usual along the north coast, along the Queensland border and inland near Dubbo. More rainfall than usual is predicted for most of NSW in February. Temperatures are likely to be above usual for most of NSW for the remainder of January and into early February.
- **Tides:** High tides over 1.8 metres are predicted to occur between 28 January-1 February, 9-13 February and 26-28 February which could trigger hatching of *Aedes vigilax.*

Human Arboviral Disease Notifications

- **Ross River Virus:** 7 cases were notified in the week ending 26 December 2020.
- **Barmah Forest Virus:** 0 cases were notified in the week ending 26 December 2020.

Comments and other findings of note

Ross River virus was detected inland in Hanwood, Griffith on 19 January 2021. This will be included in next week's surveillance report.

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:
hssg-ehbsurveillance@health.nsw.gov.au

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

SHPN (HP NSW) 200547

Cover photos: **Bottom left** - Common banded mosquito, *Culex annulirostris*
Top and bottom right - Saltmarsh mosquito, *Aedes vigilax*
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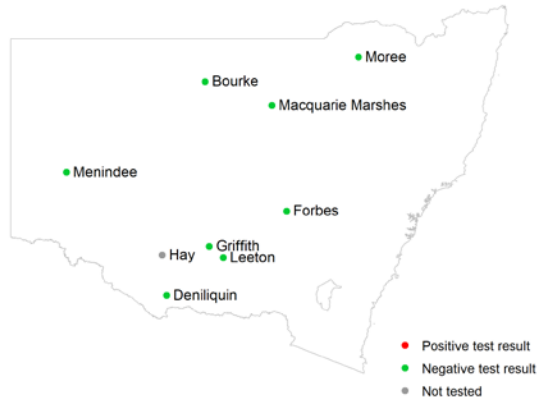
Arbovirus Detections

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 weeks.

Test results for sentinel chickens in the week ending 16 January 2021



Positive test results in the 2020-2021 surveillance season

Date of sample collection	Location	Positive test results
There have been no detections in sentinel chickens in the 2020-2021 surveillance season		

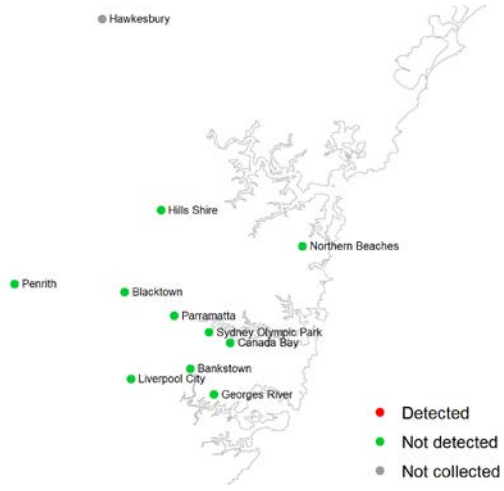
Mosquito isolates

Whole grinds of mosquitoes are tested for arbovirus nucleic acids (including Ross River virus and Barmah Forest virus). There were no detections of Ross River virus and Barmah Forest virus among sites that collected mosquitos in this reporting week.

Test results for mosquito trapping sites in the week ending 16 January 2021

Inland and Coastal sites

Sydney sites



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

Date of sample collection	Location	Virus
There have been no Ross River or Barmah Forest virus detections in the 2020-2021 surveillance season up to 16 January 2021.		

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 specimens collected in the current reporting week.

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

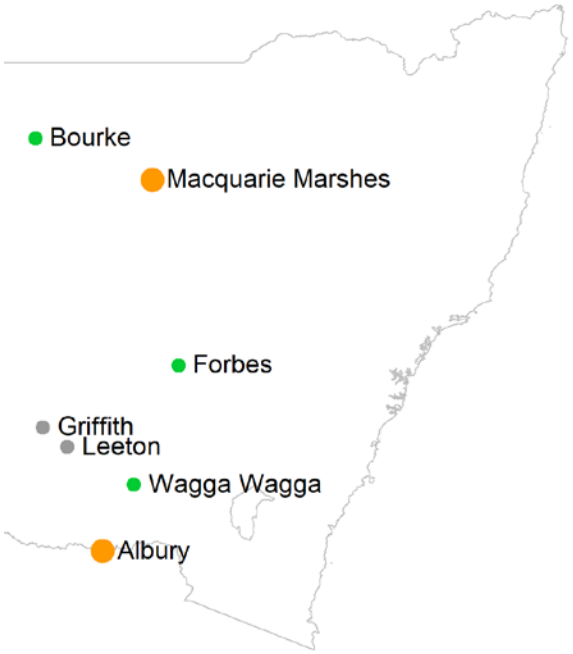
Mosquito counts in the week ending 16 January 2021

Key:

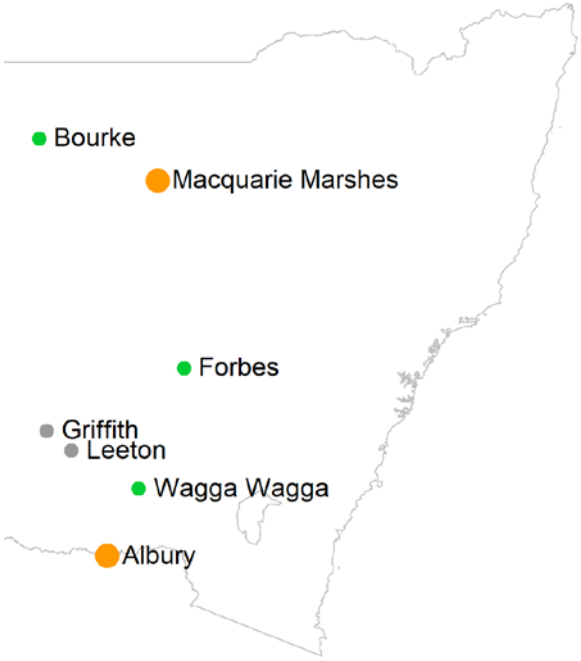
- No collection
- Low (<50)
- Medium (50-100)
- High (101-1,000)
- Very high (1,001-10,000)
- Extreme (>10,000)

Inland sites

Total mosquito counts

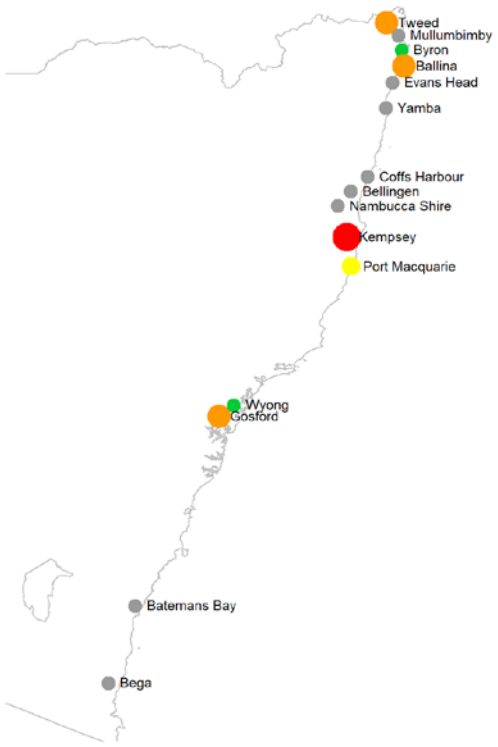


***Culex annulirostris* counts**



Coastal sites

Total mosquito counts

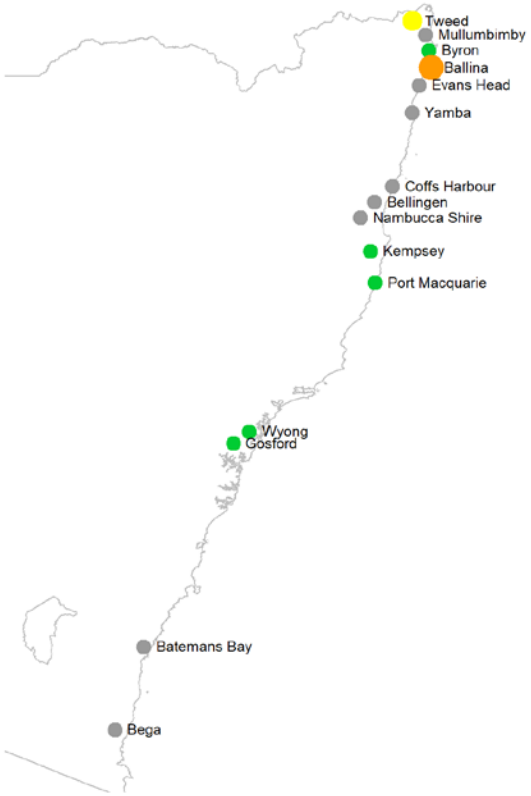


Key:

- No collection
- Low (<50)
- Medium (50-100)
- High (101-1,000)
- Very high (1,001-10,000)
- Extreme (>10,000)

Culex annulirostris counts

Aedes vigilax counts



Sydney sites

Total mosquito counts

Key:

- No collection
- Low (<50)
- Medium (50-100)
- High (101-1,000)
- Very high (1,001-10,000)
- Extreme (>10,000)

Culex annulirostris counts

Aedes vigilax counts

Mosquito abundance data for 2020-21 season to date

Key:

No collection
Low (<50)
Medium (50-100)
High (101-1,000)
Very high (1,001-10,000)
Extreme (>10,000)

Data in the below tables represent the average for all trapping sites at that location. "*Cx. annul*" refers to *Culex annulirostris* and "*Ae.vigilax*" refers to *Aedes vigilax*.

Inland

		WEEK ENDING																					
		Nov-20				Dec-20				Jan-21					Feb-21				Mar-21				
Location	Mosquito	7	14	21	28	5	12	19	26	2	9	16	23	30	6	13	20	27	6	13	20	27	
Albury	*Cx. annul*																						
	Total																						
Bourke	*Cx. annul*																						
	Total																						
Forbes	*Cx. annul*																						
	Total																						
Griffith	*Cx. annul*																						
	Total																						
Leeton	*Cx. annul*																						
	Total																						
Macquarie Marshes	*Cx. annul*																						
	Total																						
Wagga Wagga	*Cx. annul*																						
	Total																						

Coastal

		WEEK ENDING																					
		Nov-20				Dec-20				Jan-21					Feb-21				Mar-21				
Location	Mosquito	7	14	21	28	5	12	19	26	2	9	16	23	30	6	13	20	27	6	13	20	27	
Ballina	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Byron	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Coffs Harbour	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Gosford	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Kempsey	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Port Macquarie	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Tweed	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Wyong	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Yamba	*Cx. annul*																						
	Ae. vigilax																						
	Total																						

Sydney

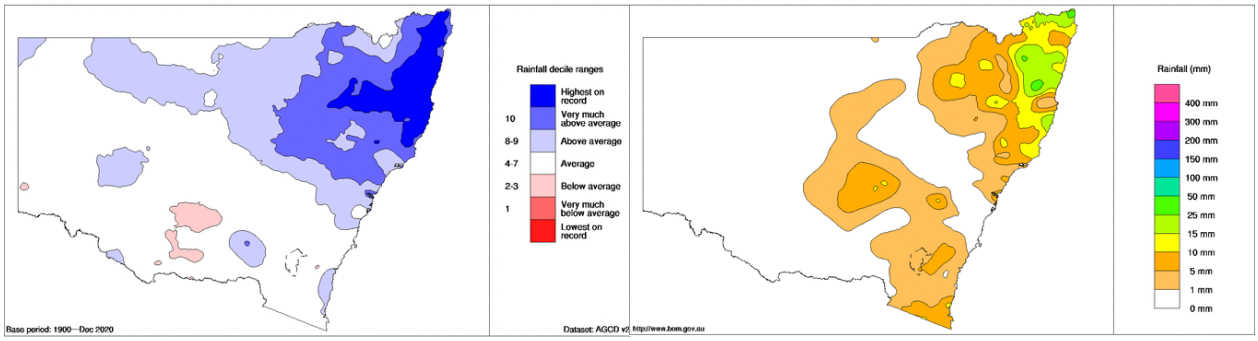
		WEEK ENDING																					
		Nov-20				Dec-20				Jan-21					Feb-21				Mar-21				
Location	Mosquito	7	14	21	28	5	12	19	26	2	9	16	23	30	6	13	20	27	6	13	20	27	
Bankstown	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Blacktown	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Canada Bay	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Georges River	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Hawkesbury	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Hills Shire	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Liverpool City	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Northern Beaches	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Parramatta	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Penrith	*Cx. annul*																						
	Ae. vigilax																						
	Total																						
Sydney Olympic Park	*Cx. annul*																						
	Ae. vigilax																						
	Total																						

Environmental Conditions

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 December, rainfall was above average to very much above average in north-eastern NSW and most of northern NSW, with the highest rainfall on record along the north coast. Rainfall was generally average in central, western and southern NSW (left). In the week ending 16 January 2021, there was less rainfall than usual throughout most of NSW, with the exception of the north coast where there was low to moderate rainfall (right).



Source: Australian Government, Bureau of Meteorology: http://www.bom.gov.au/climate/maps/rainfall

Next month's rainfall and temperature outlook

The Bureau of Meteorology's rainfall outlook map predicts about usual rainfall across most of NSW for the remainder of January, with less rainfall than usual along the north coast, along the Queensland border and inland near Dubbo. More rainfall than usual is predicted for most of NSW in February.
www.bom.gov.au/climate/outlooks/#/rainfall/median/monthly/0

The Bureau of Meteorology's temperature outlook maps predict that maximum temperatures are likely to be above usual for most of NSW for the remainder of January and into early February. Minimum temperatures are also predicted to be higher than usual across most of NSW for the remainder of January and into early February.
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

- 28 January - 1 February 2021
- 9-13 February 2021
- 26-28 February 2021

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-OceanTide.

Human Arboviral Disease Notifications

Under the *NSW Public Health Act 2010*, all arboviral infections are notifiable in NSW. The NSW Health 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 reported 3 weeks are in the following table.

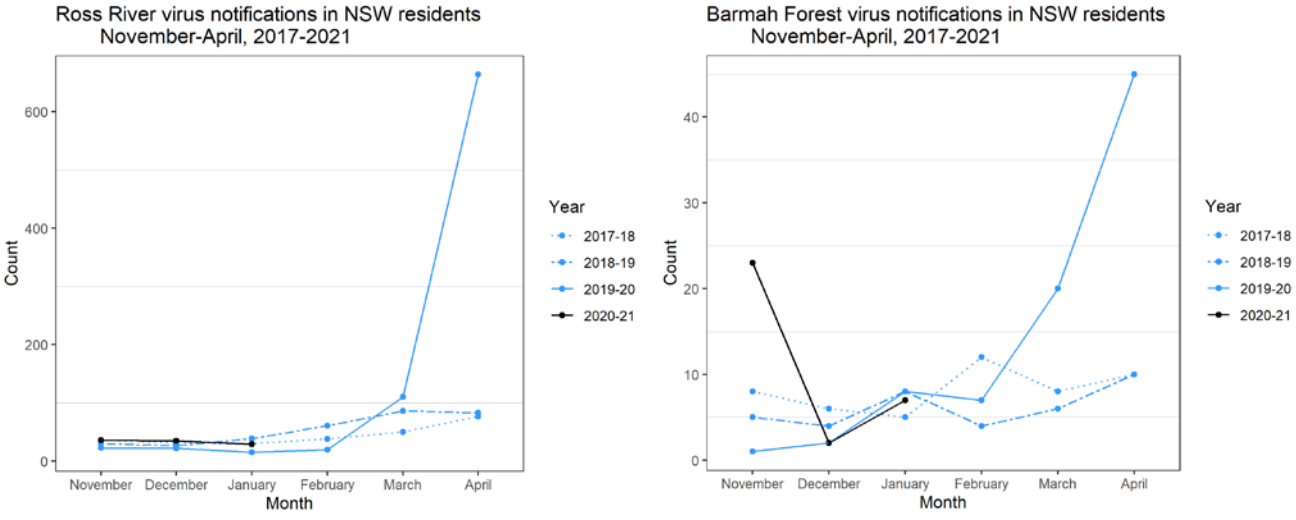
Recent notifications of Ross River virus and Barmah Forest virus in humans
(by date of case report received)

	Week		
	Latest week (20-26 Dec 2020)	**1-week prior (13-19 Dec 2020)**	**2-weeks prior (6 Dec-12 Dec 2020)**
Ross River virus	7	10	3
Barmah Forest virus	0	1	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 website: https://www1.health.nsw.gov.au/IDD/pages/data.aspx

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 (November 2020 to April 2021), 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

Note: The data for the current month are the notifications to date (data extracted on 21 January 2021).