

NSW Arbovirus Surveillance & Mosquito Monitoring 2020-2021

Weekly Update: Week ending 23 January 2021

(Report Number 11)



Summary

Arbovirus Detections

- **Sentinel Chickens:** There were no arbovirus detections in sentinel chickens.
- **Mosquito Isolates:** Ross River virus was detected in a mosquito isolate collected at Griffith.

Mosquito Abundance

- **Inland:** VERY HIGH at Griffith. HIGH at Forbes.
- **Coast:** HIGH at Ballina, Gosford, Kempsey, Port Macquarie and Tweed. MEDIUM at Yamba. LOW at Byron, Coffs Harbour and Wyong.
- **Sydney:** HIGH at Bankstown, Georges River, Northern Beaches, Parramatta and Penrith. MEDIUM at Sydney Olympic Park. LOW at Blacktown, Canada Bay, Hawkesbury and Liverpool City.

Environmental Conditions

- **Climate:** In the past week, there was high rainfall along the northern NSW coast and low to moderate rainfall across most of the remainder of NSW. About usual rainfall is predicted across most of NSW for the remainder of January, with less rainfall than usual predicted along the Queensland border. Temperatures are likely to be above usual for most of NSW for the remainder of January and into February.
- **Tides:** High tides over 1.8 metres are predicted to occur between 28 January - 1 February, 9 - 13 February and 26 February - 2 March which could trigger hatching of *Aedes vigilax*.

Human Arboviral Disease Notifications

- **Ross River Virus:** 18 cases were notified in the week ending 9 January 2021.
- **Barmah Forest Virus:** 4 cases were notified in the week ending 9 January 2021.

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.

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) 200547

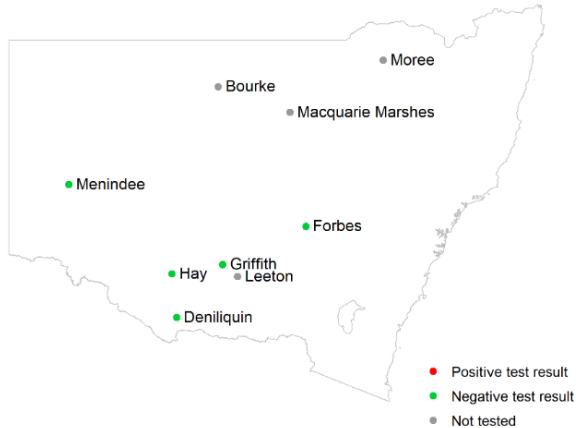
Arbovirus Detections

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 23 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		

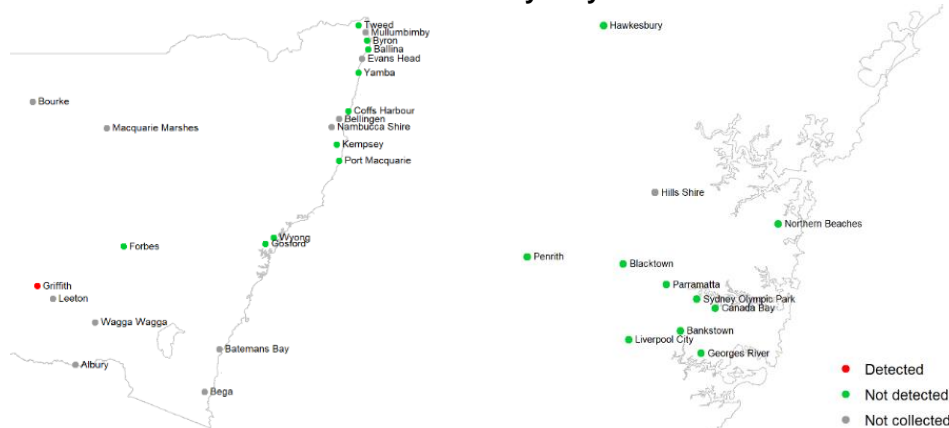
Mosquito isolates

Whole grinds of mosquitoes are tested for arbovirus nucleic acids (including Ross River virus and Barmah Forest virus). Ross River virus was detected in mosquitoes collected at Griffith in this reporting week. There were no detections of Barmah Forest virus in mosquito isolates.

Test results for mosquito trapping sites in the week ending 23 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
19 January 2021	Hanwood, Griffith	Ross River virus

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.

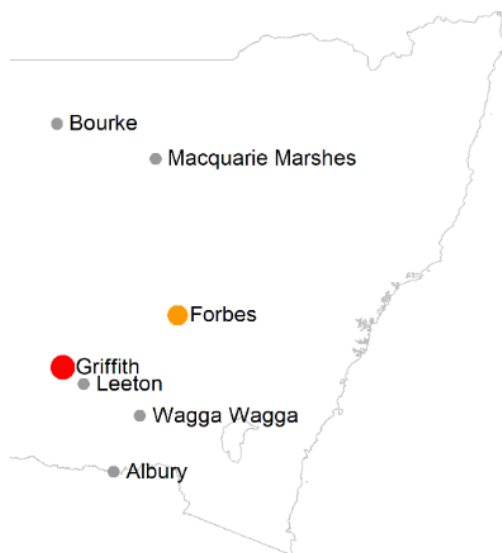
Mosquito counts in the week ending 23 January 2021

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

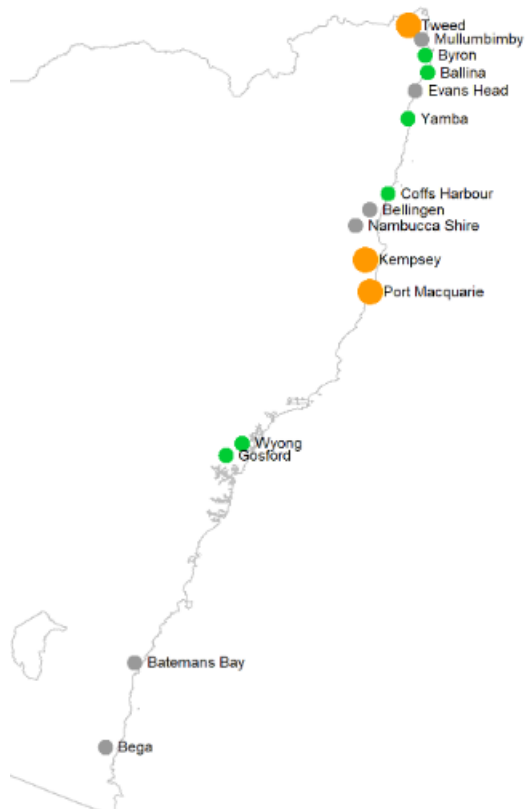
Total mosquito counts



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 (Grey dot)
- Low (<50) (Green dot)
- Medium (50-100) (Yellow dot)
- High (101-1,000) (Orange dot)
- Very high (1,001-10,000) (Red dot)
- Extreme (>10,000) (Purple dot)

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	<i>Cx. annul</i>																					
	Total																					
Bourke	<i>Cx. annul</i>																					
	Total																					
Forbes	<i>Cx. annul</i>																					
	Total																					
Griffith	<i>Cx. annul</i>																					
	Total																					
Leeton	<i>Cx. annul</i>																					
	Total																					
Macquarie Marshes	<i>Cx. annul</i>																					
	Total																					
Wagga Wagga	<i>Cx. annul</i>																					
	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	<i>Cx. annul</i>																						
	<i>Ae. vigilax</i>																						
	Total																						
Byron	<i>Cx. annul</i>																						
	<i>Ae. vigilax</i>																						
	Total																						
Coffs Harbour	<i>Cx. annul</i>																						
	<i>Ae. vigilax</i>																						
	Total																						
Gosford	<i>Cx. annul</i>																						
	<i>Ae. vigilax</i>																						
	Total																						
Kempsey	<i>Cx. annul</i>																						
	<i>Ae. vigilax</i>																						
	Total																						
Port Macquarie	<i>Cx. annul</i>																						
	<i>Ae. vigilax</i>																						
	Total																						
Tweed	<i>Cx. annul</i>																						
	<i>Ae. vigilax</i>																						
	Total																						
Wyong	<i>Cx. annul</i>																						
	<i>Ae. vigilax</i>																						
	Total																						
Yamba	<i>Cx. annul</i>																						
	<i>Ae. vigilax</i>																						
	Total																						

Sydney

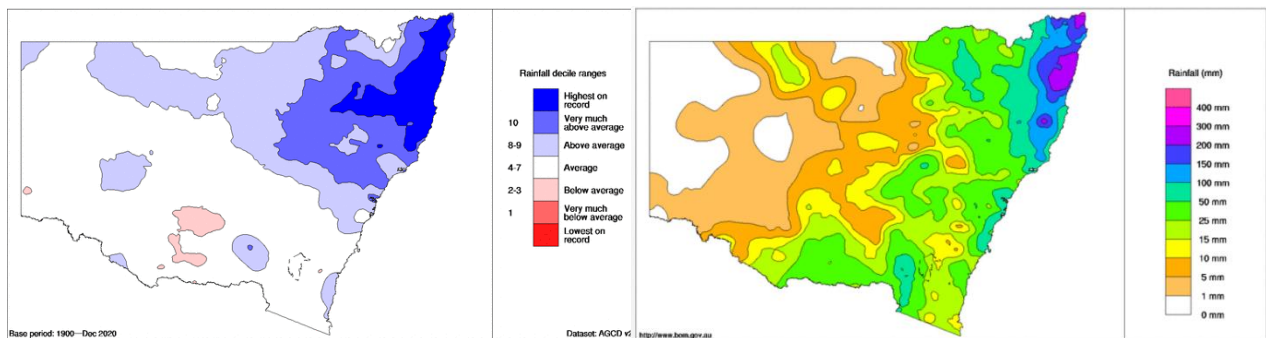
Location		WEEK ENDING																			
		Nov-20				Dec-20				Jan-21				Feb-21				Mar-21			
		7	14	21	28	5	12	19	26	2	9	16	23	30	6	13	20	27	6	13	20
Bankstown	<i>Cx. annul</i>																				
	<i>Ae. vigilax</i>																				
	Total																				
Blacktown	<i>Cx. annul</i>																				
	<i>Ae. vigilax</i>																				
	Total																				
Canada Bay	<i>Cx. annul</i>																				
	<i>Ae. vigilax</i>																				
	Total																				
Georges River	<i>Cx. annul</i>																				
	<i>Ae. vigilax</i>																				
	Total																				
Hawkesbury	<i>Cx. annul</i>																				
	<i>Ae. vigilax</i>																				
	Total																				
Hills Shire	<i>Cx. annul</i>																				
	<i>Ae. vigilax</i>																				
	Total																				
Liverpool City	<i>Cx. annul</i>																				
	<i>Ae. vigilax</i>																				
	Total																				
Northern Beaches	<i>Cx. annul</i>																				
	<i>Ae. vigilax</i>																				
	Total																				
Parramatta	<i>Cx. annul</i>																				
	<i>Ae. vigilax</i>																				
	Total																				
Penrith	<i>Cx. annul</i>																				
	<i>Ae. vigilax</i>																				
	Total																				
Sydney Olympic Park	<i>Cx. annul</i>																				
	<i>Ae. vigilax</i>																				
	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 23 January 2021, there was high rainfall recorded along the northern NSW coast. Low to moderate rainfall was recorded across most of the remainder of NSW, with the exception of parts of far western NSW where there was no 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 predicted along the Queensland border. About usual rainfall is predicted for most of NSW in February, with higher rainfall predicted in parts of northern NSW.
www.bom.gov.au/climate/outlooks/#/rainfall/median/monthly/0

The Bureau of Meteorology's temperature outlook maps predict that maximum and minimum temperatures are likely to be above usual for most of NSW for the remainder of January and 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 February - 2 March 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

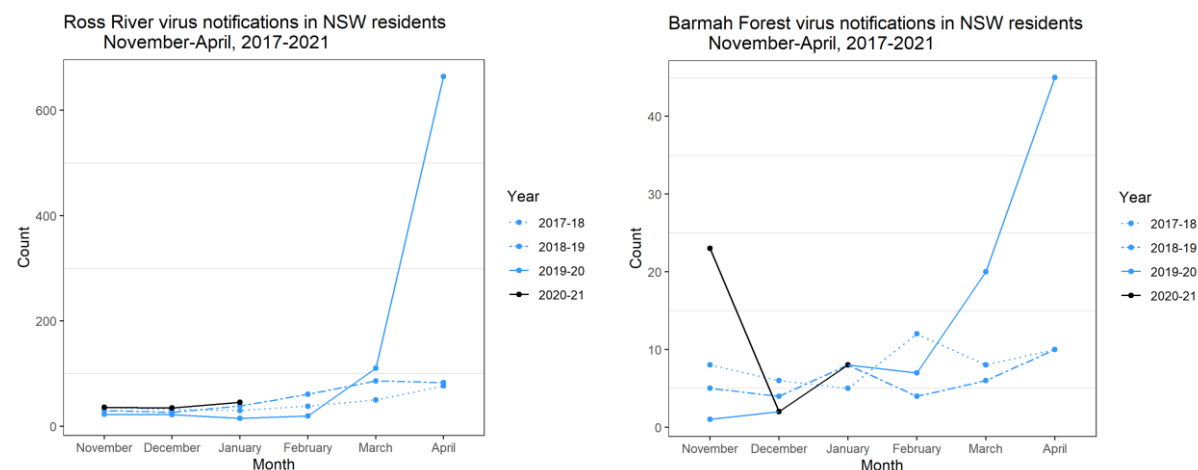
(by date of case report received)

	Week		
	Latest week (3-9 Jan 2021)	1-week prior (27 Dec 2020 - 2 Jan 2021)	2-weeks prior (20-26 Dec 2020)
Ross River virus	18	1	7
Barmah Forest virus	4	0	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 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 25 January 2021).