

NSW Arbovirus Surveillance & Mosquito Monitoring 2020-2021

Weekly Update: Week ending 9 January 2021

(Report Number 9)



Summary

Arbovirus Detections

- **Sentinel Chickens:** There were no arbovirus detections in sentinel chickens.
- **Mosquito Isolates:** There were no Ross River virus or Barmah Forest virus detections in mosquito isolates.

Mosquito Abundance

- **Inland:** MEDIUM at Albury and Wagga Wagga. LOW at Leeton.
- **Coast:** HIGH at Ballina and Kempsey. MEDIUM at Gosford. LOW at Coffs Harbour and Wyong.
- **Sydney:** VERY HIGH at Georges River. HIGH at Bankstown, Parramatta, Penrith and Sydney Olympic Park. MEDIUM at Canada Bay. LOW at Hills Shire.

Environmental Conditions

- **Climate:** In the past week, there was moderate rainfall throughout most of NSW, with lower rainfall recorded in Western NSW and along the Victorian border. Higher rainfall than usual is predicted for parts of Northern NSW and parts of the Victorian border for the remainder of January. Temperatures are likely to be below usual across most of NSW but higher along the coastal fringe, for the remainder of January and into February.
- **Tides:** High tides over 1.8 metres are predicted to occur from 11-16 January, 28 January-1 February and 9-13 February, which could trigger hatching of *Aedes vigilax*.

Human Arboviral Disease Notifications

- **Ross River Virus:** 10 cases were notified in the week ending 19 December 2020.
- **Barmah Forest Virus:** 1 case was notified in the week ending 19 December 2020.

Comments and other findings of note

Stratford virus was detected in this reporting week in mosquitoes trapped in Sydney (Alfords Point, Georges River). Human cases of Stratford virus infection are not notifiable in NSW and infection usually presents as a mild self-limiting febrile illness.

NSW Health has been notified of a Murray Valley encephalitis virus and Kunjin virus detection in one of five blood samples collected from sentinel chickens located near Meningie, South Australia on 17 December 2020. See the SA Health alert for further information:

<https://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/public+health/alerts/health+alerts/murray+valley+encephalitis+virus+mvev+and+west+nile+virus+kunjin+wv+kun>

There have been no virus detections in the nine sentinel chicken flocks in NSW.

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

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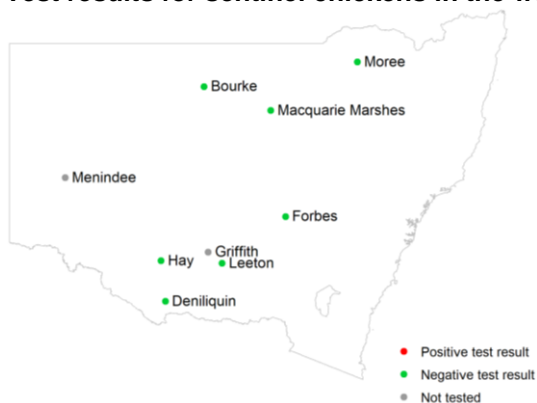
Arbovirus Detections

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 9 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

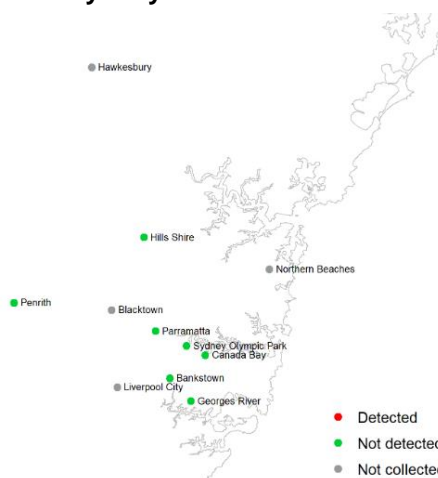
Whole grinds of mosquitoes are tested for arbovirus nucleic acids (including Ross River virus and Barmah Forest virus). There were no detections of Ross River virus and Barmah Forest virus among sites that collected mosquitos in this reporting week.

Test results for mosquito trapping sites in the week ending 9 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		

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.

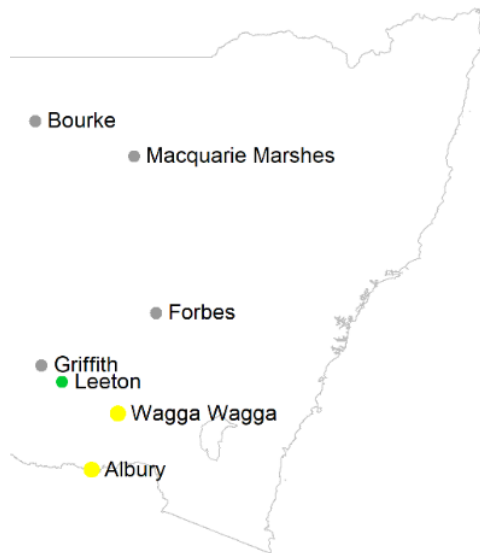
Mosquito counts in the week ending 9 January 2021

Key:

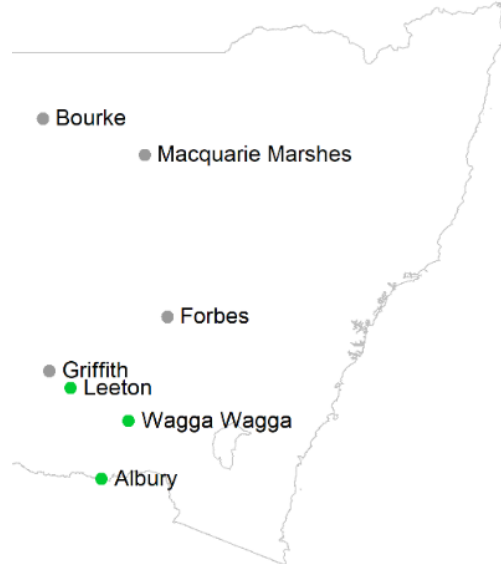
- No collection
- Low (<50)
- Medium (50-100)
- High (101-1,000)
- Very high (1,001-10,000)
- Extreme (>10,000)

Inland sites

Total mosquito counts

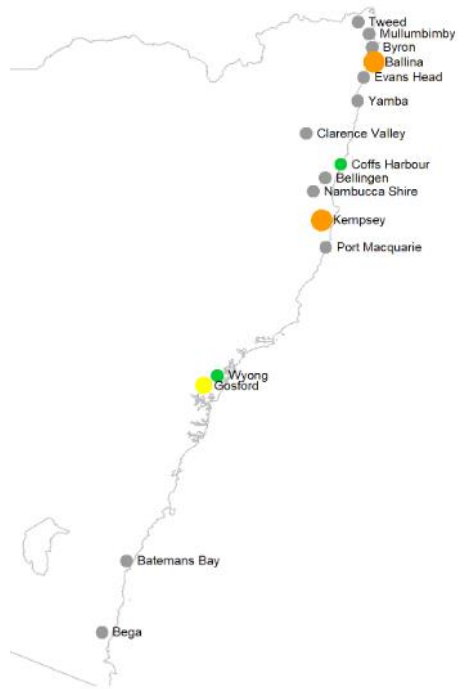


Culex annulirostris counts



Coastal sites

Total mosquito counts



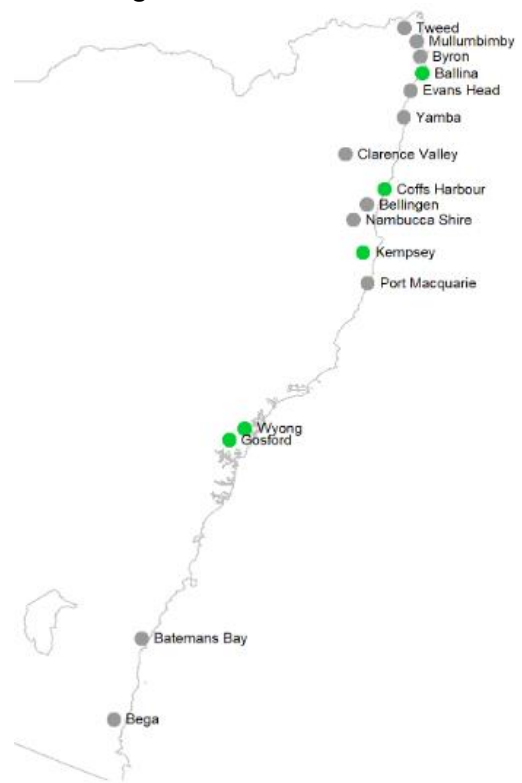
Key:

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

Culex annulirostris counts

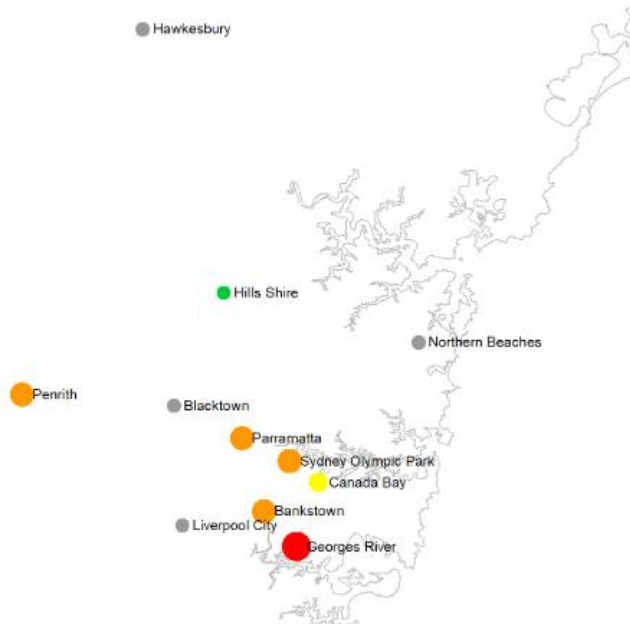


Aedes vigilax counts



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	<i>Cx. annul</i>	Low	Low	Low	Low	Low	Low	Low	Low		Low											
	Total	Low	Low	Medium	Low	Low	Low	Medium	Low		Medium											
Bourke	<i>Cx. annul</i>							Low	Low													
	Total							Low	Low													
Forbes	<i>Cx. annul</i>	Low	High		High	Low	High		High													
	Total	High	High		High	Low	High		High													
Griffith	<i>Cx. annul</i>		Medium	Low		High	Very high	Very high														
	Total		High	Low		High	Very high	Very high														
Leeton	<i>Cx. annul</i>	Low	Low			Low	Low	Low	Low		Low											
	Total	Low	Low	Medium		Low	Low	Low	Low		Low											
Macquarie Marshes	<i>Cx. annul</i>																					
	Total																					
Wagga Wagga	<i>Cx. annul</i>	Low	Low	Low	Low		Low	Low			Low											
	Total	Low	Low	Low	Low		Low	Low			Medium											

Coastal

		WEEK ENDING																					
Mosquito		Nov-20				Dec-20				Jan-21				Feb-21				Mar-21					
Location		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																						
Clarence Valley	<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

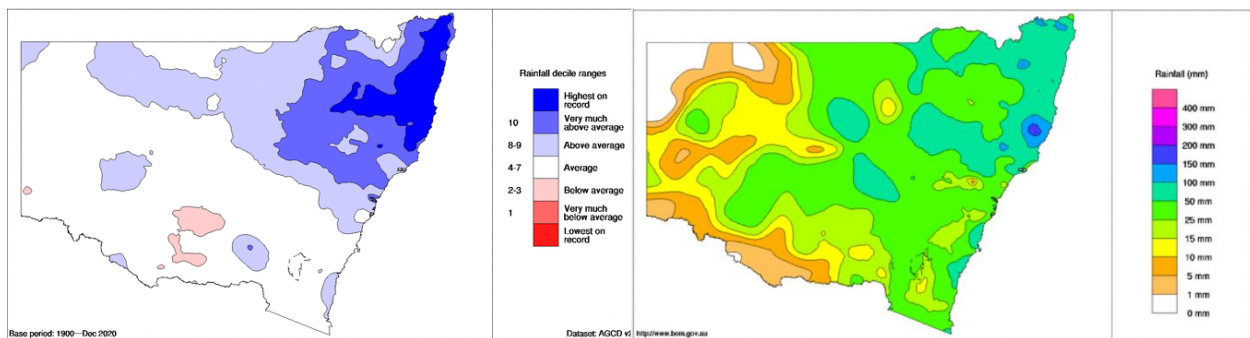
		WEEK ENDING																				
		Nov-20				Dec-20				Jan-21				Feb-21				Mar-21				
Location	Mosquito	7	14	21	28	5	12	19	26	2	9	16	23	30	6	13	20	27	6	13	20	27
Bankstown	<i>Cx. annul</i>																					
	<i>Ae. vigilax</i>																					
	Total																					
Blacktown	<i>Cx. annul</i>																					
	<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 9 January 2021, there was moderate rainfall throughout most of NSW, with lower rainfall recorded in Western NSW and along parts of the Victorian border (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 more rainfall than usual predicted in parts of Northern NSW and the Victorian border. 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 below usual to usual across most of NSW but higher along the coastal fringe of NSW, for the remainder of January and into February. Minimum temperatures are predicted to be around usual in most of NSW but higher along the coastal fringe for the remainder of January, with higher than usual minimum temperatures predicted across NSW for 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

- 11 - 16 January 2021
- 28 January - 1 February 2021
- 9 - 13 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.

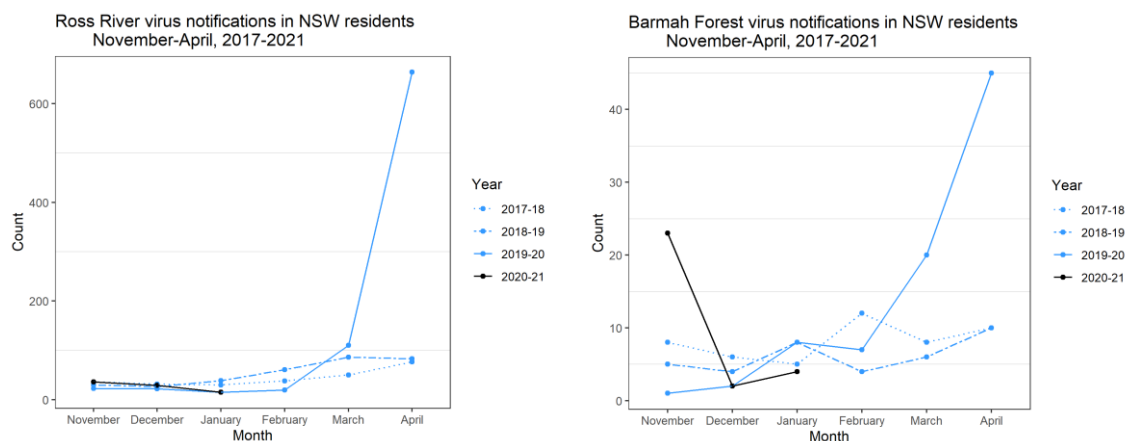
Recent notifications of Ross River virus and Barmah Forest virus in humans (by date of case report received)

	Week		
	Latest week (13-19 Dec 2020)	1-week prior (6-12 Dec 2020)	2-weeks prior (29 Nov-5 Dec 2020)
Ross River virus	10	3	10
Barmah Forest virus	1	2	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 13 January 2021).