

NSW Arbovirus Surveillance & Mosquito Monitoring 2021-2022

Weekly Update: Week ending 29 January 2022

(Report Number 12)



Summary

Arbovirus Detections

- **Sentinel Chickens:** There were no arbovirus detections in sentinel chickens.
- **Mosquito Isolates:** Ross River virus was detected at Penrith.

Mosquito Abundance

- **Inland:** LOW at Bourke, HIGH at Leeton, and Wagga Wagga, VERY HIGH at Forbes.
- **Coast:** LOW at Port Macquarie, Lake Cathie, and Wyong, MEDIUM at Gosford, HIGH at Ballina.
- **Sydney:** MEDIUM at Sydney and Northern Beaches, HIGH at Bankstown, Paramatta, Penrith and Sydney Olympic Park, and VERY HIGH at Liverpool City.

Environmental Conditions

Climate: In the week ending 29 January 2022, there was low to moderate rainfall across most of Southern and Far West NSW. Higher rainfall is expected for coastal regions of NSW during February 2022. Higher than usual minimum temperatures are expected across NSW in February and maximum temperatures are likely to exceed average in Western NSW.

- **Tides:** High tides over 1.8 metres predicted 30 January – 4 February, and 17-18 February 2022 which could trigger hatching of *Aedes vigilax*.

Human Arboviral Disease Notifications

- **Ross River Virus:** 16 cases were notified in the week ending 15 January 2022.
- **Barmah Forest Virus:** 0 cases were notified in the week ending 15 January 2022.

Comments and other findings of note

Ross River virus was detected in mosquitoes collected at two sites at Penrith on the 25 January 2022. Edge Hill virus (EHV) was detected in mosquitoes collected at Wagga Wagga on 24 January 2022. Human cases of EHV are rarely reported in Australia and infection usually presents as a mild self-limiting febrile illness.

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.

SPHN (HP NSW) 211005

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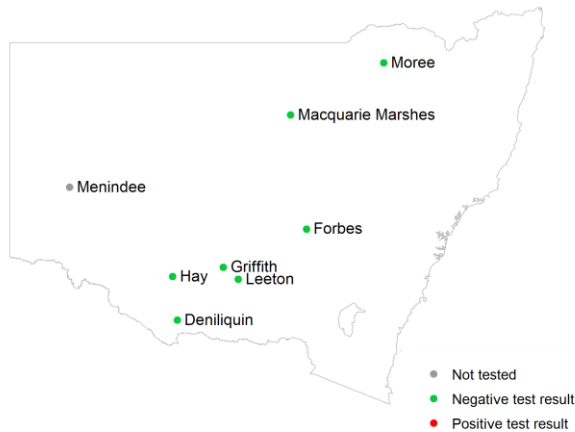
Arbovirus Detections

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.

Chicken surveillance sites, 2021-2022 season



Positive test results in the 2021-2022 surveillance season

Date of sample collection	Location	Virus
There have been no detections in sentinel chickens in the 2021-2022 surveillance season		

Mosquito isolates

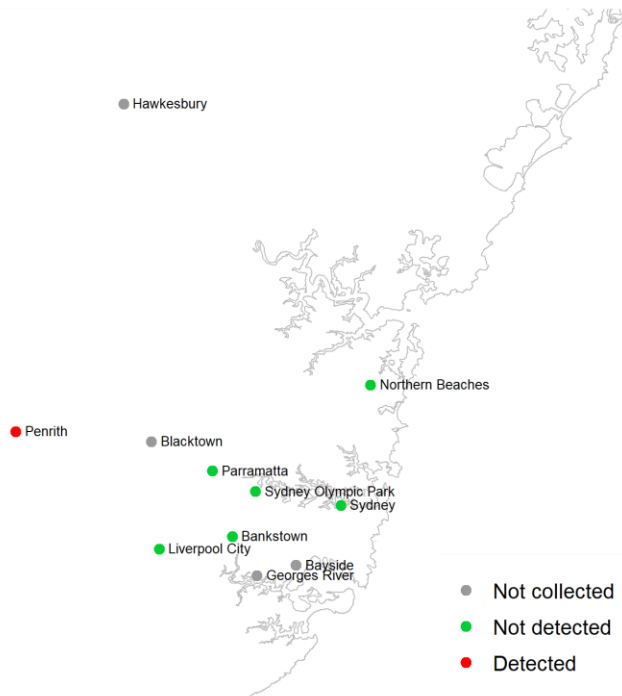
Whole grinds of mosquitoes are tested for arbovirus nucleic acids (including Ross River virus and Barmah Forest virus). There were no detections of Barmah Forest virus among sites that had collected mosquitoes in this reporting week. Ross River virus was detected in mosquitoes collected in Penrith (details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

Test results for mosquito trapping sites in the latest week to 29 January 2022 (by date of report)

Inland and Coastal sites



Sydney Sites



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

Date of sample collection	Location	Virus
25/01/2022	Penrith	2 x Ross River virus
11/01/2022	Penrith	Ross River virus
10/01/2022	Forbes	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 the most recent week that collections were provided prior to preparation of this report.

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

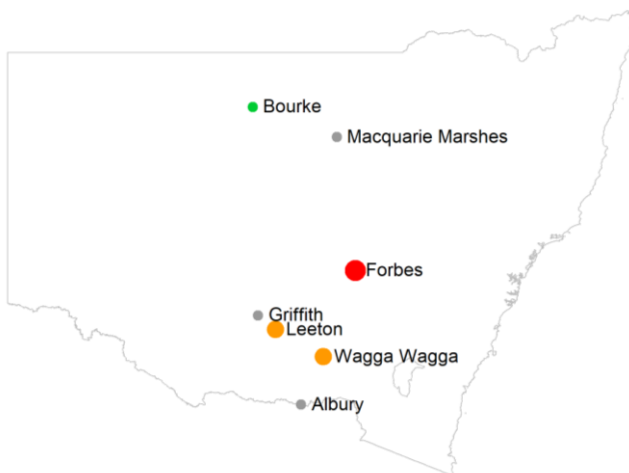
Mosquito counts (Average per trap per location) in the latest week to 29 January 2022 (by date of report)

Key:

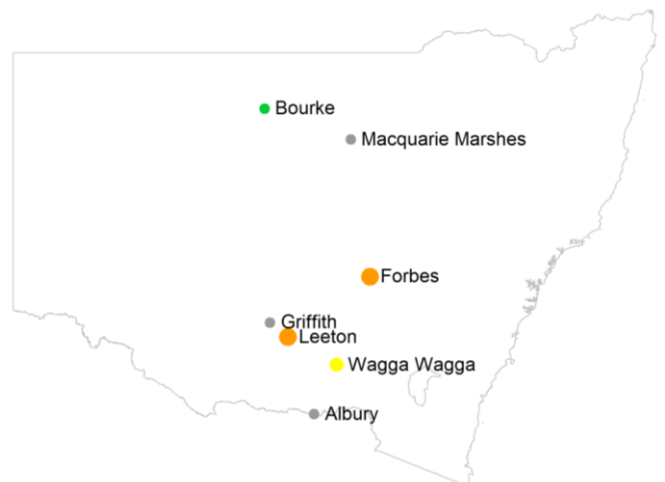
- No collection
- Low (<50)
- Medium (50-100)
- High (101-1,000)
- Very high (1,001-10,000)
- Extreme (>10,000)

Inland sites

Total mosquito counts

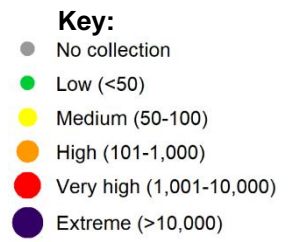
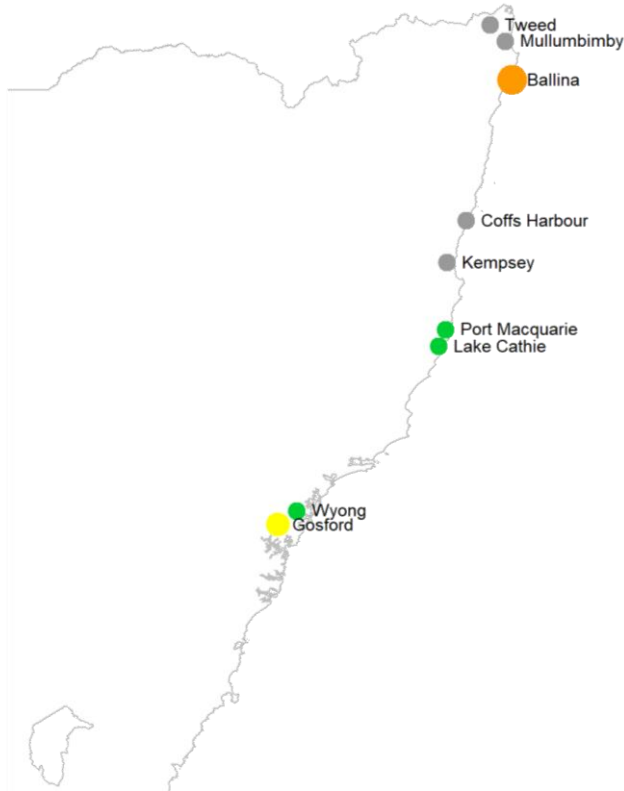


Culex annulirostris counts

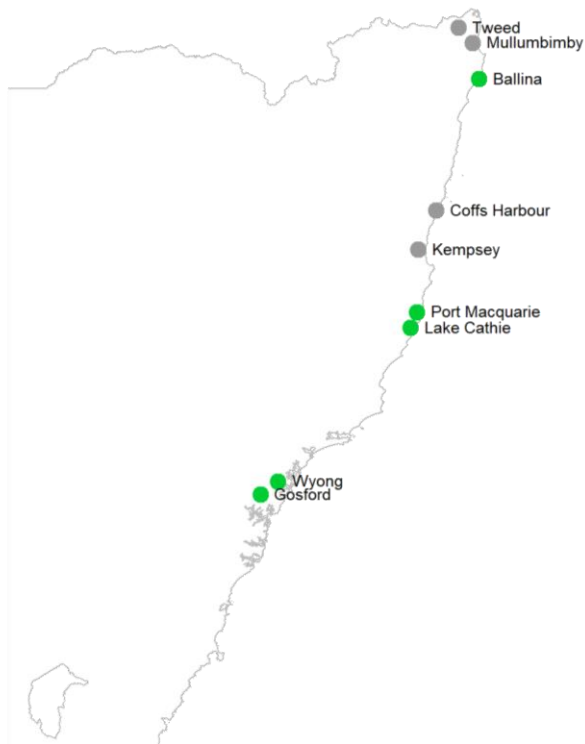


Coastal sites

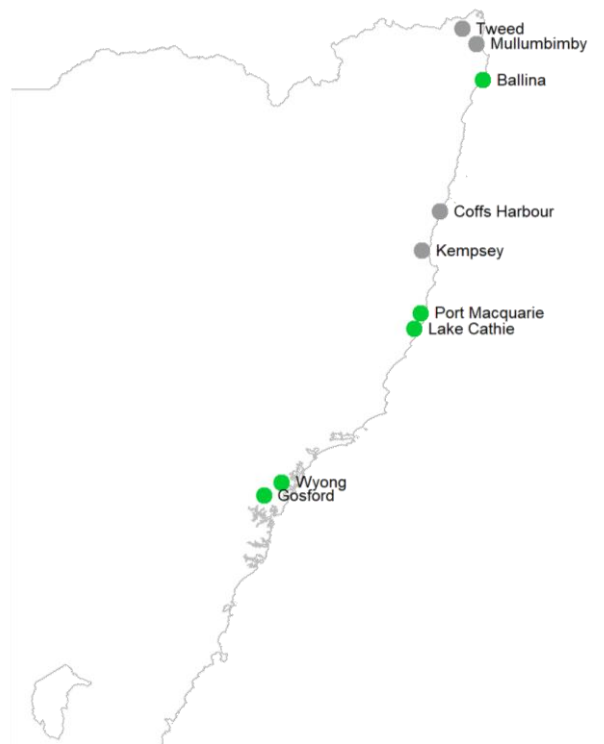
Total mosquito counts



Culex annulirostris counts

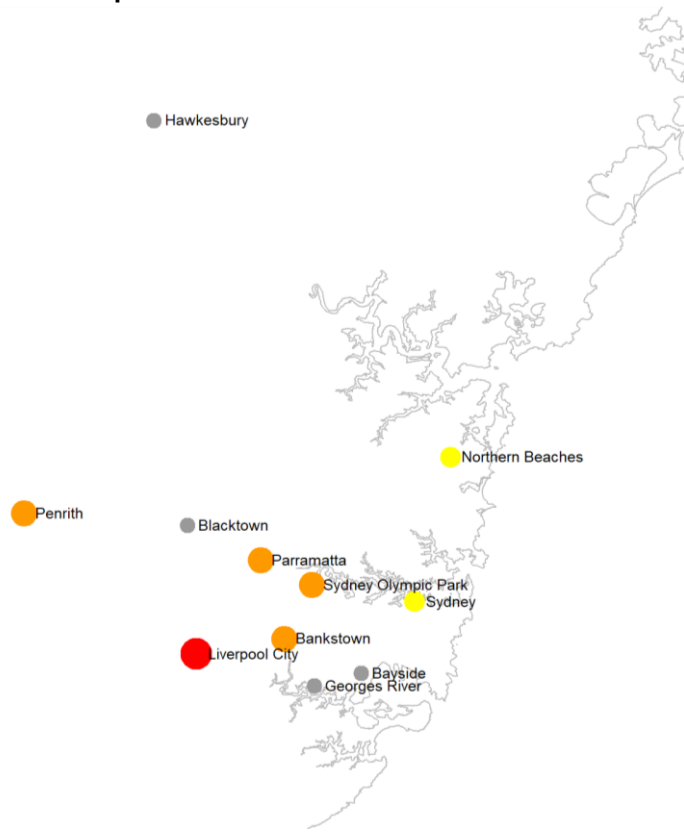


Aedes vigilax counts



Sydney sites

Total mosquito counts



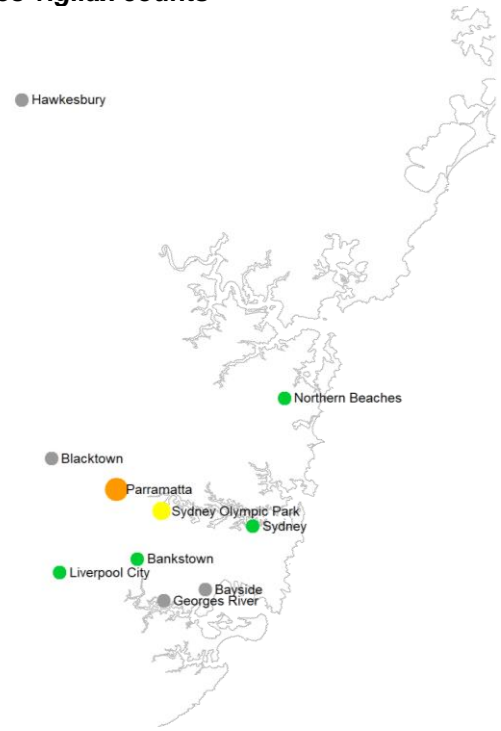
Key:

- 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 2021-22 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 table 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-21				Dec-21				Jan-22					Feb-22				Mar-22				Apr-22				May-22				
Location	Mosquito	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19	26	5	12	19	26	2	9	16	23	20	7	14	21	28
Albury	<i>Cx annul</i>	Green	Green	Green	Green	Yellow	Green	Yellow				Orange	Orange																		
	Total	Green	Green	Green	Yellow	Yellow	Green	Orange				Orange	Orange																		
Bourke	<i>Cx annul</i>				Green			Green	Green		Orange		Green	Green																	
	Total				Green			Yellow	Yellow		Orange		Green	Green																	
Forbes	<i>Cx annul</i>	Orange	Orange	Green	Orange	Orange	Orange	Red			Yellow	Red	Red	Orange																	
	Total	Orange	Orange	Green	Orange	Red	Orange	Red			Yellow	Red	Red	Orange																	
Griffith	<i>Cx annul</i>			Green	Orange	Green	Yellow					Orange	Red																		
	Total			Orange	Orange	Yellow	Orange	Red				Orange	Red																		
Leeton	<i>Cx annul</i>		Green	Green	Green	Green		Yellow			Green	Orange	Orange	Orange																	
	Total		Yellow	Green	Green	Yellow		Orange			Green	Yellow	Orange	Orange																	
Macquarie Marshes	<i>Cx annul</i>							Orange				Green																			
	Total							Orange				Green																			
Wagga Wagga	<i>Cx annul</i>	Green	Green	Green	Green	Green	Green					Orange	Orange	Yellow																	
	Total	Green	Green	Green	Green	Yellow	Orange	Yellow				Orange	Orange	Orange																	

Coastal

		WEEK ENDING																													
		Nov-21				Dec-21				Jan-22				Feb-22				Mar-22				Apr-22				May-22					
Location	Mosquito	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19	26	5	12	19	26	2	9	16	23	20	7	14	21	28
Ballina	<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					█	█	█			█	█	█																		
Lake Cathie	<i>Cx. annul</i>							█				█	█																		
	<i>Ae. vigilax</i>							█				█	█																		
	Total							█				█	█																		
Mullumbimby	<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					█	█	█	█		█	█	█																		

Sydney

		WEEK ENDING																													
		Nov-21				Dec-21				Jan-22					Feb-22				Mar-22				Apr-22				May-22				
Location	Mosquito	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19	26	5	12	19	26	2	9	16	23	20	7	14	21	28
Bankstown	<i>Cx. annul</i>					█	█	█	█			█	█	█																	
	<i>Ae. vigilax</i>																														
	Total					█	█	█	█			█	█	█																	
Blacktown	<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					█	█	█					█																		
Liverpool City	<i>Cx. annul</i>							█	█		█	█	█	█																	
	<i>Ae. vigilax</i>																														
	Total							█	█		█	█	█	█																	
Bayside	<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					█	█	█	█		█	█	█	█																	
Sydney	<i>Cx. annul</i>												█	█																	
	<i>Ae. vigilax</i>																														
	Total												█	█																	

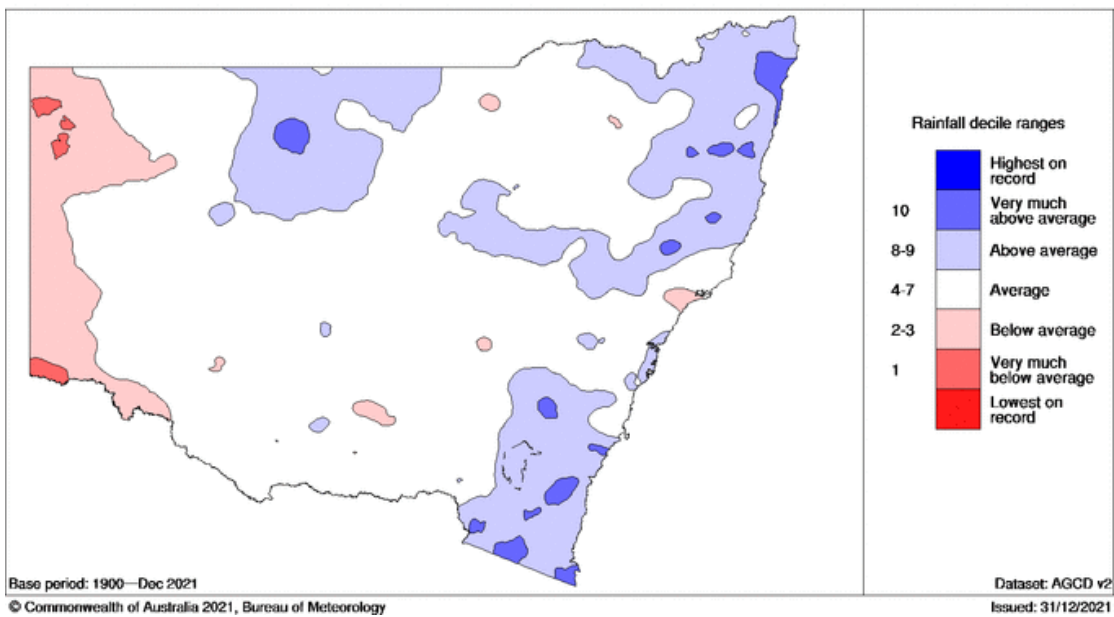
Environmental Conditions

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.

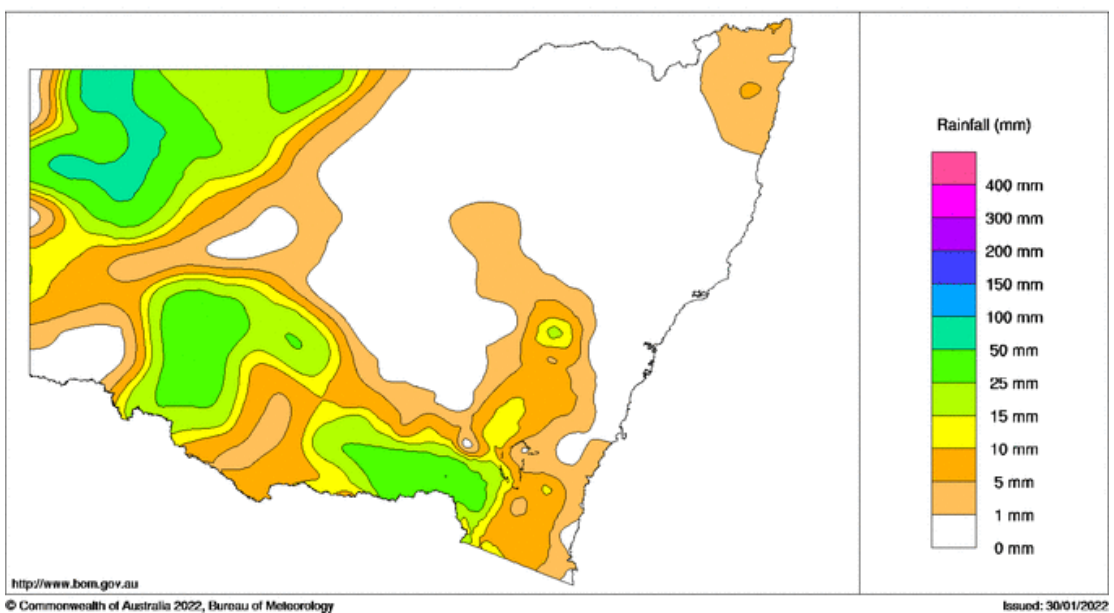
Rainfall

In December, rainfall was near average across most of NSW, with slightly above average totals in the east and slightly below average in the far west. In the week ending 29 January 2022, there was low to moderate rainfall across most of Southern and Far West NSW.

New South Wales rainfall deciles December 2021
Australian Gridded Climate Data



New South Wales Rainfall Totals (mm) 29th January 2022
Australian Bureau of Meteorology



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 that coastal regions of NSW are likely to receive more rainfall than usual for February.

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

The Bureau of Meteorology's temperature outlook maps predict that minimum temperatures are likely to be higher than usual across NSW in February. Maximum temperatures are likely to exceed the average maximum temperature in western NSW and be near average elsewhere.

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 January and the coming month

- 30 January – 4 February 2022
- 17-18 February 2022

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*, human arboviral infections are notifiable in NSW. The NSW Health Communicable Diseases Weekly Report (CDWR) reports confirmed and probable case numbers by the week they are received by the NSW notifiable diseases surveillance system, and is available at: www.health.nsw.gov.au/Infectious/reports/Pages/CDWR.aspx.

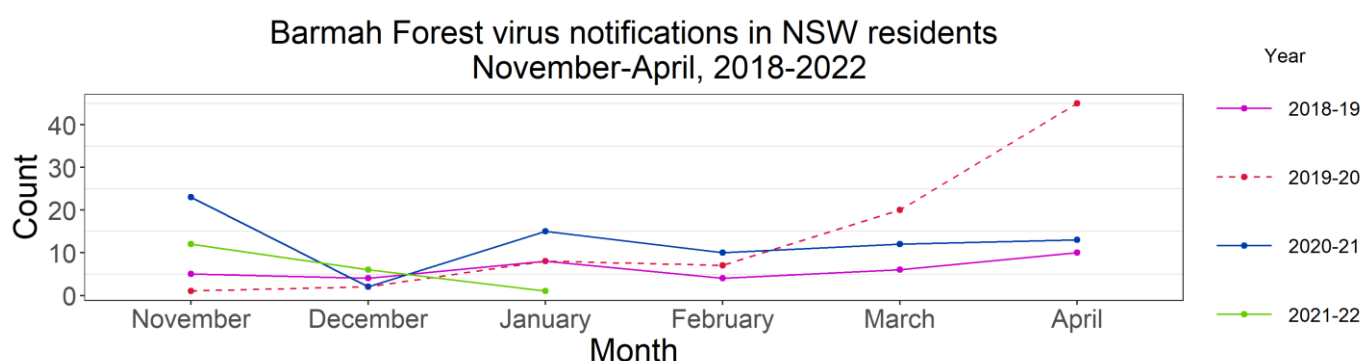
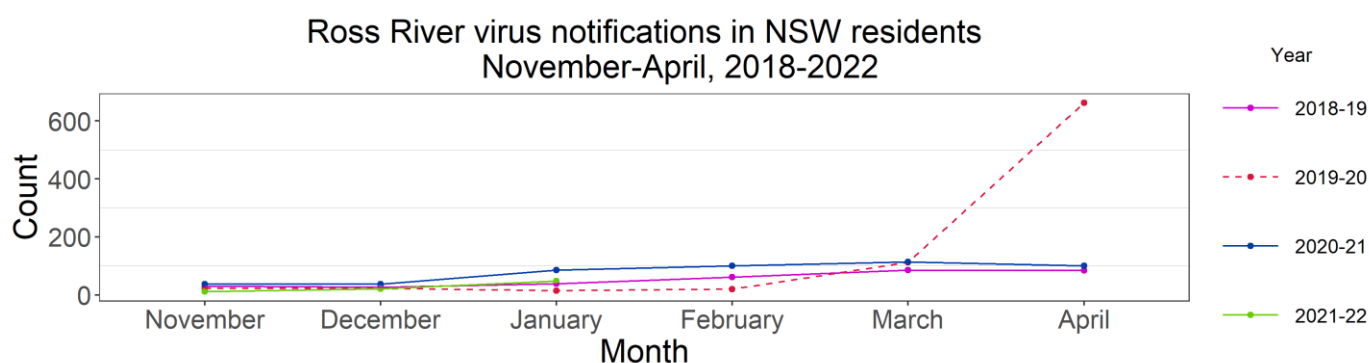
The data for Ross River virus and Barmah Forest virus from the CDWR for the latest reported 3 weeks are in the following table.

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

	Week		
	Latest week (9 - 15 Jan 2022)	1-week prior (2 - 8 Dec 2021)	2-weeks prior (12 - 18 Dec 2021)
Ross River virus	16	11	2
Barmah Forest virus	0	0	0

Source: CDWR, Communicable Diseases Branch, Health Protection NSW, NSW Health

Notifications of Ross River and Barmah Forest virus infections, by month of disease onset (the earlier of patient-reported onset or specimen collection date), are available online at: <https://www1.health.nsw.gov.au/IDD/pages/data.aspx>. The following figures show this data for the current NSW Arbovirus and Mosquito Monitoring season (November 2021 to April 2022), 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

Notes: The data for the previous month are the notifications to date (data extracted on 31 January 2022). Notifications are for NSW residents, regardless of whether the infection was acquired or diagnosed in NSW. Notifications of Ross River virus and Barmah Forest virus infection lag the date of acquiring the infection due to the time taken for symptom development, diagnosis, notification, and other factors. The weekly numbers by date of notification are useful for monitoring recent short-term trends but represent infections that were acquired some time ago. The monthly numbers by date of onset are more timely but less exact because they represent the earlier of patient-reported onset or specimen collection date and are therefore useful for monitoring general trends in human arboviral disease over the course of a season.