

NSW Arbovirus Surveillance & Mosquito Monitoring 2021-2022

Weekly Update: Week ending 26 February 2022

(Report Number 16)



Summary

Arbovirus Detections

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

Mosquito Abundance

- **Inland:** LOW at Bourke and Wagga Wagga, HIGH at Albury, Forbes, Leeton, and Griffith.
- **Coast:** LOW at Kempsey and Wyong, MEDIUM at Lake Cathie, Port Macquarie, and Tweed, HIGH at Ballina and Gosford.
- **Sydney:** MEDIUM at Sydney, HIGH at Bankstown, Hawkesbury, Liverpool City, Paramatta, Penrith, and Sydney Olympic Park.

Environmental Conditions

Climate: In the week ending 26 February 2022, there was very low rainfall across Far Western NSW, moderate to high rainfall across Eastern NSW, with very high totals in Sydney and the north coast. Higher rainfall is expected for coastal regions of NSW during March 2022. Higher than usual minimum temperatures are expected across NSW in March and maximum temperatures are likely to be above average in Eastern NSW.

- **Tides:** High tides over 1.8 metres are predicted for 28 February – 4 March and 30 March 2022 which could trigger hatching of *Aedes vigilax*.

Human Arboviral Disease Notifications

- **Ross River Virus:** 39 cases were notified in the week ending 12 February 2022.
- **Barmah Forest Virus:** 1 case was notified in the week ending 12 February 2022.

Comments and other findings of note

Merimbula is a new coastal trapping location and has been added to this week's report. Very high rainfall has led to flooding in the Northern Coast of NSW. Rain will move south in the coming week with further flooding likely to occur.

Japanese encephalitis virus (JEV) has been detected in piggeries in southern and western NSW indicating the virus is likely circulating in the mosquito population. In Australia JEV is usually confined to seasonal incursions in far north Queensland, with occasional outbreaks in the Torres Strait Islands. JEV can cause permanent neurological complications or death however less than 1% of people infected with Japanese encephalitis virus experience any symptoms, which typically include fever and headache.

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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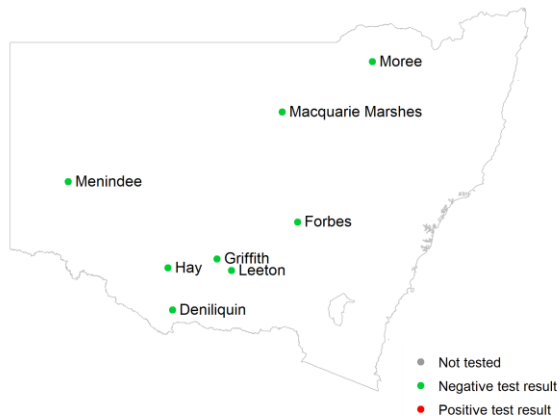
Arbovirus Detections

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

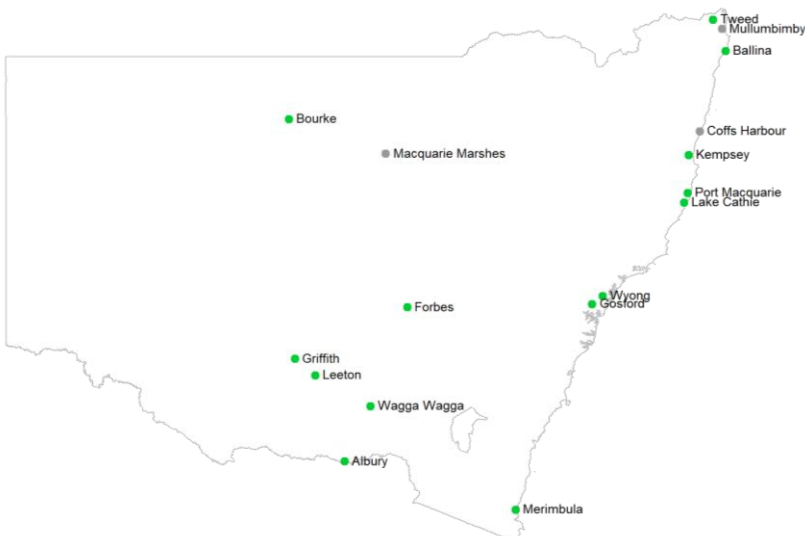
Date of sample collection	Location	Virus
There have been no detections in sentinel chickens in the 2021-2022 surveillance season		

Mosquito isolates

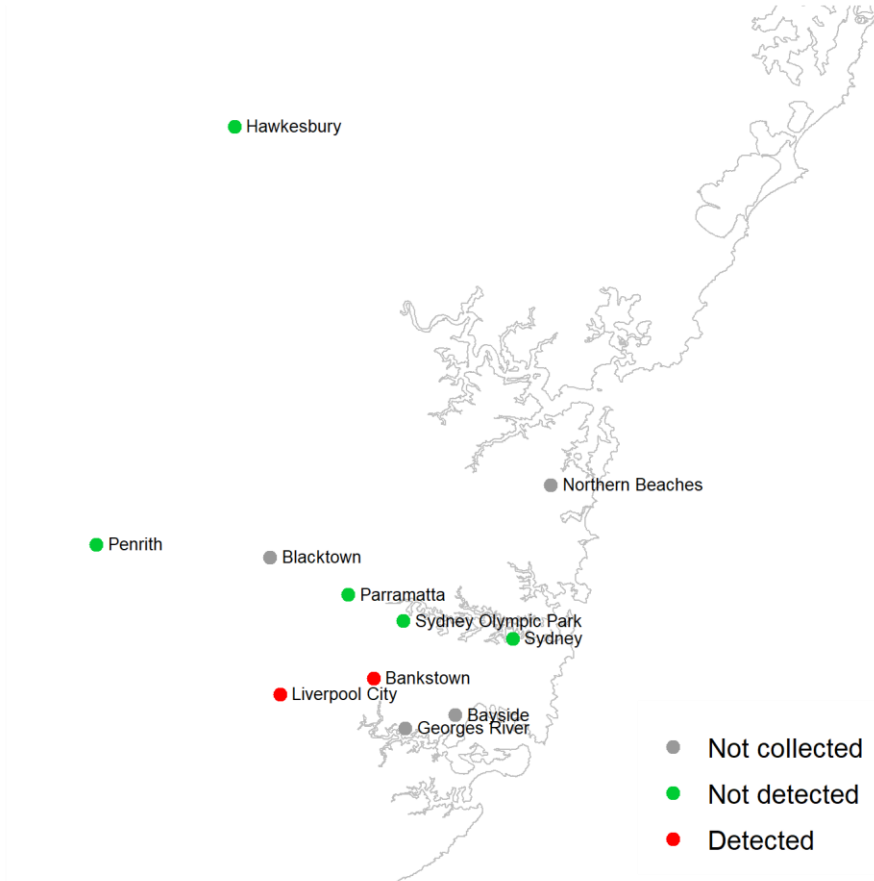
Whole grinds of mosquitoes are tested for arbovirus nucleic acids (including Ross River virus and Barmah Forest virus). There were no detections of Barmah Forest virus among sites that had collected mosquitoes in this reporting week. Ross River virus was detected in mosquitoes collected in Bankstown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

Test results for mosquito trapping sites in the latest week to 26 February 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
22/02/2022	Liverpool	Ross River virus
21/02/2022	Bankstown	Ross River virus
15/02/2022	Penrith	Ross River virus
08/02/2022	Bankstown	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 26 February 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

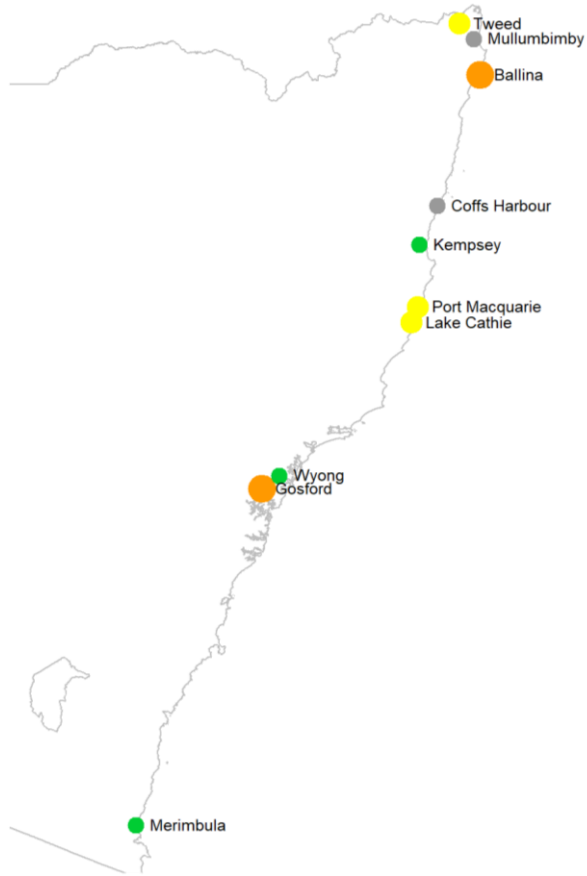


Culex annulirostris counts



Coastal sites

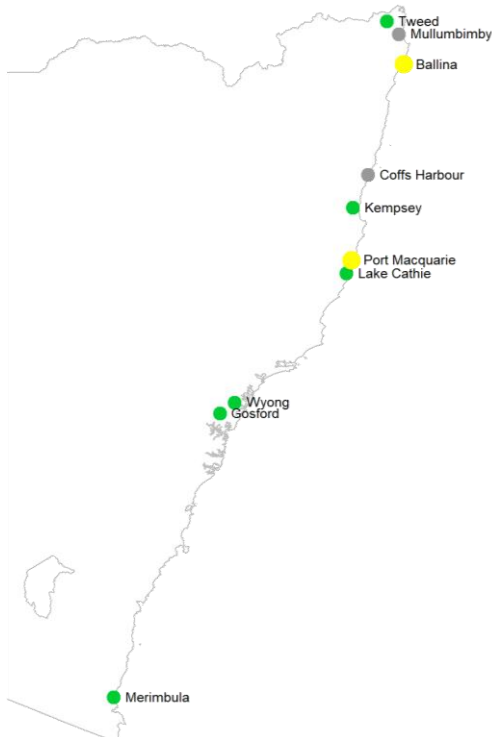
Total mosquito counts



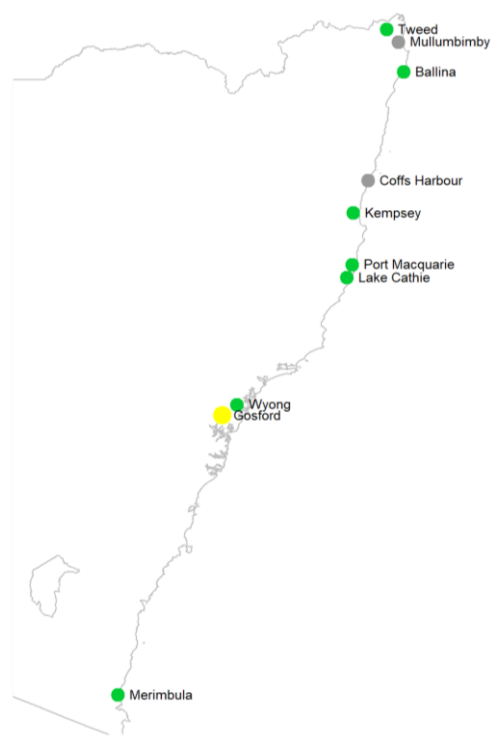
Key:

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

Culex annulirostris counts

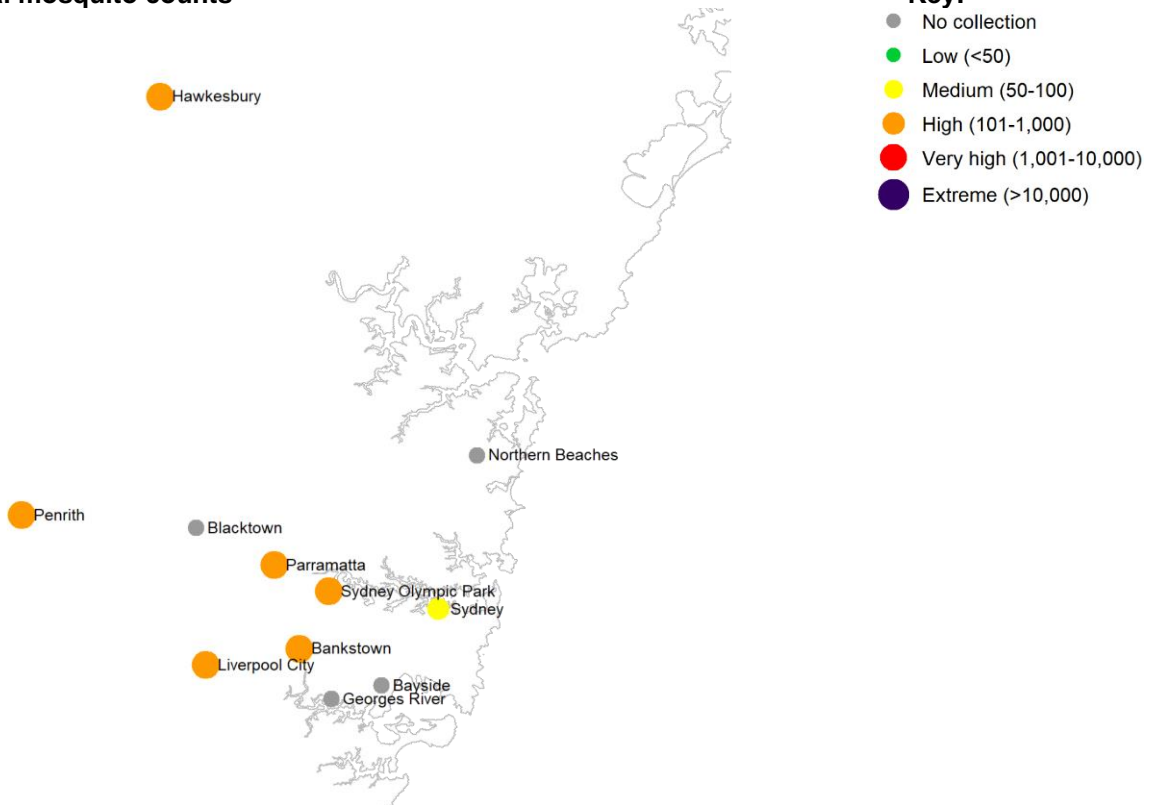


Aedes vigilax counts



Sydney sites

Total mosquito counts



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

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																														
Merimbula	<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>																														
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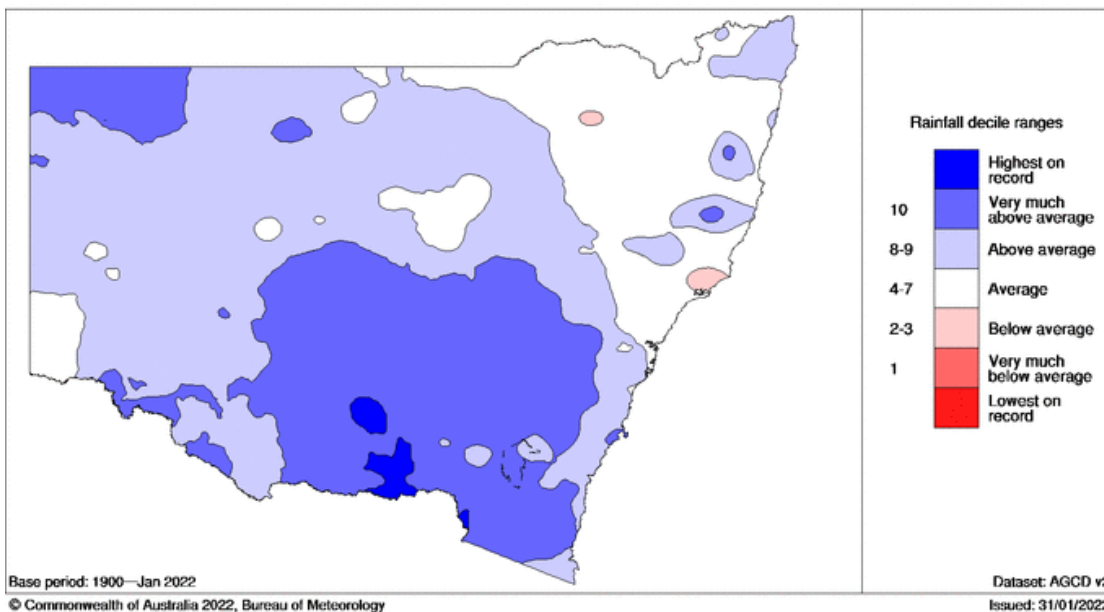
Environmental Conditions

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.

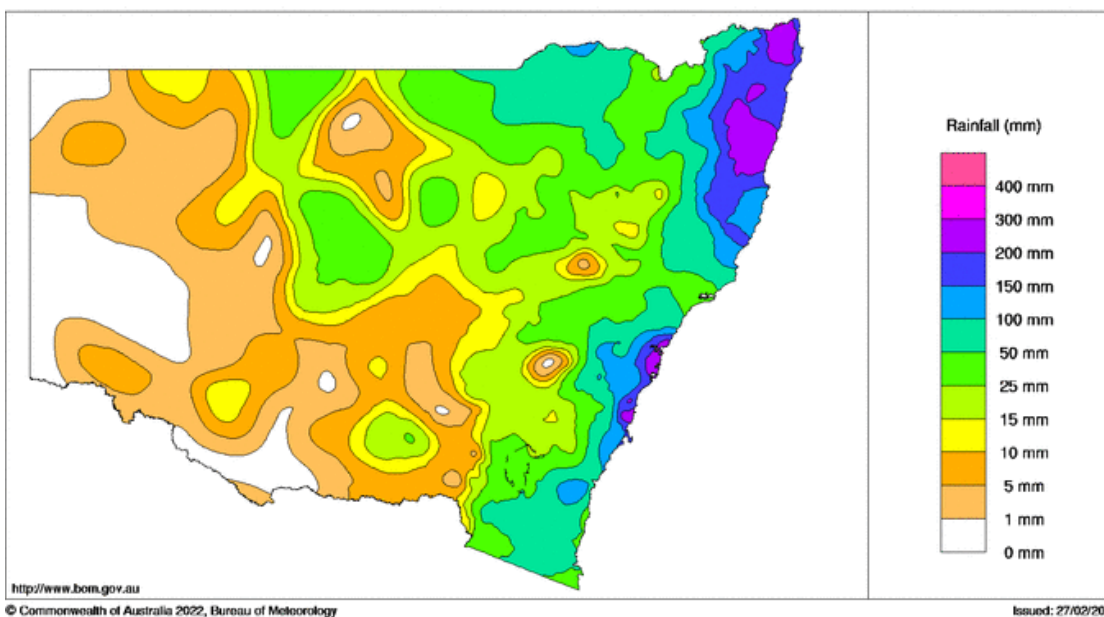
Rainfall

In January, rainfall was above average across most of NSW, with very much above average totals in the south east and near average in the north east. In the week ending 26 February 2022, there was very low rainfall across Far Western NSW, moderate to high rainfall across Eastern NSW, with very high totals in Sydney and the north coast.

New South Wales rainfall deciles January 2022
Australian Gridded Climate Data



New South Wales Rainfall Totals (mm) Week Ending 26th February 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 March.

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 March. Maximum temperatures are likely to exceed the average maximum temperature across most of NSW and be near average in Eastern NSW.

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 February and the coming month

- 28 February – 4 March 2022
- 30 March 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.

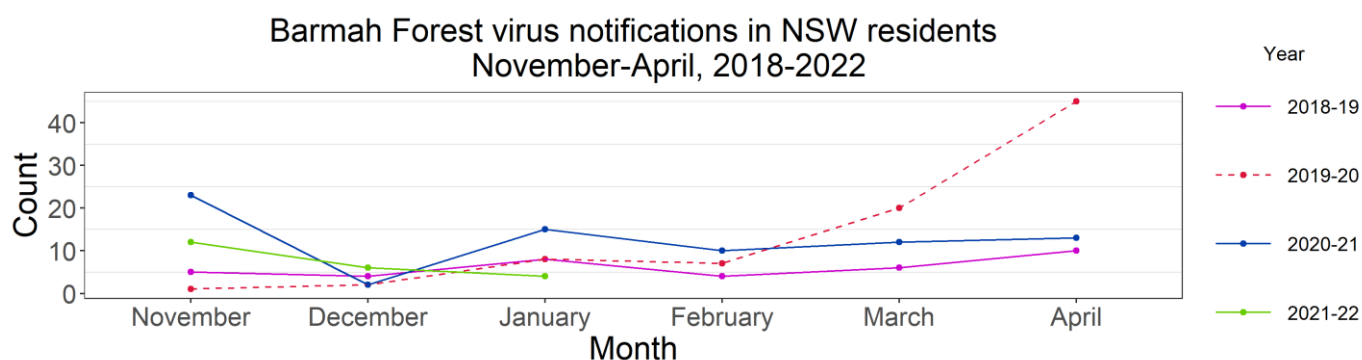
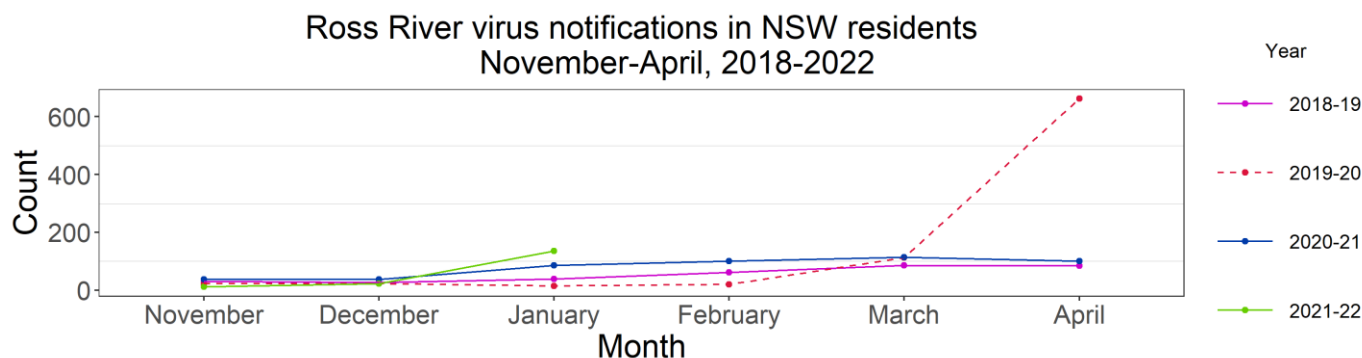
Recent notifications of Ross River virus and Barmah Forest virus infections in humans

(by date of case report received)

	Week		
	Latest week (6 – 12 Feb 2022)	1-week prior (30 Jan – 05 Feb 2022)	2-weeks prior (23 – 29 Jan 2022)
Ross River virus	39	26	29
Barmah Forest virus	1	2	1

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 28 February 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.