

# NSW Arbovirus Surveillance & Mosquito Monitoring 2021-2022

Weekly Update: Week ending 5 March 2022

(Report Number 17)



# Summary

## Arbovirus Detections

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

## Mosquito Abundance

- **Inland:** LOW at Bourke, Leeton, and Albury, MEDIUM at Wagga Wagga, HIGH at Forbes.
- **Coast:** LOW at Lake Cathie and Merimbula, MEDIUM at Port Macquarie.
- **Sydney:** MEDIUM at Sydney, Bayside, Georges River, Penrith, HIGH at Bankstown, Liverpool City, and Paramatta.

## Environmental Conditions

- **Climate:** In the week ending 5 March 2022 there was moderate rain fall across most of NSW, and very high totals across Eastern NSW and the North Coast. Higher rainfall is expected for coastal regions of NSW during April 2022. Higher than usual minimum temperatures are expected across NSW in April and maximum temperatures are likely to be above average in Eastern NSW.
- **Tides:** High tides over 1.8 metres are predicted for 30 March 2022 which could trigger hatching of *Aedes vigilax*.

## Human Arboviral Disease Notifications

- **Ross River Virus:** 16 cases were notified in the week ending 19 February 2022.
- **Barmah Forest Virus:** 0 cases were notified in the week ending 19 February 2022.

## Comments and other findings of note

Very high rainfall has led to flooding along the NSW coast, especially severe in the North. Numerous flood warnings are in place.

Japanese encephalitis virus (JEV) has been detected in a number of piggeries in 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. Two residents of the NSW-Victoria border region have been hospitalised with JEV.

### Weekly reports are available at:

[www.health.nsw.gov.au/environment/pests/vector/Pages/surveillance.aspx](http://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](mailto: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*  
(Copyright 2020)

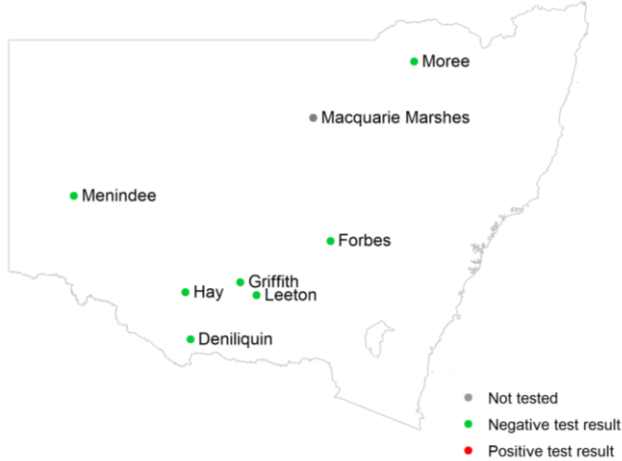
## Arbovirus Detections

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

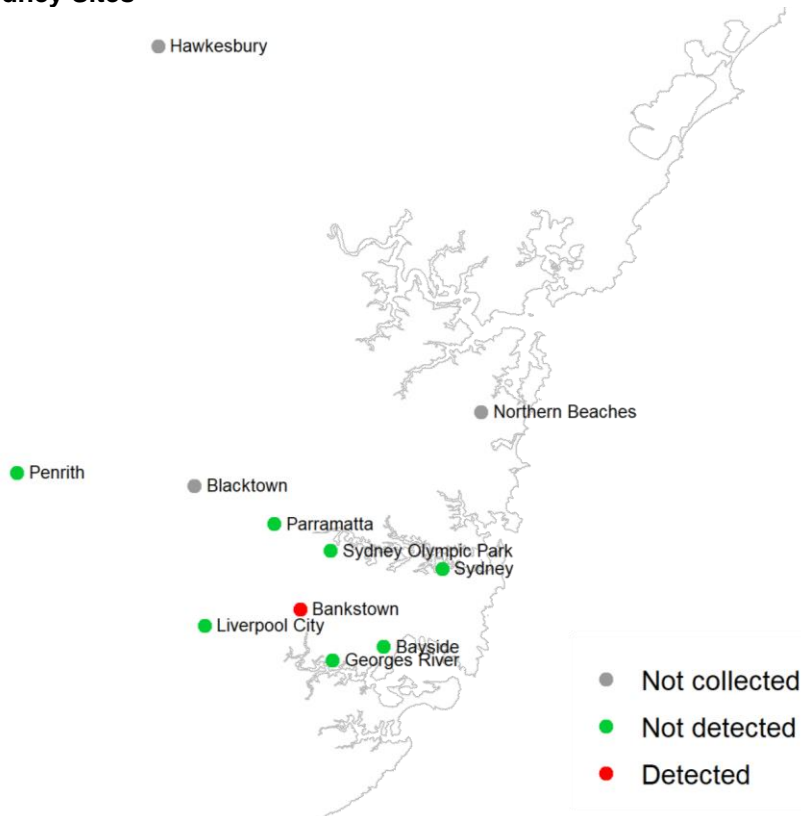
Whole grinds of mosquitoes are tested for arbovirus nucleic acids (including Ross River virus and Barmah Forest virus). There were no detections of Barmah Forest virus among sites that had collected mosquitoes in this reporting week. Ross River virus was detected in mosquitoes collected in Bankstown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

#### Test results for mosquito trapping sites in the latest week to 5 March 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
28/02/2022	Bankstown	Ross River virus
22/02/2022	Liverpool	Ross River virus
21/02/2022	Bankstown	Ross River virus
15/02/2022	Penrith	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.

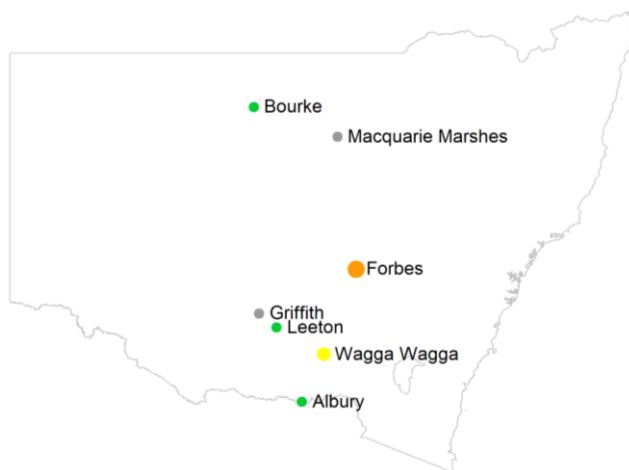
### Mosquito counts (Average per trap per location) in the latest week to 5 March 2022 (by date of report)

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

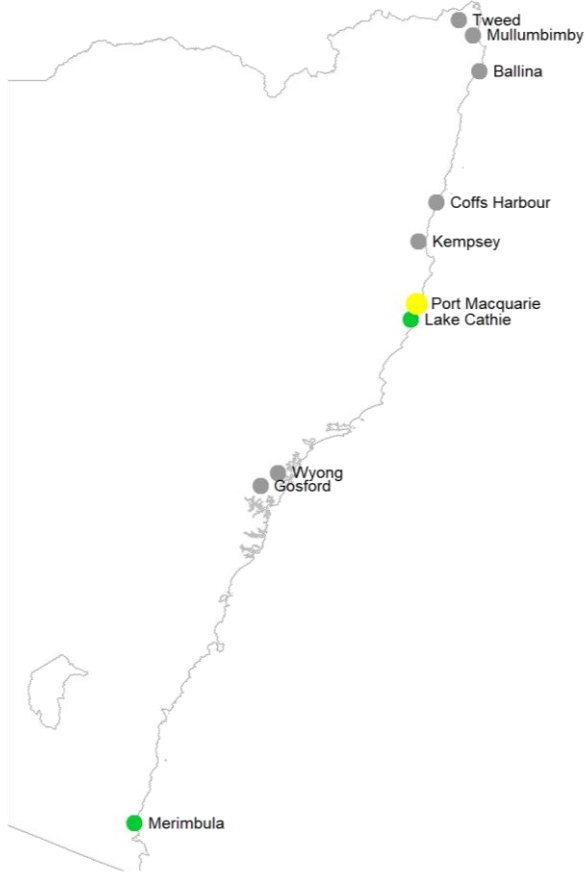


##### *Culex annulirostris* counts



## Coastal sites

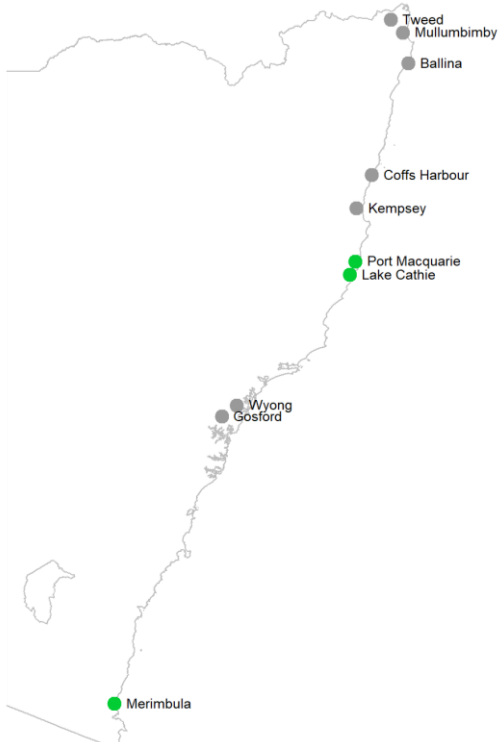
### Total mosquito counts



### Key:

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

### *Culex annulirostris* counts

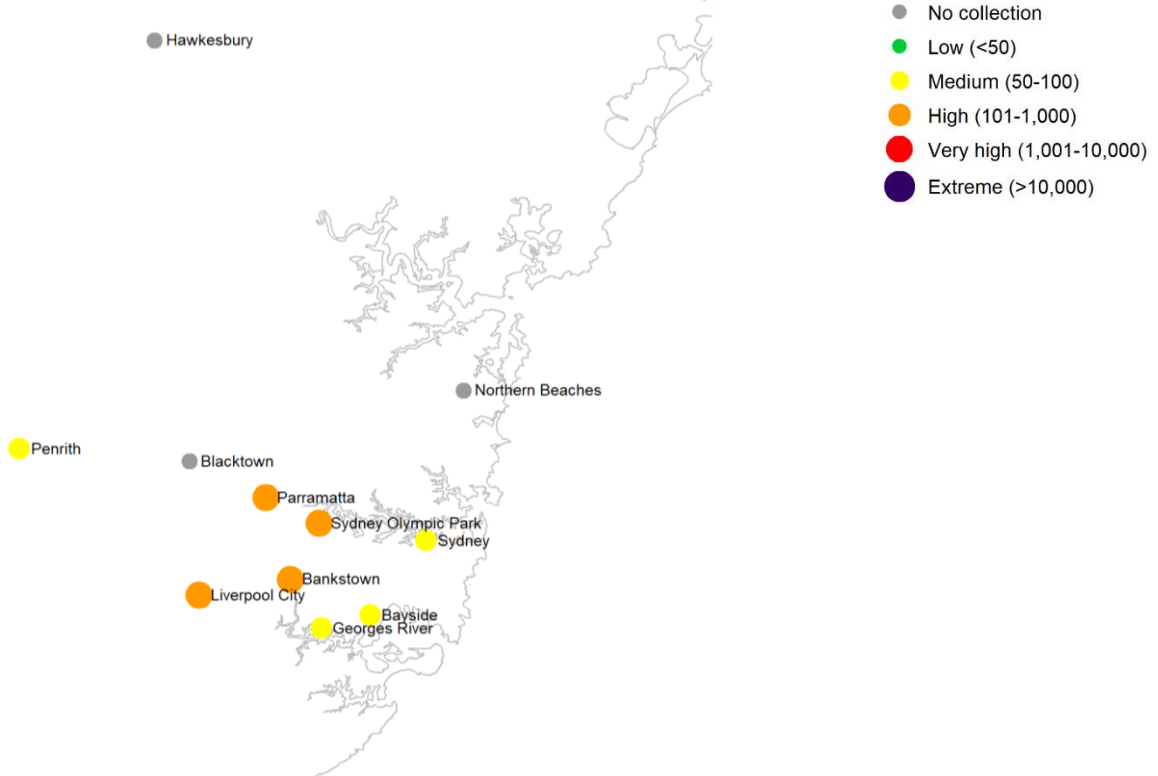


### *Aedes vigilax* counts



## Sydney sites

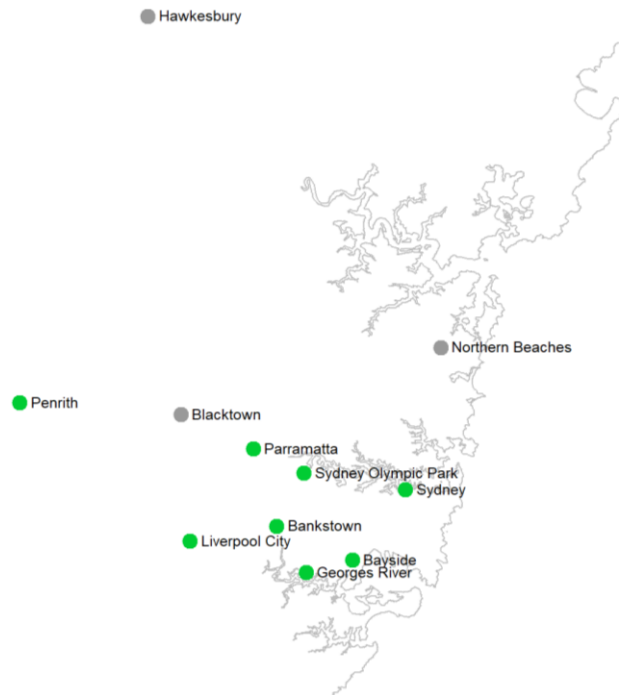
### Total mosquito counts



### *Culex annulirostris* counts

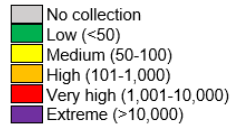


### *Aedes vigilax* counts



## Mosquito abundance data for 2021-22 season to date

### Key:



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		Orange	Orange	Orange	Orange	Green												
	Total	Green	Green	Green	Yellow	Yellow	Green	Orange				Orange	Orange		Orange	Orange	Orange	Orange	Green												
Bourke	<i>Cx. annul</i>				Green			Green	Green		Orange		Green	Green	Green	Green	Green		Green												
	Total				Green			Yellow	Yellow		Orange		Green	Green	Green	Green	Green		Green												
Forbes	<i>Cx. annul</i>	Orange	Orange	Green	Orange	Orange	Orange	Red			Yellow	Red	Red	Orange	Orange	Green	Orange	Orange	Yellow												
	Total	Orange	Orange	Green	Orange	Red	Orange	Red			Yellow	Red	Red	Orange	Orange	Green	Orange	Orange	Yellow												
Griffith	<i>Cx. annul</i>			Green	Orange	Green	Yellow	Red				Orange	Red	Orange		Orange	Red	Yellow													
	Total			Green	Orange	Yellow	Orange	Red				Orange	Red	Red		Orange	Red	Orange													
Leeton	<i>Cx. annul</i>		Green	Green	Green	Green	Yellow				Green	Orange	Orange		Red	Orange	Orange	Orange	Green												
	Total		Yellow	Green	Green	Yellow	Orange				Green	Yellow	Orange		Red	Orange	Orange	Orange	Green												
Macquarie Marshes	<i>Cx. annul</i>							Orange				Green			Green	Green															
	Total							Orange				Green			Green	Green															
Wagga Wagga	<i>Cx. annul</i>	Green	Green	Green	Green	Green	Green	Green				Orange	Orange	Yellow	Yellow	Green	Green	Green	Green												
	Total	Green	Green	Green	Green	Yellow	Orange	Yellow				Orange	Orange	Orange	Orange	Orange	Orange	Green	Yellow												



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

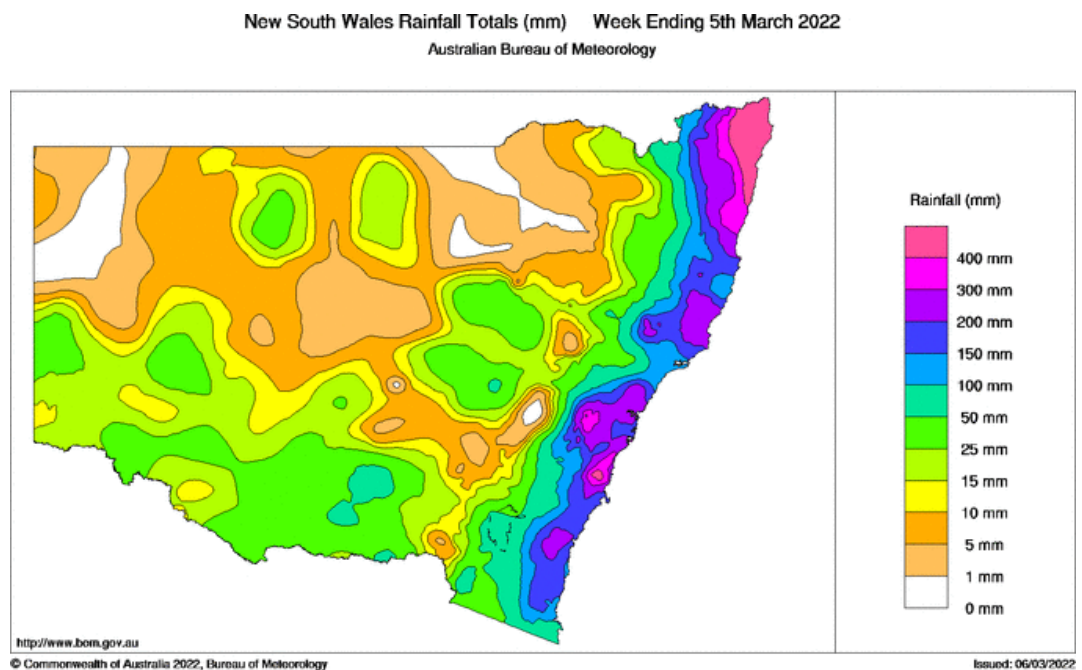
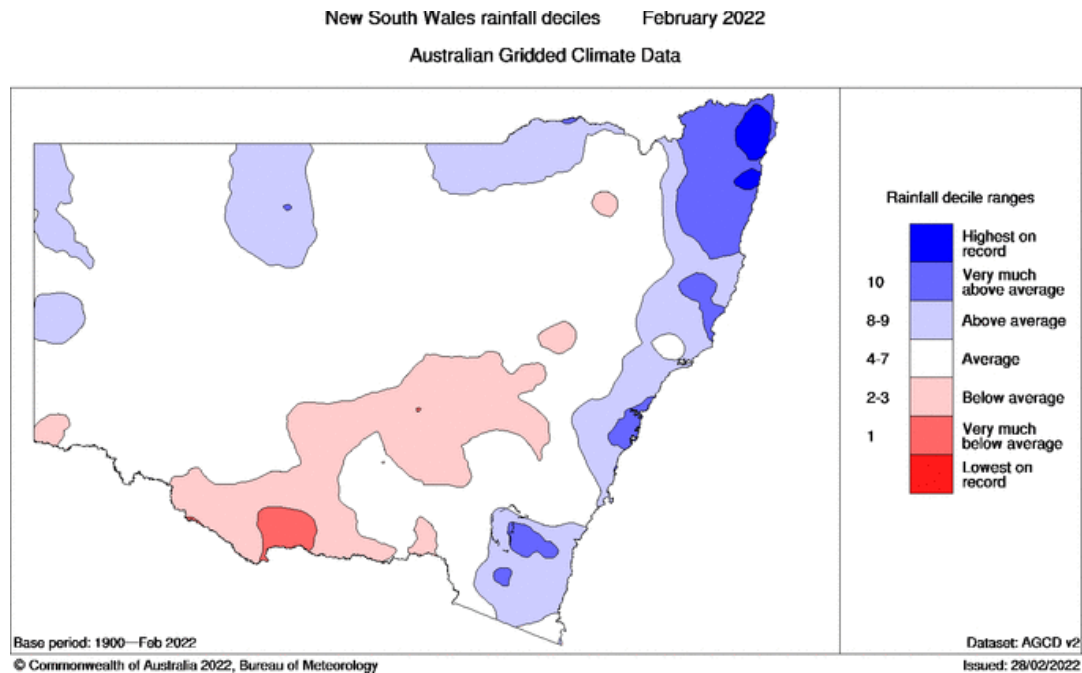
		WEEK ENDING																													
		Nov-21				Dec-21				Jan-22					Feb-22				Mar-22				Apr-22				May-22				
Location	Mosquito	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19	26	5	12	19	26	2	9	16	23	20	7	14	21	28
Bankstown	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	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>																														
	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 February, rainfall was average across most of NSW, with very much above average totals in the North East. In the week ending 5 March 2022, there was moderate rain fall across most of NSW, and very high totals across Eastern NSW and the North Coast.



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 April.

[www.bom.gov.au/climate/outlooks/#/rainfall/median/monthly/0](http://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 April. 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](http://www.bom.gov.au/climate/outlooks/#/temperature/maximum/median/monthly/0)

[www.bom.gov.au/climate/outlooks/#/temperature/minimum/median/monthly/0](http://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 coming month

- 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](http://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.

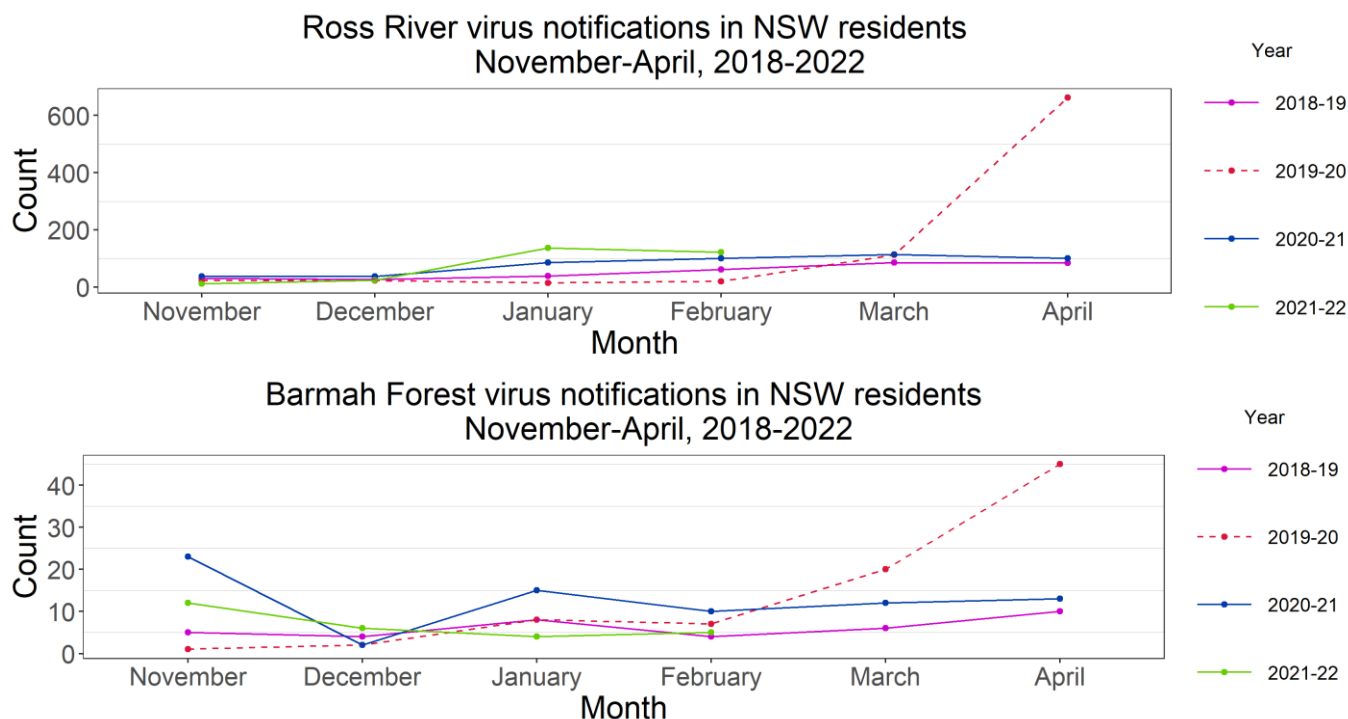
### Recent notifications of Ross River virus and Barmah Forest virus infections in humans

(by date of case report received)

	Week		
	Latest week (13 – 19 Feb 2022)	1-week prior (6 – 12 Feb 2022)	2-weeks prior (30 Jan – 05 Feb 2022)
<b>Ross River virus</b>	16	39	26
<b>Barmah Forest virus</b>	0	1	2

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 7 March 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.