

# NSW Arbovirus Surveillance & Mosquito Monitoring 2020-2021

Weekly Update: Week ending 27 February 2021

(Report Number 16)



# Summary

## Arbovirus Detections

- **Sentinel Chickens:** There were no arbovirus detections in sentinel chickens.
- **Mosquito Isolates:** Barmah Forest virus was detected in the Northern Beaches on 24 February. Ross River virus was detected in Forbes on 23 February.

## Mosquito Abundance

- **Inland:** HIGH at Forbes and Griffith. LOW at Albury, Leeton and Wagga Wagga.
- **Coast:** HIGH at Ballina, Bellingen, Gosford, South West Rocks and Tweed. MEDIUM at Kempsey. LOW at Byron, Narooma, Port Macquarie and Wyong.
- **Sydney:** HIGH at Bankstown, Georges River, Northern Beaches, Penrith, Parramatta and Sydney Olympic Park. LOW at Blacktown, Canada Bay, Hawkesbury, Hills Shire and Liverpool.

## Environmental Conditions

- **Climate:** In the past week there was no rainfall in far west NSW and little to no rainfall in most of central NSW. There was moderate rainfall along most of the east coast, and high rainfall in areas along the north coast. Rainfall is expected to be higher than usual across most of NSW for the remainder of March, especially in some of the inland areas of southern NSW. Rainfall is expected to be around usual across most of NSW in April. Temperatures are likely to be in the usual range across most of NSW for the remainder of March and in April, with less variation than usual.
- **Tides:** High tides over 1.8 metres are predicted to occur between 27-31 March and 2 April, which could trigger hatching of *Aedes vigilax*.

## Human Arboviral Disease Notifications

- **Ross River Virus:** 27 cases were notified in the week ending 13 February 2021.
- **Barmah Forest Virus:** 3 cases were notified in the week ending 13 February 2021.

## Comments and other findings of note

Barmah Forest virus was detected on the coast in the Northern Beaches on 24 February and Ross River virus was detected inland in Forbes on 23 February. Kokobera virus was detected inland in Griffith on 24 February. Human cases of Kokobera virus are notified in NSW under the broader category of Flaviviruses, and infection usually presents as a mild, self-limiting febrile illness. The Sentinel Chicken Surveillance Program has lost its chicken flock at Forbes due to a fox attack. Surveillance will cease at this site for the rest of the season.

**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.

SHPN (HP NSW) 200547

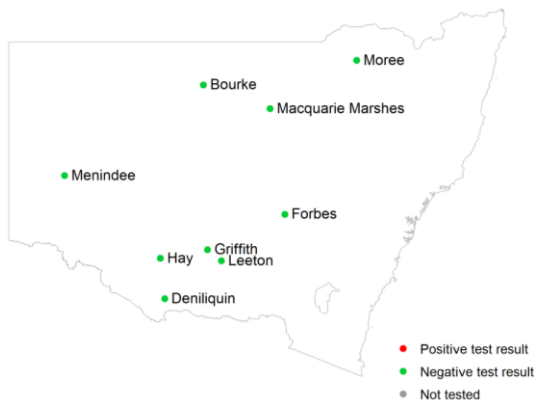
## Arbovirus Detections

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 27 February 2021



#### Positive test results in the 2020-2021 surveillance season

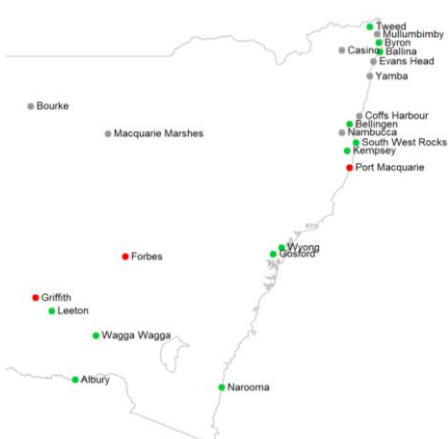
Date of sample collection	Location	Positive test results
There have been no detections in sentinel chickens in the 2020-2021 surveillance season		

### Mosquito isolates

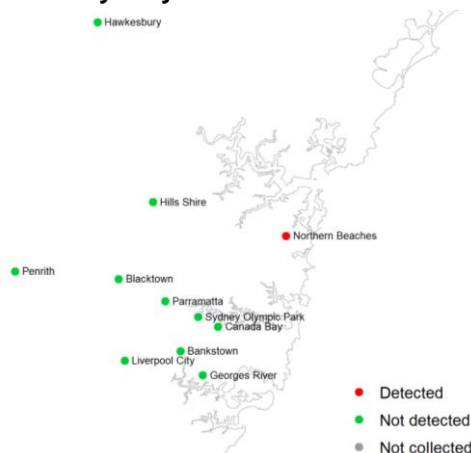
Whole grinds of mosquitoes are tested for arbovirus nucleic acids (including Ross River virus and Barmah Forest virus). Barmah Forest virus was detected in the Northern Beaches on 24 February, and Ross River virus was detected in Forbes on 23 February (details below).

#### Test results for mosquito trapping sites in the week ending 27 February 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
15 February 2021	Port Macquarie	Ross River virus
23 February 2021	Forbes	Ross River virus
24 February 2021	Northern Beaches	Barmah Forest 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.

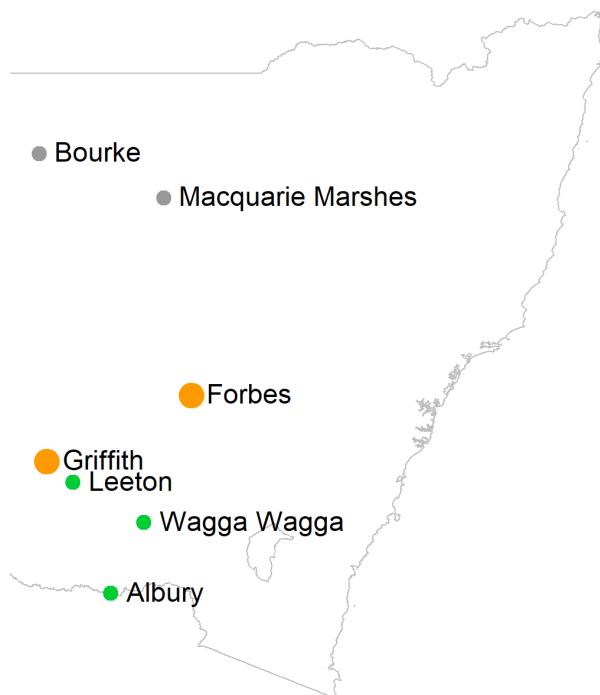
### Mosquito counts in the week ending 27 February 2021

#### Key:

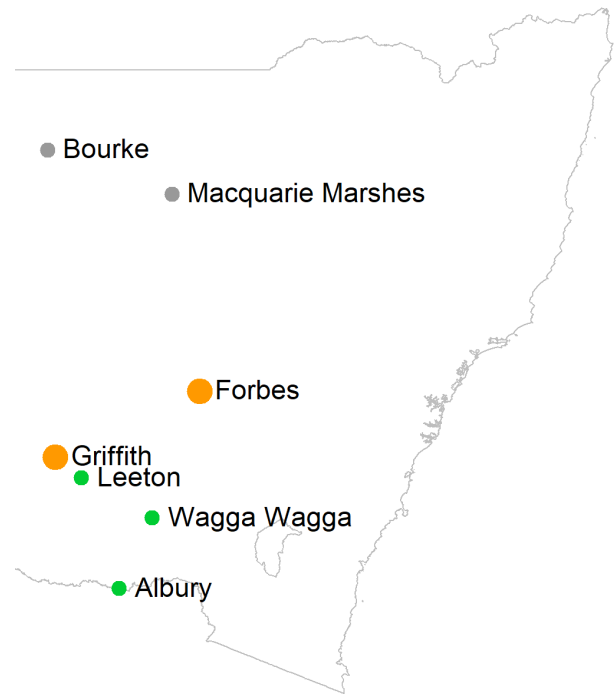
- No collection
- Low (<50)
- Medium (50-100)
- High (101-1,000)
- Very high (1,001-10,000)
- Extreme (>10,000)

#### Inland sites

##### Total mosquito counts

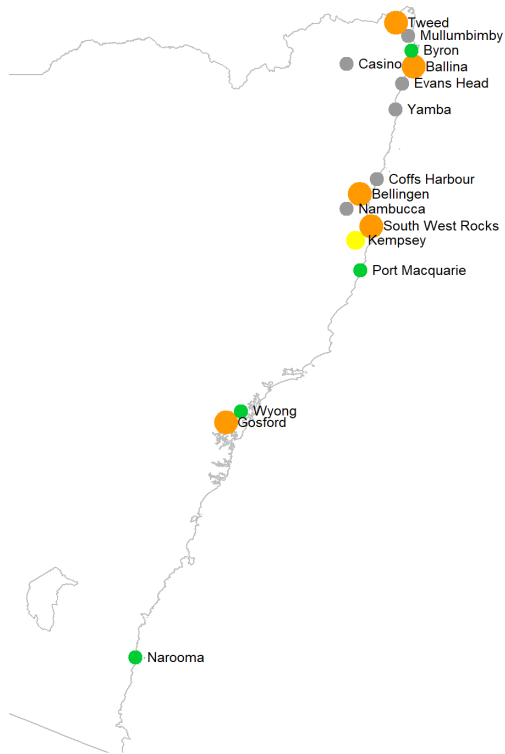


##### *Culex annulirostris* counts



## Coastal sites

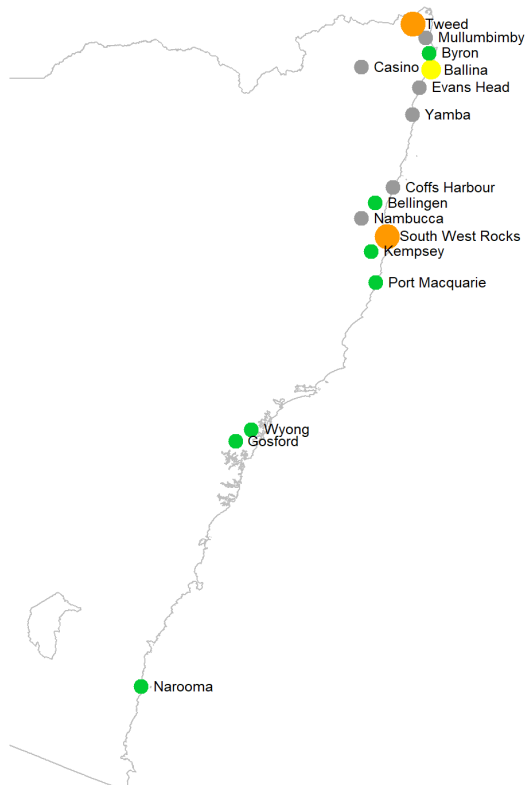
### Total mosquito counts



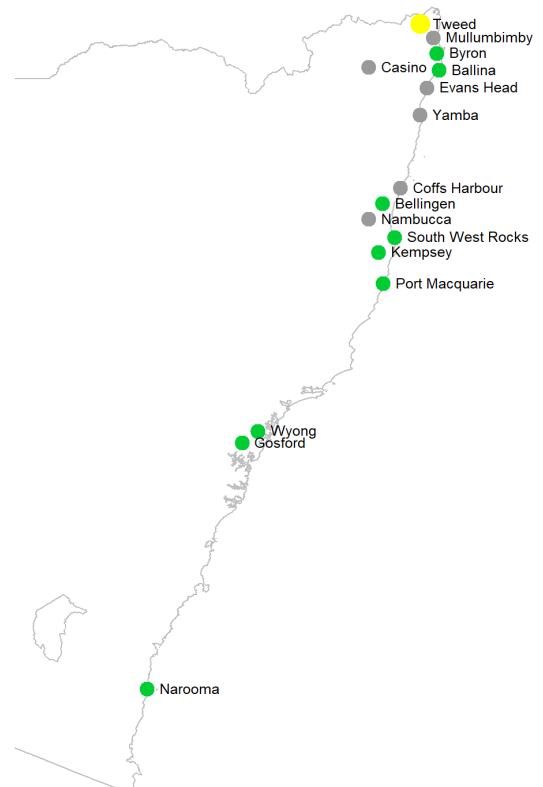
### Key:

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

### *Culex annulirostris* counts

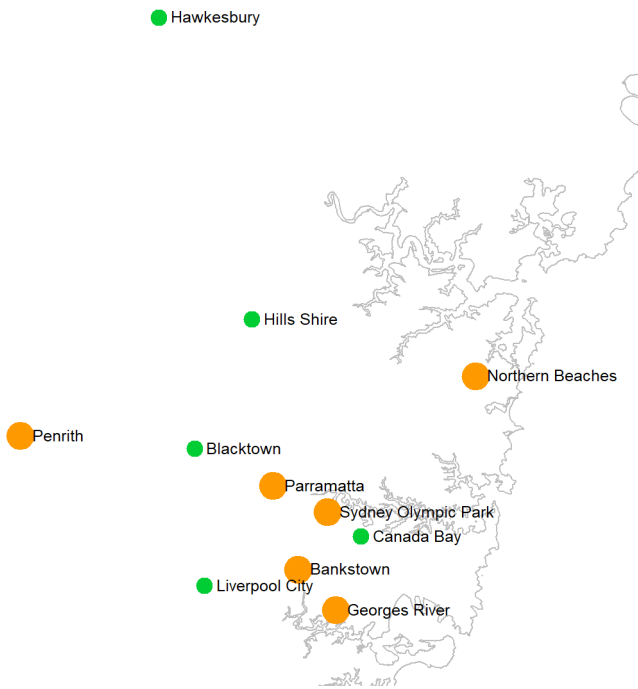


### *Aedes vigilax* counts



## Sydney sites

### Total mosquito counts



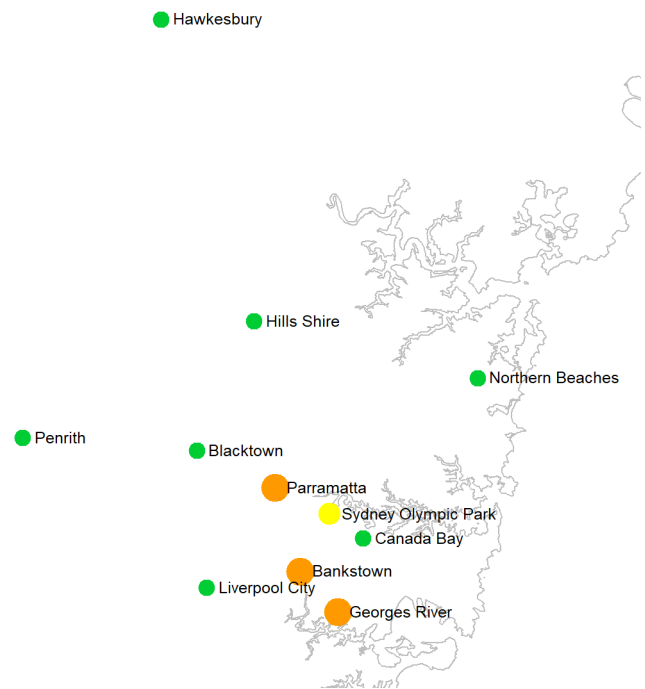
### Key:

- 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

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	27
Albury	<i>Cx. annul</i>	Low	Low	Low	Low	High	Low	High	Low	No collection	Low	High	No collection	No collection	Low	Low	High	Low	No collection	No collection	No collection	No collection
	Total	Low	Low	Medium	Low	High	Low	High	Low	No collection	Low	High	No collection	No collection	Low	Low	High	Low	No collection	No collection	No collection	No collection
Bourke	<i>Cx. annul</i>	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	Low	Low	Low	Low	No collection	No collection	No collection	No collection
	Total	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	Low	Low	Low	Low	No collection	No collection	No collection	No collection
Forbes	<i>Cx. annul</i>	Low	High	No collection	High	Low	High	No collection	High	No collection	No collection	Low	High	High	High	High	High	High	No collection	No collection	No collection	No collection
	Total	High	High	No collection	High	Low	High	No collection	High	No collection	No collection	Low	High	High	High	High	High	High	No collection	No collection	No collection	No collection
Griffith	<i>Cx. annul</i>	High	Low	High	High	High	Very high	Very high	No collection	No collection	No collection	High	High	No collection	High	High	High	High	No collection	No collection	No collection	No collection
	Total	High	Low	High	High	High	Very high	Very high	No collection	No collection	No collection	High	High	No collection	High	High	High	High	No collection	No collection	No collection	No collection
Leeton	<i>Cx. annul</i>	Low	Low	Low	No collection	Low	Low	Low	Low	No collection	Low	No collection	No collection	No collection	Low	No collection	High	Low	No collection	No collection	No collection	No collection
	Total	Low	Low	Medium	No collection	Low	Low	Low	Low	No collection	Low	No collection	No collection	No collection	Low	No collection	High	Low	No collection	No collection	No collection	No collection
Macquarie Marshes	<i>Cx. annul</i>	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	High	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection
	Total	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	High	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection	No collection
Wagga Wagga	<i>Cx. annul</i>	Low	Low	Low	Low	Low	Low	No collection	No collection	Low	Low	No collection	No collection	No collection	Low	High	Low	Low	No collection	No collection	No collection	No collection
	Total	Low	Low	Low	Low	Low	Low	No collection	No collection	Low	Low	No collection	No collection	No collection	Low	High	Low	Low	No collection	No collection	No collection	No collection

# 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																					
Bellingen	<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																					
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																					
Yamba	<i>Cx. annul</i>																					
	<i>Ae. vigilax</i>																					
	Total																					
Narooma	<i>Cx. annul</i>																					
	<i>Ae. vigilax</i>																					
	Total																					
Casino	<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																						

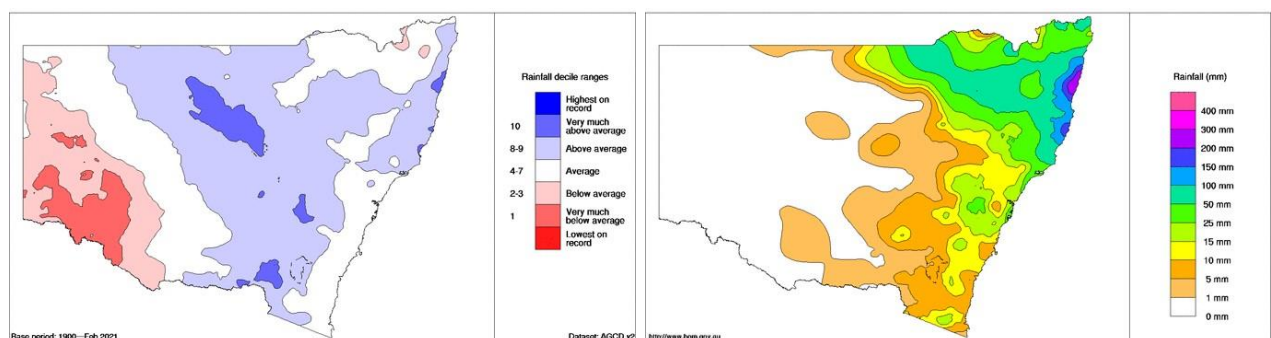
## Environmental Conditions

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 February, rainfall was higher than usual across most of central and northeastern NSW. Rainfall was lower than usual in far western and southwestern NSW. Rainfall was usual in coastal NSW south of Newcastle (left). In the week ending 27 February 2021, there was no rainfall in far west NSW and little to no rainfall in most of central NSW. There was moderate rainfall along most of the east coast, and high rainfall in areas along the north coast (right).

Source: Australian Government, Bureau of Meteorology: <http://www.bom.gov.au/climate/maps/rainfall>



### Upcoming month's rainfall and temperature outlook

The Bureau of Meteorology's rainfall outlook map predicts higher than usual rainfall across most of NSW for the remainder of March, especially in some of the inland areas of southern NSW. Rainfall is expected to be around usual across most of NSW in 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 predicts that maximum temperatures are likely to be lower than usual across most of NSW for the remainder of March and in April. Minimum temperatures are likely to be above usual across most of NSW in March and April.

[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 next month

- 27-31 March 2021
- 2 April 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](http://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)

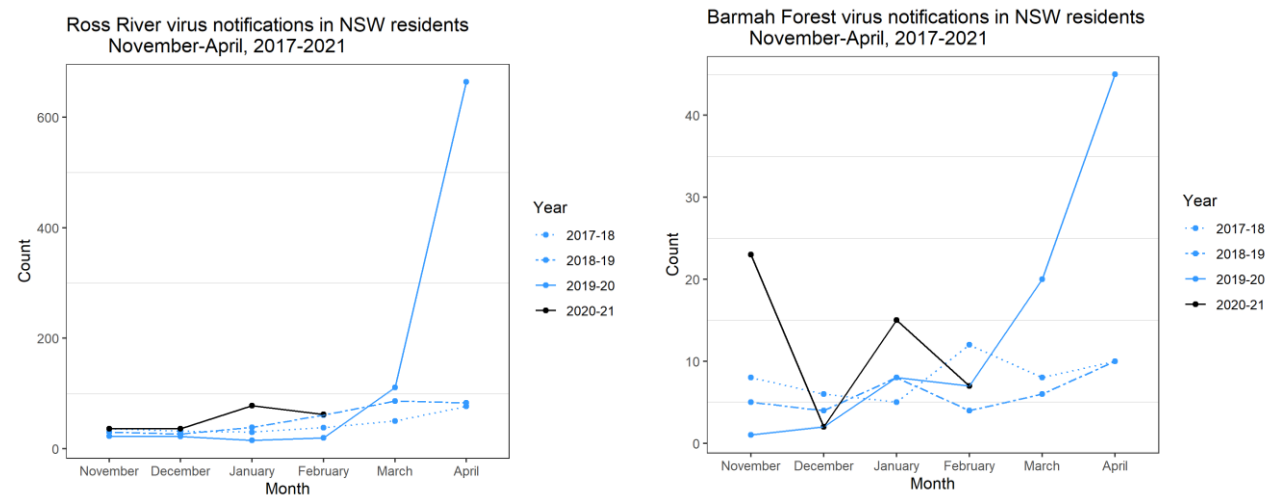
	Week		
	Latest week (7-13 Feb 2021)	1-week prior (31 Jan – 6 Feb 2021)	2-weeks prior (24-30 Jan 2021)
<b>Ross River virus</b>	27	21	15
<b>Barmah Forest virus</b>	3	5	2

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 1 March 2021).