NSW Arbovirus Surveillance & Mosquito Monitoring 2020-2021

Weekly Update: Week ending 13 March 2021

(Report Number 18)

NSW GOVERNMENT

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

Environmental Conditions

- **Climate:** In the past week there was low to moderate rainfall in central and western NSW. There was moderate rainfall in coastal NSW. Rainfall is expected to be higher than usual across most of NSW for the remainder of March, especially in northern and coastal NSW. Rainfall is expected to be slightly higher than usual across most of NSW in April. Temperatures are likely to be lower than usual across most of NSW for the remainder of March. Temperatures are likely to be in the usual range in April, with less variation than usual.
- **Tides:** High tides over 1.8 metres are predicted to occur between 27-31 March, 2 April and between 26-30 April, which could trigger hatching of *Aedes vigilax.*

Human Arboviral Disease Notifications

- **Ross River Virus:** 16 cases were notified in the week ending 27 February 2021.
- **Barmah Forest Virus:** 3 cases were notified in the week ending 27 February 2021.

Comments and other findings of note

Edge Hill virus was detected on the Central Coast on 2 March and 10 March.

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.

SHPN (HP NSW) 200547

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

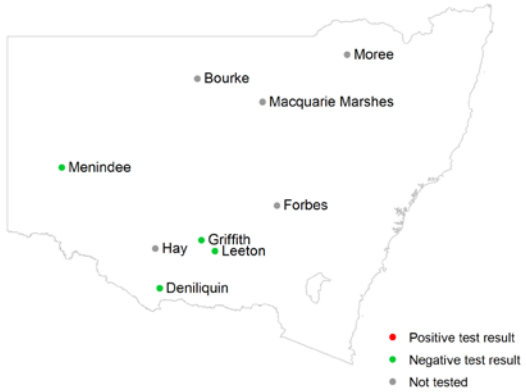
Arbovirus Detections

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 13 March 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		

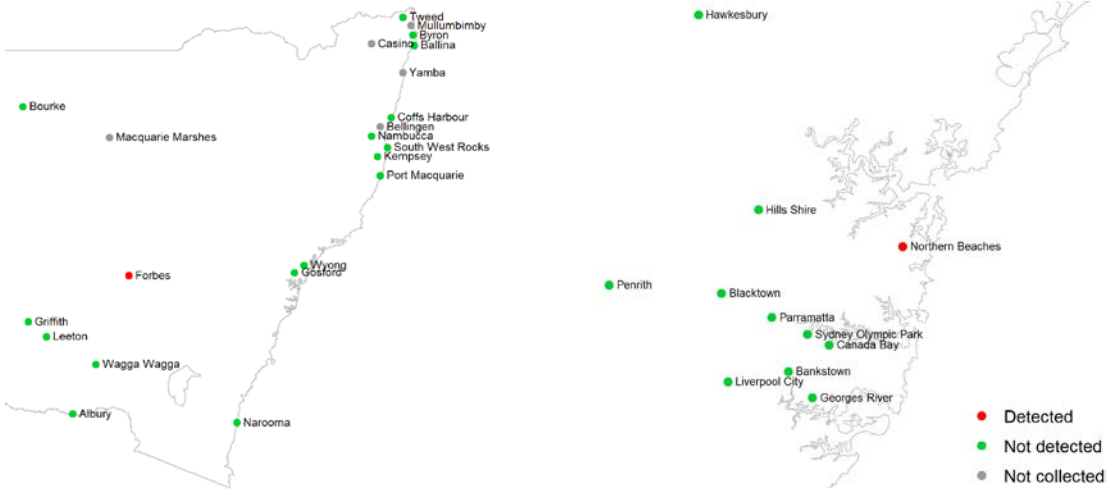
Mosquito isolates

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 13 March 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
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.

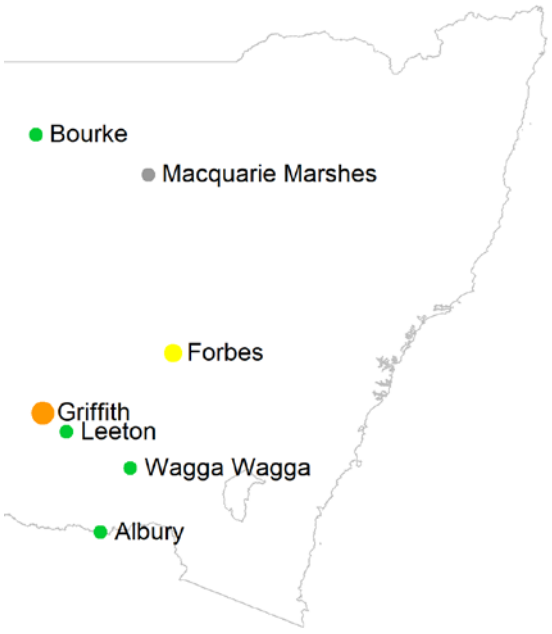
Mosquito counts in the week ending 13 March 2021

Key:

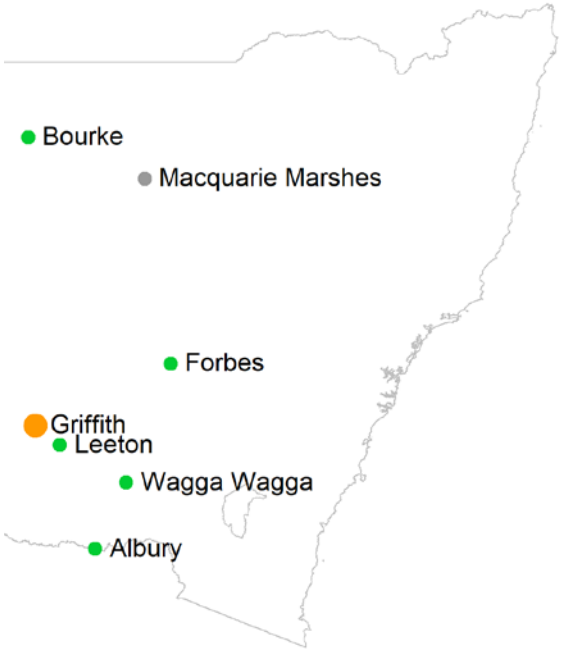
- No collection
- Low (<50)
- Medium (50-100)
- High (101-1,000)
- Very high (1,001-10,000)
- Extreme (>10,000)

Inland sites

Total mosquito counts

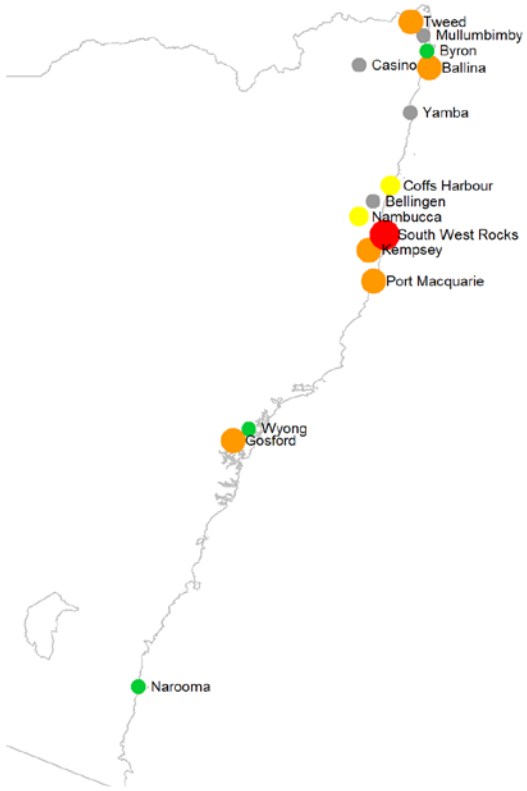


***Culex annulirostris* counts**



Coastal sites

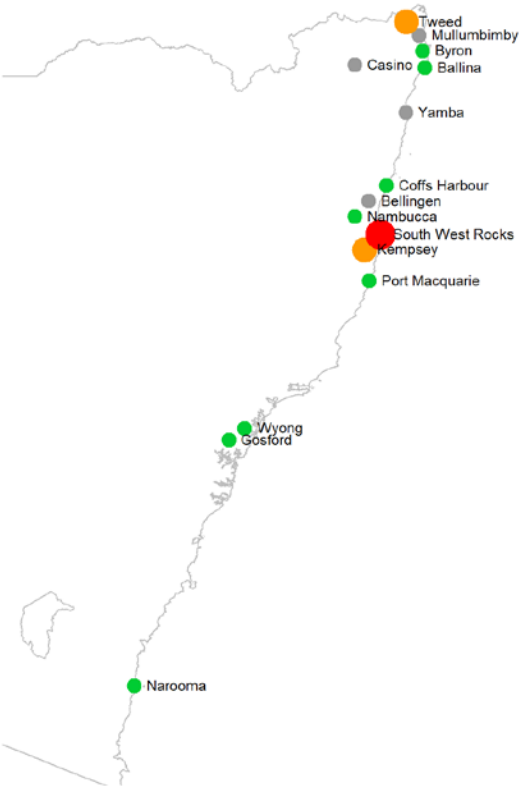
Total mosquito counts



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

Culex annulirostris counts

Aedes vigilax counts

Mosquito abundance data for 2020-21 season to date

Key:

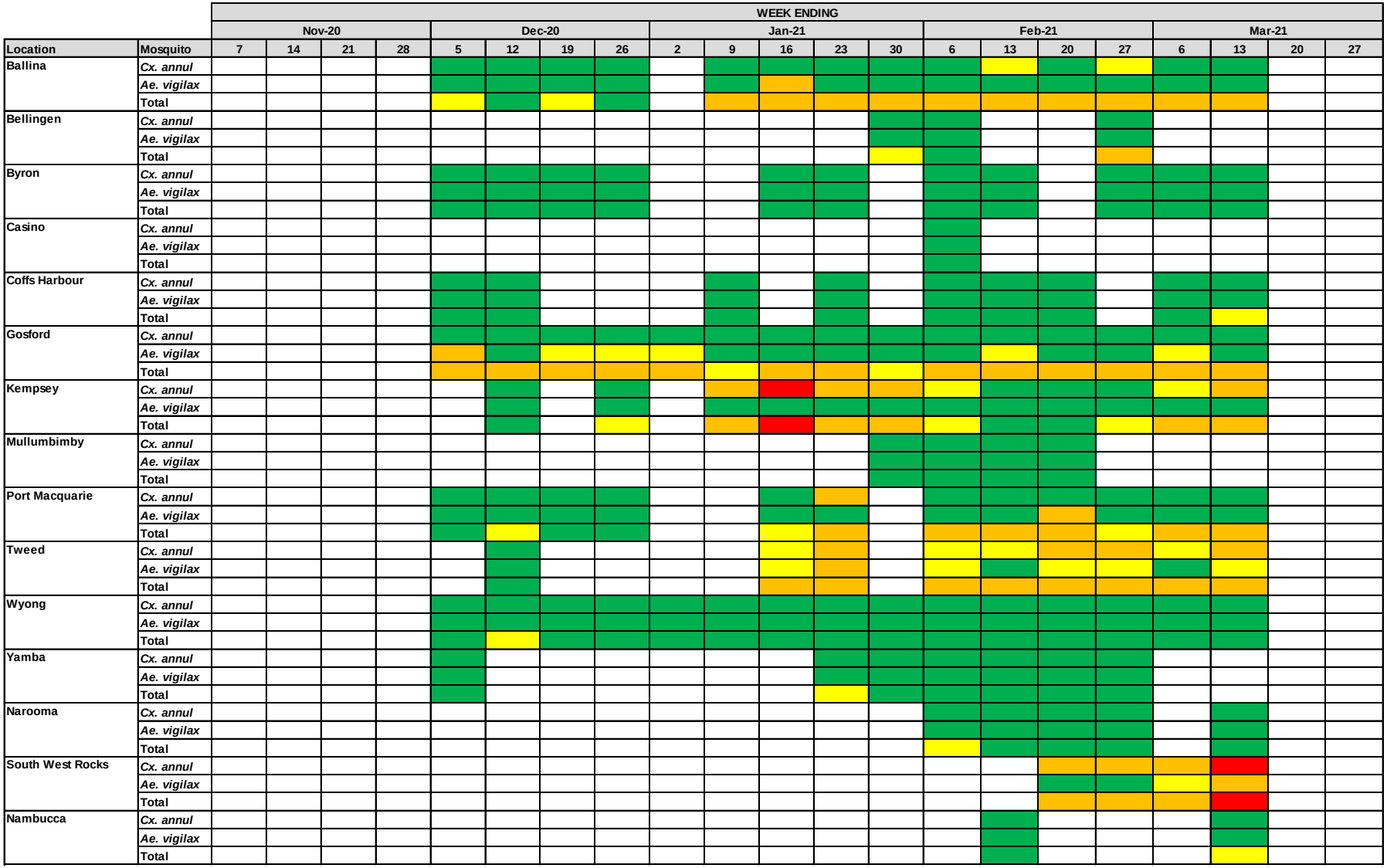
No collection
Low (<50)
Medium (50-100)
High (101-1,000)
Very high (1,001-10,000)
Extreme (>10,000)

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	*Cx. annul*																						
	Total																						
Bourke	*Cx. annul*																						
	Total																						
Forbes	*Cx. annul*																						
	Total																						
Griffith	*Cx. annul*																						
	Total																						
Leeton	*Cx. annul*																						
	Total																						
Macquarie Marshes	*Cx. annul*																						
	Total																						
Wagga Wagga	*Cx. annul*																						
	Total																						

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
Cx. annul
Ae. vigilax
Total
Bellingen
Cx. annul
Ae. vigilax
Total
Byron
Cx. annul
Ae. vigilax
Total
Casino
Cx. annul
Ae. vigilax
Total
Coffs Harbour
Cx. annul
Ae. vigilax
Total
Gosford
Cx. annul
Ae. vigilax
Total
Kempsey
Cx. annul
Ae. vigilax
Total
Mullumbimby
Cx. annul
Ae. vigilax
Total
Port Macquarie
Cx. annul
Ae. vigilax
Total
Tweed
Cx. annul
Ae. vigilax
Total
Wyong
Cx. annul
Ae. vigilax
Total
Yamba
Cx. annul
Ae. vigilax
Total
Narooma
Cx. annul
Ae. vigilax
Total
South West Rocks
Cx. annul
Ae. vigilax
Total
Nambucca
Cx. annul
Ae. vigilax
Total

Sydney

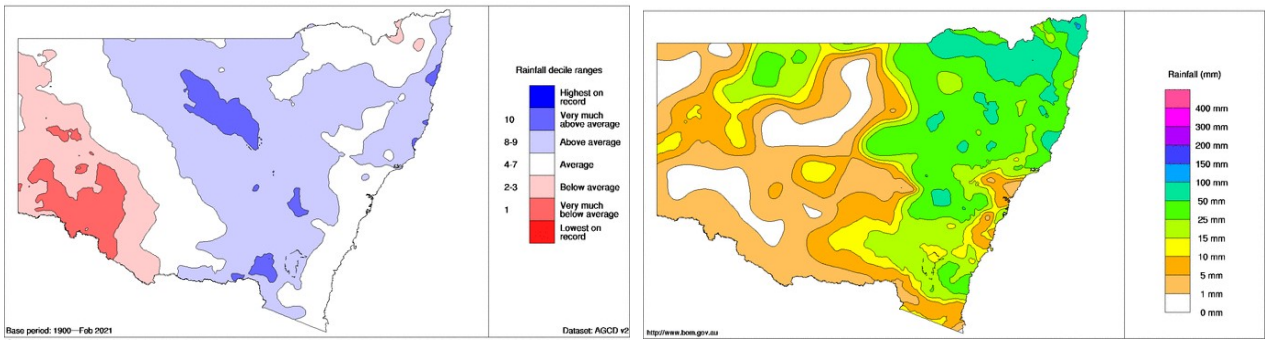
		WEEK ENDING																			
		Nov-20				Dec-20				Jan-21					Feb-21				Mar-21			
Location	Mosquito	7	14	21	28	5	12	19	26	2	9	16	23	30	6	13	20	27	6	13	20	27
Bankstown	*Cx. annul*																					
	Ae. vigilax																					
	Total																					
Blacktown	*Cx. annul*																					
	Ae. vigilax																					
	Total																					
Canada Bay	*Cx. annul*																					
	Ae. vigilax																					
	Total																					
Georges River	*Cx. annul*																					
	Ae. vigilax																					
	Total																					
Hawkesbury	*Cx. annul*																					
	Ae. vigilax																					
	Total																					
Hills Shire	*Cx. annul*																					
	Ae. vigilax																					
	Total																					
Liverpool City	*Cx. annul*																					
	Ae. vigilax																					
	Total																					
Northern Beaches	*Cx. annul*																					
	Ae. vigilax																					
	Total																					
Parramatta	*Cx. annul*																					
	Ae. vigilax																					
	Total																					
Penrith	*Cx. annul*																					
	Ae. vigilax																					
	Total																					
Sydney Olympic Park	*Cx. annul*																					
	Ae. vigilax																					
	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 13 March 2021, there was low to moderate rainfall in central and western NSW. There was moderate rainfall in coastal NSW (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 northern and coastal NSW. Rainfall is expected to be slightly higher than usual across most of NSW in April.
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 around usual across most of NSW in March and above usual in central and coastal NSW in April.
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

- 27-31 March 2021
- 2 April 2021
- 26-30 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) 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.

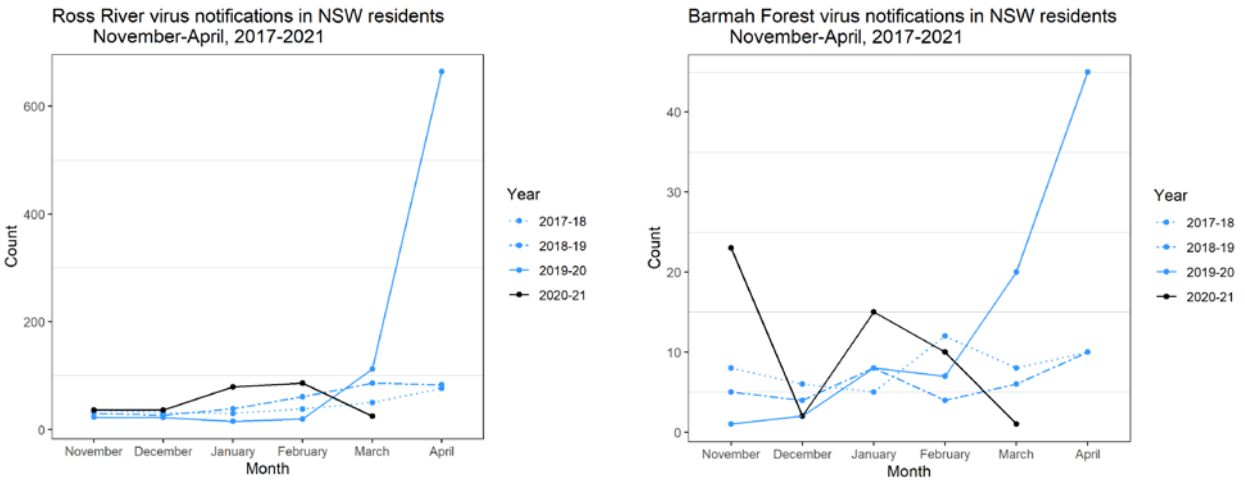
Recent notifications of Ross River virus and Barmah Forest virus in humans
(by date of case report received)

	Week		
	Latest week (21 - 27 Feb 2021)	**1-week prior (14 – 20 Feb 2021)**	**2-weeks prior (7 - 13 Feb 2021)**
Ross River virus	16	14	27
Barmah Forest virus	3	0	3

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 15 March 2021).