

NSW Arbovirus Surveillance & Mosquito Monitoring 2020-2021

Weekly Update: Week ending 20 March 2021

(Report Number 19)



Summary

Arbovirus Detections

- **Sentinel Chickens:** There were no arbovirus detections in sentinel chickens.
- **Mosquito Isolates:** Ross River virus was detected in Clarence Valley (Yamba) on 17 March 2021.

Mosquito Abundance

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

Environmental Conditions

- **Climate:** In the past week there was heavy rainfall in coastal NSW, especially in areas along the north coast. There was moderate rainfall in central NSW. There was low to moderate rainfall in western NSW. Rainfall is expected to be higher than usual across most of NSW for the remainder of March, especially in central 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 6 March 2021.
- **Barmah Forest Virus:** 1 case was notified in the week ending 6 March 2021.

Comments and other findings of note

Edge Hill virus was detected on the Central Coast on 2 March and 10 March. Edge Hill virus and Ross River virus were both detected on the coast at Clarence Valley (Yamba) on 17 March 2021.

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.

SHPN (HP NSW) 200547

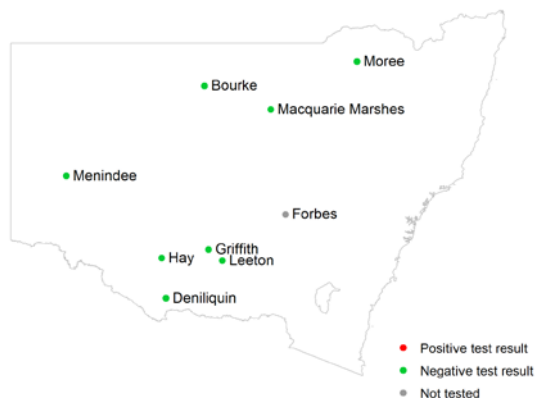
Arbovirus Detections

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 20 March 2021



Positive test results in the 2020-2021 surveillance season

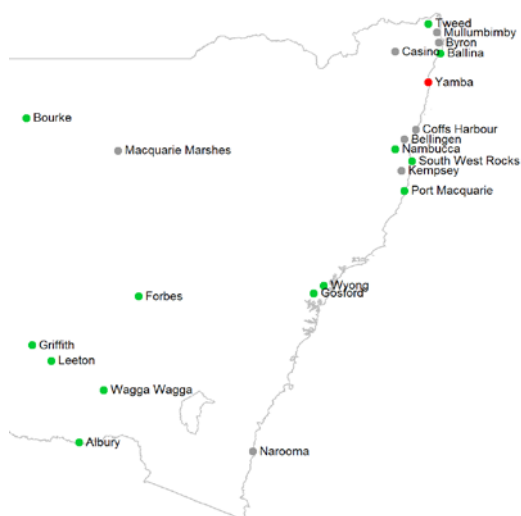
Date of sample collection	Location	Positive test results
There have been no detections in sentinel chickens in the 2020-2021 surveillance season		

Mosquito isolates

Whole grinds of mosquitoes are tested for arbovirus nucleic acids (including Ross River virus and Barmah Forest virus). Ross River virus was detected in Clarence Valley (Yamba) on 17 March 2021 (details below).

Test results for mosquito trapping sites in the week ending 20 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
17 March 2021	Clarence Valley (Yamba)	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 specimens collected in the current reporting week.

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

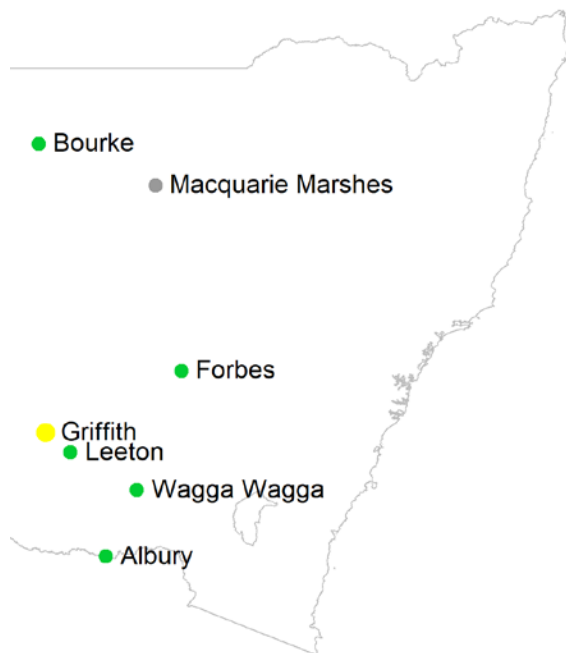
Mosquito counts in the week ending 20 March 2021

Key:

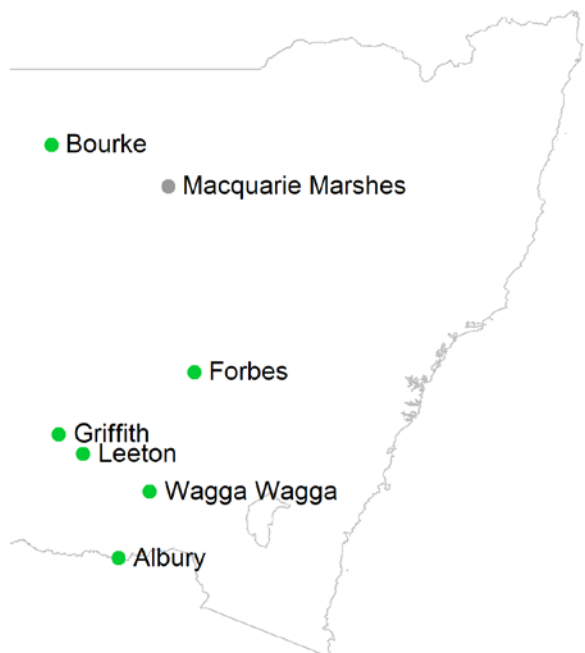
- No collection
- Low (<50)
- Medium (50-100)
- High (101-1,000)
- Very high (1,001-10,000)
- Extreme (>10,000)

Inland sites

Total mosquito counts

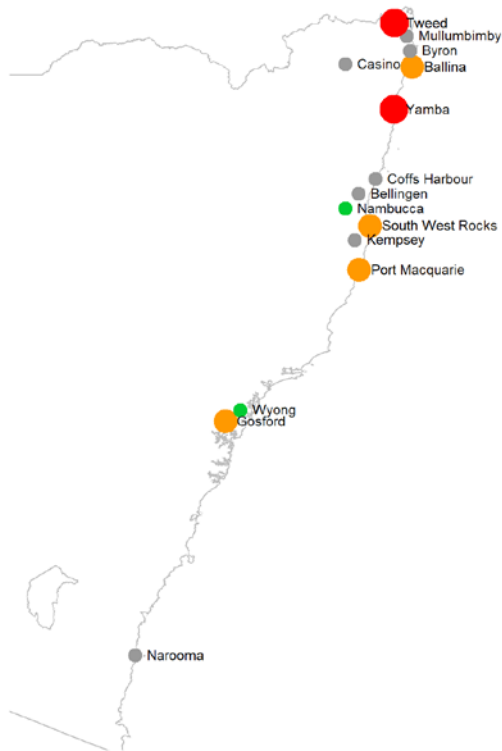


Culex annulirostris counts



Coastal sites

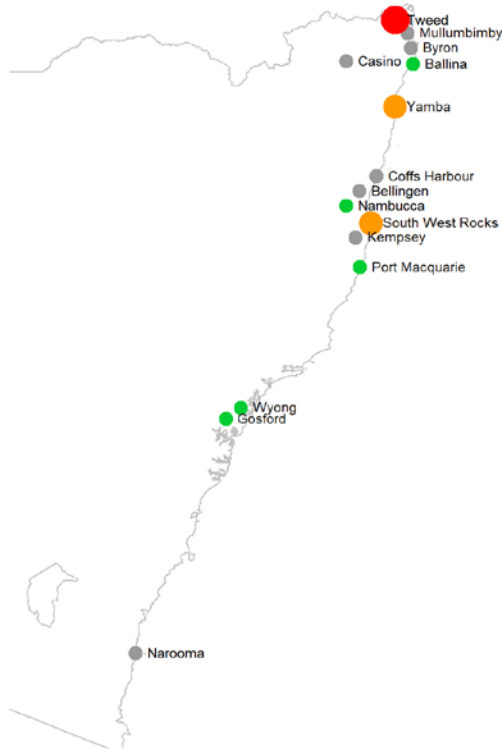
Total mosquito counts



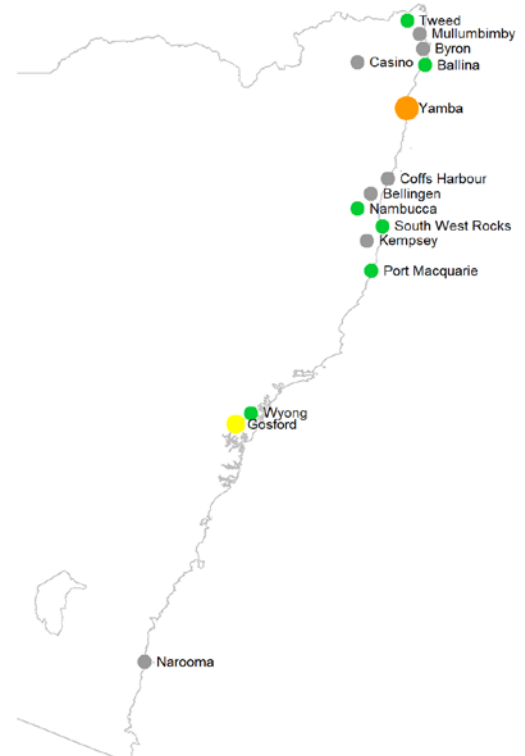
Key:

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

Culex annulirostris counts

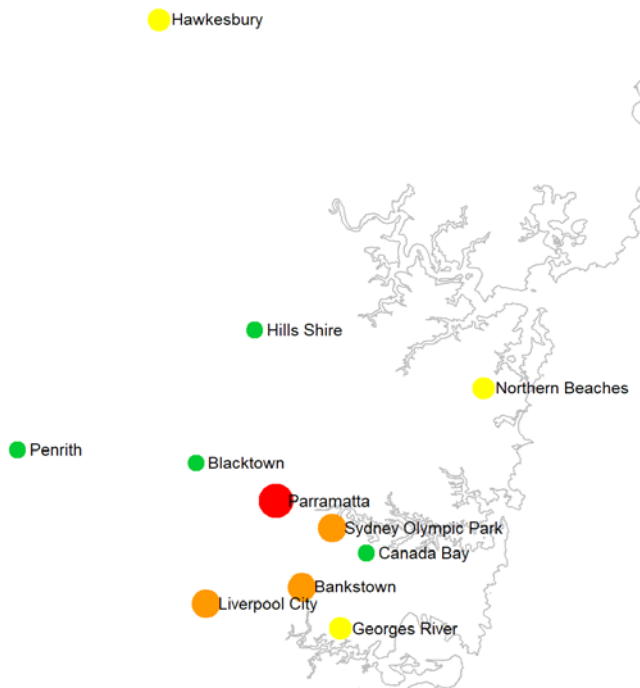


Aedes vigilax counts



Sydney sites

Total mosquito counts



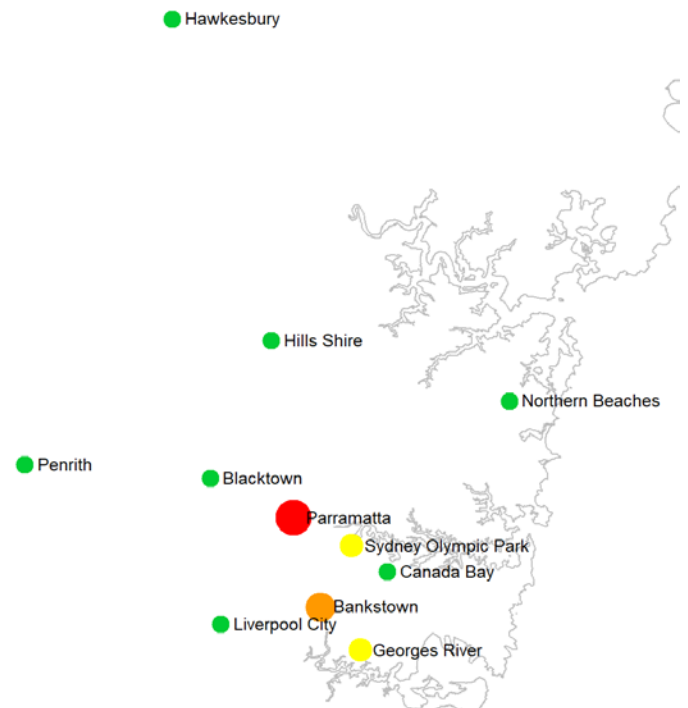
Key:

- 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

		WEEK ENDING																													
		Nov-20				Dec-20				Jan-21					Feb-21				Mar-21				Apr-21				May-21				
Location	Mosquito	7	14	21	28	5	12	19	26	2	9	16	23	30	6	13	20	27	6	13	20	27	3	10	17	24	1	8	15	22	29
Albury	<i>Cx. annul</i>	Green	Green	Green	Green	Yellow	Green	Yellow	Green		Green	Orange	Yellow		Green	Green	Yellow	Green	Yellow	Green	Green										
	Total	Green	Green	Yellow	Green	Yellow	Green	Yellow	Green		Yellow	Orange	Yellow		Green	Green	Orange	Green	Yellow	Green	Green										
Bourke	<i>Cx. annul</i>					Green	Green					Green	Green	Green	Green	Green	Green		Green	Green											
	Total					Green	Green					Green	Green	Green	Green	Green	Green		Green	Green											
Forbes	<i>Cx. annul</i>	Green	Orange		Orange	Green	Orange	Orange	Orange	Orange	Red	Green	Orange	Green	Orange	Orange	Orange	Orange	Green	Green	Green										
	Total	Orange	Orange		Orange	Green	Orange	Orange	Orange	Orange	Red	Green	Orange	Yellow	Orange	Orange	Orange	Orange	Yellow	Yellow	Green										
Griffith	<i>Cx. annul</i>		Yellow	Green	Orange	Orange	Red	Red				Orange	Red	Orange	Orange	Orange	Orange	Orange		Orange	Green										
	Total		Orange	Orange	Orange	Orange	Red	Red				Orange	Red	Red	Red	Red	Orange	Orange		Orange	Yellow										
Leeton	<i>Cx. annul</i>	Green	Green	Green		Green	Green	Green		Green					Green		Yellow	Green	Green	Green	Green										
	Total	Green	Green	Yellow		Green	Green	Green		Green					Green		Orange	Green	Green	Green	Green										
Macquarie Marshes	<i>Cx. annul</i>											Orange																			
	Total											Orange																			
Wagga Wagga	<i>Cx. annul</i>	Green	Green	Green		Green	Green				Green	Green			Green	Yellow	Green	Green	Green	Green	Green										
	Total	Green	Green	Green		Green	Green				Yellow	Green			Green	Yellow	Yellow	Green	Green	Green	Green										

Coastal

		WEEK ENDING																													
		Nov-20				Dec-20				Jan-21					Feb-21				Mar-21				Apr-21				May-21				
Location	Mosquito	7	14	21	28	5	12	19	26	2	9	16	23	30	6	13	20	27	6	13	20	27	3	10	17	24	1	8	15	22	29
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																														
Casino	<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																														
South West Rocks	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Nambucca	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														

Sydney

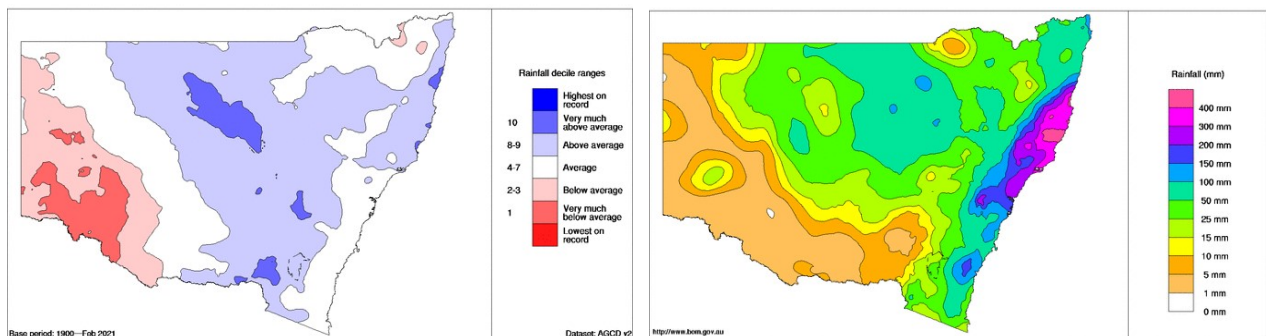
		WEEK ENDING																													
		Nov-20				Dec-20				Jan-21					Feb-21				Mar-21			Apr-21				May-21					
Location	Mosquito	7	14	21	28	5	12	19	26	2	9	16	23	30	6	13	20	27	6	13	20	27	3	10	17	24	1	8	15	22	29
Bankstown	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	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 20 March 2021, there was heavy rainfall in coastal NSW, especially in areas along the north coast. There was moderate rainfall in central NSW. There was low to moderate rainfall in western 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 central 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 predict 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 in southern NSW in March and above usual across most of 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)

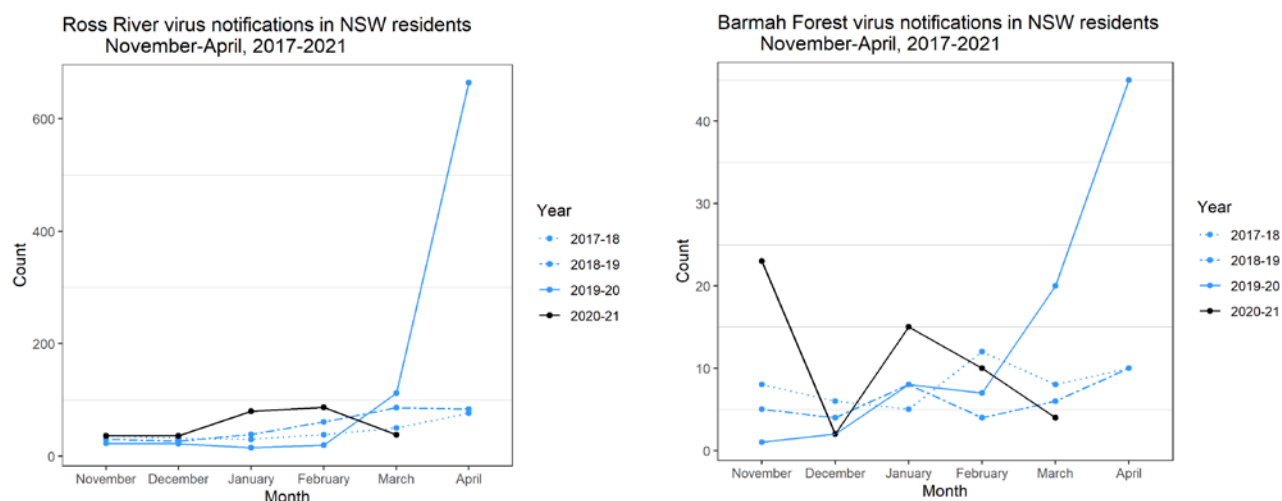
	Week		
	Latest week (28 Feb - 6 Mar 2021)	1-week prior (21 - 27 Feb 2021)	2-weeks prior (14 - 20 Feb 2021)
Ross River virus	16	16	14
Barmah Forest virus	1	3	0

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 22 March 2021).