NSW Arbovirus Surveillance & Mosquito Monitoring 2020-2021

Weekly Update: Week ending 3 April 2021

(Report Number 21)

NSW GOVERNMENT

Summary

Arbovirus Detections

- **Sentinel Chickens:** There were no arbovirus detections in sentinel chickens.
- **Mosquito Isolates:** There were no Barmah Forest and Ross River virus detections in mosquito isolates in this reporting period.

Mosquito Abundance

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

Environmental Conditions

- **Climate:** In the past week, there was no or little rainfall across most of NSW. Isolated areas in coastal and southern NSW received moderate rainfall. Rainfall is expected to be lower than usual across most of NSW in April and May. Temperatures are likely to be higher than usual across NSW in April and May.
- **Tides:** High tides over 1.8 metres are predicted to occur between 26 April - 1 May and between 24-30 May, which could trigger hatching of *Aedes vigilax.*

Human Arboviral Disease Notifications

- **Ross River Virus:** 21 cases were notified in the week ending 20 March 2021.
- **Barmah Forest Virus:** 5 cases were notified in the week ending 20 March 2021.

Comments and other findings of note

Edge Hill virus was detected at Clarence Valley (Yamba) on 29 March 2021. Mosquito data for Nothern Beaches site for the week ending 27 March 2021 was received late and is included in the current mosquito abundance table this week.

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*

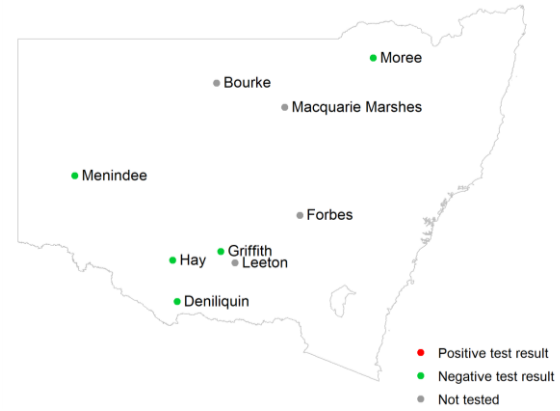
Arbovirus Detections

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 3 April 2021



Positive test results in the 2020-2021 surveillance season

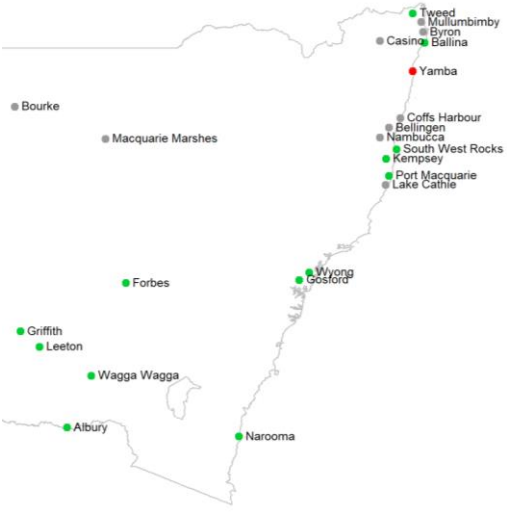
Date of sample collection	Location	Positive test results
There have been no detections in sentinel chickens in the 2020-2021 surveillance season		

Mosquito isolates

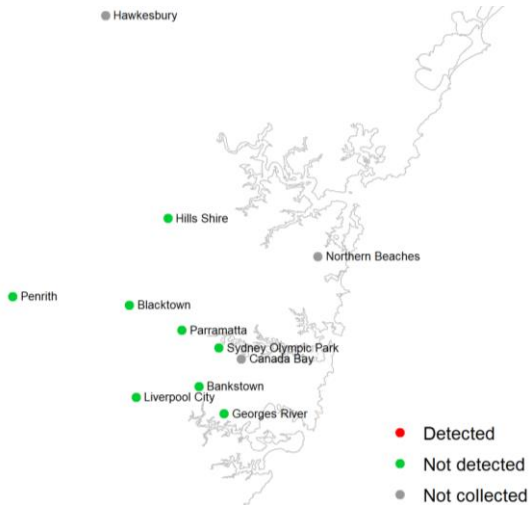
Whole grinds of mosquitoes are tested for arbovirus nucleic acids (including Ross River virus and Barmah Forest virus). There were no detections of Barmah Forest and Ross River virus in this reporting week.

Test results for mosquito trapping sites in the week ending 3 April 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.

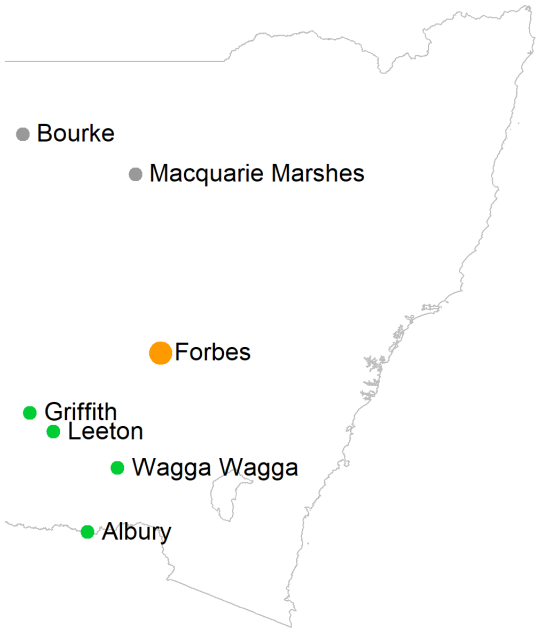
Mosquito counts in the week ending 3 April 2021

Key:

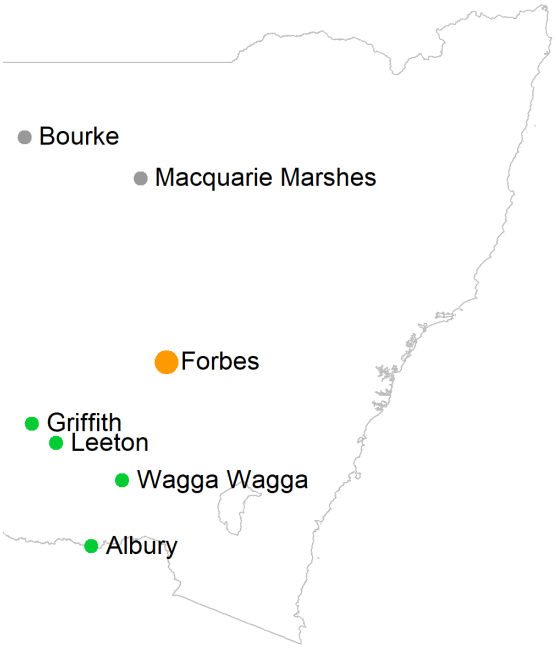
- No collection
- Low (<50)
- Medium (50-100)
- High (101-1,000)
- Very high (1,001-10,000)
- Extreme (>10,000)

Inland sites

Total mosquito counts

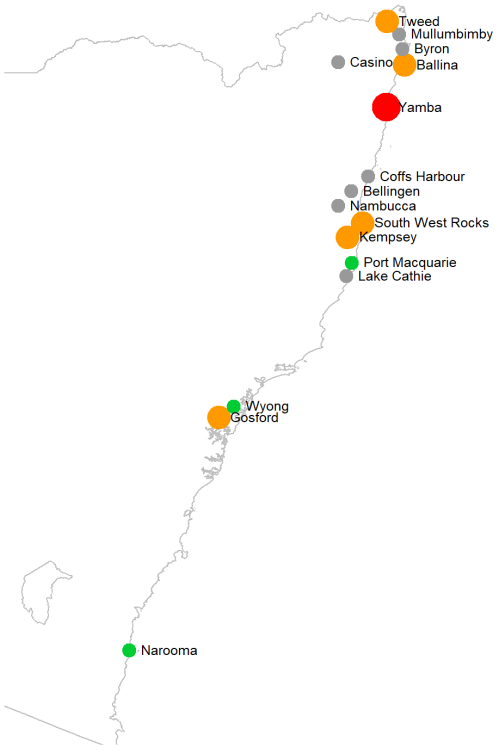


***Culex annulirostris* counts**



Coastal sites

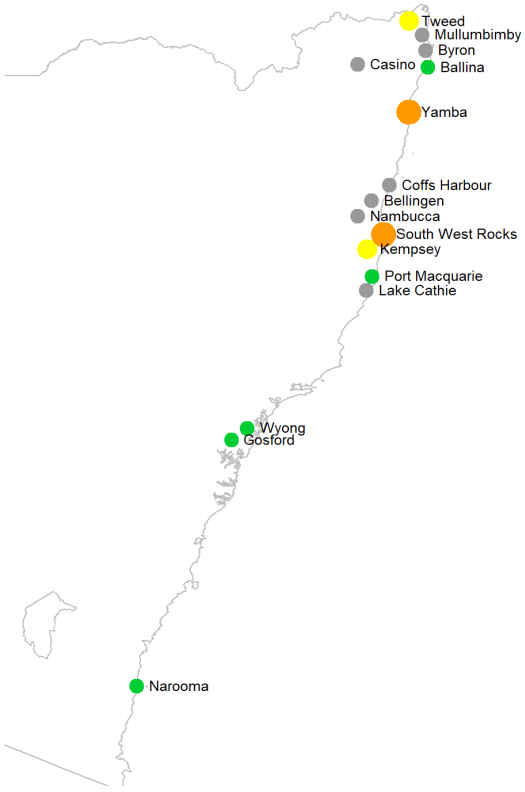
Total mosquito counts



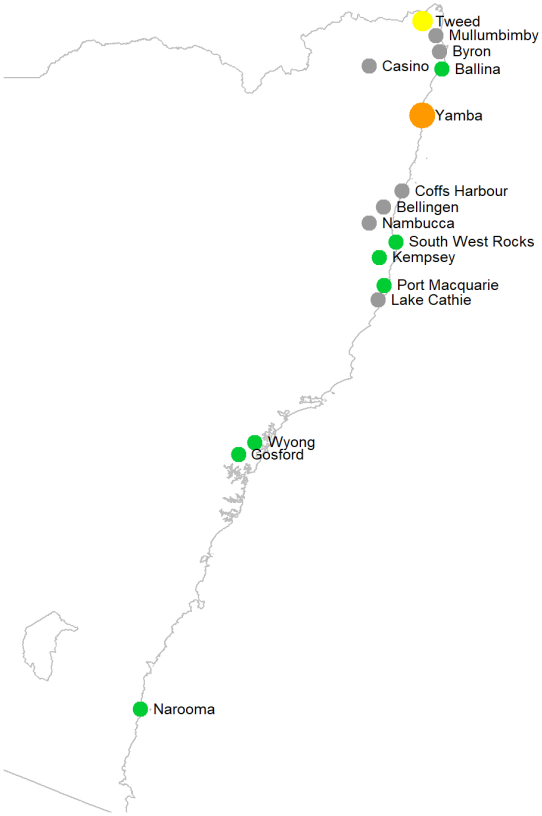
Key:

- 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:

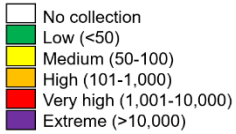
- No collection
- Low (<50)
- Medium (50-100)
- High (101-1,000)
- Very high (1,001-10,000)
- Extreme (>10,000)

Culex annulirostris counts

Aedes vigilax counts

Mosquito abundance data for 2020-21 season to date

Key:

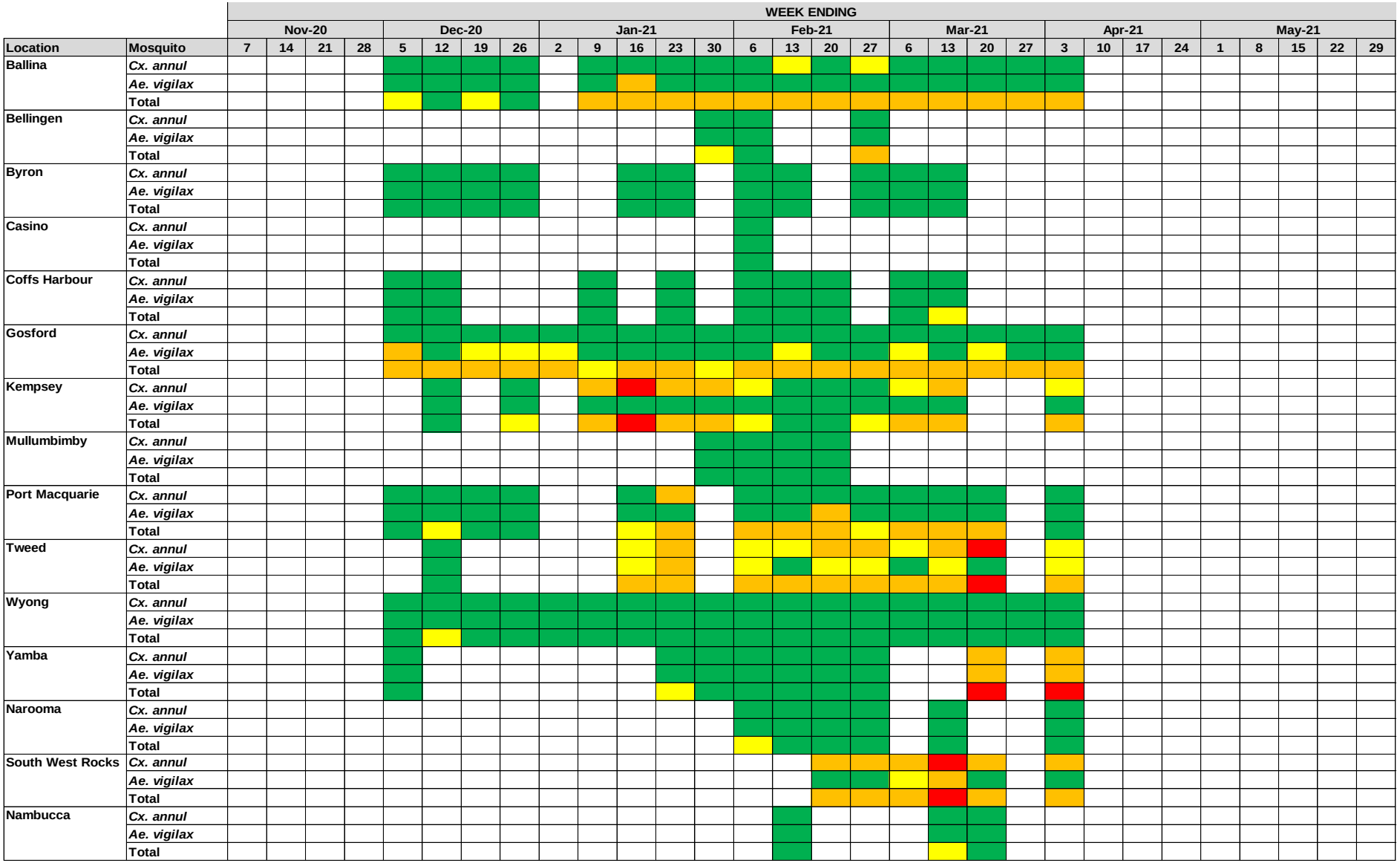


Data in the below tables represent the average for all trapping sites at that location. "*Cx. annul*" refers to *Culex annulirostris* and "*Ae.vigilax"* refers to *Aedes vigilax*.

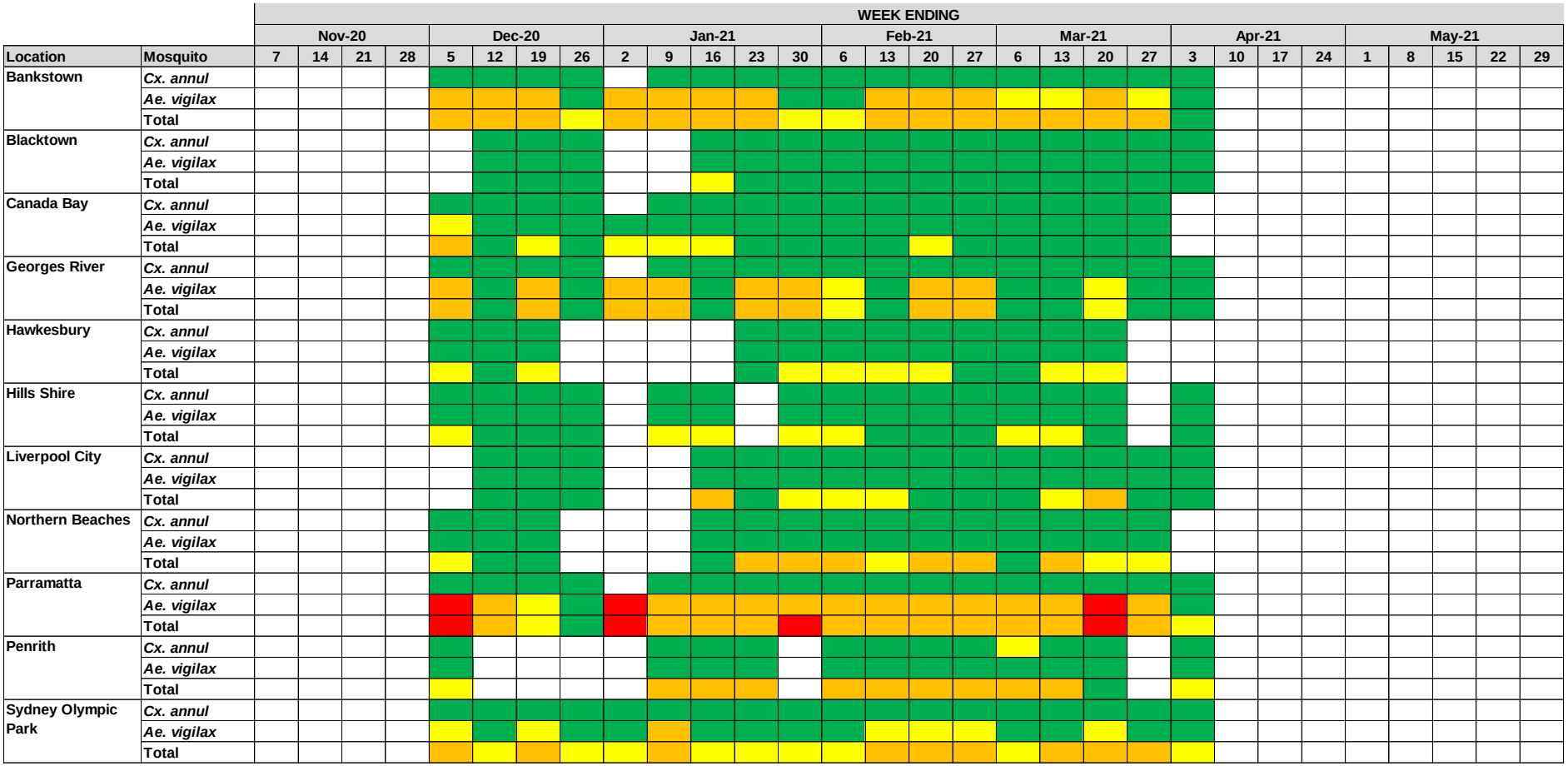
Inland

		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	***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
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
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
Apr-21
May-21
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
Location
Mosquito
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

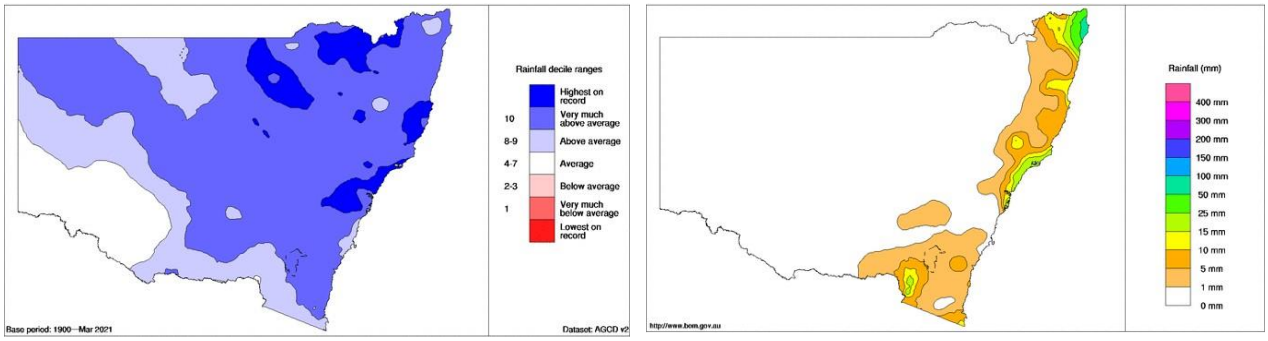
Environmental Conditions

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 March, rainfall was average in southwestern NSW. Across the rest of NSW, rainfall was above average, with some areas experiencing the highest levels of rainfall on record (left). In the week ending 3 April 2021, there was no or little rainfall across most of NSW. Isolated areas in coastal and southern NSW received moderate rainfall (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 lower than usual rainfall across NSW in April and May.
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 higher than usual across most of NSW in April and in May. Minimum temperatures in April are likely to be above usual in coastal and southern NSW, and around usual across the rest of NSW. Minimum temperatures will be around usual across NSW in May.
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 1.8m, 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

- 26-30 April 2021
- 1 May 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.

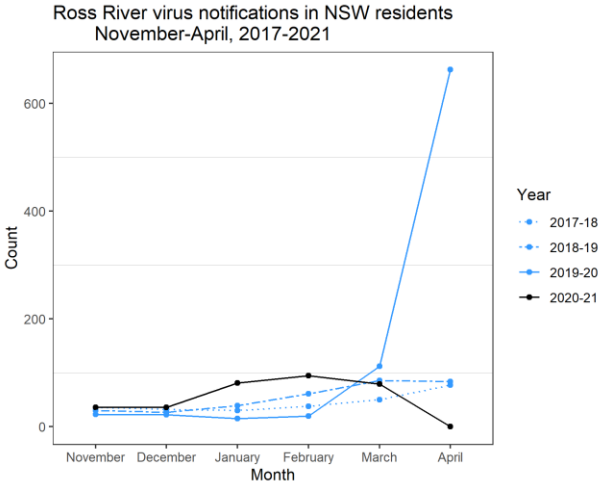
Recent notifications of Ross River virus and Barmah Forest virus in humans
(by date of case report received)

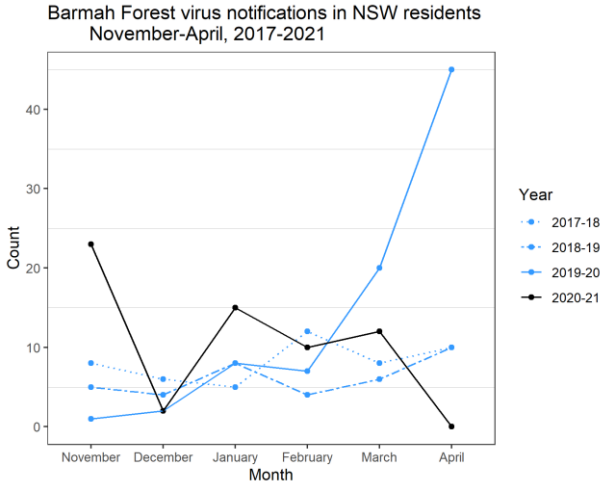
	Week		
	Latest week (14 - 20 Mar 2021)	**1-week prior (7 – 13 Mar 2021)**	**2-weeks prior (28 Feb - 6 Mar 2021)**
Ross River virus	21	23	16
Barmah Forest virus	5	2	1

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 6 April 2021).