NSW Arbovirus Surveillance & Mosquito Monitoring 2021-2022

Weekly Update: Week ending 27 November 2021

(Report Number 4)

NSW GOVERNMENT

Summary

Arbovirus Detections

- **Sentinel Chickens:** Data are not yet available. Sentinel chicken surveillance is to begin in December 2021.
- **Mosquito Isolates:** There were no arbovirus detections in mosquito isolates.

Mosquito Abundance

- **Inland:** LOW at Leeton and Wagga Wagga, MEDIUM at Albury, HIGH at Griffith.
- **Coast:** Data are not yet available. Mosquito trapping at coastal sites will begin the first week of December 2021.
- **Sydney:** Data are not yet available. Mosquito trapping at Sydney sites will begin the first week of December 2021.

Environmental Conditions

- **Climate:** In the past week there was moderate rainfall across most of NSW and moderate to high rainfall in North Eastern NSW. Higher rainfall is expected across NSW for the remainder of November and December with higher minimum temperatures than usual expected across NSW in December.
- **Tides:** High tides over 1.8 metres predicted for 3-9 December, which could trigger hatching of *Aedes vigilax.*

Human Arboviral Disease Notifications

- **Ross River Virus:** 4 cases were notified in the week ending 6 November 2021.
- **Barmah Forest Virus:** 3 cases were notified in the week ending 6 November 2021.

Comments and other findings of note

The Bureau of Meteorology has declared that the tropical Pacific is in a La Niña phase, which typically means higher rainfall across eastern Australia which could increase arbovirus risk in the coming months. The previous weekly report was missing mosquito abundance data from Forbes. These data have been added to the Inland mosquito abundance table in this report.

One female *Aedes aegypti* was detected at the Menzies Freight facility at Matraville during the routine surveillance for exotic mosquito species by the Commonwealth's Department of Agriculture, Water and the Environment. Fogging, residual spraying of surfaces and methoprene treatment of drains have been implemented to prevent potential local establishment of exotic species. Enhanced surveillance is in place to monitor for this exotic species.

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.

SPHN (HP NSW) 211005

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

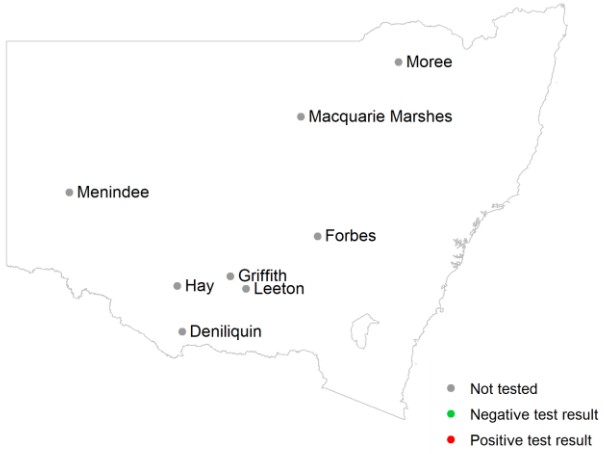
Arbovirus Detections

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. Data are not available in this reporting period as sentinel chicken surveillance is to begin in early December 2021.

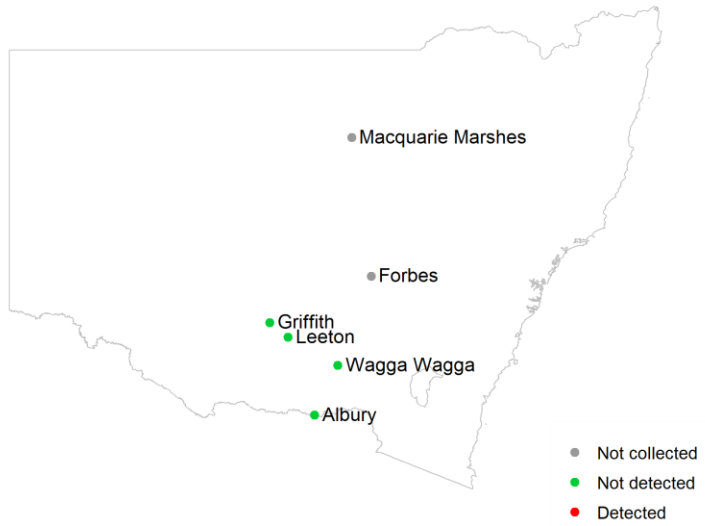
Chicken surveillance sites, 2021-2022 season



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 Ross River virus and Barmah Forest virus among inland sites that had collected mosquitos in this reporting period. Mosquito trapping will begin in coastal and Sydney sites in early December 2021.

Test results for inland mosquito trapping sites in the latest week to 27 November 2021 (by date of report)



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. Data are only available for inland sites in this reporting period as coastal and Sydney mosquito trapping will begin in early December 2021.

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

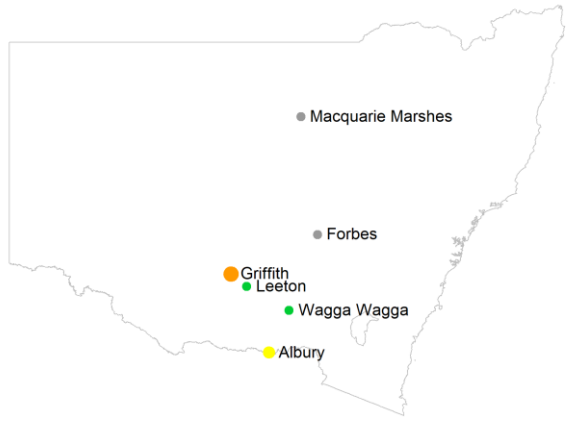
Mosquito counts (Average per trap per location) in the latest week to 27 November 2021 (by date of report)

Key:

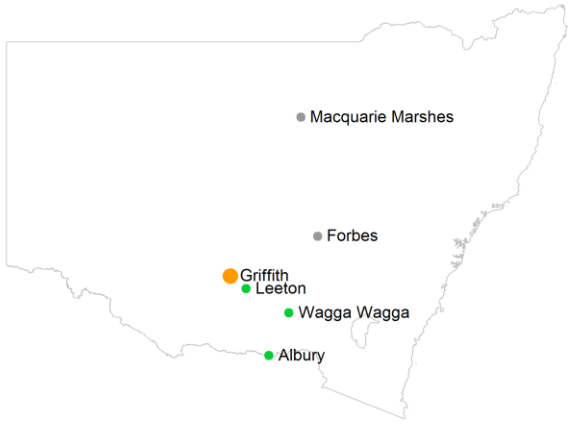
- No collection
- Low (<50)
- Medium (50-100)
- High (101-1,000)
- Very high (1,001-10,000)
- Extreme (>10,000)

Inland sites

Total mosquito counts

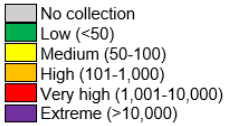


***Culex annulirostris* counts**



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*.

		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	***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																														

Environmental Conditions

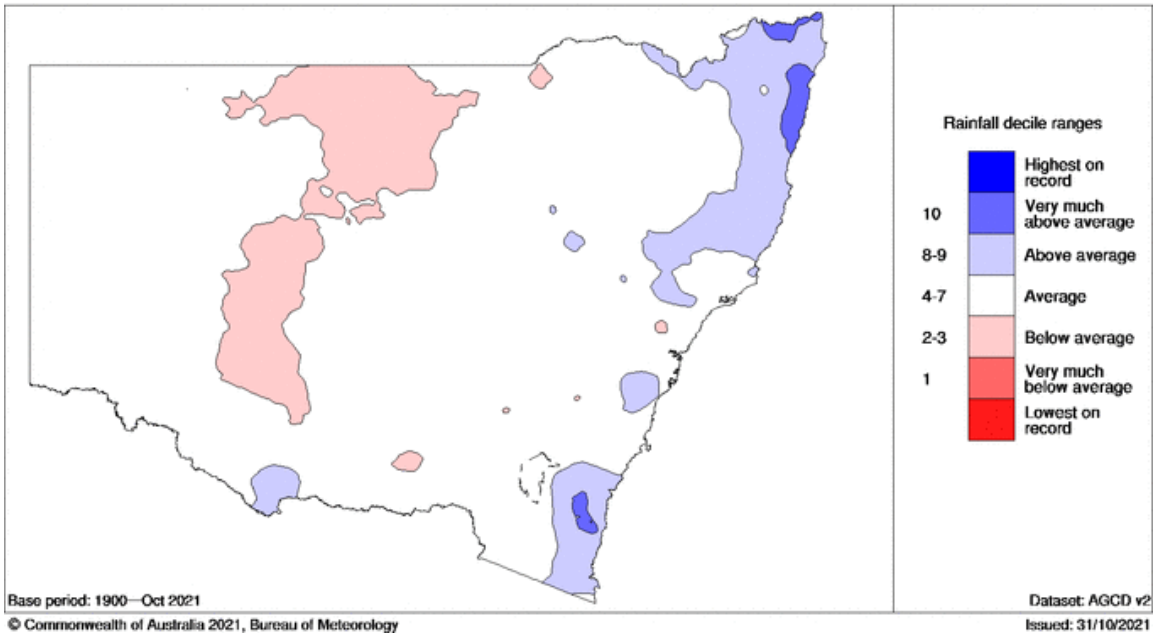
Mosquitoes require water to breed. Rainfall and tides (for the salt marsh mosquito) are important contributing factors for proliferation of mosquito numbers. Unseasonably warm weather can also contribute to higher mosquito numbers.

Rainfall

In October, rainfall was below average in most of inland NSW and above average along most of the coast. In the week ending 27 November 2021, there was moderate rainfall across most of NSW and moderate to high rainfall in North Eastern NSW.

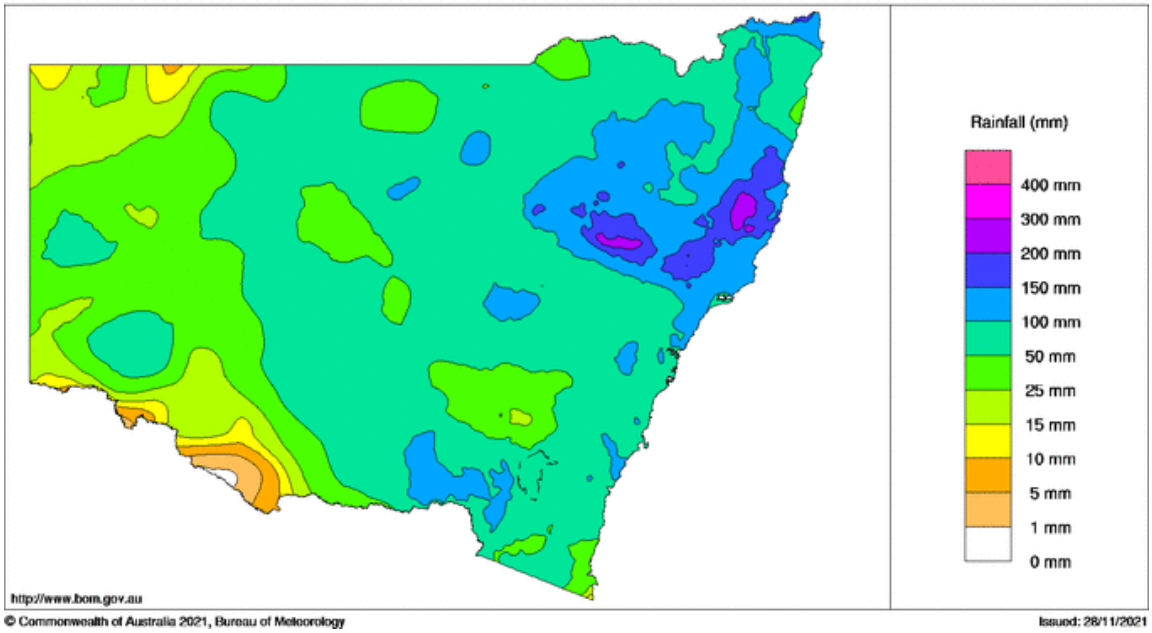
New South Wales rainfall deciles October 2021

Australian Gridded Climate Data



New South Wales Rainfall Totals (mm) Week Ending 27th November 2021

Australian Bureau of Meteorology



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 most of NSW is likely to receive more rainfall than usual for the remainder of November and in December.
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 around usual across NSW for the remainder of November and higher than usual across NSW in December. Maximum temperatures are unlikely to exceed the average maximum temperature for the remainder of November and December.
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

- 3-9 December 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*, 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.

The data for Ross River virus and Barmah Forest virus from the CDWR for the latest reported 3 weeks are in the following table.

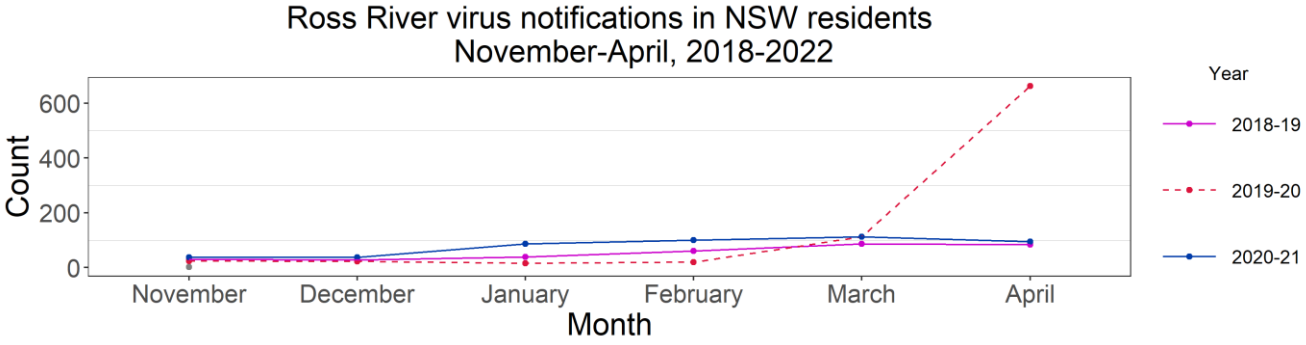
Recent notifications of Ross River virus and Barmah Forest virus infections in humans
(by date of case report received)

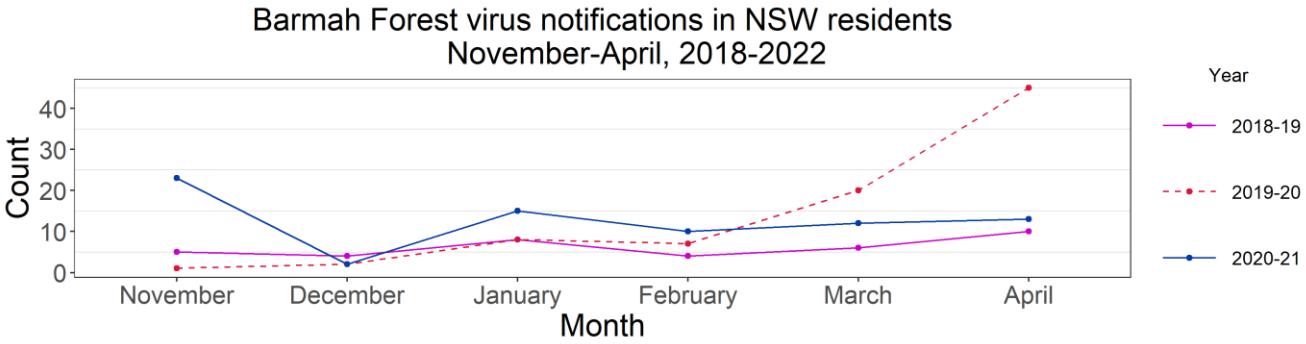
	Week		
	Latest week (31 Oct – 6 Nov 2021)	**1-week prior (24 - 30 Oct 2021)**	**2-weeks prior (17 - 23 Oct 2021)**
Ross River virus	4	3	5
Barmah Forest virus	3	0	2

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 previous three NSW Arbovirus and Mosquito Monitoring seasons. Data compilation for the current season (2021-2022) is unavailable due to COVID-19 impacts.





Source: NSW Health Notifiable Conditions Information Management System (NCIMS), Communicable Diseases Branch and Centre for Epidemiology and Evidence, NSW Health

Notes: 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.