

# NSW Arbovirus Surveillance and Mosquito Monitoring 2023-2024

Environmental Health Branch, Health Protection NSW

Weekly update: Week ending 16 December 2023



**Bottom left** - Common banded mosquito, *Culex annulirostris* **Top and bottom right** - Saltmarsh mosquito, *Aedes vigilax* (Copyright 2020)

Weekly reports are available on [Mosquito-borne disease surveillance](#).

**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 are provided by the Department of Medical Entomology, NSW Health Pathology, Institute of Clinical Pathology and Medical Research (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.

SPHN (EH) 230938

# Summary

## Arbovirus detections

### Sentinel Chickens

There were no arbovirus detections in sentinel chickens.

### Mosquito isolates

There were no arbovirus detections in mosquitoes.

## Mosquito abundance

### Inland

- **Low:** Albury, Balranald, Bathurst, Goulburn, Menindee, Murrumbidgee, Narrandera, Wagga Wagga, and Yass.
- **Medium:** Corowa, Forbes, Moree, Macquarie Marshes and West Wyalong.
- **High:** Deniliquin, Grong Grong, Leeton, and Temora.
- **Very high:** Griffith.

### Coastal

- **Low:** Byron Bay and Murwillumbah.
- **Medium:** Port Macquarie and Wyong.
- **High:** Ballina, Bega, Gosford, Lake Cathie and Tweed Heads.
- **Very high:** Newcastle.

### Sydney

- **Low:** Blacktown, Earlwood, Georges River, Hills Shire and Northern Beaches and Penrith.
- **Medium:** Hawkesbury and Canada Bay.
- **High:** Bankstown, Liverpool, Parramatta and Sydney Olympic Park.

## Environmental conditions

### Climate

In the week ending 16 December 2023, low rainfall was observed across NSW. In November, rainfall in NSW was predominantly above average or very much above average. In the coming week, higher than average rain fall, and lower than average minimum and maximum temperatures are expected across NSW.

### Tides

High tides over 1.8 metres are predicted for 25-29 December 2023, 10-15 January 2024, 8-13 February 2024 and 8-13 March 2024 which could trigger hatching of *Aedes vigilax*.

## Human arboviral disease notifications

### Ross River virus

Five probable cases were notified in the week ending 16 December 2023.

### Barmah Forest virus

No cases were notified in the week ending 16 December 2023.

# Arbovirus detections

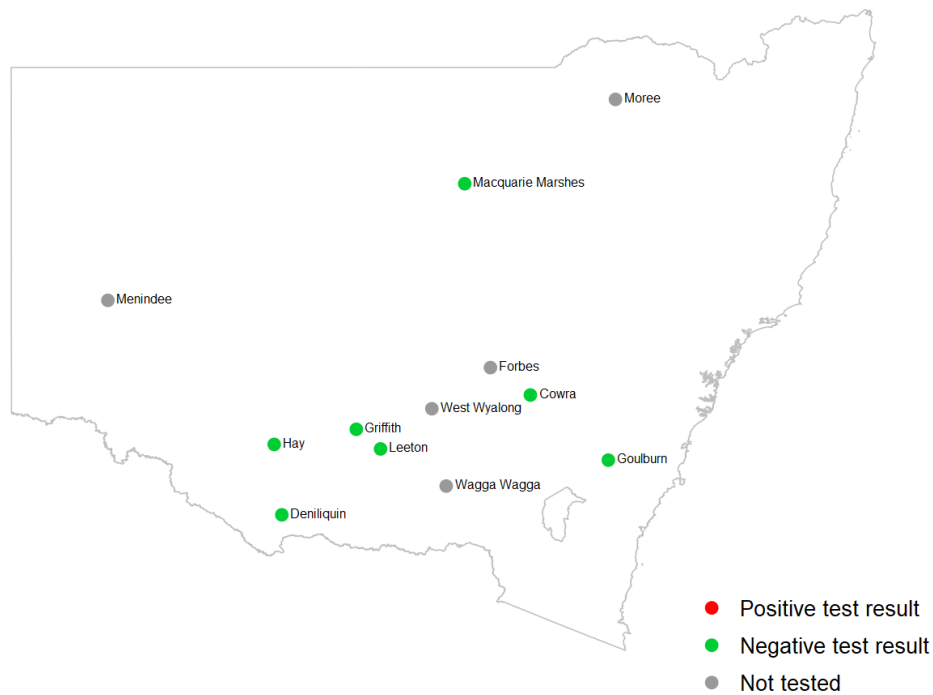
This section details detections of Murray Valley encephalitis virus, Japanese encephalitis virus, Kunjin virus, Ross River virus and Barmah Forest virus in the NSW Arbovirus Surveillance and Mosquito Monitoring Program.

## Sentinel chickens

Chickens are bled for detection of antibodies directed against Murray Valley encephalitis virus, Japanese encephalitis virus and Kunjin virus, indicating exposure to these viruses. Test results for the past week are shown in the map below. A positive test result indicates one or more chickens in a flock tested positive for the **first time** to antibodies directed against a particular virus, indicating newly acquired infection.

### Sentinel chicken antibody test results for samples collected in the week ending 16 December 2023

There have been no detections in sentinel chickens in the 2023-2024 surveillance season.



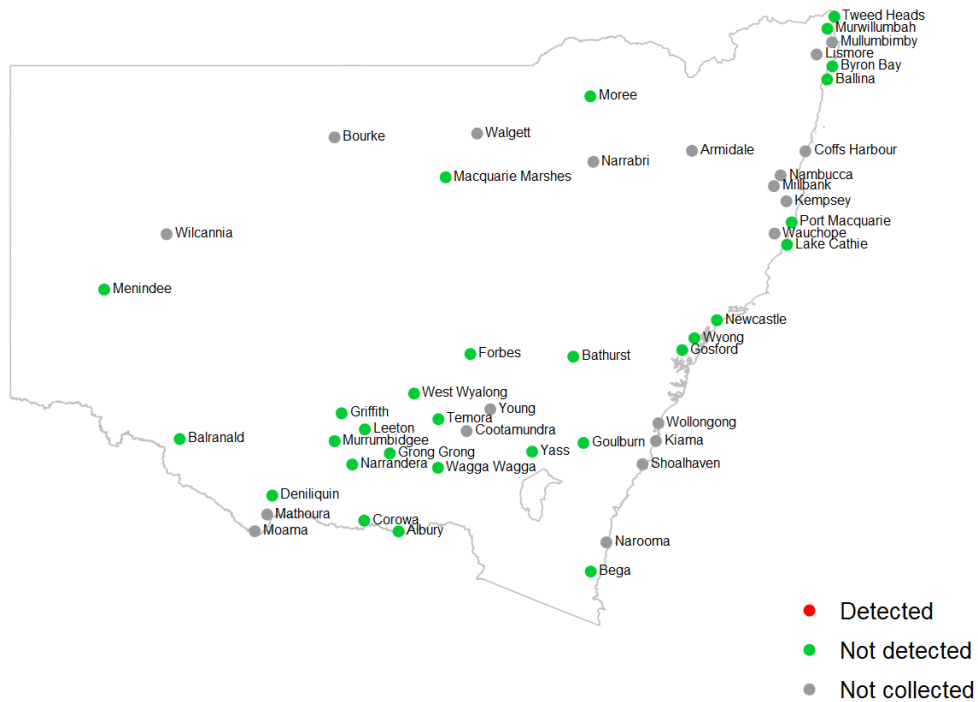
## Mosquito isolates

Whole grinds of collected mosquitoes are tested for arbovirus nucleic acids to determine the presence of arboviruses in mosquitoes. Test results for detections of Murray Valley encephalitis virus, Japanese encephalitis virus, Kunjin virus, Ross River virus and Barmah Forest virus for the past week are shown in the maps below.

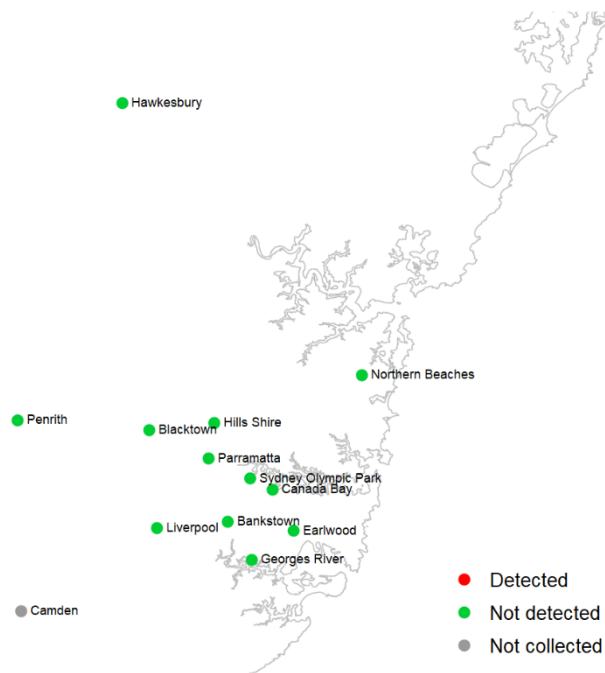
### Test results for mosquito trapping sites reported in the week ending 16 December 2023

There were no arbovirus detections at inland sites in the week ending 16 December 2023.

#### Inland and Coastal sites



#### Sydney sites



# 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.

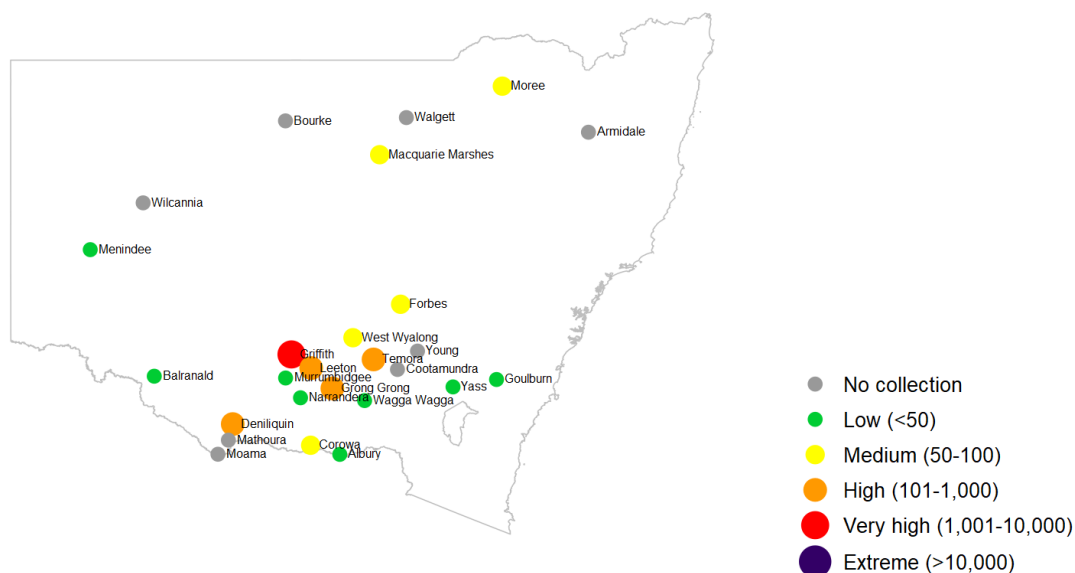
*Culex annulirostris* and *Aedes vigilax* are vectors of interest for Ross River virus and Barmah Forest virus, *Culex annulirostris* is also a vector for Japanese encephalitis virus.

## Mosquito counts

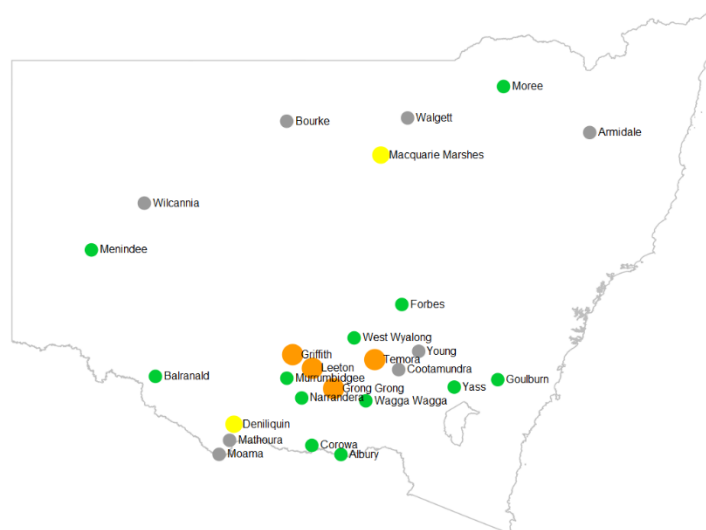
Mosquito counts (average per trap per location) for mosquito trapping sites reported in the week ending 16 December 2023

### Inland sites

Total mosquito counts

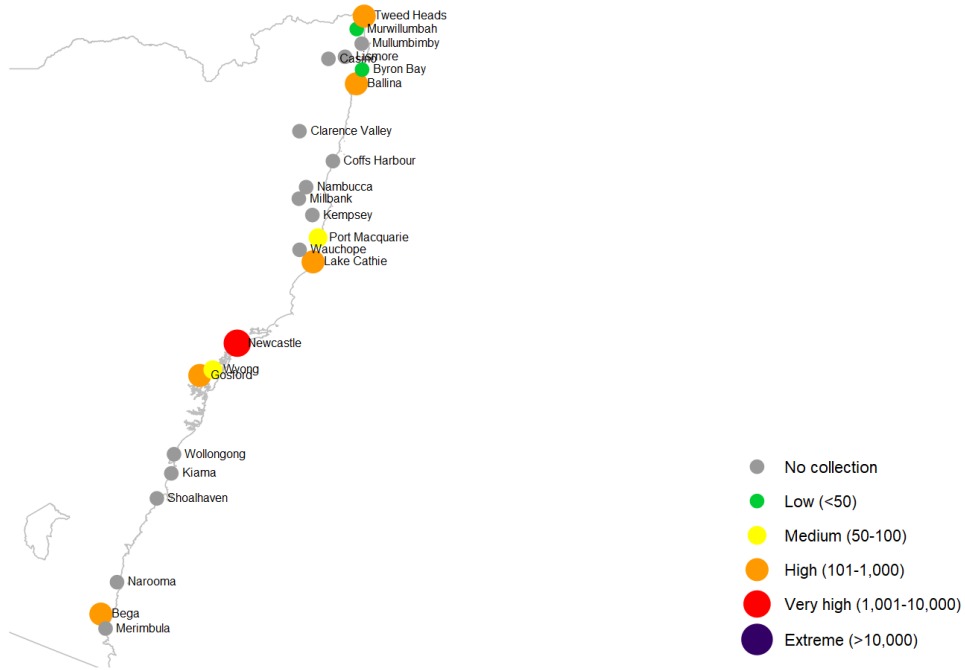


*Culex annulirostris* counts

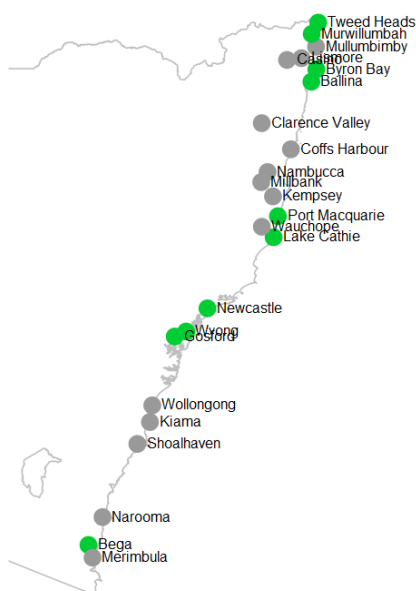


## Coastal sites

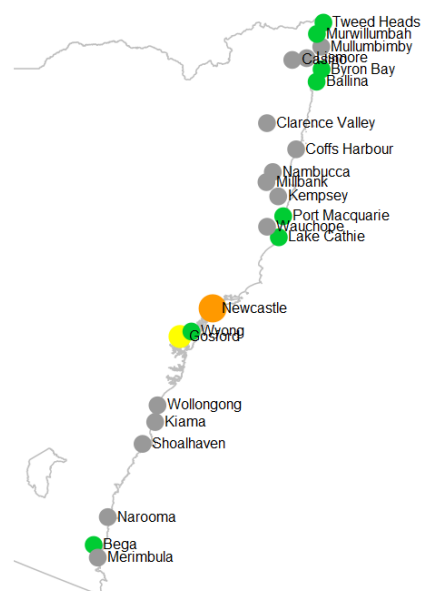
Total mosquito counts



*Culex annulirostris* counts

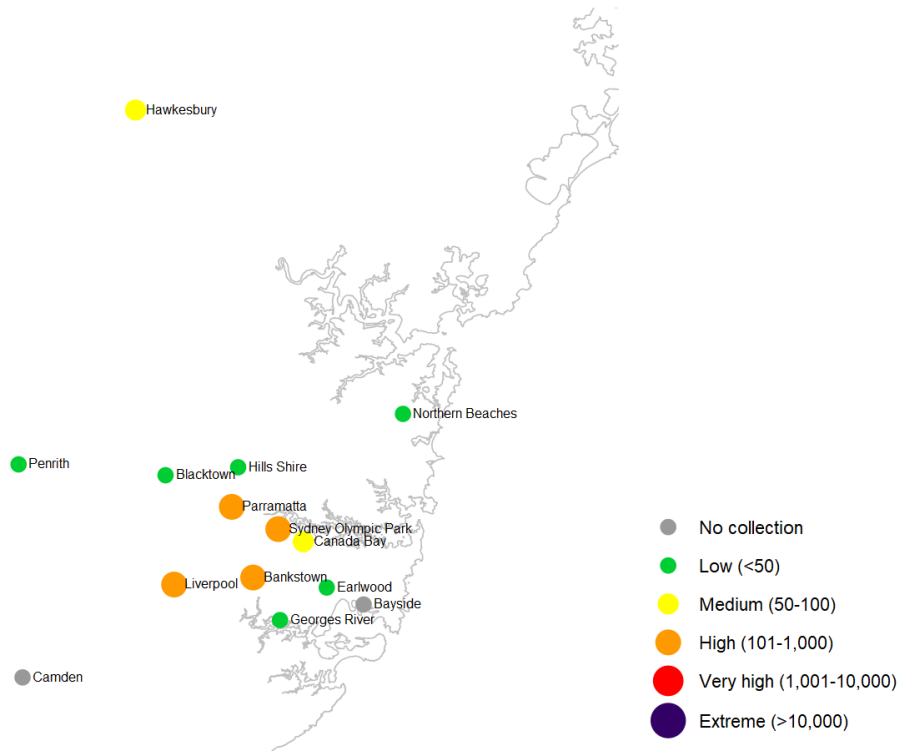


*Aedes vigilax* counts

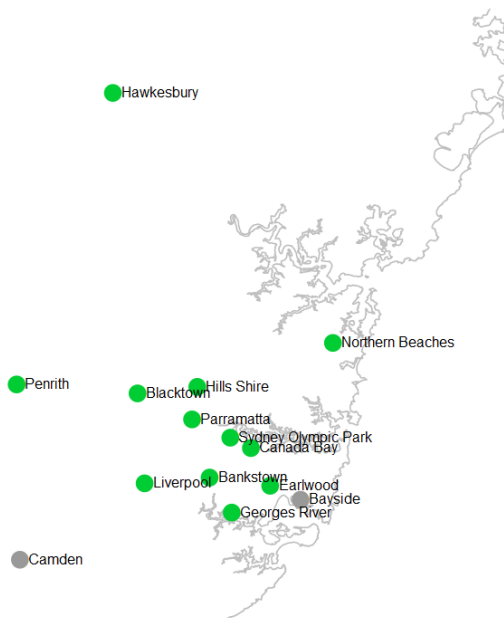


## Sydney sites

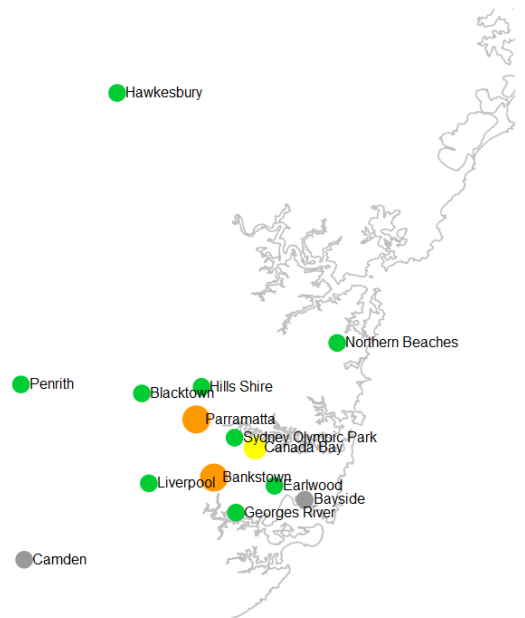
### Total mosquito counts



### *Culex annulirostris* counts



### *Aedes vigilax* counts

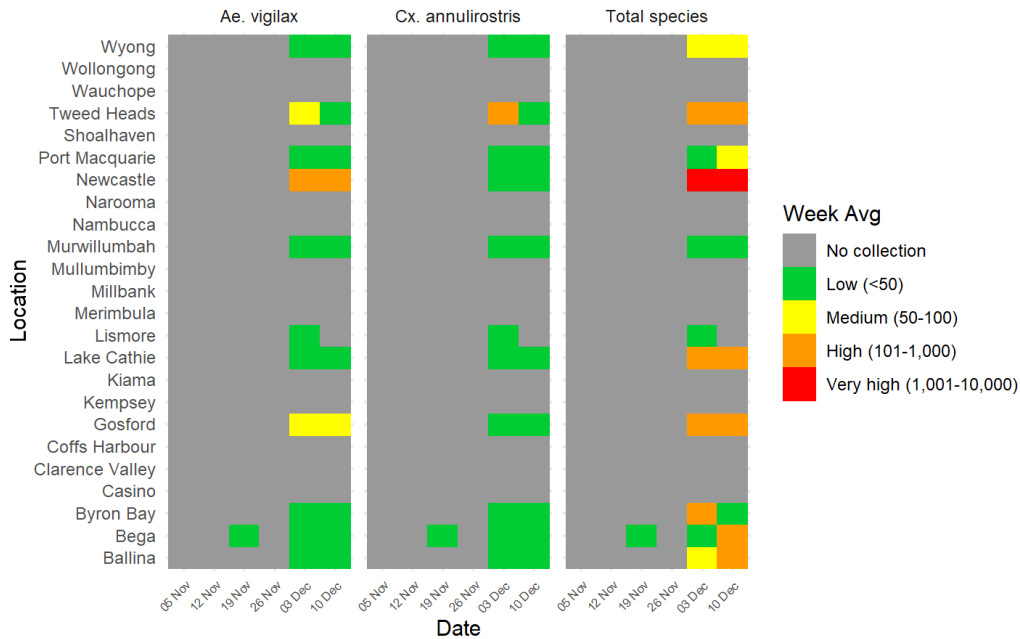


# Mosquito abundance results for the entire 2023-2024 season

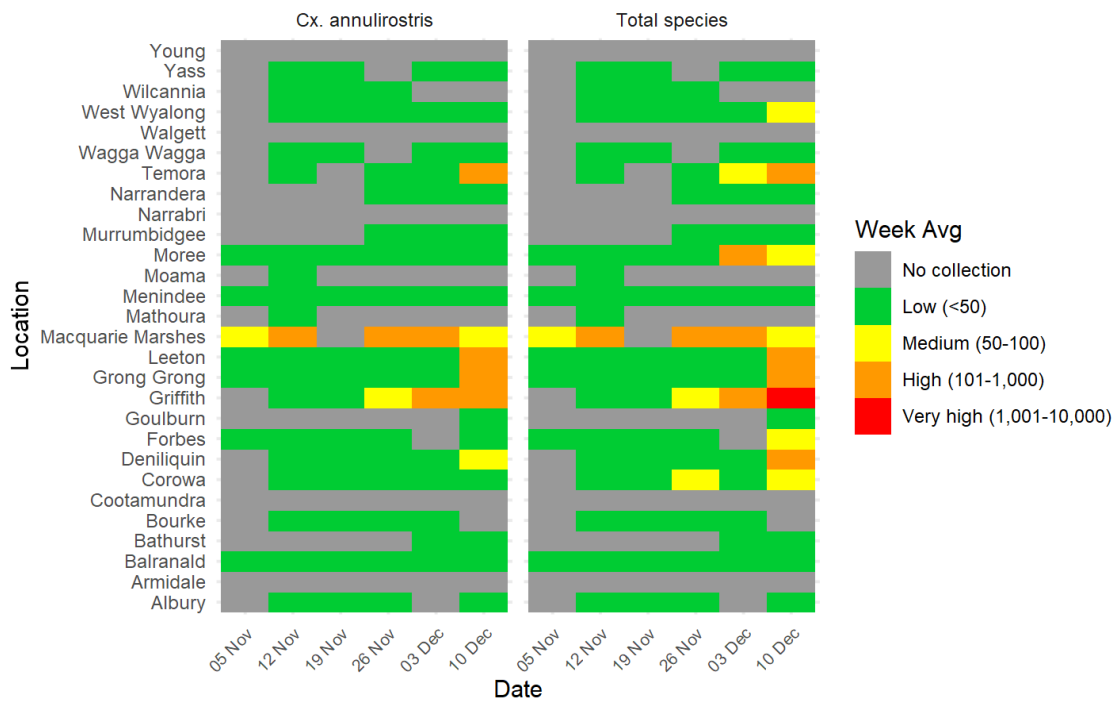
This section shows all mosquito trapping results by location and species type to date for the current arbovirus season.

## Cumulative mosquito abundance tables

Number of mosquitoes trapped along the coast (weekly average)

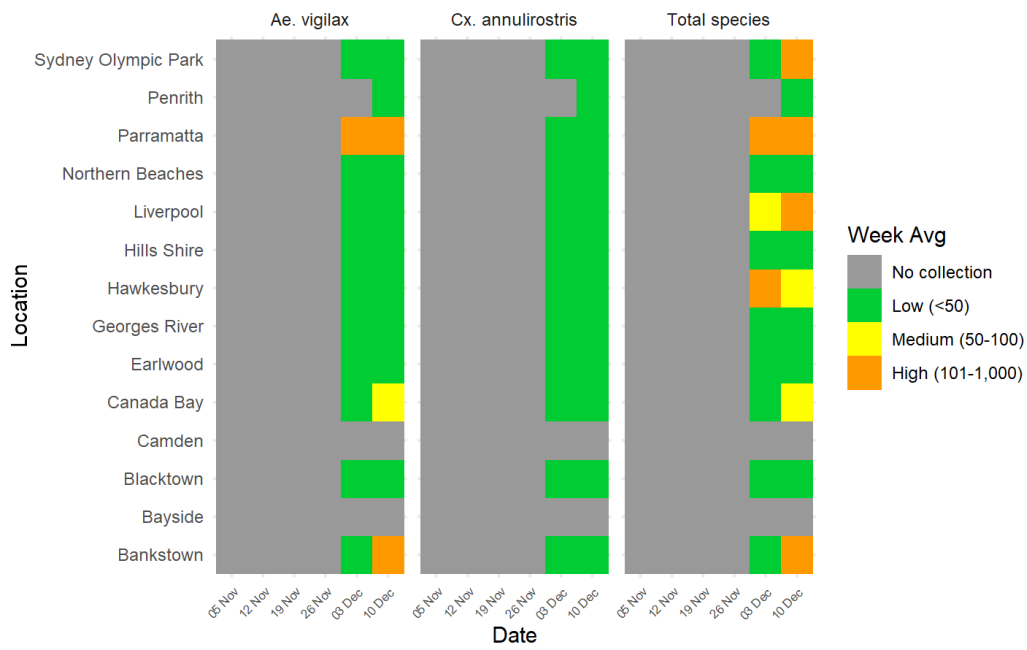


Number of mosquitoes trapped inland (weekly average)





### Number of mosquitoes trapped in Sydney (weekly average)



# Environmental conditions

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

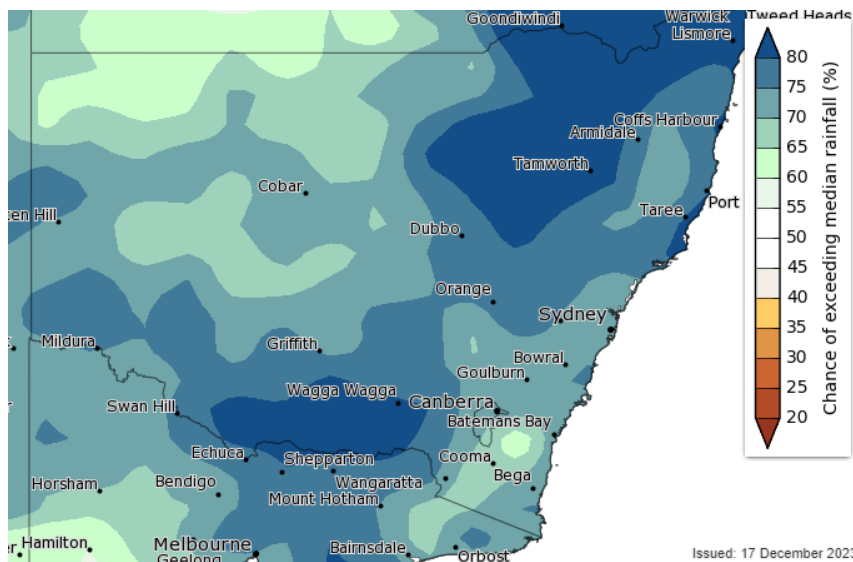
## Rainfall

In the week ending 16 December 2023, lower than average rainfall was observed across NSW, with some local areas along the coast experiencing higher rainfall. In November, rainfall in NSW was predominantly above average or very much above average.

## Upcoming week's rainfall and temperature outlook

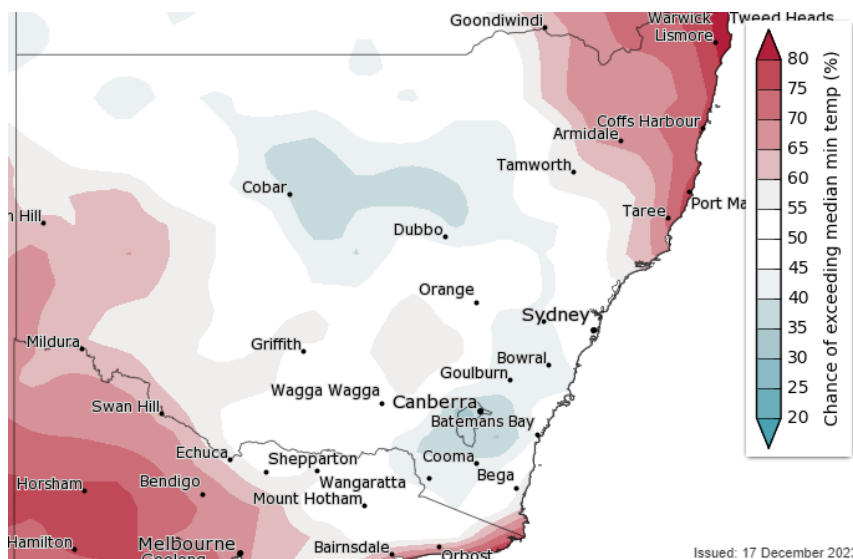
Higher than average rainfall is expected across NSW, some local areas along Queensland and the Victorian borders experiencing higher than average rainfall.

### Rainfall 22 December to 28 December, 2023



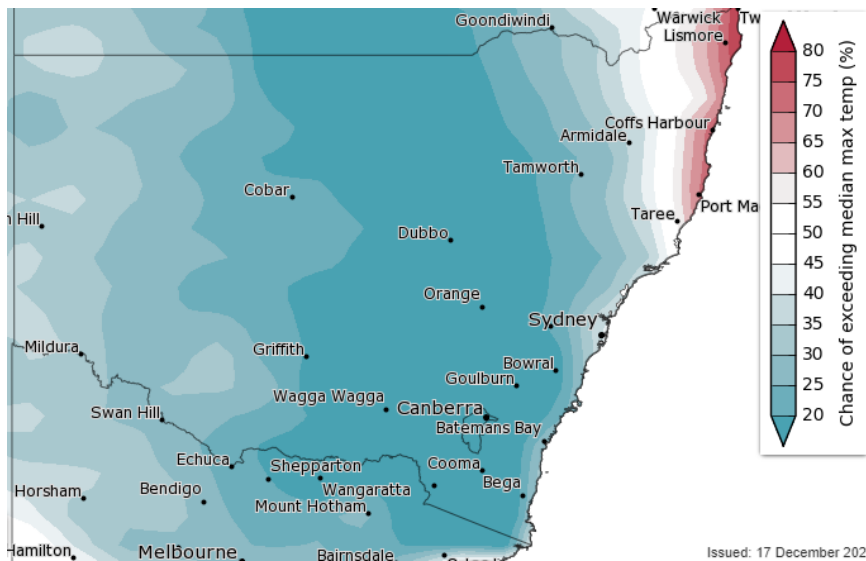
### Minimum temperature 22 December to 28 December, 2023

In the upcoming week, minimum temperatures in NSW are expected to be about average across the state and higher than average in Northern NSW.



## Maximum temperature 22 December to 28 December, 2023

In the upcoming week, the maximum temperature levels are forecasted to be lower than average across NSW.



Climate outlook data for January to April are available on the [Australian Government, Bureau of Meteorology](#) website.

## 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)

- 25-29 December 2023
- 10-15 January 2024
- 8-13 February 2024
- 8-13 March 2024

Source: [Australian Government, Bureau of Meteorology](#). Note: Measured tides at Sydney Port Jackson for the current week are available from the [NSW Government, Manly Hydraulics Laboratory](#).

# Human Arboviral Disease Notifications

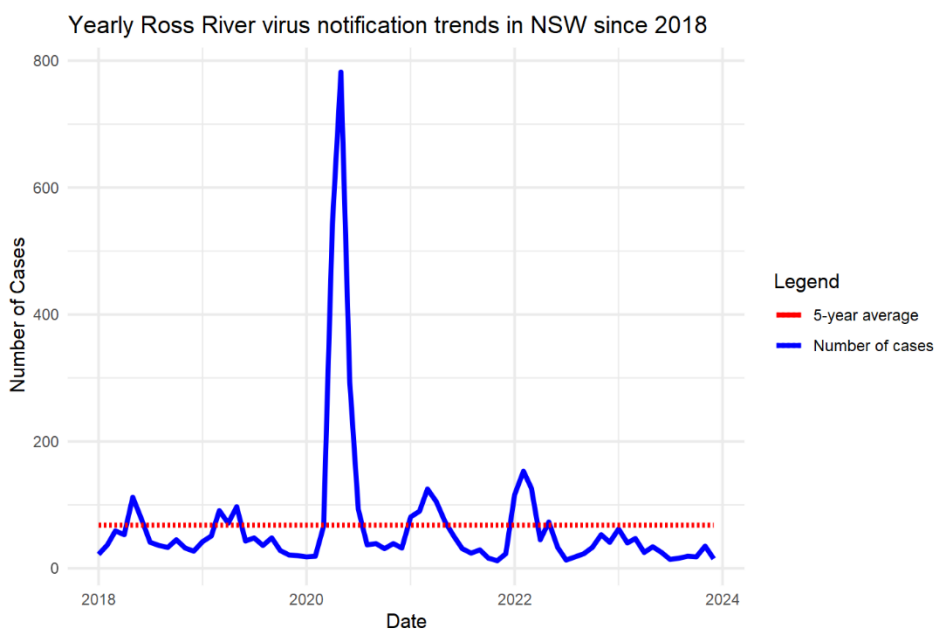
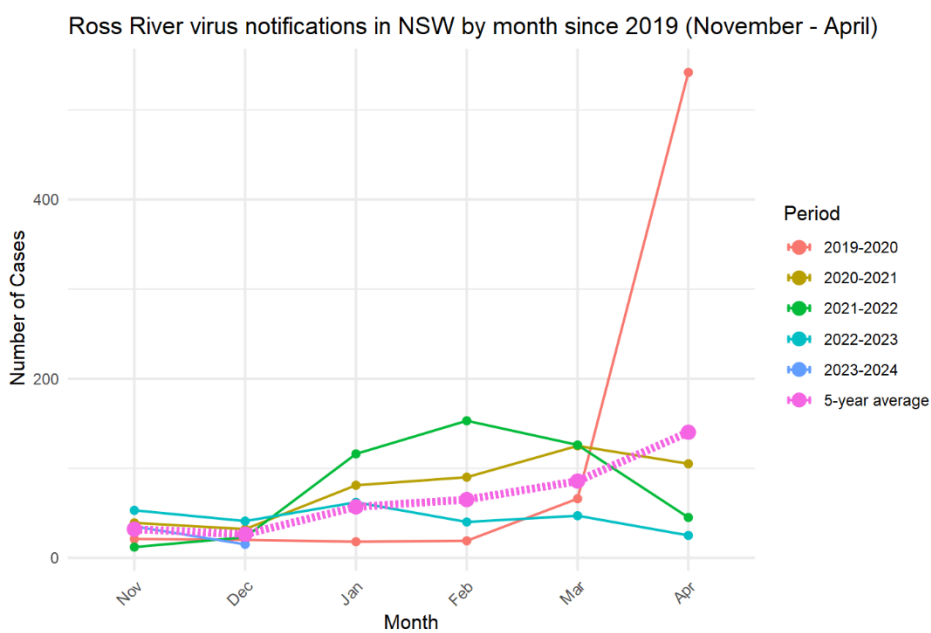
Under the *NSW Public Health Act 2010*, [human arboviral infections are notifiable in NSW](#).

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

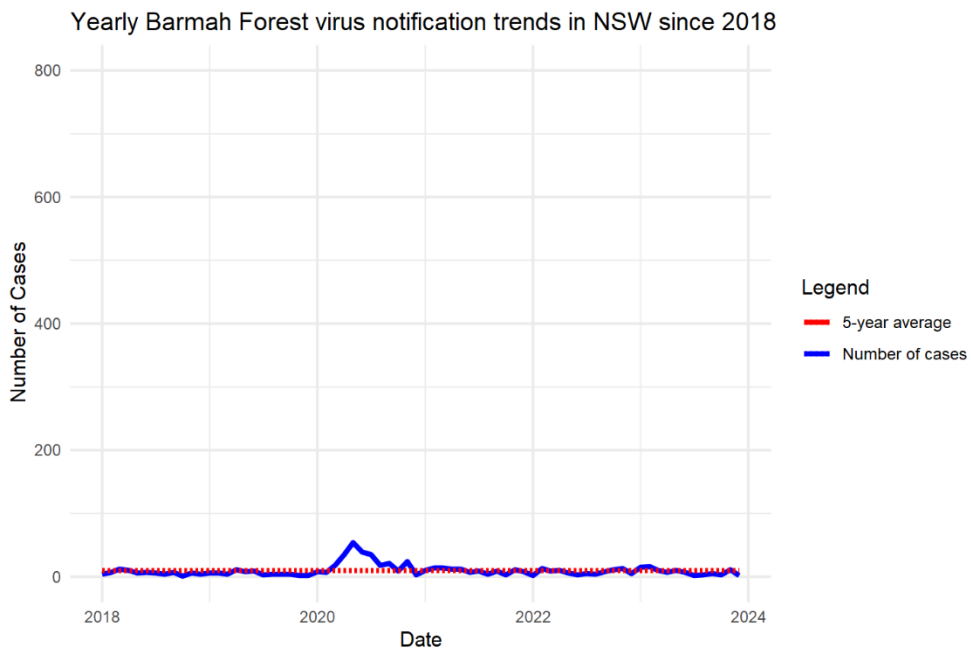
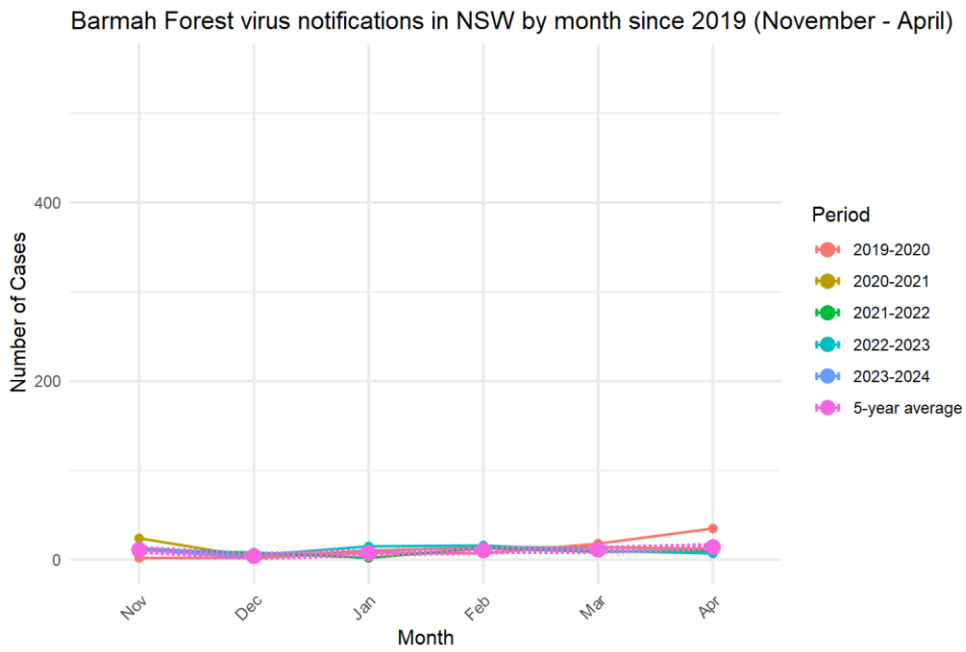
Notifications of Ross River virus and Barmah Forest virus infections, by month of disease onset (the earlier of patient-reported onset or specimen collection date), are available online on [Infectious diseases data](#).

The following figures show notifications for the current NSW Arbovirus Surveillance and Mosquito Monitoring season (2023-2024), and the same period in the previous four years.

### Ross River virus



## Barmah Forest virus



**Note:** Presented human cases include both confirmed and probable cases.