

# NSW Arbovirus Surveillance and Mosquito Monitoring 2023-2024

Environmental Health Branch, Health Protection NSW

Weekly update: Week ending 6 January 2024



**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.

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SPHN (EH) 230938

# Summary

## Arbovirus detections

### Sentinel chickens

• There were no arbovirus detections in sentinel chickens for the week ending 6 January 2024.

### Mosquito isolates

• Edge Hill virus was detected in a mosquito sample from Empire Bay, Gosford. Human cases of Edge Hill virus have rarely been reported. Infection may present as a mild self-limiting febrile illness with body aches.

## Mosquito abundance

### Inland

- **Low:** Albury, Bathurst, Menindee, Moree.
- **High:** Forbes.
- **Very High:** Griffith.

### Coastal

- **Low:** Port Macquarie, Wauchope, Wyong.
- **Medium:** Ballina, Lake Cathie.
- **High:** Gosford.

### Sydney

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

## Environmental conditions

### Climate

- In the week ending 6 January 2024, rainfall was about average in the eastern half of NSW and low to about average elsewhere.
- In December, rainfall in NSW was about average or above average across most of NSW.
- In the coming week, higher than average rainfall is expected across NSW.
- Minimum temperatures are expected to be high, and maximum temperatures are expected to be lower than average across NSW.

### Tides

• High tides over 1.8 metres are predicted for 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**

Two probable cases were notified in the week ending 6 January 2024.

### **Barmah Forest virus**

No cases were notified in the week ending 6 January 2024.

## **Comments**

It has been determined that a sentinel chicken which tested positive for Japanese encephalitis virus (JEV) from a bleed conducted at Menindee on 17 December 2023 [reported in the NSW Arbovirus Surveillance and Mosquito Monitoring Program report for the week ending 23 December 2023], had only recently arrived in Menindee and is likely to have acquired the JEV infection in Cowra sometime between late August and early December 2023.

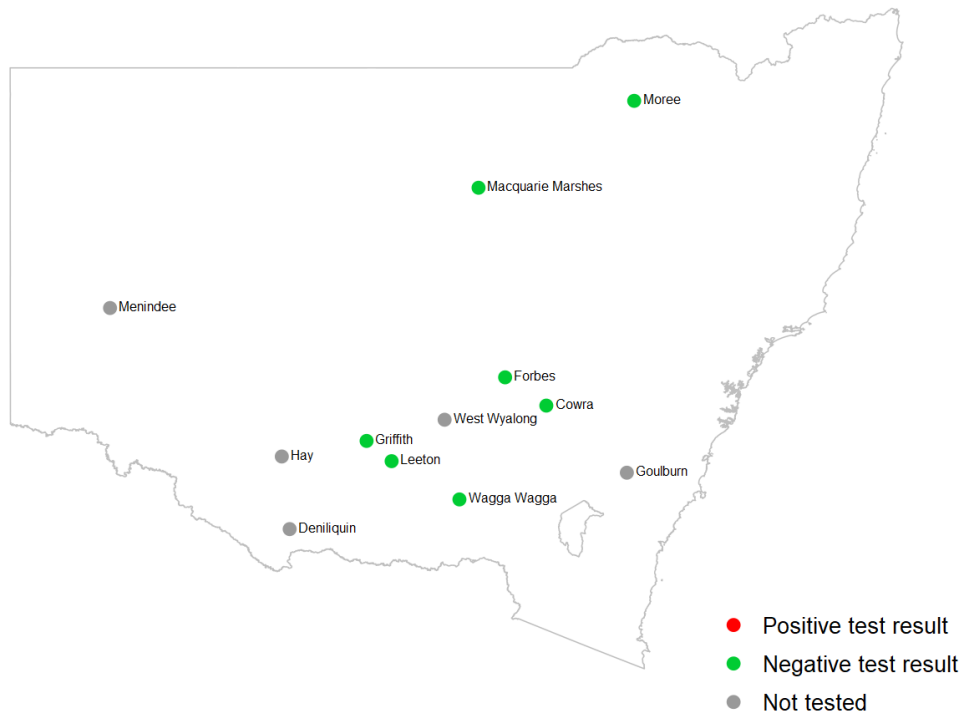
# Arbovirus detections

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 6 January 2024



Positive test results in the 2023-2024 surveillance season.

Date of sample collection	Location	Virus
2023-12-17	*Menindee	Japanese Encephalitis

\* The sentinel chicken had only recently arrived in Menindee and is likely to have acquired Japanese encephalitis virus in Cowra prior to arrival in Menindee.

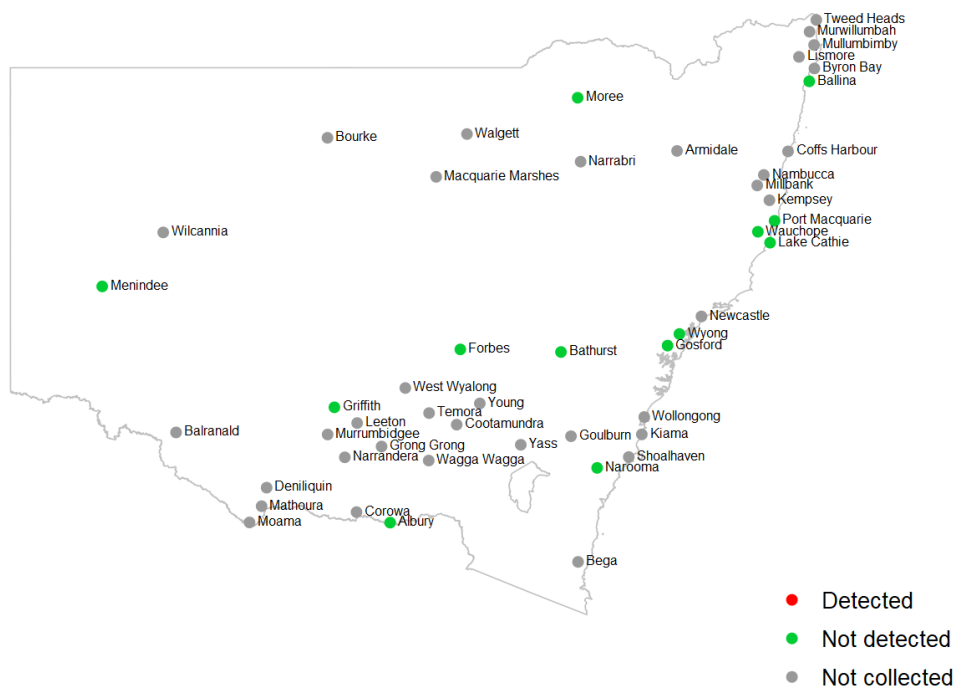
## Mosquito isolates

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. Detections of all arboviruses (including Edge Hill virus) for the season are detailed in the positive test results for the 2023-2024 surveillance season.

### Test results for mosquito trapping sites reported in the week ending 6 January 2024

Edge Hill virus was detected at Empire Bay, Gosford, in the week ending 6 January 2024.

#### Inland and Coastal sites

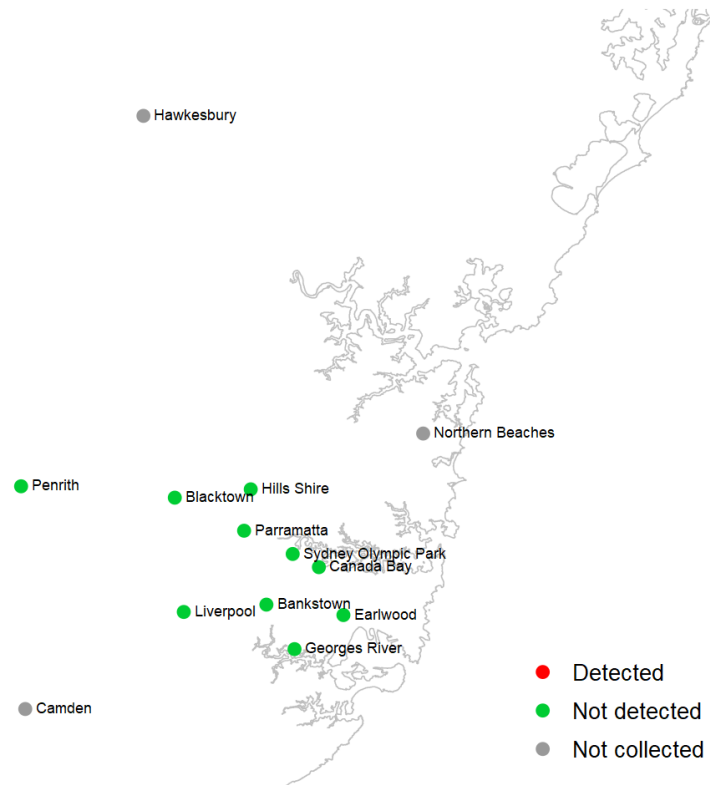


Positive test results in the 2023-2024 surveillance season.

Date of sample collection	Location	Virus
2024-01-03	Gosford	Edge Hill

Human cases of Edge Hill virus have rarely been reported. Infection may present as a mild self-limiting febrile illness with body aches.

## Sydney sites



There have been no arbovirus detections in Sydney sites during the 2023-2024 surveillance season.

# 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.

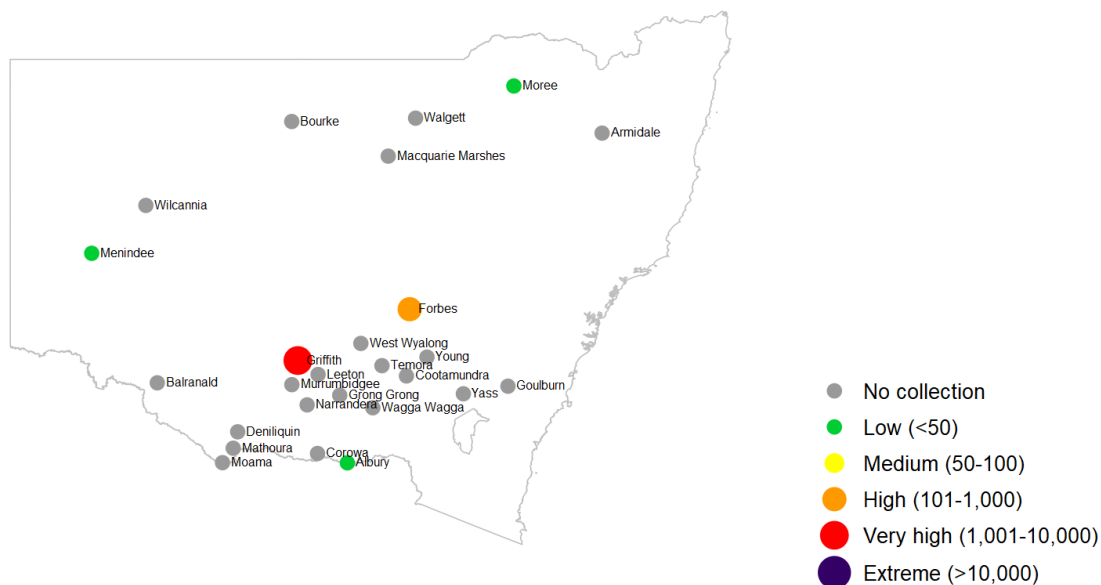
*Culex annulirostris* and *Aedes vigilax* are vectors of interest for Ross River virus and Barmah Forest virus, *Culex annulirostris* is also a vector for Japanese encephalitis virus.

## Mosquito counts

**Mosquito counts (average per trap per location) for mosquito trapping sites reported in the week ending 6 January 2024**

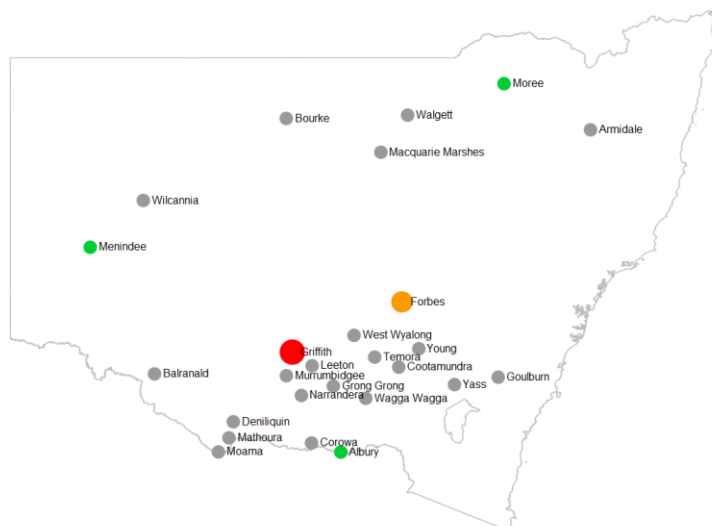
### Inland

Total mosquito counts



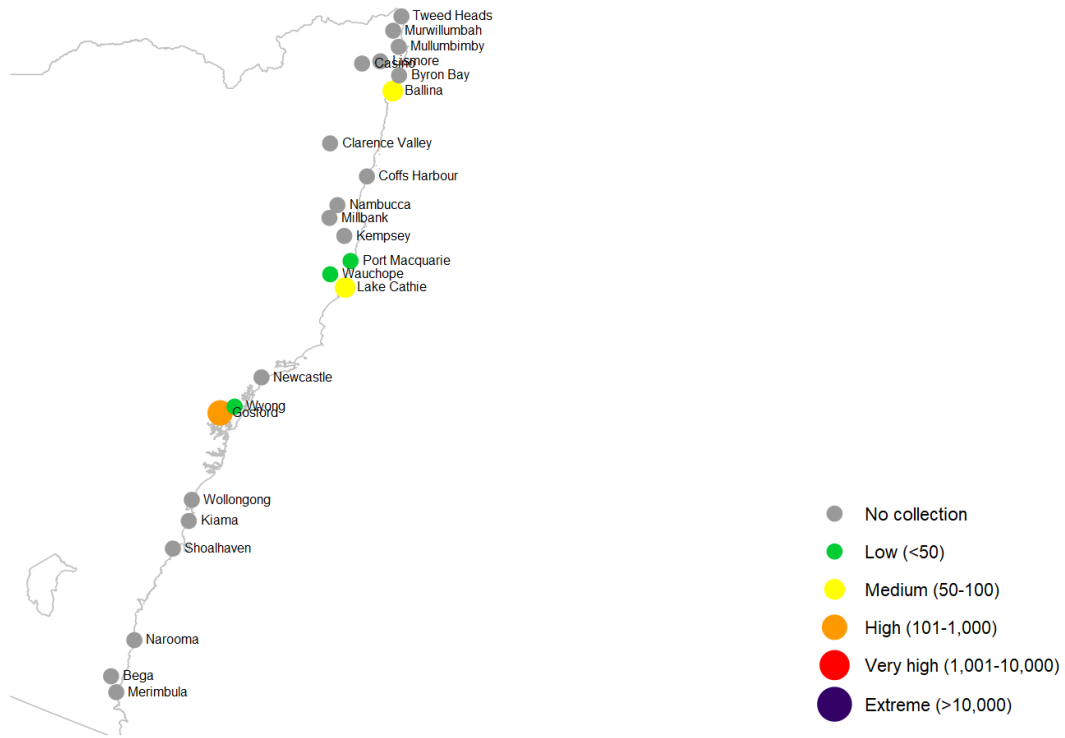
### sites

*Culex annulirostris* counts

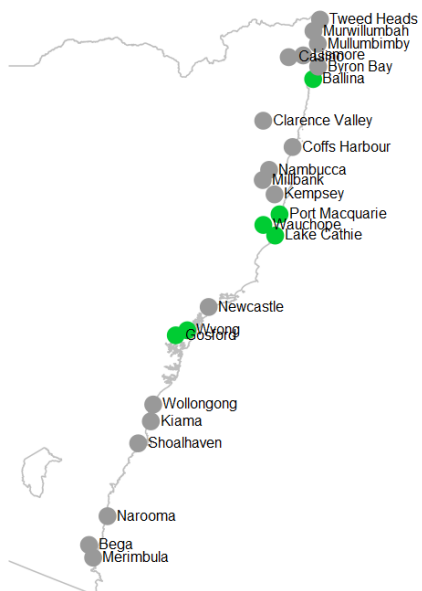


## Coastal sites

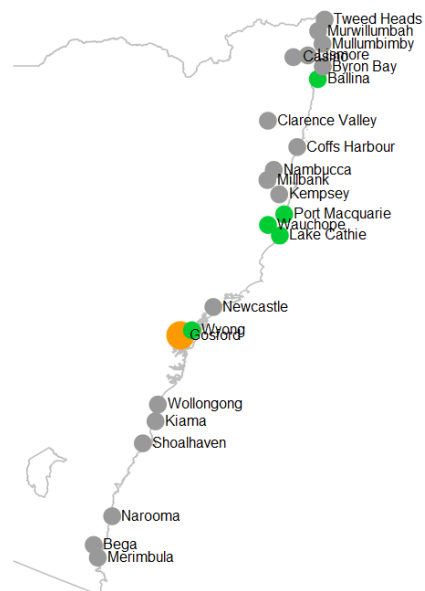
Total mosquito counts



*Culex annulirostris* counts



*Aedes vigilax* counts



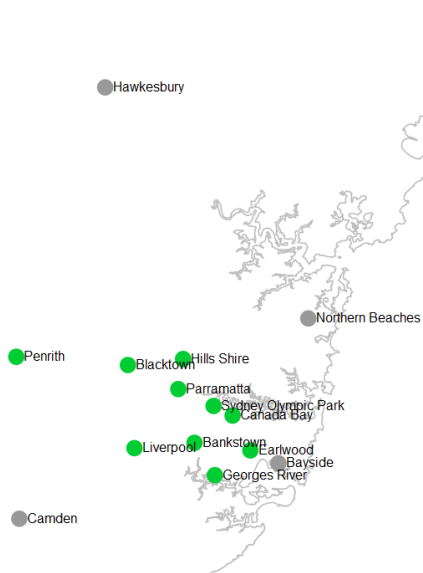


## Sydney sites

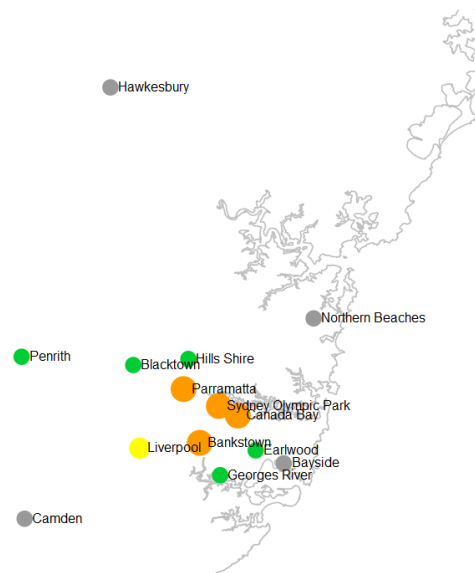
### Total mosquito counts



### *Culex annulirostris* counts



### *Aedes vigilax* counts



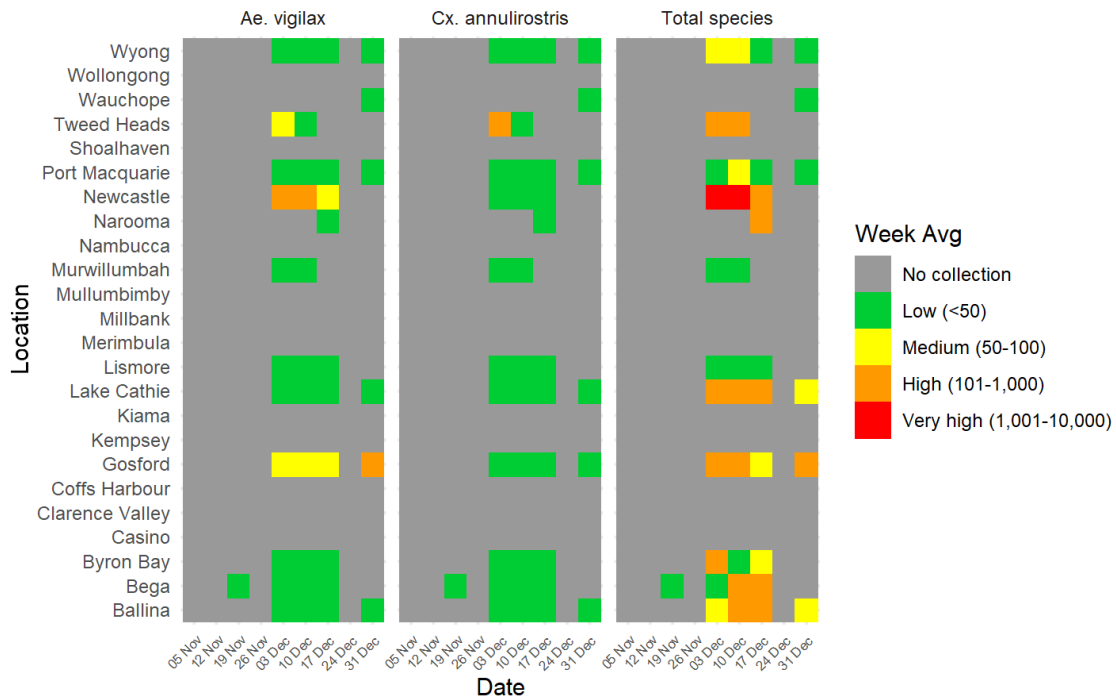
# Mosquito abundance results for the 2023-2024 season

## season

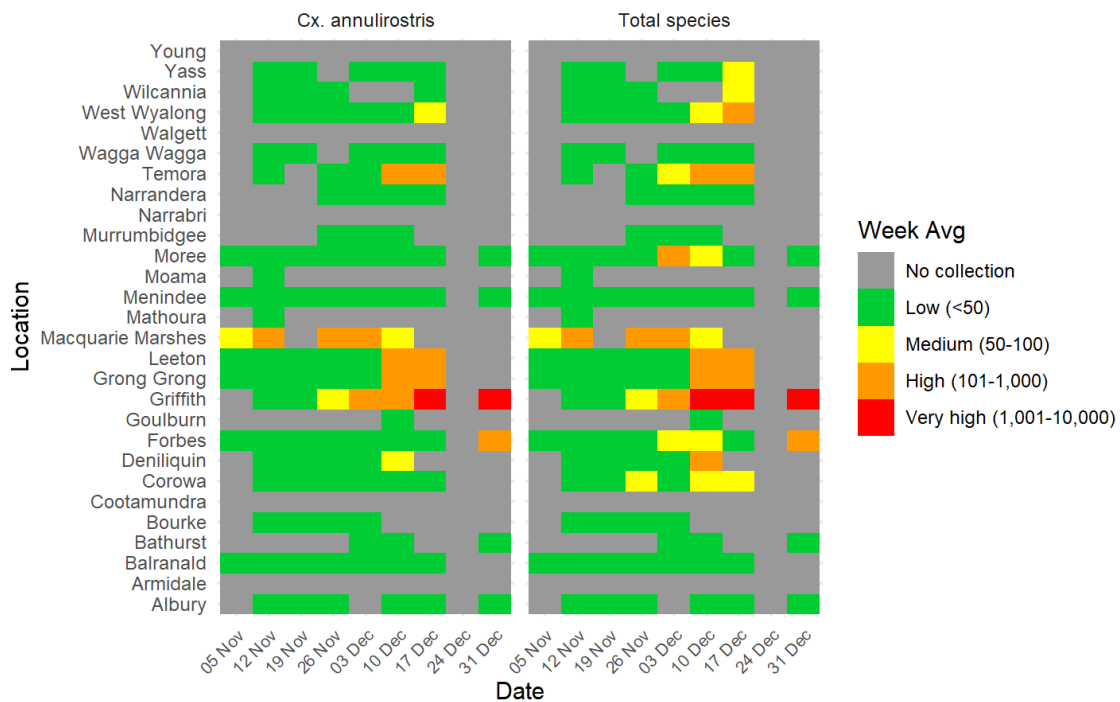
This section shows all mosquito trapping results by location and species type to date for the current arbovirus season.

### Cumulative mosquito abundance tables

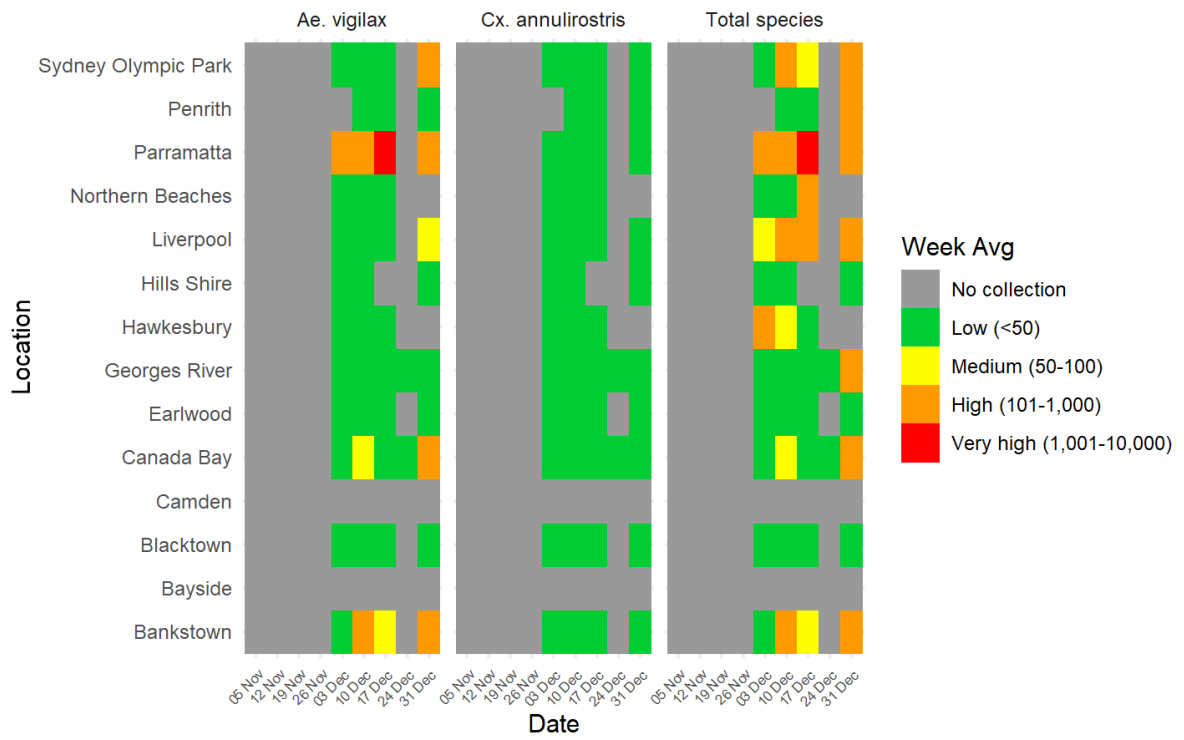
Number of mosquitoes trapped along the coast (weekly average)



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.

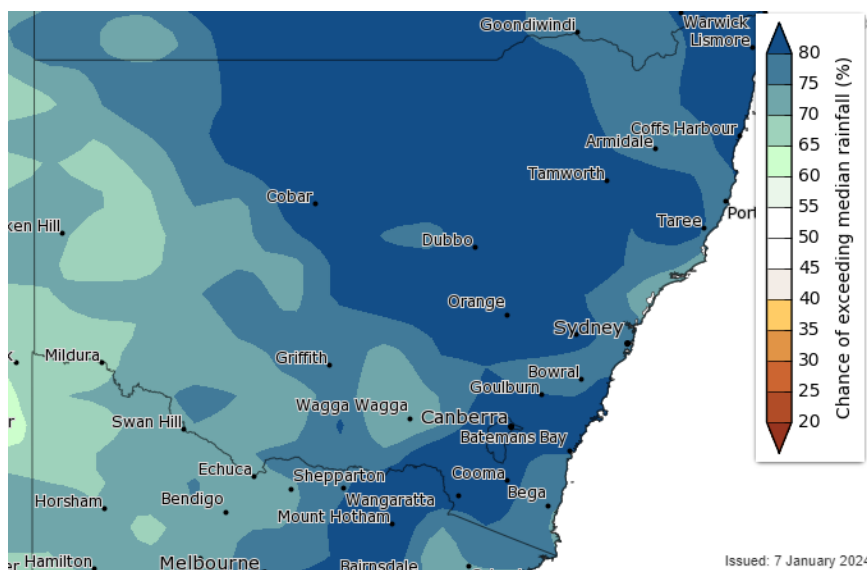
## Rainfall

In the week ending 6 January 2024, rainfall was about average in the eastern half of NSW and lower than average elsewhere. In December, rainfall in NSW was about average or above average across most of NSW.

## Upcoming week's rainfall and temperature outlook

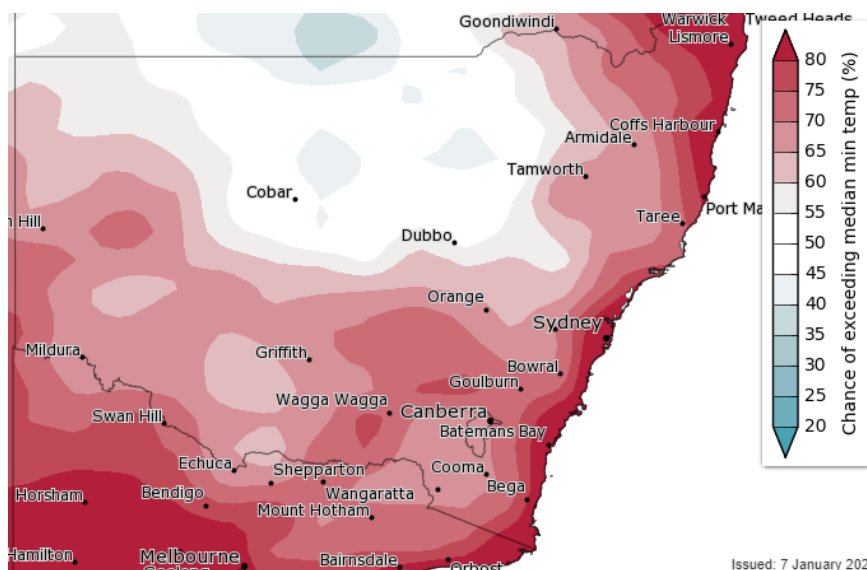
Higher than average rainfall is expected across NSW in the coming week.

### Rainfall 12 January to 18 January, 2024



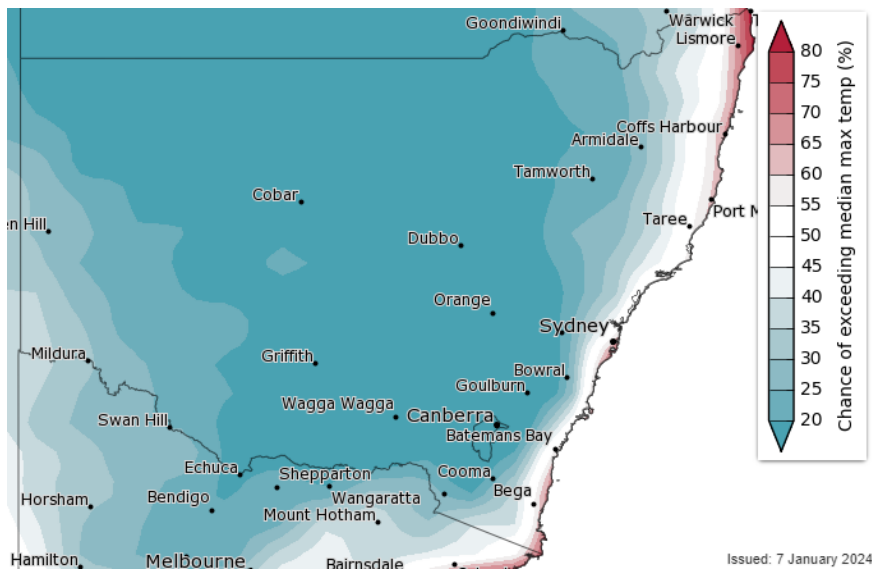
### Minimum temperature 12 January to 18 January, 2024

In the upcoming week, minimum temperatures in NSW are expected to be high across the state, except for inland areas of northern NSW, where temperatures are expected to remain at average levels.



## Maximum temperature 12 January to 18 January, 2024

In the upcoming week, maximum temperatures are forecast 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)

- 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.

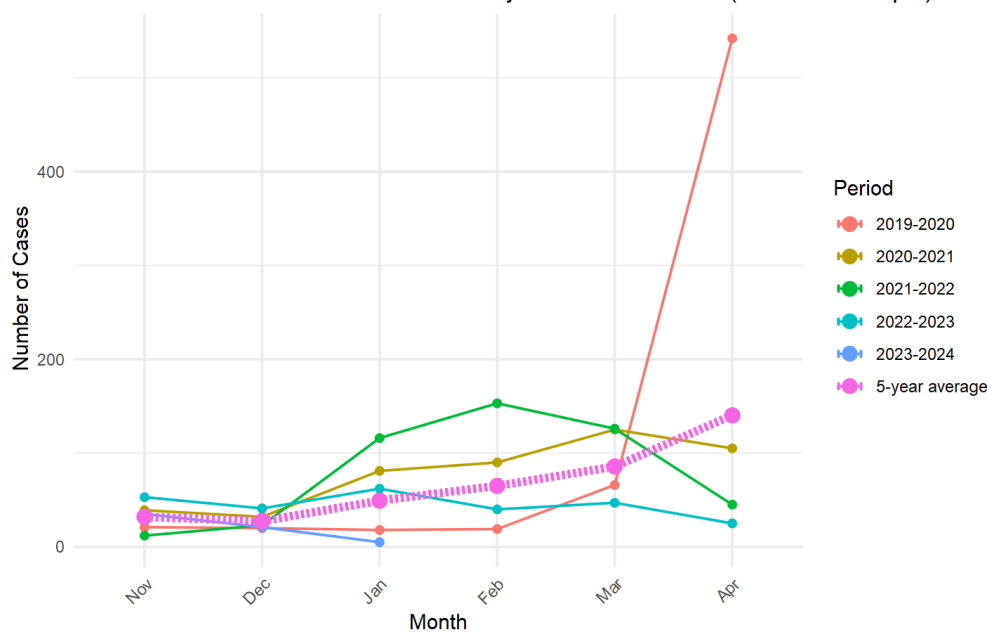
**Recent notifications of Ross River virus and Barmah Forest virus infections in humans** (by date of case report received)

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 at the [NSW Health website - infectious diseases data](#).

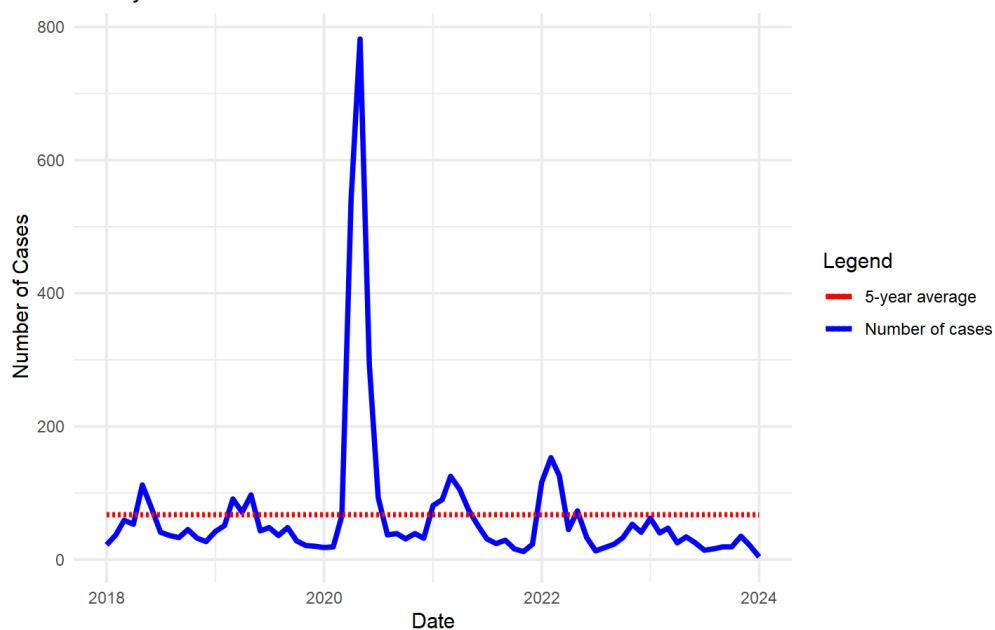
The following figures show notifications for the current NSW Arbovirus Surveillance and Mosquito Monitoring season (2023-2024), and the same period in the previous four years.

## Ross River virus

Ross River virus notifications in NSW by month since 2019 (November - April)

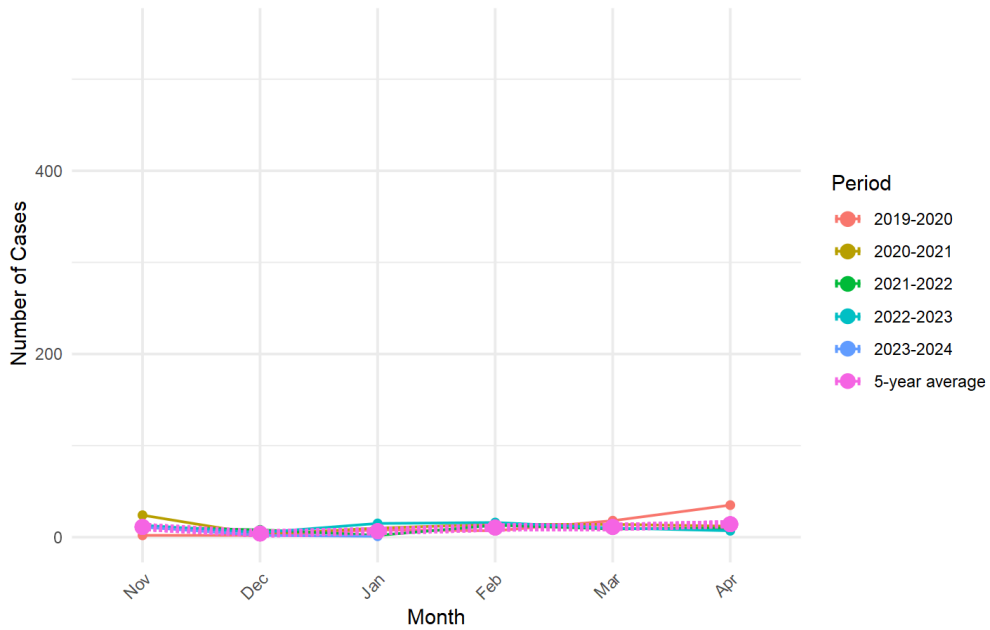


Yearly Ross River virus notification trends in NSW since 2018

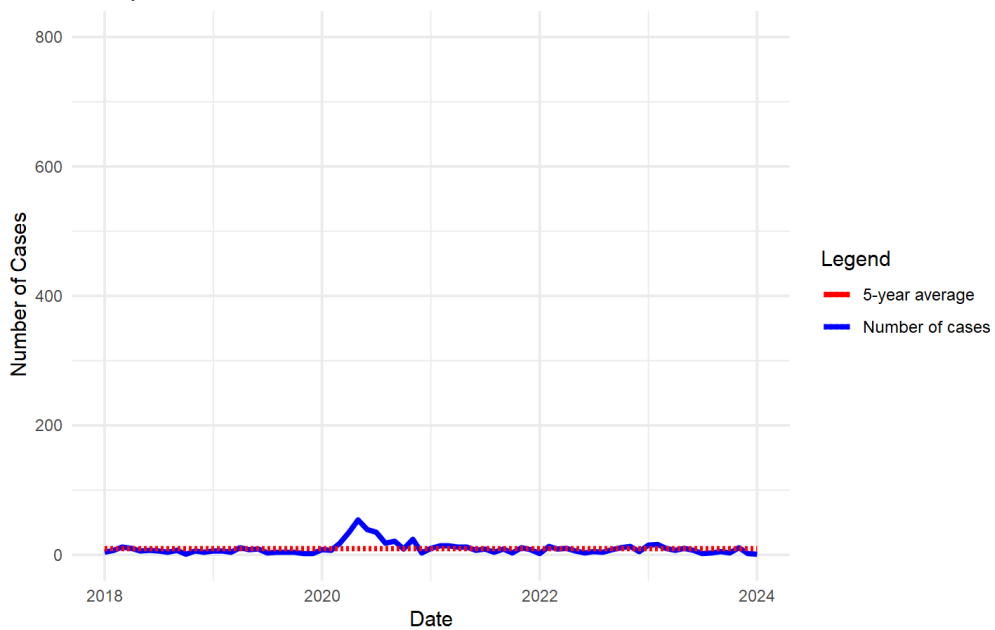


## Barmah Forest virus

Barmah Forest virus notifications in NSW by month since 2019 (November - April)



Yearly Barmah Forest virus notification trends in NSW since 2018



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