

# NSW Arbovirus Surveillance and Mosquito Monitoring 2023-2024

Environmental Health Branch, Health Protection NSW

Weekly Update: Week ending 3 February 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 3 February 2024.

### Mosquito isolates

• In the week ending 3 February 2024, Ross River virus was detected in a mosquito sample from Tweed Heads; Edge Hill virus was detected in mosquito samples from Georges River, Northern Beaches, Sydney Olympic Park, Tweed and Bankstown; and Kokobera virus was detected in mosquito samples from Forbes, Temora and Narrandera.

## Mosquito abundance

### Inland

- **Low:** Albury, Balranald, Bathurst, Menindee, Moree, Murrumbidgee, Wagga Wagga.
- **Medium:** Corowa, Macquarie Marshes, Moama, Narrandera.
- **High:** Bourke, Deniliquin, Griffith, Grong Grong, Leeton, Mathoura, Temora, Wilcannia, Yass.
- **Very high:** Forbes.

### Coastal

- **Low:** Nambucca, Wauchope, Wyong.
- **Medium:** Batemans Bay, Bega, Kempsey, Murwillumbah.
- **High:** Ballina, Byron Bay, Gosford, Lake Cathie, Narooma, Port Macquarie, Tweed Heads.
- **Very High:** Newcastle.

### Sydney

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

## Environmental conditions

### Climate

- In the week ending 3 February 2024, rainfall was average or lower than average across NSW, except for the northern region of Hunter New England and Northern NSW where rainfall was higher than average.
- In January, rainfall was slightly above average across most parts of NSW with the Northern NSW region experiencing higher than average levels of rainfall.
- In the coming week, 9 February to 15 February 2024, average or lower than average rainfall is expected across the state.
- Minimum temperatures in NSW are expected to be high throughout the southern half of NSW and along the coast and average in northern areas of Western NSW and Hunter New England. Maximum temperatures are forecast to be average or lower than average across NSW and higher than average in the southern areas of Murrumbidgee and Far West NSW along the Victorian border.

## **Tides**

• High tides over 1.8 metres are predicted for 8-13 February 2024, 8-13 March 2024, 6-12 April 2024 and 7-12 May which could trigger hatching of *Aedes vigilax*.

## **Human arboviral disease notifications**

### **Ross River virus**

One probable case was notified in the week ending 3 February 2024.

### **Barmah Forest virus**

No cases were notified in the week ending 3 February 2024.

# Arbovirus detections

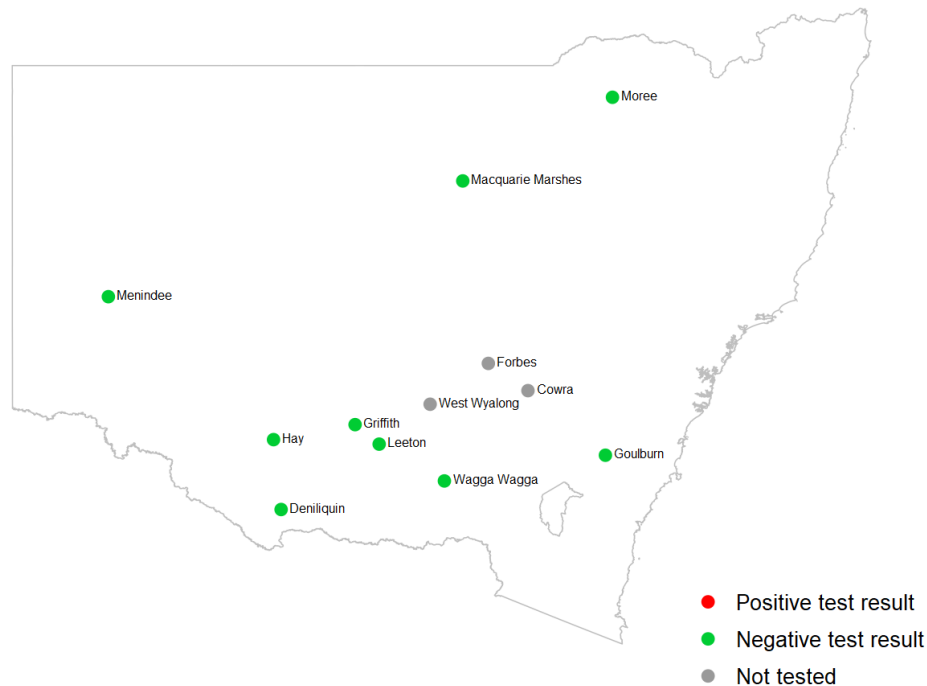
This section details detections of Murray Valley encephalitis virus, Japanese encephalitis virus, Kunjin virus, Ross River virus and Barmah Forest virus in the NSW Arbovirus Surveillance and Mosquito Monitoring Program.

## 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 3 February 2024

There were no arbovirus detections in sentinel chickens for the week ending 3 February 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.

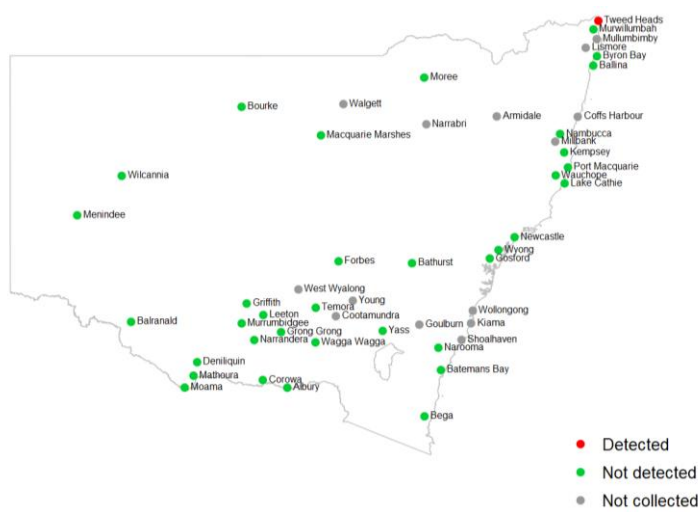
# Mosquito isolates

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 and Kokobera virus) for the season are detailed in the positive test results for the 2023-2024 surveillance season.

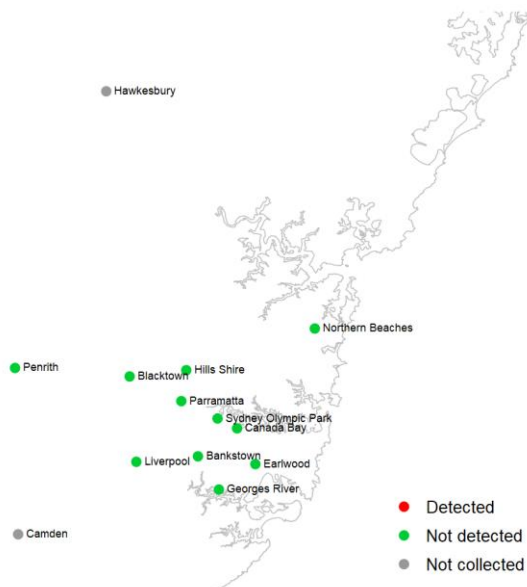
## Test results for mosquito trapping sites reported in the week ending 3 February 2024

In the week ending 3 February 2024, Ross River virus was detected in a mosquito sample from Tweed Heads; Edge Hill virus was detected in mosquito samples from Georges River, Northern Beaches, Sydney Olympic Park, Tweed and Bankstown; and Kokobera virus was detected in mosquito samples from Forbes, Temora and Narrandera.

### Inland and coastal sites



### Sydney sites



Positive test results in the 2023-2024 surveillance season.

| <b>Date of sample collection</b> | <b>Location</b>     | <b>Virus</b> |
|----------------------------------|---------------------|--------------|
| 2024-01-03                       | Gosford             | Edge Hill    |
| 2024-01-16                       | Gosford             | Edge Hill    |
| 2024-01-22                       | Macquarie Marshes   | Kokobera     |
| 2024-01-23                       | Newcastle           | Edge Hill    |
| 2024-01-23                       | Newcastle           | Edge Hill    |
| 2024-01-29                       | Temora              | Kokobera     |
| 2024-01-29                       | Narrandera          | Kokobera     |
| 2024-01-30                       | Forbes              | Kokobera     |
| 2024-01-29                       | Sydney Olympic Park | Edge Hill    |
| 2024-01-29                       | Northern Beaches    | Edge Hill    |
| 2024-01-30                       | Bankstown           | Edge Hill    |
| 2024-01-30                       | Georges River       | Edge Hill    |

**Please note:** 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

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.

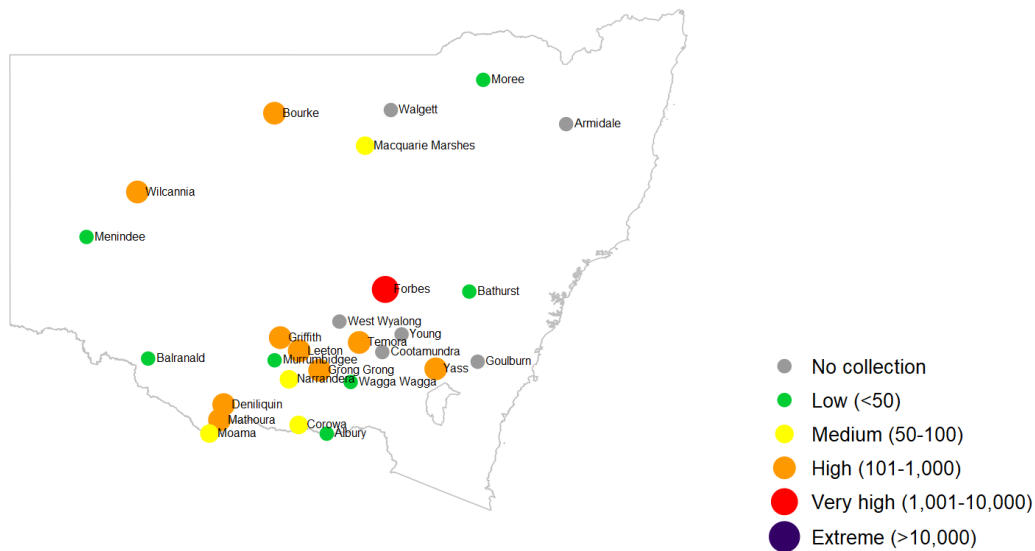
*Culex annulirostris* and *Aedes vigilax* are vectors of interest for Ross River virus and Barmah Forest virus, *Culex annulirostris* is also a vector for Japanese encephalitis virus.

## Mosquito counts

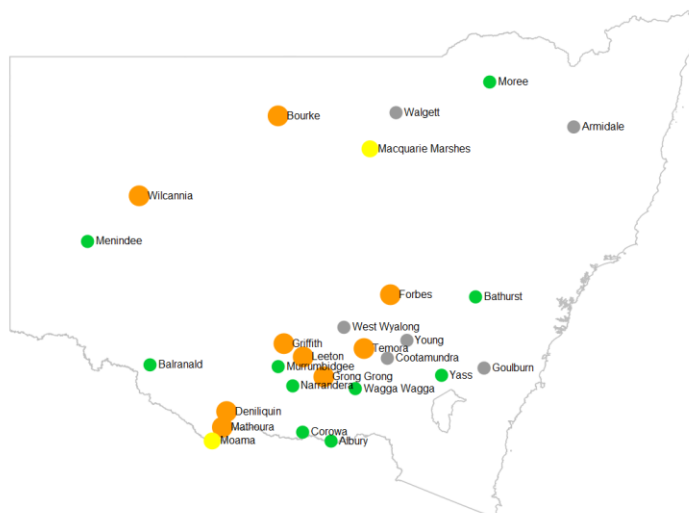
Mosquito counts (average per trap per location) for mosquito trapping sites reported in the week ending 3 February 2024

### Inland sites

Total mosquito counts

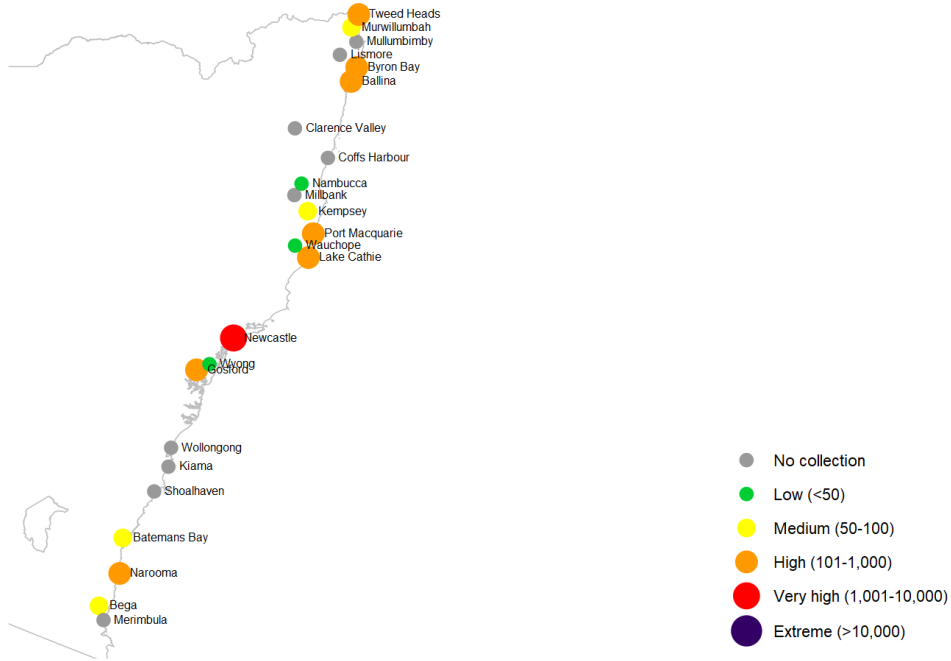


*Culex annulirostris* counts

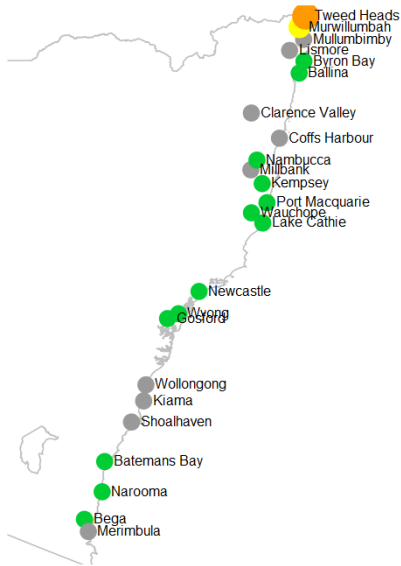


## Coastal sites

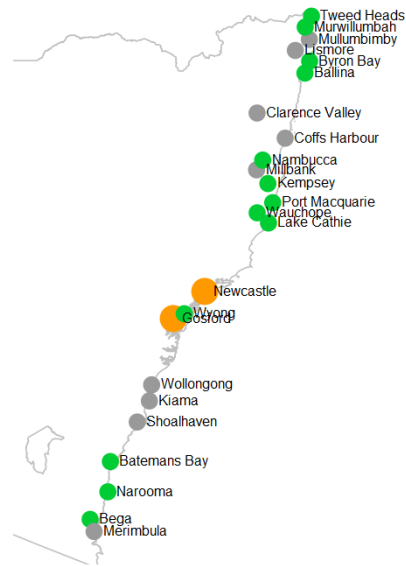
Total mosquito counts



*Culex annulirostris* counts



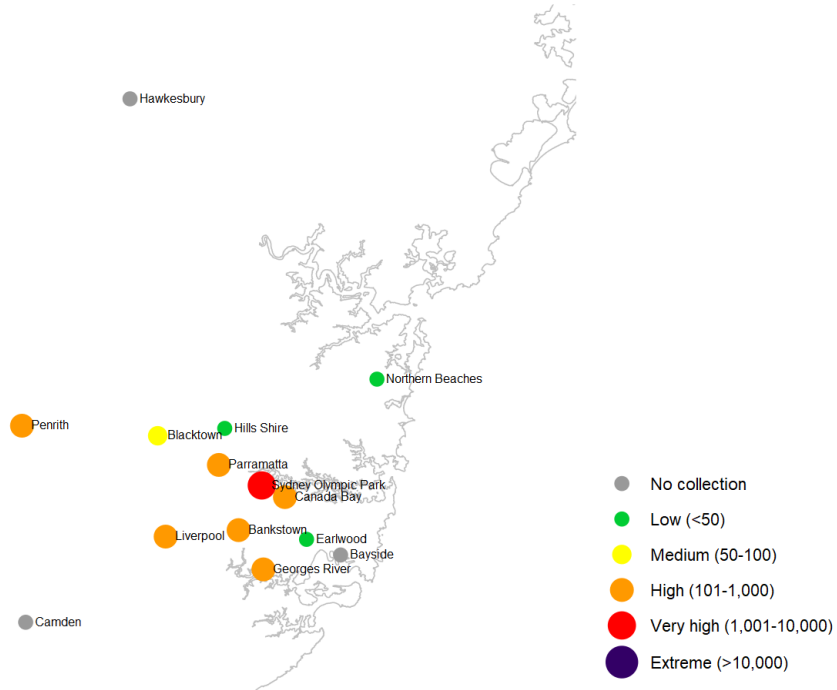
*Aedes vigilax* counts



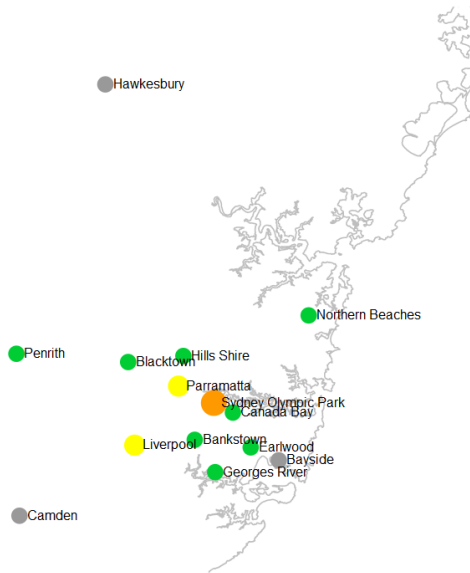


## Sydney sites

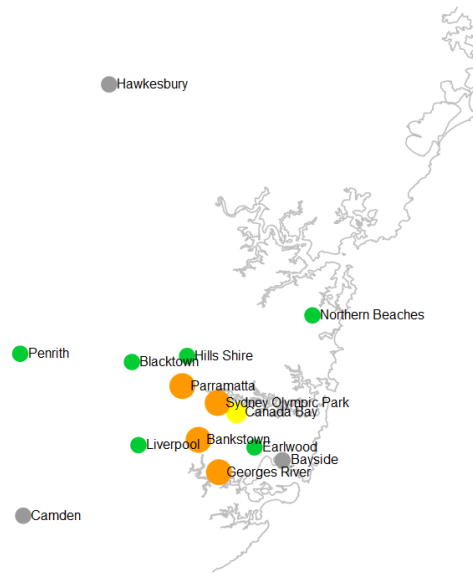
Total mosquito counts



*Culex annulirostris* counts



*Aedes vigilax* counts



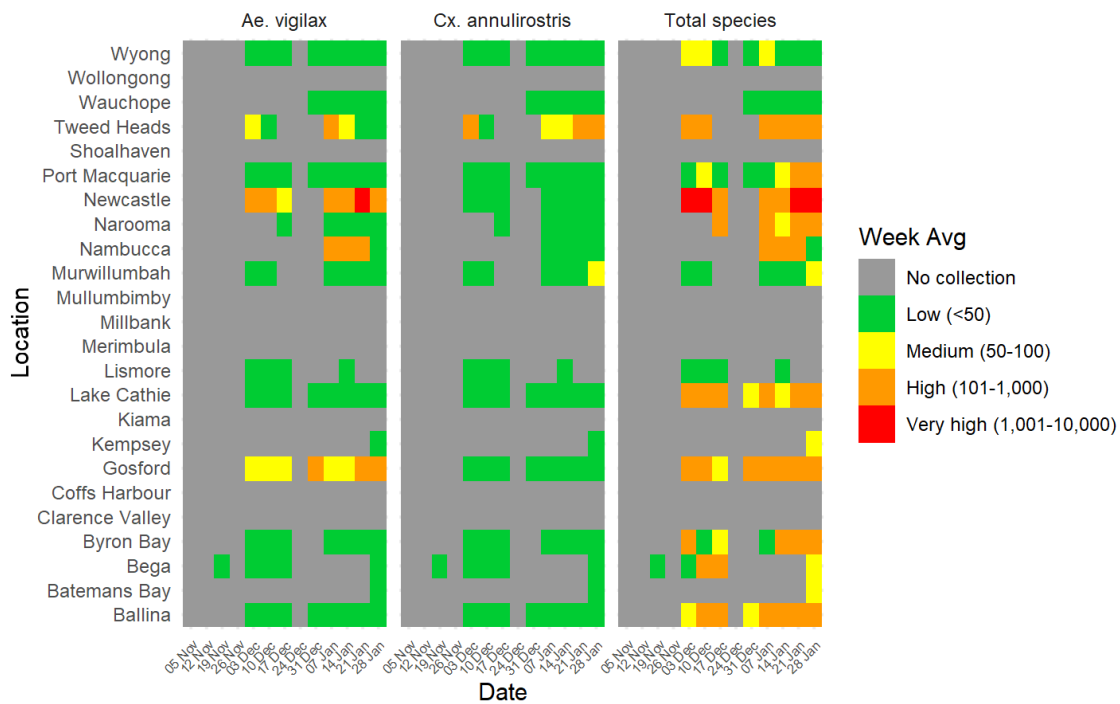
# Mosquito abundance results for the 2023-2024 season

## season

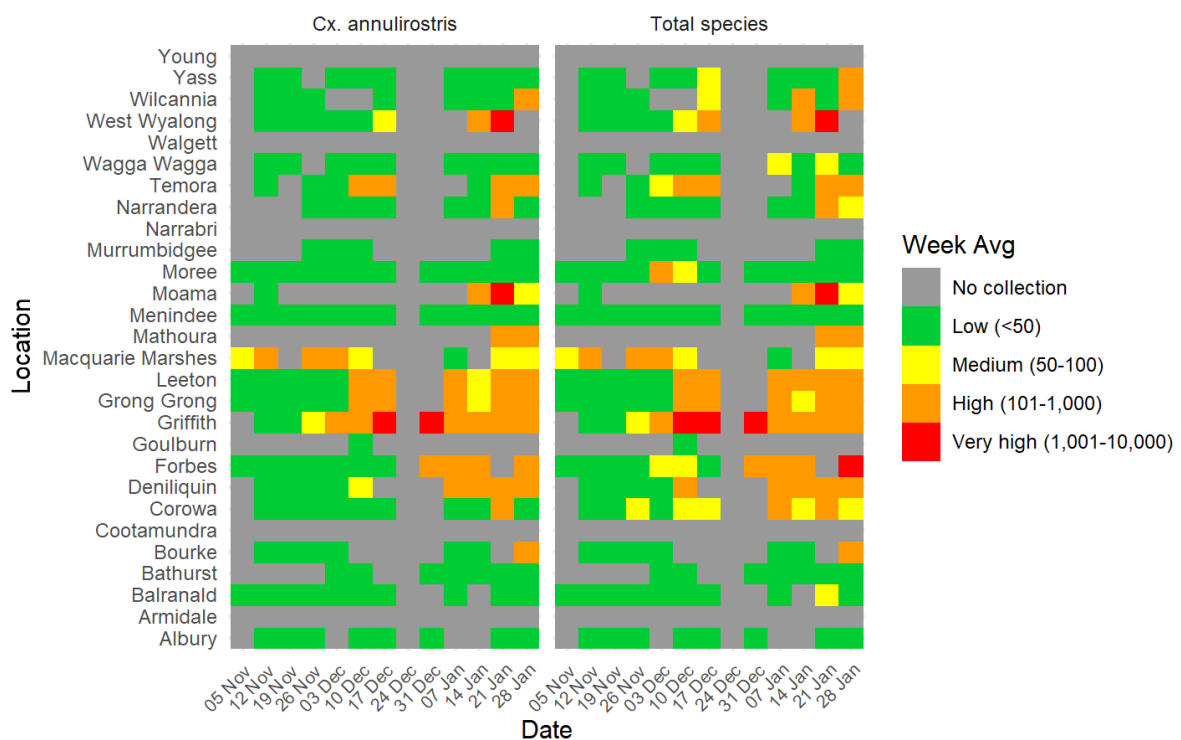
This section shows all mosquito trapping results by location and species type to date for the current arbovirus season.

### Cumulative mosquito abundance tables

Number of mosquitoes trapped along the coast (weekly average)



Number of mosquitoes trapped inland (weekly average)





# 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.

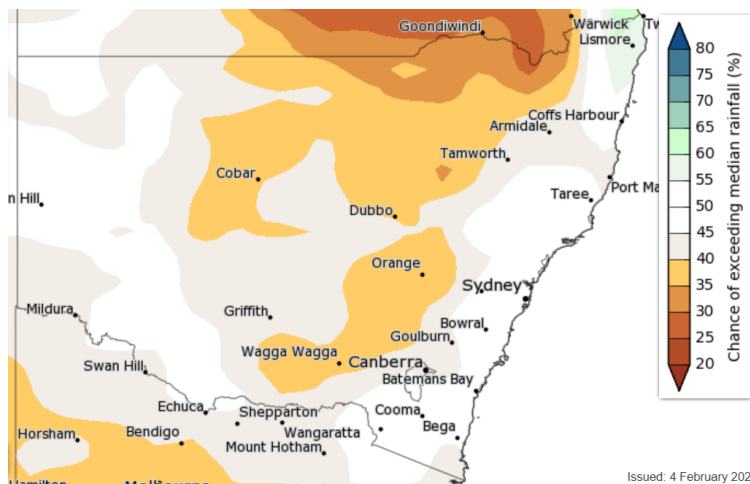
## Rainfall

In the week ending 3 February 2024, rainfall was average, or lower than average across NSW, except for the northern region of Hunter New England and Northern NSW where rainfall was higher than average. In January, rainfall was slightly above average across most parts of NSW with the Northern NSW region experiencing particularly high levels of rainfall.

## Upcoming week's rainfall and temperature outlook

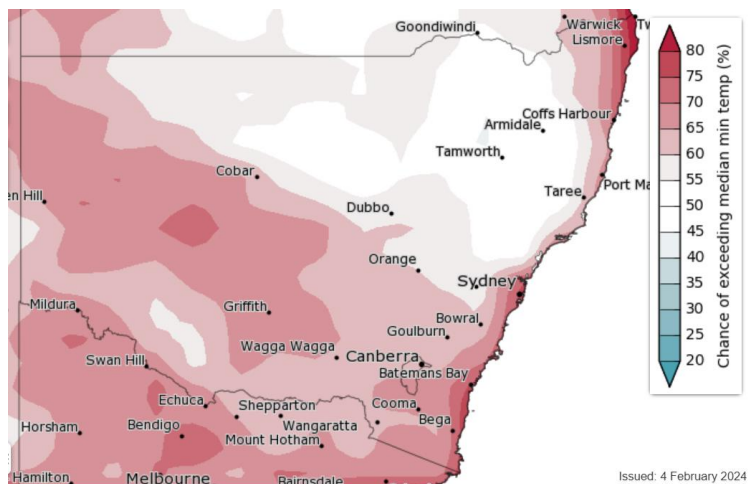
Average or lower than average rainfall is expected across NSW in the coming week.

### Rainfall 9 February to 15 February, 2024



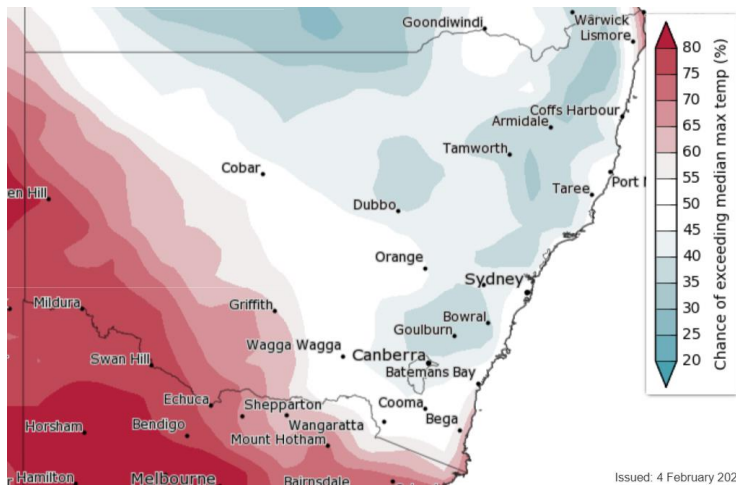
### Minimum temperature 9 February to 15 February, 2024

In the upcoming week, minimum temperatures are expected to be high throughout the southern half of NSW and along the coast. However, in specific regions including northern areas of Western NSW and Hunter New England, the minimum temperature is expected to be average.



## Maximum temperature 2 February to 8 February, 2024

In the upcoming week, maximum temperatures are forecast to be average or lower than average across NSW and higher than average in the southern areas of Murrumbidgee and Far West NSW along the Victorian border.



## 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)

- 8-13 February 2024
- 8-13 March 2024
- 6-12 April 2024
- 7-12 May

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

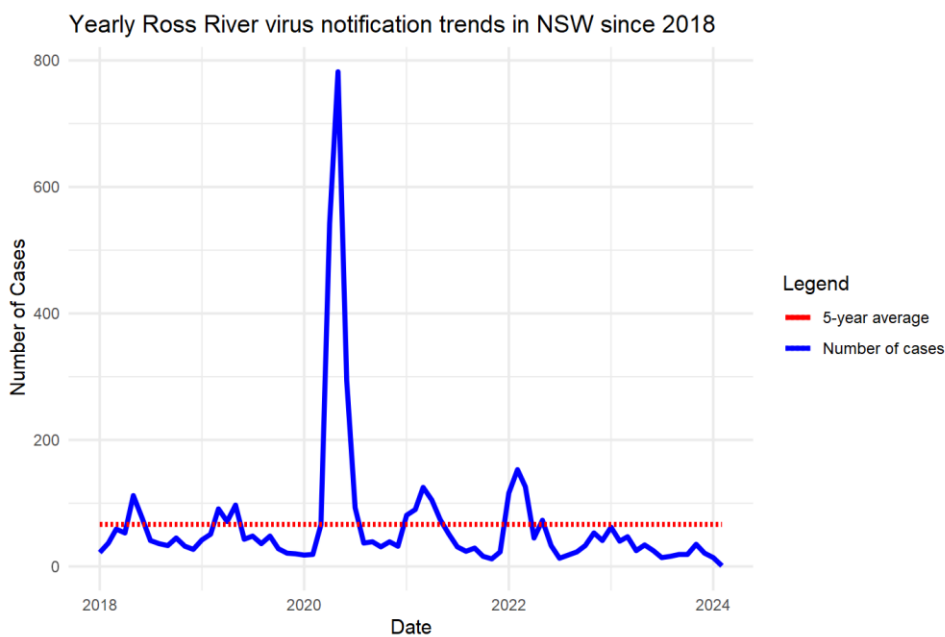
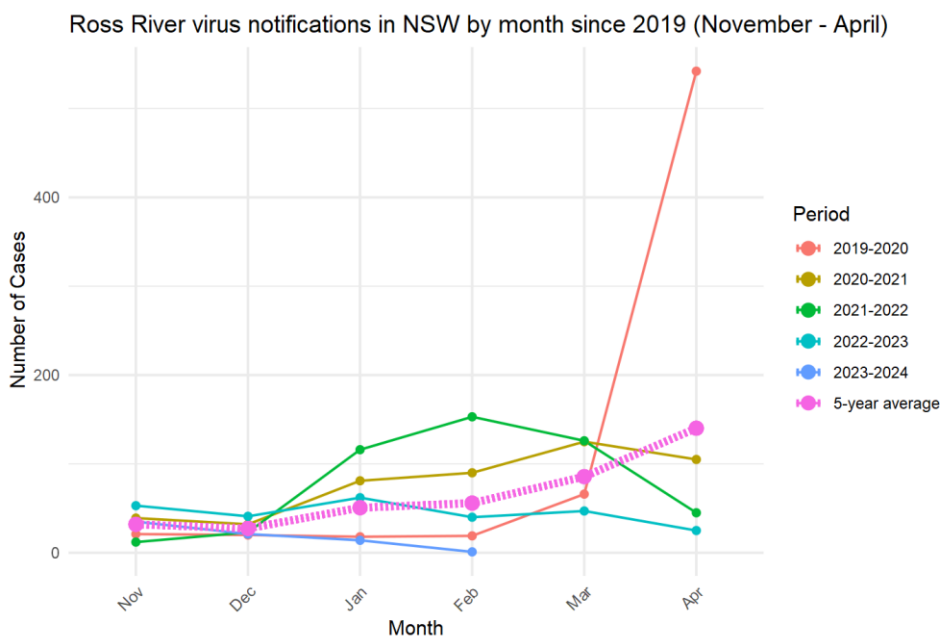
Under the *NSW Public Health Act 2010*, human arboviral infections are notifiable in NSW.

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

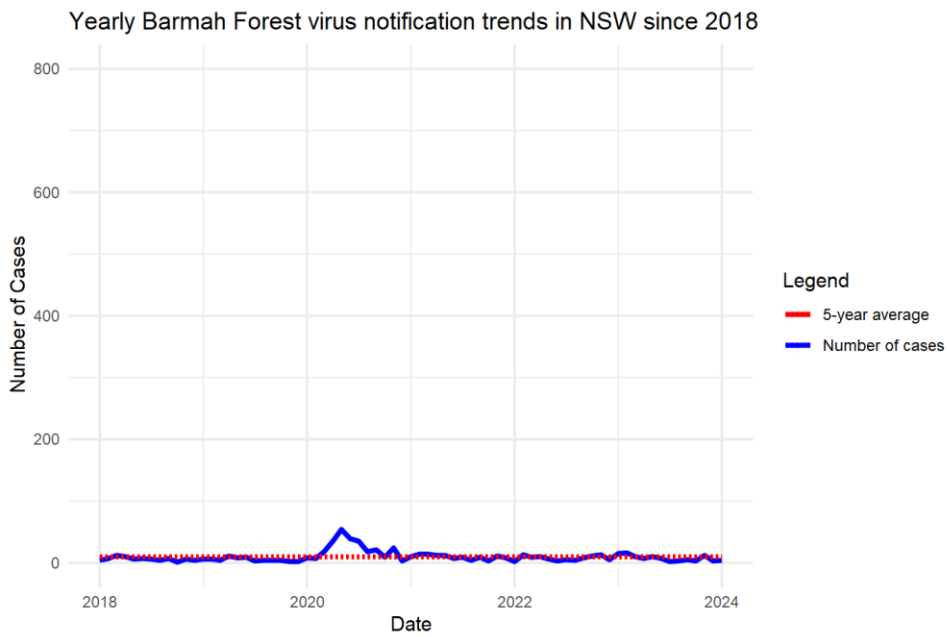
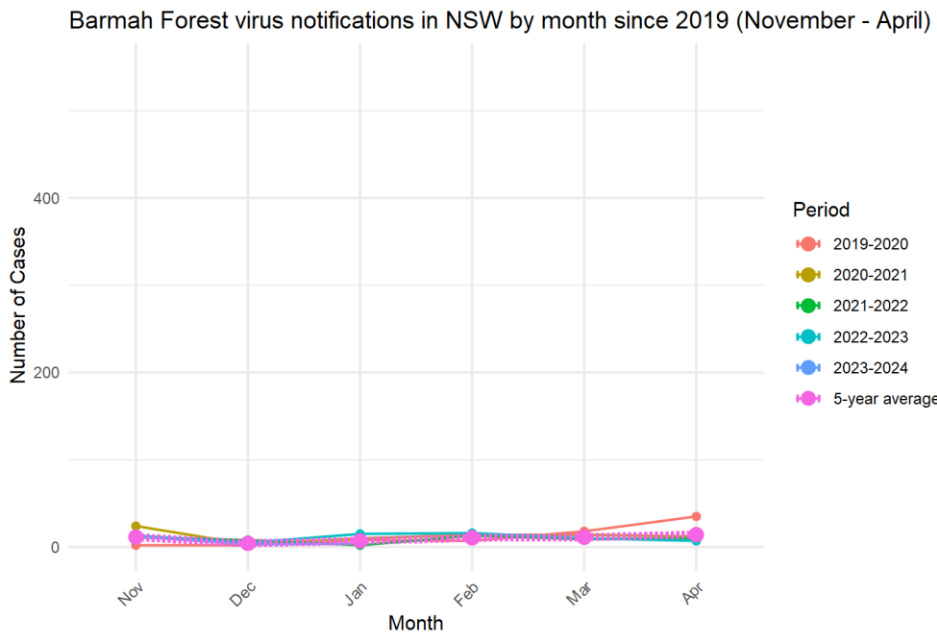
Notifications of Ross River virus and Barmah Forest virus infections, by month of disease onset (the earlier of patient-reported onset or specimen collection date), are available online at the [NSW Health website - infectious diseases data](#).

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



## Barmah Forest virus



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