

NSW Arbovirus Surveillance and Mosquito Monitoring 2023-2024

Environmental Health Branch, Health Protection NSW

Weekly update: Week ending 23 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

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

A sentinel chicken from Menindee has tested positive for Japanese Encephalitis Virus. The sample was collected on 17 December 2023.

Mosquito Isolates

There were no arbovirus detections in mosquitoes.

Mosquito abundance

Inland

- **Low:** Albury, Balranald, Forbes, Menindee, Moree, Narrandera, Wagga Wagga.
- **Medium:** Corowa, Wilcannia, Yass.
- **High:** Grong Grong, Leeton, Temora, West Wyalong.
- **Very high:** Griffith.

Coastal

- **Low:** Lismore, Port Macquarie, Wyong.
- **Medium:** Byron Bay, Gosford.
- **High:** Ballina, Bega, Lake Cathie, Narooma, Newcastle.

Sydney

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

Environmental conditions

Climate

- In the week ending 23 December 2023, rainfall was about average in the eastern half of NSW and low to about average elsewhere.
- In November, rainfall in NSW was above average or very much above average across most of NSW.
- In the coming week, higher than average rainfall is expected across NSW.
- Minimum and maximum temperatures are expected to be lower than average across NSW in the coming week, apart from coastal areas near the Queensland border where minimum temperatures are expected to be higher than average.

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

Two probable cases were notified in the week ending 23 December 2023.

Barmah Forest virus

No cases were notified in the week ending 23 December 2023.

Arbovirus detections

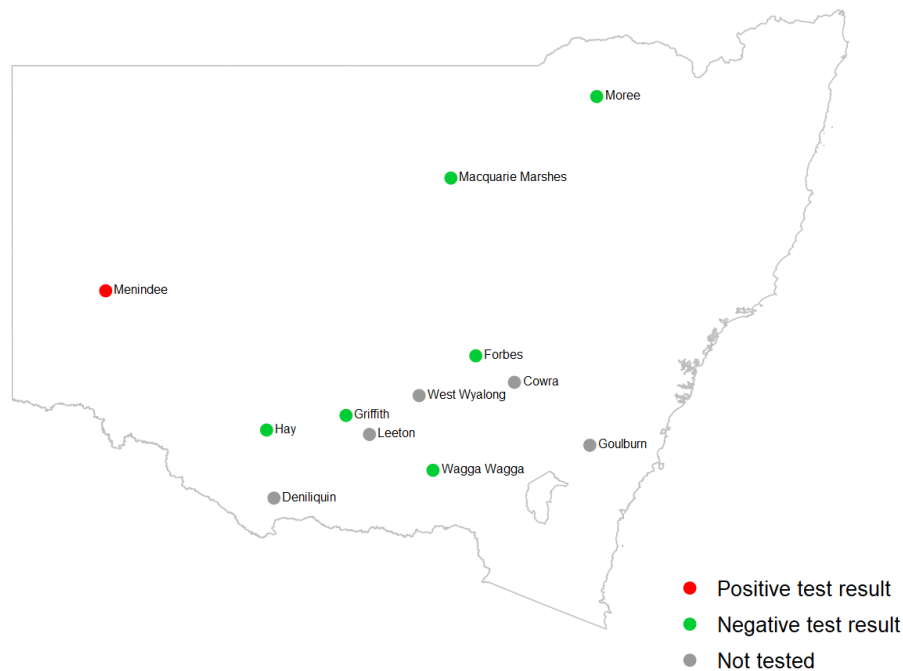
This section details detections of Murray Valley encephalitis virus, Japanese encephalitis virus, Kunjin virus, Ross River virus and Barmah Forest virus in the NSW Arbovirus Surveillance and Mosquito Monitoring Program.

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 23 December 2023

A sentinel chicken from Menindee has tested positive for Japanese Encephalitis Virus. The sample was collected on 17 December 2023.



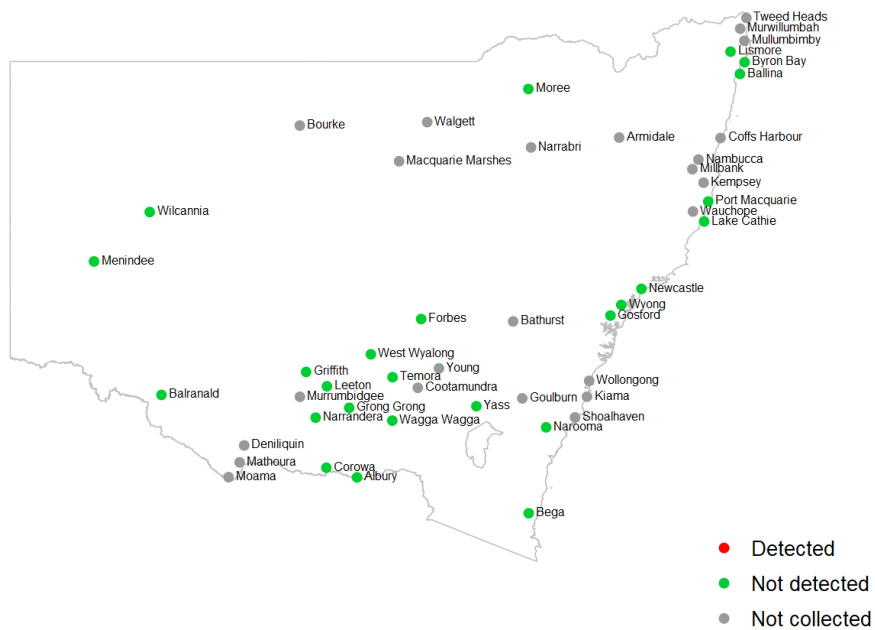
Mosquito isolates

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.

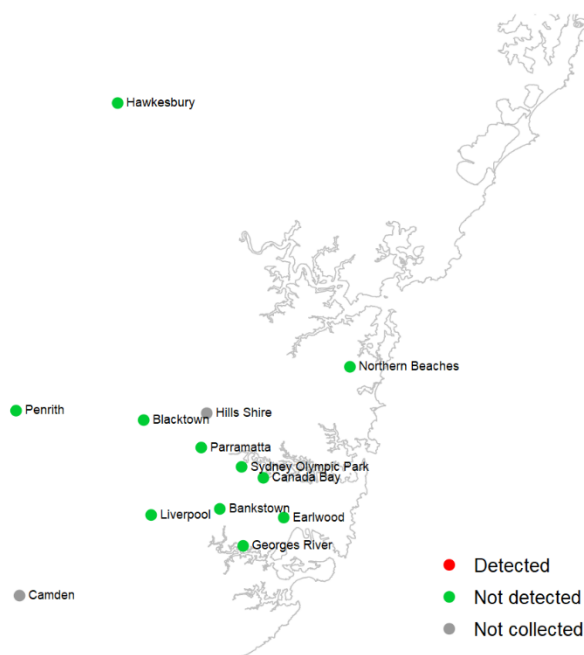
Test results for mosquito trapping sites reported in the week ending 23 December 2023

There were no arbovirus detections at inland sites in the week ending 23 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.

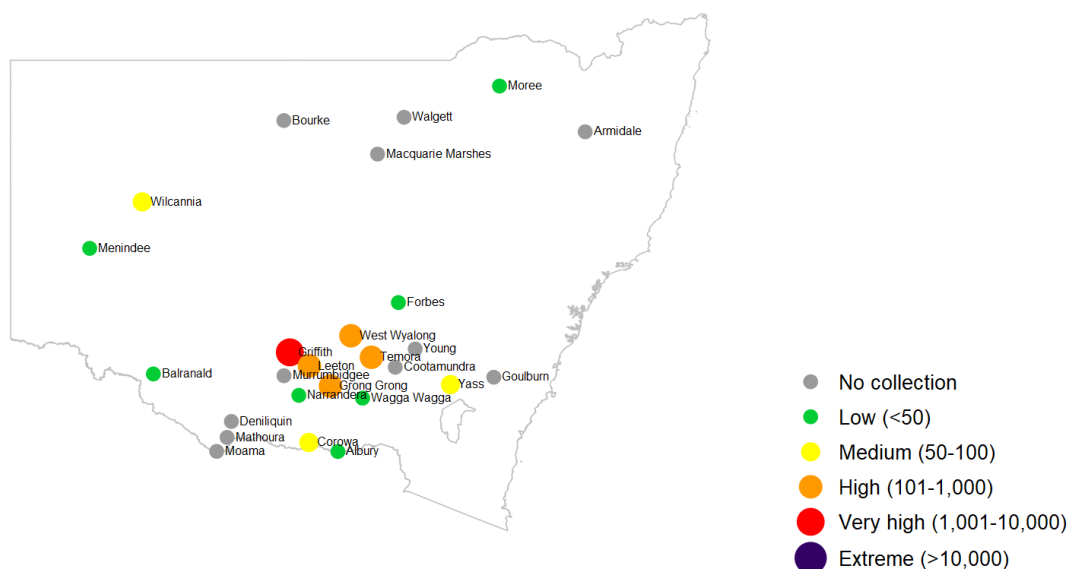
Culex annulirostris and *Aedes vigilax* are vectors of interest for Ross River virus and Barmah Forest virus, *Culex annulirostris* is also a vector for Japanese encephalitis virus.

Mosquito counts

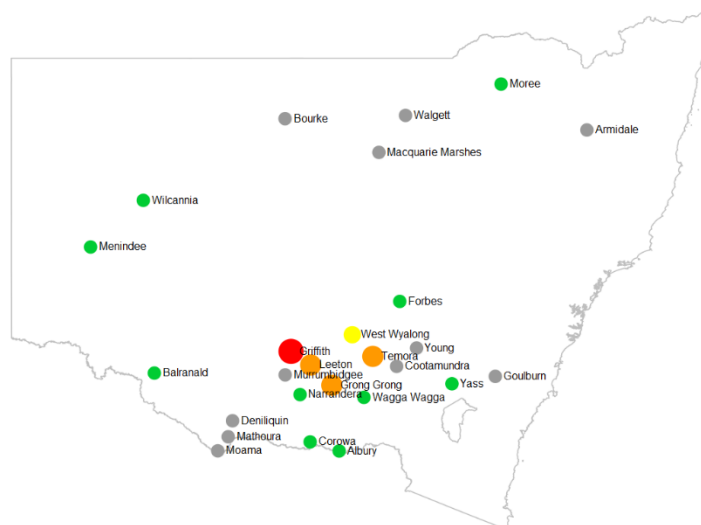
Mosquito counts (average per trap per location) for mosquito trapping sites reported in the week ending 23 December 2023

Inland sites

Total mosquito counts

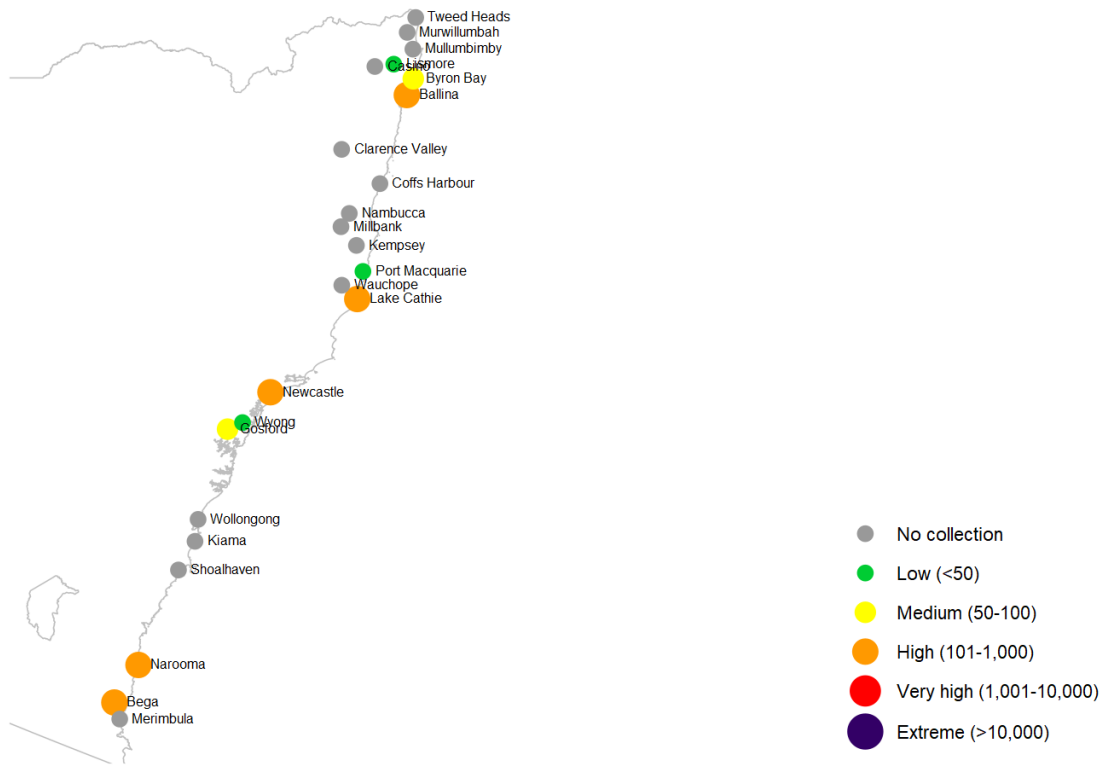


Culex annulirostris counts

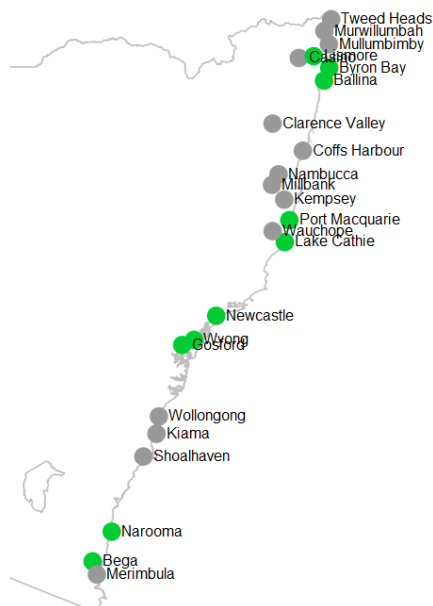


Coastal sites

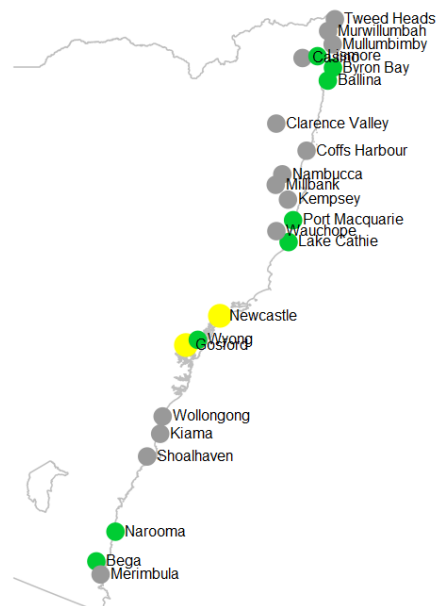
Total mosquito counts



Culex annulirostris counts

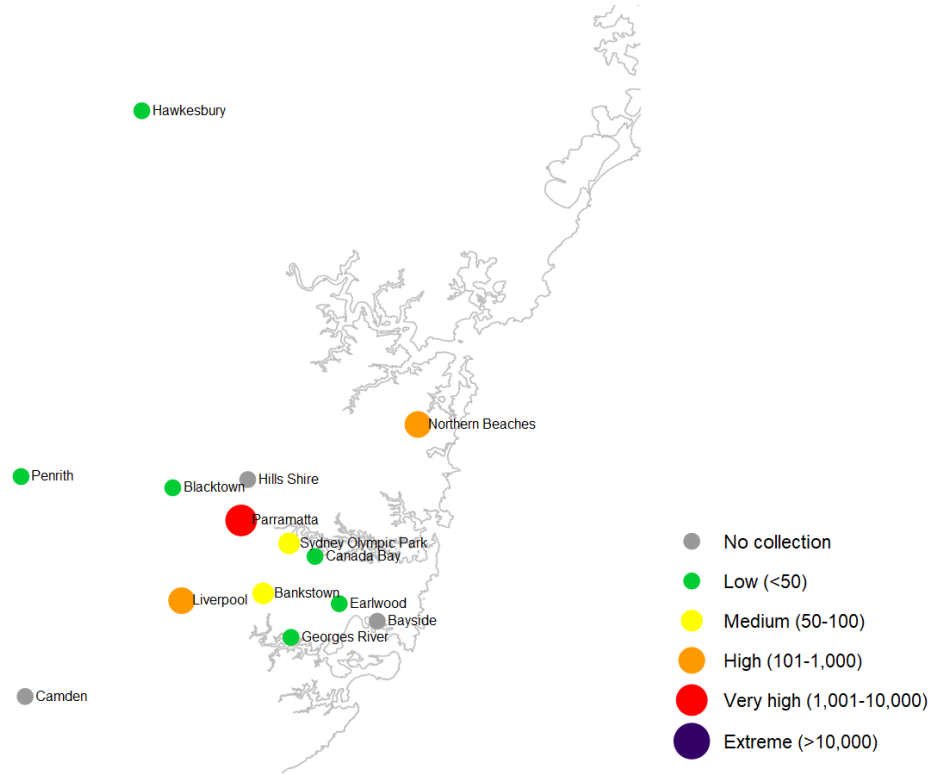


Aedes vigilax counts

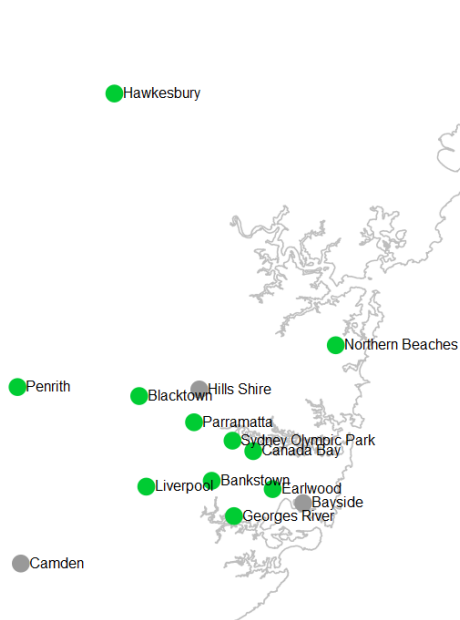


Sydney sites

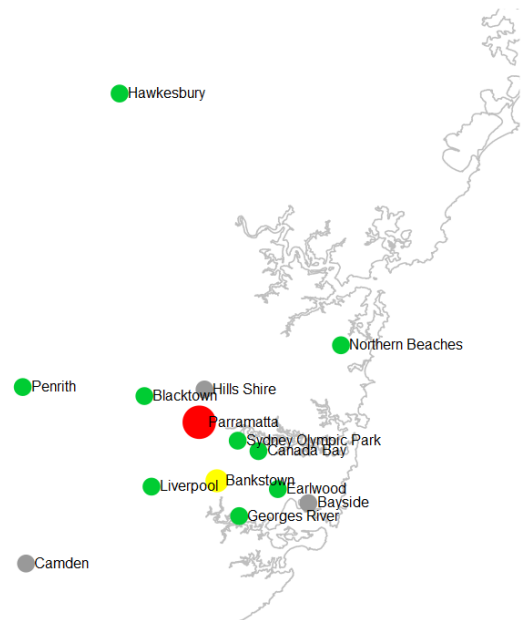
Total mosquito counts



Culex annulirostris counts



Aedes vigilax counts

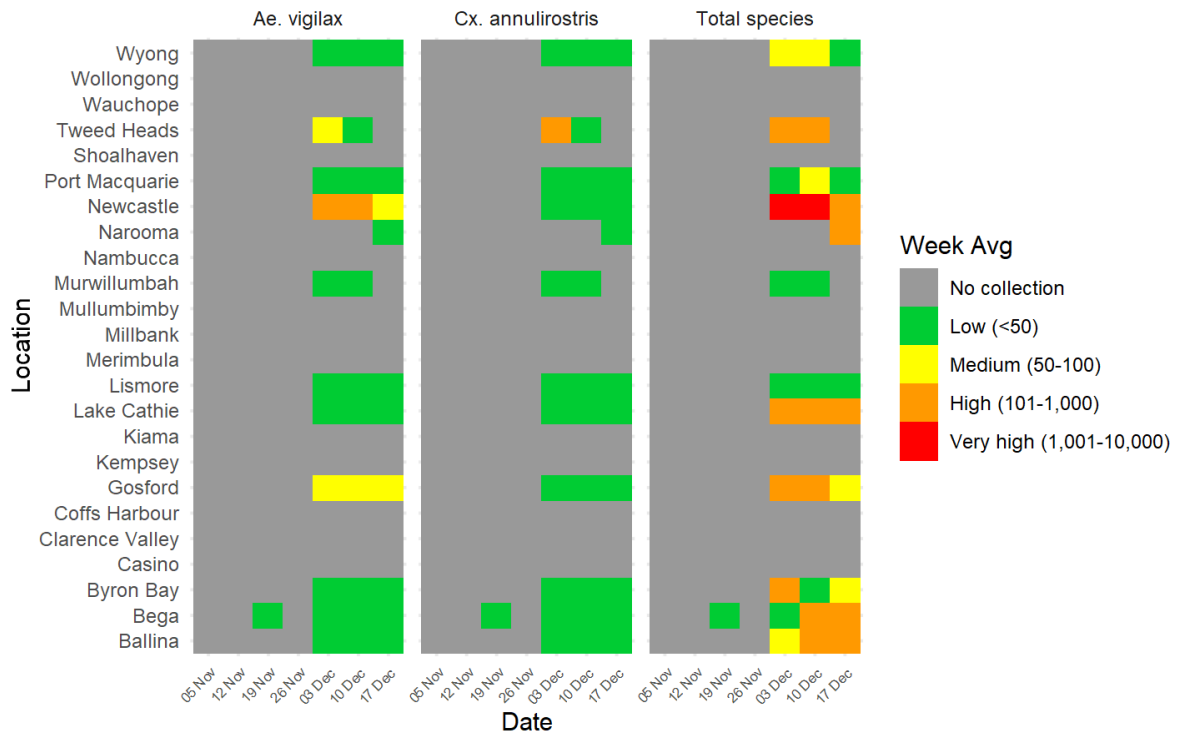


Mosquito abundance results for the entire 2023-2024 season

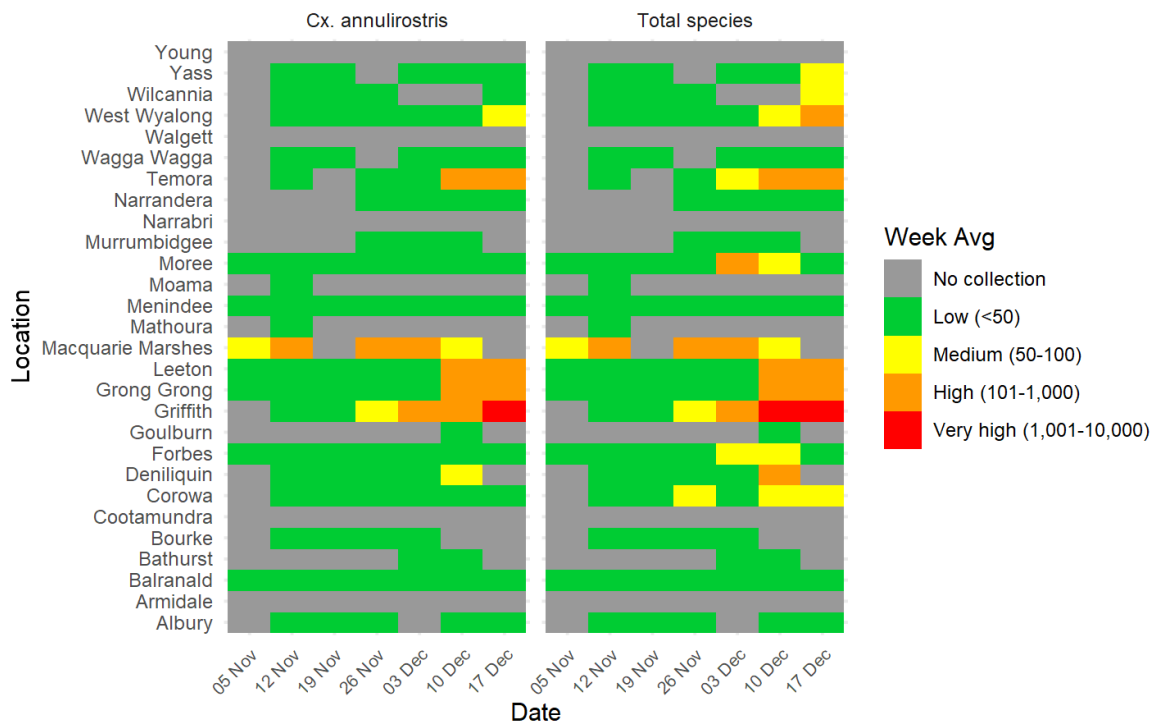
This section shows all mosquito trapping results by location and species type to date for the current arbovirus season.

Cumulative mosquito abundance tables

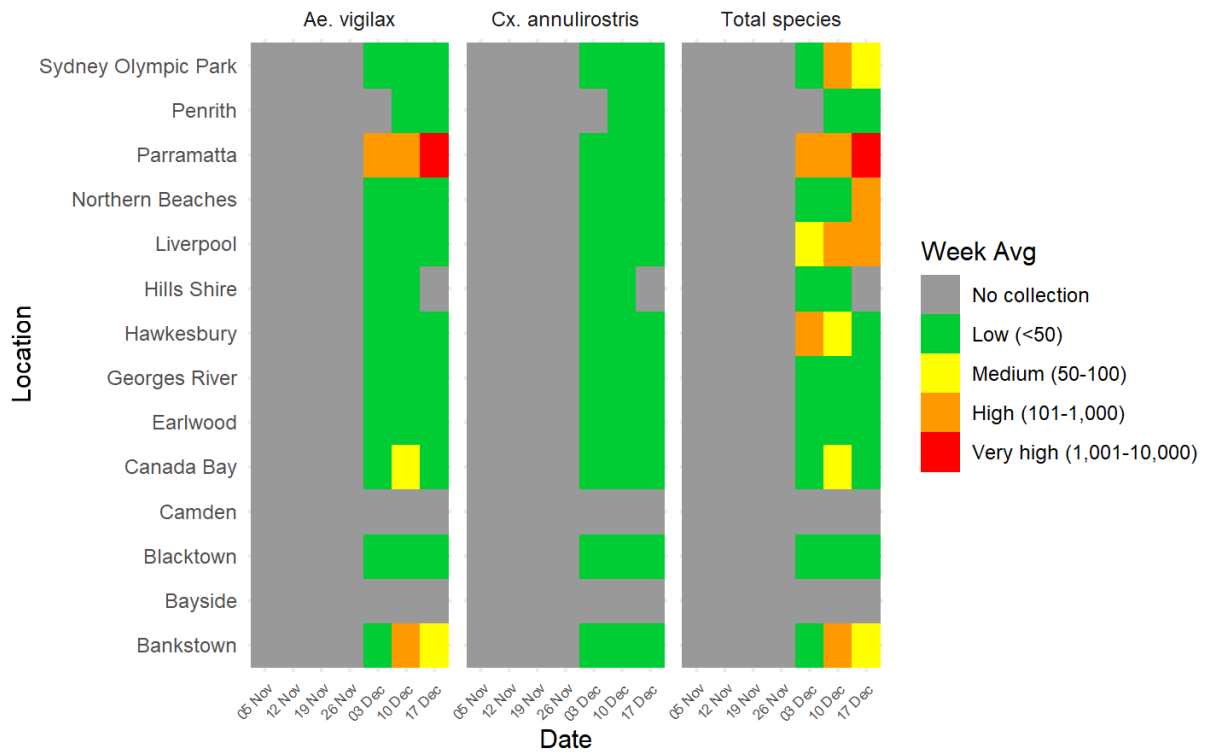
Number of mosquitoes trapped along the coast (weekly average)



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.

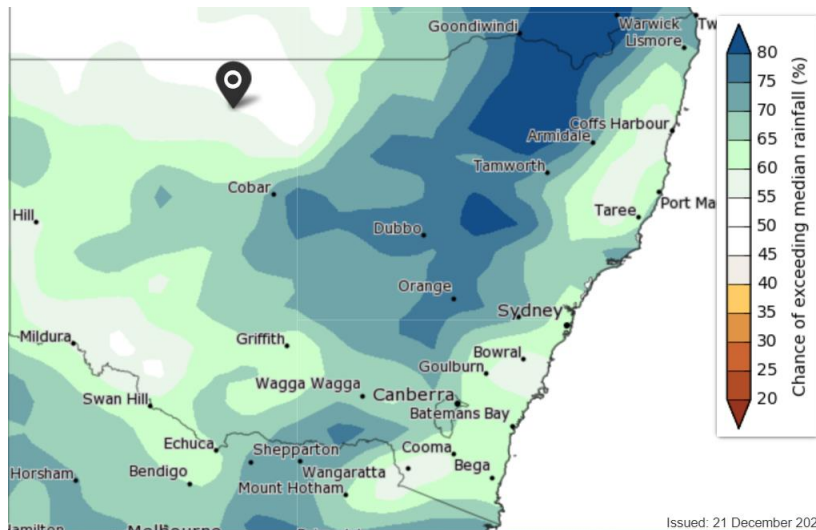
Rainfall

In the week ending 23 December 2023, rainfall was about average in the eastern half of NSW and low to about average elsewhere. In November, rainfall in NSW was above average or very much above average across most of NSW.

Upcoming week's rainfall and temperature outlook

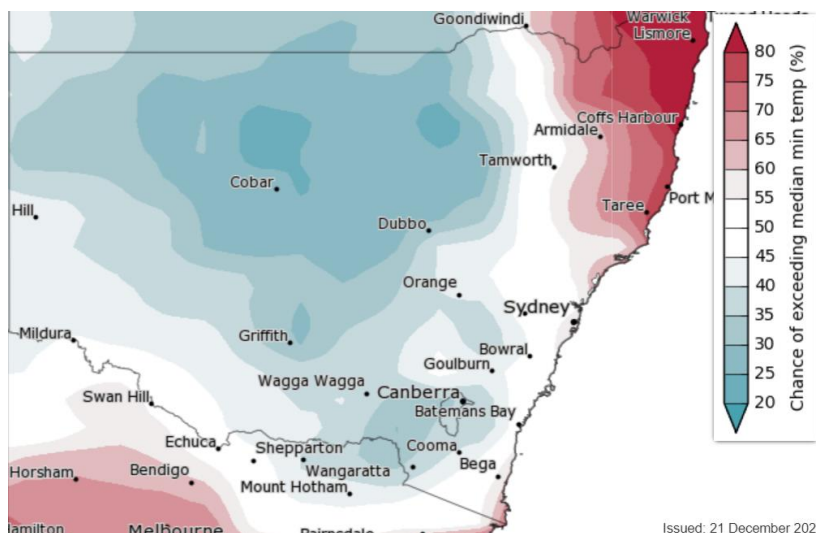
Higher than average rainfall is expected across NSW in the coming week.

Rainfall 26 December to 1 January, 2024



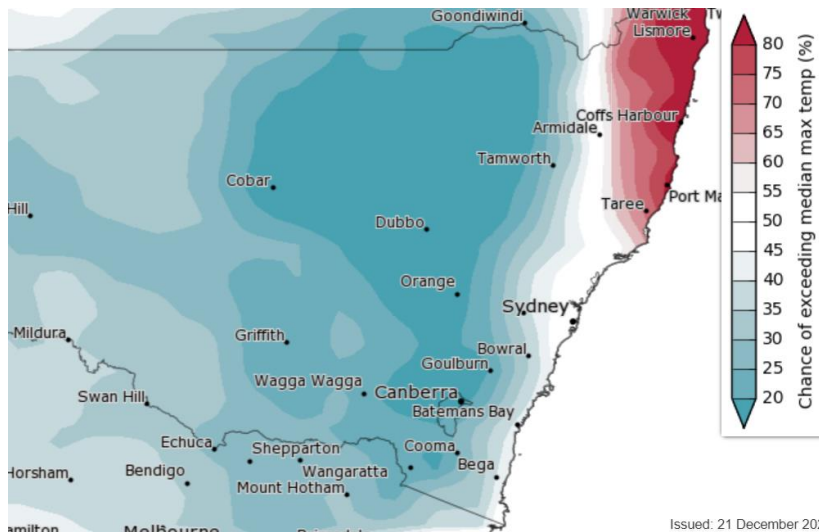
Minimum temperature 26 December to 1 January, 2024

In the upcoming week, minimum temperatures in NSW are expected to be lower than average across NSW apart from coastal areas closer to the Queensland border where they are expected to be higher than average.



Maximum temperature 26 December to 1 January, 2024

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

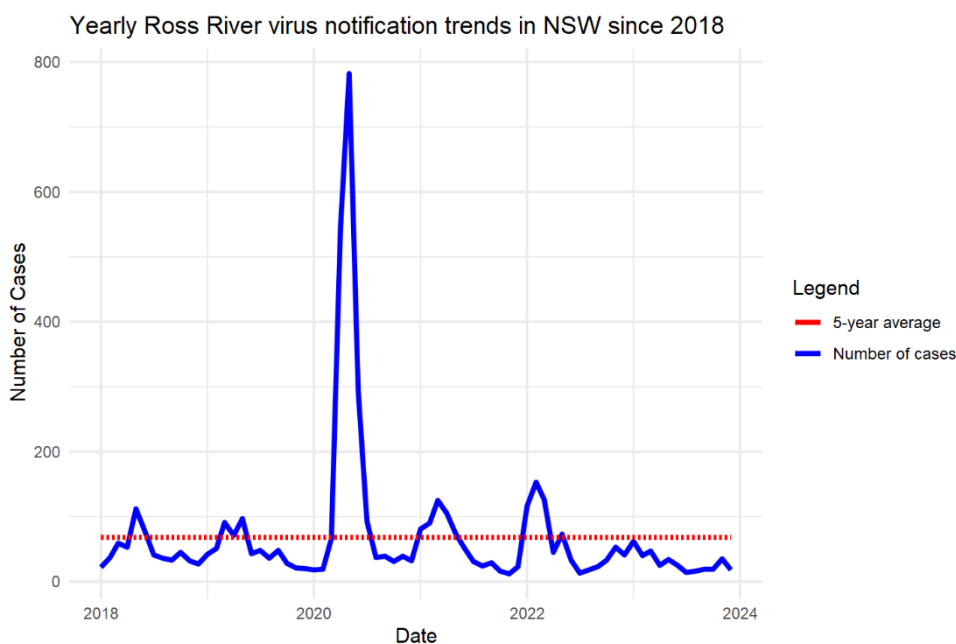
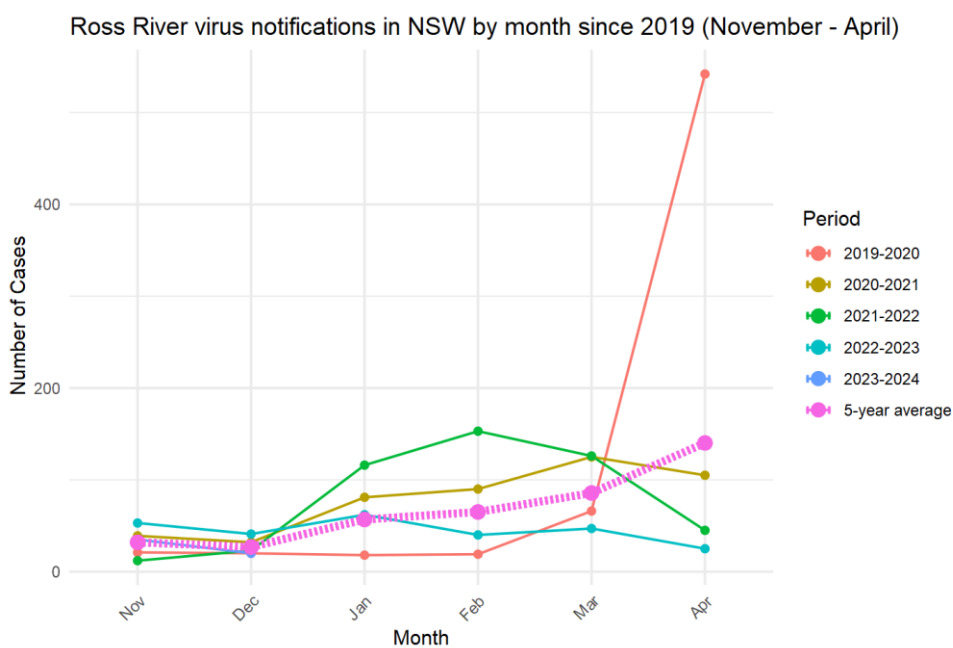
Under the *NSW Public Health Act 2010*, [human arboviral infections are notifiable in NSW](#).

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

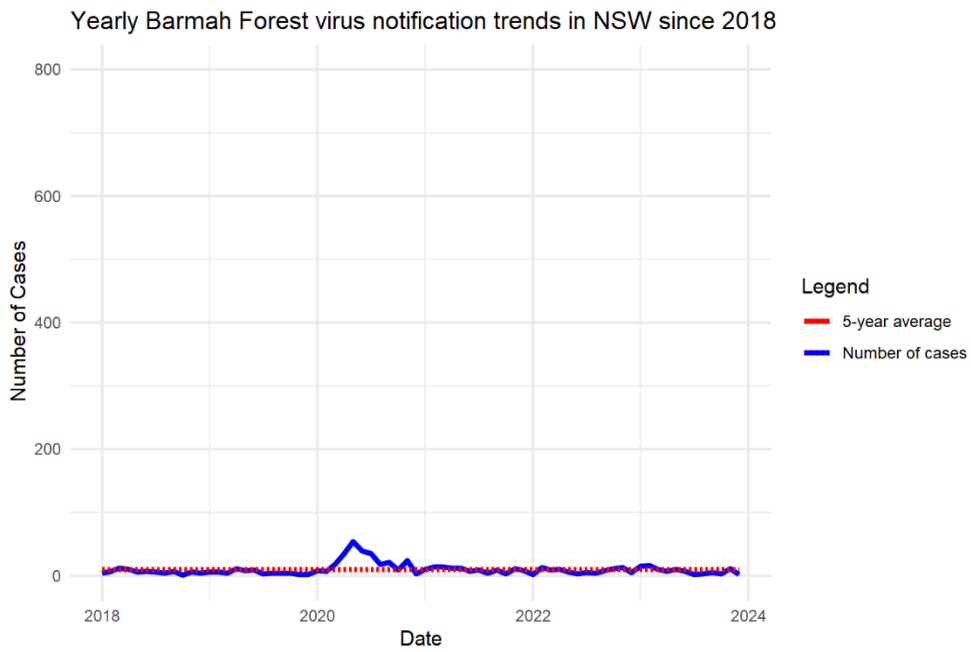
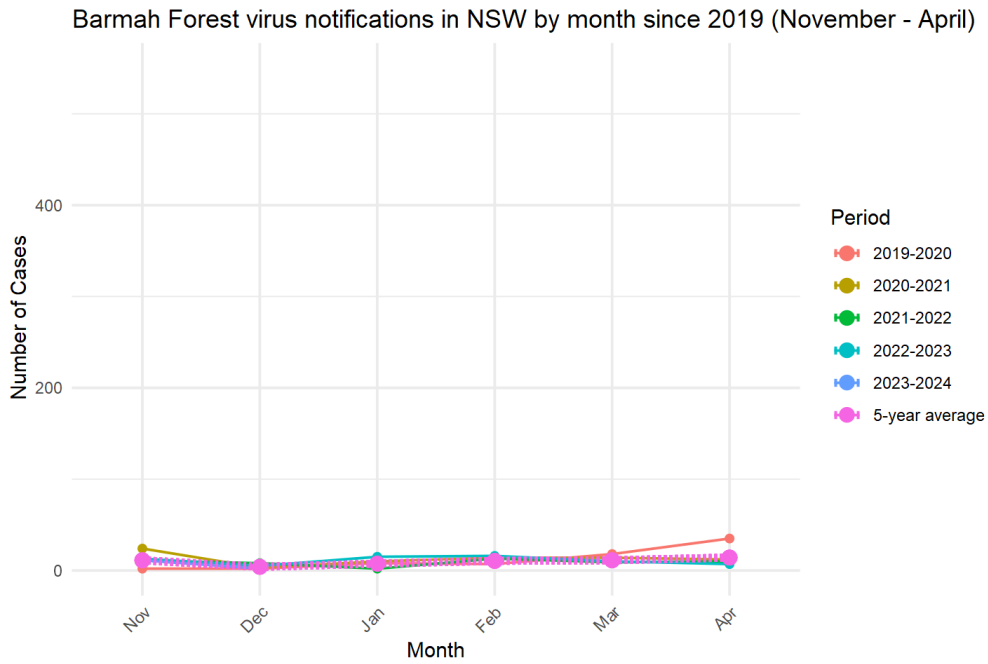
Notifications of Ross River virus and Barmah Forest virus infections, by month of disease onset (the earlier of patient-reported onset or specimen collection date), are available online on [Infectious diseases data](#).

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.