

NSW Arbovirus Surveillance and Mosquito Monitoring 2023-2024

Environmental Health Branch, Health Protection NSW

Weekly update: Week ending 9 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

There were no arbovirus detections in sentinel chickens.

Mosquito isolates

There were no arbovirus detections in mosquitoes.

Mosquito Abundance

Inland

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

Coastal

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

Sydney

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

Environmental Conditions

Climate

In the week ending 9 December 2023, lower than average rainfall was observed across NSW, some local areas along the coast experiencing higher than average rainfall. In November, rainfall in NSW was predominantly above average or very much above average. In the coming week, higher than average rain fall, and higher than average minimum and maximum temperatures are expected across NSW, especially in Western NSW, Hunter New England, Mid-Coast and Northern NSW.

Tides

High tides over 1.8 metres are predicted for 12-17 December, 25-29 December, 10-15 January, 8-13 February 2024 and 8-13 March 2024 which could trigger hatching of *Aedes vigilax*.

Human arboviral disease notifications

Ross River virus

One confirmed and 9 probable cases were notified in the week ending 9 December 2023.

Barmah Forest virus

One probable case was notified in the week ending 9 December 2023.

Arbovirus detections

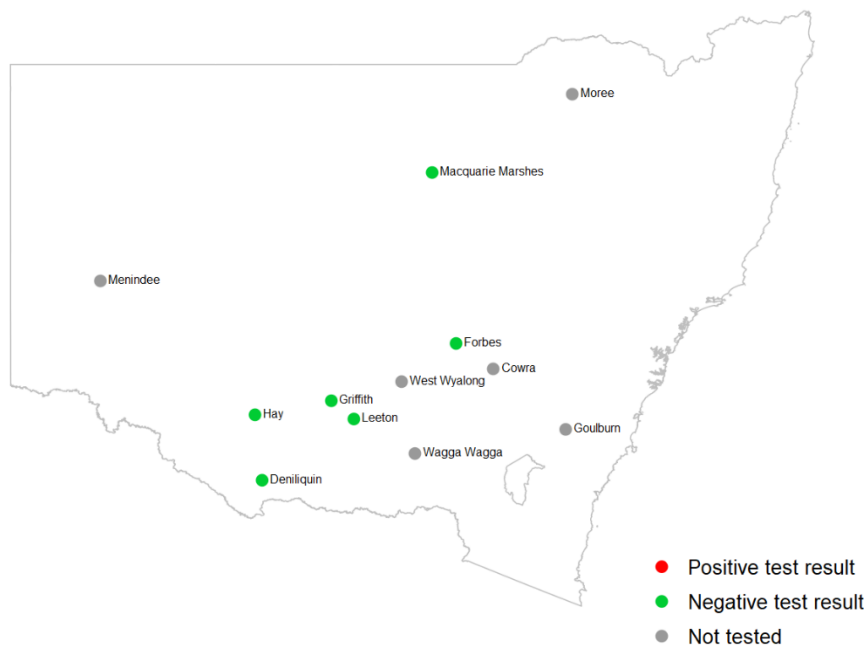
This section details detections of Murray Valley encephalitis virus, Japanese encephalitis virus, Kunjin virus, Ross River virus and Barmah Forest virus in the NSW Arbovirus Surveillance and Mosquito Monitoring Program.

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 9 December 2023

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



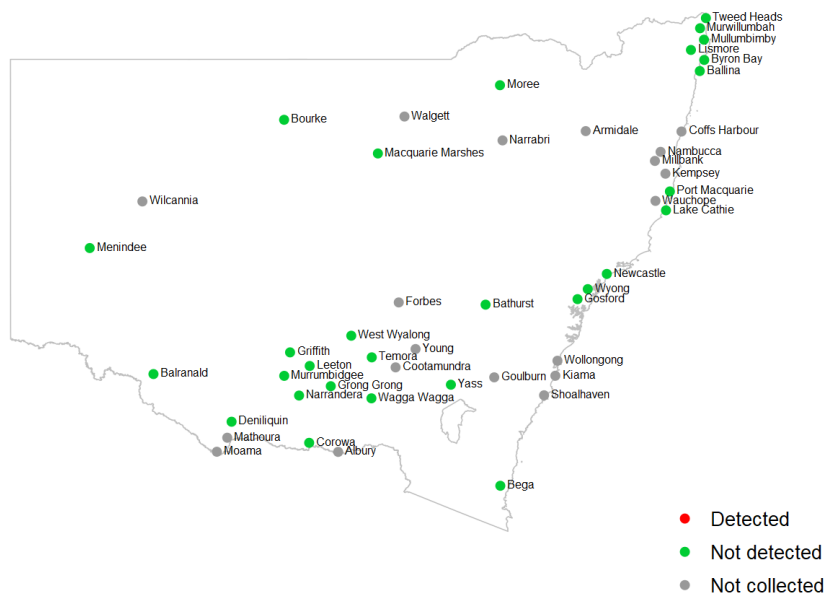
Mosquito isolates

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.

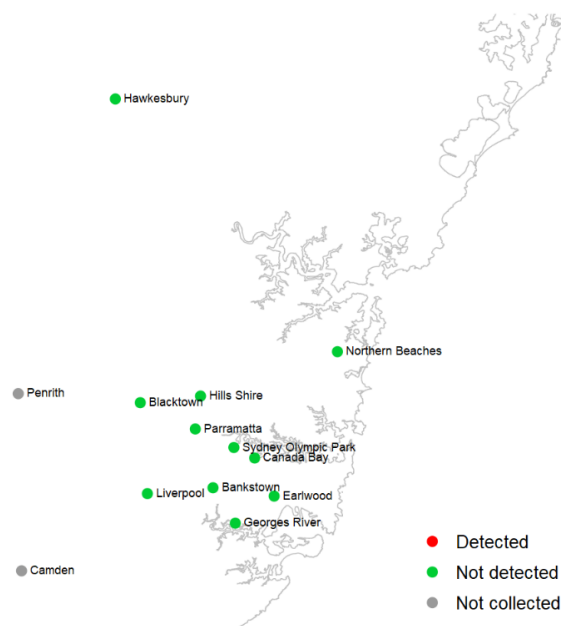
Test results for mosquito trapping sites reported in the week ending 9 December 2023

There were no arbovirus detections at inland sites in the week ending 9 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.

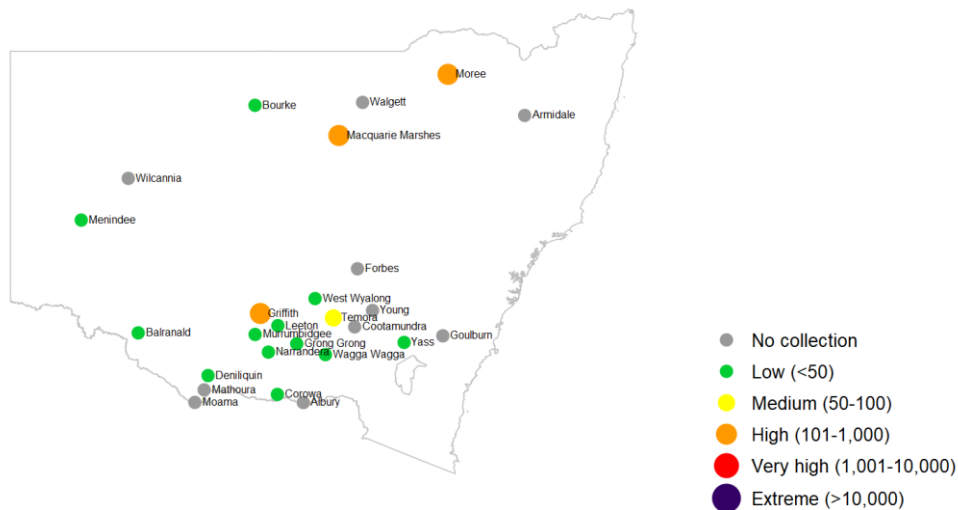
Culex annulirostris and *Aedes vigilax* are vectors of interest for Ross River virus and Barmah Forest virus, *Culex annulirostris* is also a vector for Japanese encephalitis virus.

Mosquito counts

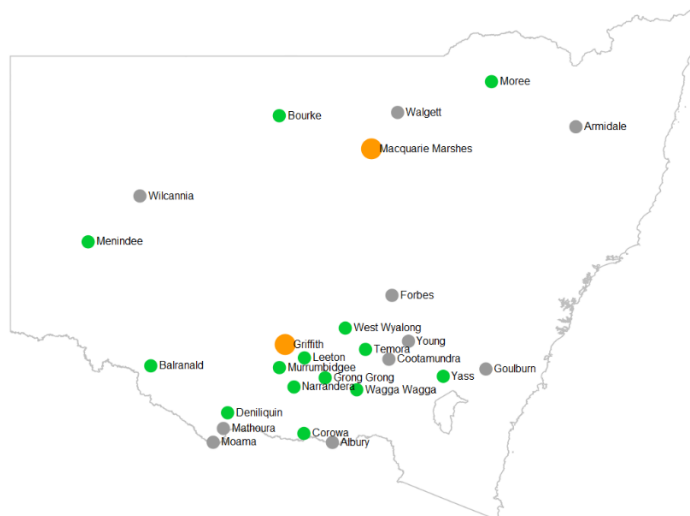
Mosquito counts (average per trap per location) for mosquito trapping sites reported in the week ending 9 December 2023

Inland sites

Total mosquito counts

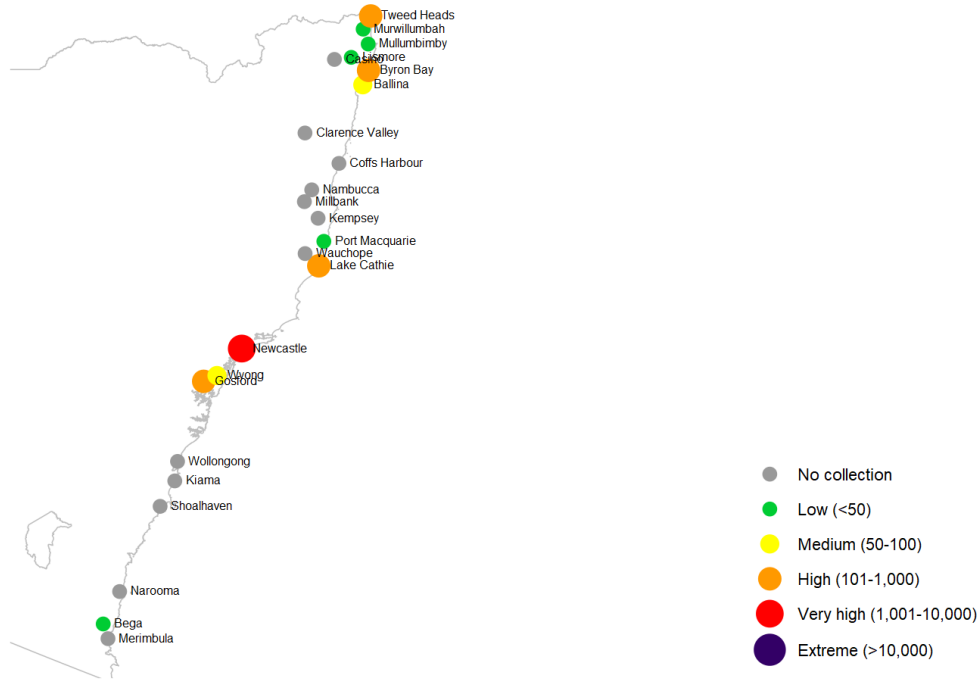


Culex annulirostris counts

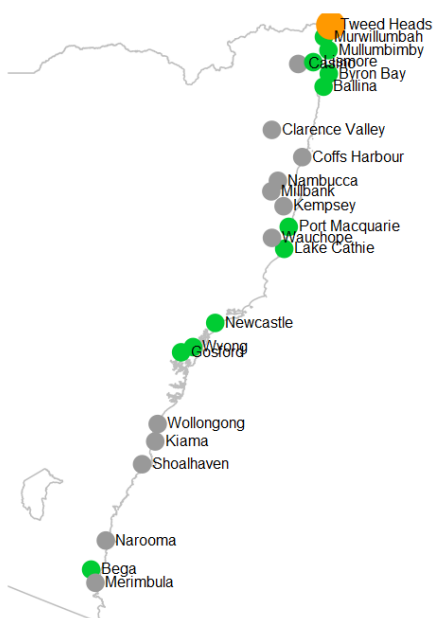


Coastal sites

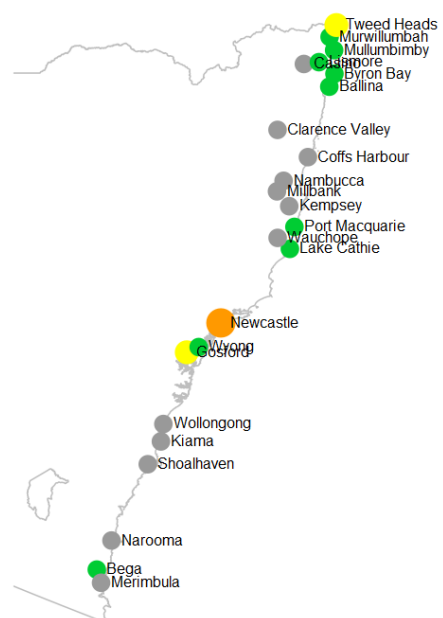
Total mosquito counts



Culex annulirostris counts

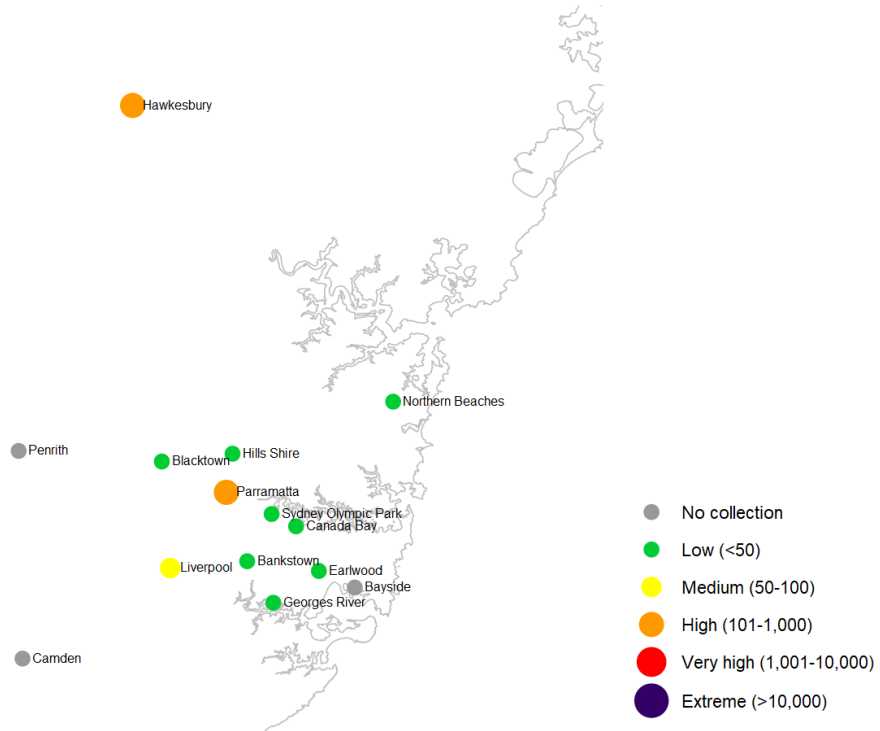


Aedes vigilax counts

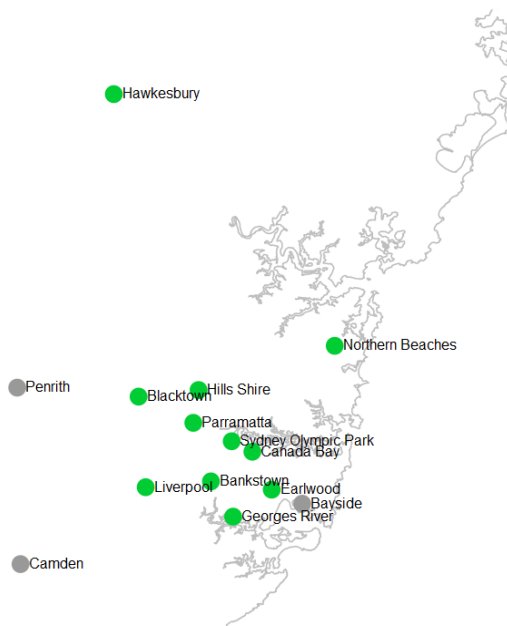


Sydney sites

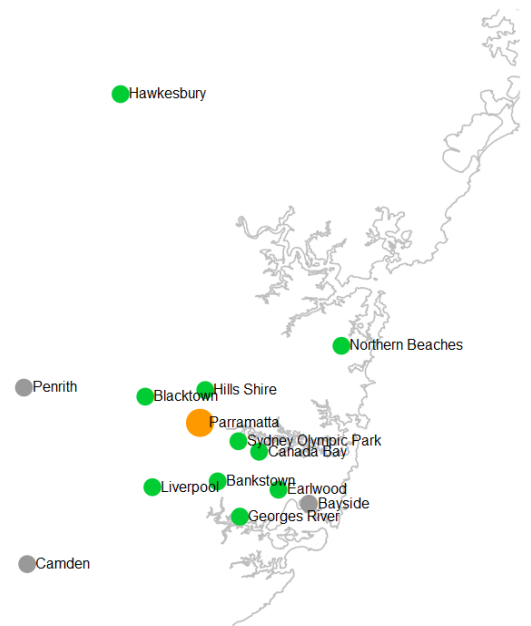
Total mosquito counts



Culex annulirostris



Aedes vigilax

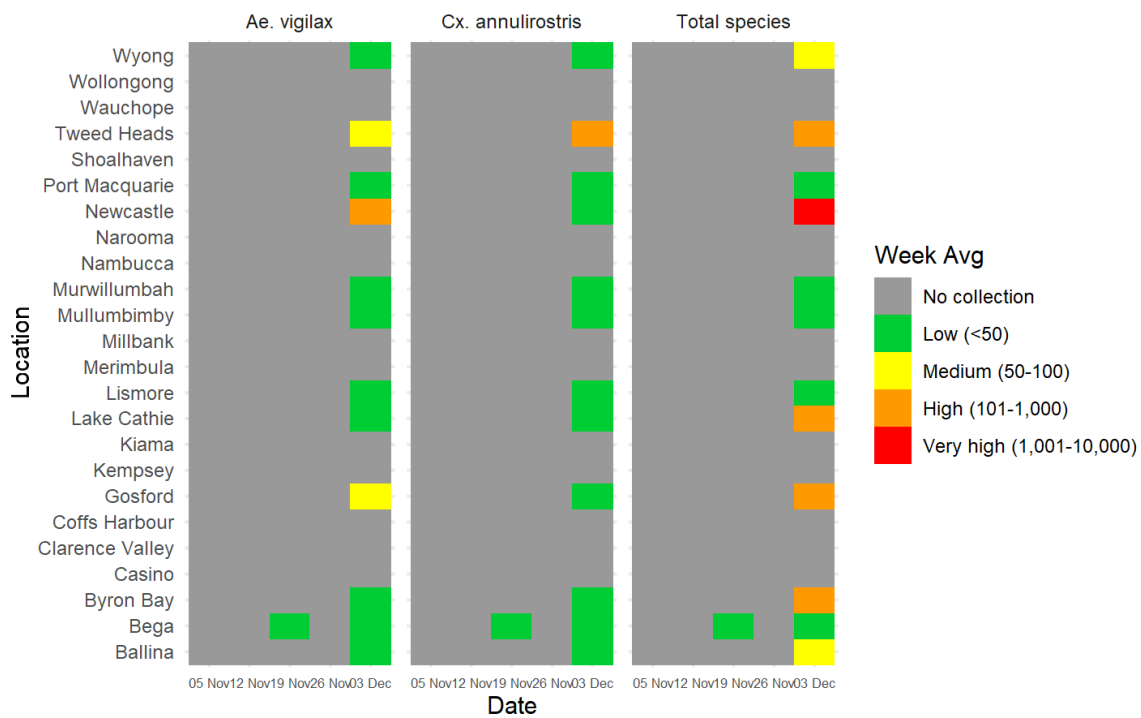


Mosquito abundance results for the entire 2023-2024 season

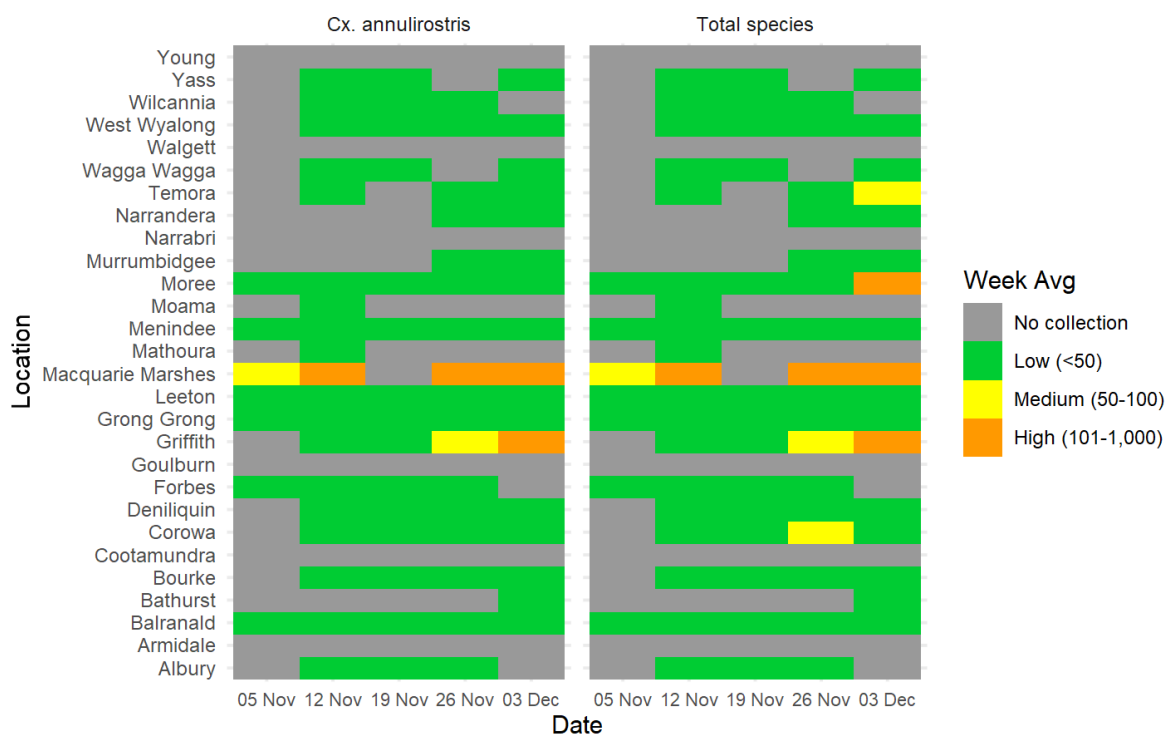
This section shows all mosquito trapping results by location and species type to date for the current arbovirus season.

Cumulative mosquito abundance tables

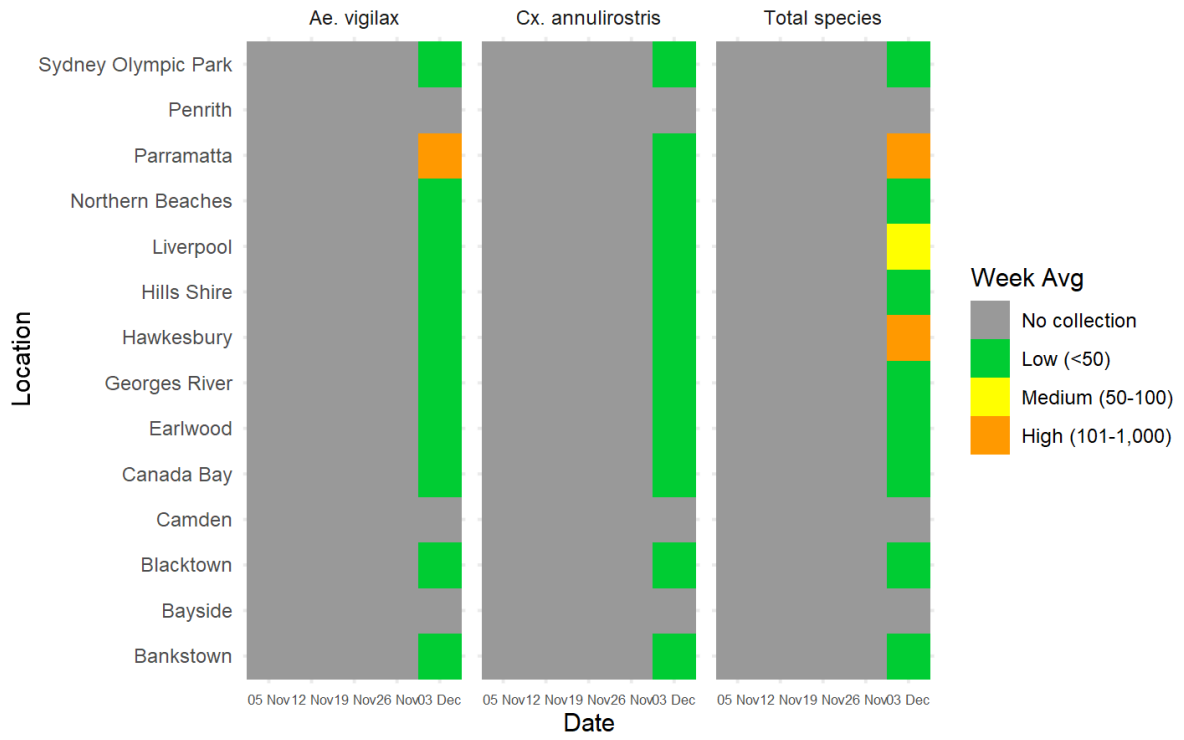
Number of mosquitoes trapped along the coast (weekly average)



Number of mosquitoes trapped inland (weekly average)

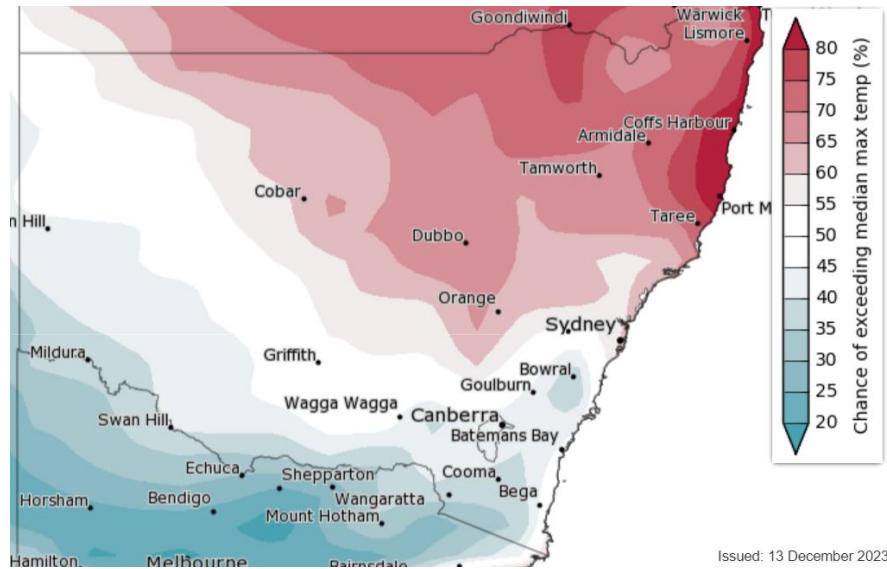


Number of mosquitoes trapped in Sydney (weekly average)



Maximum temperature 18 December to 24 December, 2023

In the upcoming week, the maximum temperature levels are forecasted to be higher than average across western NSW, Hunter New England and Mid- Coast and Northern NSW, and around average in all other areas of 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)

- 12-17 December 2023
- 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](#).

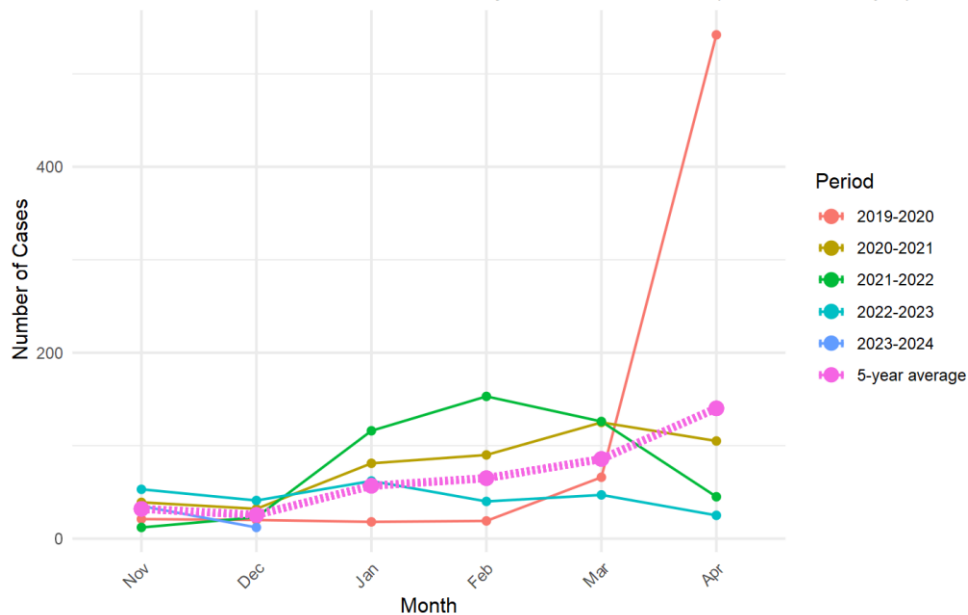
Recent notifications of Ross River virus and Barmah Forest virus infections in humans (by date of case report received)

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](#).

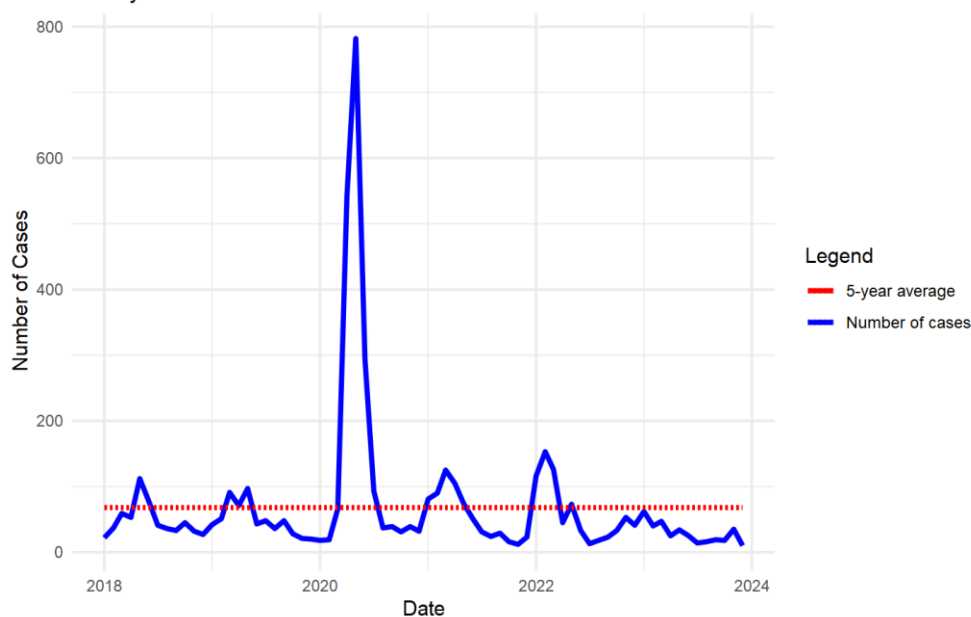
The following figures show notifications for the current NSW Arbovirus Surveillance and Mosquito Monitoring season (2023-2024), and the same period in the previous four years.

Ross River virus

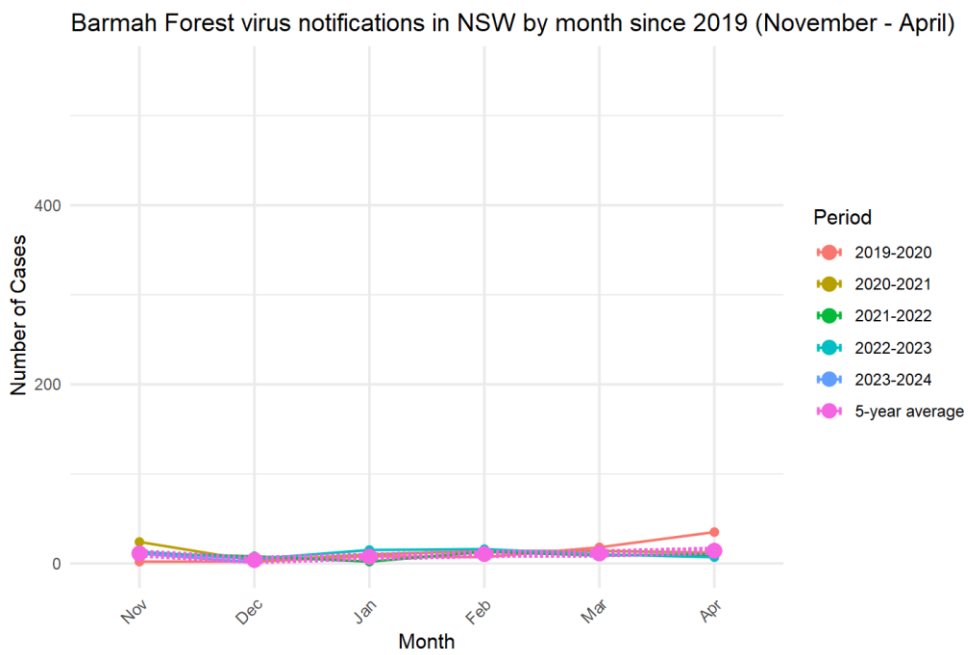
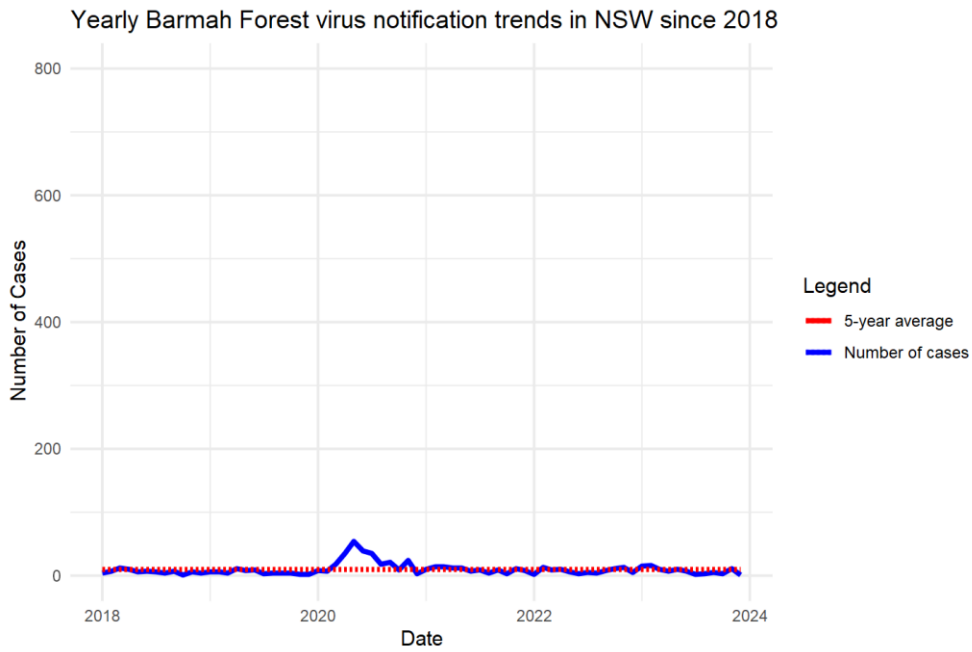
Ross River virus notifications in NSW by month since 2019 (November - April)



Yearly Ross River virus notification trends in NSW since 2018



Barmah Forest virus



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