NSW Arbovirus Surveillance and Mosquito Monitoring 2023-2024

Environmental Health Branch, Health Protection NSW

Weekly Update: Week ending 10 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**

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.

SPHN (EH) 230938

Summary

Arbovirus detections

Sentinel chickens

• There were no arbovirus detections in sentinel chickens for the week ending 10 February 2024.

Mosquito isolates

• In the week ending 10 February 2024, Ross River virus was detected in a mosquito sample from Byron Bay; Barmah Forest virus was detected in a mosquito sample from Newcastle; Edge Hill virus was detected in mosquito samples from Sydney Olympic Park, Parramatta, Georges River, Batemans Bay, Central Coast and Newcastle; and Stratford virus was detected in mosquito samples from Sydney Olympic Park, Narooma, Georges River, Newcastle, Hawkesbury and Central Coast.

Mosquito abundance

Inland

- **Low:** Balranald, Moree, Murrumbidgee, Wagga Wagga.
- **Medium:** Corowa, Mathoura, Moama, Yass.
- **High:** Albury, Forbes, Grong Grong, Leeton, Macquarie Marshes, West Wyalong, Wilcannia.

Coastal

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

Sydney

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

Environmental conditions

Climate

- In the week ending 10 February 2024, rainfall was average, or lower than average across NSW, except for the northern region of Far West and Western NSW, 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, 16 February to 22 February 2024, average or lower than average rainfall is expected across the state.
- Minimum and maximum temperatures in NSW are expected to be higher than average across NSW in the coming week.

Tides

• High tides over 1.8 metres are predicted for 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

Five probable cases were notified in the week ending 10 February 2024.

Barmah Forest virus

One probable case was notified in the week ending 10 February 2024.

Arbovirus detections

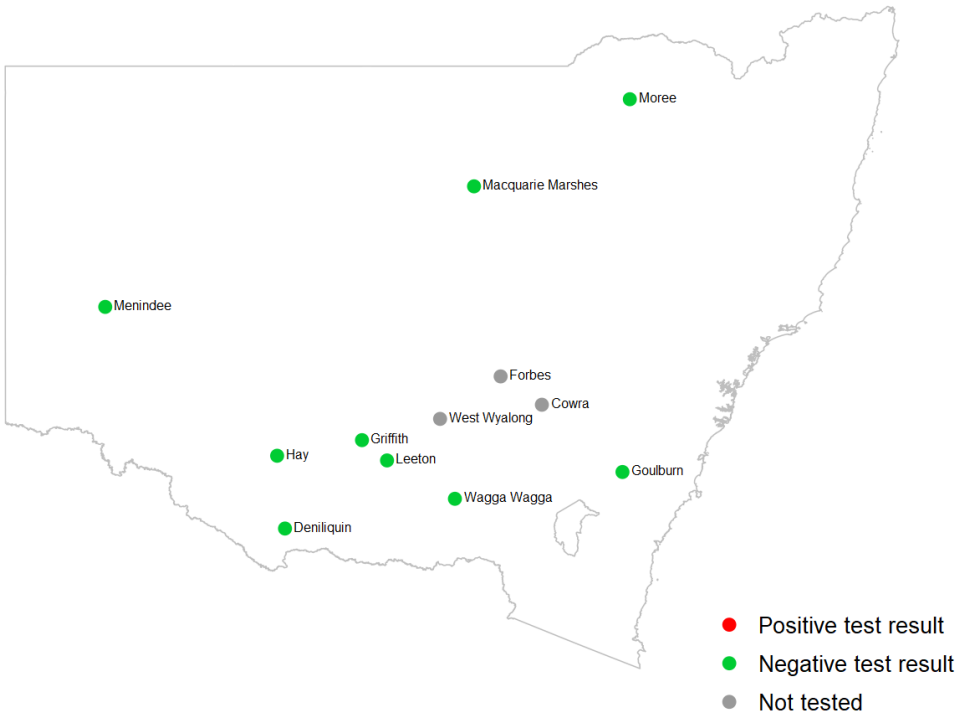
This section details detections of Murray Valley encephalitis virus, Japanese encephalitis virus, Kunjin virus, Ross River virus and Barmah Forest virus in the NSW Arbovirus Surveillance and Mosquito Monitoring Program.

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 10 February 2024

There were no arbovirus detections in sentinel chickens for the week ending 10 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.

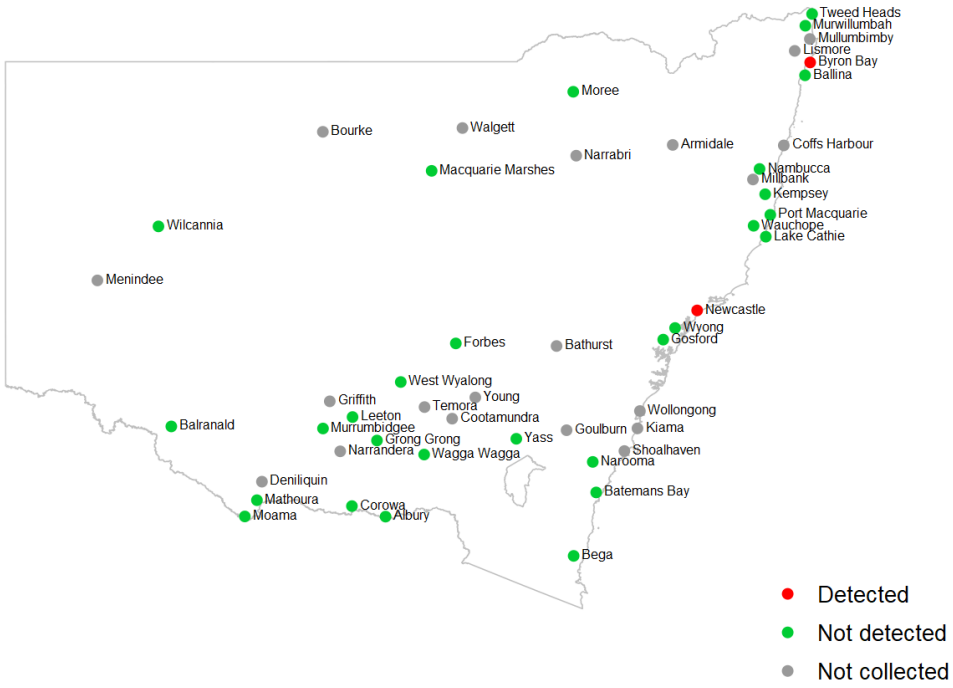
Mosquito isolates

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 10 February 2024

In the week ending 10 February 2024, Ross River virus was detected in a mosquito sample from Byron Bay; Barmah Forest virus was detected in a mosquito sample from Newcastle; Edge Hill virus was detected in mosquito samples from Sydney Olympic Park, Parramatta, Georges River, Batemans Bay, Central Coast and Newcastle; and Stratford virus was detected in mosquito samples from Sydney Olympic Park, Narooma, Georges River, Newcastle, Hawkesbury and Central Coast.

Inland and coastal sites



Inland and coastal sites - positive test results in the 2023-2024 surveillance season.

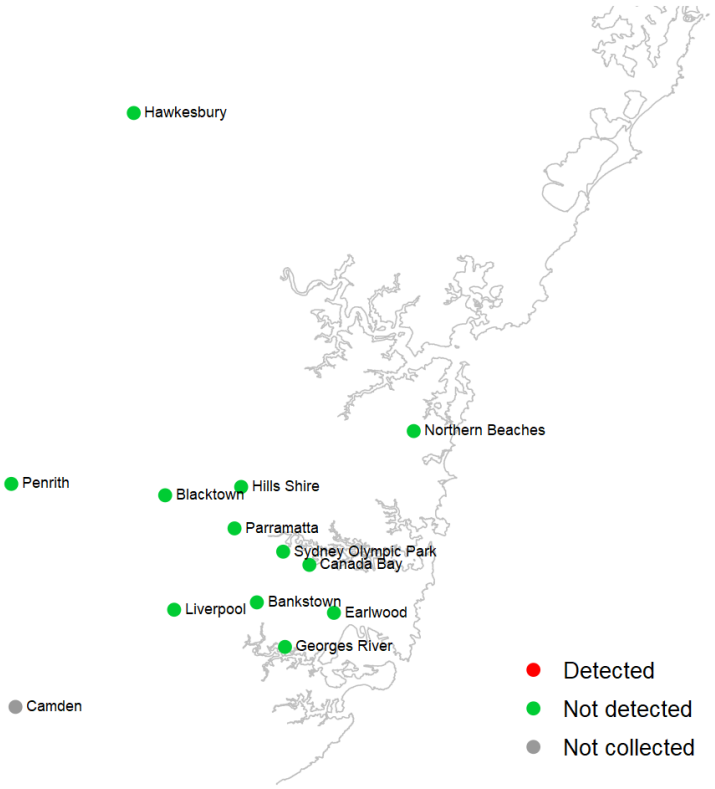
Date of sample collection	Location	Virus
2024-01-03	Gosford	Edge Hill
2024-01-16	Gosford	Edge Hill
2024-01-22	Macquarie Marshes	Kokobera

Inland and coastal sites - positive test results in the 2023-2024 surveillance season.

Date of sample collection	Location	Virus
2024-01-23	Newcastle	Edge Hill
2024-01-29	Tweed	Edge Hill
2024-01-29	Tweed	Ross River
2024-01-29	Temora	Kokobera
2024-01-29	Narrandera	Kokobera
2024-01-30	Forbes	Kokobera
2024-02-04	Narooma	Stratford
2024-02-05	Byron Bay	Ross River
2024-02-06	Batemans Bay	Edge Hill
2024-02-06	Newcastle	Barmah Forest
2024-02-06	Newcastle	Edge Hill
2024-02-06	Newcastle	Stratford
2024-02-07	Central Coast	Edge Hill
2024-02-07	Central Coast	Stratford

Please note: Human cases of Edge Hill virus, Stratford virus or Kokobera virus have rarely been reported. Infection may present as a mild self-limiting febrile illness with body aches.

Sydney sites



Sydney - positive test results in the 2023-2024 surveillance season.

Date of sample collection	Location	Virus
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
2024-02-05	Sydney Olympic Park	Edge Hill
2024-02-05	Sydney Olympic Park	Stratford
2024-02-06	Parramatta	Edge Hill
2024-02-06	Hawkesbury	Stratford
2024-02-07	Georges River	Edge Hill
2024-02-07	Georges River	Stratford

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.

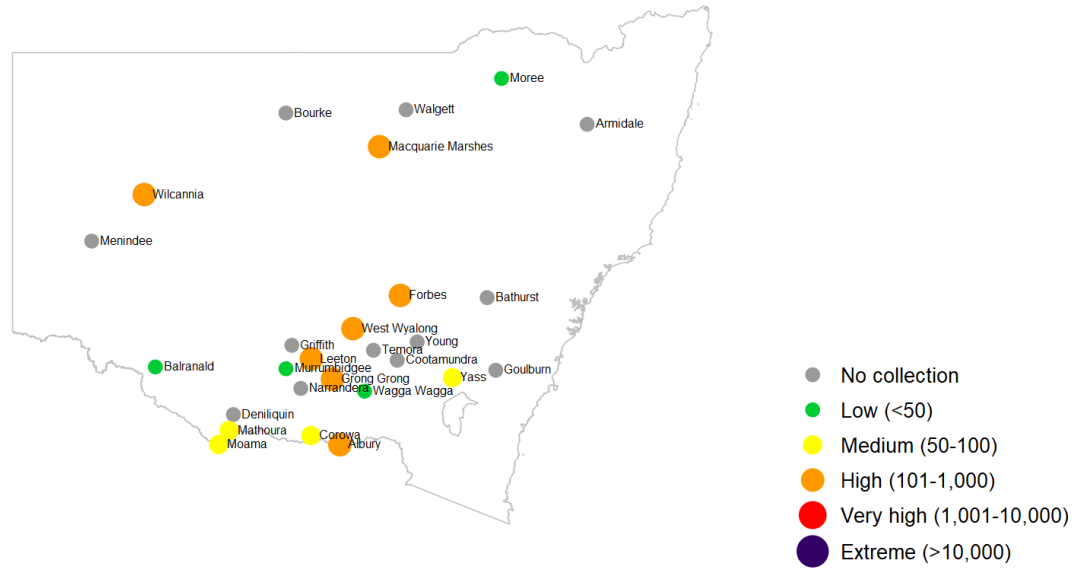
Culex annulirostris and *Aedes vigilax* are vectors of interest for Ross River virus and Barmah Forest virus, *Culex annulirostris* is also a vector for Japanese encephalitis virus.

Mosquito counts

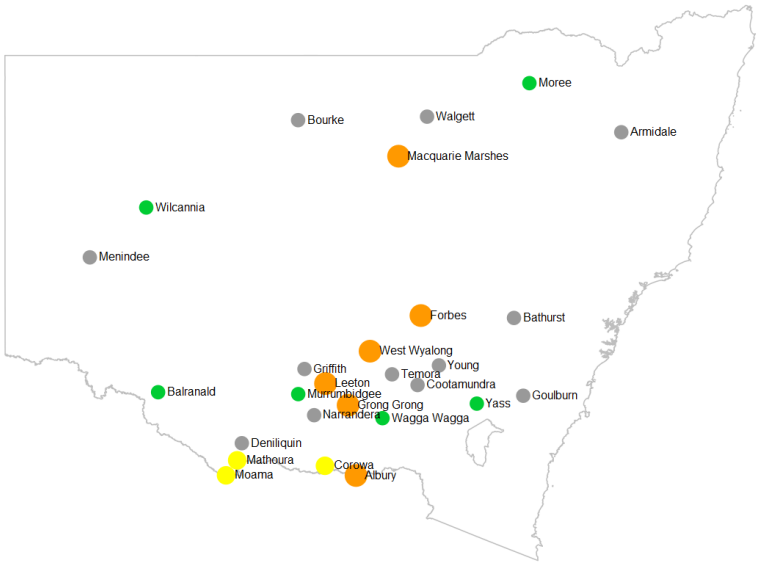
Mosquito counts (average per trap per location) for mosquito trapping sites reported in the week ending 10 February 2024

Inland sites

Total mosquito counts

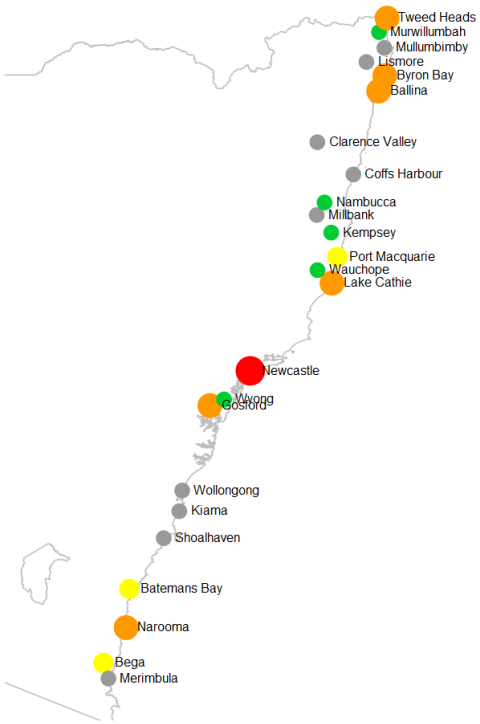


Culex annulirostris counts

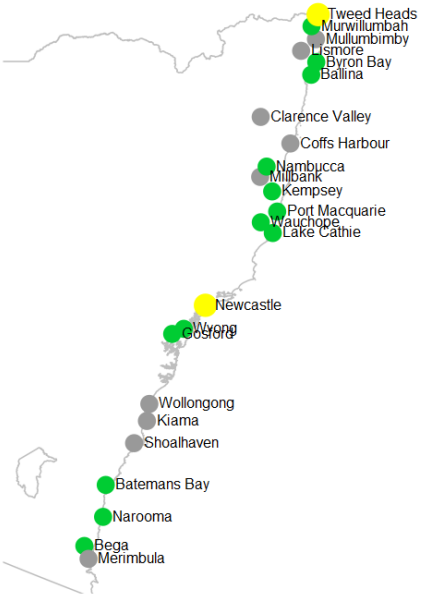


Coastal sites

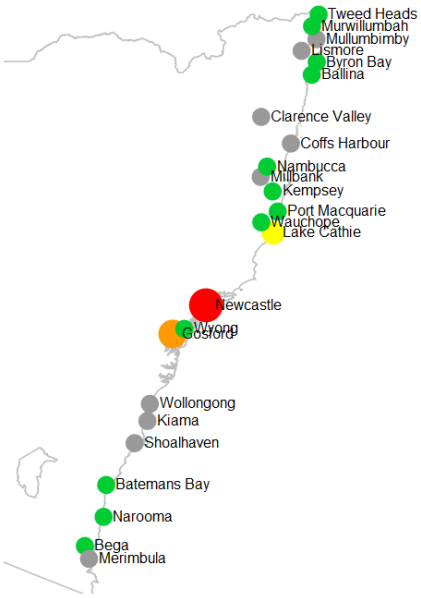
Total mosquito counts



Culex annulirostris counts

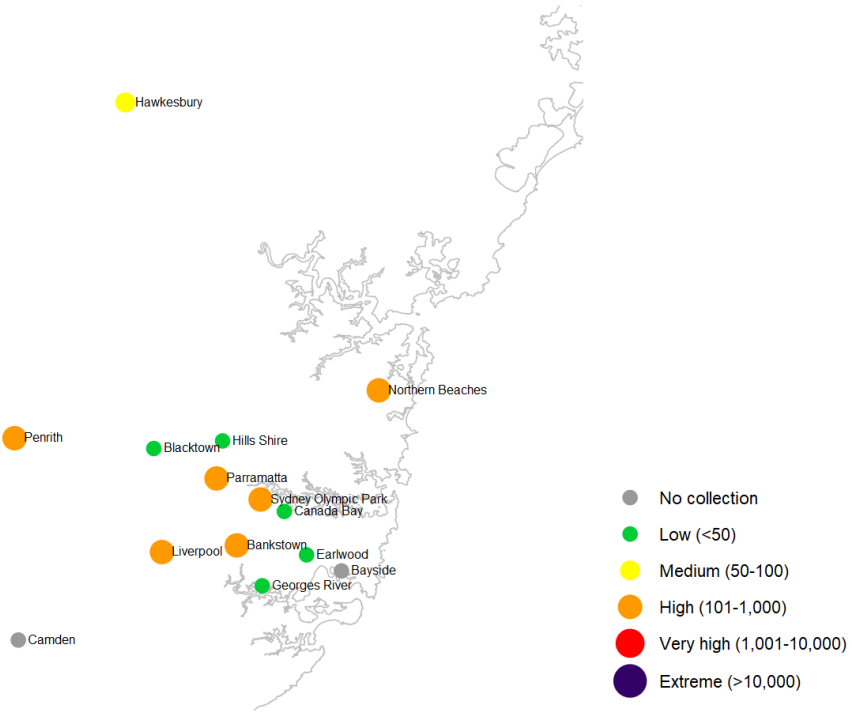


Aedes vigilax counts

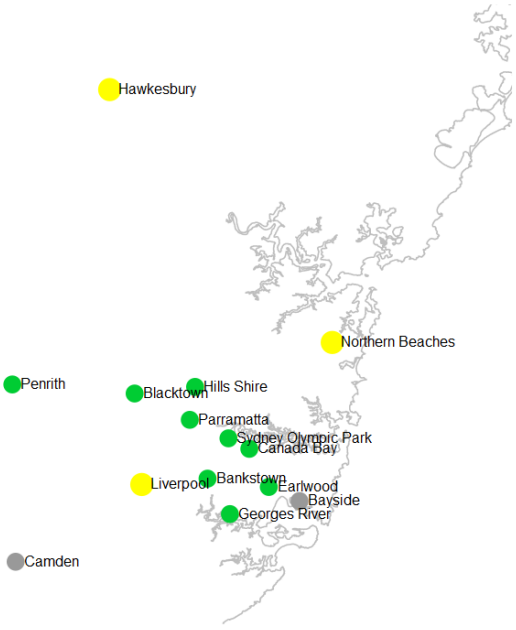


Sydney sites

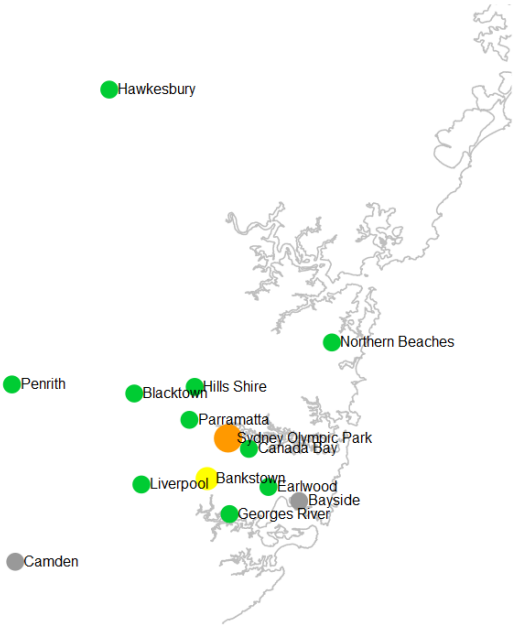
Total mosquito counts



Culex annulirostris counts



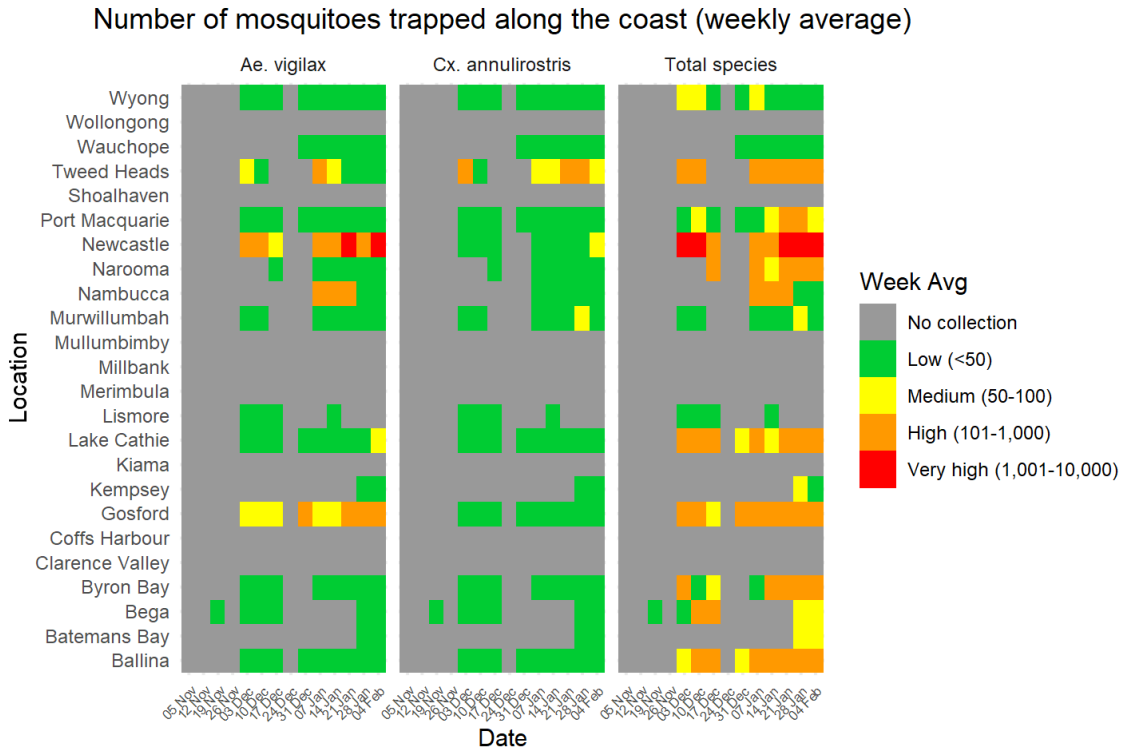
Aedes vigilax counts

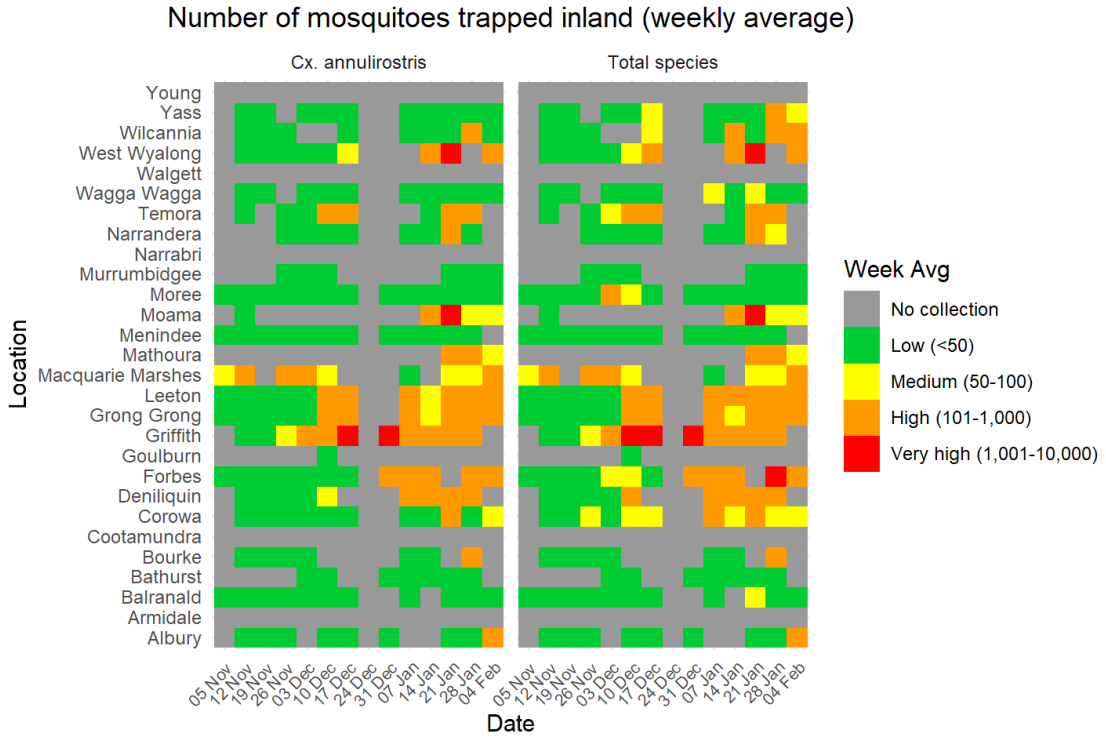


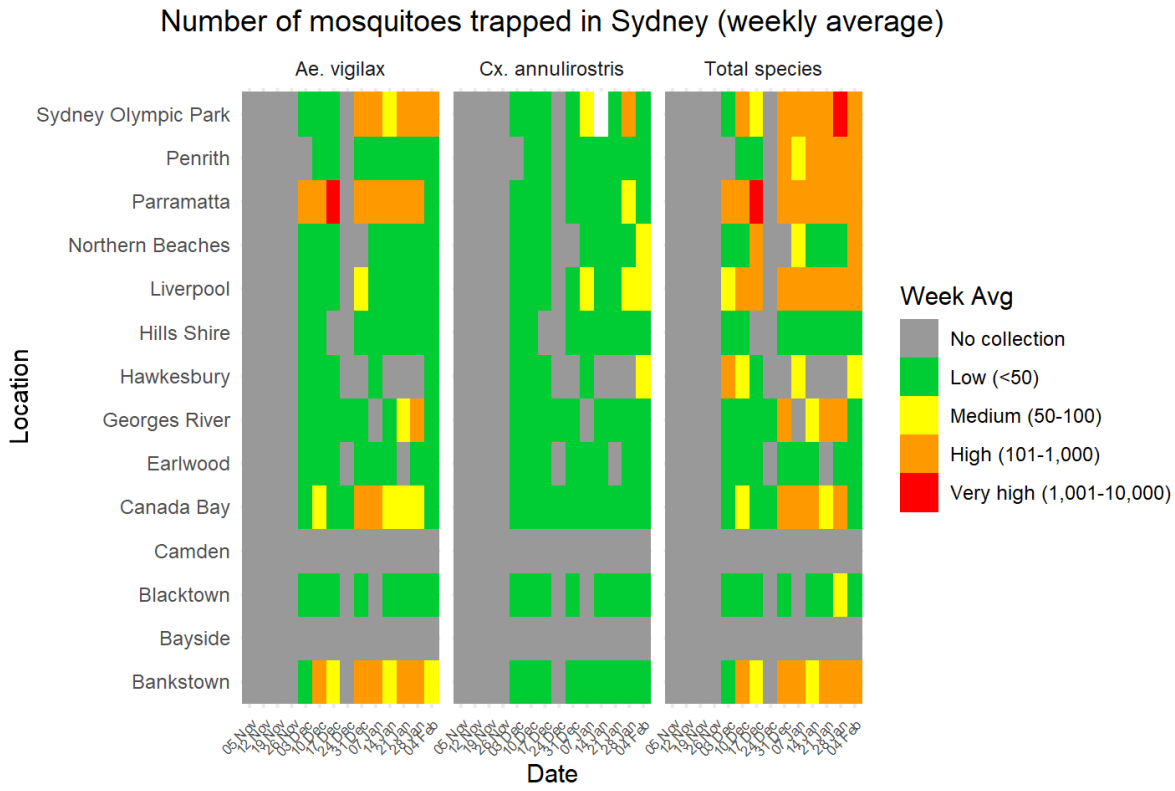
Mosquito abundance results for the 2023-2024 season

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 in Sydney (weekly average)
Ae. vigilax
Cx. annulirostris
Total species
Location
Sydney Olympic Park
Penrith
Parramatta
Northern Beaches
Liverpool
Hills Shire
Hawkesbury
Georges River
Earlwood
Canada Bay
Camden
Blacktown
Bayside
Bankstown
05 Nov
12 Nov
19 Nov
26 Nov
03 Dec
10 Dec
17 Dec
24 Dec
31 Dec
07 Jan
14 Jan
21 Jan
28 Jan
04 Feb
Date
Week Avg
No collection
Low (<50)
Medium (50-100)
High (101-1,000)
Very high (1,001-10,000)

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.

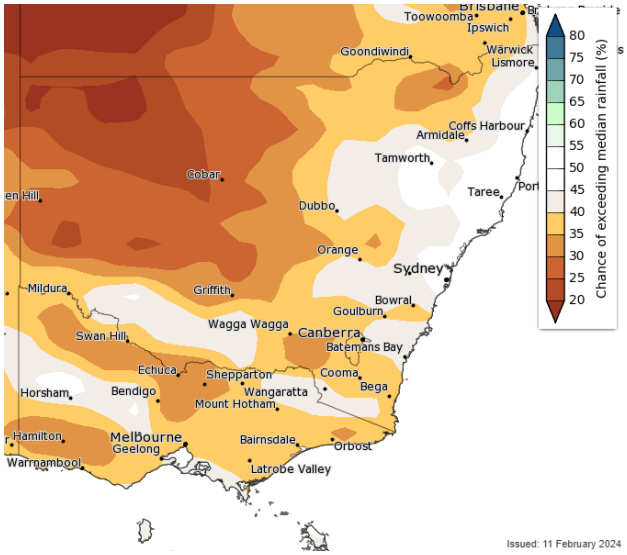
Rainfall

In the week ending 10 February 2024, rainfall was average, or lower than average across NSW, except for the northern region of Far West and Western NSW, 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

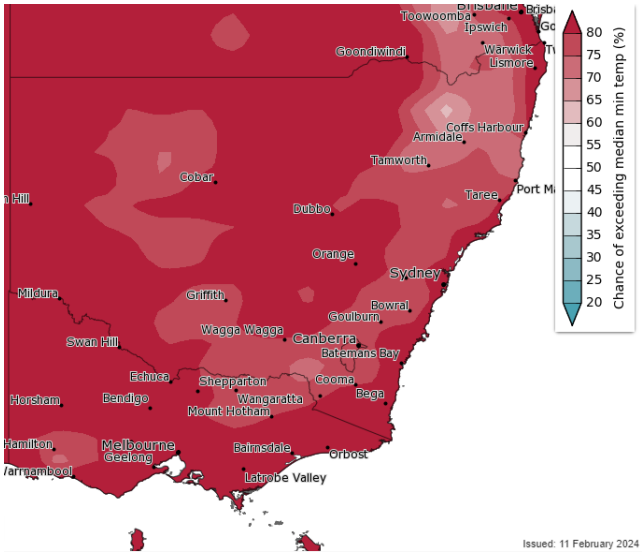
Average or lower than average rainfall is expected across NSW in the coming week.

Rainfall 16 February to 22 February, 2024



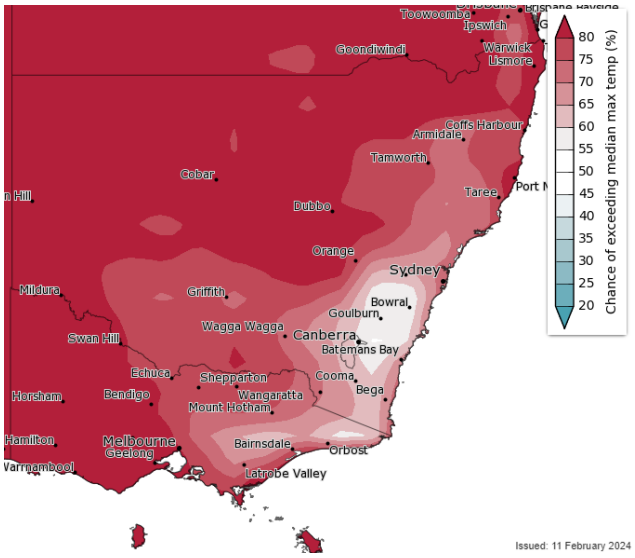
Minimum temperature 16 February to 22 February, 2024

In the upcoming week, minimum temperatures are expected to be higher than average across NSW.



Maximum temperature 16 February to 22 February, 2024

In the upcoming week, maximum temperatures are forecast to be higher than average across NSW.



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 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

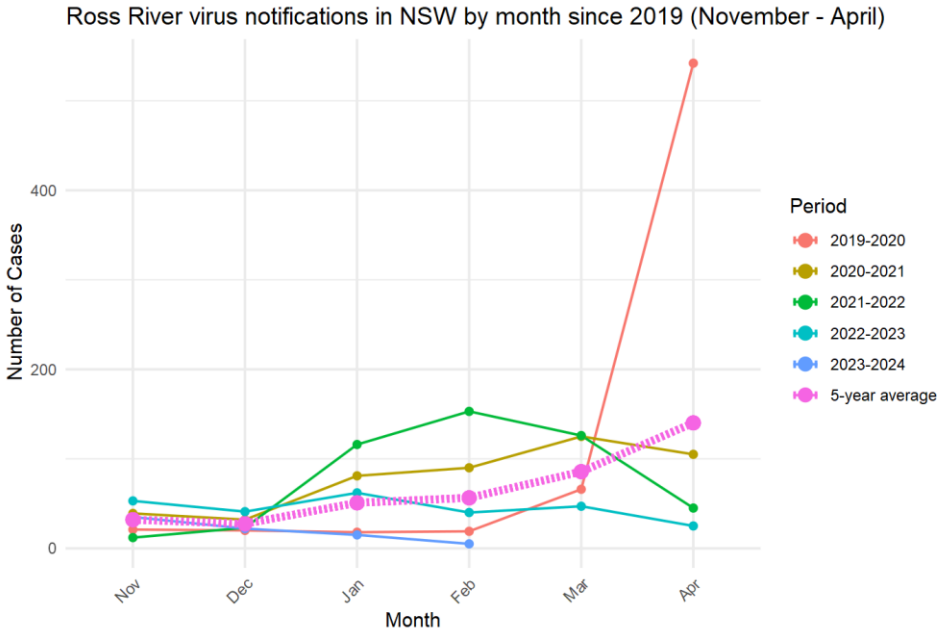
Under the *NSW Public Health Act 2010*, human arboviral infections are notifiable in NSW.

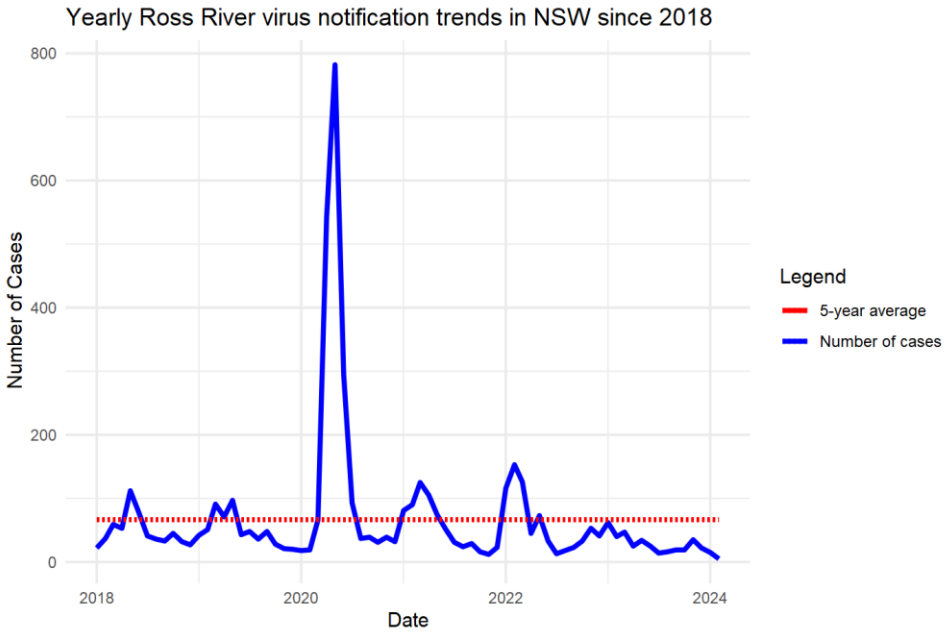
Recent notifications of Ross River virus and Barmah Forest virus infections in humans (by date of case report received)

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.

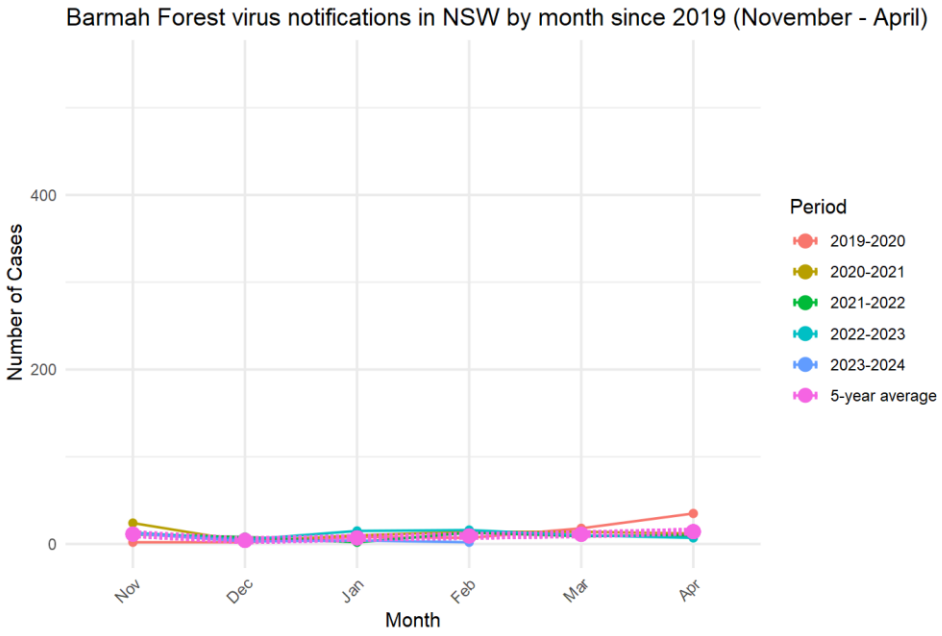
The following figures show notifications for the current NSW Arbovirus Surveillance and Mosquito Monitoring season (2023-2024), and the same period in the previous four years.

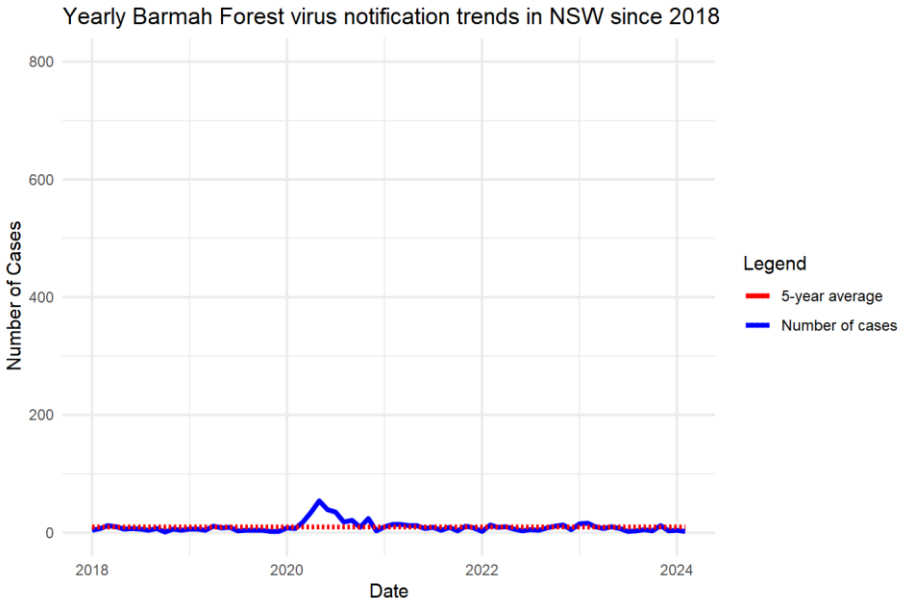
Ross River virus





Barmah Forest virus





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