NSW Arbovirus Surveillance and Mosquito Monitoring 2023-2024

Environmental Health Branch, Health Protection NSW

Weekly Update: Week ending 20 April 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

Mosquito isolates

• In the week ending 20 April 2024, Kokobera virus was detected in a mosquito sample from Nambucca Heads; Stratford virus was detected in mosquito samples from Hawkesbury.

Mosquito abundance

Coastal

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

Sydney

- **Low:** Blacktown, Canada Bay, Georges River, Hawkesbury, Northern Beaches, Parramatta, Penrith, Sydney Olympic Park.

Environmental conditions

Climate

- In the week ending 20 April 2024, rainfall was higher than average in some parts of the Mid North Coast and Northern NSW regions, with average or lower than average rainfall across the rest of NSW.
- In March, rainfall was above average along the NSW coastline, with some areas in the Mid North Coast and Northern NSW region experienced particularly high levels of rainfall. The rest of NSW, especially Murrumbidgee and the southern region of Far West NSW, recorded average or below average rainfall.
- In the coming week, 26 April to 2 May 2024, lower than average rainfall is expected across NSW.
- Minimum and maximum temperatures are expected to be lower than average across NSW.

Tides

• High tides over 1.8 meters are predicted for 7-12 May which could trigger hatching of *Aedes vigilax*.

Human arboviral disease notifications

Ross River virus

Seventeen probable cases and one confirmed case were notified in the week ending 20 April 2024.

Barmah Forest virus

No cases were notified in the week ending 20 April 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.

Mosquito isolates

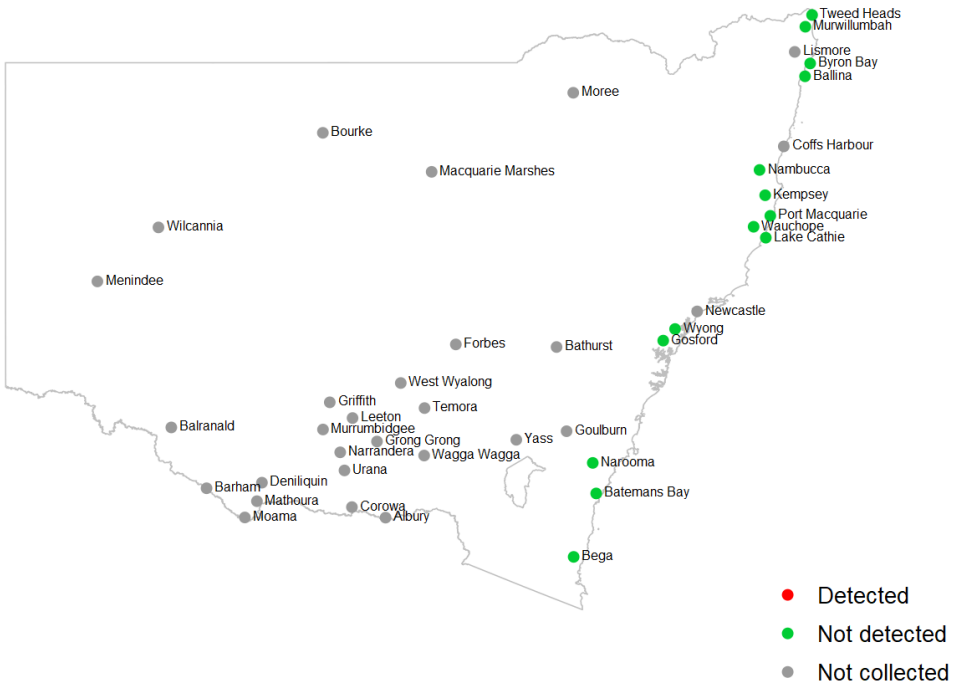
Whole grinds of collected mosquitoes are tested for arbovirus nucleic acids to determine the presence of arboviruses in mosquitoes. Test results for detections of Murray Valley encephalitis virus, Japanese encephalitis virus, Kunjin virus, Ross River virus and Barmah Forest virus for the past week are 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 20 April 2024

In the week ending 20 April 2024, Kokobera virus was detected in a mosquito sample from Nambucca Heads; Stratford virus was detected in mosquito samples from Hawkesbury and Central Coast.

Inland and coastal sites

The map highlights detections of arboviruses that can cause human notifiable conditions, such as Murray Valley encephalitis virus, Japanese encephalitis virus, Kunjin virus, Ross River virus, and Barmah Forest virus. Detections of all arboviruses (including Edge Hill virus, Stratford virus and Kokobera virus) for the season are detailed in the positive test results for the 2023-2024 surveillance season.



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
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
2024-02-12	Byron Bay	Ross River
2024-02-12	Ballina	Ross River
2024-02-12	Lake Cathie	Edge Hill
2024-02-12	Newcastle	Edge Hill
2024-02-12	Newcastle	Stratford
2024-02-19	Tweed	Sindbis
2024-02-19	Griffith	Kokobera
2024-02-22	Central Coast	Stratford
2024-02-26	Lake Cathie	Stratford

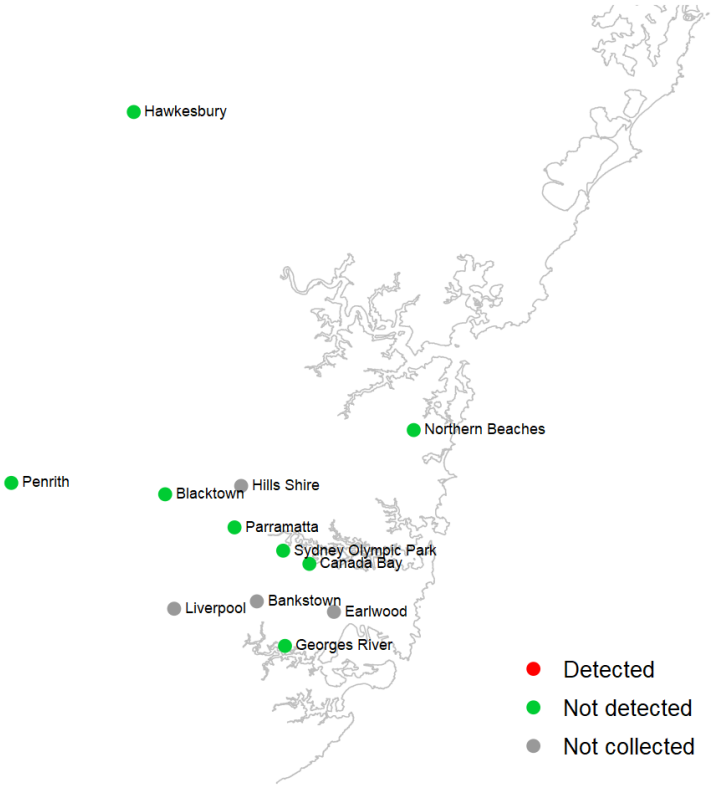
Inland and coastal sites - positive test results in the 2023-2024 surveillance season.

Date of sample collection	Location	Virus
2024-02-26	Grong Grong	Ross River
2024-02-27	Newcastle	Ross River
2024-02-27	Newcastle	Barmah Forest
2024-02-29	Forbes	Kokobera
2024-03-04	Tweed	Ross River
2024-03-04	Tweed	Stratford
2024-03-04	Leeton	Kokobera
2024-03-04	Grong Grong	Edge Hill
2024-03-05	Newcastle	Barmah Forest
2024-03-11	Griffith	Ross River
2024-03-11	Temora	Ross River
2024-03-11	Newcastle	Ross River
2024-03-11	Newcastle	Edge Hill
2024-03-18	Macquarie Marshes	Kokobera
2024-03-24	Nambucca	Kokobera
2024-03-25	Wyong	Ross River
2024-03-25	Batemans Bay	Edge Hill
2024-03-25	Batemans Bay	Stratford
2024-04-03	Batemans Bay	Stratford
2024-04-07	Narooma	Stratford
2024-04-08	Port Macquarie	Barmah Forest
2024-04-10	Central Coast	Stratford
2024-04-14	Nambucca	Kokobera

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

The map highlights detections of arboviruses that can cause human notifiable conditions, such as Murray Valley encephalitis virus, Japanese encephalitis virus, Kunjin virus, Ross River virus, and Barmah Forest virus. Detections of all arboviruses (including Edge Hill virus, Stratford virus and Kokobera virus) for the season are detailed in the positive test results for the 2023-2024 surveillance season.



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

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

Date of sample collection	Location	Virus
2024-02-07	Georges River	Stratford
2024-02-12	Bankstown	Stratford
2024-02-20	Northern Beaches	Edge Hill
2024-02-27	Georges River	Stratford
2024-02-27	Penrith	Barmah Forest
2024-02-29	Sydney Olympic Park	Barmah Forest
2024-02-29	Hills Shire	Stratford
2024-02-29	Canada Bay	Edge Hill
2024-03-04	Georges River	Edge Hill
2024-03-05	Penrith	Ross River
2024-03-06	Hills Shire	Stratford
2024-03-10	Sydney Olympic Park	Edge Hill
2024-03-11	Georges River	Edge Hill
2024-03-11	Liverpool	Edge Hill
2024-03-13	Canada Bay	Edge Hill
2024-03-13	Northern Beaches	Edge Hill
2024-03-18	Sydney Olympic Park	Edge Hill
2024-03-26	Hawkesbury	Stratford
2024-03-26	Penrith	Stratford
2024-04-02	Northern Beaches	Stratford
2024-04-11	Hills Shire	Stratford
2024-04-11	Earlwood	Edge Hill
2024-04-16	Hawkesbury	Stratford

Mosquito abundance

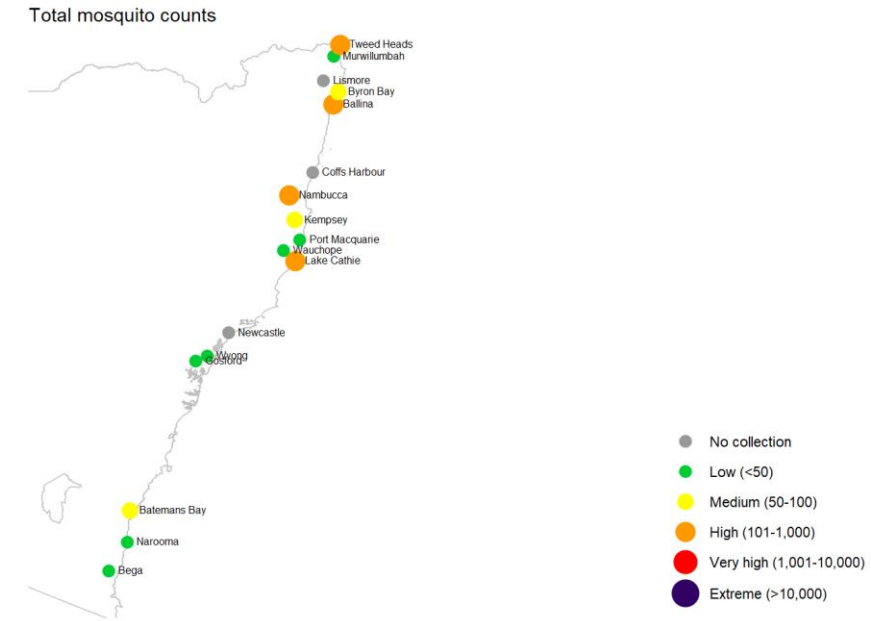
This section details counts of mosquitoes in the NSW Arbovirus Surveillance and Mosquito Monitoring Program. Each location represents the count average for all trapping sites at that location for the most recent week that collections were provided prior to preparation of this report.

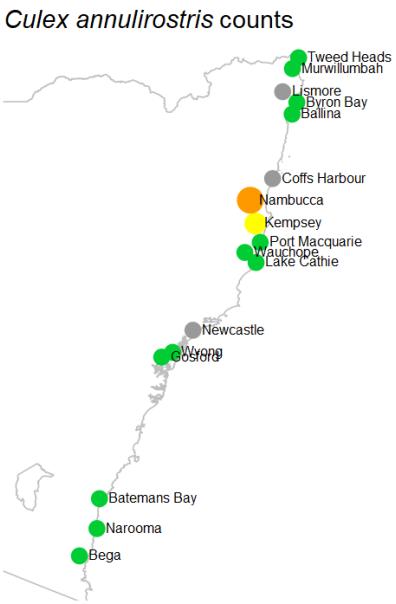
Culex annulirostris and *Aedes vigilax* are vectors of interest for Ross River virus and Barmah Forest virus, *Culex annulirostris* is also a vector for Japanese encephalitis virus.

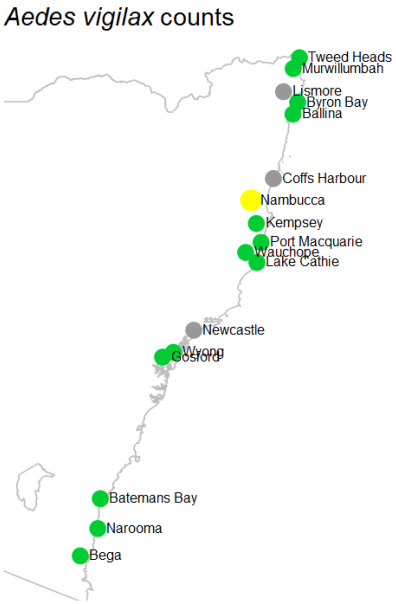
Mosquito counts

Mosquito counts (average per trap per location) for mosquito trapping sites reported in the week ending 20 April 2024

Coastal sites

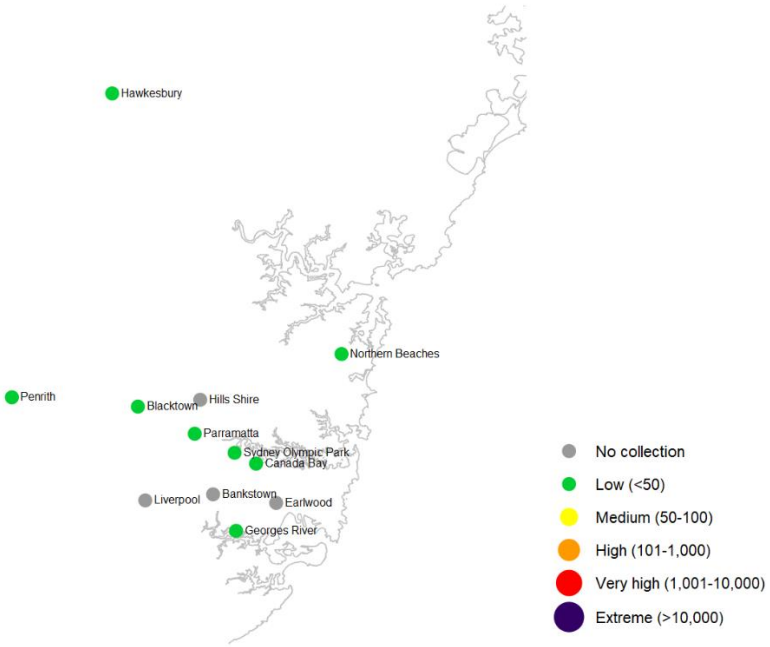






Sydney sites

Total mosquito counts



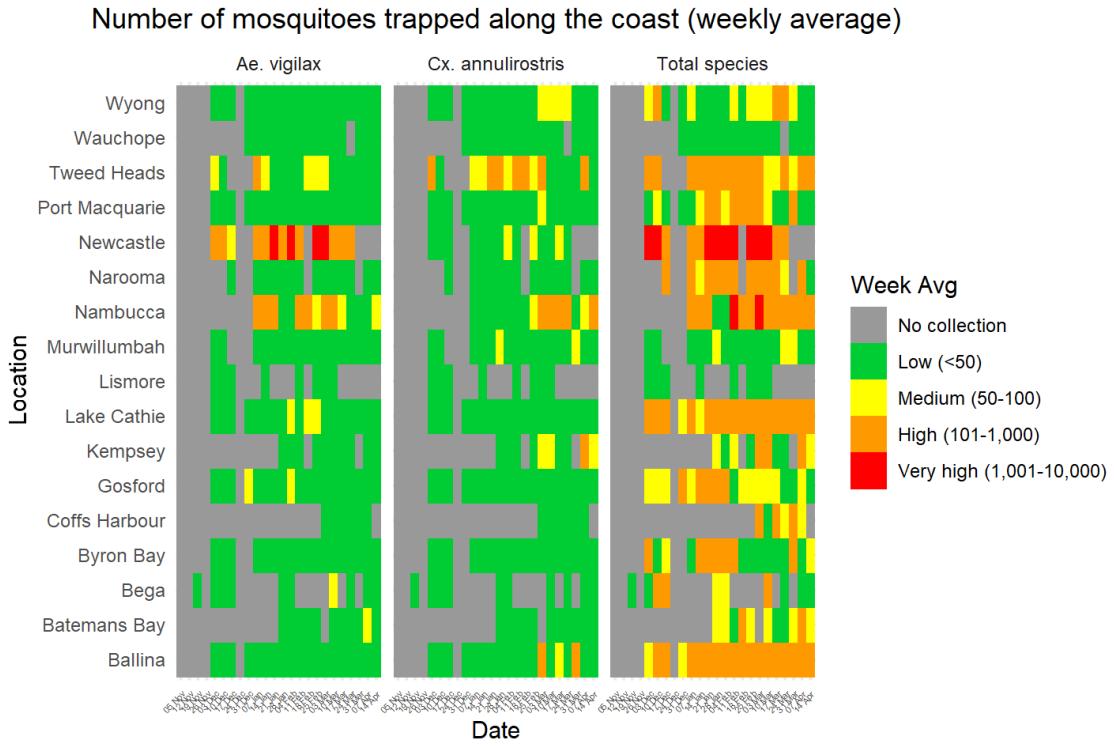
Culex annulirostris counts

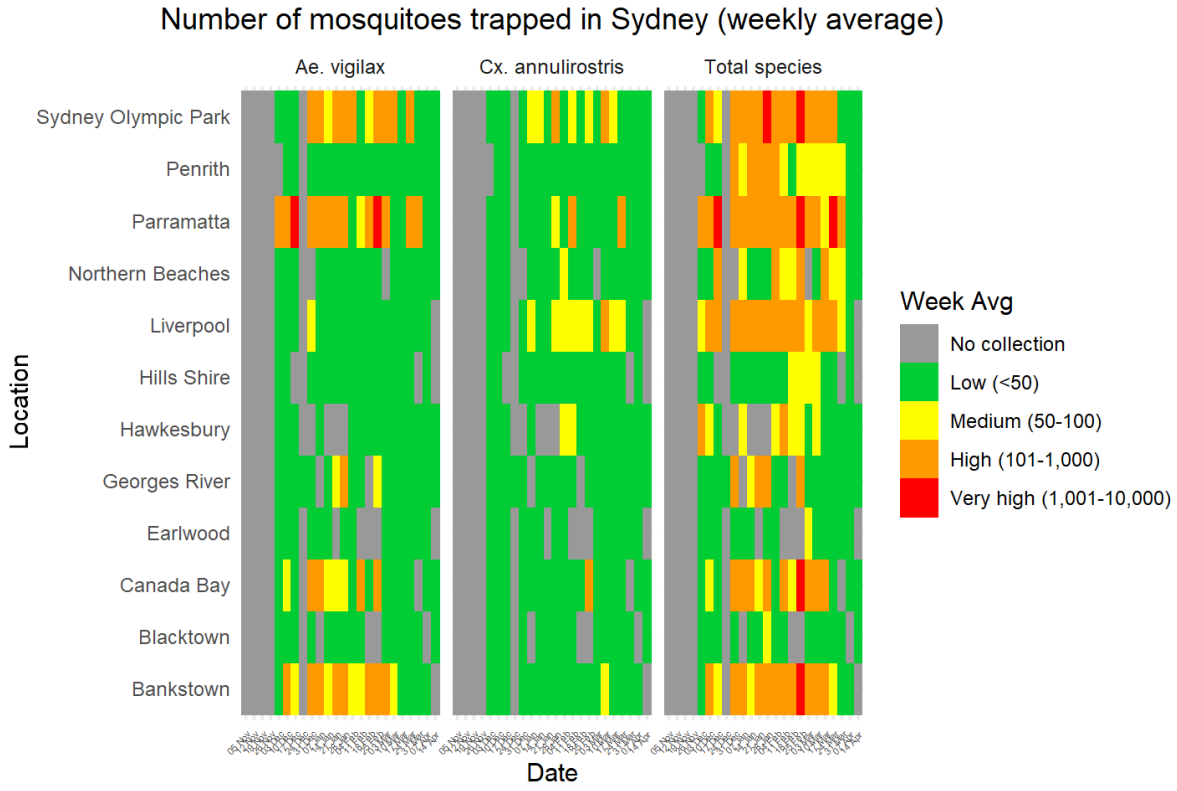
Aedes vigilax counts

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





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.

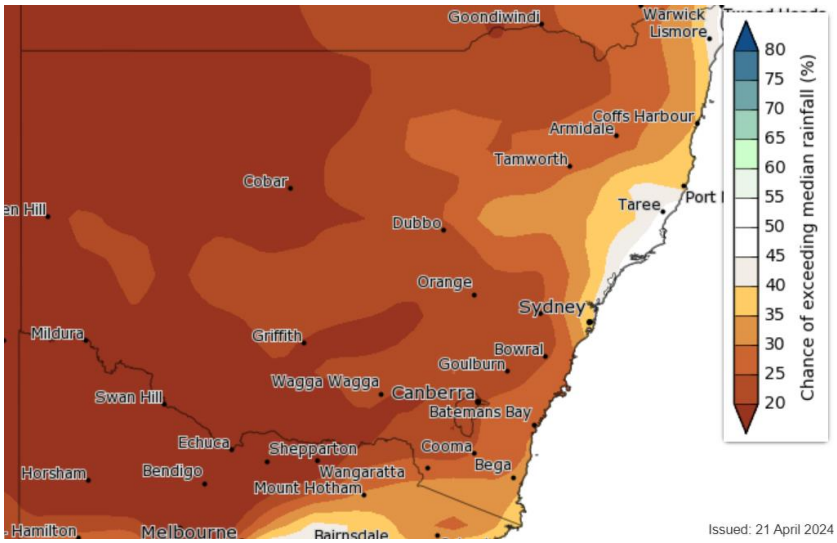
Rainfall

In the week ending 20 April 2024, rainfall was higher than average in some parts of the Mid North Coast and Northern NSW regions, with average or lower than average rainfall across the rest of NSW.

Upcoming week's rainfall and temperature outlook

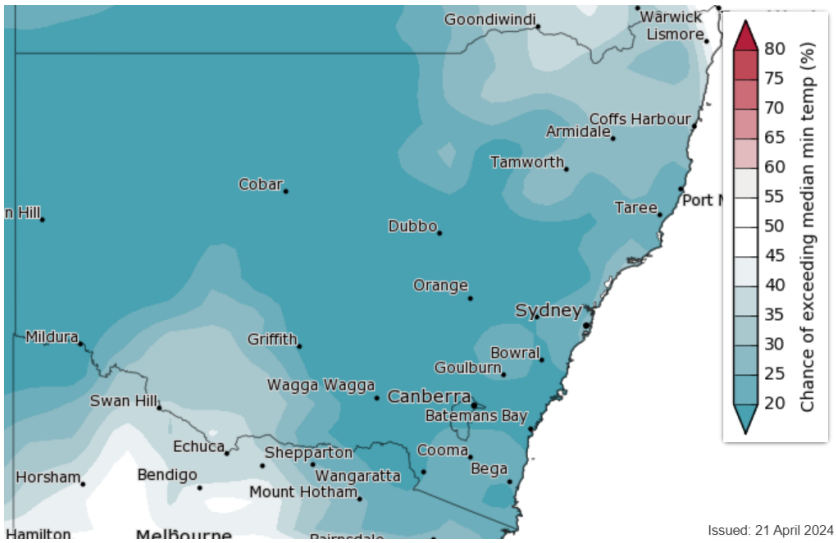
In the coming week, lower than average rainfall is expected across NSW.

Rainfall 26 April to 2 May, 2024



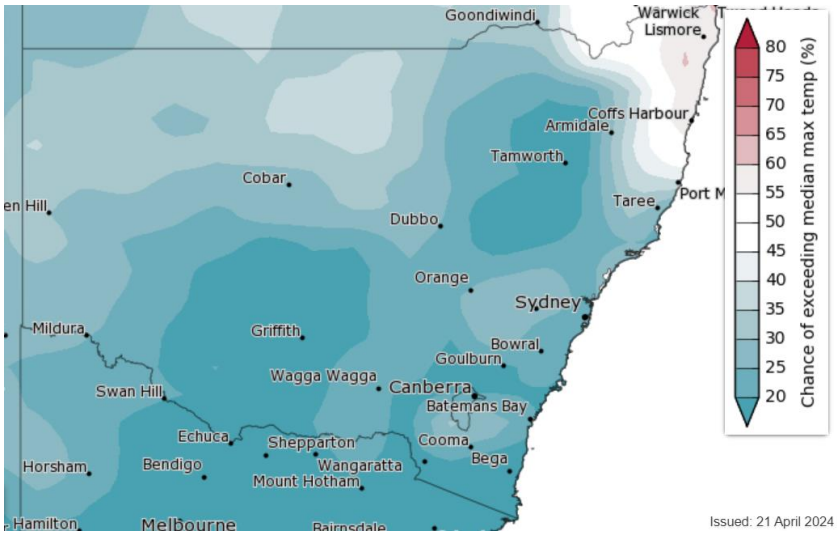
Minimum temperature 26 April to 2 May, 2024

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



Maximum temperature 26 April to 2 May, 2024

In the upcoming week, maximum temperatures in NSW are expected to be lower than average.



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)

• 7-12 May 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.

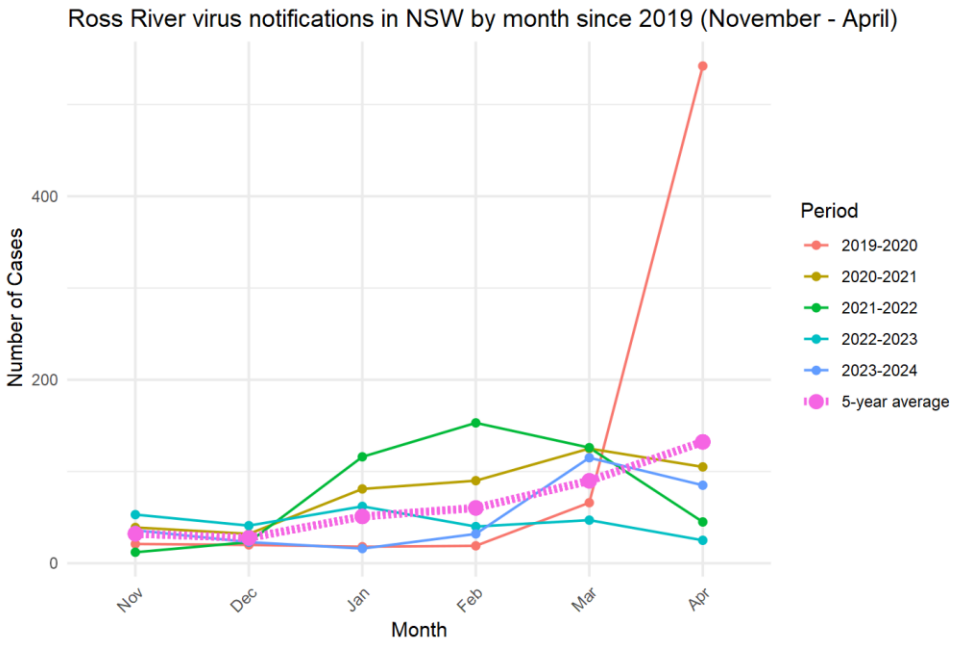
Recent notifications of Ross River virus and Barmah Forest virus infections in humans (by date of case report received)

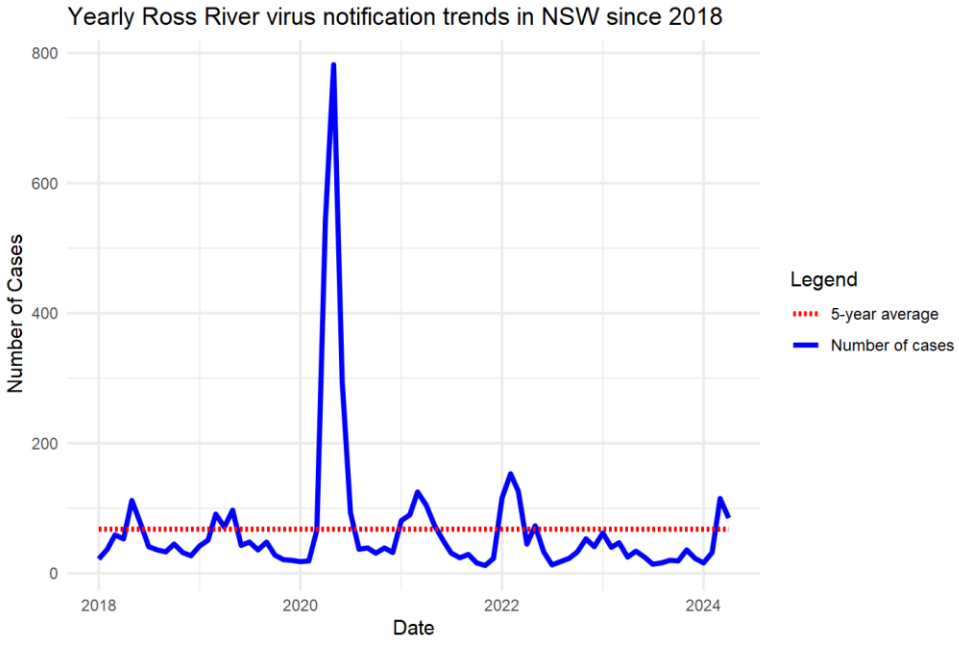
Notifications of Ross River virus and Barmah Forest virus infections, by month of disease onset (the earlier of patient-reported onset or specimen collection date), are available online at the NSW Health website - infectious diseases data.

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.

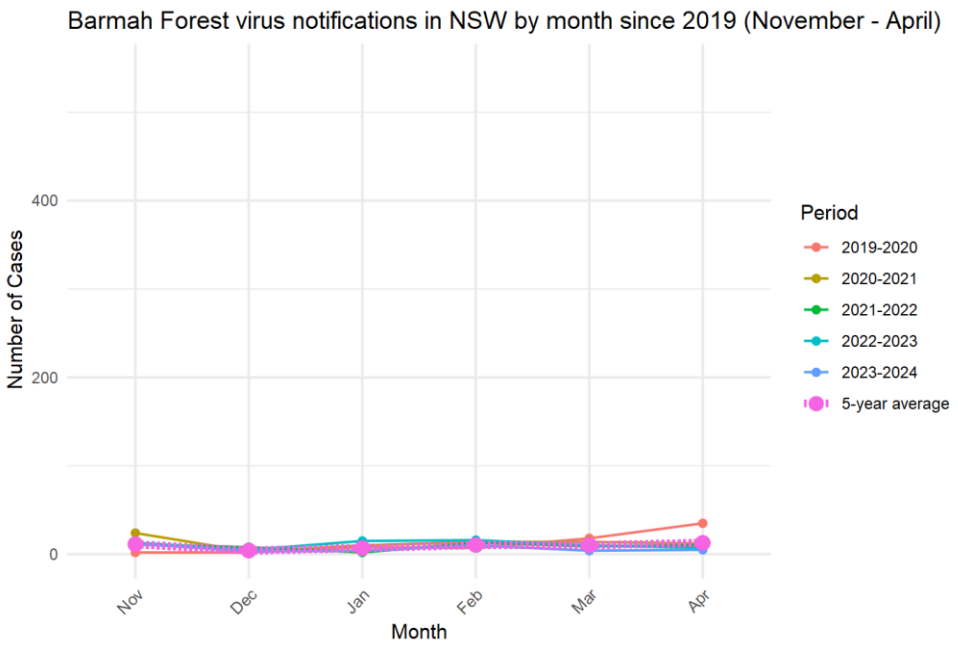
Ross River virus

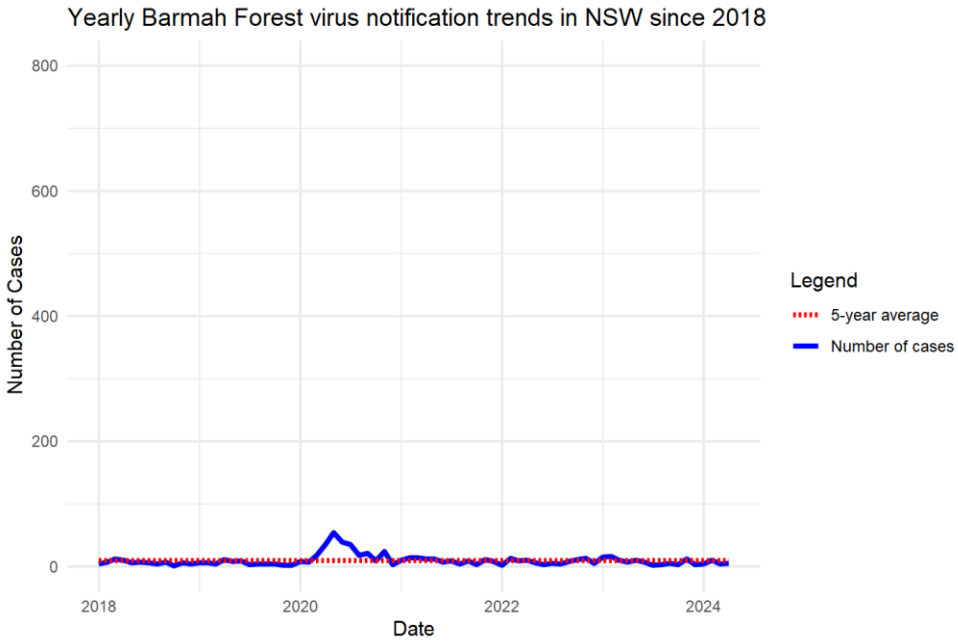
Note: Presented human cases include both confirmed and probable cases.





Barmah Forest virus





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