

# NSW Arbovirus Surveillance and Mosquito Monitoring 2022-2023

Weekly Update: Week ending 18 February 2023

(Report Number 18)



# Summary

## Arbovirus Detections

- **Sentinel Chickens:** Murray Valley encephalitis virus antibodies were detected in blood samples collected at Deniliquin, Forbes and Hay indicating exposure to these viruses. Chickens at Macquarie Marshes continue to test positive for Murray Valley encephalitis antibodies due to previous exposure to the virus and seroconversion.
- **Mosquito Isolates:** Murray Valley encephalitis virus was detected in mosquitoes collected at Corowa and Macquarie Marshes.

## Mosquito Abundance

- **Inland:** LOW at Albury, Armidale, Balranald, Bourke, Cootamundra, Goulburn, Grong Grong, Leeton, Menindee, Moree, Murrumbidgee, Walgett, West Wyalong and Yass. MEDIUM at Deniliquin, Forbes, Narrandera, Temora and Wagga Wagga. HIGH at Corowa, Griffith, Macquarie Marshes and Wilcannia.
- **Coast:** LOW at Kempsey, Kiama, Millbank, Mullumbimby, Murwillumbah, Nambucca, Shoalhaven, Wauchope and Wylong. MEDIUM at Byron Bay and Lake Cathie. HIGH at Ballina, Bega, Gosford and Tweed Heads. VERY HIGH at Newcastle.
- **Sydney:** LOW at Camden, Canada Bay, Earlwood, Georges River and Hills Shire. MEDIUM at Bankstown and Sydney Olympic Park. HIGH at Liverpool, Northern Beaches and Parramatta.

## Environmental Conditions

- **Climate:** In the week ending 11 February 2023, rainfall was moderate along the north coast and very low to low elsewhere in NSW. About average rainfall is predicted for NSW in March 2023 with moderate rainfall predicted along the coast between Bega and Taree. Minimum temperatures are likely to be above average and maximum temperatures are likely to be about average across most of NSW in March.
- **Tides:** High tides over 1.8 metres are predicted for 18-23 February and 19-22 March, which could trigger hatching of *Aedes vigilax*.

## Human Arboviral Disease Notifications

- **Ross River Virus:** 15 cases were notified in the week ending 21 January 2023.
- **Barmah Forest Virus:** 4 cases were notified in the week ending 21 January 2023.

## Comments and other findings of note

A high proportion of the mosquitoes collected inland continue to be the species *Culex annulirostris*, which is a vector for Japanese Encephalitis virus, Murray Valley encephalitis virus (MVEV) and Kunjin virus. The distance between detections of MVEV over several weeks indicate the virus is likely to be widespread in inland NSW. The primary hosts of MVEV in natural transmission cycles are thought to be waterbirds. Only a small proportion of people infected with MVEV experience symptoms, which may include fever, headache, nausea, vomiting, loss of appetite, diarrhoea, and muscle aches. Severe MVEV infection causing brain inflammation is very rare but can result in lifelong neurological complications or be fatal. Signs of severe infection may include severe headache, neck stiffness, sensitivity to bright lights, drowsiness, confusion, seizures, and loss of consciousness.

### Weekly reports are available at:

[www.health.nsw.gov.au/Infectious/mosquito-borne/Pages/surveillance.aspx](http://www.health.nsw.gov.au/Infectious/mosquito-borne/Pages/surveillance.aspx)

### 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.

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) 220867

Cover photos: **Bottom left** - Common banded mosquito, *Culex annulirostris*  
**Top and bottom right** - Saltmarsh mosquito, *Aedes vigilax*  
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## Arbovirus Detections

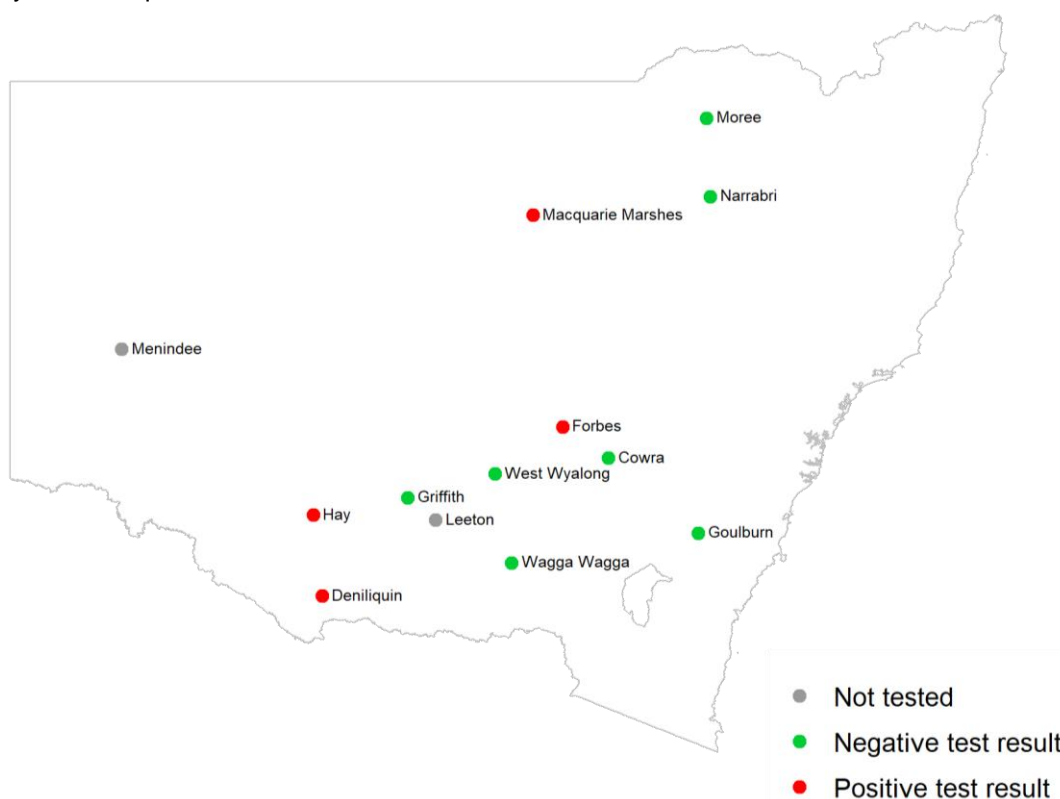
This section details detections of Murray Valley encephalitis virus, Kunjin virus, Ross River virus, Barmah Forest virus and Japanese encephalitis virus in the NSW Arbovirus Surveillance and Mosquito Monitoring Program.

### Sentinel chickens

Chickens are bled for detection of antibodies directed against Murray Valley encephalitis virus, Kunjin virus and Japanese encephalitis virus, indicating exposure to these viruses. Test results for the past three weeks are shown in the map below and all positive test results for the season are detailed in the table.

#### Sentinel chicken antibody test results for samples collected in the three weeks to 18 February 2023

There were positive test results for Murray Valley encephalitis virus for samples collected at Deniliquin, Forbes, Hay and Macquarie Marshes.\*



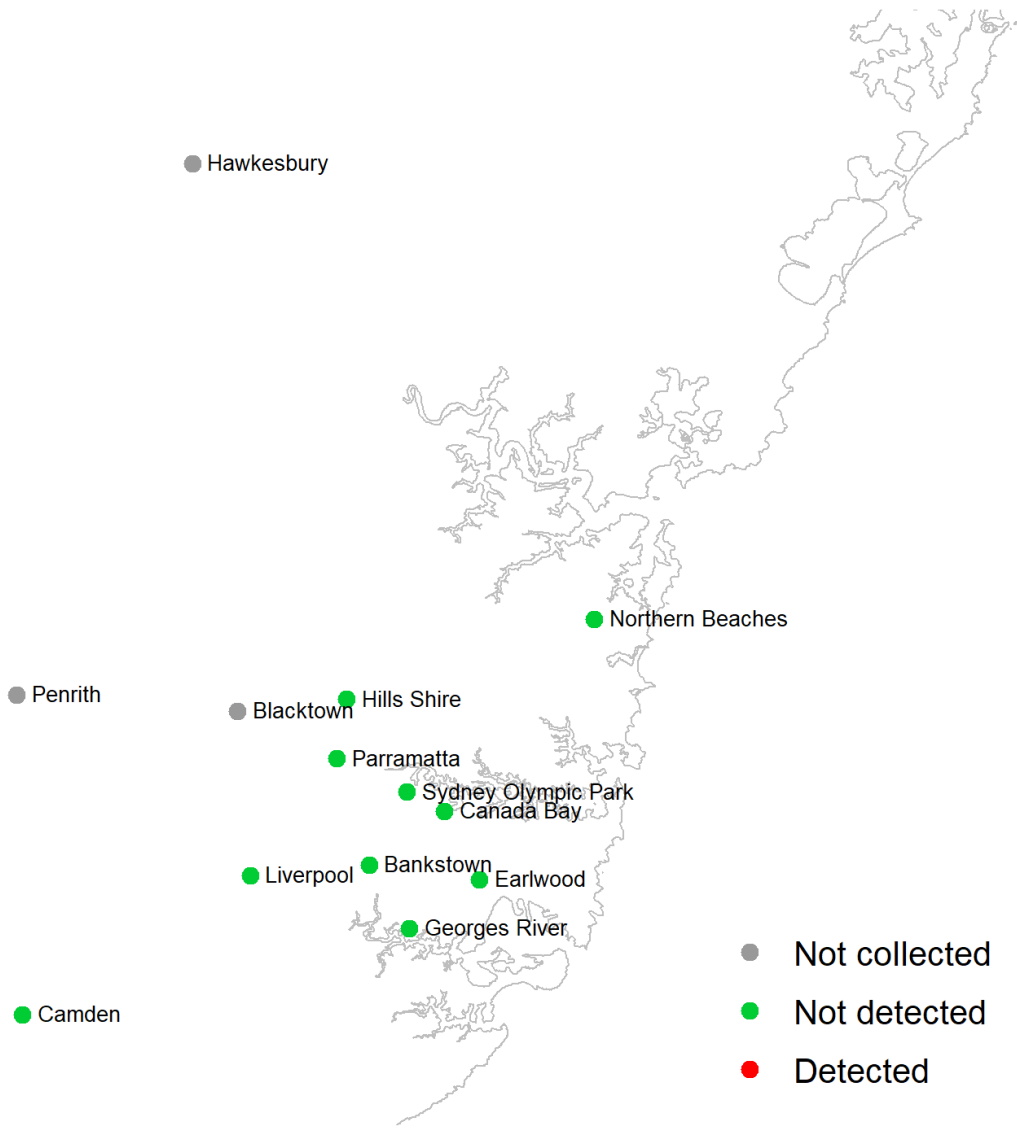
#### Positive test results in the 2022-2023 surveillance season

| Date of sample collection | Location           | Virus                      |
|---------------------------|--------------------|----------------------------|
| 12 January 2023           | Menindee           | Murray Valley encephalitis |
| 12 January 2023           | Menindee           | Kunjin                     |
| 19 January 2023           | Menindee           | Murray Valley encephalitis |
| 20 January 2023           | Macquarie Marshes  | Murray Valley encephalitis |
| 26 January 2023           | Menindee           | Murray Valley encephalitis |
| 29 January 2023           | Leeton             | Murray Valley encephalitis |
| 6 February 2023           | Deniliquin         | Murray Valley encephalitis |
| 6 February 2023           | Forbes             | Murray Valley encephalitis |
| 6 February 2023           | Hay                | Murray Valley encephalitis |
| 6 February 2023           | Macquarie Marshes* | Murray Valley encephalitis |

\*Chickens in Macquarie Marshes had previously seroconverted to Murray Valley encephalitis virus and continue to test positive for antibodies to this virus.



## Sydney sites



## Arboviruses detected in the 2022-2023 surveillance season

| Date of sample collection | Location          | Virus                      |
|---------------------------|-------------------|----------------------------|
| 14 November 2022          | Macquarie Marshes | Barmah Forest              |
| 15 November 2022          | Griffith          | Ross River                 |
| 22 November 2022          | Griffith          | Barmah Forest              |
| 5 December 2022           | Leeton            | Barmah Forest              |
| 5 December 2022           | Temora            | Ross River                 |
| 5 December 2022           | Grong Grong       | Edge Hill                  |
| 6 December 2022           | Deniliquin        | Barmah Forest              |
| 6 December 2022           | Griffith          | Barmah Forest              |
| 12 December 2022          | Grong Grong       | Barmah Forest              |
| 13 December 2022          | Penrith           | Edge Hill                  |
| 4 January 2023            | Menindee          | Murray Valley encephalitis |
| 9 January 2023            | Corowa            | Ross River                 |
| 9 January 2023            | Corowa            | Edge Hill                  |
| 9 January 2023            | Young             | Barmah Forest              |
| 10 January 2023           | Griffith          | Murray Valley encephalitis |
| 10 January 2023           | Menindee          | Murray Valley encephalitis |
| 16 January 2023           | Griffith          | Murray Valley encephalitis |
| 17 January 2023           | Mathoura          | Murray Valley encephalitis |
| 17 January 2023           | Moama             | Murray Valley encephalitis |
| 23 January 2023           | Macquarie Marshes | Murray Valley encephalitis |
| 23 January 2023           | Macquarie Marshes | Kunjin                     |
| 23 January 2023           | Temora            | Murray Valley encephalitis |
| 23 January 2023           | Griffith          | Kunjin                     |
| 23 January 2023           | Balranald         | Murray Valley encephalitis |
| 30 January 2023           | Albury            | Murray Valley encephalitis |
| 30 January 2023           | Mathoura          | Murray Valley encephalitis |
| 31 January 2023           | Leeton            | Murray Valley encephalitis |
| 6 February 2023           | Griffith          | Murray Valley encephalitis |
| 13 February 2023          | Macquarie Marshes | Murray Valley encephalitis |
| 13 February 2023          | Corowa            | Murray Valley encephalitis |

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

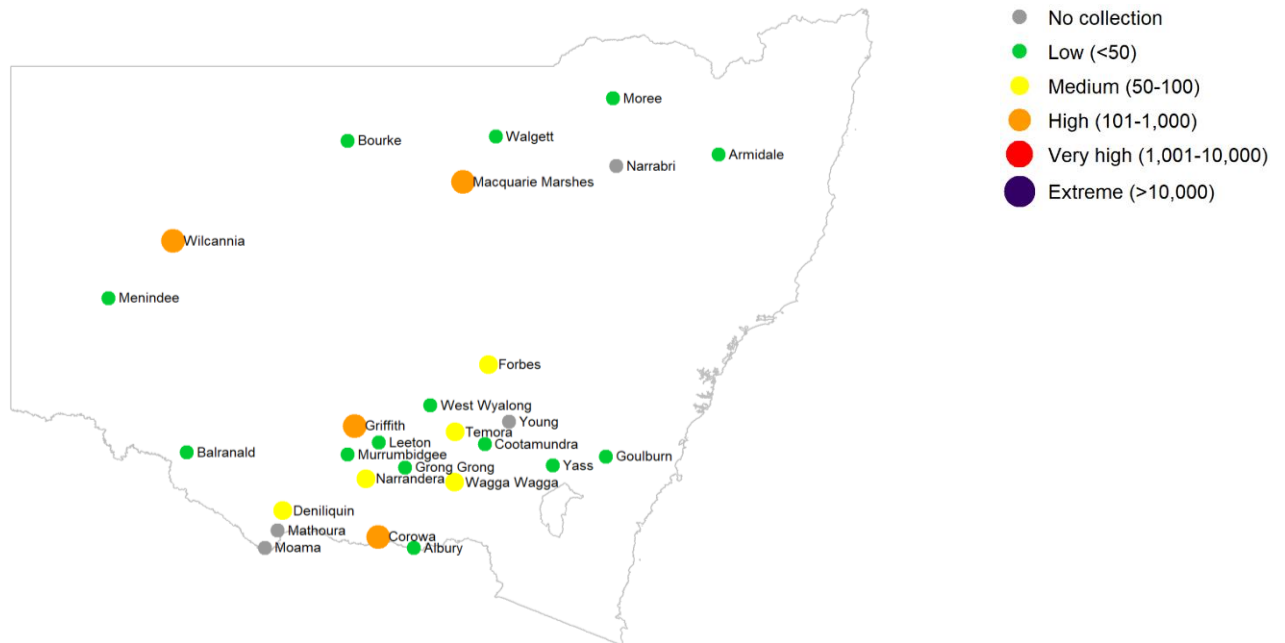
This section details counts of mosquitoes in the NSW Arbovirus Surveillance and Mosquito Monitoring Program. Each location represents the count average for all trapping sites at that location for the most recent week that collections were provided prior to preparation of this report.

*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.

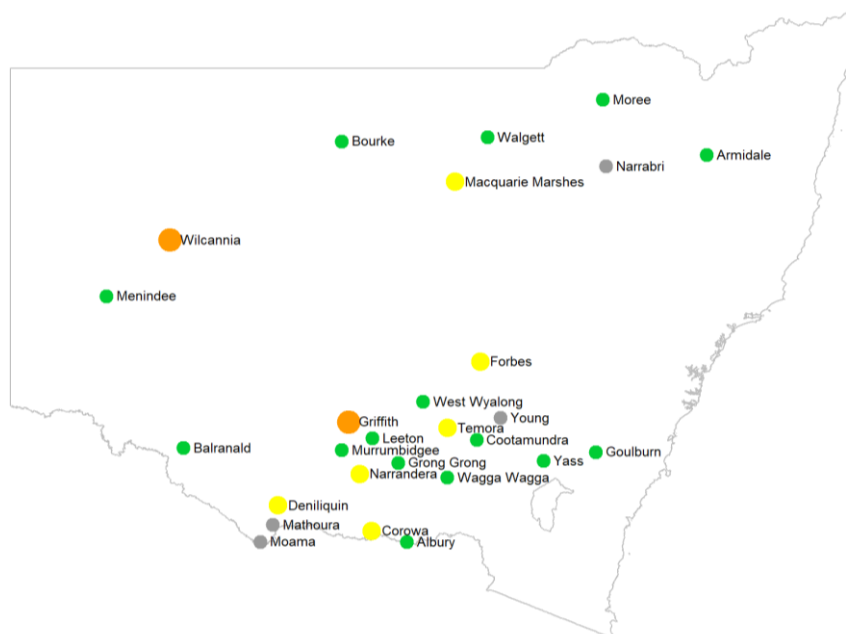
### Mosquito counts (average per trap per location) for mosquito trapping sites reported in the week ending 11 February 2023

#### Inland sites

#### Total mosquito counts



#### *Culex annulirostris* counts



**Coastal sites  
Total mosquito counts**



**Key:**

- No collection
- Low (<50)
- Medium (50-100)
- High (101-1,000)
- Very high (1,001-10,000)
- Extreme (>10,000)

***Culex annulirostris* counts**



***Aedes vigilax* counts**





## Sydney sites Total mosquito counts



### Key:

- No collection
- Low (<50)
- Medium (50-100)
- High (101-1,000)
- Very high (1,001-10,000)
- Extreme (>10,000)

## *Culex annulirostris* counts



## *Aedes vigilax* counts



# Mosquito counts for the 2022-23 surveillance season Inland

"Cx. annul" refers to *Culex annulirostris* and "Ae. vigilax" refers to *Aedes vigilax*.

## Key:

- No collection
- Low (<50)
- Medium (50-100)
- High (101-1,000)
- Very high (1,001-10,000)
- Extreme (>10,000)

| Location     | Mosquito  | WEEK ENDING |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
|--------------|-----------|-------------|----|----|--------|----|----|----|--------|----|----|----|----|--------|----|----|----|--------|----|----|--------|---|----|--------|----|---|--------|----|----|----|---|----|--|
|              |           | Oct-22      |    |    | Nov-22 |    |    |    | Dec-22 |    |    |    |    | Jan-23 |    |    |    | Feb-23 |    |    | Mar-23 |   |    | Apr-23 |    |   | May-23 |    |    |    |   |    |  |
|              |           | 15          | 22 | 29 | 5      | 12 | 19 | 26 | 3      | 10 | 17 | 24 | 31 | 7      | 14 | 21 | 28 | 4      | 11 | 18 | 25     | 4 | 11 | 18     | 25 | 1 | 8      | 15 | 22 | 29 | 6 | 13 |  |
| Albury       | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Albury       | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Armidale     | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Armidale     | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Balranald    | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Balranald    | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Bourke       | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Bourke       | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Cootamundra  | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Cootamundra  | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Corowa       | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Corowa       | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Deniliquin   | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Deniliquin   | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Forbes       | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Forbes       | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Goulburn     | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Goulburn     | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Griffith     | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Griffith     | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Grong Grong  | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Grong Grong  | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Leeton       | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Leeton       | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Macquarie    | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Macquarie    | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Marshes      | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Marshes      | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Mathoura     | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Mathoura     | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Menindee     | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Menindee     | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Moama        | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Moama        | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Moree        | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Moree        | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Murrumbidgee | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Murrumbidgee | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Narrabri     | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Narrabri     | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Narrandera   | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Narrandera   | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Temora       | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Temora       | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Wagga Wagga  | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Wagga Wagga  | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Walgett      | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Walgett      | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| West Wyalong | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| West Wyalong | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Wilcannia    | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Wilcannia    | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Yass         | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Yass         | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Young        | Cx. annul |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |
| Young        | Total     |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |  |

# Coastal

|                |             | WEEK ENDING |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|----------------|-------------|-------------|----|----|--------|----|----|----|--------|----|----|----|----|--------|----|----|----|--------|----|----|--------|---|----|--------|----|---|--------|----|----|----|---|----|
|                |             | Oct-22      |    |    | Nov-22 |    |    |    | Dec-22 |    |    |    |    | Jan-23 |    |    |    | Feb-23 |    |    | Mar-23 |   |    | Apr-23 |    |   | May-23 |    |    |    |   |    |
| Location       | Mosquito    | 15          | 22 | 29 | 5      | 12 | 19 | 26 | 3      | 10 | 17 | 24 | 31 | 7      | 14 | 21 | 28 | 4      | 11 | 18 | 25     | 4 | 11 | 18     | 25 | 1 | 8      | 15 | 22 | 29 | 6 | 13 |
| Ballina        | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Bega           | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Byron Bay      | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Coffs Harbour  | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Gosford        | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Kempsey        | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Kiama          | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Lake Cathie    | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Lismore        | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Millbank       | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Mullumbimby    | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Murwillumbah   | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Nambucca       | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Newcastle      | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Port Macquarie | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Shoalhaven     | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Tweed Heads    | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Wauchope       | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Wollongong     | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
| Wyong          | Cx. annul   |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Ae. vigilax |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |
|                | Total       |             |    |    |        |    |    |    |        |    |    |    |    |        |    |    |    |        |    |    |        |   |    |        |    |   |        |    |    |    |   |    |

# Sydney

|                     |                    | WEEK ENDING |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|---------------------|--------------------|-------------|----|----|--------|----|----|--------|---|----|----|--------|----|---|----|--------|----|---|--------|----|----|---|--------|----|----|--------|---|----|----|----|---|----|
|                     |                    | Oct-22      |    |    | Nov-22 |    |    | Dec-22 |   |    |    | Jan-23 |    |   |    | Feb-23 |    |   | Mar-23 |    |    |   | Apr-23 |    |    | May-23 |   |    |    |    |   |    |
| Location            | Mosquito           | 15          | 22 | 29 | 5      | 12 | 19 | 26     | 3 | 10 | 17 | 24     | 31 | 7 | 14 | 21     | 28 | 4 | 11     | 18 | 25 | 4 | 11     | 18 | 25 | 1      | 8 | 15 | 22 | 29 | 6 | 13 |
| Bankstown           | <i>Cx. annul</i>   |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | <i>Ae. vigilax</i> |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | Total              |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
| Blacktown           | <i>Cx. annul</i>   |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | <i>Ae. vigilax</i> |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | Total              |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
| Camden              | <i>Cx. annul</i>   |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | <i>Ae. vigilax</i> |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | Total              |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
| Canada Bay          | <i>Cx. annul</i>   |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | <i>Ae. vigilax</i> |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | Total              |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
| Earlwood            | <i>Cx. annul</i>   |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | <i>Ae. vigilax</i> |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | Total              |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
| Georges River       | <i>Cx. annul</i>   |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | <i>Ae. vigilax</i> |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | Total              |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
| Hawkesbury          | <i>Cx. annul</i>   |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | <i>Ae. vigilax</i> |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | Total              |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
| Hills Shire         | <i>Cx. annul</i>   |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | <i>Ae. vigilax</i> |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | Total              |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
| Liverpool           | <i>Cx. annul</i>   |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | <i>Ae. vigilax</i> |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | Total              |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
| Northern Beaches    | <i>Cx. annul</i>   |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | <i>Ae. vigilax</i> |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | Total              |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
| Parramatta          | <i>Cx. annul</i>   |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | <i>Ae. vigilax</i> |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | Total              |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
| Penrith             | <i>Cx. annul</i>   |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | <i>Ae. vigilax</i> |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | Total              |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
| Sydney Olympic Park | <i>Cx. annul</i>   |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | <i>Ae. vigilax</i> |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |
|                     | Total              |             |    |    |        |    |    |        |   |    |    |        |    |   |    |        |    |   |        |    |    |   |        |    |    |        |   |    |    |    |   |    |

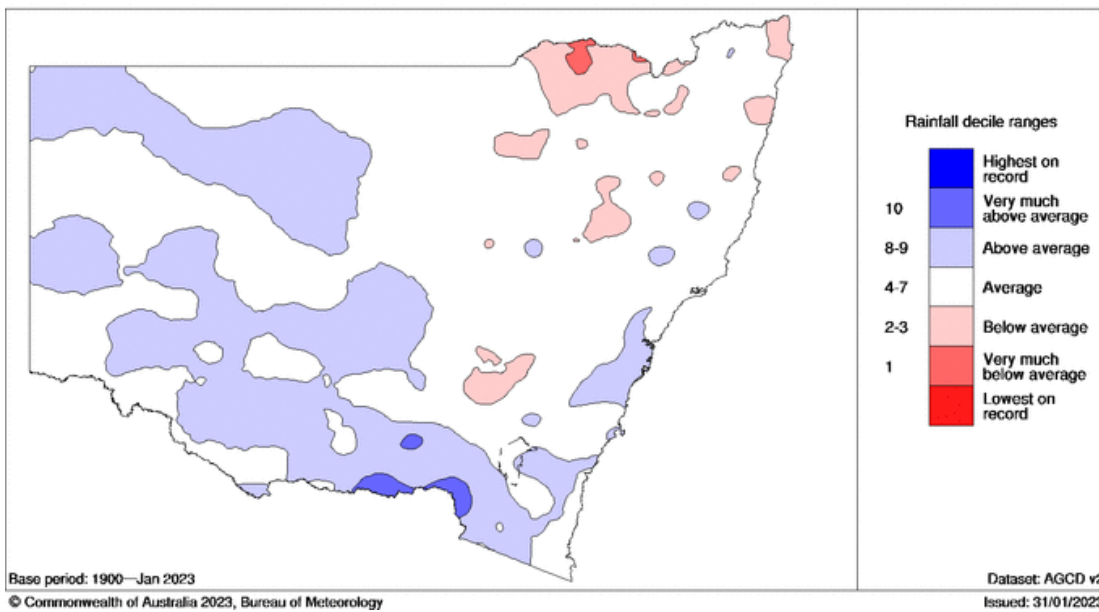
## Environmental Conditions

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.

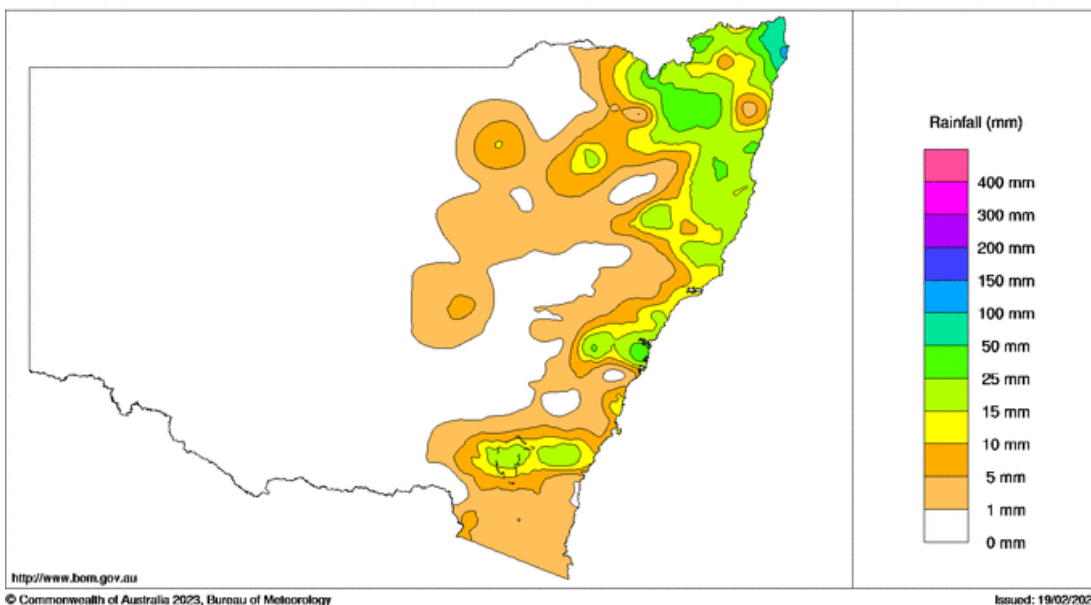
### Rainfall

In January, rainfall was above average in southern NSW and parts of western NSW and average for most other areas of the state. In the week ending 18 February 2023, rainfall totals were moderate along the north coast and very low to low elsewhere in NSW.

New South Wales rainfall deciles January 2023  
Australian Gridded Climate Data



New South Wales Rainfall Totals (mm) Week Ending 18th February 2023  
Australian Bureau of Meteorology



Source: Australian Government, Bureau of Meteorology: s

## Next month's rainfall and temperature outlook

The Bureau of Meteorology's rainfall outlook predicts that NSW is likely to receive about average rainfall for March across most of NSW with moderate rainfall predicted along the coast between Bega and Taree.

[www.bom.gov.au/climate/outlooks/#/rainfall/median/monthly/0](http://www.bom.gov.au/climate/outlooks/#/rainfall/median/monthly/0)

The Bureau of Meteorology's temperature outlook predicts that minimum temperatures are likely to be above average across most of NSW in March. Maximum temperatures are likely to be about average across most of NSW and slightly lower than average in the southeastern quadrant of NSW in March.

[www.bom.gov.au/climate/outlooks/#/temperature/maximum/median/monthly/0](http://www.bom.gov.au/climate/outlooks/#/temperature/maximum/median/monthly/0)

[www.bom.gov.au/climate/outlooks/#/temperature/minimum/median/monthly/0](http://www.bom.gov.au/climate/outlooks/#/temperature/minimum/median/monthly/0)

## 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)

- 18-23 February 2023
- 19-22 March 2023

Source: Australian Government, Bureau of Meteorology: [www.bom.gov.au/australia/tides/#/nsw-sydney-fort-denison](http://www.bom.gov.au/australia/tides/#/nsw-sydney-fort-denison)

Note: Measured tides at Sydney Port Jackson for the current week are available from the NSW Government, Manly Hydraulics Laboratory: <https://mhl.nsw.gov.au/Data-OceanTide>.

## Human Arboviral Disease Notifications

Under the *NSW Public Health Act 2010*, human arboviral infections are notifiable in NSW. The NSW Health Communicable Diseases Weekly Report (CDWR) reports confirmed and probable case numbers by the week they are received by the NSW notifiable diseases surveillance system, and is available at: [www.health.nsw.gov.au/Infectious/reports/Pages/CDWR.aspx](http://www.health.nsw.gov.au/Infectious/reports/Pages/CDWR.aspx).

The data for Ross River virus and Barmah Forest virus from the CDWR for the latest reported 3 weeks are below.

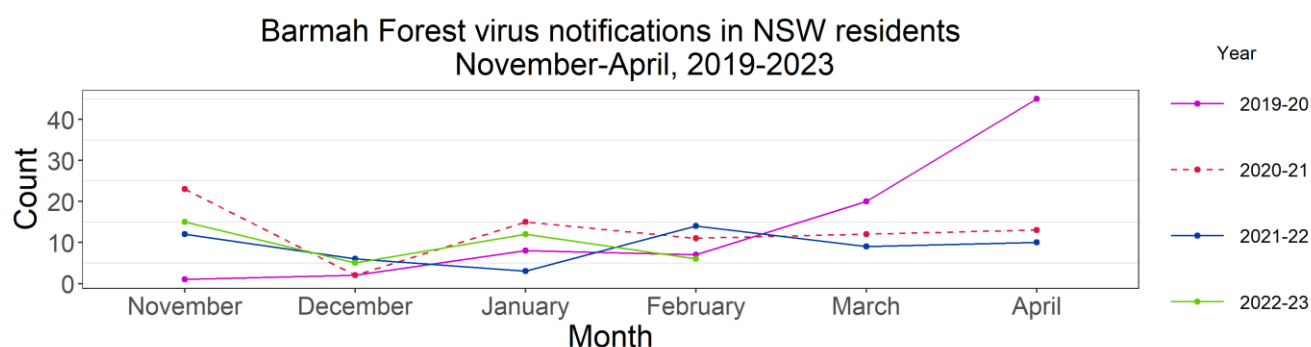
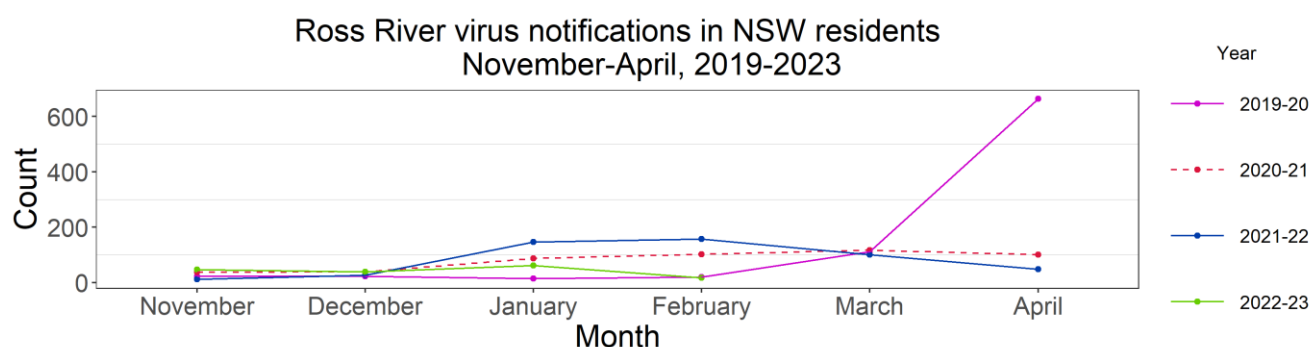
### Recent notifications of Ross River virus and Barmah Forest virus infections in humans

(by date of case report received)

|                            | Week                              |                                   |                                   |
|----------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
|                            | Latest week<br>(15 – 21 Jan 2023) | 1-week prior<br>(8 – 14 Jan 2023) | 2-weeks prior<br>(1 – 7 Jan 2023) |
| <b>Ross River virus</b>    | 15                                | 19                                | 12                                |
| <b>Barmah Forest virus</b> | 4                                 | 5                                 | 3                                 |

Source: CDWR, Communicable Diseases Branch, Health Protection NSW, NSW Health

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: [www1.health.nsw.gov.au/IDD/pages/data.aspx](http://www1.health.nsw.gov.au/IDD/pages/data.aspx). The following figures show this data for November to April of the current NSW Arbovirus Surveillance and Mosquito Monitoring season (2022-2023), and the same period in the previous three years.



Source: NSW Health Notifiable Conditions Information Management System (NCIMS), Communicable Diseases Branch and Centre for Epidemiology and Evidence, NSW Health

Notes: The data for the previous month are the notifications to date (data extracted on 20 February 2023). Notifications are for NSW residents, regardless of whether the infection was acquired or diagnosed in NSW. Notifications of Ross River virus and Barmah Forest virus infection lag the date of acquiring the infection due to the time taken for symptom development, diagnosis, notification, and other factors. The weekly numbers by date of notification are useful for monitoring recent short-term trends but represent infections that were acquired some time ago. The monthly numbers by date of onset are more timely but less exact because they represent the earlier of patient-reported onset or specimen collection date and are therefore useful for monitoring general trends in human arboviral disease over the course of a season.