

NSW Arbovirus Surveillance & Mosquito Monitoring 2020-2021

Weekly Update: Week ending 24 April 2021

(Report Number 24)



Summary

Arbovirus Detections

- **Sentinel Chickens:** The Arbovirus Sentinel Chicken Surveillance Program has ended for the 2020-21 season.
- **Mosquito Isolates:** There were no Barmah Forest and Ross River virus detections in mosquito isolates in this reporting period.

Mosquito Abundance

- **Inland:** MEDIUM at Forbes. LOW at Albury, Leeton and Wagga Wagga.
- **Coast:** HIGH at Gosford. MEDIUM at Ballina, Kempsey and Tweed. LOW at Bellingen, Byron, Narooma, Port Macquarie and Wyong.
- **Sydney:** HIGH at Bankstown and Penrith. MEDIUM at Hawkesbury, Hills Shire and Parramatta. LOW at Georges River, Liverpool, Northern Beaches and Sydney Olympic Park.

Environmental Conditions

- **Climate:** In the past week, there was no or little rainfall across most of NSW, except for northeastern NSW, which received moderate rainfall. Rainfall is expected to be significantly lower than usual across NSW for the remainder of April and around usual in May. Temperatures are likely to be around usual, but with wider variations, across most of NSW for the remainder of April. Temperatures are likely to be around usual in May.
- **Tides:** High tides over 1.8 metres are predicted to occur between 28 April - 1 May and 24-30 May, which could trigger hatching of *Aedes vigilax*.

Human Arboviral Disease Notifications

- **Ross River Virus:** 24 cases were notified in the week ending 10 April 2021.
- **Barmah Forest Virus:** 3 cases were notified in the week ending 10 April 2021.

Comments and other findings of note

Edge Hill virus was detected at Tom's Lagoon (Forbes) on 20 April 2021.

Weekly reports are available at:

www.health.nsw.gov.au/environment/pests/vector/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

Testing and scientific services were provided by the Department of Medical Entomology, NSW Health Pathology (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.

SHPN (HP NSW) 200547

Arbovirus Detections

This section details detections of Murray Valley 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 and Kunjin virus, indicating exposure to these viruses. Chicken surveillance has ended for the 2020-21 season.

Positive test results in the 2020-2021 surveillance season

Date of sample collection	Location	Positive test results
There were no detections in sentinel chickens in the 2020-2021 surveillance season		

Mosquito isolates

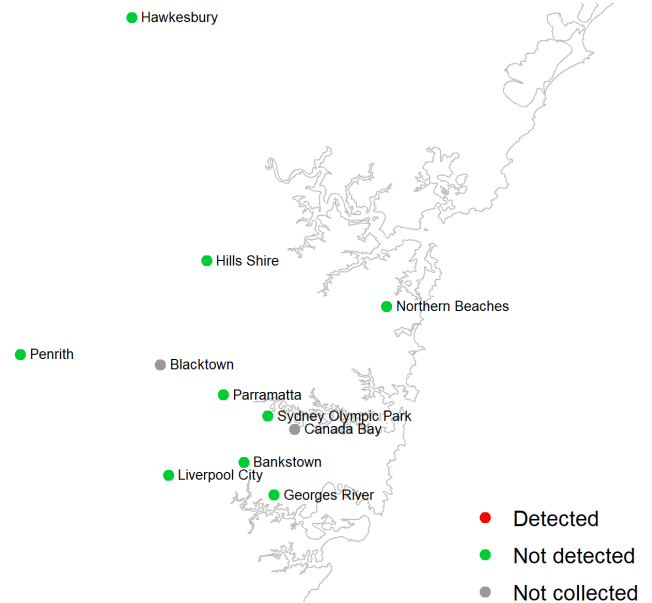
Whole grinds of mosquitoes are tested for arbovirus nucleic acids (including Ross River virus and Barmah Forest virus). There were no detections of Barmah Forest and Ross River virus in this reporting week.

Test results for mosquito trapping sites in the week ending 24 April 2021

Inland and Coastal sites



Sydney sites



- Detected
- Not detected
- Not collected

Ross River and Barmah Forest viruses detected in the past three weeks

Date of sample collection	Location	Virus
There have been no Ross River and Barmah Forest viruses detected in the past three weeks.		

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 specimens collected in the current reporting week.

Culex annulirostris and *Aedes vigilax* are vectors of interest for Ross River virus and Barmah Forest virus.

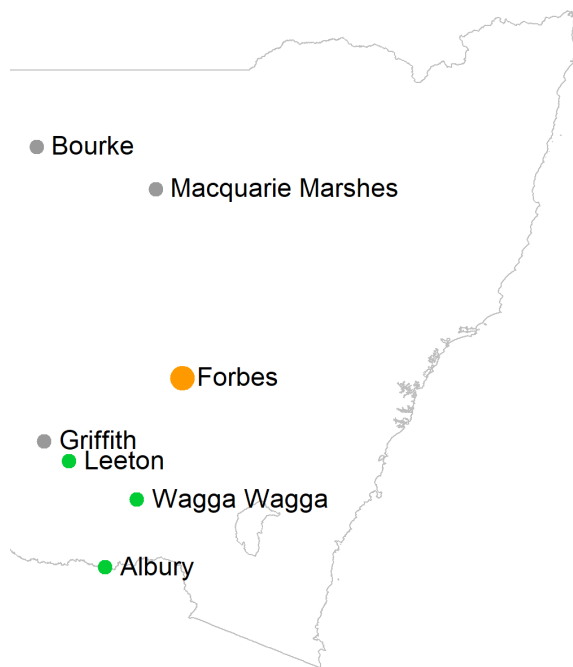
Mosquito counts in the week ending 24 April 2021

Key:

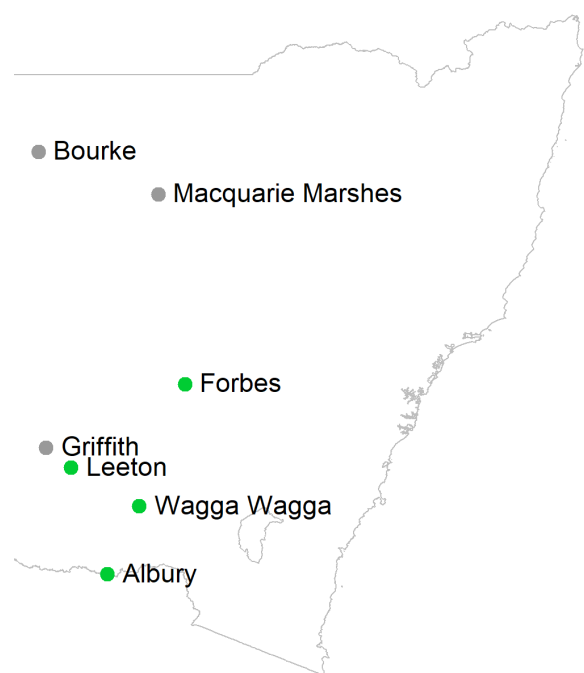
- No collection
- Low (<50)
- Medium (50-100)
- High (101-1,000)
- Very high (1,001-10,000)
- Extreme (>10,000)

Inland sites

Total mosquito counts

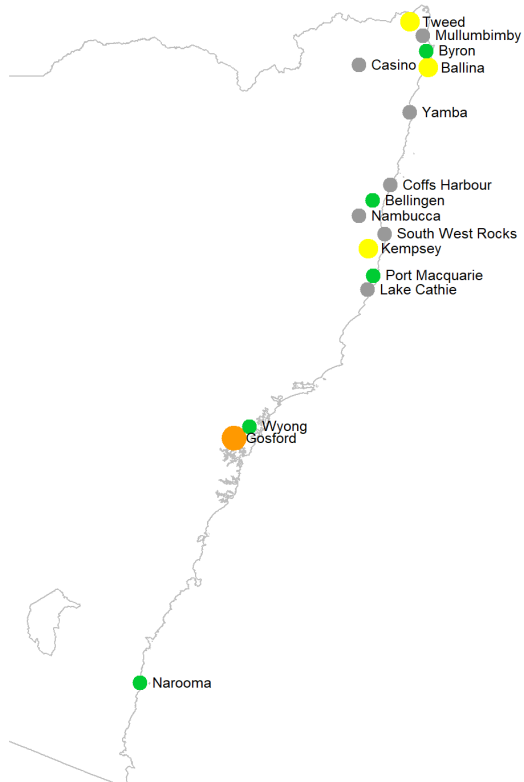


Culex annulirostris counts



Coastal sites

Total mosquito counts



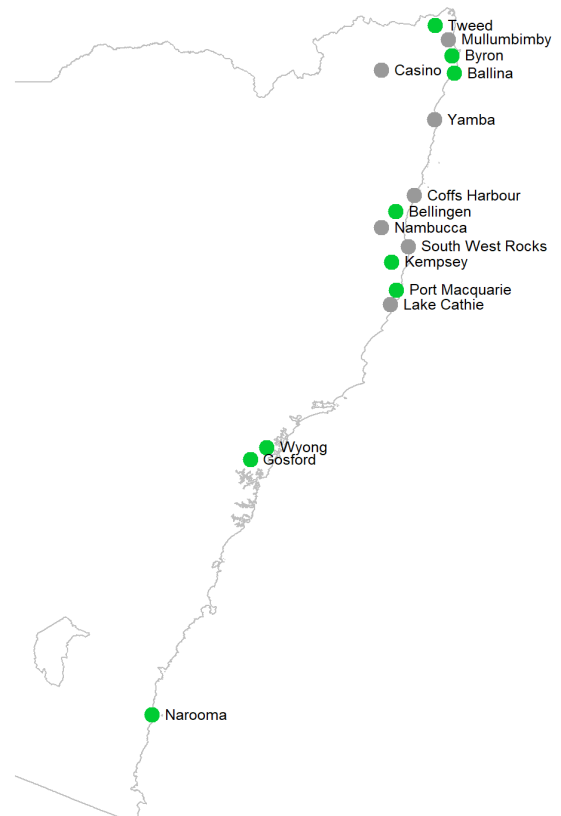
Key:

- 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 abundance data for 2020-21 season to date

Key:

□	No collection
■ (Green)	Low (<50)
■ (Yellow)	Medium (50-100)
■ (Orange)	High (101-1,000)
■ (Red)	Very high (1,001-10,000)
■ (Purple)	Extreme (>10,000)

Data in the below tables represent the average for all trapping sites at that location. “*Cx. annul*” refers to *Culex annulirostris* and “*Ae.vigilax*” refers to *Aedes vigilax*.

Inland

		WEEK ENDING																													
		Nov-20				Dec-20				Jan-21					Feb-21				Mar-21				Apr-21				May-21				
Location	Mosquito	7	14	21	28	5	12	19	26	2	9	16	23	30	6	13	20	27	6	13	20	27	3	10	17	24	1	8	15	22	29
Albury	<i>Cx. annul</i>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Total	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Bourke	<i>Cx. annul</i>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Total	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Forbes	<i>Cx. annul</i>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Total	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Griffith	<i>Cx. annul</i>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Total	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Leeton	<i>Cx. annul</i>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Total	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Macquarie Marshes	<i>Cx. annul</i>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Total	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Wagga Wagga	<i>Cx. annul</i>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Total	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

Coastal

		WEEK ENDING																													
		Nov-20				Dec-20				Jan-21				Feb-21				Mar-21				Apr-21				May-21					
Location	Mosquito	7	14	21	28	5	12	19	26	2	9	16	23	30	6	13	20	27	6	13	20	27	3	10	17	24	1	8	15	22	29
Ballina	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Bellingen	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Byron	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Casino	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Coffs Harbour	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Gosford	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Kempsey	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Lake Cathie	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Mullumbimby	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Port Macquarie	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Tweed	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Wyong	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Yamba	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Narooma	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
South West Rocks	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Nambucca	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														

Sydney

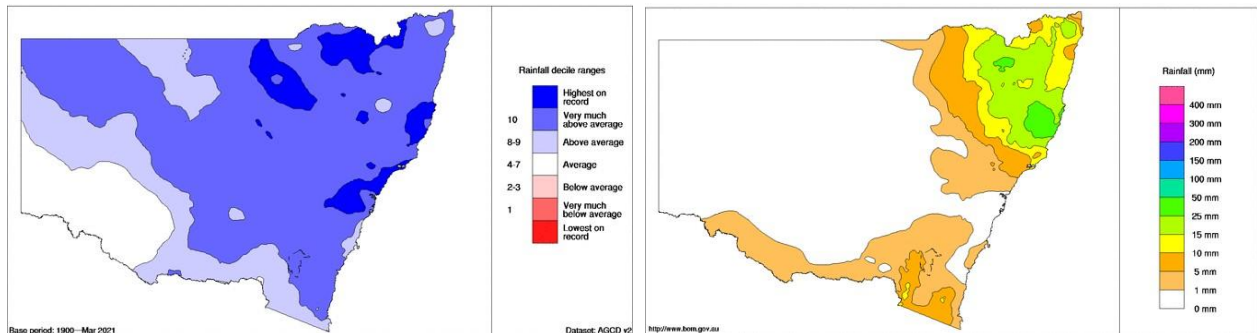
		WEEK ENDING																													
		Nov-20				Dec-20				Jan-21				Feb-21				Mar-21				Apr-21				May-21					
Location	Mosquito	7	14	21	28	5	12	19	26	2	9	16	23	30	6	13	20	27	6	13	20	27	3	10	17	24	1	8	15	22	29
Bankstown	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Blacktown	<i>Cx. annul</i>																														
	<i>Ae. vigilax</i>																														
	Total																														
Canada Bay	<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 City	<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) are important contributing factors for proliferation of mosquito numbers. Unseasonably warm weather can also contribute to higher mosquito numbers.

Rainfall

In March, rainfall was average in southwestern NSW. Across the rest of NSW, rainfall was above average, with some areas experiencing the highest levels of rainfall on record (left). In the week ending 24 April 2021, there was no or little rainfall across most of NSW, except for northeastern NSW, which received moderate rainfall (right).



Source: Australian Government, Bureau of Meteorology: <http://www.bom.gov.au/climate/maps/rainfall>

Upcoming month's rainfall and temperature outlook

The Bureau of Meteorology's rainfall outlook map predicts significantly lower than usual rainfall across NSW for the remainder of April and around usual rainfall across NSW in May.

www.bom.gov.au/climate/outlooks/#/rainfall/median/monthly/0

The Bureau of Meteorology's temperature outlook maps predict that maximum temperatures across NSW are likely to be higher than usual for the remainder of April, and about usual in May. Minimum temperatures across NSW are likely to be below usual for the remainder of April, and around usual in May.

www.bom.gov.au/climate/outlooks/#/temperature/maximum/median/monthly/0

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) for the next month

- 28-30 April 2021
- 1 May 2021
- 24-30 May 2021

Source: Australian Government, Bureau of Meteorology: <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*, all arboviral infections are notifiable in NSW. The NSW Health Communicable Diseases Weekly Report (CDWR) (www.health.nsw.gov.au/Infectious/reports/Pages/CDWR.aspx) details cases by the week that they are received by NSW Public Health Units.

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

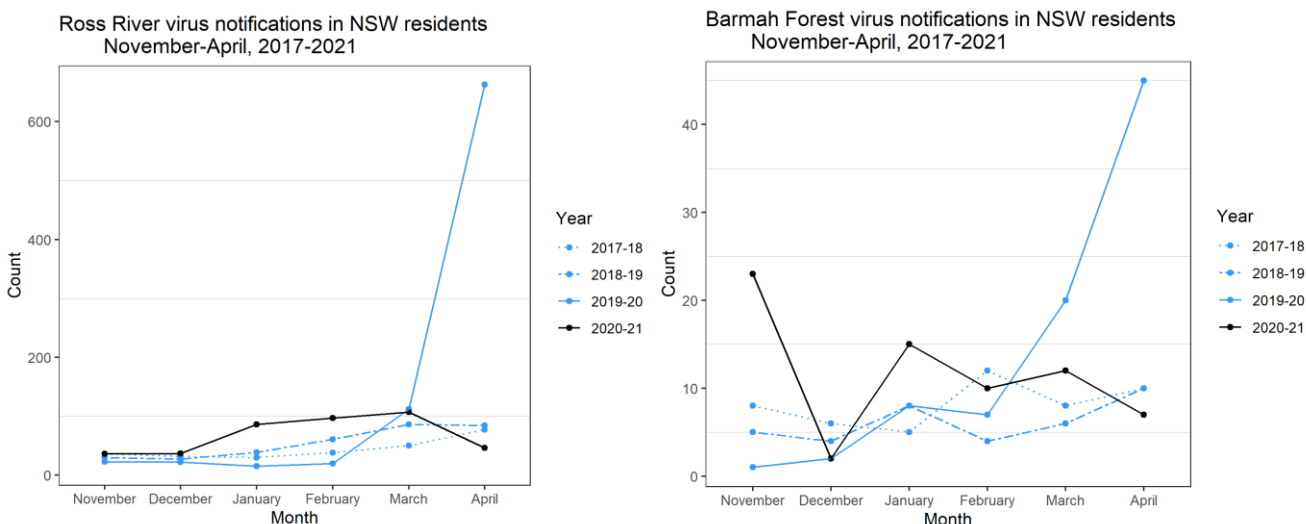
Recent notifications of Ross River virus and Barmah Forest virus in humans (by date of case report received)

	Week		
	Latest week (4 - 10 Apr 2021)	1 week prior (28 Mar – 3 Apr 2021)	2 weeks prior (21 - 27 Mar 2021)
Ross River virus	24	19	11
Barmah Forest virus	3	2	1

Source: CDWR, Communicable Diseases Branch, Health Protection NSW, NSW Health
Notifications are for NSW residents - infection may have been acquired outside NSW.

Monthly Ross River virus and Barmah Forest virus notifications, by month of disease onset (the earlier of patient-reported onset, specimen, or notification date), are available at the following NSW Health website: <https://www1.health.nsw.gov.au/IDD/pages/data.aspx>

The following figures show the monthly number of notifications of Ross River virus and Barmah Forest virus for the current NSW Arbovirus and Mosquito Monitoring season (November 2020 to April 2021), 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

Note: The data for the current month are the notifications to date (data extracted on 26 April 2021).