

The South Australian arbovirus and mosquito monitoring report

Current hierarchy of response level 3 **HIGH**

The South Australian (SA) arbovirus and mosquito monitoring report summarises the most recent available data to inform the current level of risk of mosquito-borne disease in SA. This data determines the appropriate graded response in accordance with the [SA Arbovirus Coordinated Control and Operations Plan](#) (the Plan) hierarchy of response (HoR). The HoR is dependent upon on-going data and trends identified by surveillance activities, weather forecasting and disease notifications.

The broad areas of flood plain associated with the River Murray provide breeding opportunities for the main Murray Valley encephalitis virus (MVEV) and Japanese encephalitis virus (JEV) vector mosquito, *Culex annulirostris*. This is particularly significant after a period of high and prolonged river flow, when floodwaters recede and during times of high spring and summer rainfall spanning the months of September through to April. The most current River Murray flow report is available on the WaterConnect website [here](#).

Meteorological data

Rainfall totals in April were very much above average across much of the western half of the state, up to 400% of average (based on 1961–1990) around Tarcoola and Coober Pedy. Rainfall for SA as a whole was 102% above average, the highest in April since 2014.

Mean maximum temperatures for April were close to average across most of SA. The mean maximum temperature for SA as a whole was 0.01°C below average (based on 1961–1990), the state's lowest in April since 2015. The mean minimum temperature for SA as a whole was 0.29°C above average (based on 1961–1990). The overall mean temperature for April was 0.14°C above average (based on 1961–1990), making it the state's overall coolest April since 2017.

Long-range forecasts suggest a neutral El Niño–Southern Oscillation (neither El Niño nor La Niña) will persist through autumn, with indications of potential El Niño development during winter. The Bureau's model is indicating a slightly earlier transition than the other models, with El Niño thresholds potentially being reached in May. Long-range forecasts made during autumn typically have lower accuracy than those made at other times of year. El Niño increases the chances of below average rainfall for much of eastern Australia

Source: Australian Government, [Bureau of Meteorology](#)

Northern Adelaide mosquito surveillance program trapped mosquito data

The 2022-23 northern Adelaide mosquito surveillance program commenced on 6 September 2022. Mosquito surveillance is conducted weekly at six locations. Mean trap abundance data shows increased abundance at four trap locations compared to the 2021-22 mosquito season and increased abundance at four trap locations compared to the 2020-21 mosquito season. See Table 1.

Mosquitoes from northern Adelaide traps collected on the 5th and 20th April were submitted to the Agriculture Victoria laboratory enumeration, speciation and viral screening for JEV, MVEV, Ross River virus (RRV), Barmah Forest virus (BFV) and West Nile virus/Kunjin (WNV/KUN). No viruses were detected.



Table 1: Northern Adelaide mosquito surveillance program trapping mean trap abundance data April 2023 three-year comparison.

Trap location	2021	2022	2023
Globe Derby Park Racetrack	6	41	55
Daniel Avenue Wetland	27	88	90
Swan Alley	1207	864	949
TI Quarantine Station	567	503	681
TI Power Station	57	141	98
Mawson Lakes	10	34	20

SA Health regional surveillance and control officers trapped mosquito data

To support the JEV response in SA, regional surveillance officers have been employed to conduct surveillance and control activities in regional areas located outside of local council mosquito surveillance and control programs.

Regional officers engage with key local stakeholders and conduct surveillance and control activities across several council areas. During April caravan parks, local businesses, and public events in multiple council areas were attended including the Moorundi Aboriginal Health Fair Day. The purpose of these activities was to promote Fight the Bite messaging and provide information, resources and advice to local communities.

HPP liaised with the Department for Environmental and Water, and regional officers undertook adult mosquito surveillance at National Park camp locations as well as several council areas with results detailed in Table 2 during April.

Table 2: SA Health regional surveillance and control officer's mosquito surveillance data April 2023.

Council area	Mean trap abundance	Mean abundance <i>Culex annulirostris</i>
Barossa Council (JEV Team)	11	0
Berri Barmera Council (JEV Team)	15	0.25
Coorong District Council (JEV Team)	45	0
Light Regional Council (JEV Team)	13	0
District Council of Loxton Waikerie (JEV Team)	34	1.17
Mid Murray Council (JEV Team)	16	6
Rural City of Murray Bridge (JEV Team)	25	0
Northern Areas Council (JEV Team)	11	0
Renmark Paringa Council (JEV Team)	16	1.5
Unincorporated Areas (JEV Team)	13	4

Local council mosquito surveillance trapped mosquito data

In response to the detection of JEV in SA the number of local councils undertaking routine adult mosquito trapping increased from eight to eighteen compared to the 2021-22 season. Surveillance areas and the frequency of trapping have been expanded for the 2022-23 season and councils in high-risk areas set between four and six adult mosquito traps in their local area fortnightly (increased from monthly). All other councils trap at frequencies determined by risk in their council area. Each batch of mosquitoes from local council traps were submitted to the Agriculture Victoria laboratory to be processed according to trap location, counted, identified to species level, then ground and screened for JEV, MVEV, RRV, BFV and WNV/KUN.

Table 3: Local council mosquito surveillance trapping mean abundance data April 2021-23 three-year comparison.

Council	2021	2022	2023
Adelaide Plains Council			4
Alexandrina Council	22	9	7
Berri Barmera Council	6	25	6
Clare and Gilbert Valleys Council			
Coorong District Council	0	74	14
District Council of Elliston			
Regional Council of Goyder			
Kangaroo Island Council			
District Council of Loxton Waikerie	41	103	15
Mid Murray Council	27	40	11
Mount Barker District Council		14	11
Rural City of Murray Bridge	21	75	34
City of Playford			10
Renmark Paringa Council	2	2	8
City of Salisbury			37
District Council of Southern Mallee			
City of Tea Tree Gully			8
Whyalla City Council			

Table 3 details the mean April trap abundance data in SA from local council traps for three seasons (where applicable). The available data shows decreased mean trap abundance in all but one council area compared to the 2021-22 mosquito season and increased mean trap abundance in three council areas compared to the 2020-21 mosquito season.

Table 4 details the mean trap abundance data for *Culex annulirostris* from local council mosquito traps for April 2023. The data shows decreased mean *Culex annulirostris* abundance at all councils with data compared to the previous 2021-22 season.

Table 4: *Culex annulirostris* mean trap abundance data by local council area April 2021- 23 three-year comparison.

Council	2021	2022	2023
Adelaide Plains Council			0
Alexandrina Council	0	0	0
Berri Barmera Council	0.5	3.3	0.17
Clare and Gilbert Valleys			
Coorong District Council	0	0	0
District Council of Elliston			
Regional Council of Goyder			
Kangaroo Island Council			
District Council of Loxton Waikerie	0	1	0.6
Mid Murray Council	0.2	0.8	0
Mount Barker District Council		0	0
Rural City of Murray Bridge	0	0.4	1
City of Playford			0.07
Renmark Paringa Council	0	0.6	0.17
City of Salisbury			0
District Council of Southern Mallee			
City of Tea Tree Gully			0
Whyalla City Council			

Arbovirus isolations from trapped mosquitos (whole trap grinds)

Table 5 details the arbovirus isolations from mosquitoes trapped by local councils and SA Health regional officers during April 2023. MVEV was detected in trapped mosquitoes in a National Park's campground in the Loxton Waikerie council area over the Easter long weekend. In response to the detection, the Department for Environment and Water advised that text messages would be sent to all people who booked a campsite over the school holidays containing a link to the SA Health Fight the Bite webpage. No other viruses were detected in trapped mosquitoes in April.

Table 5: Arbovirus isolations from whole trap grinds 2022-23.

Arbovirus	JEV	MVEV	RRV	BFV	WNV/KUN
April 2023	0	1	0	0	0
Season to date	0	11	19	13	2

South Australian sentinel chicken surveillance program

In response to the JEV situation, HPP increased the number of sentinel chicken flocks in high-risk locations from six to ten. Chicken flocks in high-risk locations are bled throughout the mosquito season. The blood is tested for JEV, MVEV and WNV/KUN antibodies, which if present indicates that the chicken has been bitten by a mosquito carrying one of these viruses.

Sentinel chicken flock bleeds for the season commenced during September. Bleeds were undertaken weekly throughout April. One chicken in the Paringa flock tested positive for both MVEV and WNV/KUN. Table 6 details positive detections of arbovirus in sentinel chickens for the 2022-23 season.

Table 6: Positive detections of arbovirus in sentinel chickens for the 2022-23 season.

Flavivirus	JEV	MVEV	WNV/KUN
Season to date	0	9	2

Animal surveillance

Further to the animal surveillance results reported during February and March, SA Health was notified by the Department of Primary Industries and Regions (PIRSA) of serology surveillance results during April which suggested that a small number of horses may have had previous flavivirus exposure. In response HPP conducted targeted adult mosquito surveillance in affected areas.

Arbovirus notification data

All confirmed and probable arbovirus infections detected in humans in SA are notifiable under the *South Australian Public Health Act 2011*. The two most common locally acquired arbovirus infections notified in SA are infections with RRV and BFV. Figure 1 details arbovirus notification data 2019-2023 by month.

Figure 1: Arbovirus in South Australia by notification month – 01 January 2019 to 30 April 2023

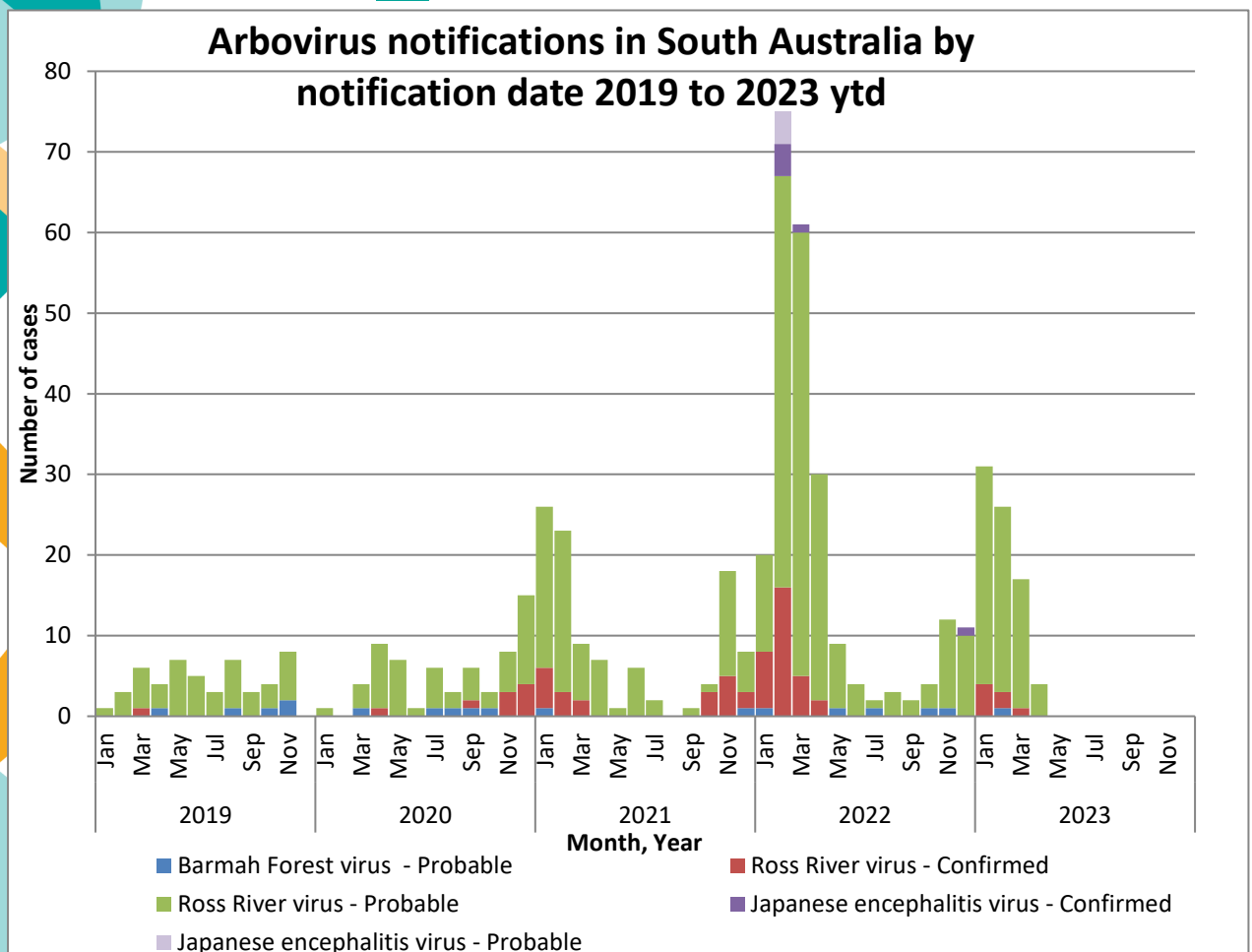
Source: Communicable Disease Control Branch, SA Health.

Further information

For further information regarding mosquito borne disease see the SA Health website [here](#).

For further information regarding Japanese Encephalitis virus see the SA Health website [here](#).

For mosquito management resources and information for environmental health officers see the SA Health website [here](#).





For more information

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