March 2024

The South Australian arbovirus and mosquito monitoring report

Current hierarchy of response level 2 **MEDIUM**

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 *Culex annulirostris*, the main vector mosquito associated with Murray Valley encephalitis virus (MVEV) and Japanese encephalitis virus (JEV). 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 for South Australia was 38.7% above the March average (based on 1961–90), particularly in parts of the state's west, north and north-east. The mean maximum temperature for South Australia was 2.61°C above average (based on 1961–90), the fifth warmest on record (since 1910). It was the warmest March on record for South Australia, with the area-averaged mean temperature 2.86°C above the 1961–90 average.

Mean minimum temperatures were above to very much above average across South Australia. The mean minimum temperature for South Australia was 3.12°C above average (based on 1961–90), which was the highest on record for March.

El Niño is near its end. International climate models indicate the central tropical Pacific Ocean will continue to cool in the coming months, with four out of seven climate models indicating the central Pacific is likely to return to ENSO-neutral by the end of April (i.e., neither El Niño nor La Niña), and all models indicating neutral in May.

Australia's climate has warmed by 1.50 ± 0.23°C between 1910 and 2023, leading to an increase in the frequency of extreme heat events.

Source: Australian Government, Bureau of Meteorology

Northern Adelaide mosquito surveillance program

The 2023-24 northern Adelaide mosquito surveillance program commenced on 6 September 2023. Mosquito surveillance is conducted weekly at six locations. Mean abundance data for March trap catches show decreased abundance across all six locations compared to the 2021-22 season and decreased abundance at three trap locations compared to the 2022-23 season. See table 1.

Table 1: **Northern Adelaide mosquito surveillance program trapping mean trap abundance data March 2024 three-year comparison.**

Trap location	2022	2023	2024
Globe Derby Park Racetrack	284	27	57
Daniel Avenue Wetland	831	98	40
Swan Alley	4555	1604	1983
TI Quarantine Station	3088	690	665
TI Power Station	863	320	363
Mawson Lakes	333	63	30

Government of South Australia
SA Health

Local council mosquito surveillance

In response to the season risk level, River Murray councils continued to set between four and six adult mosquito traps in their local area fortnightly. Several non-River Murray councils continued to participate in the SA mosquito surveillance and control subsidy program, with these councils setting between four and six adult mosquito traps in their local area monthly.

All council traps containing >10 mosquitoes were submitted to the Agriculture Victoria laboratory to be processed according to trap location, counted, identified to species level, then screened for JEV, MVEV, Ross River virus (RRV), Barmah Forest virus (BFV) and West Nile virus/Kunjin (WNV/KUN). Traps containing <10 mosquito traps were not routinely submitted to Agriculture Victoria for processing.

Table 2 details the mean March trap abundance data in SA from local council traps for three seasons (where applicable). The available data shows decreased mean trap abundance in six River Murray council areas compared to the previous two seasons and increased mean abundance in five non-River Murray council areas compared to the 2022-23 mosquito season.

Table 2: **Local council mosquito surveillance trapping mean abundance data March 2024 three-year comparison.**

Council	2022	2023	2024
Adelaide Plains Council		33	47
Alexandrina Council	60	37	4
Barossa Council			12
Berri Barmera Council	39	22	14
Clare and Gilbert Valleys Council		11	14
Coorong District Council	56	122	31
District Council of Elliston		59	12
Regional Council of Goyder		11	51
District Council of Loxton Waikerie	177	55	27
Mid Murray Council	47	42	15
Mount Barker District Council	8	16	19
Rural City of Murray Bridge	79	100	38
Renmark Paringa Council	54	13	43
City of Playford		23	-
Port Adelaide Enfield			48
City of Salisbury	194	28	54
Southern Mallee District Council		34	3
City of Tea Tree Gully			25

Table 3 details the mean March trap abundance data for *Culex annulirostris* from local council mosquito traps for three seasons (where applicable). The available data shows decreased mean *Culex annulirostris* abundance in six council areas compared to the previous two seasons and in twelve council areas compared to the 2022-23 mosquito season.

***Table 3: Culex annulirostris* mean trap abundance data by local council area March 2024 three-year comparison.**

Council	2022	2023	2024
Adelaide Plains Council		0.9	0
Alexandrina Council	0.2	4	0.3
Barossa Council			0.5
Berri Barmera Council	15.4	11	3.4
Clare and Gilbert Valleys council		4	0.3
Coorong District Council	0.3	22	0.4
District Council of Elliston		0	0
Regional Council of Goyder		4.5	0.5
District Council of Loxton Waikerie	24.5	89	7.2
Mid Murray Council	31.2	61	3.5
Mount Barker District Council	0.6	1	1.4
Rural City of Murray Bridge	14.3	67	10.6
Renmark Paringa Council	43	20	15.7
City of Playford		4	-
Port Adelaide Enfield			0.2
City of Salisbury	16.8	8	3.3
Southern Mallee District Council		22	0.5
City of Tea Tree Gully			0

Arbovirus isolations from trapped mosquitos (whole trap grinds)

As detailed in table 4, there were no arbovirus detections from qPCR testing of trapped mosquitos during March.

***Table 4:* Arbovirus isolations from whole trap grinds March 2024.**

Arbovirus	JEV	MVEV	RRV	BFV	WNV/KUN
Detections	0	0	0	0	0

South Australian sentinel surveillance program

Ten sentinel chicken flocks established 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. The sentinel chicken flock bleed frequency is currently every three weeks, and bleeds commenced on 30 October 2023.

Table 5 details positive arbovirus detections from sentinel chicken flock bleeds for the 2023-24 season to date. Blood samples collected from the Swan Reach flock on 17 January 2024 returned a positive detection for WNV/KUN in one chicken. There were no positive arbovirus detections from sentinel chicken flock bleeds during March.

***Table 5:* Positive detections of arbovirus in sentinel chickens for the 2023-24 season to date.**

Flavivirus	JEV	MVEV	WNV/KUN
WNV/KUN	0	0	1

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 2019-2024 by month.

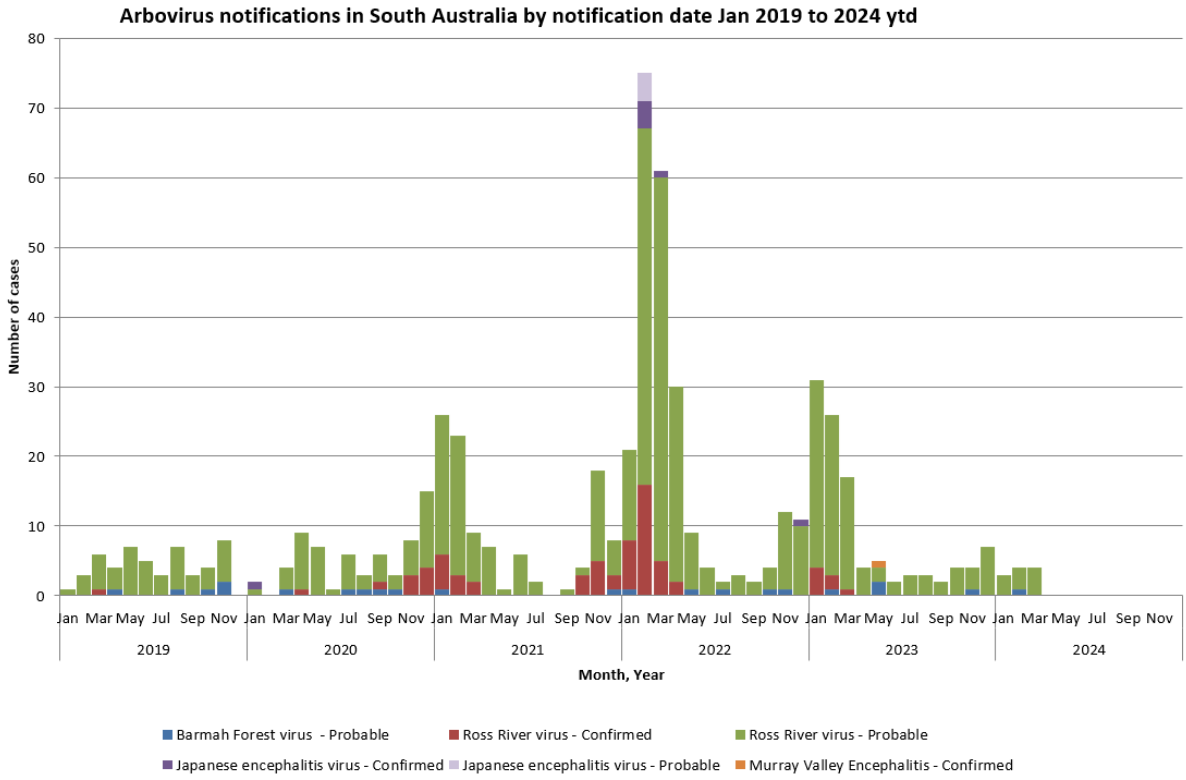

Figure 1: **Arbovirus in South Australia by notification month – 01 January 2019 to 31 March 2024.**

Source: Communicable Disease Control Branch, SA Health.

Further information

For further information regarding mosquito borne disease 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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