November 2023

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

The first three weeks of November were particularly dry, except for widespread showers and rain in the final week of the month. SA rainfall was 10.5% above the 1961-1990 average, but still the state's driest November since 2020. Mean maximum temperatures in November were warmer than average across most areas of SA. Coastal areas were close to or below average. The mean maximum temperature for SA was 1.83 °C warmer than the long-average. The mean minimum temperature for SA was 1.71 °C above the 1961-1990 average, the highest since 2020.

El Niño continues in the tropical Pacific. The influence of El Niño on Australian rainfall usually reduces during summer, especially in the east; however, below median rainfall is still often observed in north-east Australia. Additionally, high-impact rainfall events can occur during El Niño years, particularly during October to April when severe storm frequency peaks.

Spring in SA was the seventh warmest on record and the warmest since 2020. September was drier and warmer than average, October was drier than average, and November was warmer than average. SA spring rainfall totals were 52% below the 1961–1990 average.

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 from trap catches shows a significant decrease in all northern Adelaide trap locations during November compared to previous seasons. See table 1.

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

Trap location	2021	2022	2023
Globe Derby Park Racetrack	255	410	10
Daniel Avenue Wetland	809	808	29
Swan Alley	1492	1368	162
TI Quarantine Station	568	2413	8
TI Power Station	252	352	4
Mawson Lakes	232	297	33

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 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 November trap abundance data in SA from local council traps for three seasons (where applicable). The available data shows decreased mean trap abundance across 11 council areas compared to previous seasons.

Table 2: Local council mosquito surveillance trapping mean abundance data November 2023 three-year comparison.

Council	2021	2022	2023
Adelaide Plains Council		2044	(<10)
Alexandrina Council	718	915	40
Barossa Council			(<10)
Berri Barmera Council	122	1544	26
Coorong District Council	1374	534	30
District Council of Elliston		68	11
Kangaroo Island Council		1080	-
District Council of Loxton Waikerie	375	1523	20
Mid Murray Council	128	714	18
Mount Barker District Council		(<10)	-
Renmark Paringa Council	141	801	105
Rural City of Murray Bridge	482	726	11
City of Salisbury		294	24
City of Playford		528	29
Southern Mallee District Council			(<10)

Table 3 details the mean November trap abundance data for *Culex annulirostris* from local council mosquito traps. The available data shows decreased mean *Culex annulirostris* abundance in 10 council areas compared to the 2022-23 mosquito season. One River Murray council had increased mean *Culex annulirostris* compared to the 2021-22 mosquito season.

Table 3: *Culex annulirostris* mean trap abundance data by local council area November 2023 three-year comparison.

Council	2021	2022	2023
Adelaide Plains Council		1	0
Alexandrina Council	0	4.8	0
Barossa Council			0
Berri Barmera Council	0.8	40	6.3
Coorong District Council	0	4.3	0
District Council of Elliston		0	0
Kangaroo Island Council		0	-
District Council of Loxton Waikerie	2.7	66.3	0.91
Mid Murray Council	1.2	101.3	0.12
Mount Barker District Council		0.2	-
Renmark Paringa Council	10.2	106.8	3.3
Rural City of Murray Bridge	0	4.7	0
City of Playford		8.25	0.6
City of Salisbury		0.75	0
Southern Mallee District Council			0.14

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 November.

Table 4: Arbovirus isolations from whole trap grinds November 2023.

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 monthly, and bleeds commenced on 30 October. There were no positive arbovirus detections during November.

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.

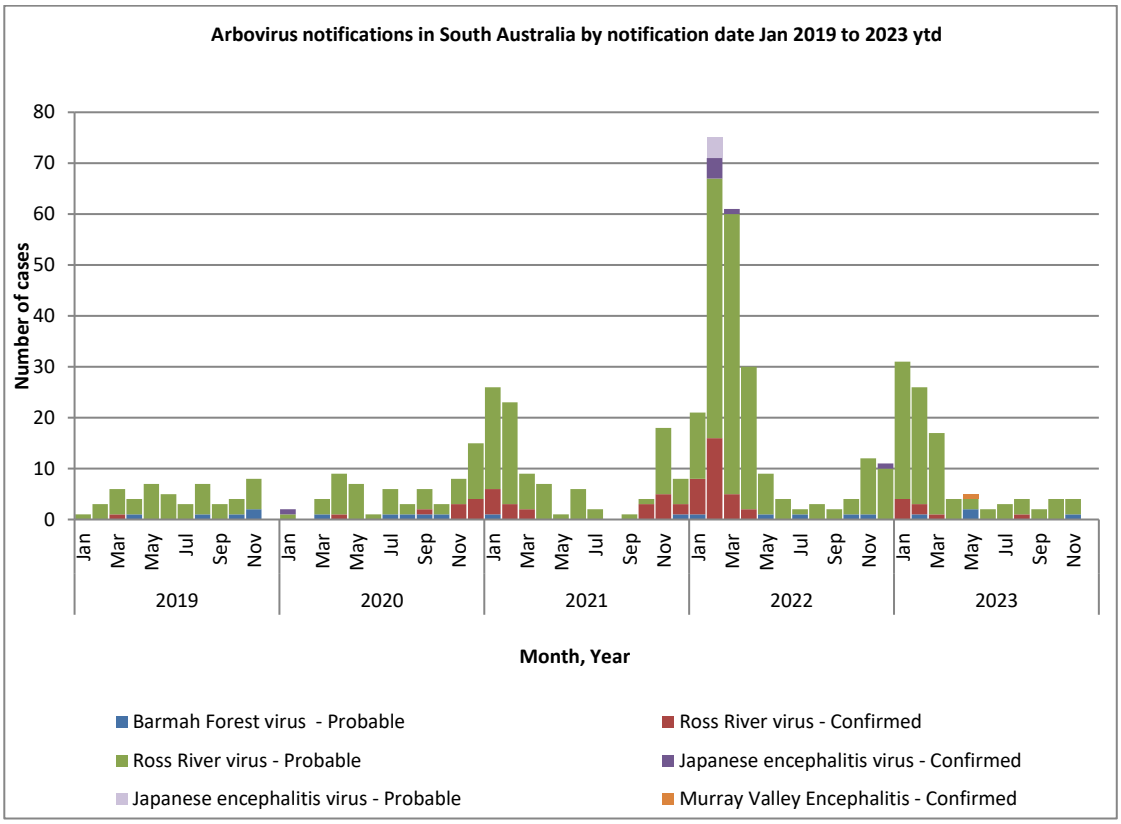

Figure 1: Arbovirus in South Australia by notification month – 01 January 2019 to 31 November 2023

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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