February 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 in February was below to very much below average in southern and western areas of SA but was above average in the far north-east of the state. Rainfall for SA was 49% below the February average (based on 1961–90).

Mean maximum temperatures were above to very much above average across most of SA. The mean maximum temperature for SA was 2.7°C above average and the overall mean temperature was 1.67°C above average (based on 1961–90), the highest since February 2015.

Mean minimum temperatures were above to very much above average in the northern pastoral districts but were cooler than average in the southern agricultural districts, including around Adelaide. The mean minimum temperature for SA was 0.64°C above average (based on 1961–90), the highest since 2018.

El Niño persists, although a steady weakening trend is evident in its oceanic indicators. Model forecasts and observations indicate sea surface temperatures (SSTs) in the central tropical Pacific are expected to continue declining and are forecast to return to ENSO-neutral in the southern hemisphere autumn 2024. Global SSTs were highest on record for all respective months between April 2023 and January 2024.

Summer in SA was the states seventh warmest summer on record (since 1910) with the overall mean temperature 1.55°C above average. The mean minimum temperature for SA was 1.22°C above average (based on 1961–90), which was the highest since 2018–19. Rainfall for SA in summer 2023–24 was 28% above average (based on 1961–90) particularly across large areas of the central and western agricultural districts. Rainfall was very much above average in December and January but below average in February.

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 February trap catches show decreased abundance in four trap locations compared to previous seasons and increased mean abundance at two trap locations compared to the 2022-23. See table 1.

Government of South Australia
SA Health

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

Trap location	2022	2023	2024
Globe Derby Park Racetrack	409	77	55
Daniel Avenue Wetland	860	106	171
Swan Alley	5267	3397	1840
TI Quarantine Station	2074	465	928
TI Power Station	404	646	277
Mawson Lakes	227	131	78

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 February trap abundance data in SA from local council traps for three seasons (where applicable). The available data shows decreased mean trap abundance in eleven council areas and increased mean trap abundance in four council areas compared to the 2022-23 mosquito season. The data shows decreased mean trap abundance in three River Murray council areas compared to the previous two seasons.

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

Council	2022	2023	2024
Adelaide Plains Council		11	7
Alexandrina Council	51	879	183
Barossa Council			15
Berri Barmera Council	36	64	13
Clare and Gilbert Valleys Council		53	20
Coorong District Council	20	597	68
District Council of Elliston		29	101
Regional Council of Goyder		47	23
District Council of Loxton Waikerie	308	90	62
Mid Murray Council	27	76	38
Mount Barker District Council	23	14	36
Rural City of Murray Bridge	56	206	46
Renmark Paringa Council	33	39	54
City of Playford		103	42
Port Adelaide Enfield			125
City of Salisbury		189	54
Southern Mallee District Council		29	44
City of Tea Tree Gully			12

Table 3 details the mean February trap abundance data for *Culex annulirostris* from local council mosquito traps. The available data shows decreased mean *Culex annulirostris* abundance in twelve council areas compared to the 2022-23 mosquito season. Mount Barker was the only council to have a increased mean abundance. The available data shows increased mean *Culex annulirostris* abundance in five council areas compared to the 2021-22 mosquito season and a decrease in three council areas for the same period.

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

Council	2022	2023	2024
Adelaide Plains Council		3.4	0
Alexandrina Council	0	621	0.25
Barossa Council			0
Berri Barmera Council	29.5	47	0.8
Clare and Gilbert Valleys council		26	0
Coorong District Council	0	423	47.4
District Council of Elliston		0	0
Regional Council of Goyder		0	0
District Council of Loxton Waikerie	98.1	93	47
Mid Murray Council	9.2	47	12.1
Mount Barker District Council	1.4	2	3.8
Rural City of Murray Bridge	4.6	58	6.4
Renmark Paringa Council	29	33	18.8
City of Playford		2.2	0.25
Port Adelaide Enfield			0.8
City of Salisbury		93	0.25
Southern Mallee District Council		9	6
City of Tea Tree Gully			0.25

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 February.

***Table 4:* Arbovirus isolations from whole trap grinds February 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.

Blood samples collected from the Swan Reach flock on 17 January 2024 returned a positive detection for WNV/KUN in one chicken. The result was confirmed by repeat testing on 29 January. Table 5 details positive arbovirus detections from sentinel chicken flock bleeds for the 2023-24 season to date.

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.

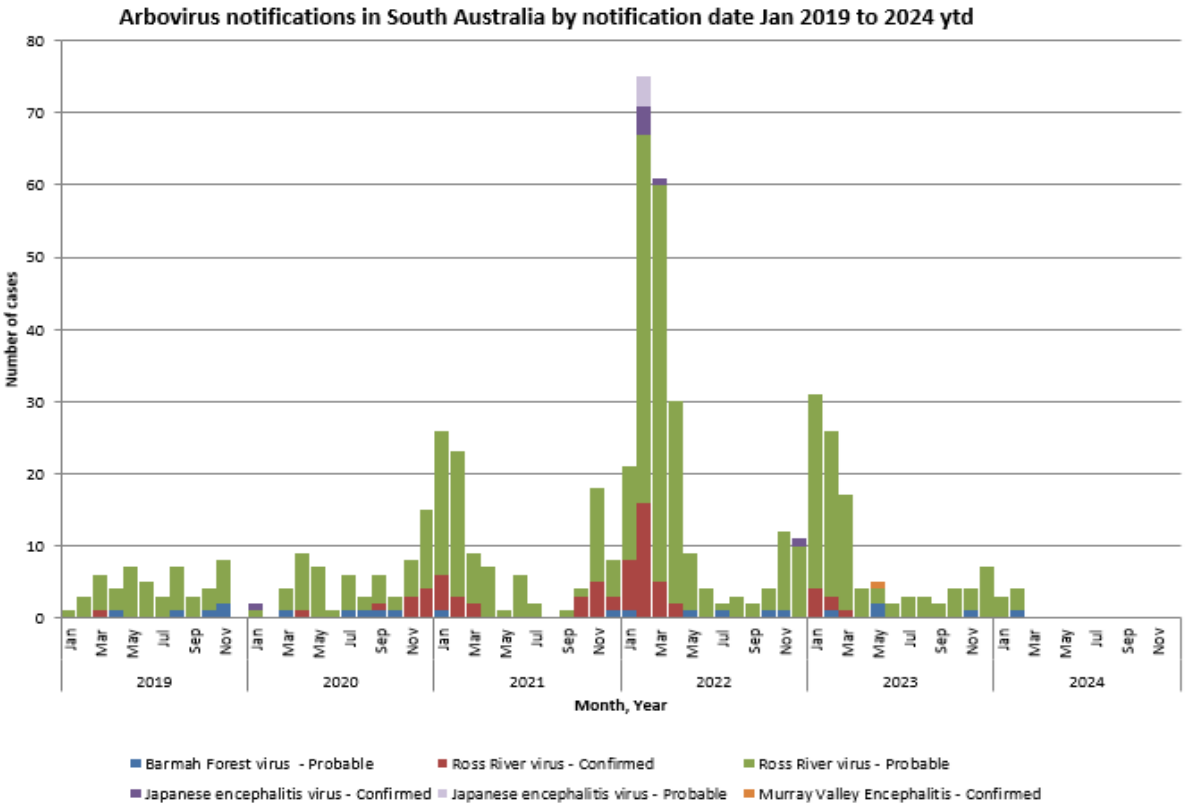

Figure 1: **Arbovirus in South Australia by notification month – 01 January 2019 to 31 February 2024.**

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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