

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 October was below to very much below average across most areas of South Australia, particularly in the state's west. Rainfall for South Australia was 76% below the 1961–1990 average for October, the state's driest October since 2019 (2019 was South Australia's second-driest October on record).

Mean maximum temperatures in October were generally slightly warmer than average in most areas of South Australia, including above average areas in the state's far east and around the Eyre Peninsula. The mean maximum temperature for South Australia was 0.83 °C above the 1961–1990 average, the highest in October since 2019.

Mean minimum temperatures were generally cooler than average in most areas of South Australia, including areas of below to very much below average in central and eastern agricultural districts. The mean minimum temperature for South Australia was 0.32 °C below the 1961–1990 average, the lowest in October since 2016.

An El Niño and a positive Indian Ocean Dipole (IOD) are underway. Oceanic indicators exhibit a clear El Niño state. Central and eastern Pacific sea surface temperatures (SSTs) continue to exceed El Niño thresholds, with warmer than average waters beneath the surface supporting the warmth at the surface. Models indicate some further warming of central to eastern Pacific SSTs is likely, with SSTs remaining above El Niño thresholds into the early southern hemisphere autumn 2024.

All models indicate that this positive IOD will likely be sustained to at least December. A positive IOD typically leads to reduced spring rainfall for central and south-east Australia and can increase the drying influence of El Niño.

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 decreased abundance at all northern Adelaide trap locations during October compared to previous seasons. See table 1.



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

Trap location	2021	2022	2023
Globe Derby Park Racetrack	102	621	19
Daniel Avenue Wetland	232	1295	70
Swan Alley	405	3654	124
TI Quarantine Station	246	5552	78
TI Power Station	195	754	10
Mawson Lakes	70	706	58

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 ground and 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 October trap abundance data in SA from local council traps for three seasons (where applicable). The available data shows decreased mean trap abundance in nine council areas compared to the 2022-23 mosquito season. Six councils also had decreased mean abundance compared to the 2021-22 mosquito season. One River Murray council had increased mean abundance during October compared to 2021-22 mosquito season. Three councils did not undertake trapping during October and one council trapped <10 mosquitoes in each of their traps.

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

Council	2021	2022	2023
Adelaide Plains Council		2376	(<10)
Alexandrina Council	25	438	18
Berri Barmera Council	112	1553	16
Coorong District Council	42	1087	98
District Council of Elliston		1031	14
Kangaroo Island Council		415	-
District Council of Loxton Waikerie	-	1126	19
Mid Murray Council	37	270	20
Mount Barker District Council	-	17	-
Renmark Paringa Council	213	642	15
Rural City of Murray Bridge	39	637	31
City of Salisbury	66	-	40
Southern Mallee District Council		222	-

Table 3 details the mean October trap abundance data for *Culex annulirostris* from local council mosquito traps. The available data shows decreased mean *Culex annulirostris* abundance in four River Murray council areas compared to the 2022-23 mosquito season. previous seasons. One River Murray council had increased mean *Culex annulirostris* abundance during October compared to the 2022-23 season.

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

Council	2021	2022	2023
Adelaide Plains Council		0.2	-
Alexandrina Council	0	0	0
Berri Barmera Council	0	6.8	0.33
Coorong District Council	0	0.75	0
District Council of Elliston		0.2	0
Kangaroo Island Council		0	-
District Council of Loxton Waikerie	-	13.3	0.91
Mid Murray Council	0.75	3.6	0.37
Mount Barker District Council		0.17	-
Renmark Paringa Council	1.4	0.5	0.85
Rural City of Murray Bridge	0	0	0
City of Salisbury	0.1	-	0
Southern Mallee District Council		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 October.

Table 4: Arbovirus isolations from whole trap grinds October 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 October.

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.

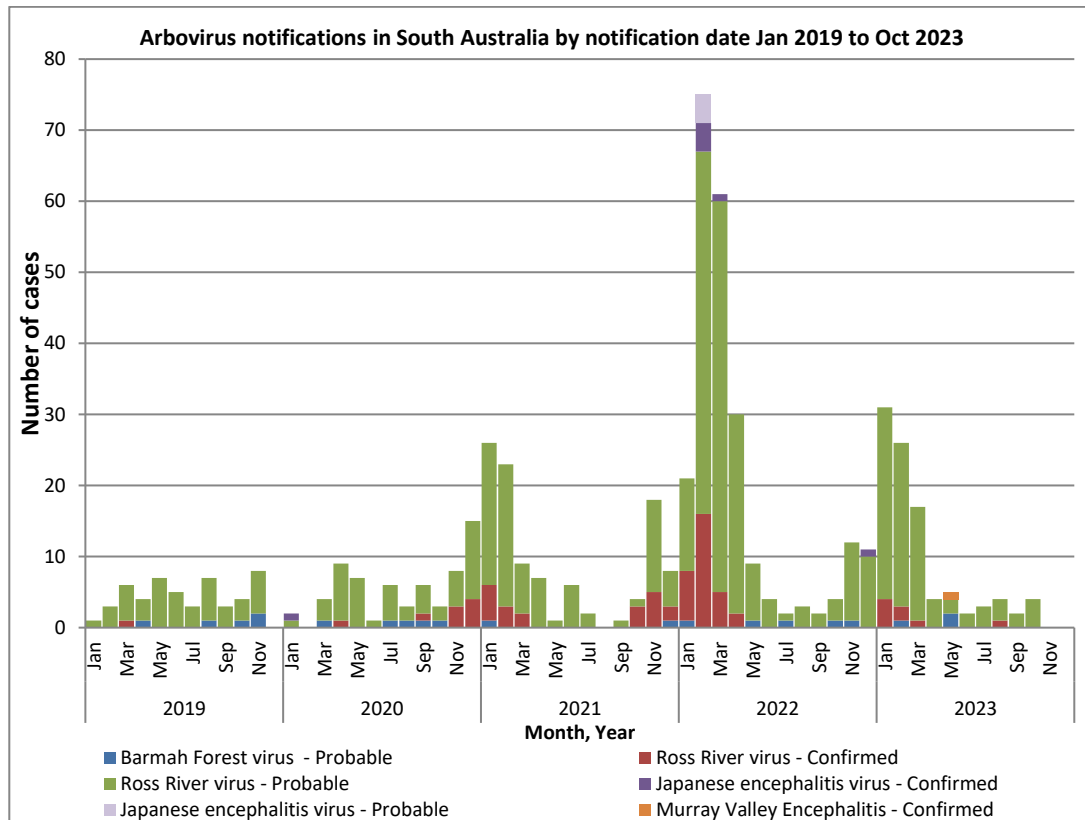


Figure 1: Arbovirus in South Australia by notification month – 01 January 2019 to 31 October 2023

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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