

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 was below average for December in parts of the south and west of SA, but above average for parts of the north. The month started with a mostly dry week, and most of the monthly rainfall was recorded in the second half of December. Rainfall for December was 7% below average for South Australia as a whole.

Mean temperatures were typical for December in most parts of SA, with some areas of warmer than average in the west and cooler than average in the east. The mean maximum temperature was 0.22 °C warmer than average (1961-1990), but not as warm as December 2021 (+1.02 °C). The mean minimum temperature for the State was generally 0.34 °C warmer than average (1961-1990), similar to December 2021 (+0.35 °C).

La Niña continues in the tropical Pacific but is slowly weakening. While ocean temperatures have warmed in recent weeks, atmospheric indicators are largely unchanged, remaining at La Niña levels.

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 abundance data from trap catches shows significantly increased mean abundance at five of the six northern Adelaide trap locations during December compared to the previous two seasons. See table 1.

Table 1: Northern Adelaide mosquito surveillance program trapping mean trap abundance data December 2022 three-year comparison.

Trap location	2020	2021	2022
Globe Derby Park Racetrack	14	361	129
Daniel Avenue Wetland	47	426	996
Swan Alley	556	1407	5524
TI Quarantine Station	185	230	3407
TI Power Station	27	64	375
Mawson Lakes	27	102	566



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 December, very high (1,000 -9,999) to extreme (10,000+) numbers of mosquitoes were trapped by regional officers in the Mid Murray and Loxton Waikerie council areas. These two council areas also had very high to extreme numbers of *Culex annulirostris* at some locations. Table 2 details the results of adult mosquito surveillance undertaken by regional officers during December 2022.

Table 2: SA Health regional surveillance and control officer's mosquito surveillance data December 2022.

Council area	Total trapped mosquitoes	Total <i>Culex annulirostris</i>	% <i>Culex annulirostris</i> total catch
Barossa Regional (JEV Team)	73	0	0
Clare and Gilbert Valleys (JEV Team)	250	4	1.6
Loxton Waikerie (JEV Team)	54,974	41,444	75.4
Mid Murray (JEV Team)	65,955	55,140	83.6
Renmark Paringa (JEV Team)	2175	384	17.6

Regional officers and team members from Health Protection Programs (HPP) also attended several local pharmacies and public events in multiple council areas to promote Fight the Bite messaging and provide information and advice to local communities.

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 fifteen compared to the 2021-22 season. Surveillance areas and the frequency of trapping have been expanded for the 2022-23 season, with eleven high risk councils setting 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, Ross River virus (RRV), Barmah Forest virus (BFV) and West Nile virus/Kunjin (WNV/KUN). Figure 1 compares the mean trap abundance for October 2022 to December 2022 by council area.

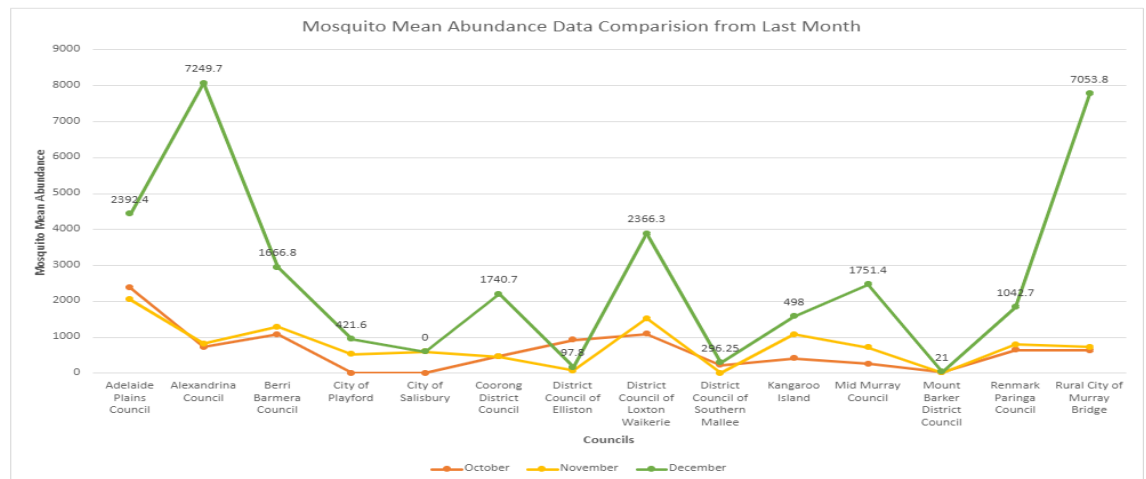


Figure 1: Mean mosquito trap abundance – October 2022 to December 2022.

Table 3 details the mean December trap abundance data in SA from local council traps for three seasons (where applicable). The available data shows increased mean trap abundance at all seven River Murray council areas compared to previous mosquito seasons.

Table 3: Local council mosquito surveillance trapping mean abundance data December 2022 three-year comparison.

Council	2020	2021	2022
Adelaide Plains Council	-	-	2392
Alexandrina Council	33	-	7250
Berri Barmera Council	14	-	1667
Coorong District Council	189	122	1741
District Council of Elliston	-	-	98
Kangaroo Island Council	-	-	498
District Council of Loxton Waikerie	59	371	2366
Mid Murray Council	201	273	1751
Mount Barker District Council	-	12	21
Rural City of Murray Bridge	171	335	7054
City of Playford	-	-	422
Renmark Paringa Council	99	77	1043
City of Salisbury	-	522	-
District Council of Southern Mallee	-	-	296
Whyalla City Council			9

Table 4 details the mean December trap abundance data for *Culex annulirostris* from local council mosquito traps. Four River Murray councils had increased *Culex annulirostris* abundance compared to the previous two seasons.

Table 4: *Culex annulirostris* mean trap abundance data by local council area December 2022 three-year comparison.

Council	2020	2021	2022
Adelaide Plains Council	-	-	25.3
Alexandrina Council	0.5	0	0
Berri Barmera Council	6.8	0	64.5
Coorong District Council	28.5	0	0
District Council of Elliston	-	-	0
Kangaroo Island Council	-	-	0
District Council of Loxton Waikerie	29.4	12.2	156.3
Mid Murray Council	25	0	34.5
Mount Barker District Council	-	0	0
Rural City of Murray Bridge Council	14	0	9.5
City of Playford	-	-	0
Renmark Paringa Council	78.8	2.4	133.7
City of Salisbury	-	0.8	-
District Council of Southern Mallee	-	-	2.6

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 December 2022.

RRV was detected in trapped mosquitoes at thirteen trap locations across the following six council areas: Alexandrina Council, Coorong District Council, the District Council of Loxton Waikerie, Mid Murray Council, Rural city of Murray Bridge and Southern Mallee District Council.

BFV was detected in trapped mosquitoes at ten trap locations across the following four council areas: Alexandrina Council, District Council of Loxton Waikerie, Mid Murray Council, and the Rural City of Murray Bridge.

Table 5: Arbovirus isolations from whole trap grinds December 2022.

Arbovirus	JEV	MVEV	RRV	BFV	WNV/KUN
Detections	0	0	13	10	0

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.

Sentinel chicken bleeds were undertaken weekly throughout December. Final results from all December 2022 sentinel chicken bleeds have not yet been received and will be reported in the January 2023 report.

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 2 details arbovirus notification data 2019-2022 by month.

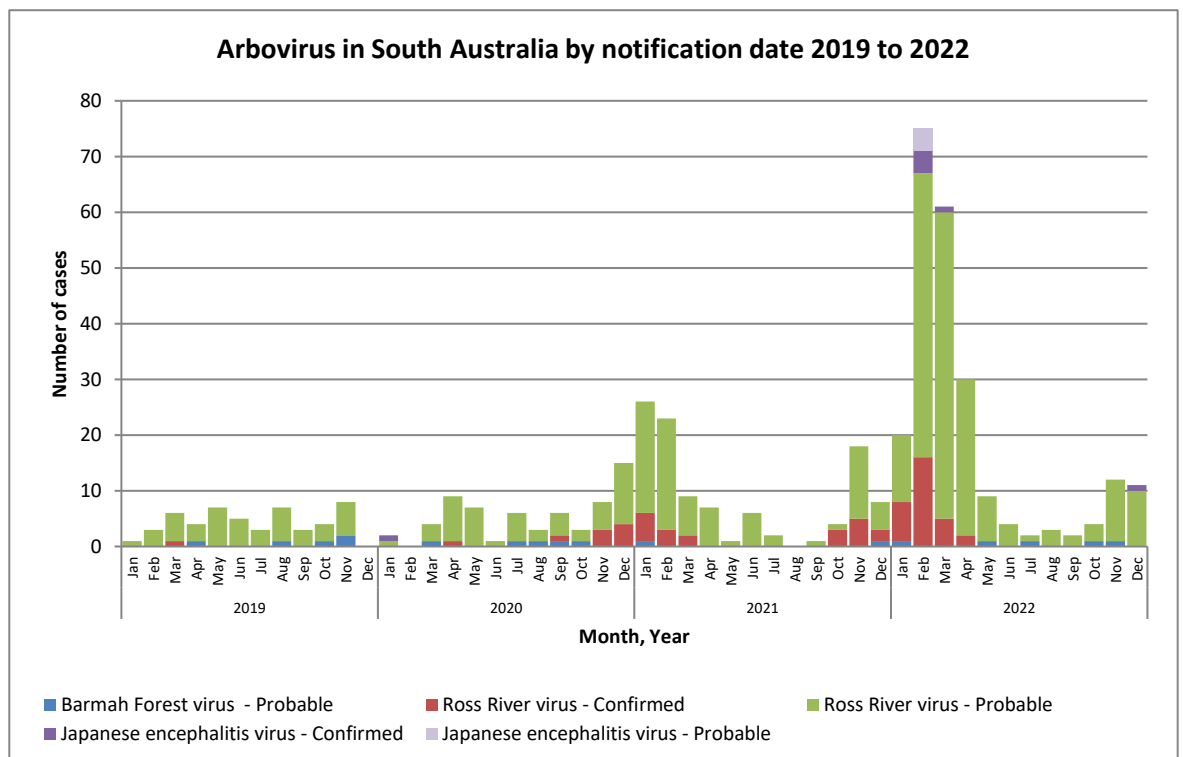


Figure 2: Arbovirus in South Australia by notification month – 01 January 2019 to 31 December 2022

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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