November 2022

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 in November was very much above average across most of the southern agricultural districts and closer to average in the northern Pastoral districts. Rainfall for November was 78% above average for South Australia as a whole, the state's third consecutive month of above average rainfall. Many sites across southern and eastern areas of the state had their highest November daily rainfall on record. The state's overall mean temperature was 1.23 °C cooler than average (1961–1990), the lowest for November since 1999.

Rainfall for spring was very much above average across most of South Australia, with each of September, October, and November wetter than average for the state as a whole. Overall, it was the state's fifth-wettest spring on record since 1900 and the wettest since 2010. Mean maximum temperatures were very much below average across most of South Australia and overall, it was state's coolest spring days since 2010. Mean minimum temperatures were generally close to average, though nights were cooler than average across some central and eastern areas of the state and warmer than average in the far north and south.

La Niña continues in the tropical Pacific. Atmospheric and oceanic indicators of the El Niño–Southern Oscillation (ENSO) reflect a mature La Niña. Models suggest a return to ENSO-neutral in January or February 2023

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 abundance at all six northern Adelaide trap locations during November compared to the previous two seasons. See table 1.

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

Trap location	2020	2021	2022
Globe Derby Park Racetrack	288	255	410
Daniel Avenue Wetland	671	809	614
Swan Alley	3985	1492	1368
TI Quarantine Station	3339	568	2413
TI Power Station	237	252	352
Mawson Lakes	475	232	297

Government of South Australia
SA Health

SA Health regional surveillance and control officers

To support the Japanese encephalitis virus (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. During November, regional officers engaged key local stakeholders and conducted surveillance and control activities in the Berri Barmera, Light Regional, Loxton Waikerie, Mid Murray and Wakefield council areas. Table 2 details the results of adult mosquito surveillance undertaken by regional officers during November 2022.

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

Regional area	Total trapped mosquitoes	Total *Culex annulirostris*	% *Culex annulirostris total catch*
Berri Barmera council and District Council of Loxton Waikerie	2762	402	15
Light Regional and Wakefield Regional councils	528	19	4
Mid Murray council	1928	117	6

Regional officers and team members from Health Protection Programs also attended several 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 fourteen 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 details the mean trap abundance for October 2022 compared to November 2022 by council area.

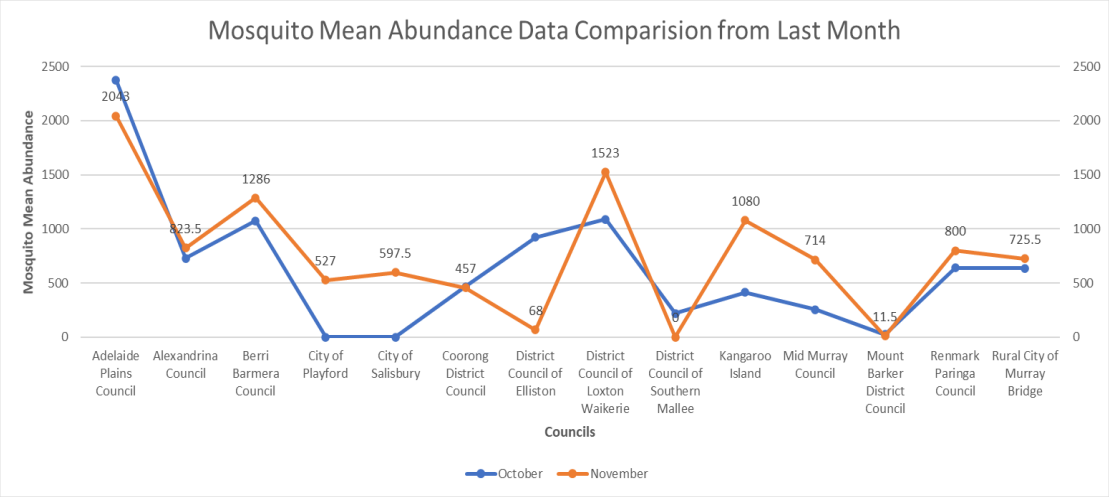

Figure 1: Mean mosquito trap abundance – October 2022 and November 2022.

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

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

Council	2020	2021	2022
Adelaide Plains Council	-	-	2043
Alexandrina Council	602	718	824
Berri Barmera Council	133	122	1286
Coorong District Council	635	1374	457
District Council of Elliston	-	-	68
Kangaroo Island Council	-	-	1080
District Council of Loxton Waikerie	174	375	1523
Mid Murray Council	128	128	714
Mount Barker District Council	-	-	12
Rural City of Murray Bridge	250	482	726
City of Playford	-	-	527
Renmark Paringa Council	521	141	800
City of Salisbury	-	-	598
District Council of Southern Mallee	-	-	-

Table 4 details the mean November trap abundance data for *Culex annulirostris* from local council mosquito traps. The available data shows increased *Culex annulirostris* abundance at all River Murray council areas compared to the 2021-22 season. 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 November 2022 three-year comparison.

Council	2020	2021	2022
Adelaide Plains Council	-	-	1
Alexandrina Council	0.0	0.0	4.8
Berri Barmera Council	82.5	0.8	40
Coorong District Council	0.0	0.0	4.3
District Council of Elliston	-	-	0
Kangaroo Island Council	-	-	0
District Council of Loxton Waikerie	97.6	2.7	66.3
Mid Murray Council	25.2	1.2	101.3
Mount Barker District Council	-	-	0.2
Rural City of Murray Bridge	3.8	0.0	4.7
City of Playford	-	-	8.3
Renmark Paringa Council	294.4	10.2	106.8
City of Salisbury	-	-	0.6
District Council of Southern Mallee	-	-	-

Arbovirus isolations from trapped mosquitos (whole trap grinds)

Table 5 details the arbovirus isolations from River Murray mosquito traps during November 2022. All trap catches from the council areas were screened. RRV was detected in three separate trap grinds from Coorong District Council, Berri Barmera Council and Mid Murray Council. BFV was detected in two trap locations in the District Council of Elliston.

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

Arbovirus	JEV	MVEV	RRV	BFV	WNV/KUN
Detections	0	0	3	2	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 November. There were no arbovirus detections reported during November 2022.

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.

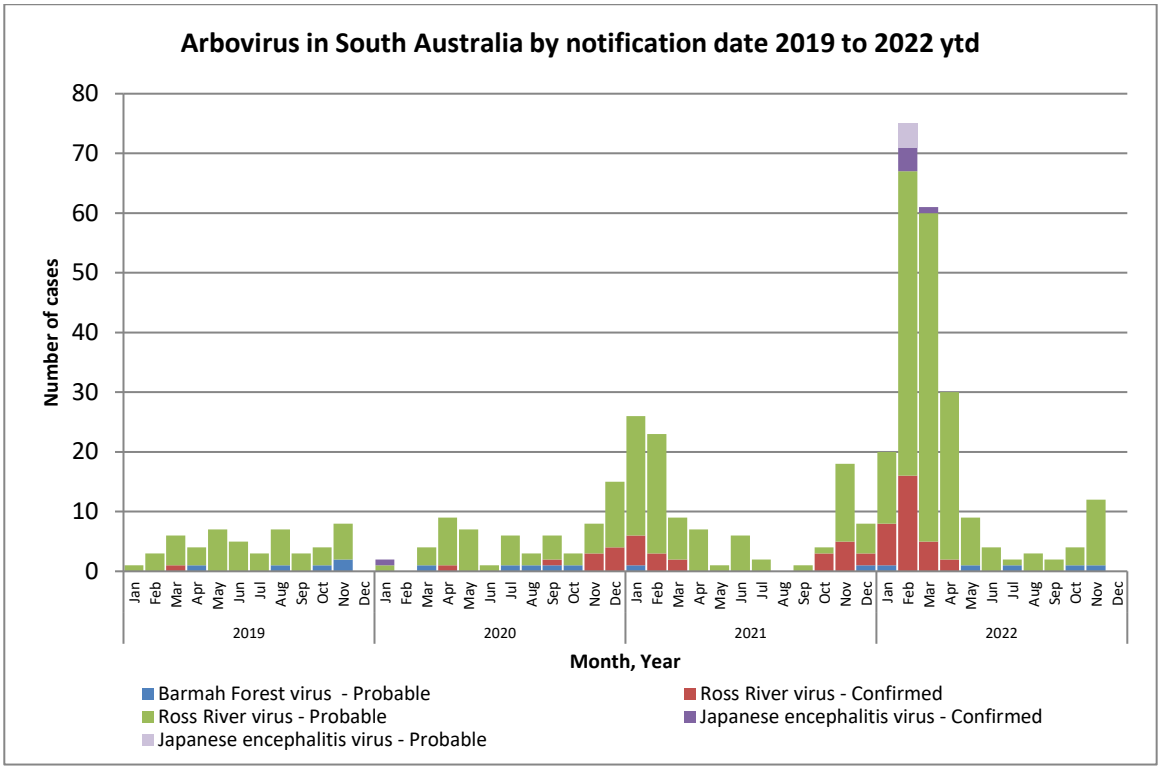

Figure 2: Arbovirus in South Australia by notification month – 01 January 2019 to 30 November 2022

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

Health Protection Programs
Health Protection and Licensing Services
Department for Health and Wellbeing
PO Box 6
RUNDLE MALL SA 5000
Email:
HealthProtectionPrograms@sa.gov.au
Telephone: 08 8226 7100
www.sahealth.sa.gov.au