

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 October ranged from above average to highest on record (since 1900) across most of South Australia. There were large areas in the state's east that had their wettest October on record, including much of the Murraylands, Riverland, Mid North, and Flinders districts, and parts of the North East Pastoral district. Parts of those same areas had more than 100 mm of rain for the month. It was South Australia's third-wettest October on record (since 1900) and the wettest since 1975.

Daytime temperatures for October were below to very much below average across large areas of South Australia. South Australia had its lowest mean maximum temperature (coolest days) in October since 2010. Night-time temperatures were very much above average in the south-east districts, and warmer than average across most of the state away from the Northwest Pastoral district.

The El Nino-Southern Oscillation (ENSO) Outlook remains at La Niña. Sea surface temperatures in the tropical Pacific remain near La Niña thresholds and are like values two weeks ago. The Southern Oscillation Index (SOI) also remains indicative of La Niña. Most models predict a return to neutral ENSO by early 2023.

La Niña conditions increase the chance of above average spring and summer rainfall in northern and eastern Australia. When a La Niña and a negative phase of the Indian Ocean Dipole coincide, the likelihood of above average rainfall over Australia, particularly over the eastern half of the continent, is further increased.

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 October compared to the previous two seasons. See table 1.



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

Trap location	2020	2021	2022
Globe Derby Park Racetrack	61	102	621
Daniel Avenue Wetland	262	232	1295
Swan Alley	332	405	3654
TI Quarantine Station	460	246	5552
TI Power Station	29	195	754
Mawson Lakes	154	70	706

Local council mosquito surveillance trapped mosquito data

In response to the detection of Japanese encephalitis virus (JEV) in SA the number of local councils undertaking routine adult mosquito trapping increased from eight to twelve compared to the 2021-22 season. Surveillance areas and the frequency of trapping have been expanded for the 2022-23 season, with nine councils setting between four and six adult mosquito traps in their local area fortnightly (increased from monthly). The other three councils (Elliston, Kangaroo Island and Southern Mallee) are trapping at frequencies determined by risk in the 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).

Table 2 details the mean October trap abundance data in SA from local council traps for three seasons (where applicable). The data shows increased mean trap abundance at all River Murray council areas compared to the 2020-21 mosquito season. The available data shows increase abundance at six River Murray Councils compared to the previous three seasons.

Table 2: Local council mosquito surveillance trapping mean abundance data October 2022 three-year comparison.

Council	2020	2021	2022
Adelaide Plains Council	-	-	2376
Alexandrina Council	340	25	730
Berri Barmera Council	269	112	1075
Coorong District Council	315	110	468
District Council of Elliston	-	-	925
Kangaroo Island Council	-	-	415
District Council of Loxton Waikerie	151	-	1088
Mid Murray Council	144	23	257
Mount Barker District Council	-	-	25
Renmark Paringa Council	333	213	642
Rural City of Murray Bridge	82	39	637
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 *Culex annulirostris* abundance at five River Murray council areas compared to the previous two seasons. Five River Murray councils and one non-River Murray council has detected *Culex annulirostris* in adult mosquito traps during October 2022. One River Murray council area has had no detections of *Culex annulirostris* during October over the past three seasons.

Table 3: *Culex annulirostris* mean trap abundance data by local council area October 2022 three-year comparison.

Council	2020	2021	2022
Adelaide Plains Council	-	-	0.2
Alexandrina Council	0	0	0
Berri Barmera Council	6.8	0	0.75
Coorong District Council	0	0	0.25
District Council of Elliston	-	-	0
Kangaroo Island Council	-	-	0
District Council of Loxton Waikerie	38.2	-	0.6
Mid Murray Council	9.2	0.75	0.4
Mount Barker District Council	-	-	0
Renmark Paringa Council	24.5	1.4	0.17
Rural City of Murray Bridge	2.2	0.0	0
Southern Mallee District Council	-	-	0

Figure 1 shows the increase in *Culex annulirostris* mean trap abundance by local council area from September to October 2022.

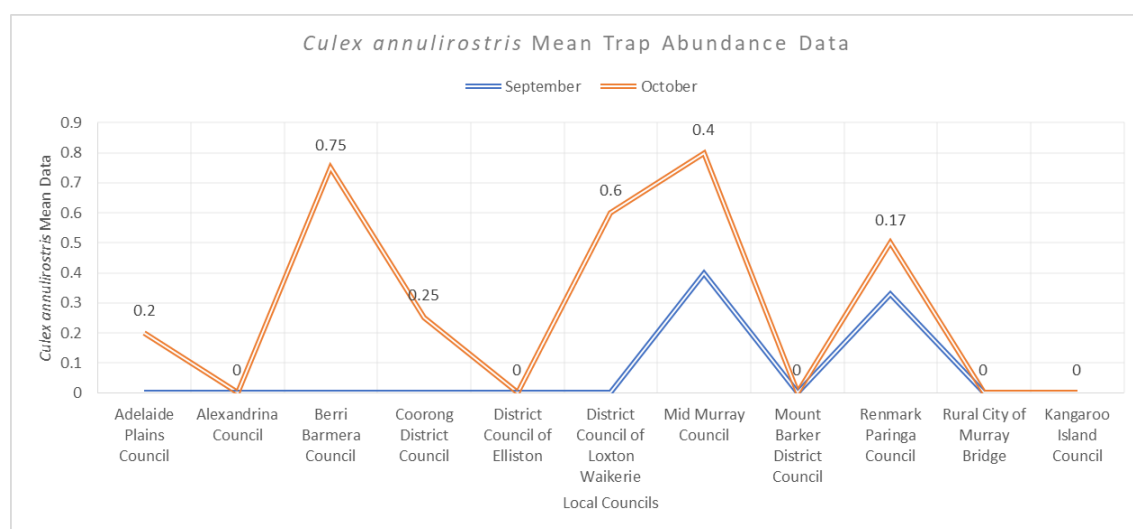


Figure 1: *Culex annulirostris* mean trap abundance data by local council area from September to October 2022

Arbovirus isolations from trapped mosquitos (whole trap grinds)

As detailed in table 4, there were no arbovirus detections from whole trap grinds of trapped mosquitos during October.

Table 4: Arbovirus isolations from whole trap grinds October 2022.

Arbovirus	JEV	MVEV	RRV	BFV	WNV/KUN
Detections	0	0	0	0	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 fortnightly throughout October with the frequency increasing to weekly from November. There were no arbovirus detections reported during October 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.

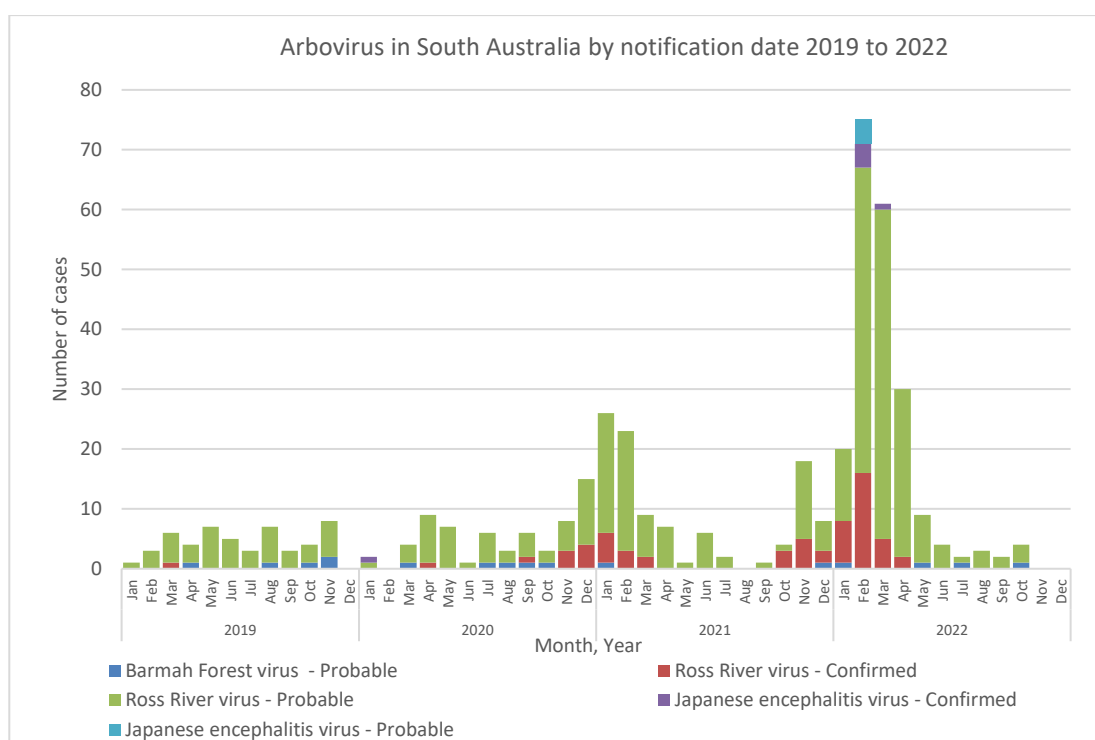


Figure 2: Arbovirus in South Australia by notification month – 01 January 2019 to 31 October 2022

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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