DustWatch Report

June 2024

Community-based wind erosion monitoring across Australia

Dust activity	Significant decrease in dust; below average for June
Wind strength	Decrease from May, below average for June
Groundcover	Increase in all regions, particularly the Western Local Land Services
Rainfall	Average to above average for most of the state, below average in the south

Dust activity

Long-term sites averaged 0.4 hours of dust in June 2024, down from 4.9 hours in May. This is below average for June, and the lowest average dust hours for this time of year since June 2018. Dust hours were low across all regions. Werrimull in the Mallee Catchment Management Authority had 5 hours of dust, the highest recorded in the network for June 2024 (Figure 2). The ongoing decrease in dust, from a high of 18.9 hours in March 2024, is due to several months of average to above-average rainfall (Figure 7b). This likely also contributed to continued improvements in groundcover, particularly in the Western Local Land Services (Table1). Below-average wind speeds in June and throughout the year likely limited dust transport (Figure 1).

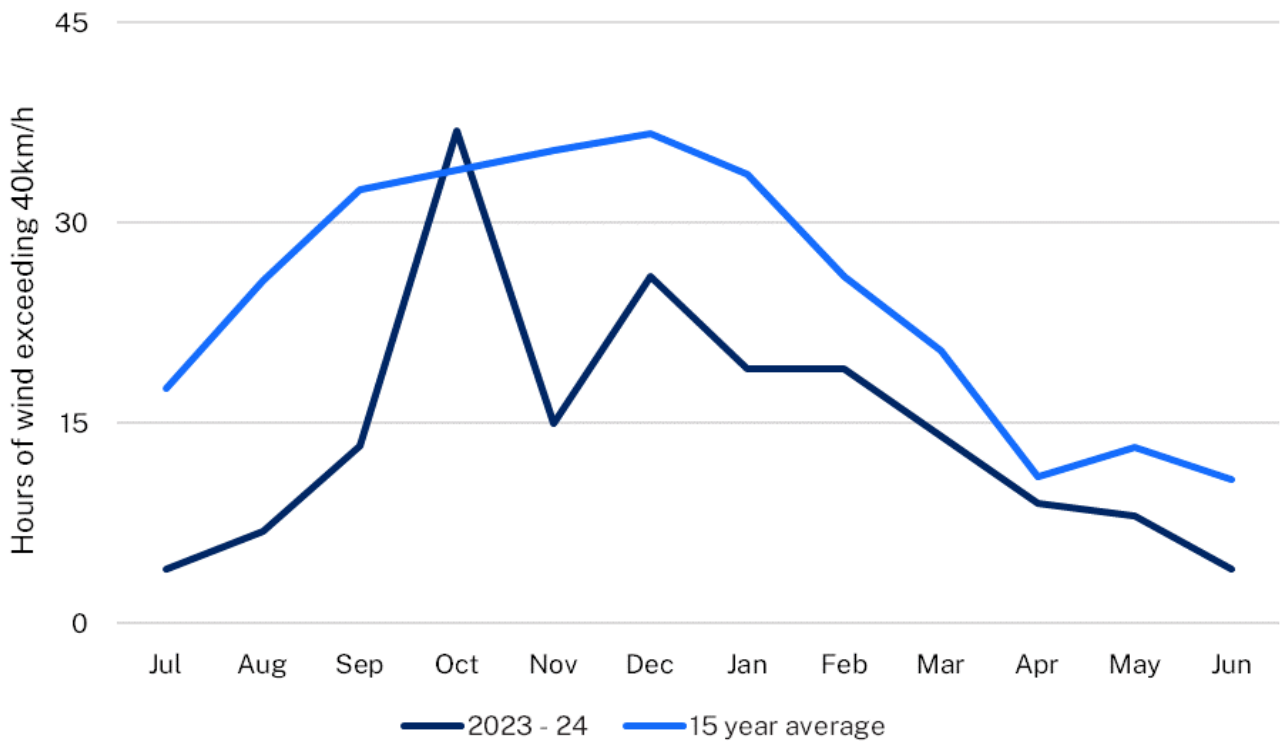

Figure 1 **Hours of wind exceeding 40km/h – average across all sites**

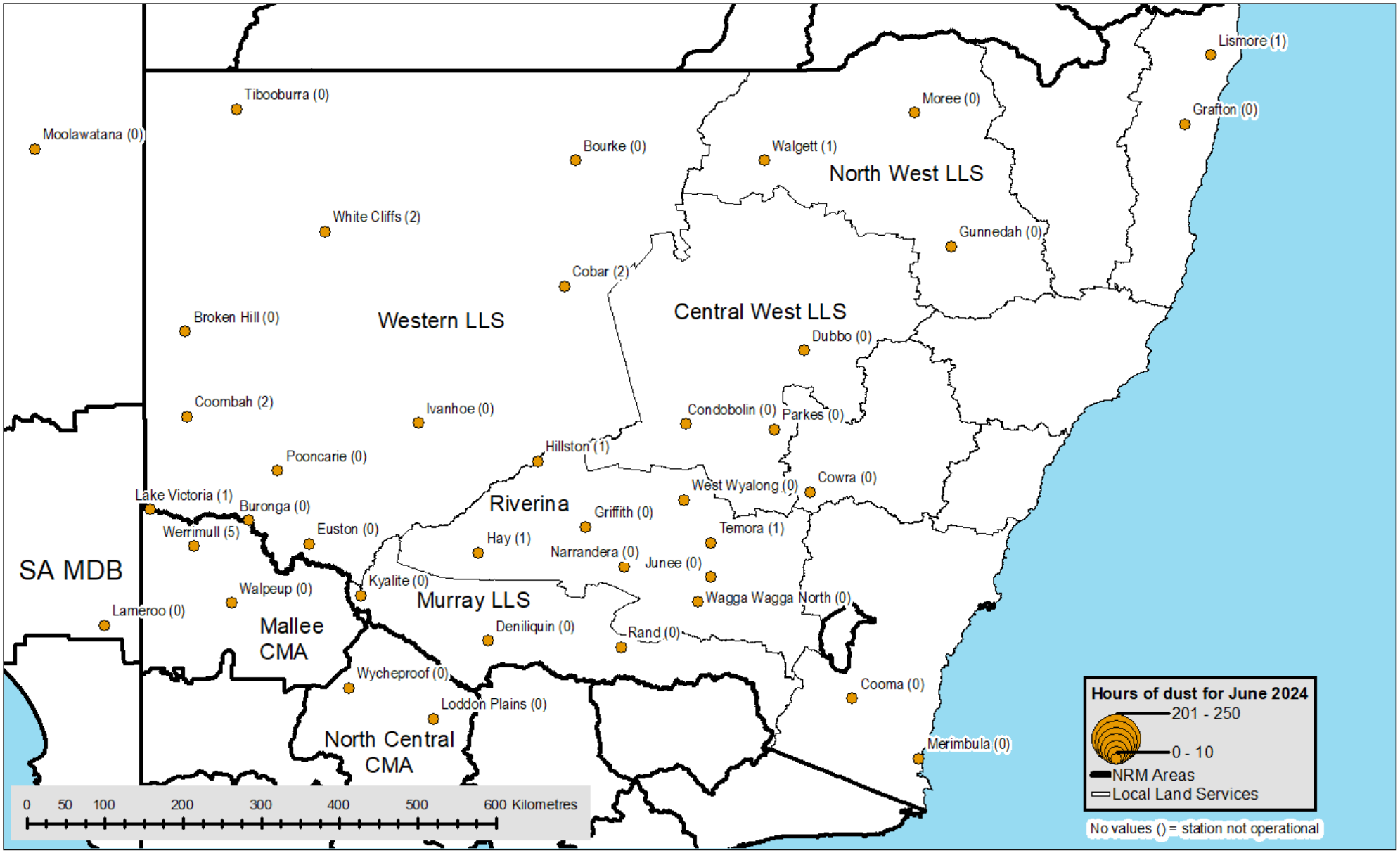

Figure 2 **Hours of dust activity (number in brackets) at each DustWatch site in June 2024**

Groundcover

The area with greater than 50% groundcover (green and yellow colours in Figure 3) has continued to increase, with particularly notable increases in the Channel Country, east of Tibooburra and areas along and east of the Darling Barka River Corridor in the Western Local Land Services, as well as the wheat/sheep belt in New South Wales and Victoria. Isolated pockets of low groundcover (brown and red in Figure 3) occur in the North West Local Land Services and the western parts of the Western Local Land Services. Groundcover increased or remained stable in all regions again in June, with Western Local Land Services recording the highest increase, with a 3% increase to 91% from May 2024 (Table 1).

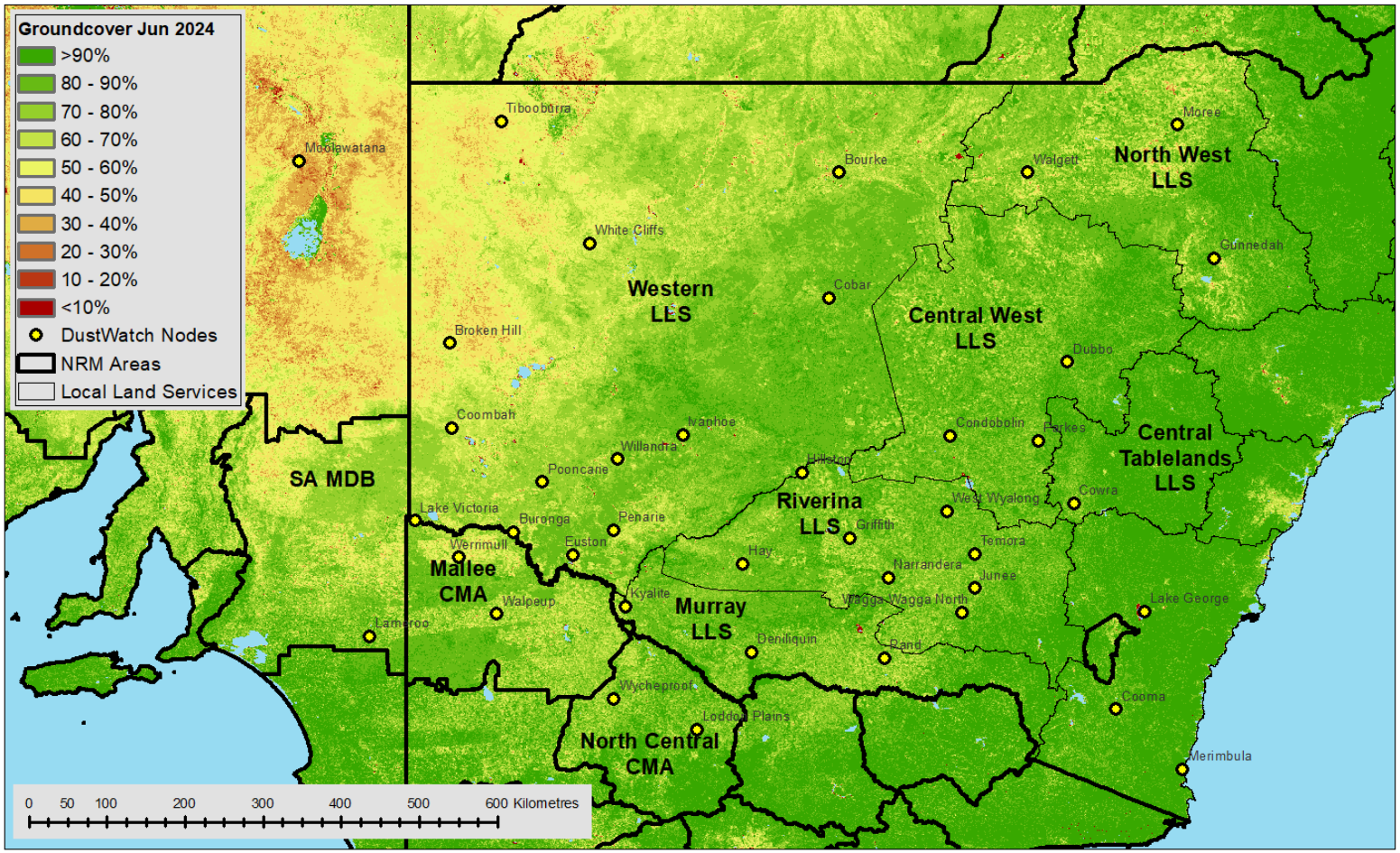

Figure 3 Groundcover for June 2024 as determined from MODIS by CSIRO

Table 1 Percentage of each NRM with cover >50% for July 2023 to June 2024

Date	Central West	Mallee	Murray	North Central	North West	Riverina	SA MDB	Western	Central Tablelands
Jul 2023	100	100	100	100	98	100	98	90	100
Aug 2023	99	100	100	100	97	100	97	87	100
Sep 2023	99	100	100	100	96	100	95	78	100
Oct 2023	98	99	100	100	95	100	92	71	100
Nov 2023	98	99	100	100	96	100	92	71	100
Dec 2023	96	95	100	100	94	99	81	64	100
Jan 2024	97	90	99	100	93	99	81	66	100
Feb 2024	96	92	99	100	93	98	81	73	100
Mar 2024	95	94	99	100	93	97	87	77	100
Apr 2024	96	94	98	100	95	98	89	78	100
May 2024	99	97	99	100	97	100	93	88	100
Jun 2024	100	98	100	100	98	100	95	91	100

Groundcover change

Significant groundcover improvements (green colours in Figure 4) continued into June 2024, with greening in the Channel Country in south west Queensland and eastern South Australia. Groundcover has continued to improve in Narriearra Caryapundy Swamp National Park, east of Tibooburra and areas further east. Groundcover improvements continued in pastoral areas between Menindee and Ivanhoe in the Western Local Land Services, and throughout the wheat/sheep belt in the North West, Central West, and Riverina Local Land Services. These groundcover improvements are likely due to average to above average rainfall for much of the state and above to very much above average rainfall across much of New South Wales in the 3 months to the end of June 2024 (Figure 7a, Figure 7b).

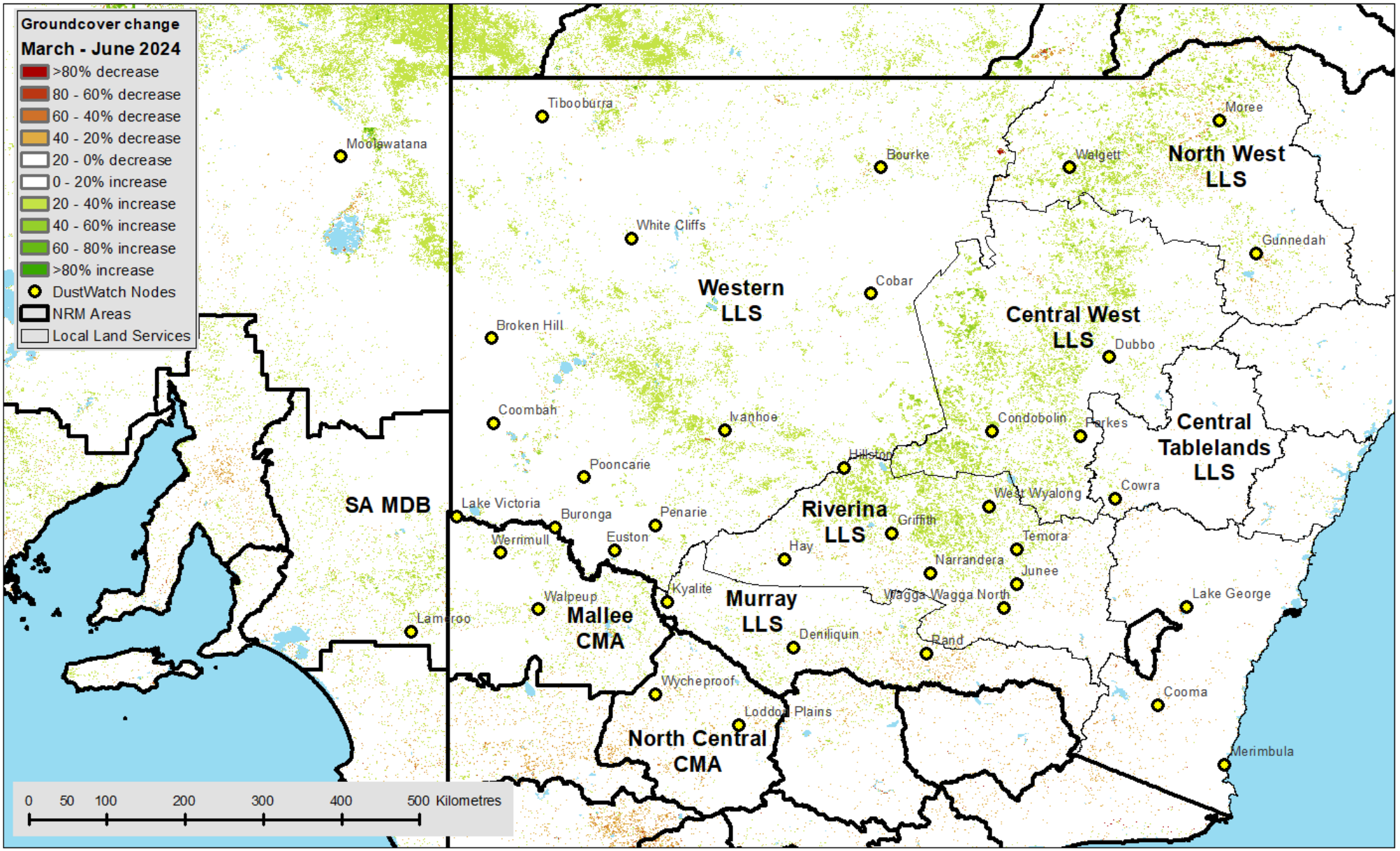

Figure 4 Groundcover difference between March 2024 and June 2024

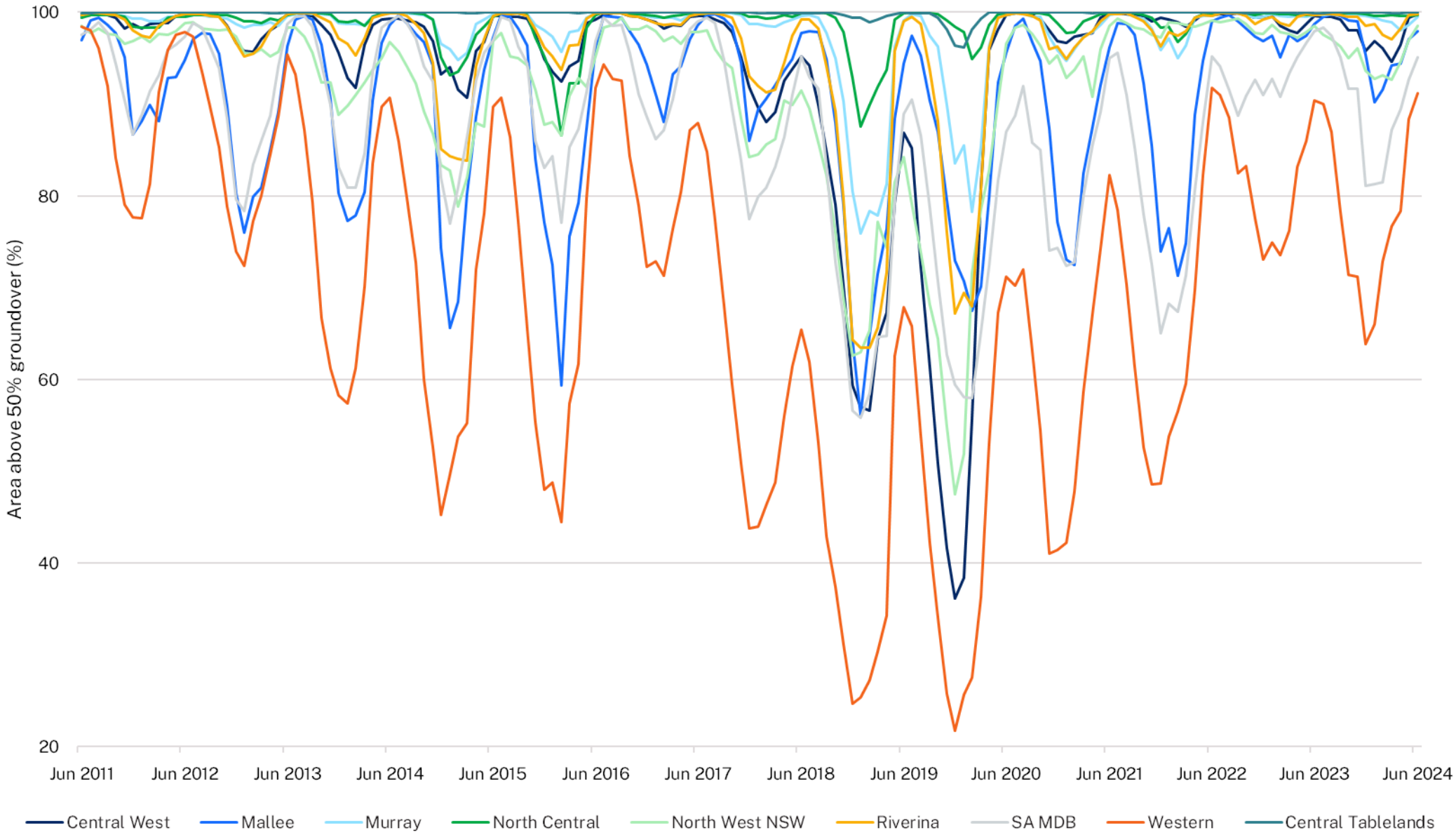

Figure 5 Area (%) of NRM with more than 50% cover since June 2011

Rainfall

Across the state, June rainfall totals generally ranged from between 1 mm in parts of the Western Local Land Services to isolated pockets of up to 400 mm in coastal Sydney and parts of the Illawarra (Figure 6). Totals in June were generally lower than May for the Western, Riverina, Murray and Central West Local Land Services. Rainfall was above average, with some areas in central and coastal New South Wales experiencing very high amounts. The rest of the state had average rainfall, except for the southern wheat belt and far northeast, which had below to very much below average rainfall in June 2024 (Figure 7a). In the 3 months leading up to the end of June, most of the state had above-average rainfall, with some areas experiencing record-high amounts. However, parts of the southern wheat belt in the east of the Riverina and Murray Local Land Services had below to very much below average rainfall (Figure 7b).

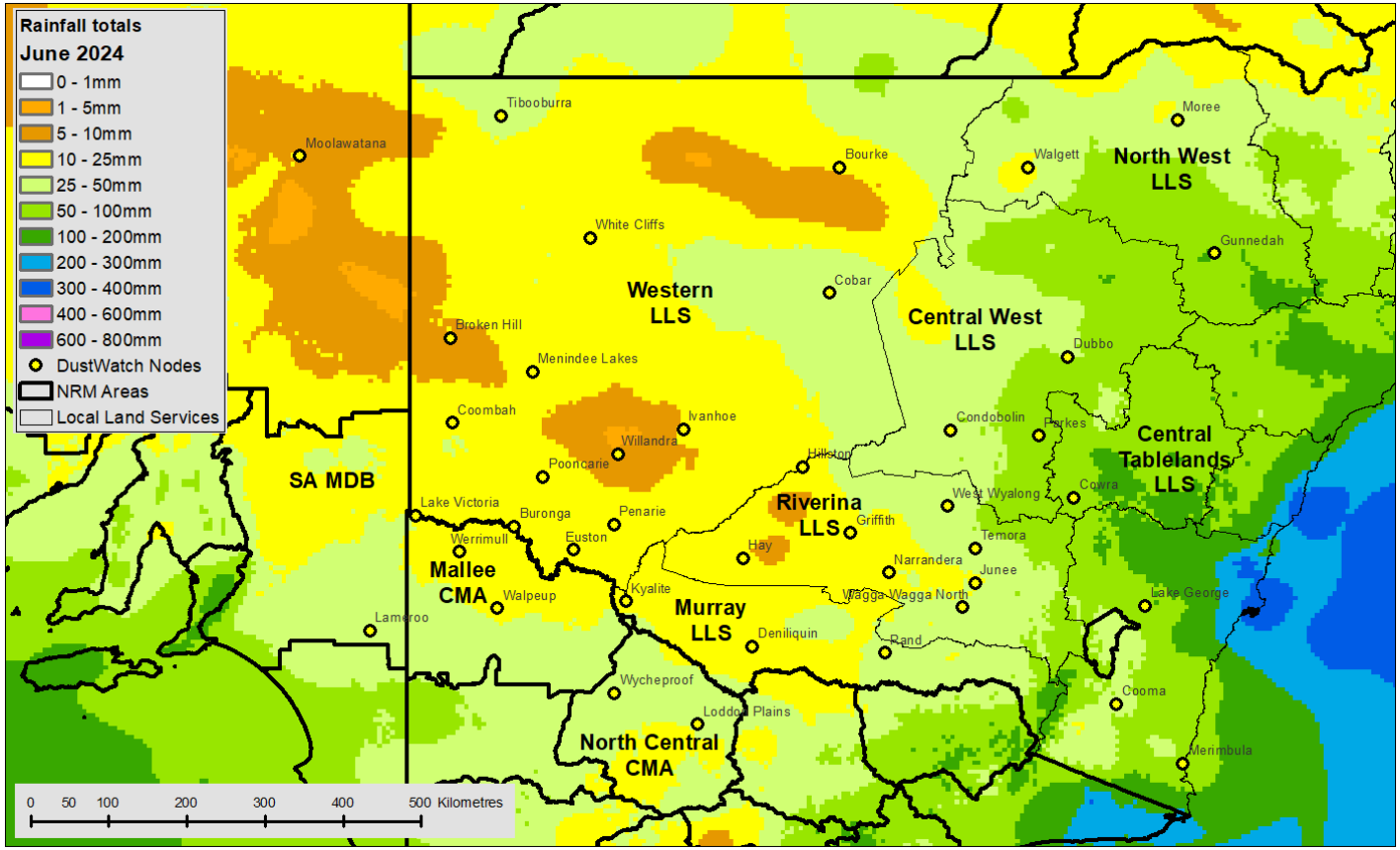

Figure 6 **Rainfall totals for June 2024 (source: Bureau of Meteorology)**

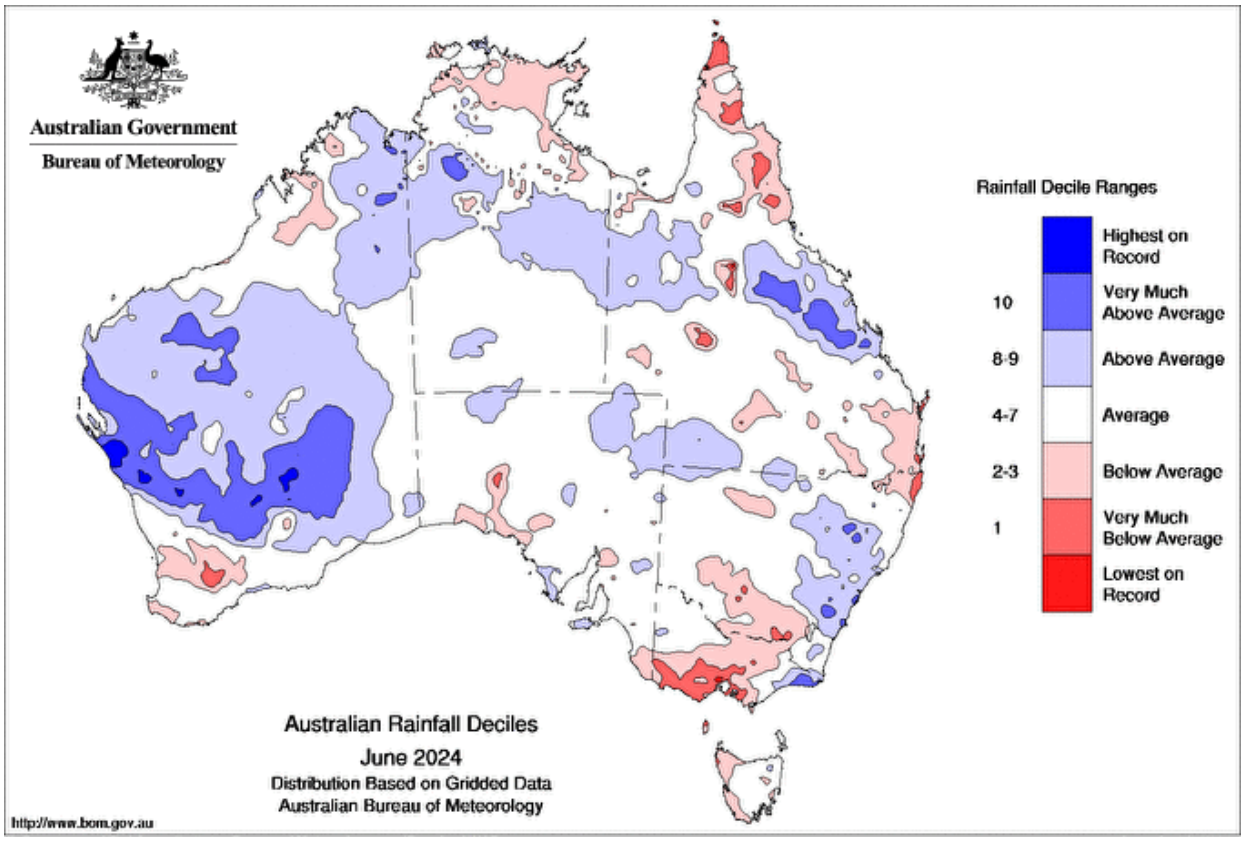

Figure 7(a) Rainfall deciles for June 2024

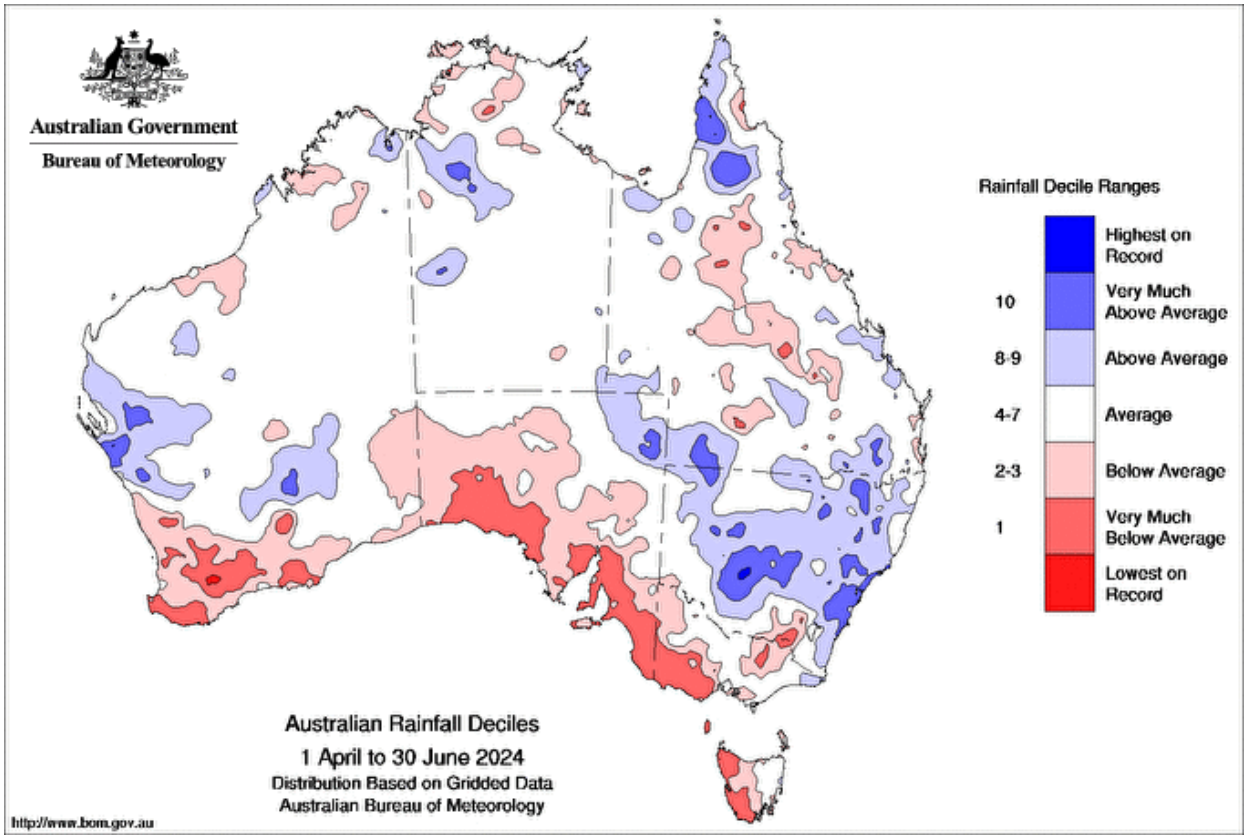

Figure 7(b) Rainfall deciles for 1 April 2024 to 30 June 2024

VIIRS fires and satellite image

Haze from smoke and dust is difficult to separate. We use satellite imagery to manually classify every measurement into dust or smoke. The satellite detected 1,346 hot spots (375 m pixel with temperature anomalies) in June 2024 (Figures 8 and 9), a 69% reduction from the 4,346 hot spots detected in May 2024.

Note: The number of hot spots is not equal to the number of fires. Large fires have multiple hot spots, thereby increasing the number of detections. Cloud or fog can obscure hot spots, thereby reducing the number of detections.

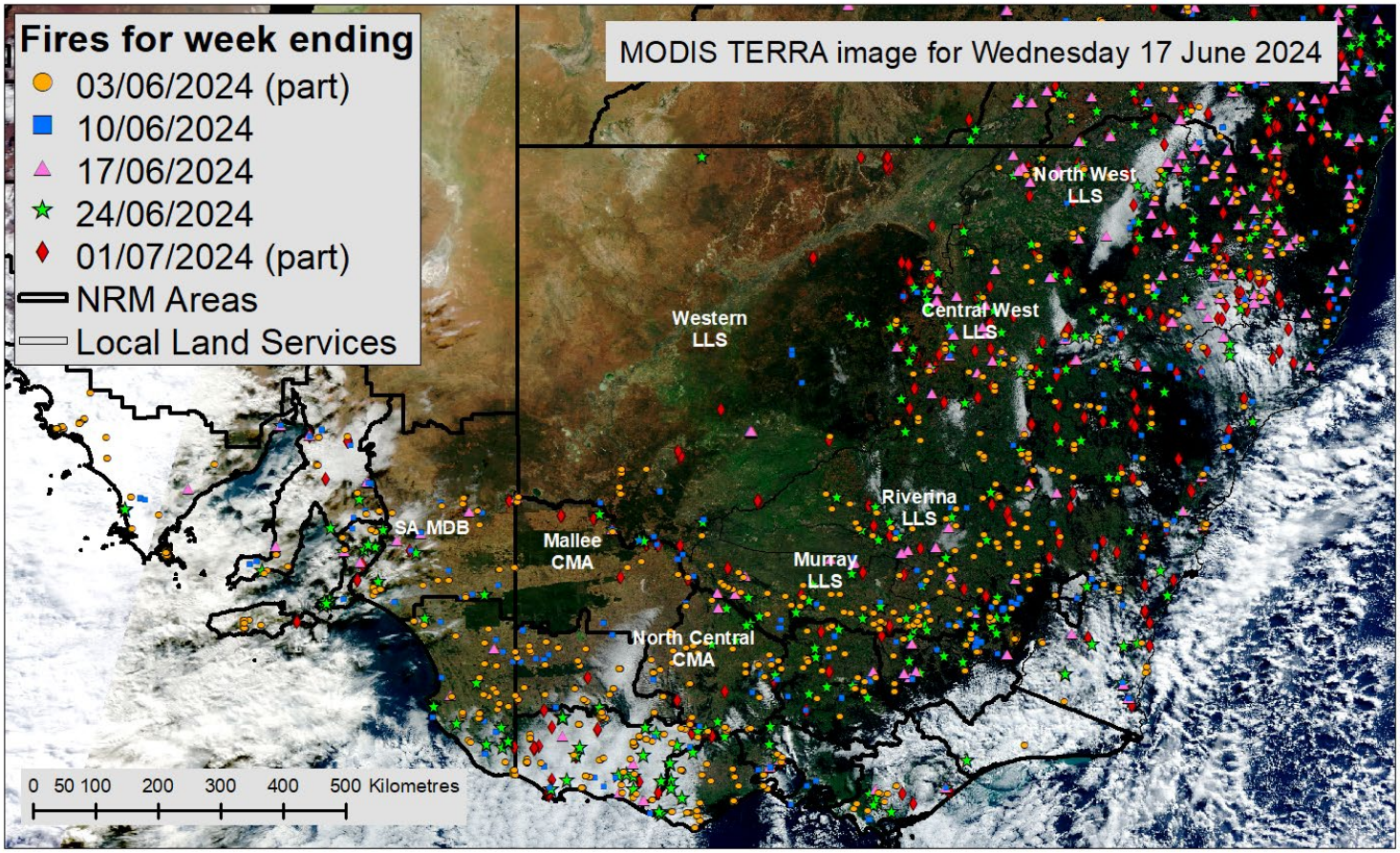

Figure 8 **Pixels (375m) with active burning fires in June 2024 as determined from VIIRS satellite**

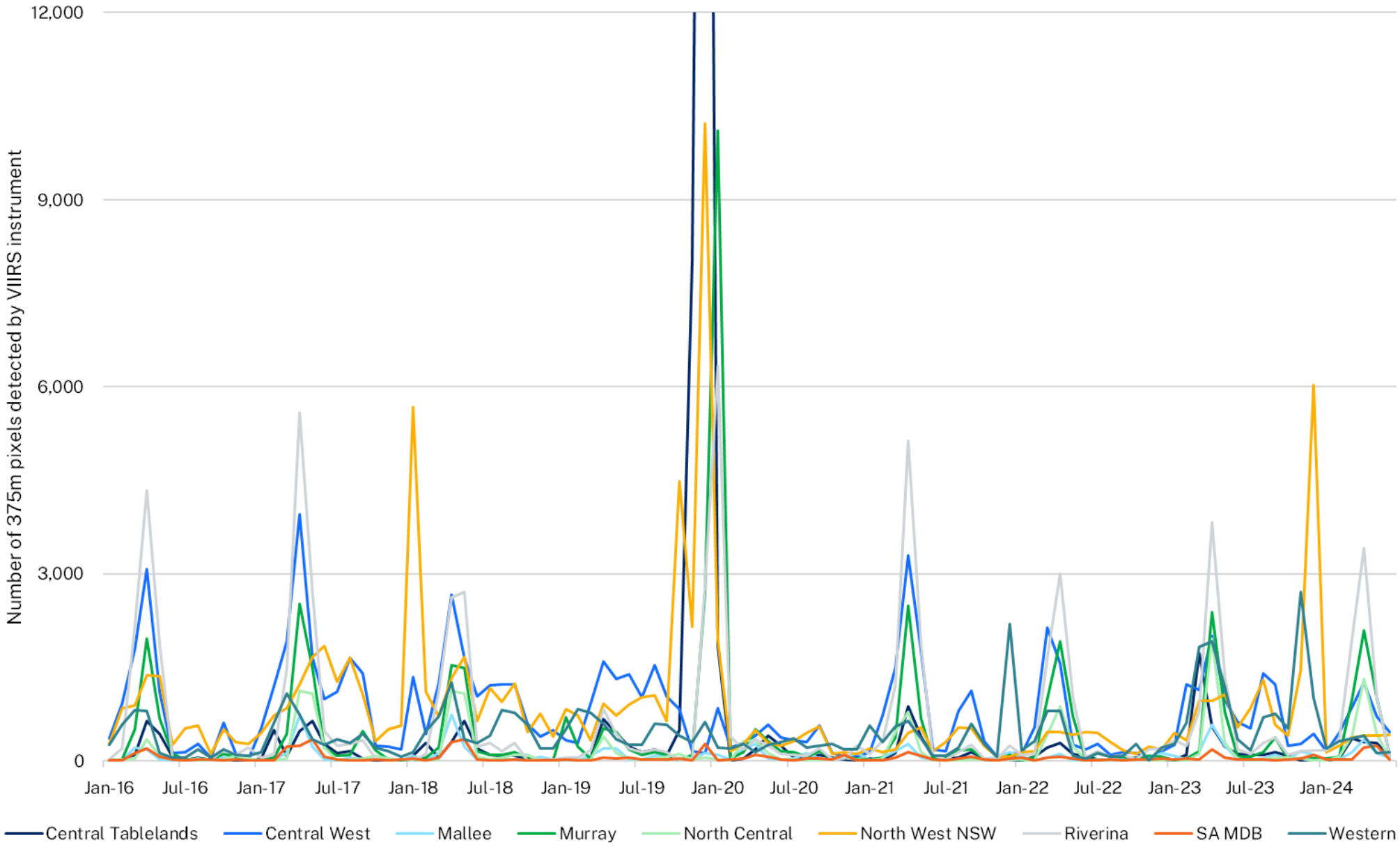

Figure 9 **Number of 375m pixels with active burning fires between January 2016 and June 2024**

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