DustWatch Report

October 2024

Community-based wind erosion monitoring across Australia

Dust activity	Decrease dust hours; below average for October
Wind strength	Increase from September, below average for October
Groundcover	Decrease from September, especially in the Western Local Land Services region
Rainfall	Average to below average for most of the state

Dust activity

There was a slight decrease in dust activity at long-term sites for October 2024, with an average of 4.2 hours of dust compared to 5.0 hours in September. Dust activity is below the October average of 8.4 hours. A reduction in dust activity from September to October 2024 occurred mainly in the Western Local Land Services and South Australia Murray–Darling Basin regions, despite a decrease in groundcover in these 2 regions (Table 1). There was generally average to below-average rainfall across much of the state (Figure 7a). Below-average winds for October made transport of dust emissions less likely (Figure 1).

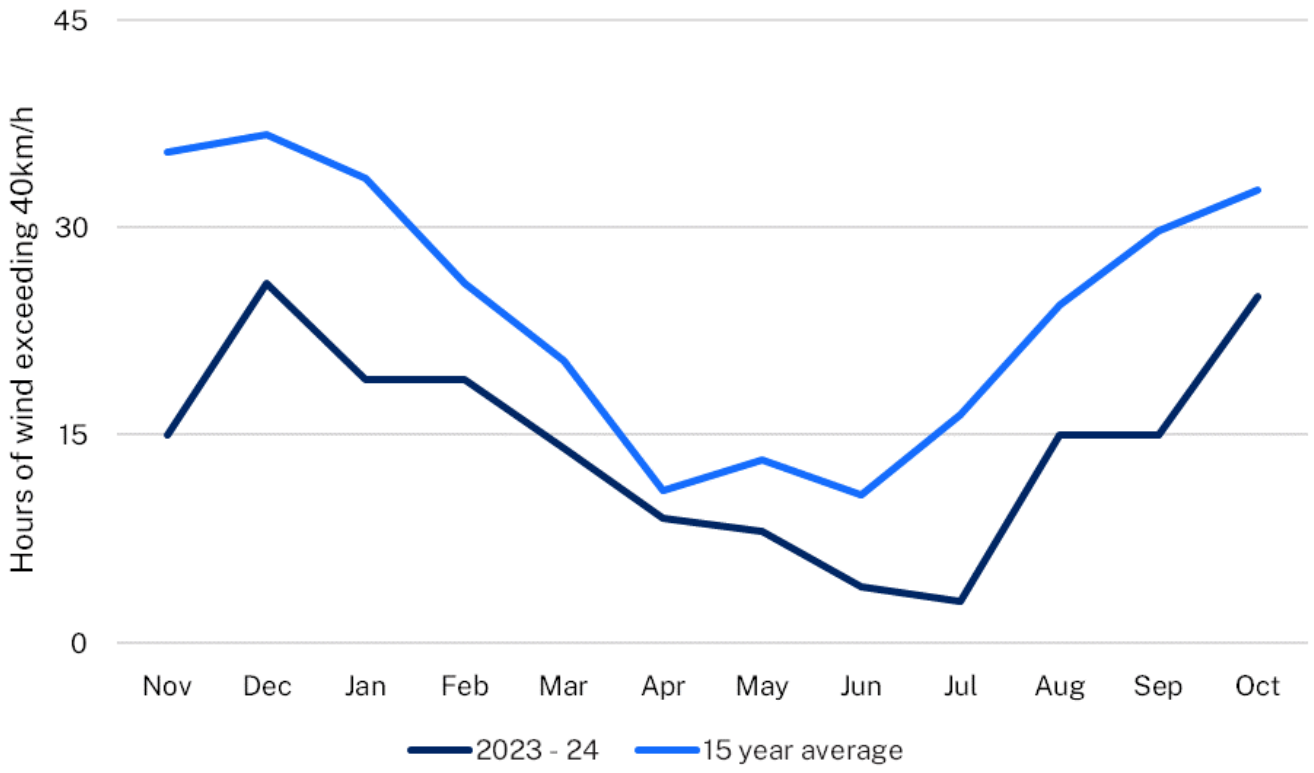

Figure 1 Hours of wind exceeding 40km/h – average across all sites

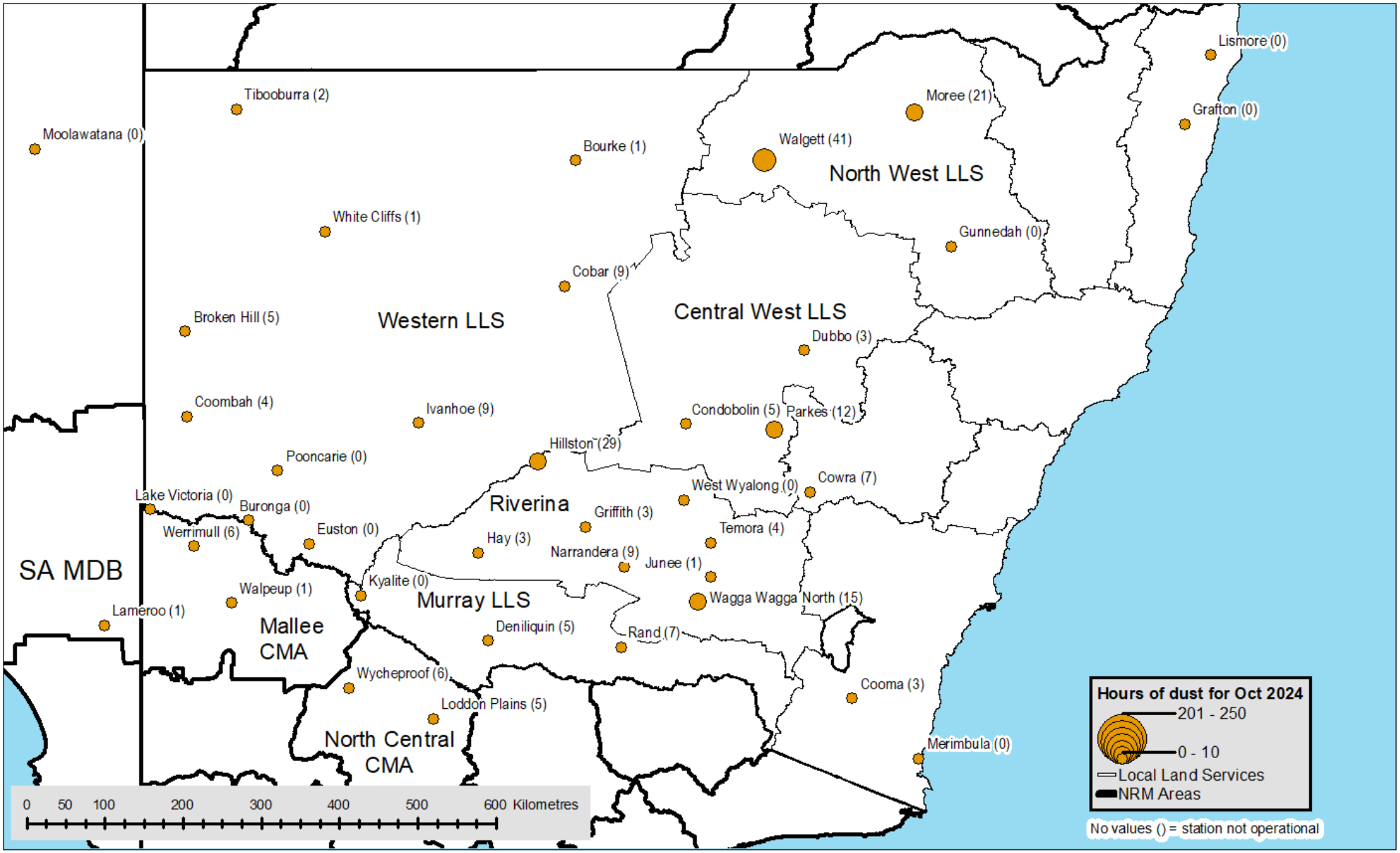

Figure 2 Hours of dust activity (number in brackets) at each DustWatch site in October 2024

Groundcover

The area with greater than 50% groundcover (green and yellow colours in Figure 3) has reduced across the Western Local Land Services, South Australia Murray–Darling Basin and the Mallee and North Central Catchment Management Authority regions (Table 1 and Figure 3), with an increase in orange and red in Figure 3 indicating reduced groundcover. While groundcover across the wheat belt shows some areas of patchy reduction, overall groundcover values for most other regions remained stable during October (Table 1).

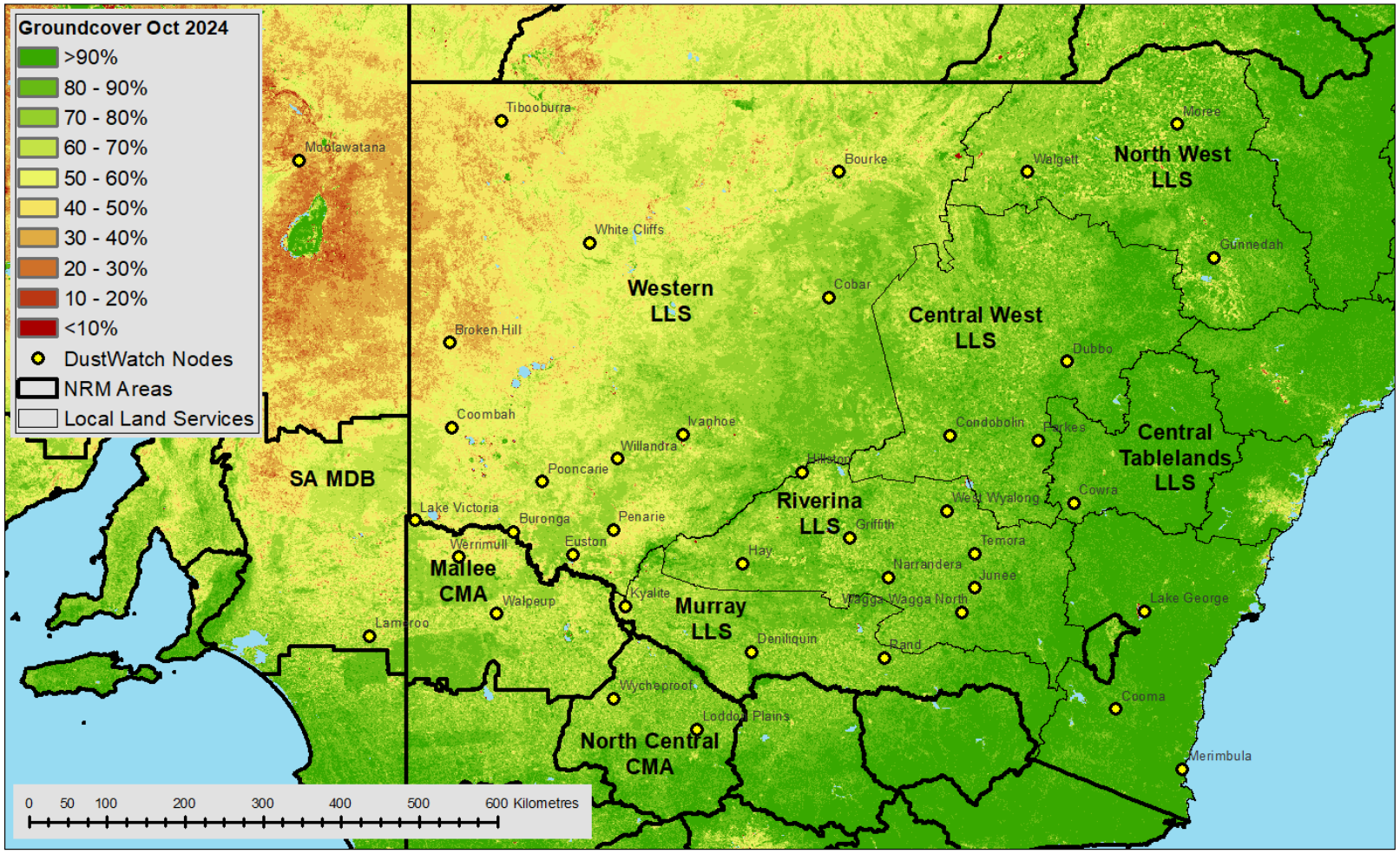

Figure 3 Groundcover for October 2024 as determined from MODIS by CSIRO

Table 1 Percentage of each natural resource management (NRM) region with cover >50% for November 2023 to October 2024

Date	Central West	Mallee	Murray	North Central	North West	Riverina	SA MDB	Western	Central Tablelands
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
Jul 2024	100	98	100	100	99	100	96	93	100
Aug 2024	100	99	100	100	99	100	95	90	100
Sep 2024	100	98	100	100	99	100	88	84	100
Oct 2024	100	96	100	100	99	100	83	76	100

Groundcover change

Reduction in groundcover is visible across a wide area, covering Western Local Land Services, South Australia Murray–Darling Basin, Mallee Catchment Management Authority, Riverina Local Land Services and parts of the Central West region from the wheat belt through to the Channel Country and rangelands, as indicated by red and orange in Figure 4. Rainfall during October 2024 was average to below average for most parts of the state. Some patchy areas experienced very-much-below-average rainfall in the 3 months to the end of October (Figure 7a, 7b), likely contributing to the reduction in groundcover.

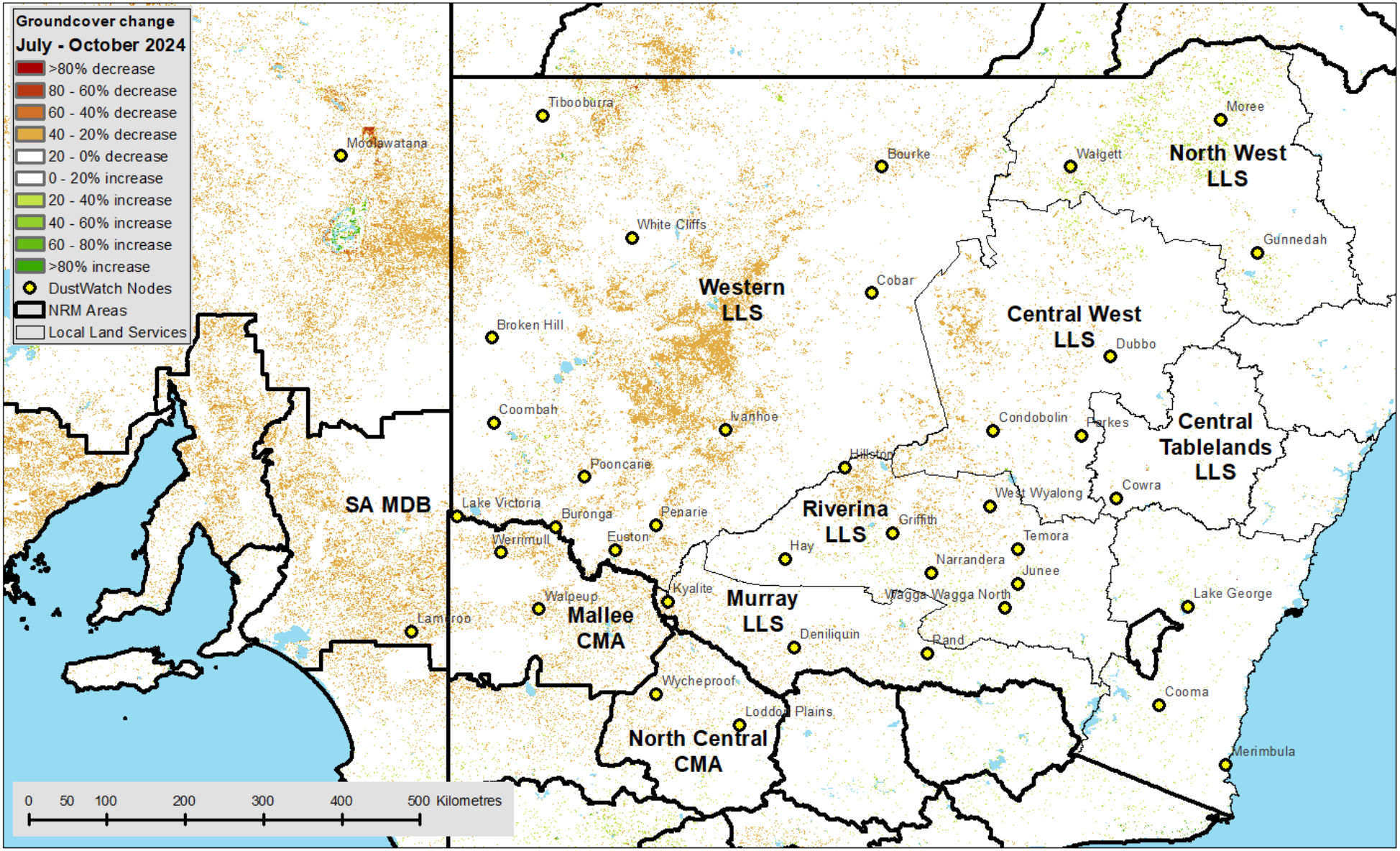

Figure 4 Groundcover difference between July 2024 and October 2024

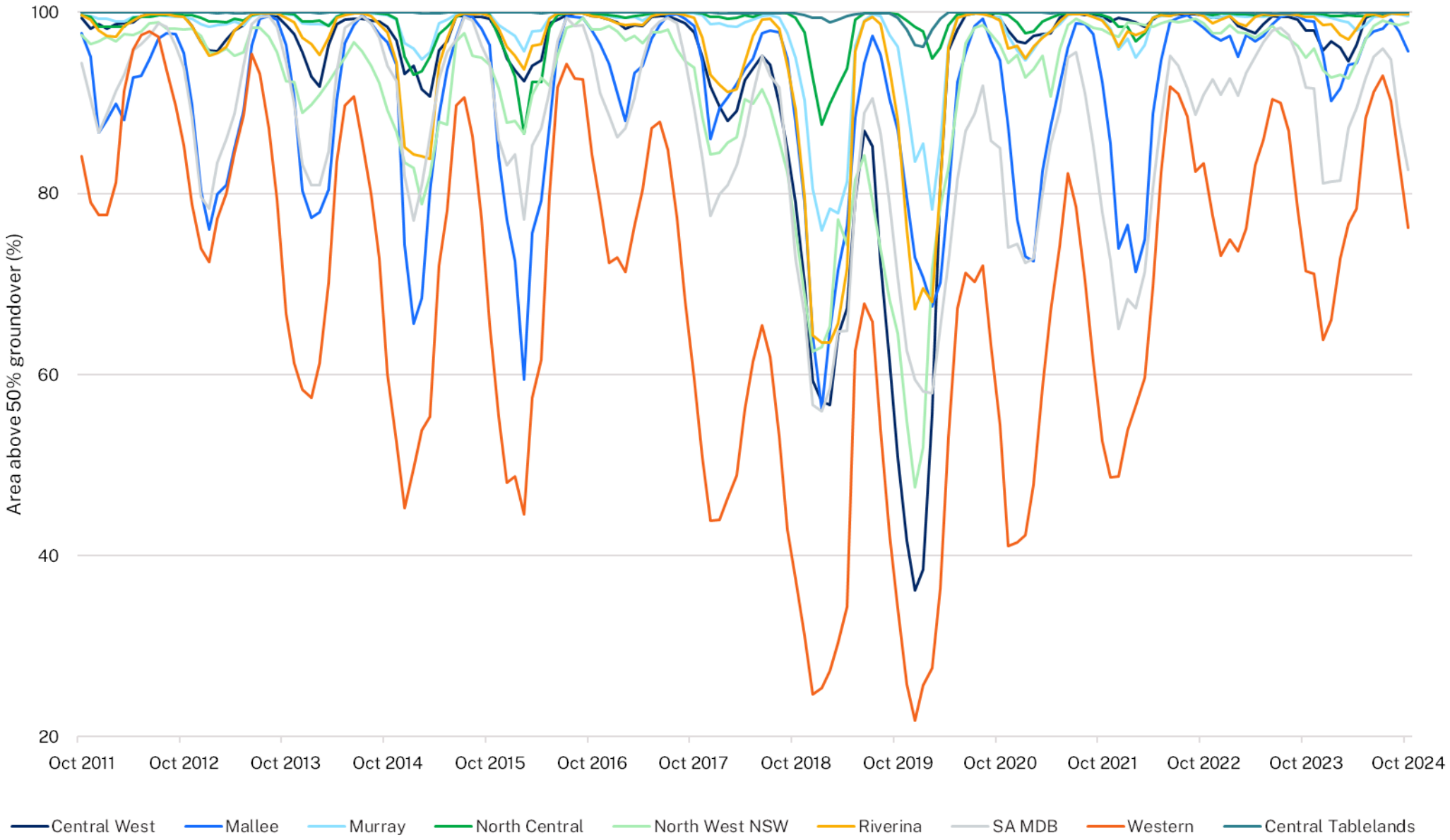

Figure 5 Area (%) of NRM with more than 50% groundcover since October 2011

Rainfall

Rainfall totals in October 2024 ranged from 1 to 200 mm across much of the state (Figure 6). Total rainfall increased from September, which is visible across most regions of the state. Most of the state had average to below-average rainfall, with the south coast having very low rainfall (Figure 7a). In the 3 months to the end of October 2024, rainfall was average to below average for most of the state, with an area of above-average rainfall along the north coast to the New South Wales–Queensland border (Figure 7b).

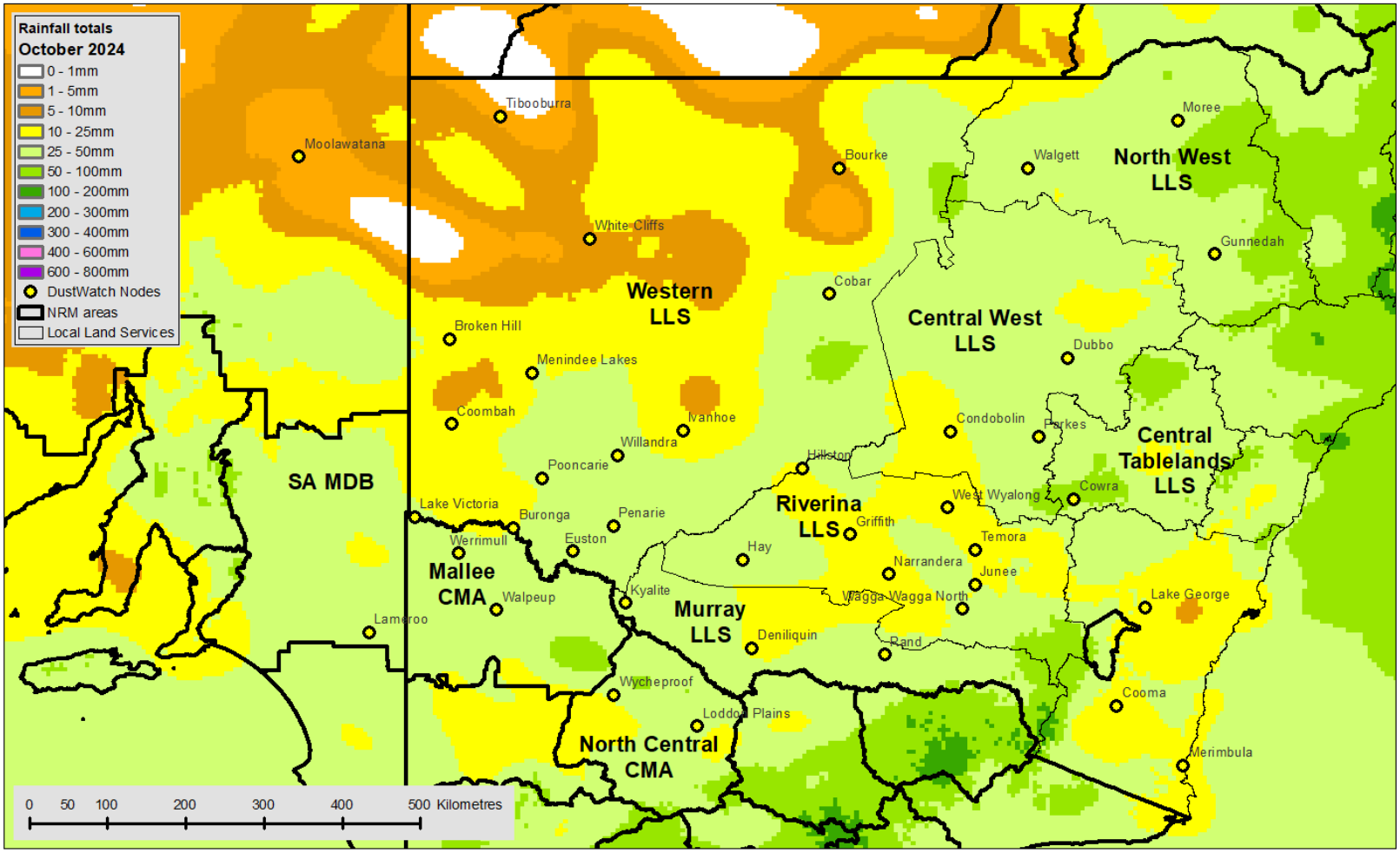

Figure 6 Rainfall totals for October 2024 (source: Bureau of Meteorology)

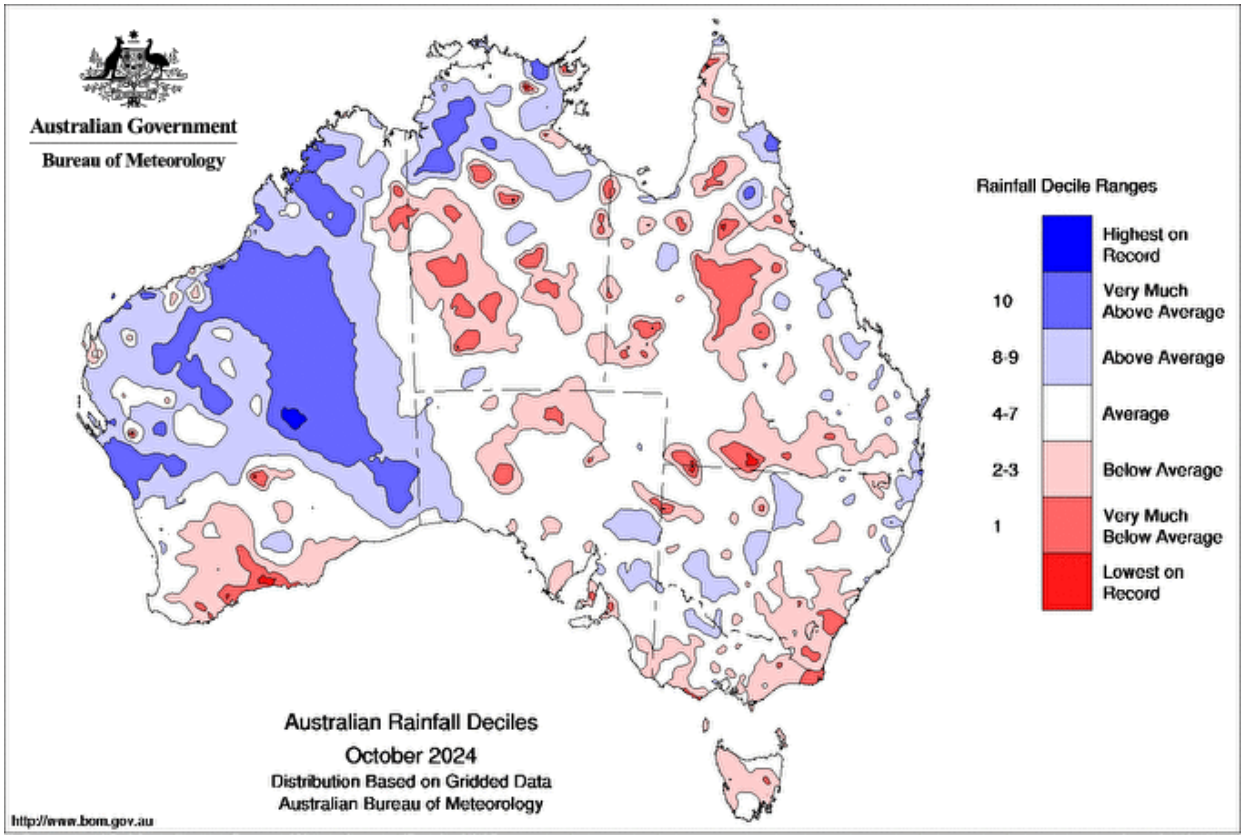

Figure 7(a) **Rainfall deciles for October 2024**

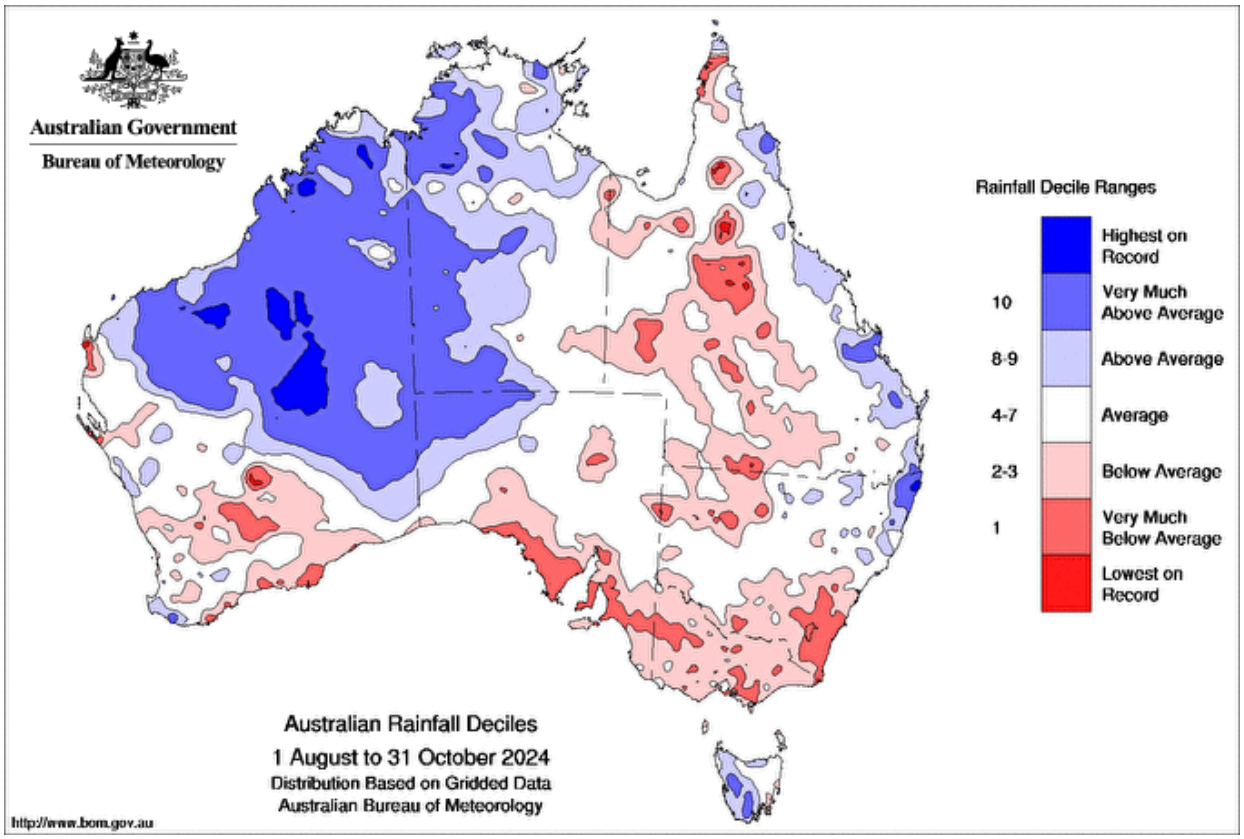

Figure 7(b) **Rainfall deciles for 1 August 2024 to 31 October 2024**

VIIRS fires and satellite image

Haze from smoke and dust is difficult to separate. We use satellite imagery to manually classify each measurement as either dust or smoke. Using the Visible Infrared Imaging Radiometer Suite (VIIRS) sensors, the satellite detected 931 hot spots (375 m pixel with temperature anomalies) in October 2024 (Figures 8 and 9), representing a 67% reduction from the 2,840 hot spots detected in September 2024.

Note: The number of hot spots is not the same as the number of fires. Big fires have many hot spots, which increases the number of detections. Clouds or fog can hide hot spots, which reduces the number of detections.

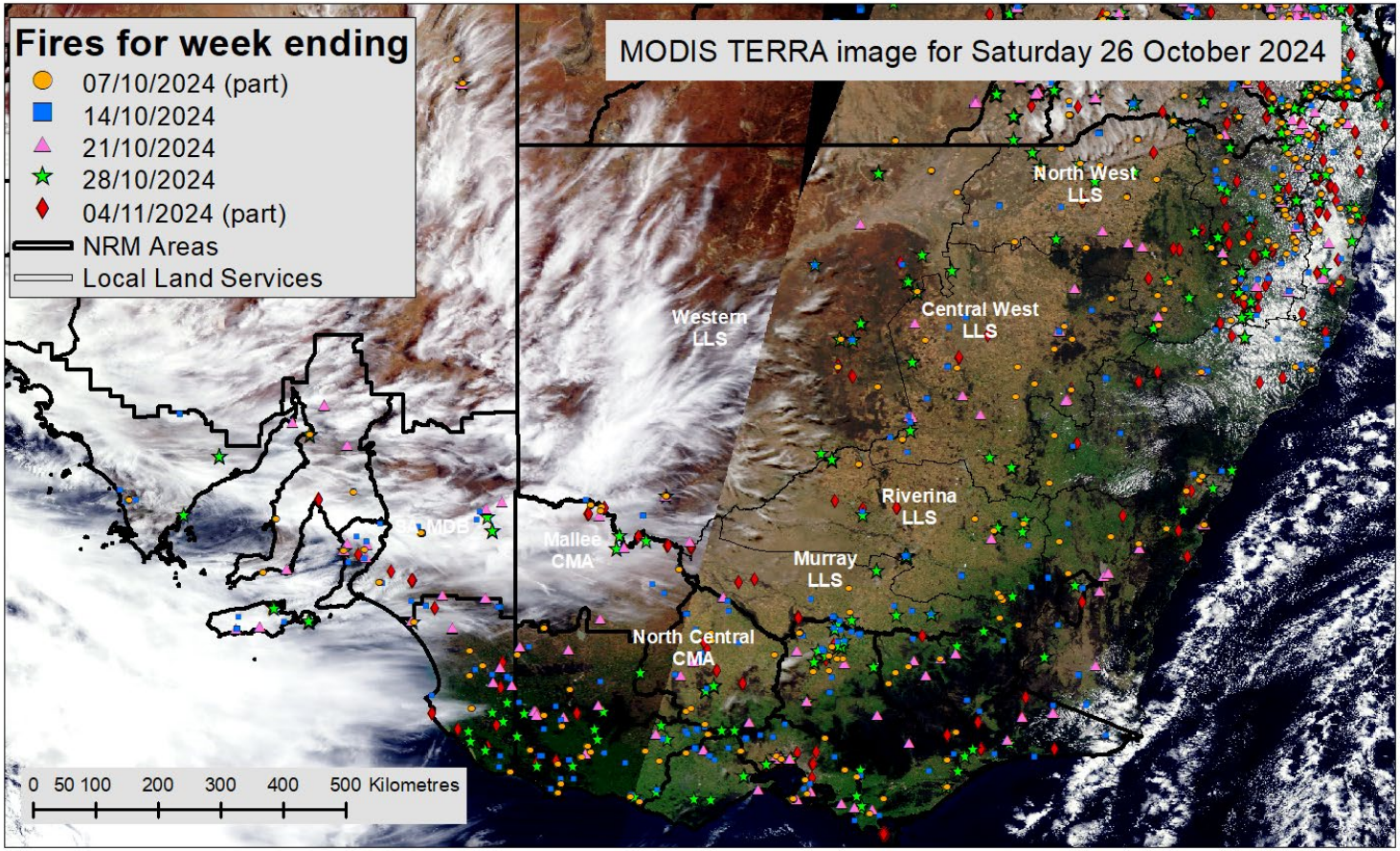

Figure 8 Pixels (375 m) with active burning fires in October 2024 as determined from VIIRS satellite

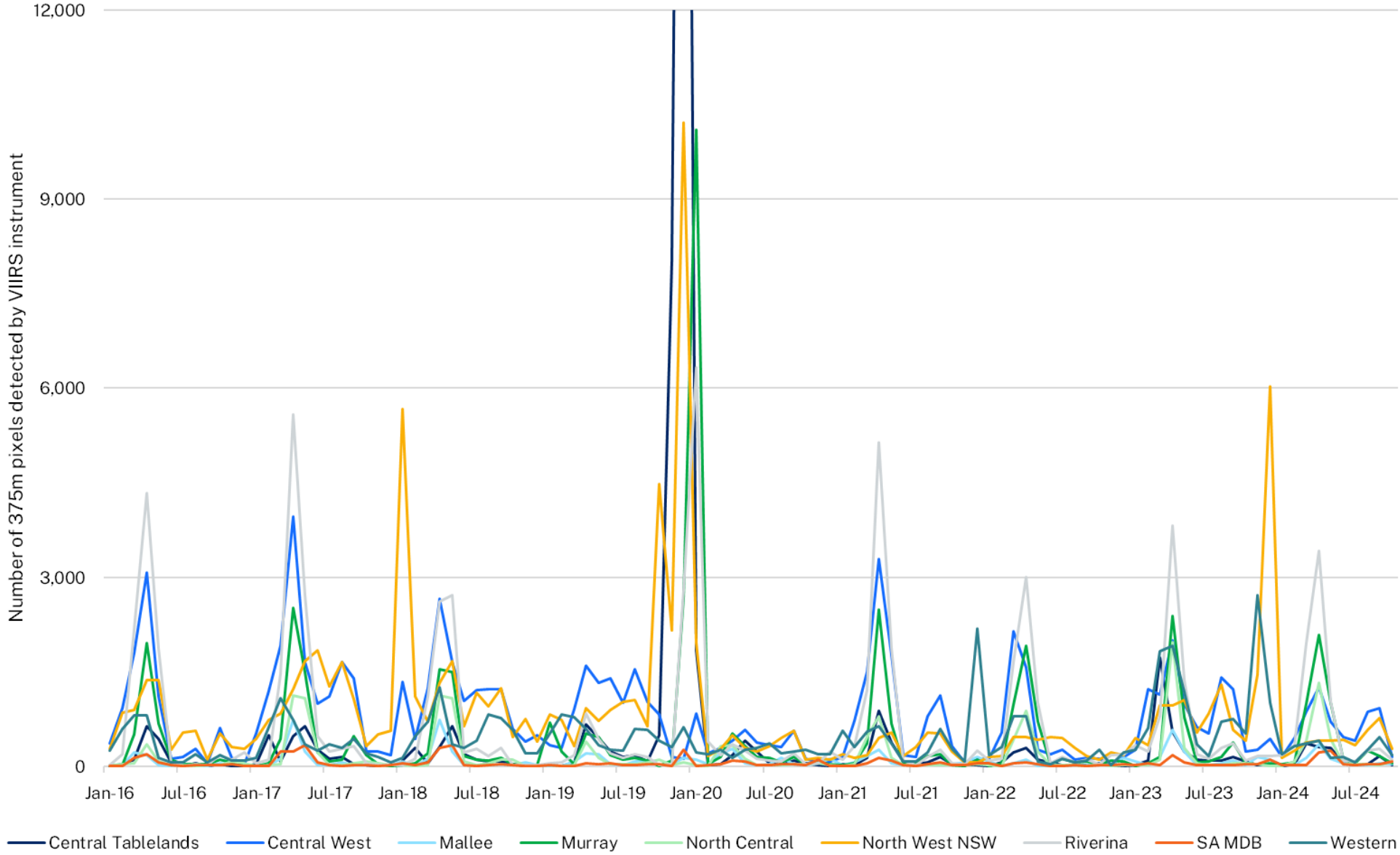

Figure 9 Number of 375 m pixels with active burning fires between January 2016 and October 2024

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