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Groundcover

As a result of above average rainfall and very mild conditions, groundcover across New South Wales is very good for September.

The area below 50% groundcover (red and orange colours in Figure 3) is slowly increasing, particularly in the far west of New South Wales between Broken Hill and Tibooburra and across the border into South Australia.

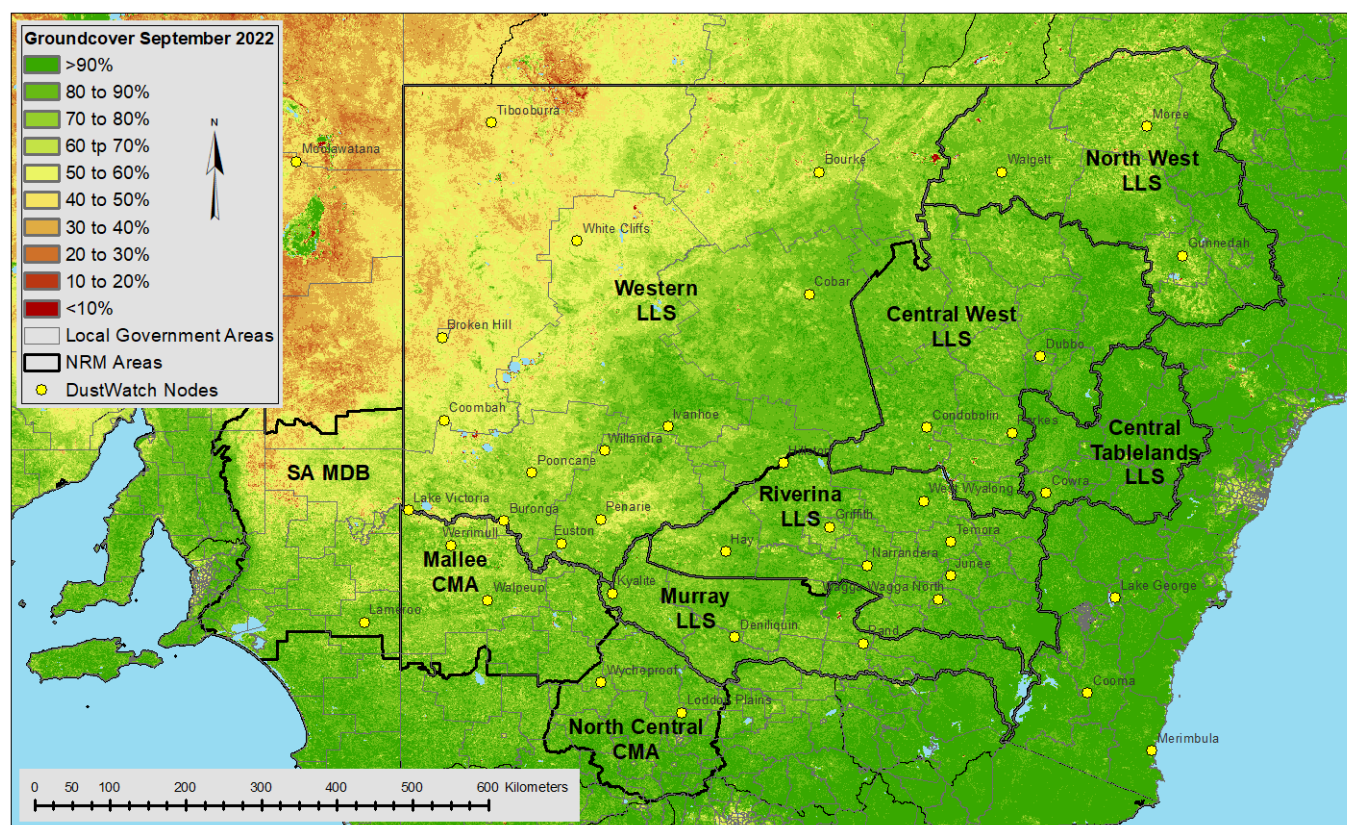


Figure 3 Groundcover for September 2022 as determined from MODIS by CSIRO

Table 1 Percentage of each NRM with cover >50% for September 2021 to September 2022

Date	Central West	Mallee	Murray	North Central	North West	Riverina	SA MDB	Western	Central Tablelands
Sep 2021	100	98	100	100	98	100	85	61	100
Oct 2021	100	92	99	100	98	99	78	53	100
Nov 2021	99	85	98	99	98	98	73	49	100
Dec 2021	99	74	96	98	97	96	65	49	100
Jan 2022	99	76	97	98	99	98	68	54	100
Feb 2022	99	71	95	97	99	97	67	57	100
Mar 2022	98	75	96	98	99	98	71	60	100
Apr 2022	99	89	99	99	98	99	81	70	100
May 2022	100	95	100	100	99	100	88	82	100
Jun 2022	100	99	100	100	99	100	95	92	100
Jul 2022	100	99	100	100	99	100	94	91	100
Aug 2022	100	100	100	100	99	100	92	89	100
Sep 2022	100	99	100	100	99	100	89	82	100

Groundcover change

The groundcover reduction in the Local Land Services Western Region between June 2022 (92% >50% groundcover – Table 1) and September 2022 (82%) is clearly visible in the change map (red and orange colours in Figure 4) and the groundcover time series plot (brown line in Figure 5). This is normal for this time of the year in semi-arid zones, with animal consumption and natural plant decay outstripping plant growth.

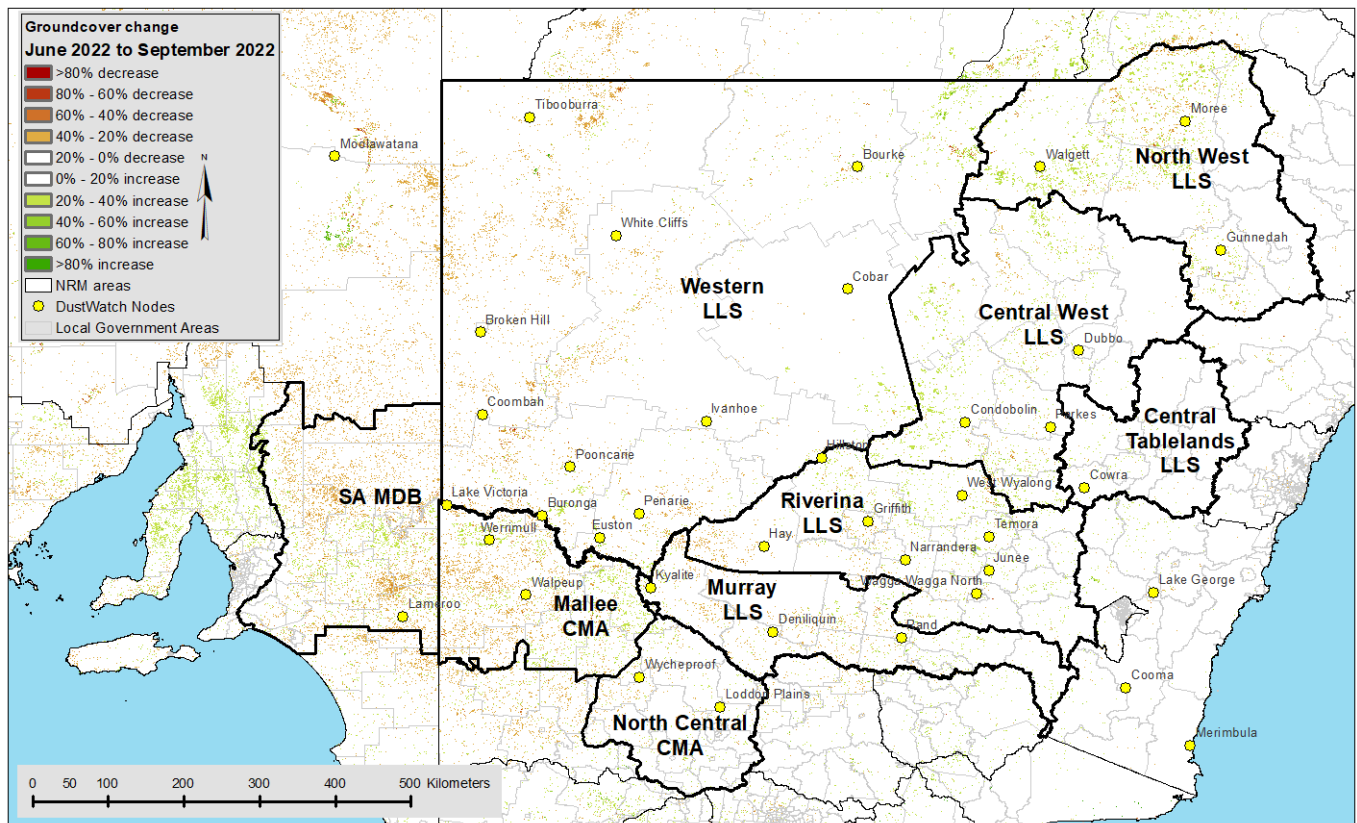


Figure 4 Groundcover difference between June 2022 and September 2022

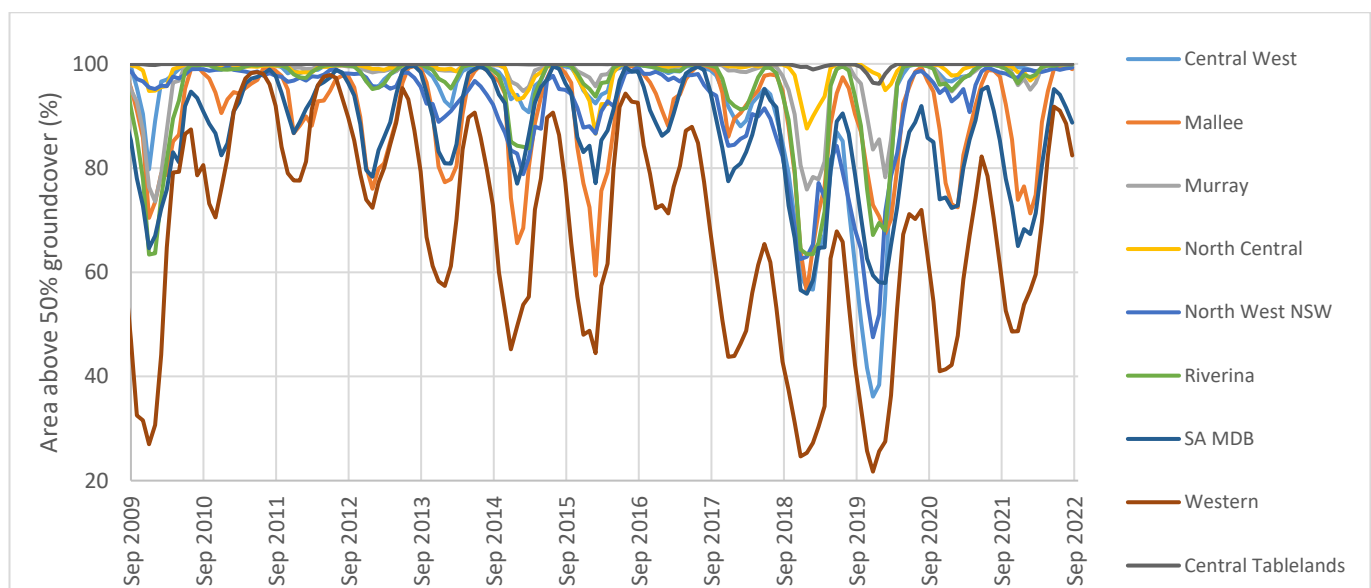


Figure 5 Area (%) of NRM with more than 50% cover since September 2009

Rainfall

New South Wales recorded widespread rainfall in excess of 50 mm with only the far northwest around Tibooburra and White Cliffs missing out on the heavy falls and remaining below 25 mm (Figure 6).

These falls were much above average for large parts of New South Wales, with some areas recording the highest September rainfall on record (Figure 7a). According to the Bureau of Meteorology, these falls were the fifth highest on record (www.bom.gov.au/climate/mwr/)

These above average rainfall numbers have counterbalanced much below average rainfall earlier this winter and pushed New South Wales back into above average rainfall for the last 3 months (Figure 7b).

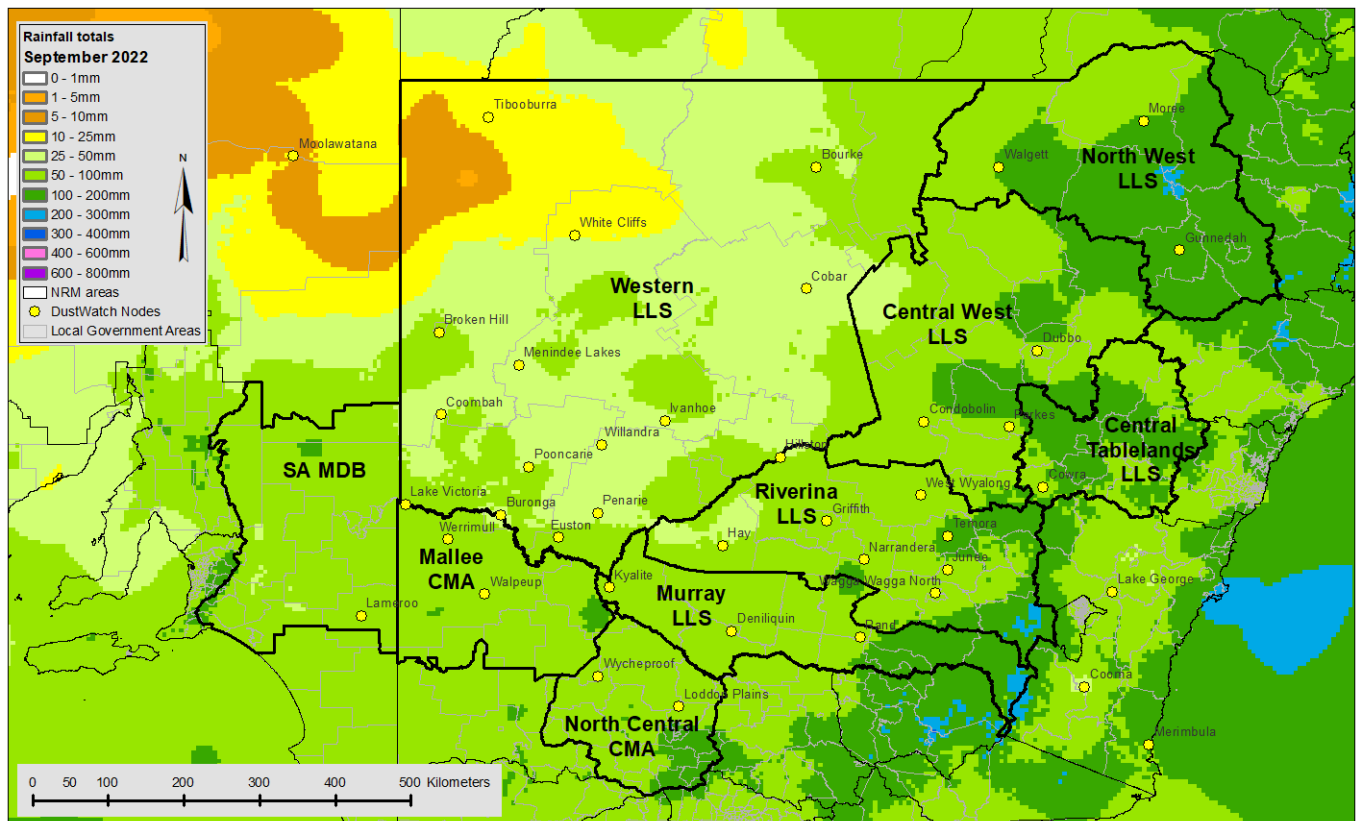


Figure 6 Rainfall totals for September 2022 (source: Bureau of Meteorology)

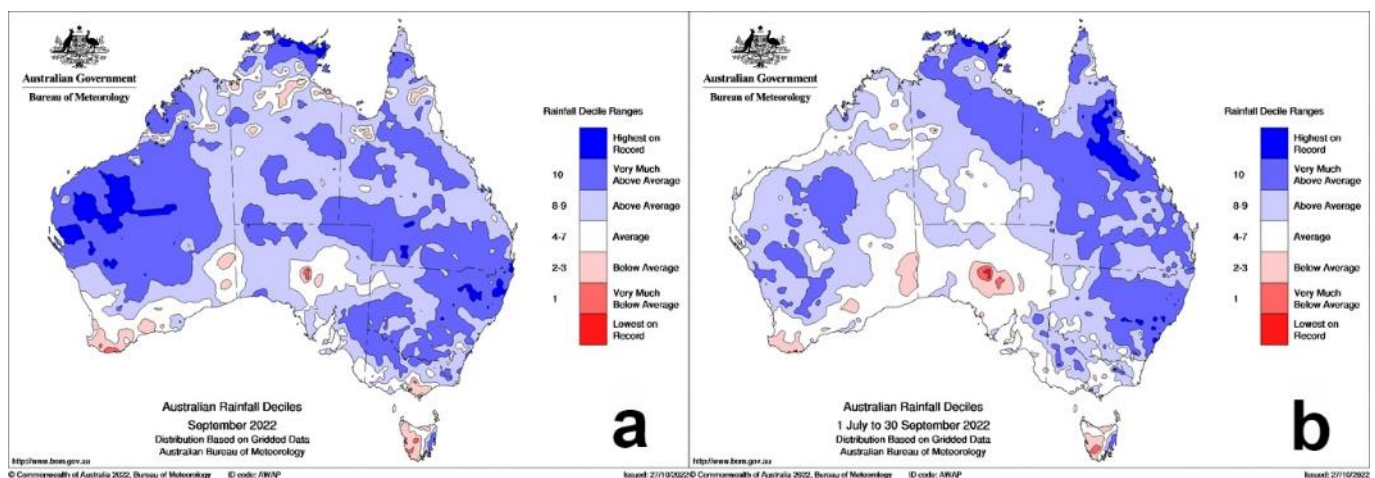


Figure 7 Rainfall deciles for September 2022 (a) and 1 July 2022 to 30 September 2022 (b)

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 604 hot spots (375m pixel with temperature anomalies) in September 2022 (Figures 8 and 9), almost identical to the 618 hot spots detected in August 2022. Fires occurred mostly in north eastern NSW.

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.

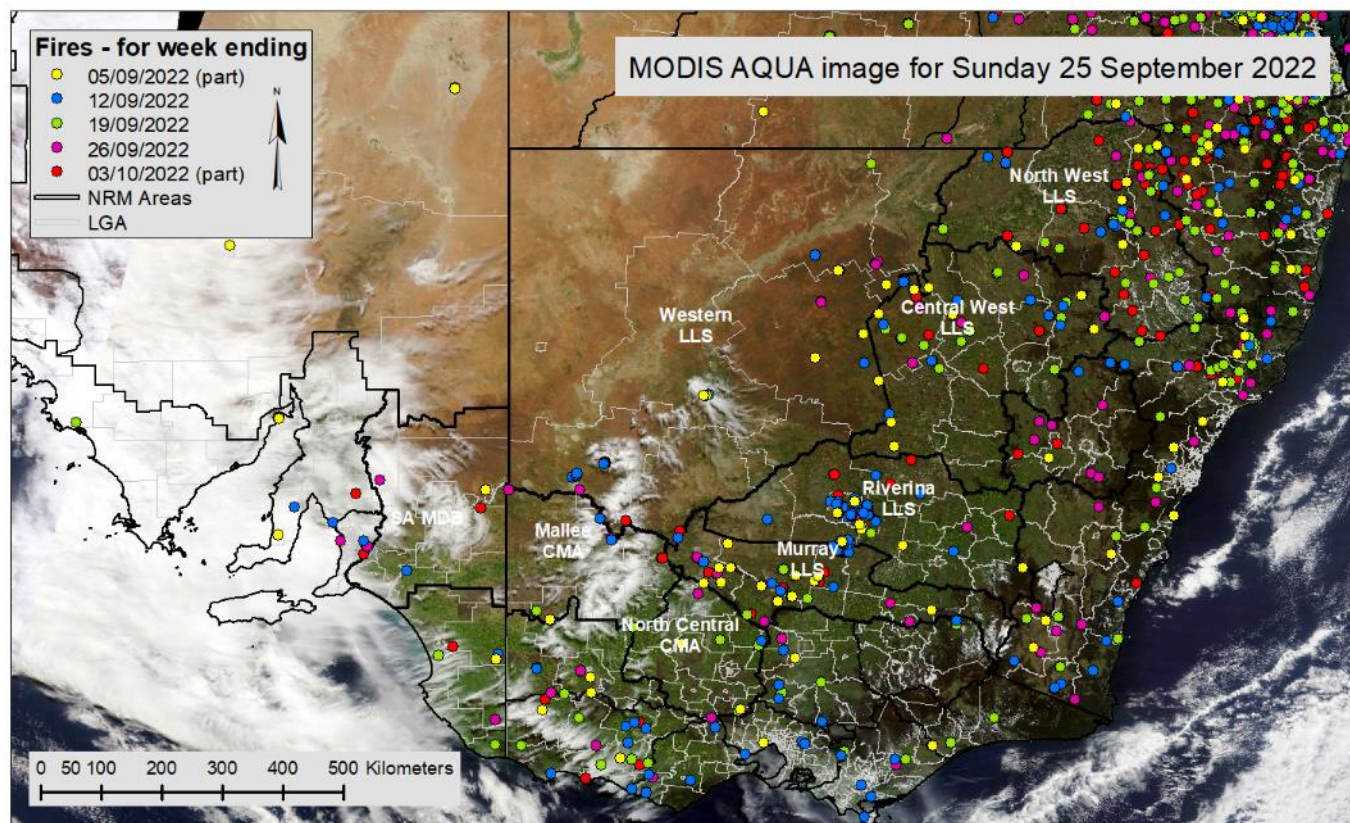


Figure 8 Pixels (375m) with active burning fires in September 2022 as determined from VIIRS satellite

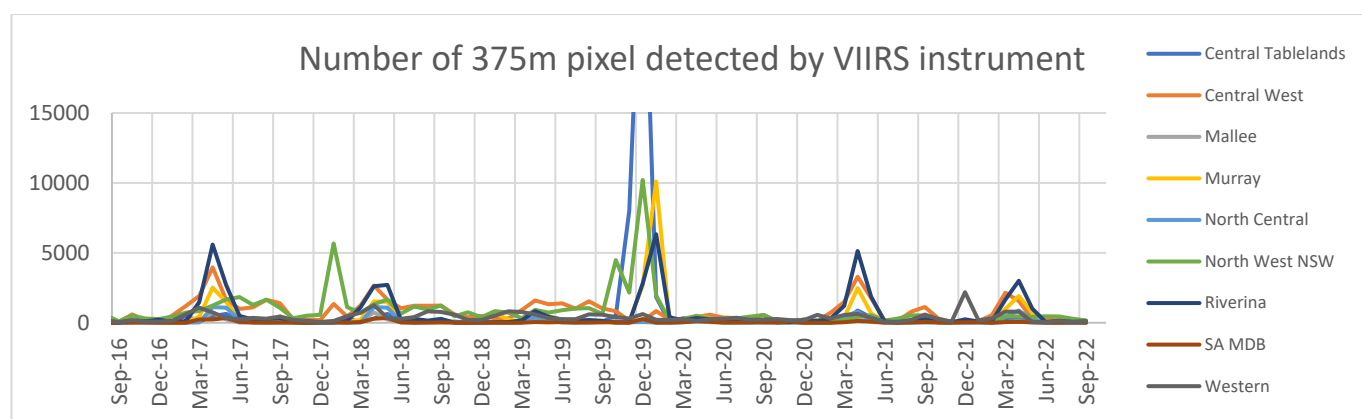


Figure 9 Number of 375m pixels with active burning fires between July 2016 and September 2022

The DustWatch team

Contact us at dustwatch@environment.nsw.gov.au

Dust data supplied by the Department of Planning and Environment Rural Air Quality network. The MODIS image is courtesy of MODIS Rapid Response Project at NASA/GSFC; the VIIRS fire data is courtesy of the Fire Information for Resource Management System (FIRMS) and the rainfall maps are from the Australian Bureau of Meteorology. This project would not be possible without funding from: The National Landcare Program, Western and Murray Local Land Services (LLS) in NSW; the NSW EPA; the Mallee and North Central CMAs in Victoria and Murray Darling Basin NRM in South Australia, CSIRO, TERN and the Australian National University. We particularly thank our many DustWatch volunteers who provide observations and help maintain the instruments.

ISSN – 2206-3161
EES 2022/0009

