This report provides information about vegetation covering the soil surface for a region during a single month with comparison to previous years. The total vegetation cover indicates where soil is likely to be protected from wind (>=50% total vegetation cover) and water/hillslope (>=70% total vegetation cover) erosion. Results are shown for the whole region (polygon) and also separated by land use and forest cover class. This is because different land use / forest cover classes are likely to have different cover patterns and targets. [Bundaberg (R)]

The six maps and two graphs provide a report for the month with:

- Land use and forest cover information for the area:
 - o Map: Land use and forest cover
 - o Chart: Land use and forest cover area
- Total vegetation cover for this month:
 - o Map: total vegetation cover classified into 4 classes
 - o Chart: total vegetation cover percentage area classified into 4 classes
- Areas protected from erosion for the month:
 - o Map: water erosion protection (>70% cover) percentage area and hectares
 - o Map: wind erosion protection (>50% cover) percentage area and hectares
- Comparison with previous years:
 - o Map: anomaly compare this month to the average cover from the same month in previous years
 - o Map: deciles rank this month against the same month in previous years
- Time series from January 2001 to current:
 - o Wind erosion protection time series: percentage of the area of the region with greater than 50% cover for each month since January 2001 (orange line): Horizontal lines are 10th (cover target) and 50th percentiles. Vertical line is month of report.
 - o Water erosion protection time series: percentage of the area of the region with greater than 70% cover for each month since January 2001 (blue line): Horizontal lines are 10th (cover target) and 50th percentiles. Vertical line is month of report.
 - o Rainfall: millimetres rainfall each month (black line). Vertical line is month of report.
- Time series for each month stacked by year
 - o Same data as time series from January 2001 to current month, grouped by month. Black line is current year of data.
- Water erosion protection on higher slopes. As slope increases, more cover is required to control water erosion. The thresholds reported are:
 - o the percentage area with pixels greater than 80% total clover
 - o the percentage area with pixels greater than 90% total clover
 - o the percentage area with pixels greater than 95% total clover
- The following pages repeat the above sequence for each land use and forest cover class. For example
- All agricultural lands, that is grazing, cropping plus Horticulture (depending on what land use is present)
- Grazing lands by forest classes if present
- Cropping lands
- Irrigation lands
- Protected areas by forest classes if present

The following pages repeat the above sequence for each land use and forest cover class if 1% or more of area makes up a land use and forest cover class. Four land uses are reported: Conservation and natural environments, Agriculture, production native forests and plantation forests, and other. Agriculture is further divided into grazing,

crops and horticulture are then divided into non-irrigated and irrigated. Land use is further divided by forest class if present: non-forest, woodland forest and non-woodland forest.

Explanatory notes:

This report has been generated using MODIS fractional vegetation cover information available in Rangelands and Pasture Productivity (RAPP) map tool. The report is based on an analysis of 500 metre pixel data on monthly time steps. Report uses baseline from January 2001 to September 2019 for each month to generate anomalies and deciles. Post September 2019 all similar months are used to calculate anomalies and deciles.

Acknowledgment of data:

- 1. http://www.agriculture.gov.au/abares/aclump/land-use/alum-classification
- 2. http://www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2018
- 3. https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/establishment-mgmt/production-management2/groundcover
- 4. MODIS Fractional cover algorithm:

https://doi.org/10.4225/08/5848a3f19a7b3



Vegetation Cover Sep 2019

Land use and forest cover

Proportion of each land class in area

Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.



12%200%

· 52% 70%

3201050010

0-30%

Total Vegetation Cover [%]



% Area protected from water erosion (>70%)





Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



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Total Vegetation Cover Anomaly [%]







Total Vegetation Cover Decile [%]





Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.





Australian Government

Programm

Conservation and natural environments

Land use and forest cover

Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.



Conservation and natural environments - Non-forest Conservation and natural environments – Woodland forest Conservation and natural environments – Non-woodland forest

Total Vegetation Cover [%]



% Area protected from water erosion (>70%)







Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



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Total Vegetation Cover Anomaly [%]



- 20 - 10 0 -10-20 **Total Vegetation Cover Decile [%]**





Deciles show where the pixel value lies in the

record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of

records for that month of

the map using baseline from 2001 to 2019.

Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map from 2001 to 2019.





above_70

Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



Conservation and natural environments timeseries



Wind erosion historical monthly area protected (Total Veg Cov >50%)



Water erosion historical monthly area protected (Total Veg Cov>70%)





Conservation and natural environments Woodland forest

Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.



Total Vegetation Cover [%]

Land use and forest cover



% Area protected from water erosion (>70%)











% Area protected from wind erosion (>50%)



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Total Vegetation Cover Anomaly [%]







Total Vegetation Cover Decile [%]





Deciles show where the pixel value lies in the

record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of

records for that month of

the map using baseline from 2001 to 2019.



Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



Wind erosion historical monthly area protected (Total Veg Cov >50%)

Water erosion historical monthly area protected (Total Veg Cov>70%)



Conservation and natural environments Forest (non woodland)

Land use and forest cover

Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < Conservation and natural environments - Non-20% tree cover, woodland forest sparse is 20 to 50% and dense > 50% tree cover.

Total Vegetation Cover [%]



% Area protected from water erosion (>70%)







Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



region (0

protected

. 100.0% of

region (34,575

ha)

ha)

Area

Total Vegetation Cover Anomaly [%]

Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



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Deciles show where the

pixel value lies in the

record, from highest to lowest, for that month. That is, red pixels are

records for that month of

the map using baseline from 2001 to 2019.

in the lowest 10% of



Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)







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Agriculture

Land use and forest cover



Total Vegetation Cover [%]



% Area protected from water erosion (>70%)







Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



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Total Vegetation Cover Anomaly [%]



- 20 - 10 0 -10-20 **Total Vegetation Cover Decile [%]**





Deciles show where the pixel value lies in the

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Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map from 2001 to 2019.

landuse and

cover.





---- above_70

—— 2019 Sep

—— 10th

—— 50th

Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

Agriculture timeseries



Wind erosion historical monthly area protected (Total Veg Cov >50%)





Grazing

Land use and forest cover



Total Vegetation Cover [%]



% Area protected from water erosion (>70%)







Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



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Total Vegetation Cover Anomaly [%]



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Total Vegetation Cover Decile [%]





Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline

the map using baseline from 2001 to 2019.

Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

catchment scale landuse and

Forest Inventory,

20% tree cover,

cover.



Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)





Wind erosion historical monthly area protected (Total Veg Cov >50%)

Water erosion historical monthly area protected (Total Veg Cov>70%)



Grazing non forest

Land use and forest cover



Total Vegetation Cover [%]



% Area protected from water erosion (>70%)









% Area protected from wind erosion (>50%)



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Total Vegetation Cover Anomaly [%]



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Total Vegetation Cover Decile [%]





Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline

the map using baseline from 2001 to 2019.

Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

catchment scale landuse and

Forest Inventory,

20% tree cover,

cover.







Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)





Wind erosion historical monthly area protected (Total Veg Cov >50%)

Water erosion historical monthly area protected (Total Veg Cov>70%)





Grazing Woodland forest

Land use and forest cover

Agriculture - Grazing - Woodland forest

Total Vegetation Cover [%]











Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.

Total Vegetation Cover Anomaly [%]



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Area protected 100.0% of region (54,775 ha) Total Vegetation Cover Decile [%]

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Deciles show where the pixel value lies in the

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Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.







Grazing Woodland forest timeseries

Water erosion historical monthly area protected (Total Veg Cov>70%)





Grazing - Forest (non woodland)

Land use and forest cover



Total Vegetation Cover [%]



% Area protected from water erosion (>70%)







Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



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Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.

Total Vegetation Cover Anomaly [%]



- 20 - 10 0 -10-20 **Total Vegetation Cover Decile [%]**





Deciles show where the pixel value lies in the

record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of

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Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.







Water erosion historical monthly area protected (Total Veg Cov>70%)



Irrigation

Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.



Total Vegetation Cover [%]





% Area protected from water erosion (>70%)



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- 10

0

-10

-20





% Area protected from wind erosion (>50%)



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Total Vegetation Cover Anomaly [%]







Total Vegetation Cover Decile [%]





29



--- above_70

—— 2019 Sep

— 10th

—— 50th

Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



year

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

Wind erosion historical monthly area protected (Total Veg Cov >50%)



Water erosion historical monthly area protected (Total Veg Cov>70%)





Production native forests and plantation forests

Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.



Total Vegetation Cover [%]

Land use and forest cover



% Area protected from water erosion (>70%)







Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



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Total Vegetation Cover Anomaly [%]





Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



Total Vegetation Cover Decile [%]





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- 20

- 10

0

-10

-20





Water erosion historical monthly area protected (Total Veg Cov>70%)



Bundaberg_(R) (641,500 ha and no data 1,926 ha) Percentage area and hectares protected with TVC threshold 30,50,70,80,90 and 95%

Land use and forest cover Class	area(ha)	above_30	above_50	above_70	above_80	above_90	above_95
Entire region	641,500	100.0% 641,425	99.7% 639,425	95.4% 611,775	84.8% 543,750	50.0% 320,575	18.1% 115,900
Conservation and natural environments	81,470	99.9% 81,420	99.8% 81,319	98.1% 79,887	93.0% 75,767	76.1% 61,975	37.8% 30,824
Conservation and natural environments Woodland forest	42,339	99.9% 42,314	99.9% 42,289	97.9% 41,441	90.8% 38,451	68.7% 29,081	34.0% 14,403
Conservation and natural environments Forest (non woodland)	34,641	99.9% 34,615	99.9% 34,590	98.8% 34,240	97.4% 33,739	87.7% 30,382	44.5% 15,404
Agriculture	449,691	100.0% 449,691	99.7% 448,197	95.3% 428,472	83.2% 374,060	42.9% 193,056	14.0% 63,167
Grazing	345,127	100.0% 345,127	100.0% 345,027	99.3% 342,558	92.5% 319,288	51.6% 178,224	17.1% 59,084
Grazing non forest	166,790	100.0% 166,790	99.9% 166,690	98.7% 164,591	86.9% 144,904	27.9% 46,569	4.8% 8,044
Grazing Woodland forest	54,527	100.0% 54,527	100.0% 54,527	99.5% 54,228	95.8% 52,262	66.2% 36,086	22.0% 11,995
Grazing - Forest (non woodland)	123,809	100.0% 123,809	100.0% 123,809	99.9% 123,734	98.6% 122,090	77.1% 95,441	31.5% 38,978
Irrigation	89,168	100.0% 89,168	98.5% 87,813	79.8% 71,129	47.0% 41,949	9.5% 8,480	2.2% 1,956
Production native forests and plantation forests	71,206	100.0% 71,206	100.0% 71,181	99.9% 71,156	98.3% 70,006	80.8% 57,505	29.9% 21,301

