Total vegetation cover soil protection Region:LGA Noosa_(S) QLD

Date: November 2023

This report describes vegetation protecting the soil surface from erosion during a chosen month compared to previous years. This report has been generated using MODIS fractional vegetation cover information available in Rangelands and Pasture Productivity (RAPP) map tool https://map.geo-rapp.org/#australia. The report is based on 500 metre pixel data on monthly time steps. Land use forest cover:

Results can be shown for the whole region (polygon), and separated by land use and forest cover classes which are likely to show different cover patterns and targets. Land use is divided into four broad classes: Conservation and natural environments, Agriculture, production native forests and plantation forests (no report), and other (no report). Agriculture is divided into grazing, crops and horticulture which are sub-divided into non-irrigated and irrigated. If forest is present land use is further divided into: non-forest, woodland forest and non-woodland forest. The area of each land use and forest class are shown as a map and chart. The report content is repeated for each land use and forest covers at least 1% of the area of the chosen region. Total vegetation Cover:

The total vegetation cover indicates where soil is likely to be protected from wind and or water hillslope erosion. Total vegetation cover for this month is shown on a map and chart classified into 4 classes.

• 71-100% High cover - protected from wind and usually water erosion (high rainfall, steep slopes, and erodible soils may need greater than 80, 90, 95 and up to 100% cover)

- 51-70% Moderate cover protected from wind erosion
- 31-50% Low cover not protected
- 0-30% Very Low cover not protected

Erosion protection: Wind erosion 50% total vegetation cover

The vegetation cover threshold required to prevent soil erosion is usually 50% to reduce wind erosion, 70% or 80% to reduce water (hillslope) erosion depending on the steepness and rainfall. Areas protected from erosion for the month:

- Map: water erosion protection (>70% cover) percentage area and hectares.
- Map: wind erosion protection (>50% cover) percentage area and hectares. Comparison with previous years:
 - Map: anomaly comparing this month to the average cover from the same month in previous years.
 - Map: deciles rank of month against the same month in previous years.

Anomalies and deciles until September 2019 are calculated comparing to the same months 2001 to 2019. Extra monthly data will be used to calculate anomalies and deciles post September 2019 as they become available. Time series monthly from January 2001 to current:

Erosion protection

- Wind erosion protection time series: percentage of the area of the region with greater than 50% cover for each month (orange lines). Horizontal lines are 10th (cover target) and 50th percentiles.
- Water erosion protection time series: percentage of the area of the region with greater than 70% cover for each month (blue line). Horizontal lines are 10th (cover target) and 50th percentiles.

Rainfall

• Millimetres rainfall each month (black line).

Each time series is also stacked by year. The black line shows the current year of data. Water erosion protection for higher rainfall and steeper slopes:

Water erosion protection on higher slopes. As slope increases, more cover is required to control water erosion. The thresholds reported are:

- the percentage area with pixels greater than 80% total cover.
- the percentage area with pixels greater than 90% total cover.
- the percentage area with pixels greater than 95% total cover.

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 Nov 2023

Land use and forest cover

Proportion of each land class in area



12º10-200°1

· 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%)



Total Vegetation Cover Anomaly [%]

20

- 10

0

-10

-20



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 [%]





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

of Australia (2018)

(2018) and Forests

of Australia (2018)

Derived from

Use of Australia

Land Use and Forests

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Conservation and natural environments

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

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is only for the month of the map



Total Vegetation Cover [%]



% Area protected from water erosion (>70%)





Proportion of each land class in area



Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



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 [%]







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%)



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



Conservation and natural environments non forest

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

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using baseline

from 2001 to 2019.

is, red pixels



12010-2001

52%70%

32%50

0.30%

Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



protected

region (67

protected 98.0% of

(3,283 ha)

region

2.0% of

ha)

Area

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.

8



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



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

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

In

Australian Government

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



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





Conservation and natural environments Woodland forest

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12010-2001

52%70%

3290500

0.30%

Total Vegetation Cover [%]







Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



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 [%]







---- above_70

2023 Nov

— 10th

—— 50th



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

100 99 98 97 96 95 4eb Jan In May PQ Mai month tern Ecosystem Research Infrastructure Australian Government

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



100 95 area of the 90 % 85 80 Proportion of the area protected from water erosion (Total Vegetation Cover > 90%) 90)8 -00 % of the % 50 40 Proportion of the area protected from water erosion (Total Vegetation Cover > 95%) 70-60 05 vof the area 05 05 % 20 10

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





Conservation and natural environments Forest (non woodland)

Land use and forest cover

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



12/0/0 52%70 3210 0.30%

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]





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

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



100.0 99.5 99.0 ---- above_70 **—** 10th 98.5 **——** 50th 98.0 97.5 97.0 96.5 96.0lar 4eb In way Mai 1¹₁ Þb, month tern Ecosystem Research Infrastructure Australian Government

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

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







Agriculture

12%-2005

· 52% 70%

320050

0.30%

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Total Vegetation Cover [%]



% Area protected from water erosion (>70%)





Proportion of each land class in area

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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1**2**



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

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







Grazing

12%-100

· 52% 70%

320050

0.30%

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Total Vegetation Cover [%]



% Area protected from water erosion (>70%)





Proportion of each land class in area

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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Total Vegetation Cover Decile [%]







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

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



Grazing timeseries

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



Grazing non forest

12%-100

52% 70%

320050

· 0.30%

Land use and forest cover



Total Vegetation Cover [%]







Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover Anomaly [%]



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Grazing non forest timeseries

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

2**3**





Grazing Woodland forest

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%)



Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover Anomaly [%]



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Total Vegetation Cover Decile [%]







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Grazing Woodland forest timeseries





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

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







Grazing - Forest (non woodland)

12%-100

52%70%

329050

0.30%

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Total Vegetation Cover [%]

Land use and forest cover



% Area protected from water erosion (>70%)







% Area protected from wind erosion (>50%)



Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]





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Grazing - Forest (non woodland) timeseries

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



Irrigation

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Land use and forest cover



Total Vegetation Cover [%]





% Area protected from water erosion (>70%)





Proportion of each land class in area

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



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



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



Historical monthly area protected (Total Veg Cov>80%)





Production native forests and plantation forests

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) I Production native forests and plantation forests

12%-200

52%70%

320050

0.30%

Total Vegetation Cover [%]

Land use and forest cover











% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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Total Vegetation Cover Decile [%]





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



Noosa_(S) (81,600 ha and no data 5,402 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	81,600	99.8% 81,475	99.4% 81,100	96.7% 78,875	92.1% 75,150	73.4% 59,925	38.2% 31,150
Conservation and natural environments	29,225	99.8% 29,175	99.6% 29,100	98.4% 28,750	96.0% 28,050	83.7% 24,450	51.7% 15,100
Conservation and natural environments non forest	3,350	99.3% 3,325	98.5% 3,300	95.5% 3,200	92.5% 3,100	80.6% 2,700	46.3% 1,550
Conservation and natural environments Woodland forest Conservation and	2,700	99.1% 2,675	99.1% 2,675	96.3% 2,600	95.4% 2,575	77.8% 2,100	37.0% 1,000
natural environments Forest (non woodland)	23,175	100.0% 23,175	99.8% 23,125	99.0% 22,950	96.5% 22,375	84.8% 19,650	54.2% 12,550
Agriculture	21,100	100.0% 21,100	99.9% 21,075	98.6% 20,800	95.0% 20,050	72.0% 15,200	32.6% 6,875
Grazing	19,075	100.0% 19,075	99.9% 19,050	99.2% 18,925	97.0% 18,500	74.8% 14,275	34.9% 6,650
Grazing non forest	15,925	100.0% 15,925	100.0% 15,925	99.2% 15,800	96.5% 15,375	73.0% 11,625	32.8% 5,225
Grazing Woodland forest	2,100	100.0% 2,100	98.8% 2,075	98.8% 2,075	98.8% 2,075	84.5% 1,775	44.0% 925
Grazing - Forest (non woodland)	1,050	100.0% 1,050	100.0% 1,050	100.0% 1,050	100.0% 1,050	83.3% 875	47.6% 500
Irrigation	1,975	100.0% 1,975	100.0% 1,975	92.4% 1,825	75.9% 1,500	44.3% 875	8.9% 175
Production native forests and plantation forests	7,550	100.0% 7,550	99.7% 7,525	98.3% 7,425	97.4% 7,350	92.4% 6,975	52.0% 3,925

