Total vegetation cover soil protection Region:LGA Whitsunday_(R) QLD

Date: August 2024

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

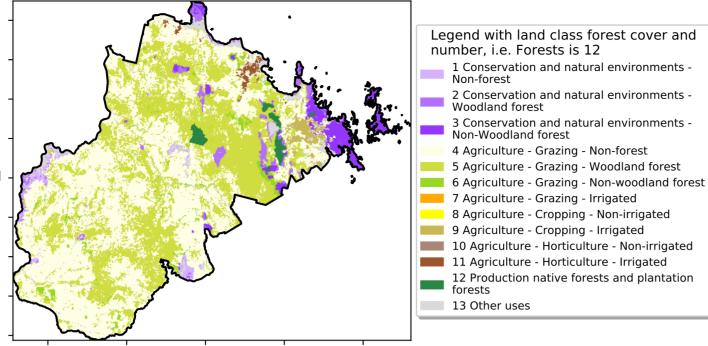


Vegetation Cover Aug 2024

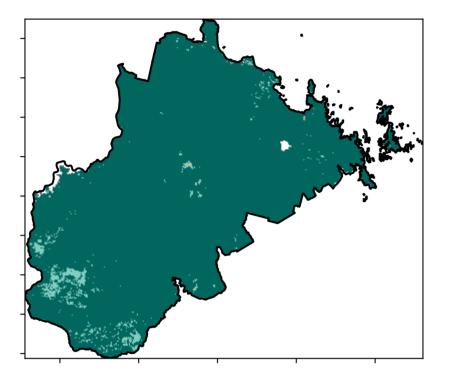
Land use and forest cover

Proportion of each land class in area



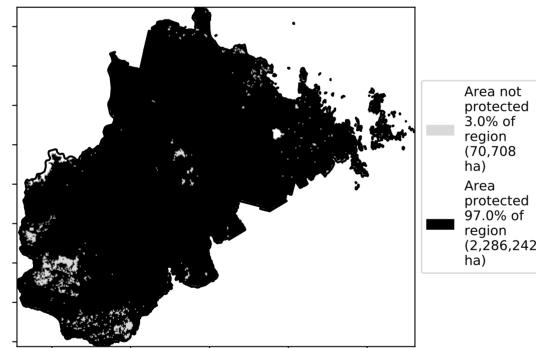


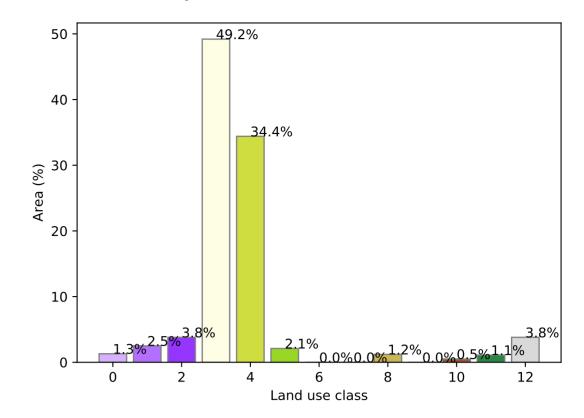
Total Vegetation Cover [%]



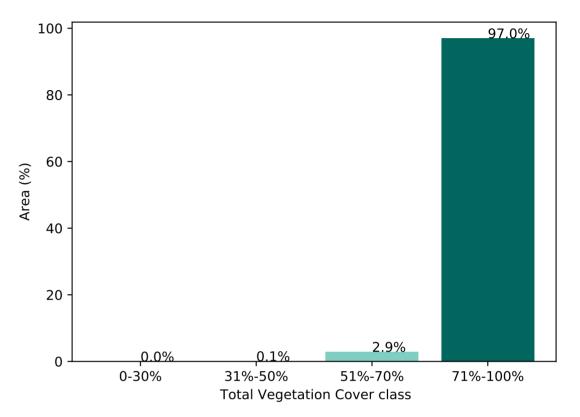
% Area protected from water erosion (>70%)

Total Vegetation Cover Anomaly [%]

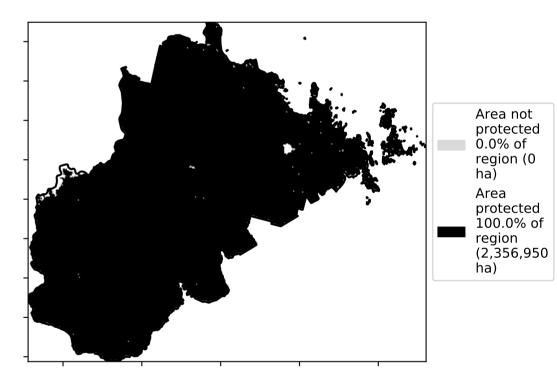




Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



(2,286,242

· 20

10

0

-10

-20

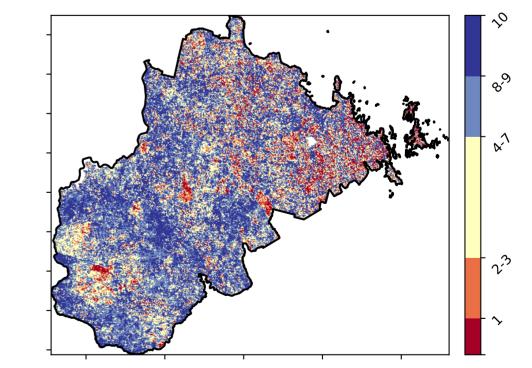
12%100%

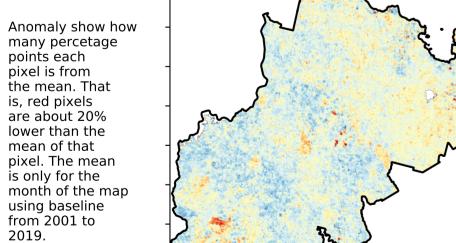
52% 70%

32%50%

0.30%

Total Vegetation Cover Decile [%]





2019.

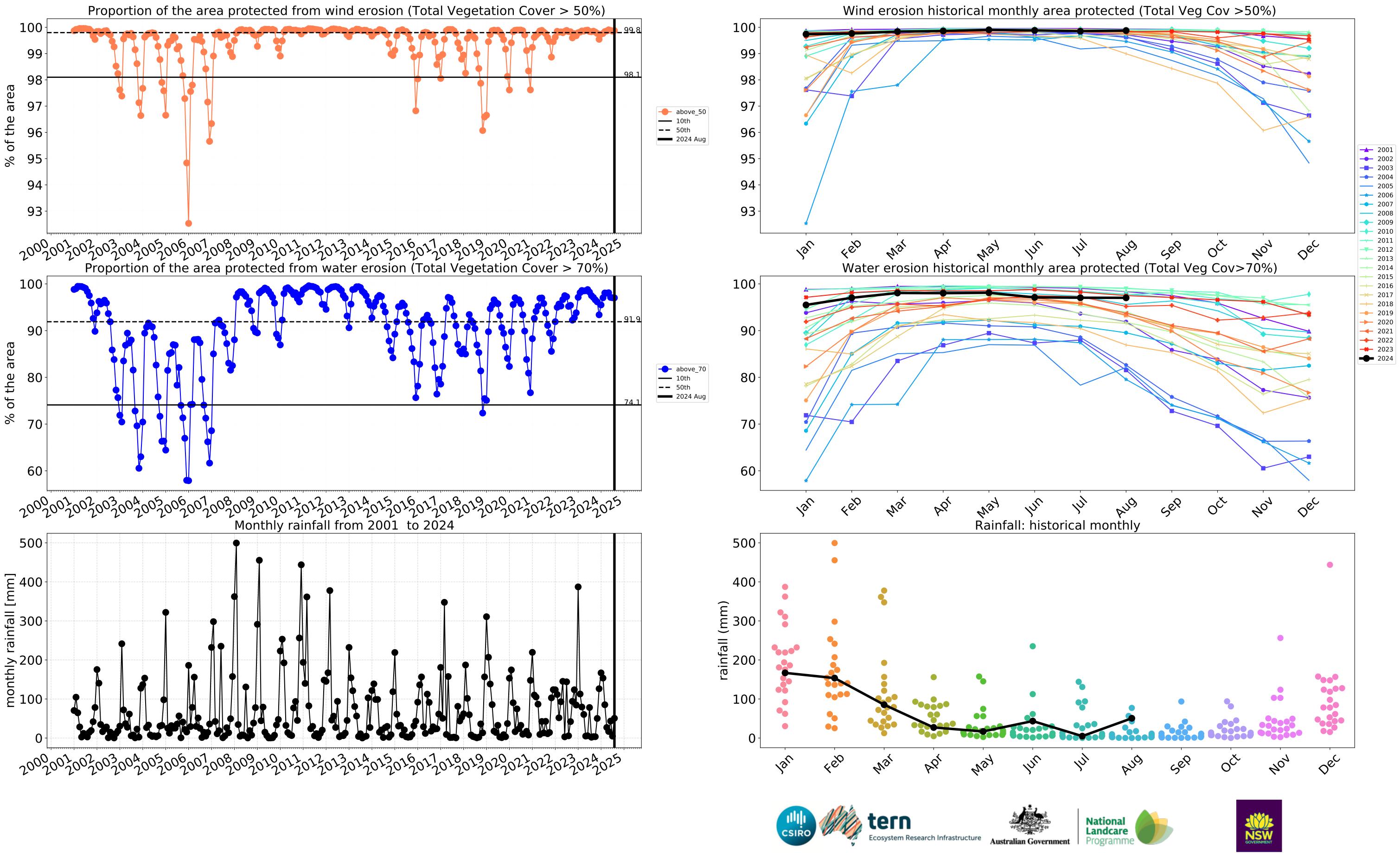
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.





National Landcare

Programme



Conservation and natural environments

forest

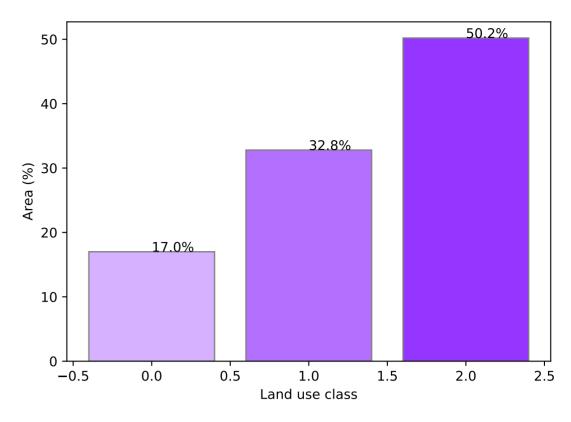
forest

woodland forest

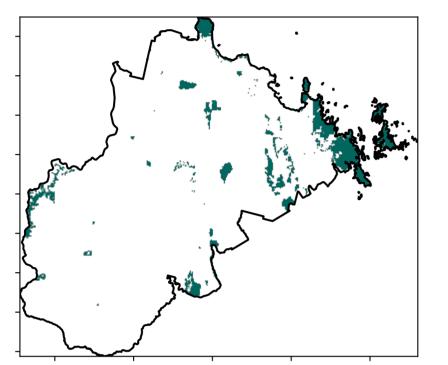
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Land use and forest cover

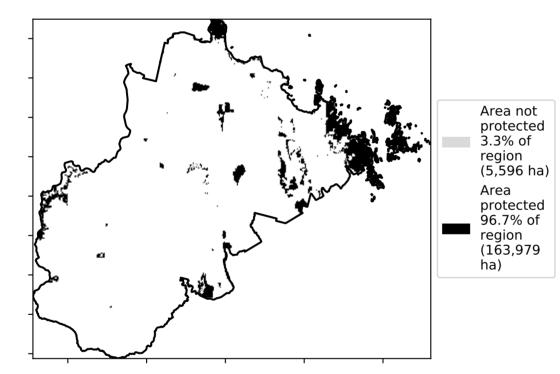
Proportion of each land class in area

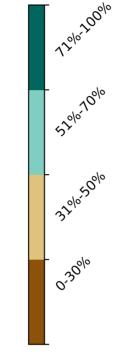


Total Vegetation Cover [%]



% Area protected from water erosion (>70%)





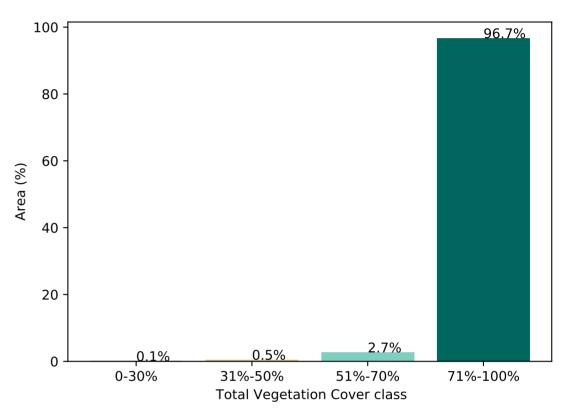
1 Conservation and natural environments - Non-

3 Conservation and natural environments - Non-

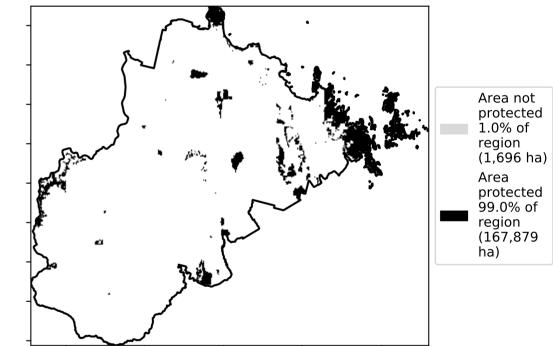
2 Conservation and natural environments - Woodland



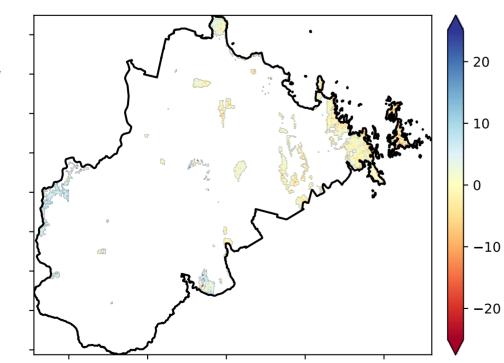
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

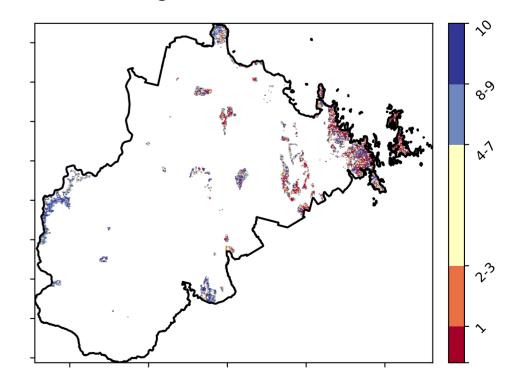


Total Vegetation Cover Anomaly [%]



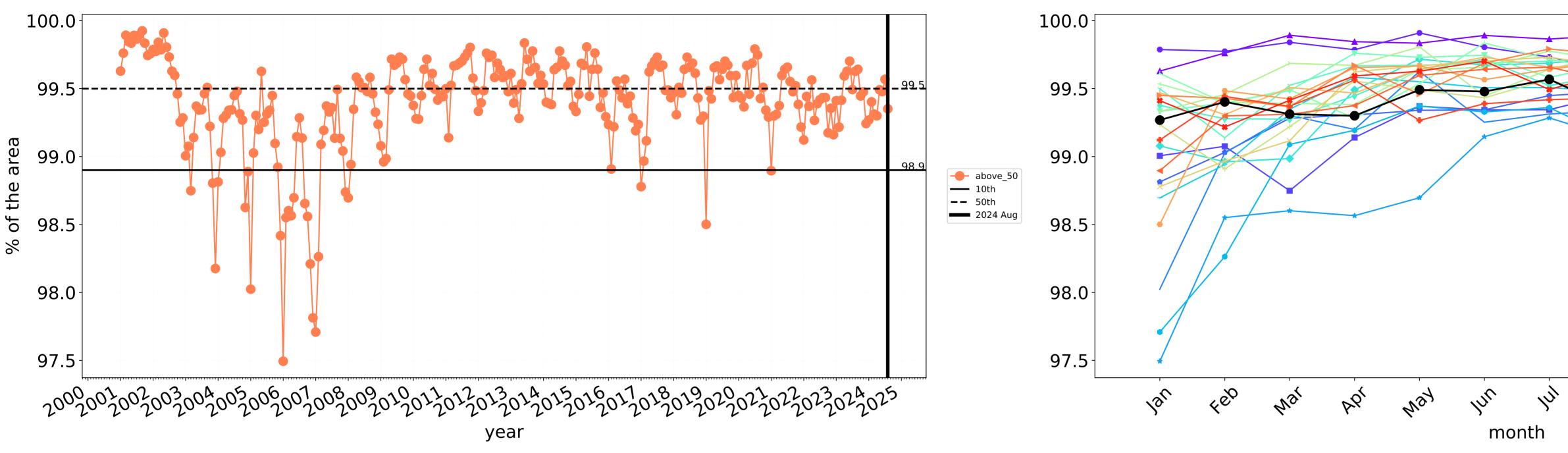
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]



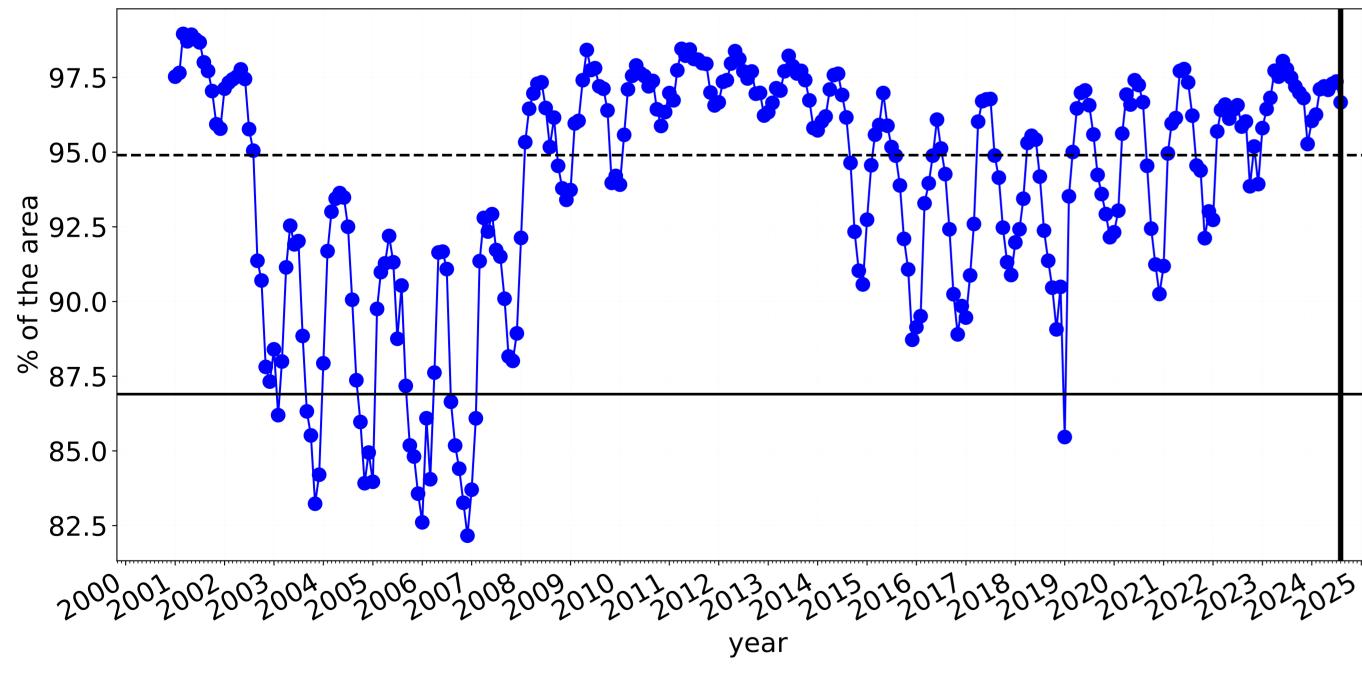


2



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



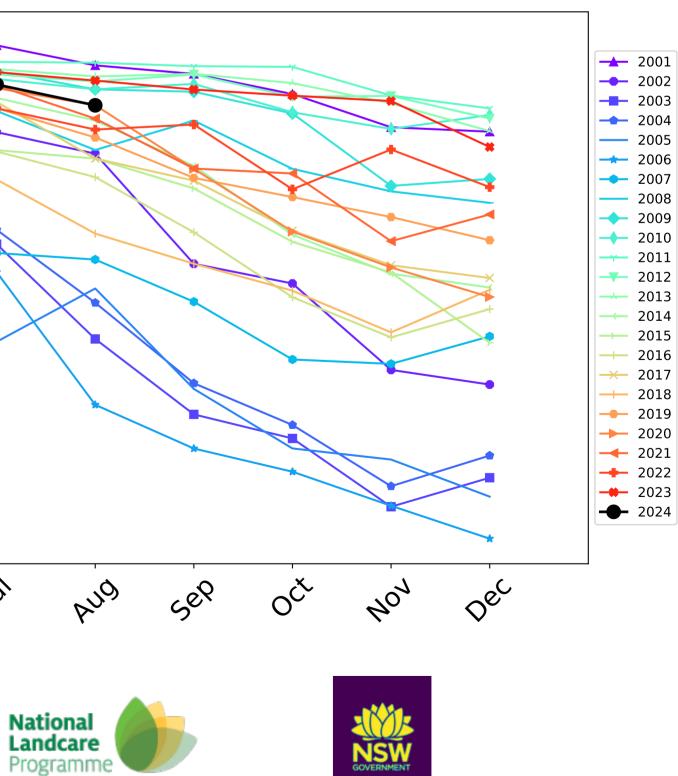


97.5 95.0 ---- above_70 **—** 10th 92.5⁻ **——** 50th **——** 2024 Aug 90.0 87.5 26 85.0-82.5 Jan 4eb way Mai PP Jur 1 1/2/ month tern Ecosystem Research Infrastructure Programme Australian Government

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

— 2001 --- 2002 **---** 2004 ____ 2005 **→** 2006 **---** 2007 ____ 2008 **→** 2010 ____ 2011 2013 --- 2014 **→** 2015 - 2016 ~~ 2017 ---- 2018 ---- 2019 --- 2020 **---** 2021 **----** 2022 **----** 2023 ---- 2024 401 AUG OC Ser Dec

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



Conservation and natural environments non forest

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) 1 Conservation and natural environments - Nonforest

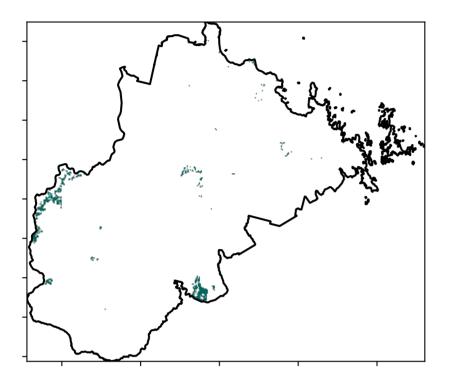
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52°1070°10

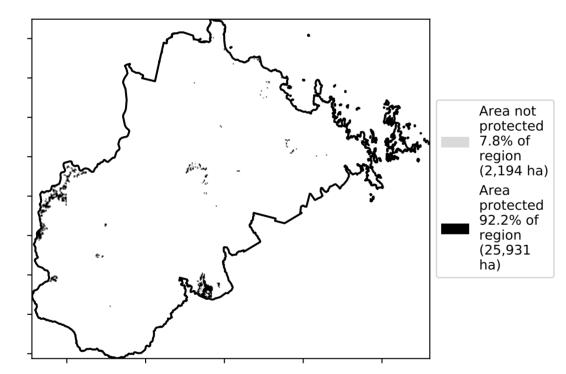
320050010

0.30%

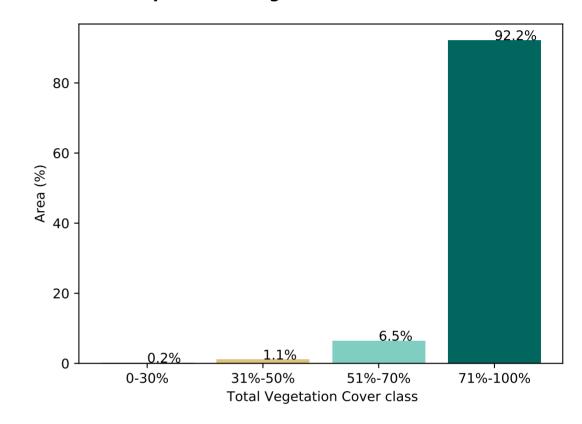
Total Vegetation Cover [%]



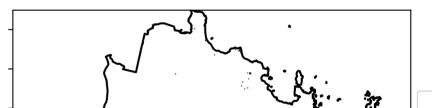
% Area protected from water erosion (>70%)



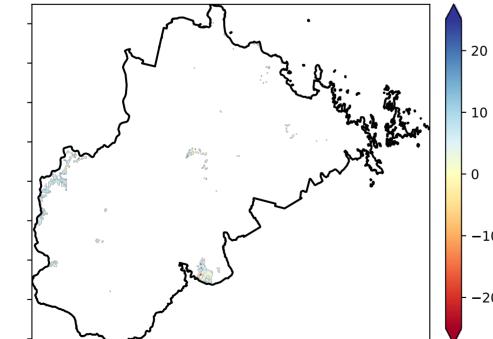
Proportion of vegetation cover class in area



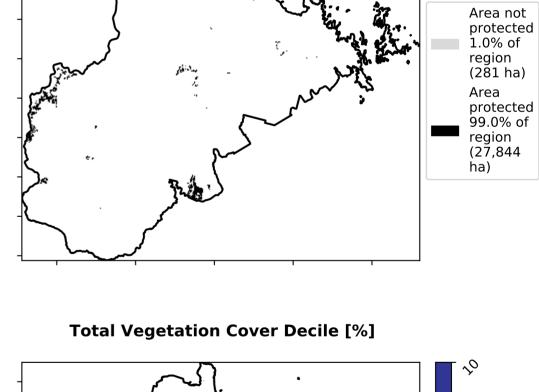
% Area protected from wind erosion (>50%)

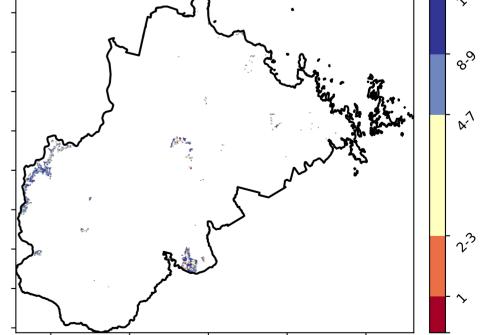


Total Vegetation Cover Anomaly [%]



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.





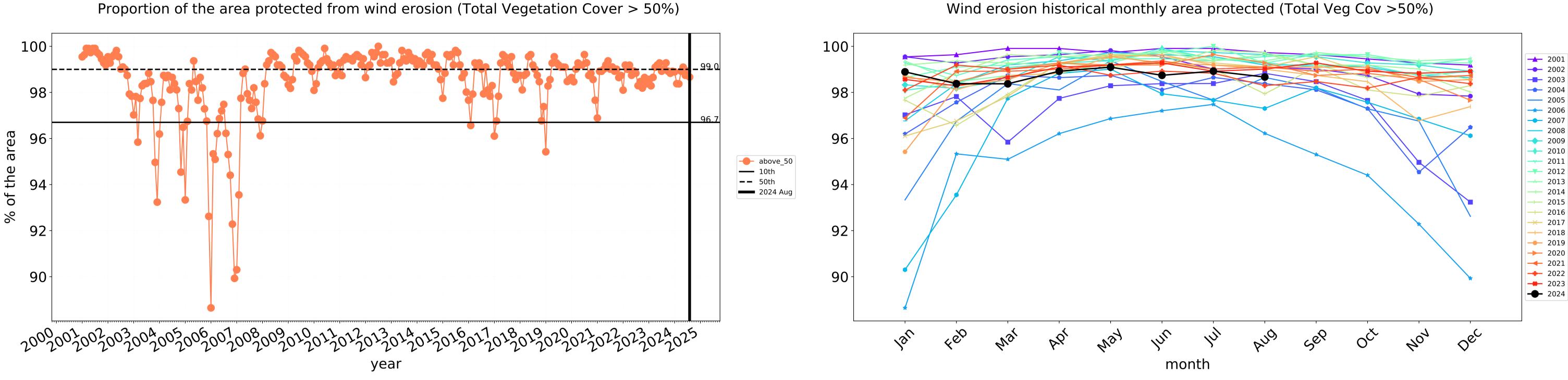


-10

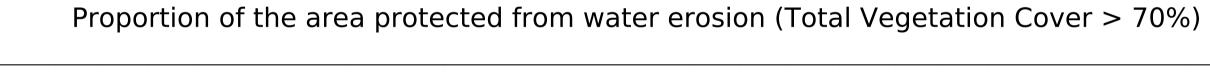
-20

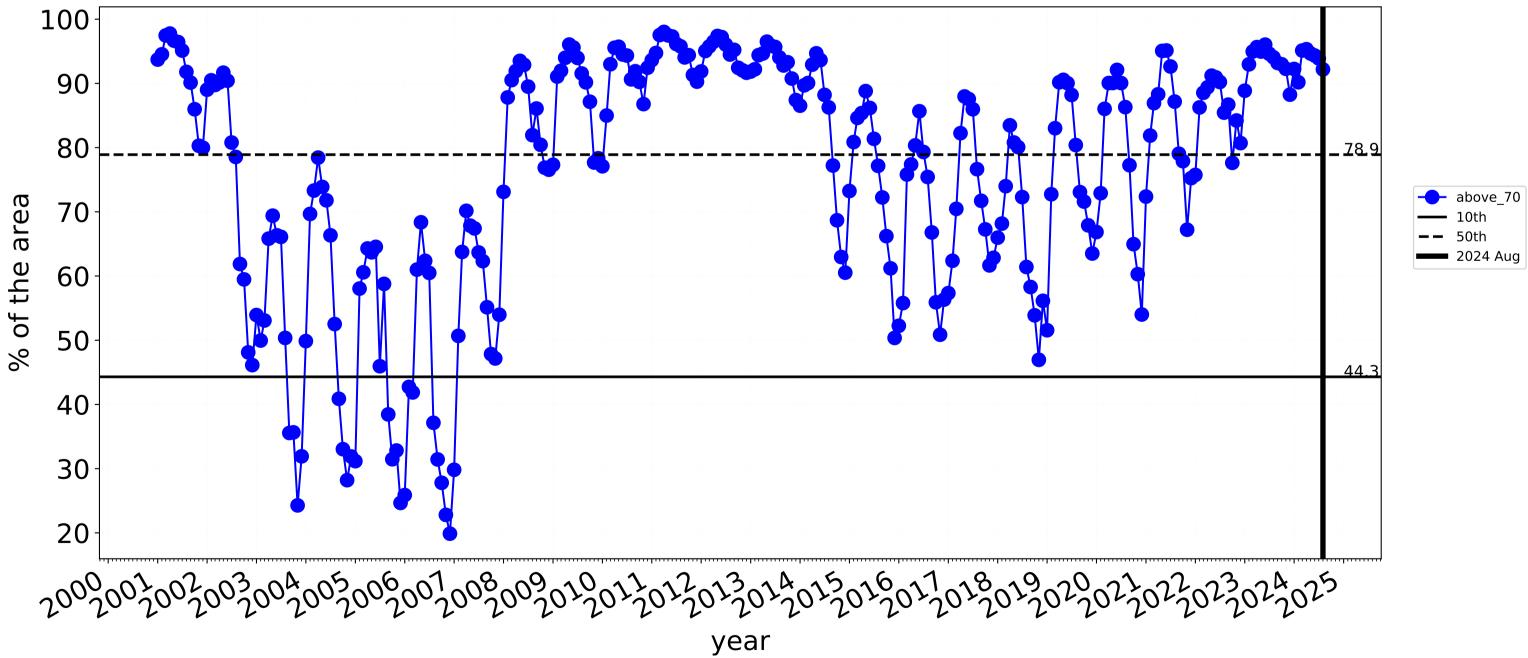


Conservation and natural environments non forest timeseries

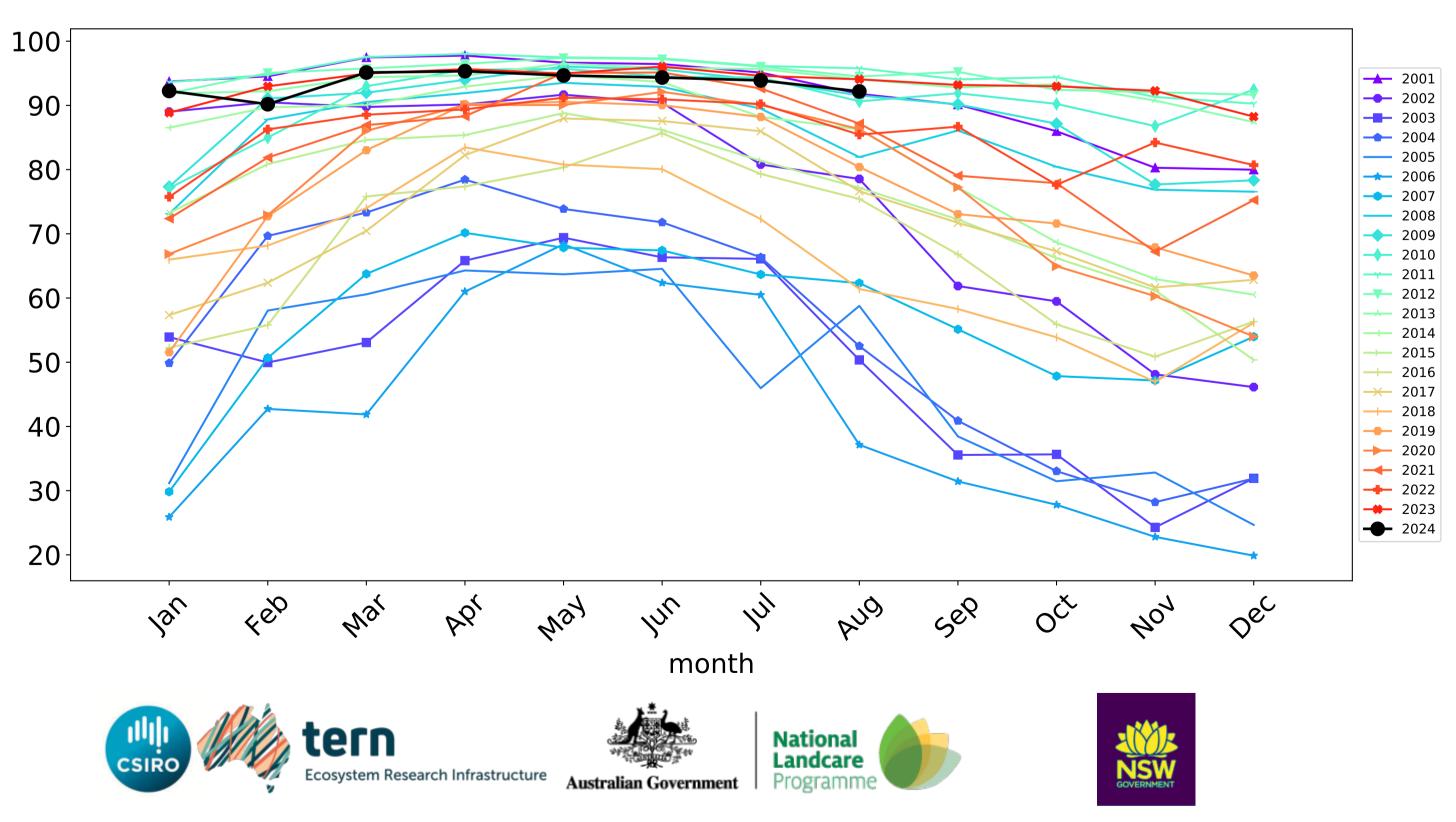


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

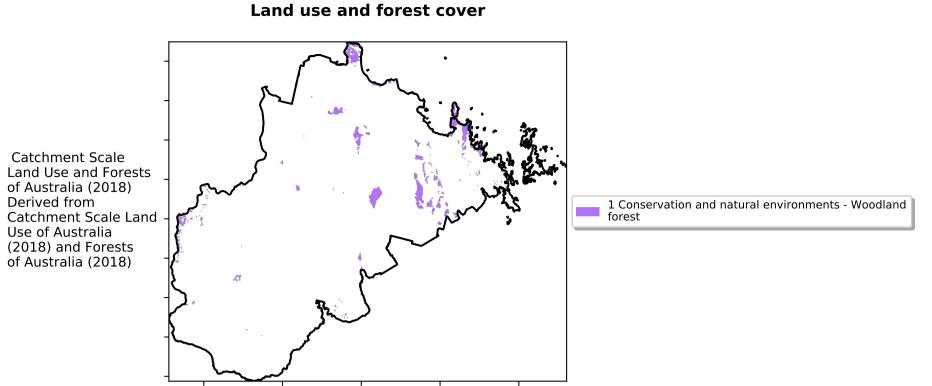




Water erosion historical monthly area protected (Total Veg Cov>70%)



Conservation and natural environments Woodland forest



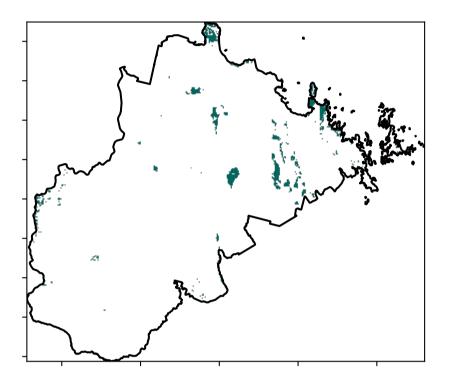
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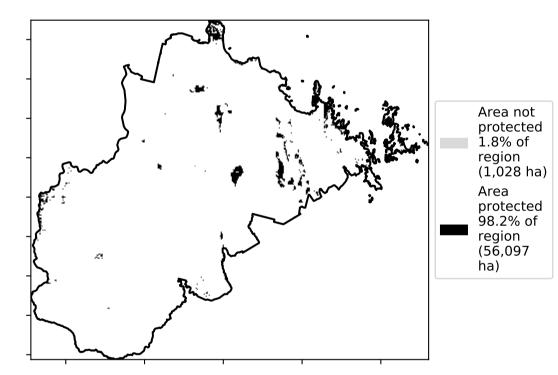
3201050010

0.30%

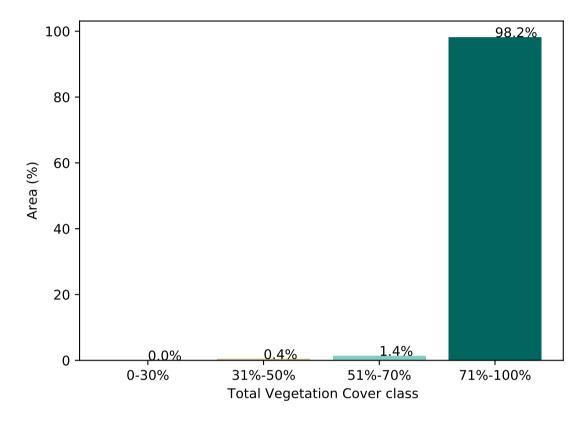
Total Vegetation Cover [%]



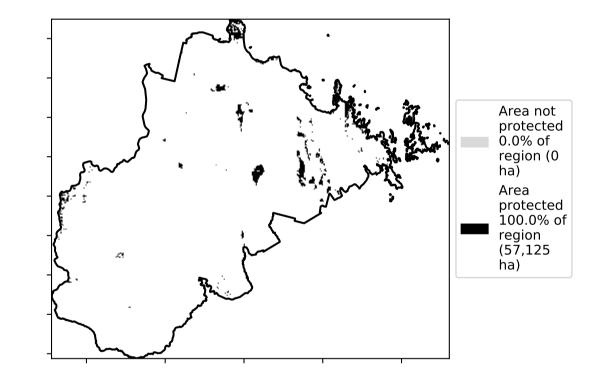
% Area protected from water erosion (>70%)



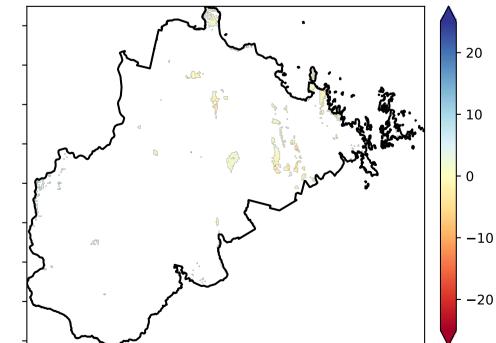
Proportion of vegetation cover class in area



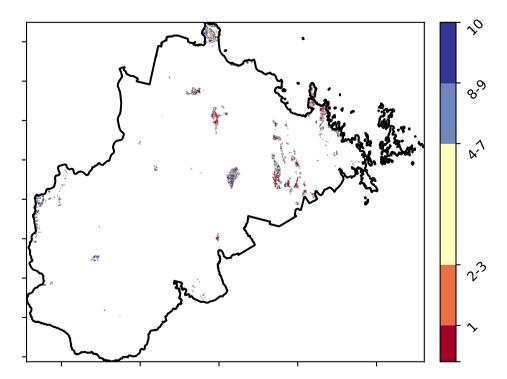
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

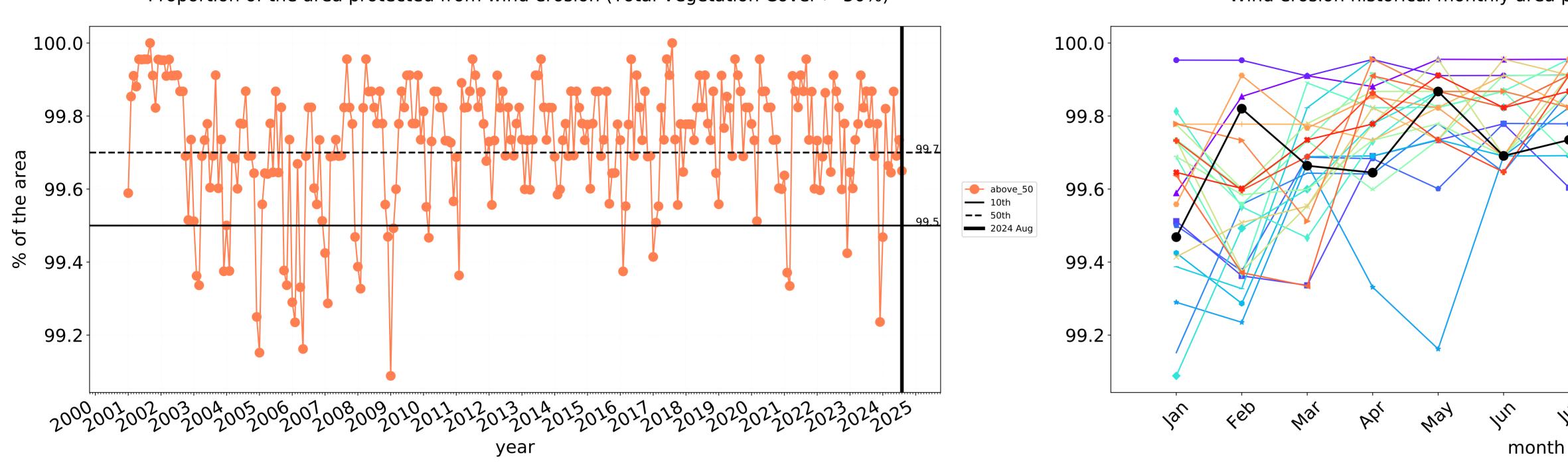


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]**

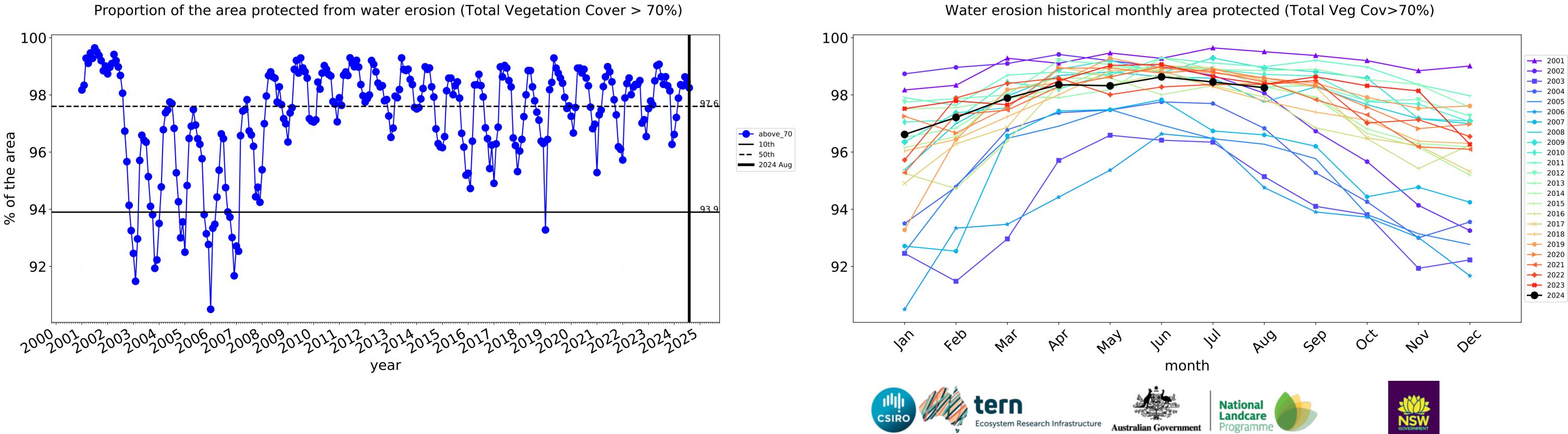




8

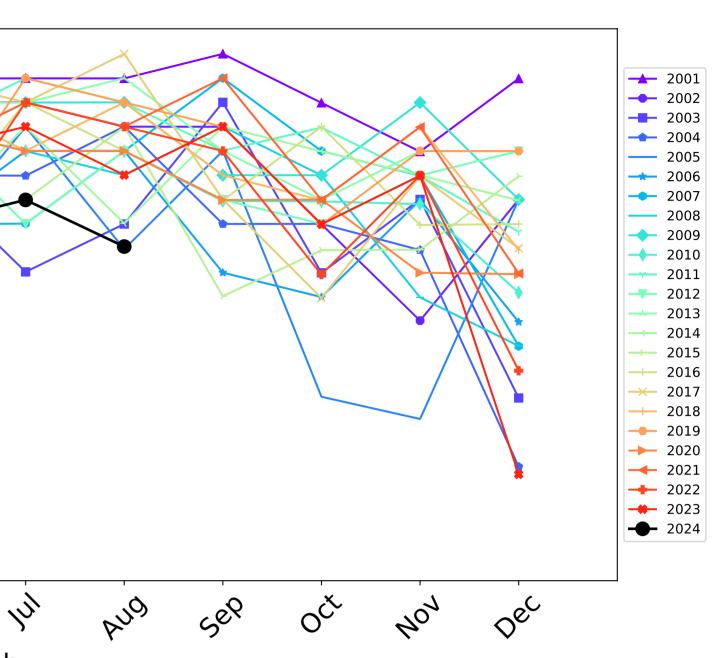


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

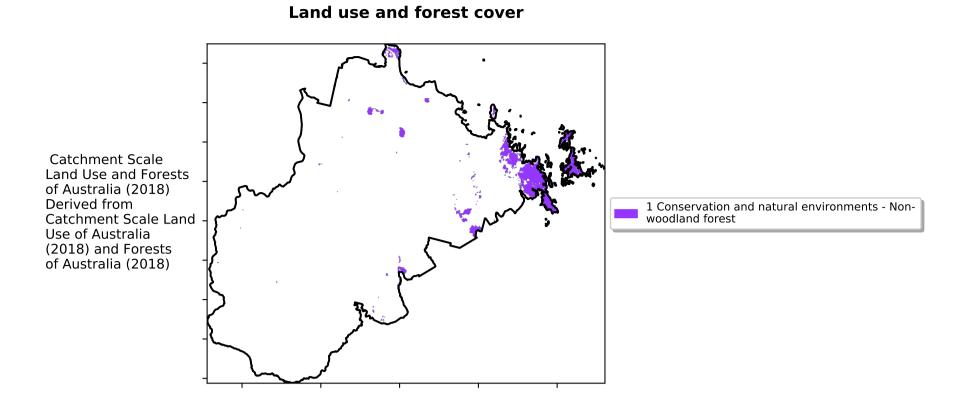


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

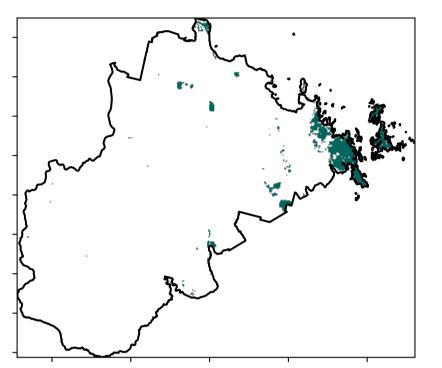
Wind erosion historical monthly area protected (Total Veg Cov >50%)



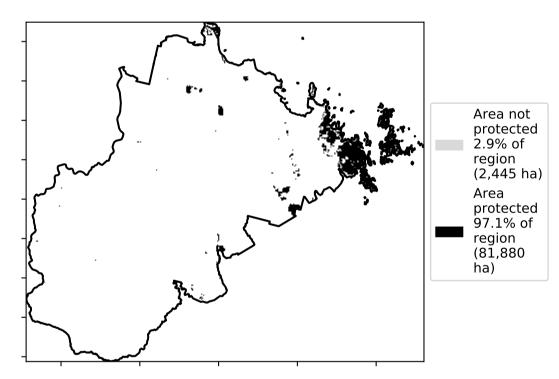
Conservation and natural environments Forest (non woodland)

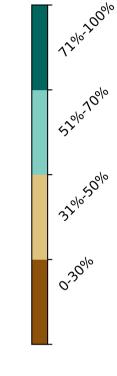


Total Vegetation Cover [%]

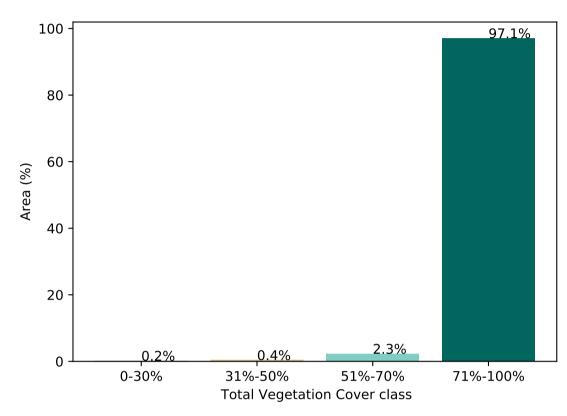


% Area protected from water erosion (>70%)

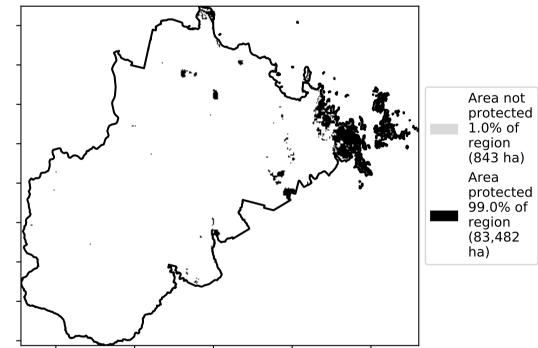




Proportion of vegetation cover class in area

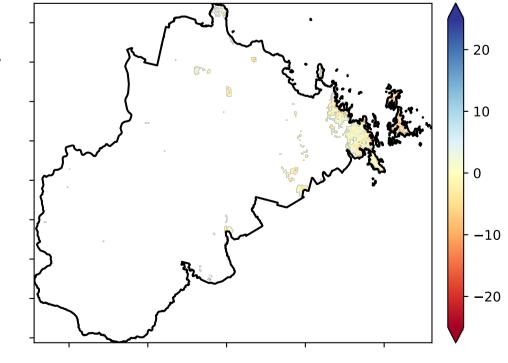


% Area protected from wind erosion (>50%)



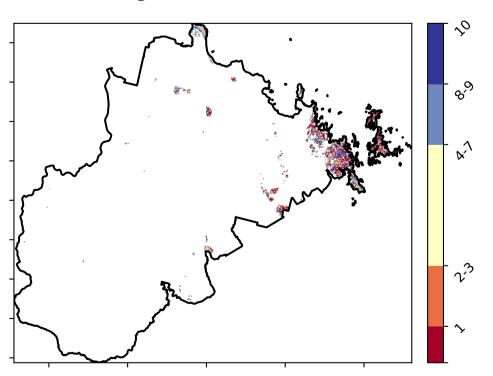
Total Vegetation Cover Anomaly [%]

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.

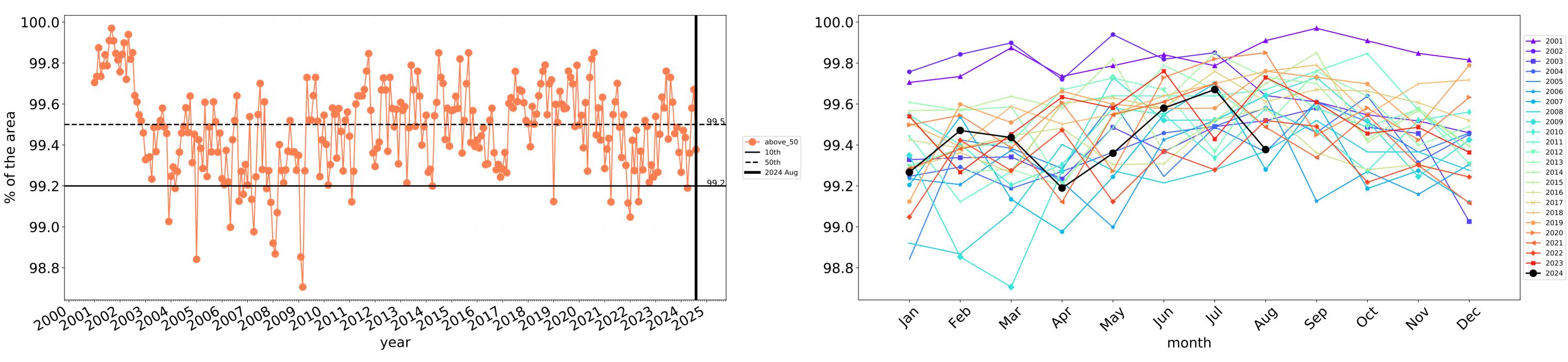


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]

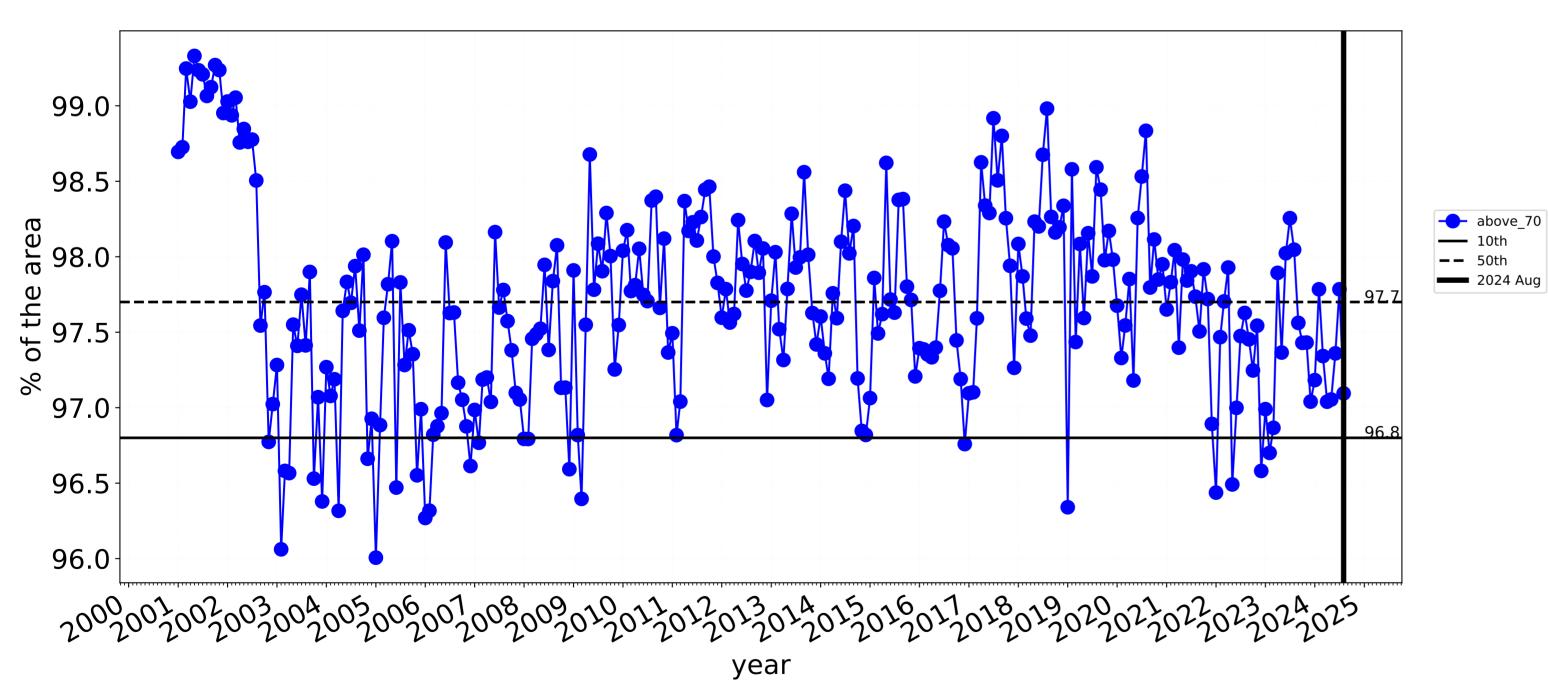


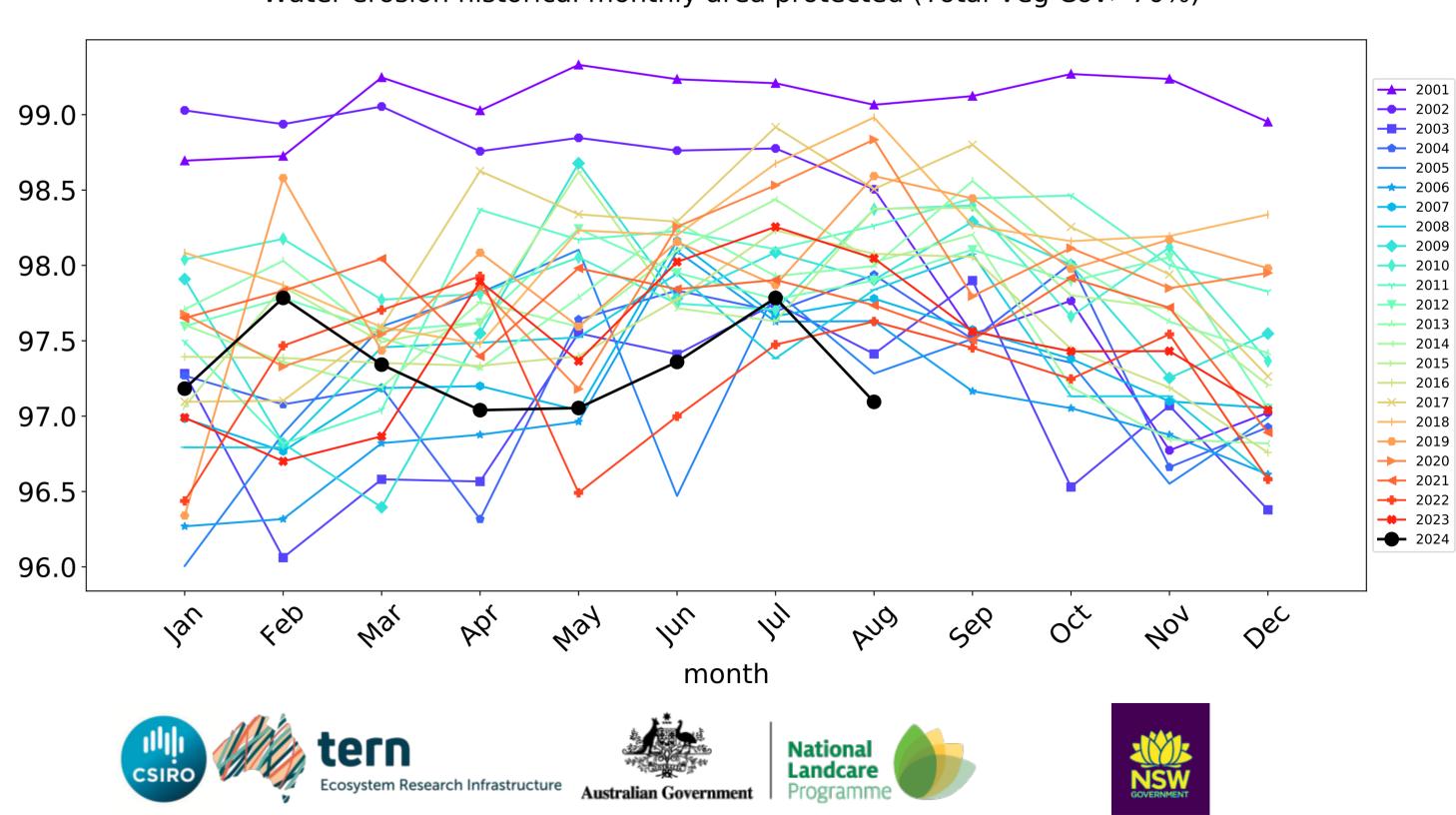




Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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%)

Agriculture

Land use and forest cover



<u>56.</u>2%

<u>39.</u>3%

50

40

Area (%) 00.

20 -

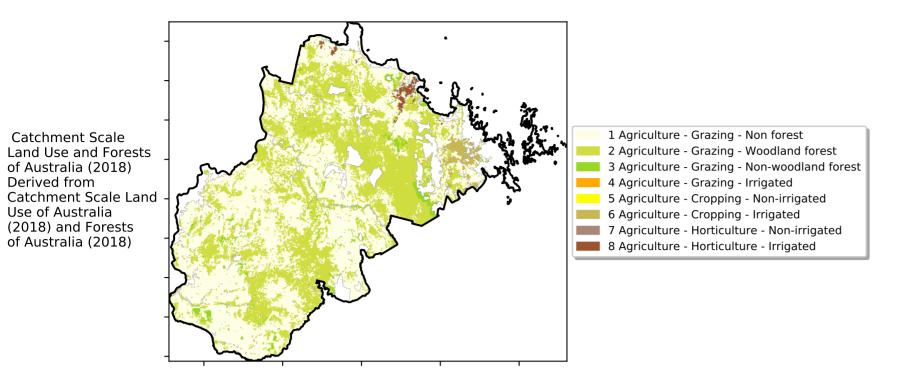
10

0

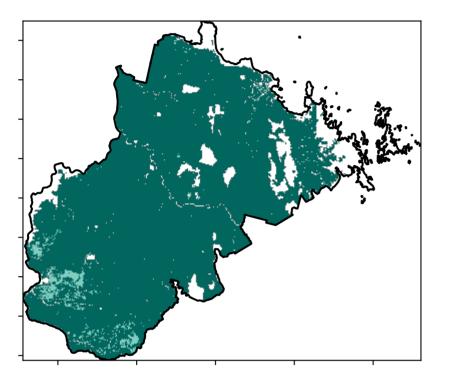
0

1

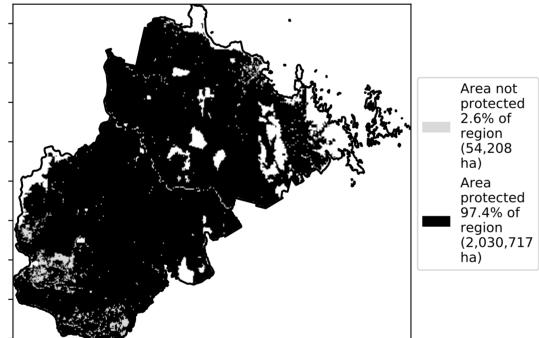
2

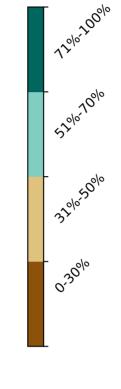


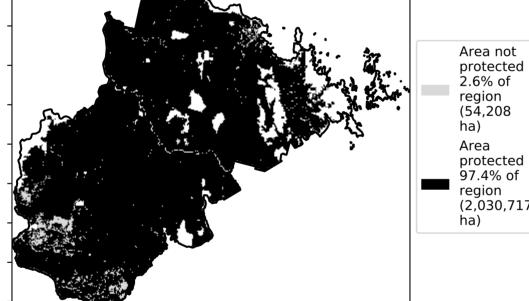
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



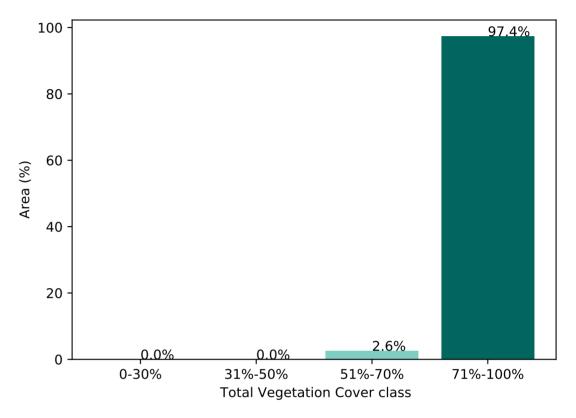




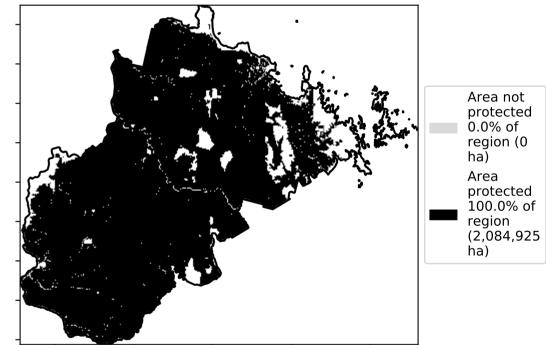


Land use class

3

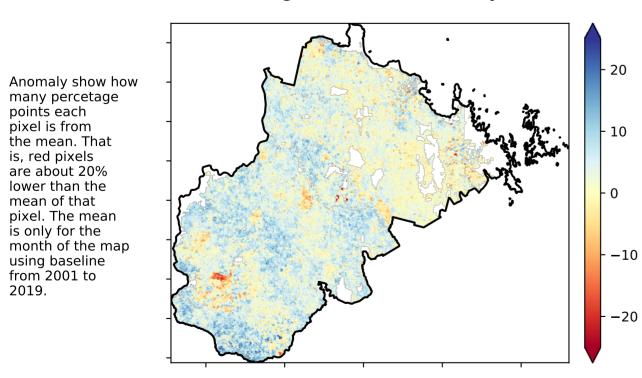


% Area protected from wind erosion (>50%)



<u>0.6</u>%

Total Vegetation Cover Anomaly [%]



is, red pixels are about 20% lower than the

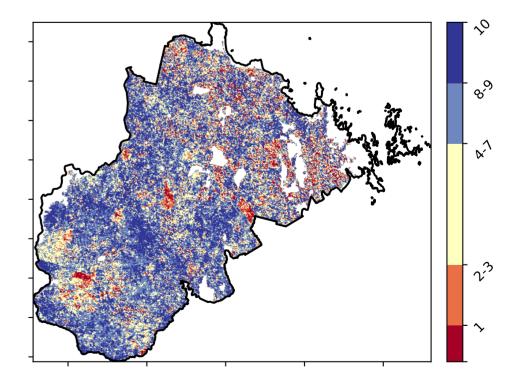
mean of that

pixel. The mean

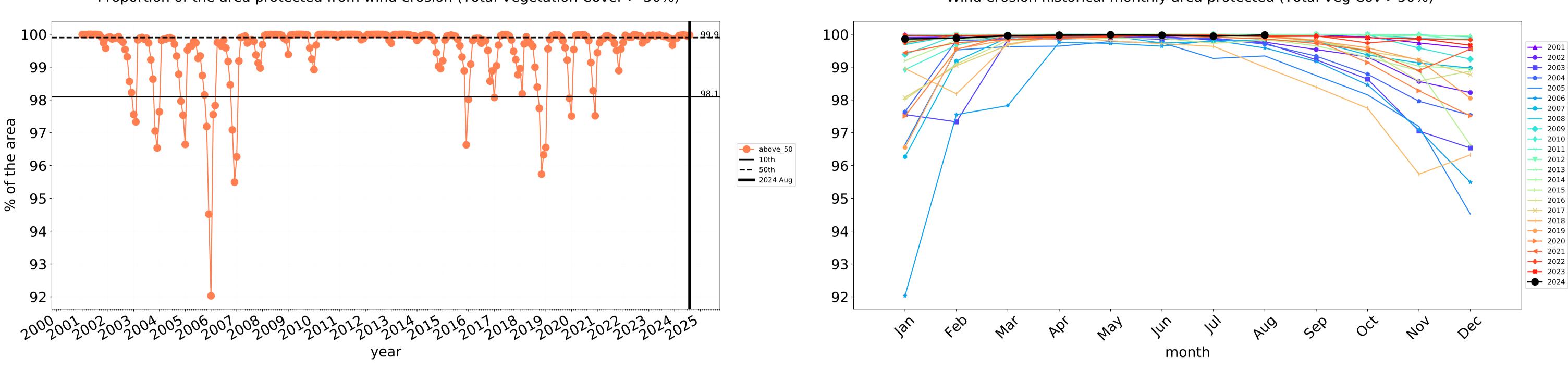
from 2001 to 2019.

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 [%]

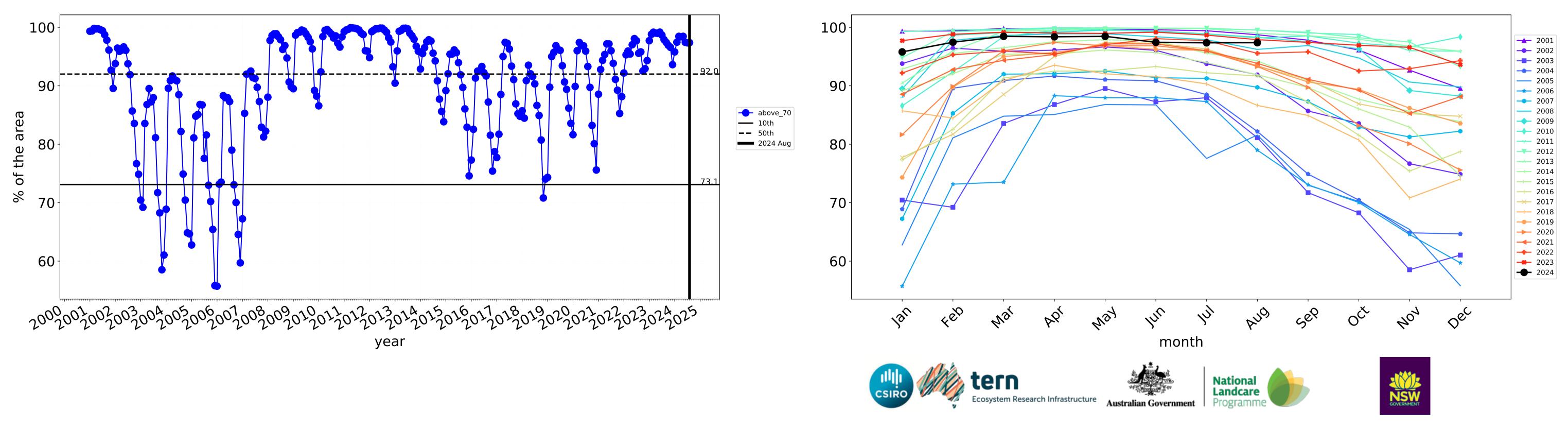






Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)





Agriculture timeseries

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

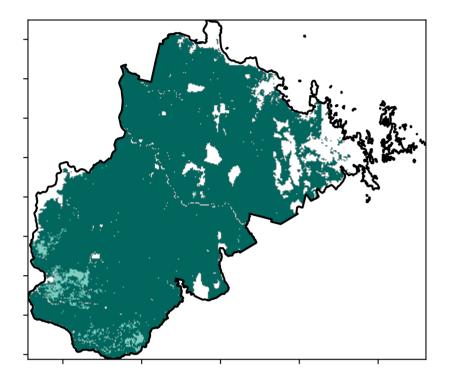
Water erosion historical monthly area protected (Total Veg Cov>70%)

Grazing

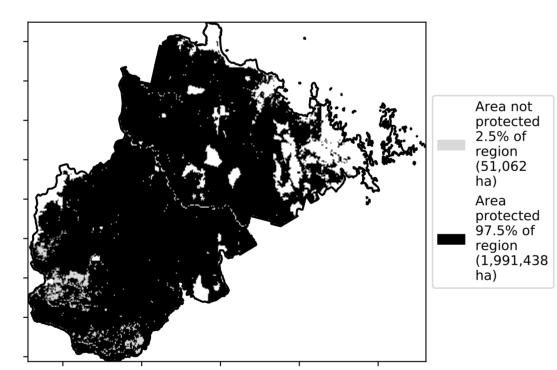
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest Use of Australia (2018) and Forests of Australia (2018)

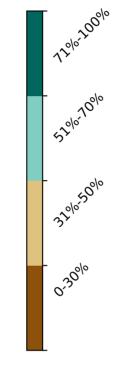
Land use and forest cover

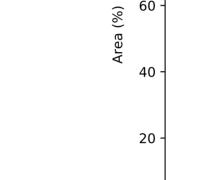
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

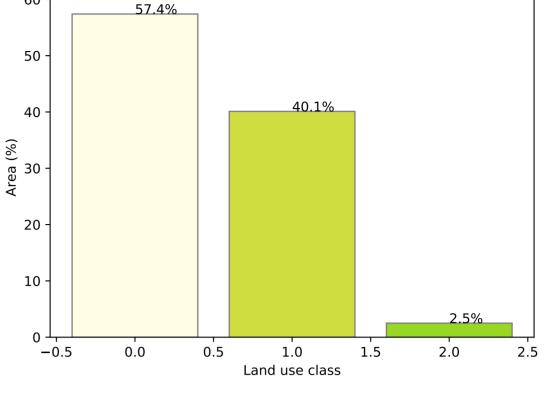




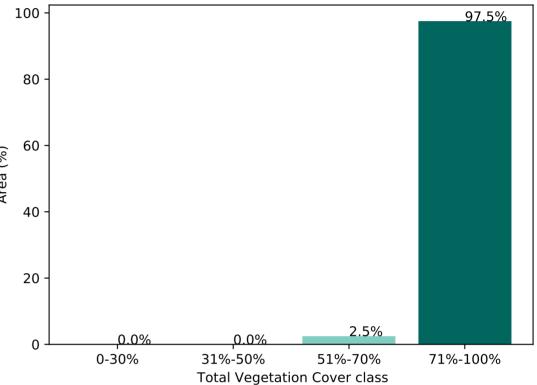


60 ·

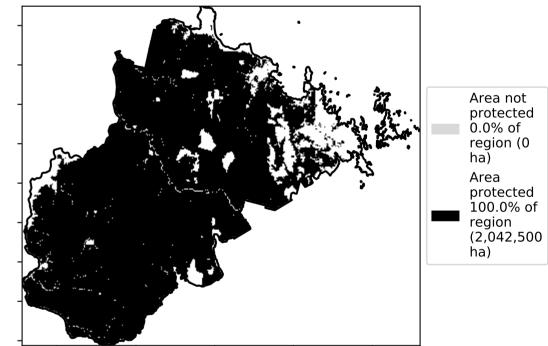
Proportion of each land class in area



Proportion of vegetation cover class in area

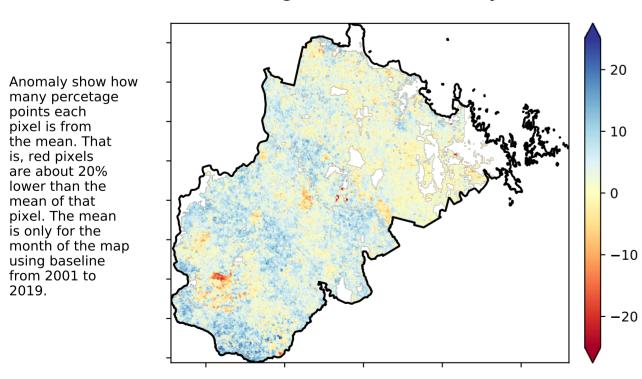


% Area protected from wind erosion (>50%)





Total Vegetation Cover Anomaly [%]



is, red pixels are about 20% lower than the

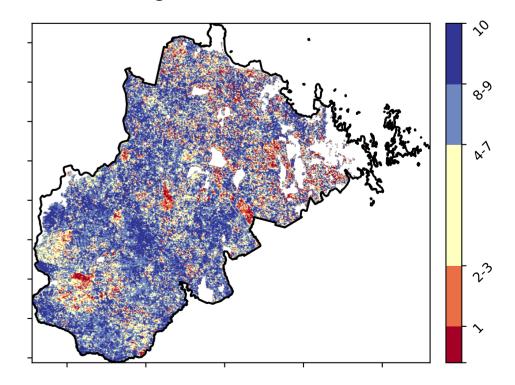
mean of that pixel. The mean

from 2001 to 2019.

is only for the month of the map

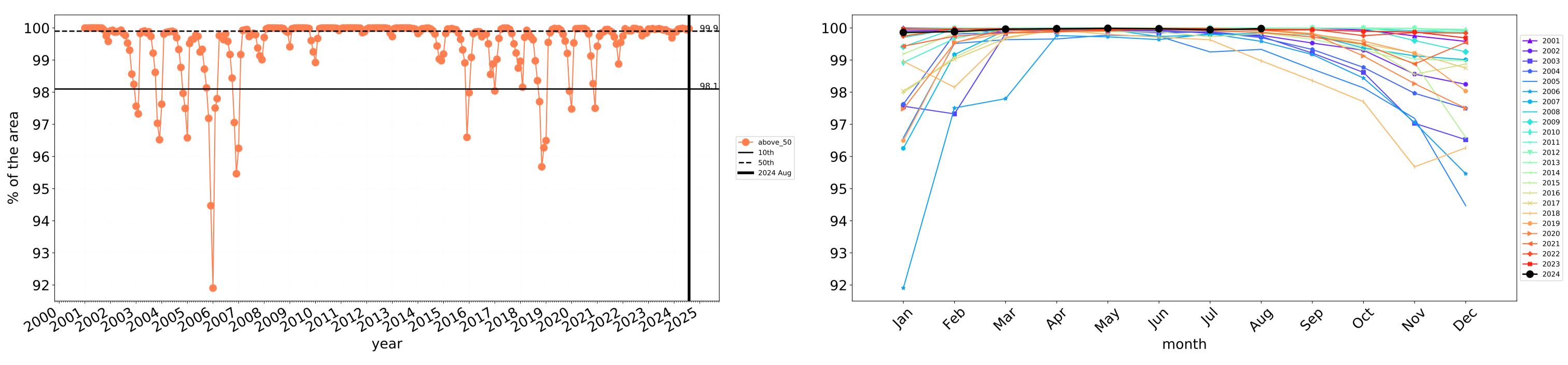
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]



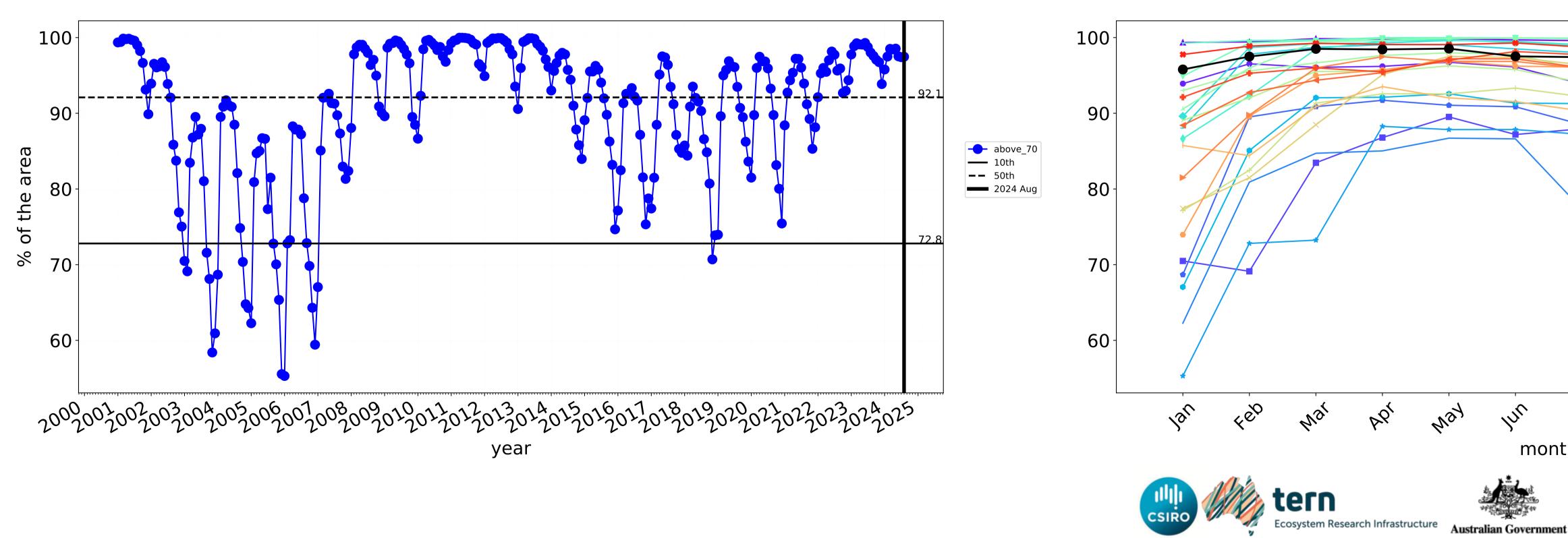


124



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





Grazing timeseries



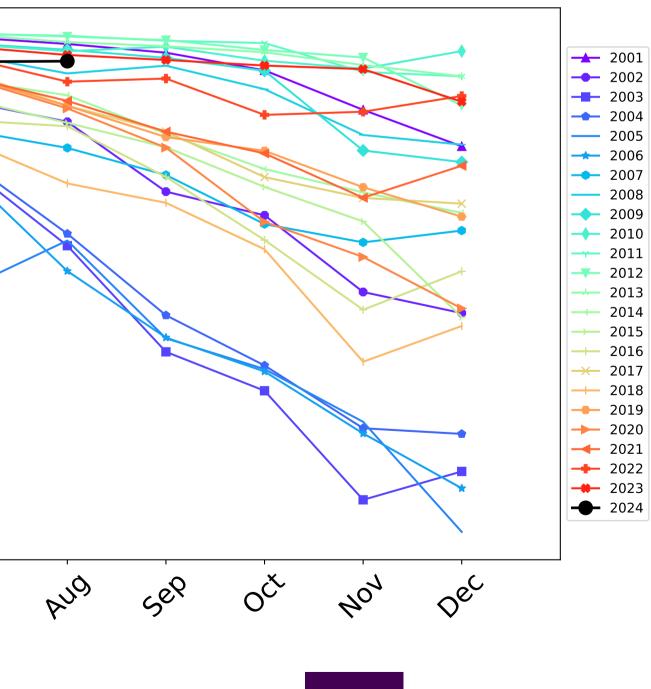
Wind erosion historical monthly area protected (Total Veg Cov >50%)

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

In

1 ju

month







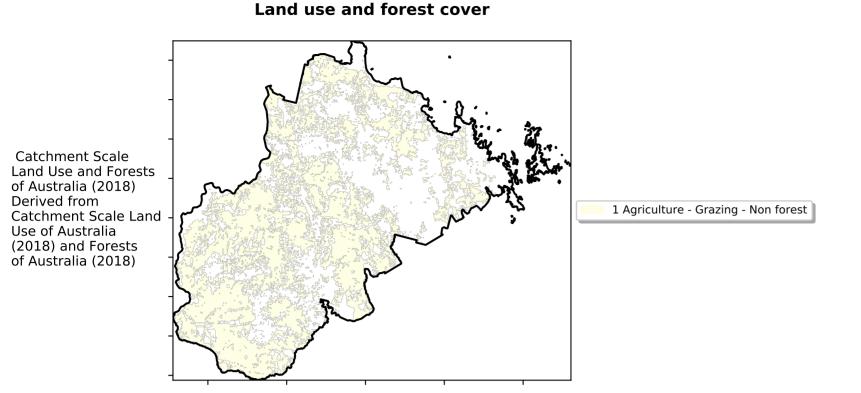
Grazing non forest

12%100%

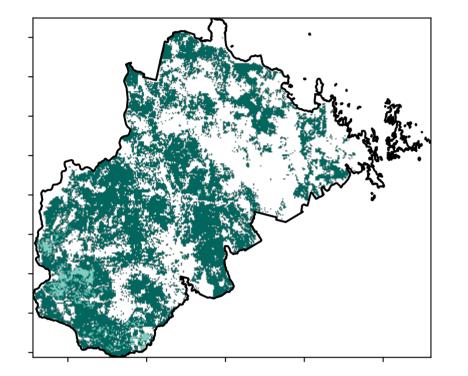
5201000

3201050010

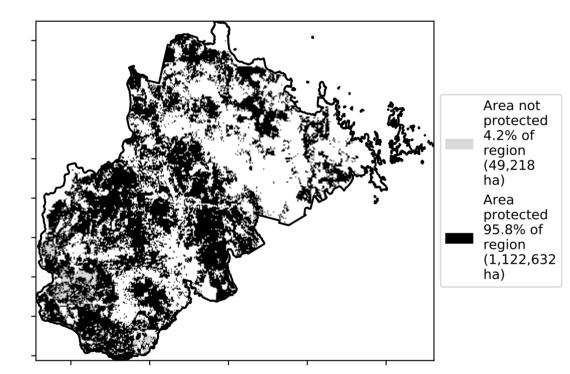
0.30%



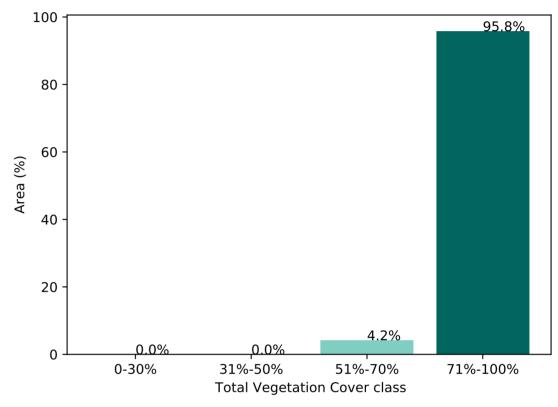
Total Vegetation Cover [%]



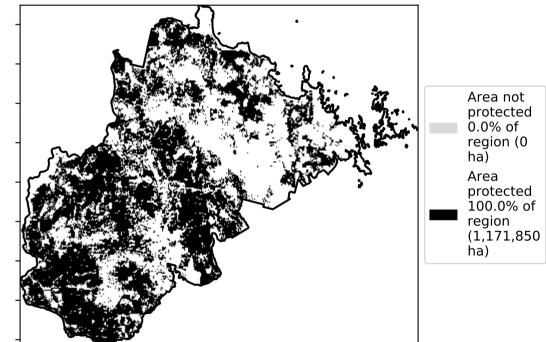
% Area protected from water erosion (>70%)



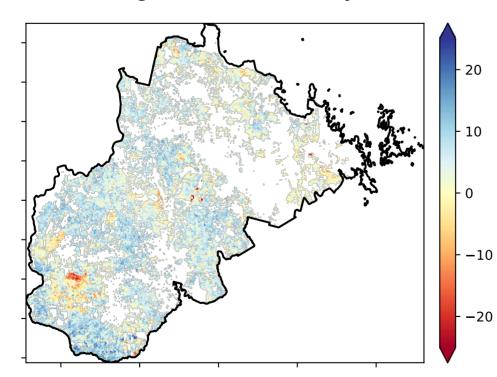
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

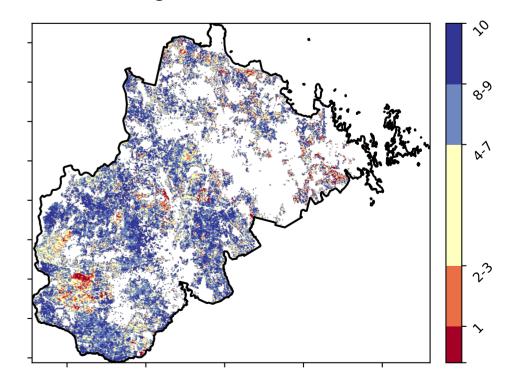


Total Vegetation Cover Anomaly [%]

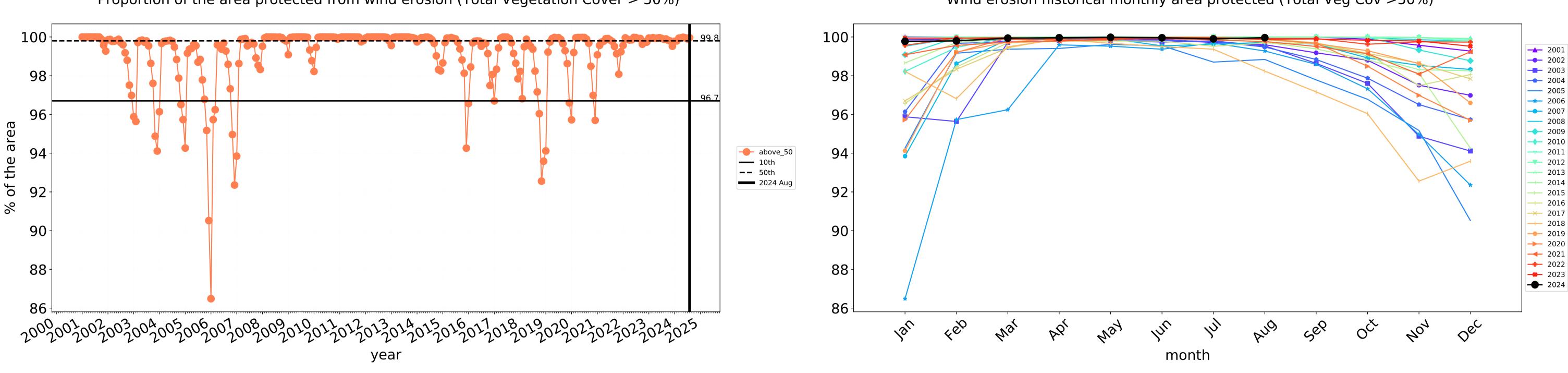


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]







100

90

80-

70-

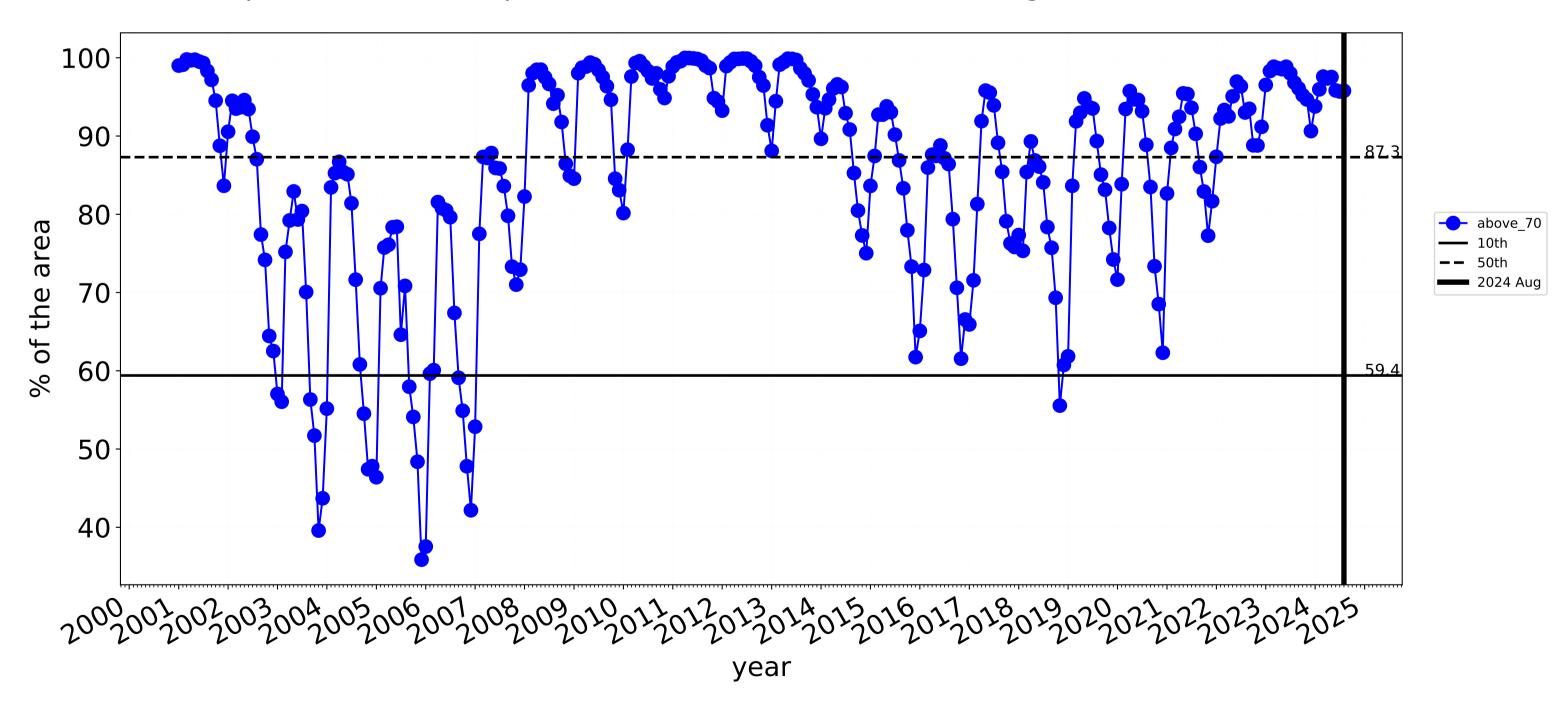
60

50

40

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

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



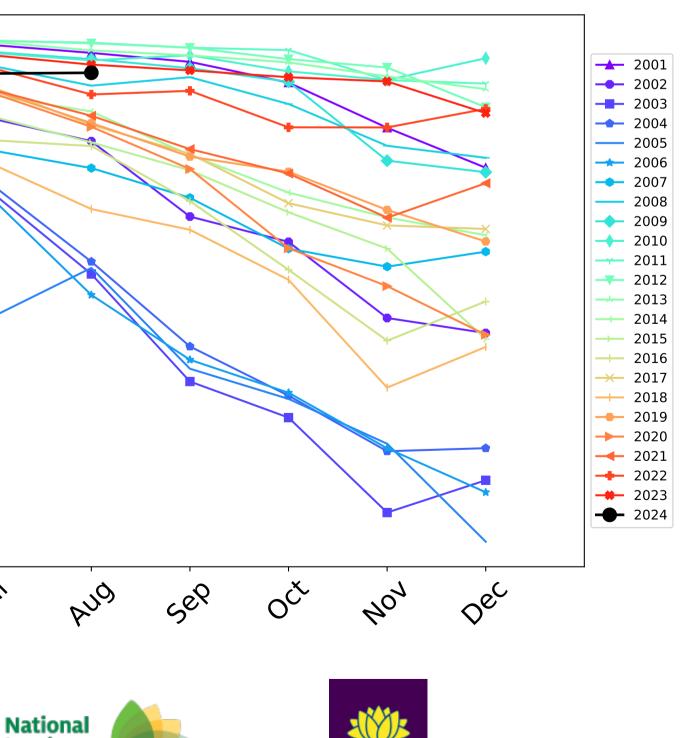
Grazing non forest timeseries



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

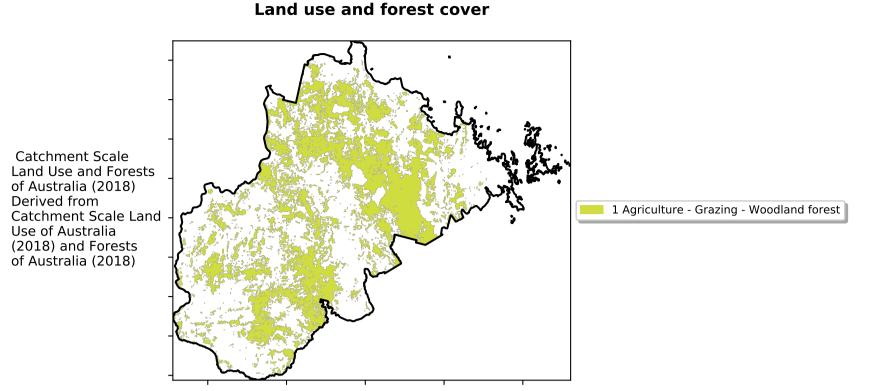
13

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

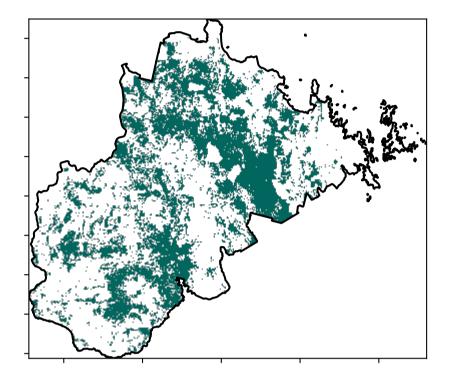


NSW GOVERNMENT

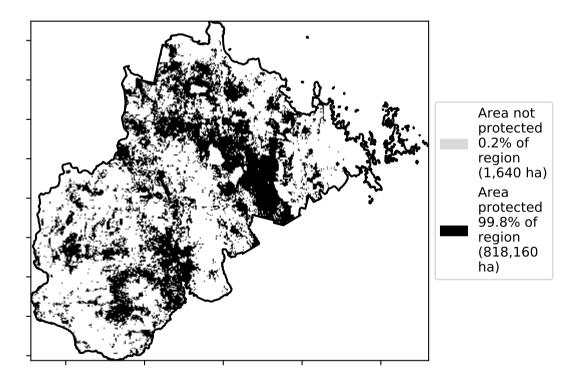
Grazing Woodland forest

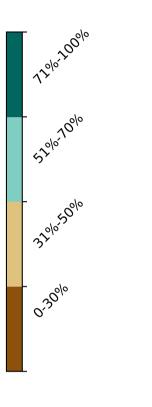


Total Vegetation Cover [%]

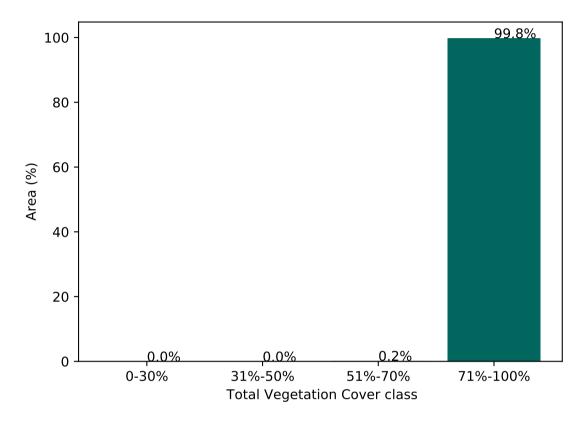


% Area protected from water erosion (>70%)

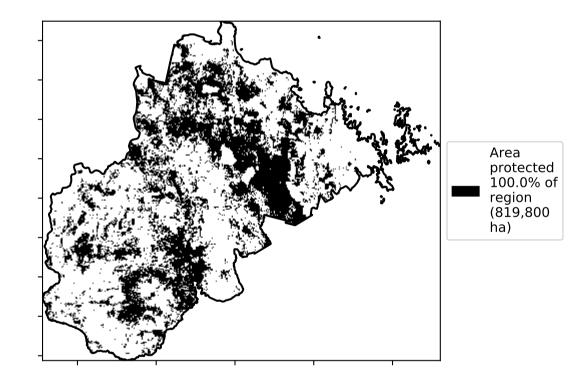




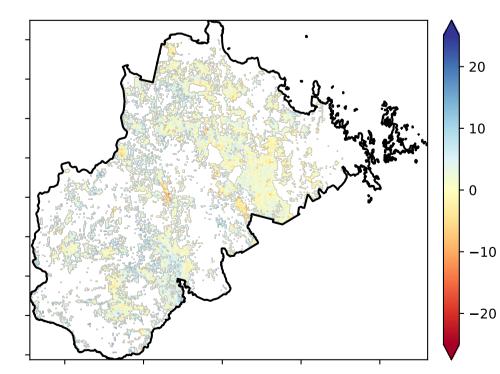
Proportion of vegetation cover class in area



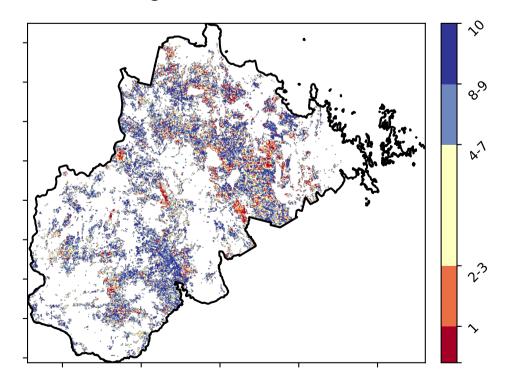
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

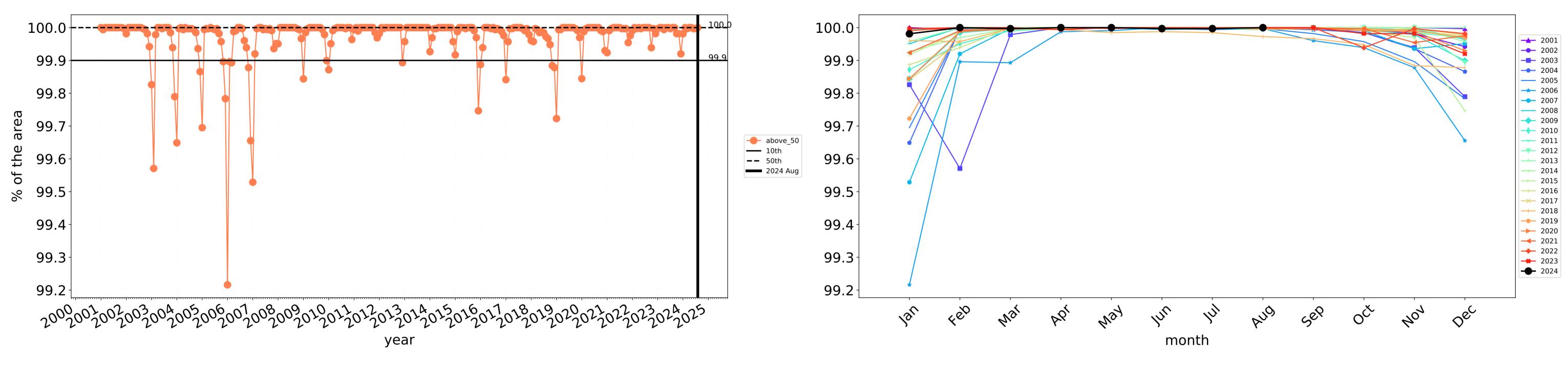


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]**



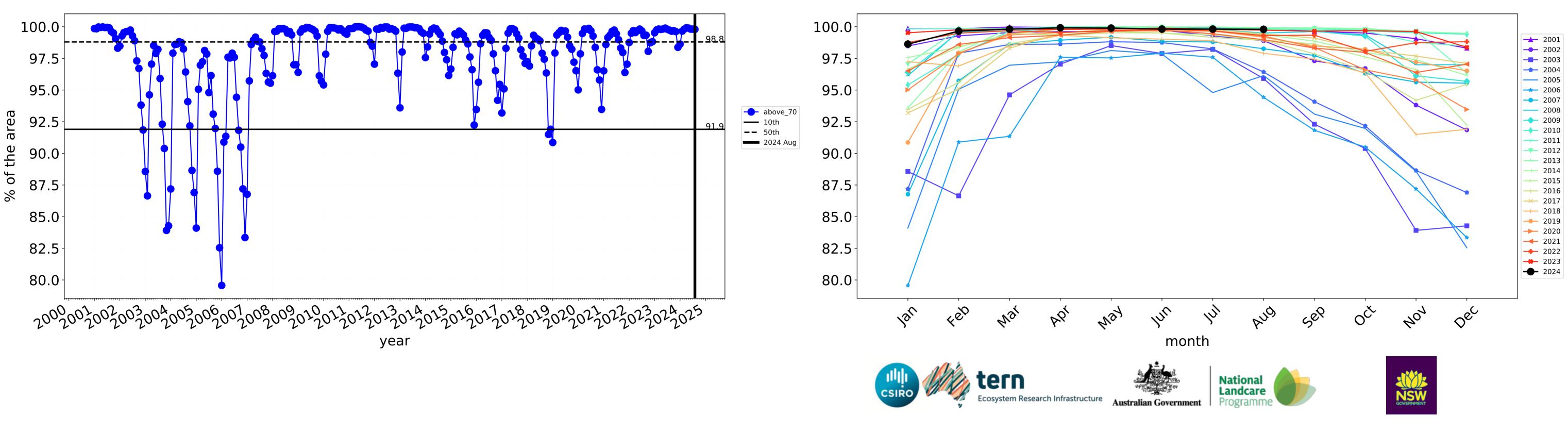


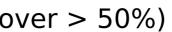
Grazing Woodland forest timeseries



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%)

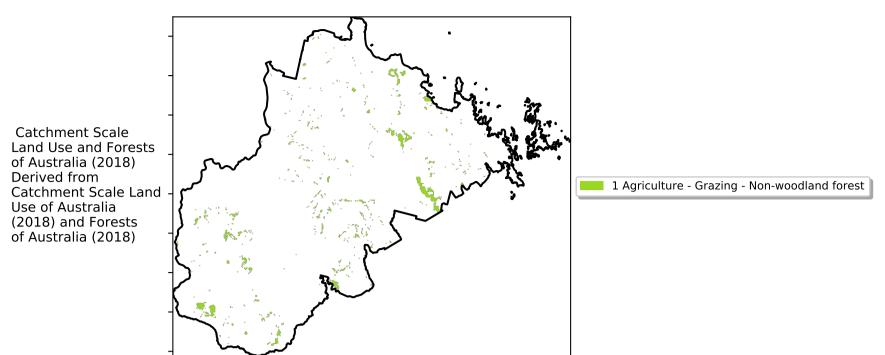
Grazing - Forest (non woodland)

· 12% 100%

· 52°10010010

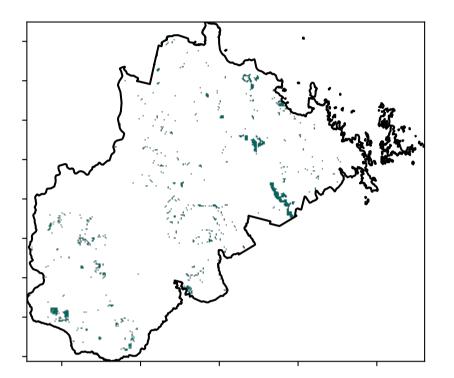
3201050010

0.30%

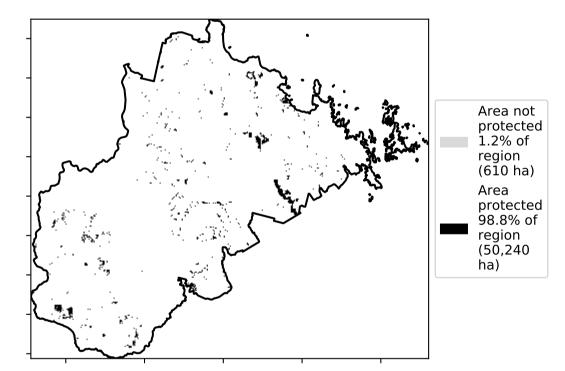


Land use and forest cover

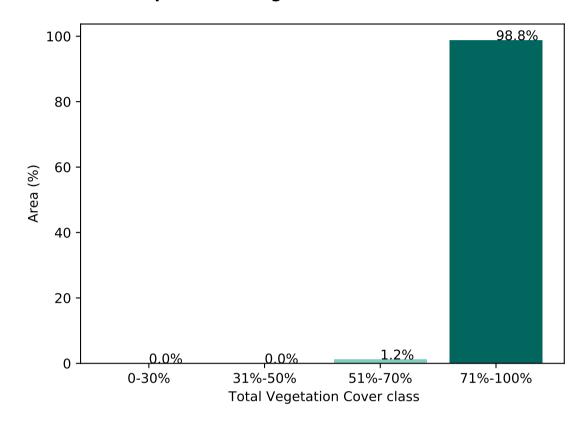
Total Vegetation Cover [%]



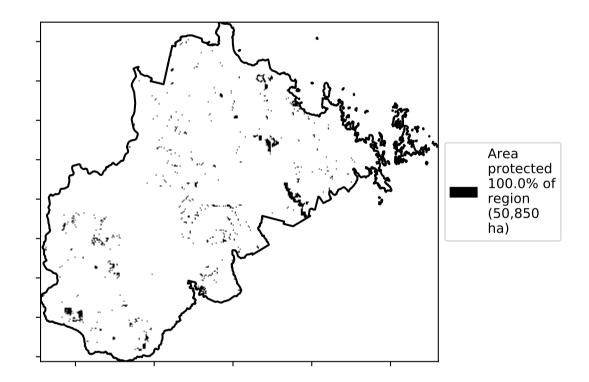
% Area protected from water erosion (>70%)



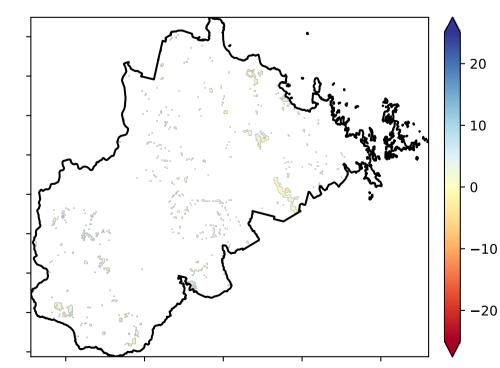
Proportion of vegetation cover class in area



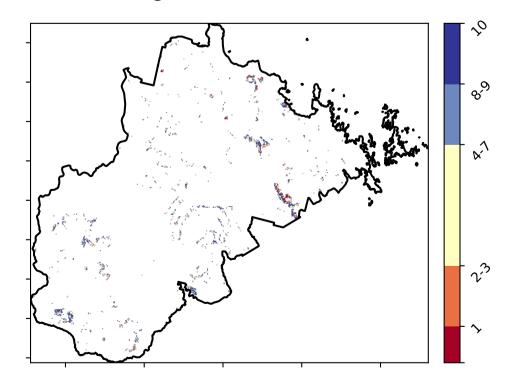
% Area protected from wind erosion (>50%)



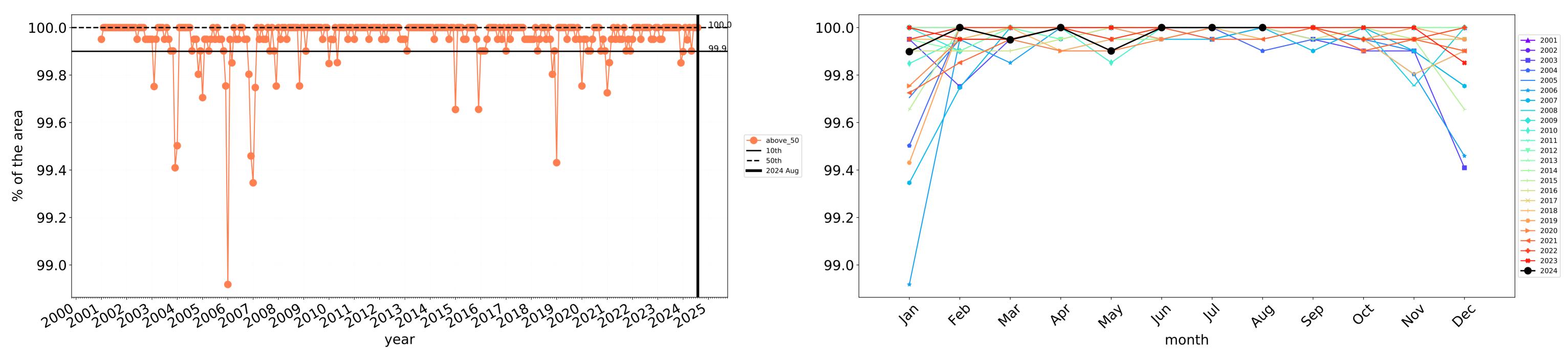
Total Vegetation Cover Anomaly [%]



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 [%]**

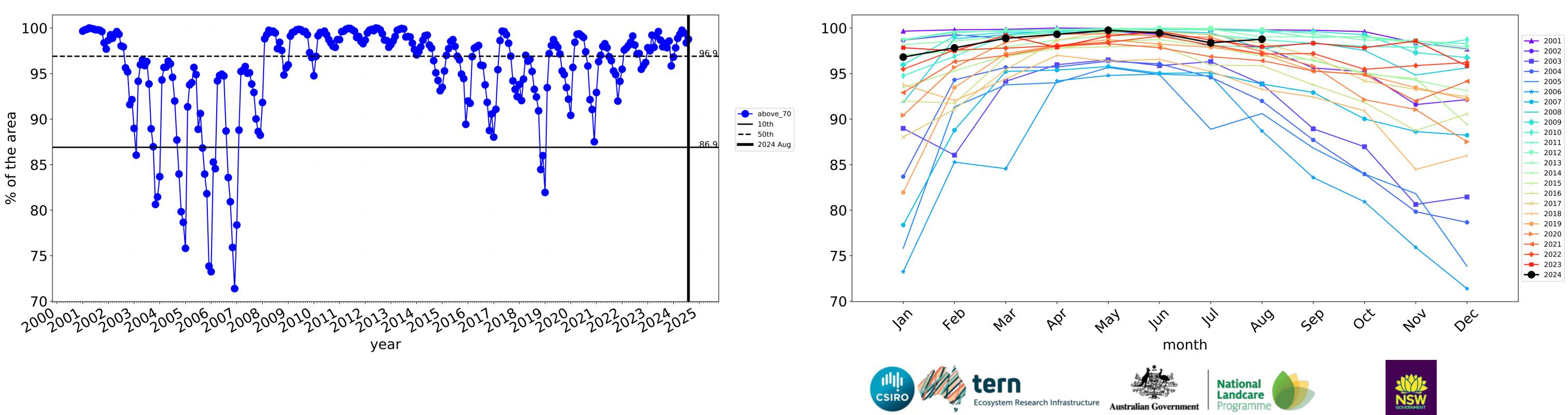


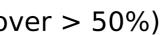




Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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





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



Irrigation

12% 100°1

52°10010

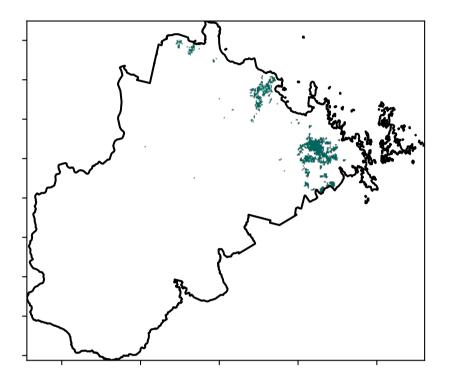
320050010

0.30%

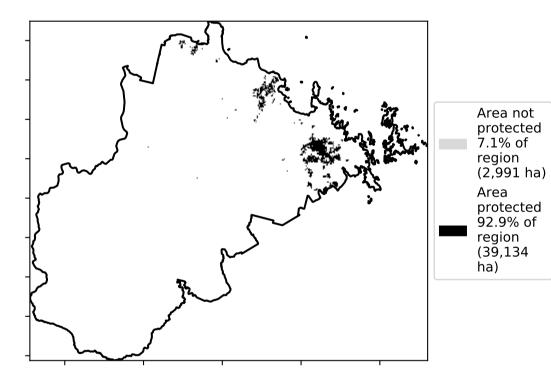
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

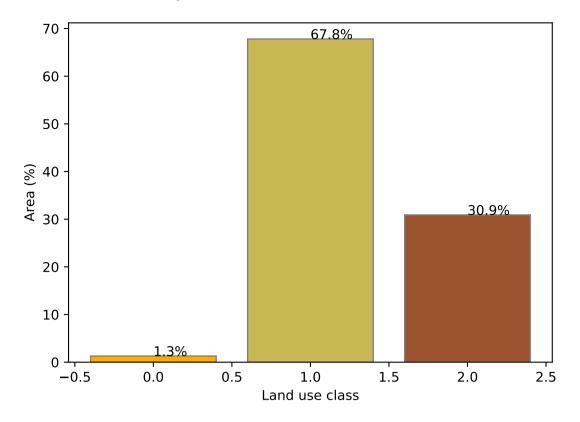
Total Vegetation Cover [%]

Land use and forest cover



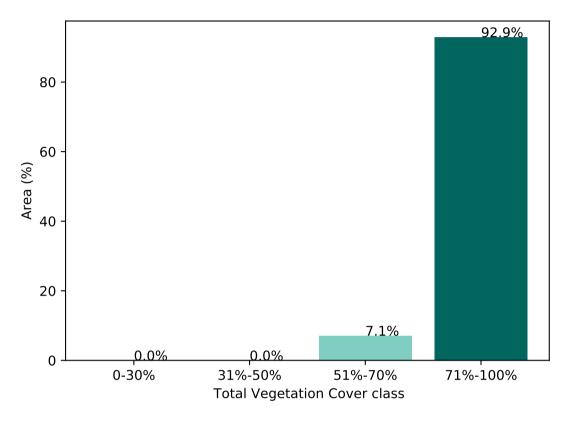
% Area protected from water erosion (>70%)



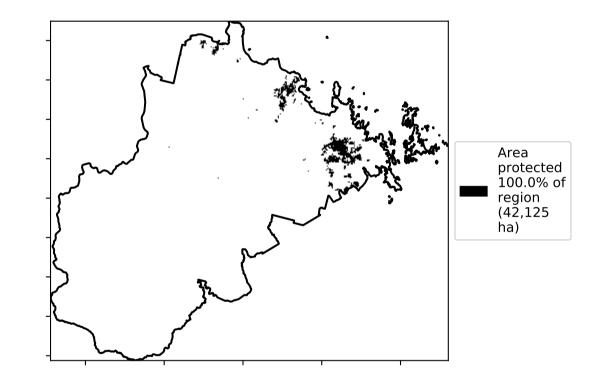


Proportion of each land class in area

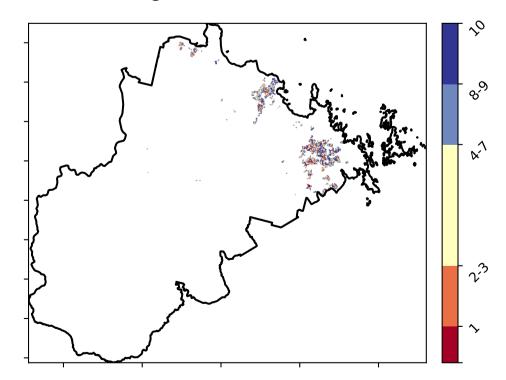
Proportion of vegetation cover class in area



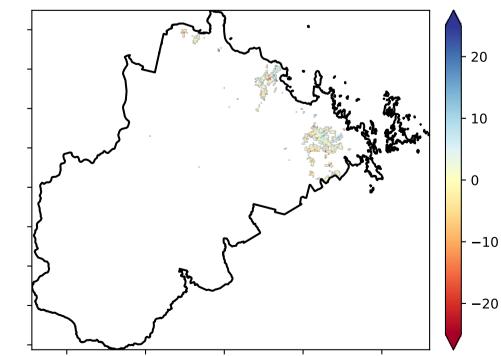
% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]

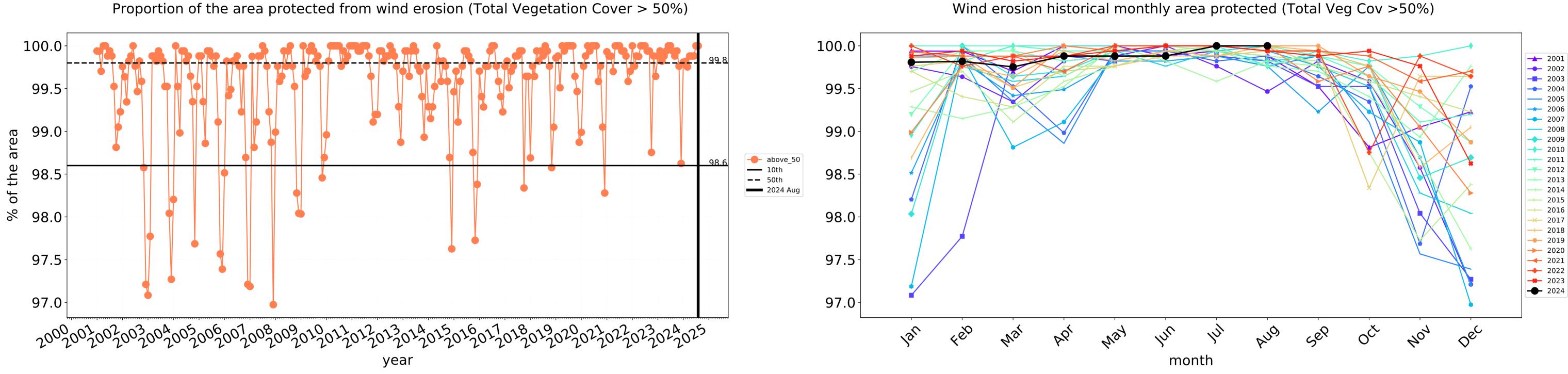


Total Vegetation Cover Anomaly [%]



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.

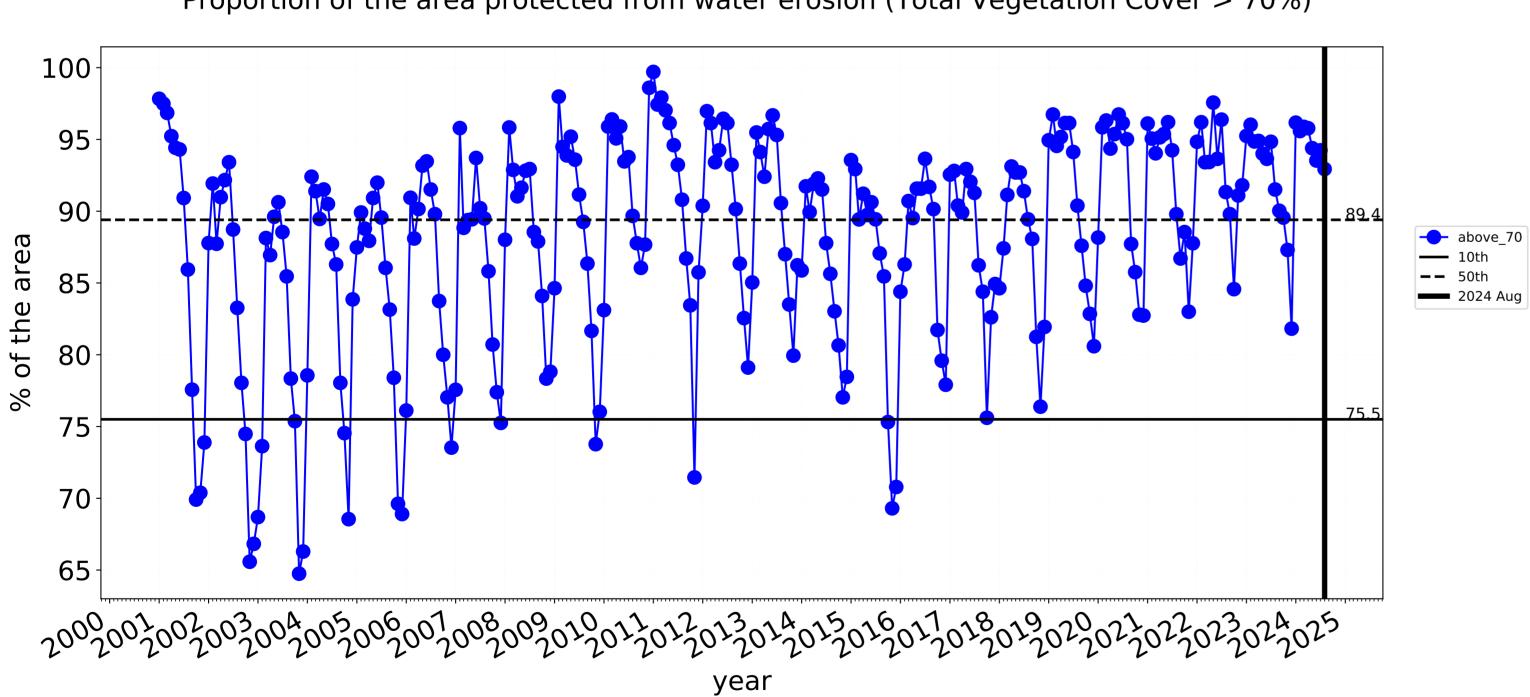




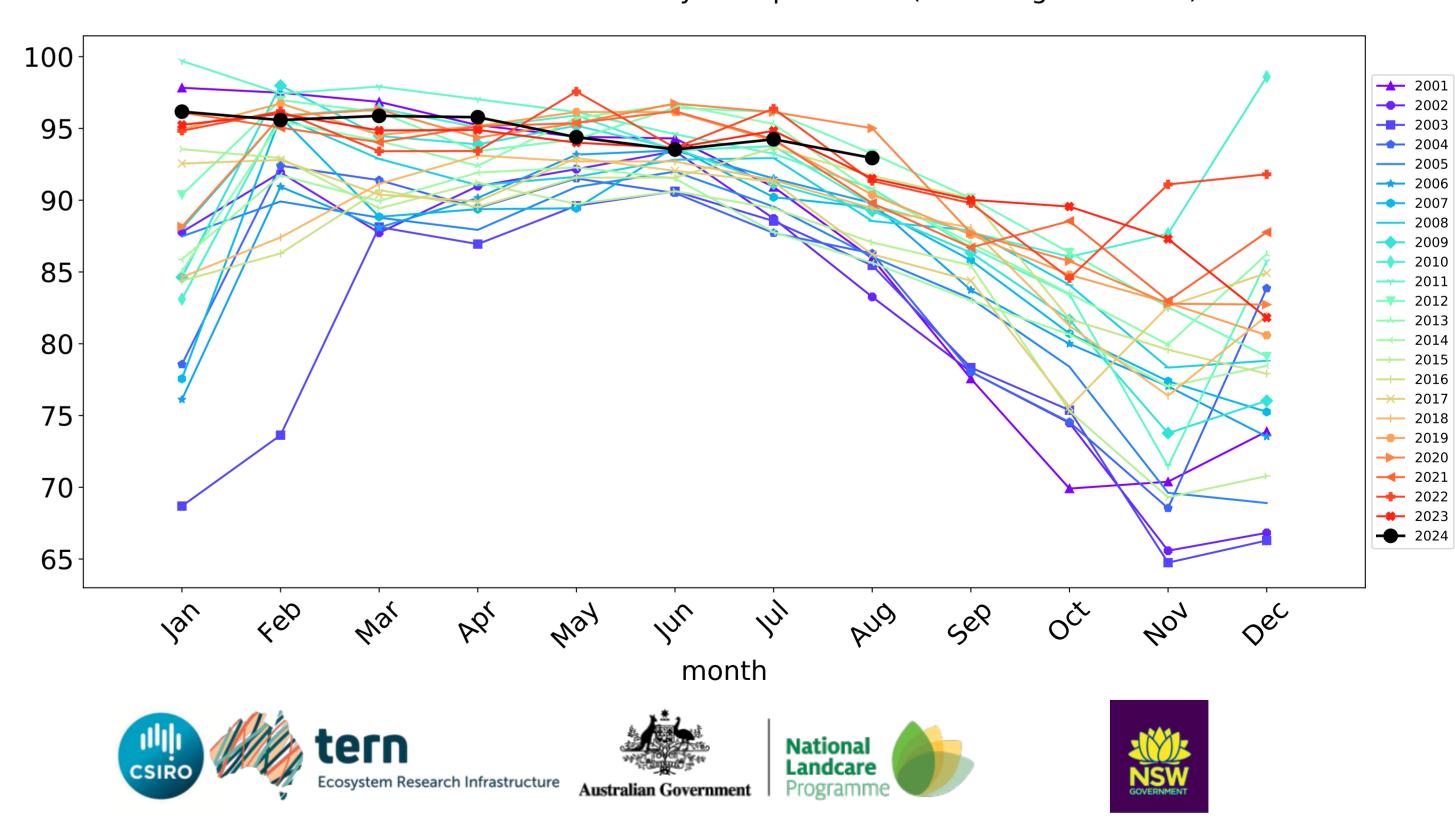
--- above_70

—— 10th

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

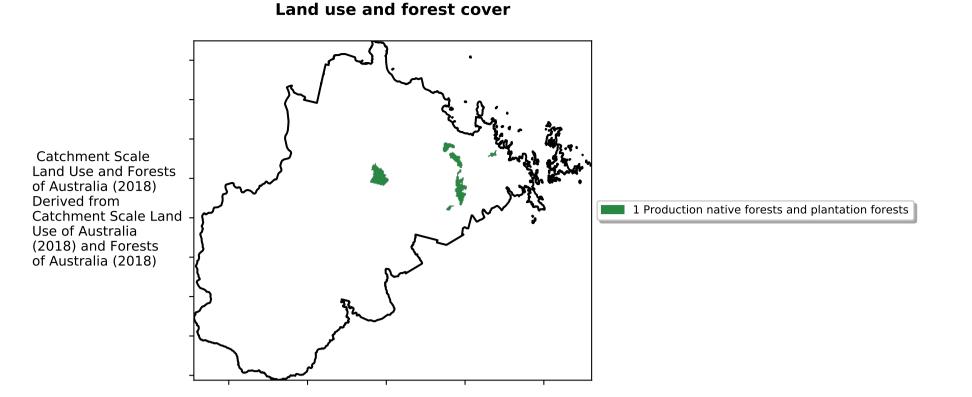


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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

Production native forests and plantation forests



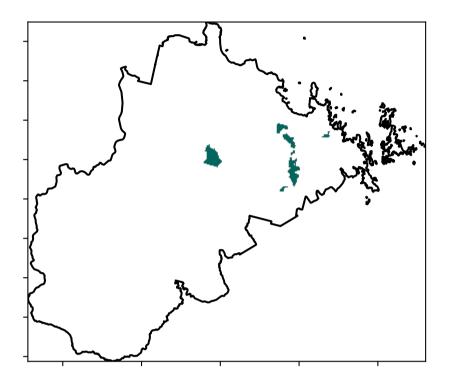
12%100%

52°1070°10

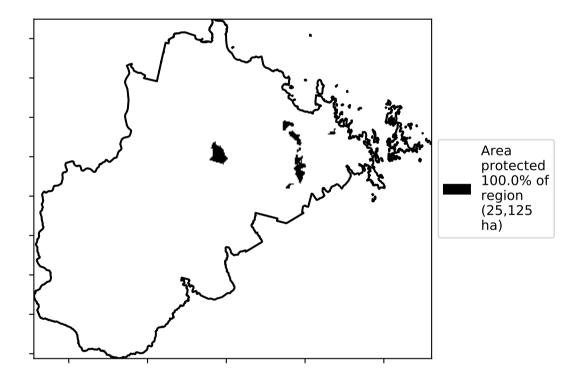
3201050010

0.30%

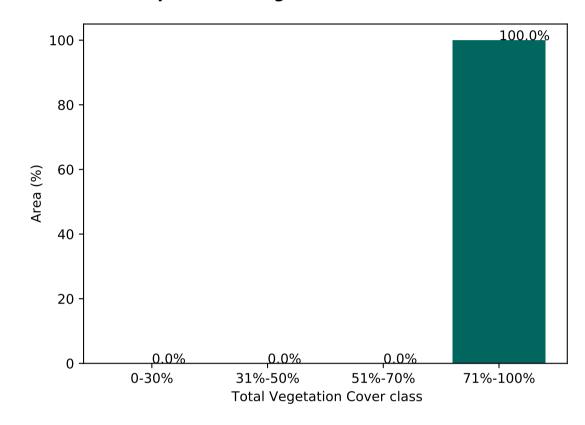
Total Vegetation Cover [%]



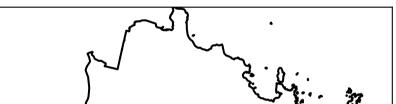
% Area protected from water erosion (>70%)



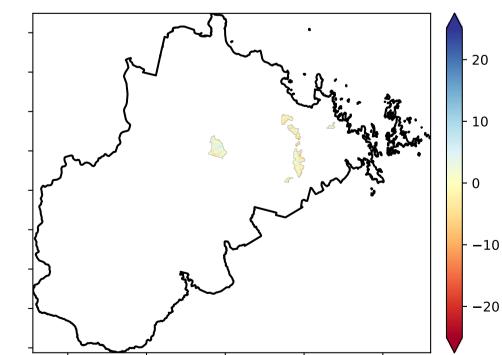
Proportion of vegetation cover class in area



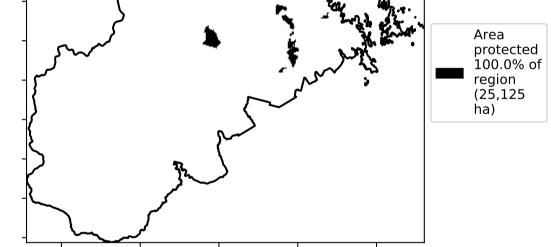
% Area protected from wind erosion (>50%)



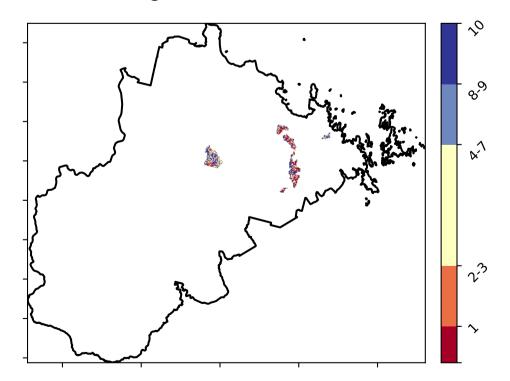
Total Vegetation Cover Anomaly [%]



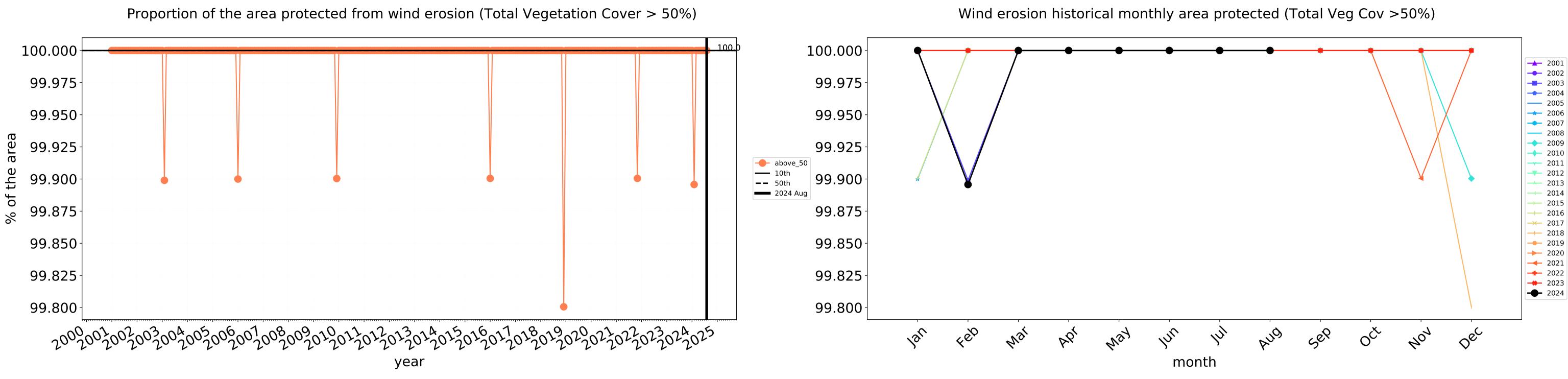
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



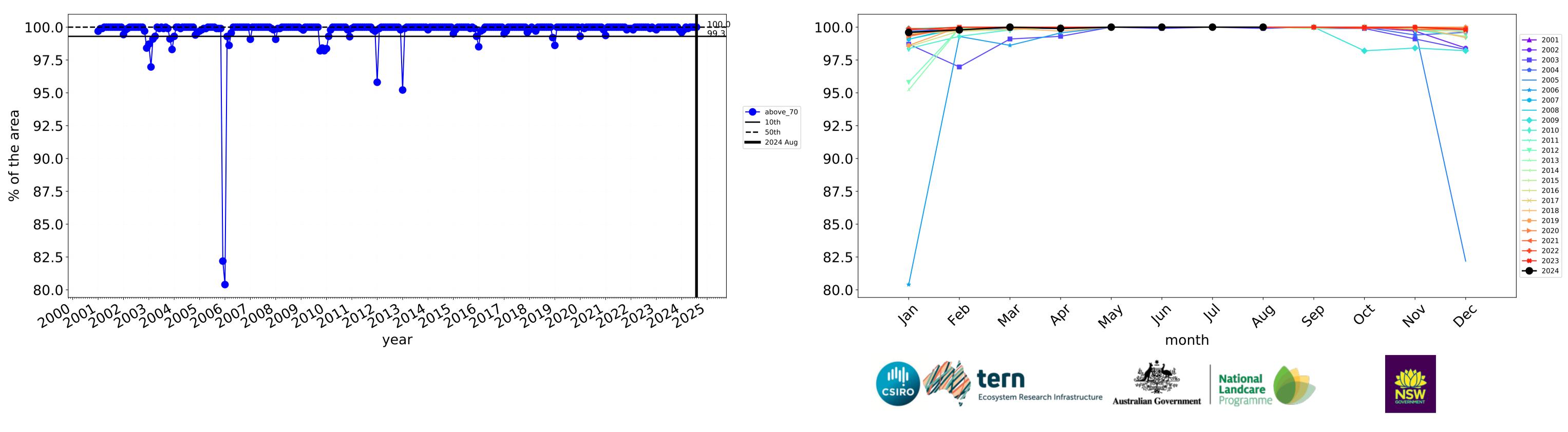
Total Vegetation Cover Decile [%]







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



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

Whitsunday_(R) (2,356,950 ha and no data 24,926 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	2,356,950	100.0% 2,356,300	99.9% 2,354,050	97.0% 2,286,725	88.6% 2,087,275	50.4% 1,188,525	15.7% 368,975
Conservation and natural environments	169,575	99.9% 169,325	99.4% 168,475	96.7% 163,925	89.3% 151,425	56.0% 94,925	24.6% 41,750
Conservation and natural environments non forest	28,125	99.7% 28,050	98.7% 27,750	92.2% 25,925	68.6% 19,300	14.0% 3,950	3.3% 925
Conservation and natural environments Woodland forest Conservation and	57,125	100.0% 57,125	99.6% 56,925	98.2% 56,125	94.2% 53,825	66.7% 38,125	27.2% 15,550
natural environments Forest (non woodland)	84,325	99.8% 84,150	99.4% 83,800	97.1% 81,875	92.9% 78,300	62.7% 52,850	30.0% 25,275
Agriculture	2,084,925	100.0% 2,084,875	100.0% 2,084,500	97.4% 2,030,200	89.2% 1,859,425	50.6% 1,055,600	15.0% 311,800
Grazing	2,042,500	100.0% 2,042,450	100.0% 2,042,075	97.5% 1,990,750	89.6% 1,830,325	51.1% 1,043,850	15.1% 307,775
Grazing non forest	1,171,850	100.0% 1,171,800	100.0% 1,171,425	95.8% 1,122,400	84.4% 989,425	43.8% 512,950	12.2% 143,075
Grazing Woodland forest	819,800	100.0% 819,800	100.0% 819,800	99.8% 818,125	96.9% 794,425	61.8% 506,875	18.9% 154,575
Grazing - Forest (non woodland)	50,850	100.0% 50,850	100.0% 50,850	98.8% 50,225	91.4% 46,475	47.2% 24,025	19.9% 10,125
Irrigation	42,125	100.0% 42,125	100.0% 42,125	92.9% 39,150	68.4% 28,825	27.5% 11,600	9.4% 3,975
Production native forests and plantation forests	25,125	100.0% 25,125	100.0% 25,125	100.0% 25,125	99.5% 25,000	74.7% 18,775	34.5% 8,675

