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

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:

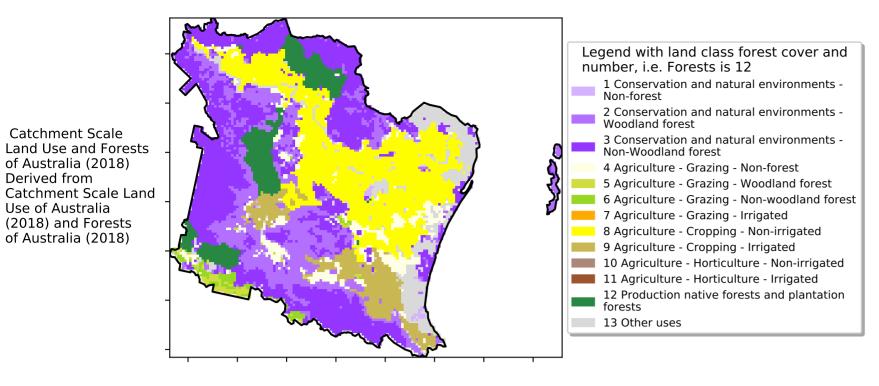
https://doi.org/10.4225/08/5848a3f19a7b3



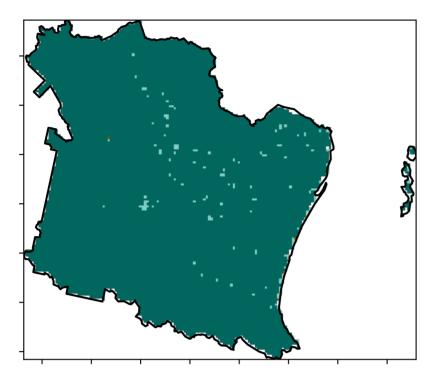
Vegetation Cover Sep 2023

Land use and forest cover

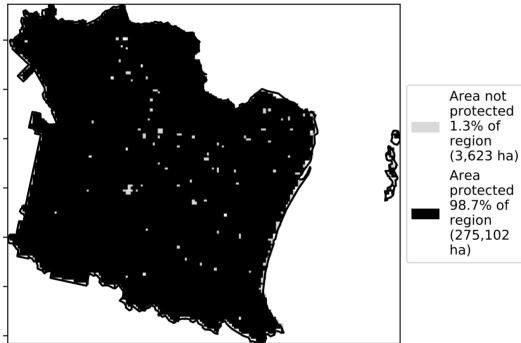
Proportion of each land class in area



Total Vegetation Cover [%]

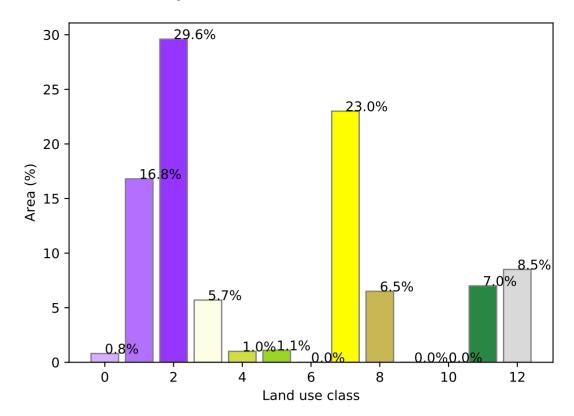


% Area protected from water erosion (>70%)

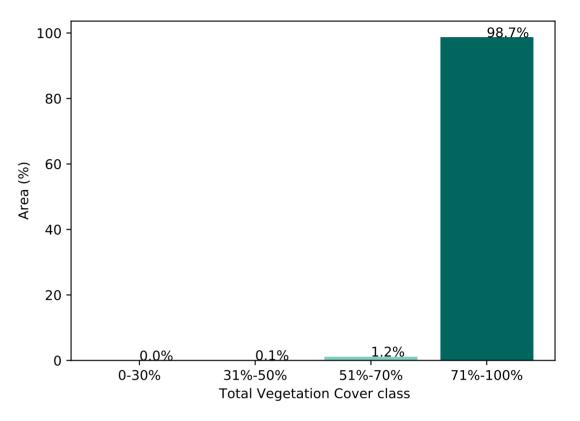


12%200% , 52°1070010 32%50% 0.30%

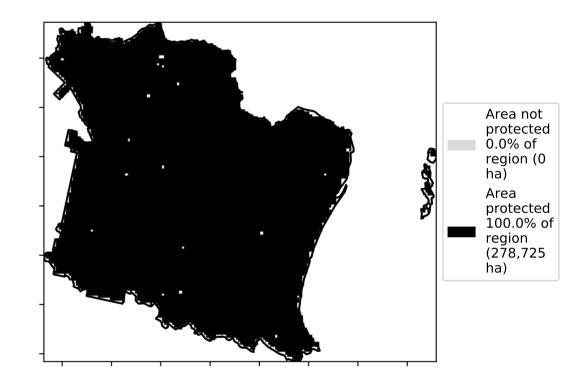
(3,623 ha)



Proportion of vegetation cover class in area

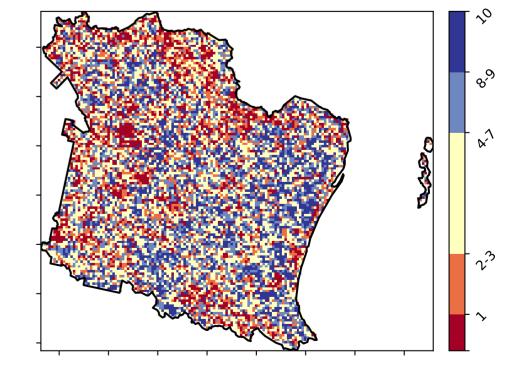


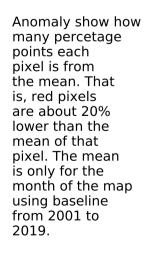
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

Total Vegetation Cover Decile [%]

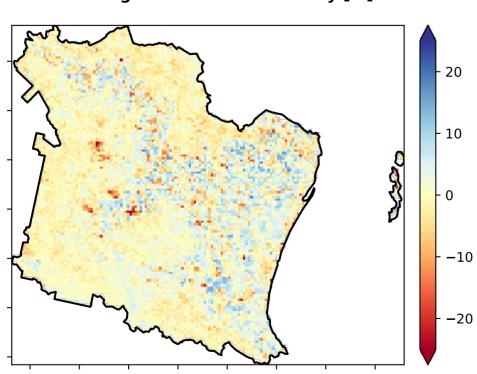




Catchment Scale

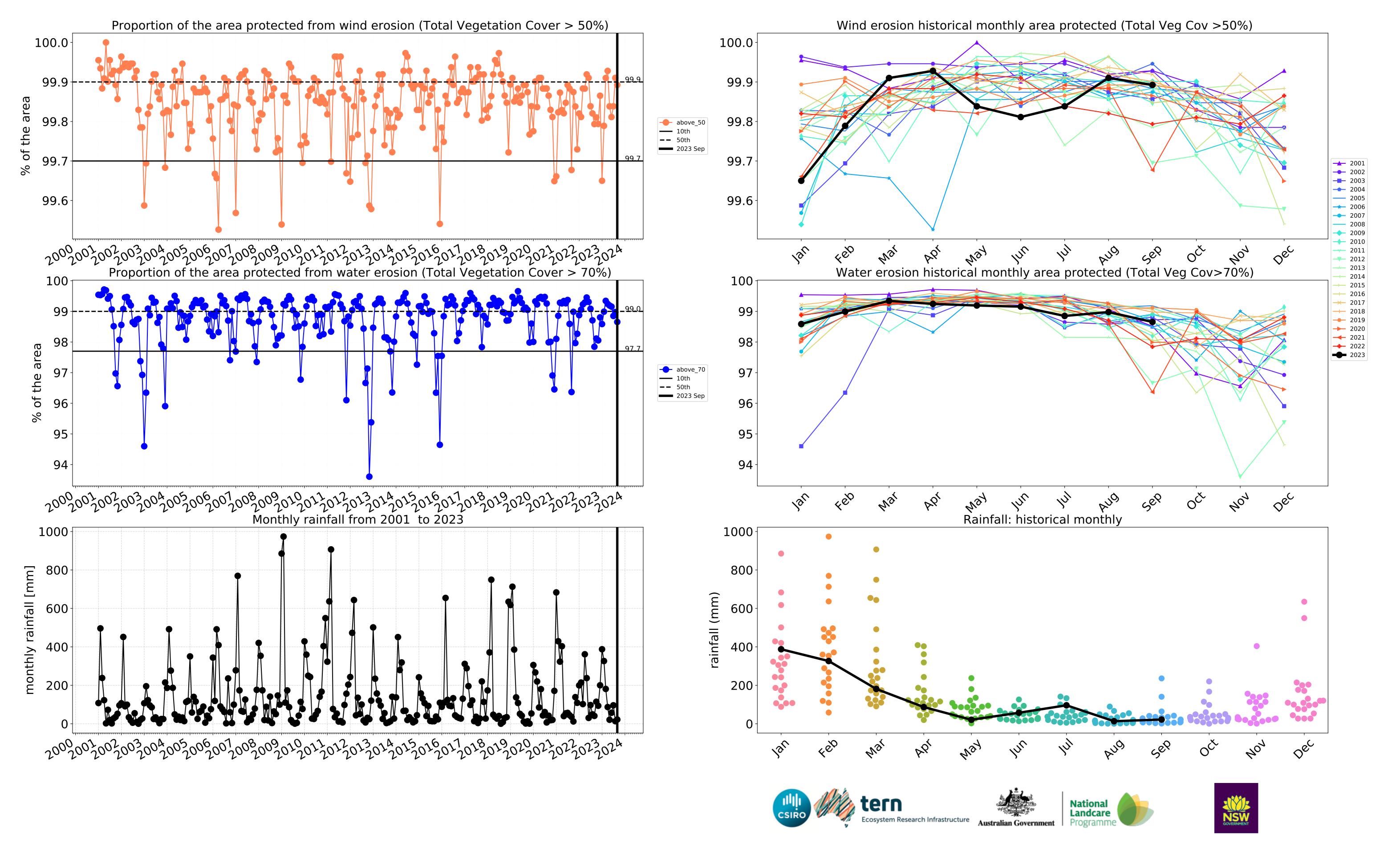
Derived from

Use of Australia

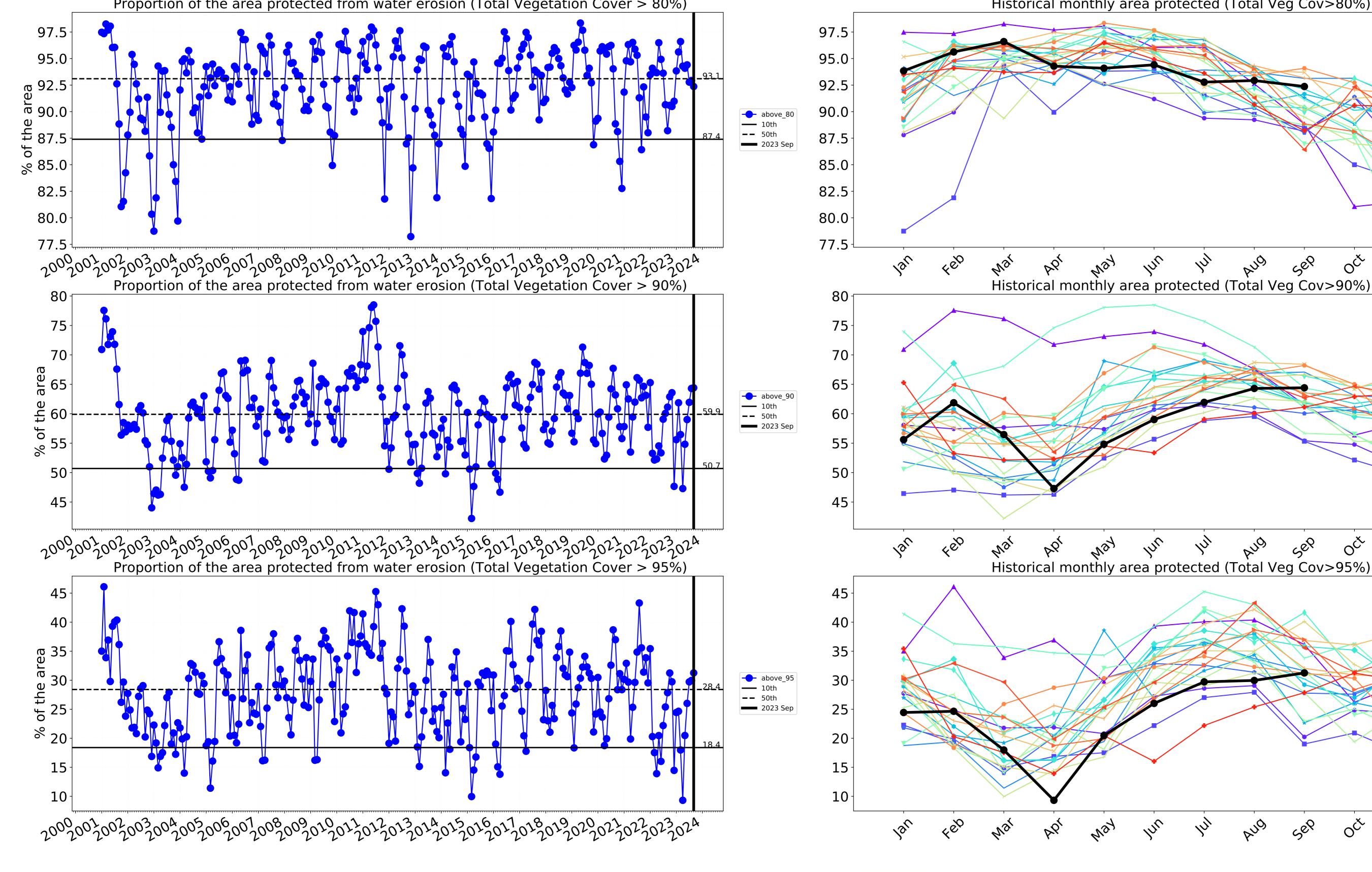


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

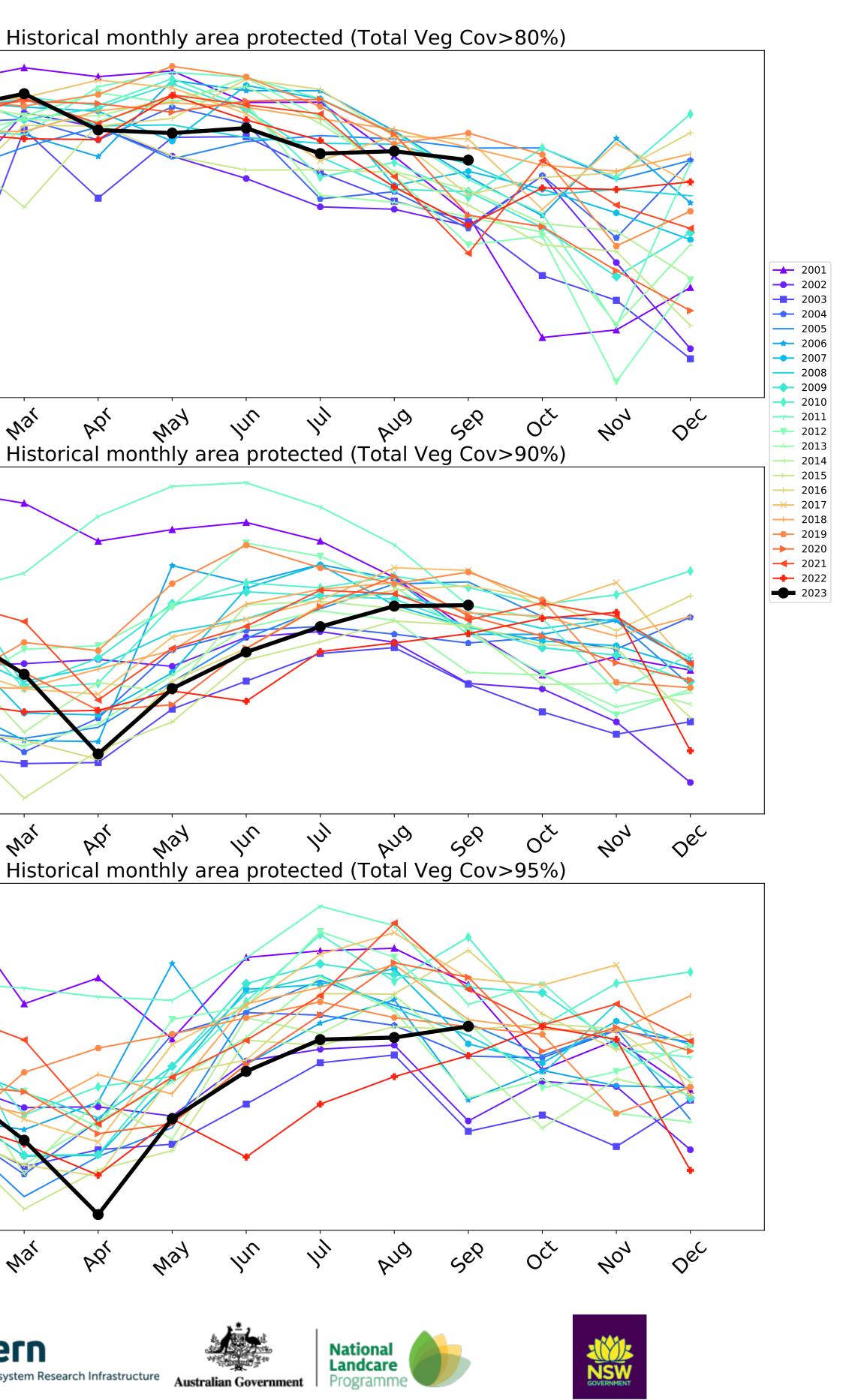




Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)







Conservation and natural environments

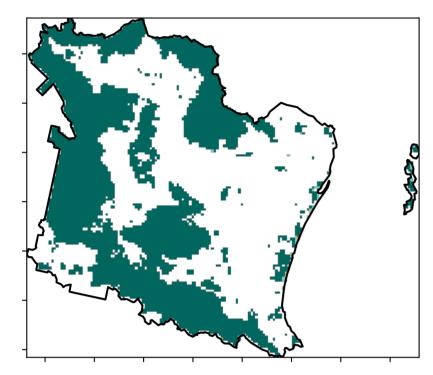
Ś

forest

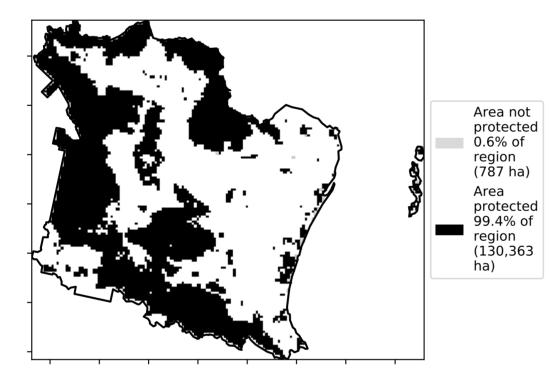
woodland forest

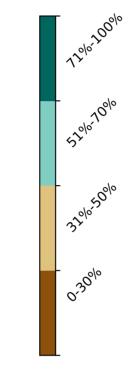
Land use and forest cover

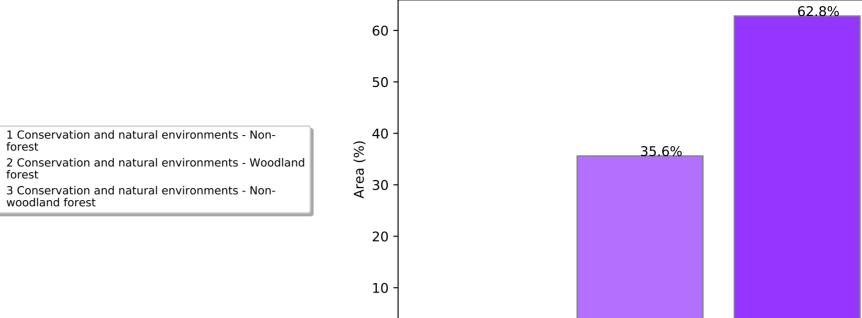
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)







0.5

1.6%

0.0

0

-0.5

Proportion of each land class in area

Proportion of vegetation cover class in area

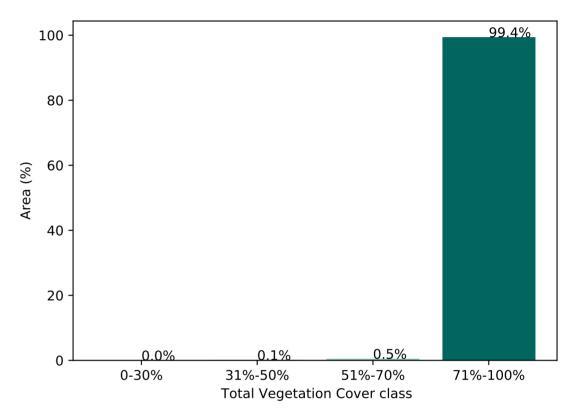
1.0

Land use class

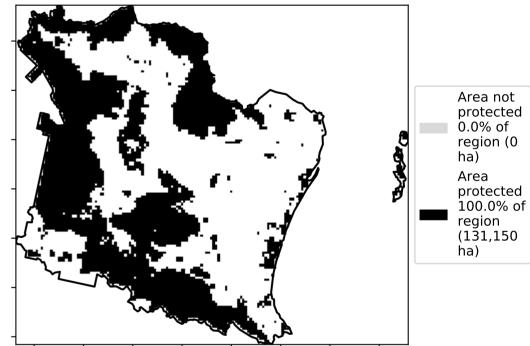
1.5

2.0

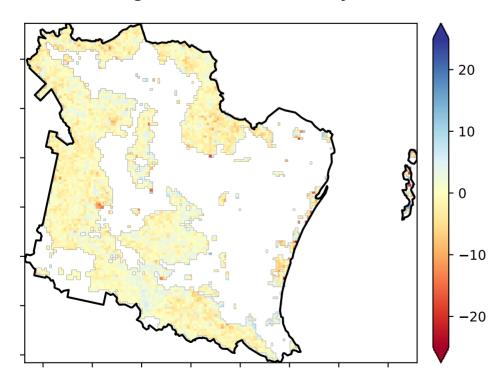
2.5



% Area protected from wind erosion (>50%)

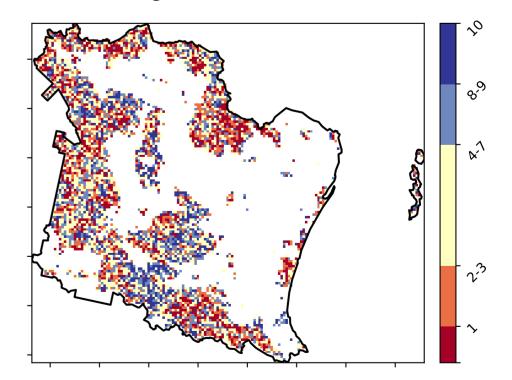


Total Vegetation Cover Anomaly [%]



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 [%]





Anomaly show how many percetage points each pixel is from the mean That 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.

Catchment Scale Land Use and Forests of Australia (2018)

Catchment Scale Land

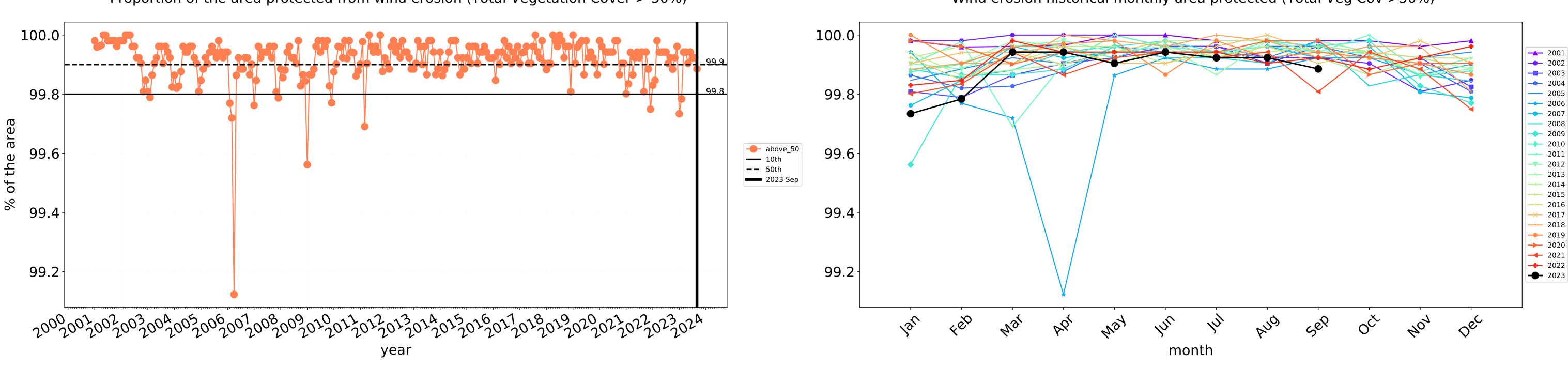
Derived from

Use of Australia

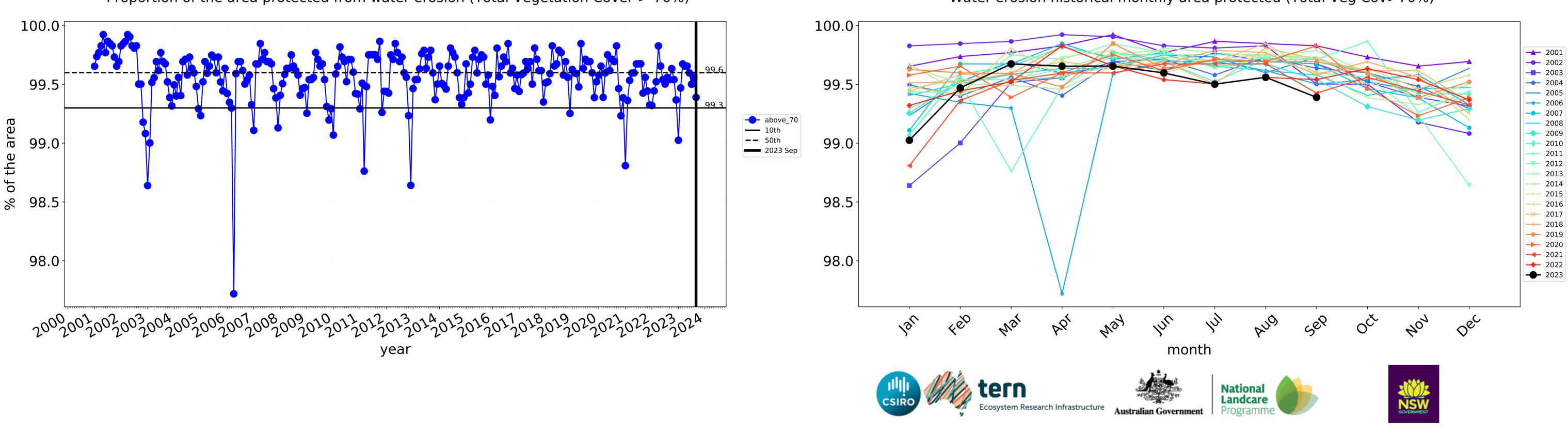
(2018) and Forests

of Australia (2018)





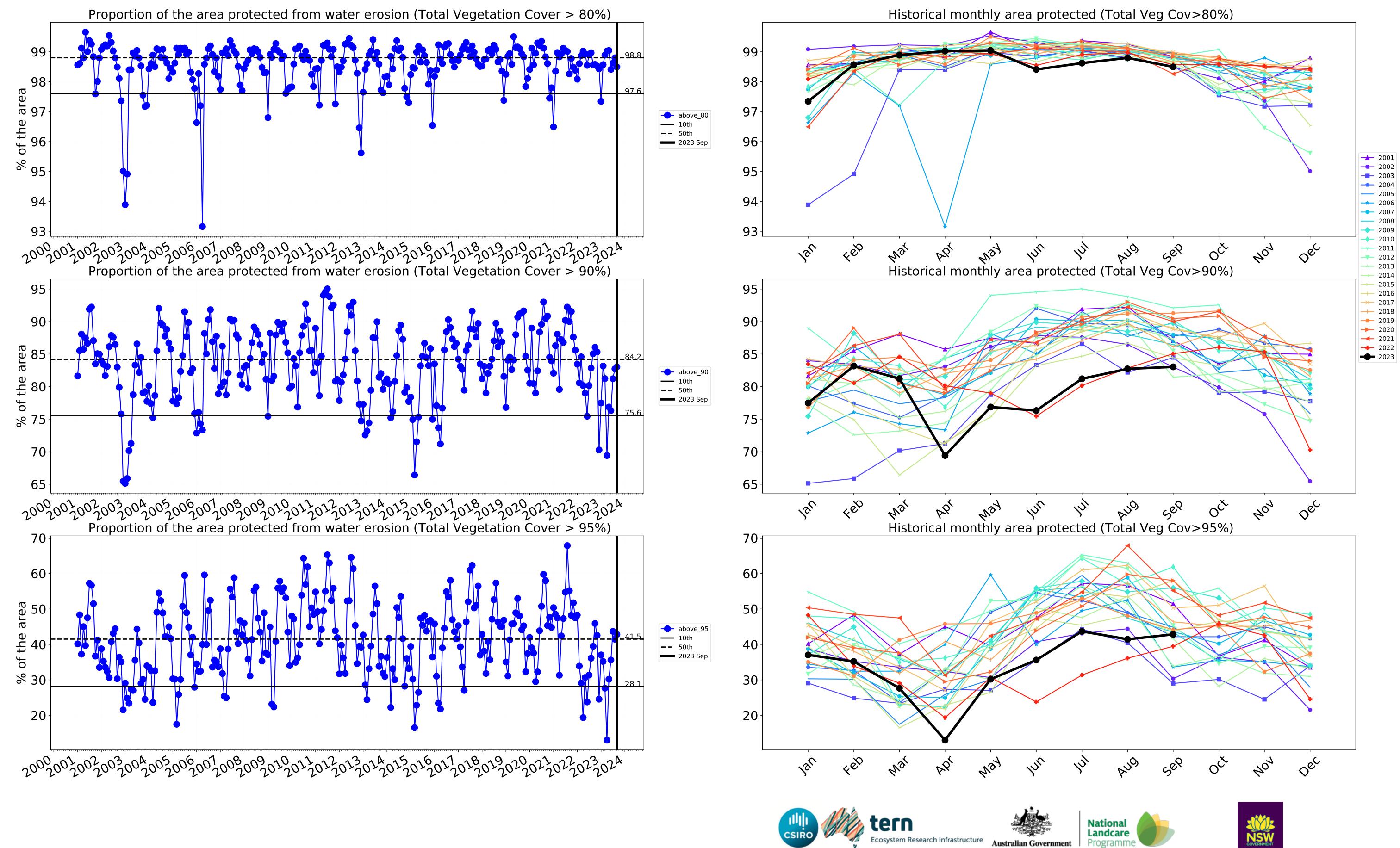
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



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



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



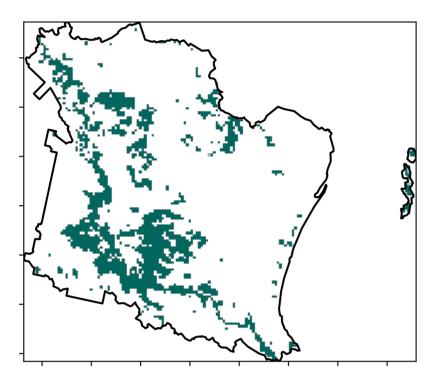


Conservation and natural environments Woodland forest

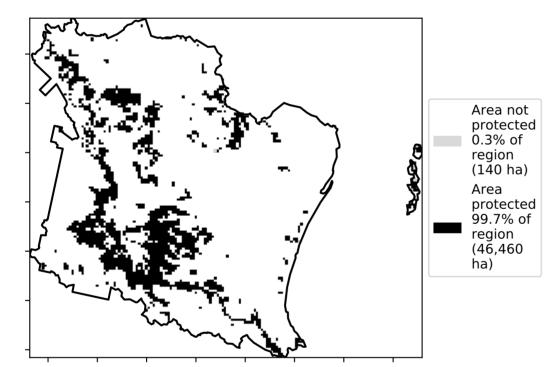
Land Use and Forests of Australia (2018) Ş 1 Conservation and natural environments - Woodland forest Catchment Scale Land (2018) and Forests of Australia (2018)

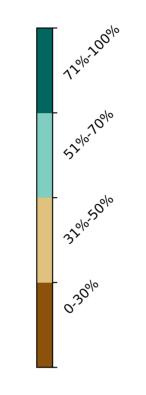
Land use and forest cover

Total Vegetation Cover [%]

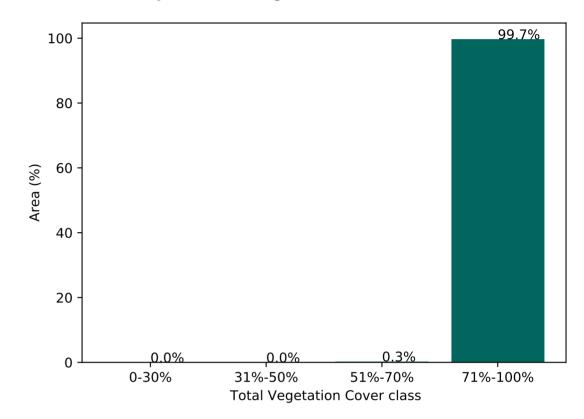


% Area protected from water erosion (>70%)

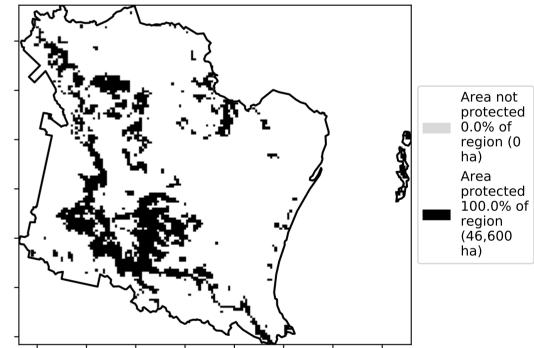




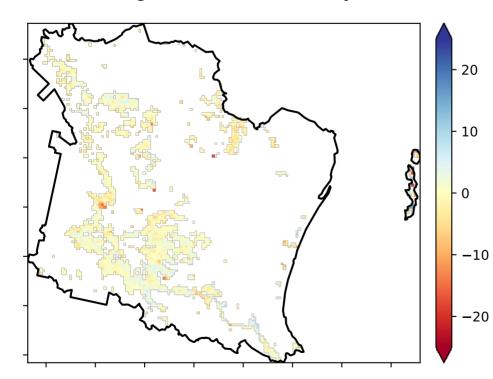
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

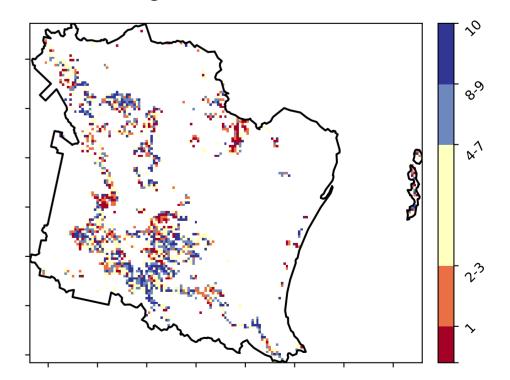


Total Vegetation Cover Anomaly [%]



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 [%]





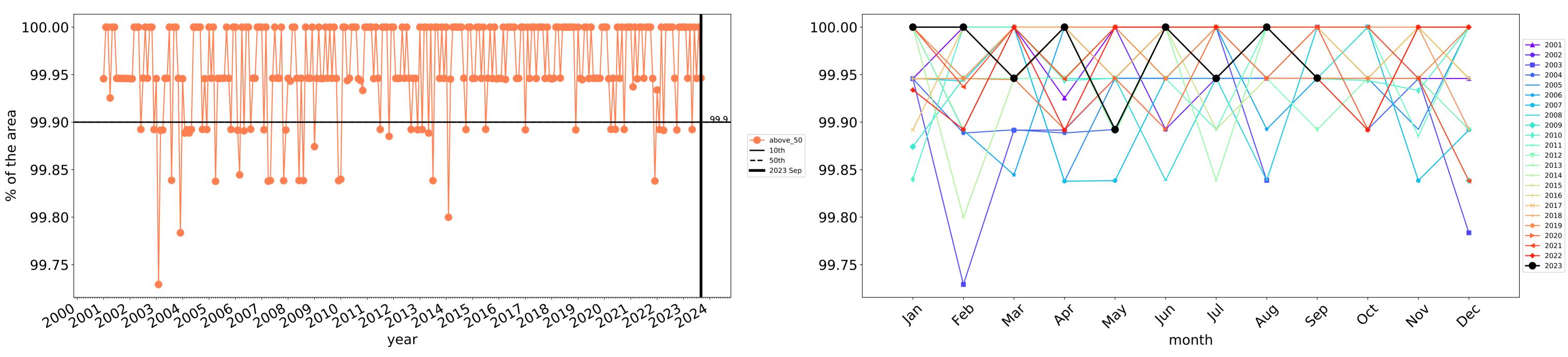
Anomaly show how many percetage points each pixel is from the mean That the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map from 2001 to 2019.

Catchment Scale

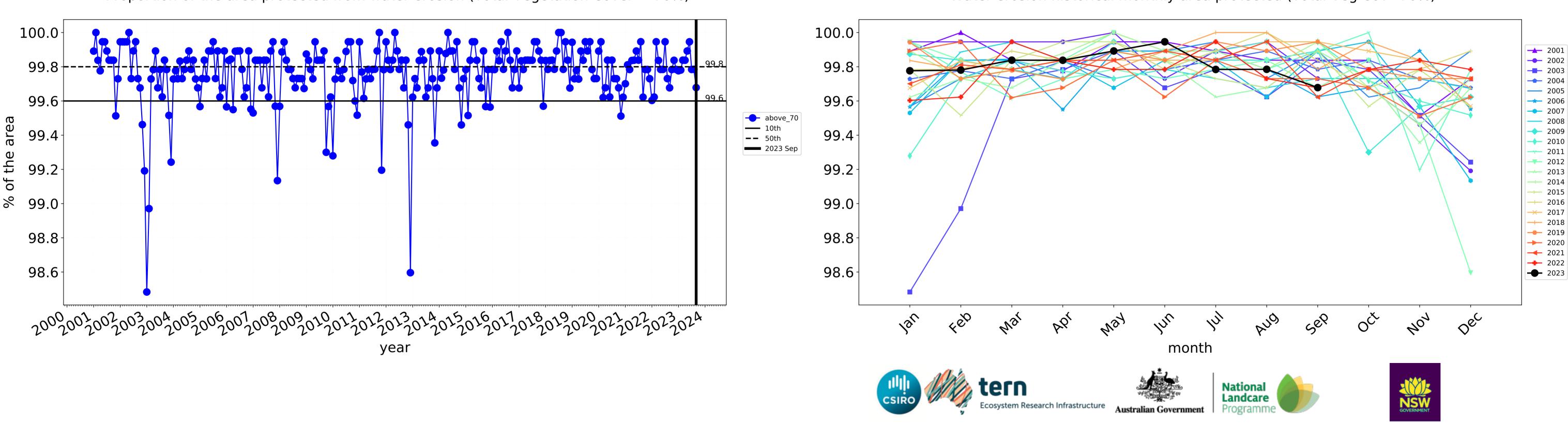
Derived from

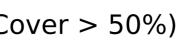
Use of Australia





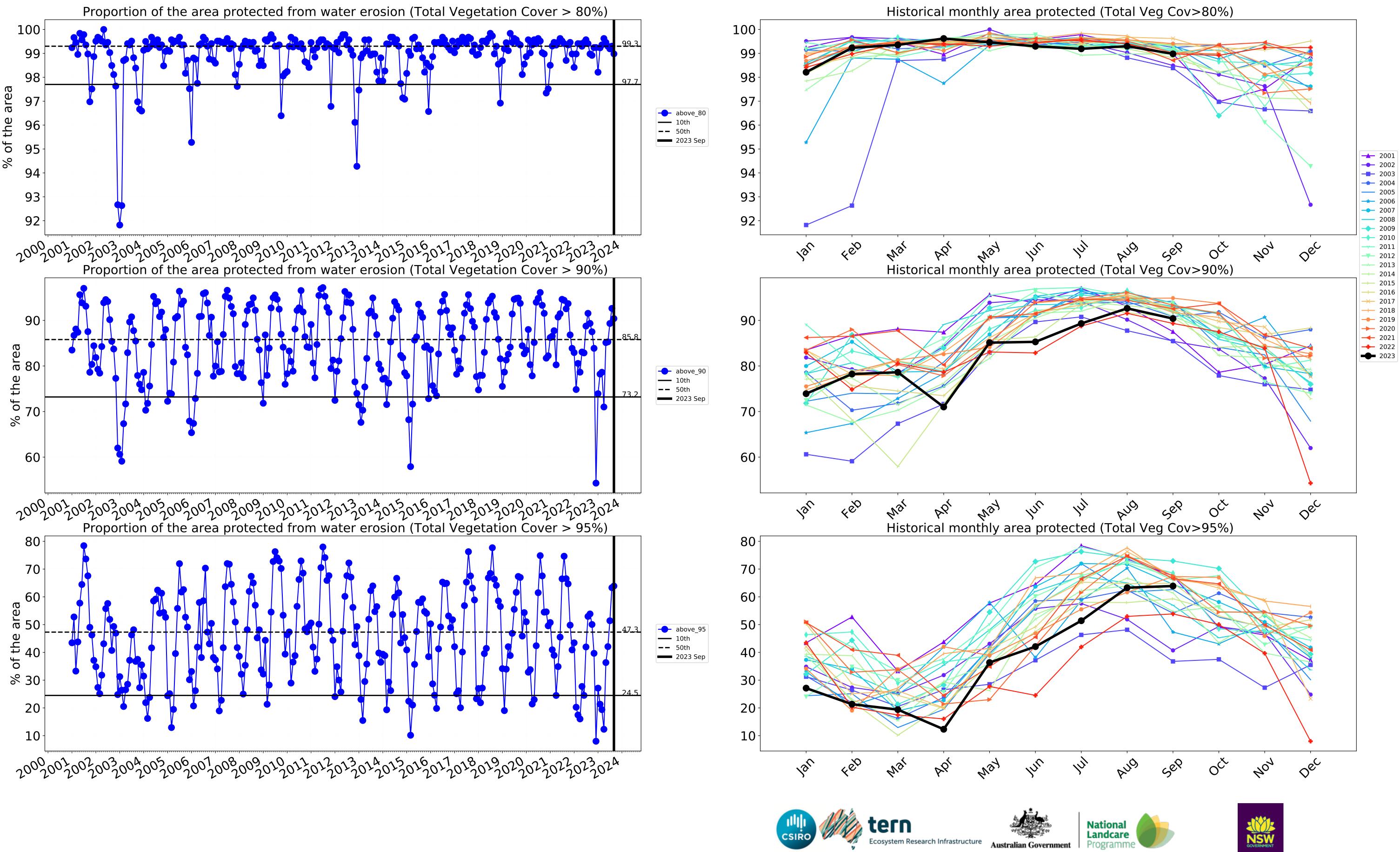
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)





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

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

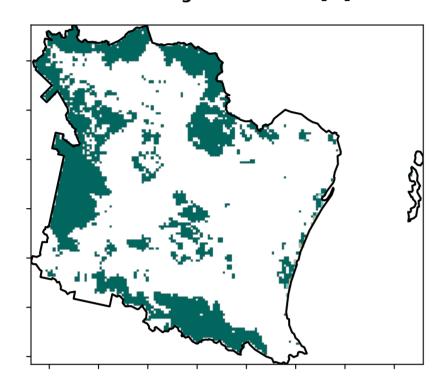


Conservation and natural environments Forest (non woodland)

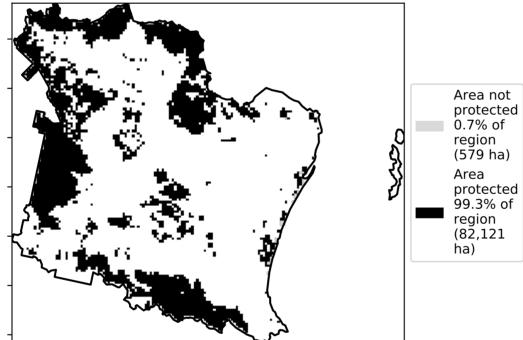
Land use and forest cover

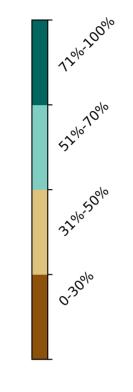
Catchment Scale Land Use and Forests of Australia (2018) 2 1 Conservation and natural environments - Non-Catchment Scale Land woodland forest ٢ Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]



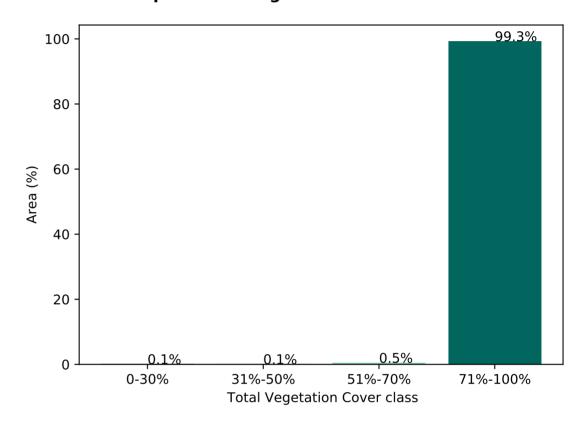
% Area protected from water erosion (>70%)



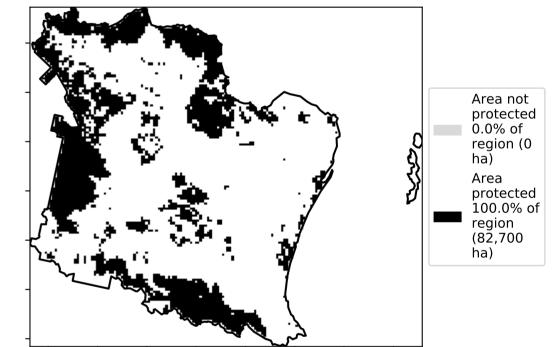




Proportion of vegetation cover class in area



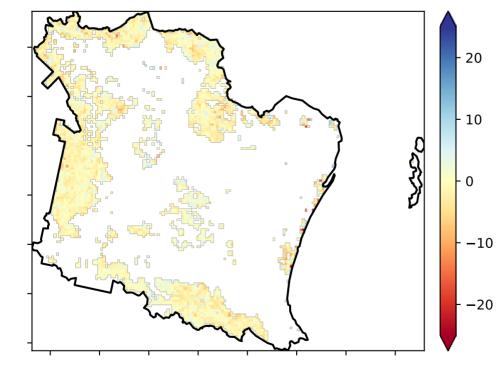
% Area protected from wind erosion (>50%)



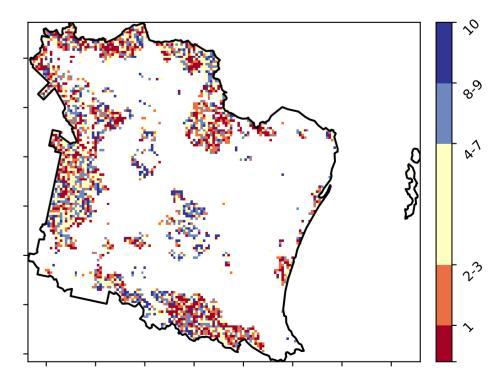
Total Vegetation Cover Anomaly [%]

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.

Derived from



Total Vegetation Cover Decile [%]



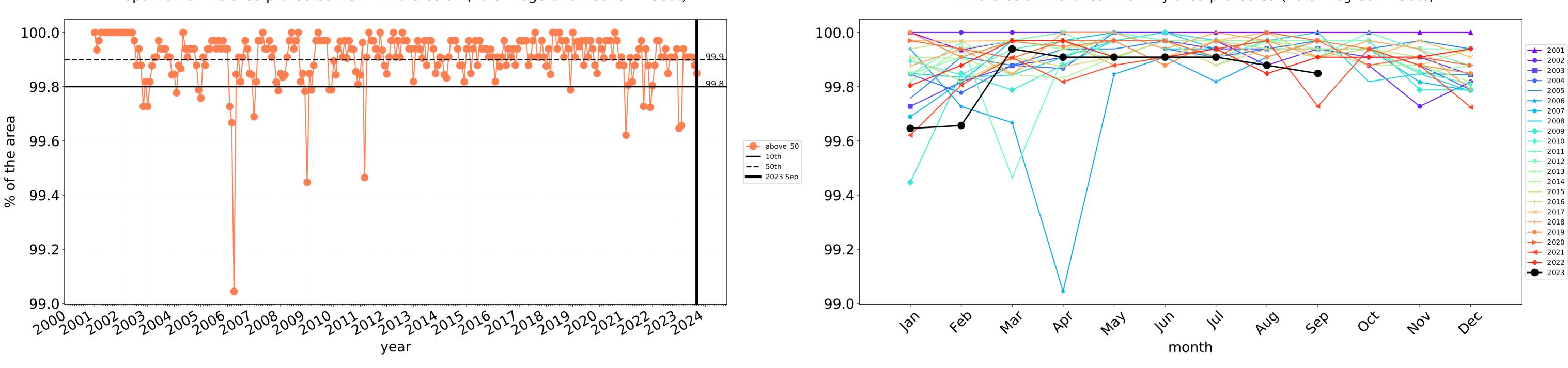


Deciles show where the pixel value lies in the

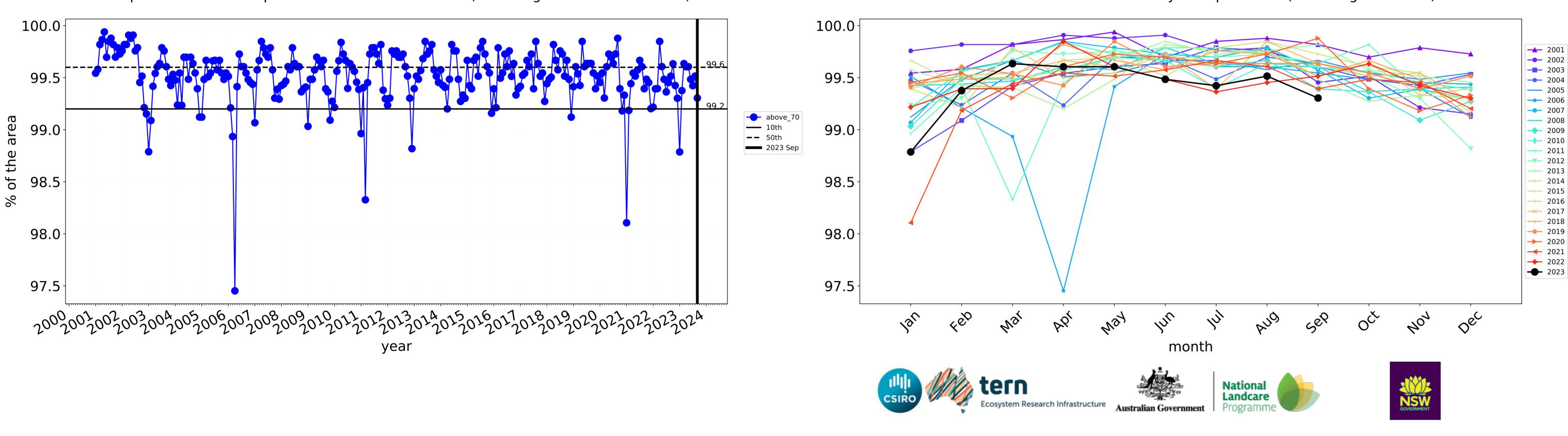
record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of

the map using baseline from 2001 to 2019.

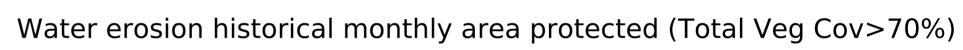
Conservation and natural environments Forest (non woodland) timeseries



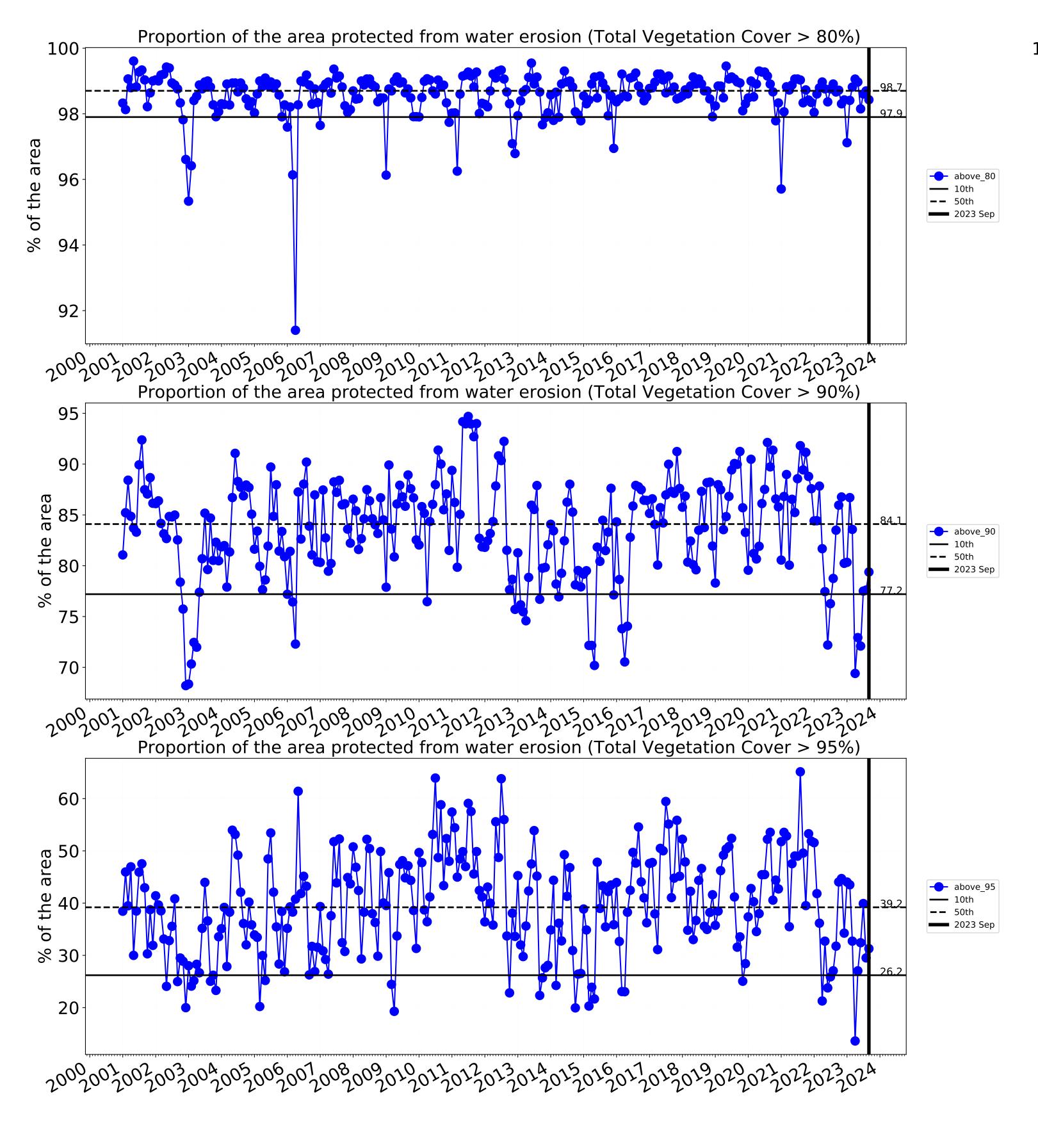
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

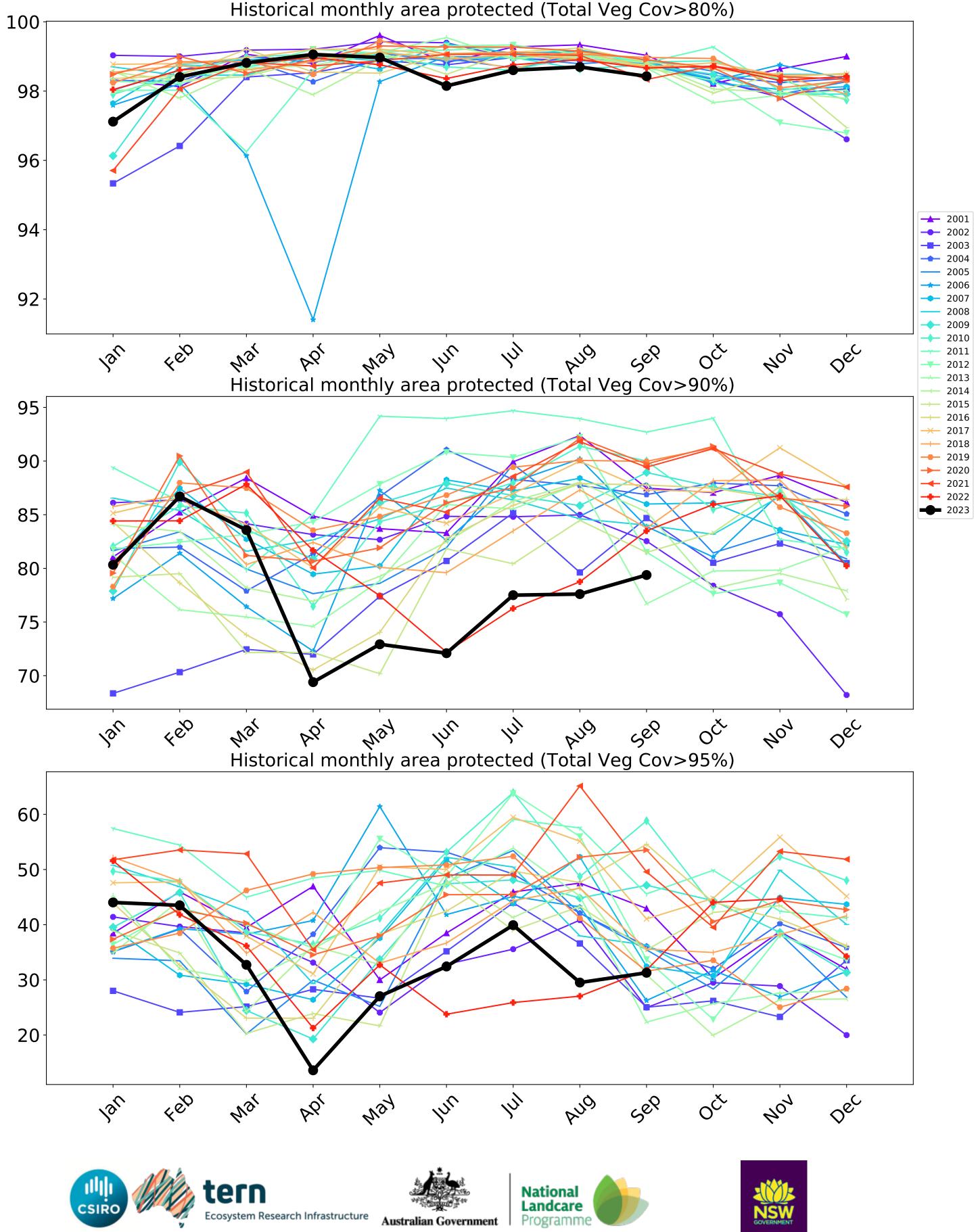


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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





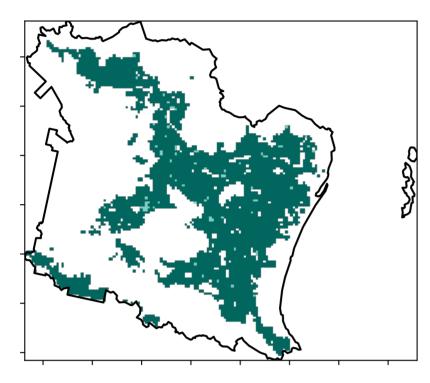
Agriculture

Land use and forest cover

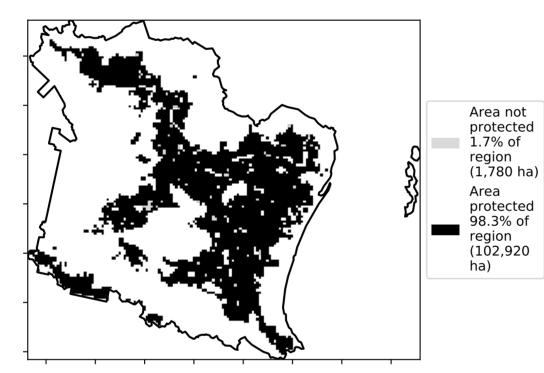
Proportion of each land class in area

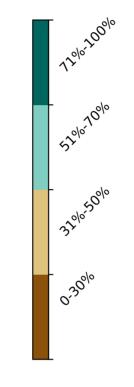


Total Vegetation Cover [%]

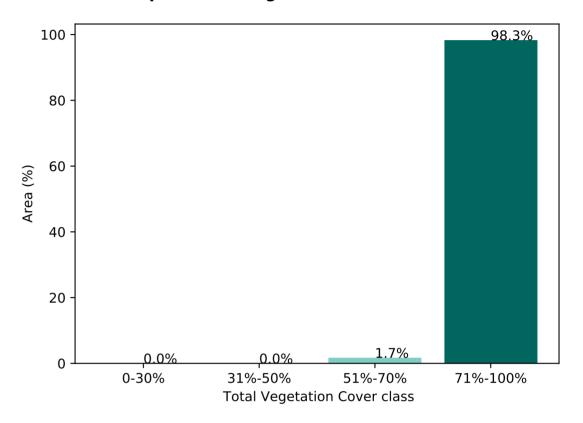


% Area protected from water erosion (>70%)

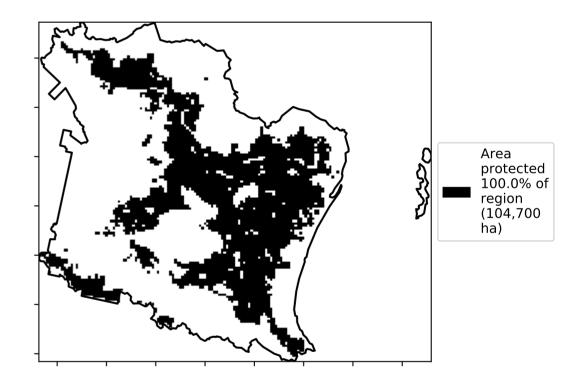




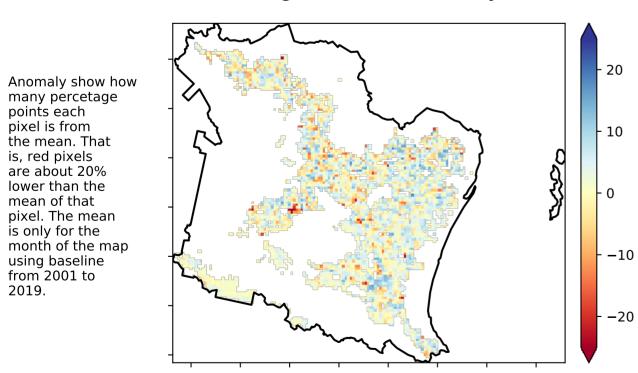
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



the mean. That

is, red pixels

are about 20% lower than the

mean of that

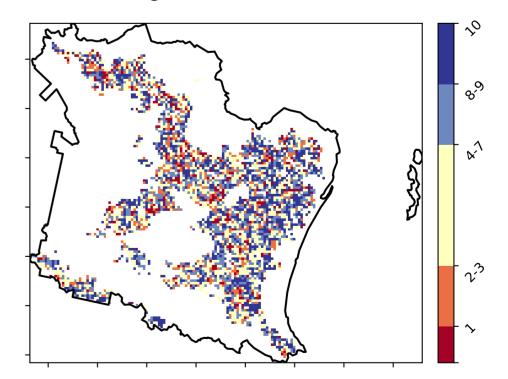
pixel. The mean

from 2001 to 2019.

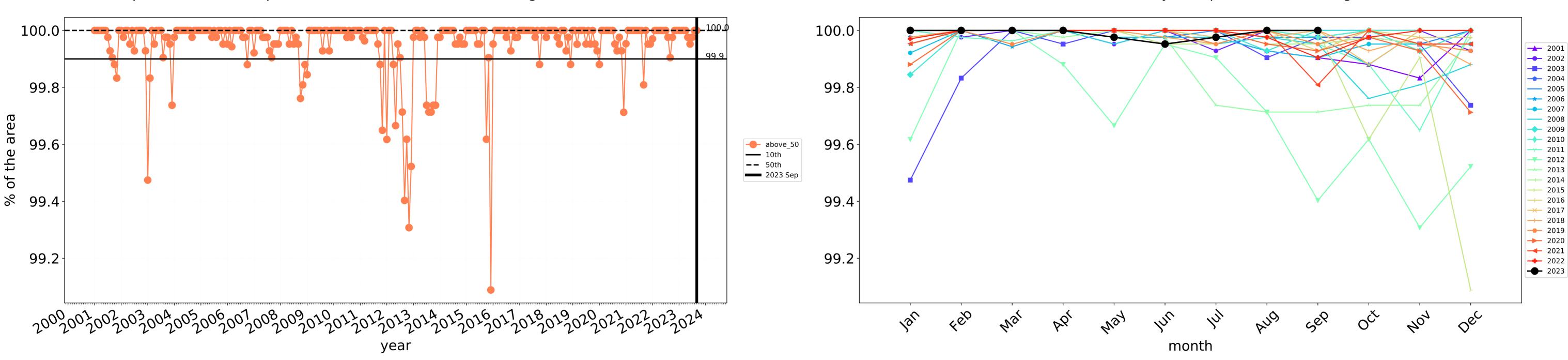
is only for the month of the map

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 [%]







--- above_70

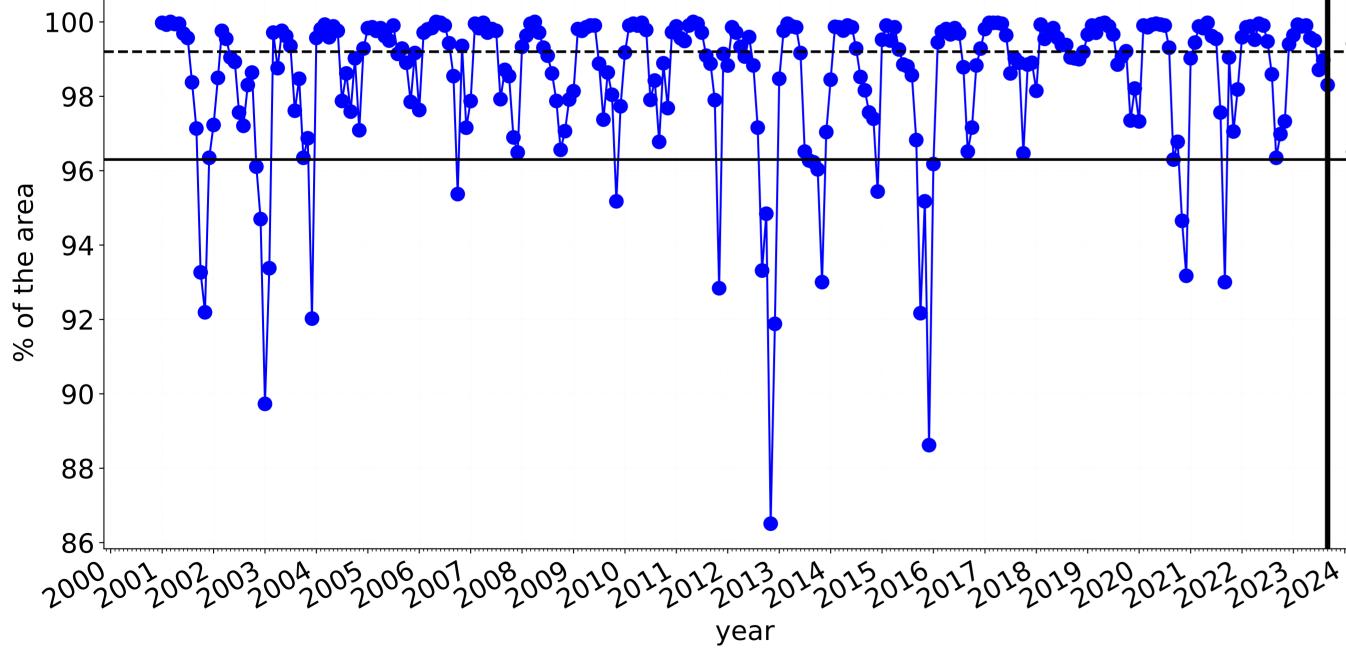
— 2023 Sep

— 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%)



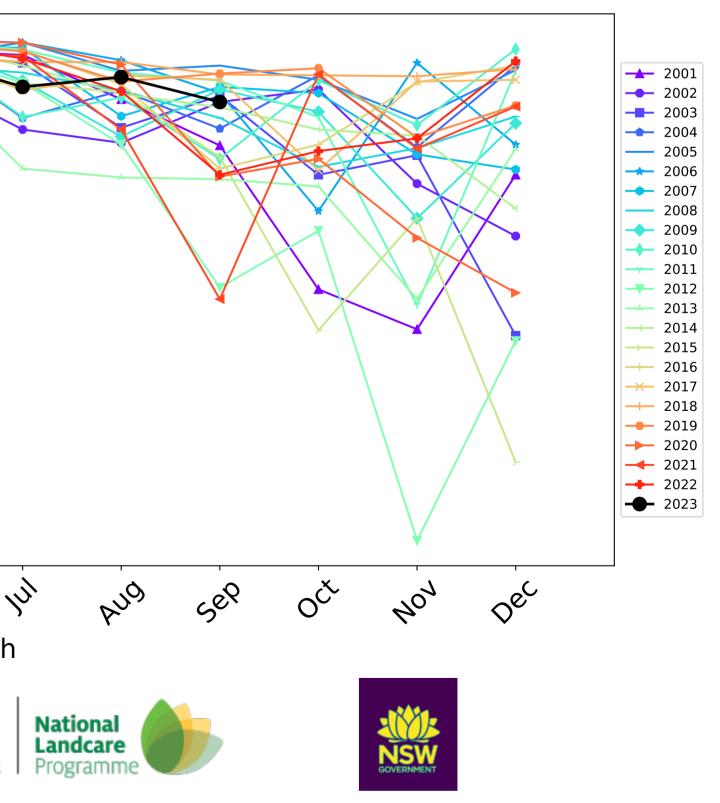
Agriculture timeseries

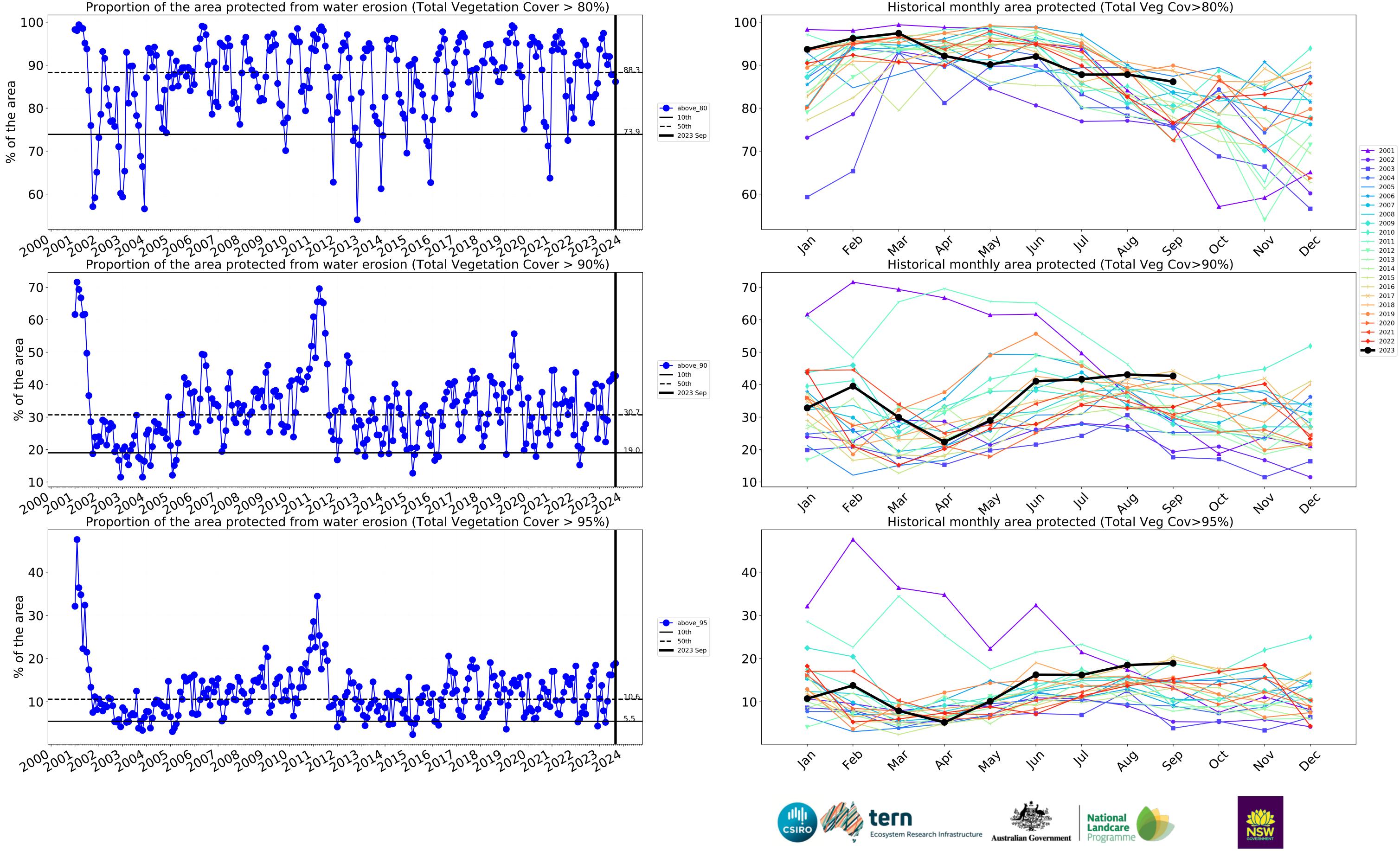
<u>99.2</u>

100 98 96 94 92 90 88 86 4eb lar May In Mai Þb, month tern Ecosystem Research Infrastructure Australian Government

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

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





Grazing

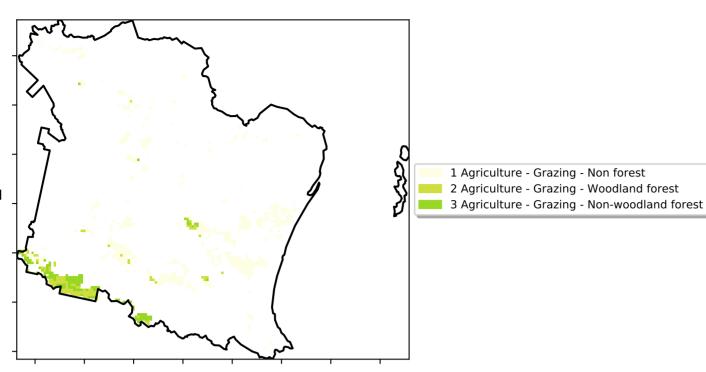
12%200%

52°1070°10

32%50%

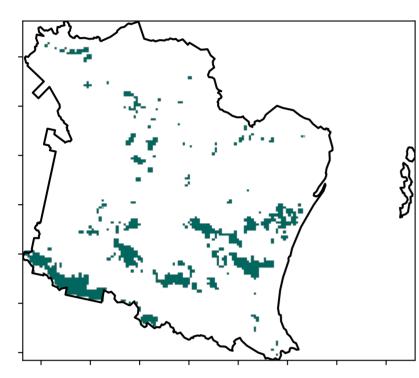
0.30%

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

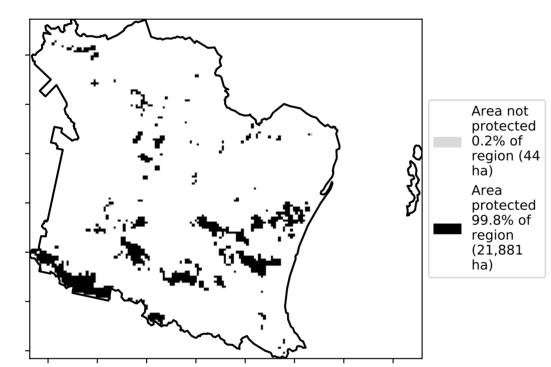


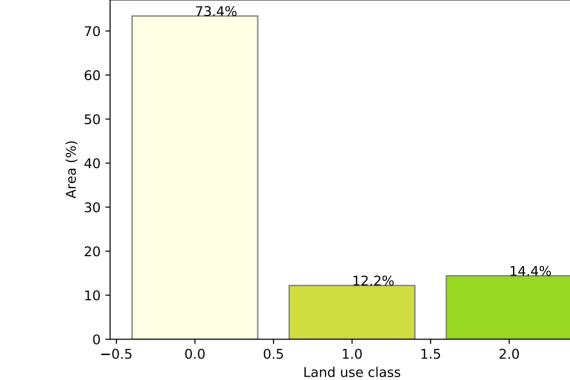
Land use and forest cover

Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

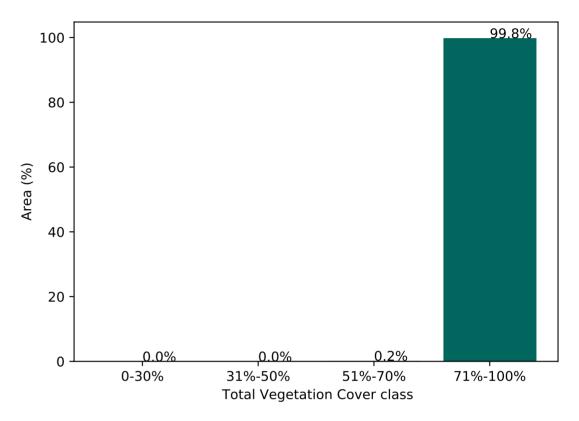




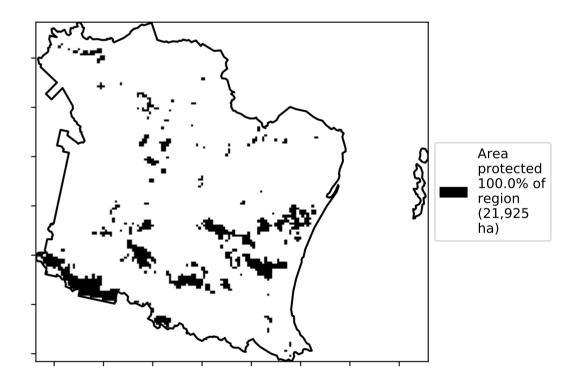
Proportion of each land class in area

Proportion of vegetation cover class in area

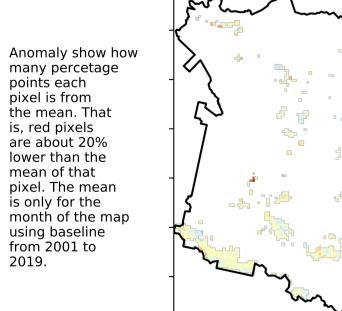
2.5

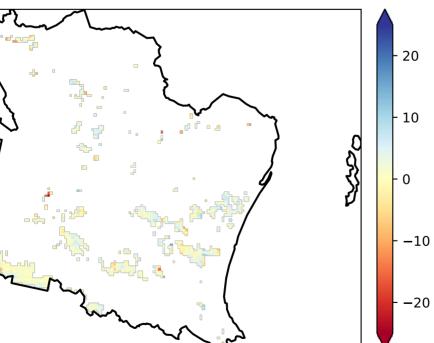


% Area protected from wind erosion (>50%)

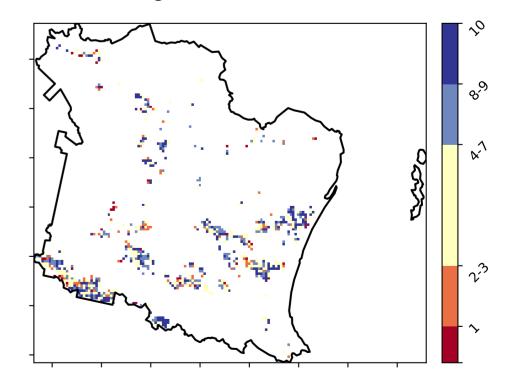


Total Vegetation Cover Anomaly [%]

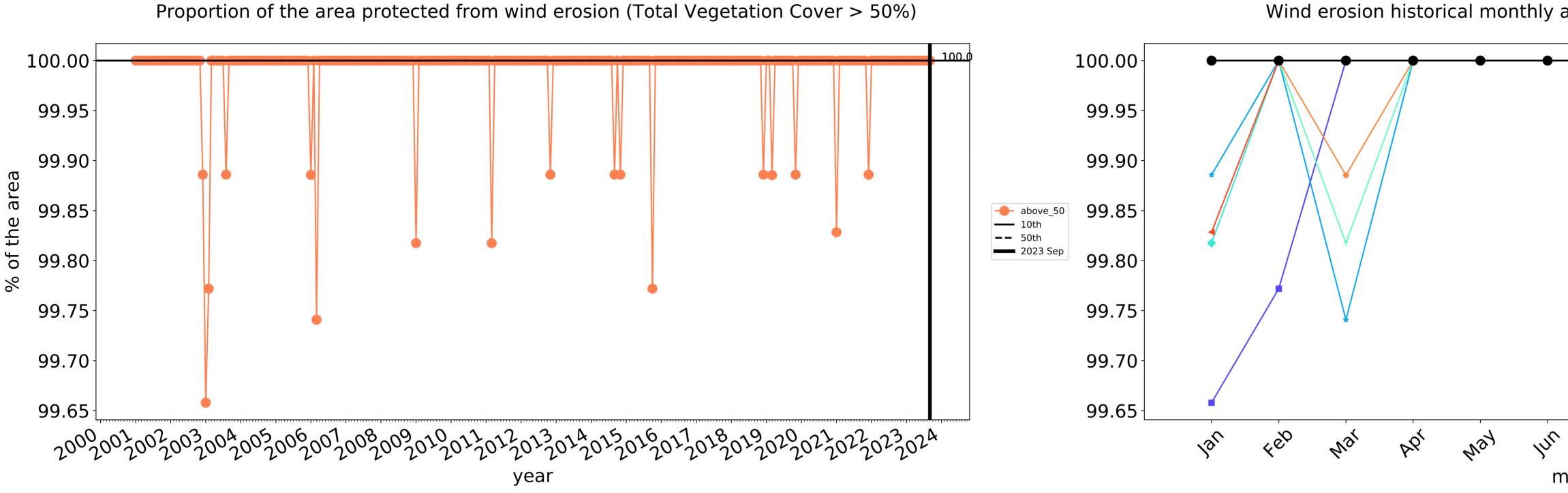


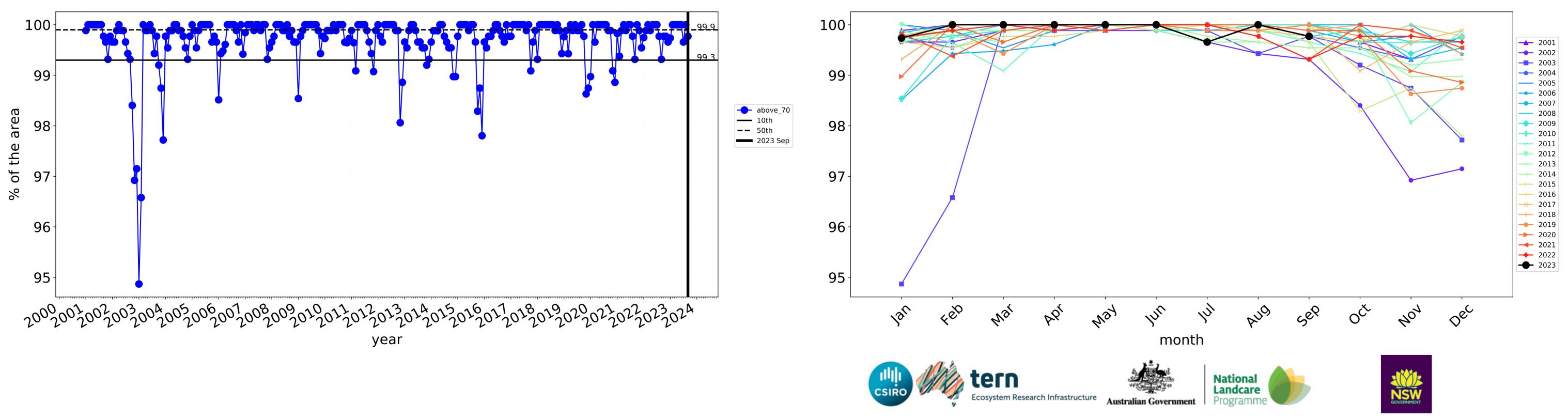


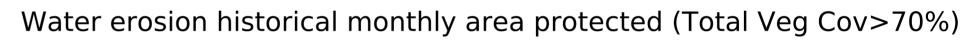
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. Total Vegetation Cover Decile [%]



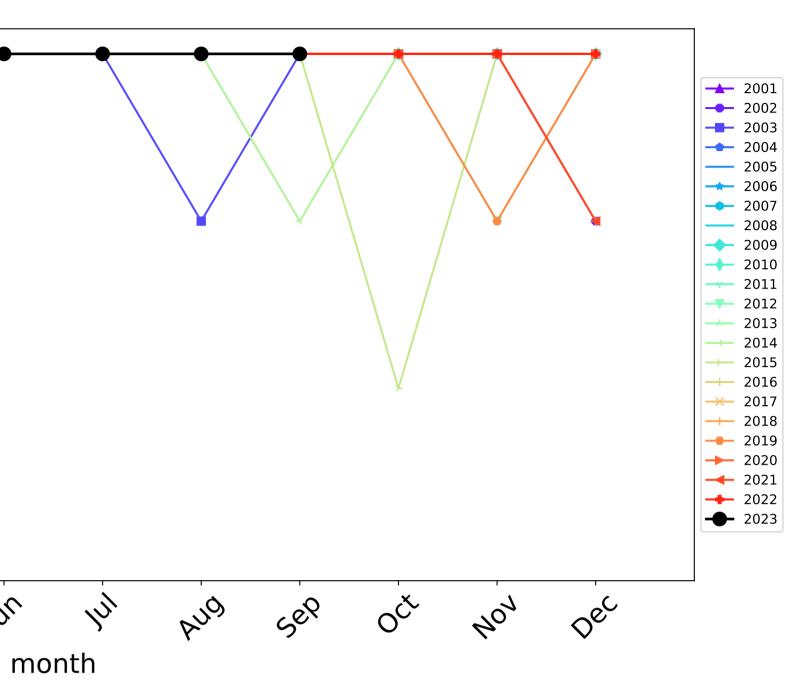


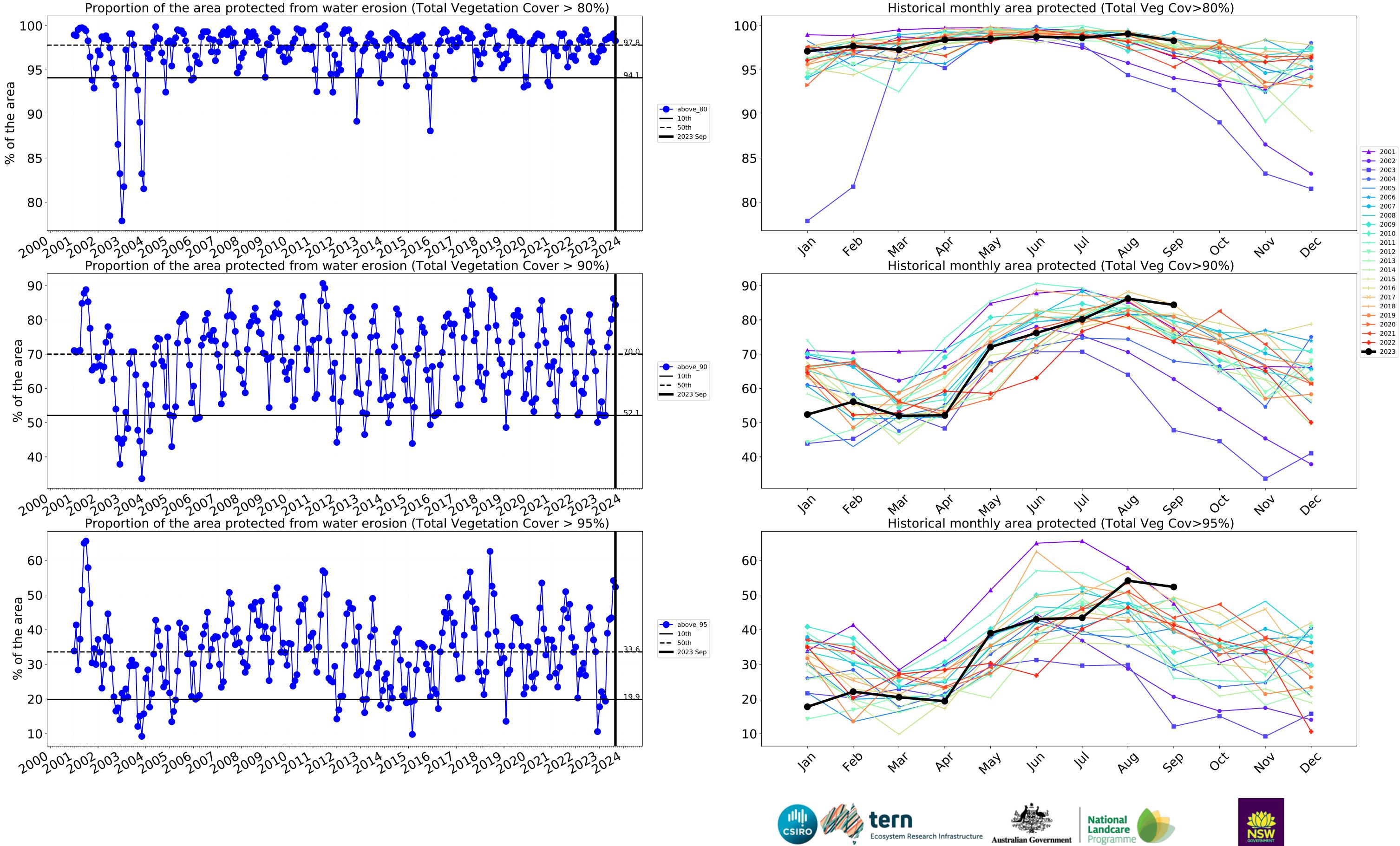






Wind erosion historical monthly area protected (Total Veg Cov >50%)





Ecosystem Research Infrastructure Australian Government

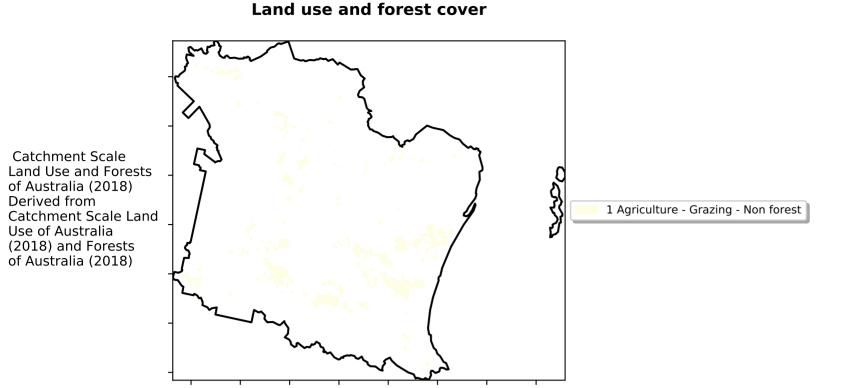
Grazing non forest

12%200%

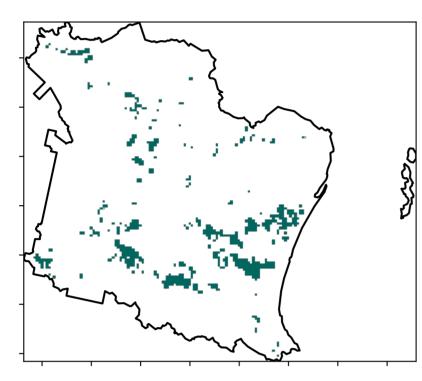
52°1070°10

32%50%

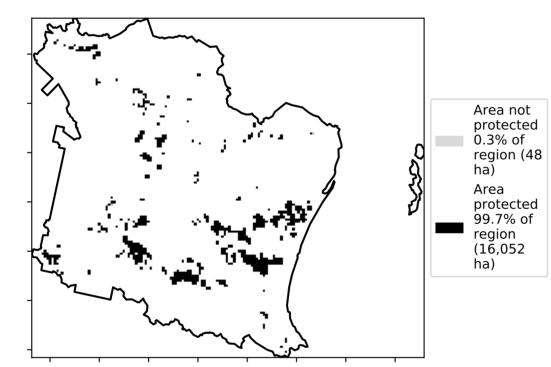
0.30%



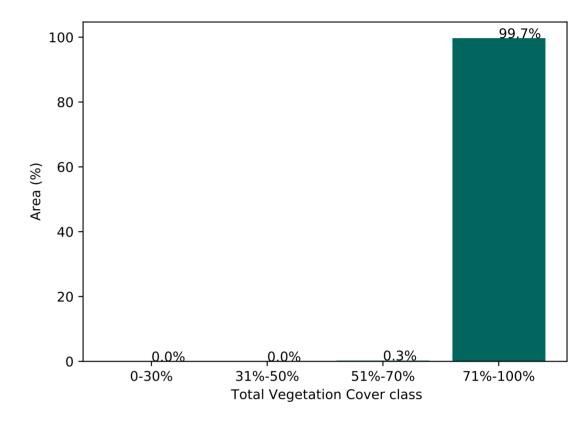
Total Vegetation Cover [%]



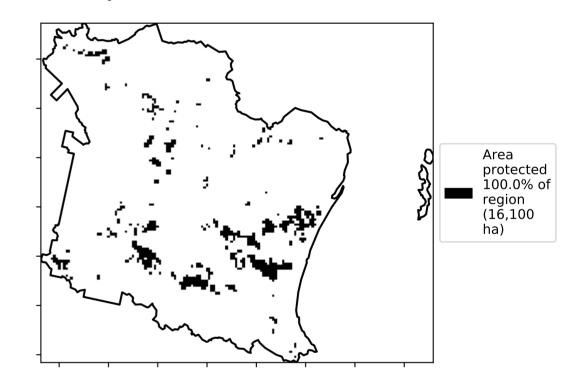
% Area protected from water erosion (>70%)



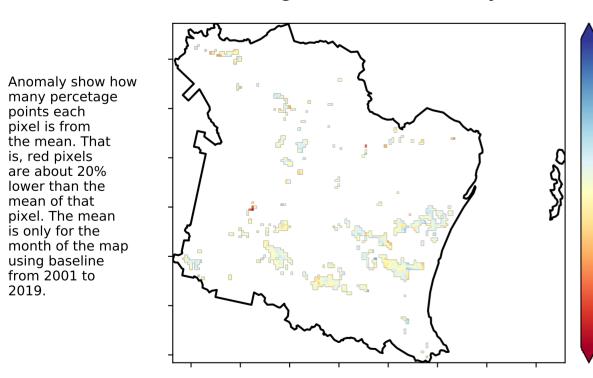
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



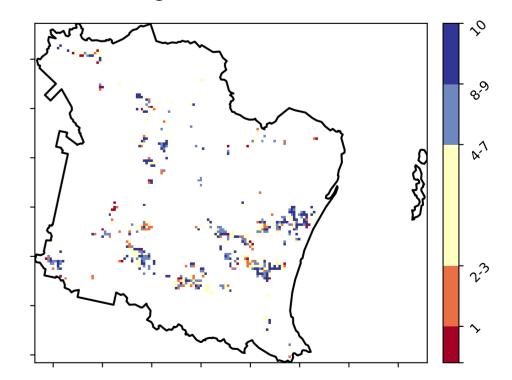
is, red pixels

lower than the

mean of that

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 [%]









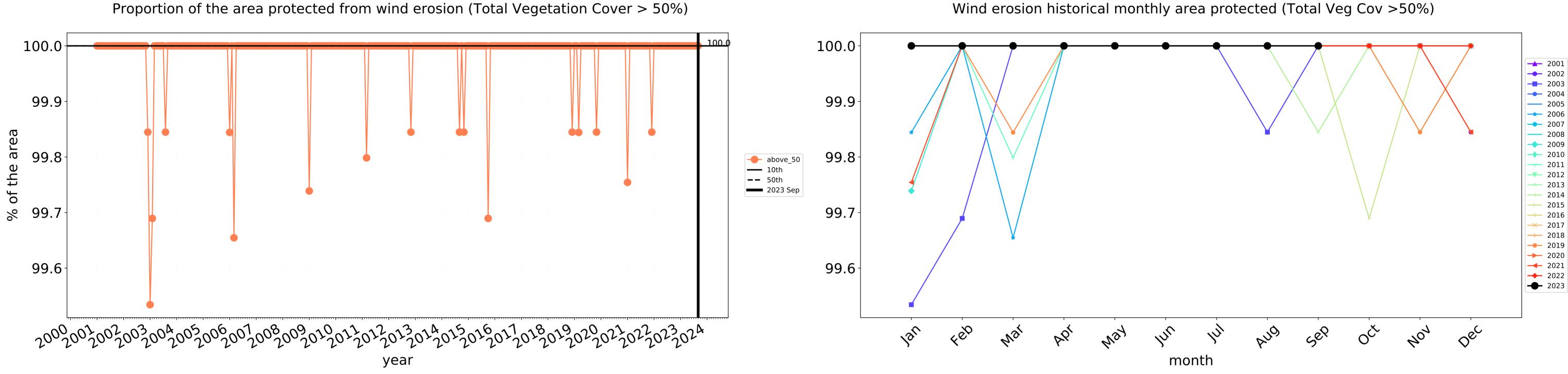
- 20

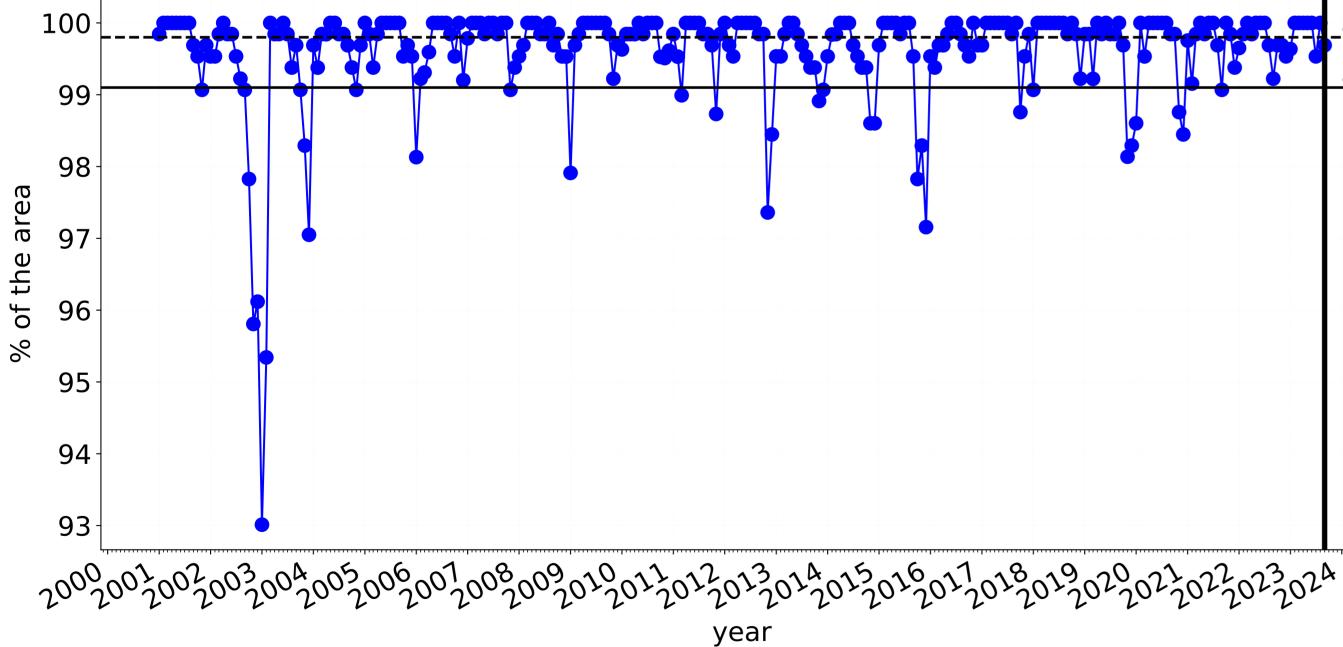
· 10

0

-10

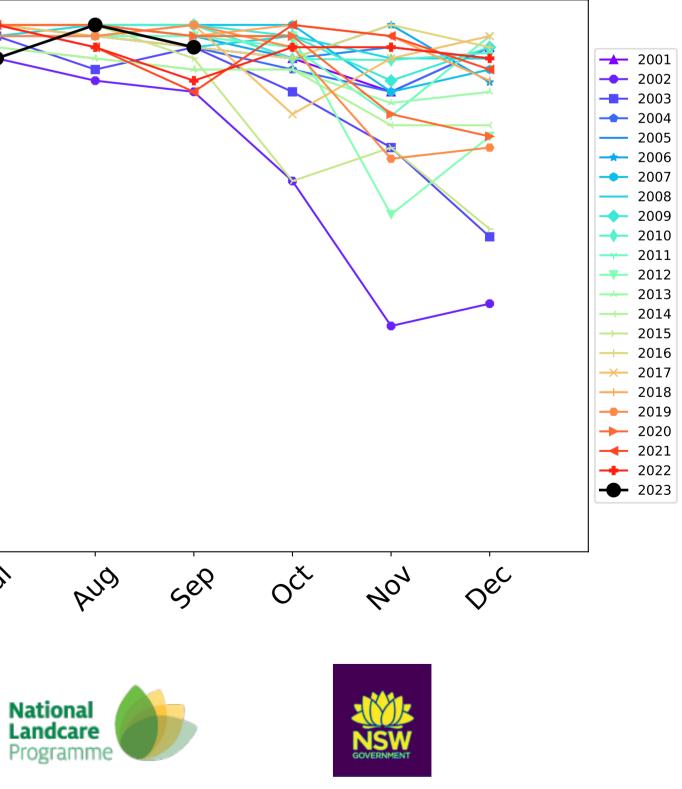
-20

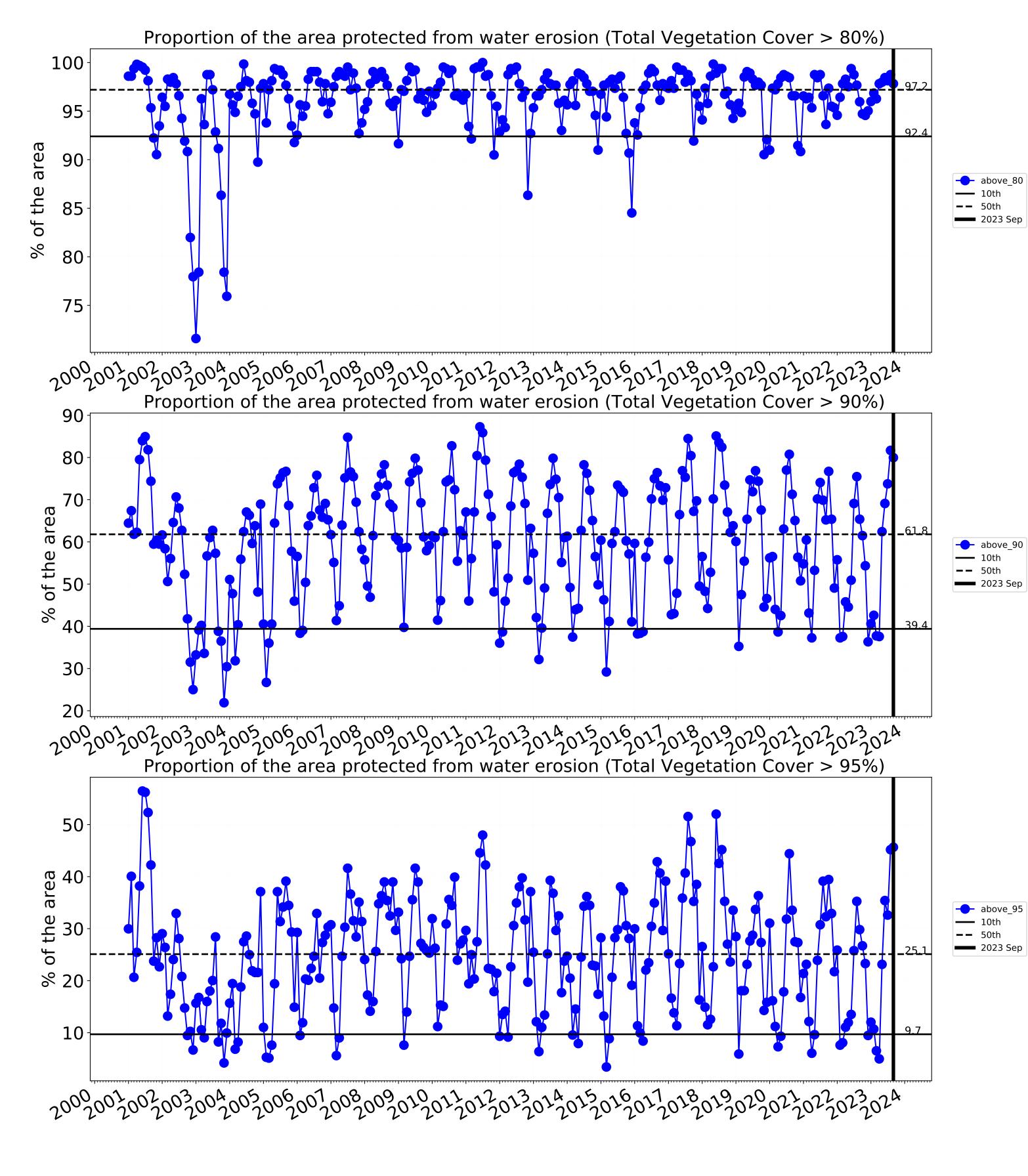


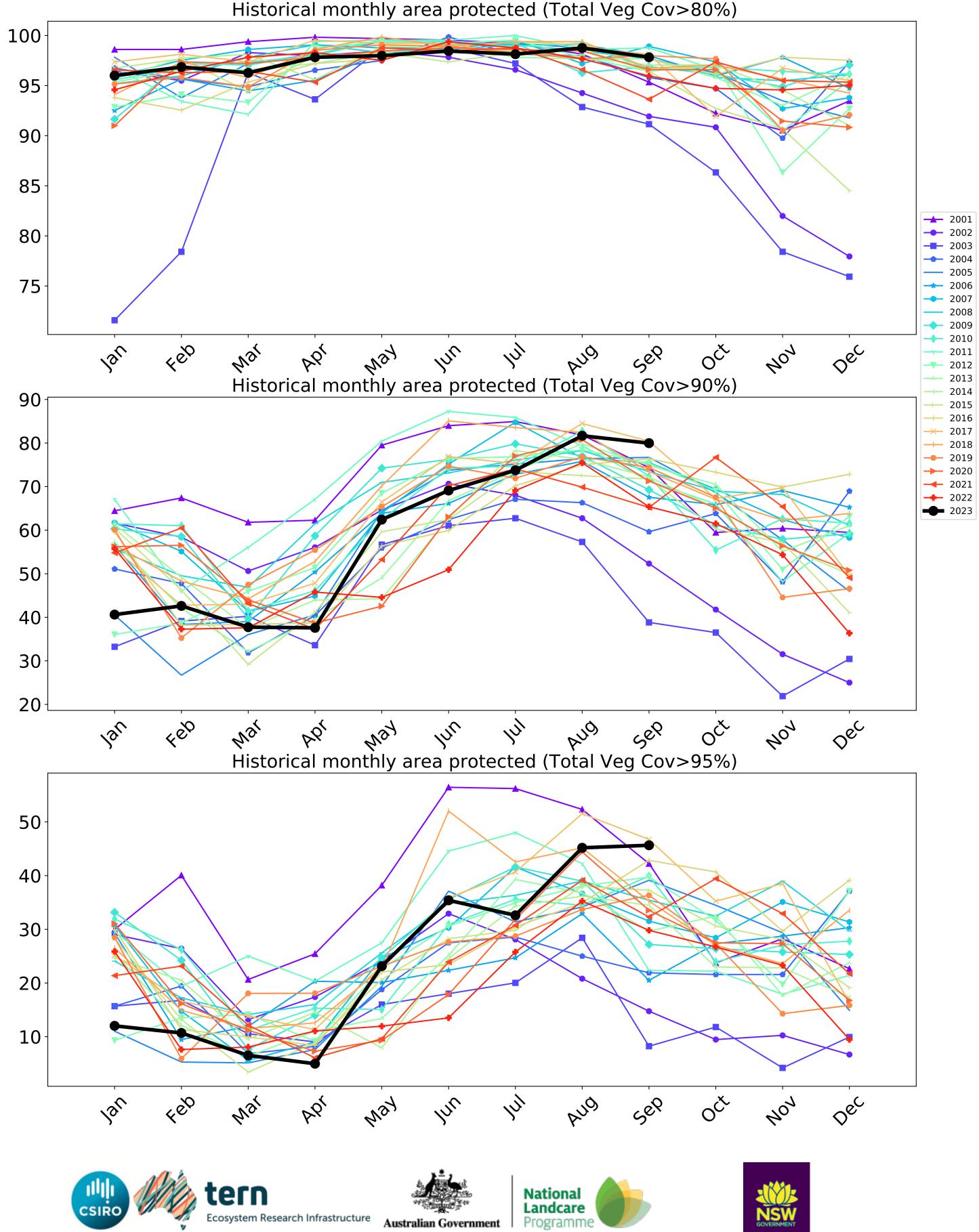


100 99.8 991 99 98 ---- above_70 **—** 10th **——** 50th 97 **—** 2023 Sep 96 95⁻ 94 93 Par feb way In In In PQ Mai month tern Ecosystem Research Infrastructure Australian Government

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







Australian Government

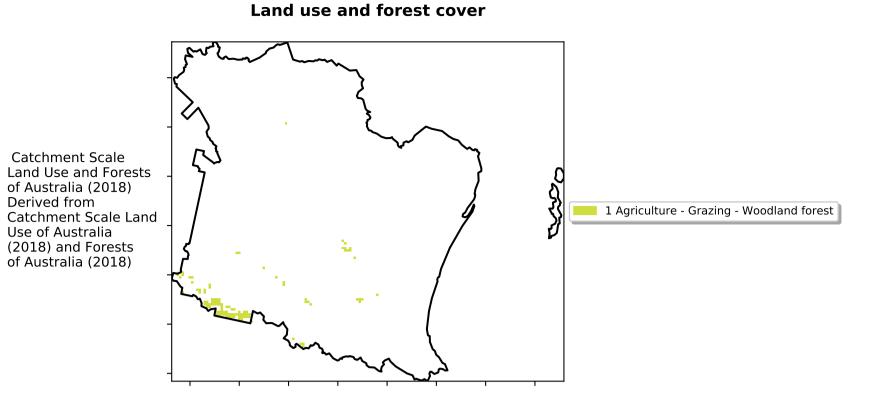
Grazing Woodland forest

1200-2000

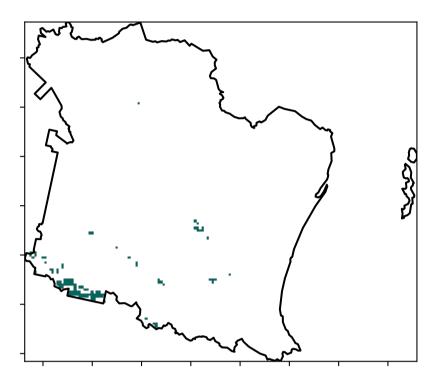
52°10-70°10

320050010

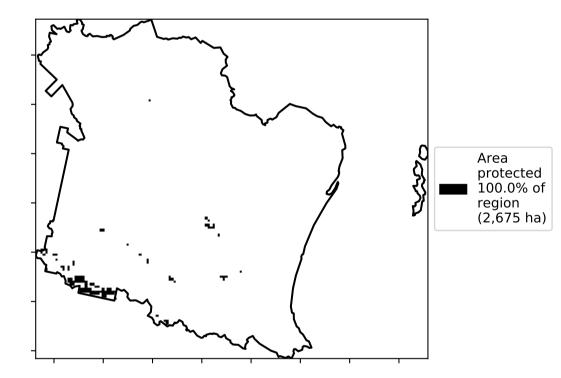
· 0.30%



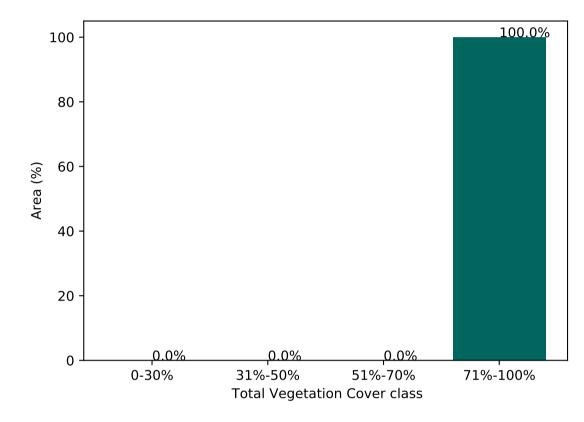
Total Vegetation Cover [%]



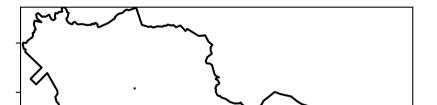
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area

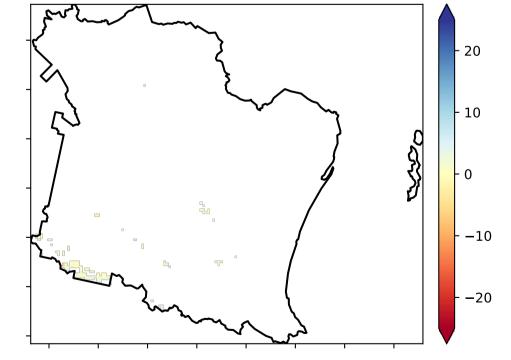


% Area protected from wind erosion (>50%)

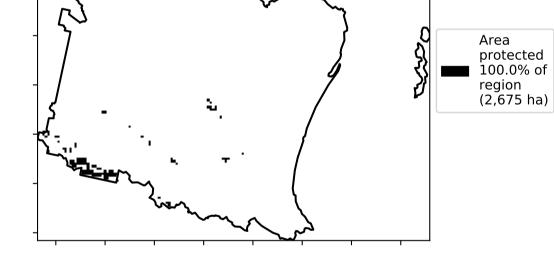


Total Vegetation Cover Anomaly [%]

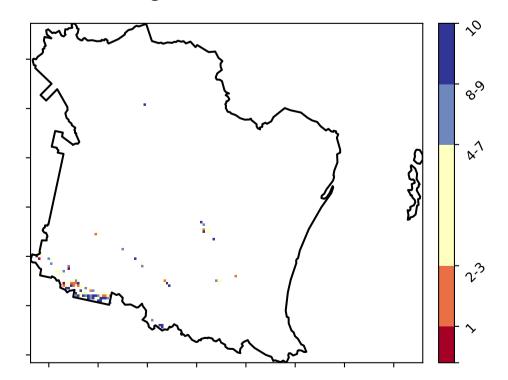
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



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 map using baseline from 2001 to 2019.

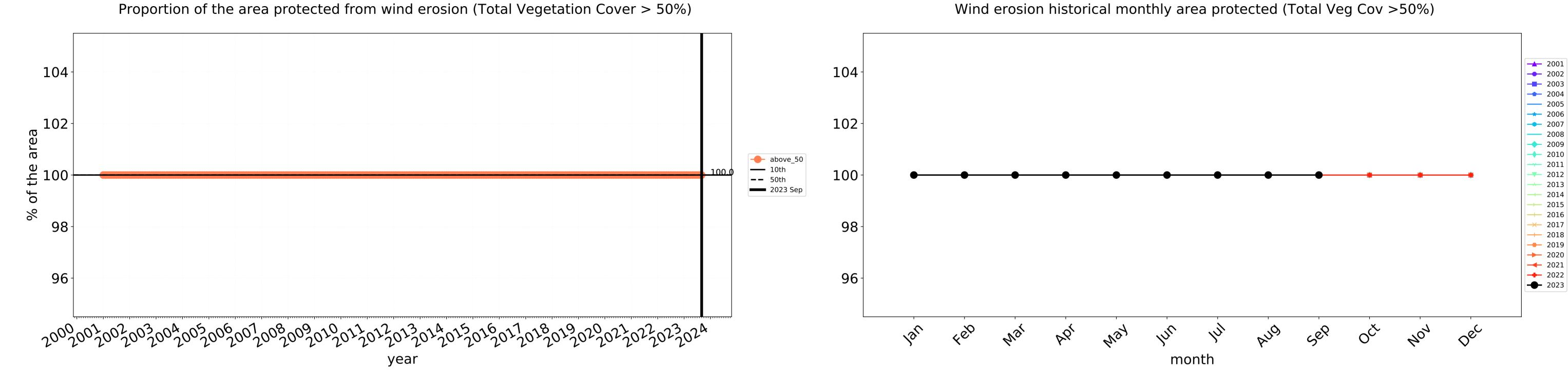


Total Vegetation Cover Decile [%]

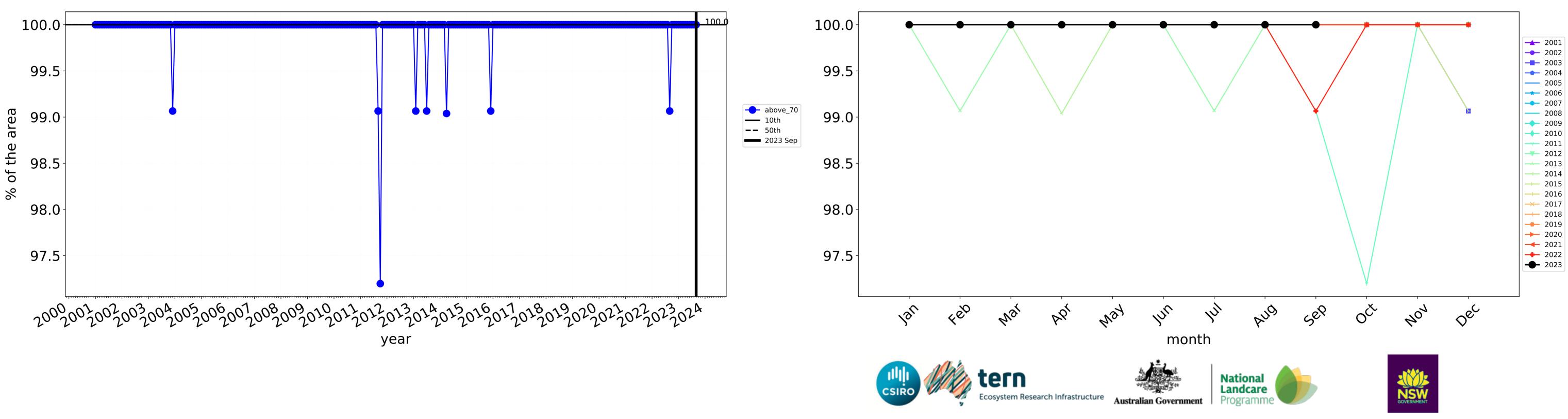




Grazing Woodland forest timeseries

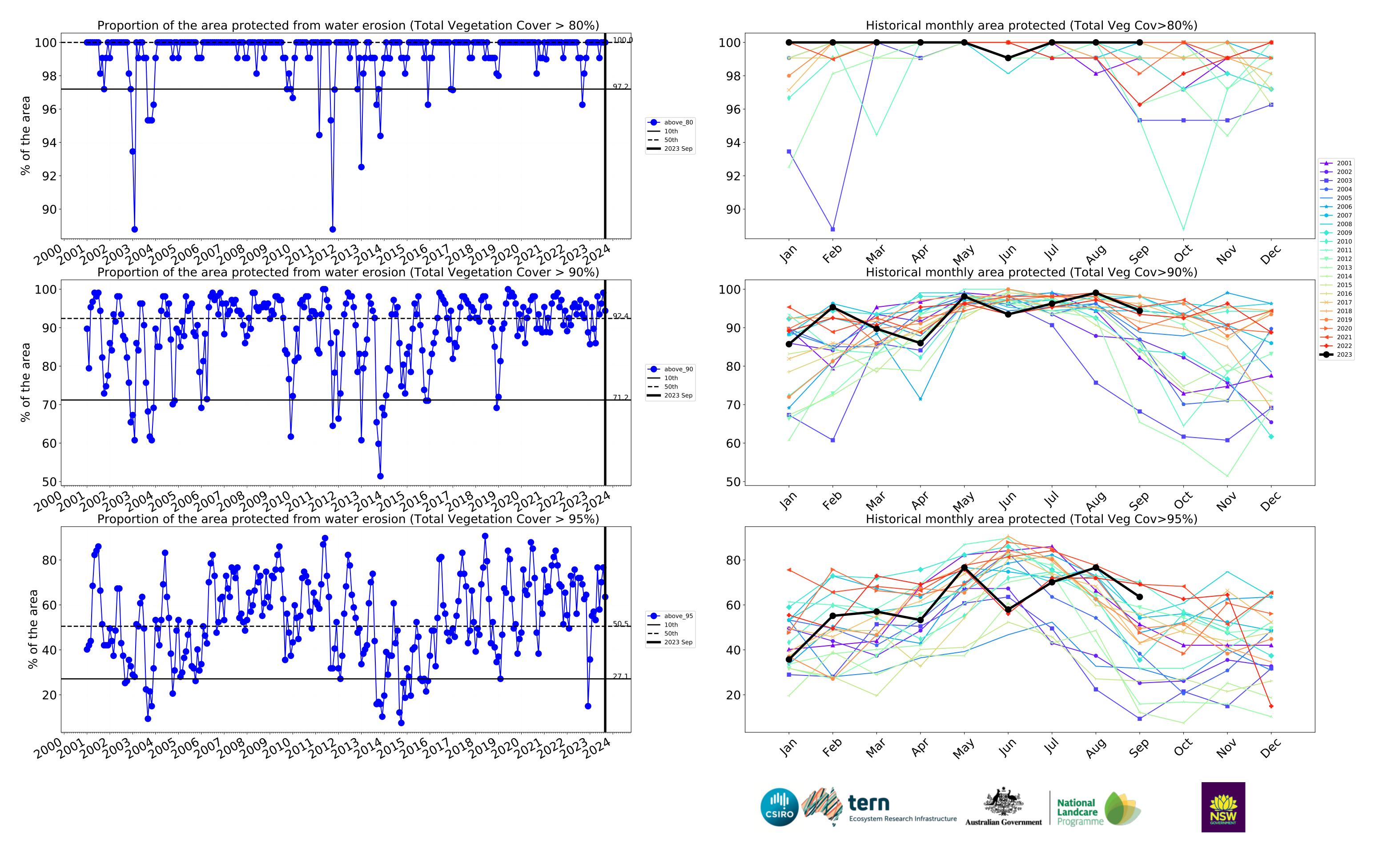


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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

2**3**



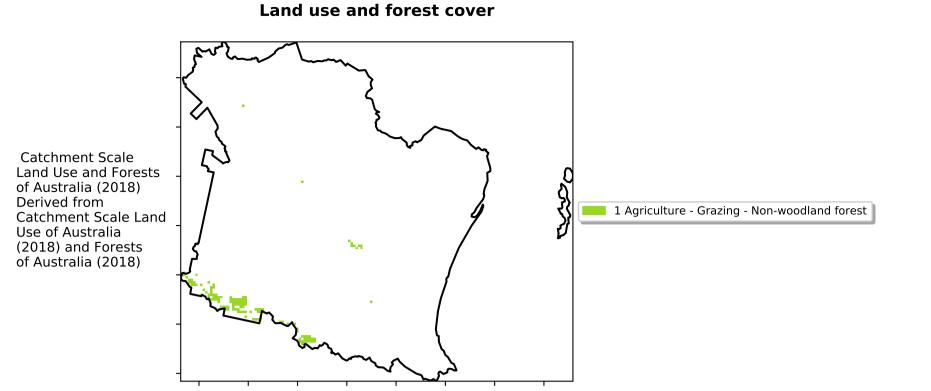
Grazing - Forest (non woodland)

1200-2000

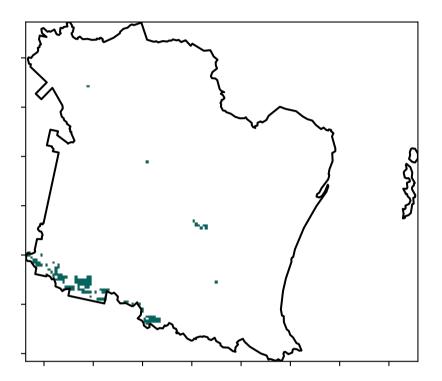
52°10010010

320050010

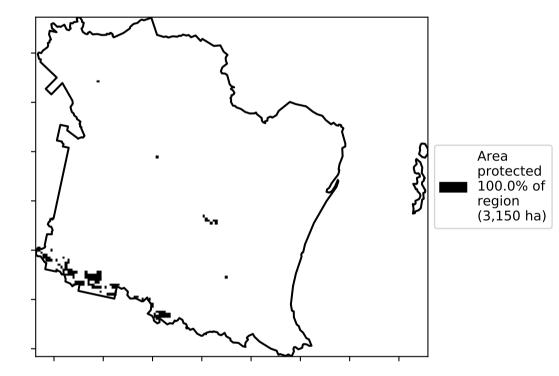
· 0.30%



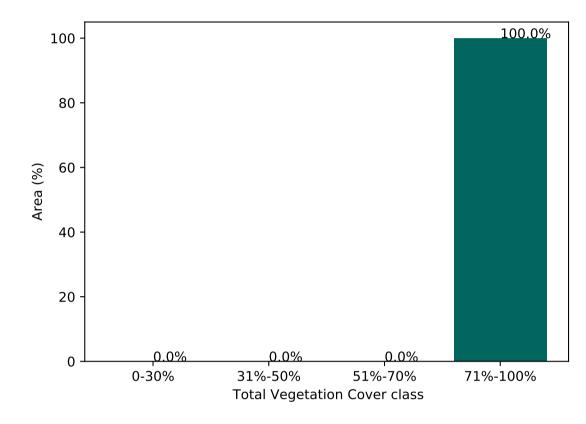
Total Vegetation Cover [%]



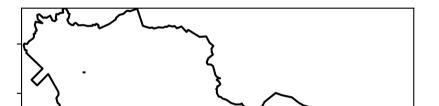
% Area protected from water erosion (>70%)



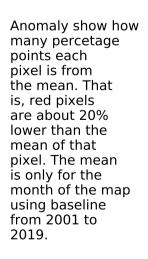
Proportion of vegetation cover class in area

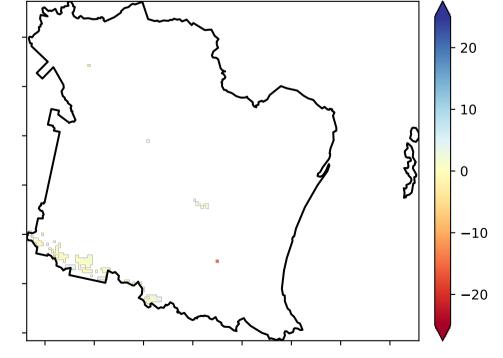


% Area protected from wind erosion (>50%)

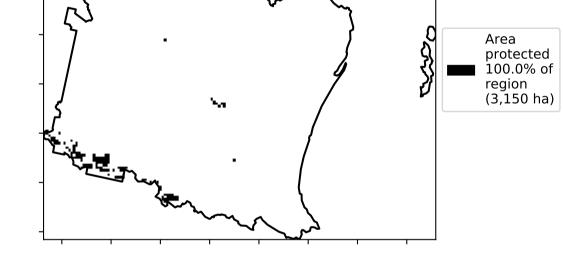


Total Vegetation Cover Anomaly [%]

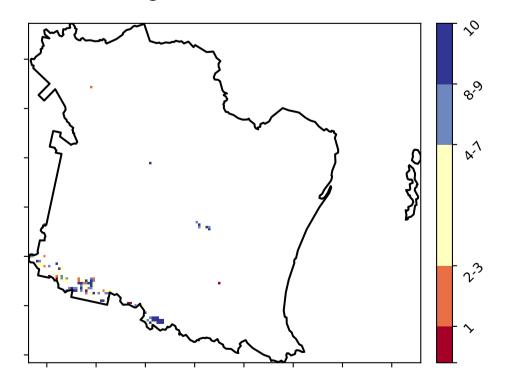




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



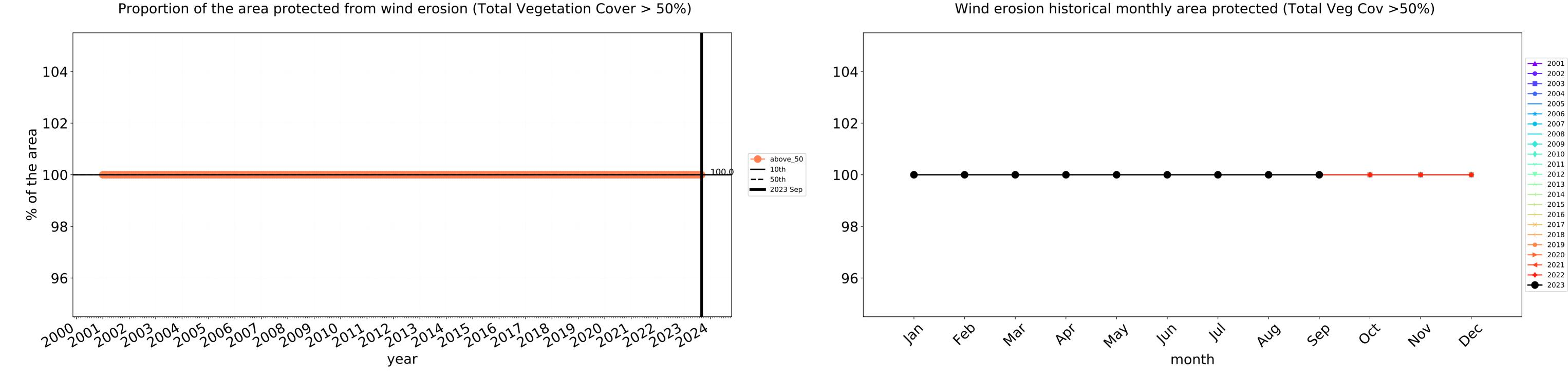
Total Vegetation Cover Decile [%]

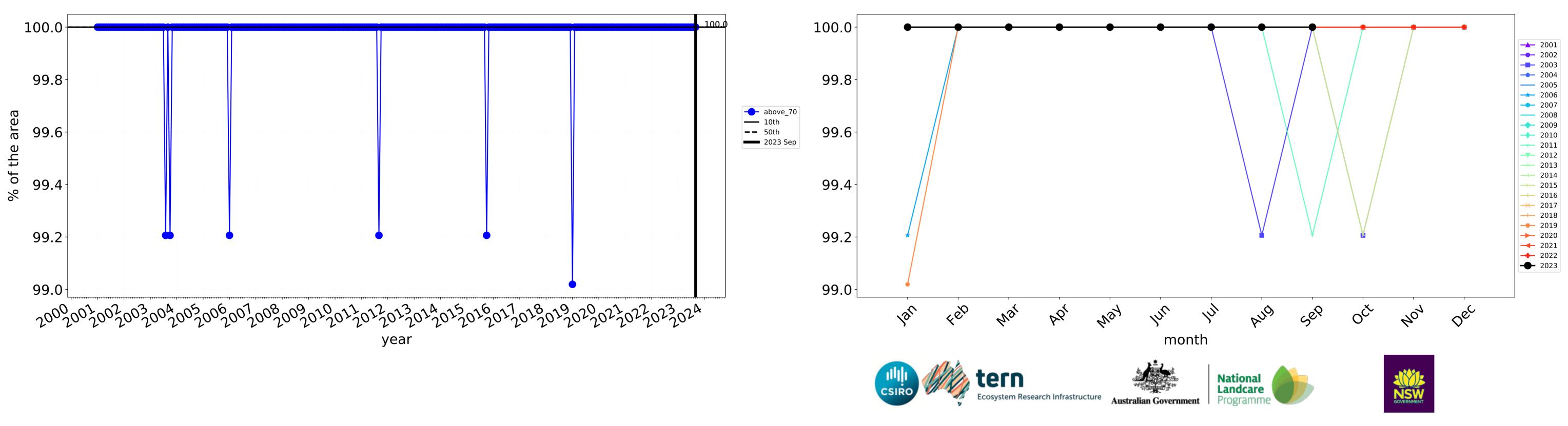




6. **1**

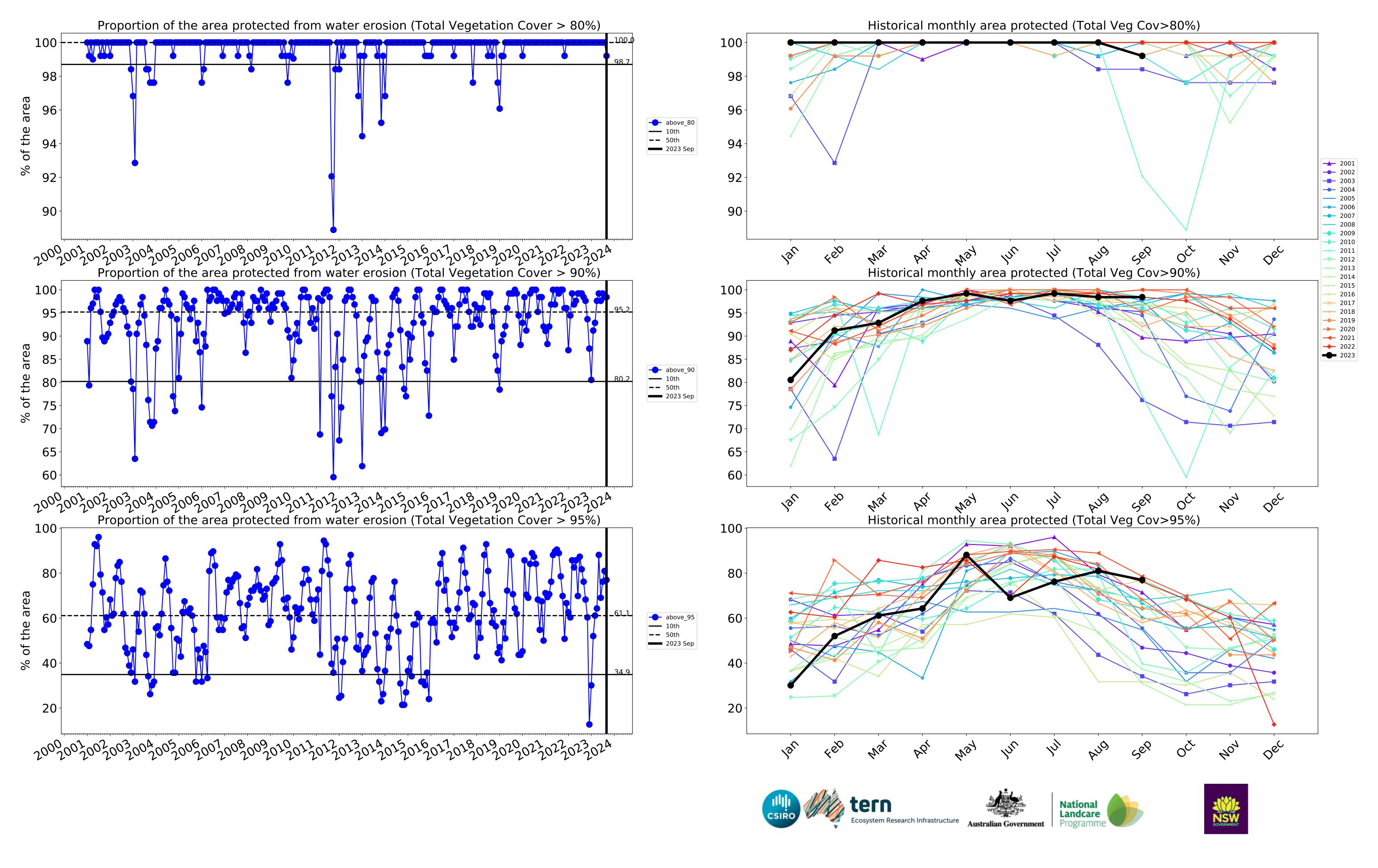
20





Grazing - Forest (non woodland) timeseries

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



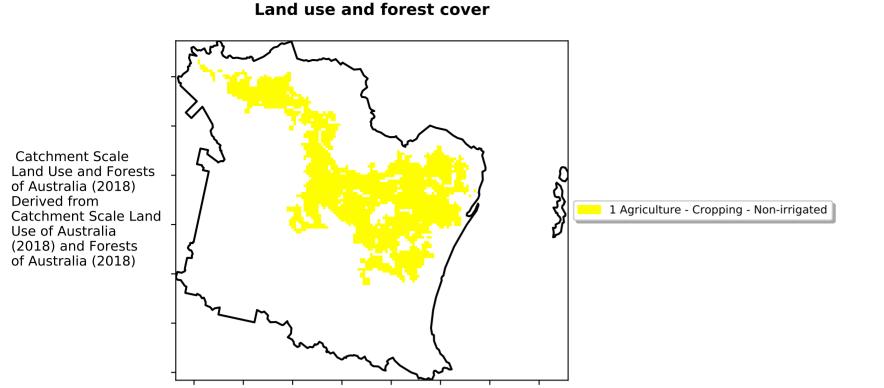
Cropping

12%200%

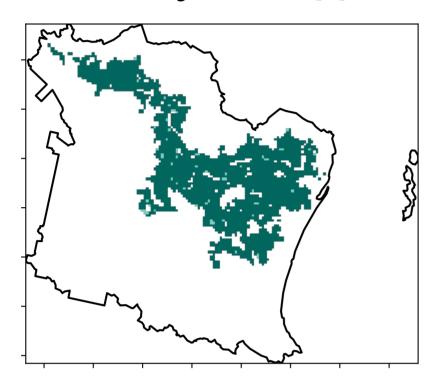
5200-TOOL

32905001

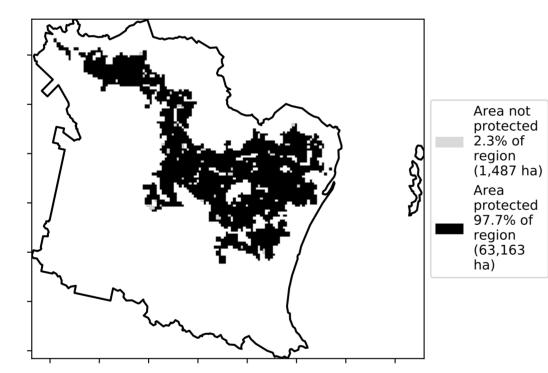
0.30%



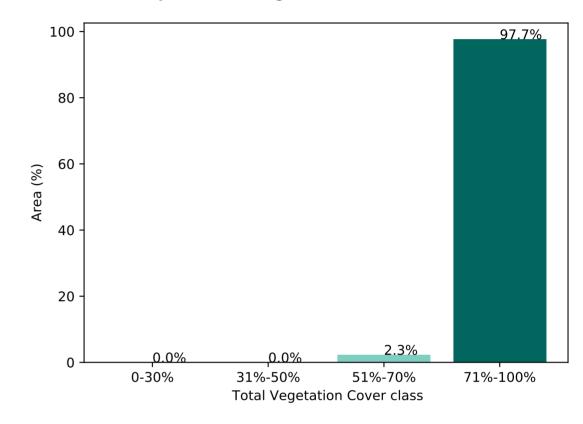
Total Vegetation Cover [%]



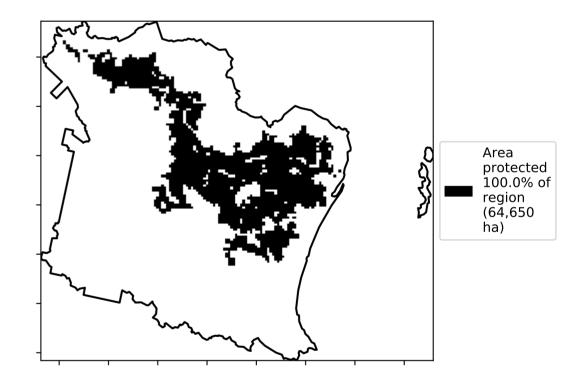
% Area protected from water erosion (>70%)



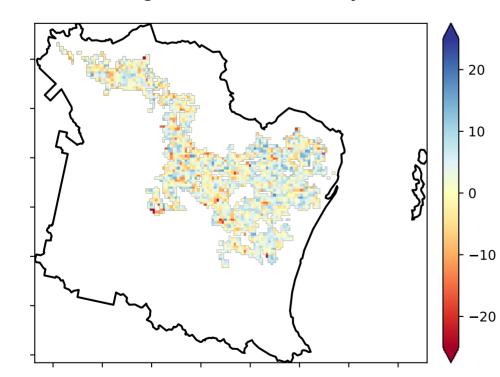
Proportion of vegetation cover class in area



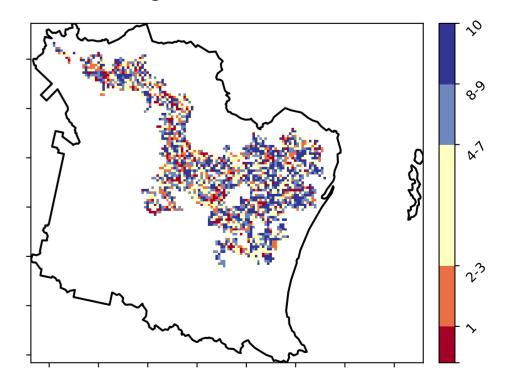
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



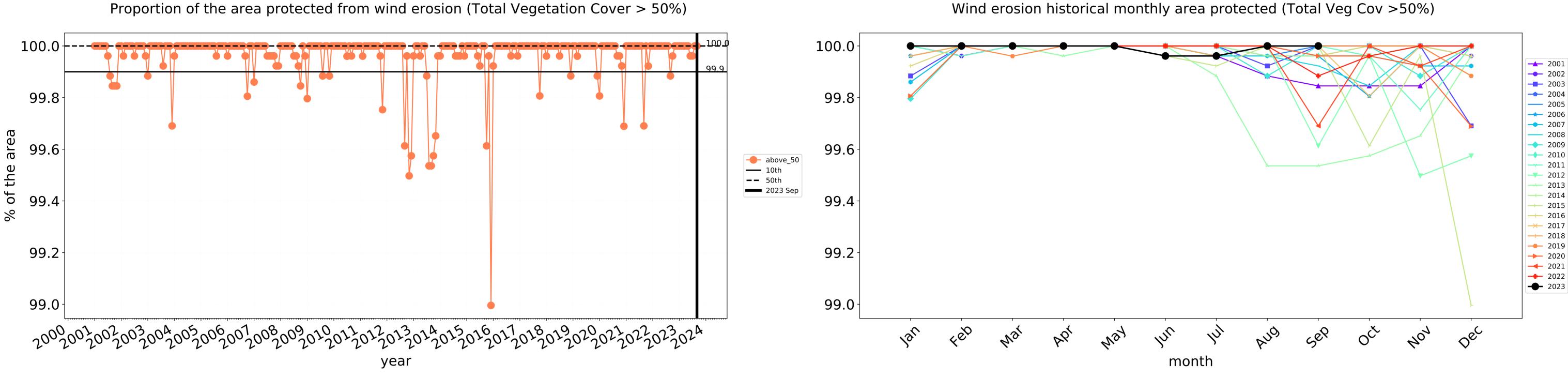
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. Total Vegetation Cover Decile [%]

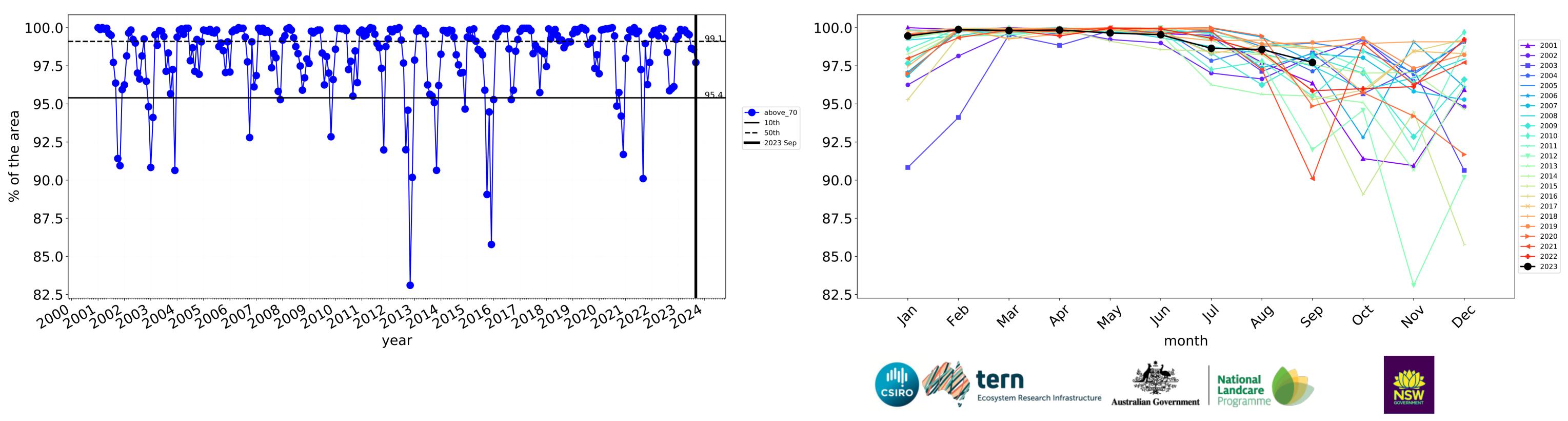




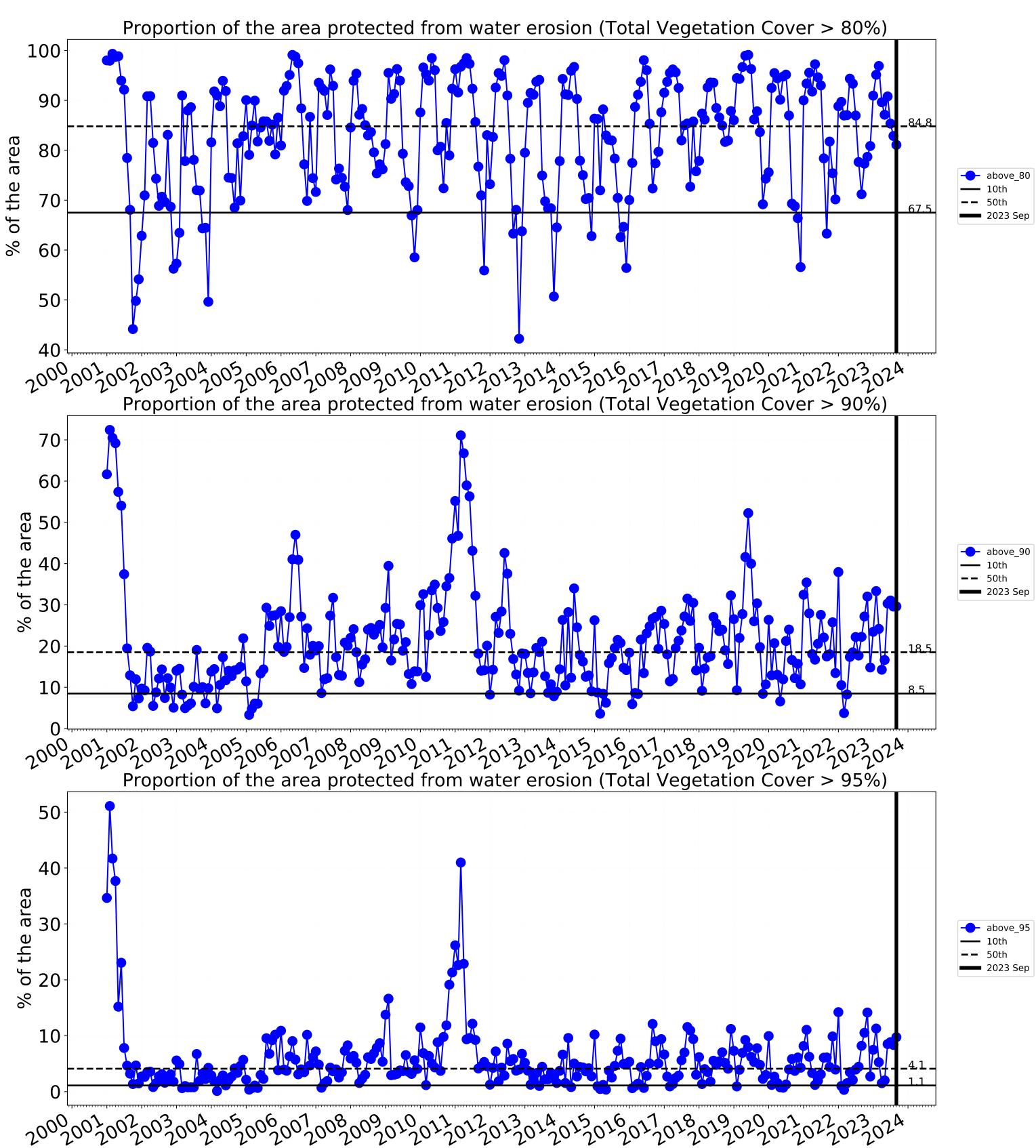
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

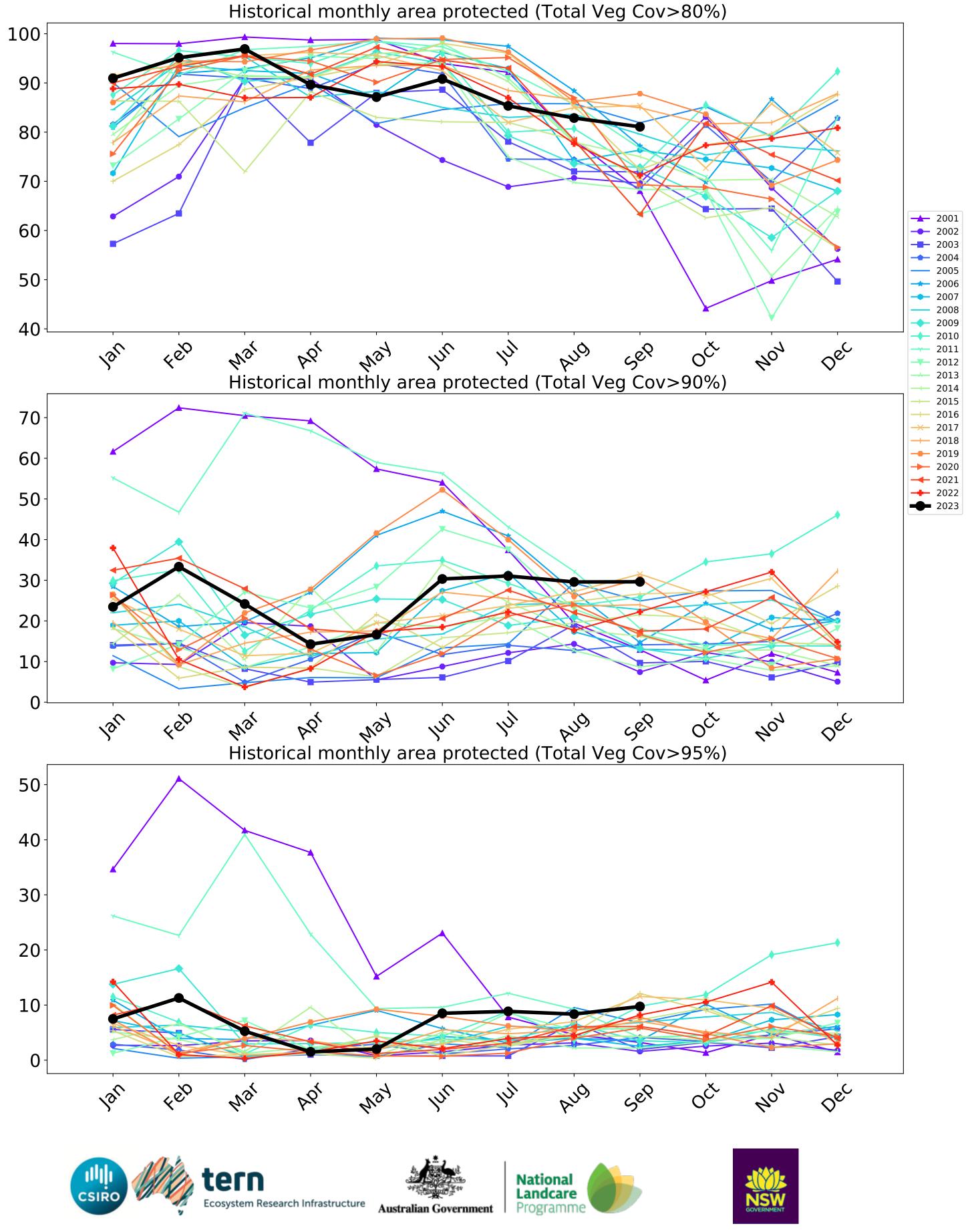






Water erosion historical monthly area protected (Total Veg Cov>70%)





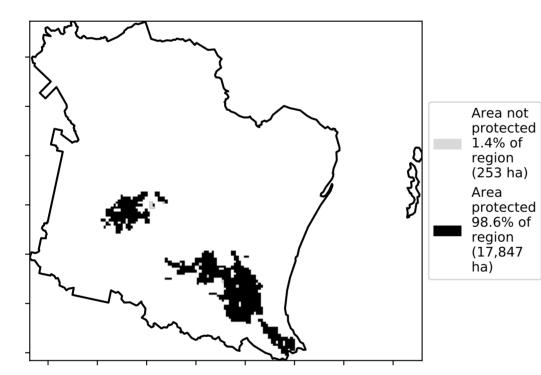


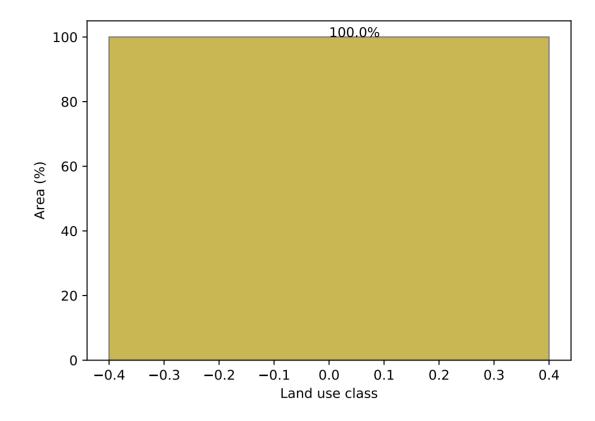
above 90

Irrigation

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 [%] $\int \int \int \int f (use the state of the stat$

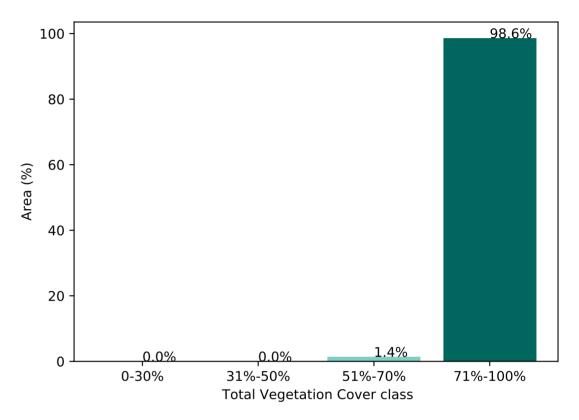
% Area protected from water erosion (>70%)





Proportion of each land class in area

Proportion of vegetation cover class in area

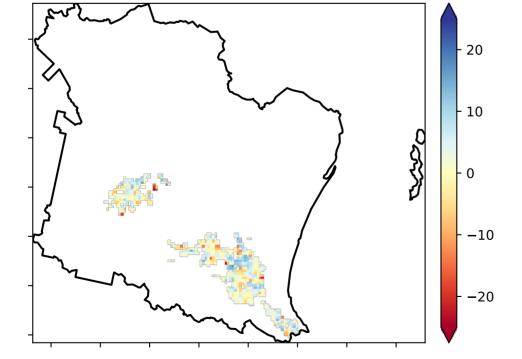


% Area protected from wind erosion (>50%)

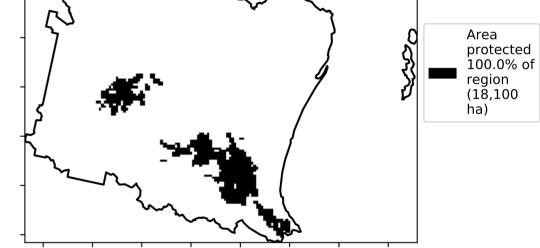


Total Vegetation Cover Anomaly [%]

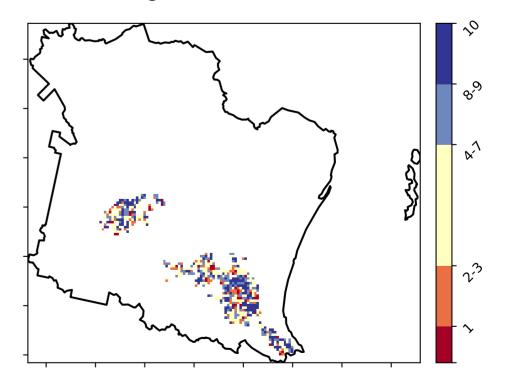
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



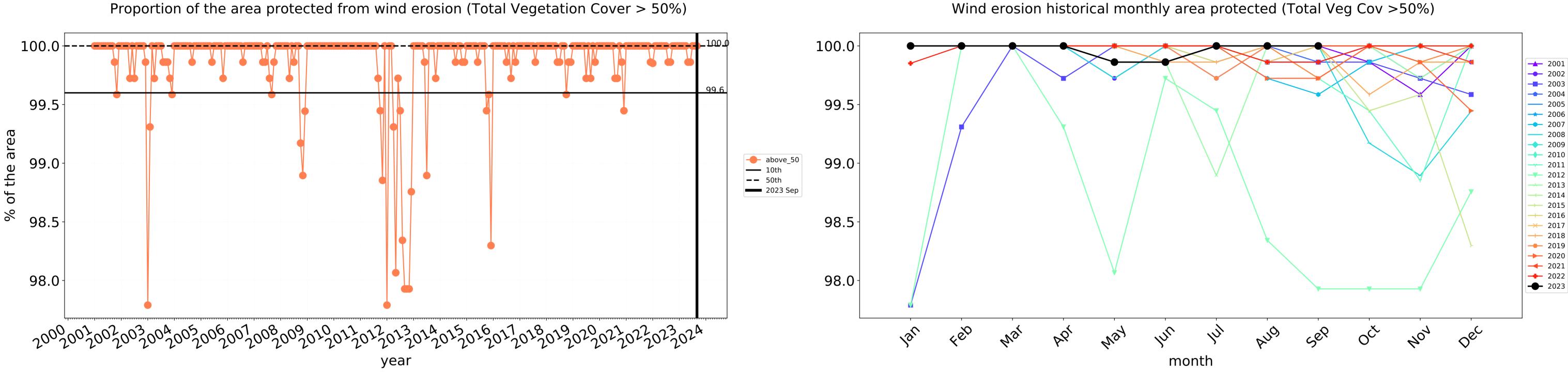
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



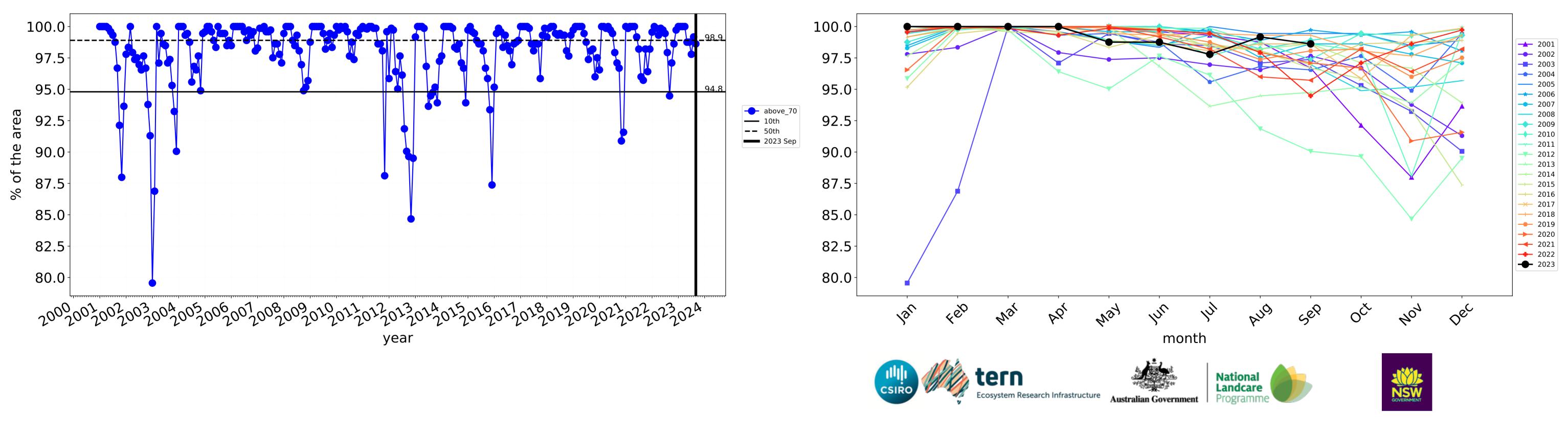
Total Vegetation Cover Decile [%]







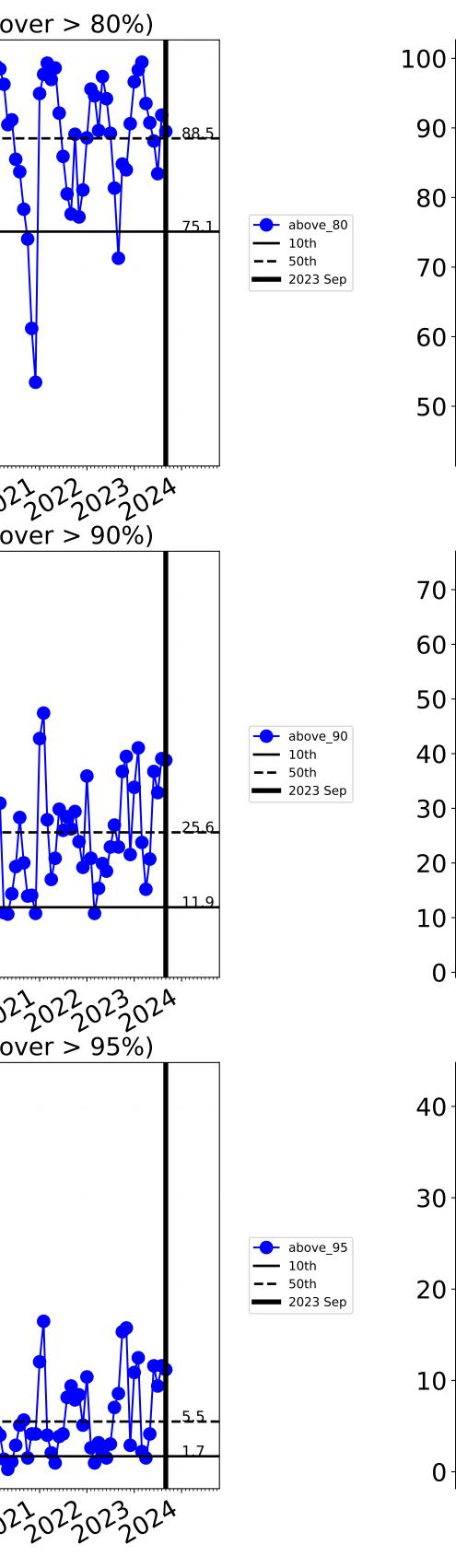
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

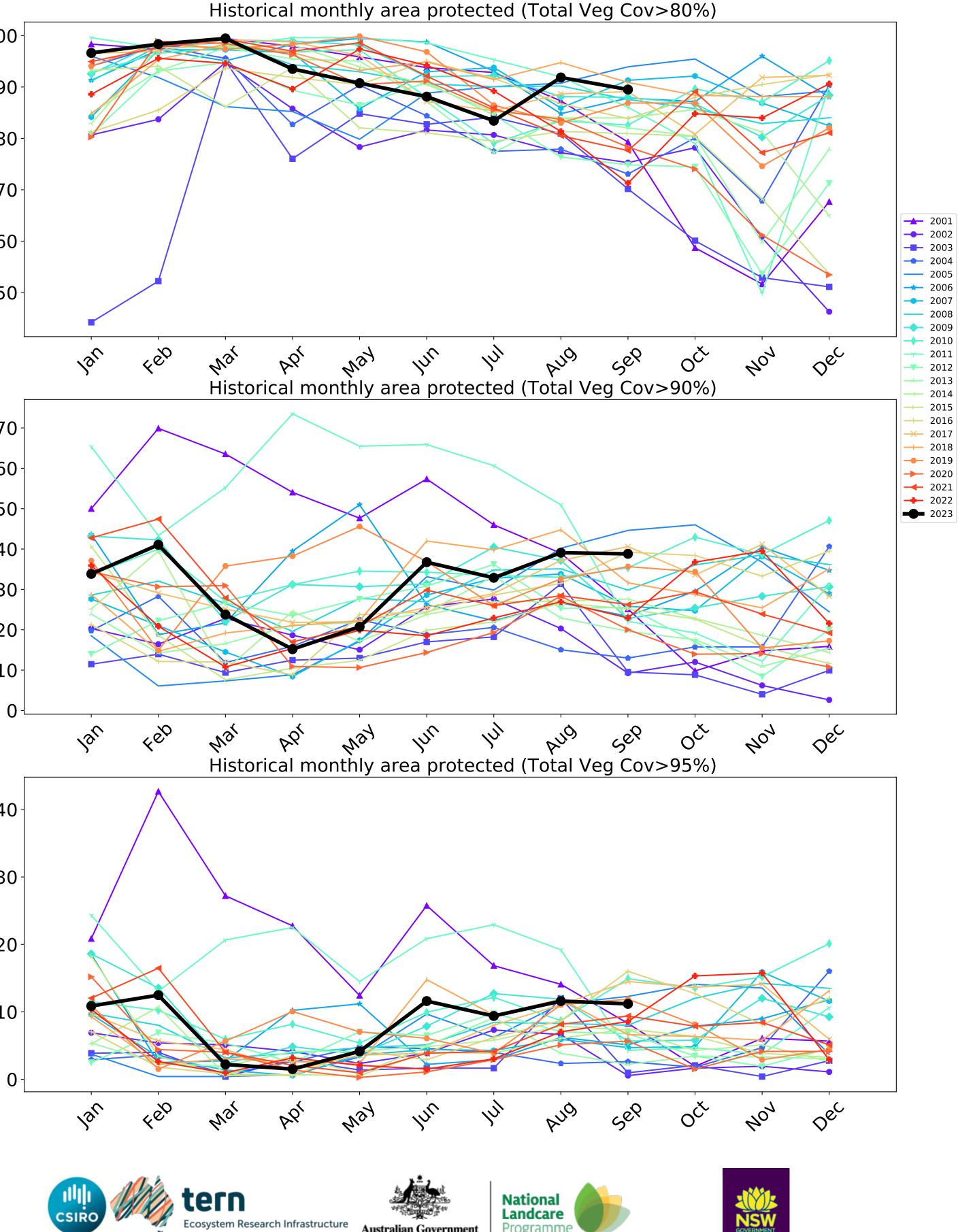


Water erosion historical monthly area protected (Total Veg Cov>70%)

100 90 area 80 of the 70 % 60 50 70 60 area 20 04 of the 30 % 20 10 Proportion of the area protected from water erosion (Total Vegetation Cover > 95%) 40 % of the area 0 0 10 0

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





34

Australian Government

Programn

Production native forests and plantation forests

Catchment Scale Land Use and Forests of Australia (2018) £ Ś Derived from 1 Production native forests and plantation forests Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

12% 10%

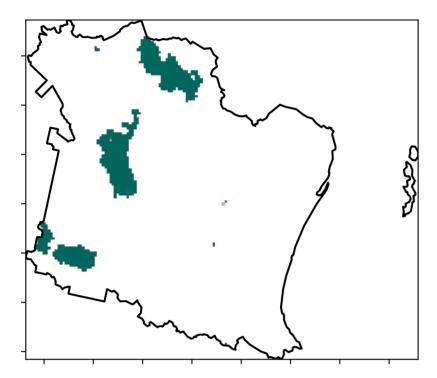
52°1070°1

32905001

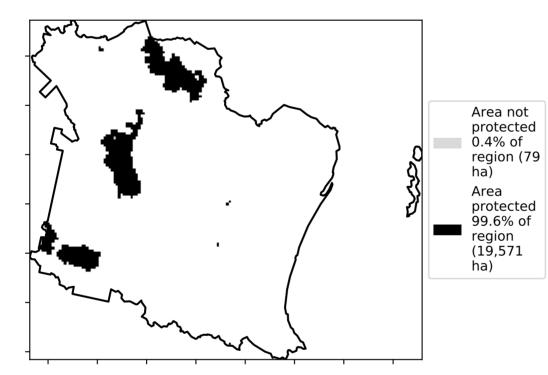
0.30%

Total Vegetation Cover [%]

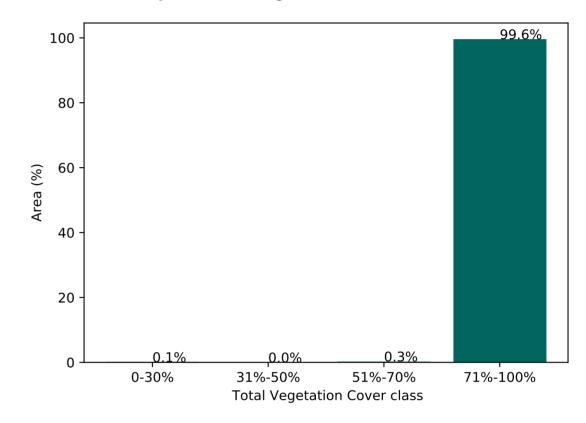
Land use and forest cover



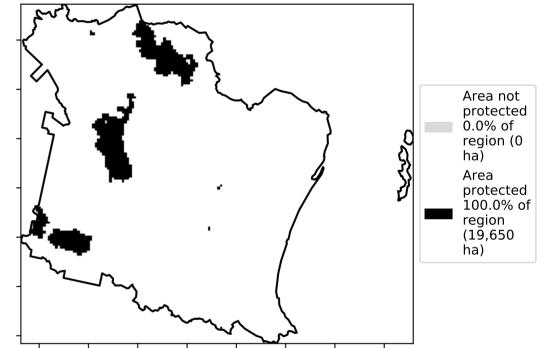
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area

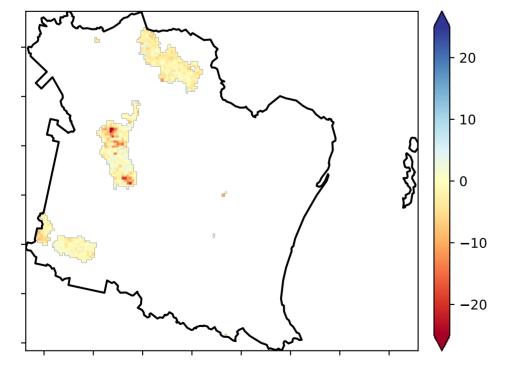


% Area protected from wind erosion (>50%)



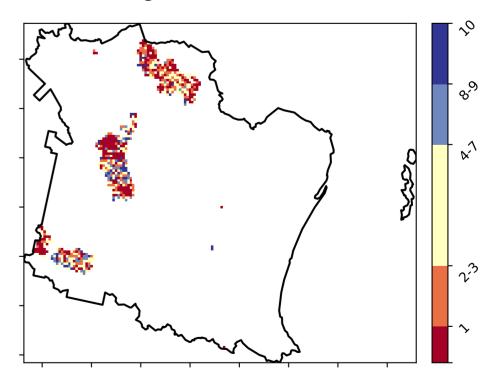
Total Vegetation Cover Anomaly [%]

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 from 2001 to 2019.

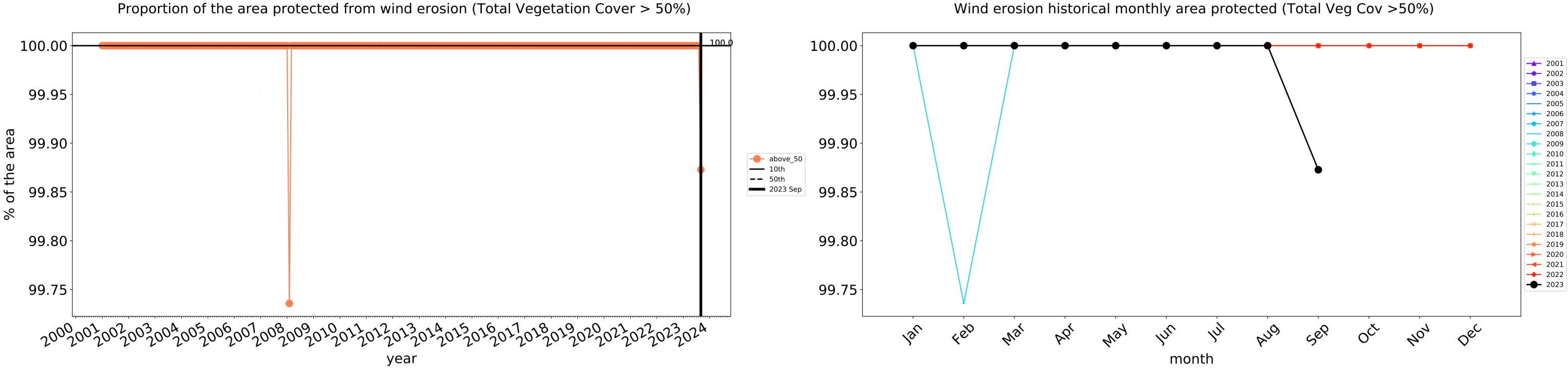


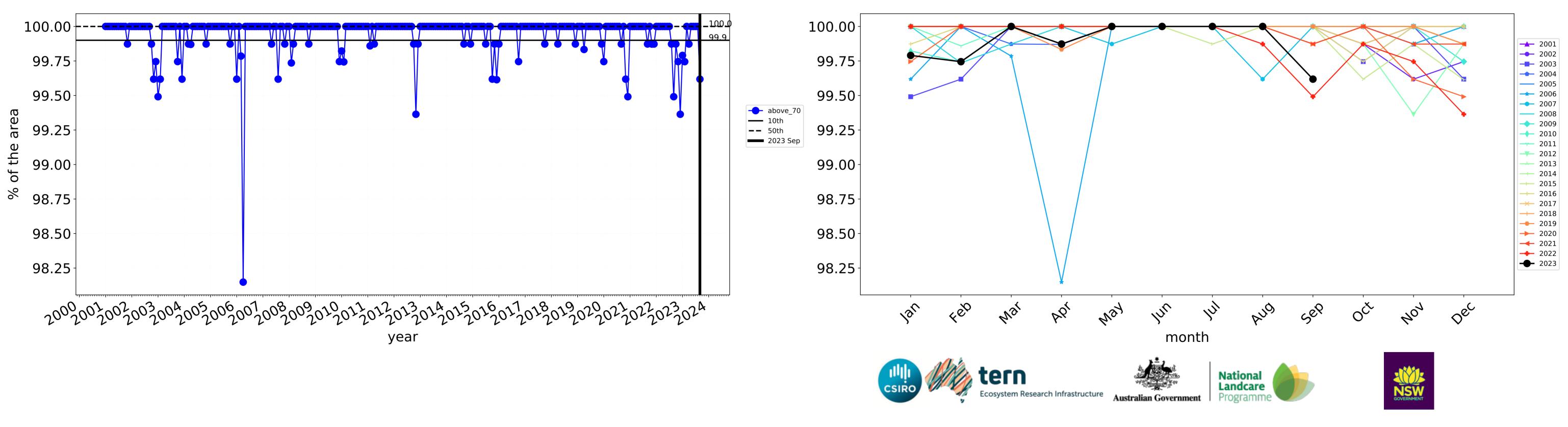
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]

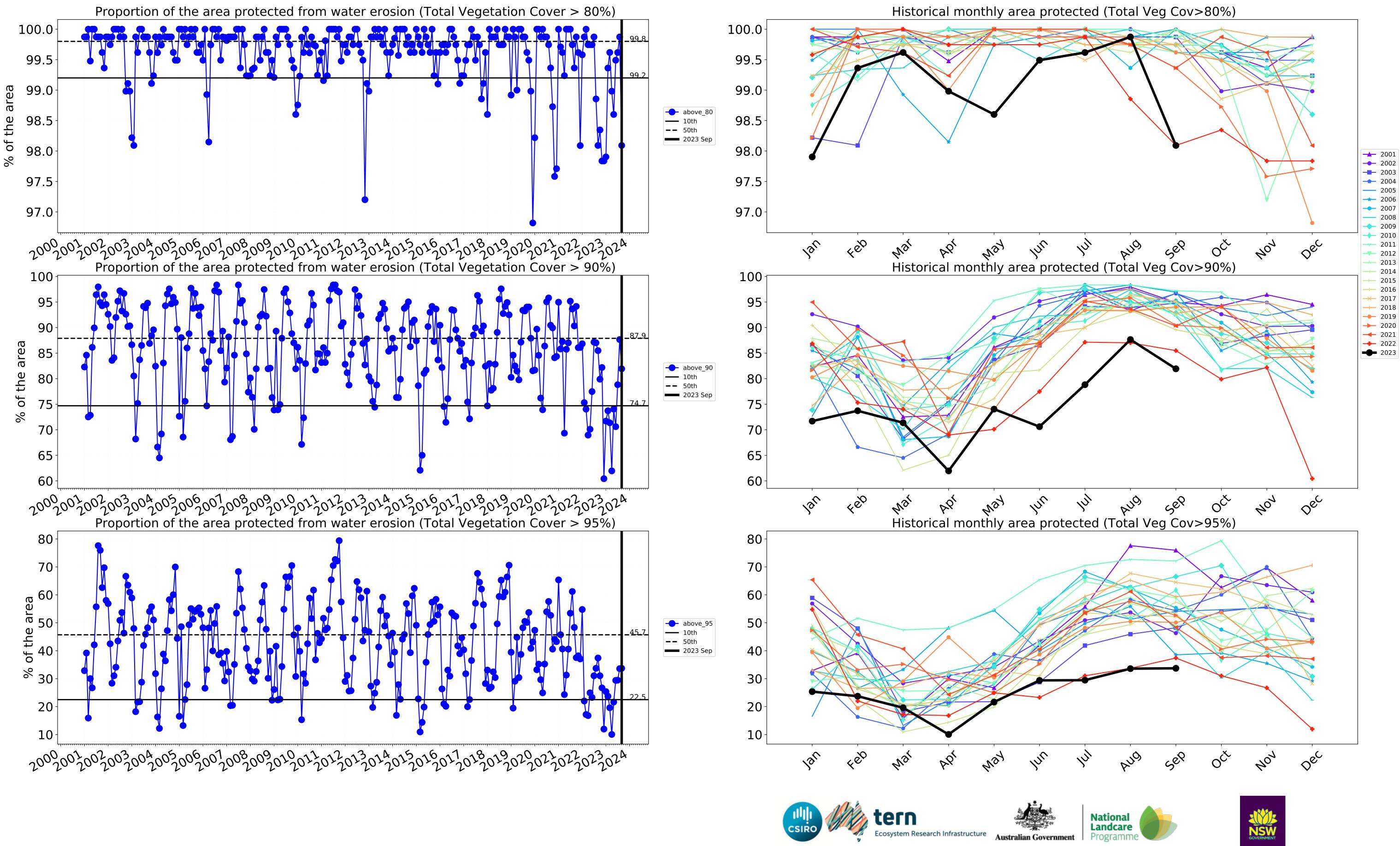








Water erosion historical monthly area protected (Total Veg Cov>70%)



Hinchinbrook_(S) (278,725 ha and no data 1,937 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	278,725	100.0% 278,625	99.9% 278,425	98.7% 274,975	92.4% 257,450	64.4% 179,525	31.3% 87,125
Conservation and natural environments	131,150	100.0% 131,100	99.9% 131,000	99.4% 130,350	98.5% 129,175	83.0% 108,900	42.8% 56,175
Conservation and natural environments Woodland forest	46,600	99.9% 46,575	99.9% 46,575	99.7% 46,450	99.0% 46,125	90.4% 42,125	63.9% 29,775
Conservation and natural environments Forest (non woodland)	82,700	100.0% 82,675	99.8% 82,575	99.3% 82,125	98.4% 81,400	79.4% 65,650	31.3% 25,875
Agriculture	104,700	100.0% 104,700	100.0% 104,700	98.3% 102,925	86.2% 90,200	42.7% 44,700	18.9% 19,800
Grazing	21,925	100.0% 21,925	100.0% 21,925	99.8% 21,875	98.3% 21,550	84.4% 18,500	52.3% 11,475
Grazing non forest	16,100	100.0% 16,100	100.0% 16,100	99.7% 16,050	97.8% 15,750	80.0% 12,875	45.7% 7,350
Grazing Woodland forest	2,675	100.0% 2,675	100.0% 2,675	100.0% 2,675	100.0% 2,675	94.4% 2,525	63.6% 1,700
Grazing - Forest (non woodland)	3,150	100.0% 3,150	100.0% 3,150	100.0% 3,150	99.2% 3,125	98.4% 3,100	77.0% 2,425
Cropping	64,650	100.0% 64,650	100.0% 64,650	97.7% 63,175	81.1% 52,425	29.6% 19,150	9.7% 6,300
Irrigation	18,100	100.0% 18,100	100.0% 18,100	98.6% 17,850	89.5% 16,200	38.8% 7,025	11.2% 2,025
Production native forests and plantation forests	19,650	99.9% 19,625	99.9% 19,625	99.6% 19,575	98.1% 19,275	81.9% 16,100	33.7% 6,625

