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

Date: October 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:

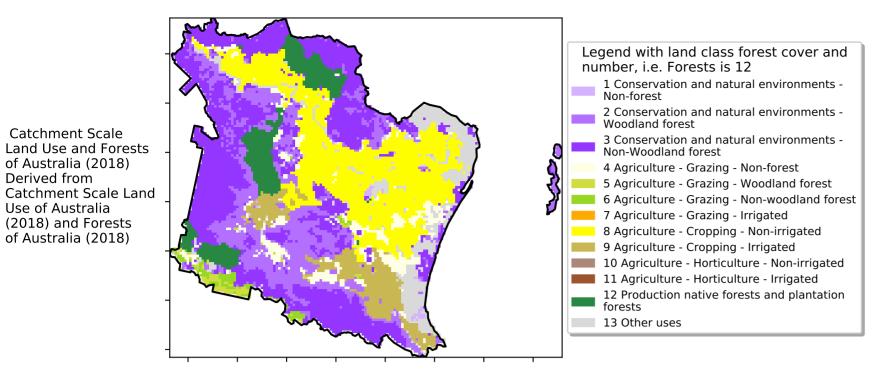
https://doi.org/10.4225/08/5848a3f19a7b3



Vegetation Cover Oct 2024

Land use and forest cover

Proportion of each land class in area



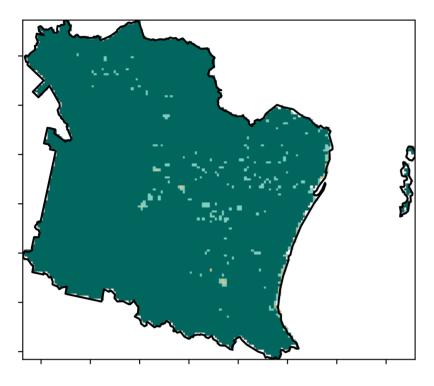
12%200%

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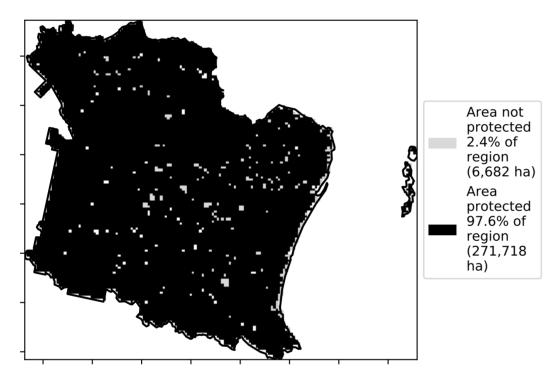
32%50%

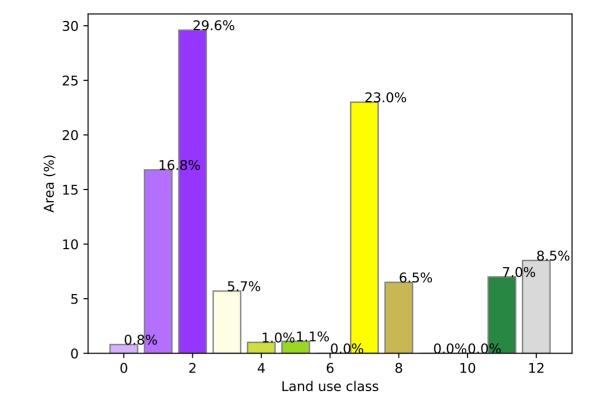
0.30%

Total Vegetation Cover [%]

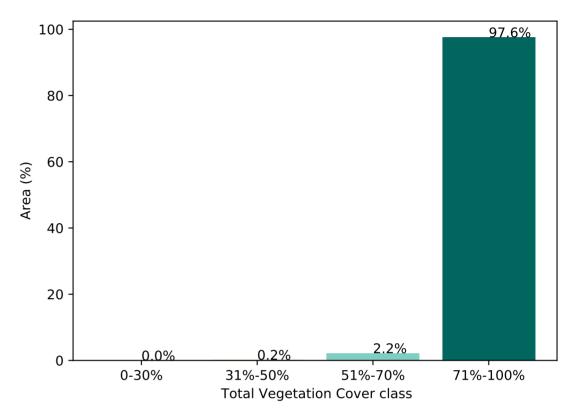


% Area protected from water erosion (>70%)

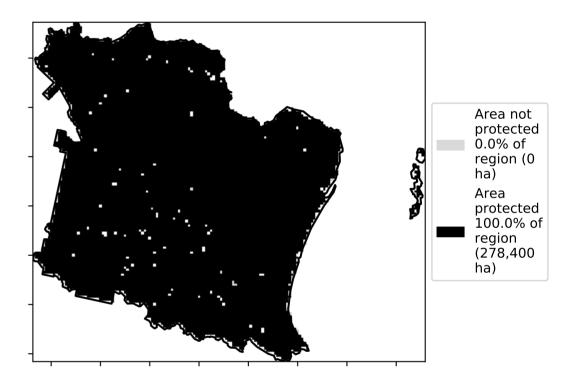




Proportion of vegetation cover class in area

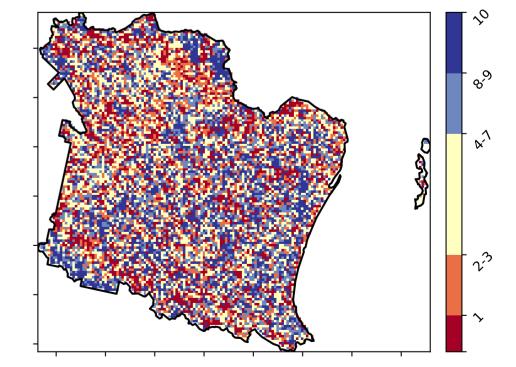


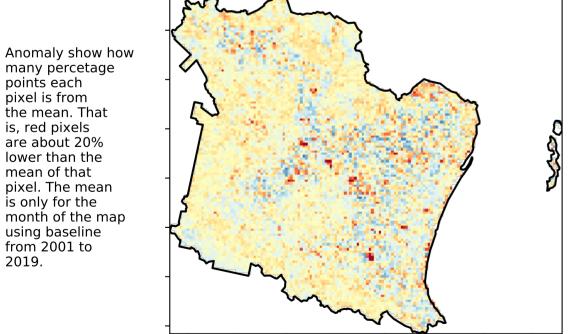
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

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.



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

Catchment Scale

Derived from

Use of Australia

of Australia (2018)



2

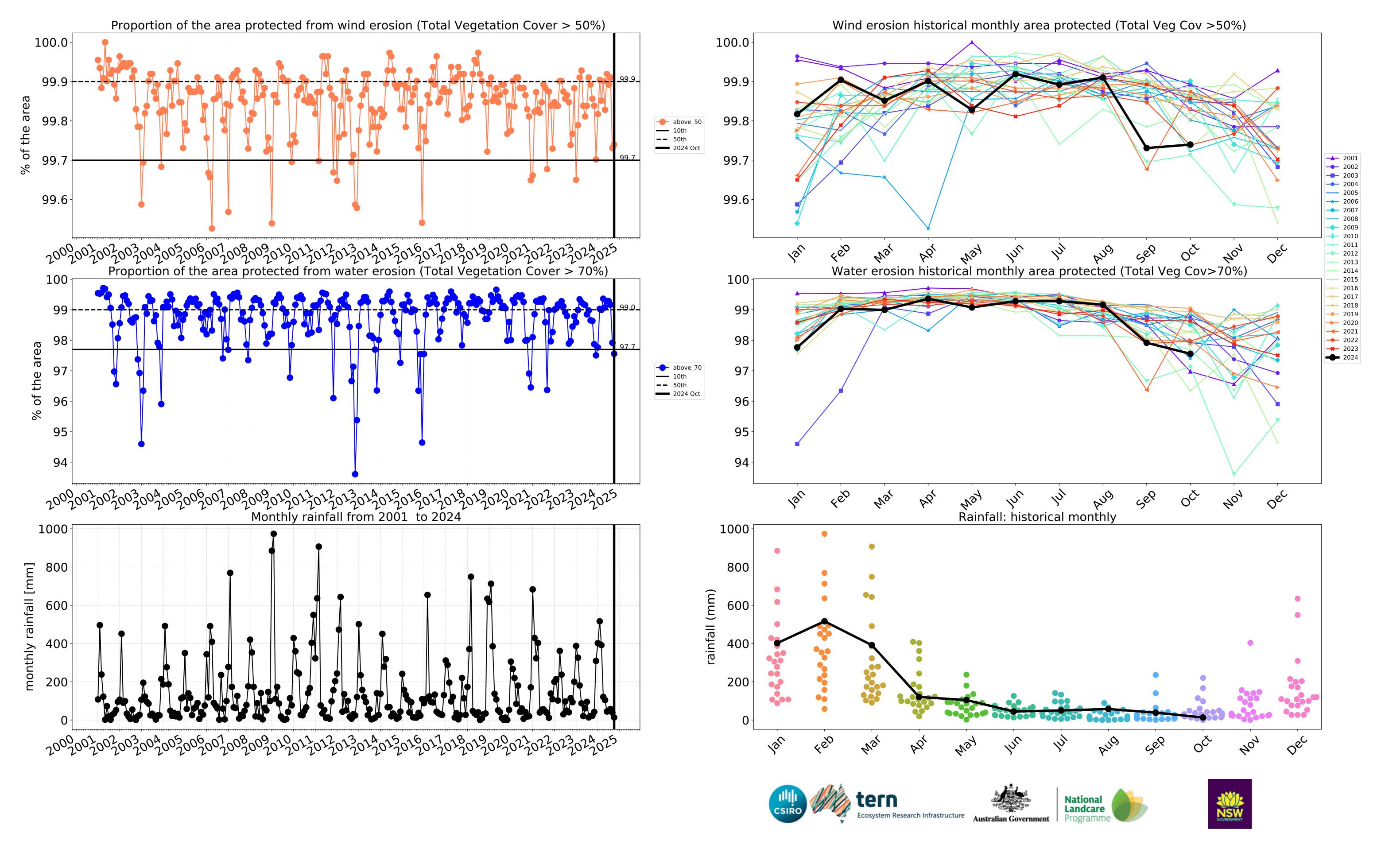
- 20

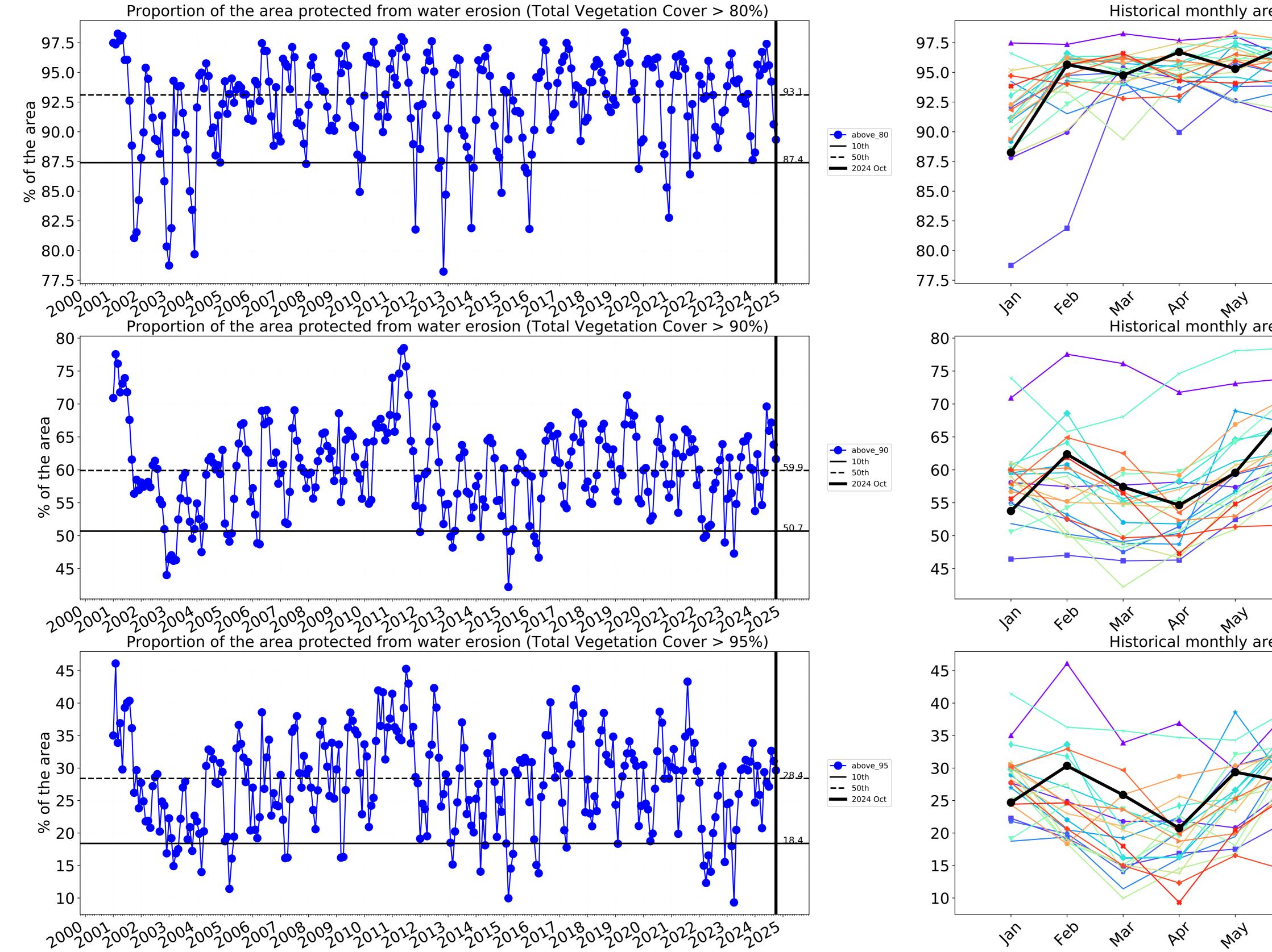
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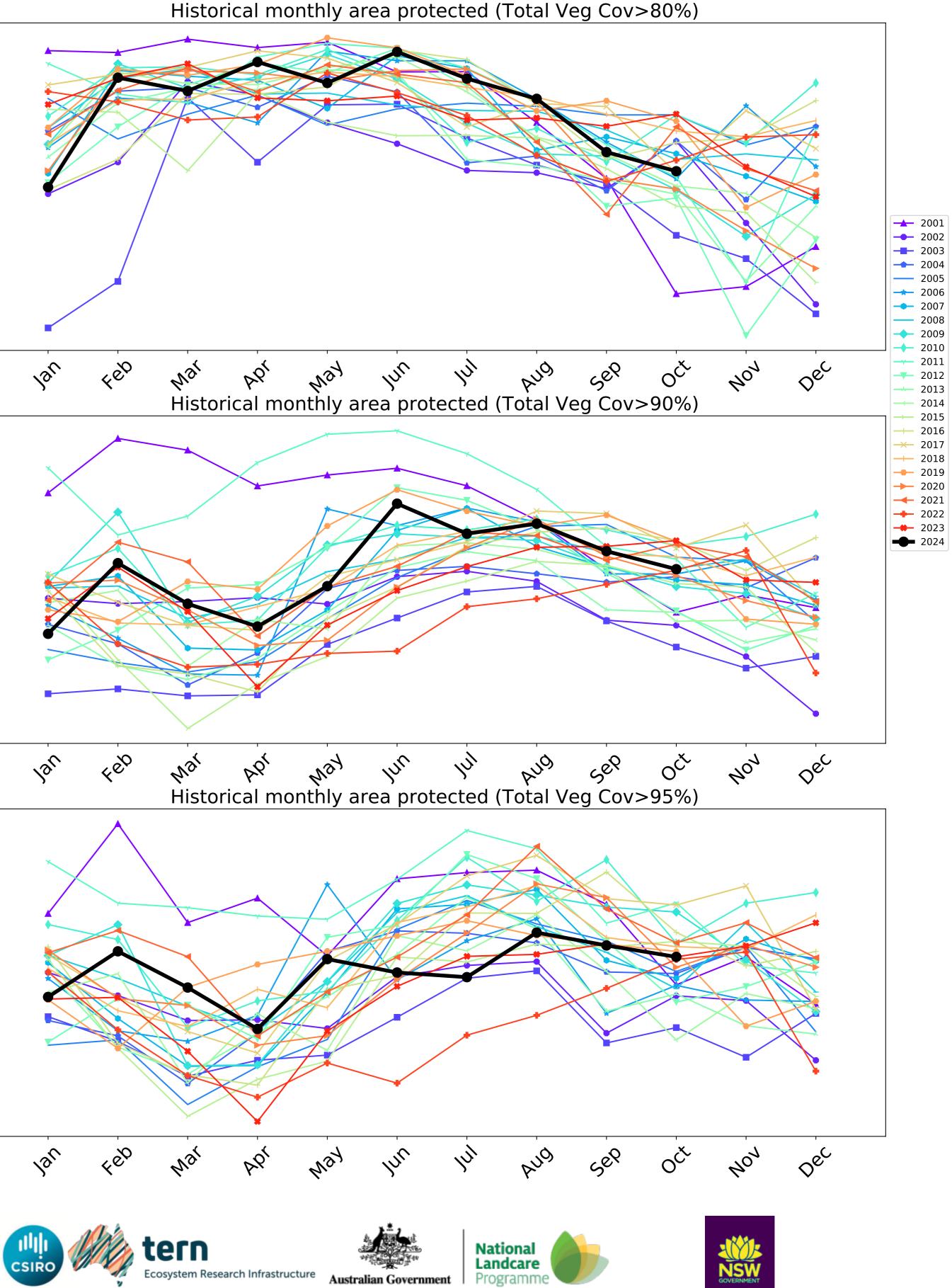
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Conservation and natural environments

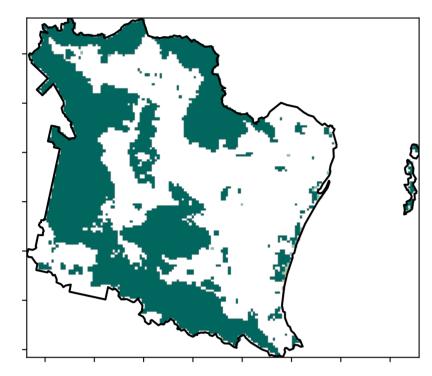
Ś

forest

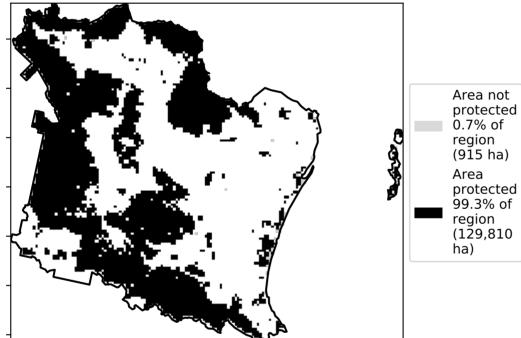
woodland forest

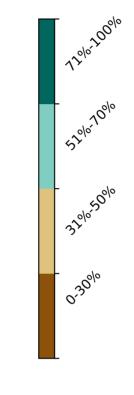
Land use and forest cover

Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

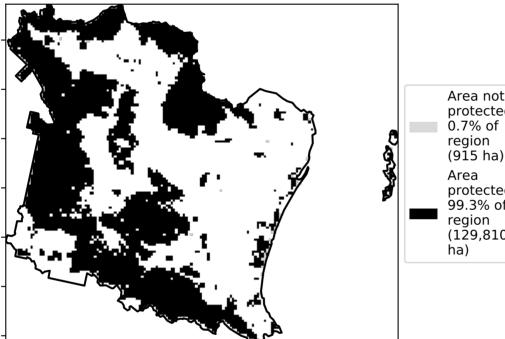


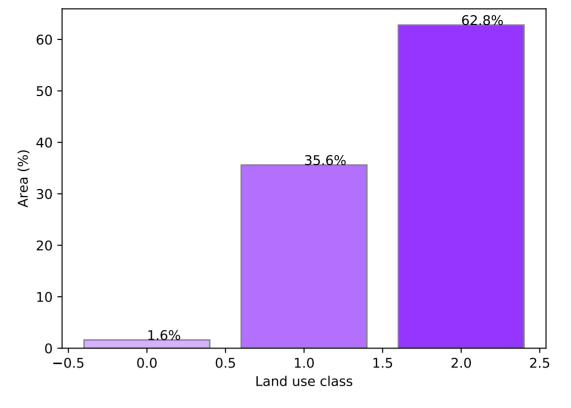


1 Conservation and natural environments - Non-forest

3 Conservation and natural environments - Non-

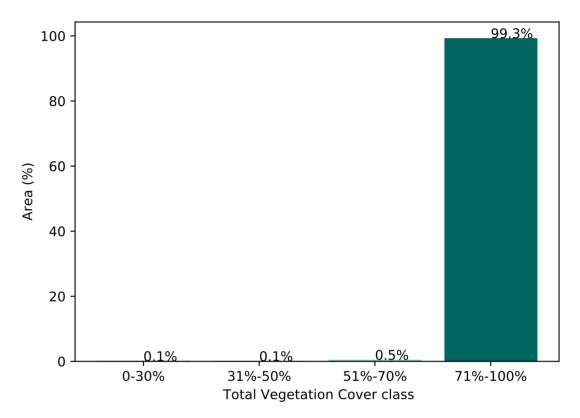
2 Conservation and natural environments - Woodland



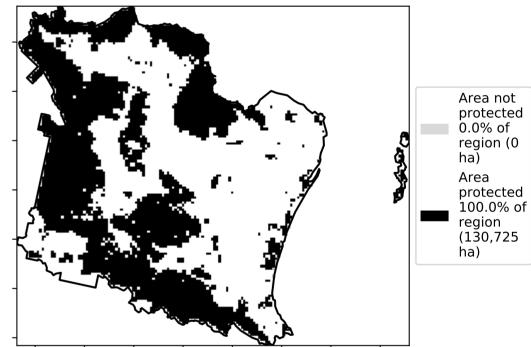


Proportion of each land class in area

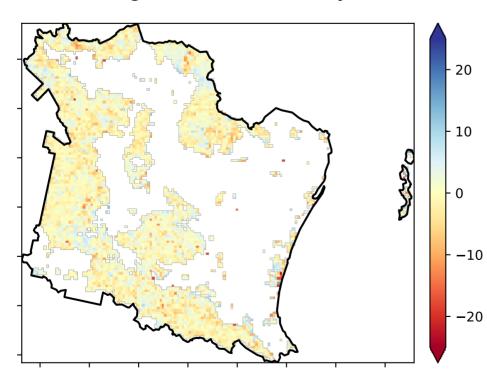
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

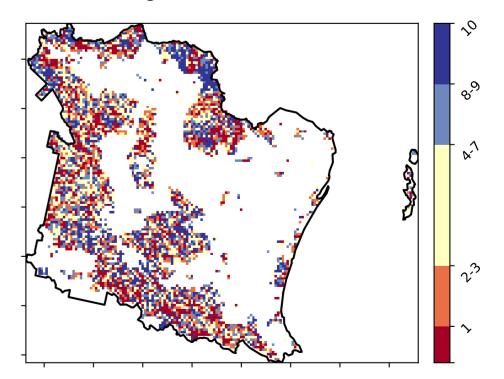


Total Vegetation Cover Anomaly [%]



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

Total Vegetation Cover Decile [%]





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

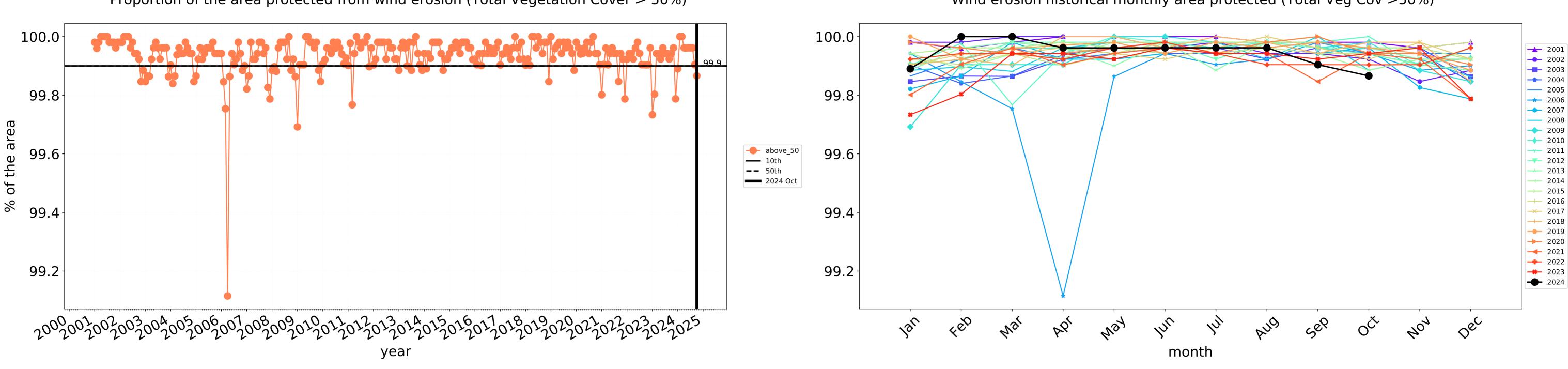
Derived from

Use of Australia

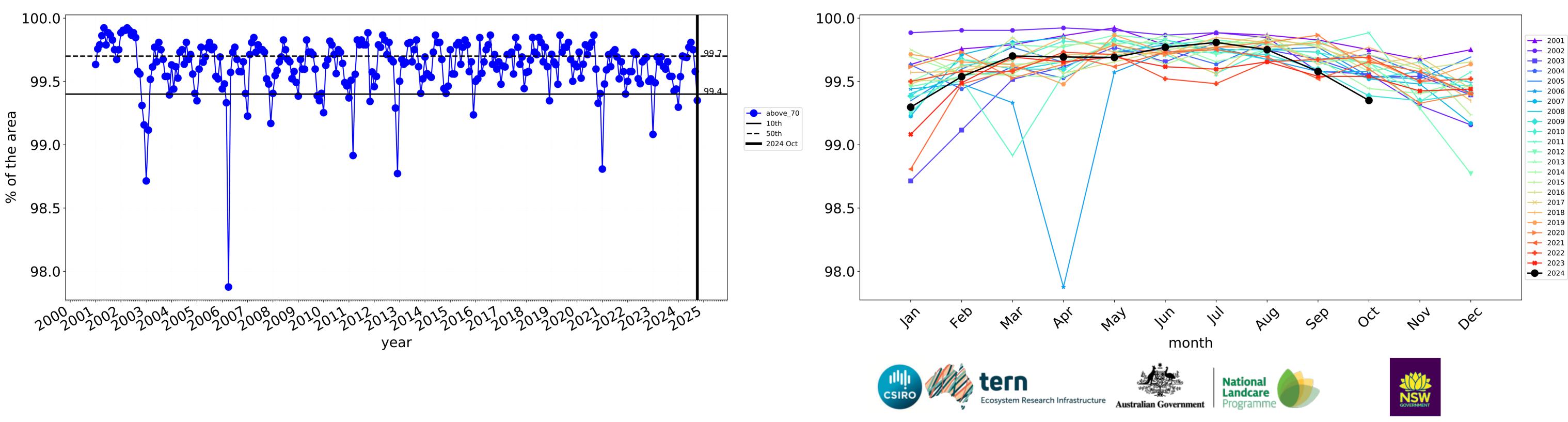
(2018) and Forests

of Australia (2018)





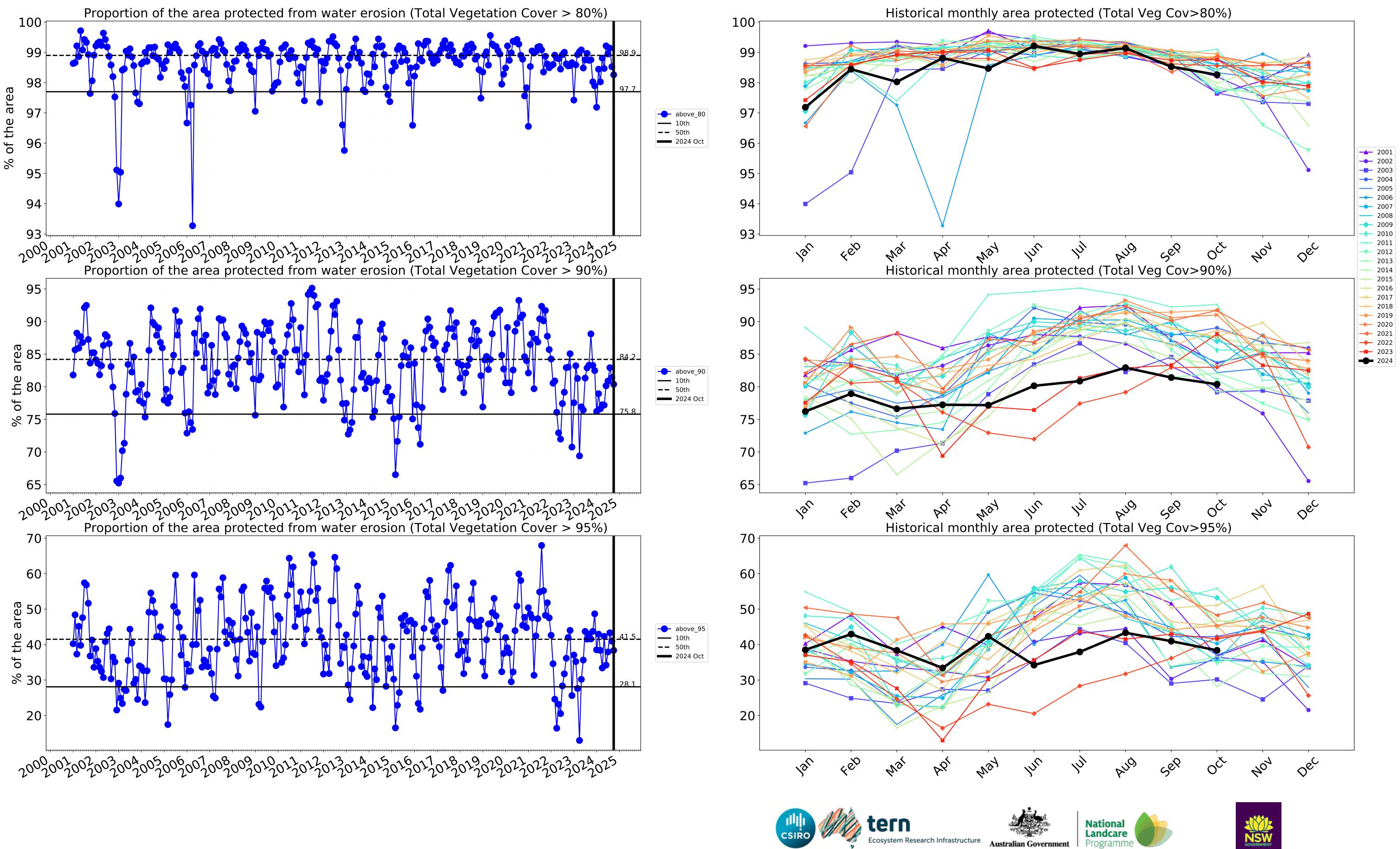


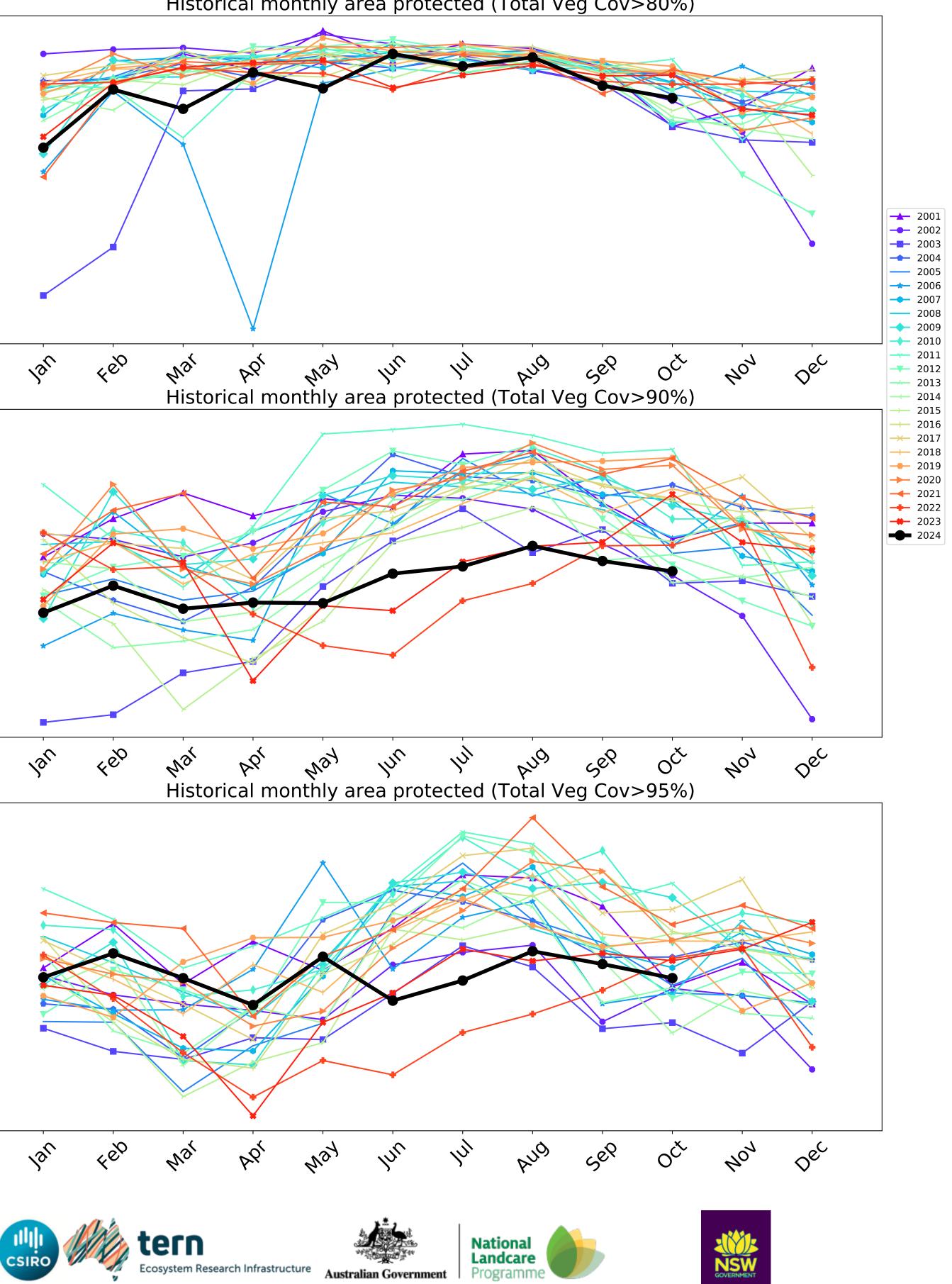


Wind erosion historical monthly area protected (Total Veg Cov >50%)

6

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





Conservation and natural environments Woodland forest

Ş 1 Conservation and natural environments - 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)

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

the mean. That

is, red pixels

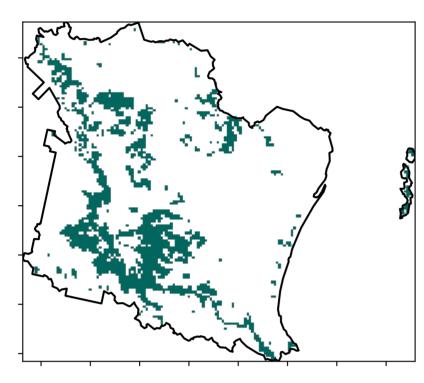
are about 20% lower than the

mean of that pixel. The mean is only for the month of the map

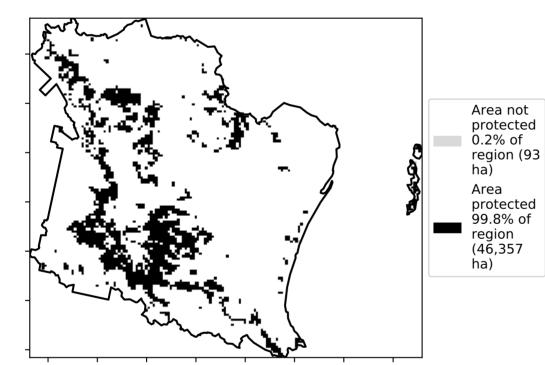
from 2001 to 2019.

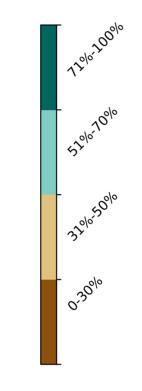
Total Vegetation Cover [%]

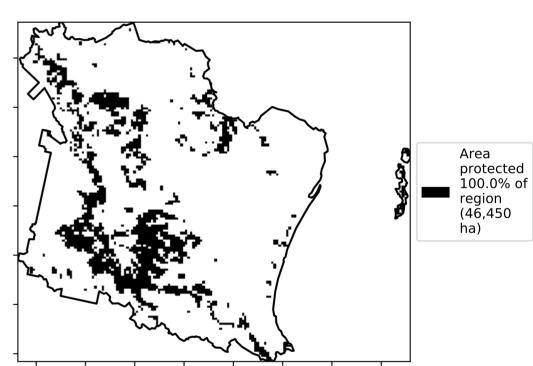
Land use and forest cover



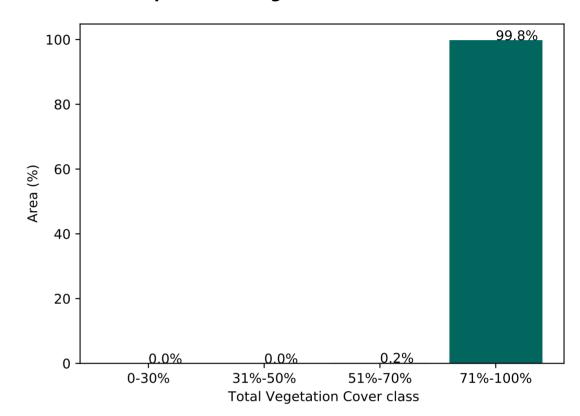
% Area protected from water erosion (>70%)







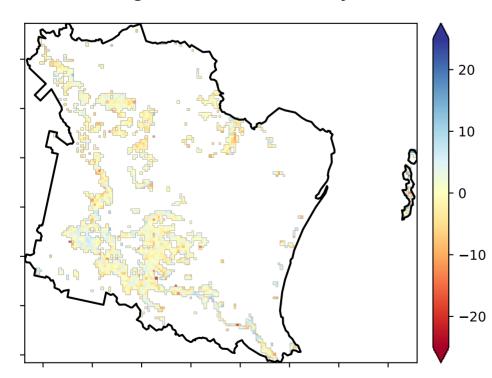
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

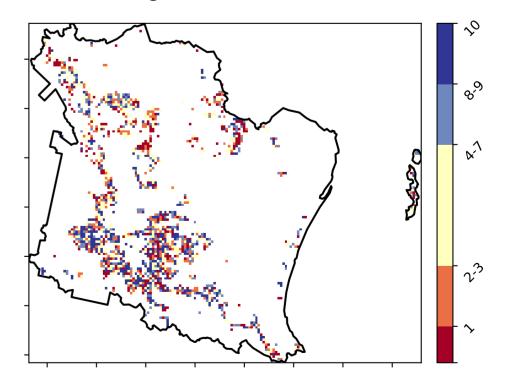


Total Vegetation Cover Anomaly [%]

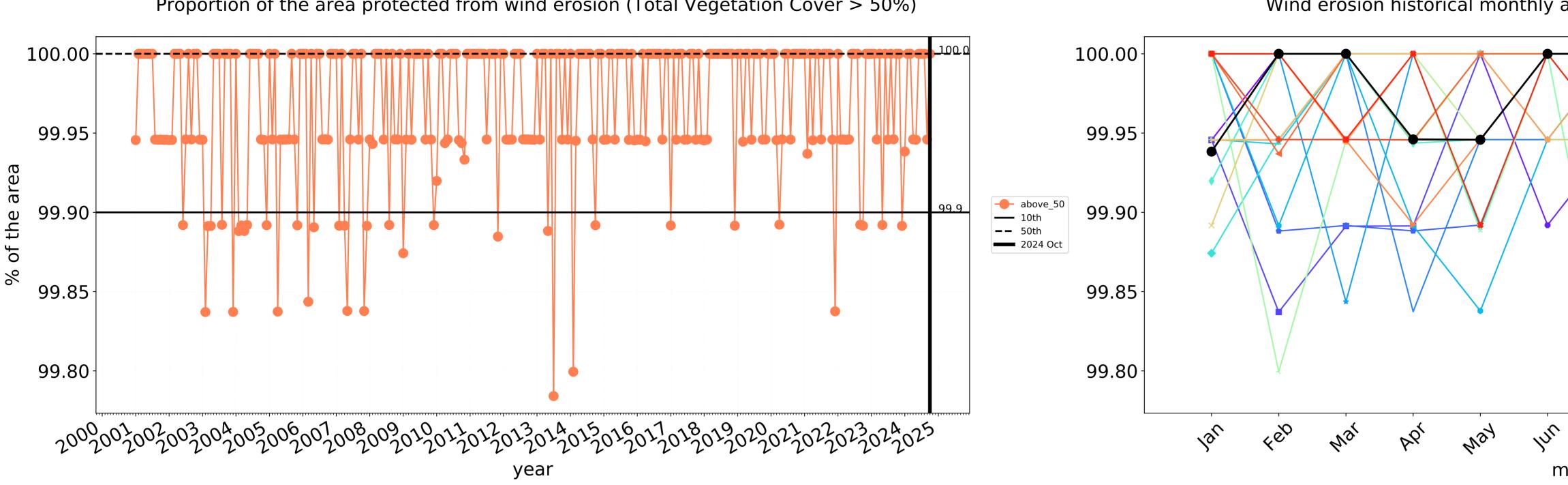


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

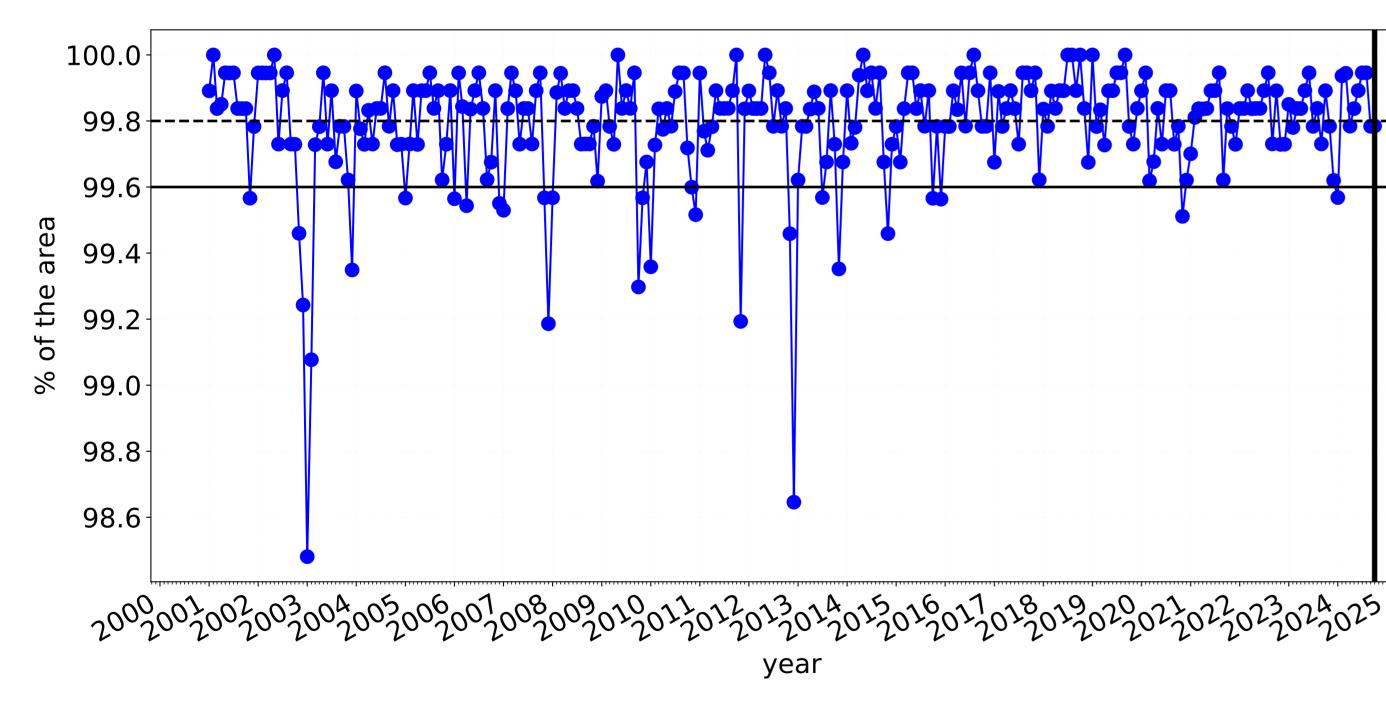
Total Vegetation Cover Decile [%]







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

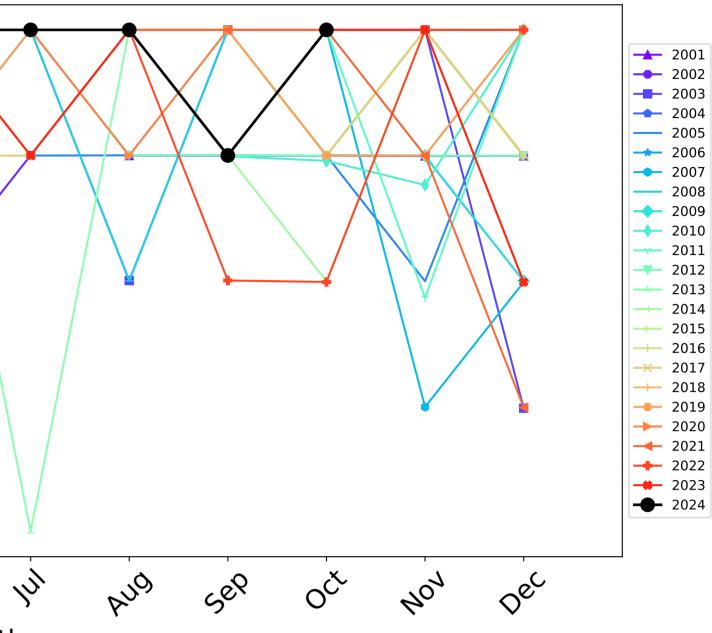


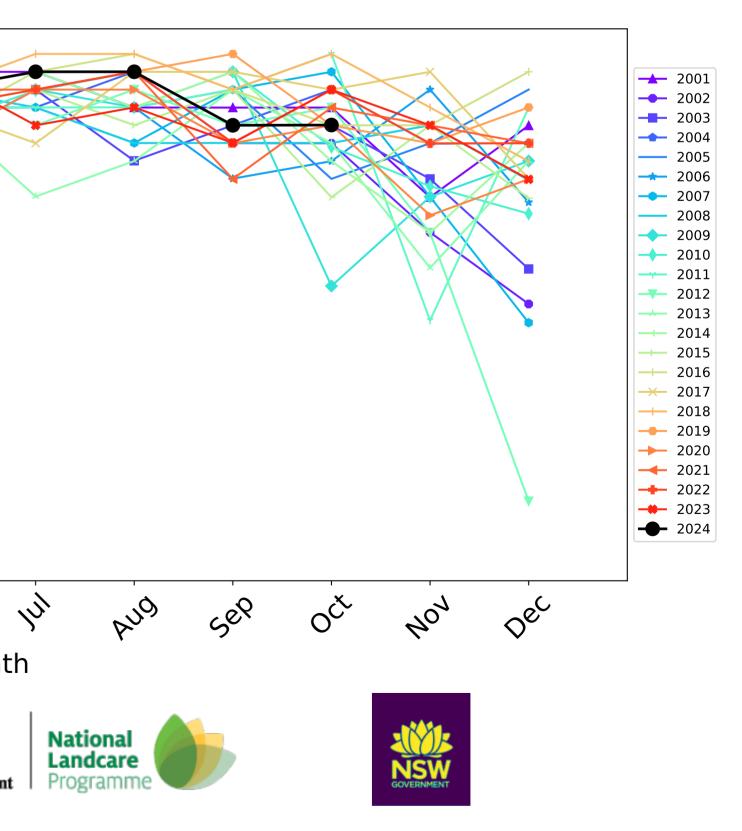
month

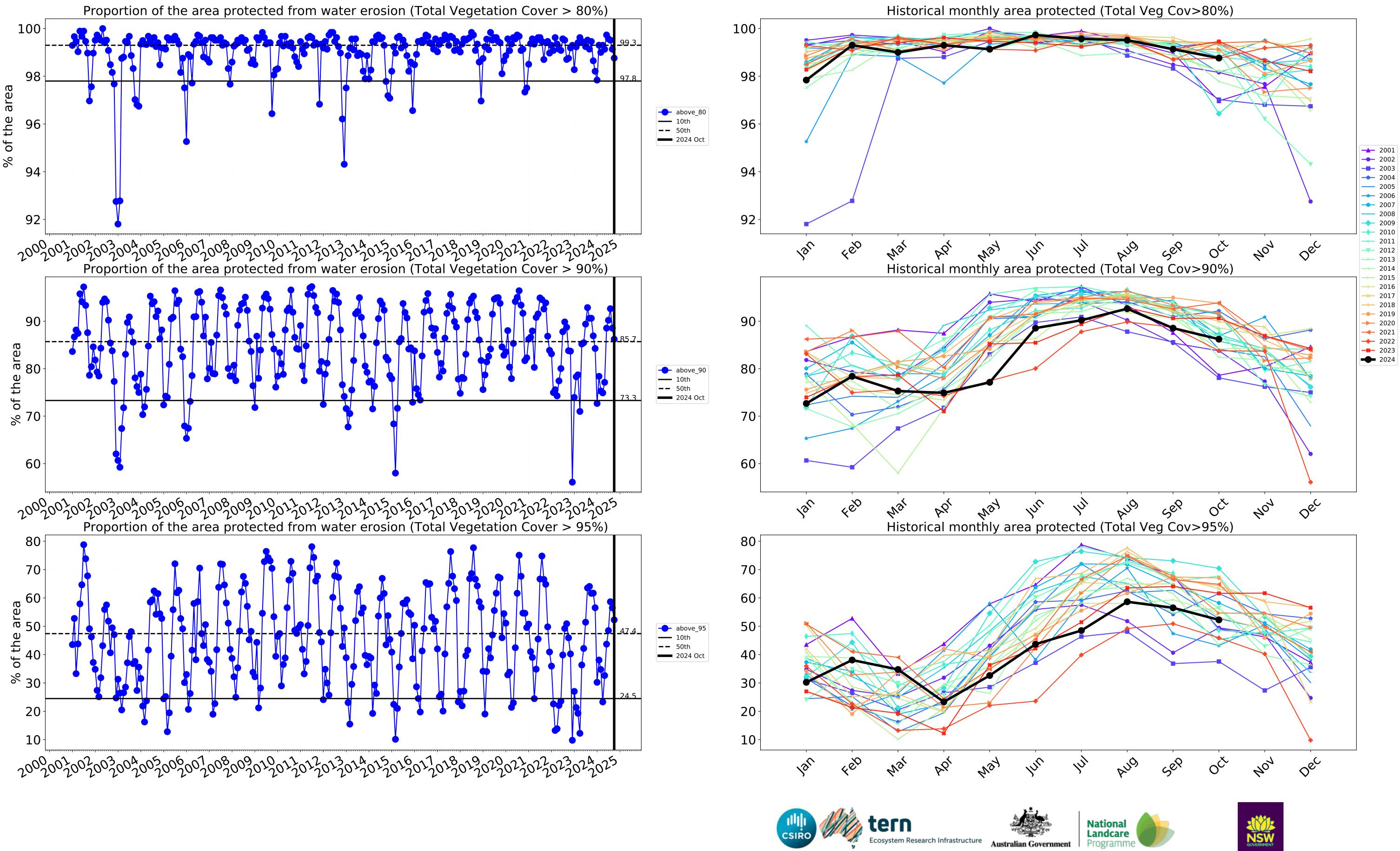
100.0-99.8 99.6 ---- above_70 **—** 10th 99.4 **——** 50th **—** 2024 Oct 99.2 99.0 98.8 98.6 feb Jan May In Wal PQ month tern Ecosystem Research Infrastructure Australian Government

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

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







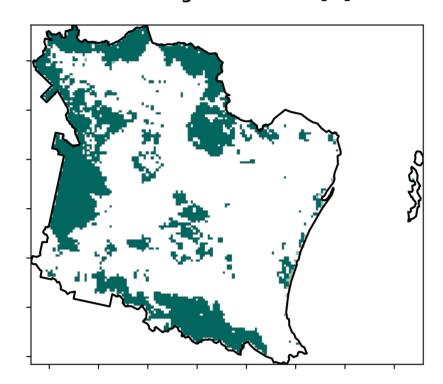


Conservation and natural environments Forest (non woodland)

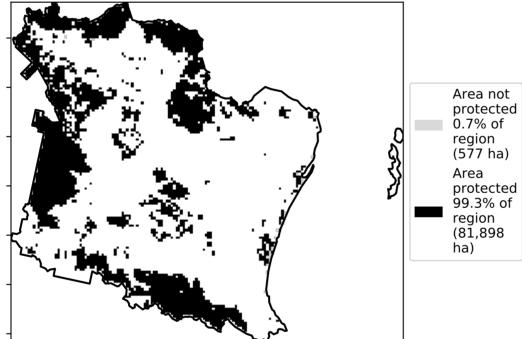
Land use and forest cover

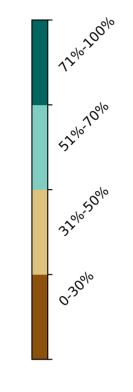
Catchment Scale Land Use and Forests of Australia (2018) Ş 1 Conservation and natural environments - Non-Catchment Scale Land woodland forest ٢ Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]



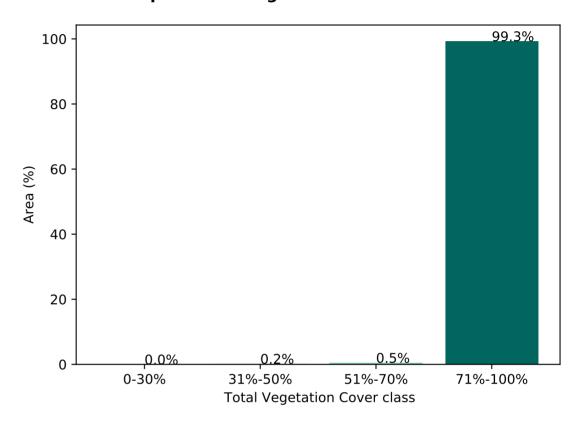
% Area protected from water erosion (>70%)



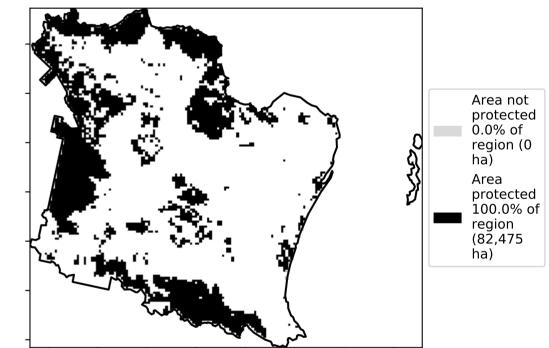




Proportion of vegetation cover class in area



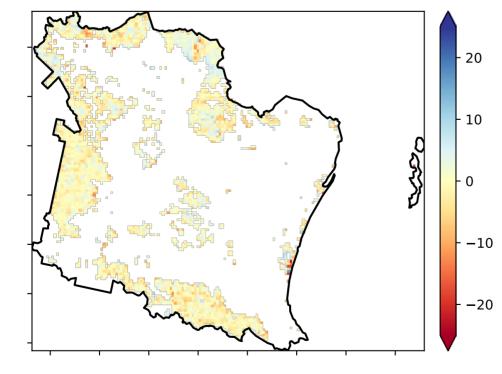
% Area protected from wind erosion (>50%)



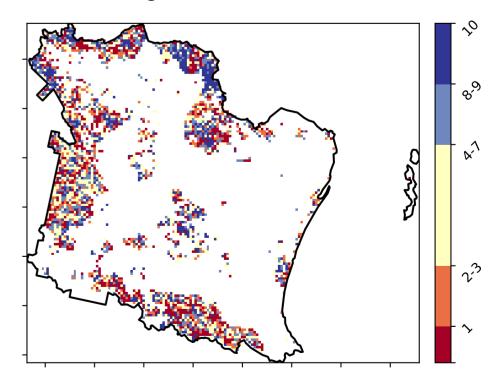
Total Vegetation Cover Anomaly [%]

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 [%]

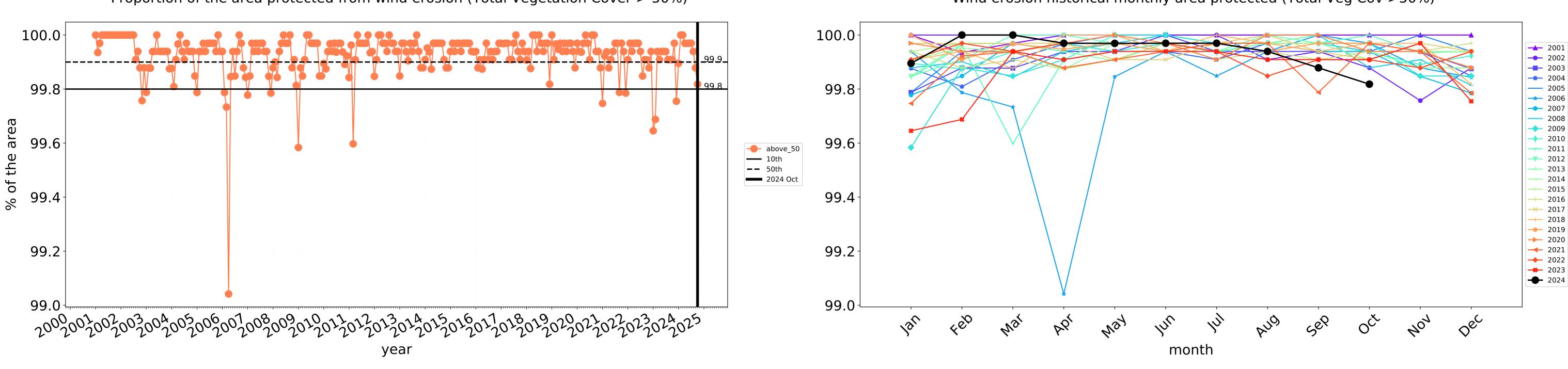




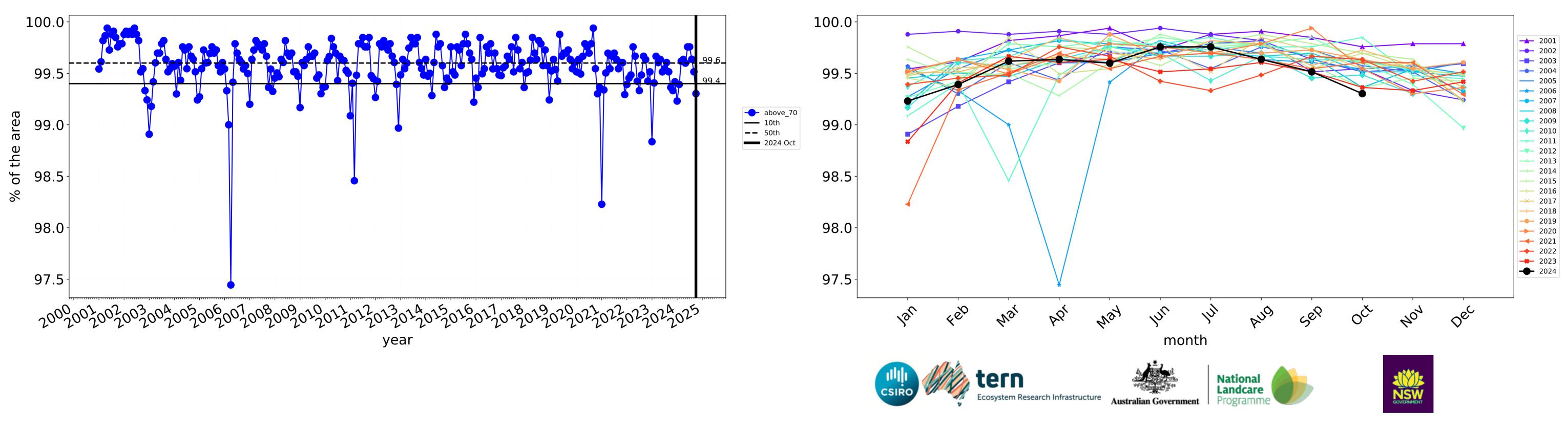
Deciles show where the pixel value lies in the

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.

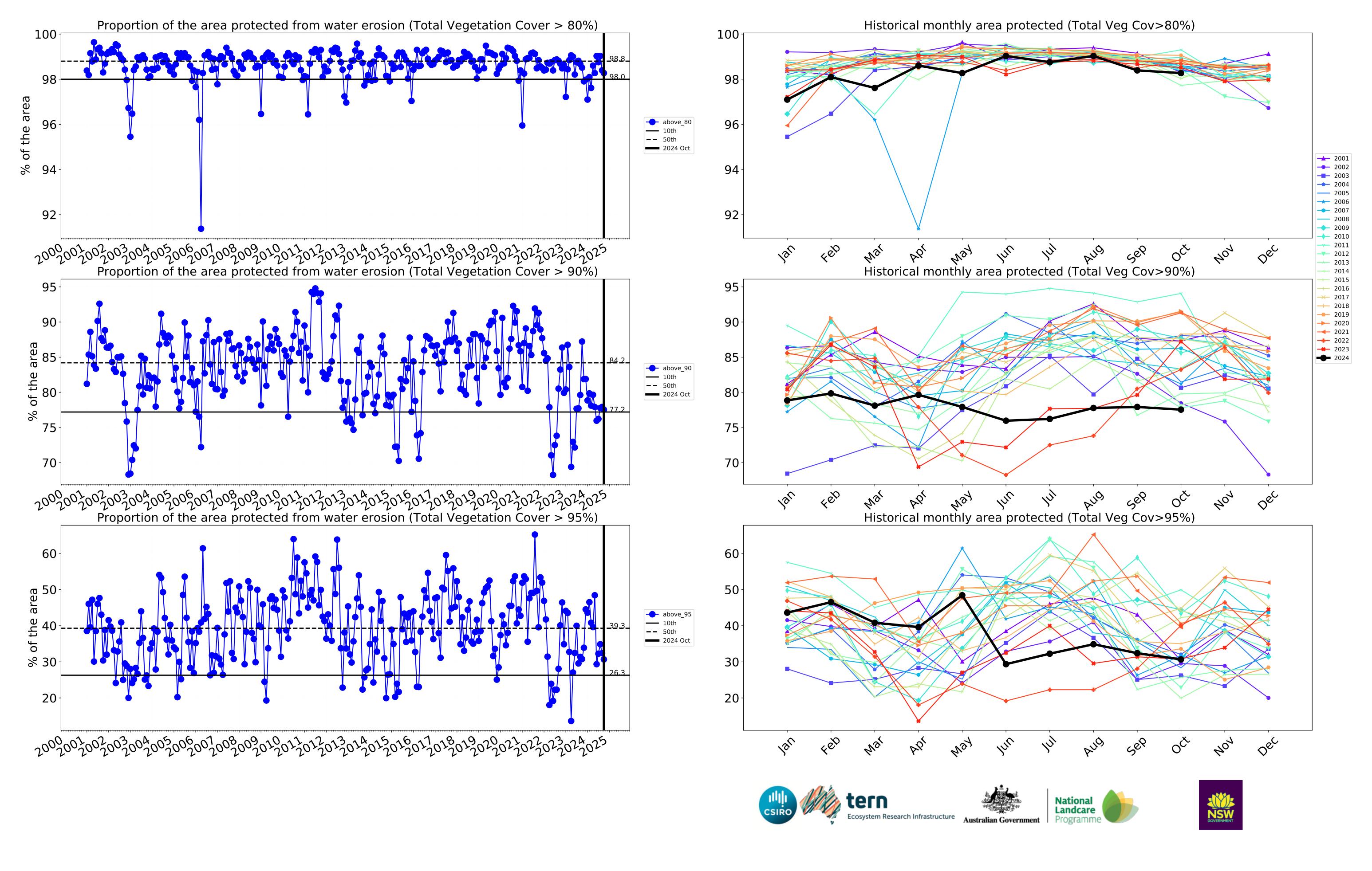


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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

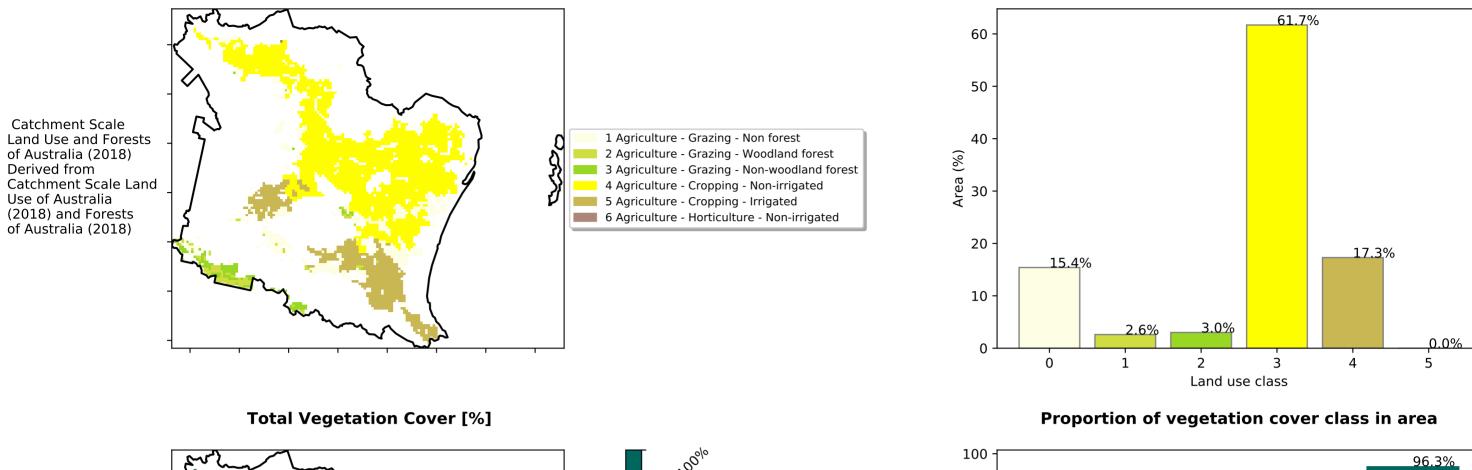
Wind erosion historical monthly area protected (Total Veg Cov >50%)

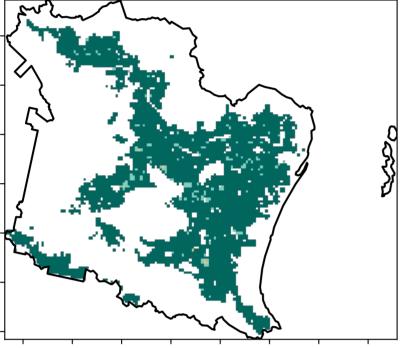


Agriculture

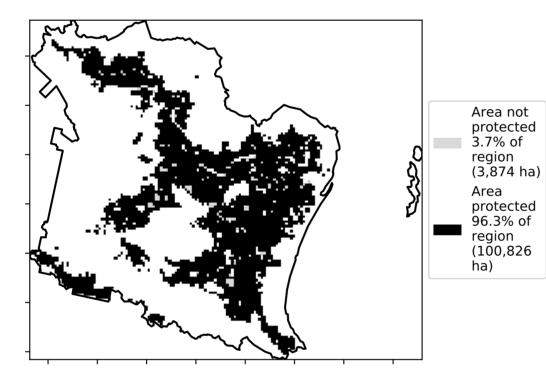
Land use and forest cover

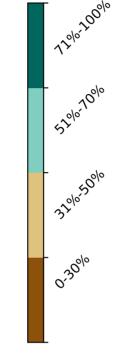
Proportion of each land class in area

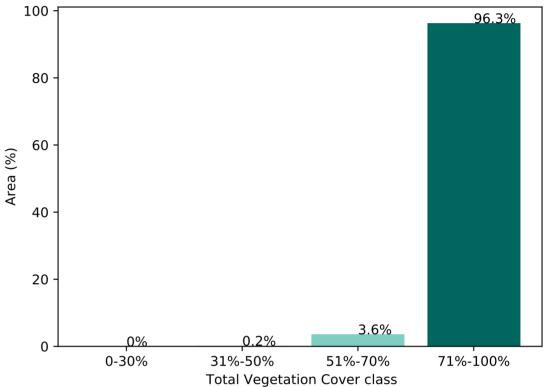




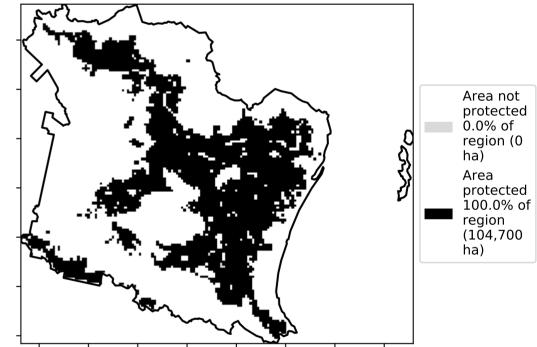
% Area protected from water erosion (>70%)



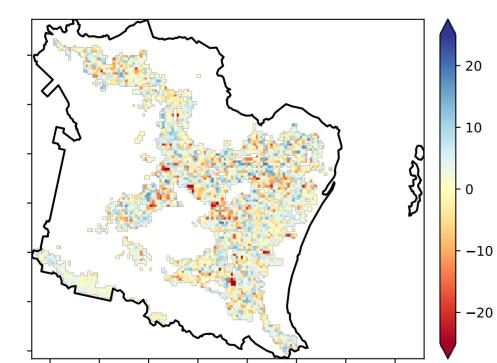




% Area protected from wind erosion (>50%)

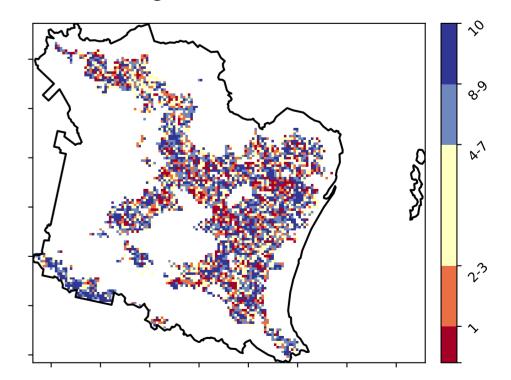


Total Vegetation Cover Anomaly [%]



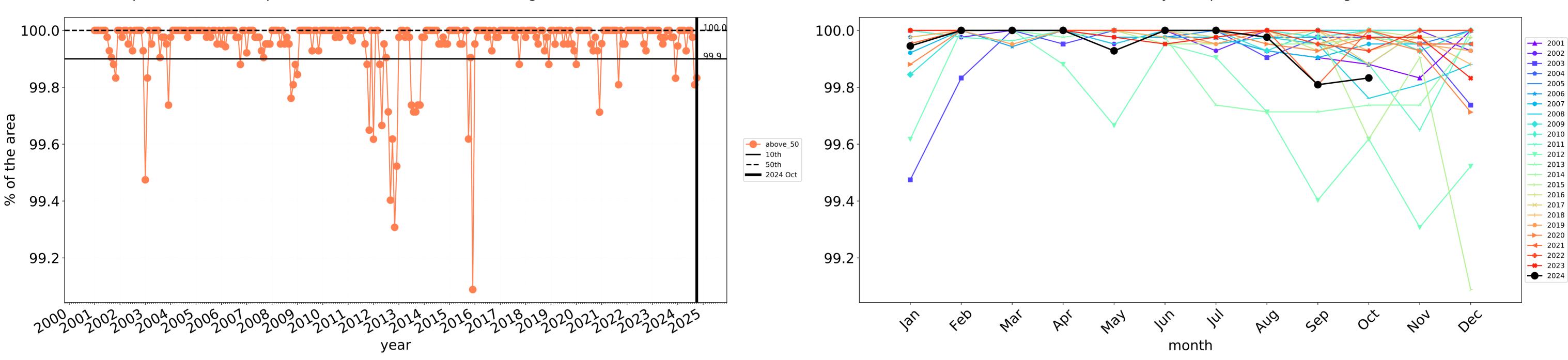
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]

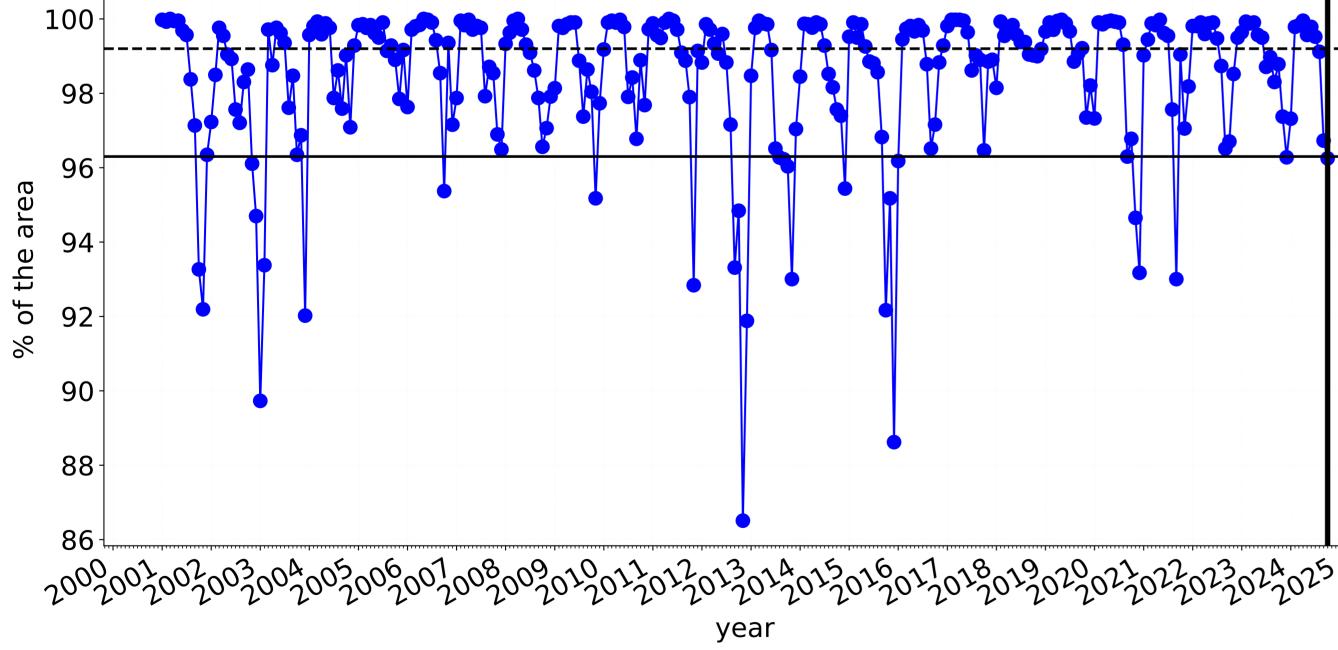




Anomaly show how many percetage points each pixel is from the mean That the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map from 2001 to 2019.



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



Agriculture timeseries

100 98 96---- above_70 **—** 10th **——** 50th 94 **—** 2024 Oct 92 90 88 86 4eb lar Mai Þb, tern

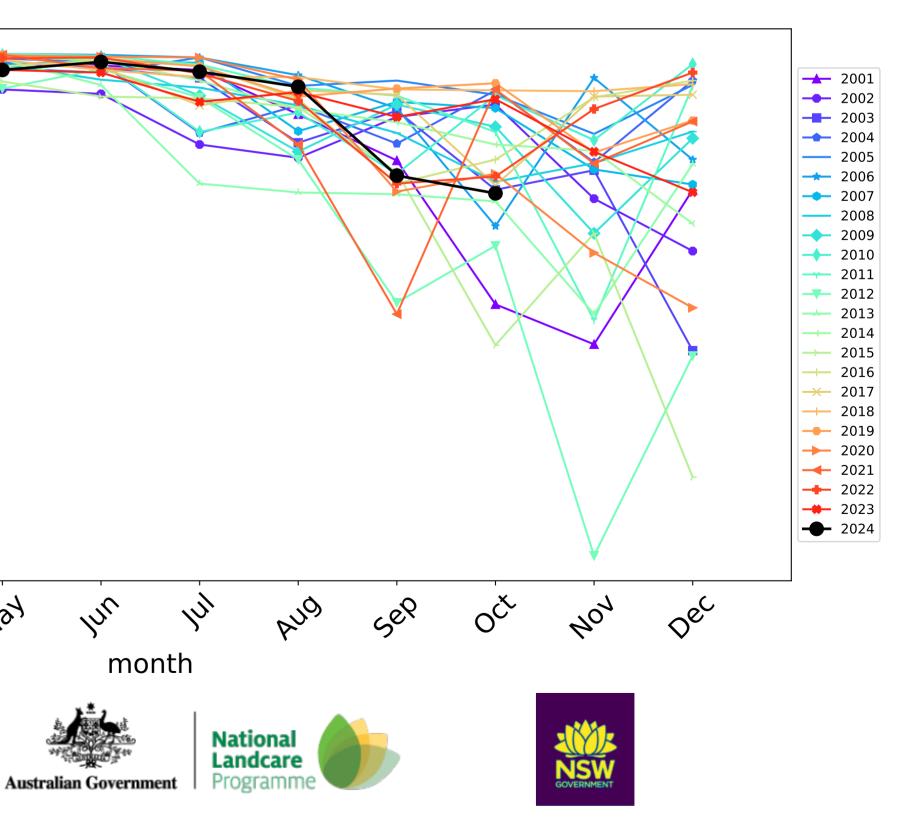
Water erosion historical monthly area protected (Total Veg Cov>70%)

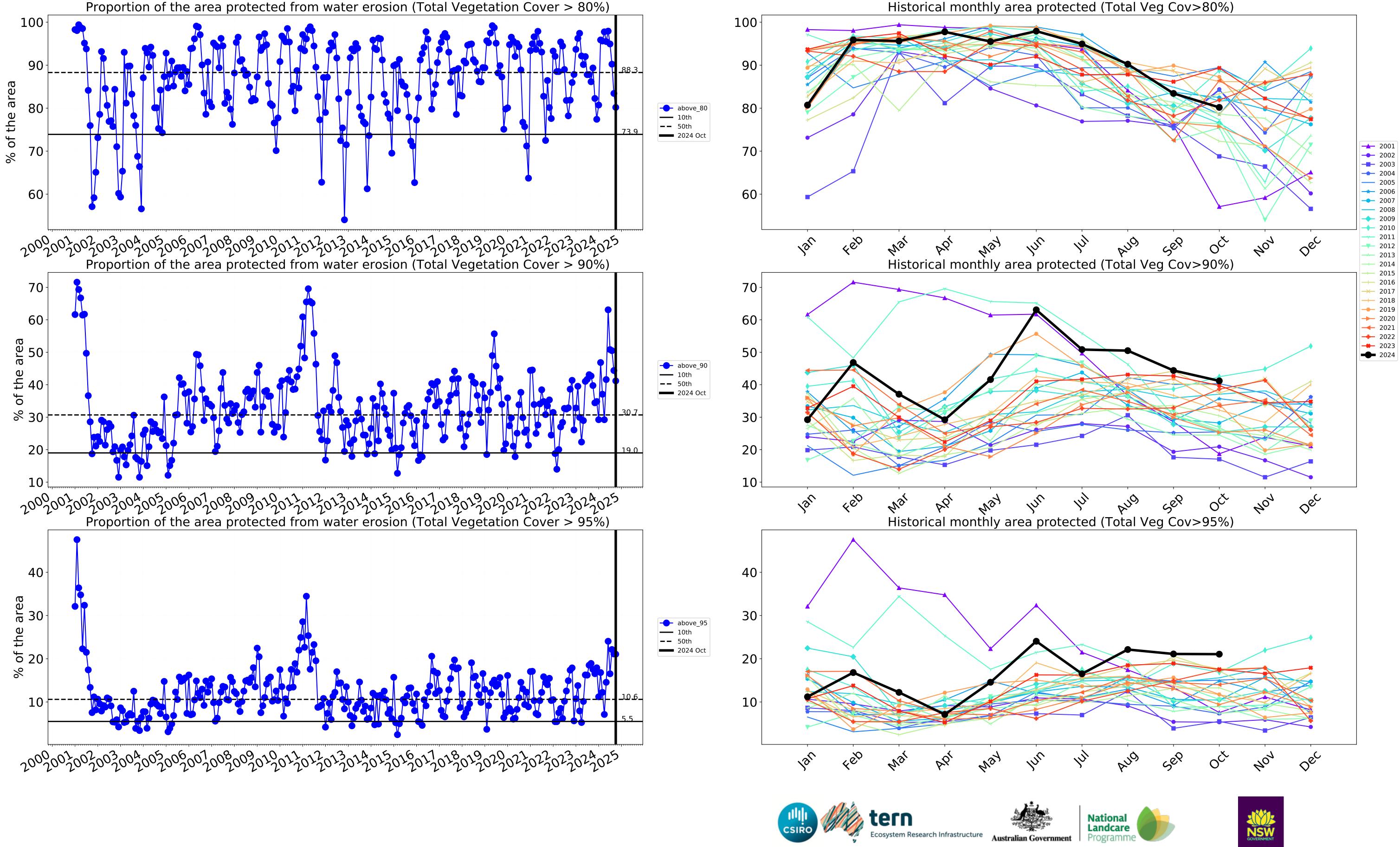
way

Ecosystem Research Infrastructure

In

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





Grazing

12%200%

52°1070°10

32%50%

0.30%

- 20

· 10

0

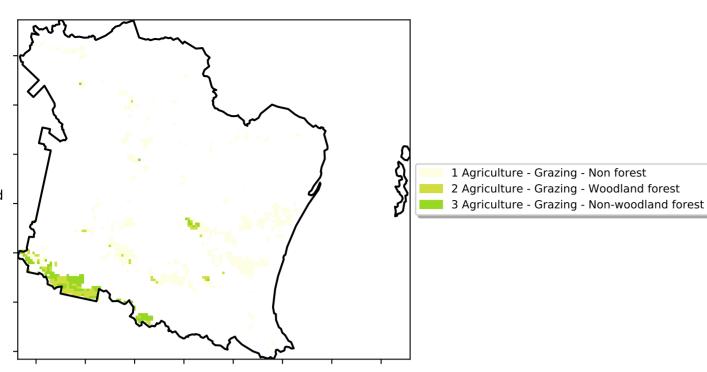
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Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

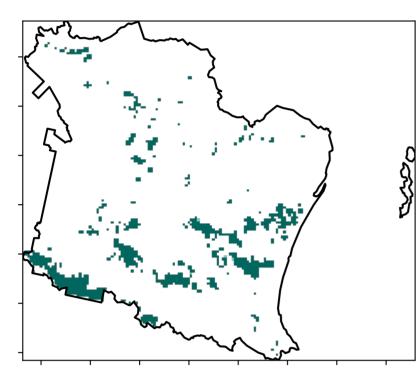
pixel is from

is, red pixels

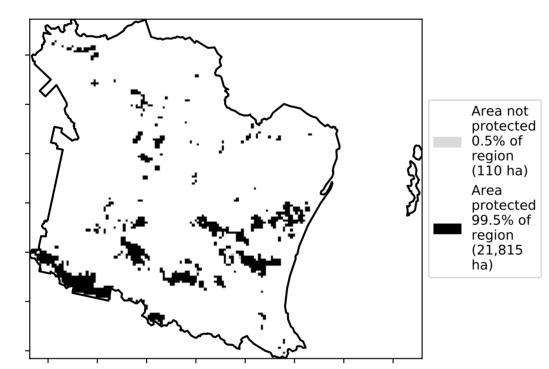


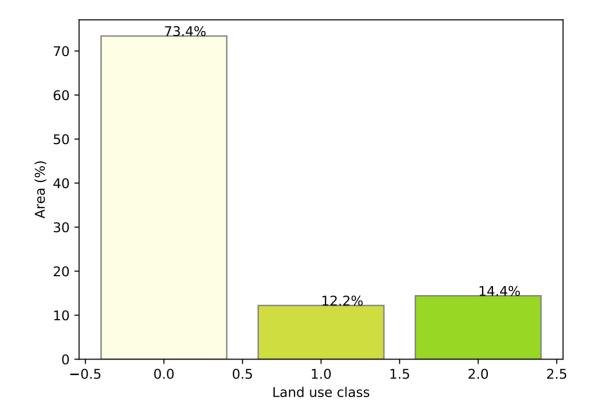
Land use and forest cover

Total Vegetation Cover [%]



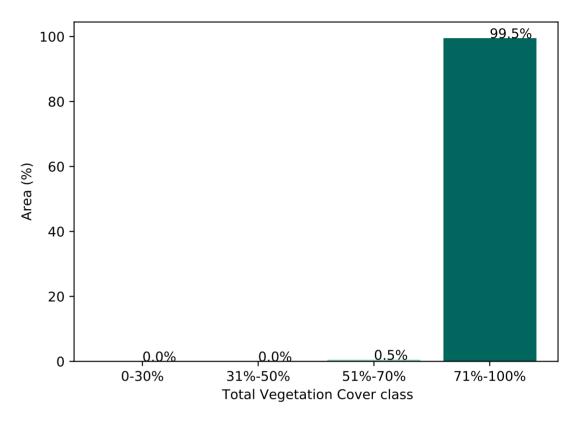
% Area protected from water erosion (>70%)



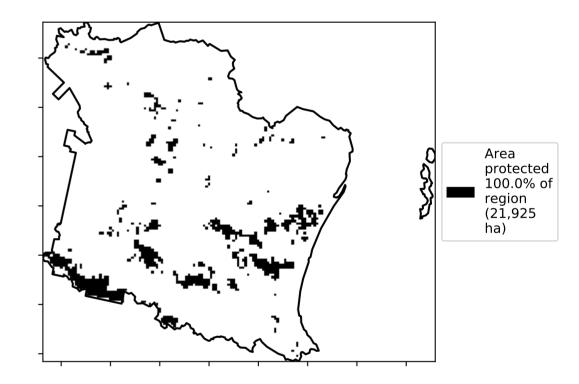


Proportion of each land class in area

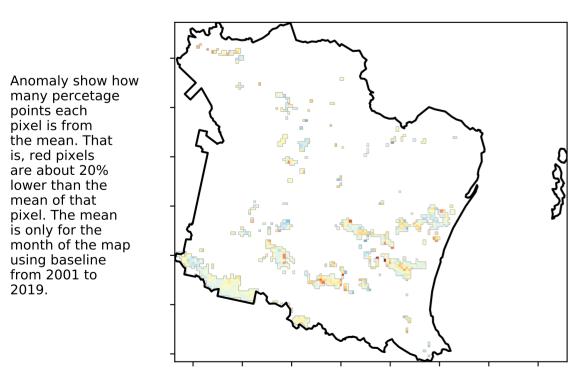
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

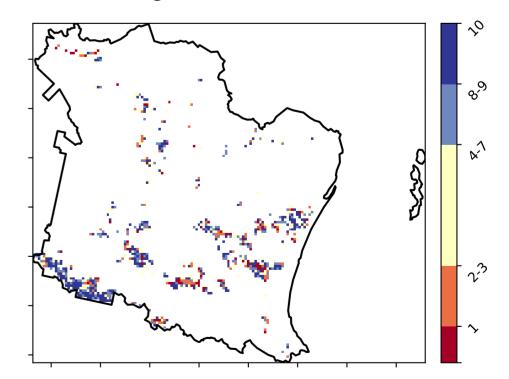


Total Vegetation Cover Anomaly [%]



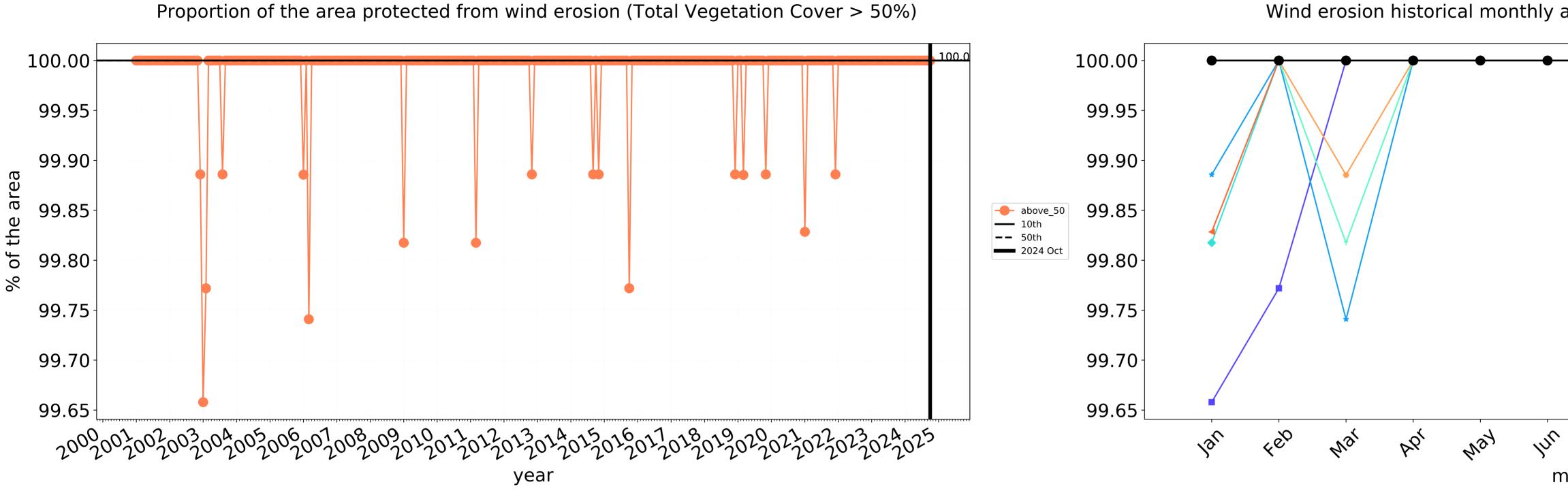
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

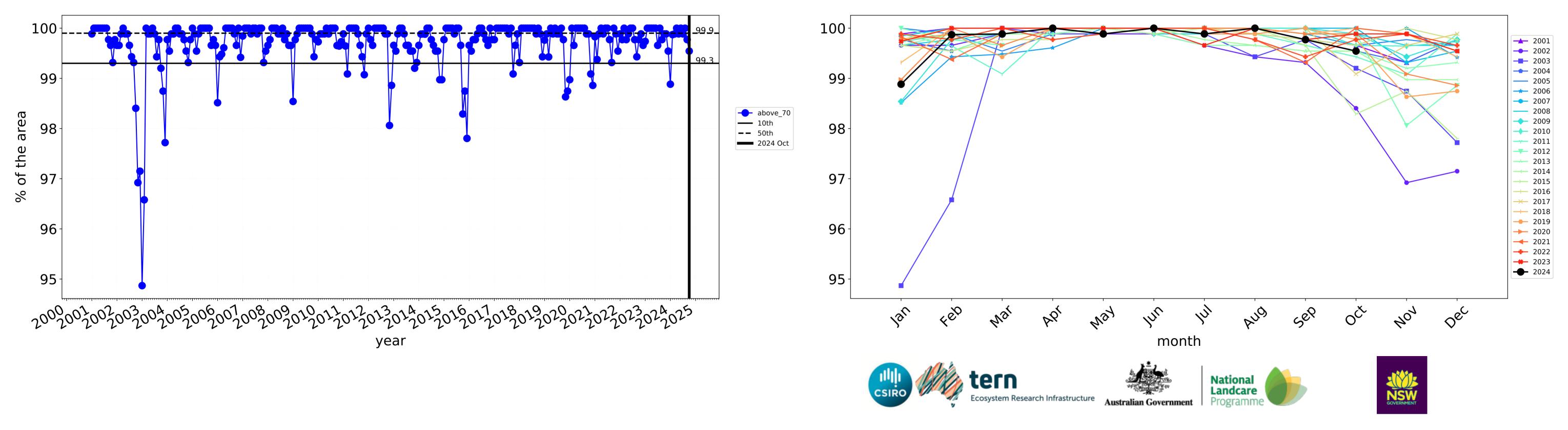
Total Vegetation Cover Decile [%]





12

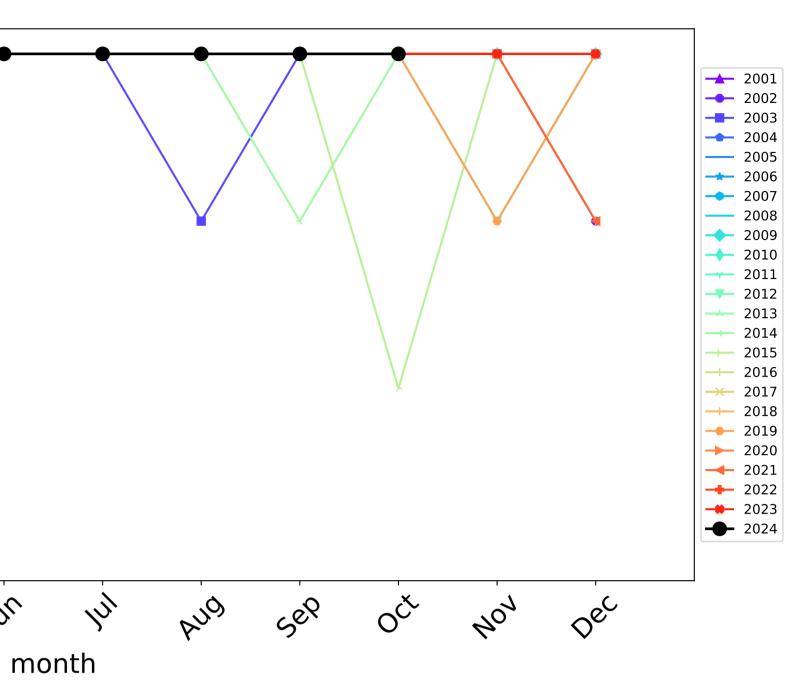


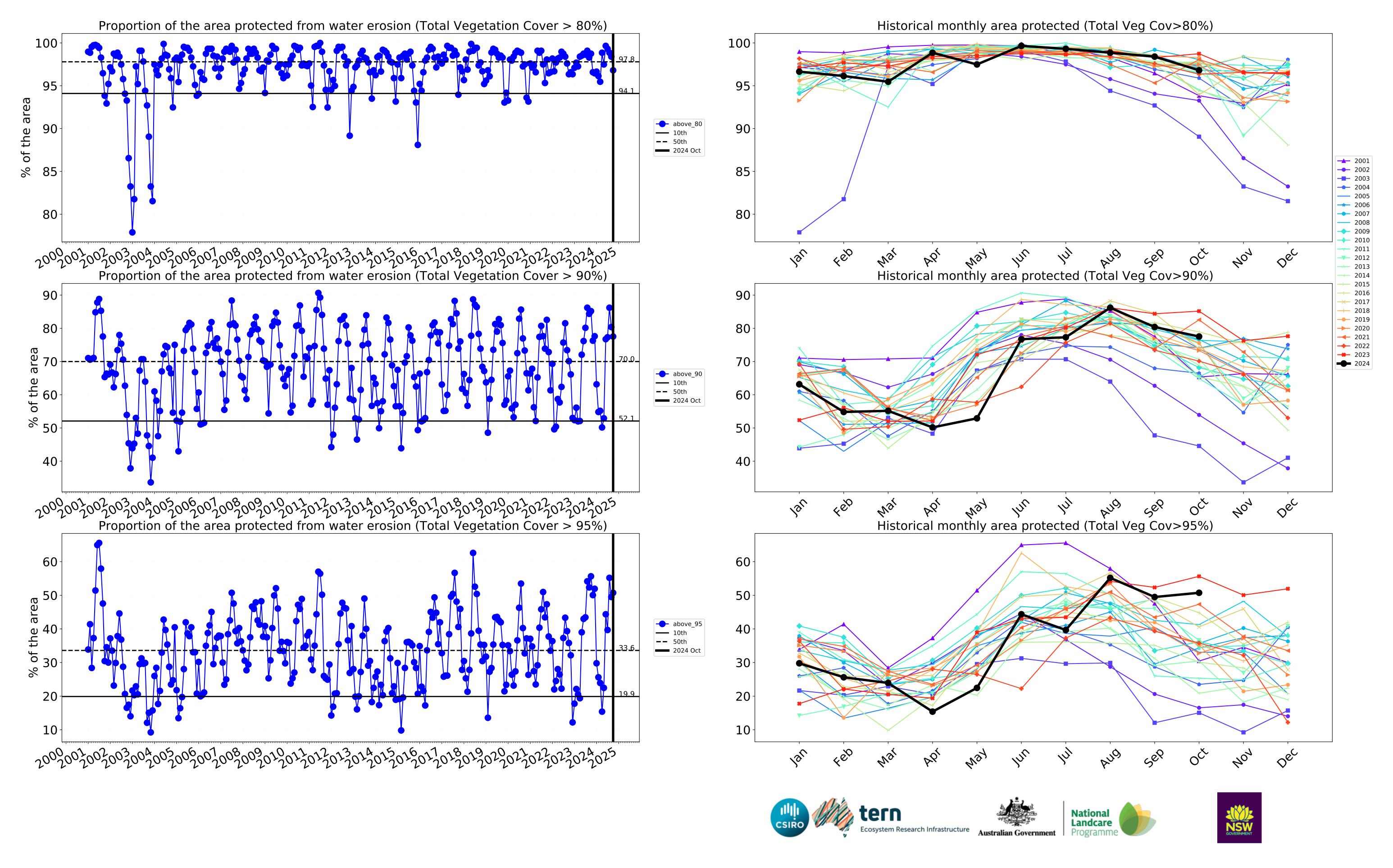


Grazing timeseries

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

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





Grazing non forest

12%200%

52°1070°10

32%50%

0.30%

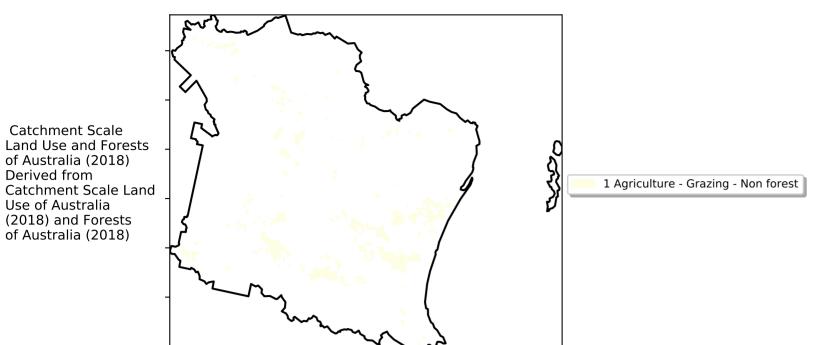
- 20

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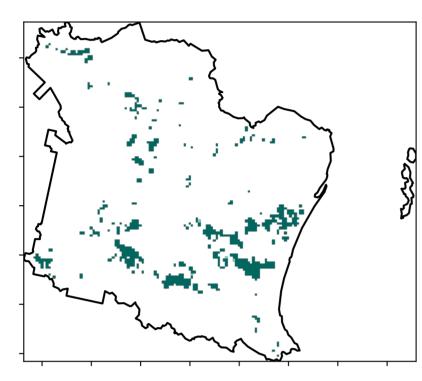
-10

-20

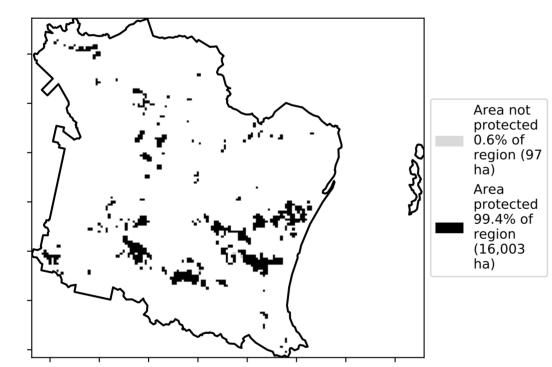


Total Vegetation Cover [%]

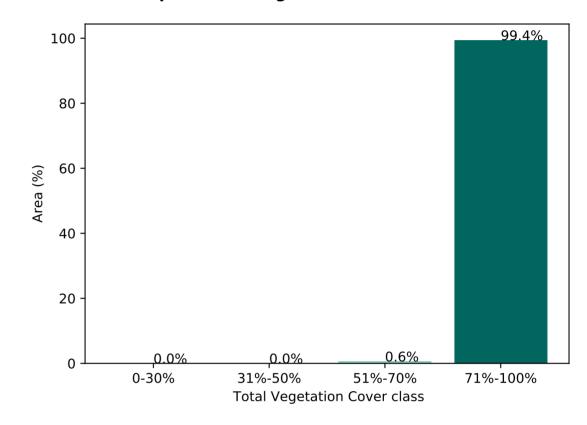
Land use and forest cover



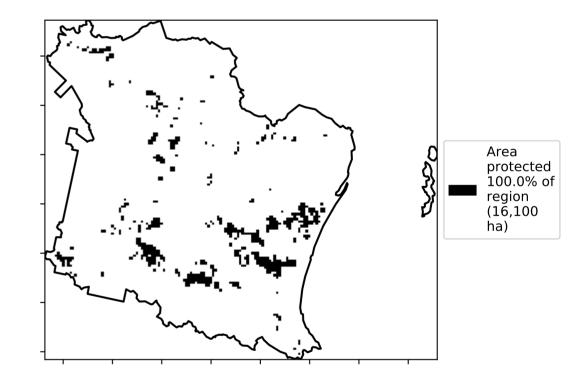
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area

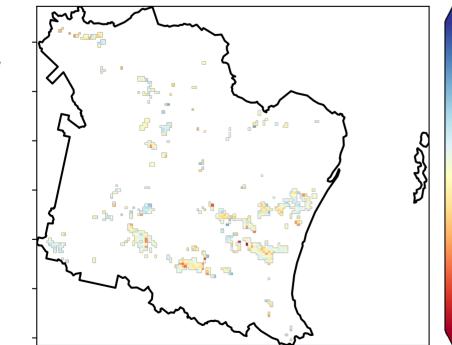


% Area protected from wind erosion (>50%)



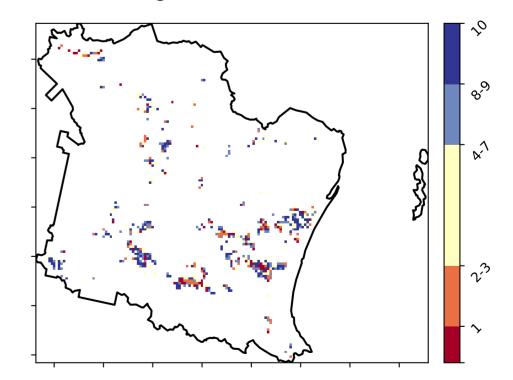
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests

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.

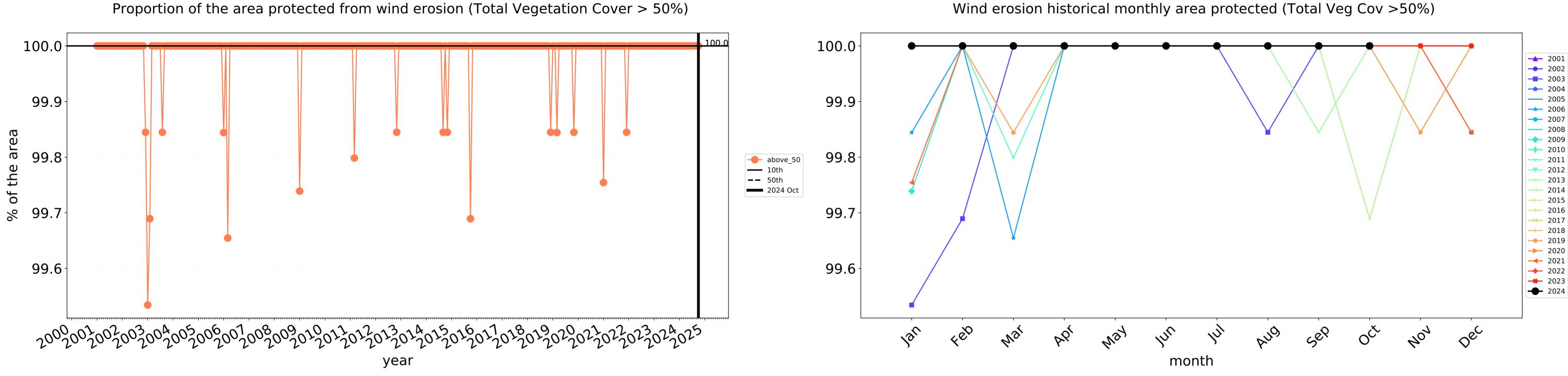
Total Vegetation Cover Decile [%]

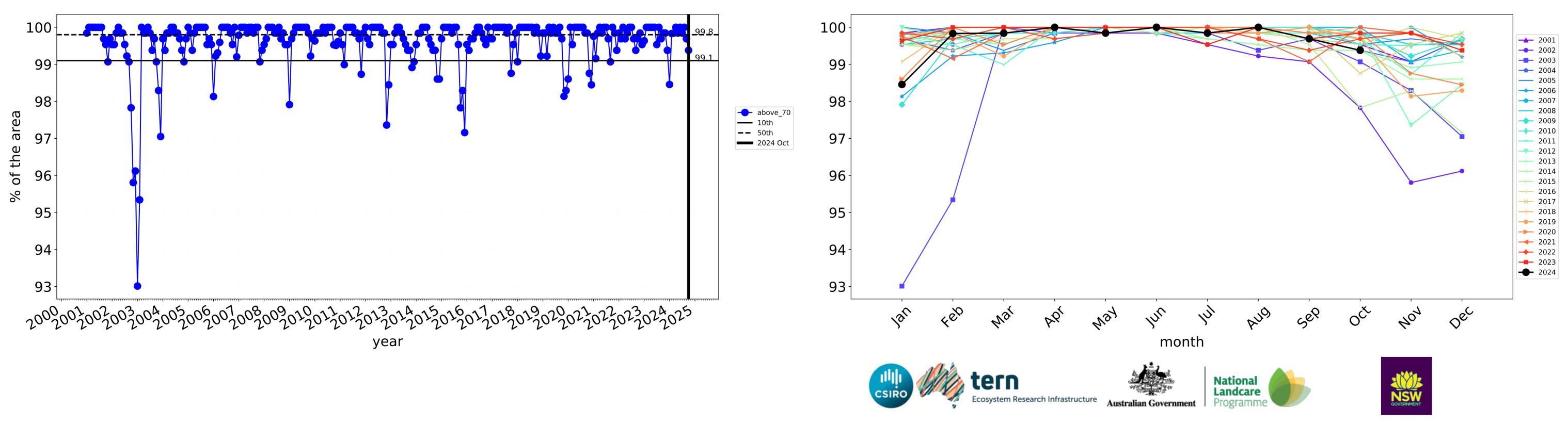




Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

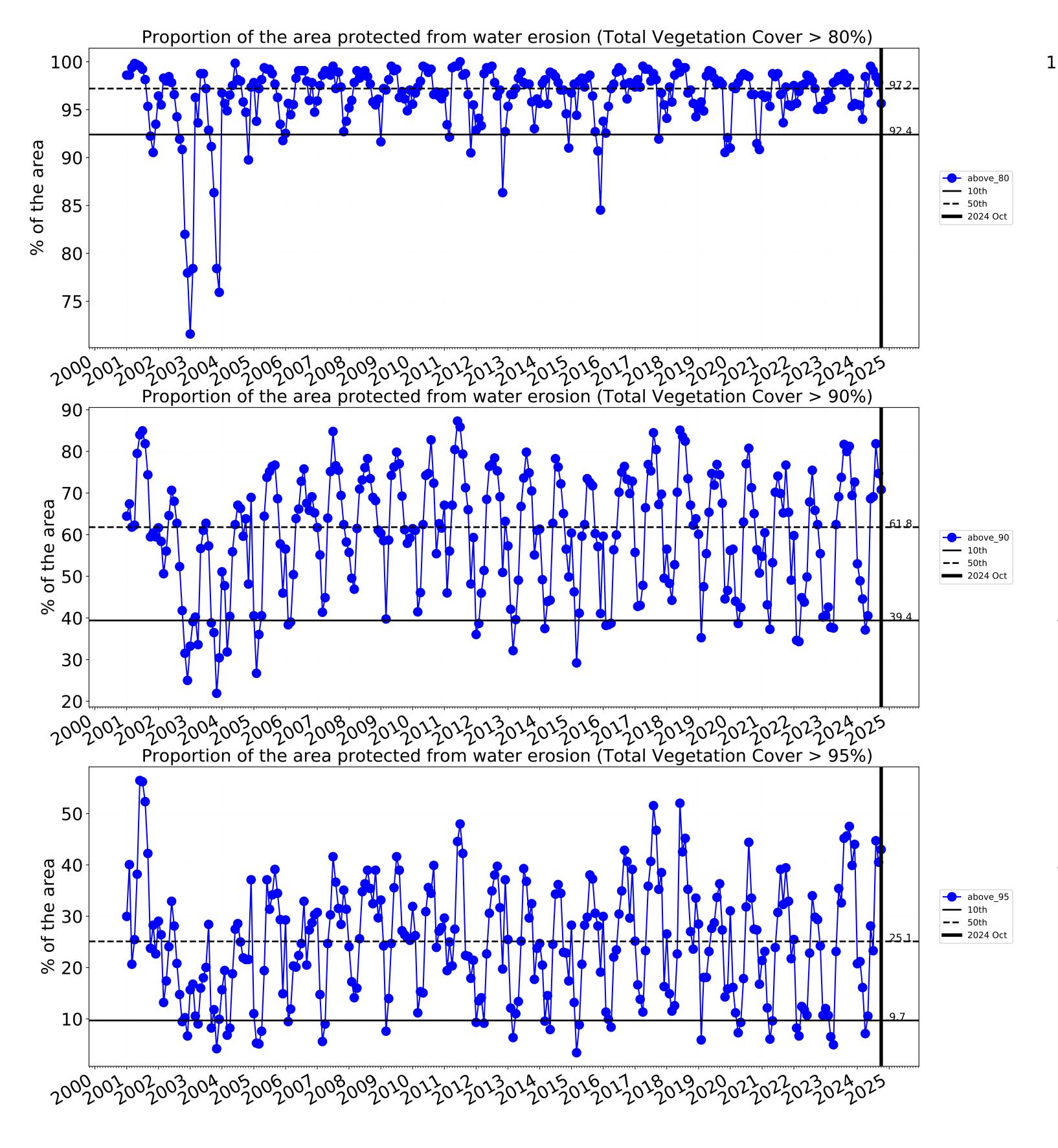


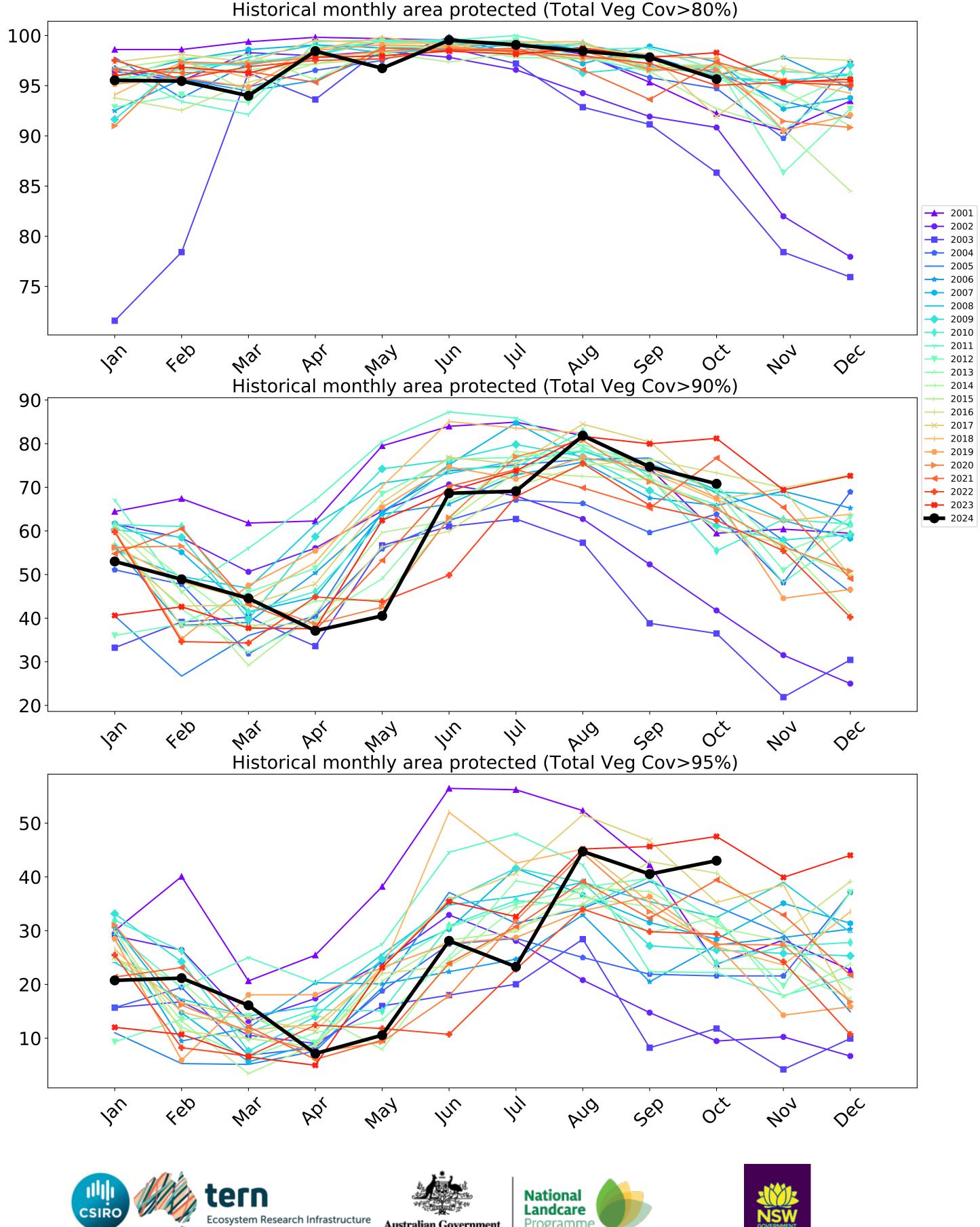




Grazing non forest timeseries







Programm

2**2**

Australian Government

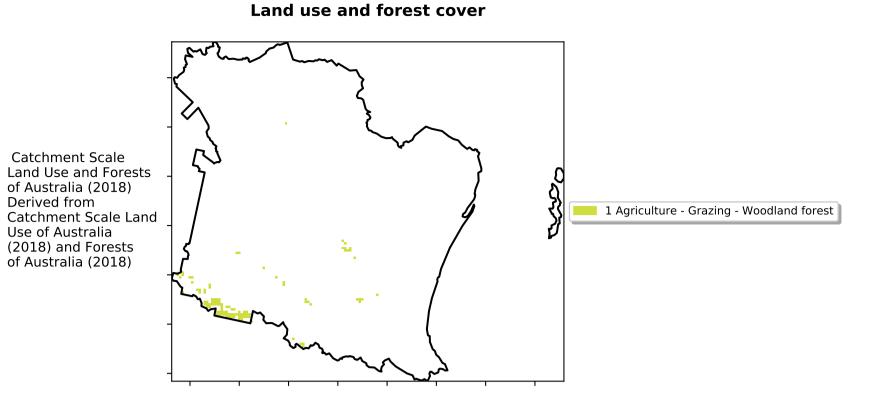
Grazing Woodland forest

1200-2000

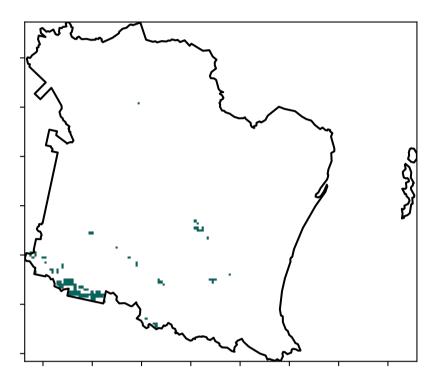
52°10-70°10

320050010

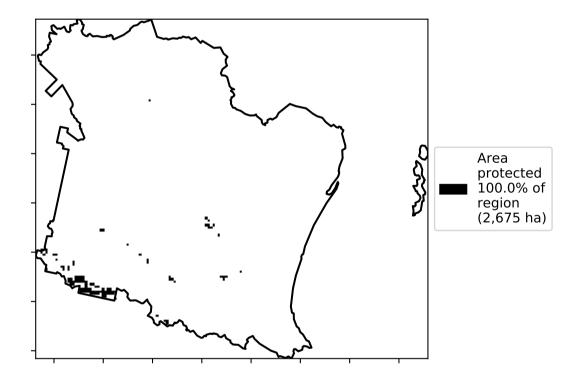
· 0.30%



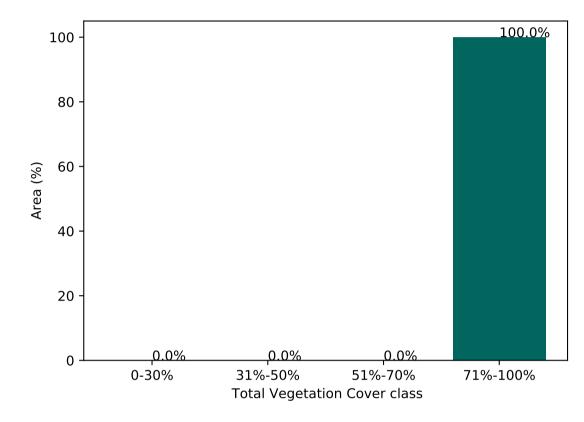
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area

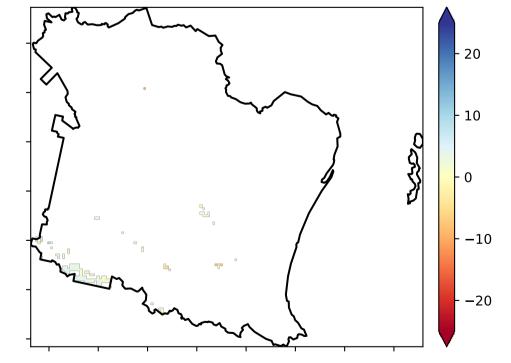


% Area protected from wind erosion (>50%)

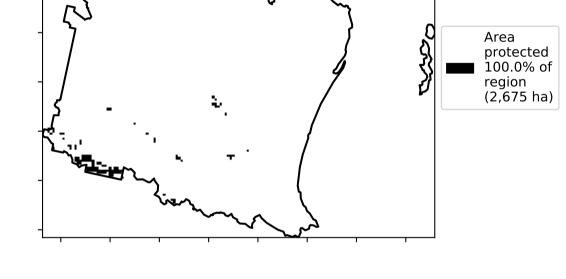


Total Vegetation Cover Anomaly [%]

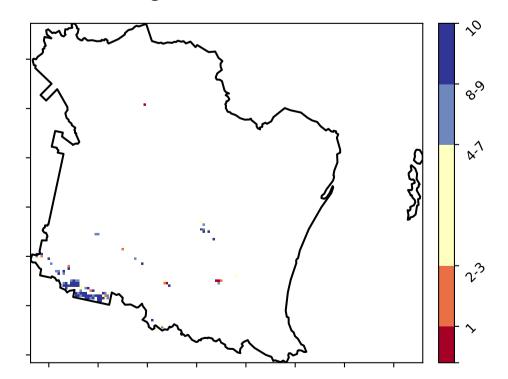
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



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.

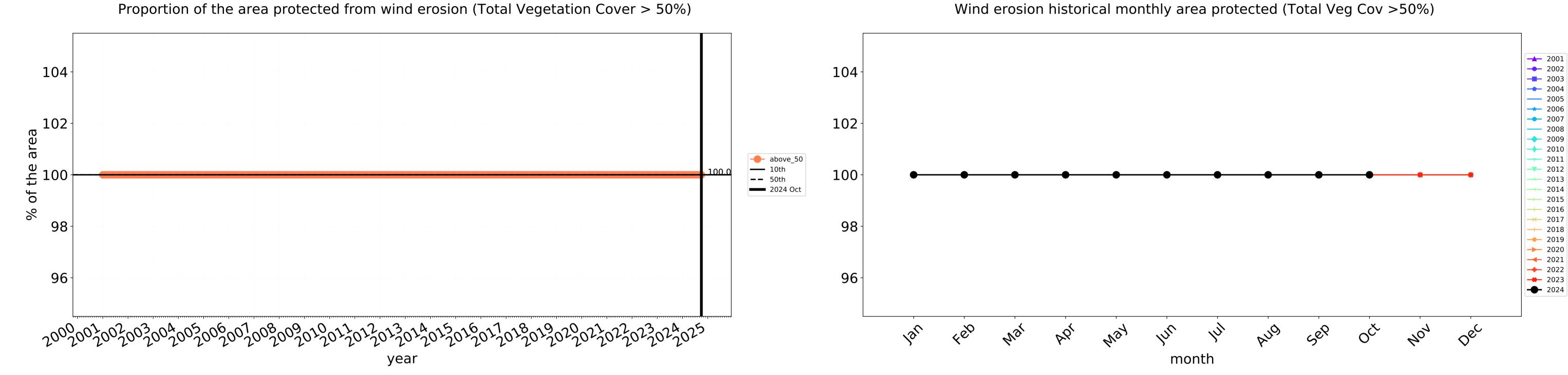


Total Vegetation Cover Decile [%]

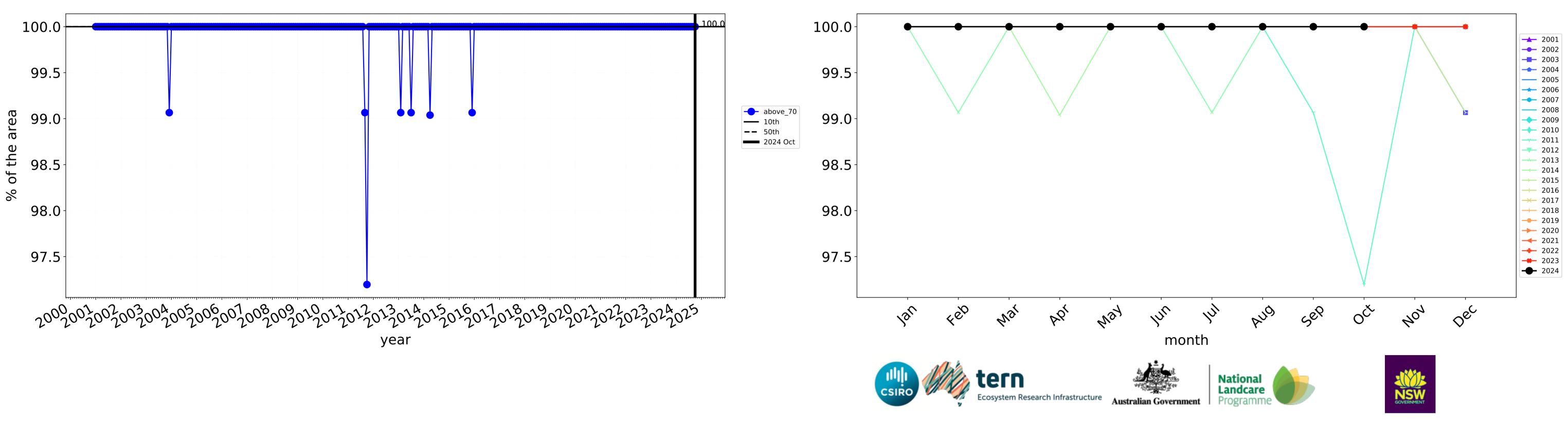




Grazing Woodland forest timeseries

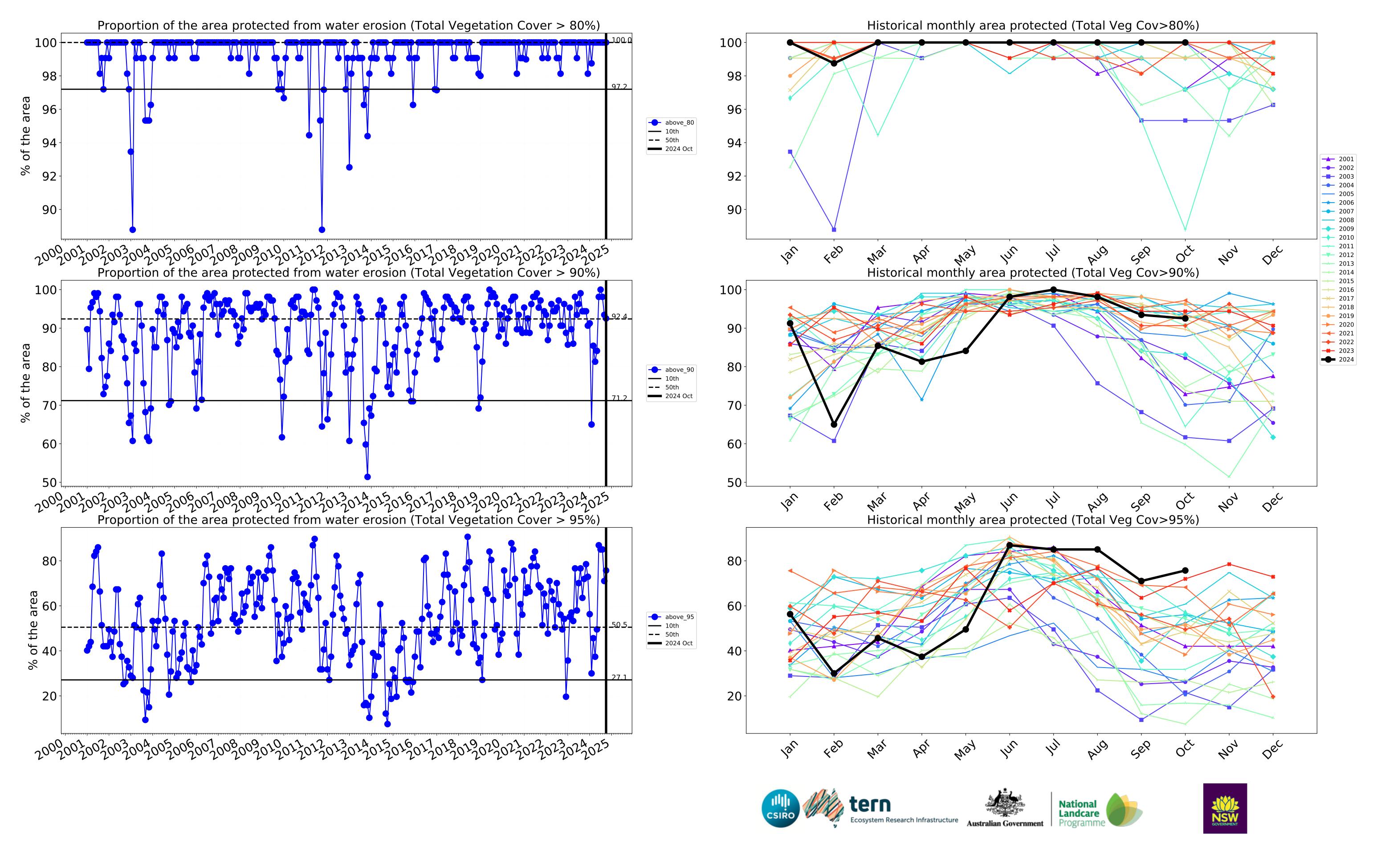


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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

2**3**



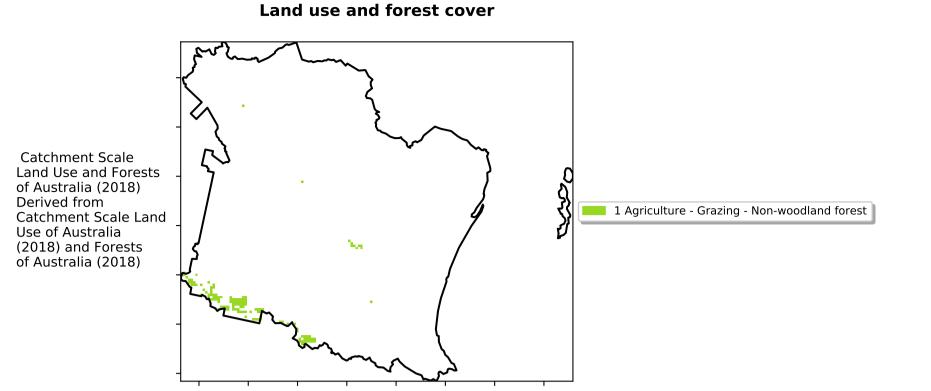
Grazing - Forest (non woodland)

1200-2000

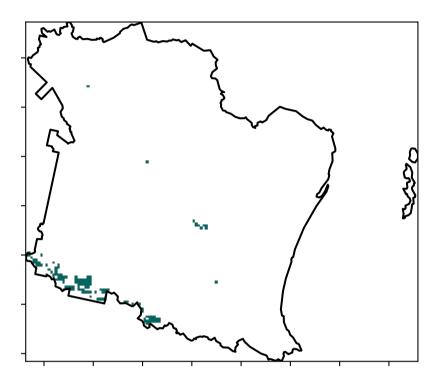
52°10010010

320050010

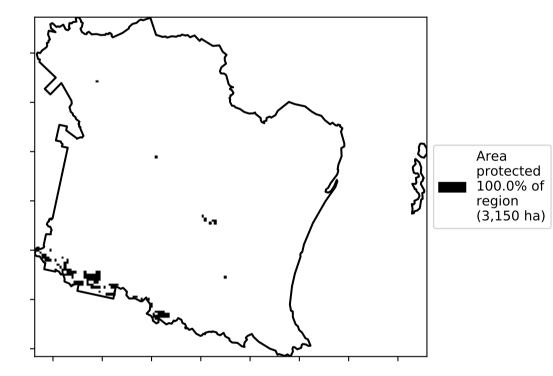
· 0.30%



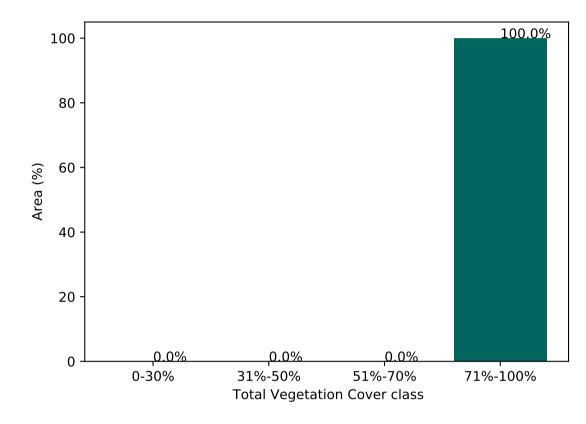
Total Vegetation Cover [%]



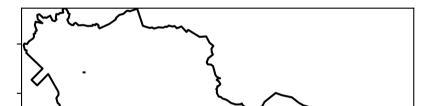
% Area protected from water erosion (>70%)



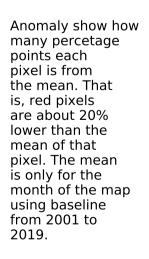
Proportion of vegetation cover class in area

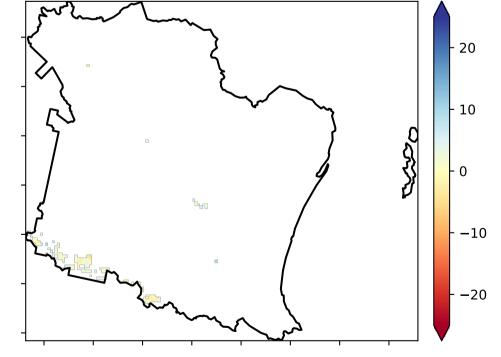


% Area protected from wind erosion (>50%)

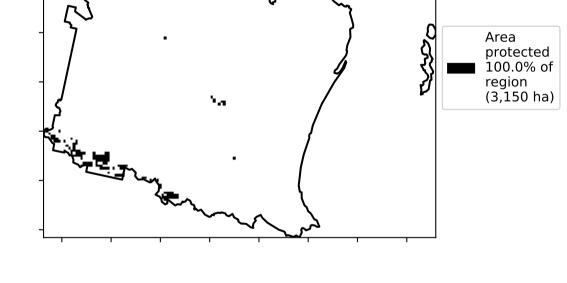


Total Vegetation Cover Anomaly [%]

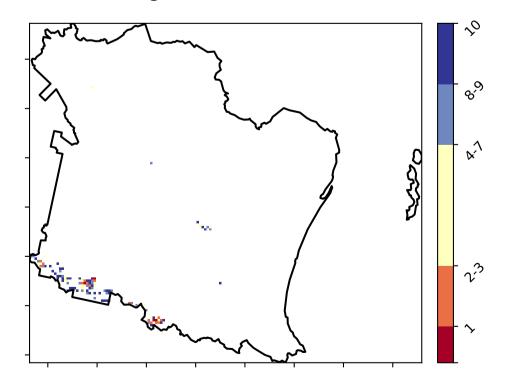




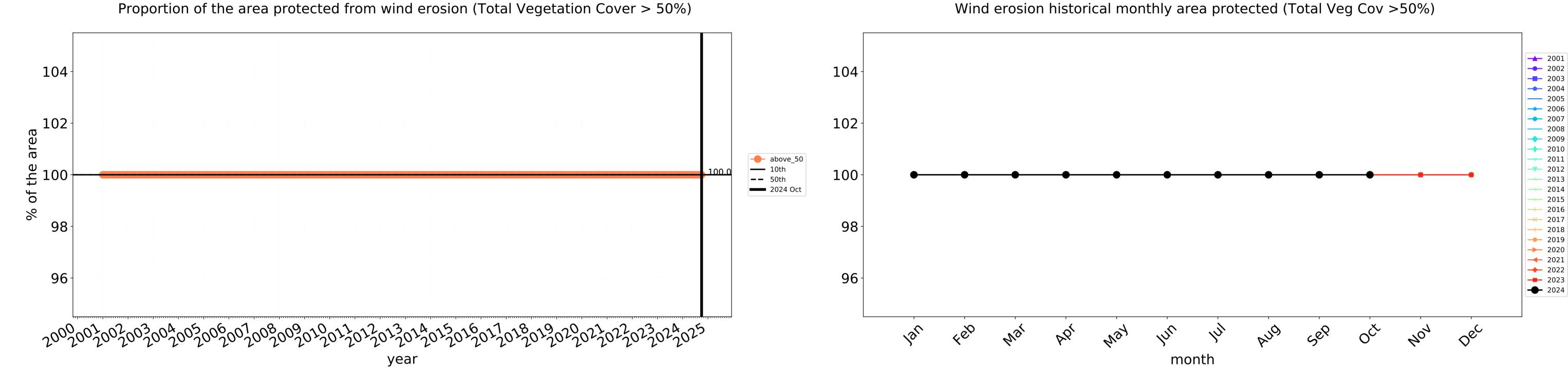
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

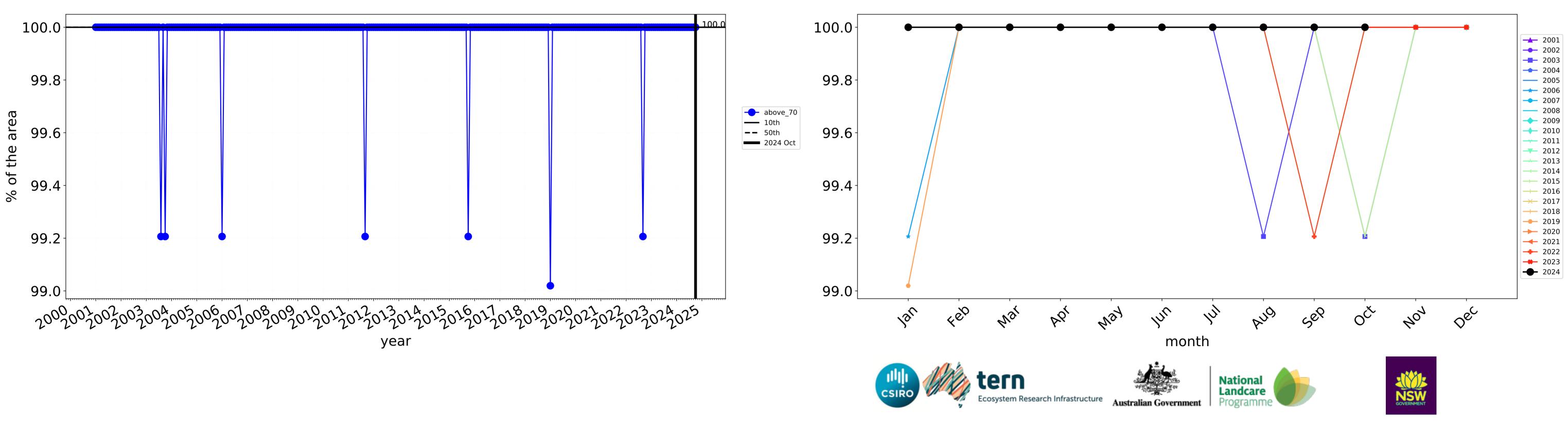


Total Vegetation Cover Decile [%]



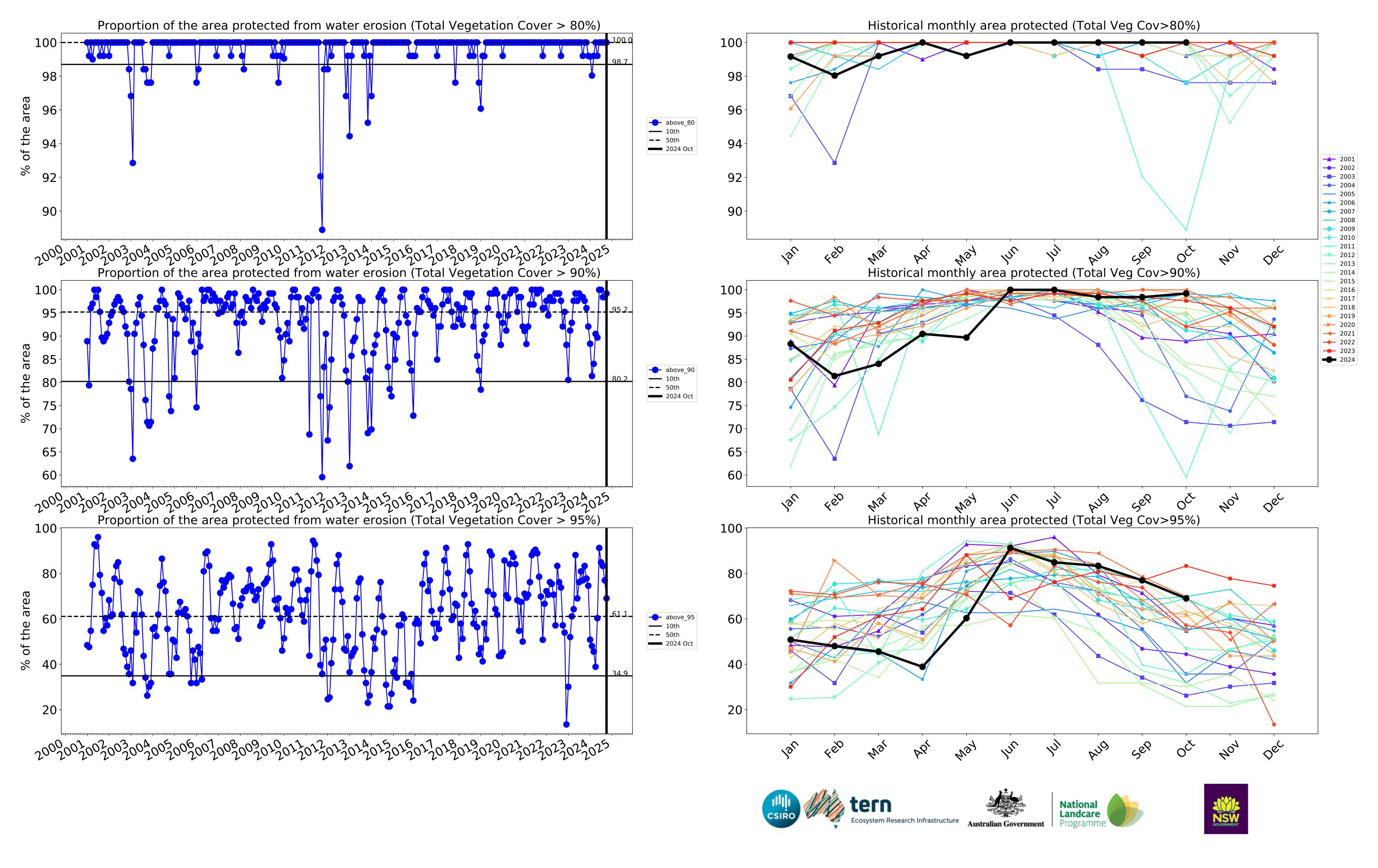






Grazing - Forest (non woodland) timeseries

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



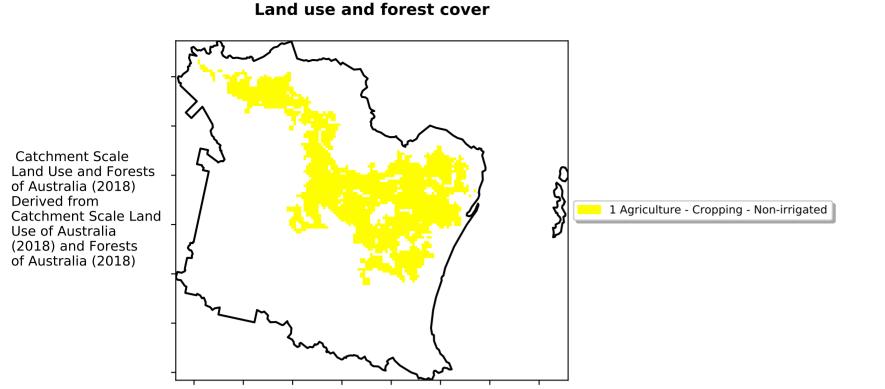
Cropping

120010001

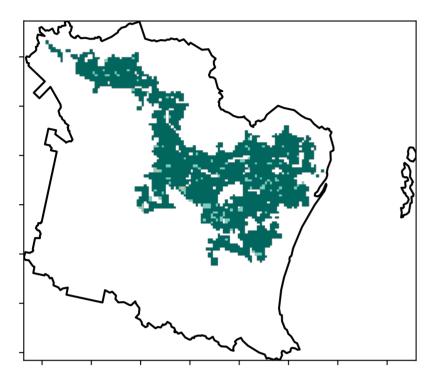
52% TON

32005001

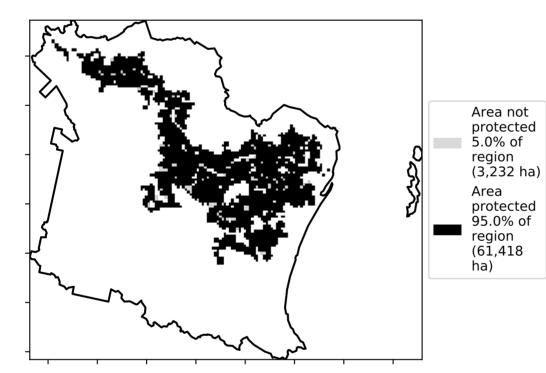
0.30%



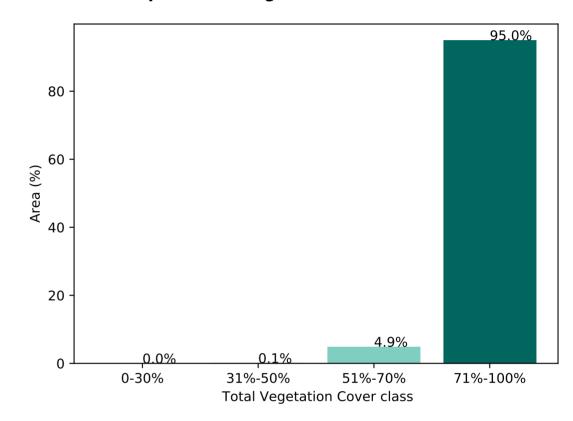
Total Vegetation Cover [%]



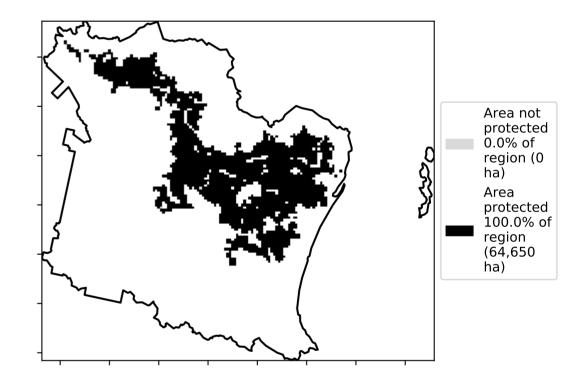
% Area protected from water erosion (>70%)



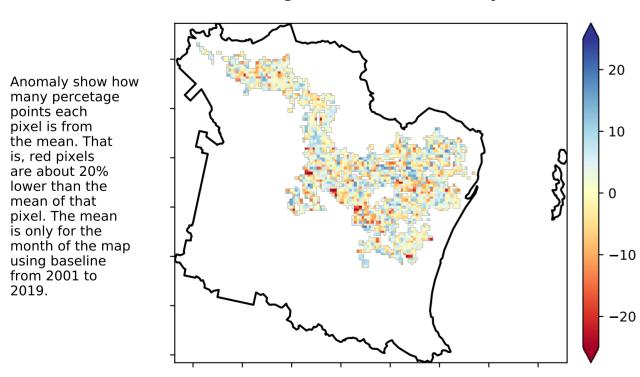
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

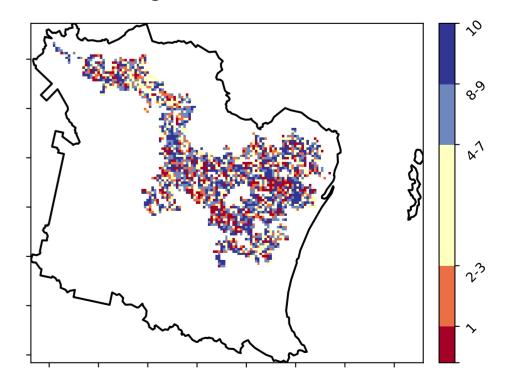


lower than the

mean of that pixel. The mean

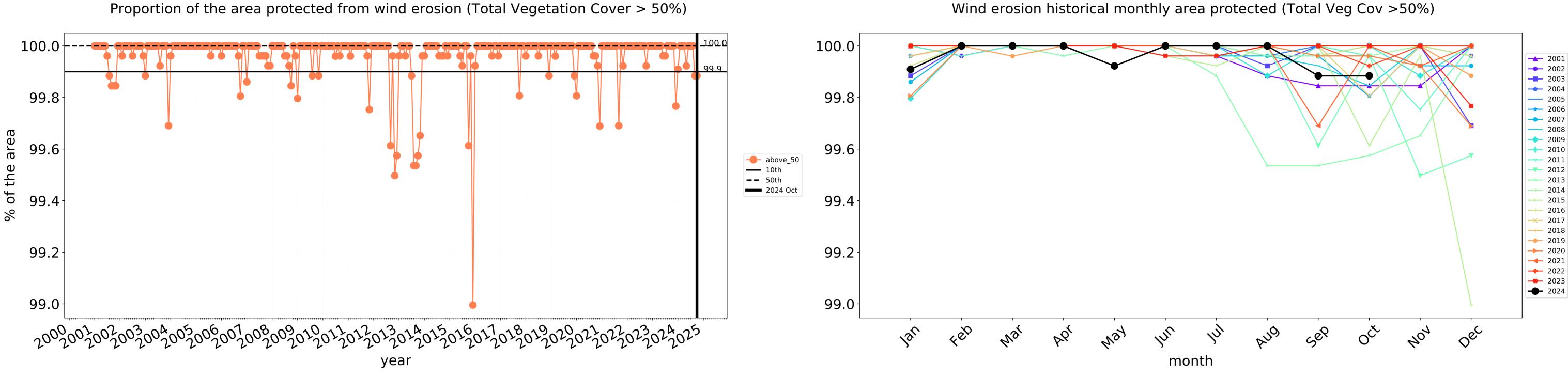
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]

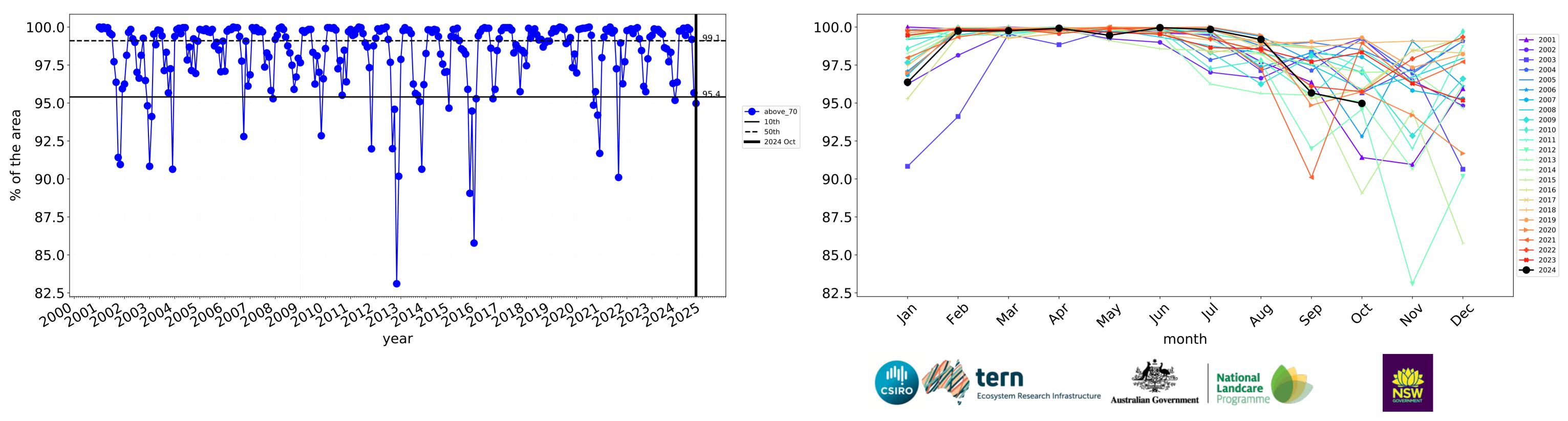




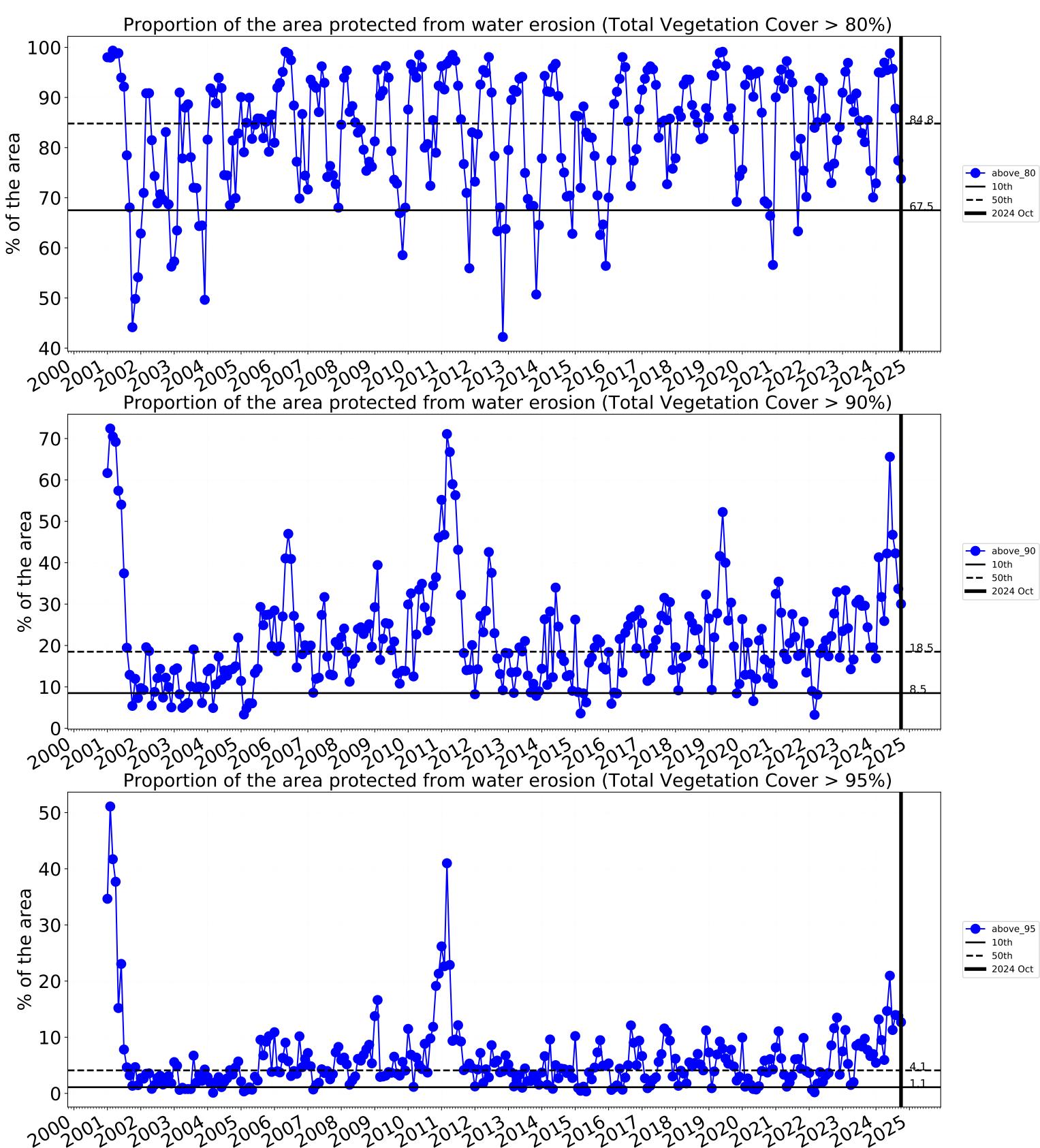
29

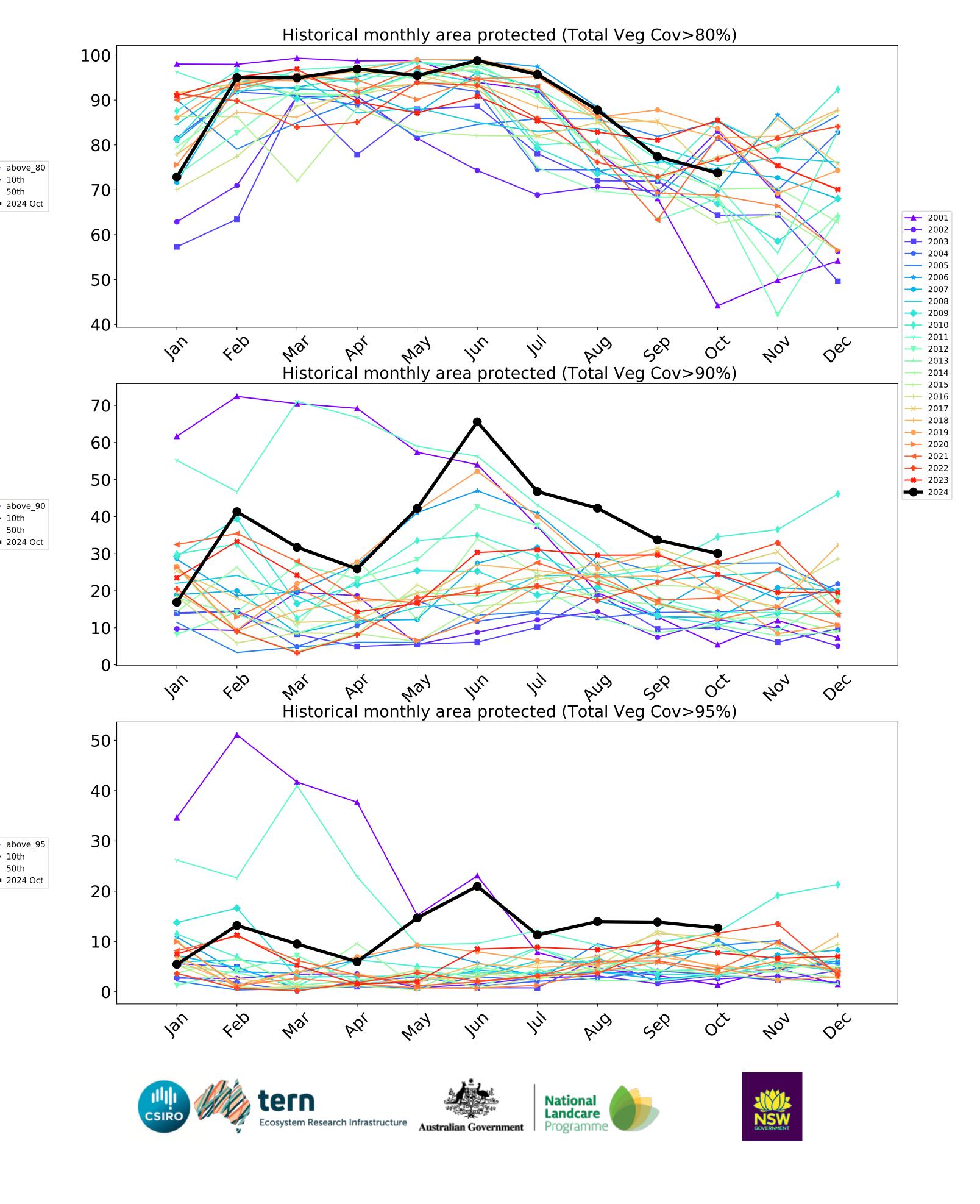


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



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





Irrigation

Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) ſ ર્શે Derived from 1 Agriculture - Cropping - Irrigated Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) ſ **Total Vegetation Cover [%]** 120/02/00/0 S 5201070010 5 · 320050010 0.30% % Area protected from water erosion (>70%)

Anomaly show how many percetage points each

pixel is from

is, red pixels

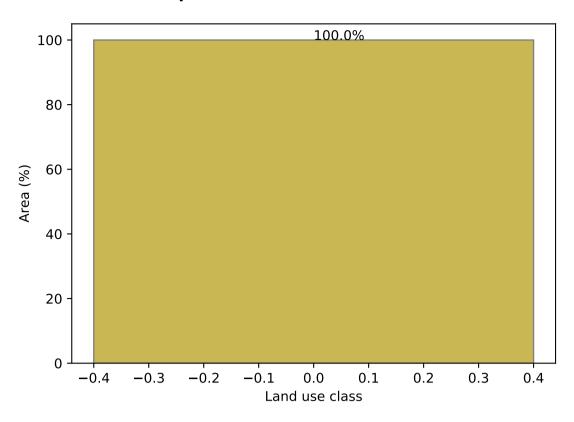
are about 20% lower than the

mean of that pixel. The mean

from 2001 to 2019.

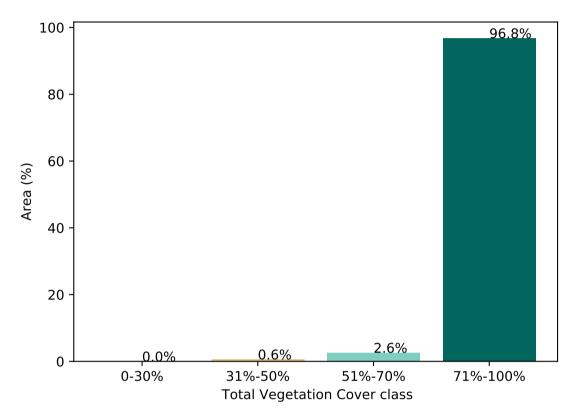
is only for the month of the map

the mean. That

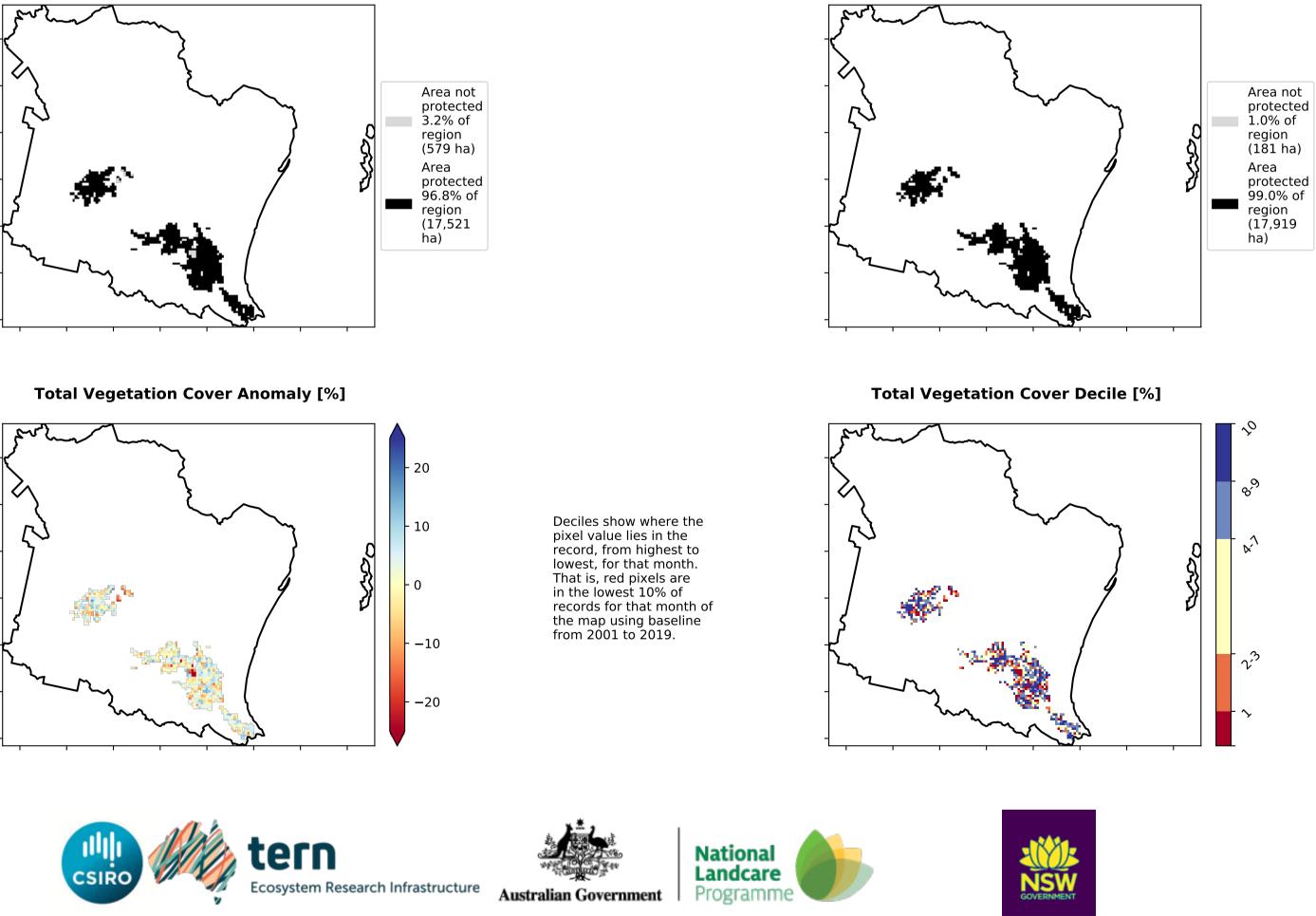


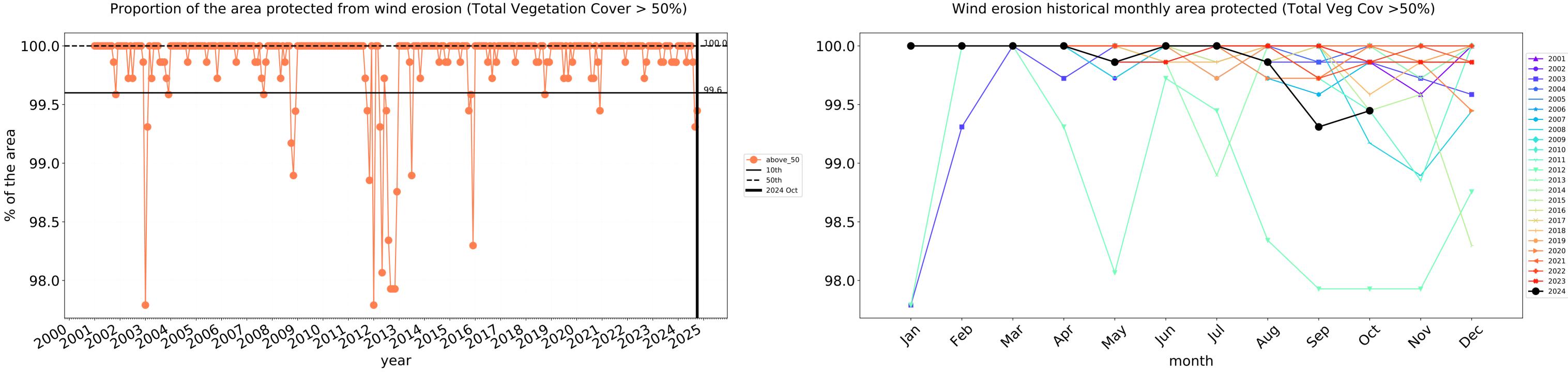
Proportion of each land class in area

Proportion of vegetation cover class in area

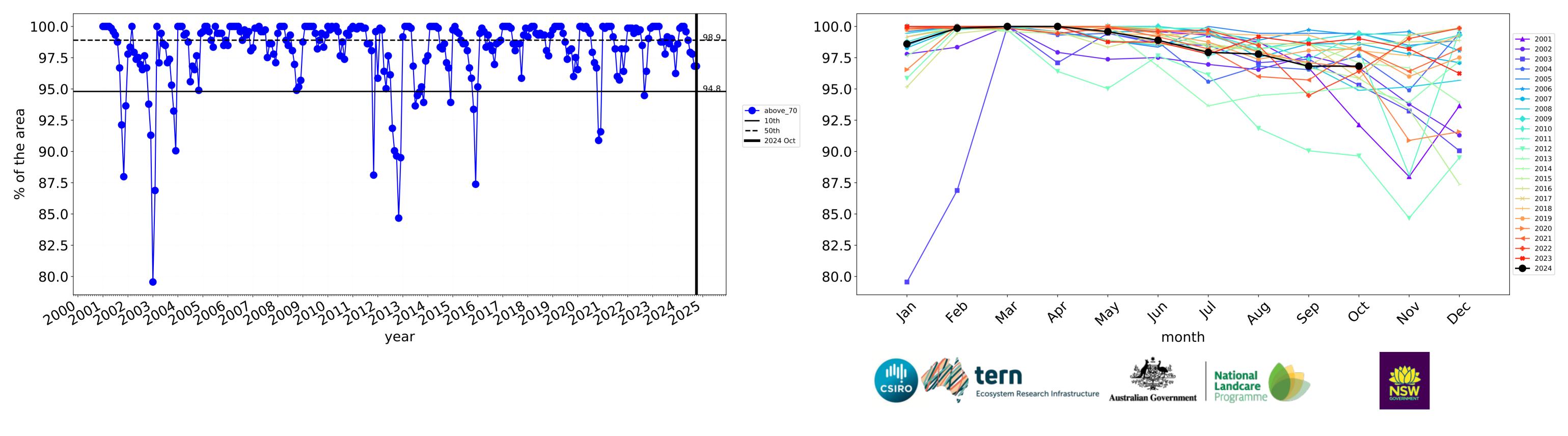


% Area protected from wind erosion (>50%)

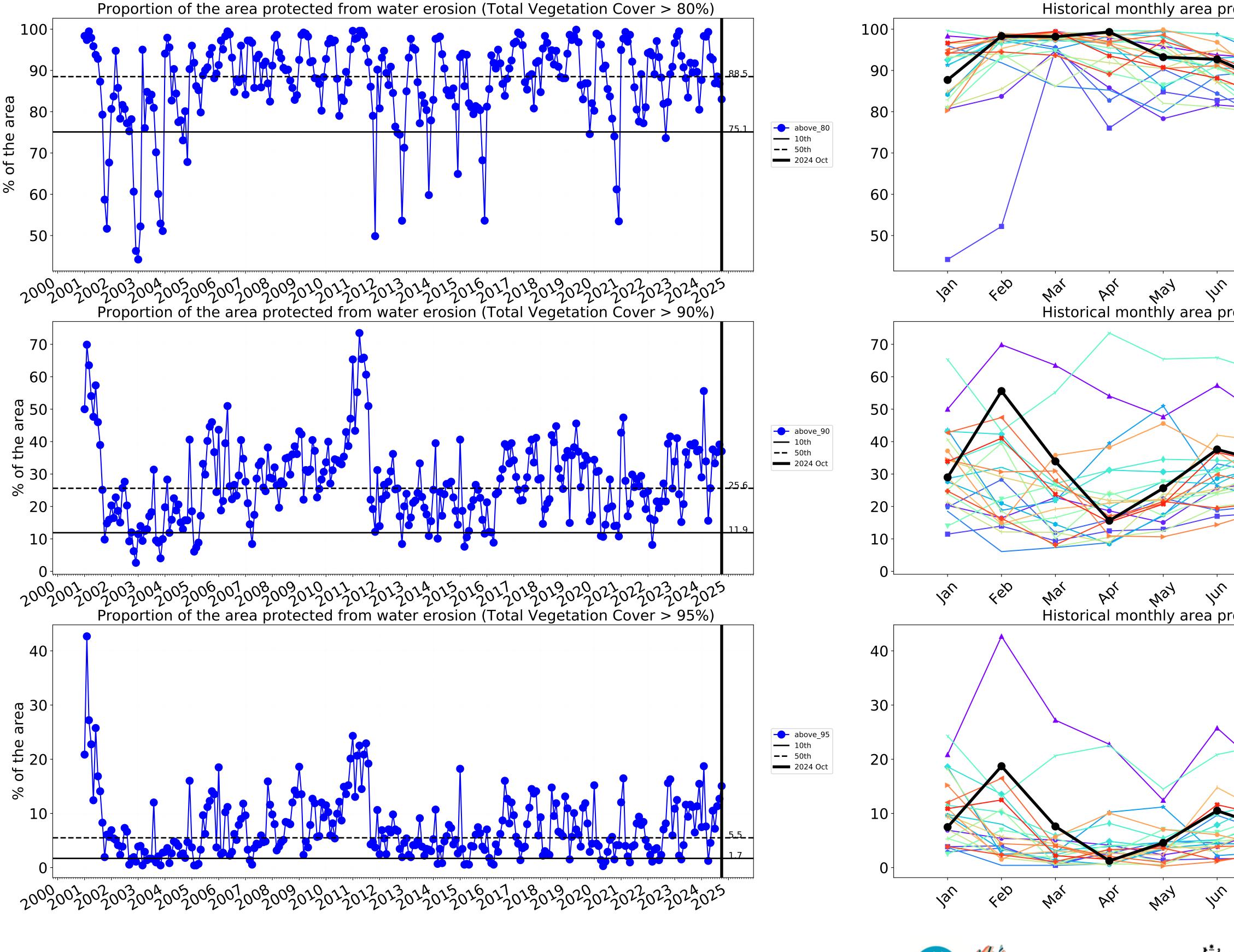




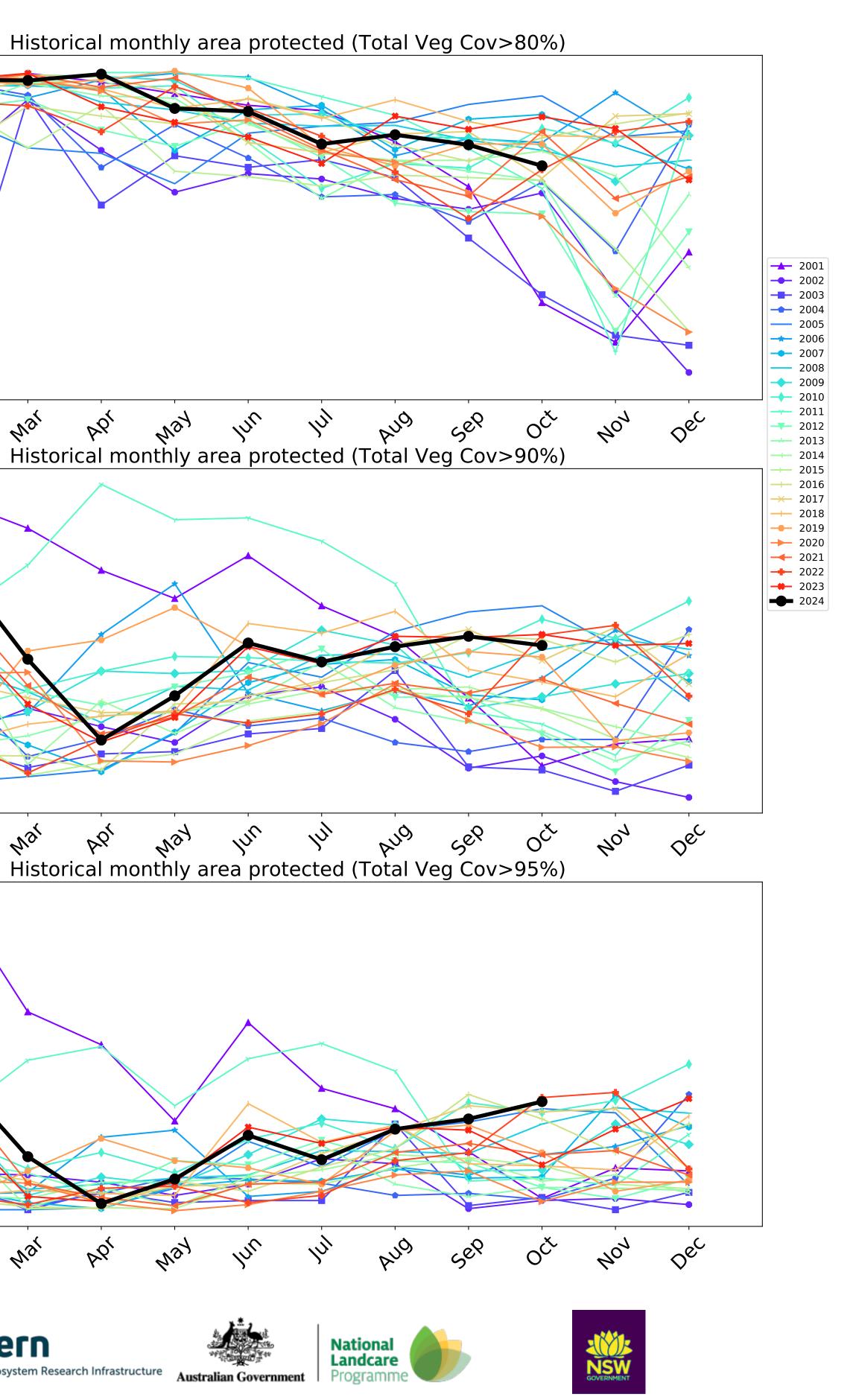
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



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



Ecosystem Research Infrastructure Australian Government



Production native forests and plantation forests

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

12º10-100'

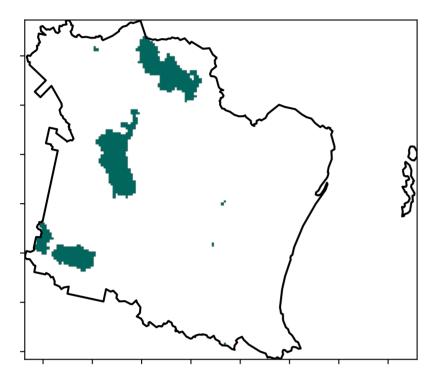
52°1070°1

32905001

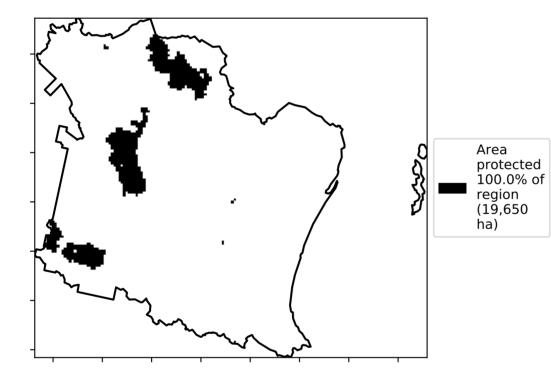
0.30%

Total Vegetation Cover [%]

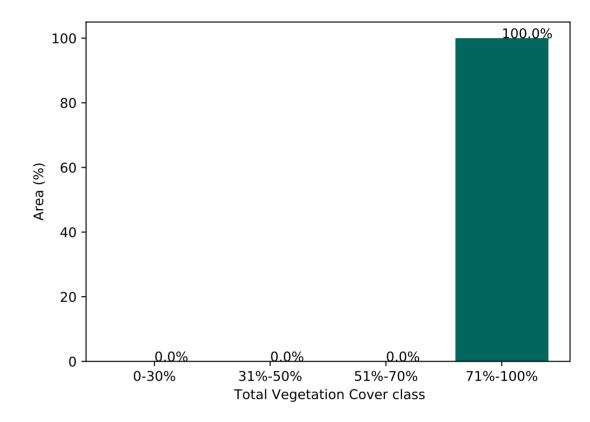
Land use and forest cover



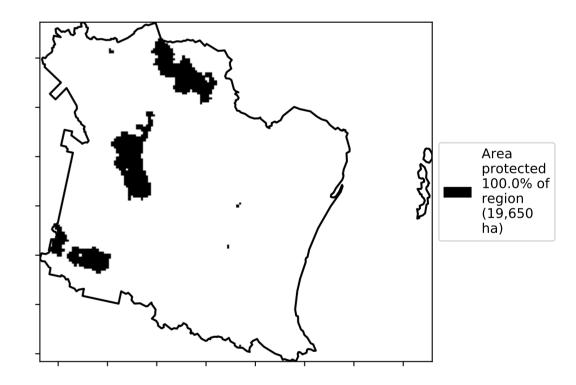
% Area protected from water erosion (>70%)



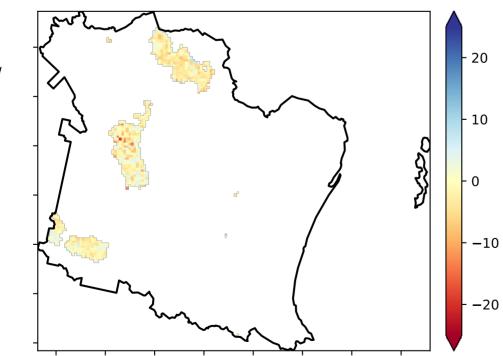
Proportion of vegetation cover class in area



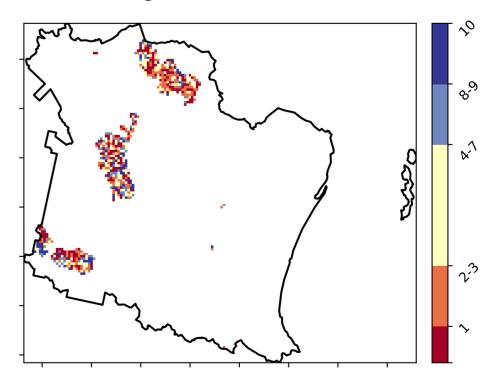
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



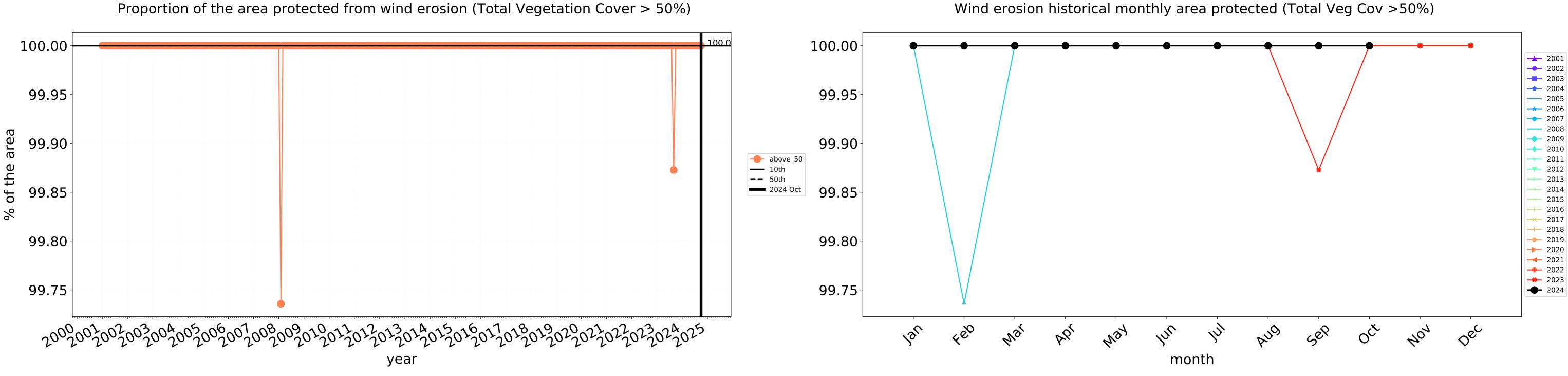
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. Total Vegetation Cover Decile [%]

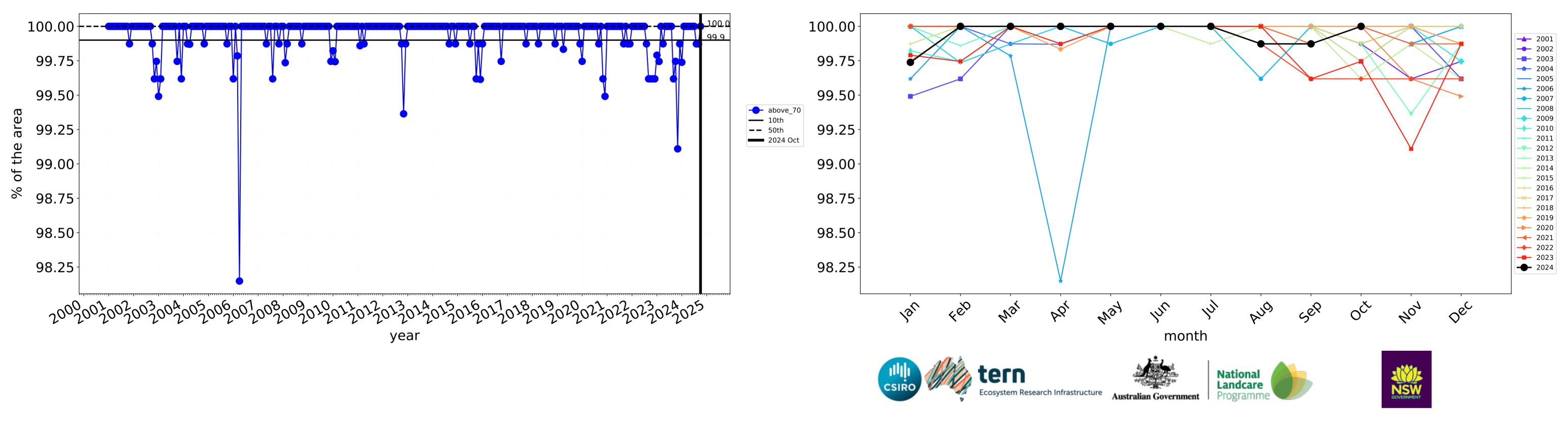




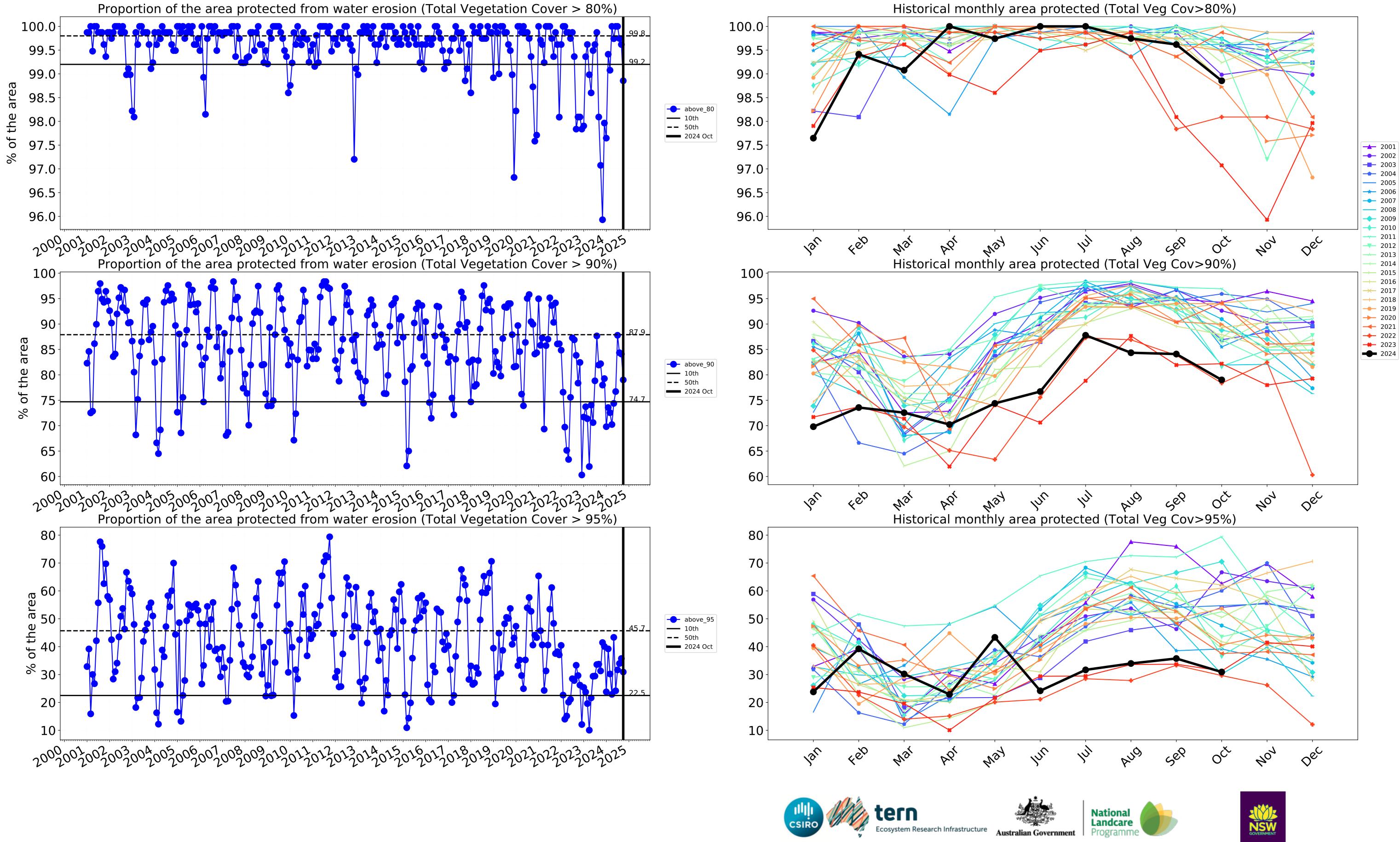
u anan C

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%)



Hinchinbrook_(S) (278,400 ha and no data 2,262 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	278,400	100.0% 278,350	99.7% 277,675	97.6% 271,600	89.3% 248,700	61.6% 171,575	29.7% 82,550
Conservation and natural environments	130,725	100.0% 130,725	99.9% 130,550	99.3% 129,875	98.3% 128,450	80.4% 105,075	38.4% 50,175
Conservation and natural environments Woodland forest	46,450	100.0% 46,450	100.0% 46,450	99.8% 46,350	98.8% 45,875	86.2% 40,050	52.3% 24,275
Conservation and natural environments Forest (non woodland)	82,475	100.0% 82,475	99.8% 82,325	99.3% 81,900	98.3% 81,050	77.5% 63,950	30.7% 25,300
Agriculture	104,700	100.0% 104,700	99.8% 104,525	96.3% 100,775	80.2% 83,950	41.2% 43,125	21.1% 22,050
Grazing	21,925	100.0% 21,925	100.0% 21,925	99.5% 21,825	96.8% 21,225	77.5% 17,000	50.7% 11,125
Grazing non forest	16,100	100.0% 16,100	100.0% 16,100	99.4% 16,000	95.7% 15,400	70.8% 11,400	43.0% 6,925
Grazing Woodland forest	2,675	100.0% 2,675	100.0% 2,675	100.0% 2,675	100.0% 2,675	92.5% 2,475	75.7% 2,025
Grazing - Forest (non woodland)	3,150	100.0% 3,150	100.0% 3,150	100.0% 3,150	100.0% 3,150	99.2% 3,125	69.0% 2,175
Cropping	64,650	100.0% 64,650	99.9% 64,575	95.0% 61,400	73.7% 47,675	30.0% 19,425	12.7% 8,200
Irrigation	18,100	100.0% 18,100	99.4% 18,000	96.8% 17,525	83.0% 15,025	37.0% 6,700	15.1% 2,725
Production native forests and plantation forests	19,650	100.0% 19,650	100.0% 19,650	100.0% 19,650	98.9% 19,425	79.0% 15,525	30.9% 6,075

