Total vegetation cover soil protection Region:LGA Indigo_(S) VIC

Date: May 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:

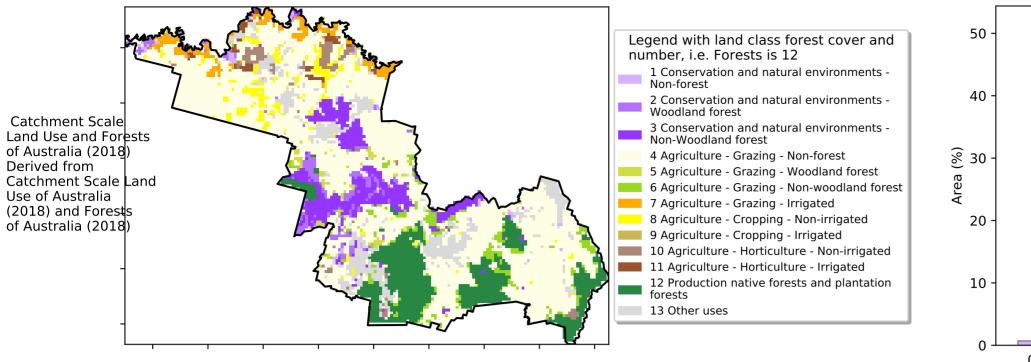
https://doi.org/10.4225/08/5848a3f19a7b3



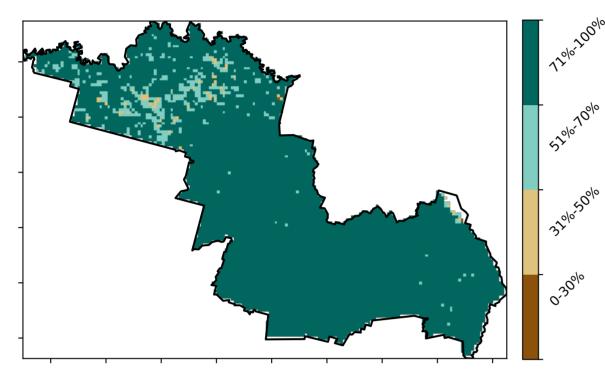
Vegetation Cover May 2024

Land use and forest cover

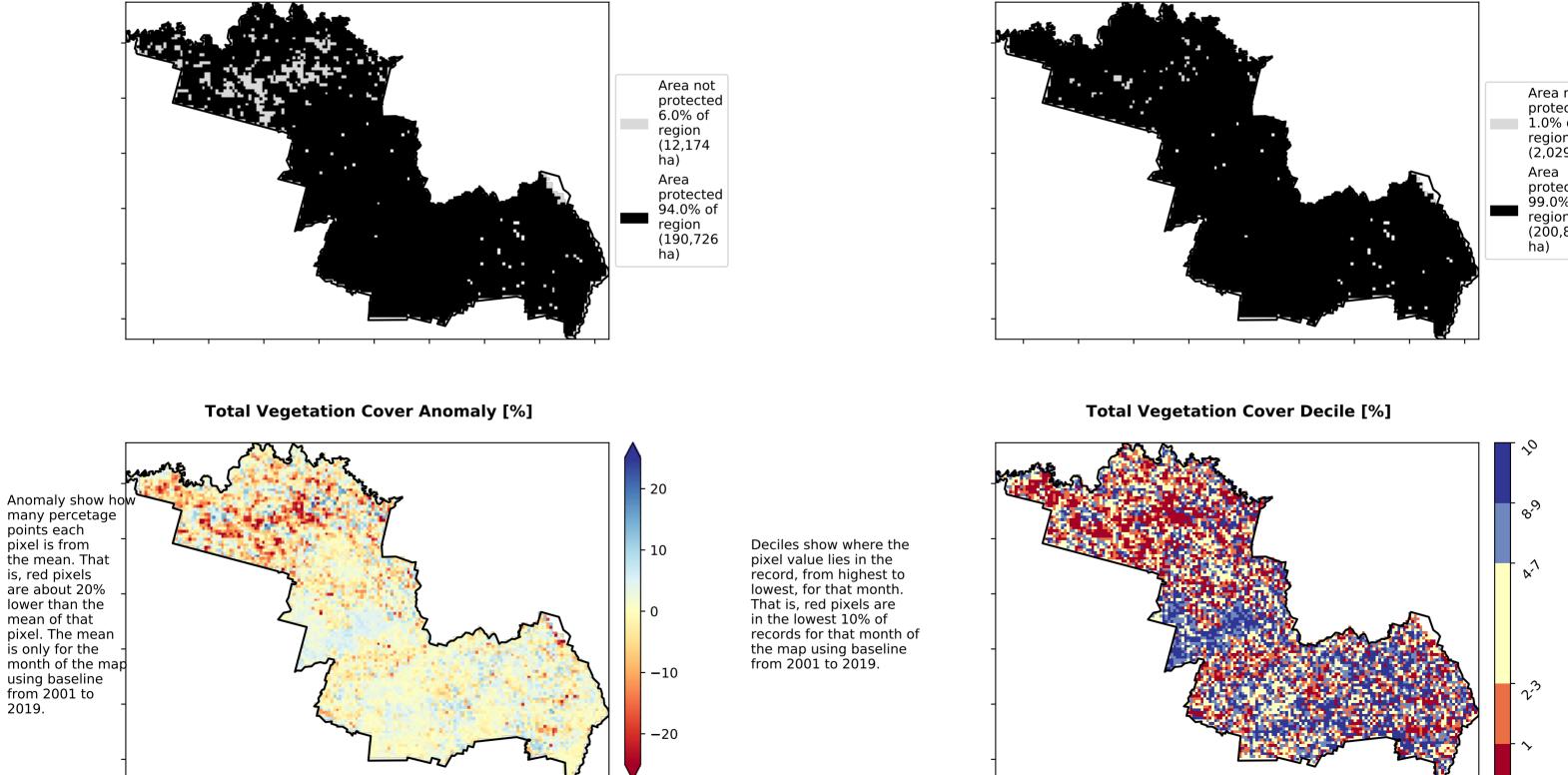
Proportion of each land class in area

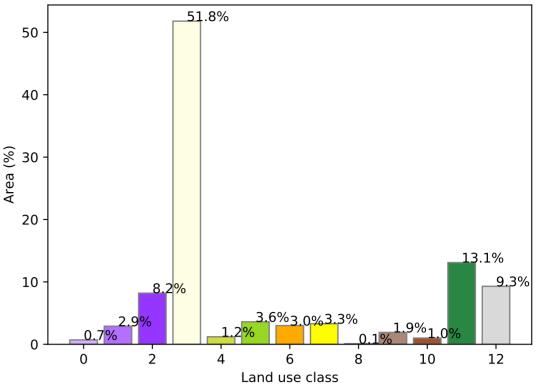


Total Vegetation Cover [%]

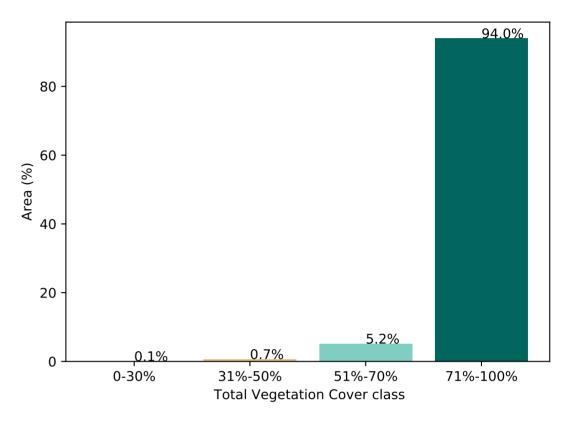


% Area protected from water erosion (>70%)

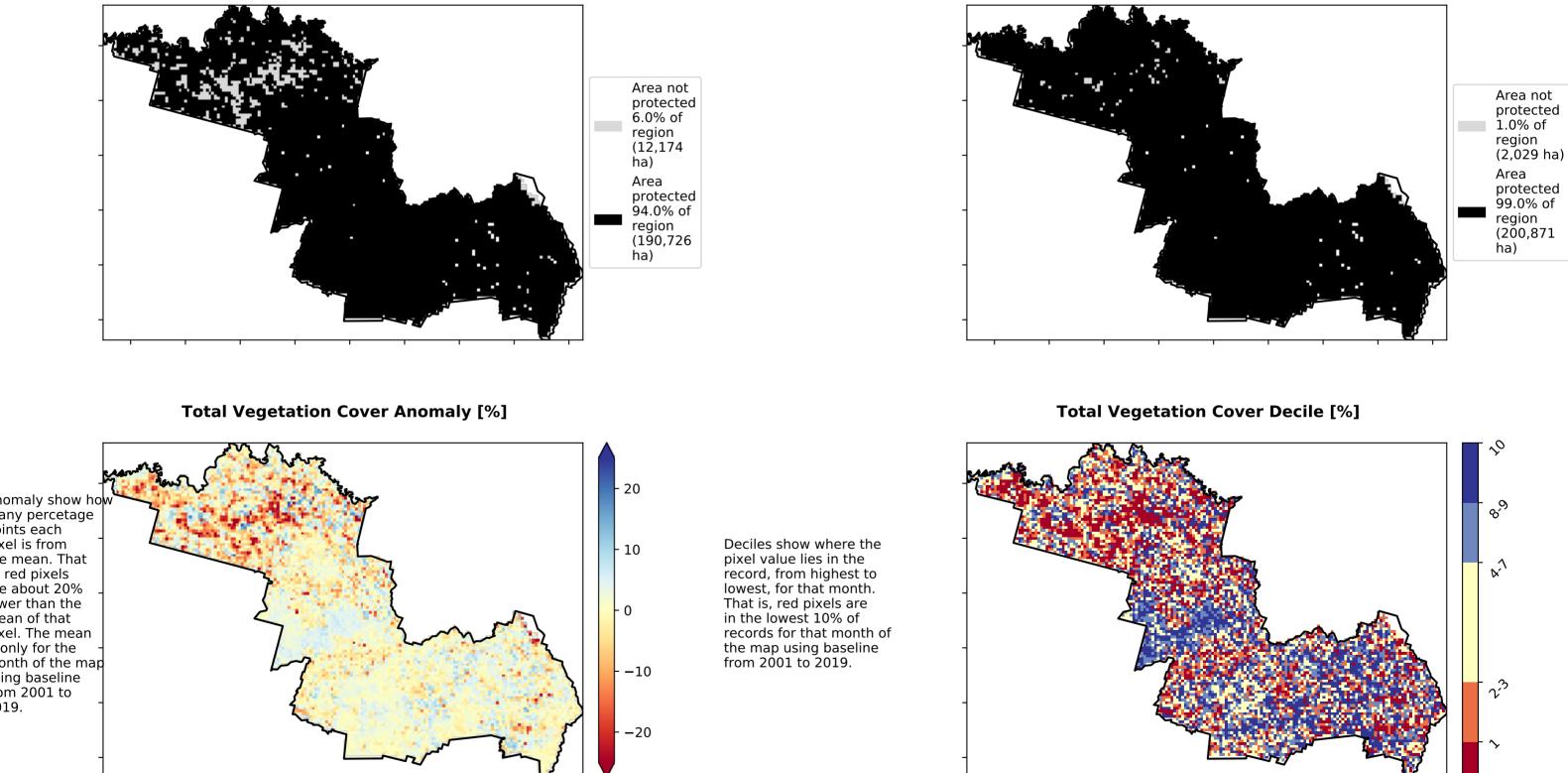




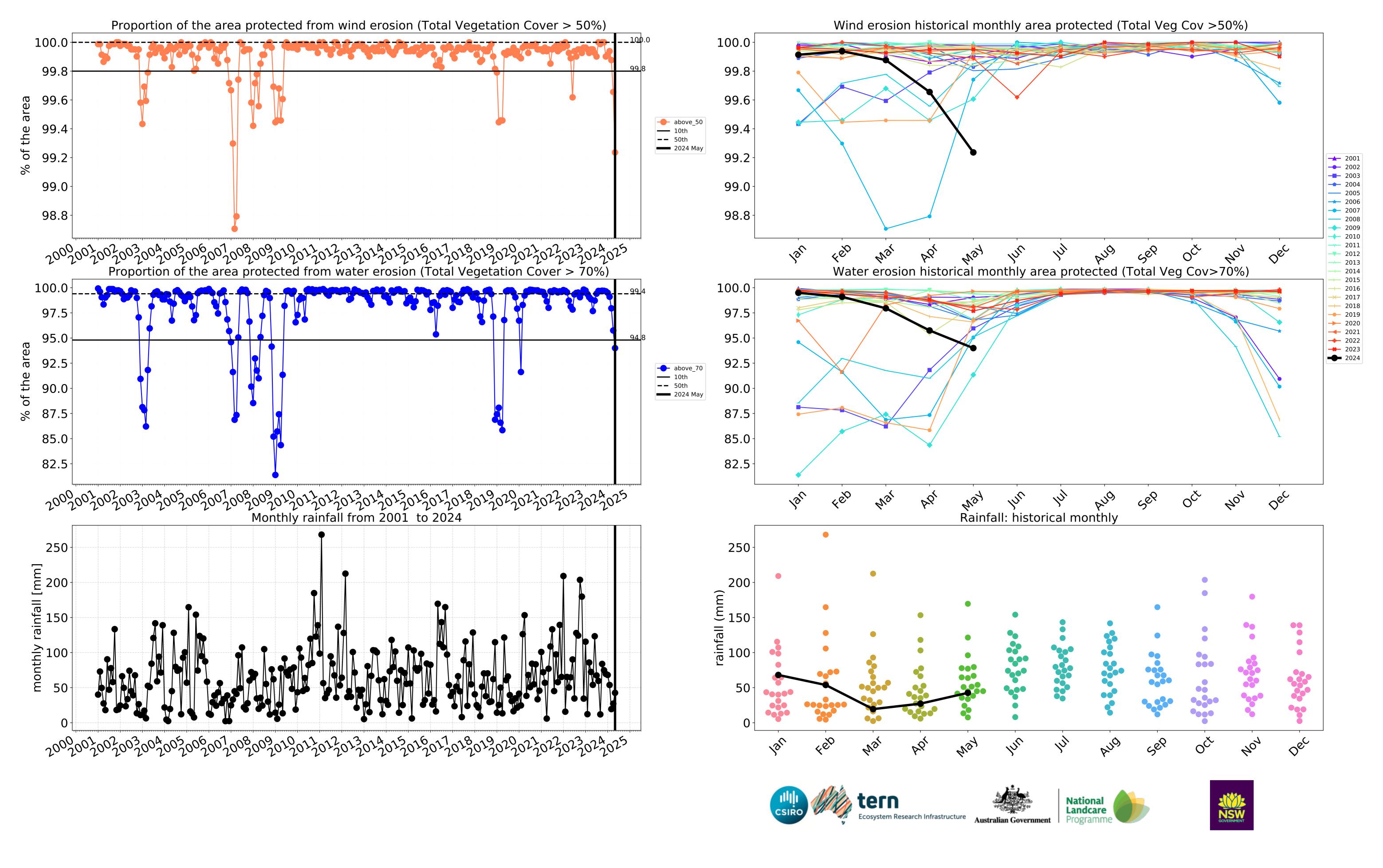
Proportion of vegetation cover class in area

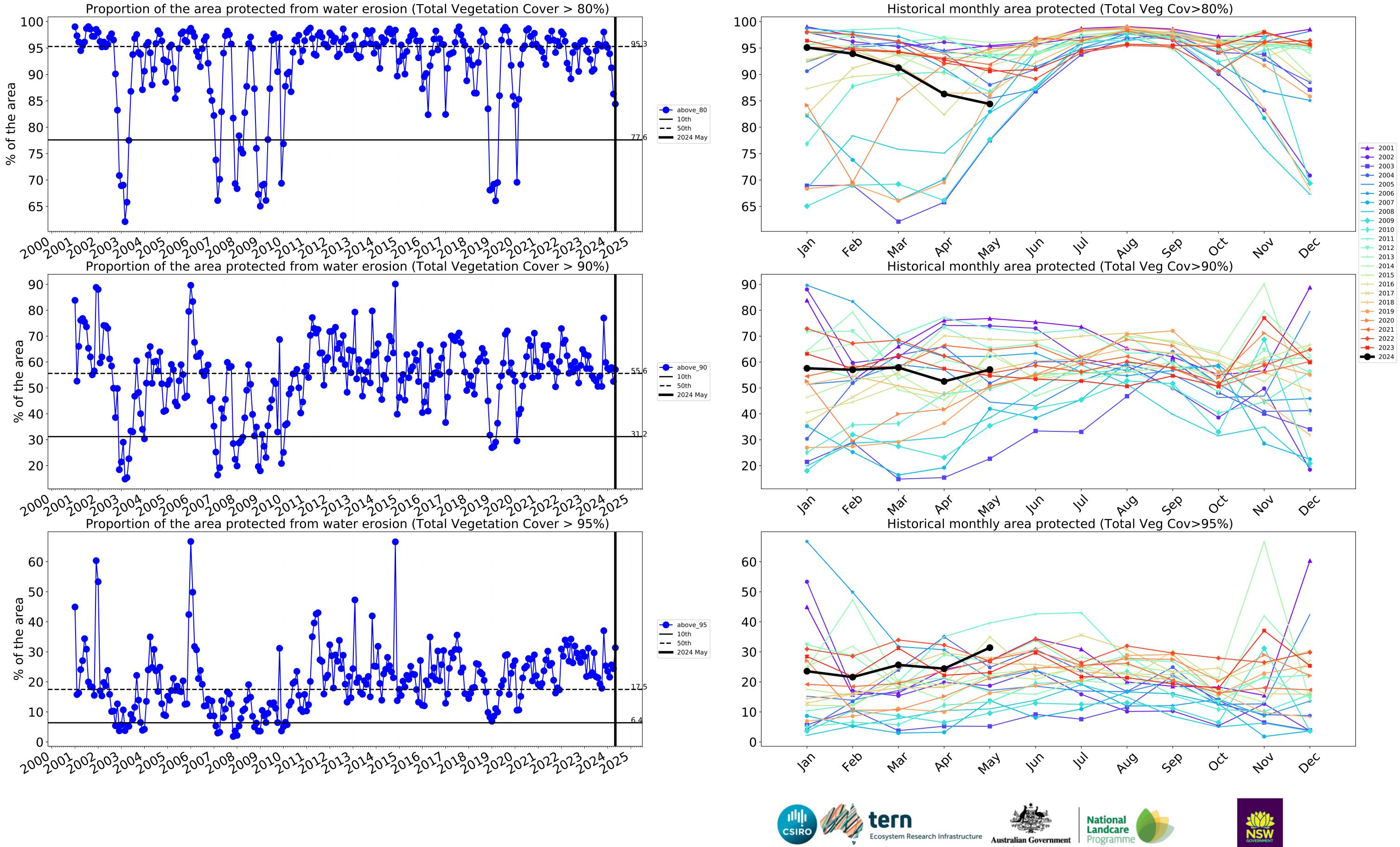


% Area protected from wind erosion (>50%)





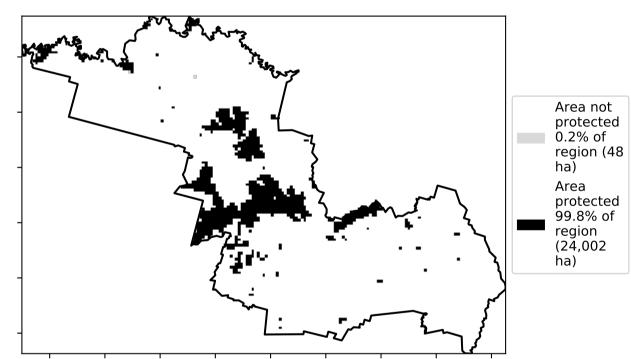


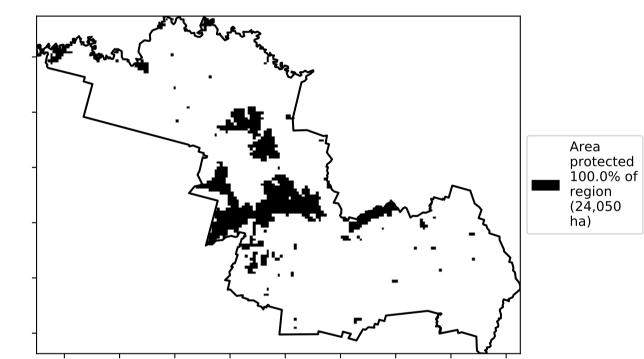




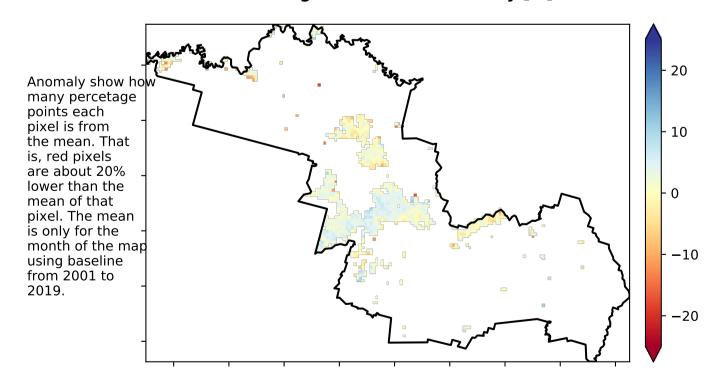
Conservation and natural environments

Land use and forest cover Proportion of each land class in area 69.3% 70 60 · 50 Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments - Non-forest 2 Conservation and natural environments - Woodland 40 ea Catchment Scale Land forest Use of Australia (2018) and Forests of Australia (2018) 3 Conservation and natural environments - Non-woodland forest 30 24.5% 20 · 10 6.1% 0 1.5 -0.5 0.0 0.5 1.02.0 2.5 Land use class Proportion of vegetation cover class in area **Total Vegetation Cover [%]** 12%100% 99.8% 100 80 · 52°10'10°1 Area (%) 60 32%50% 40 0.30% 20 · 0.2% 0.0% 0.0% 0 51%-70% 0-30% 31%-50% 71%-100% Total Vegetation Cover class % Area protected from water erosion (>70%) % Area protected from wind erosion (>50%)

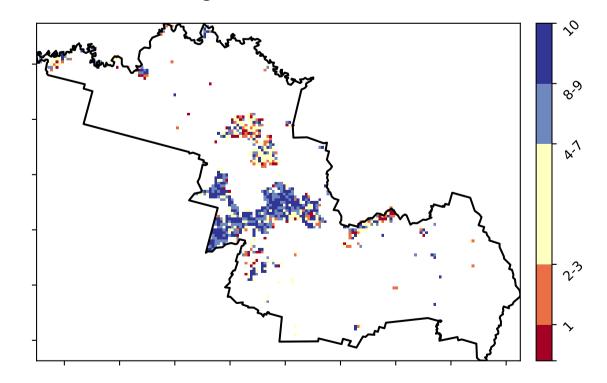




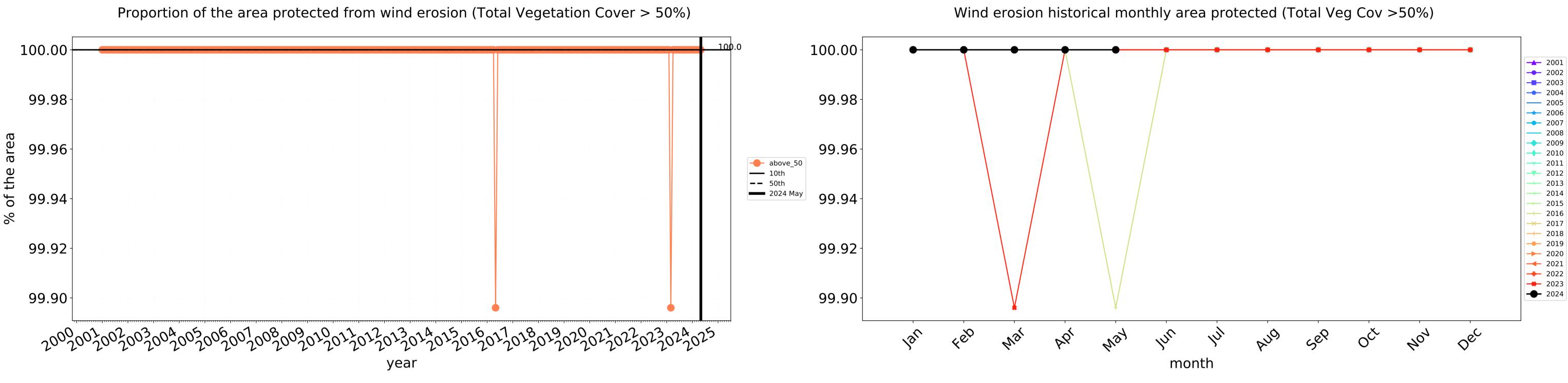
Total Vegetation Cover Anomaly [%]

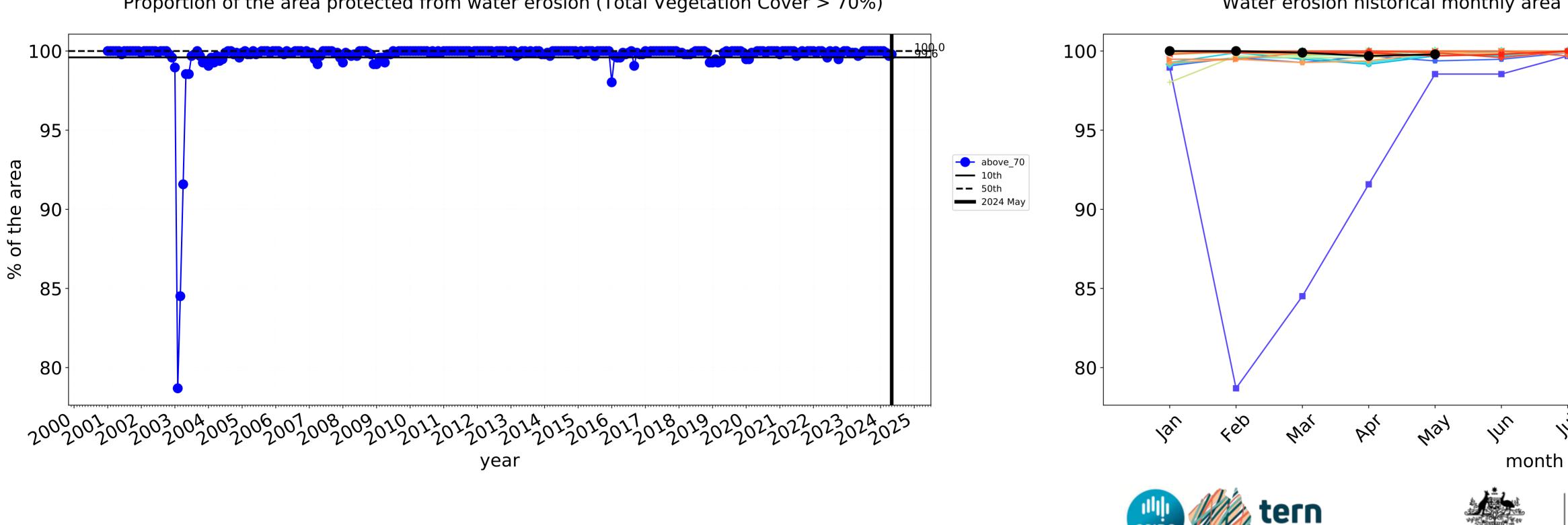


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.





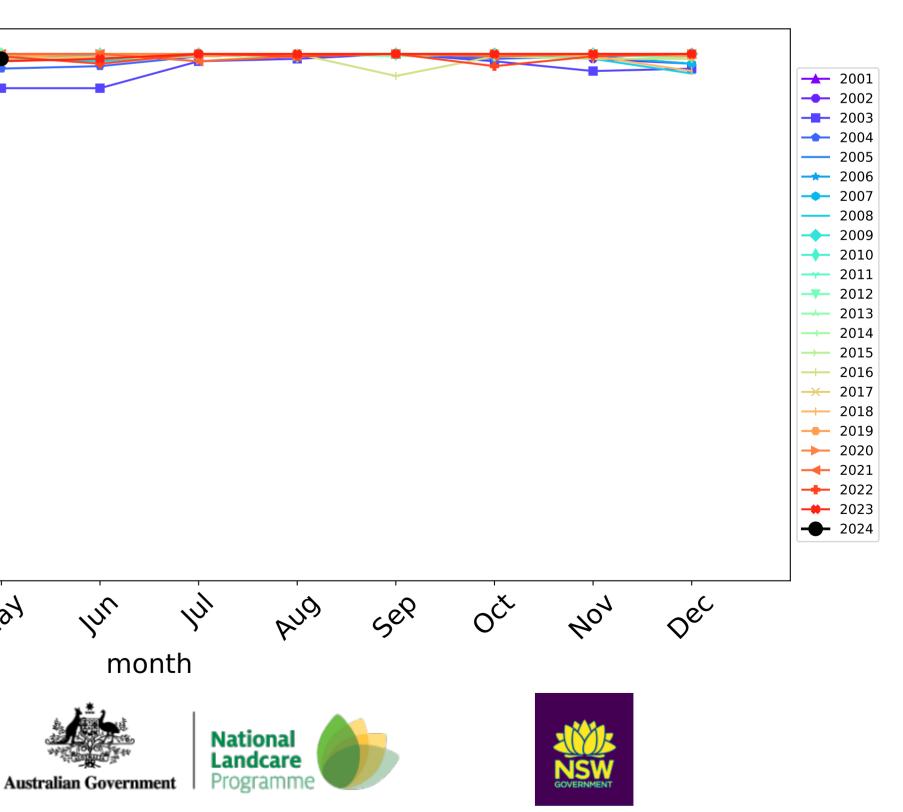


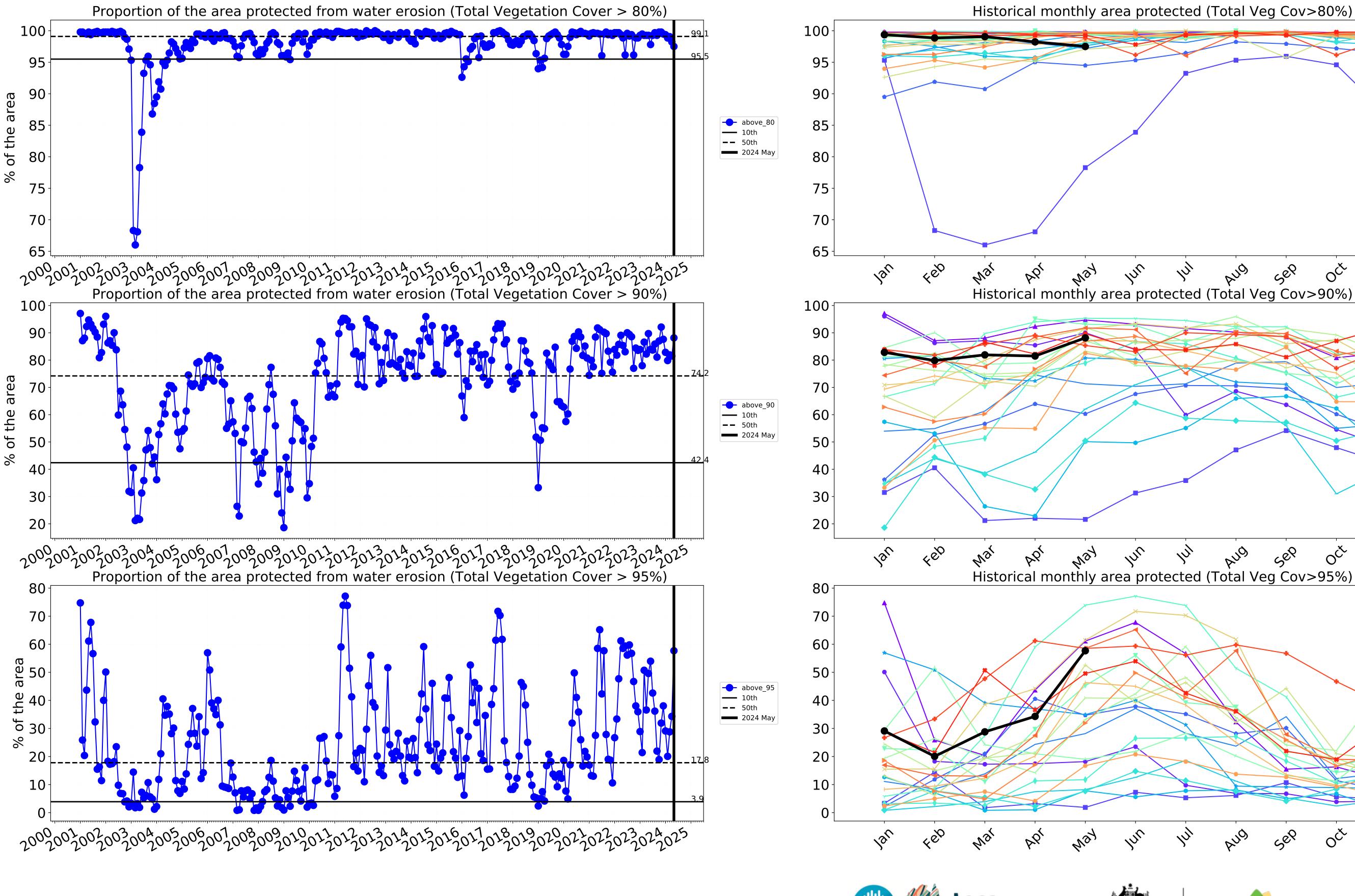


Ecosystem Research Infrastructure

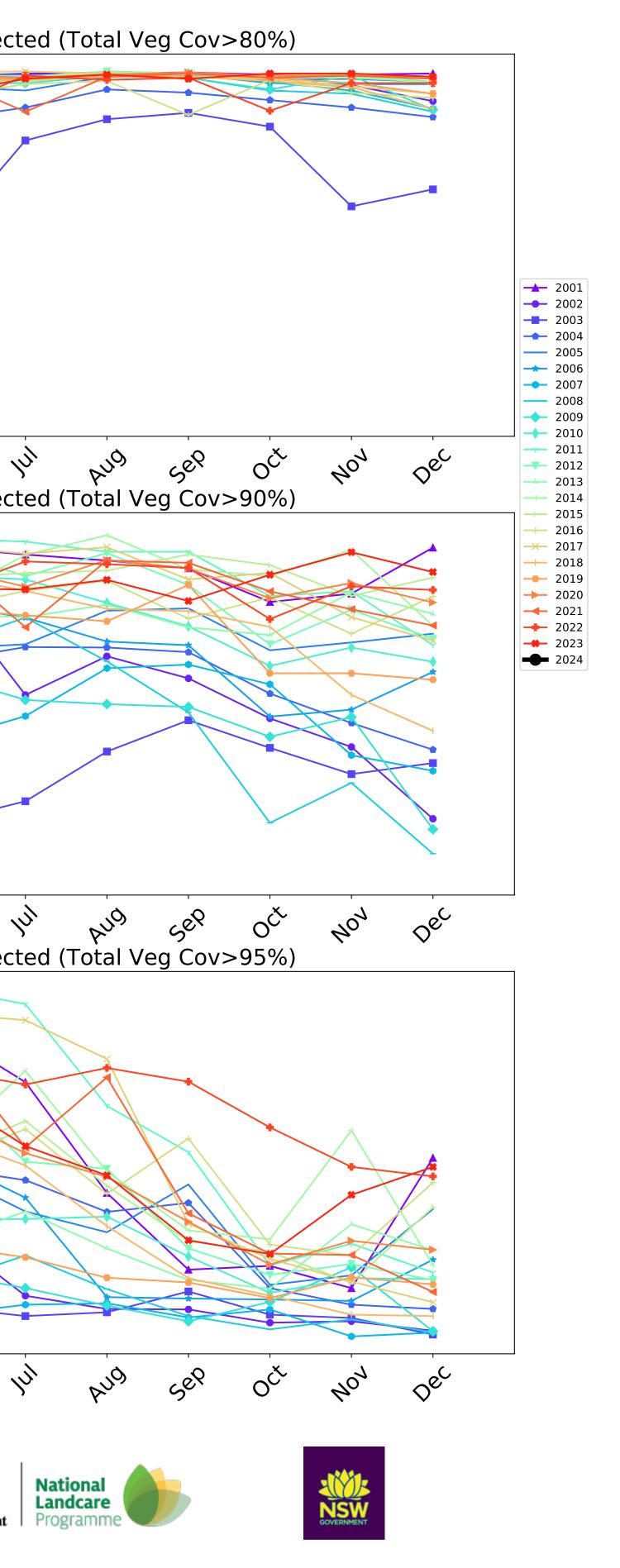
CSIRO

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

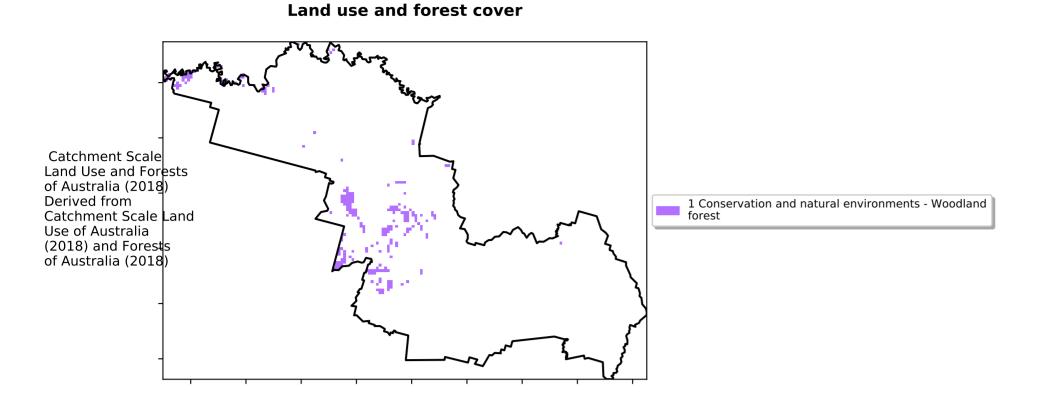




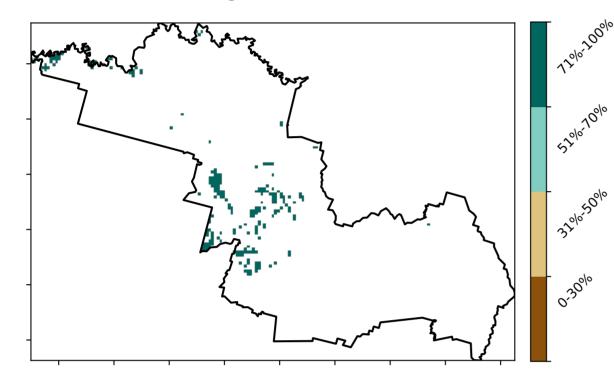




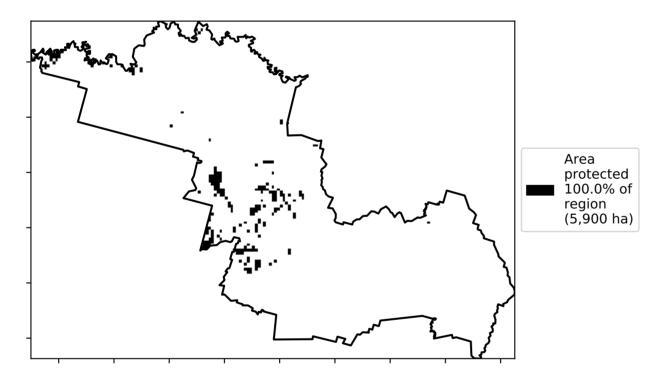
Conservation and natural environments Woodland forest



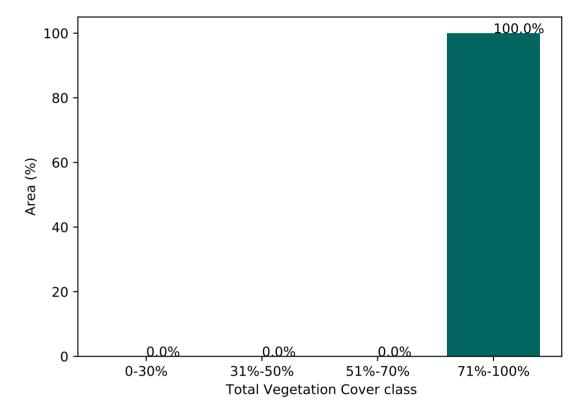
Total Vegetation Cover [%]



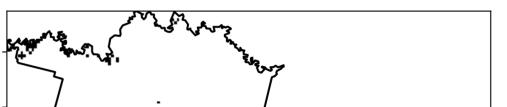
% Area protected from water erosion (>70%)



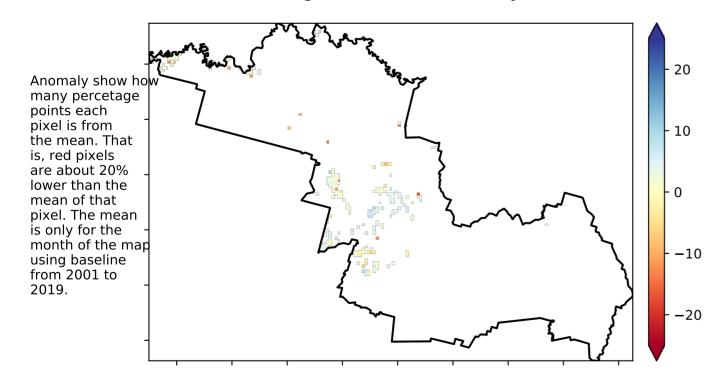
Proportion of vegetation cover class in area



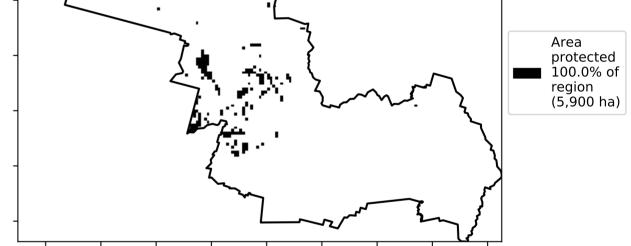
% Area protected from wind erosion (>50%)



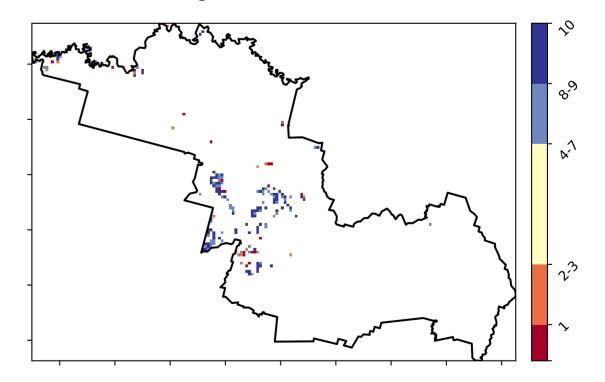
Total Vegetation Cover Anomaly [%]



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

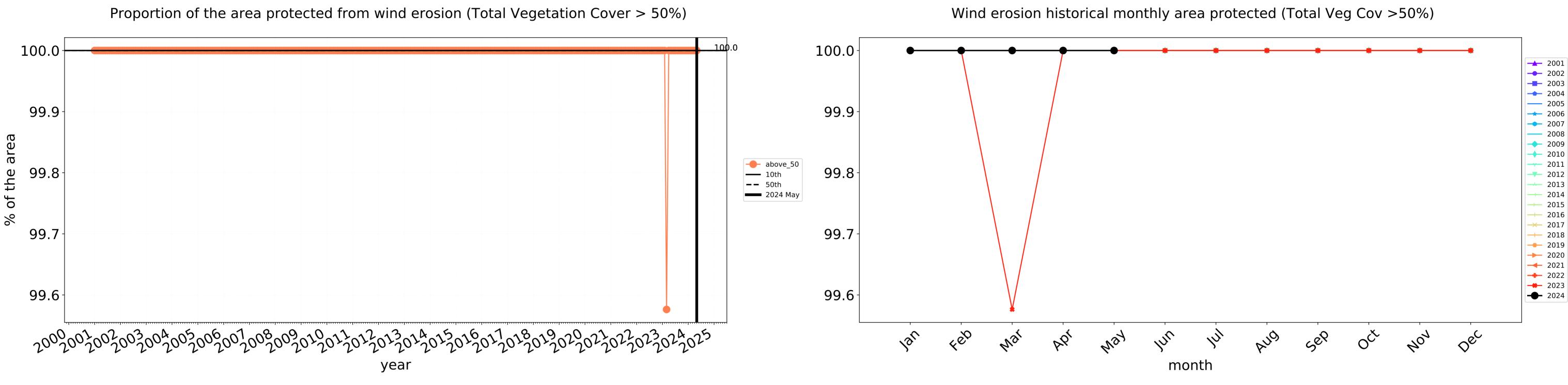


Total Vegetation Cover Decile [%]

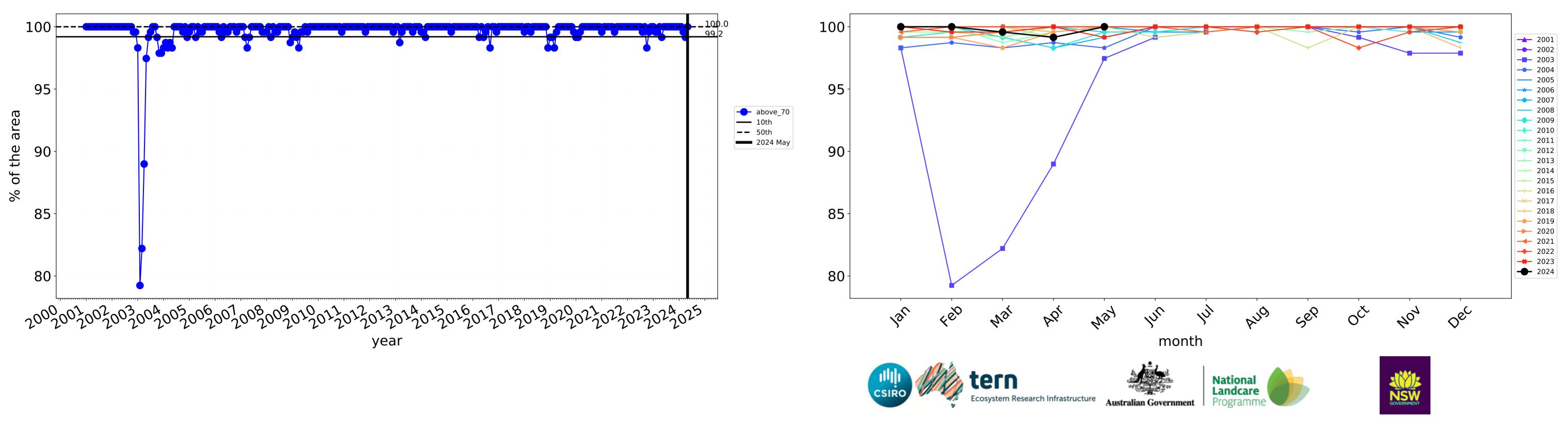




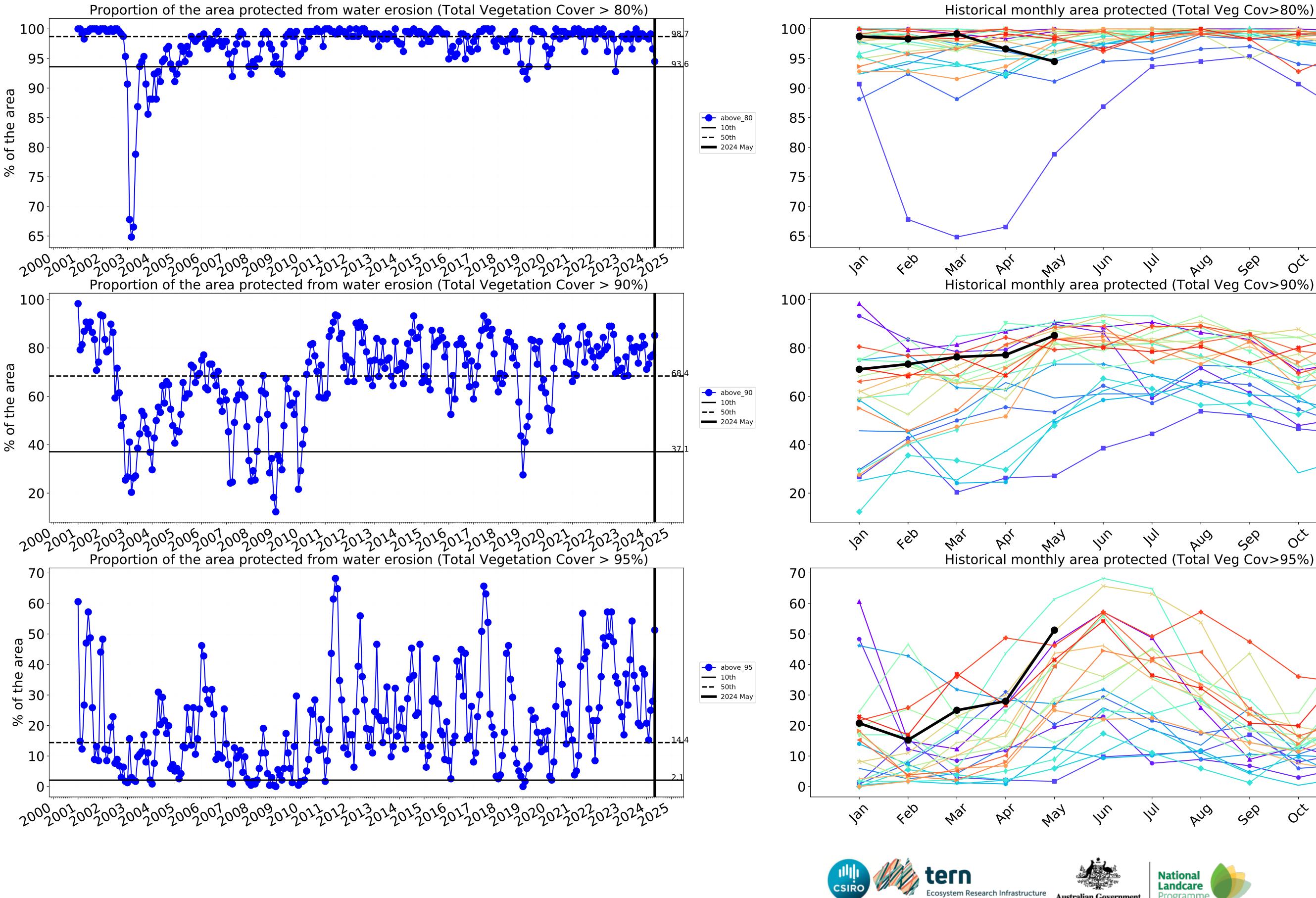
Conservation and natural environments Woodland forest timeseries



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



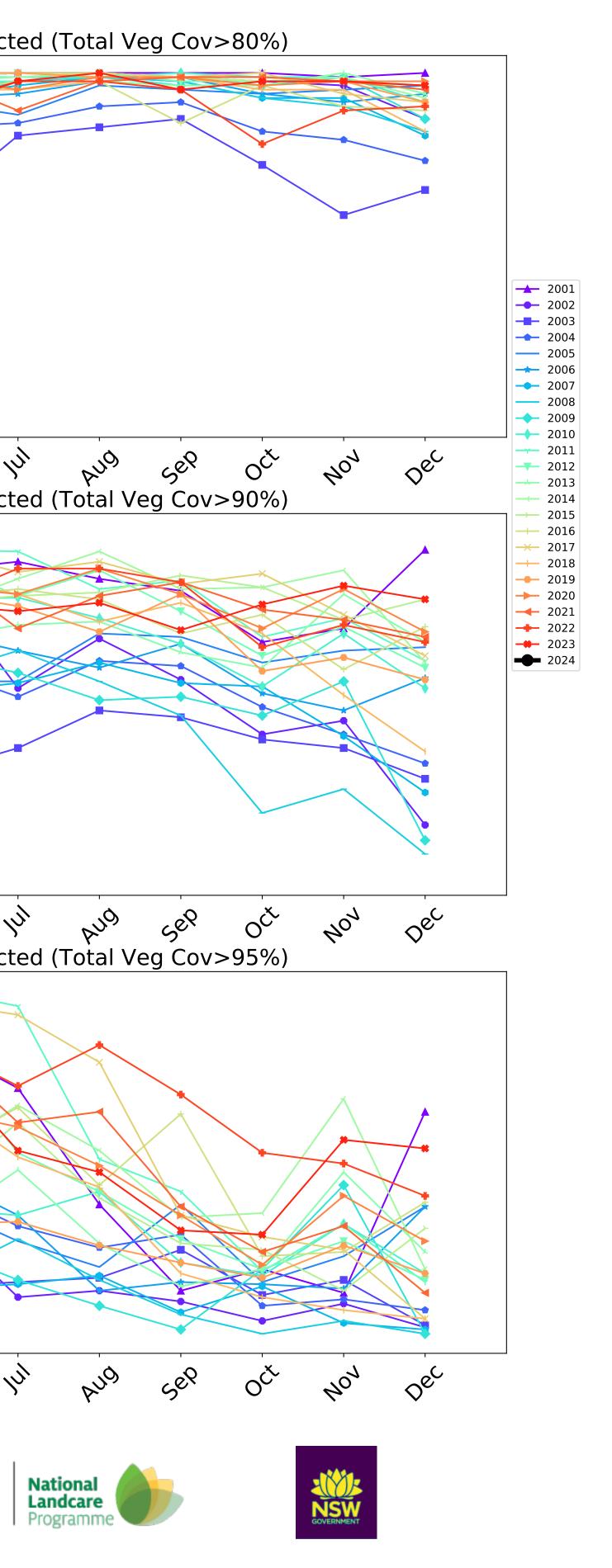
Water erosion historical monthly area protected (Total Veg Cov>70%)



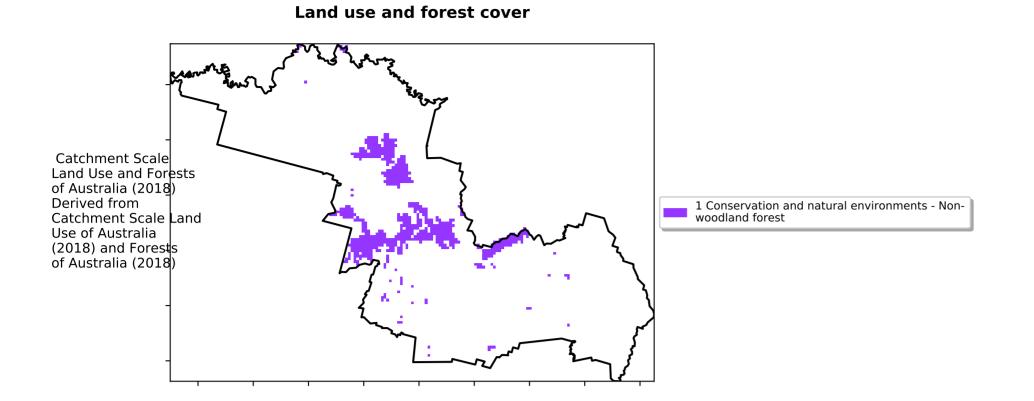
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Australian Government

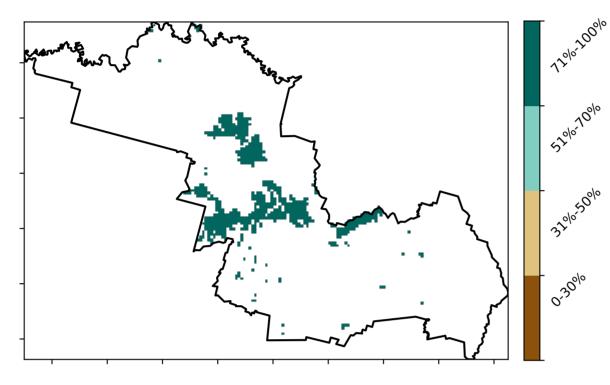
Ecosystem Research Infrastructure



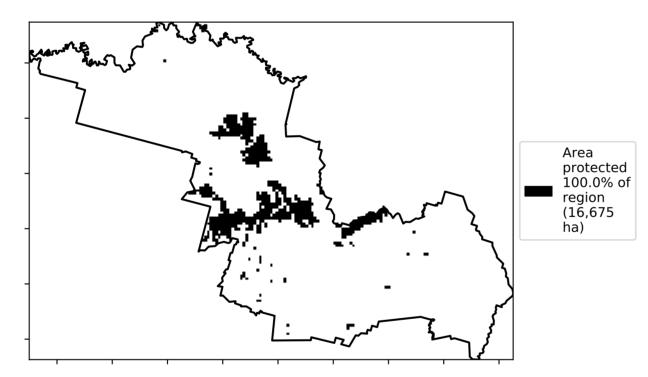
Conservation and natural environments Forest (non woodland)



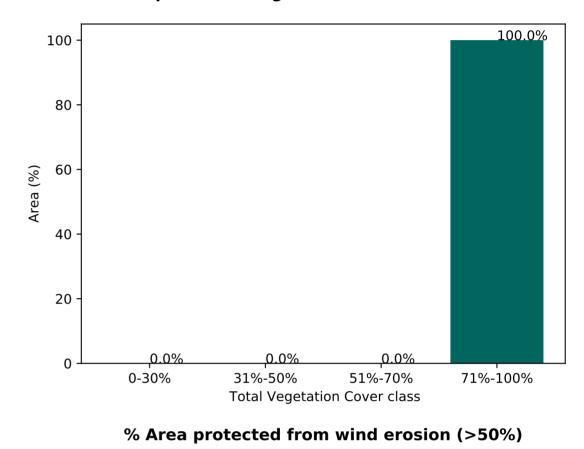
Total Vegetation Cover [%]

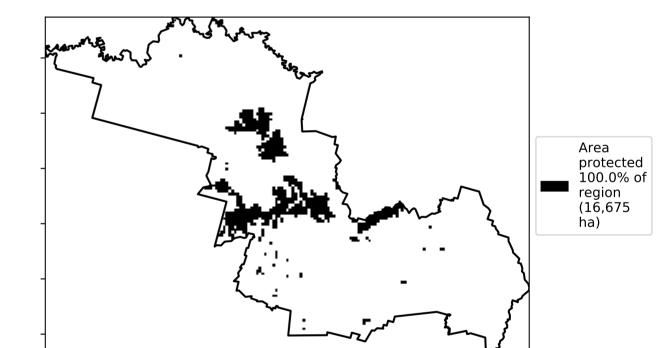


% Area protected from water erosion (>70%)

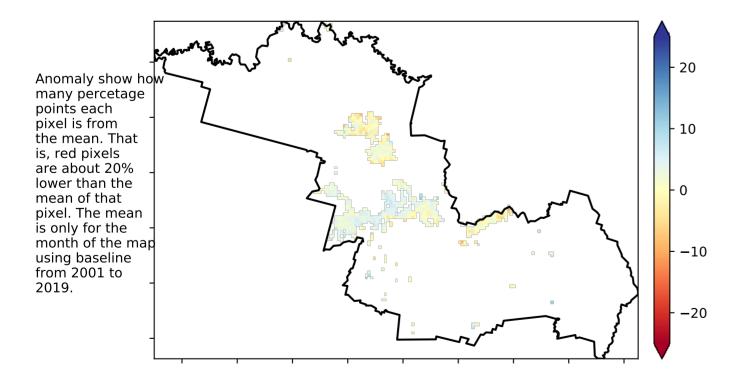


Proportion of vegetation cover class in area

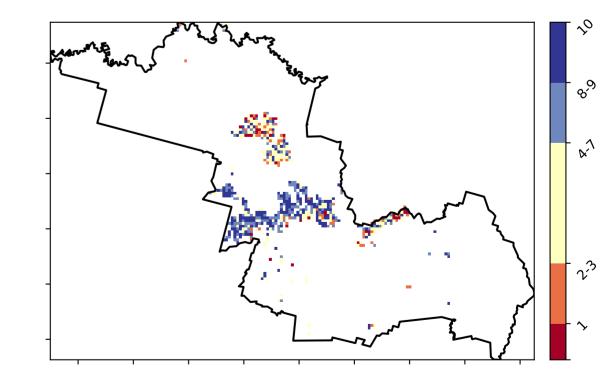




Total Vegetation Cover Anomaly [%]



Total Vegetation Cover Decile [%]

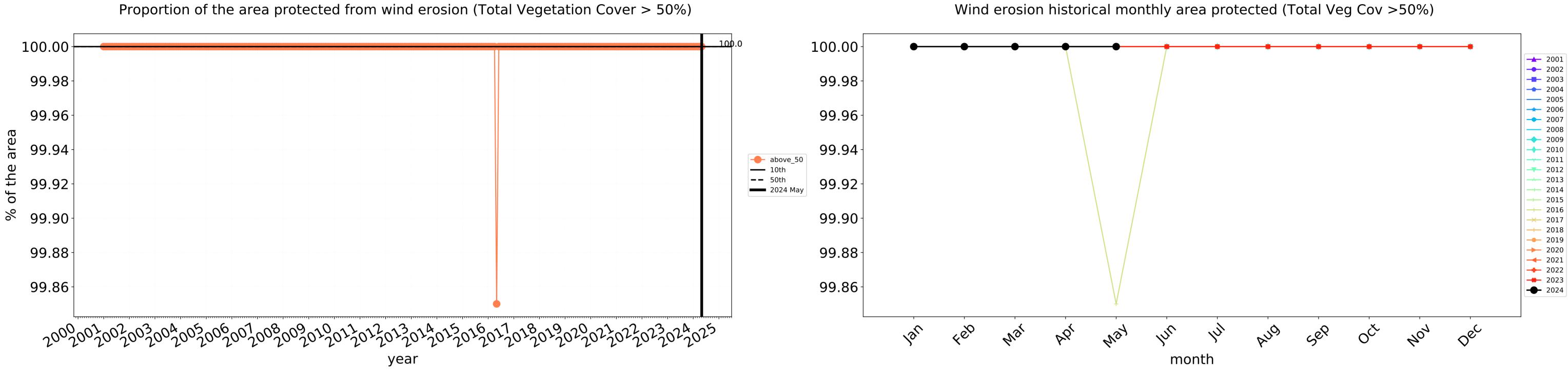




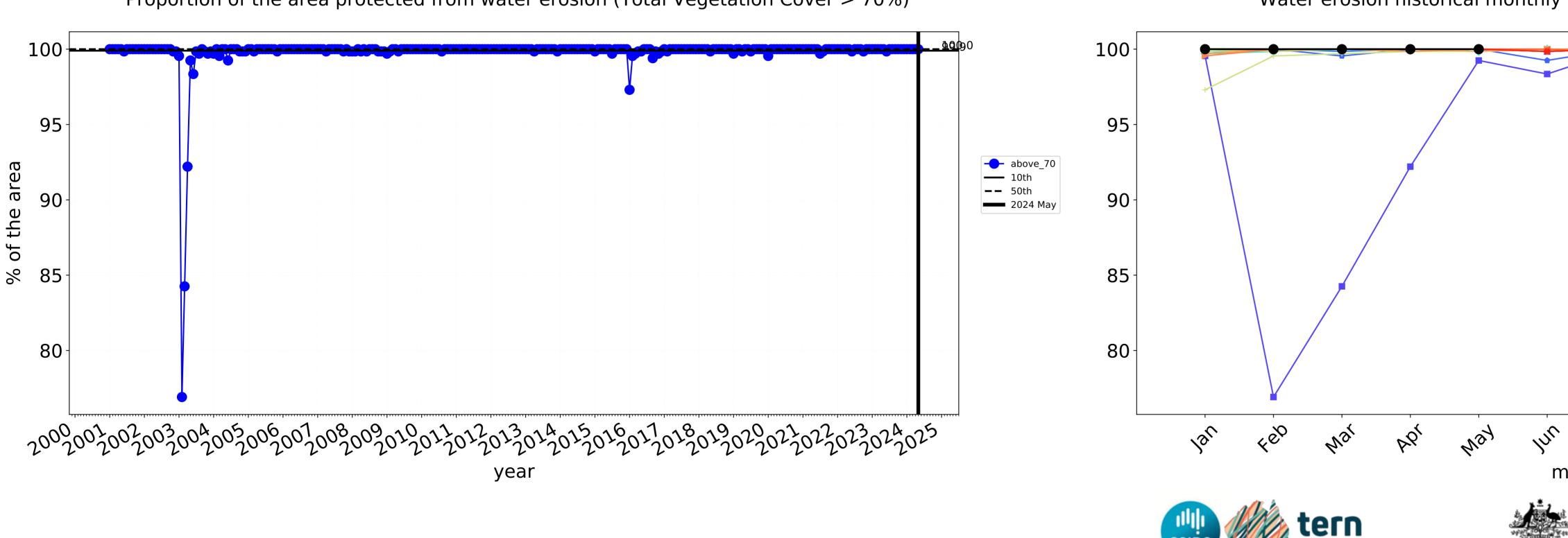
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the map using baseline from 2001 to 2019.

Conservation and natural environments Forest (non woodland) timeseries



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

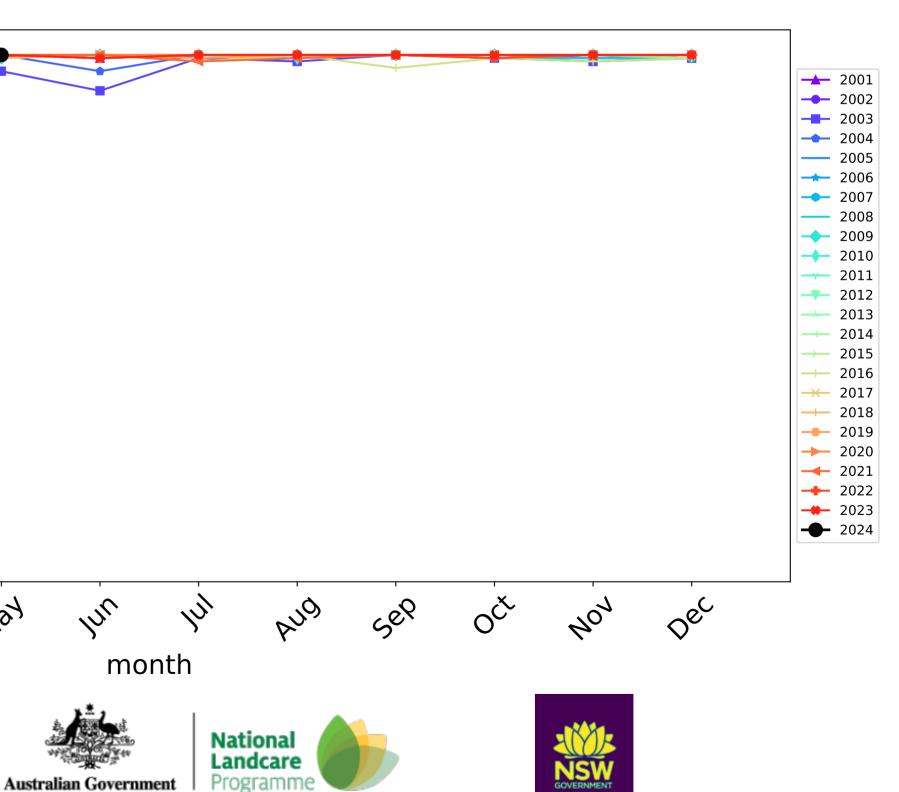


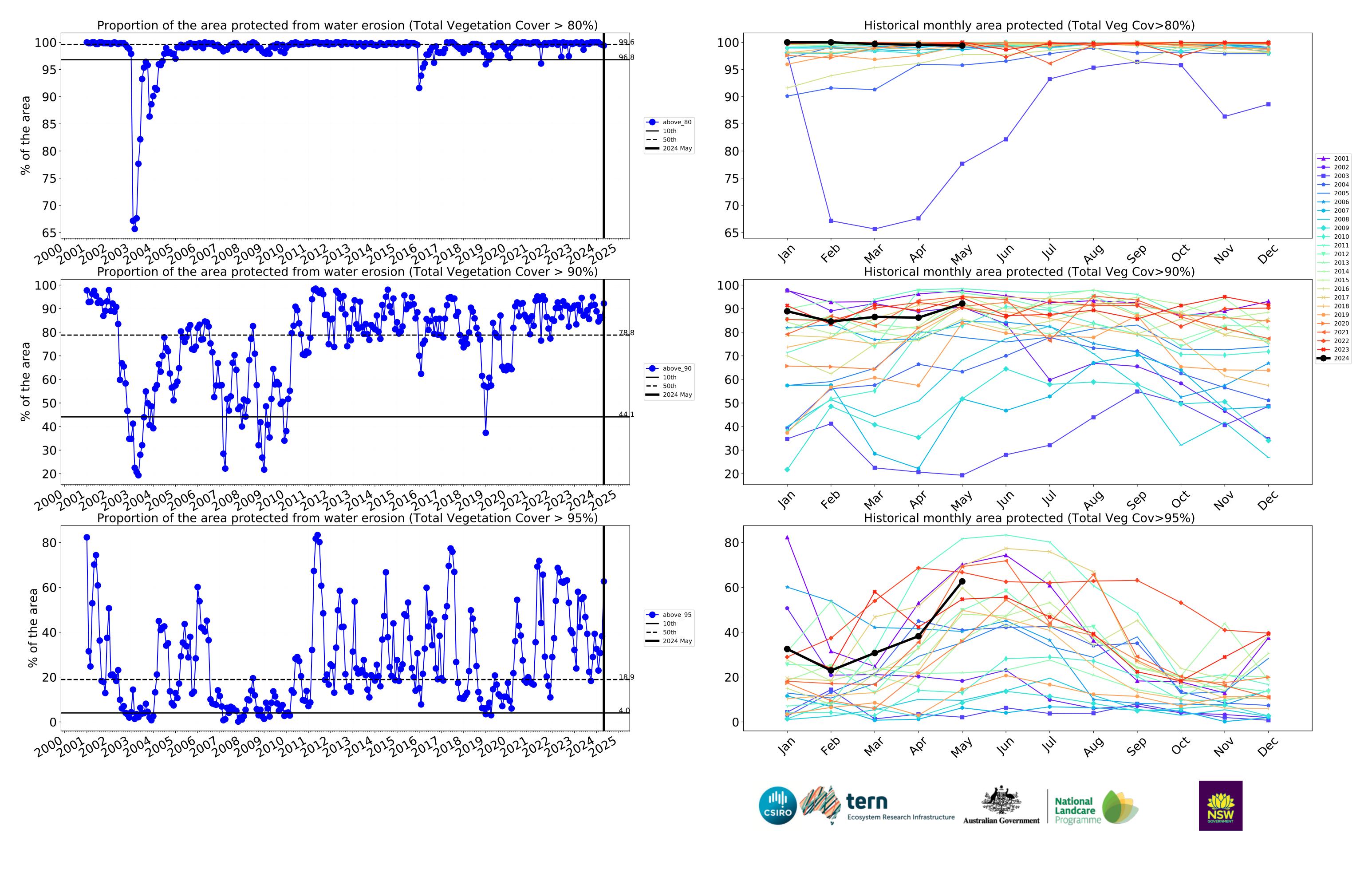
Ecosystem Research Infrastructure

CSIRO

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

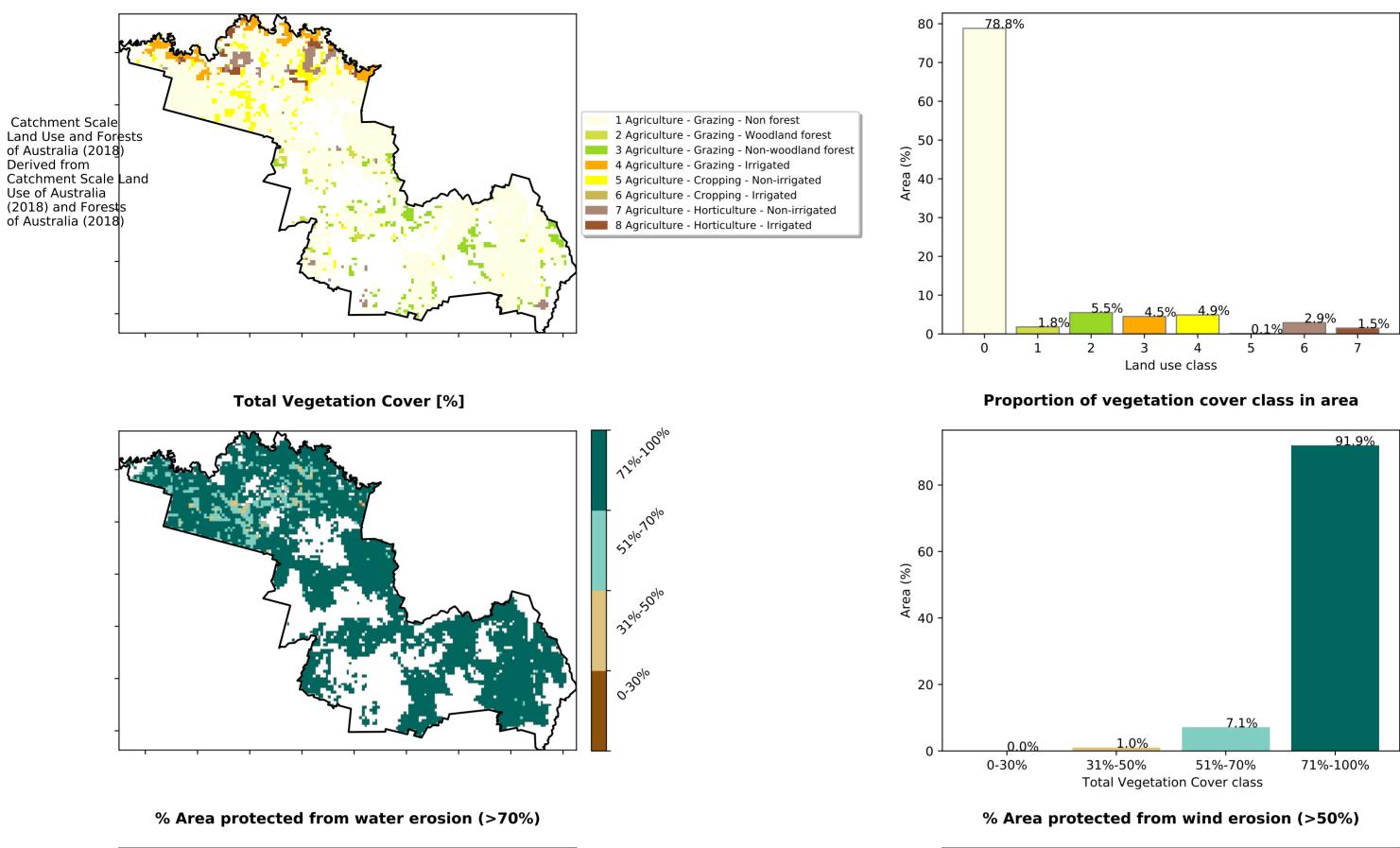


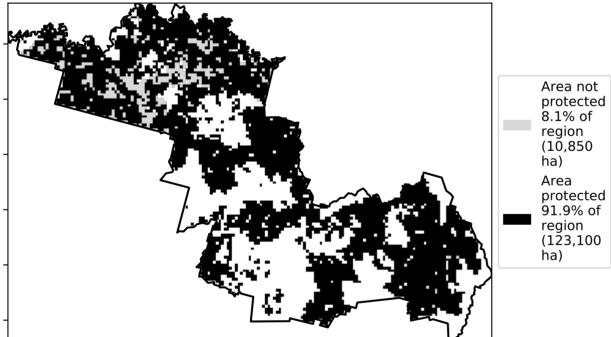


Agriculture

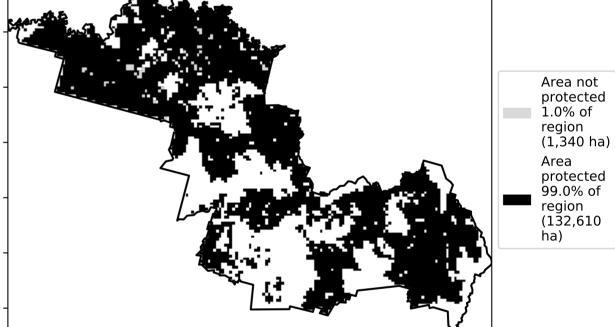
Land use and forest cover

Proportion of each land class in area

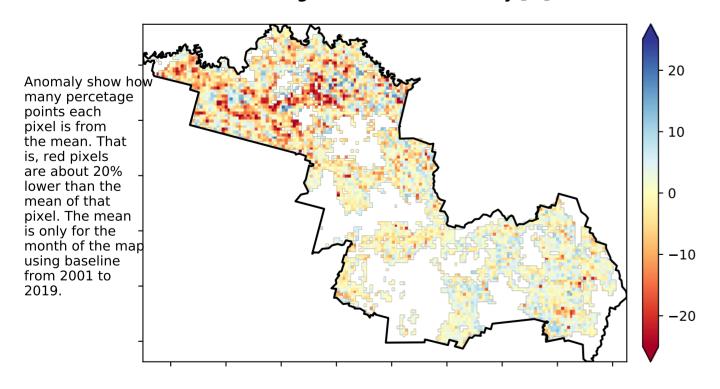




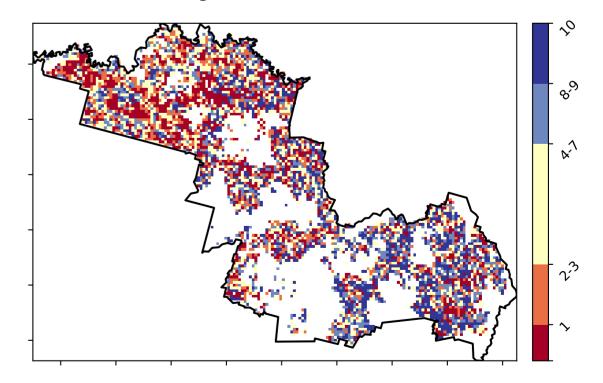
Area not



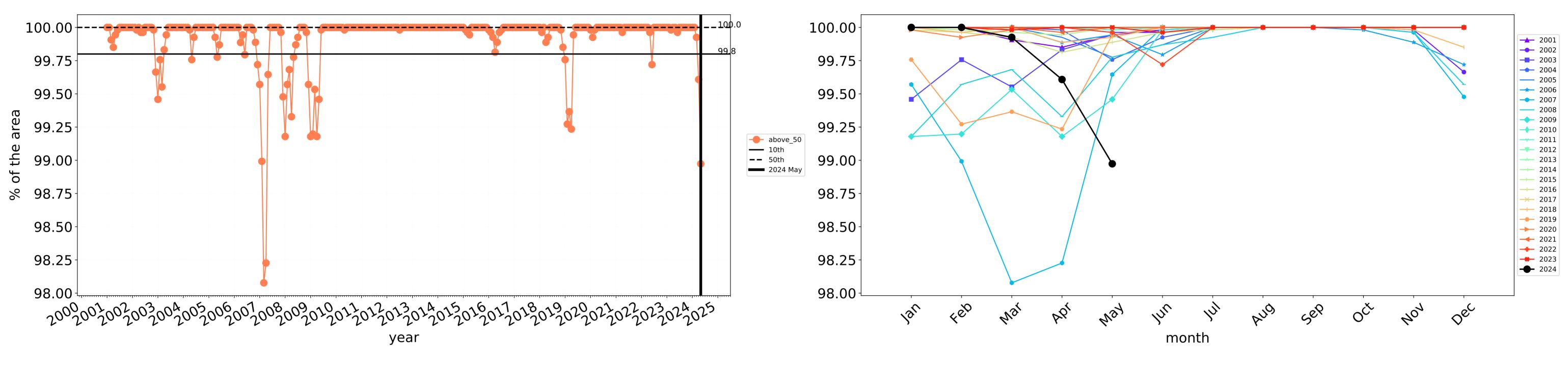
Total Vegetation Cover Anomaly [%]



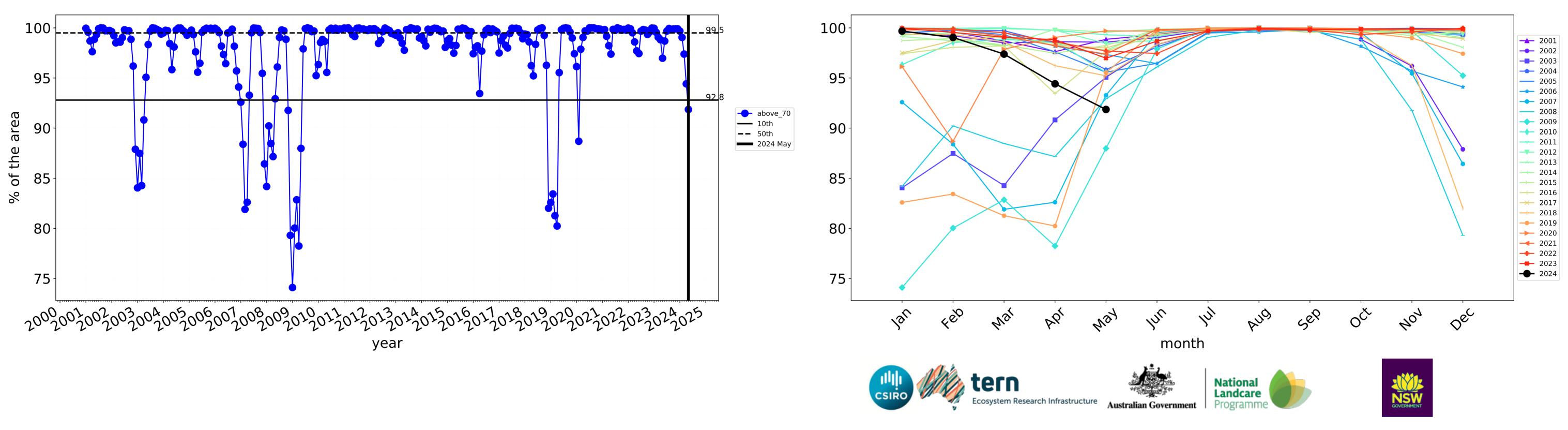
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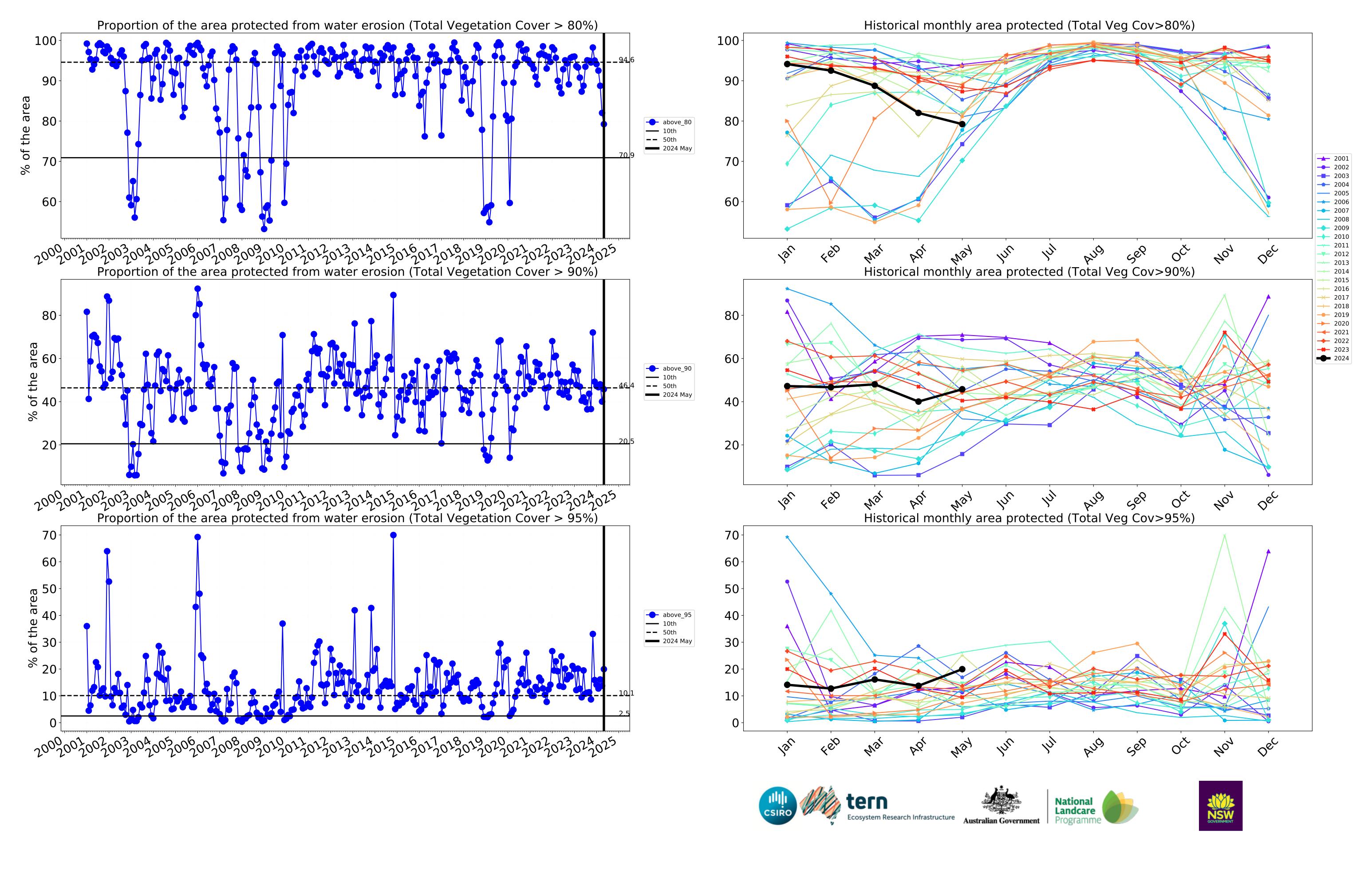


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



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

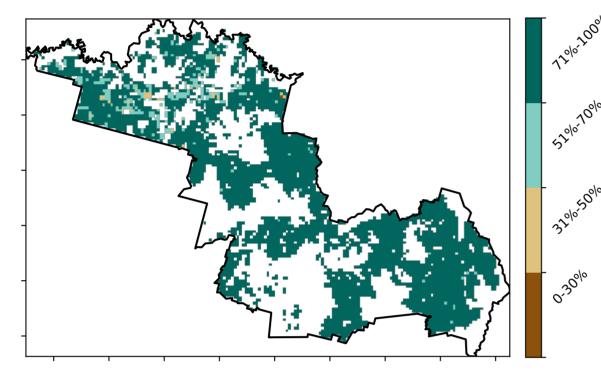
Water erosion historical monthly area protected (Total Veg Cov>70%)



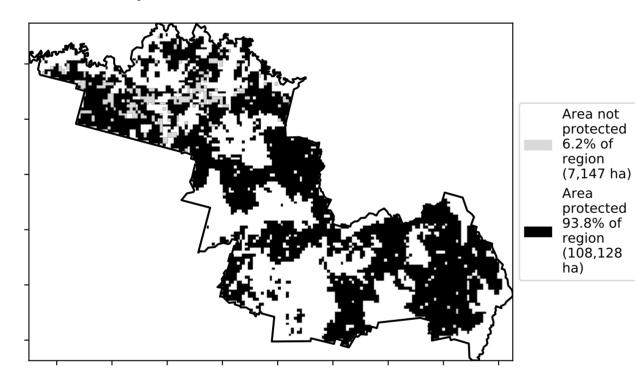
Grazing

Land use and forest cover 91.5% 80 Catchment Scale Land Use and Forests of Australia (2018) Derived from 60 Area (%) 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 3 Agriculture - Grazing - Non-woodland forest 40 20 6.4% .0% 0 -0.5 1.0 1.5 2.0 0.0 0.5

Total Vegetation Cover [%]



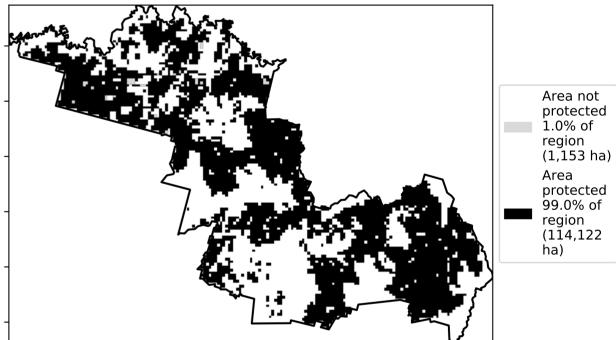
% Area protected from water erosion (>70%)





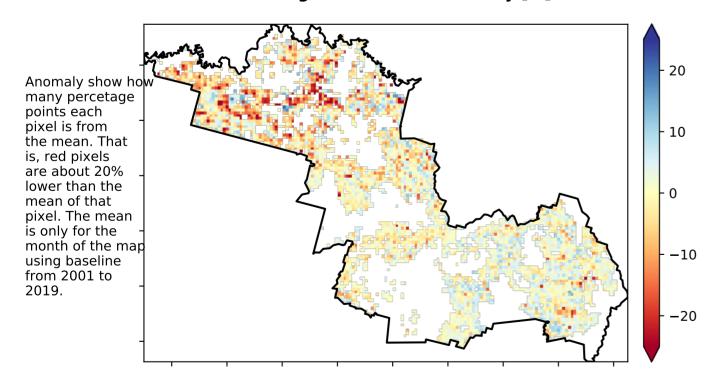
Land use class Proportion of vegetation cover class in area 93.8% 80 60 Area (%) 40 20 5.5% 0.7% 0.0% 0 51%-70% 0-30% 31%-50% 71%-100% Total Vegetation Cover class

% Area protected from wind erosion (>50%)

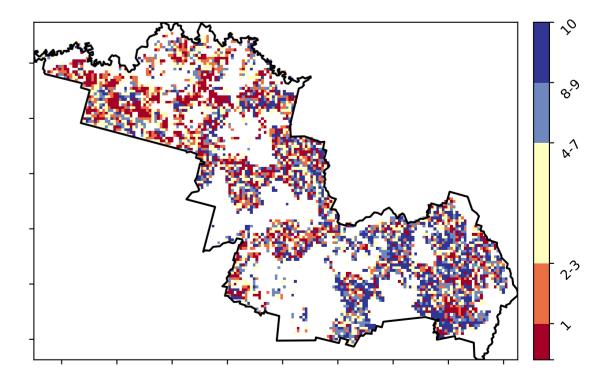


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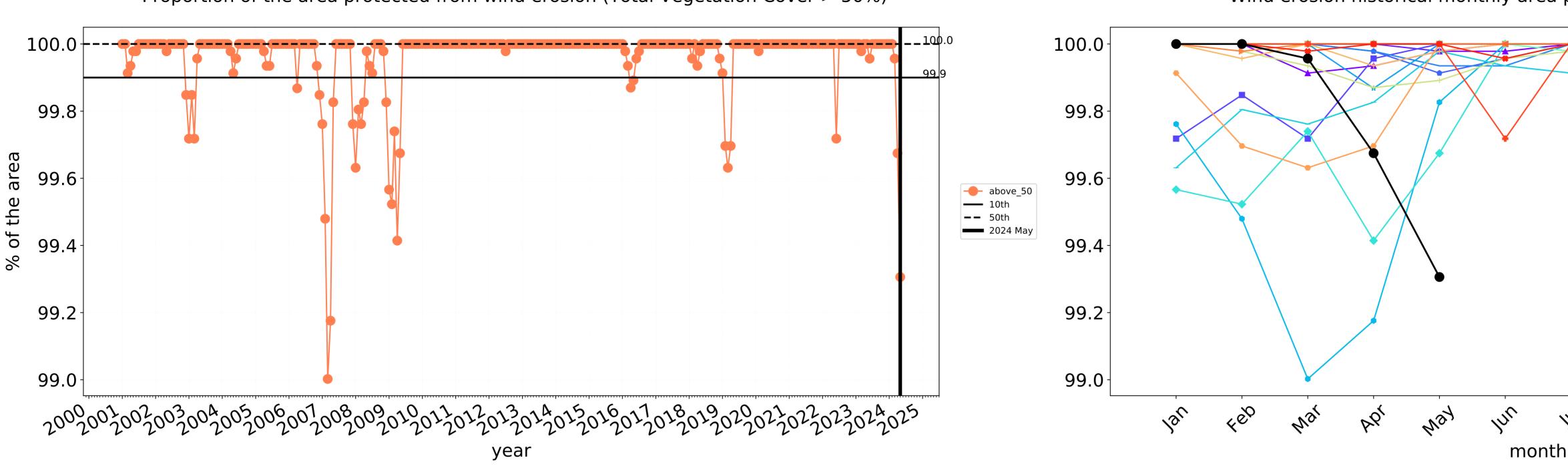
Total Vegetation Cover Anomaly [%]



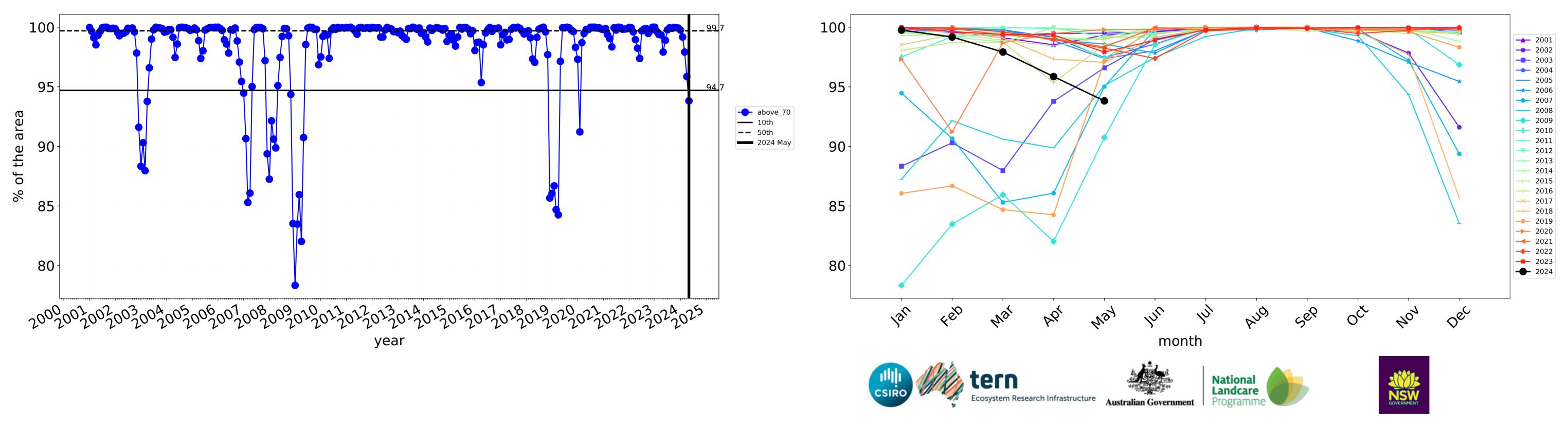
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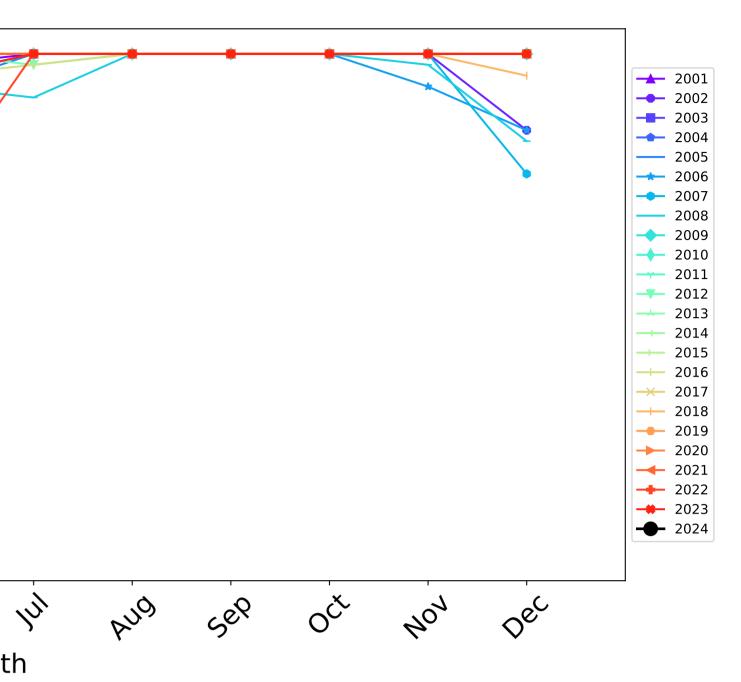


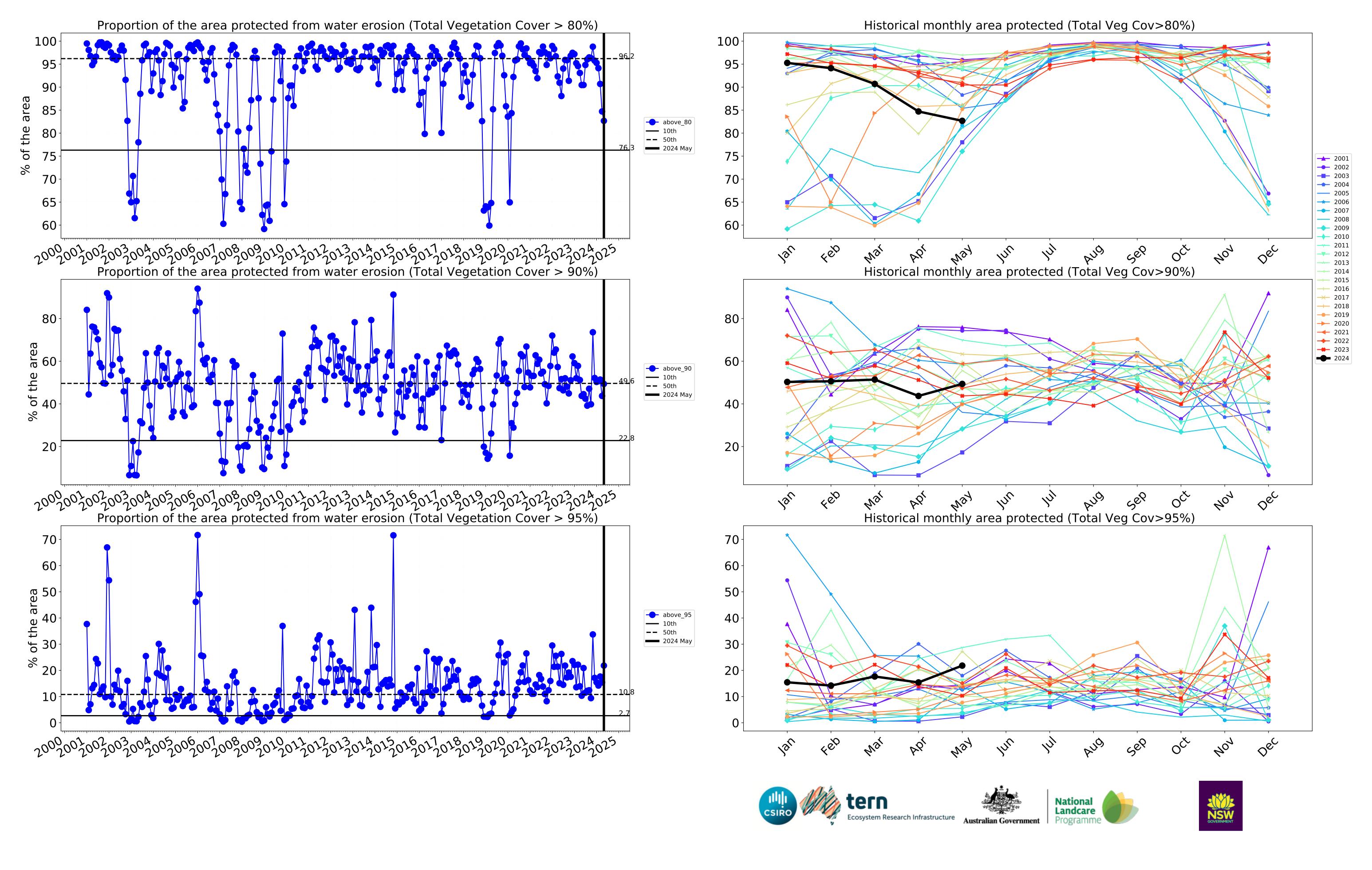
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



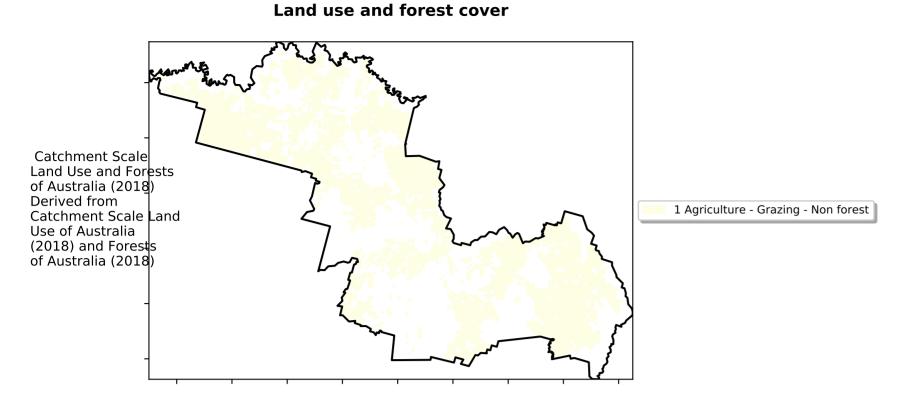
Water erosion historical monthly area protected (Total Veg Cov>70%)

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

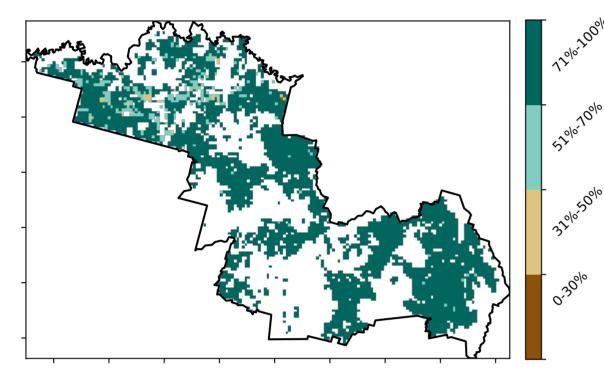




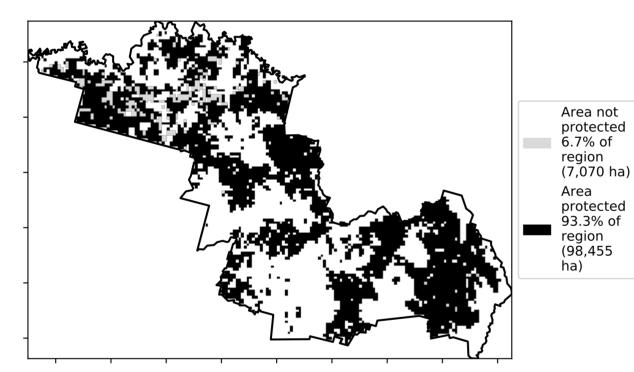
Grazing non forest



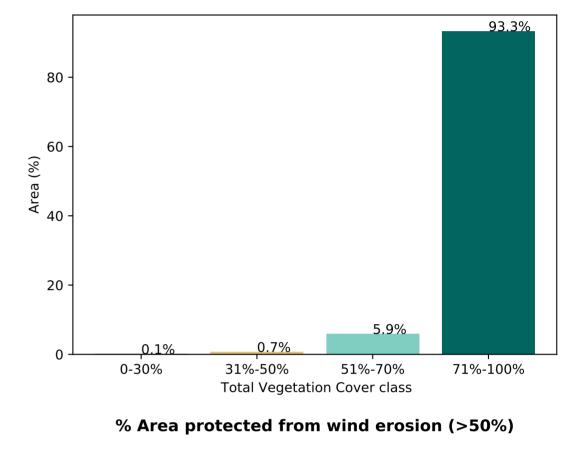
Total Vegetation Cover [%]

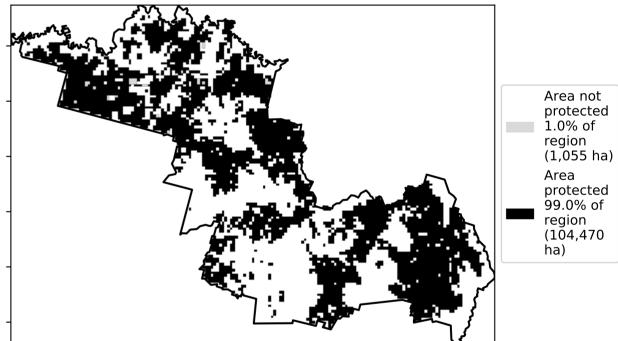


% Area protected from water erosion (>70%)

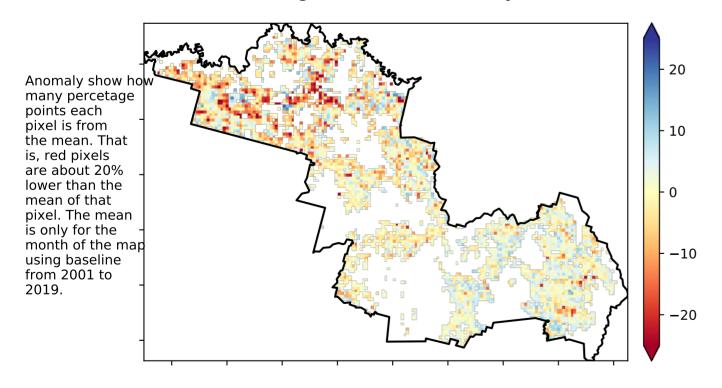


Proportion of vegetation cover class in area

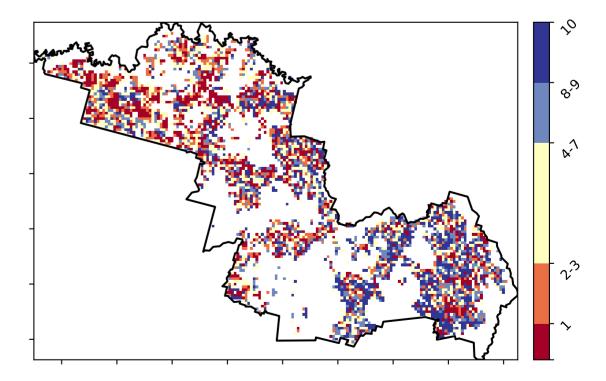




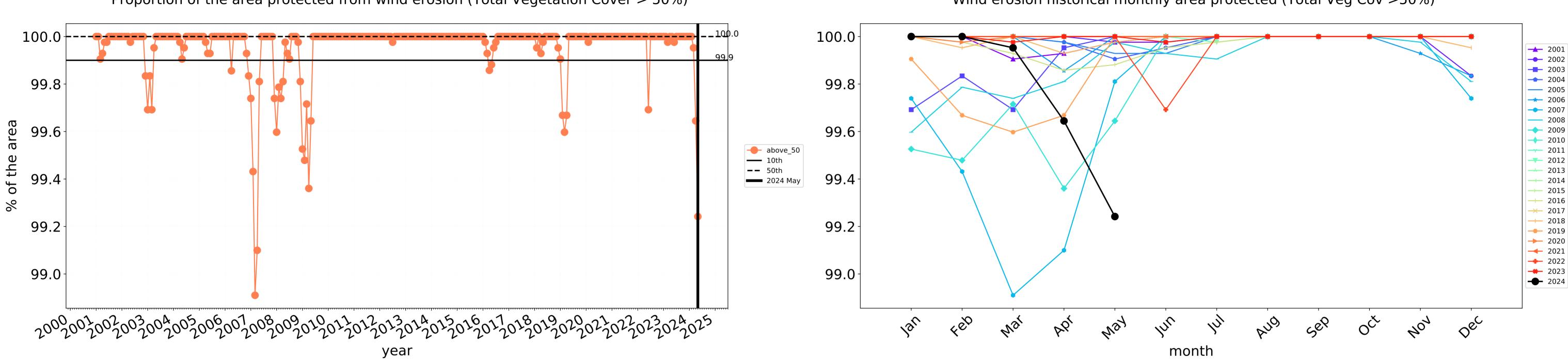
Total Vegetation Cover Anomaly [%]



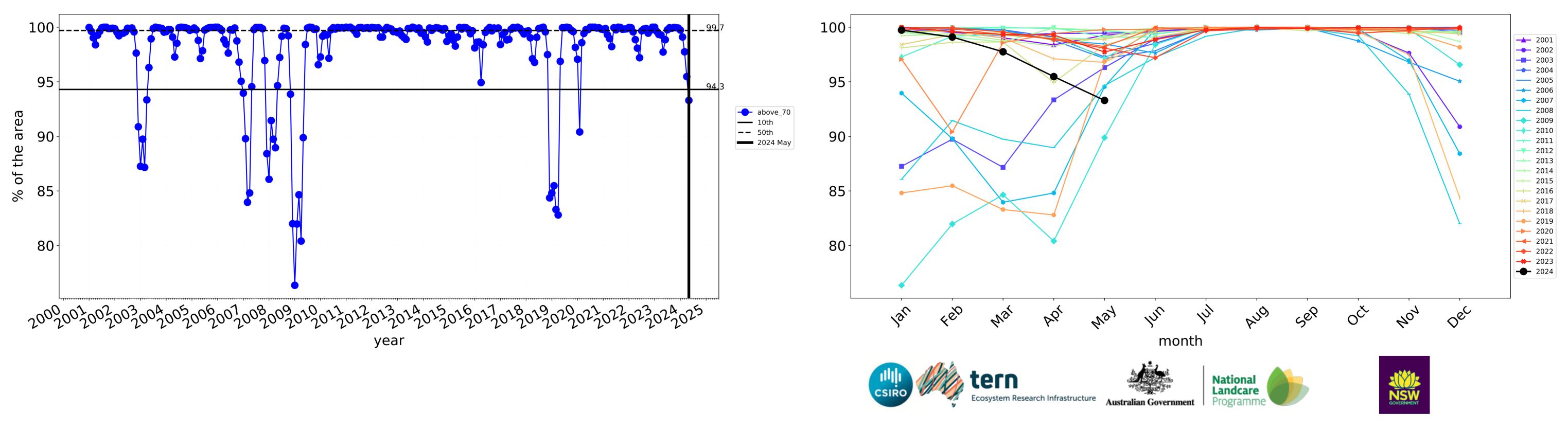
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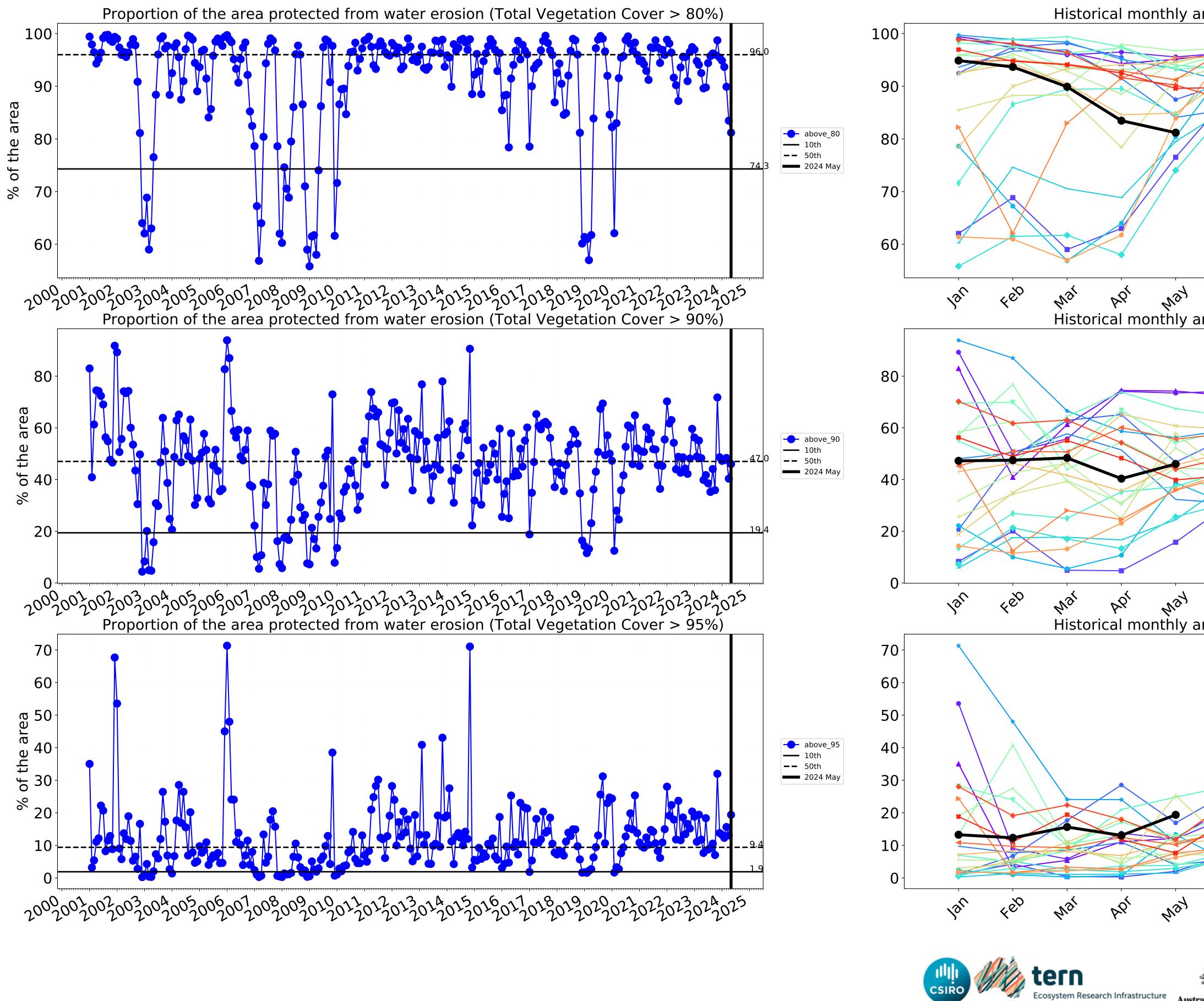




Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



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



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

Jur

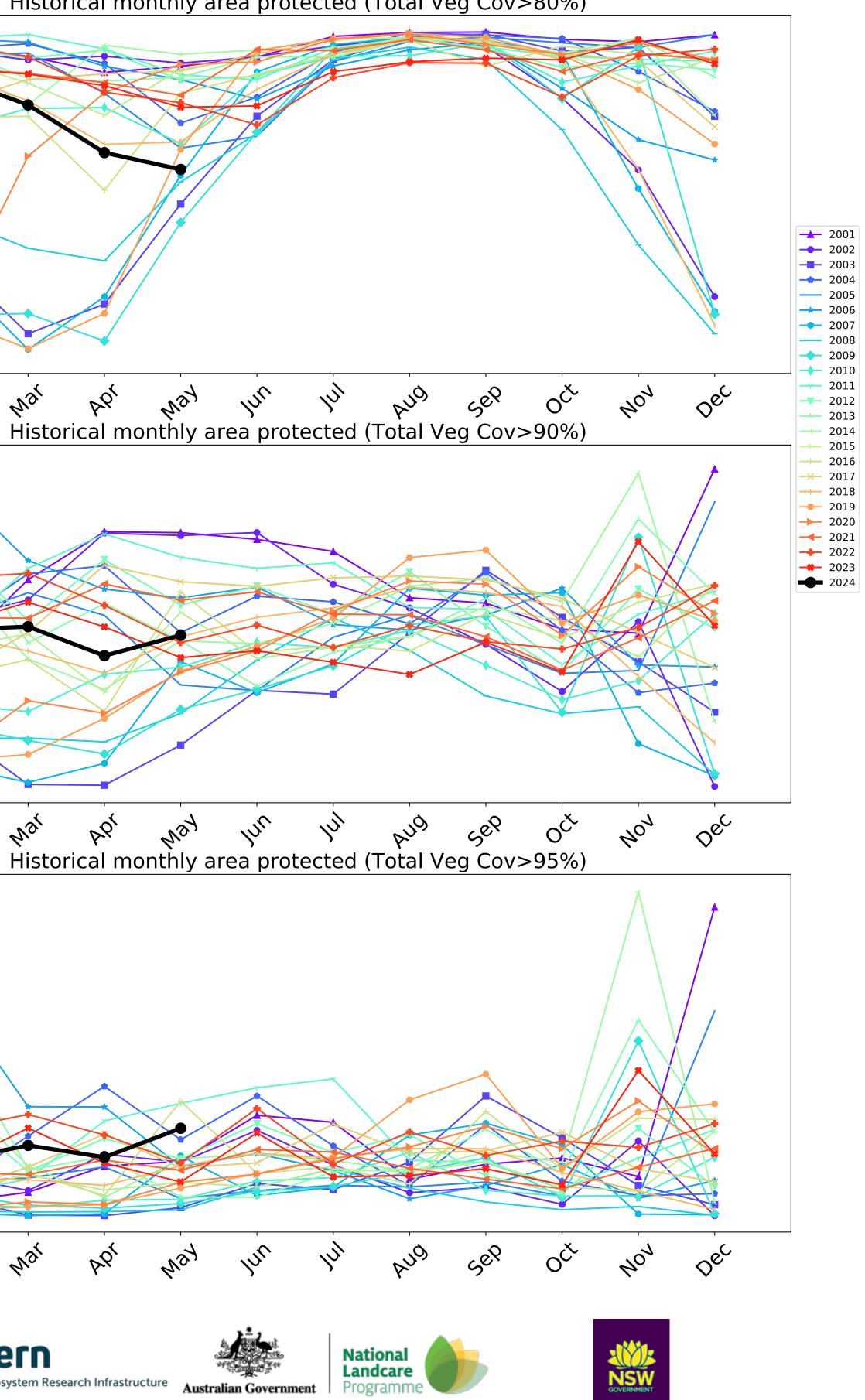
1)

Ecosystem Research Infrastructure

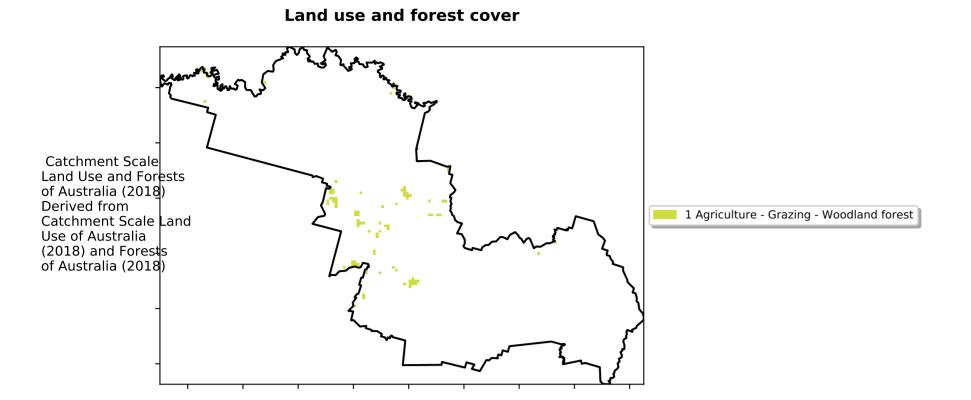
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Australian Government

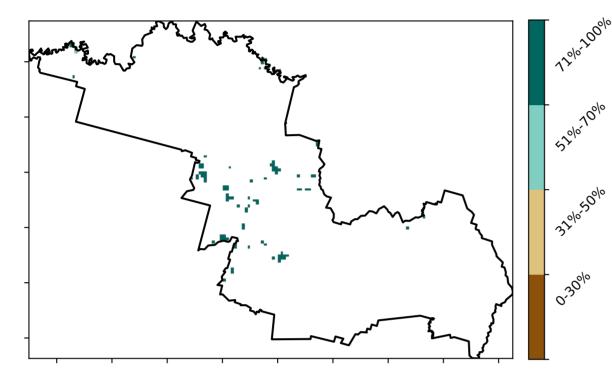
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Grazing Woodland forest



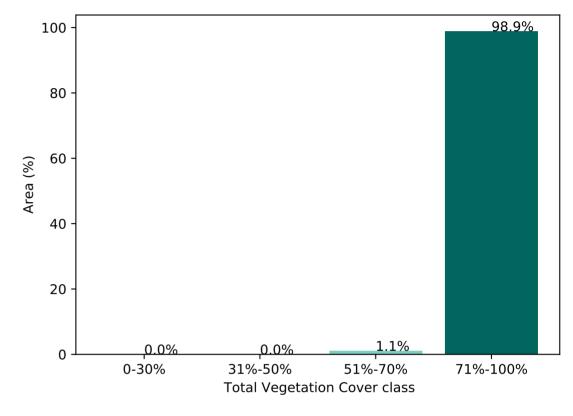
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

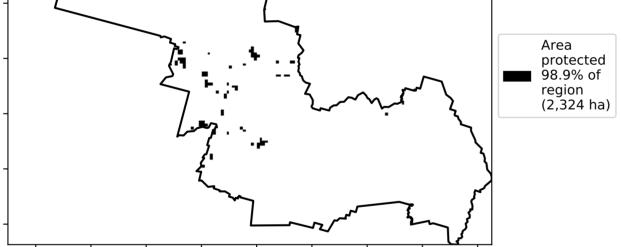


Proportion of vegetation cover class in area

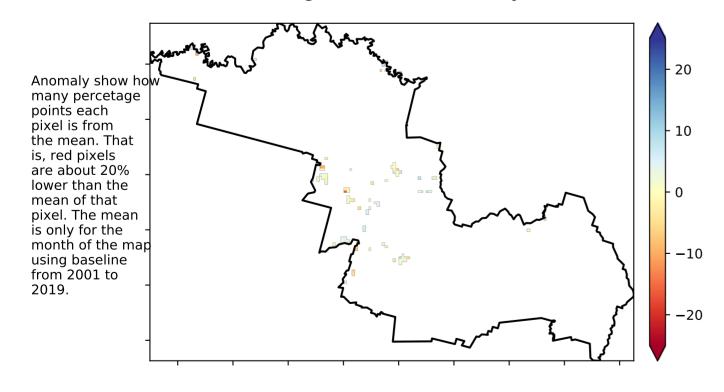


% Area protected from wind erosion (>50%)

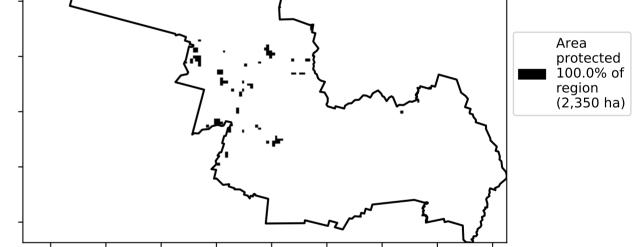


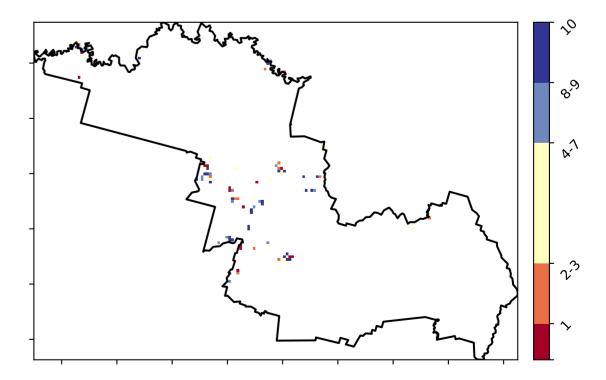


Total Vegetation Cover Anomaly [%]



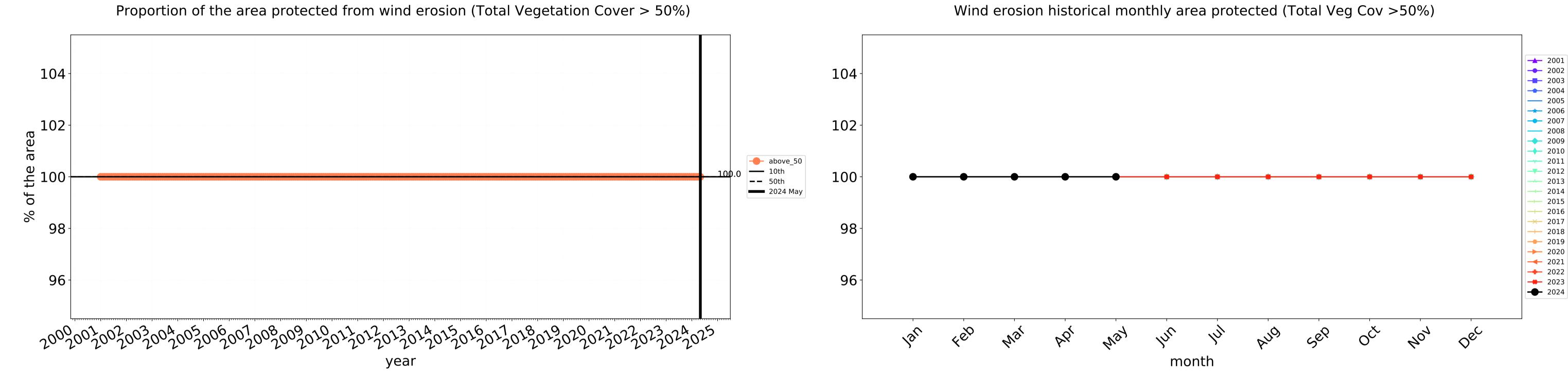
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

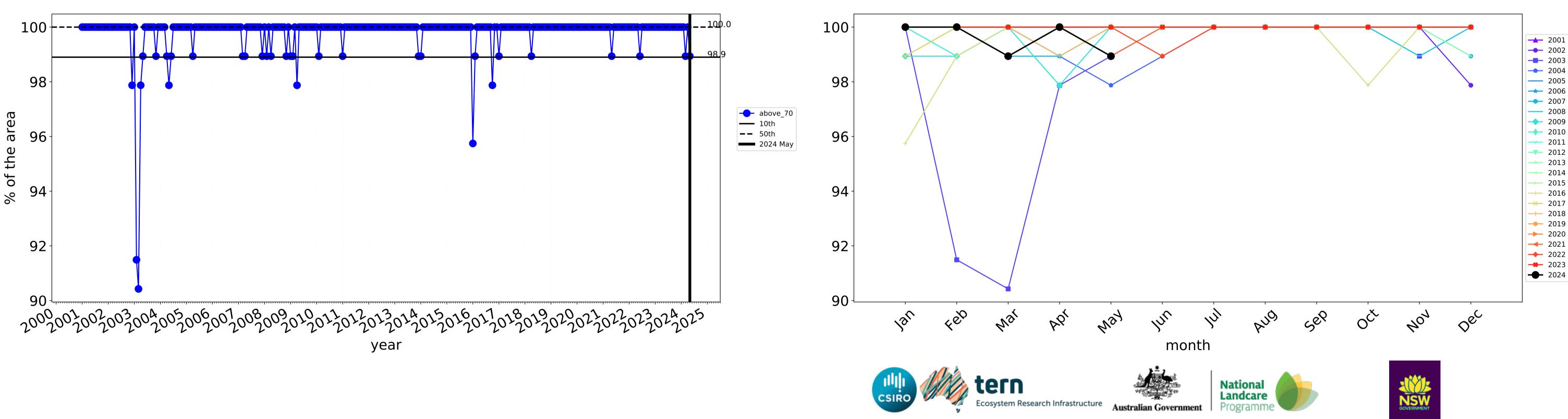






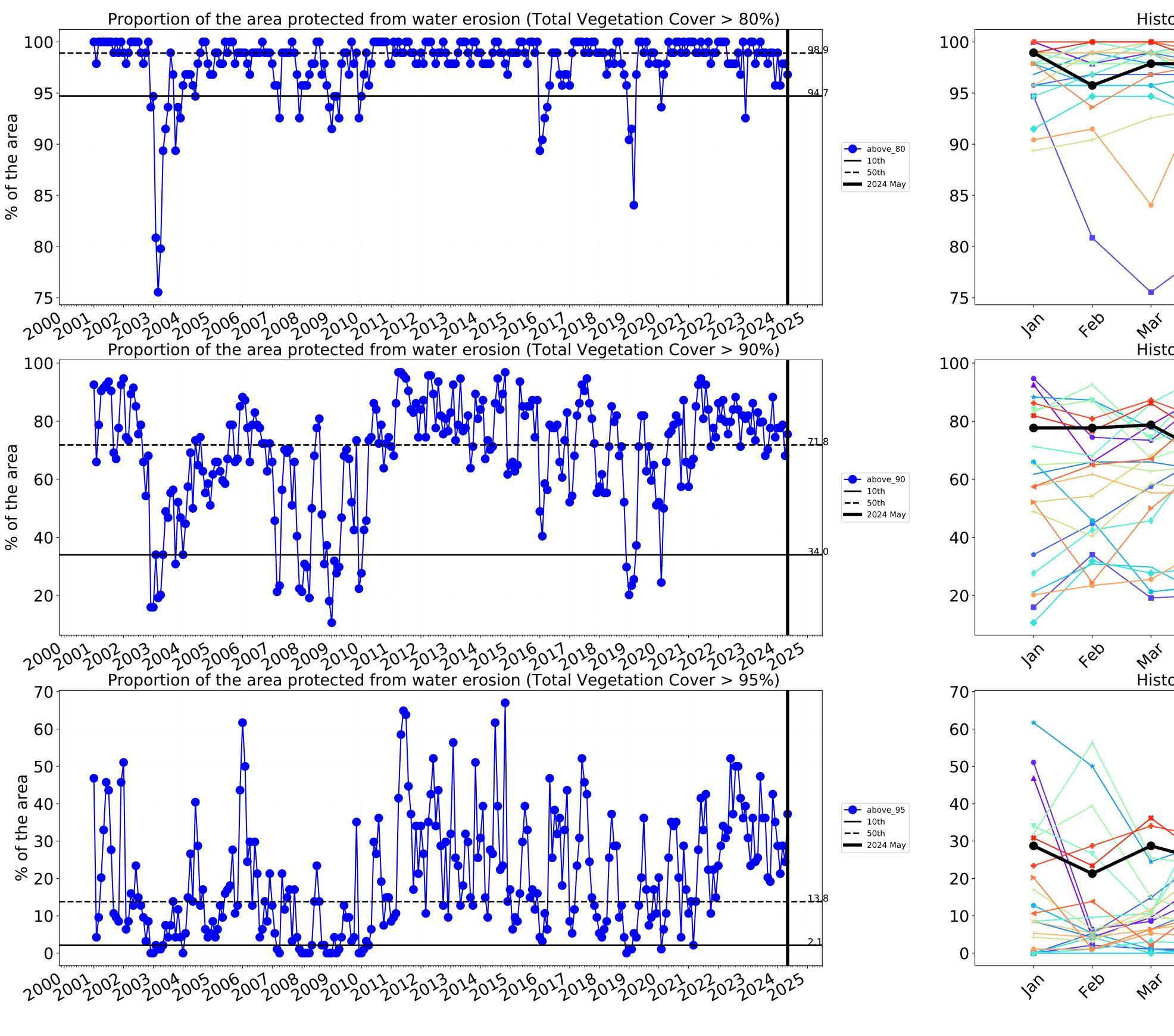






Grazing Woodland forest timeseries

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



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

Jur

 $\sqrt{\gamma}$

Nat

291

way

PQ

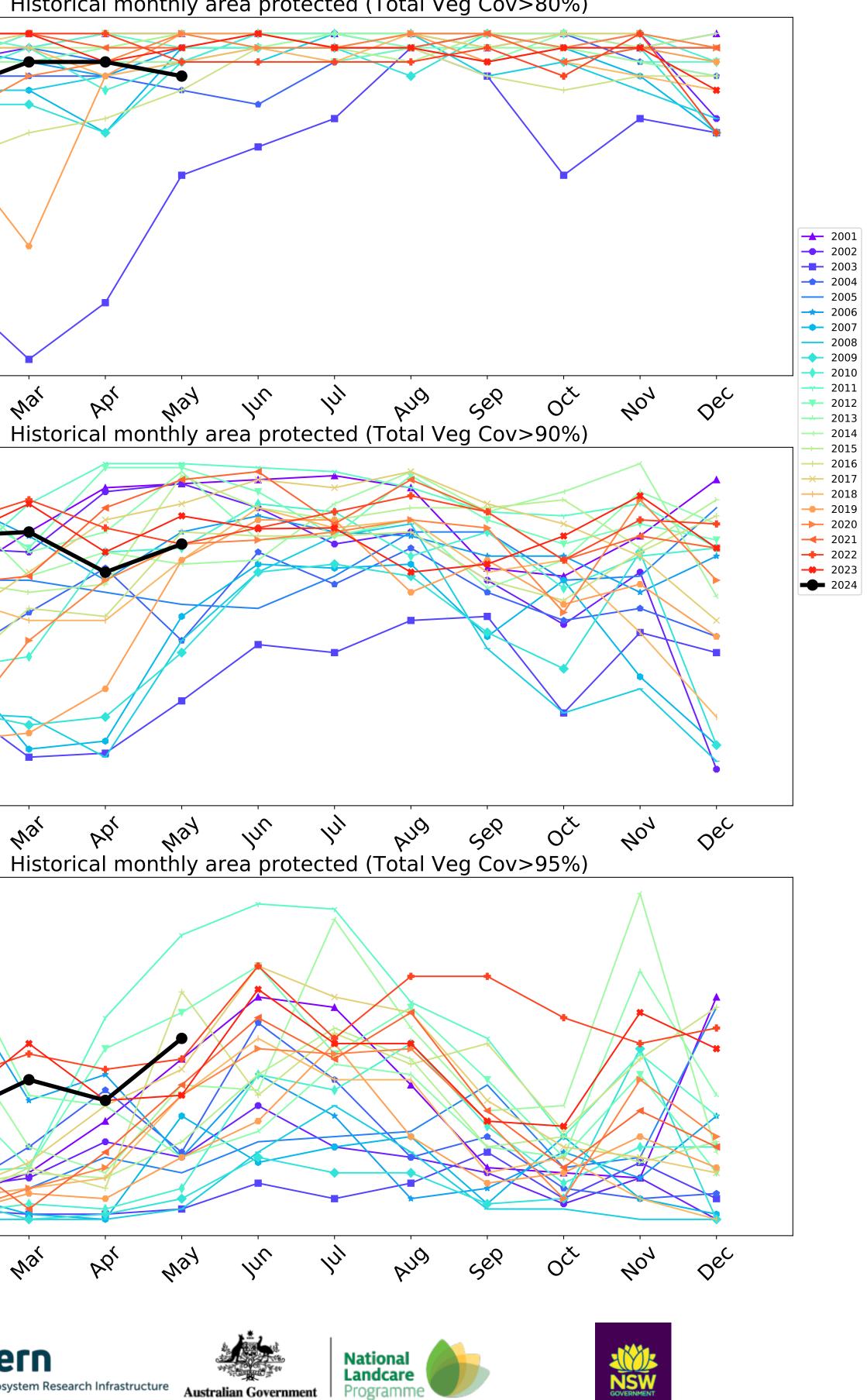
Ecosystem Research Infrastructure

CSIRO CONTRACTOR CONSISTENT RE

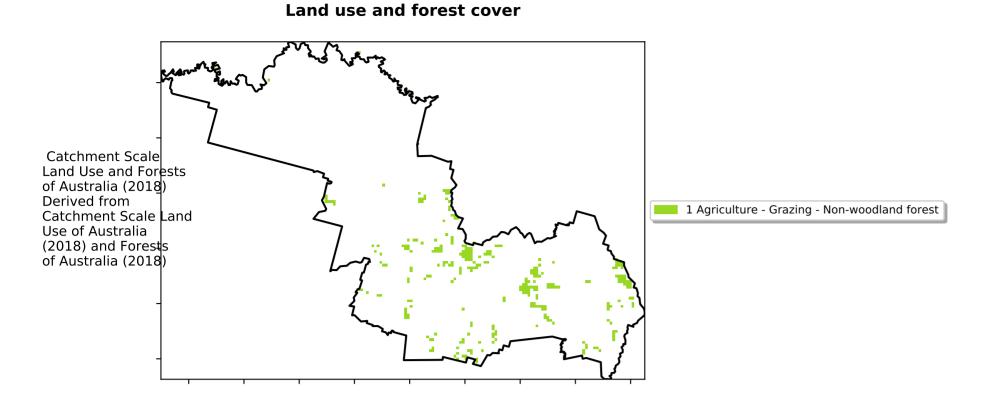
Jul

Australian Government

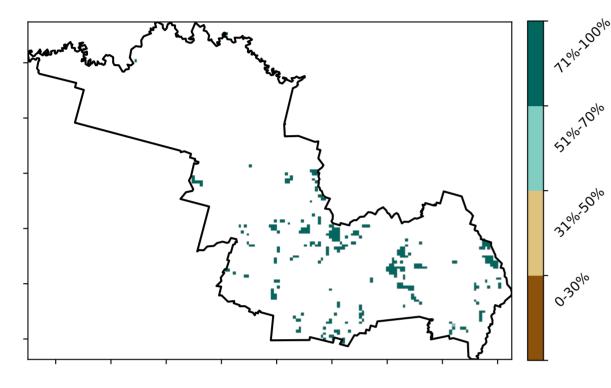
1's



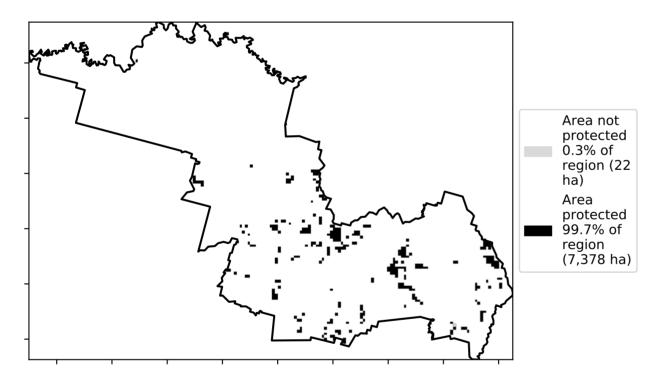
Grazing - Forest (non woodland)



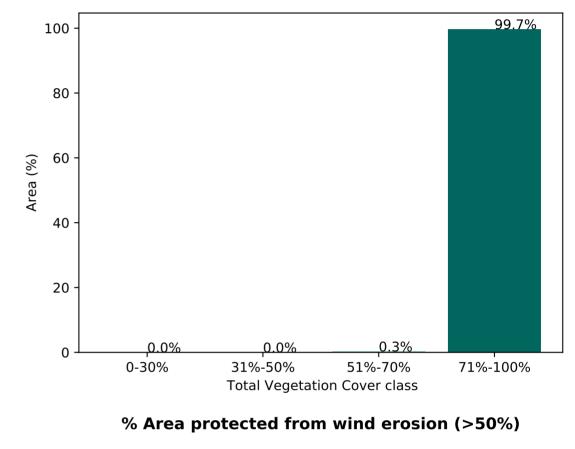
Total Vegetation Cover [%]

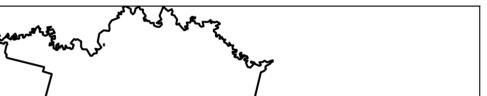


% Area protected from water erosion (>70%)

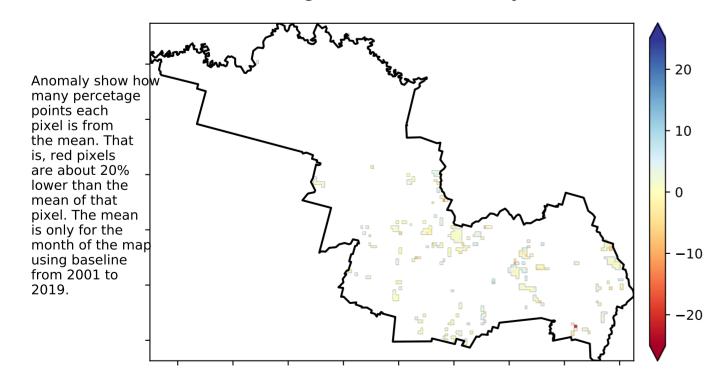


Proportion of vegetation cover class in area

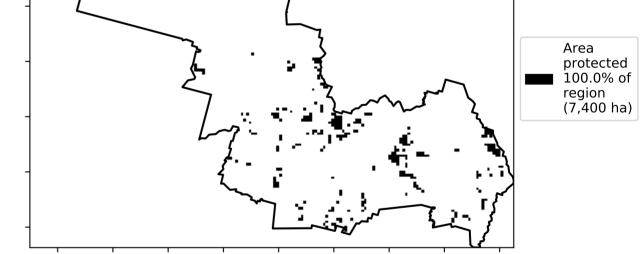


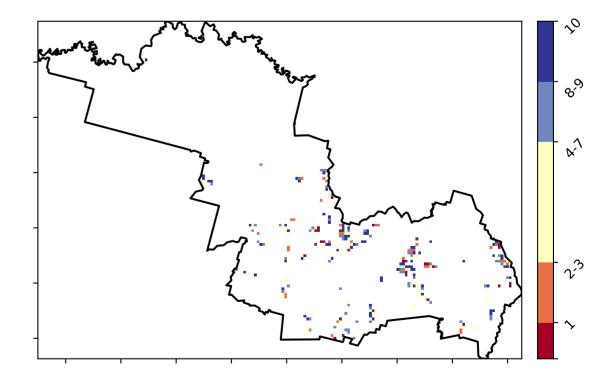


Total Vegetation Cover Anomaly [%]

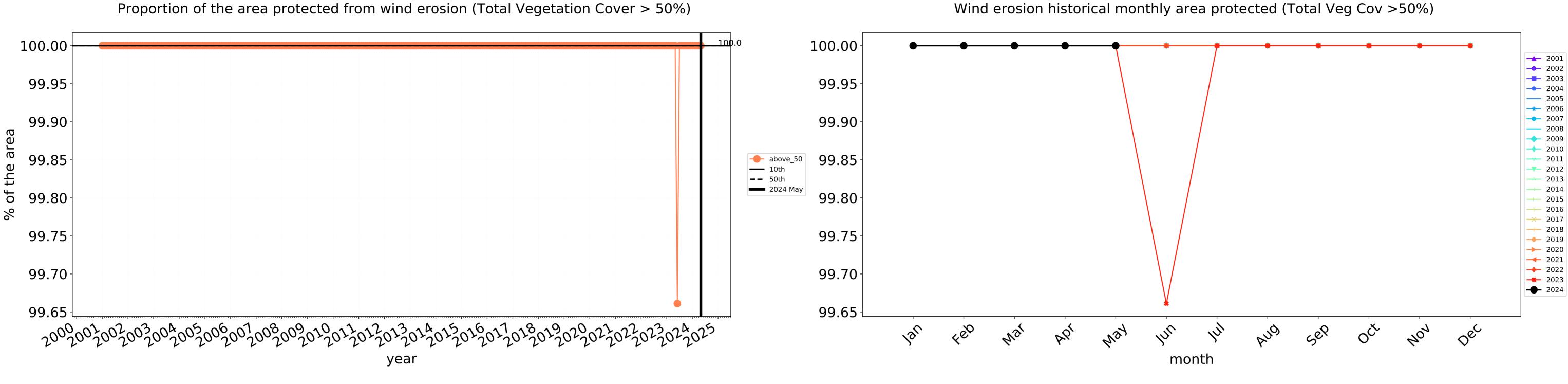


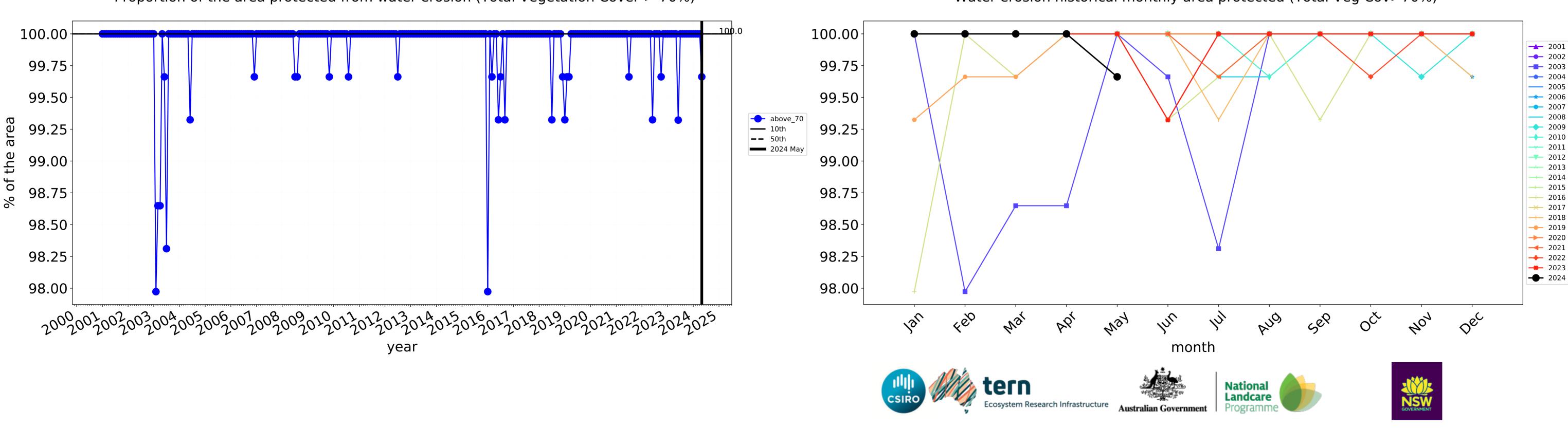
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.





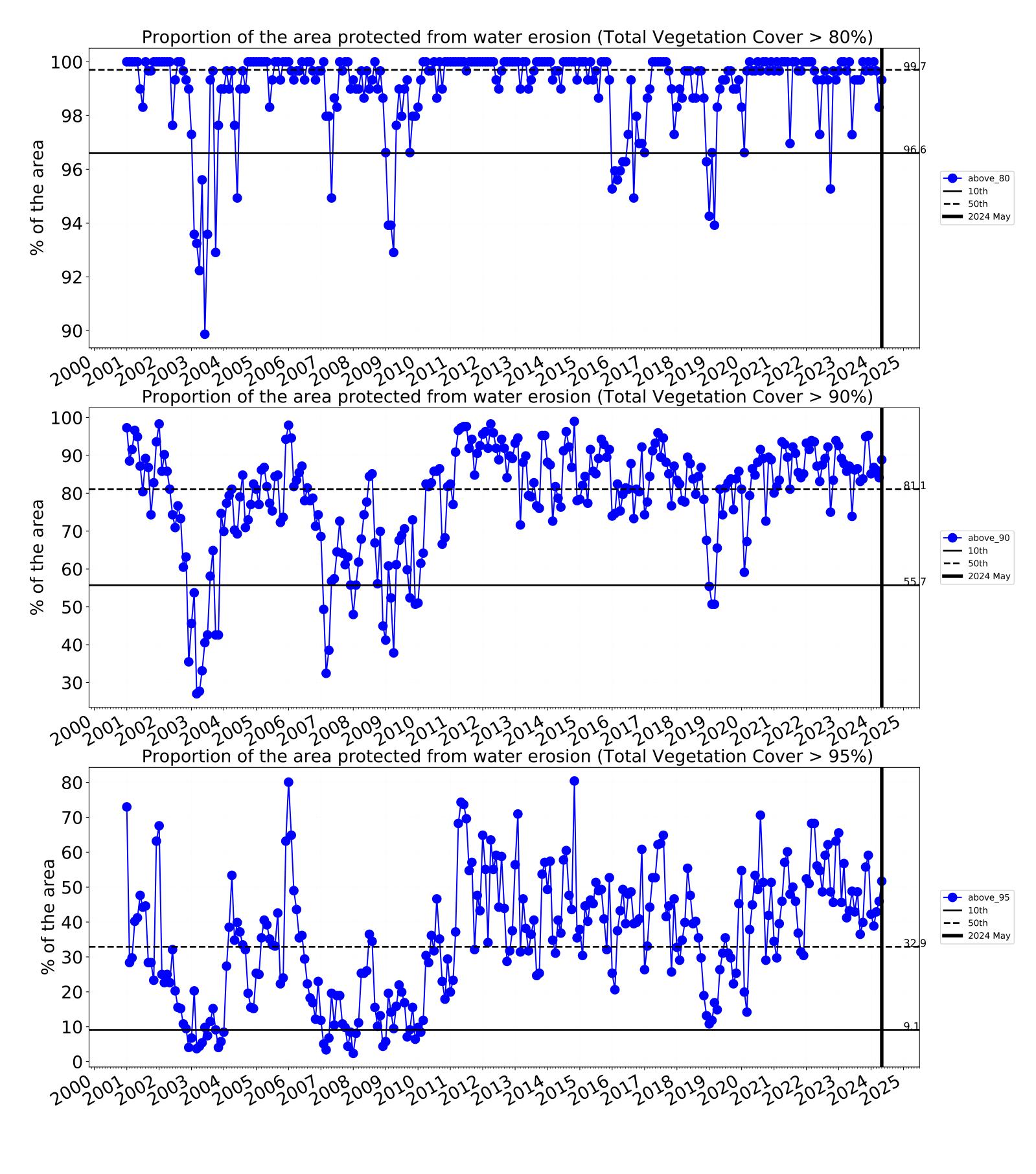




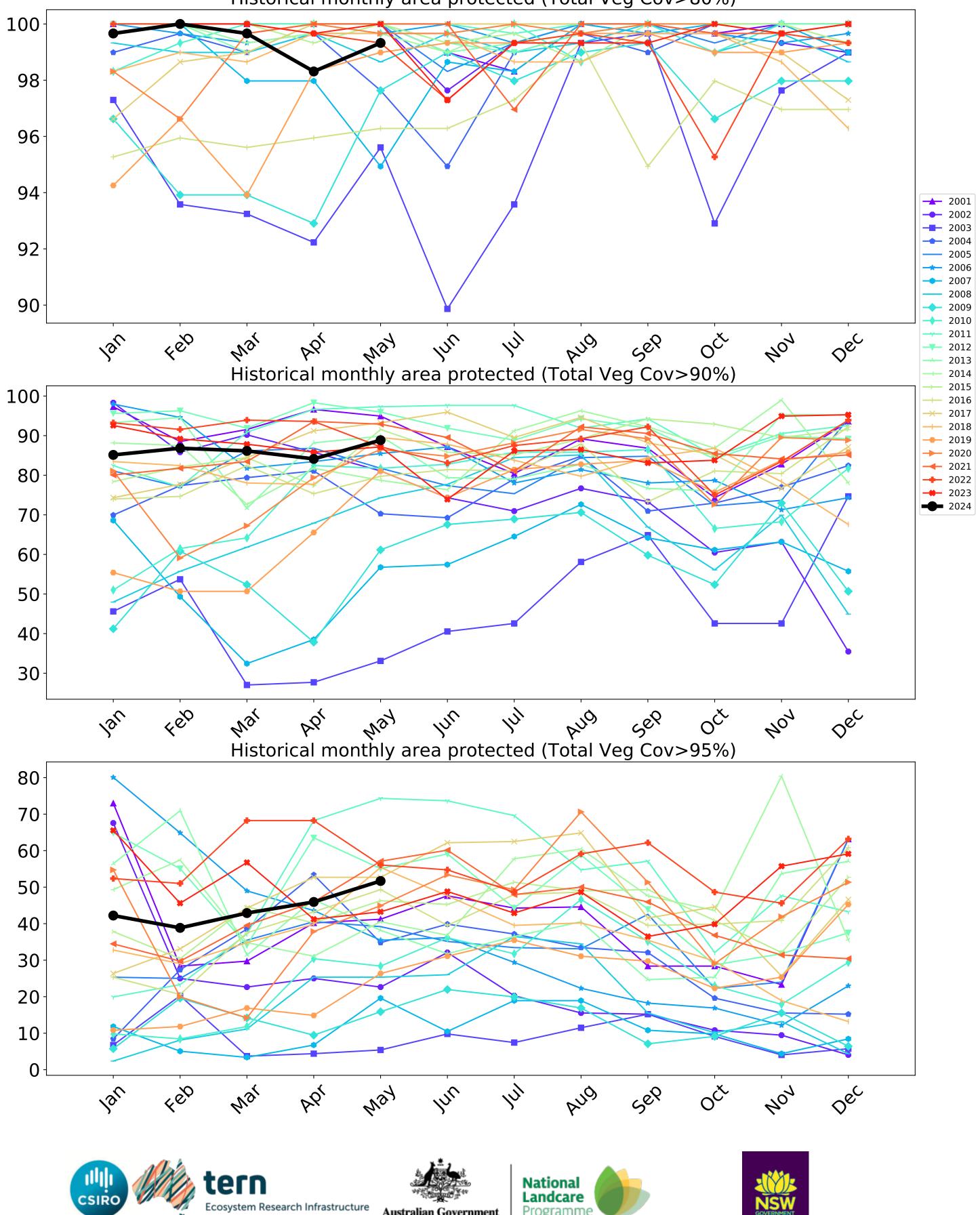


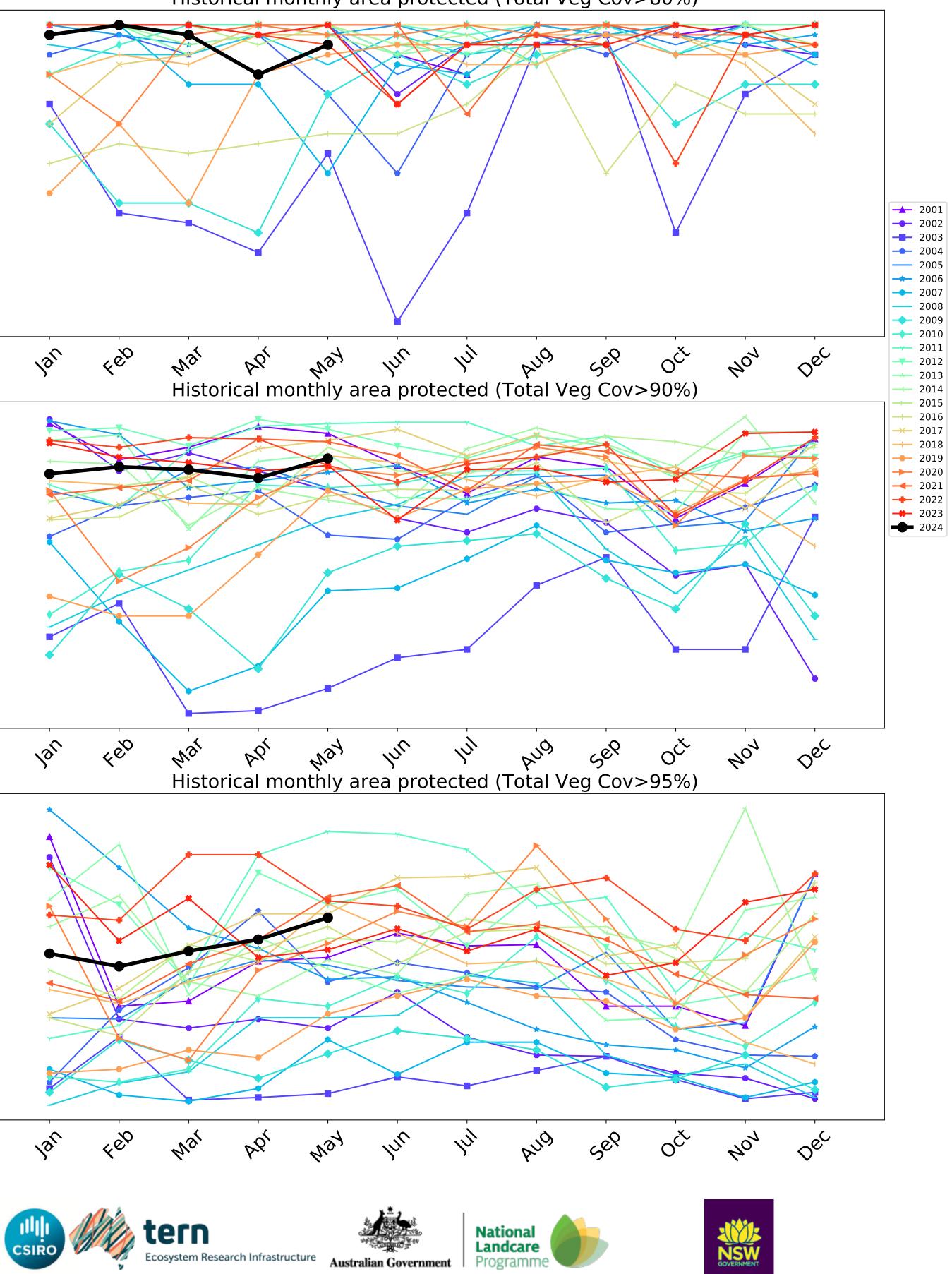
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

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

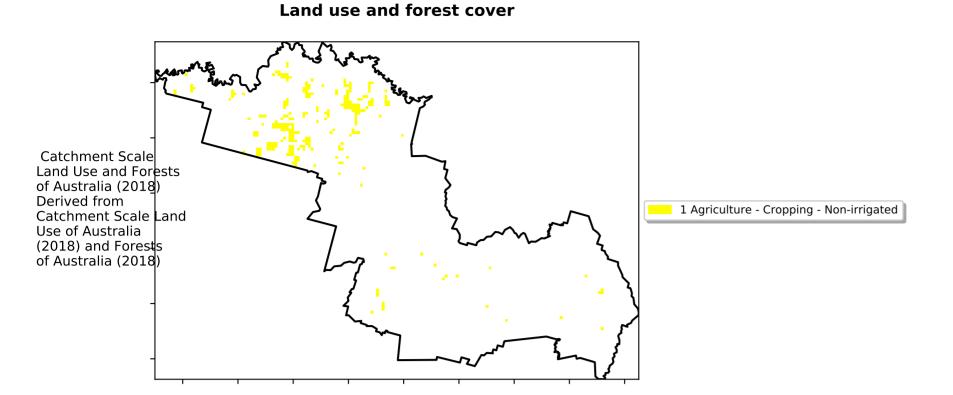


Historical monthly area protected (Total Veg Cov>80%)

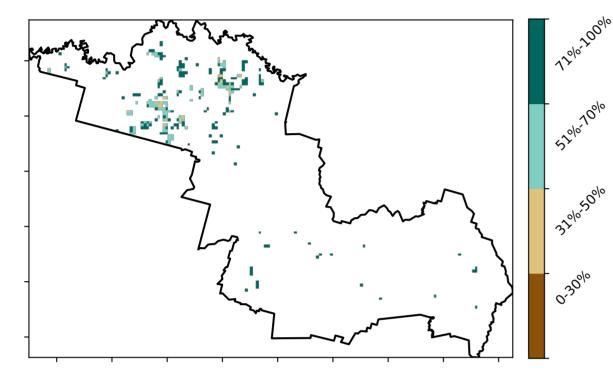




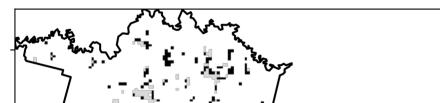
Cropping



Total Vegetation Cover [%]

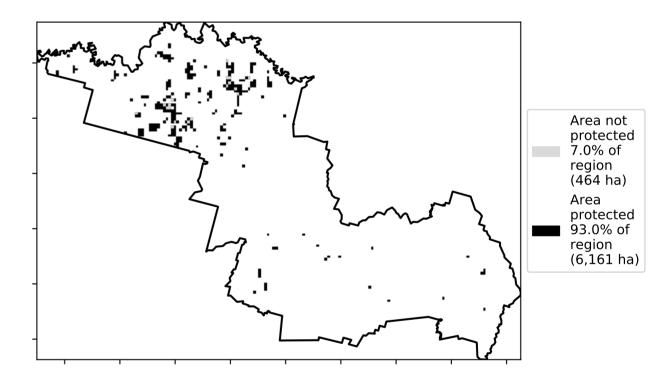


% Area protected from water erosion (>70%)

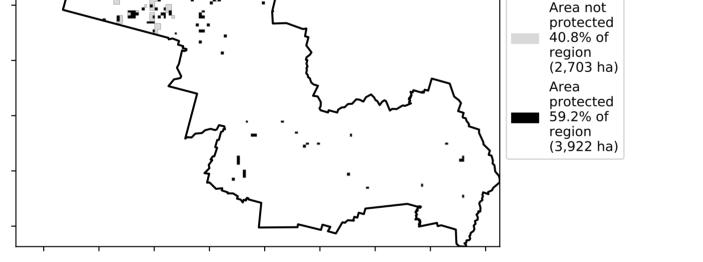


59.2% 60 50 40 Area (%) . 00 . 34.0% 20 10 6.8% 0.0% 0 31%-50% 51%-70% 0-30% 71%-100% Total Vegetation Cover class

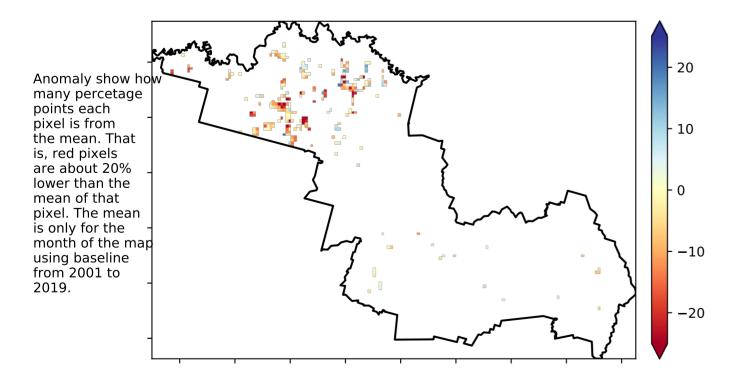
% Area protected from wind erosion (>50%)



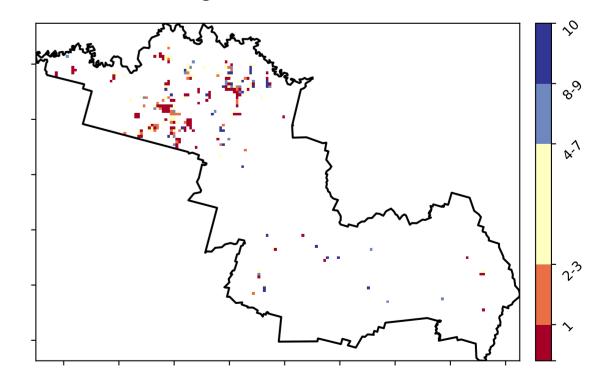
Proportion of vegetation cover class in area



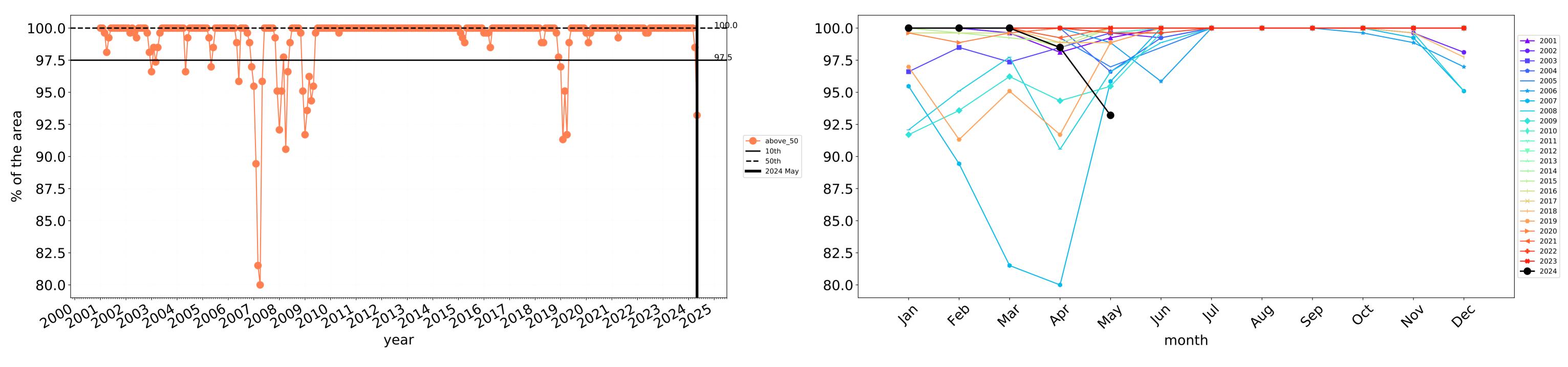
Total Vegetation Cover Anomaly [%]



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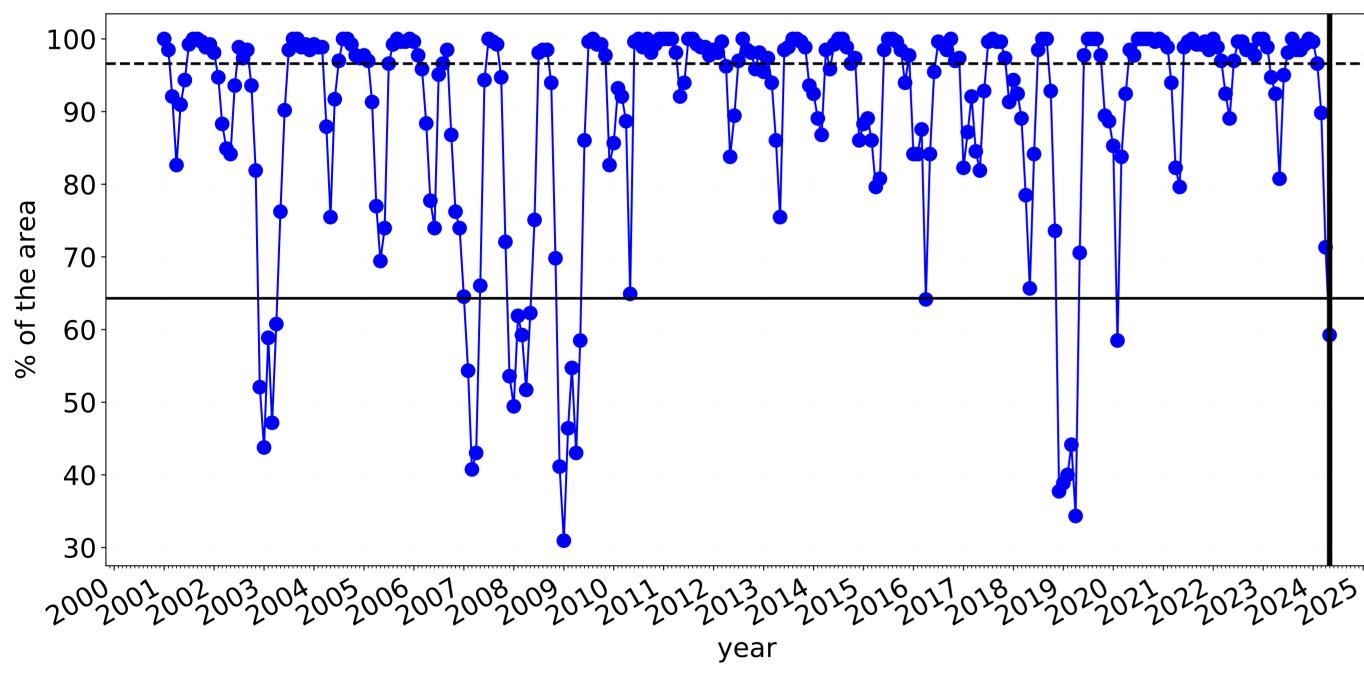


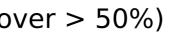




Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



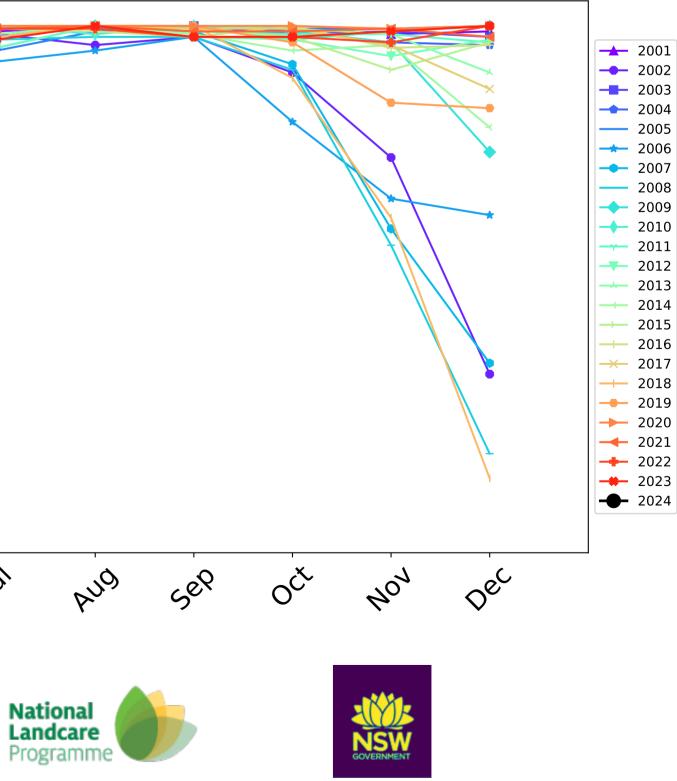


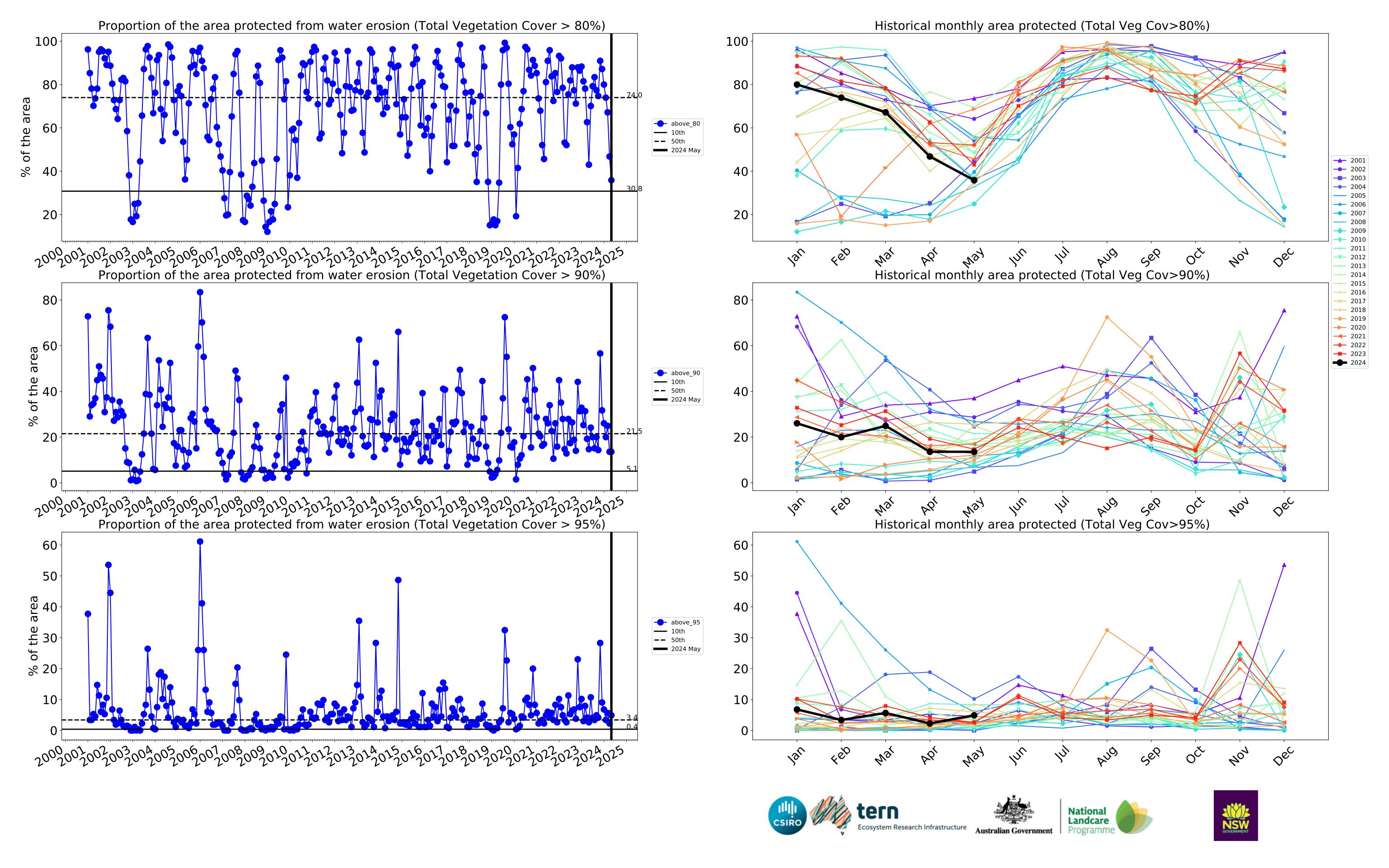


Wind erosion historical monthly area protected (Total Veg Cov >50%)

100 96.6 90 80 ---- above_70 **——** 10th **——** 50th 70-**——** 2024 May 60 50 40 30 Par 4e0 May In Mai 1st Þb, month tern Ecosystem Research Infrastructure Australian Government

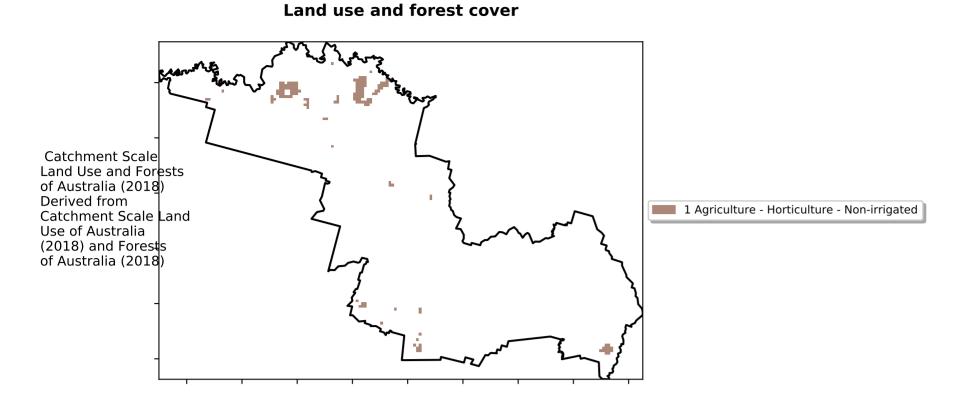
Water erosion historical monthly area protected (Total Veg Cov>70%)



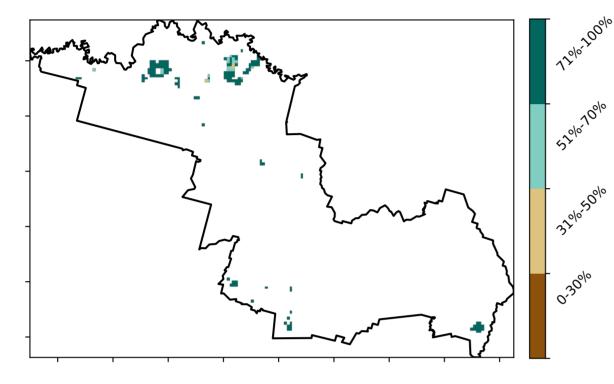


4

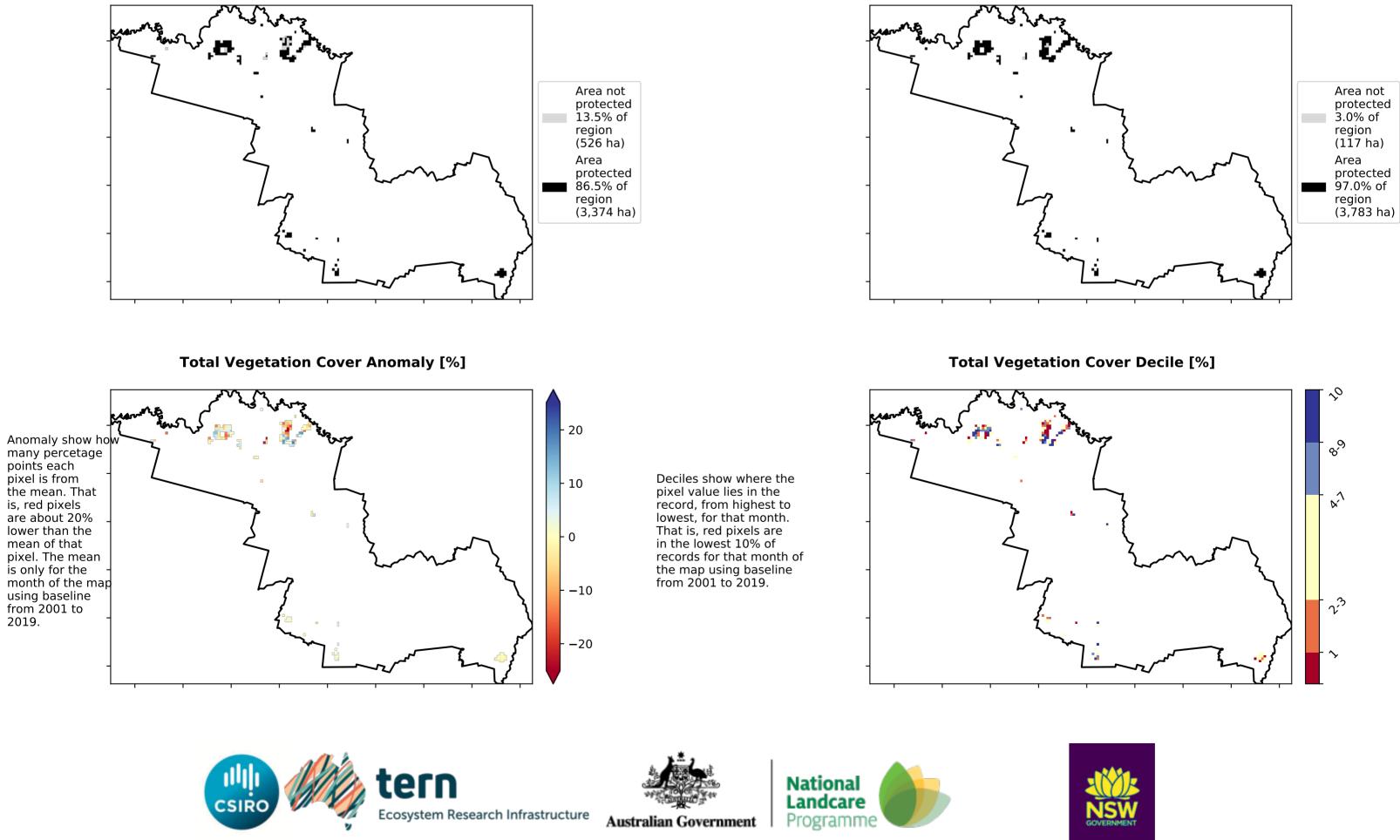
Horticulture



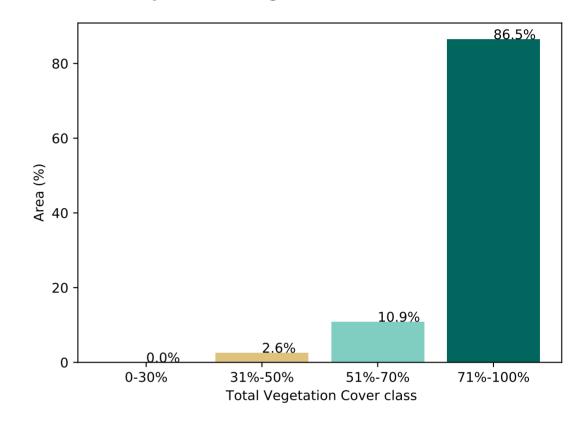
Total Vegetation Cover [%]



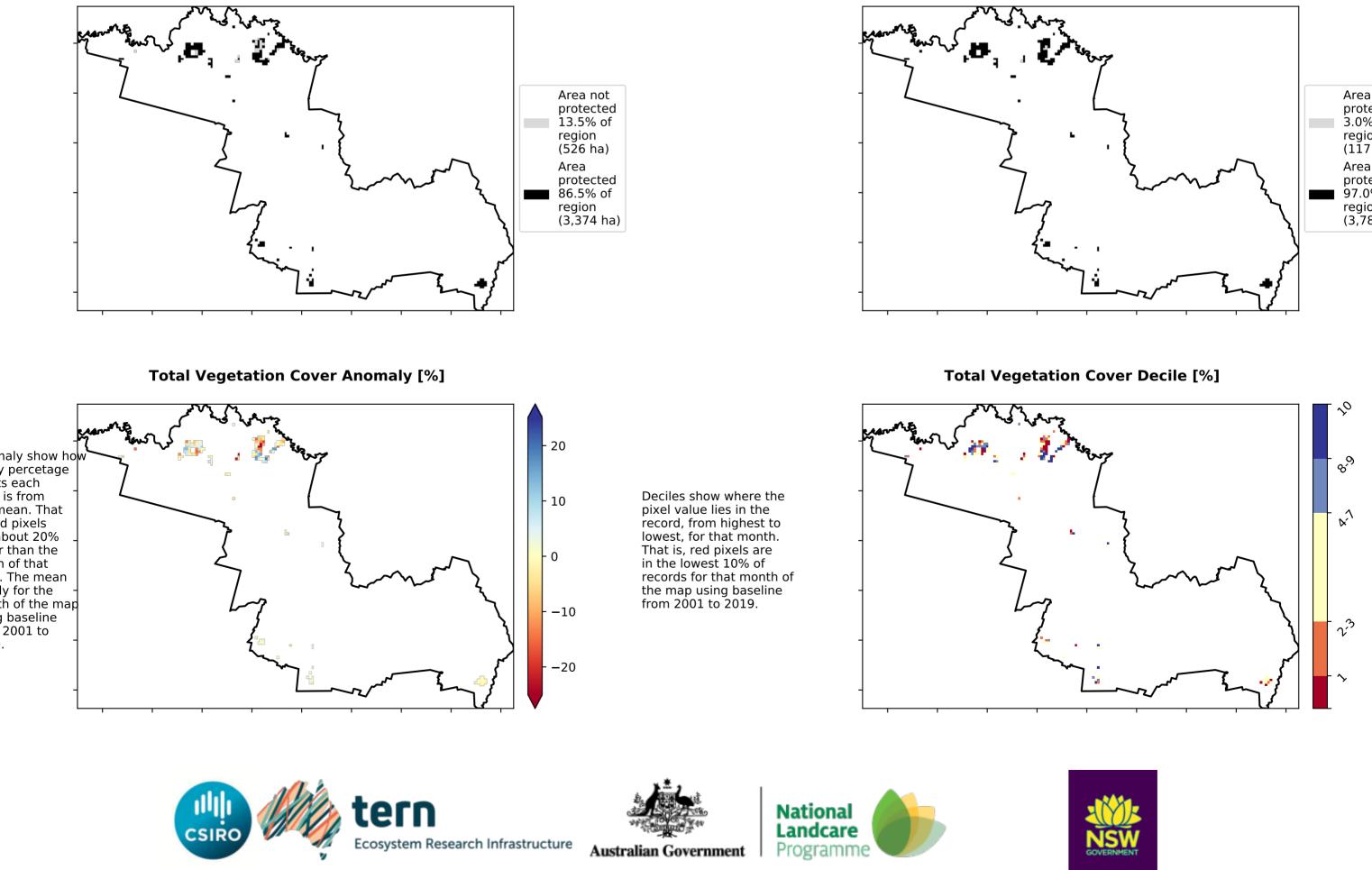
% Area protected from water erosion (>70%)

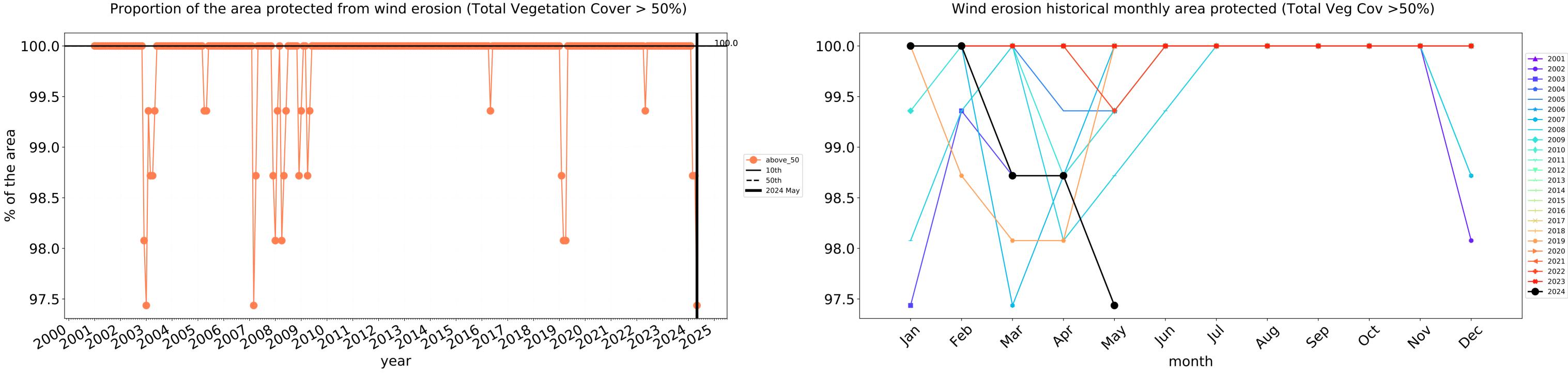


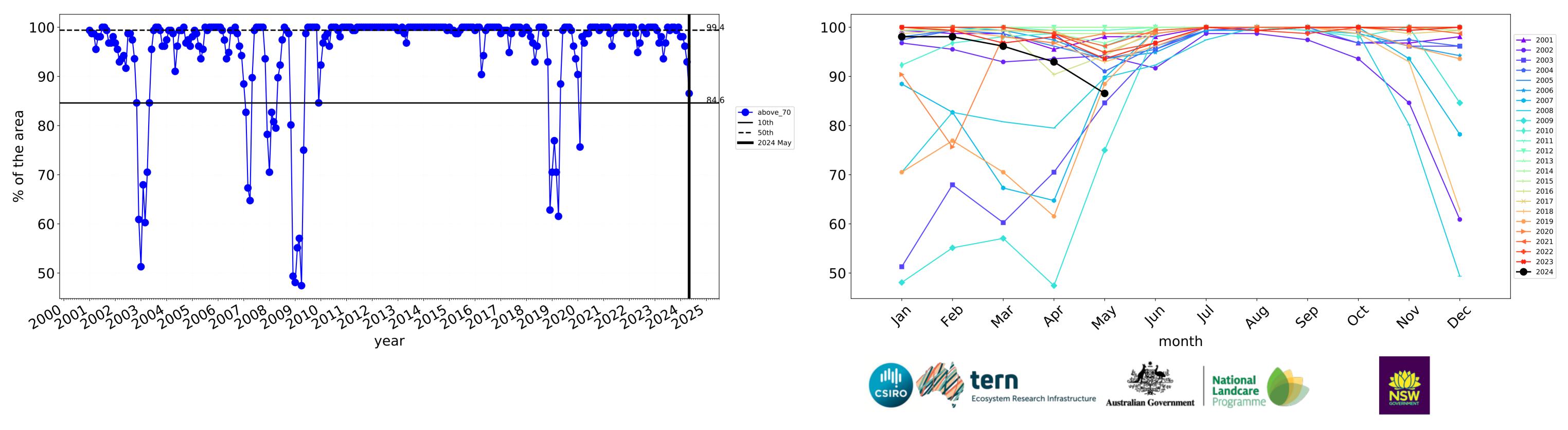
Proportion of vegetation cover class in area



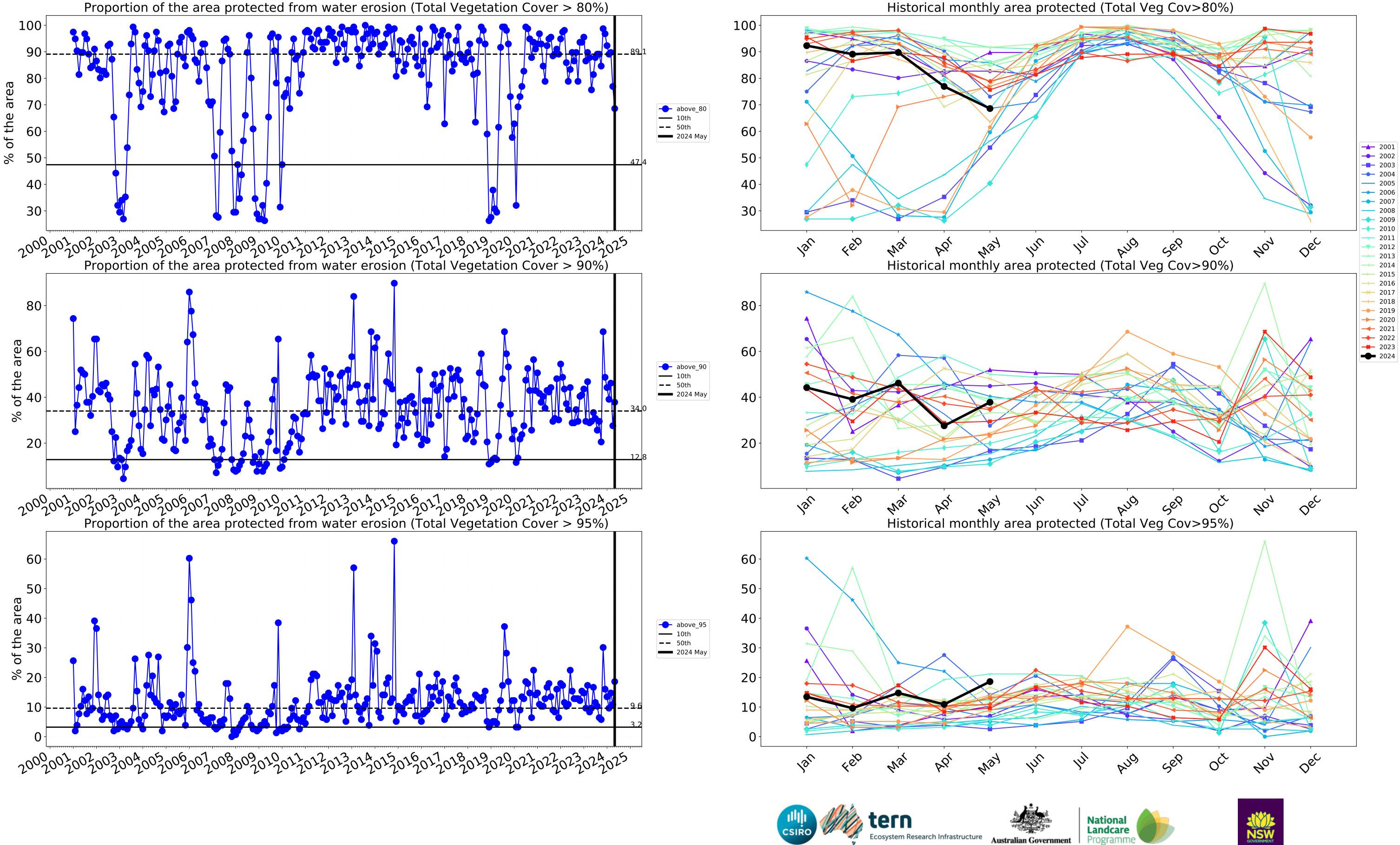
% Area protected from wind erosion (>50%)







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

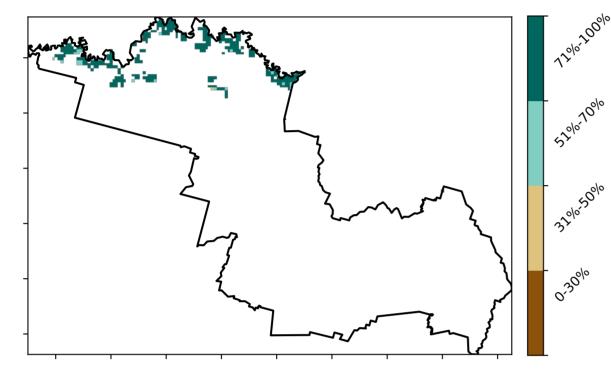


Irrigation

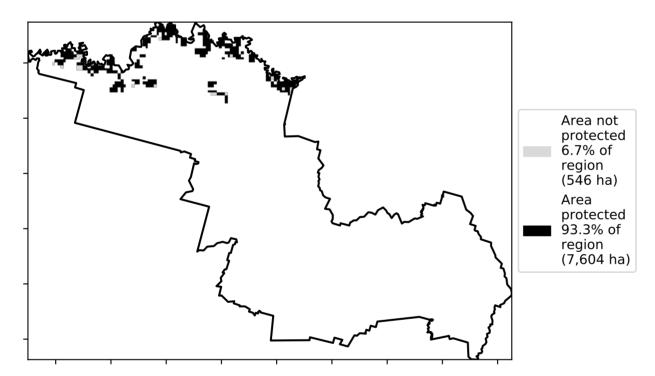
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) of Australia (2018) and Forests of Australia (2018)

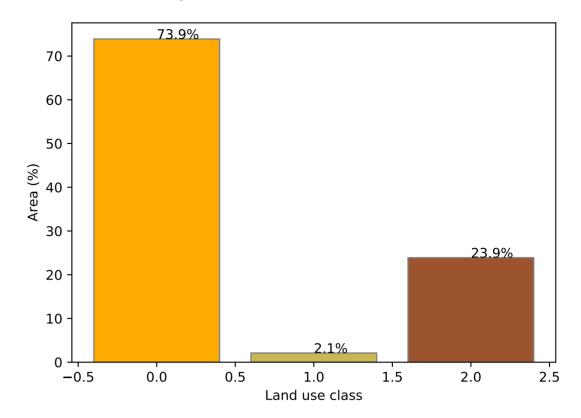
Land use and forest cover

Total Vegetation Cover [%]



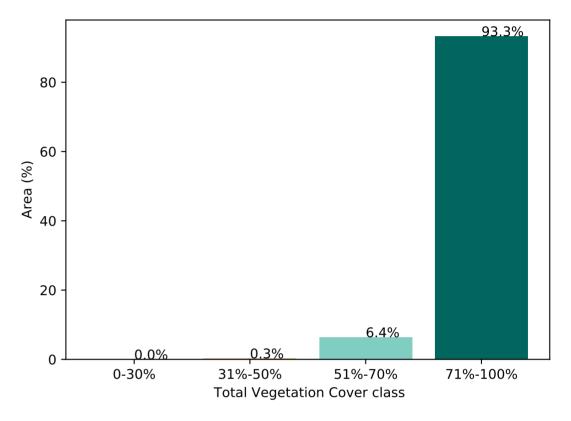
% Area protected from water erosion (>70%)



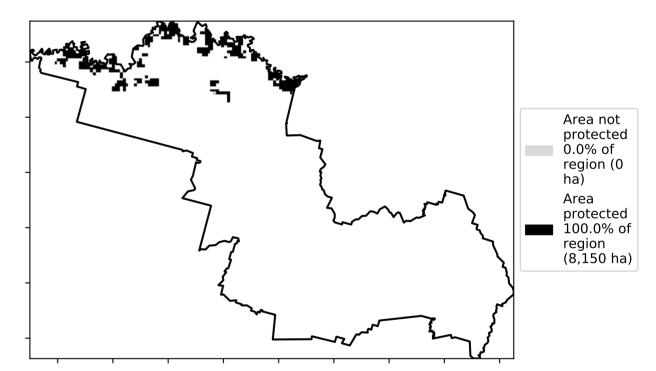


Proportion of each land class in area

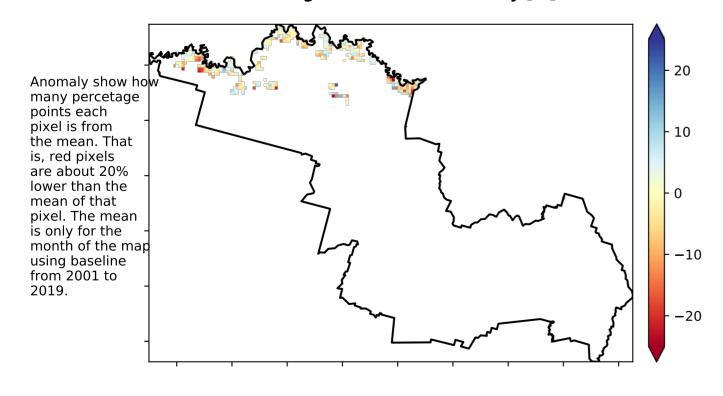
Proportion of vegetation cover class in area



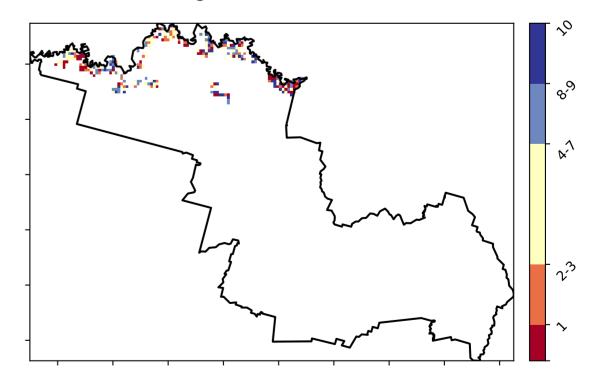
% Area protected from wind erosion (>50%)



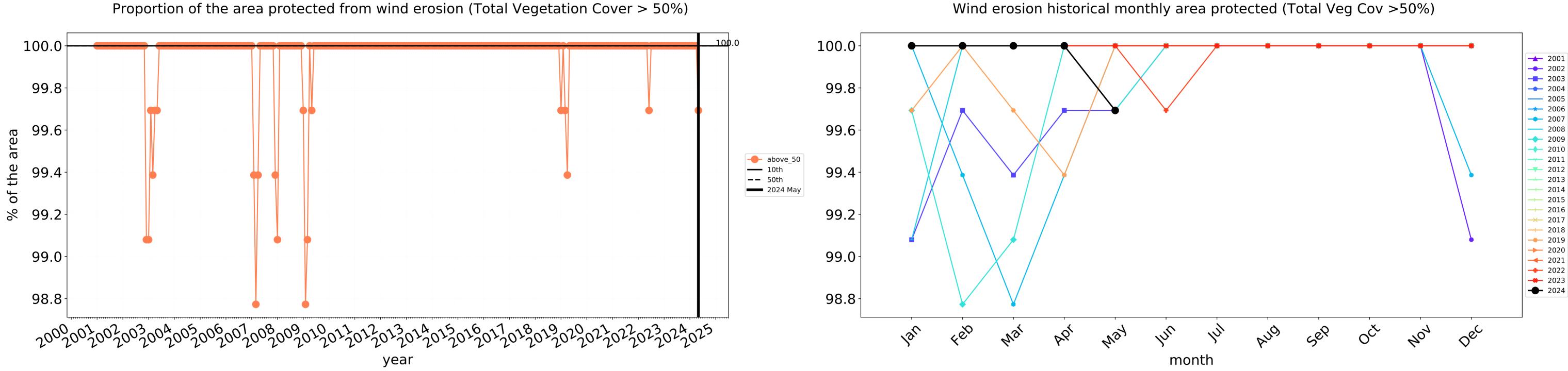
Total Vegetation Cover Anomaly [%]

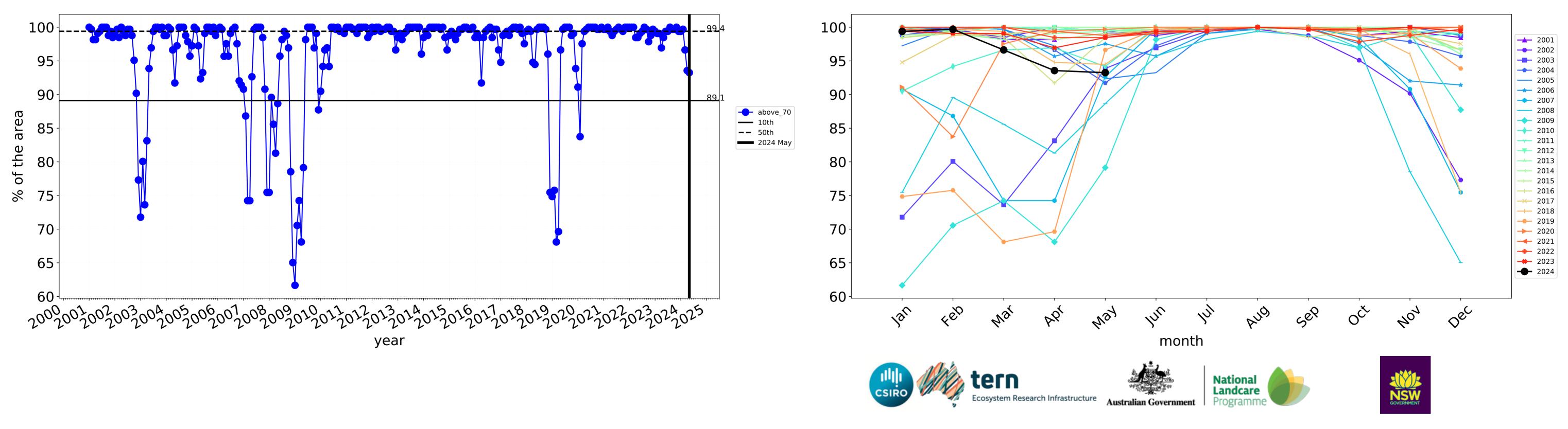


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

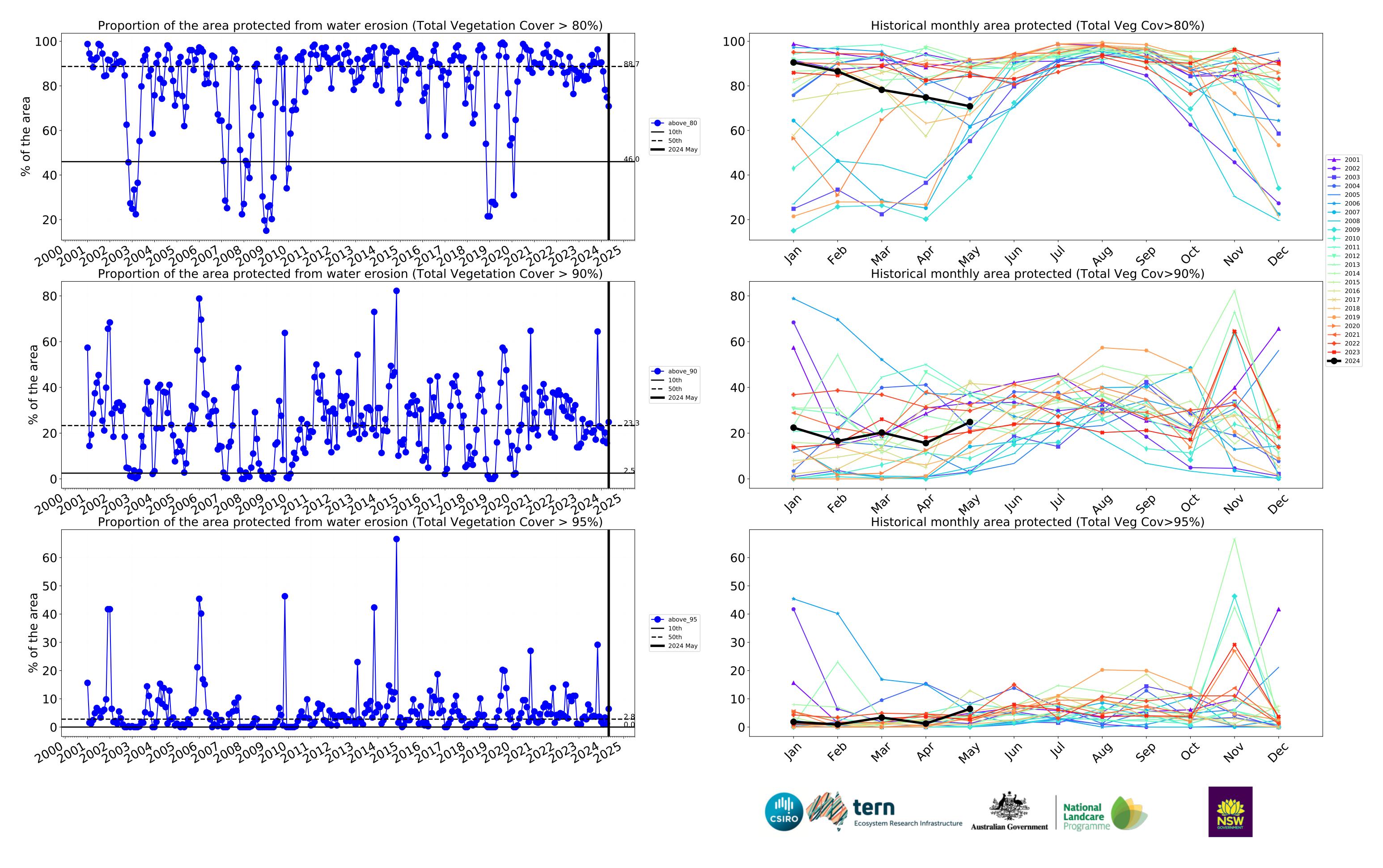




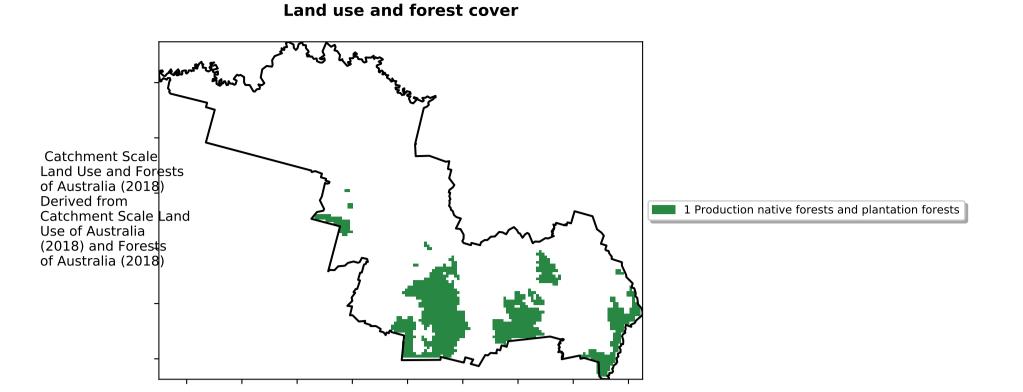




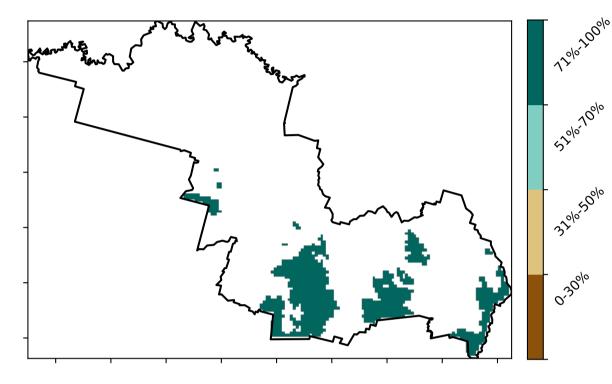
Water erosion historical monthly area protected (Total Veg Cov>70%)



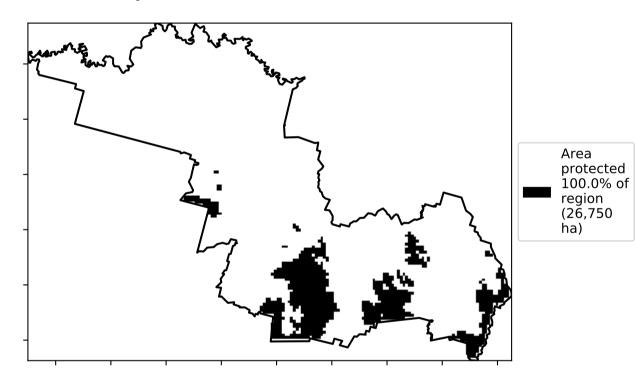
Production native forests and plantation forests



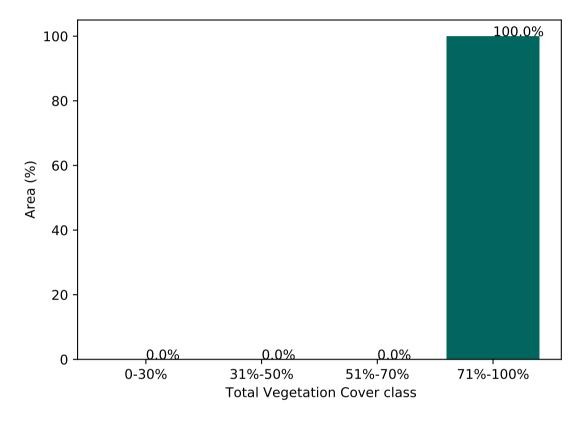
Total Vegetation Cover [%]



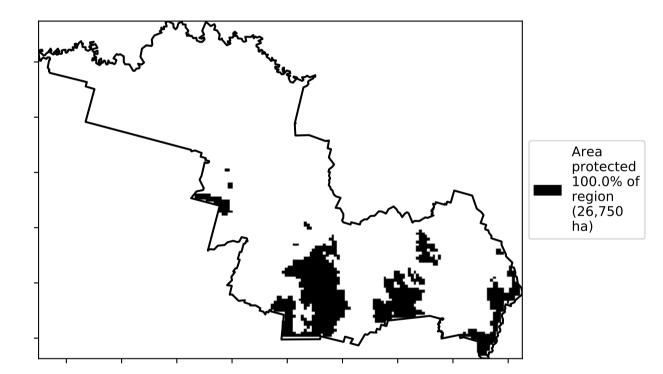
% Area protected from water erosion (>70%)



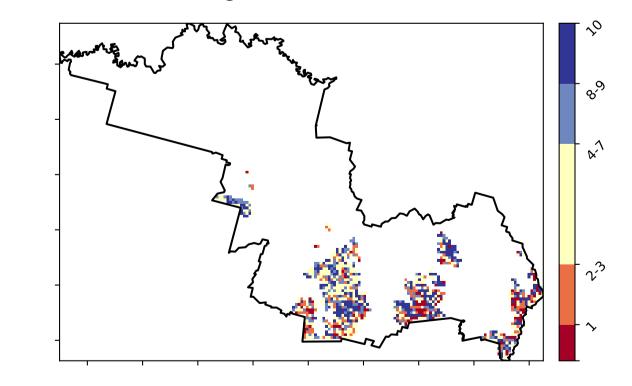
Proportion of vegetation cover class in area



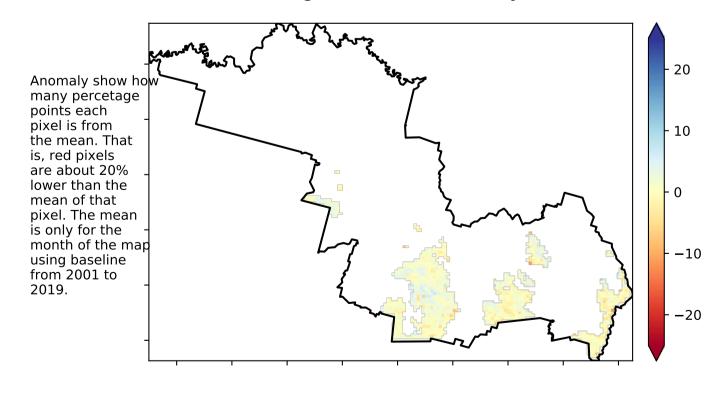
% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]

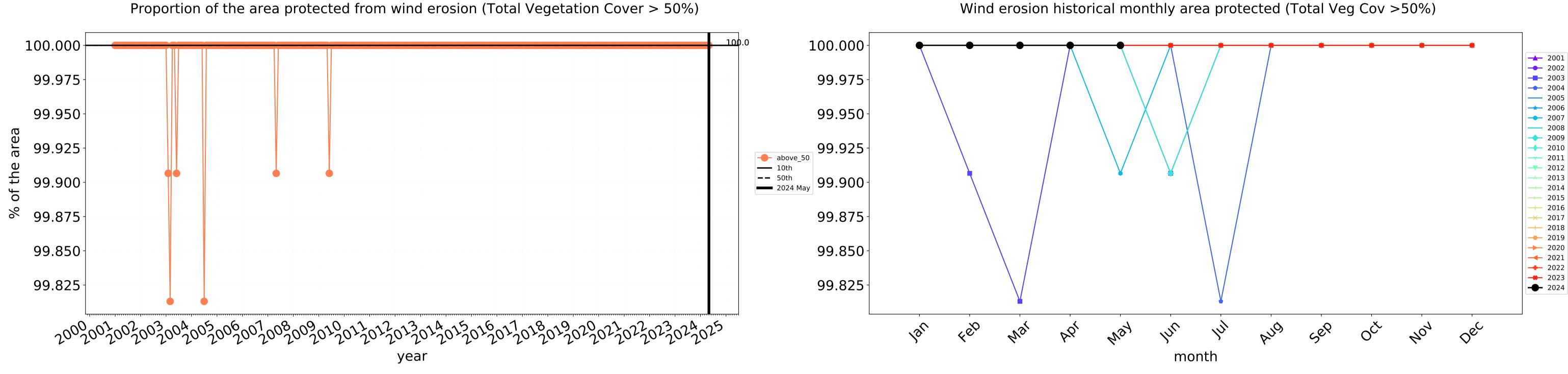


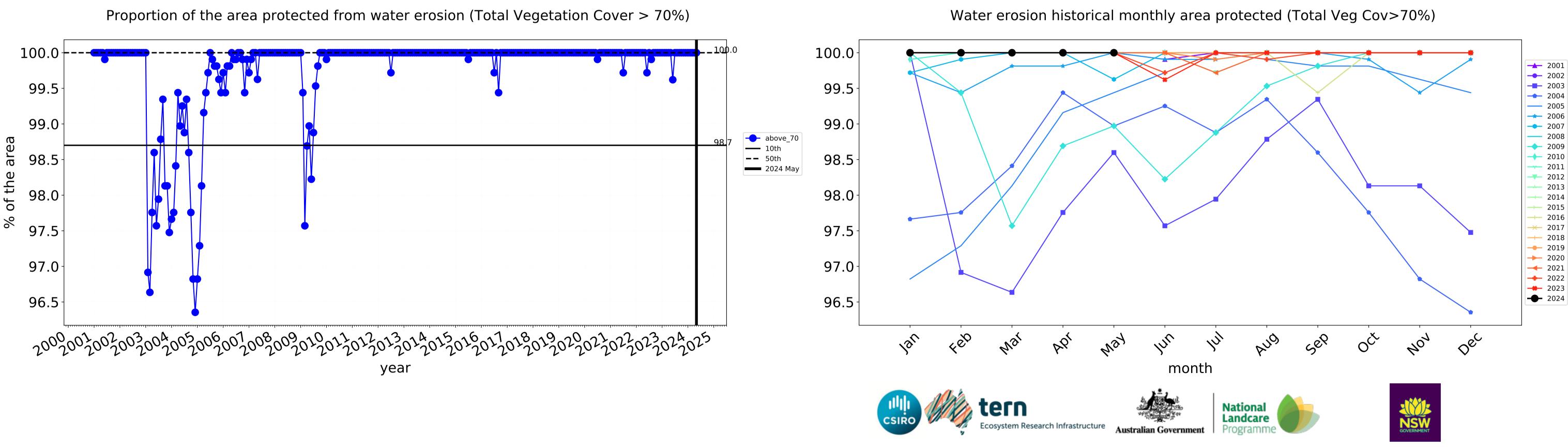
Total Vegetation Cover Anomaly [%]

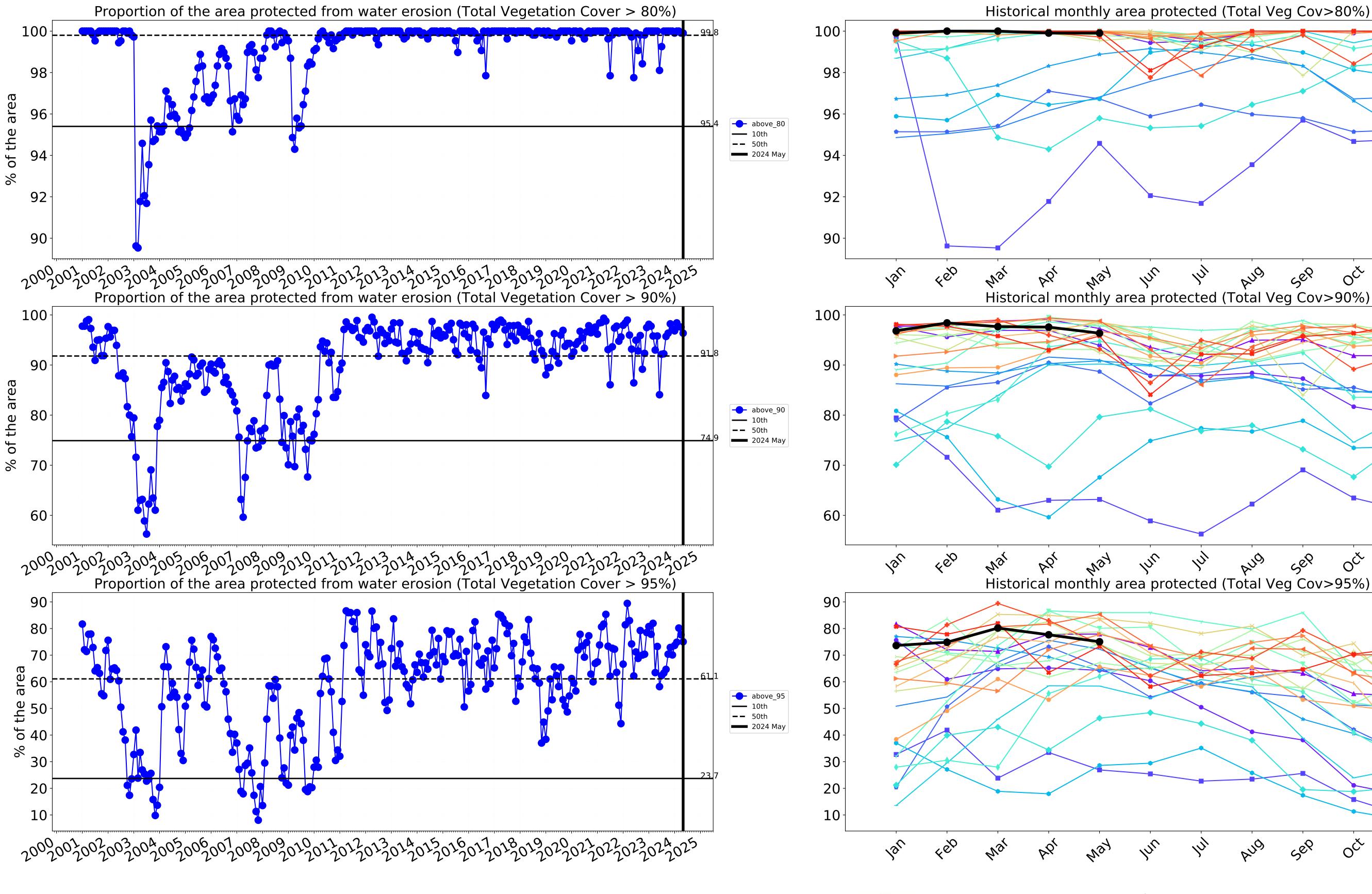


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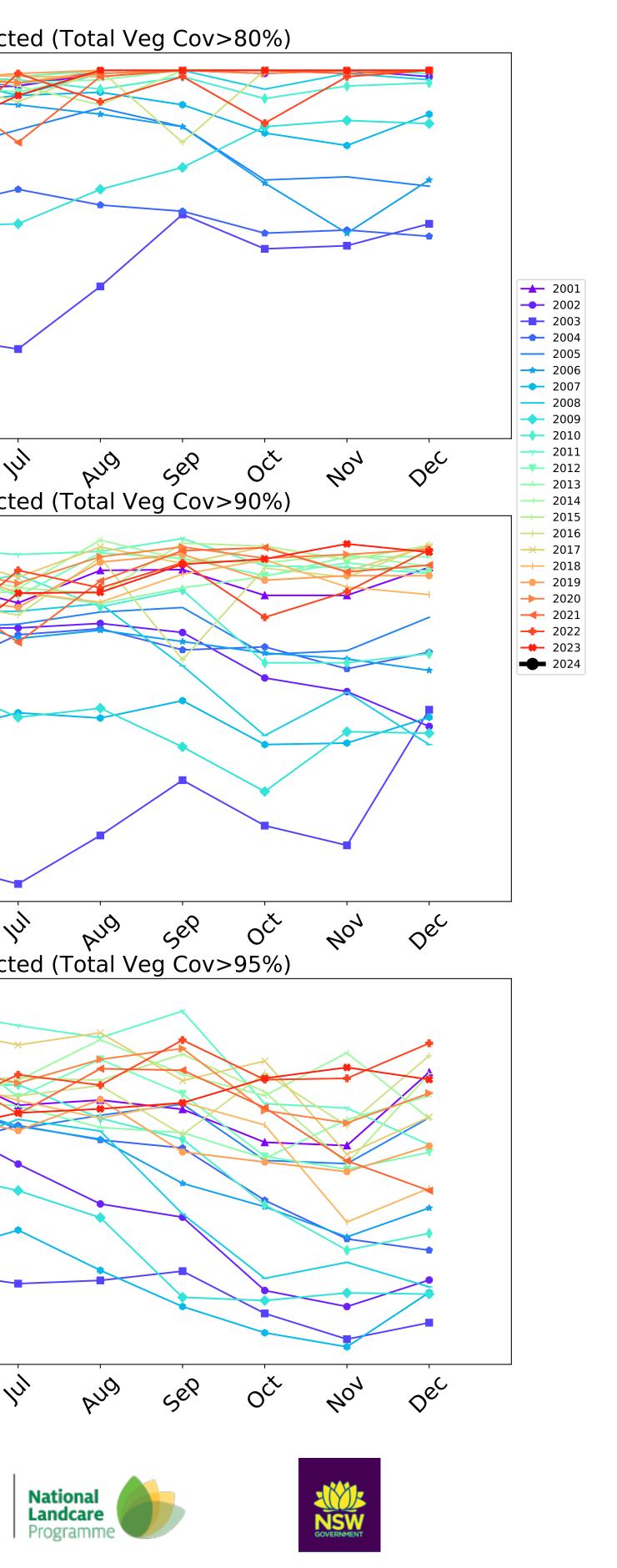












Indigo_(S) (202,900 ha and no data 976 ha) Percentage area and hectares protected with TVC threshold 30,50,70,80,90 and 95%

Land use and forest cover Class	area(ha)	above_30	above_50	above_70	above_80	above_90	above_95
Entire region	202,900	100.0% 202,850	99.2% 201,350	94.0% 190,725	84.4% 171,250	57.1% 115,850	31.4% 63,700
Conservation and natural environments	24,050	100.0% 24,050	100.0% 24,050	99.8% 24,000	97.5% 23,450	88.1% 21,200	57.7% 13,875
Conservation and natural environments Woodland forest	5,900	100.0% 5,900	100.0% 5,900	100.0% 5,900	94.5% 5,575	85.2% 5,025	51.3% 3,025
Conservation and natural environments Forest (non woodland)	16,675	100.0% 16,675	100.0% 16,675	100.0% 16,675	99.4% 16,575	92.2% 15,375	62.7% 10,450
Agriculture	133,950	100.0% 133,925	99.0% 132,575	91.9% 123,050	79.2% 106,125	45.8% 61,300	20.0% 26,725
Grazing	115,275	100.0% 115,250	99.3% 114,475	93.8% 108,150	82.7% 95,300	49.4% 56,900	21.8% 25,150
Grazing non forest	105,525	100.0% 105,500	99.2% 104,725	93.3% 98,450	81.2% 85,675	46.0% 48,550	19.4% 20,450
Grazing Woodland forest	2,350	100.0% 2,350	100.0% 2,350	98.9% 2,325	96.8% 2,275	75.5% 1,775	37.2% 875
Grazing - Forest (non woodland)	7,400	100.0% 7,400	100.0% 7,400	99.7% 7,375	99.3% 7,350	88.9% 6,575	51.7% 3,825
Cropping	6,625	100.0% 6,625	93.2% 6,175	59.2% 3,925	35.8% 2,375	13.6% 900	4.9% 325
Horticulture	3,900	100.0% 3,900	97.4% 3,800	86.5% 3,375	68.6% 2,675	37.8% 1,475	18.6% 725
Irrigation	8,150	100.0% 8,150	99.7% 8,125	93.3% 7,600	70.9% 5,775	24.8% 2,025	6.4% 525
Production native forests and plantation forests	26,750	100.0% 26,750	100.0% 26,750	100.0% 26,750	99.9% 26,725	96.4% 25,775	75.0% 20,075

