# Total vegetation cover soil protection Region:LGA Gympie\_(R) 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:

**Date: May 2023** 

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 cover class that 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



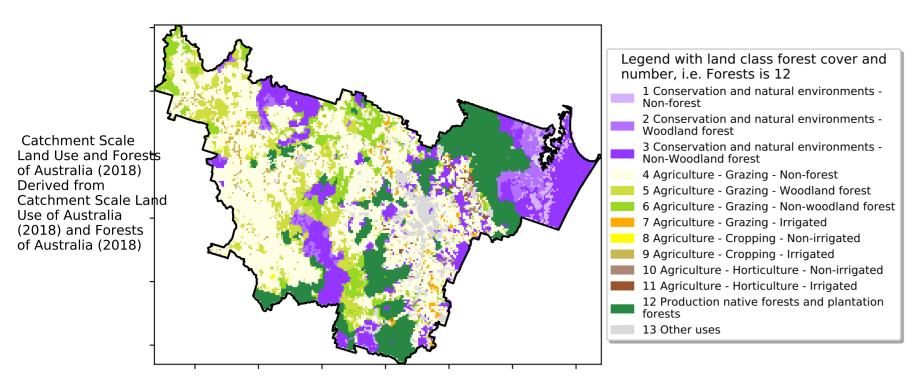




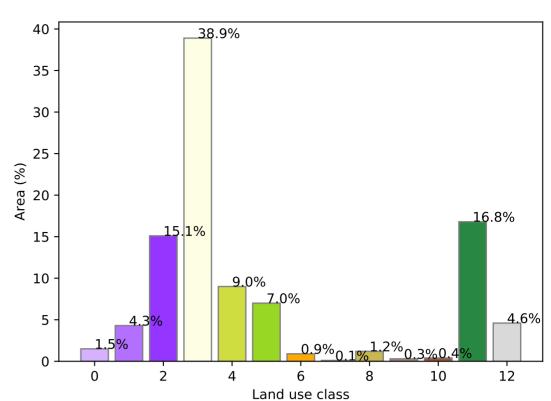


### **Vegetation Cover May 2023**

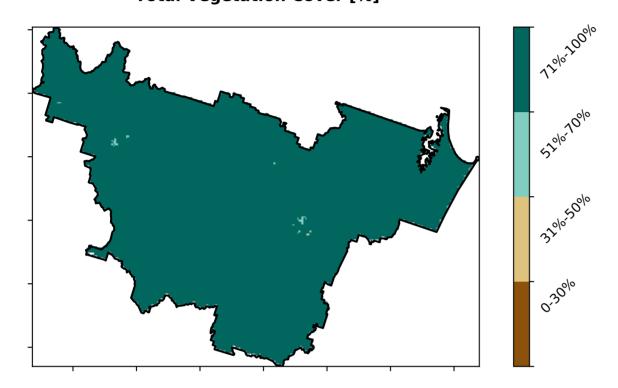
### Land use and forest cover



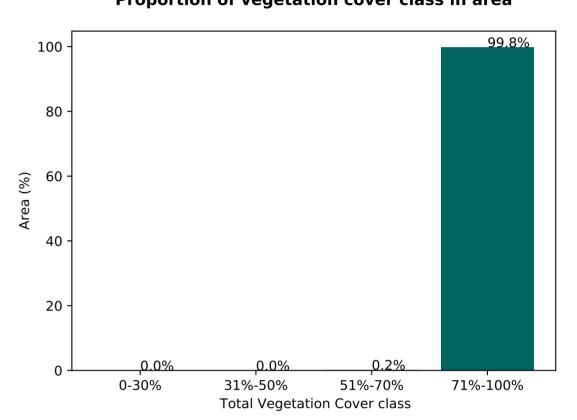
### Proportion of each land class in area



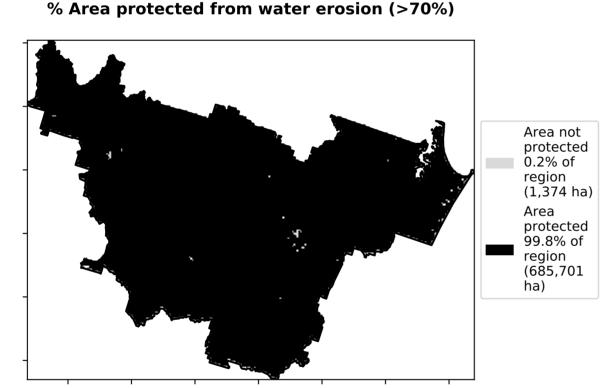
### **Total Vegetation Cover [%]**



Proportion of vegetation cover class in area



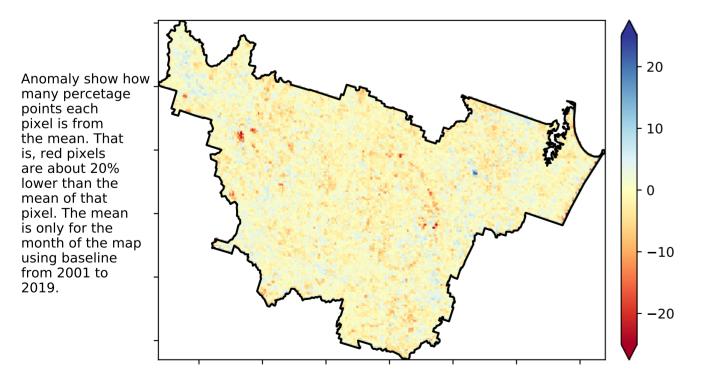
### / Aven must estad from water evenion (> 700/)



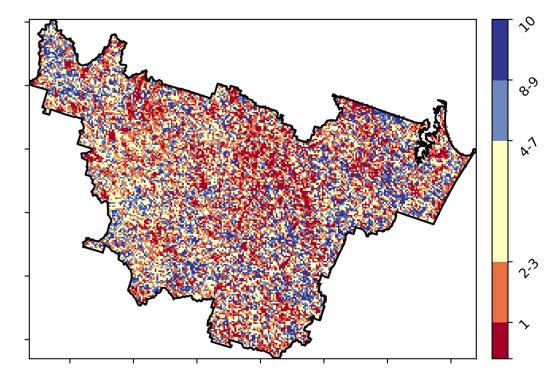
% Area protected from wind erosion (>50%)



### 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.

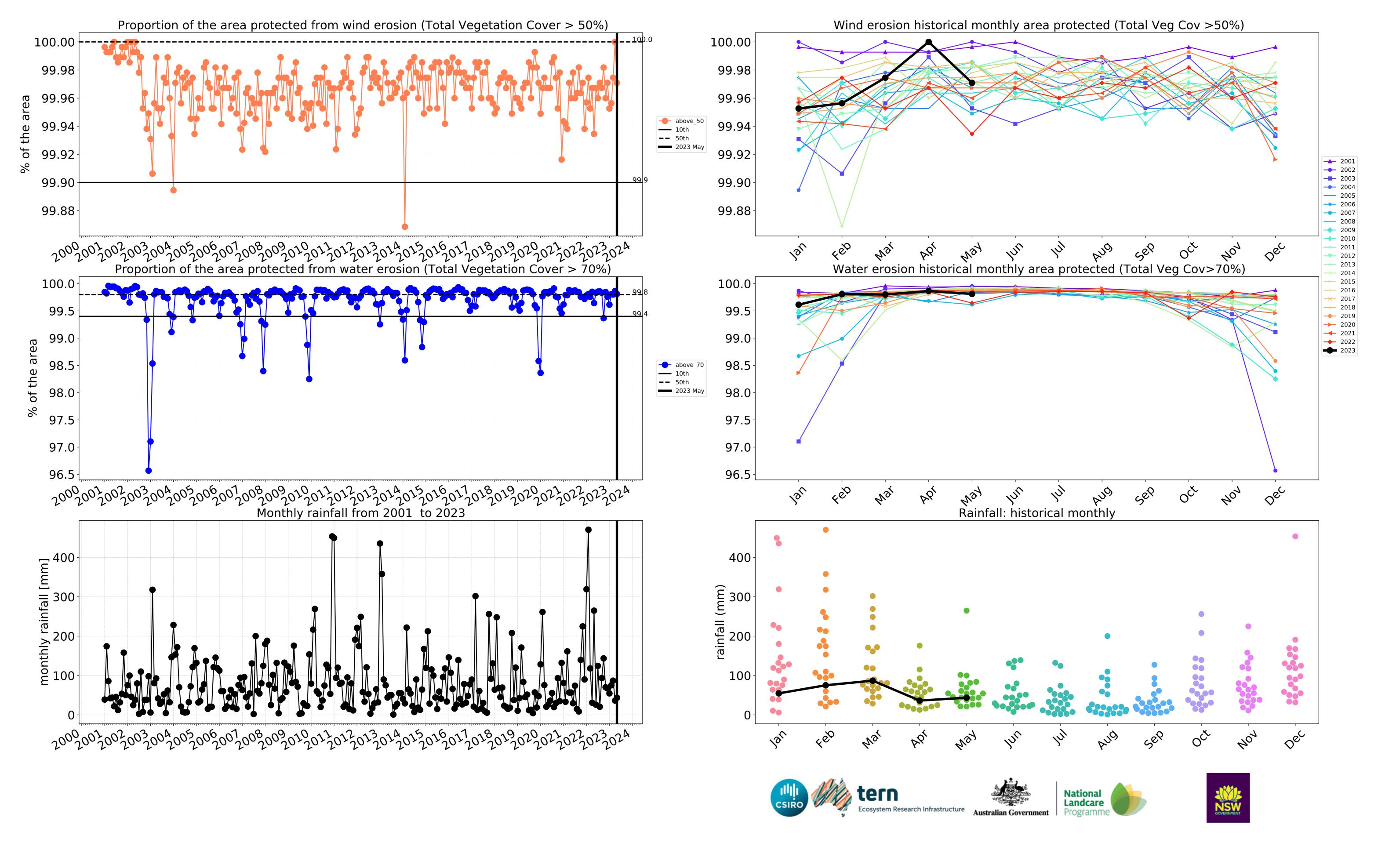


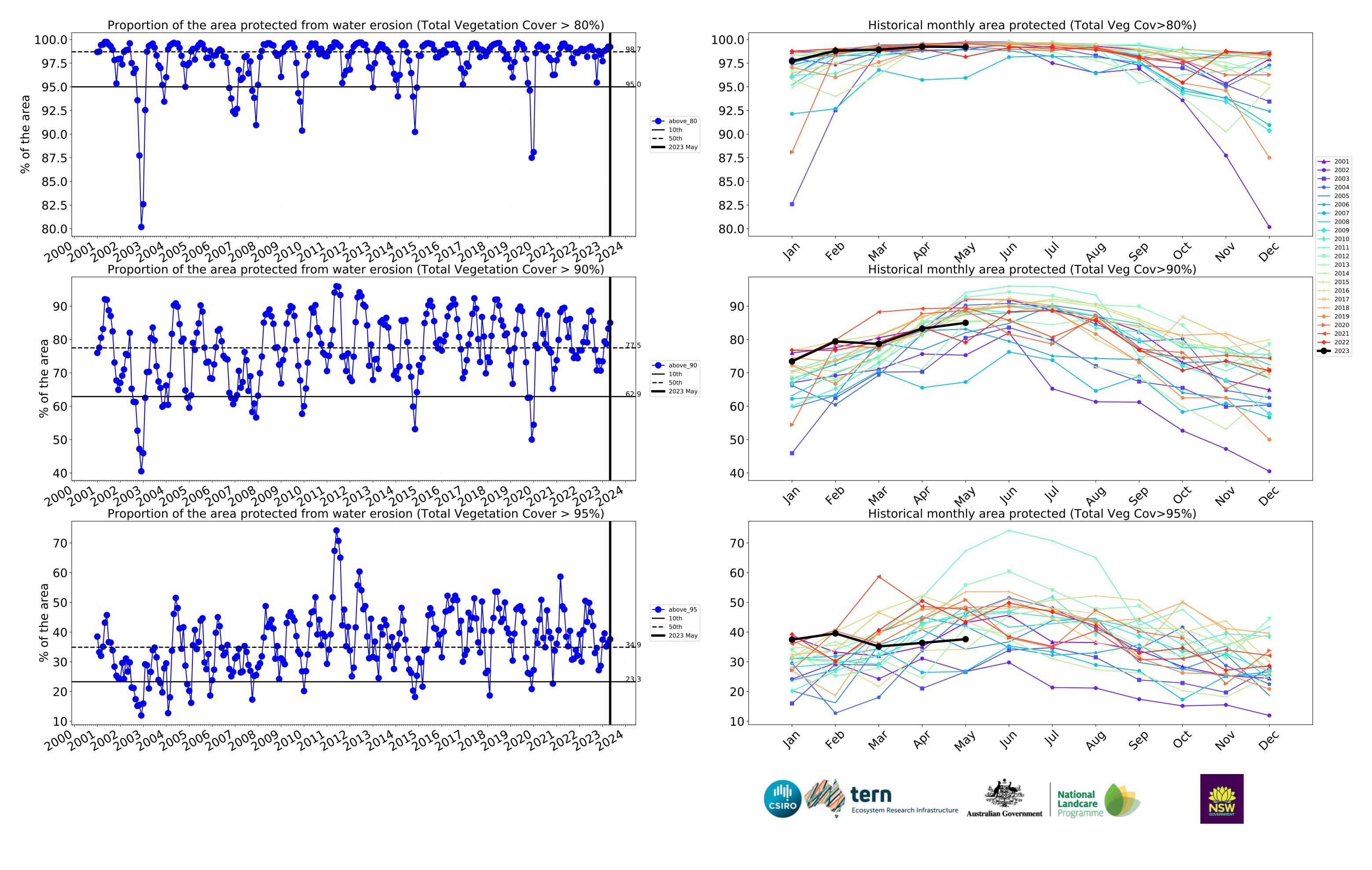




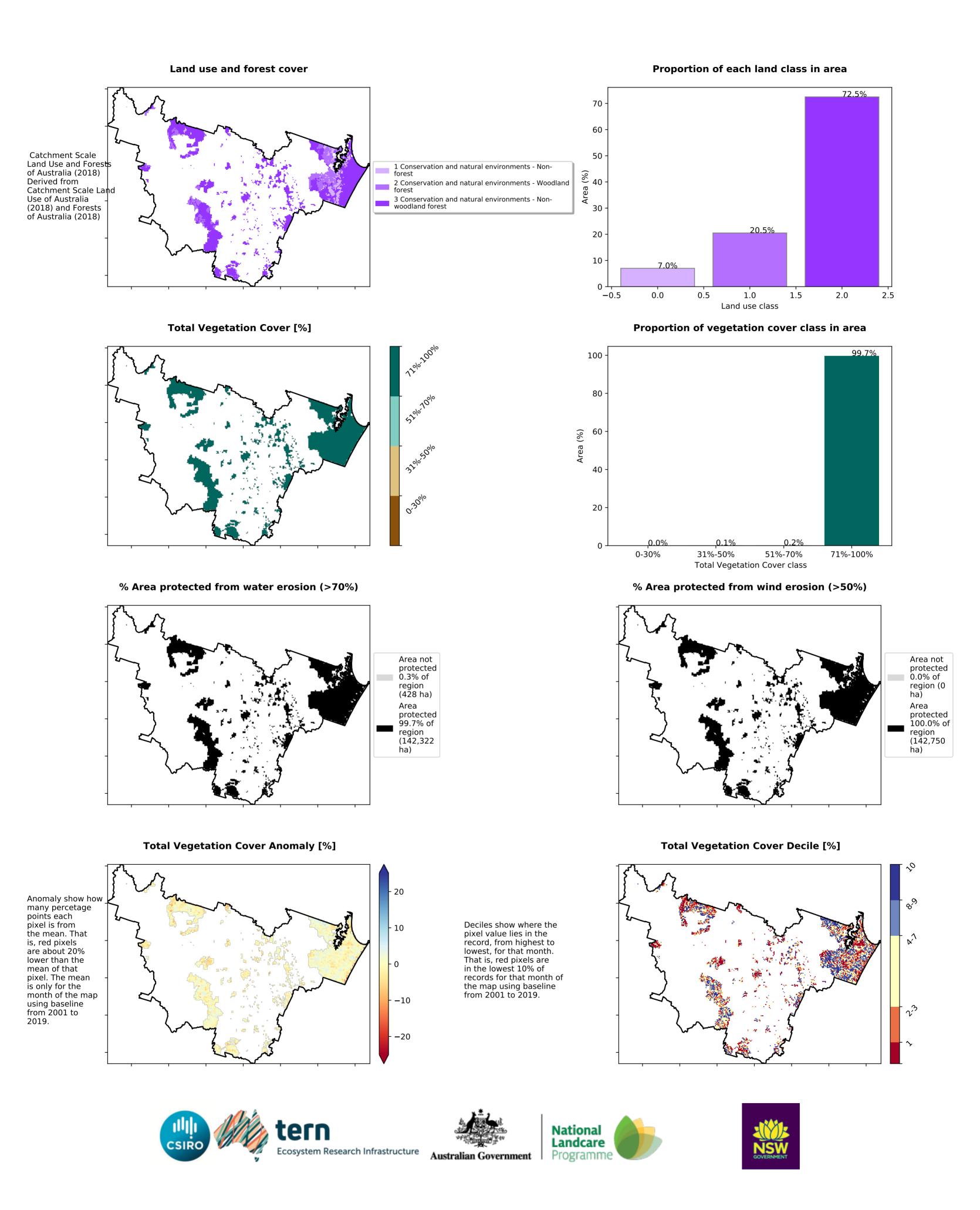




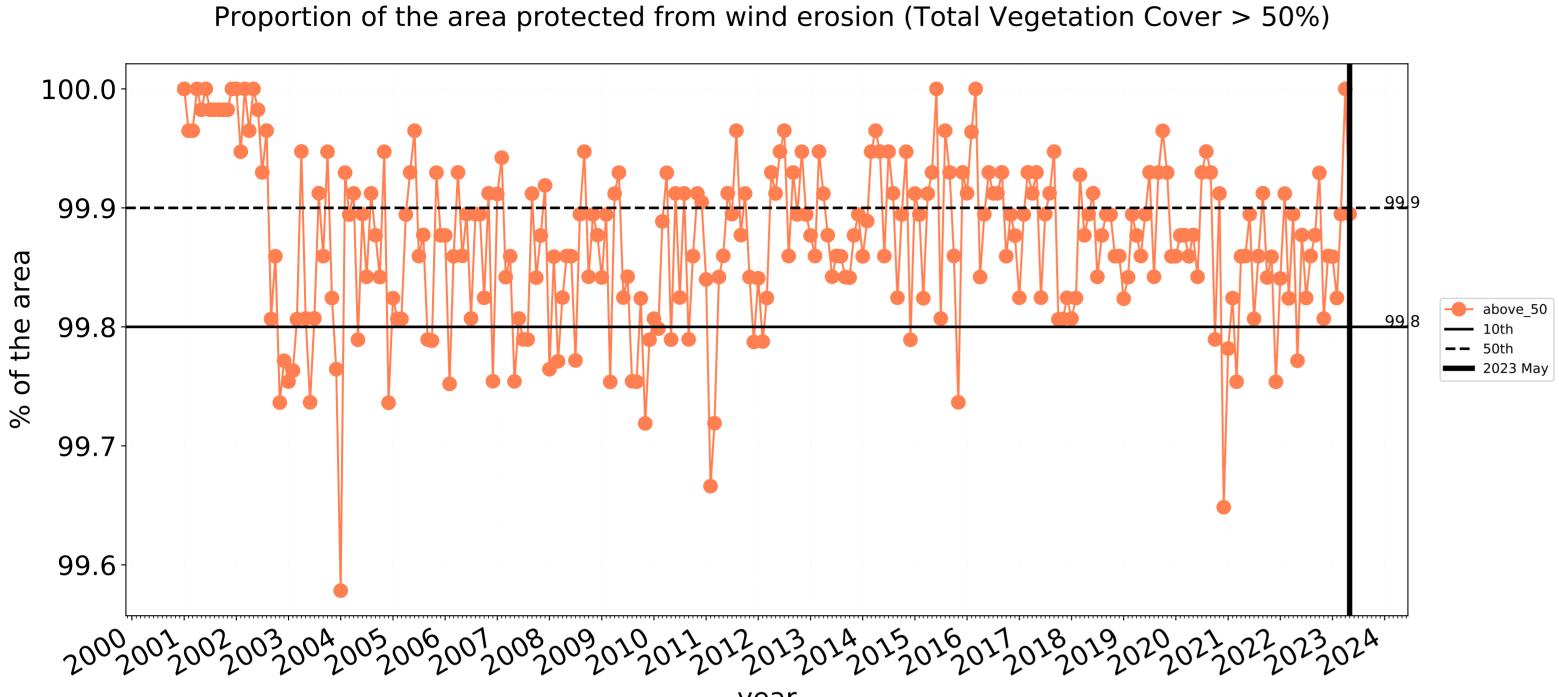


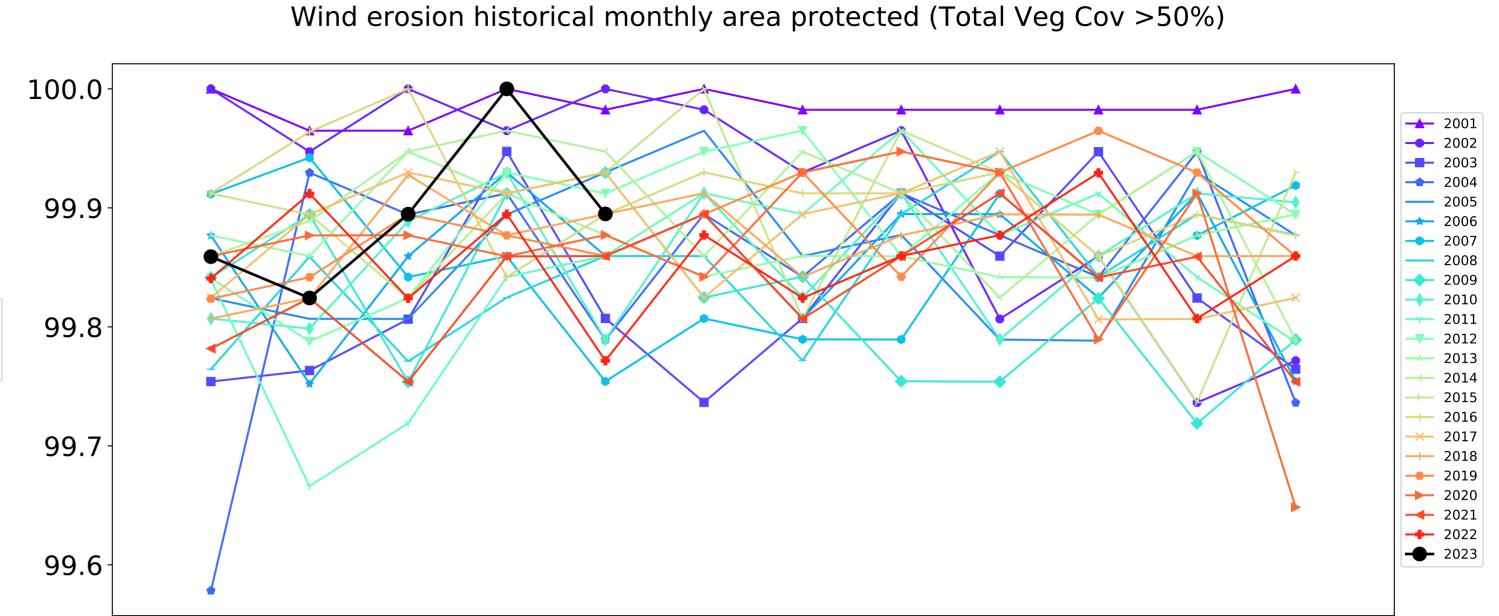


### **Conservation and natural environments**

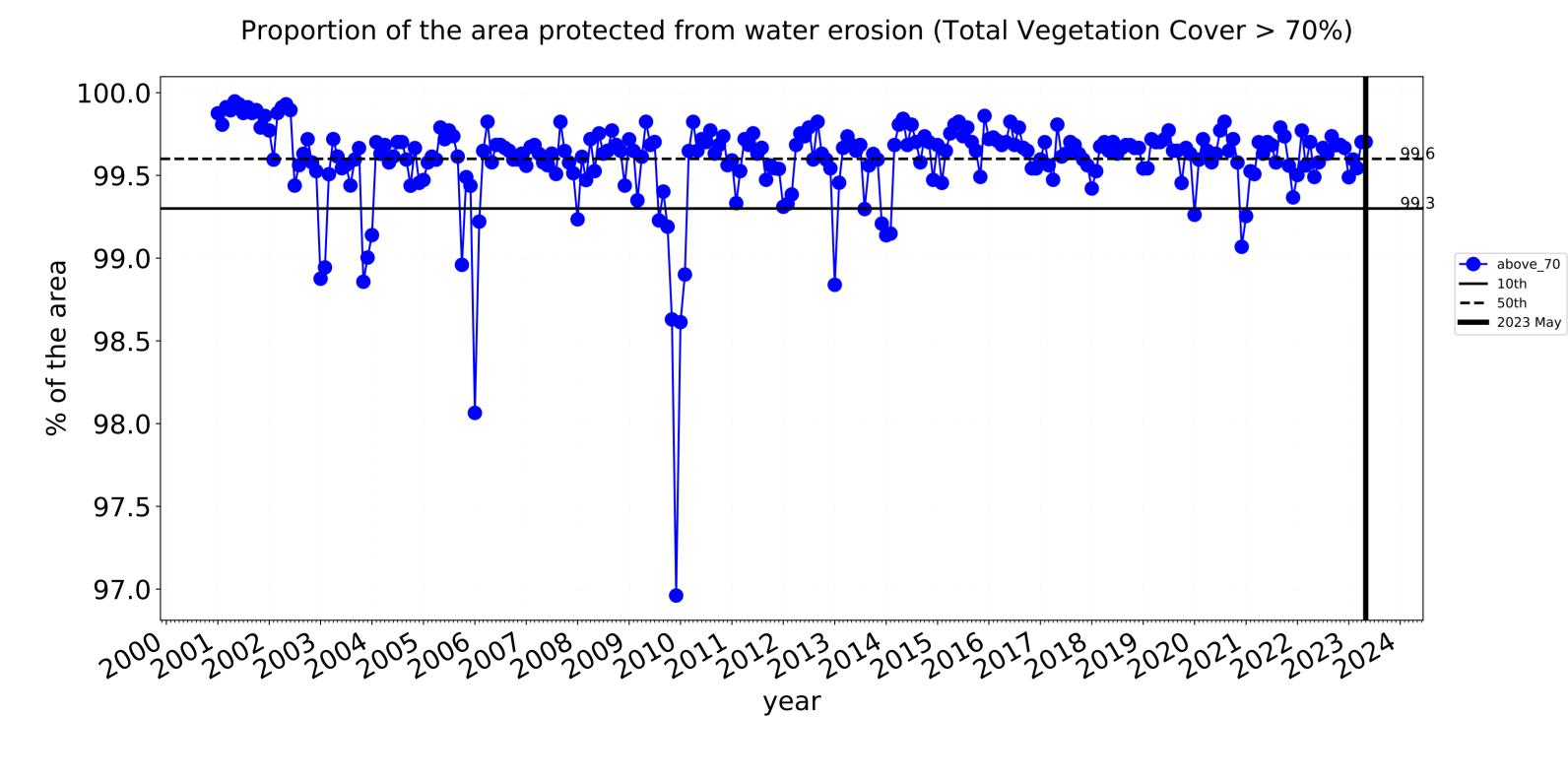


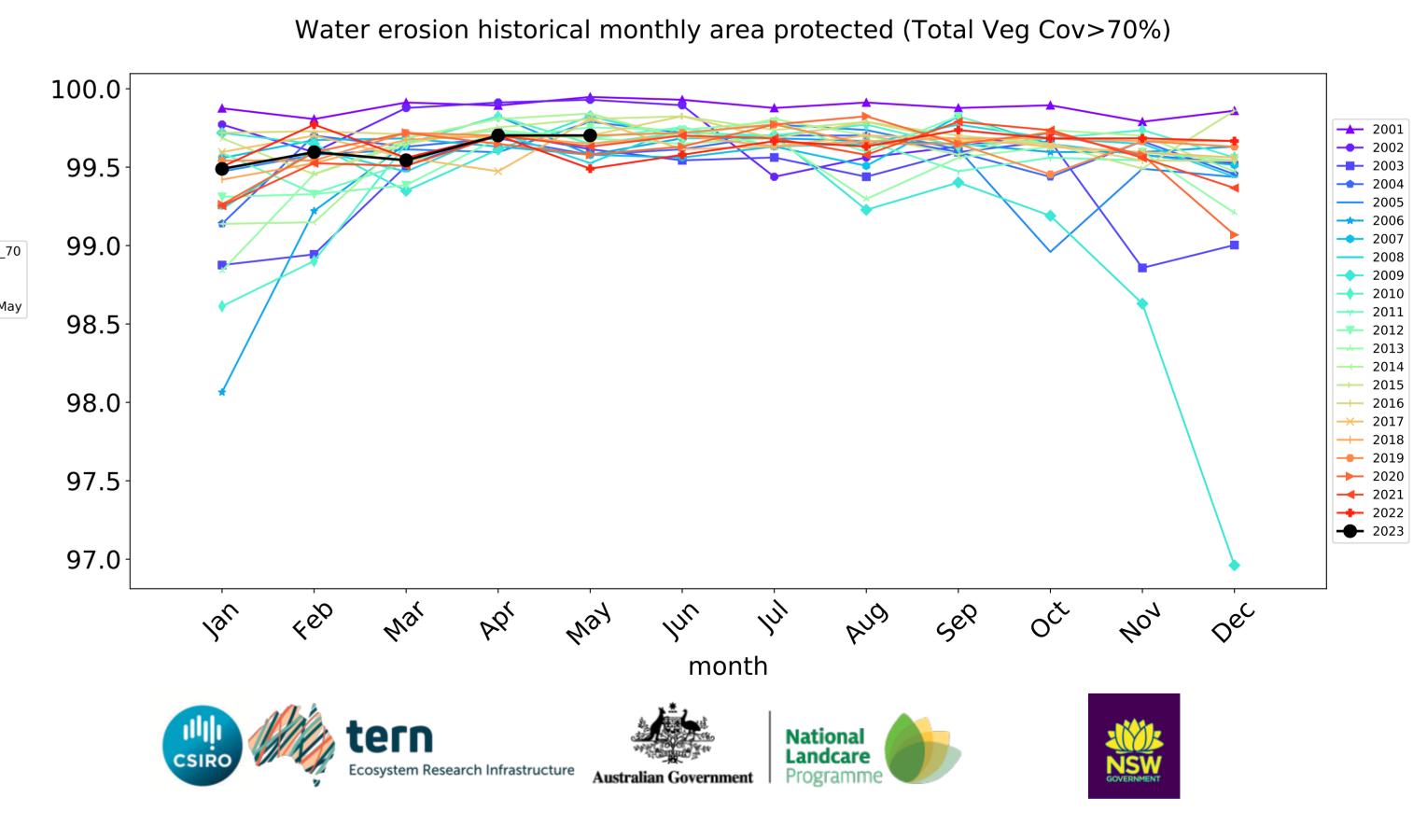
### **Conservation and natural environments timeseries**

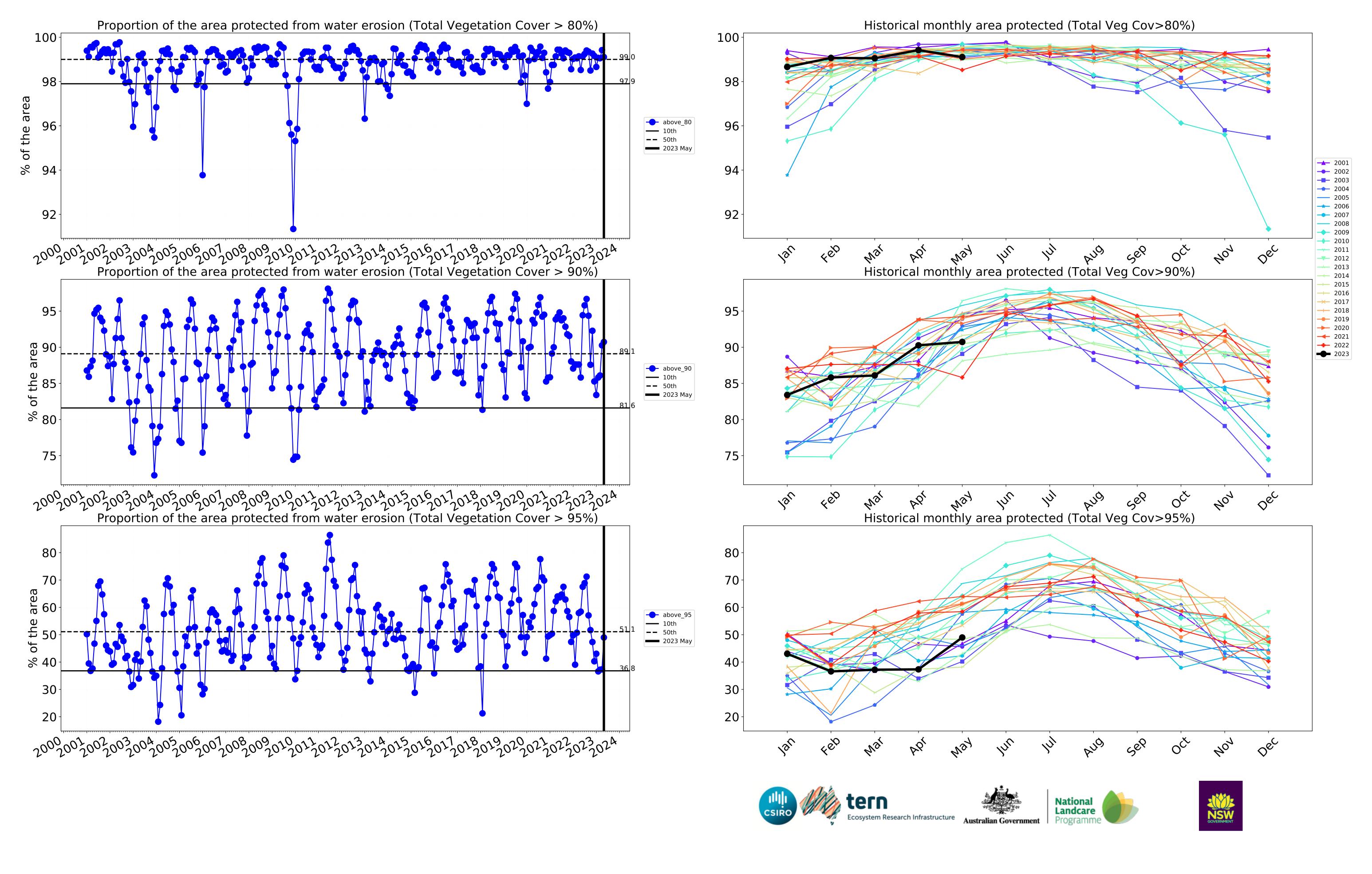




month

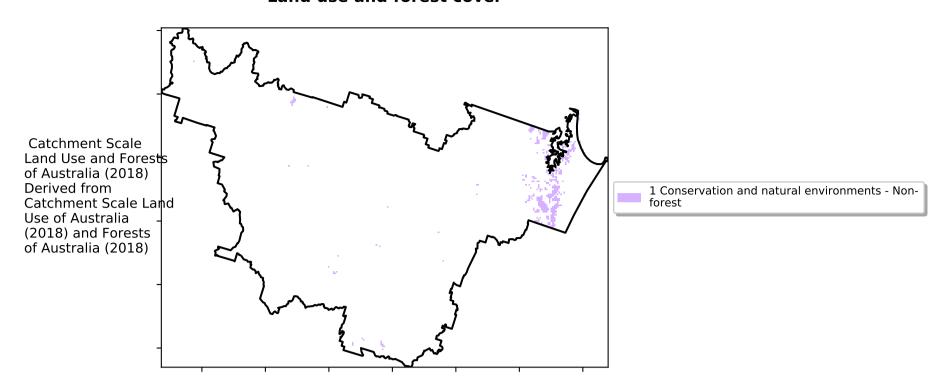




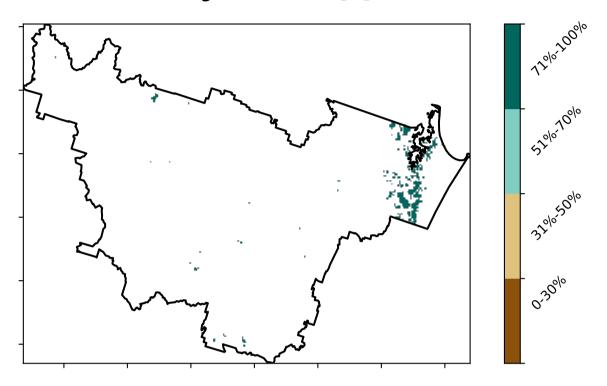


### **Conservation and natural environments non forest**

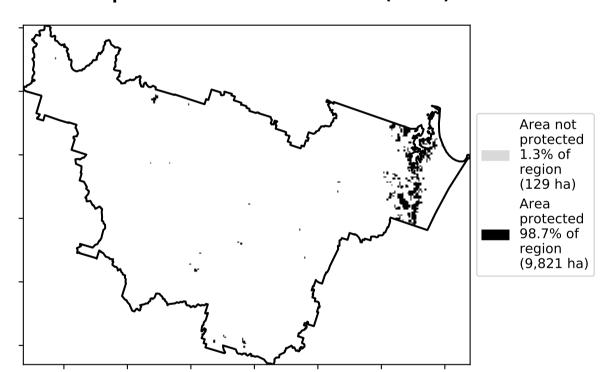
### Land use and forest cover



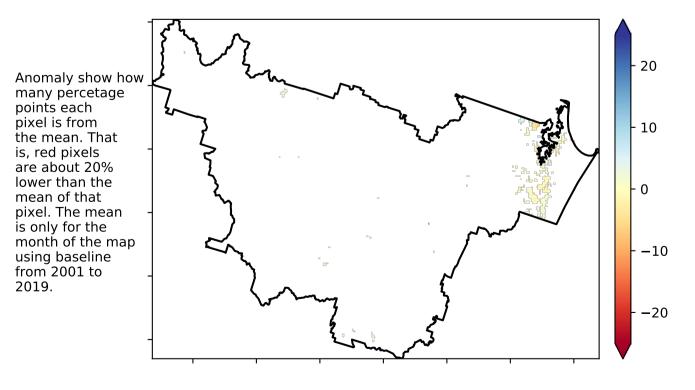
### **Total Vegetation Cover [%]**



### % Area protected from water erosion (>70%)

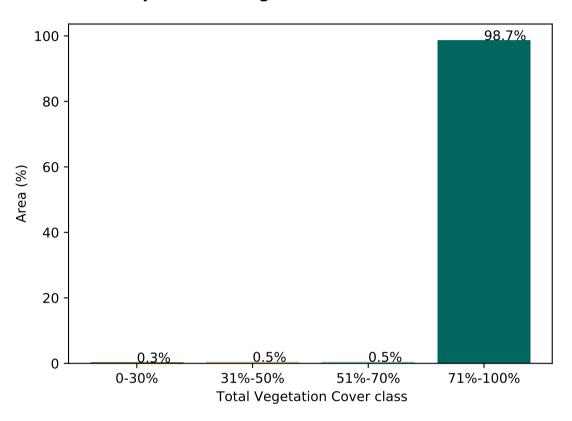


### Total Vegetation Cover Anomaly [%]



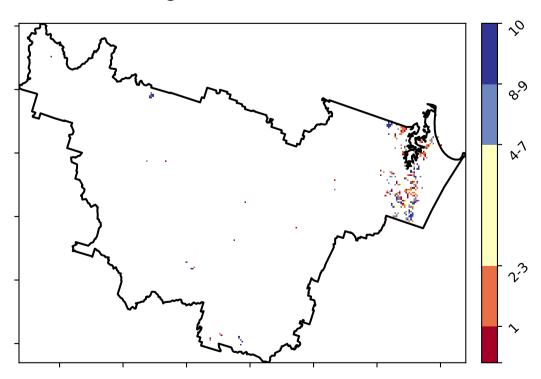
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



### % Area protected from wind erosion (>50%)





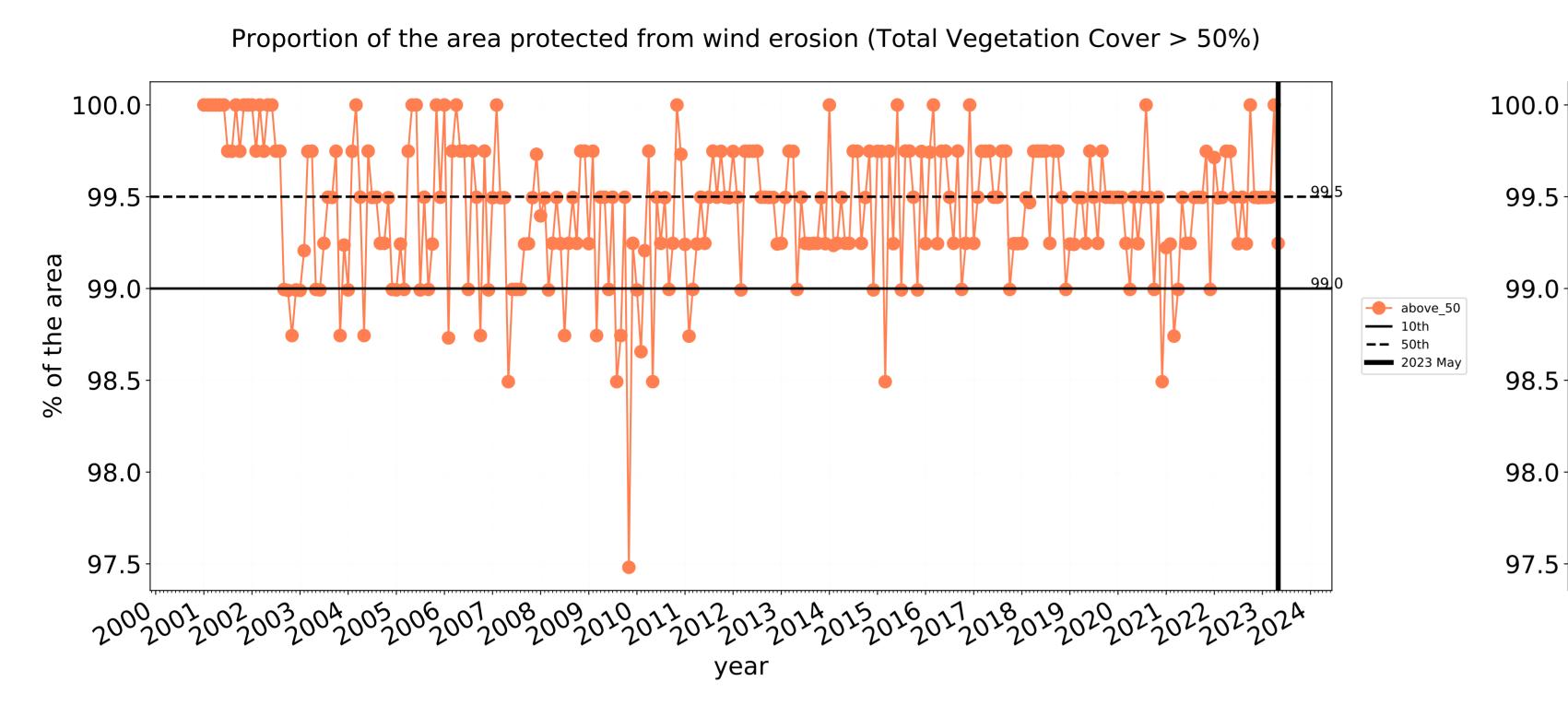


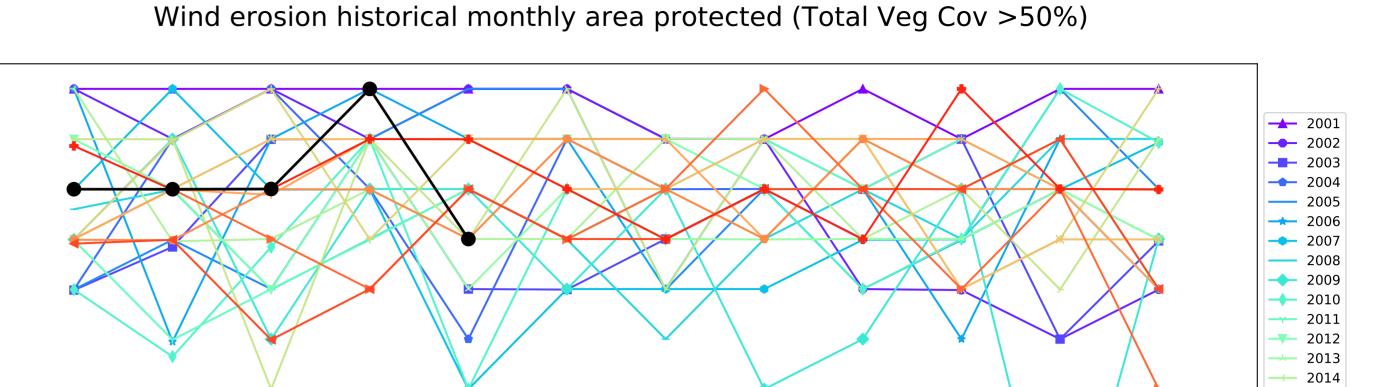






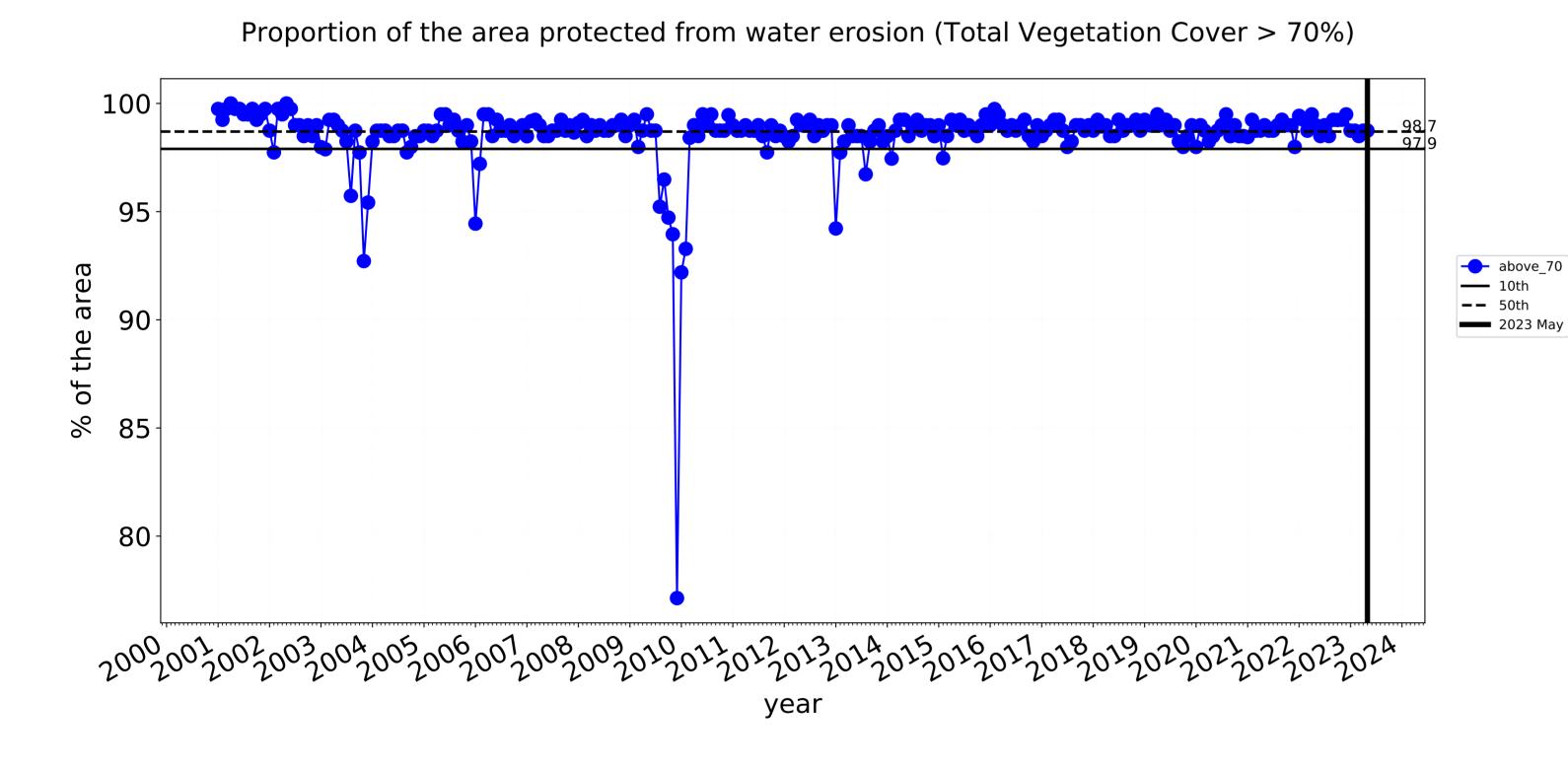
### Conservation and natural environments non forest timeseries

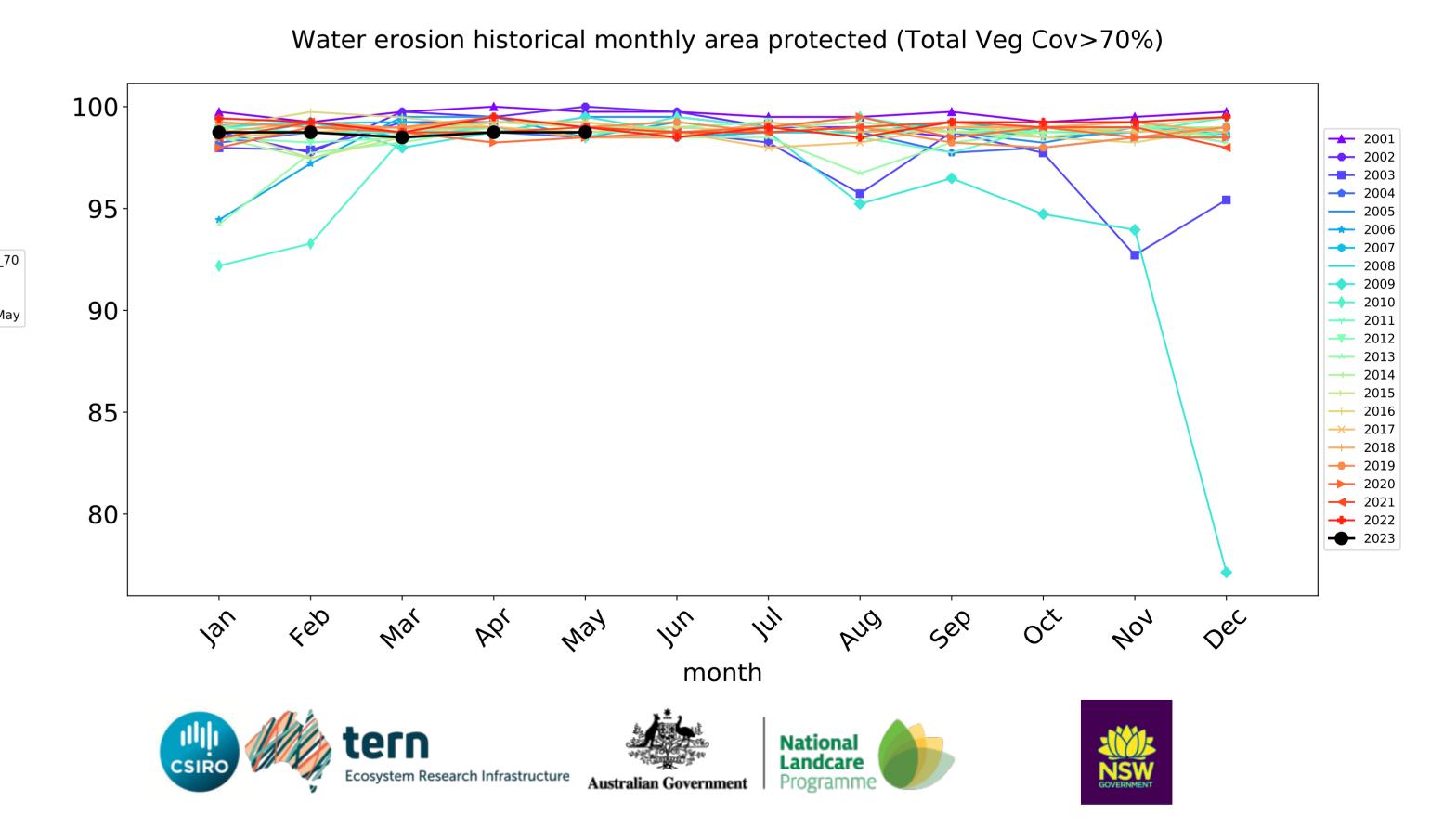




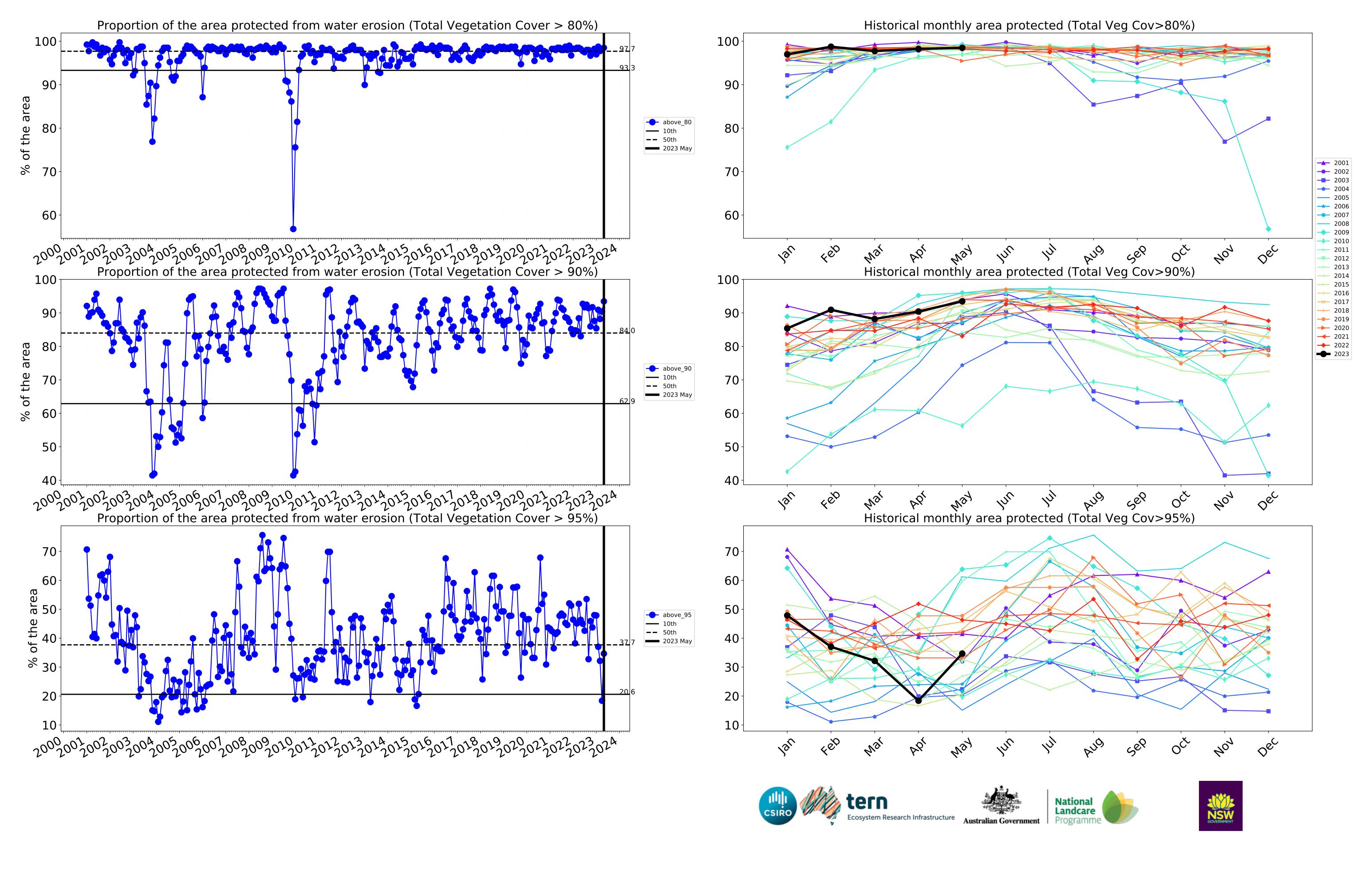
→ 2015 → 2016 → 2017 → 2018 → 2019

2020 2021 2022 2023





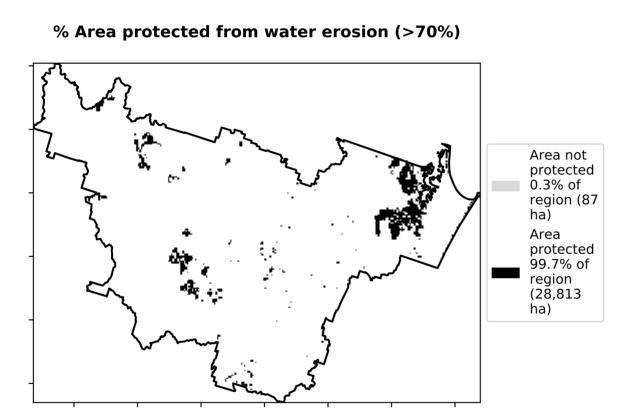
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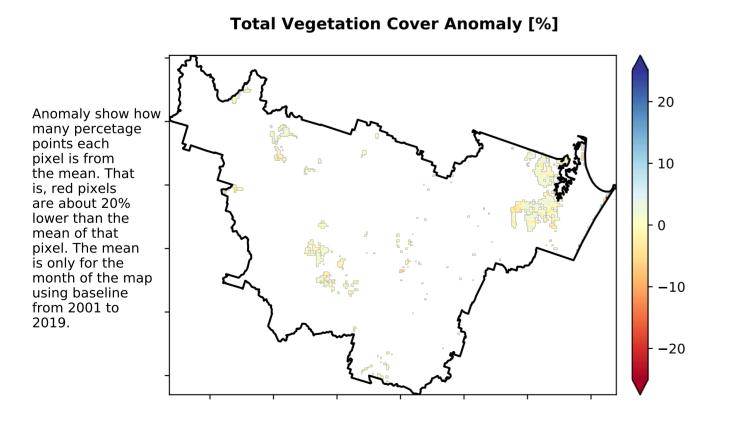


### **Conservation and natural environments Woodland forest**

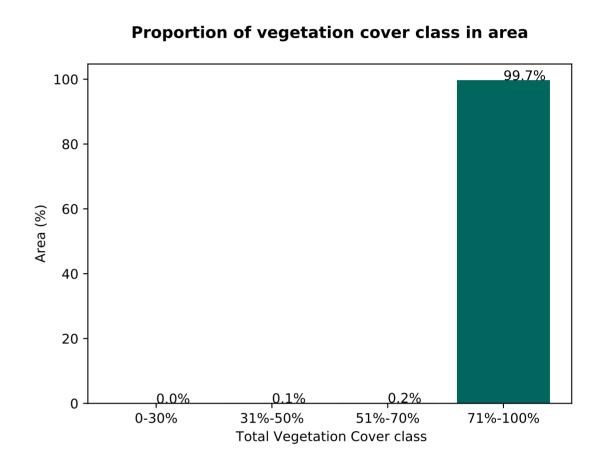
### Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments - Woodland Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

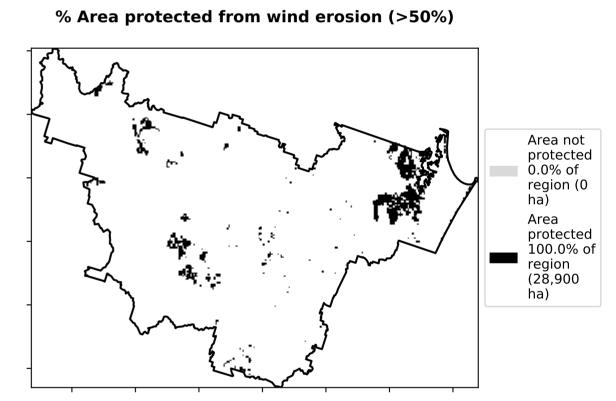
# **Total Vegetation Cover [%]**

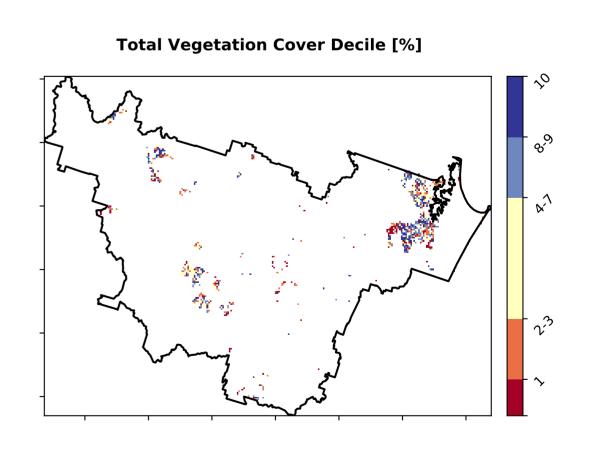




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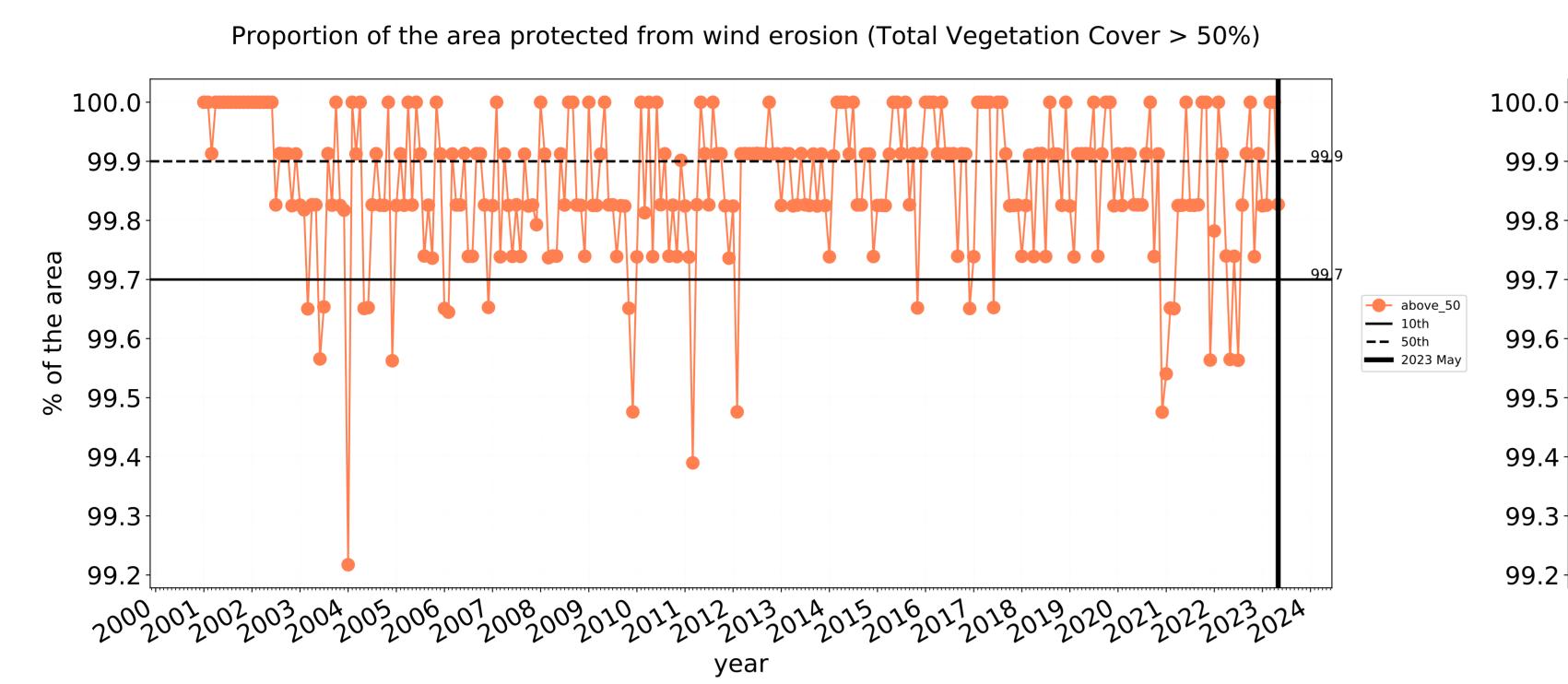


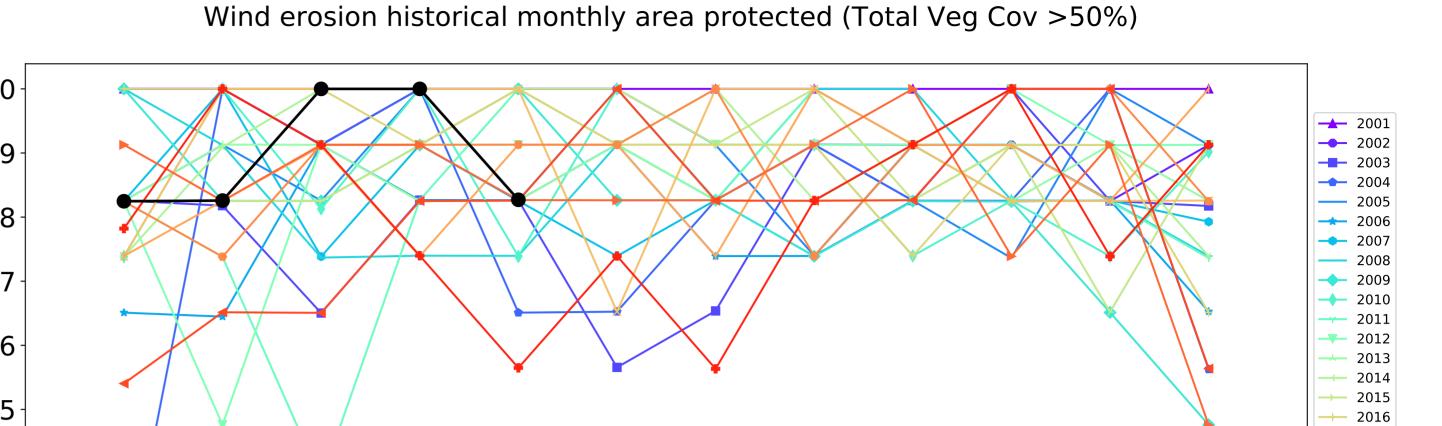






### **Conservation and natural environments Woodland forest timeseries**





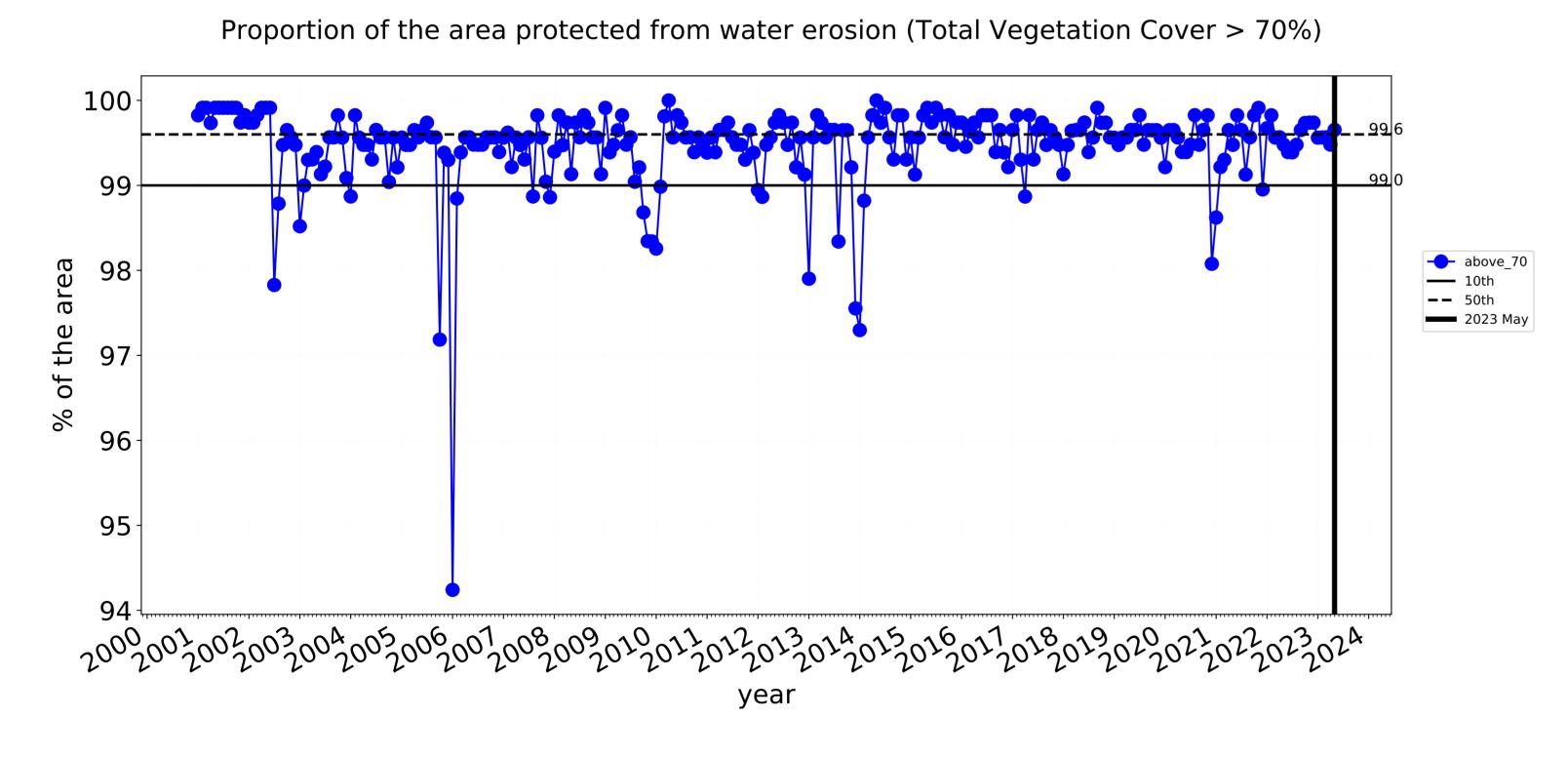
month

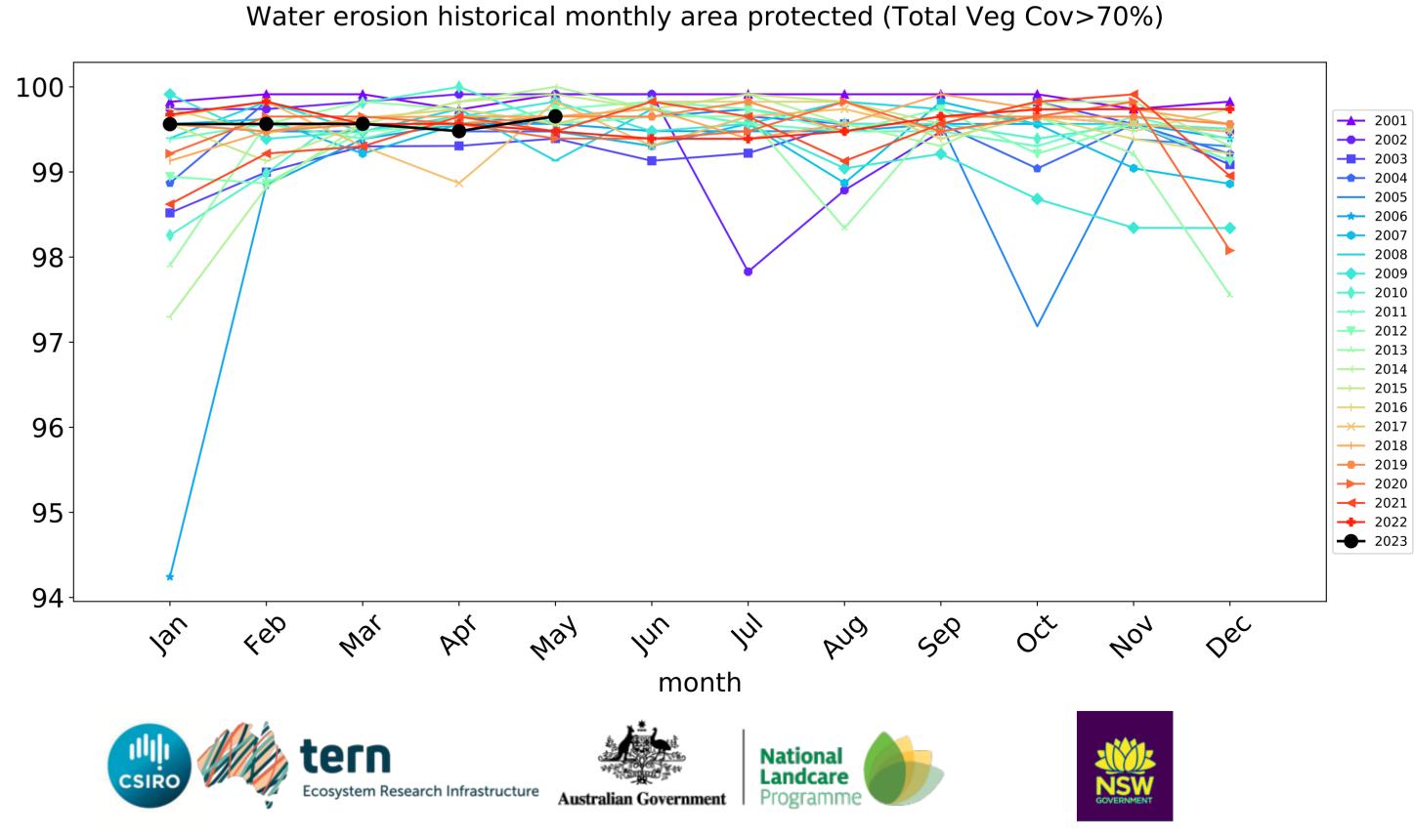
2019 2020

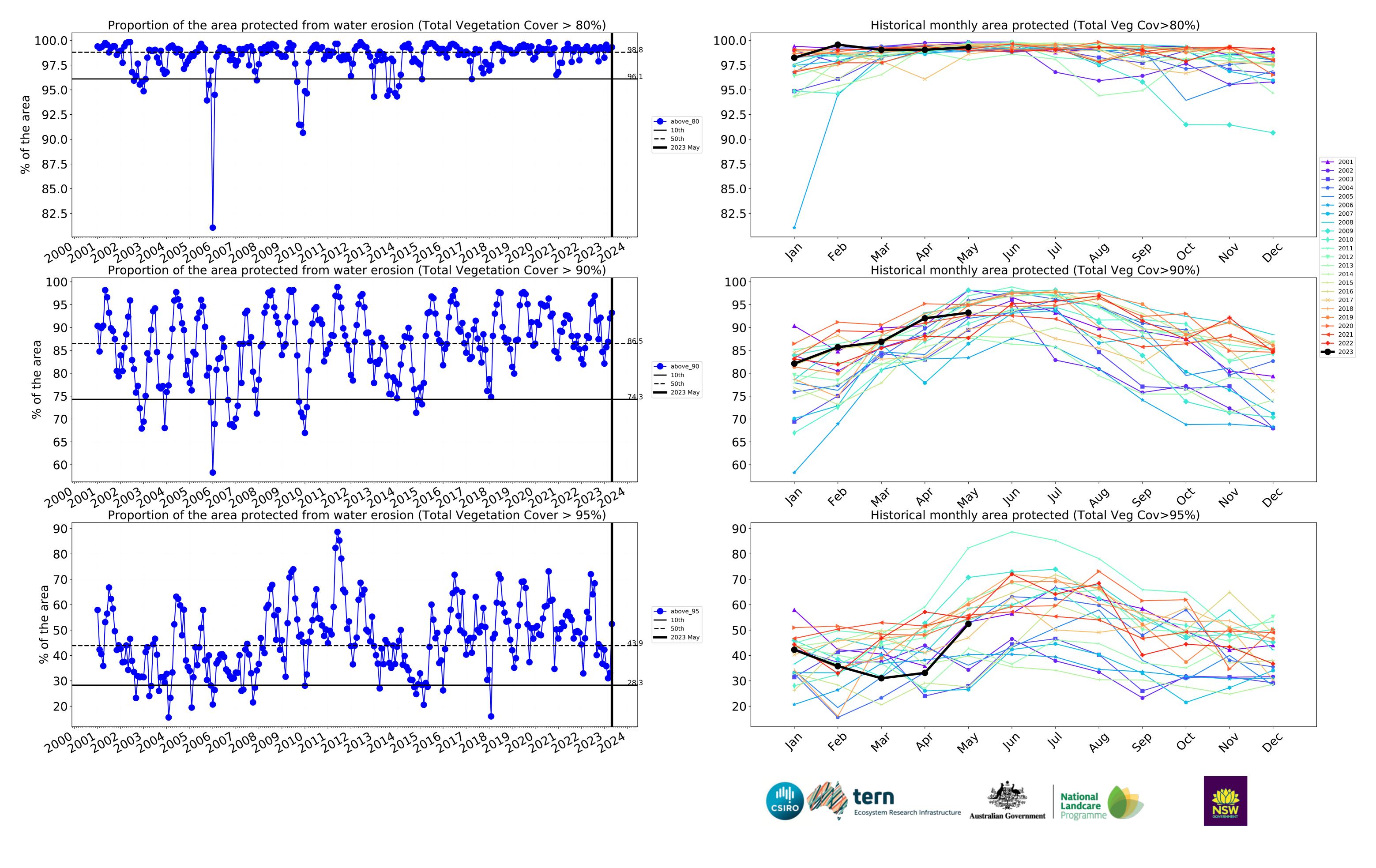
**2021** 

**---** 2022

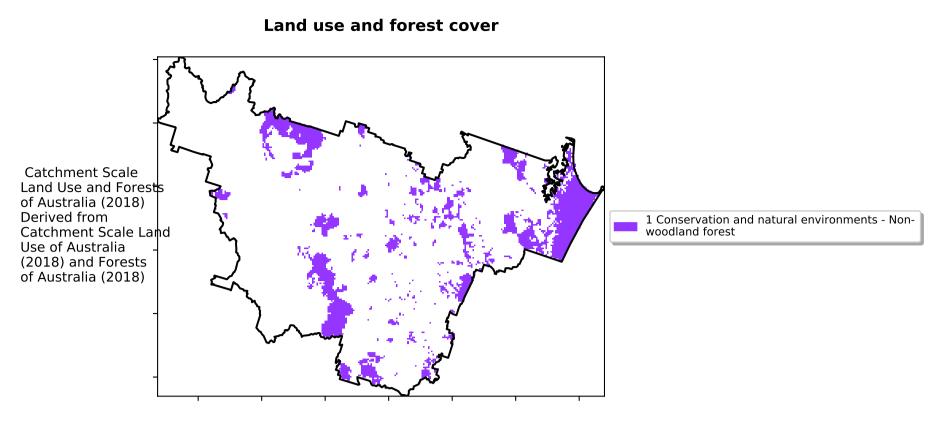
**---** 2023



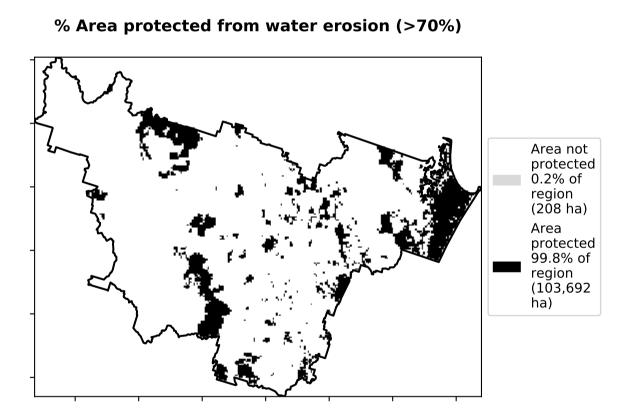


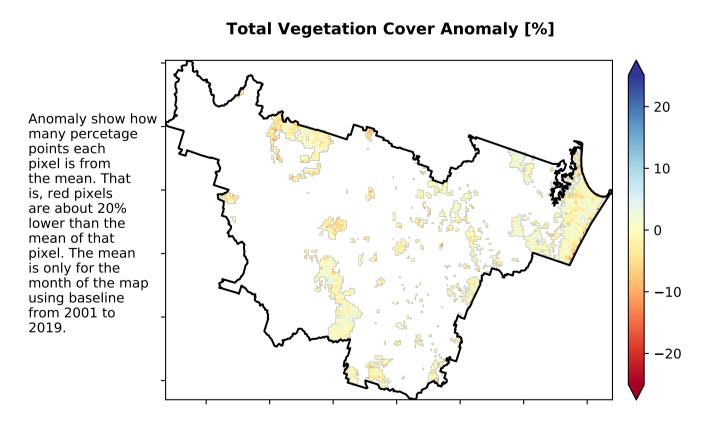


### **Conservation and natural environments Forest (non woodland)**

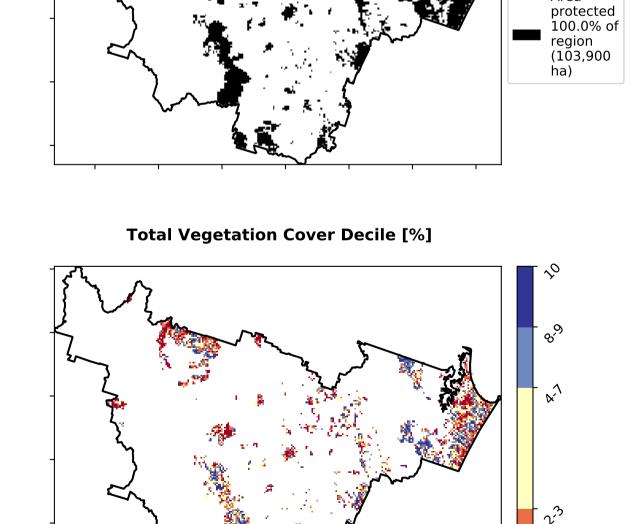


# Total Vegetation Cover [%]





# Proportion of vegetation cover class in area 100 80 60 20 0.0% 0.0% 0.0% 51%-70% Total Vegetation Cover class % Area protected from wind erosion (>50%)



Area not protected 0.0% of

region (0 ha)

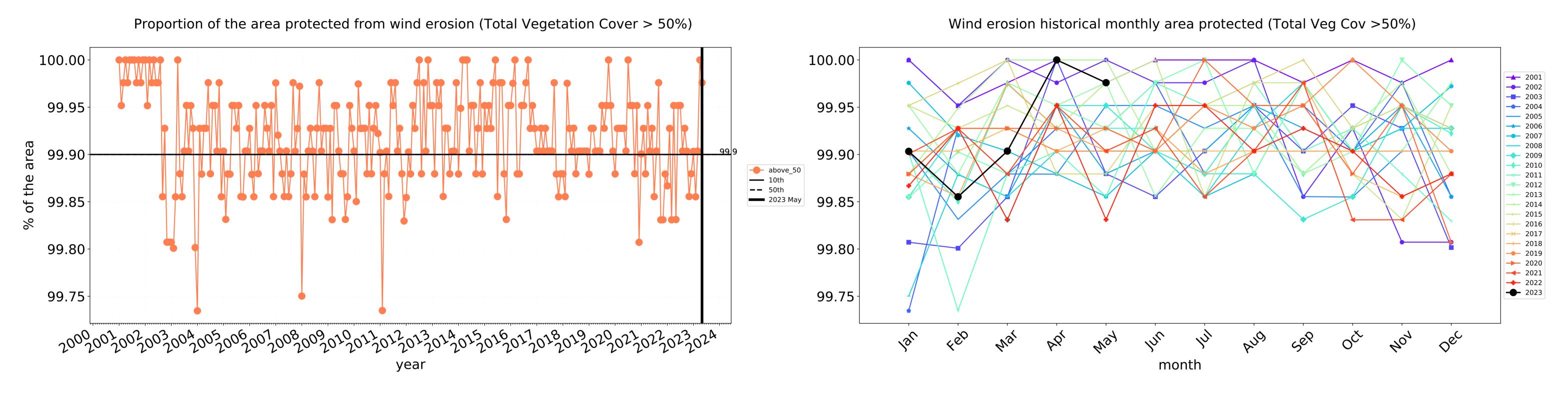
Area

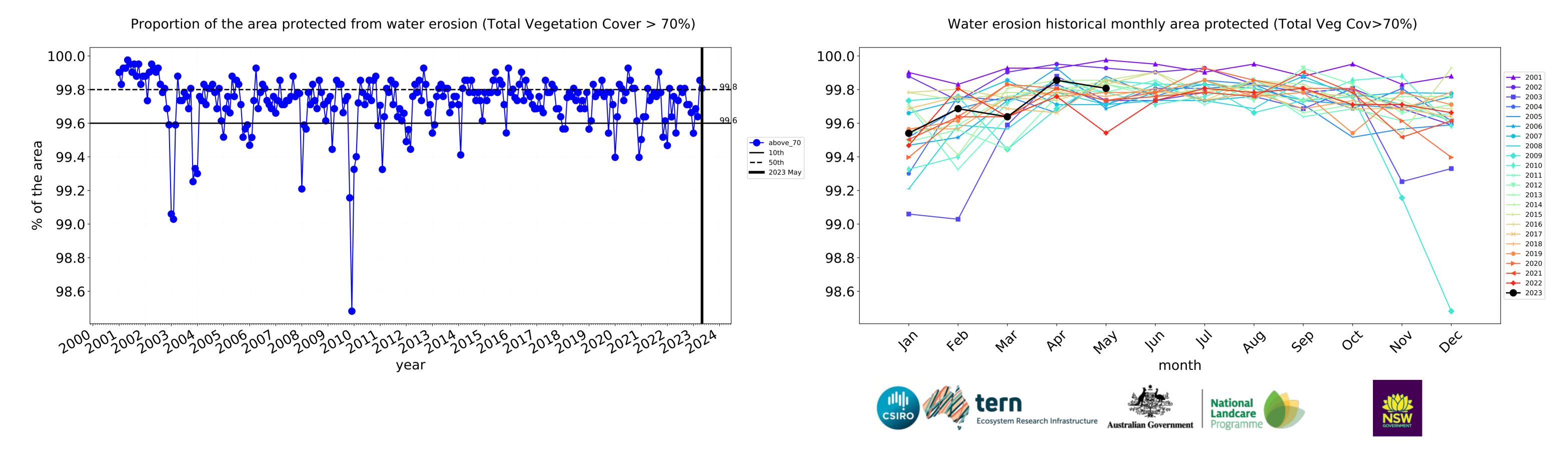


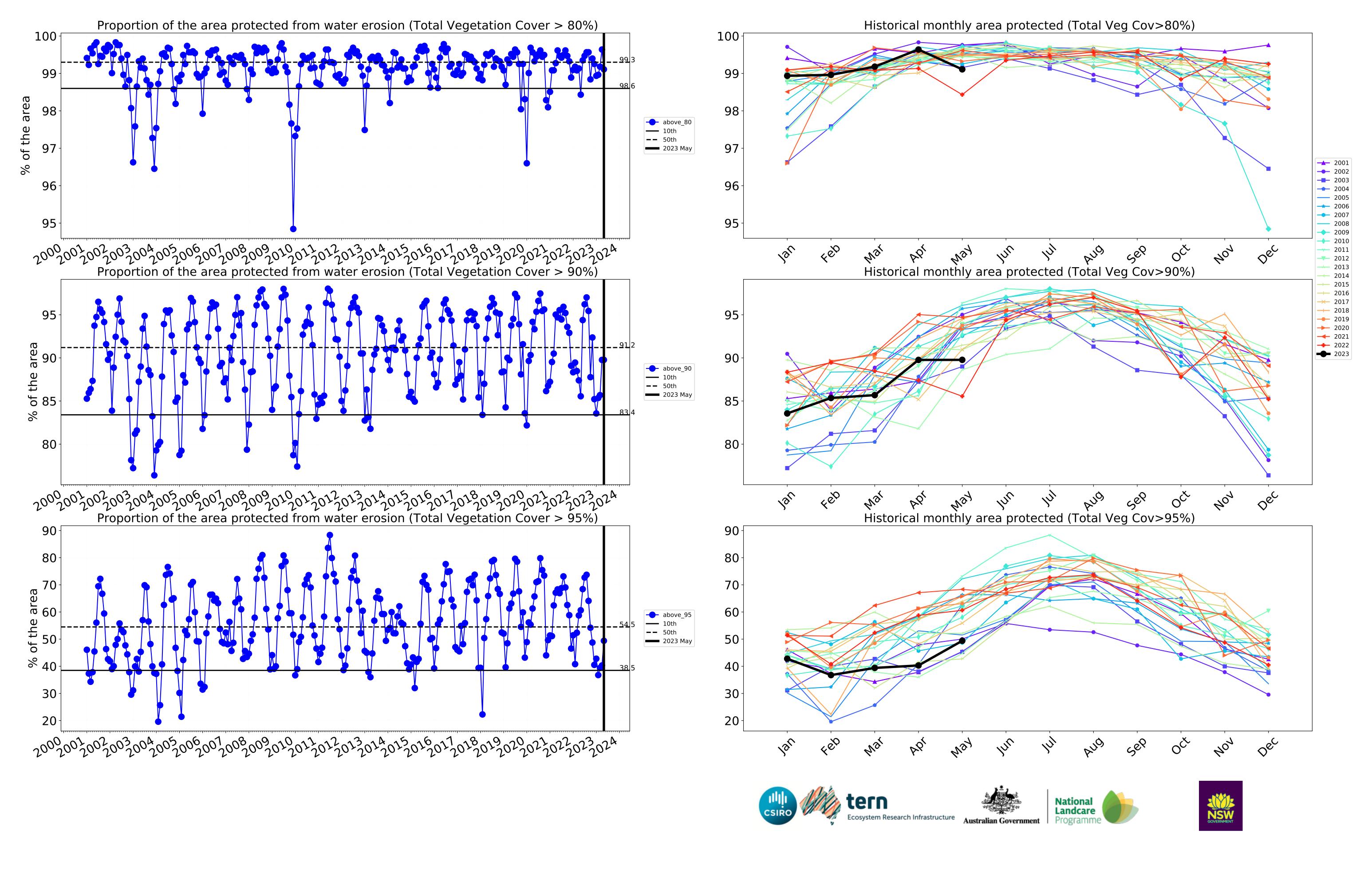




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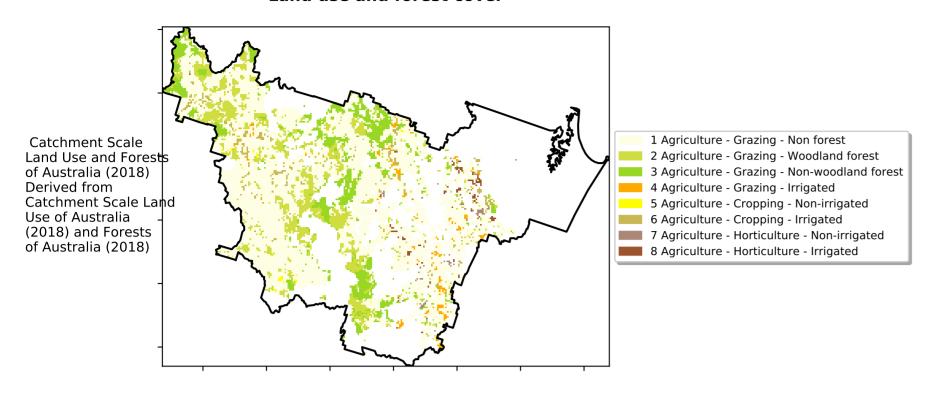




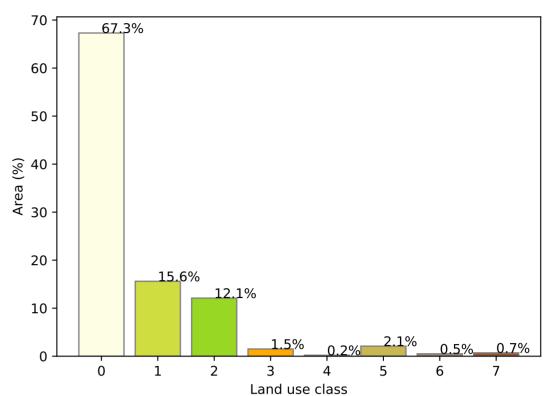


### **Agriculture**

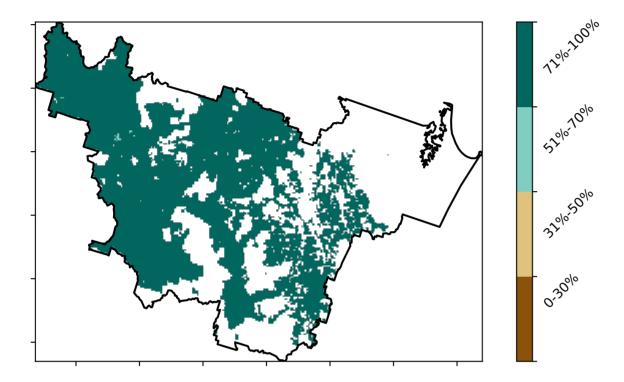
### Land use and forest cover



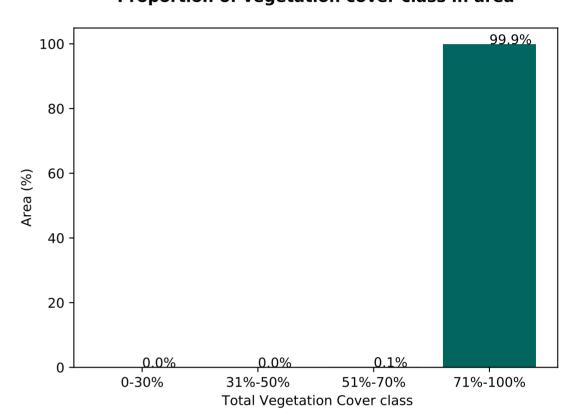
### Proportion of each land class in area



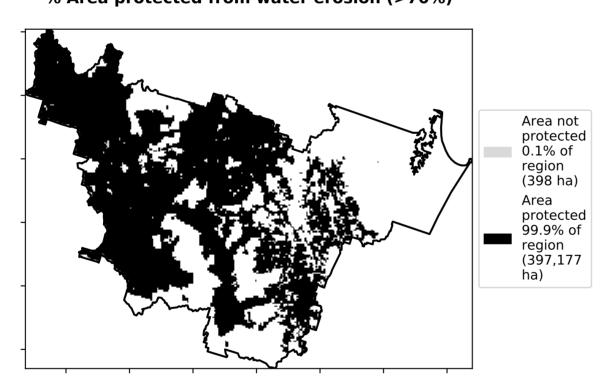
### **Total Vegetation Cover [%]**



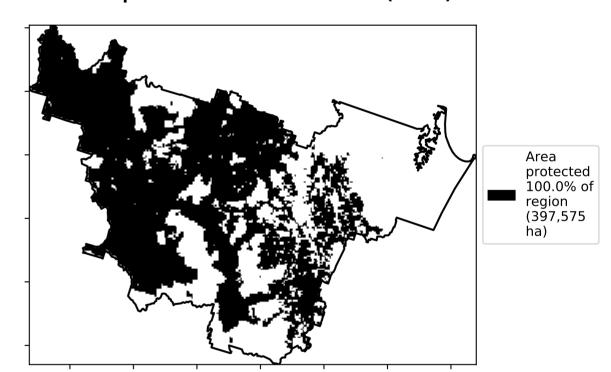
Proportion of vegetation cover class in area



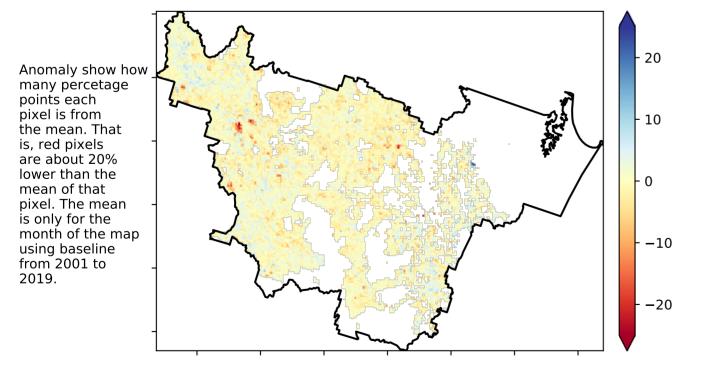
### % Area protected from water erosion (>70%)



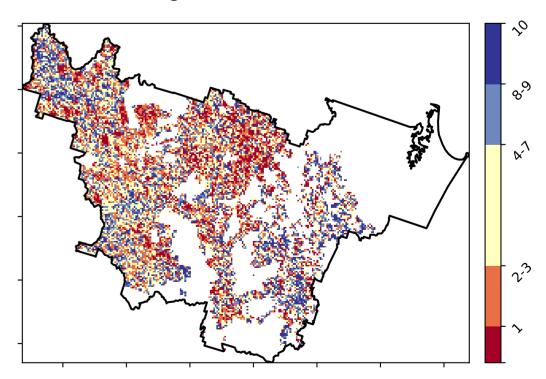
% Area protected from wind erosion (>50%)



### **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.



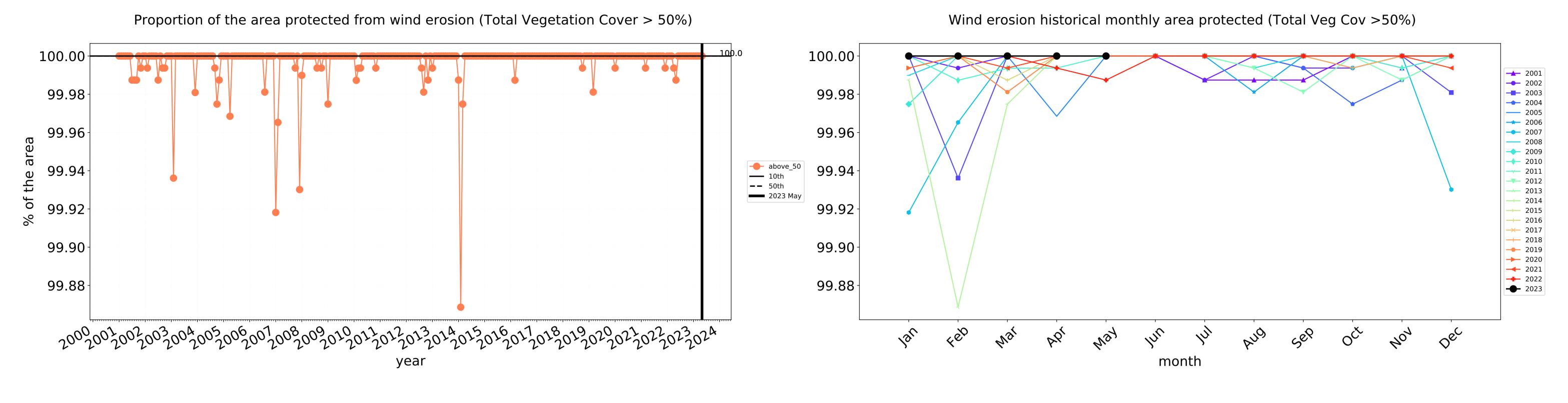


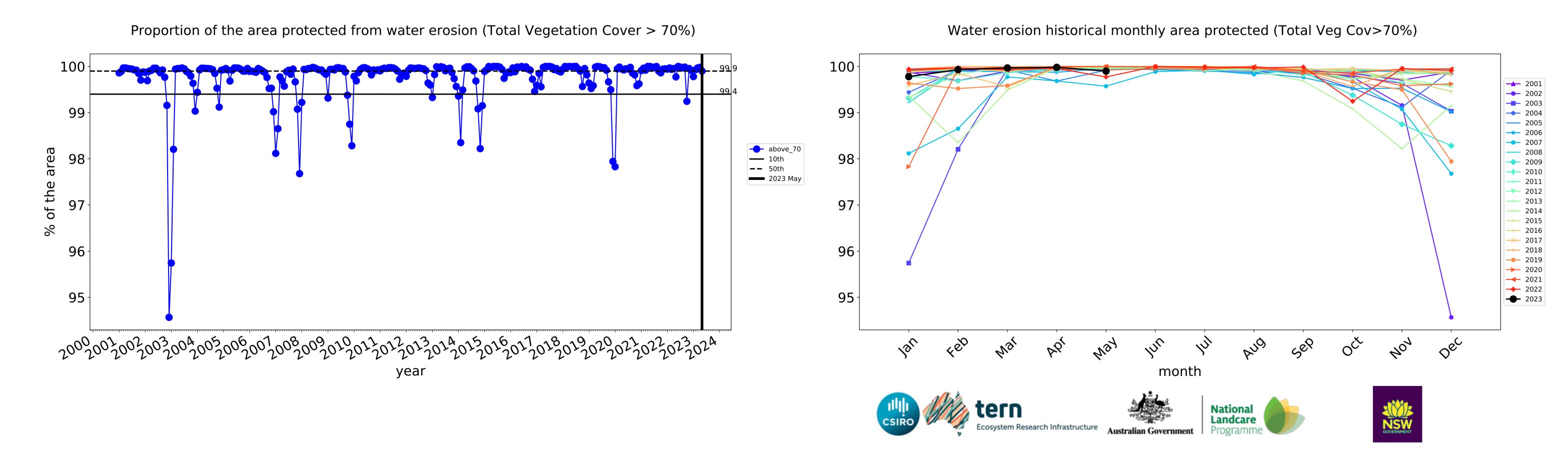


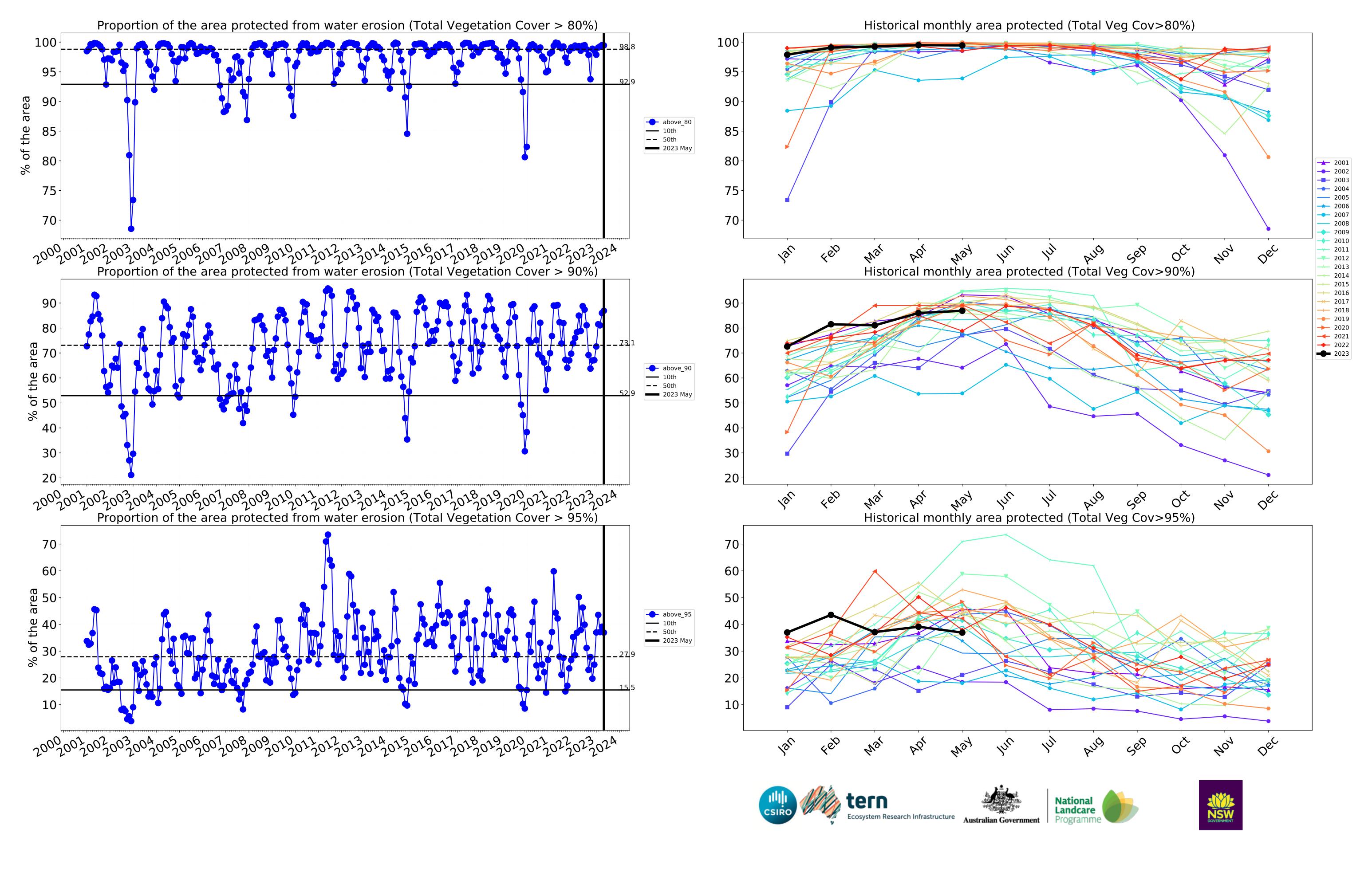




### **Agriculture timeseries**

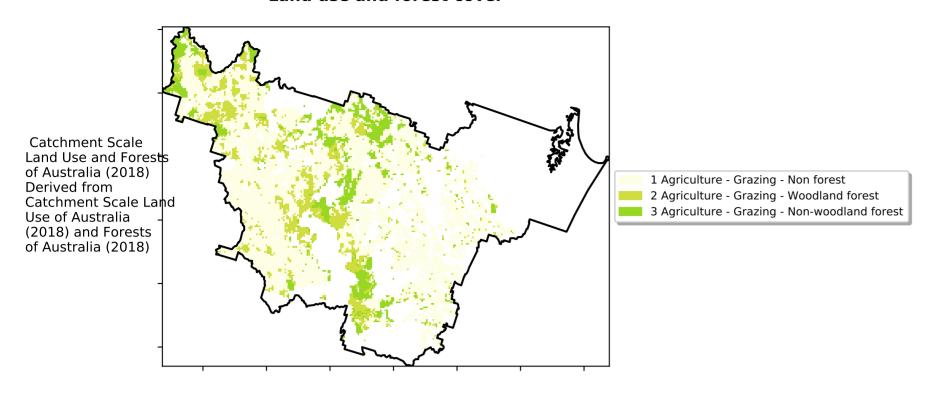




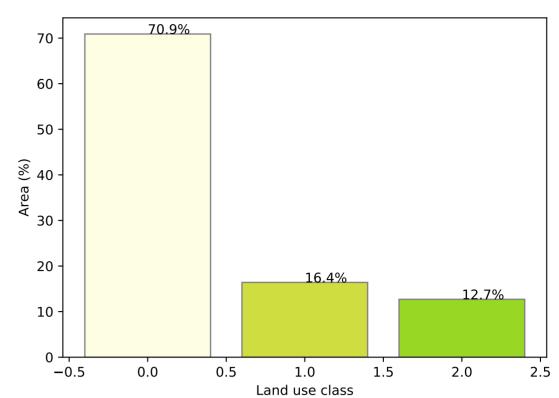


### **Grazing**

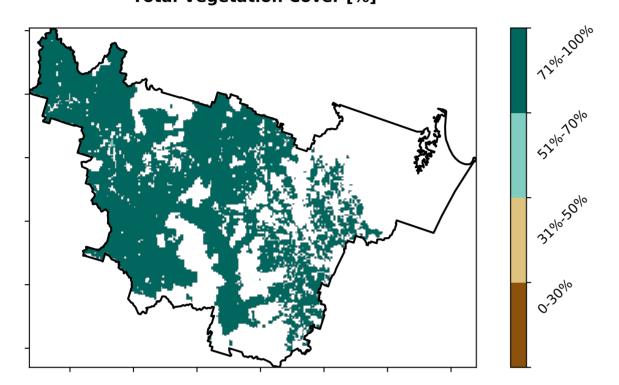
### Land use and forest cover



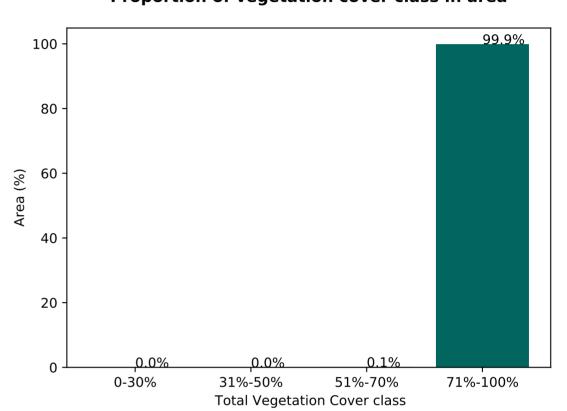
### Proportion of each land class in area



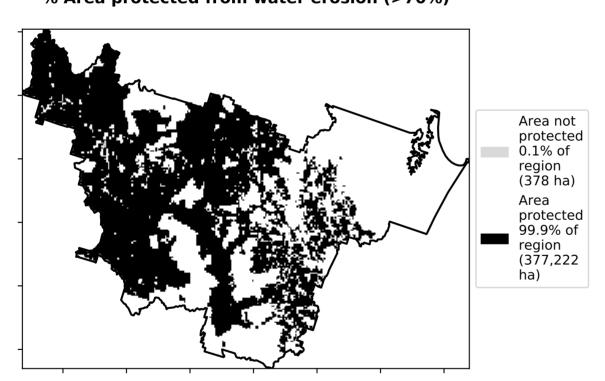
### **Total Vegetation Cover [%]**



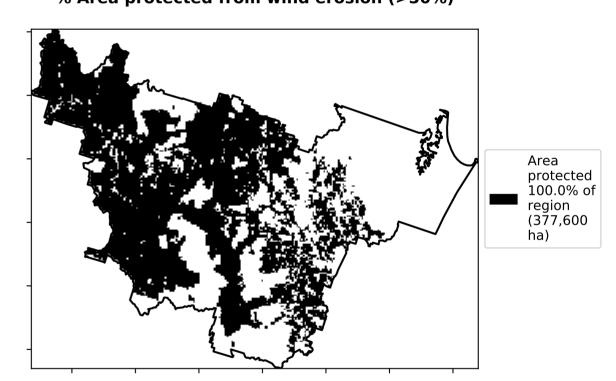
Proportion of vegetation cover class in area



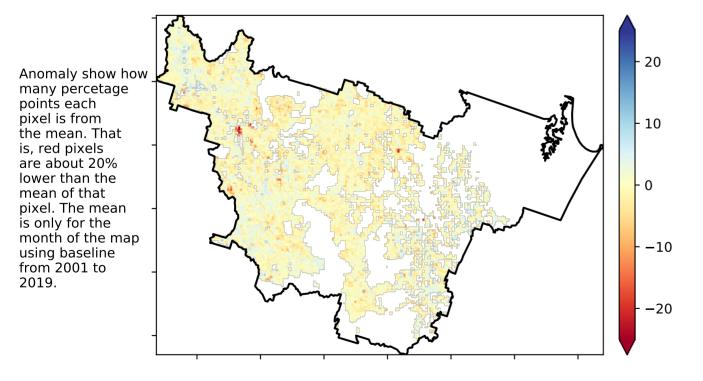
### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

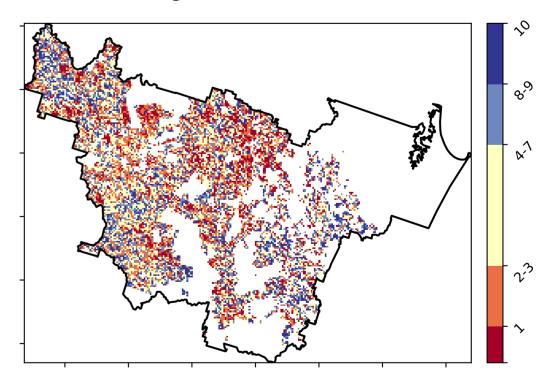


### **Total Vegetation Cover Anomaly [%]**



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 [%]** 



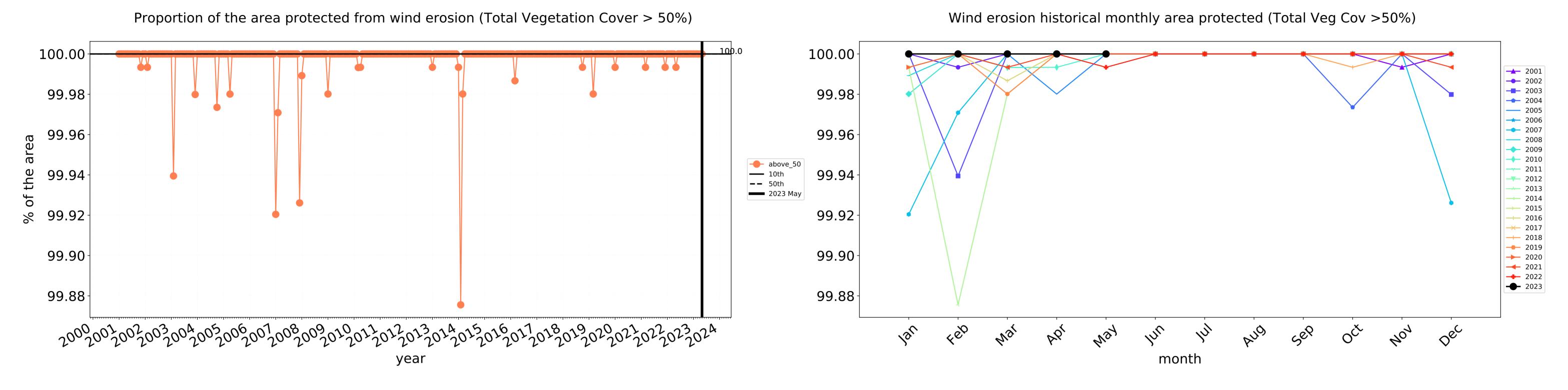


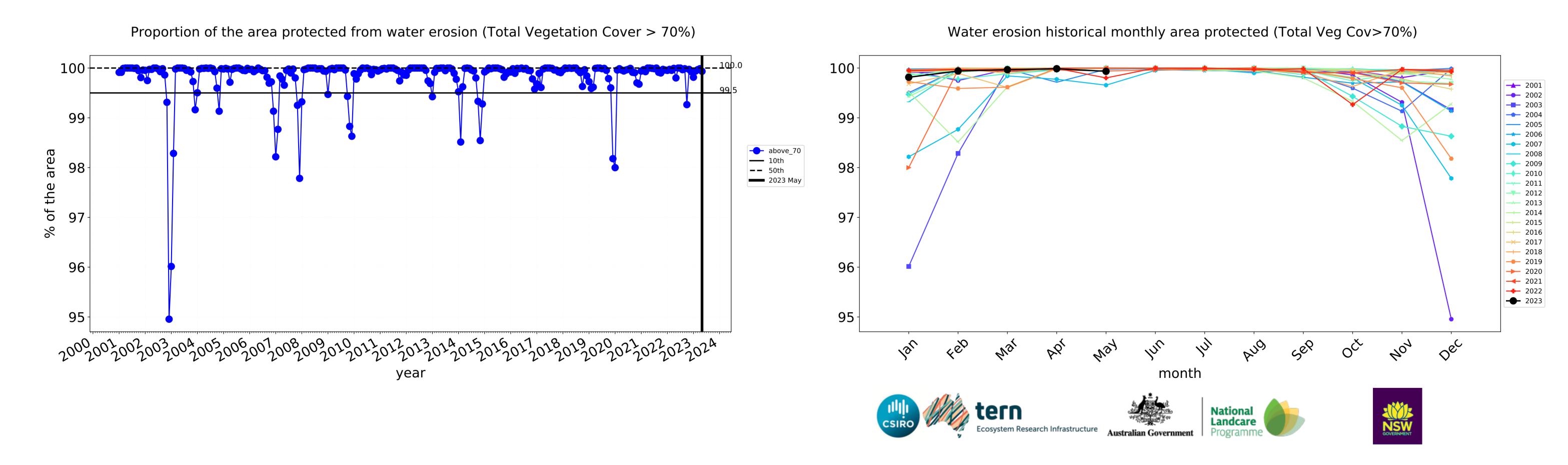


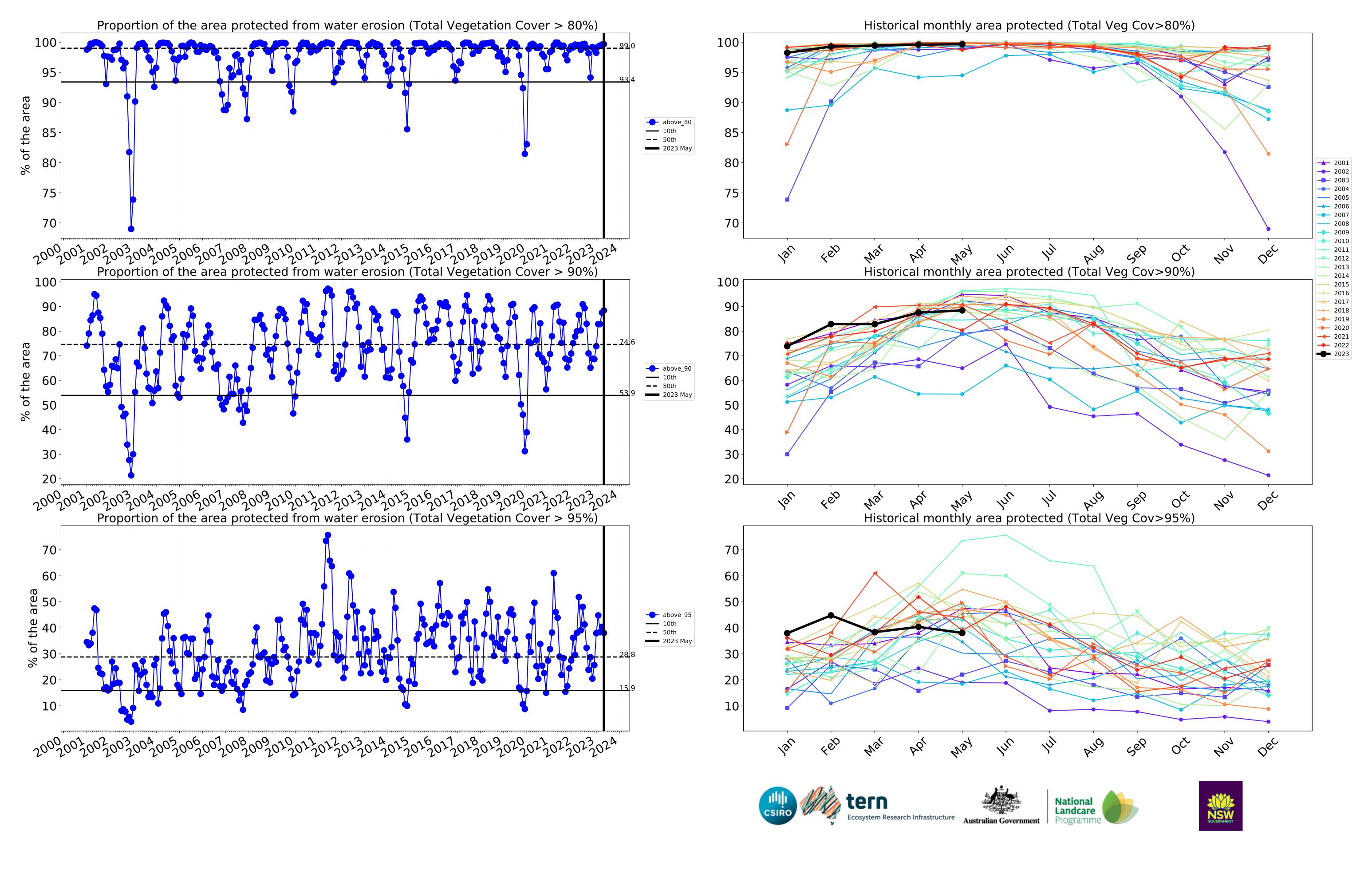




### **Grazing timeseries**

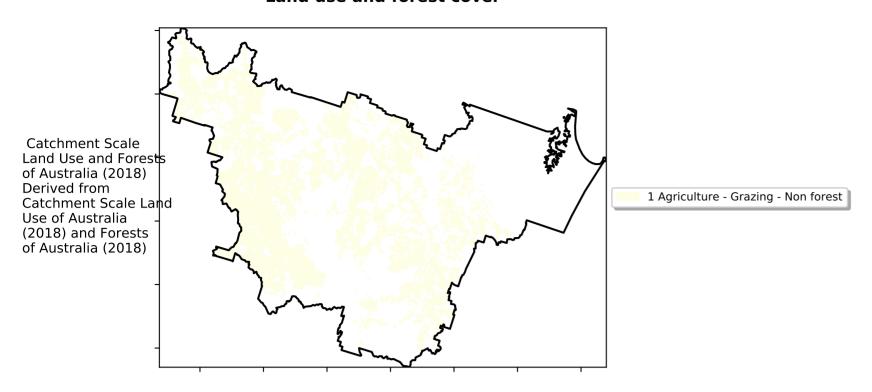




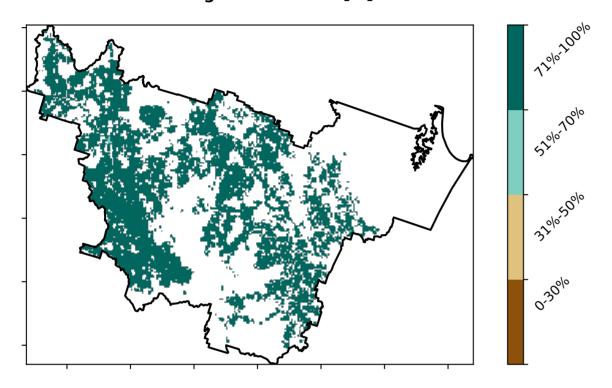


### **Grazing non forest**

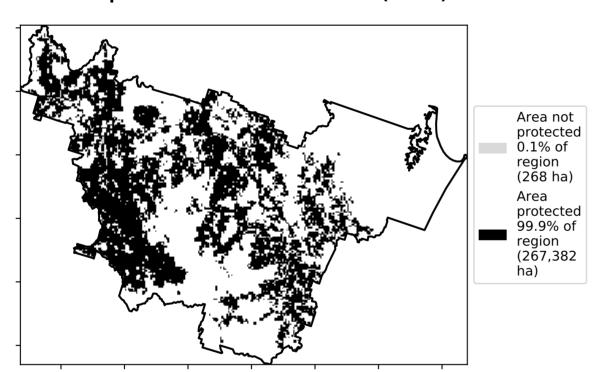
### Land use and forest cover



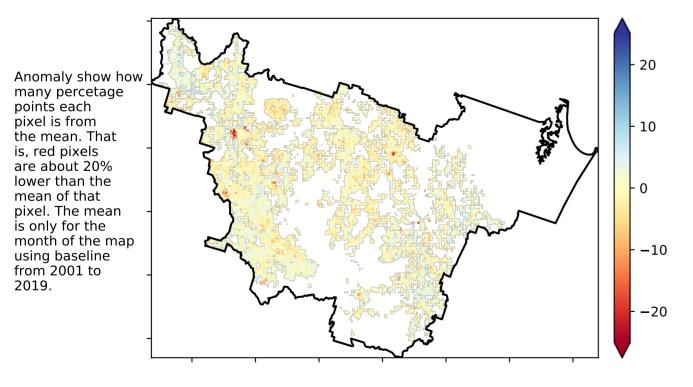
### **Total Vegetation Cover [%]**



### % Area protected from water erosion (>70%)

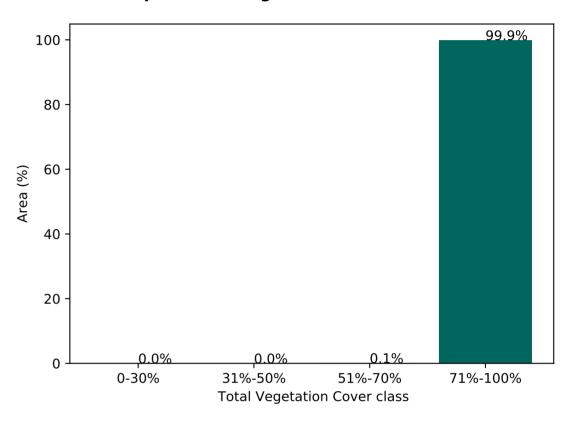


### Total Vegetation Cover Anomaly [%]

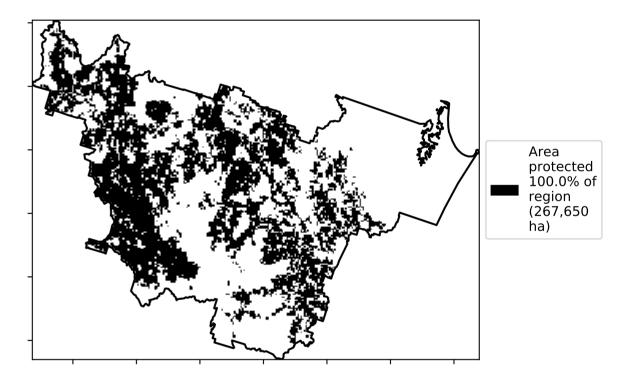


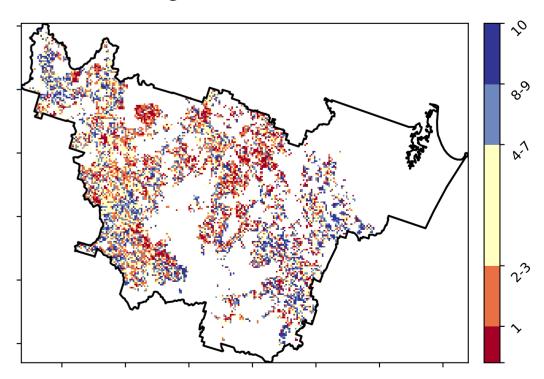
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### **Proportion of vegetation cover class in area**



### % Area protected from wind erosion (>50%)





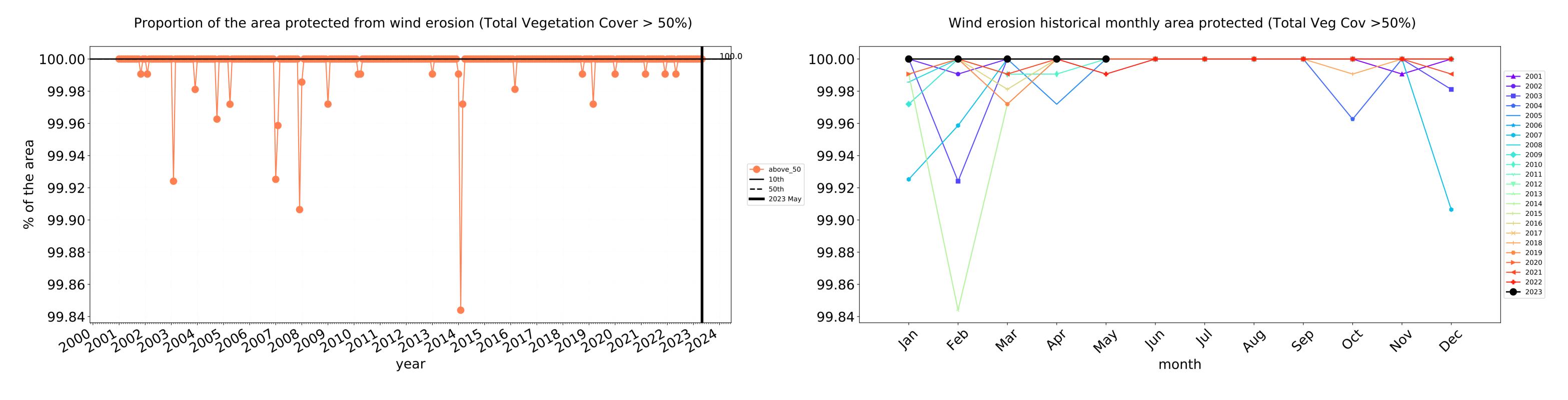


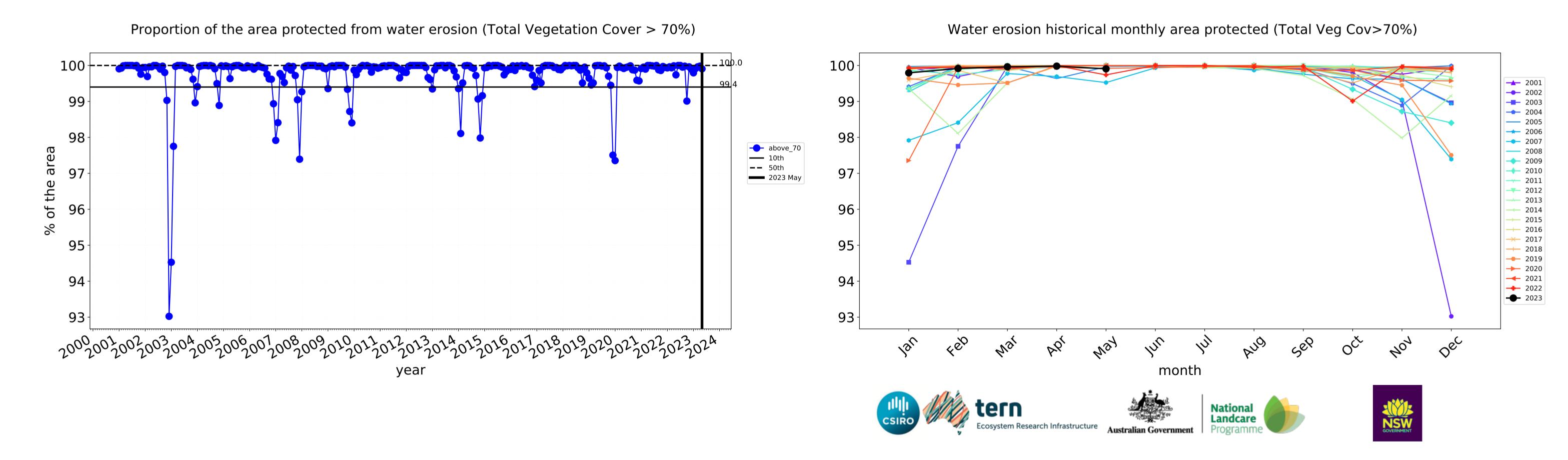


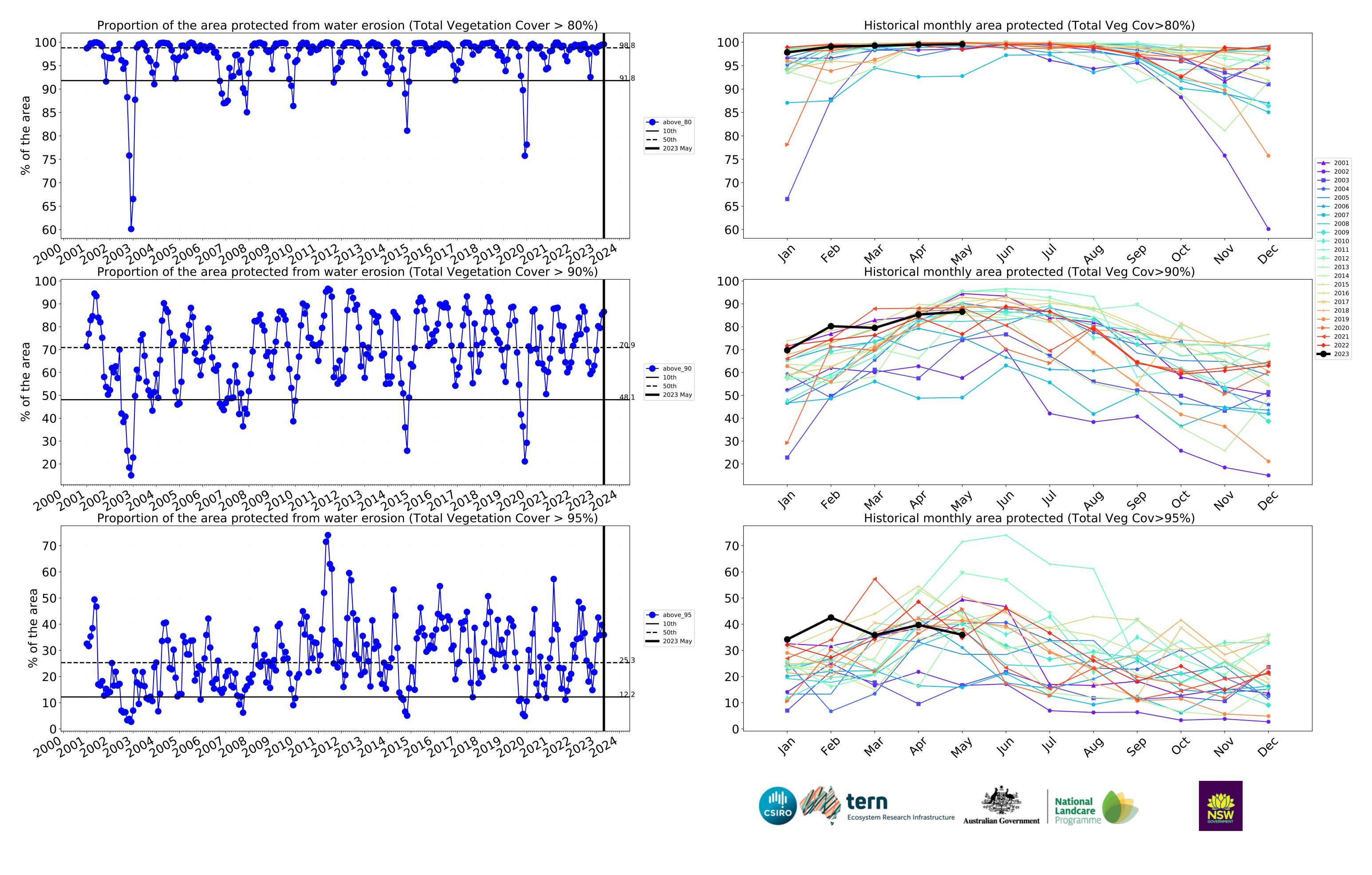




### **Grazing non forest timeseries**

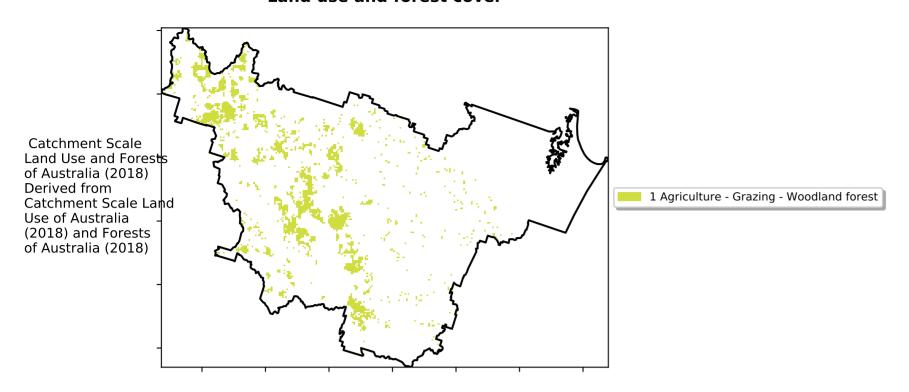




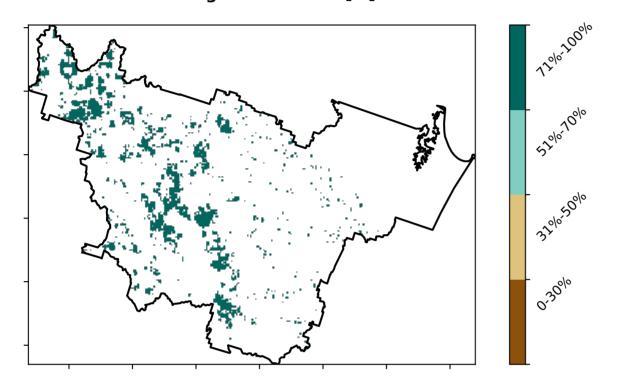


### **Grazing Woodland forest**

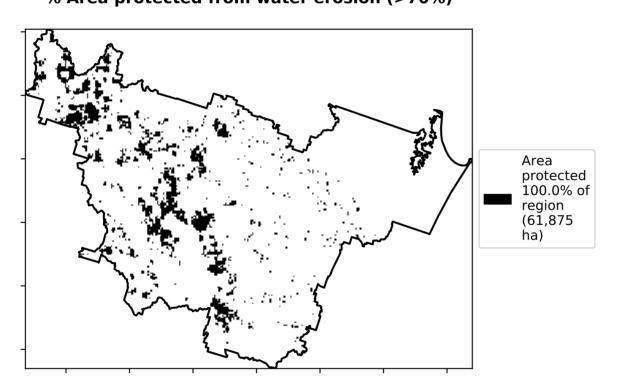
### Land use and forest cover



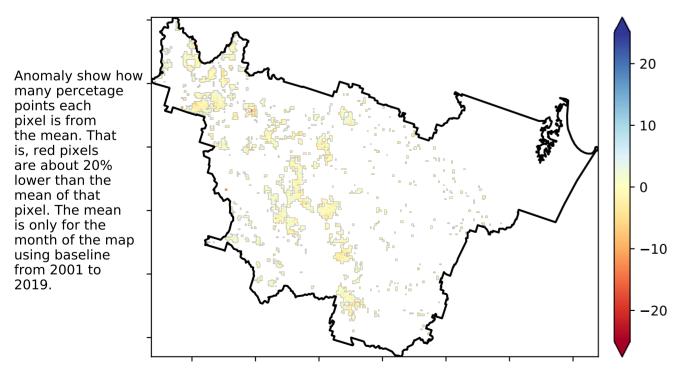
### Total Vegetation Cover [%]



### % Area protected from water erosion (>70%)

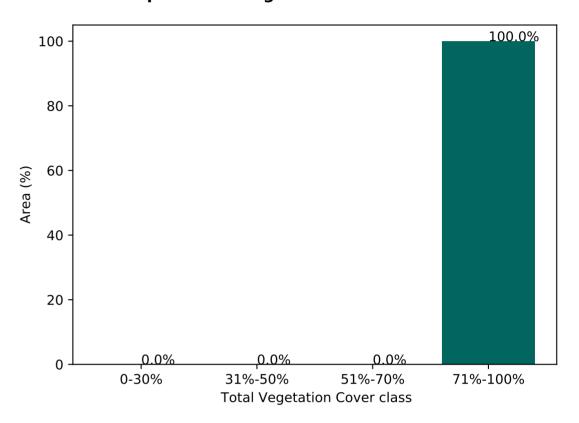


### Total Vegetation Cover Anomaly [%]

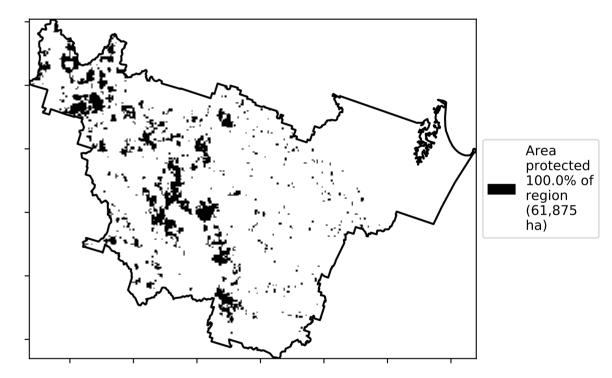


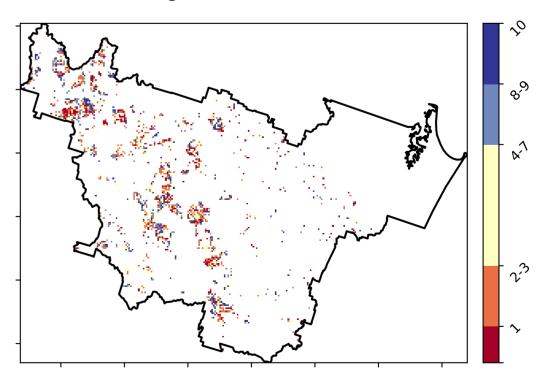
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



### % Area protected from wind erosion (>50%)





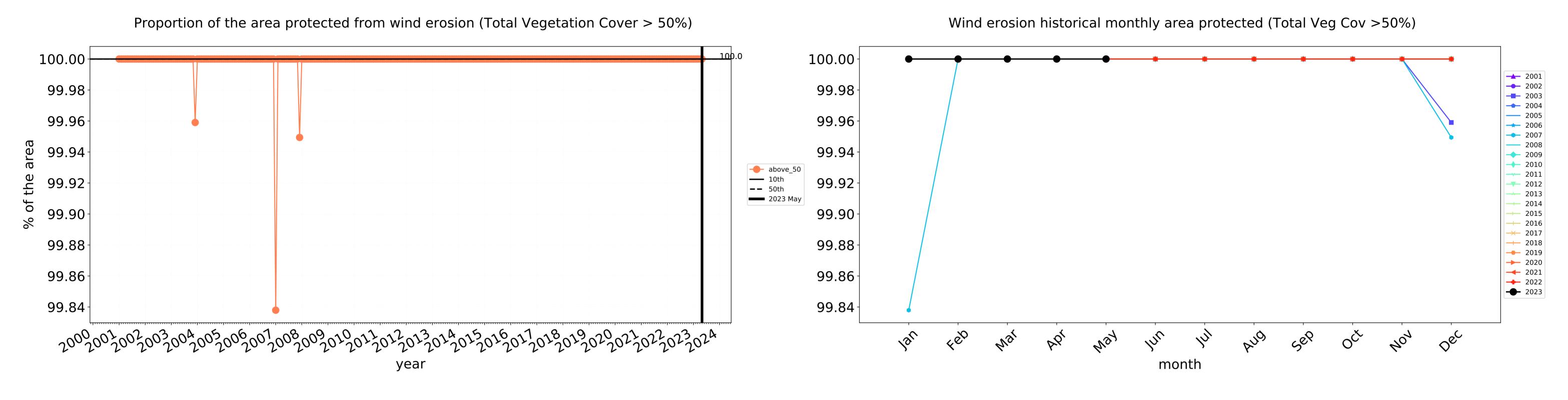


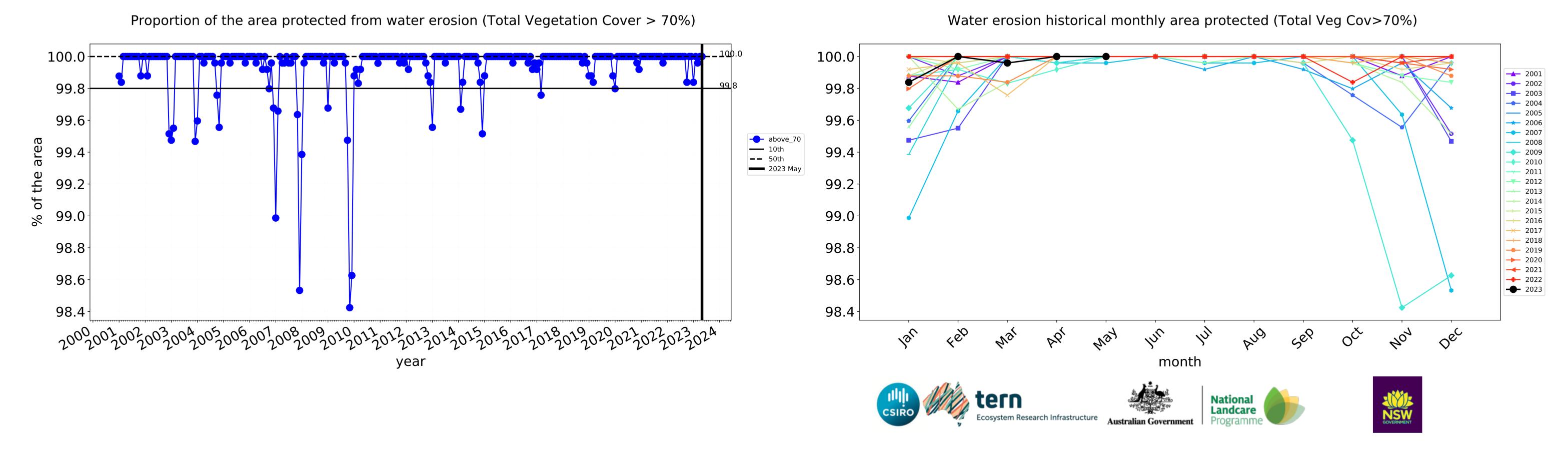


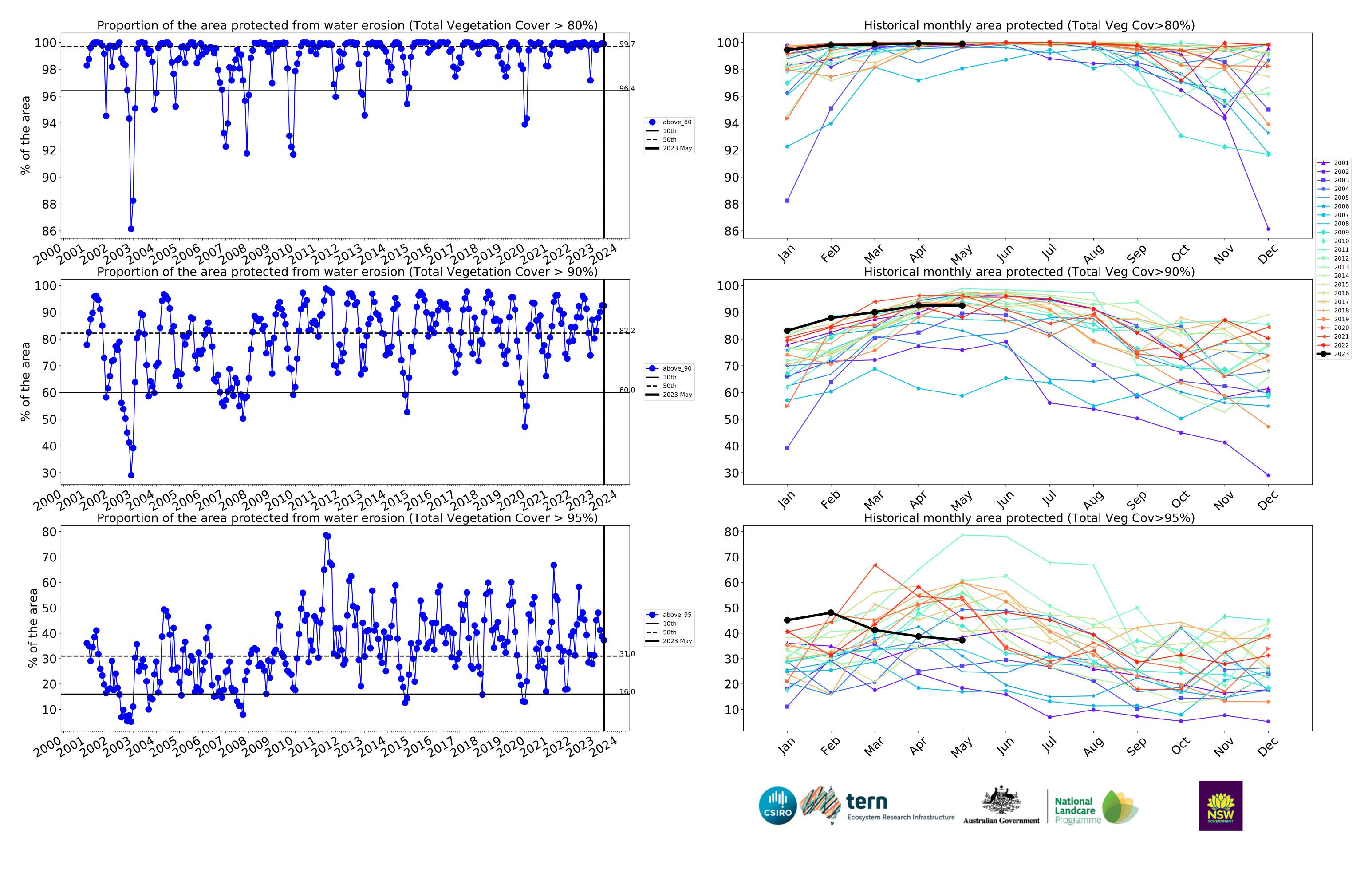




### **Grazing Woodland forest timeseries**

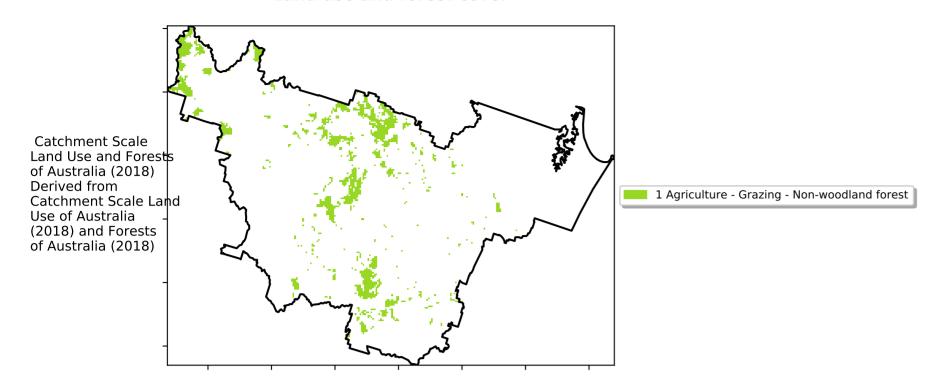




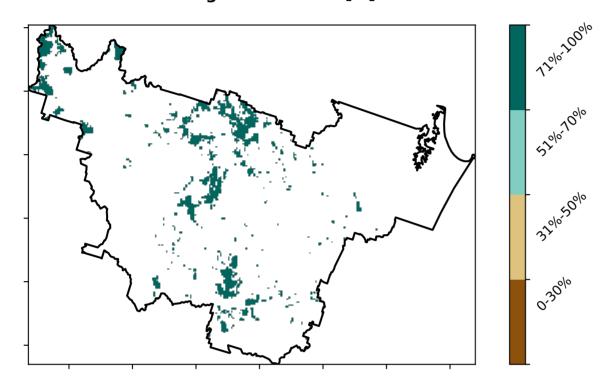


### **Grazing - Forest (non woodland)**

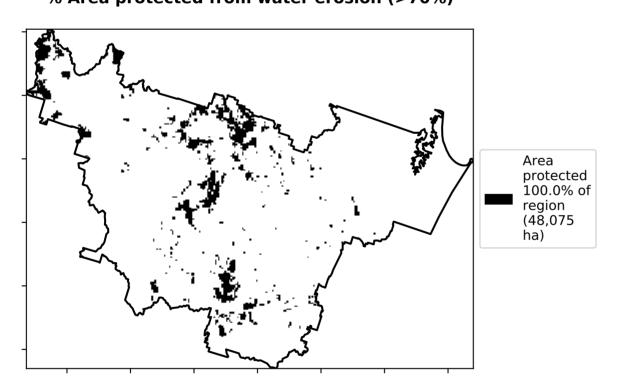
### Land use and forest cover



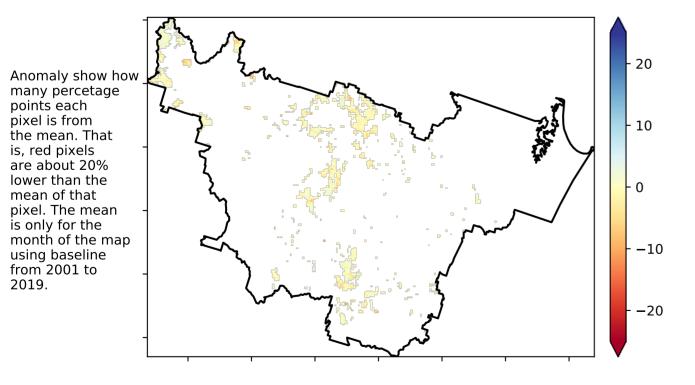
### **Total Vegetation Cover [%]**



### % Area protected from water erosion (>70%)

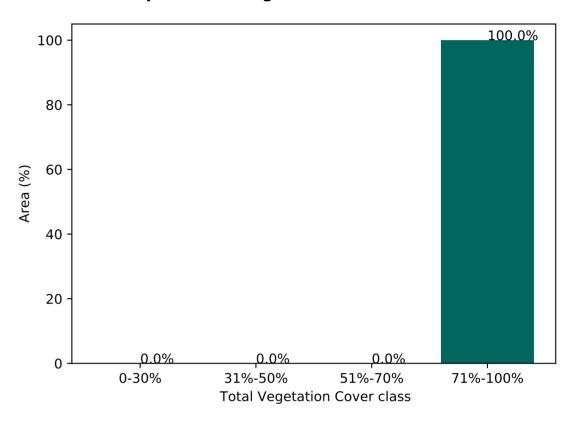


### Total Vegetation Cover Anomaly [%]

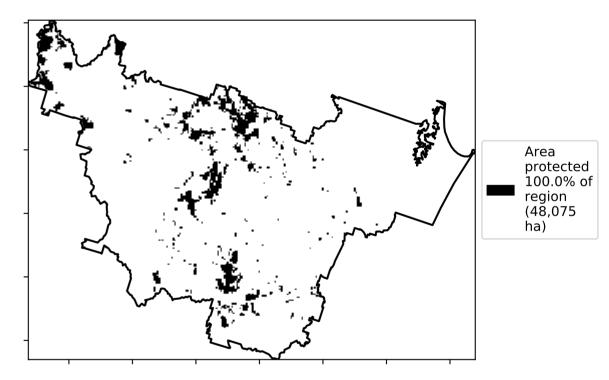


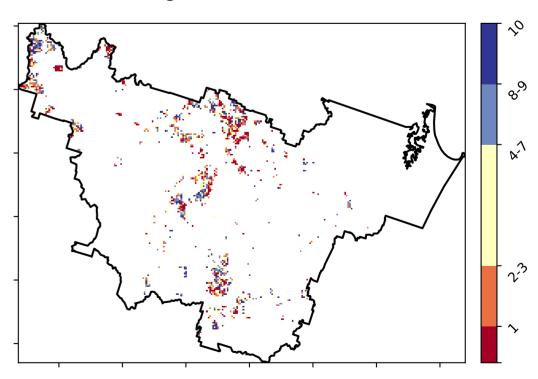
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### **Proportion of vegetation cover class in area**



### % Area protected from wind erosion (>50%)



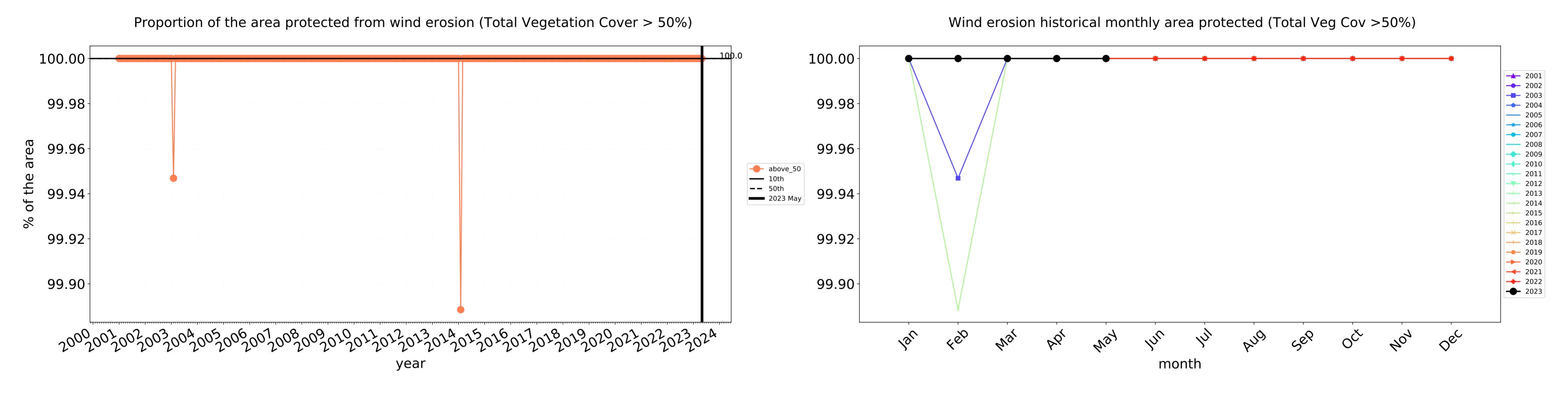


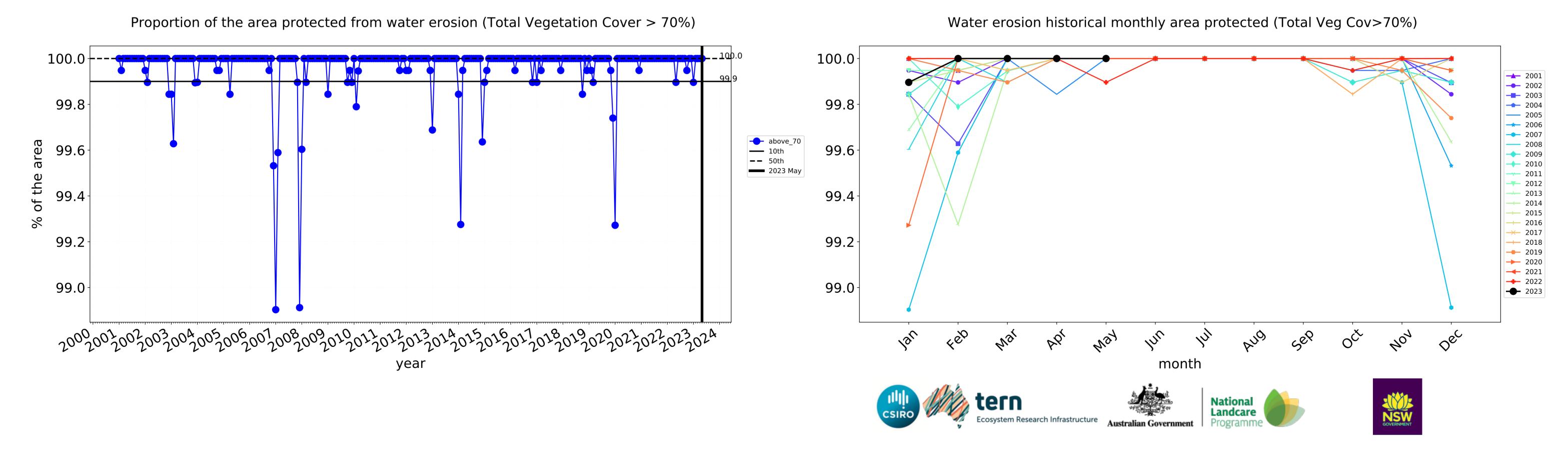


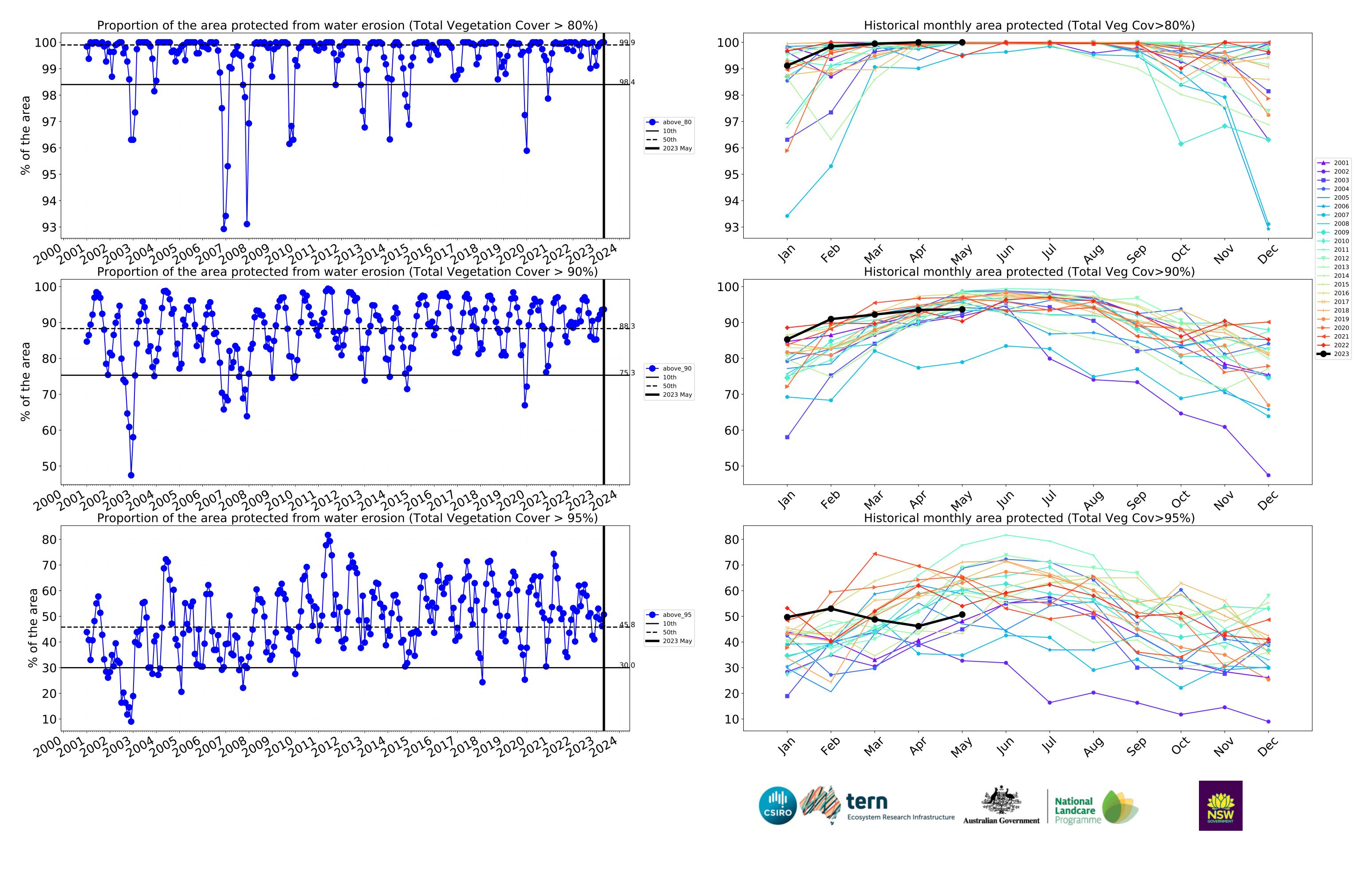








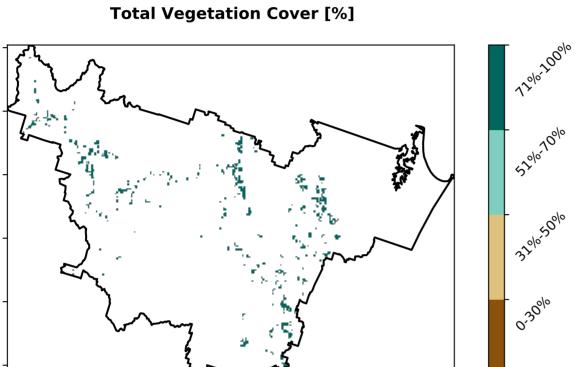


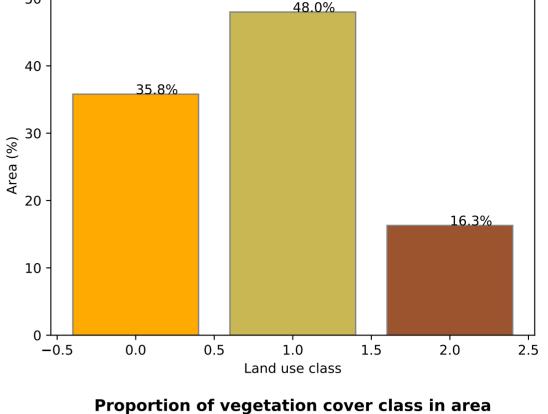


### **Irrigation**

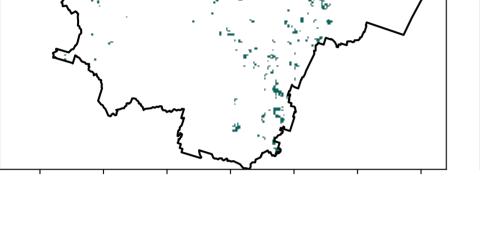
## Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests 1 Agriculture - Grazing - Irrigated 2 Agriculture - Cropping - Irrigated 3 Agriculture - Horticulture - Irrigated of Australia (2018)

### Proportion of each land class in area 50 48.0% 40 35.8% Area (%) 0 20 16.3% 10 -0.50.5 1.0 0.0 1.5 2.0



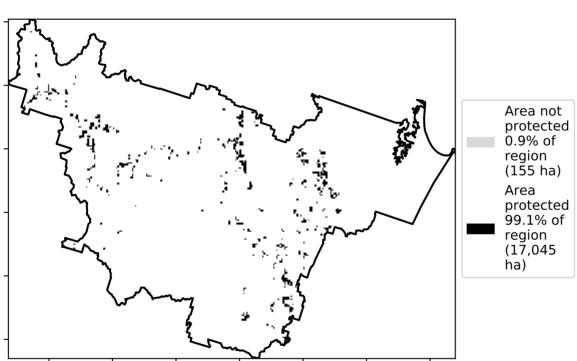


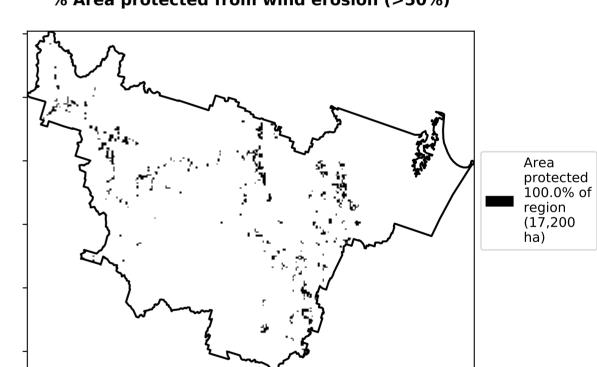
### 99.1% 100 80 Area (%) 60 20 0.9% 0.0% 0.0% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**

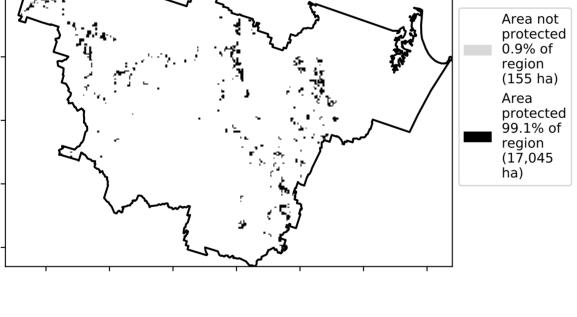


% Area protected from water erosion (>70%)

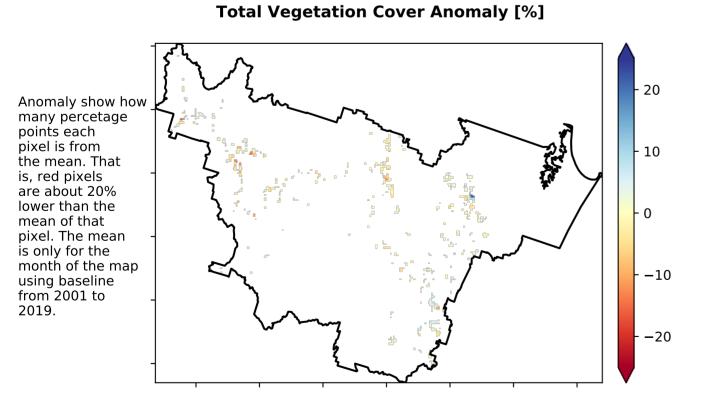
% Area protected from wind erosion (>50%)

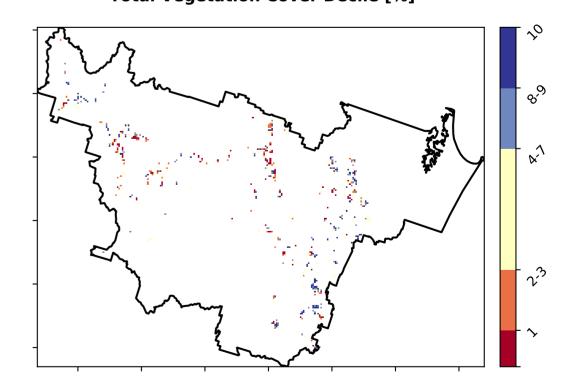






**Total Vegetation Cover Decile [%]** 





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.

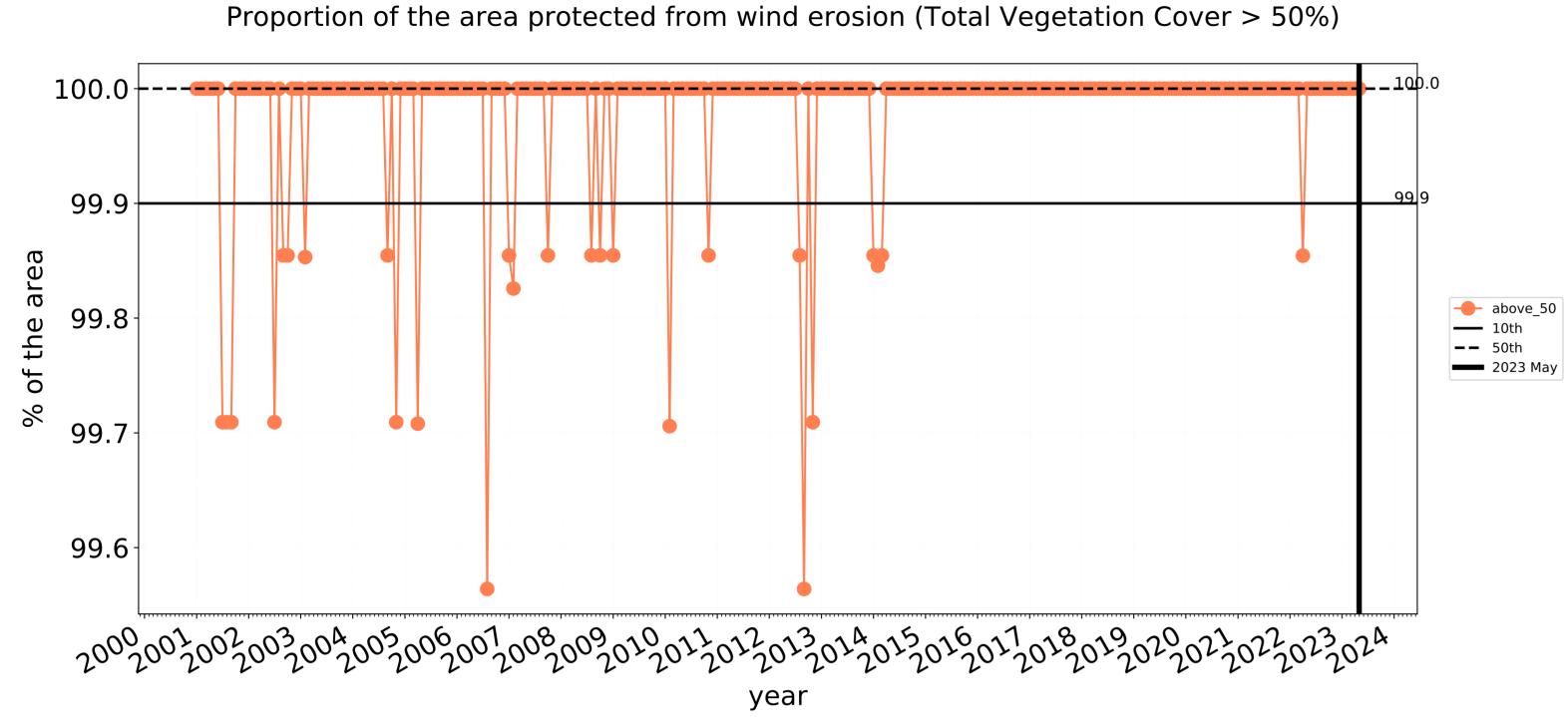


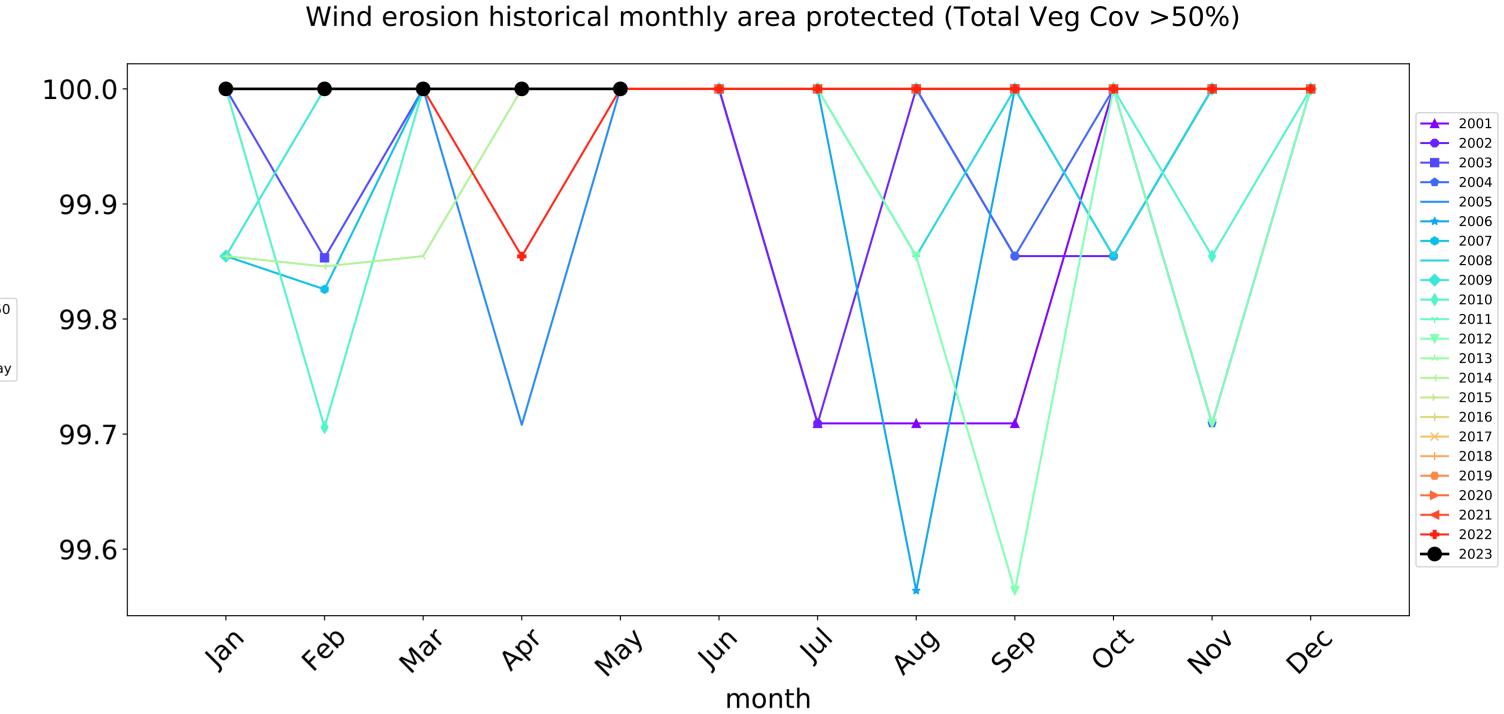


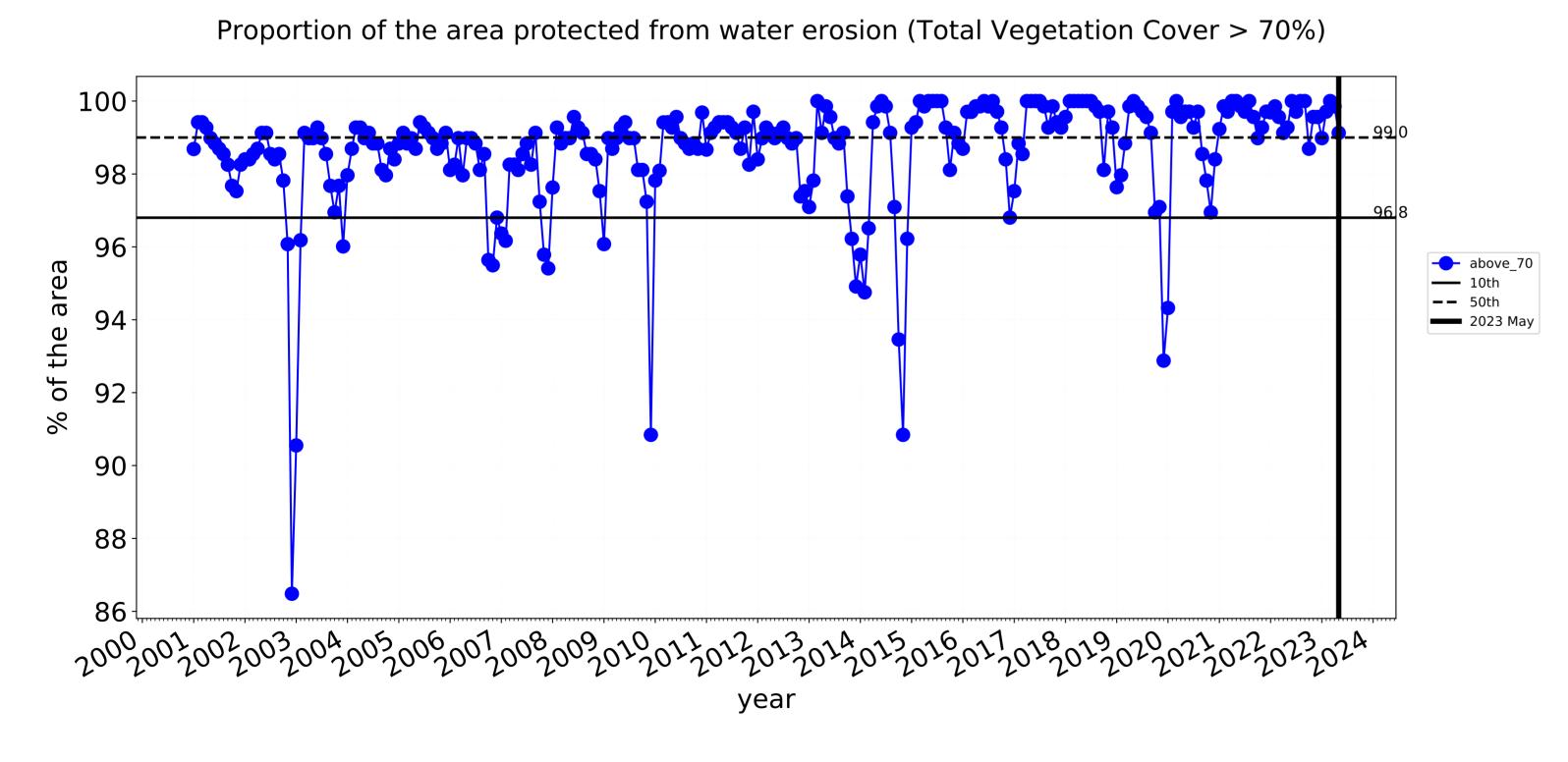


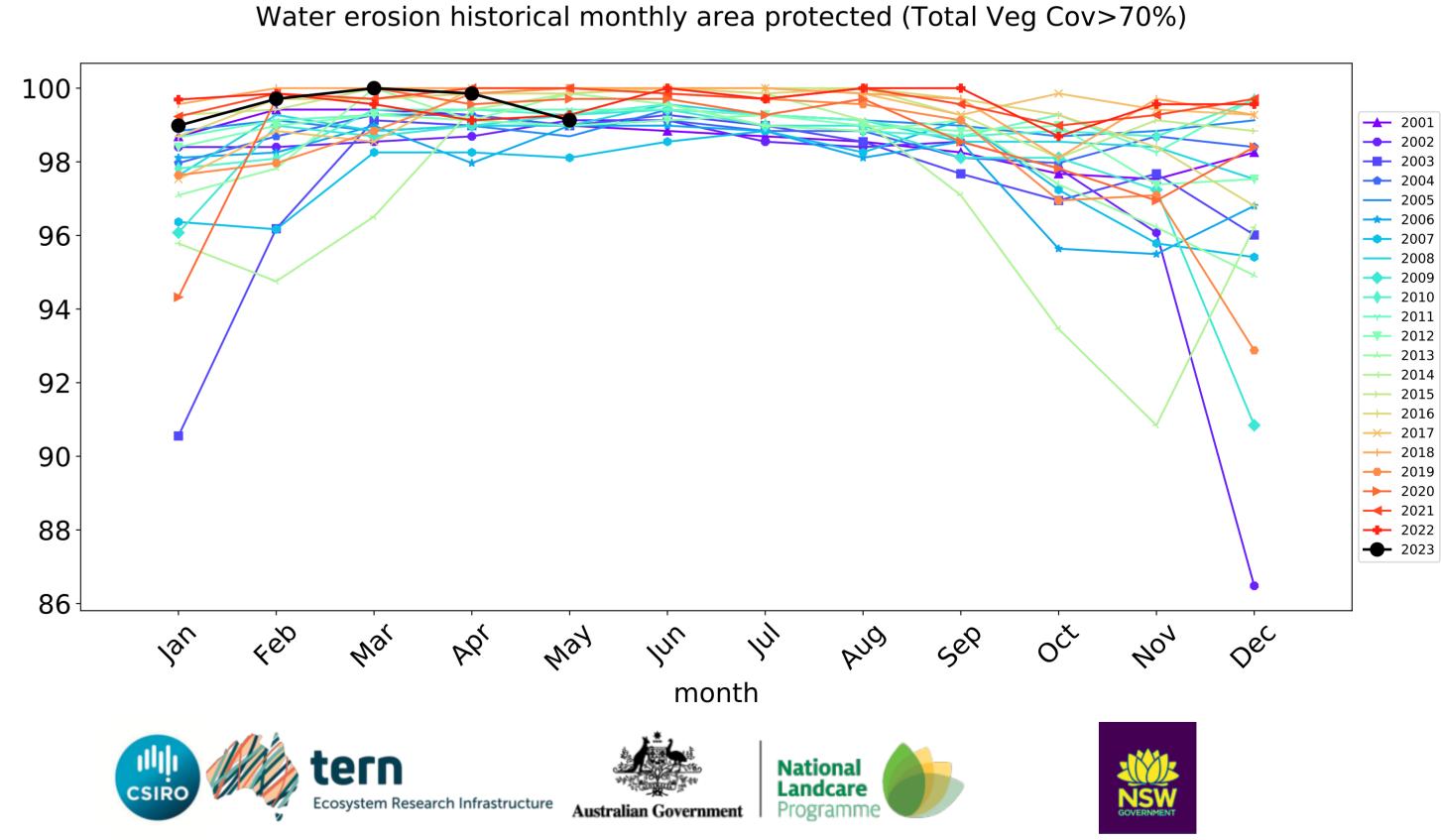


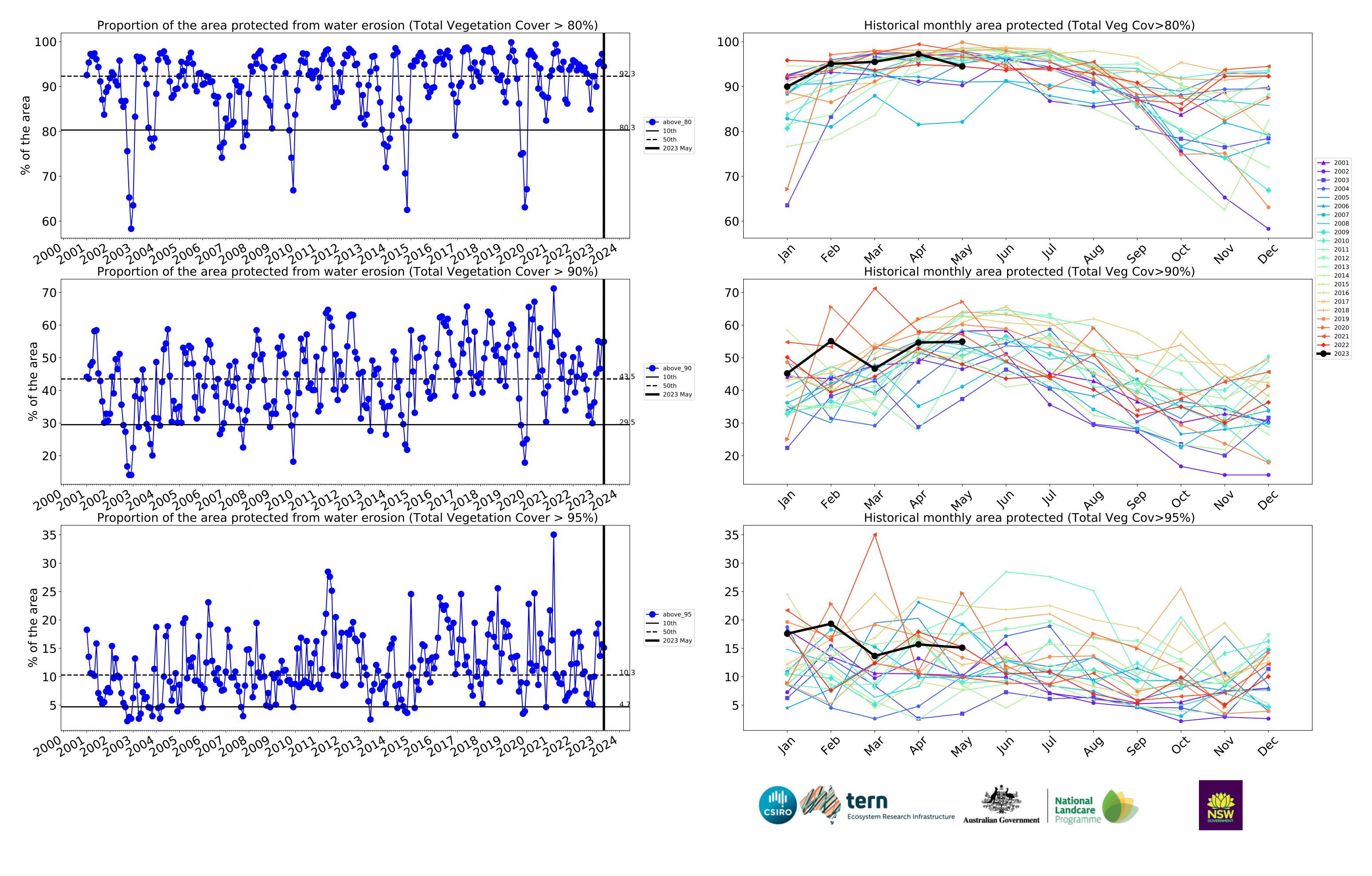
### Irrigation timeseries





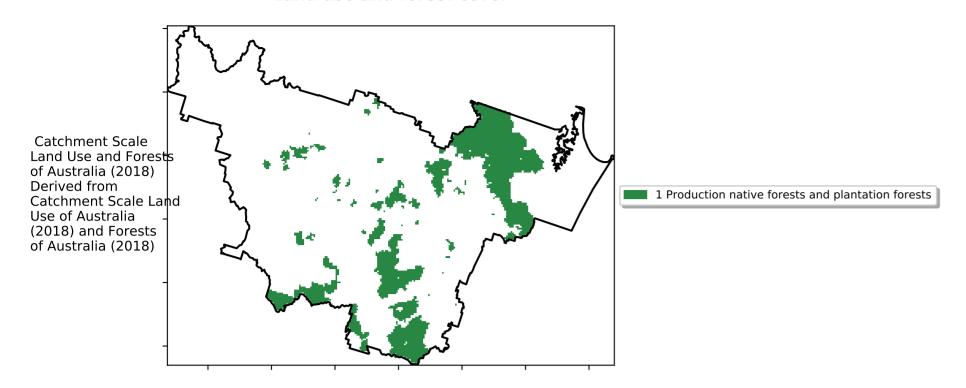




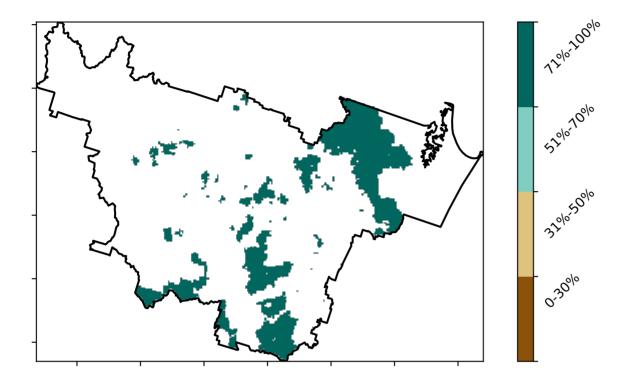


### **Production native forests and plantation forests**

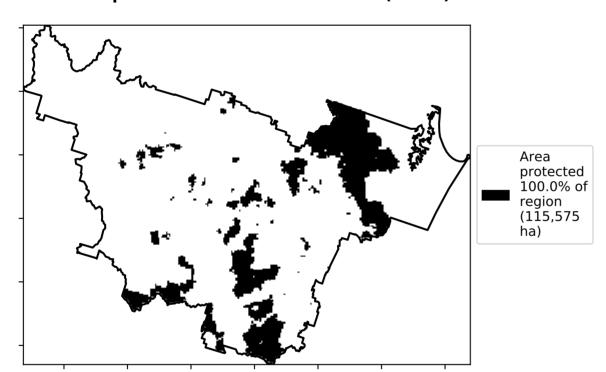
### Land use and forest cover



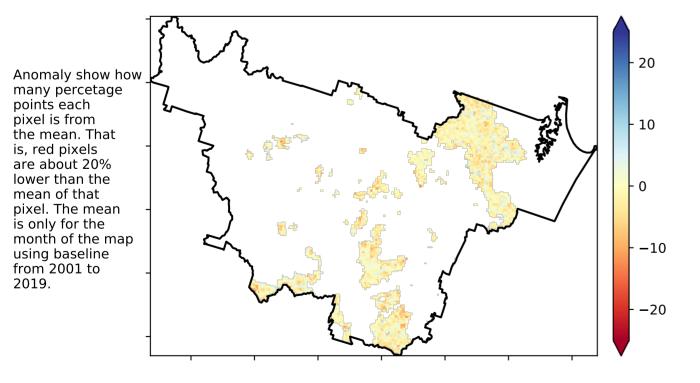
### **Total Vegetation Cover [%]**



### % Area protected from water erosion (>70%)

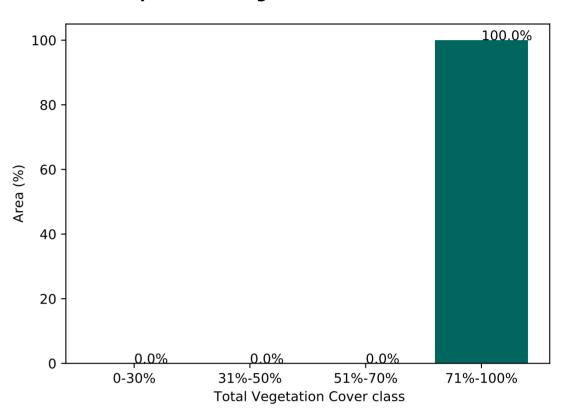


### Total Vegetation Cover Anomaly [%]

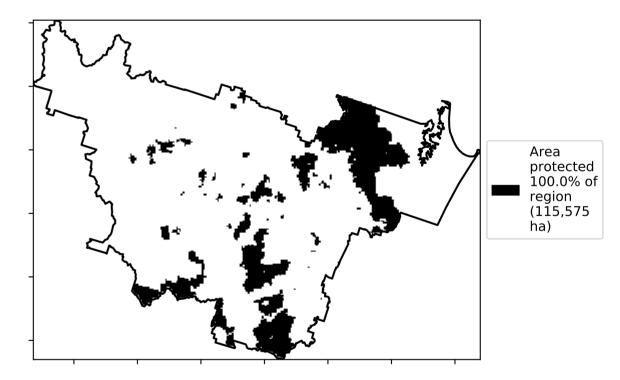


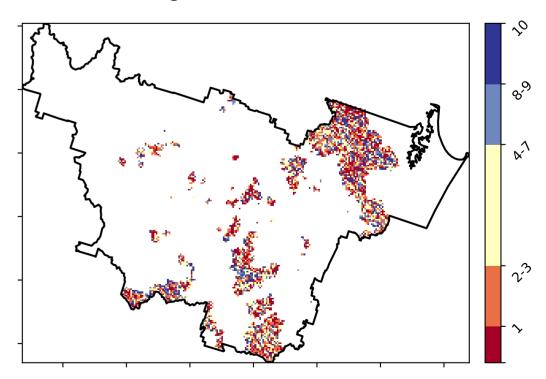
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### **Proportion of vegetation cover class in area**



### % Area protected from wind erosion (>50%)





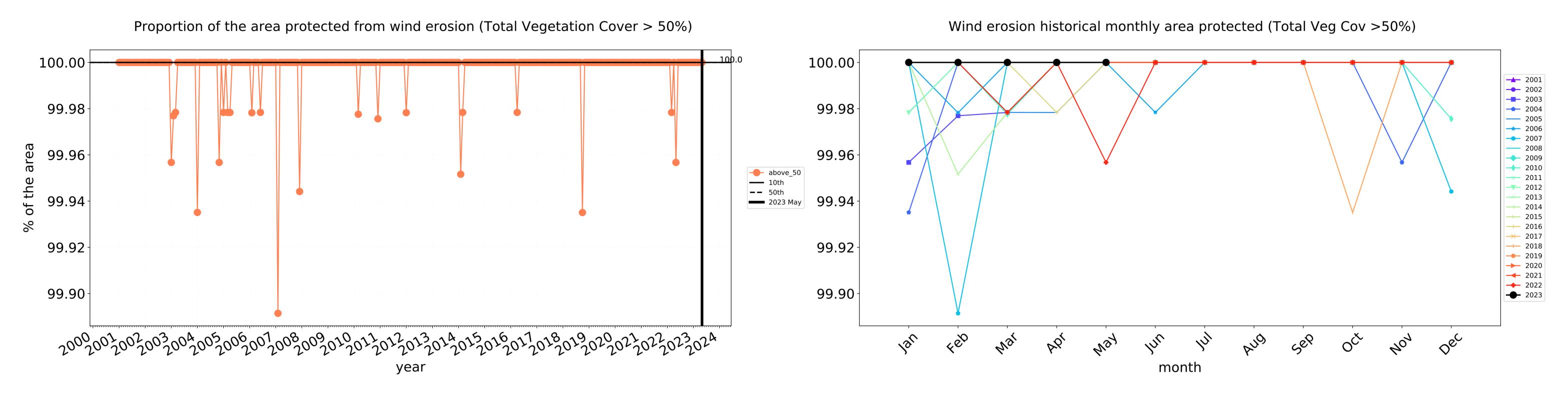


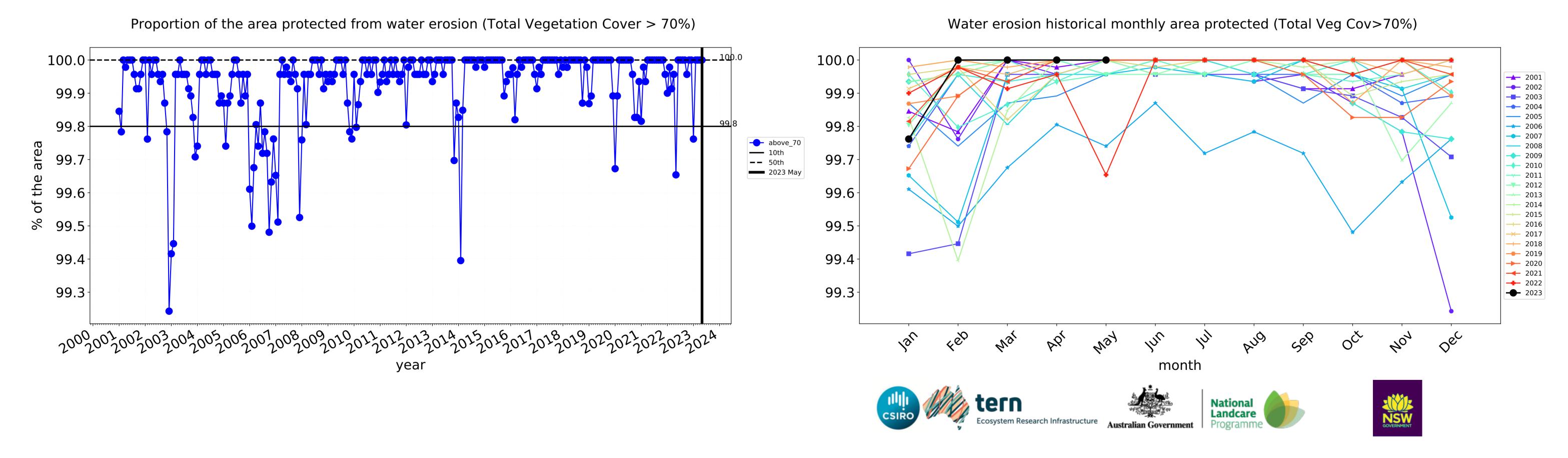


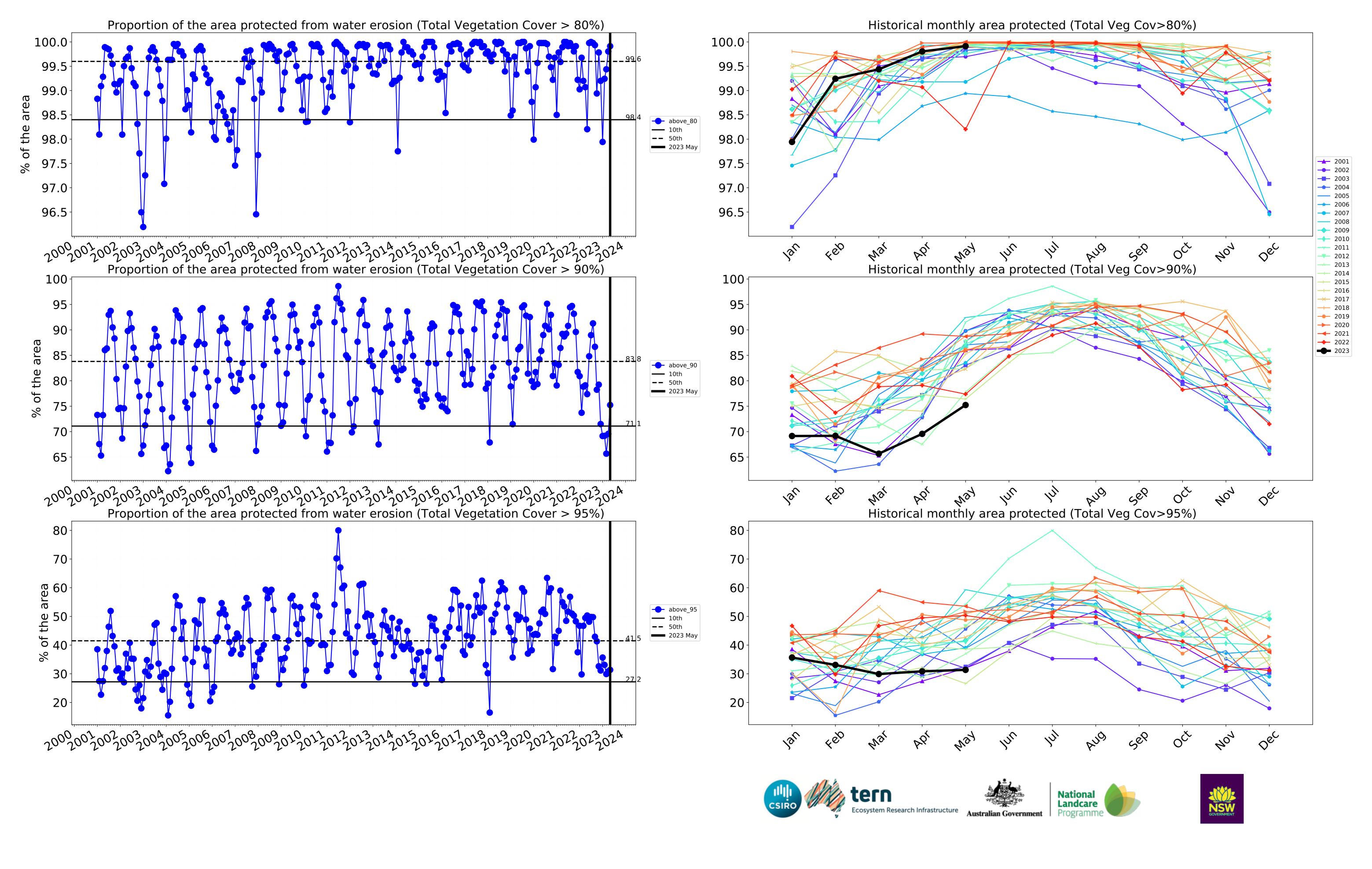




### **Production native forests and plantation forests timeseries**







# Gympie\_(R) (687,075 ha and no data 1,300 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	687,075	100.0% 687,025	100.0% 686,875	99.8% 685,775	99.2% 681,725	85.0% 584,100	37.6% 258,425
Conservation and natural environments	142,750	100.0% 142,700	99.9% 142,600	99.7% 142,325	99.1% 141,475	90.7% 129,525	49.0% 69,925
Conservation and natural environments non forest	9,950	99.7% 9,925	99.2% 9,875	98.7% 9,825	98.5% 9,800	93.5% 9,300	34.7% 3,450
Conservation and natural environments Woodland forest	28,900	99.9% 28,875	99.8% 28,850	99.7% 28,800	99.3% 28,700	93.3% 26,950	52.4% 15,150
Conservation and natural environments Forest (non woodland)	103,900	100.0% 103,900	100.0% 103,875	99.8% 103,700	99.1% 102,975	89.8% 93,275	49.4% 51,325
Agriculture	397,575	100.0% 397,575	100.0% 397,575	99.9% 397,175	99.4% 395,375	86.9% 345,525	36.9% 146,825
Grazing	377,600	100.0% 377,600	100.0% 377,600	99.9% 377,350	99.7% 376,350	88.4% 333,925	38.0% 143,625
Grazing non forest	267,650	100.0% 267,650	100.0% 267,650	99.9% 267,400	99.6% 266,475	86.6% 231,700	35.9% 96,200
Grazing Woodland forest	61,875	100.0% 61,875	100.0% 61,875	100.0% 61,875	99.9% 61,800	92.4% 57,200	37.3% 23,050
Grazing - Forest (non woodland)	48,075	100.0% 48,075	100.0% 48,075	100.0% 48,075	100.0% 48,075	93.7% 45,025	50.7% 24,375
Irrigation	17,200	100.0% 17,200	100.0% 17,200	99.1% 17,050	94.5% 16,250	54.9% 9,450	15.1% 2,600
Production native forests and plantation forests	115,575	100.0% 115,575	100.0% 115,575	100.0% 115,575	99.9% 115,475	75.2% 86,950	31.4% 36,250







