### Total vegetation cover soil protection Region:NRM Hunter NSW

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: January 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



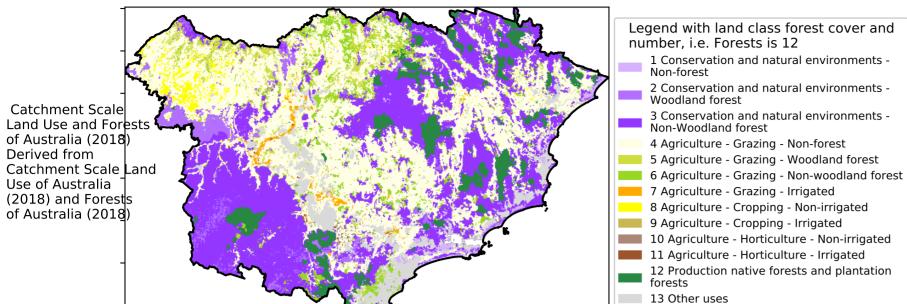




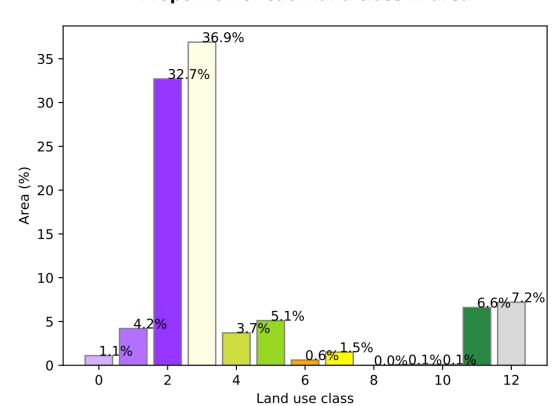


### **Vegetation Cover Jan 2023**

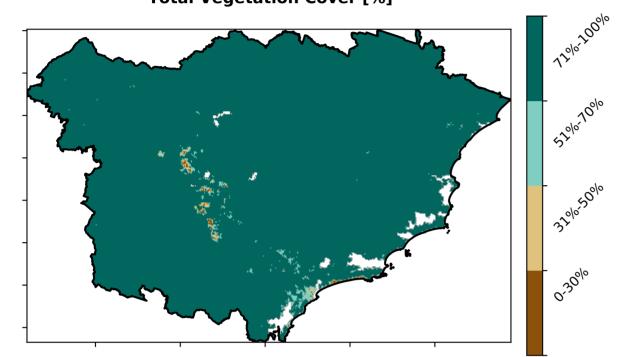
### Land use and forest cover



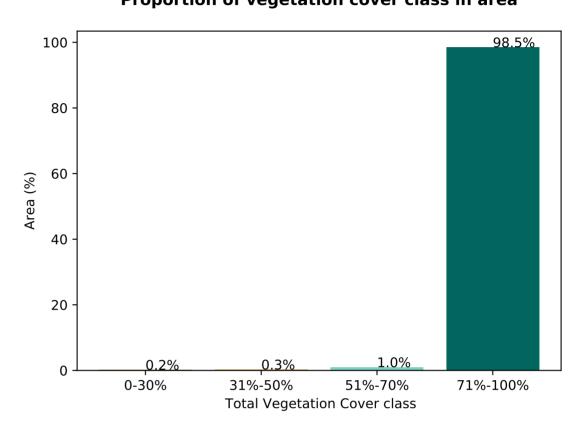
### Proportion of each land class in area



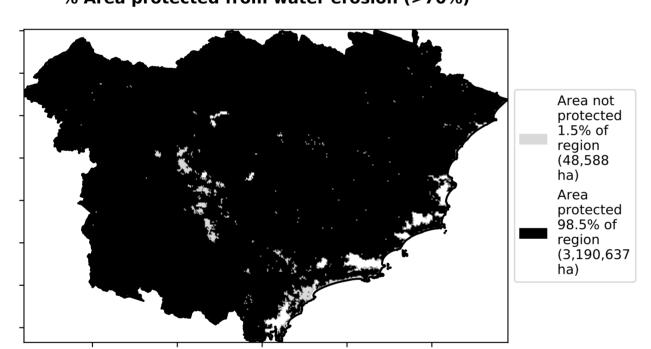
**Total Vegetation Cover [%]** 



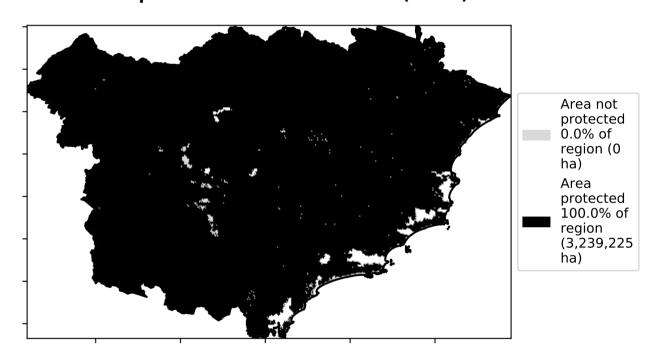
Proportion of vegetation cover class in area



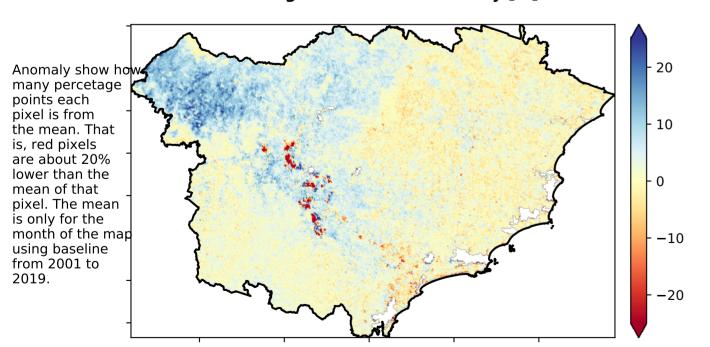
% Area protected from water erosion (>70%)



% 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.

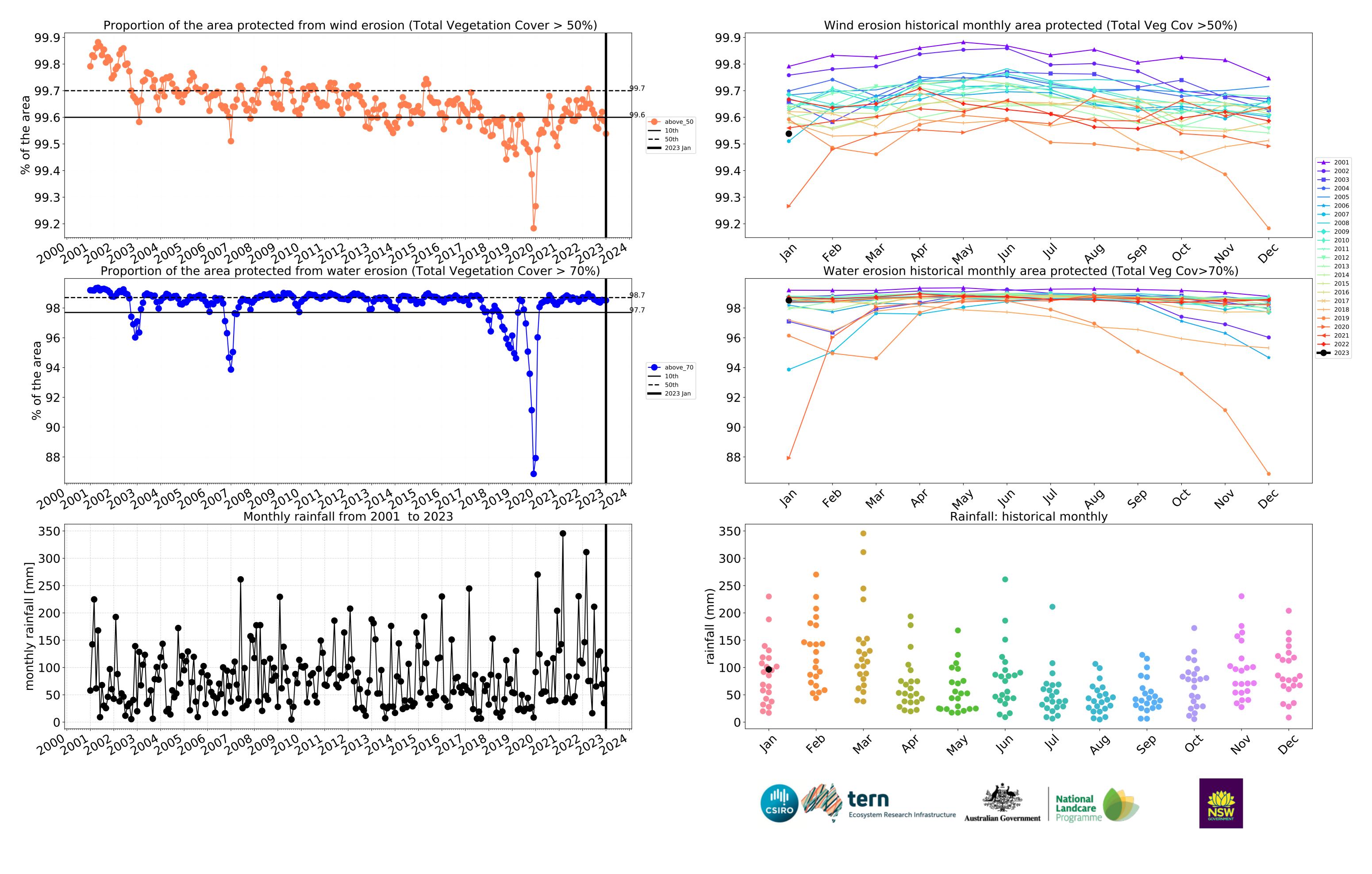
**Total Vegetation Cover Decile [%]** 

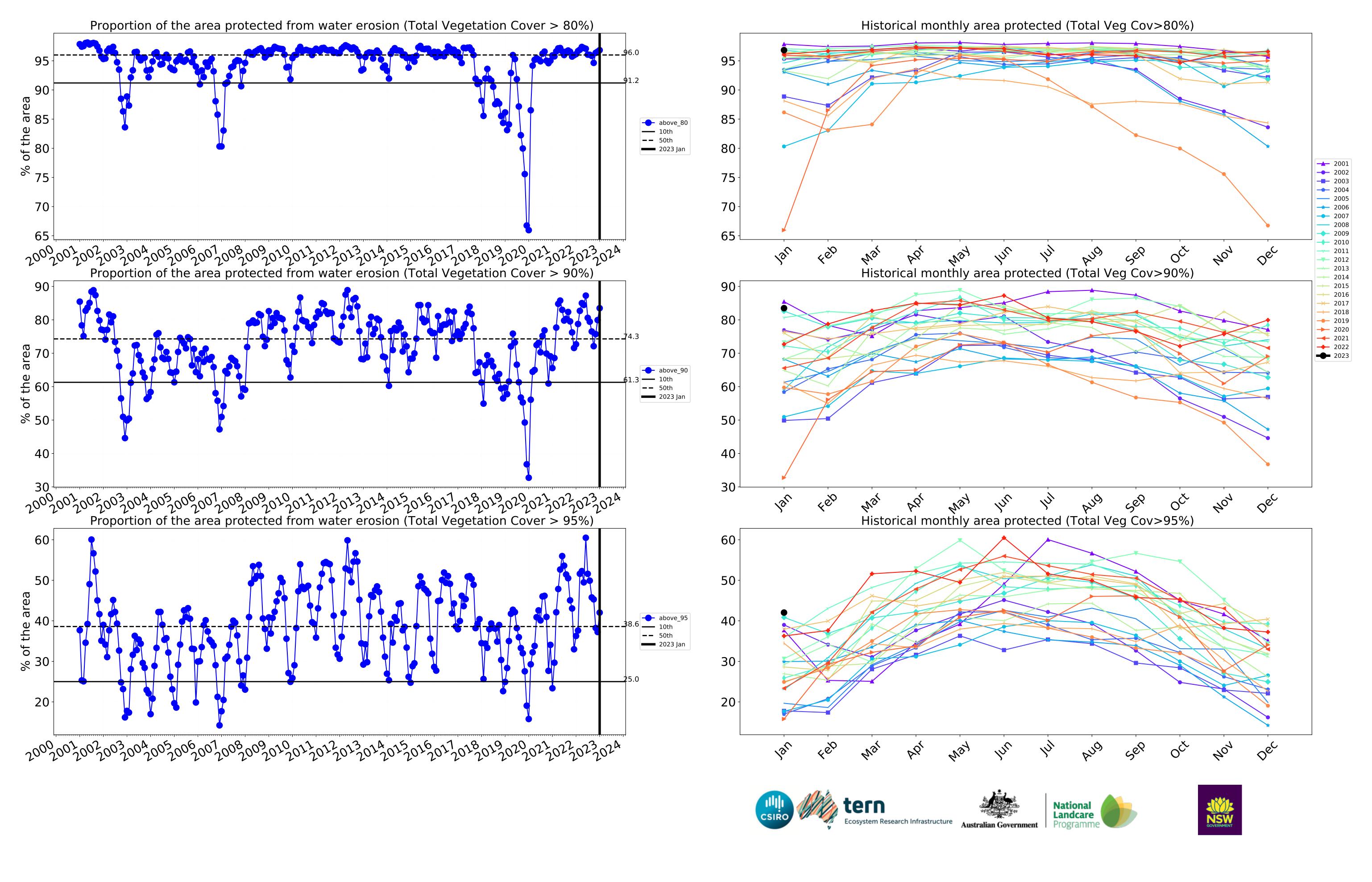




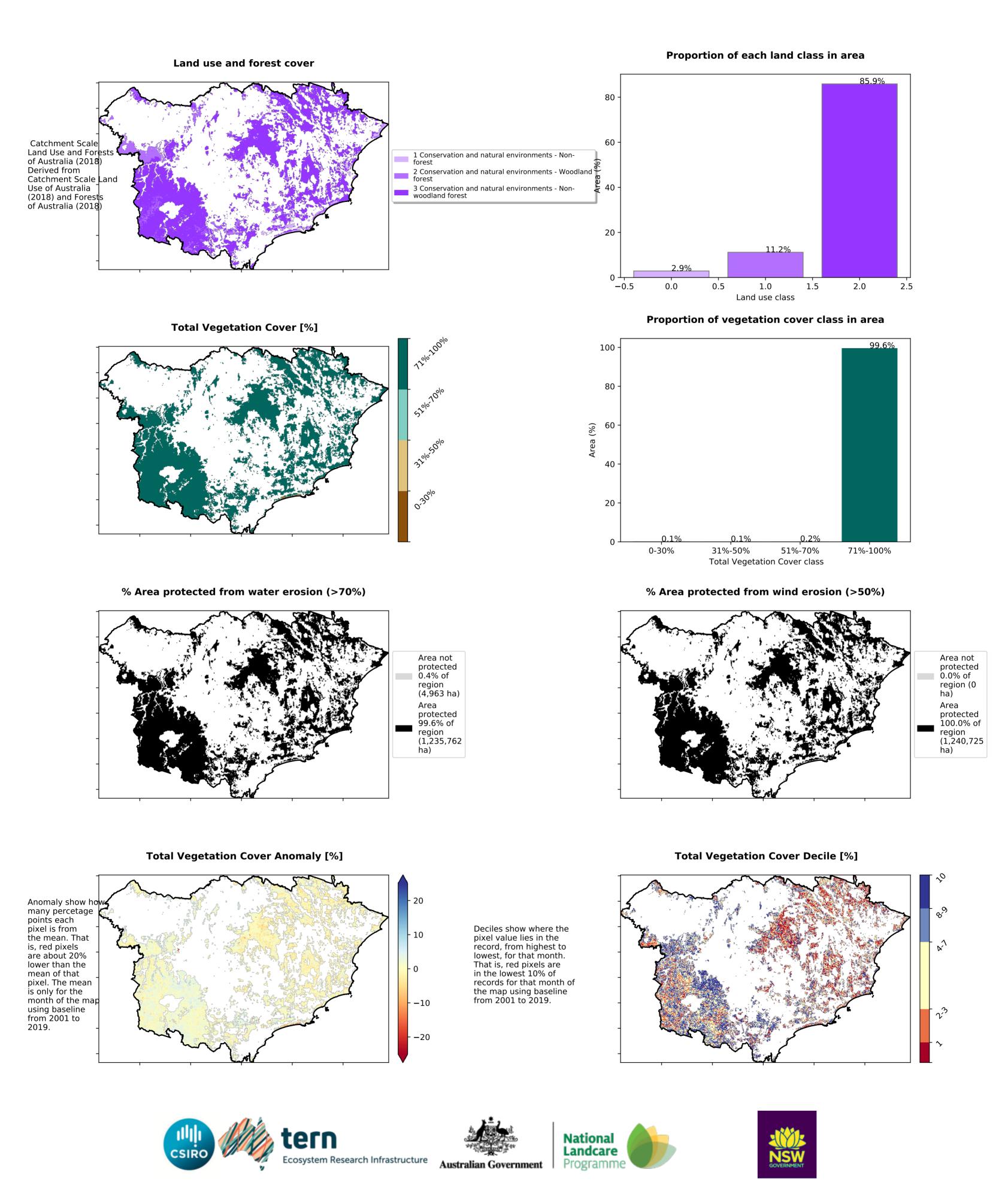




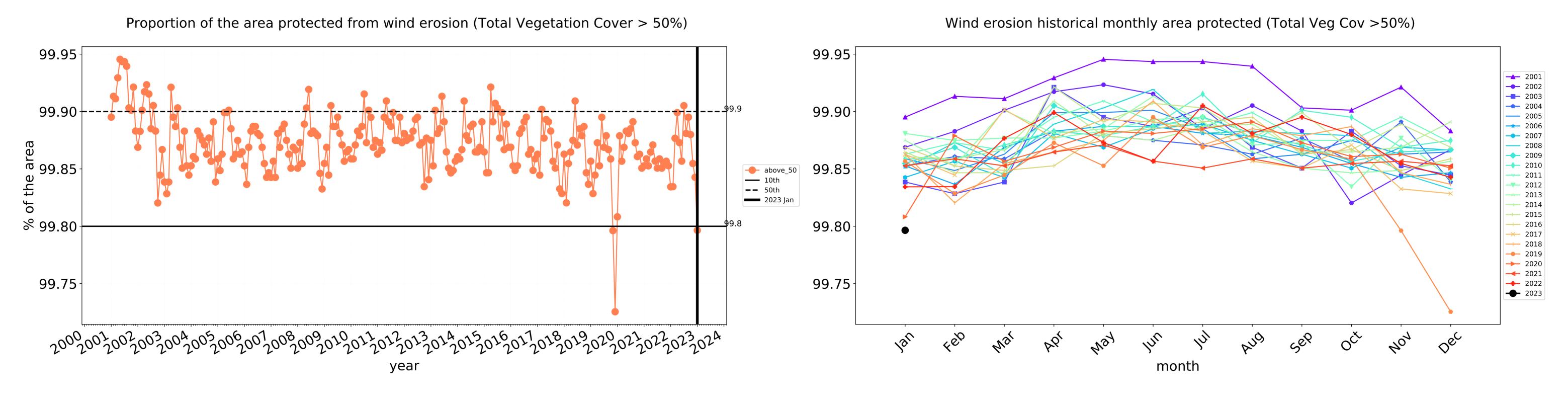


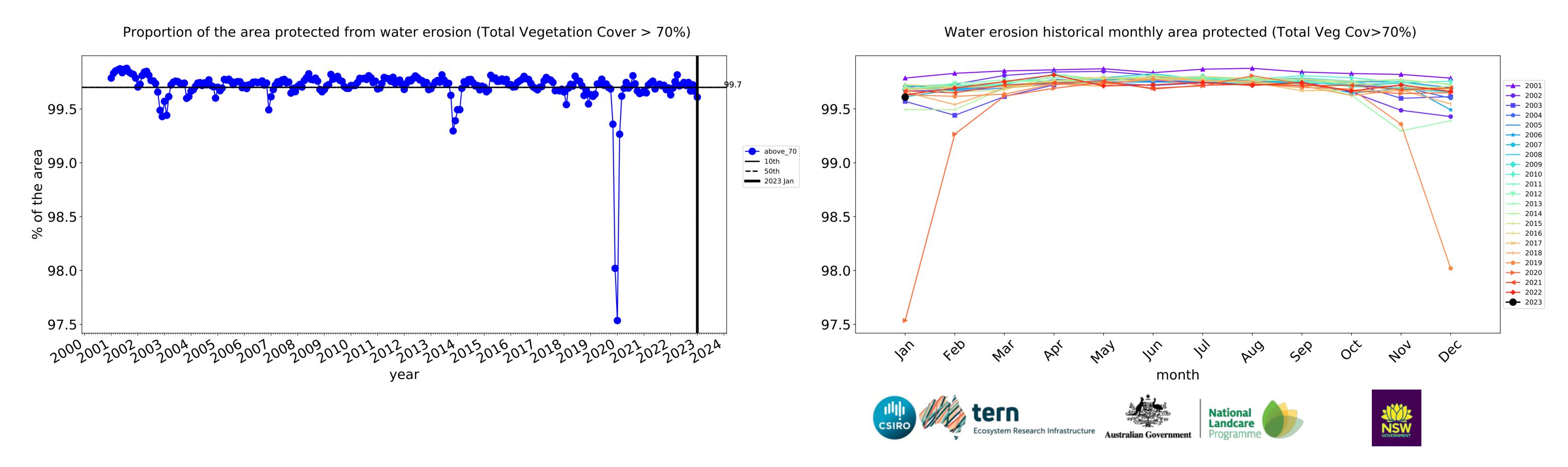


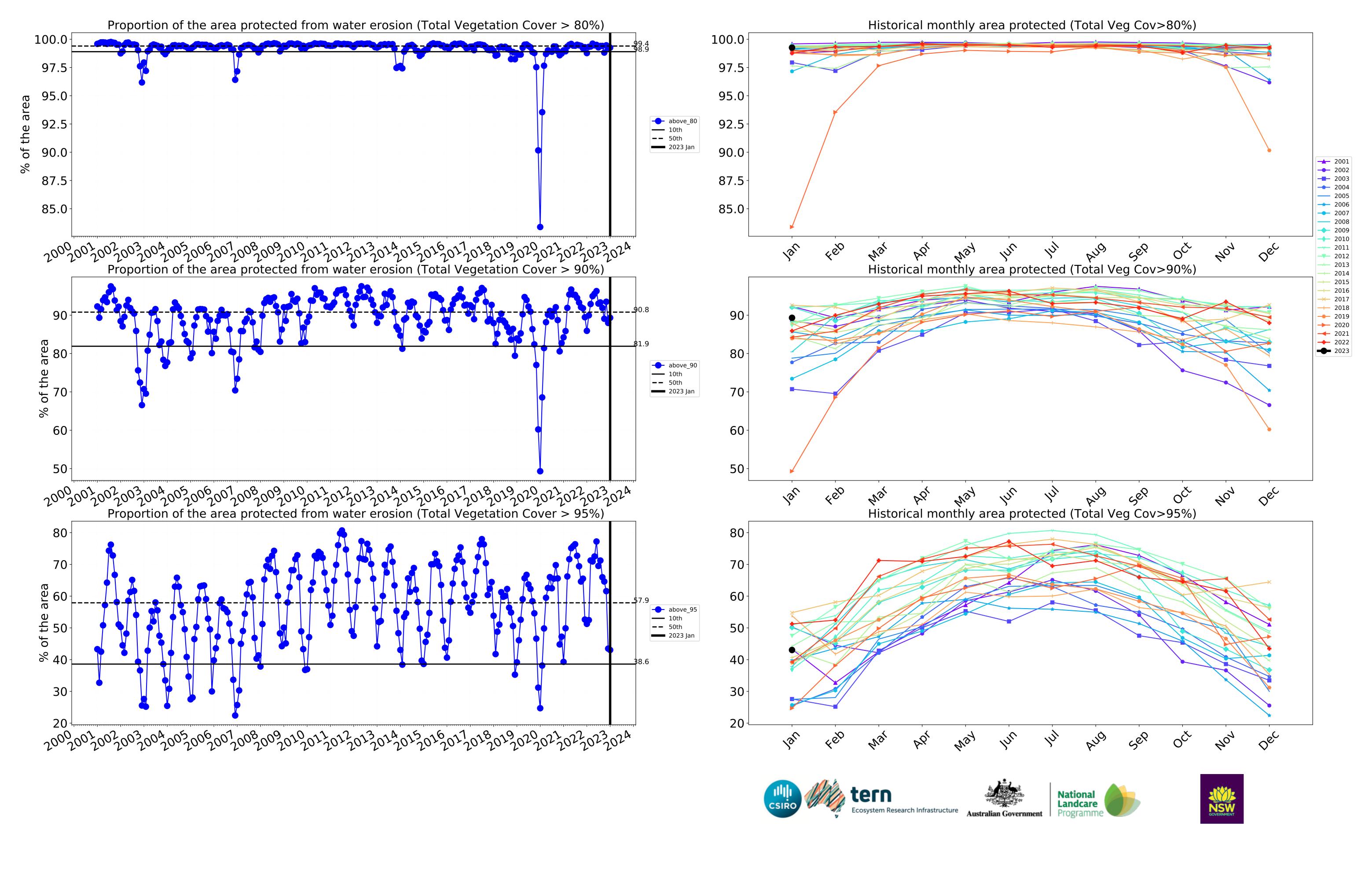
### **Conservation and natural environments**



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





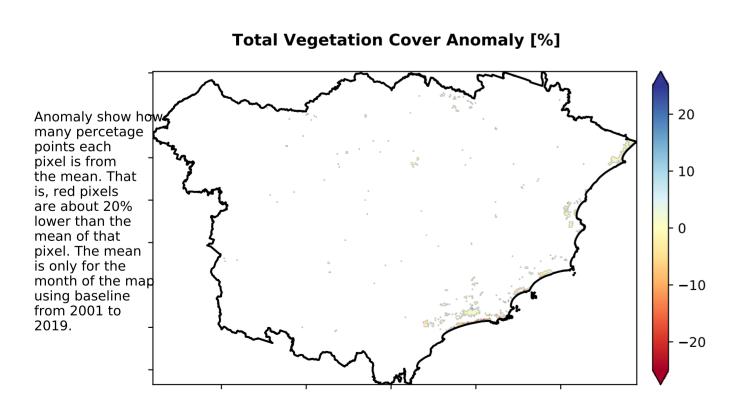


### **Conservation and natural environments non forest**

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

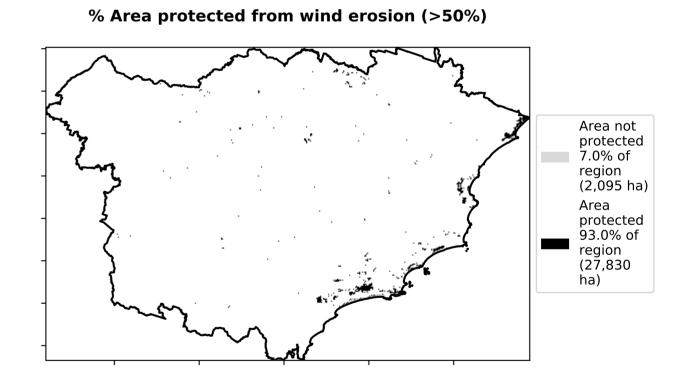
## Total Vegetation Cover [%]

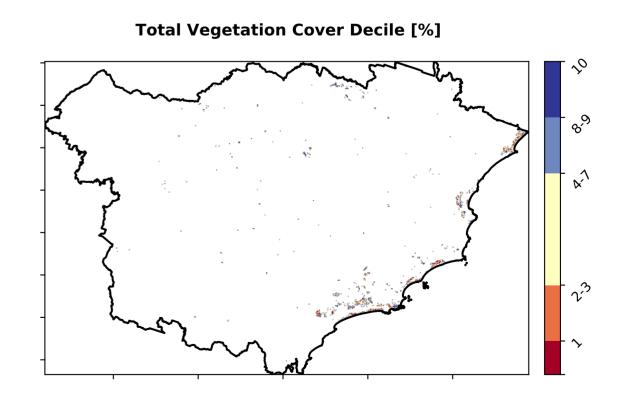
### % Area protected from water erosion (>70%) Area not protected 10.2% of region (3,052 ha) Area protected 89.8% of region (26,873 ha)



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.

# 80 - 89.8% 8





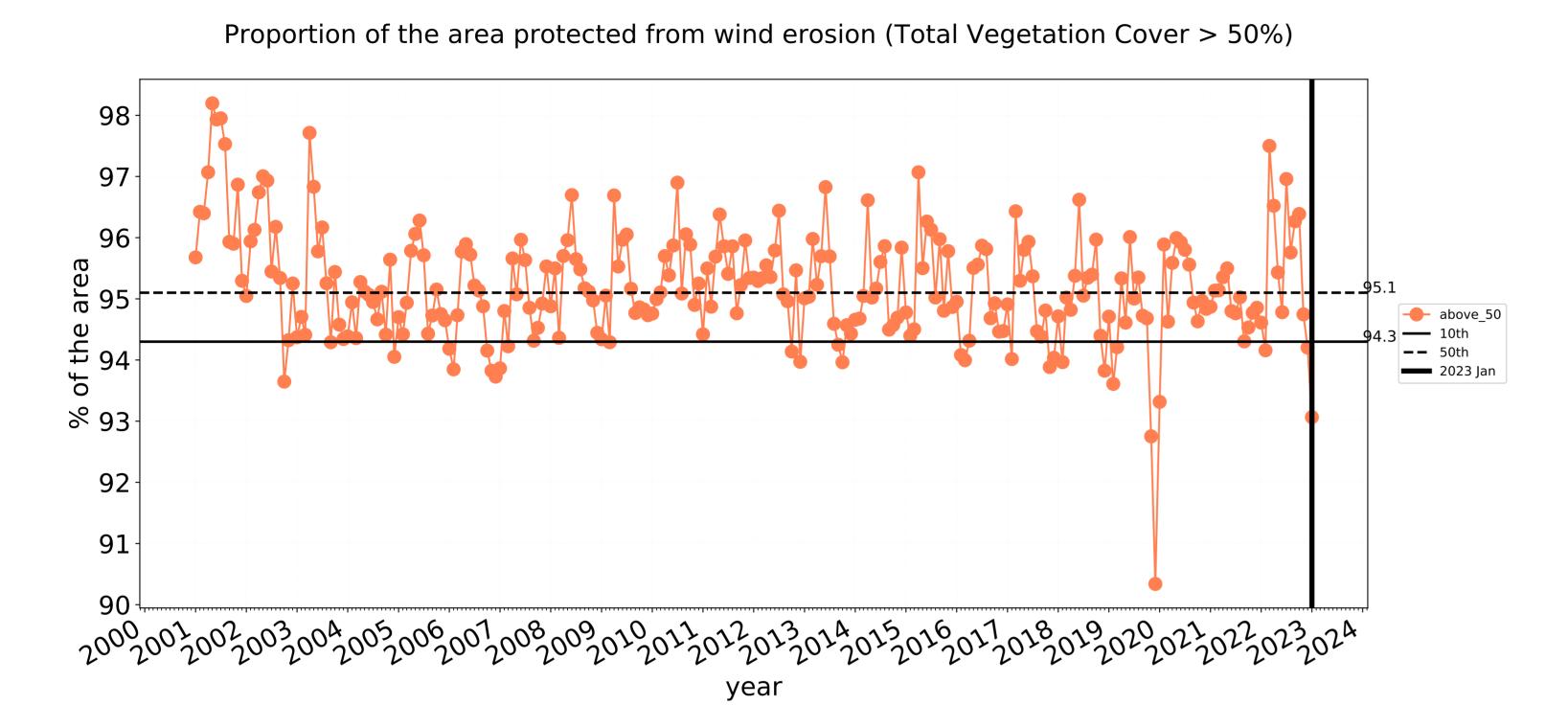


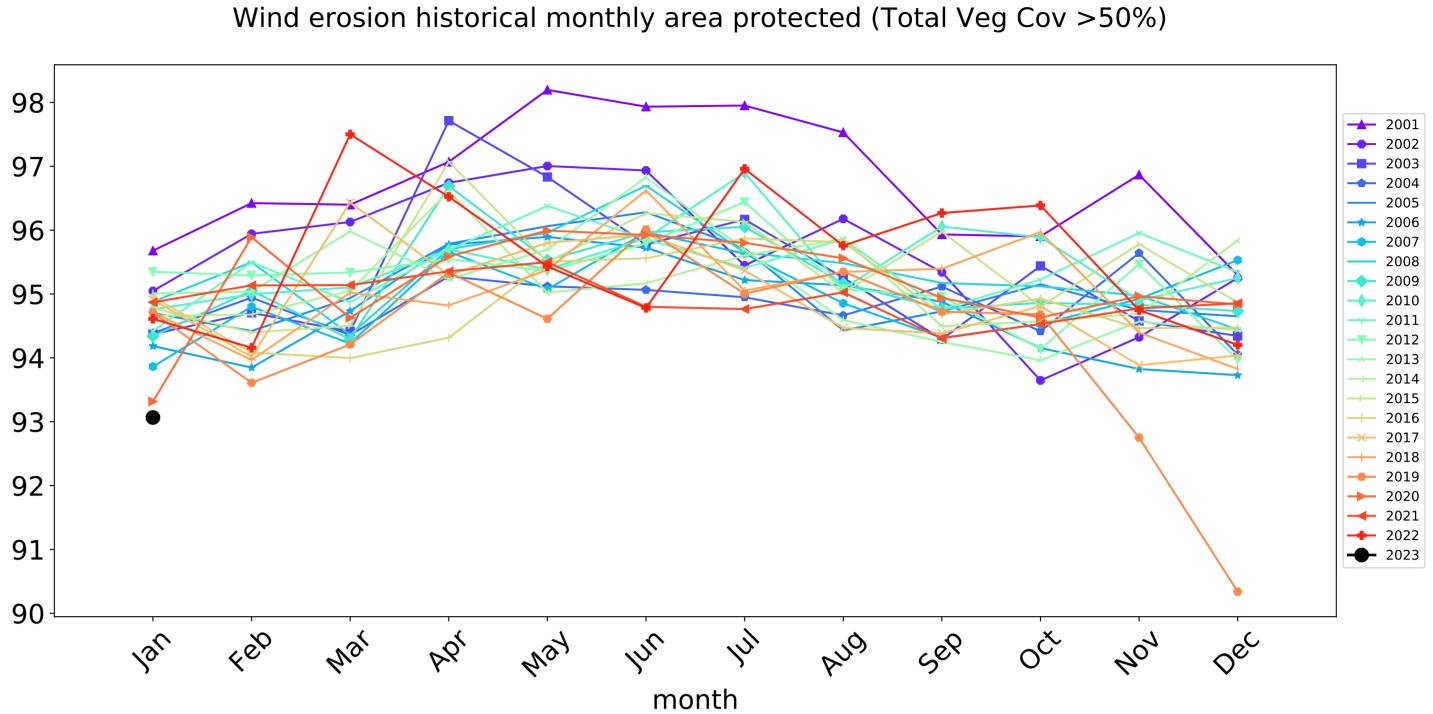


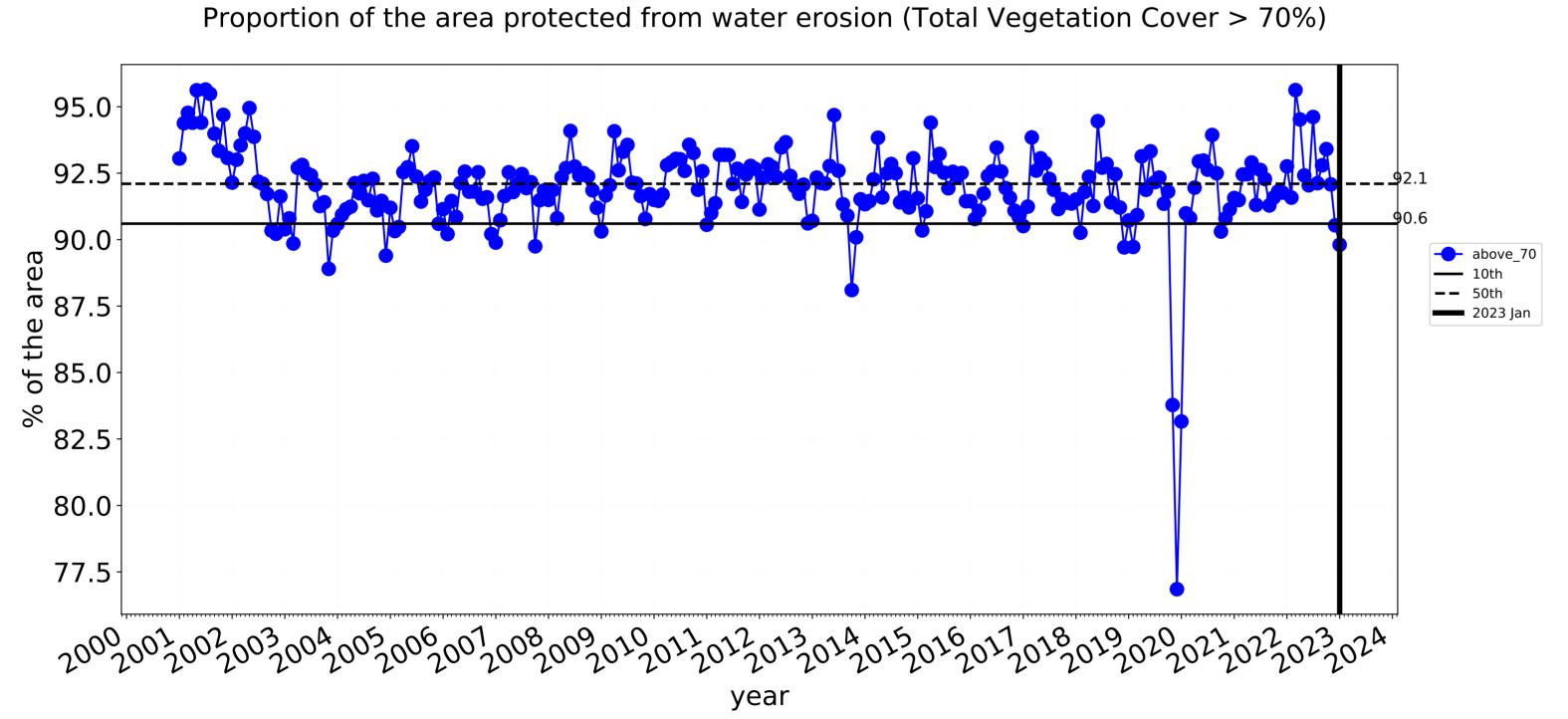


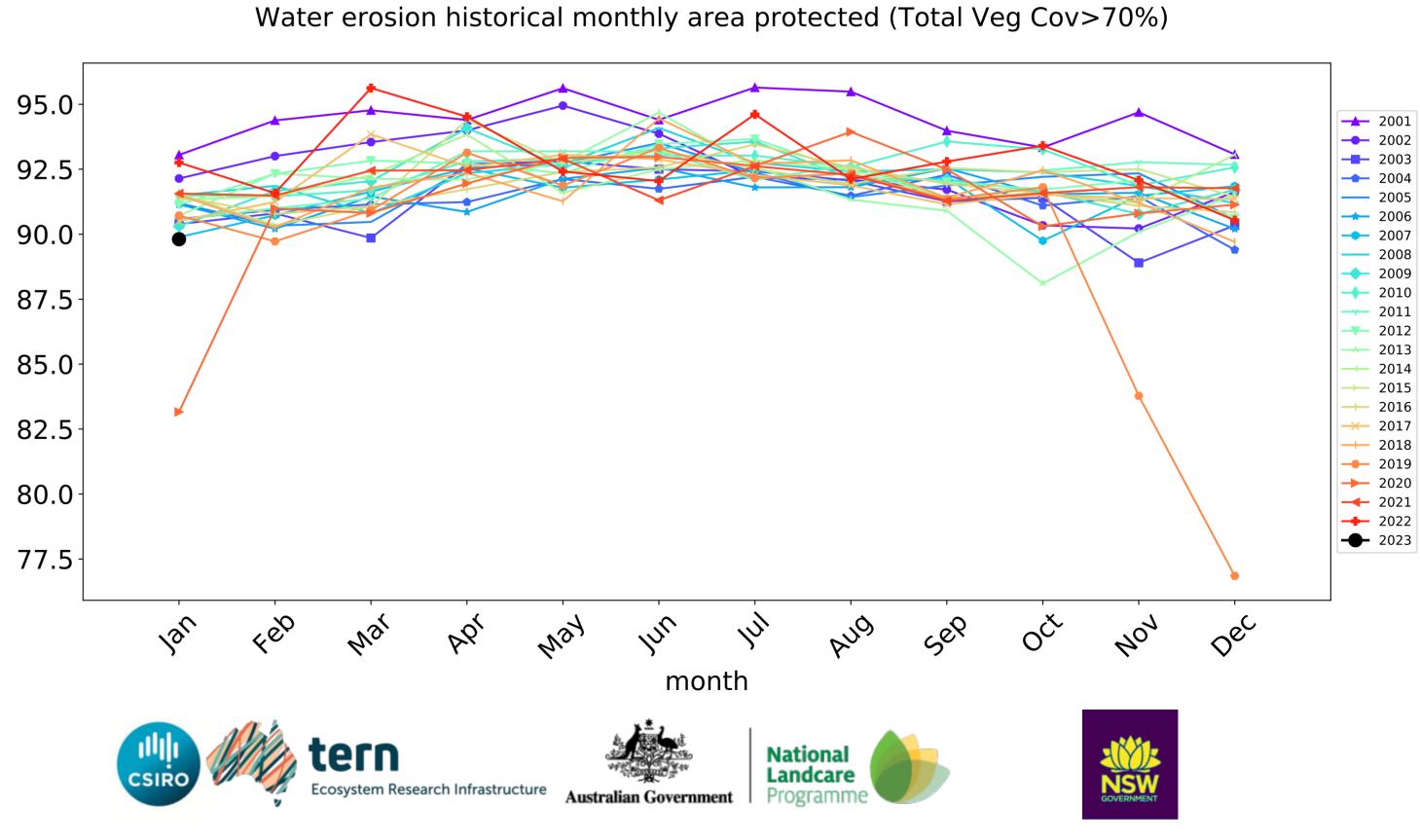


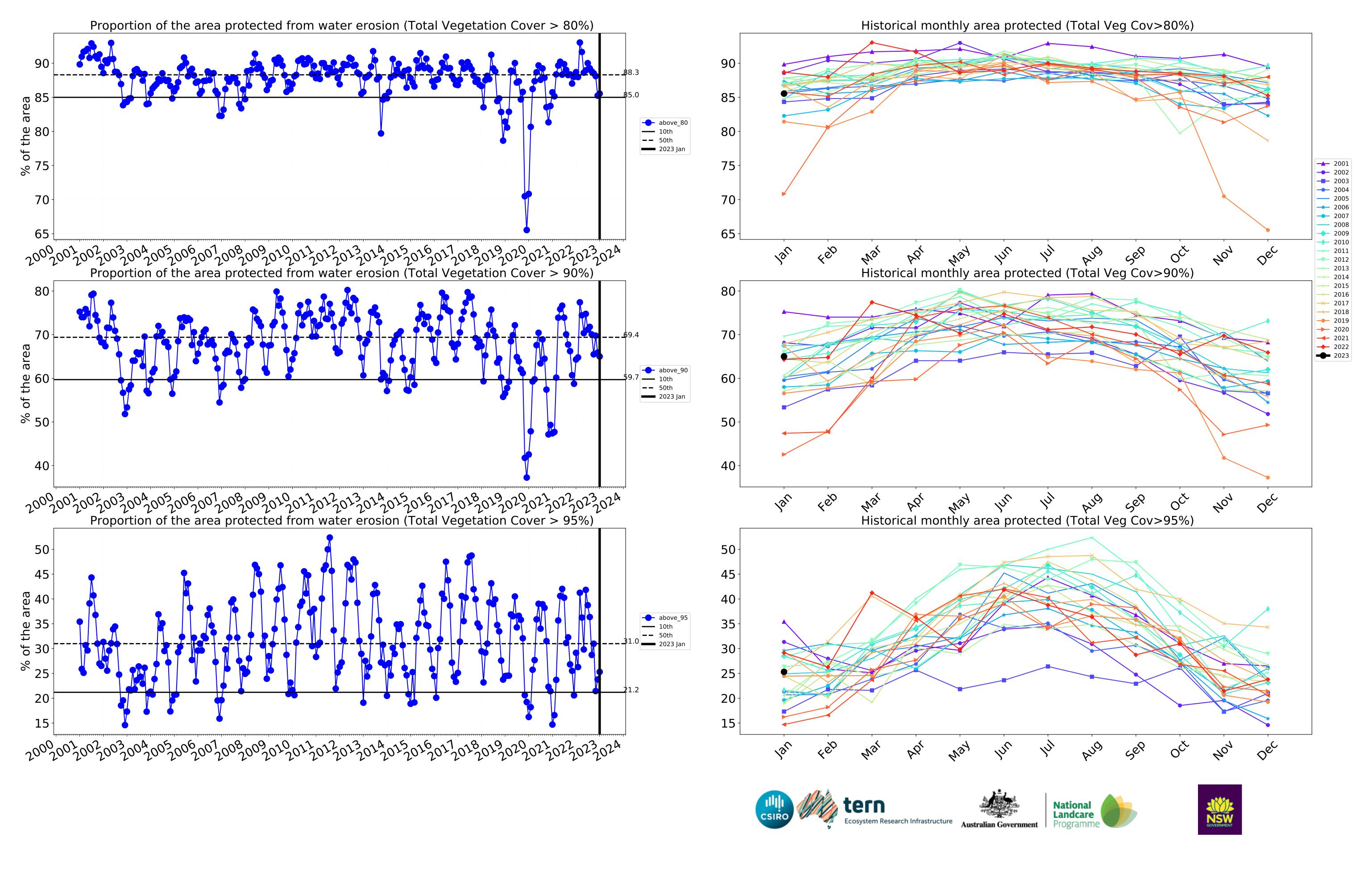
### Conservation and natural environments non forest timeseries



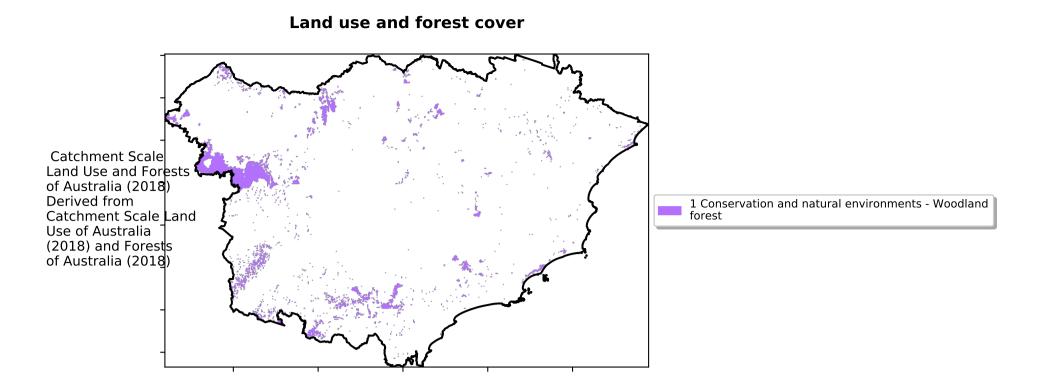


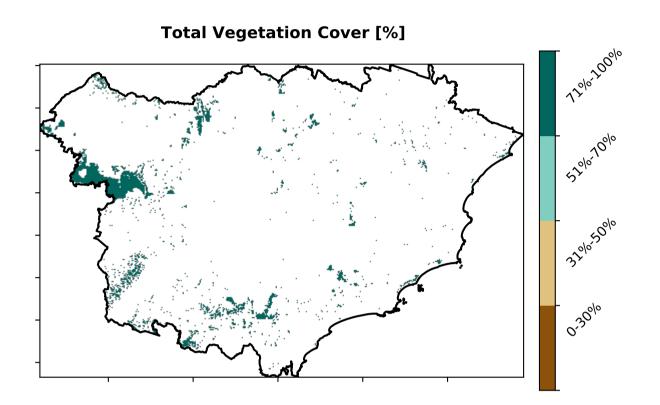


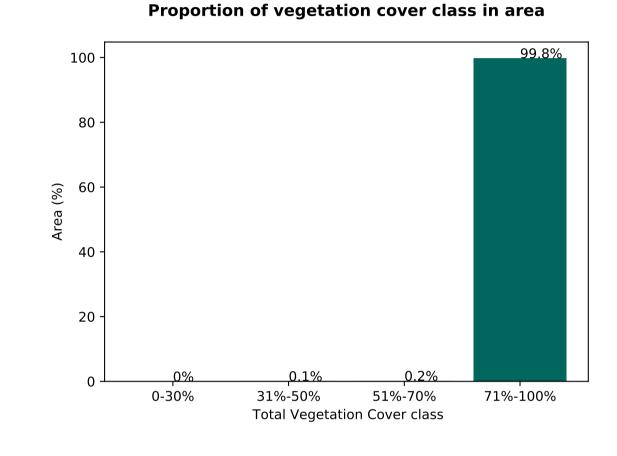


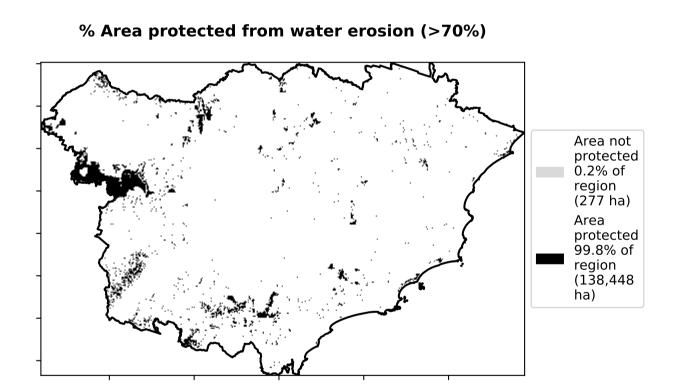


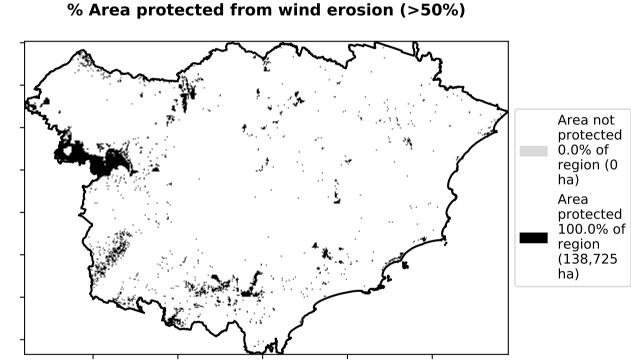
### **Conservation and natural environments Woodland forest**

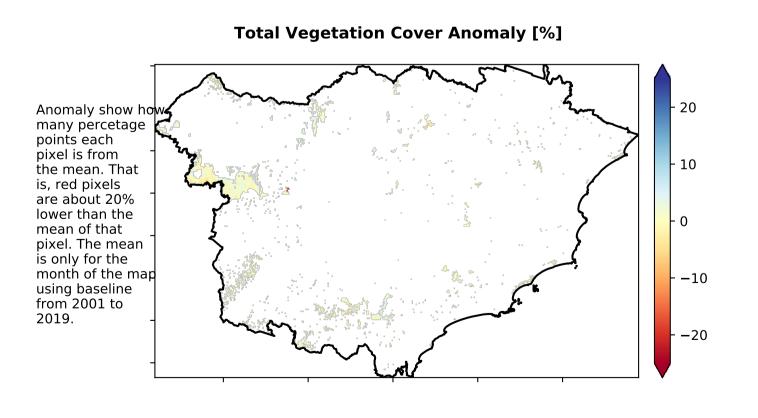


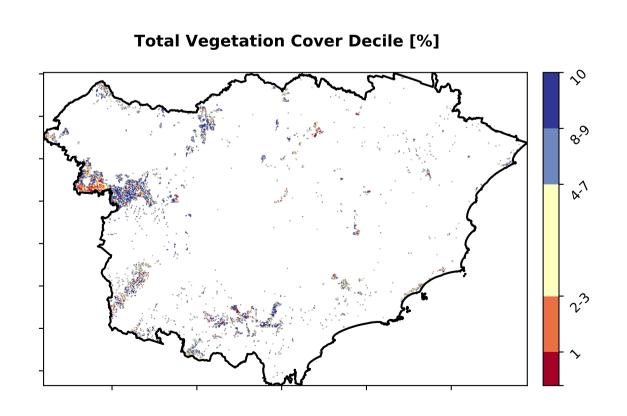










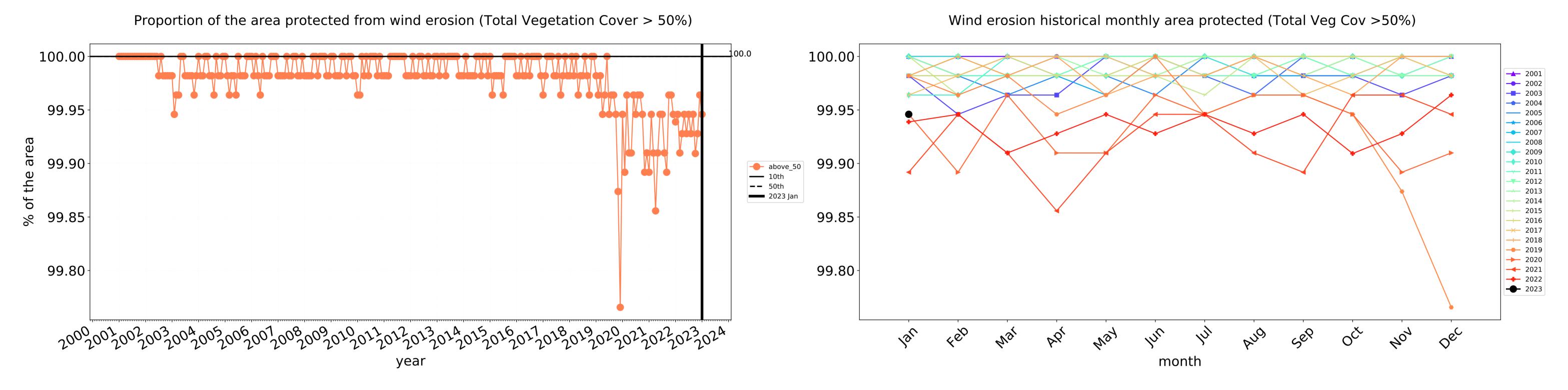


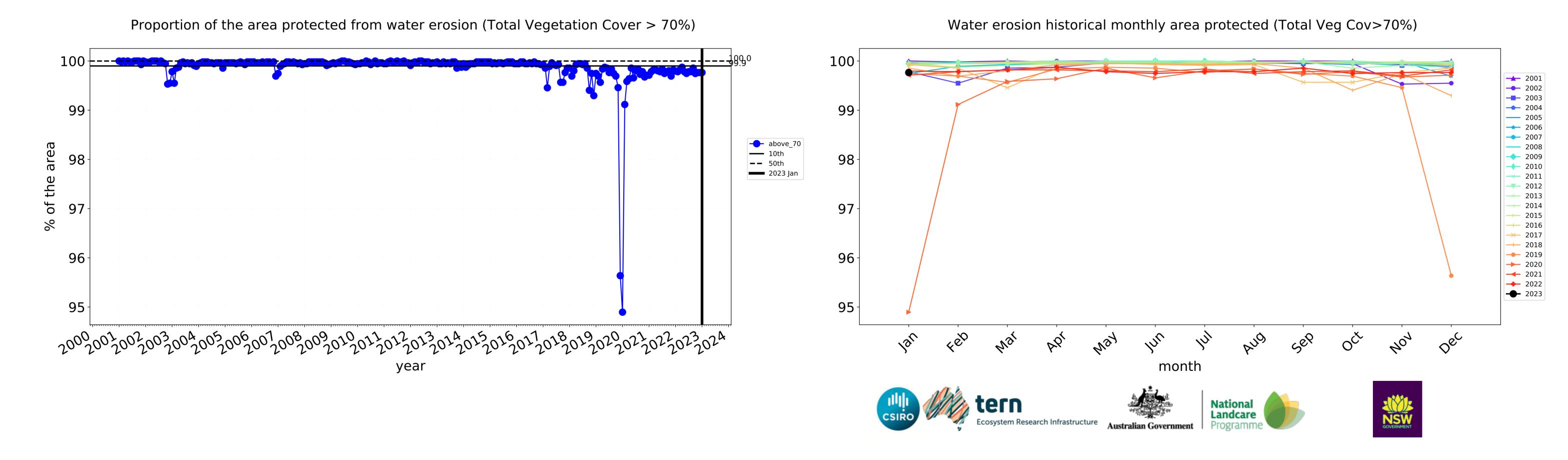


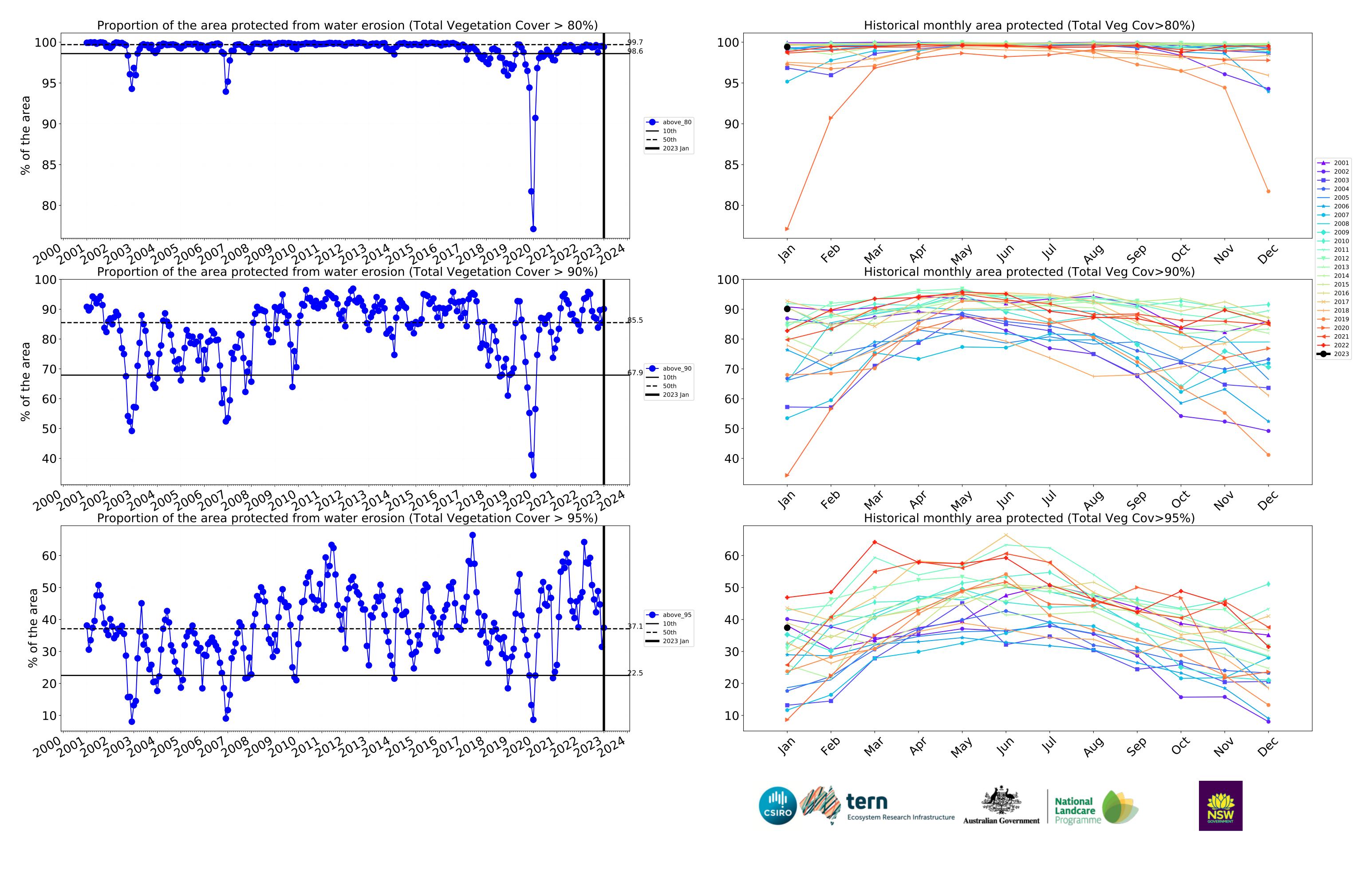




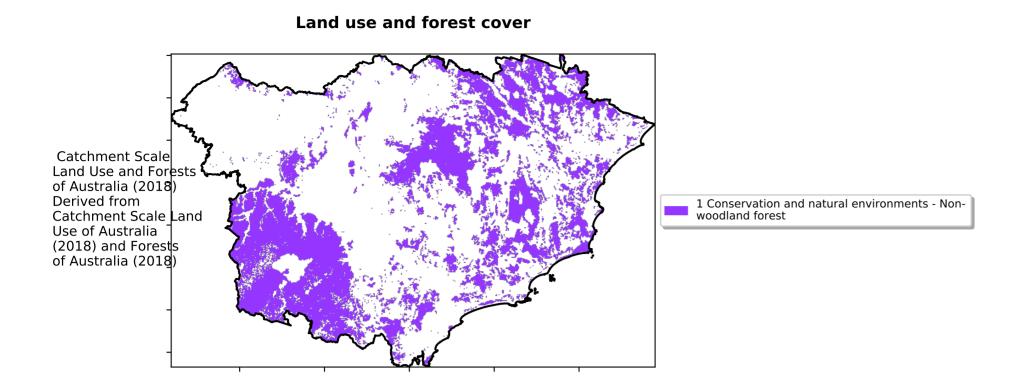




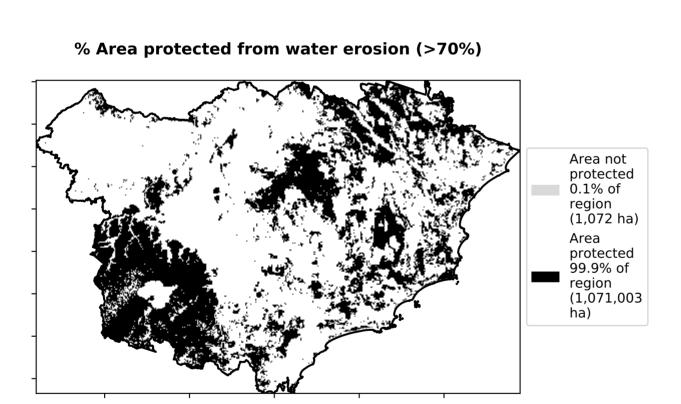


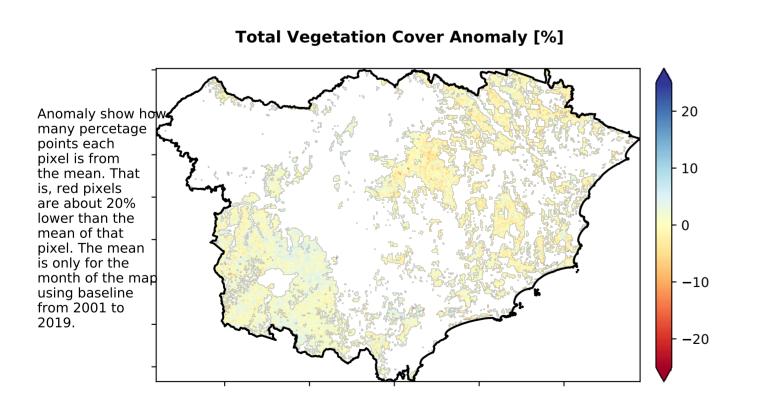


### **Conservation and natural environments Forest (non woodland)**



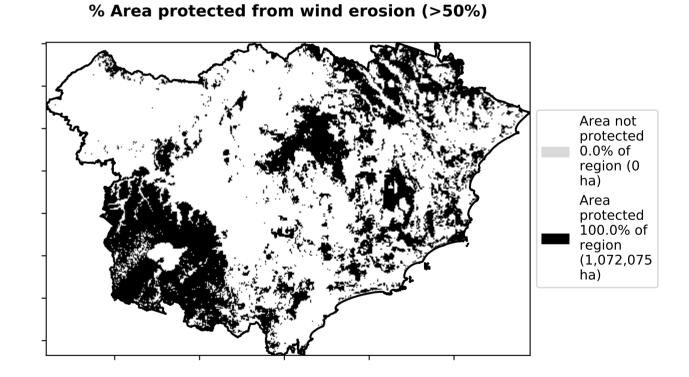
## Total Vegetation Cover [%] Total Vegetation Cover [%] Total Vegetation Cover [%]

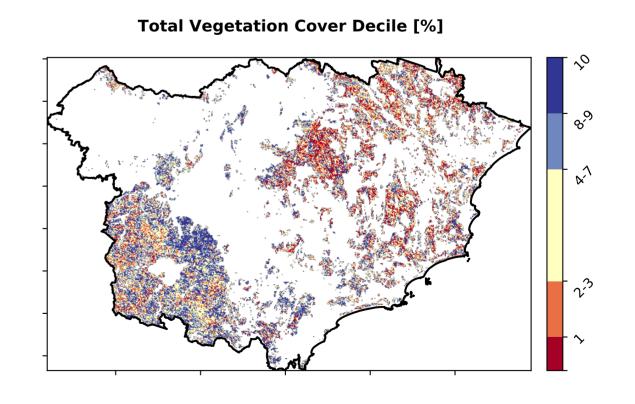




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

# Proportion of vegetation cover class in area 99.9% 80 - 99.9% 40 - 20 - 0.0% 0.0% 0.1% O-30% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class



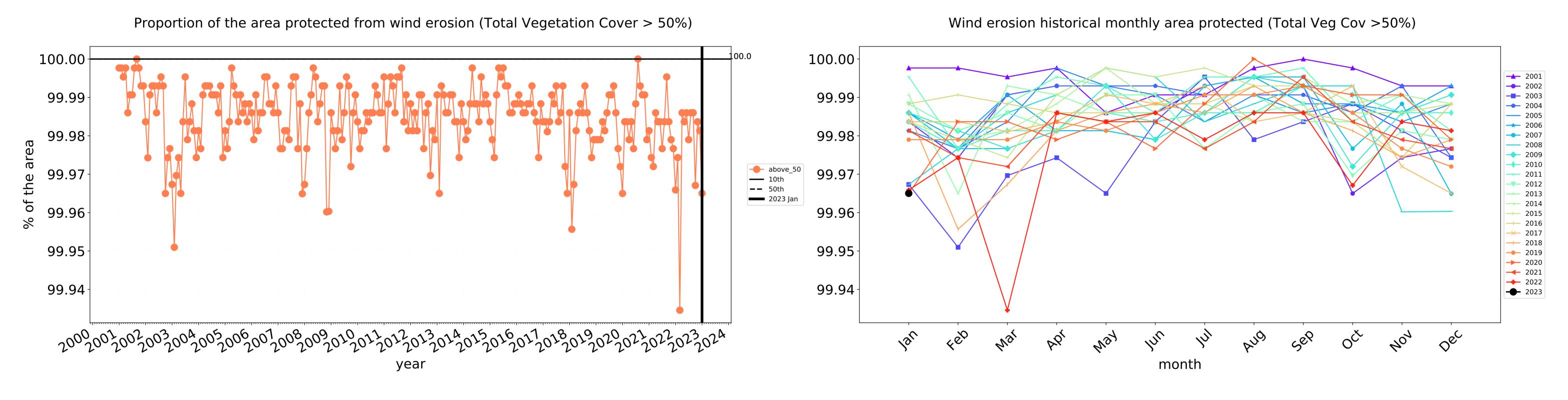


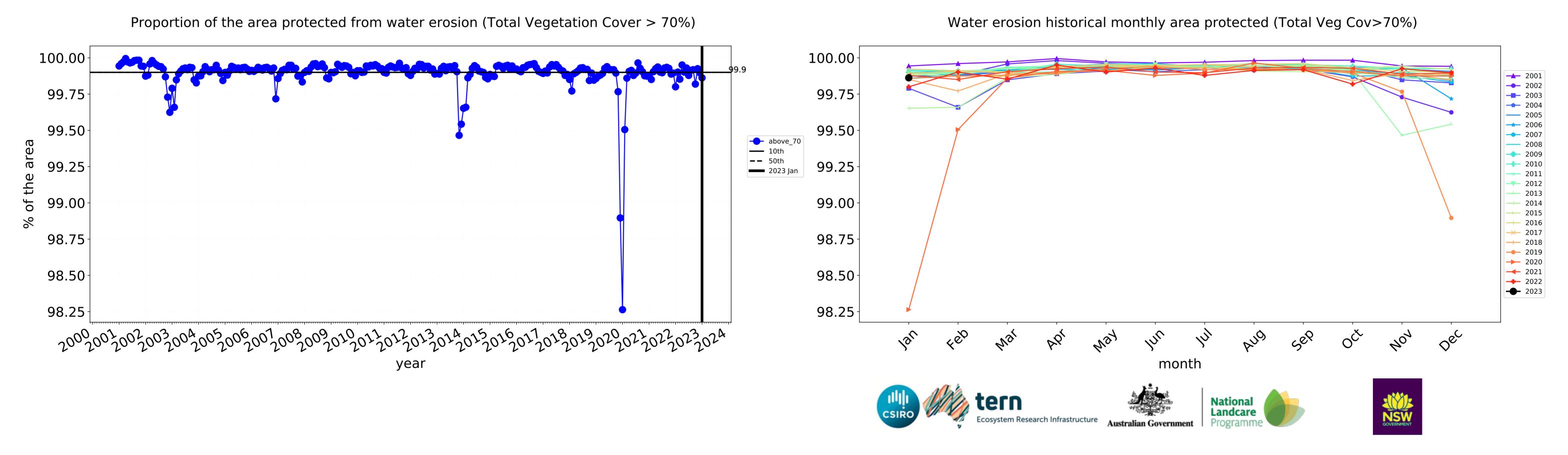


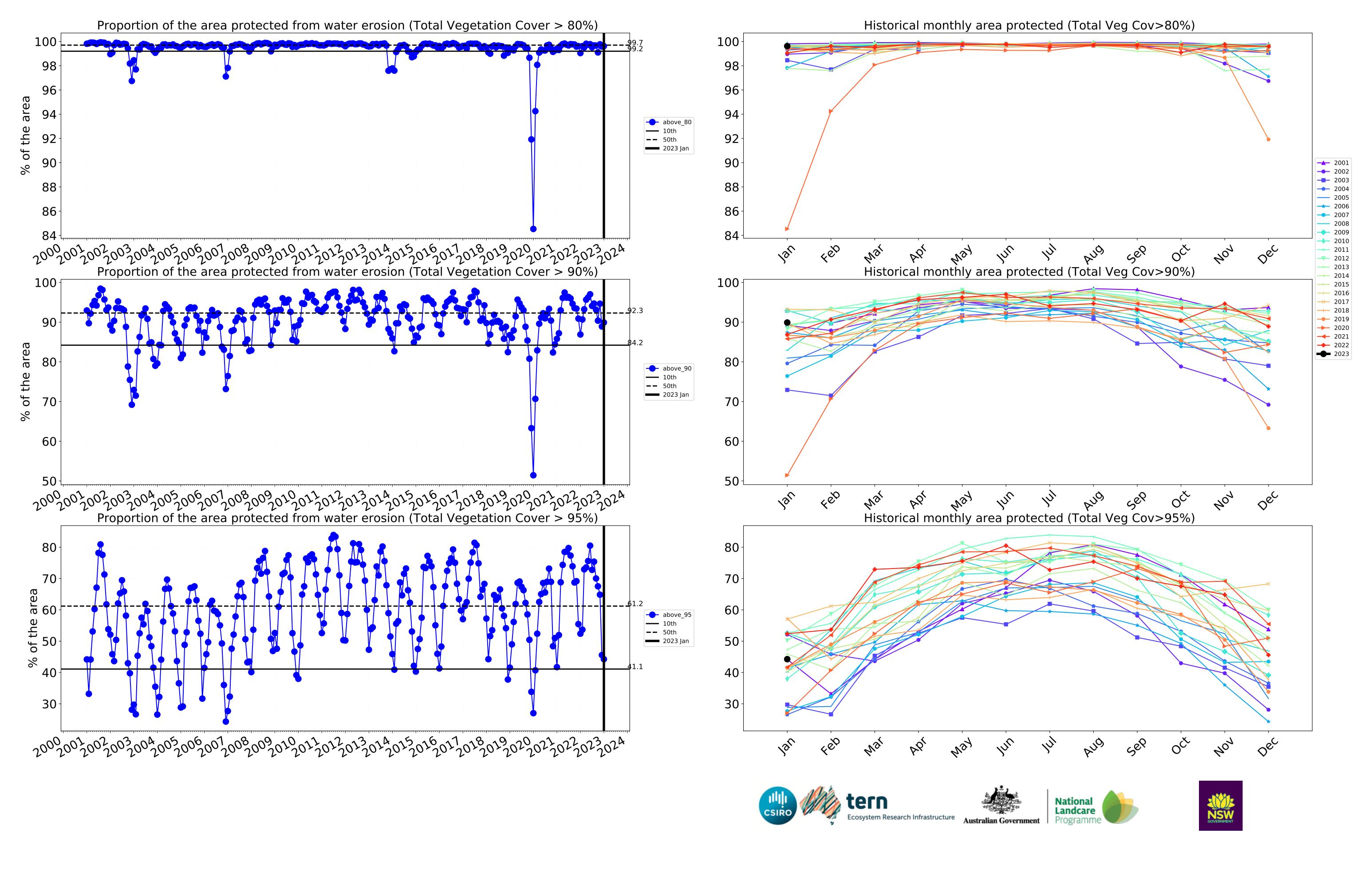




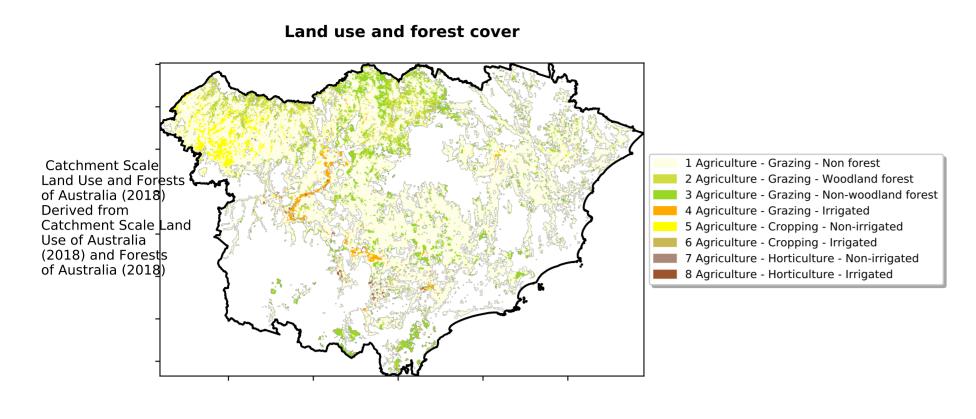


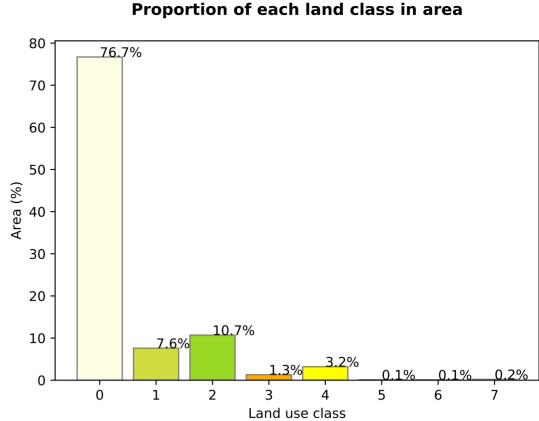


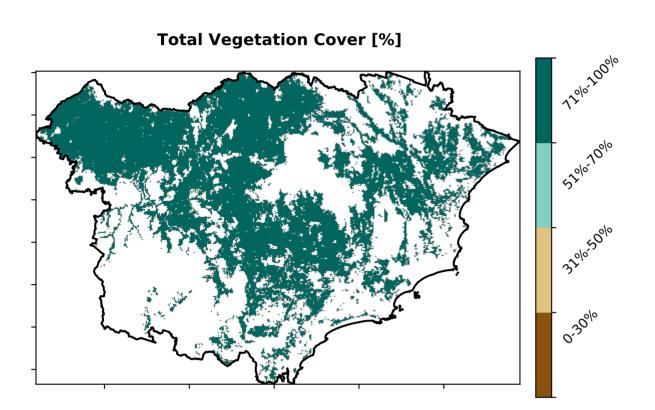


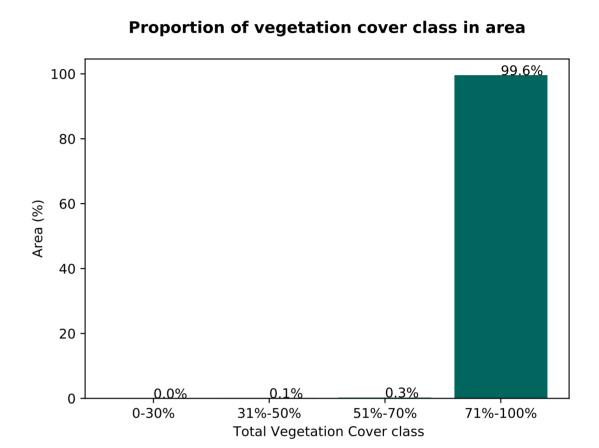


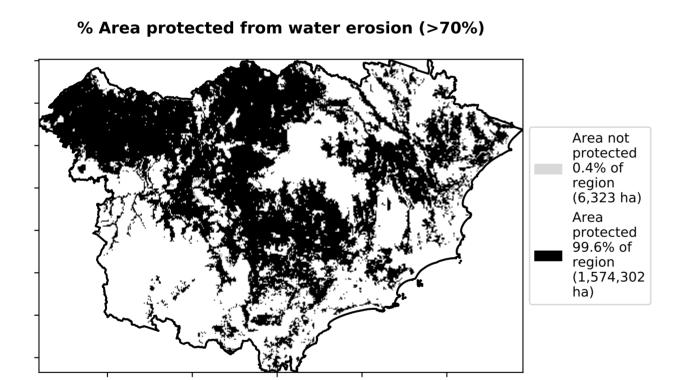
### **Agriculture**

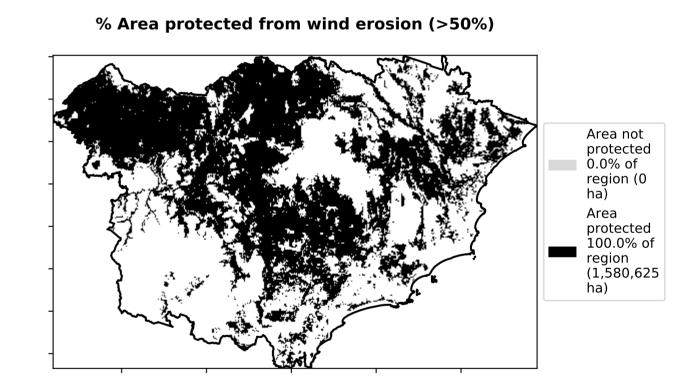


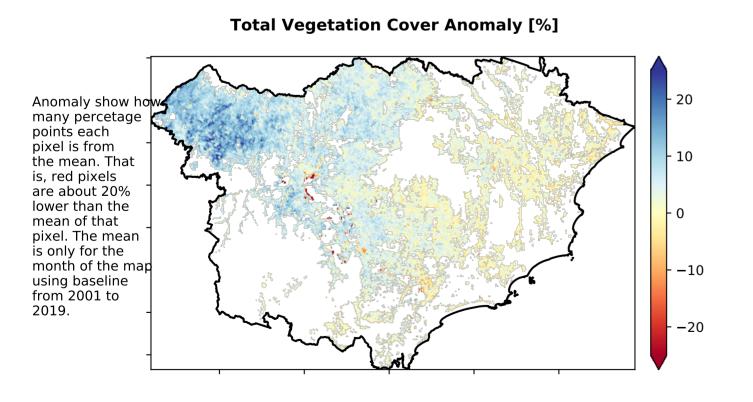


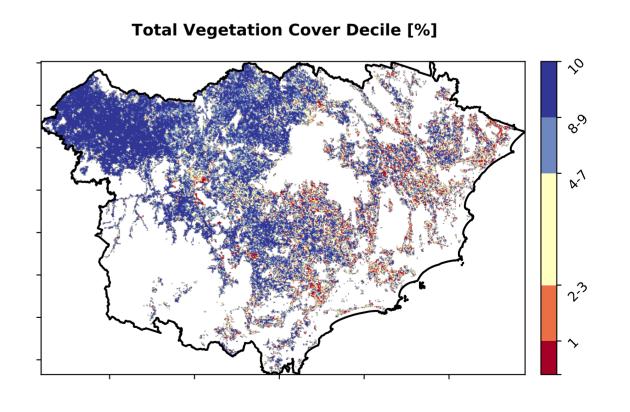












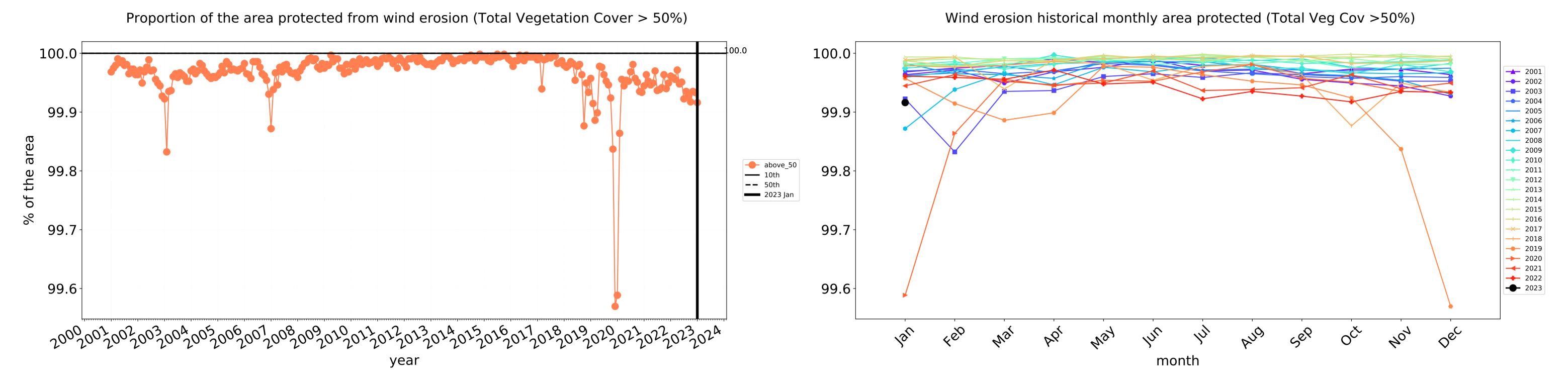


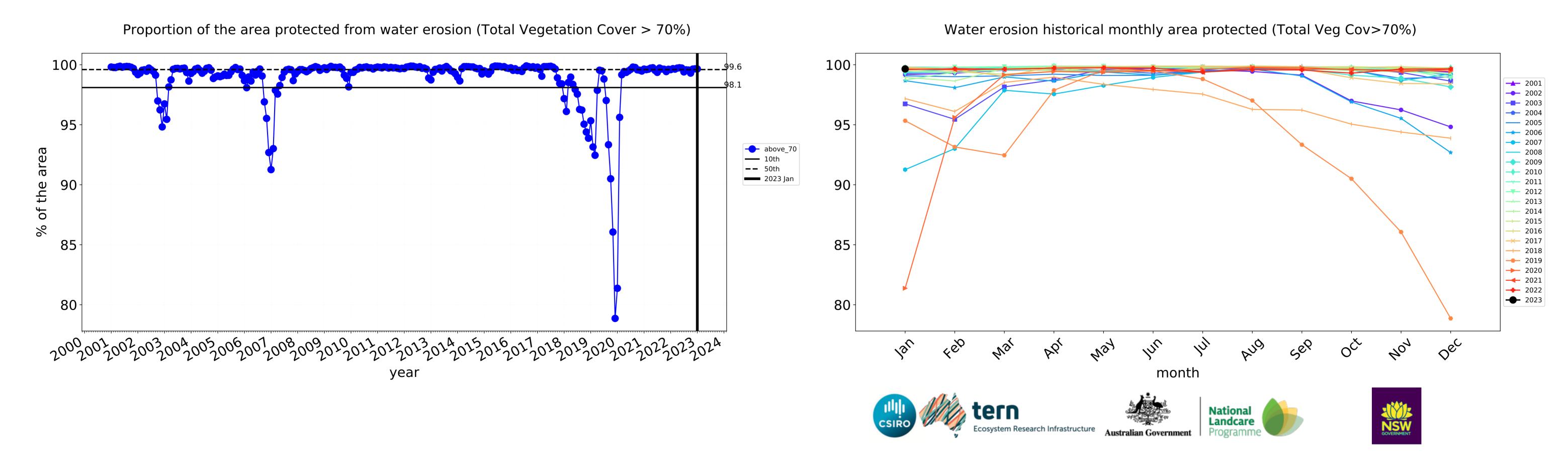


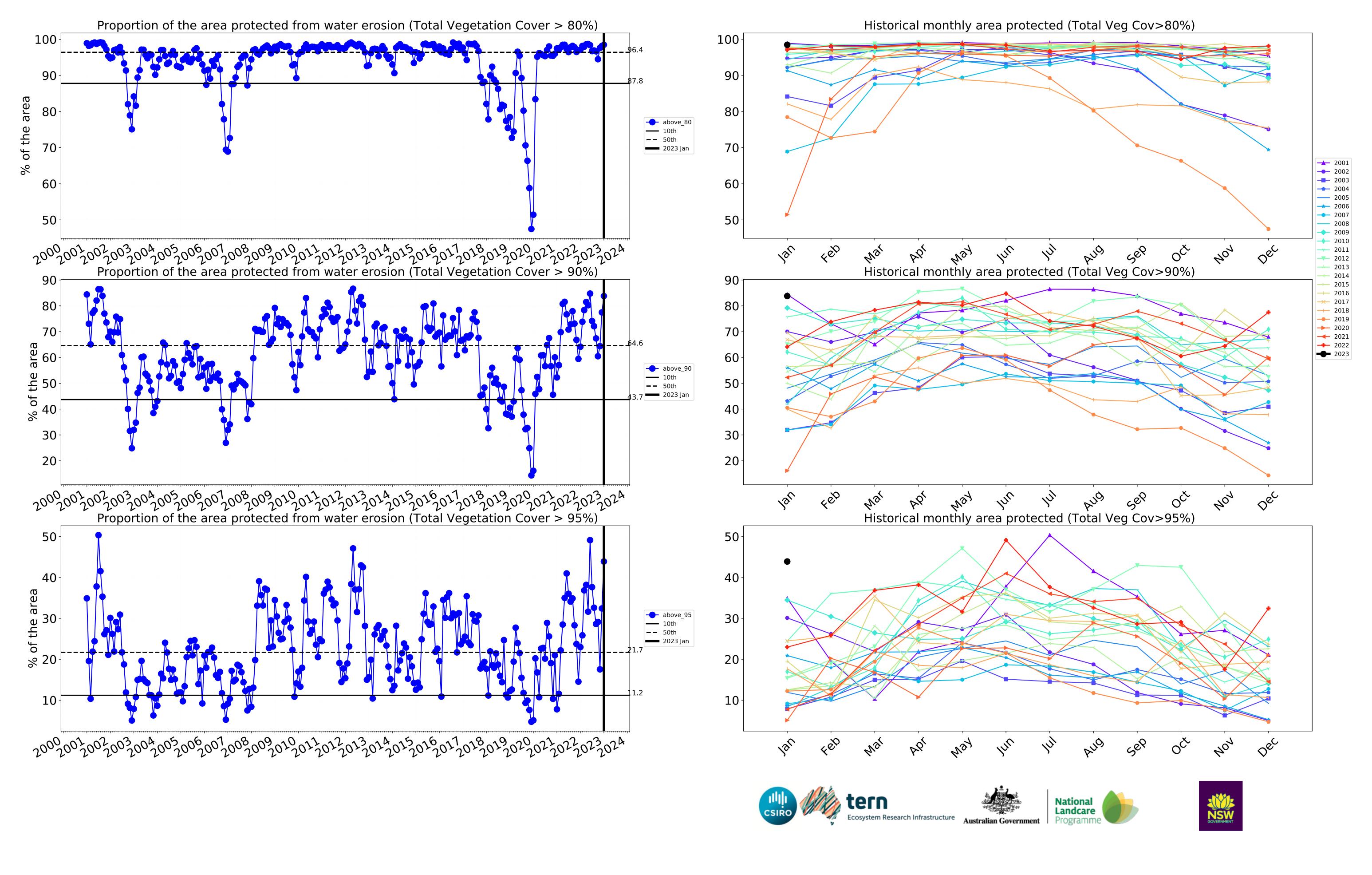




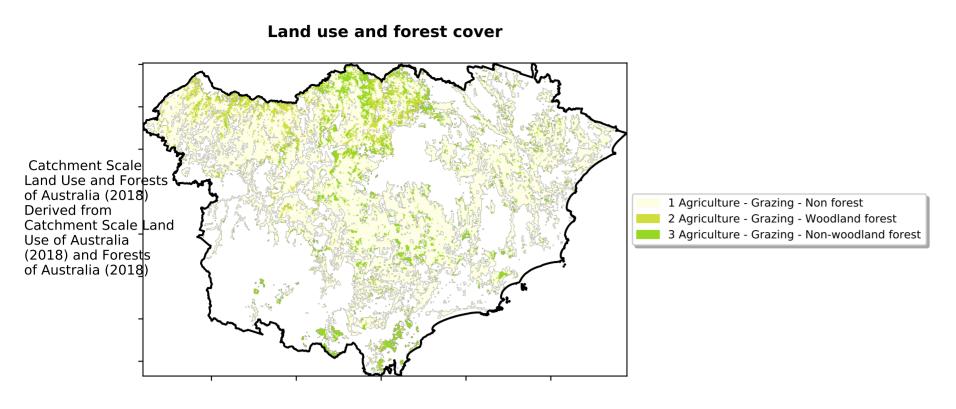
### **Agriculture timeseries**



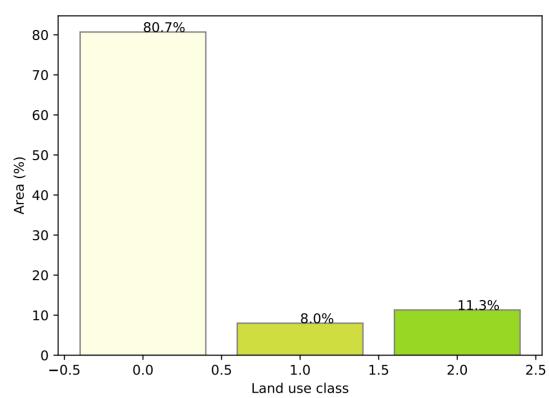




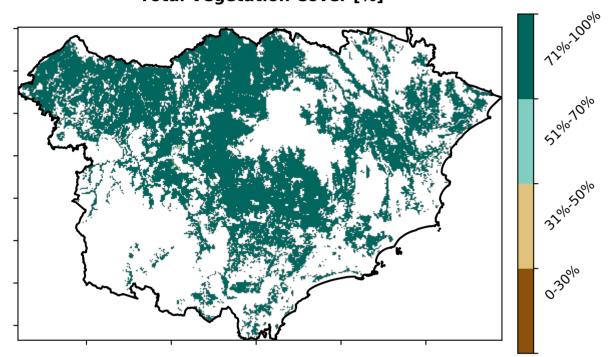
### **Grazing**



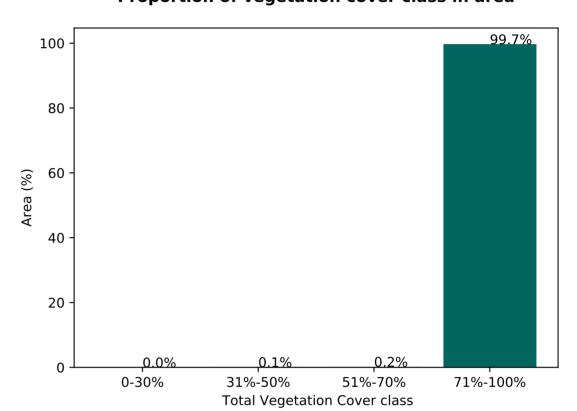
### Proportion of each land class in area



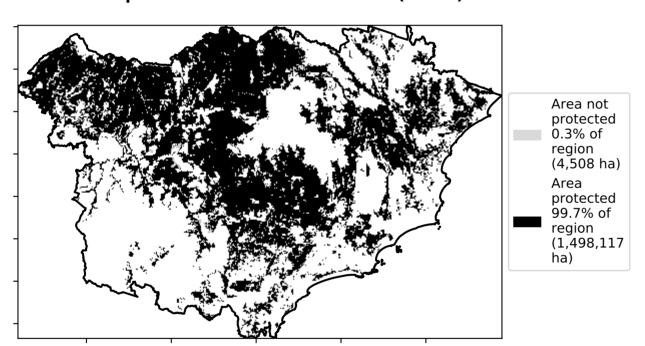
**Total Vegetation Cover [%]** 



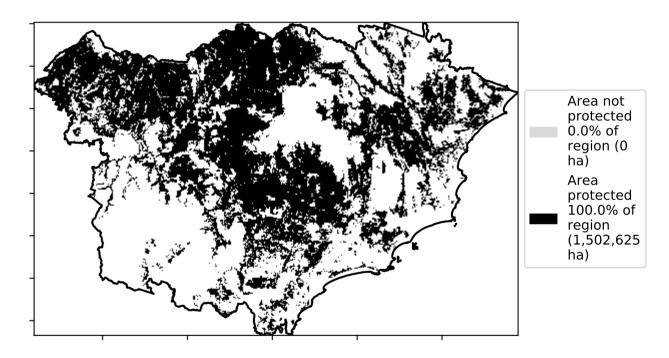
Proportion of vegetation cover class in area



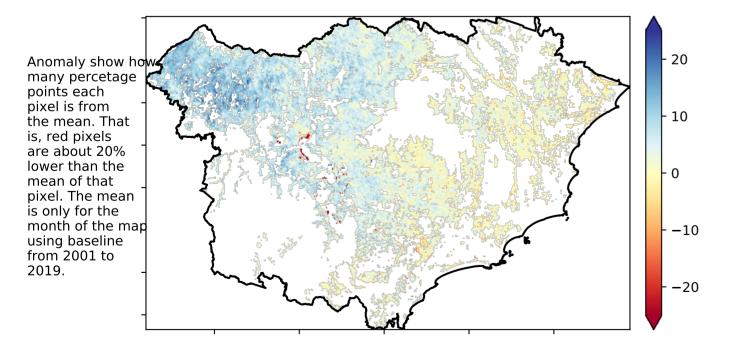
% Area protected from water erosion (>70%)



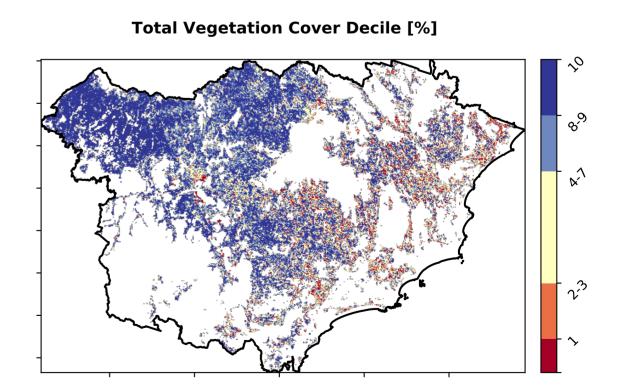
% Area protected from wind erosion (>50%)



**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.





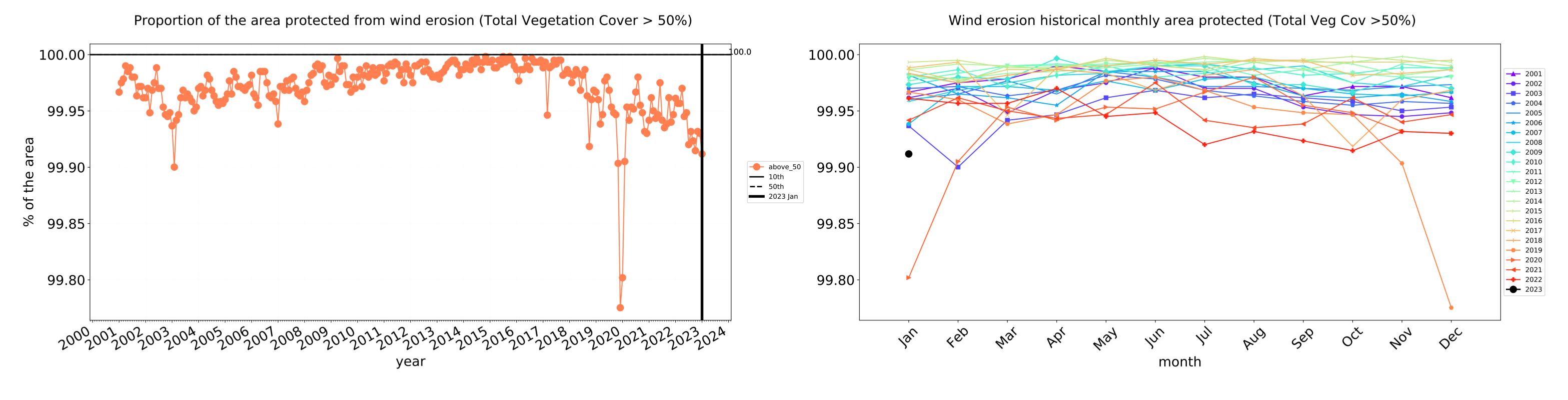


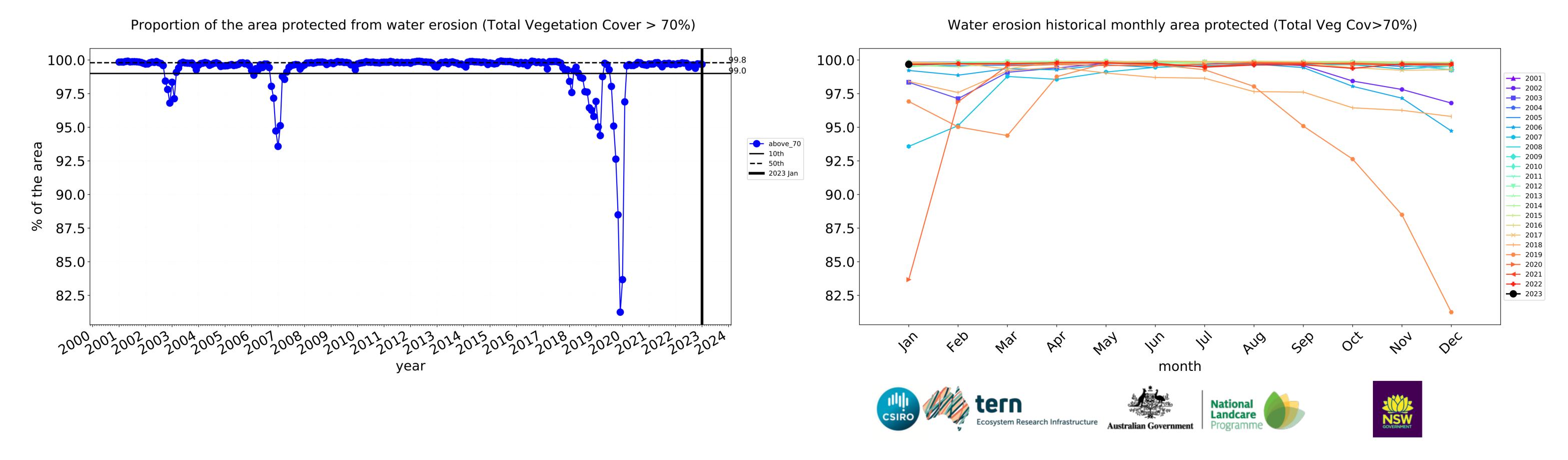


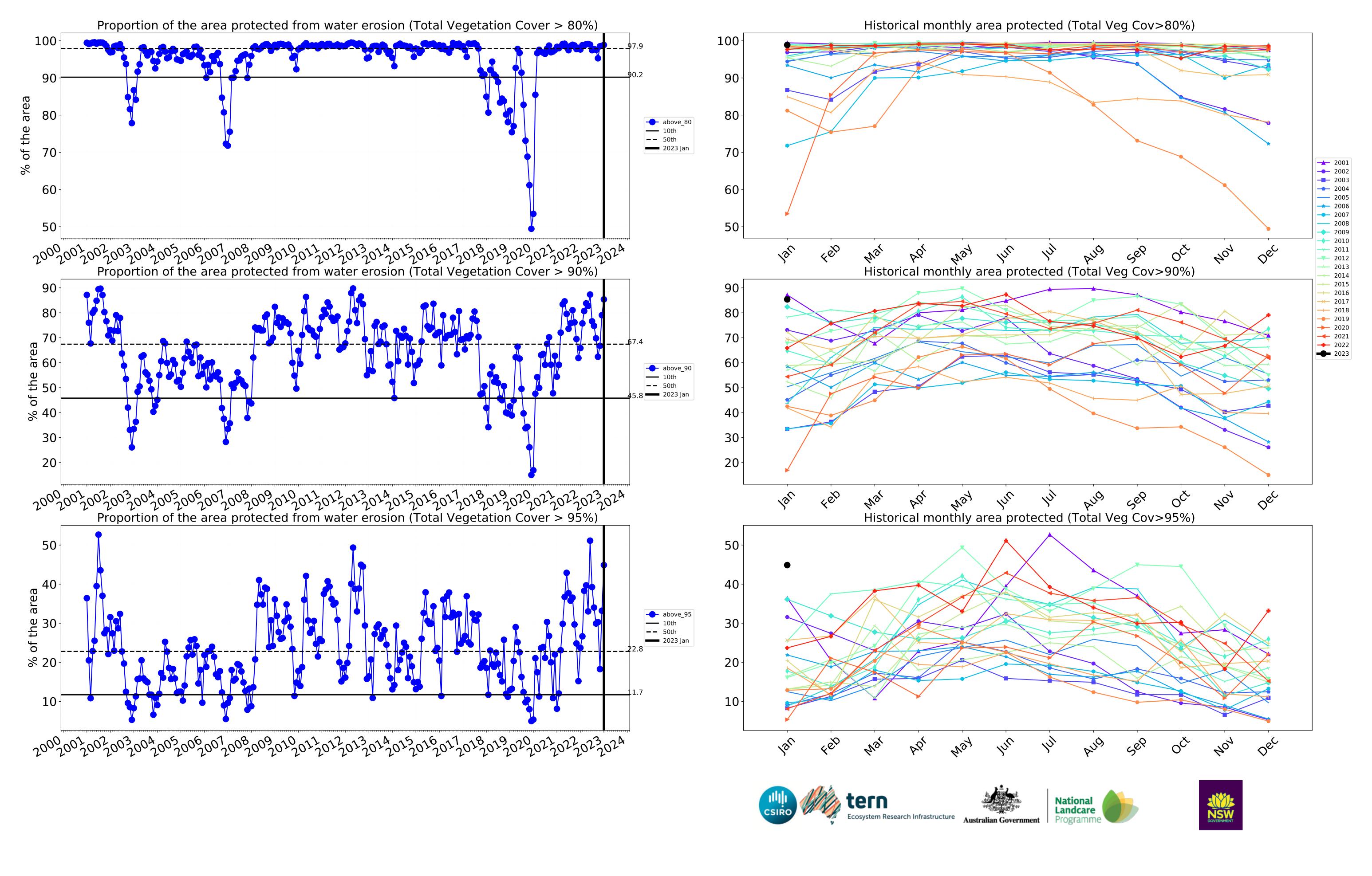




### **Grazing timeseries**

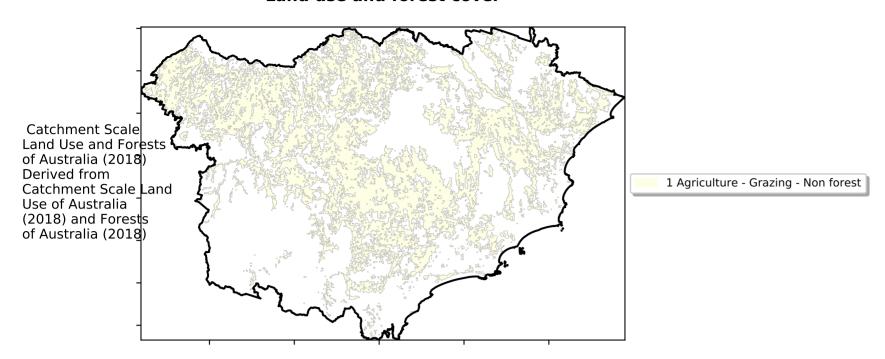




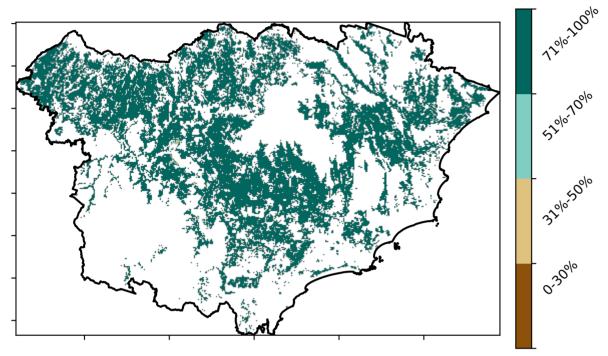


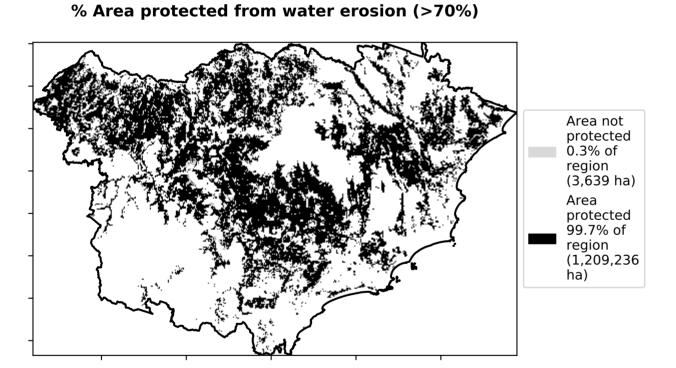
### **Grazing non forest**

### Land use and forest cover

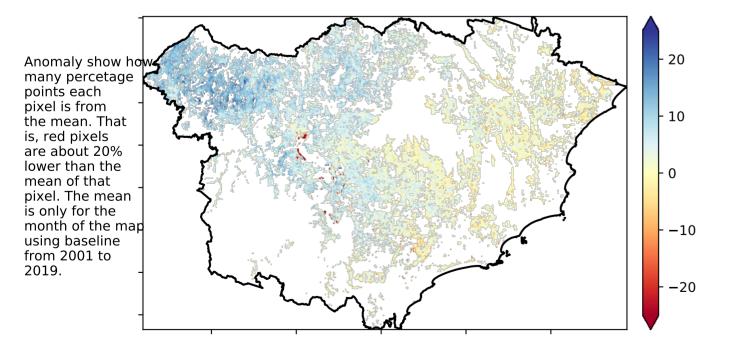


### Total Vegetation Cover [%]



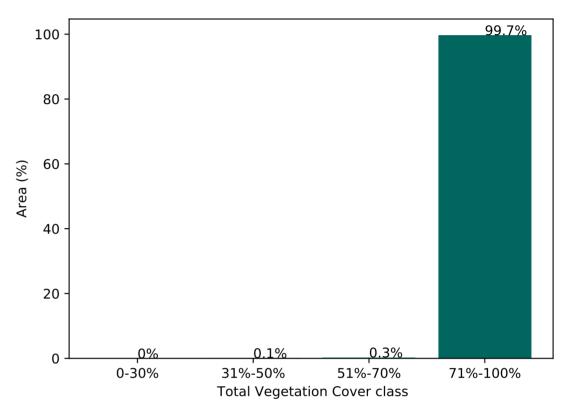


### Total Vegetation Cover Anomaly [%]

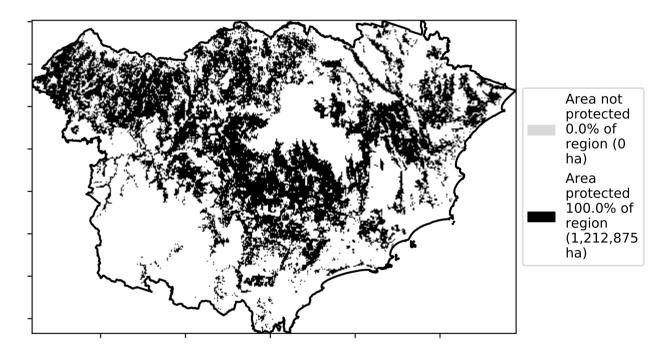


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

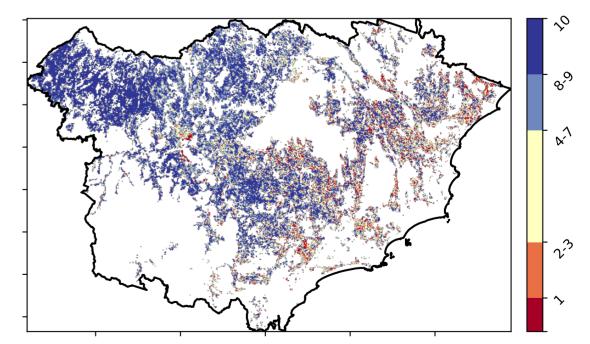
### Proportion of vegetation cover class in area



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



### Total Vegetation Cover Decile [%]



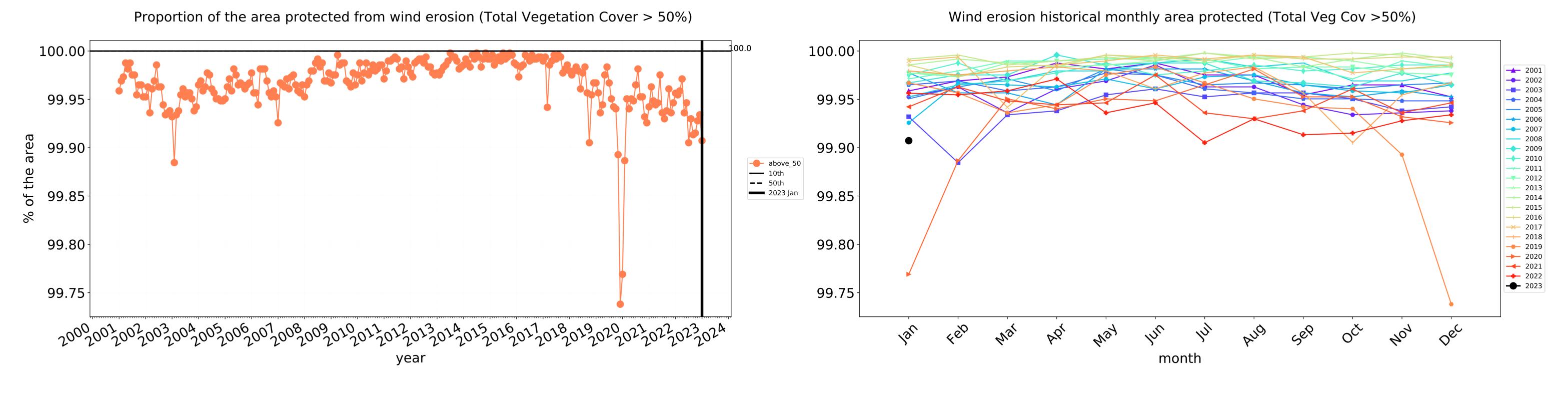


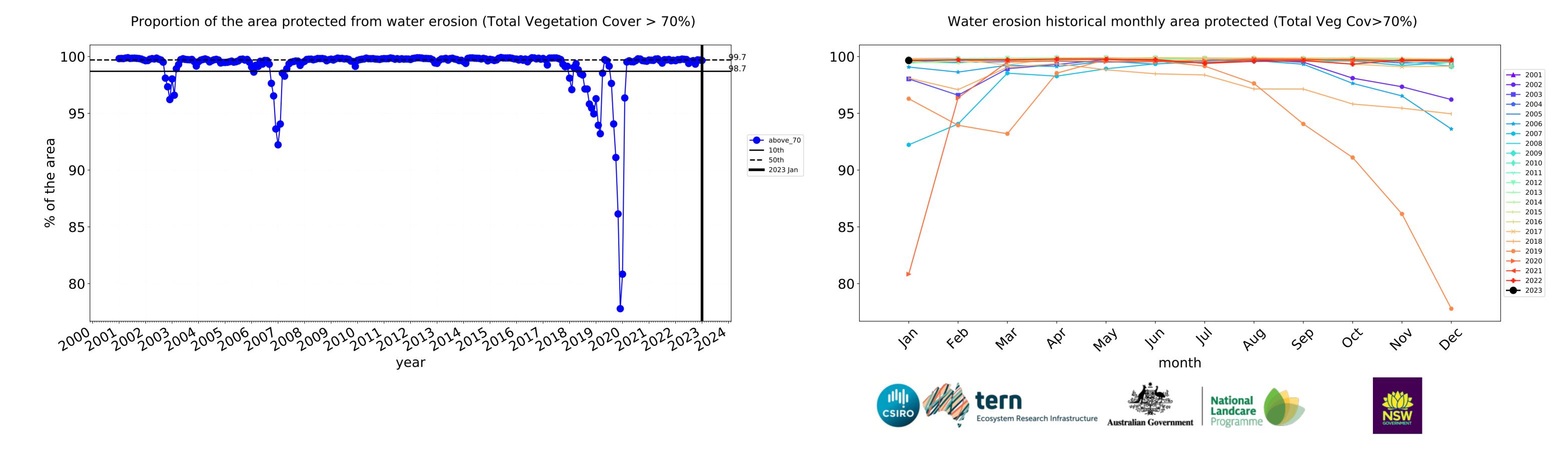


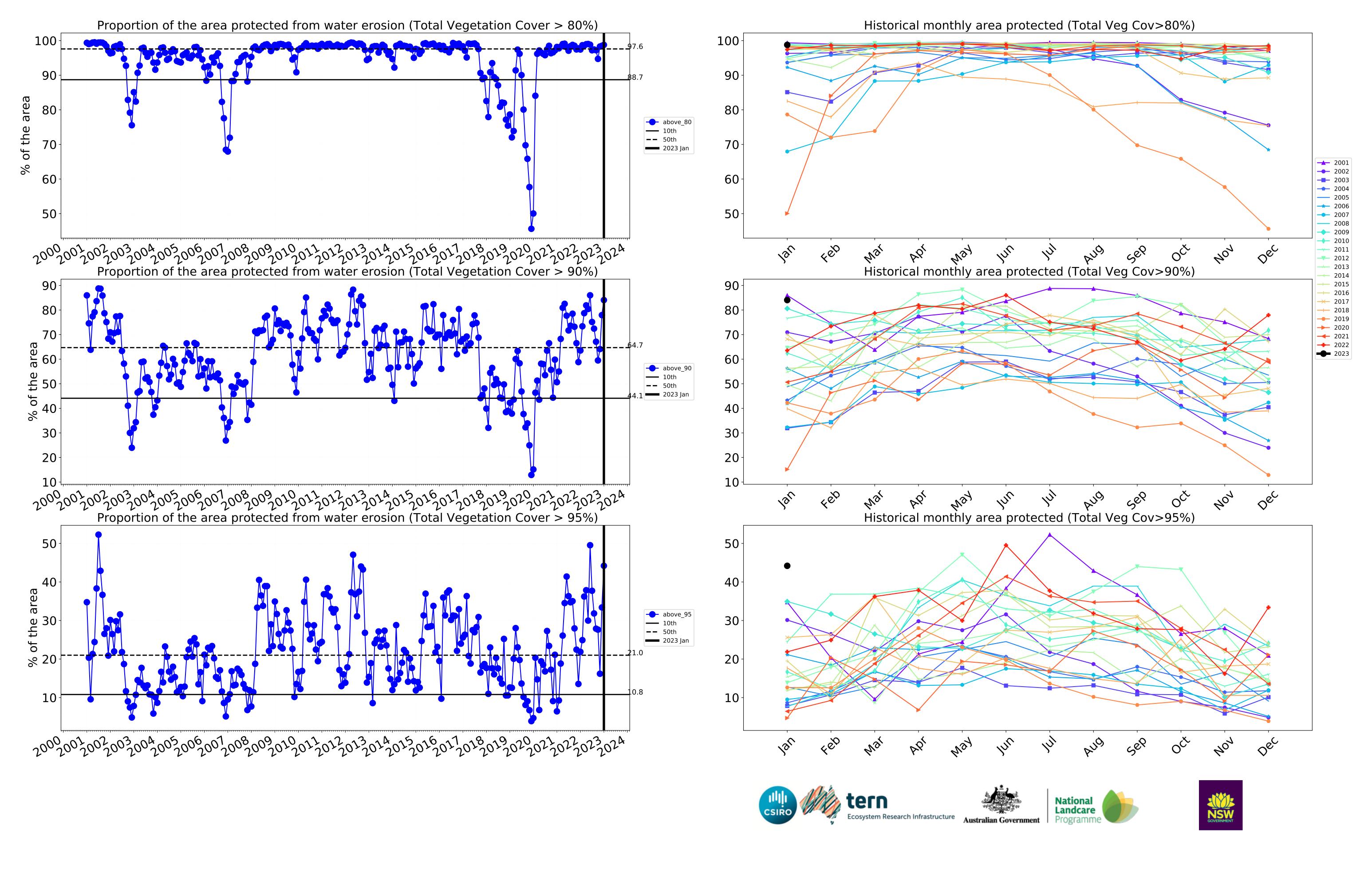




### **Grazing non forest timeseries**



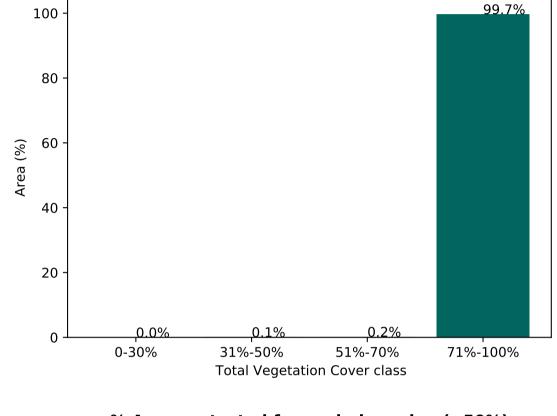




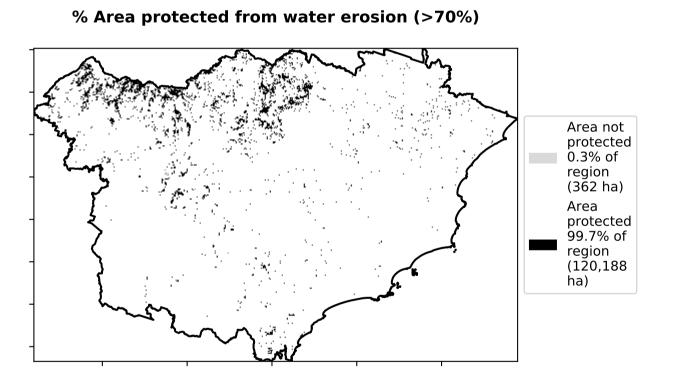
### **Grazing Woodland forest**

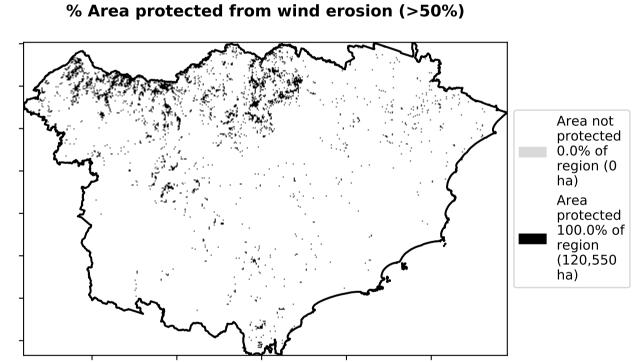
### **Land use and forest cover** Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Agriculture - Grazing - Woodland forest Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

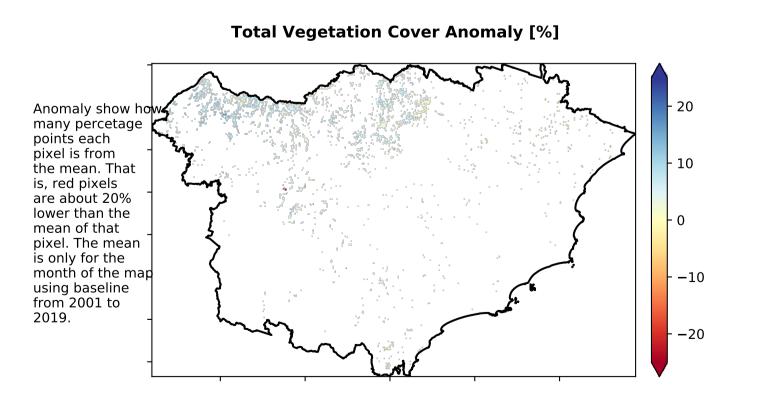
## **Total Vegetation Cover [%]**

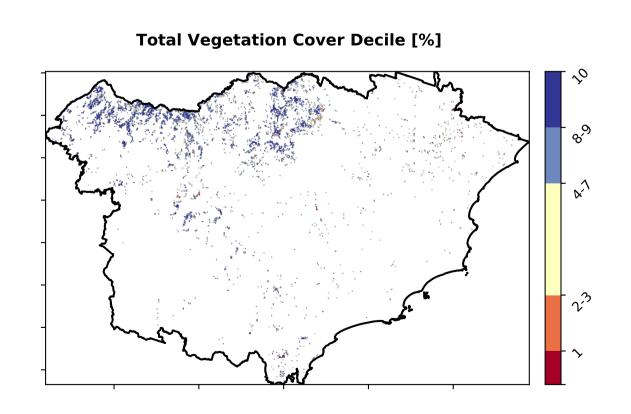


**Proportion of vegetation cover class in area** 









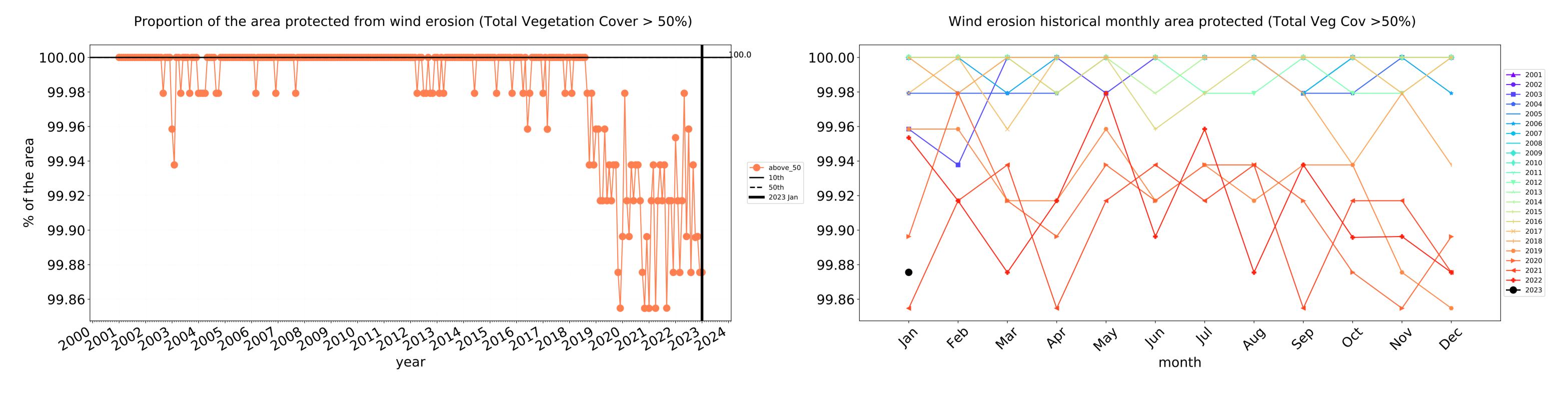


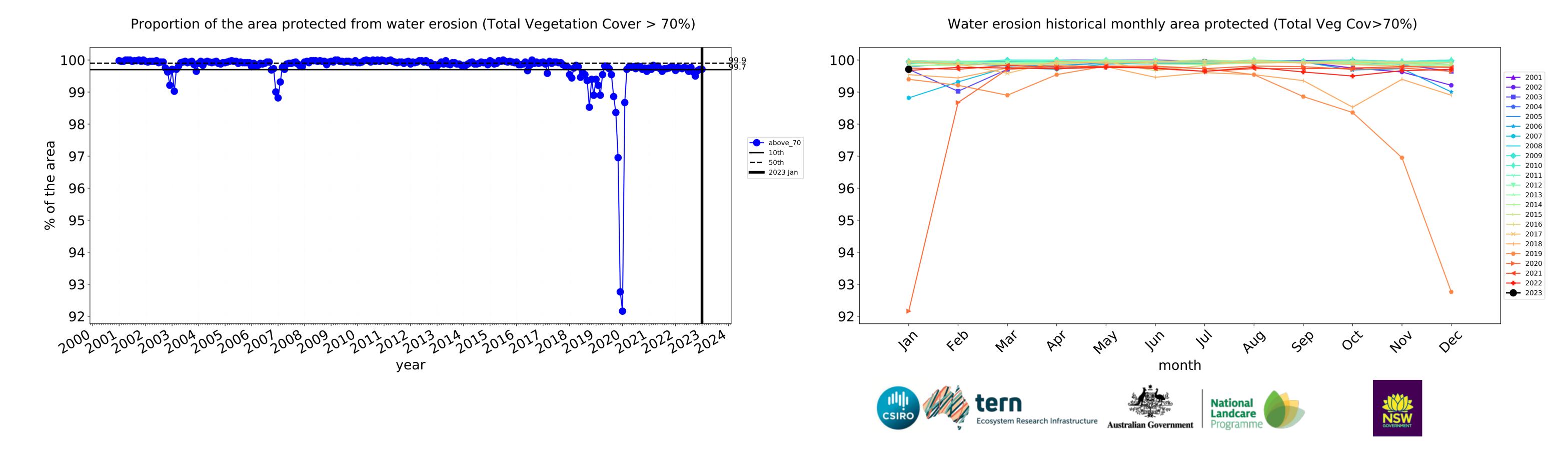


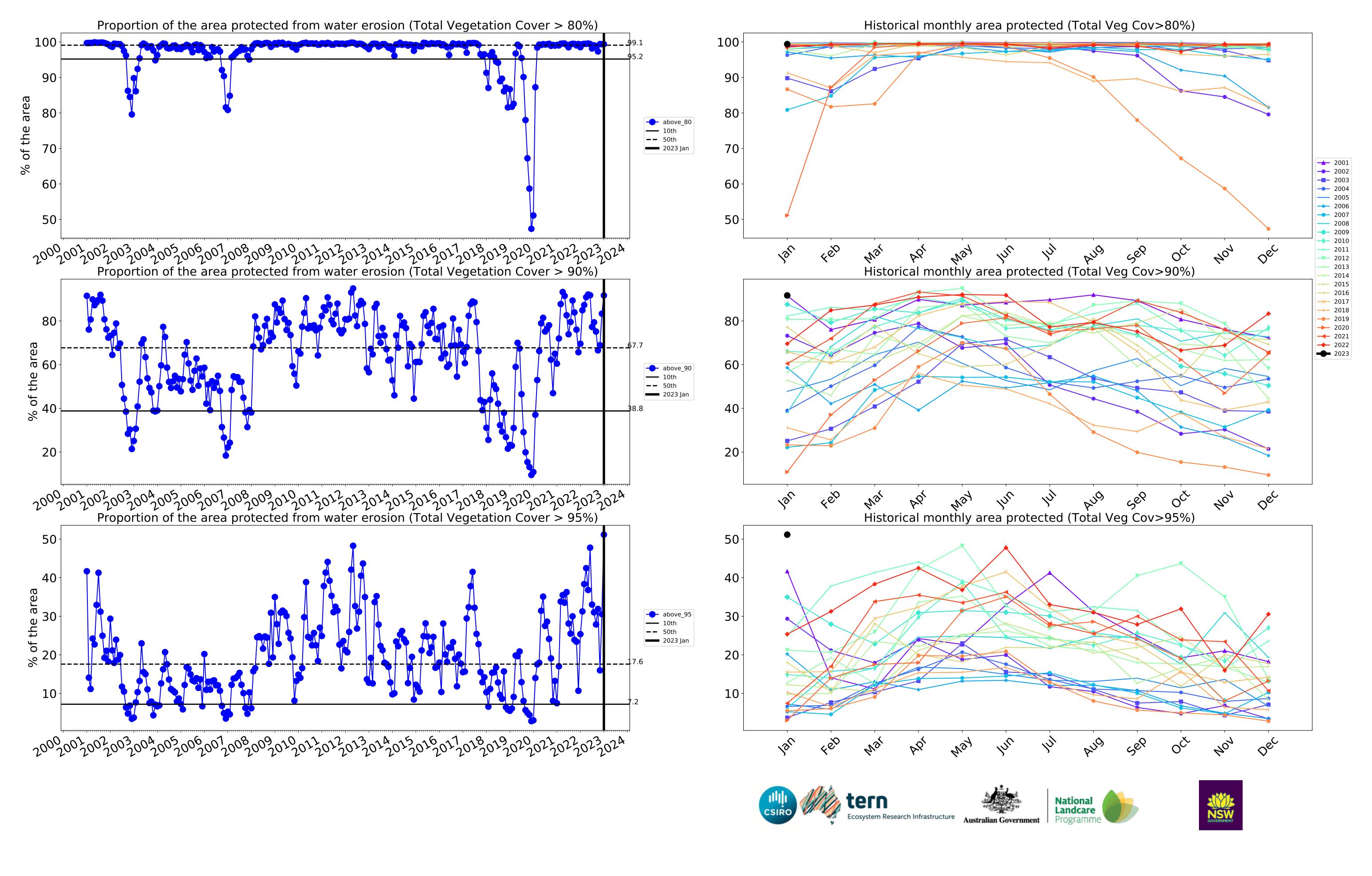




### **Grazing Woodland forest timeseries**





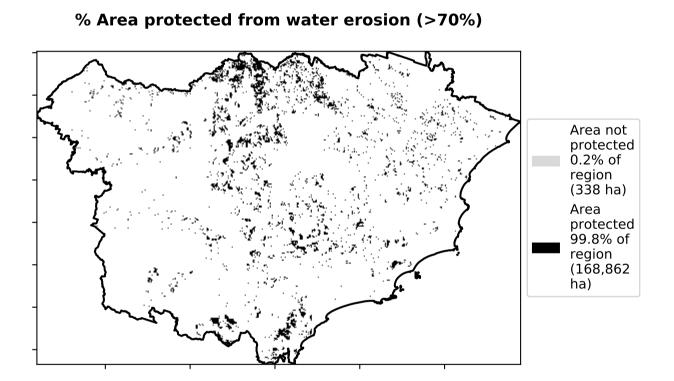


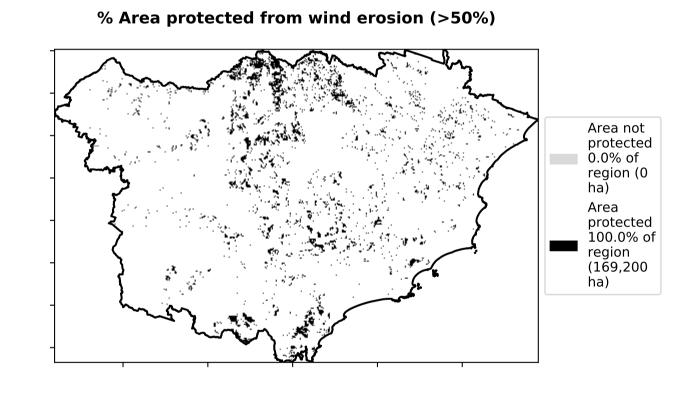
### **Grazing - Forest (non woodland)**

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

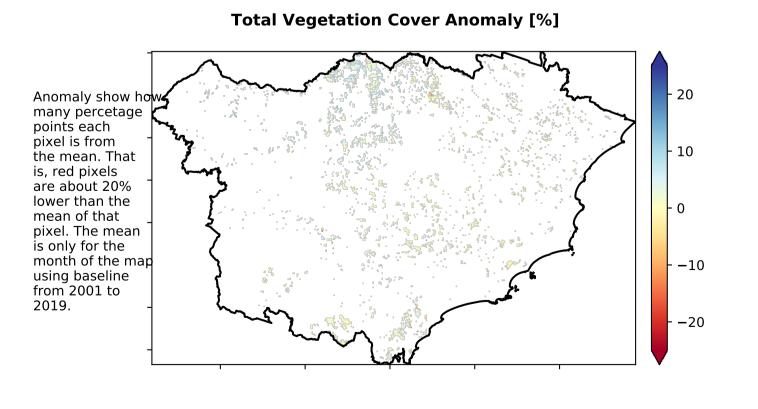
## Total Vegetation Cover [%] Total Vegetation Cover [%] Ticologolo Ticologolo

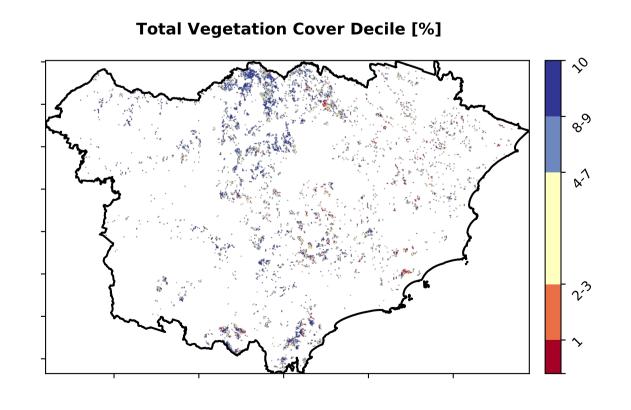
### 





**Proportion of vegetation cover class in area** 



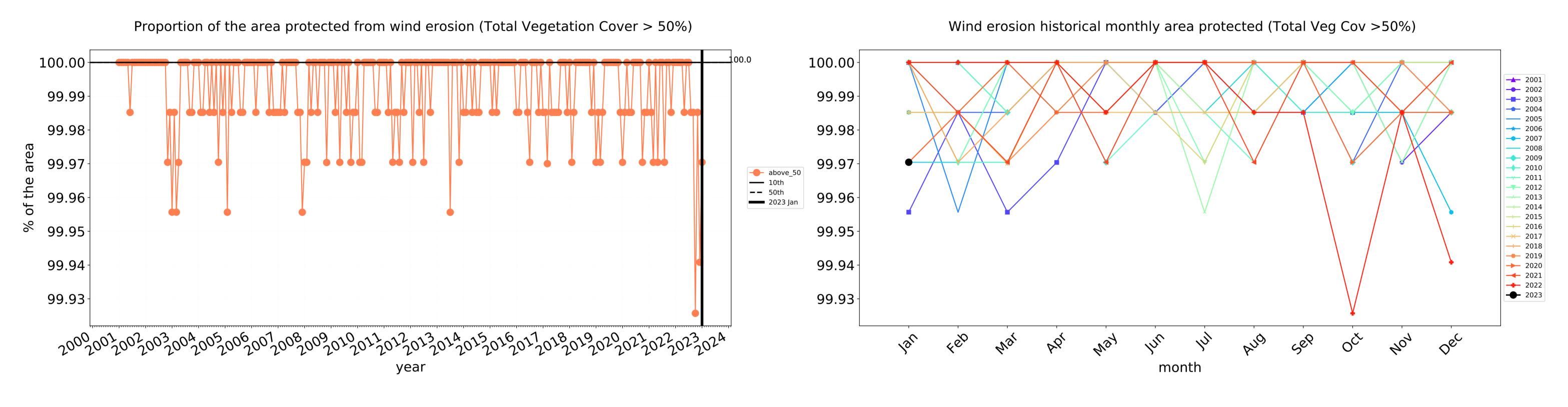


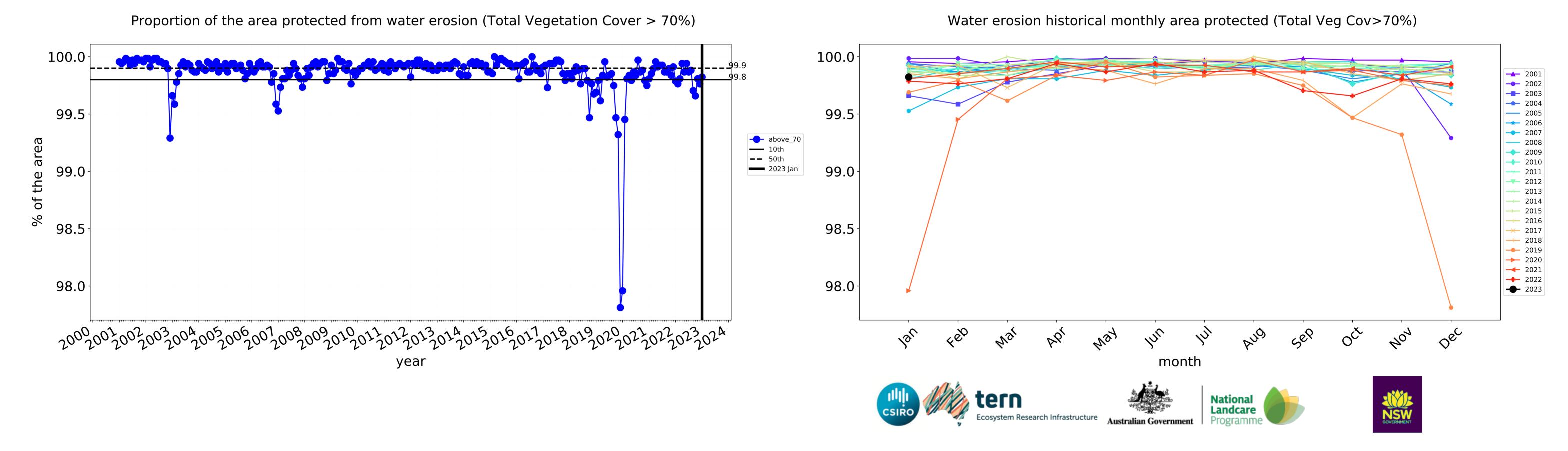


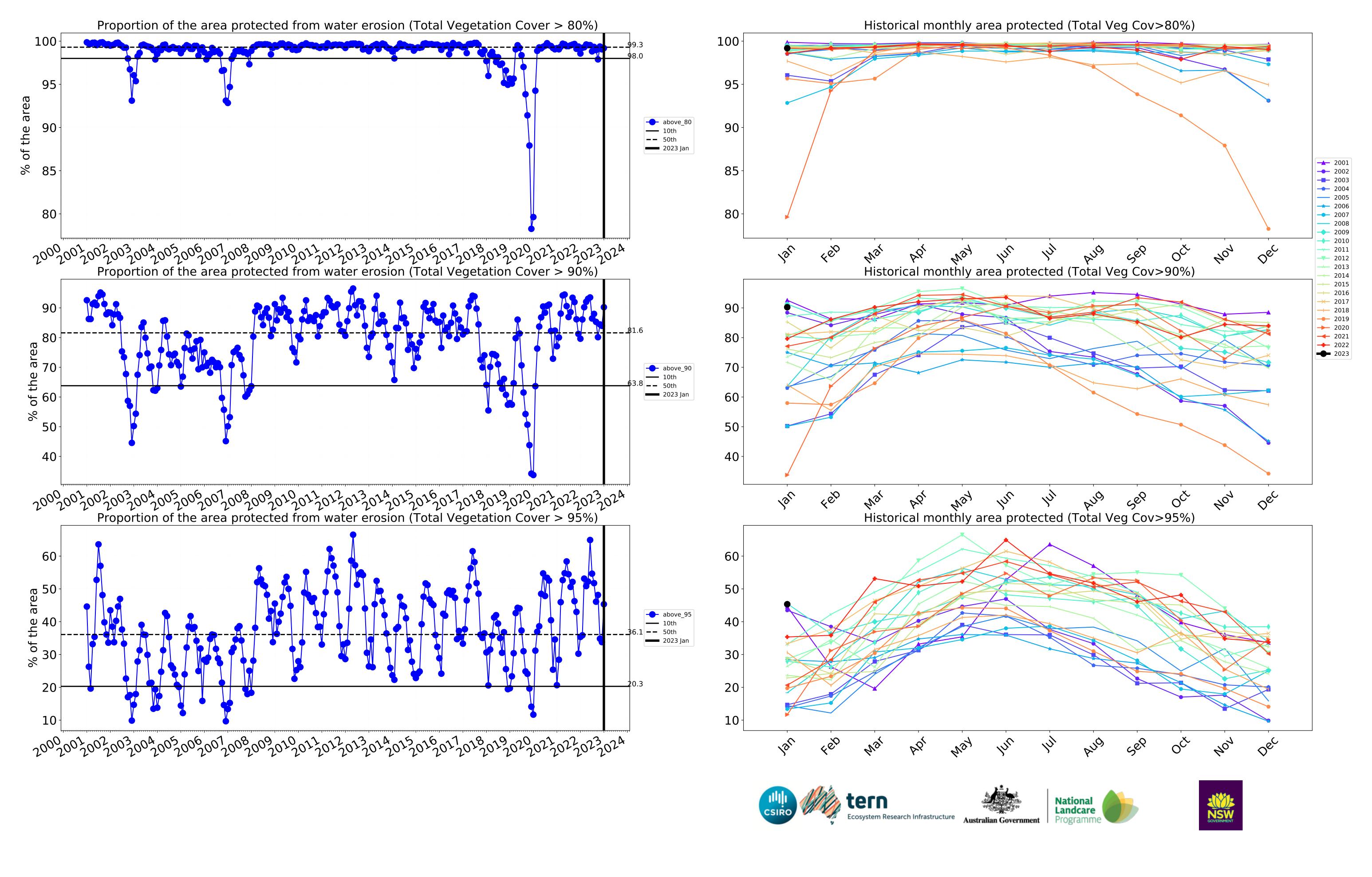






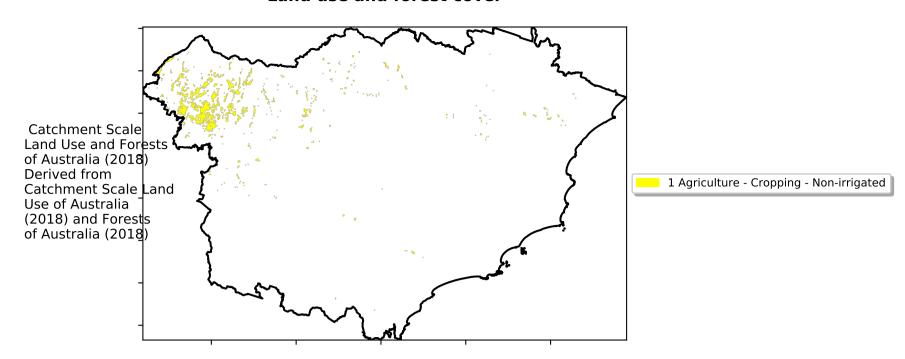




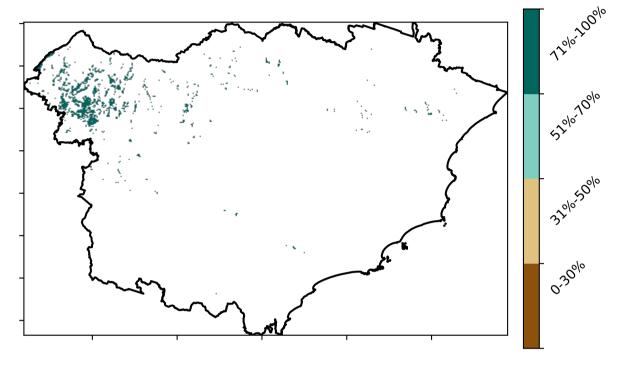


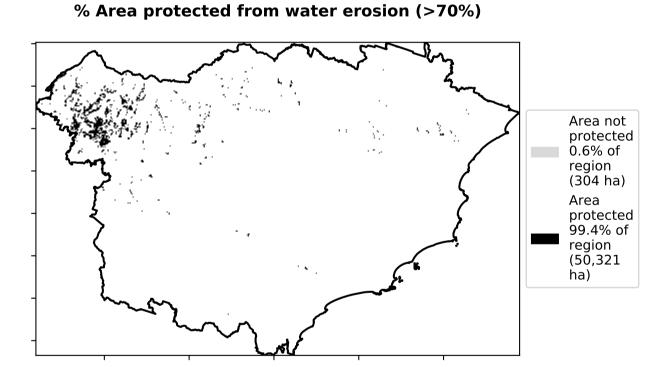
### **Cropping**

### Land use and forest cover

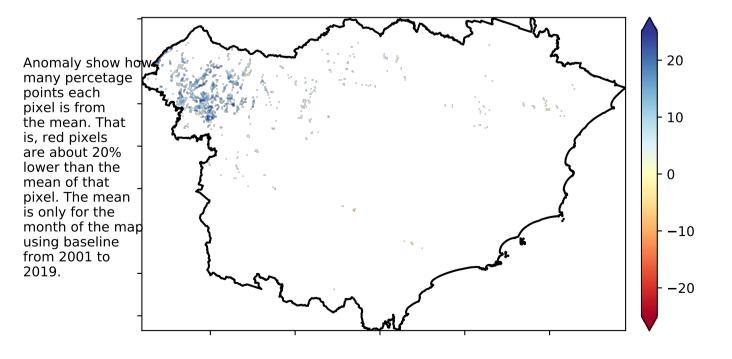


### Total Vegetation Cover [%]



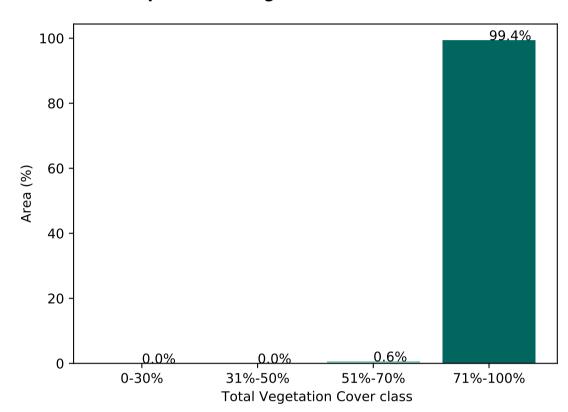


### Total Vegetation Cover Anomaly [%]

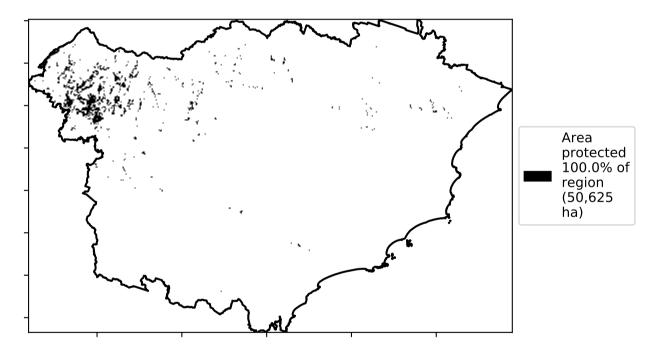


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

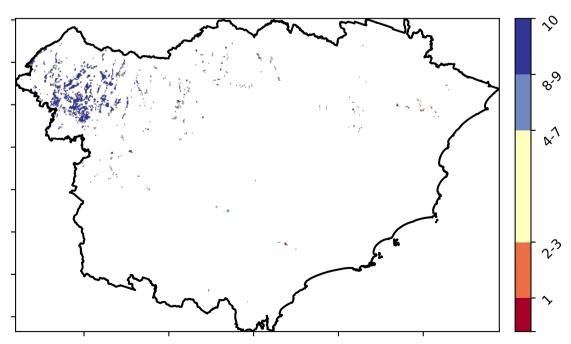
### **Proportion of vegetation cover class in area**



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



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



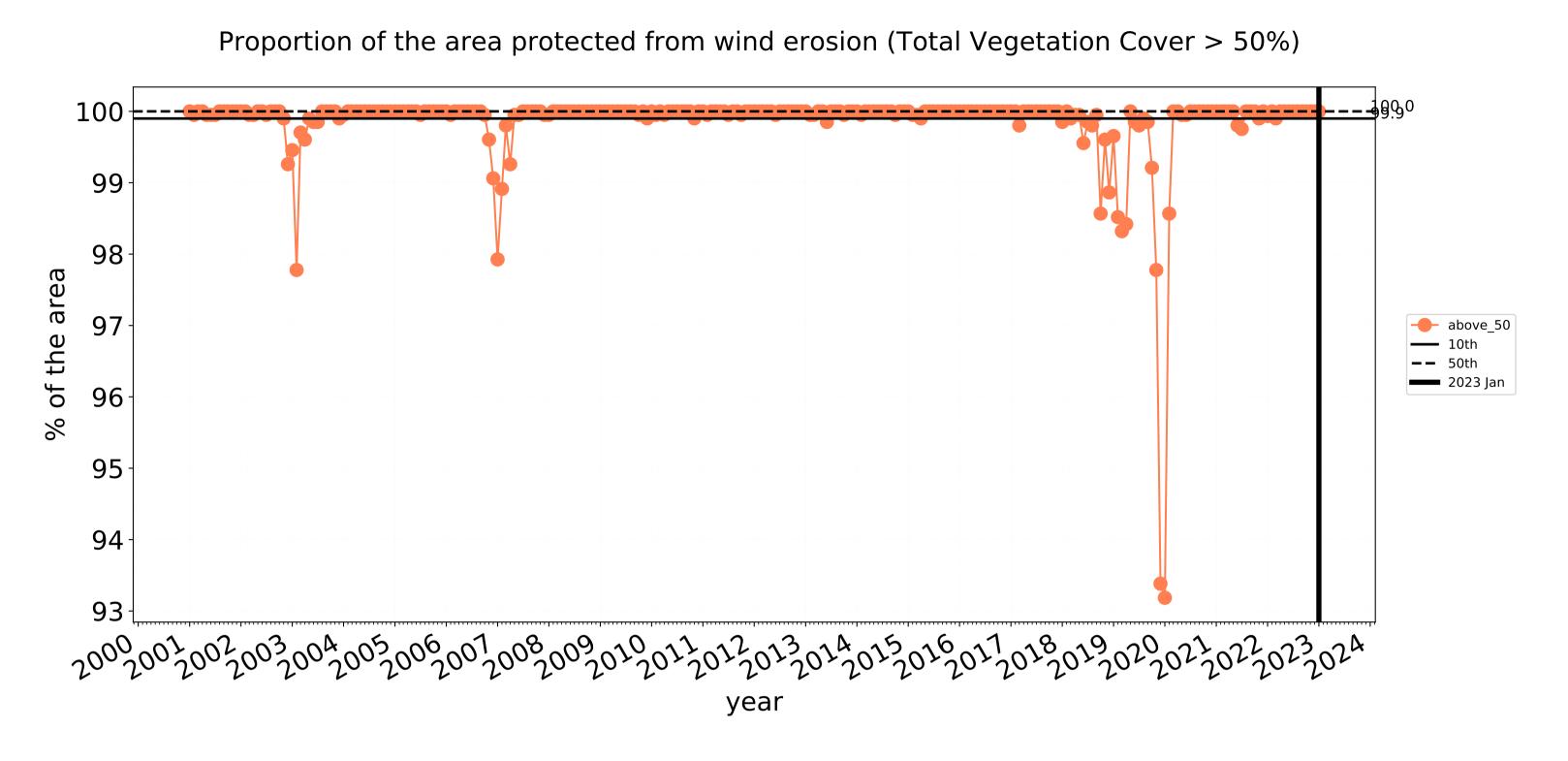


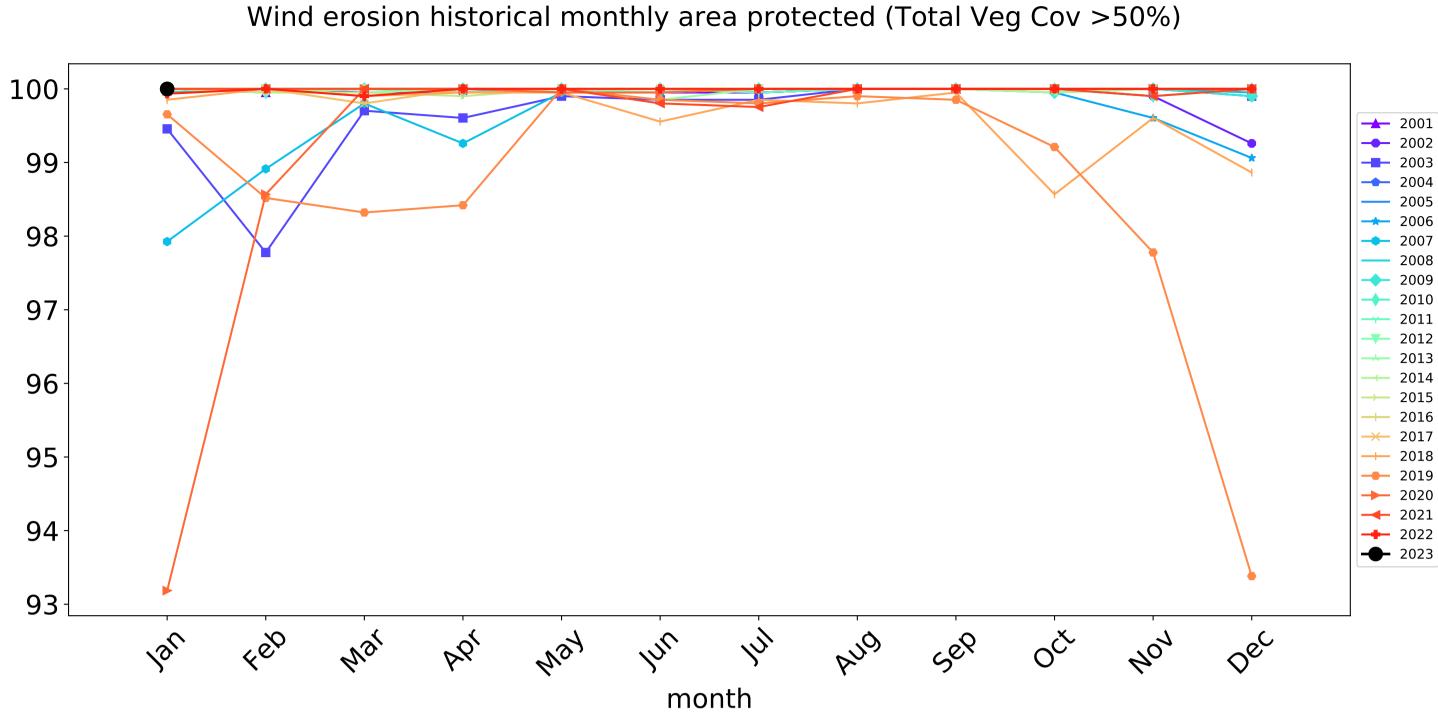


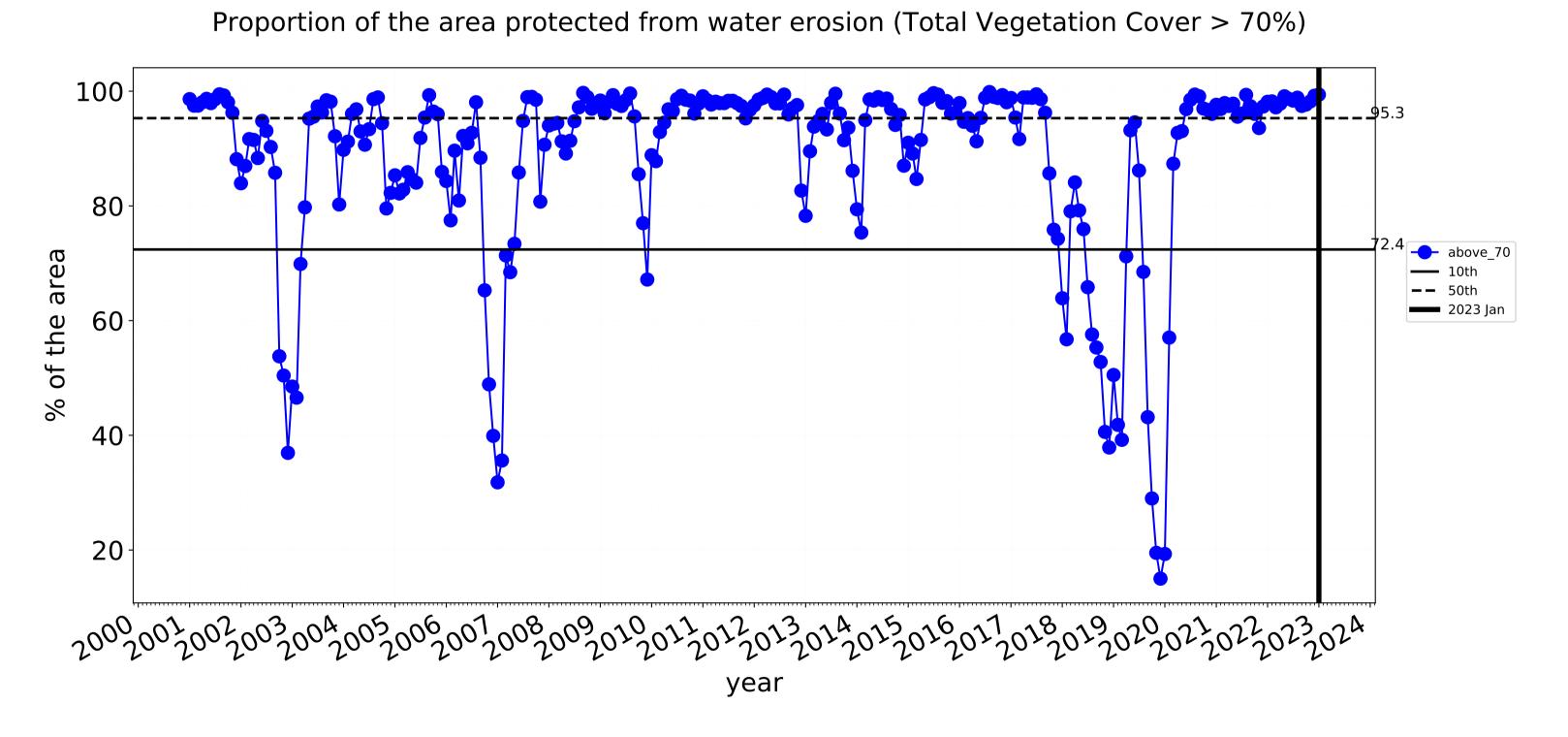


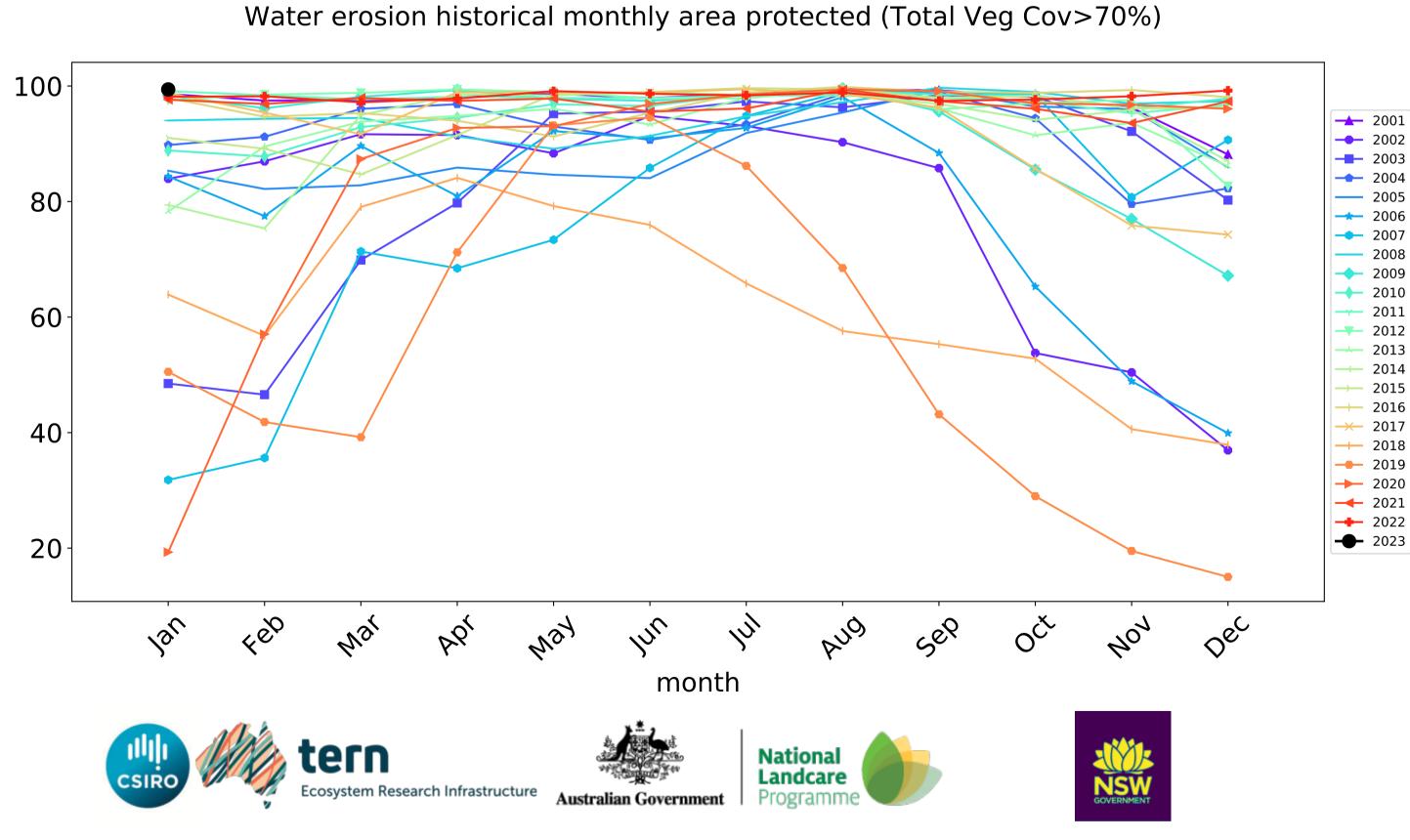


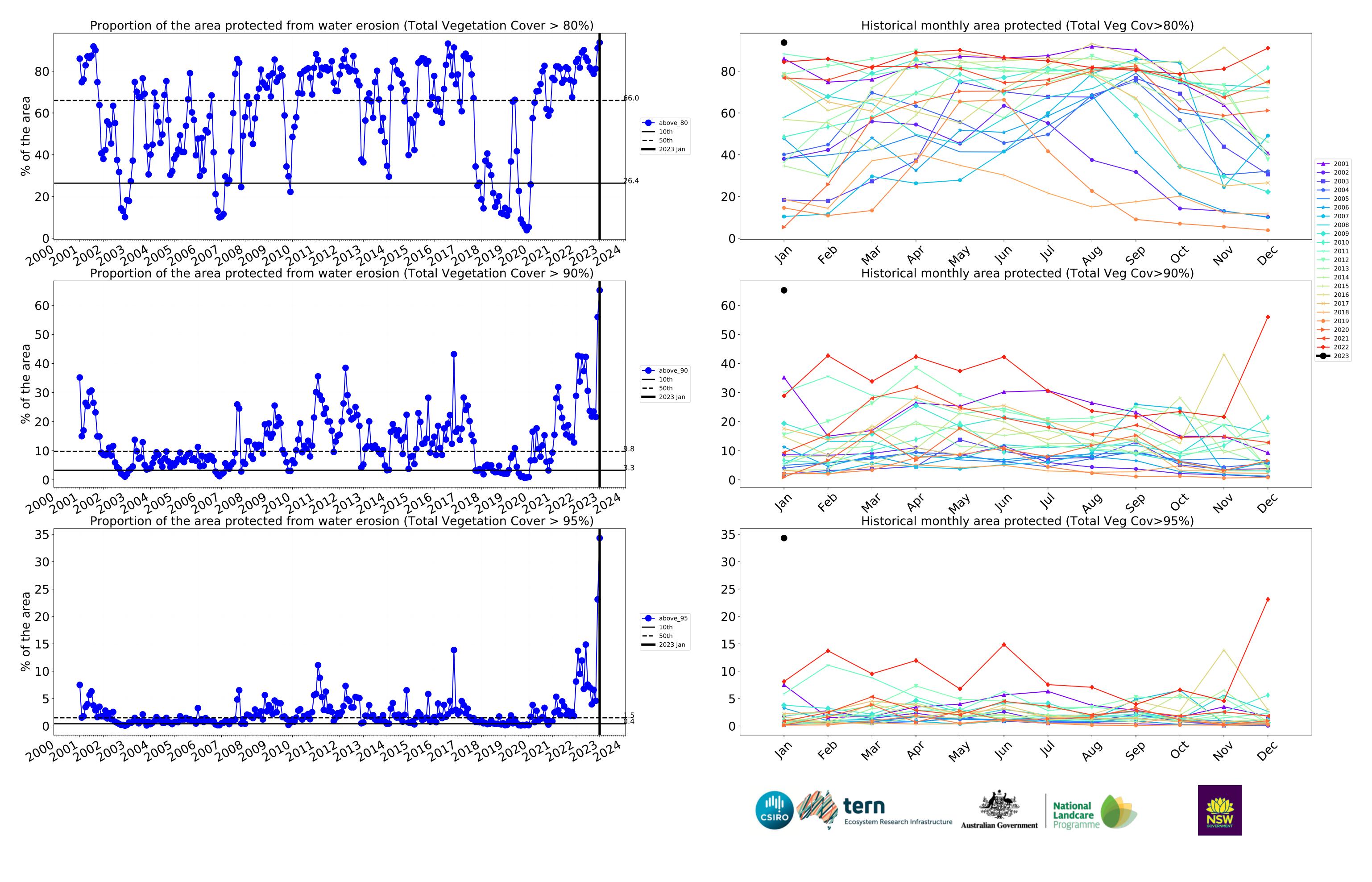
### **Cropping timeseries**









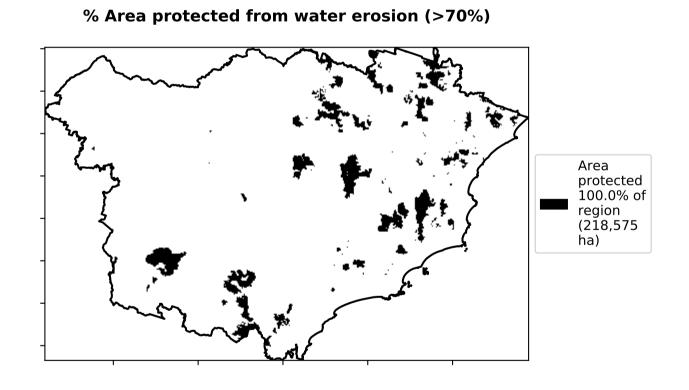


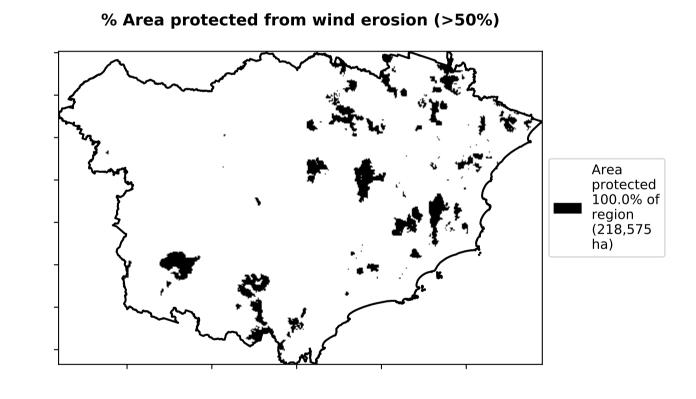
### **Production native forests and plantation forests**

### **Land use and forest cover** Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Production native forests and plantation forests Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

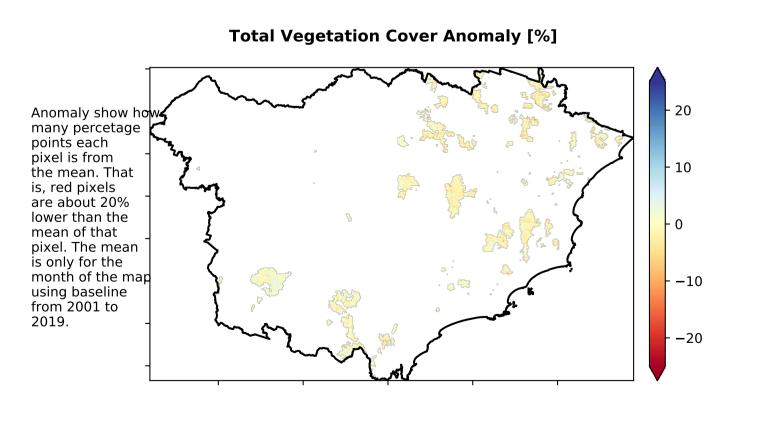
## **Total Vegetation Cover [%]**

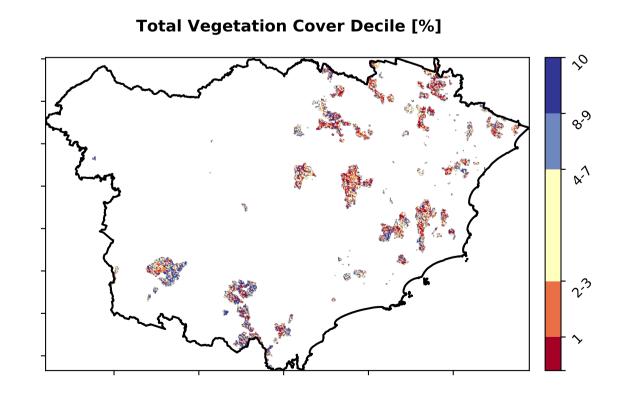
100.0% 100 Area (%) 60 40 20 -0.0% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class** 





**Proportion of vegetation cover class in area** 





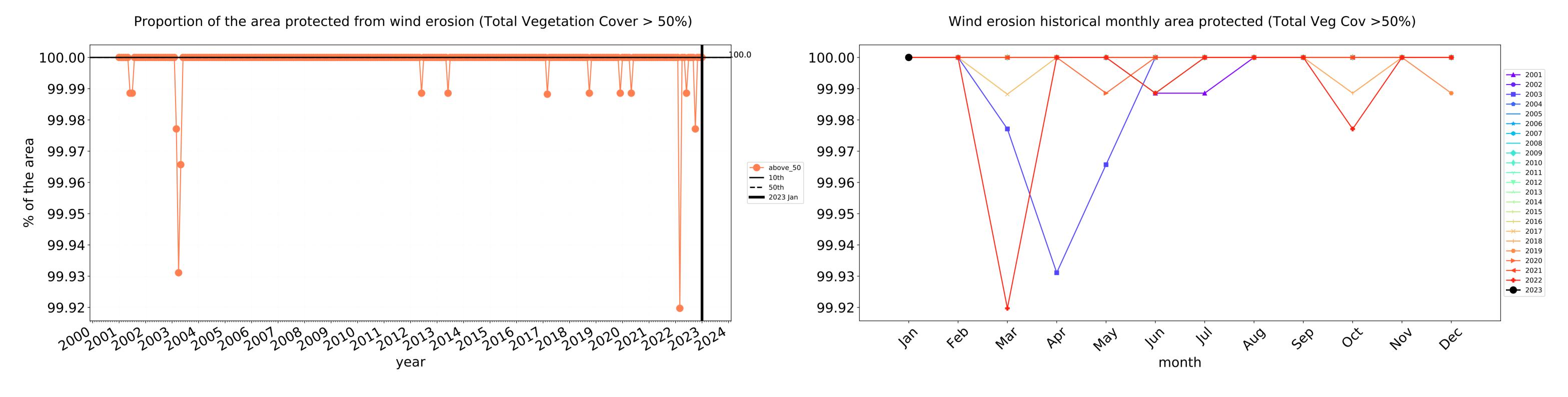


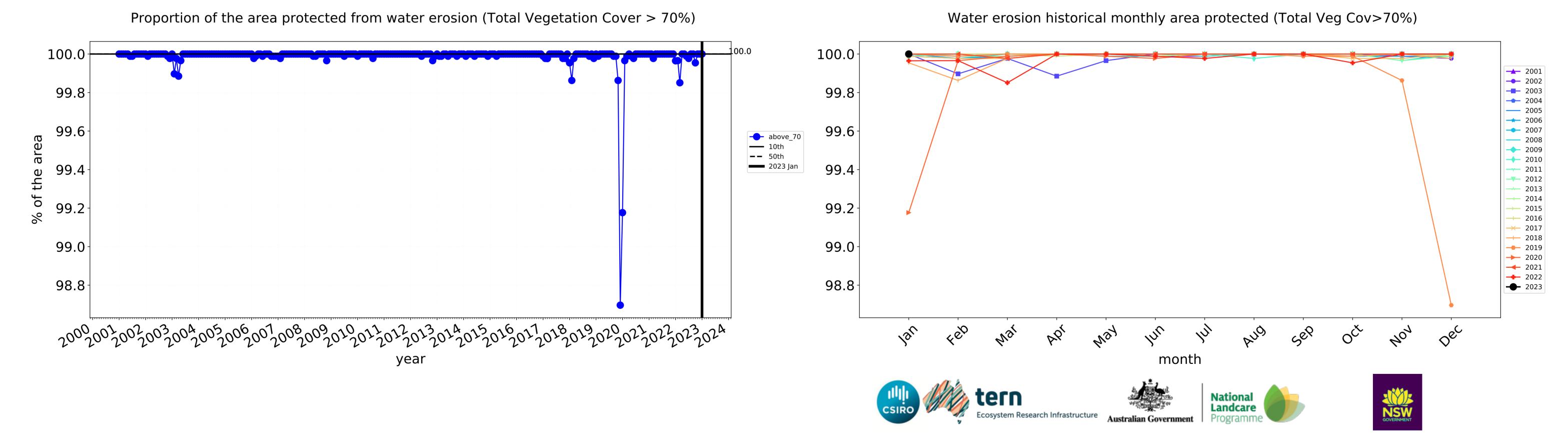


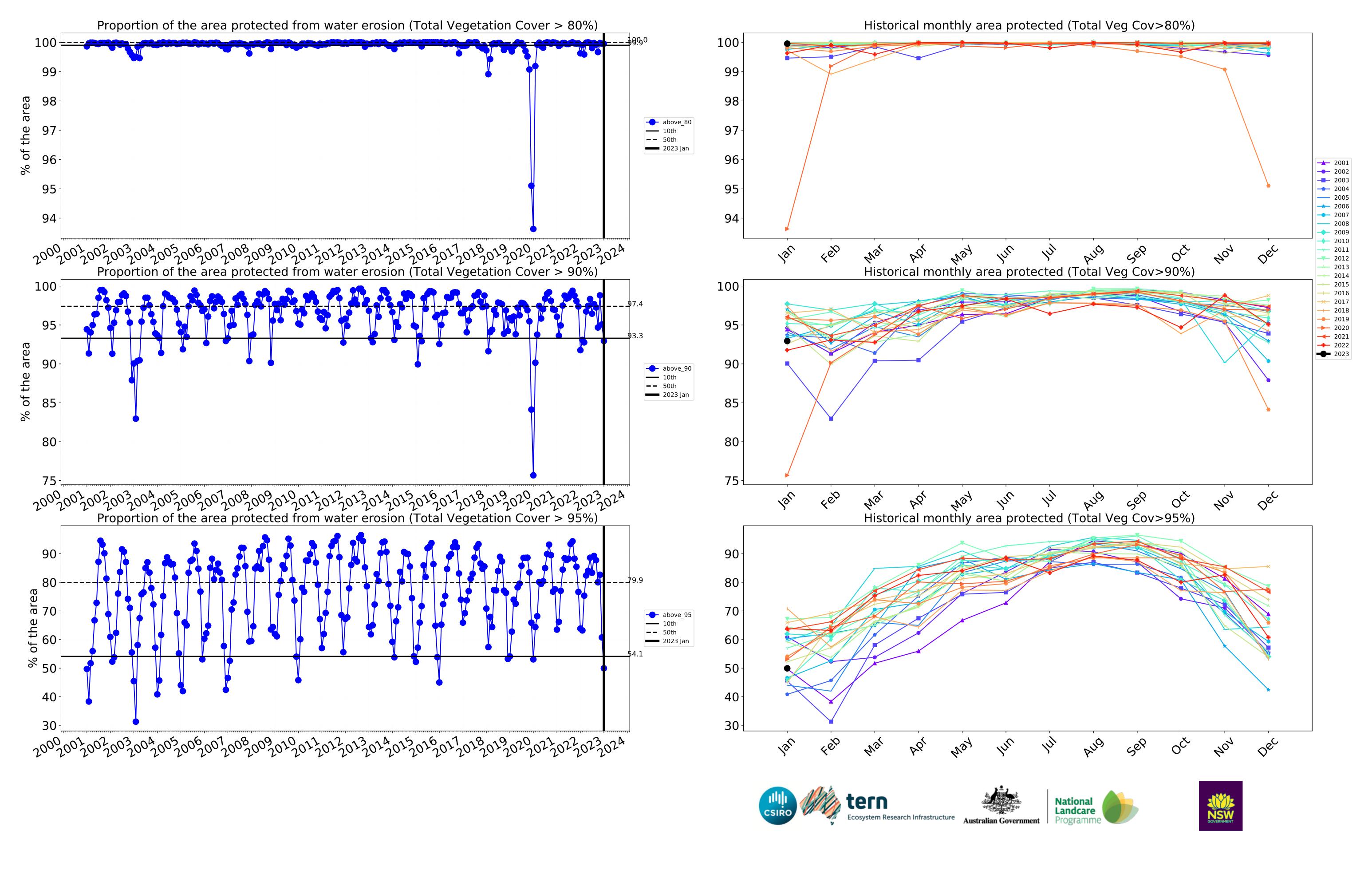




### **Production native forests and plantation forests timeseries**







### Hunter (3,239,225 ha and no data 61,200 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	3,239,225	99.8% 3,233,425	99.5% 3,224,275	98.5% 3,191,025	96.8% 3,136,400	83.5% 2,704,600	42.0% 1,361,550
Conservation and natural environments	1,240,725	99.9% 1,239,200	99.8% 1,238,200	99.6% 1,235,875	99.3% 1,231,525	89.3% 1,108,275	43.0% 533,950
Conservation and natural environments non forest	29,925	95.1% 28,450	93.1% 27,850	89.8% 26,875	85.5% 25,600	65.0% 19,450	25.3% 7,575
Conservation and natural environments Woodland forest	138,725	100.0% 138,725	99.9% 138,650	99.8% 138,400	99.4% 137,925	90.1% 124,975	37.4% 51,925
natural environments Forest (non woodland)	1,072,075	100.0% 1,072,025	100.0% 1,071,700	99.9% 1,070,600	99.6% 1,068,000	89.9% 963,850	44.3% 474,450
Agriculture	1,580,625	100.0% 1,580,300	99.9% 1,579,300	99.6% 1,575,075	98.5% 1,556,550	83.8% 1,324,525	43.9% 694,075
Grazing	1,502,625	100.0% 1,502,300	99.9% 1,501,300	99.7% 1,497,775	98.9% 1,485,650	85.4% 1,282,600	44.9% 674,325
Grazing non forest	1,212,875	100.0% 1,212,600	99.9% 1,211,750	99.7% 1,208,675	98.8% 1,198,000	84.1% 1,019,425	44.2% 535,950
Grazing Woodland forest	120,550	100.0% 120,500	99.9% 120,400	99.7% 120,200	99.4% 119,825	91.7% 110,500	51.2% 61,675
Grazing - Forest (non woodland)	169,200	100.0% 169,200	100.0% 169,150	99.8% 168,900	99.2% 167,825	90.2% 152,675	45.3% 76,700
Cropping	50,625	100.0% 50,625	100.0% 50,625	99.4% 50,325	93.7% 47,450	65.2% 33,000	34.3% 17,375
Production native forests and plantation forests	218,575	100.0% 218,575	100.0% 218,575	100.0% 218,575	100.0% 218,475	92.9% 203,150	49.9% 109,150







