# Total vegetation cover soil protection Region:LGA Wingecarribee (A) 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:

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.

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:

Total vegetation Cover:

- 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





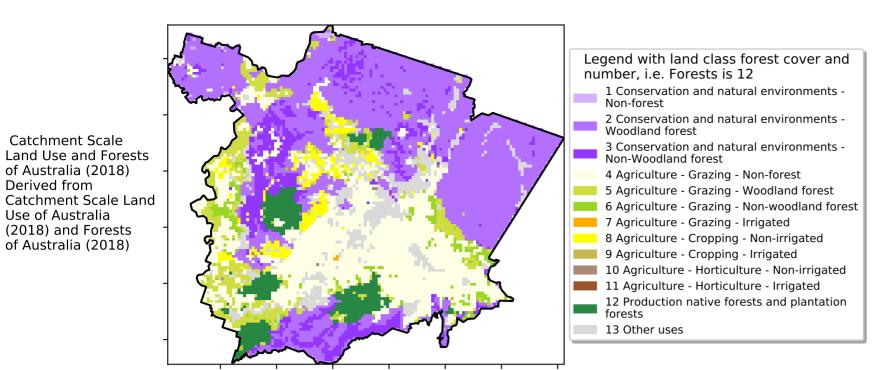




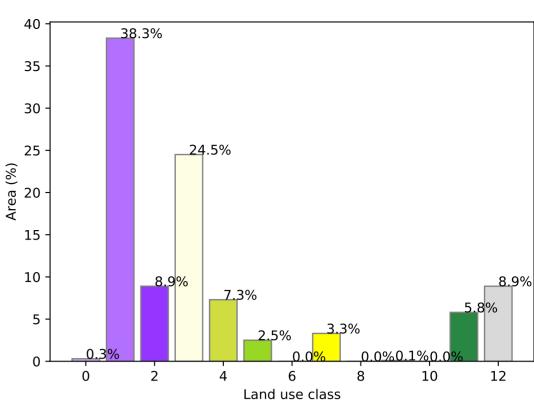
**Date: November 2023** 

### **Vegetation Cover Nov 2023**

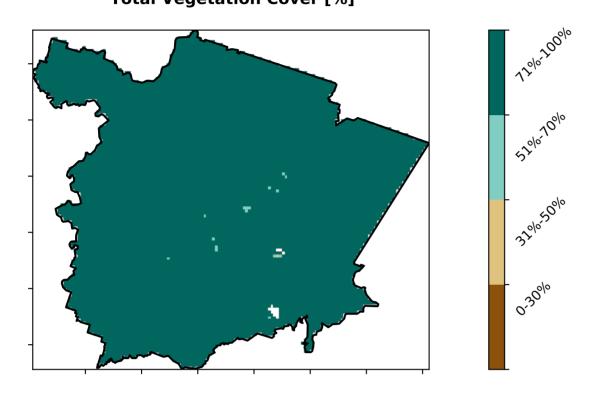
### Land use and forest cover



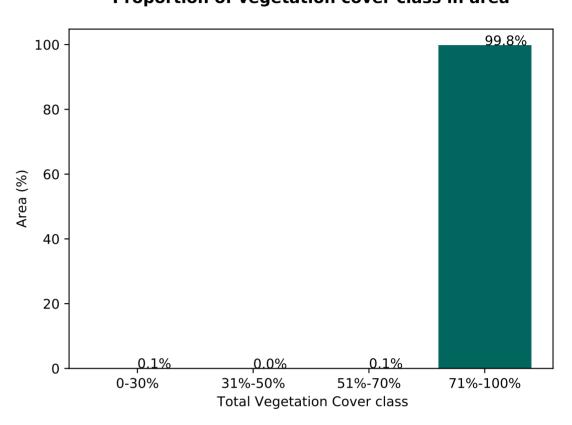
### Proportion of each land class in area

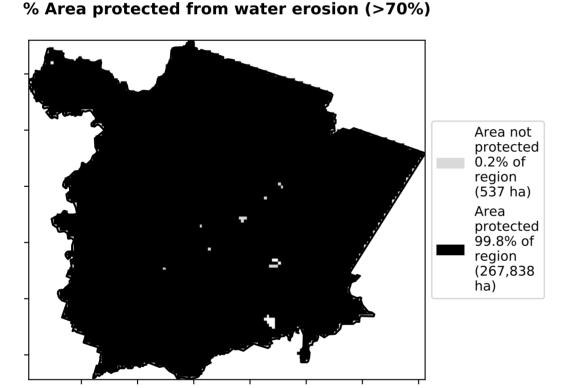


### **Total Vegetation Cover [%]**



**Proportion of vegetation cover class in area** 

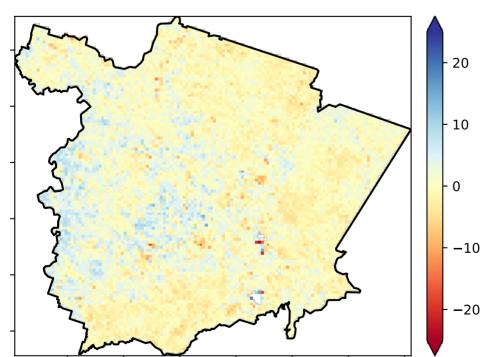




% Area protected from wind erosion (>50%)

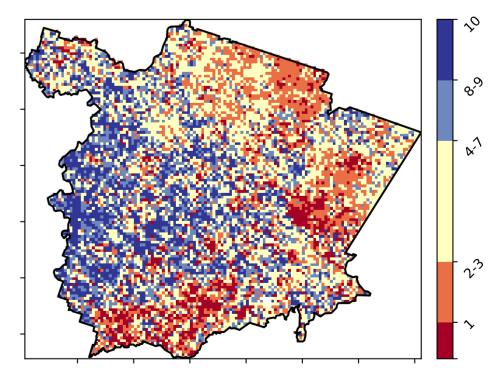


### **Total Vegetation Cover Anomaly [%]**



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 [%]**



# pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

Anomaly show how many percetage points each pixel is from

the mean. That is, red pixels are about 20% lower than the

mean of that

Catchment Scale

of Australia (2018)

of Australia (2018)

Derived from

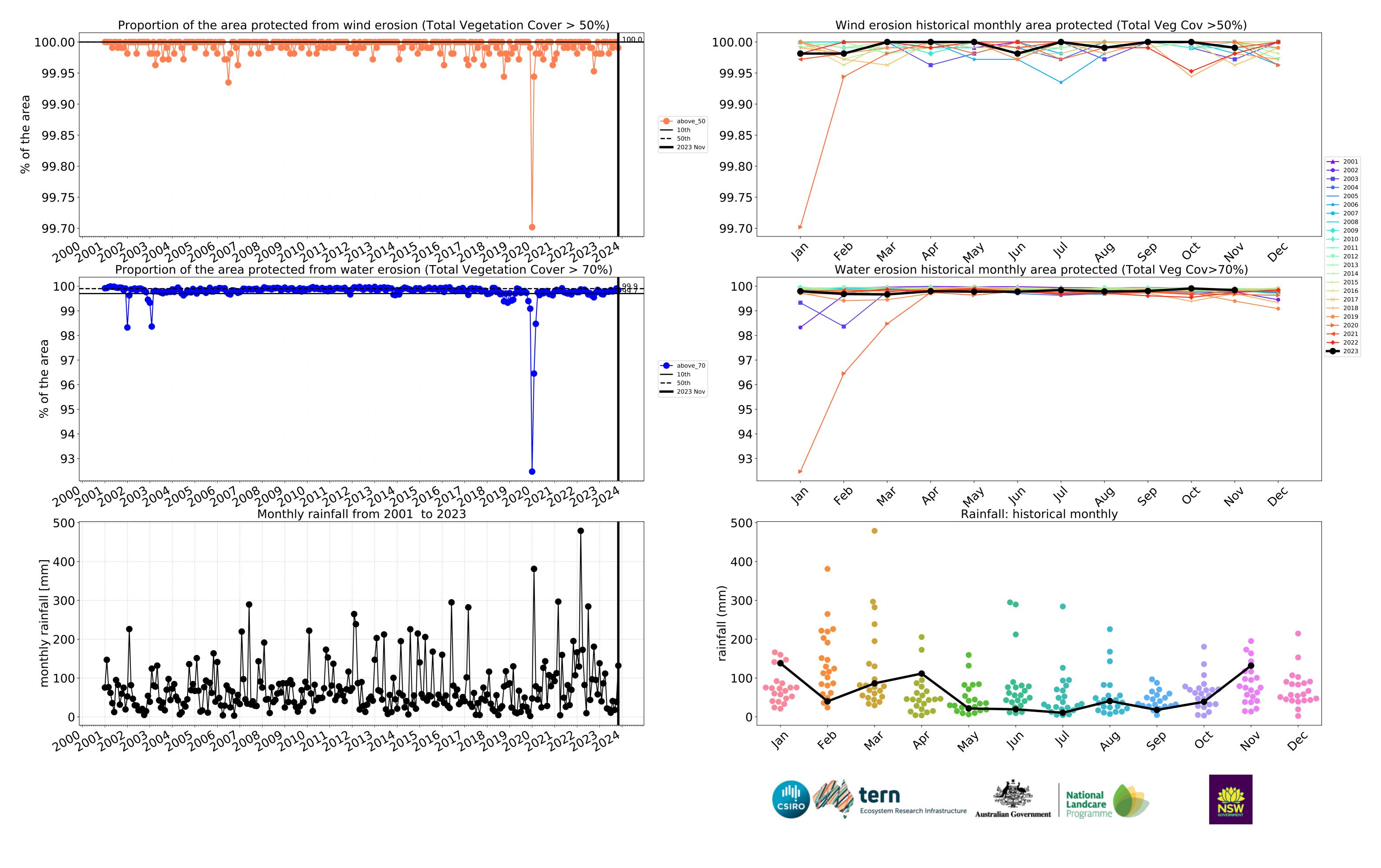
Use of Australia

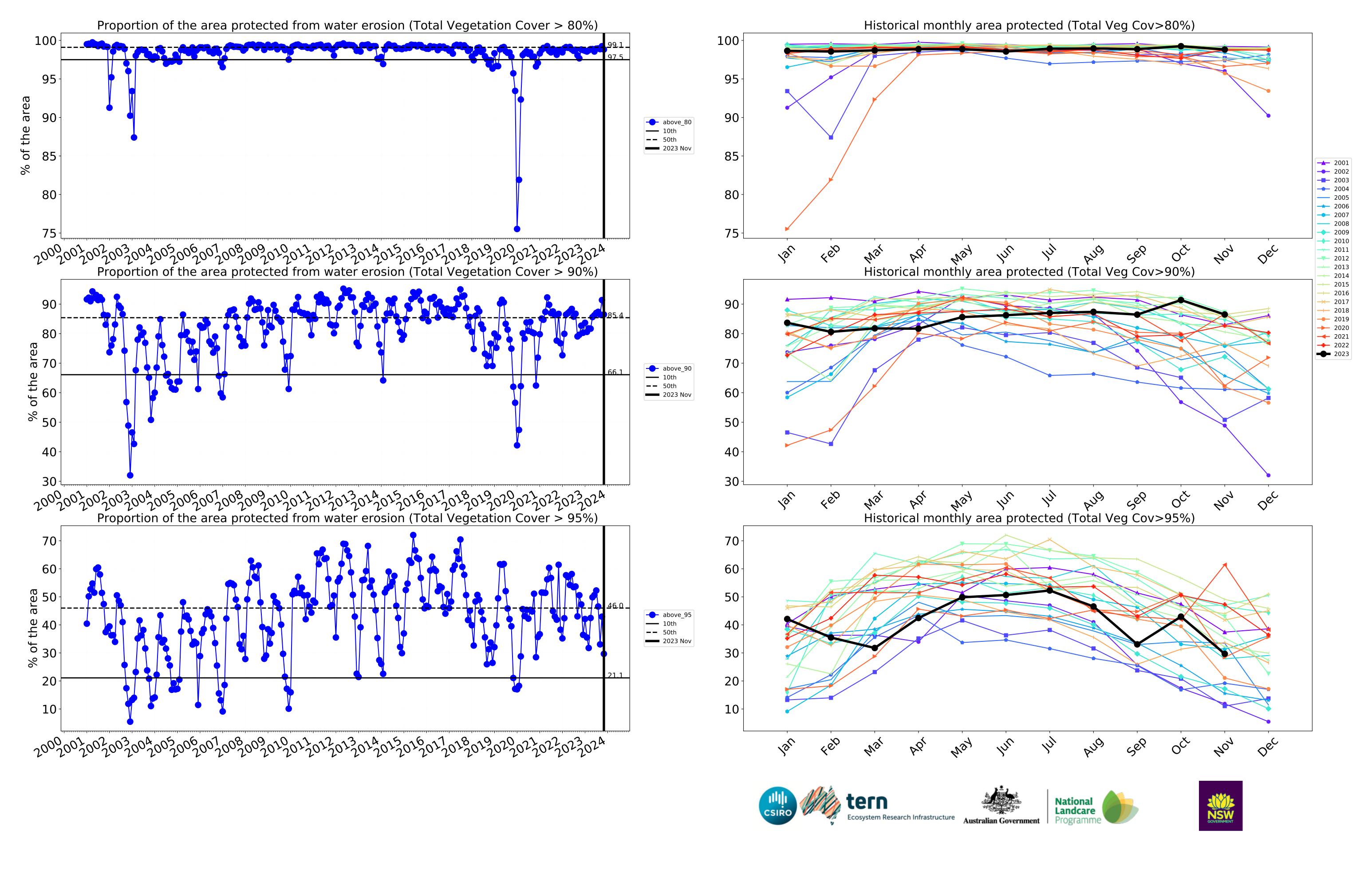








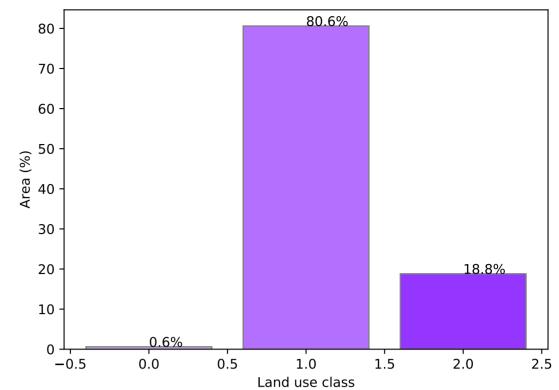




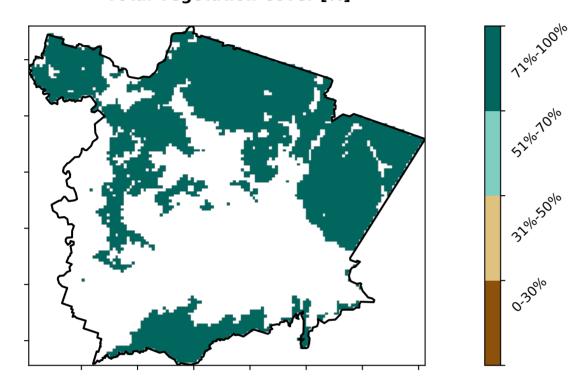
### **Conservation and natural environments**

### **Land use and forest cover** Catchment Scale Land Use and Forests 1 Conservation and natural environments - Nonforest of Australia (2018) Derived from 2 Conservation and natural environments - Woodland Catchment Scale Land Use of Australia 3 Conservation and natural environments - Non-woodland forest (2018) and Forests of Australia (2018)

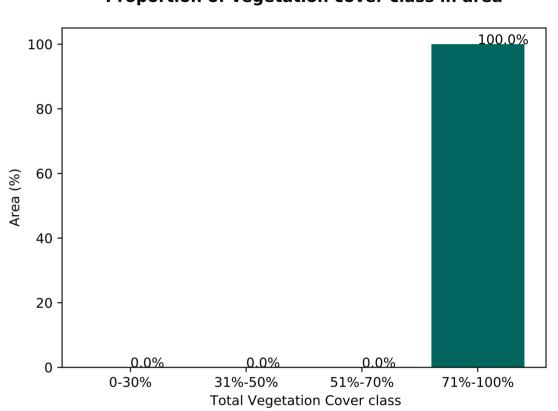
### Proportion of each land class in area 80.6%



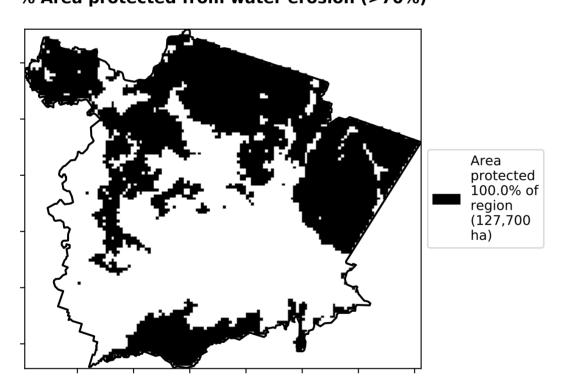




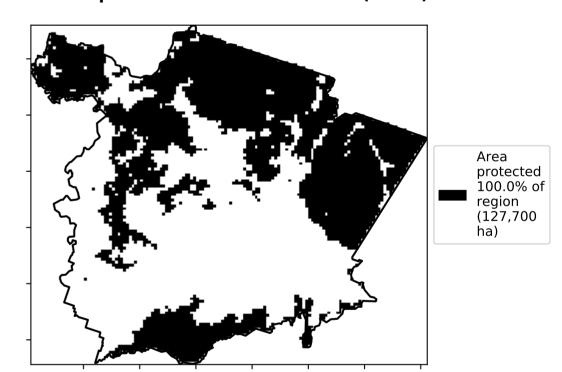
Proportion of vegetation cover class in area



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



% Area protected from wind erosion (>50%)



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

Anomaly show how many percetage points each pixel is from

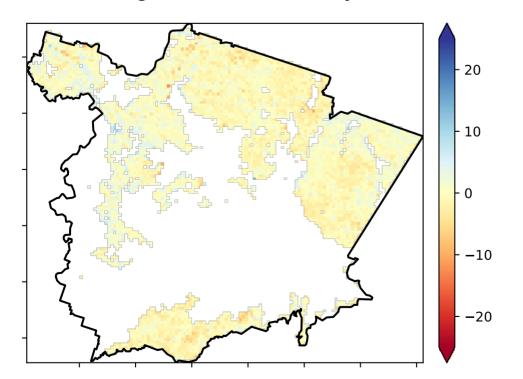
the mean. That is, red pixels

are about 20% lower than the mean of that

pixel. The mean

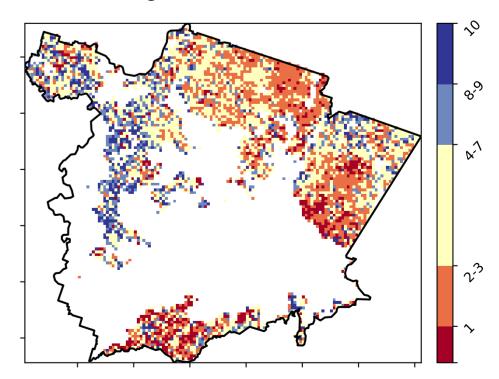
using baseline from 2001 to 2019.

is only for the month of the map



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

**Total Vegetation Cover Decile [%]** 





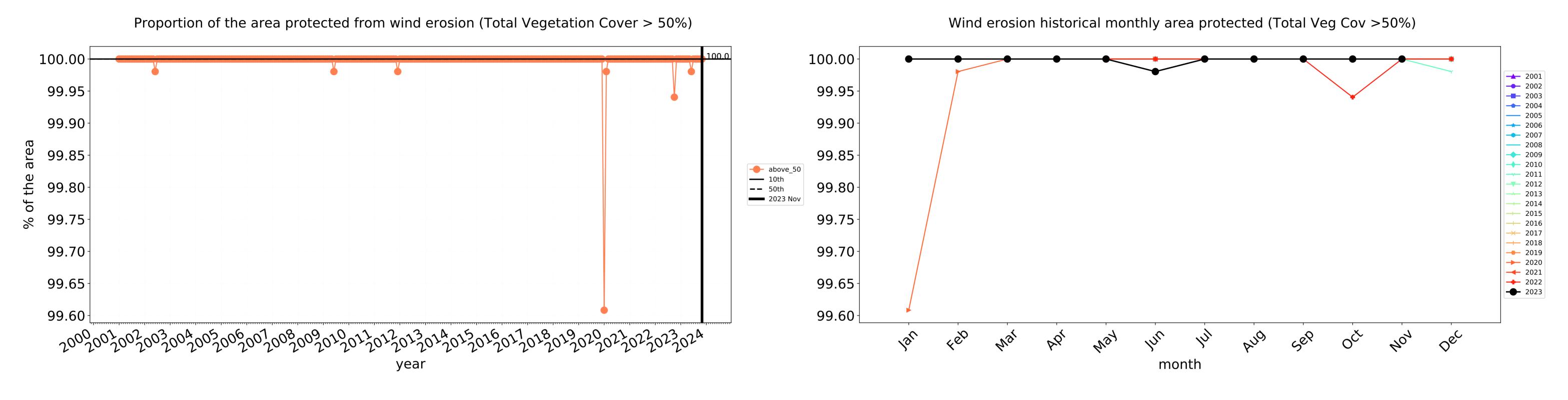


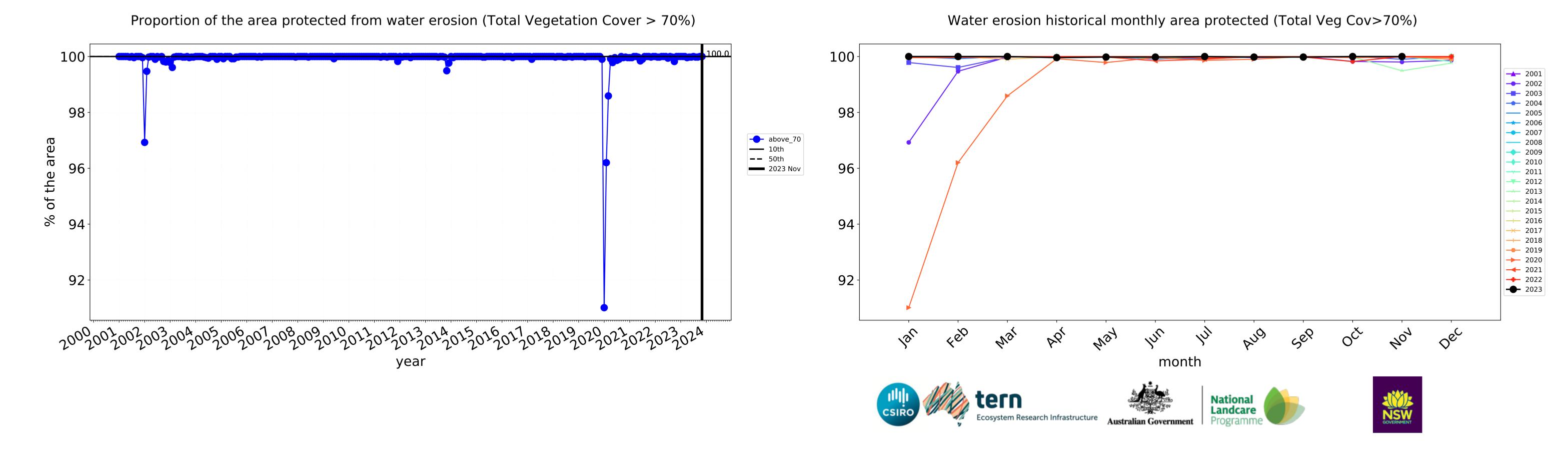


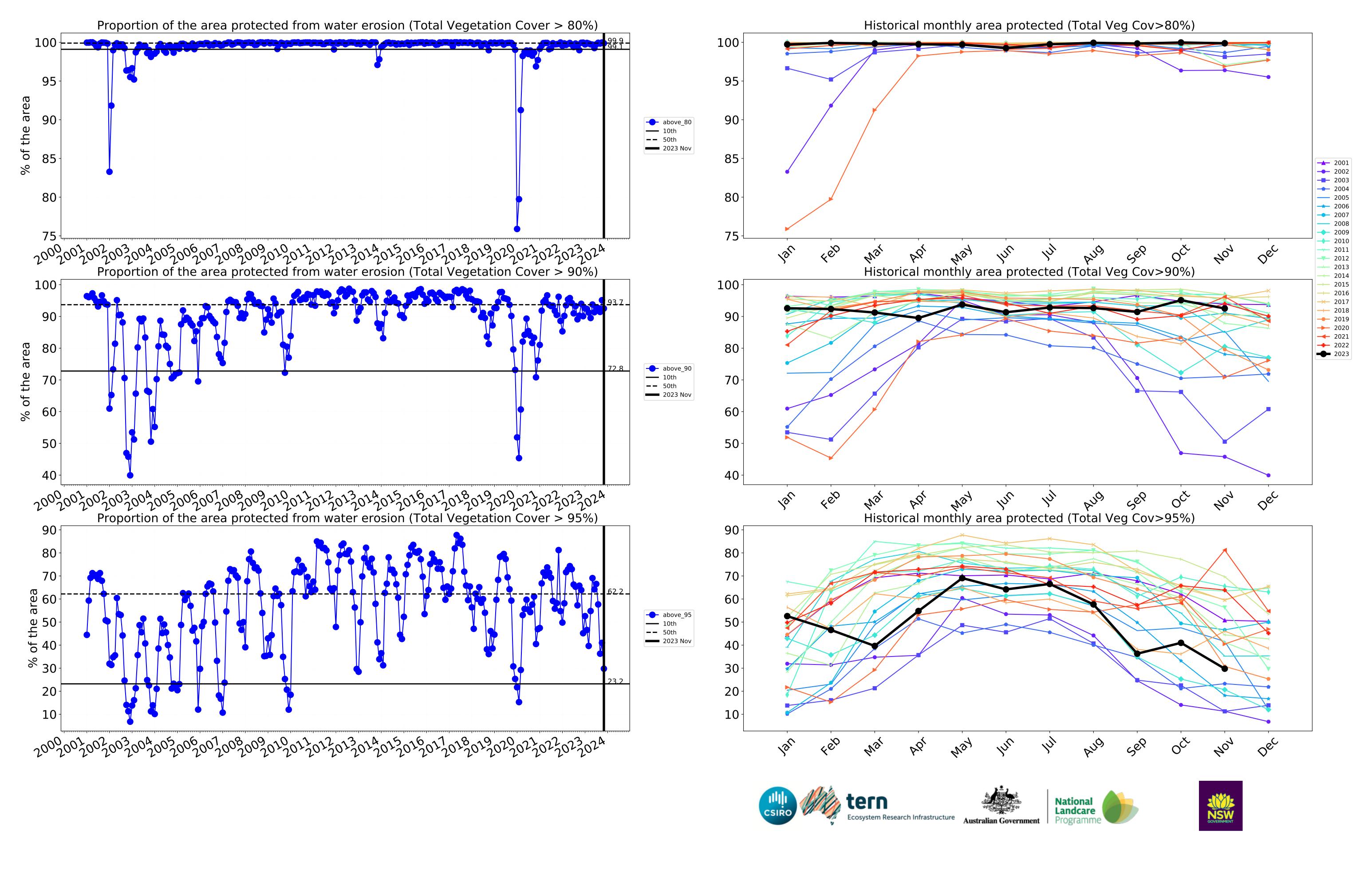




### **Conservation and natural environments timeseries**

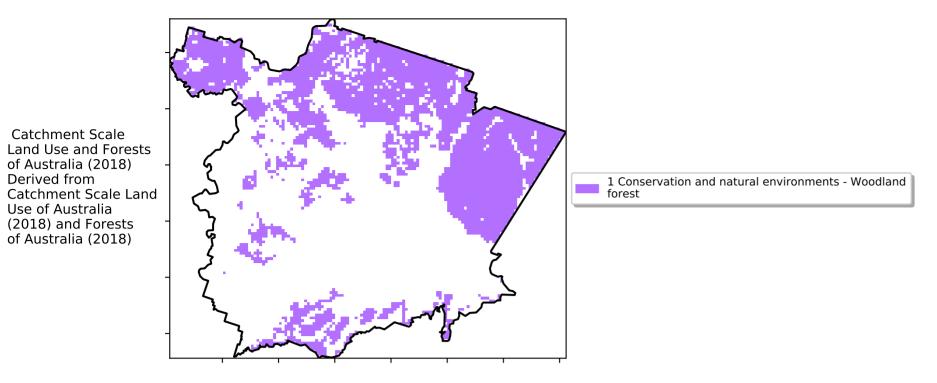




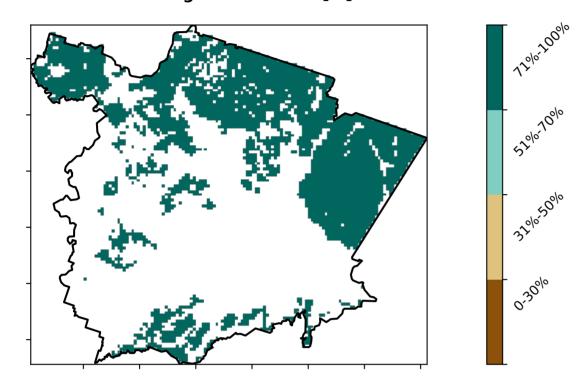


### **Conservation and natural environments Woodland forest**

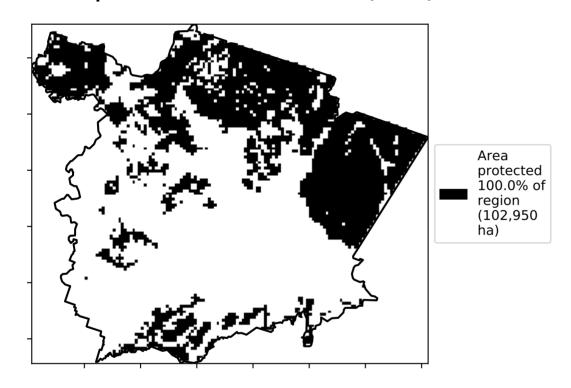
### **Land use and forest cover**



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



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



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

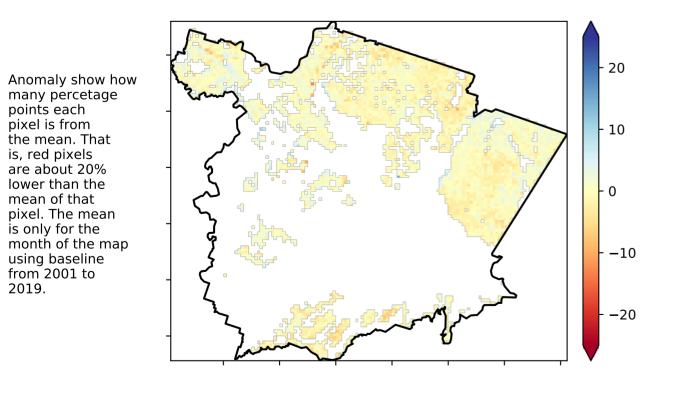
the mean. That

pixel. The mean

using baseline from 2001 to 2019.

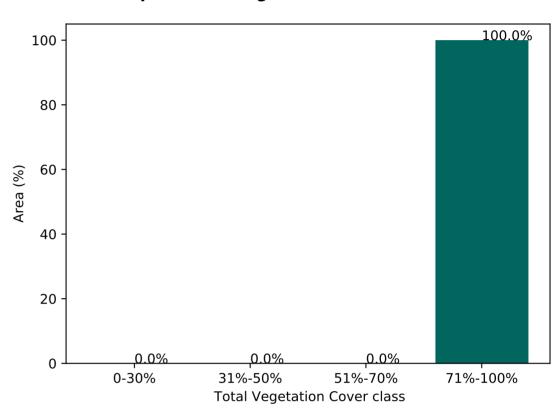
is only for the month of the map

is, red pixels are about 20% lower than the mean of that

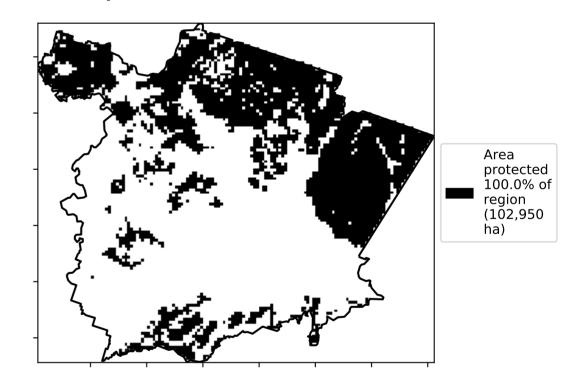


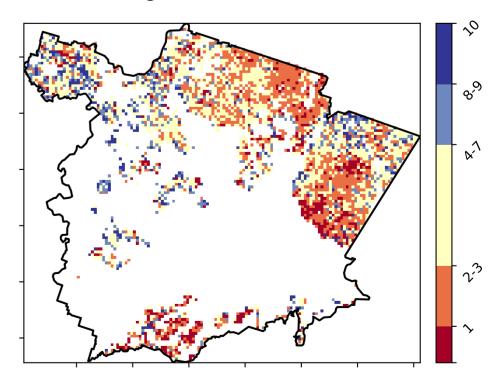
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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



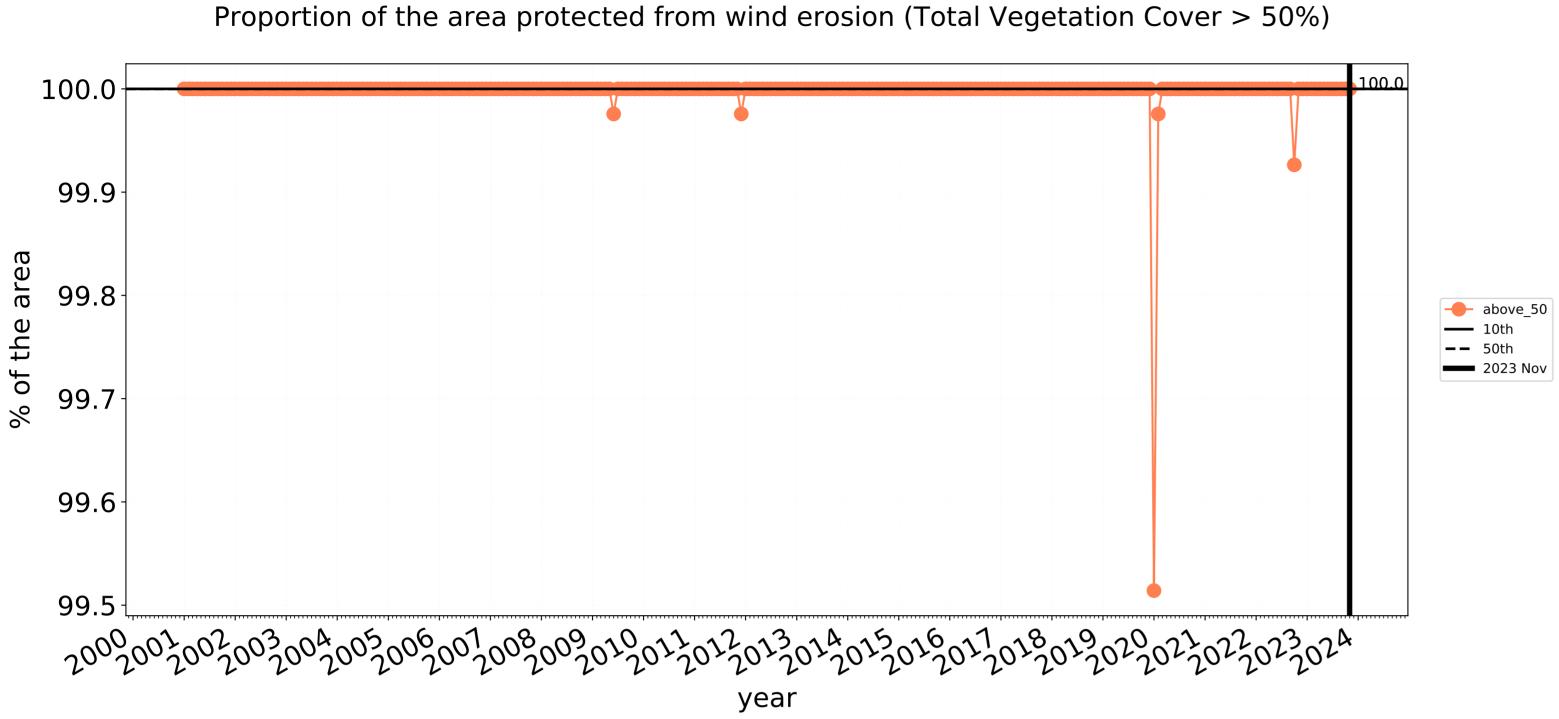


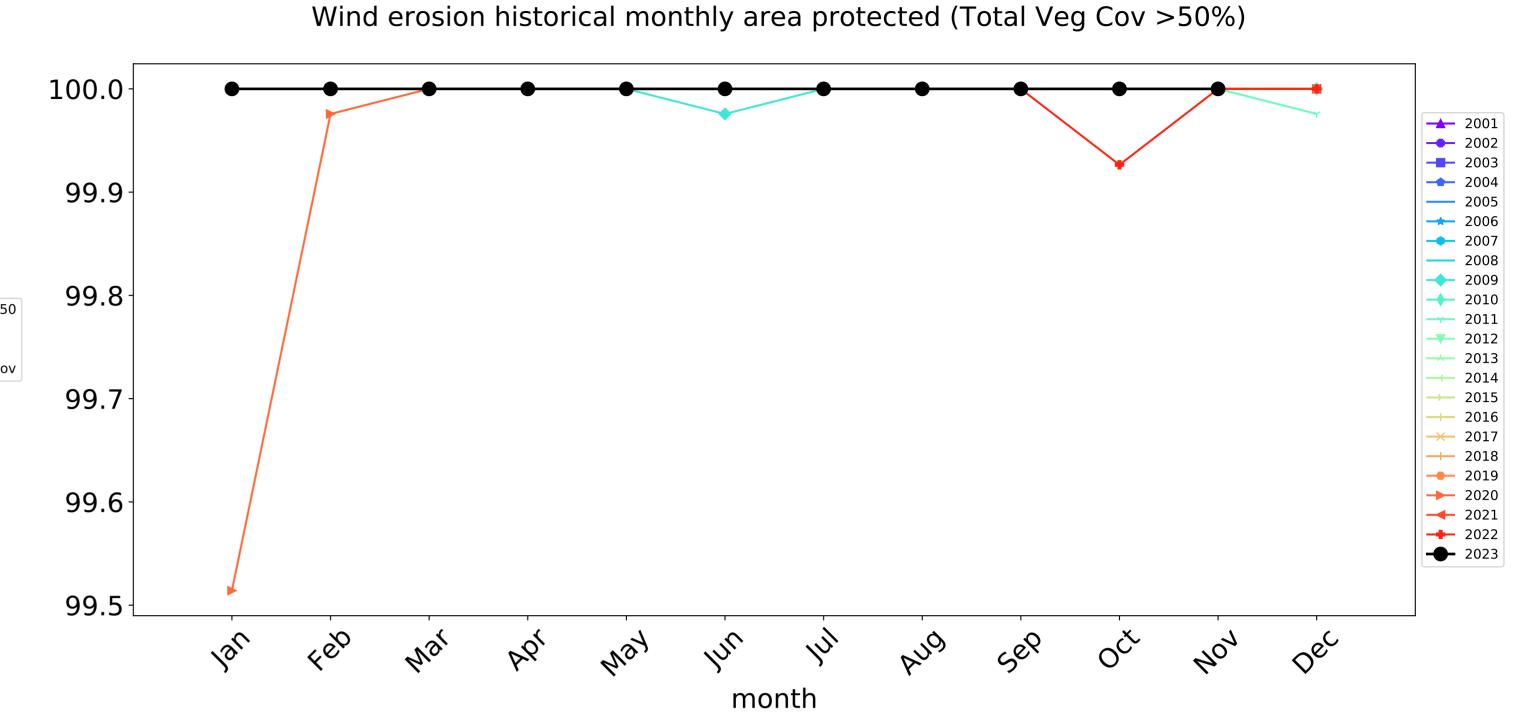


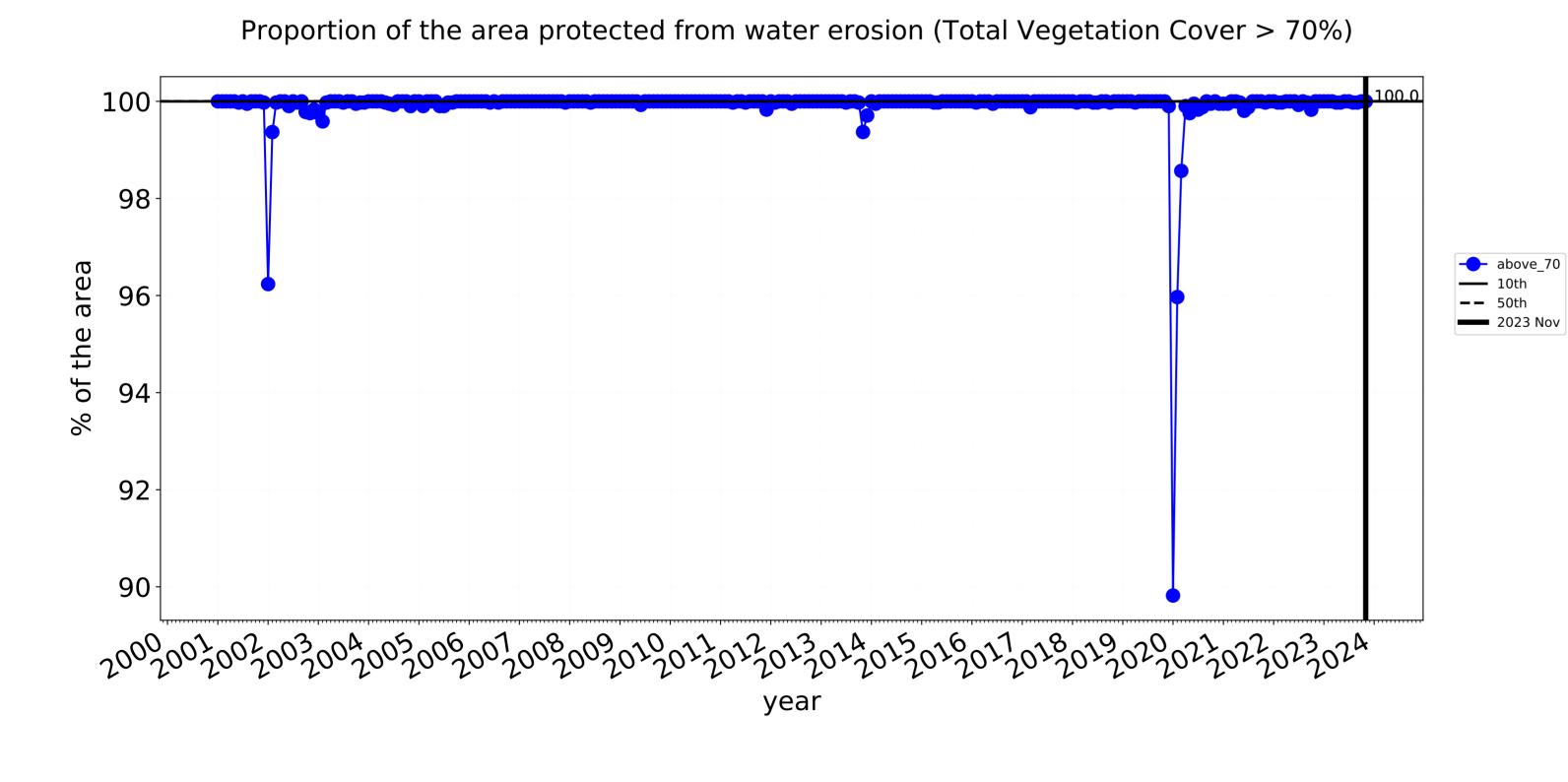


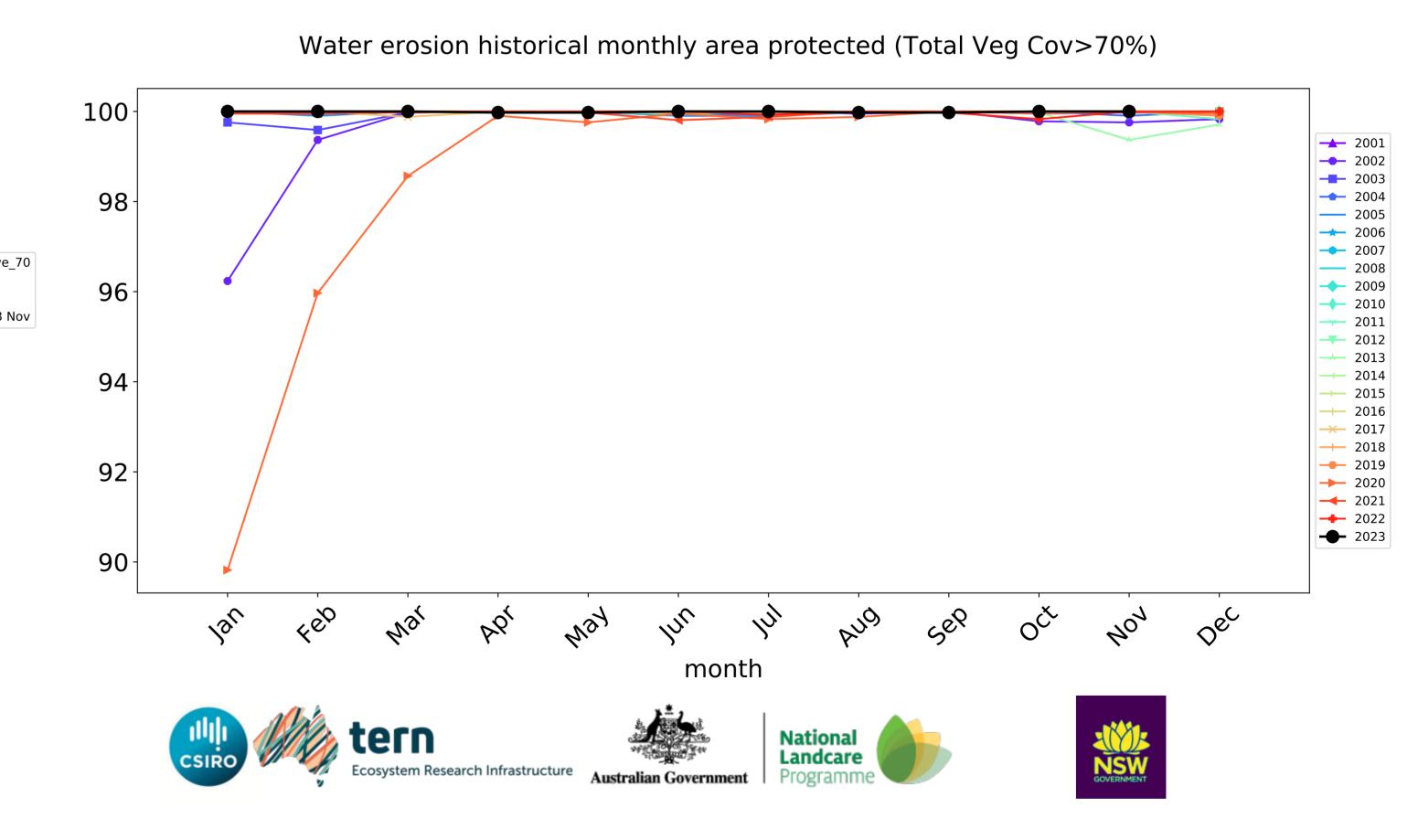


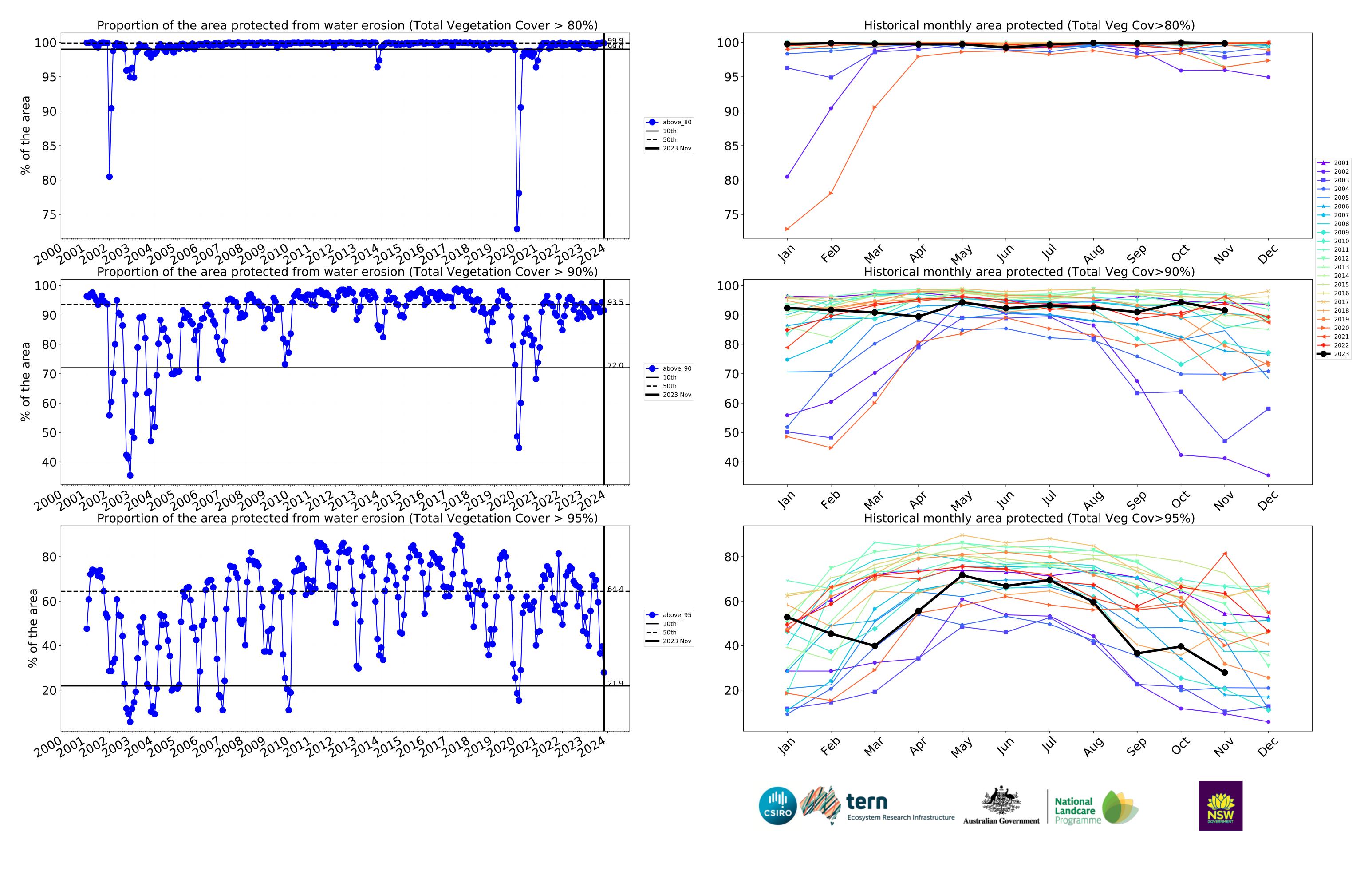










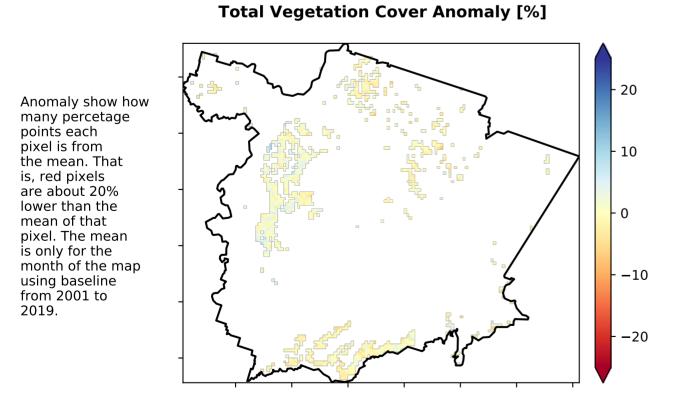


### **Conservation and natural environments Forest (non woodland)**

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

# Total Vegetation Cover [%] Typic Turble Tur

# % Area protected from water erosion (>70%) Area protected 100.0% of region (24,025 ha)



# Area protected from wind erosion (>50%) Area protected 100.0% of region (24,025 ha) Total Vegetation Cover Decile [%] Deciles show where the pixel value lies in the record, from highest to lowest, for that month 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

31%-50%

0.0%

51%-70%

**Total Vegetation Cover class** 

100

80

60

40

20

0-30%

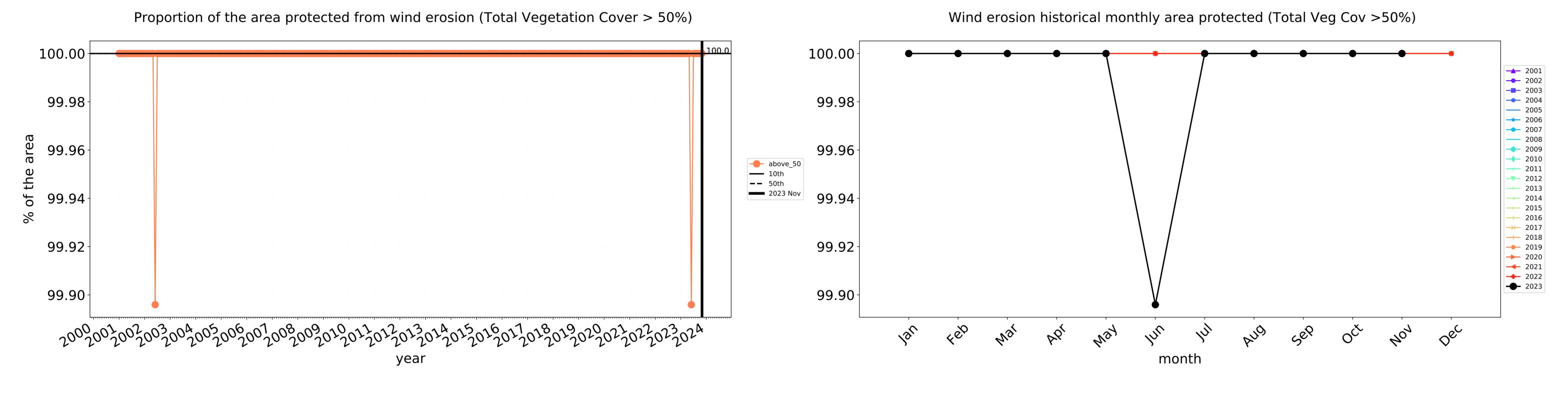
Area (%)

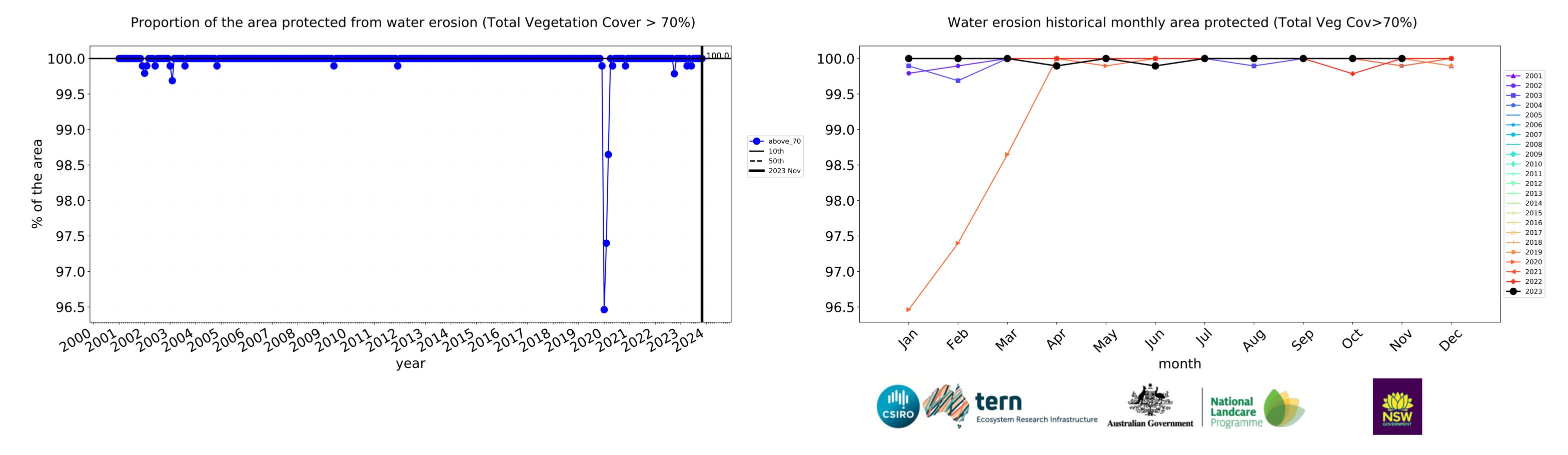
100.0%

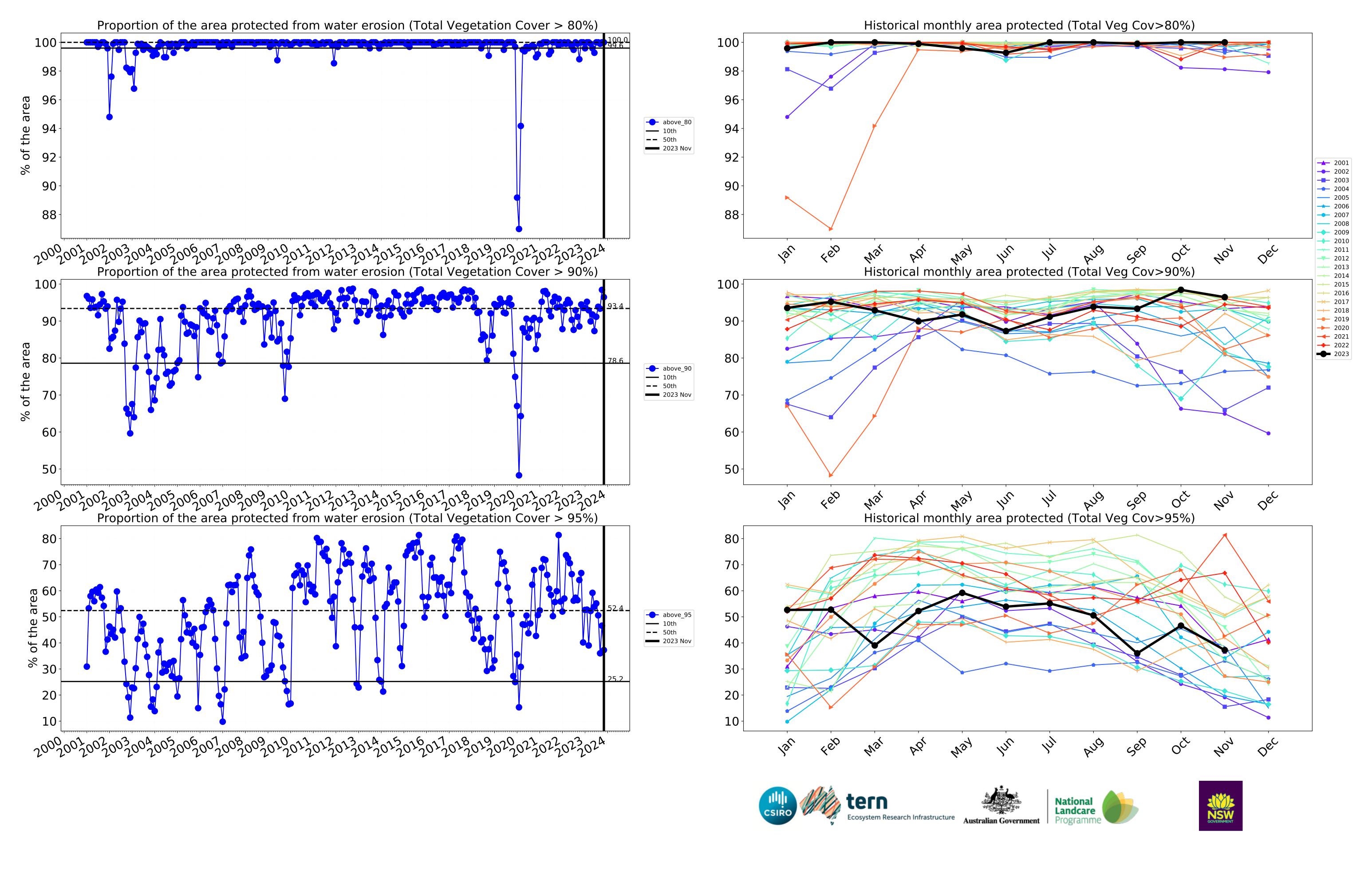
71%-100%











### **Agriculture**

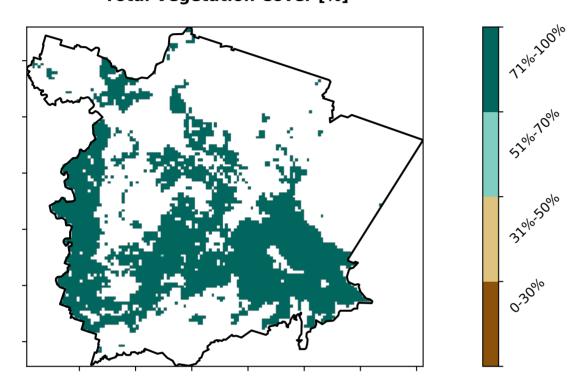
### **Land use and forest cover** 1 Agriculture - Grazing - Non forest Catchment Scale 2 Agriculture - Grazing - Woodland forest Land Use and Forests of Australia (2018) 3 Agriculture - Grazing - Non-woodland forest Derived from 4 Agriculture - Grazing - Irrigated Catchment Scale Land 5 Agriculture - Cropping - Non-irrigated Use of Australia 6 Agriculture - Cropping - Irrigated (2018) and Forests 7 Agriculture - Horticulture - Non-irrigated of Australia (2018) 8 Agriculture - Horticulture - Irrigated

# rest

## 65.0% 50 -8 40 -9 30 -20 -19.4% 10 -8.6%

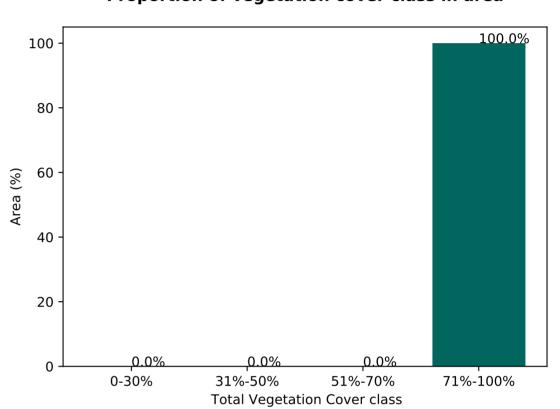
Proportion of each land class in area

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

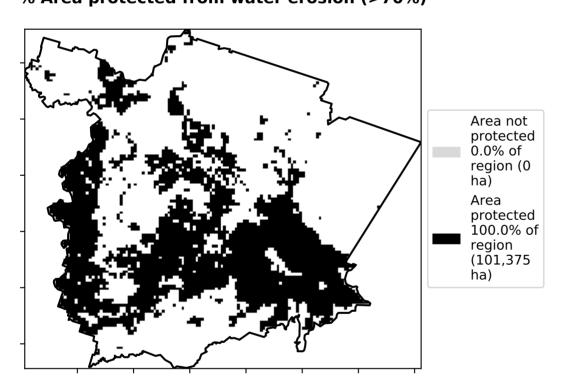


Proportion of vegetation cover class in area

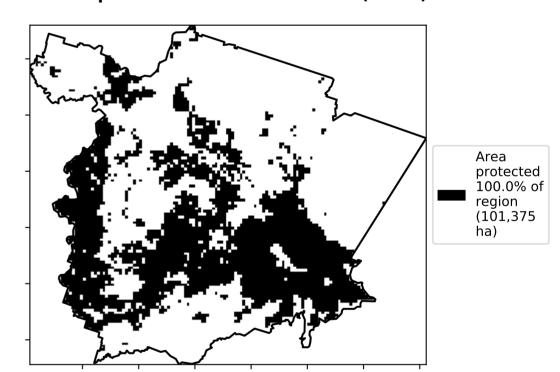
Land use class



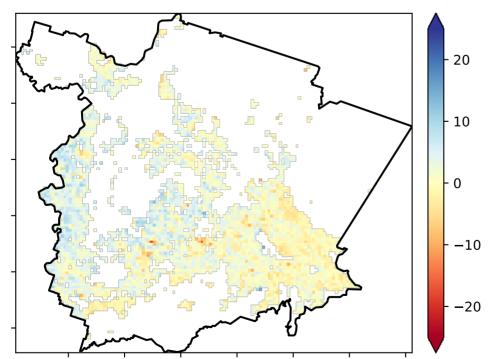
### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

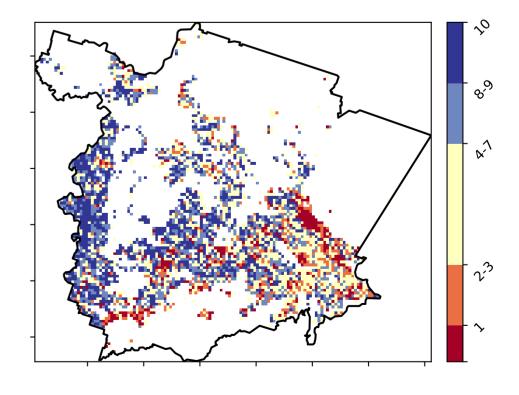


### Total Vegetation Cover Anomaly [%]

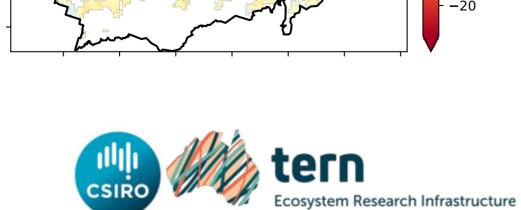


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]



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

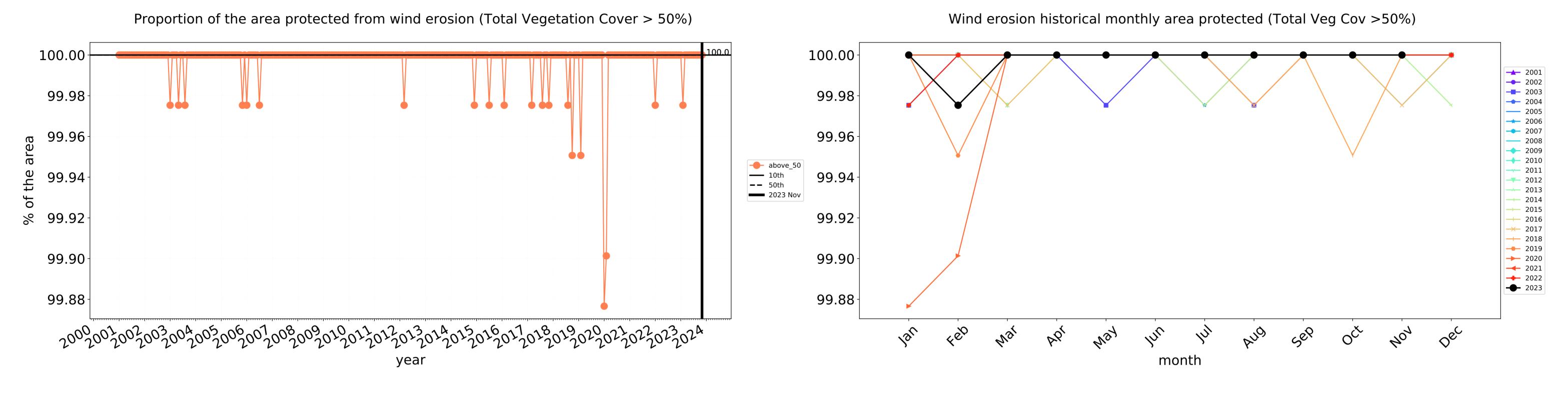


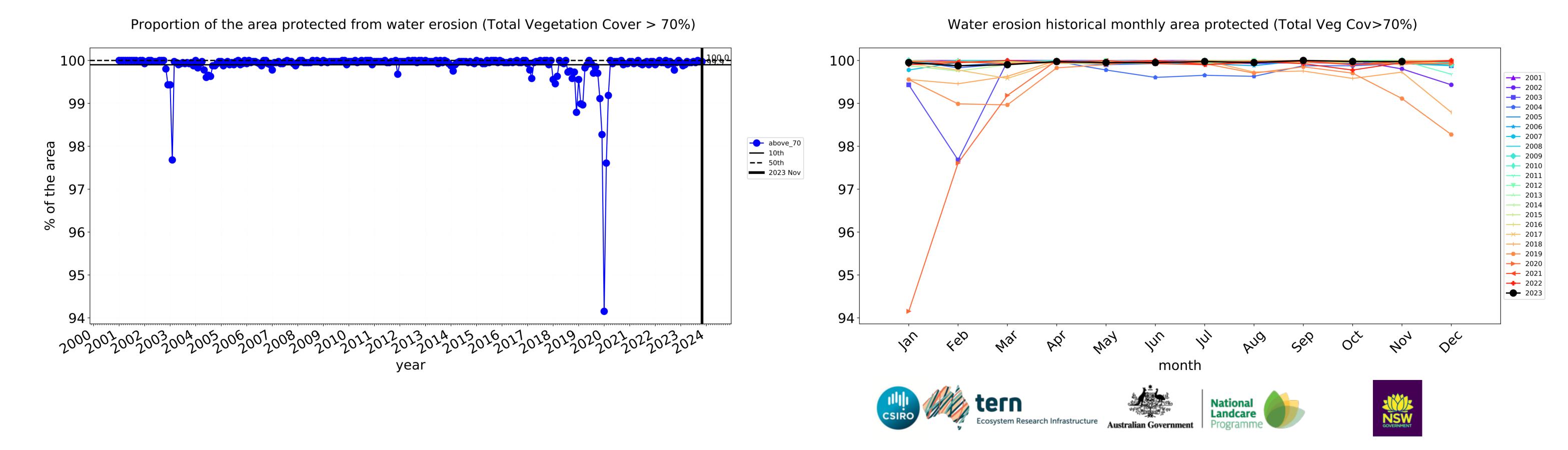


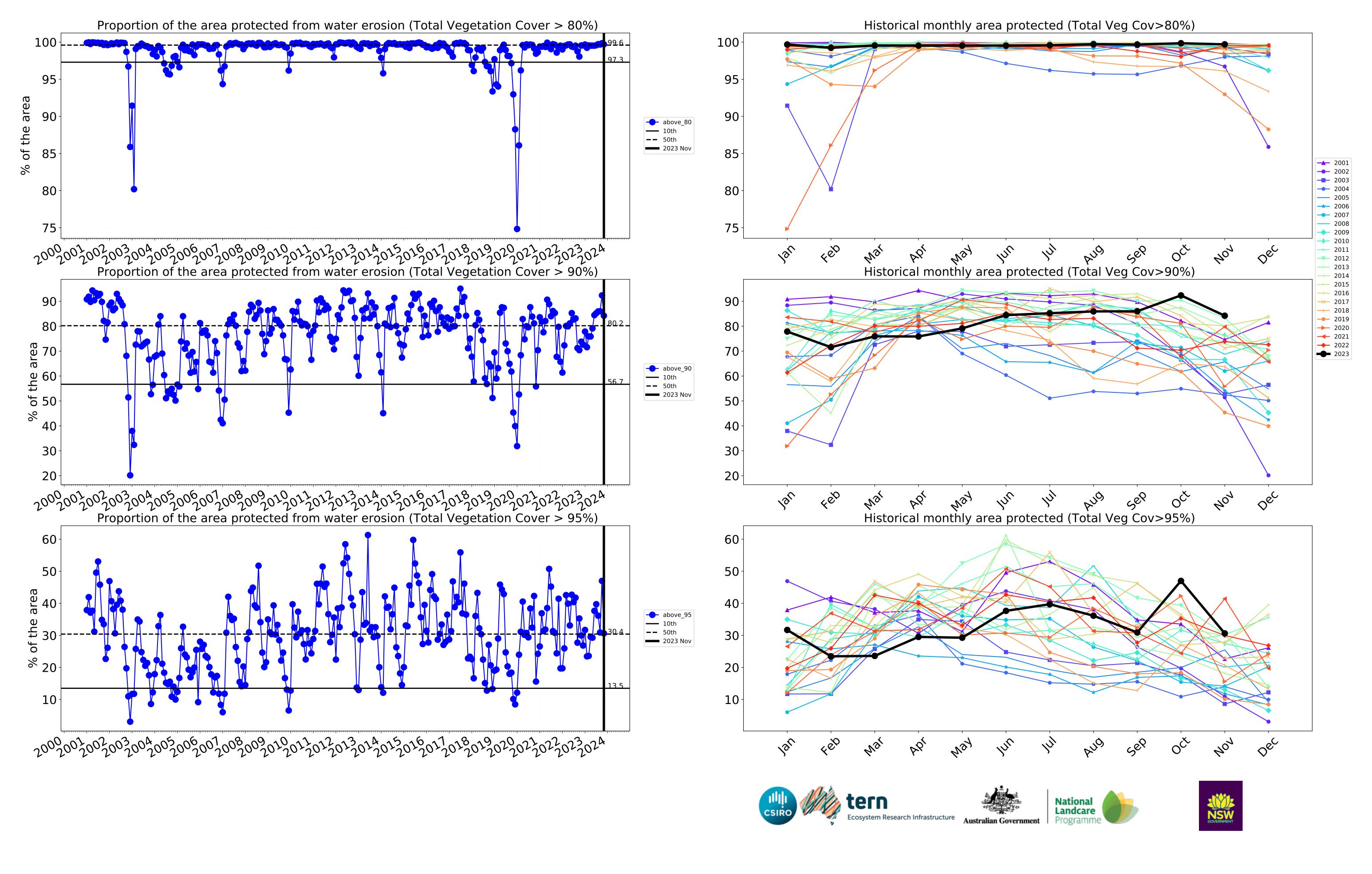




### **Agriculture timeseries**

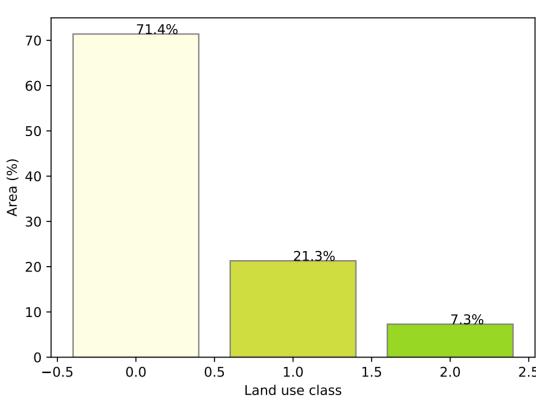




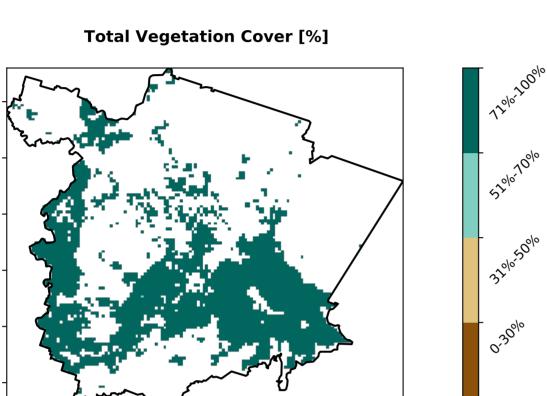


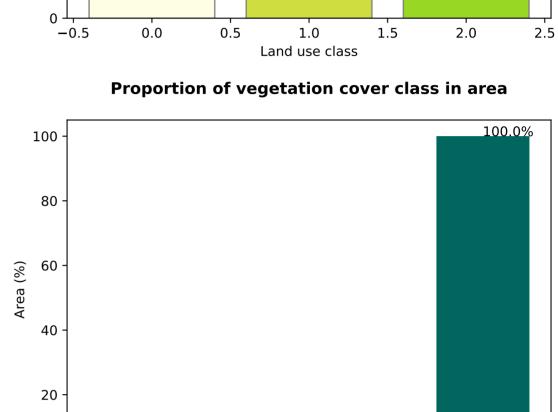
### Grazing

# **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 of Australia (2018) 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest



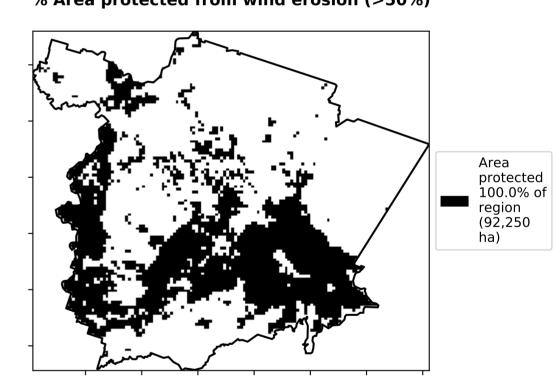
Proportion of each land class in area





0.0% 0.0% 31%-50% 0-30% 51%-70% 71%-100% **Total Vegetation Cover class** % Area protected from wind erosion (>50%)

### % Area protected from water erosion (>70%) Area not protected 0.0% of region (0 ha) Area protected 100.0% of region (92,250 ha)





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

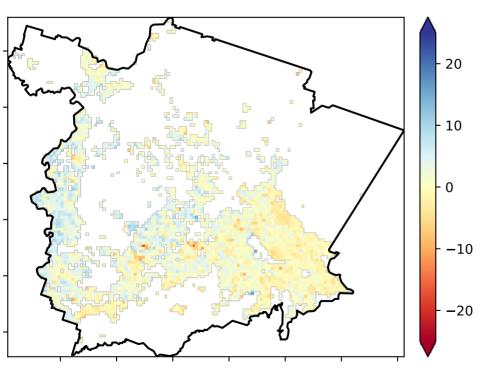
are about 20% lower than the mean of that

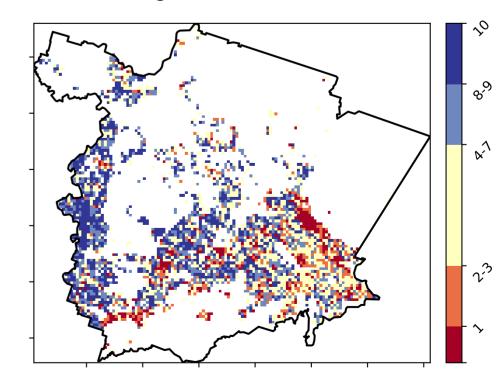
pixel. The mean

using baseline from 2001 to 2019.

is only for the month of the map

**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.

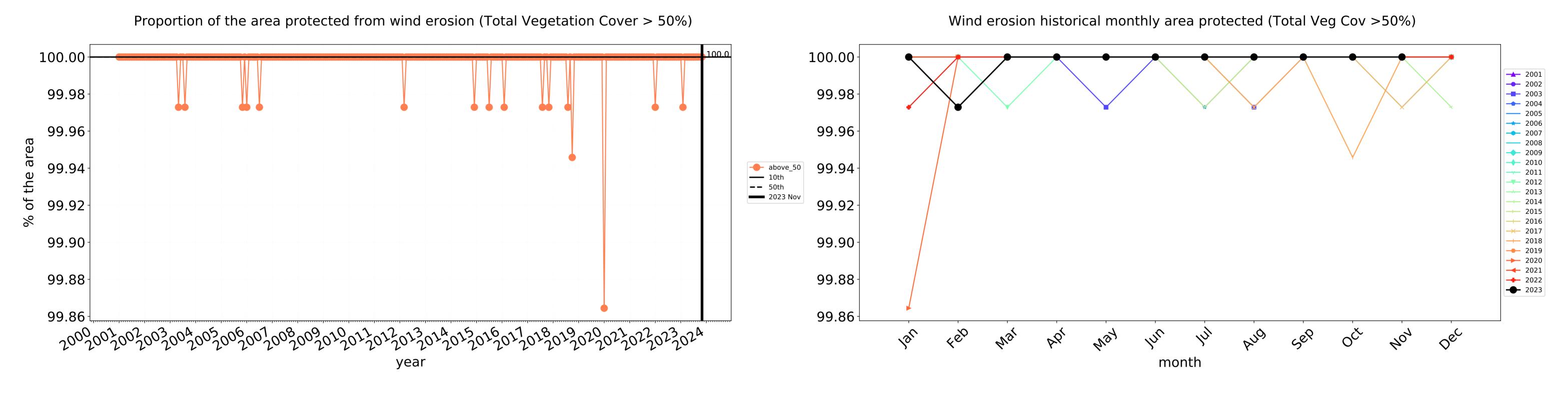


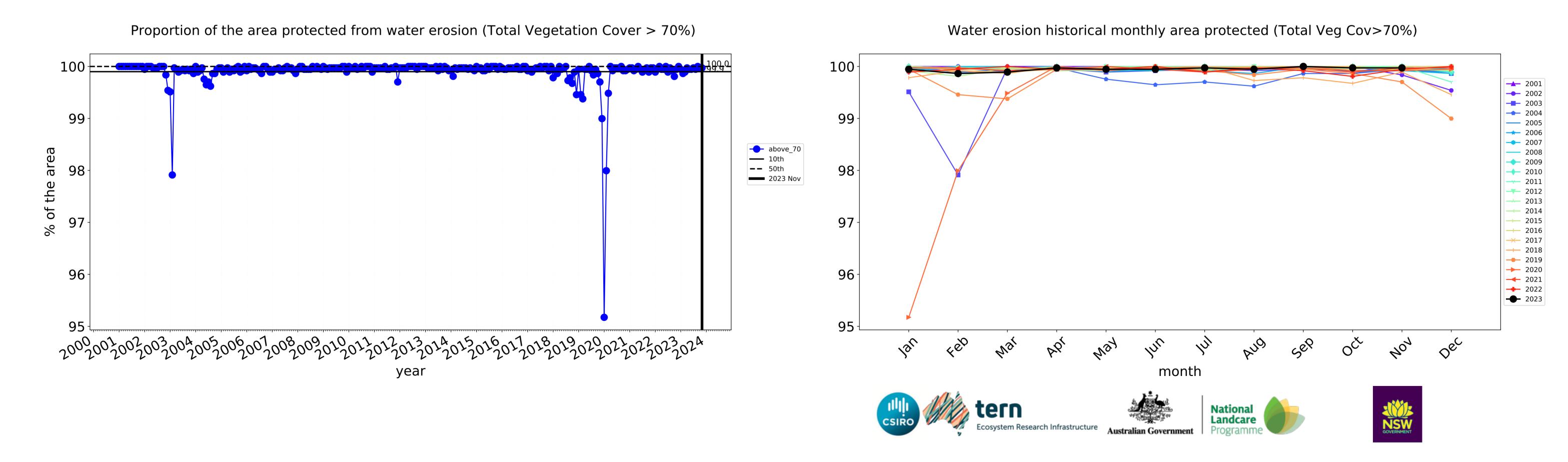


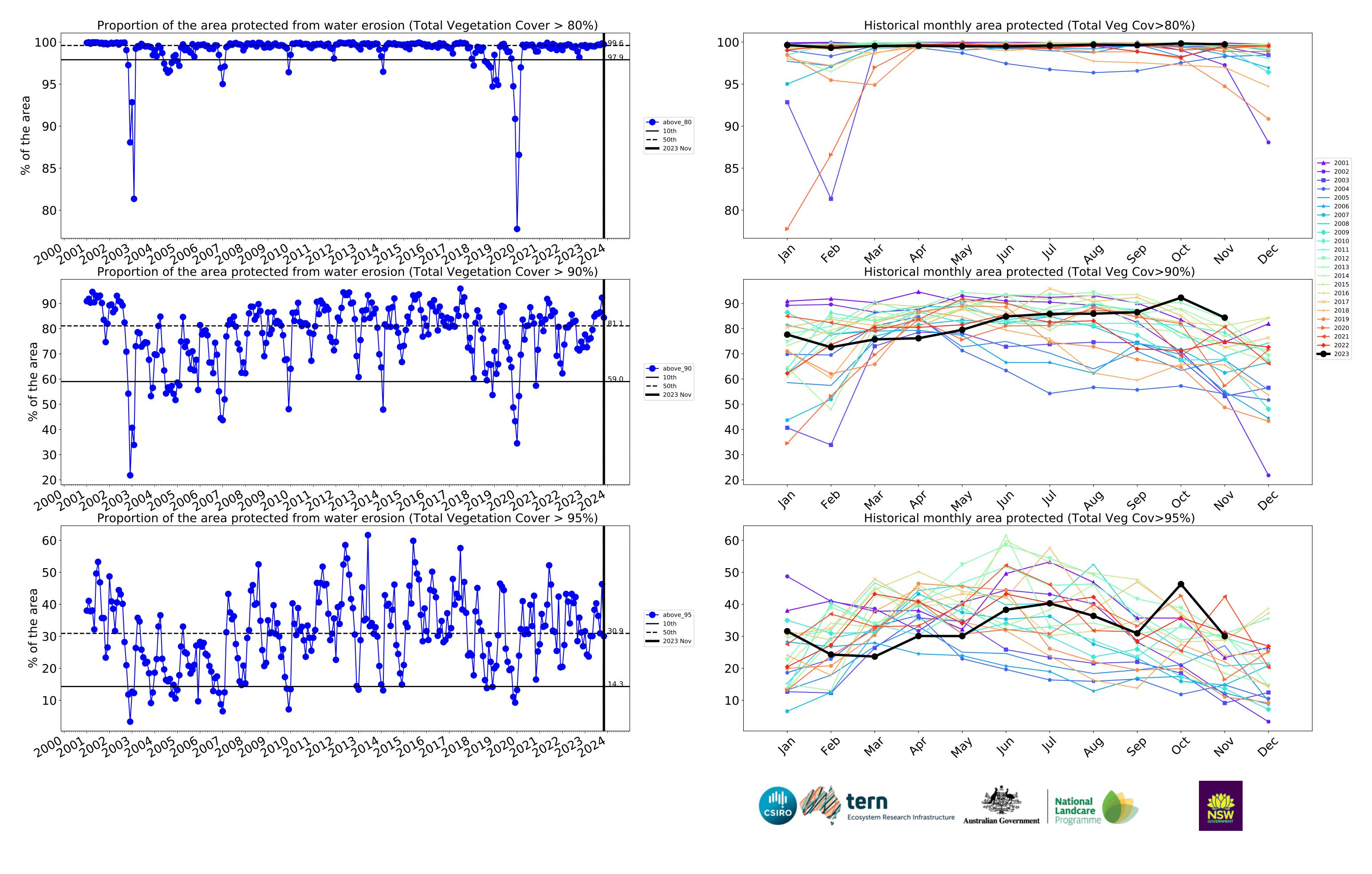




### **Grazing timeseries**







### **Grazing non forest**

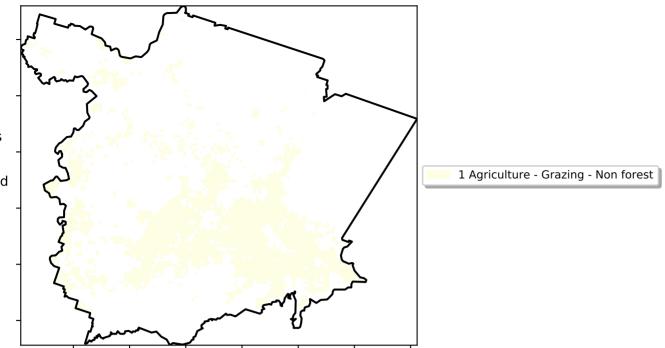
### **Land use and forest cover**

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

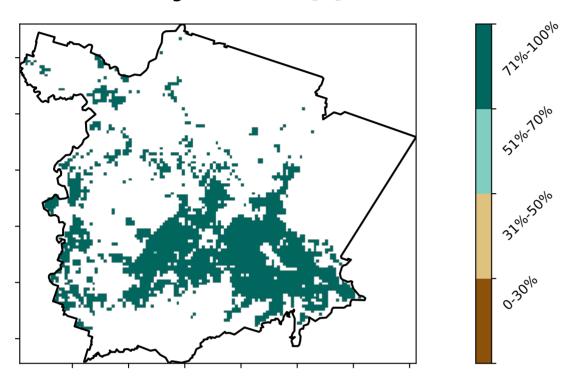
lower than the

pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

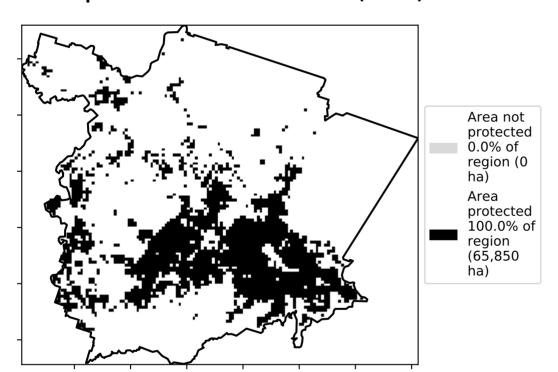
mean of that



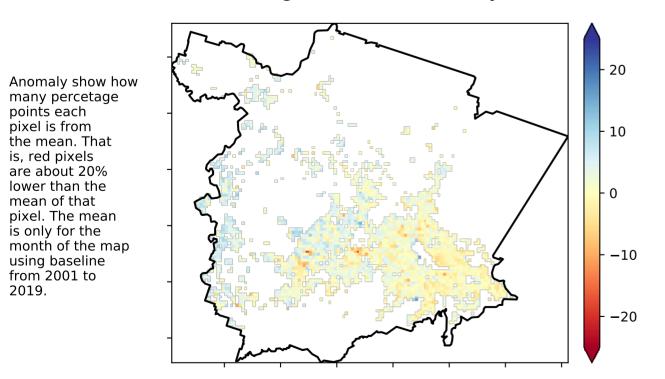
### **Total Vegetation Cover [%]**



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

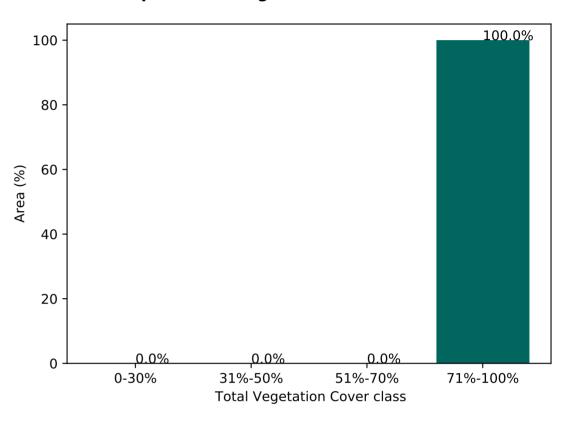


### **Total Vegetation Cover Anomaly [%]**

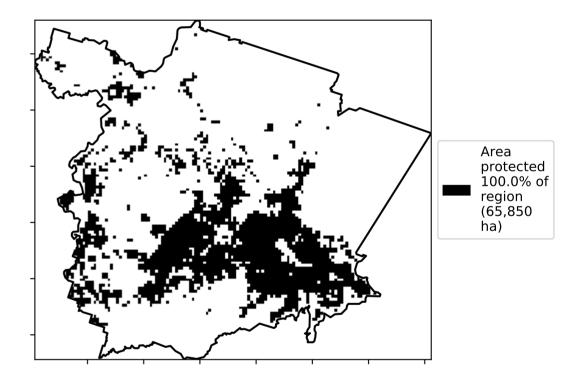


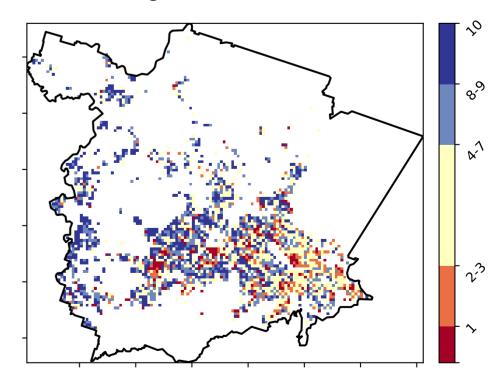
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

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



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





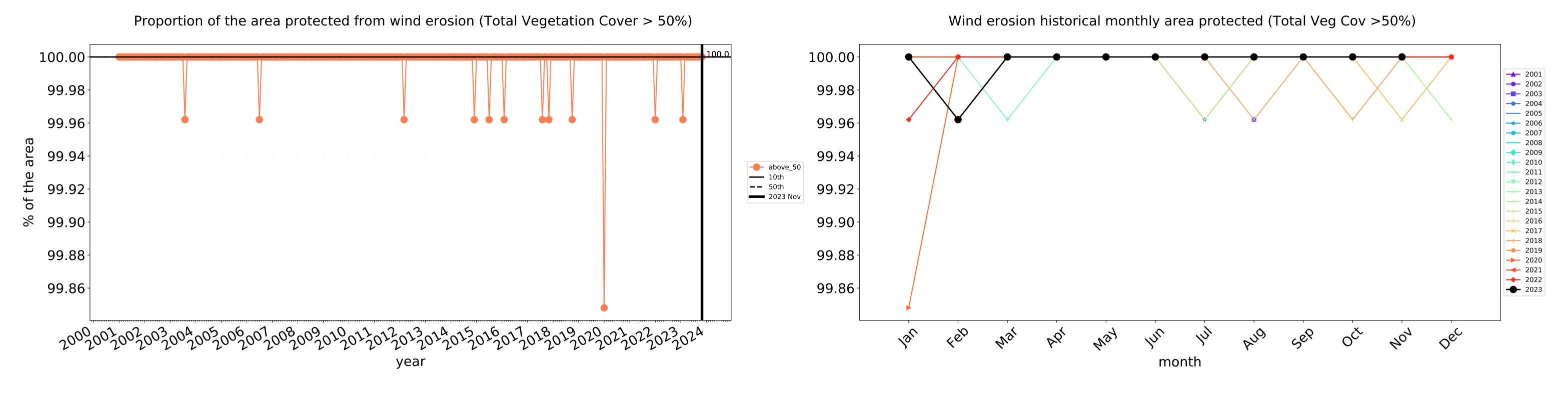


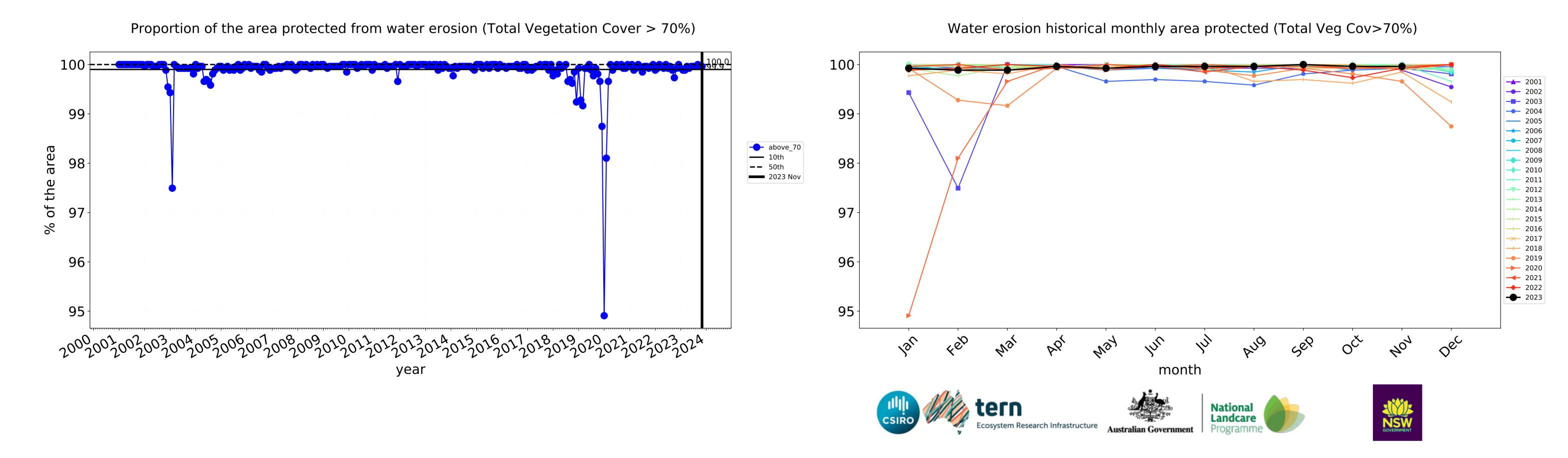


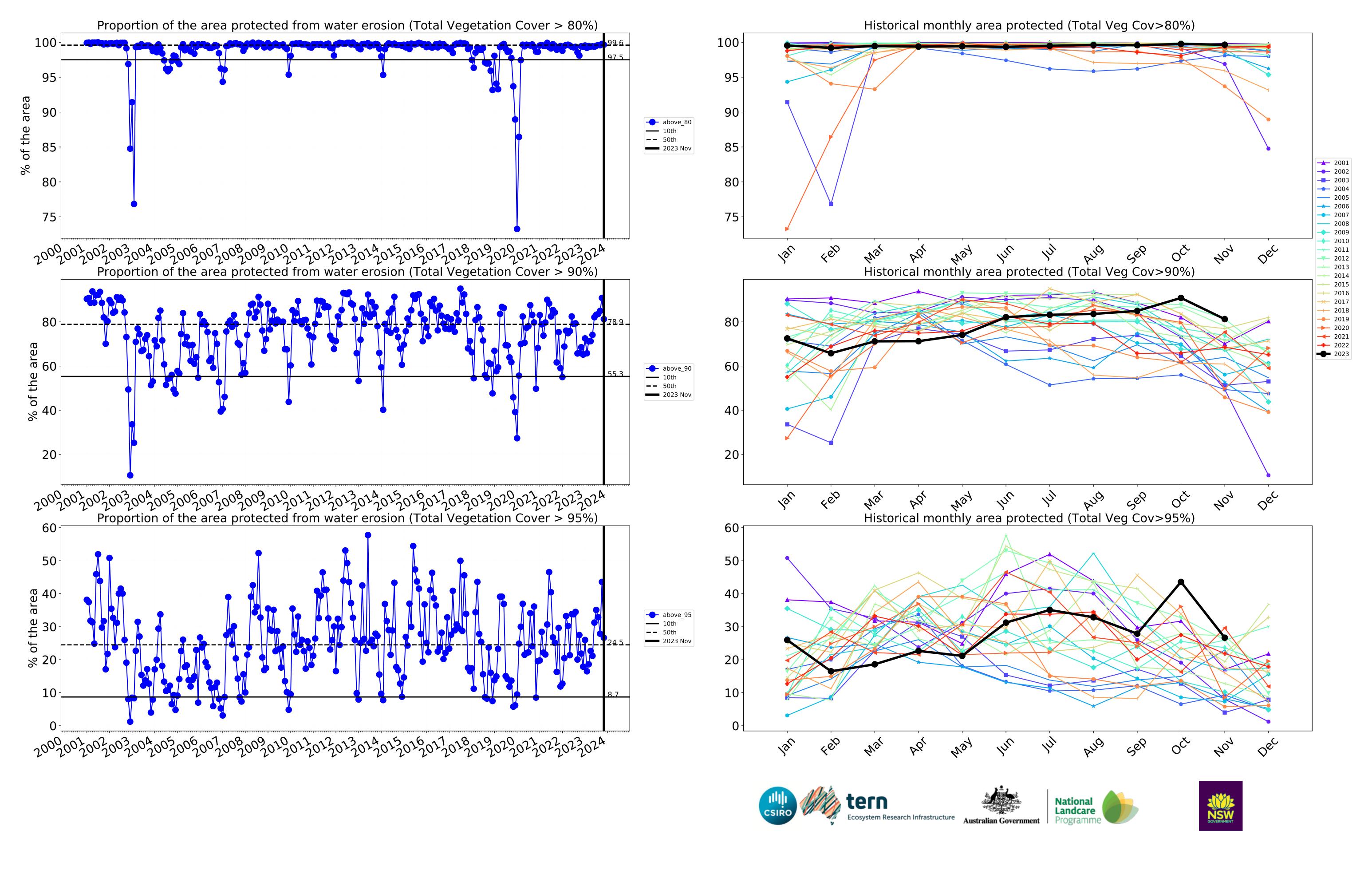




### **Grazing non forest timeseries**

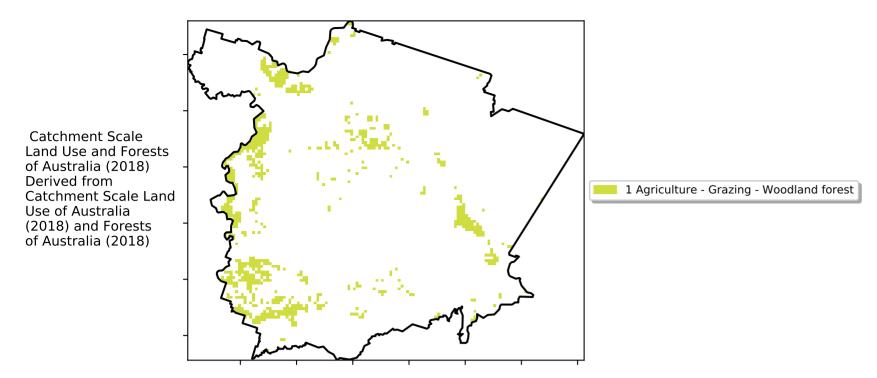




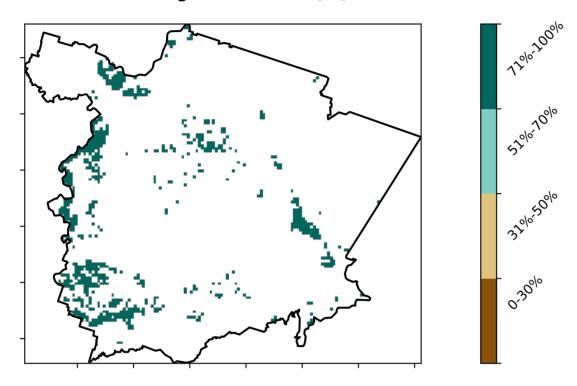


### **Grazing Woodland forest**

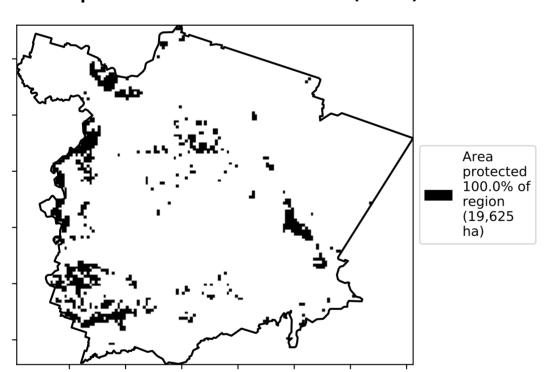
### **Land use and forest cover**



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



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

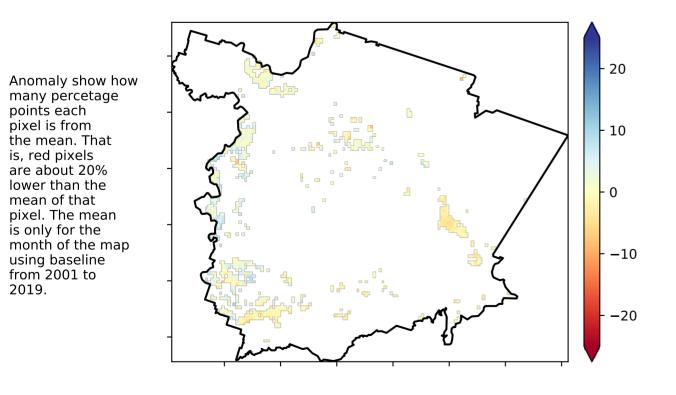


### **Total Vegetation Cover Anomaly [%]**

lower than the

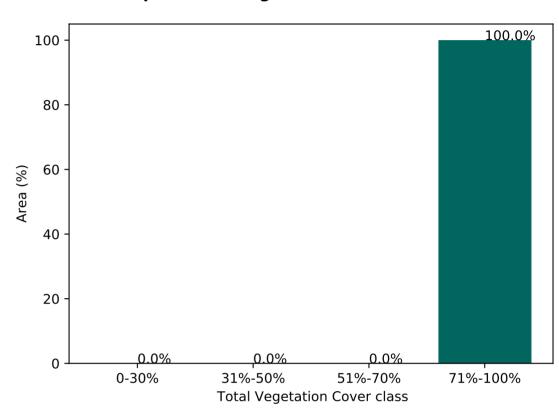
is only for the month of the map using baseline from 2001 to 2019.

mean of that pixel. The mean

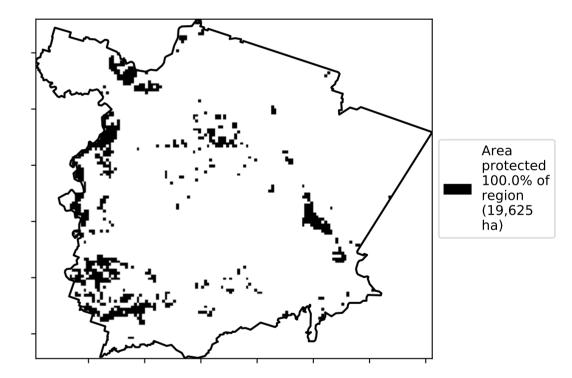


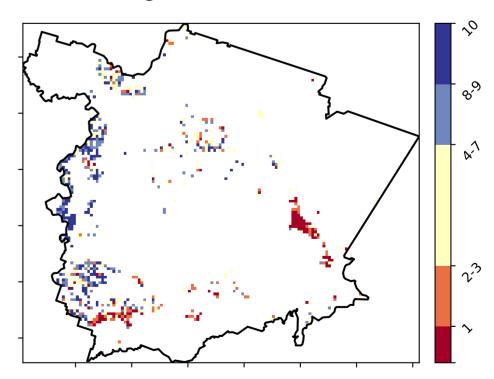
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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





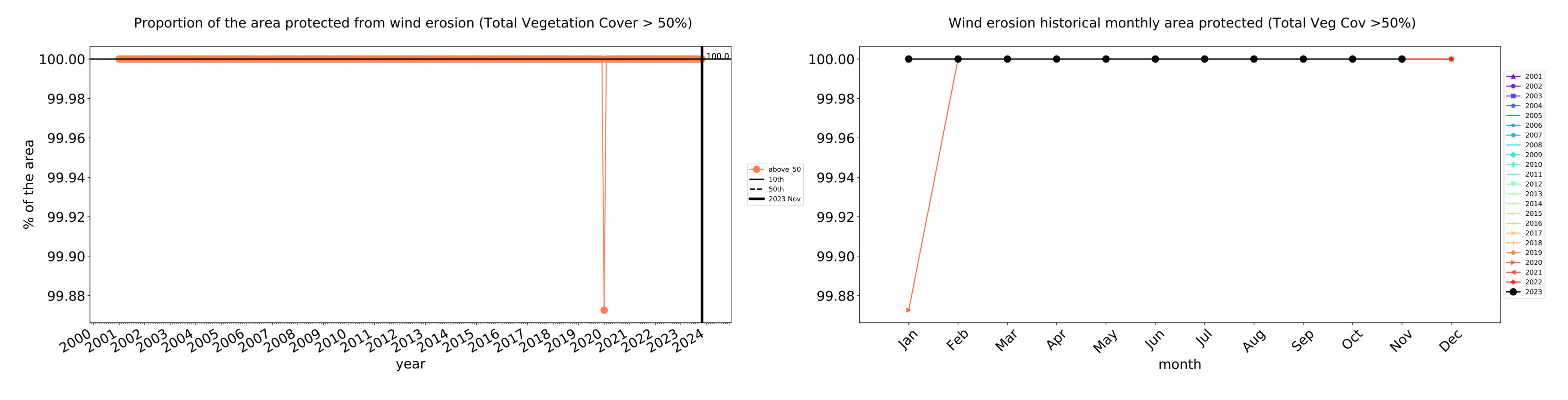


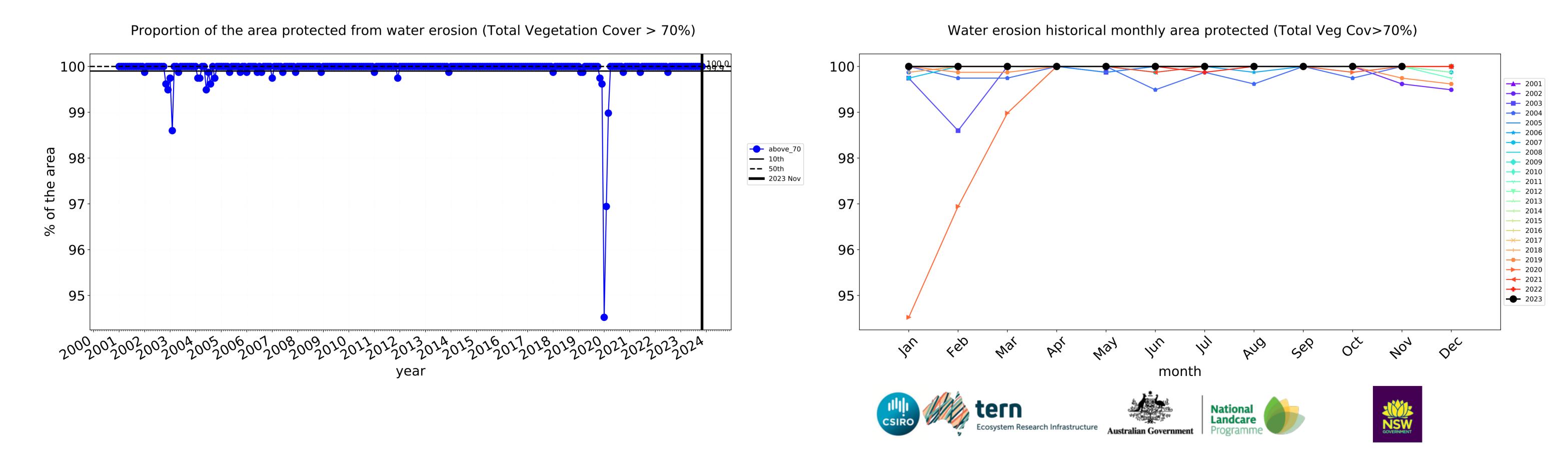


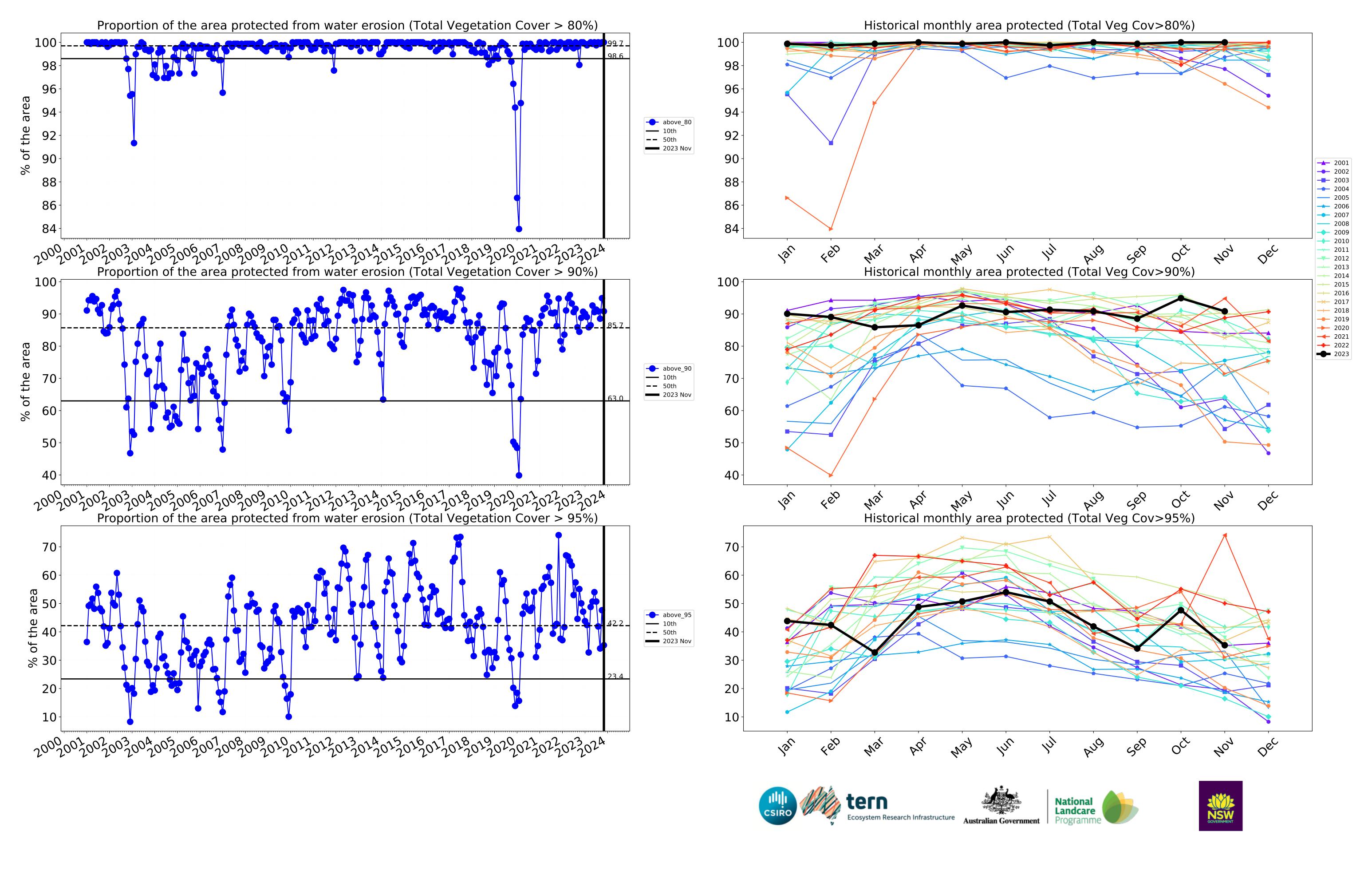




### **Grazing Woodland forest timeseries**

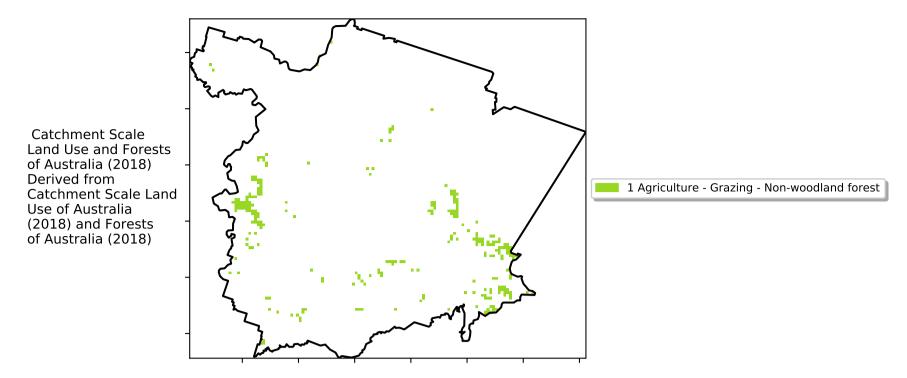




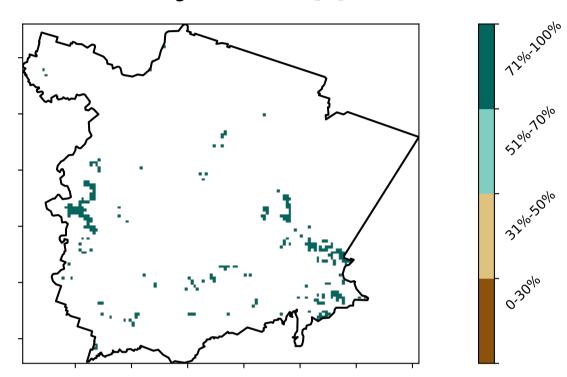


### **Grazing - Forest (non woodland)**

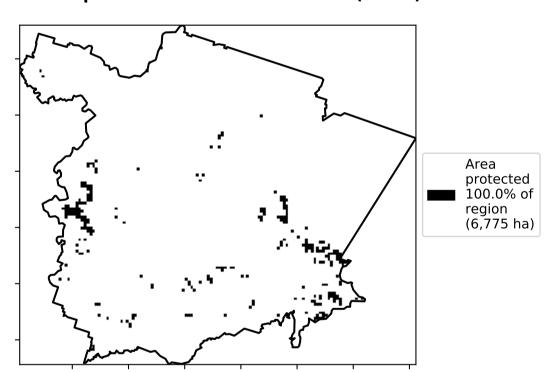
### Land use and forest cover



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



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



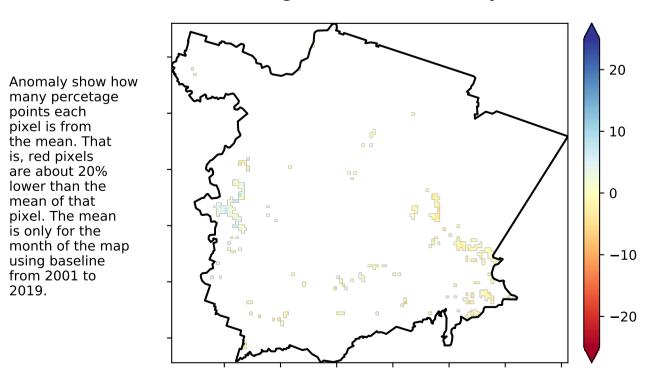
### **Total Vegetation Cover Anomaly [%]**

is, red pixels are about 20% lower than the mean of that

pixel. The mean

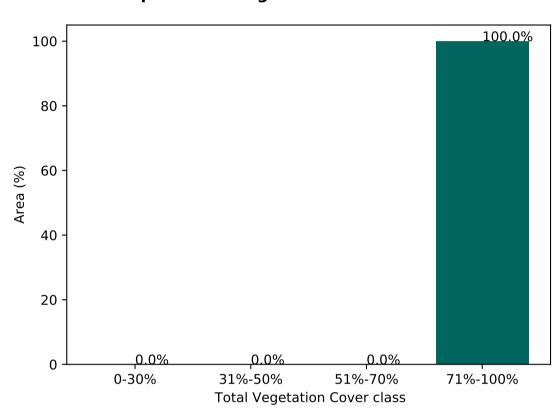
using baseline from 2001 to 2019.

is only for the month of the map

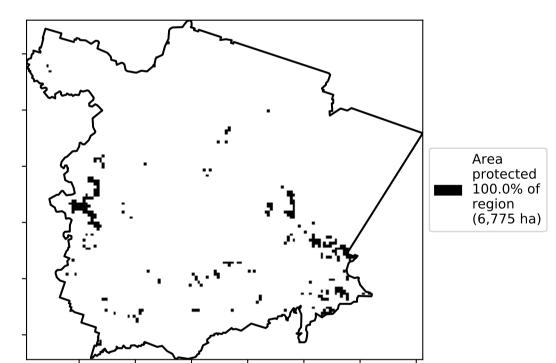


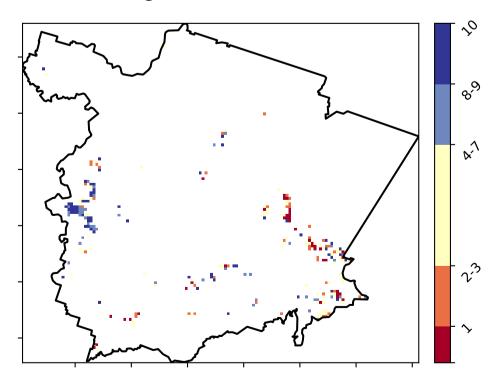
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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



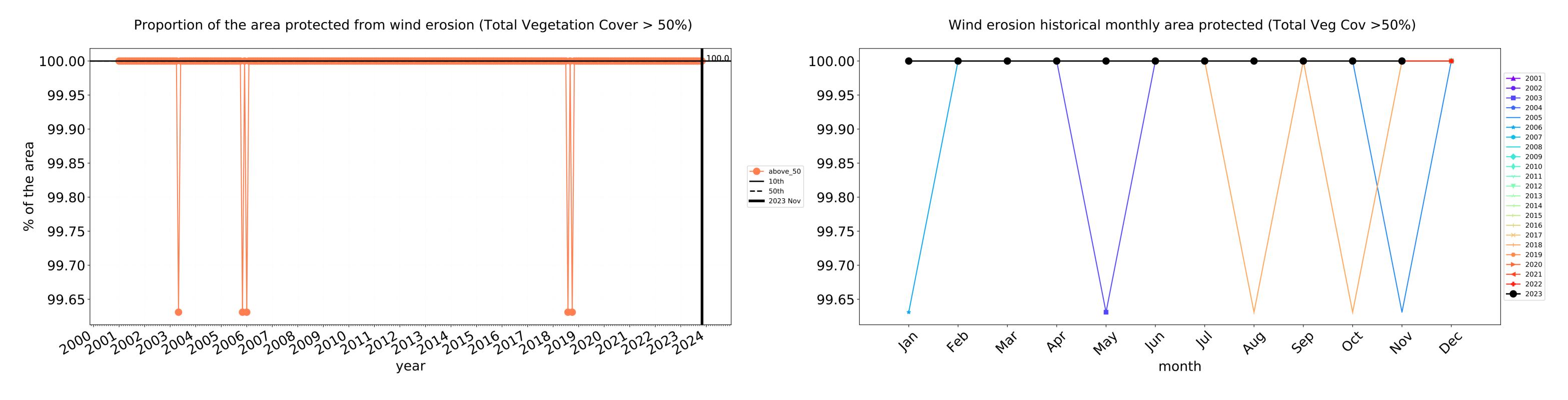


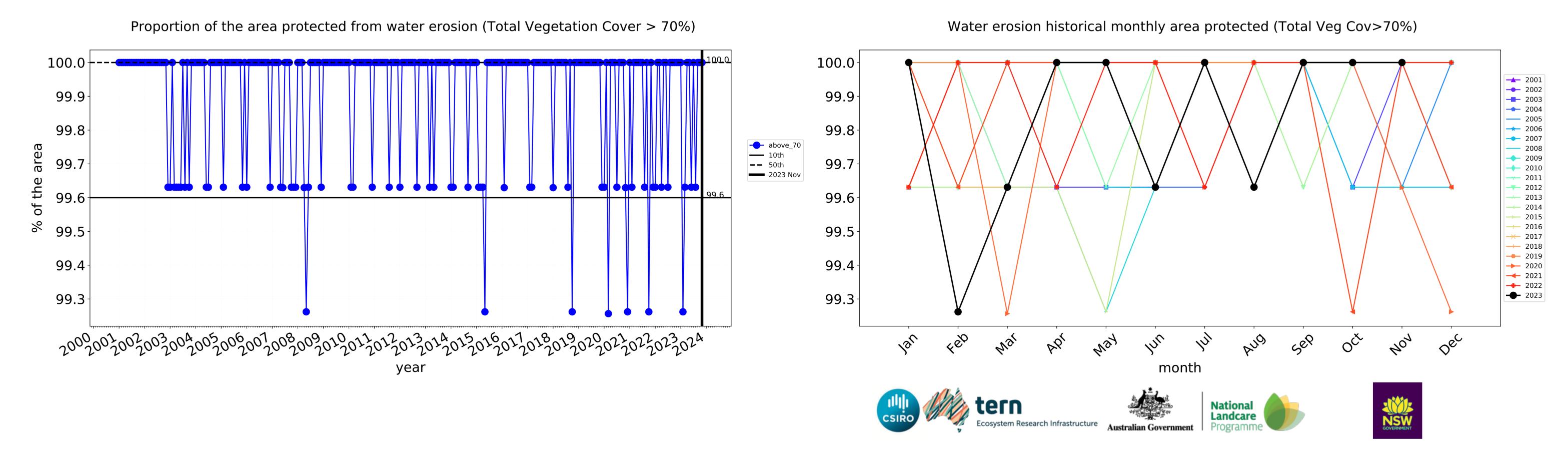


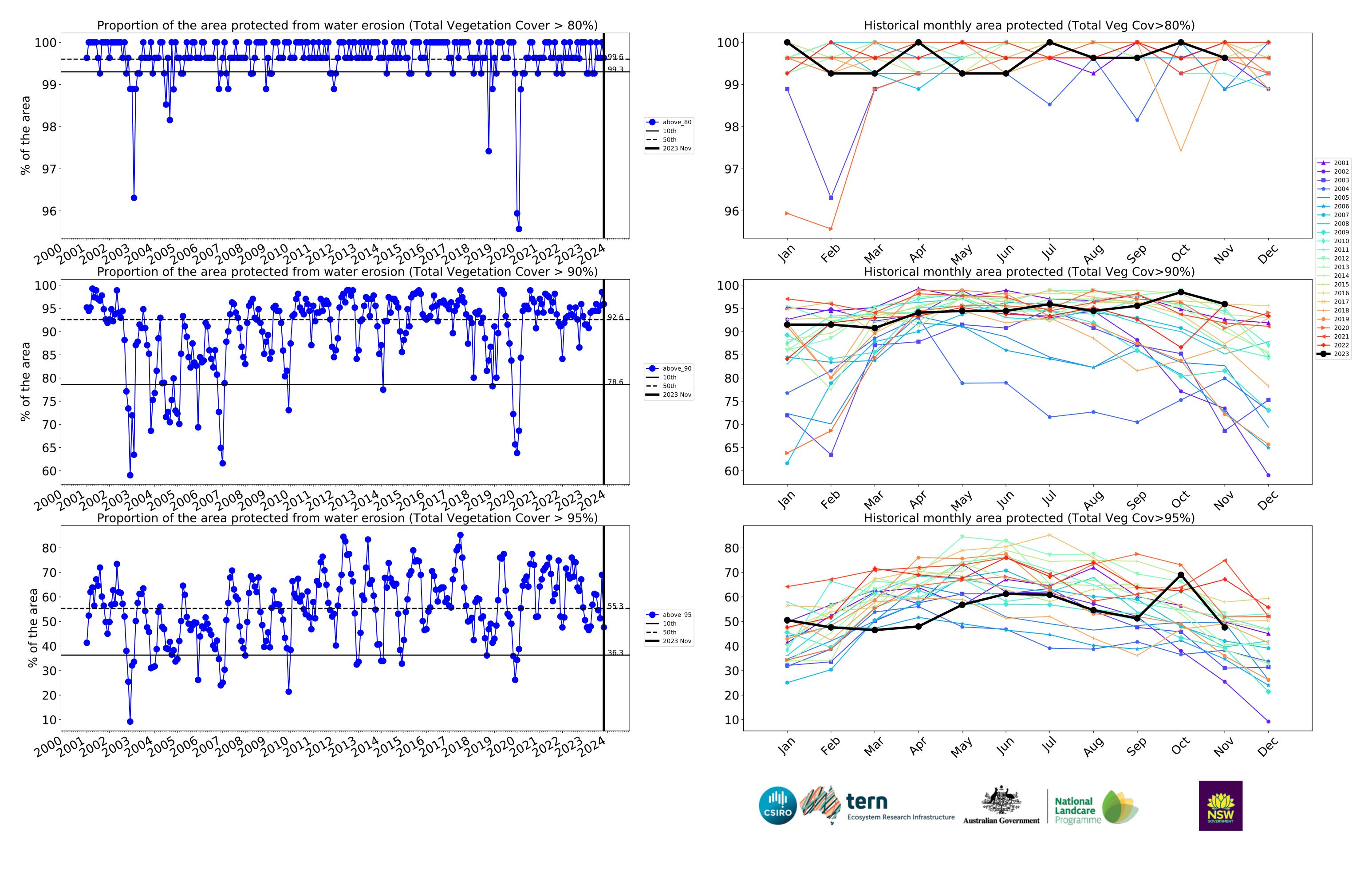






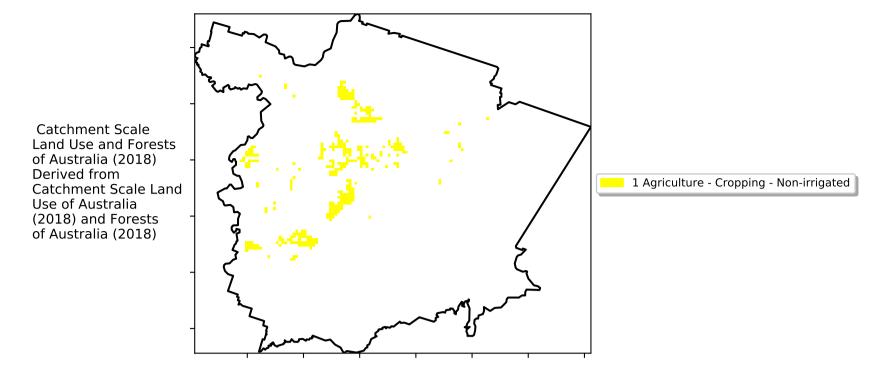




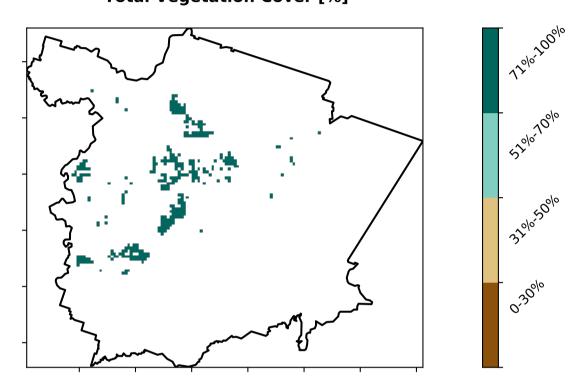


### **Cropping**

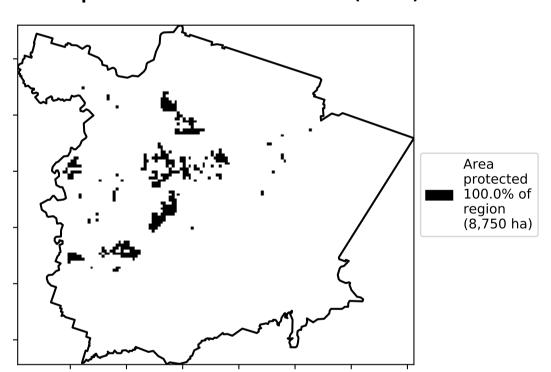
### Land use and forest cover



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



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



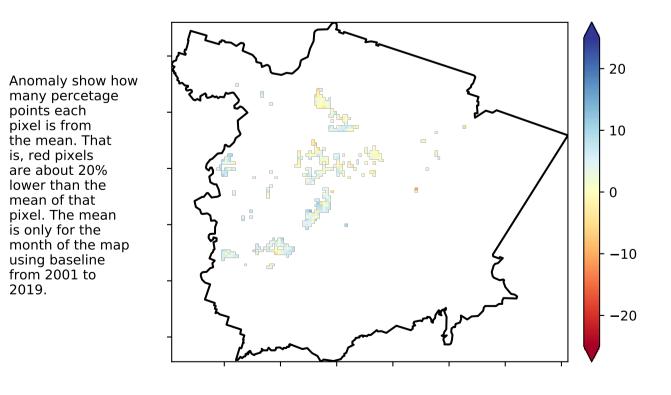
### **Total Vegetation Cover Anomaly [%]**

is, red pixels are about 20% lower than the mean of that

pixel. The mean

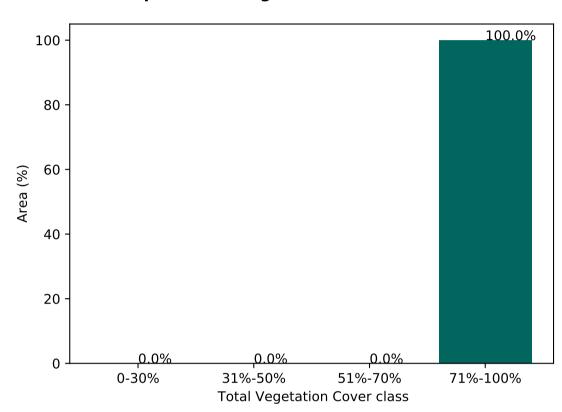
using baseline from 2001 to 2019.

is only for the month of the map

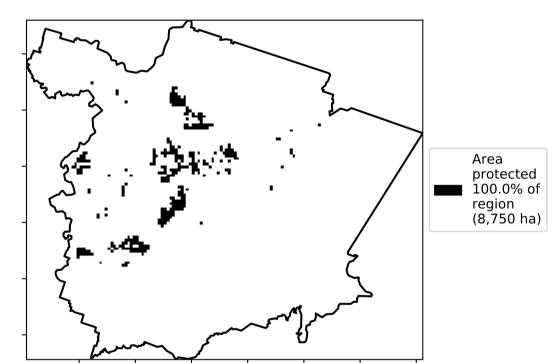


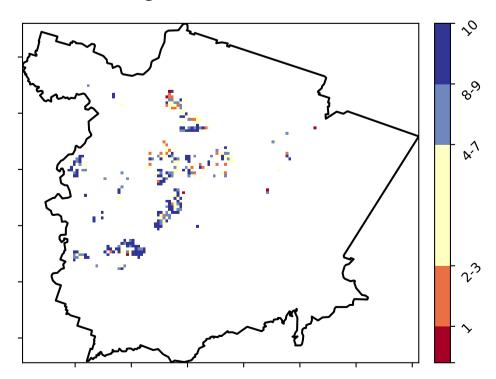
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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





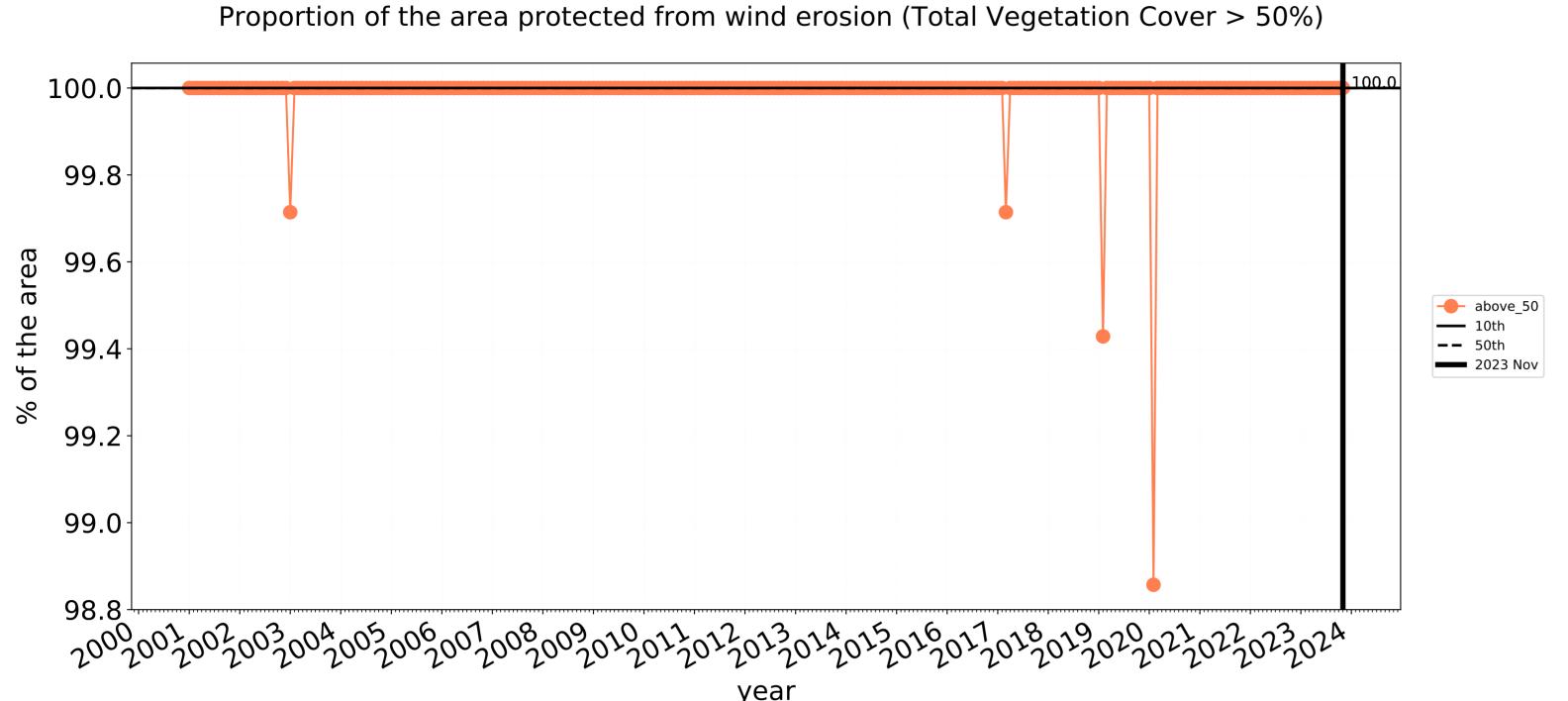


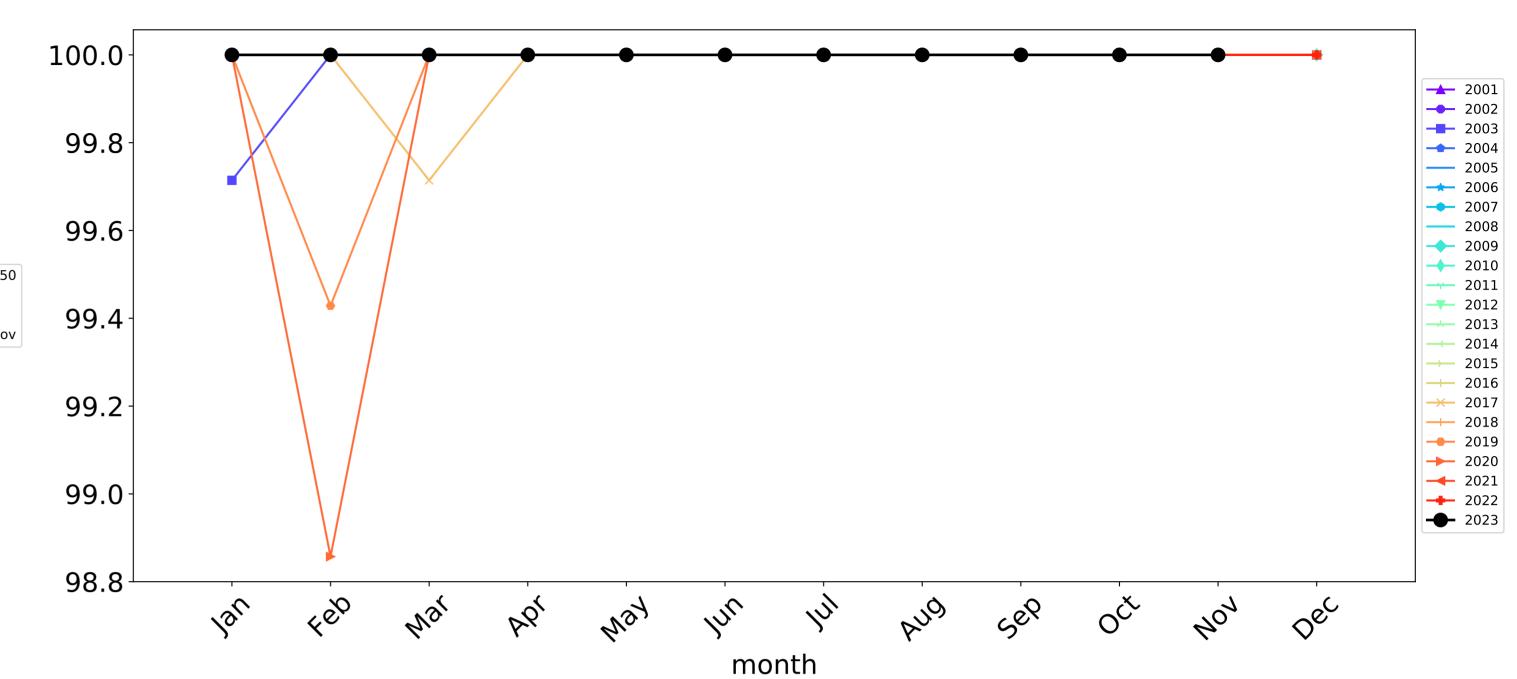




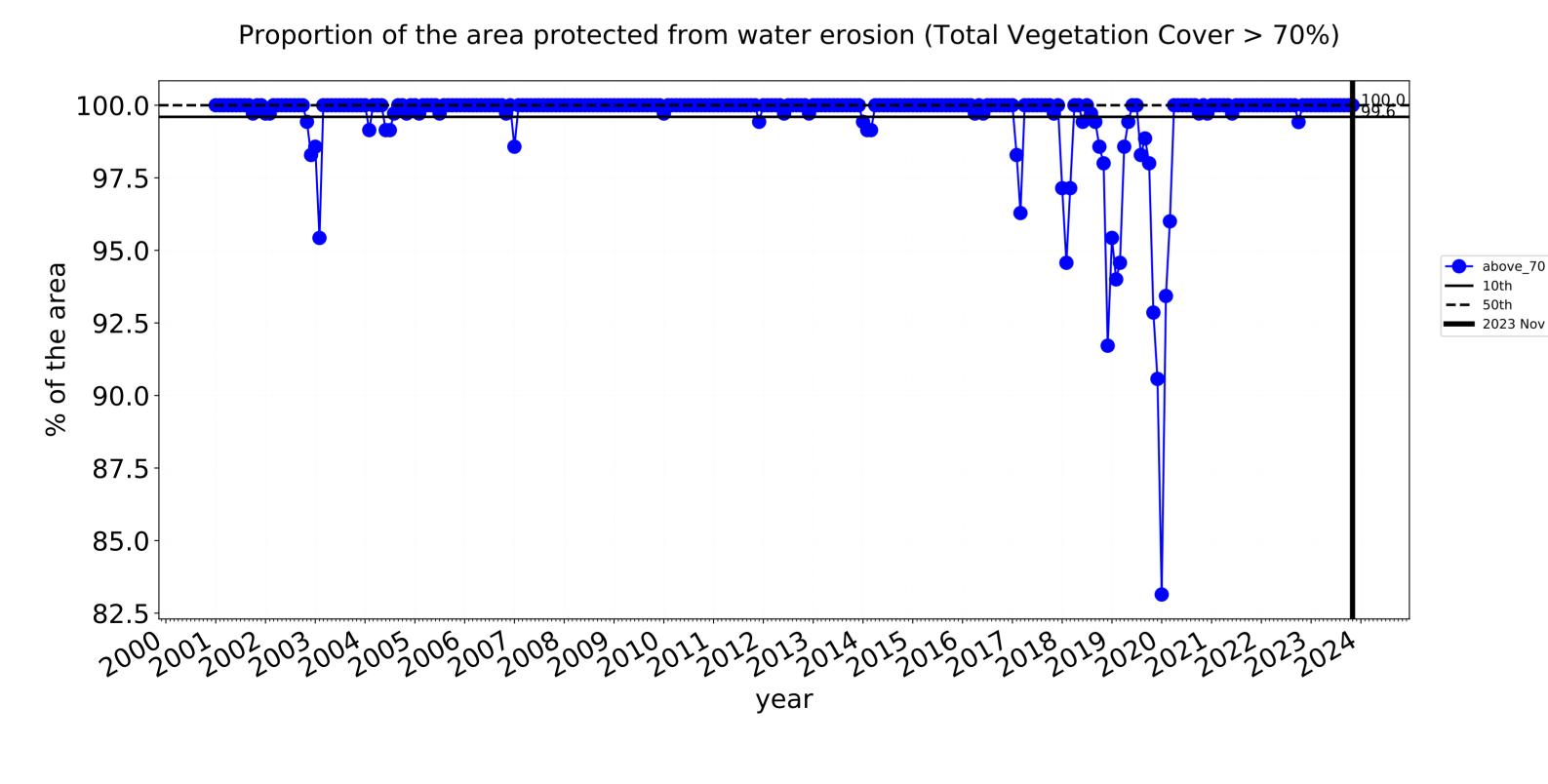


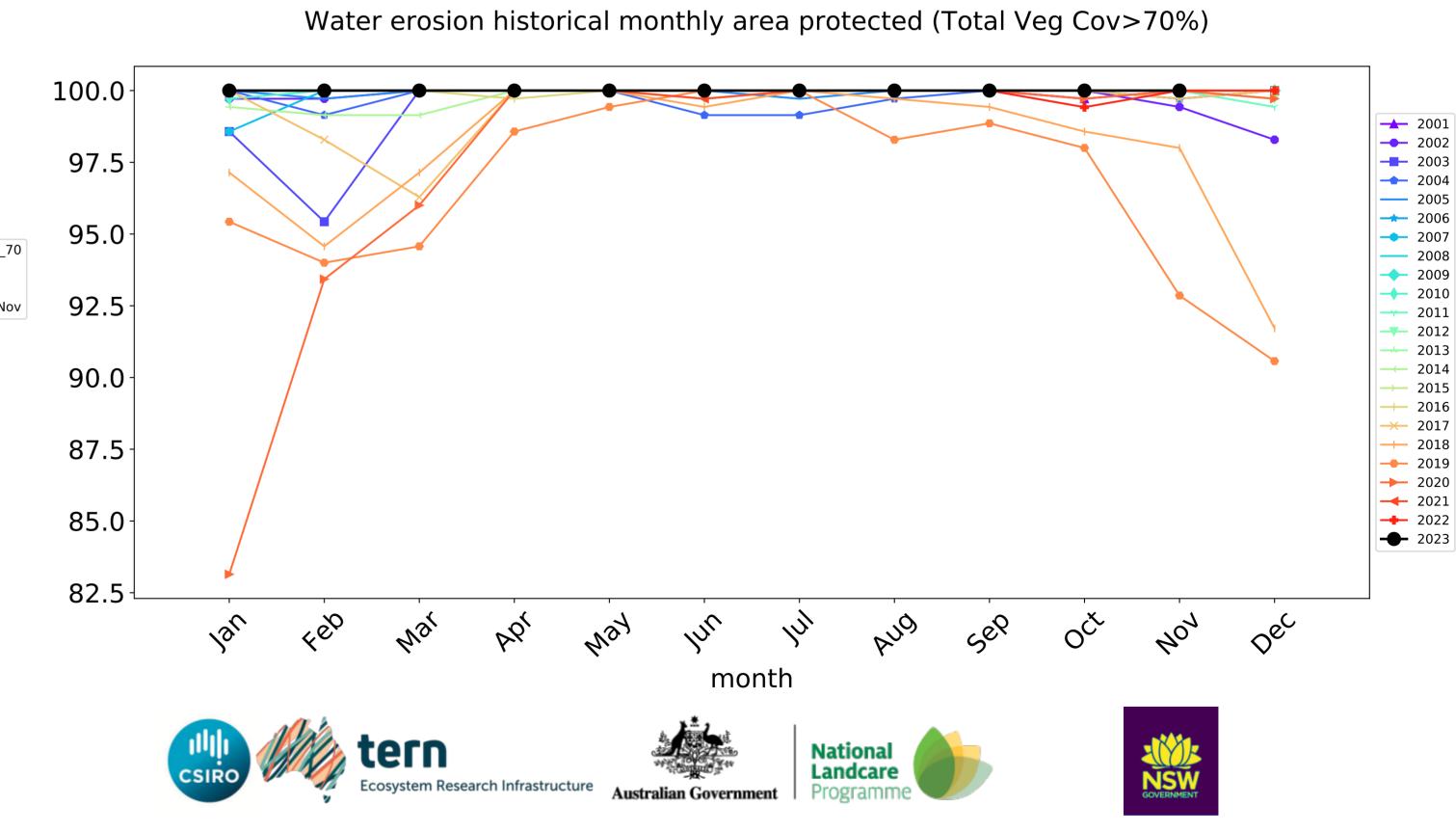
### **Cropping timeseries**

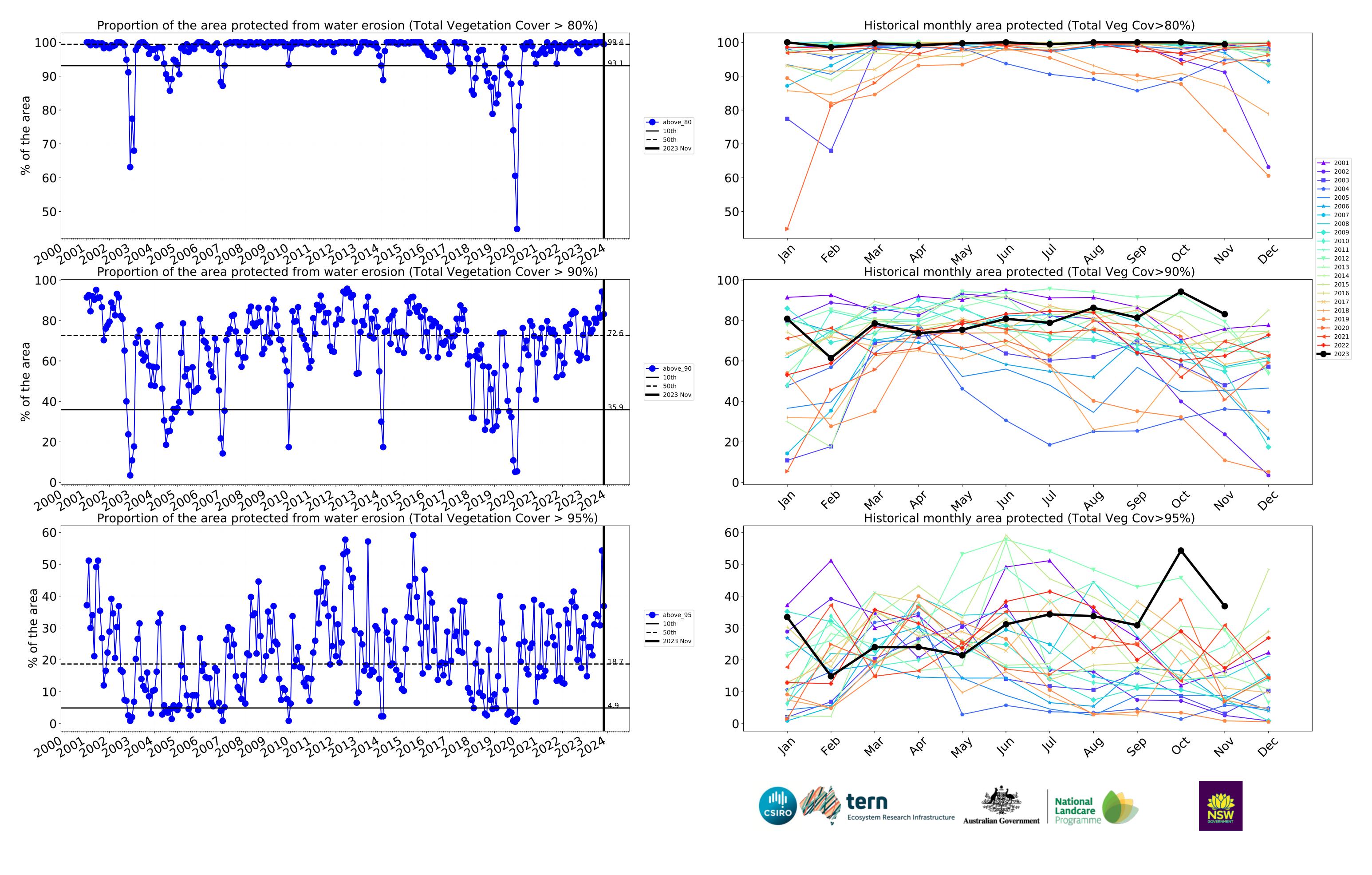




Wind erosion historical monthly area protected (Total Veg Cov >50%)







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

### **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 of Australia (2018)

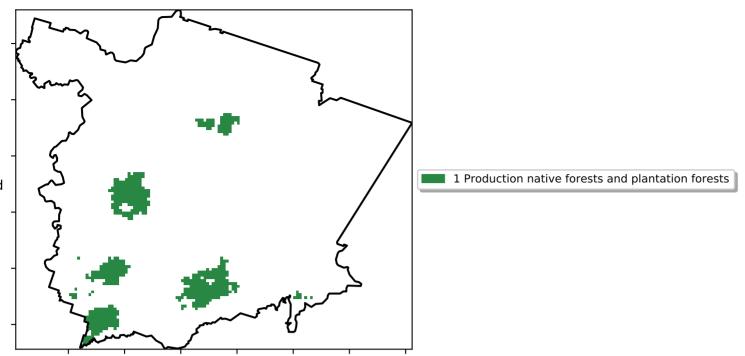
the mean. That is, red pixels

are about 20% lower than the mean of that

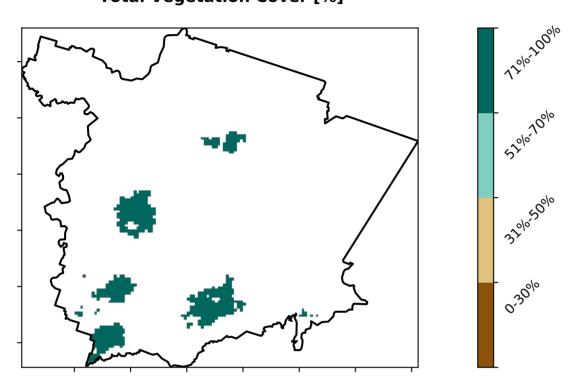
pixel. The mean

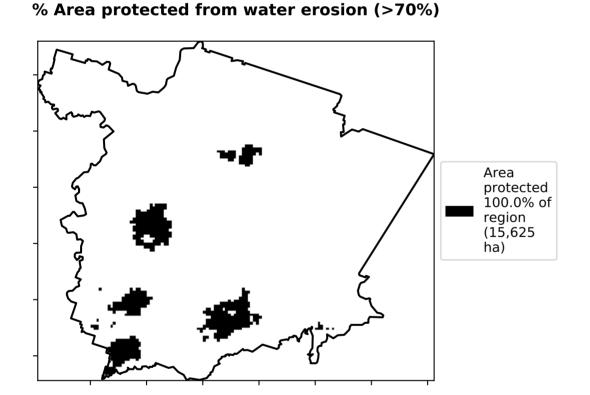
using baseline from 2001 to 2019.

is only for the month of the map

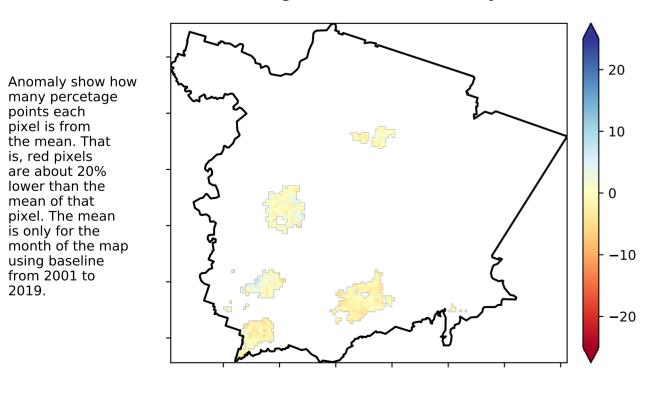


### **Total Vegetation Cover [%]**



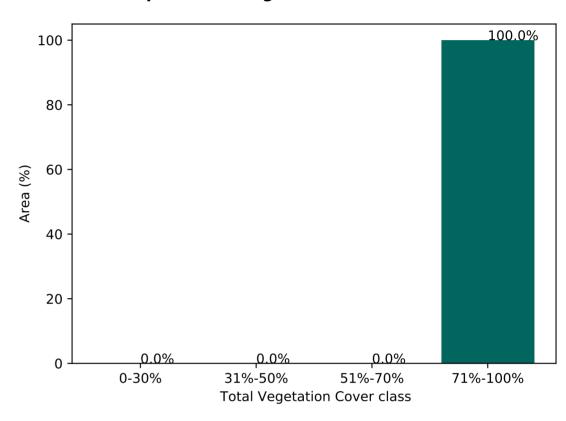


### **Total Vegetation Cover Anomaly [%]**

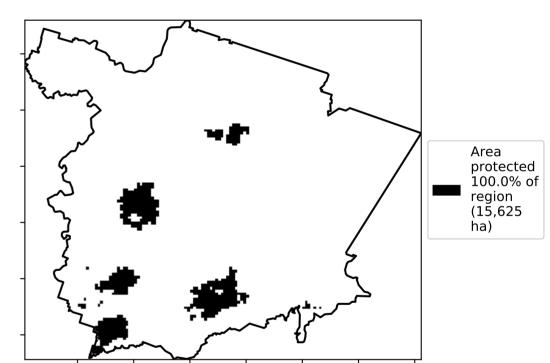


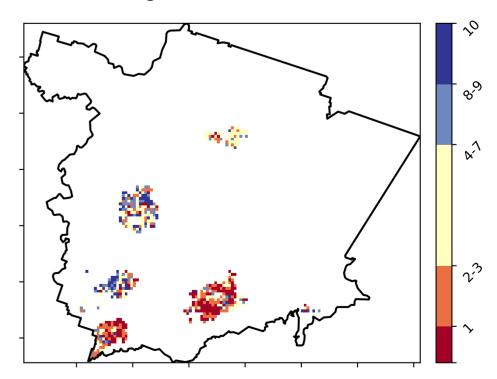
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

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



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





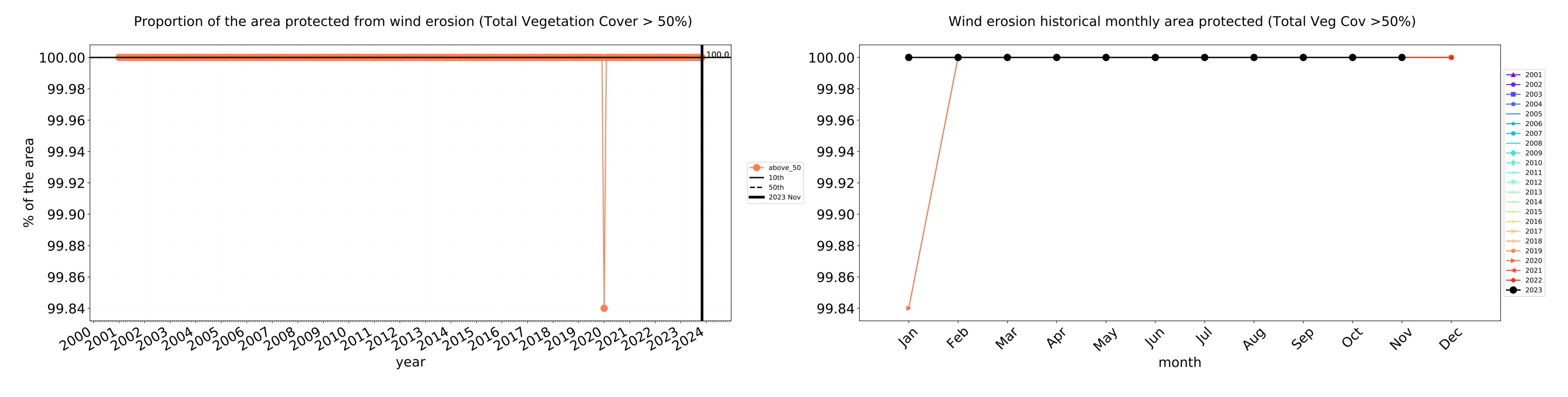


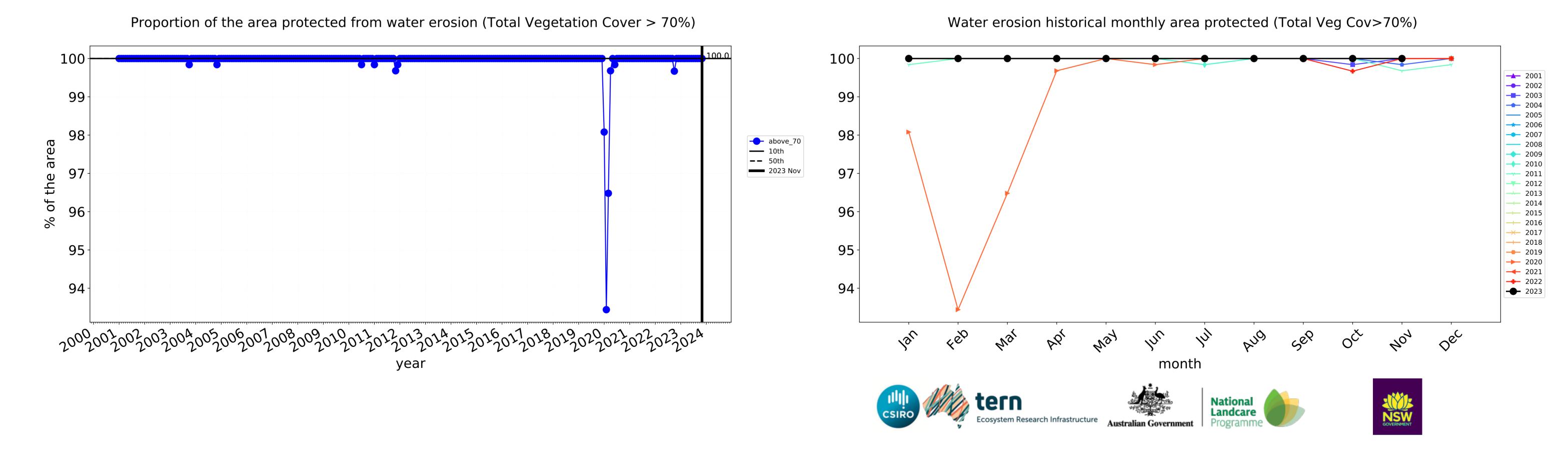


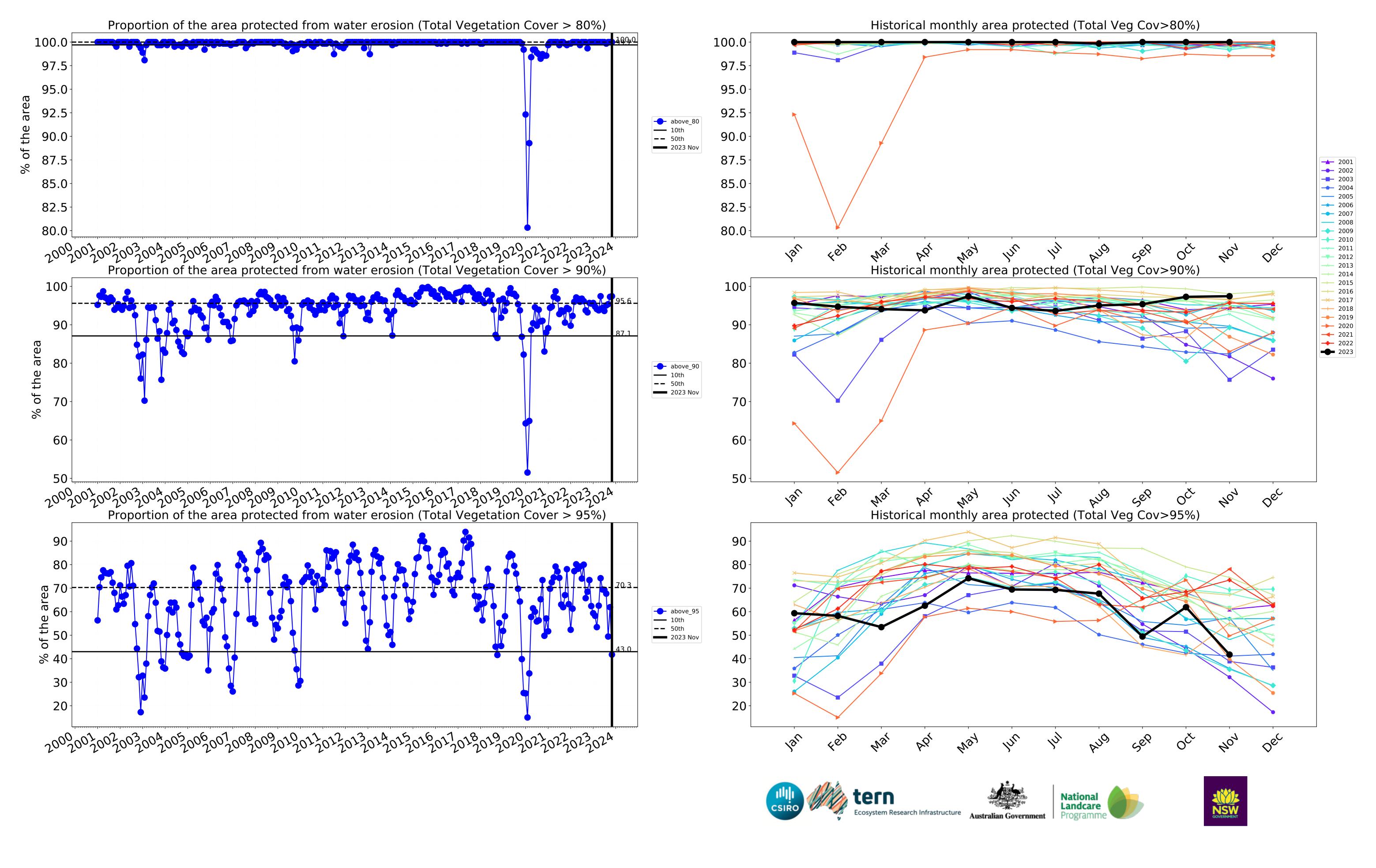




### **Production native forests and plantation forests timeseries**







# Wingecarribee\_(A) (268,375 ha and no data 526 ha) Percentage area and hectares protected with TVC threshold 30,50,70,80,90 and 95%

| Land use and<br>forest cover<br>Class                          | area(ha) | above_30          | above_50          | above_70          | above_80         | above_90         | above_95        |
|--|----------|-------------------|-------------------|-------------------|------------------|------------------|-----------------|
| Entire region  | 268,375  | 100.0%<br>268,375 | 100.0%<br>268,350 | 99.8%<br>267,950  | 98.8%<br>265,200 | 86.5%<br>232,125 | 29.7%<br>79,625 |
| Conservation and<br>natural<br>environments                    | 127,700  | 100.0%<br>127,700 | 100.0%<br>127,700 | 100.0%<br>127,700 | 99.9%<br>127,550 | 92.5%<br>118,150 | 29.8%<br>38,025 |
| Conservation and<br>natural<br>environments<br>Woodland forest | 102,950  | 100.0%<br>102,950 | 100.0%<br>102,950 | 100.0%<br>102,950 | 99.9%<br>102,800 | 91.6%<br>94,300  | 27.9%<br>28,725 |
| Conservation and natural environments Forest (non woodland)    | 24,025   | 100.0%<br>24,025  | 100.0%<br>24,025  | 100.0%<br>24,025  | 100.0%<br>24,025 | 96.5%<br>23,175  | 37.3%<br>8,950  |
| Agriculture  | 101,375  | 100.0%<br>101,375 | 100.0%<br>101,375 | 100.0%<br>101,350 | 99.7%<br>101,075 | 84.2%<br>85,375  | 30.6%<br>31,050 |
| Grazing  | 92,250   | 100.0%<br>92,250  | 100.0%<br>92,250  | 100.0%<br>92,225  | 99.7%<br>92,000  | 84.4%<br>77,825  | 30.0%<br>27,700 |
| Grazing non<br>forest  | 65,850   | 100.0%<br>65,850  | 100.0%<br>65,850  | 100.0%<br>65,825  | 99.7%<br>65,625  | 81.2%<br>53,500  | 26.7%<br>17,550 |
| Grazing Woodland<br>forest                                     | 19,625   | 100.0%<br>19,625  | 100.0%<br>19,625  | 100.0%<br>19,625  | 100.0%<br>19,625 | 90.8%<br>17,825  | 35.3%<br>6,925  |
| Grazing - Forest<br>(non woodland)                             | 6,775    | 100.0%<br>6,775   | 100.0%<br>6,775   | 100.0%<br>6,775   | 99.6%<br>6,750   | 95.9%<br>6,500   | 47.6%<br>3,225  |
| Cropping   | 8,750    | 100.0%<br>8,750   | 100.0%<br>8,750   | 100.0%<br>8,750   | 99.4%<br>8,700   | 83.1%<br>7,275   | 36.9%<br>3,225  |
| Production native forests and plantation forests               | 15,625   | 100.0%<br>15,625  | 100.0%<br>15,625  | 100.0%<br>15,625  | 100.0%<br>15,625 | 97.4%<br>15,225  | 41.8%<br>6,525  |







