# Total vegetation cover soil protection Region:LGA Byron\_(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:

Date: August 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









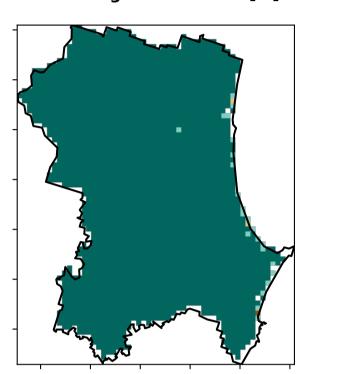
# **Vegetation Cover Aug 2023**

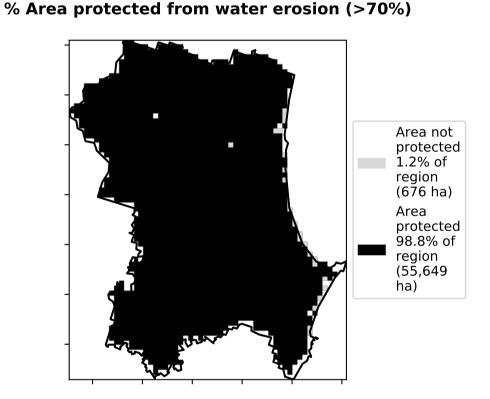
### Land use and forest cover

# Legend with land class forest cover and number, i.e. Forests is 12 1 Conservation and natural environments - Non-forest 2 Conservation and natural environments - Woodland forest 3 Conservation and natural environments - Non-Woodland forest 4 Agriculture - Grazing - Non-forest 5 Agriculture - Grazing - Non-woodland forest 6 Agriculture - Grazing - Irrigated 8 Agriculture - Grazing - Irrigated 8 Agriculture - Cropping - Irrigated 9 Agriculture - Horticulture - Non-irrigated 10 Agriculture - Horticulture - Irrigated 11 Agriculture - Horticulture - Irrigated 12 Production native forests and plantation forests 13 Other uses

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

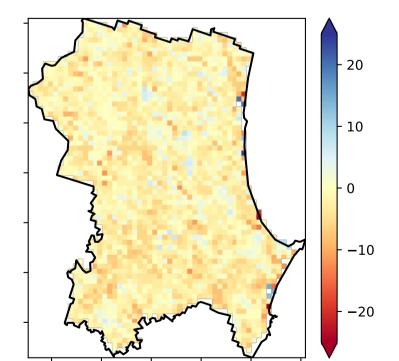
### **Total Vegetation Cover [%]**





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

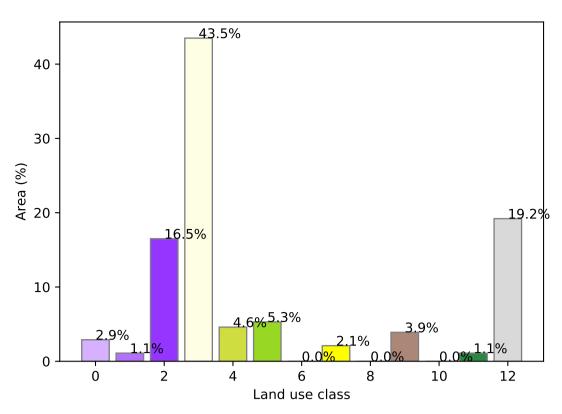
2019.



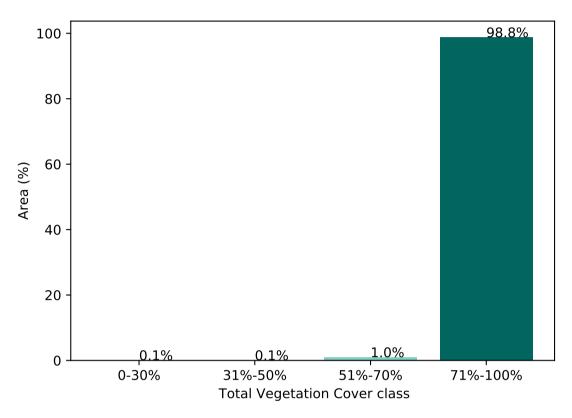
**Total Vegetation Cover Anomaly [%]** 

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.

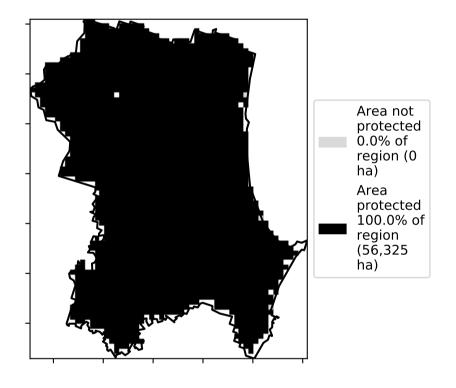
### Proportion of each land class in area



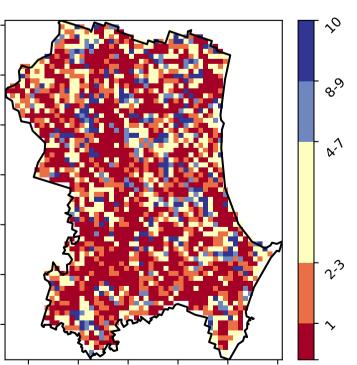
### **Proportion of vegetation cover class in area**



% Area protected from wind erosion (>50%)



**Total Vegetation Cover Decile [%]** 

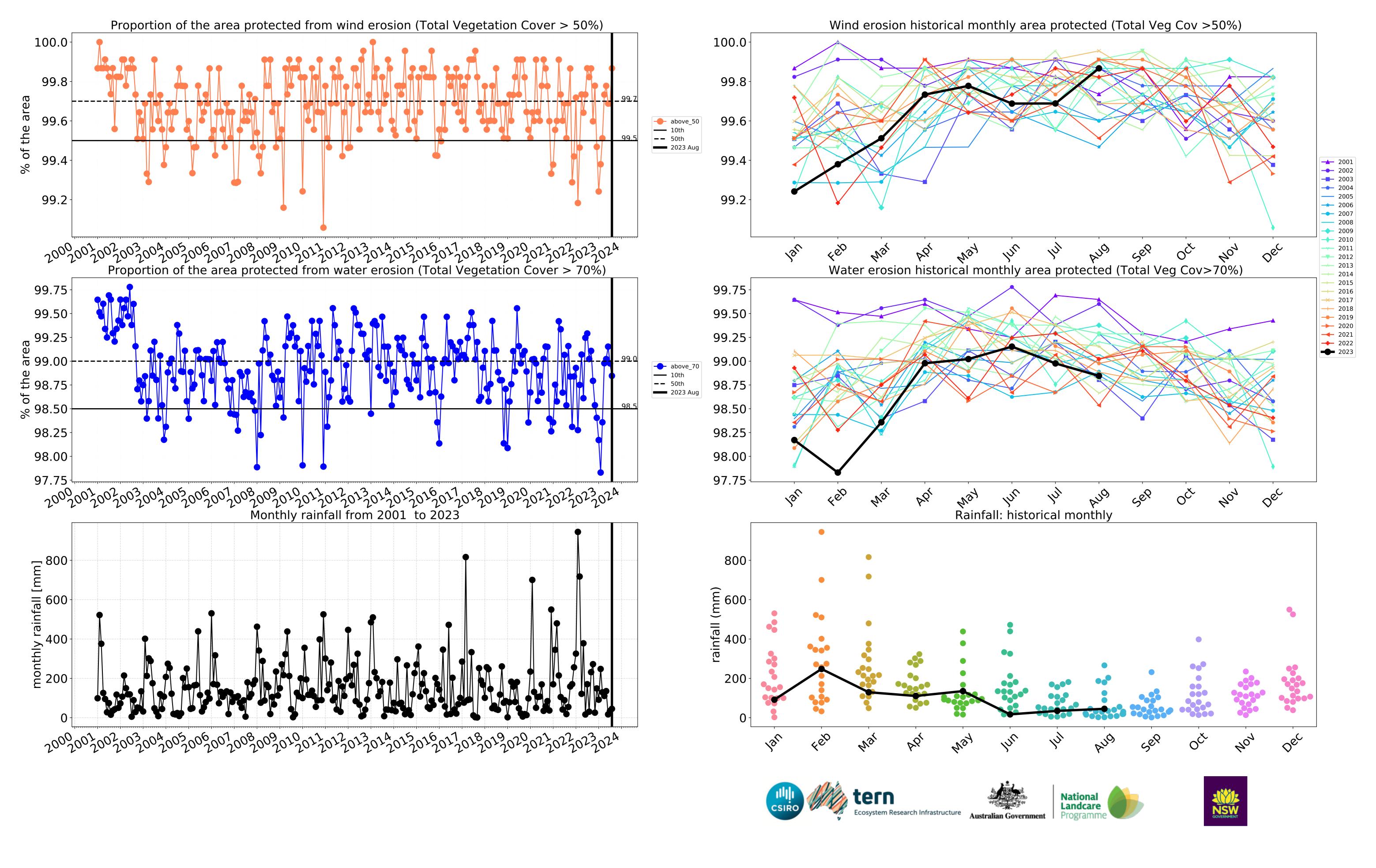


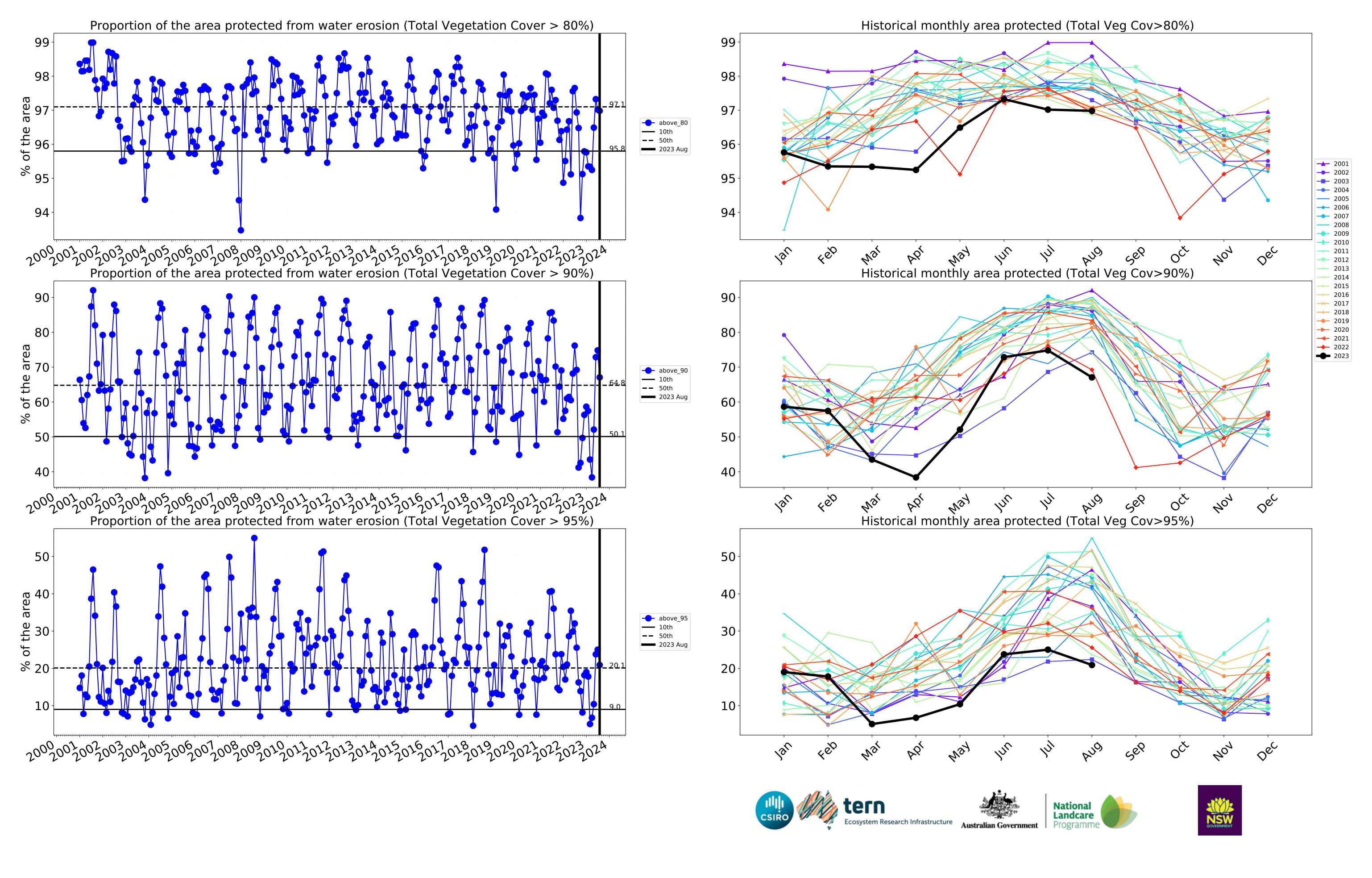












### **Conservation and natural environments**

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

Catchment Scale Land

Use of Australia

(2018) and Forests of Australia (2018)

Anomaly show how many percetage points each

pixel is from

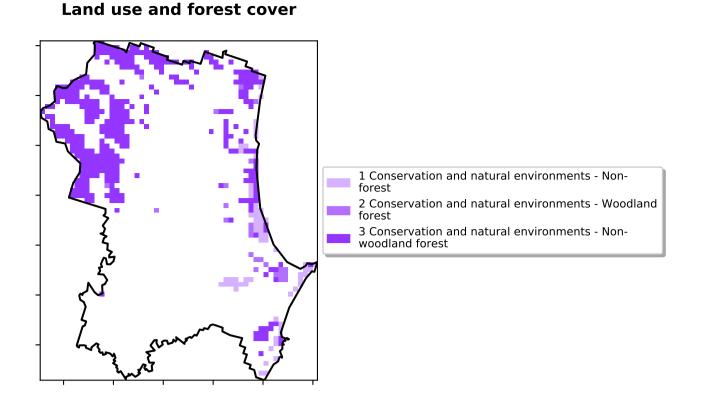
the mean. That is, red pixels

are about 20% lower than the mean of that

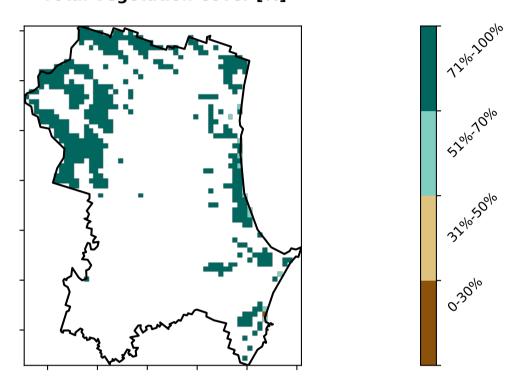
pixel. The mean

using baseline from 2001 to 2019.

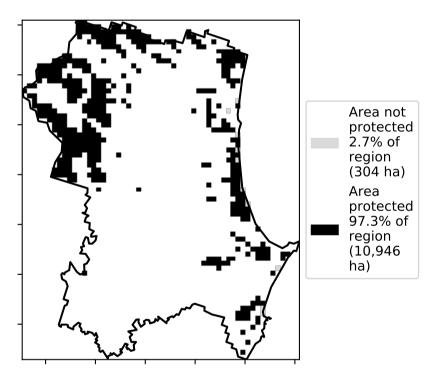
is only for the month of the map



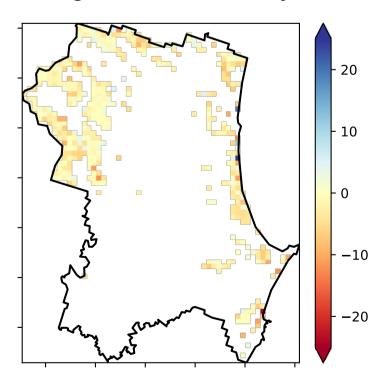
### **Total Vegetation Cover [%]**



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

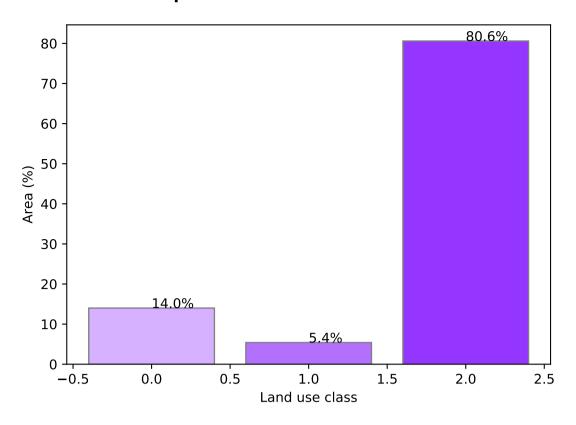


### **Total Vegetation Cover Anomaly [%]**

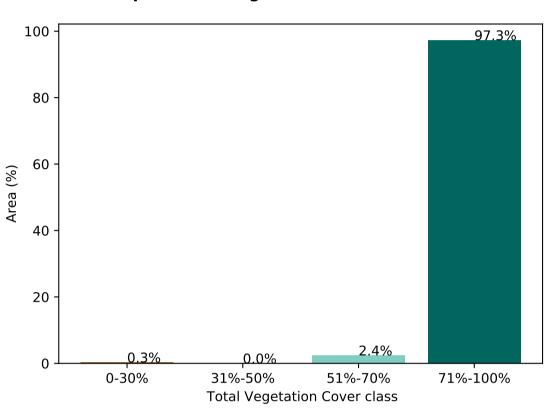


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

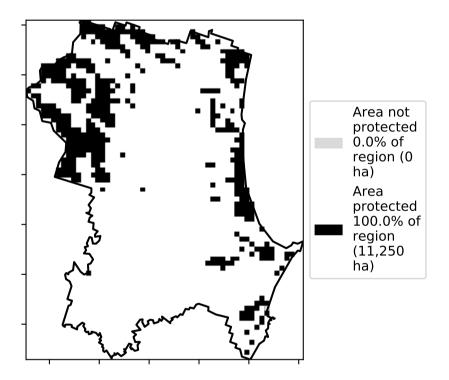
### Proportion of each land class in area

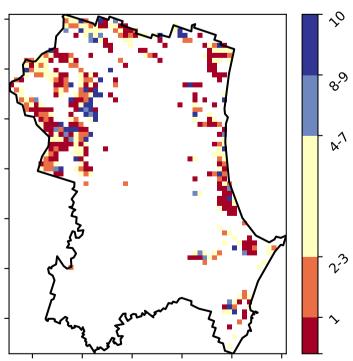


### Proportion of vegetation cover class in area



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









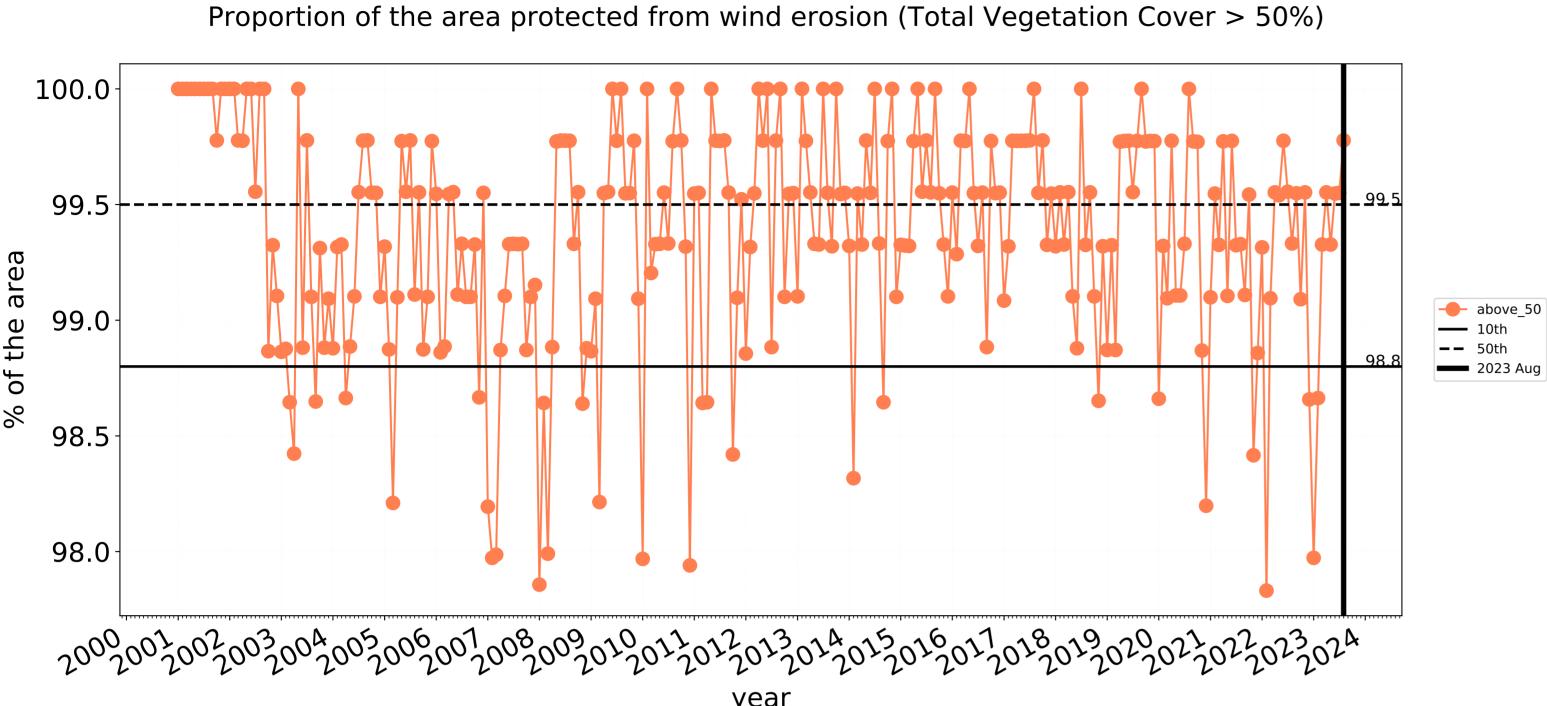


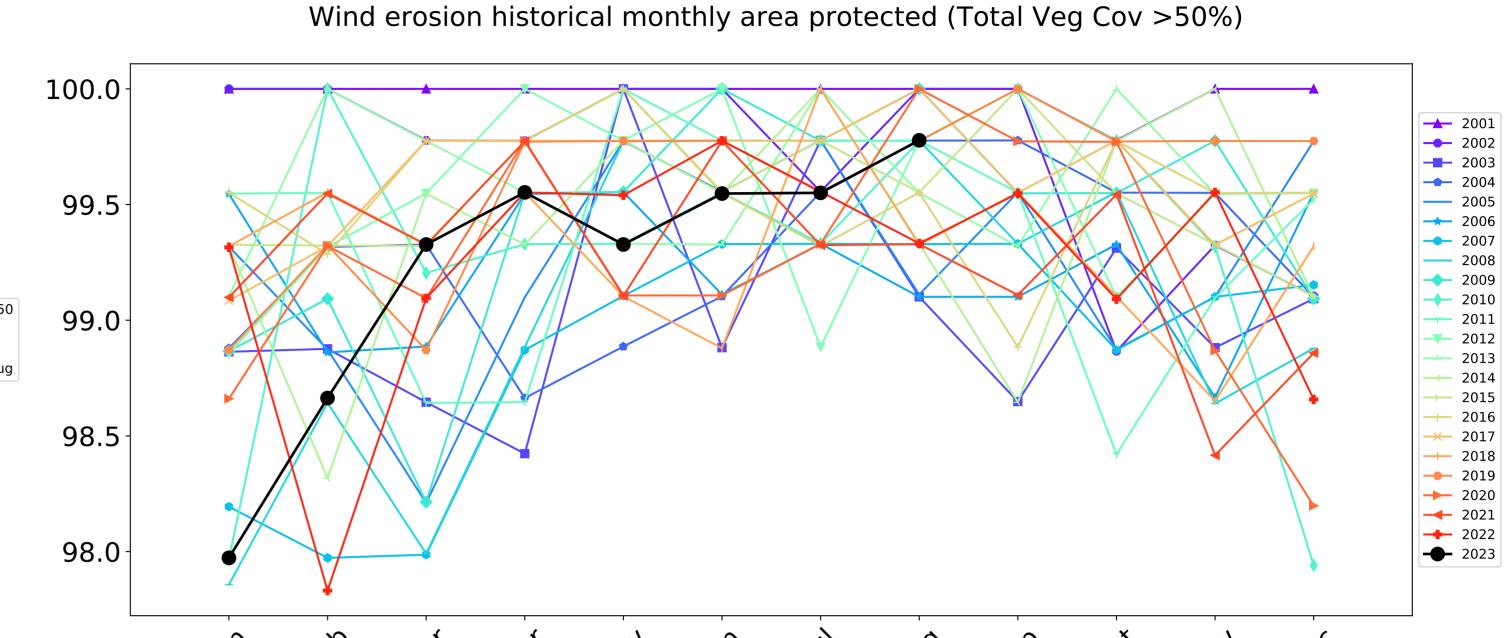




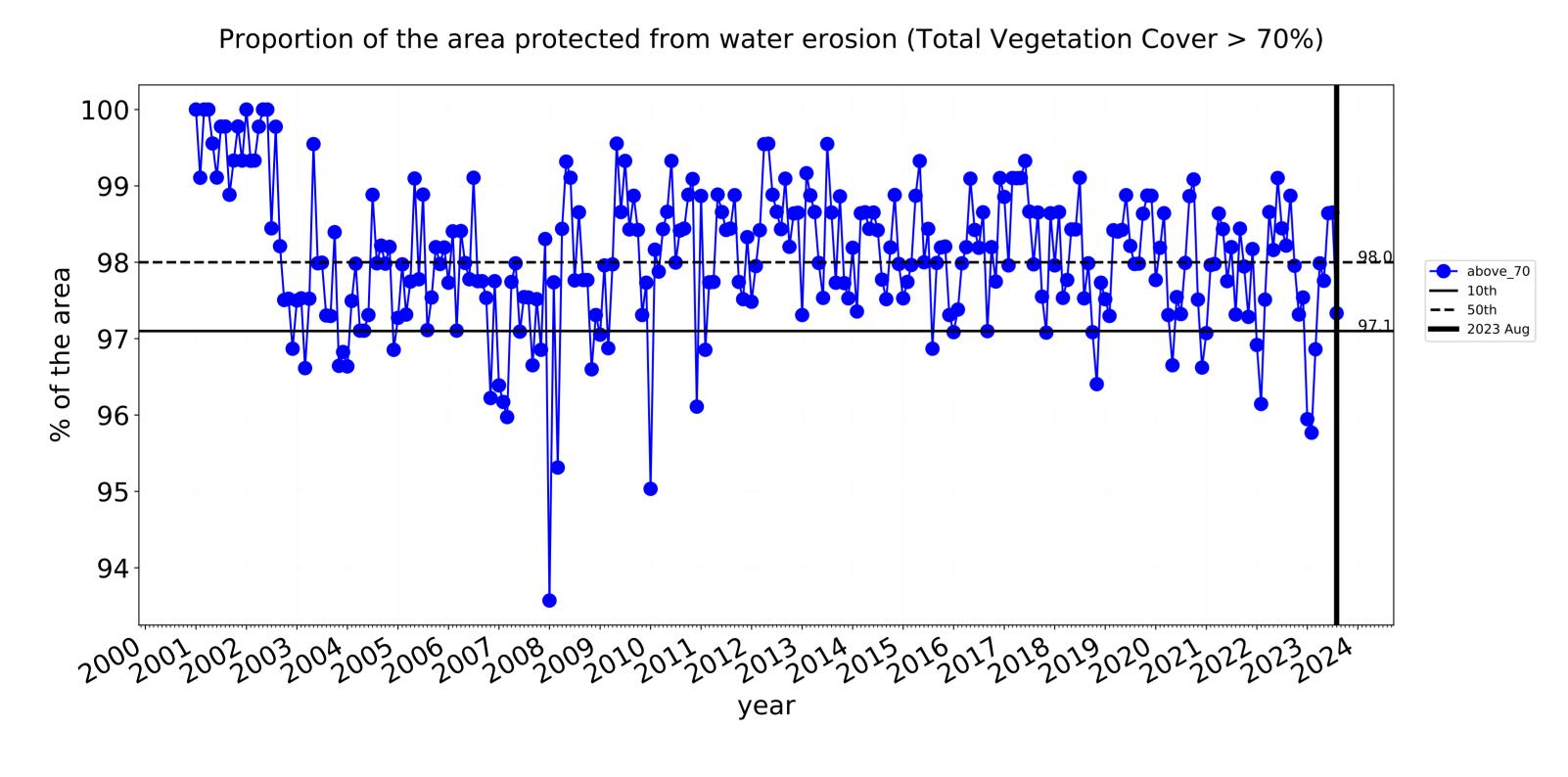


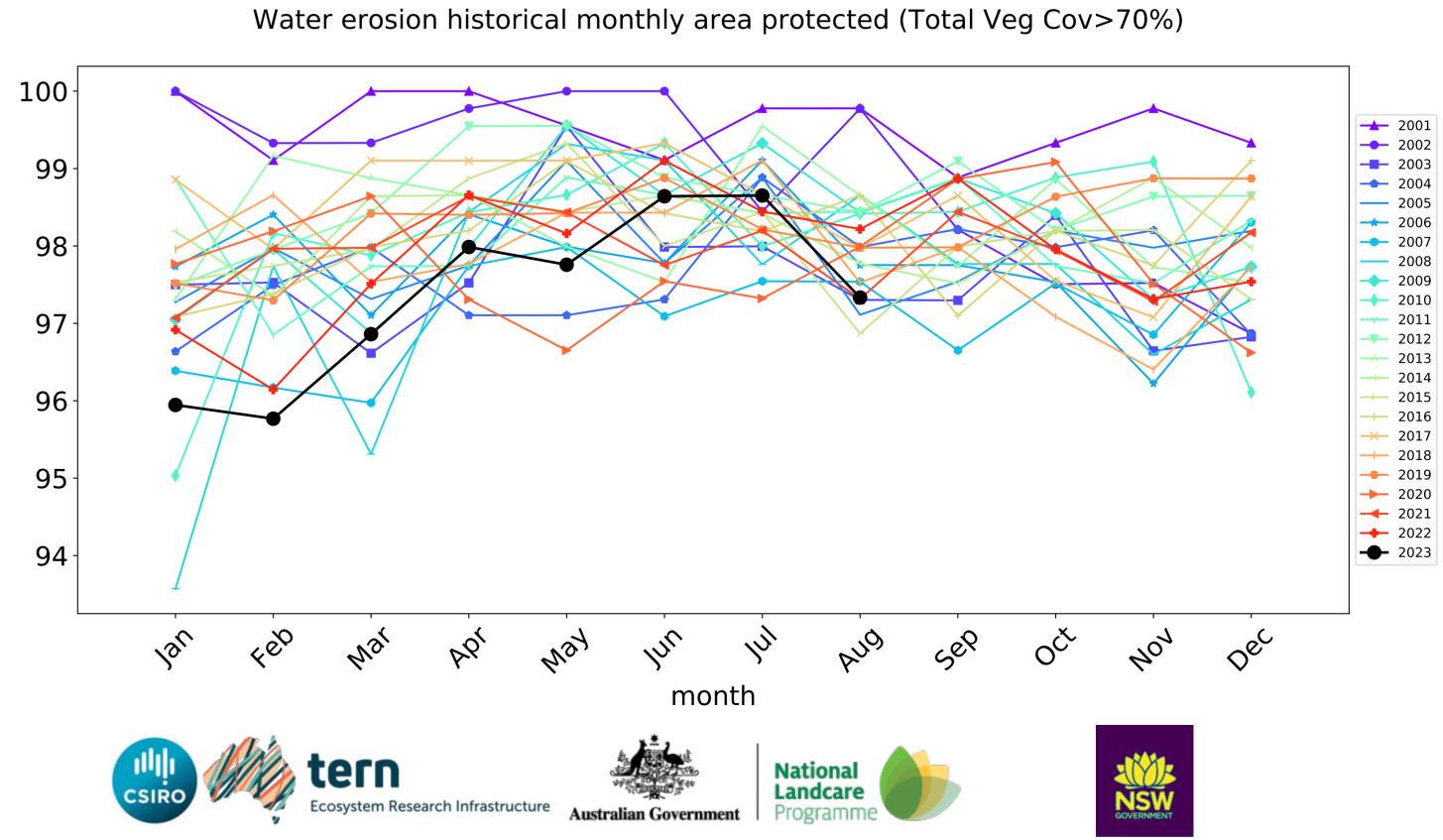
### **Conservation and natural environments timeseries**

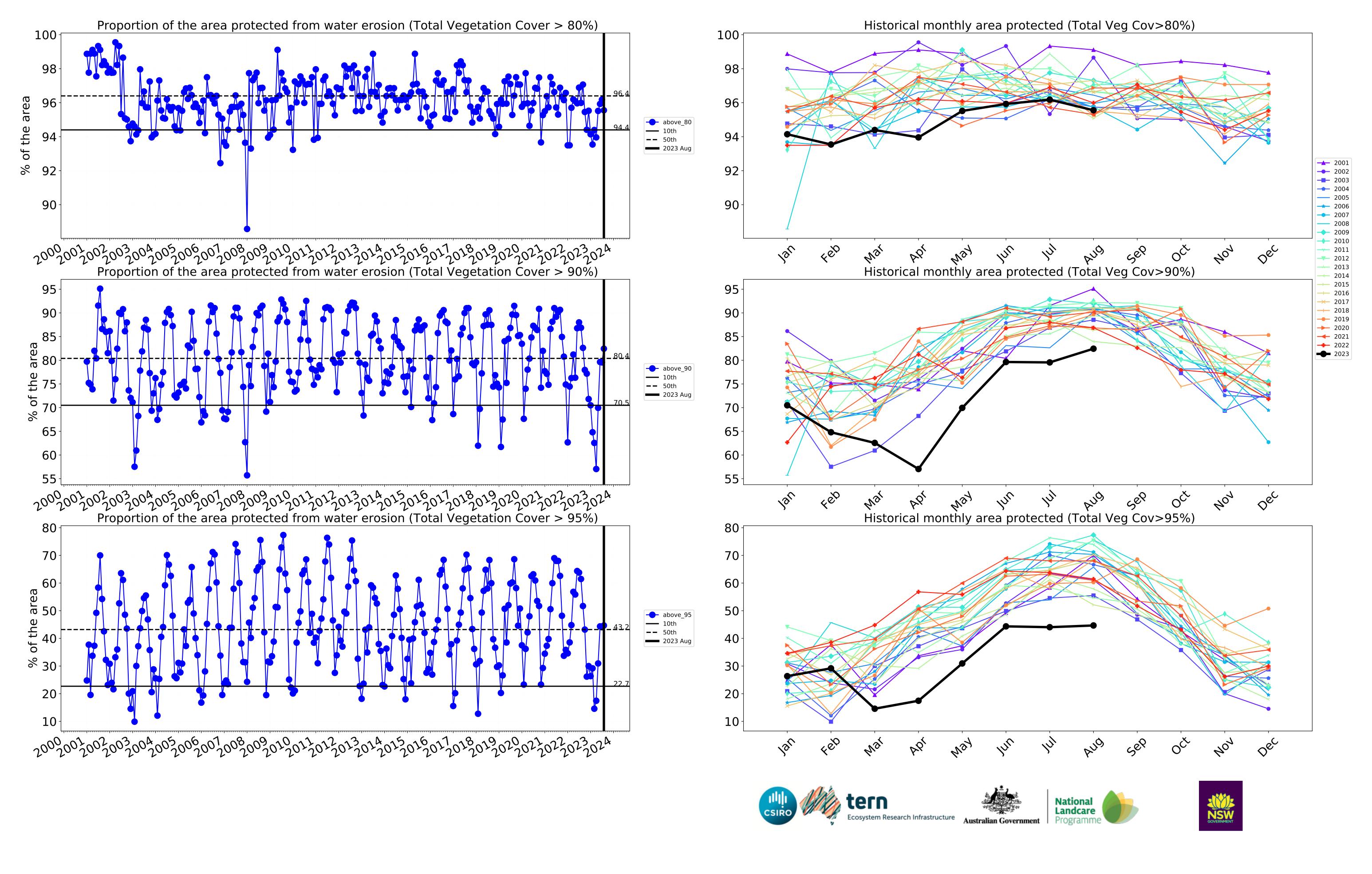




month







### **Conservation and natural environments 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)

Anomaly show how many percetage points each

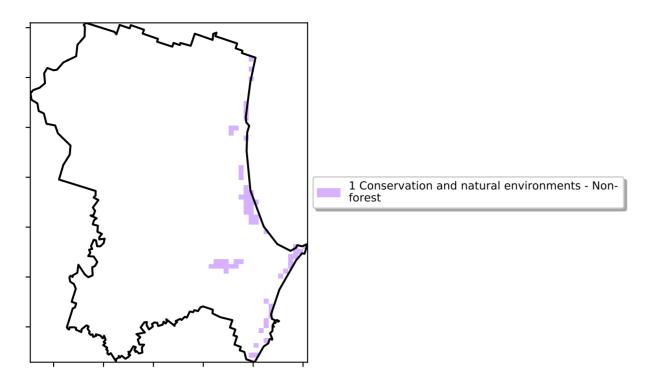
pixel is from

the mean. That is, red pixels

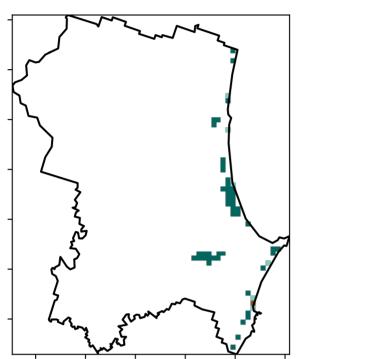
are about 20% lower than the mean of that

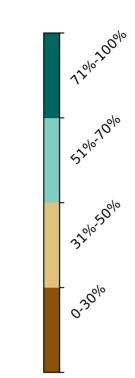
pixel. The mean is only for the month of the map

using baseline from 2001 to 2019.

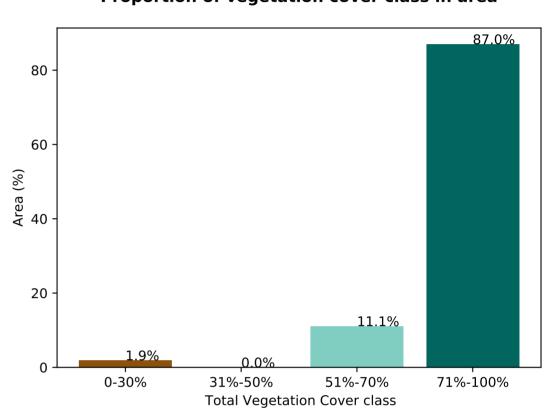


### **Total Vegetation Cover [%]**

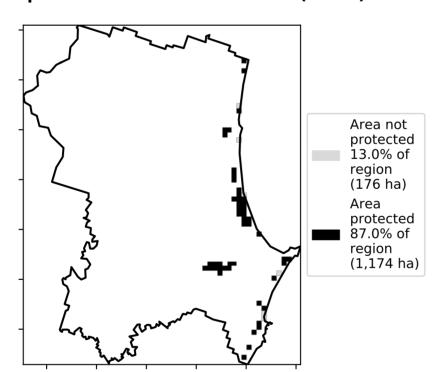




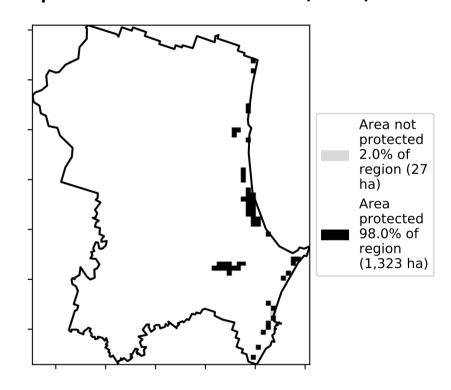
### Proportion of vegetation cover class in area



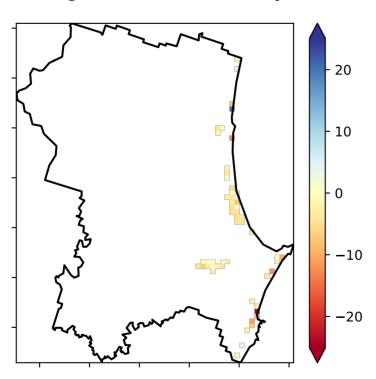
### % Area protected from water erosion (>70%)



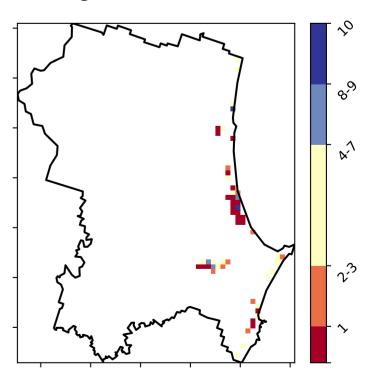
% Area protected from wind erosion (>50%)



### **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.







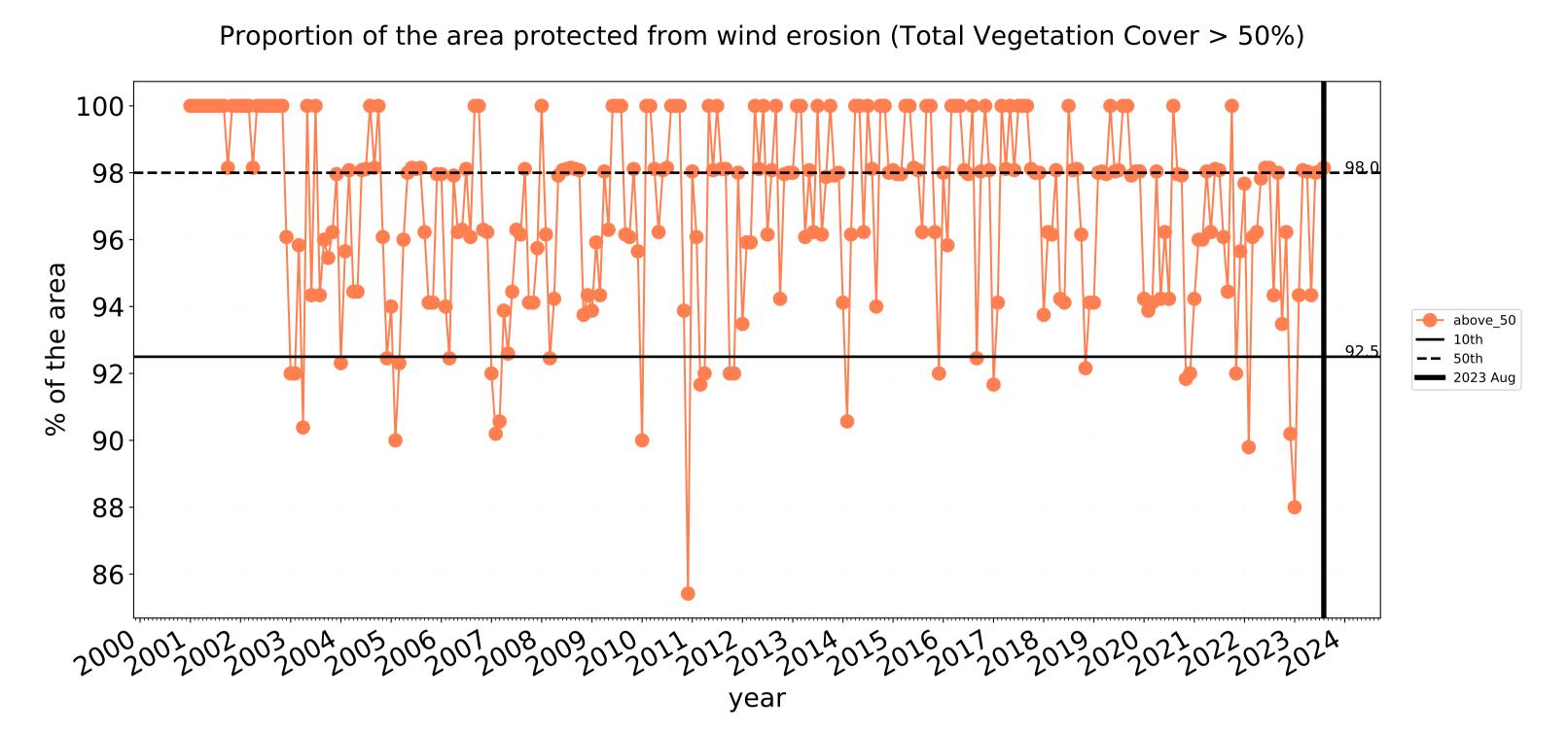


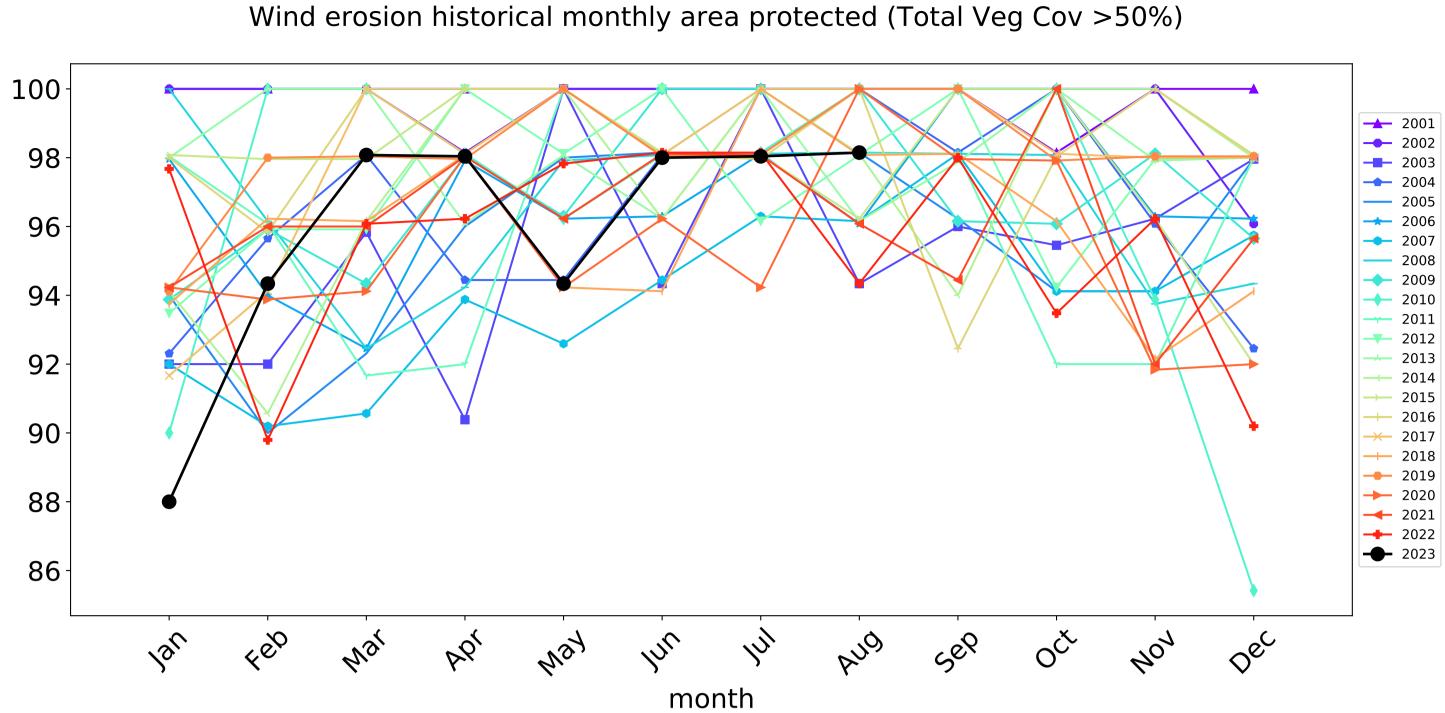


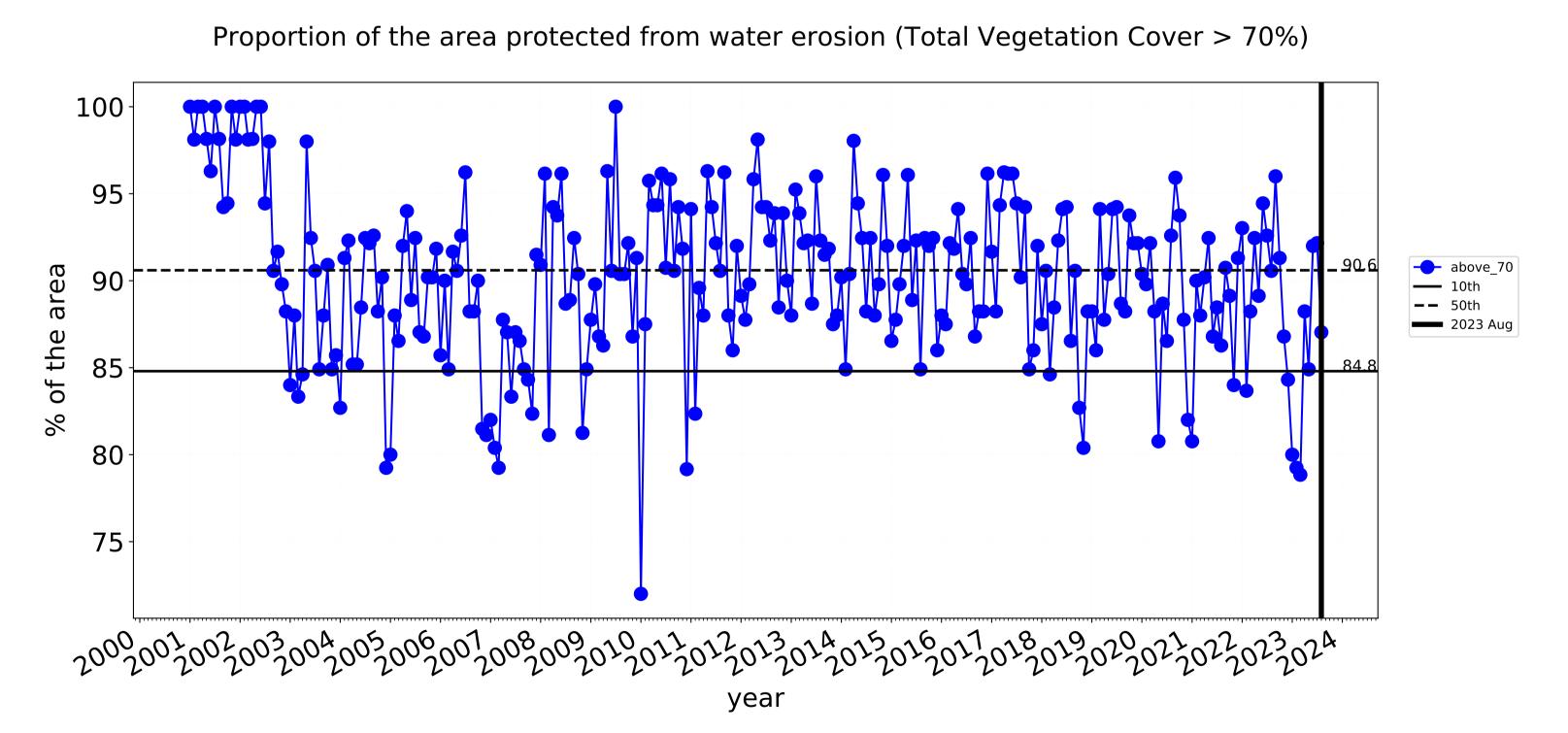


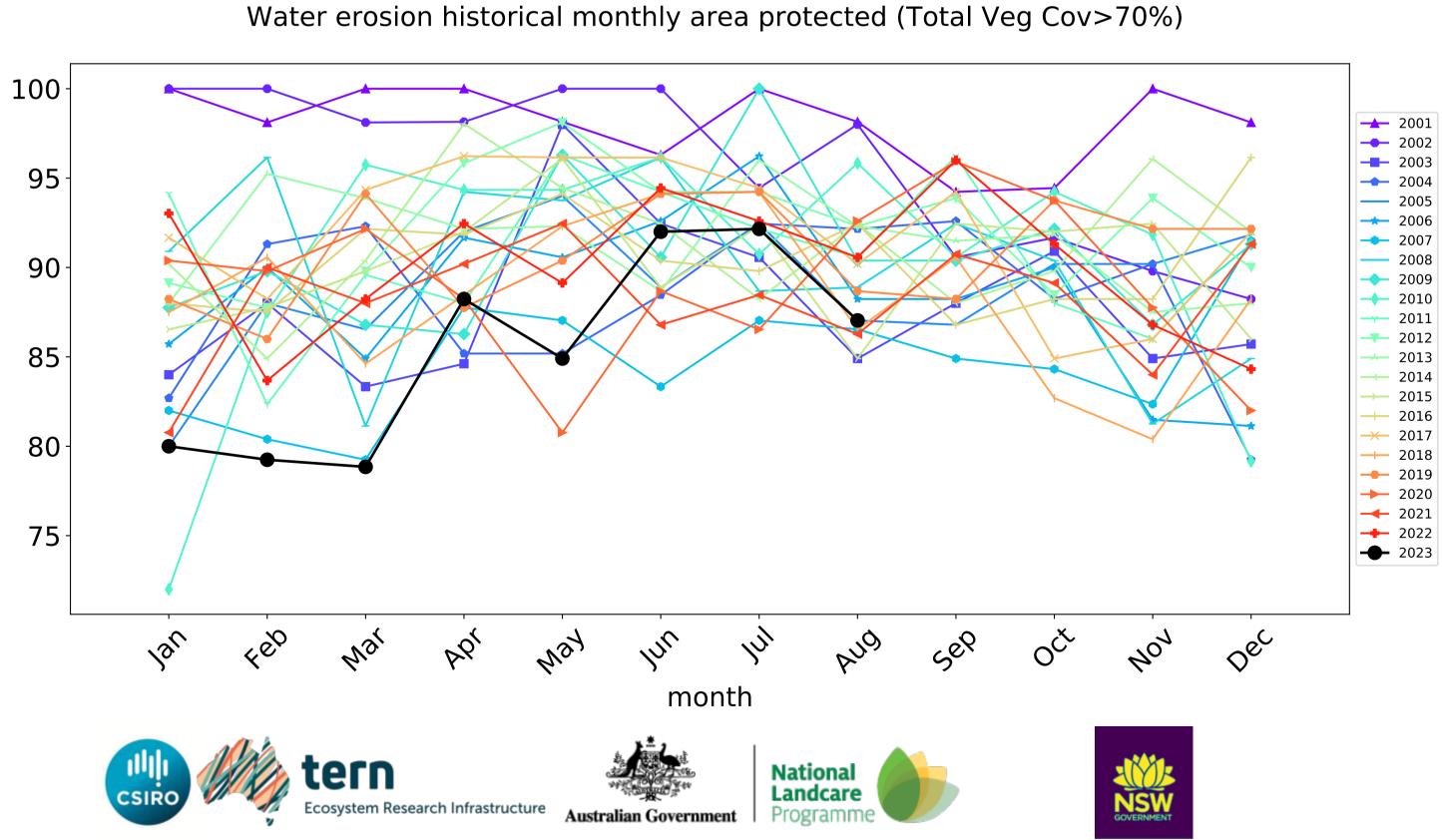


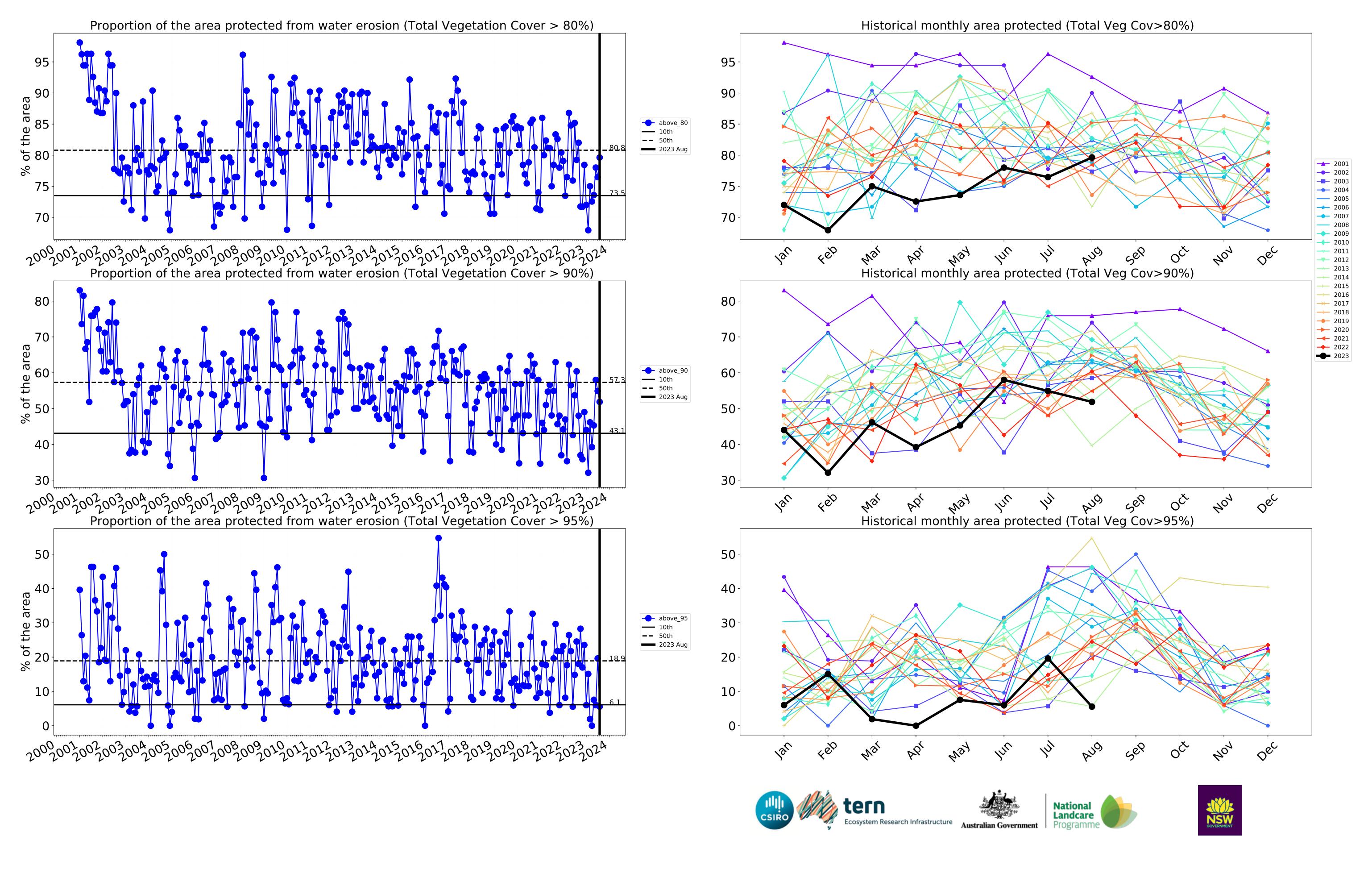
### **Conservation and natural environments non forest timeseries**











### **Conservation and natural environments Woodland 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)

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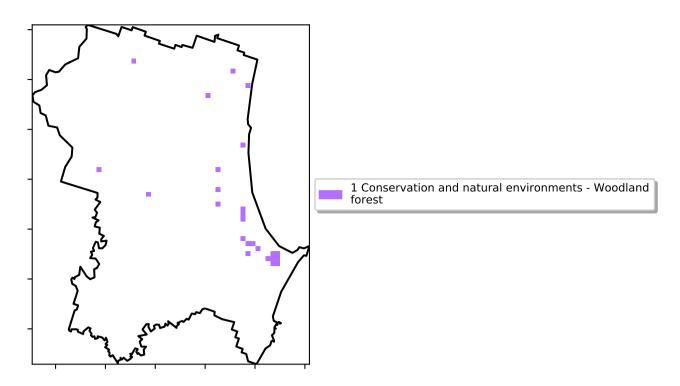
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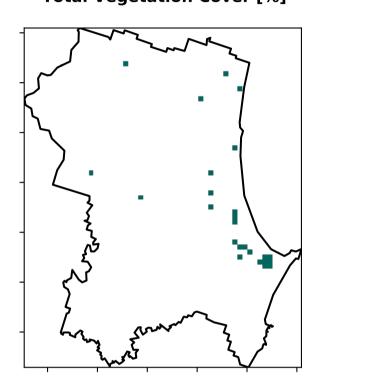
pixel. The mean

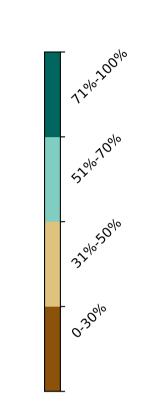
using baseline from 2001 to 2019.

is only for the month of the map

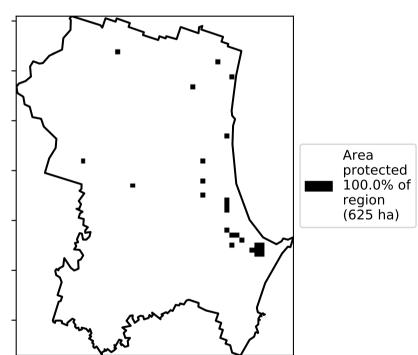


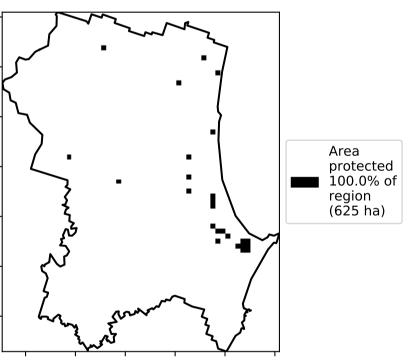
### **Total Vegetation Cover [%]**



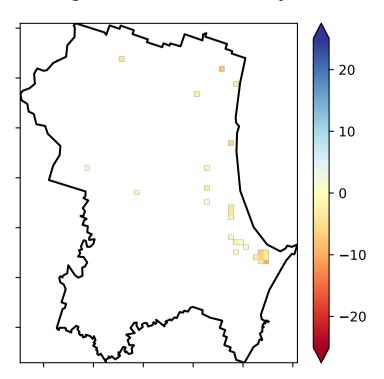


### % Area protected from water erosion (>70%)



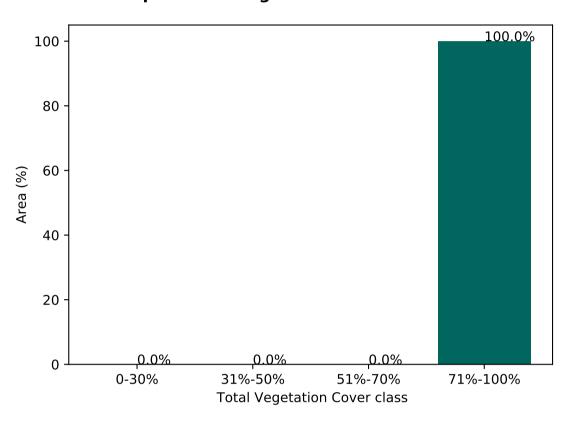


### **Total Vegetation Cover Anomaly [%]**

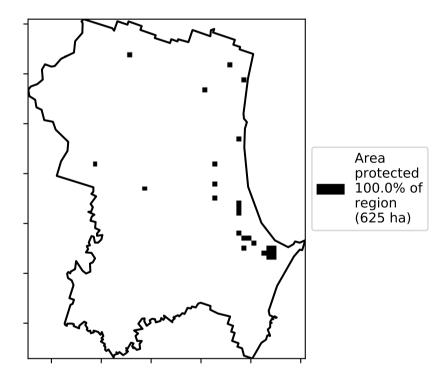


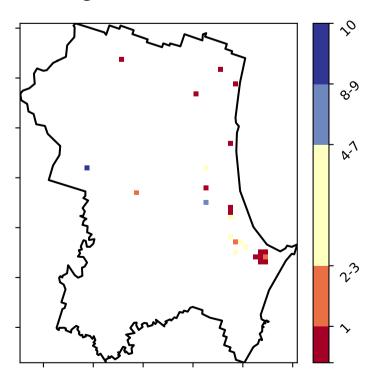
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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





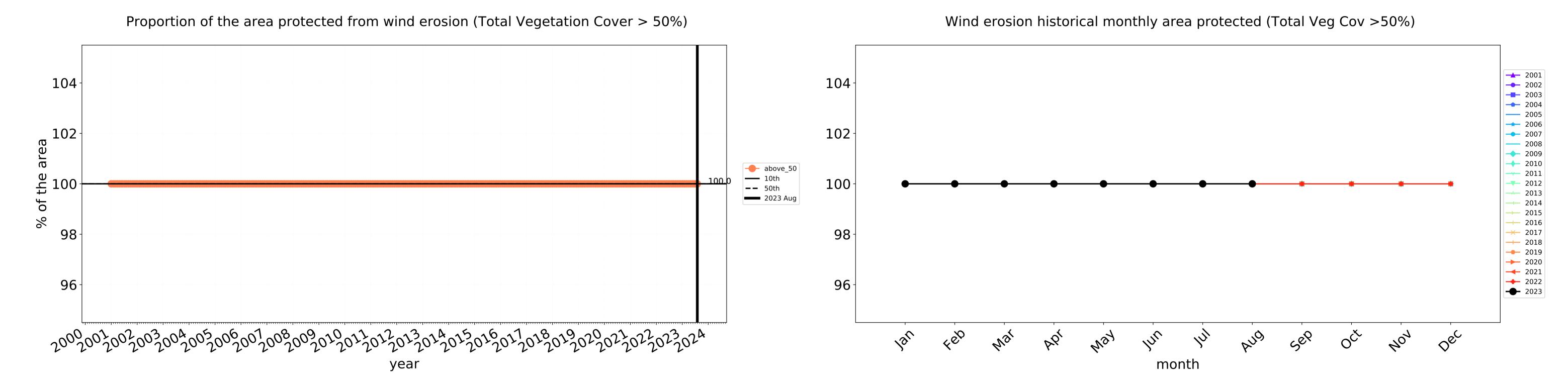


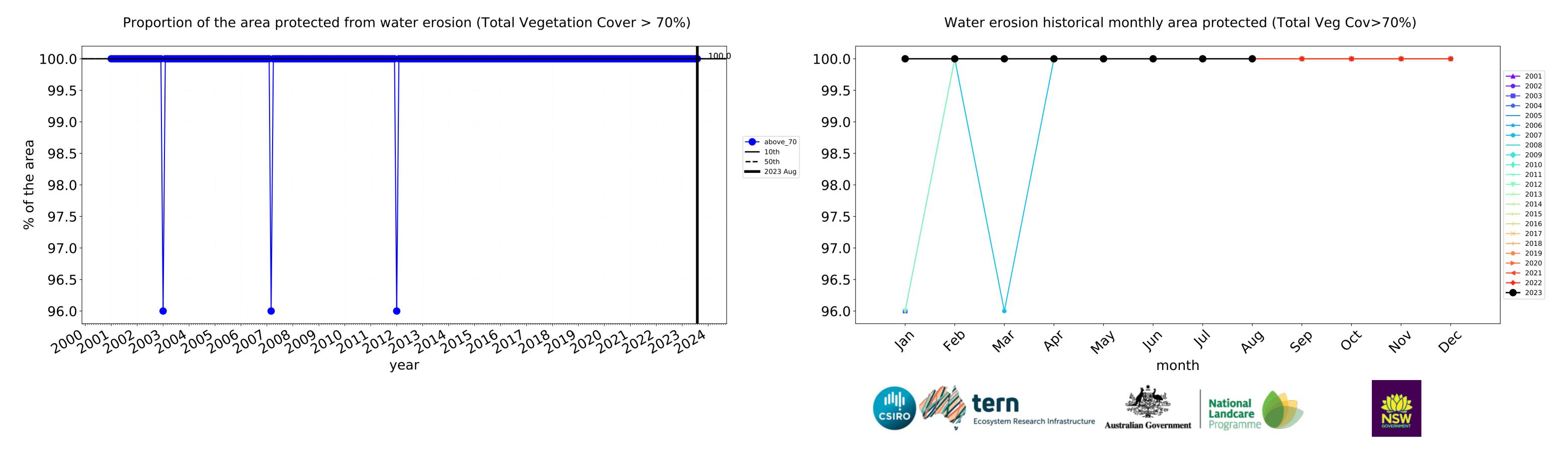


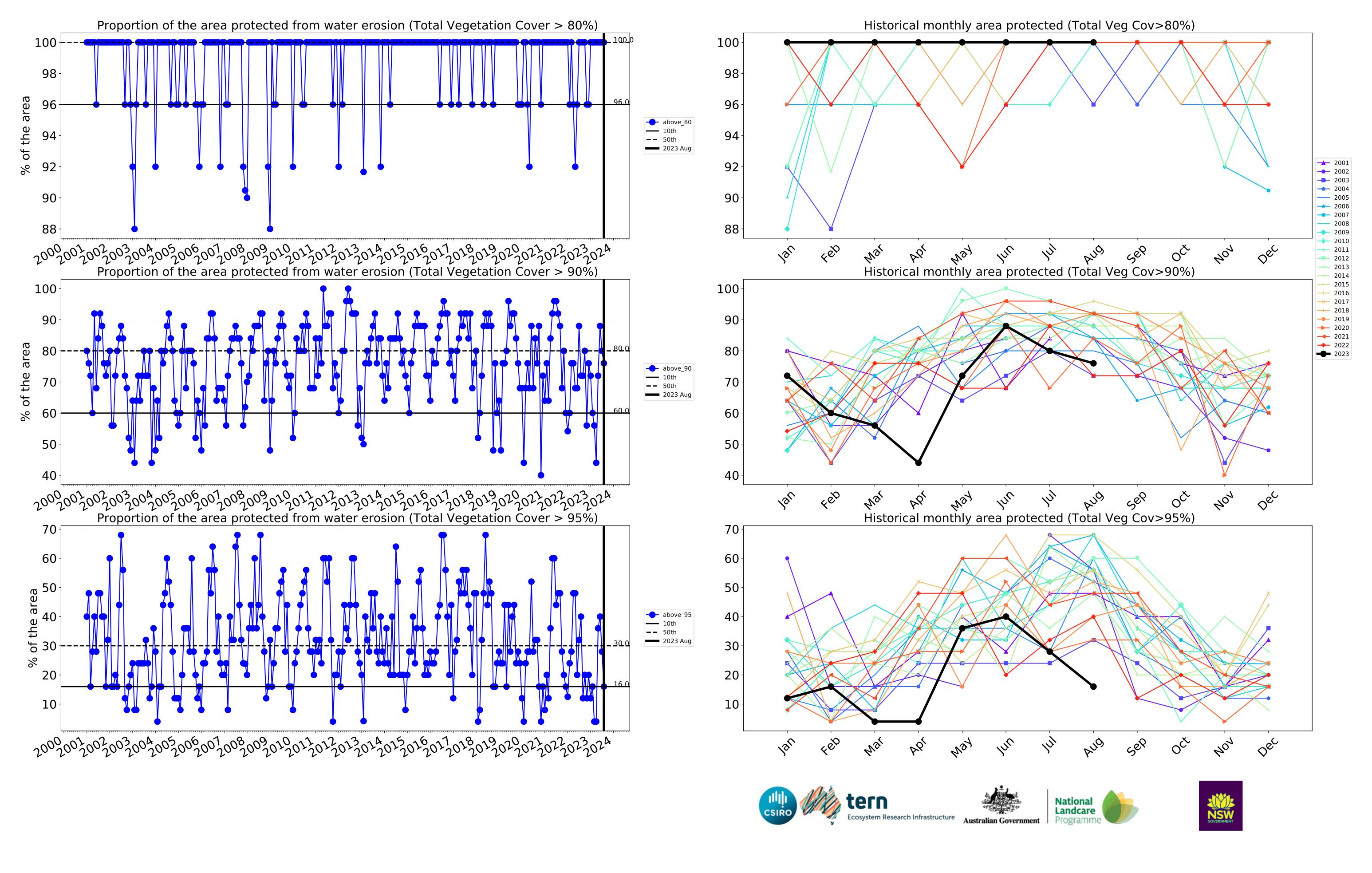




### **Conservation and natural environments Woodland forest timeseries**







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

### 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)

Anomaly show how many percetage points each

pixel is from

the mean. That is, red pixels

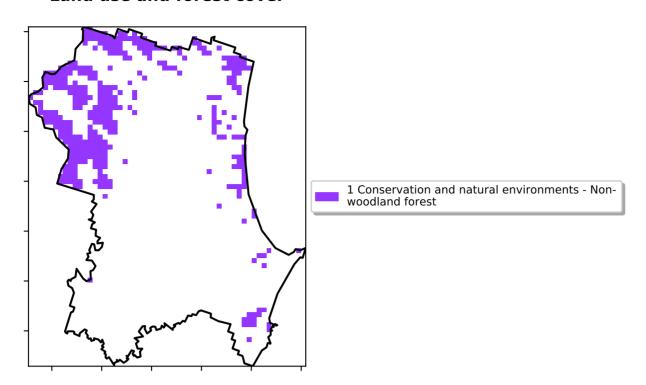
are about 20% lower than the mean of that

pixel. The mean

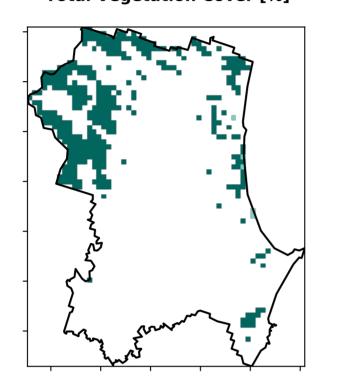
is only for the month of the map

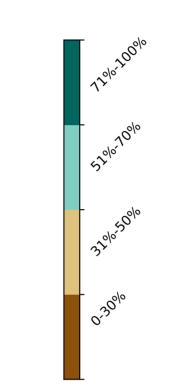
using baseline from 2001 to

2019.

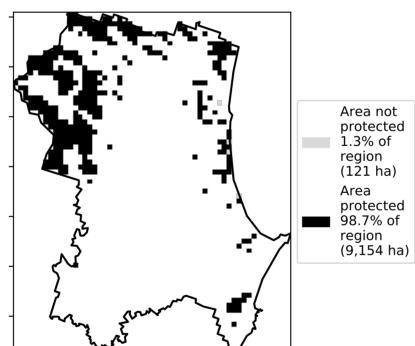


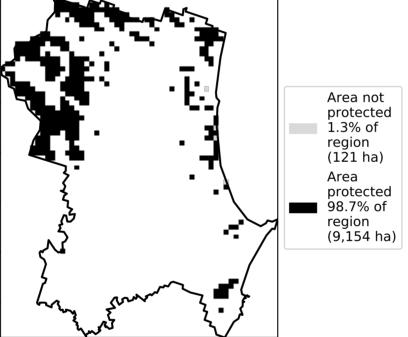
### **Total Vegetation Cover [%]**



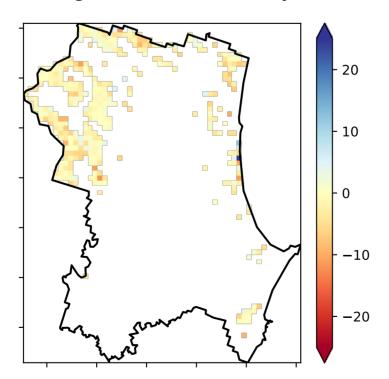


### % Area protected from water erosion (>70%)



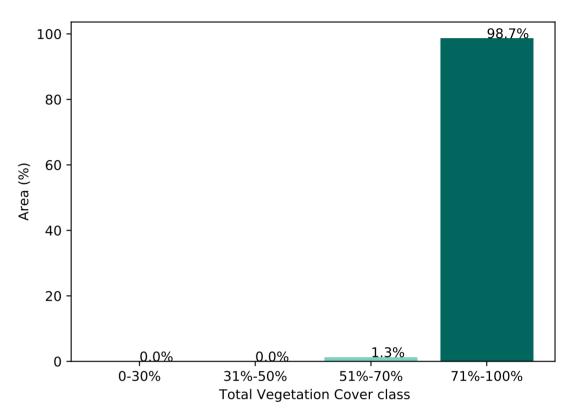


### **Total Vegetation Cover Anomaly [%]**

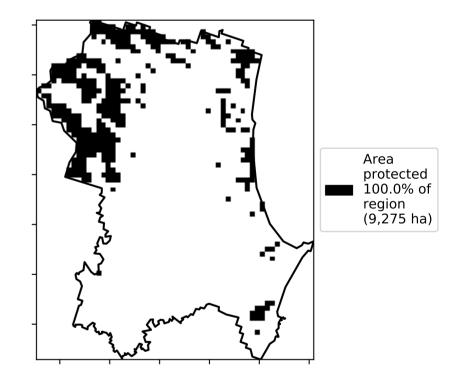


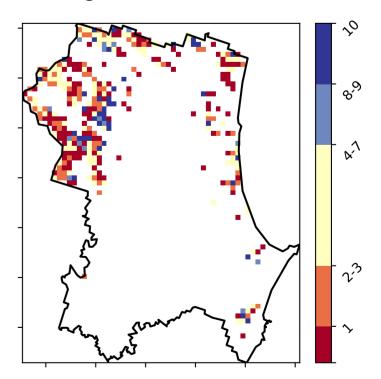
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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



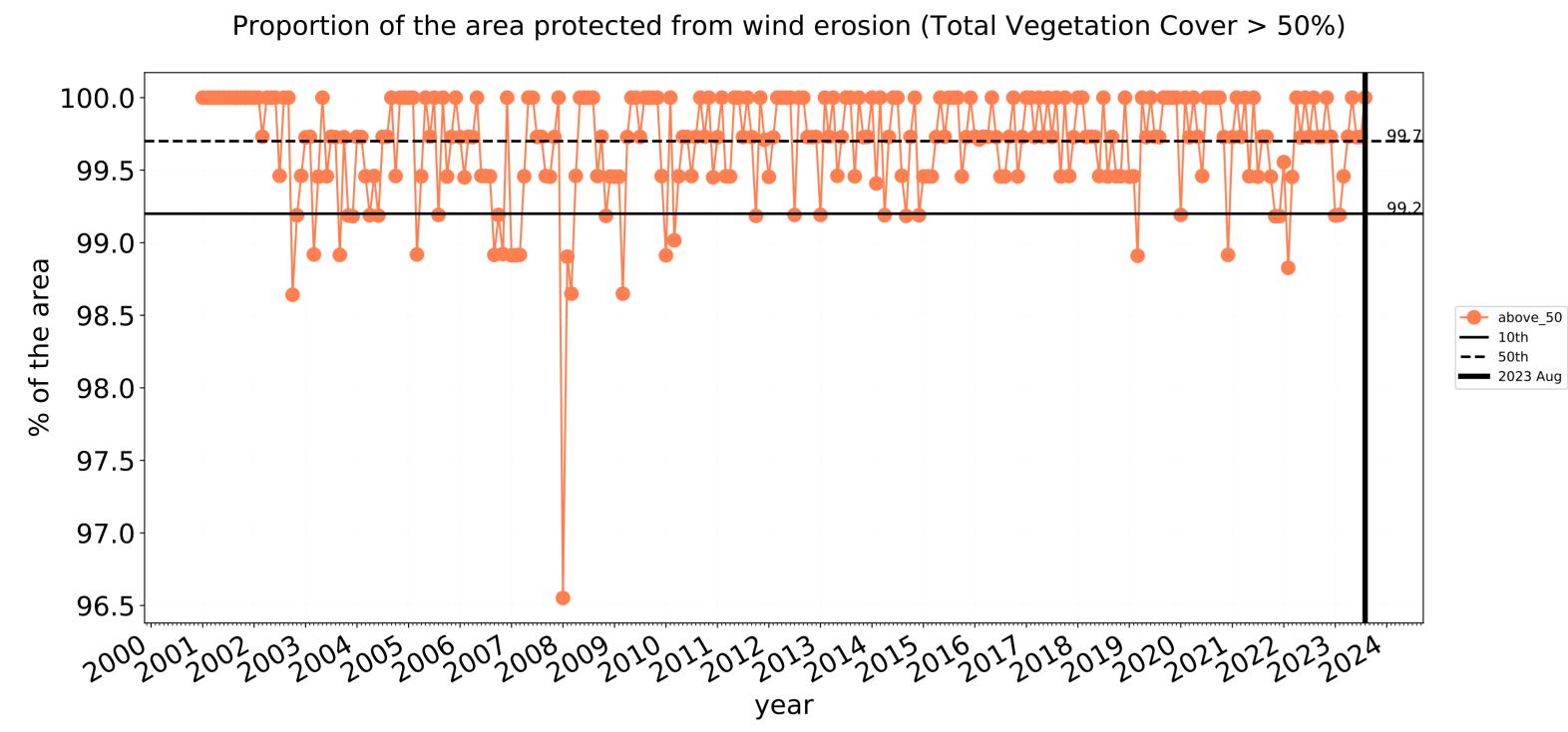


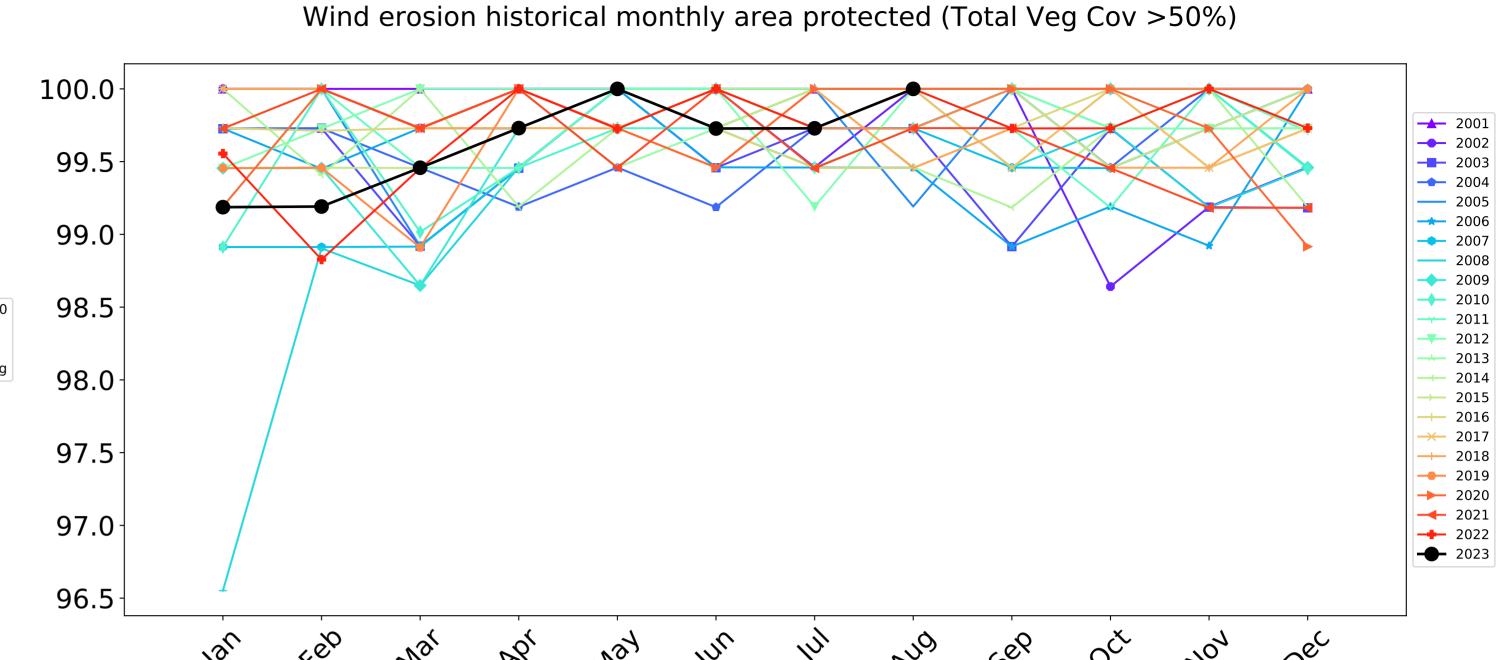




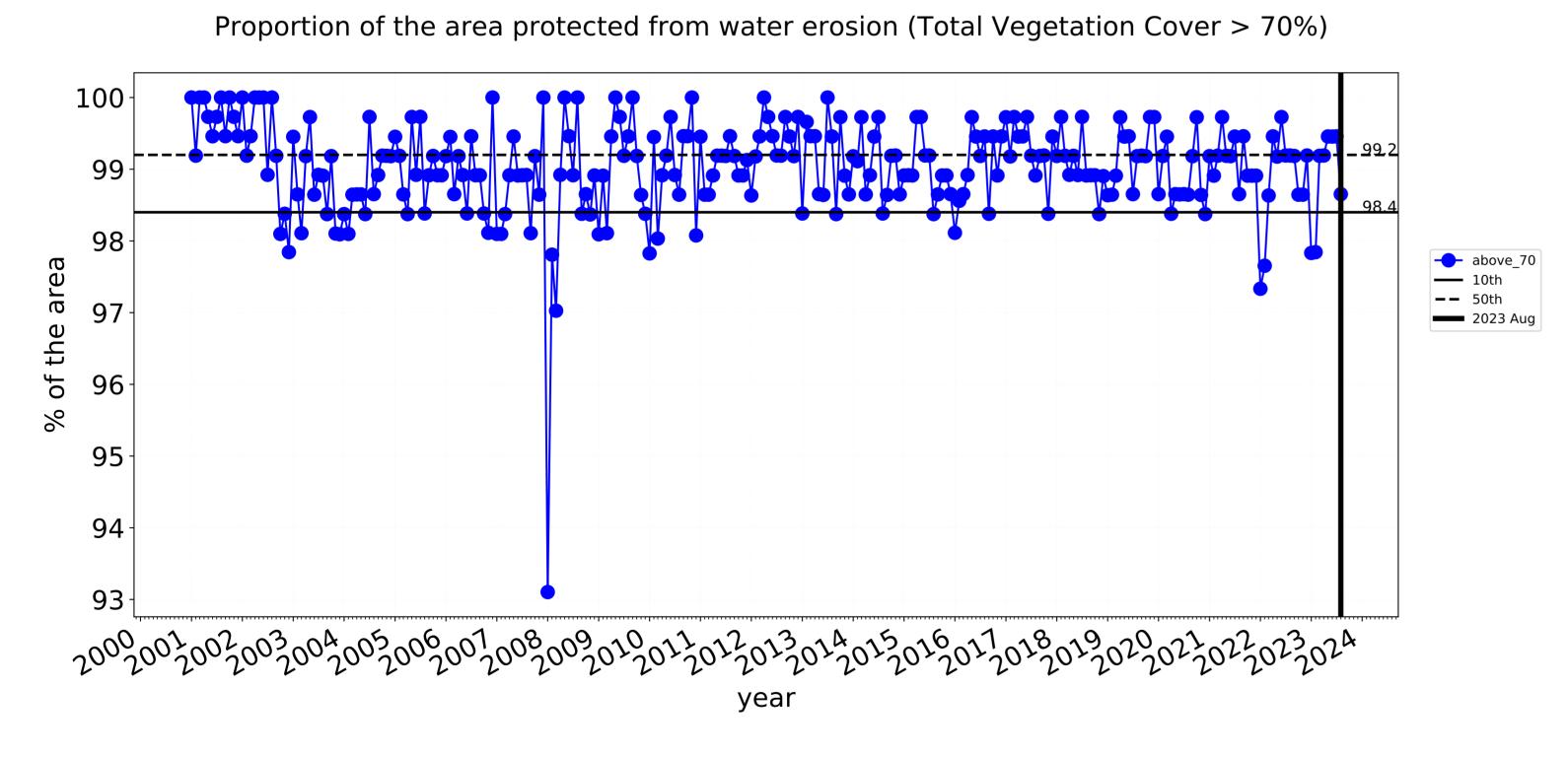


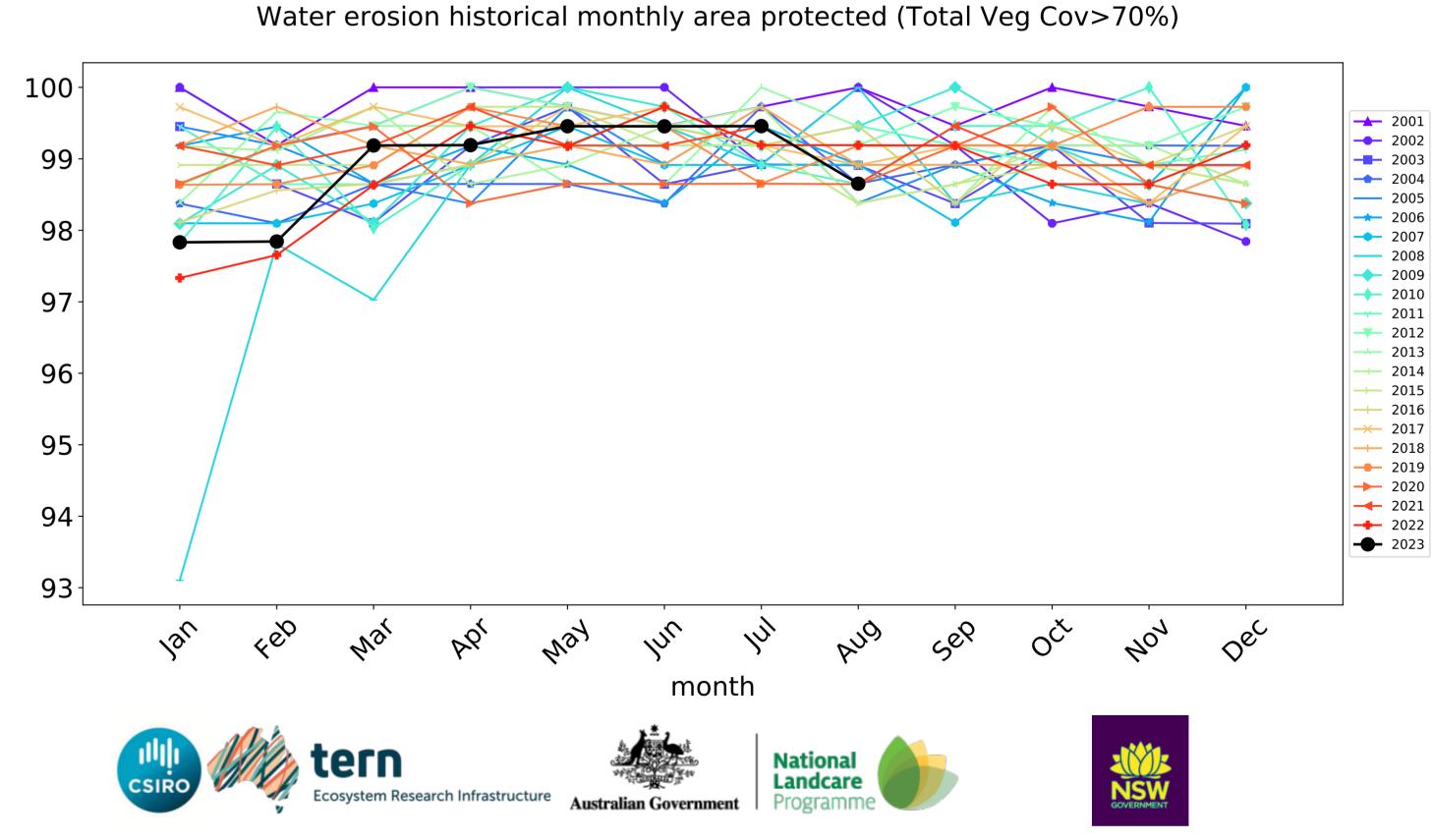


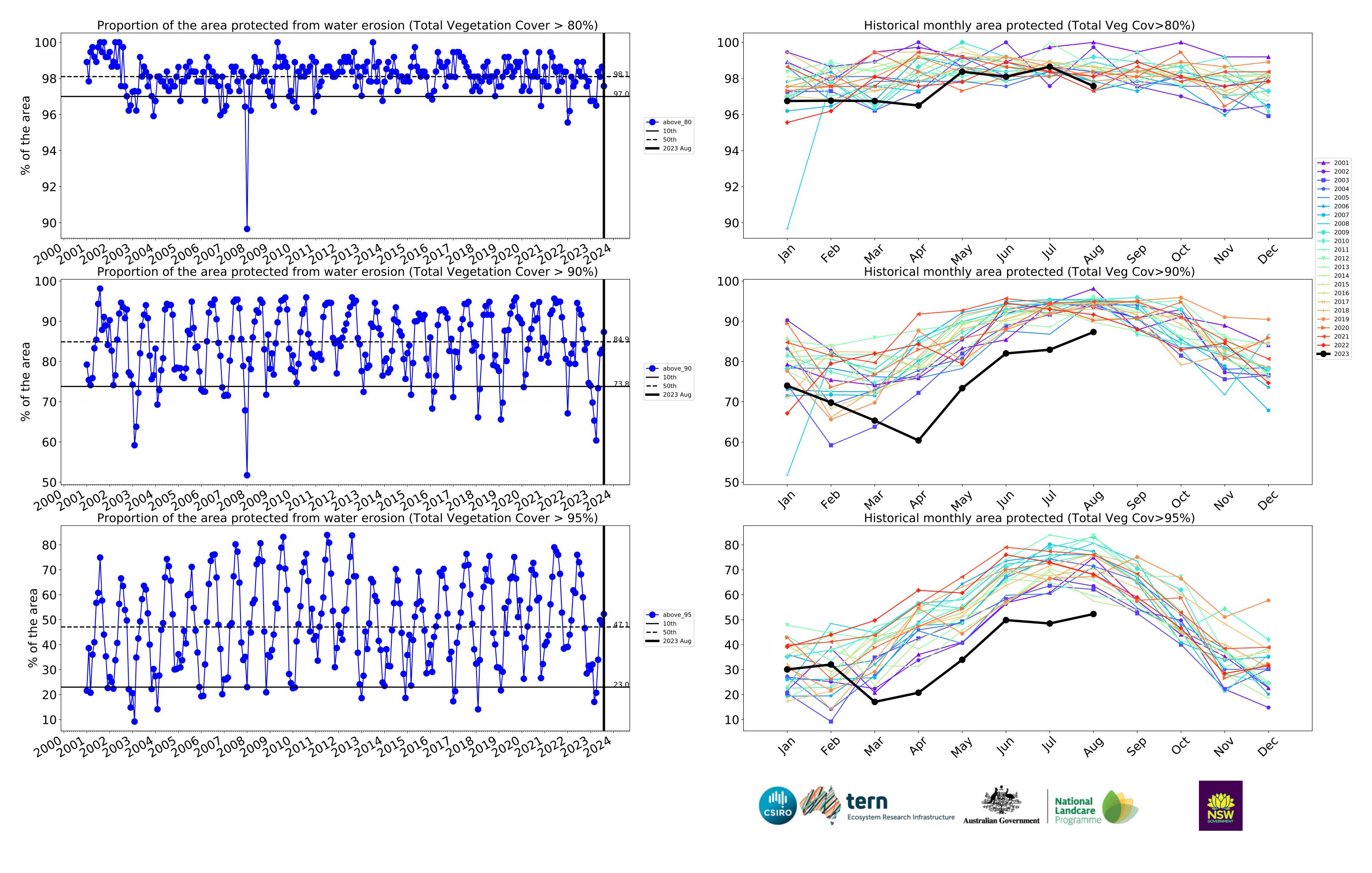




month







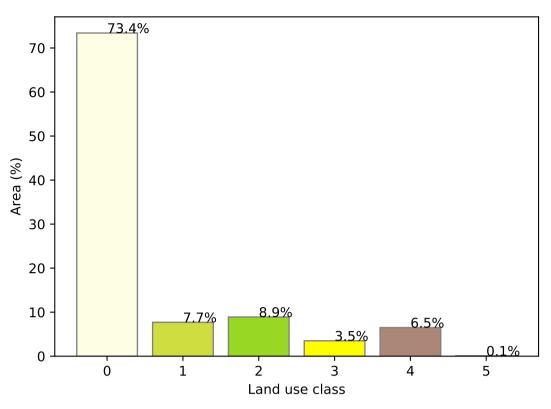
### **Agriculture**

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

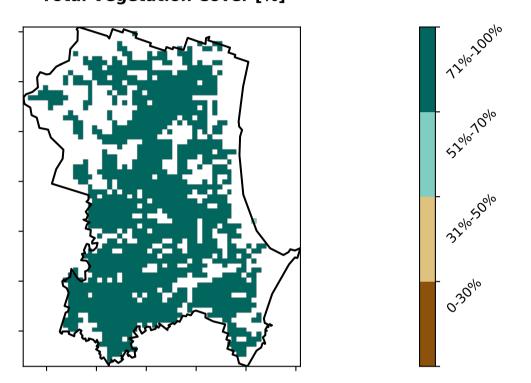
## Catchment Scale Land Use and Forests of Australia (2018) 1 Agriculture - Grazing - Non forest Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

# 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest 4 Agriculture - Cropping - Non-irrigated 5 Agriculture - Horticulture - Non-irrigated 6 Agriculture - Horticulture - Irrigated

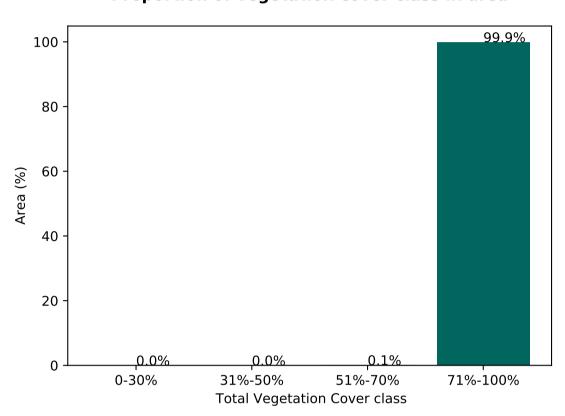
Proportion of each land class in area



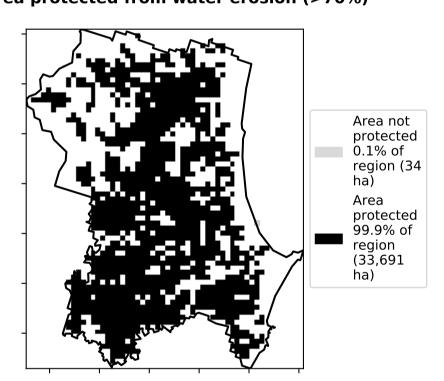
### **Total Vegetation Cover [%]**



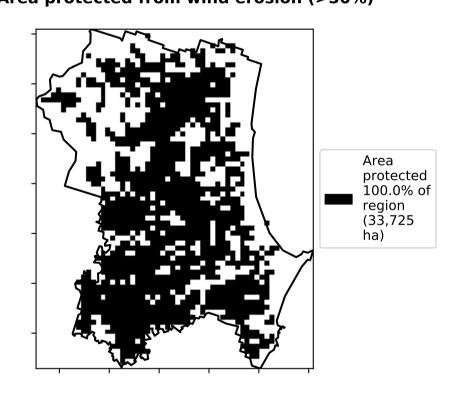
Proportion of vegetation cover class in area



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



% Area protected from wind erosion (>50%)



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

Anomaly show how many percetage points each

pixel is from

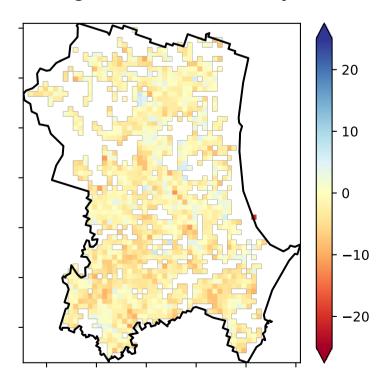
the mean. That is, red pixels

are about 20% lower than the mean of that

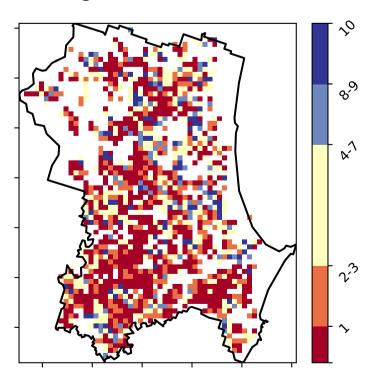
pixel. The mean

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.



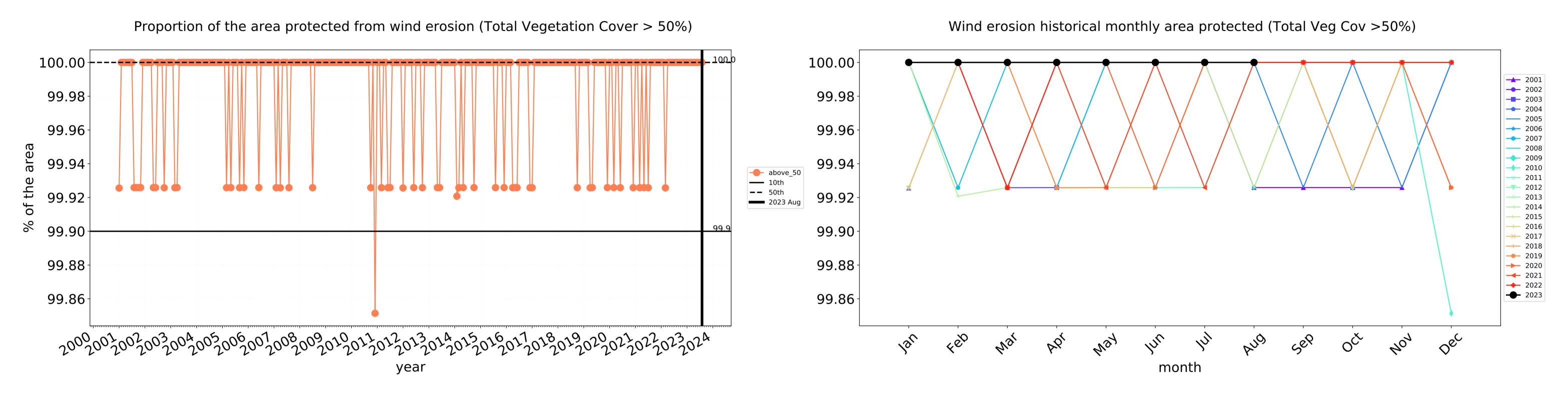


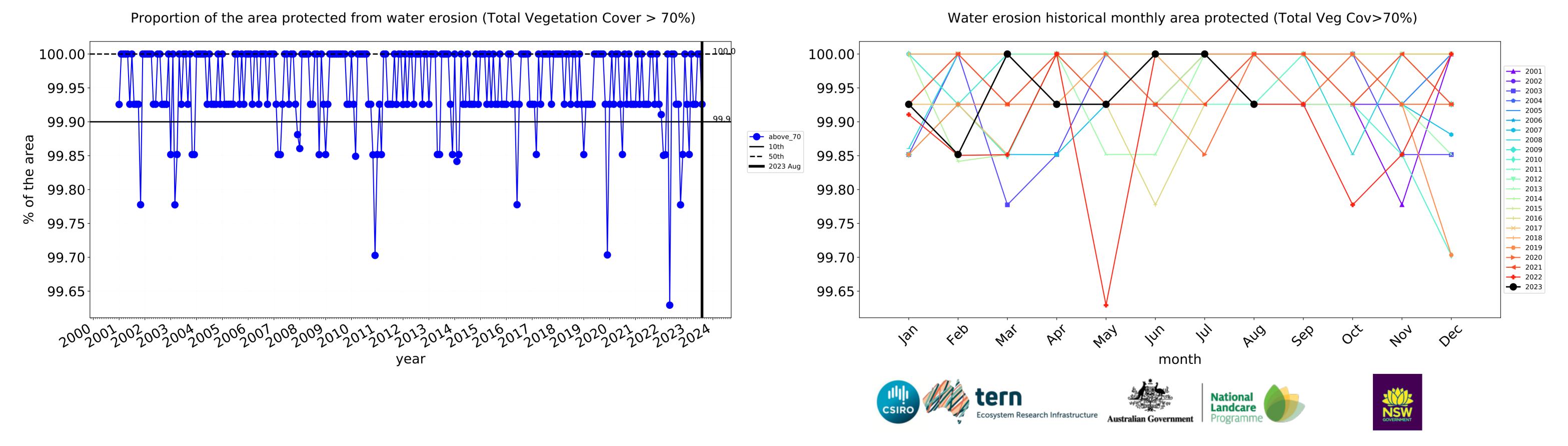


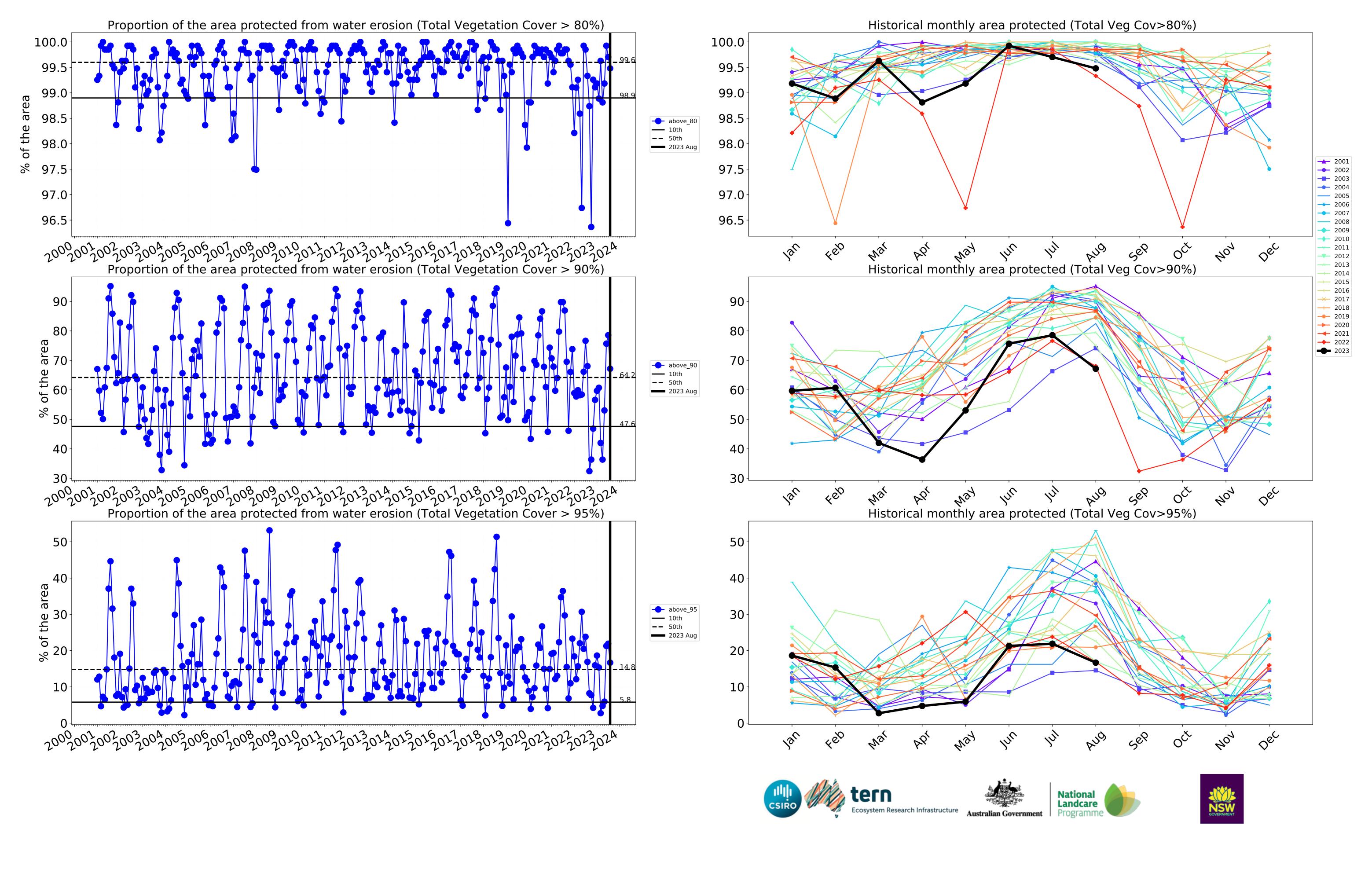




### **Agriculture timeseries**







### Grazing

### Land use and forest cover

Catchment Scale Land Use and Forests of Australia (2018)

Catchment Scale Land

Derived from

Use of Australia (2018) and Forests of Australia (2018)

Anomaly show how many percetage points each

pixel is from

the mean. That is, red pixels

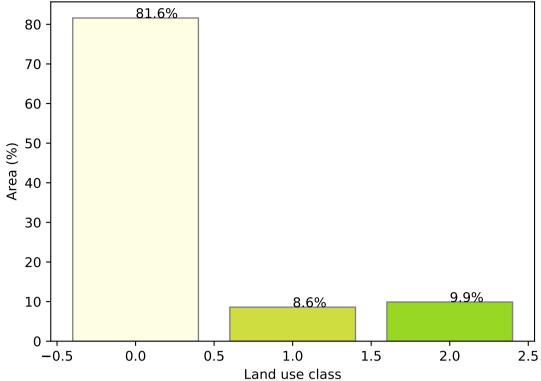
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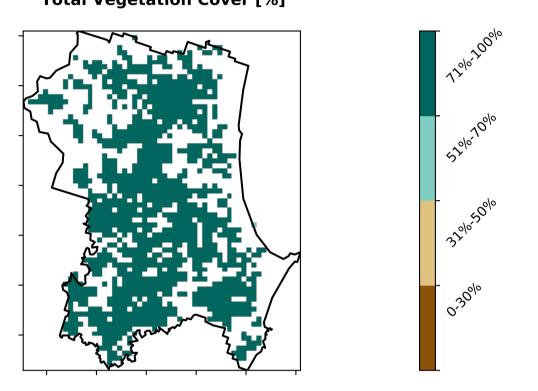
using baseline from 2001 to 2019.

# 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest

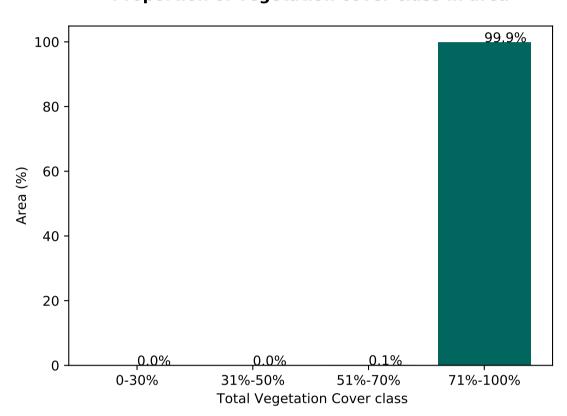
### Proportion of each land class in area



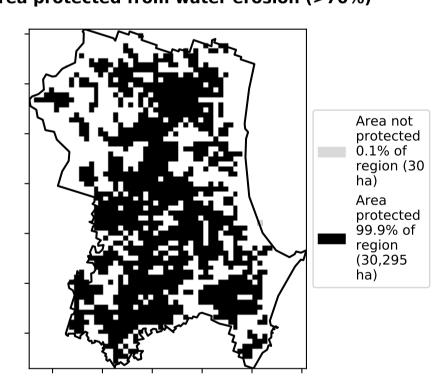
### Total Vegetation Cover [%]



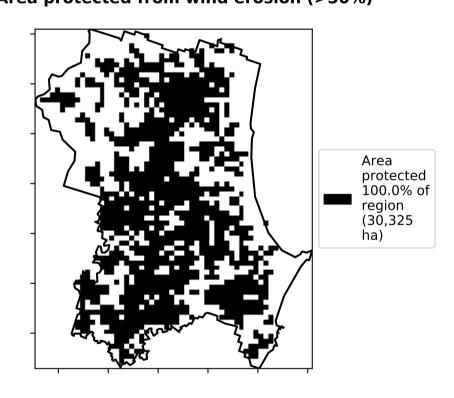
Proportion of vegetation cover class in area



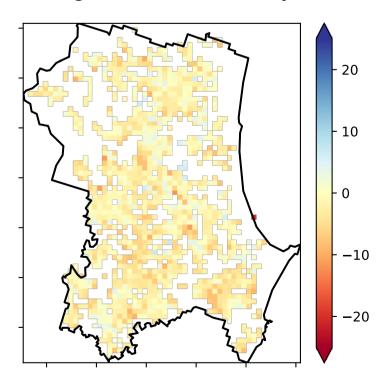
### % Area protected from water erosion (>70%)



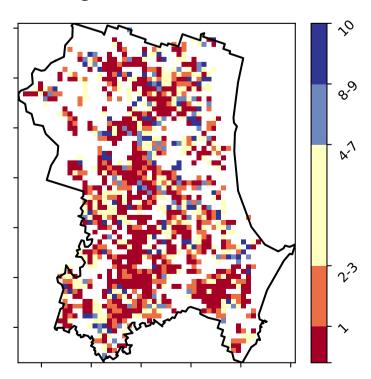
% Area protected from wind erosion (>50%)



### **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.





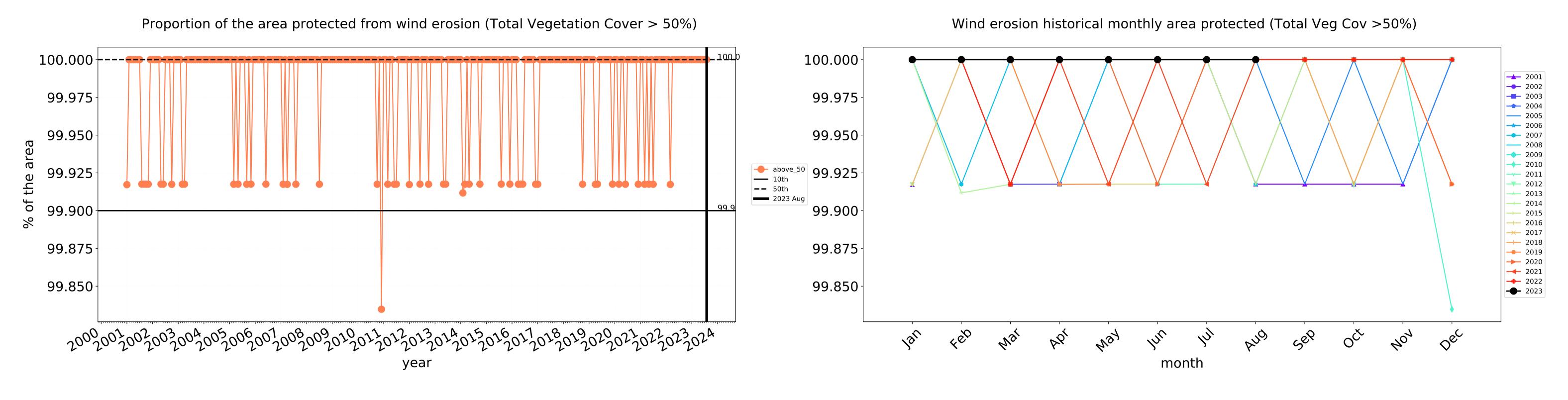


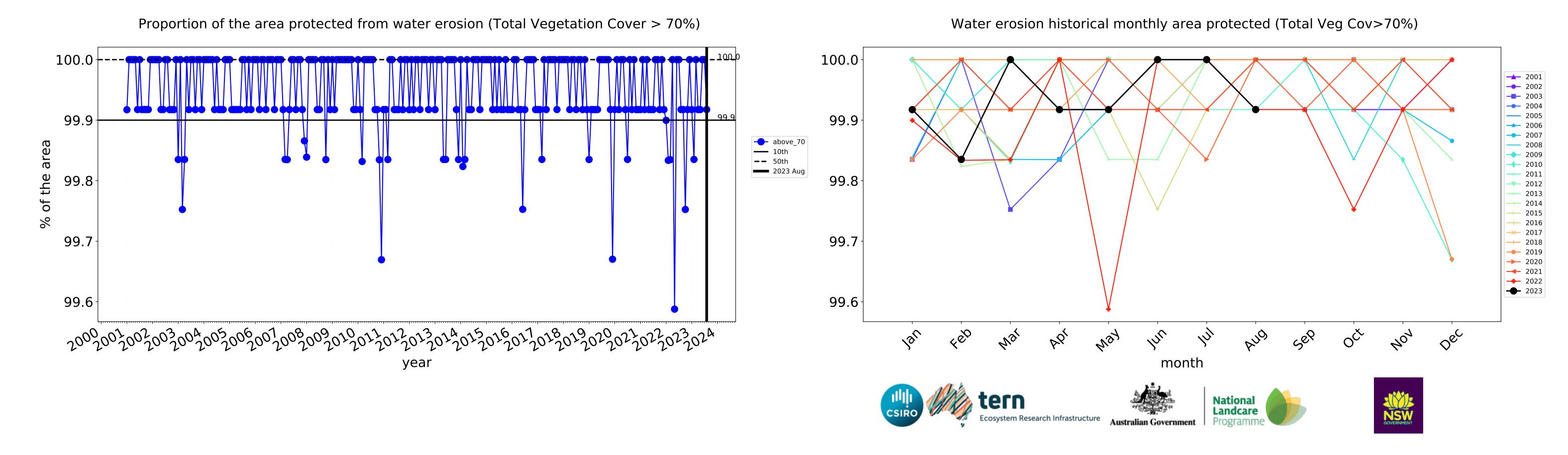


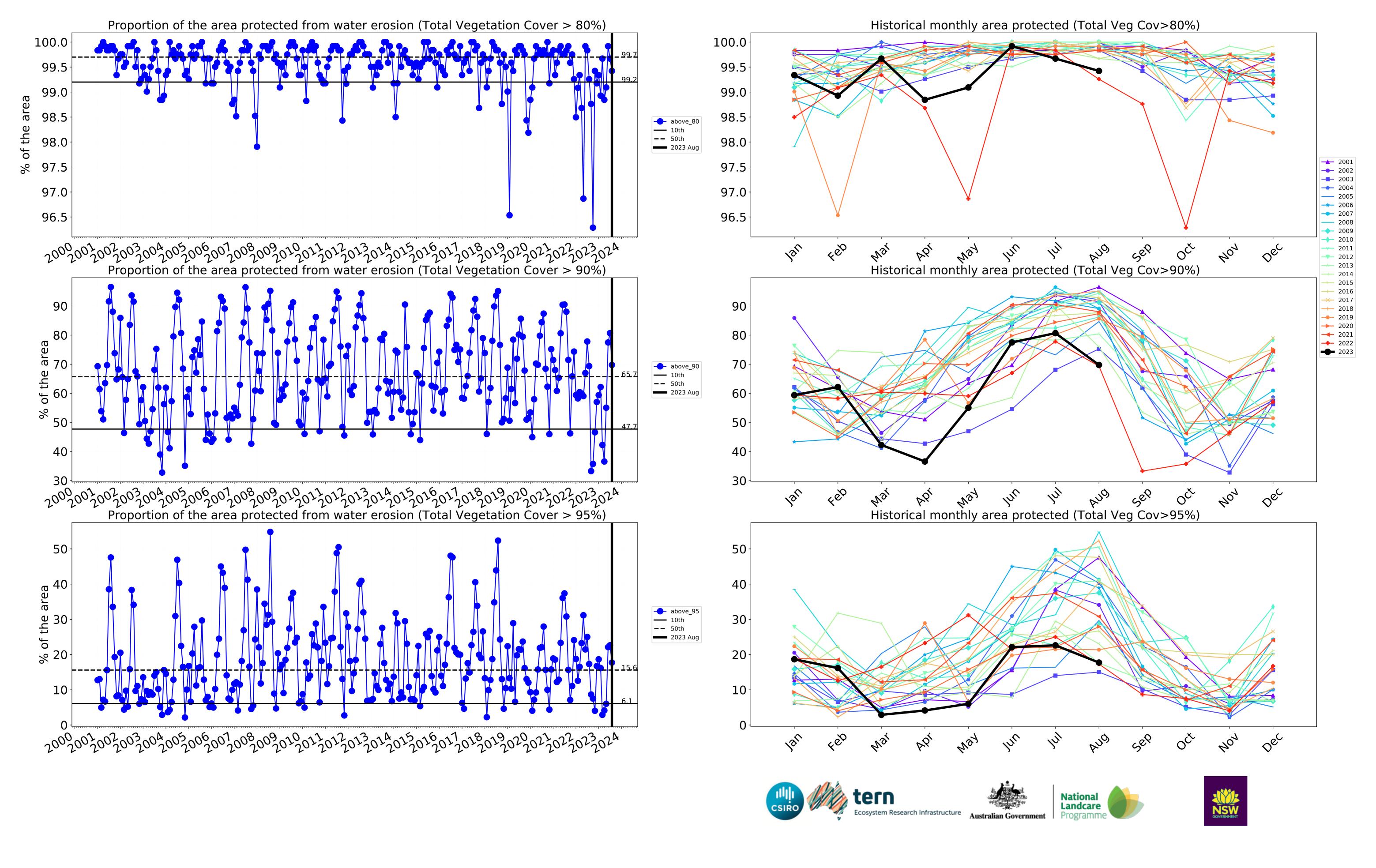




## **Grazing timeseries**







### **Grazing non forest**

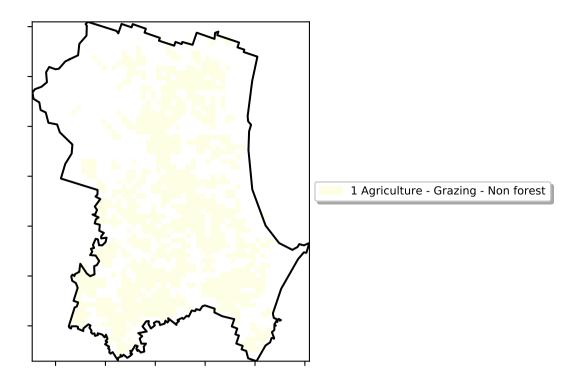
### Land use and forest cover

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

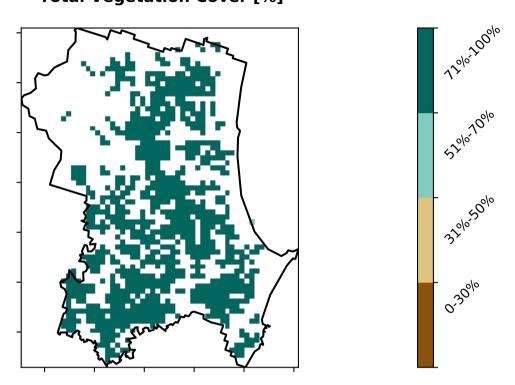
Anomaly show how many percetage points each pixel is from the mean. That

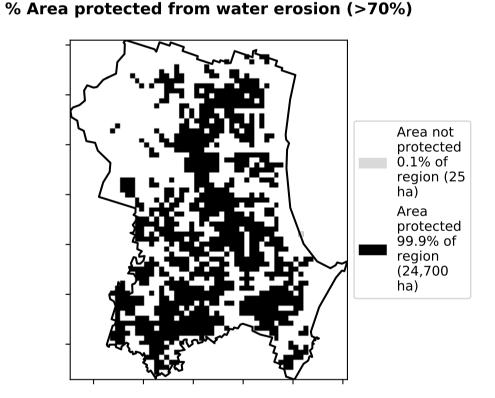
is, red pixels are about 20% lower than the mean of that

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

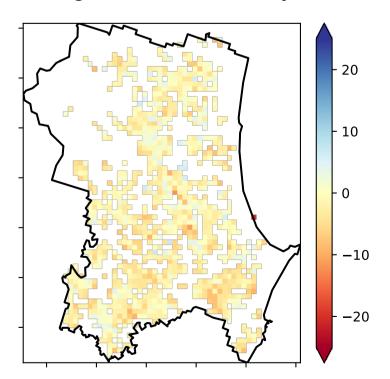


### **Total Vegetation Cover [%]**



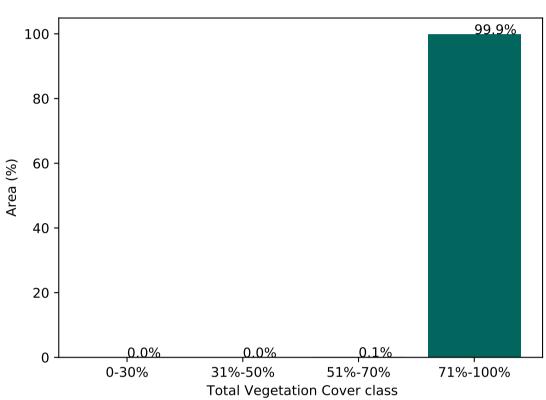


### **Total Vegetation Cover Anomaly [%]**

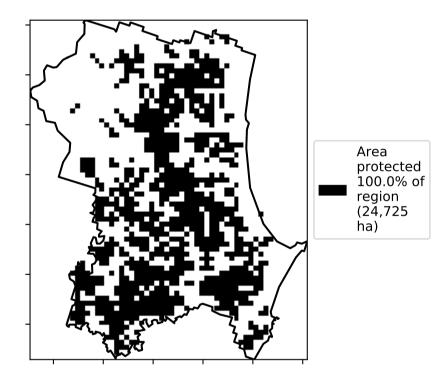


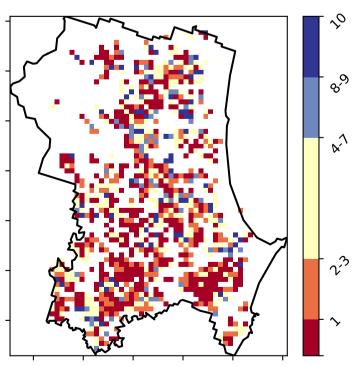
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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





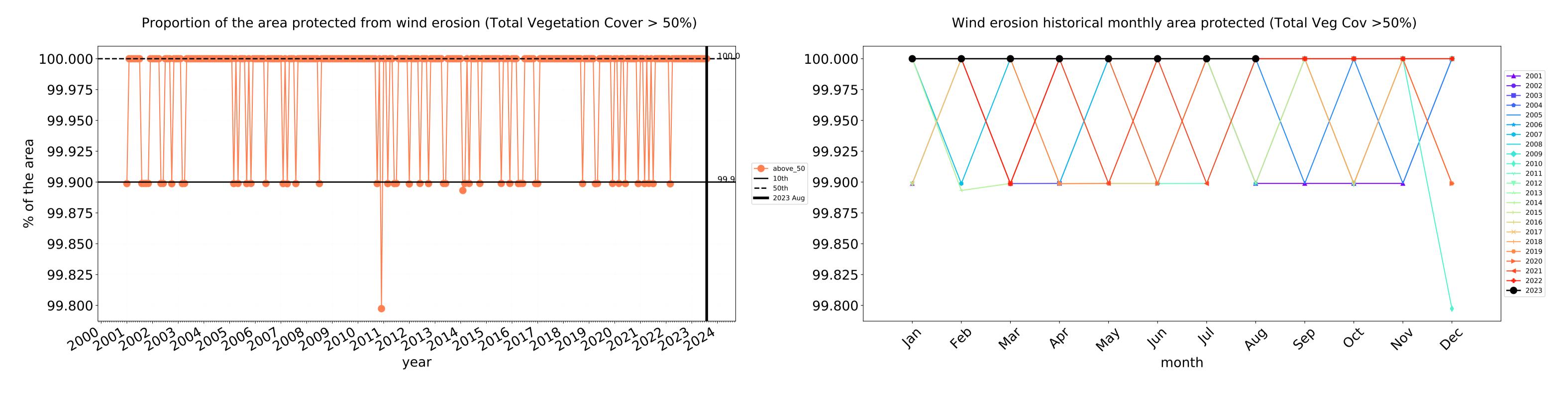


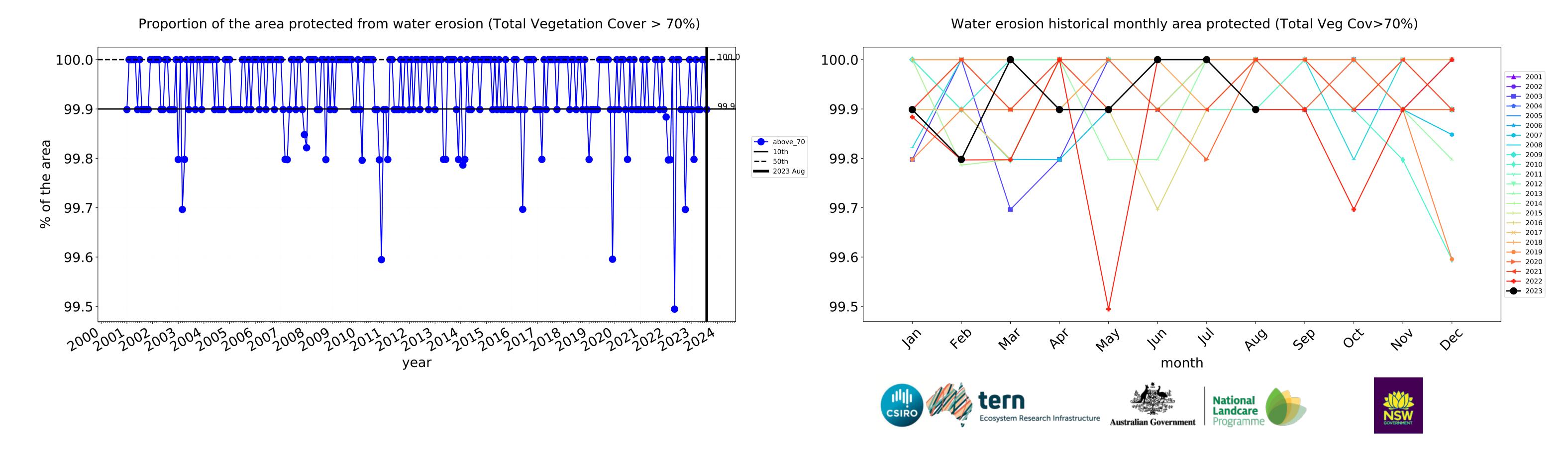


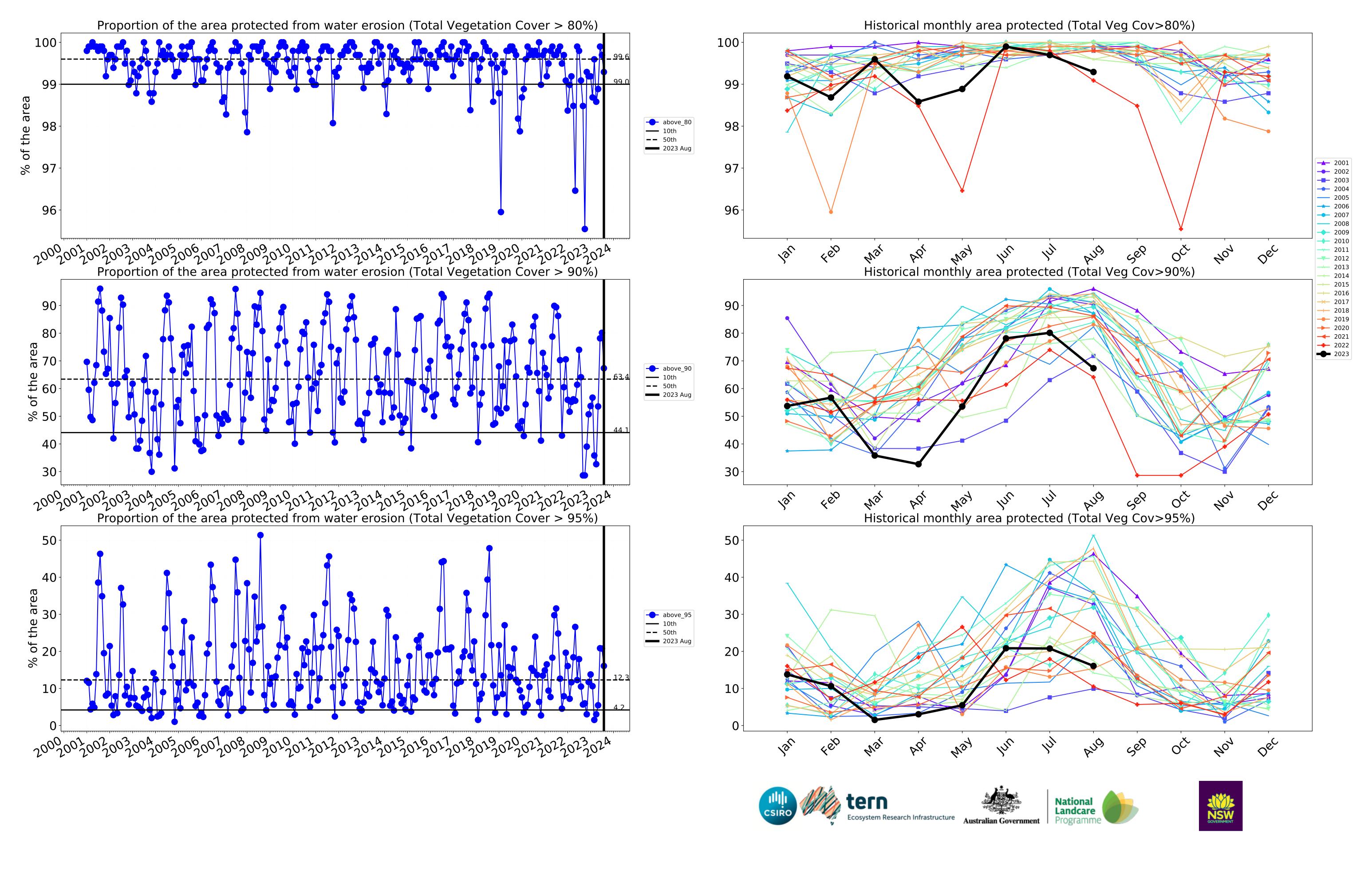




### **Grazing non forest timeseries**







## **Grazing Woodland 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)

Anomaly show how many percetage points each

pixel is from

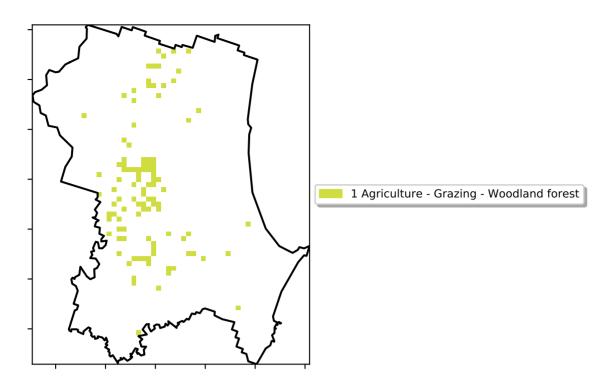
the mean. That is, red pixels

are about 20% lower than the mean of that

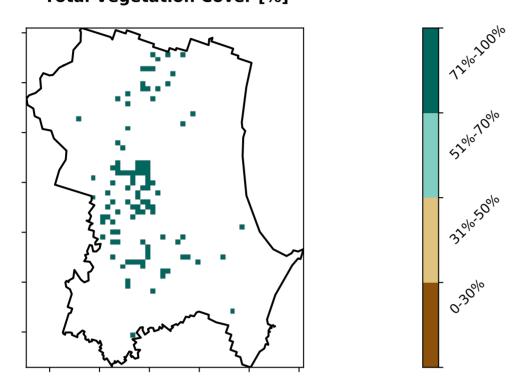
pixel. The mean

using baseline from 2001 to 2019.

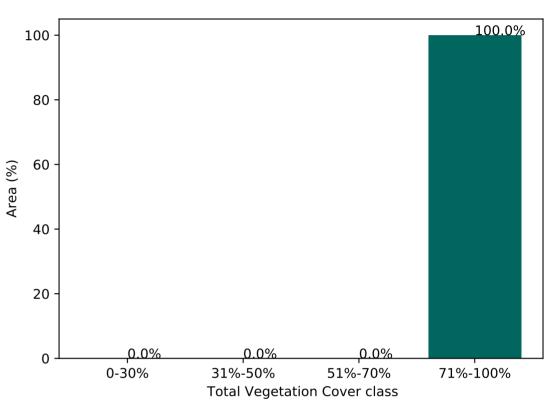
is only for the month of the map



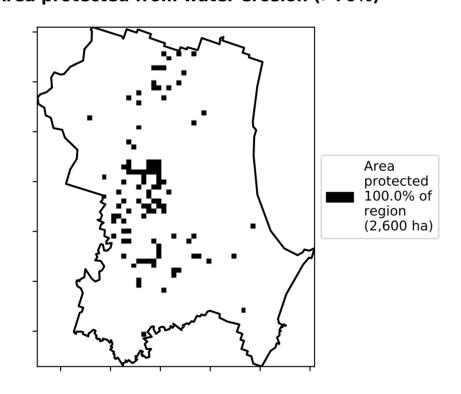
### **Total Vegetation Cover [%]**



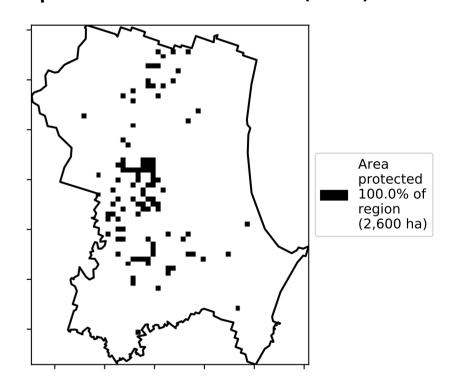
### Proportion of vegetation cover class in area



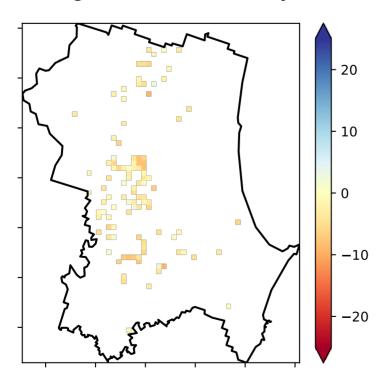
### % Area protected from water erosion (>70%)



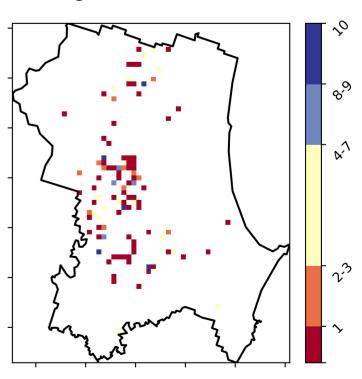
% Area protected from wind erosion (>50%)



### **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.





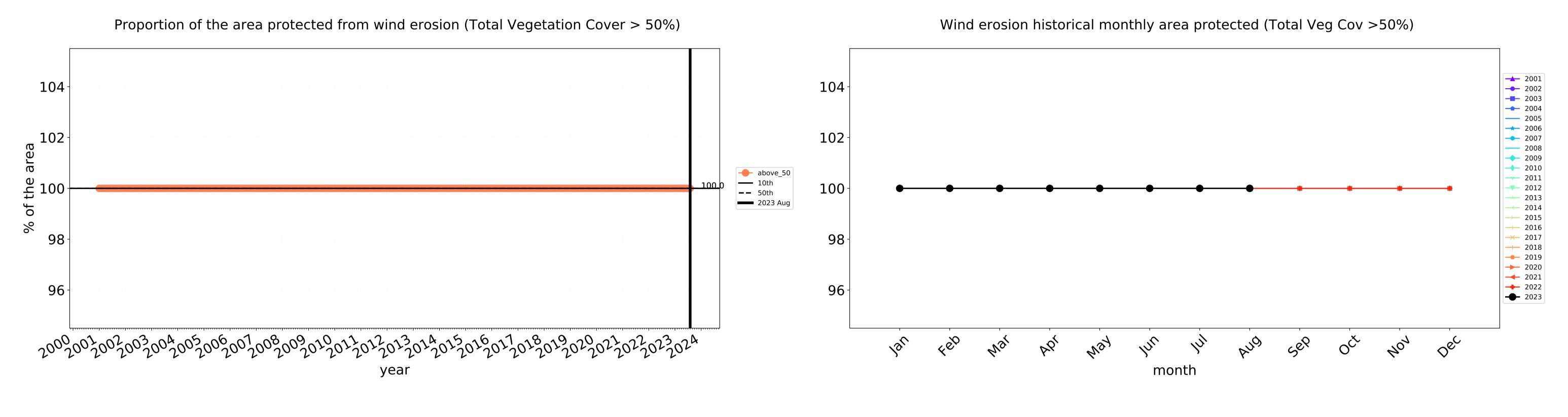


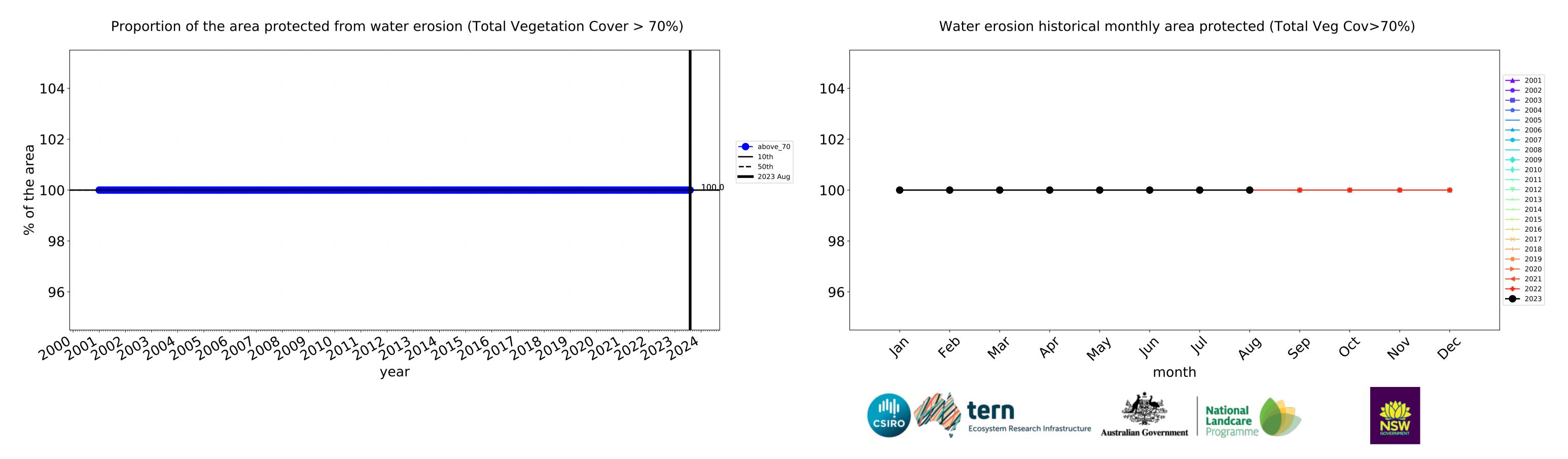


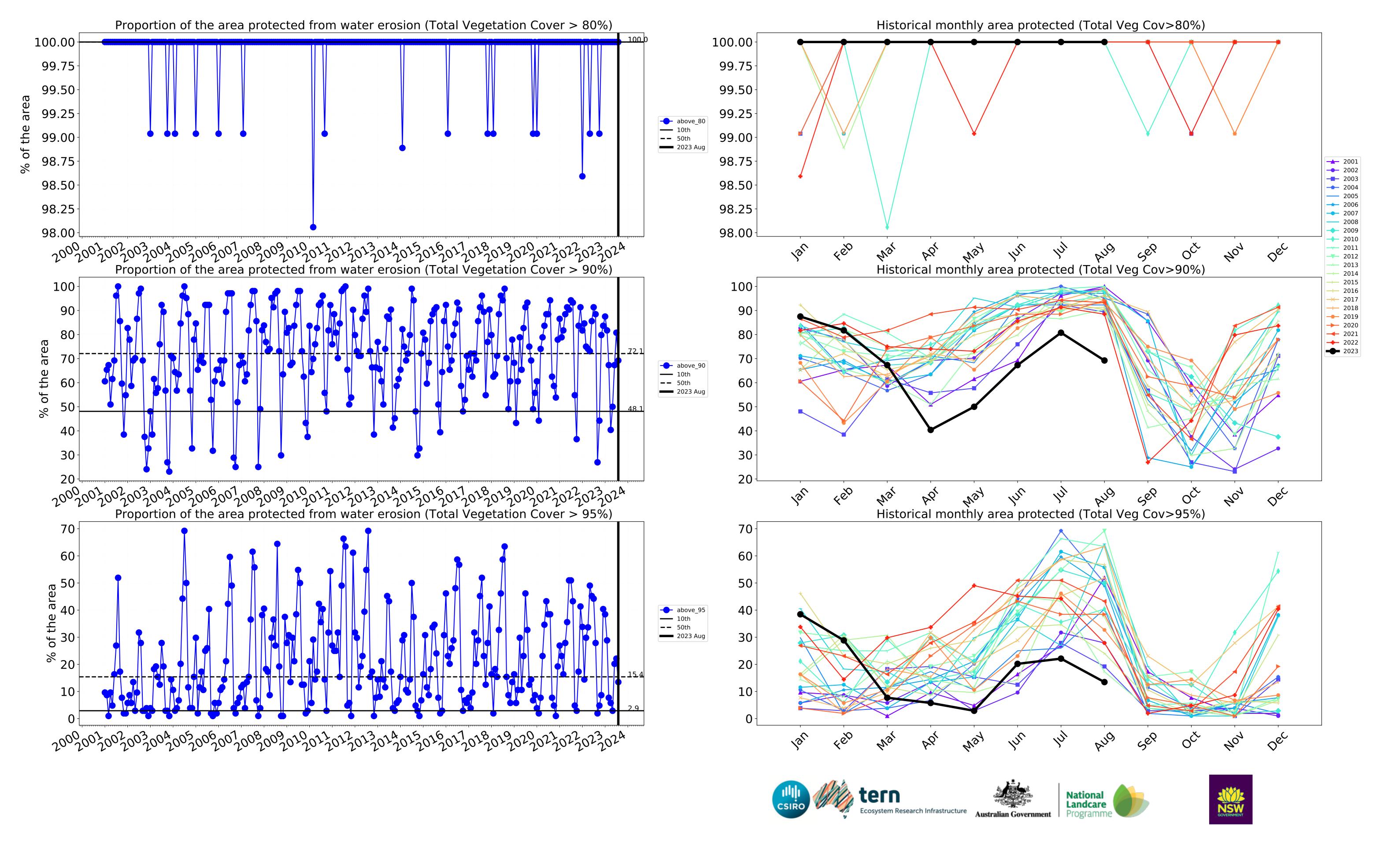




### **Grazing Woodland forest timeseries**







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

### 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)

Anomaly show how many percetage points each

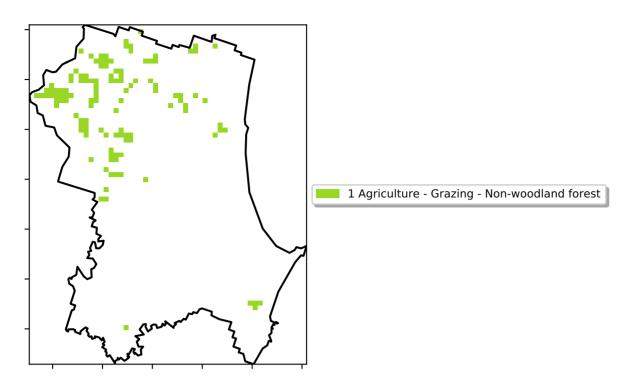
pixel is from

the mean. That is, red pixels

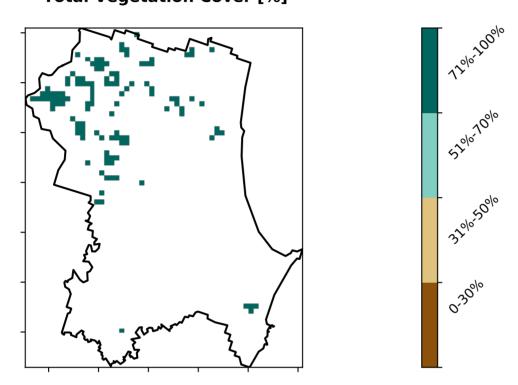
are about 20% lower than the mean of that

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

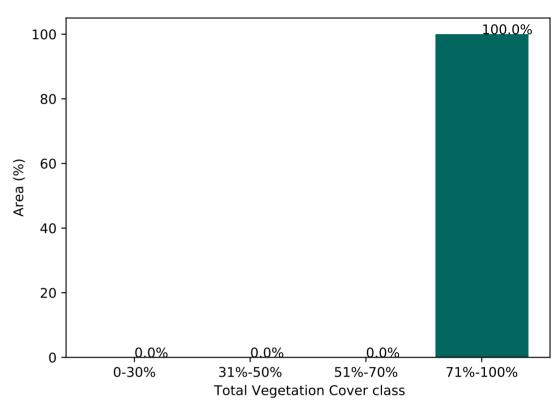
using baseline from 2001 to 2019.



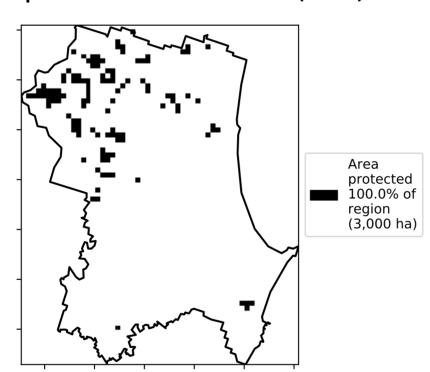
### **Total Vegetation Cover [%]**



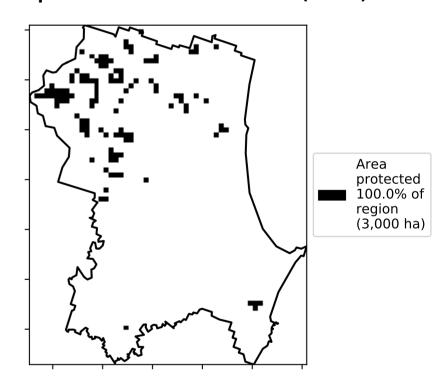
Proportion of vegetation cover class in area



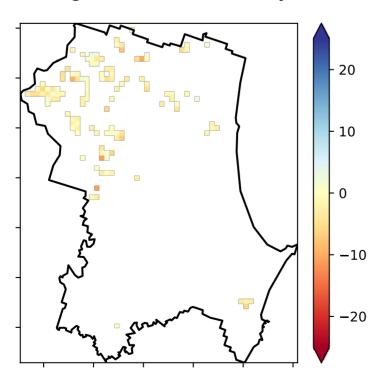
### % Area protected from water erosion (>70%)



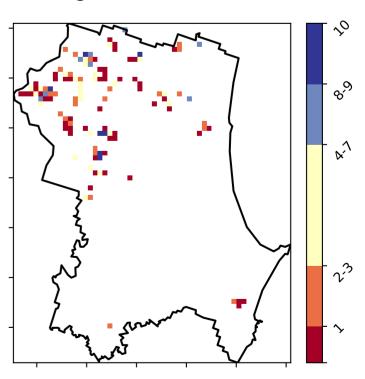
% Area protected from wind erosion (>50%)



### **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.



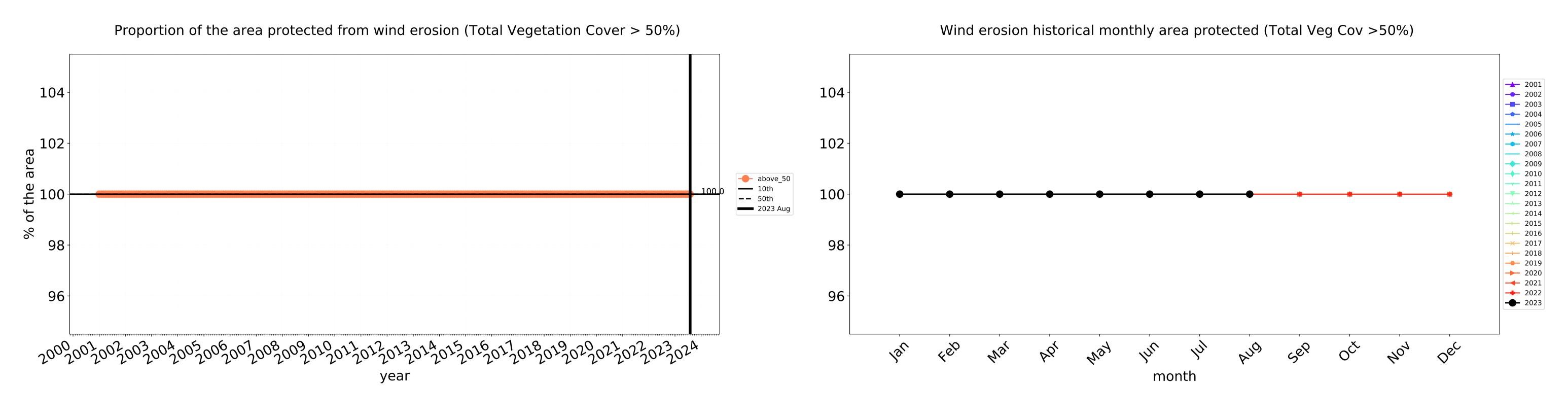


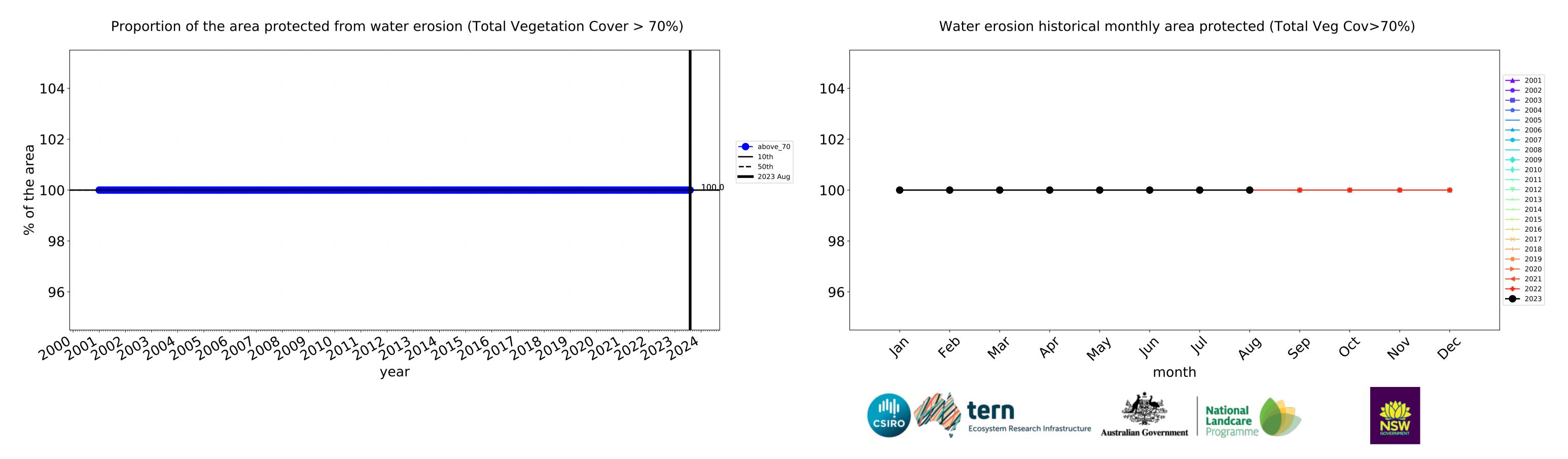


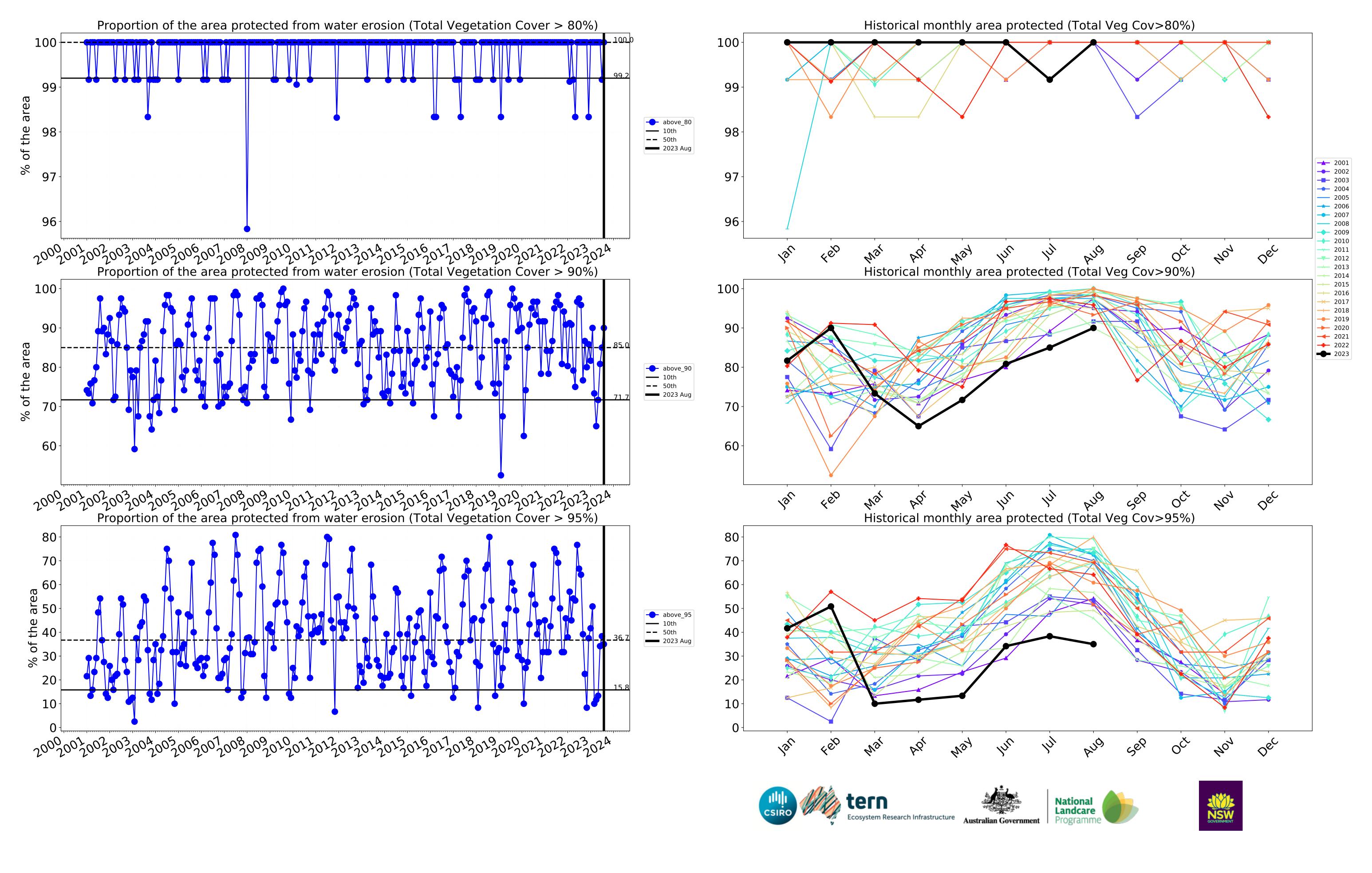












### **Cropping**

### 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)

Anomaly show how many percetage points each

pixel is from

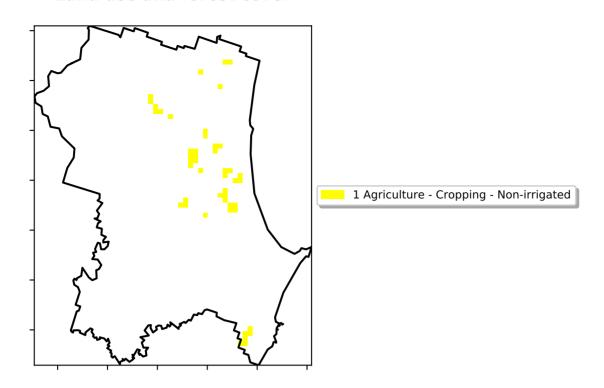
the mean. That is, red pixels

are about 20% lower than the

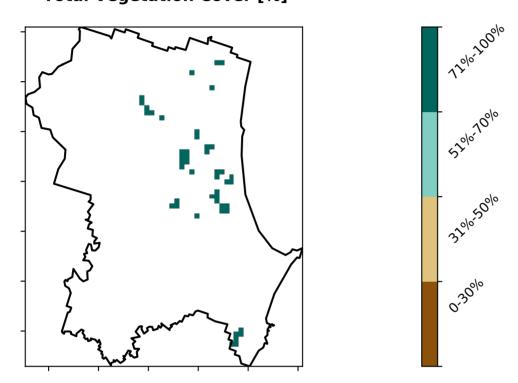
mean of that pixel. The mean

is only for the month of the map

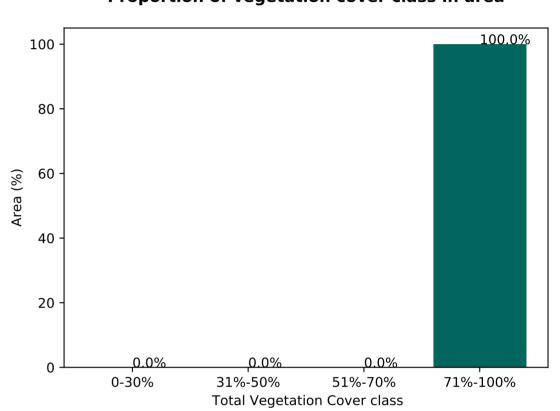
using baseline from 2001 to 2019.



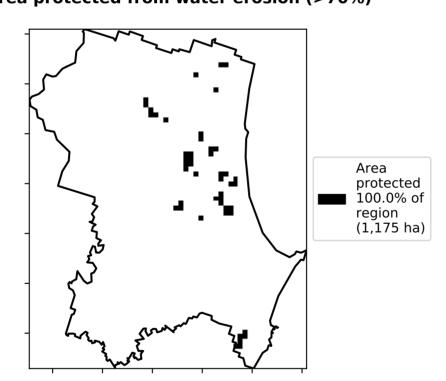
### **Total Vegetation Cover [%]**



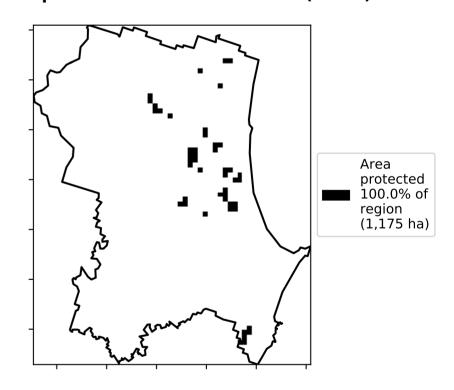
### Proportion of vegetation cover class in area



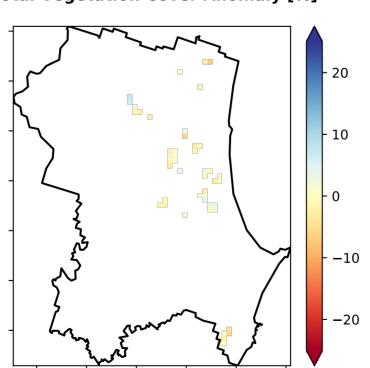
### % Area protected from water erosion (>70%)



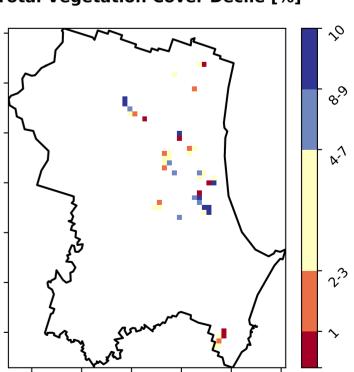
% Area protected from wind erosion (>50%)



### **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.







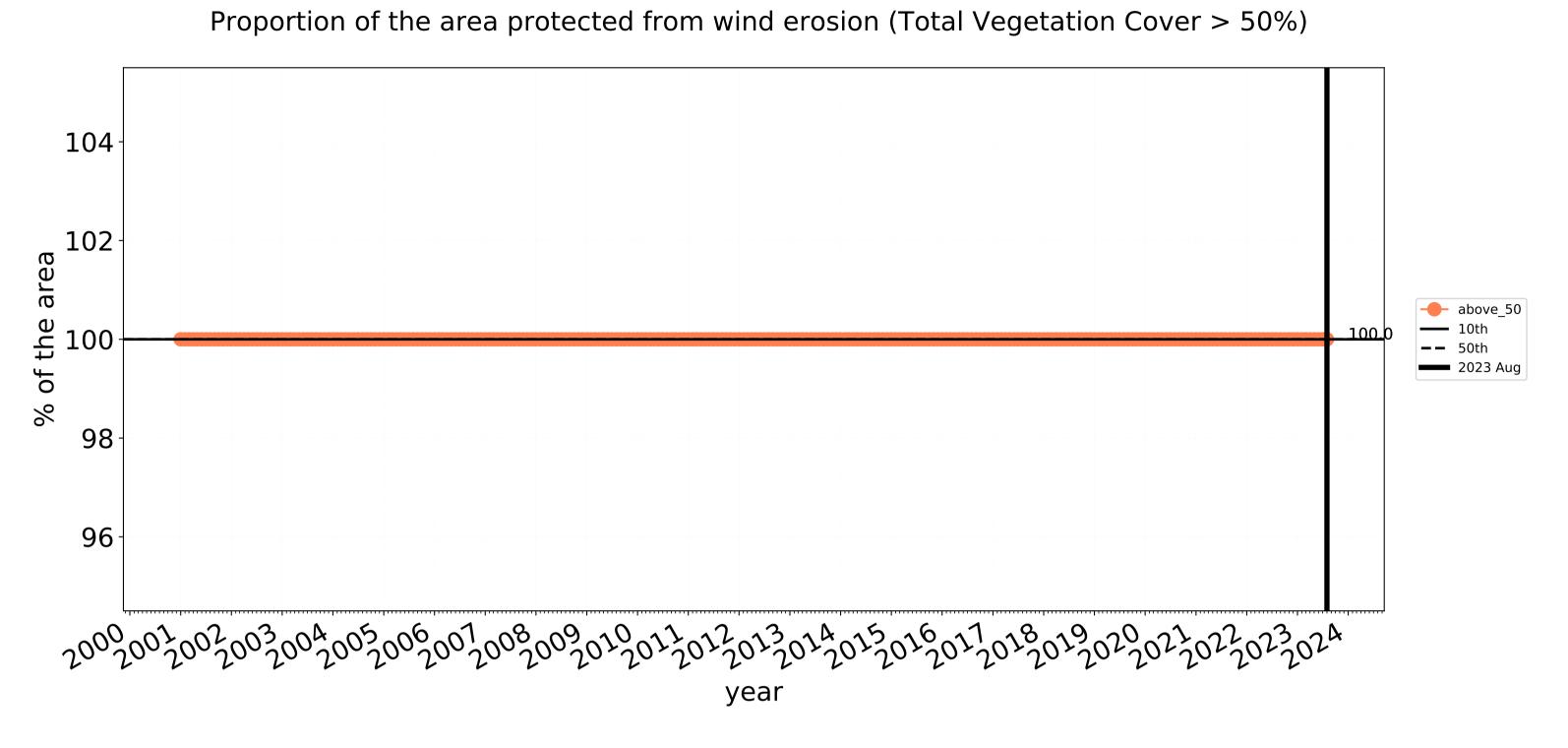


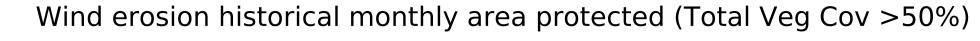


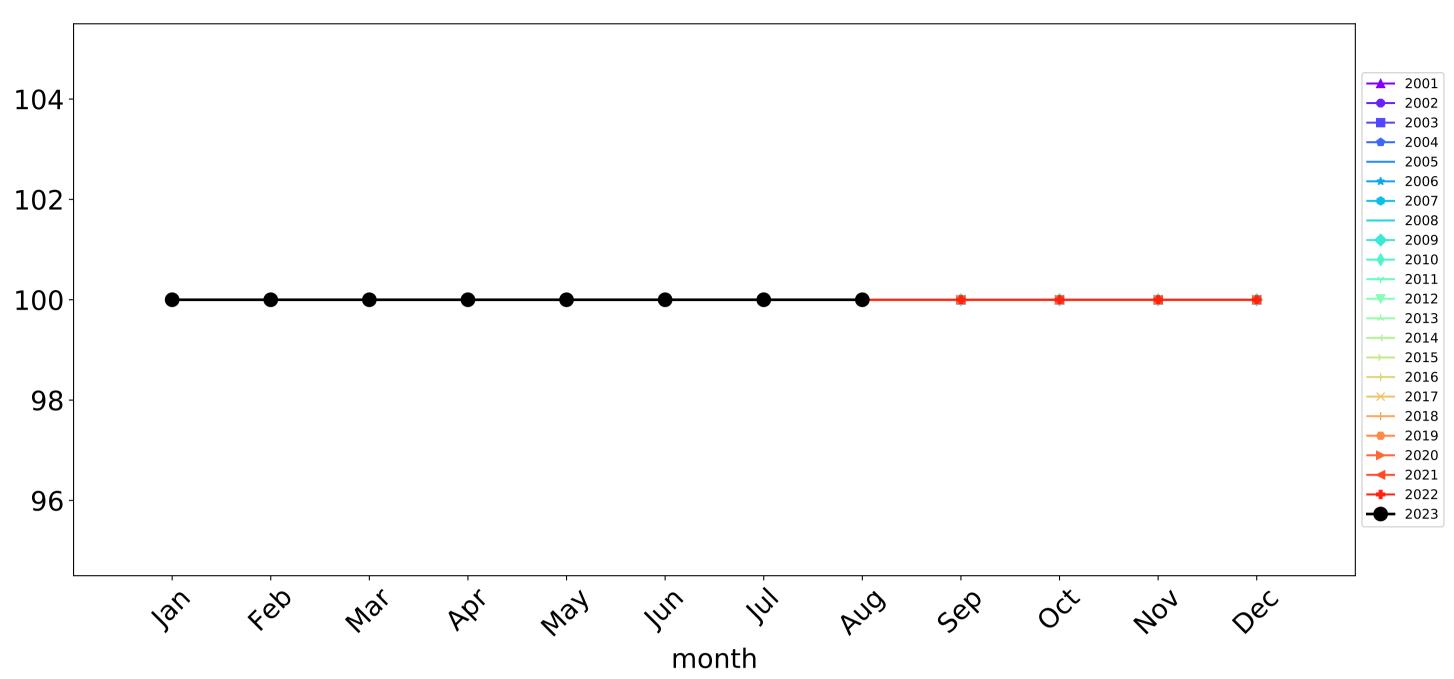


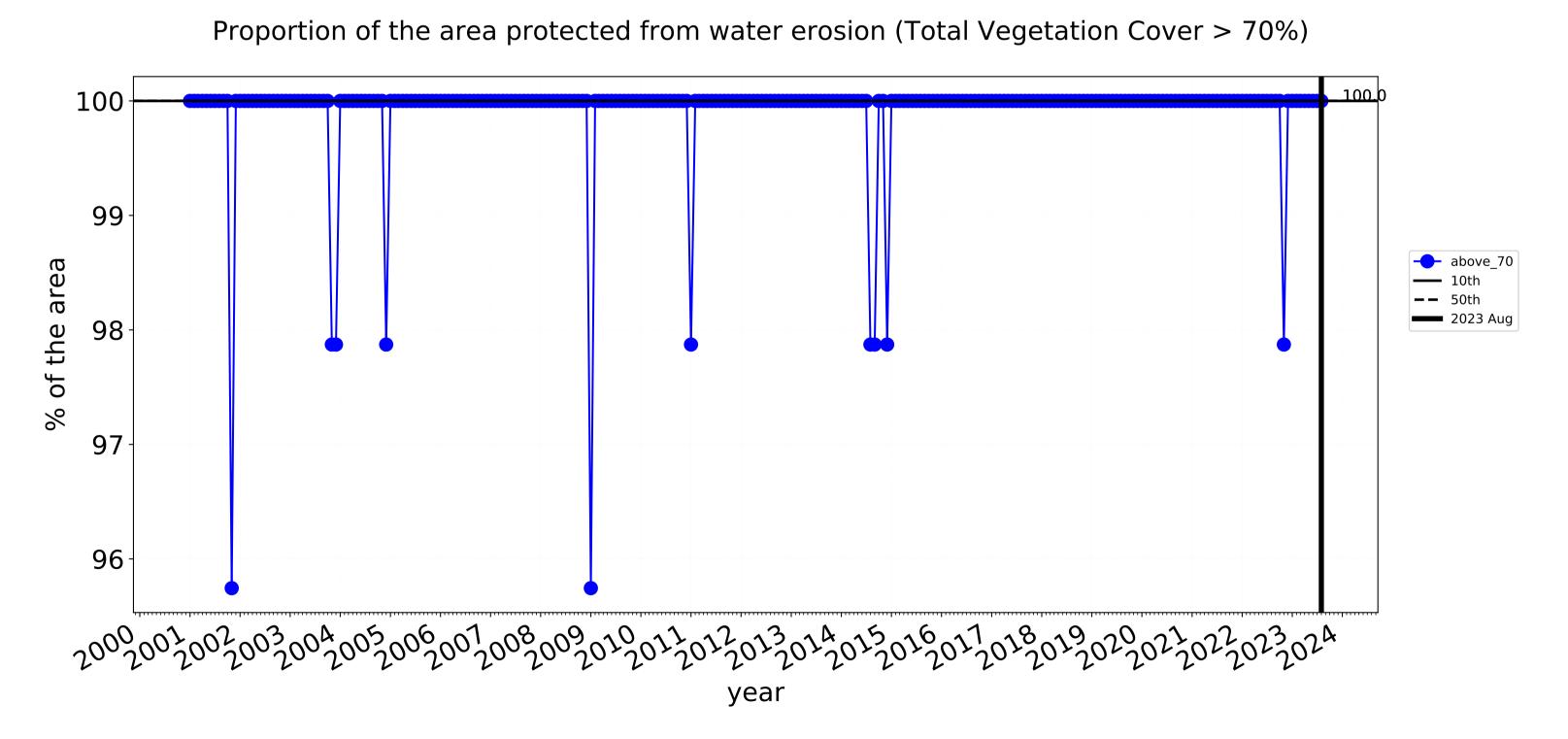


## **Cropping timeseries**





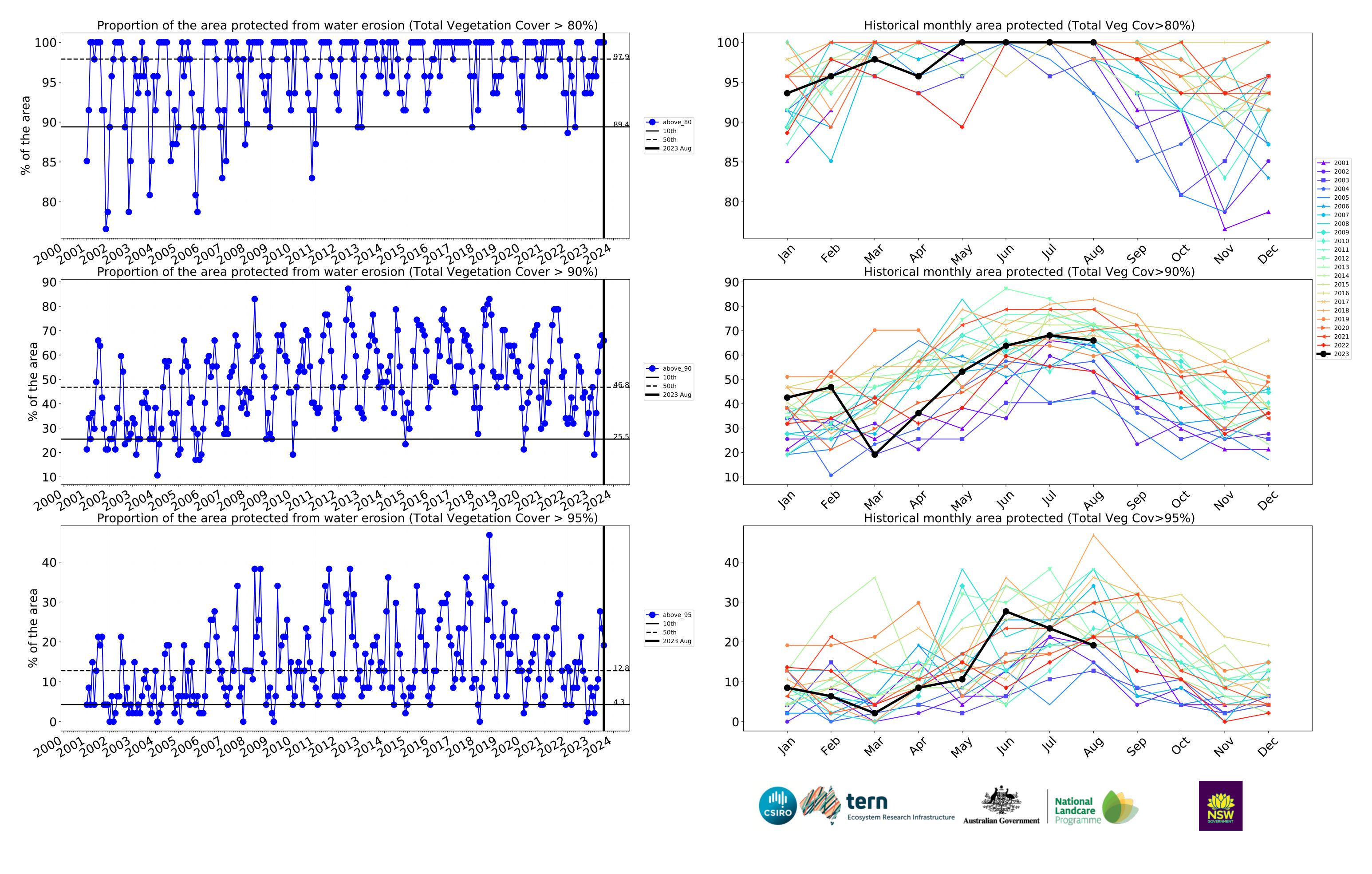




### 100 2003 99-98 <del>---</del> 2011 **←** 2014 **→** 2015 **→** 2017 97 → 2020 **→** 2021 **→** 2022 96 2023 404 Max month

National Landcare

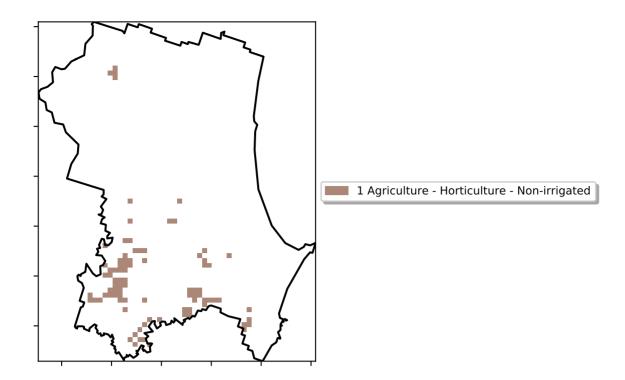
Water erosion historical monthly area protected (Total Veg Cov>70%)



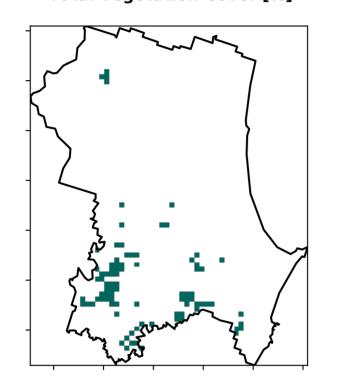
### **Horticulture**

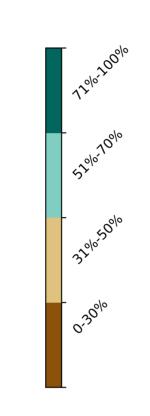
### Land use and forest cover

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

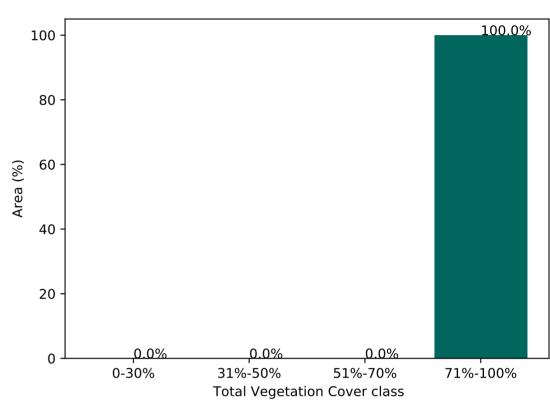


### **Total Vegetation Cover [%]**

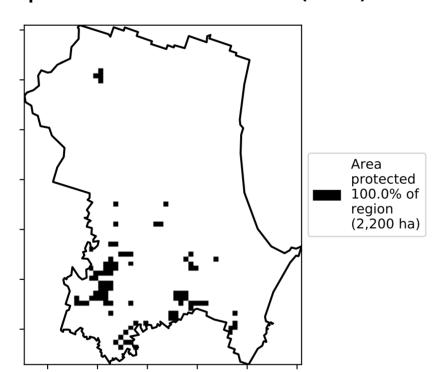




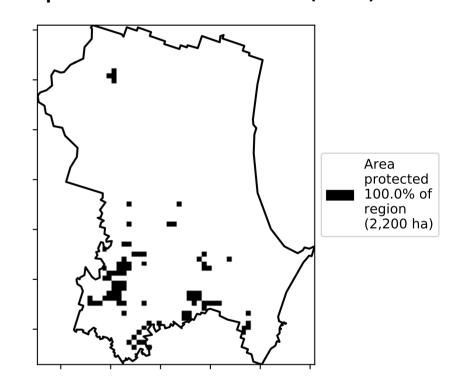
### Proportion of vegetation cover class in area



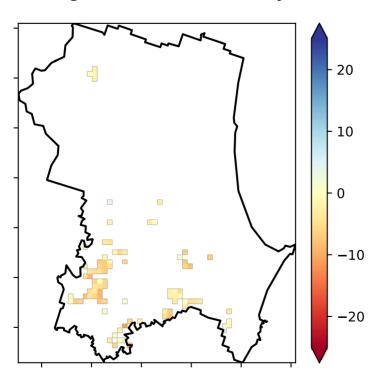
### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

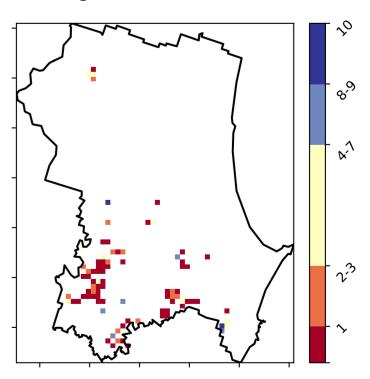


### **Total Vegetation Cover Anomaly [%]**



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 [%]



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.

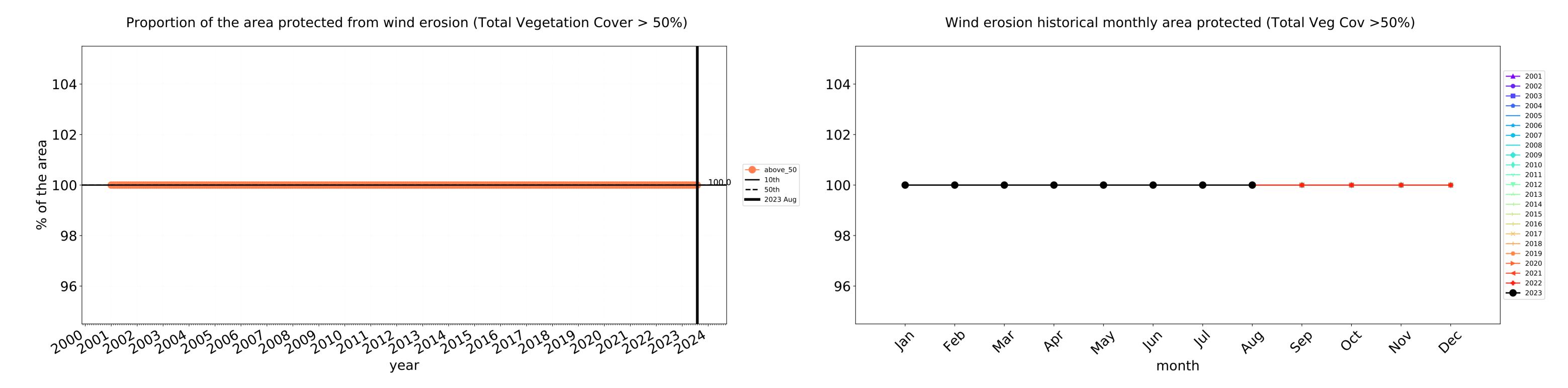


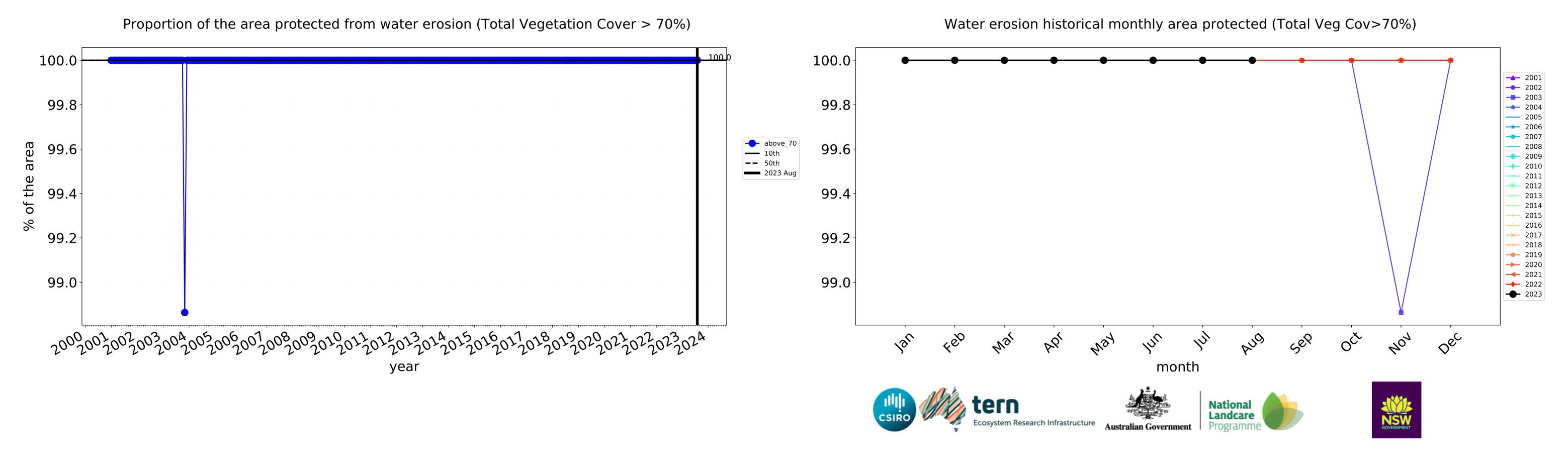


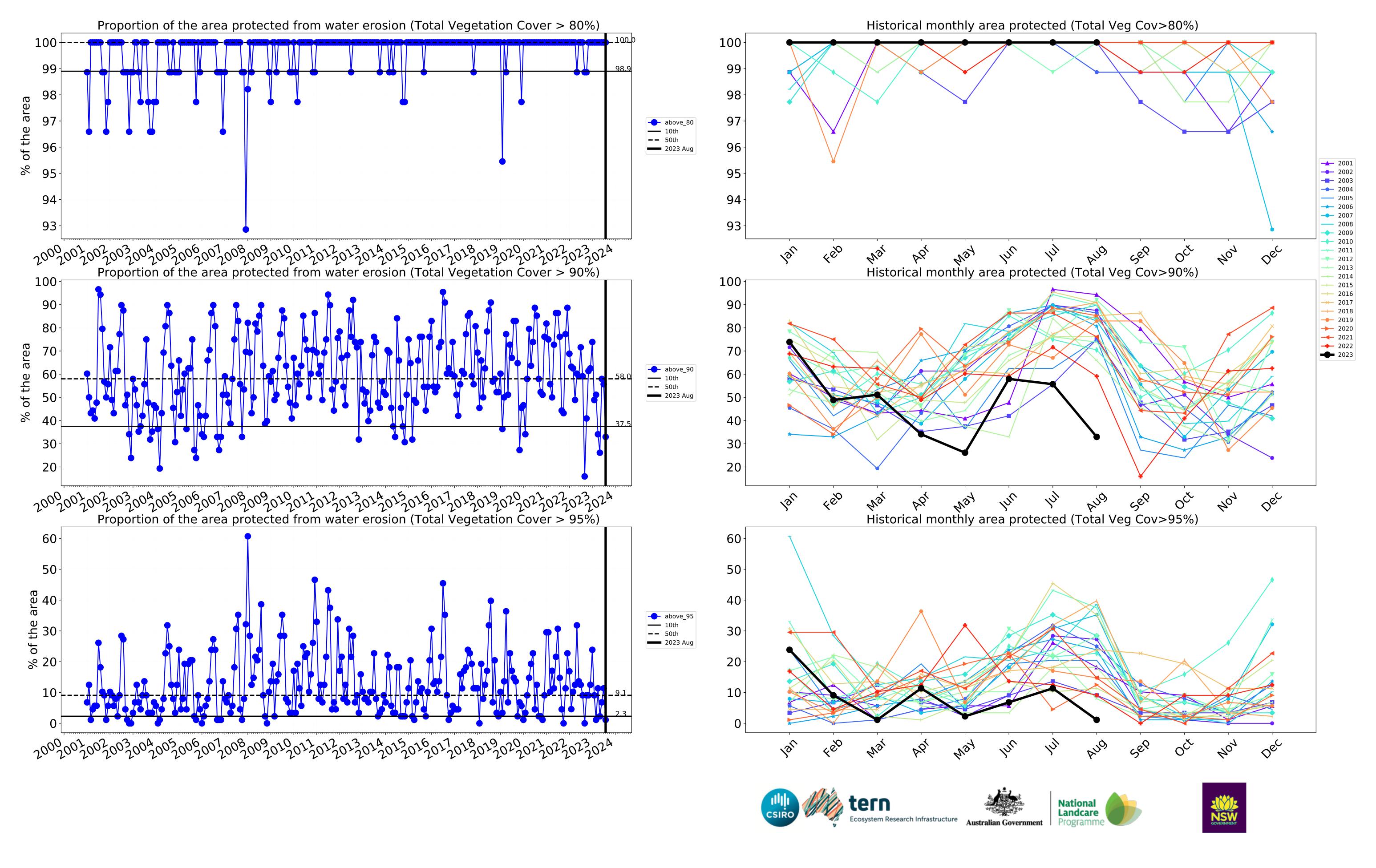




### **Horticulture timeseries**







## **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)

Anomaly show how many percetage points each

pixel is from

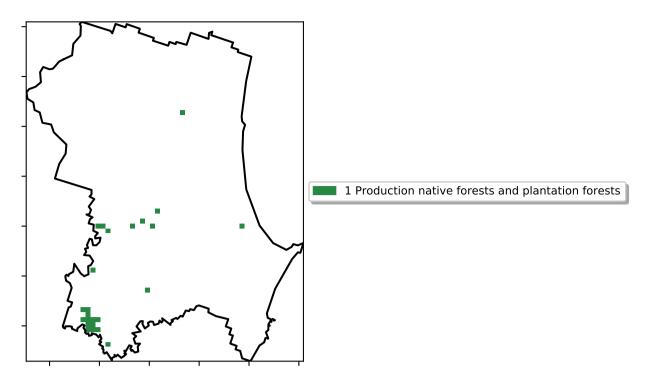
the mean. That is, red pixels

are about 20% lower than the mean of that

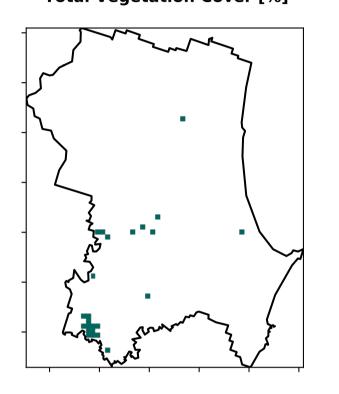
pixel. The mean

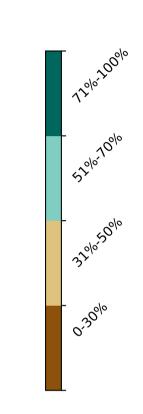
using baseline from 2001 to 2019.

is only for the month of the map

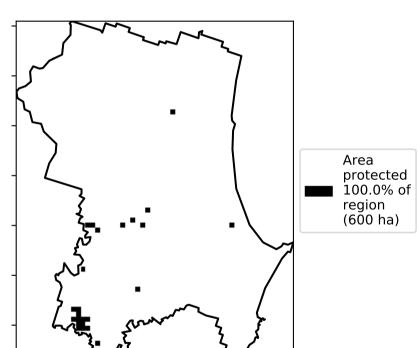


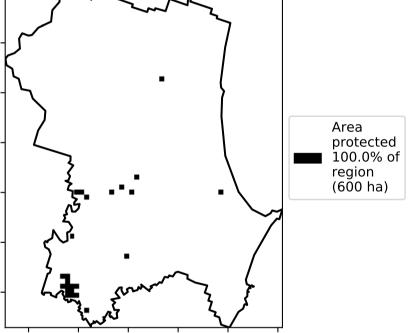
### **Total Vegetation Cover [%]**



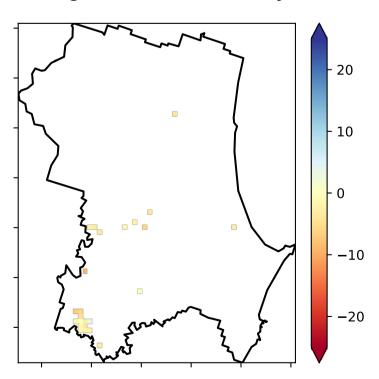


# % Area protected from water erosion (>70%)



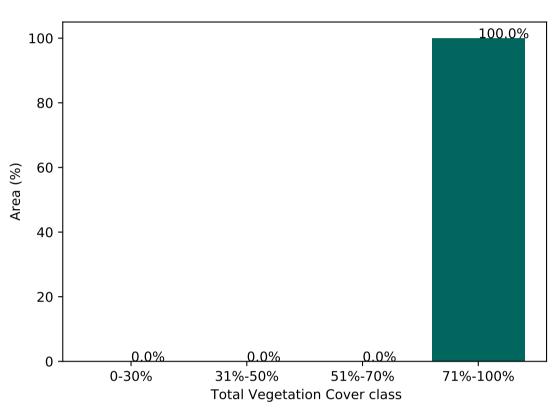


### **Total Vegetation Cover Anomaly [%]**

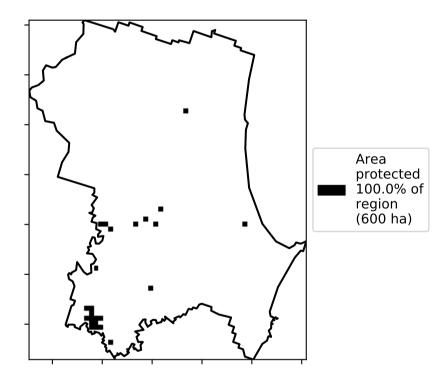


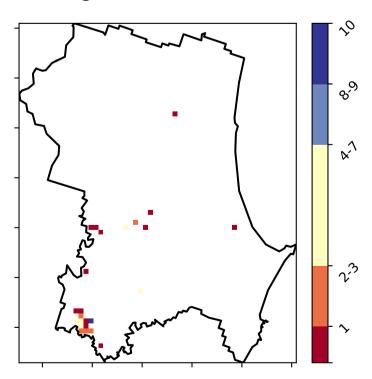
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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





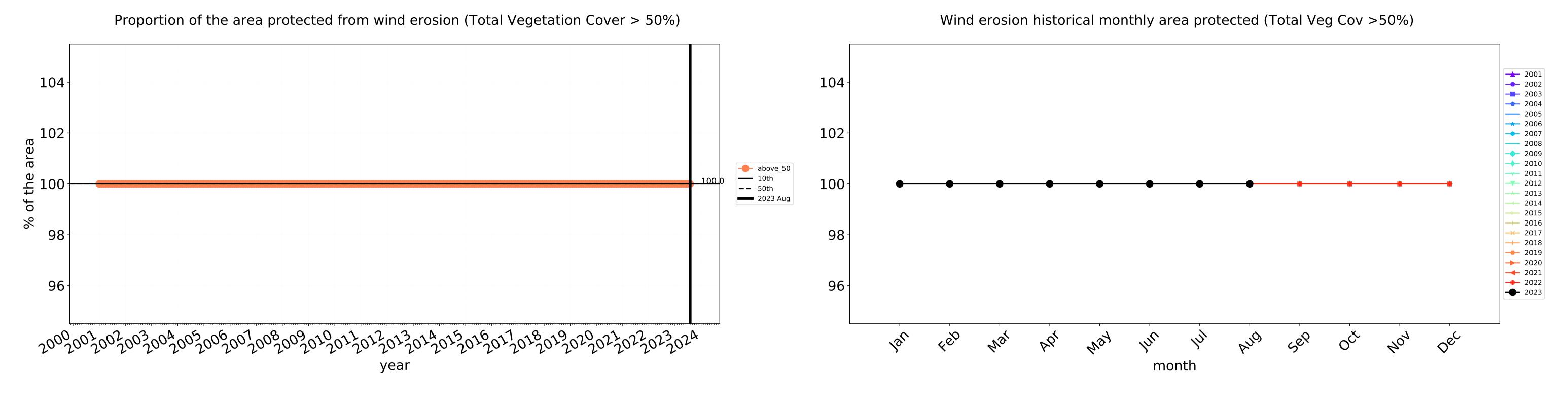


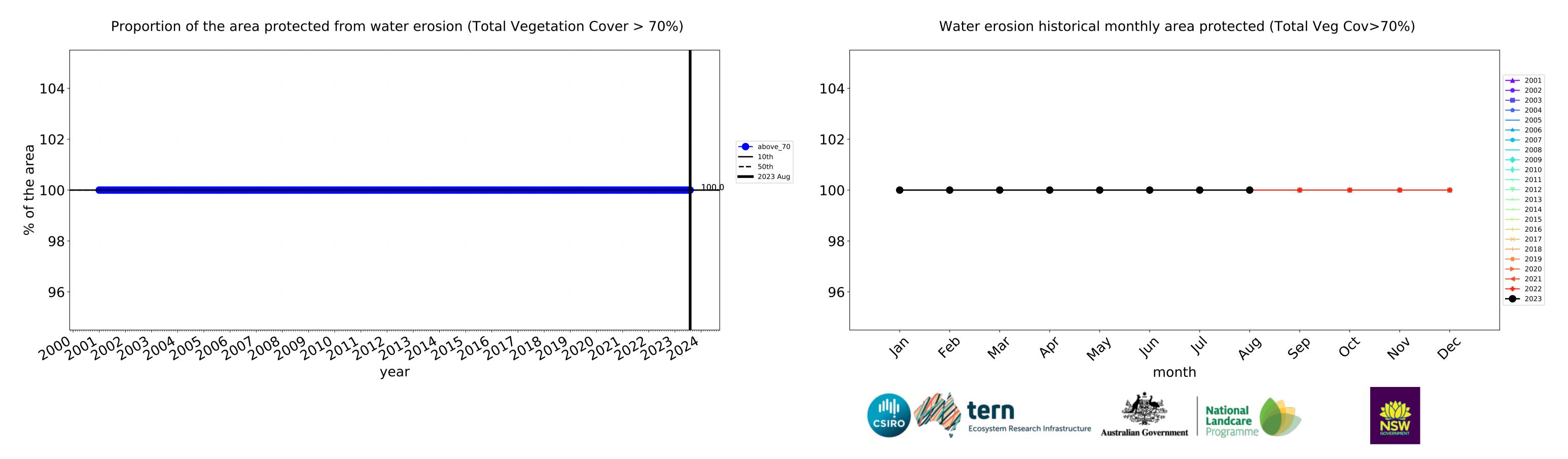


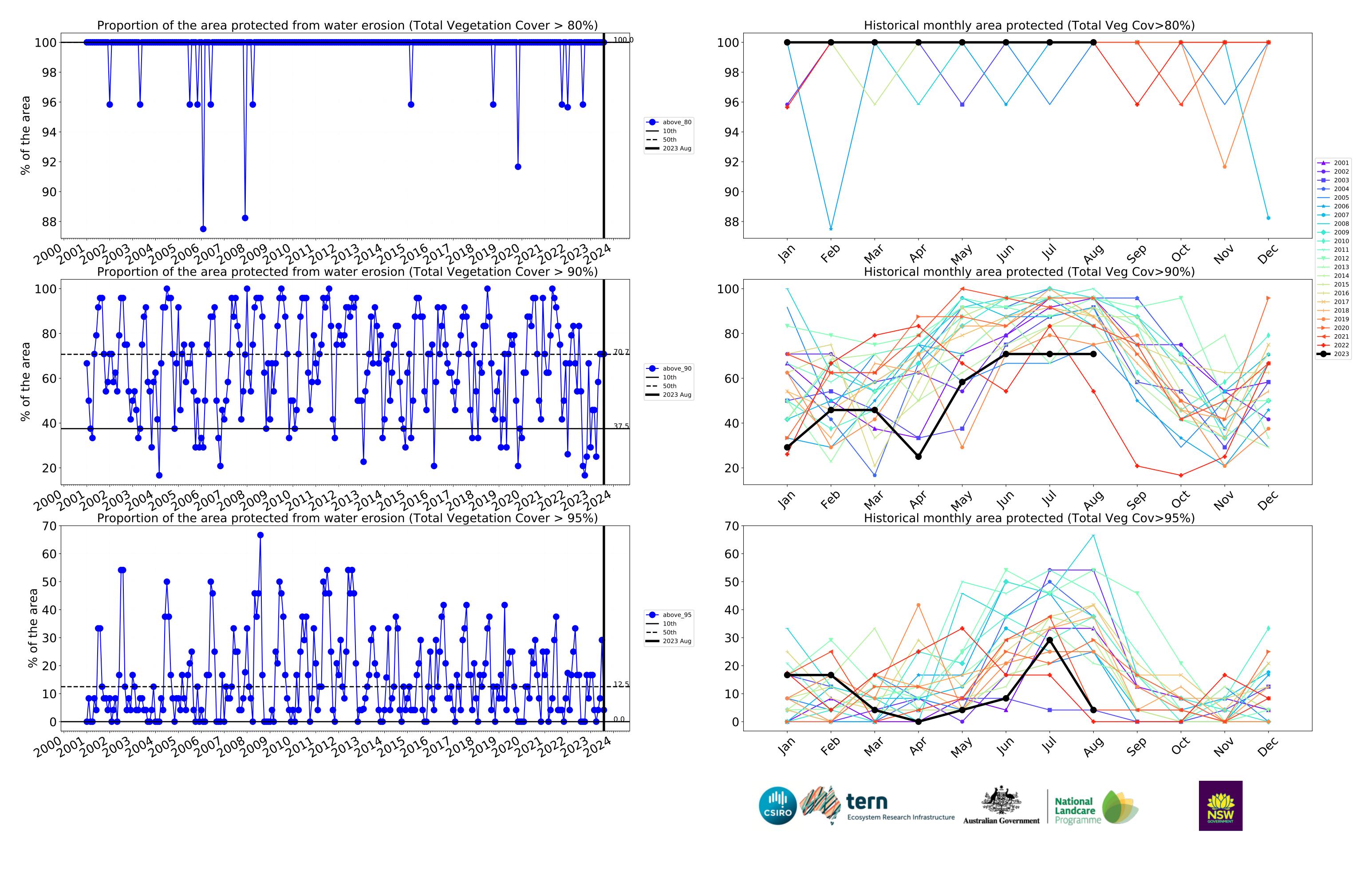




### **Production native forests and plantation forests timeseries**







# Byron\_(A) (56,325 ha and no data 370 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	56,325	100.0% 56,300	99.9% 56,250	98.8% 55,675	97.0% 54,625	67.1% 37,775	20.9% 11,775
Conservation and natural environments	11,250	99.8% 11,225	99.8% 11,225	97.3% 10,950	95.6% 10,750	82.4% 9,275	44.7% 5,025
Conservation and natural environments non forest	1,350	98.1% 1,325	98.1% 1,325	87.0% 1,175	79.6% 1,075	51.9% 700	5.6% 75
Conservation and natural environments Woodland forest	625	100.0% 625	100.0% 625	100.0% 625	100.0% 625	76.0% 475	16.0% 100
Conservation and natural environments Forest (non woodland)	9,275	100.0% 9,275	100.0% 9,275	98.7% 9,150	97.6% 9,050	87.3% 8,100	52.3% 4,850
Agriculture	33,725	100.0% 33,725	100.0% 33,725	99.9% 33,700	99.5% 33,550	67.2% 22,650	16.7% 5,625
Grazing	30,325	100.0% 30,325	100.0% 30,325	99.9% 30,300	99.4% 30,150	69.7% 21,150	17.7% 5,375
Grazing non forest	24,725	100.0% 24,725	100.0% 24,725	99.9% 24,700	99.3% 24,550	67.3% 16,650	16.1% 3,975
Grazing Woodland forest	2,600	100.0% 2,600	100.0% 2,600	100.0% 2,600	100.0% 2,600	69.2% 1,800	13.5% 350
Grazing - Forest (non woodland)	3,000	100.0% 3,000	100.0% 3,000	100.0% 3,000	100.0% 3,000	90.0% 2,700	35.0% 1,050
Cropping	1,175	100.0% 1,175	100.0% 1,175	100.0% 1,175	100.0% 1,175	66.0% 775	19.1% 225
Horticulture	2,200	100.0% 2,200	100.0% 2,200	100.0% 2,200	100.0% 2,200	33.0% 725	1.1% 25
Production native forests and plantation forests	600	100.0% 600	100.0% 600	100.0% 600	100.0% 600	70.8% 425	4.2% 25







