# Total vegetation cover soil protection Region:NRM West Gippsland VIC

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. 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













**Date: December 2013** 

### **Vegetation Cover Dec 2013**

### Land use and forest cover

Catchment Scale

of Australia (2018)

(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

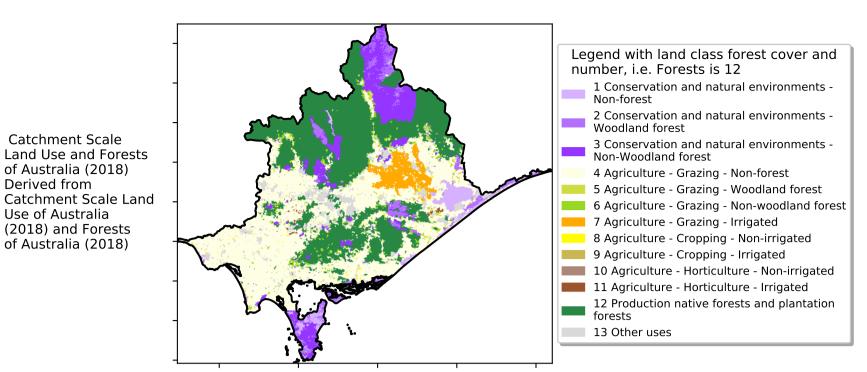
using baseline from 2001 to

2019.

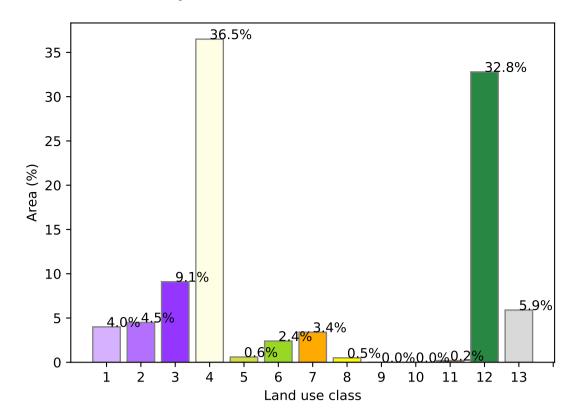
month of the map

Derived from

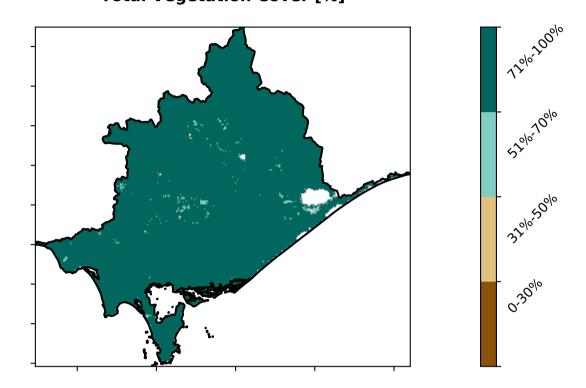
Use of Australia



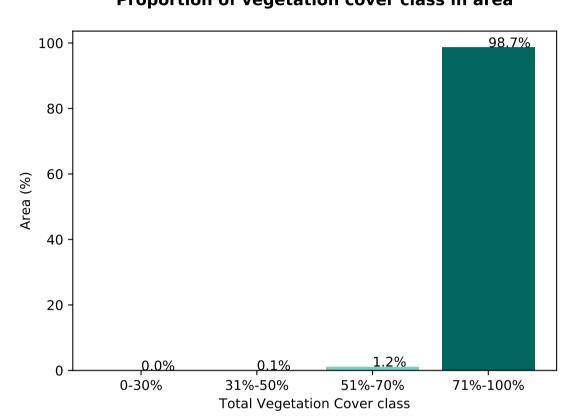
### Proportion of each land class in area

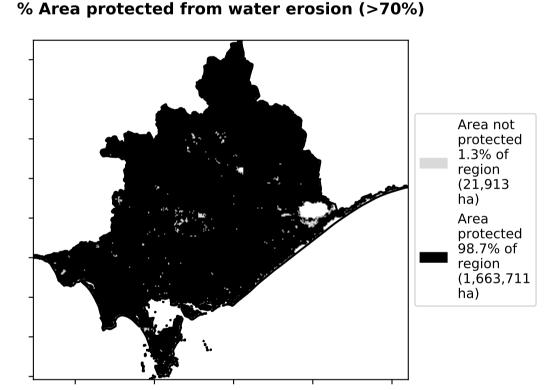


### **Total Vegetation Cover [%]**

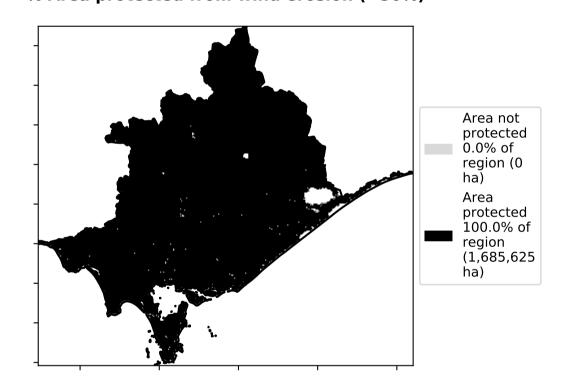


**Proportion of vegetation cover class in area** 

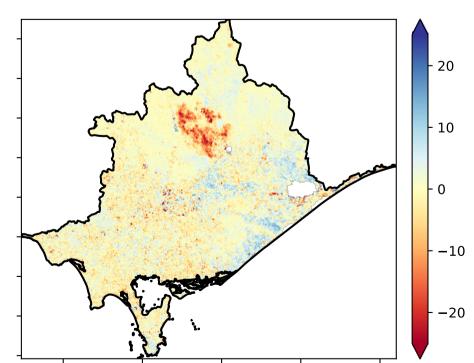




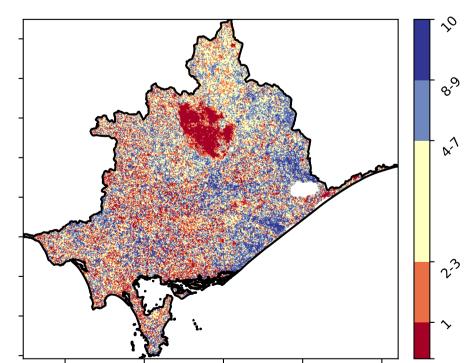
% Area protected from wind erosion (>50%)



### **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.





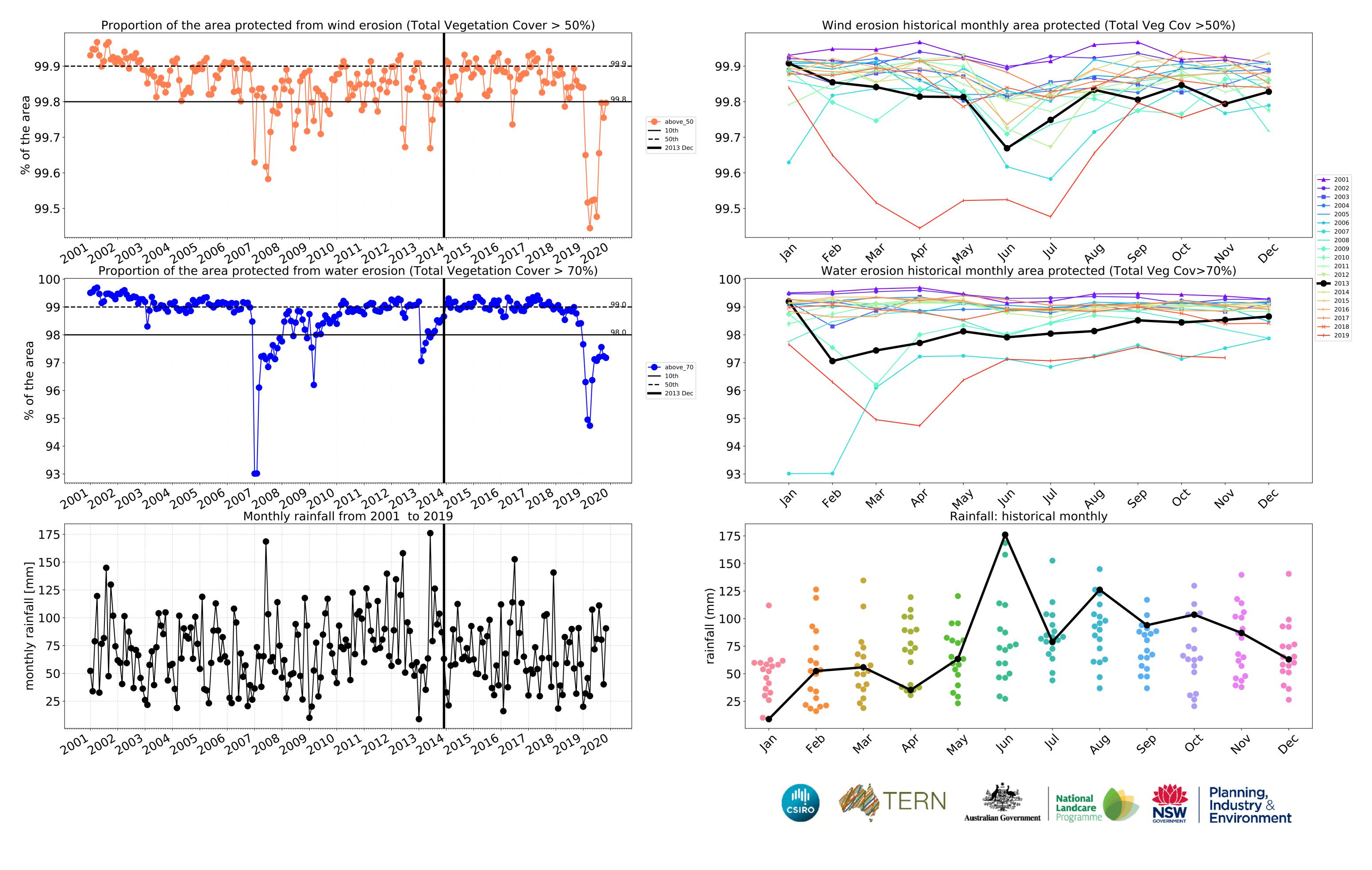




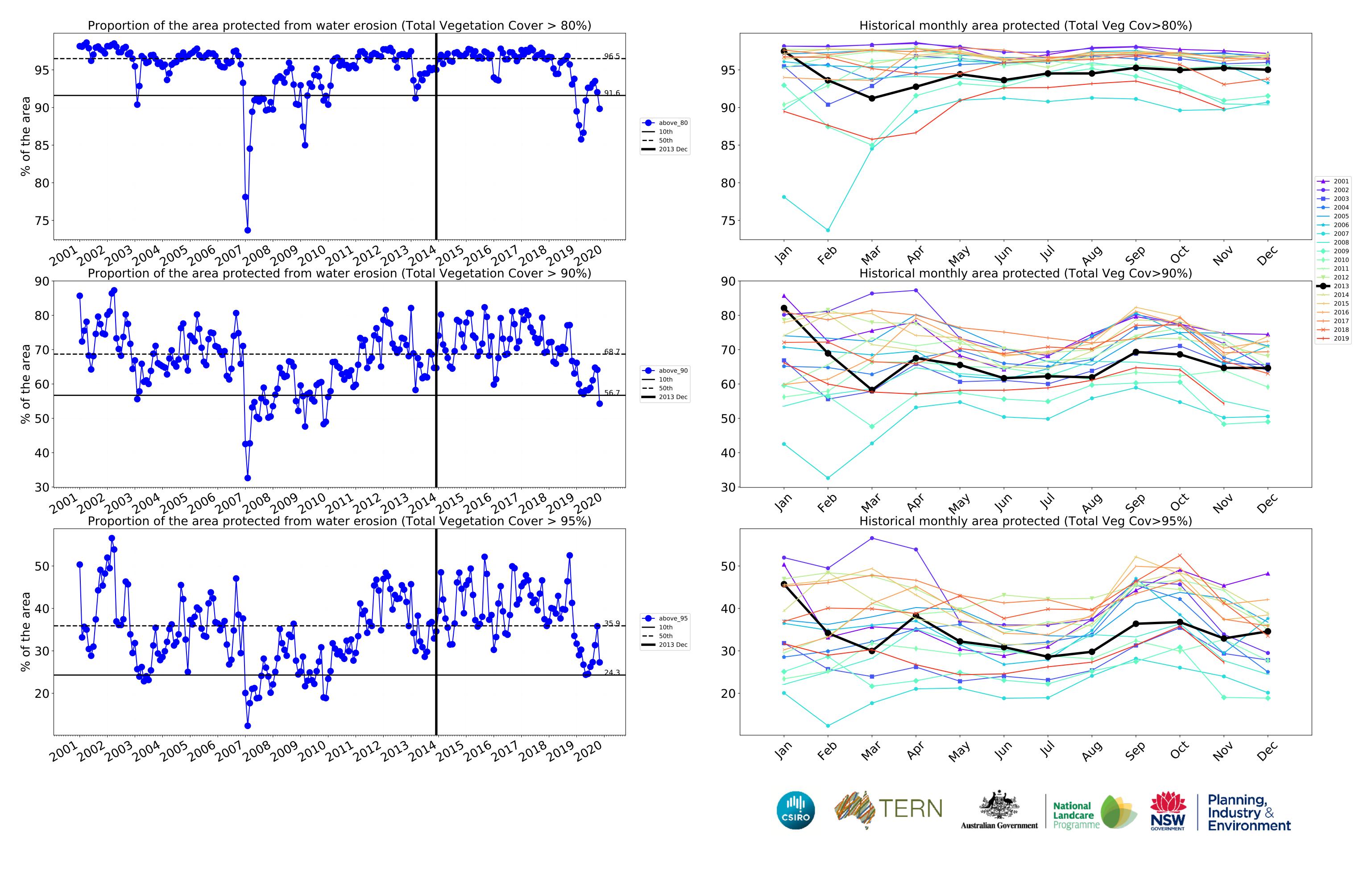








.

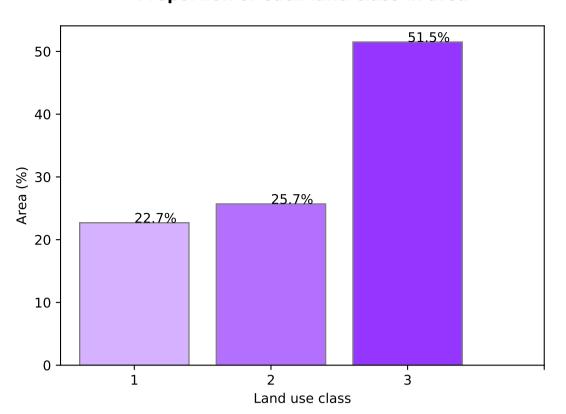


### **Conservation and natural environments**

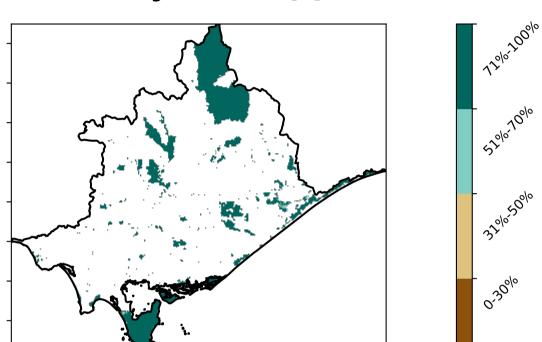
# Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) Of Australia (2018)

**Land use and forest cover** 

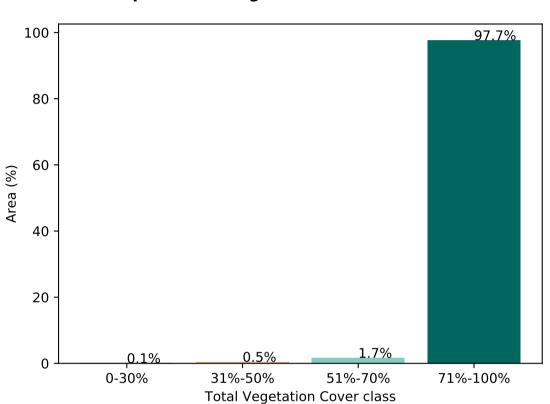
### Proportion of each land class in area



**Total Vegetation Cover [%]** 



Proportion of vegetation cover class in area

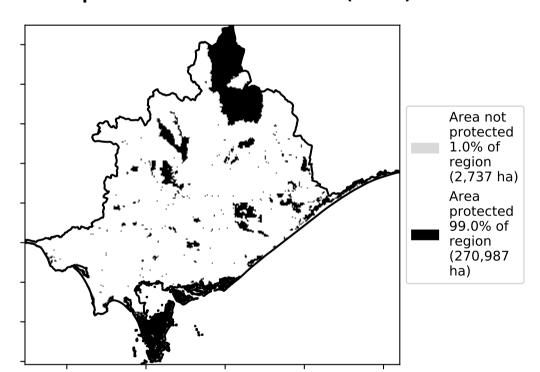


### % Area protected from water erosion (>70%)

Area not protected 2.3% of region (6,295 ha)

Area protected 97.7% of region (267,429 ha)

% 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

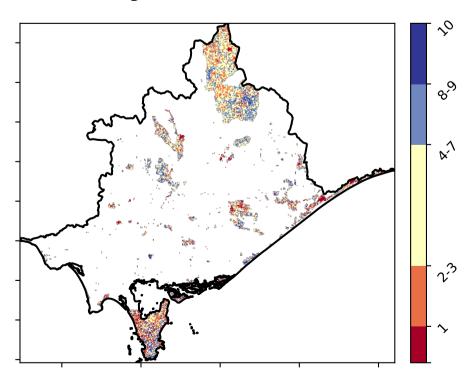
mean of that pixel. The mean

is only for the month of the map

using baseline from 2001 to 2019.

-20 -10 --10 --20

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.







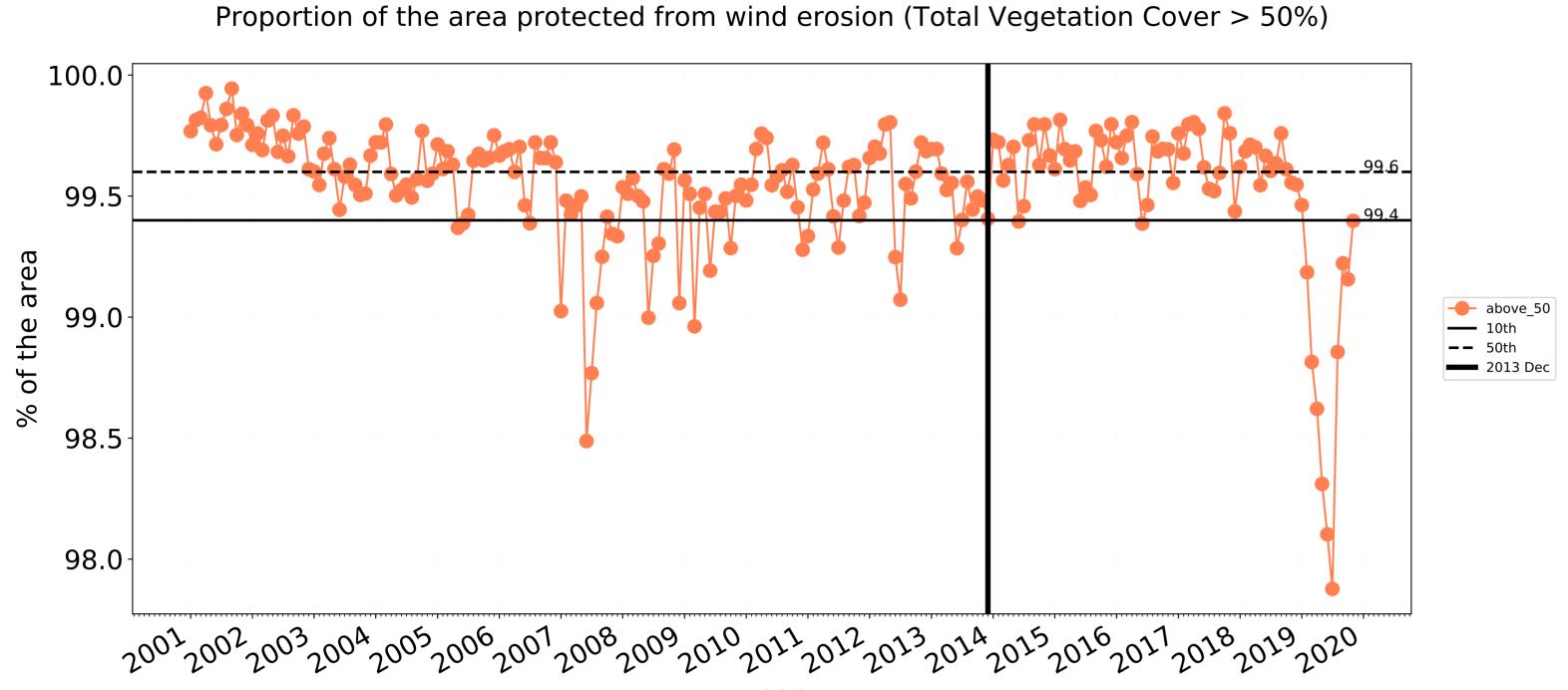


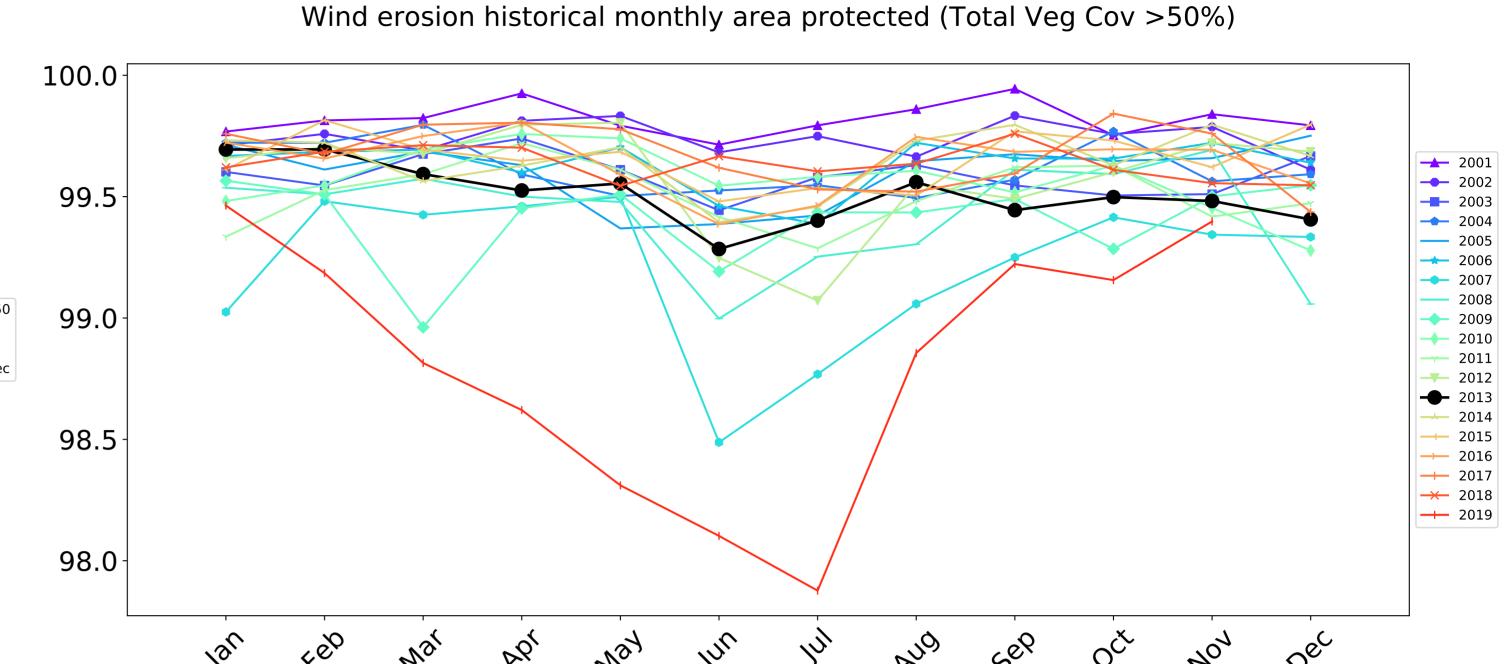




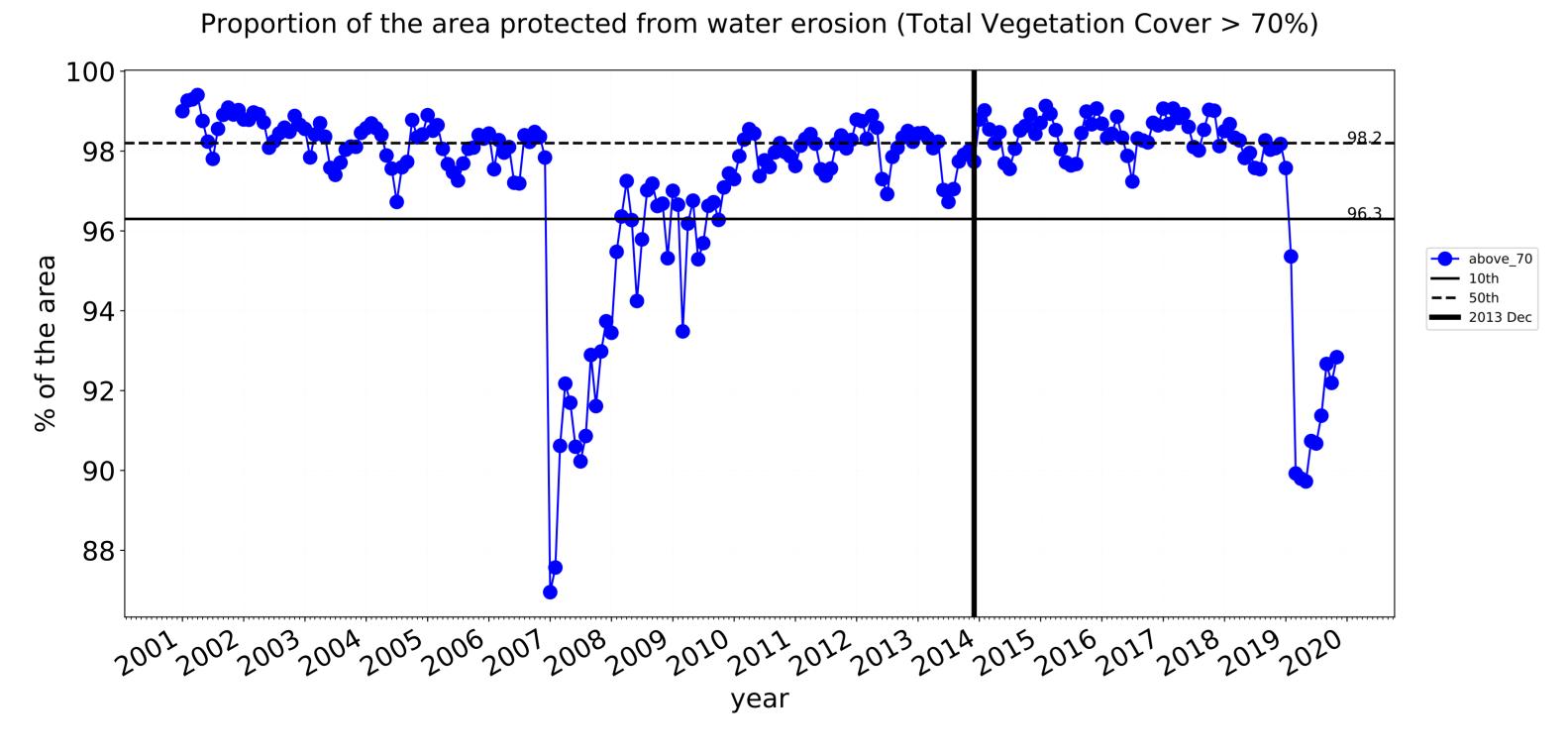


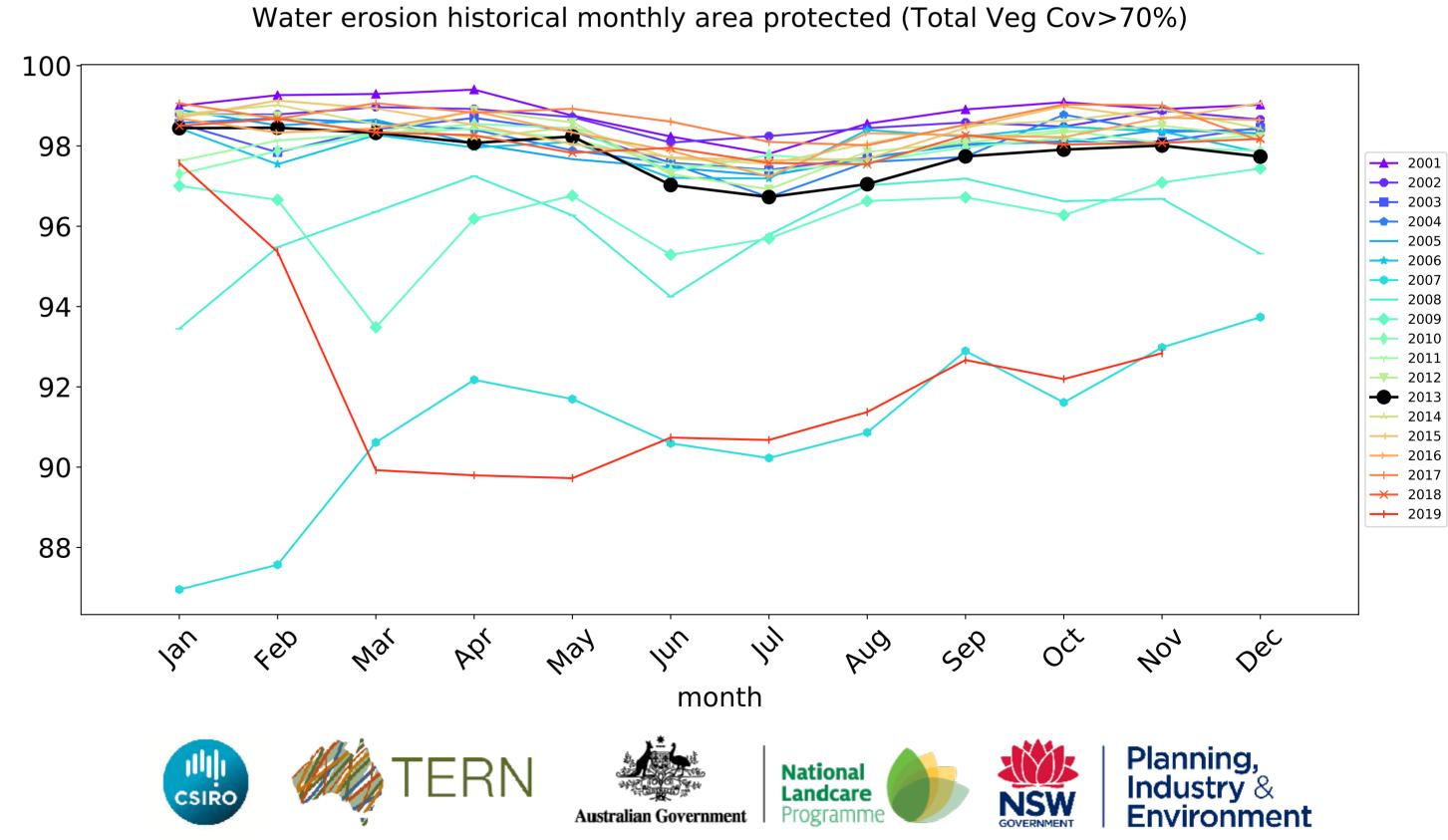
### **Conservation and natural environments timeseries**

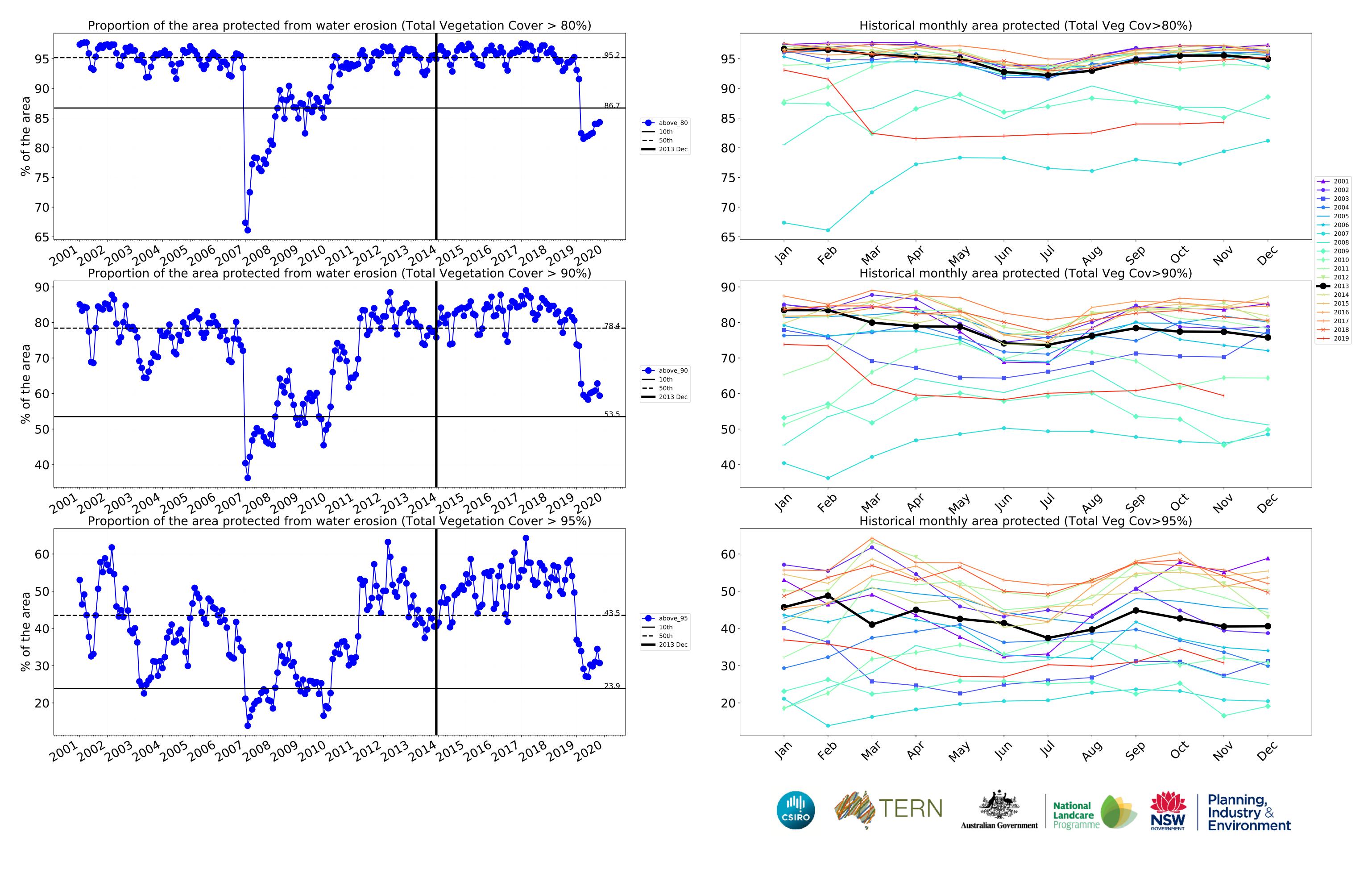




month







### **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

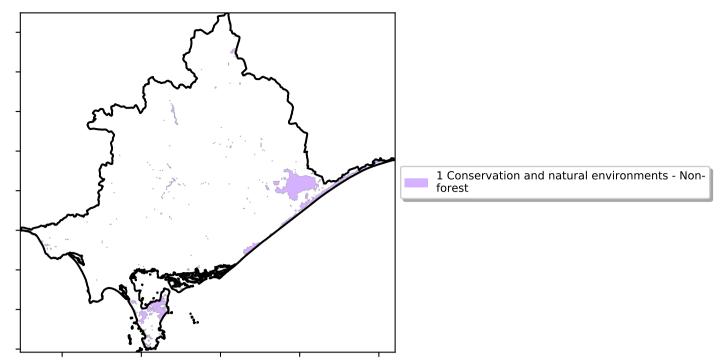
pixel is from

mean of that pixel. The mean

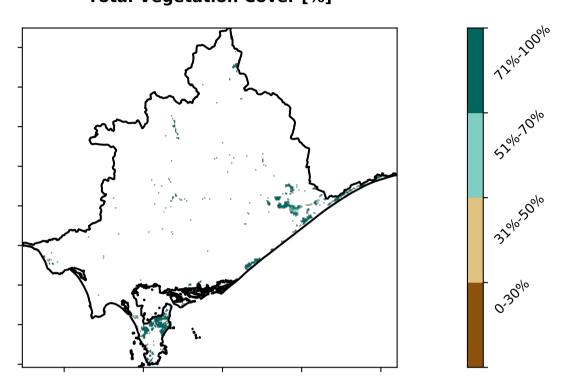
is only for the month of the map

using baseline from 2001 to 2019.

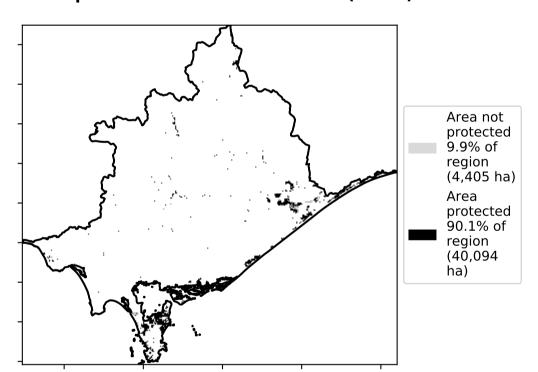
the mean. That is, red pixels are about 20% lower than the



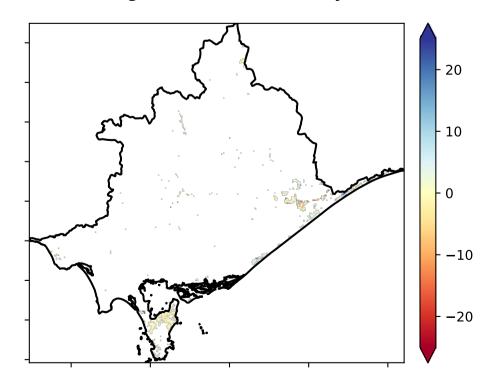
### **Total Vegetation Cover [%]**



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

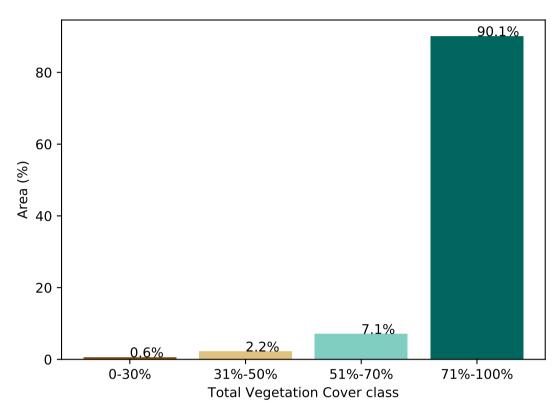


### Total Vegetation Cover Anomaly [%]

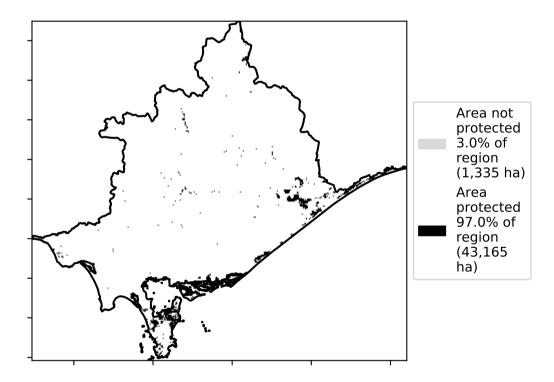


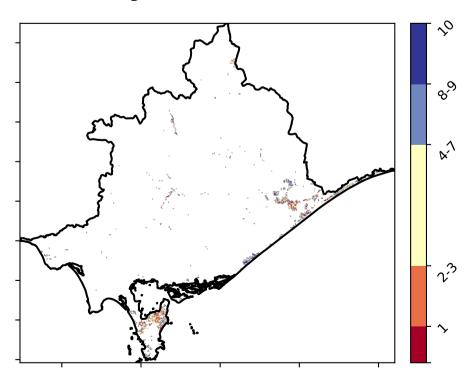
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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











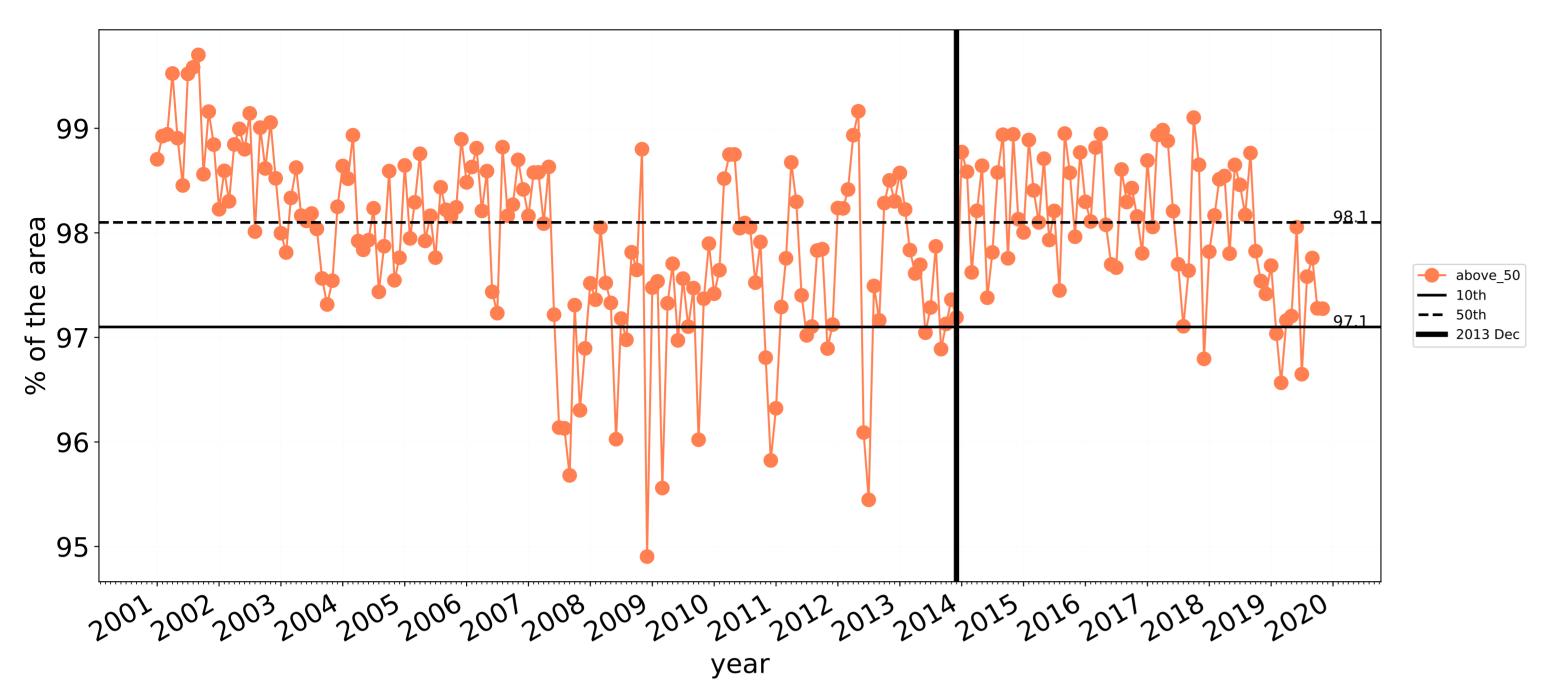




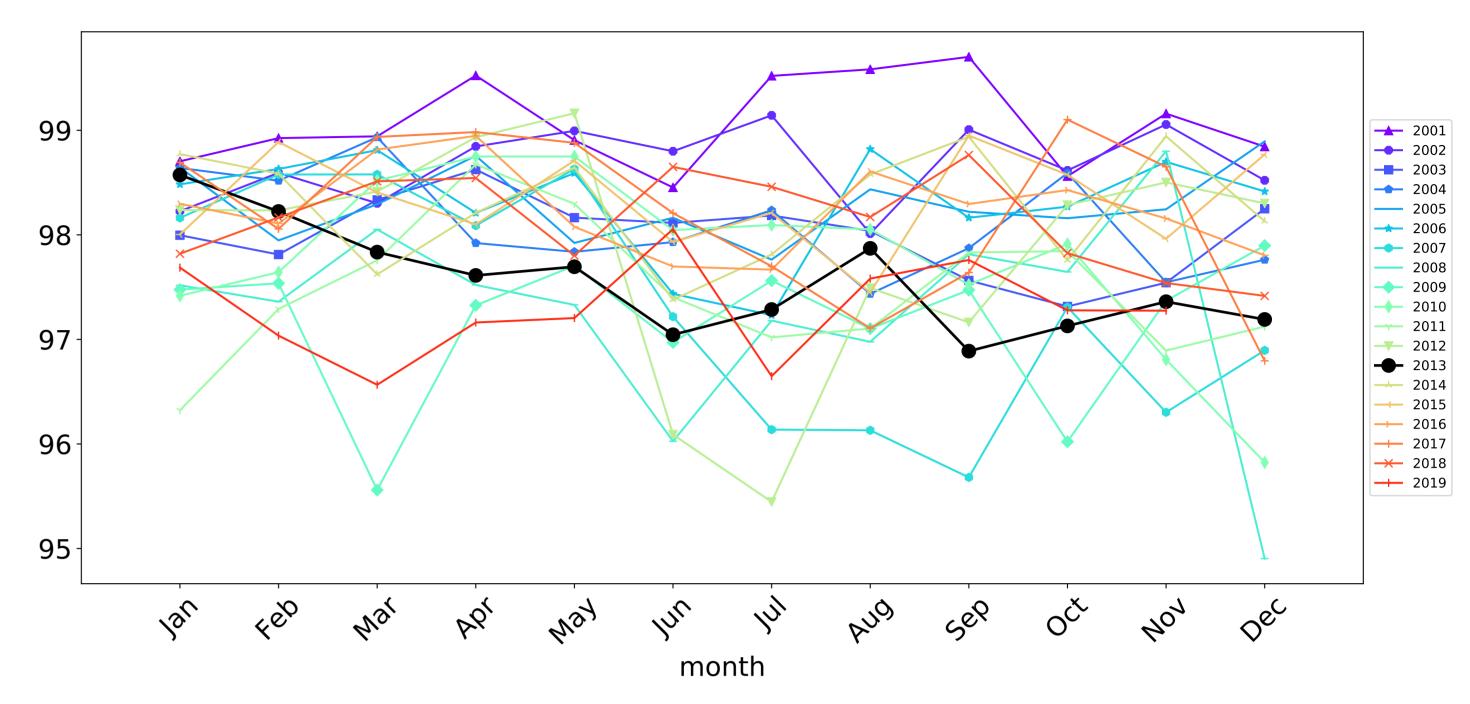


### Conservation and natural environments non forest timeseries

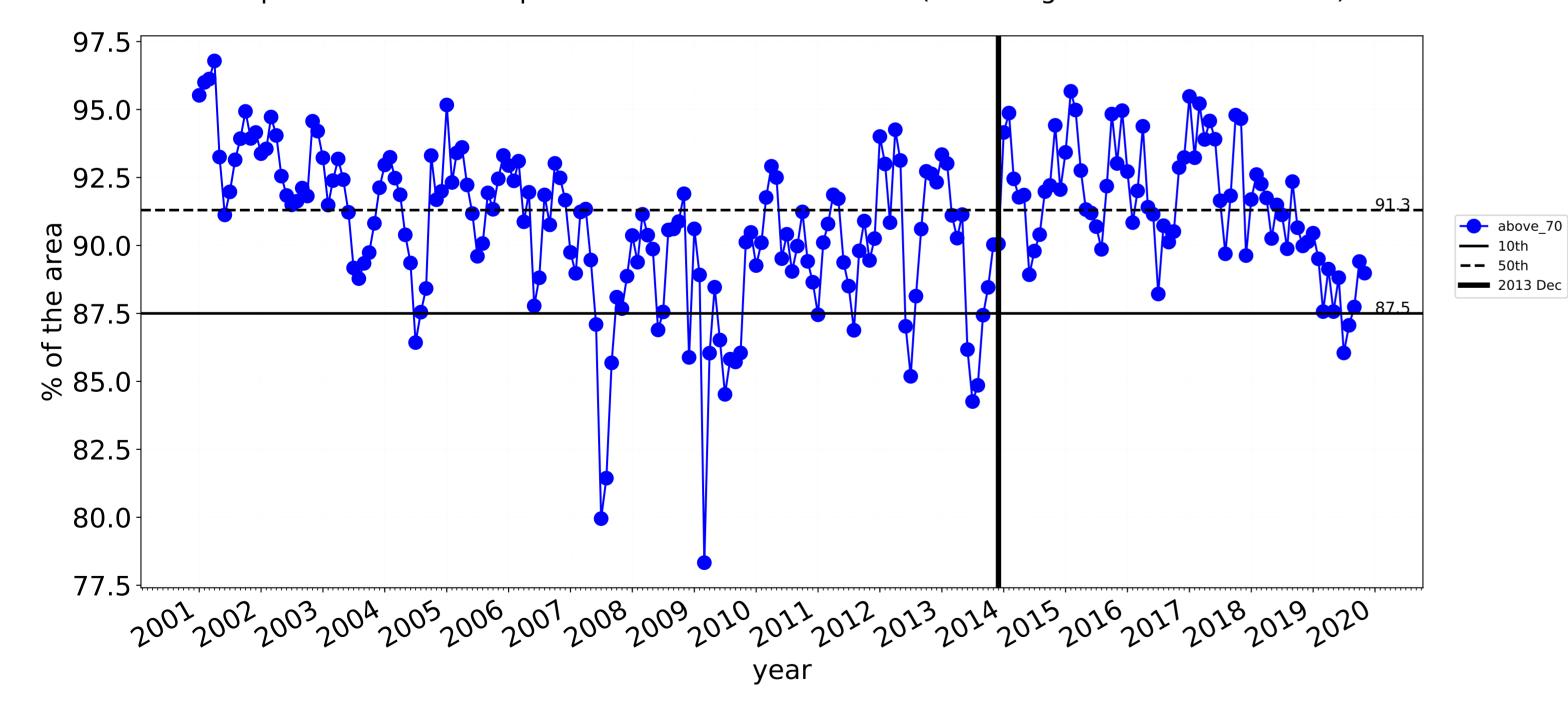




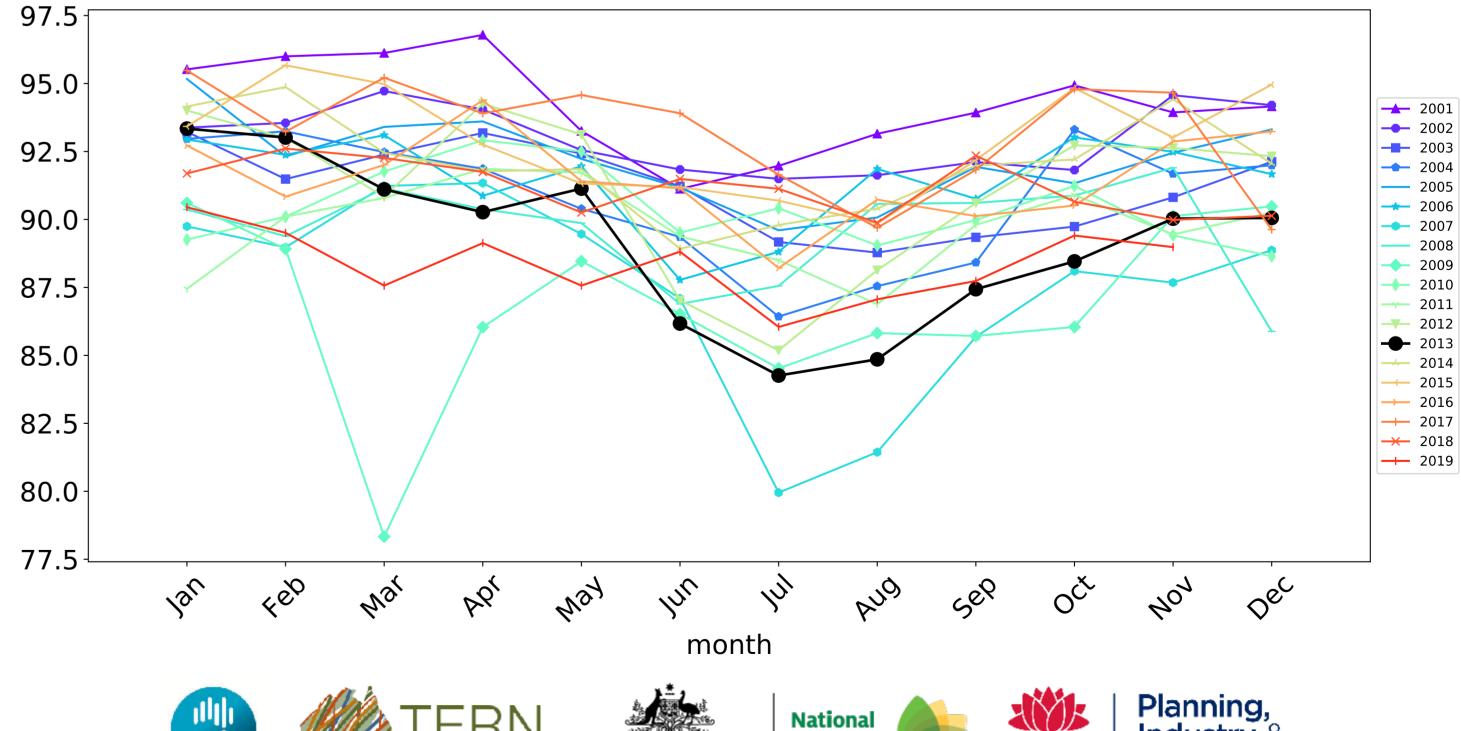
### Wind erosion historical monthly area protected (Total Veg Cov >50%)







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





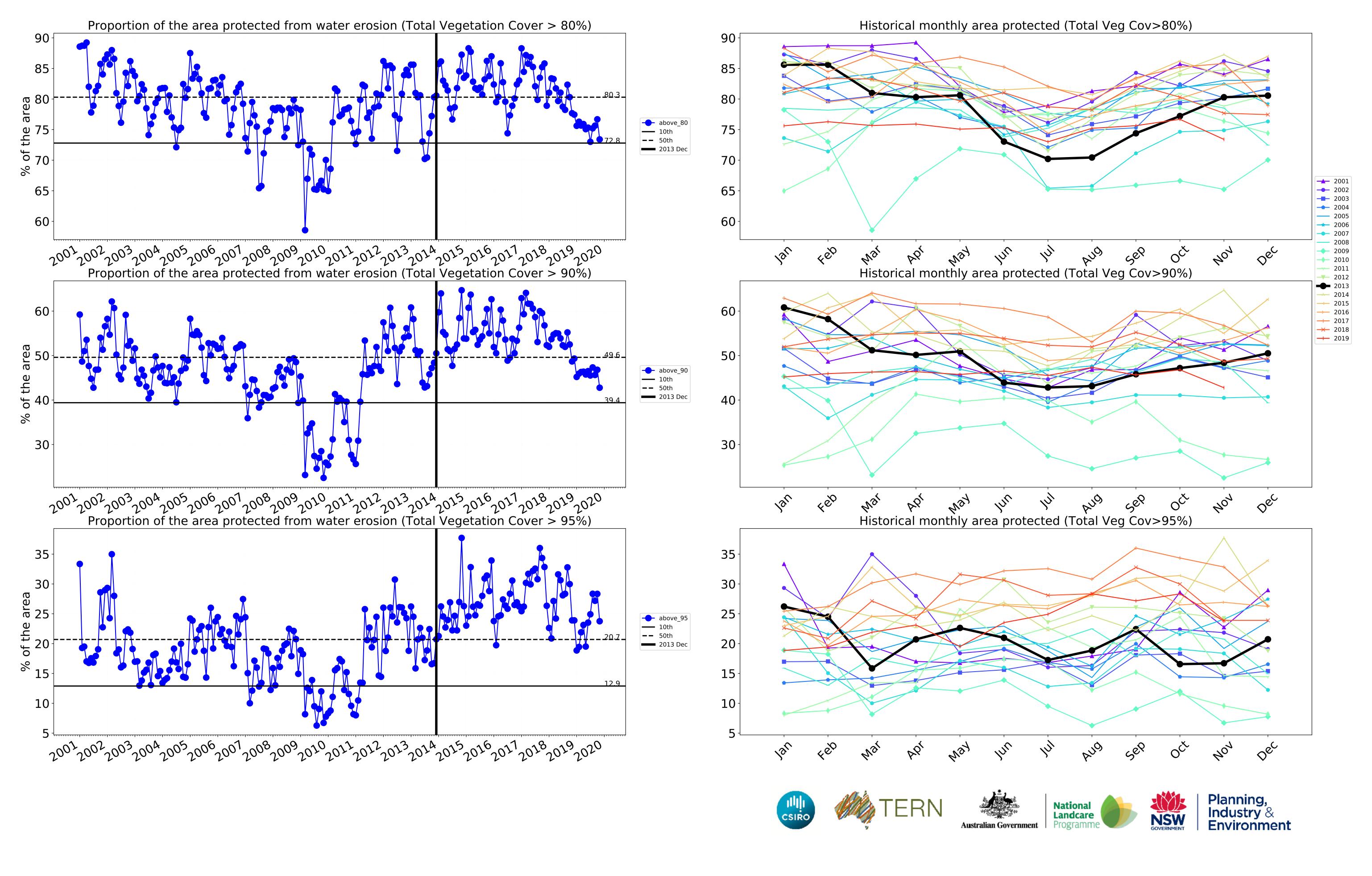












### **Conservation and natural environments Woodland forest**

### 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)

Anomaly show how many percetage points each

pixel is from

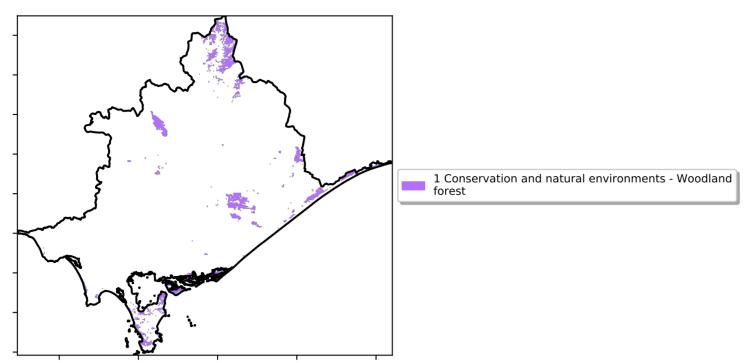
is, red pixels are about 20% lower than the mean of that

the mean. That

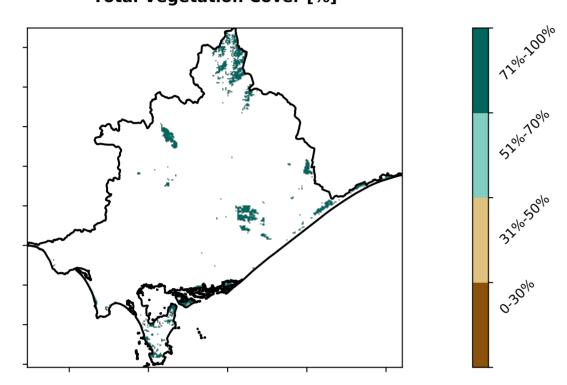
pixel. The mean

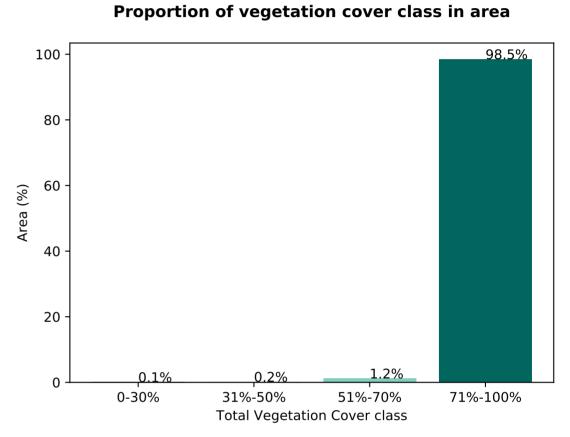
using baseline from 2001 to 2019.

is only for the month of the map

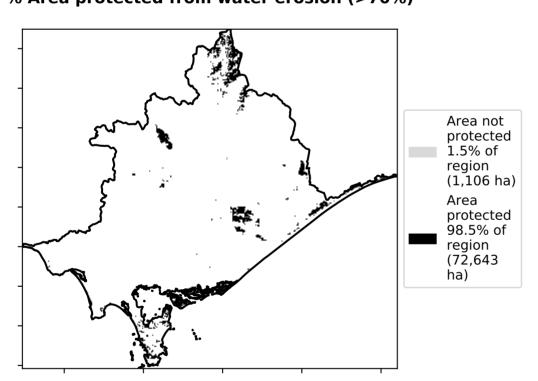


### **Total Vegetation Cover [%]**

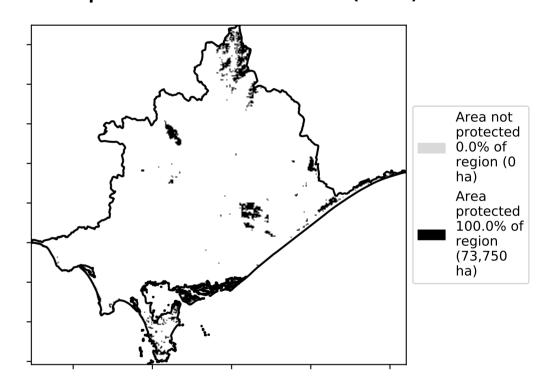




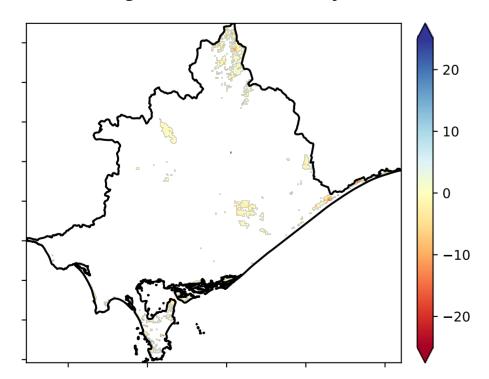
### % Area protected from water erosion (>70%)



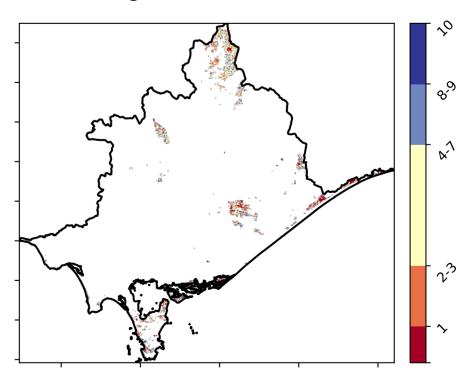
% Area protected from wind erosion (>50%)



### 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.





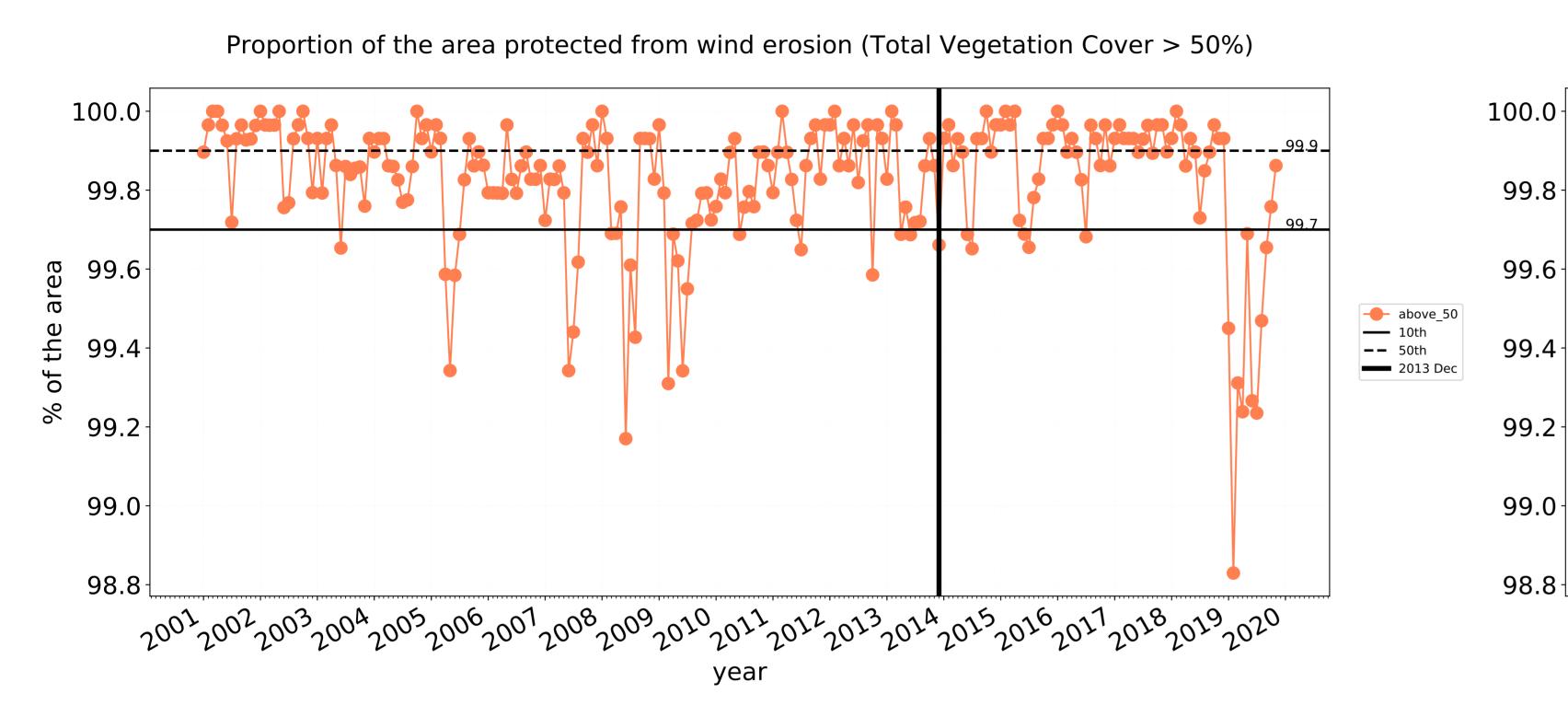


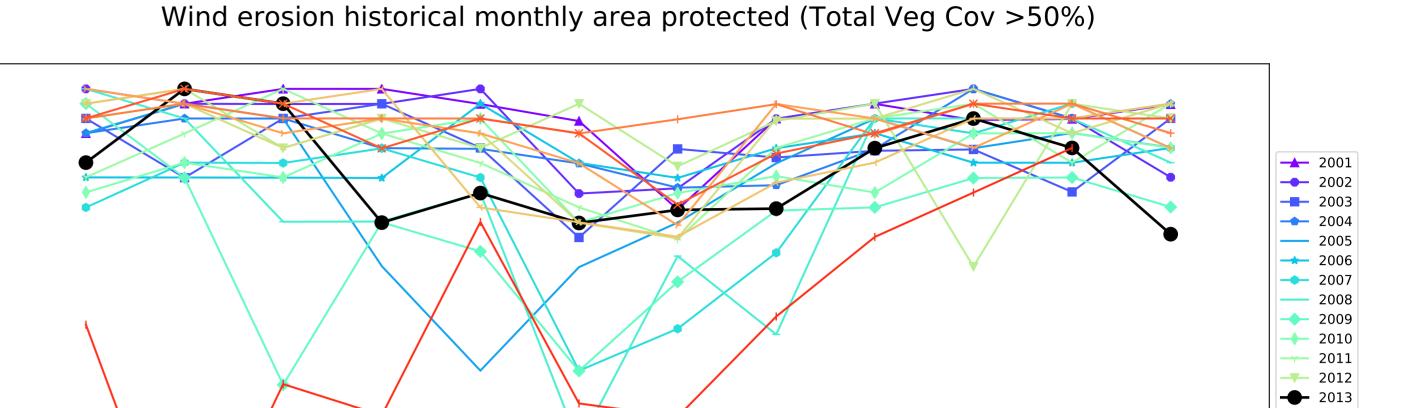






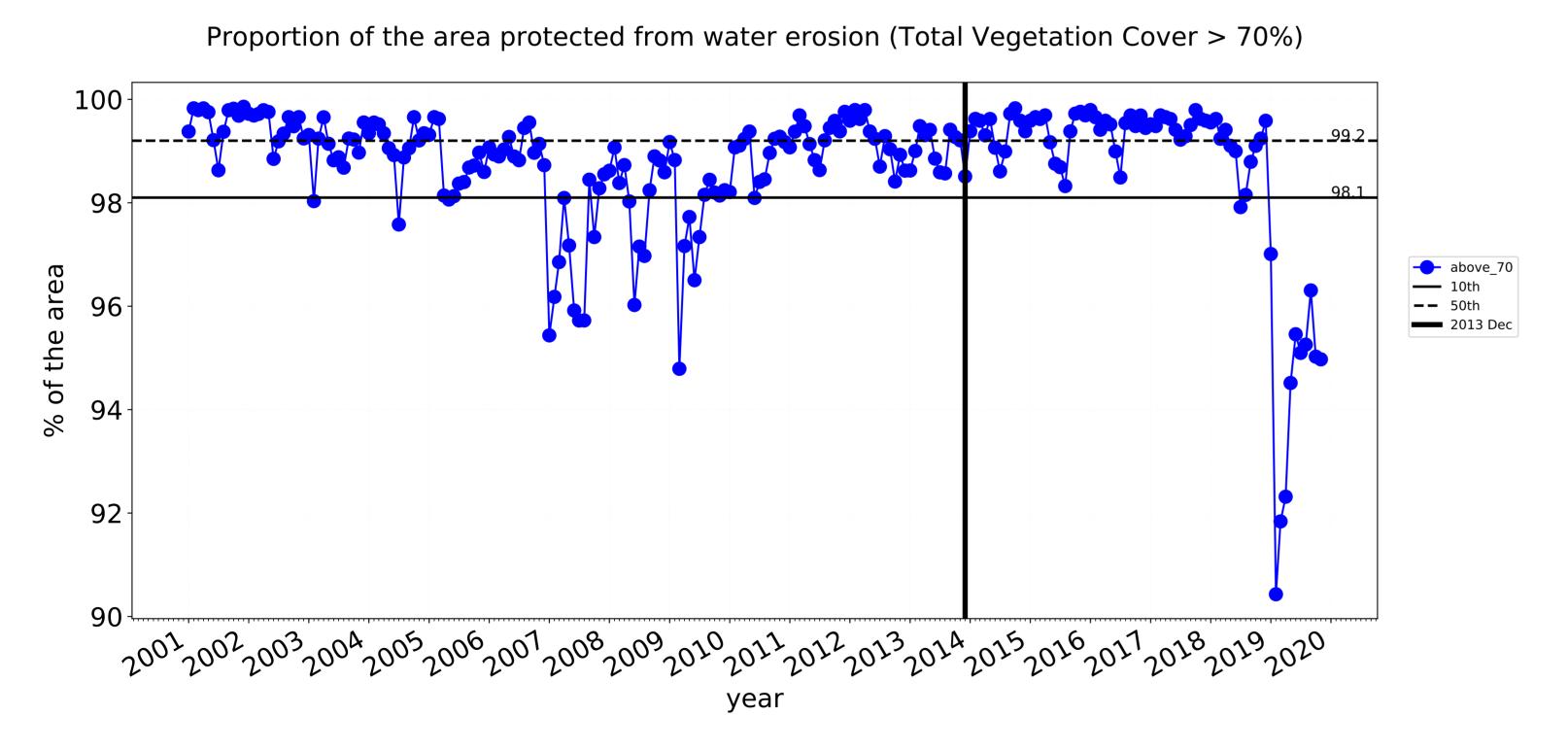


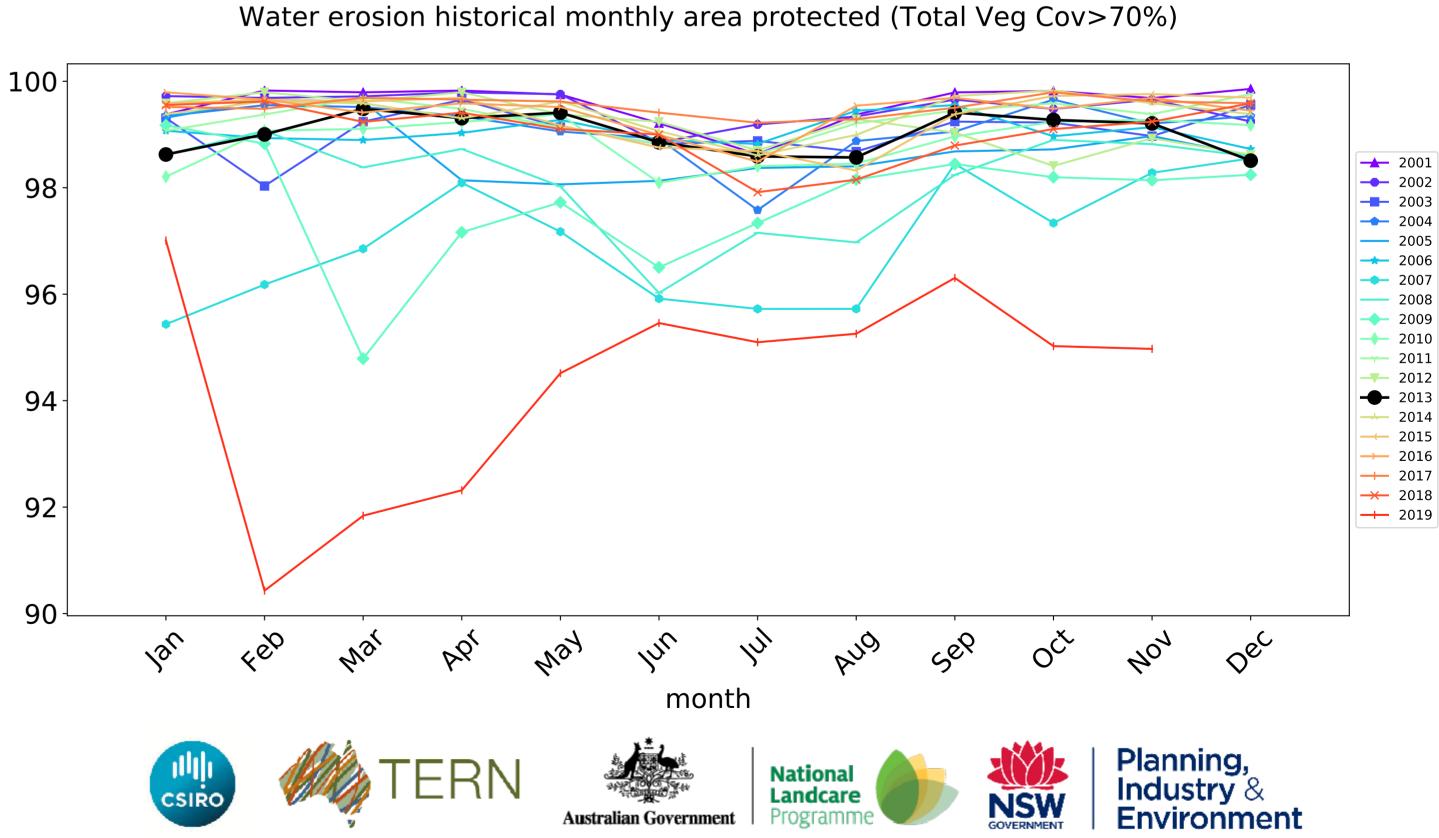




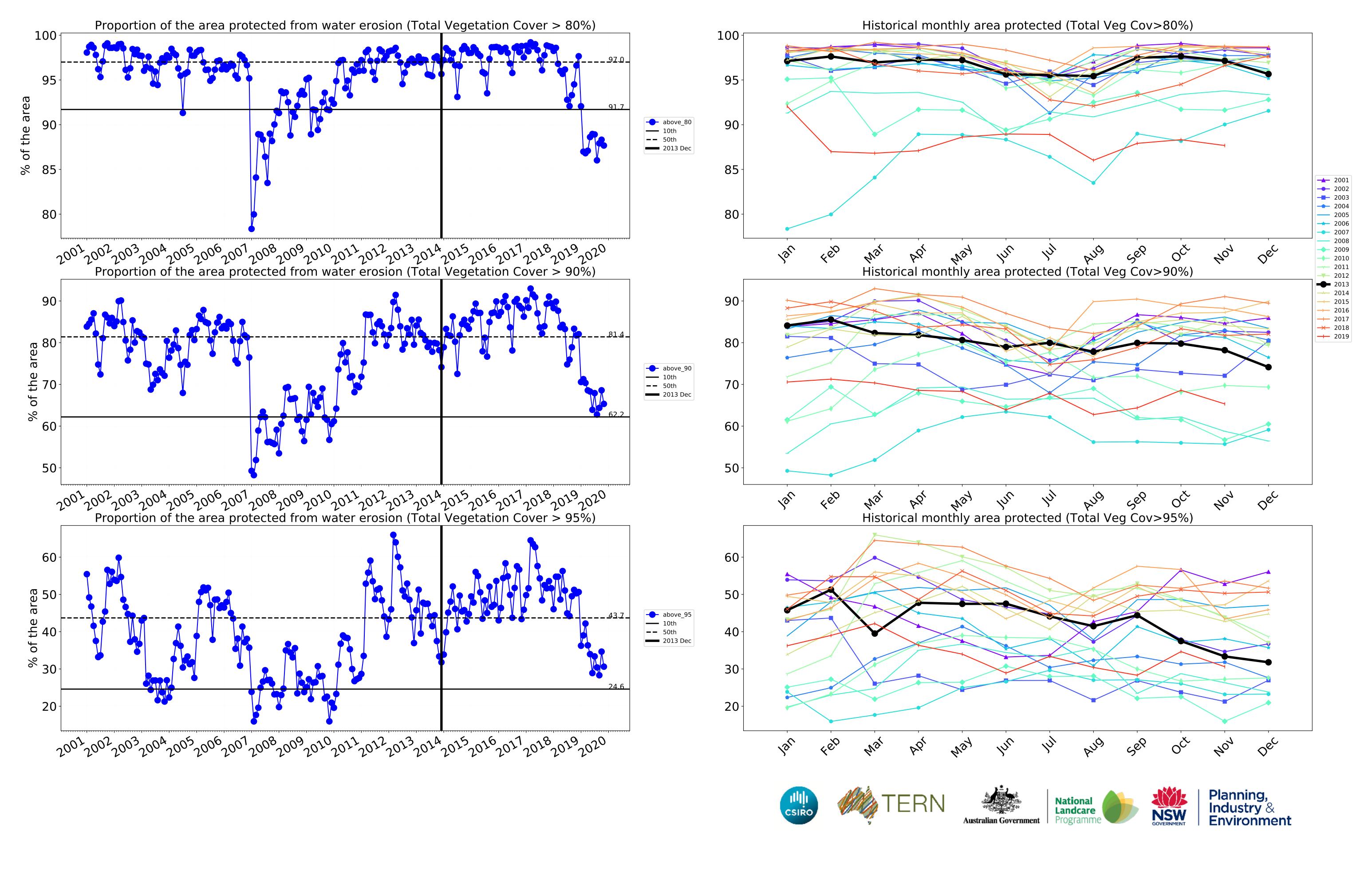
2015
 2016
 2017
 2018

→ 2019





month



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

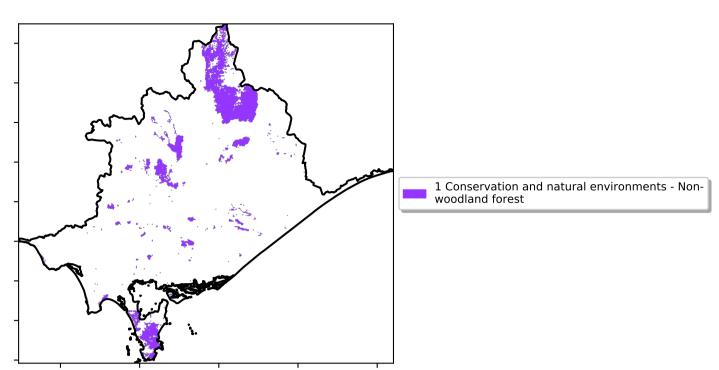
### Land use and forest cover

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

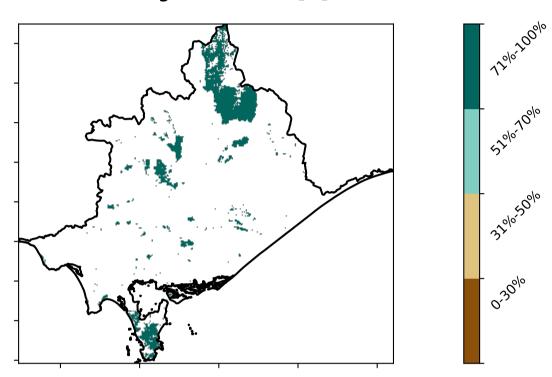
Anomaly show how many percetage points each pixel is from the mean. That

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

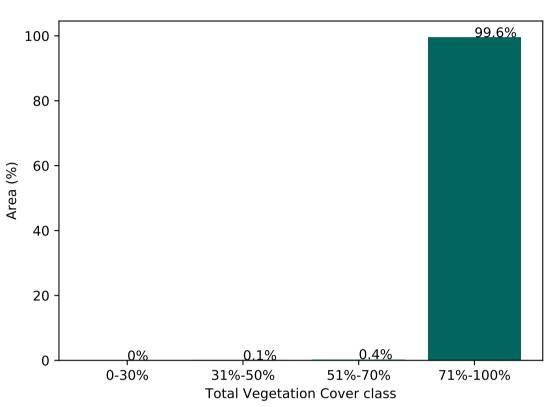
is, red pixels are about 20% lower than the mean of that



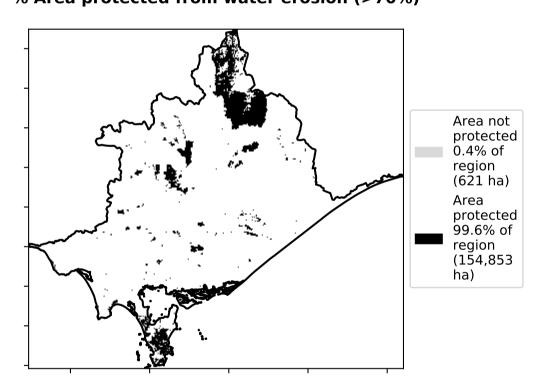
### **Total Vegetation Cover [%]**



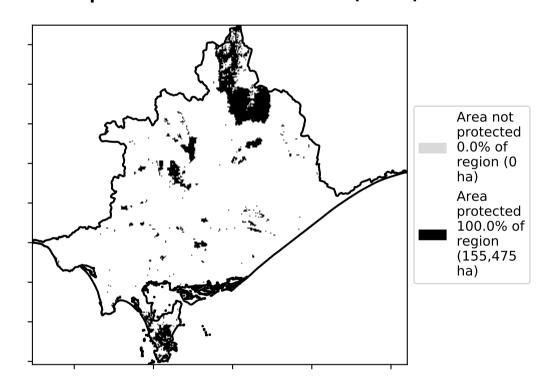
### Proportion of vegetation cover class in area



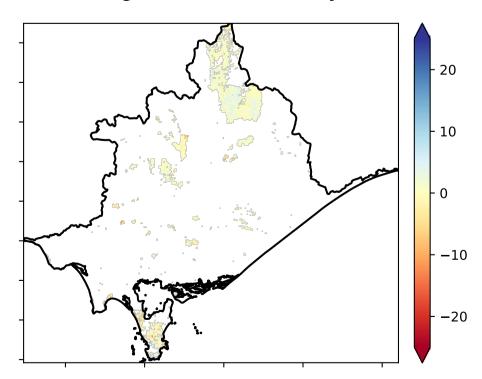
### % Area protected from water erosion (>70%)



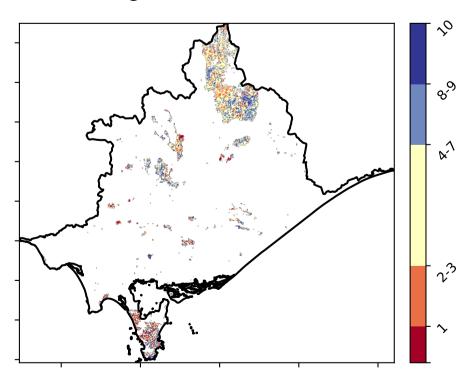
% Area protected from wind erosion (>50%)



### **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.





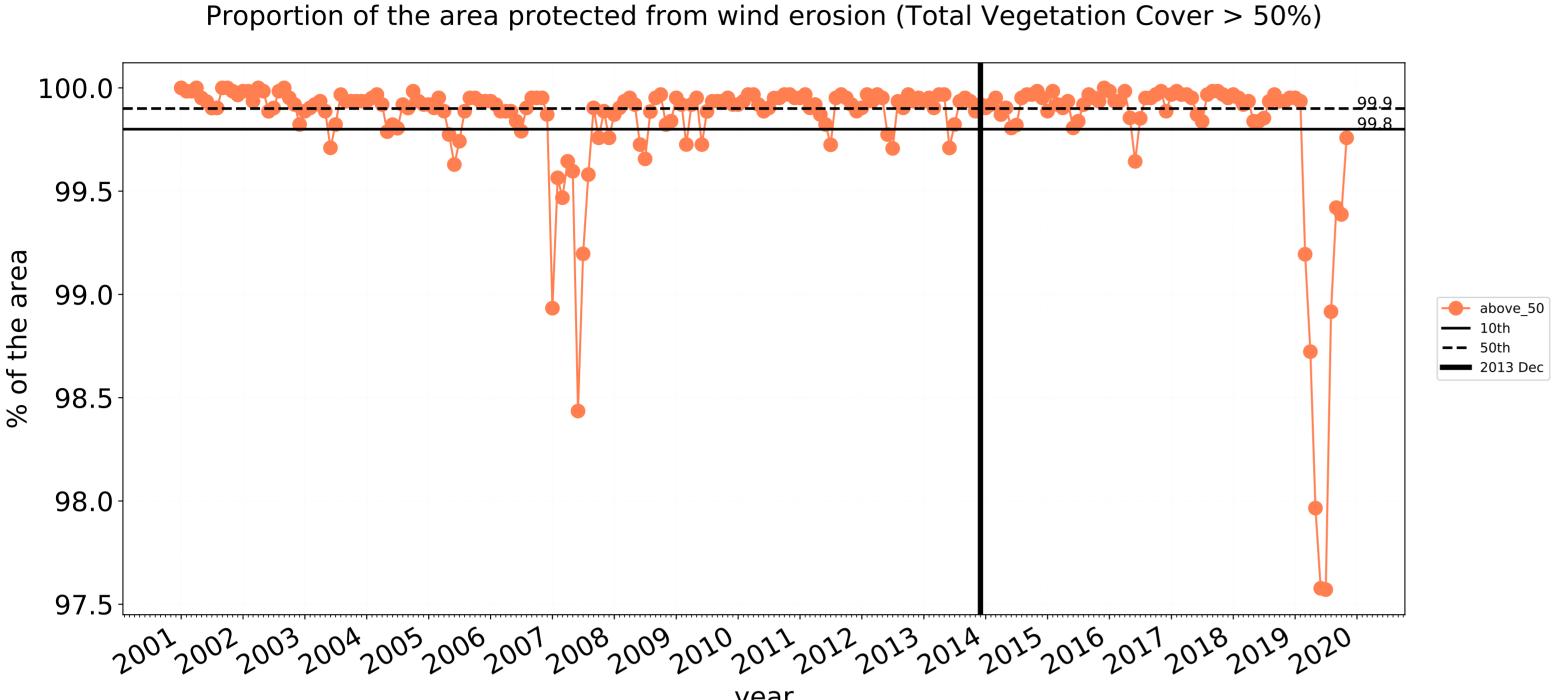


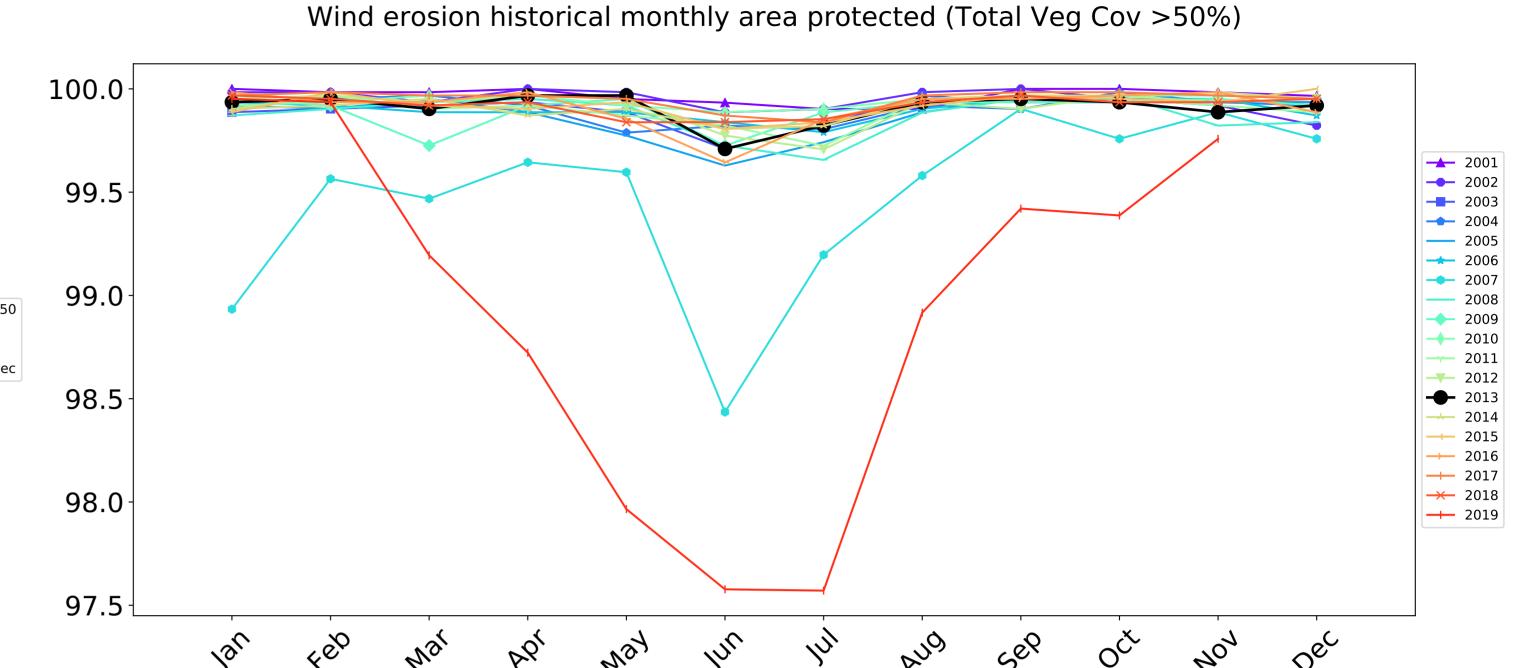




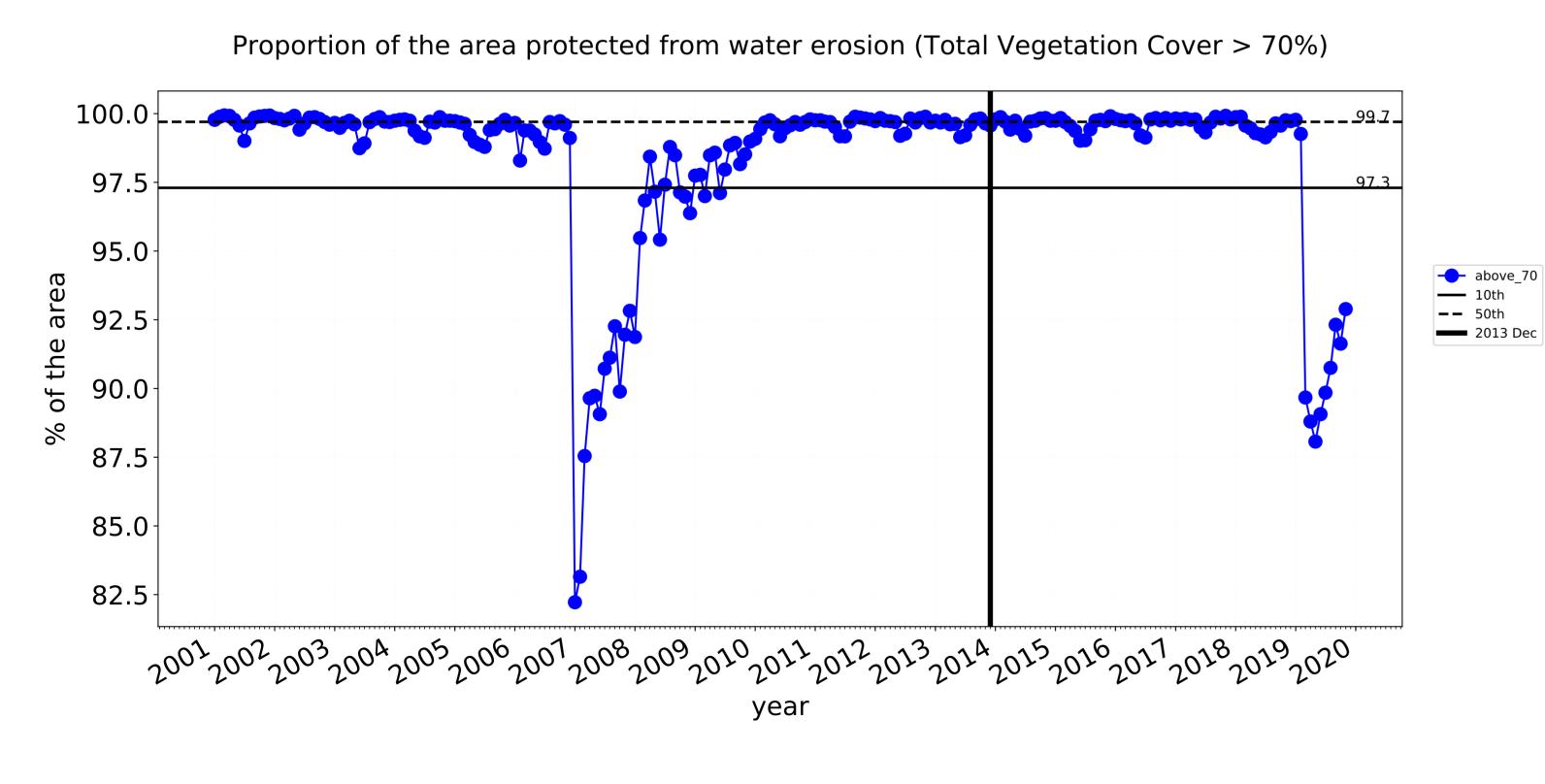


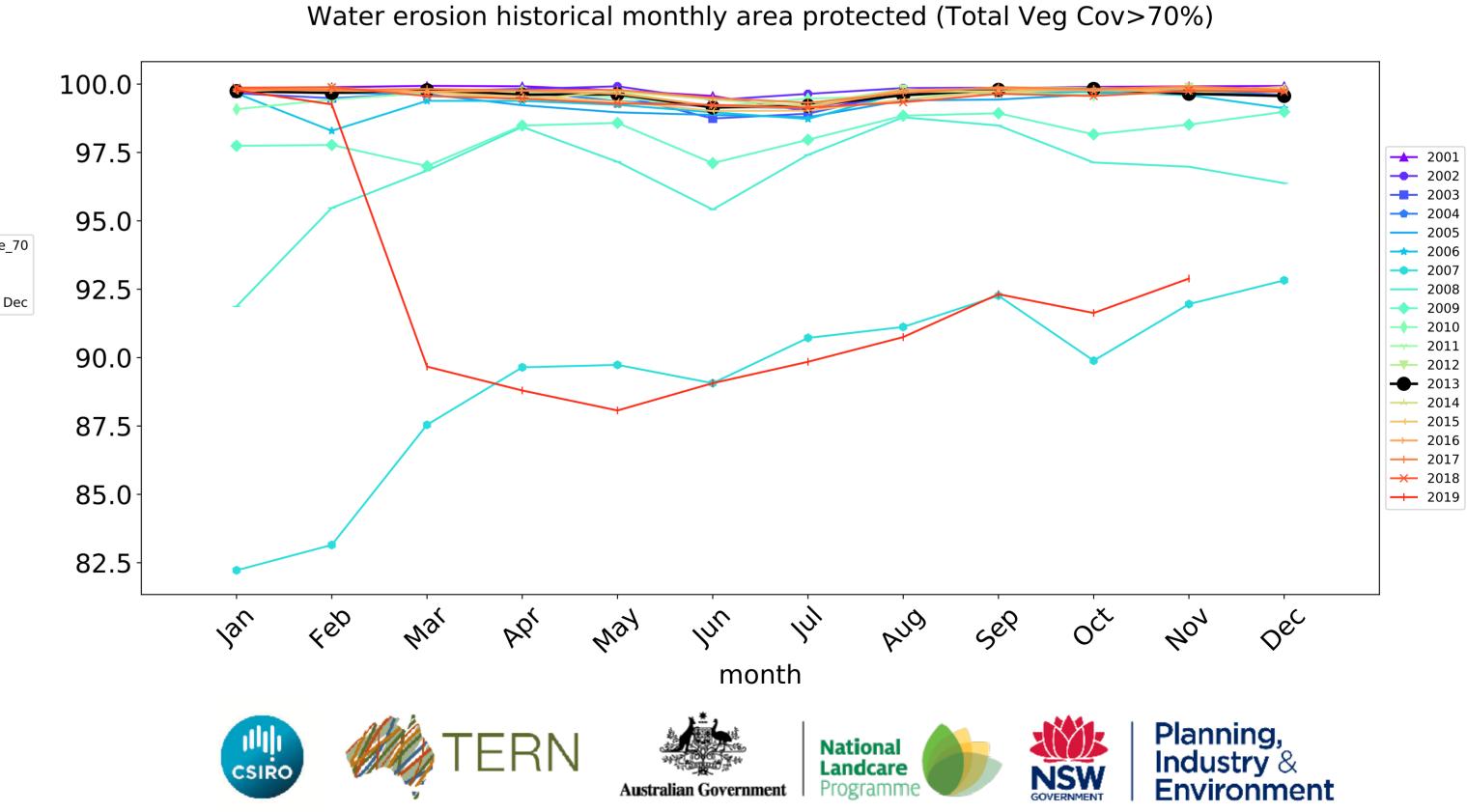


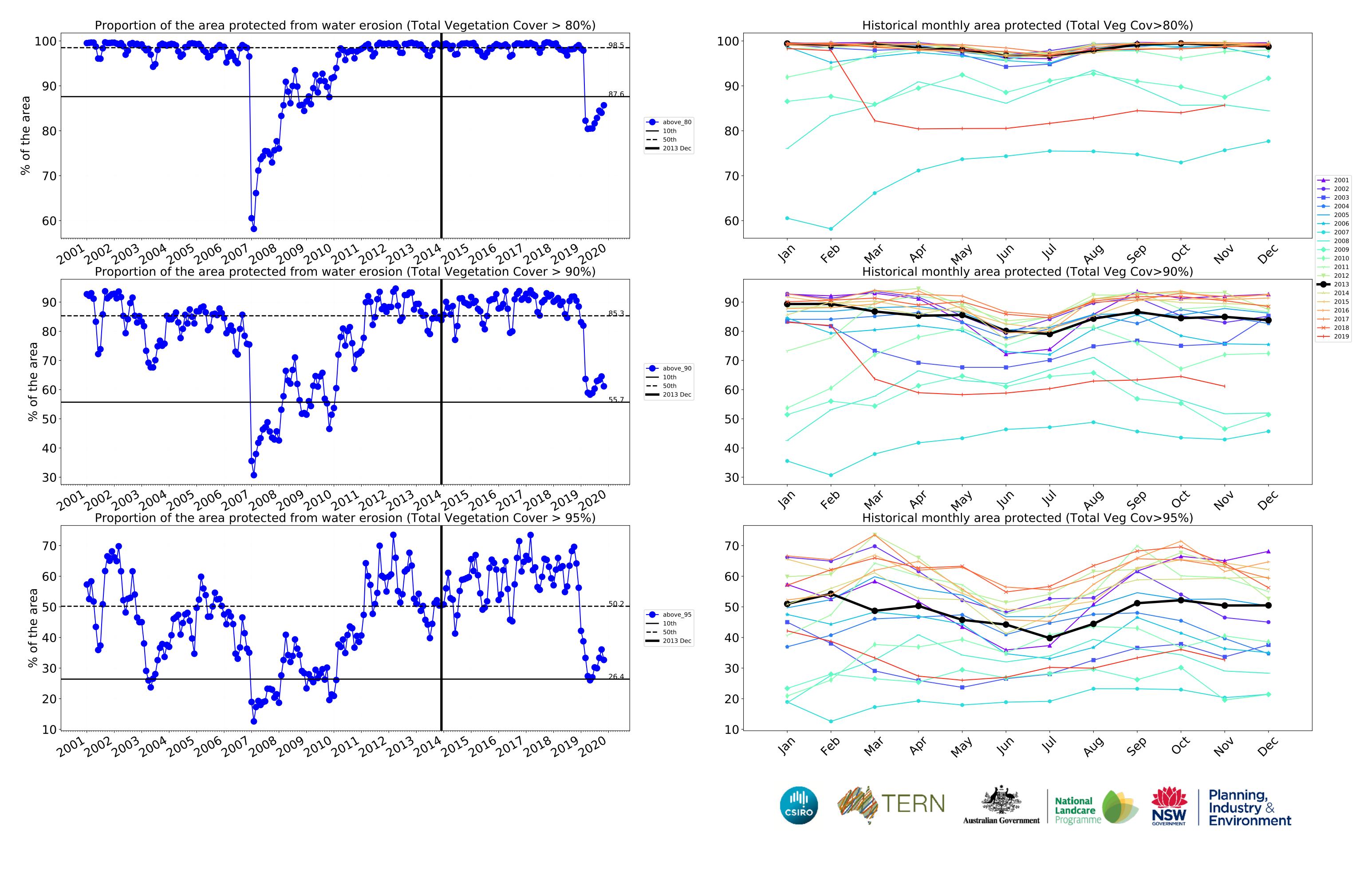




month







### **Agriculture**

### 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

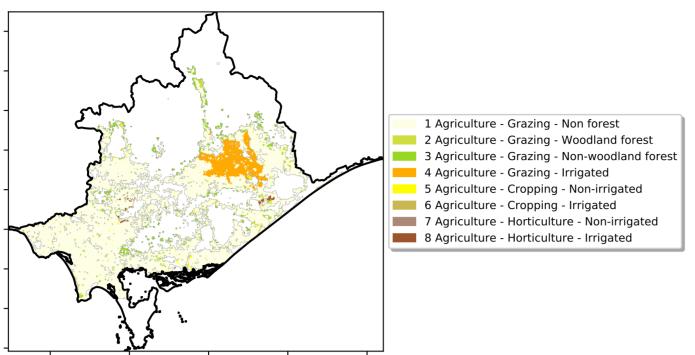
is, red pixels are about 20% lower than the mean of that

the mean. That

pixel. The mean

using baseline from 2001 to 2019.

is only for the month of the map

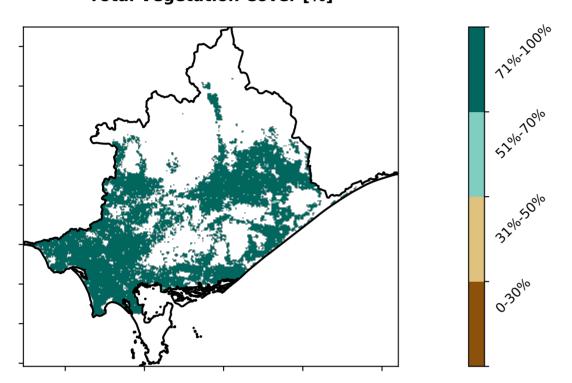


### 

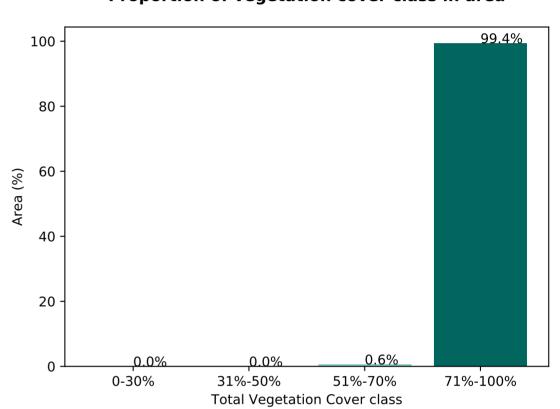
Proportion of each land class in area

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

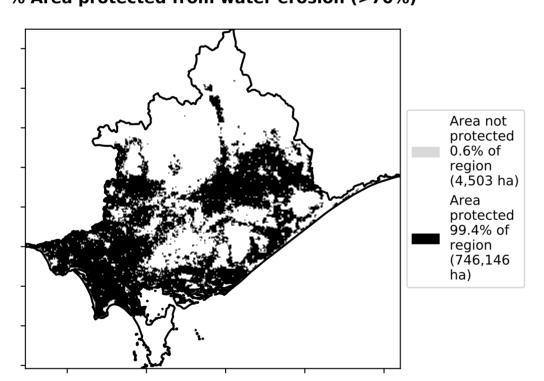
Land use and forest cover



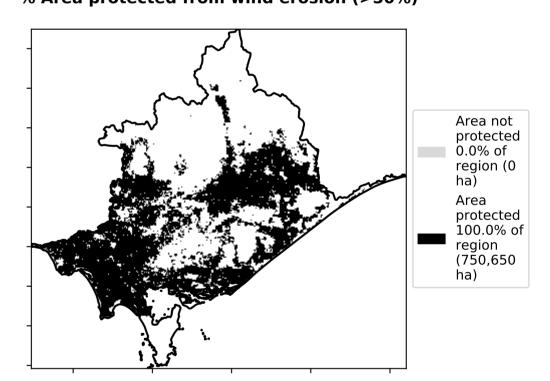
Proportion of vegetation cover class in area



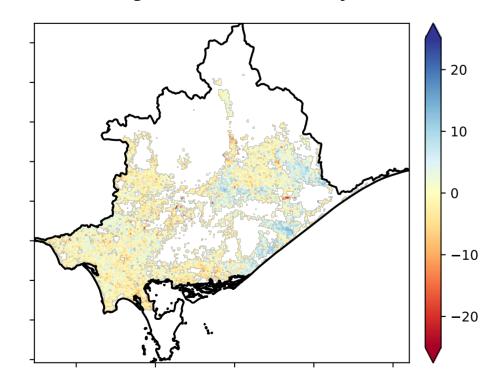
### % Area protected from water erosion (>70%)



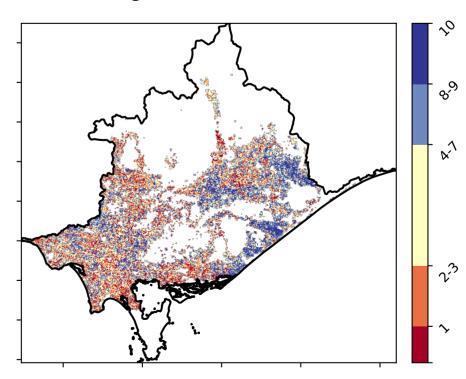
% Area protected from wind erosion (>50%)



### Total Vegetation Cover Anomaly [%]



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







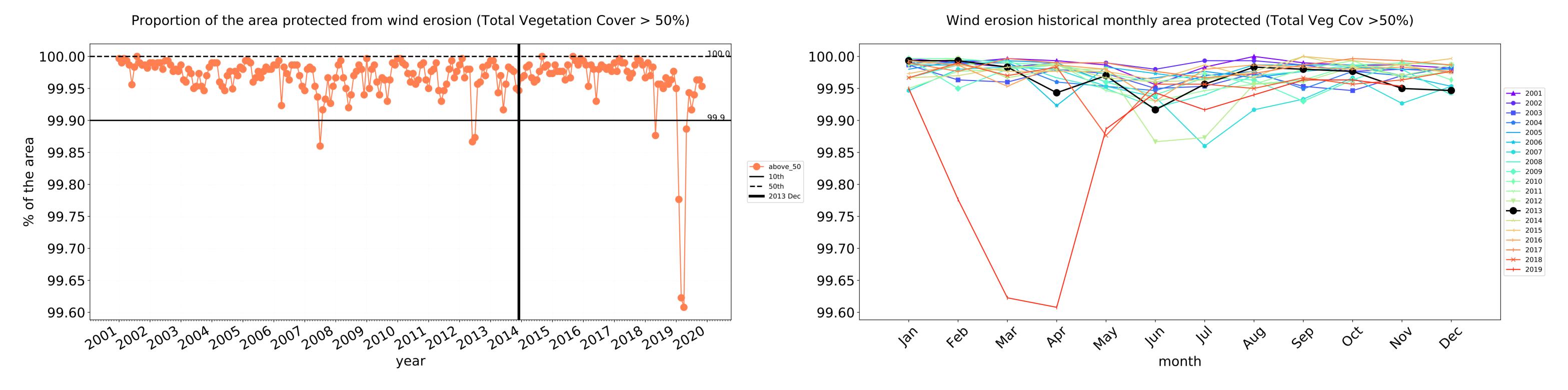


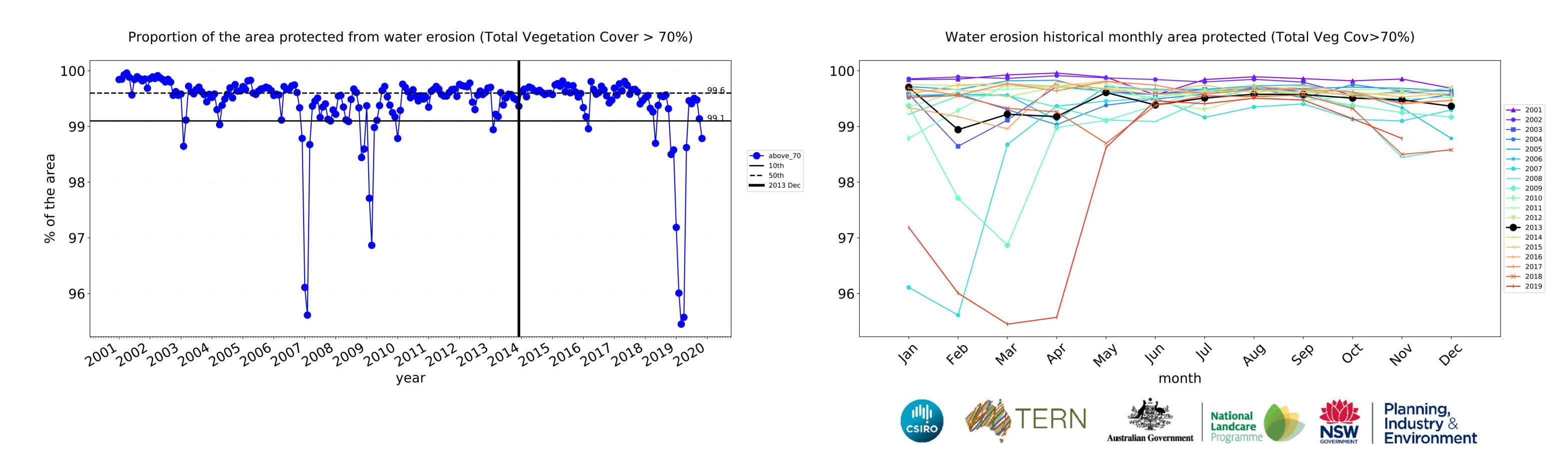


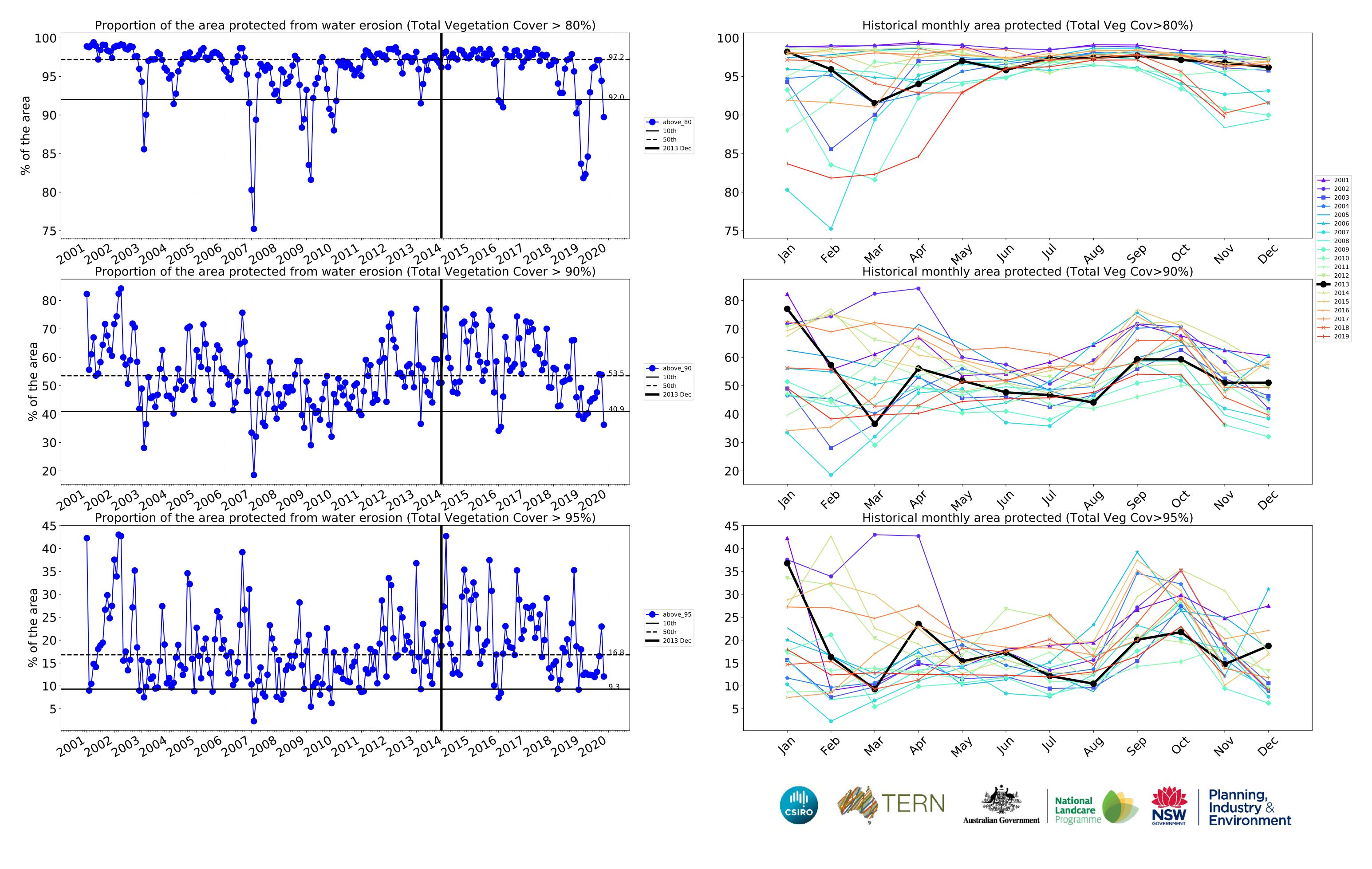




### **Agriculture timeseries**







### Grazing

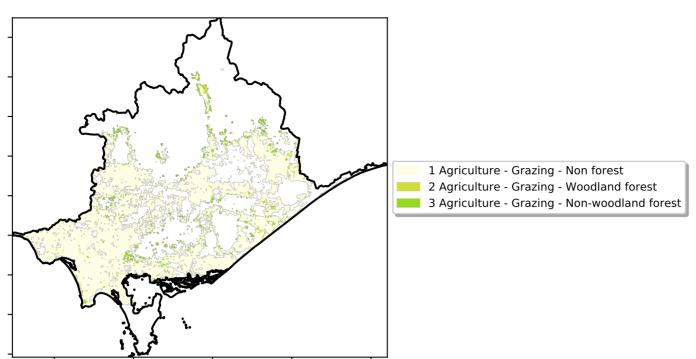
### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Anomaly show how many percetage points each

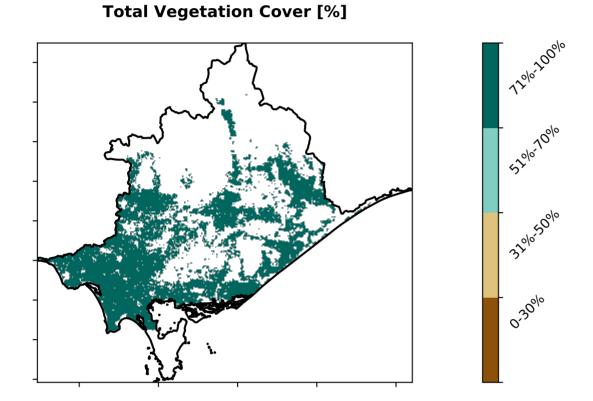
pixel is from the mean. That

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

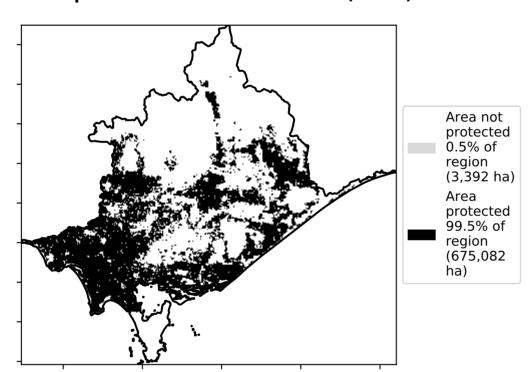
is, red pixels are about 20% lower than the mean of that pixel. The mean



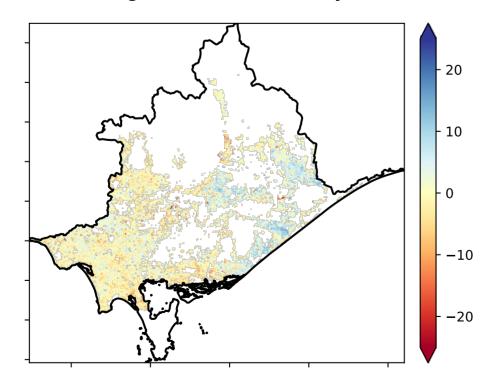
Land use and forest cover



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

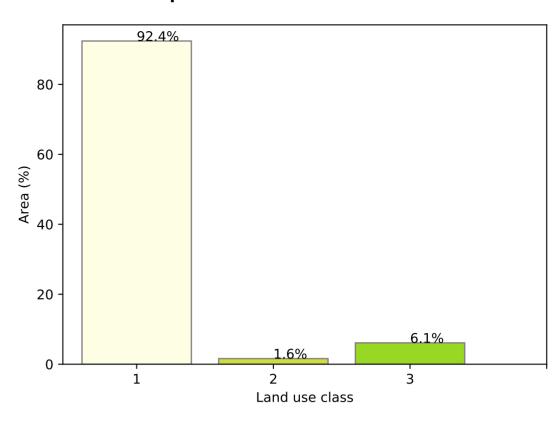


### Total Vegetation Cover Anomaly [%]

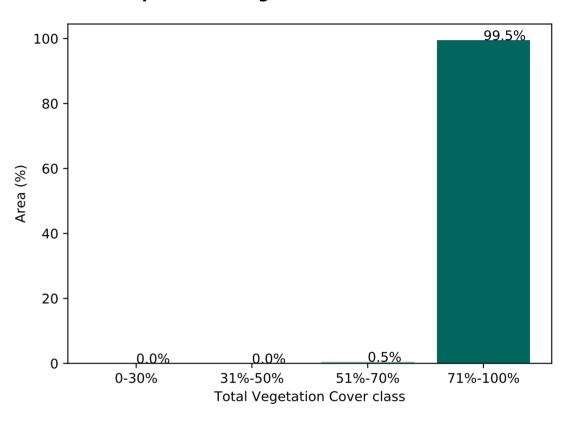


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

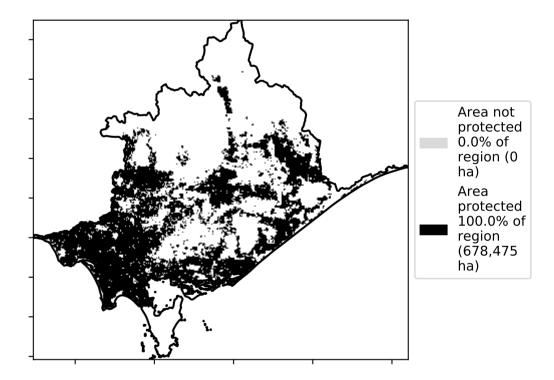
### Proportion of each land class in area

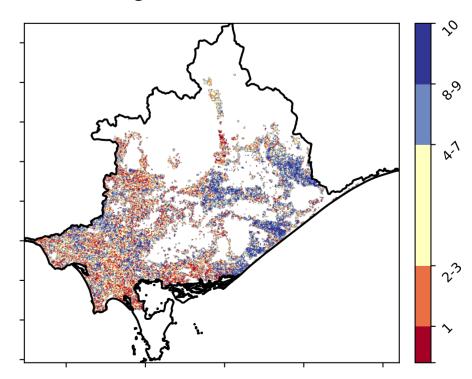


### **Proportion of vegetation cover class in area**



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









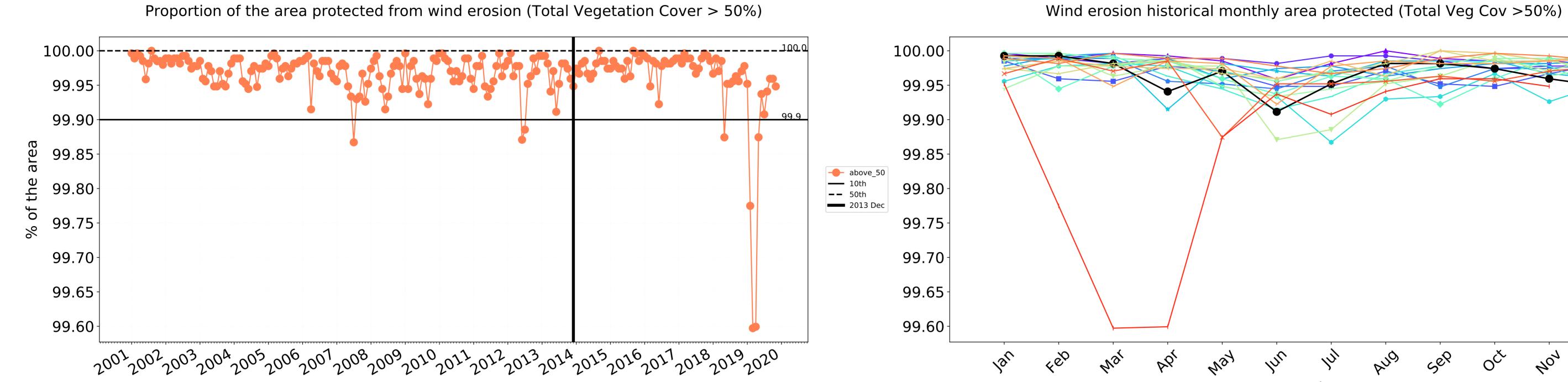


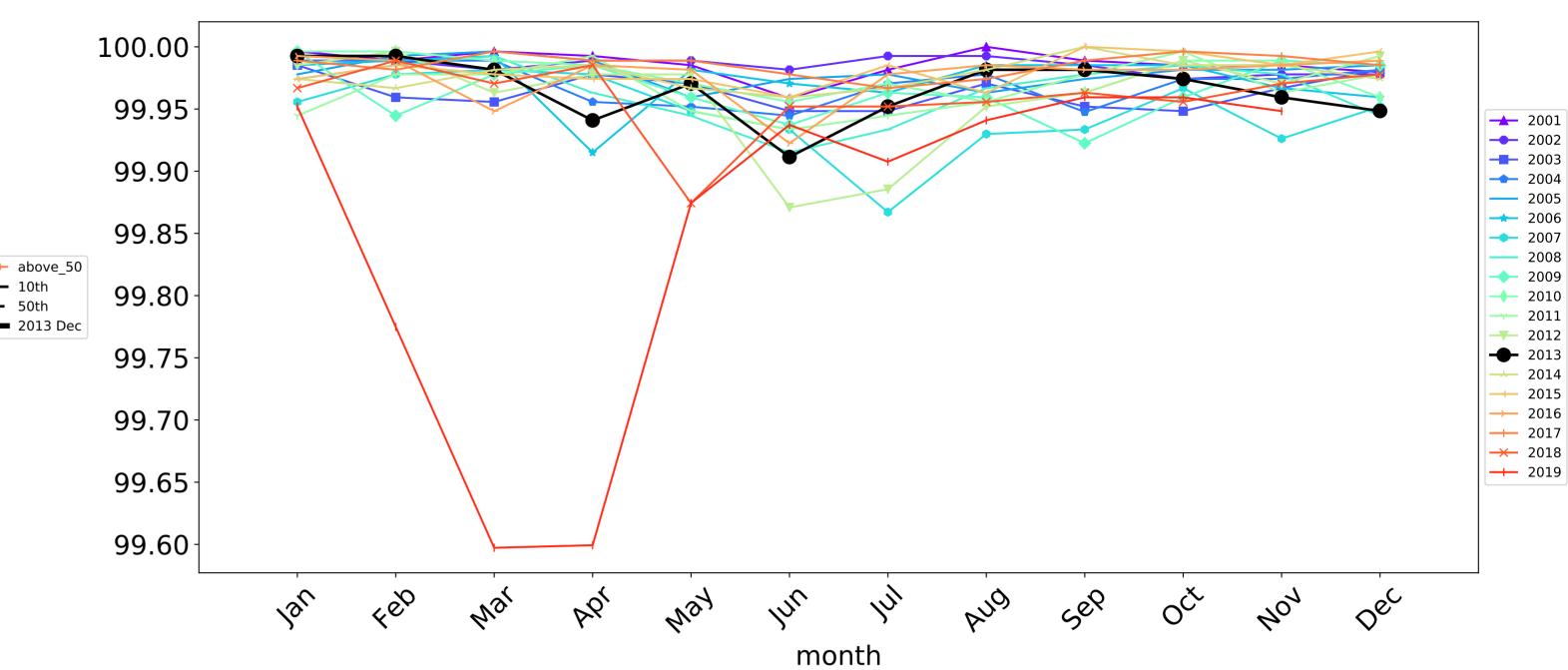


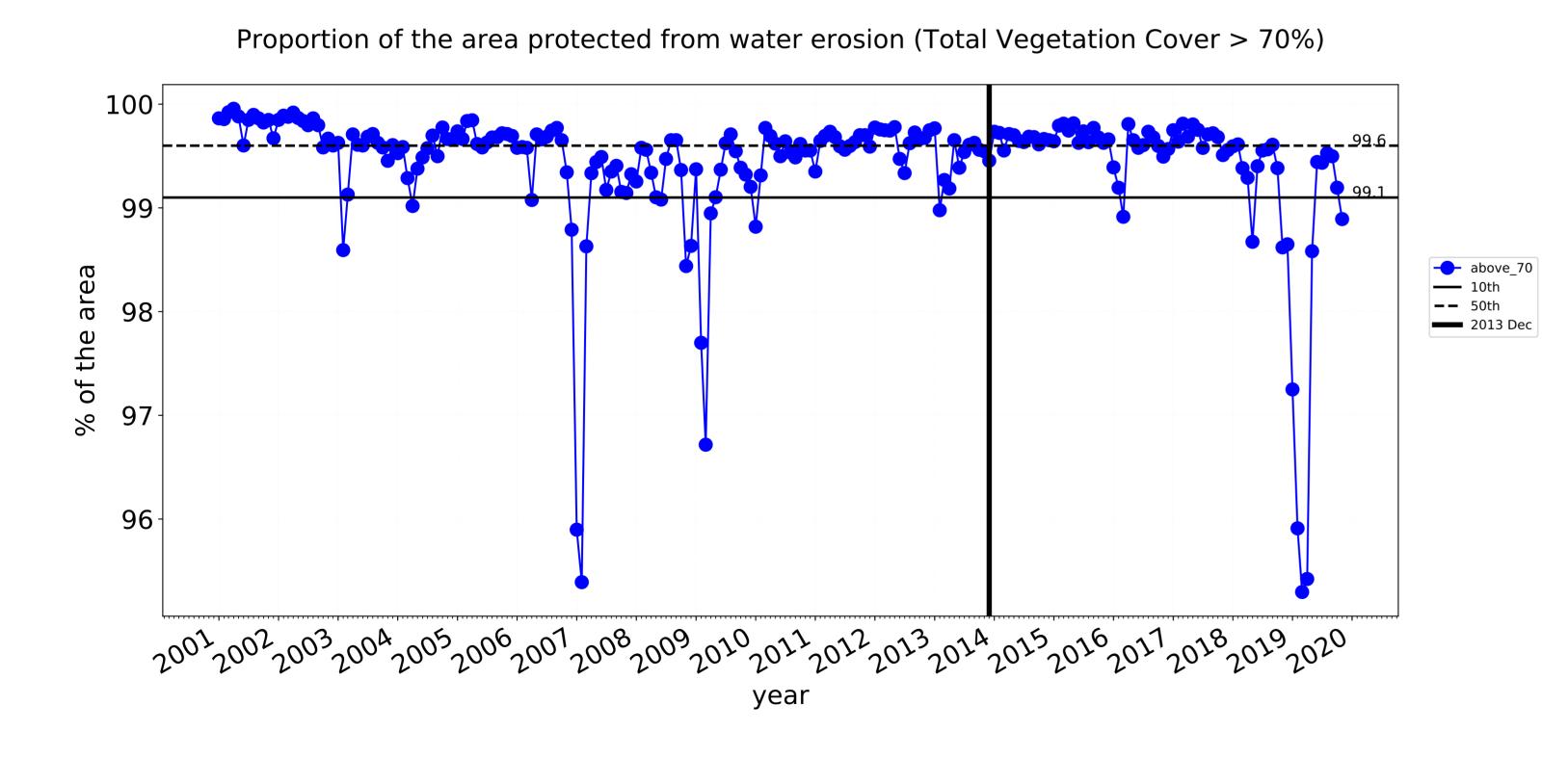


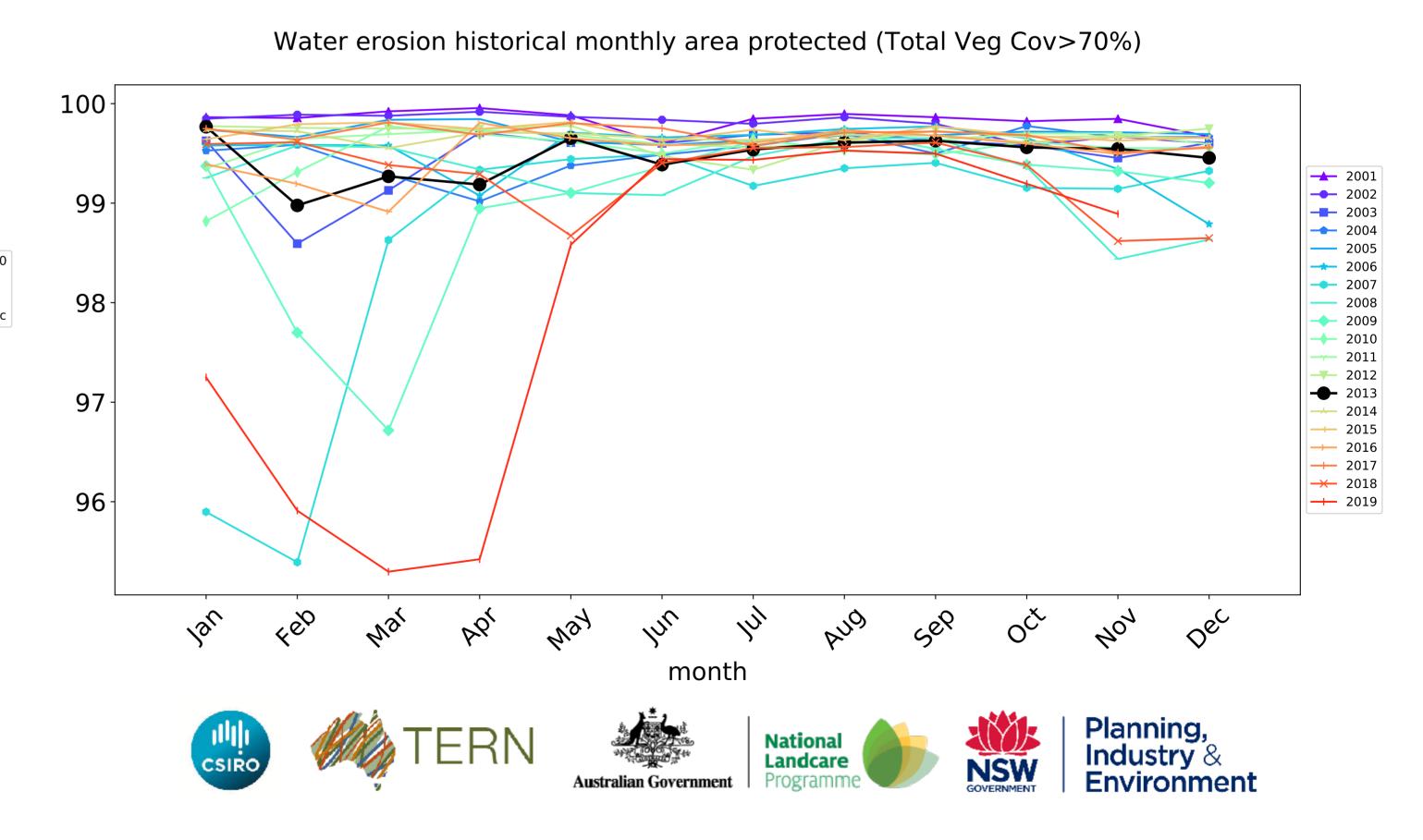


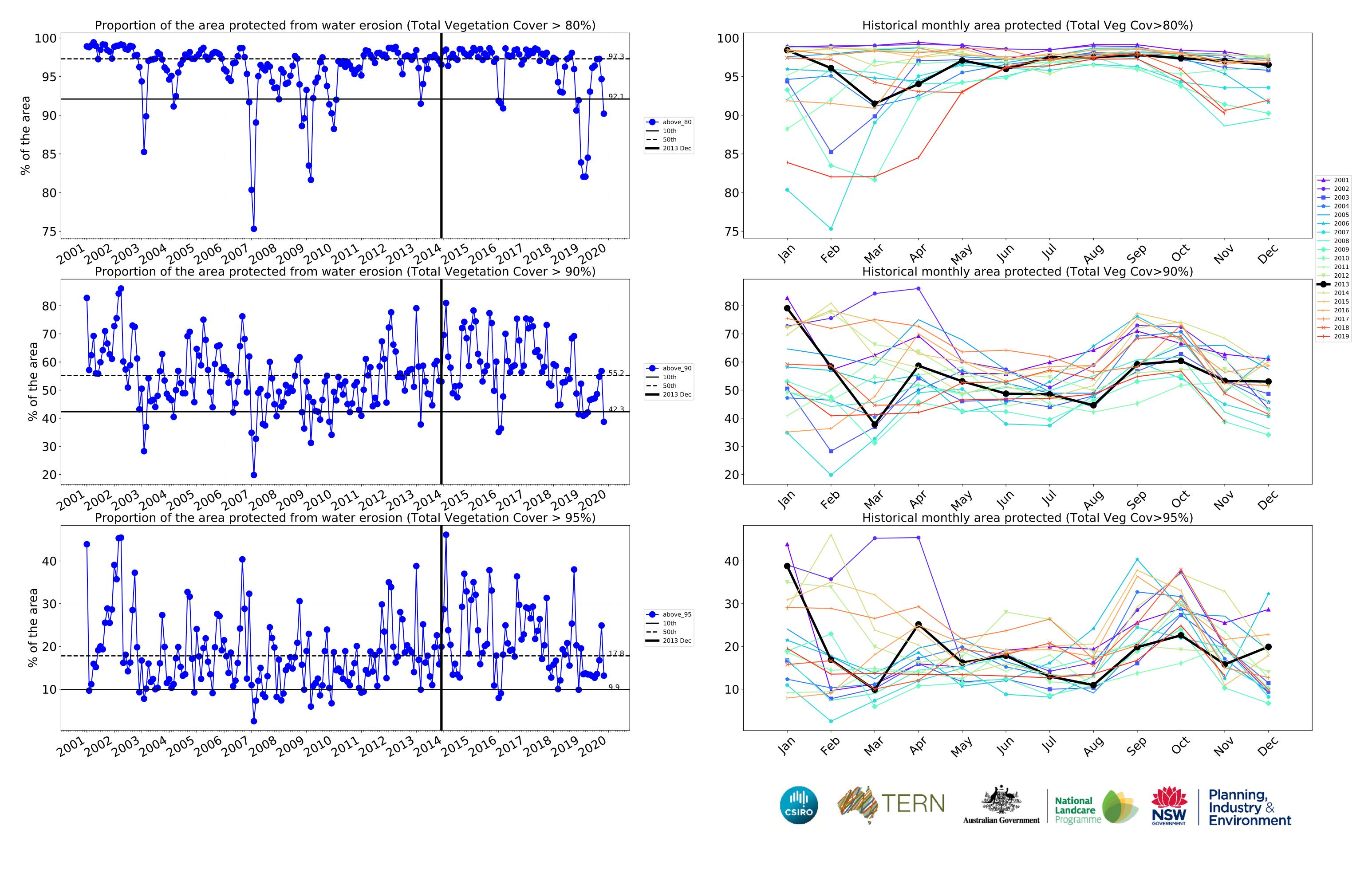
### **Grazing timeseries**











### **Grazing non forest**

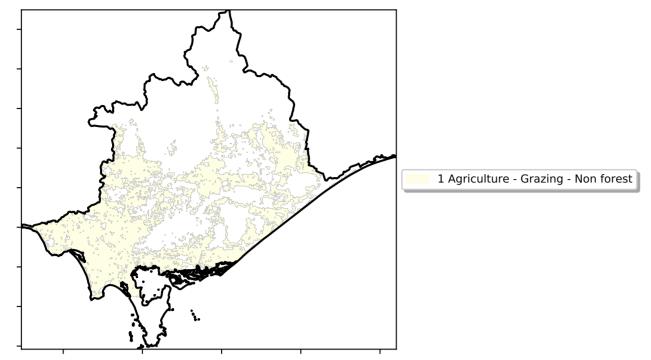
### Land use and forest cover

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

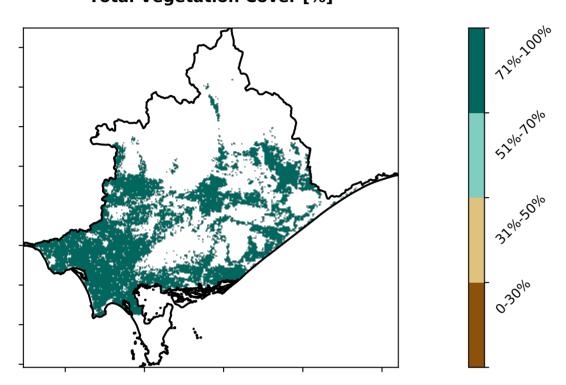
Anomaly show how many percetage points each

pinel is from the mean. That is, red pixels are about 20% lower than the mean of that

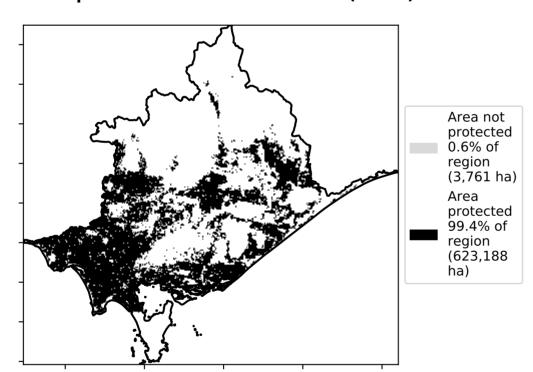
pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



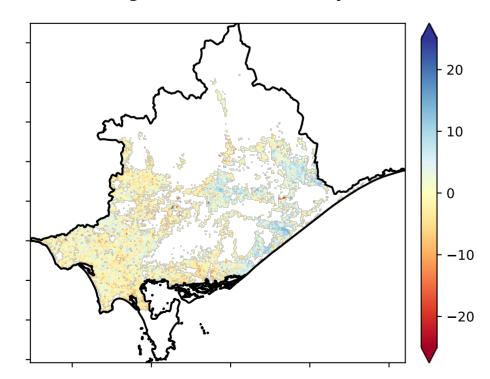
### **Total Vegetation Cover [%]**



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

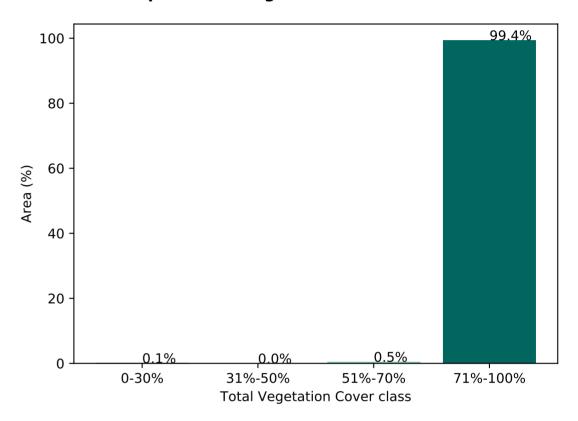


### **Total Vegetation Cover Anomaly [%]**

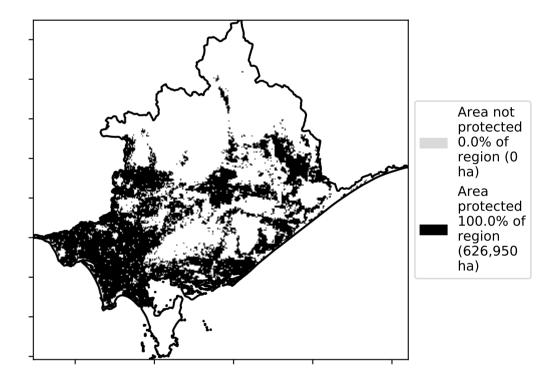


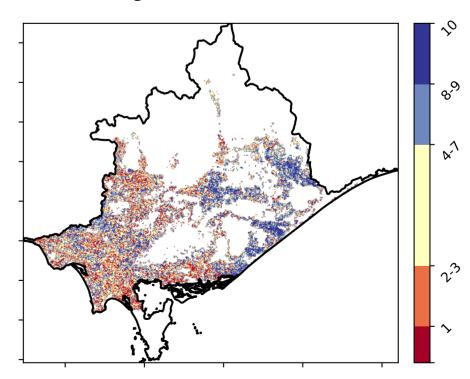
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

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



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









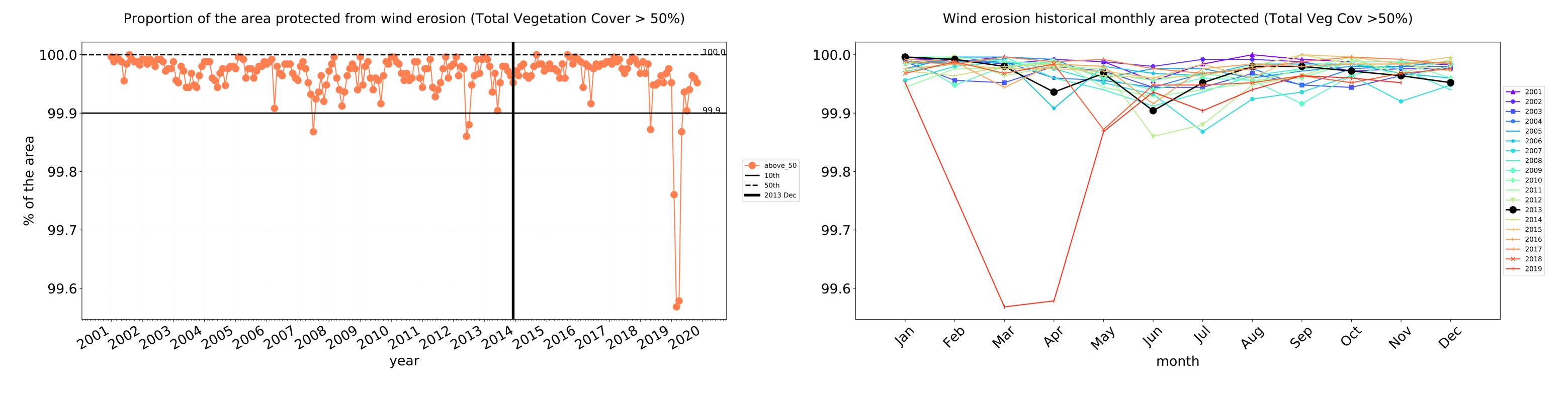


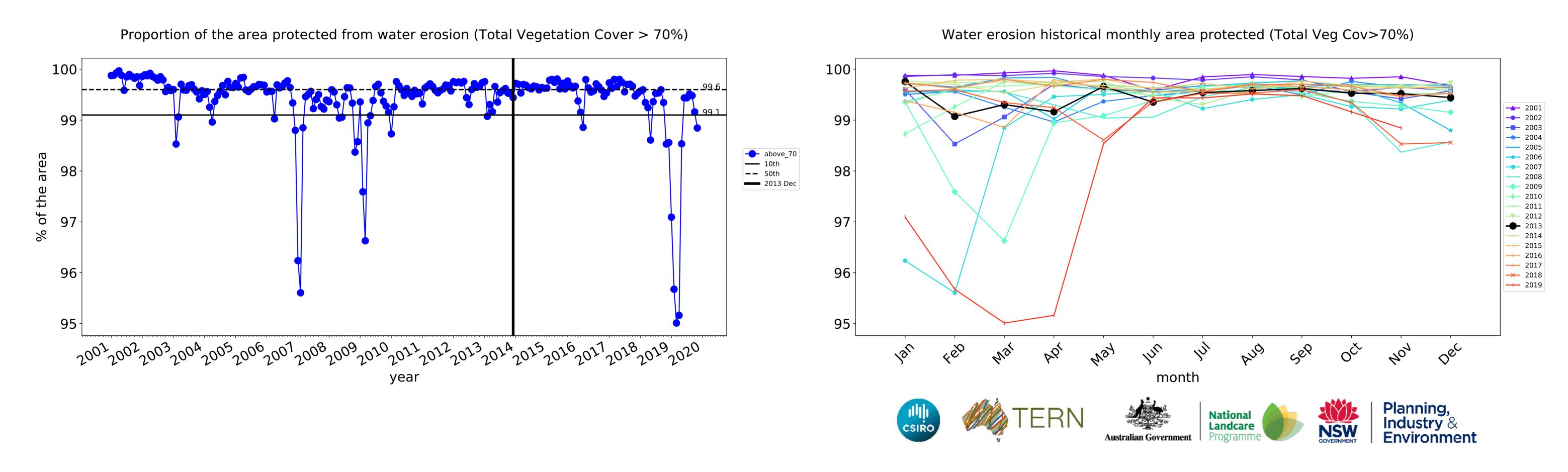


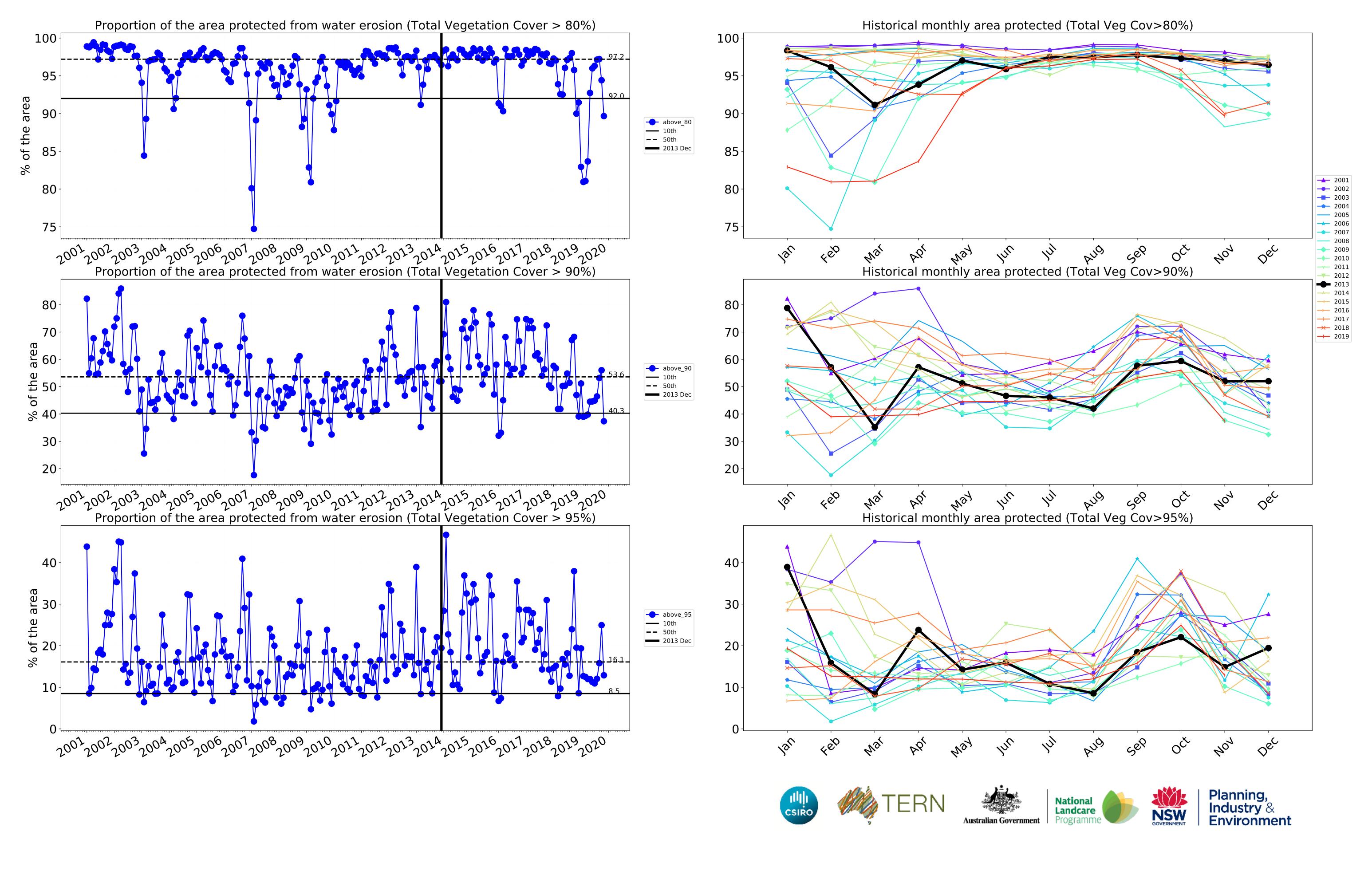




### **Grazing non forest timeseries**







### **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)

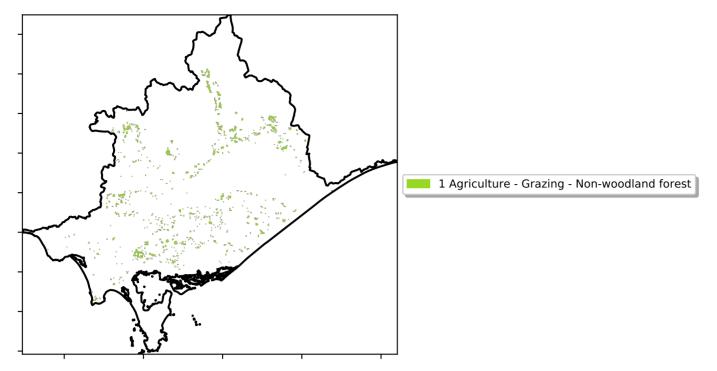
Anomaly show how many percetage points each

pixel is from the mean. That

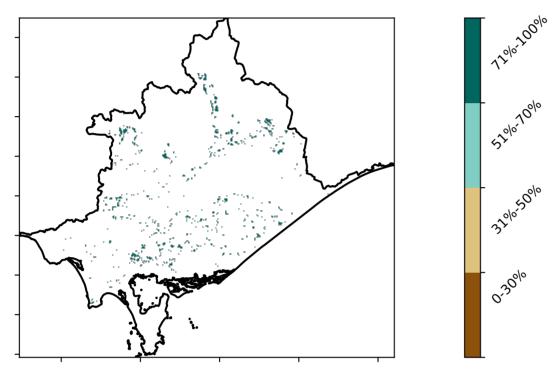
is only for the month of the map

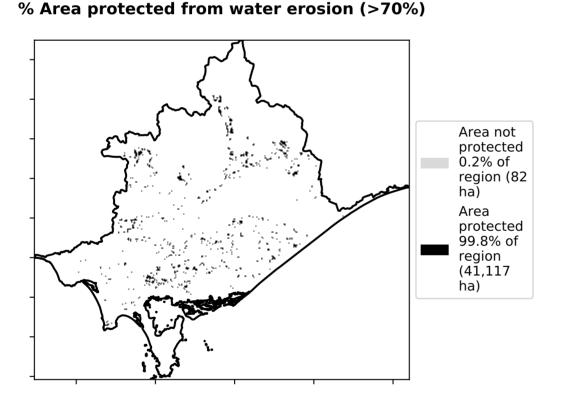
using baseline from 2001 to 2019.

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

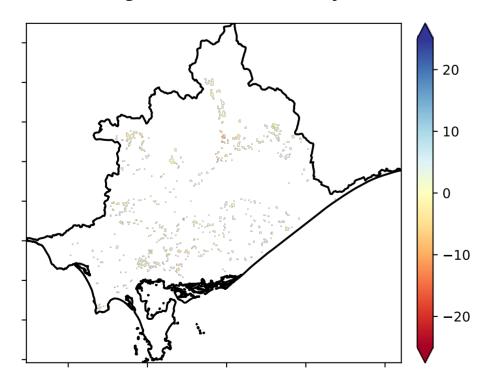


### **Total Vegetation Cover [%]**



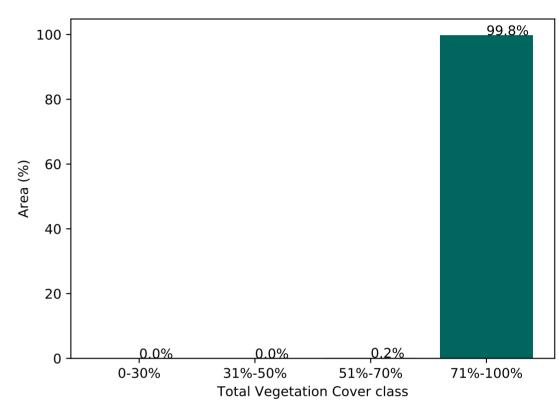


### Total Vegetation Cover Anomaly [%]

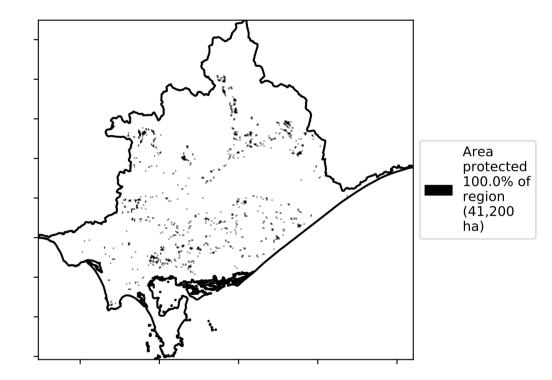


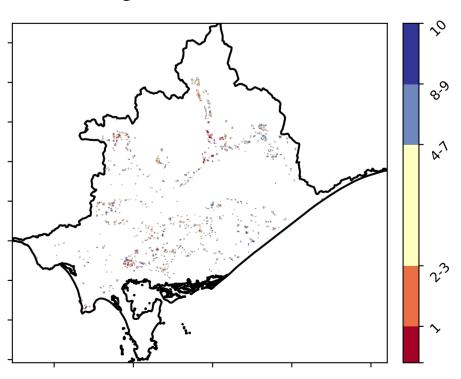
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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







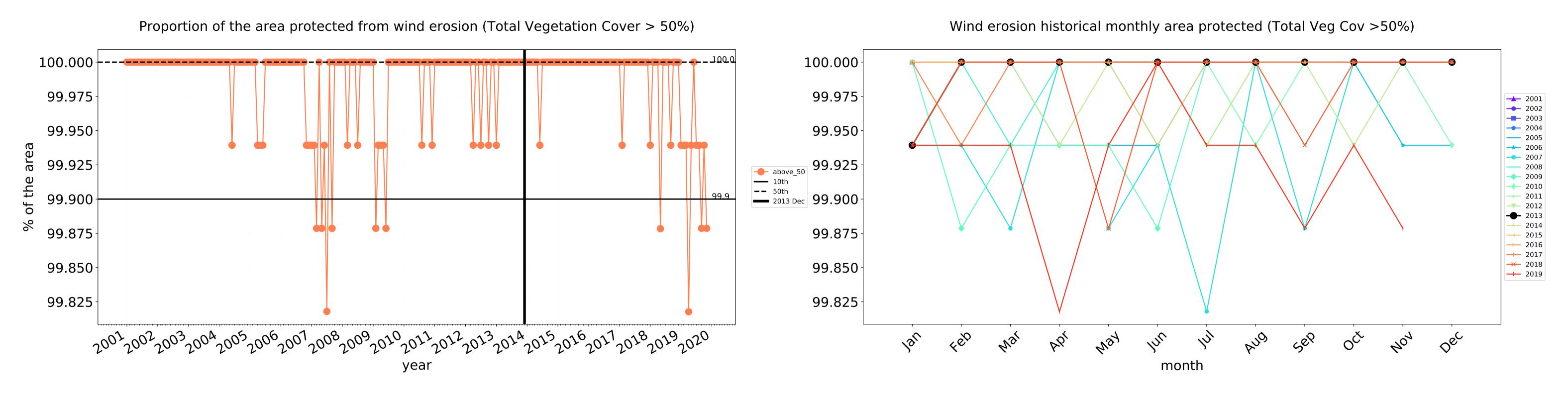


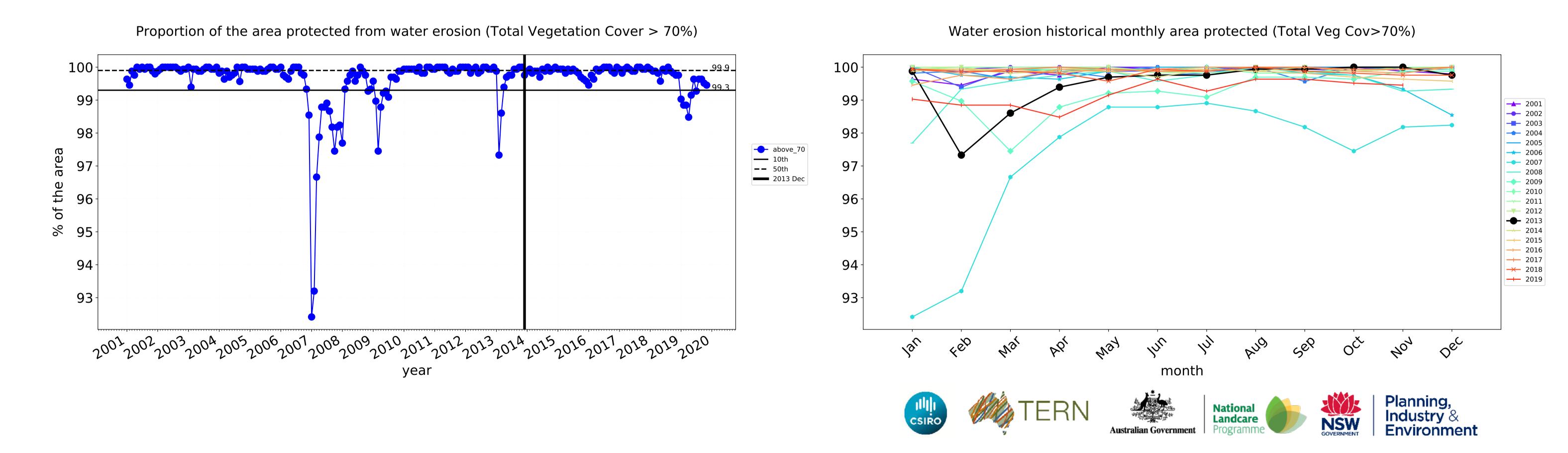


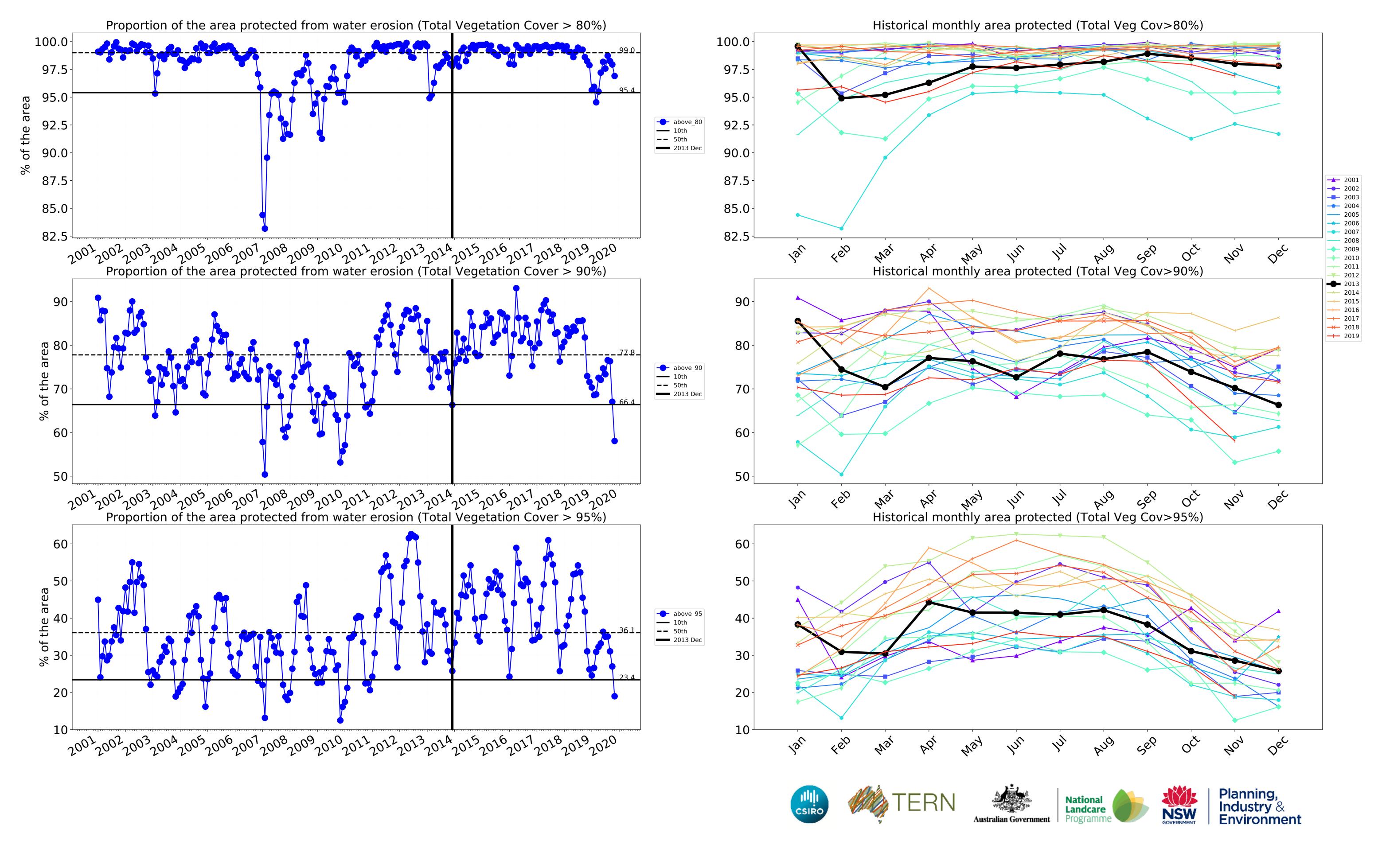












### Irrigation

### 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

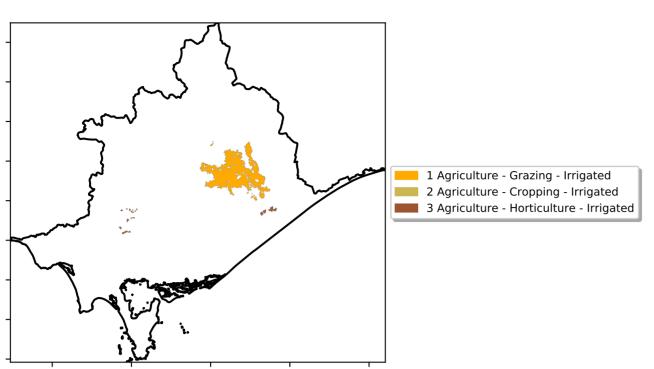
is, red pixels are about 20% lower than the mean of that

the mean. That

pixel. The mean

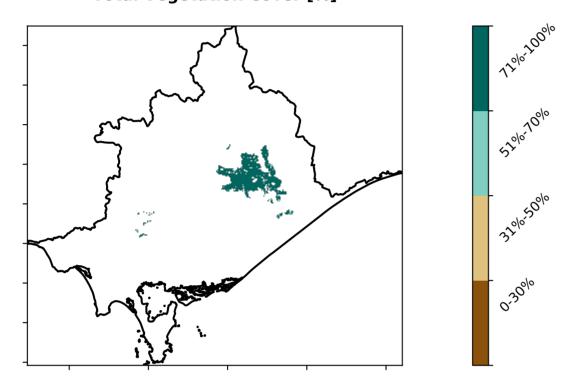
using baseline from 2001 to 2019.

is only for the month of the map

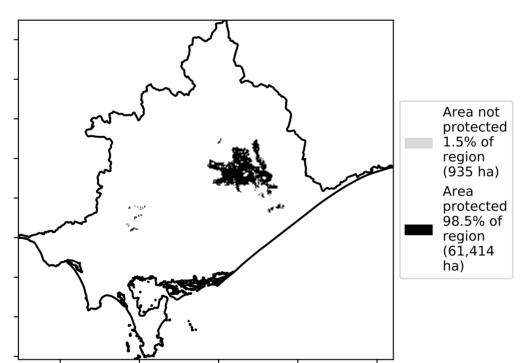


### **Total Vegetation Cover [%]**

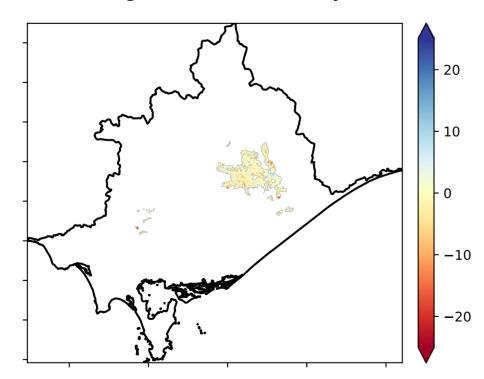
Land use and forest cover



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

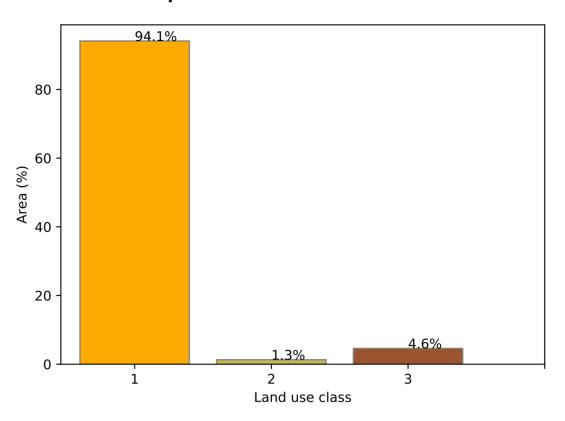


### Total Vegetation Cover Anomaly [%]

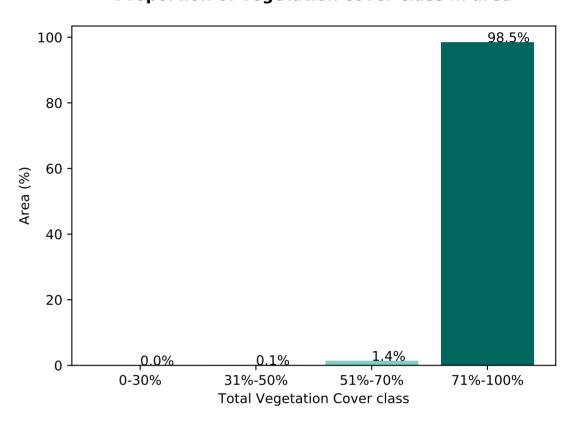


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

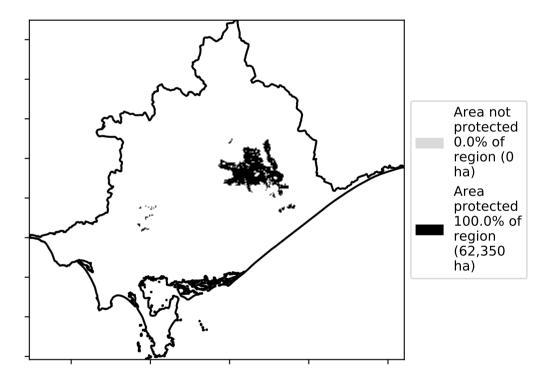
### Proportion of each land class in area

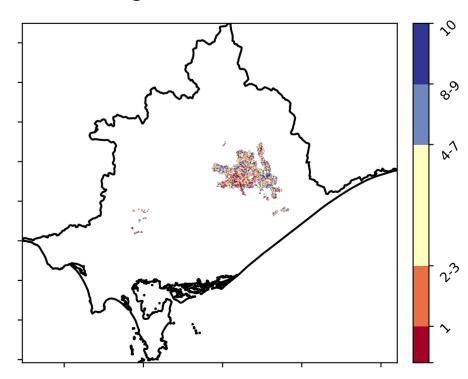


### Proportion of vegetation cover class in area



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









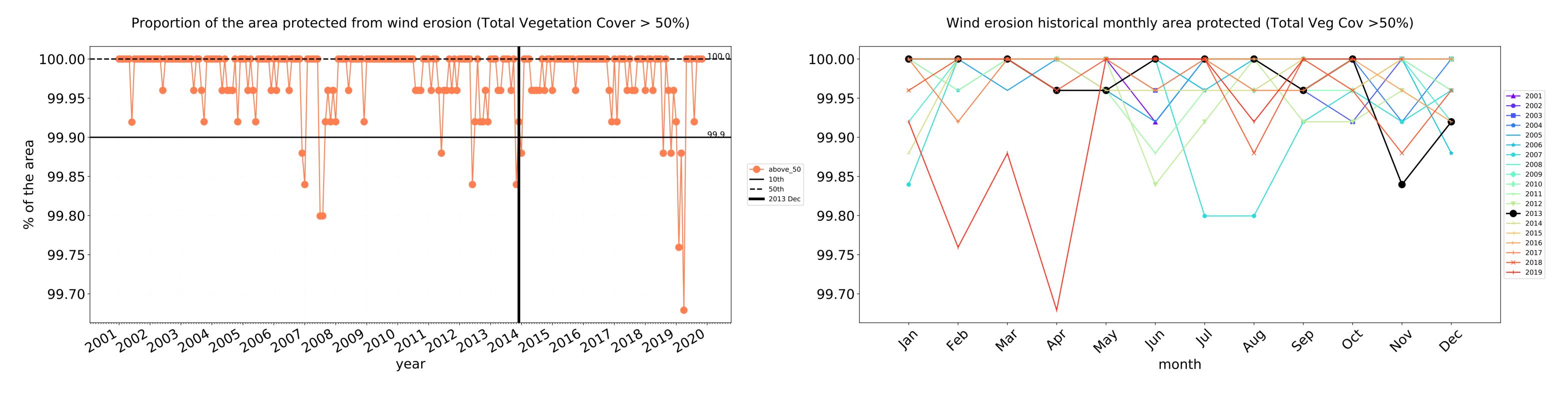


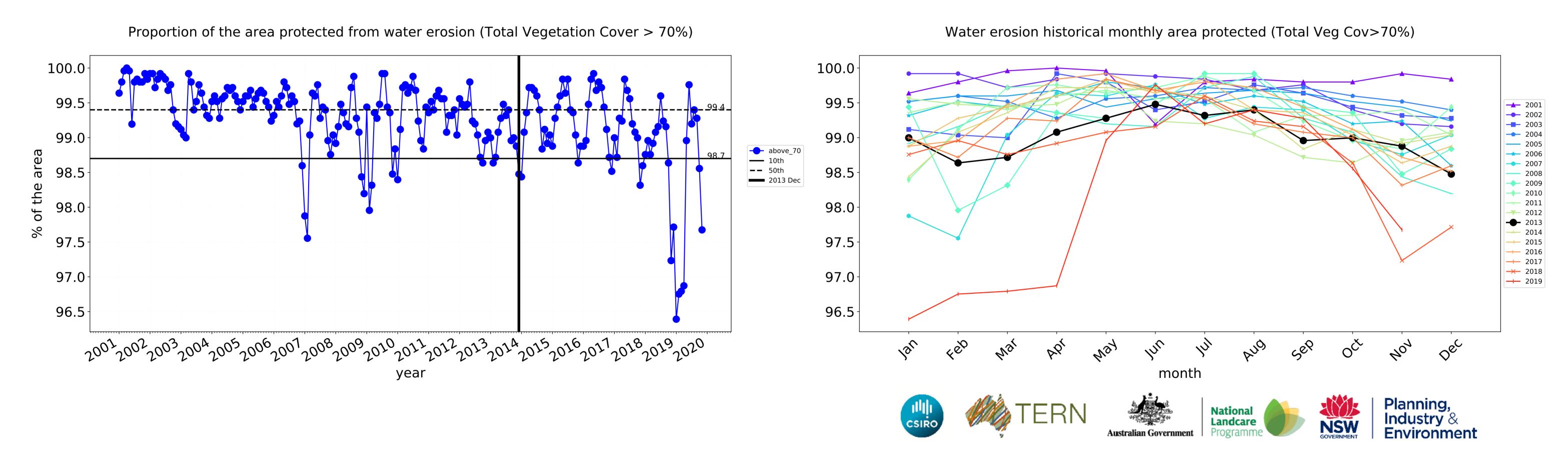


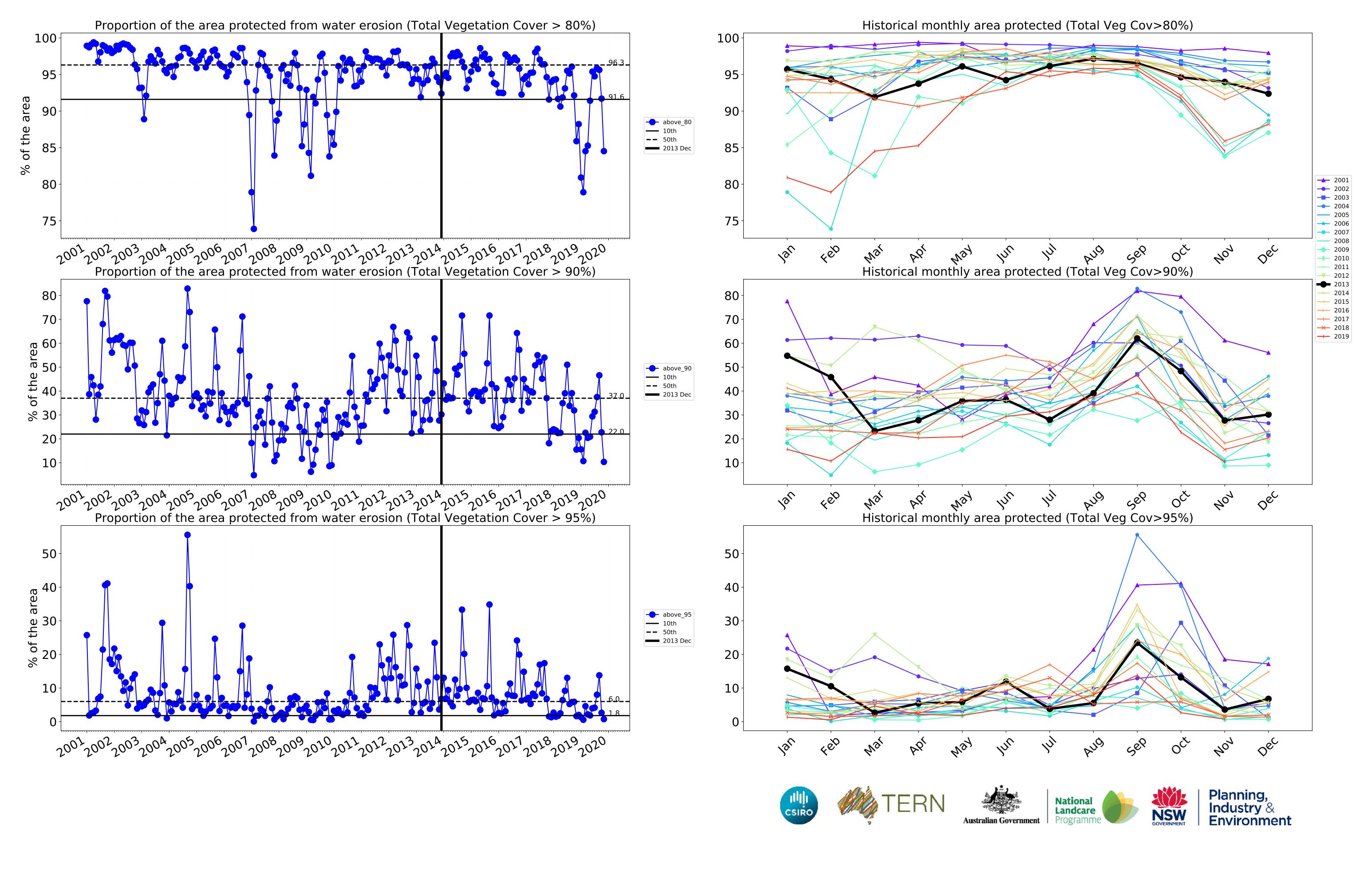




### **Irrigation timeseries**







### **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)

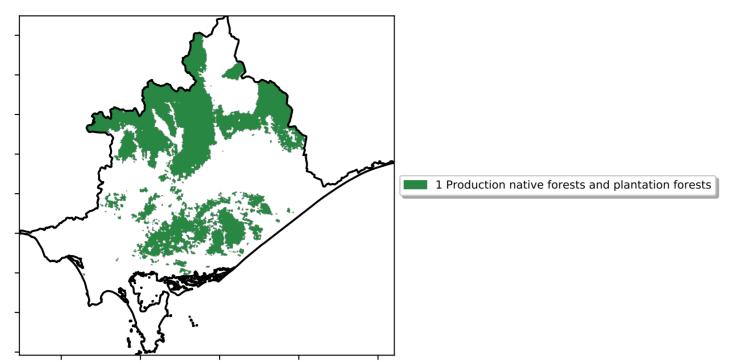
Anomaly show how many percetage points each

pixel is from the mean. That

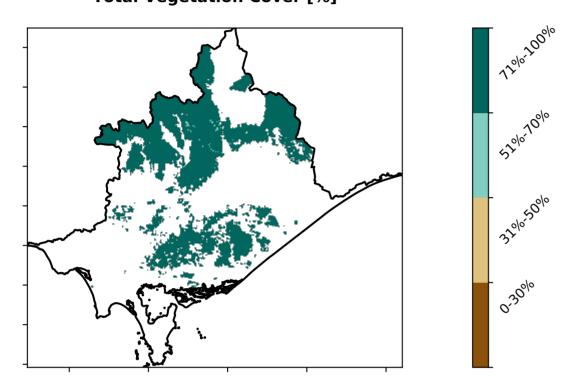
is only for the month of the map

using baseline from 2001 to 2019.

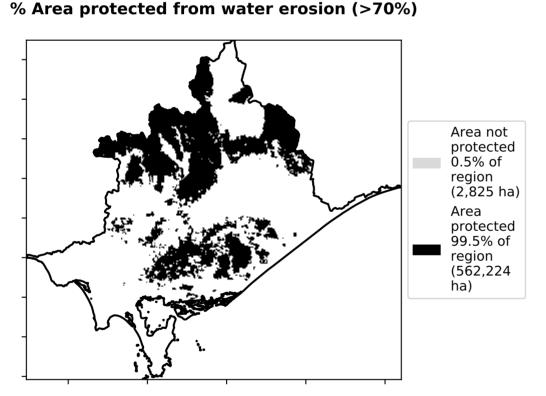
is, red pixels are about 20% lower than the mean of that pixel. The mean



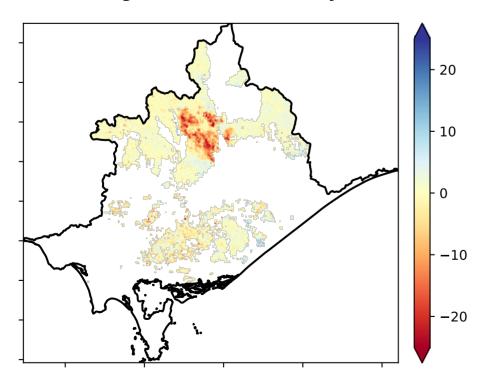
### **Total Vegetation Cover [%]**



### 0/ Aven much shed from water avenier (> 700/)

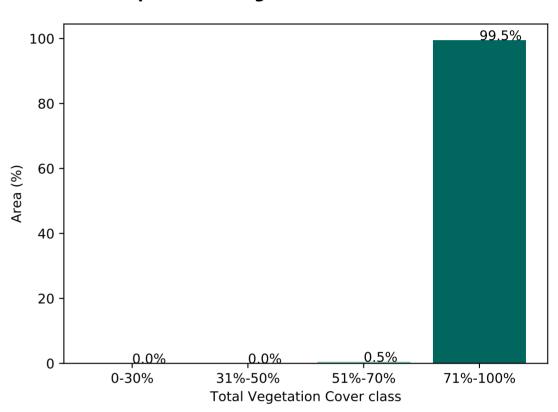


### Total Vegetation Cover Anomaly [%]

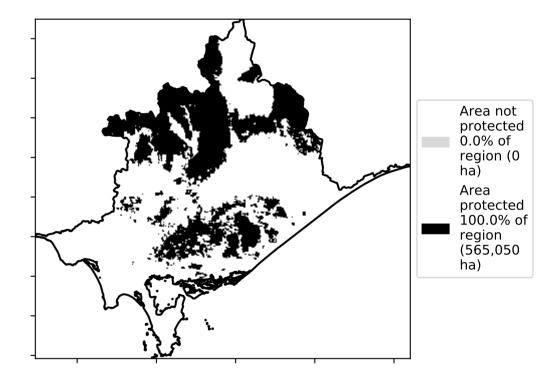


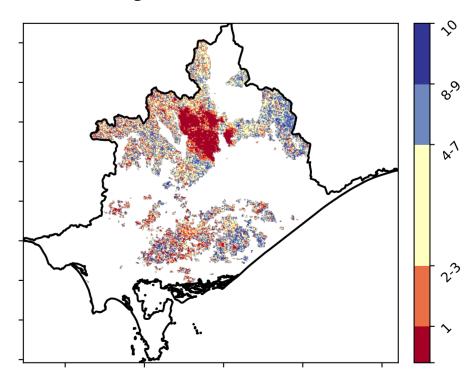
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

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



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









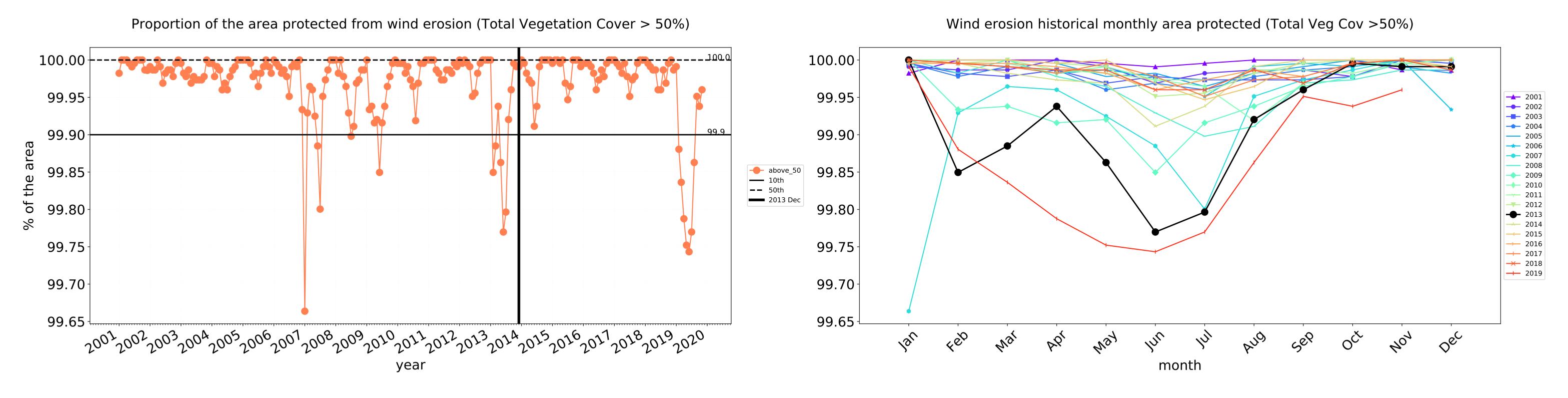


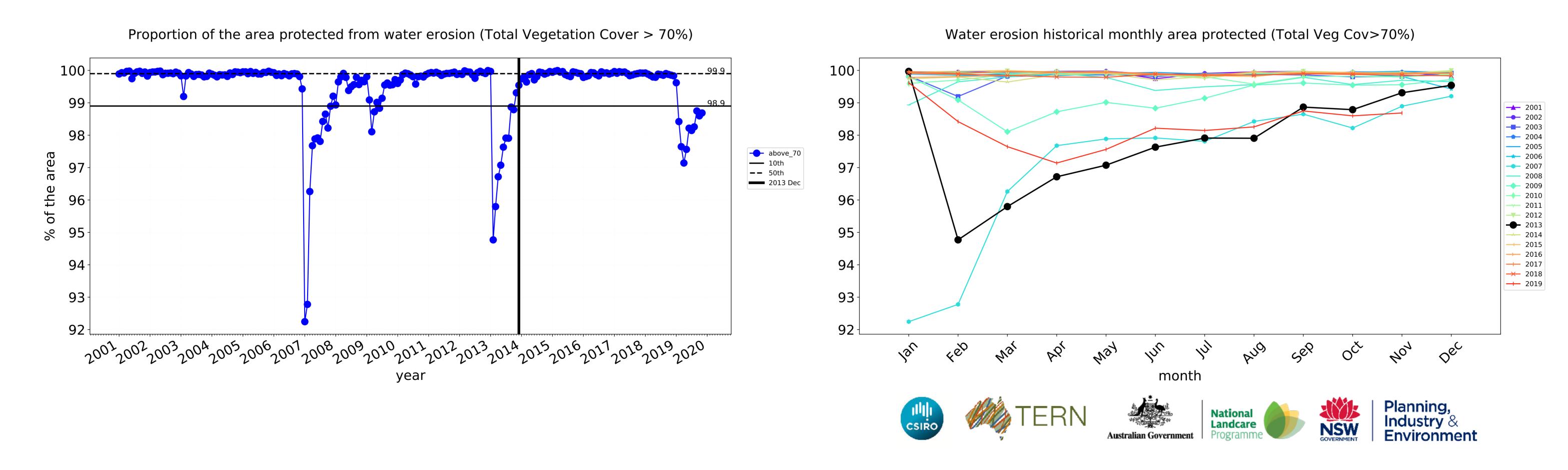


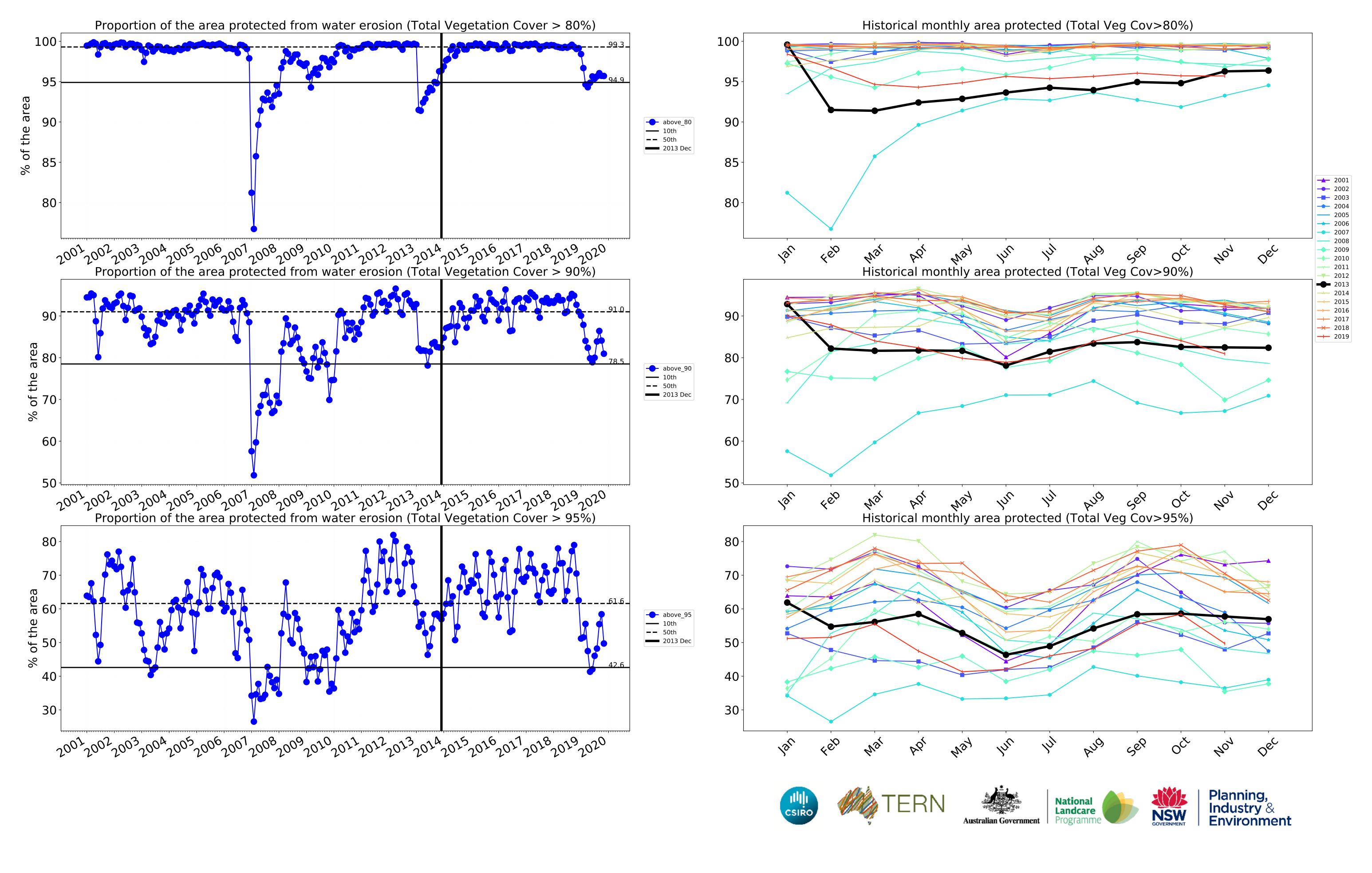




### **Production native forests and plantation forests timeseries**







# West Gippsland (1,685,625 ha and no data 40,019 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	1,685,625	100.0% 1,685,050	99.8% 1,682,727	98.7% 1,663,021	95.0% 1,601,579	64.7% 1,089,765	34.6% 583,146
Conservation and natural environments	273,725	99.9% 273,400	99.4% 272,100	97.7% 267,525	95.0% 259,925	75.8% 207,425	40.6% 111,175
Conservation and natural environments non forest	44,500	99.4% 44,250	97.2% 43,250	90.1% 40,075	80.6% 35,850	50.5% 22,475	20.7% 9,225
Conservation and natural environments Woodland forest	73,750	99.9% 73,675	99.7% 73,500	98.5% 72,650	95.7% 70,550	74.1% 54,675	31.8% 23,450
Conservation and natural environments Forest (non woodland)	155,475	100.0% 155,475	99.9% 155,350	99.6% 154,800	98.7% 153,525	83.8% 130,275	50.5% 78,500
Agriculture	750,650	100.0% 750,575	99.9% 750,250	99.4% 745,875	96.2% 722,075	51.0% 383,125	18.7% 140,725
Grazing	678,475	100.0% 678,400	99.9% 678,125	99.5% 674,775	96.5% 655,000	53.0% 359,850	19.9% 135,125
Grazing non forest	626,950	100.0% 626,875	100.0% 626,650	99.4% 623,450	96.5% 604,700	52.0% 326,150	19.5% 122,050
Grazing - Forest (non woodland)	41,200	100.0% 41,200	100.0% 41,200	99.8% 41,100	97.8% 40,300	66.3% 27,325	25.8% 10,625
Irrigation	62,350	100.0% 62,350	99.9% 62,300	98.5% 61,400	92.4% 57,600	30.2% 18,825	6.8% 4,225
Production native forests and plantation forests	565,050	100.0% 565,050	100.0% 565,000	99.5% 562,450	96.4% 544,575	82.4% 465,500	56.9% 321,725











