### Total vegetation cover soil protection Region:LGA Gladstone (R) QLD

This report describes vegetation protecting the soil surface from erosion during a chosen month compared to previous years. This report has been generated using MODIS fractional vegetation cover information available in Rangelands and Pasture Productivity (RAPP) map tool https://map.geo-rapp.org/#australia. The report is based on 500 metre pixel data on monthly time steps. Land use forest cover:

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: October 2019** 



### **Vegetation Cover Oct 2019**

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

of Australia (2018)

Derived from

pixel is from

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.

the mean. That

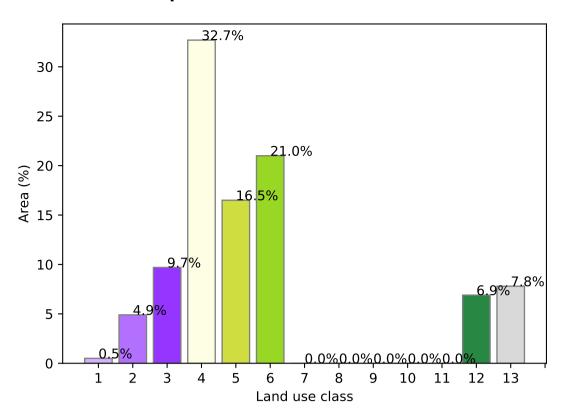
Use of Australia

(2018) and Forests

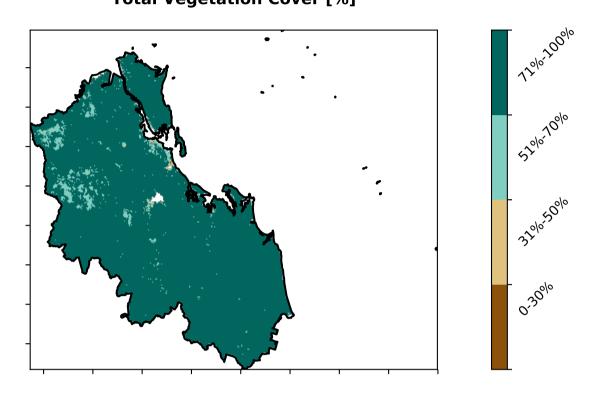
of Australia (2018)

### 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 Catchment Scale Land Use and Forests 3 Conservation and natural environments - Non-Woodland forest 4 Agriculture - Grazing - Non-forest 5 Agriculture - Grazing - Woodland forest Catchment Scale Land 6 Agriculture - Grazing - Non-woodland forest 7 Agriculture - Grazing - Irrigated 8 Agriculture - Cropping - Non-irrigated 9 Agriculture - Cropping - Irrigated 10 Agriculture - Horticulture - Non-irrigated 11 Agriculture - Horticulture - Irrigated 12 Production native forests and plantation forests 13 Other uses

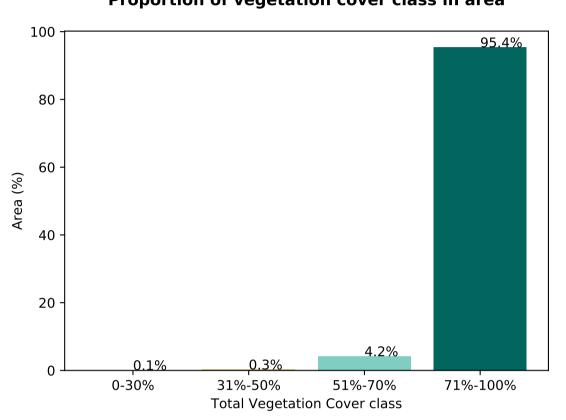
### **Proportion of each land class in area**



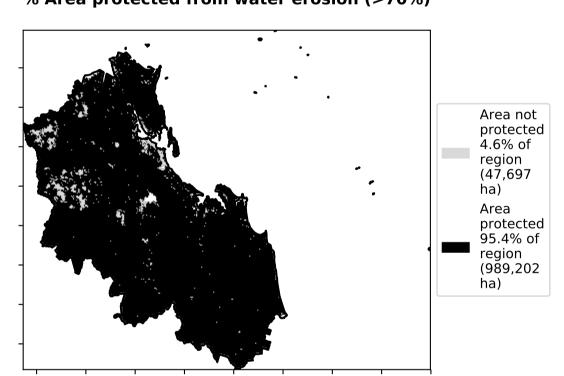
### **Total Vegetation Cover [%]**



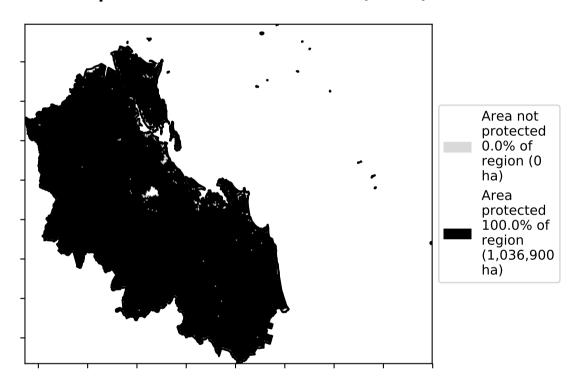
**Proportion of vegetation cover class in area** 



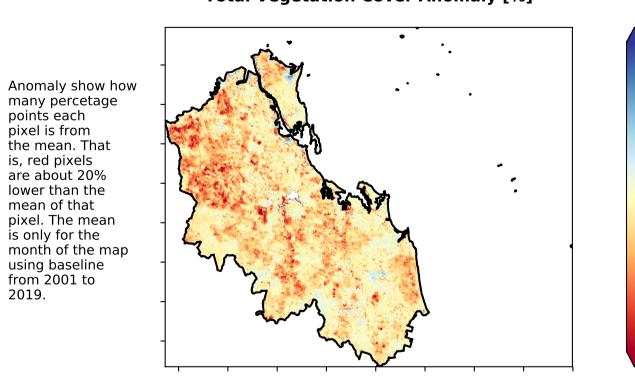
### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

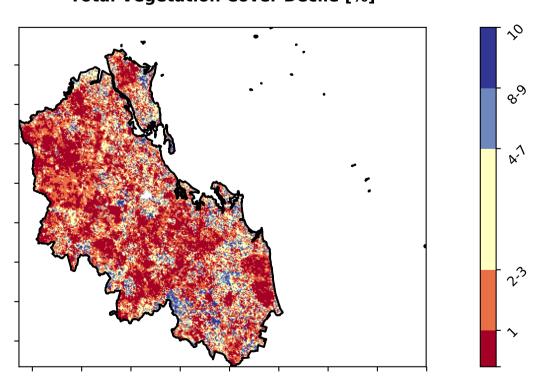


### **Total Vegetation Cover Anomaly [%]**



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

**Total Vegetation Cover Decile [%]** 













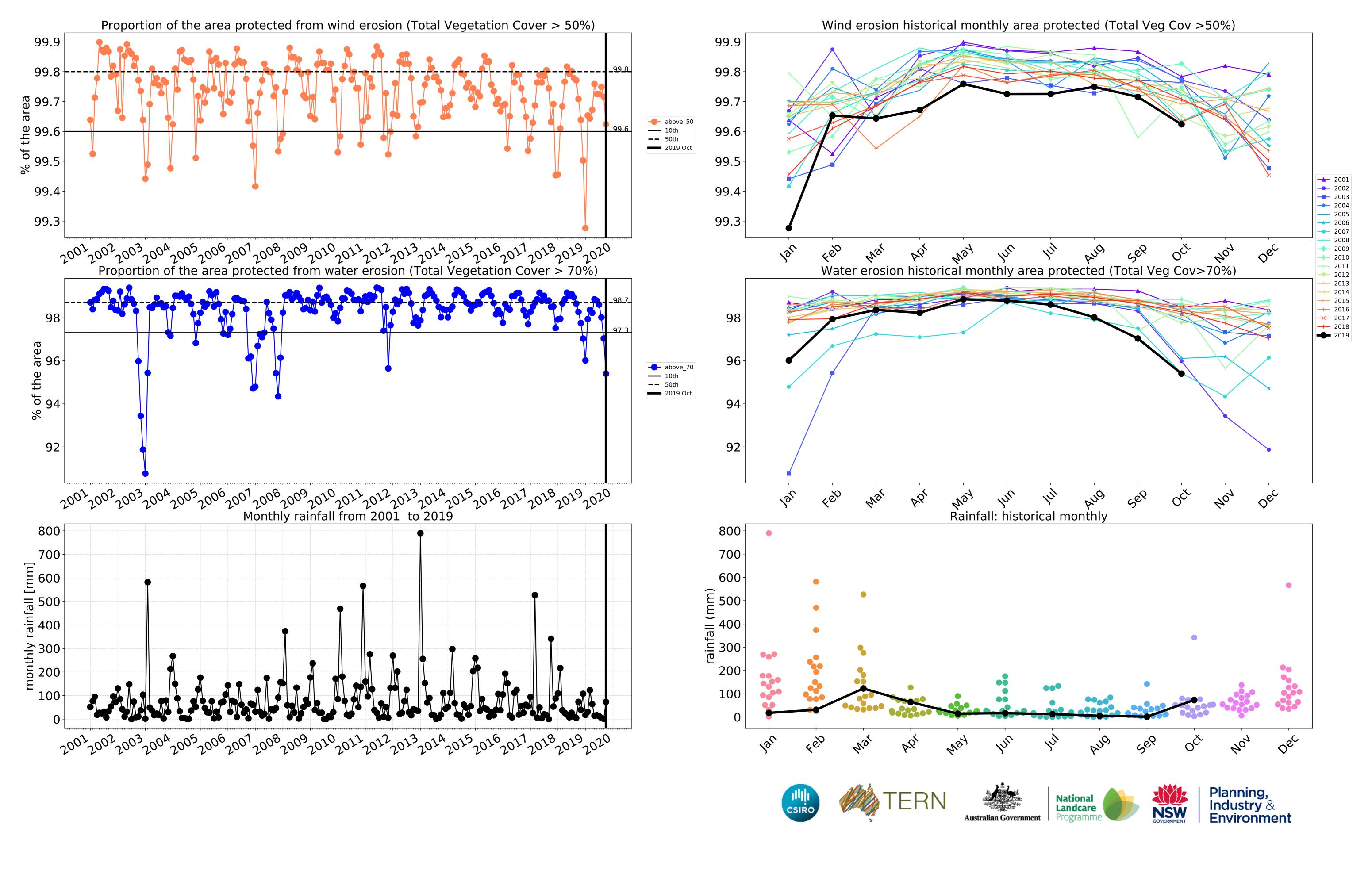


- 20

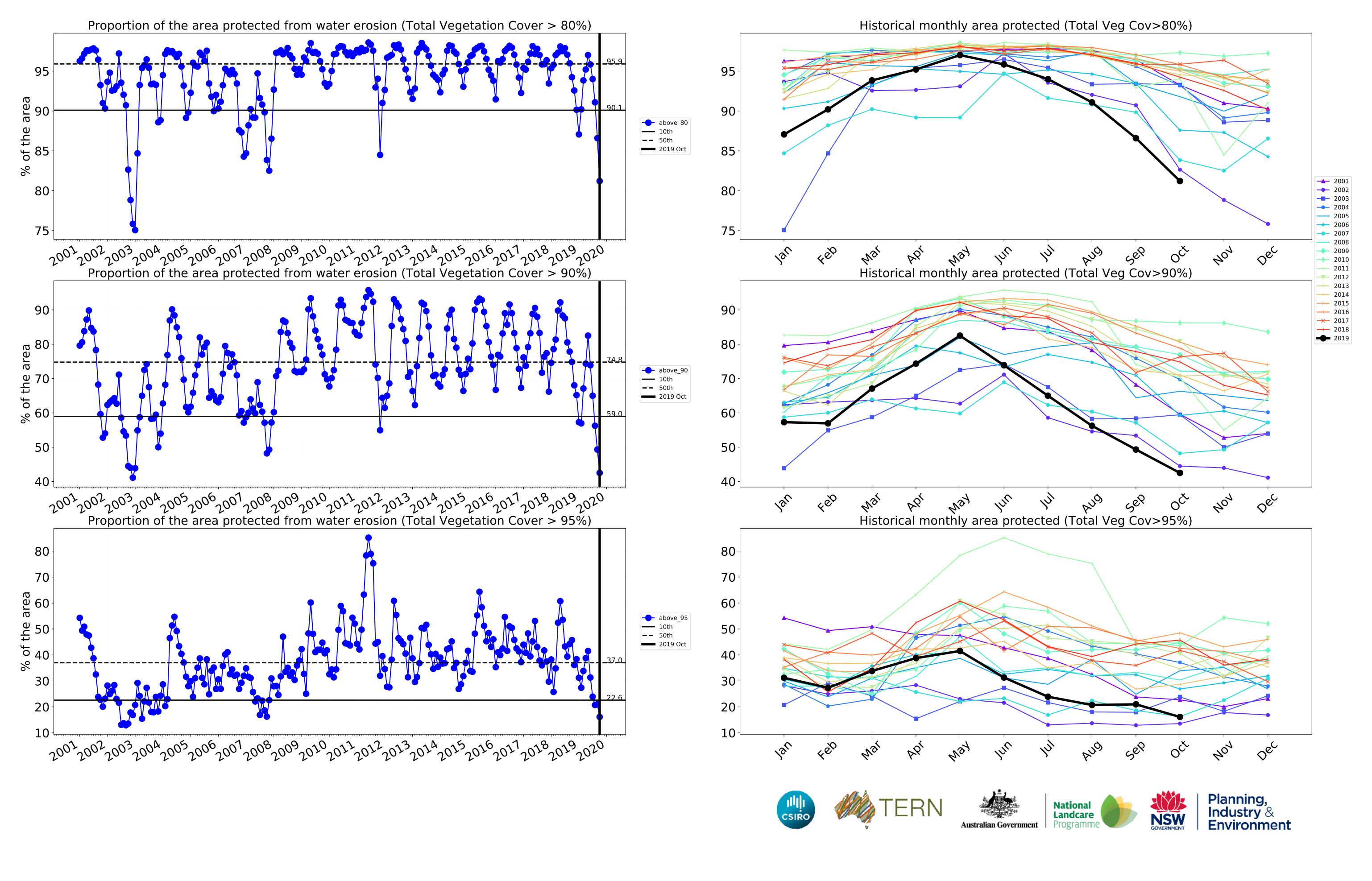
10

-10

-20

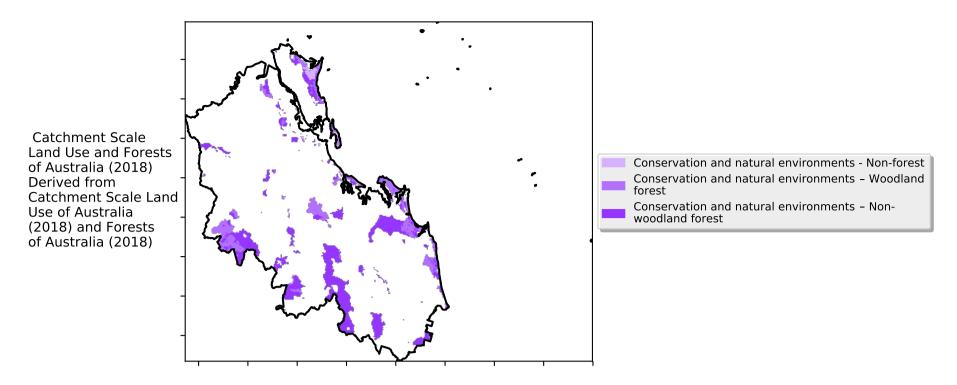


.

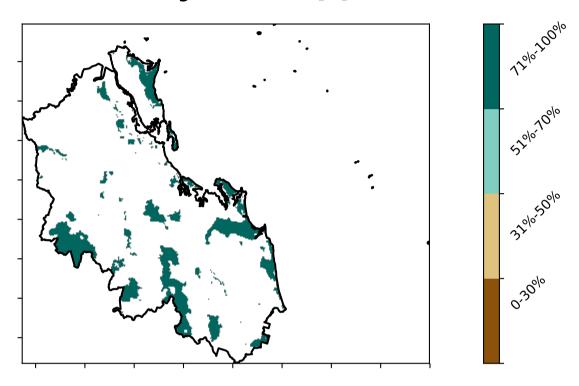


### **Conservation and natural environments**

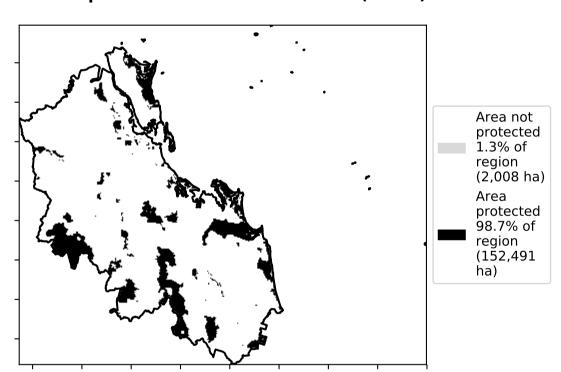
### Land use and forest cover



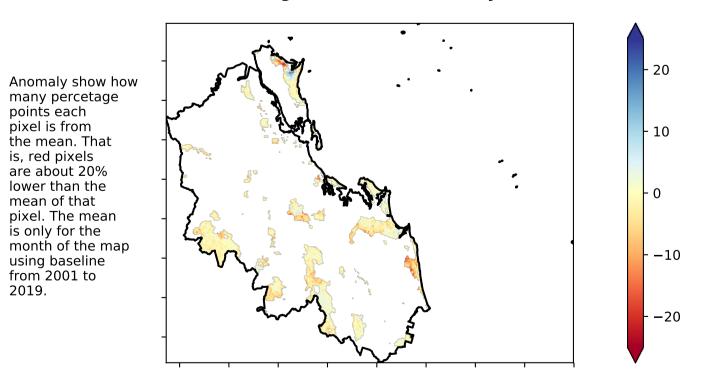
### **Total Vegetation Cover [%]**



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

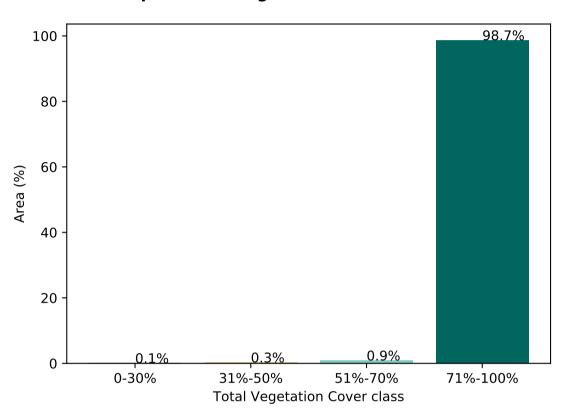


### **Total Vegetation Cover Anomaly [%]**

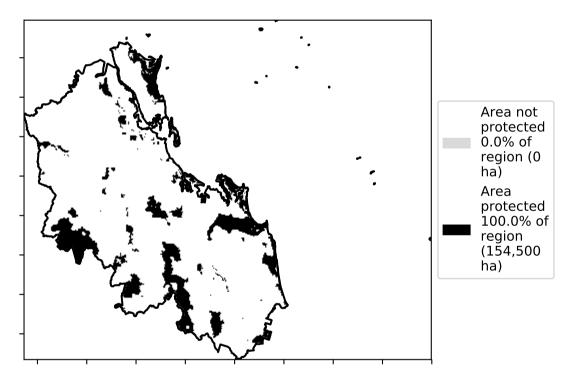


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

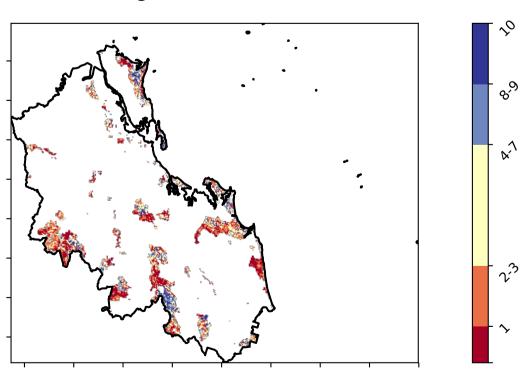
### **Proportion of vegetation cover class in area**



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



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





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



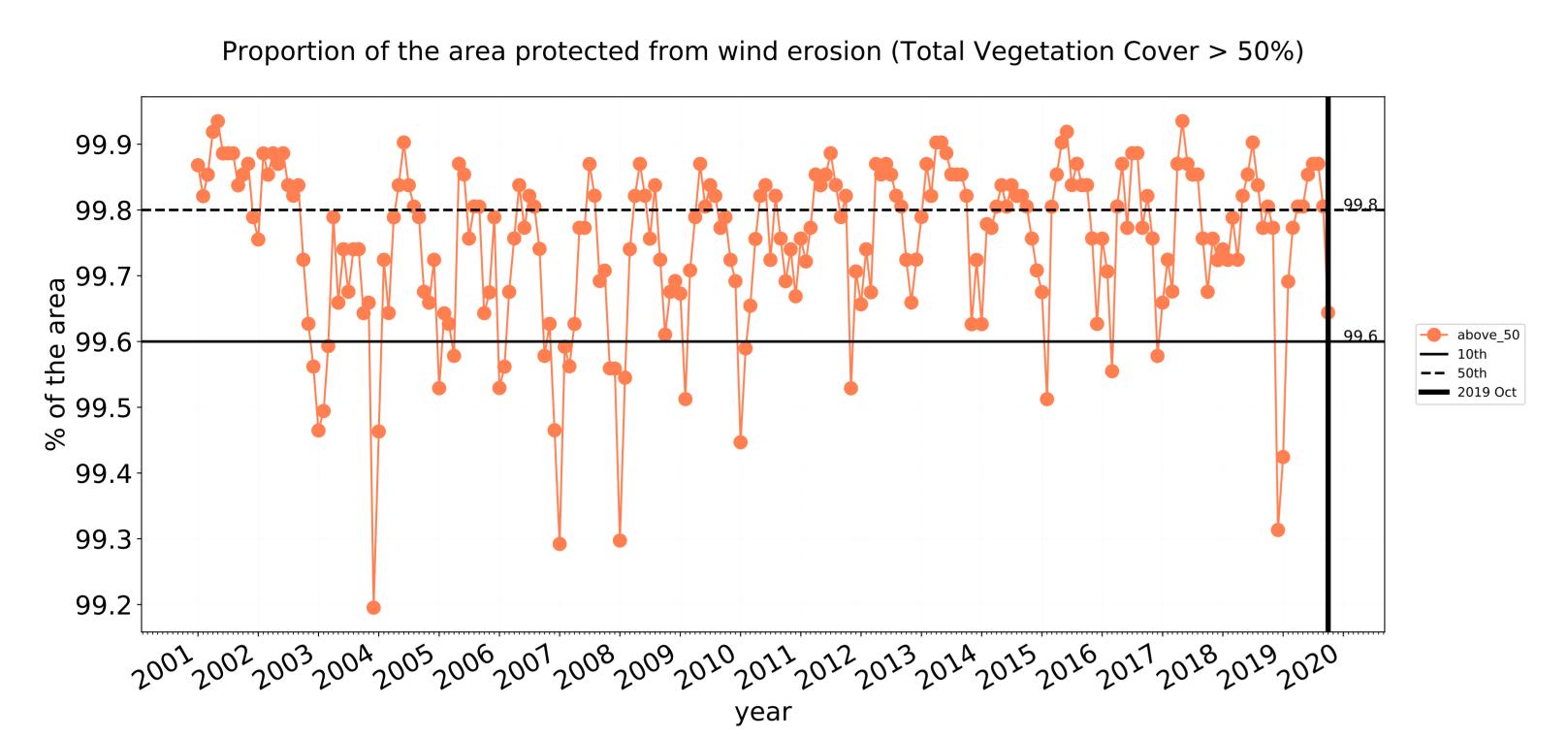


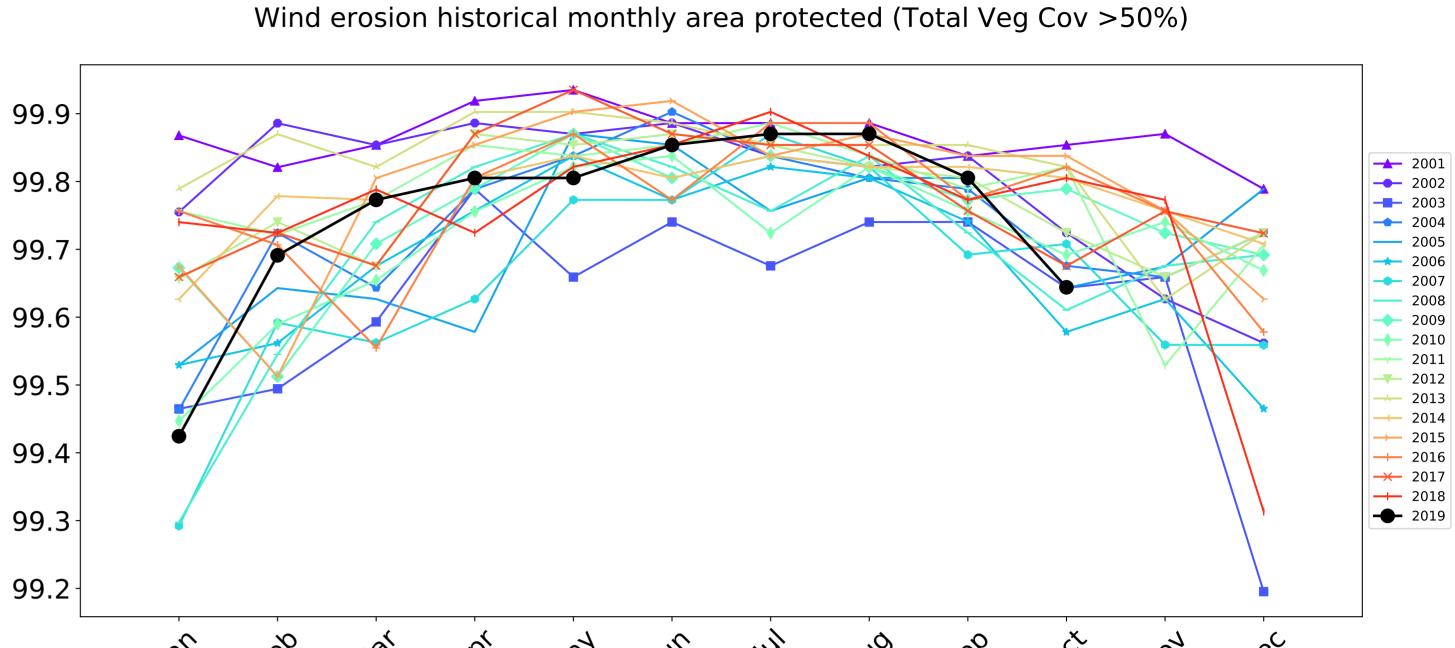




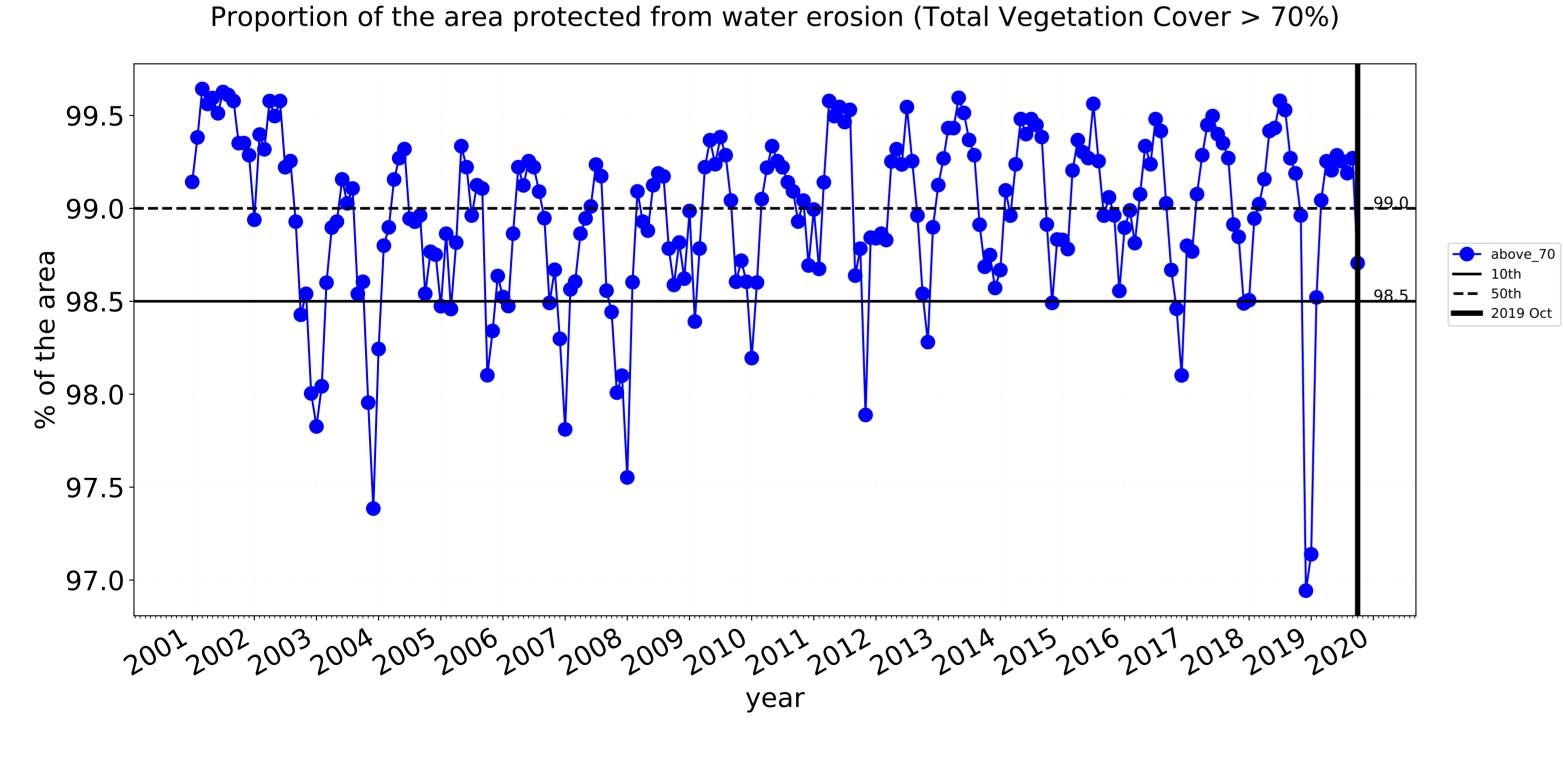


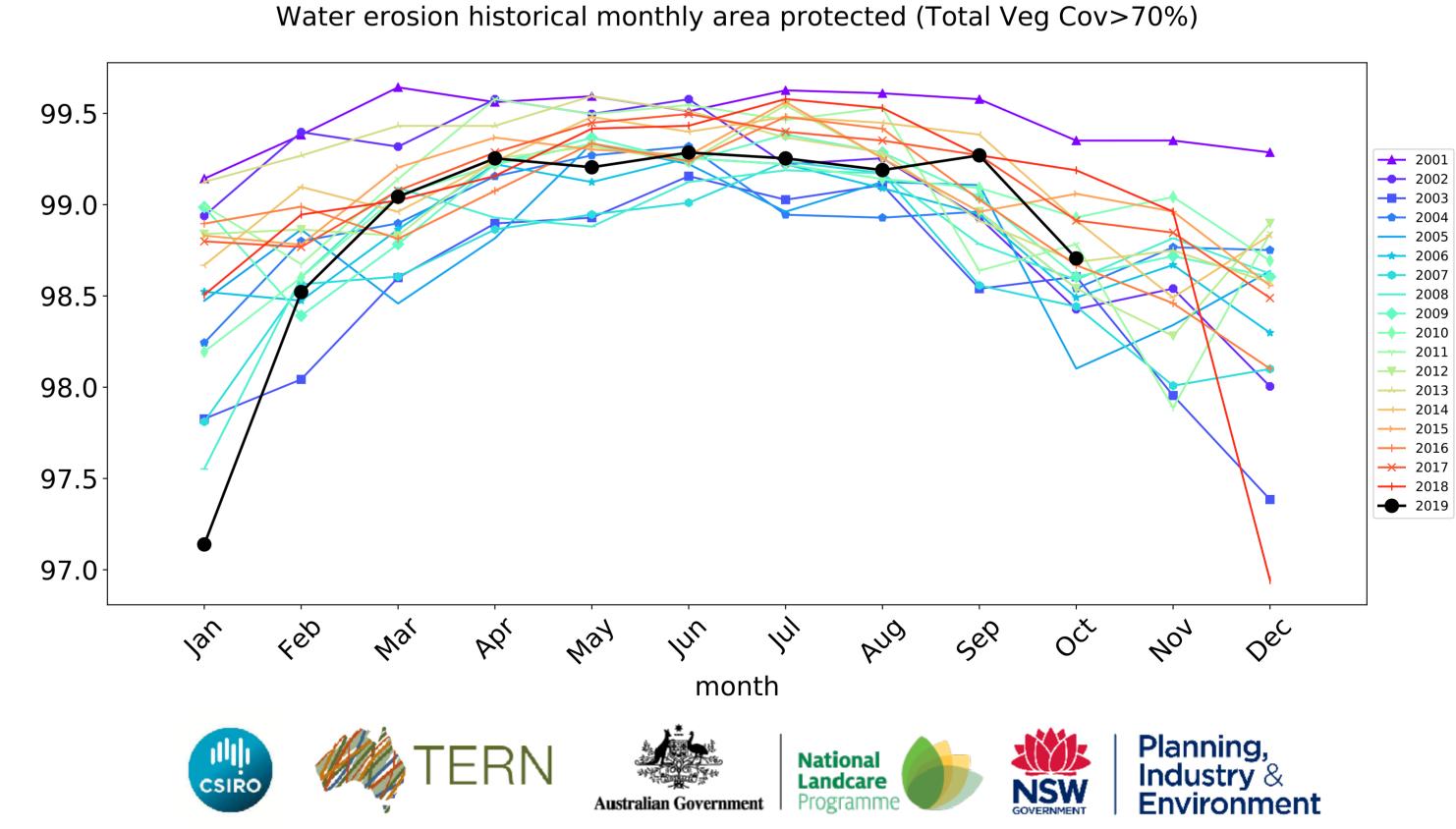
### **Conservation and natural environments timeseries**

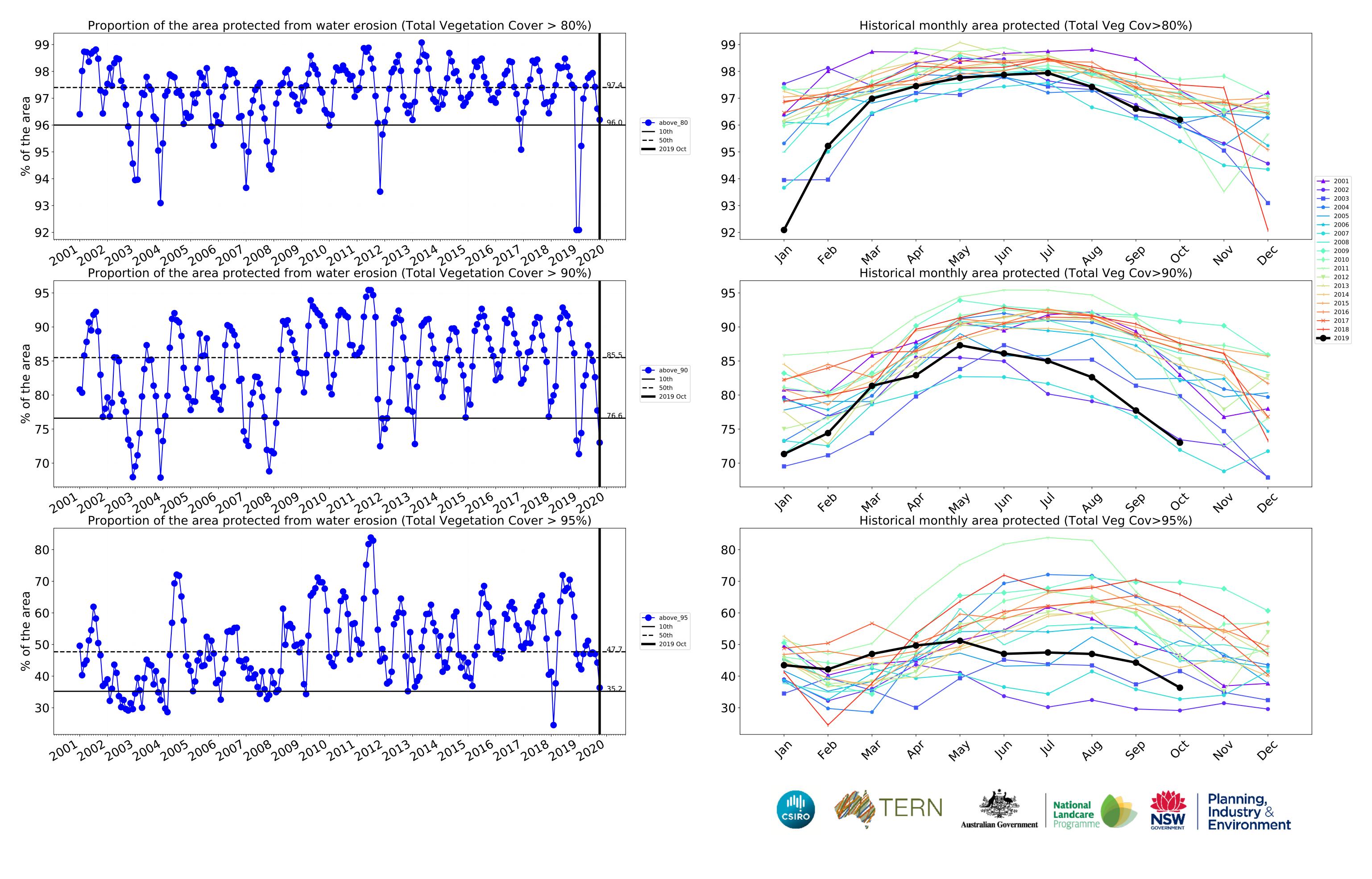




month

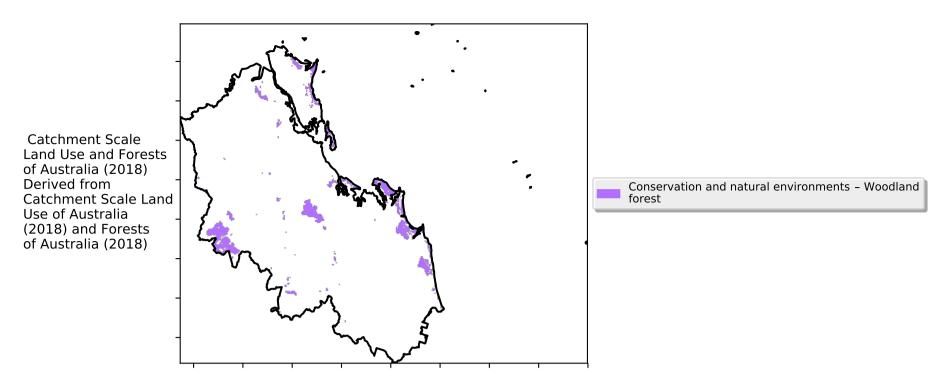




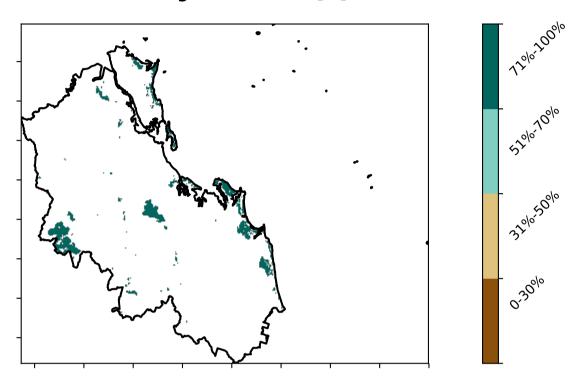


### **Conservation and natural environments Woodland forest**

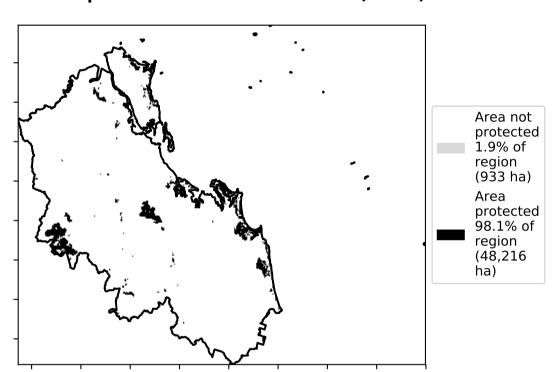
### Land use and forest cover



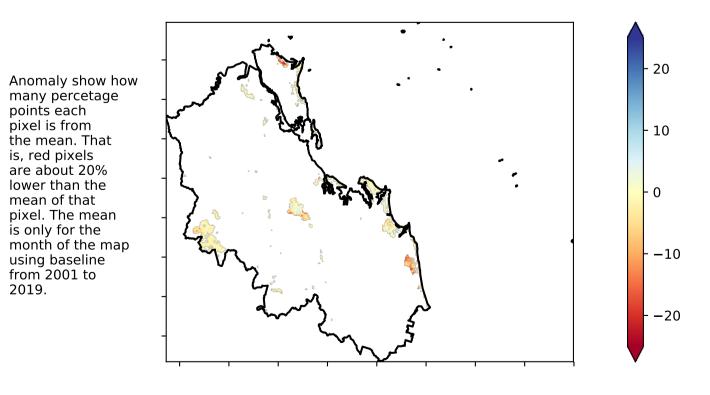
### **Total Vegetation Cover [%]**



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

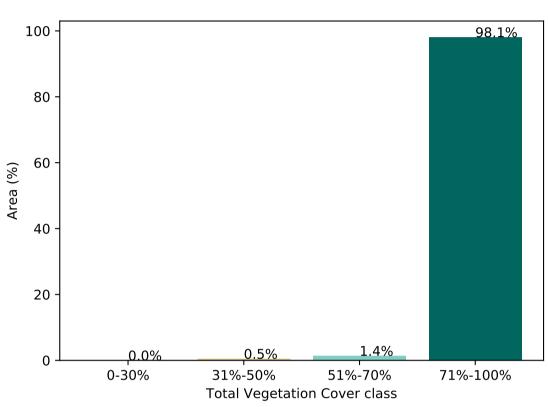


### **Total Vegetation Cover Anomaly [%]**

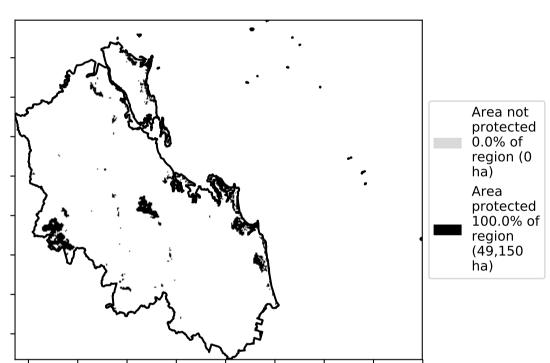


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

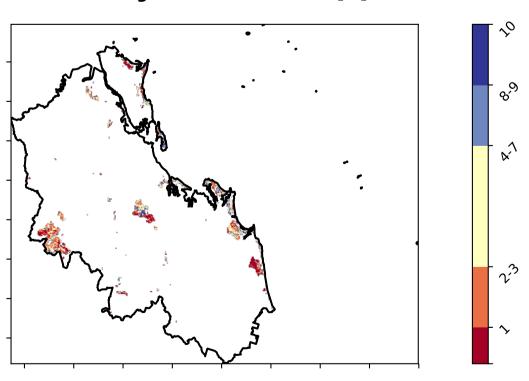
### Proportion of vegetation cover class in area



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



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





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

pixel. The mean

using baseline from 2001 to 2019.

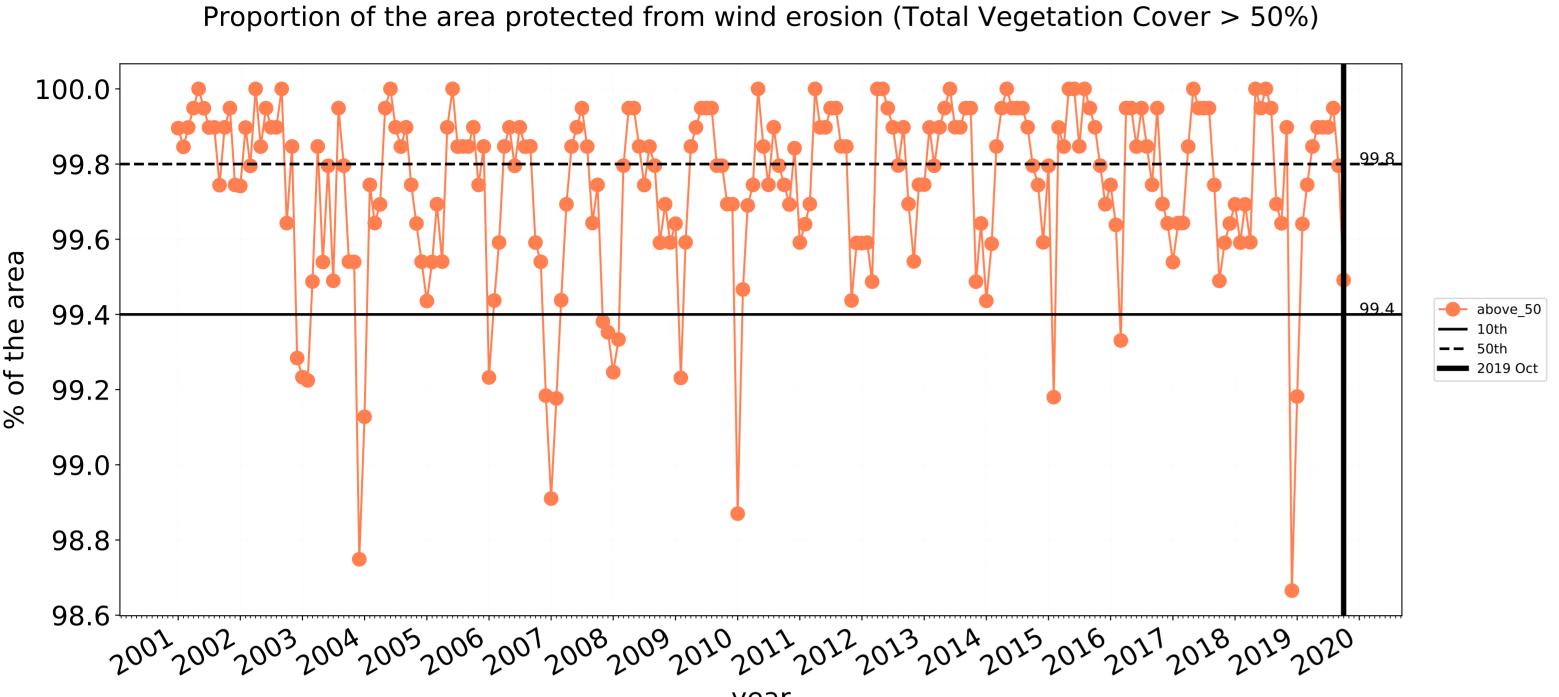


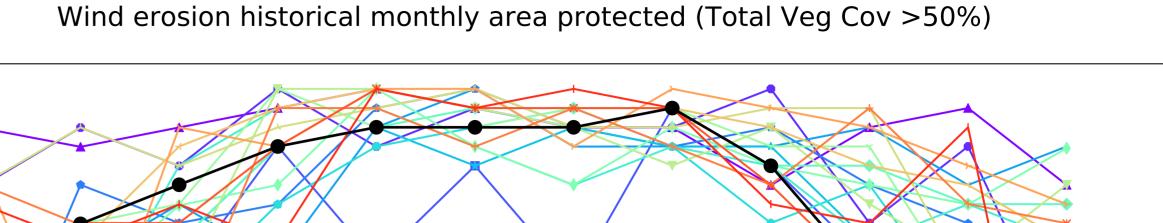


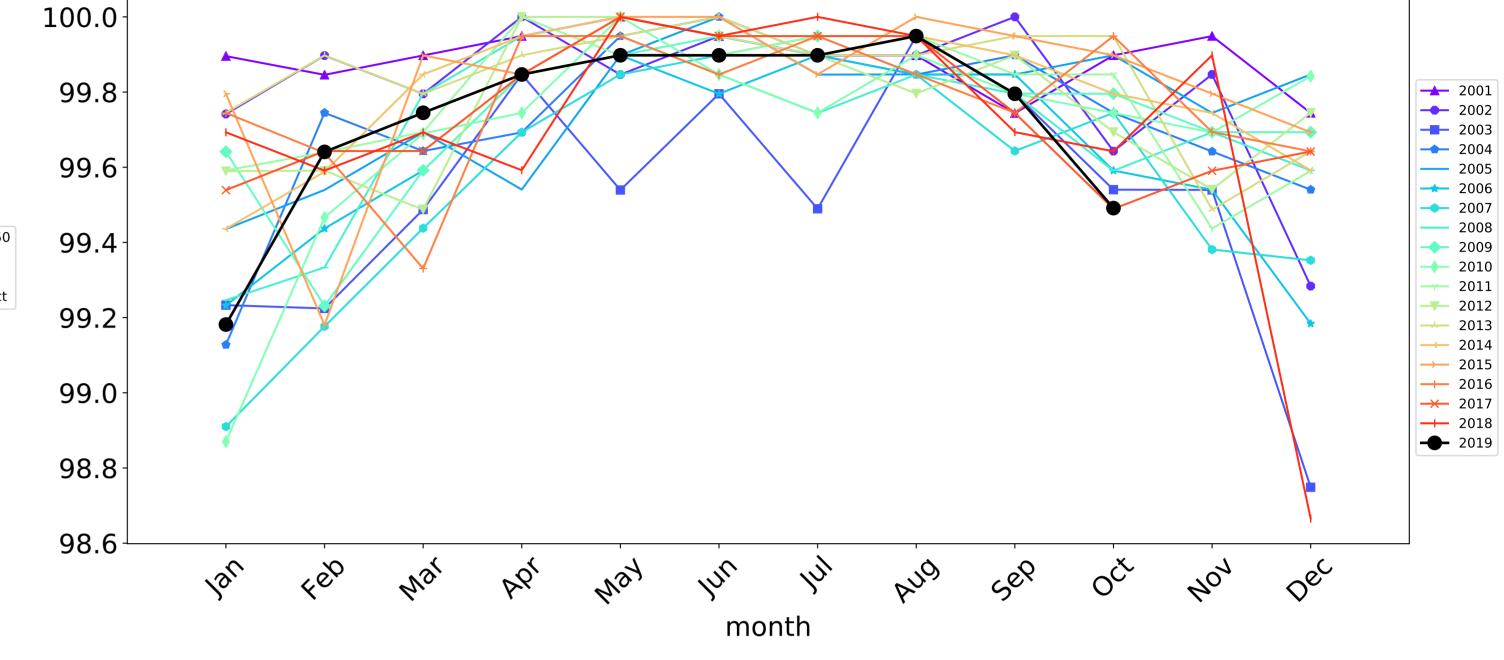




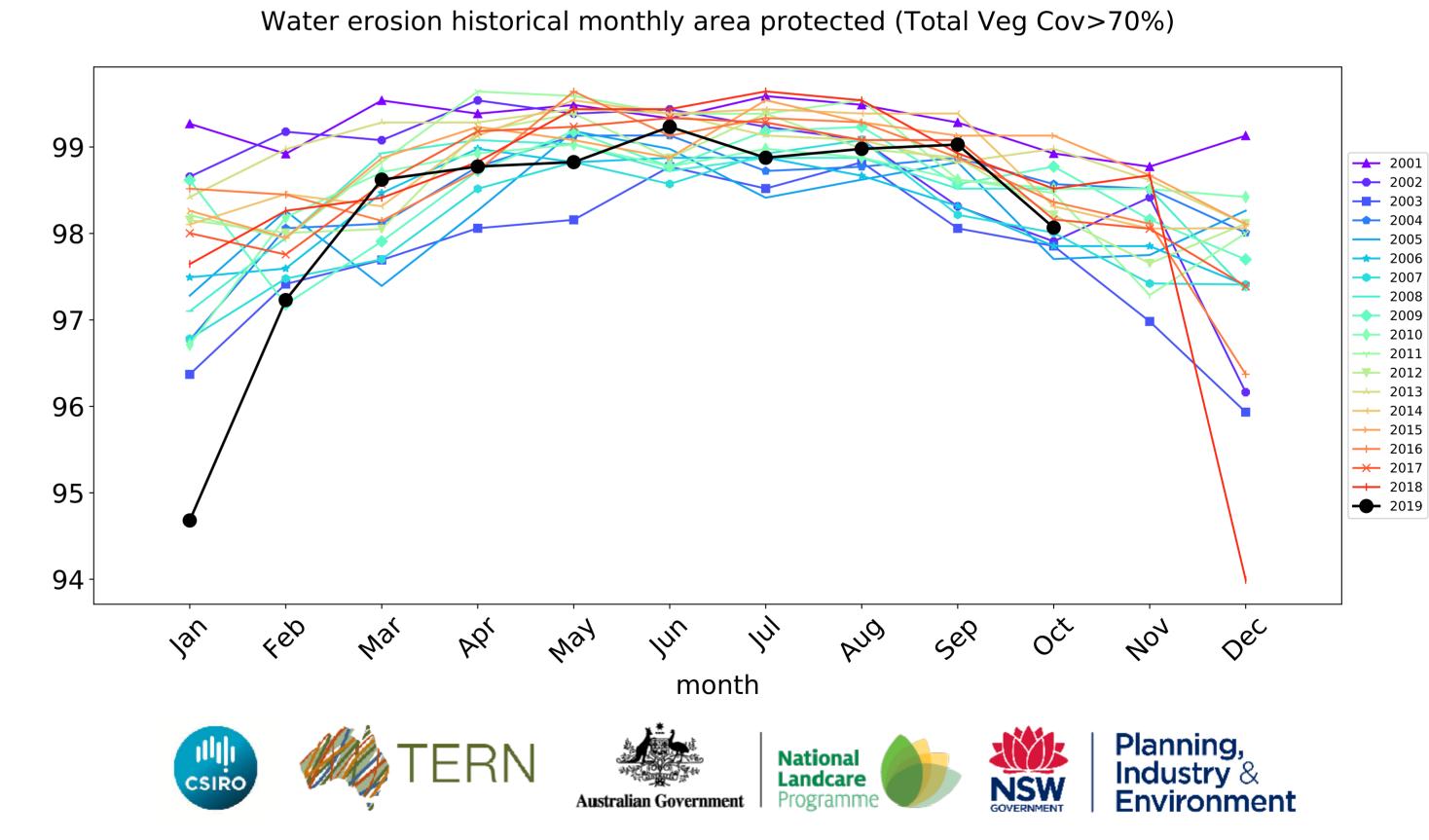


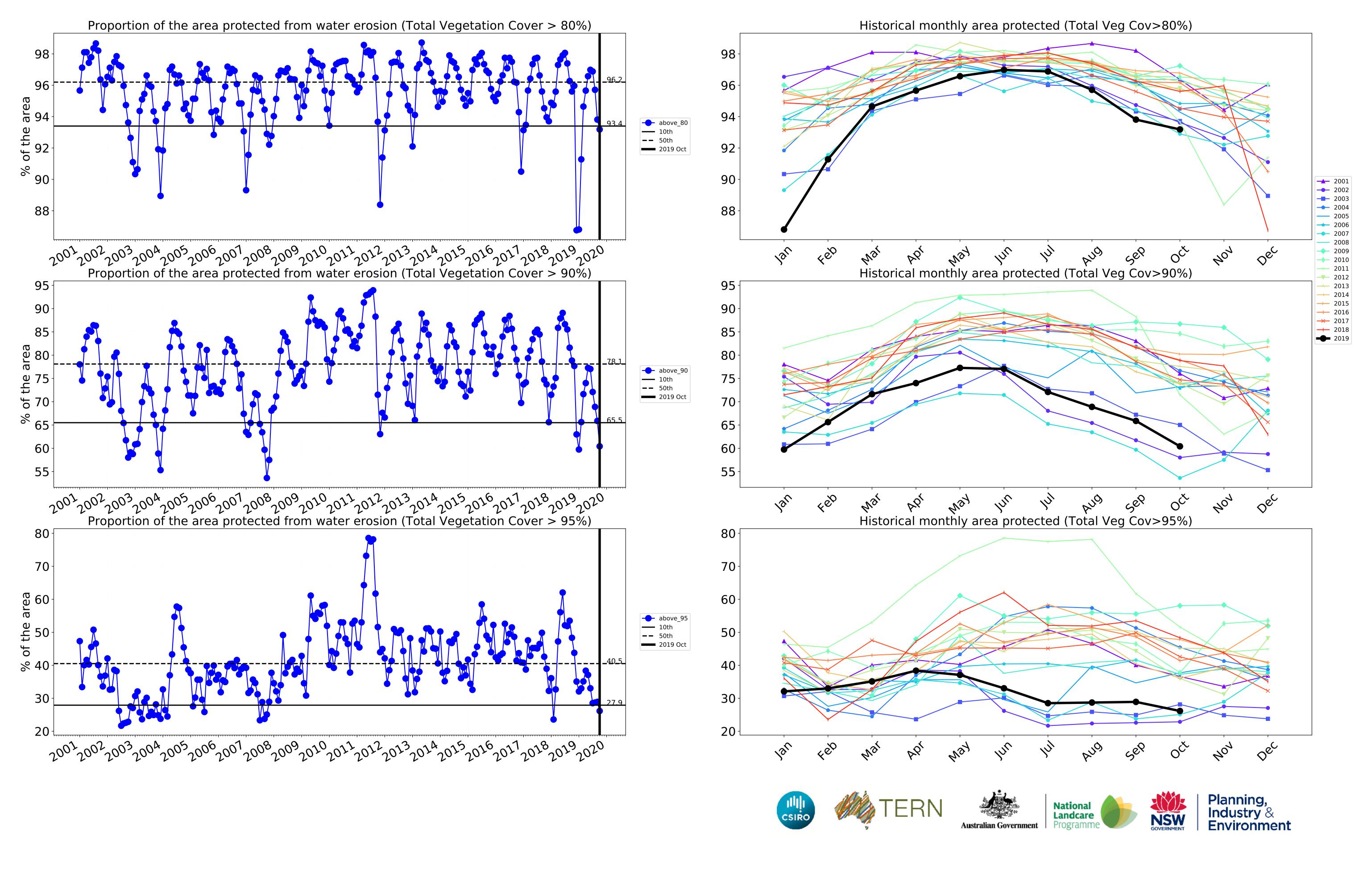






Proportion of the area protected from water erosion (Total Vegetation Cover > 70%) 98 **--** 50th **2019** Oct % of the 96 95 94 20012002200320042005200620012008200920102011201220132014201520162011201820192020



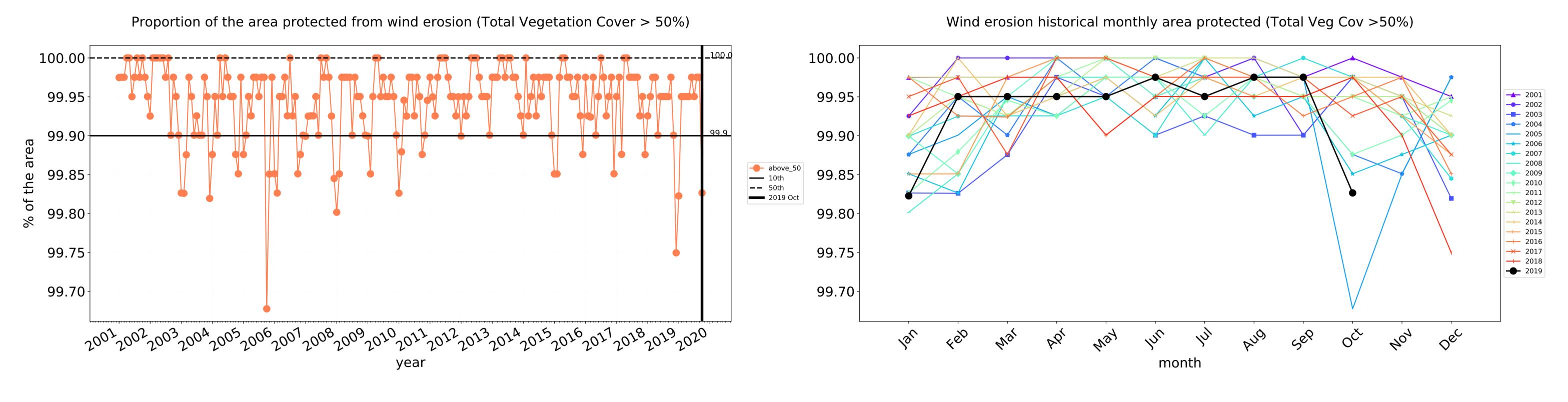


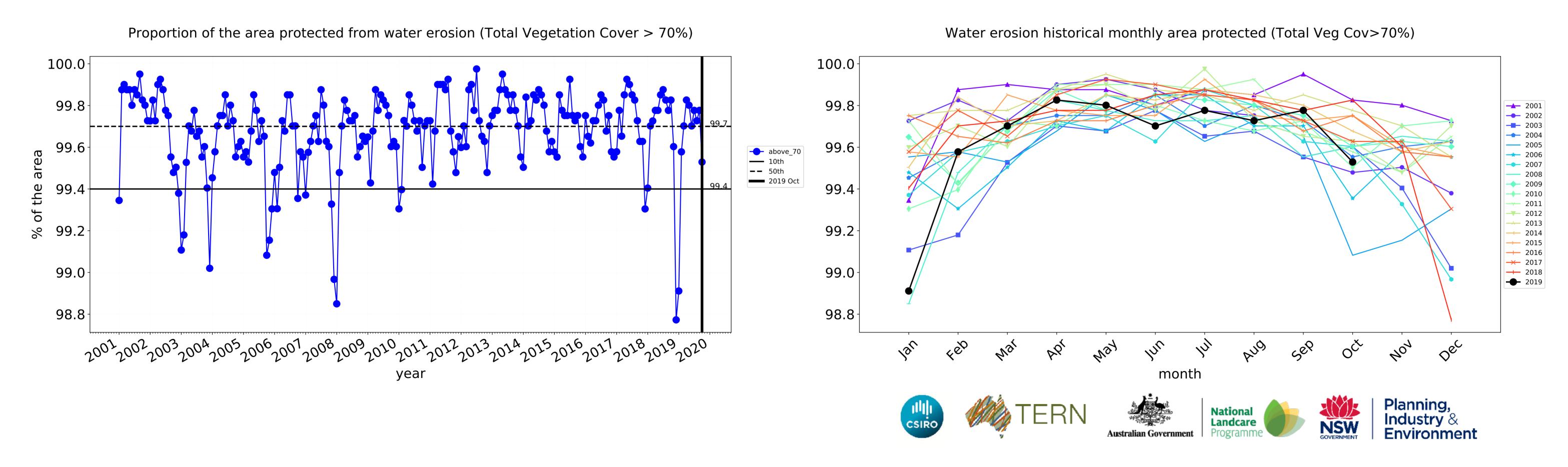
### **Conservation and natural environments Forest (non woodland)**

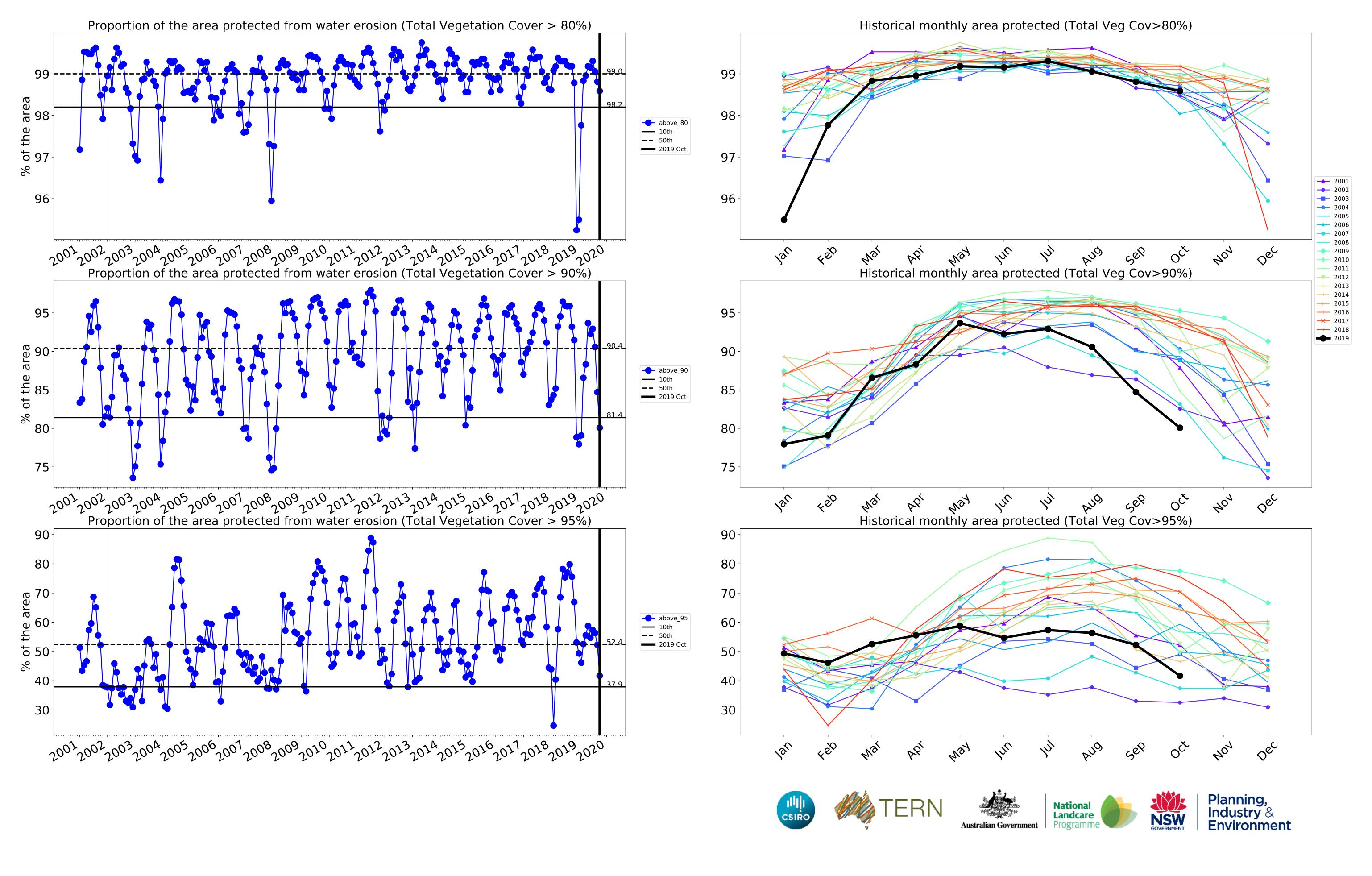
### **Land use and forest cover** Catchment Scale Land Use and Forests of Australia (2018) Derived from Conservation and natural environments - Non-Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) **Total Vegetation Cover [%]** Proportion of vegetation cover class in area 99.5% 100 80 Area (%) 20 0.3% 51%-70% 0-30% 31%-50% 71%-100% **Total Vegetation Cover class** % Area protected from water erosion (>70%) % Area protected from wind erosion (>50%) Area not protected 0.5% of Area not protected 0.0% of region (504 ha) region (0 ha) Area Area protected 100.0% of protected 99.5% of region (100,370 region (100,875 ha) ha) **Total Vegetation Cover Anomaly [%] Total Vegetation Cover Decile [%]** - 20 Anomaly show how many percetage points each pixel is from the mean. That Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. 10 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. the map using baseline from 2001 to 2019. -10-20 Planning, Industry & Environment National Landcare

Australian Government

Programme

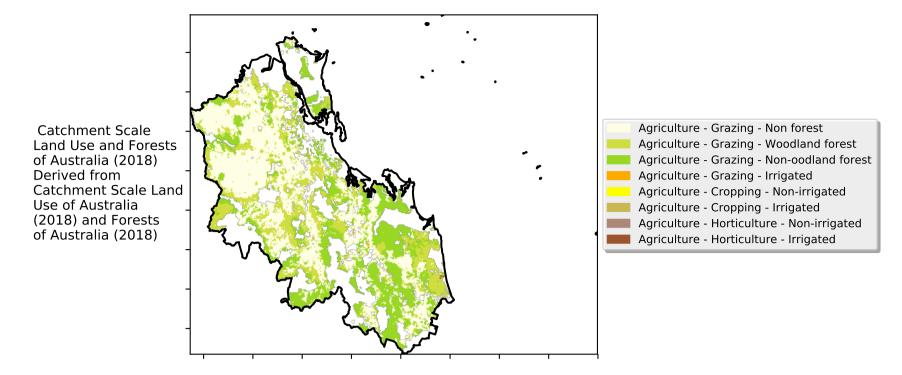




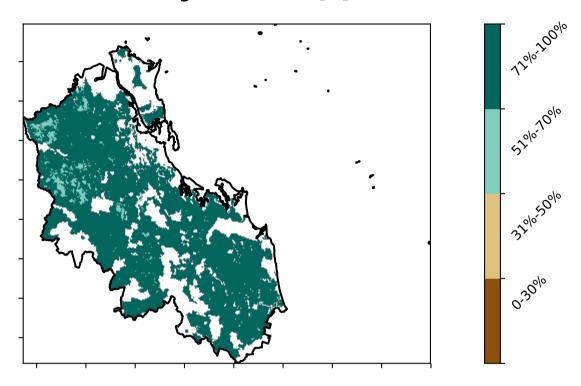


### **Agriculture**

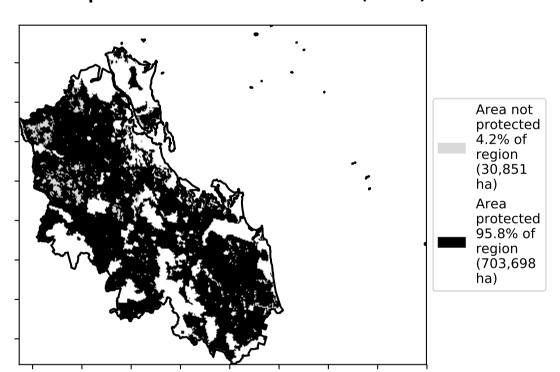
### Land use and forest cover



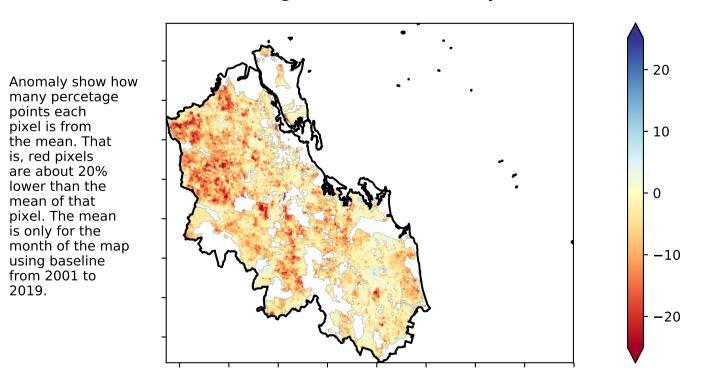
### **Total Vegetation Cover [%]**



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

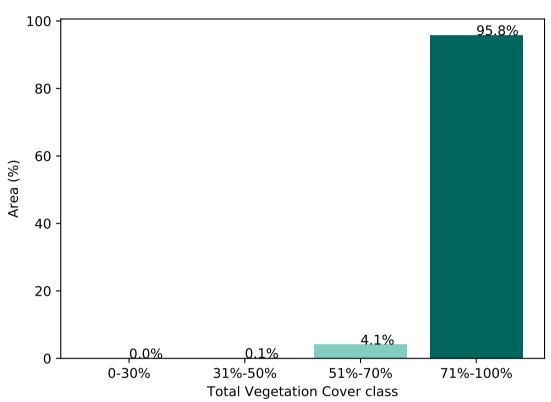


### **Total Vegetation Cover Anomaly [%]**

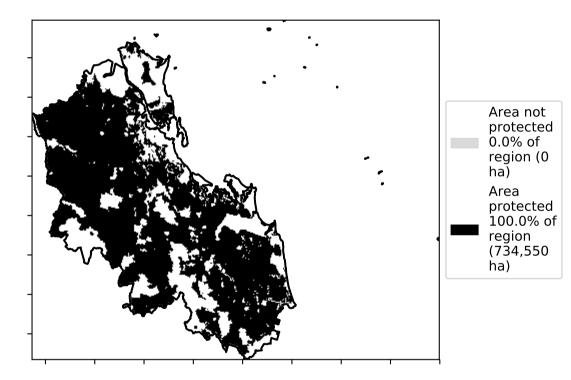


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

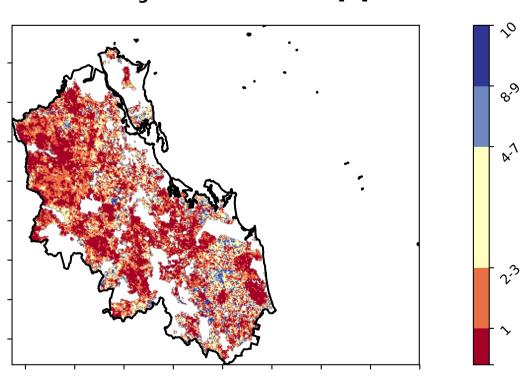
### Proportion of vegetation cover class in area



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



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





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



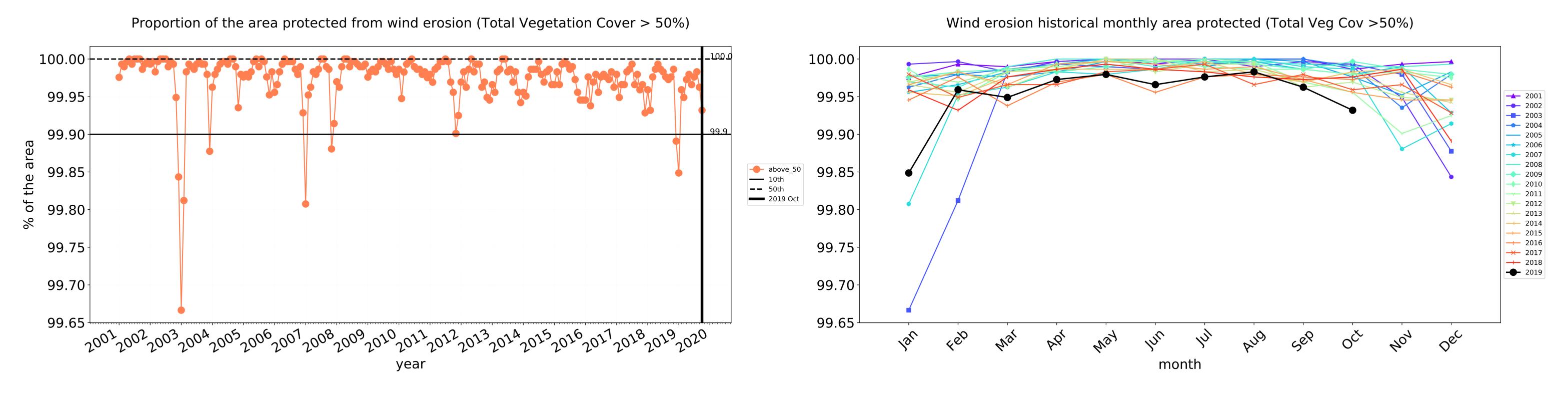


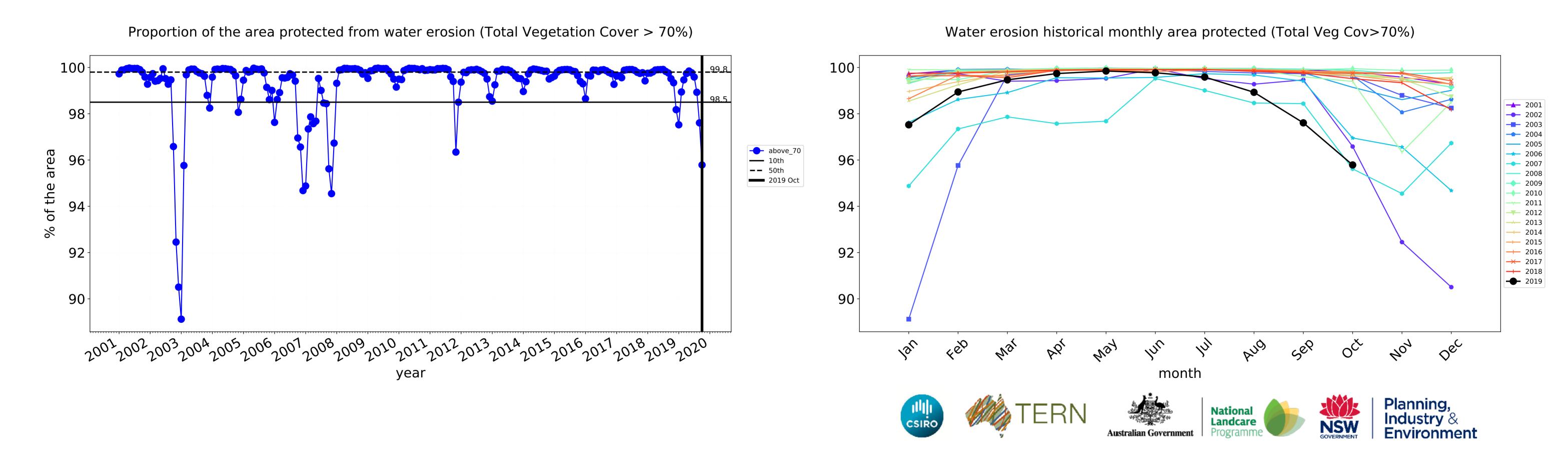


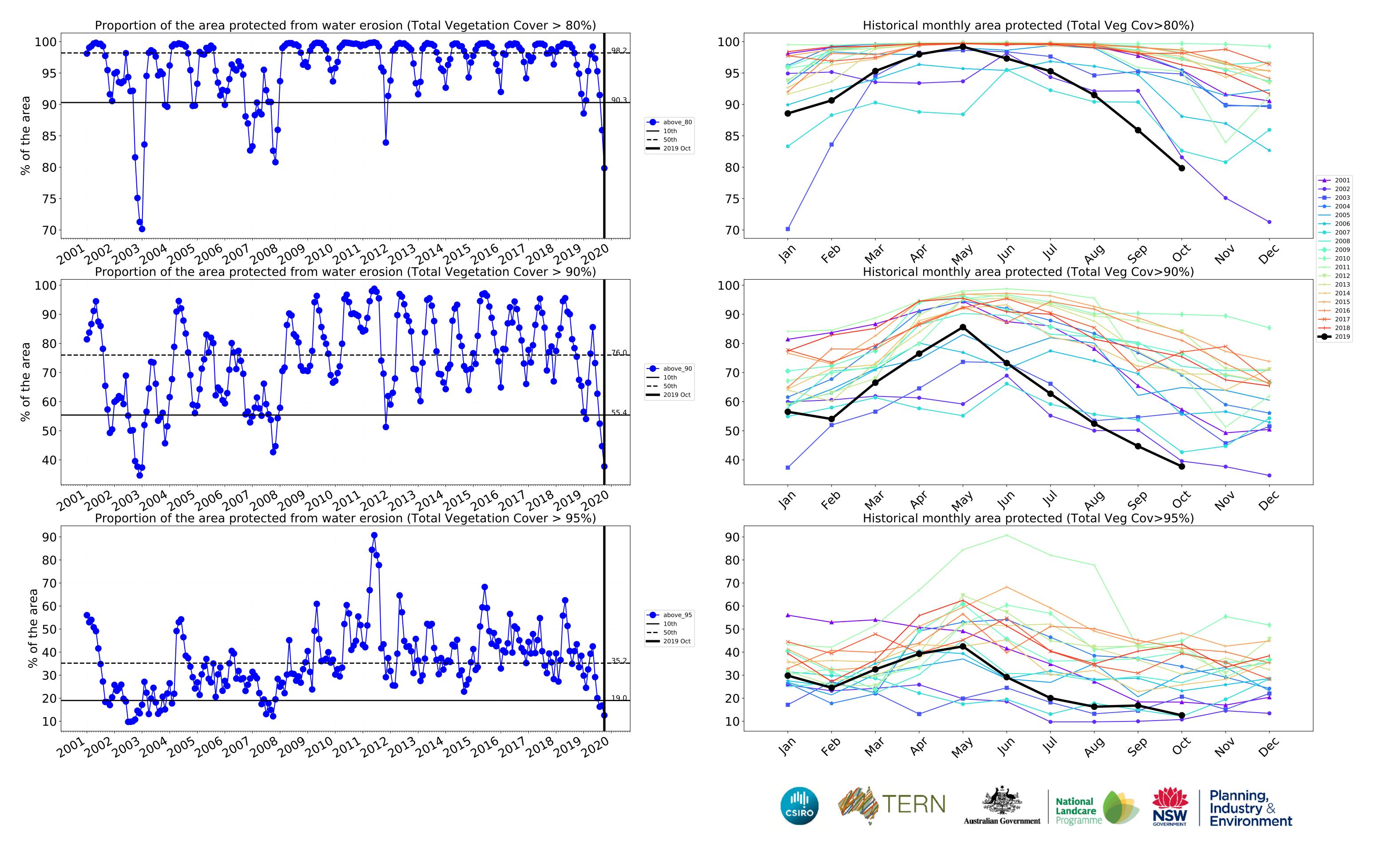




### **Agriculture timeseries**

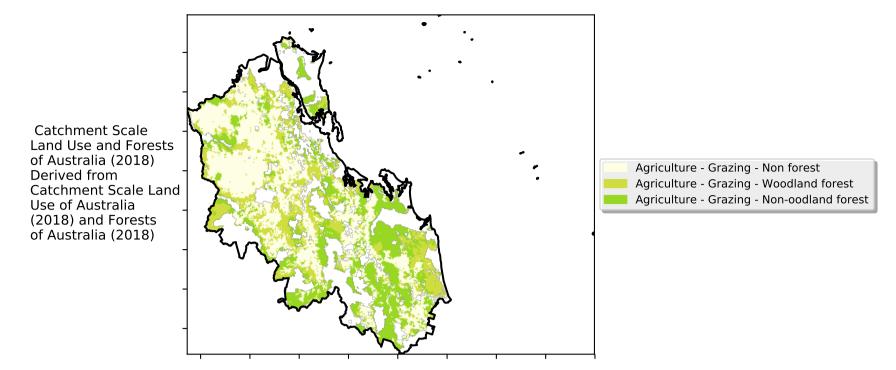




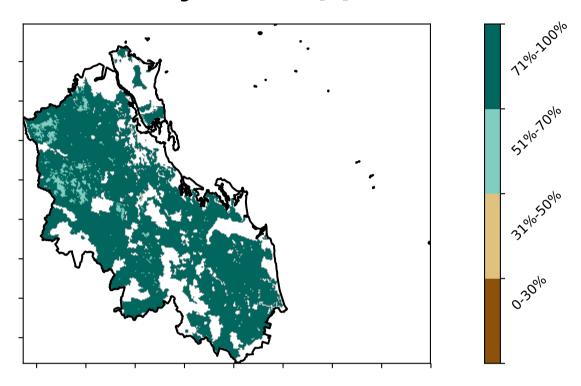


### Grazing

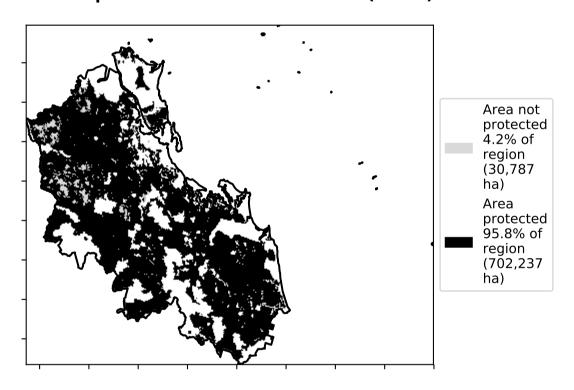
### **Land use and forest cover**



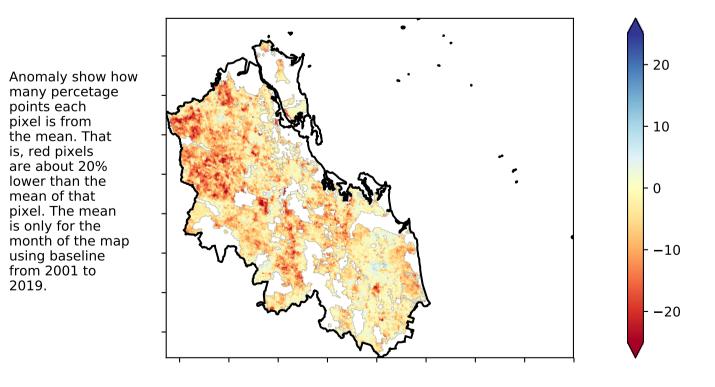
### **Total Vegetation Cover [%]**



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

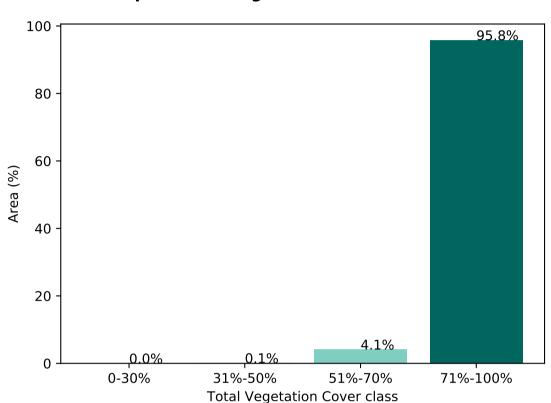


### **Total Vegetation Cover Anomaly [%]**

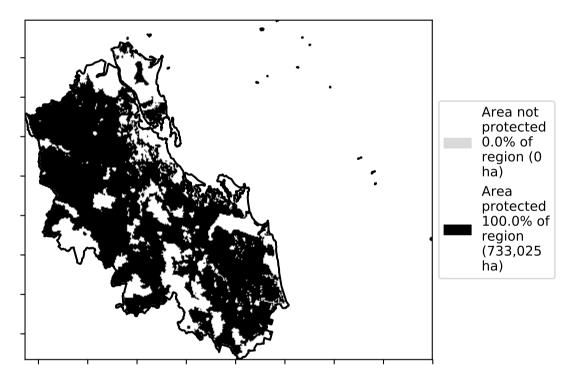


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

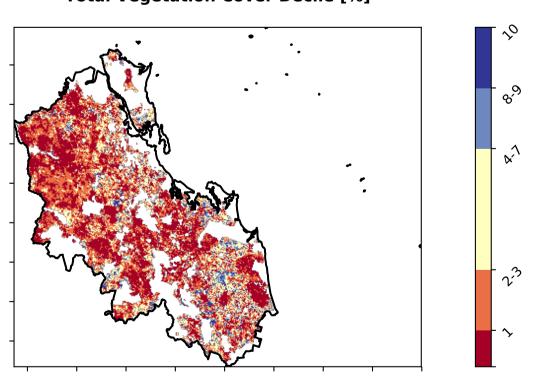
### Proportion of vegetation cover class in area



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



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





are about 20% lower than the mean of that

using baseline from 2001 to 2019.



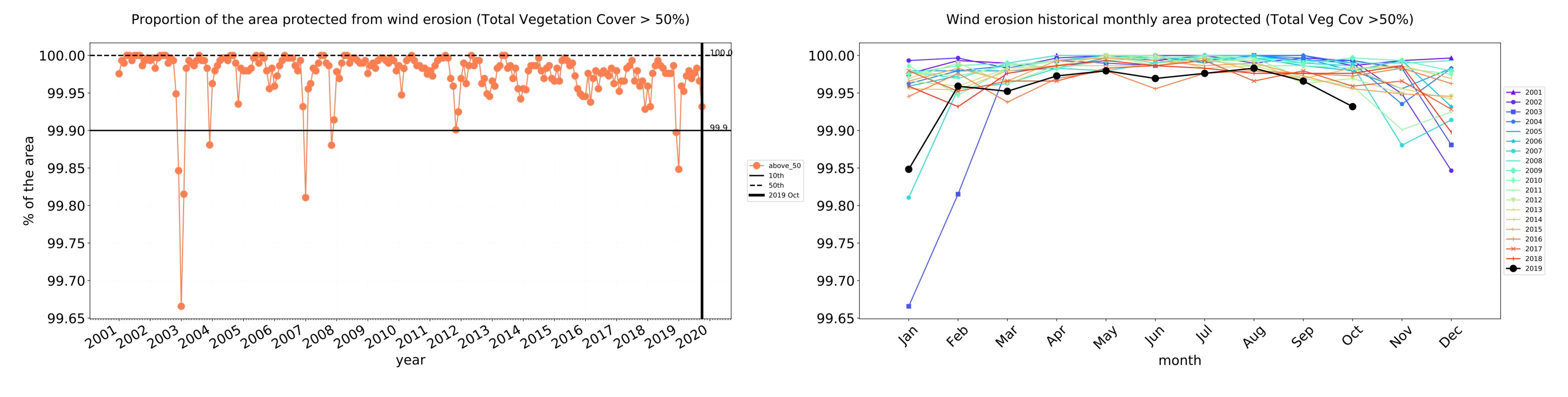


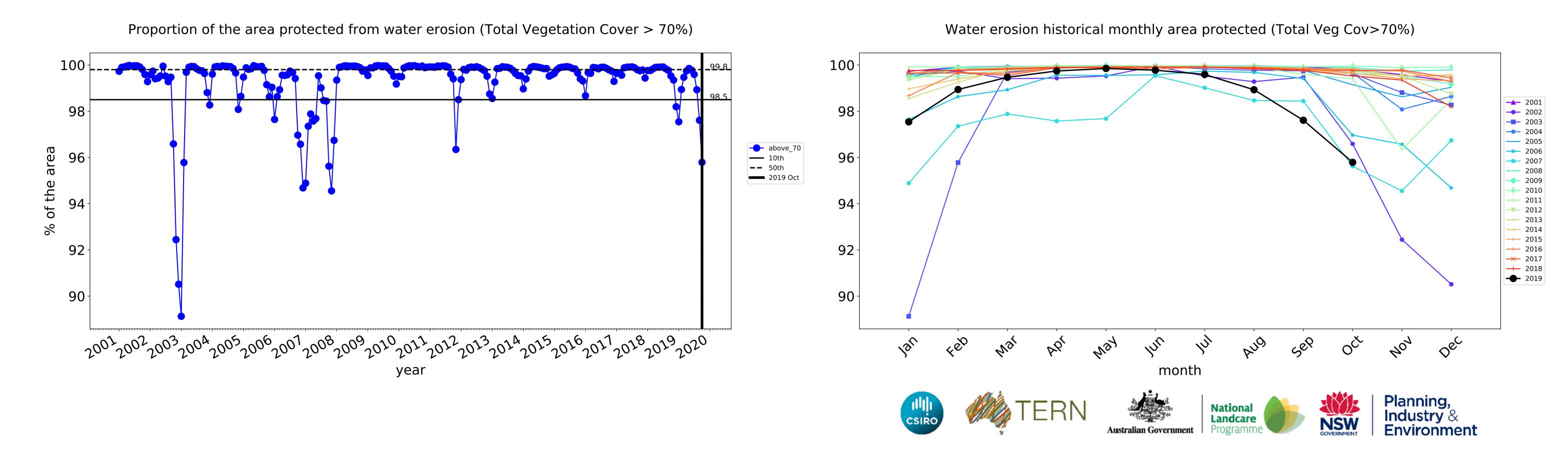


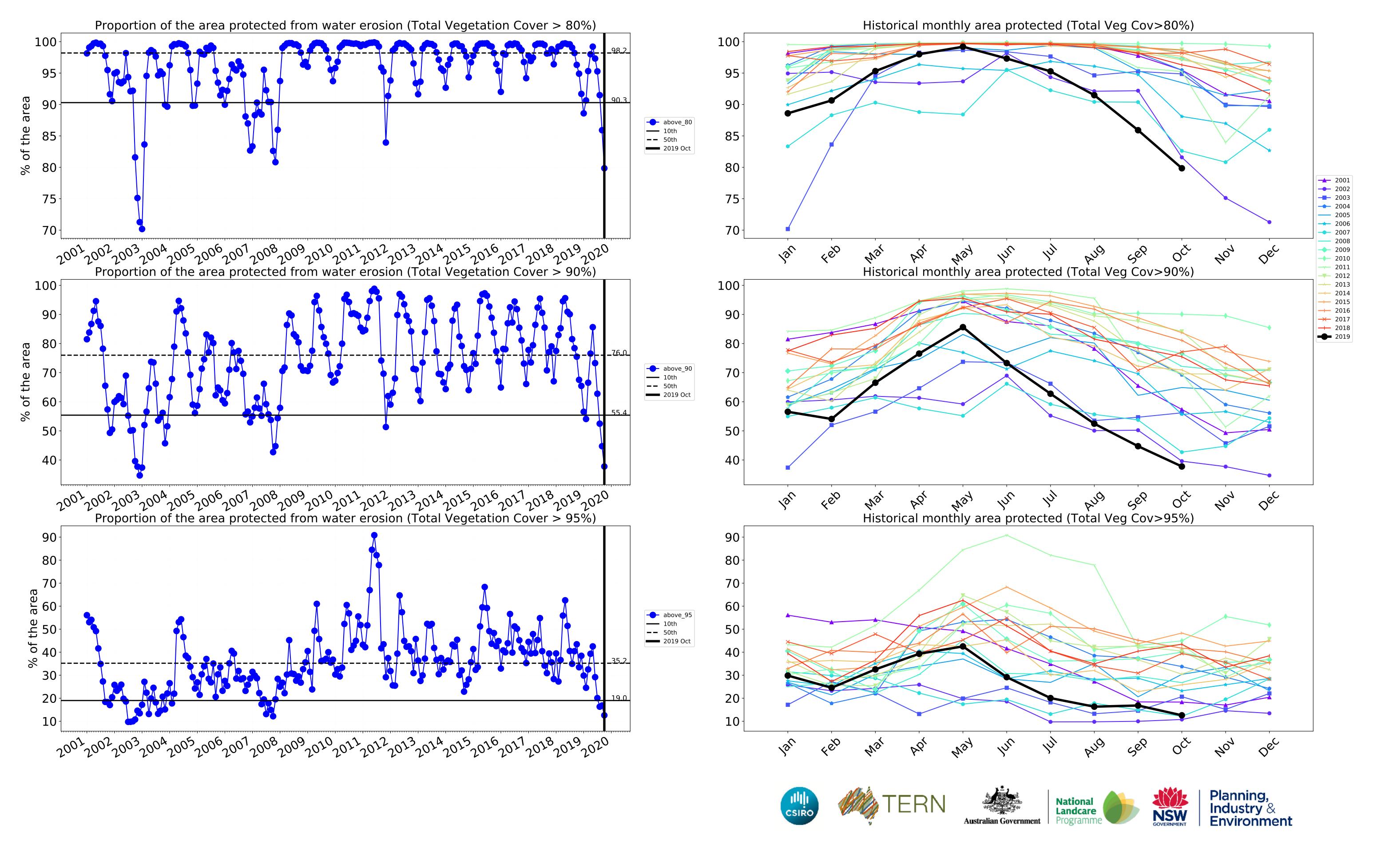




### **Grazing timeseries**

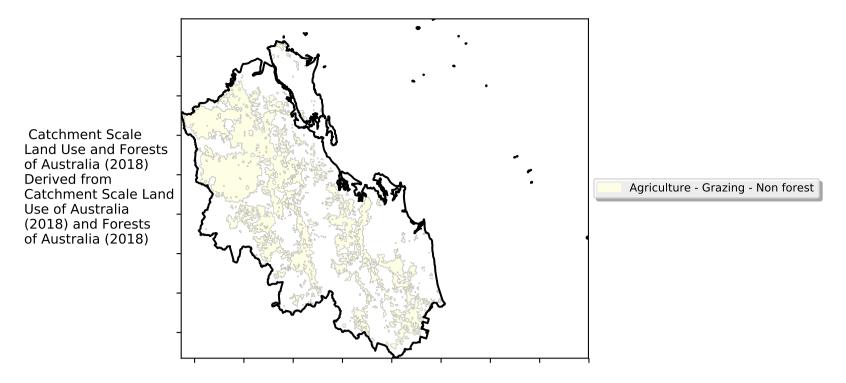




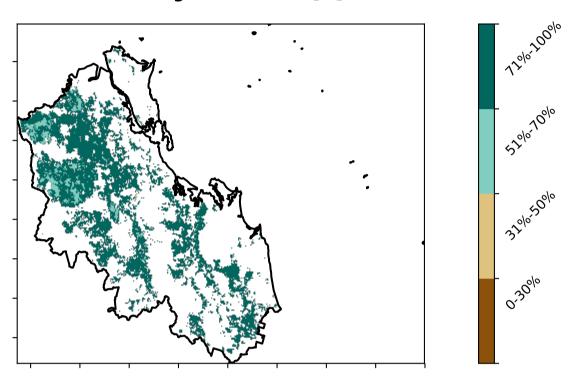


### **Grazing non forest**

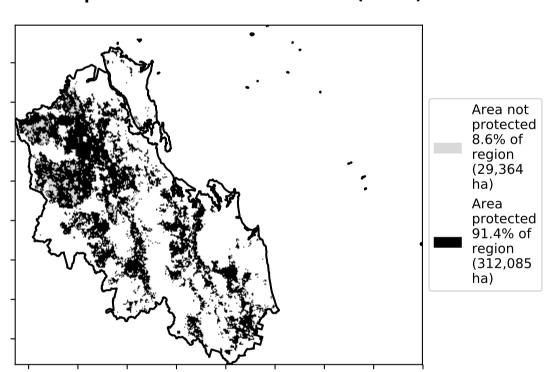
### **Land use and forest cover**



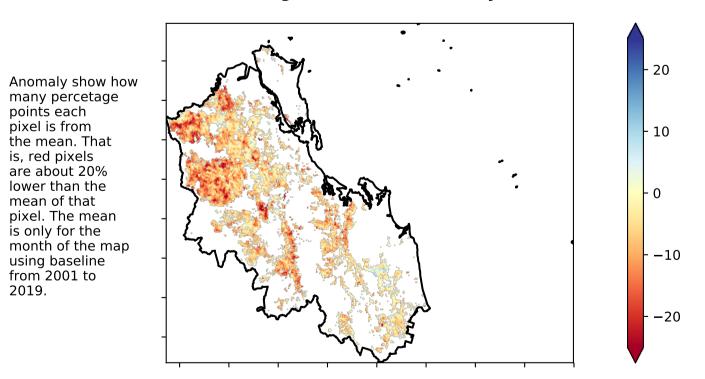
### **Total Vegetation Cover [%]**



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

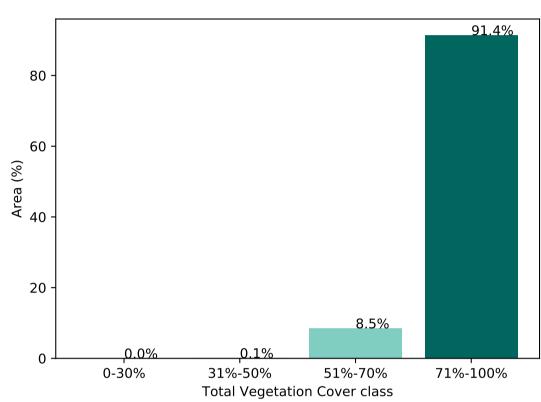


### **Total Vegetation Cover Anomaly [%]**

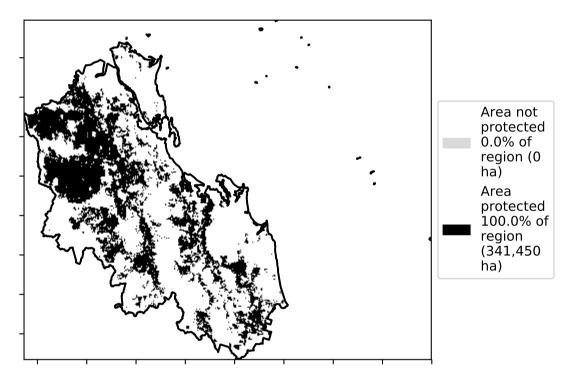


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

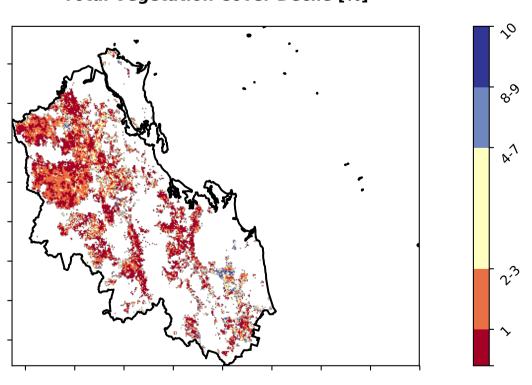
### Proportion of vegetation cover class in area



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



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





are about 20% lower than the mean of that



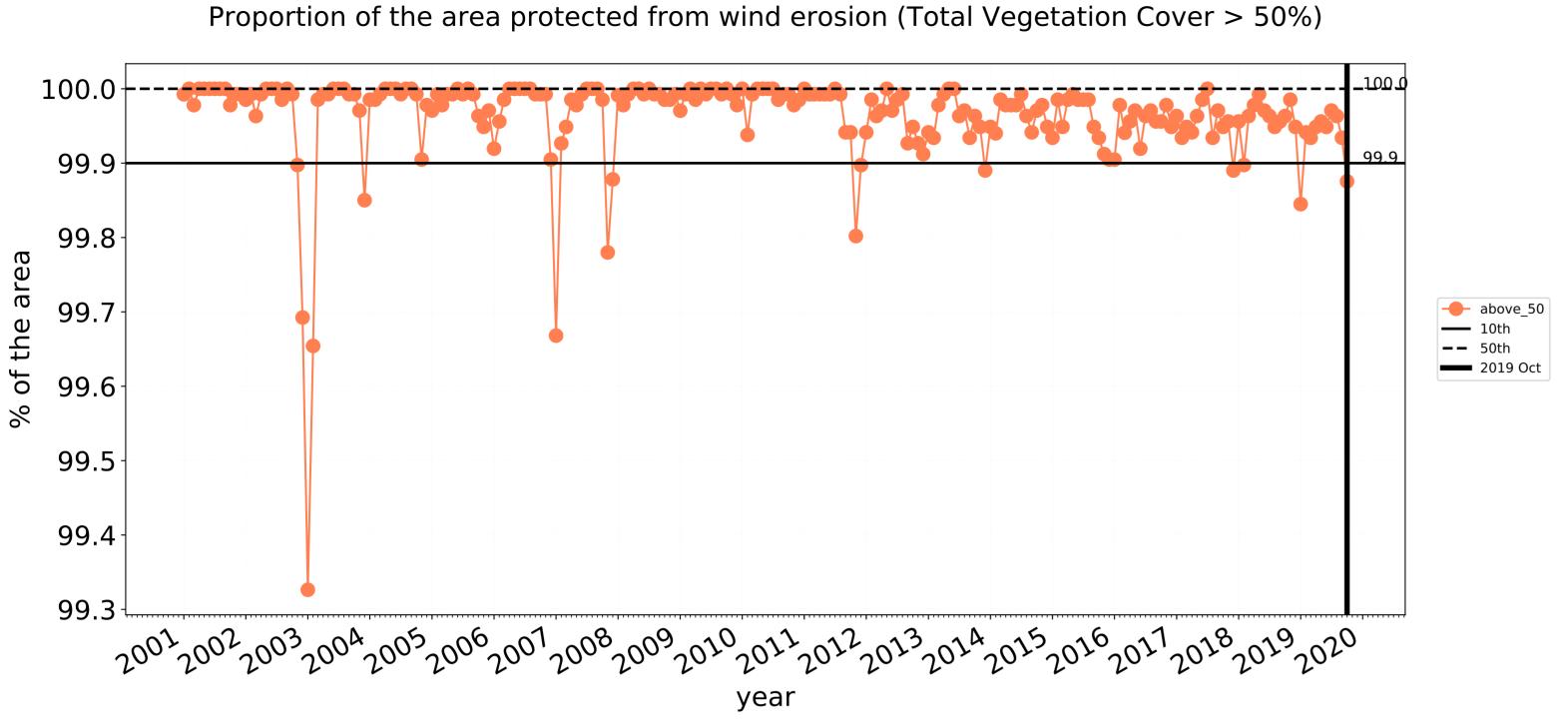


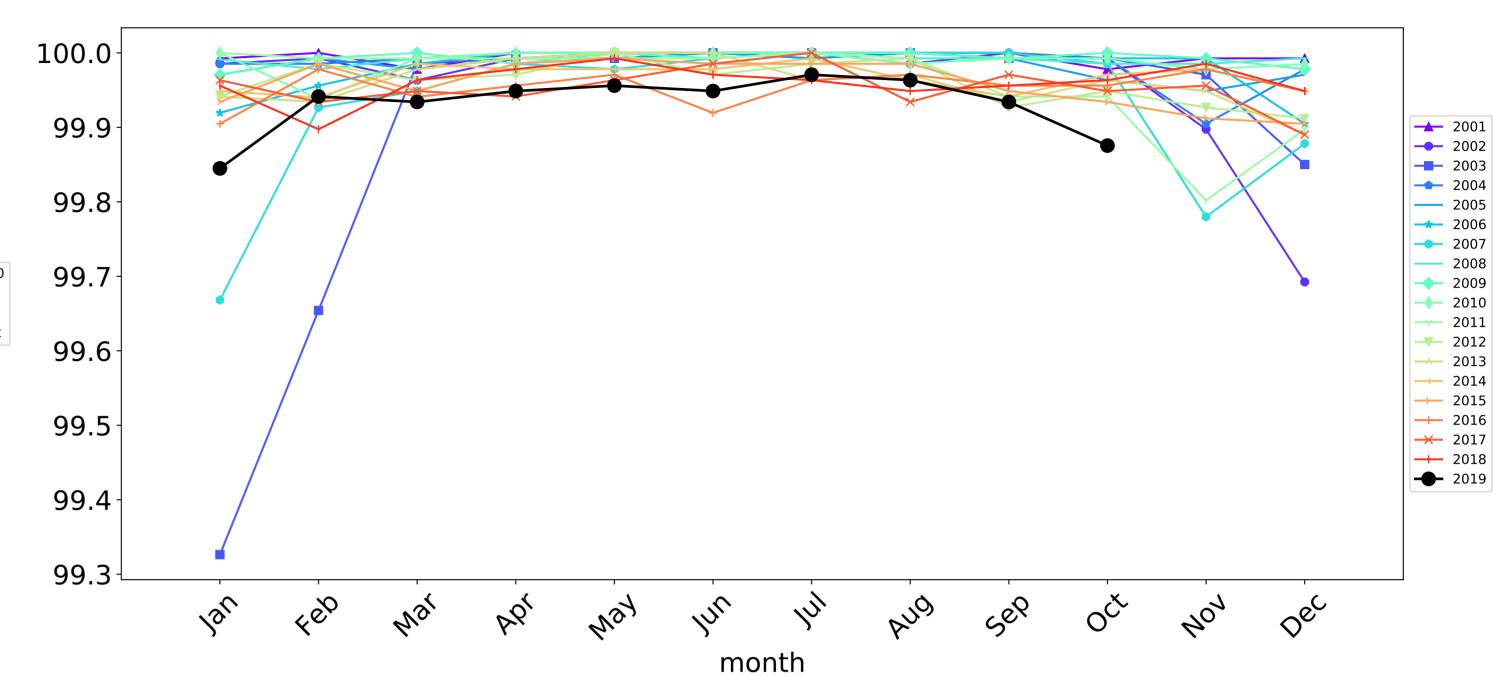




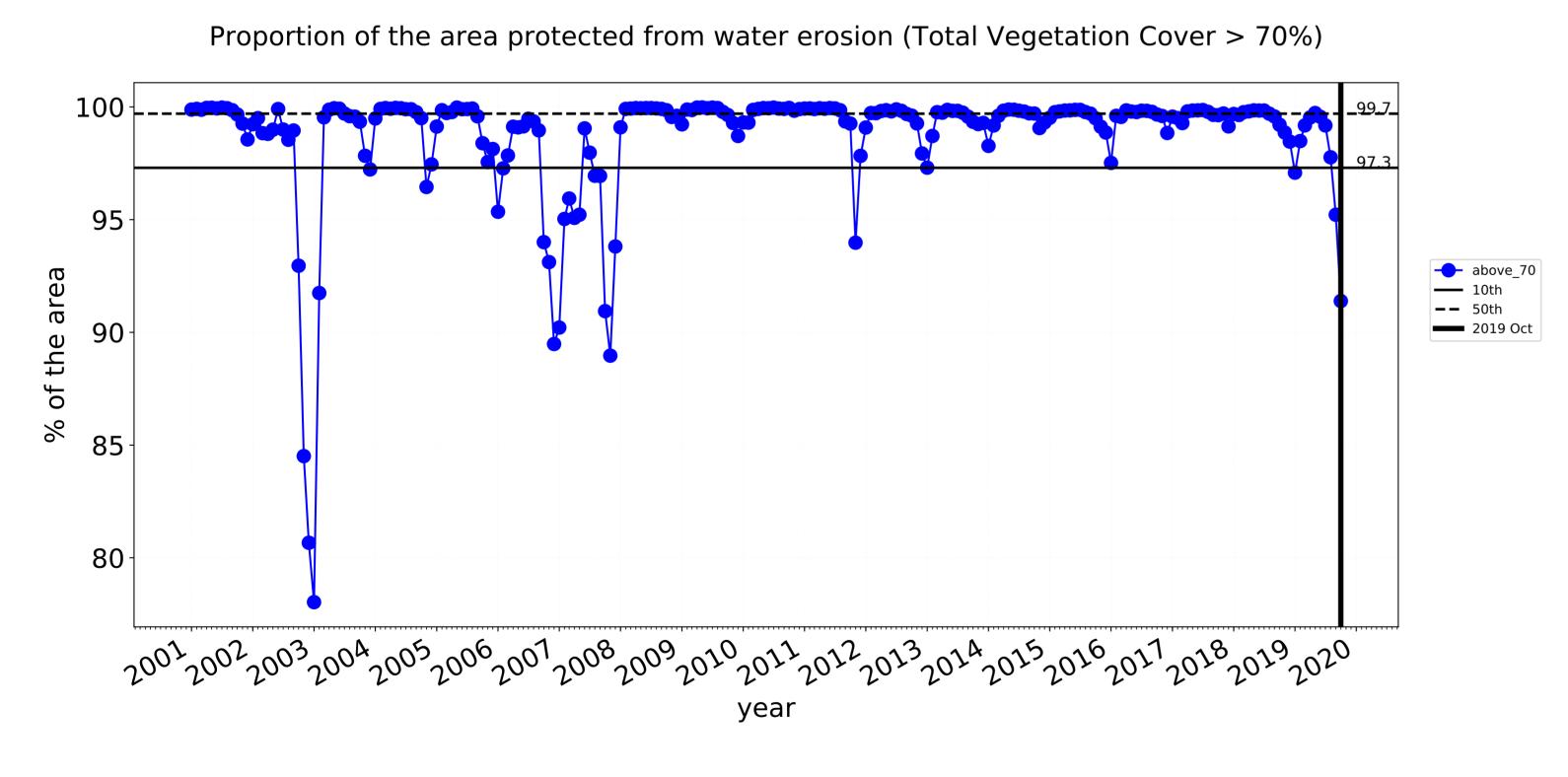


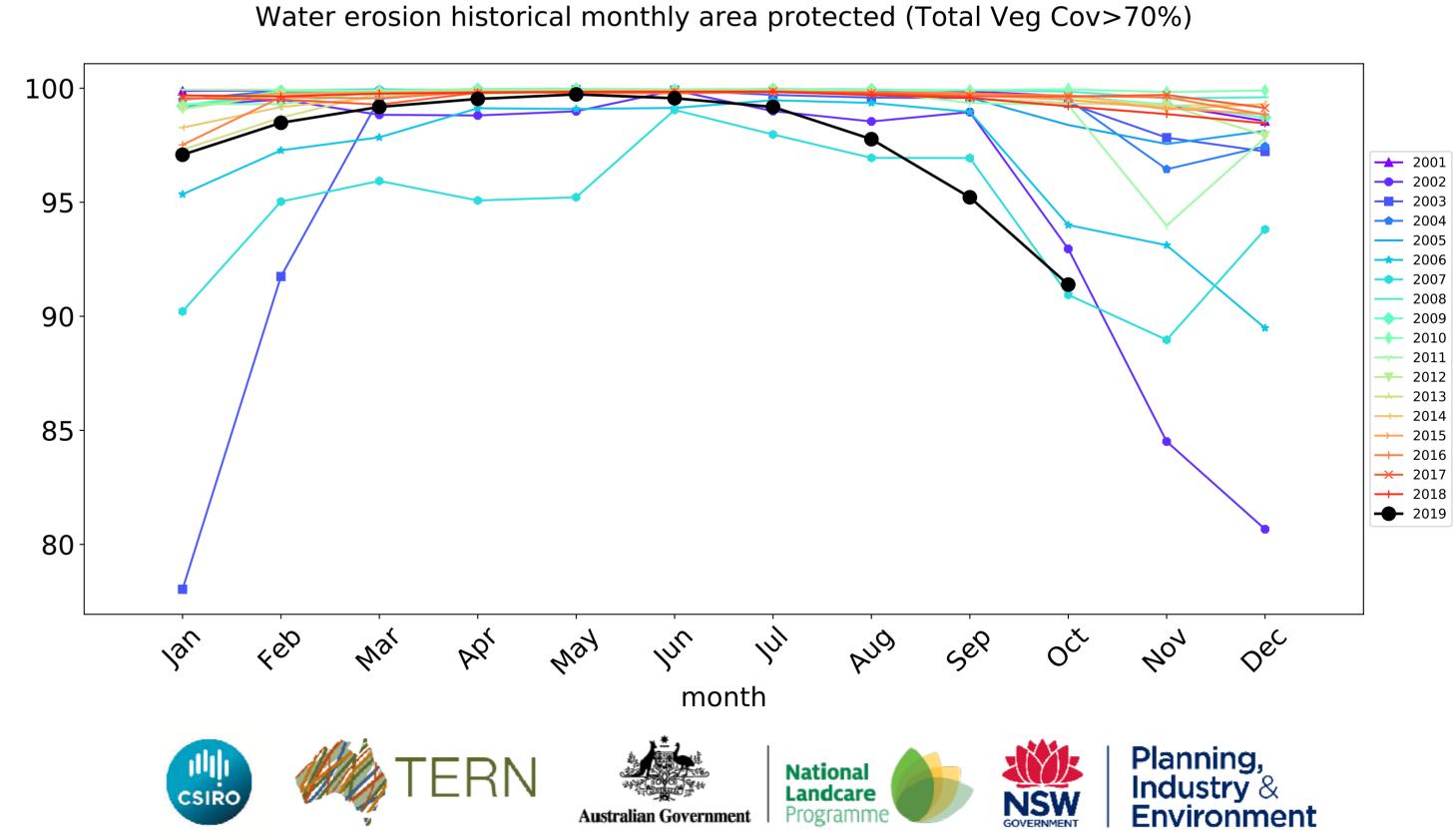
### **Grazing non forest timeseries**

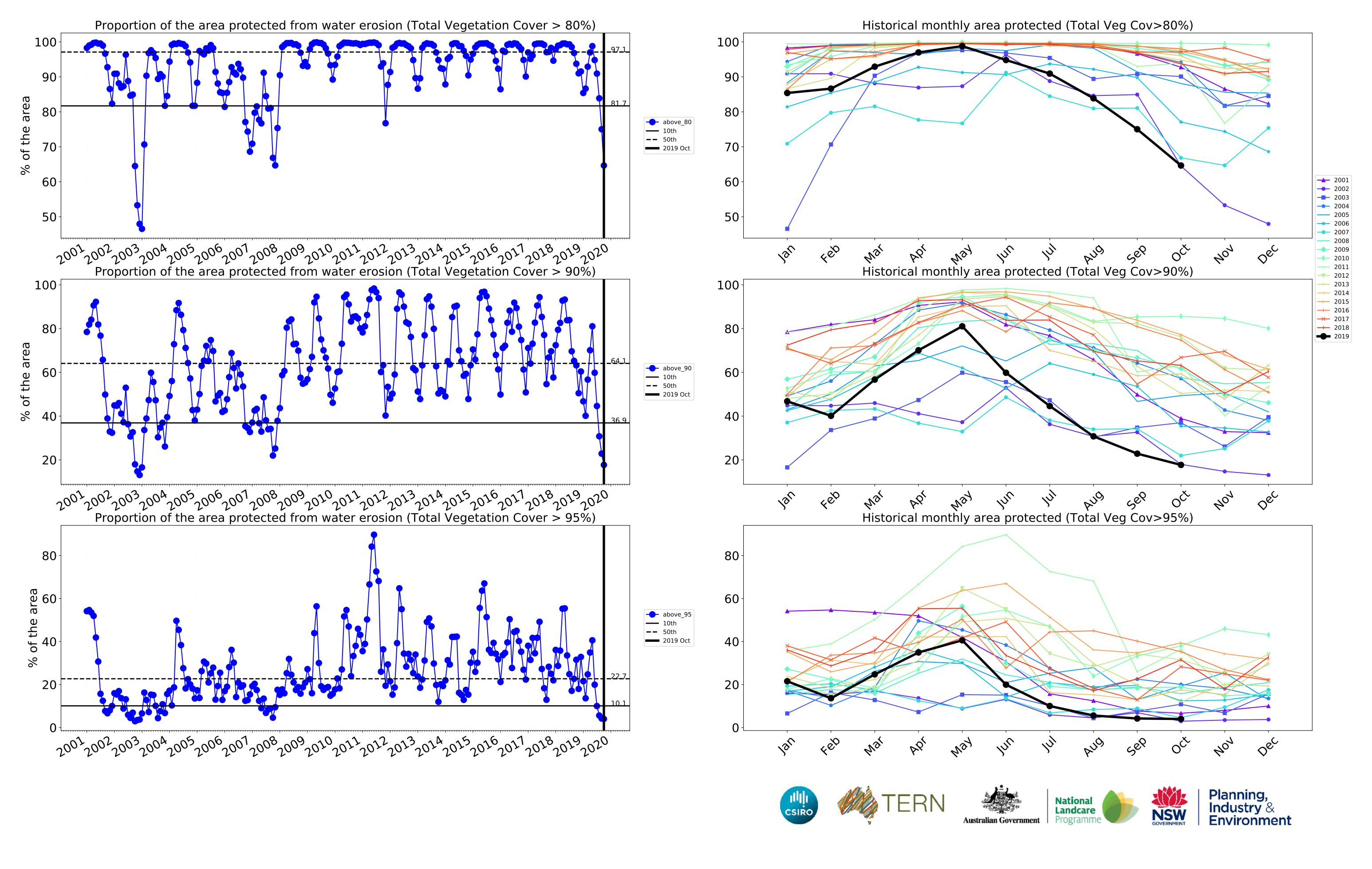




Wind erosion historical monthly area protected (Total Veg Cov >50%)

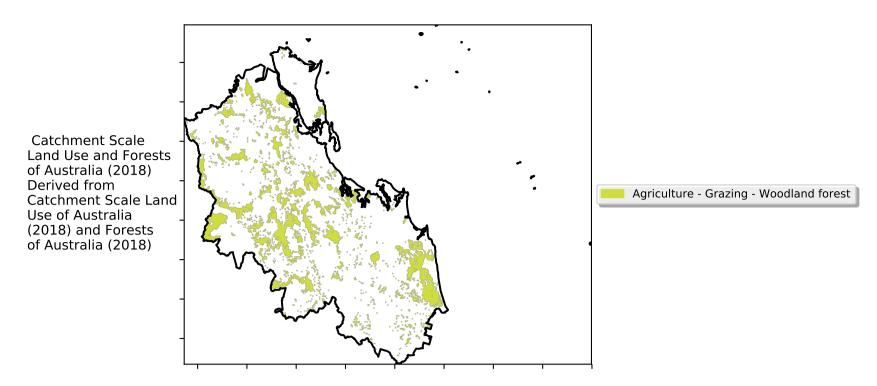




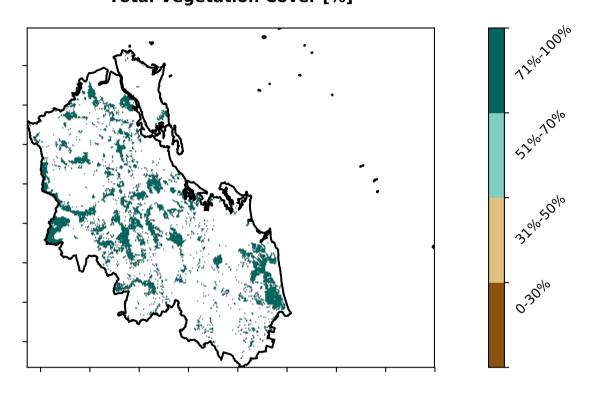


### **Grazing Woodland forest**

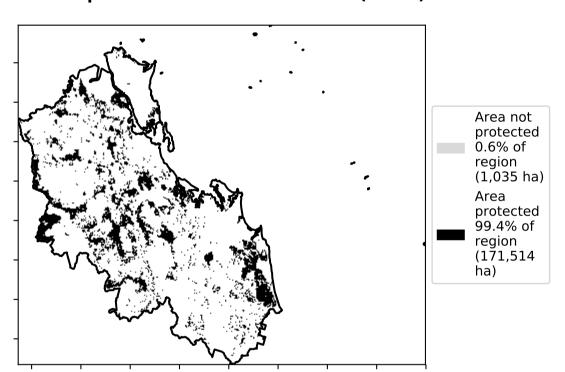
### **Land use and forest cover**



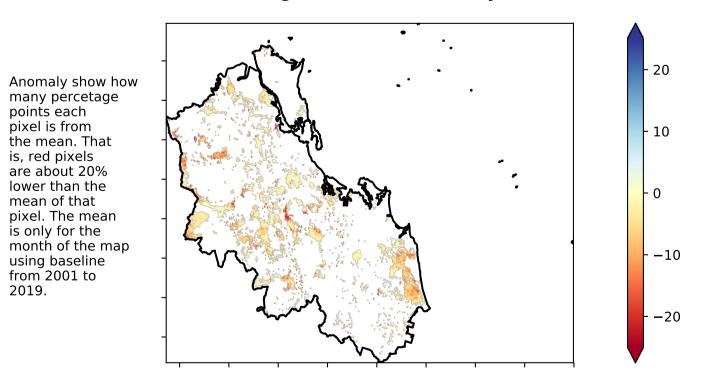
### **Total Vegetation Cover [%]**



% Area protected from water erosion (>70%)

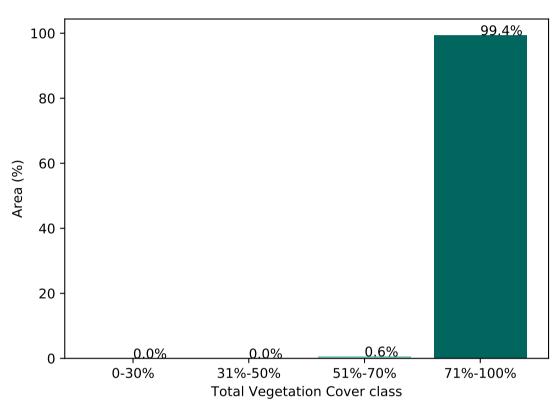


**Total Vegetation Cover Anomaly [%]** 

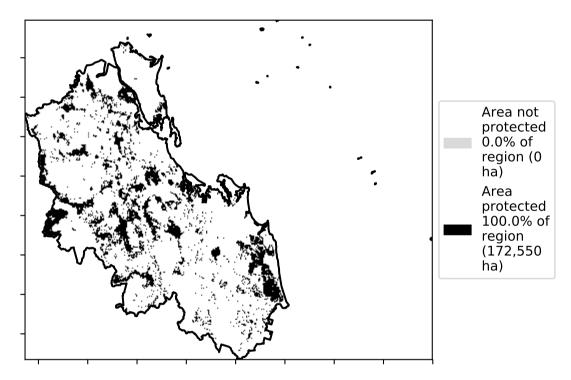


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

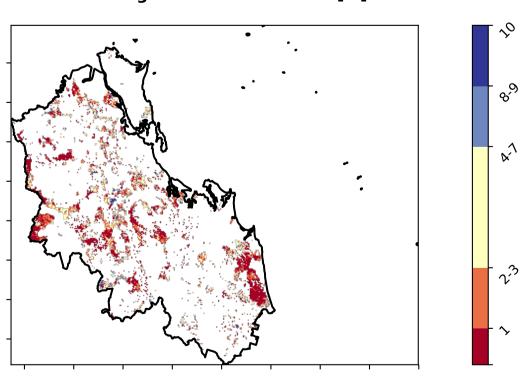
### Proportion of vegetation cover class in area



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



**Total Vegetation Cover Decile [%]** 





are about 20% lower than the

mean of that



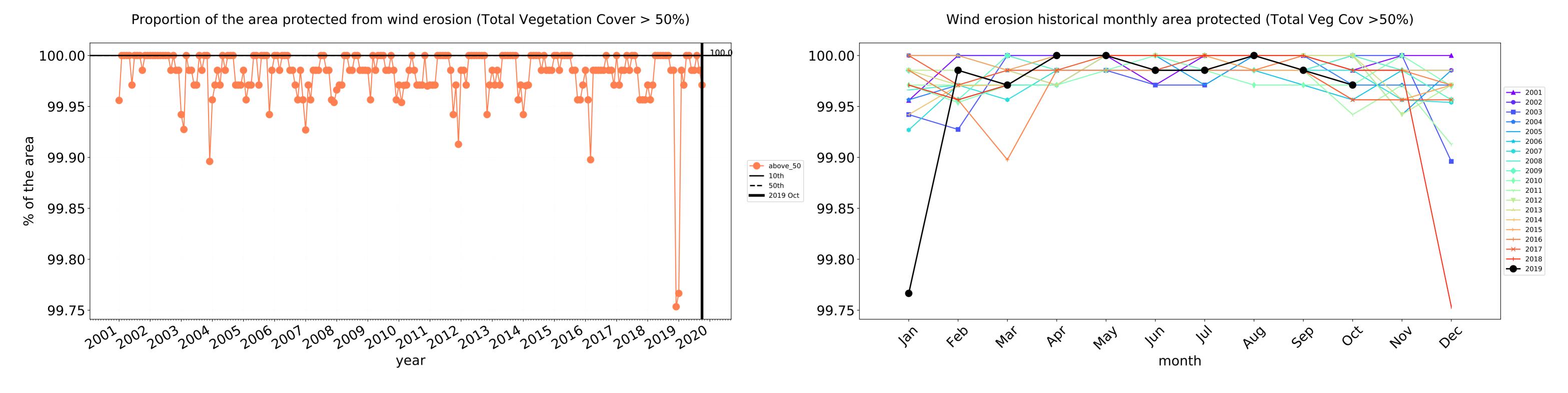


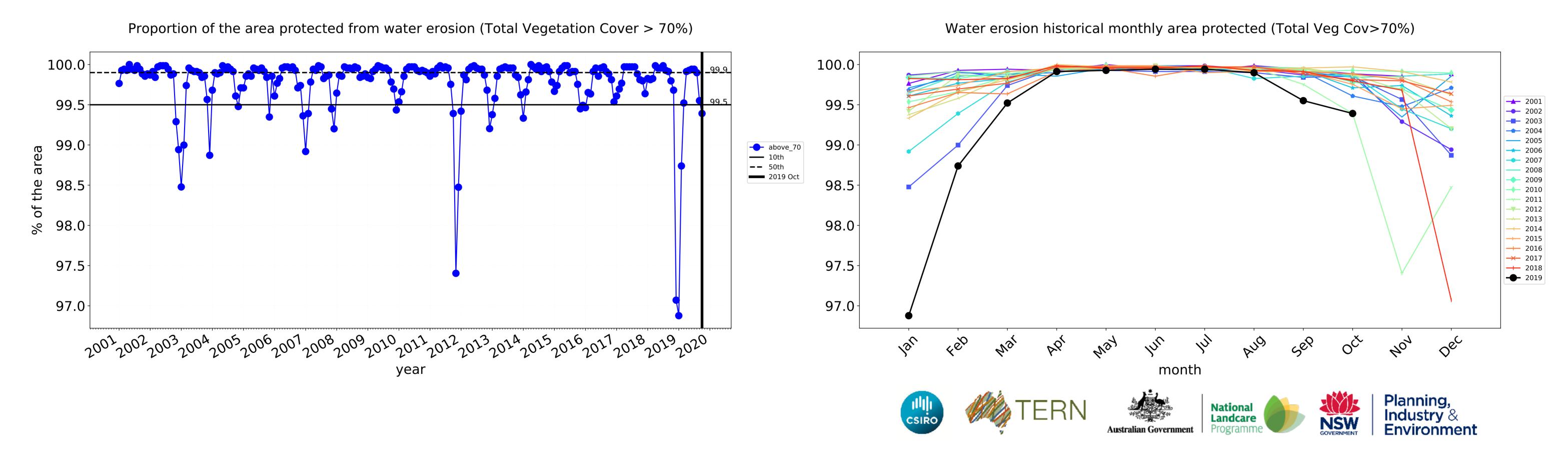


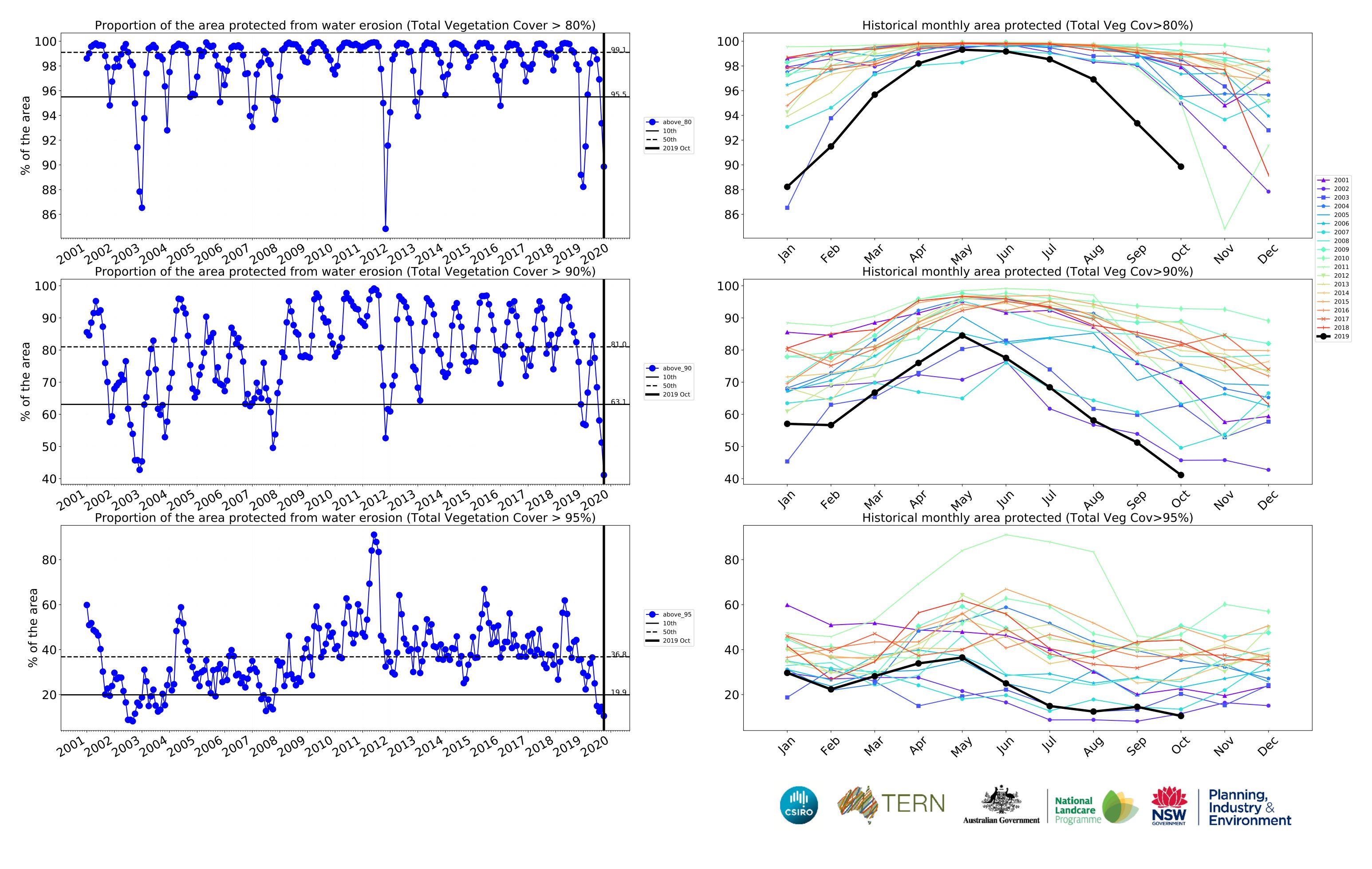




### **Grazing Woodland forest timeseries**

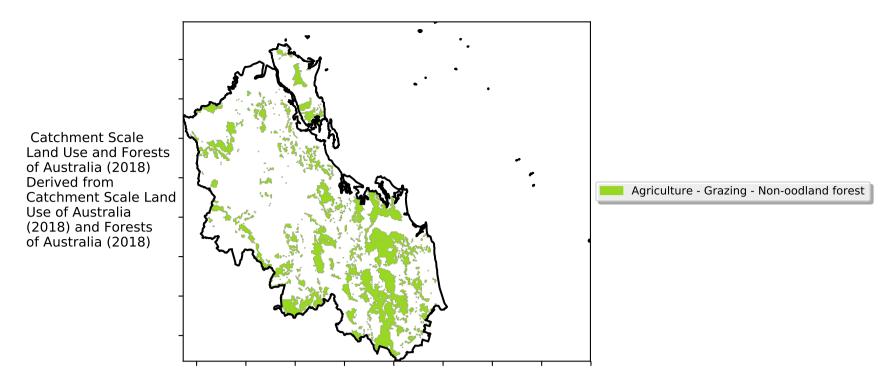




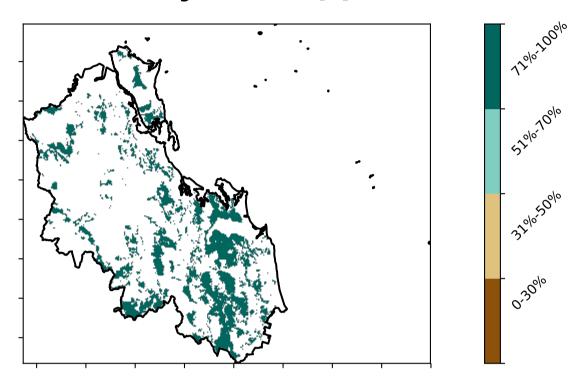


### **Grazing - Forest (non woodland)**

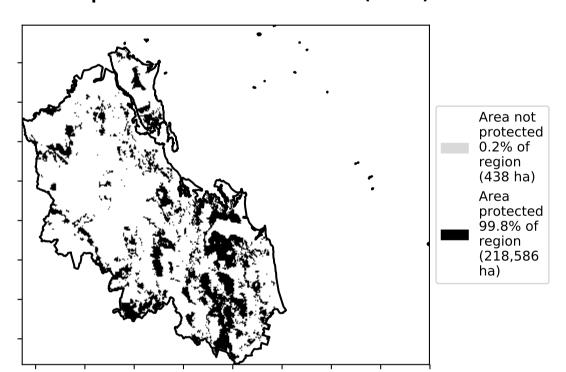
### **Land use and forest cover**



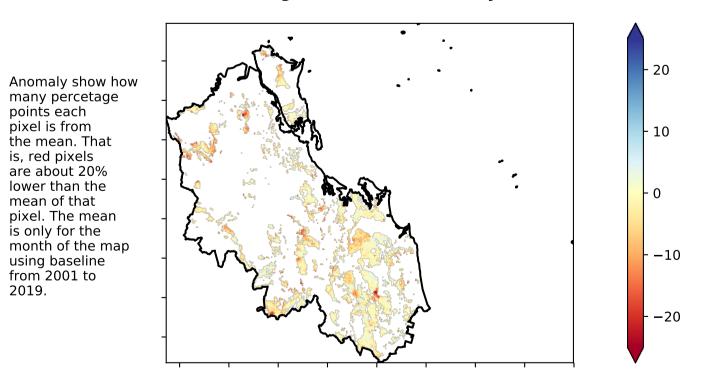
### **Total Vegetation Cover [%]**



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

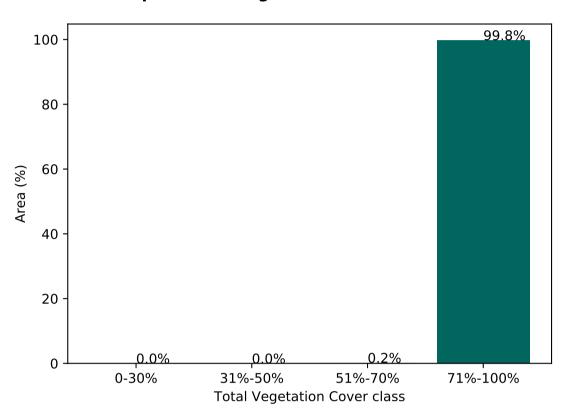


### **Total Vegetation Cover Anomaly [%]**

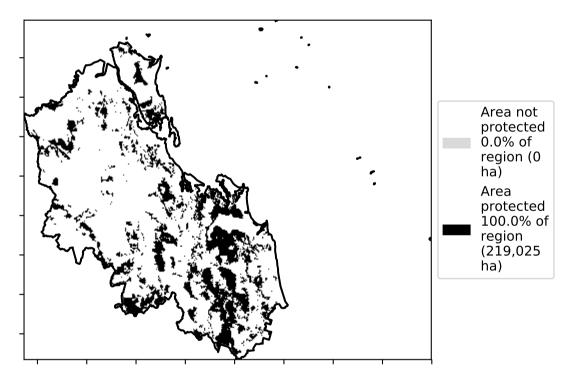


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

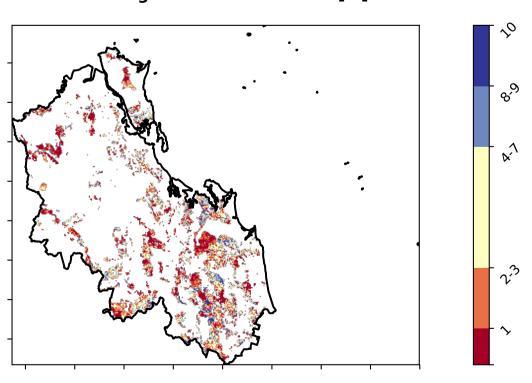
### Proportion of vegetation cover class in area



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



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





are about 20% lower than the

mean of that

using baseline from 2001 to 2019.

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

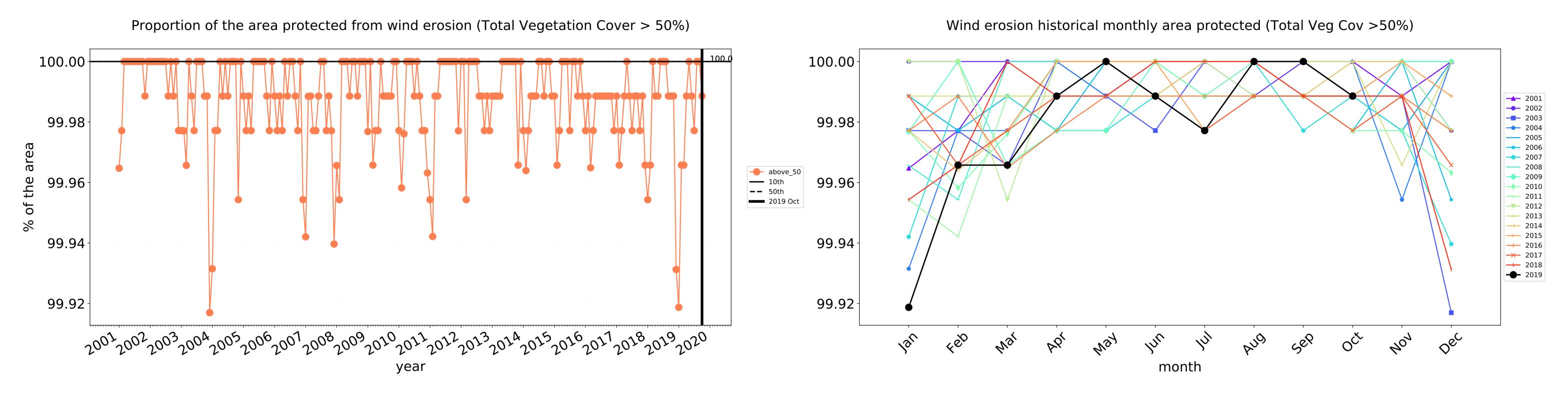


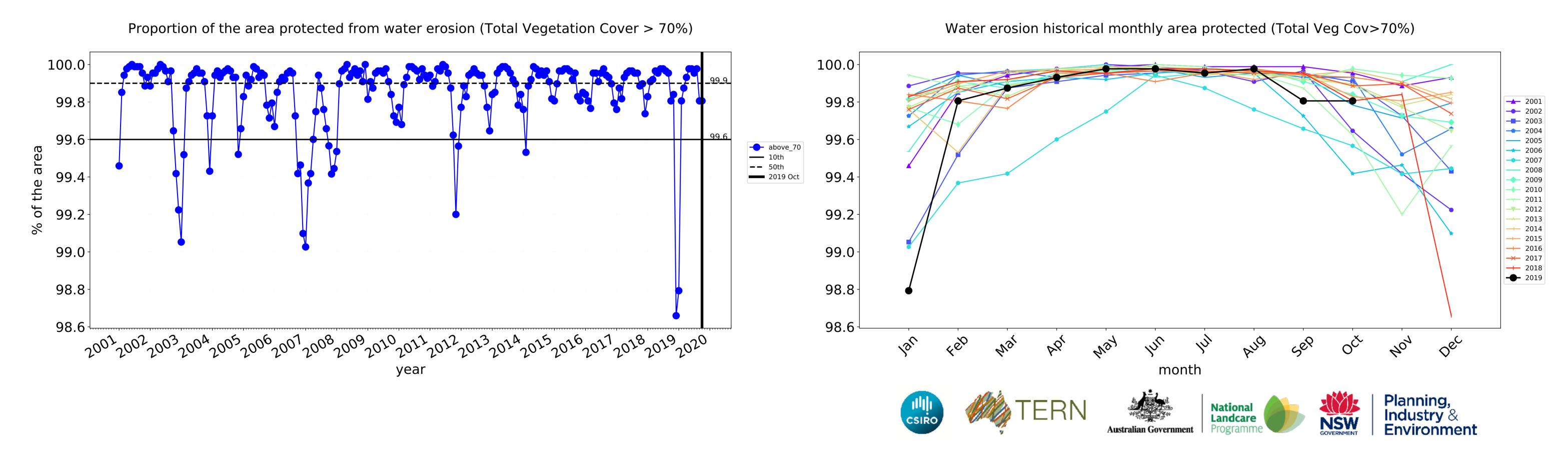


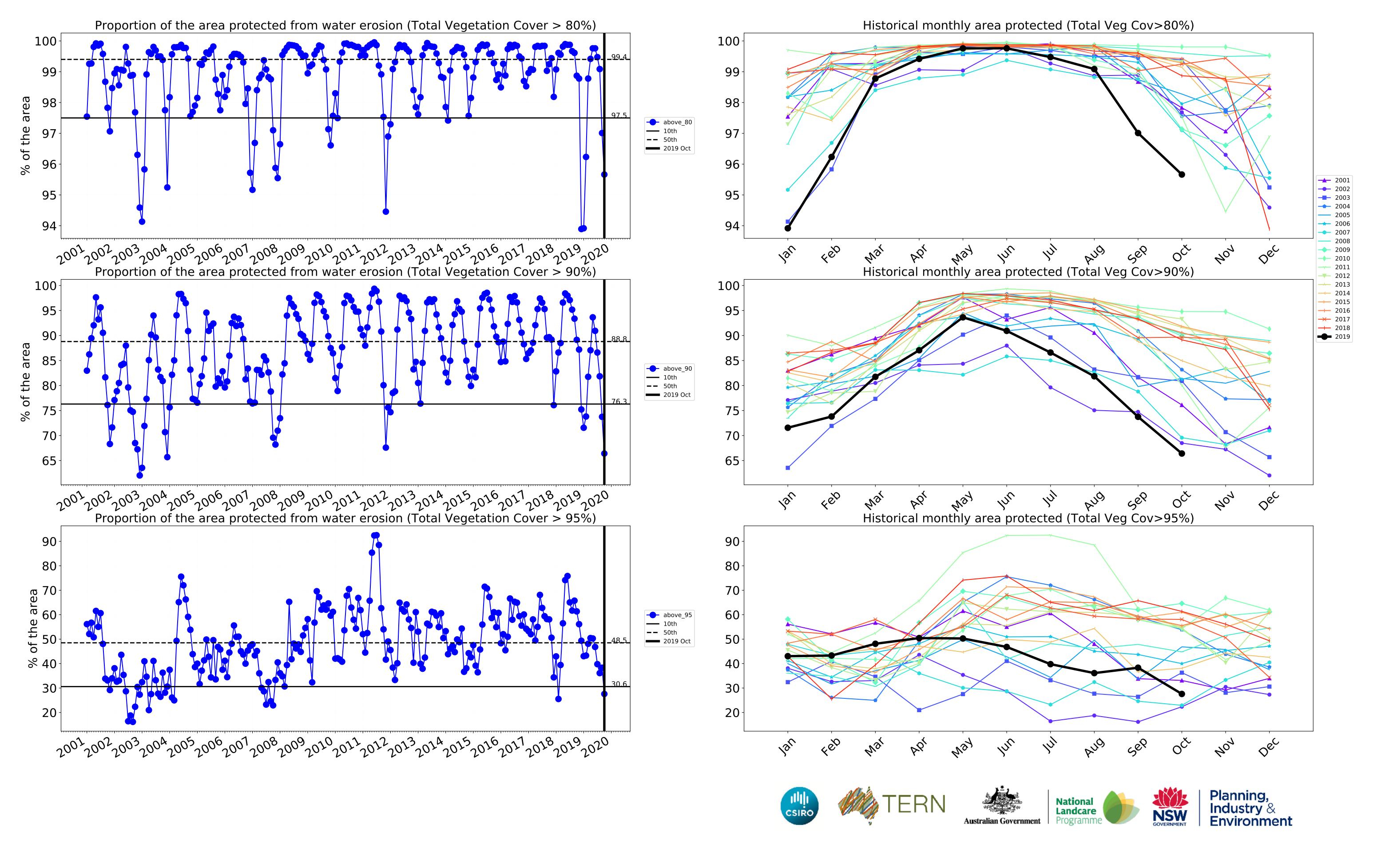












### **Production native forests and plantation forests**

### Land use and forest cover Production native forests and plantation forests

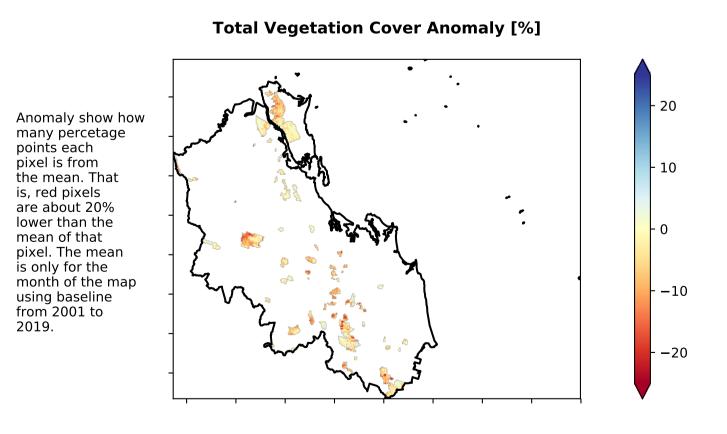
# Total Vegetation Cover [%]

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

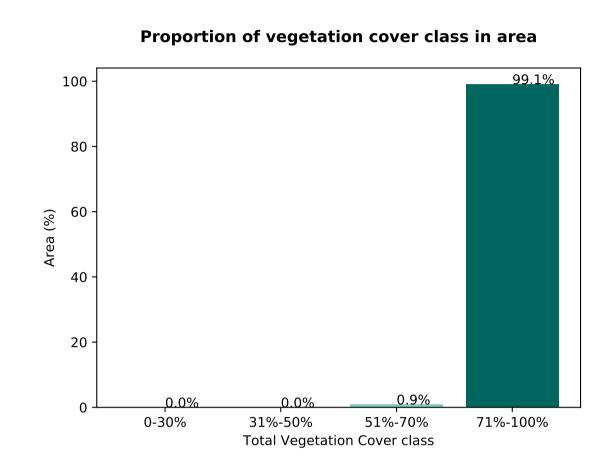
Catchment Scale Land

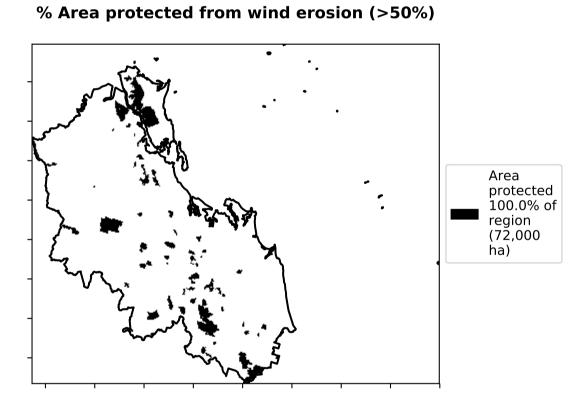
Use of Australia (2018) and Forests of Australia (2018)

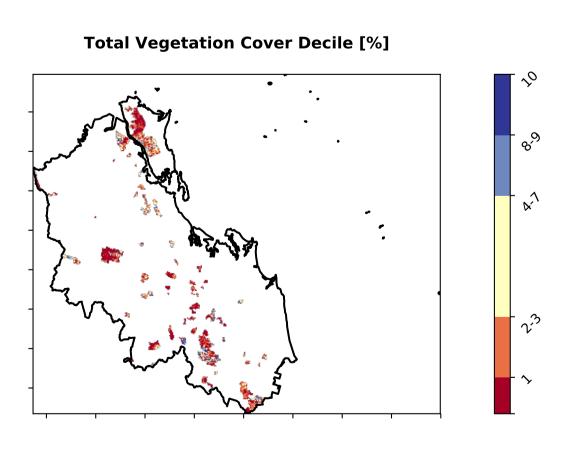
## Area not protected 0.9% of region (648 ha) Area protected 99.1% of region (71,352 ha)



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











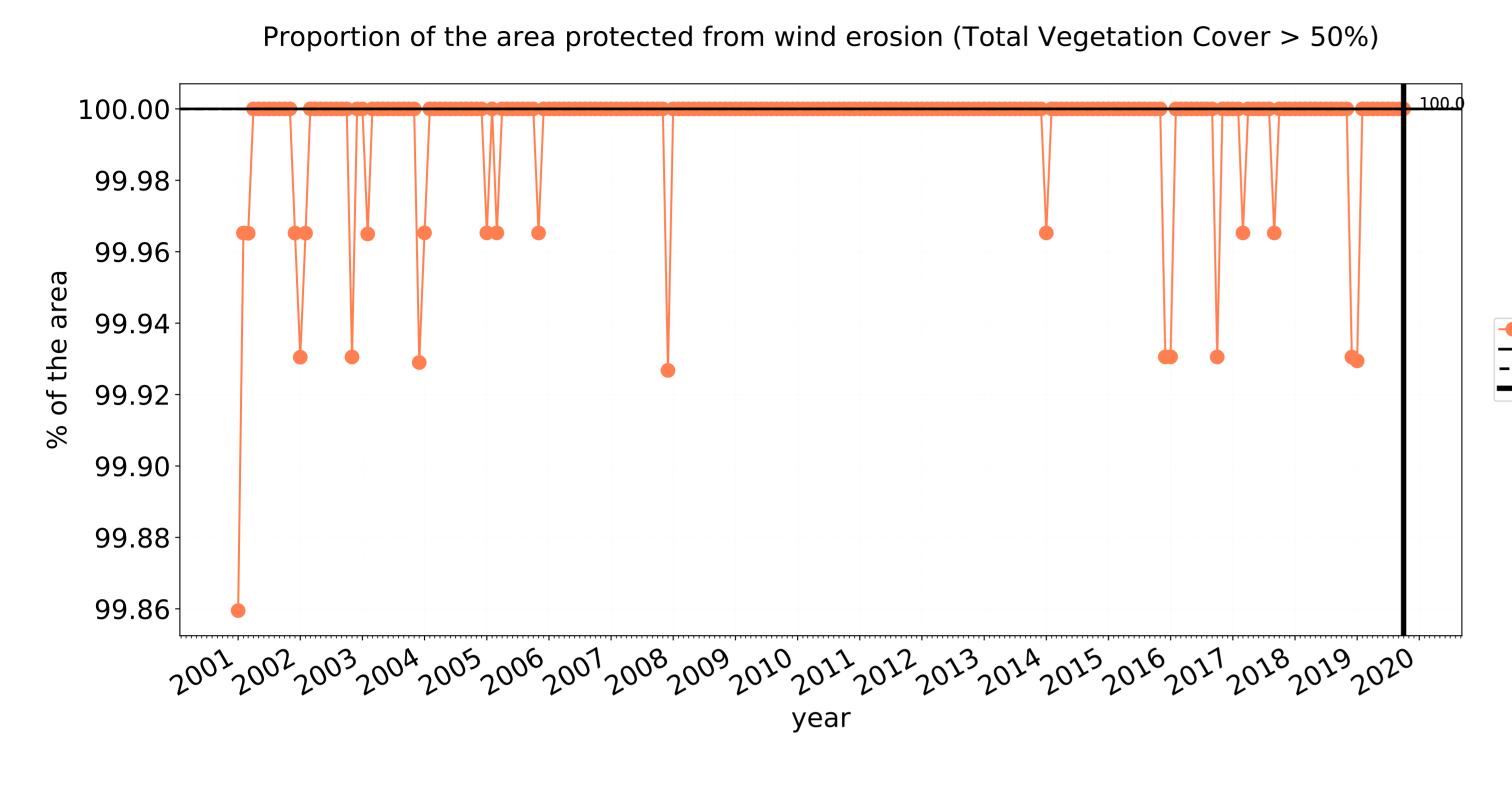


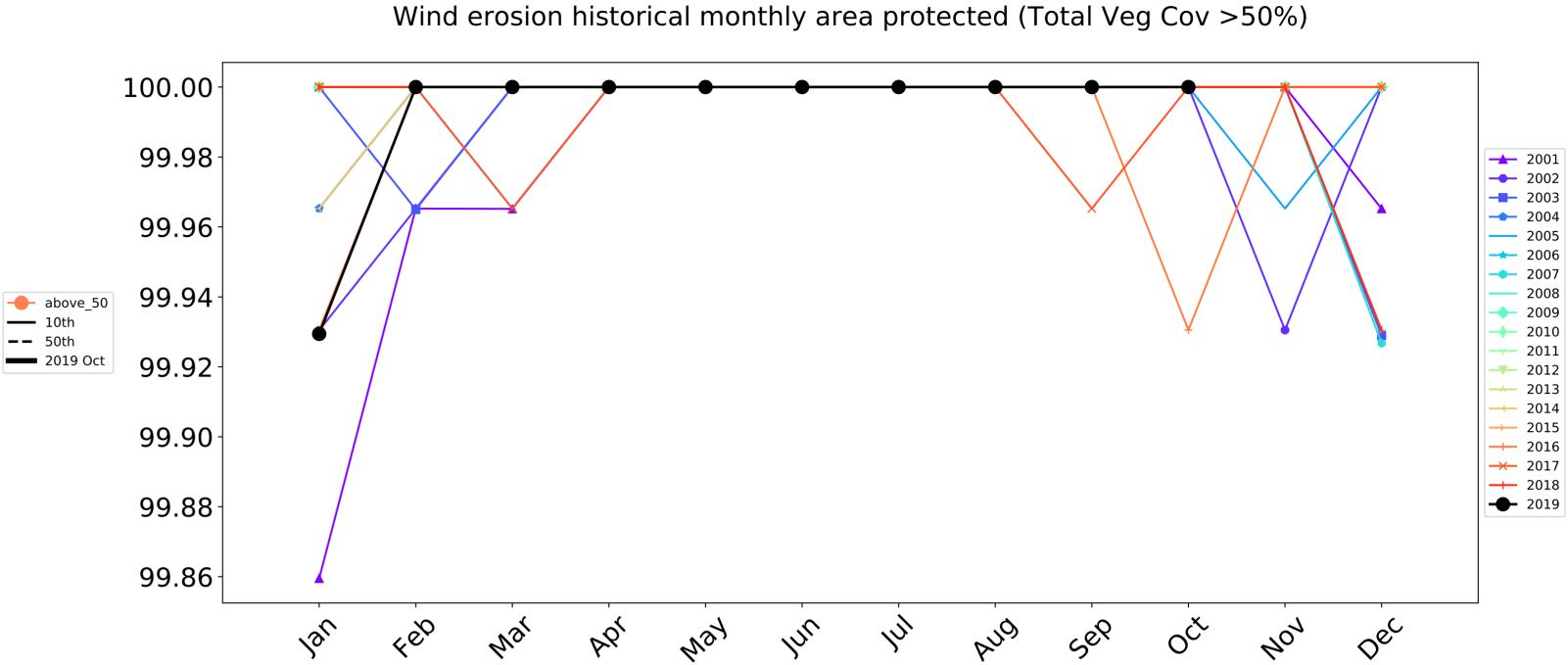




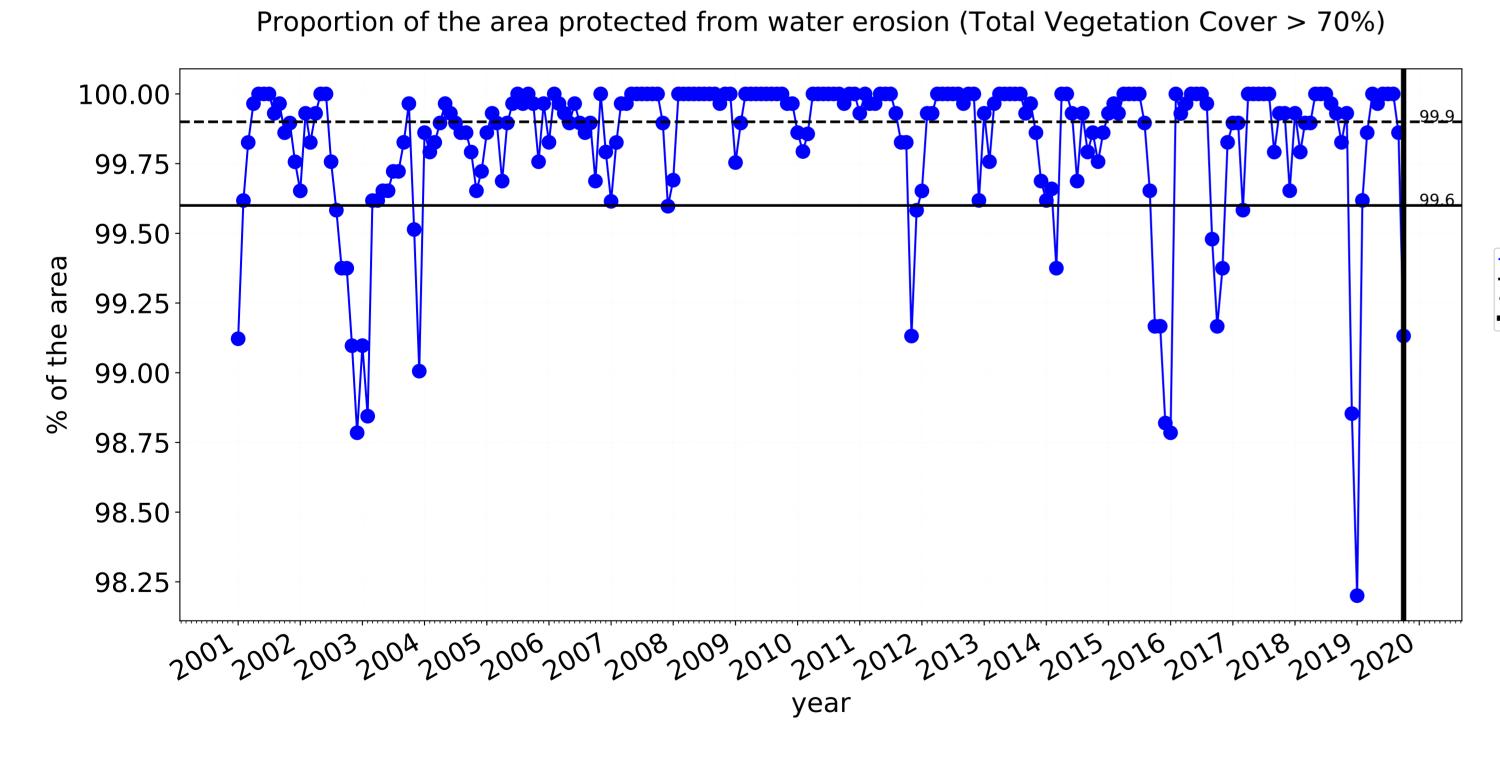


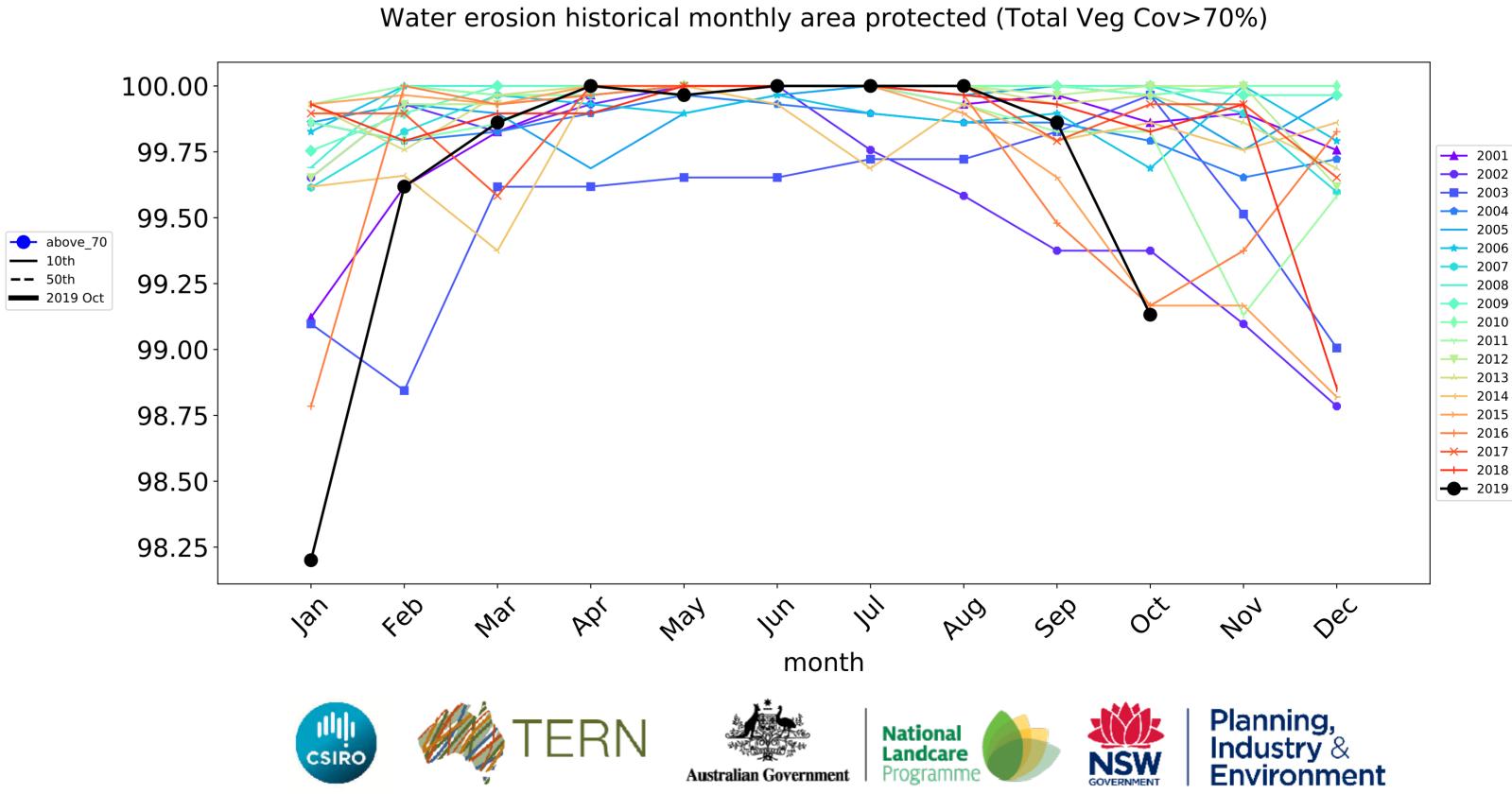
### **Production native forests and plantation forests timeseries**

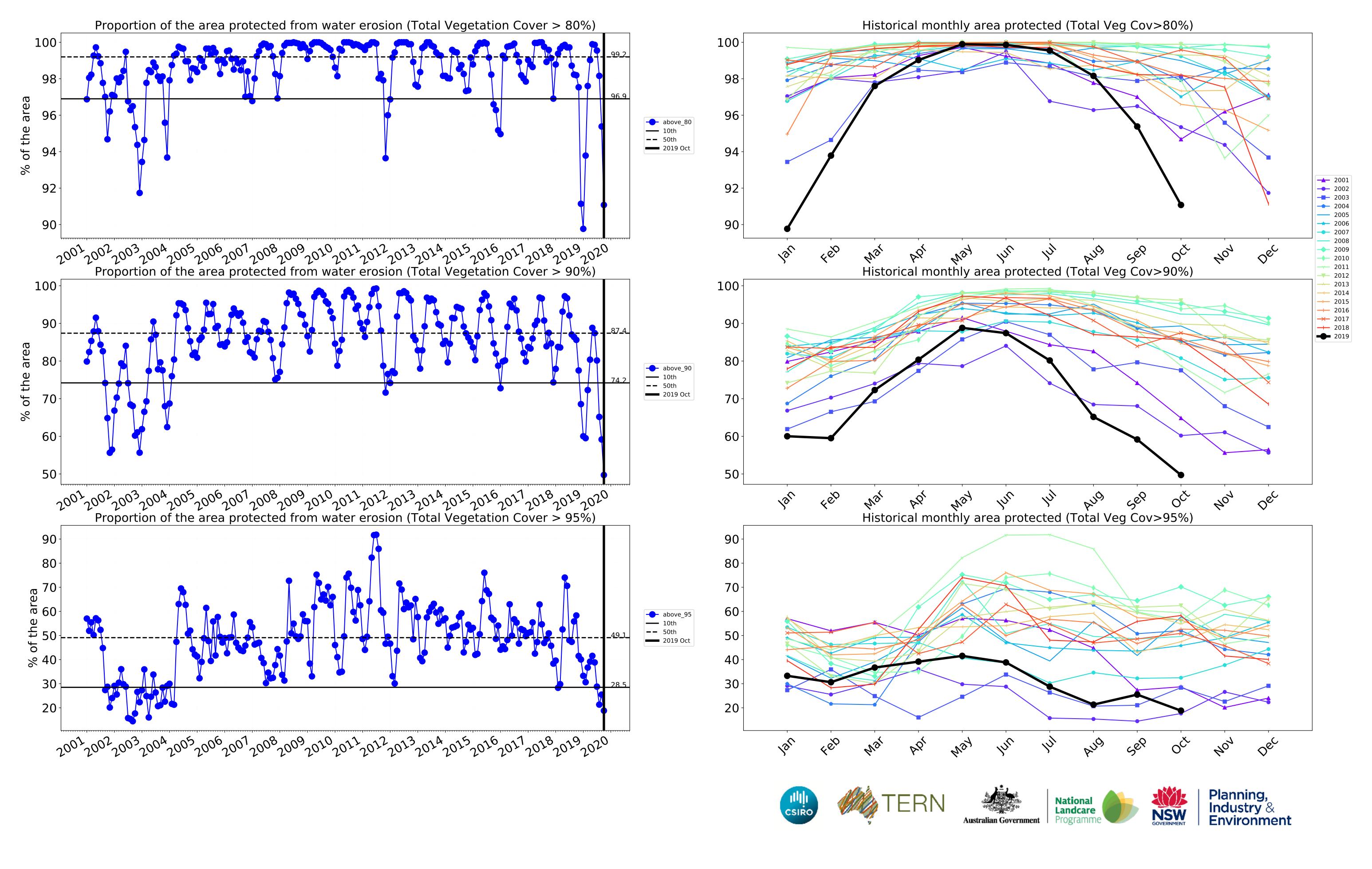




month







### Gladstone\_(R) (1,036,900 ha and no data 11,354 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	1,036,900	100.0% 1,036,400	99.6% 1,033,000	95.4% 989,225	81.2% 842,075	42.5% 440,825	16.1% 167,200
Conservation and natural environments	154,500	100.0% 154,475	99.6% 153,950	98.7% 152,500	96.2% 148,625	73.0% 112,800	36.3% 56,150
Conservation and natural environments Woodland forest	49,150	100.0% 49,150	99.5% 48,900	98.1% 48,200	93.2% 45,800	60.4% 29,700	26.1% 12,850
Conservation and natural environments Forest (non woodland)	100,875	100.0% 100,875	99.8% 100,700	99.5% 100,400	98.6% 99,450	80.1% 80,775	41.7% 42,050
Agriculture	734,550	100.0% 734,500	99.9% 734,050	95.8% 703,600	79.8% 586,500	37.7% 277,225	12.6% 92,325
Grazing	733,025	100.0% 732,975	99.9% 732,525	95.8% 702,150	79.9% 585,325	37.8% 276,875	12.6% 92,225
Grazing non forest	341,450	100.0% 341,425	99.9% 341,025	91.4% 312,050	64.7% 220,750	17.7% 60,450	4.0% 13,675
Grazing Woodland forest	172,550	100.0% 172,550	100.0% 172,500	99.4% 171,500	89.9% 155,050	41.1% 70,975	10.5% 18,125
Grazing - Forest (non woodland)	219,025	100.0% 219,000	100.0% 219,000	99.8% 218,600	95.7% 209,525	66.4% 145,450	27.6% 60,425
Production native forests and plantation forests	72,000	100.0% 72,000	100.0% 72,000	99.1% 71,375	91.1% 65,575	49.7% 35,800	18.8% 13,550











