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

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

Land use forest cover:

Date: March 2019

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







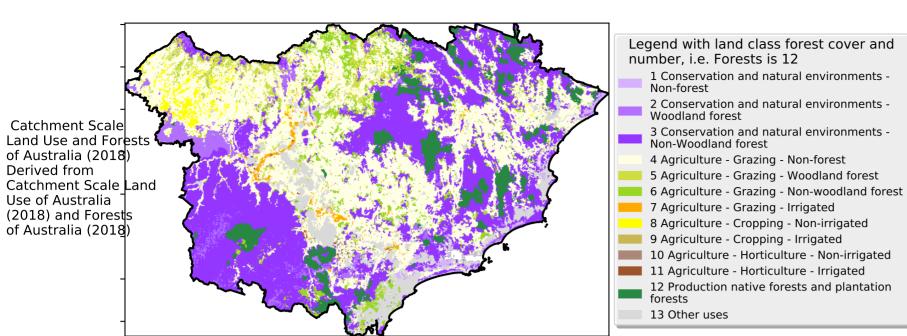




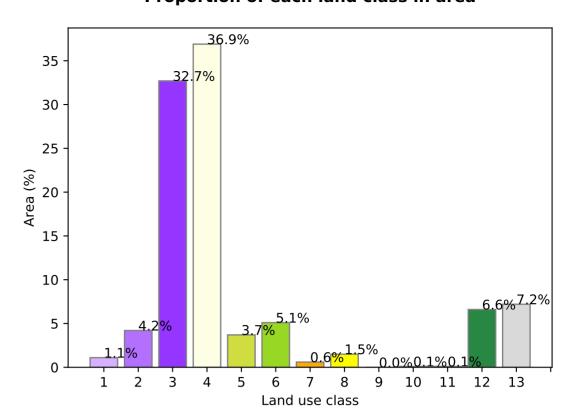


### **Vegetation Cover Mar 2019**

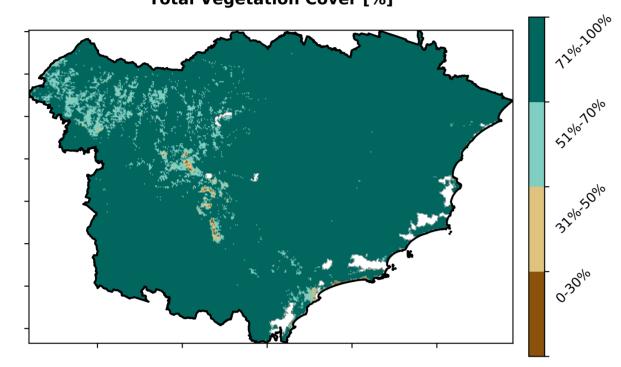
### Land use and forest cover



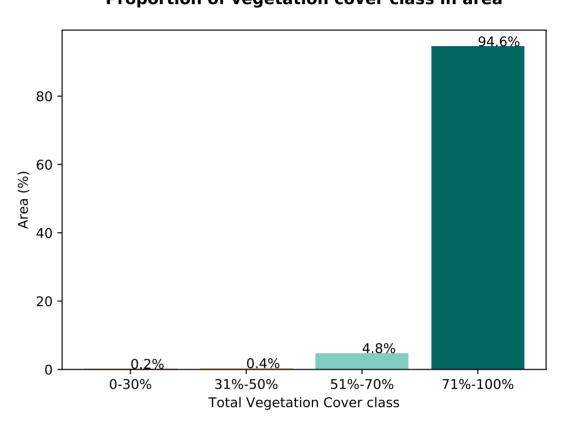
### Proportion of each land class in area



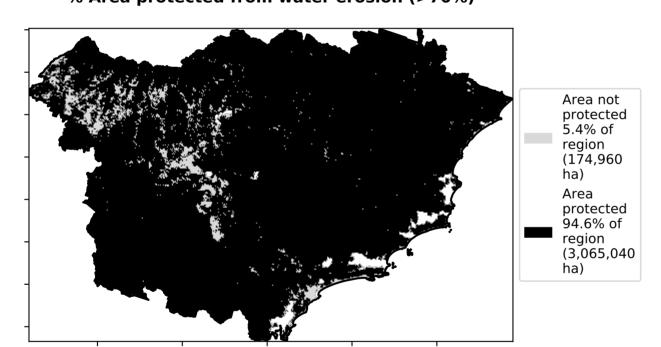
### Total Vegetation Cover [%]



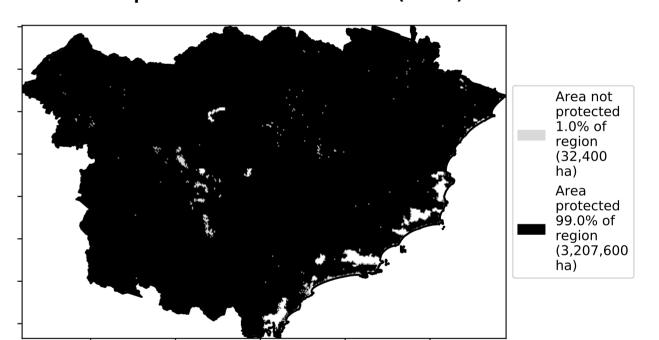
Proportion of vegetation cover class in area



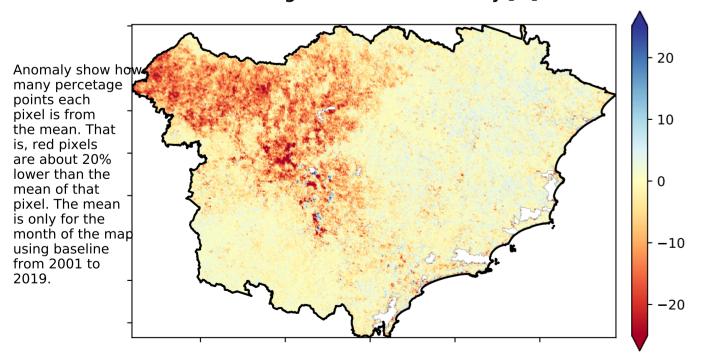
### % Area protected from water erosion (>70%)

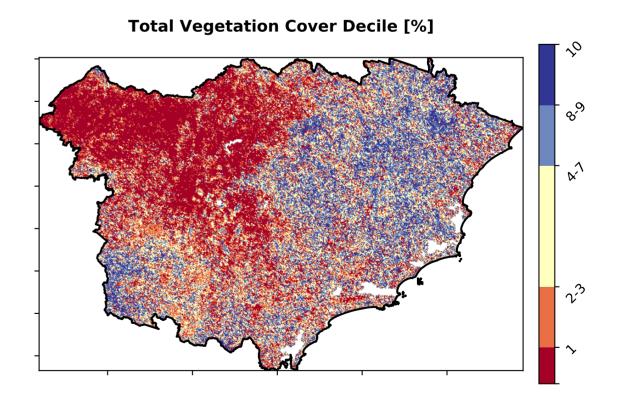


% Area protected from wind erosion (>50%)



### Total Vegetation Cover Anomaly [%]







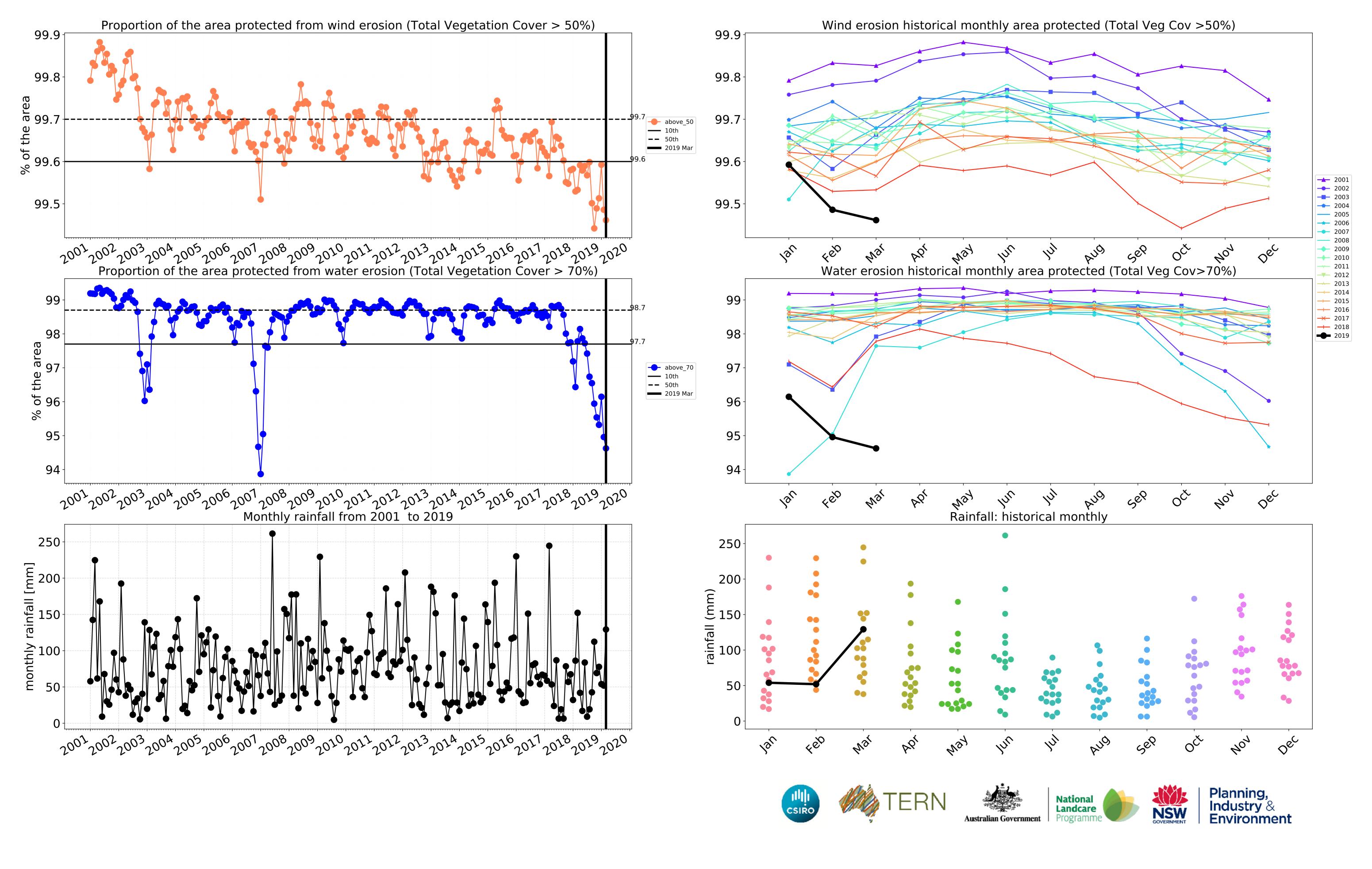


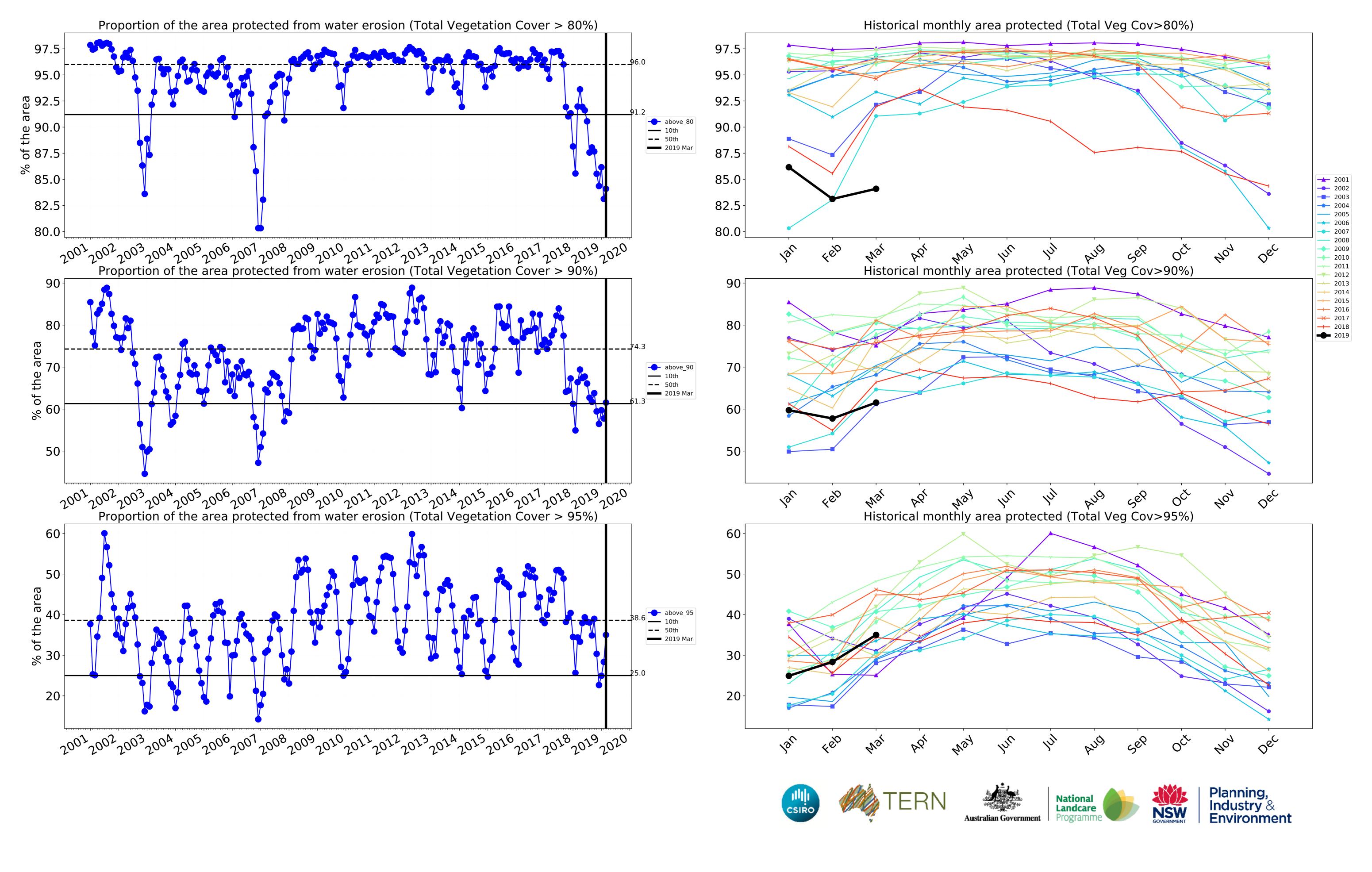






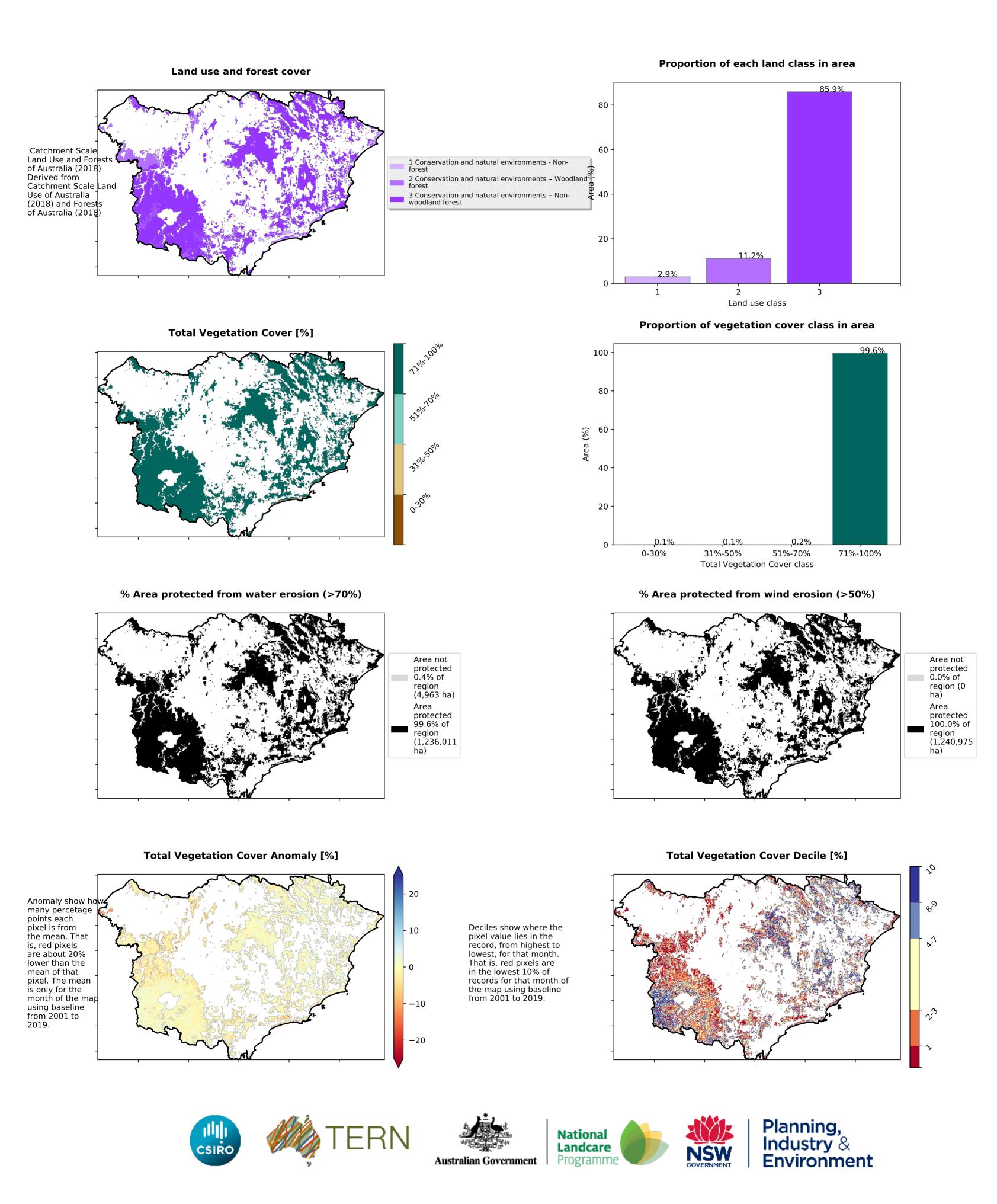




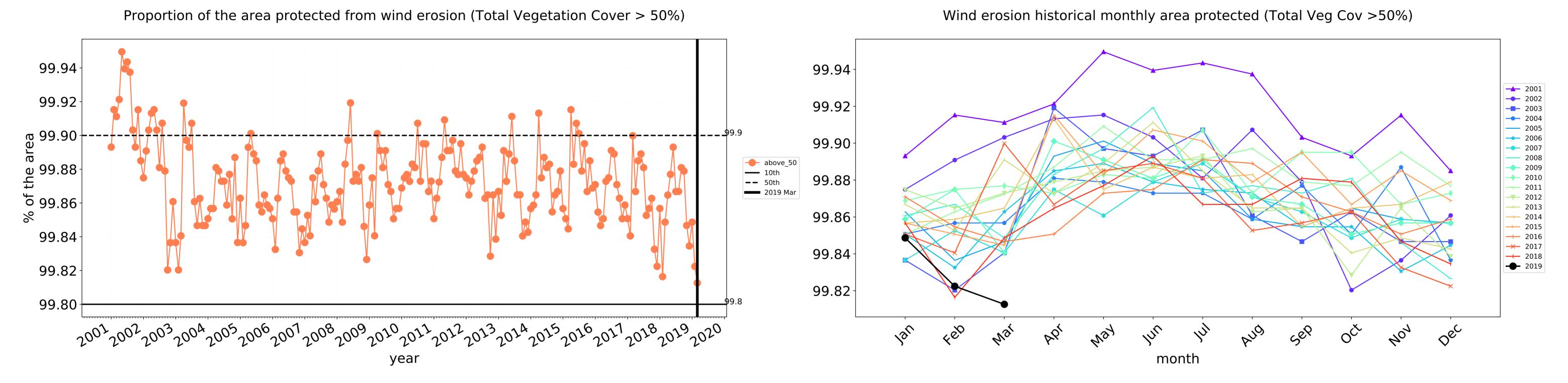


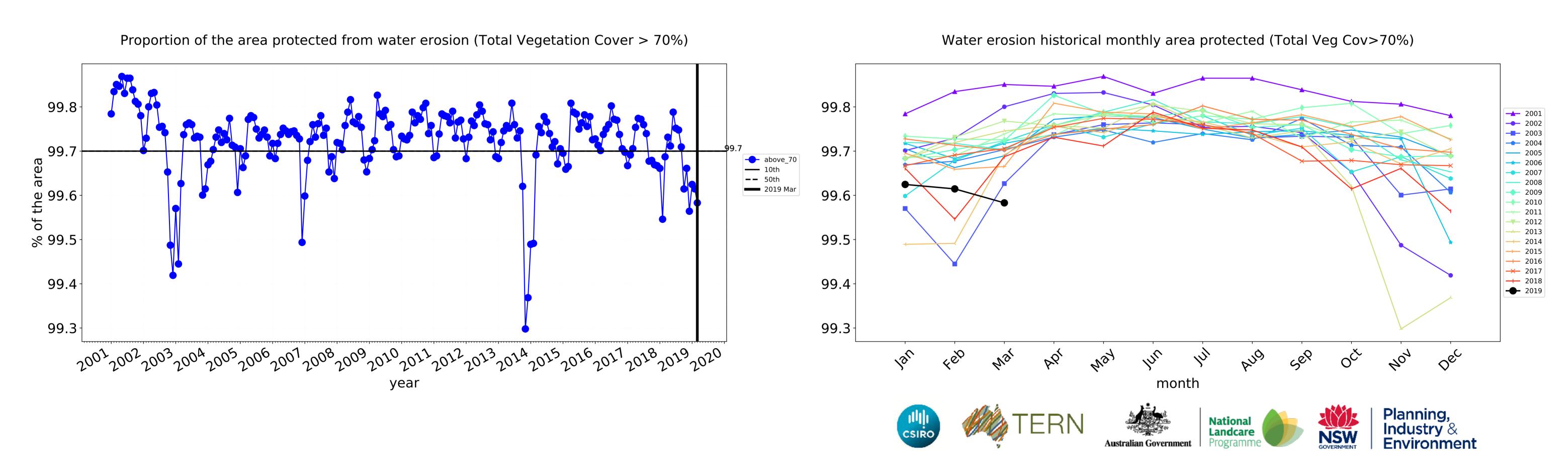
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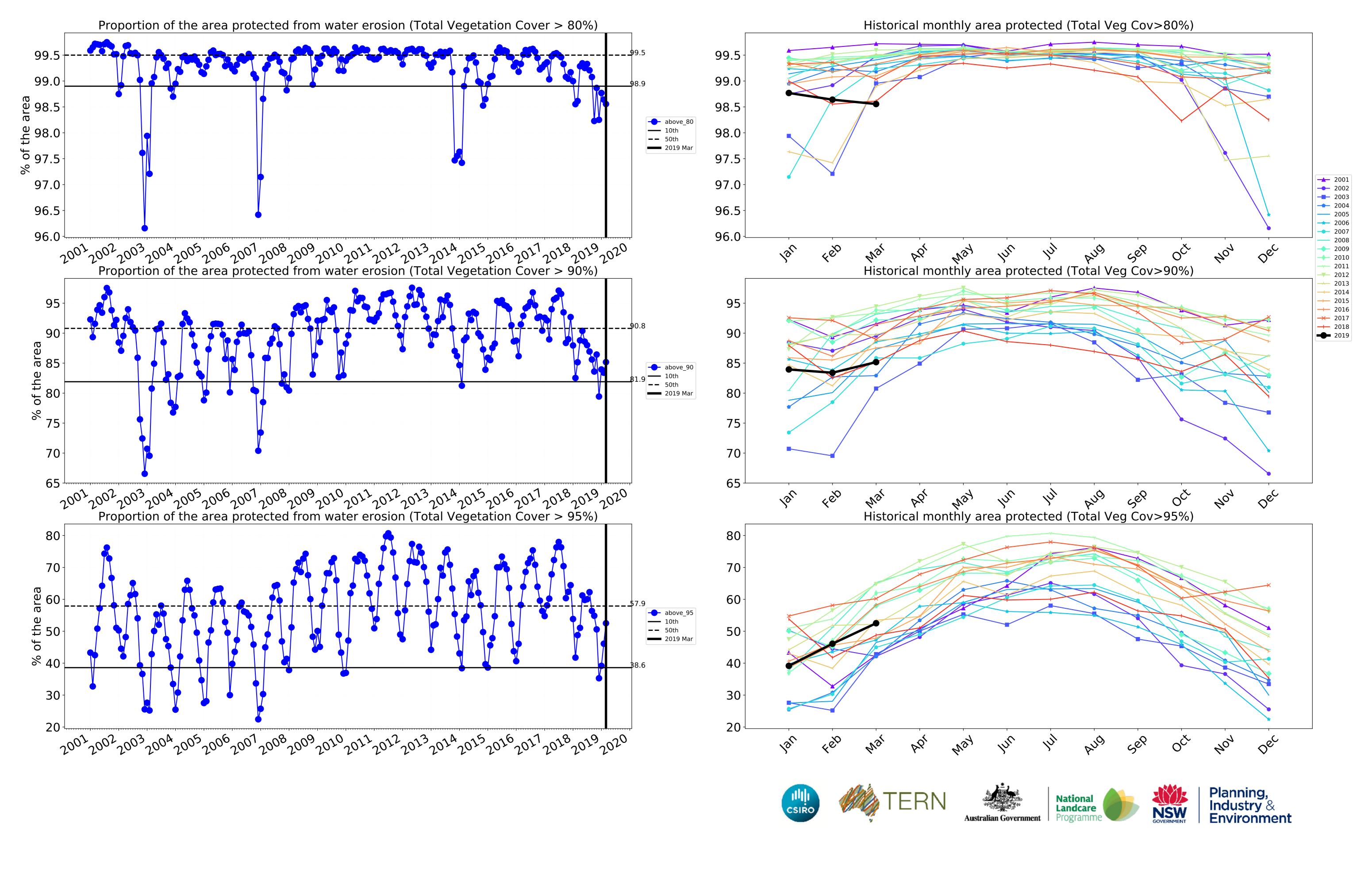
### **Conservation and natural environments**



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



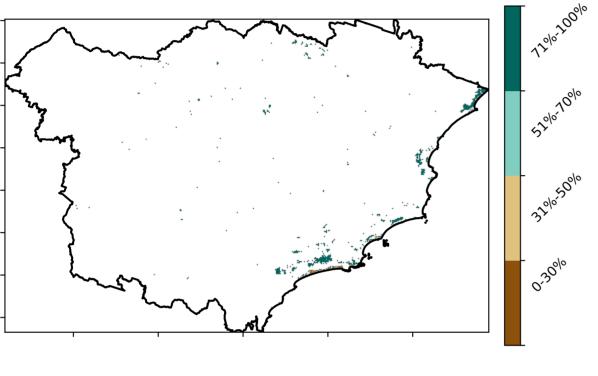


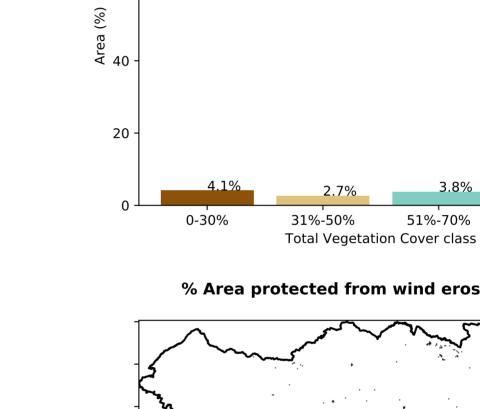


### **Conservation and natural environments non forest**

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

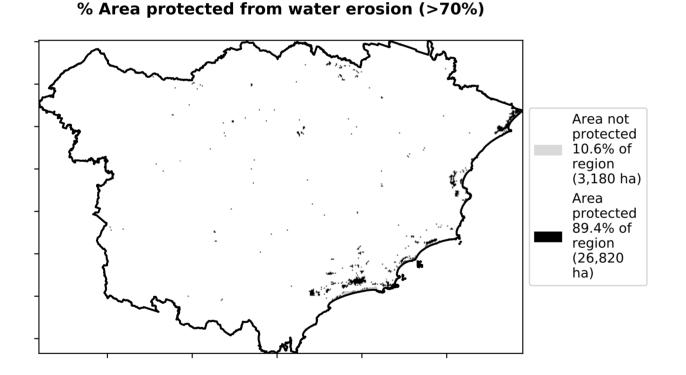
## **Total Vegetation Cover [%]**

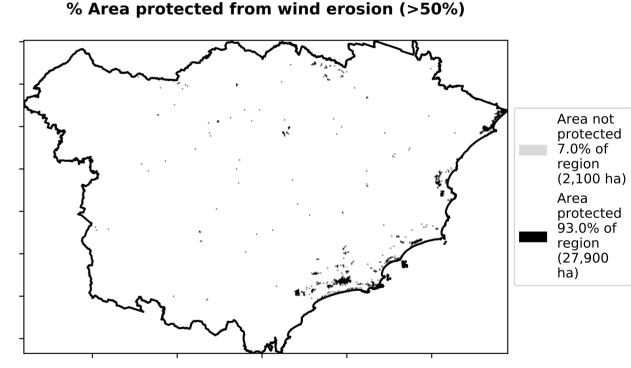




80

60





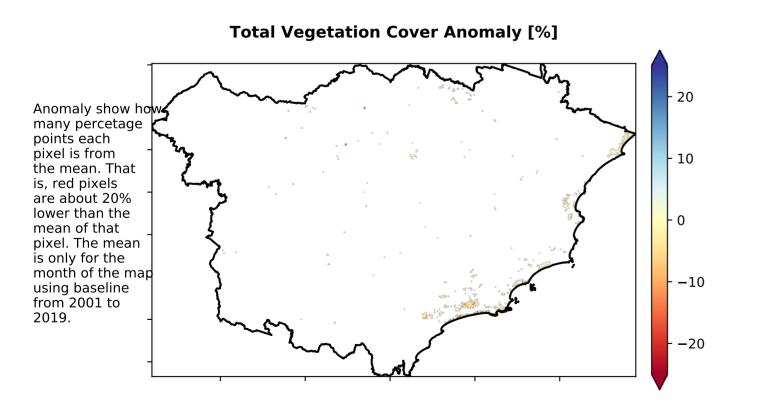
3.8%

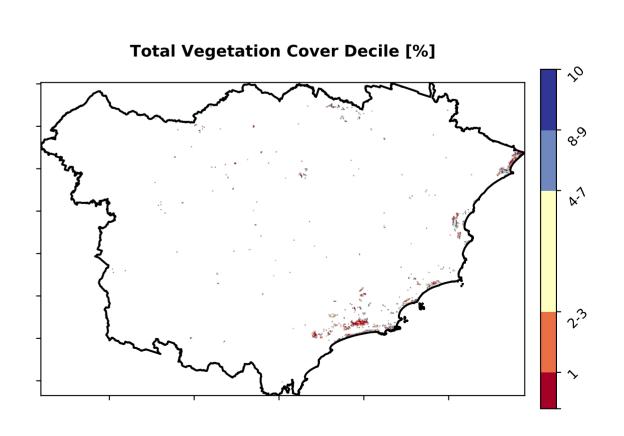
51%-70%

Proportion of vegetation cover class in area

89.4%

71%-100%









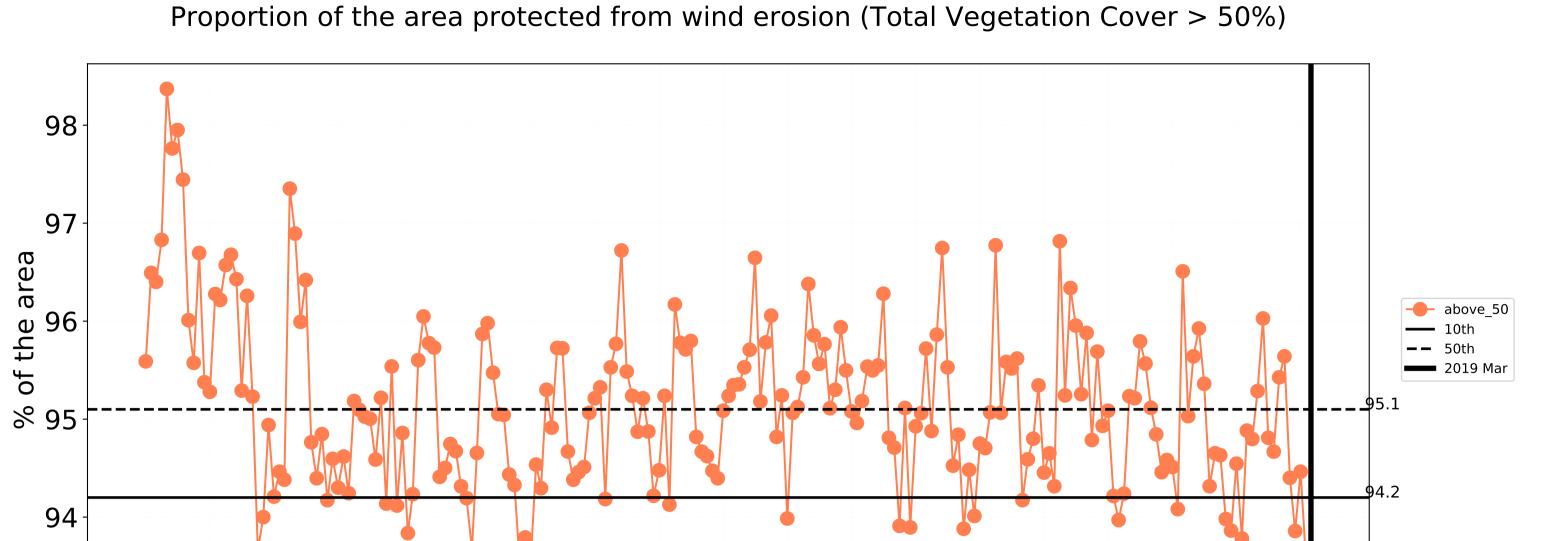






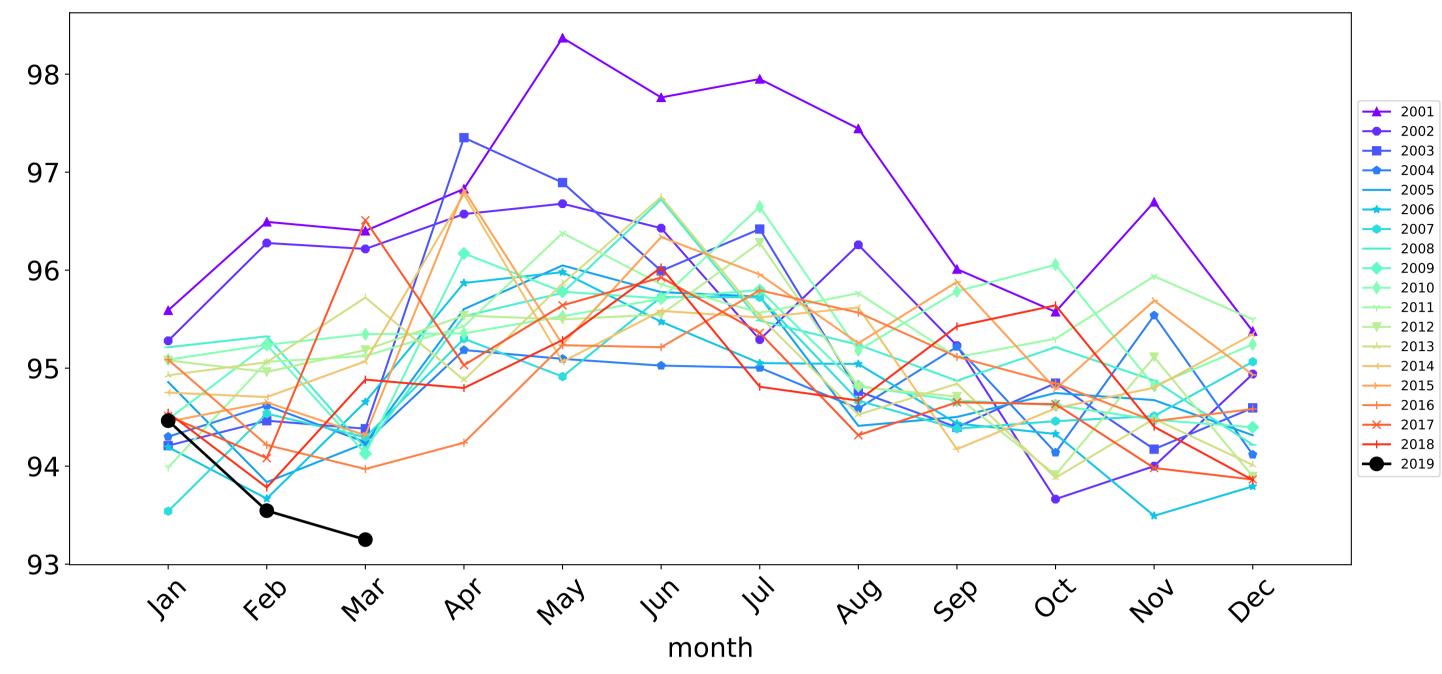


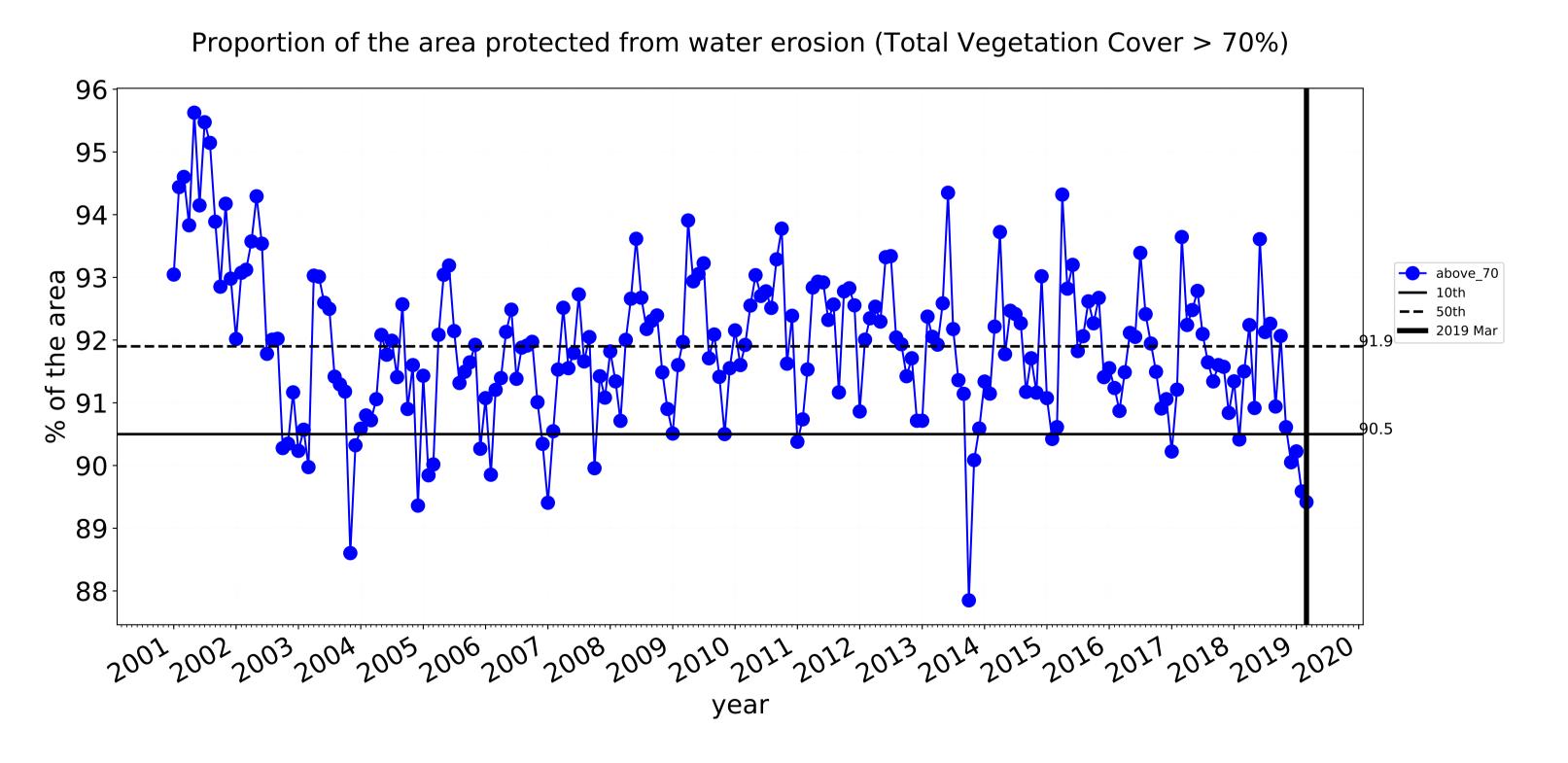
### **Conservation and natural environments non forest timeseries**

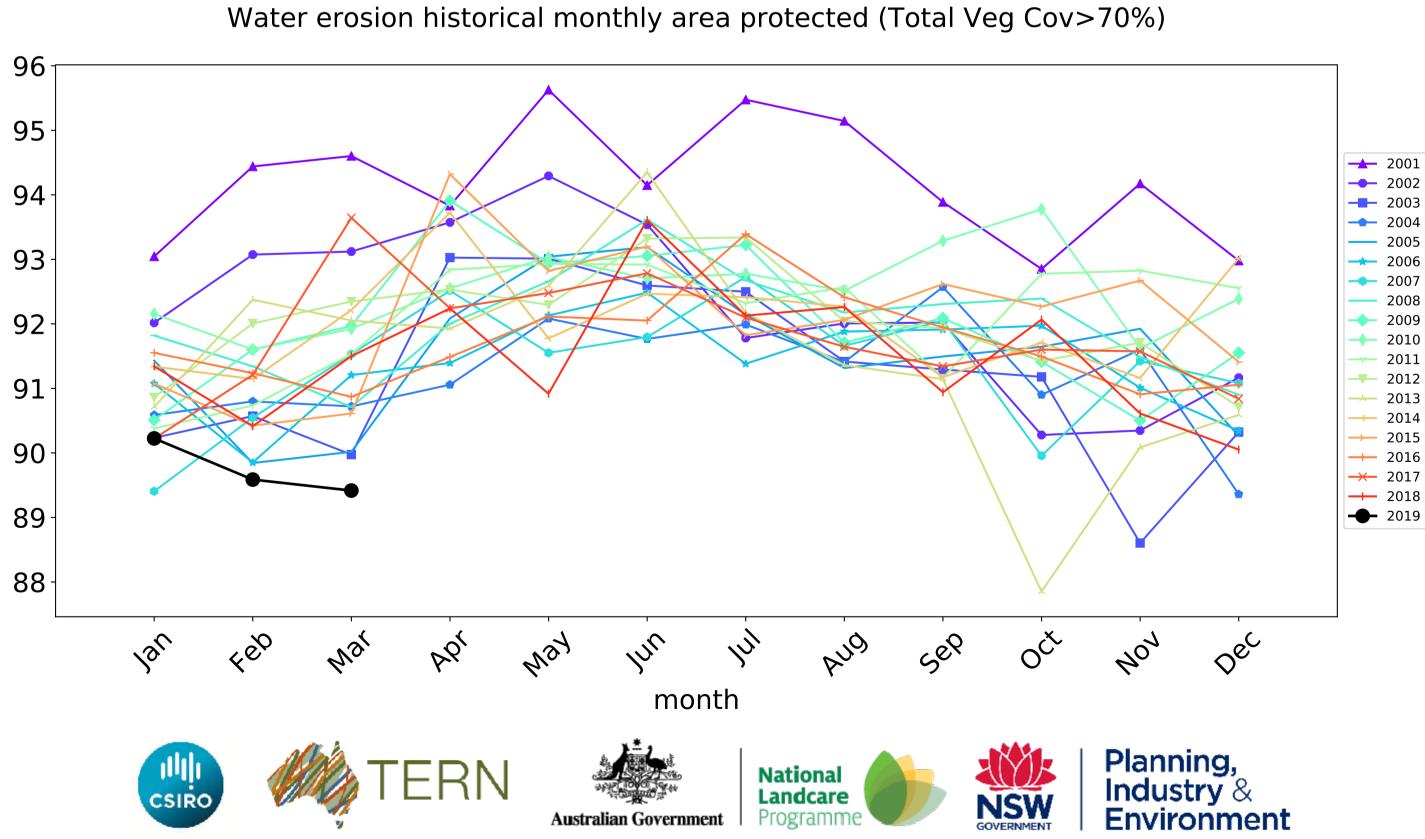


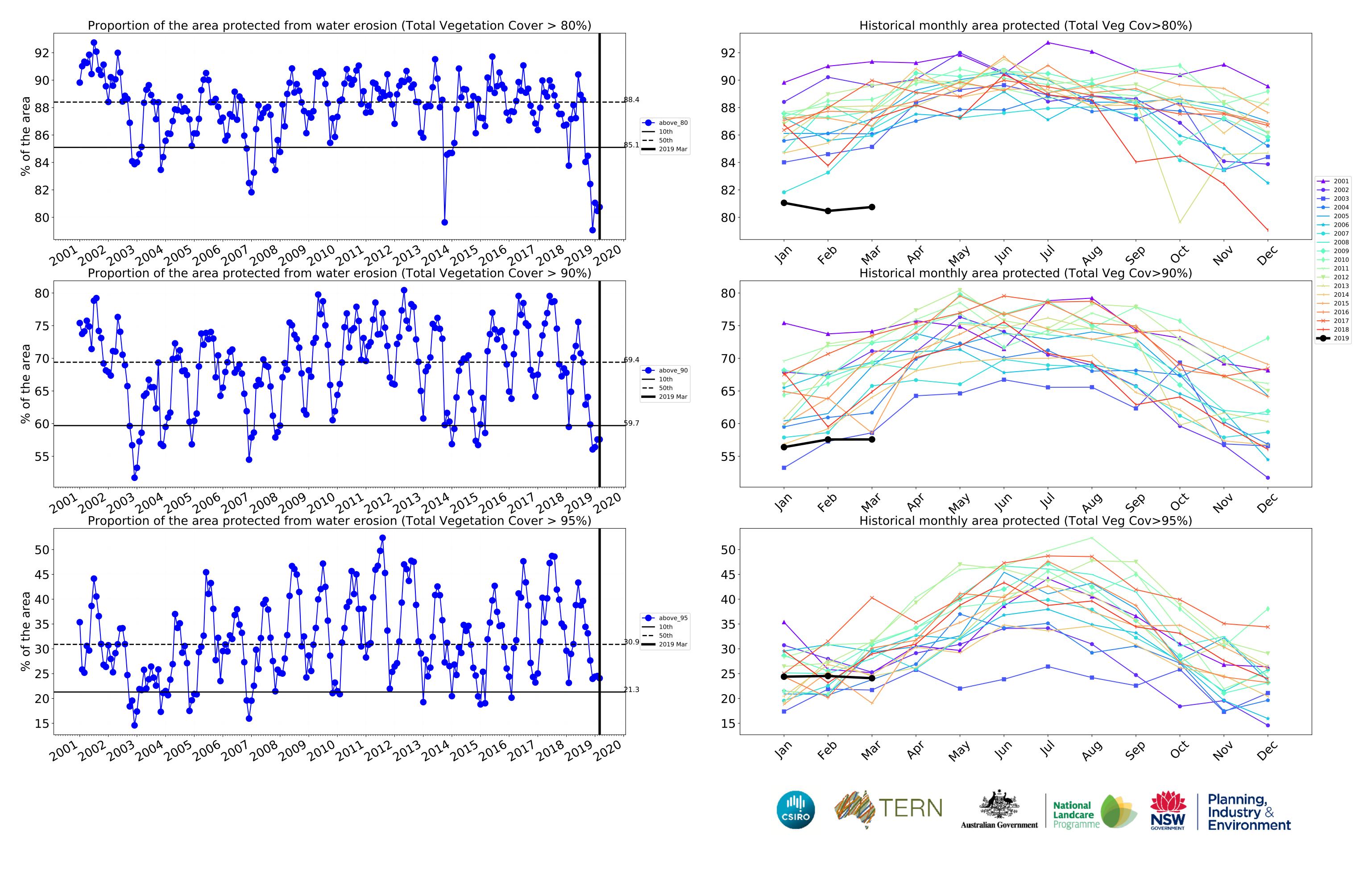
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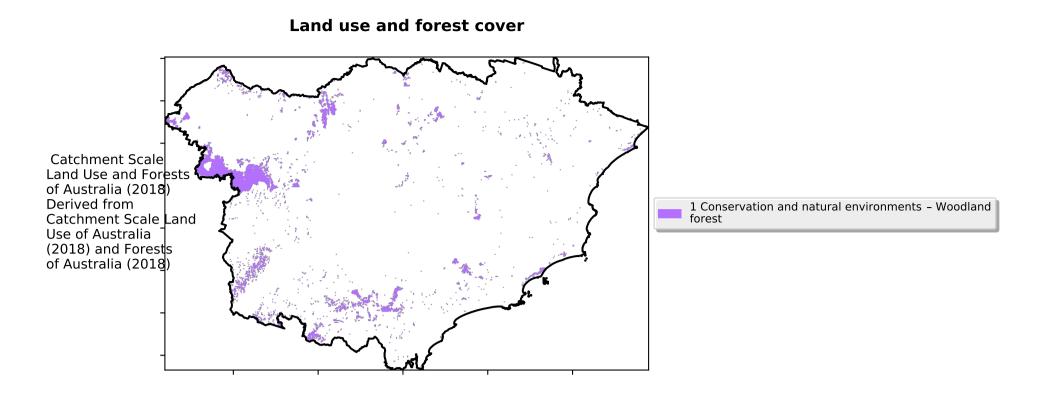


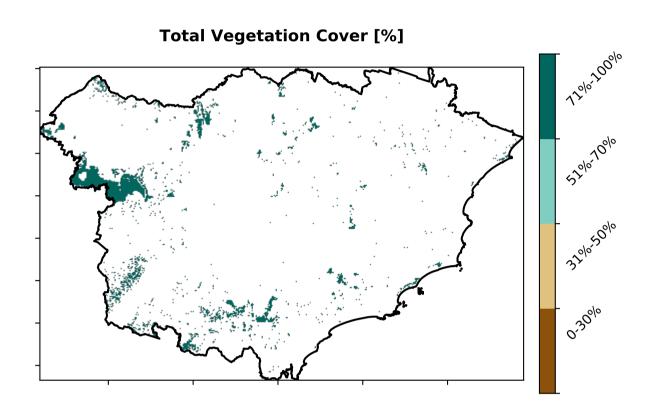


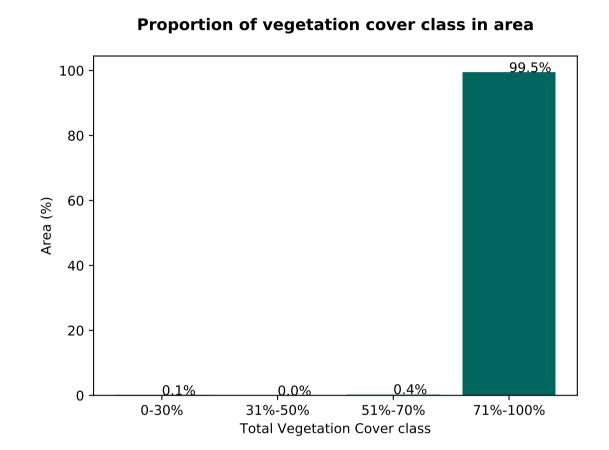


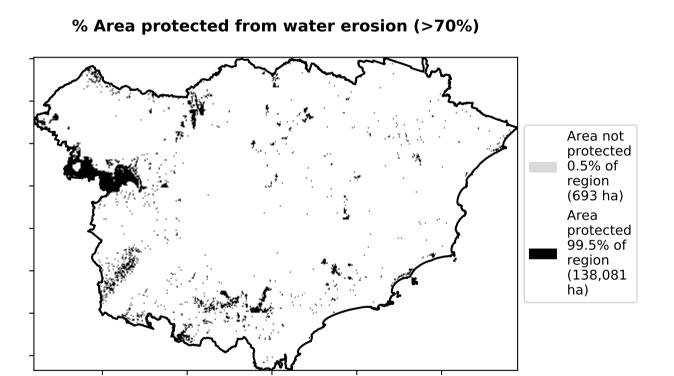


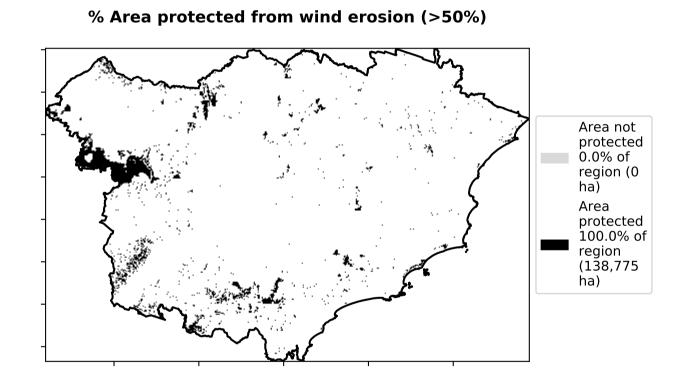
### **Conservation and natural environments Woodland forest**

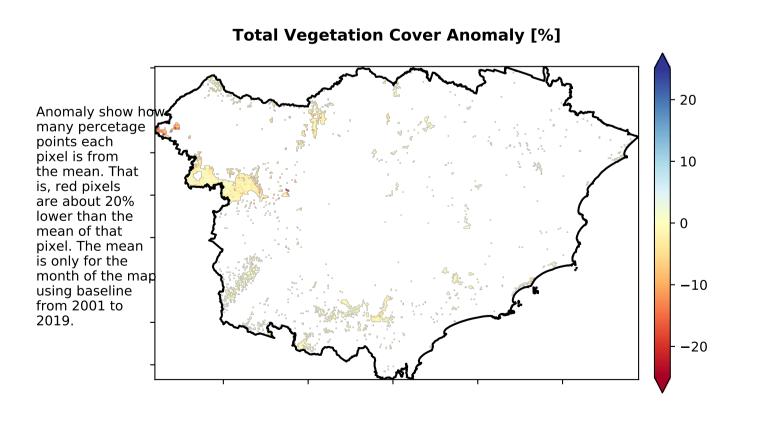


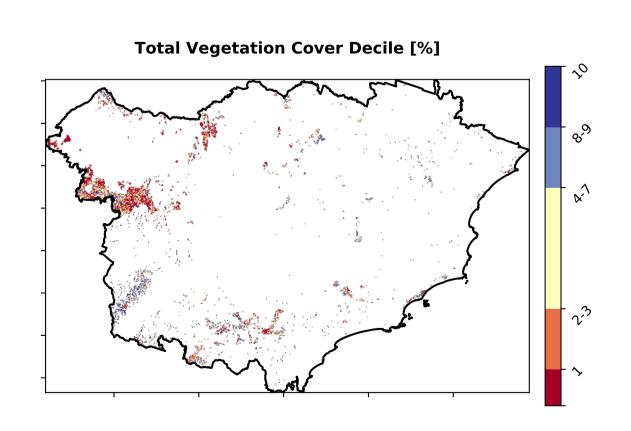














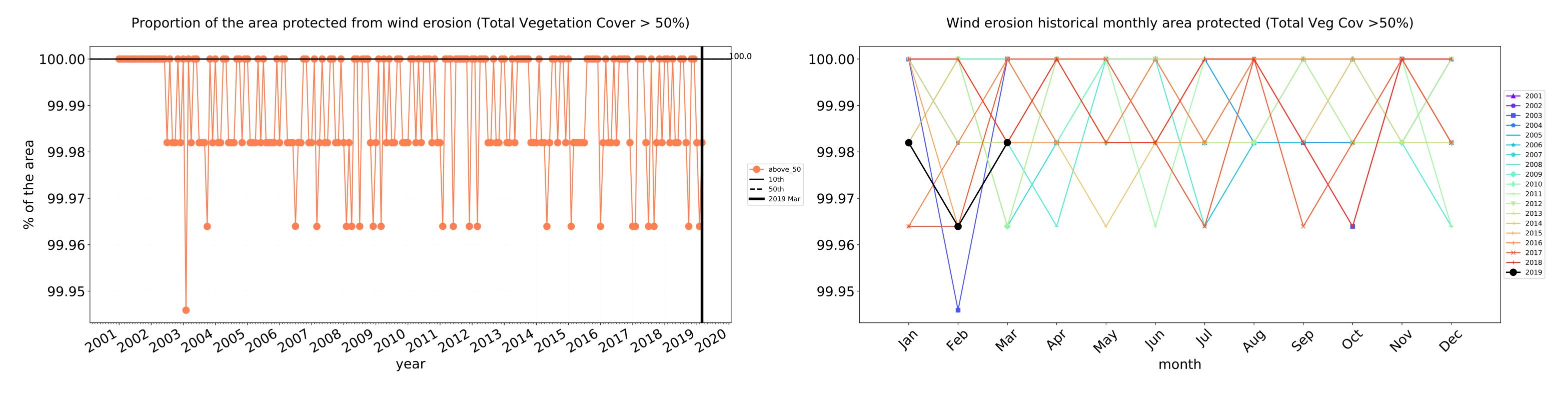


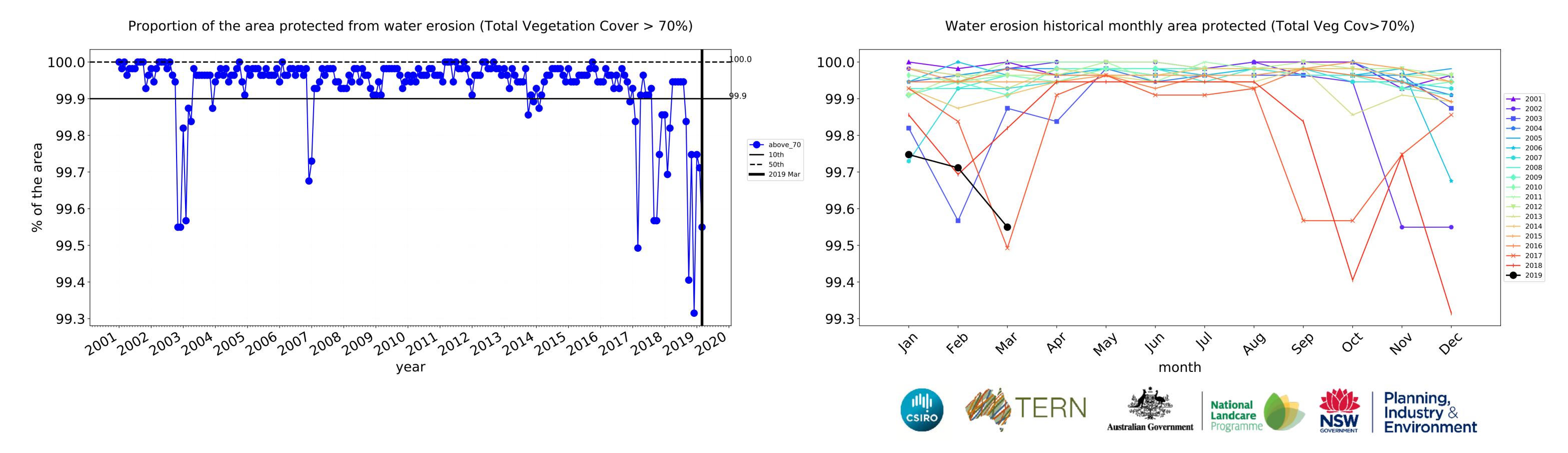


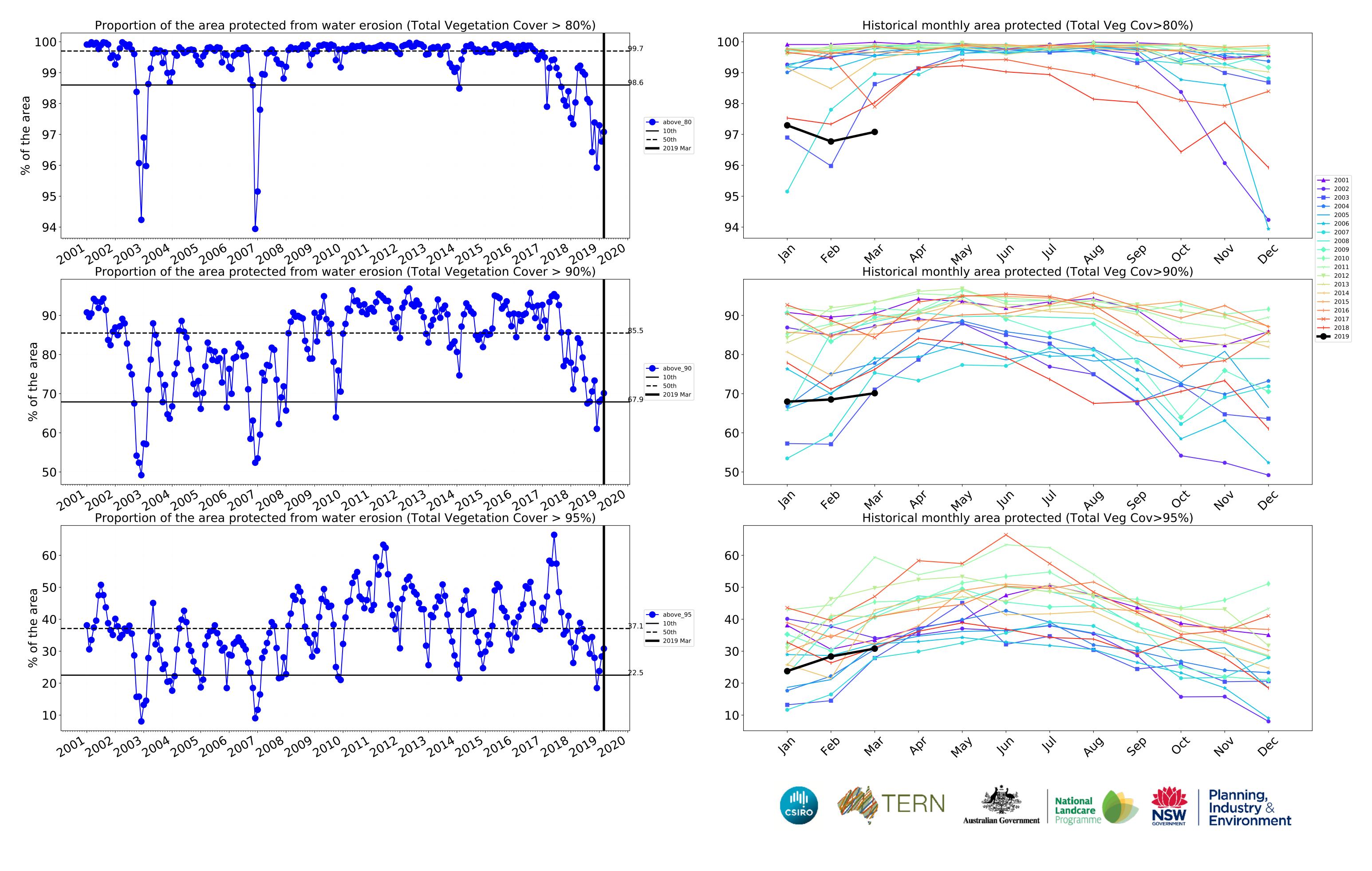






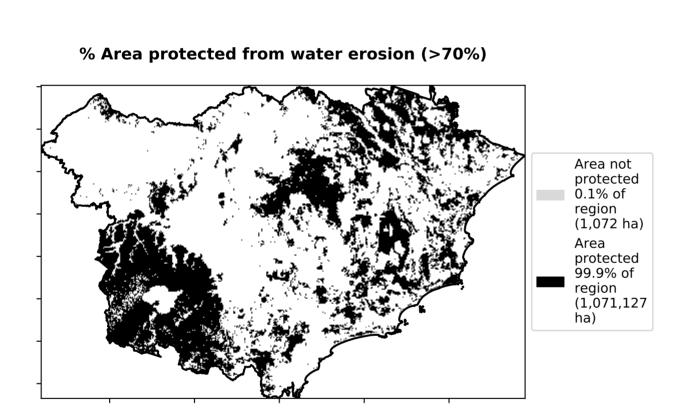


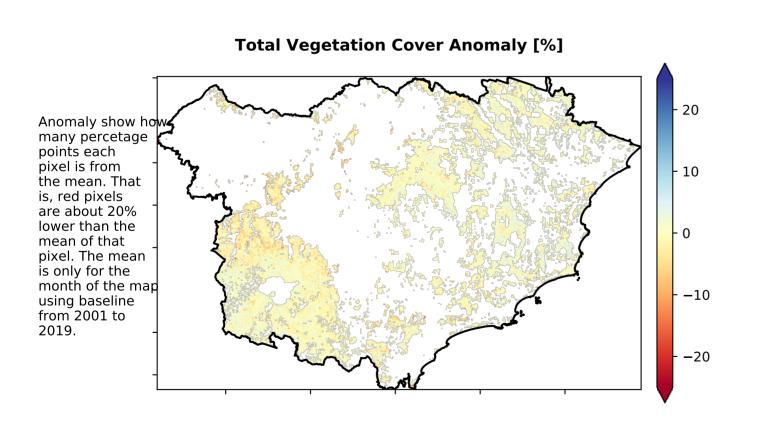


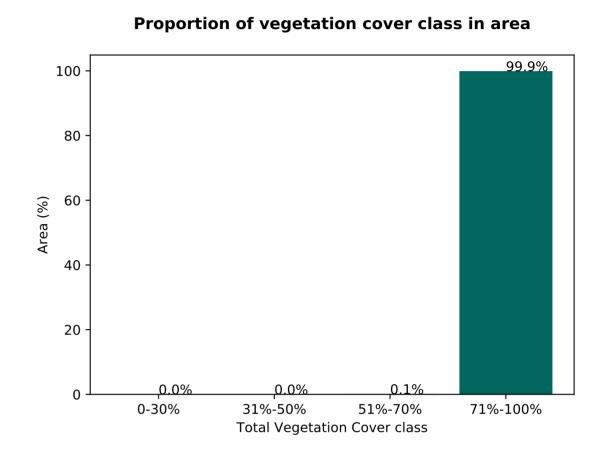


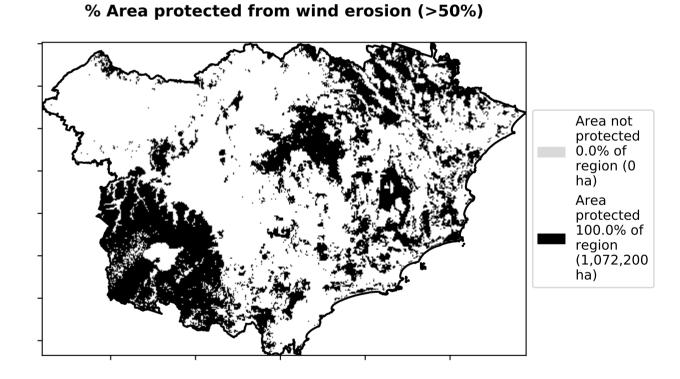
### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Use of Australia (2018) Australia (2018) The Conservation and natural environments - Non-woodland forest woodland forest The Conservation and natural environments - Non-woodland forest woodland forest The Conservation and natural environments - Non-woodland forest

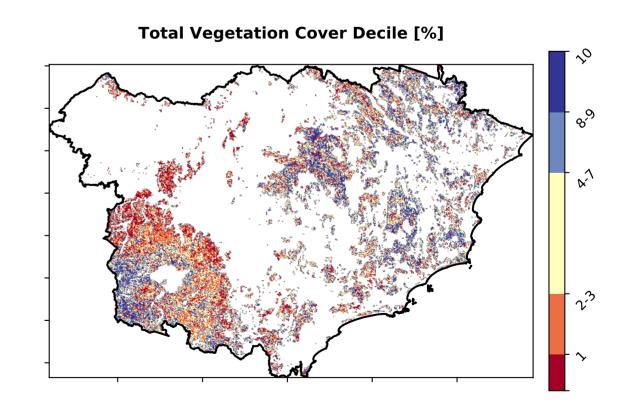
## Total Vegetation Cover [%] Total Vegetation Cover [%] Tight toology to the state of the state















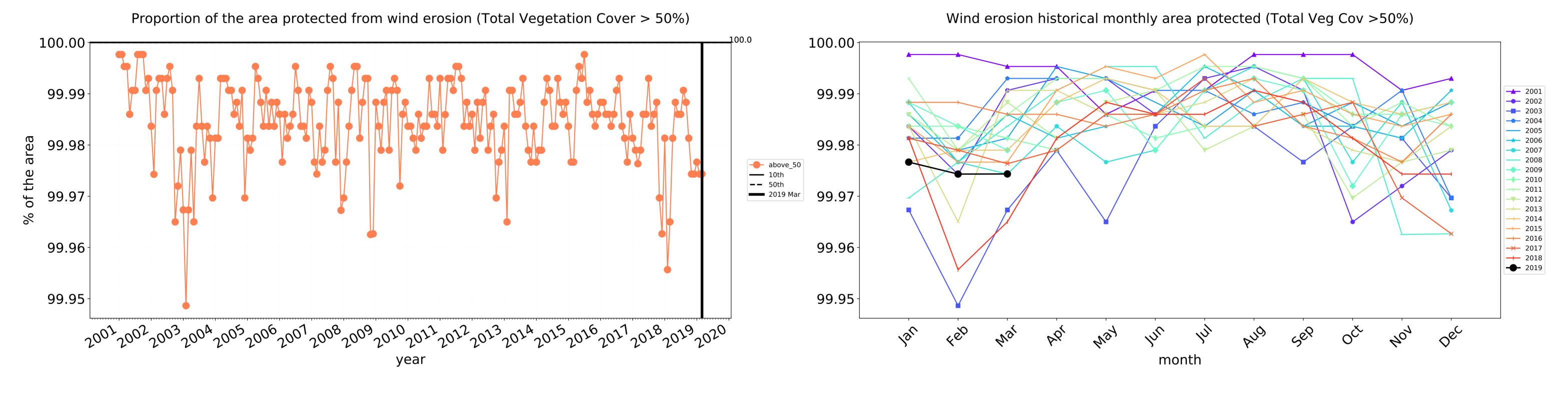


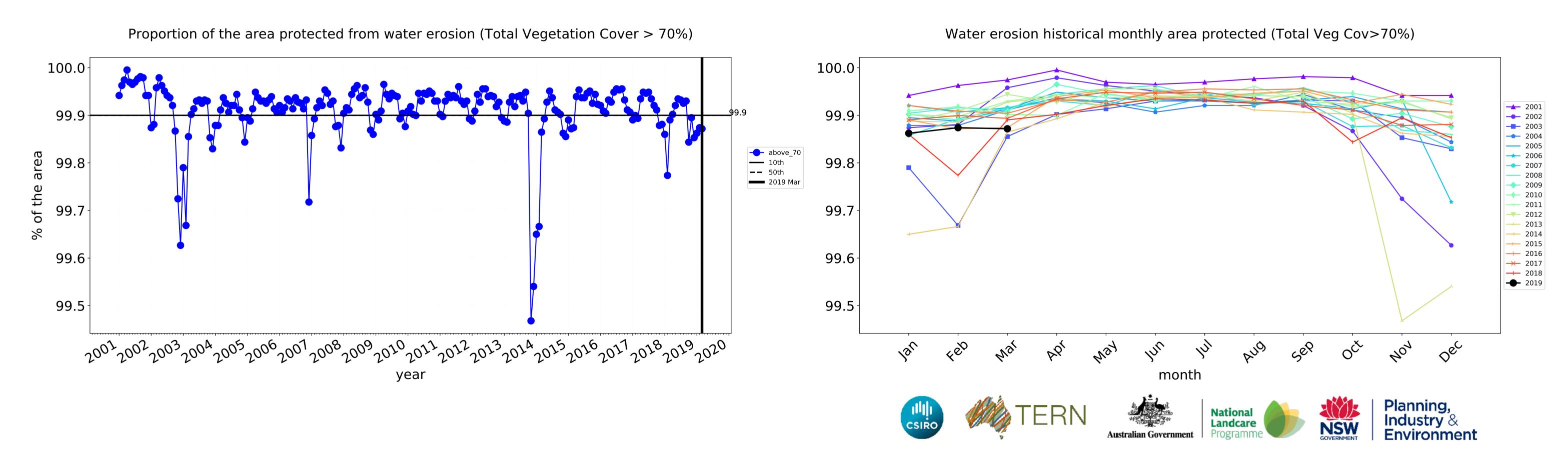


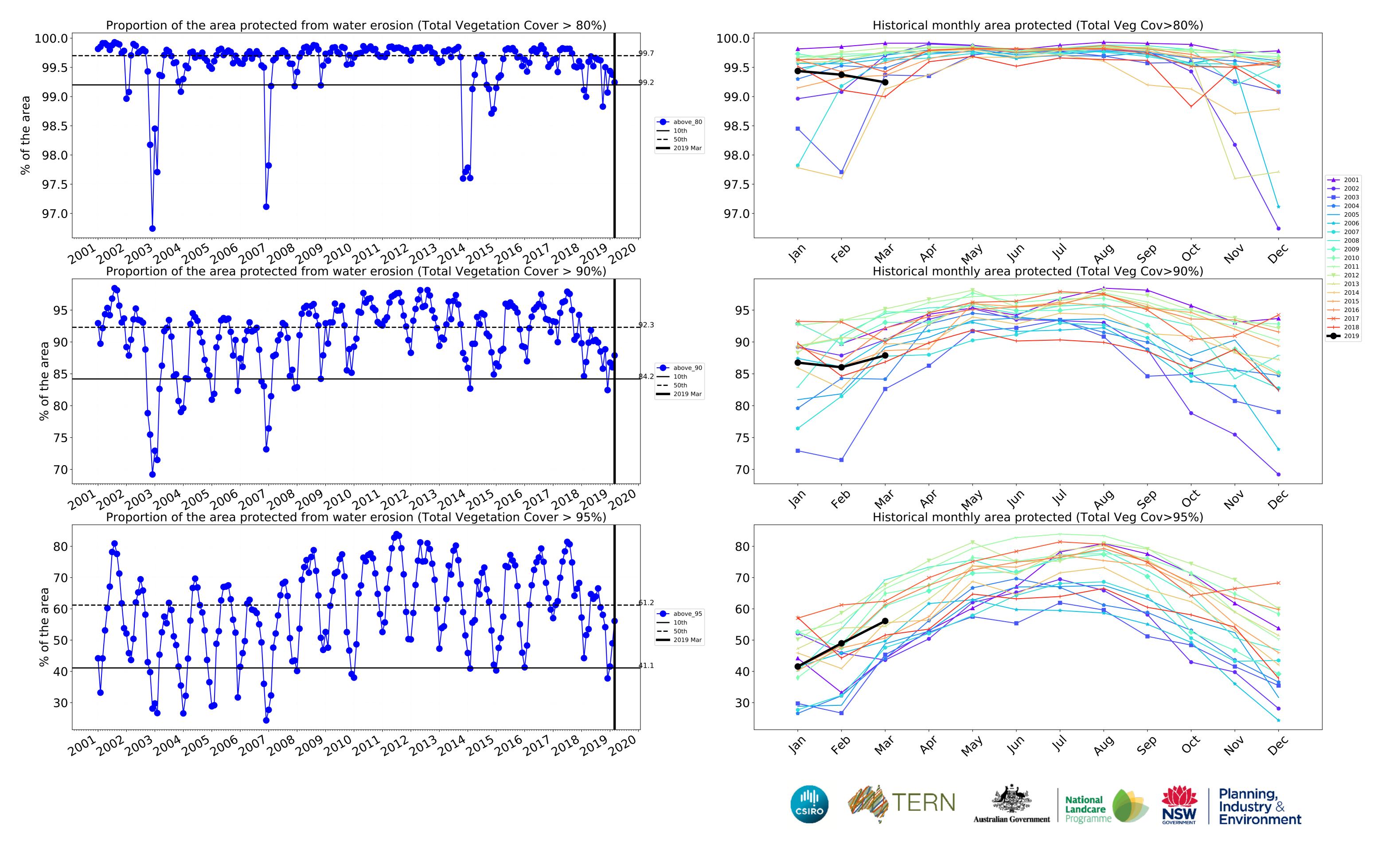




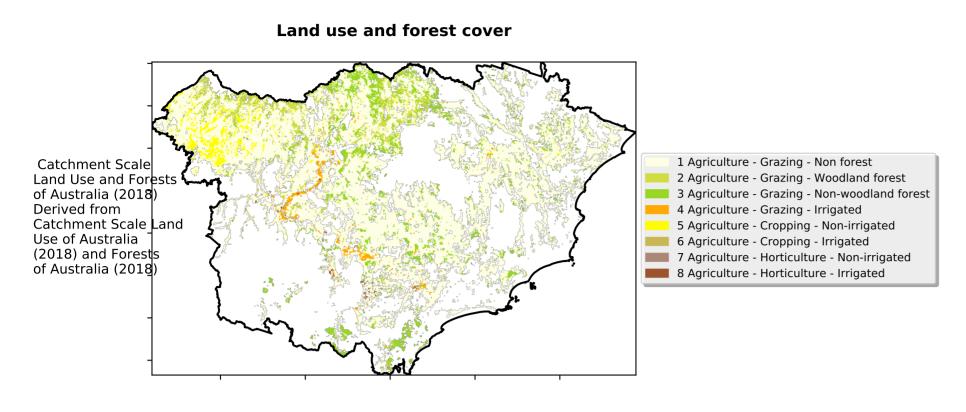
### Conservation and natural environments Forest (non woodland) timeseries

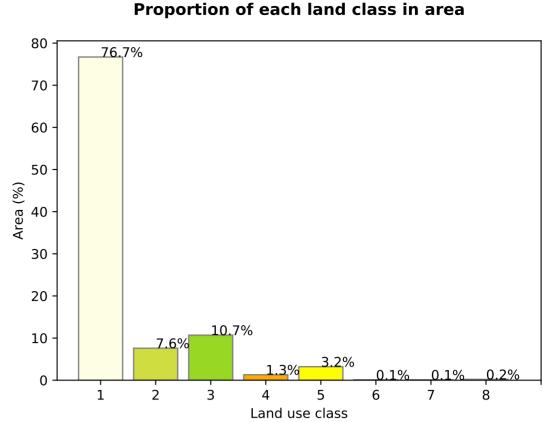


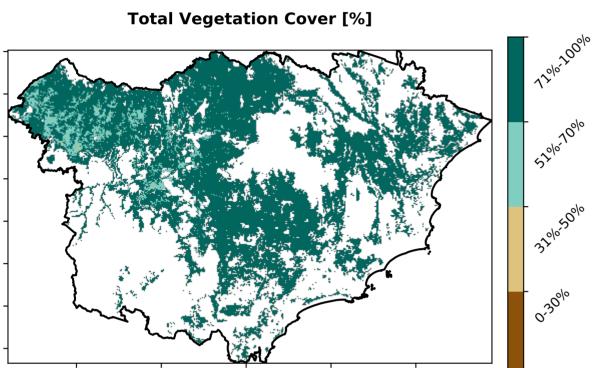




### **Agriculture**

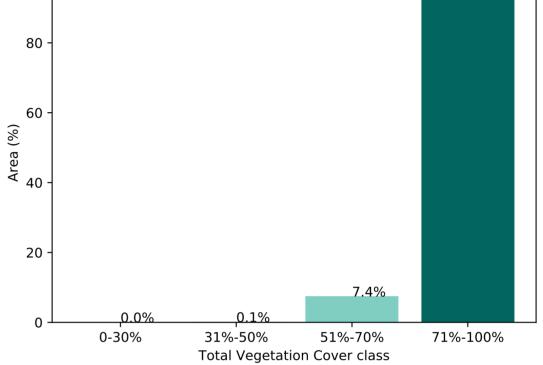




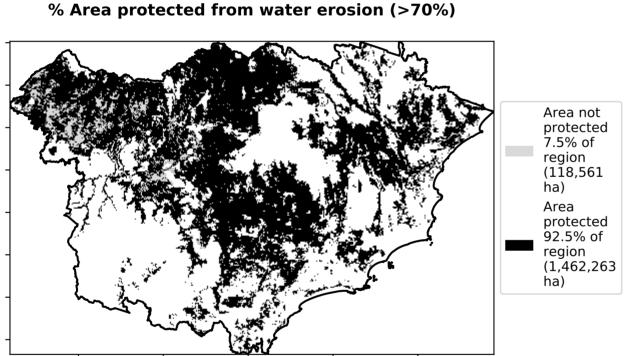




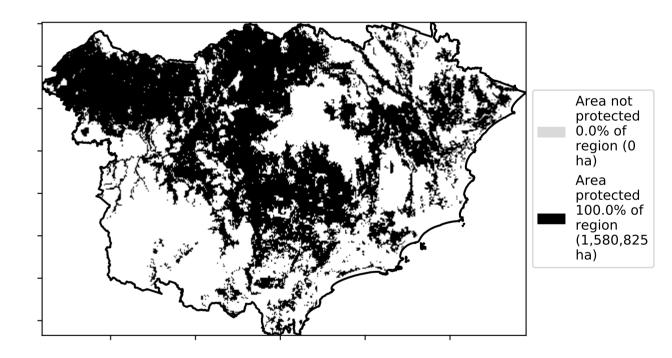
Proportion of vegetation cover class in area

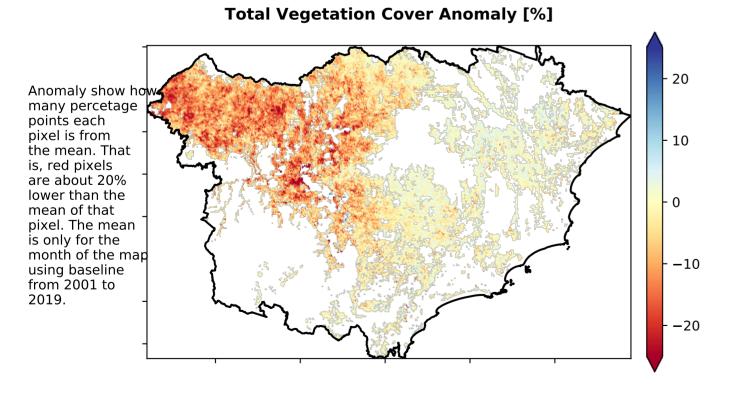


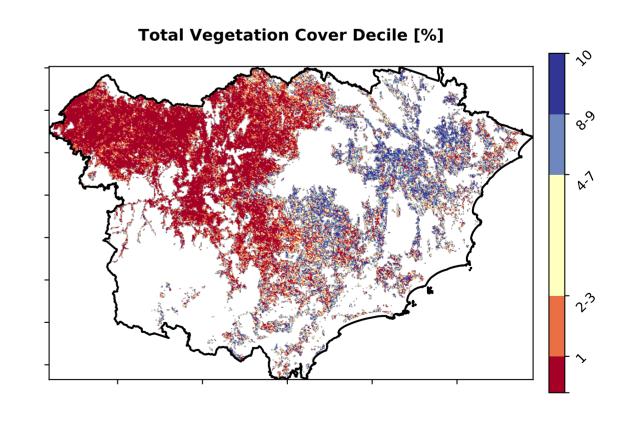




% Area protected from wind erosion (>50%)











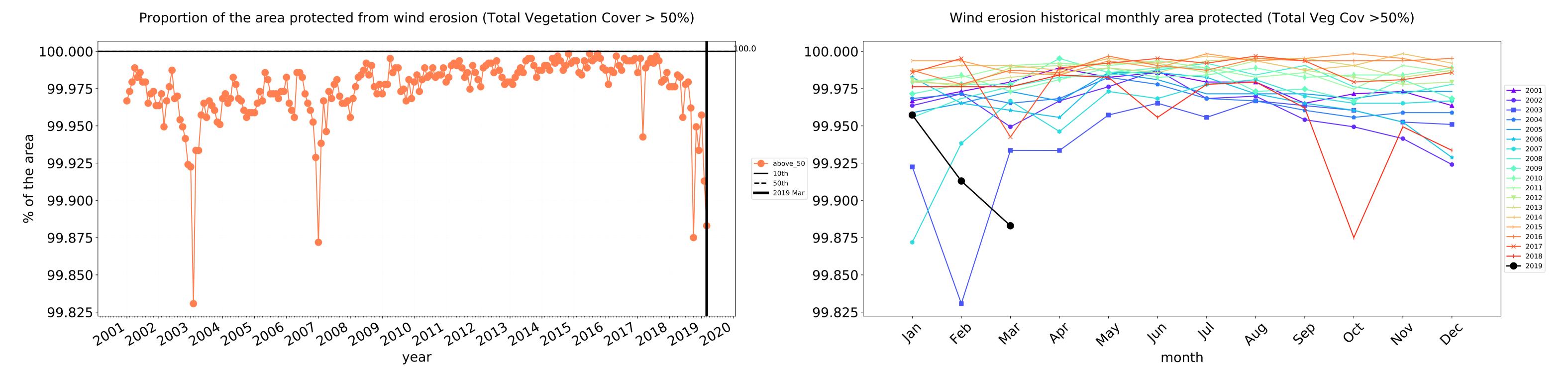


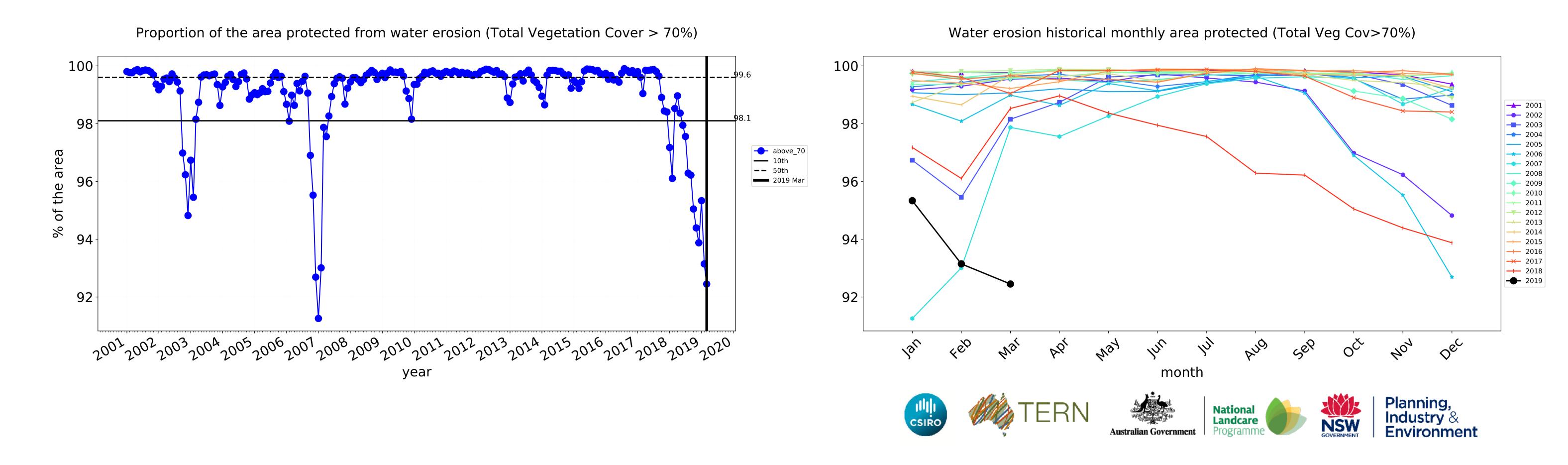


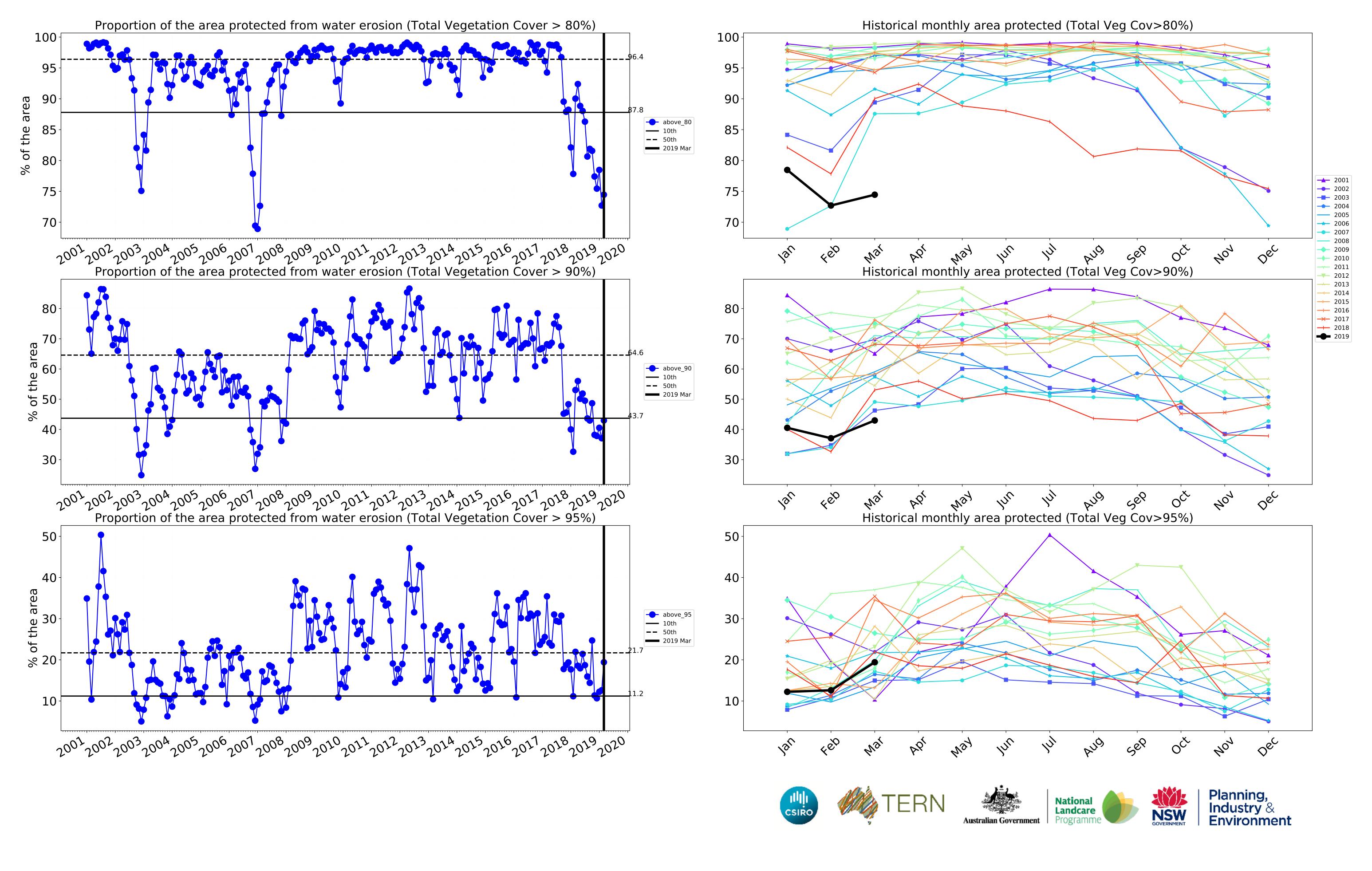




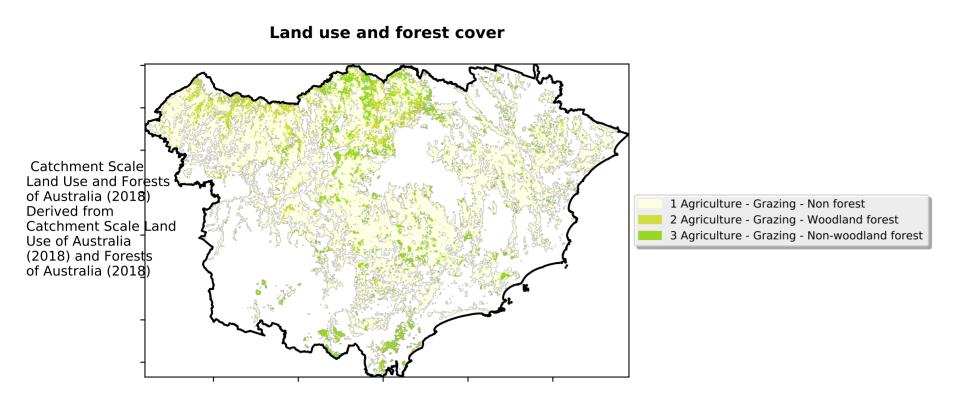
### **Agriculture timeseries**



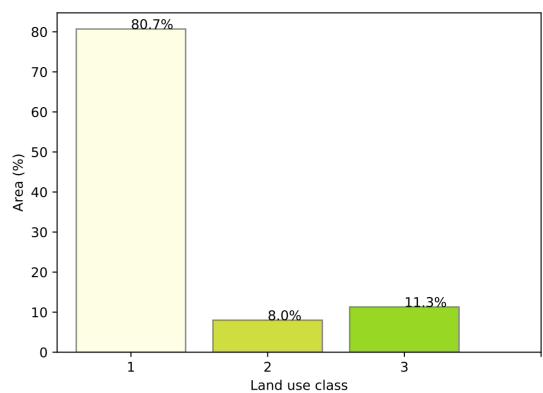




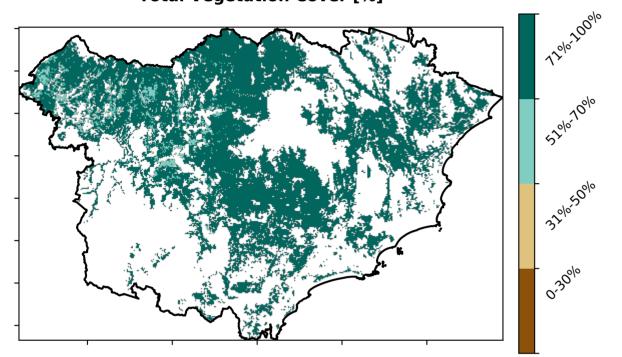
### **Grazing**



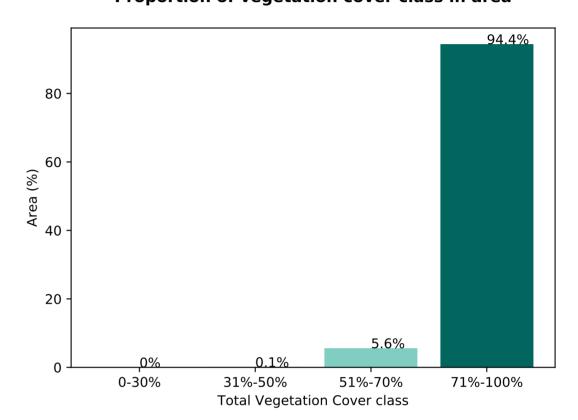
### Proportion of each land class in area



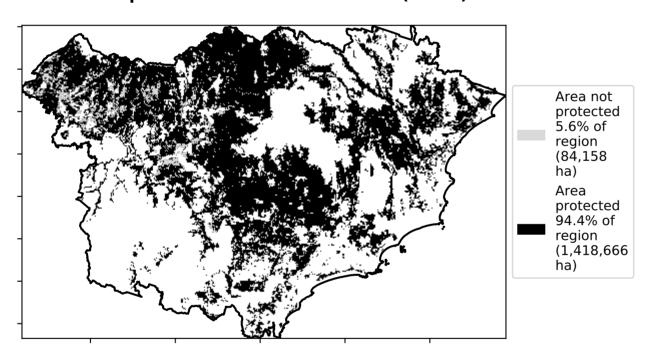
Total Vegetation Cover [%]



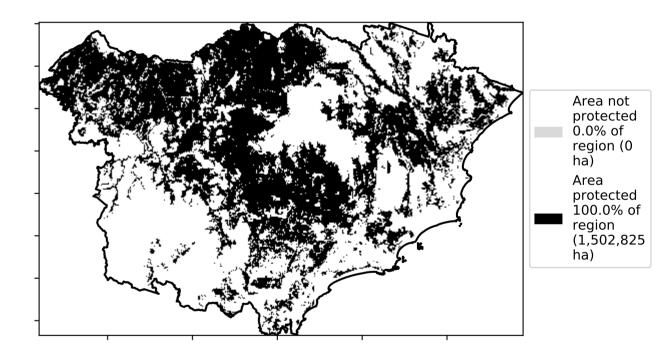
Proportion of vegetation cover class in area



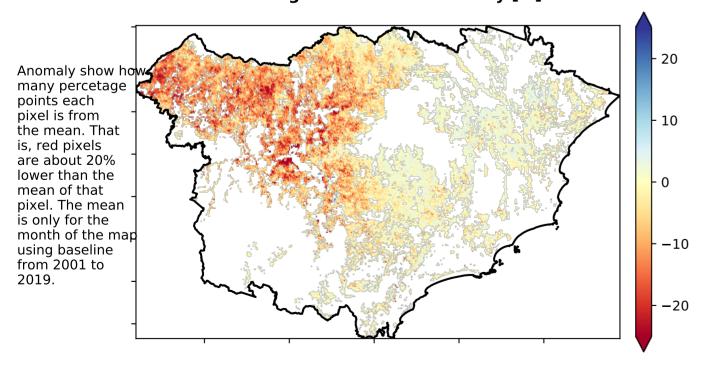
% Area protected from water erosion (>70%)

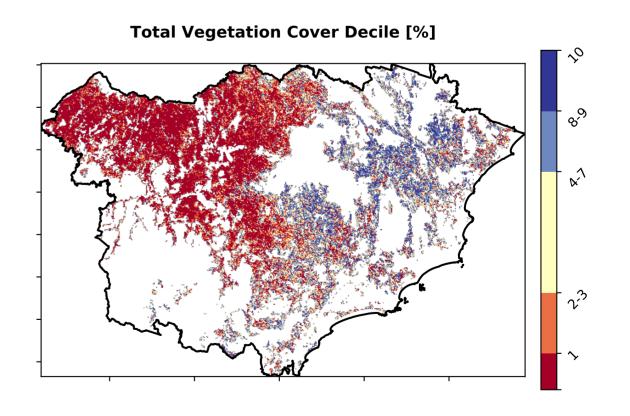


% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]









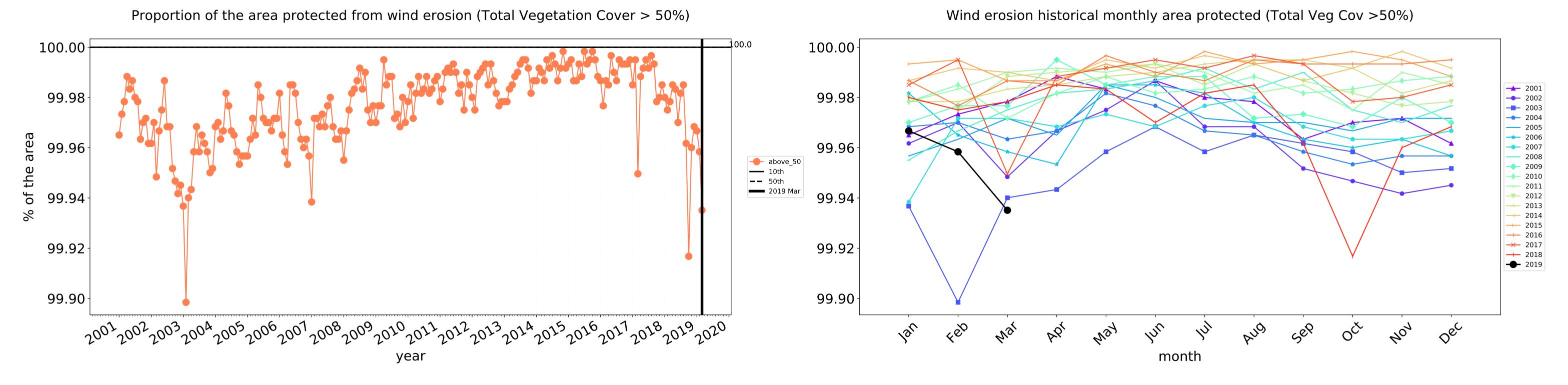


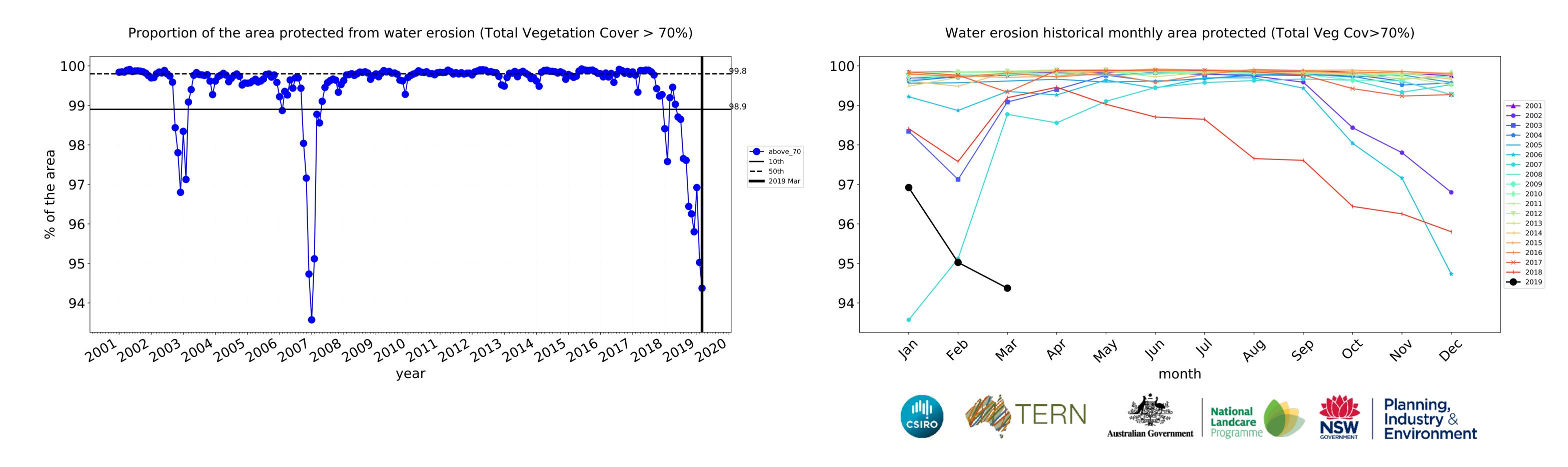


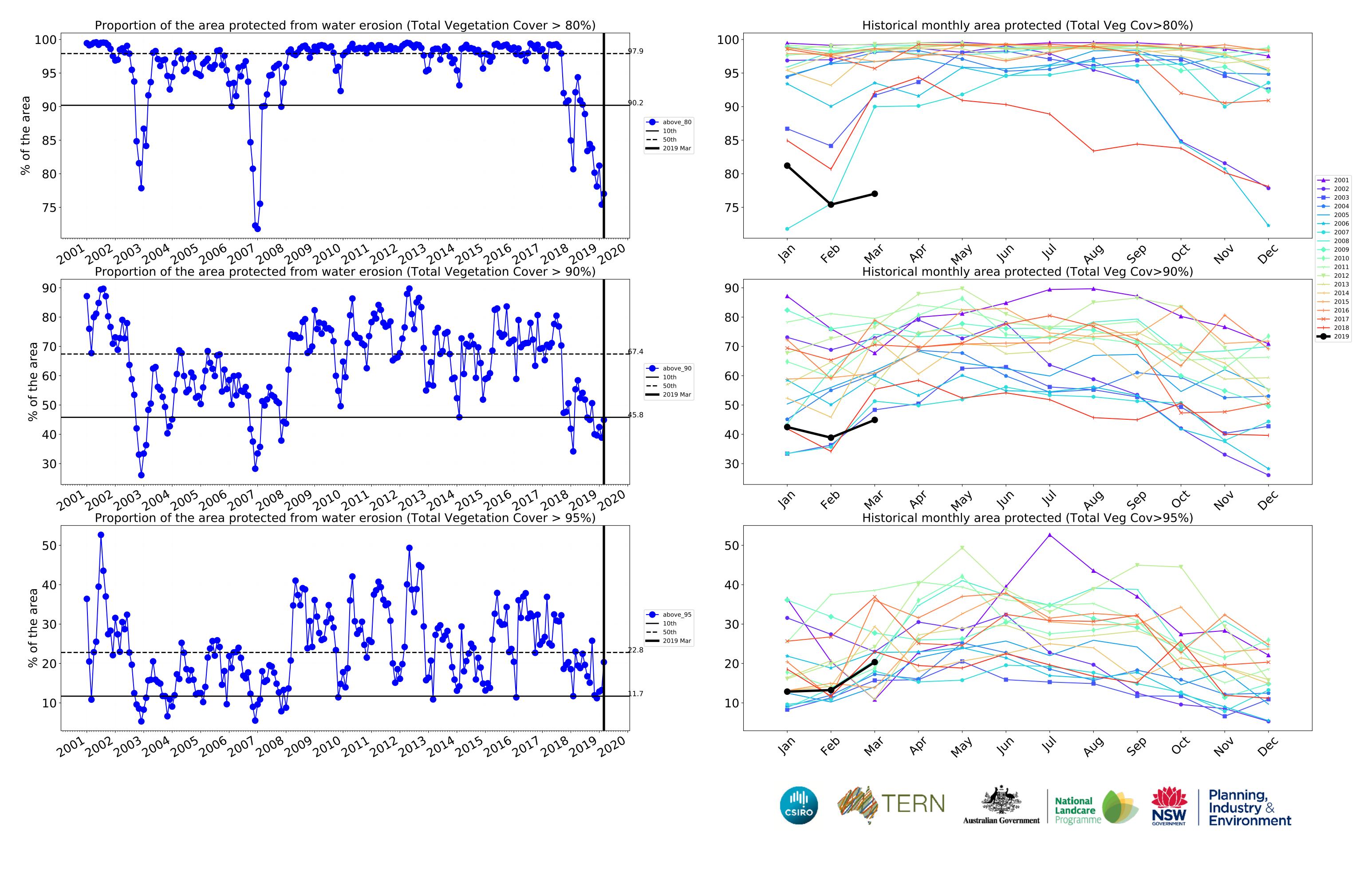




### **Grazing timeseries**

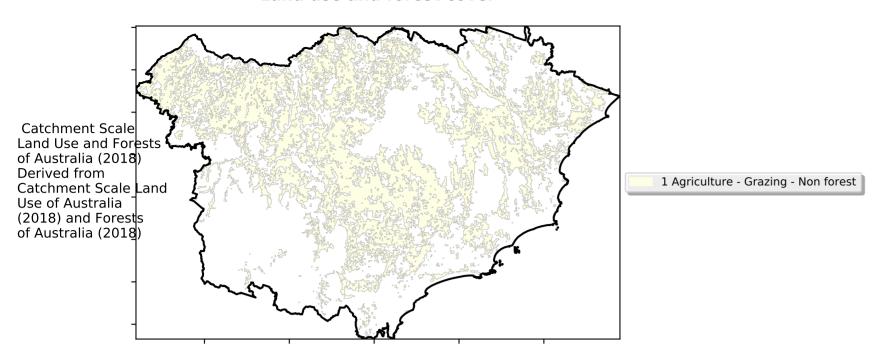




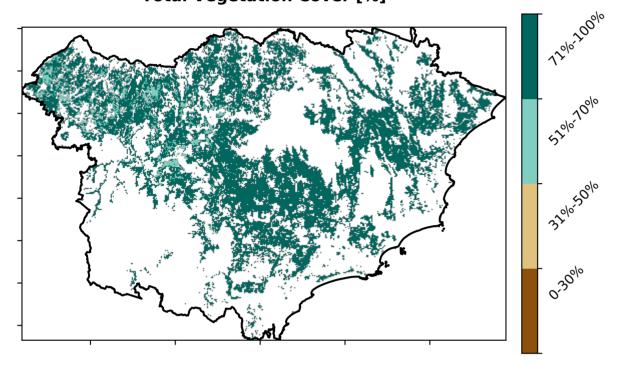


### **Grazing non forest**

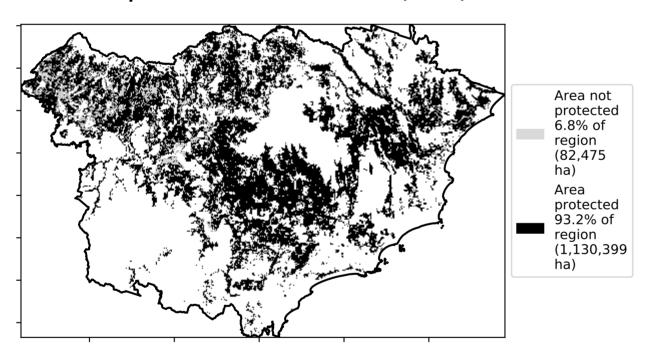
### Land use and forest cover



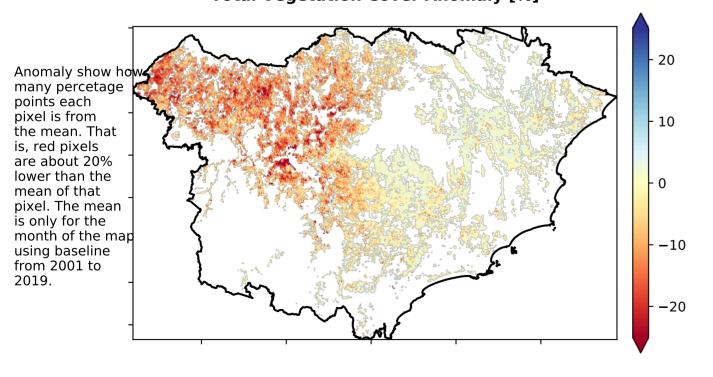
### Total Vegetation Cover [%]



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

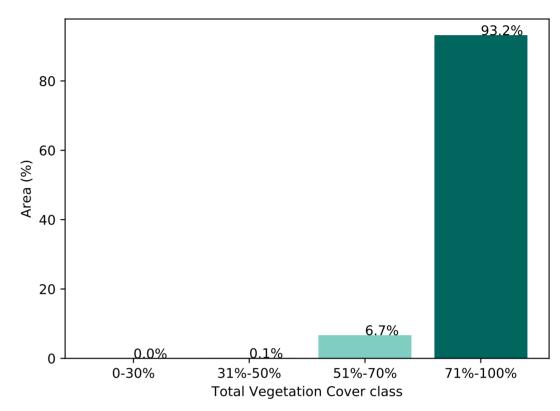


### Total Vegetation Cover Anomaly [%]

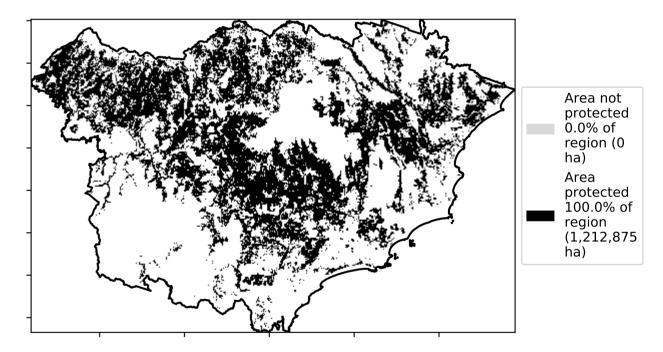


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

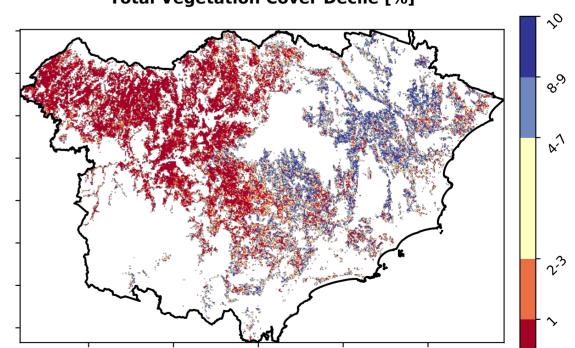
### **Proportion of vegetation cover class in area**



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



### Total Vegetation Cover Decile [%]







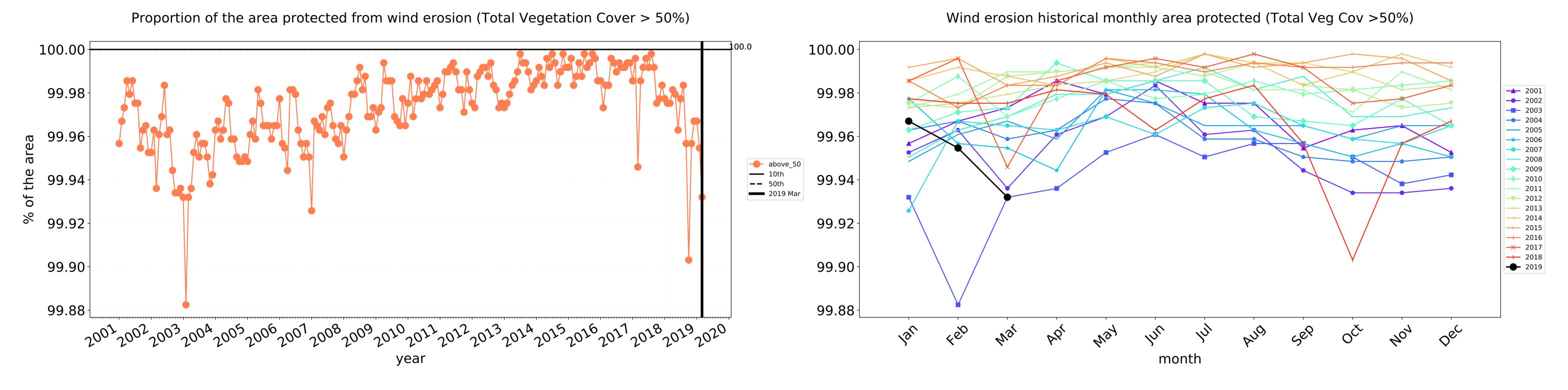


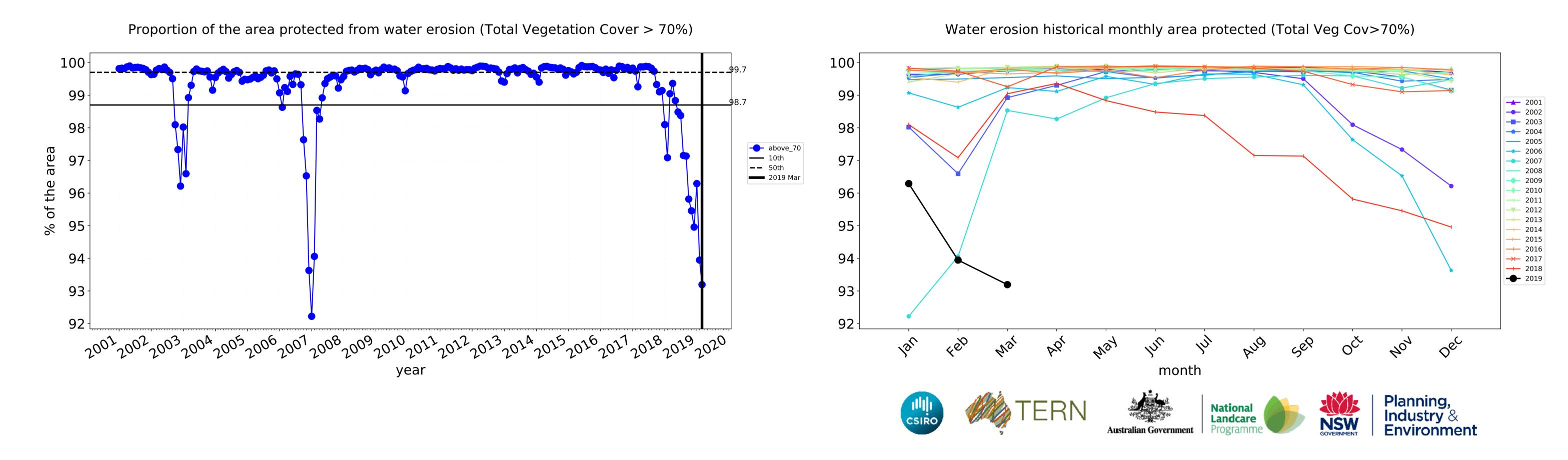


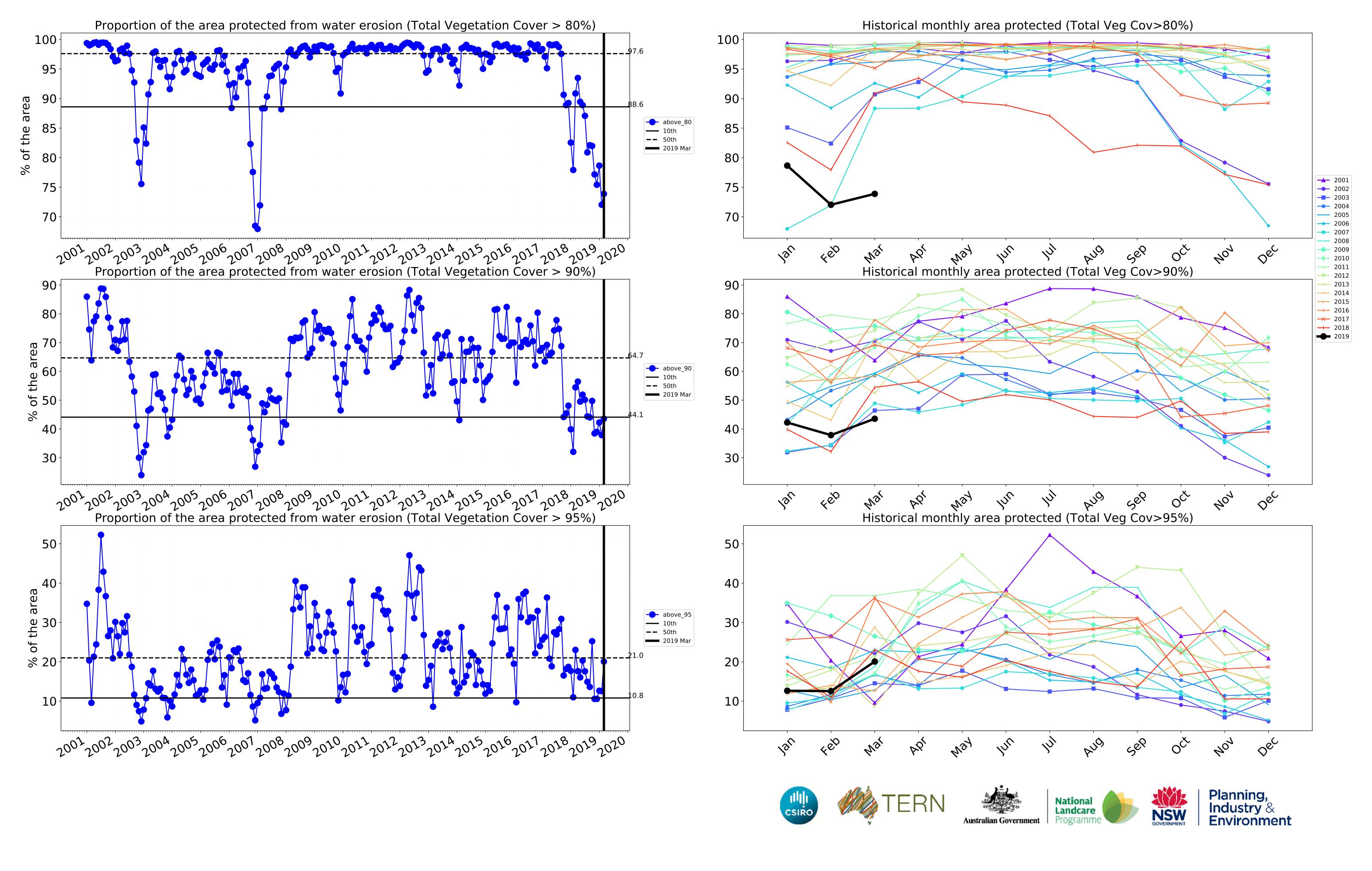




### **Grazing non forest timeseries**





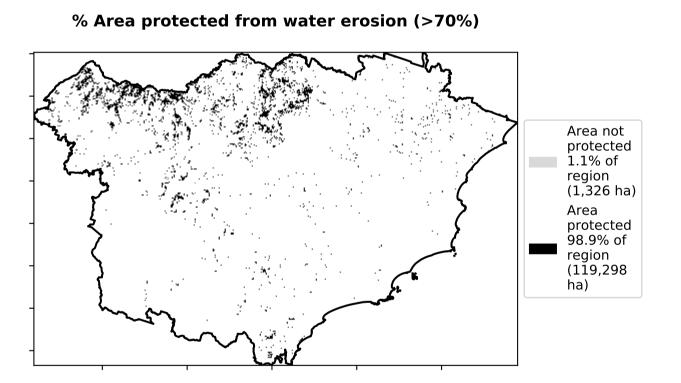


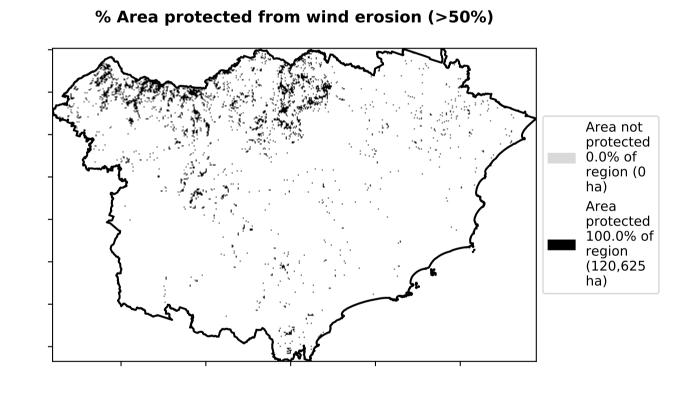
### **Grazing Woodland forest**

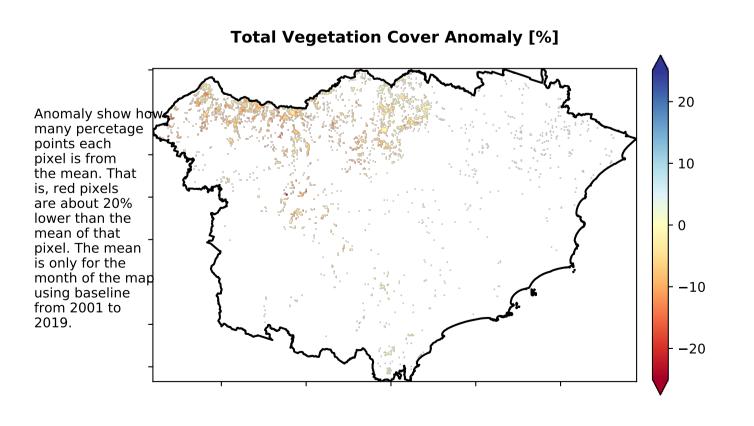
### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) Of Australia (2018)

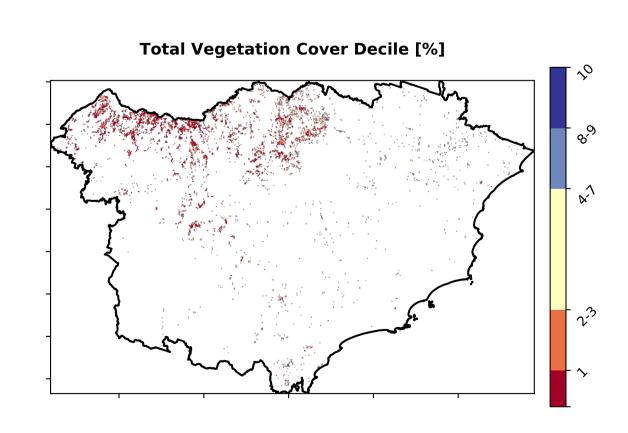
## Total Vegetation Cover [%] Tielot dolle Ti

# Proportion of vegetation cover class in area 100 - 98.9% 80 - 60 - 98.9% 40 - 20 - 0.30% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class













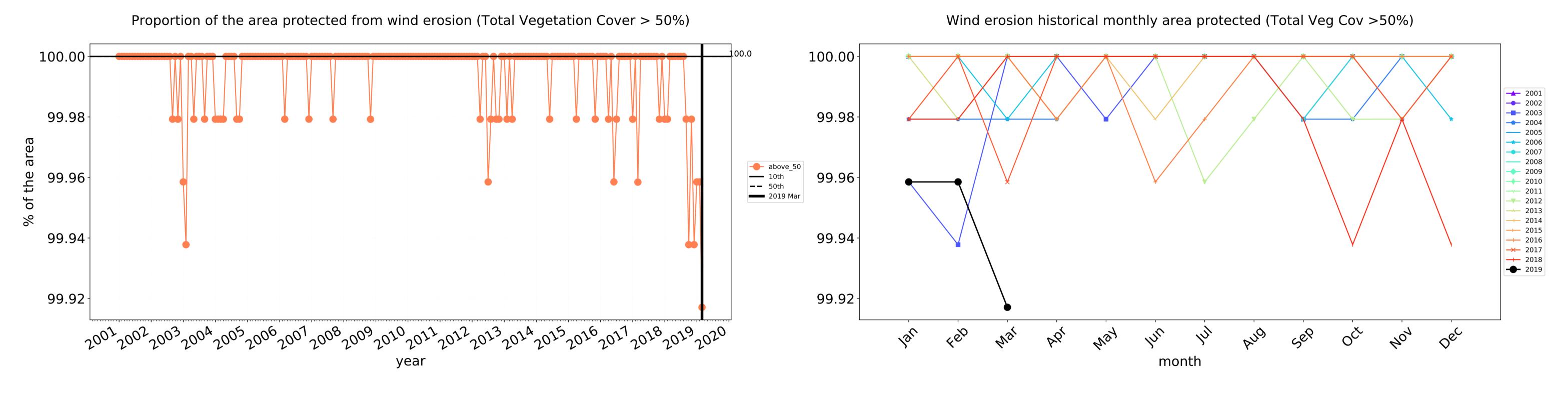


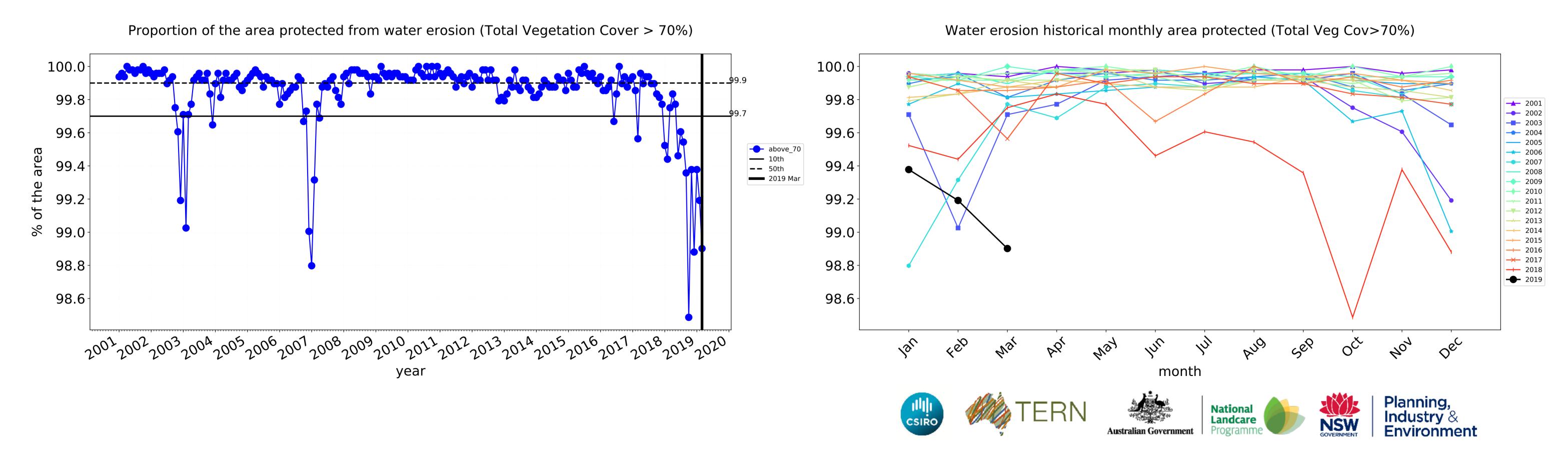


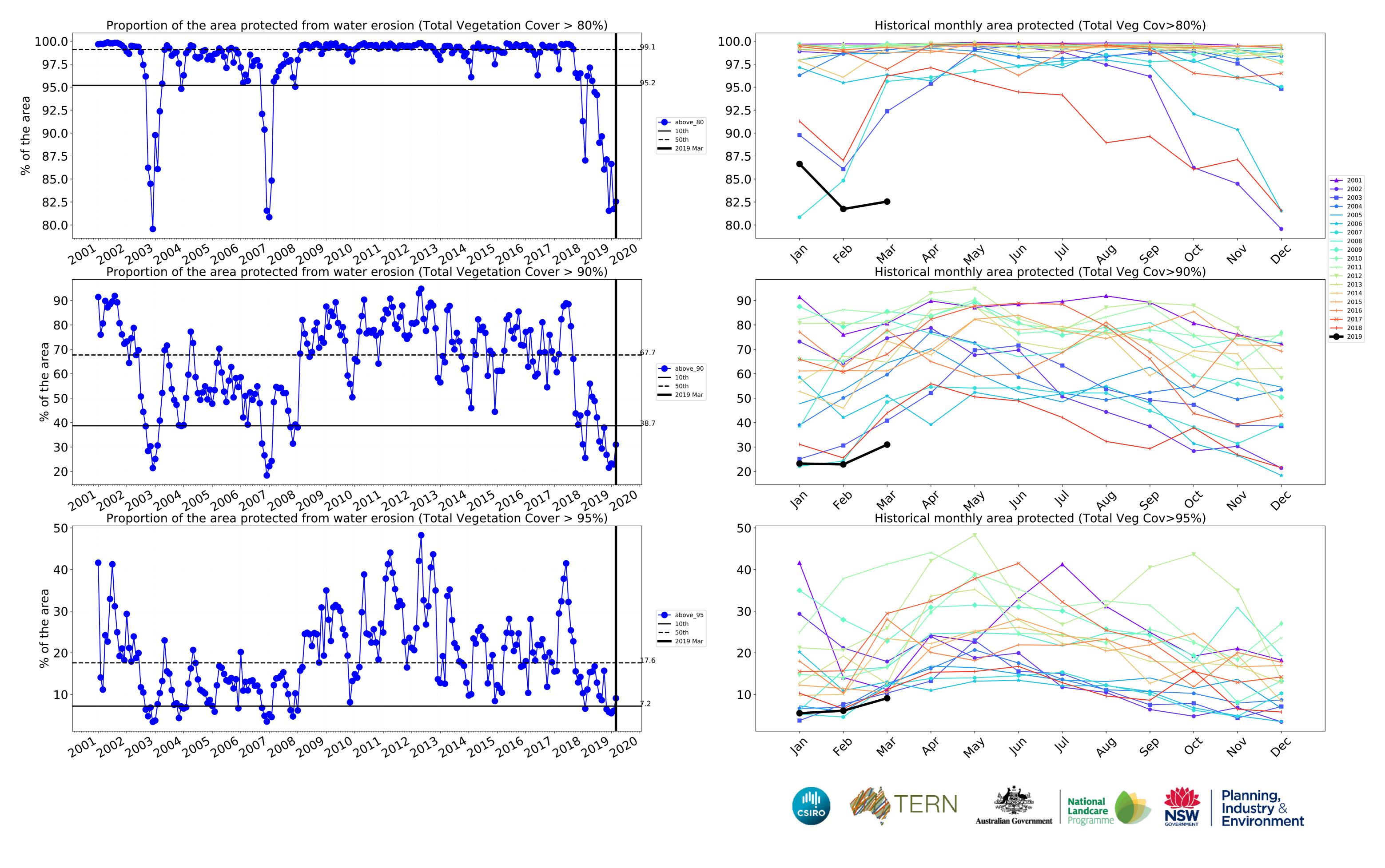




### **Grazing Woodland forest timeseries**



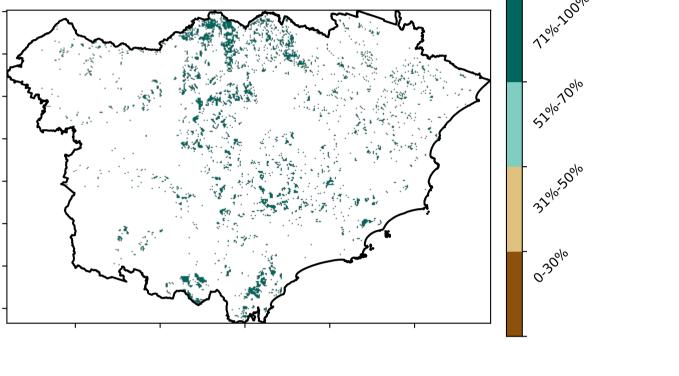


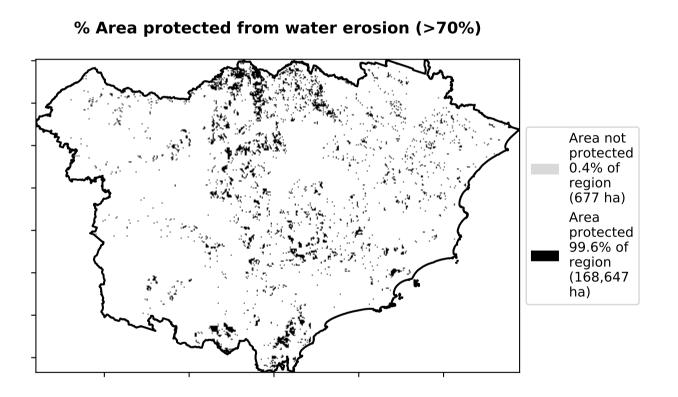


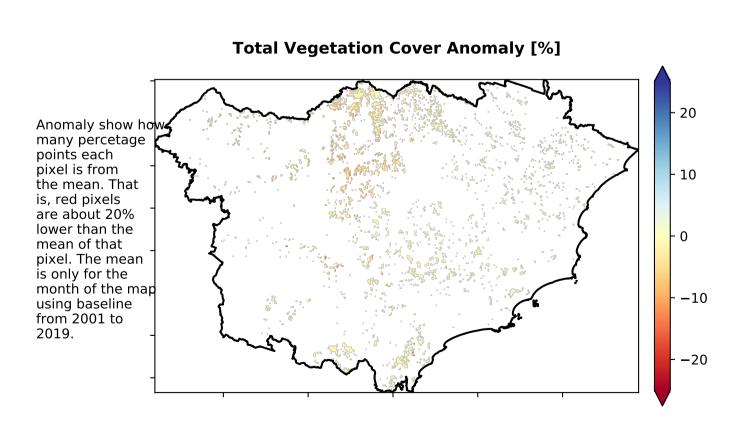
### **Grazing - Forest (non woodland)**

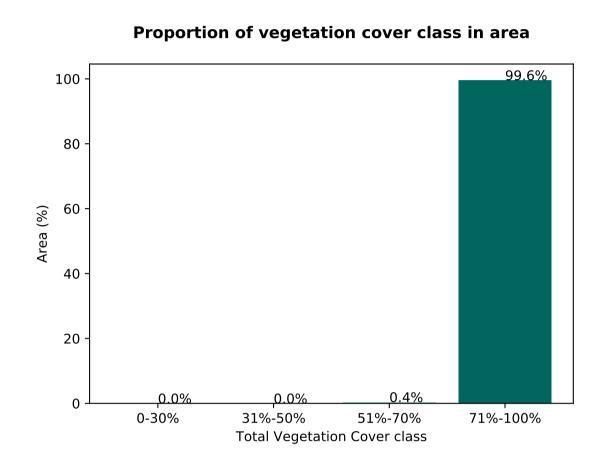
### **Land use and forest cover** Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Agriculture - Grazing - Non-woodland forest Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

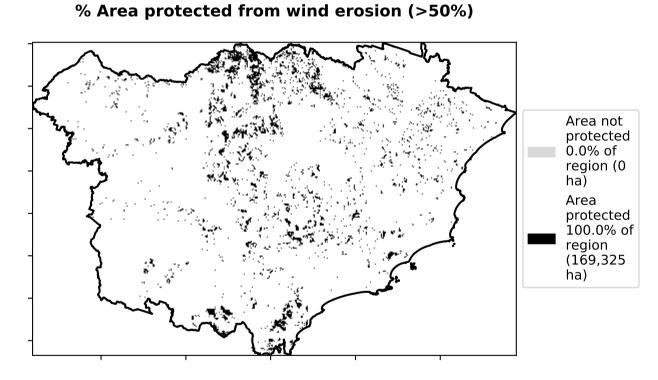
## **Total Vegetation Cover [%]**

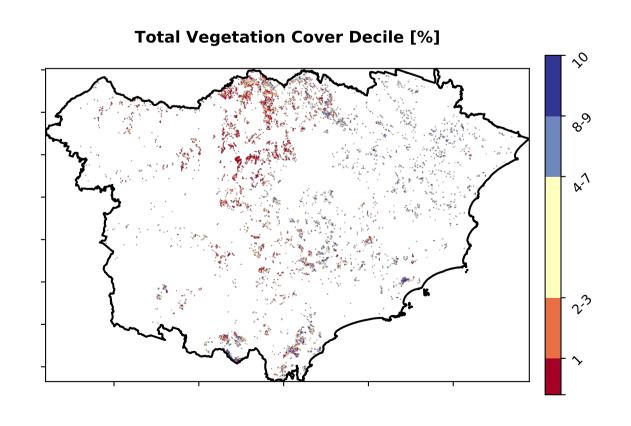














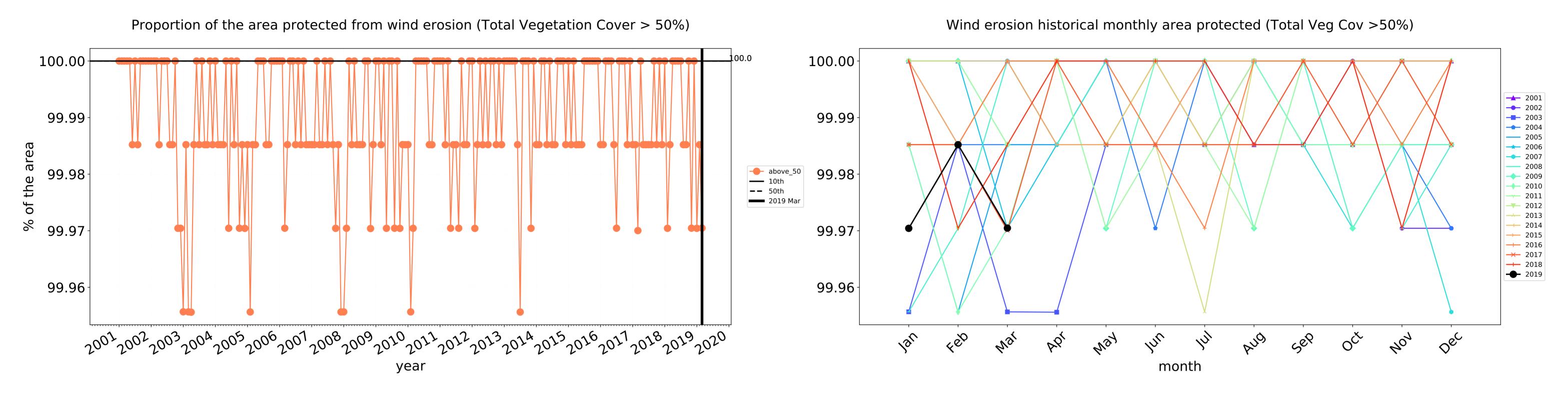


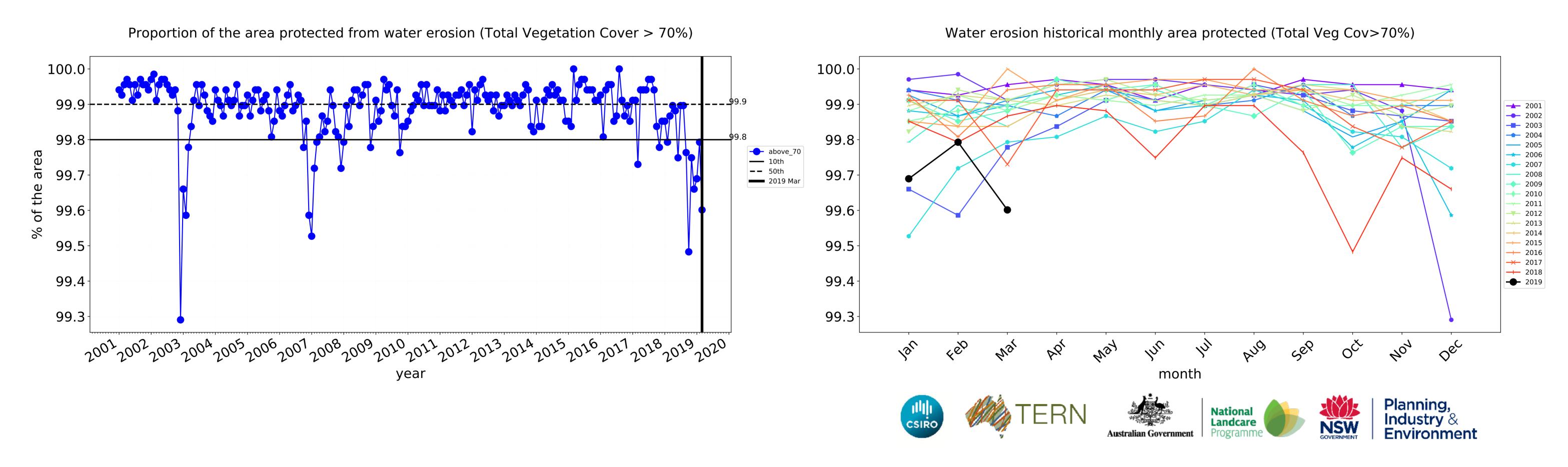


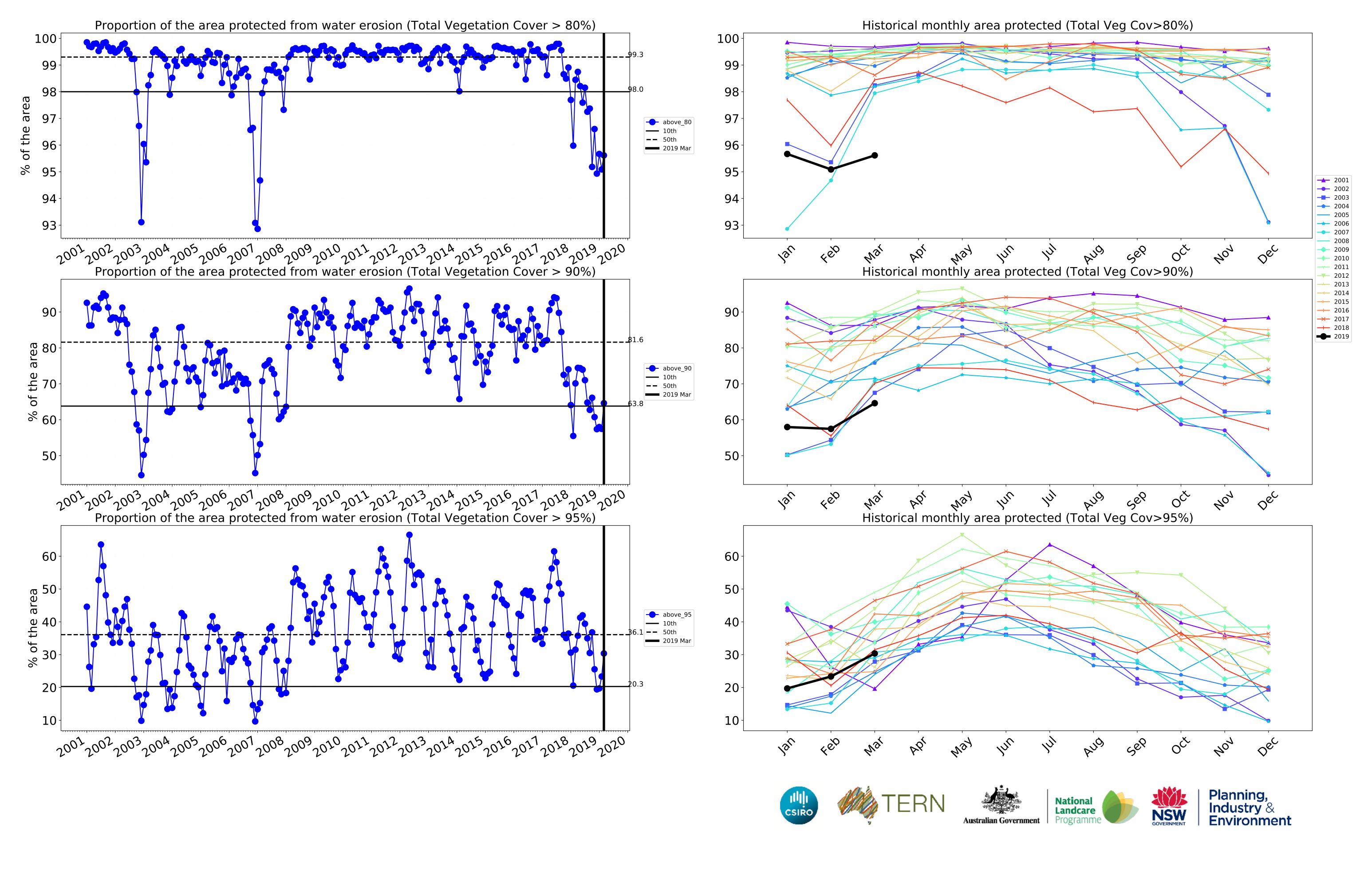






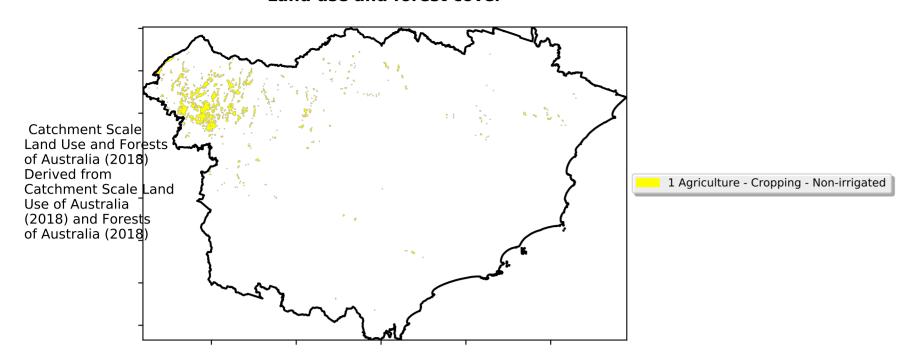




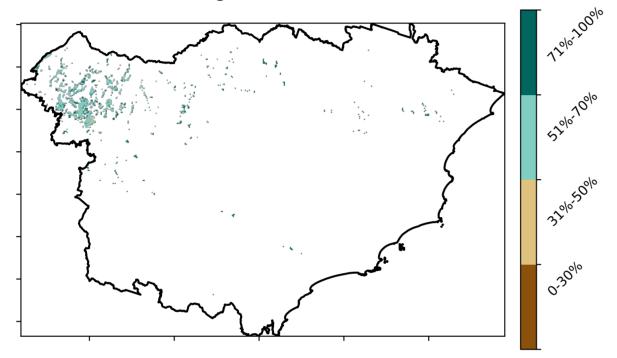


### **Cropping**

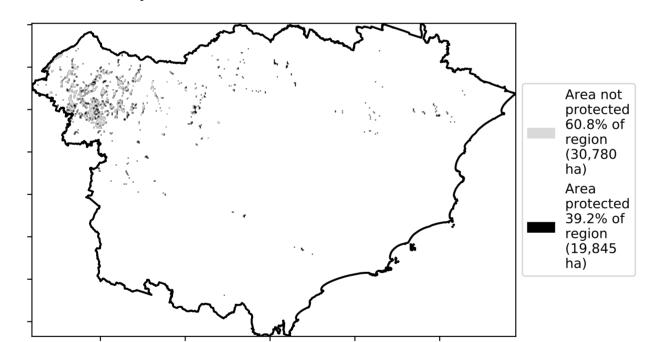
### Land use and forest cover



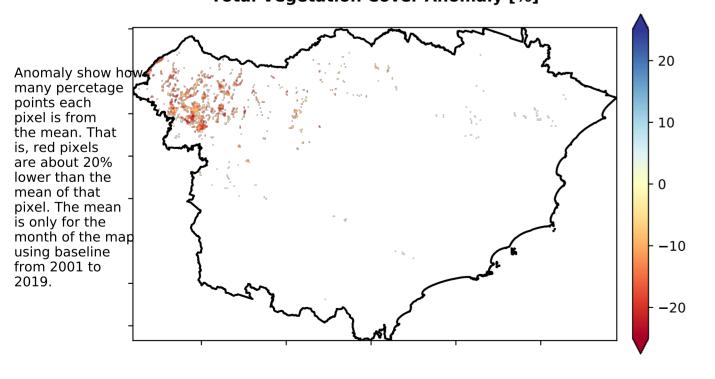
### Total Vegetation Cover [%]



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

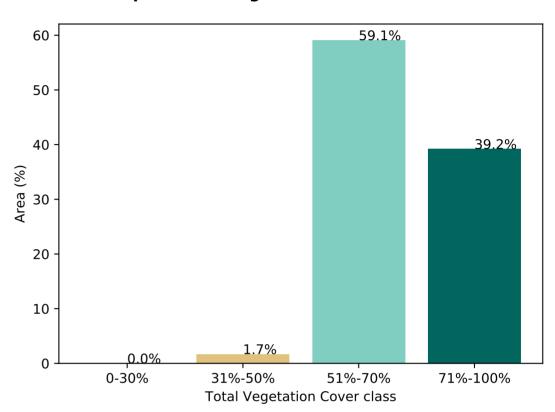


### Total Vegetation Cover Anomaly [%]

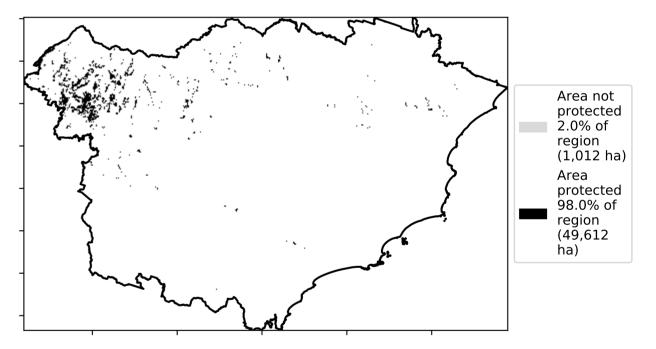


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

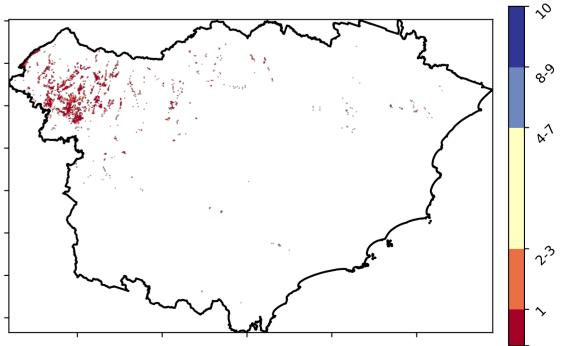
### Proportion of vegetation cover class in area



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



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







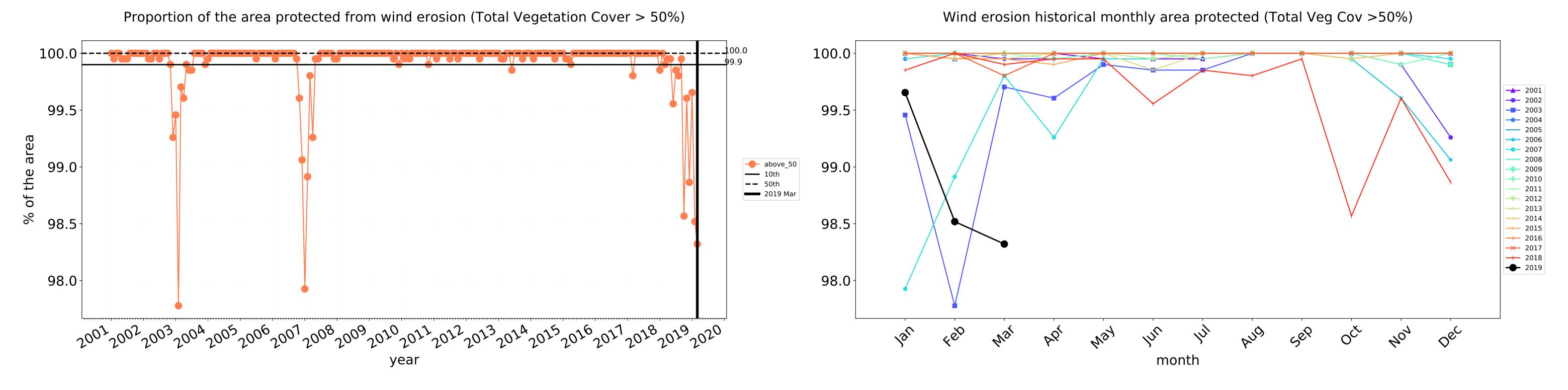


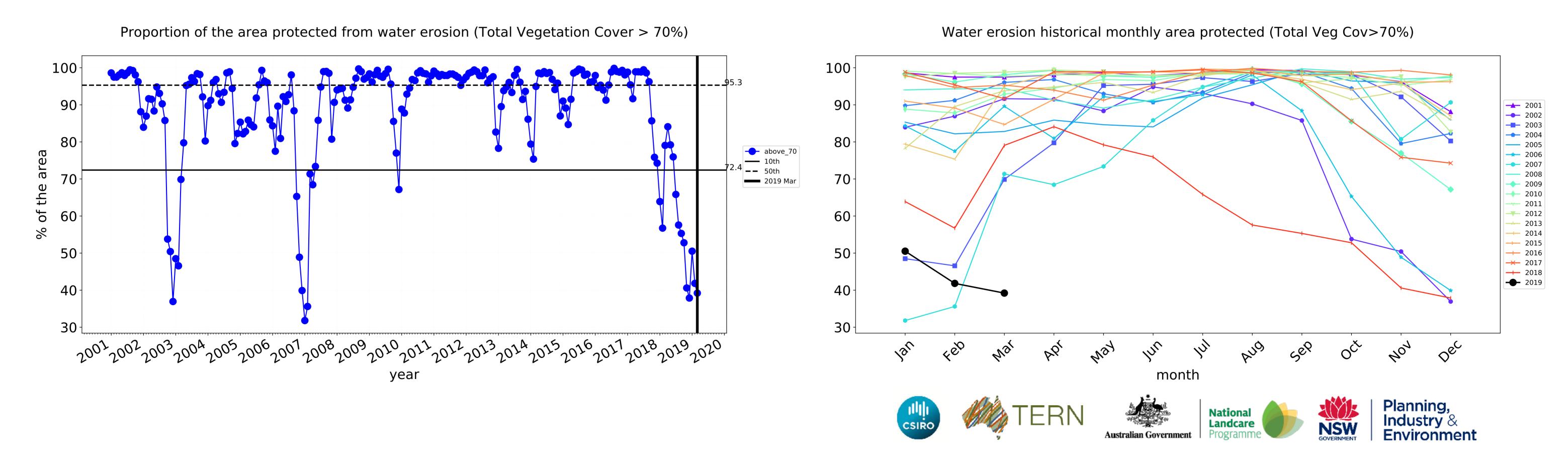


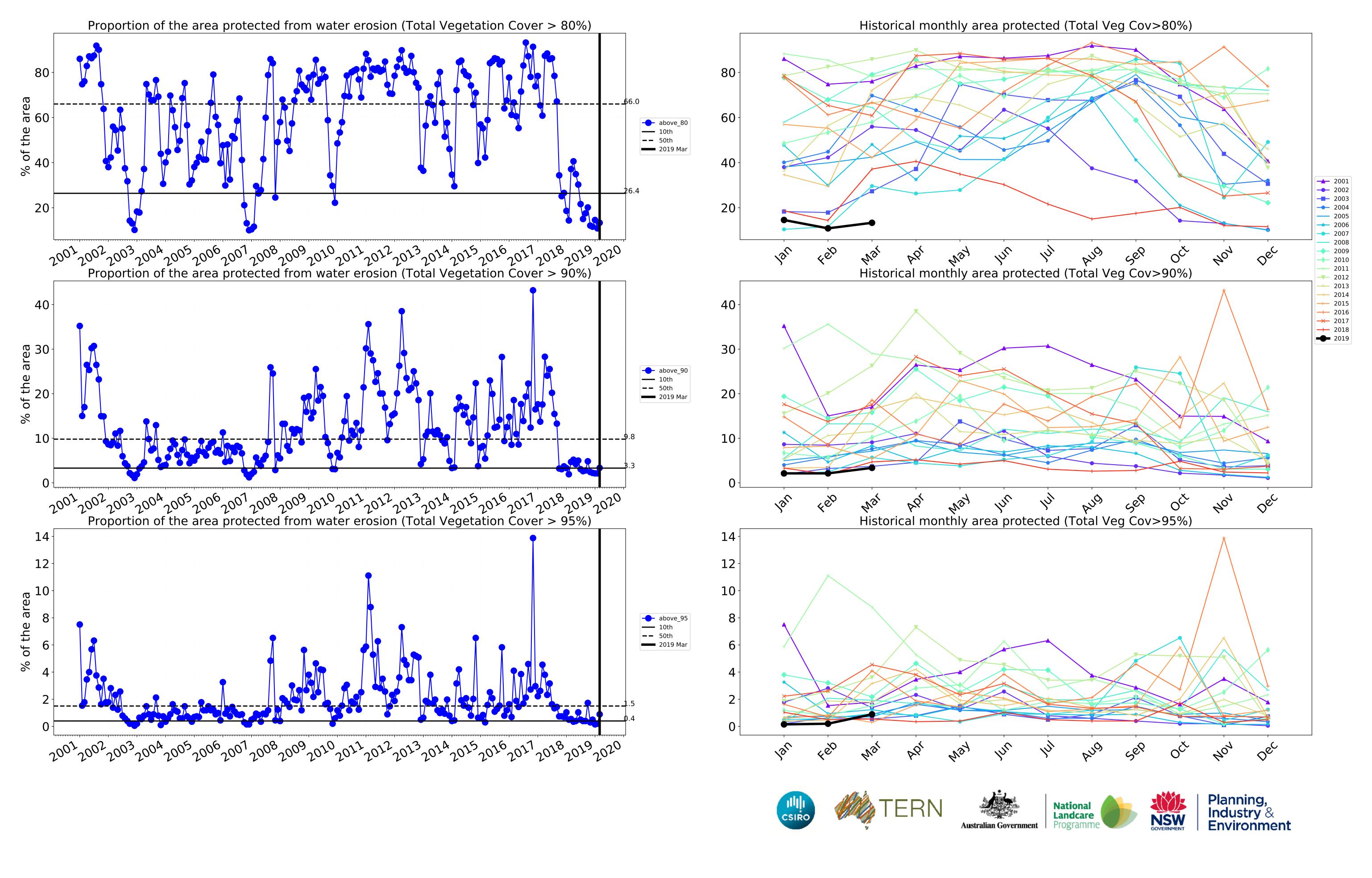




### **Cropping timeseries**





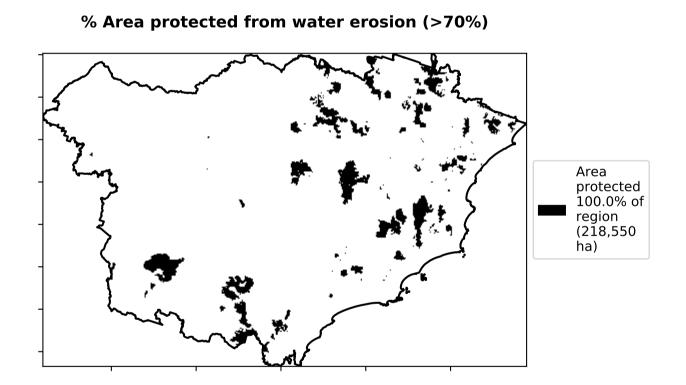


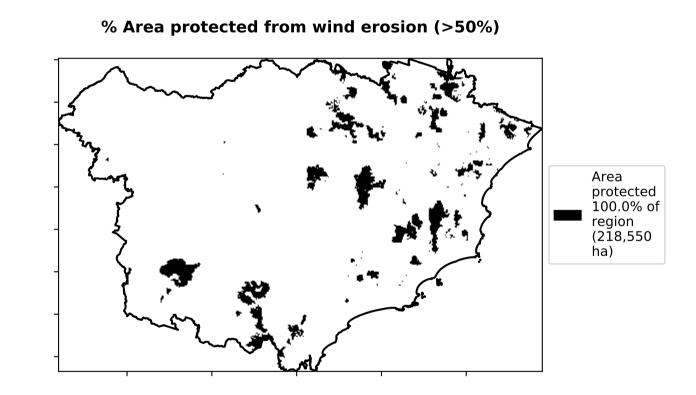
### **Production native forests and plantation forests**

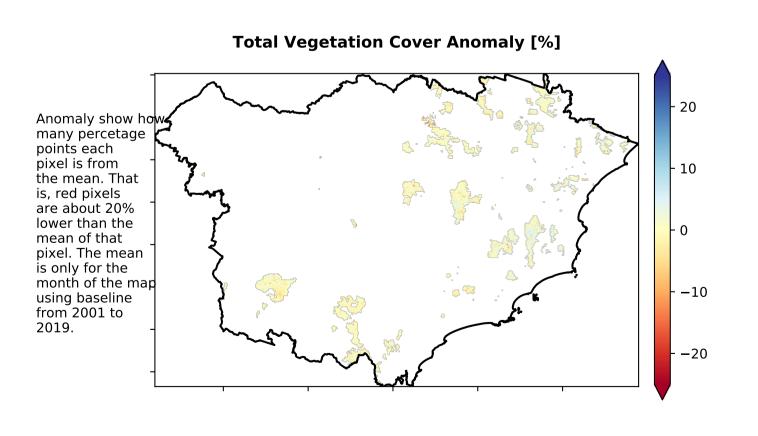
### **Land use and forest cover** Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Production native forests and plantation forests Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

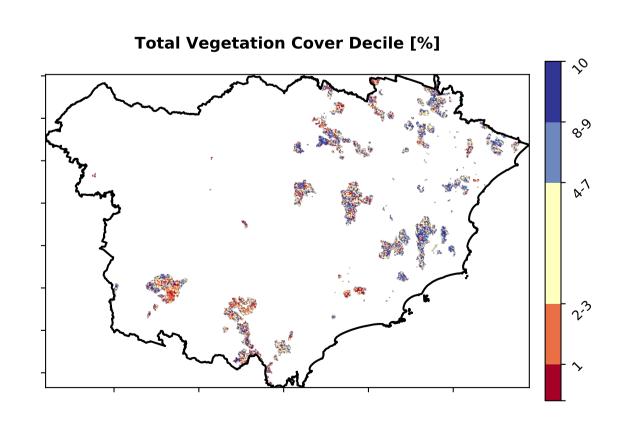
## **Total Vegetation Cover [%]**

**Proportion of vegetation cover class in area** 100.0% 100 Area (%) 60 40 20 -0.0% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class** 













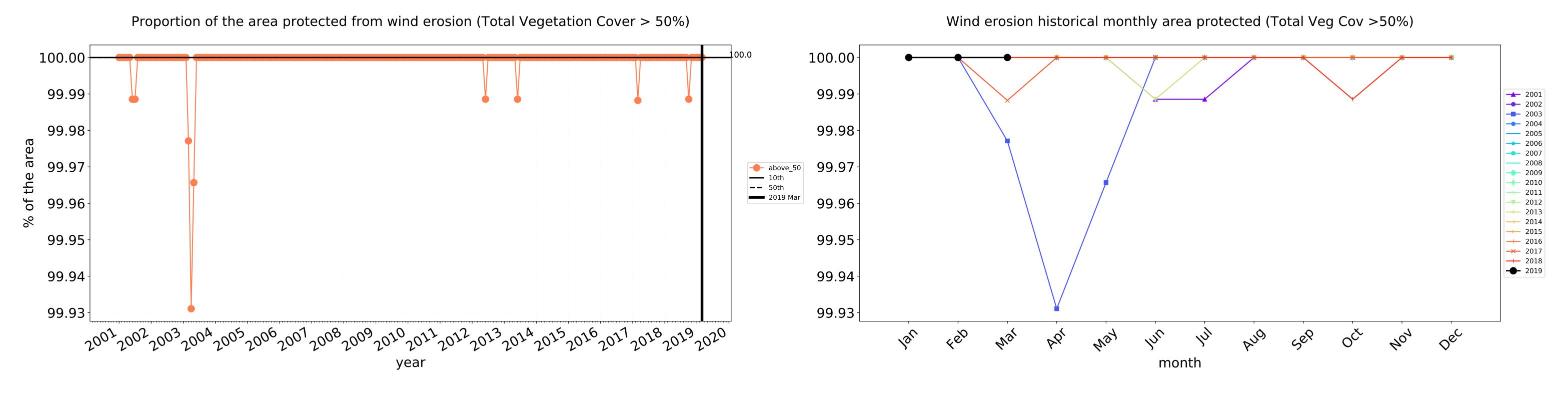


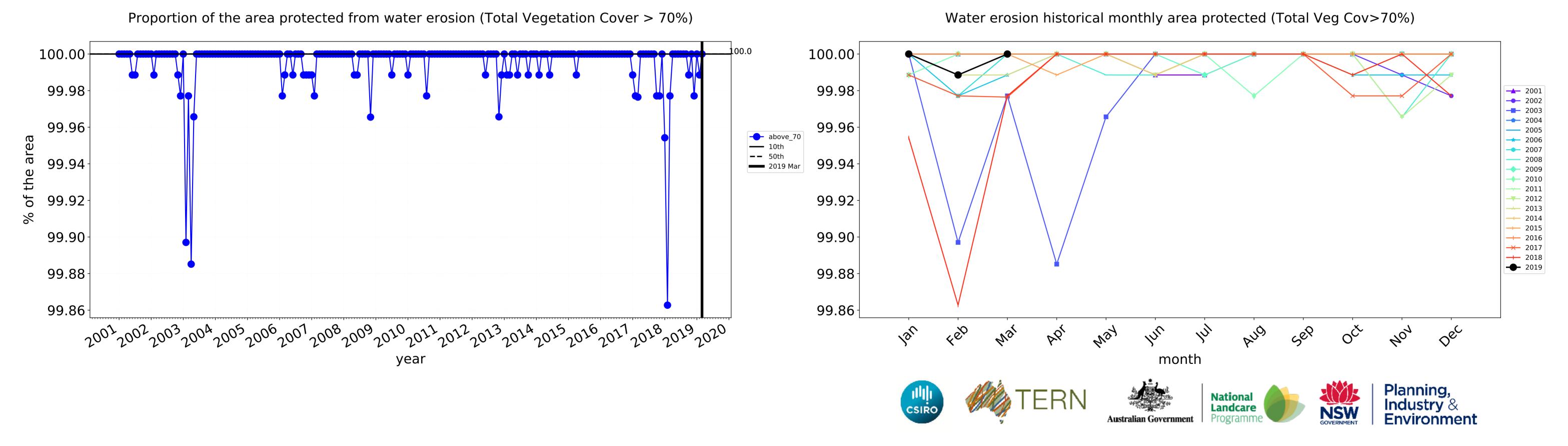


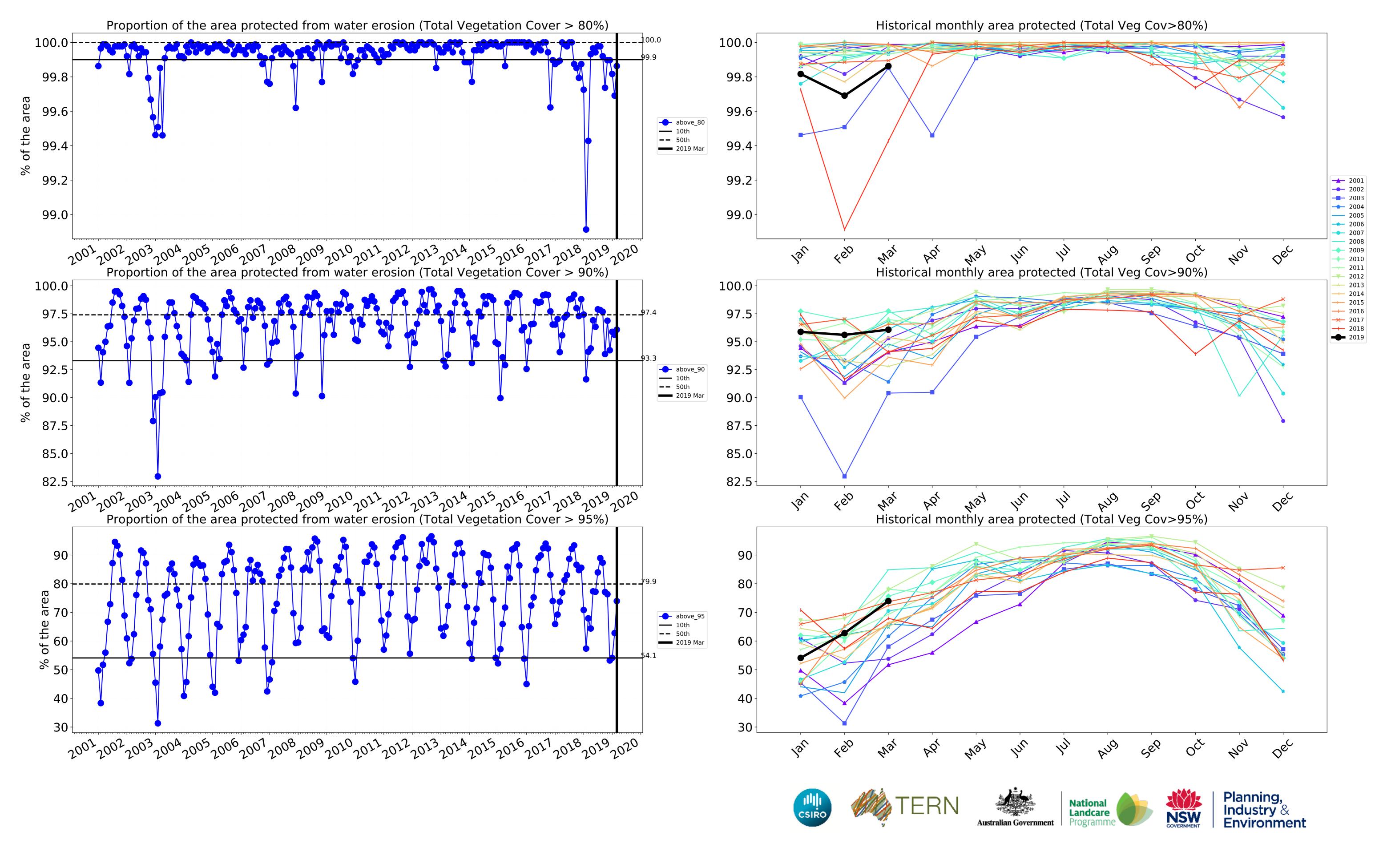




### **Production native forests and plantation forests timeseries**







### Hunter (3,240,000 ha and no data 60,425 ha) Percentage area and hectares protected with TVC threshold 30,50,70,80,90 and 95%

Land use and forest cover Class	area(ha)	above_30	above_50	above_70	above_80	above_90	above_95
Entire region	3,240,000	99.9% 3,236,175	99.5% 3,222,550	94.6% 3,065,825	84.1% 2,724,575	61.5% 1,994,075	35.0% 1,134,325
Conservation and natural environments	1,240,975	99.9% 1,239,650	99.8% 1,238,650	99.6% 1,235,800	98.6% 1,223,050	85.2% 1,056,950	52.5% 651,625
Conservation and natural environments non forest	30,000	95.9% 28,775	93.2% 27,975	89.4% 26,825	80.8% 24,225	57.6% 17,275	24.1% 7,225
Conservation and natural environments Woodland forest	138,775	100.0% 138,775	100.0% 138,750	99.5% 138,150	97.1% 134,725	70.1% 97,325	30.8% 42,750
Conservation and natural environments Forest (non woodland)	1,072,200	100.0% 1,072,100	100.0% 1,071,925	99.9% 1,070,825	99.2% 1,064,100	87.9% 942,350	56.1% 601,650
Agriculture	1,580,825	100.0% 1,580,800	99.9% 1,578,975	92.5% 1,461,475	74.5% 1,177,050	43.0% 679,225	19.4% 306,925
Grazing	1,502,825	100.0% 1,502,800	99.9% 1,501,850	94.4% 1,418,275	77.0% 1,157,550	44.9% 675,000	20.3% 305,775
Grazing non forest	1,212,875	100.0% 1,212,875	99.9% 1,212,050	93.2% 1,130,325	73.9% 896,075	43.6% 528,225	20.1% 243,375
Grazing Woodland forest	120,625	100.0% 120,625	99.9% 120,525	98.9% 119,300	82.5% 99,575	31.0% 37,375	9.1% 10,975
Grazing - Forest (non woodland)	169,325	100.0% 169,300	100.0% 169,275	99.6% 168,650	95.6% 161,900	64.6% 109,400	30.4% 51,425
Cropping	50,625	100.0% 50,625	98.3% 49,775	39.2% 19,850	13.3% 6,750	3.4% 1,700	0.9% 450
Production native forests and plantation forests	218,550	100.0% 218,550	100.0% 218,550	100.0% 218,550	99.9% 218,250	96.1% 209,975	73.9% 161,600











