### **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: June 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









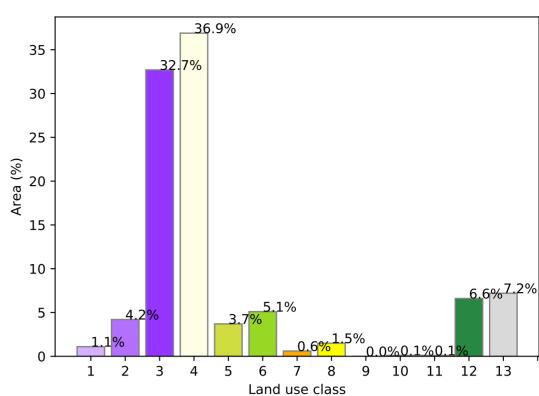


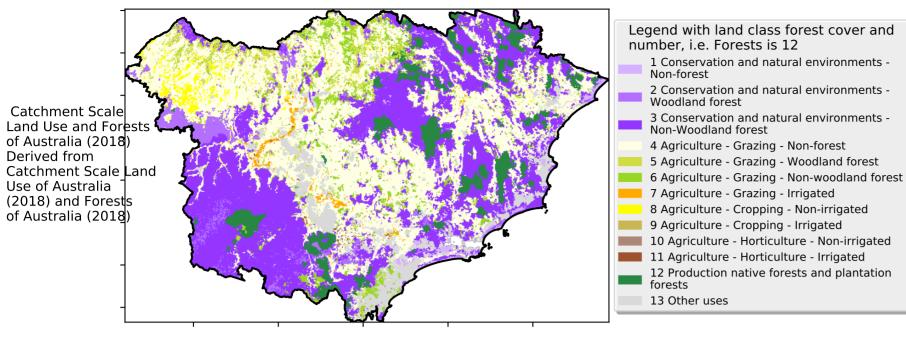


### **Vegetation Cover Jun 2019**

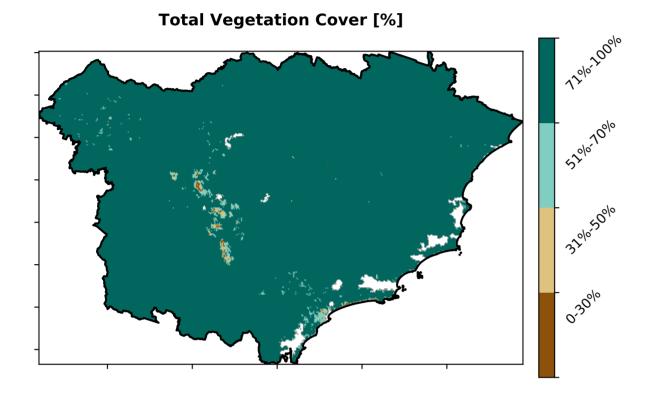
### Land use and forest cover number, i.e. Forests is 12 1 Conservation and natural environments - Non-forest 2 Conservation and natural environments - Woodland forest 3 Conservation and natural environments - Non-Woodland forest 4 Agriculture - Grazing - Non-forest 5 Agriculture - Grazing - Woodland forest

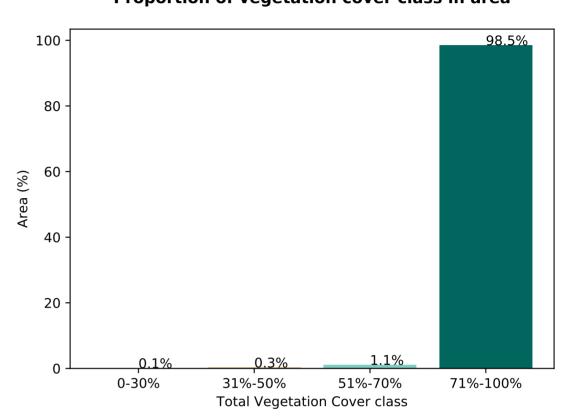
### Proportion of each land class in area





Proportion of vegetation cover class in area

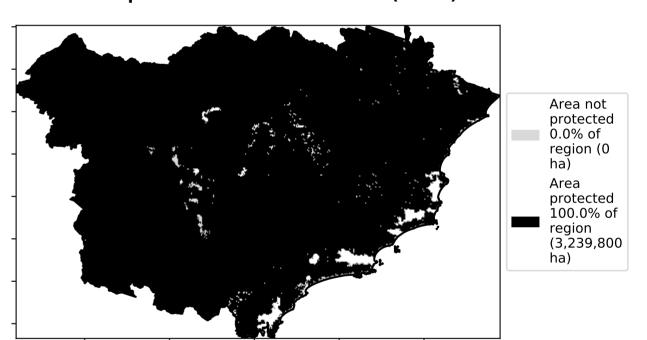


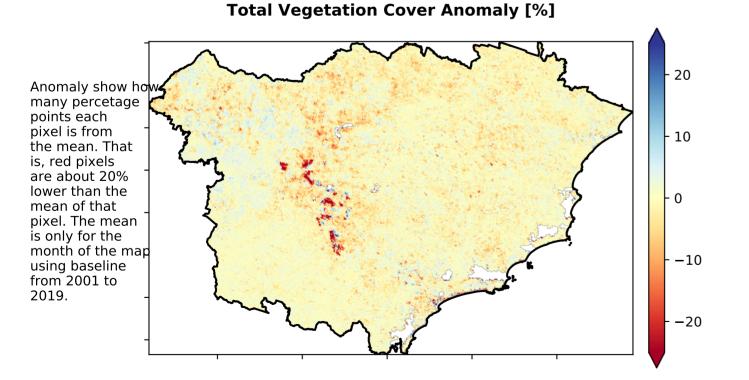


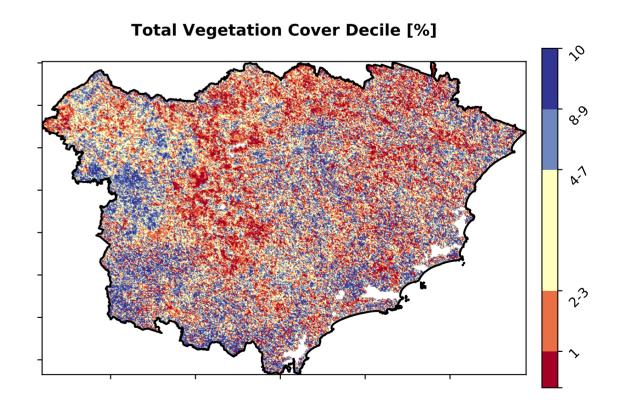
### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)









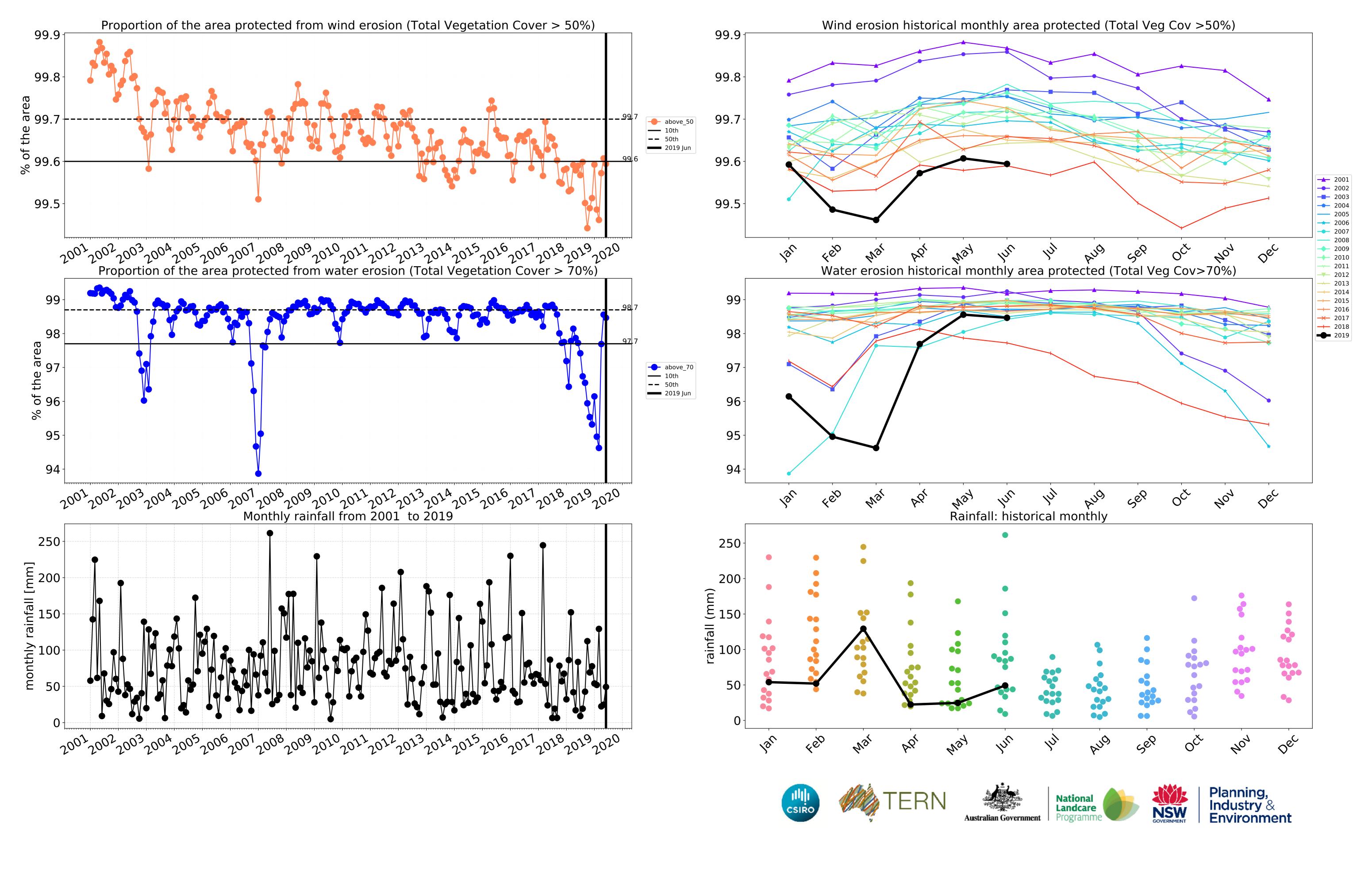




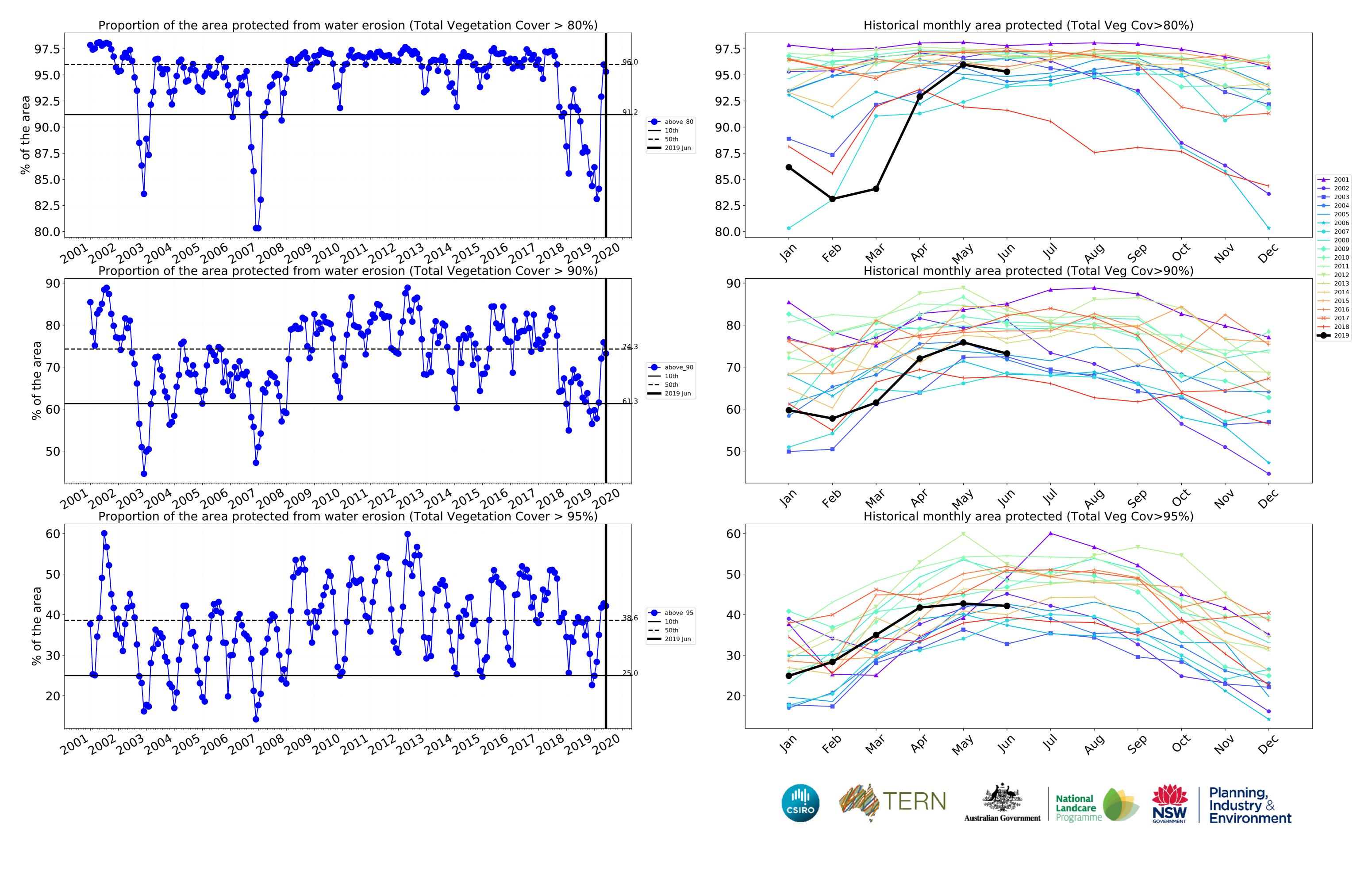




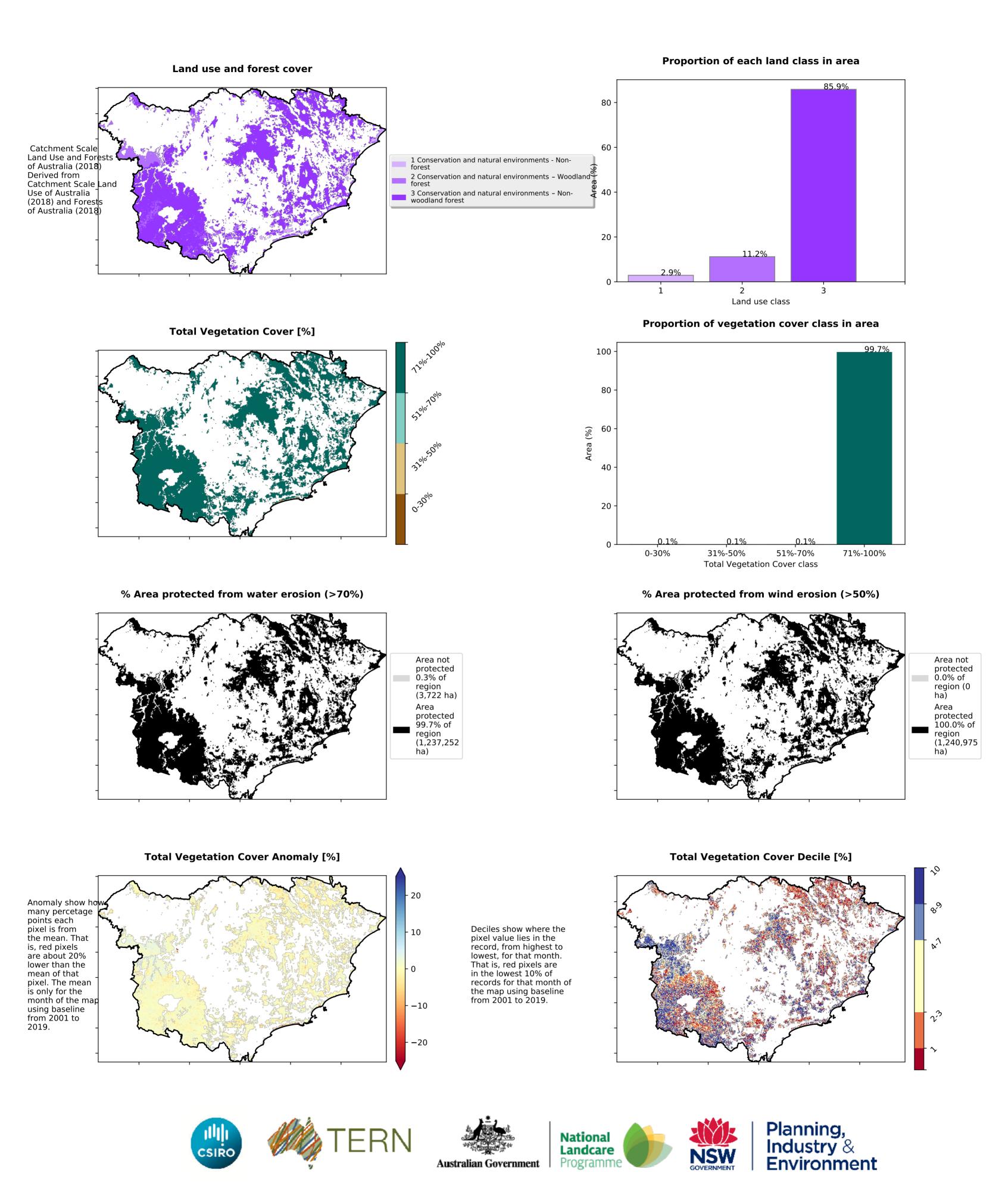




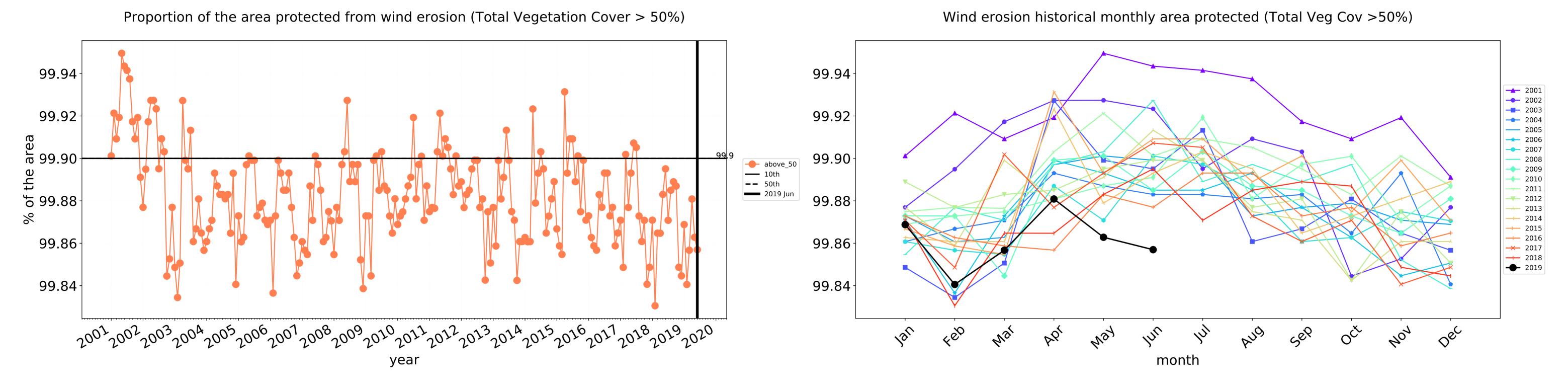
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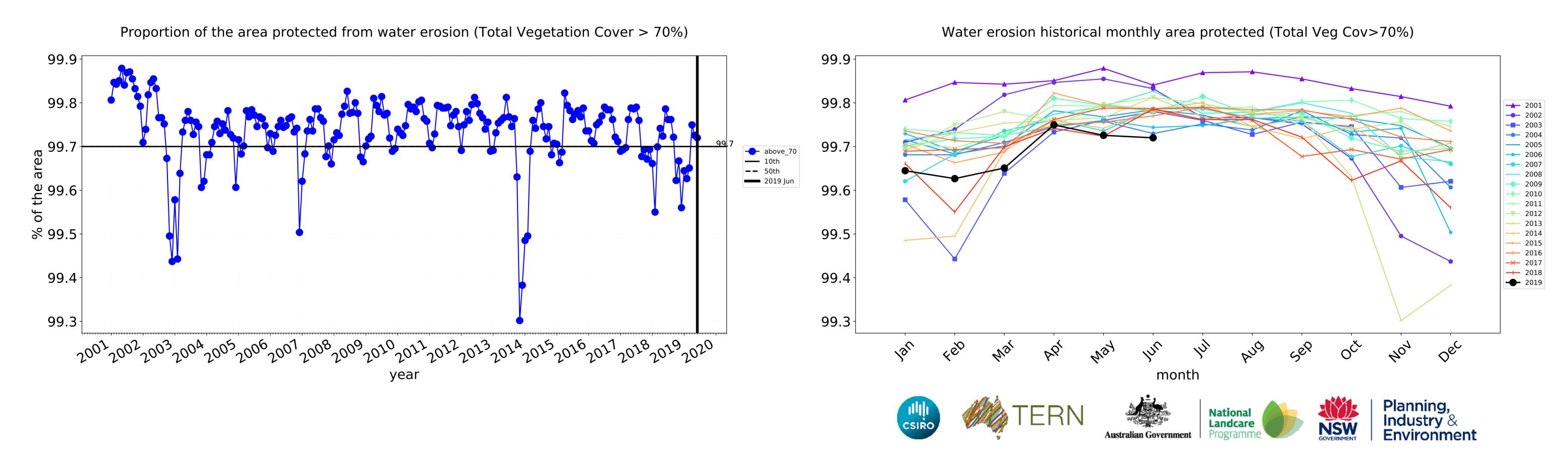


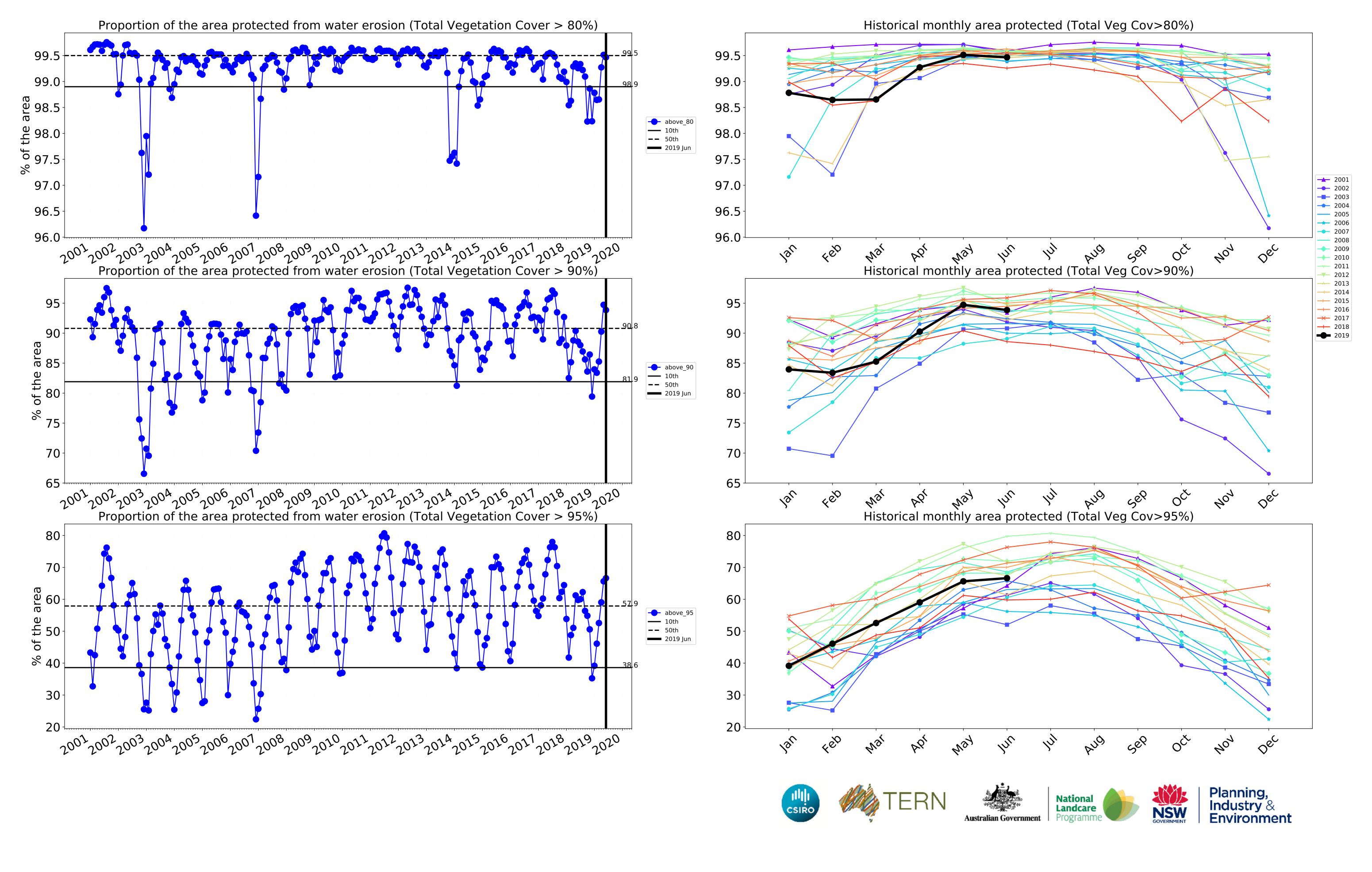
### **Conservation and natural environments**



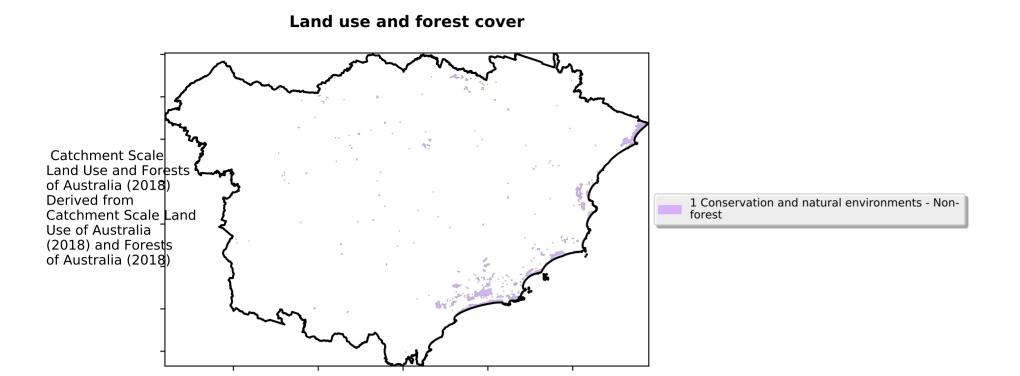
### **Conservation and natural environments timeseries**



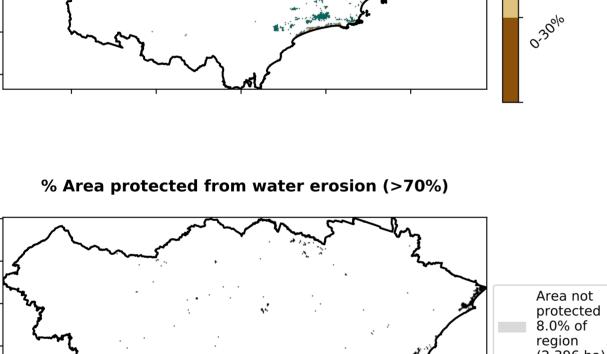


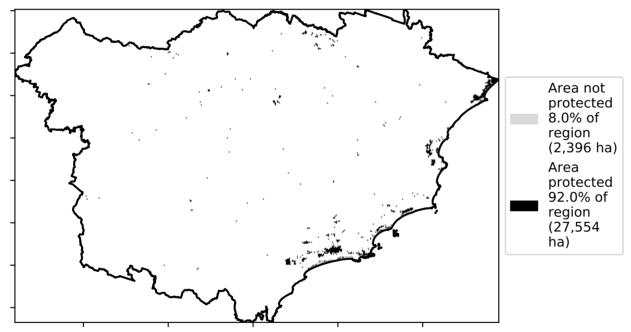


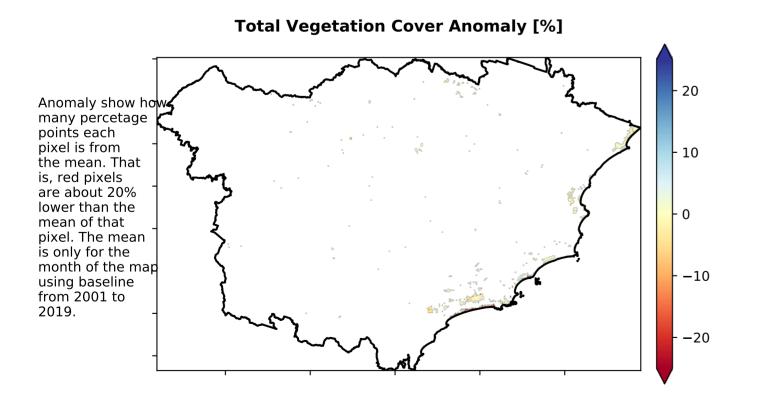
### **Conservation and natural environments non forest**

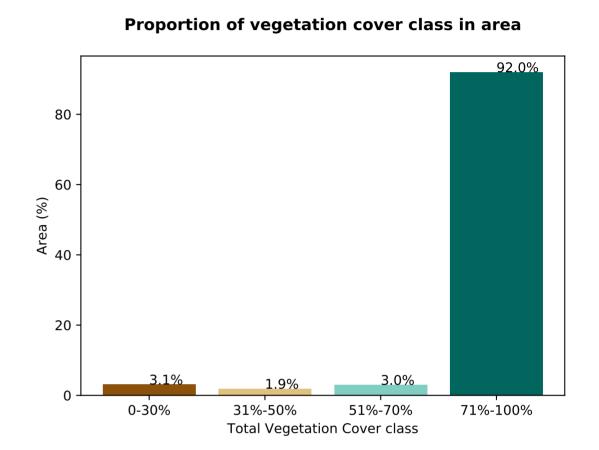


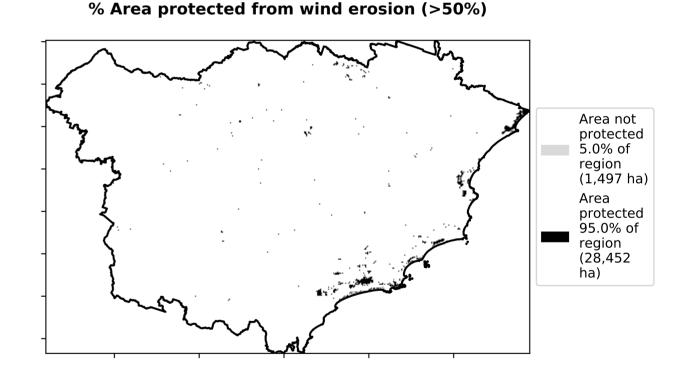
# Total Vegetation Cover [%]

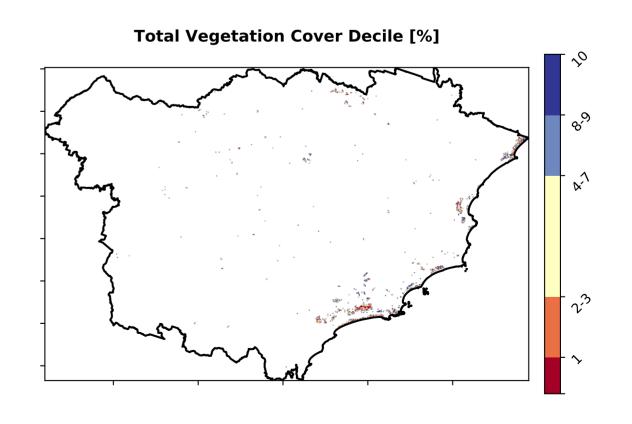
















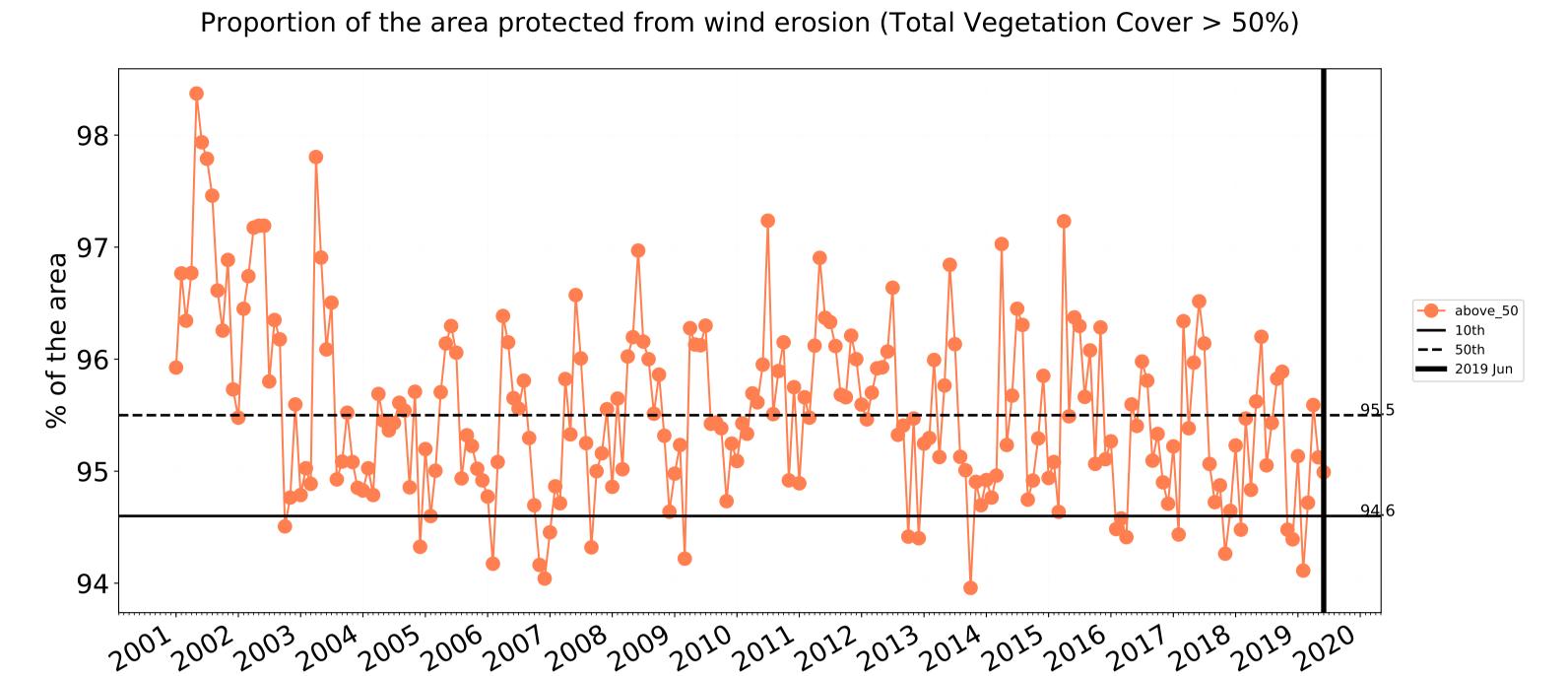




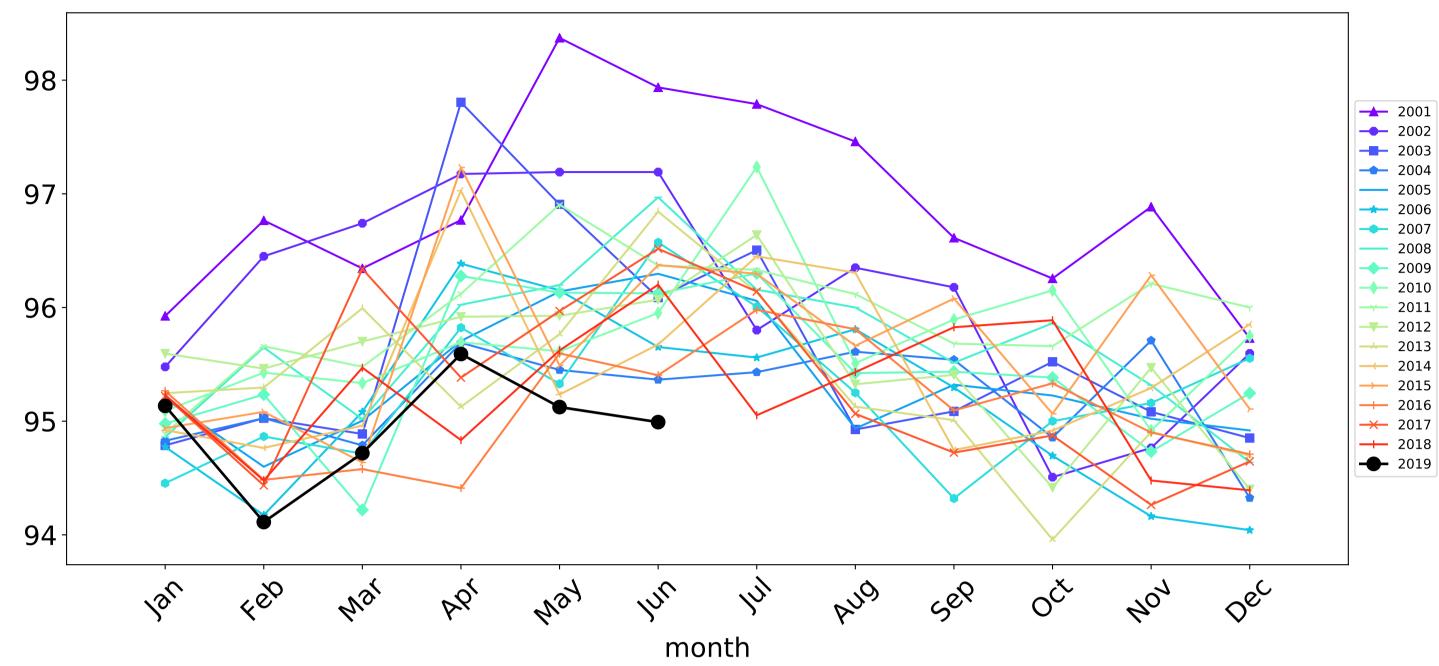


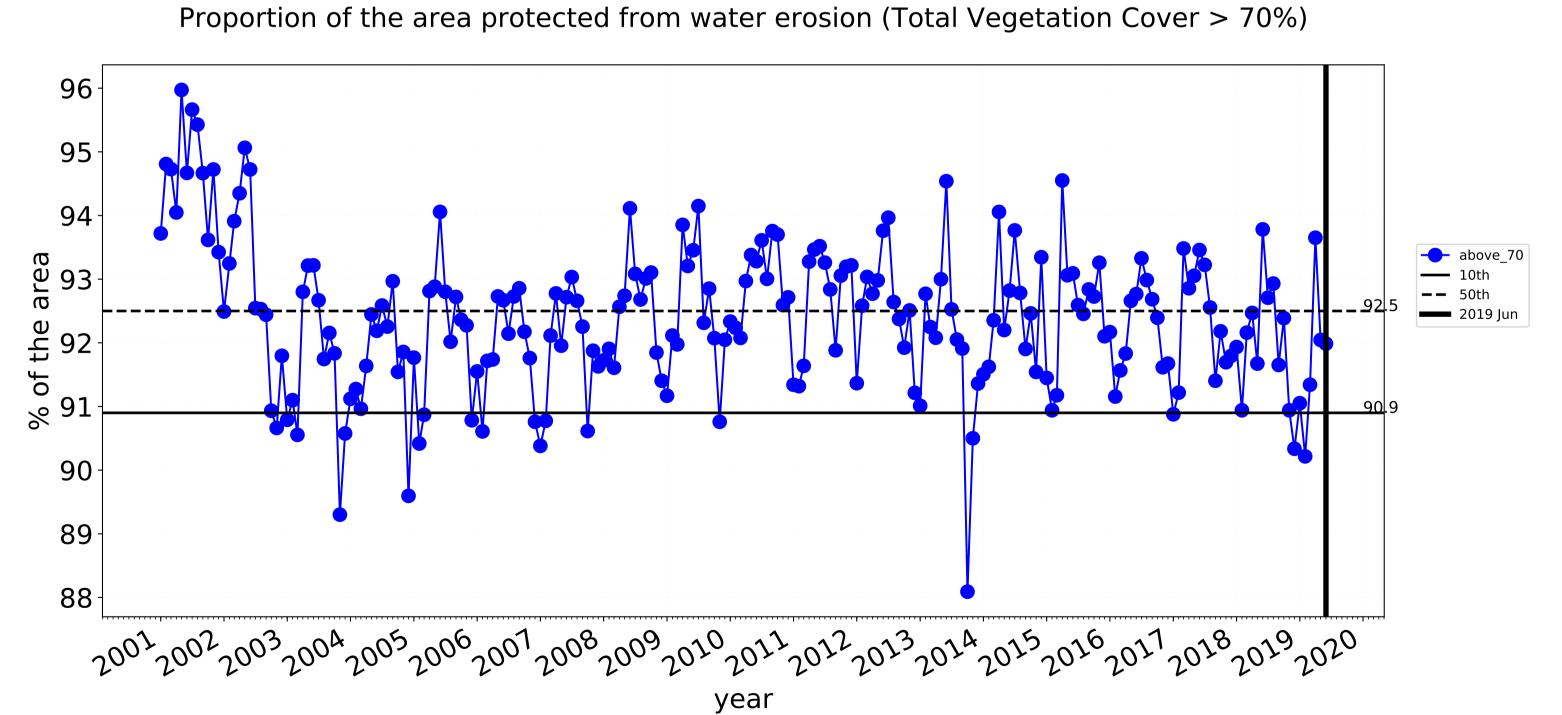


### **Conservation and natural environments non forest timeseries**

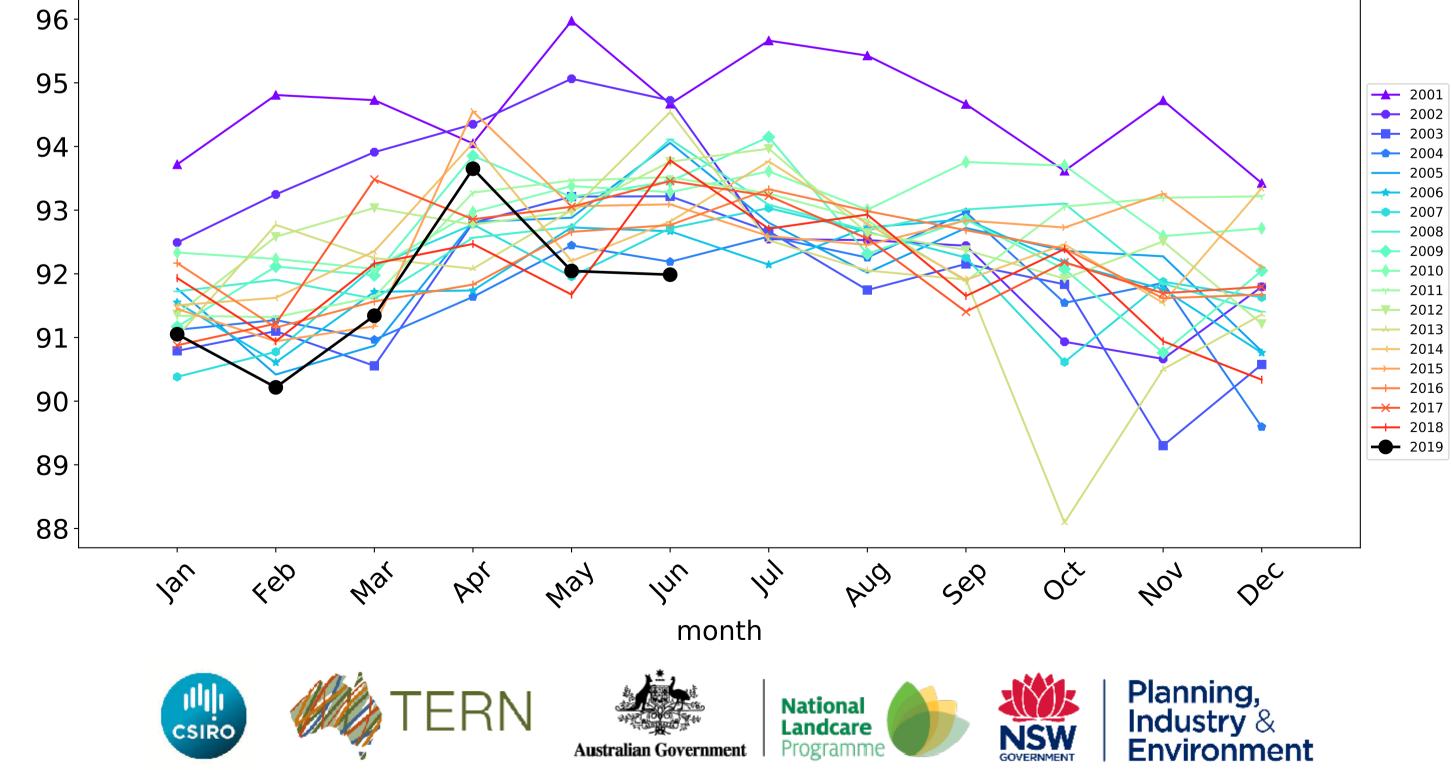


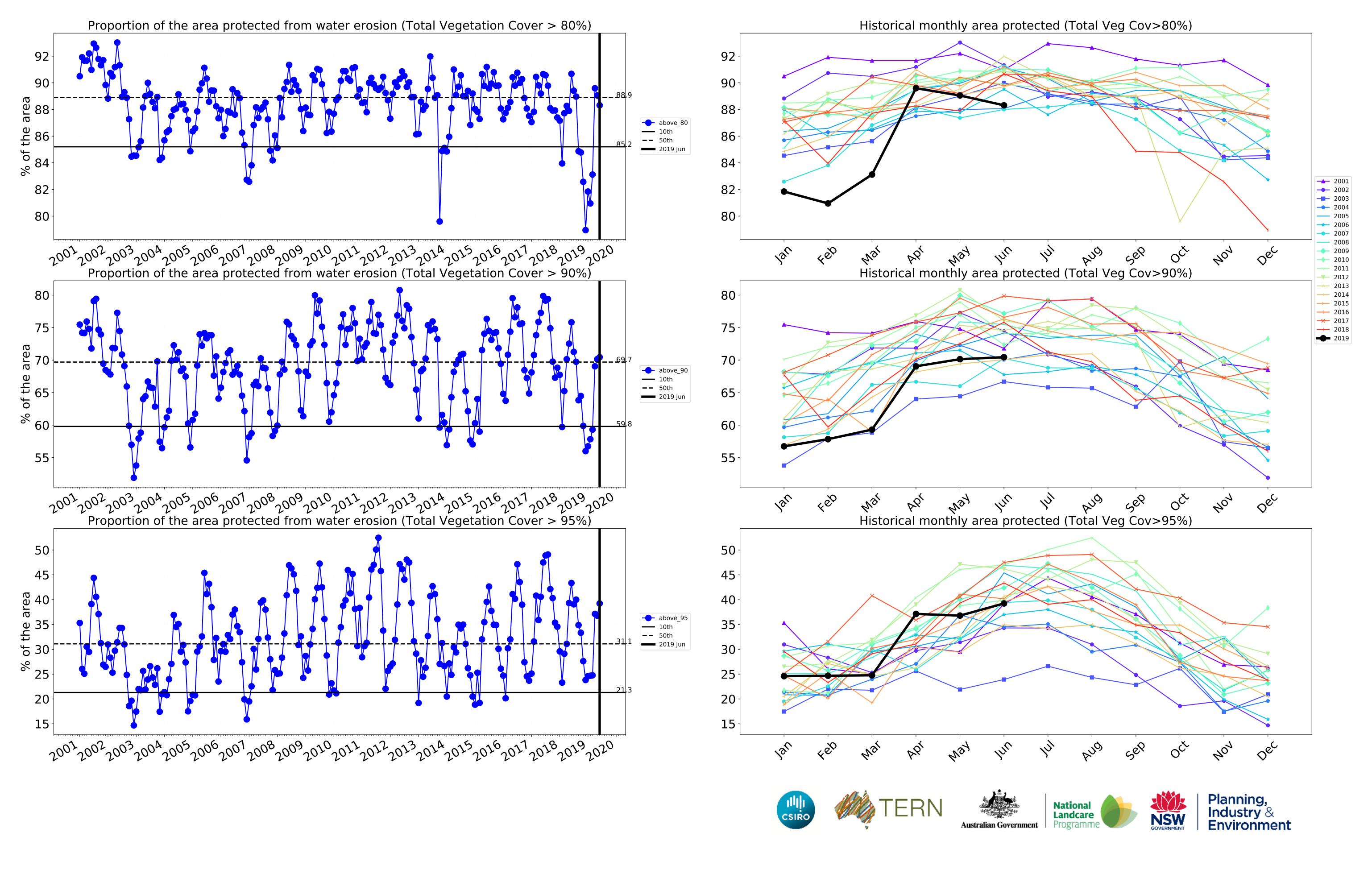




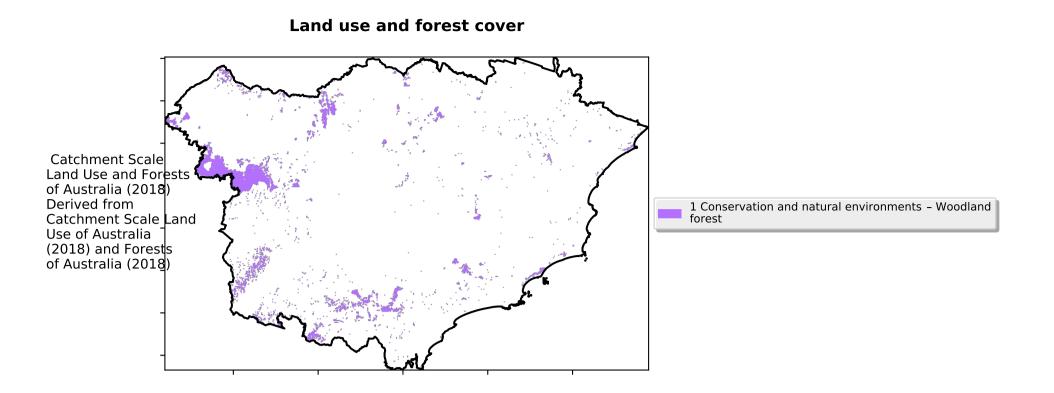


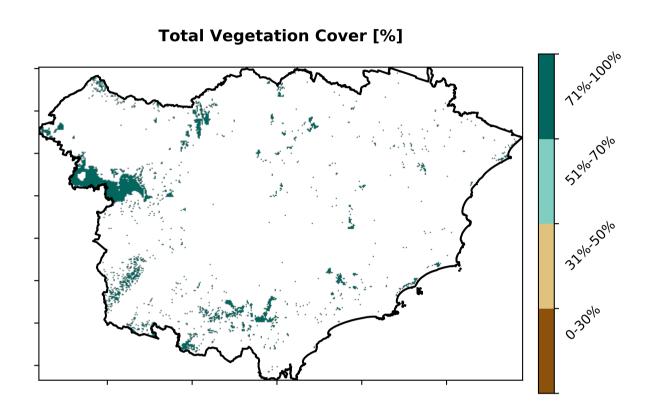


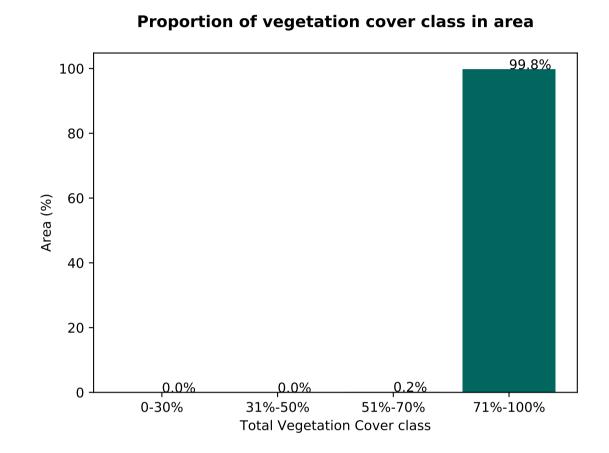


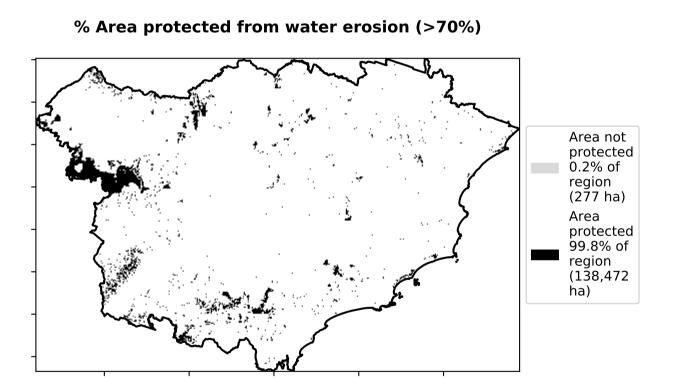


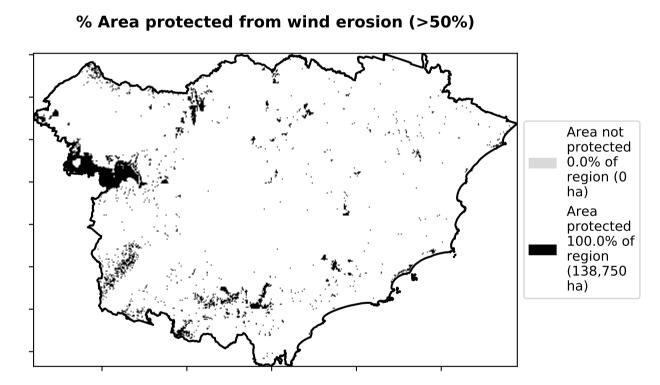
### **Conservation and natural environments Woodland forest**

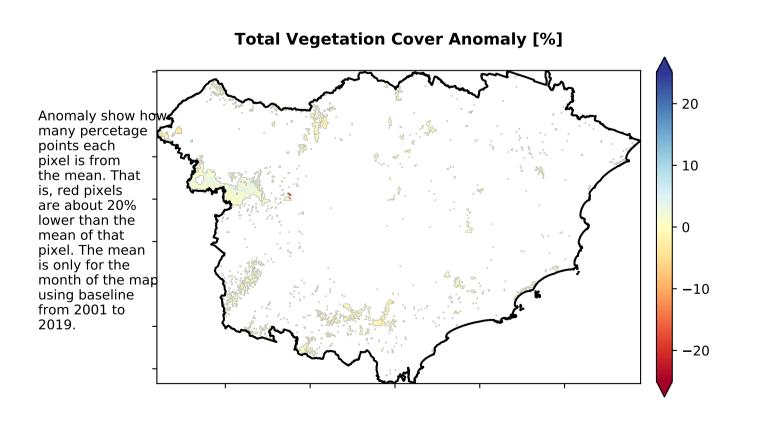


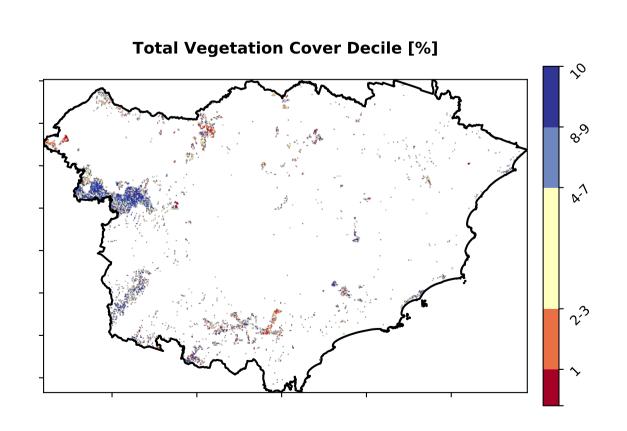














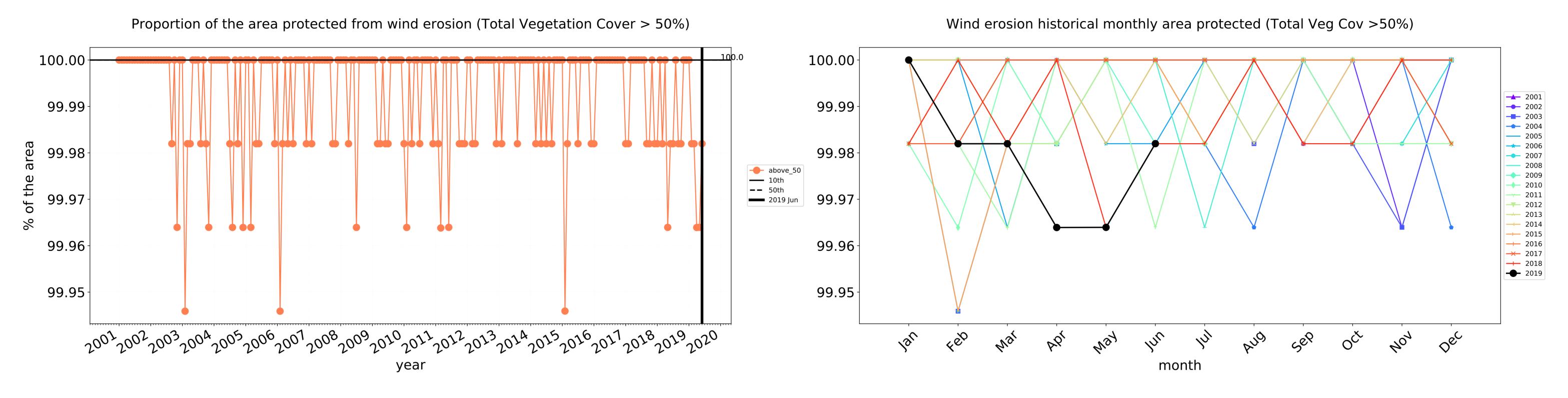


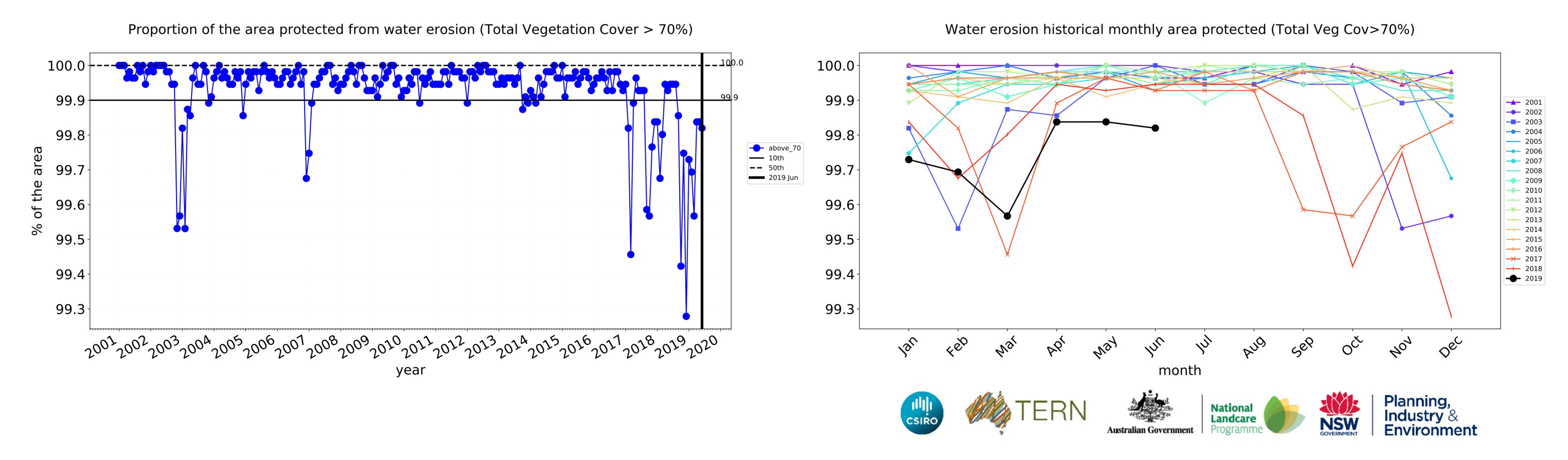


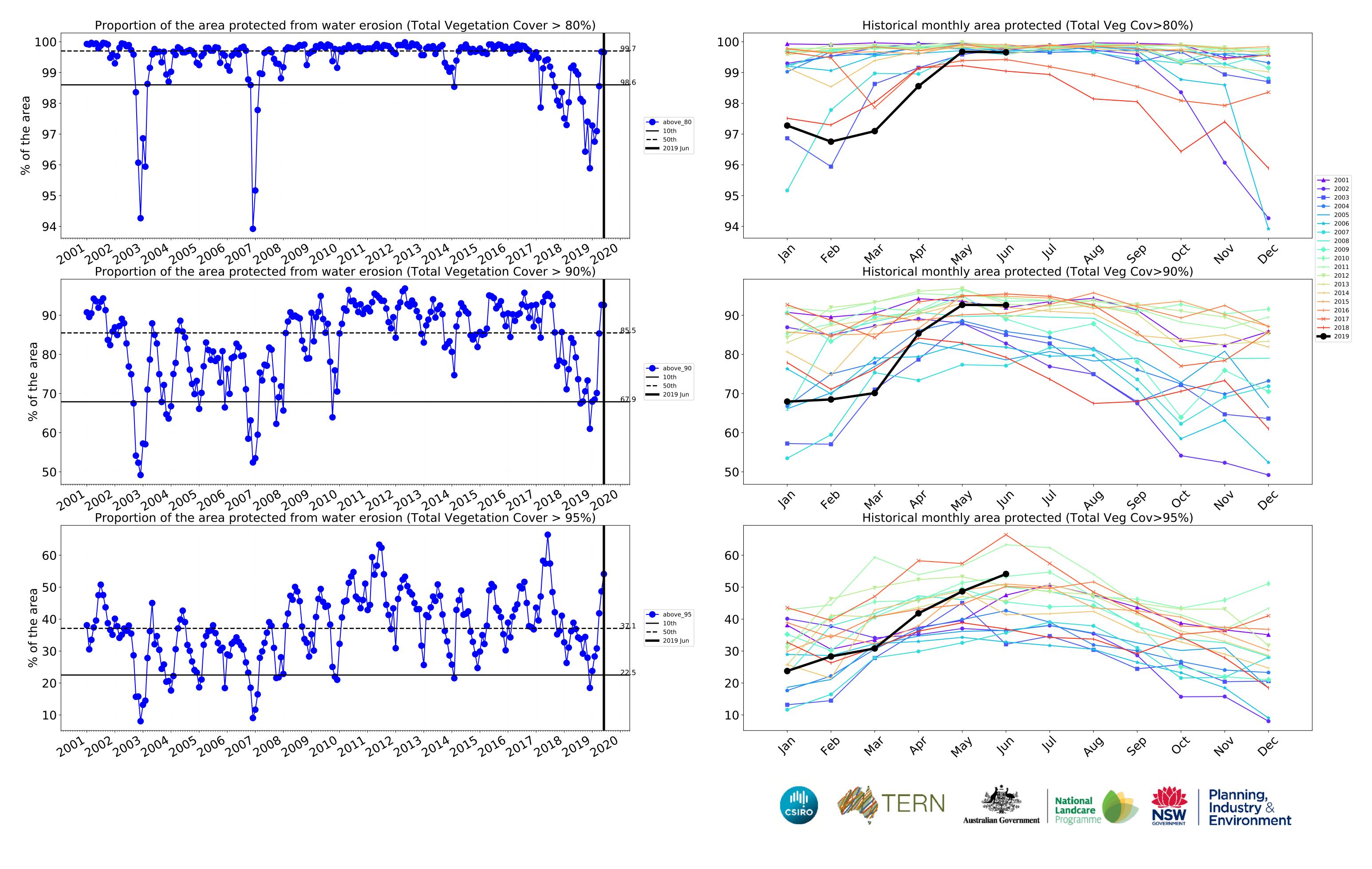


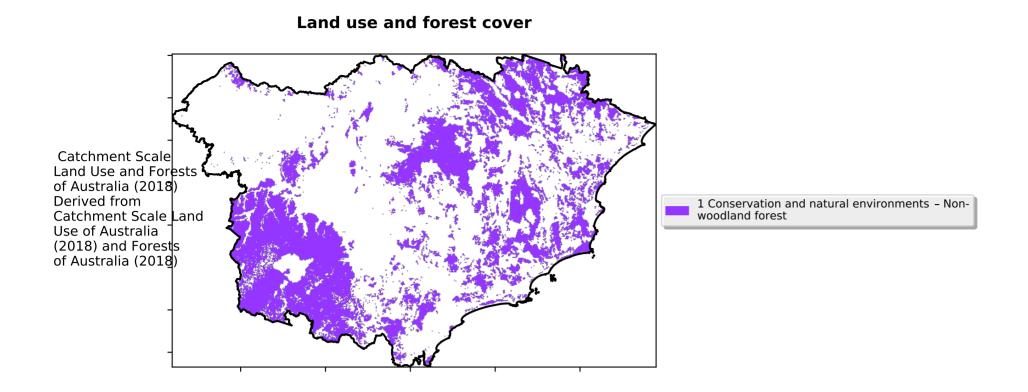


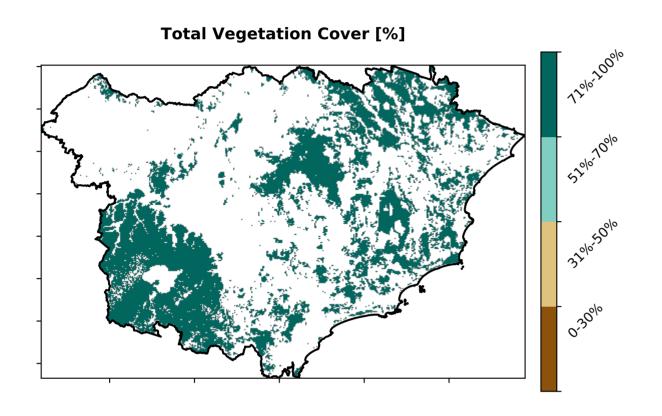


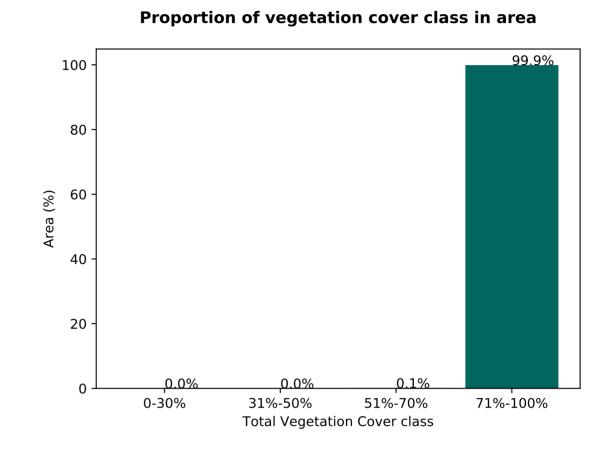


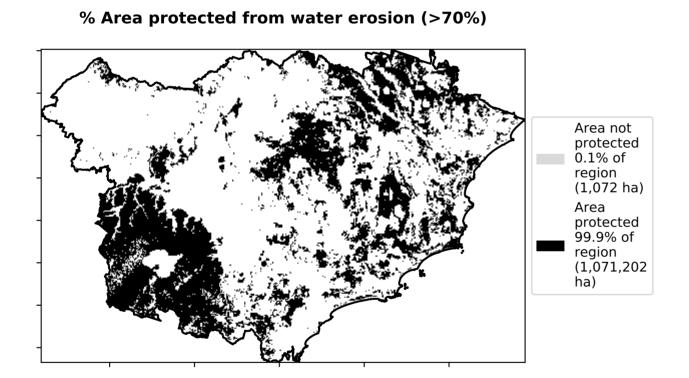


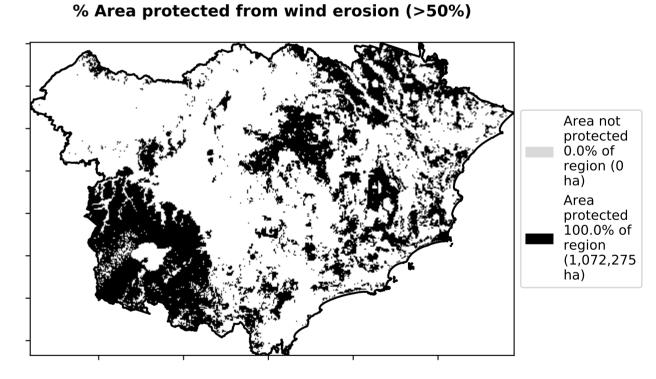


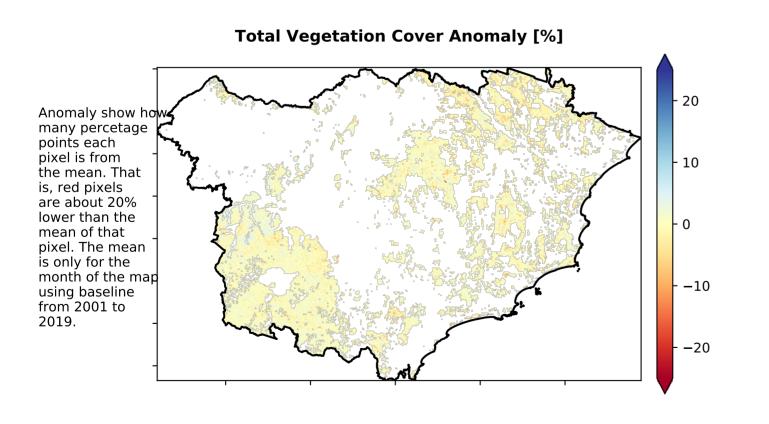


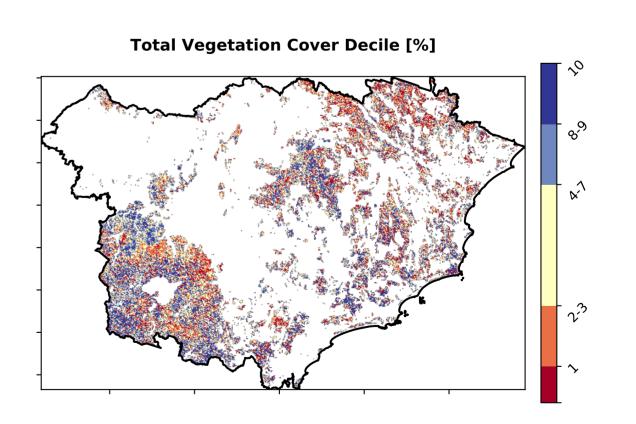
















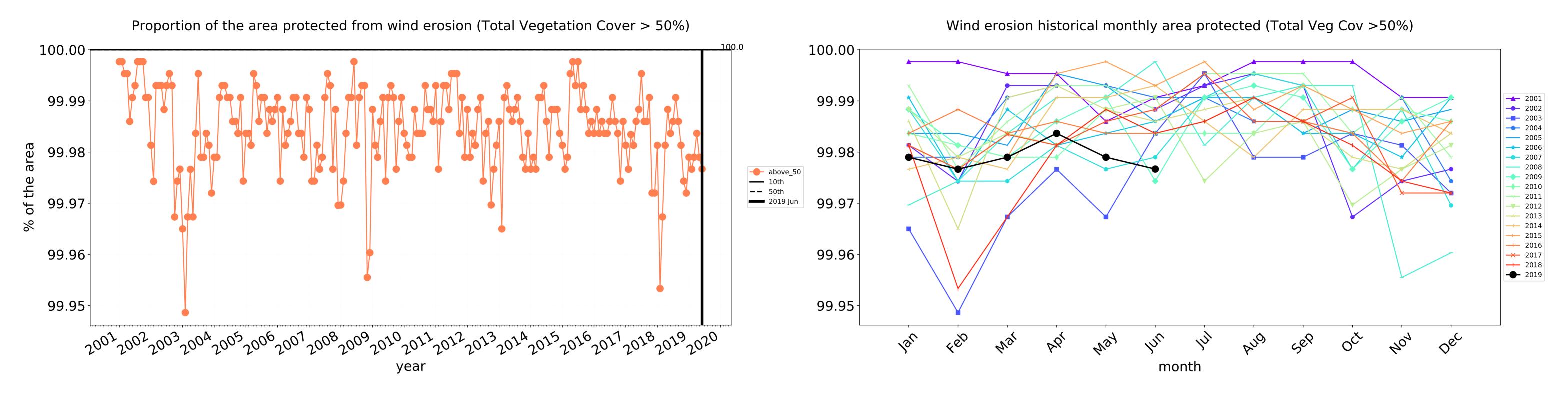


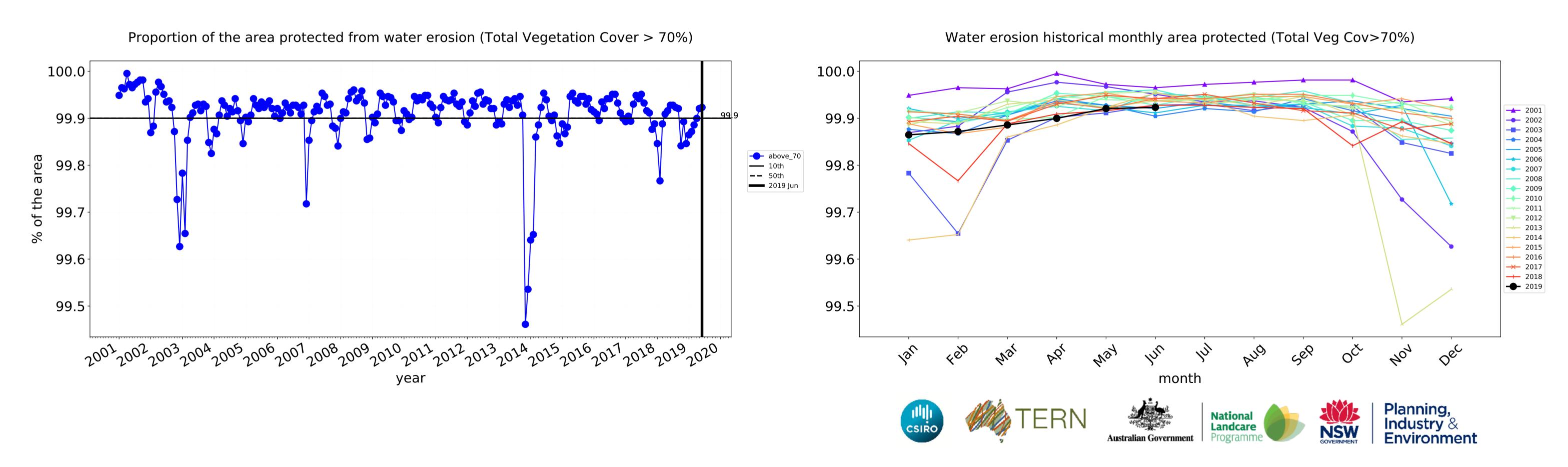


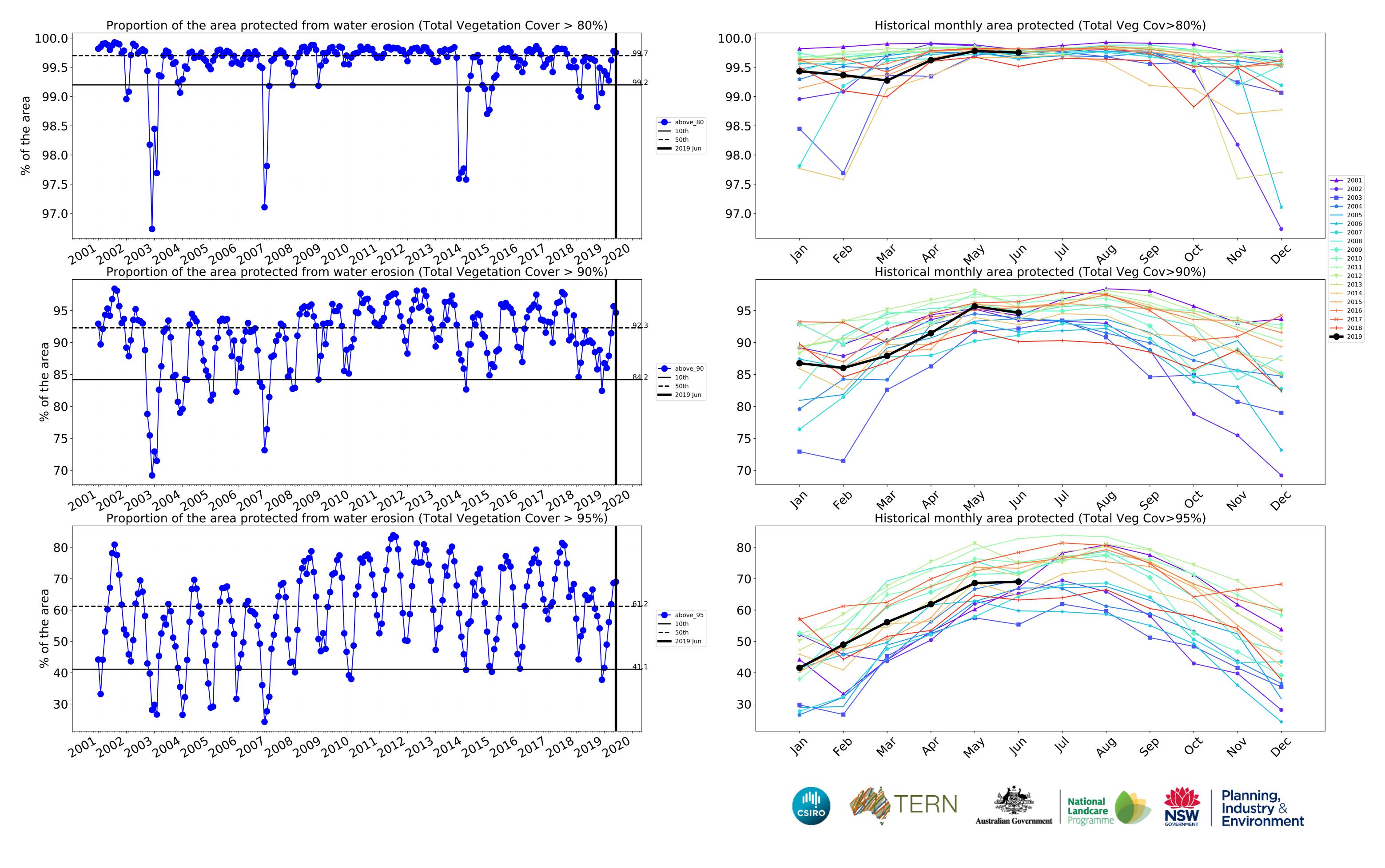




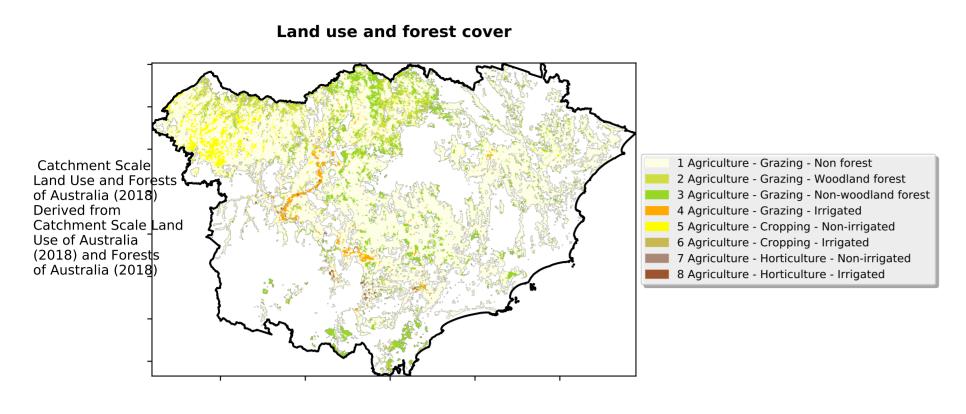
### Conservation and natural environments Forest (non woodland) timeseries

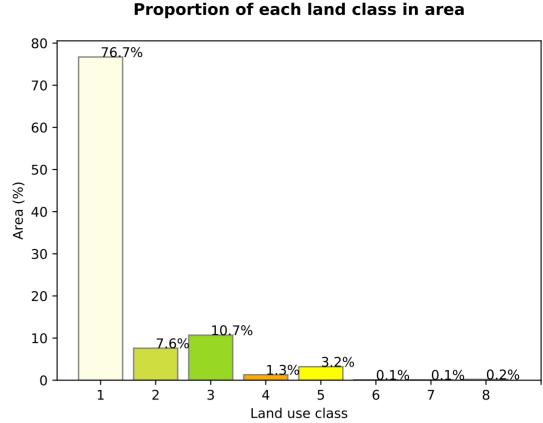






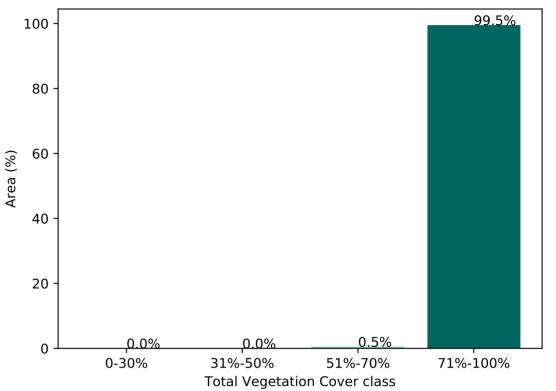
### **Agriculture**

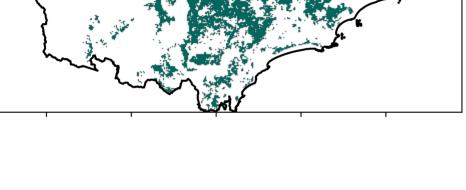




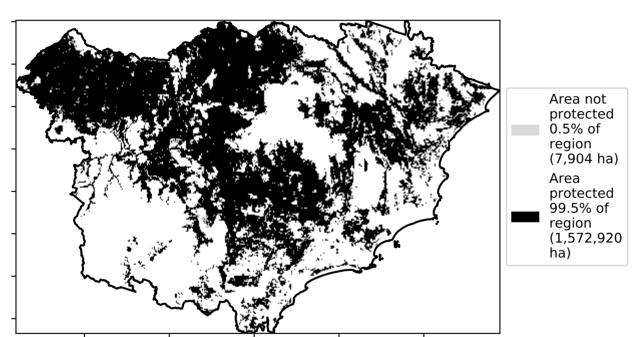
### **Total Vegetation Cover [%]**



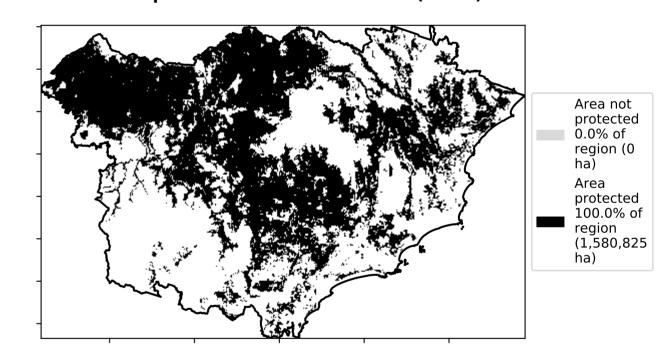


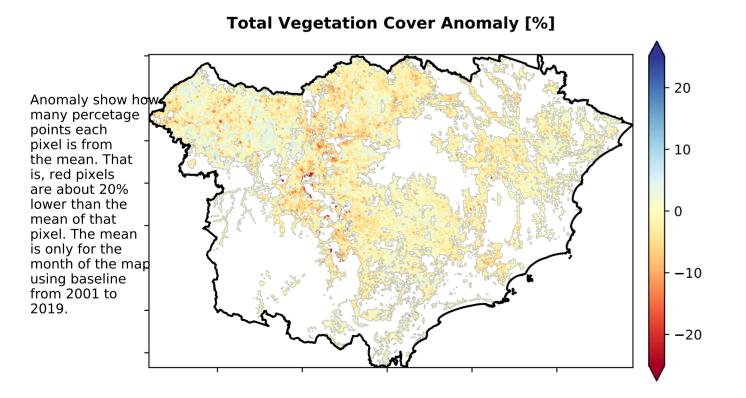


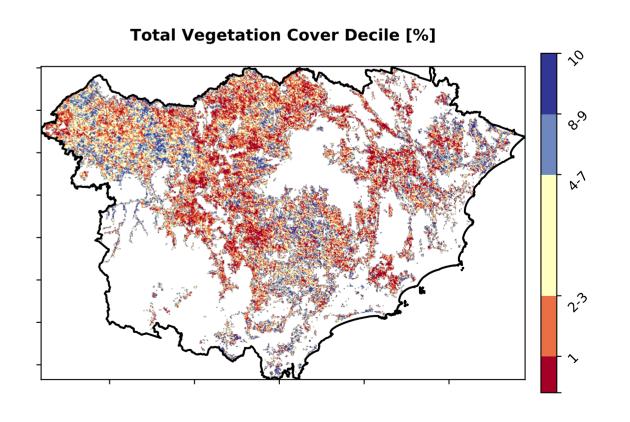
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)











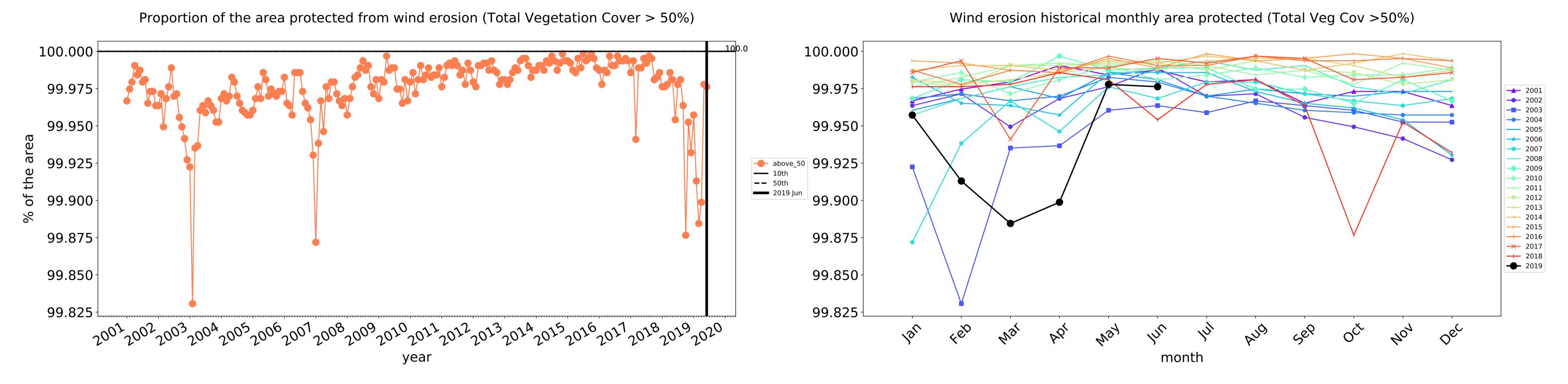


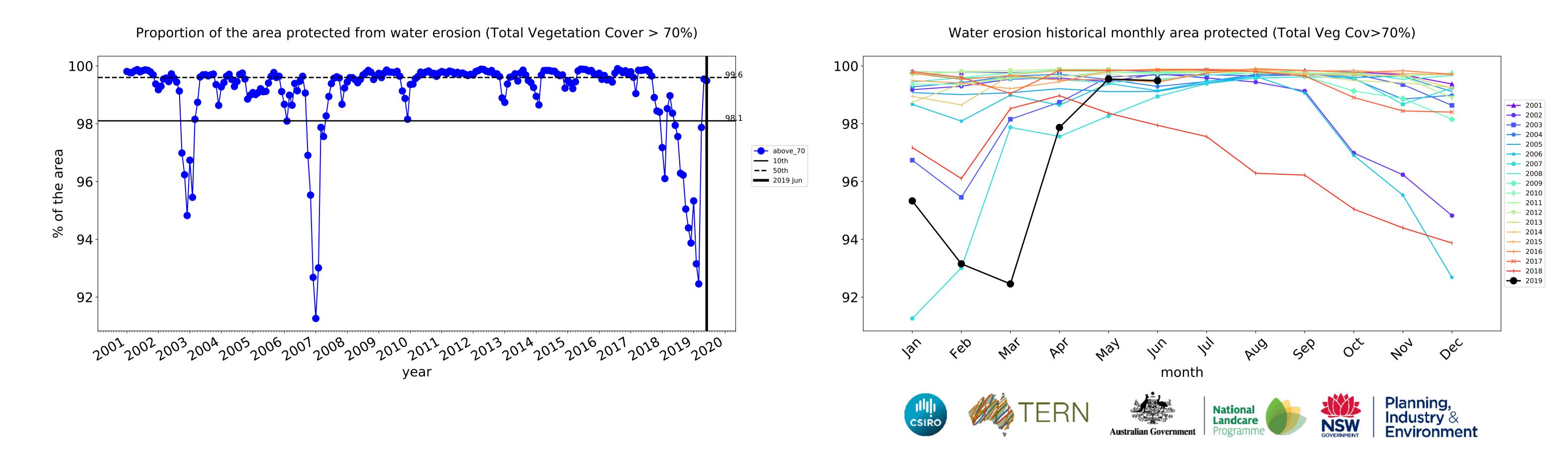


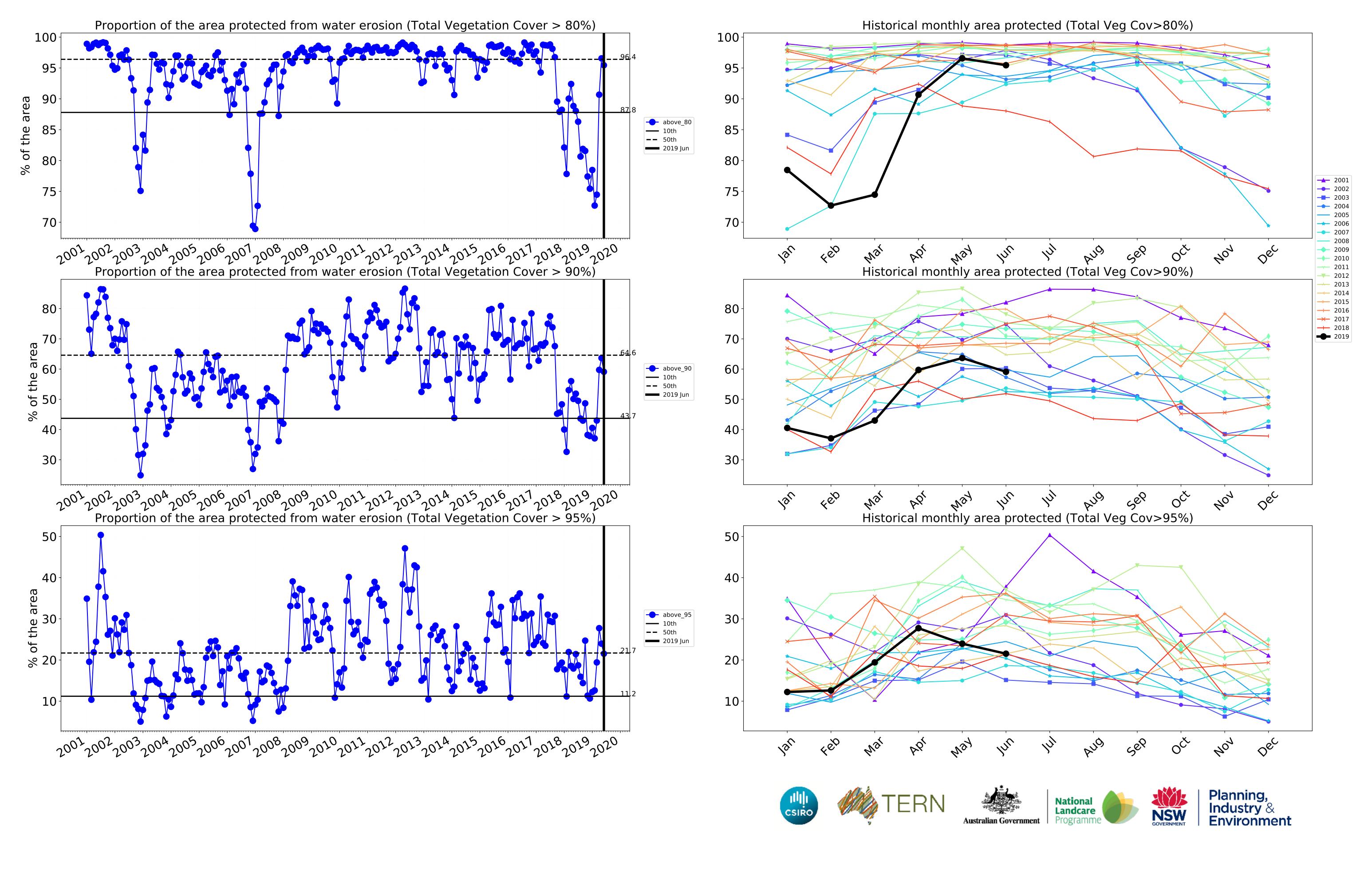




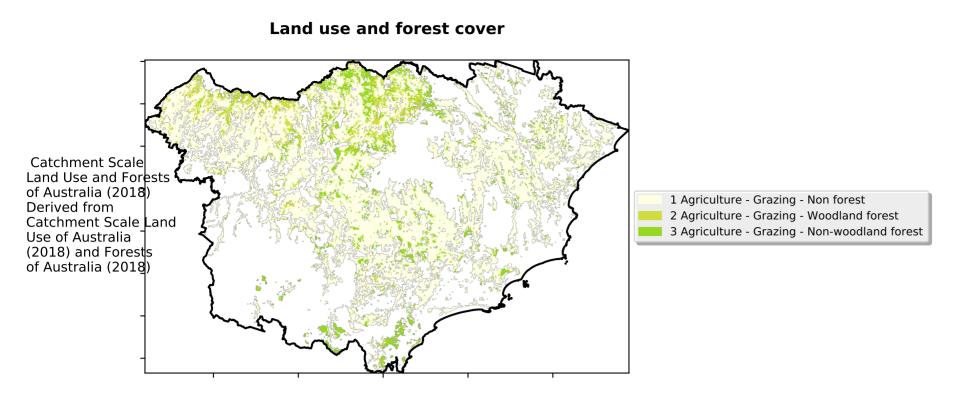
### **Agriculture timeseries**



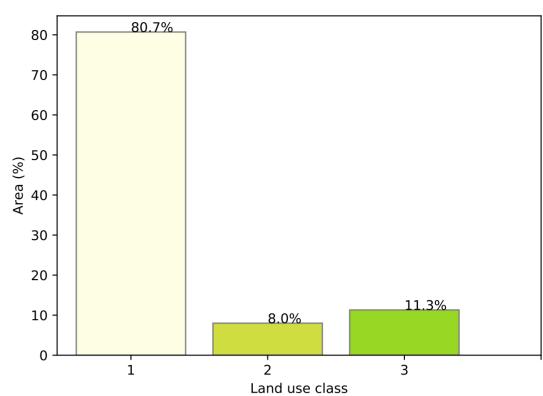




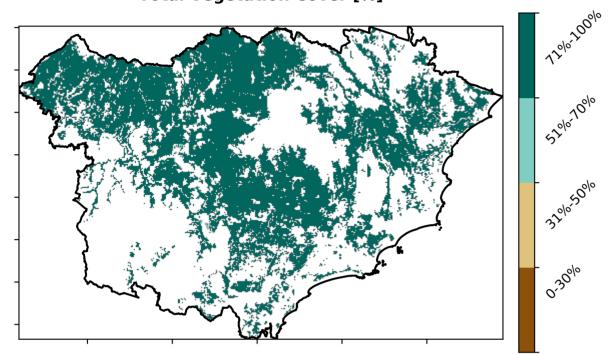
### **Grazing**



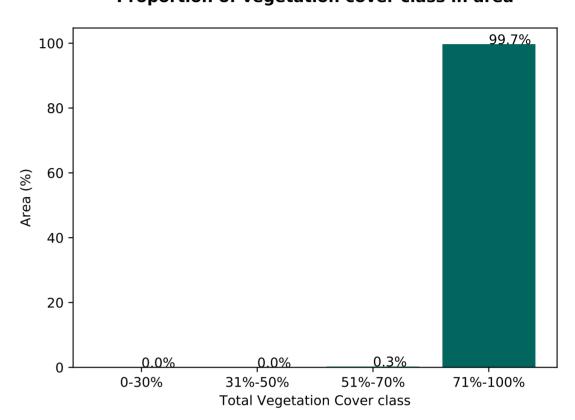
### Proportion of each land class in area



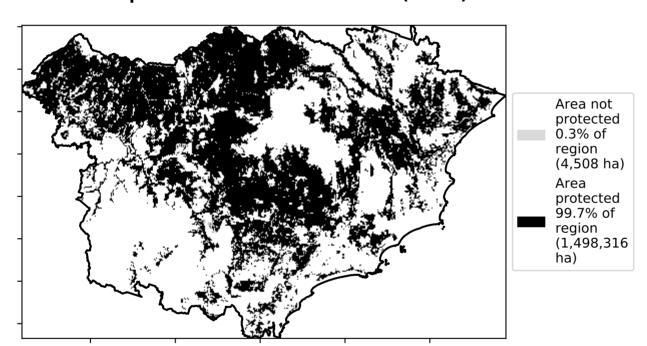




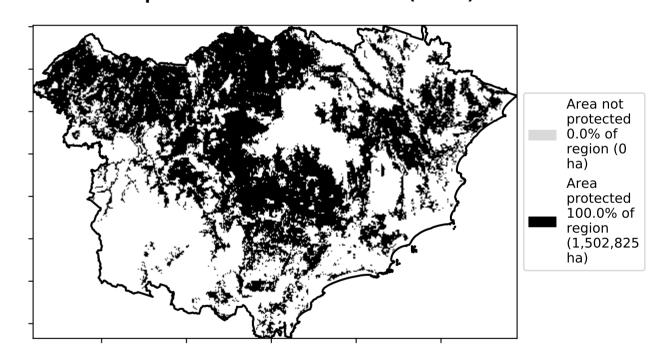
Proportion of vegetation cover class in area



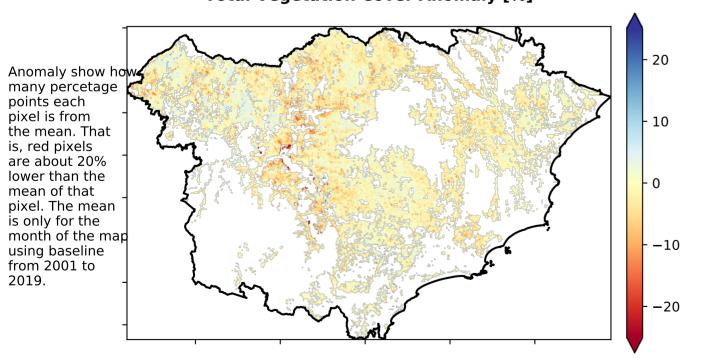
### % Area protected from water erosion (>70%)

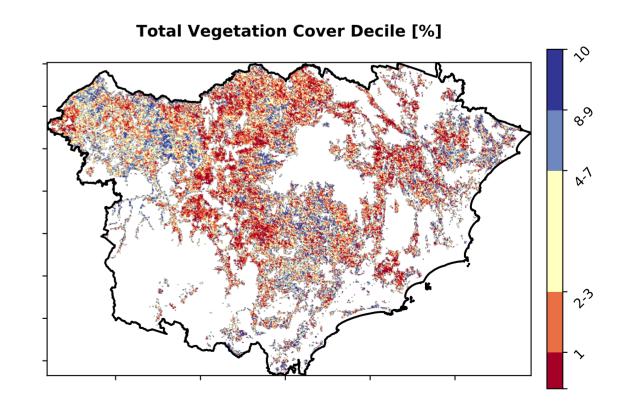


% Area protected from wind erosion (>50%)



### Total Vegetation Cover Anomaly [%]









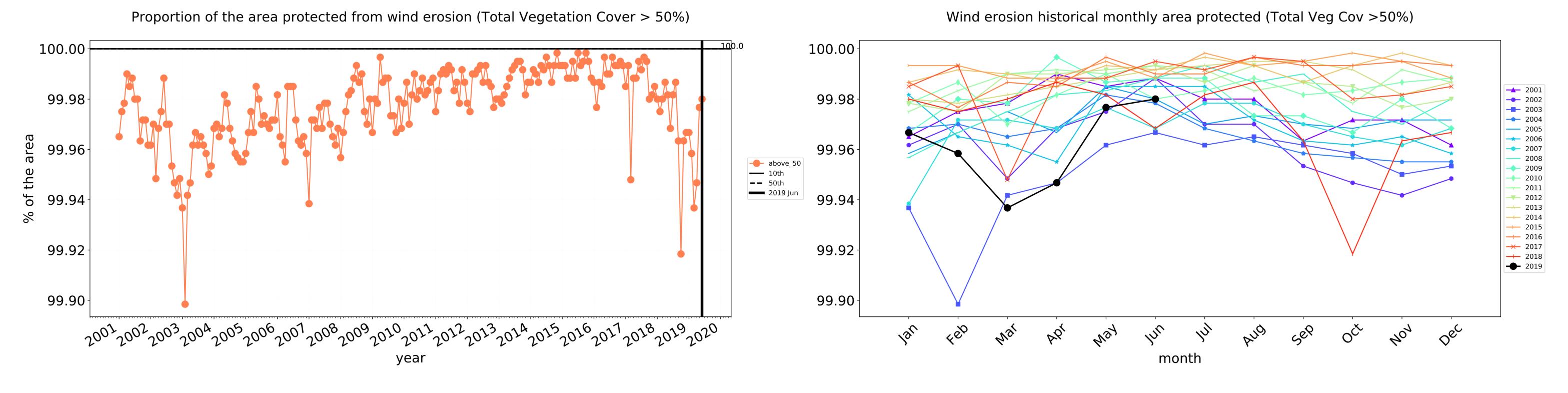


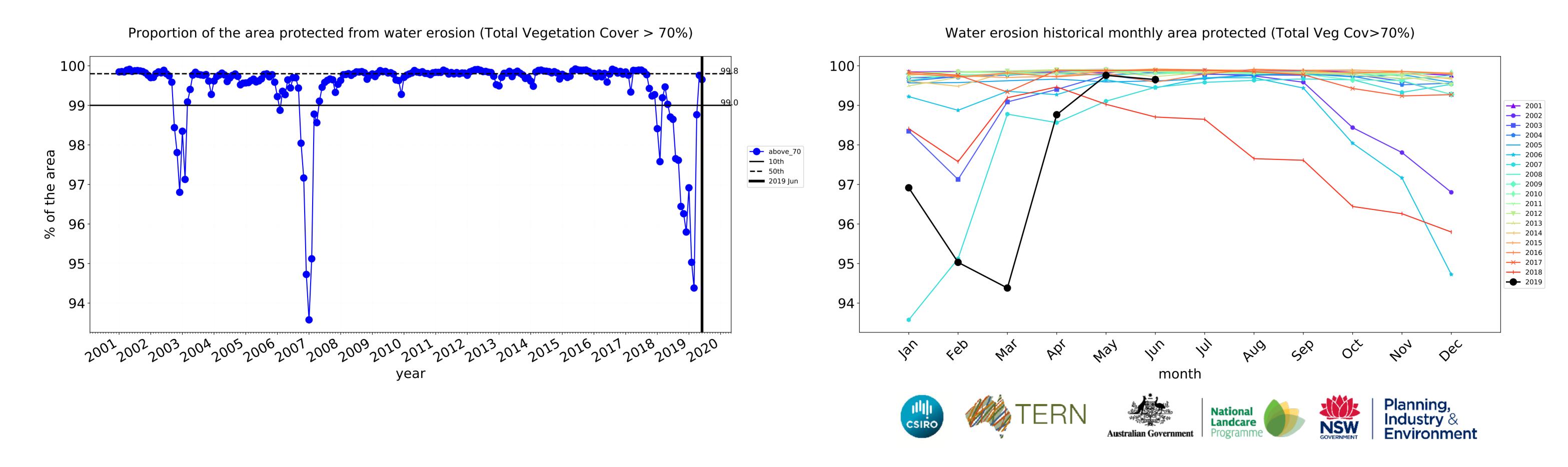


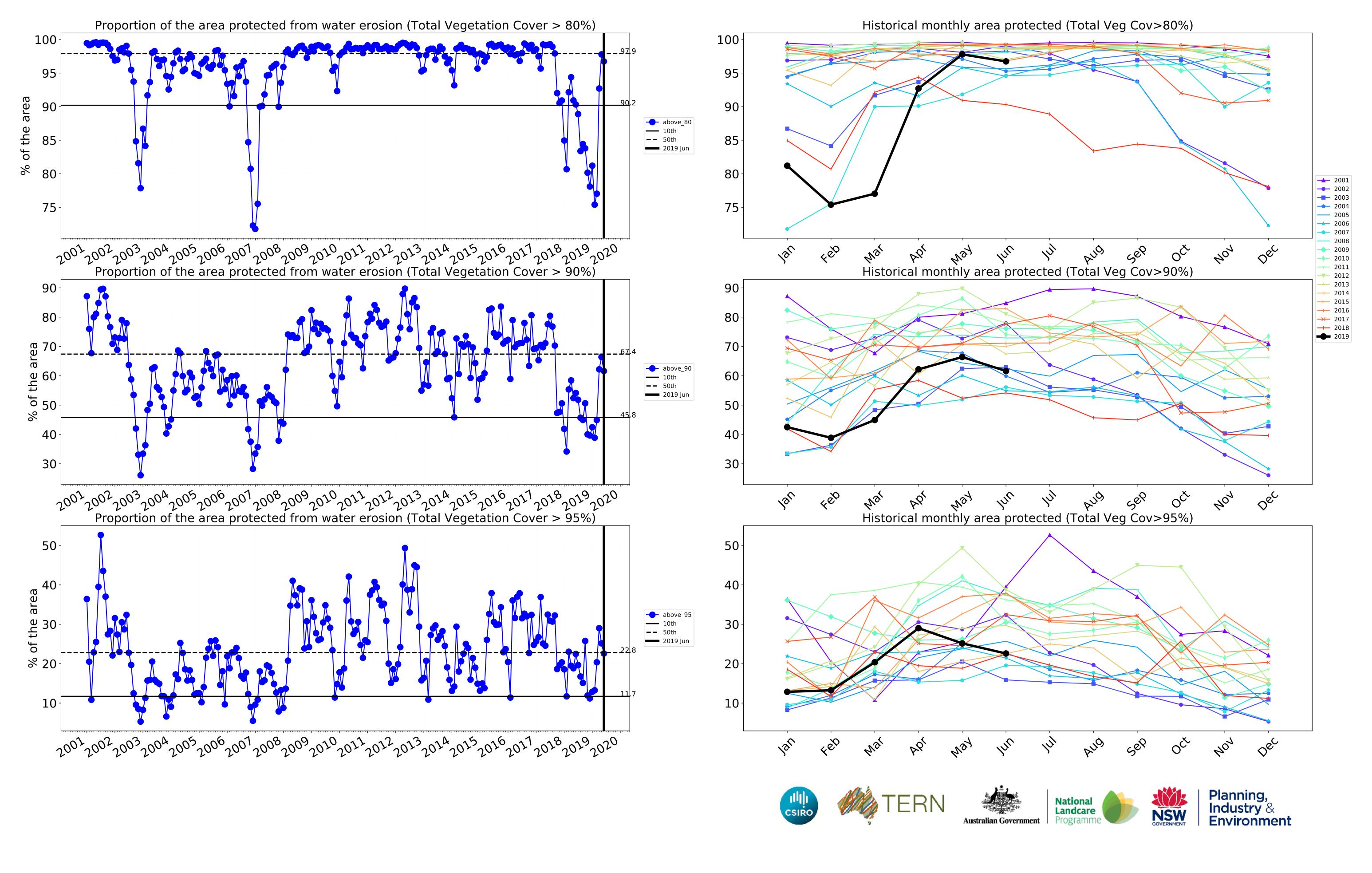




### **Grazing timeseries**

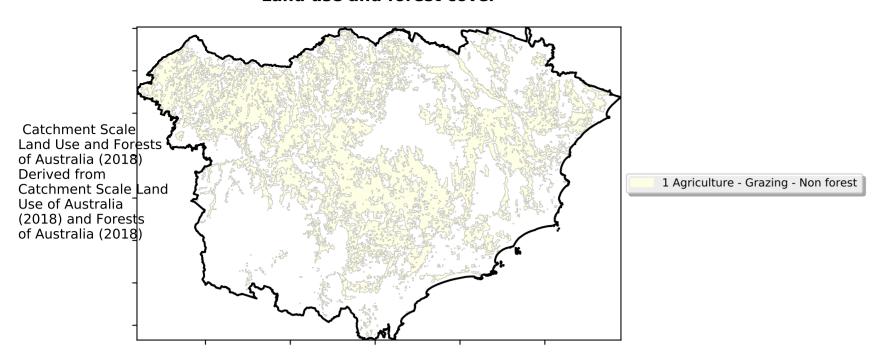




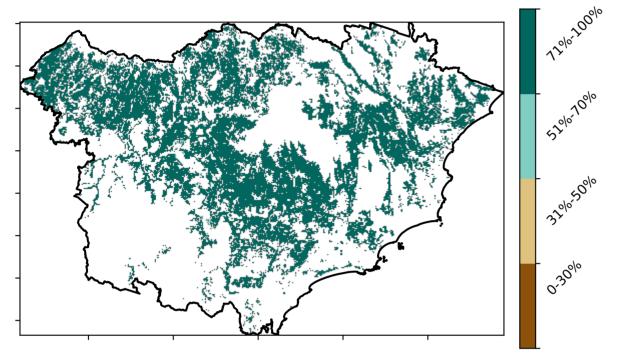


### **Grazing non forest**

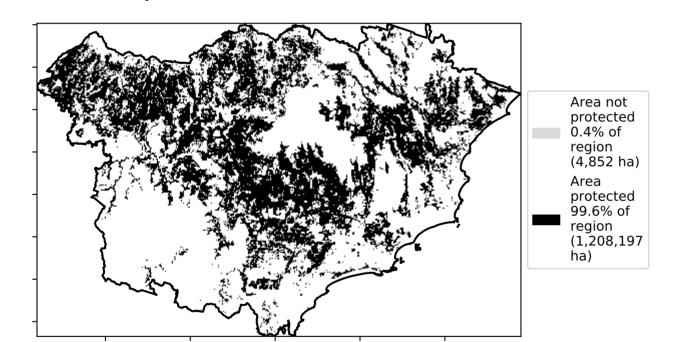
### Land use and forest cover



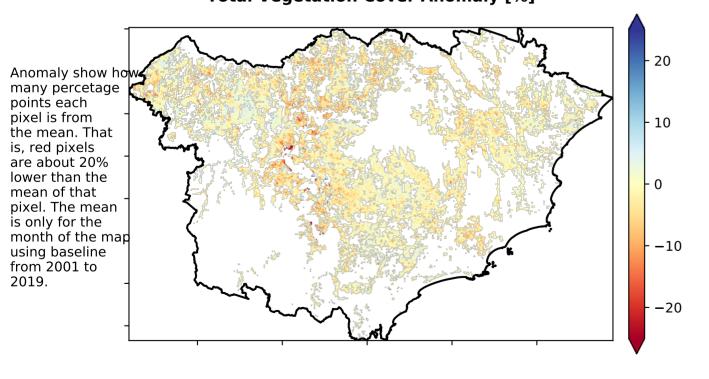
### Total Vegetation Cover [%]



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

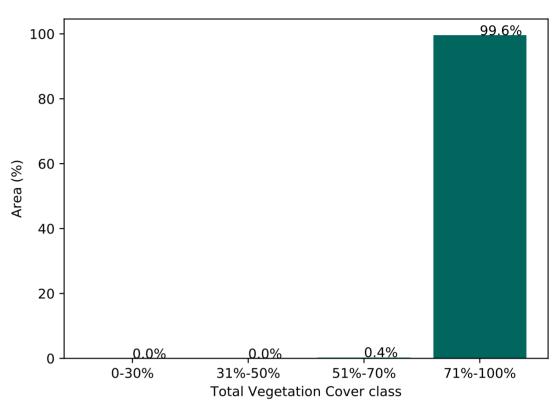


### Total Vegetation Cover Anomaly [%]

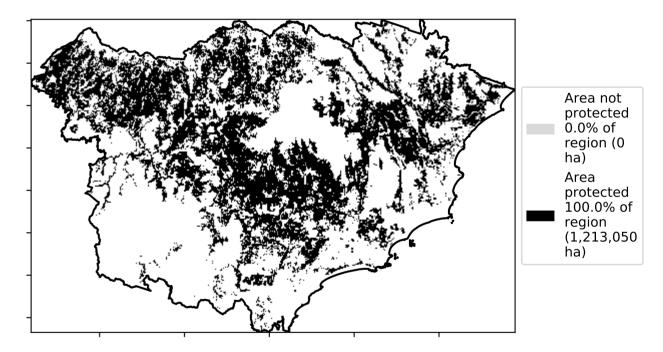


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

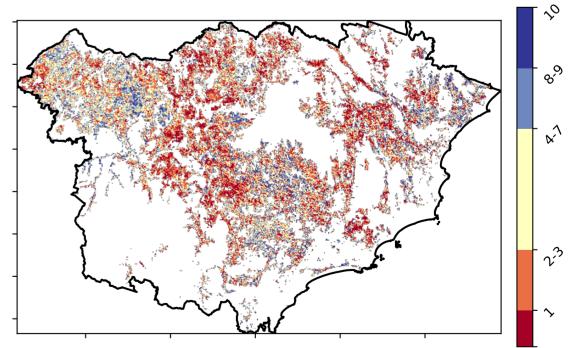
### **Proportion of vegetation cover class in area**



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



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





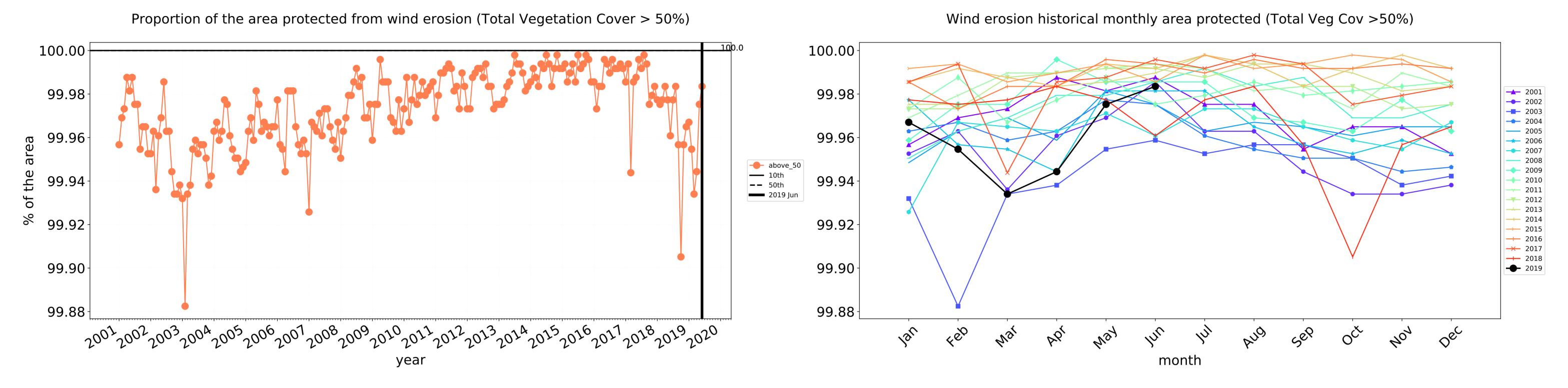


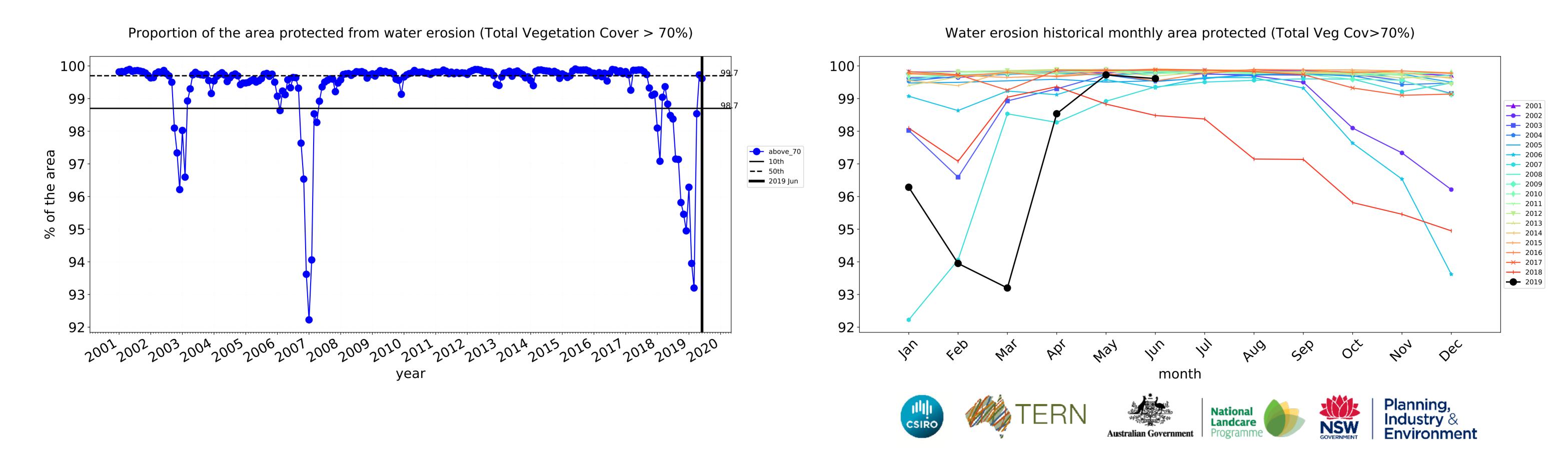


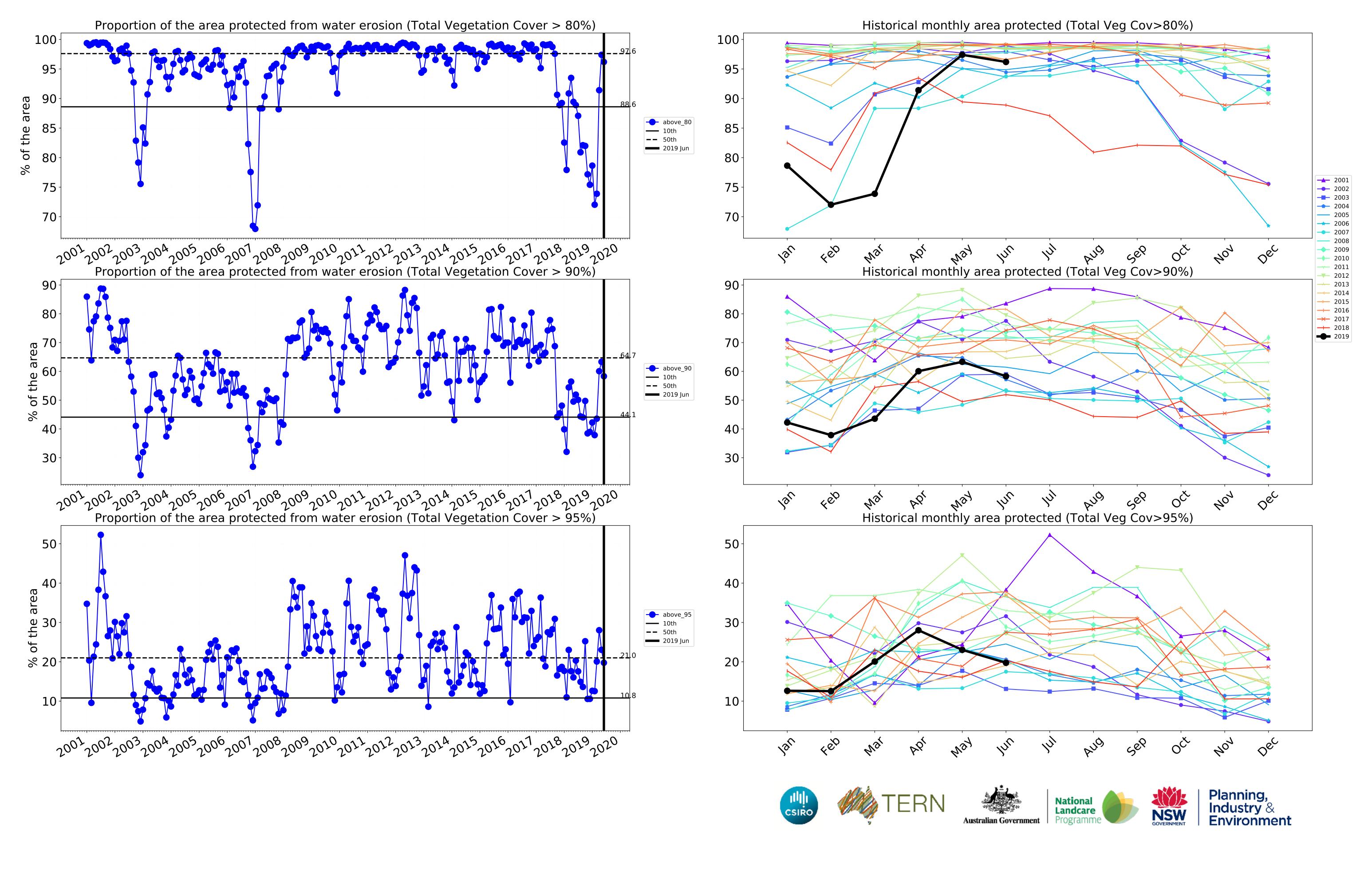










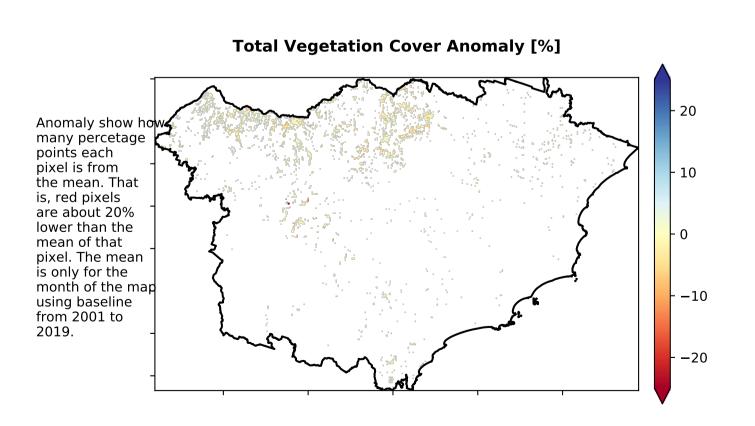


### **Grazing Woodland forest**

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

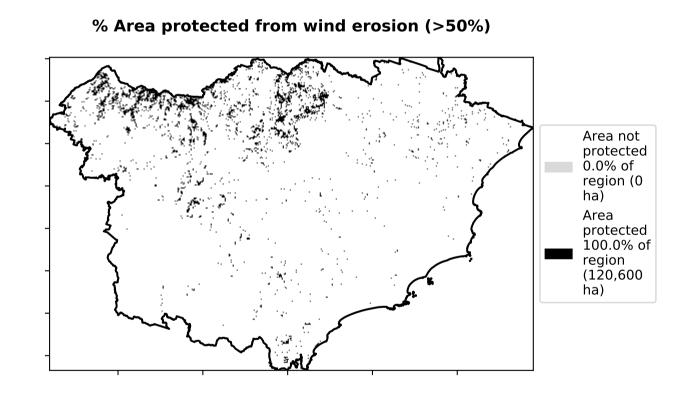
## **Total Vegetation Cover [%]**

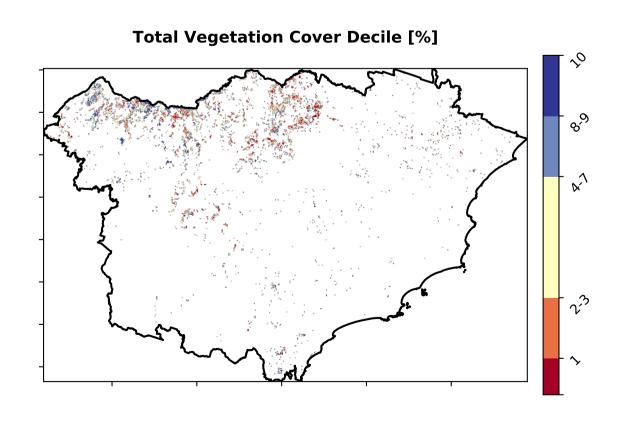
### % Area protected from water erosion (>70%) Area not protected 0.2% of region (241 ha) Area protected 99.8% of region (120,358 ha)



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 man using baseling. the map using baseline from 2001 to 2019.

### **Proportion of vegetation cover class in area** 99.8% 100 80 Area (%) 40 20 -0.1% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**









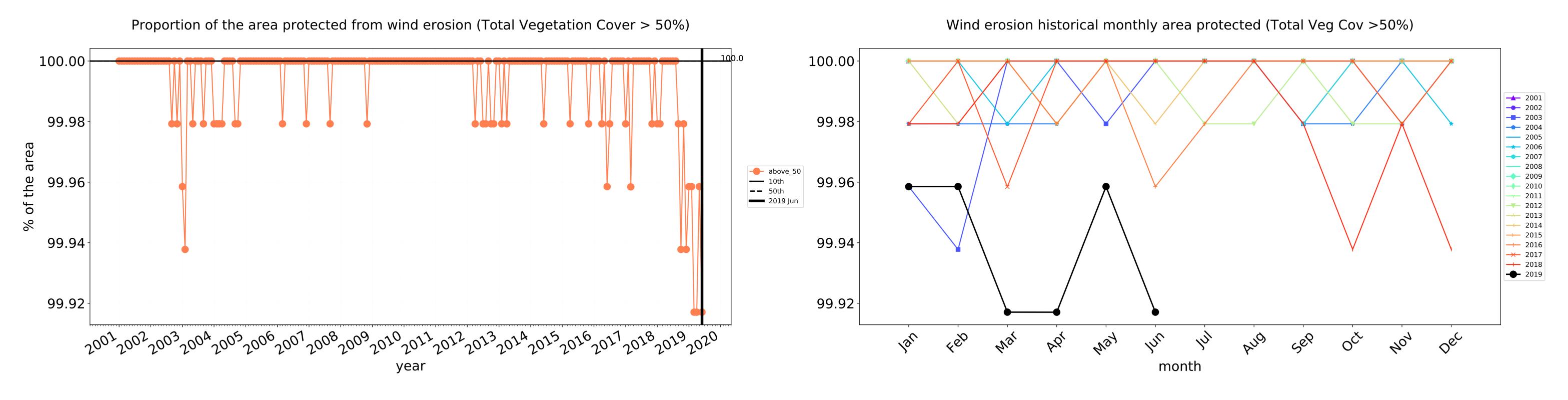


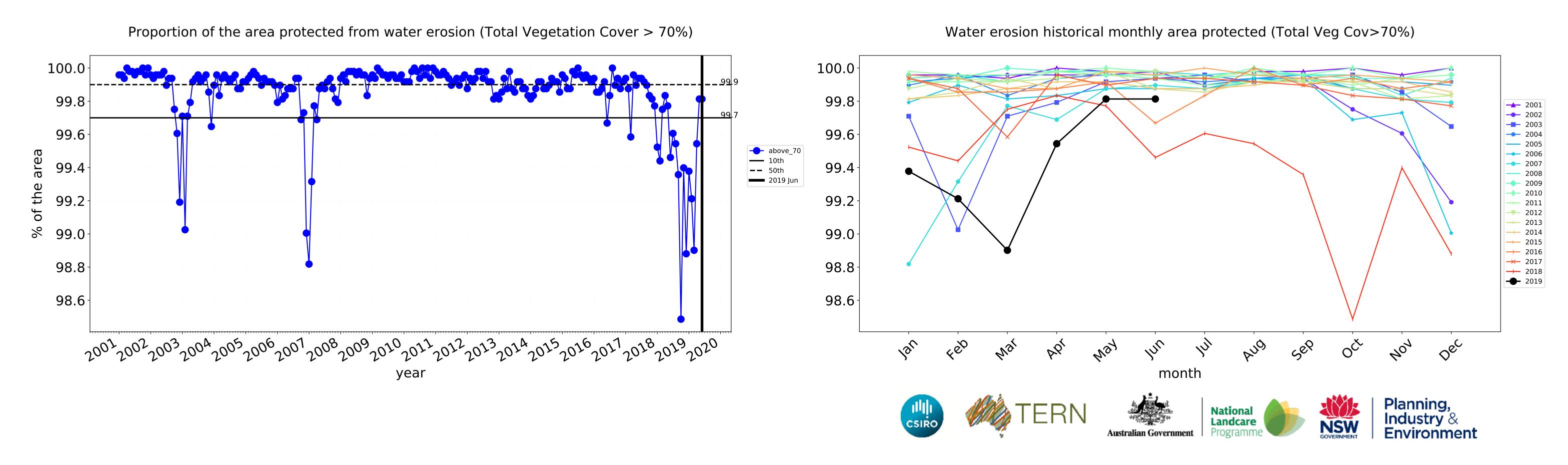


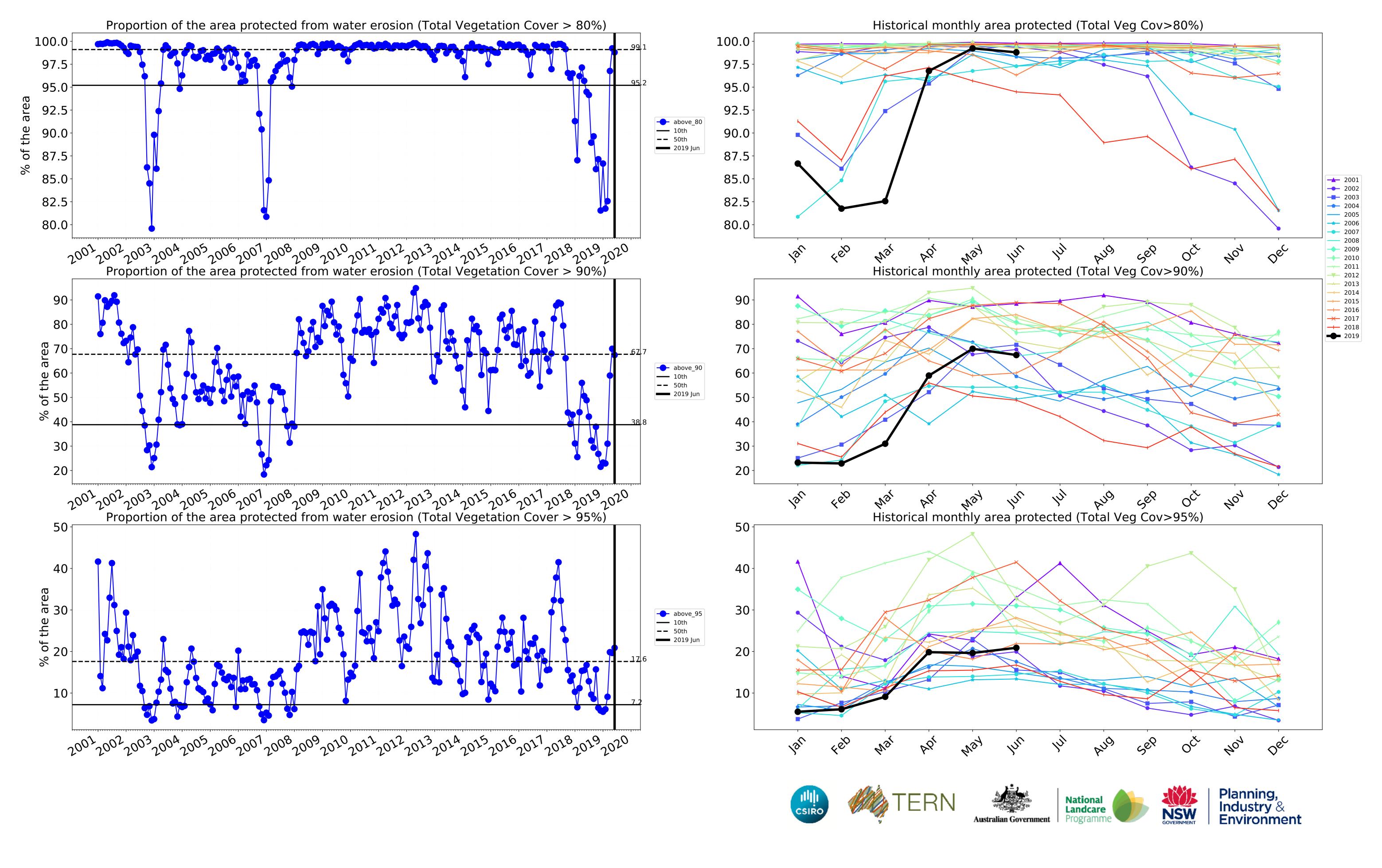




### **Grazing Woodland forest timeseries**





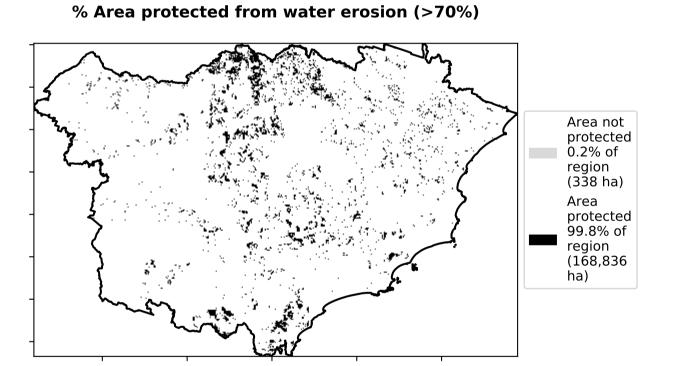


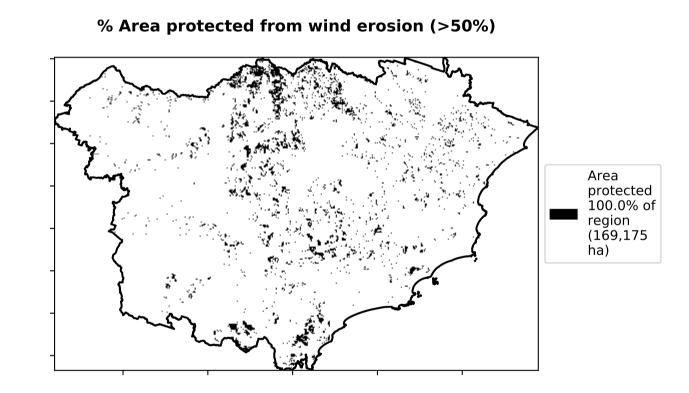
### **Grazing - Forest (non woodland)**

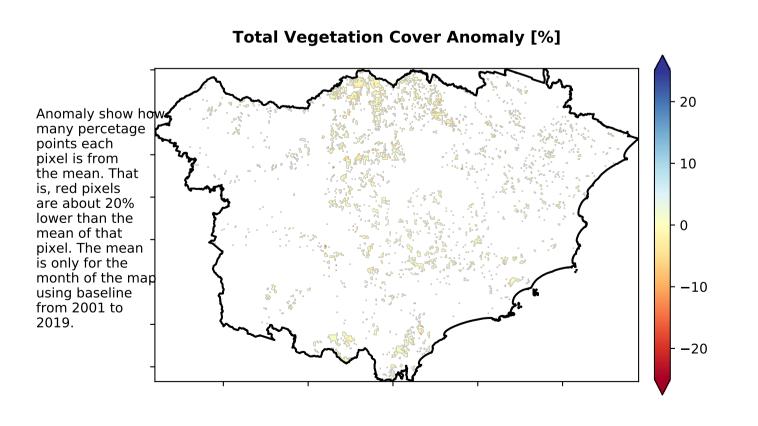
### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) Use of Australia (2018)

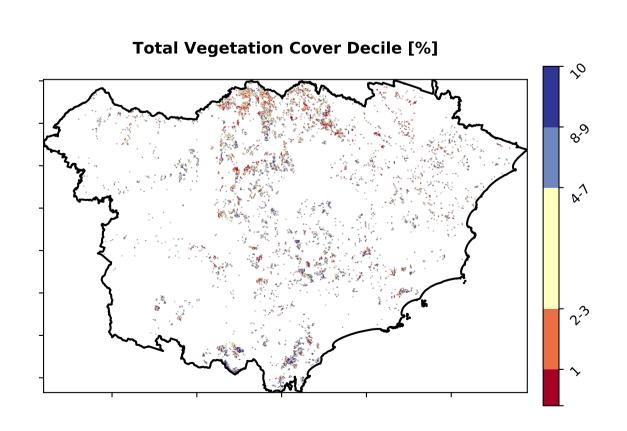
# Total Vegetation Cover [%]

# Proportion of vegetation cover class in area 100 99.8% 80 80 40 20 0-30% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class











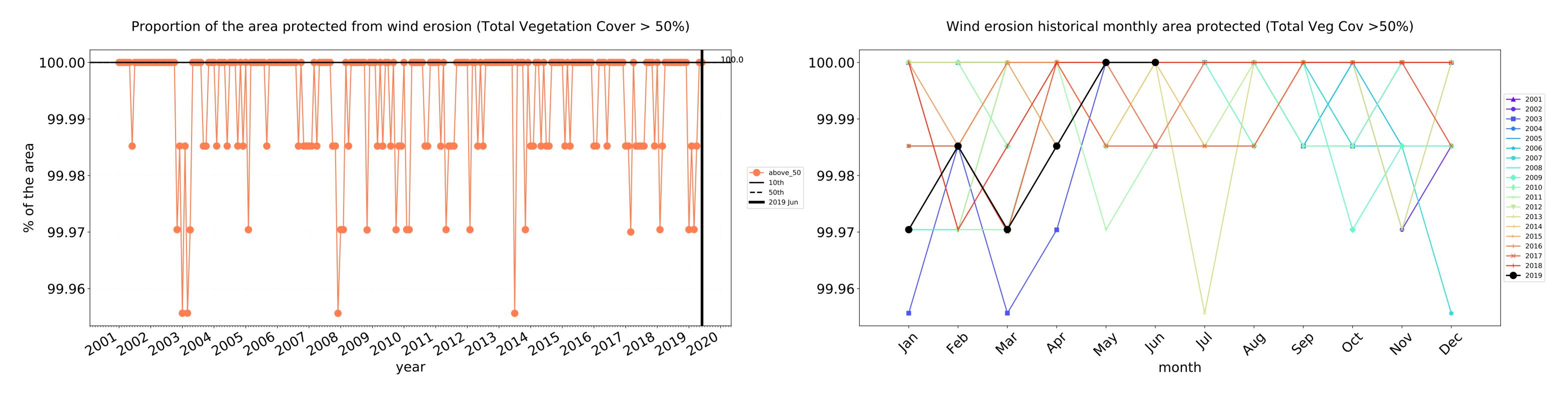


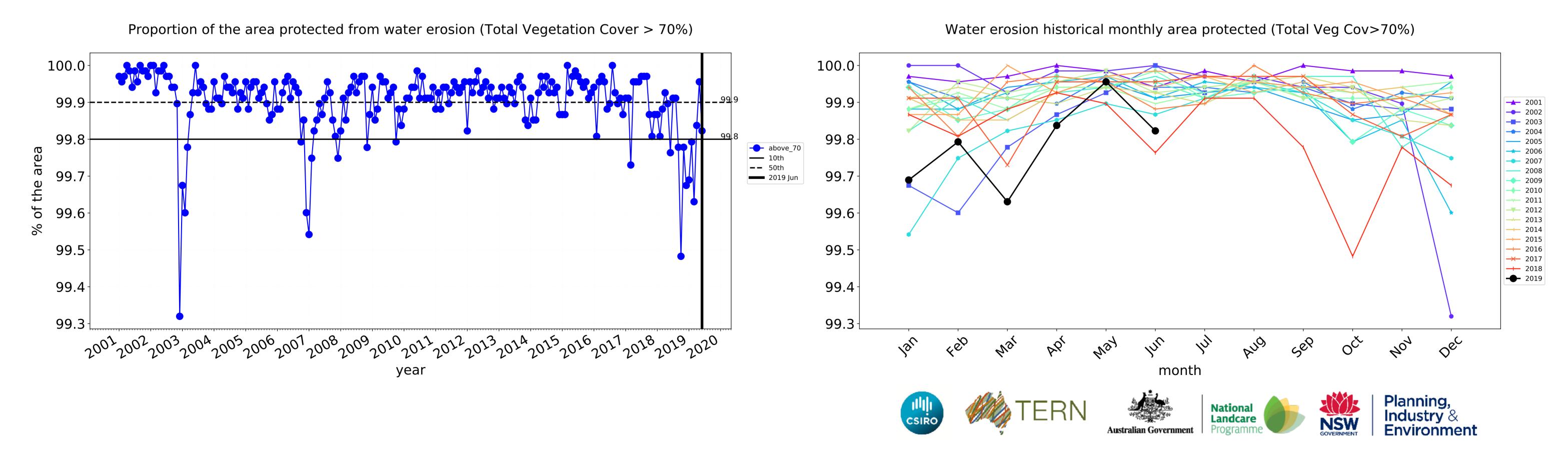


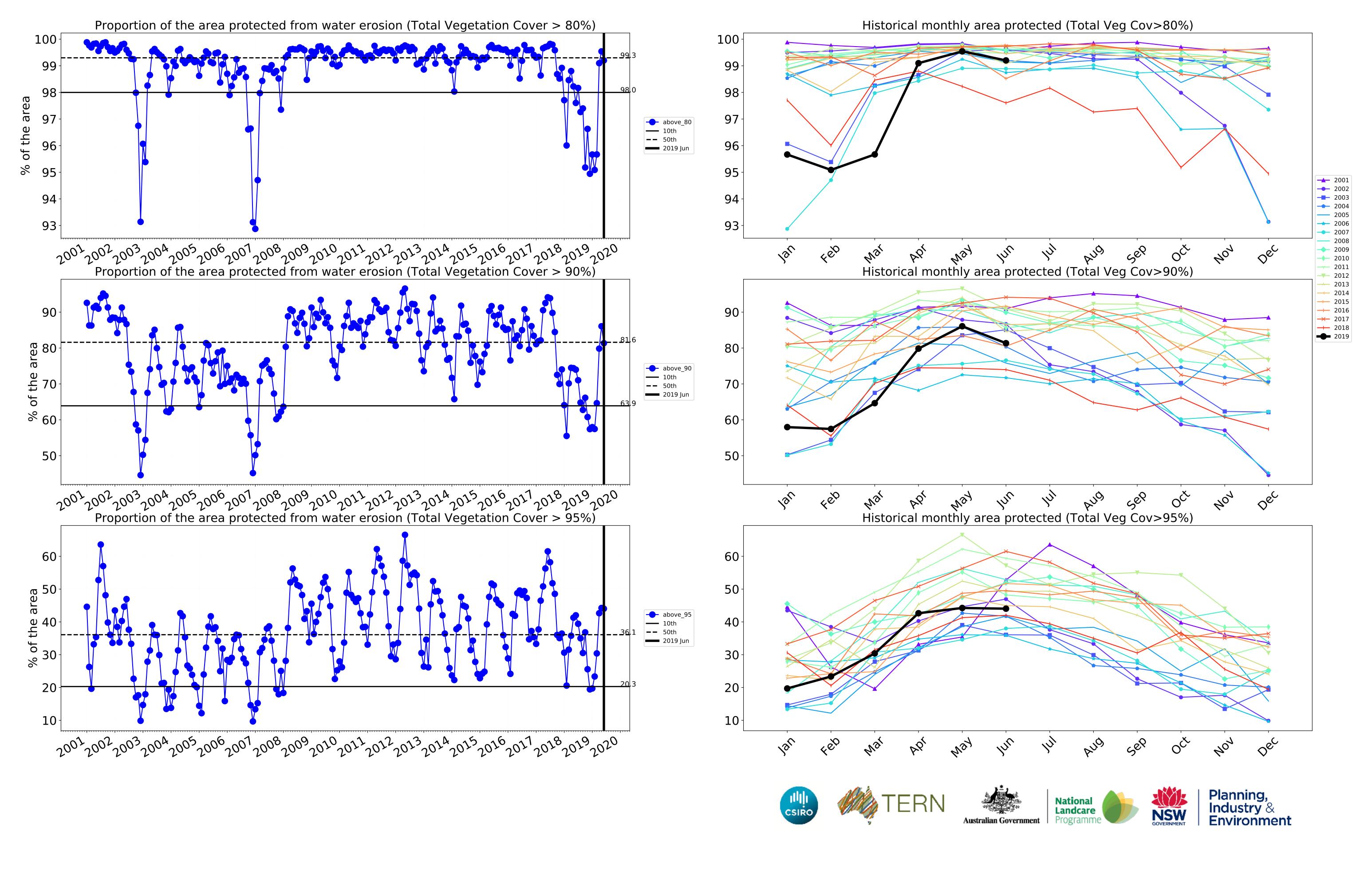






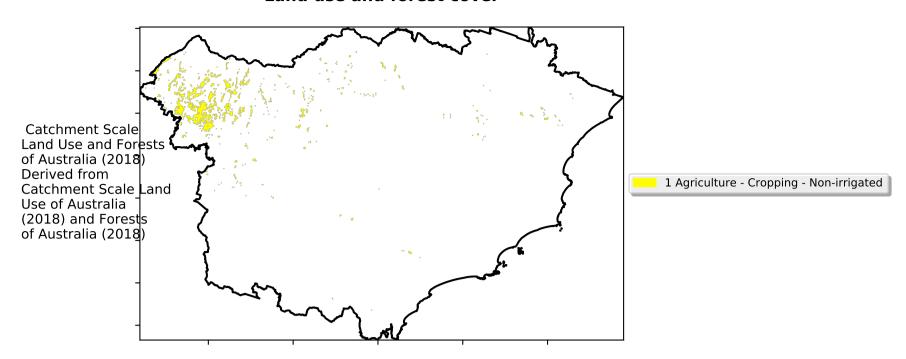




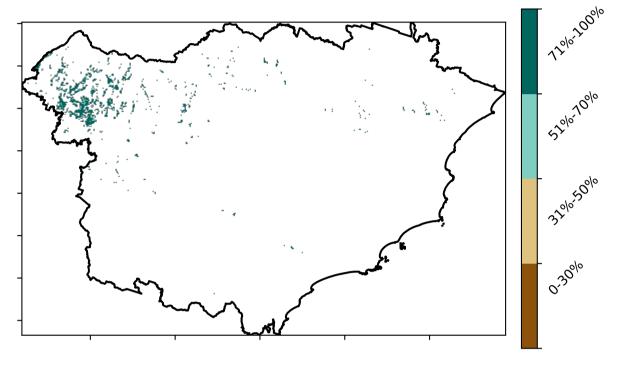


### **Cropping**

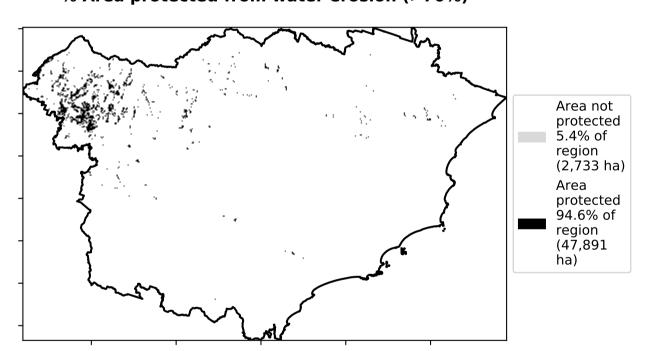
### Land use and forest cover



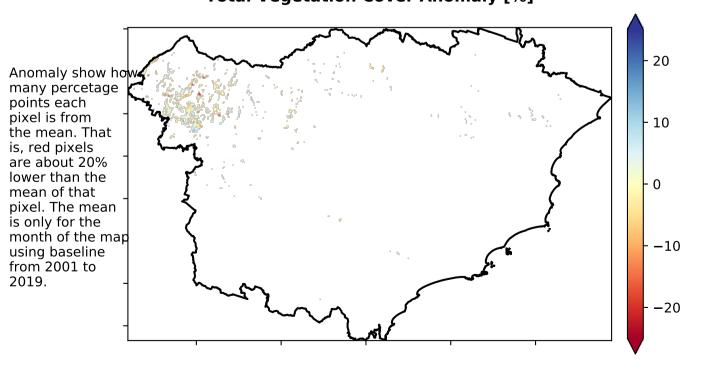
### **Total Vegetation Cover [%]**



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

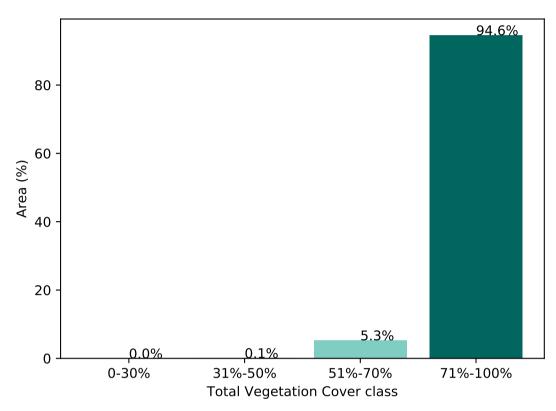


### Total Vegetation Cover Anomaly [%]

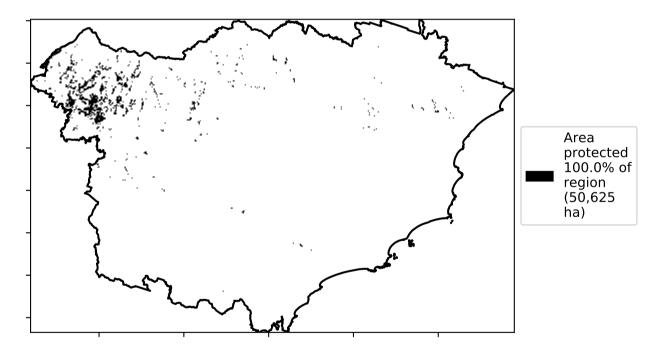


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

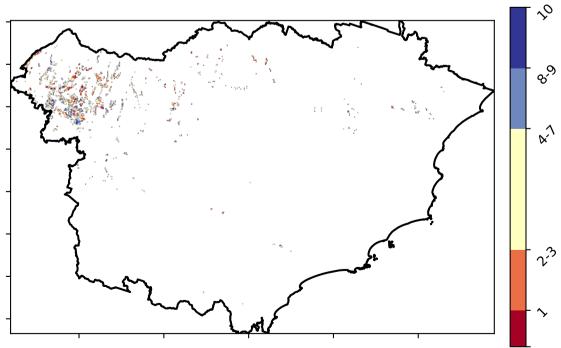
### Proportion of vegetation cover class in area



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



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







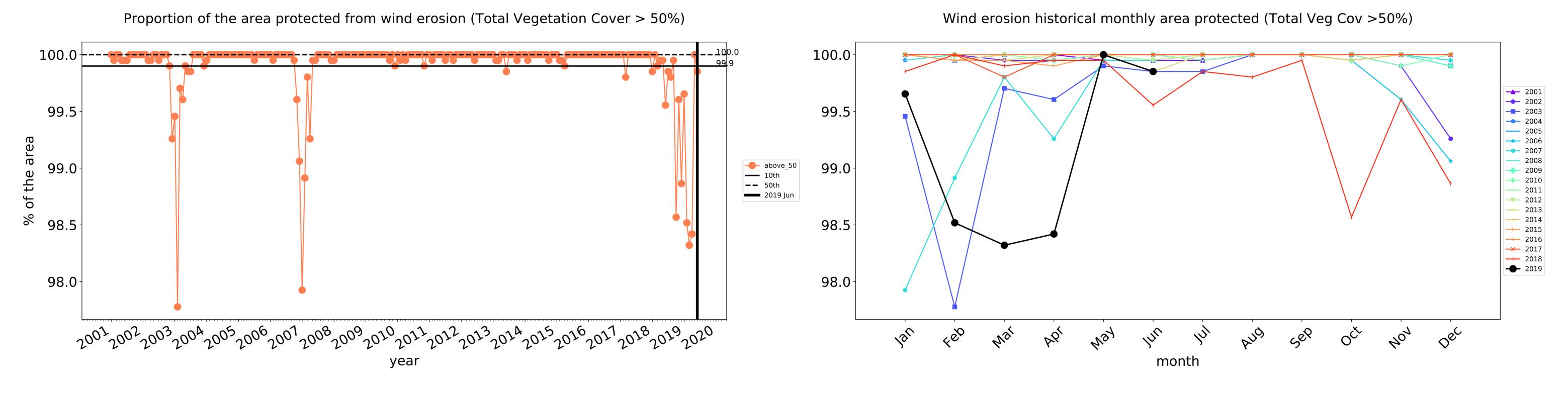


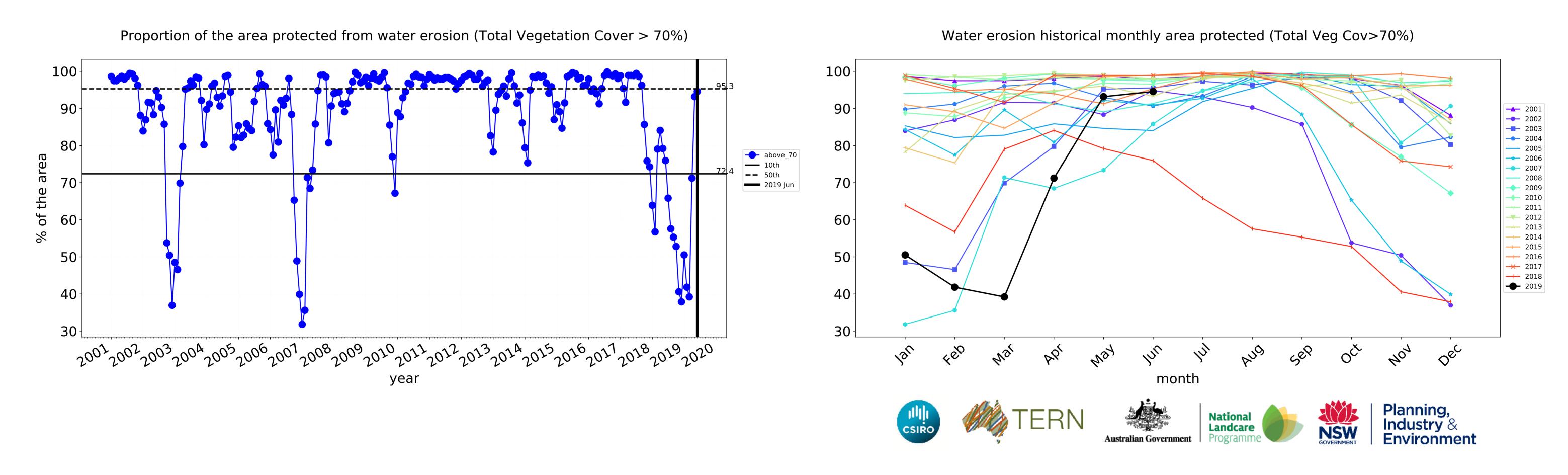


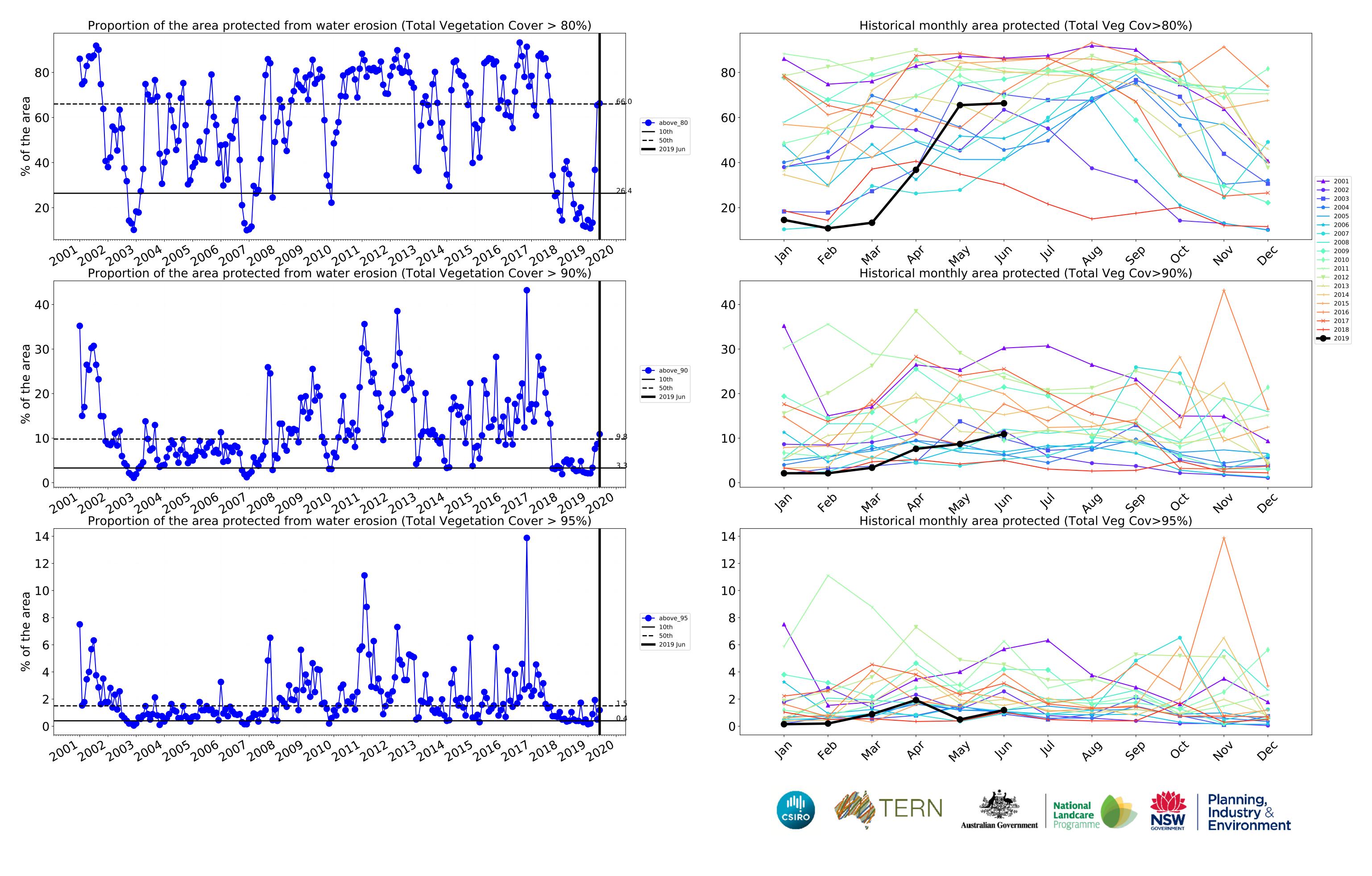




### **Cropping timeseries**





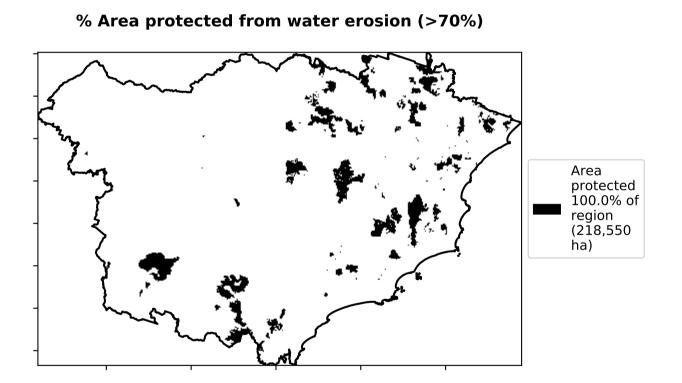


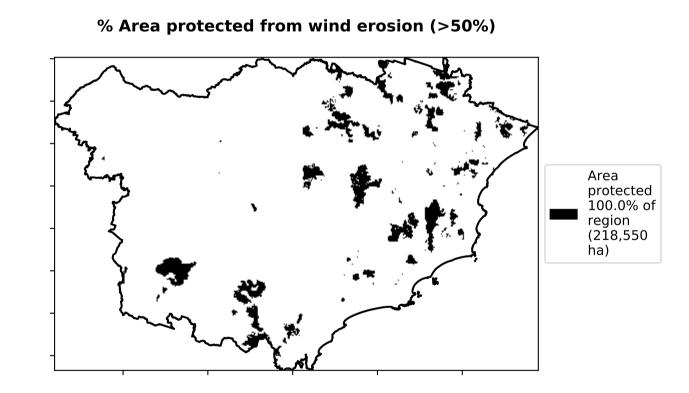
### **Production native forests and plantation forests**

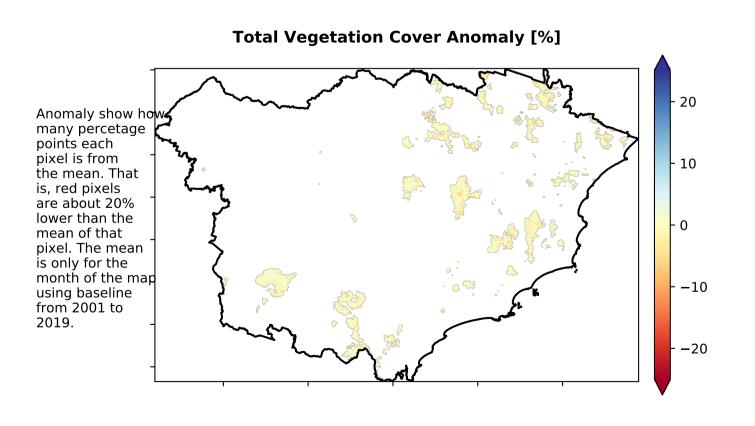
### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) Of Australia (2018) Use of Australia (2018) Australia (2018)

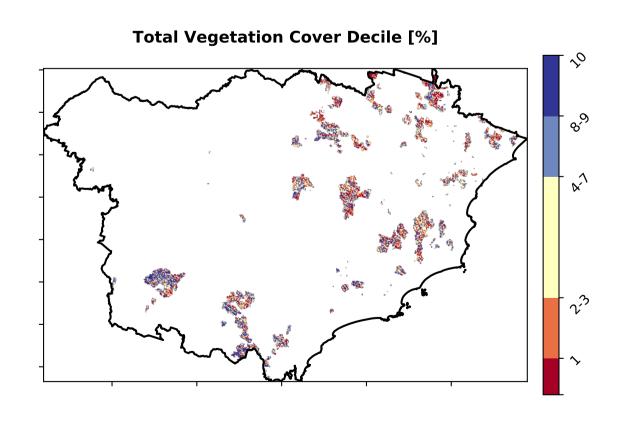
## Total Vegetation Cover [%] Tiple: Idole Ti

# Proportion of vegetation cover class in area 100 - 100.0% 80 - 20 - 20 - 20 - 0.0% 0-30% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class













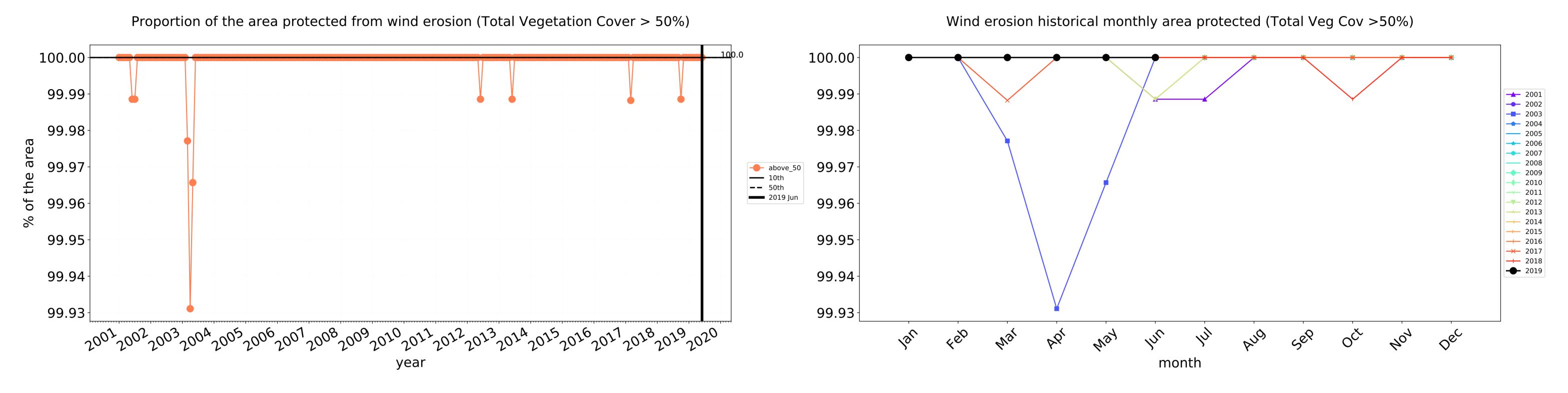


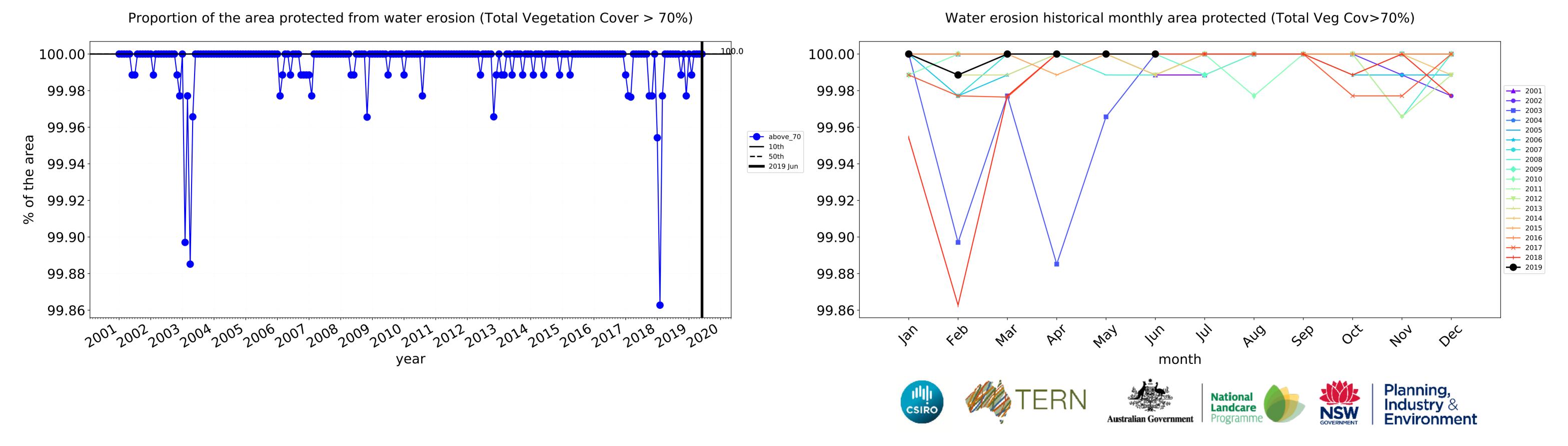


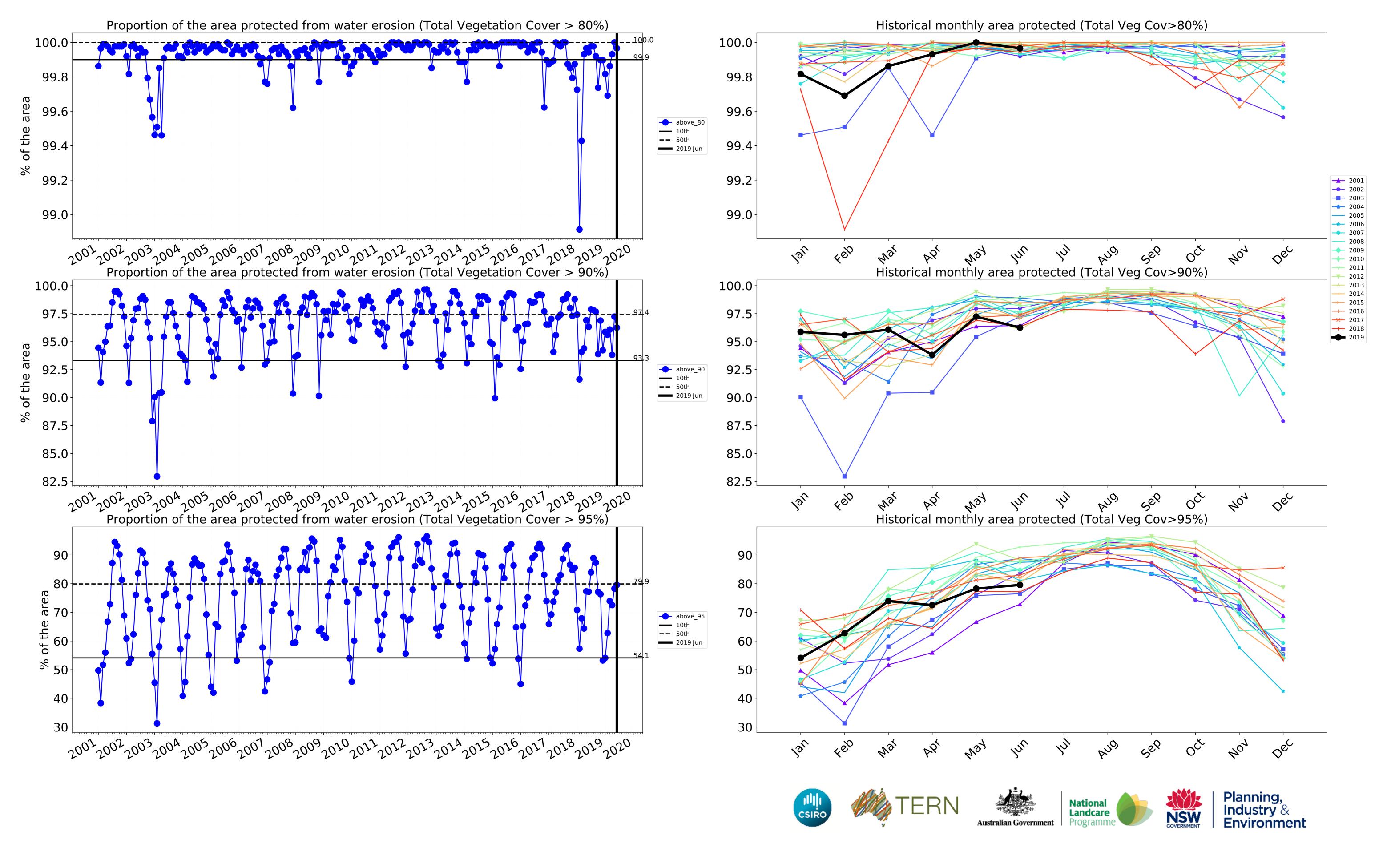




### **Production native forests and plantation forests timeseries**







### Hunter (3,239,800 ha and no data 60,625 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	3,239,800	99.9% 3,235,225	99.6% 3,226,650	98.5% 3,190,100	95.3% 3,087,500	73.2% 2,372,325	42.2% 1,365,650
Conservation and natural environments	1,240,975	99.9% 1,239,925	99.9% 1,239,200	99.7% 1,237,500	99.5% 1,234,350	93.9% 1,164,725	66.6% 826,825
Conservation and natural environments non forest	29,950	96.9% 29,025	95.0% 28,450	92.0% 27,550	88.3% 26,450	70.5% 21,100	39.2% 11,750
Conservation and natural environments Woodland forest	138,750	100.0% 138,750	100.0% 138,725	99.8% 138,500	99.7% 138,275	92.6% 128,475	54.1% 75,100
Conservation and natural environments Forest (non woodland)	1,072,275	100.0% 1,072,150	100.0% 1,072,025	99.9% 1,071,450	99.8% 1,069,625	94.7% 1,015,150	69.0% 739,975
Agriculture	1,580,825	100.0% 1,580,800	100.0% 1,580,450	99.5% 1,572,750	95.4% 1,508,850	59.1% 934,350	21.5% 340,350
Grazing	1,502,825	100.0% 1,502,800	100.0% 1,502,525	99.7% 1,497,600	96.7% 1,453,800	61.6% 926,200	22.6% 339,275
Grazing non forest	1,213,050	100.0% 1,213,025	100.0% 1,212,850	99.6% 1,208,350	96.2% 1,166,825	58.3% 707,300	19.7% 239,575
Grazing Woodland forest	120,600	100.0% 120,600	99.9% 120,500	99.8% 120,375	98.8% 119,150	67.4% 81,275	20.9% 25,200
Grazing - Forest (non woodland)	169,175	100.0% 169,175	100.0% 169,175	99.8% 168,875	99.2% 167,825	81.4% 137,625	44.0% 74,500
Cropping	50,625	100.0% 50,625	99.9% 50,550	94.6% 47,875	66.3% 33,575	10.9% 5,525	1.2% 600
Production native forests and plantation forests	218,550	100.0% 218,550	100.0% 218,550	100.0% 218,550	100.0% 218,475	96.2% 210,350	79.6% 173,875











