### 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 2008

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







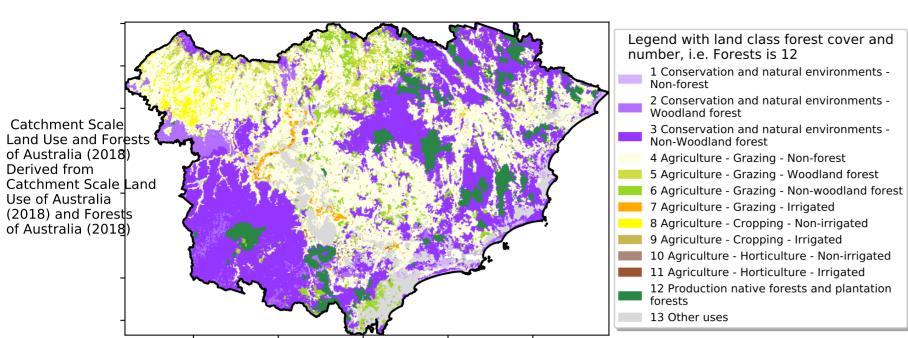




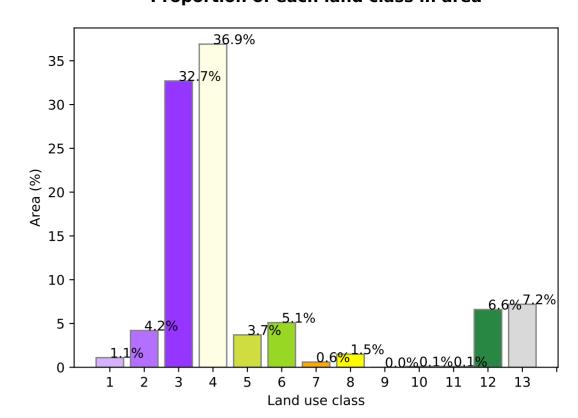


### **Vegetation Cover Mar 2008**

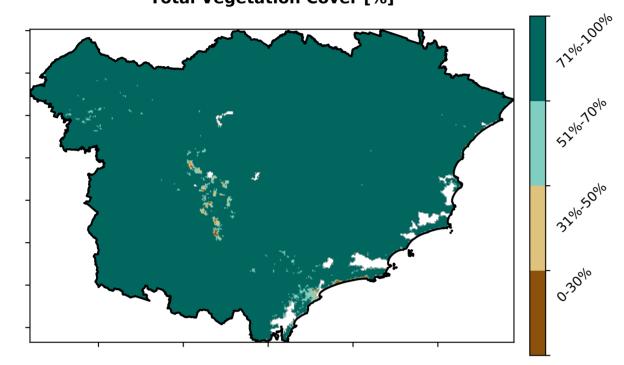
### Land use and forest cover



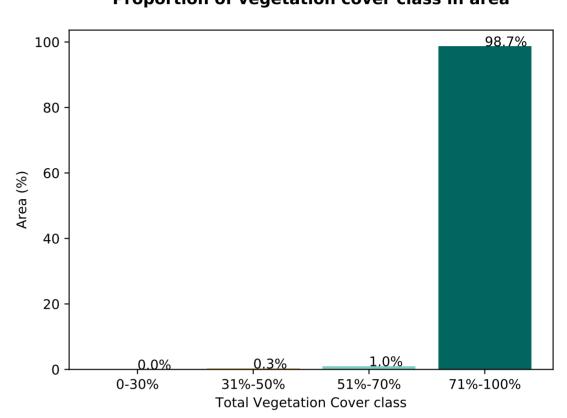
### Proportion of each land class in area



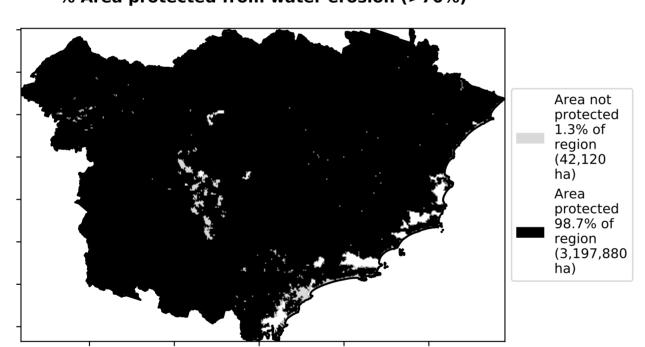
### Total Vegetation Cover [%]



Proportion of vegetation cover class in area



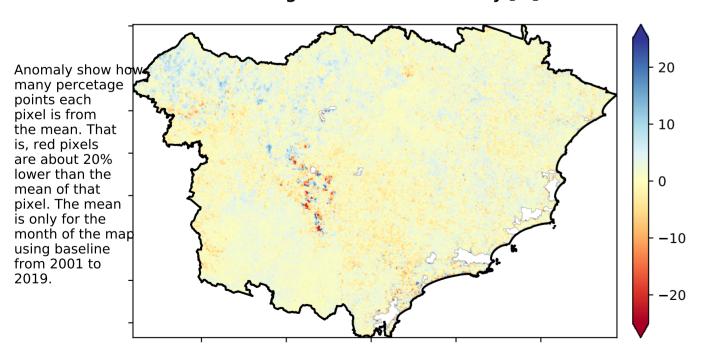
### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

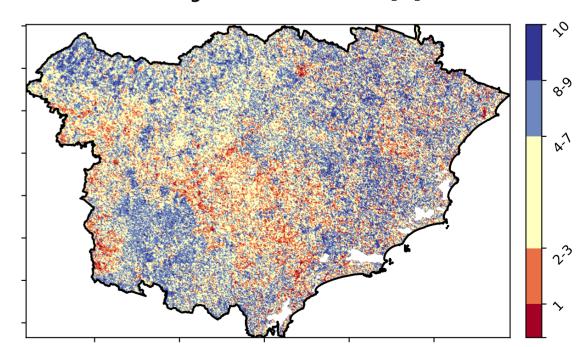


### Total Vegetation Cover Anomaly [%]



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





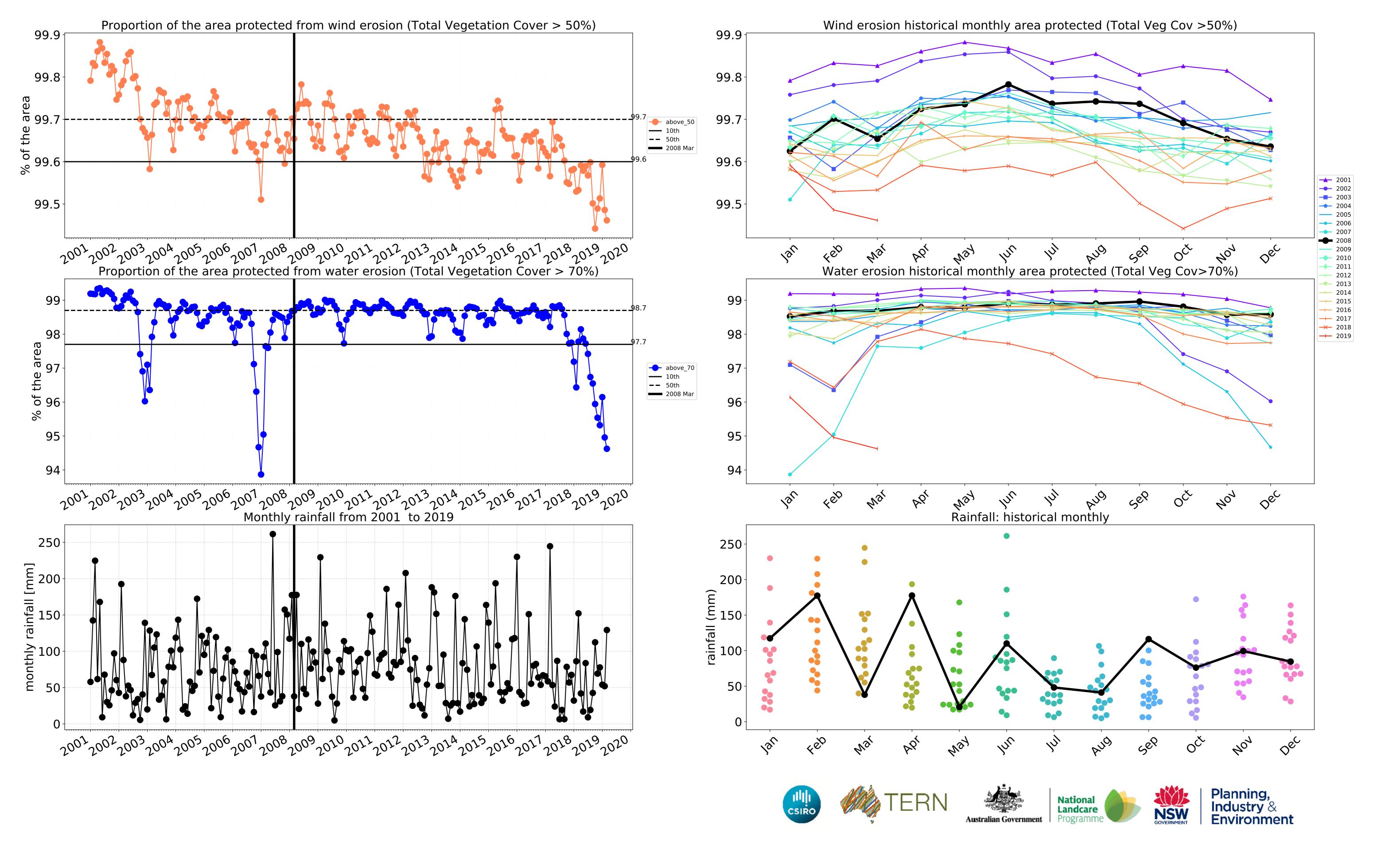


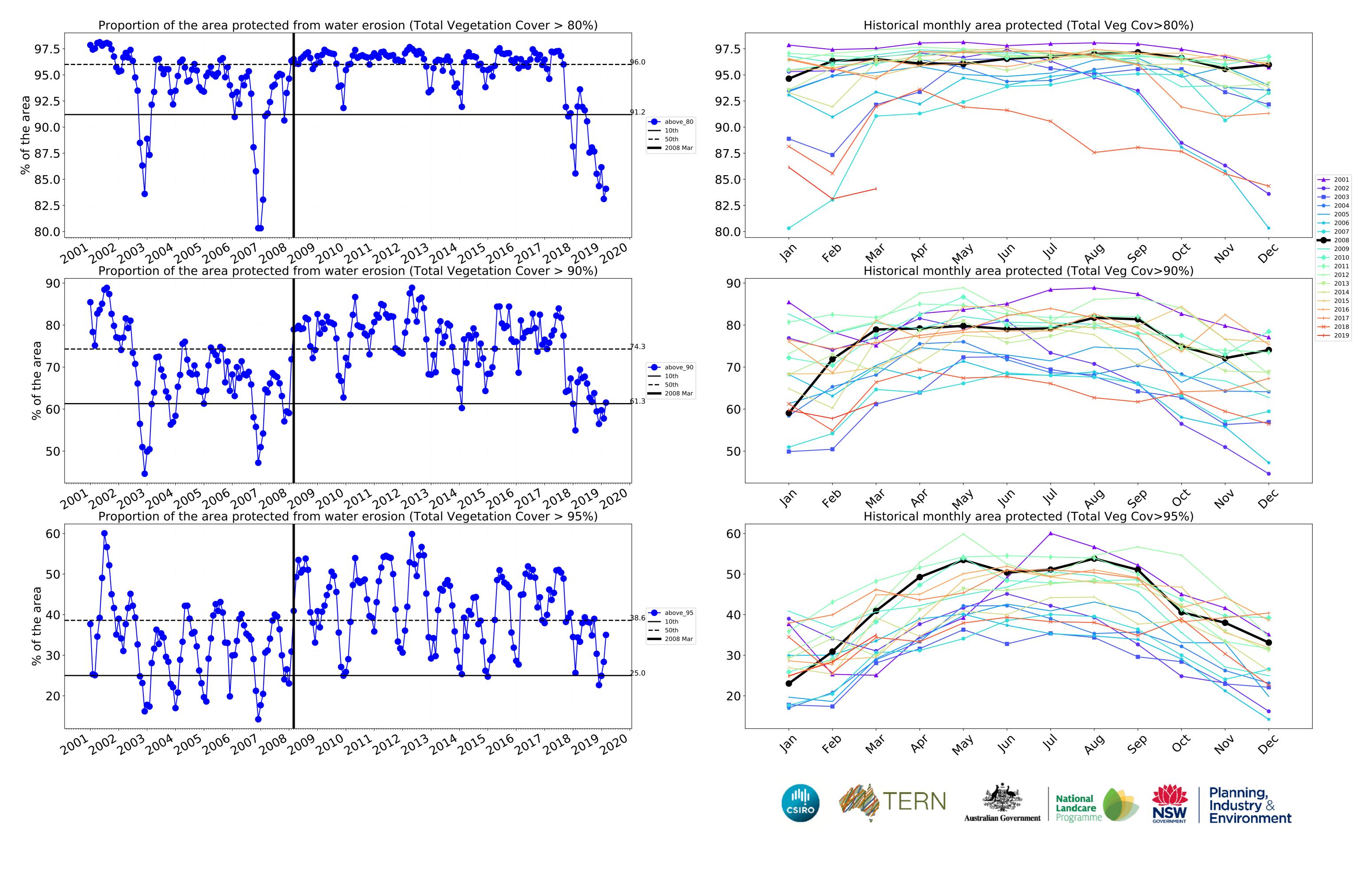




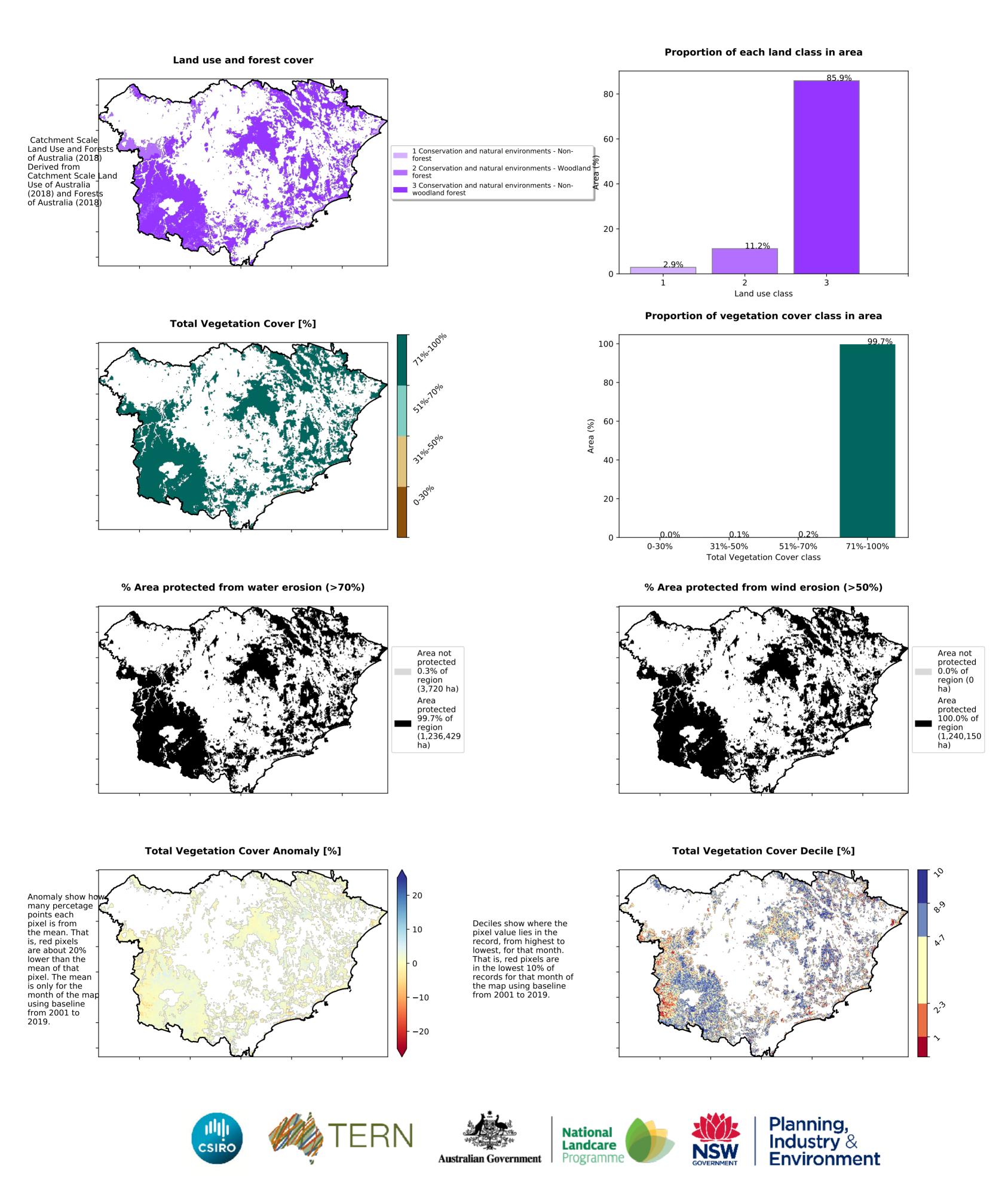




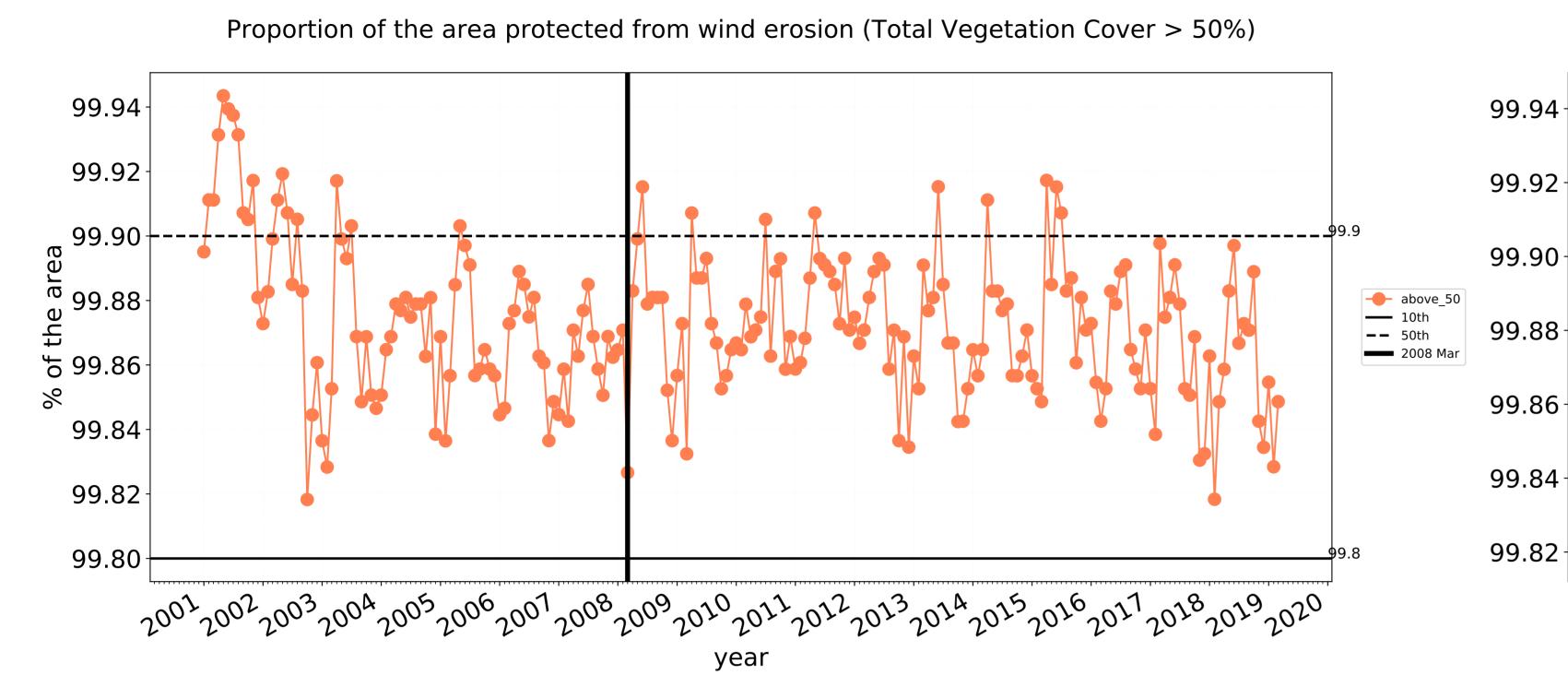


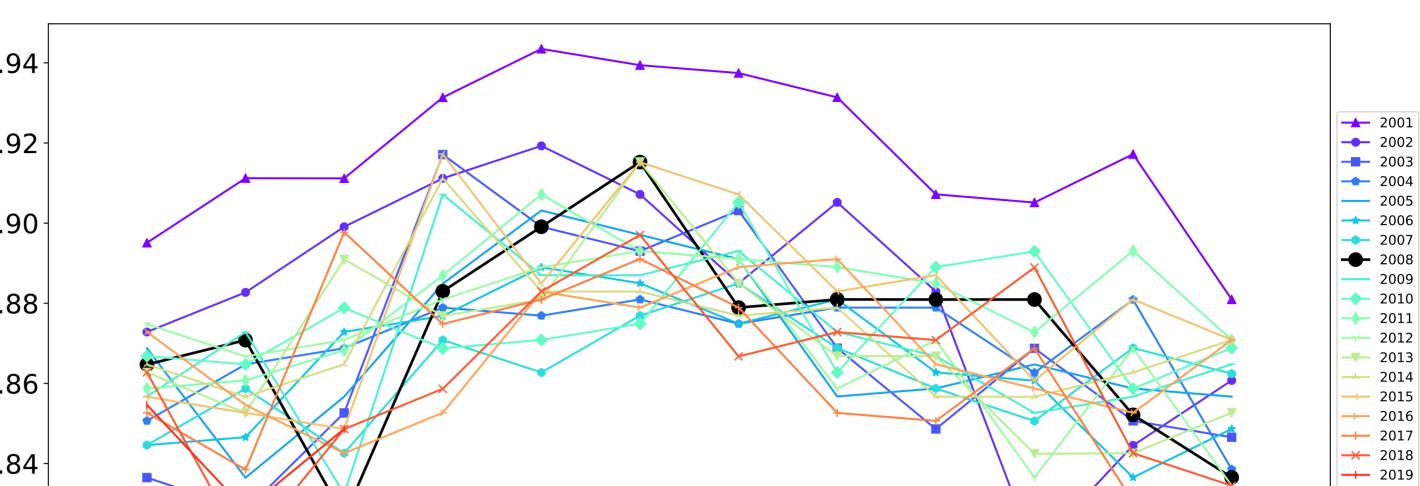


### **Conservation and natural environments**



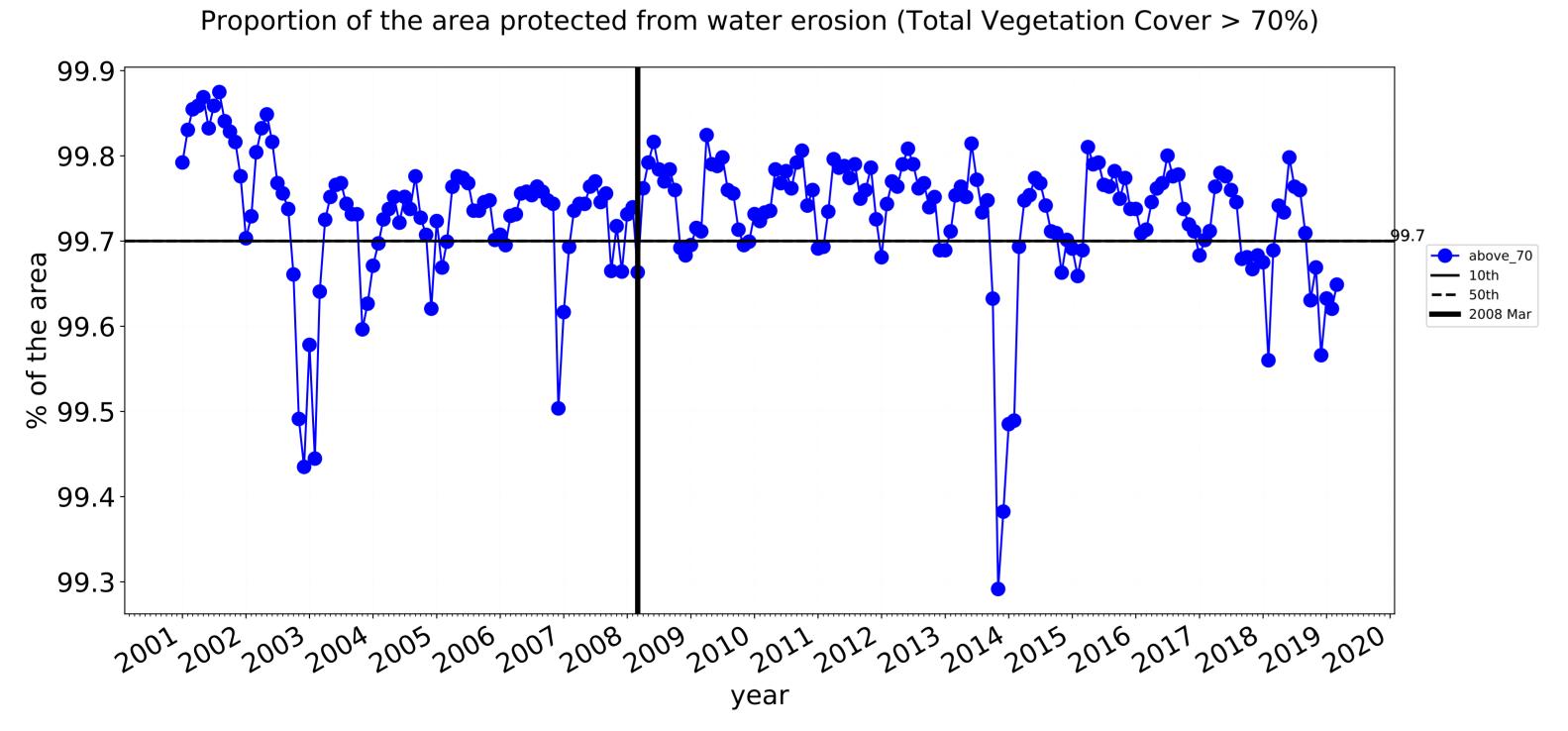
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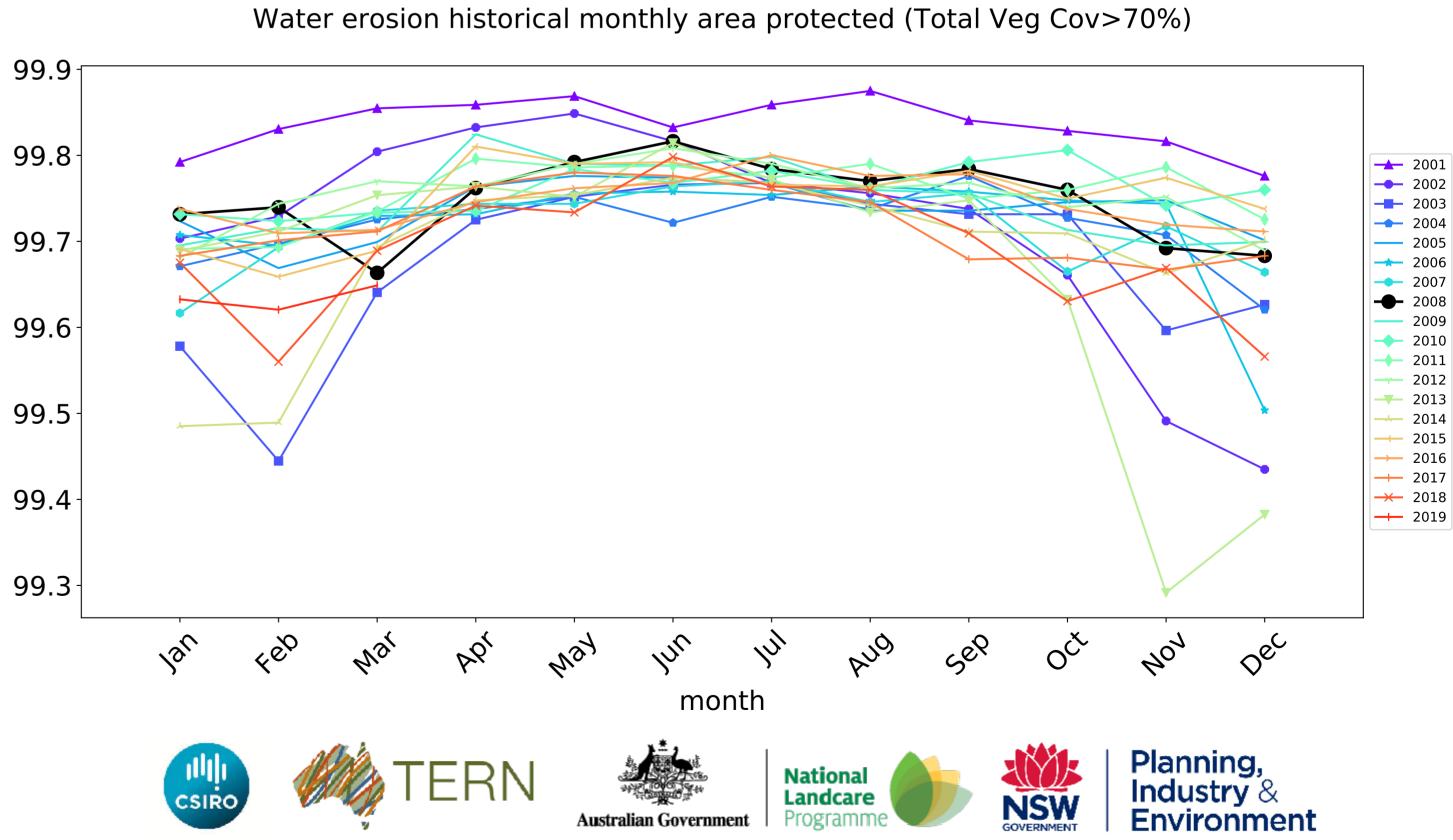


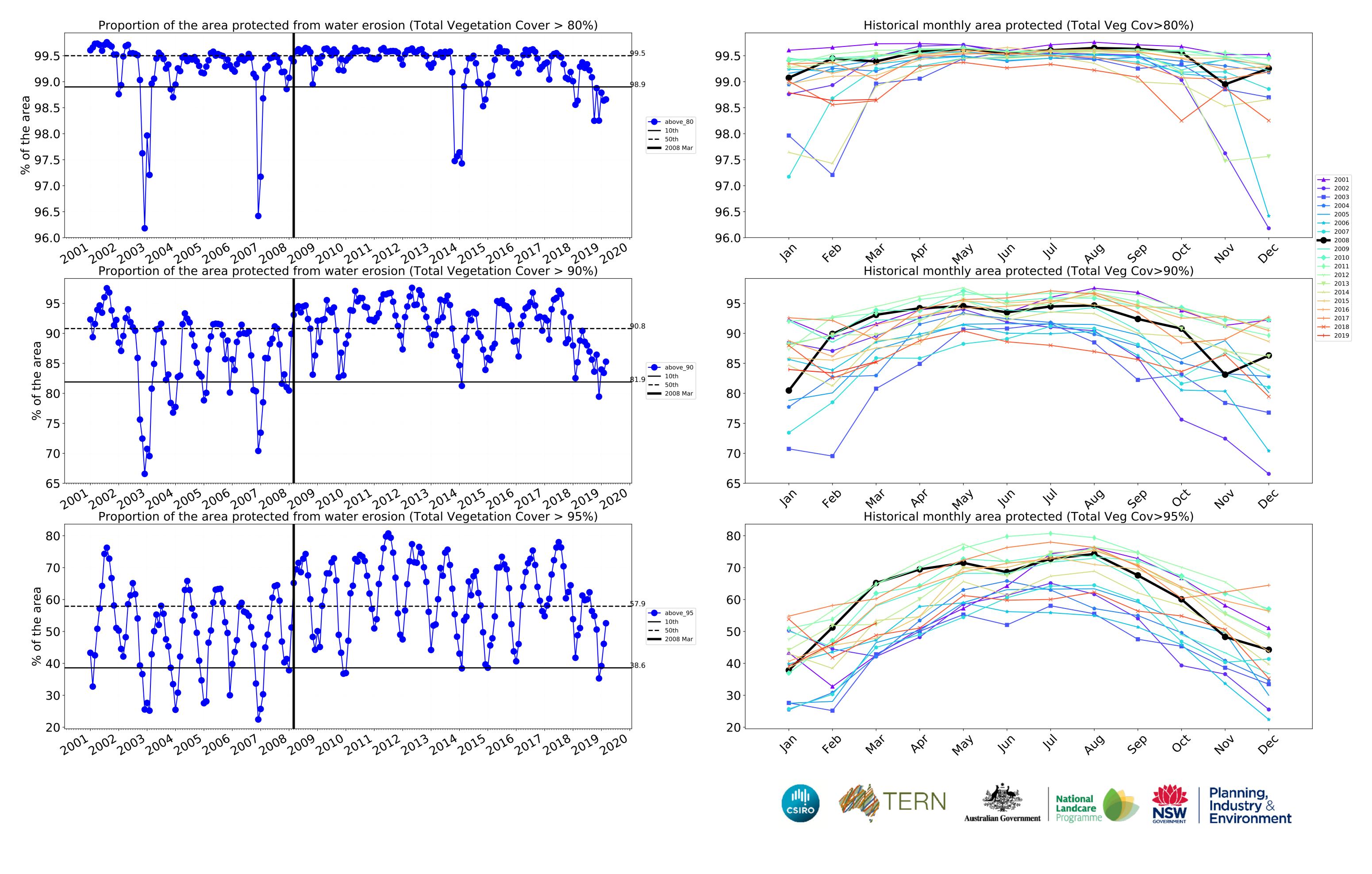


month

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



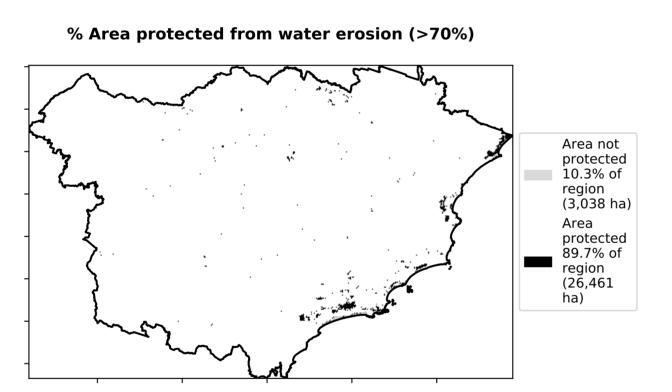


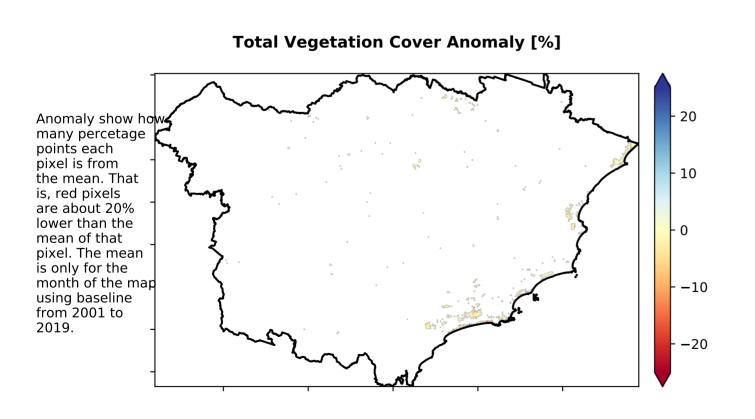


### **Conservation and natural environments non forest**

### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) 1 Conservation and natural environments - Nonforest 1 Conservation and natural environments - Nonforest

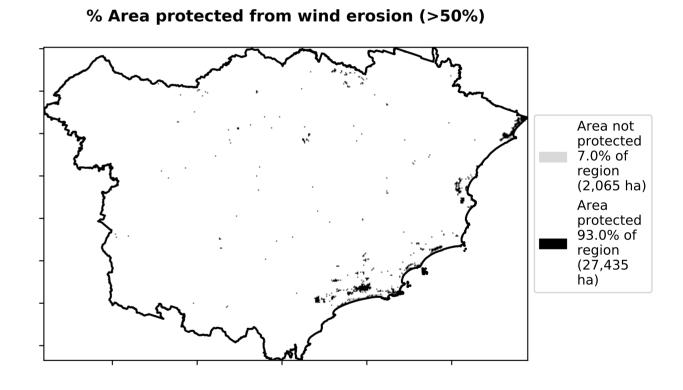
## Total Vegetation Cover [%]

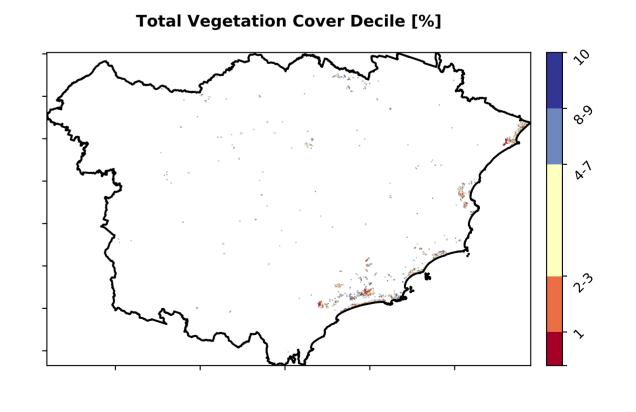




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# 80 - 89.7% 80 - 60 - 60 - 20 - 20 - 20 - 3.8% 2.8% 3.7% Total Vegetation Cover class in area











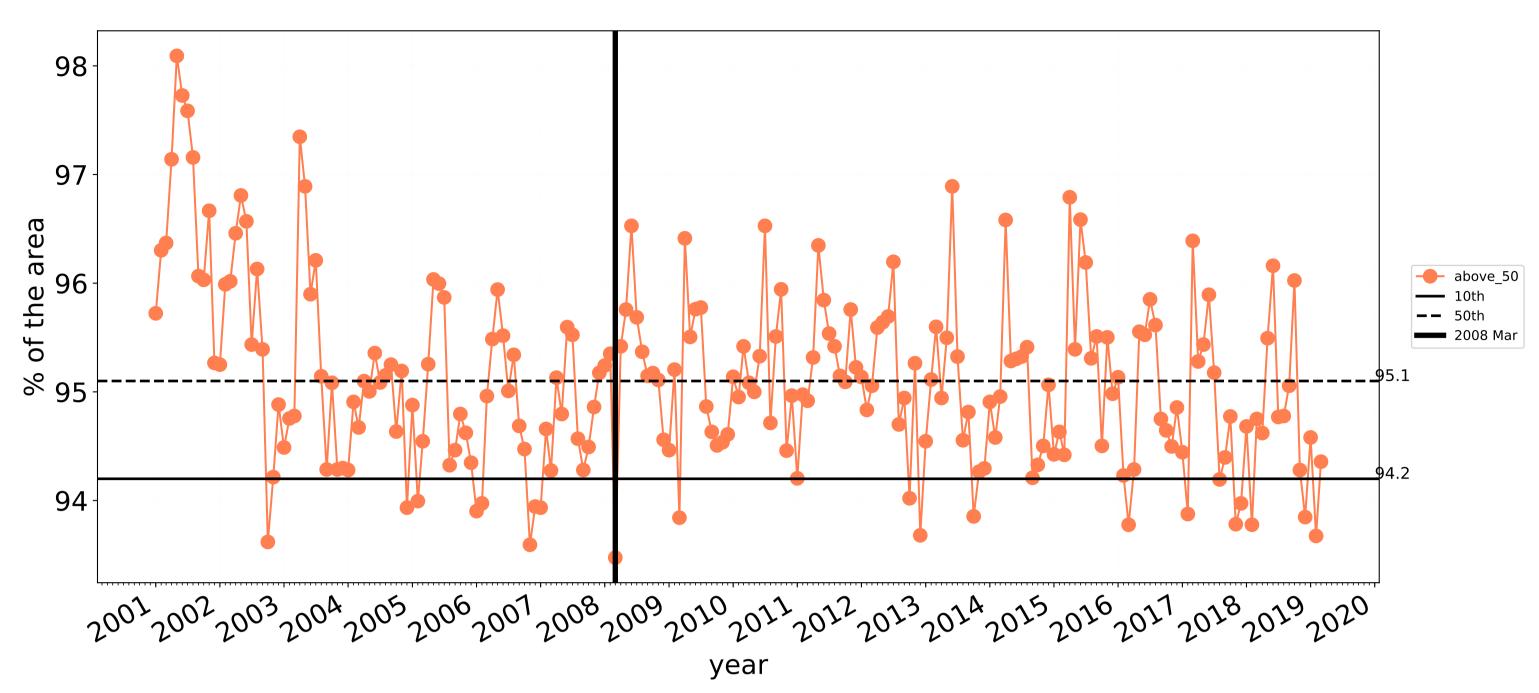




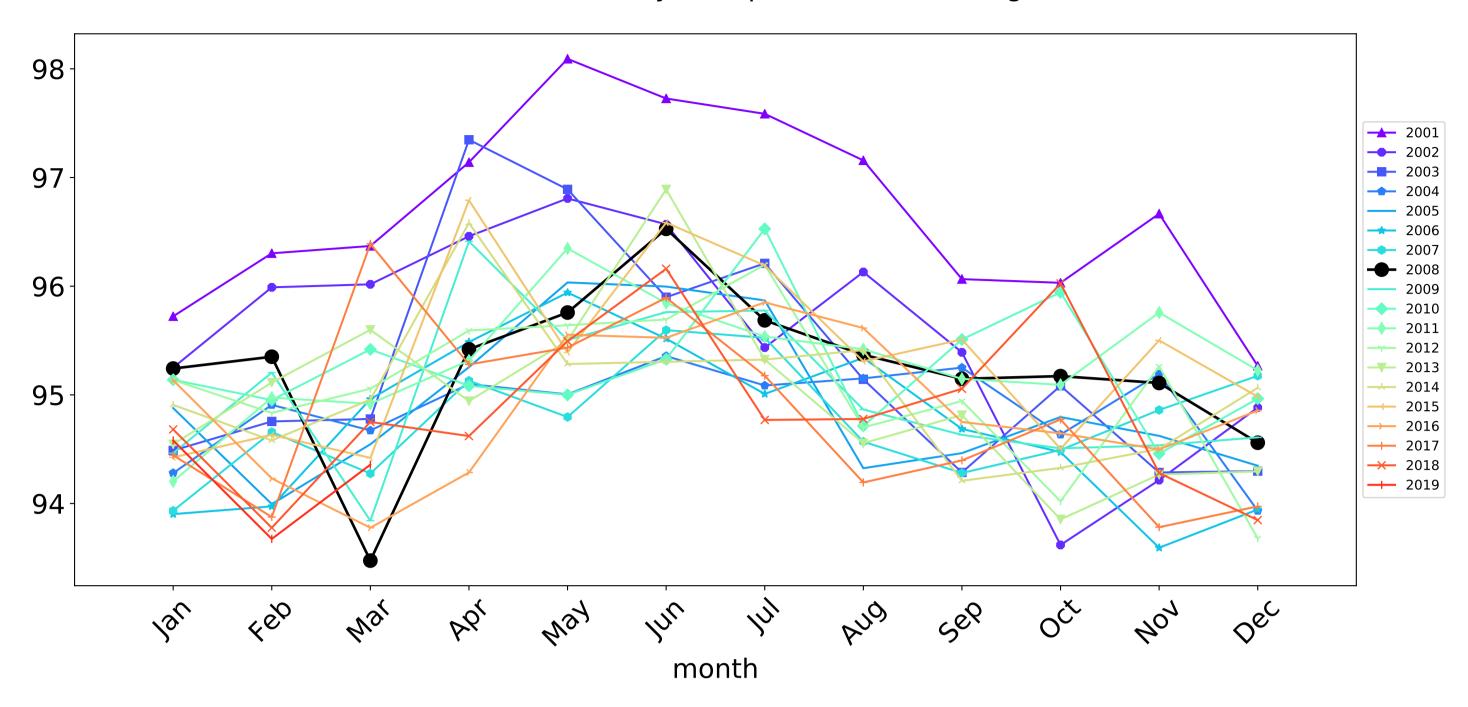


### **Conservation and natural environments non forest timeseries**

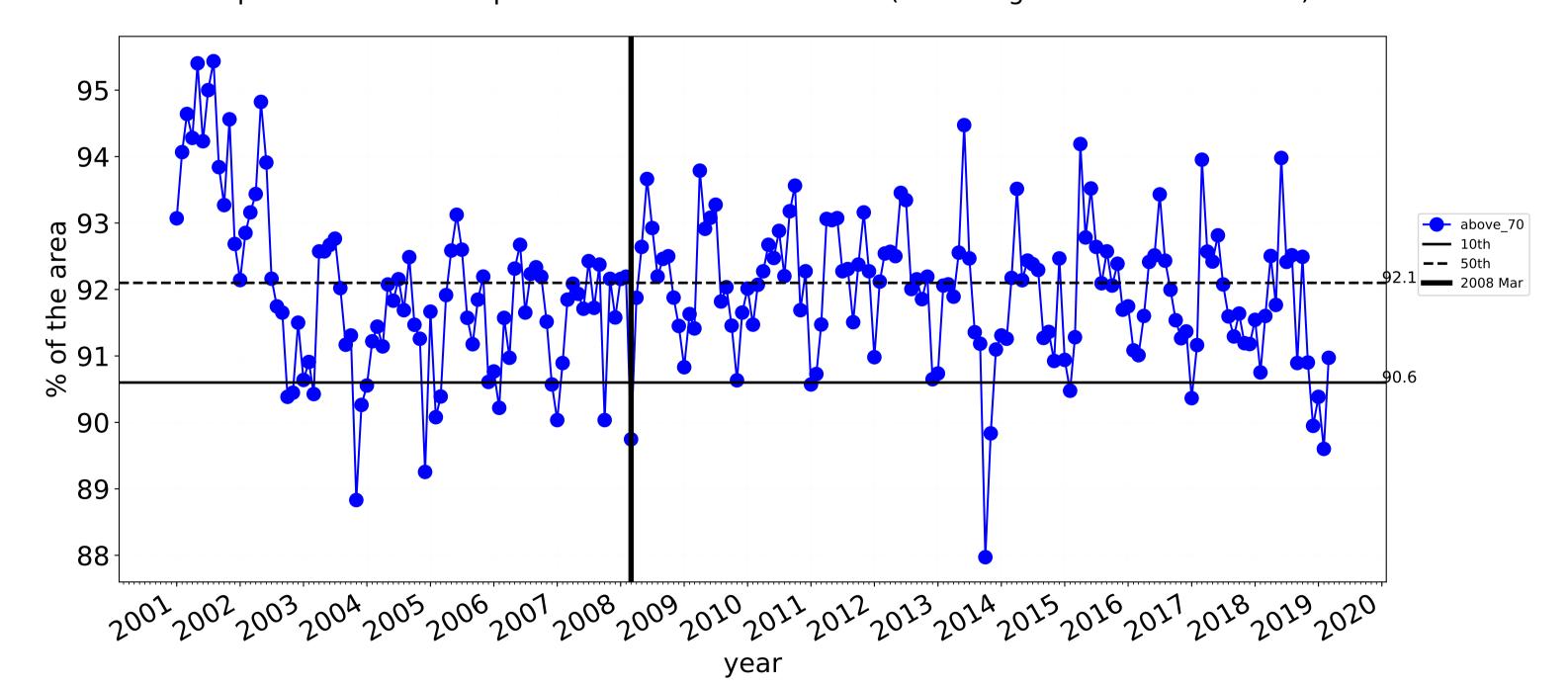




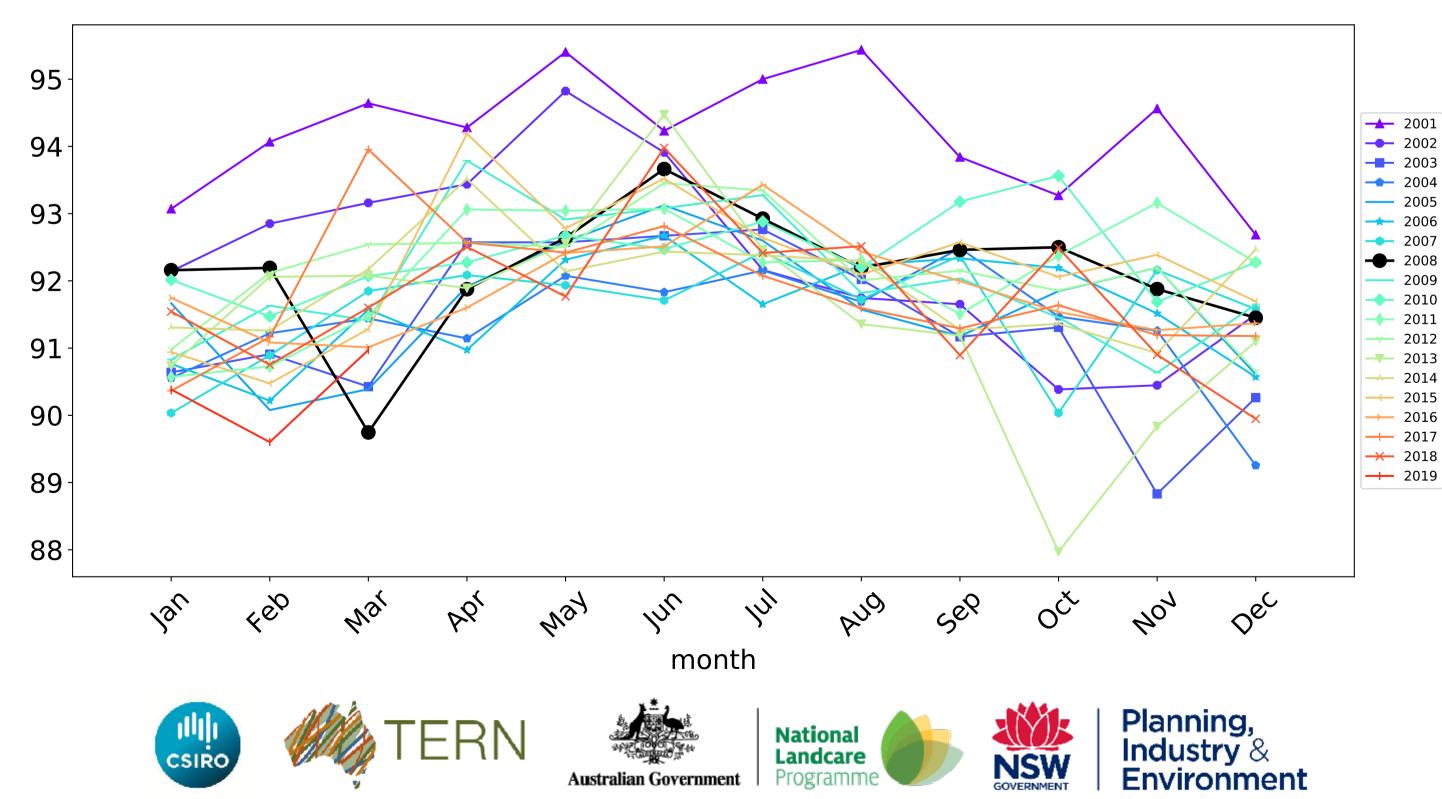
### Wind erosion historical monthly area protected (Total Veg Cov >50%)

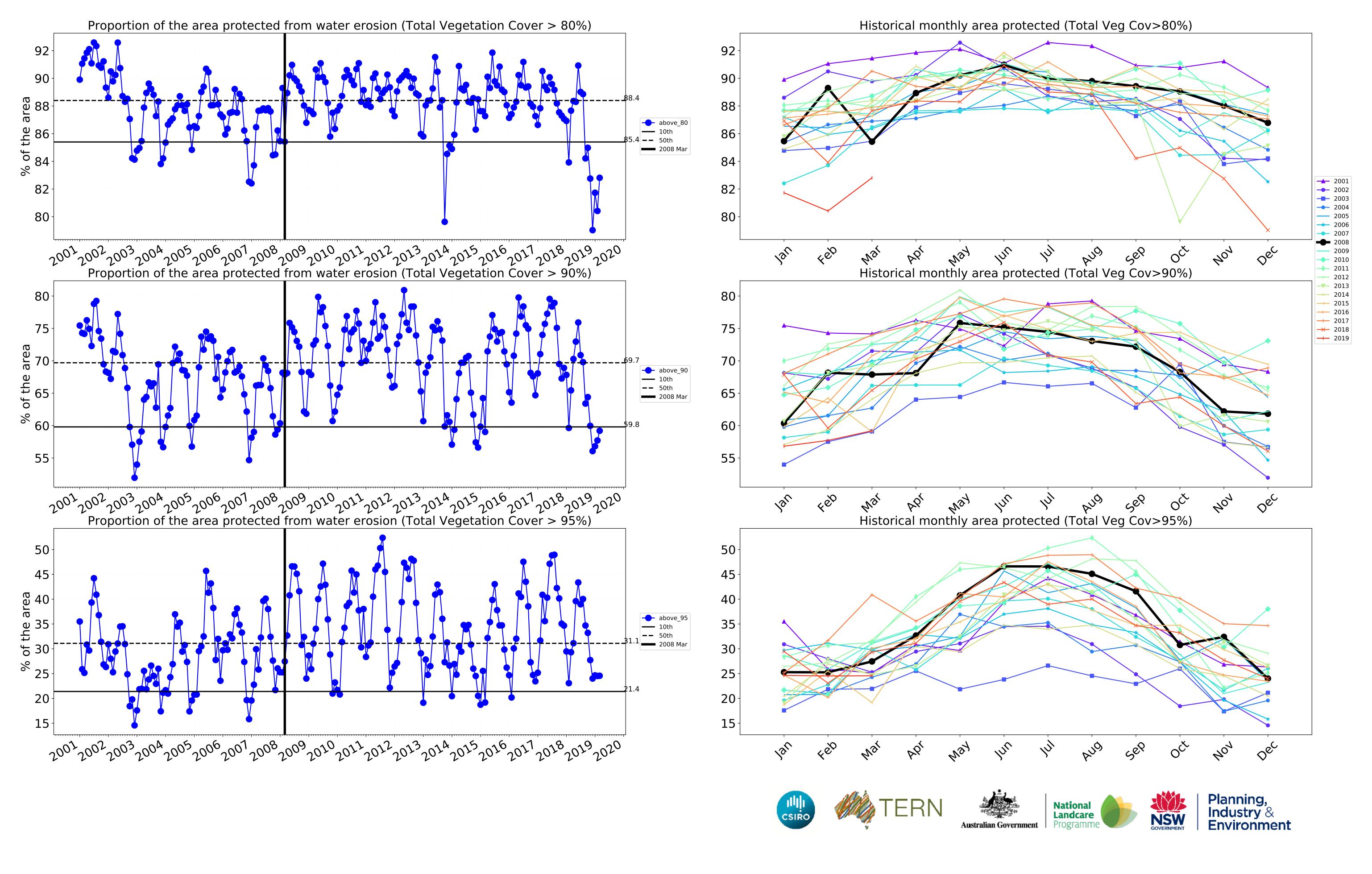


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

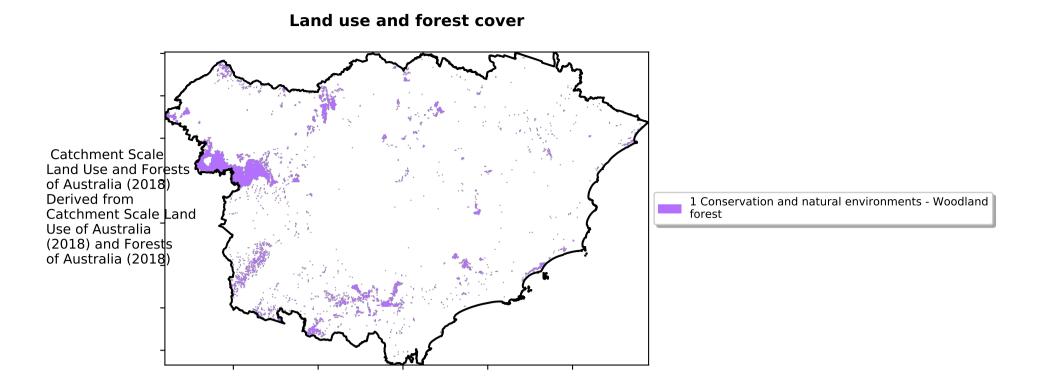


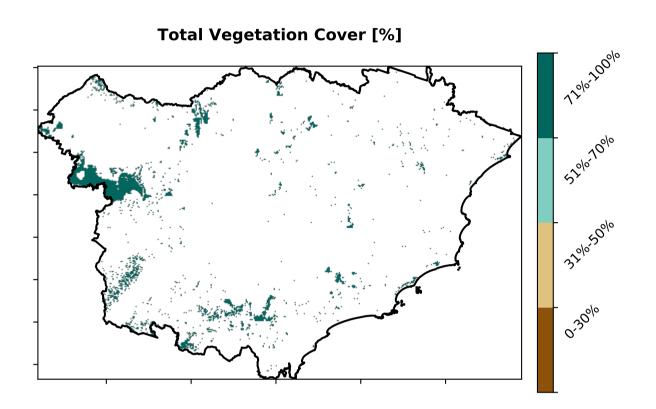
Water erosion historical monthly area protected (Total Veg Cov>70%)

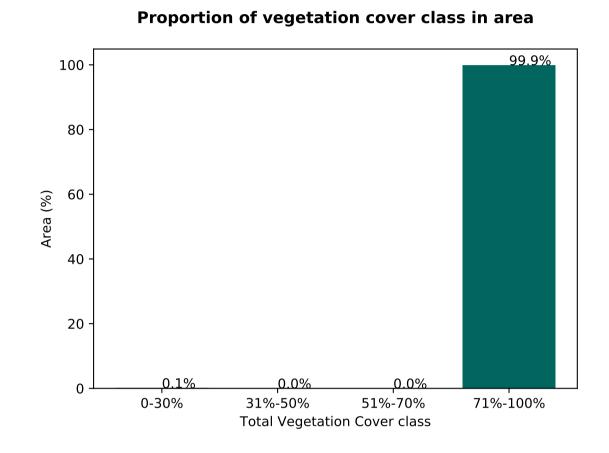


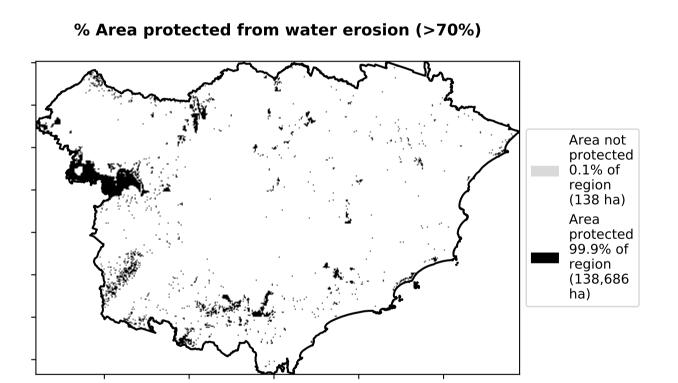


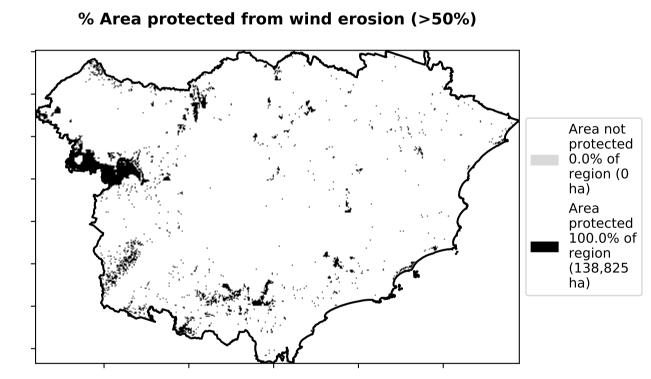
### **Conservation and natural environments Woodland forest**

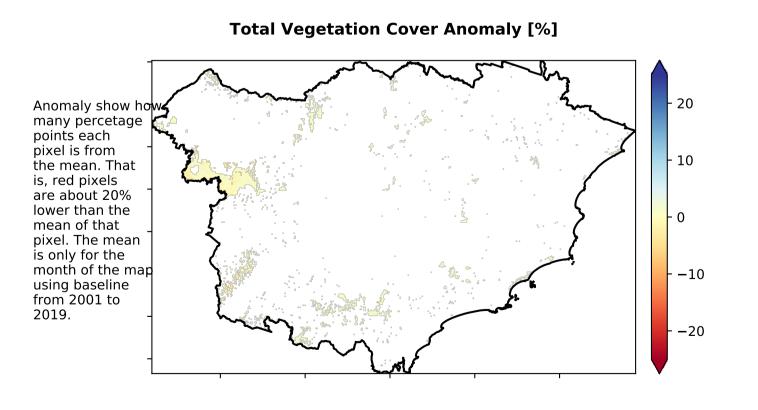




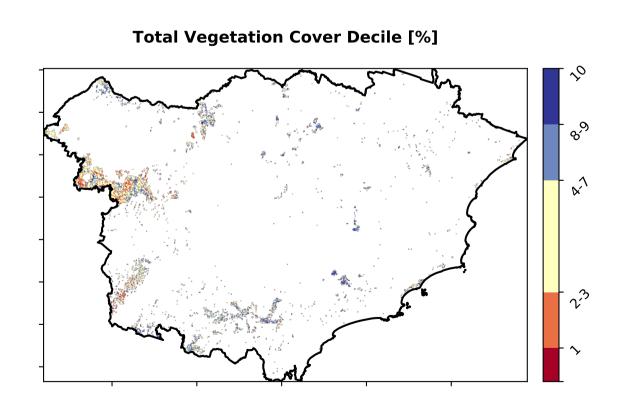








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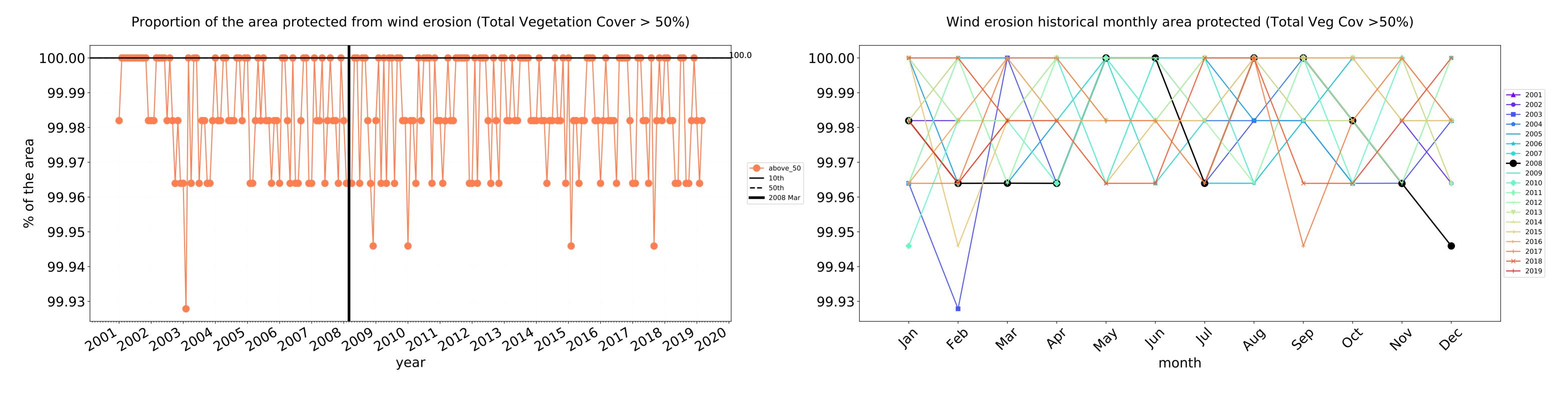


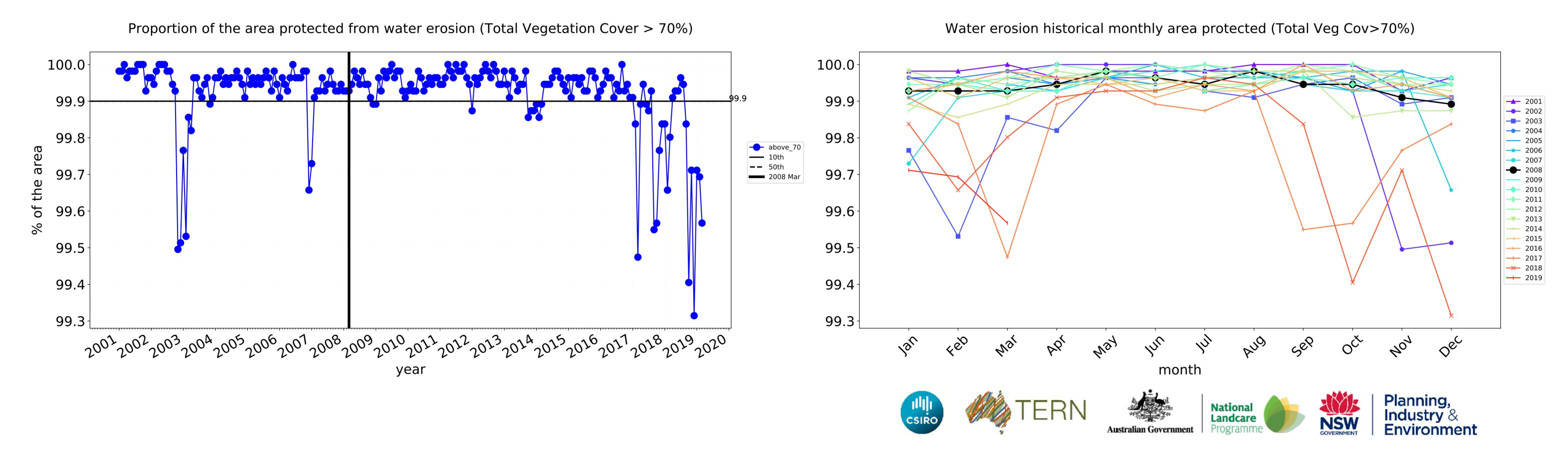


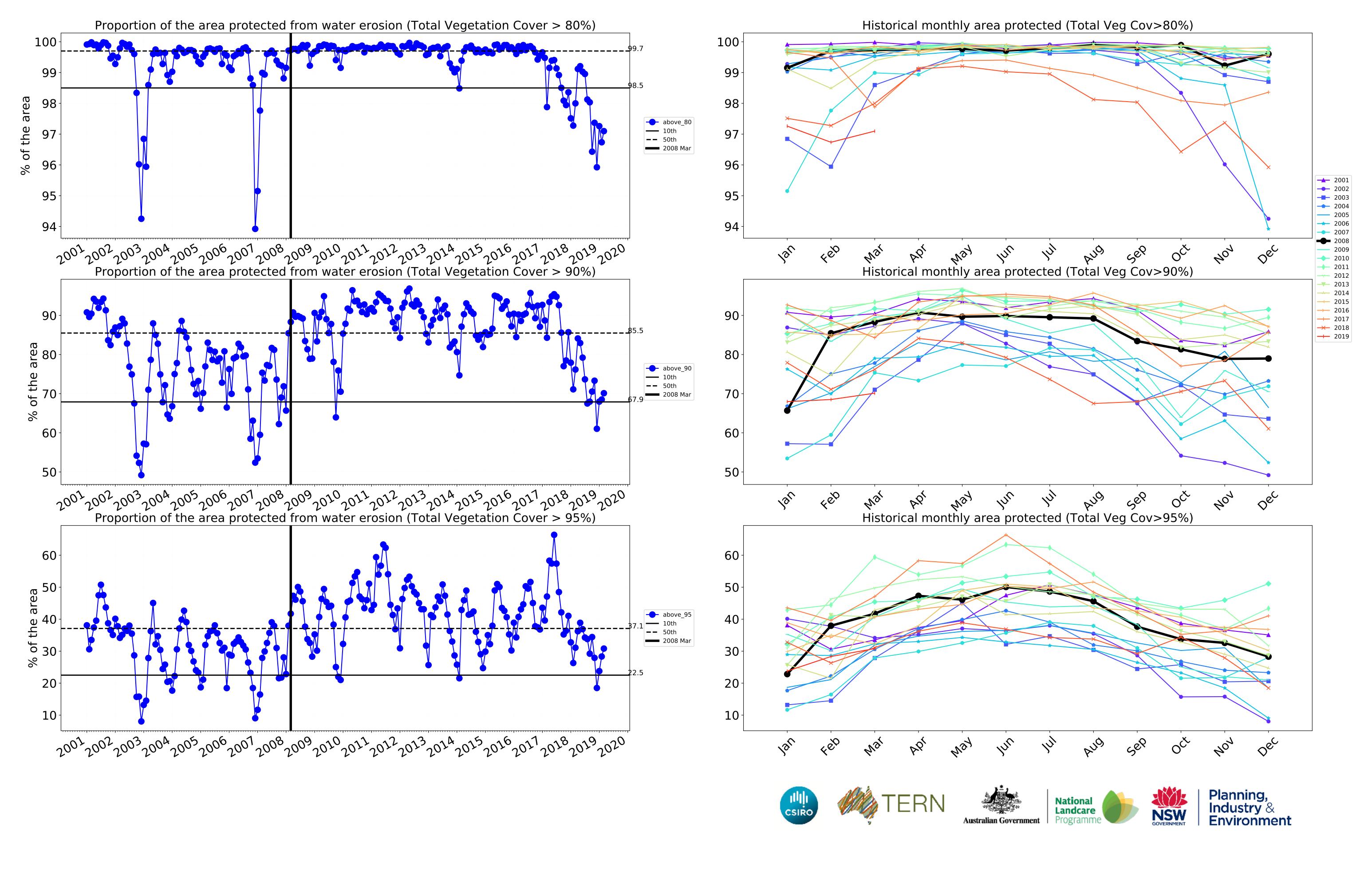




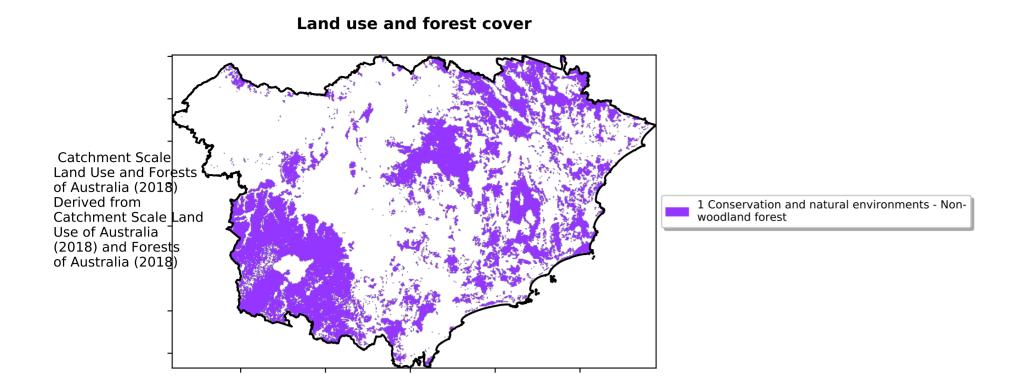
### Conservation and natural environments Woodland forest timeseries



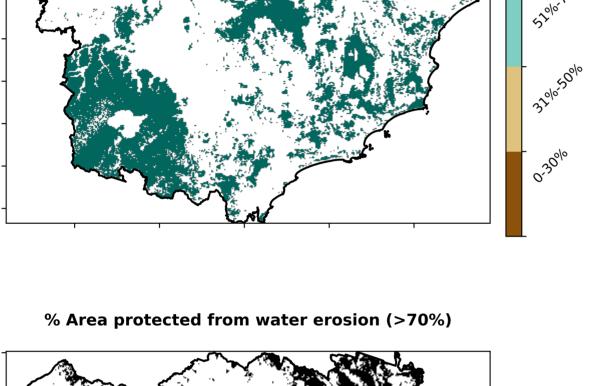


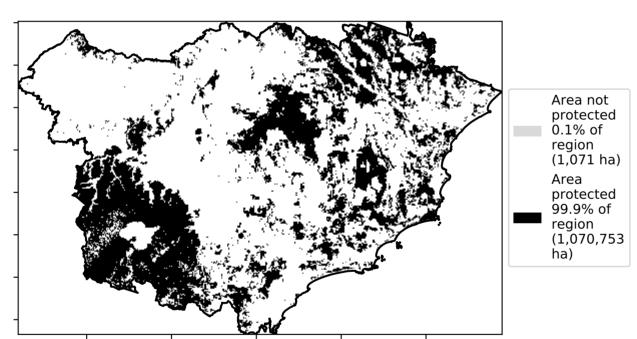


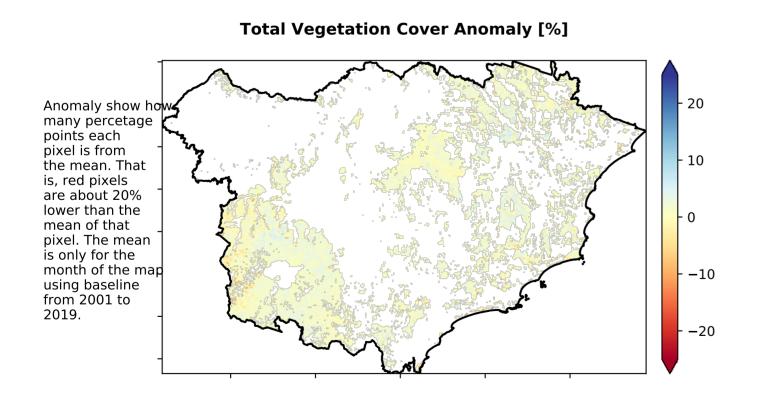
### **Conservation and natural environments Forest (non woodland)**



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

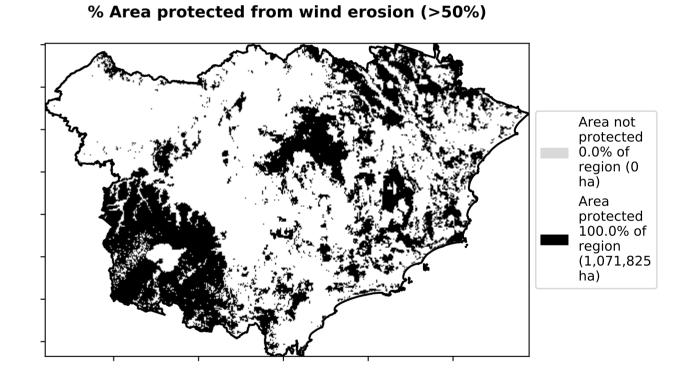


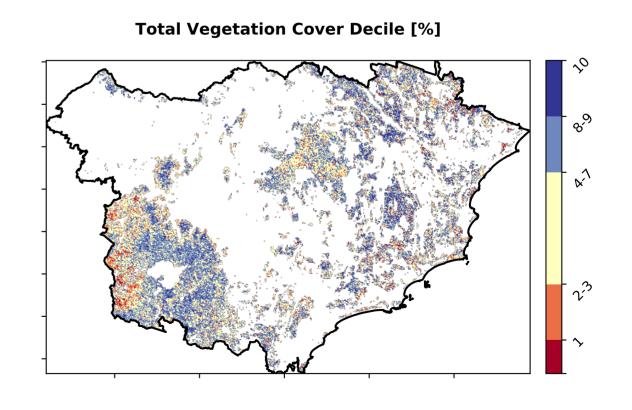




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### Proportion of vegetation cover class in area 99.9% 100 80 60 40 20 0.1% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**







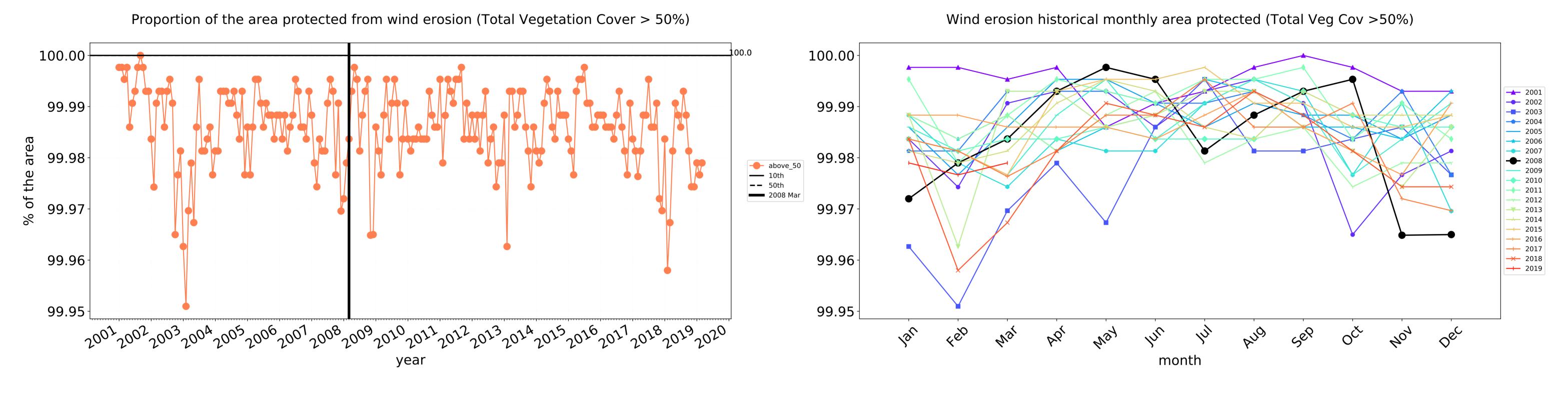


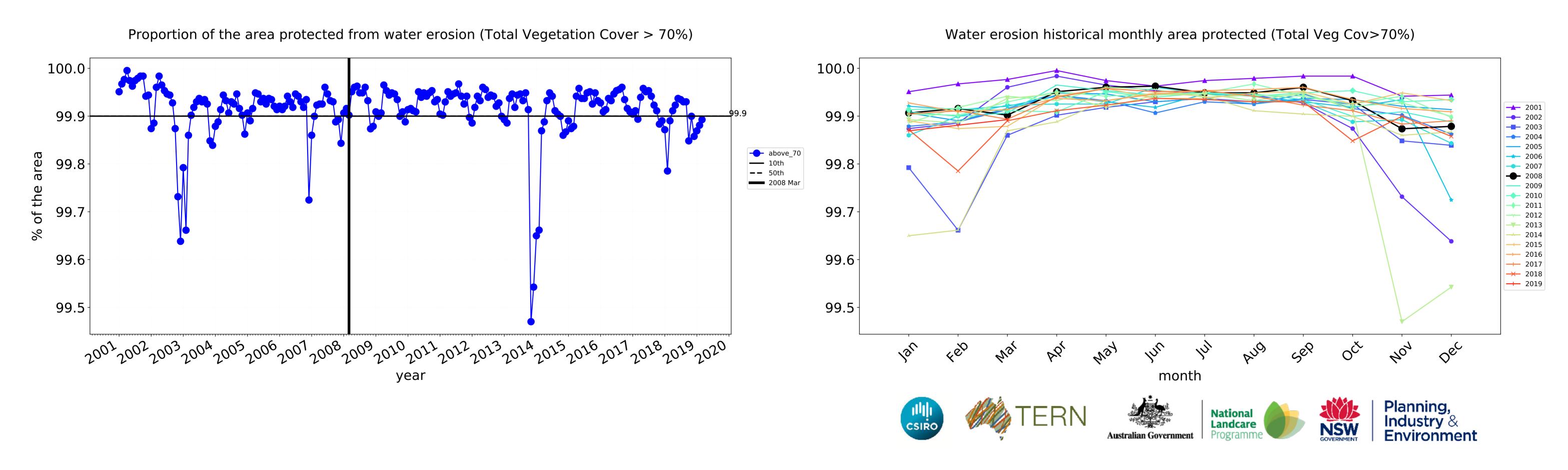


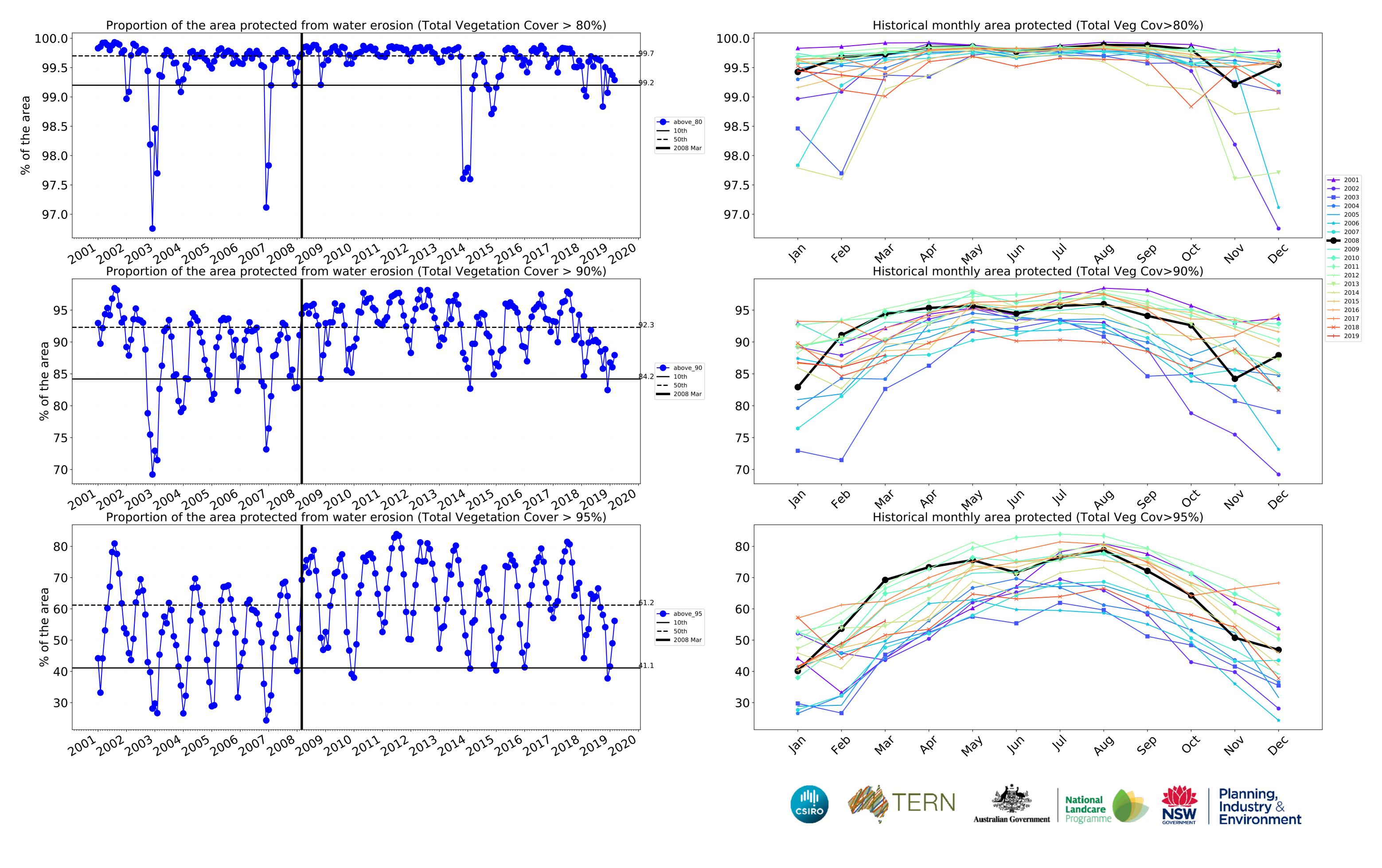




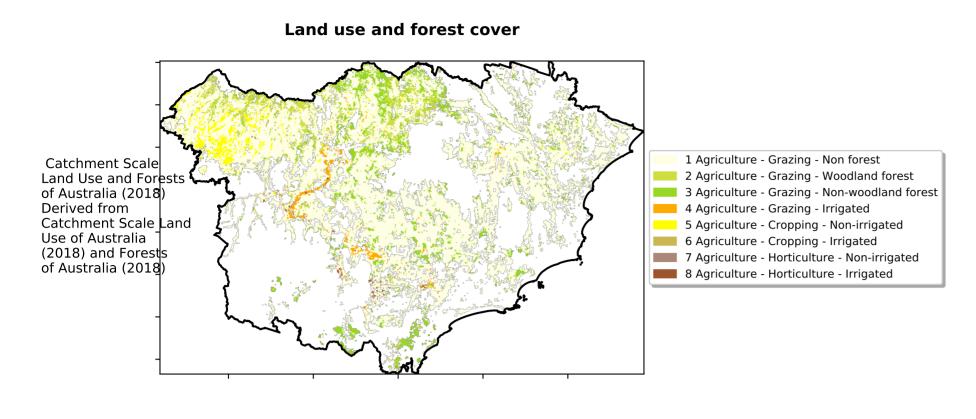


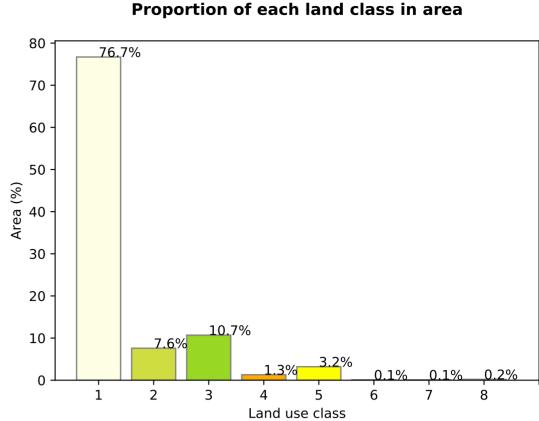




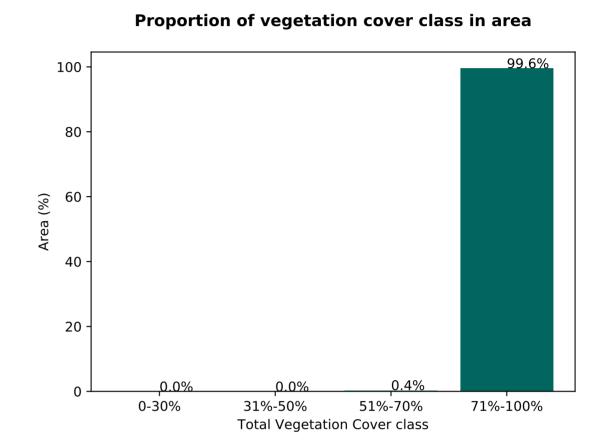


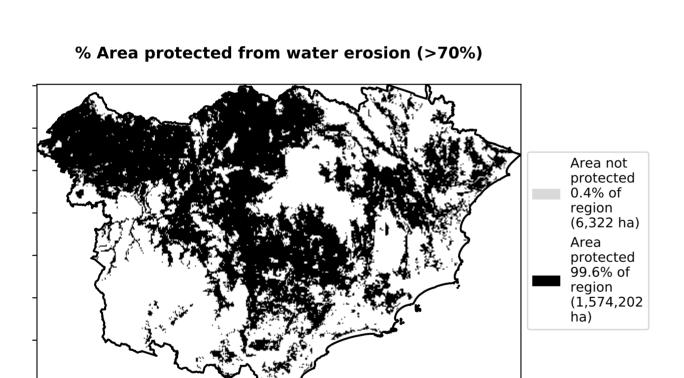
### **Agriculture**

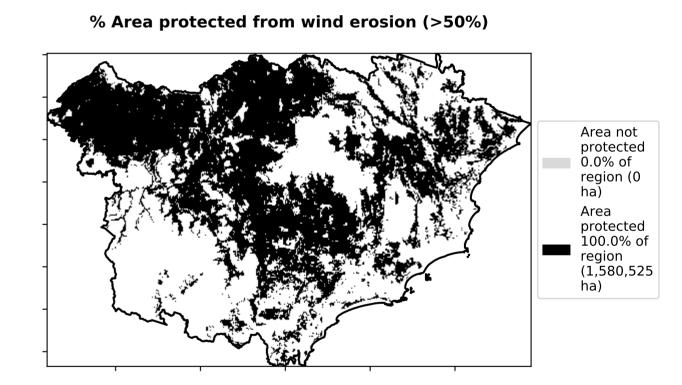


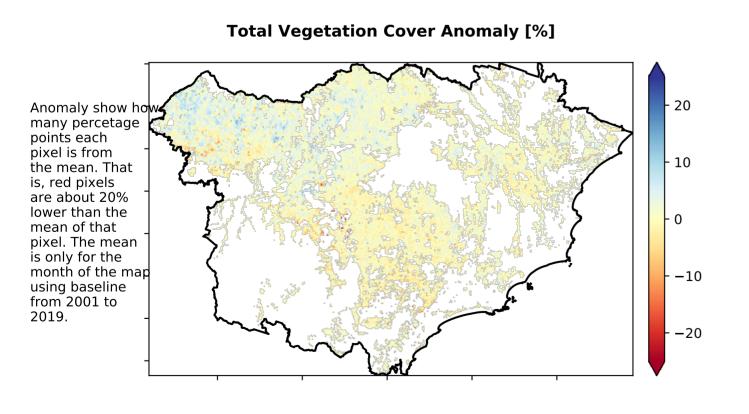


## Total Vegetation Cover [%] Total Vegetation Cover [%] Tuberdolo Stolerolo Stolerolo

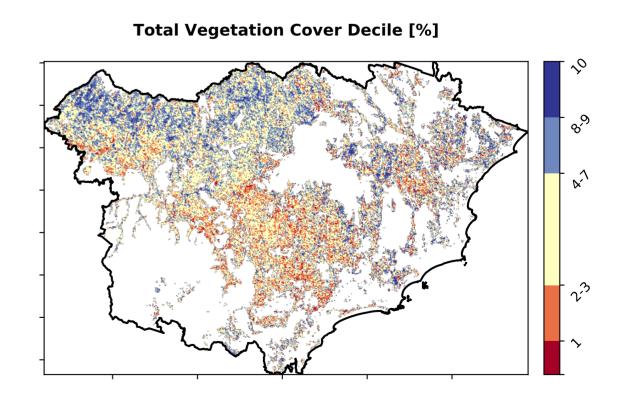








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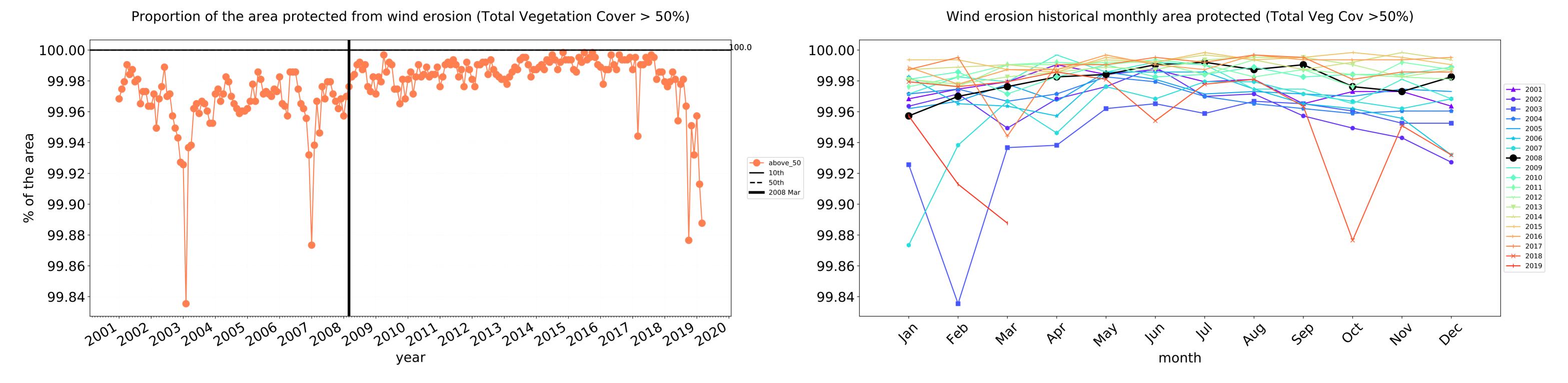


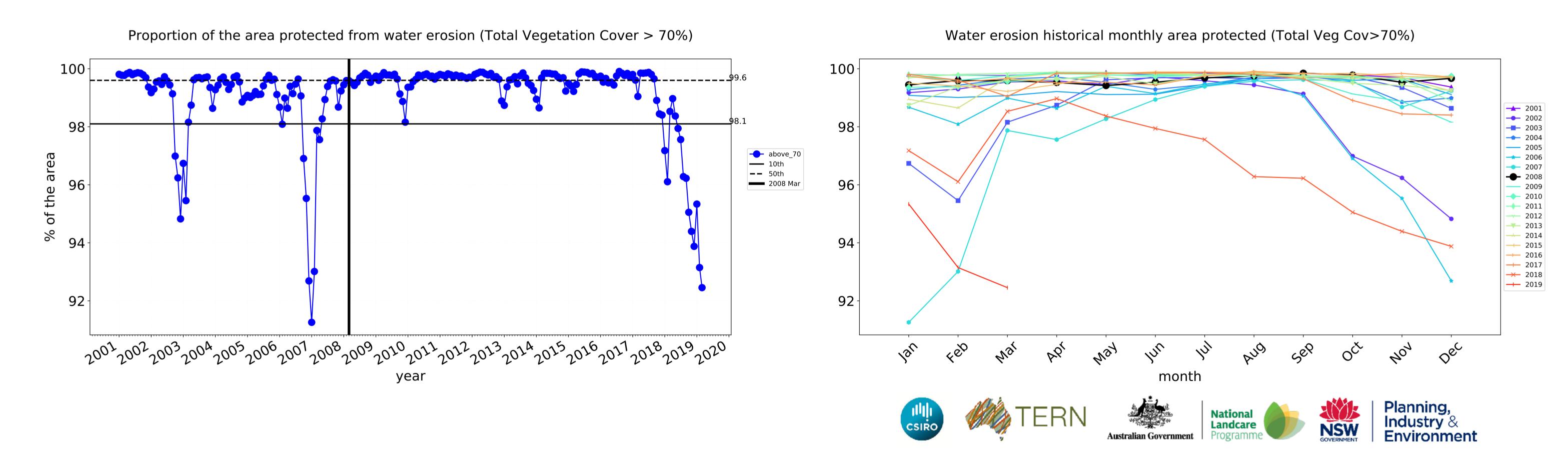


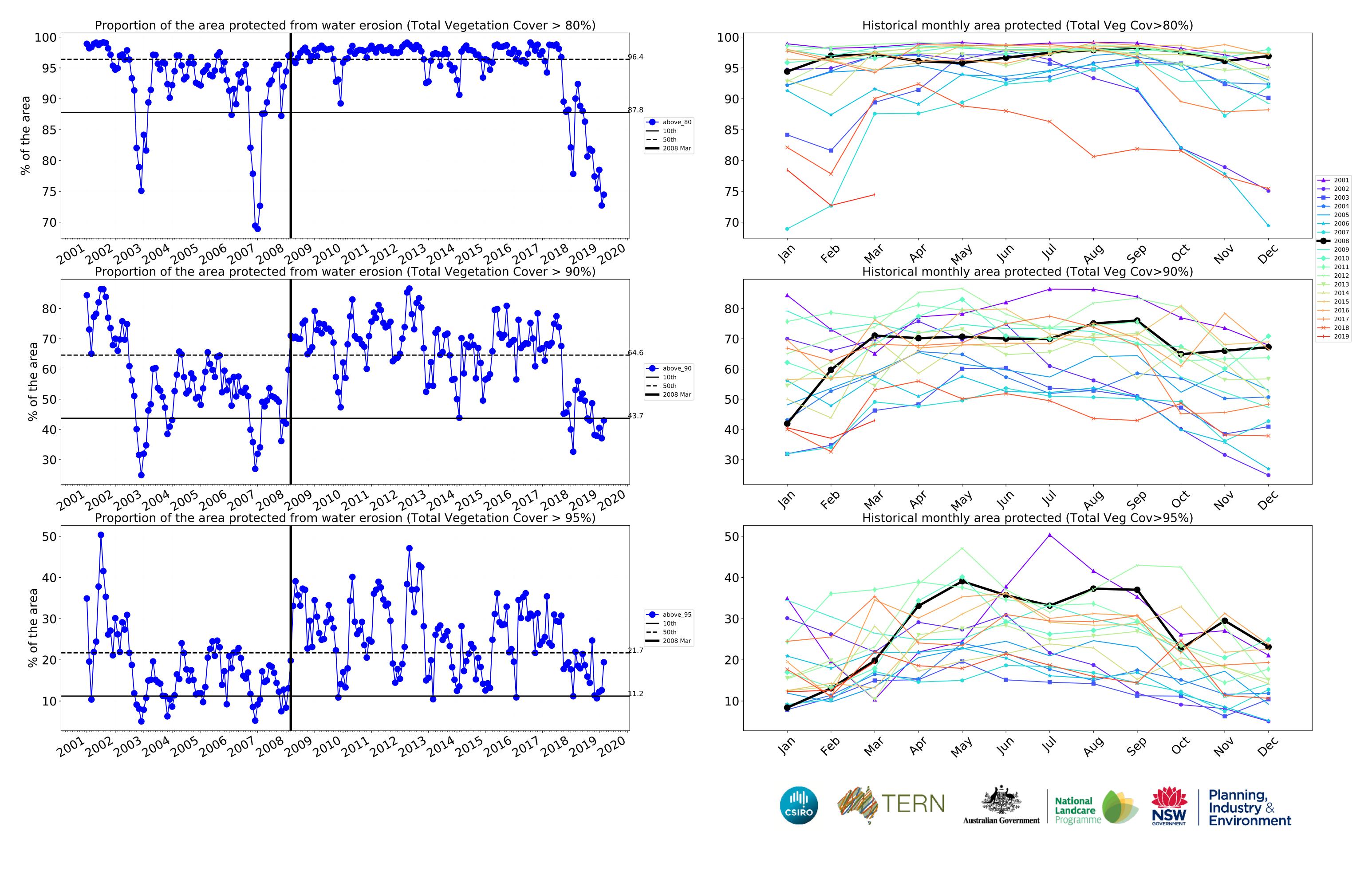




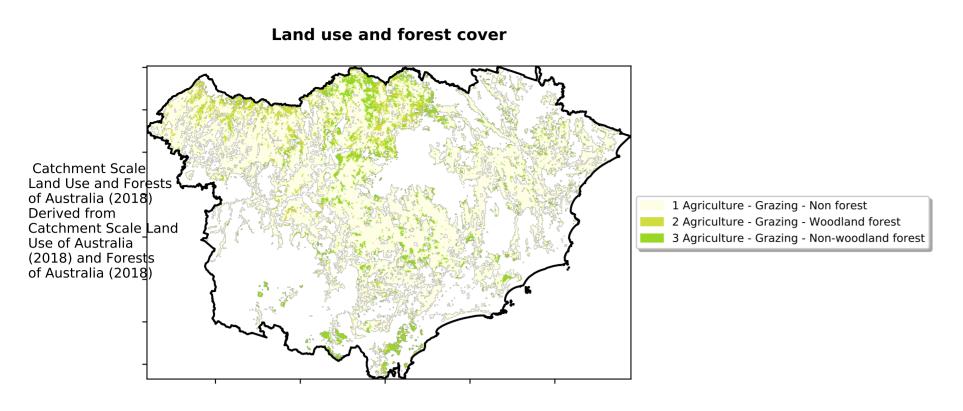
### **Agriculture timeseries**



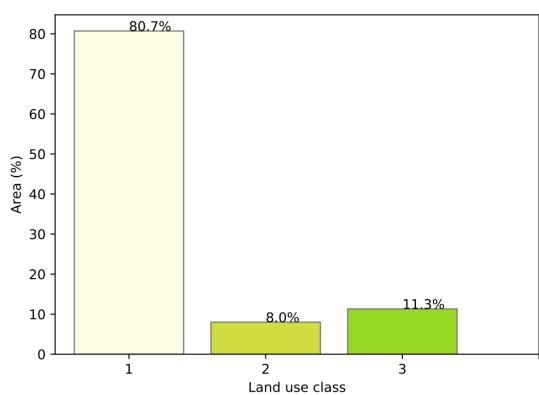




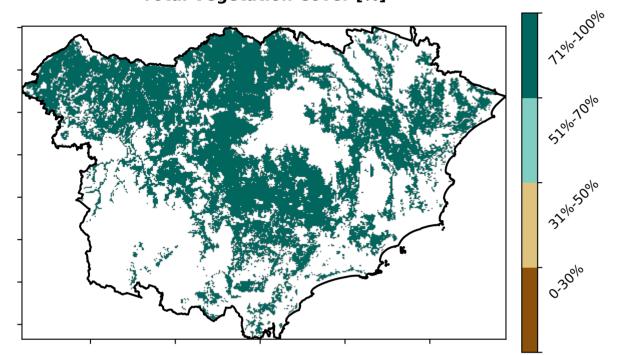
### **Grazing**



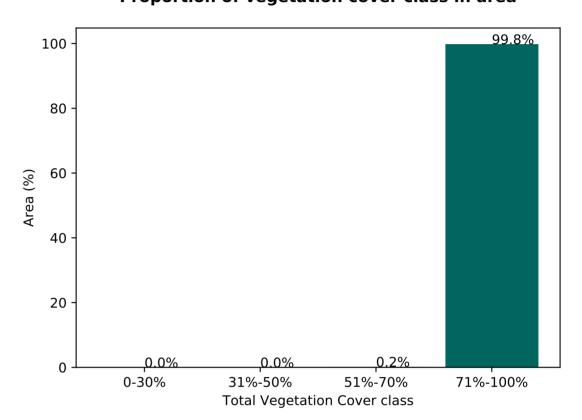
### Proportion of each land class in area



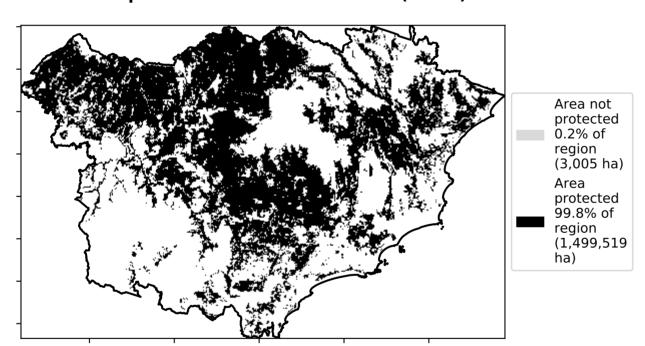




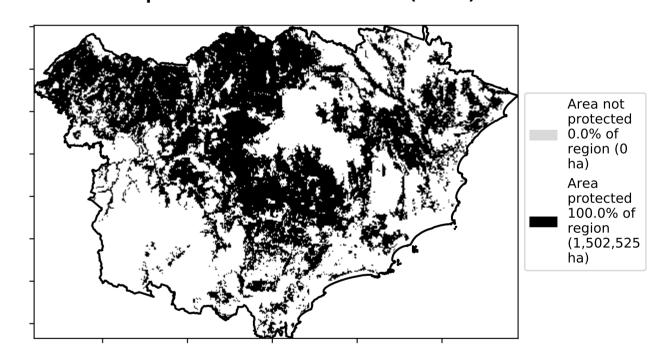
Proportion of vegetation cover class in area



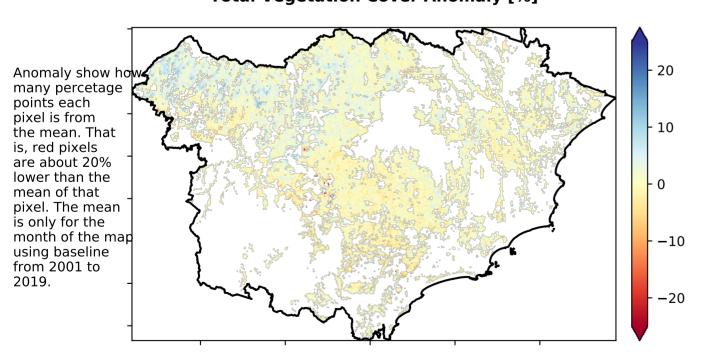
### % Area protected from water erosion (>70%)



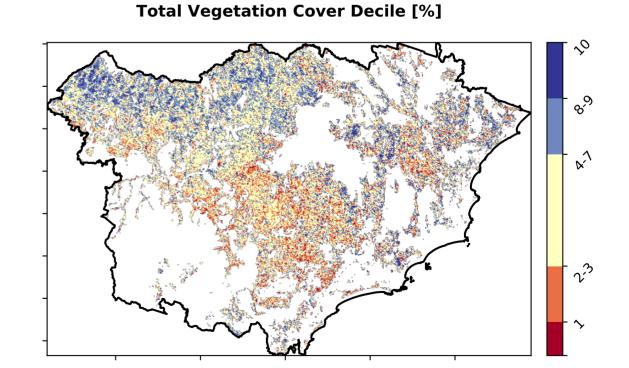
% Area protected from wind erosion (>50%)



### Total Vegetation Cover Anomaly [%]



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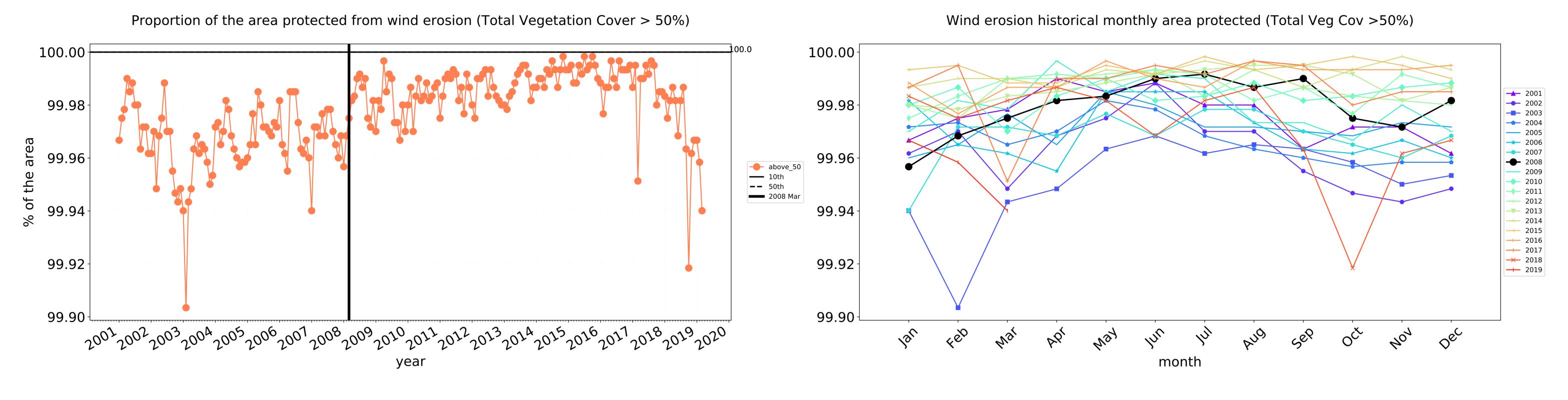


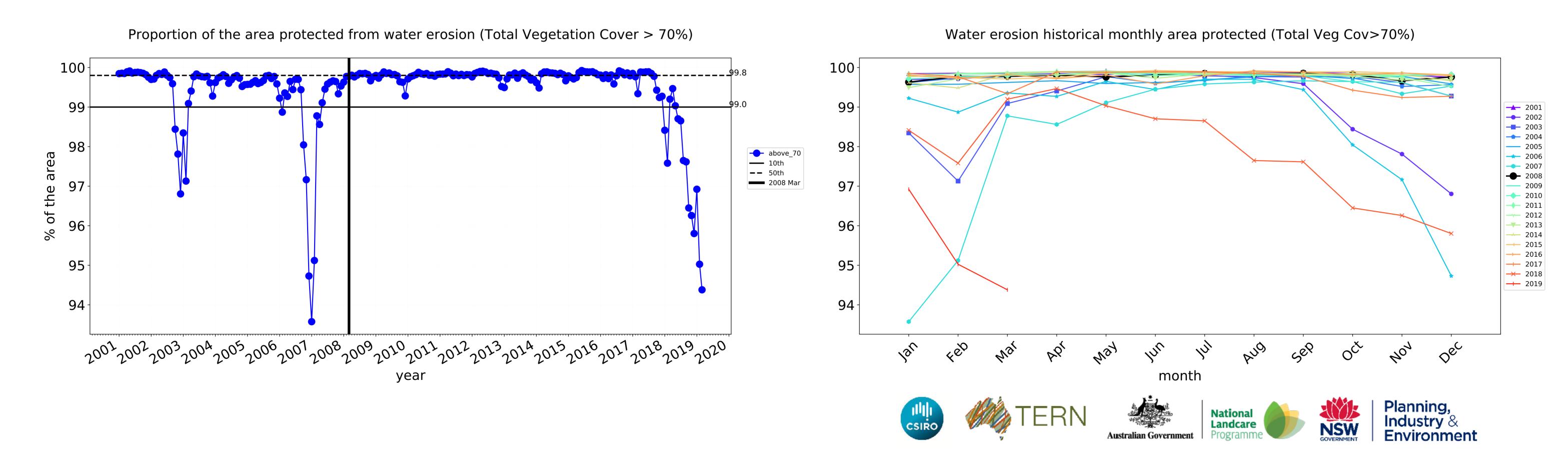


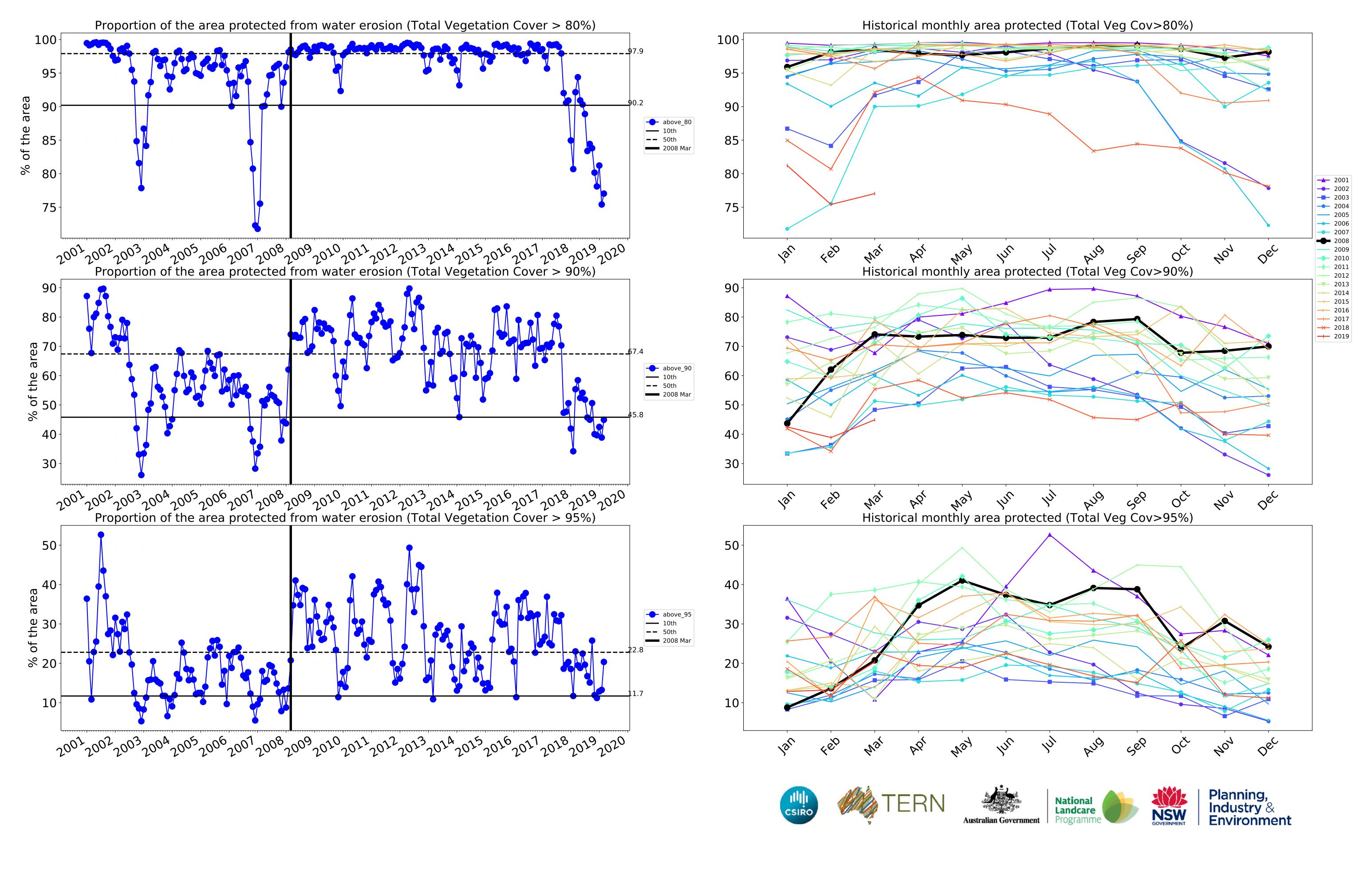




### **Grazing timeseries**

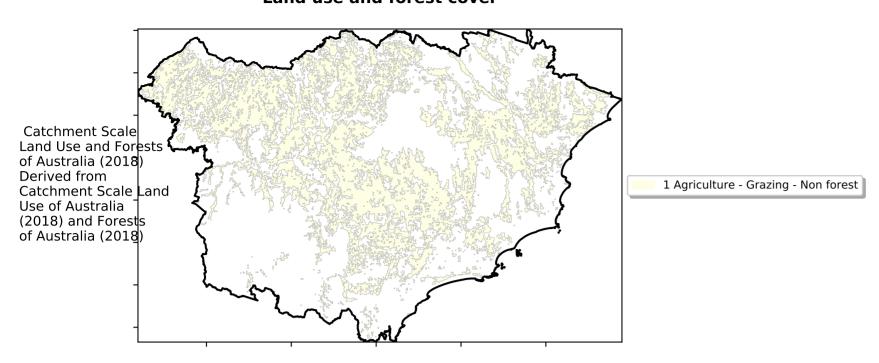




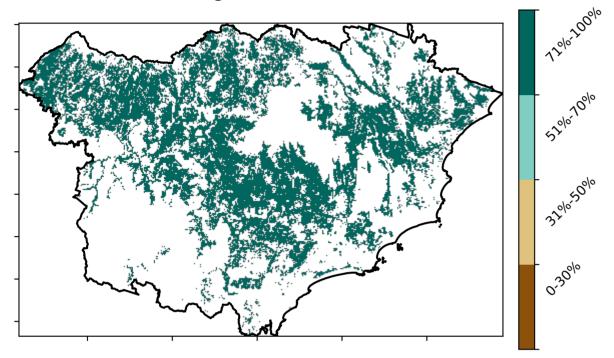


### **Grazing non forest**

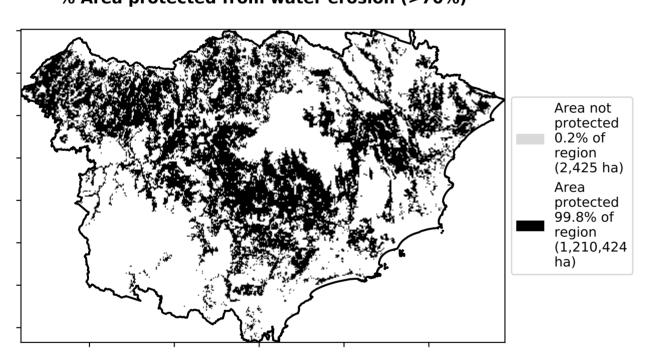
### Land use and forest cover



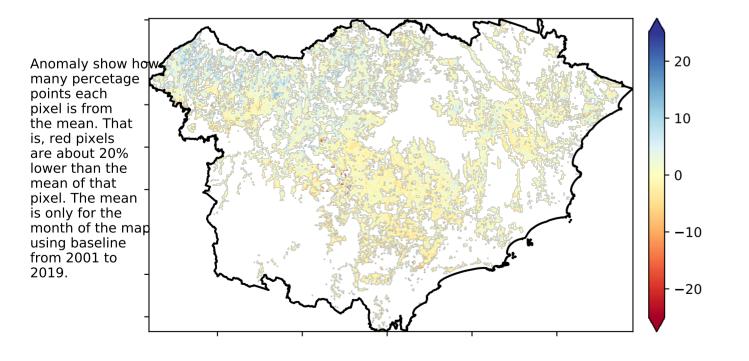
### Total Vegetation Cover [%]



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

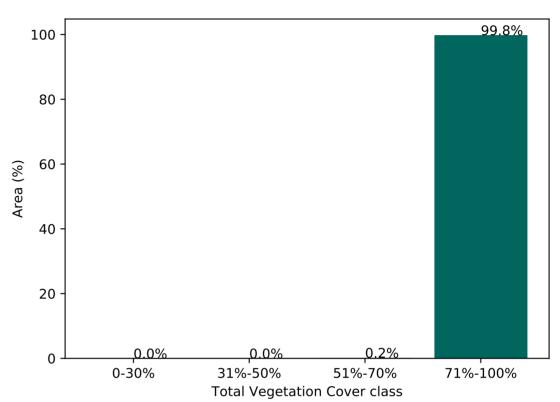


### Total Vegetation Cover Anomaly [%]

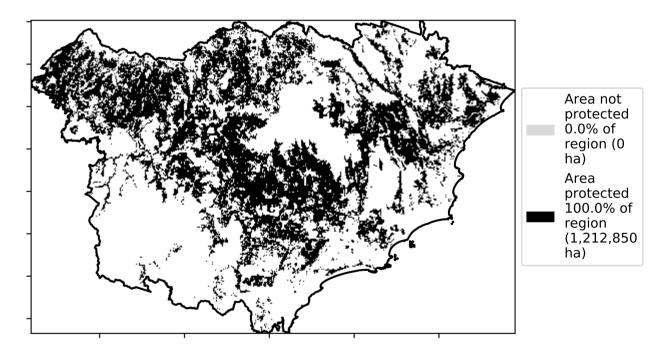


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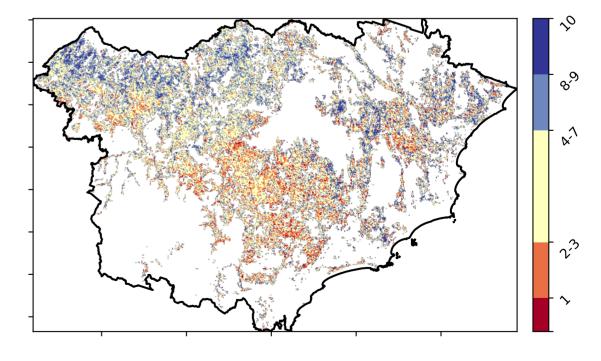
### **Proportion of vegetation cover class in area**



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



### Total Vegetation Cover Decile [%]







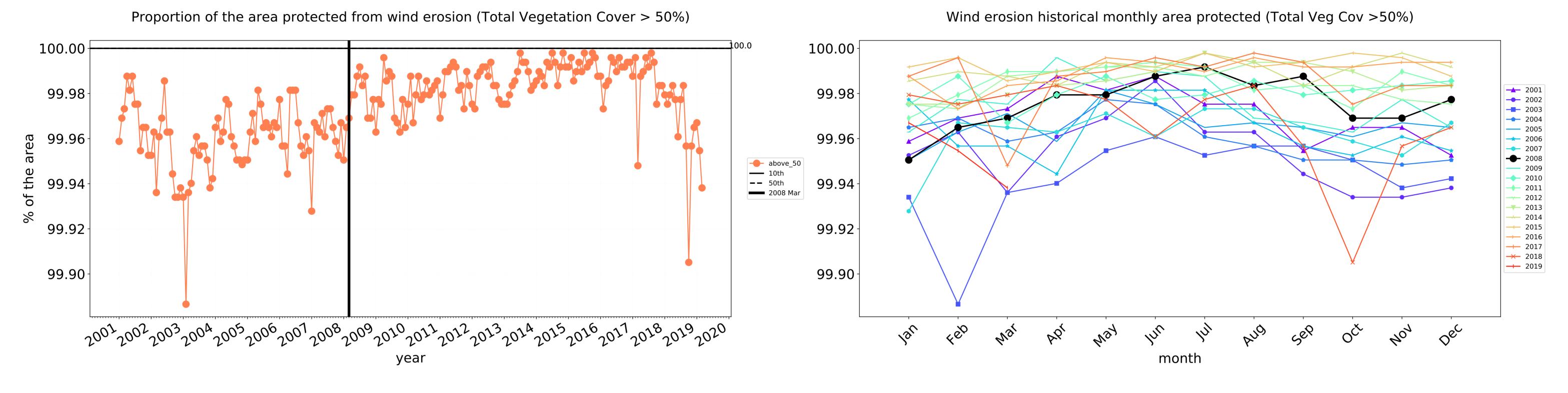


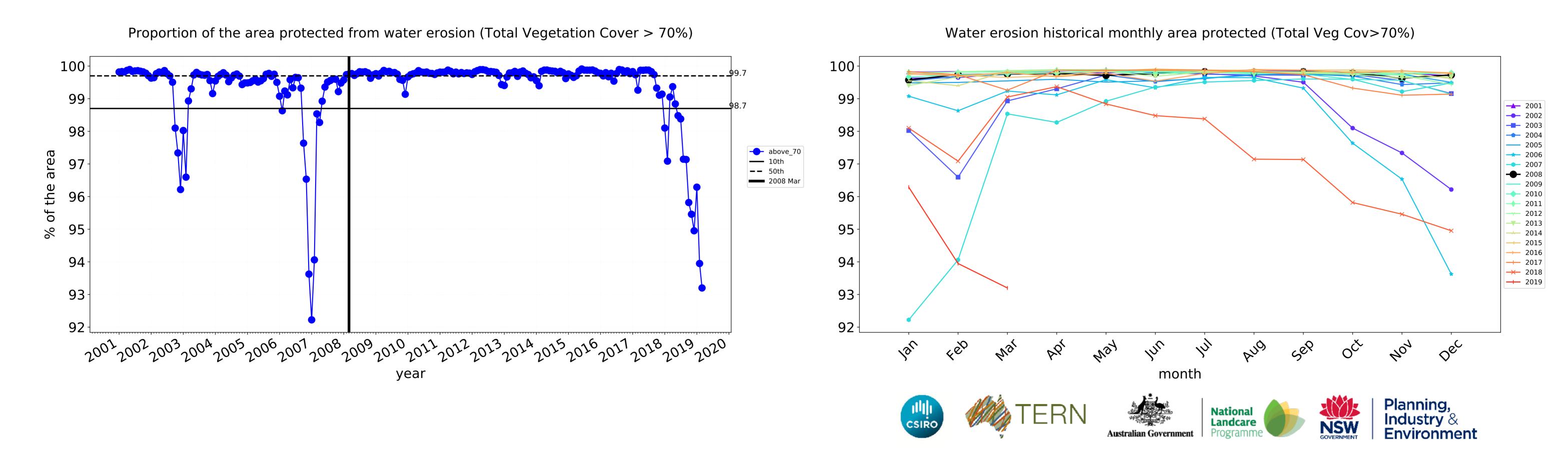


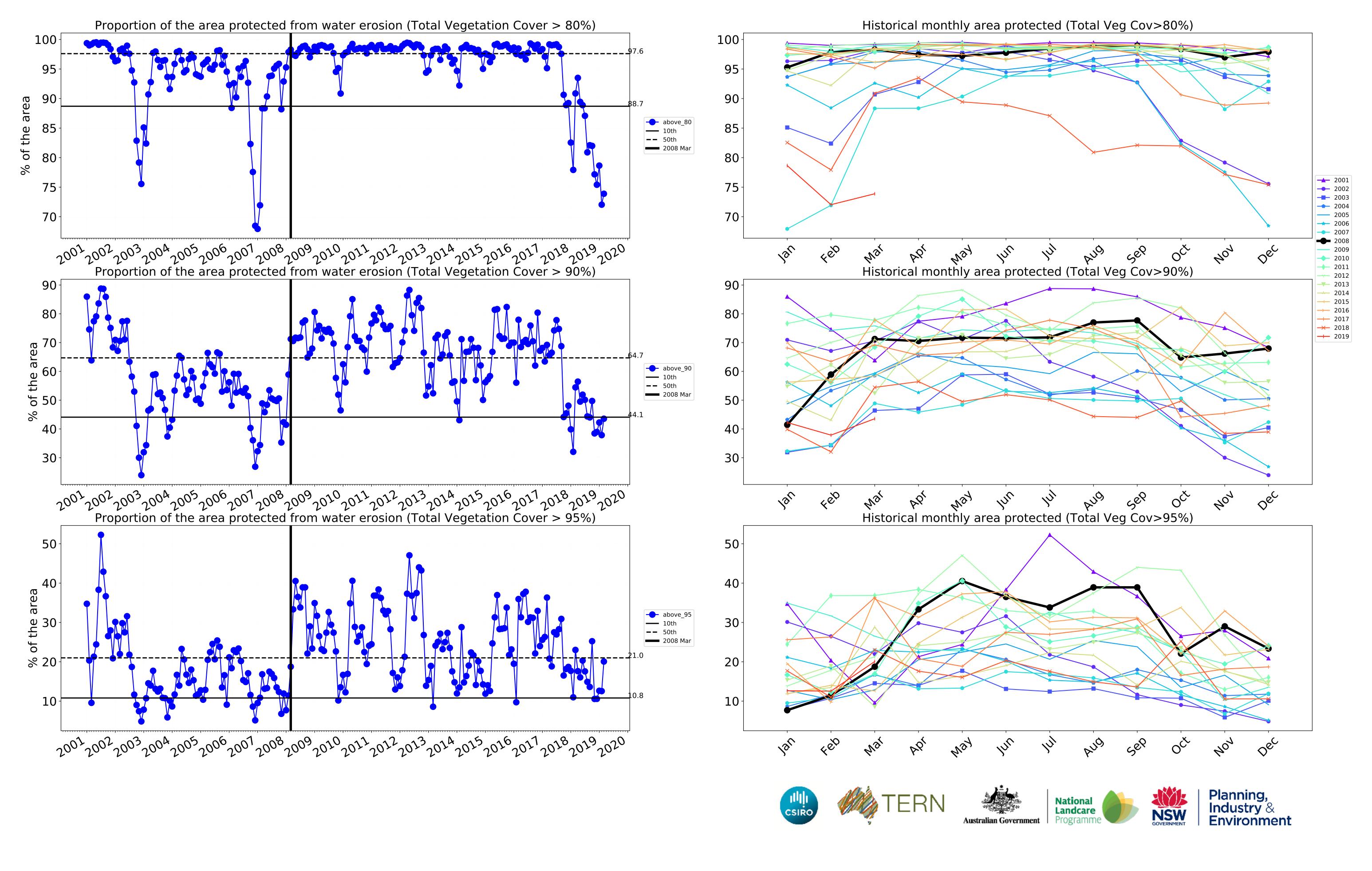




### **Grazing non forest timeseries**





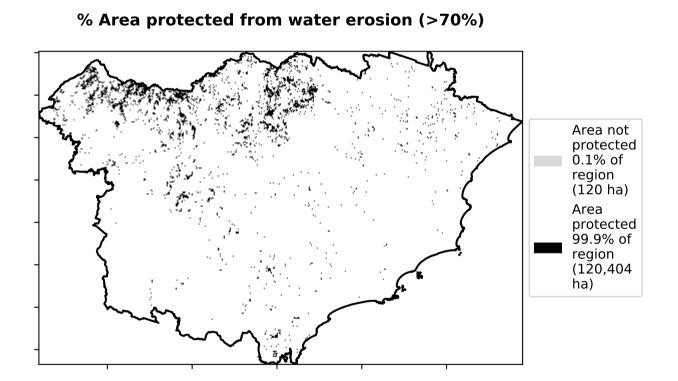


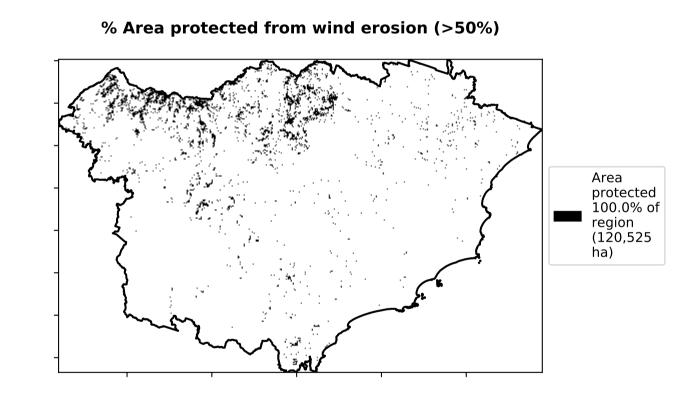
### **Grazing Woodland forest**

### **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 [%]**

### 100 80 Area (%) 40 20 -0.1% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**

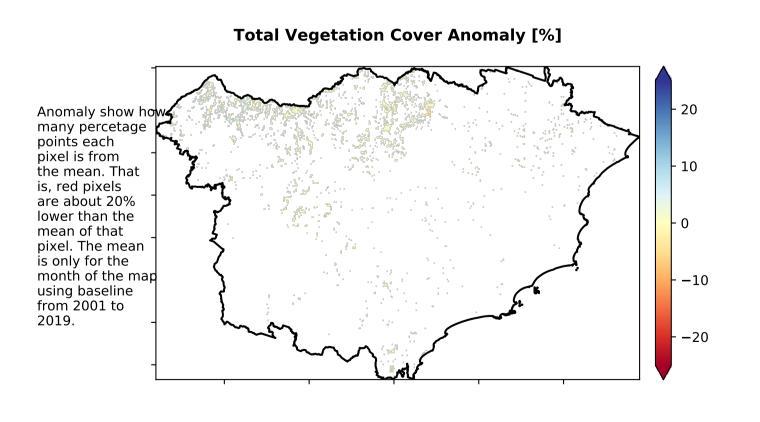


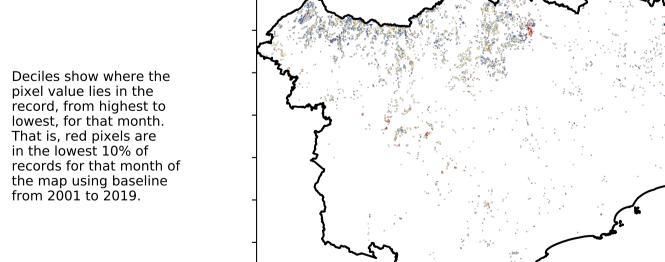


**Total Vegetation Cover Decile [%]** 

**Proportion of vegetation cover class in area** 

99.9%







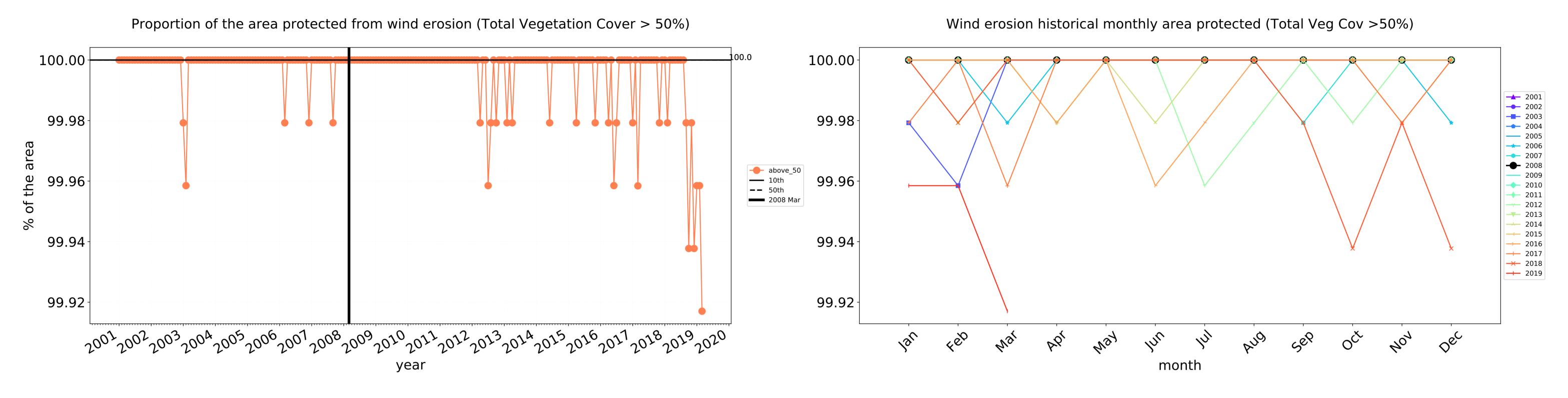


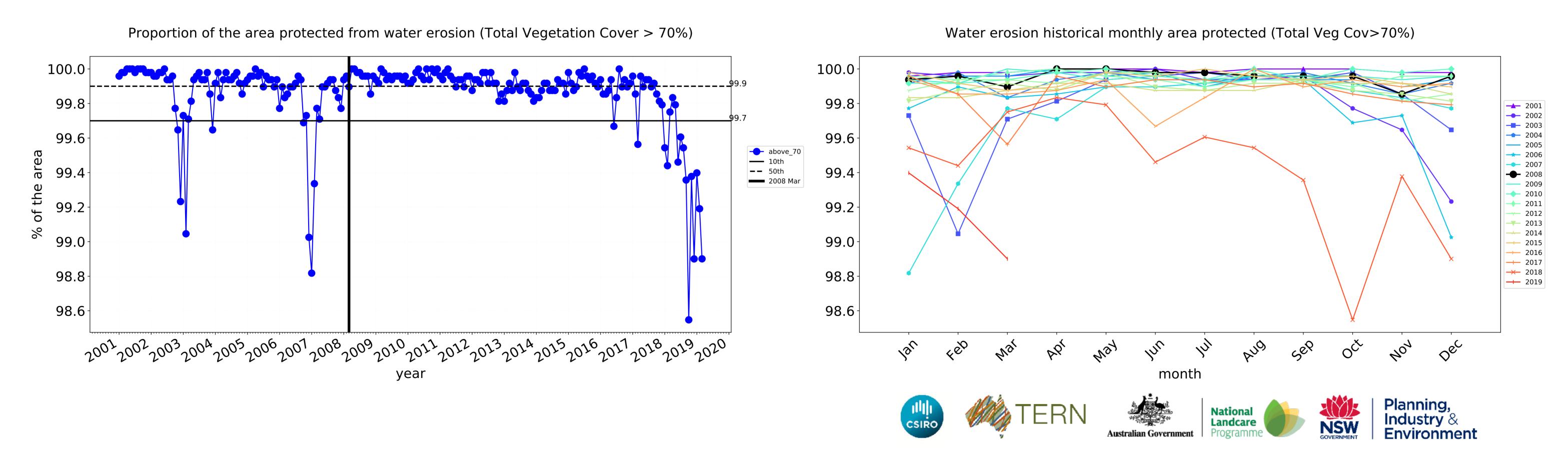


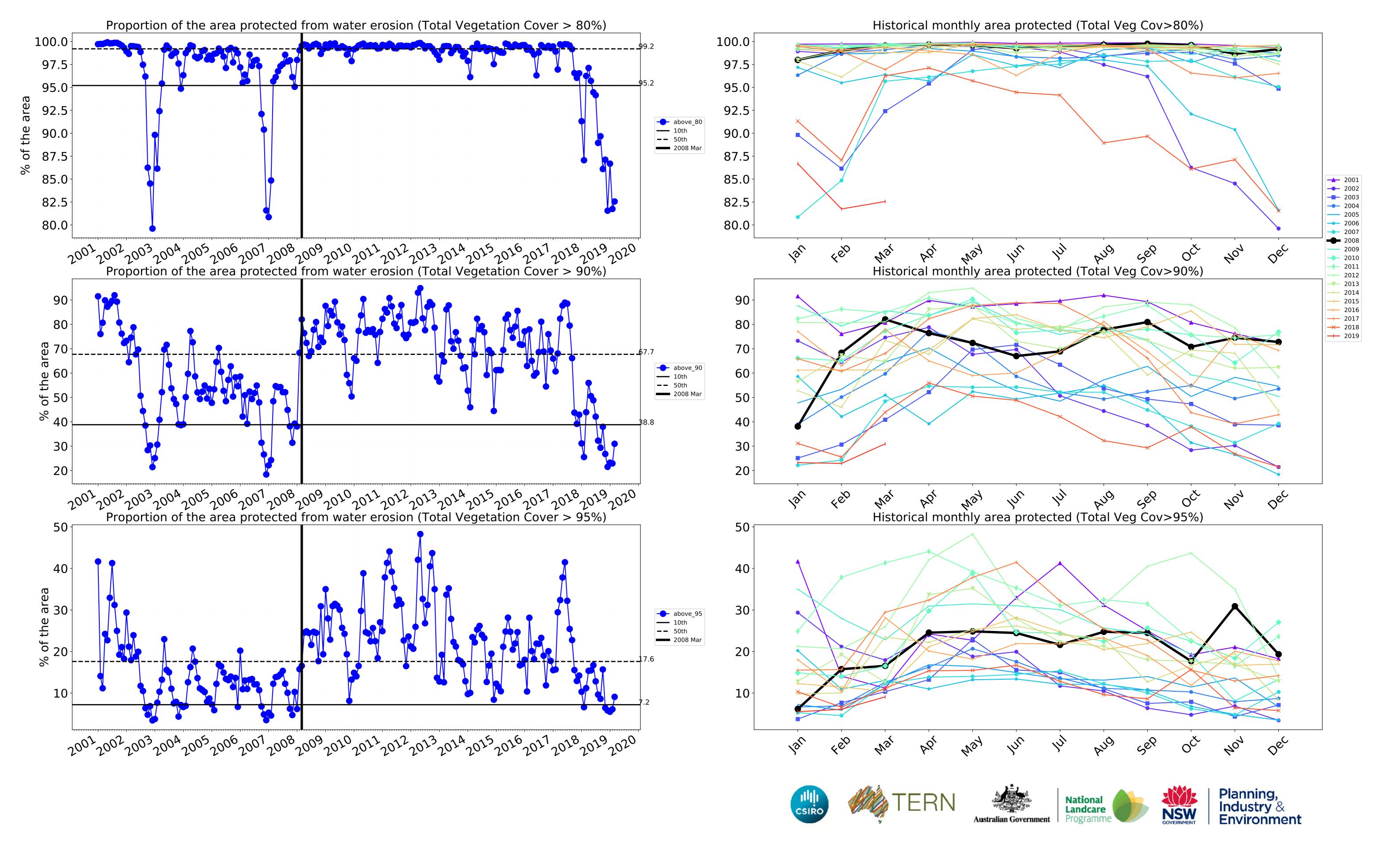




### **Grazing Woodland forest timeseries**



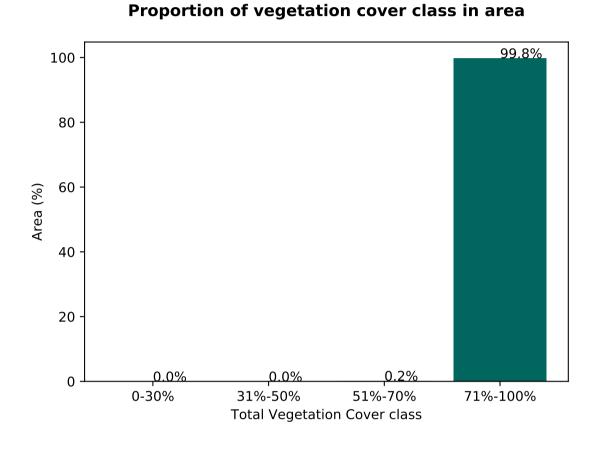


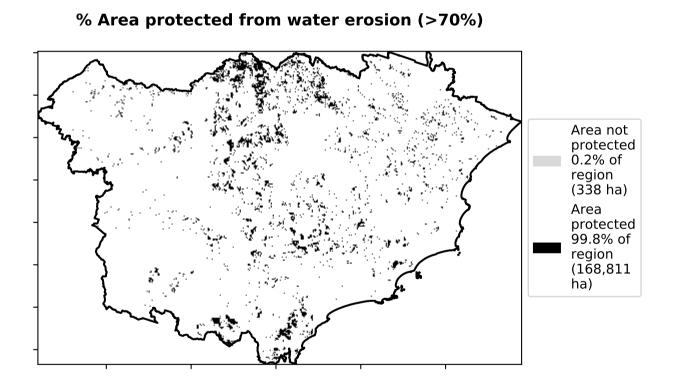


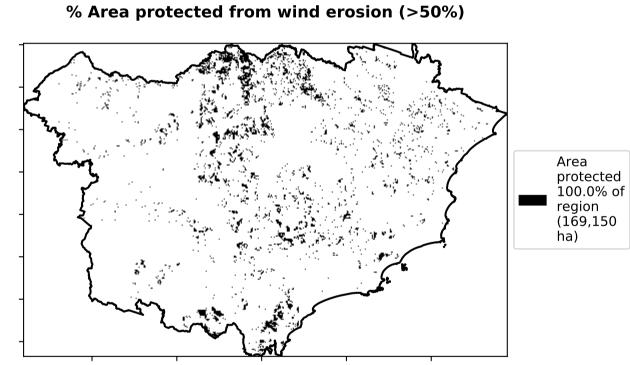
### **Grazing - Forest (non woodland)**

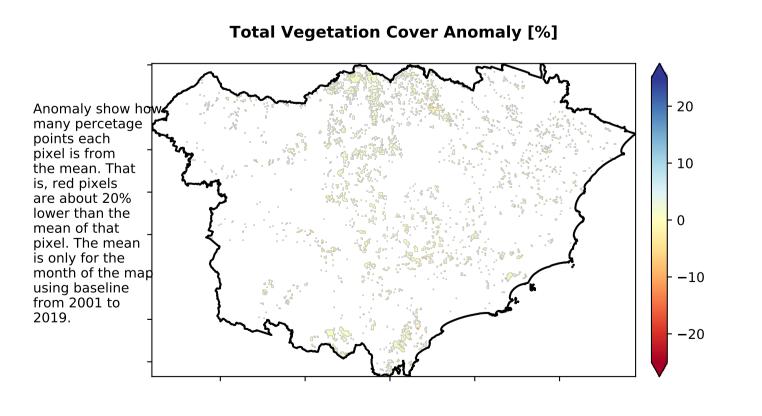
### **Land use and forest cover** Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Agriculture - Grazing - Non-woodland forest Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

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

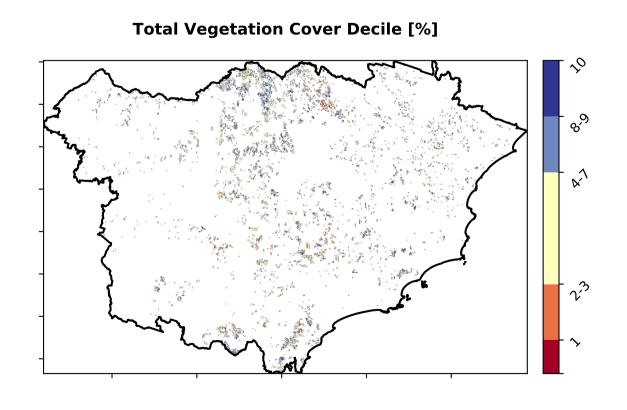








Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseling. the map using baseline from 2001 to 2019.





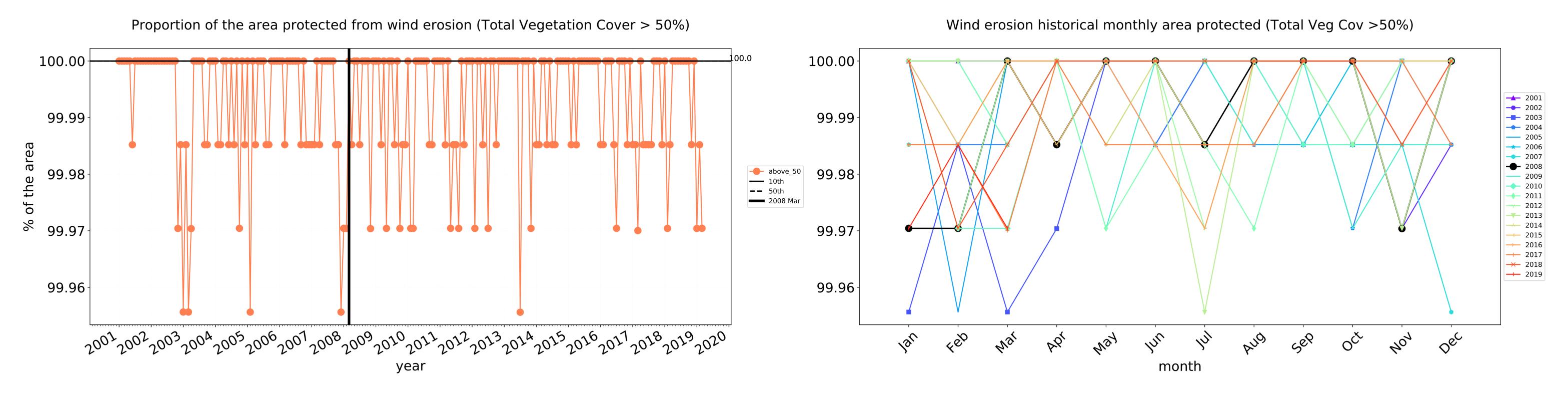


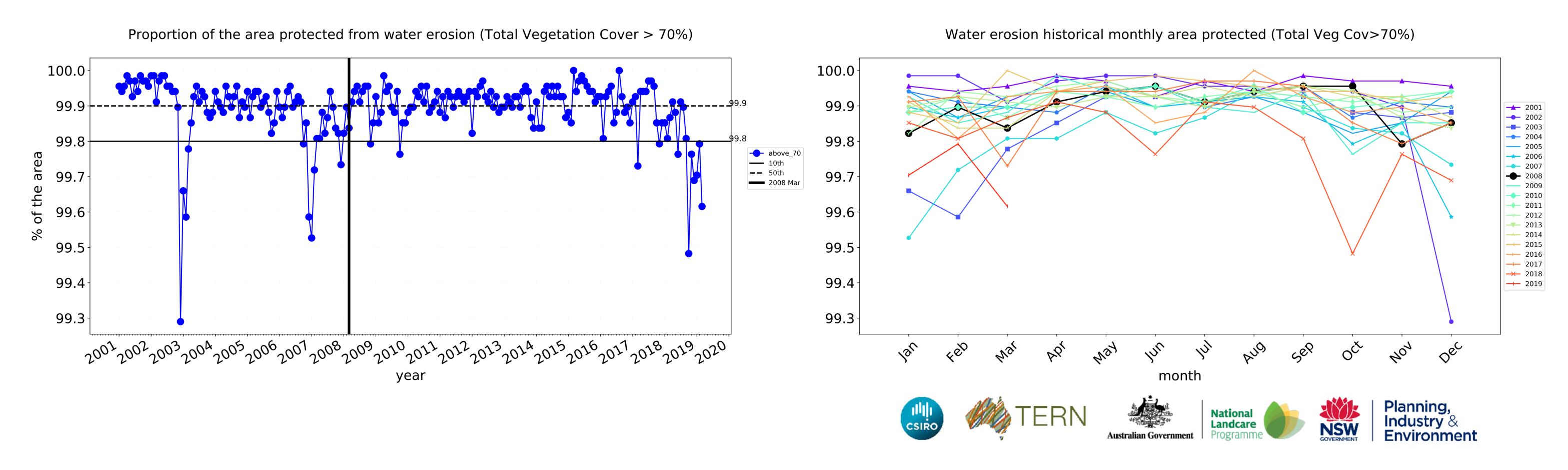


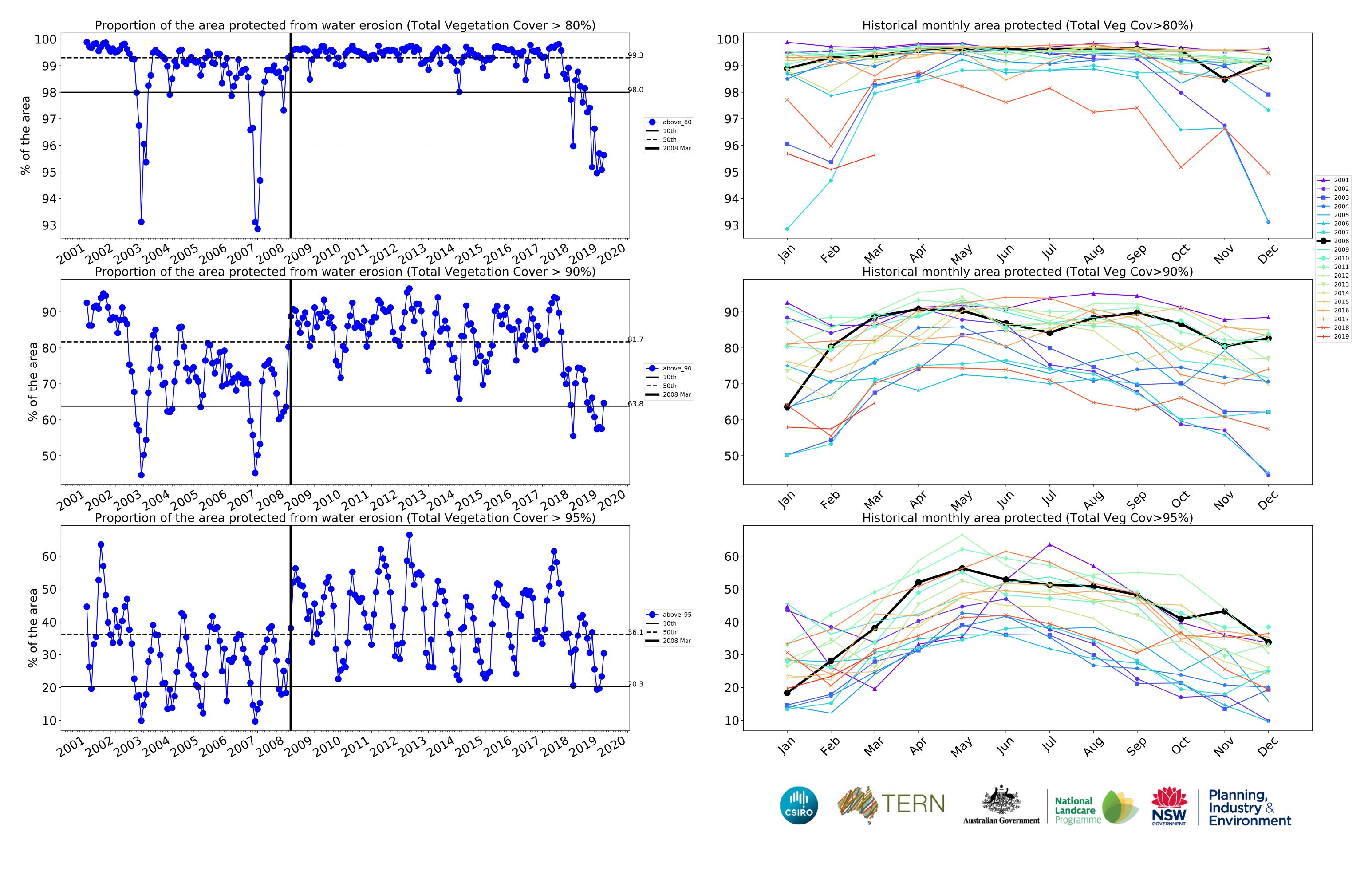






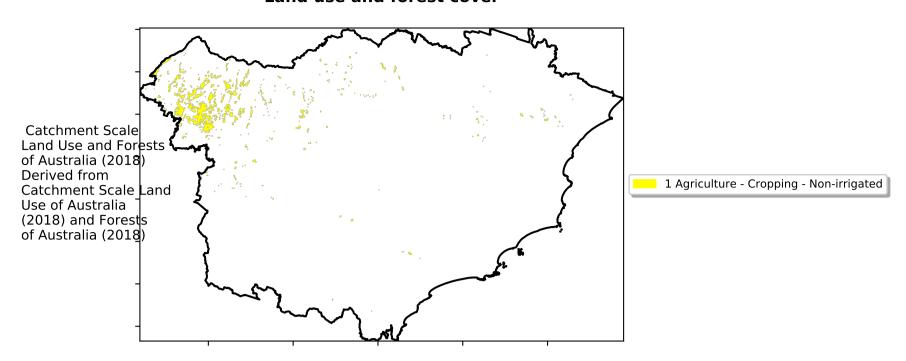




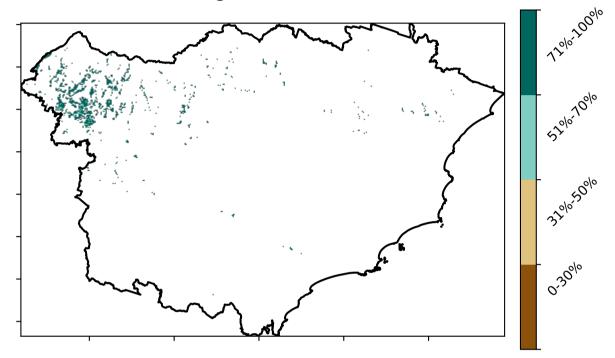


### **Cropping**

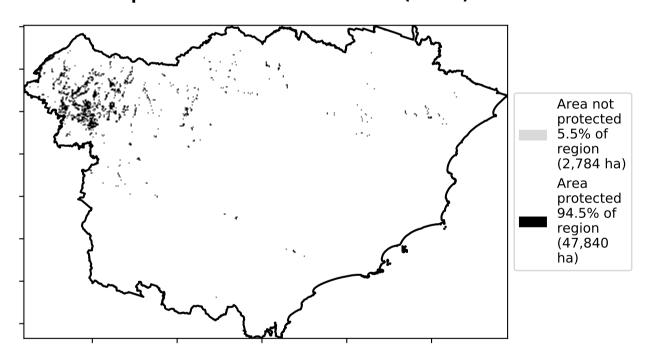
### Land use and forest cover



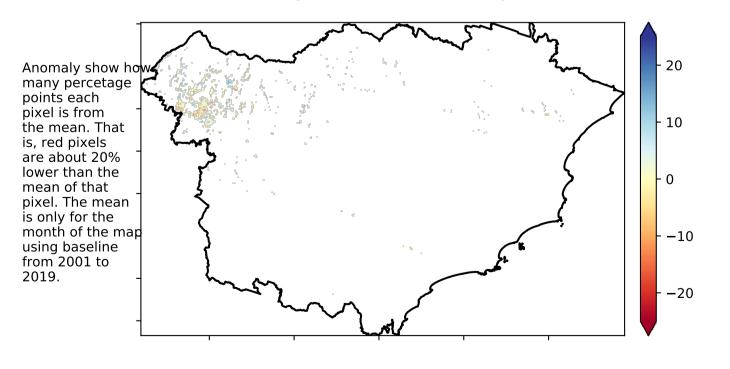
### **Total Vegetation Cover [%]**



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

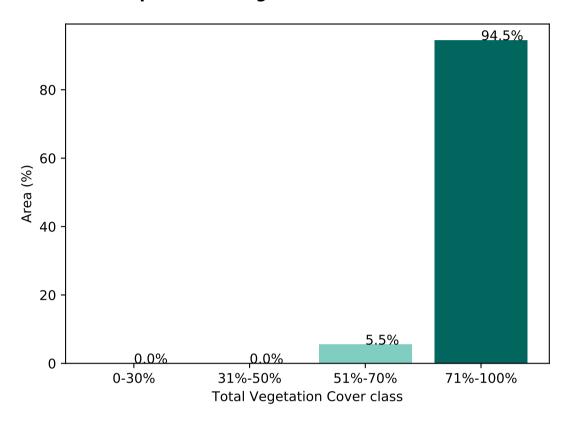


### Total Vegetation Cover Anomaly [%]

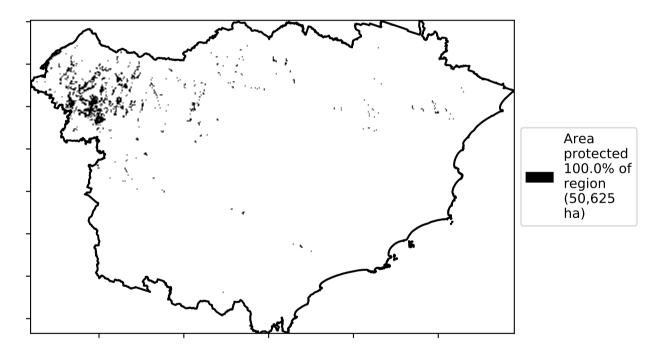


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

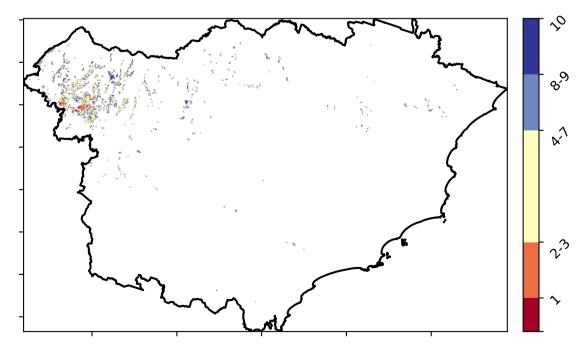
### Proportion of vegetation cover class in area



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



### Total Vegetation Cover Decile [%]







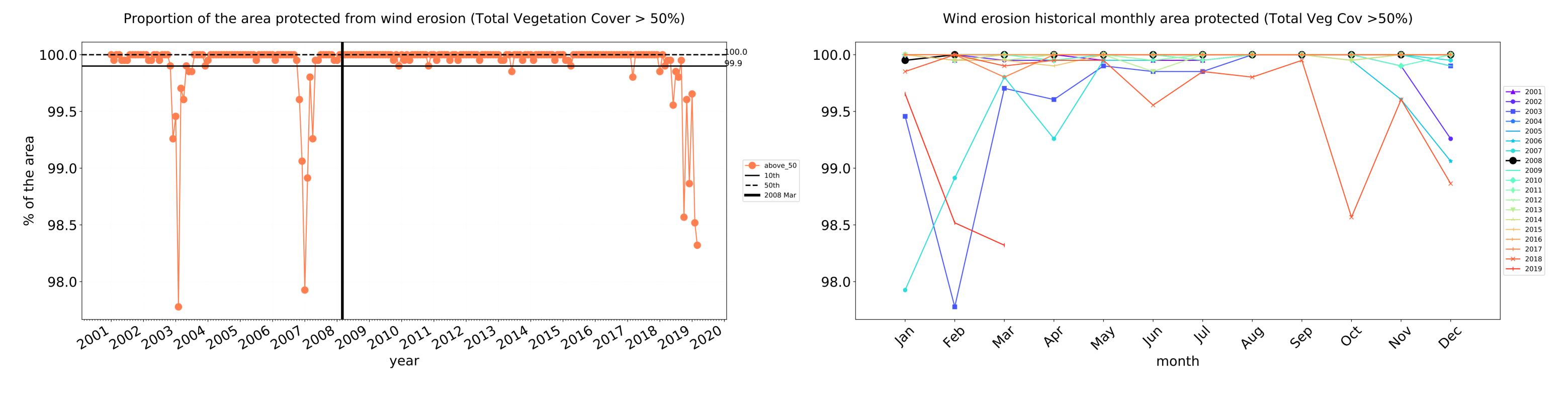


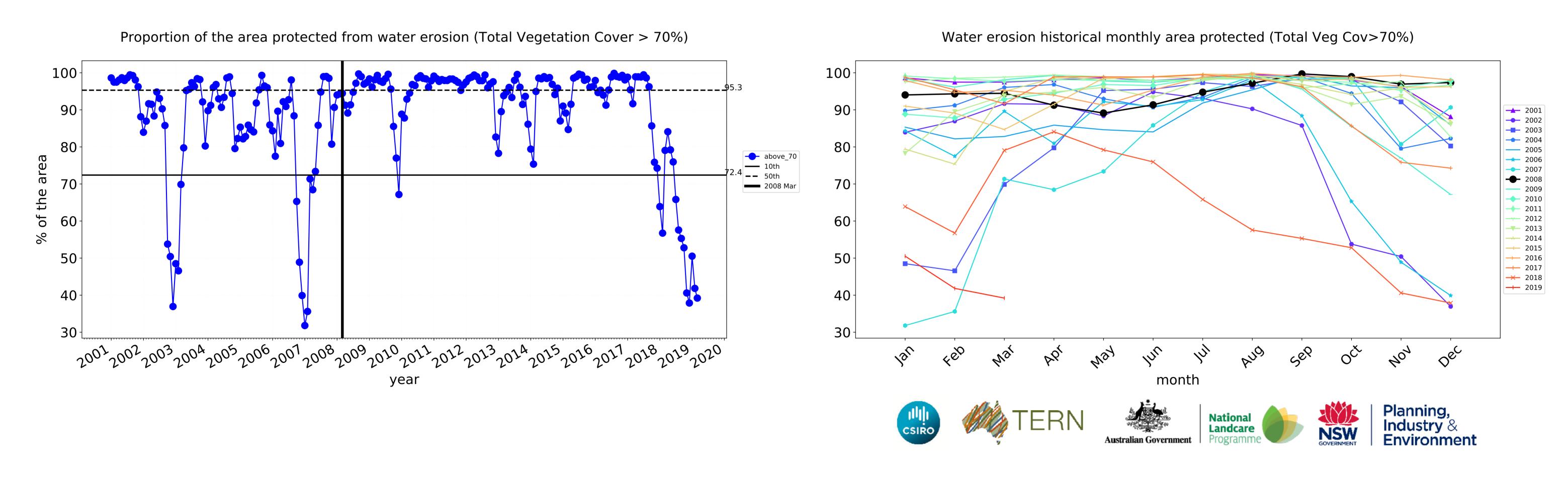


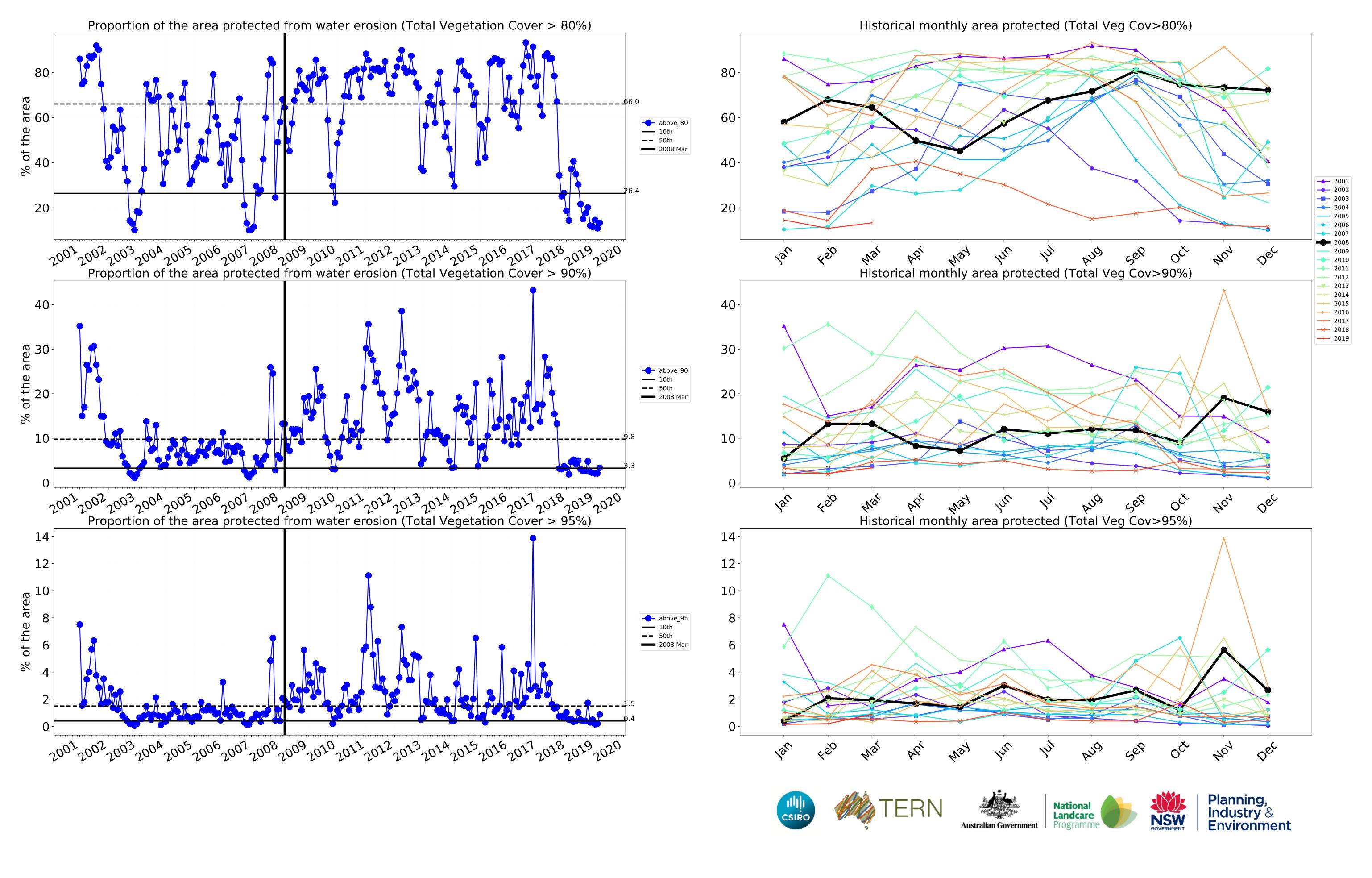




### **Cropping timeseries**





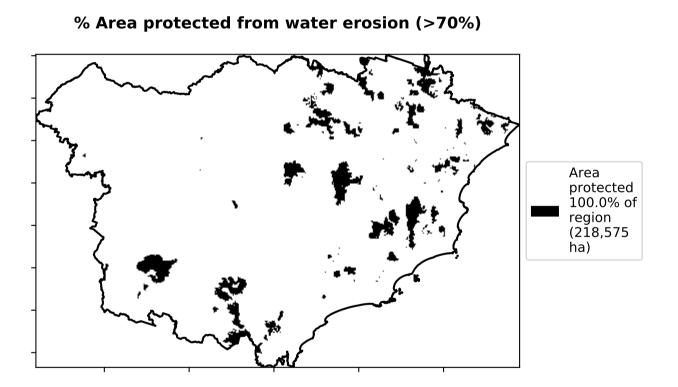


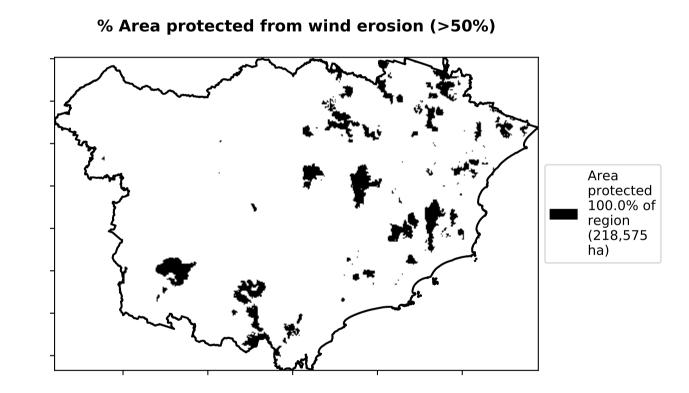
### **Production native forests and plantation forests**

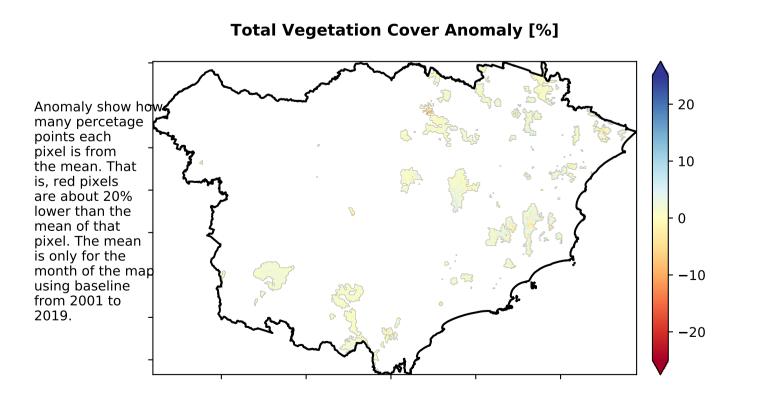
### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) When the state of the stat

## Total Vegetation Cover [%]

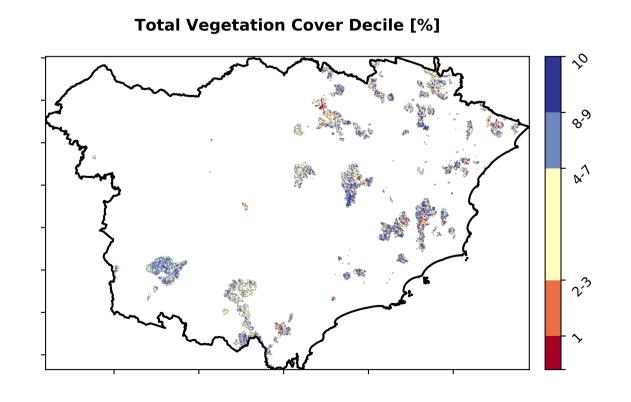
# Proportion of vegetation cover class in area 100 - 100.0% 80 - 20 - 20 - 20 - 0.0% 0-30% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class







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.







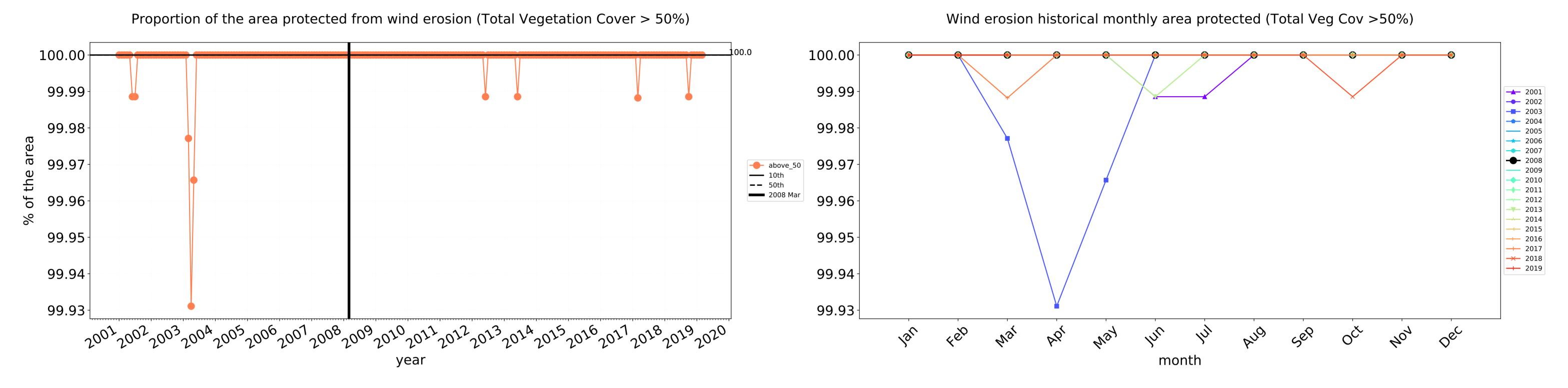


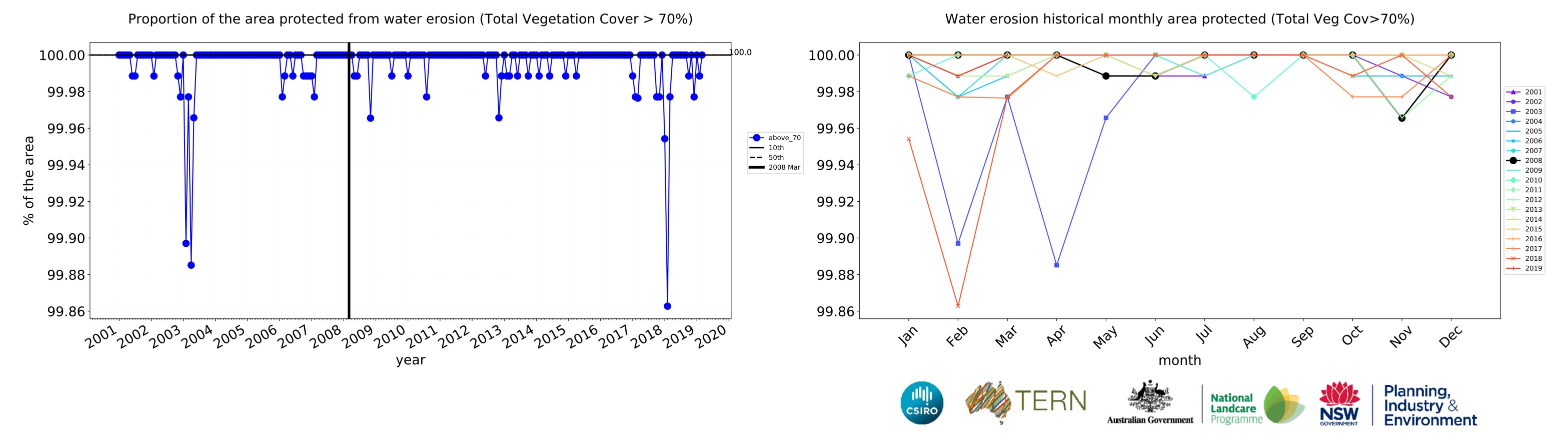


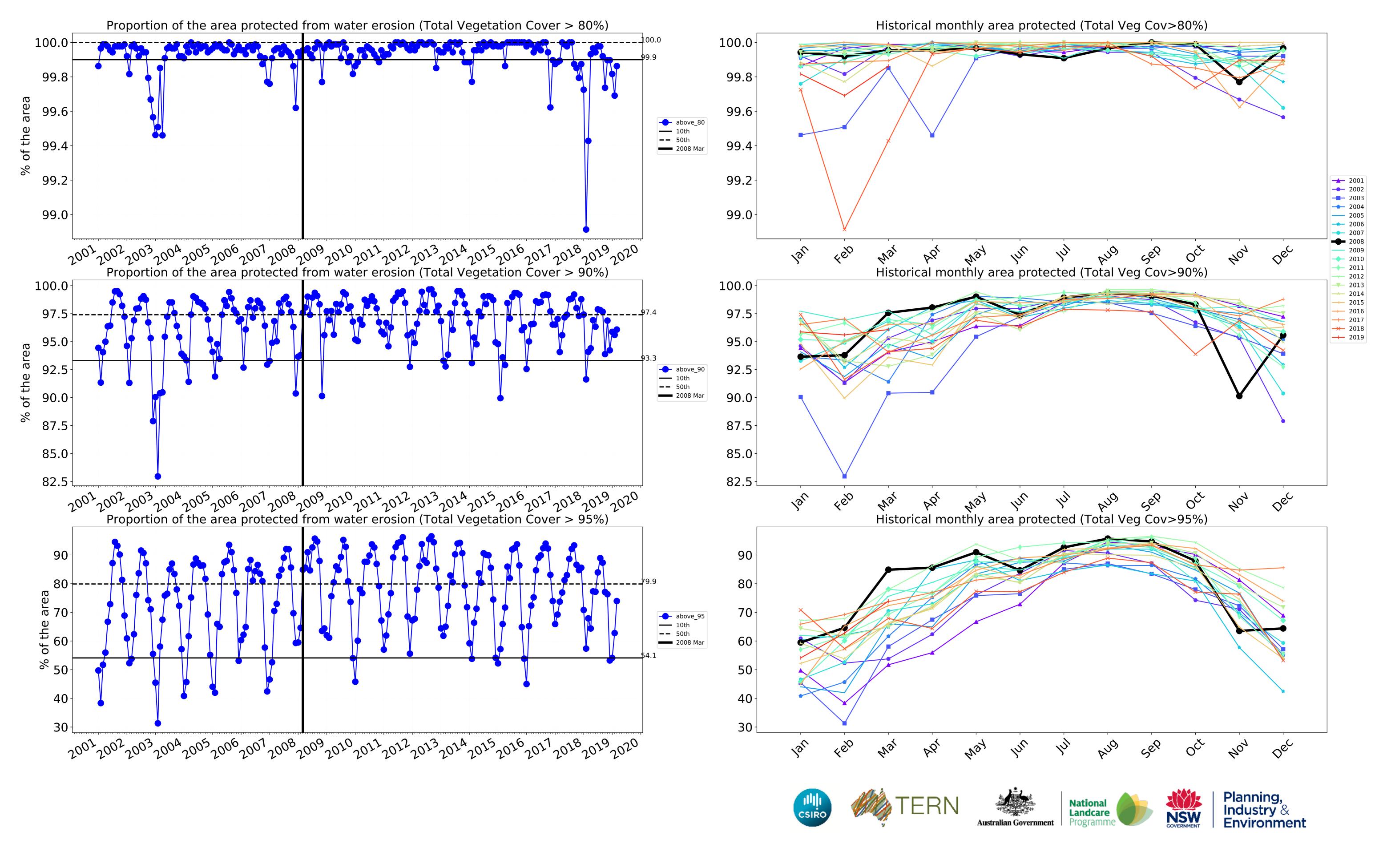




### **Production native forests and plantation forests timeseries**







### 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% 3,236,948	99.7% 3,228,793	98.7% 3,197,474	96.5% 3,126,906	78.9% 2,557,764	40.9% 1,326,298
Conservation and natural environments	1,240,150	99.9% 1,239,025	99.8% 1,238,000	99.7% 1,235,975	99.4% 1,232,575	93.1% 1,154,450	65.2% 808,400
Conservation and natural environments non forest	29,500	96.3% 28,400	93.5% 27,575	89.7% 26,475	85.4% 25,200	67.9% 20,025	27.5% 8,100
Conservation and natural environments Woodland forest	138,825	100.0% 138,825	100.0% 138,775	99.9% 138,725	99.7% 138,450	88.3% 122,625	41.7% 57,925
Conservation and natural environments Forest (non woodland)	1,071,825	100.0% 1,071,800	100.0% 1,071,650	99.9% 1,070,775	99.7% 1,068,925	94.4% 1,011,800	69.3% 742,375
Agriculture	1,580,525	100.0% 1,580,475	100.0% 1,580,150	99.6% 1,574,050	97.2% 1,536,600	71.0% 1,122,900	19.8% 313,075
Grazing	1,502,525	100.0% 1,502,475	100.0% 1,502,150	99.8% 1,499,175	98.5% 1,480,100	74.1% 1,113,075	20.8% 311,850
Grazing non forest	1,212,850	100.0% 1,212,800	100.0% 1,212,475	99.8% 1,209,900	98.3% 1,192,025	71.2% 864,050	18.7% 227,400
Grazing Woodland forest	120,525	100.0% 120,525	100.0% 120,525	99.9% 120,400	99.5% 119,975	82.0% 98,875	16.6% 19,950
Grazing - Forest (non woodland)	169,150	100.0% 169,150	100.0% 169,150	99.8% 168,875	99.4% 168,100	88.8% 150,150	38.1% 64,500
Cropping	50,625	100.0% 50,625	100.0% 50,625	94.5% 47,825	64.4% 32,625	13.2% 6,700	1.9% 975
Production native forests and plantation forests	218,575	100.0% 218,575	100.0% 218,575	100.0% 218,575	100.0% 218,475	97.6% 213,275	84.9% 185,500











