### 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 2015

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





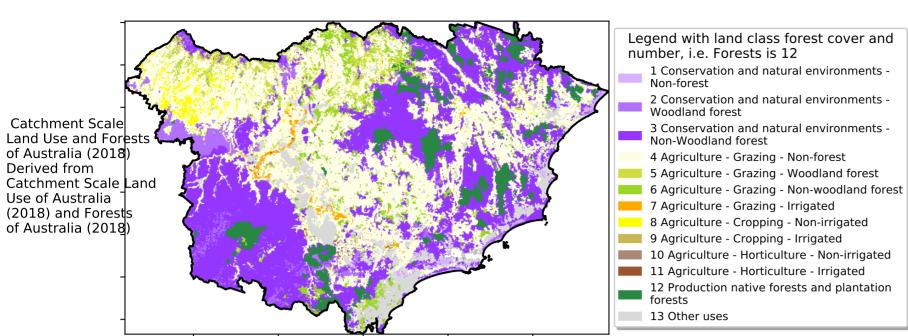




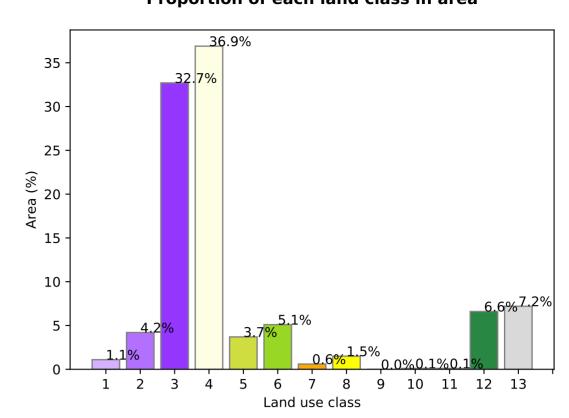


### **Vegetation Cover Mar 2015**

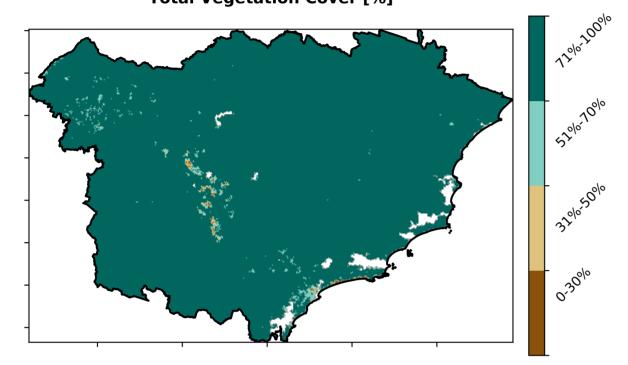
### Land use and forest cover



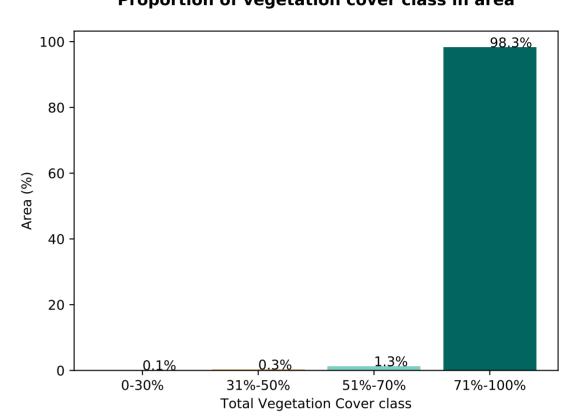
### Proportion of each land class in area



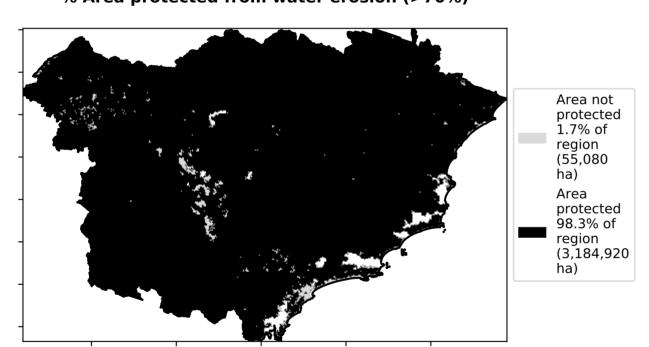
### Total Vegetation Cover [%]



Proportion of vegetation cover class in area



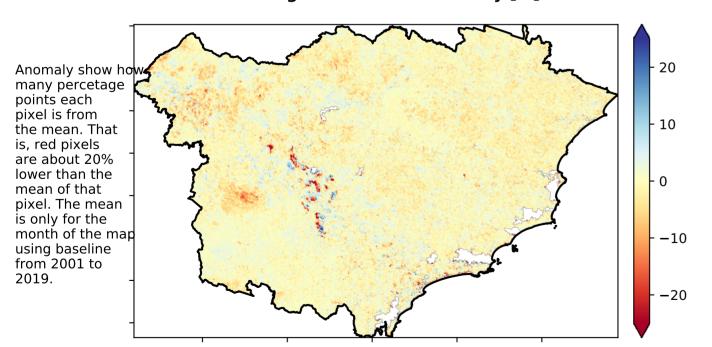
### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

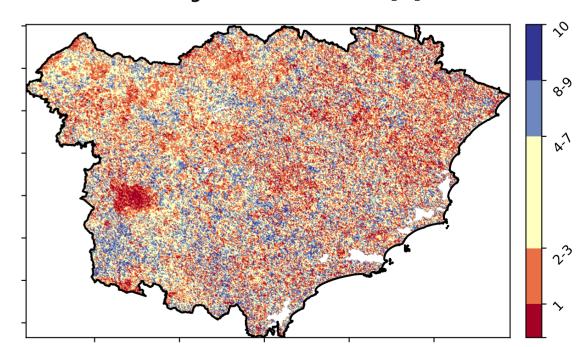


### Total Vegetation Cover Anomaly [%]



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

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





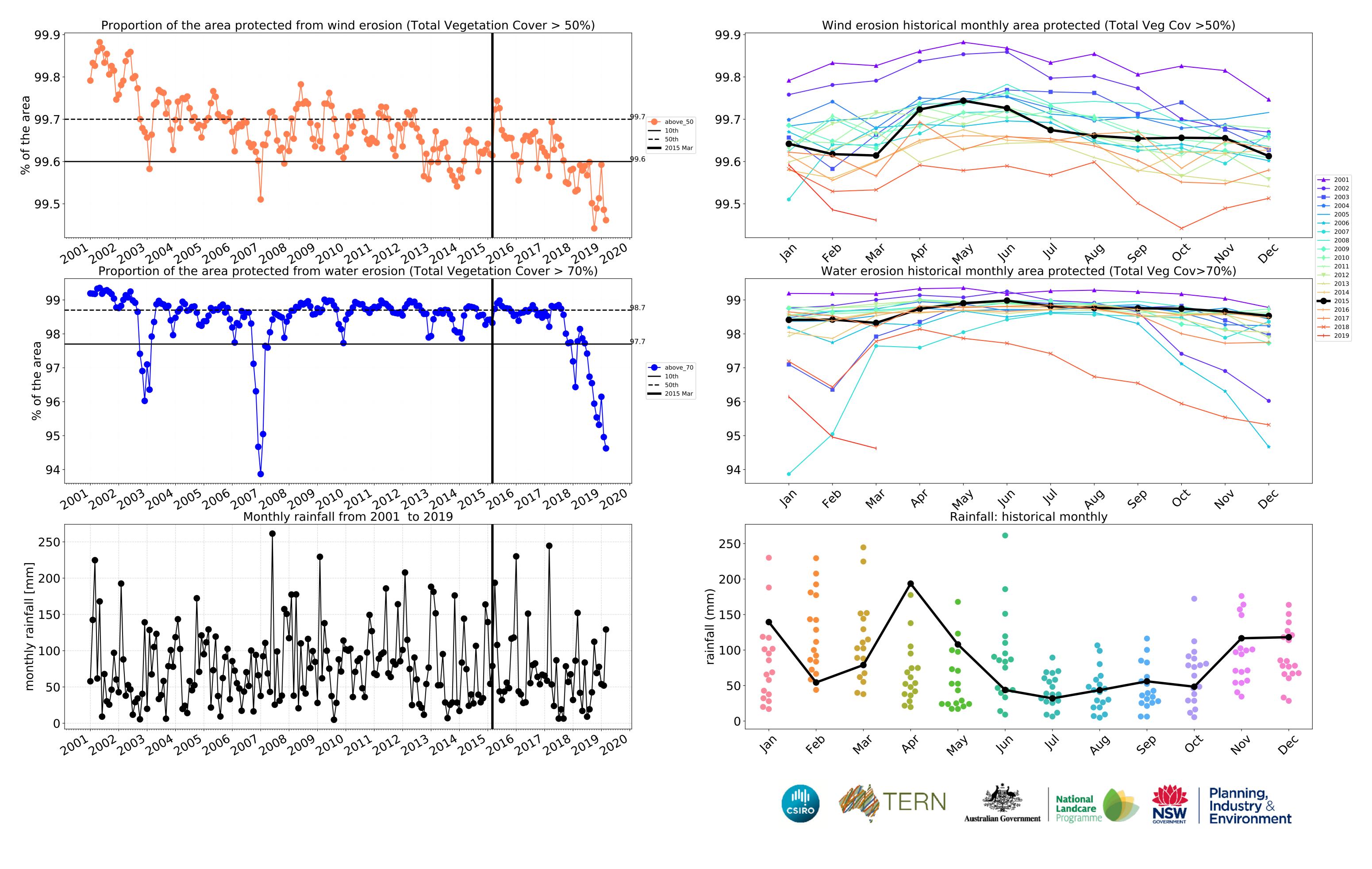


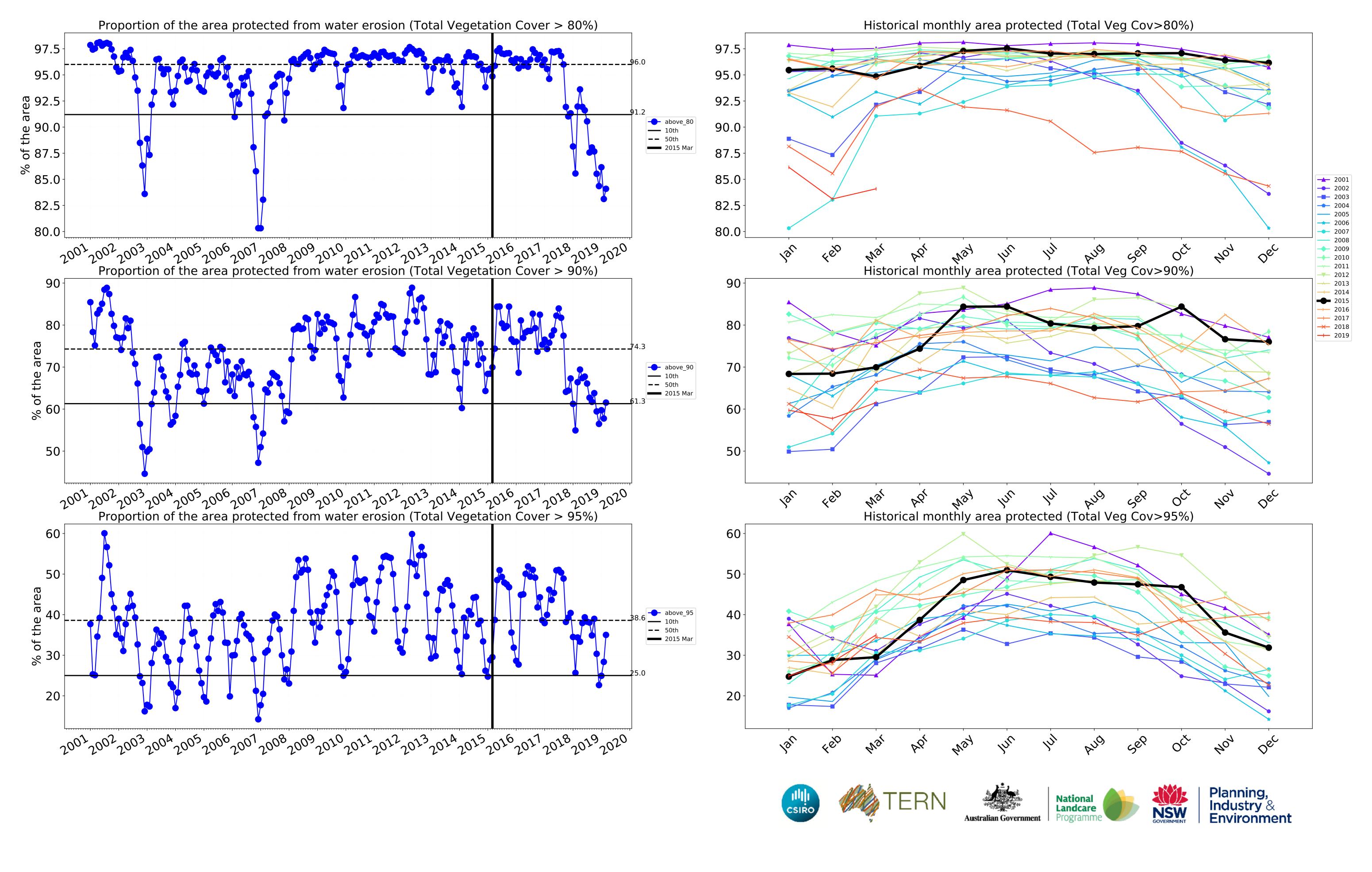






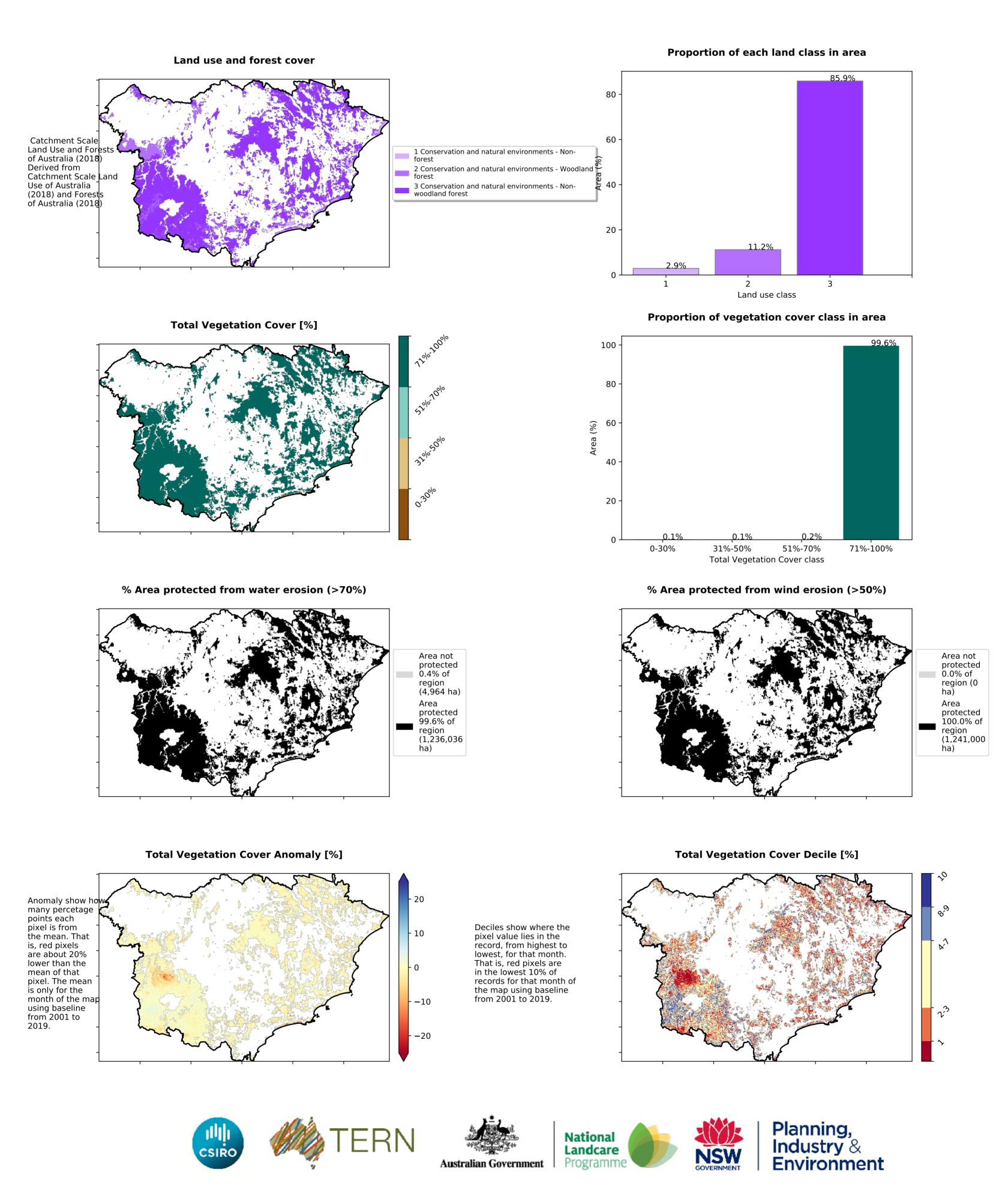




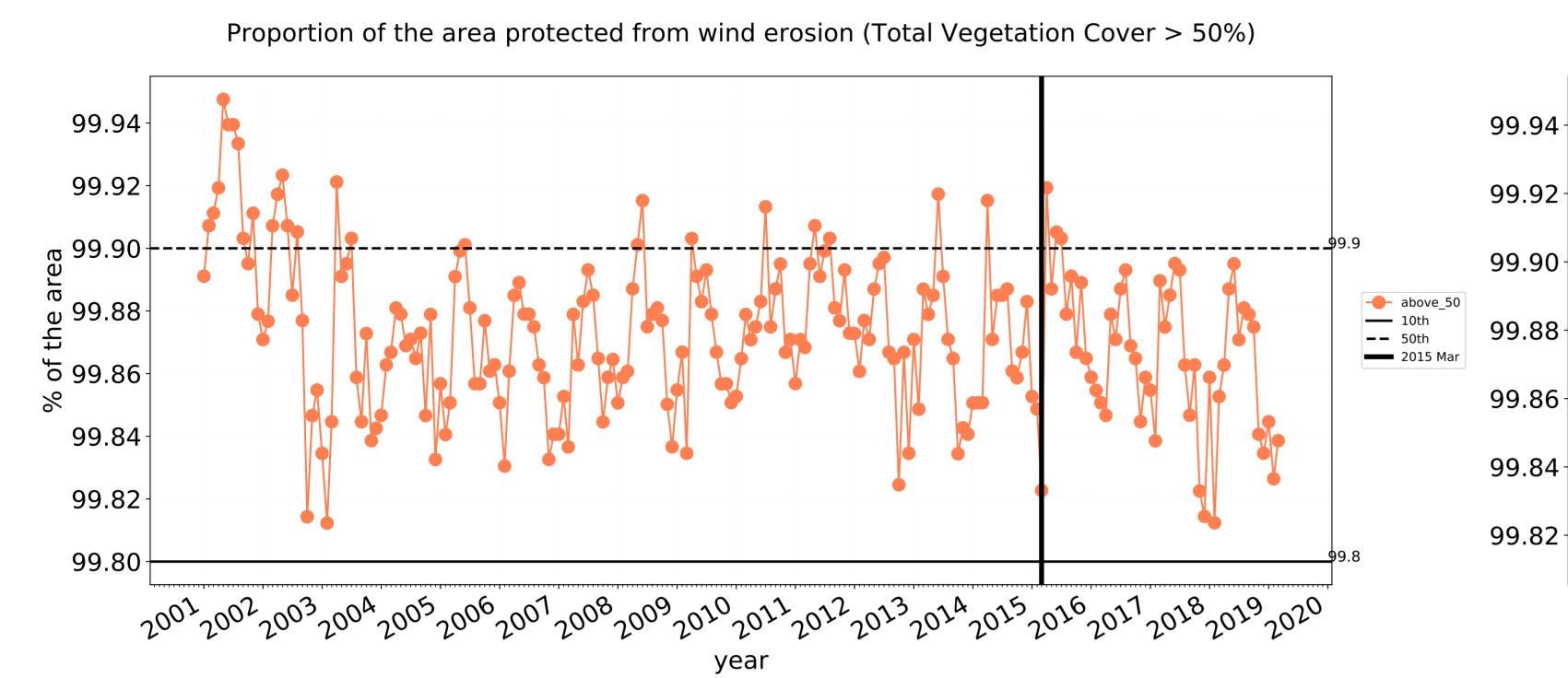


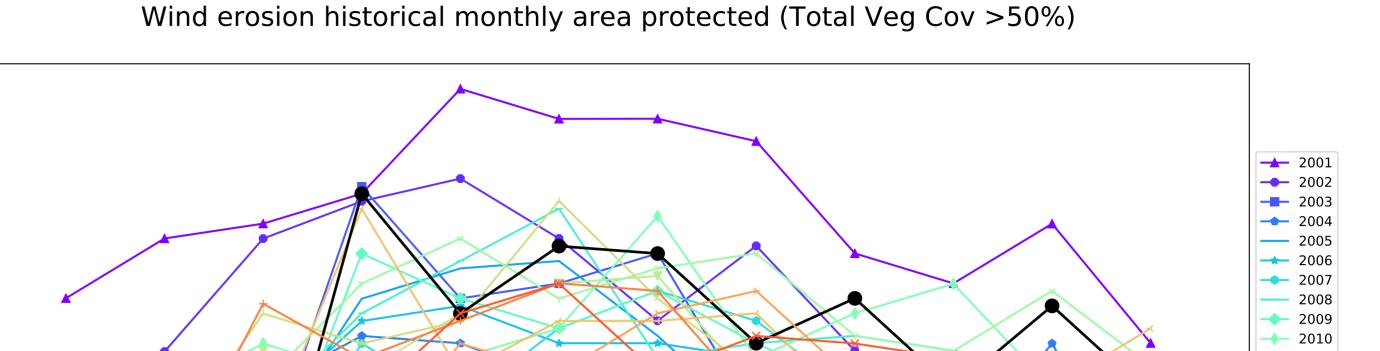
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### **Conservation and natural environments**



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





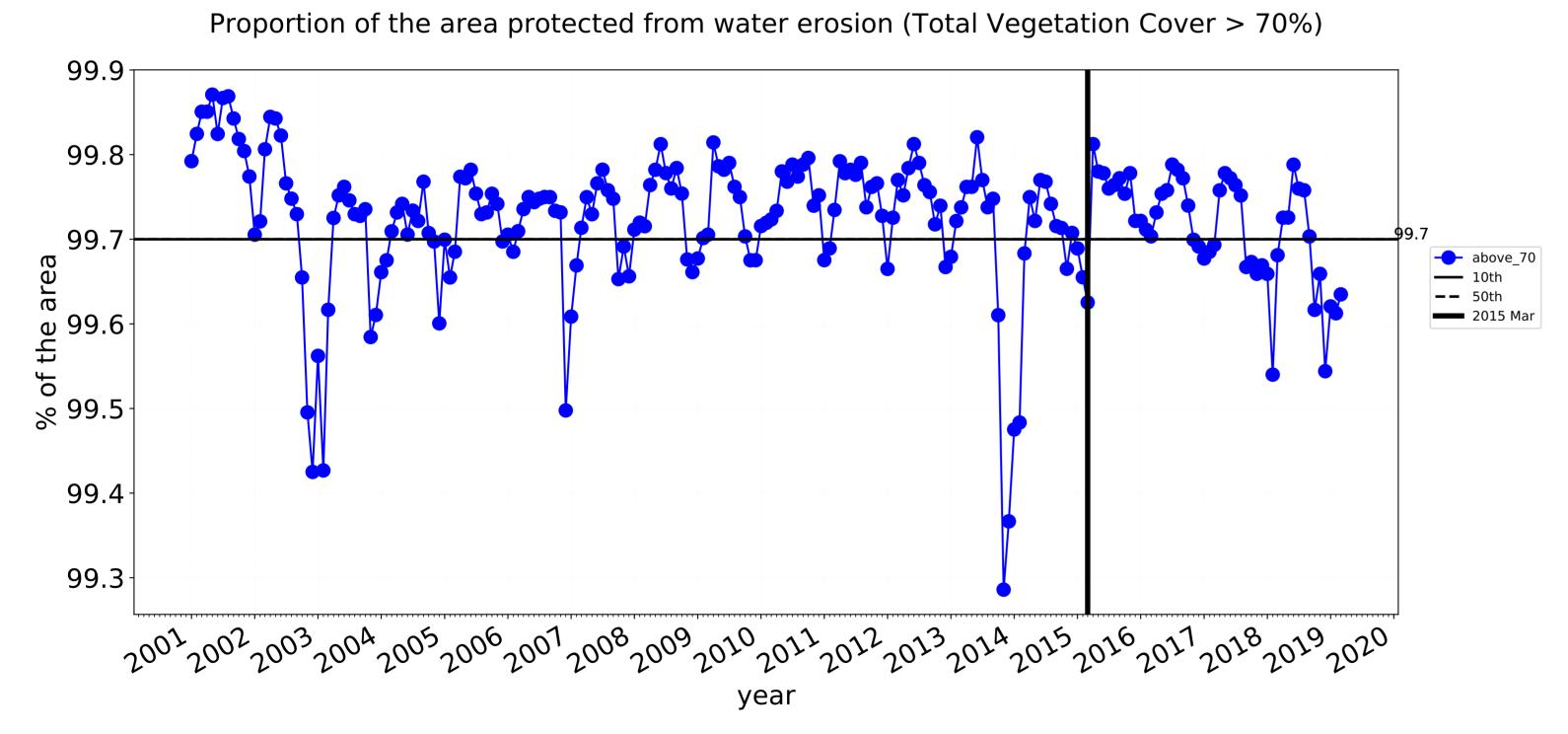
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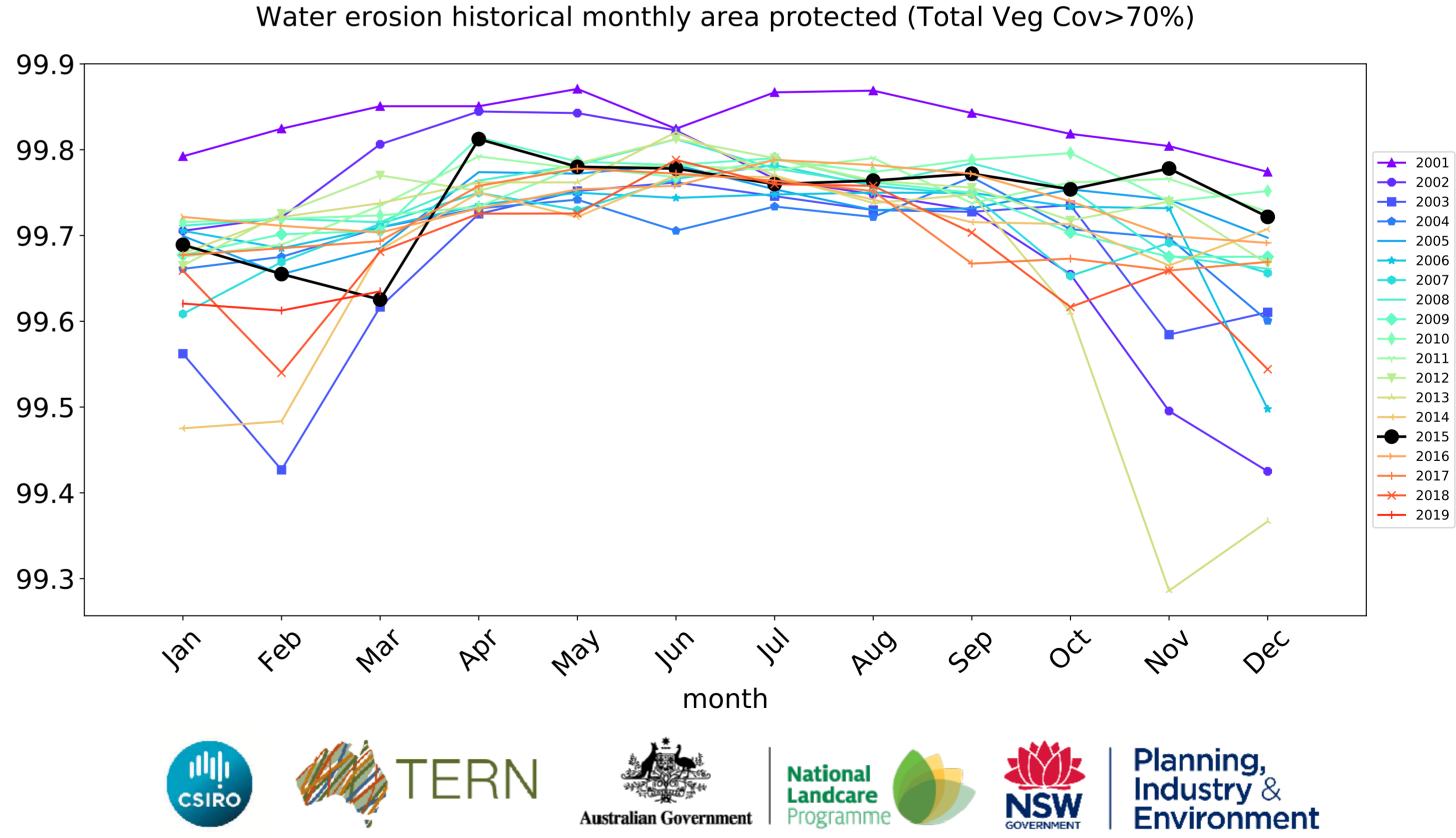
<del>----</del> 2013

2014 2015

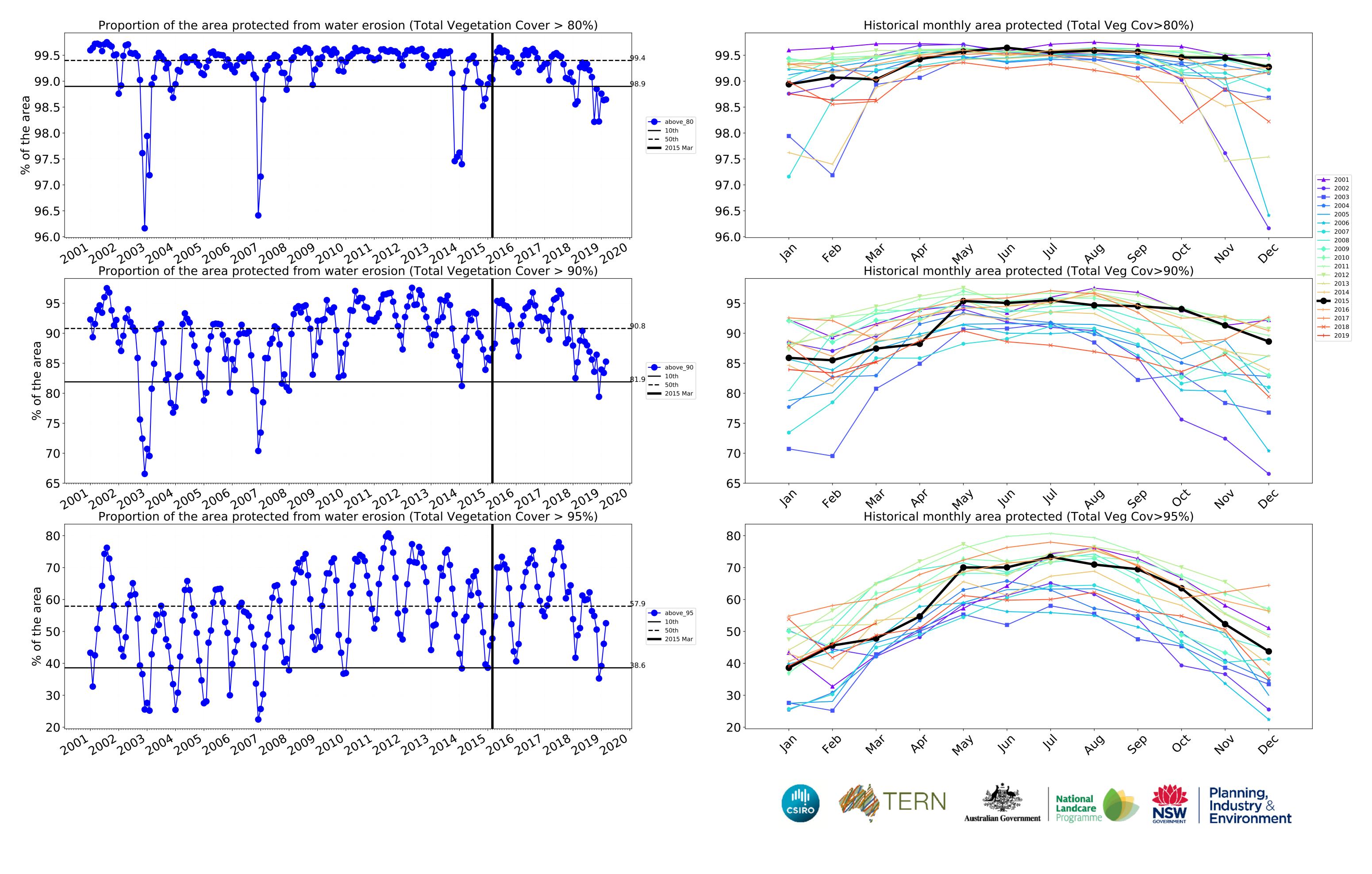
→ 2016 → 2017

→ 2018
→ 2019

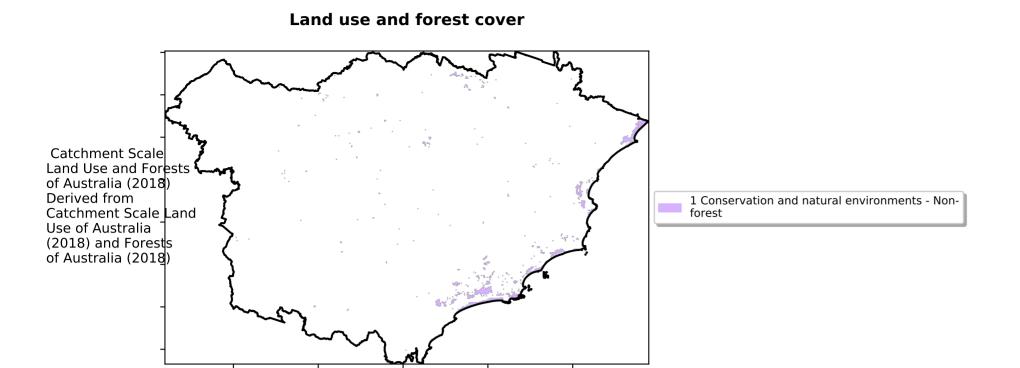




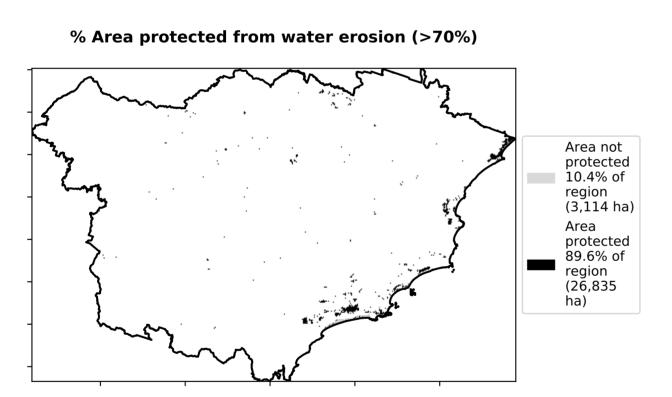
month

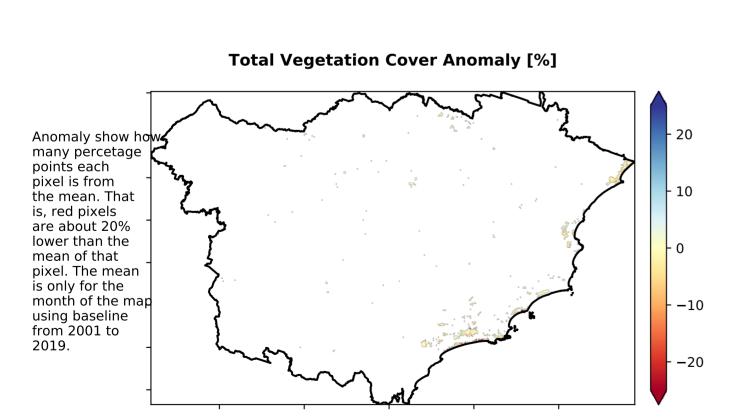


### **Conservation and natural environments non forest**



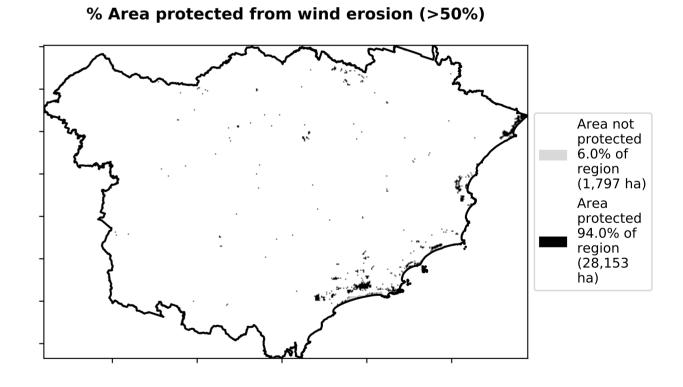
## Total Vegetation Cover [%] Tipological and the state of the state of

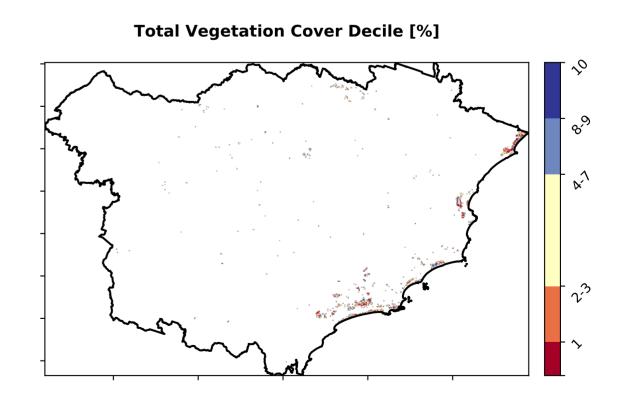




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

# 89.6% 80608020200-30% 31%-50% 51%-70% Total Vegetation Cover class











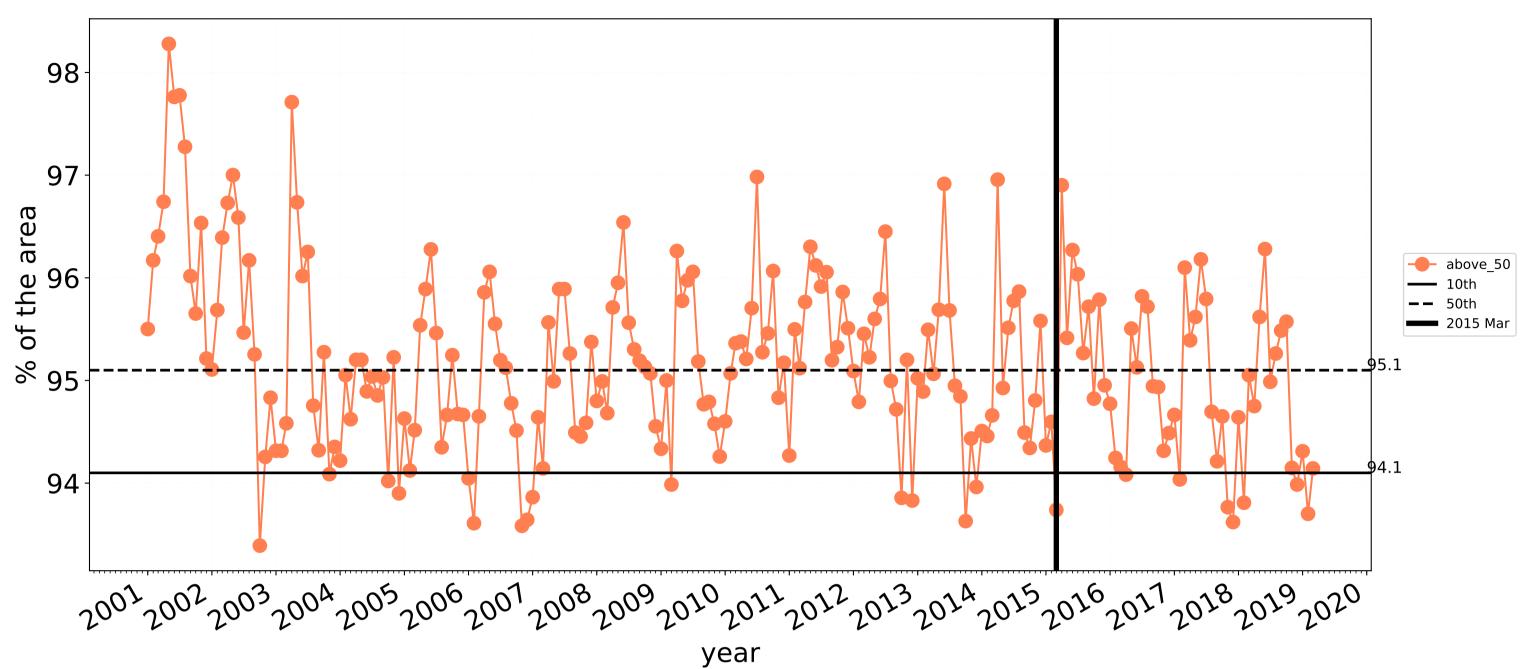




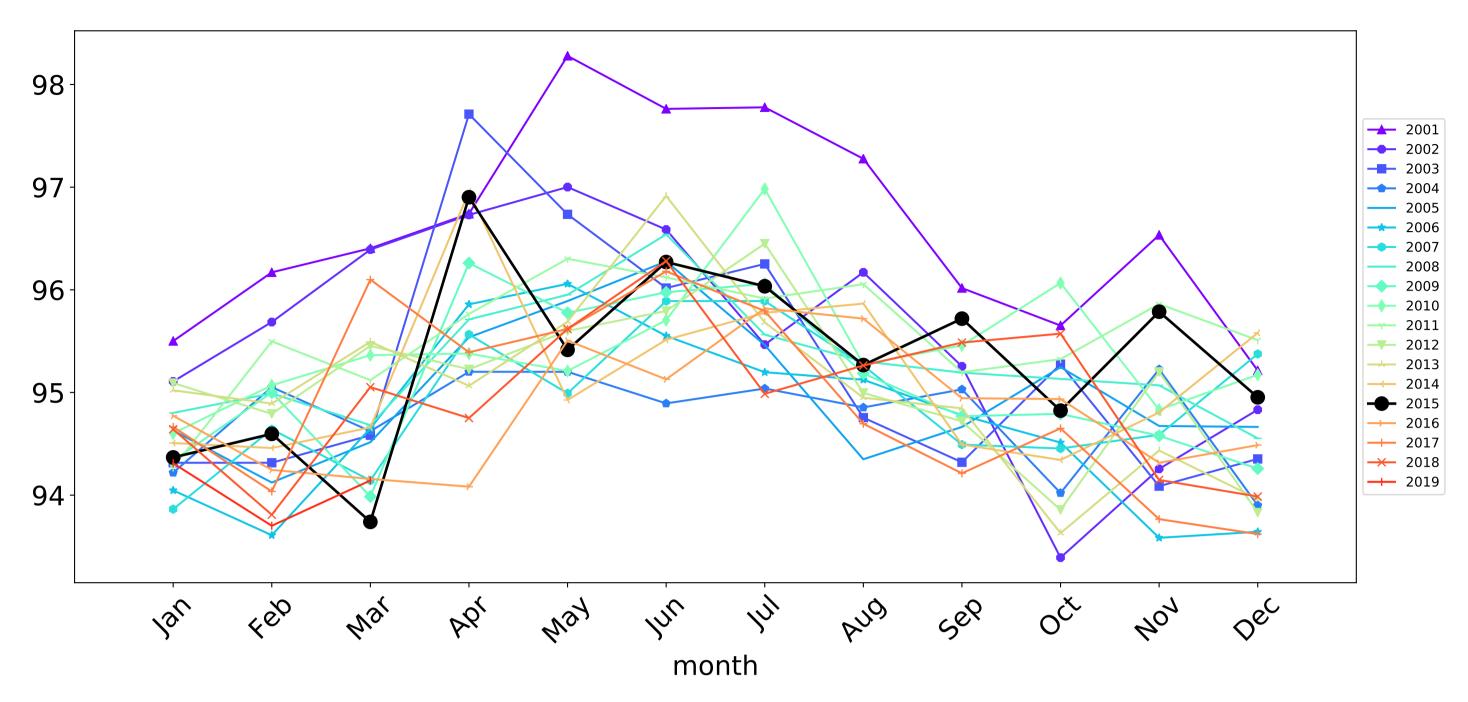


### **Conservation and natural environments non forest timeseries**

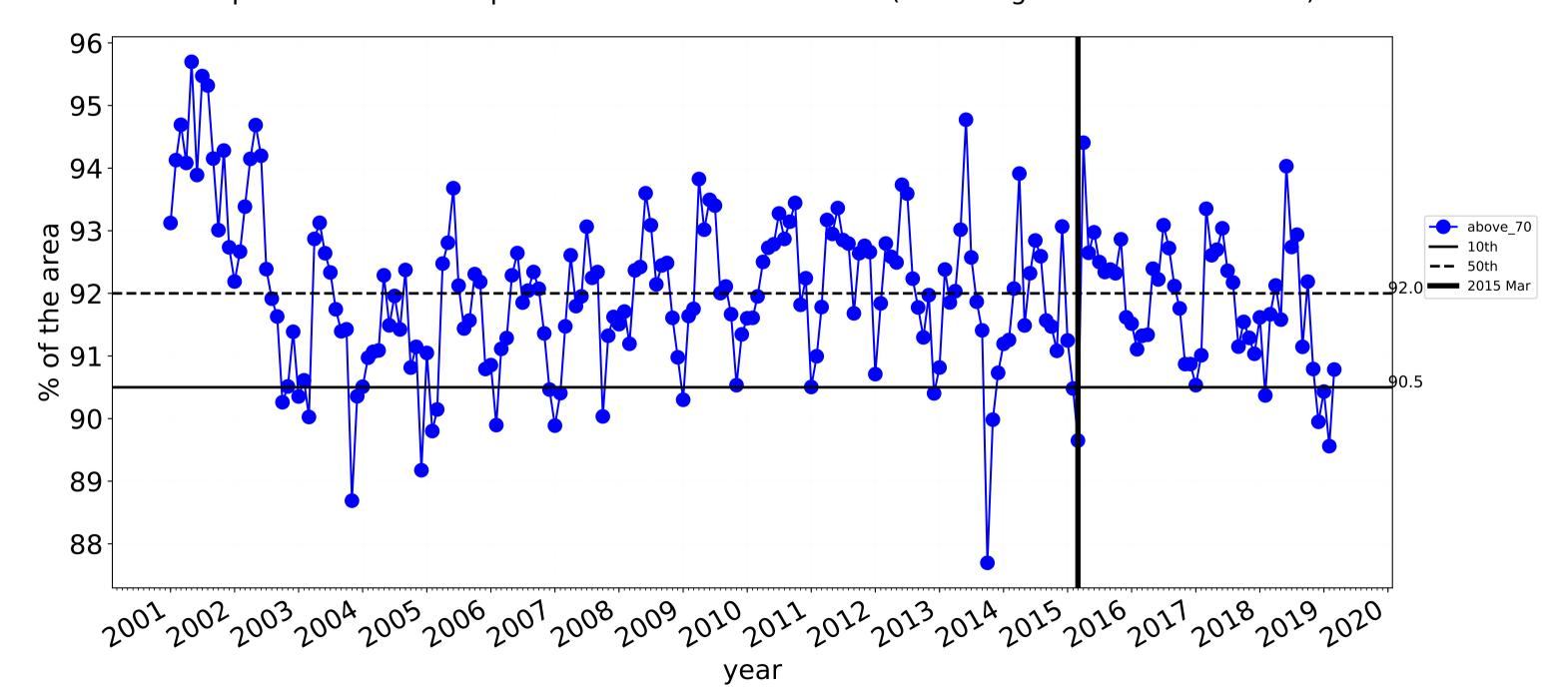




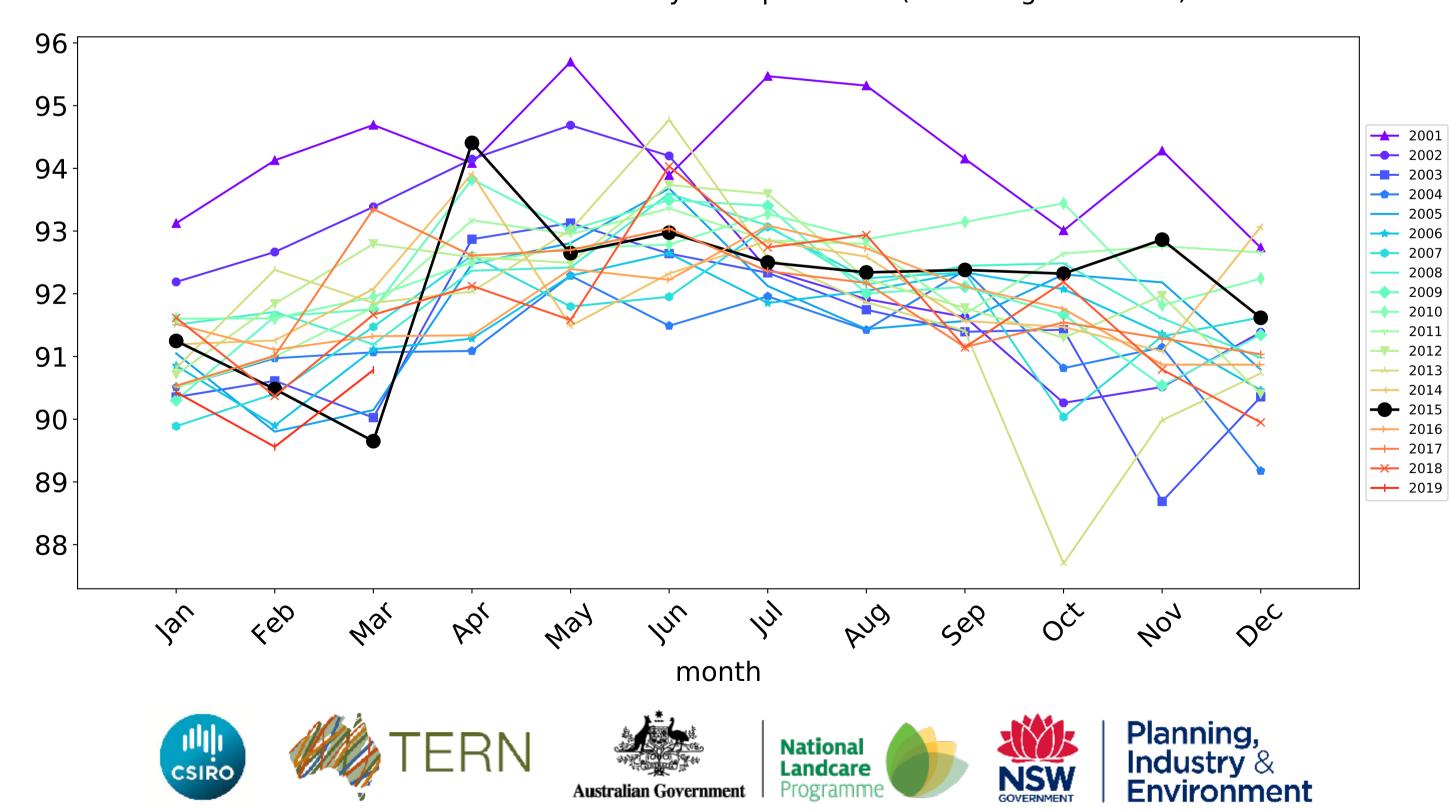
### Wind erosion historical monthly area protected (Total Veg Cov >50%)

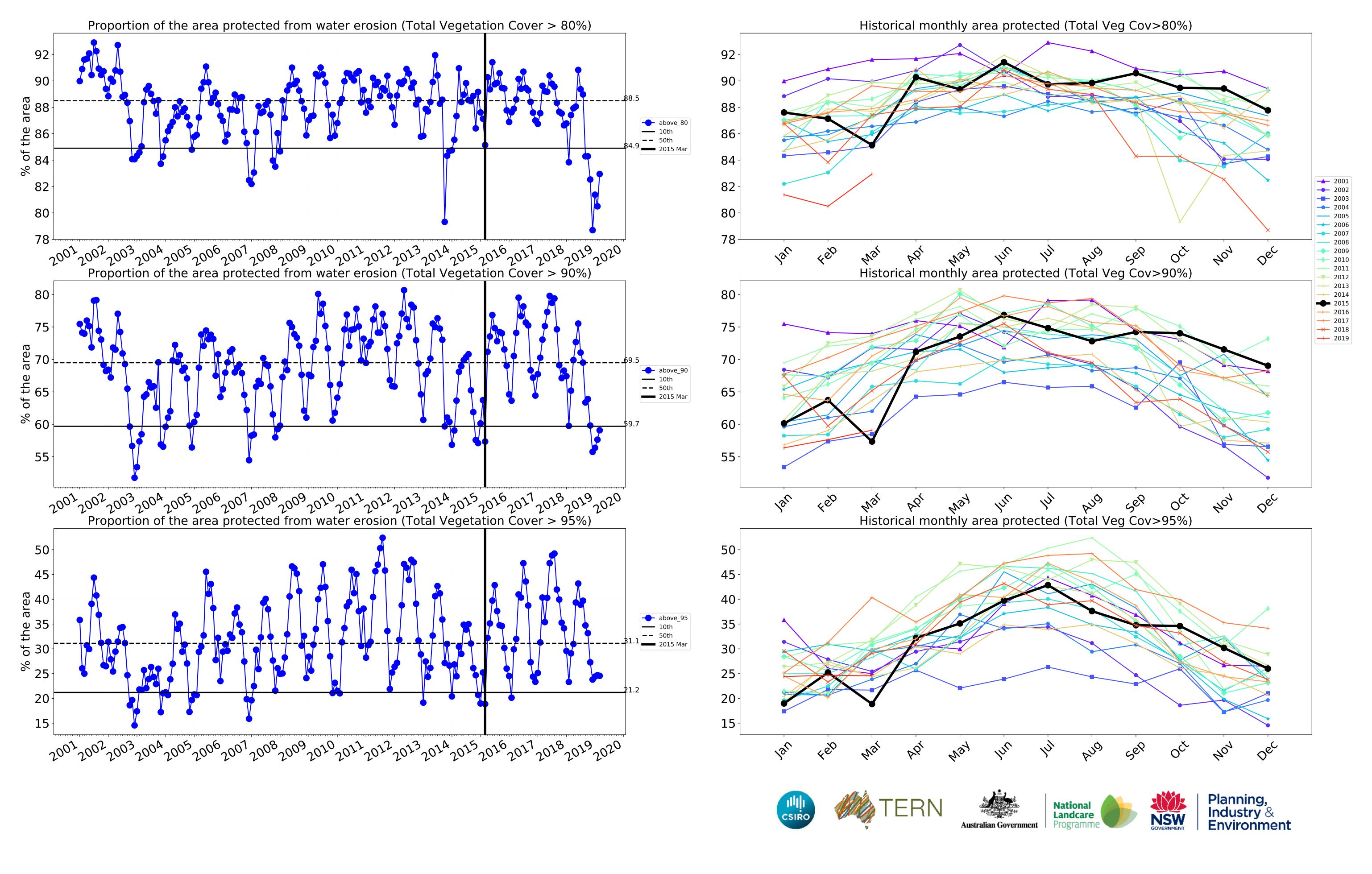


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

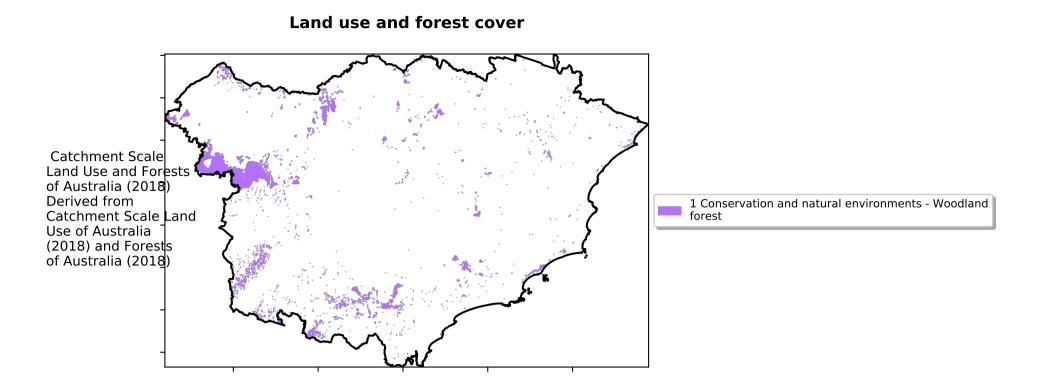


Water erosion historical monthly area protected (Total Veg Cov>70%)

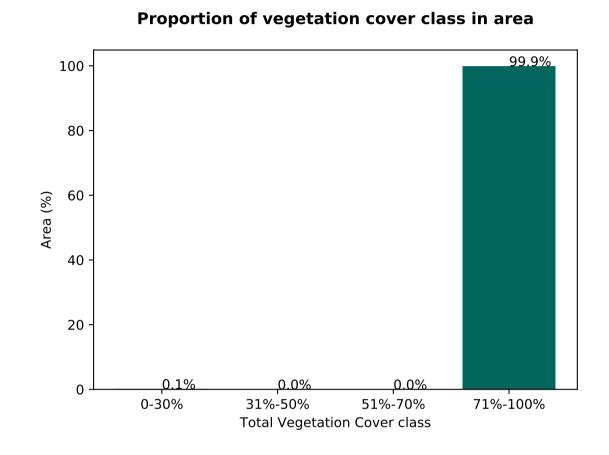


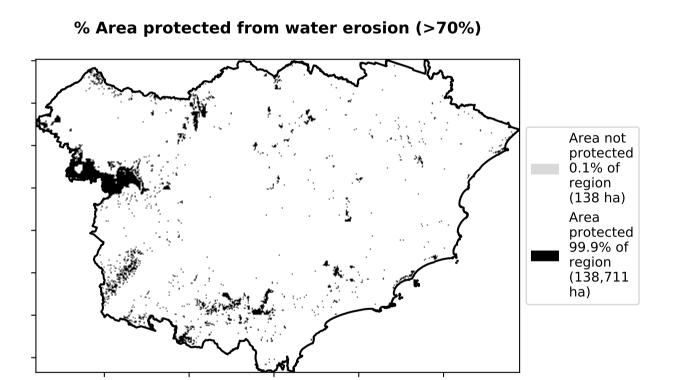


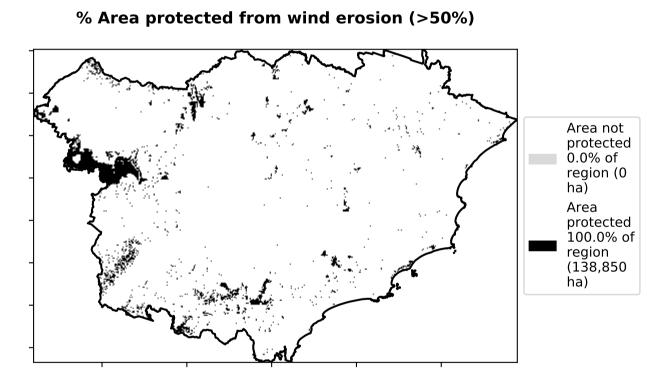
### **Conservation and natural environments Woodland forest**

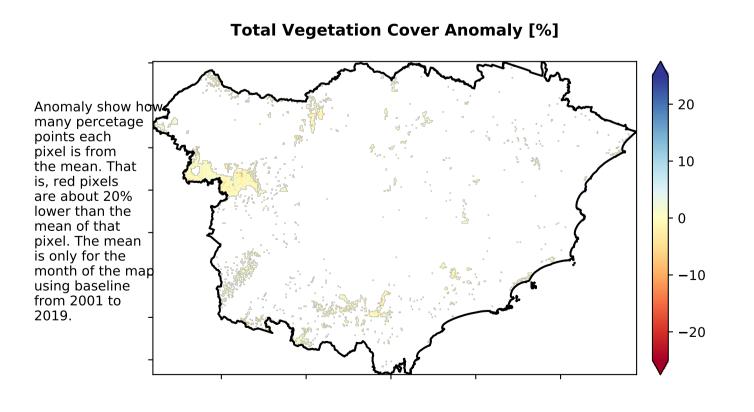


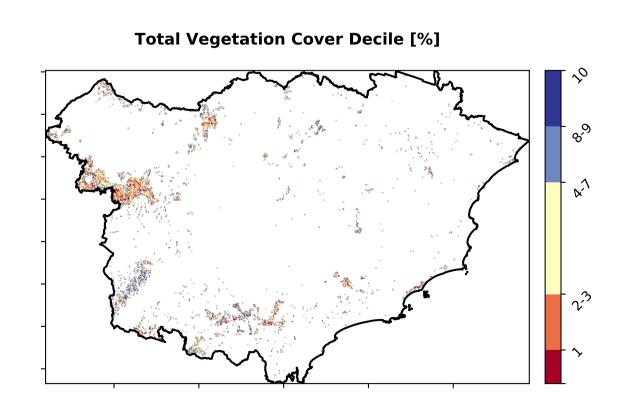
## Total Vegetation Cover [%]















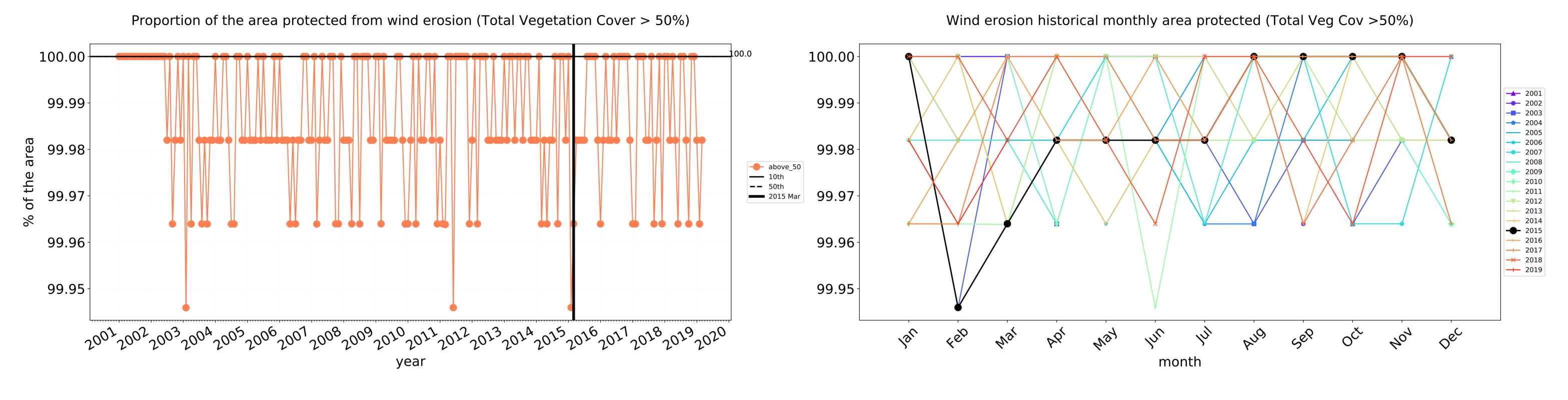


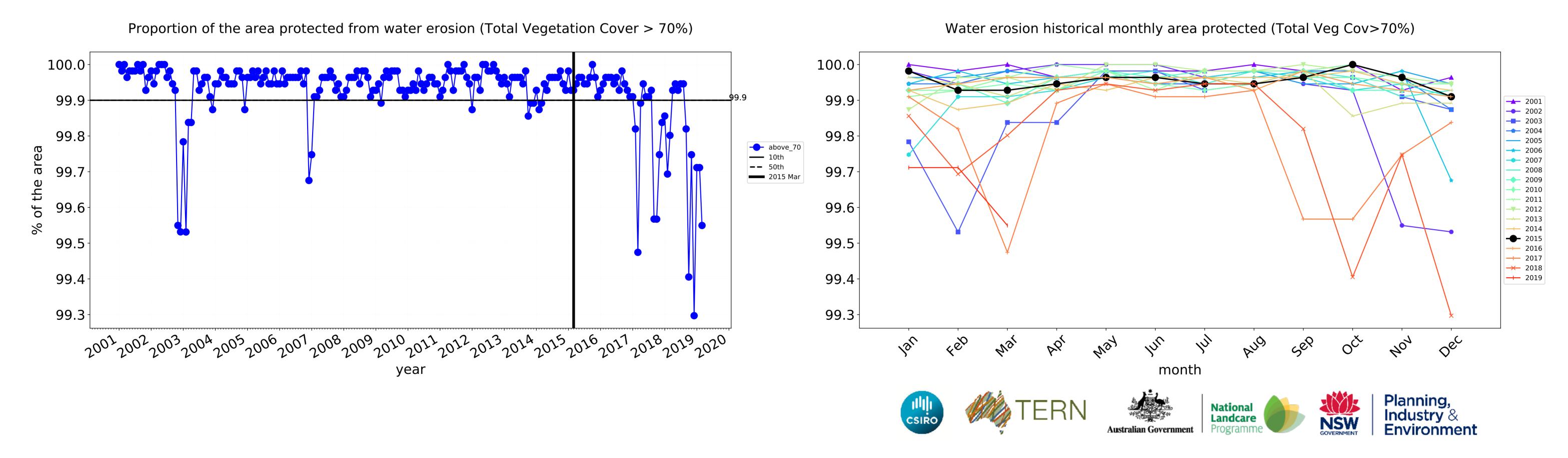


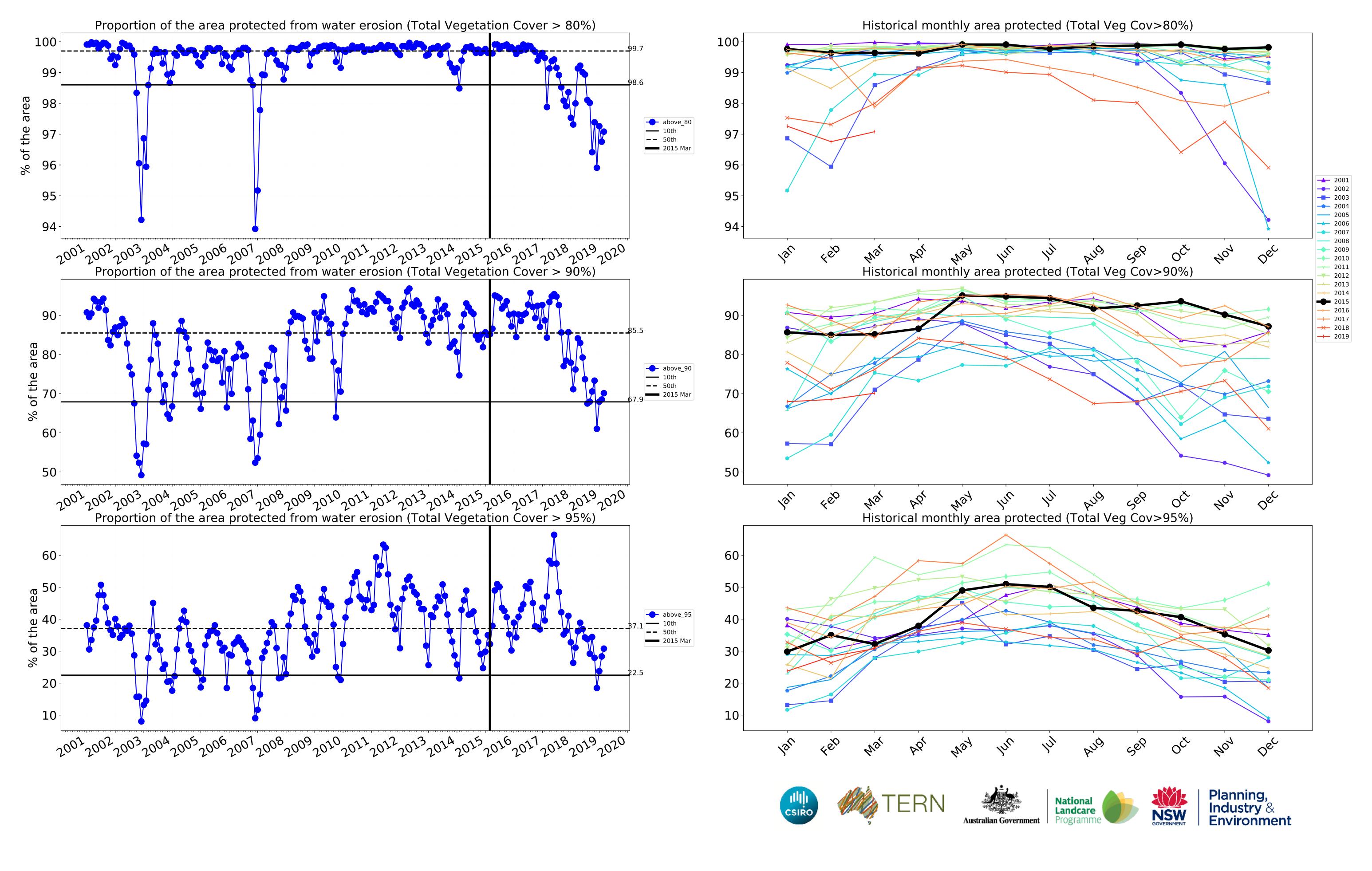




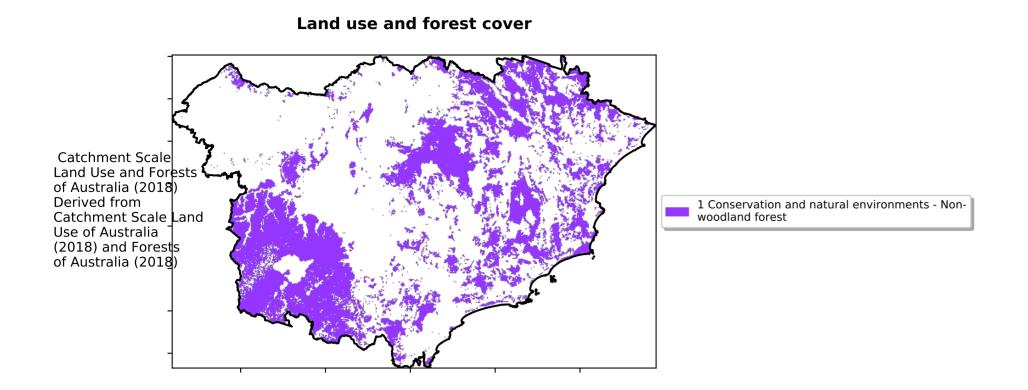
### **Conservation and natural environments Woodland forest timeseries**



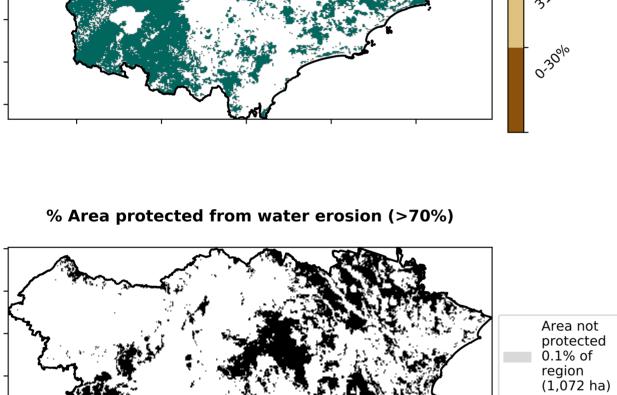


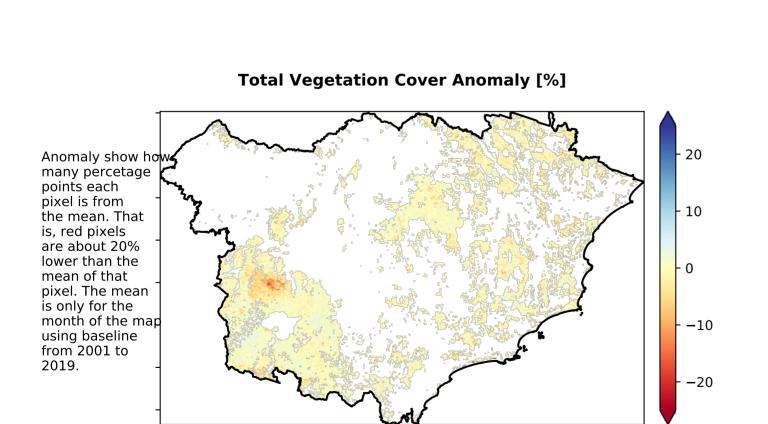


### **Conservation and natural environments Forest (non woodland)**

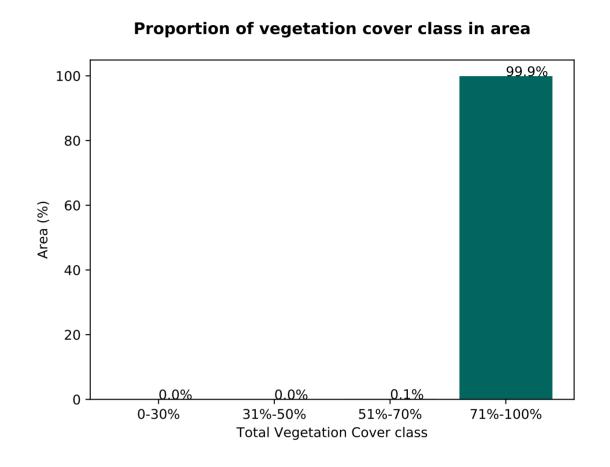


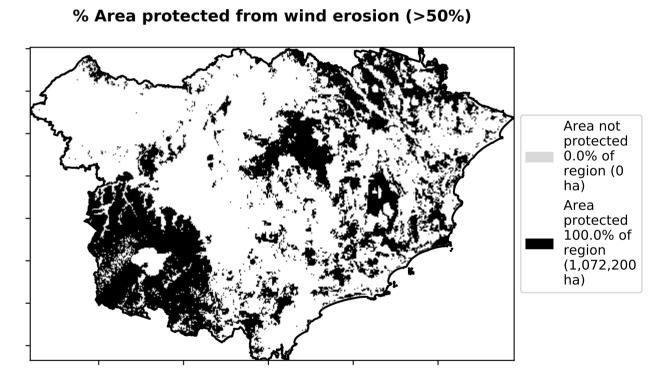
## Total Vegetation Cover [%] Total Vegetation Cover [%] Total Vegetation Cover [%]

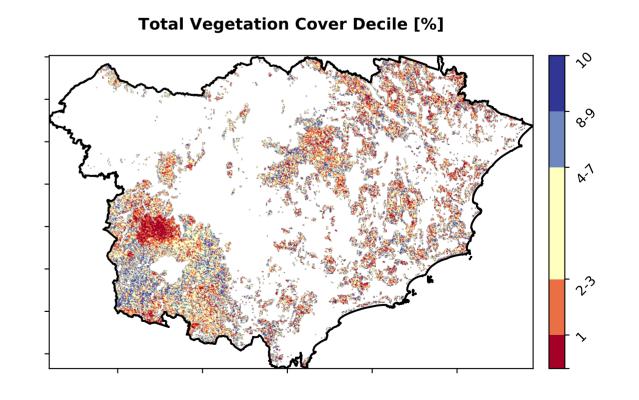




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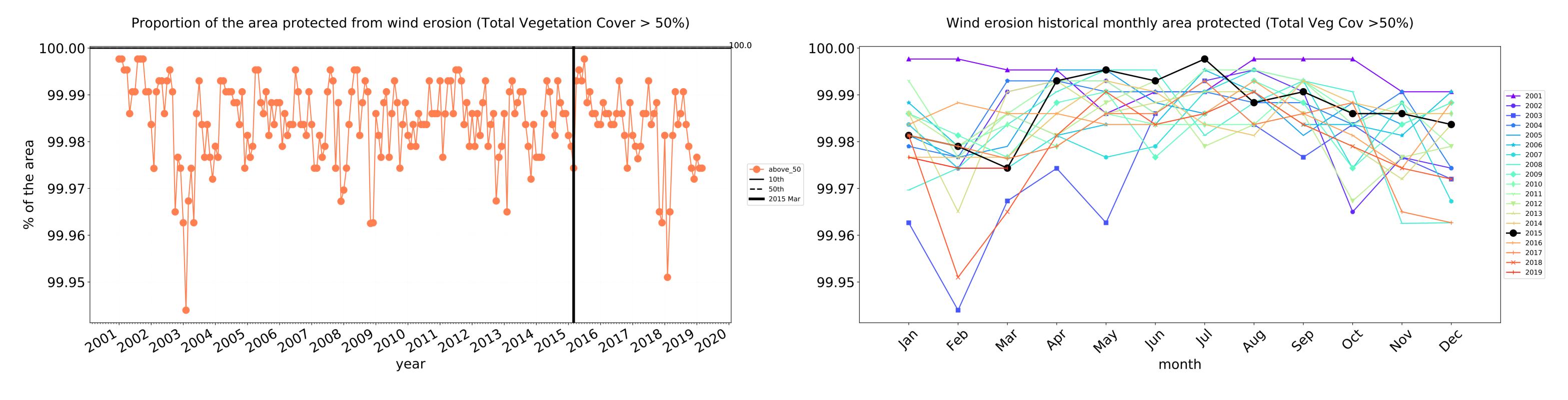


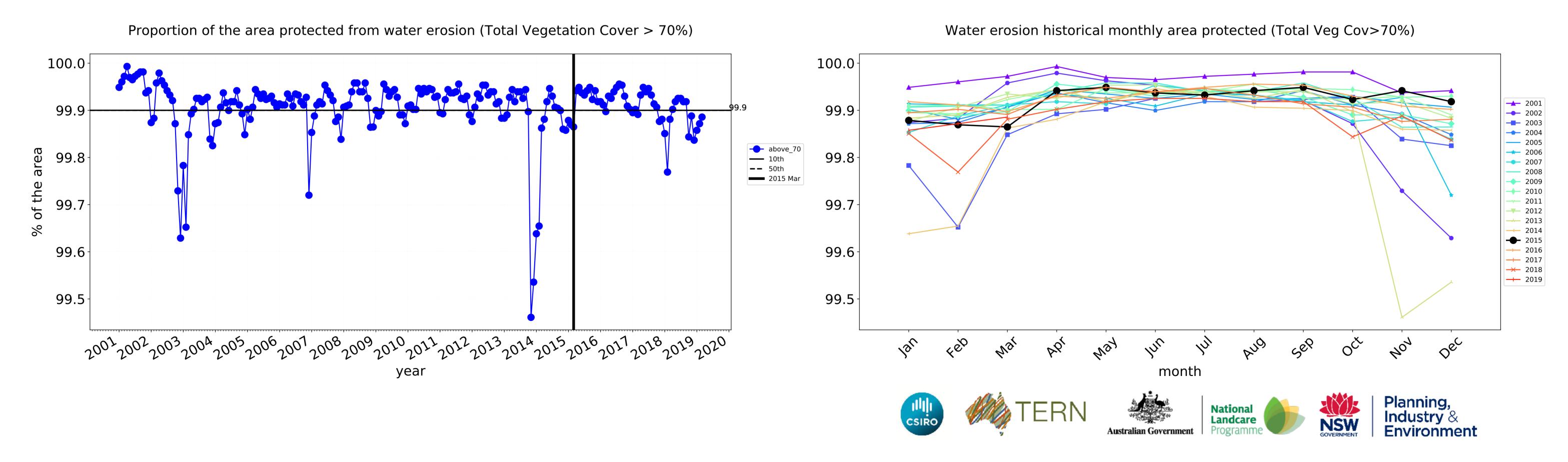


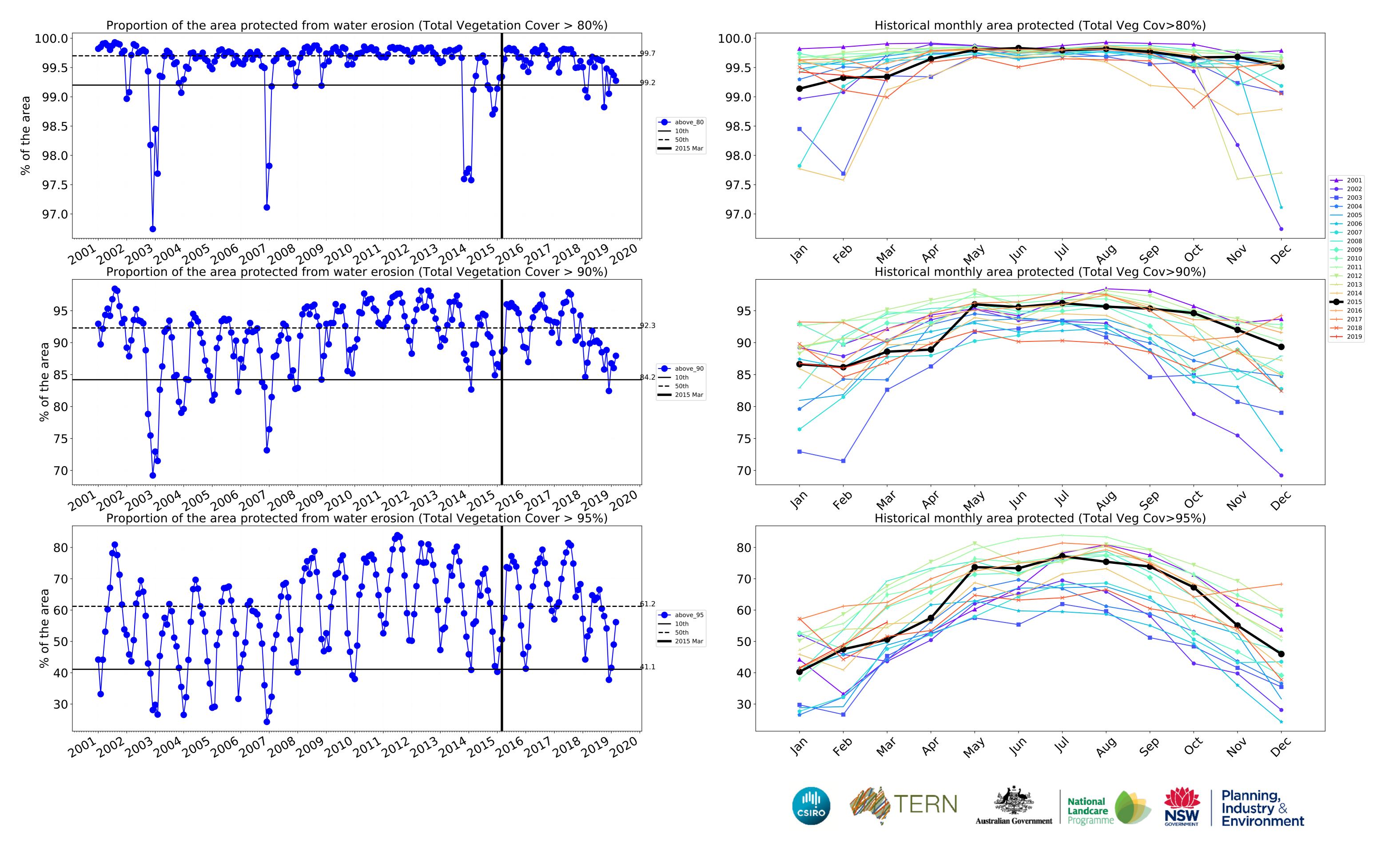
Area

protected 99.9% of

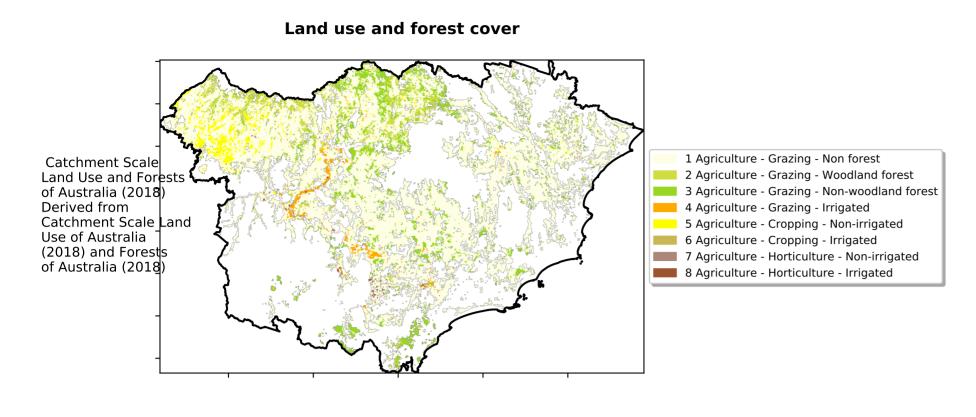
region (1,071,127 ha)



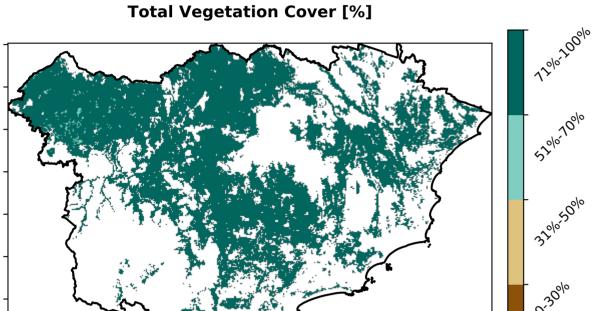


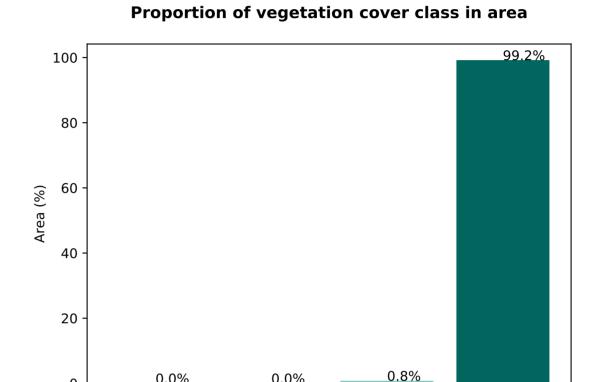


### **Agriculture**



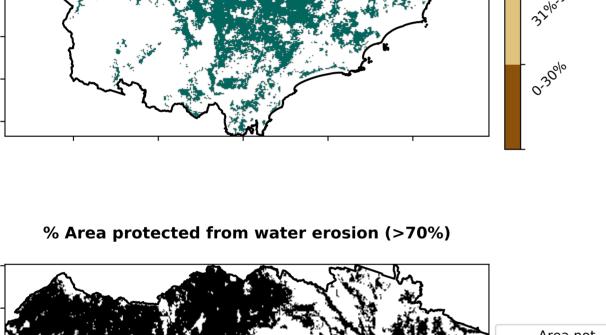
# Proportion of each land class in area 80 76.7% 70 60 50 20 10 7.6% 10.7% 10.7% 1.3% 3.2% 0.1% 0.1% 0.2% Land use class

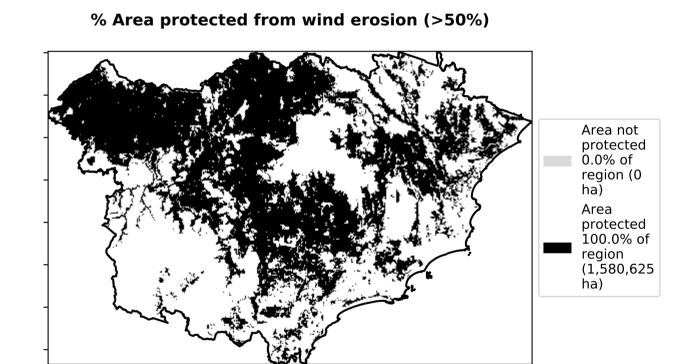




31%-50%

0-30%

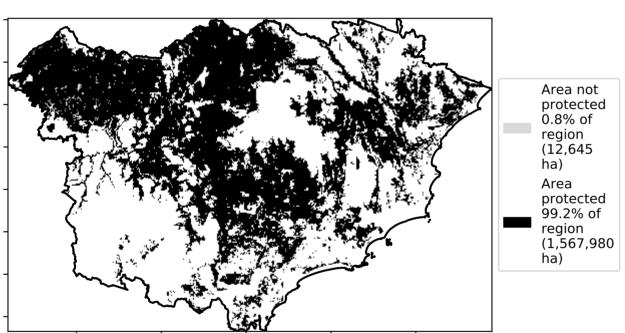


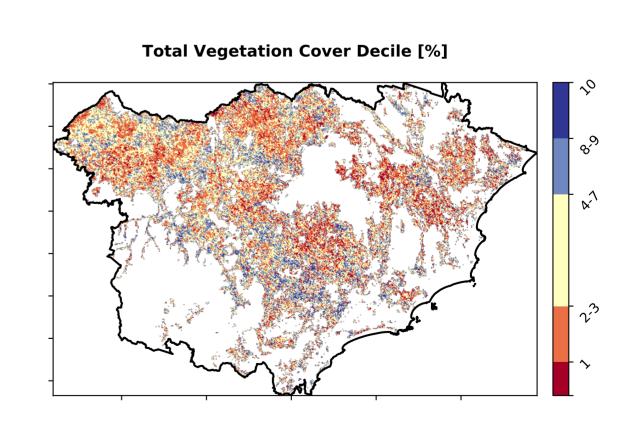


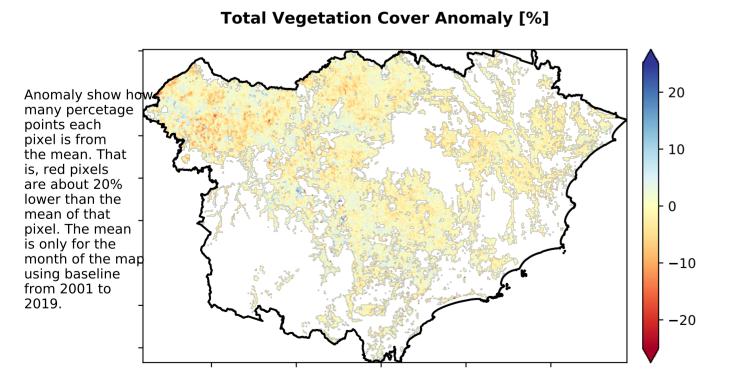
51%-70%

**Total Vegetation Cover class** 

71%-100%











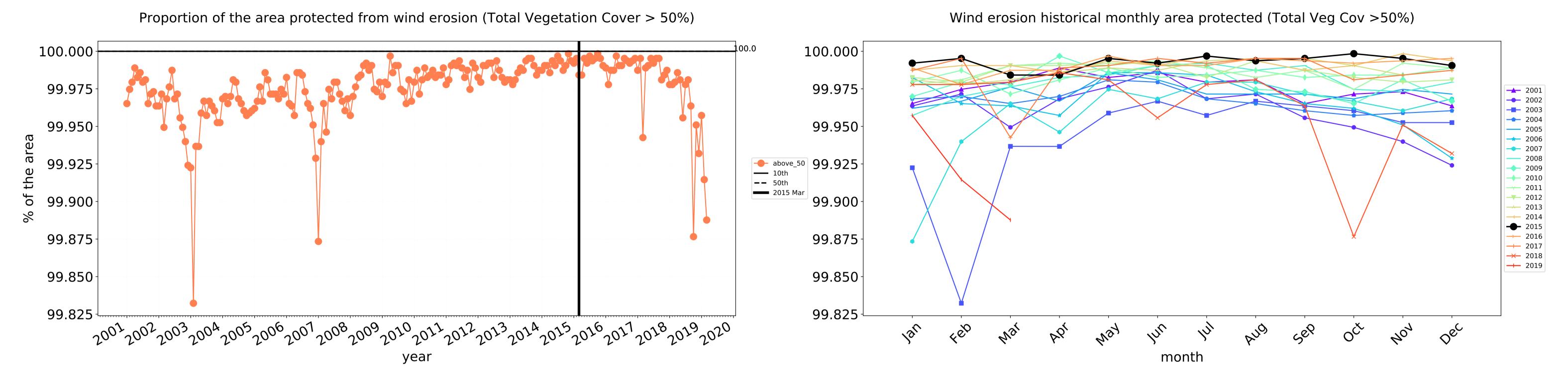


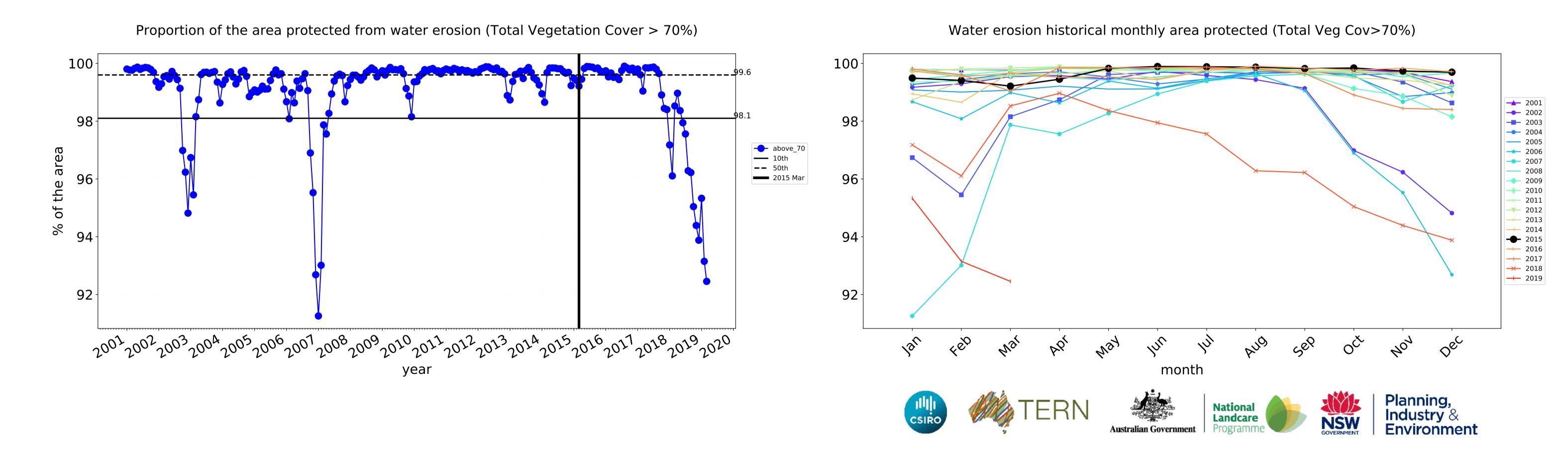


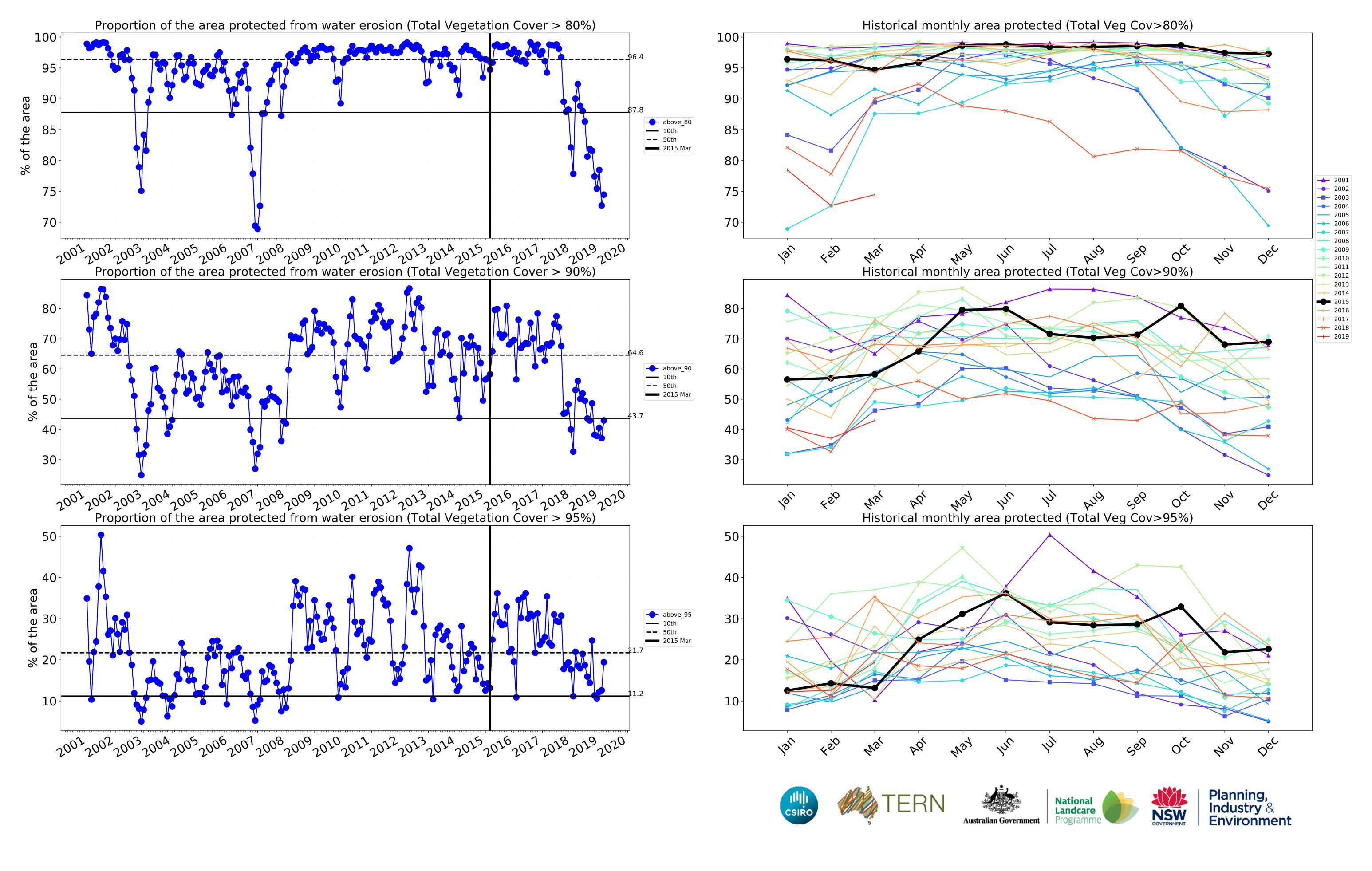




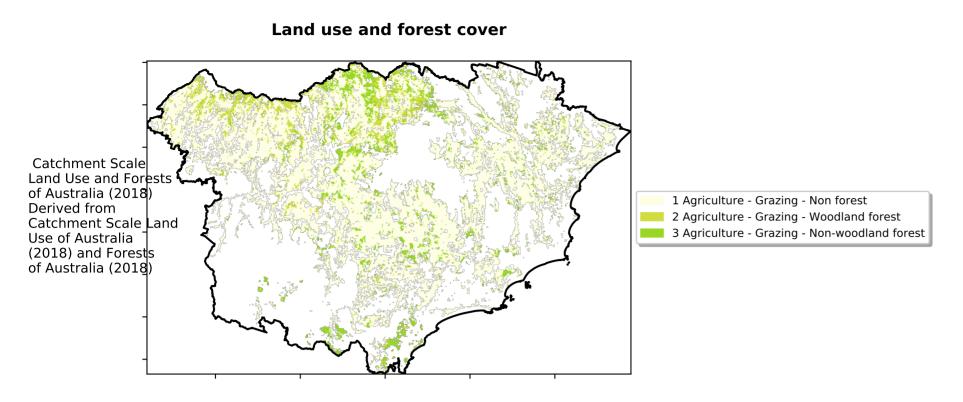
### **Agriculture timeseries**



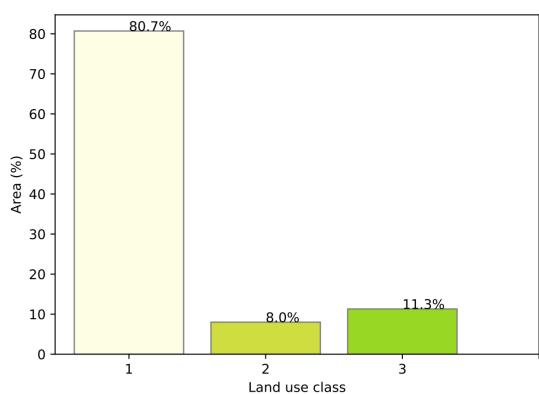




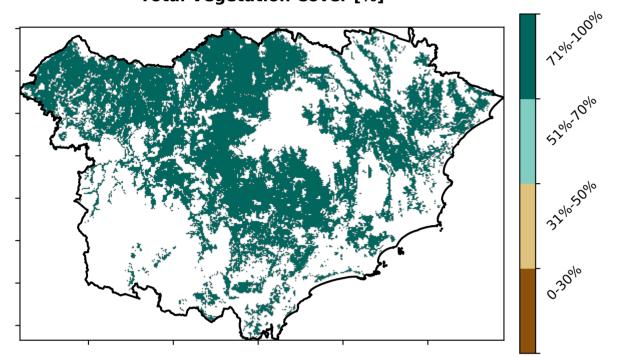
### **Grazing**



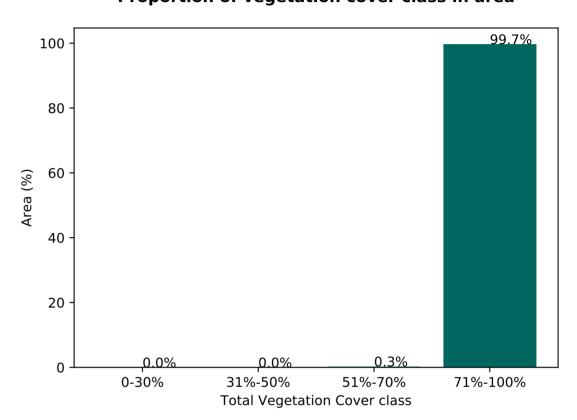
### Proportion of each land class in area



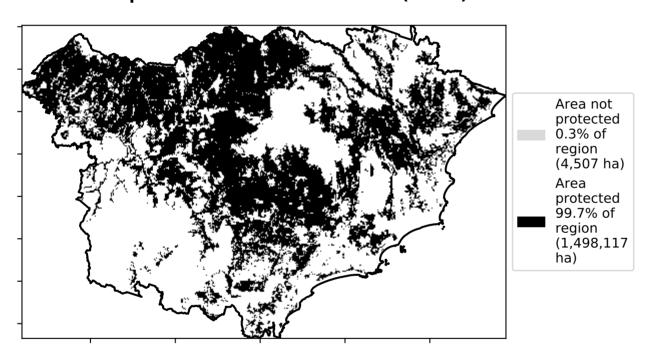
**Total Vegetation Cover [%]** 



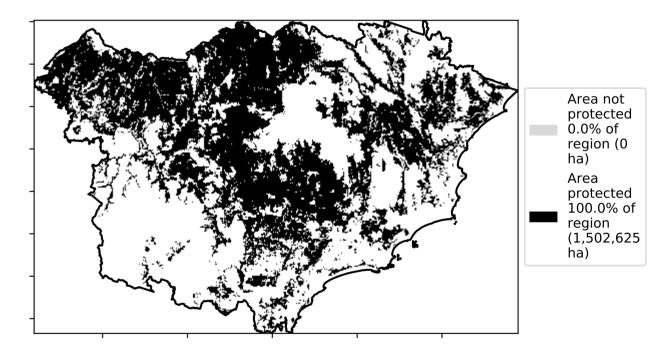
Proportion of vegetation cover class in area



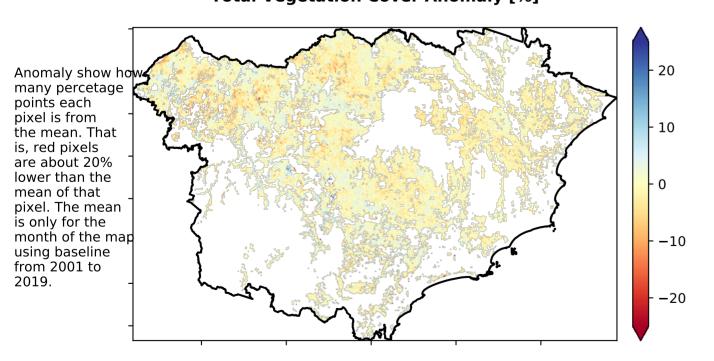
% Area protected from water erosion (>70%)

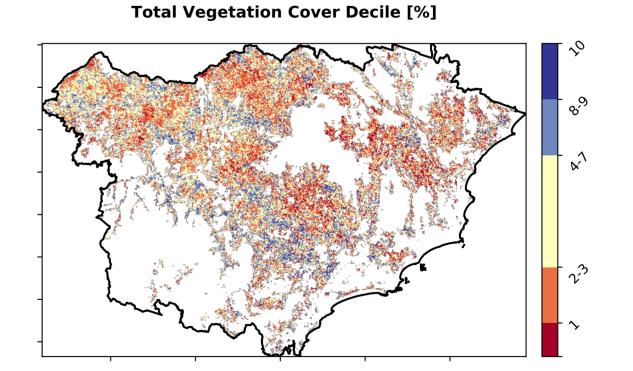


% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]









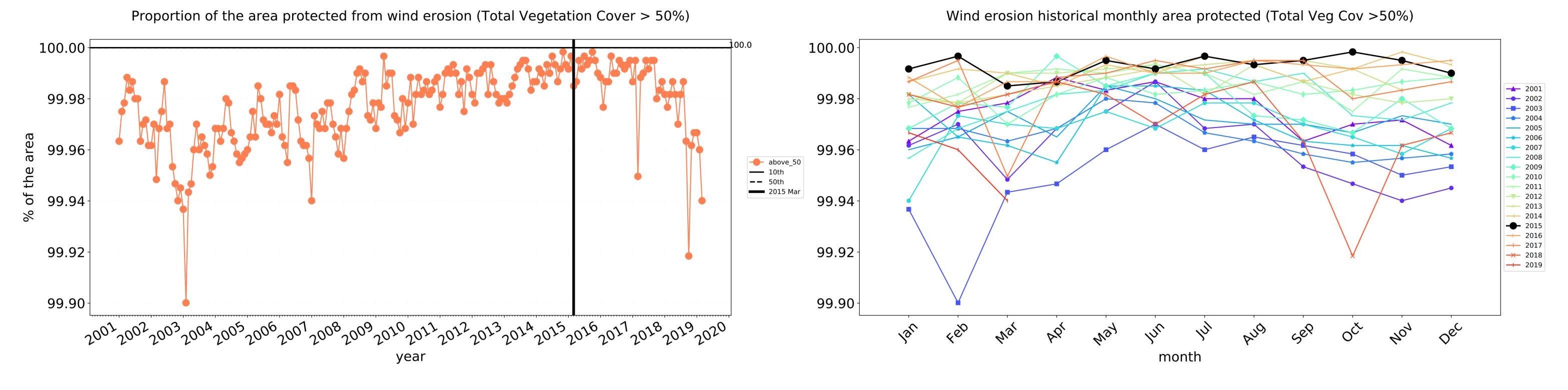


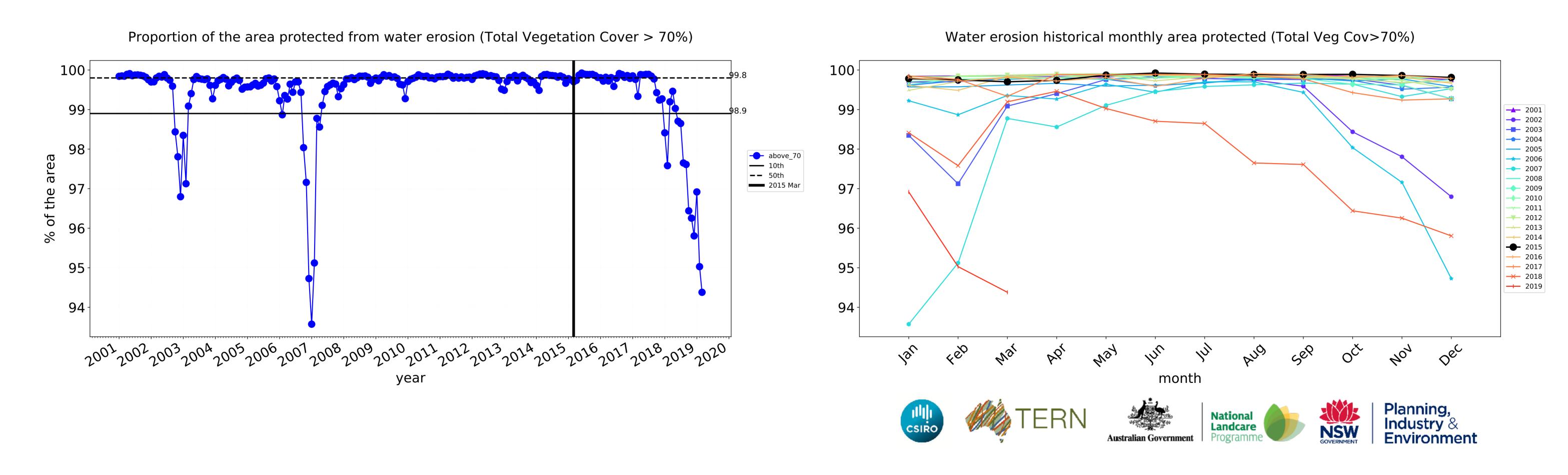


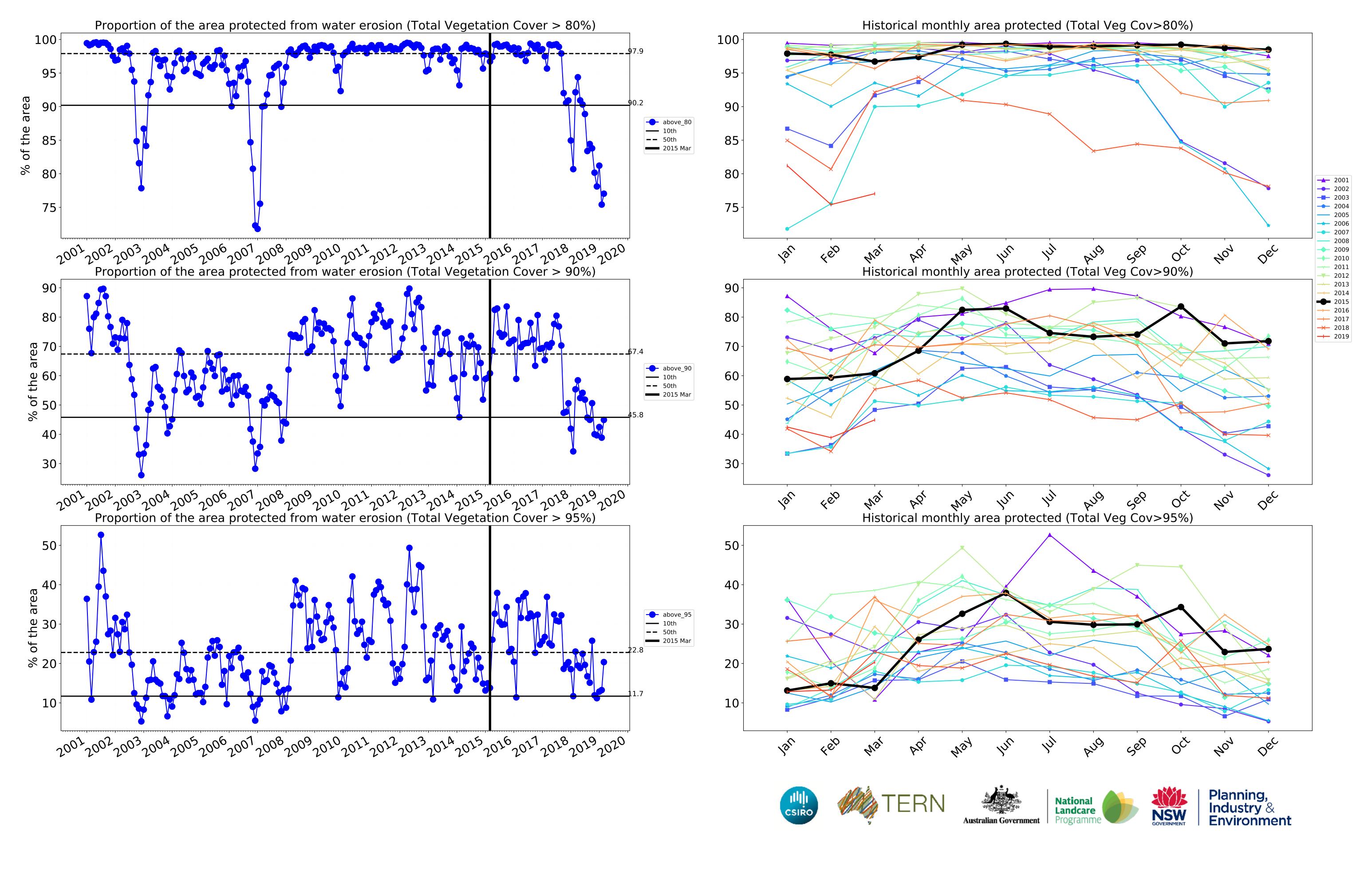




### **Grazing timeseries**

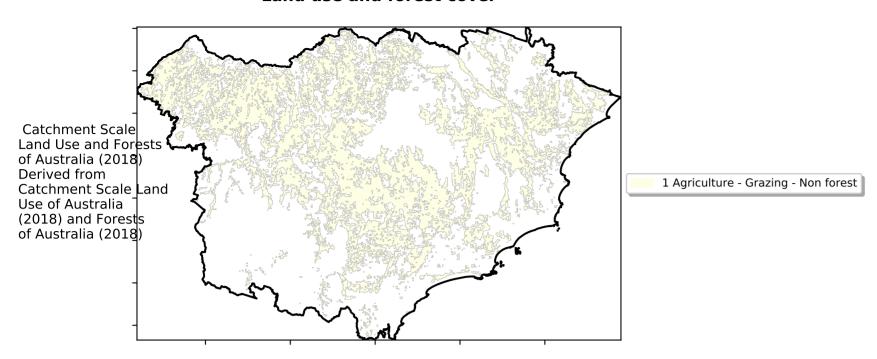




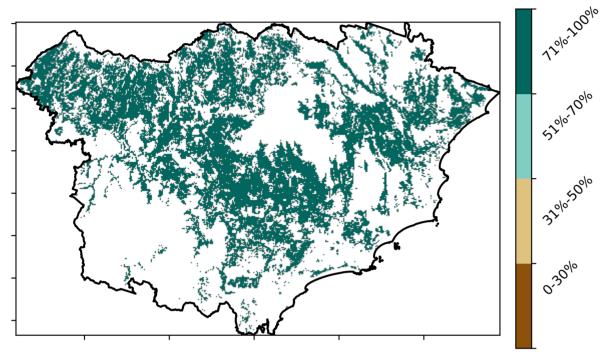


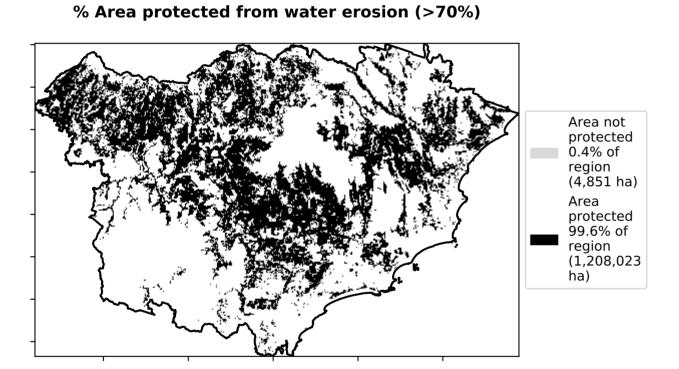
### **Grazing non forest**

### Land use and forest cover

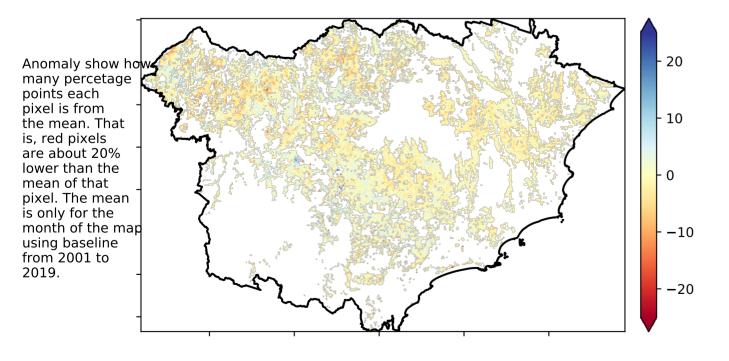


### Total Vegetation Cover [%]



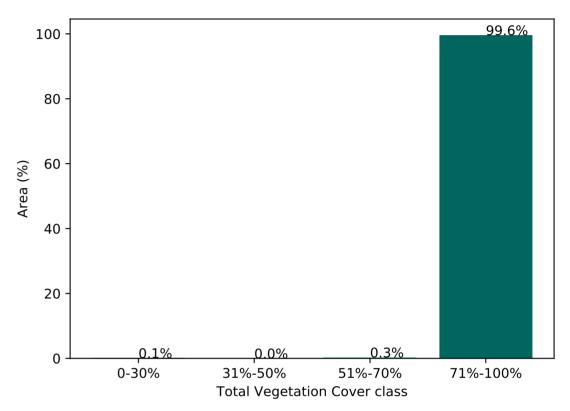


### Total Vegetation Cover Anomaly [%]

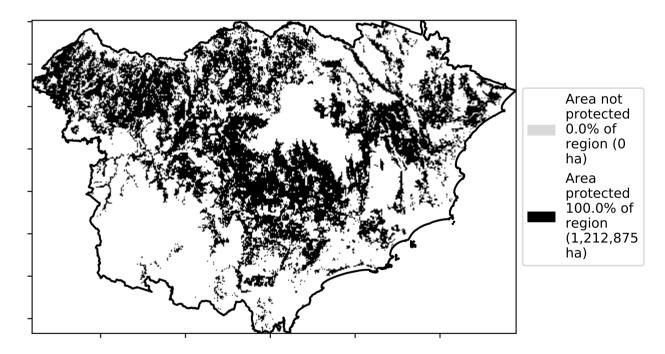


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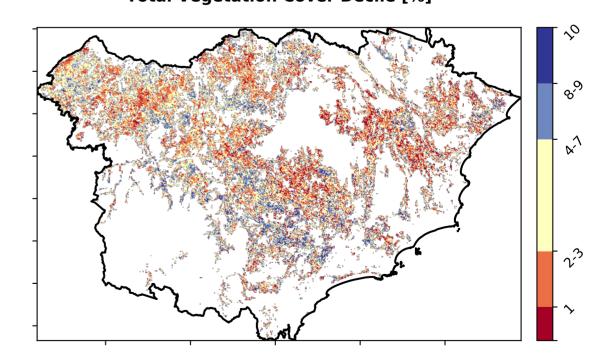
### **Proportion of vegetation cover class in area**



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



### Total Vegetation Cover Decile [%]







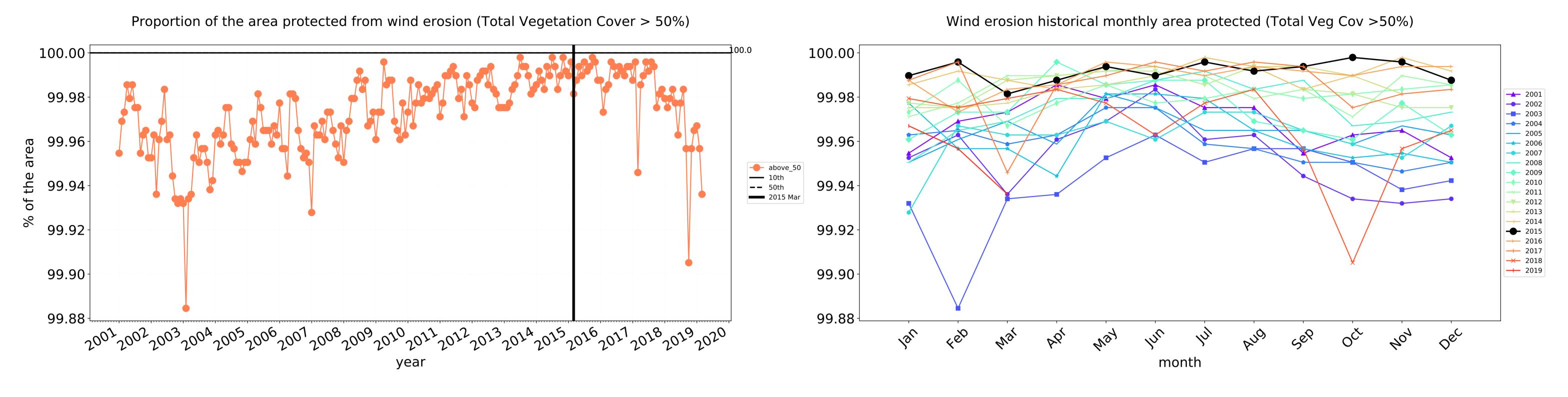


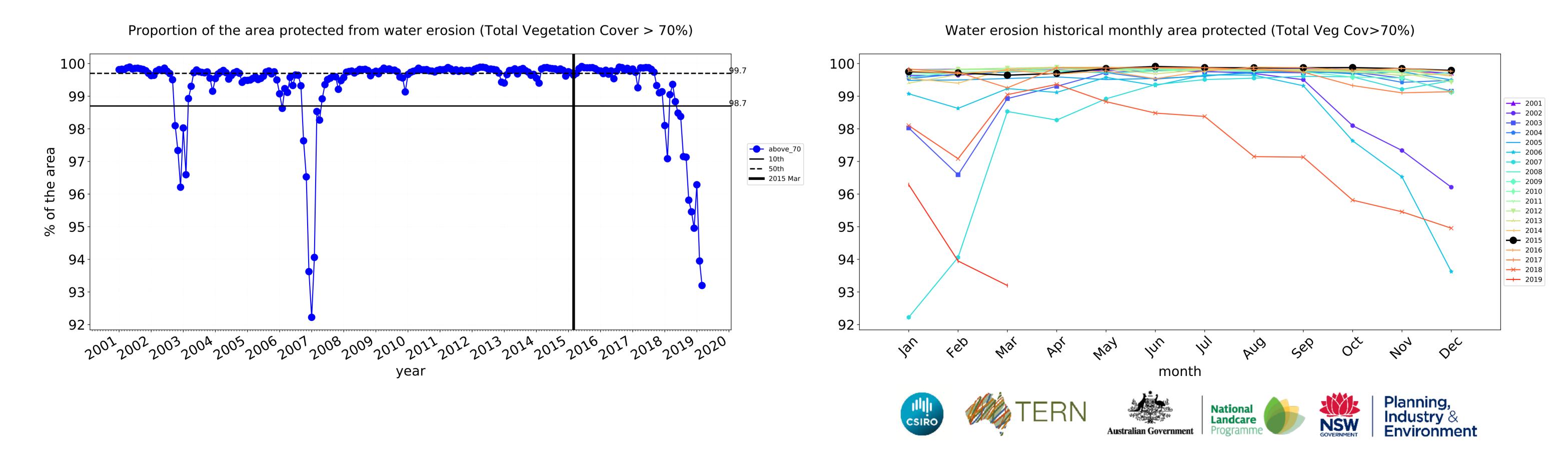


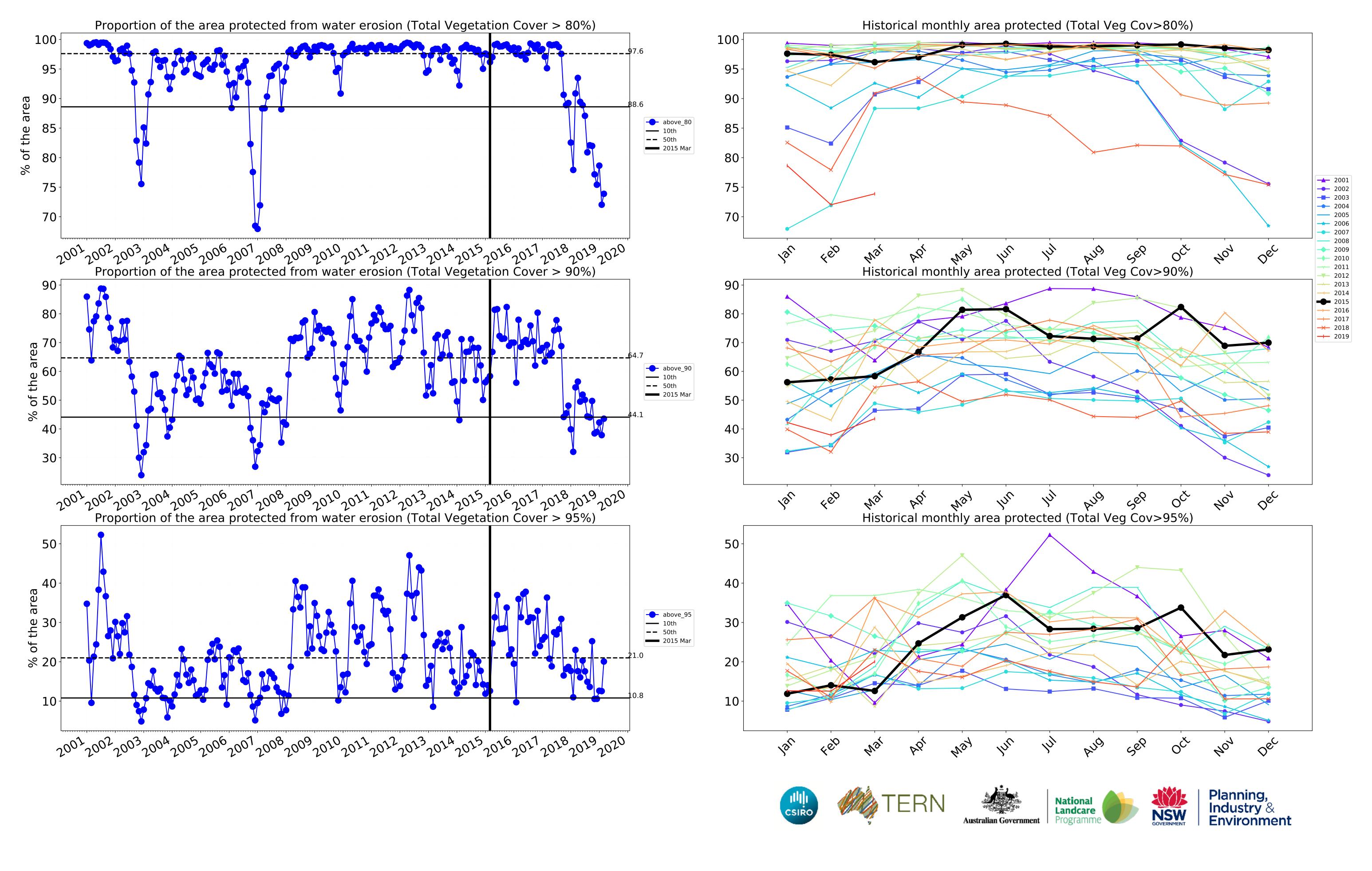




### **Grazing non forest timeseries**





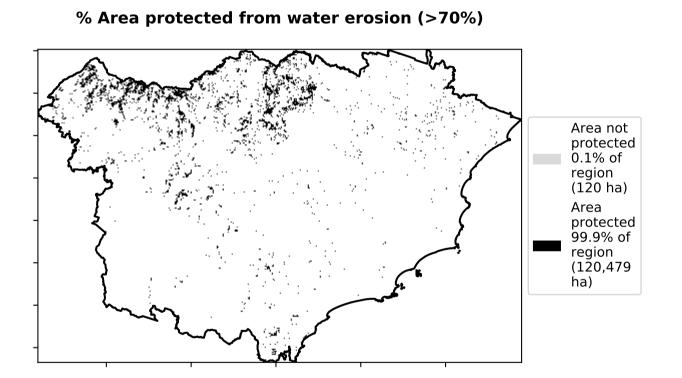


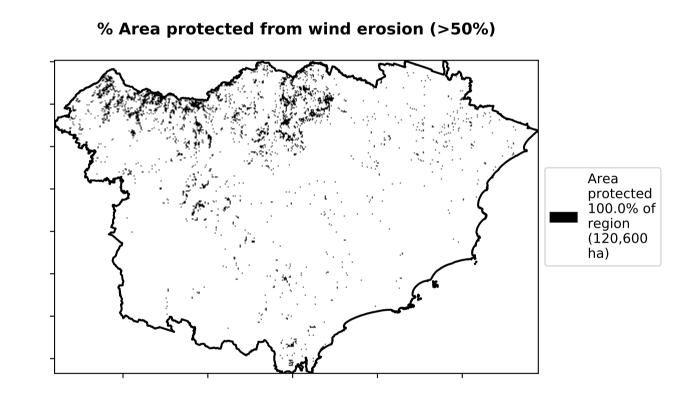
### **Grazing Woodland forest**

### **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)

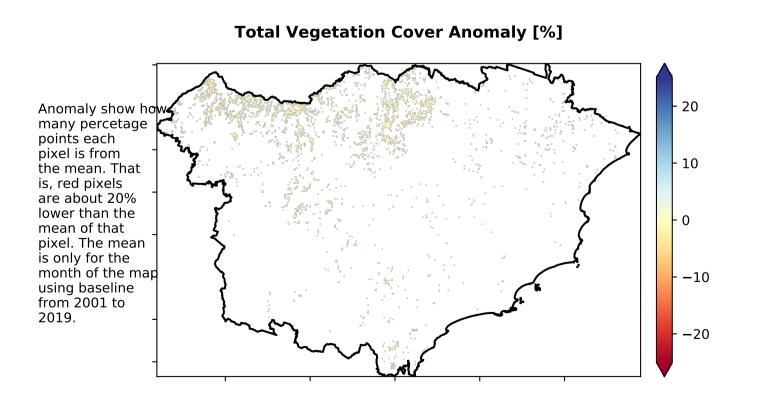
## **Total Vegetation Cover [%]**

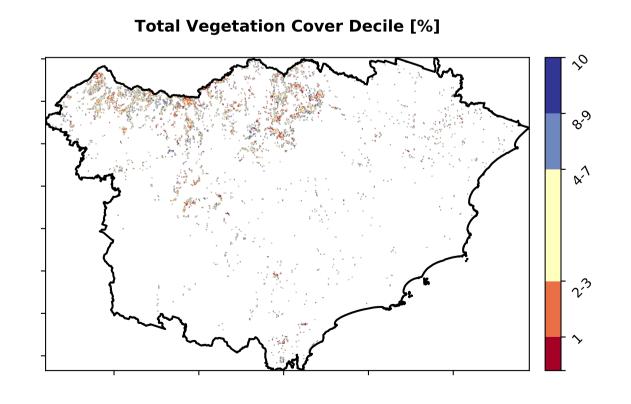
### 99.9% 100 80 Area (%) 40 20 -0.1% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**





**Proportion of vegetation cover class in area** 









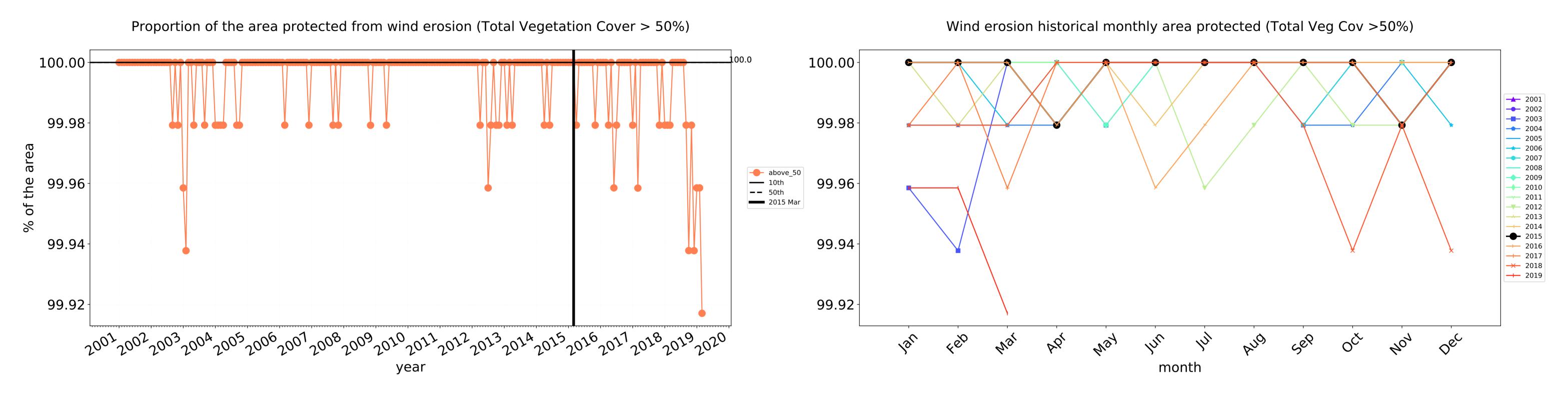


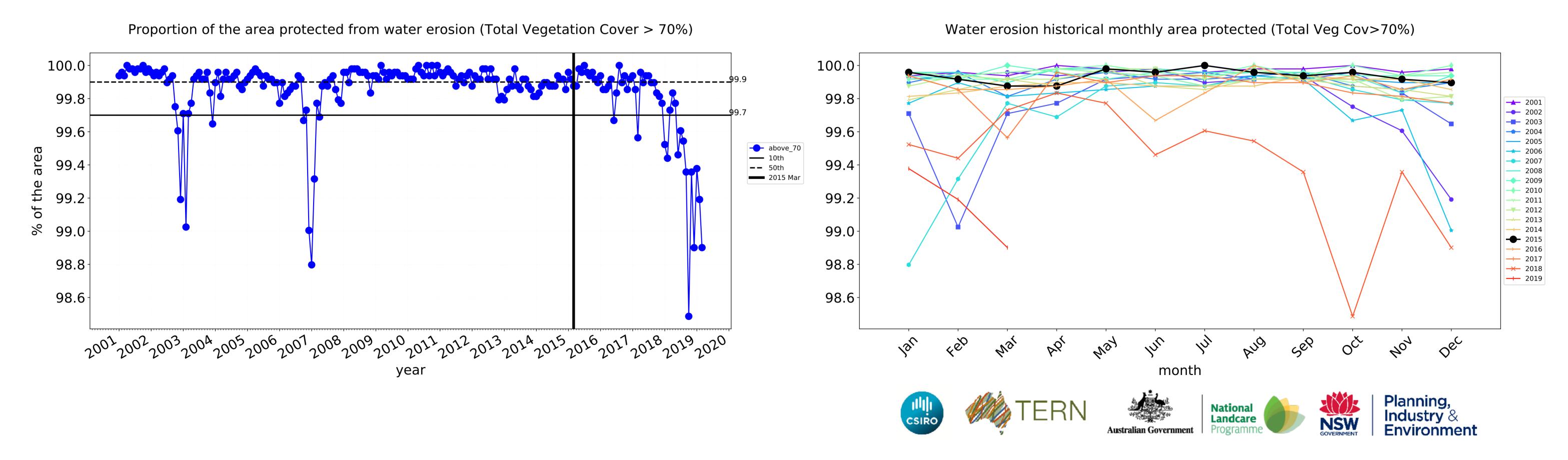


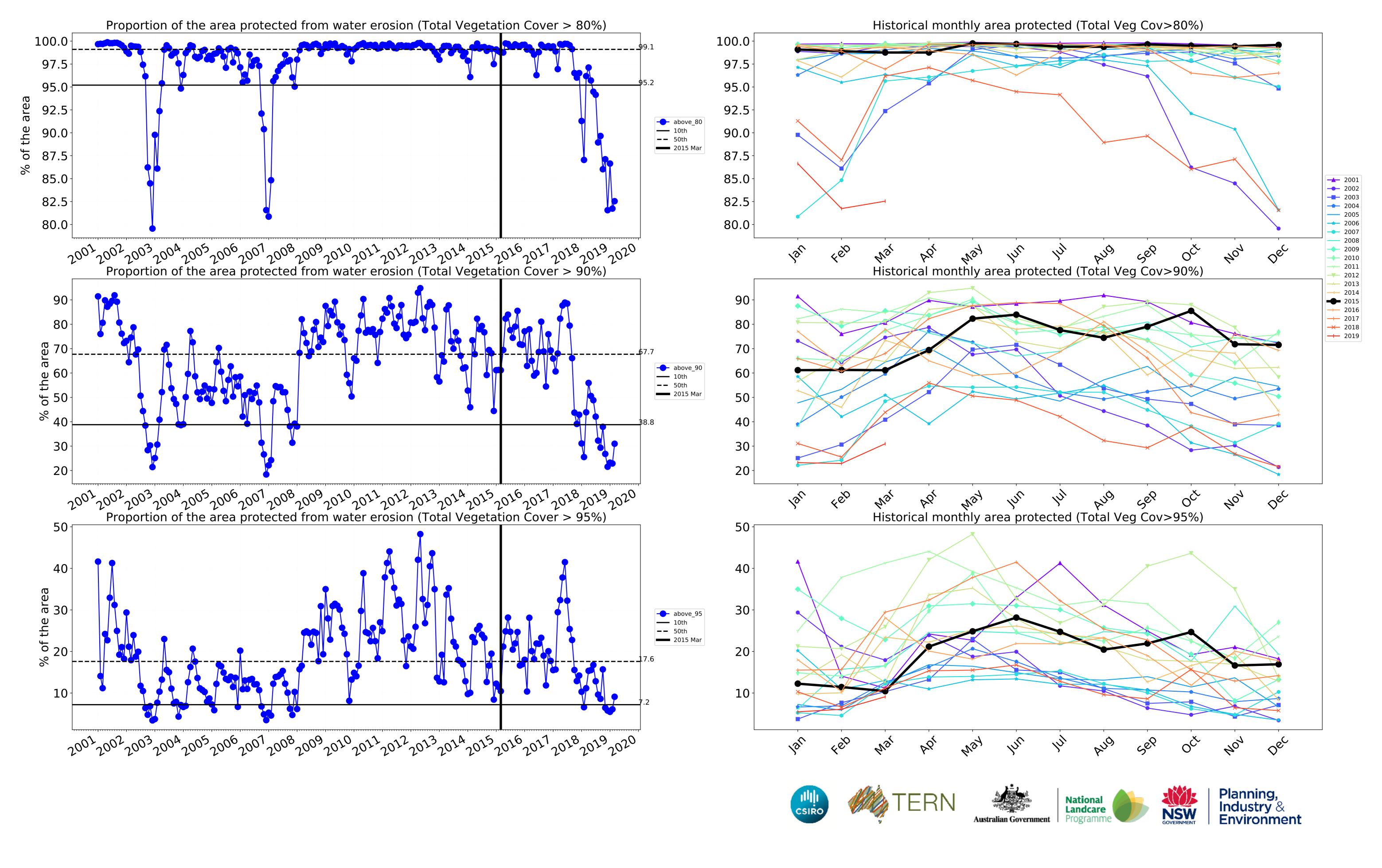




### **Grazing Woodland forest timeseries**





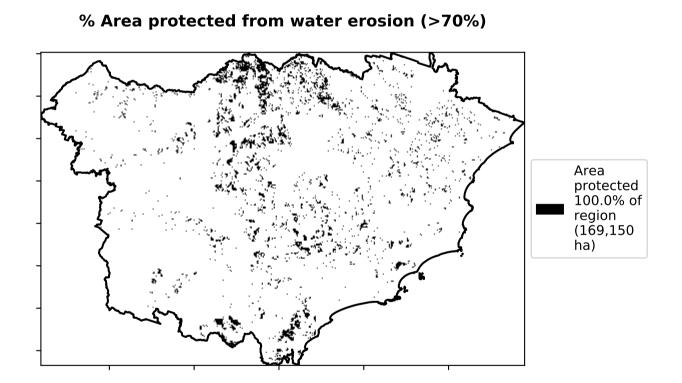


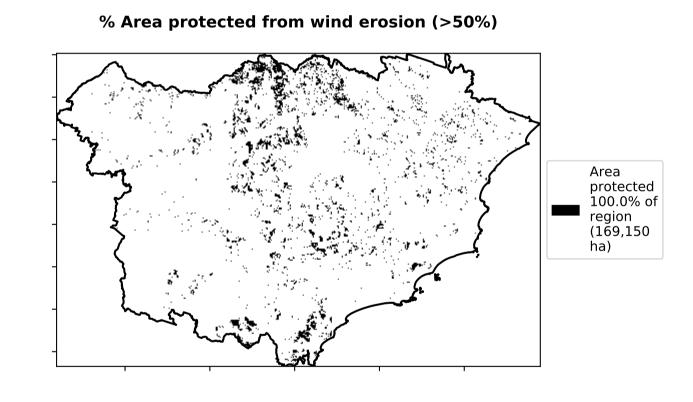
### **Grazing - Forest (non woodland)**

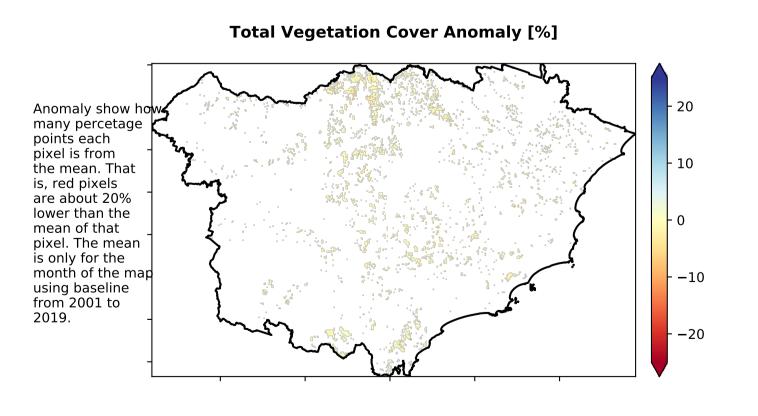
### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) Of Australia (2018)

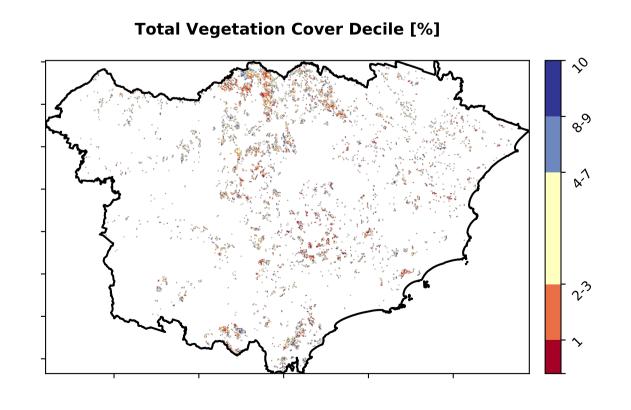
## Total Vegetation Cover [%] Total Vegetation Cover [%] Total Vegetation Cover [%]

# Proportion of vegetation cover class in area 100 - 100.0% 80 - 100.0% 40 - 20 - 0.0% 0-30% 31%-50% Total Vegetation Cover class











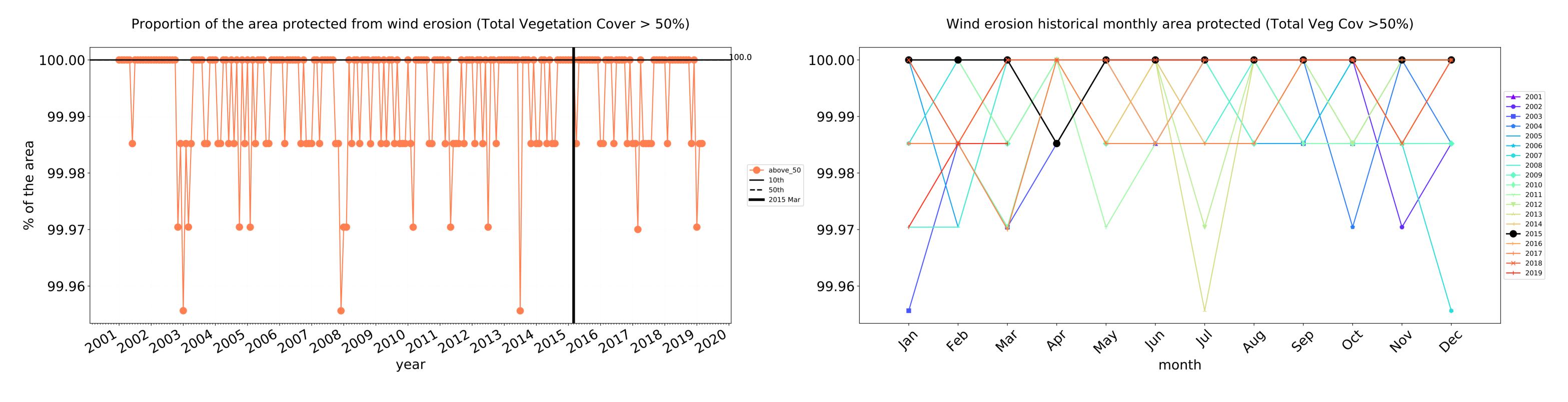


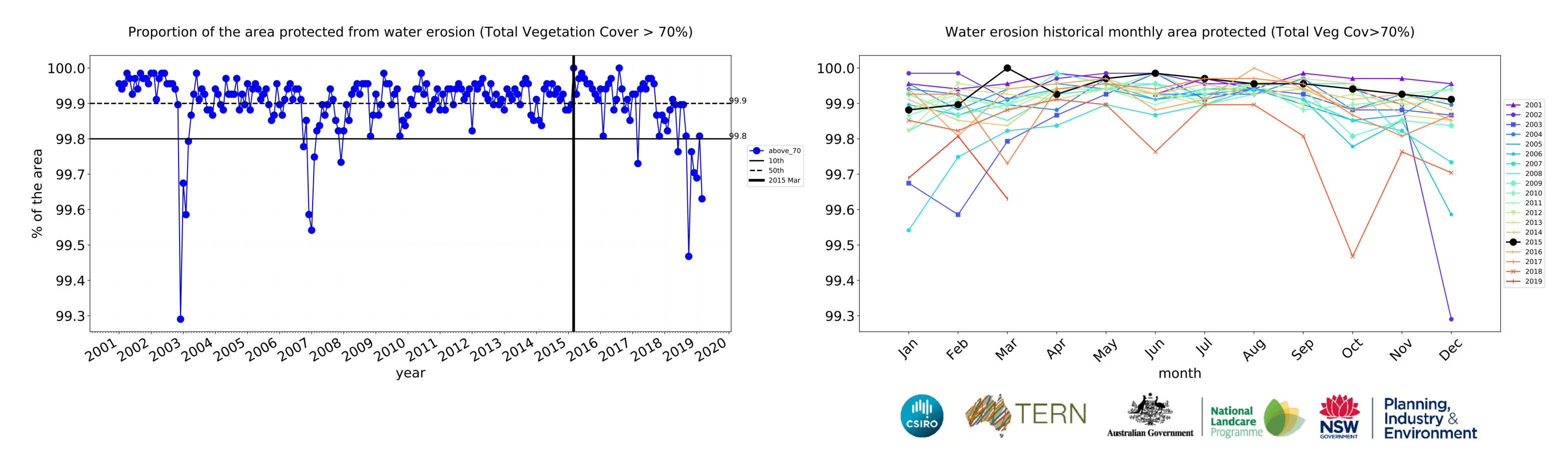


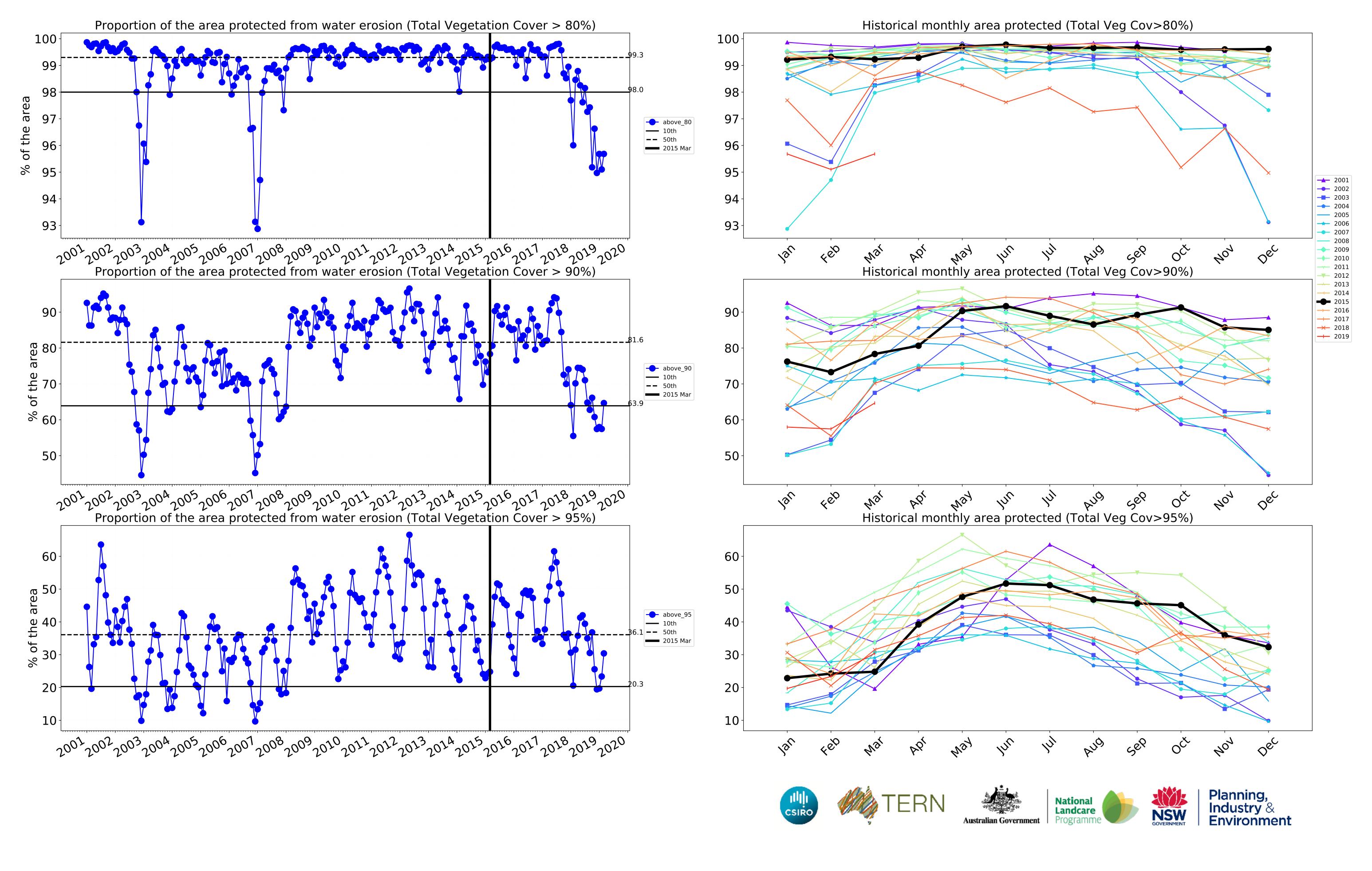






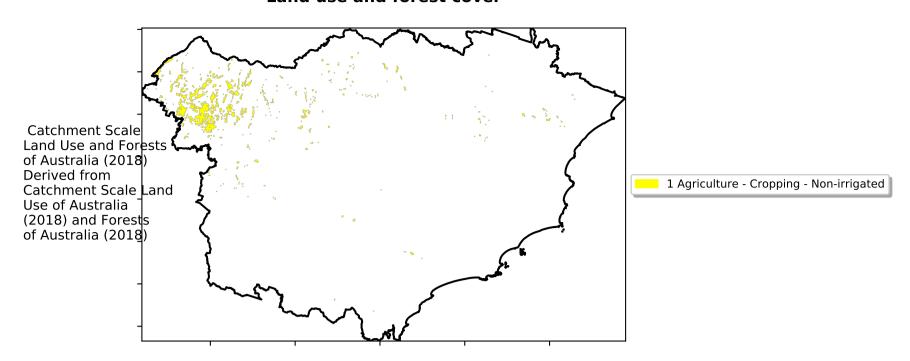




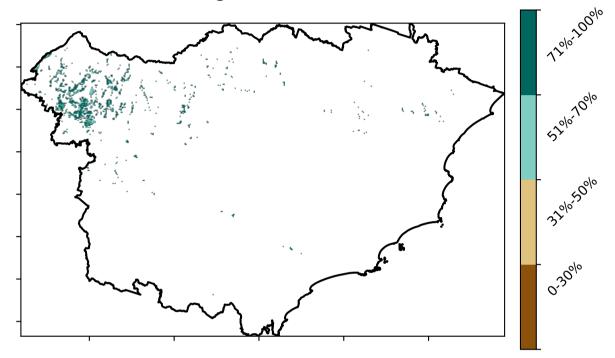


### **Cropping**

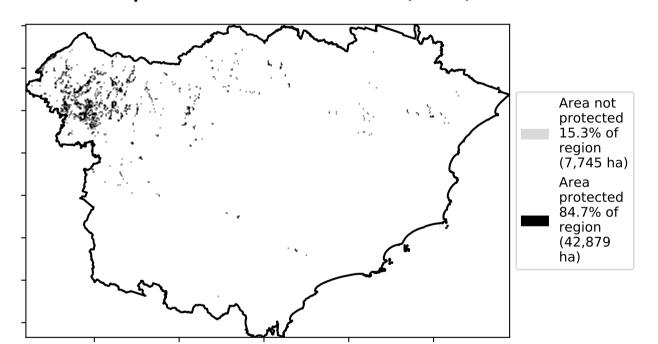
### Land use and forest cover



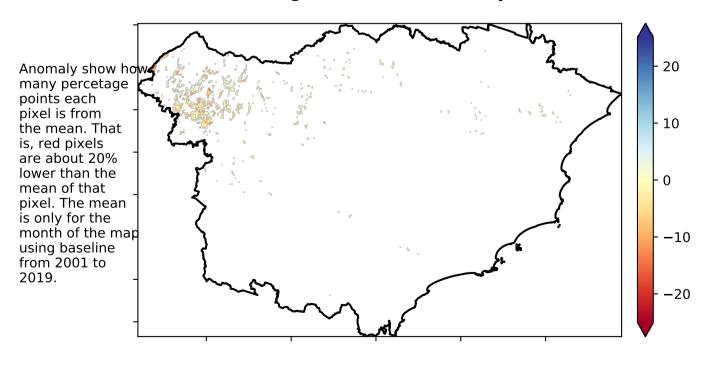
### **Total Vegetation Cover [%]**



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

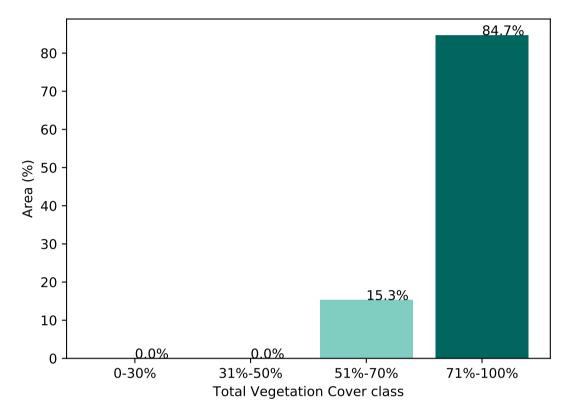


### Total Vegetation Cover Anomaly [%]

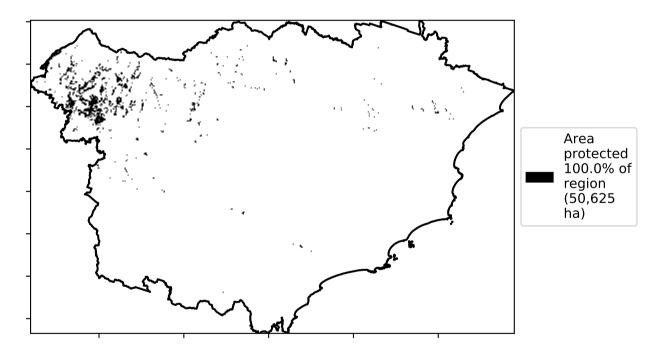


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

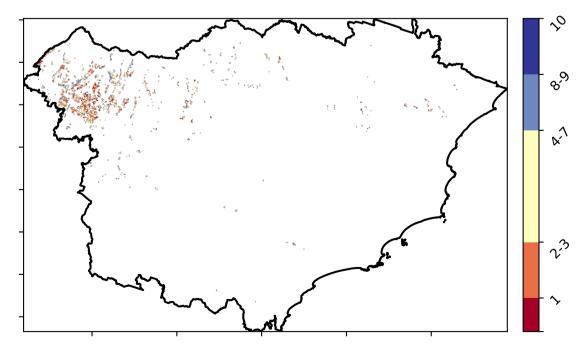
### **Proportion of vegetation cover class in area**



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



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







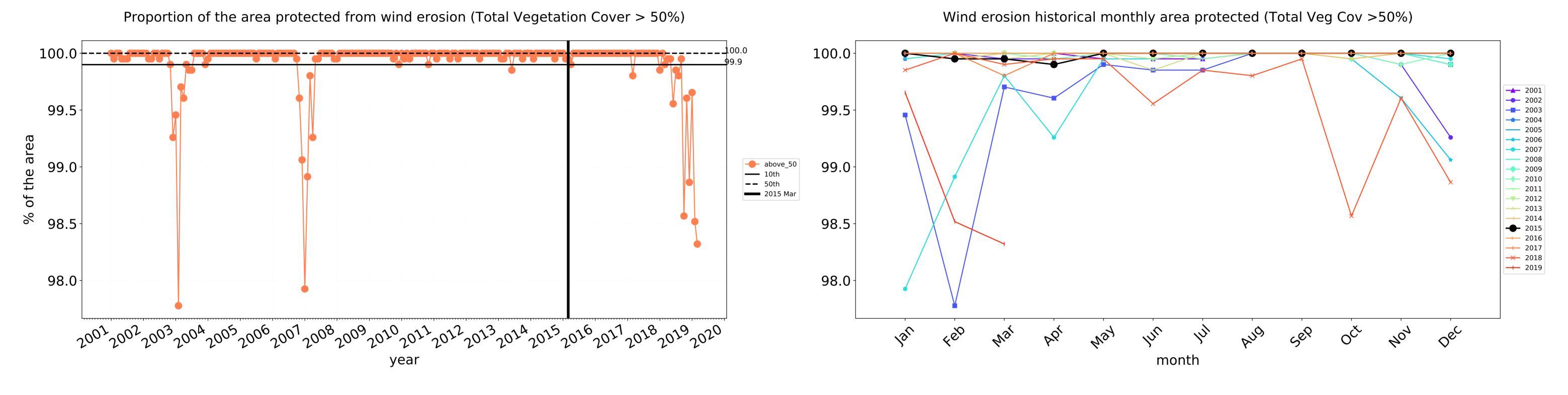


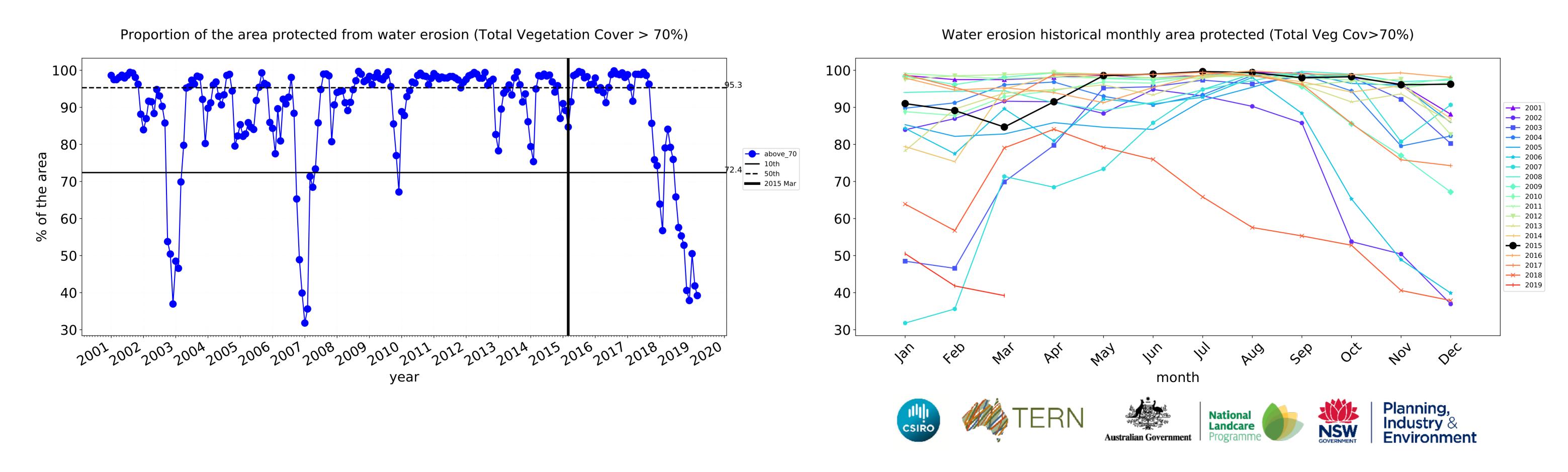


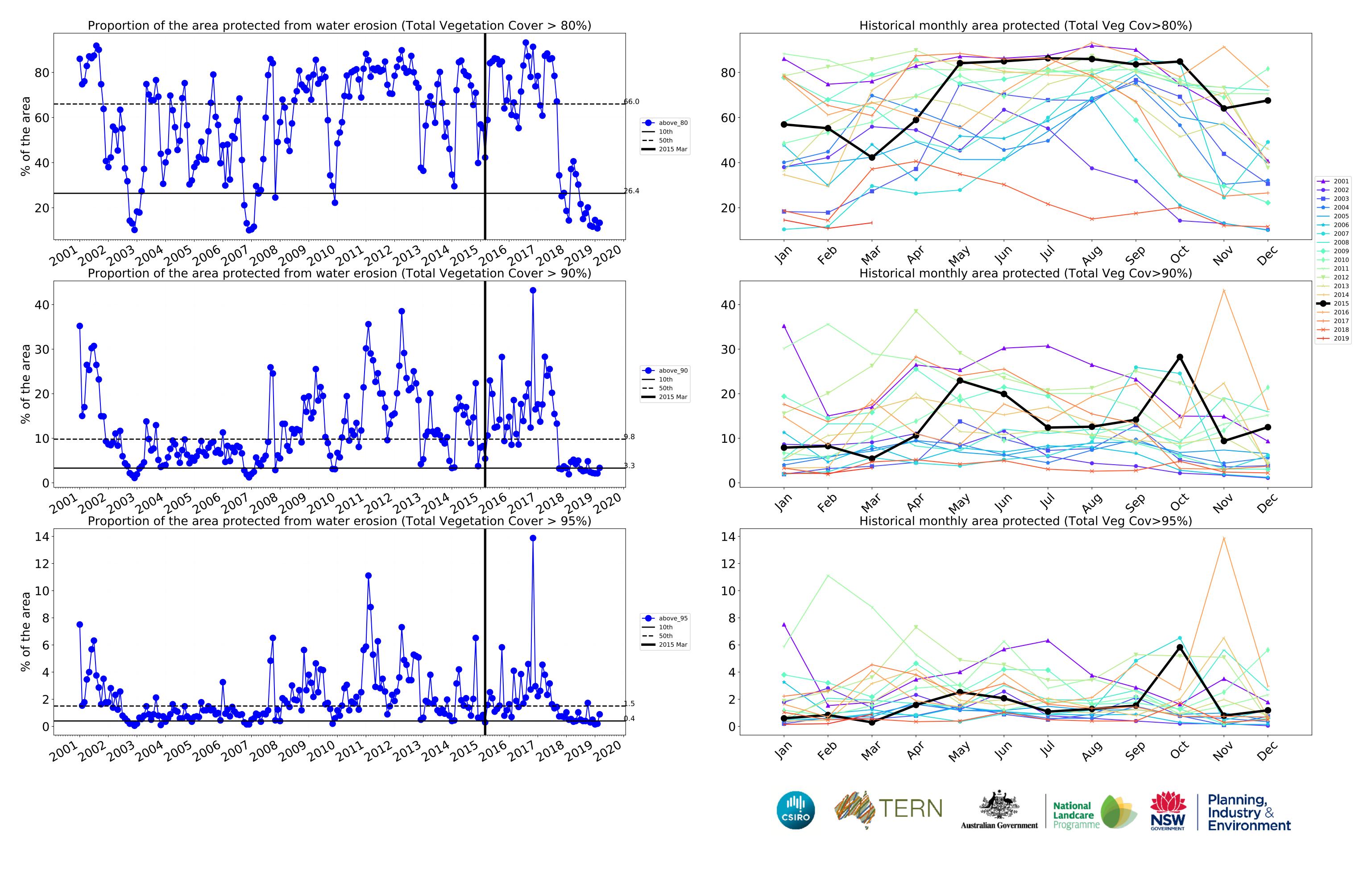




### **Cropping timeseries**





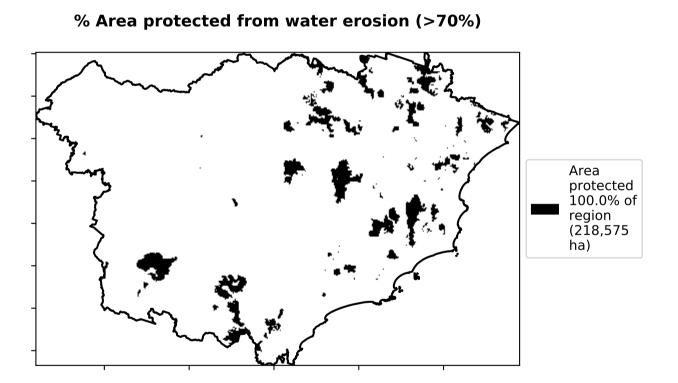


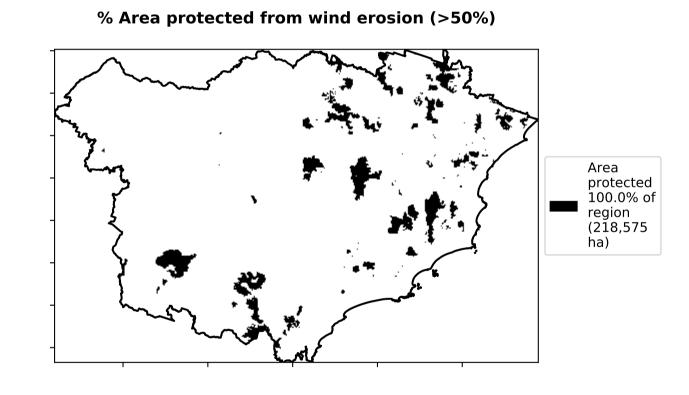
### **Production native forests and plantation forests**

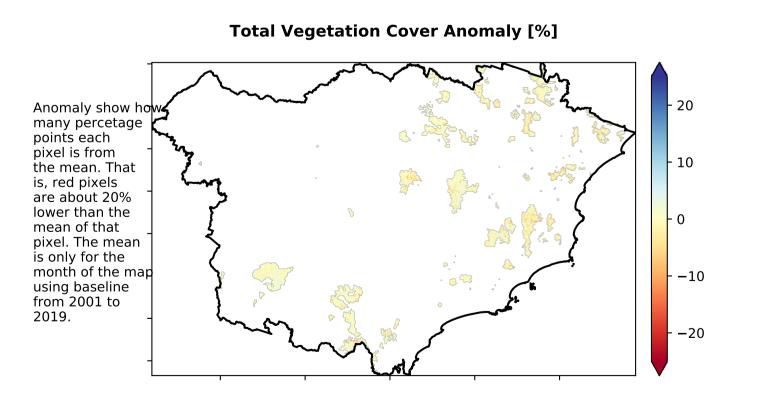
### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) I Production native forests and plantation forests of Australia (2018)

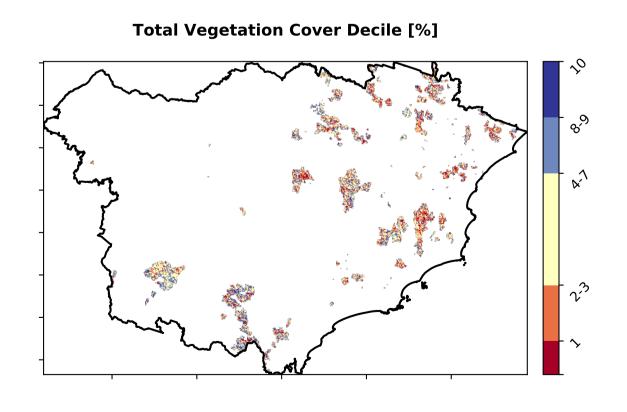
## Total Vegetation Cover [%]

# 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













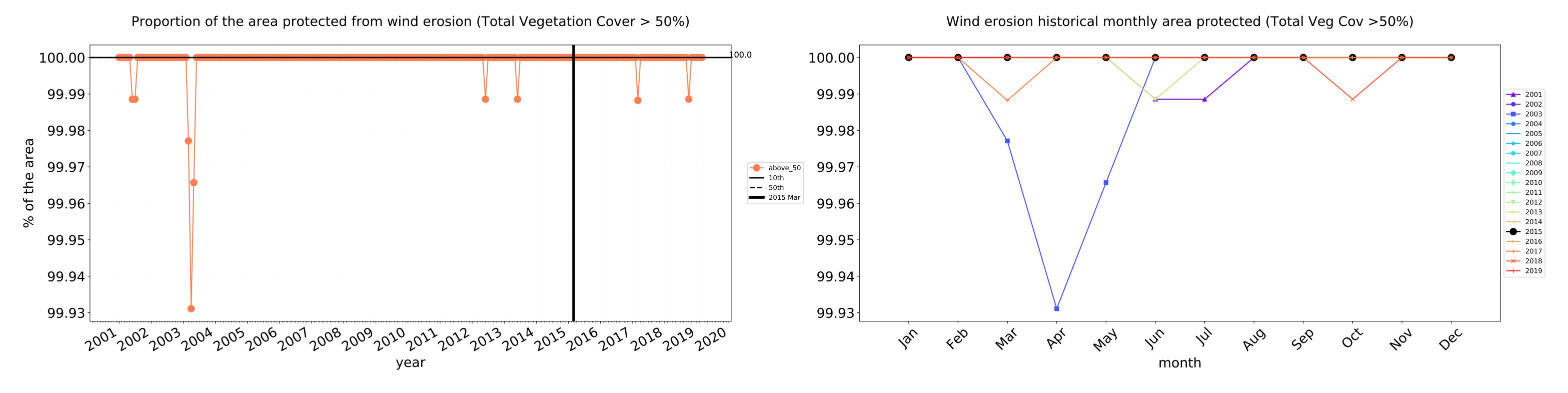


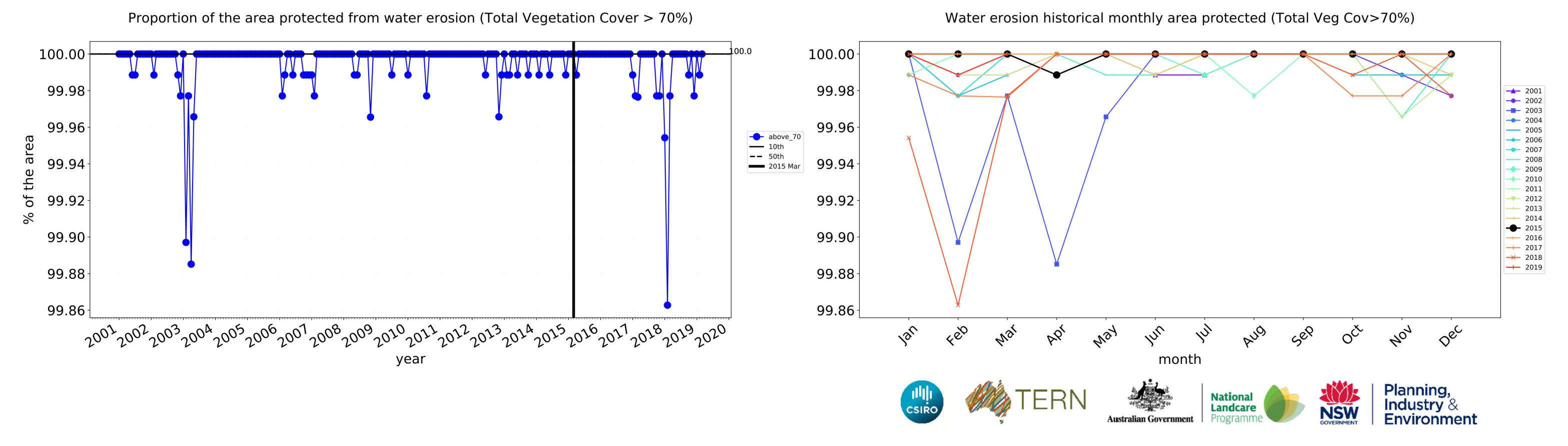


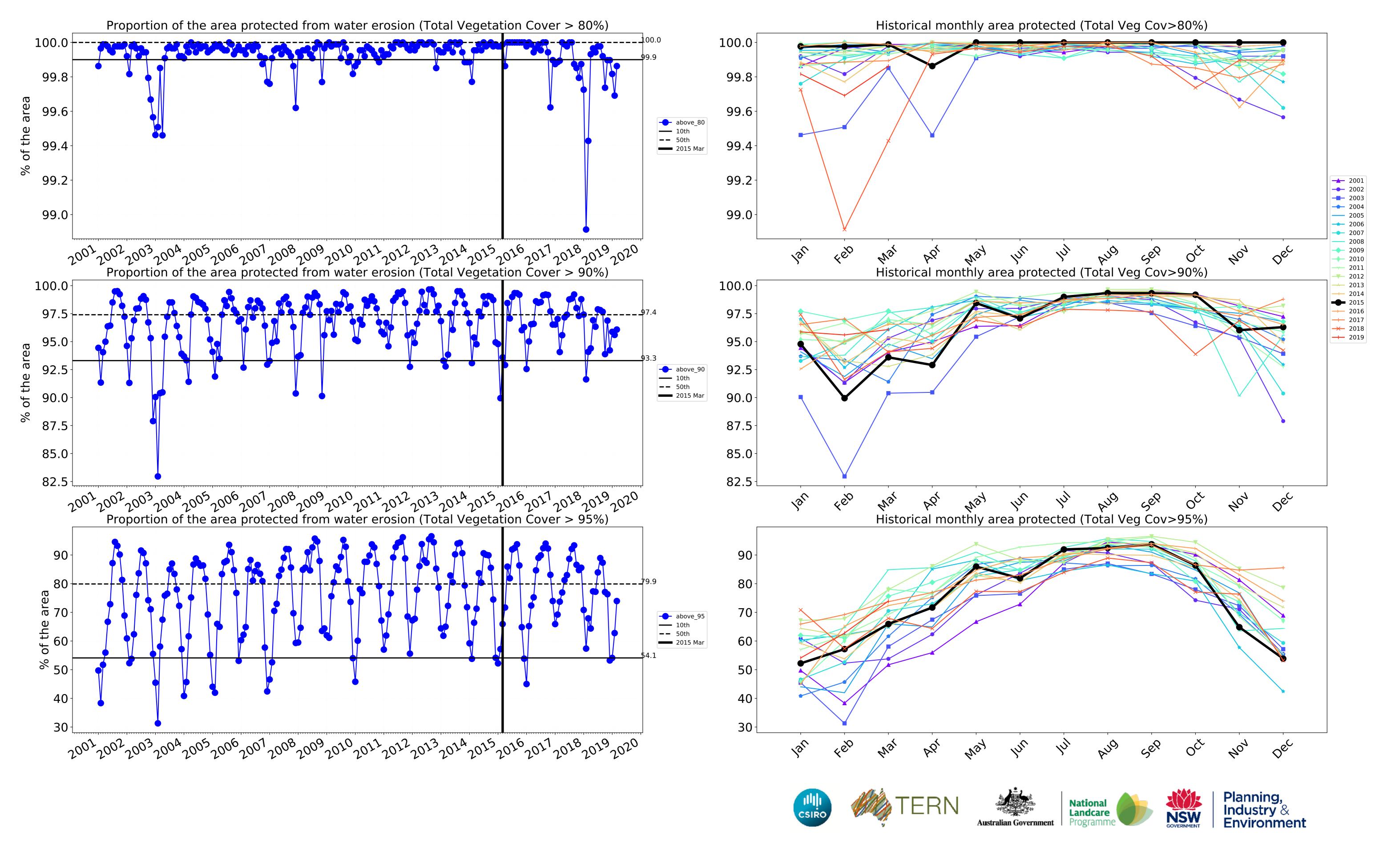




### **Production native forests and plantation forests timeseries**







### 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% 3,236,550	99.6% 3,227,502	98.3% 3,185,685	94.9% 3,073,233	69.9% 2,266,370	29.5% 956,658
Conservation and natural environments	1,241,000	99.9% 1,239,800	99.8% 1,238,800	99.6% 1,236,350	99.0% 1,229,000	87.4% 1,085,250	47.8% 593,050
Conservation and natural environments non forest	29,950	96.1% 28,775	93.7% 28,075	89.6% 26,850	85.1% 25,500	57.3% 17,175	18.9% 5,650
Conservation and natural environments Woodland forest	138,850	100.0% 138,825	100.0% 138,800	99.9% 138,750	99.6% 138,350	85.2% 118,250	32.2% 44,700
natural environments Forest (non woodland)	1,072,200	100.0% 1,072,200	100.0% 1,071,925	99.9% 1,070,750	99.3% 1,065,150	88.6% 949,825	50.6% 542,700
Agriculture	1,580,625	100.0% 1,580,575	100.0% 1,580,375	99.2% 1,568,175	94.7% 1,496,900	58.2% 920,700	13.2% 207,900
Grazing	1,502,625	100.0% 1,502,575	100.0% 1,502,400	99.7% 1,498,150	96.7% 1,453,250	60.8% 914,025	13.8% 207,250
Grazing non forest	1,212,875	100.0% 1,212,825	100.0% 1,212,650	99.6% 1,208,550	96.2% 1,166,300	58.4% 707,775	12.6% 152,675
Grazing Woodland forest	120,600	100.0% 120,600	100.0% 120,600	99.9% 120,450	98.8% 119,100	61.2% 73,750	10.4% 12,600
Grazing - Forest (non woodland)	169,150	100.0% 169,150	100.0% 169,150	100.0% 169,150	99.2% 167,850	78.3% 132,500	24.8% 41,975
Cropping	50,625	100.0% 50,625	100.0% 50,600	84.7% 42,875	42.3% 21,400	5.4% 2,750	0.3% 150
Production native forests and plantation forests	218,575	100.0% 218,575	100.0% 218,575	100.0% 218,575	100.0% 218,550	93.6% 204,575	65.9% 144,100











