### **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: December 2001** 

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









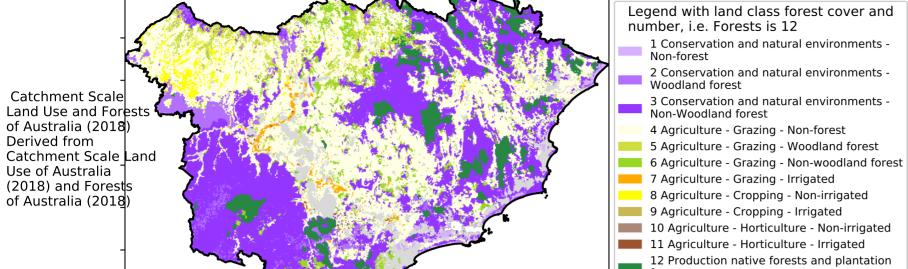




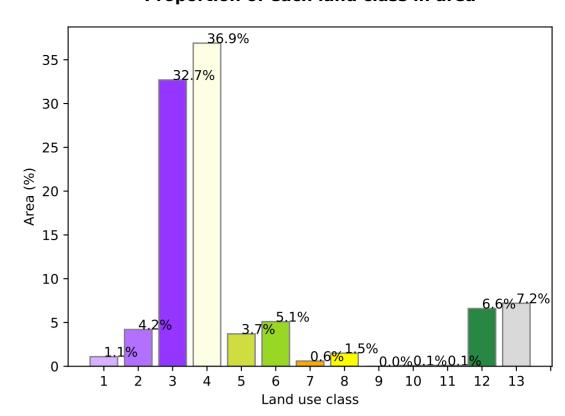
### **Vegetation Cover Dec 2001**

### Land use and forest cover number, i.e. Forests is 12

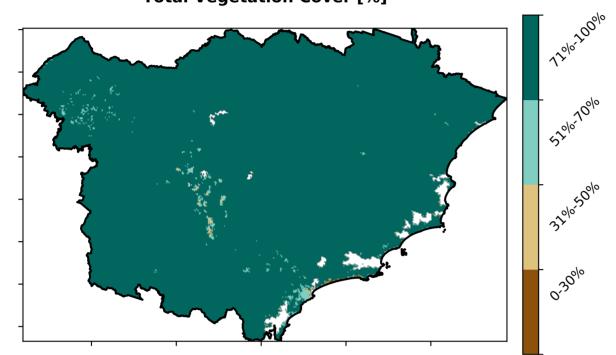
13 Other uses



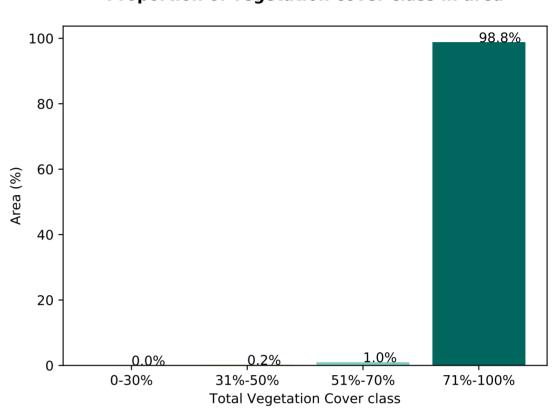
### Proportion of each land class in area



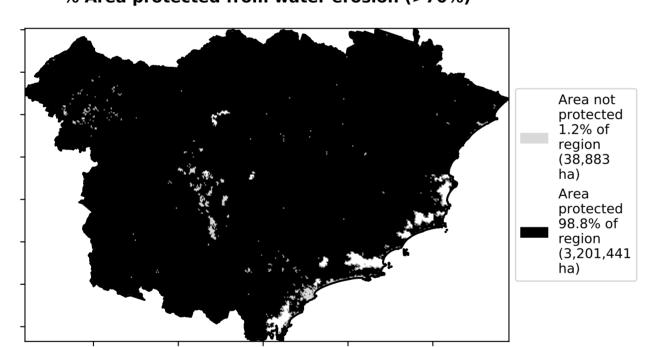




Proportion of vegetation cover class in area



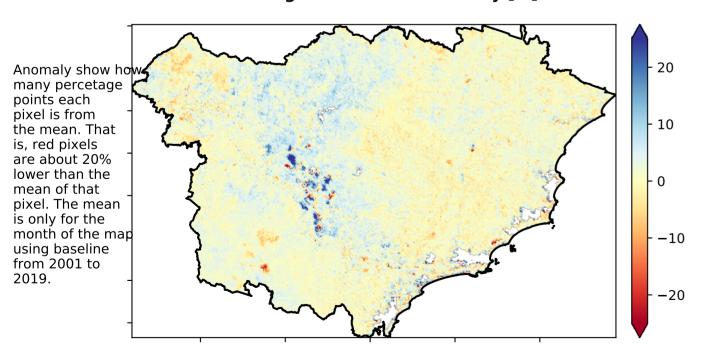
### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

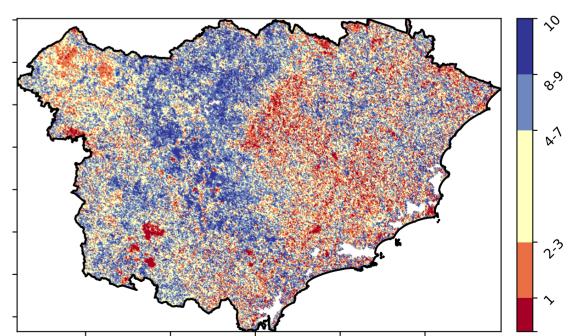


### **Total Vegetation Cover Anomaly [%]**



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 [%]**





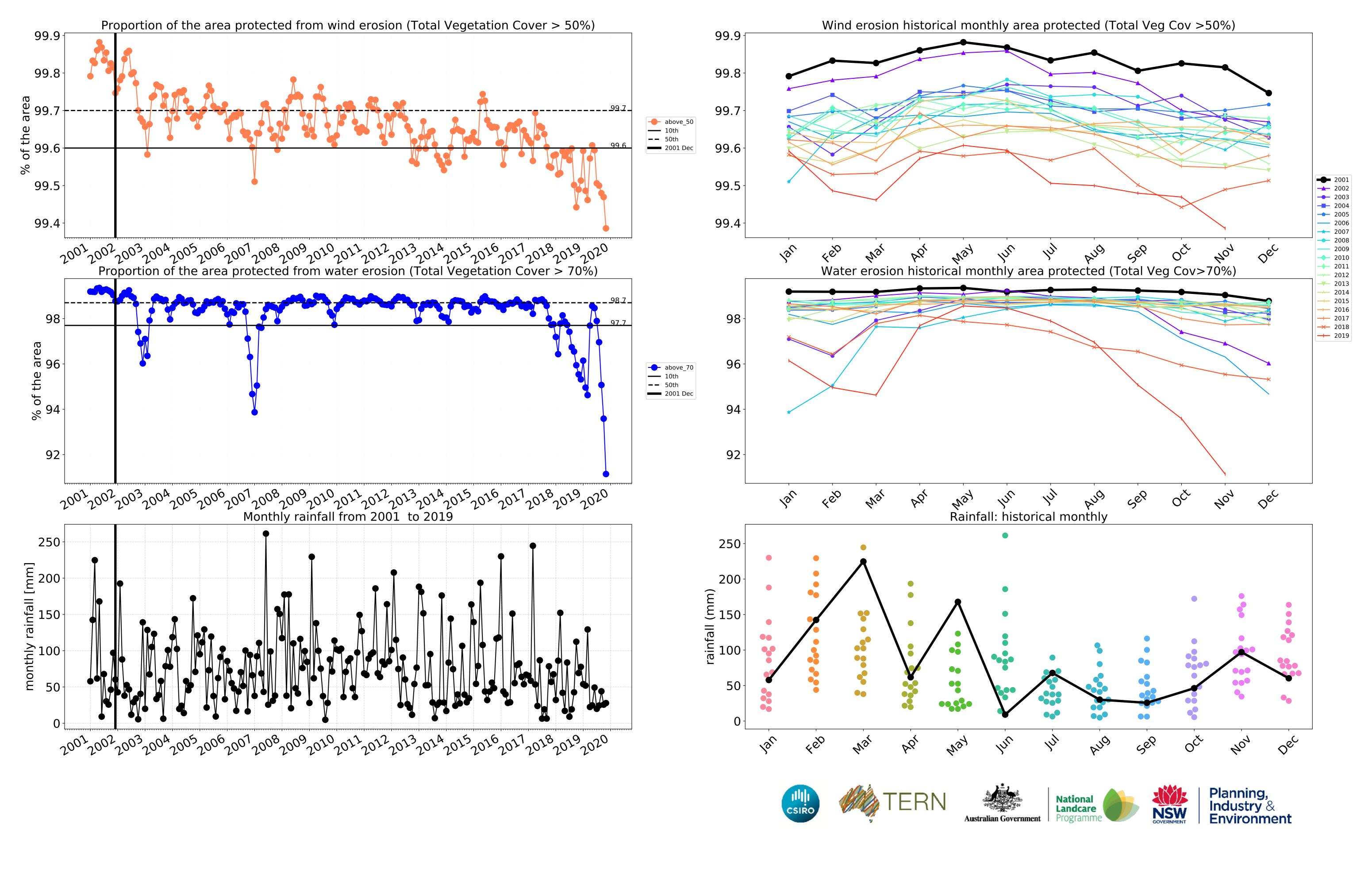


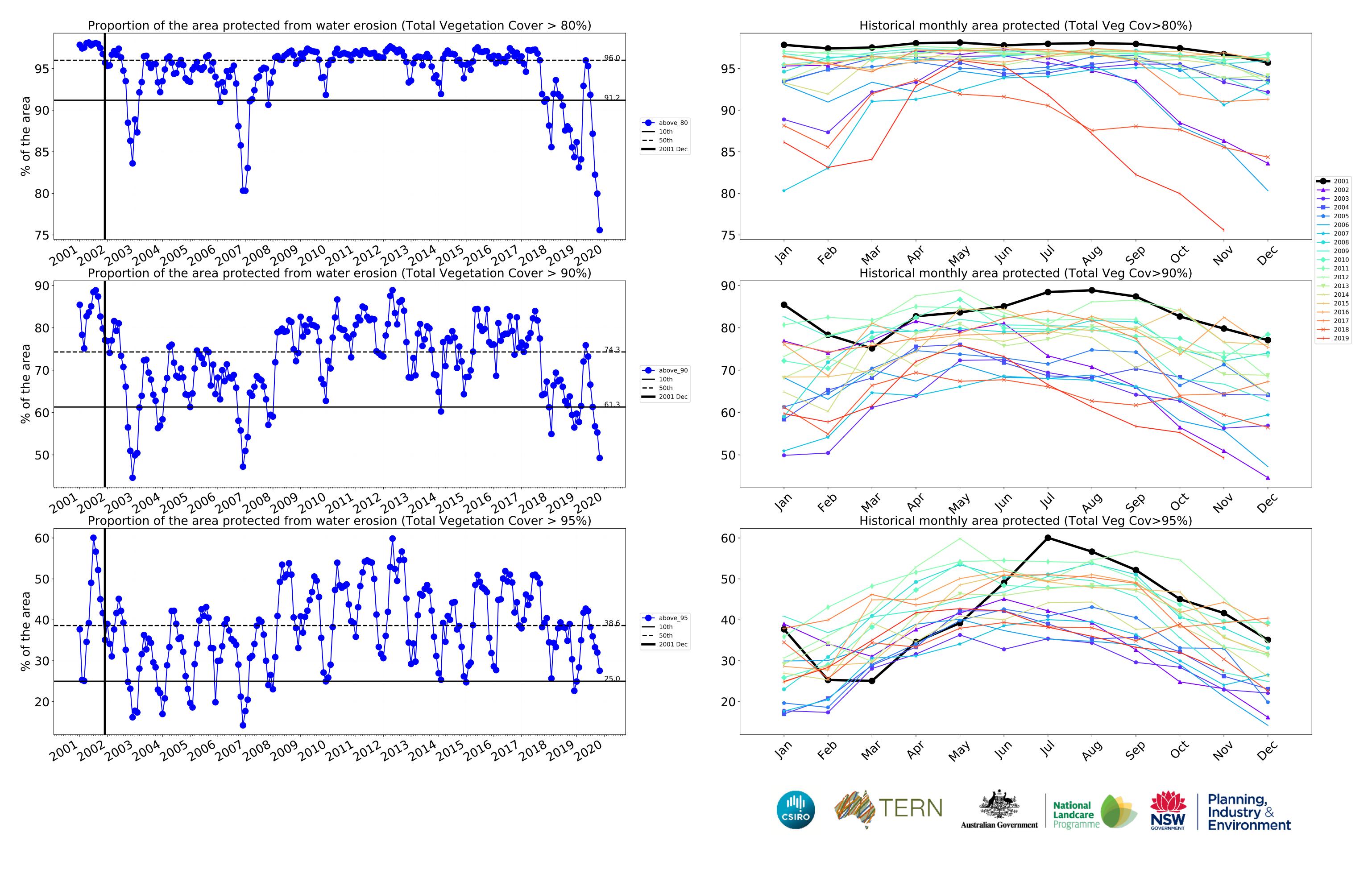




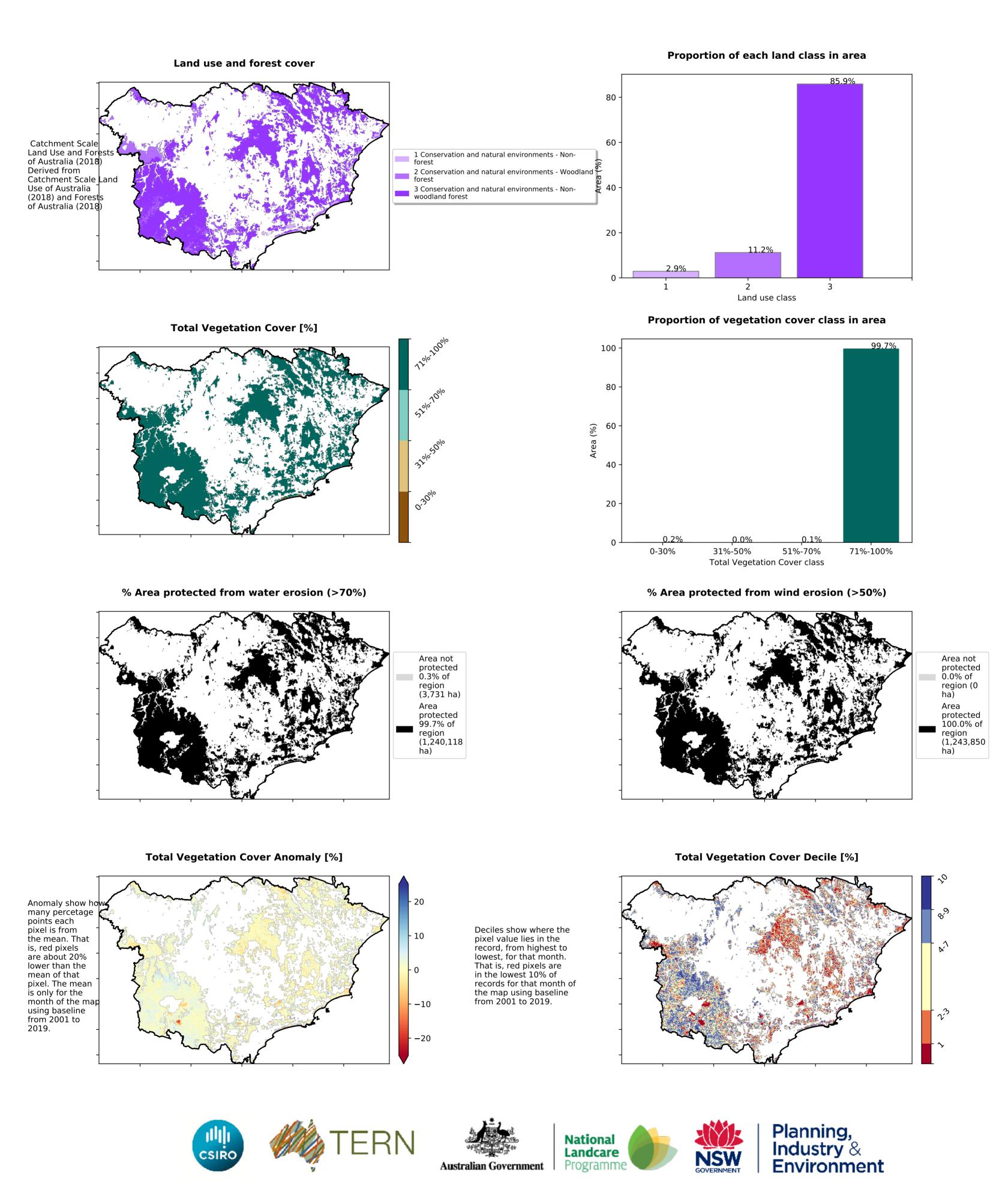




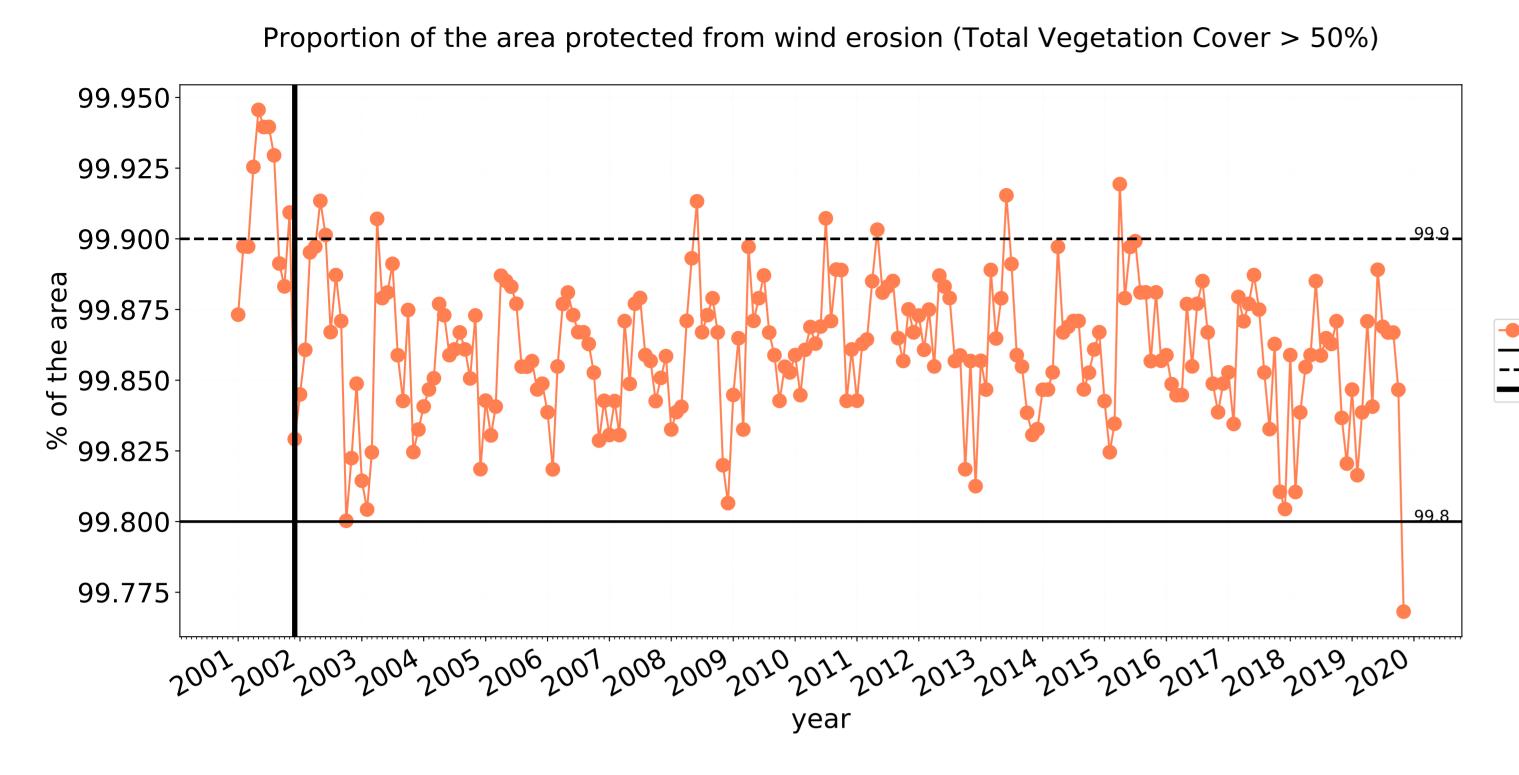


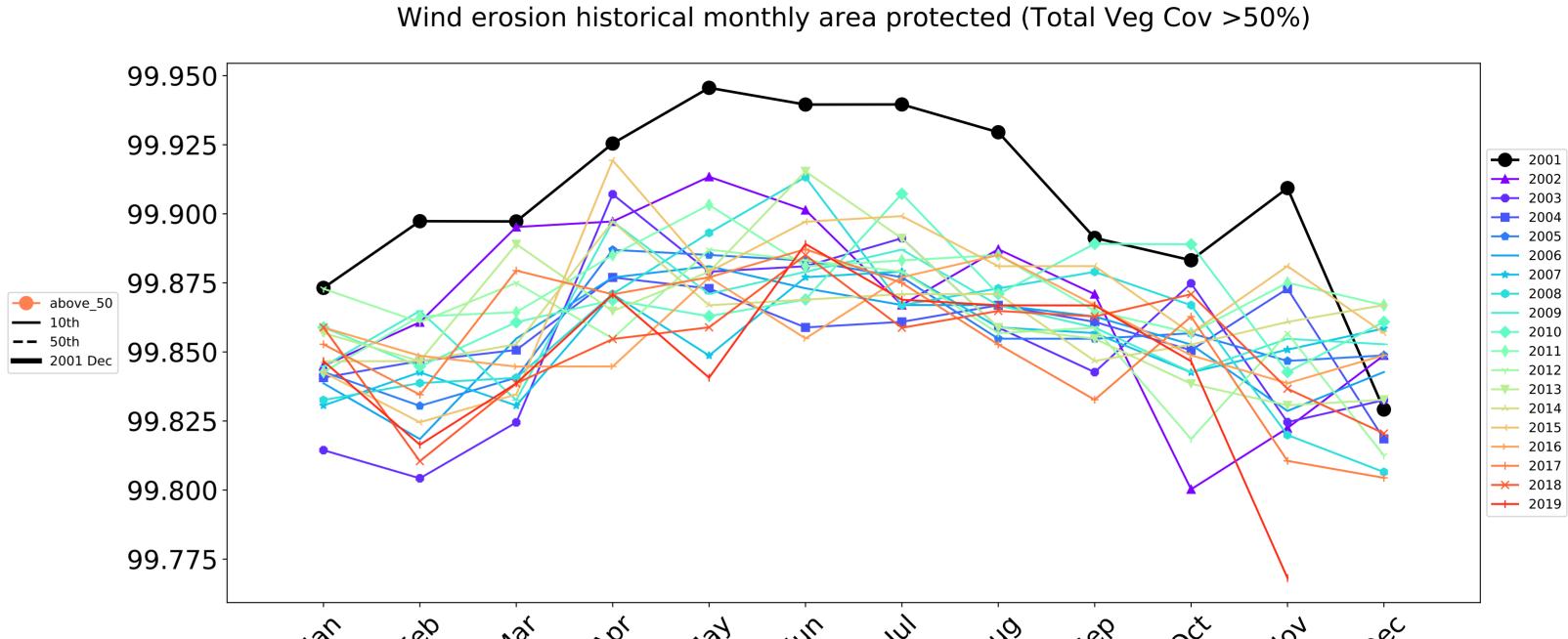


### **Conservation and natural environments**

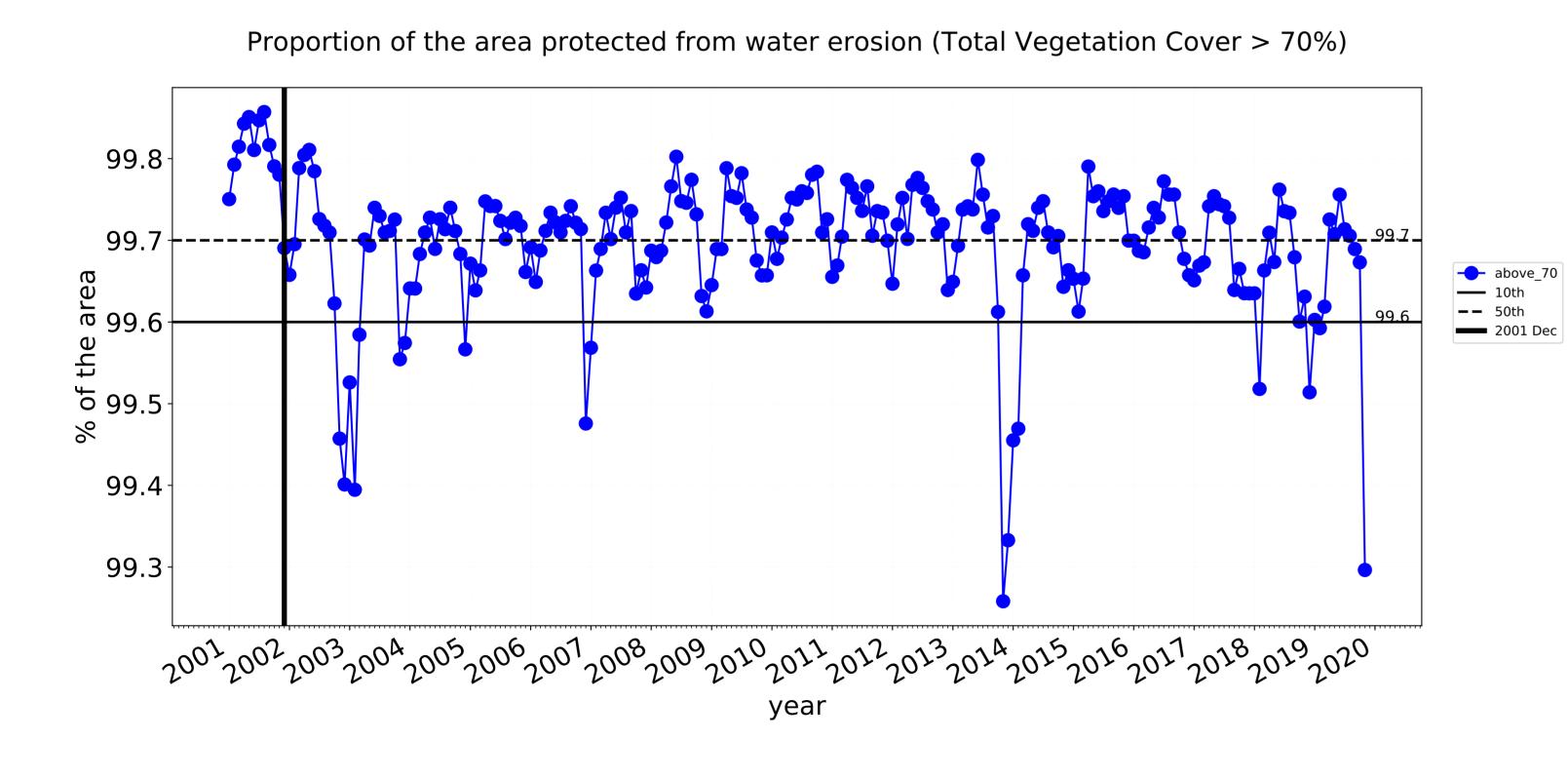


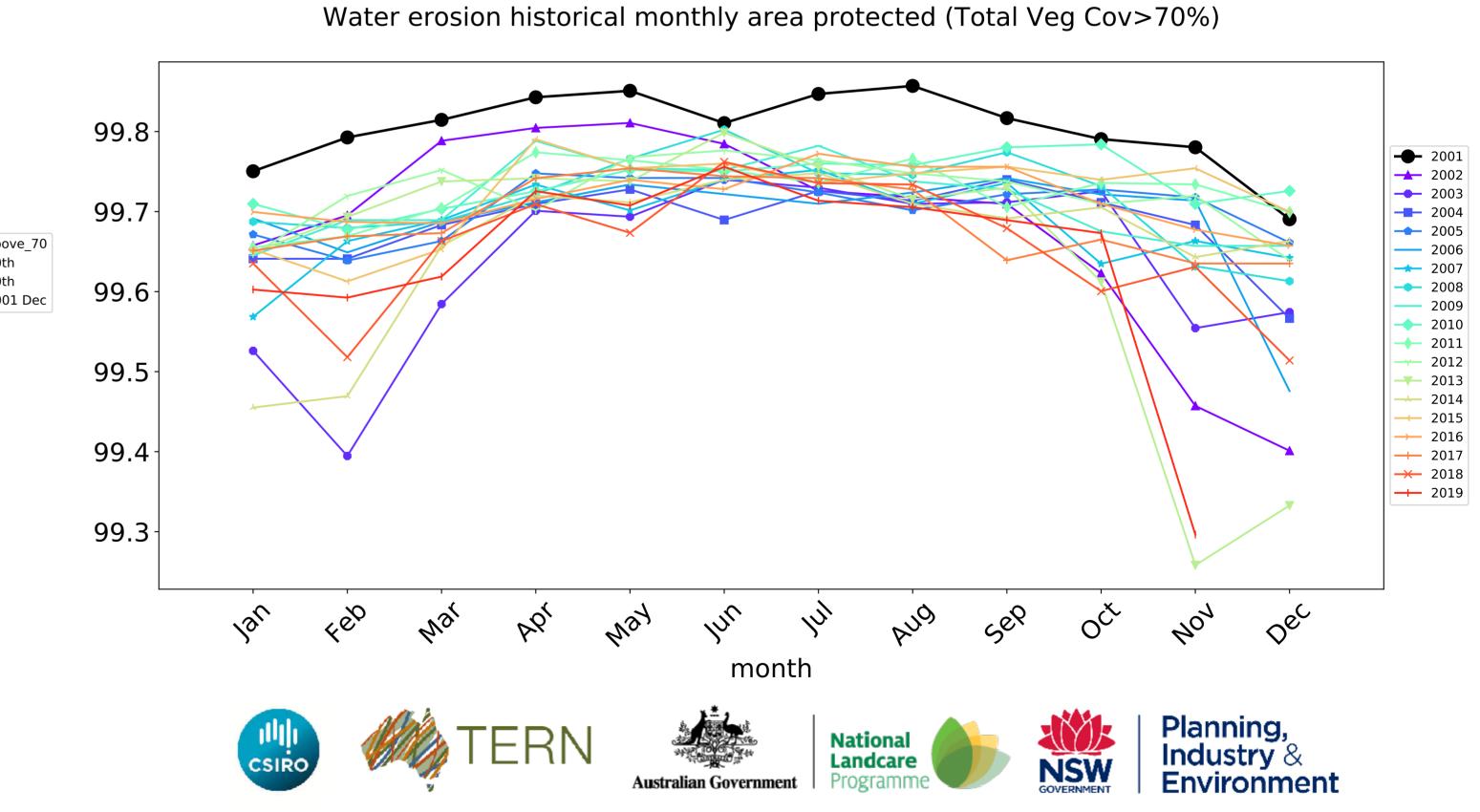
### **Conservation and natural environments timeseries**

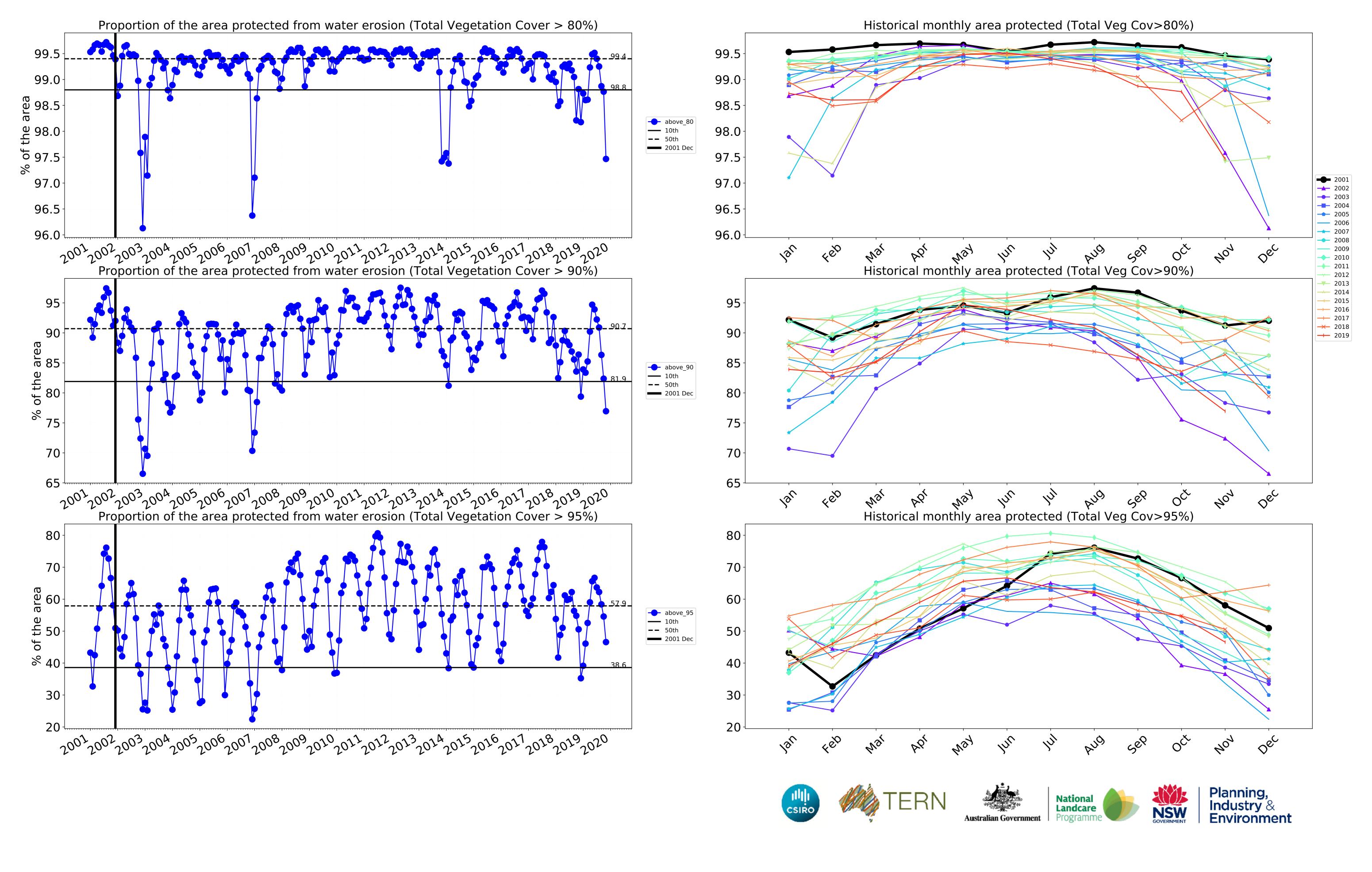




month



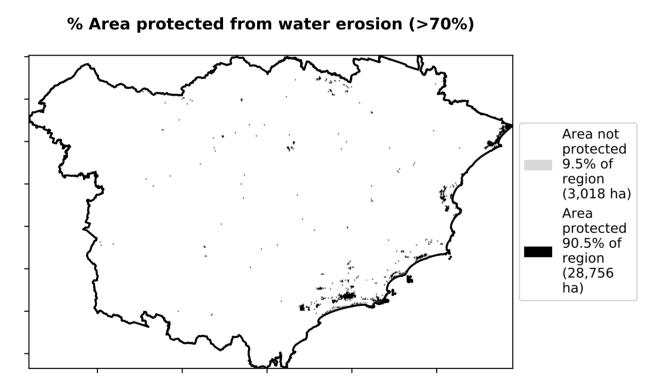


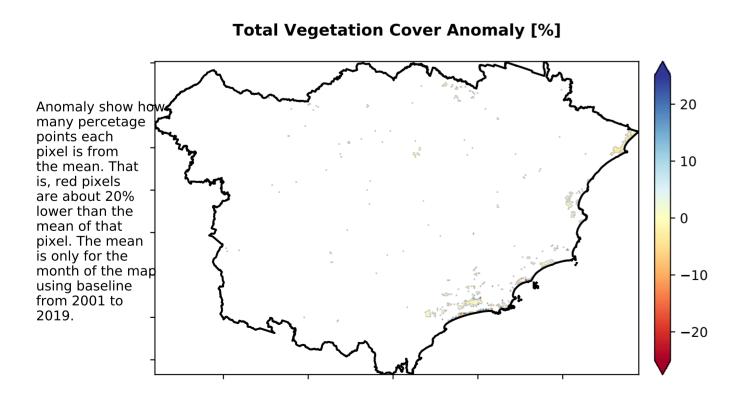


### **Conservation and natural environments non forest**

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

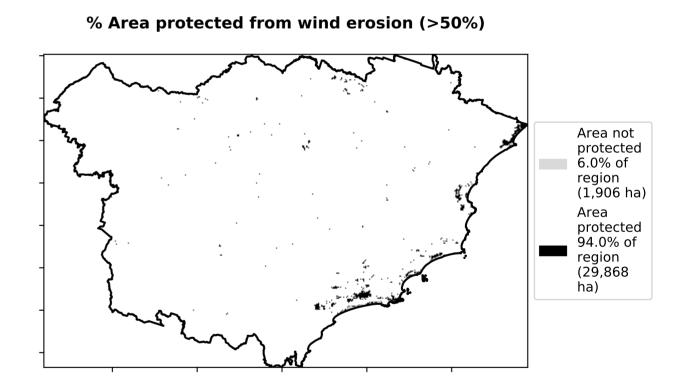
### Total Vegetation Cover [%] Talestage Tales

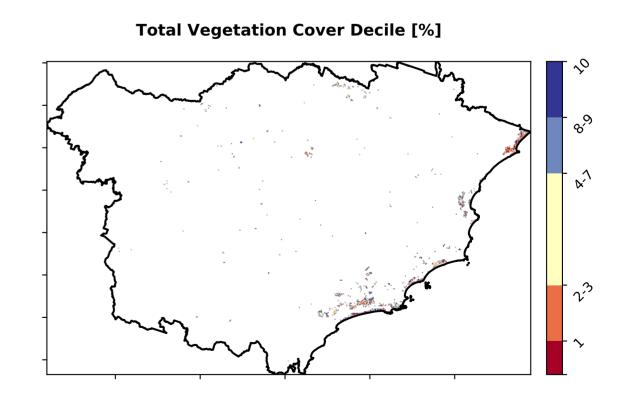




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

# Proportion of vegetation cover class in area 90.5% 90.5% 90.5% 4.8% 1.5% 3.2% 0-30% 31%-50% Total Vegetation Cover class











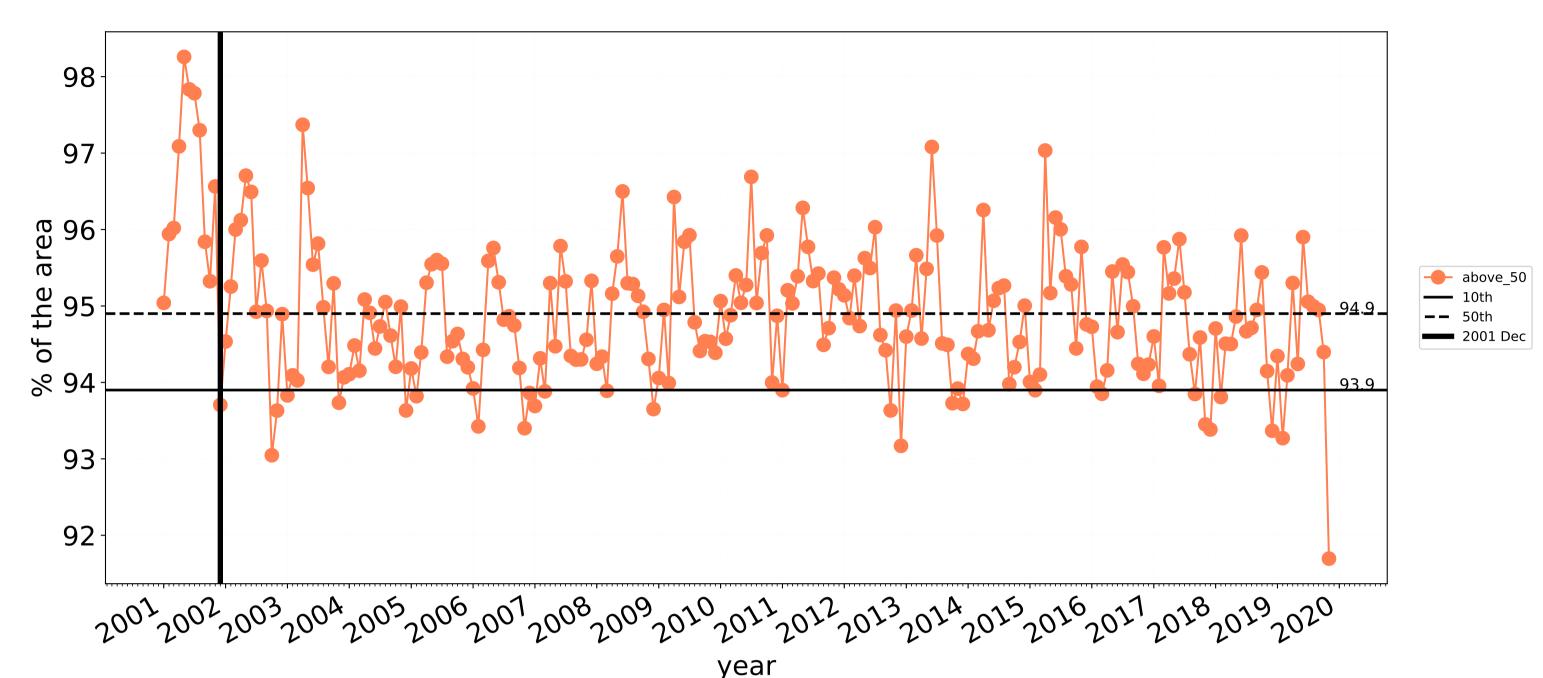




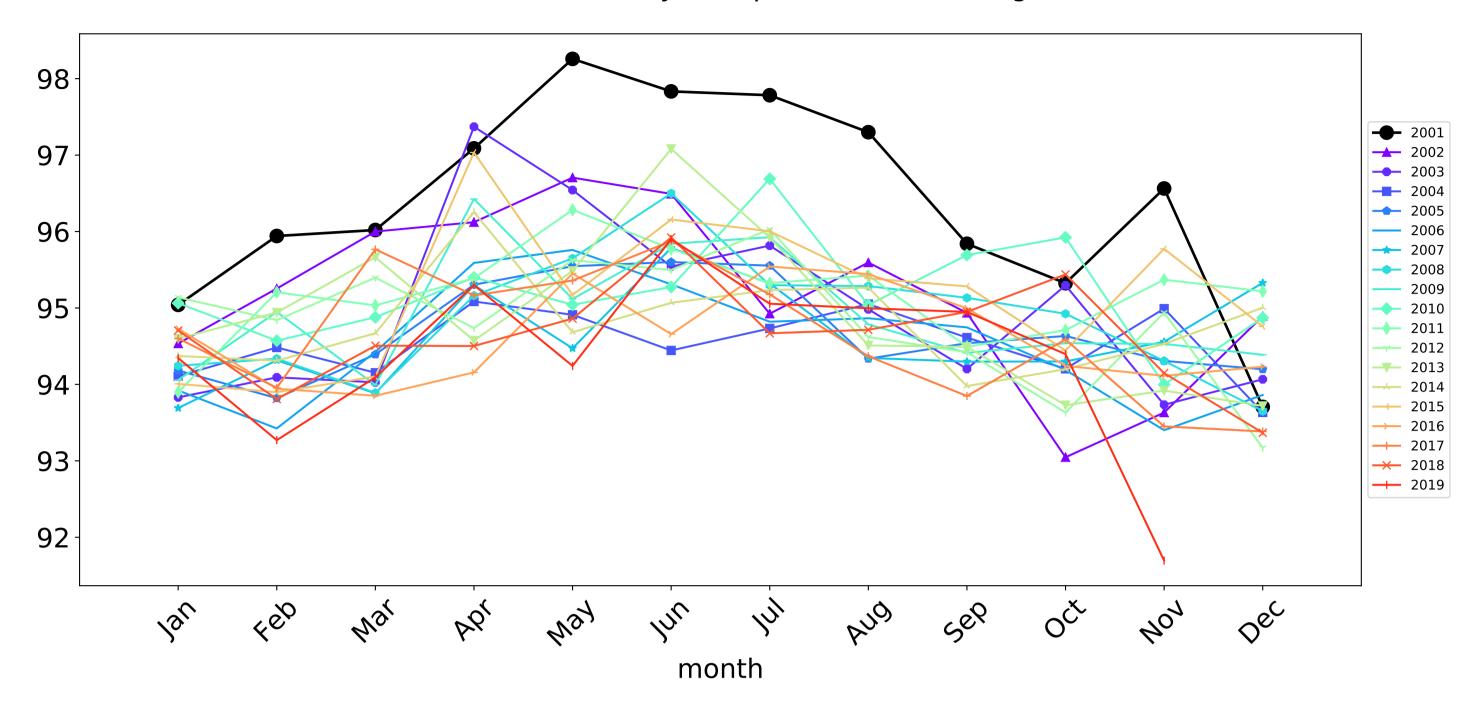


### **Conservation and natural environments non forest timeseries**

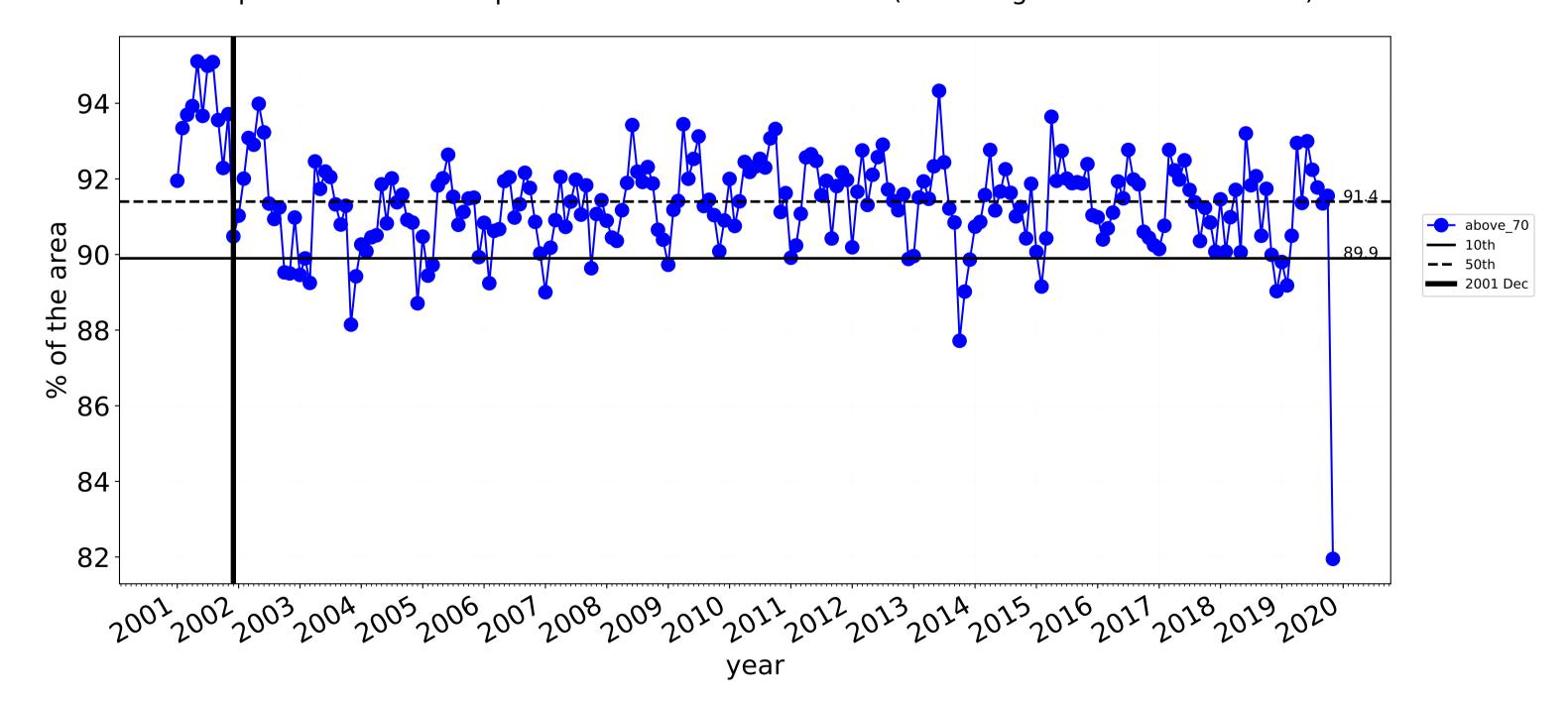




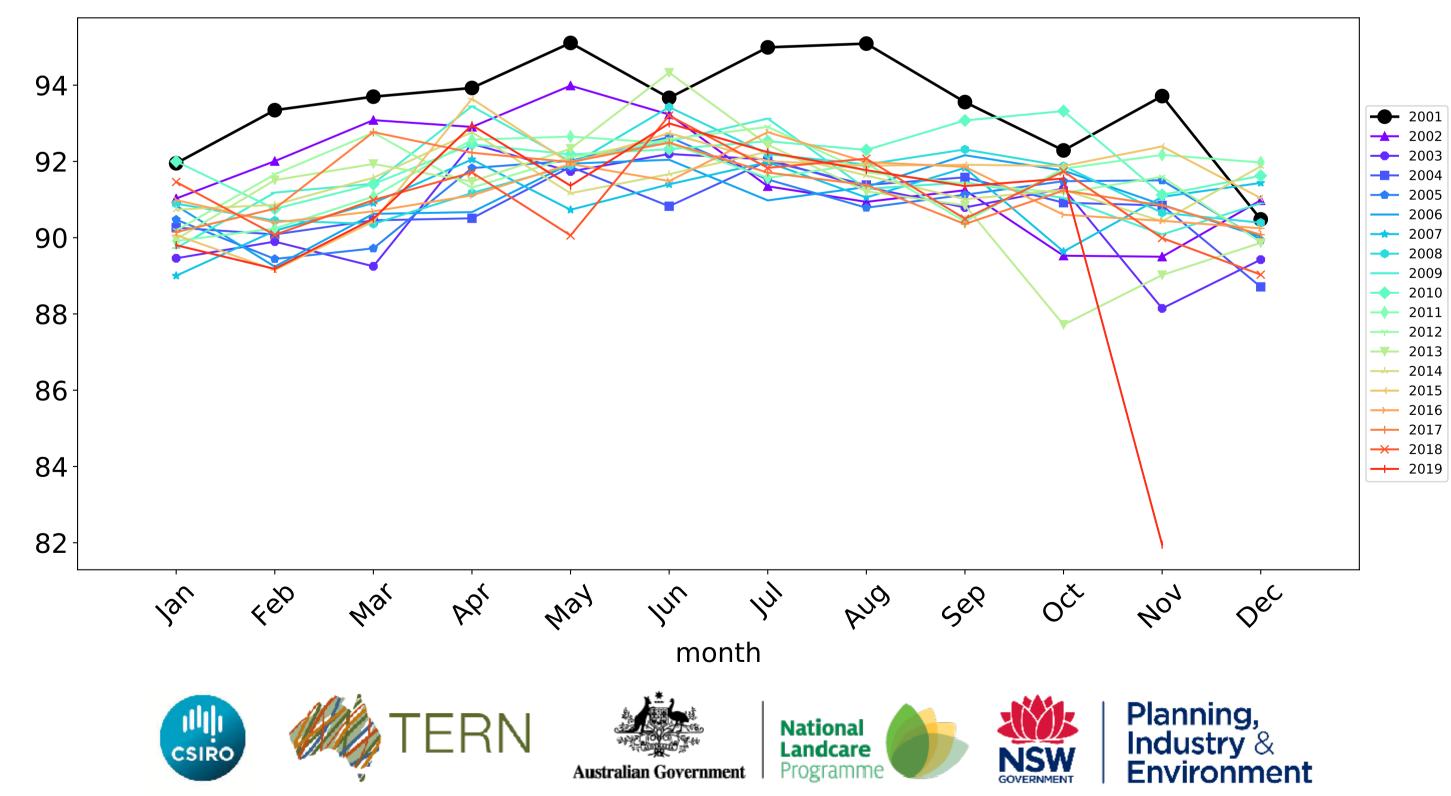
### Wind erosion historical monthly area protected (Total Veg Cov >50%)

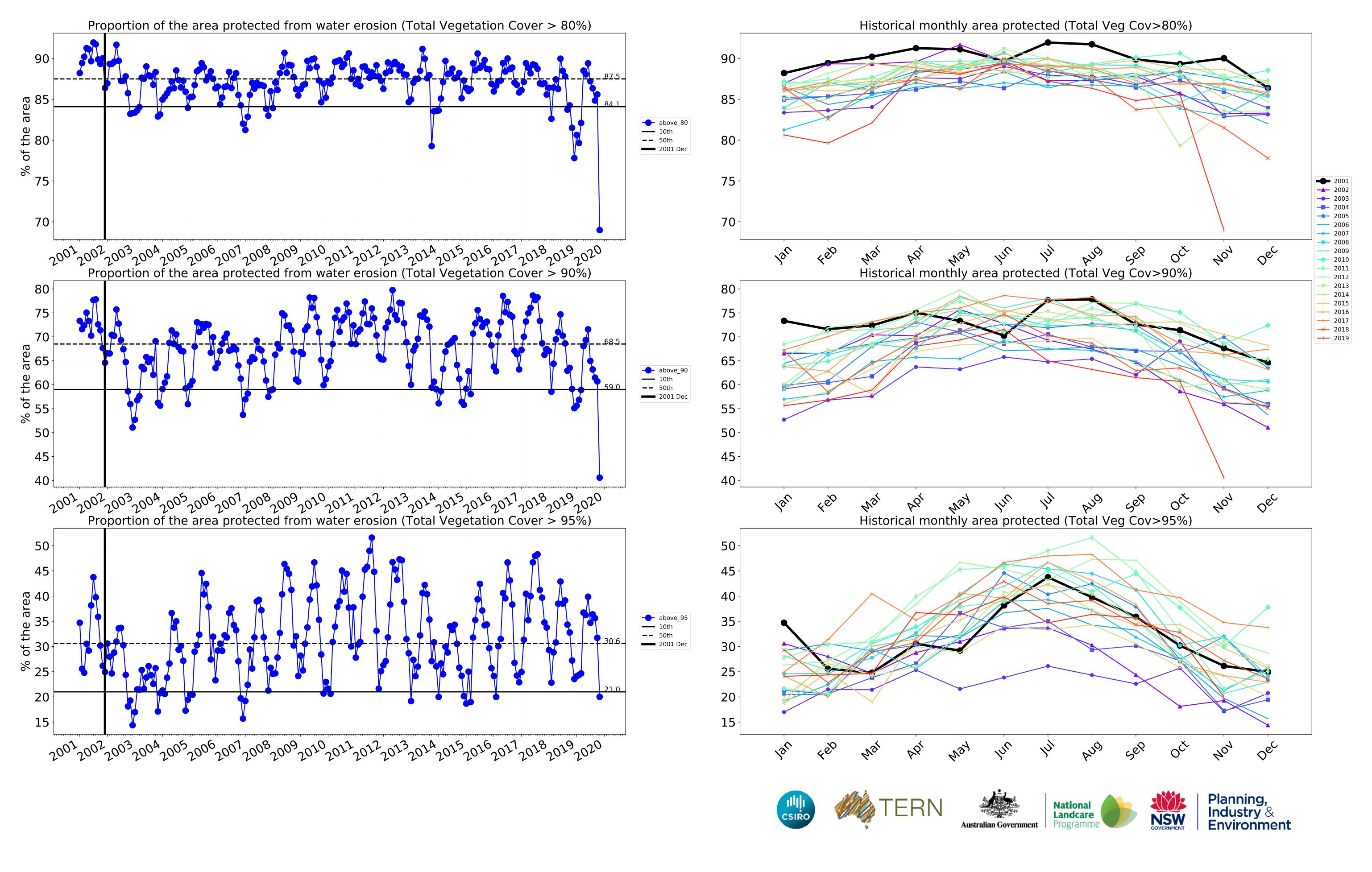


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

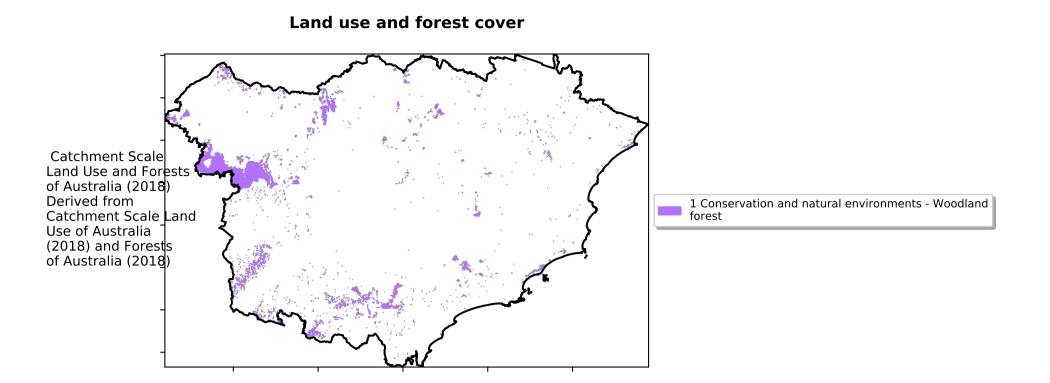


### Water erosion historical monthly area protected (Total Veg Cov>70%)

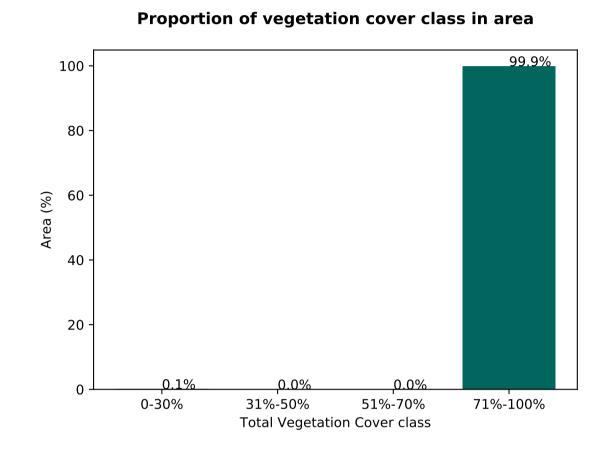


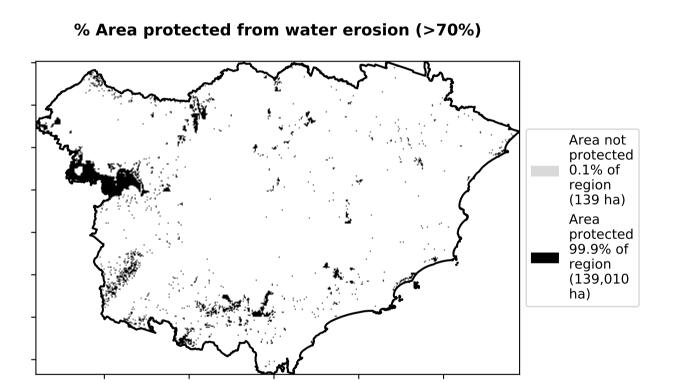


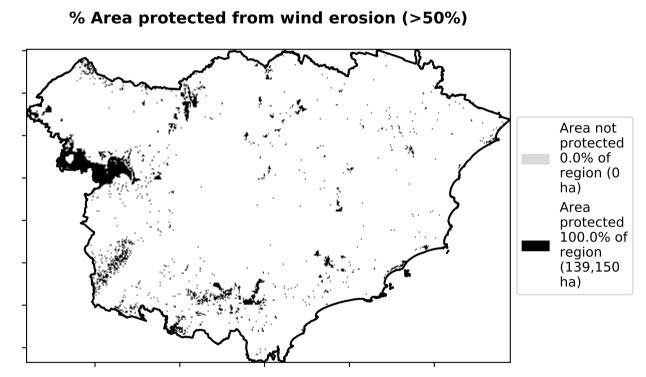
### **Conservation and natural environments Woodland forest**

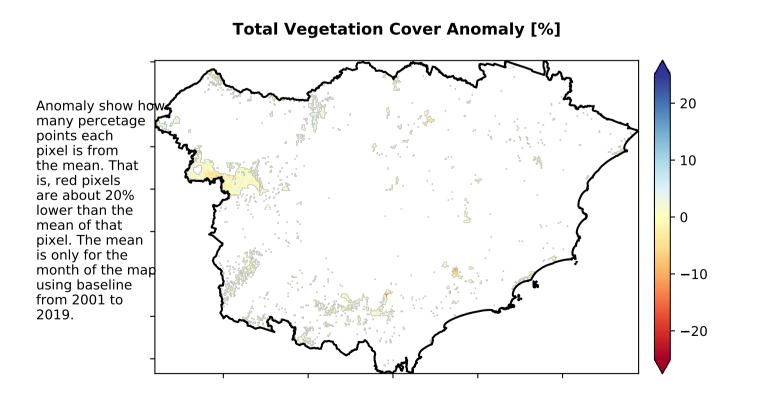


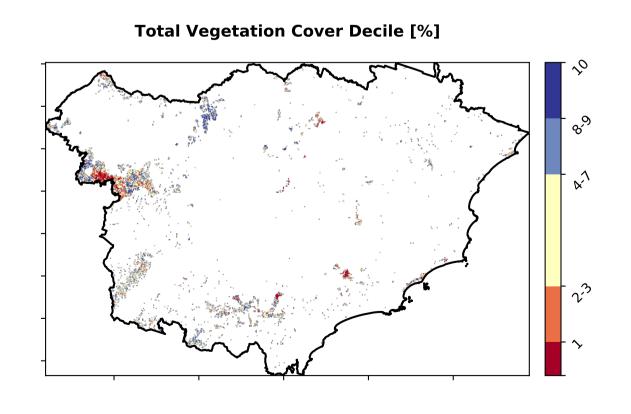
### Total Vegetation Cover [%]













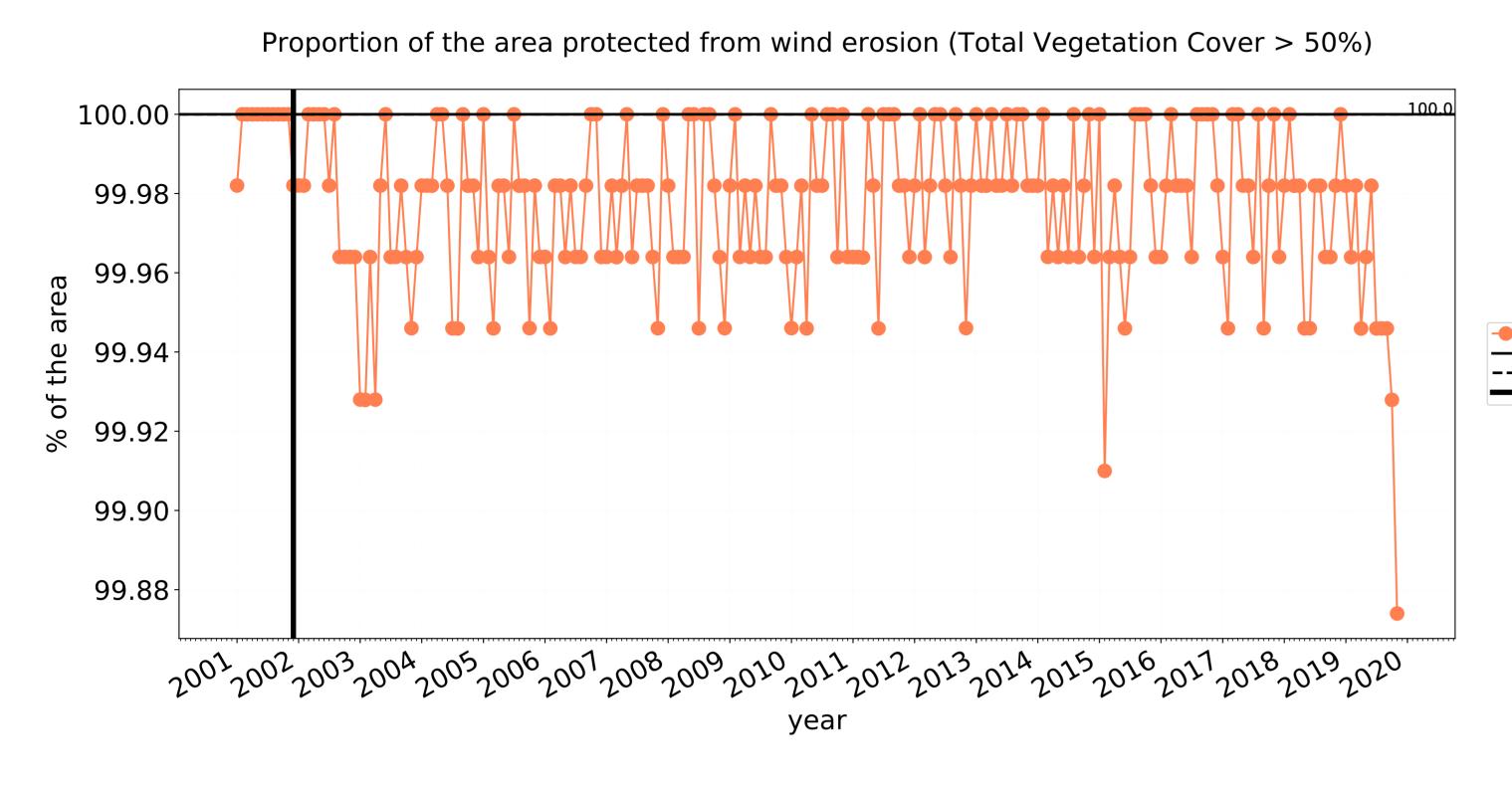


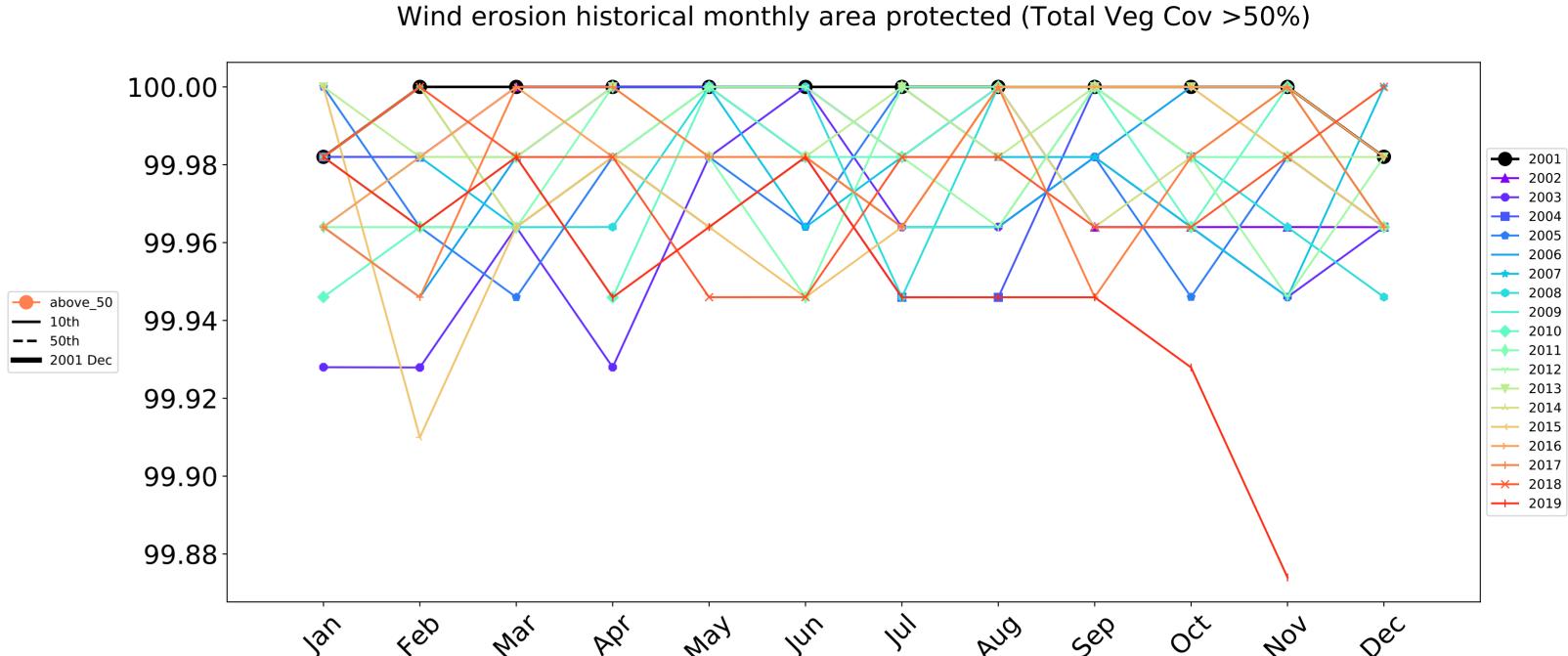




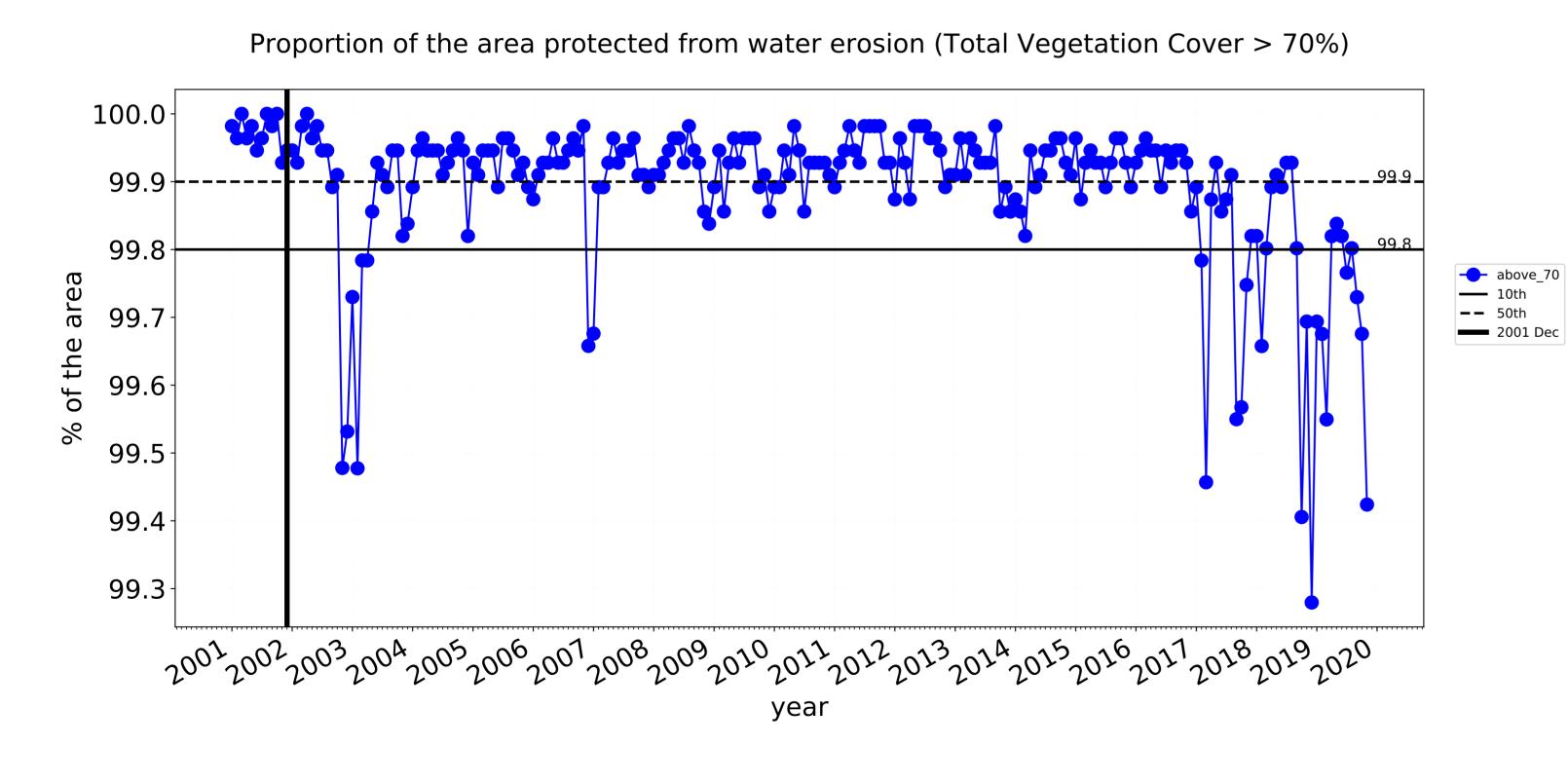


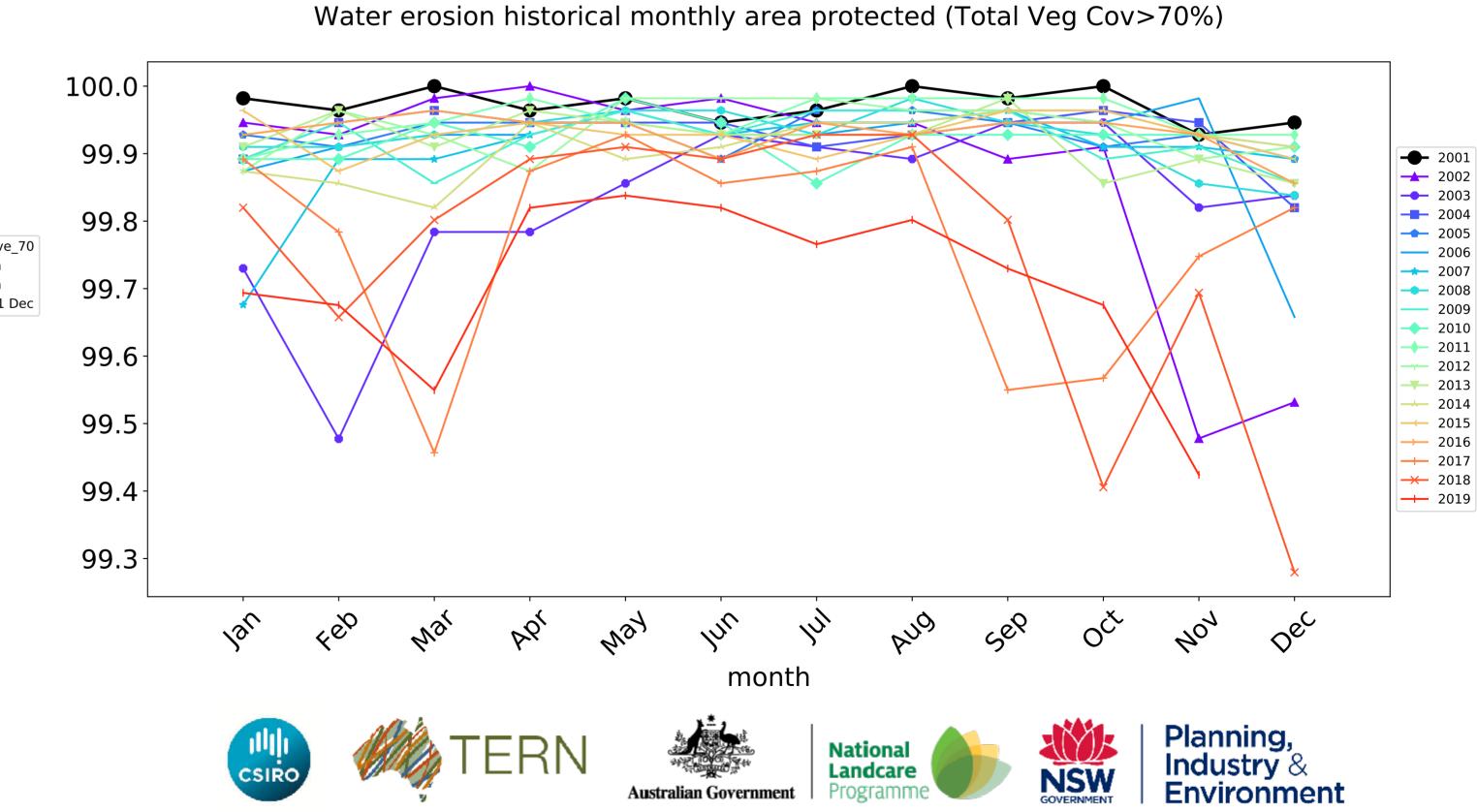


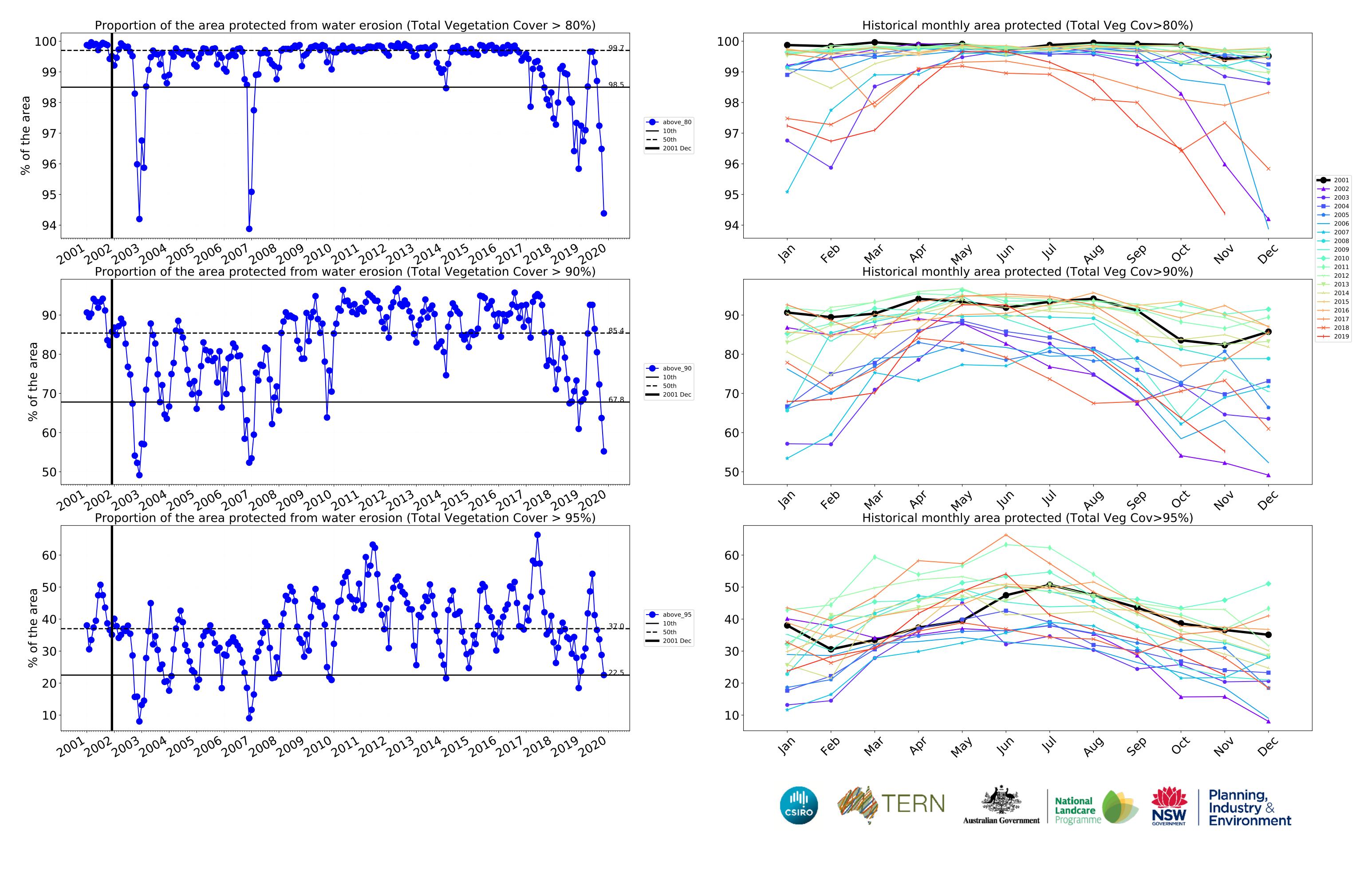




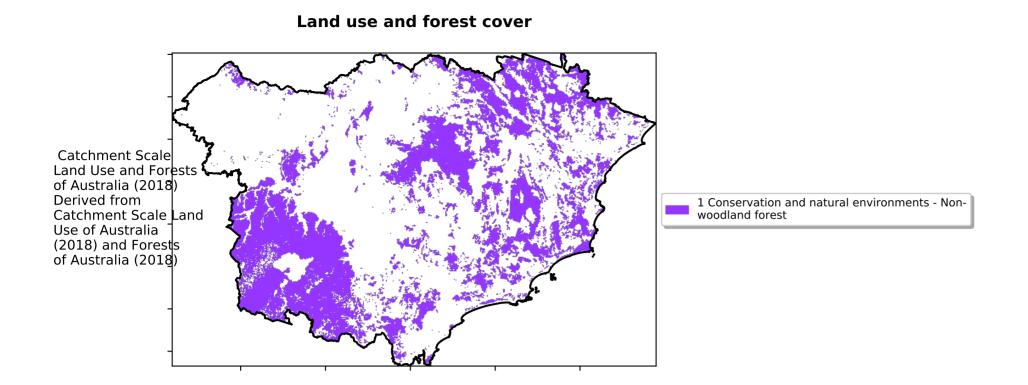
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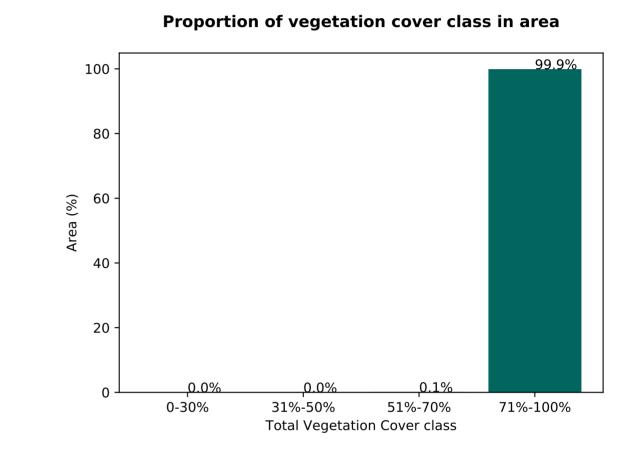


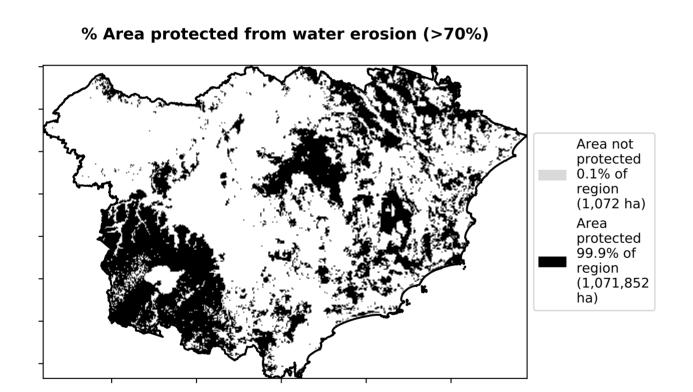


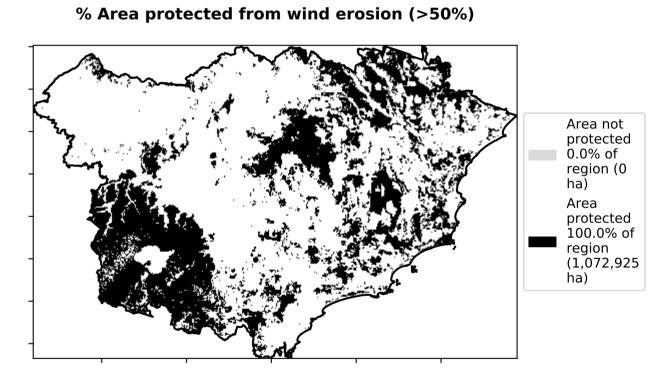
### **Conservation and natural environments Forest (non woodland)**

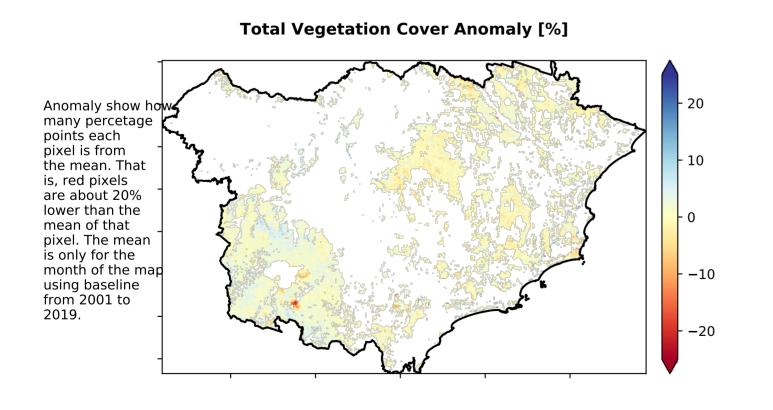


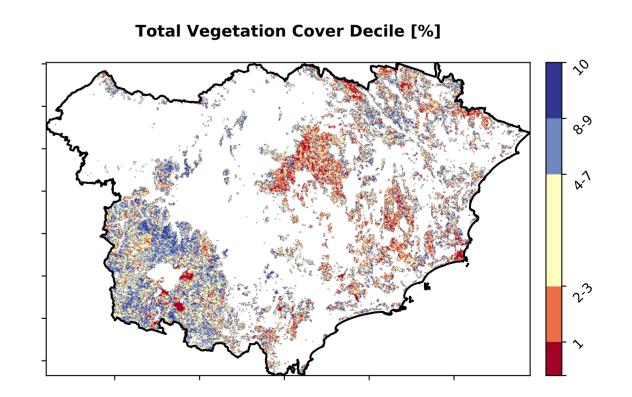
### Total Vegetation Cover [%] Total Vegetation Cover [%] Total Vegetation Cover [%]















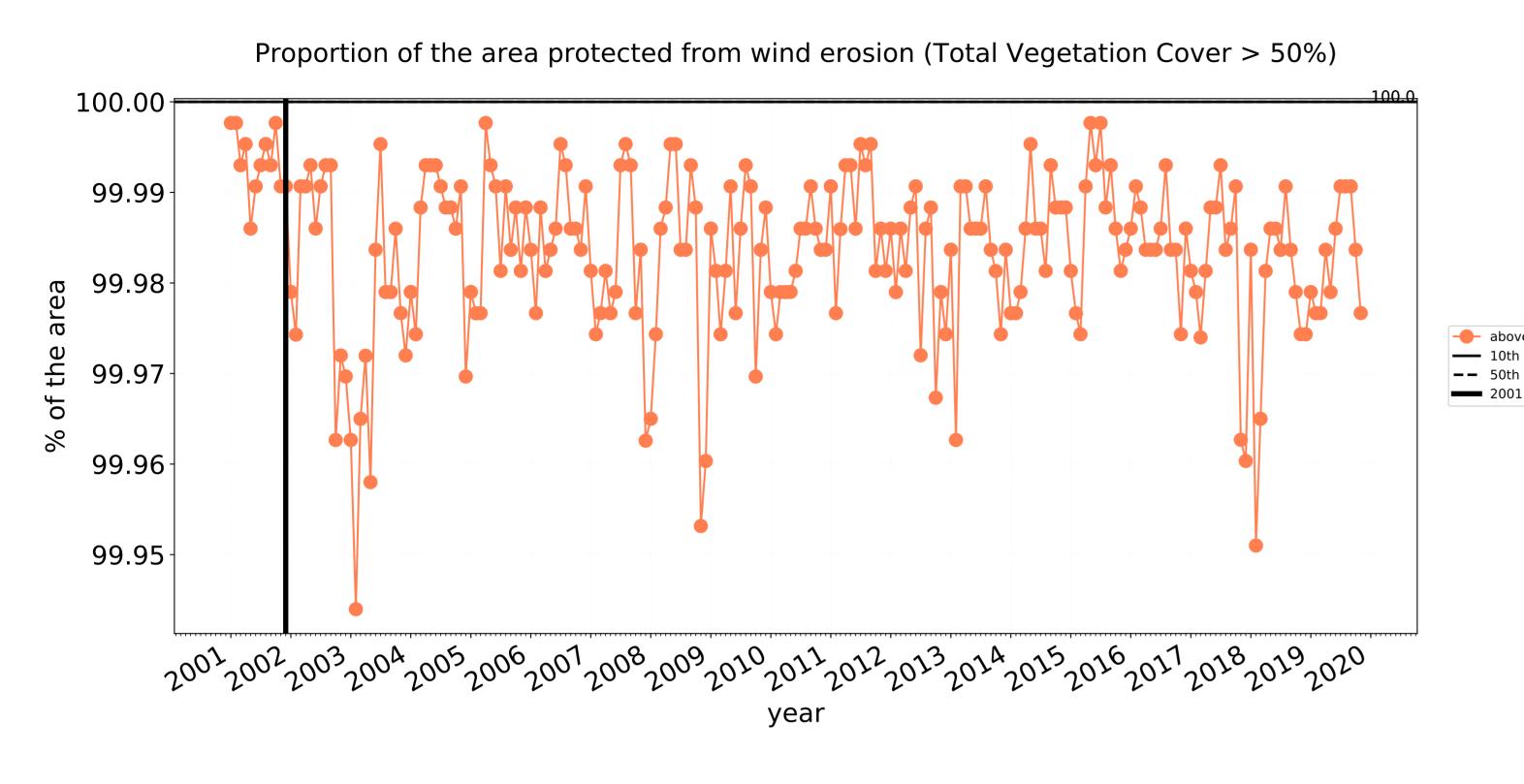


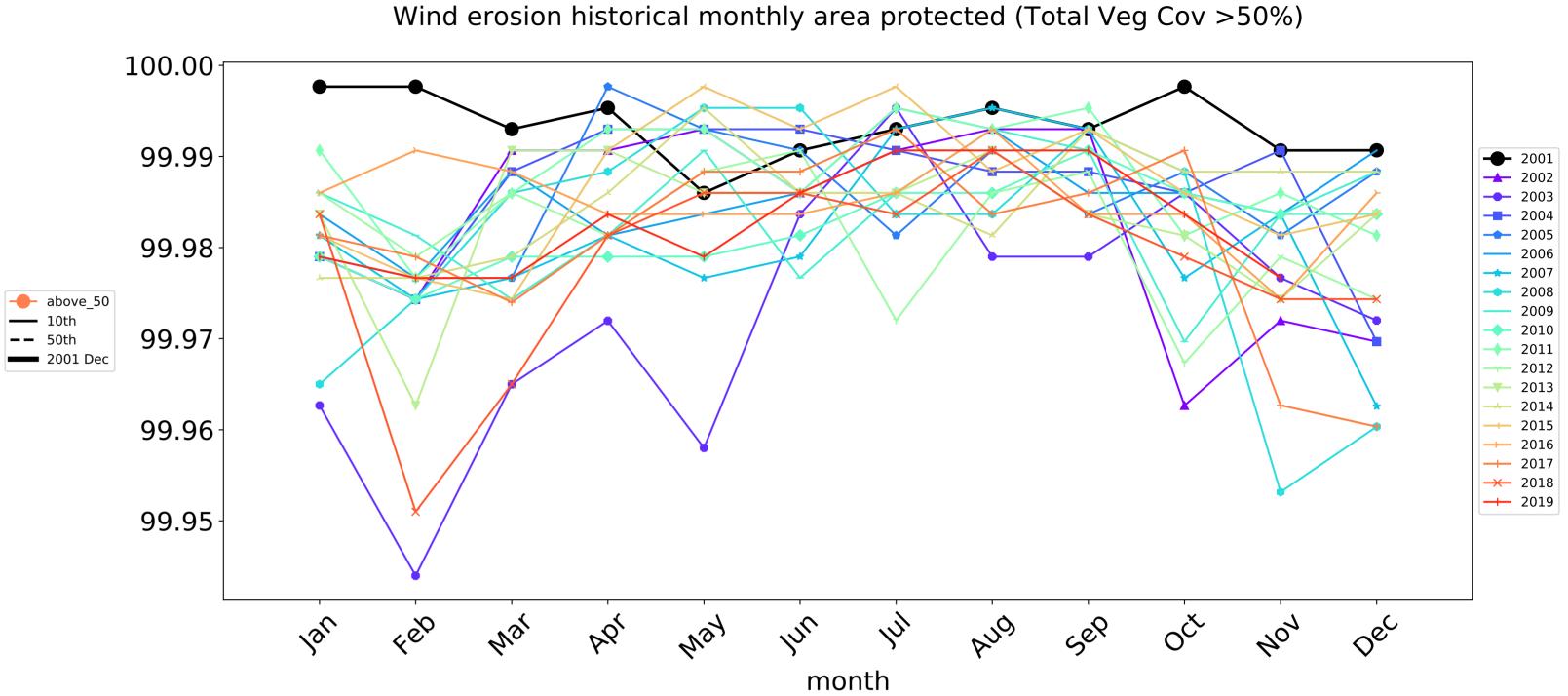


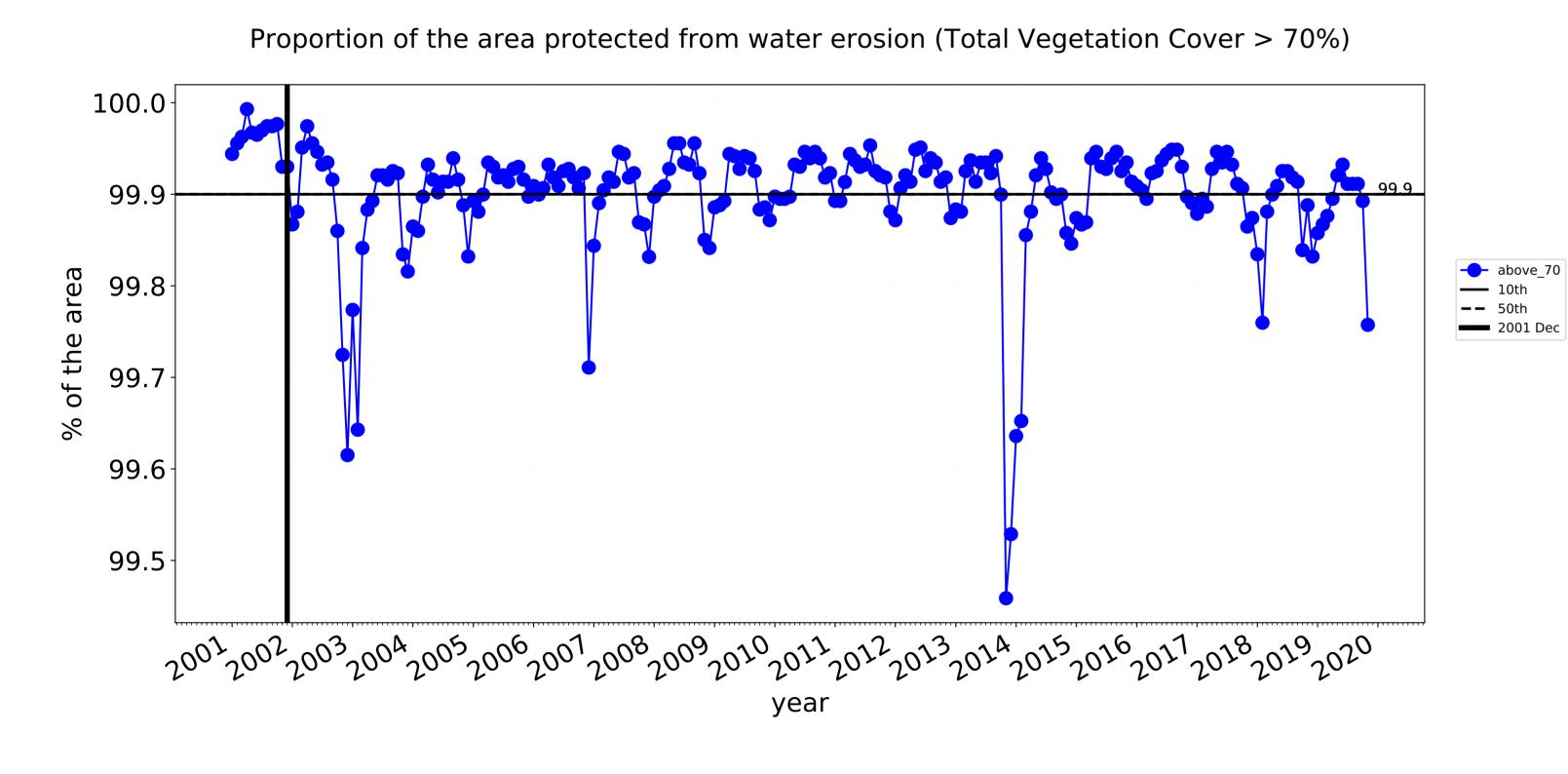


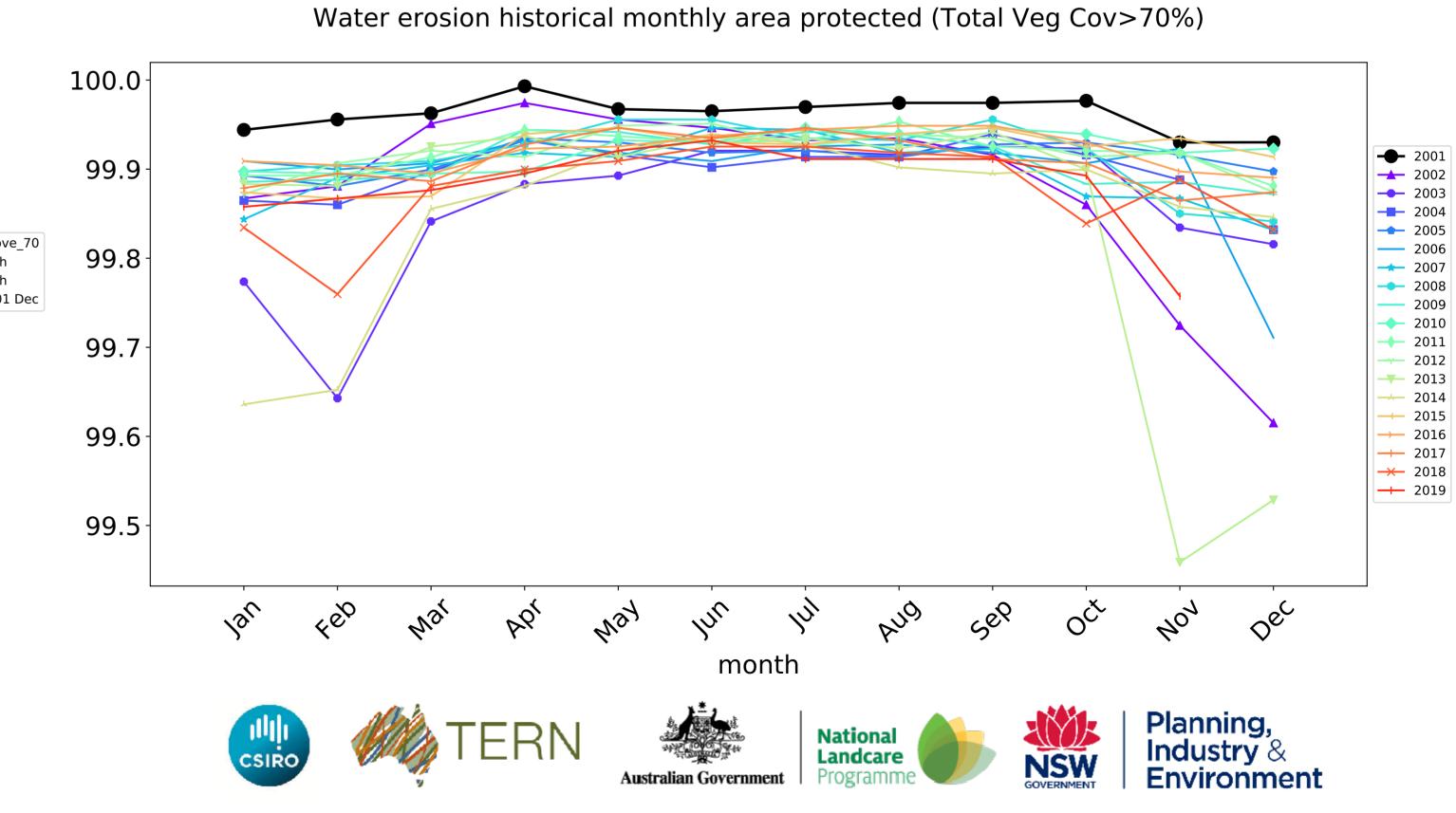


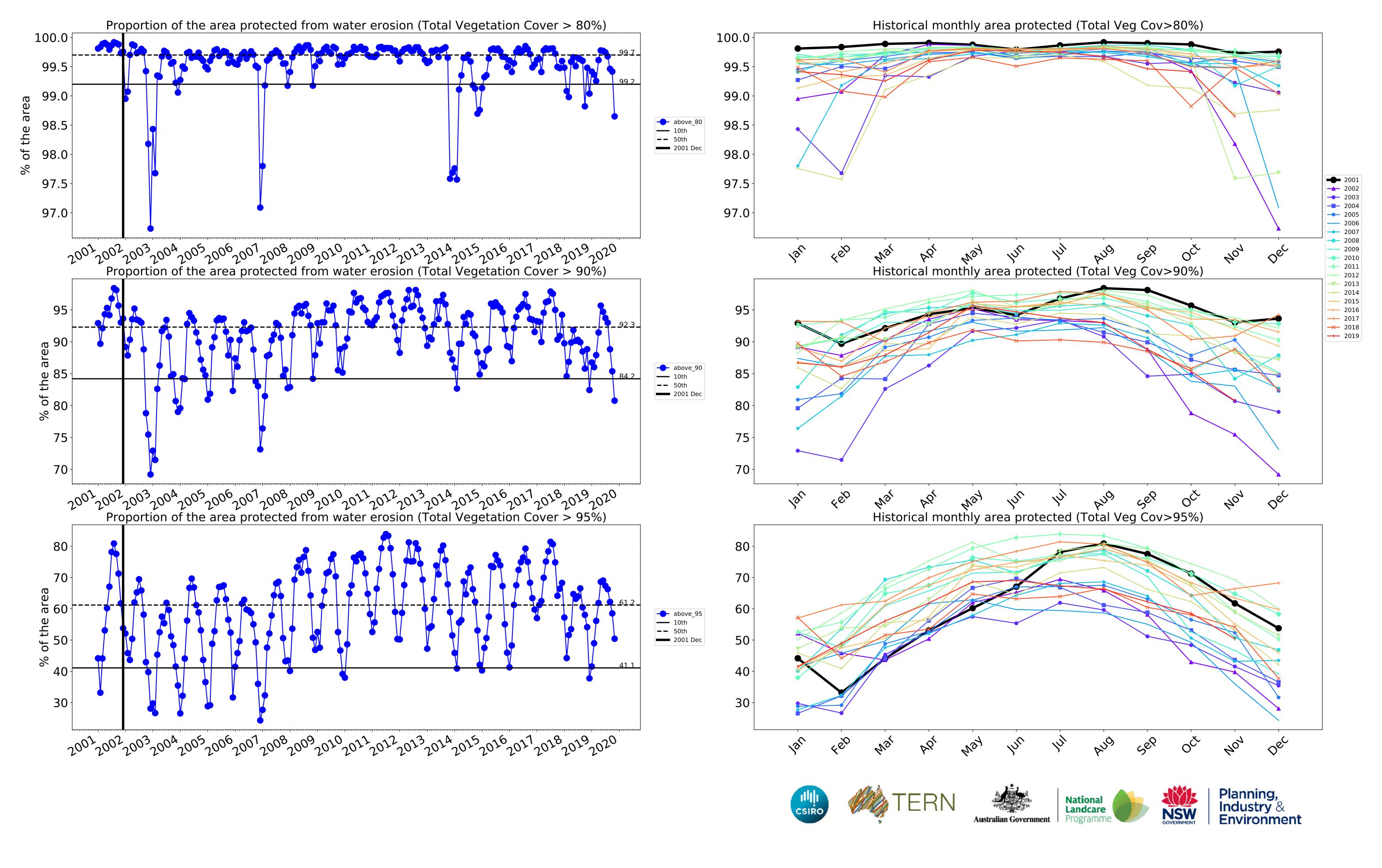
### Conservation and natural environments Forest (non woodland) timeseries



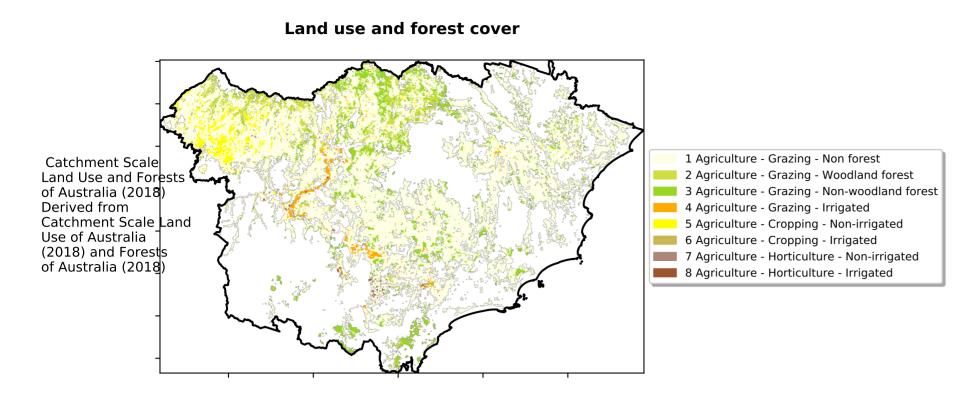




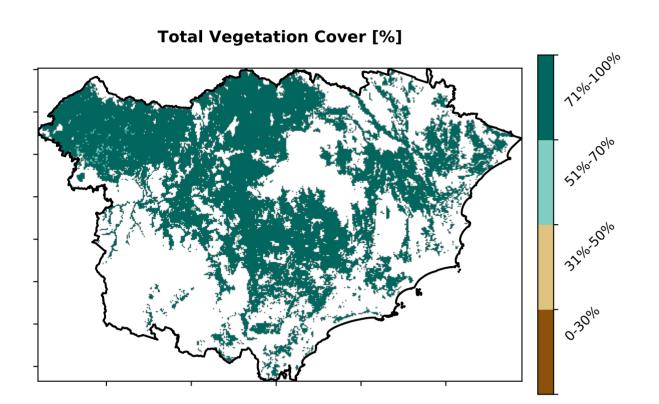


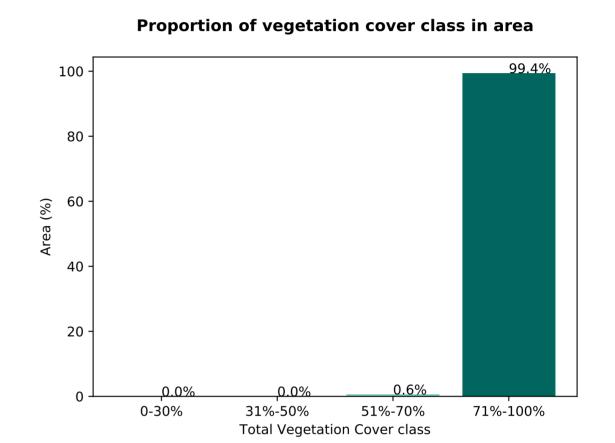


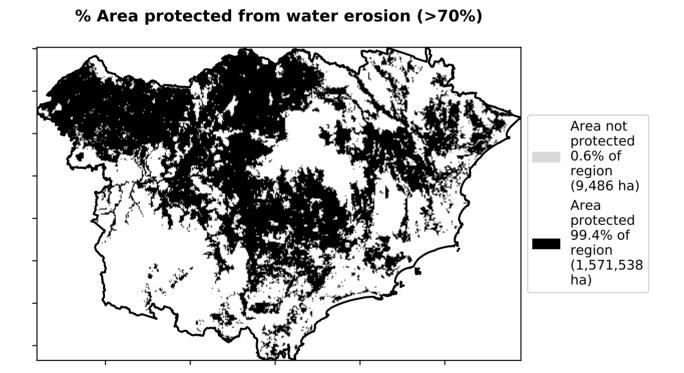
### **Agriculture**

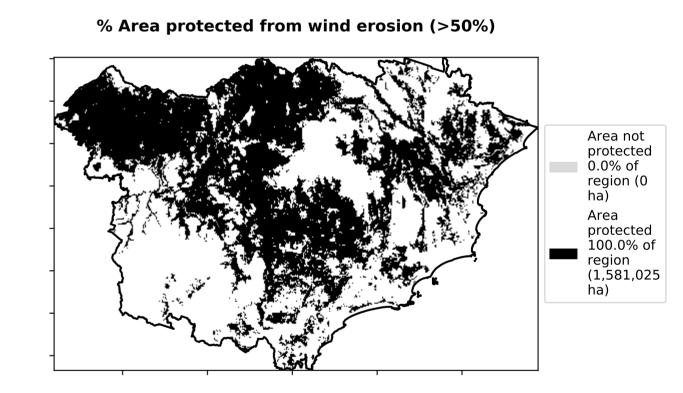


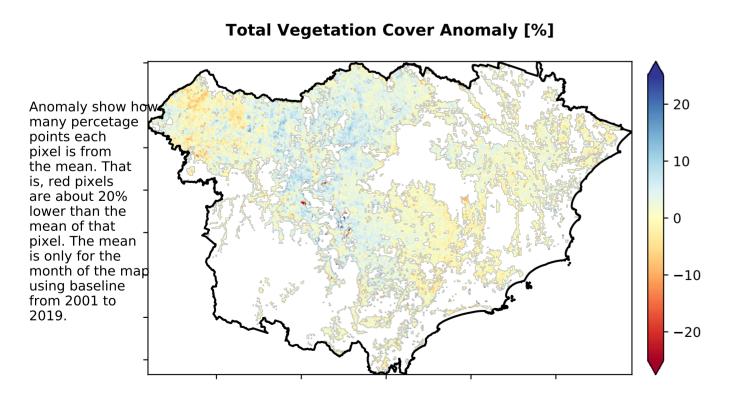
# Proportion of each land class in area 80 76.7% 70 60 50 20 10 7.6% 10.7% 10.7% 1.3% 3.2% 0.1% 0.1% 0.2% Land use class

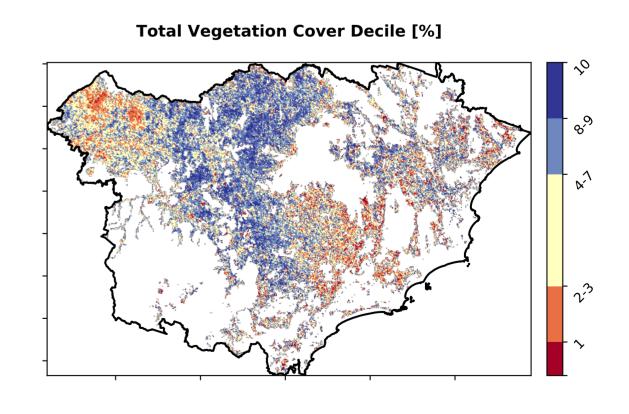
















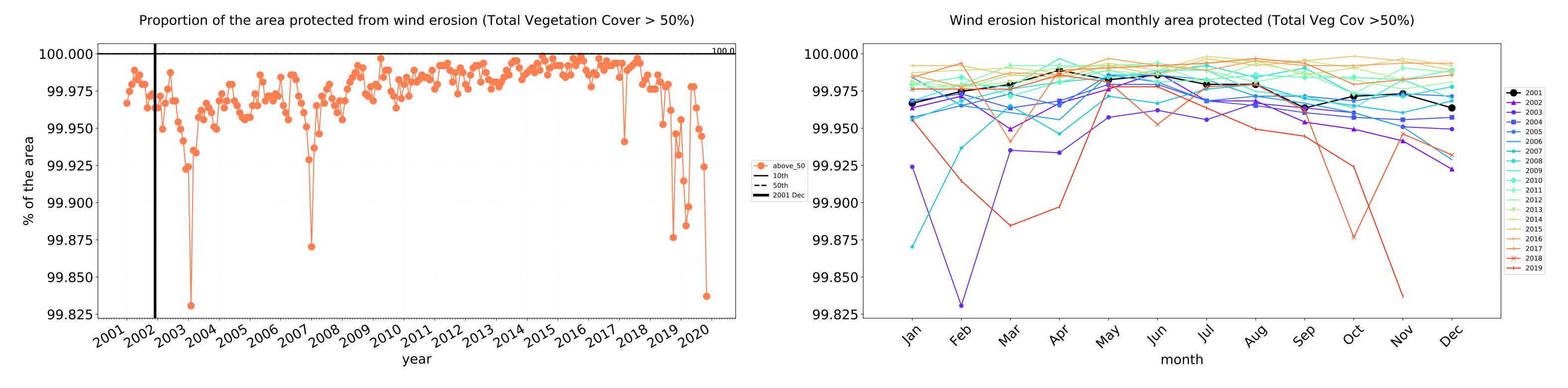


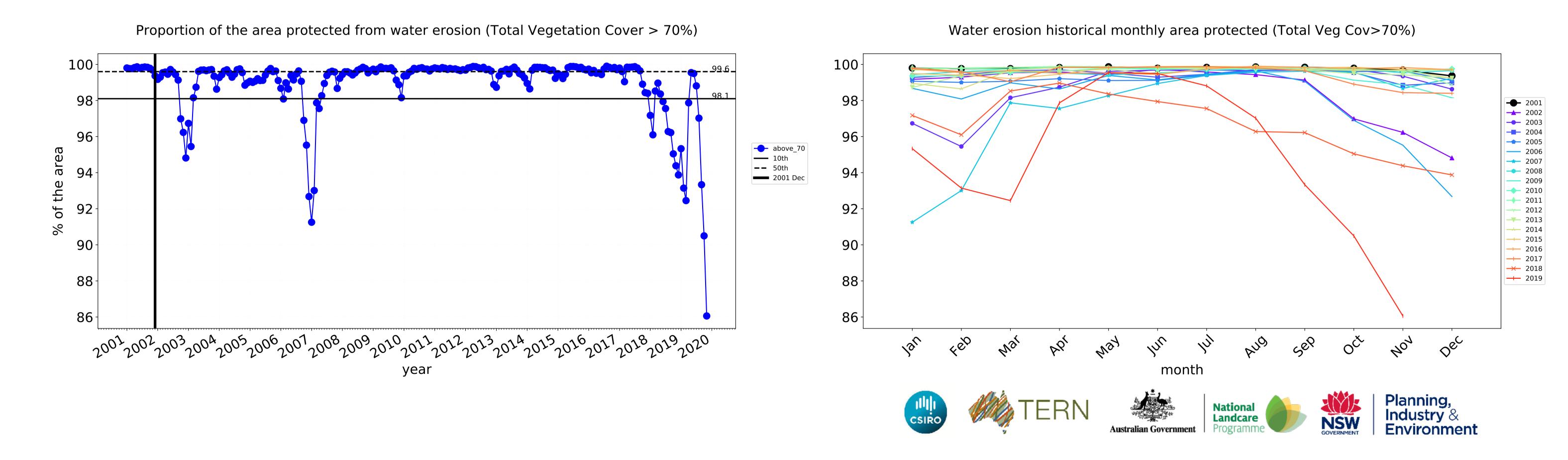


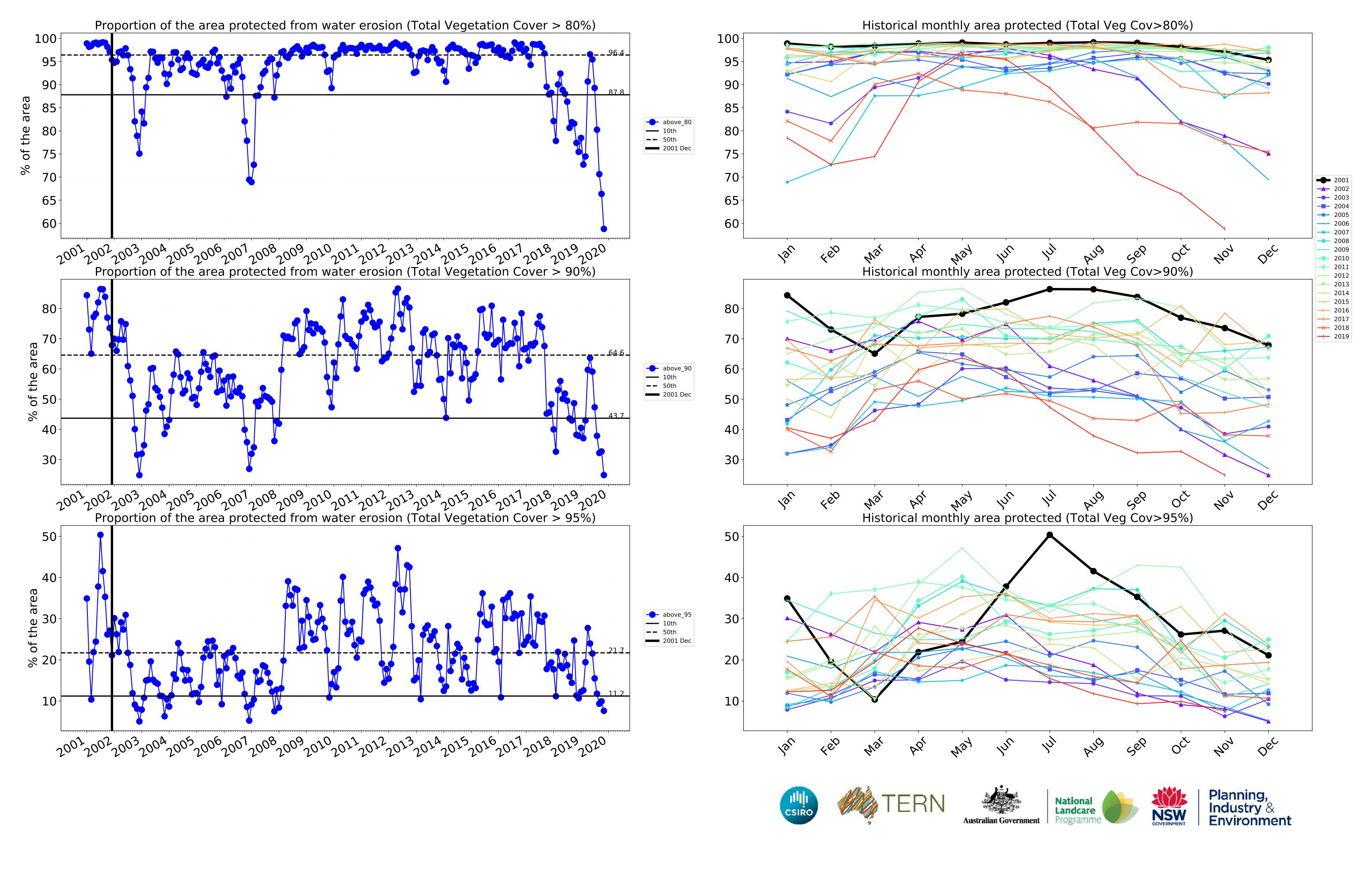




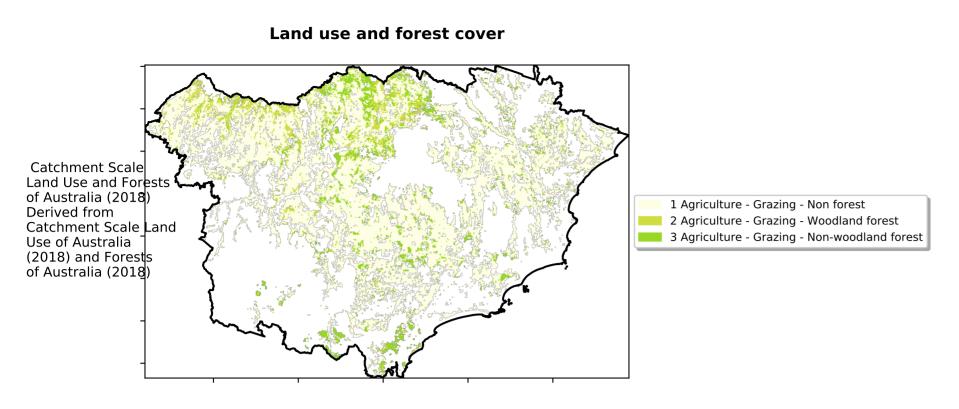
### **Agriculture timeseries**



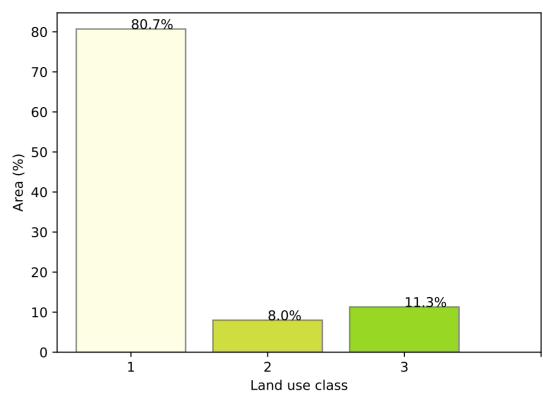




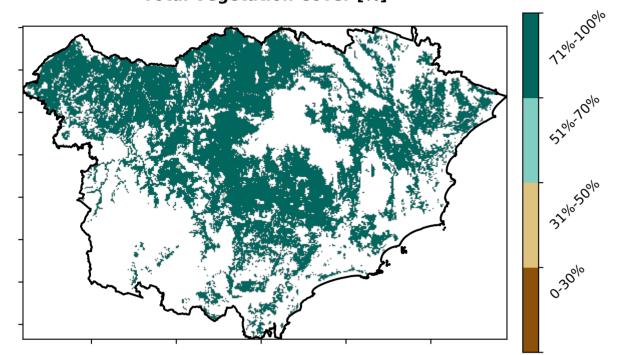
### **Grazing**



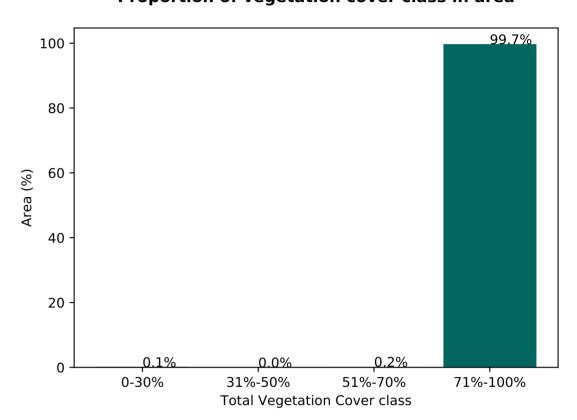
### Proportion of each land class in area



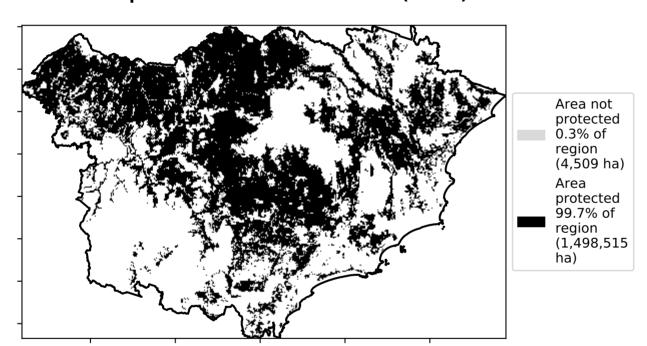




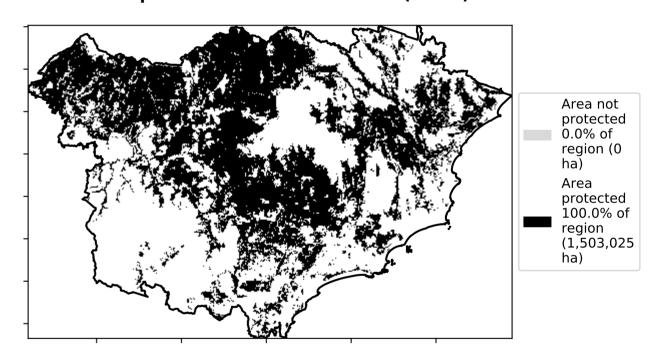
Proportion of vegetation cover class in area



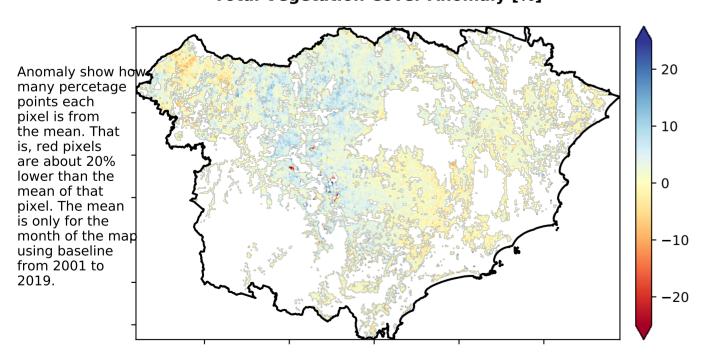
### % Area protected from water erosion (>70%)

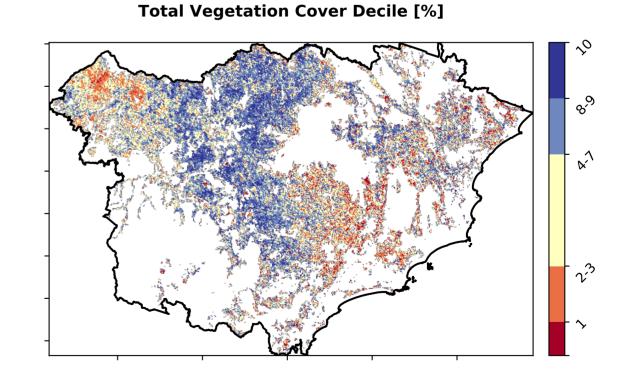


% Area protected from wind erosion (>50%)



### Total Vegetation Cover Anomaly [%]









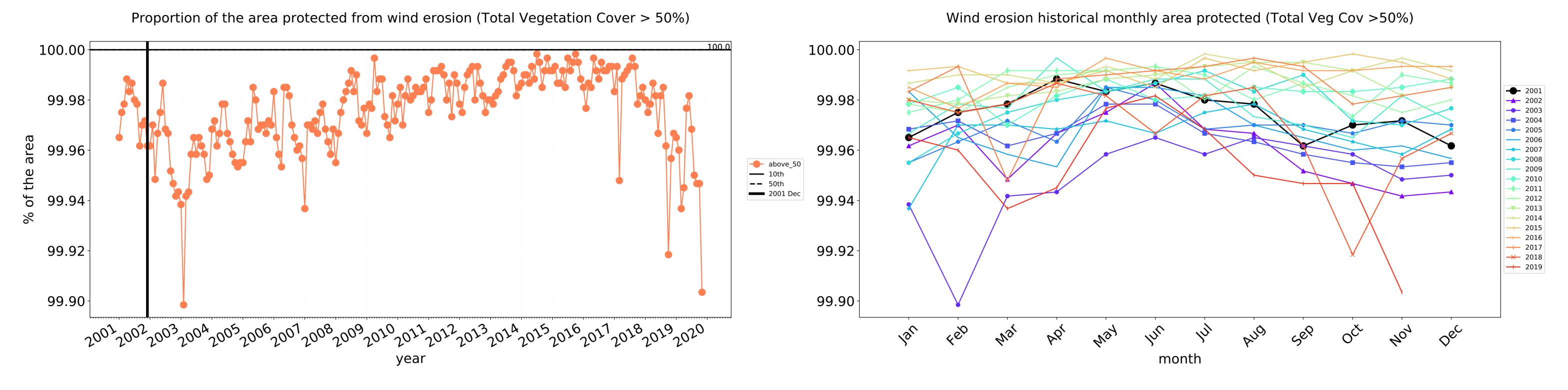


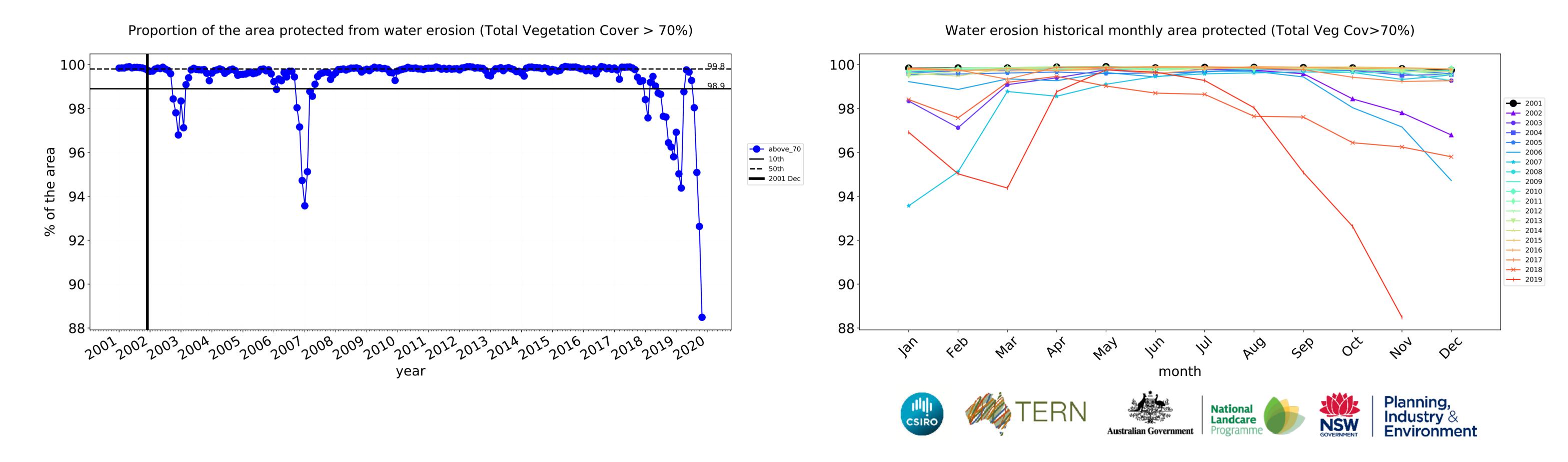


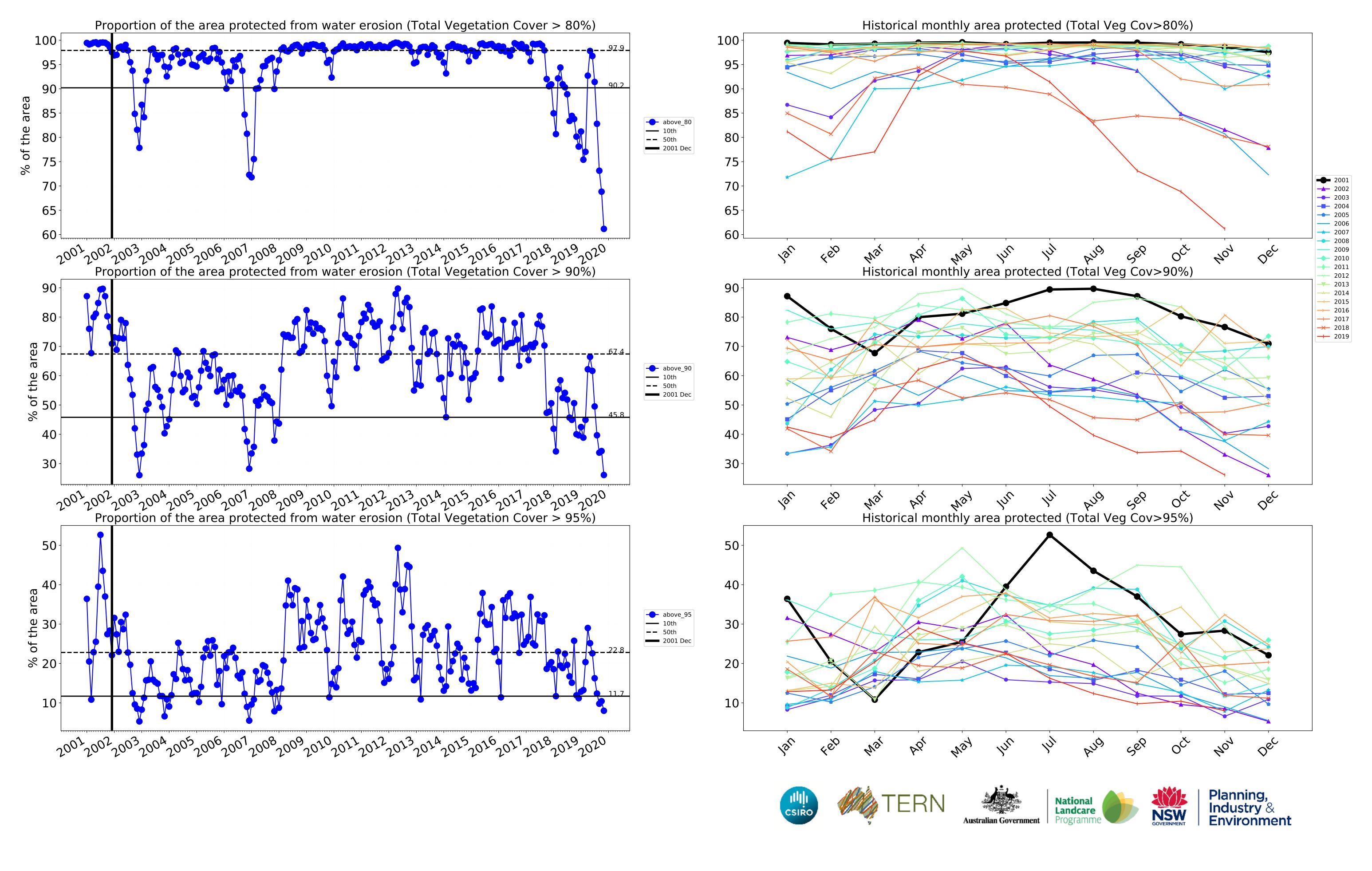




### **Grazing timeseries**

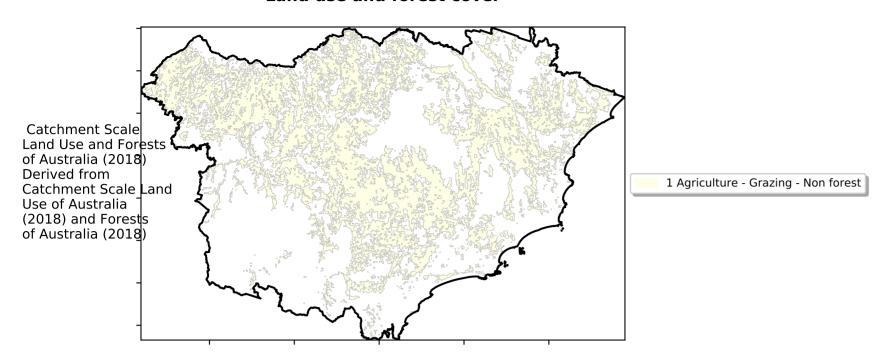




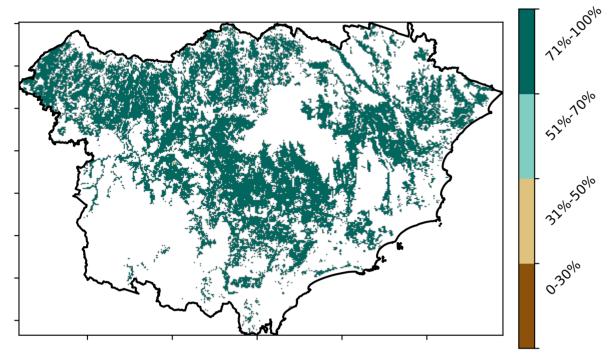


### **Grazing non forest**

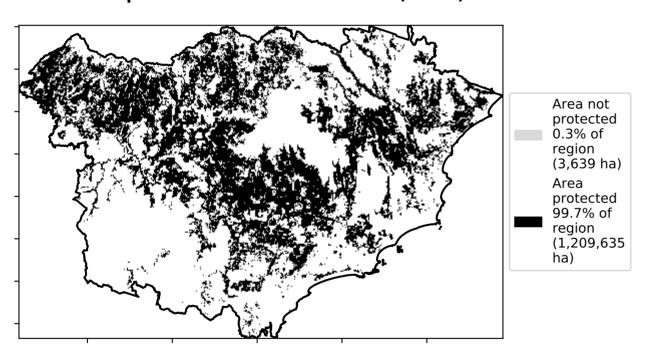
### Land use and forest cover



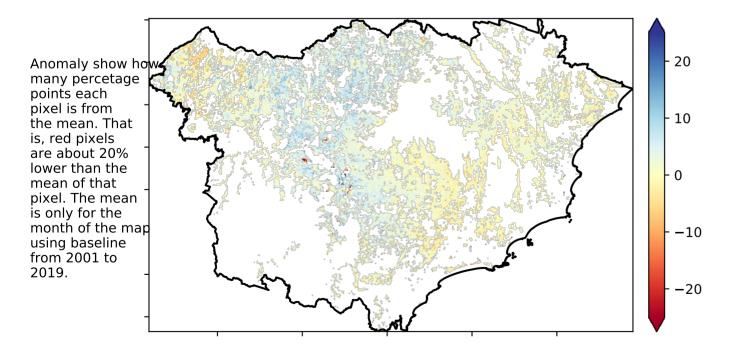
### Total Vegetation Cover [%]



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

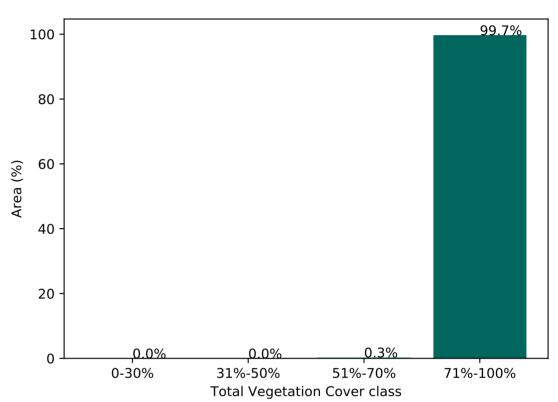


### Total Vegetation Cover Anomaly [%]

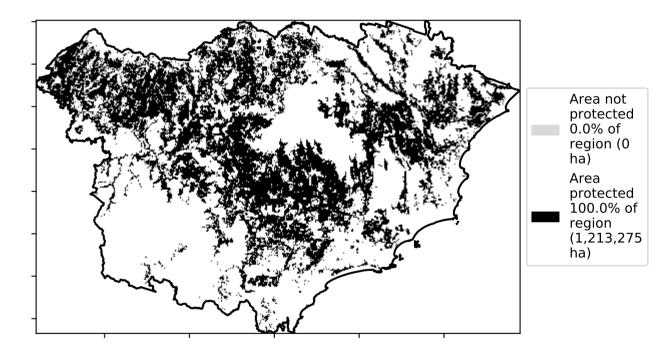


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

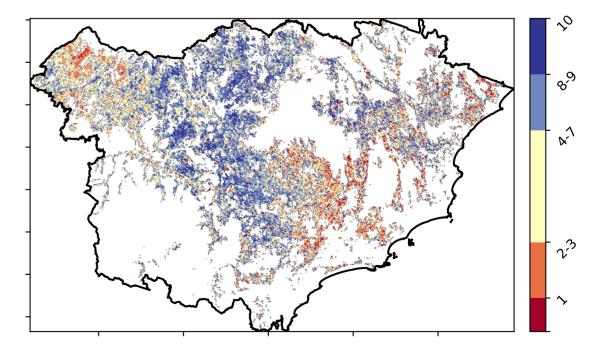
### **Proportion of vegetation cover class in area**



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



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









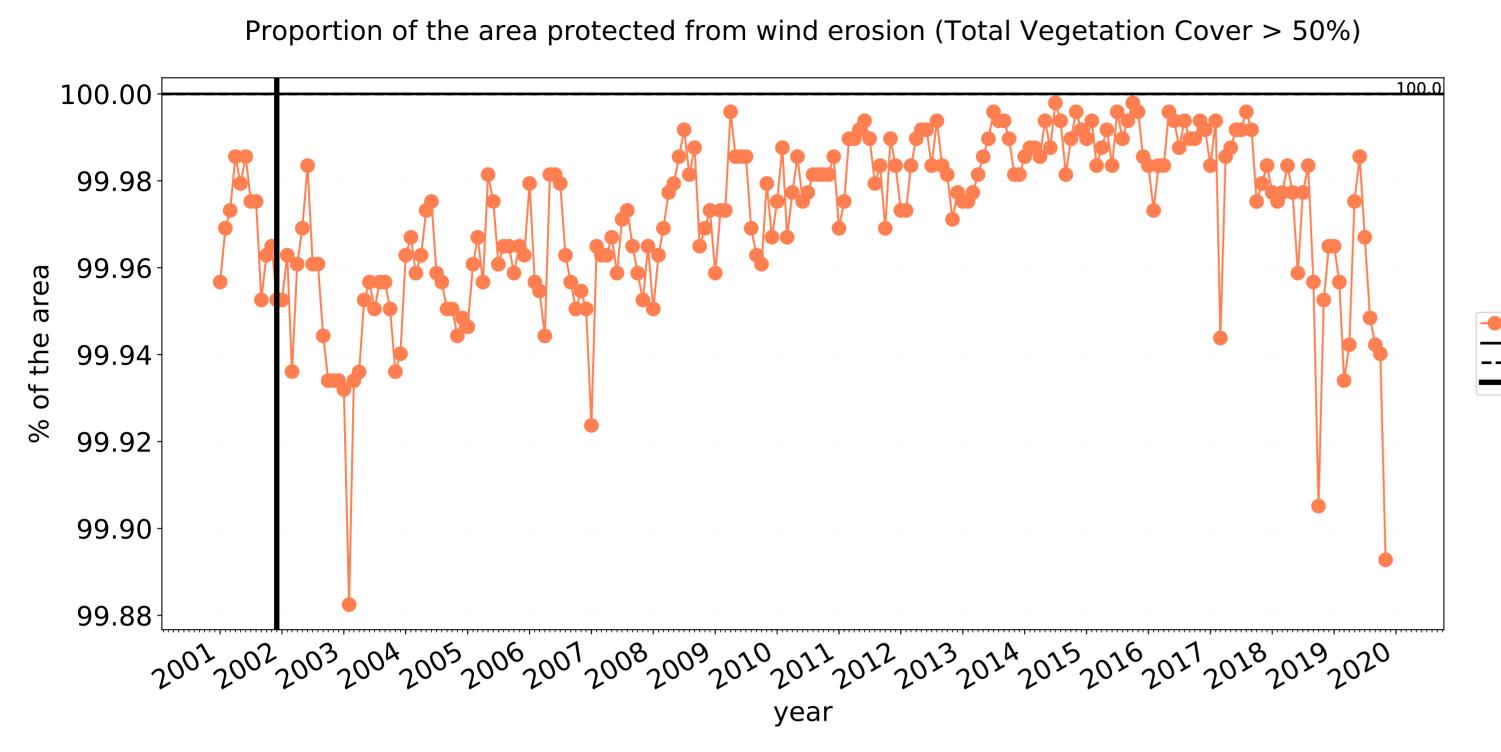






### **Grazing non forest timeseries**

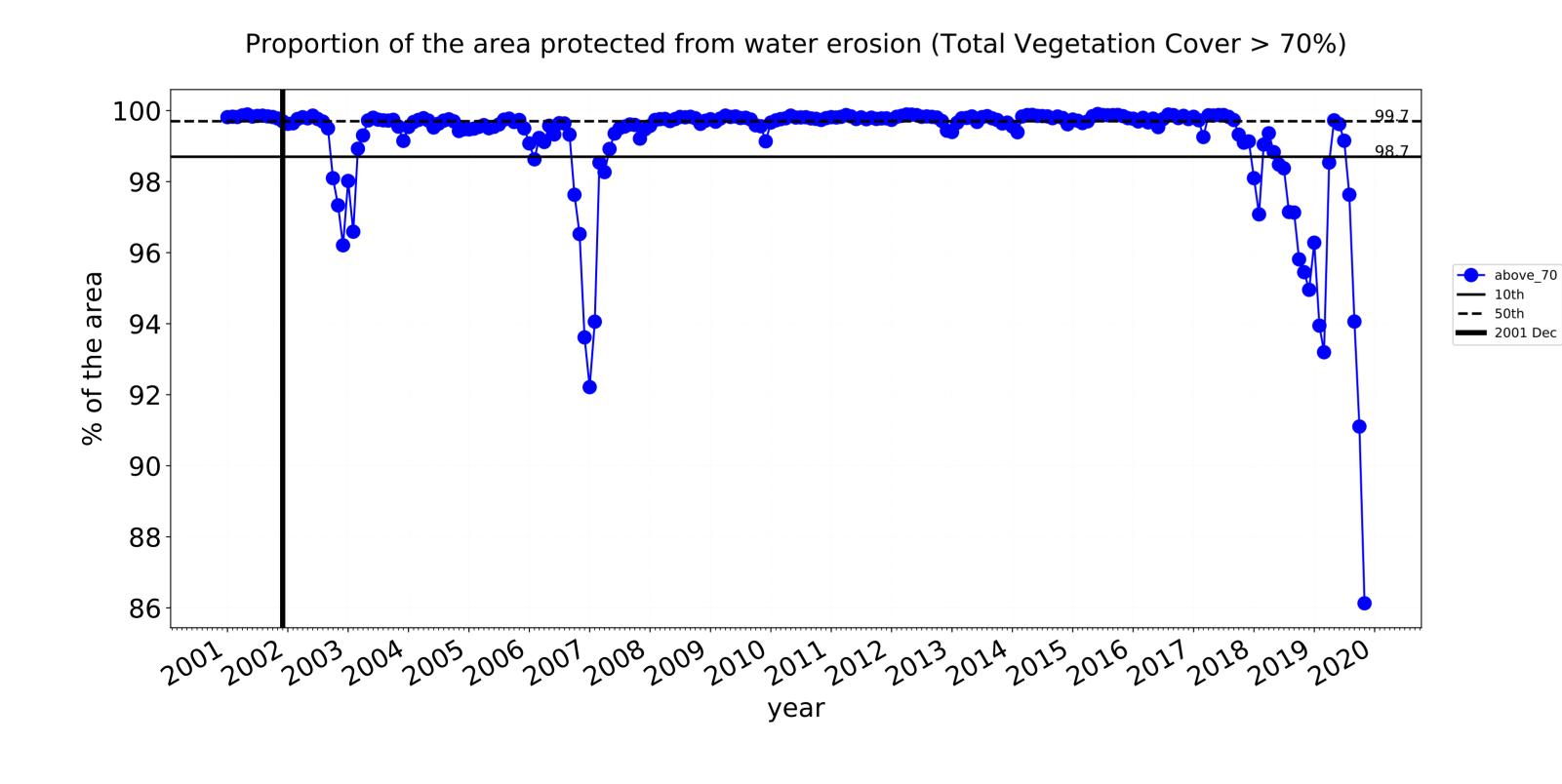
99.88

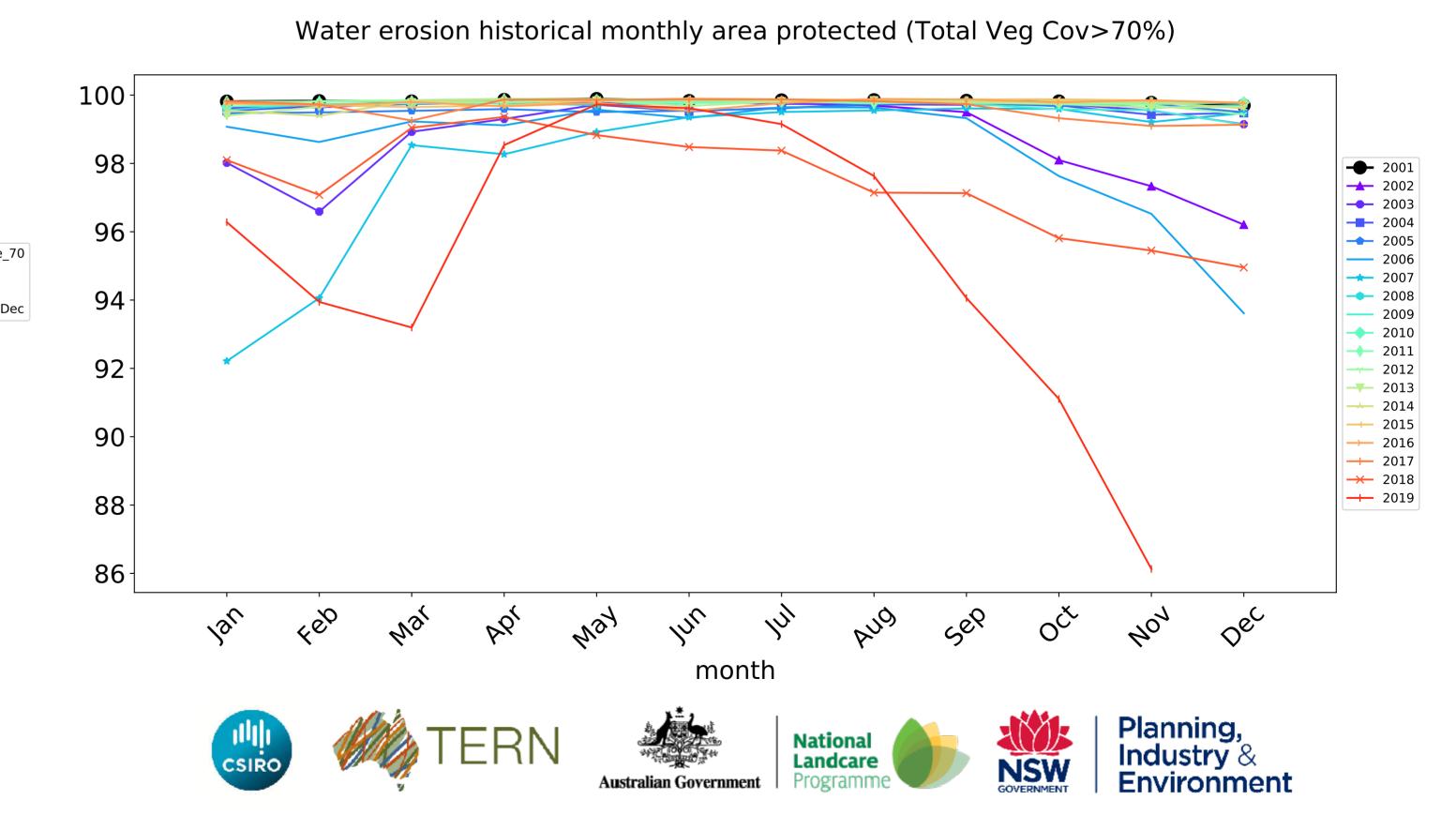


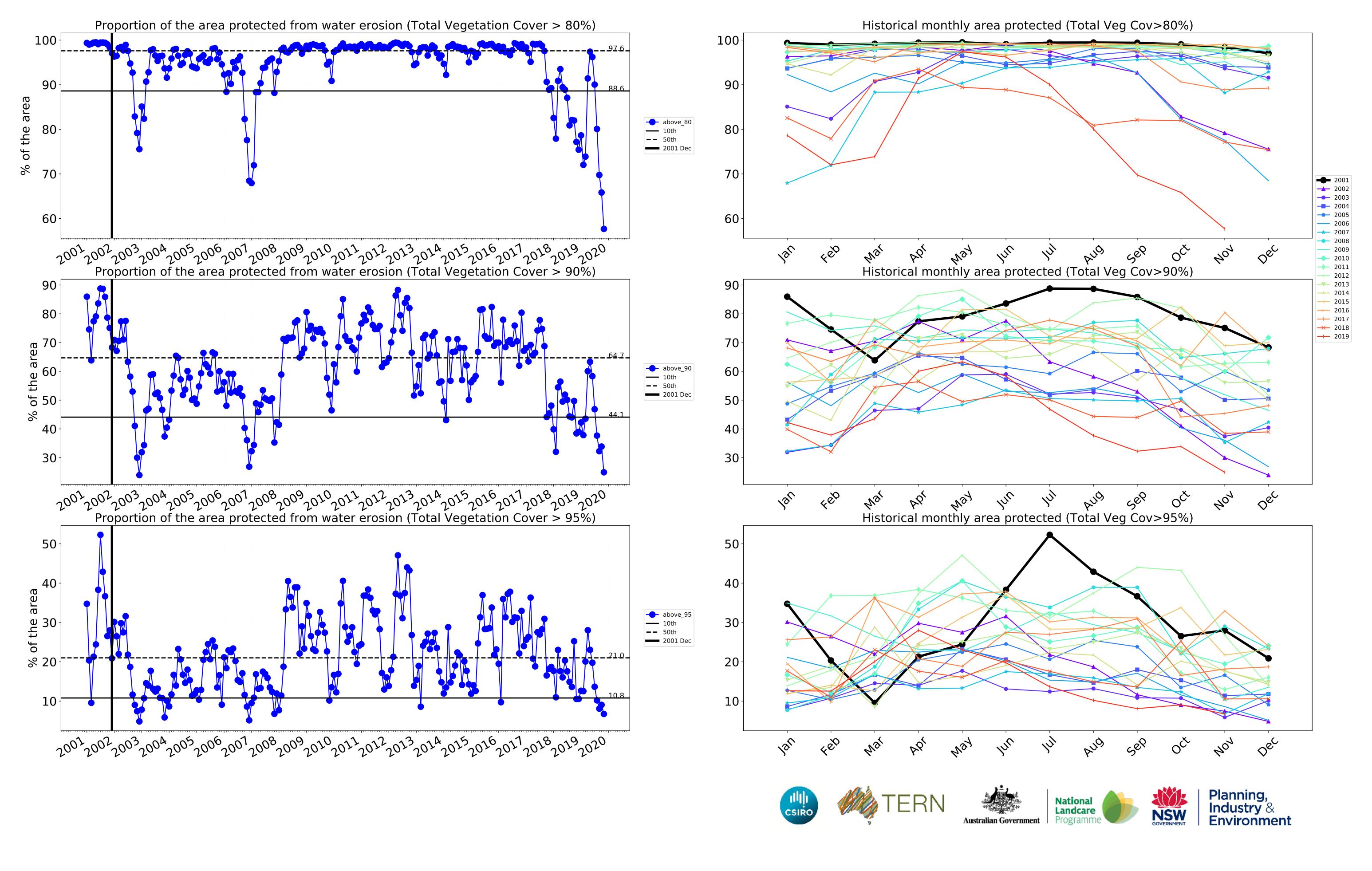
# 99.98 99.96 99.96 above 50 10th 2001 2002 2003 2006 2007 2008 2009 2010 2011 2012 2012 2014 2015 2016 2017 2018 2019

month

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





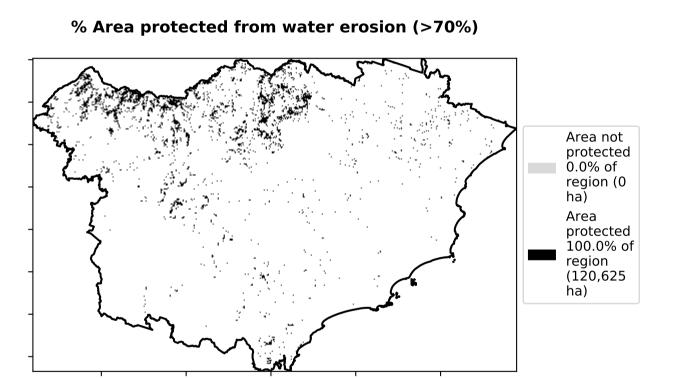


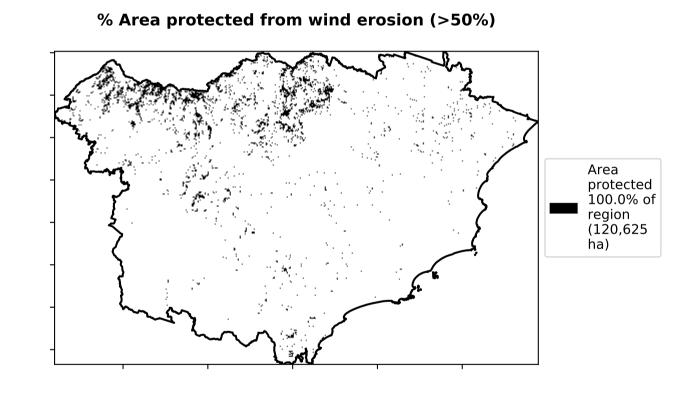
### **Grazing Woodland forest**

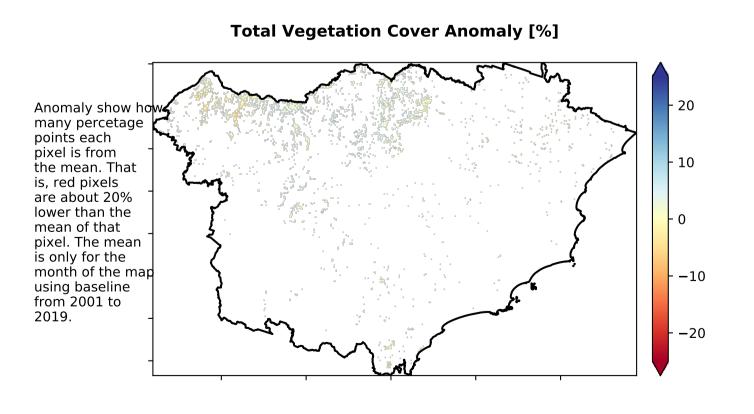
### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) Of Australia (2018)

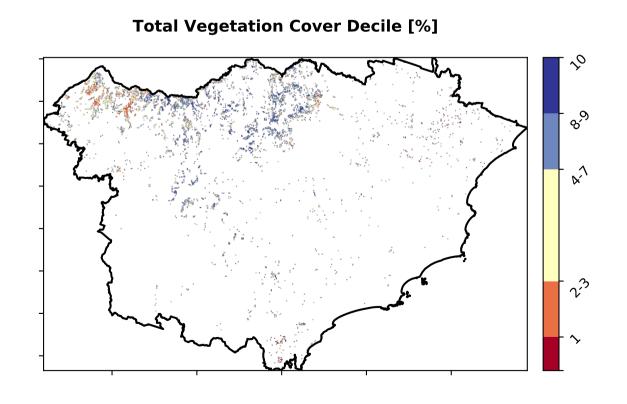
### Total Vegetation Cover [%]

# 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













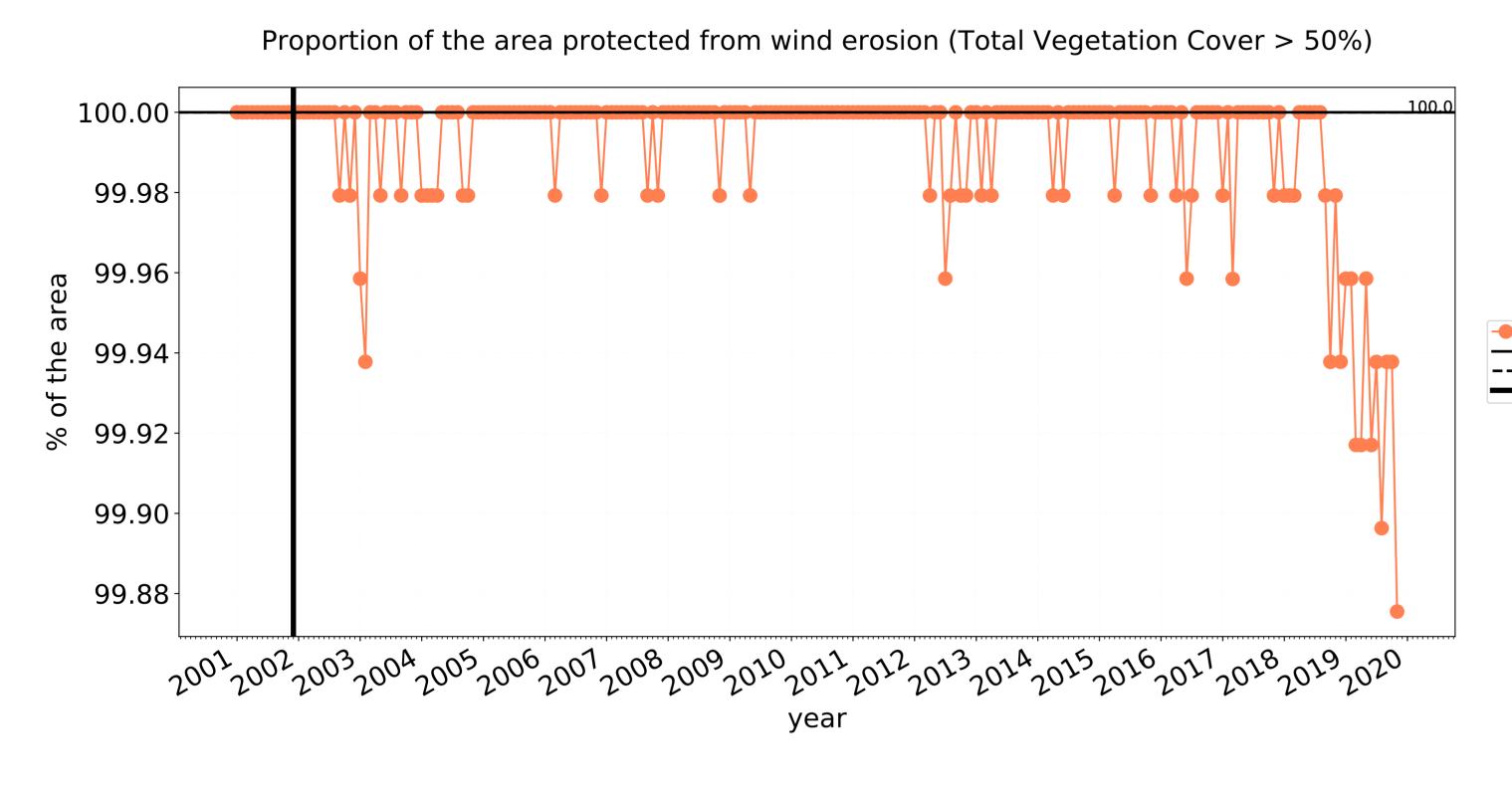


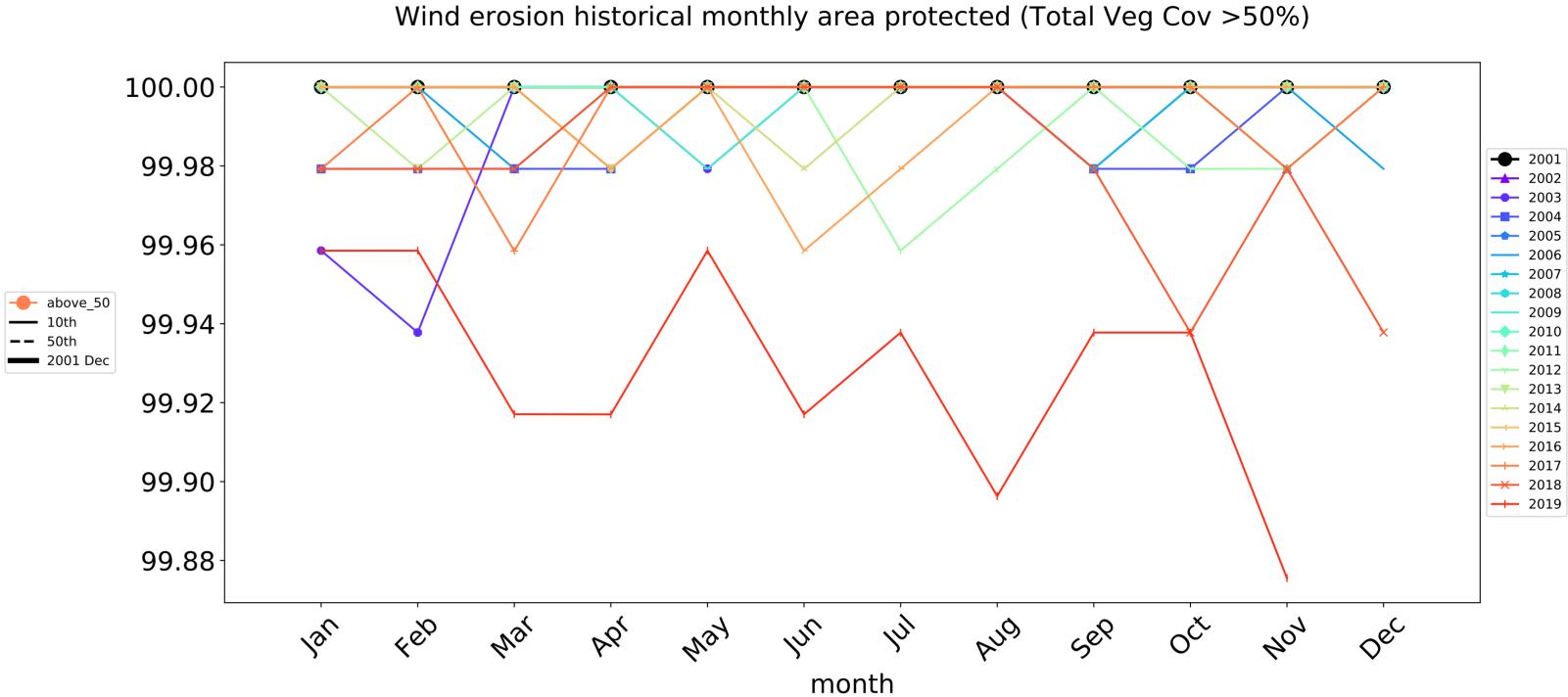


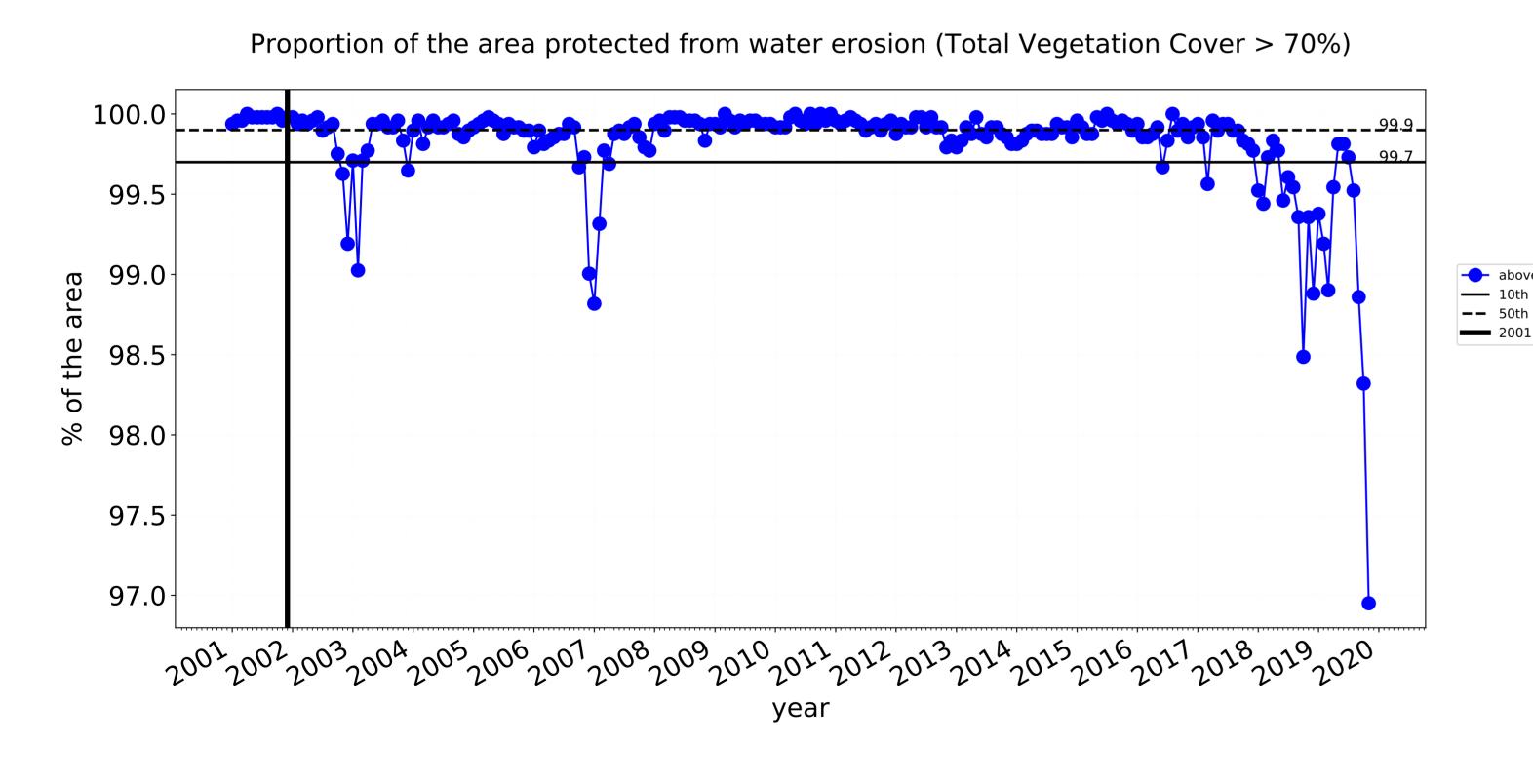


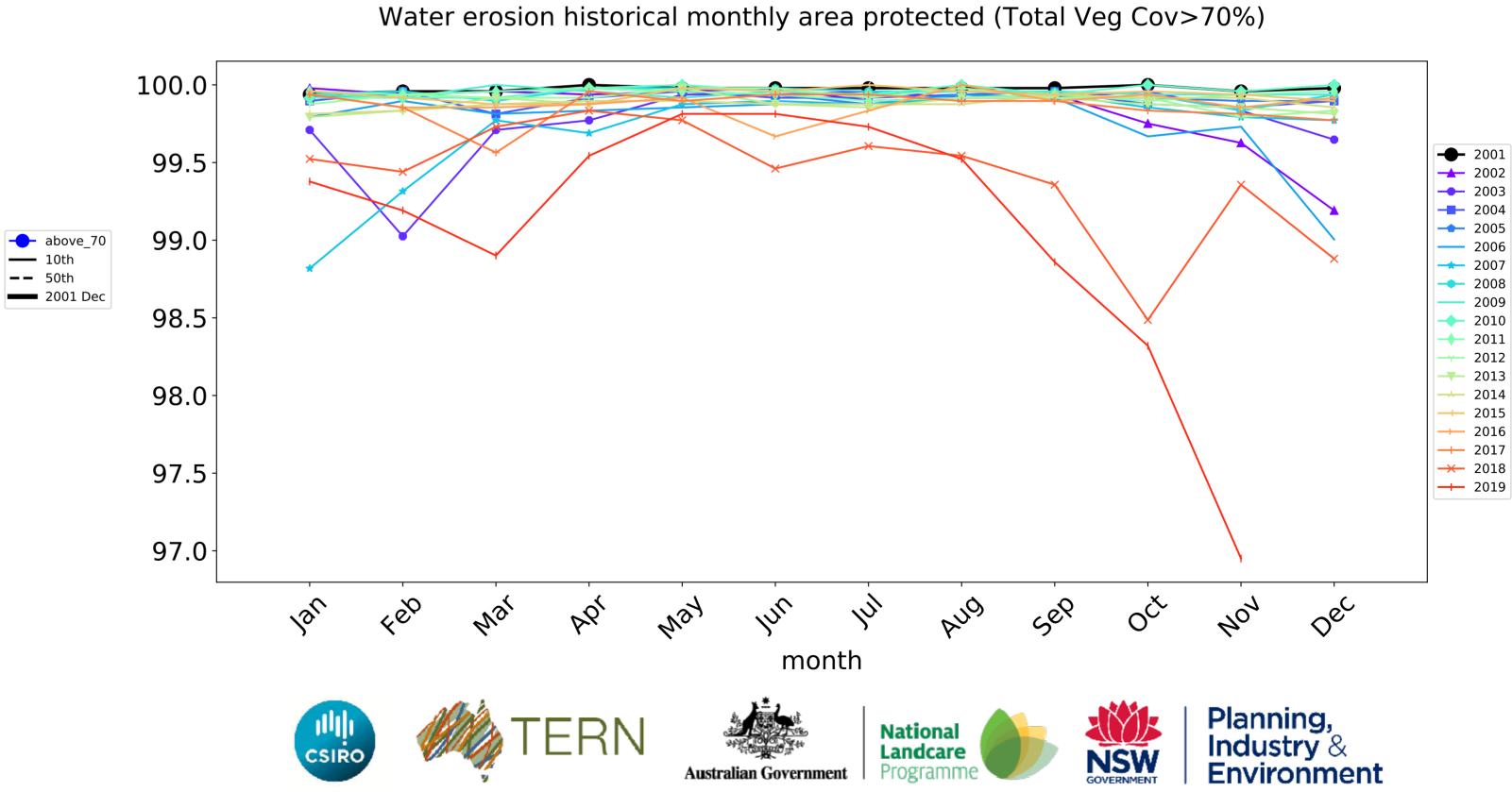


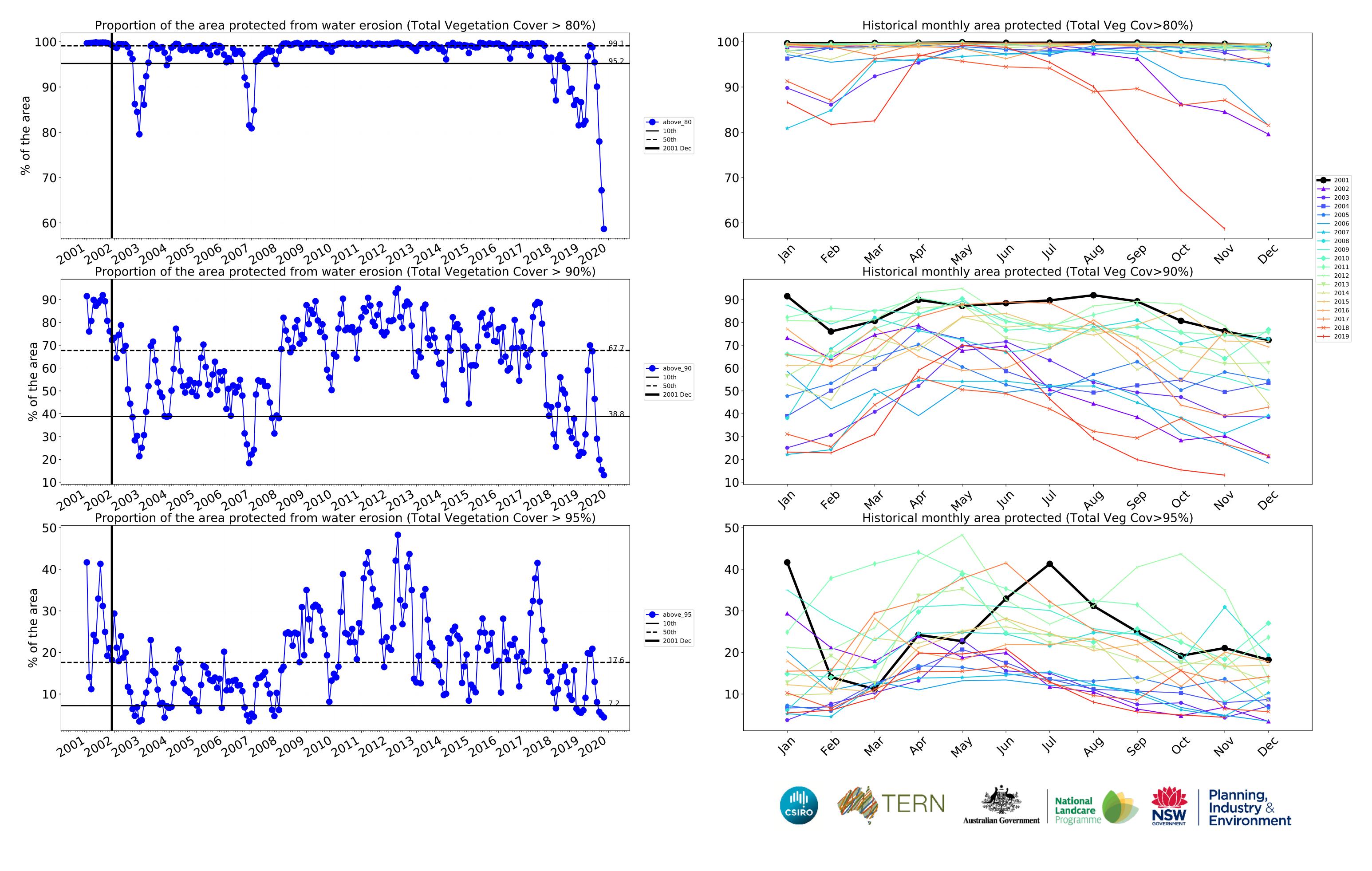
### **Grazing Woodland forest timeseries**









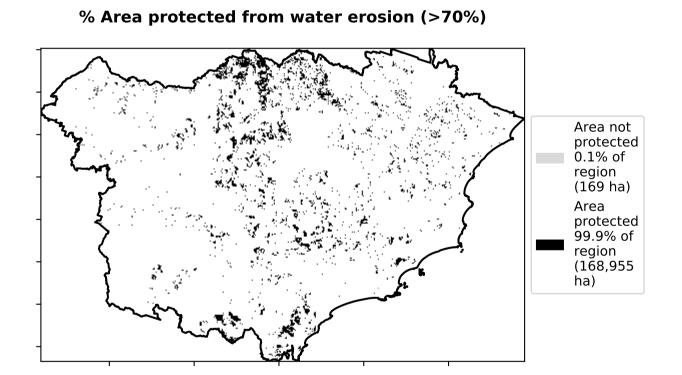


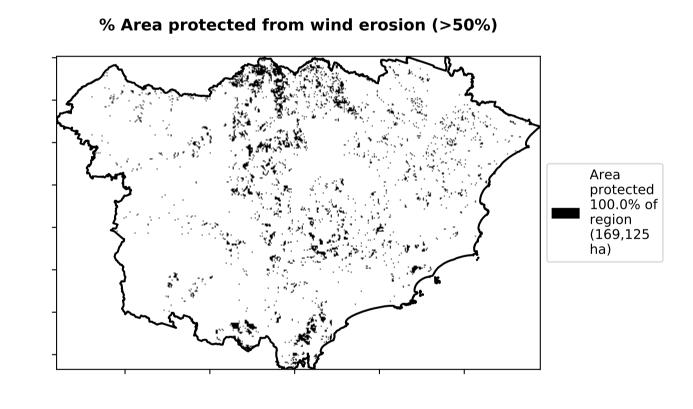
### **Grazing - Forest (non woodland)**

### **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 [%]**

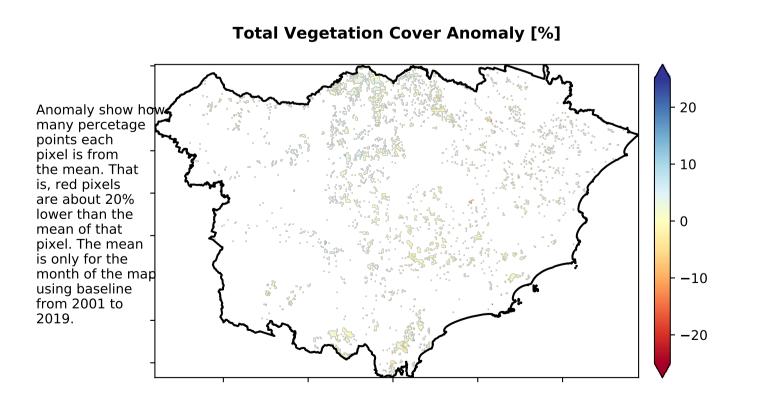
### 100 Area (%) 60 40 20 -0.1% 31%-50% 51%-70% 0-30% 71%-100% **Total Vegetation Cover class**

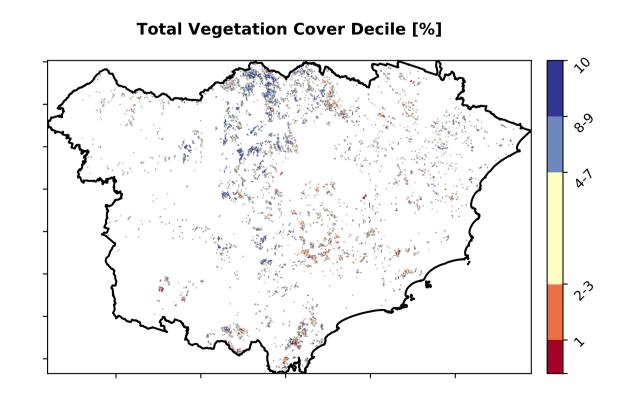




**Proportion of vegetation cover class in area** 

99.9%







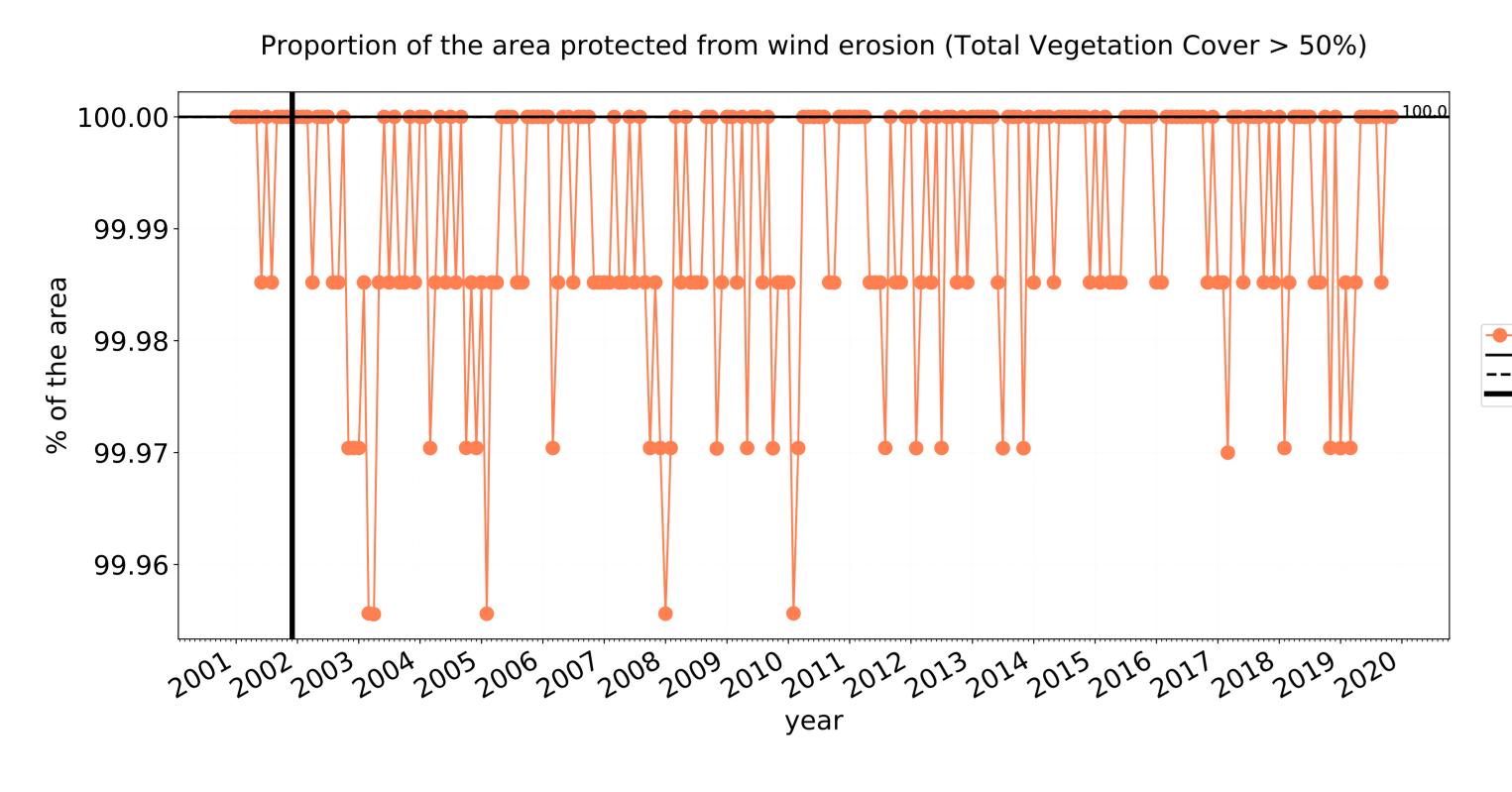


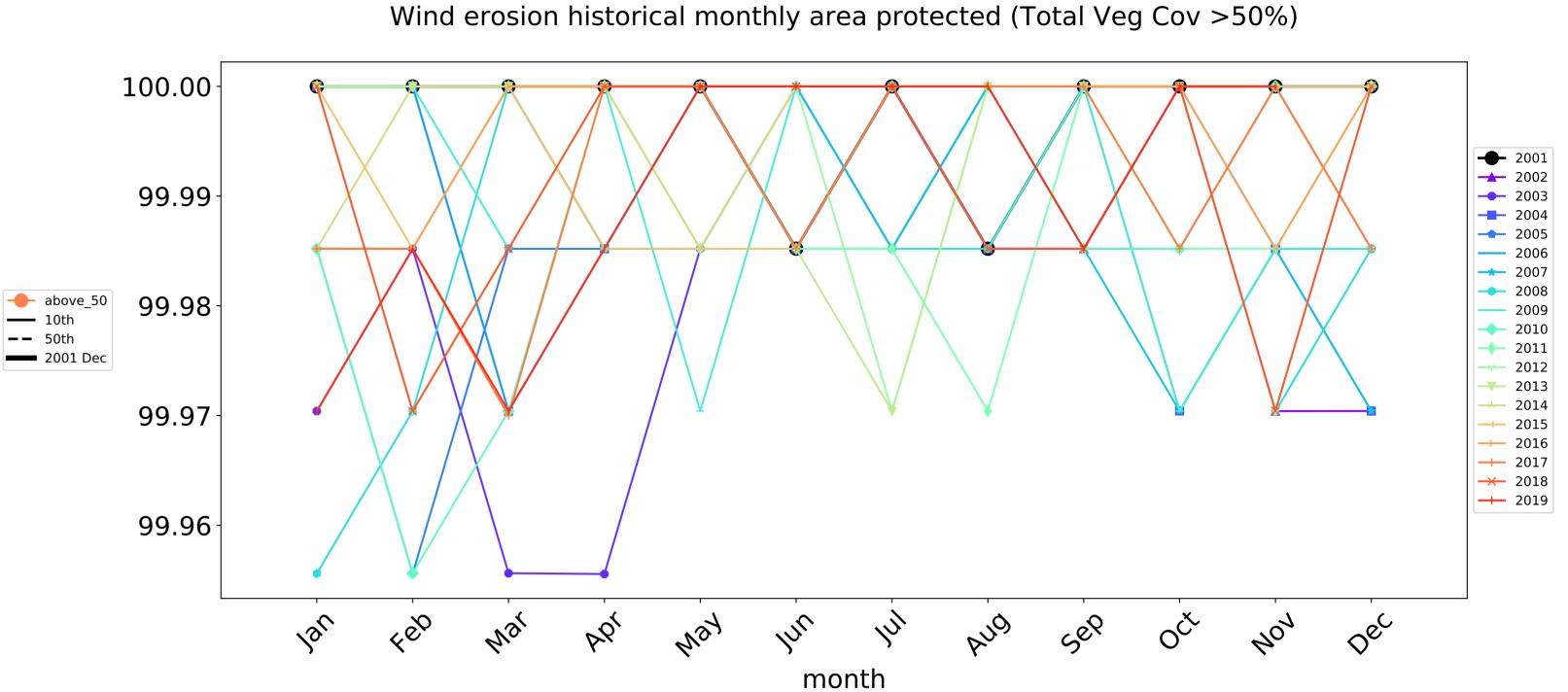


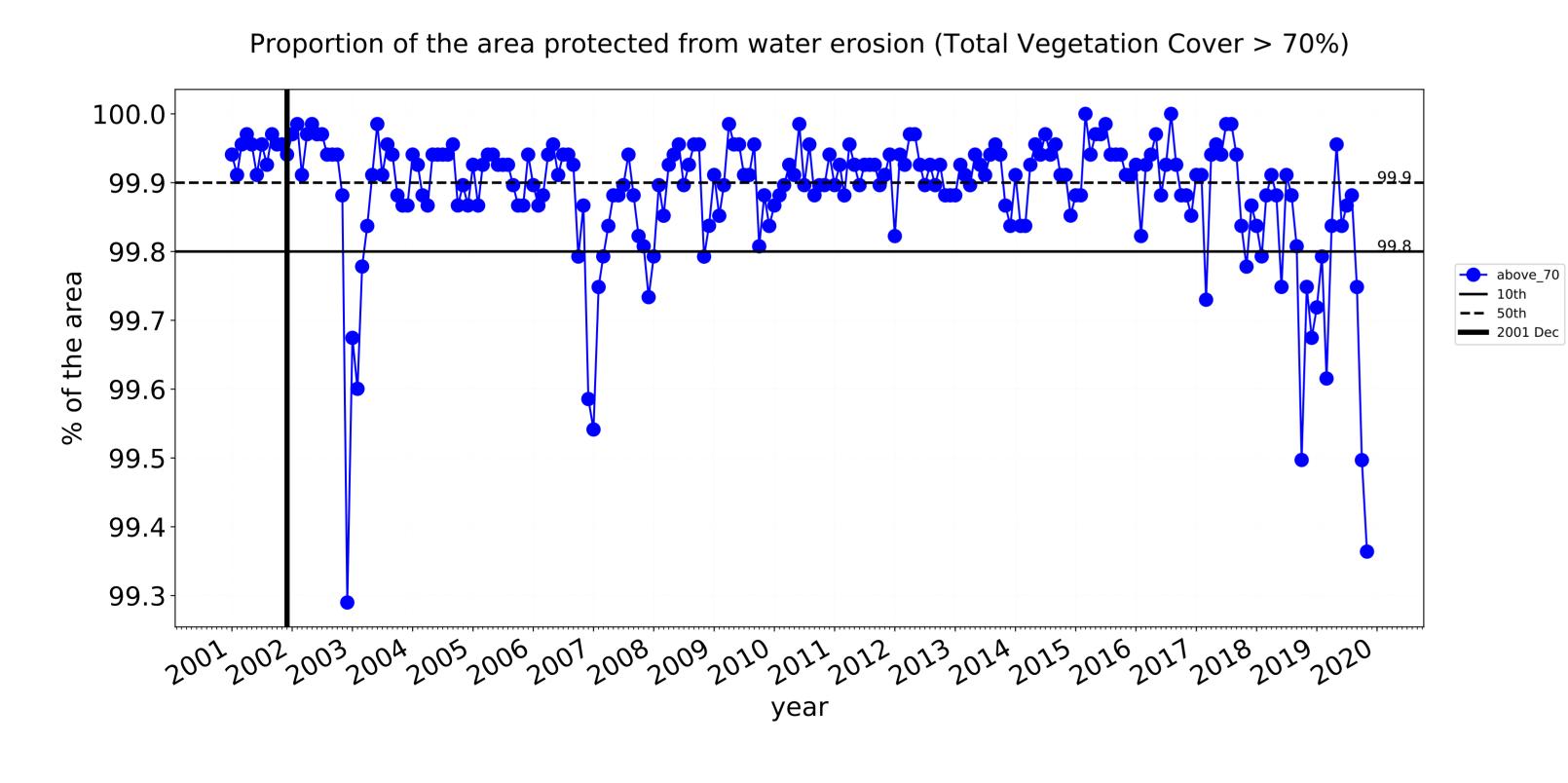


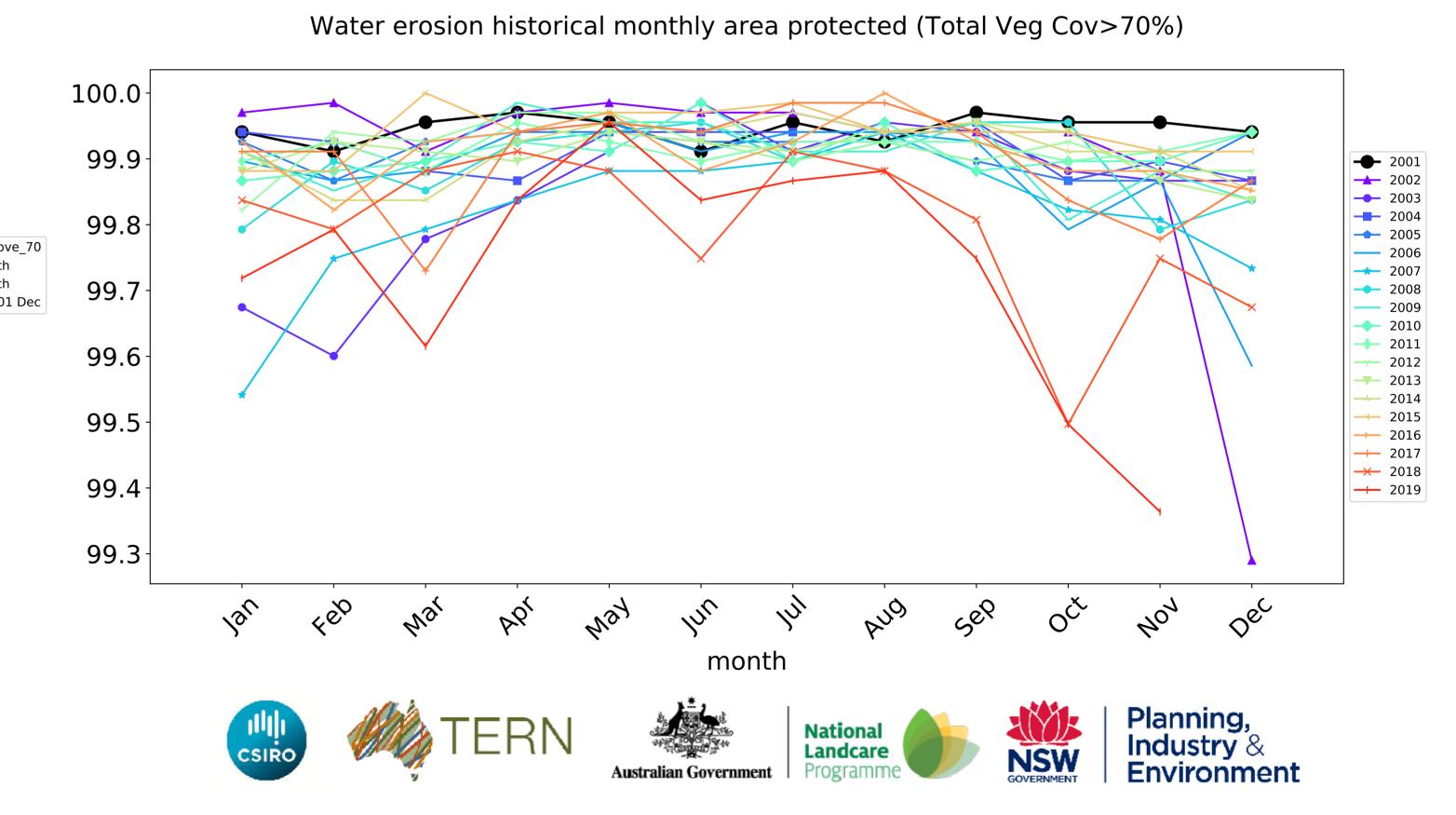


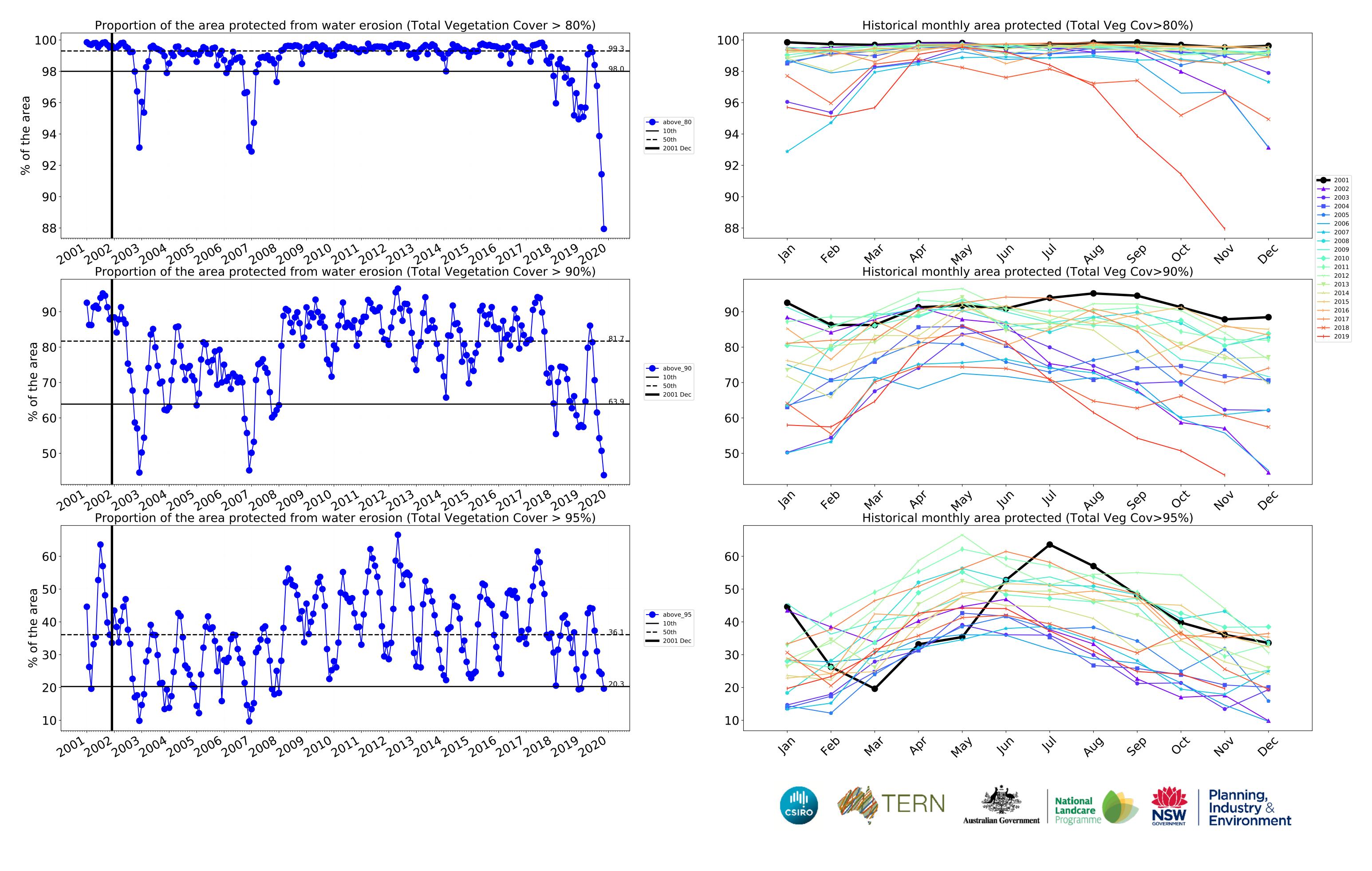






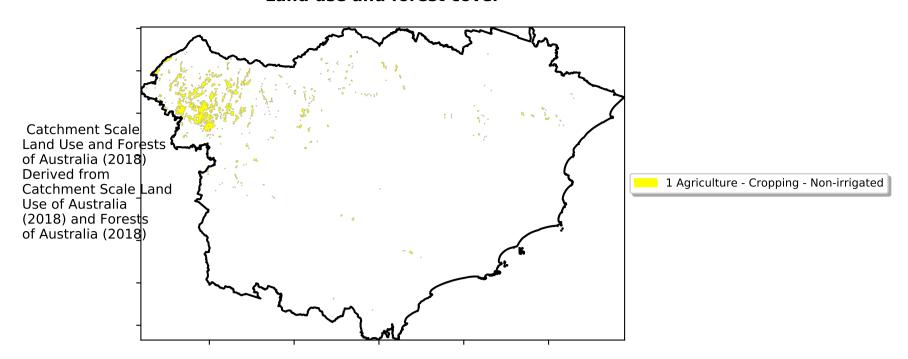




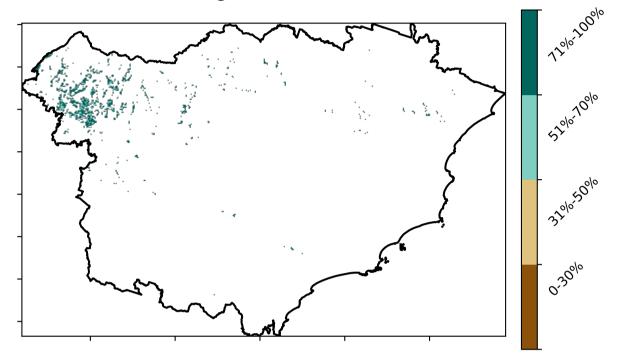


### **Cropping**

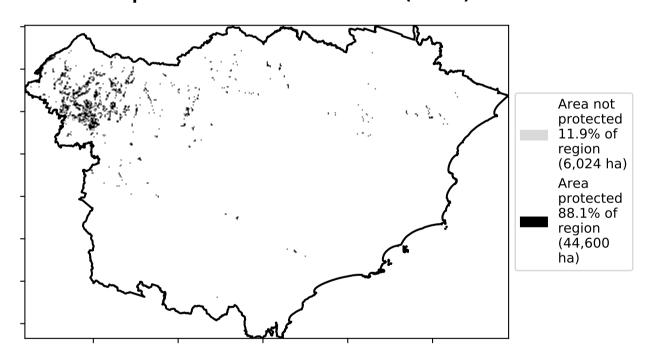
### Land use and forest cover



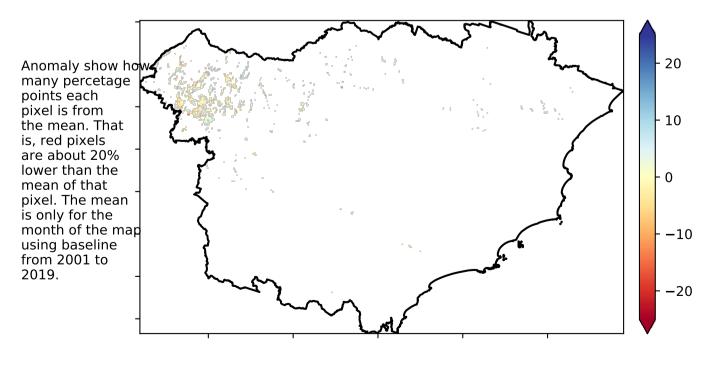
### **Total Vegetation Cover [%]**



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

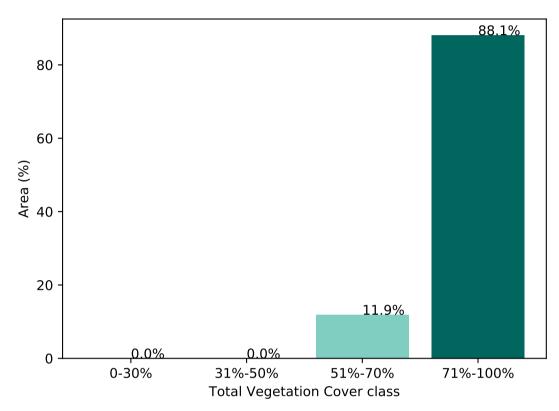


### Total Vegetation Cover Anomaly [%]

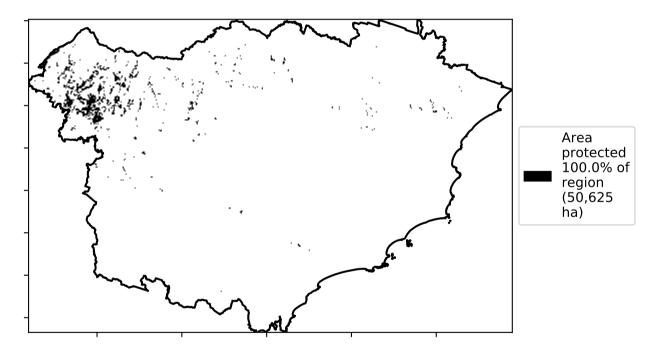


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

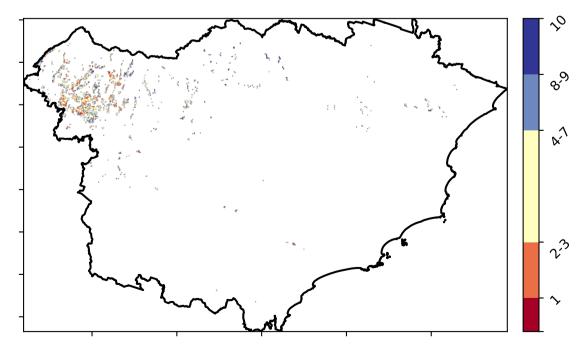
### **Proportion of vegetation cover class in area**



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



### Total Vegetation Cover Decile [%]







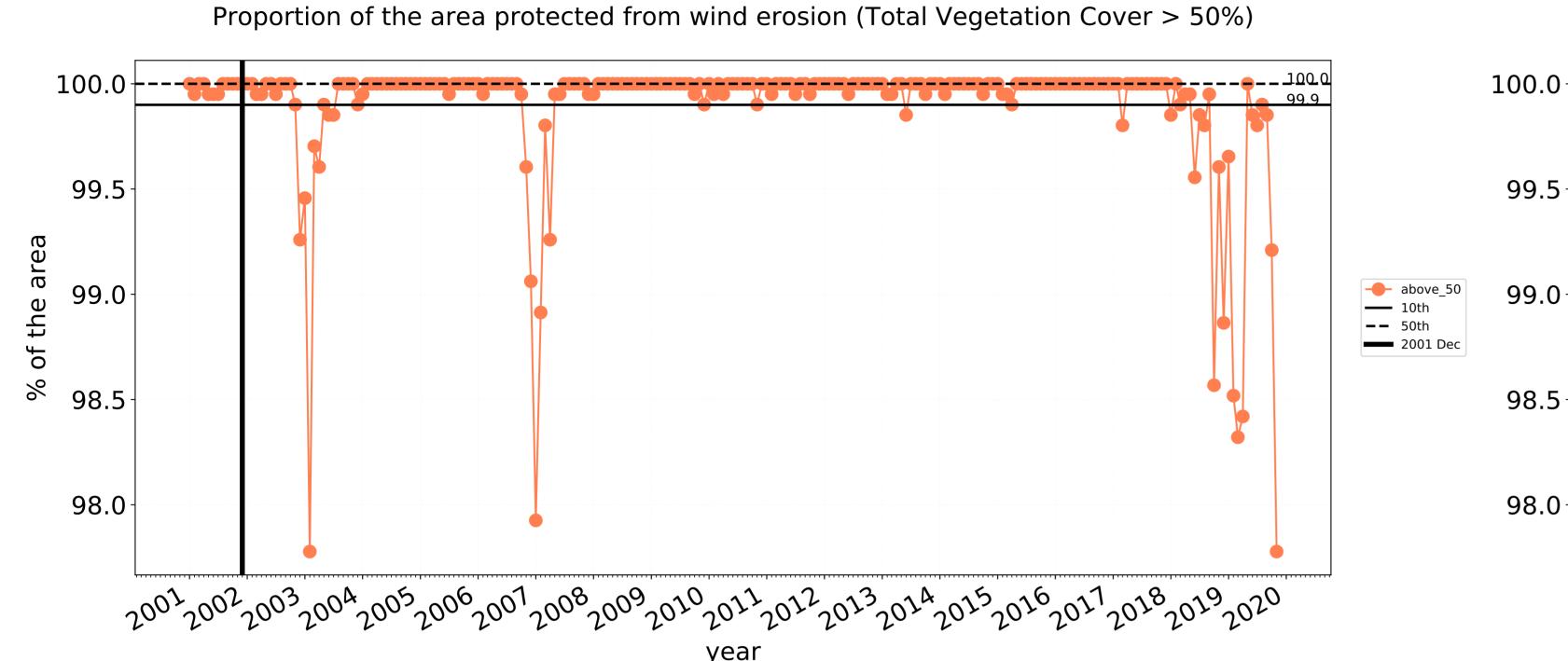


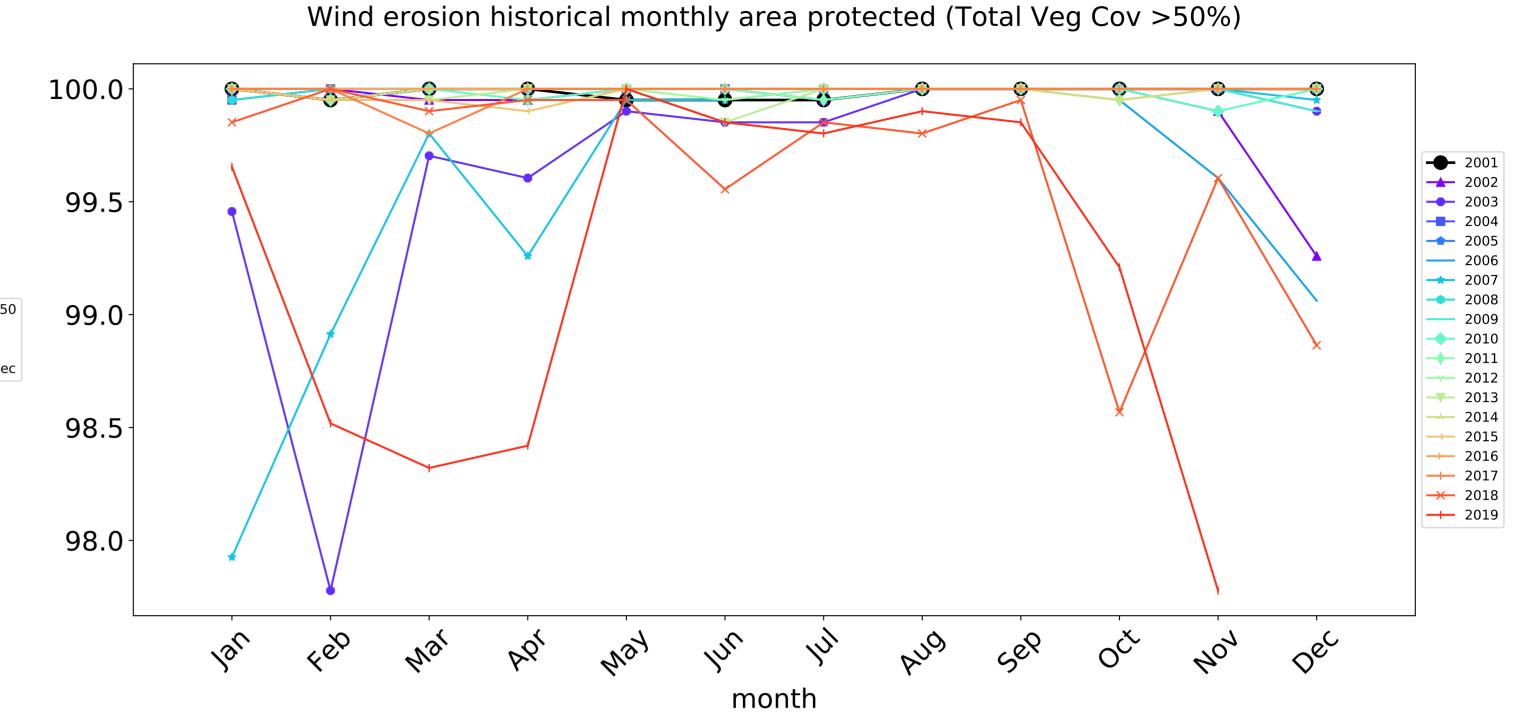


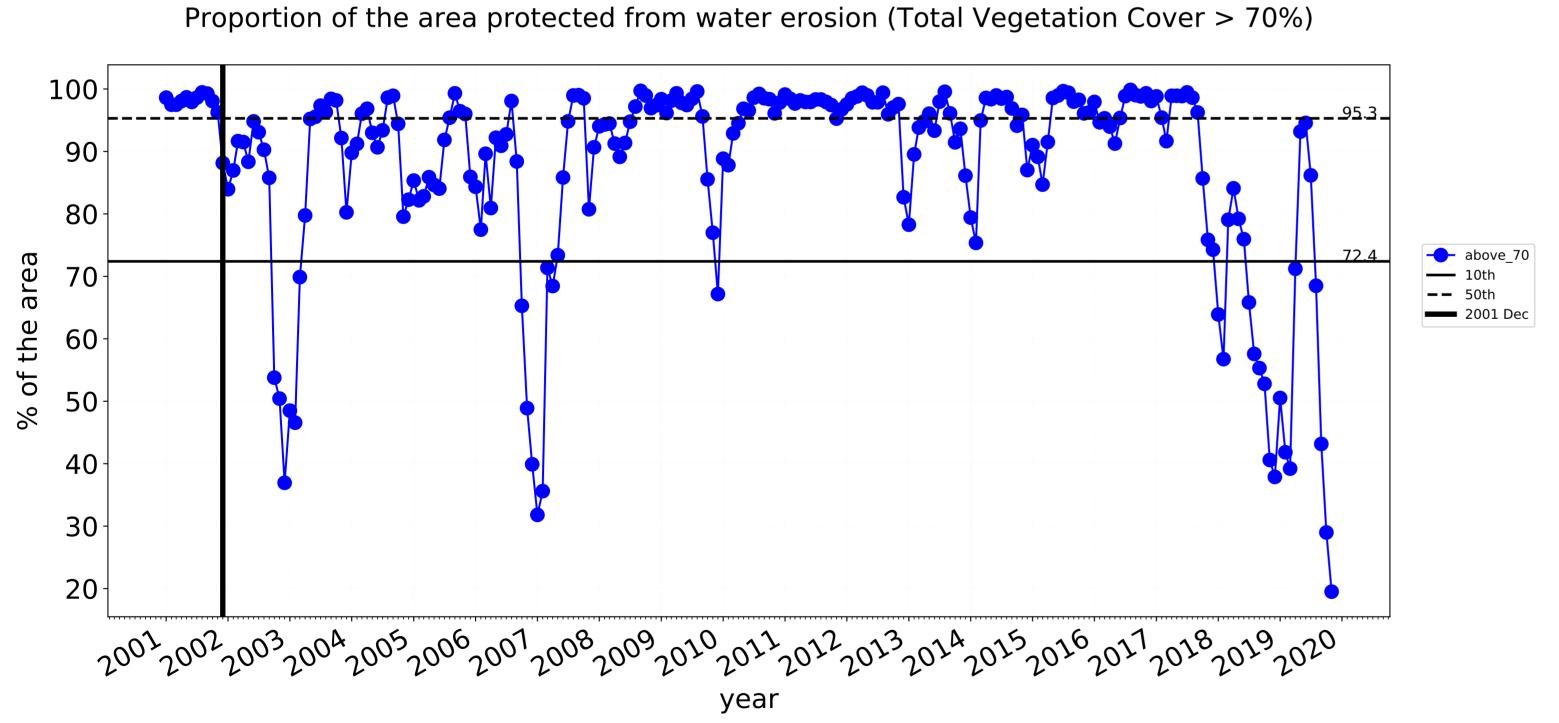


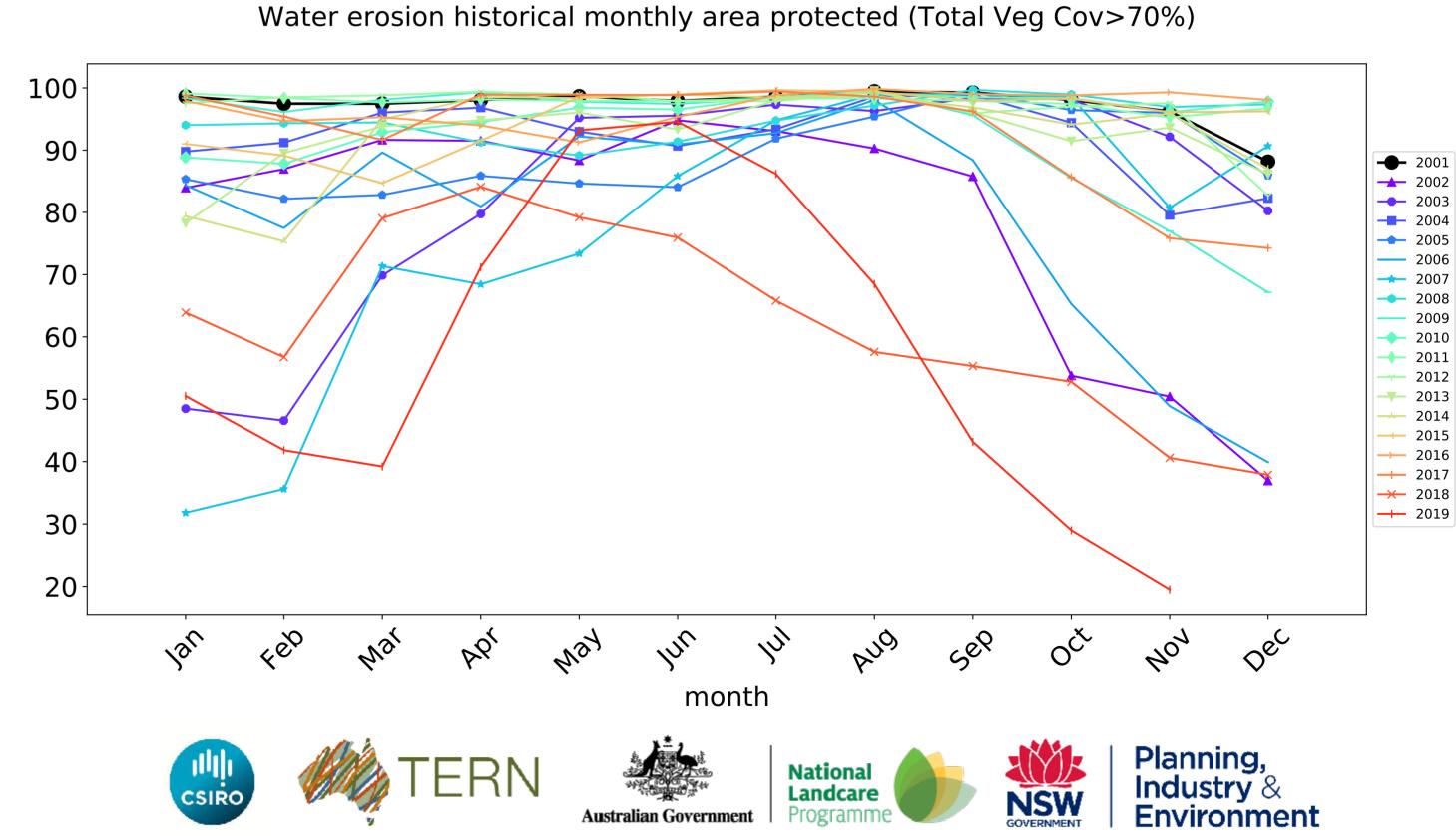


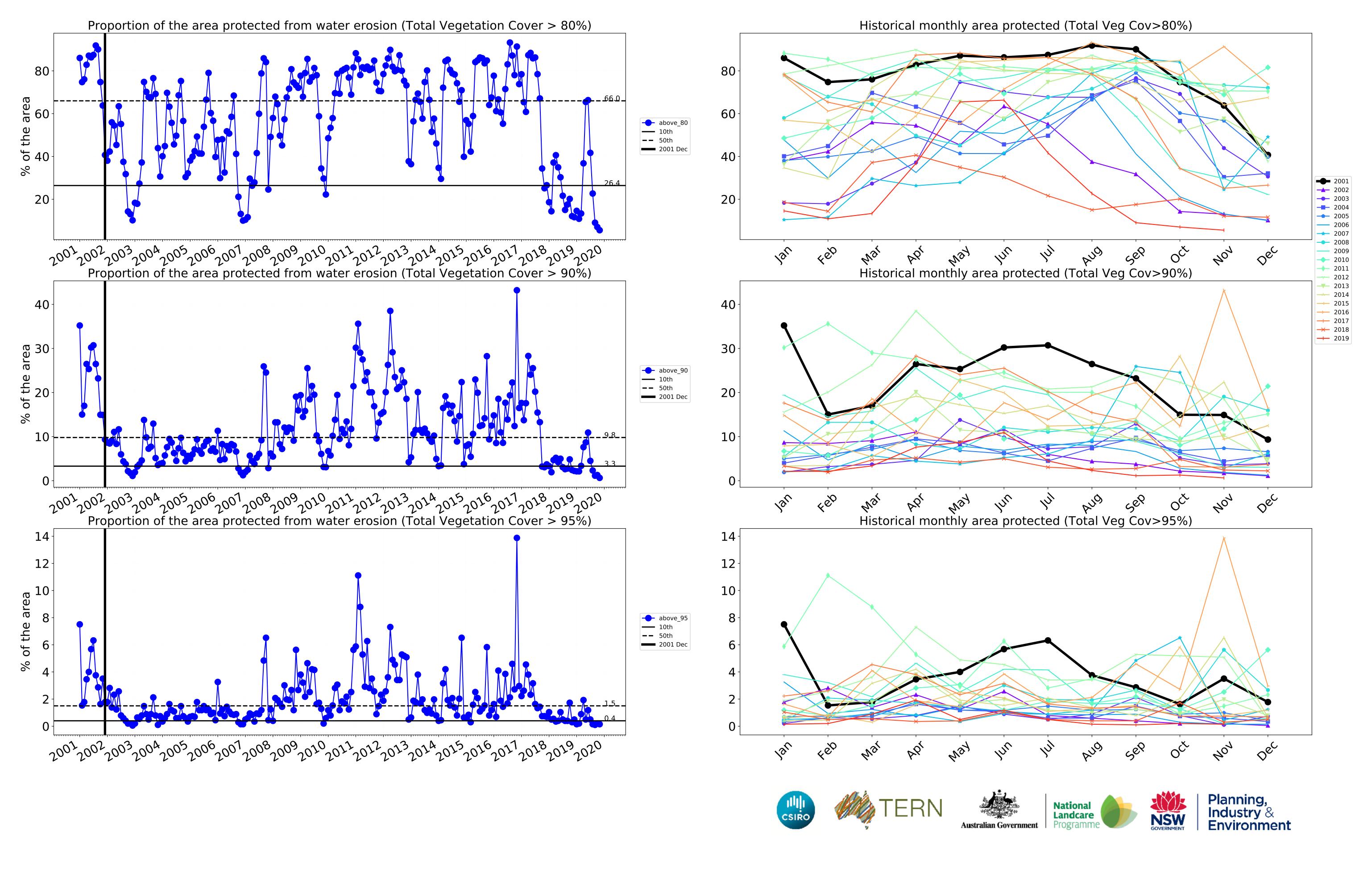
### **Cropping timeseries**









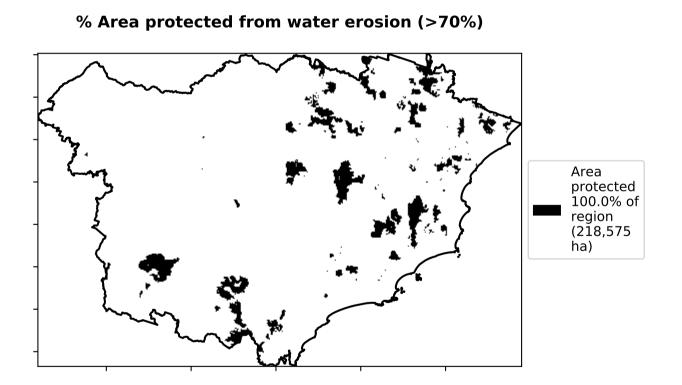


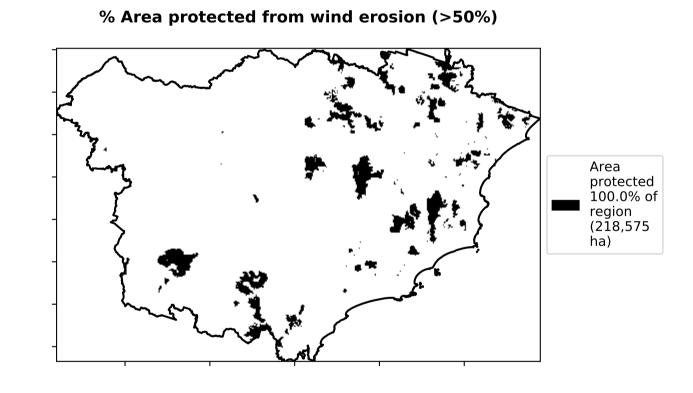
### **Production native forests and plantation forests**

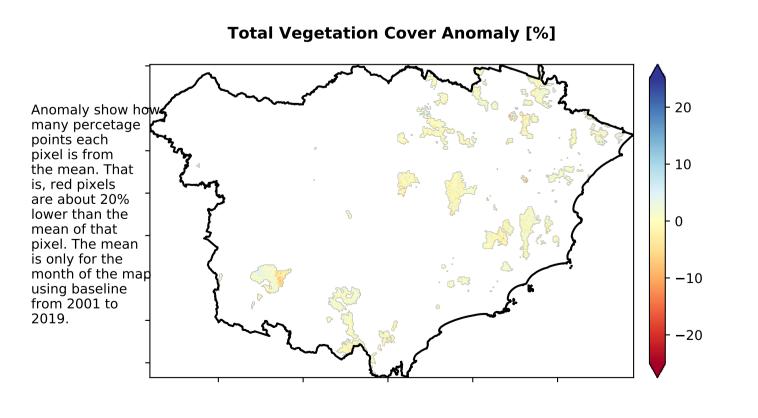
### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) (2018) and Forests of Australia (2018)

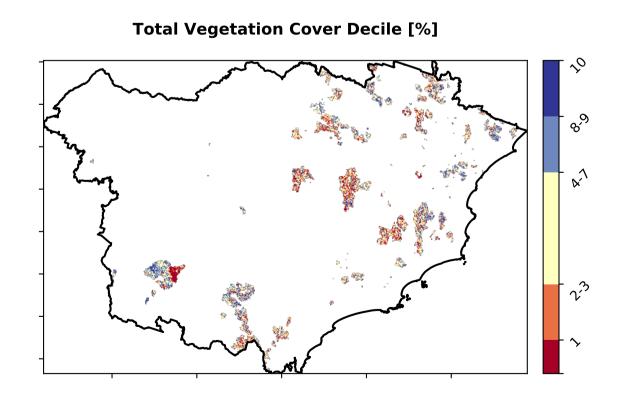
### Total Vegetation Cover [%]

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













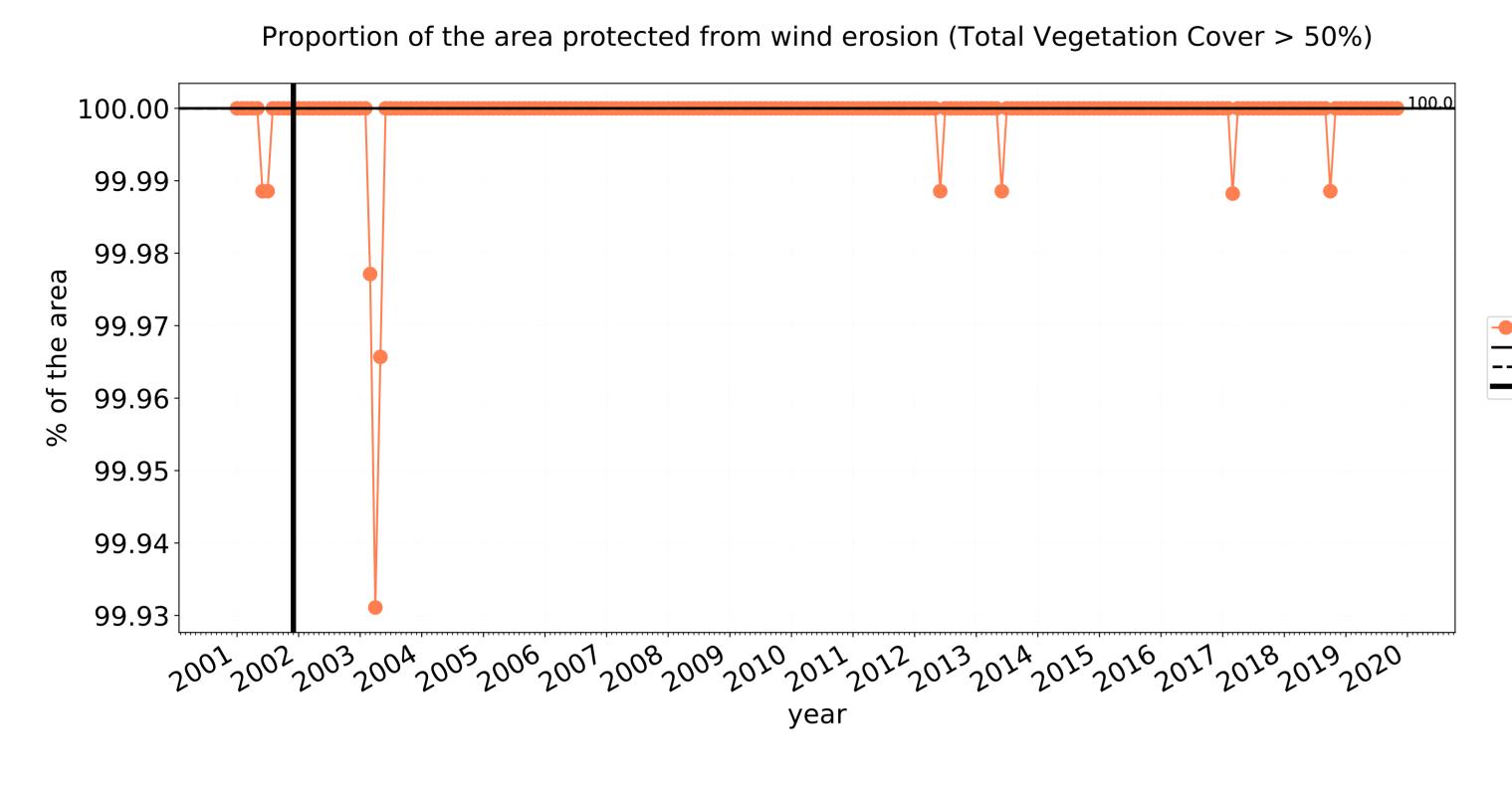


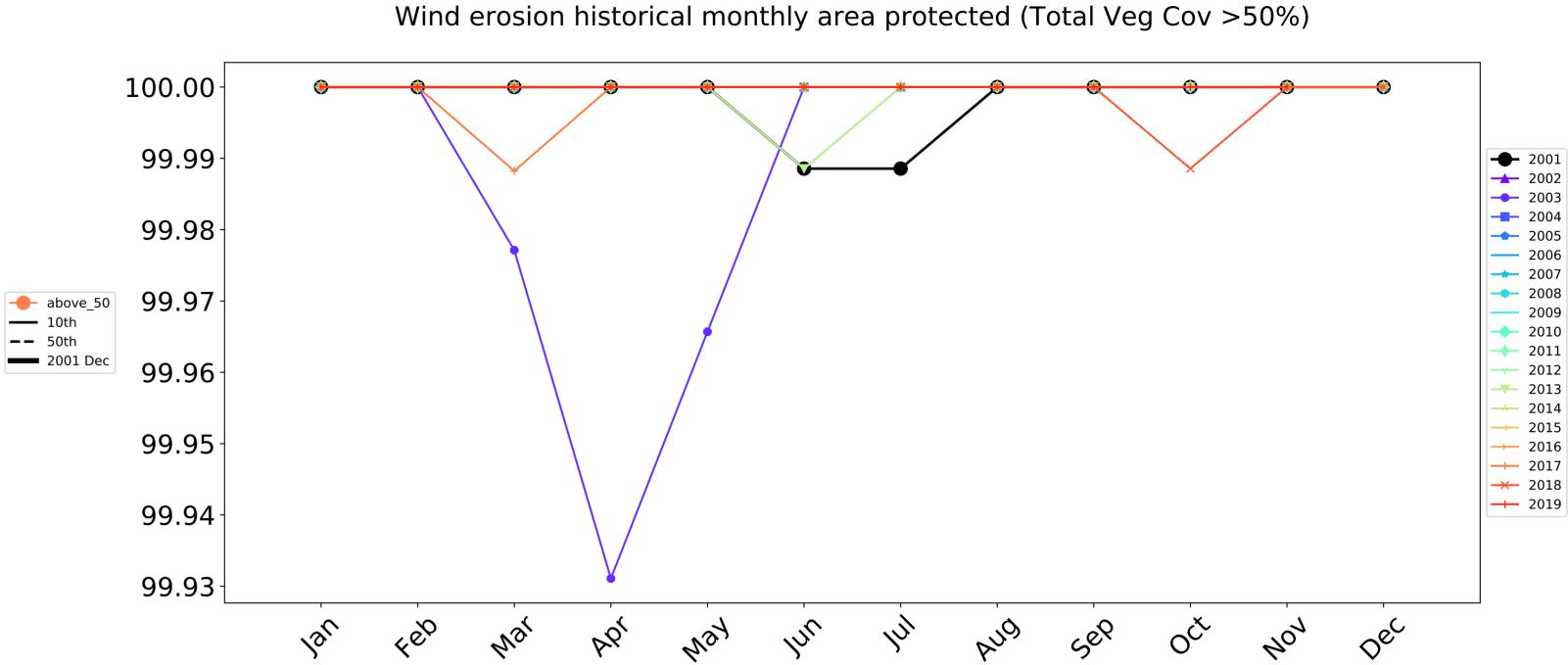




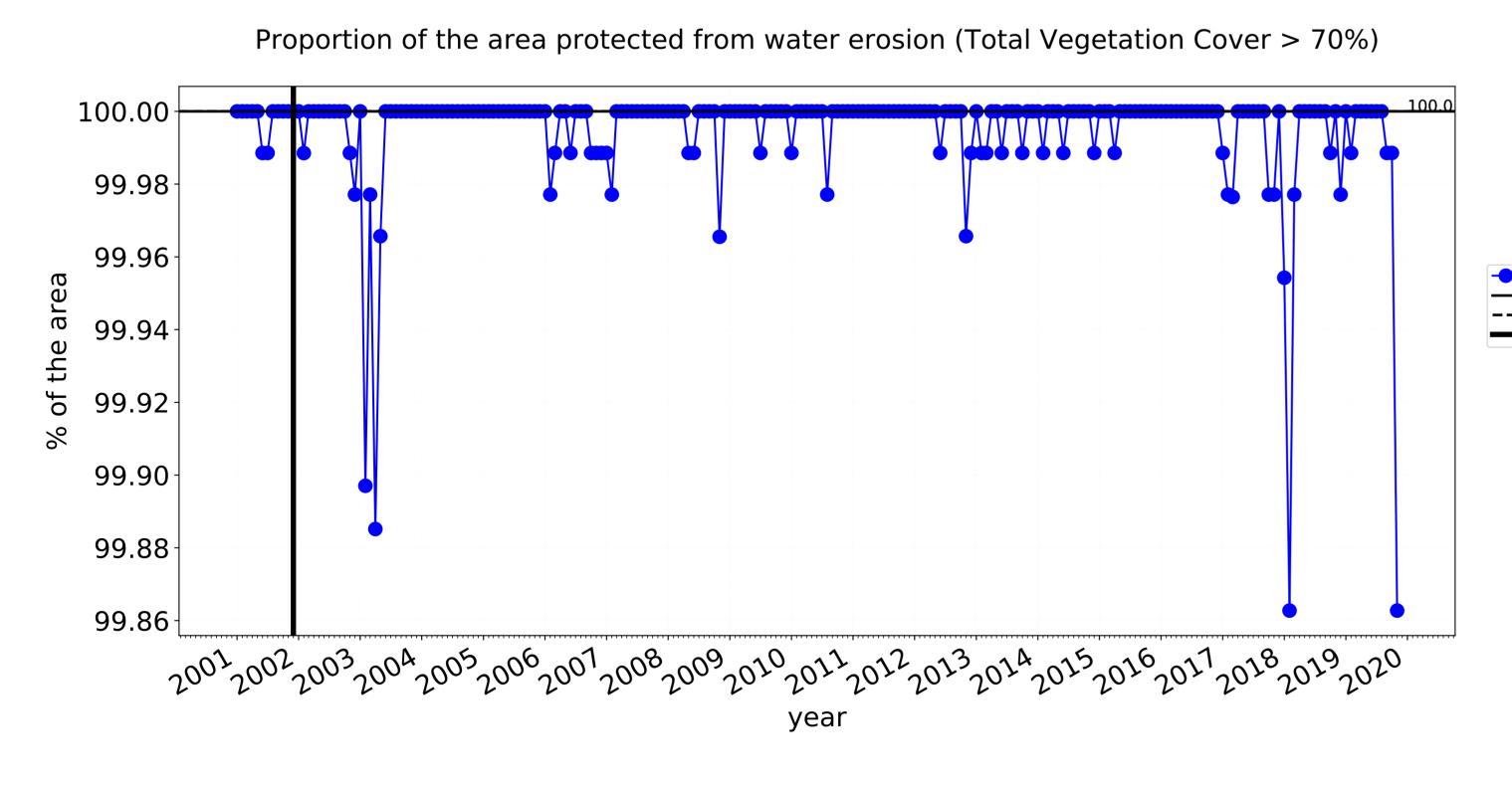


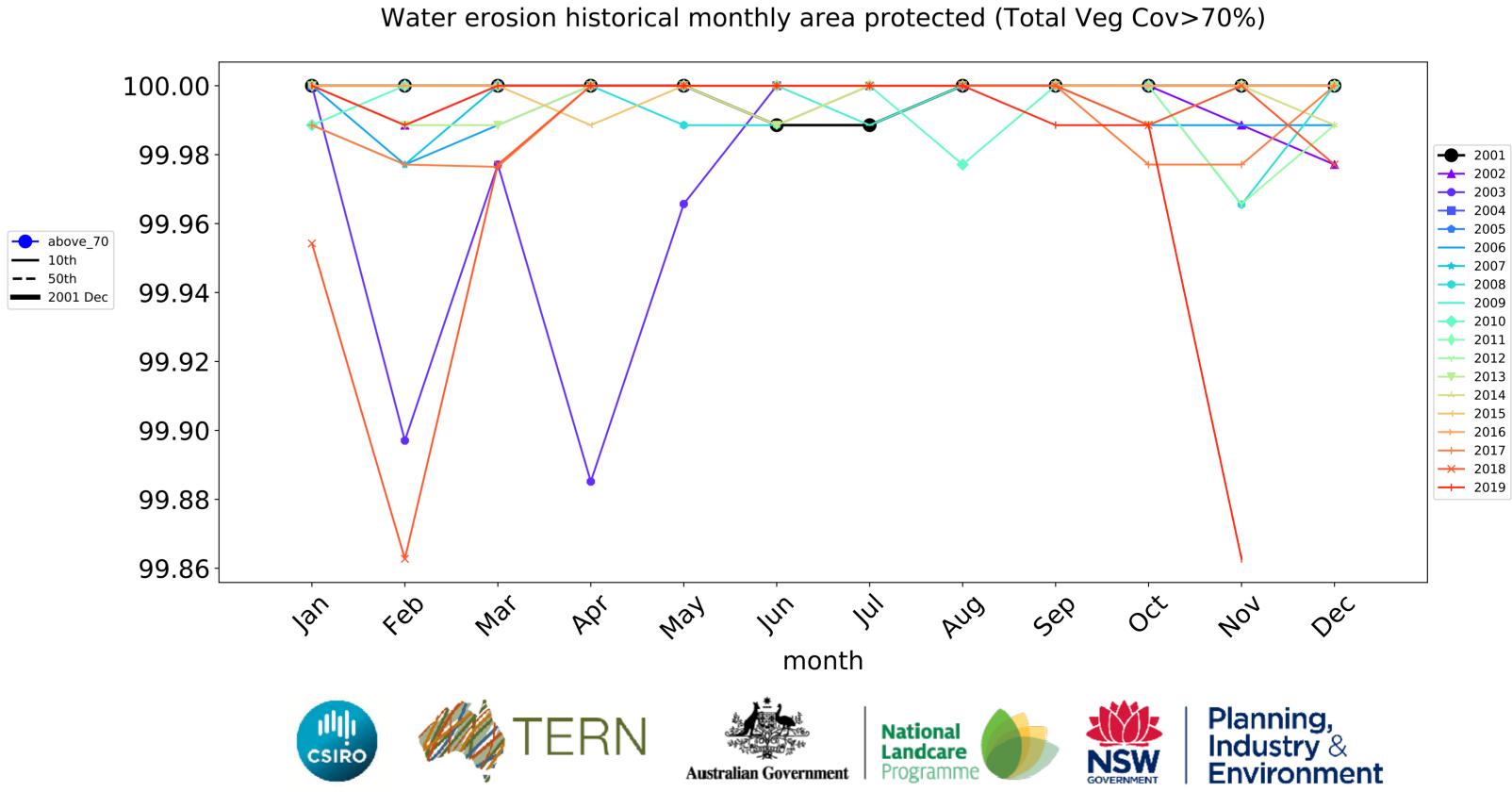
### **Production native forests and plantation forests timeseries**

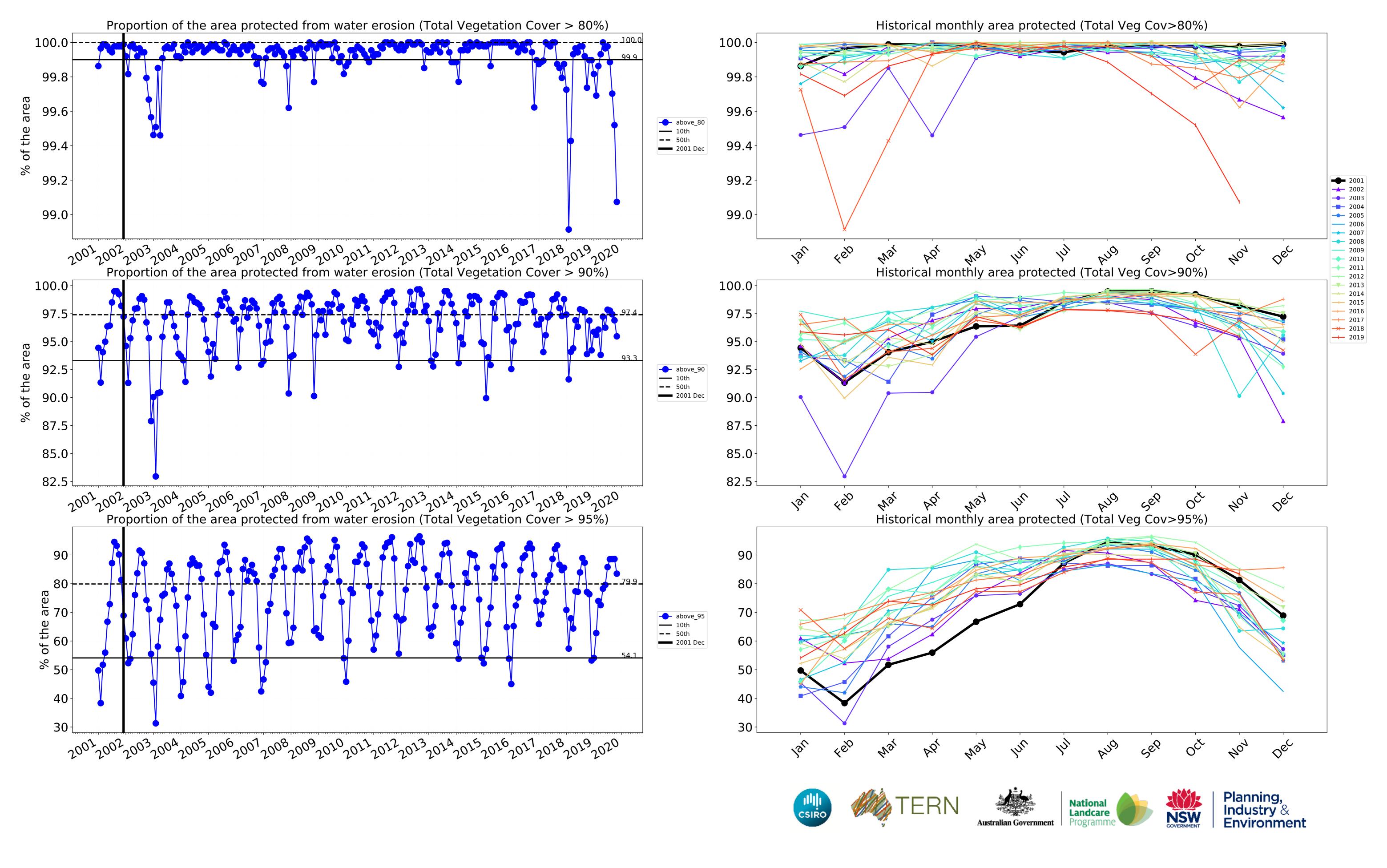




month







### Hunter (3,240,325 ha and no data 60,100 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	3,240,325	99.9% 3,237,654	99.7% 3,232,113	98.8% 3,200,689	95.7% 3,101,749	77.1% 2,498,152	35.1% 1,137,082
Conservation and natural environments	1,243,850	99.9% 1,242,300	99.8% 1,241,725	99.7% 1,240,000	99.4% 1,236,250	92.0% 1,144,550	50.9% 633,725
Conservation and natural environments non forest	31,775	95.2% 30,250	93.7% 29,775	90.5% 28,750	86.4% 27,450	64.6% 20,525	24.9% 7,925
Conservation and natural environments Woodland forest	139,150	100.0% 139,125	100.0% 139,125	99.9% 139,075	99.5% 138,475	85.8% 119,325	35.1% 48,850
natural environments Forest (non woodland)	1,072,925	100.0% 1,072,925	100.0% 1,072,825	99.9% 1,072,175	99.8% 1,070,325	93.6% 1,004,700	53.8% 576,950
Agriculture	1,581,025	100.0% 1,580,975	100.0% 1,580,450	99.4% 1,570,975	95.3% 1,507,500	67.9% 1,073,100	21.1% 333,475
Grazing	1,503,025	100.0% 1,502,975	100.0% 1,502,450	99.7% 1,499,250	97.5% 1,465,875	70.9% 1,065,575	22.1% 332,125
Grazing non forest	1,213,275	100.0% 1,213,225	100.0% 1,212,700	99.7% 1,209,625	97.1% 1,177,650	68.3% 828,775	20.9% 253,350
Grazing Woodland forest	120,625	100.0% 120,625	100.0% 120,625	100.0% 120,600	99.3% 119,725	72.3% 87,175	18.2% 21,975
Grazing - Forest (non woodland)	169,125	100.0% 169,125	100.0% 169,125	99.9% 169,025	99.6% 168,500	88.5% 149,625	33.6% 56,800
Cropping	50,625	100.0% 50,625	100.0% 50,625	88.1% 44,625	40.7% 20,600	9.3% 4,725	1.8% 900
Production native forests and plantation forests	218,575	100.0% 218,575	100.0% 218,575	100.0% 218,575	100.0% 218,550	97.2% 212,525	68.9% 150,550











