### 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: February 2003

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 Feb 2003**

9 Agriculture - Cropping - Irrigated

13 Other uses

10 Agriculture - Horticulture - Non-irrigated

12 Production native forests and plantation

11 Agriculture - Horticulture - Irrigated

### Legend with land class forest cover and number, i.e. Forests is 12 1 Conservation and natural environments - Non-forest 2 Conservation and natural environments - Woodland forest 3 Conservation and natural environments - Non-Woodland forest 4 Agriculture - Grazing - Non-forest 5 Agriculture - Grazing - Woodland forest 6 Agriculture - Grazing - Non-woodland forest 7 Agriculture - Grazing - Irrigated 8 Agriculture - Cropping - Non-irrigated

### 35 - 32.7% 30 - 25 - 20 - 15 - 10 - 5 - 4.2% 37,000 - 36.9% 30 - 25 - 6.6% 7.2%

Proportion of each land class in area

Catchment Scale Land Use and Forests

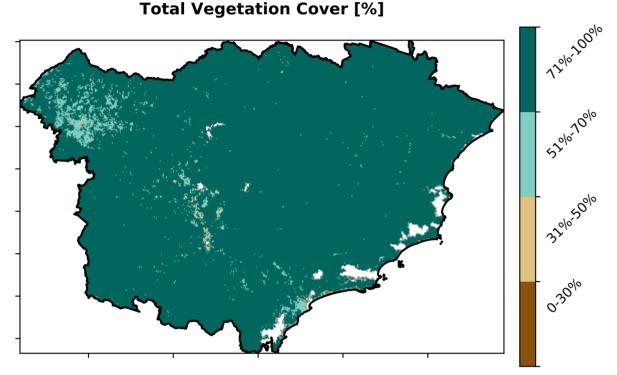
Catchment Scale Land

of Australia (2018)

Derived from

Use of Australia

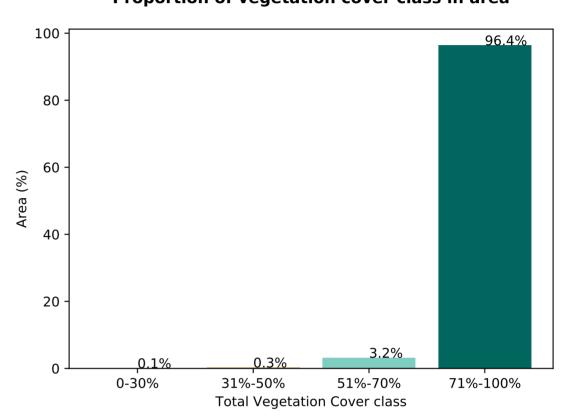
(2018) and Forests of Australia (2018)



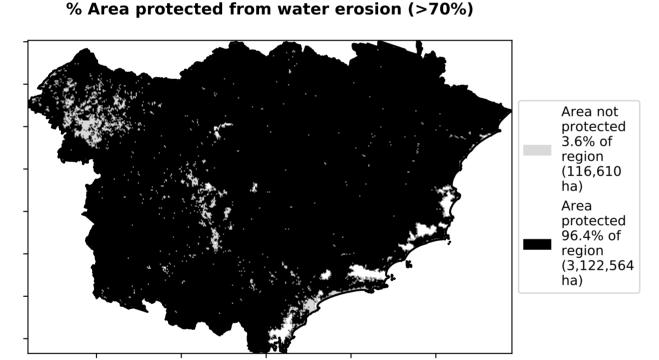
Proportion of vegetation cover class in area

Land use class

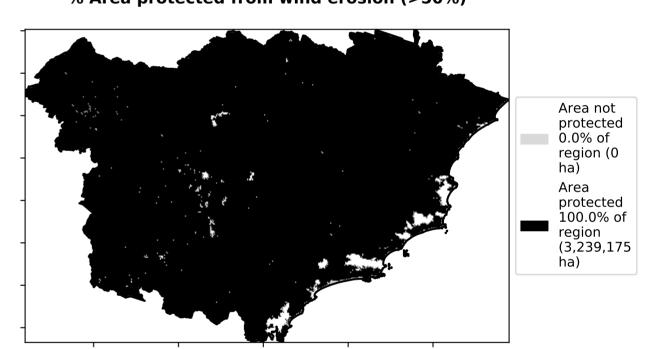
10 11 12 13



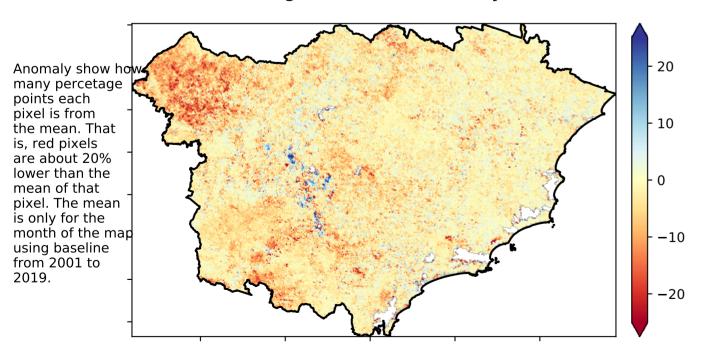
### 0/ Amaz mustastast fuero material analism (> 700/)



% Area protected from wind erosion (>50%)

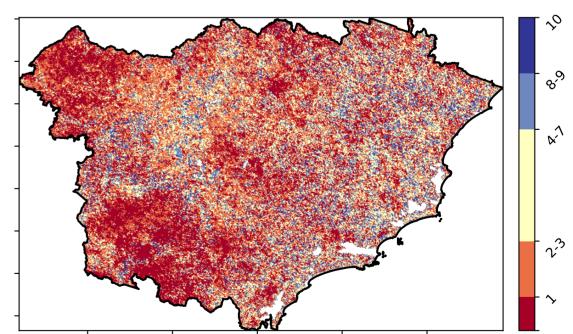


### Total Vegetation Cover Anomaly [%]



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 [%]**





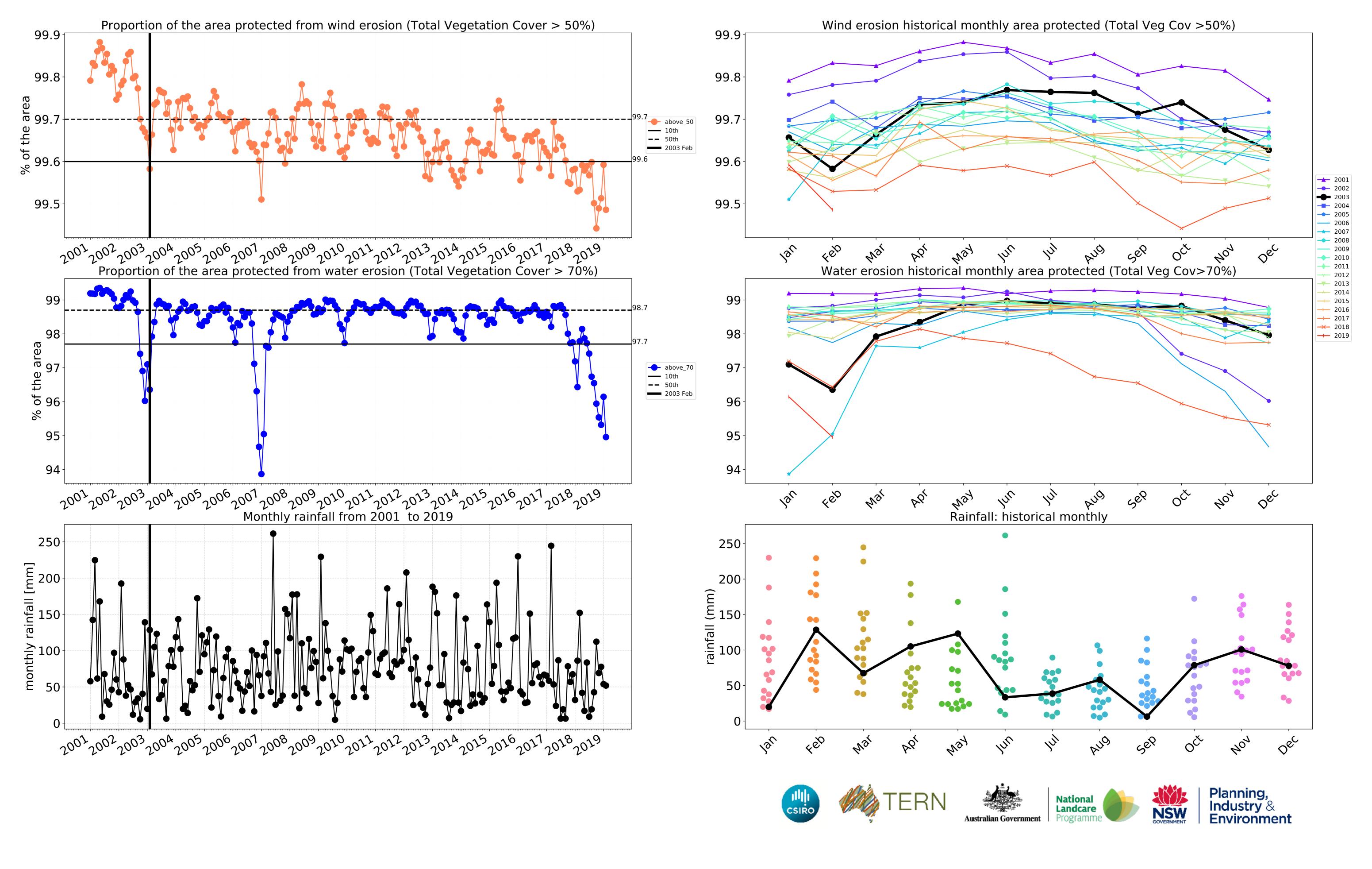


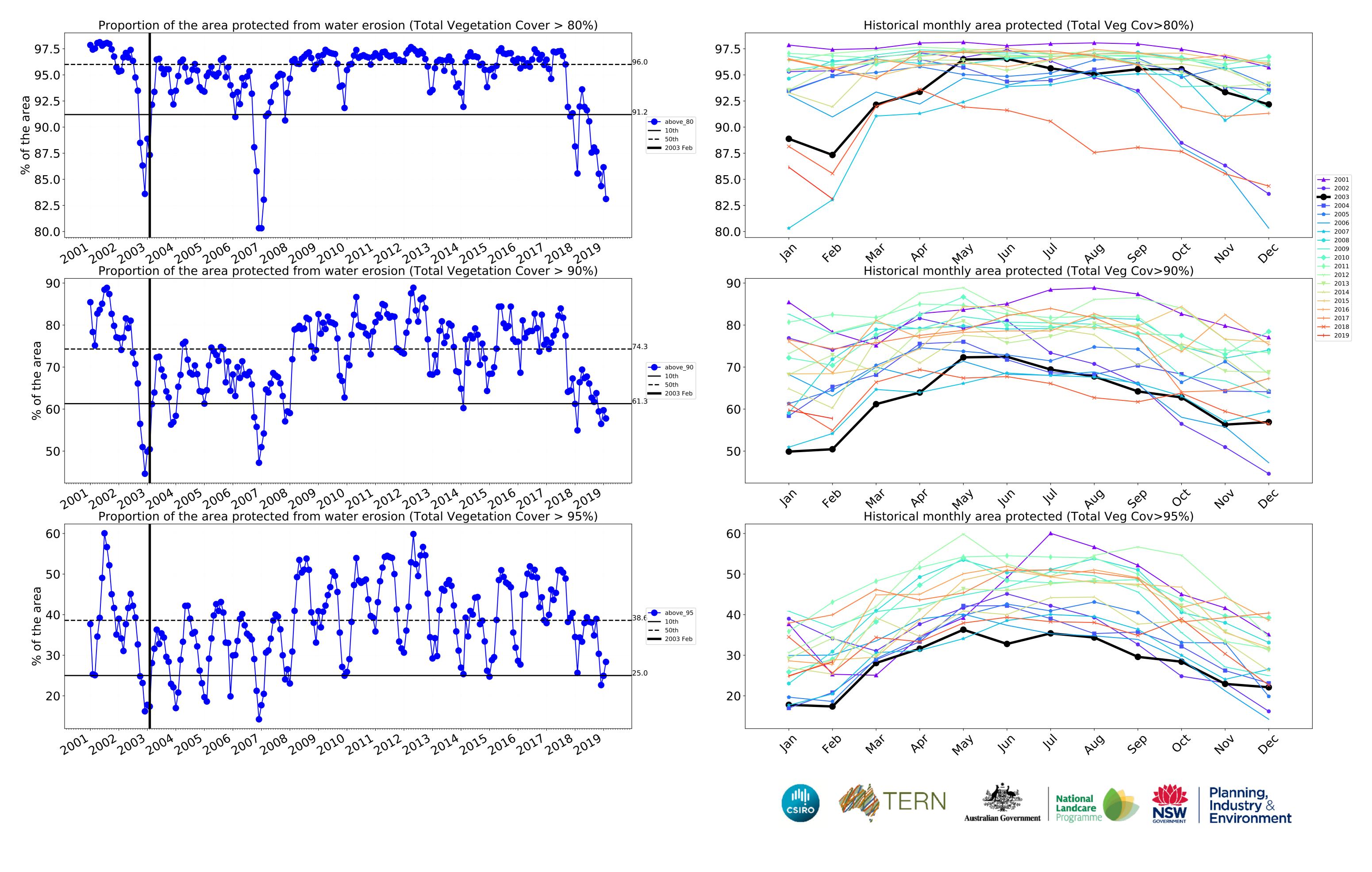






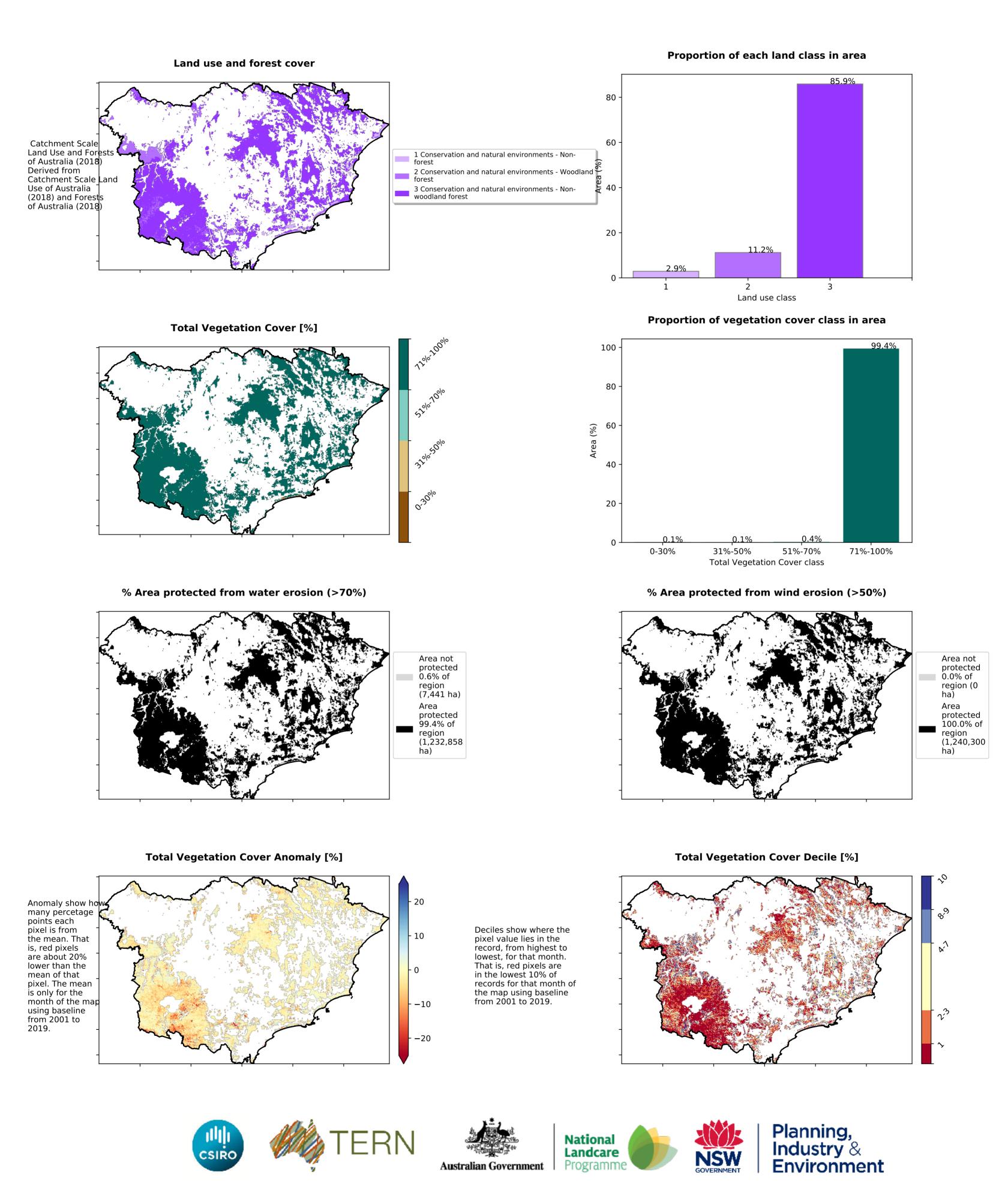




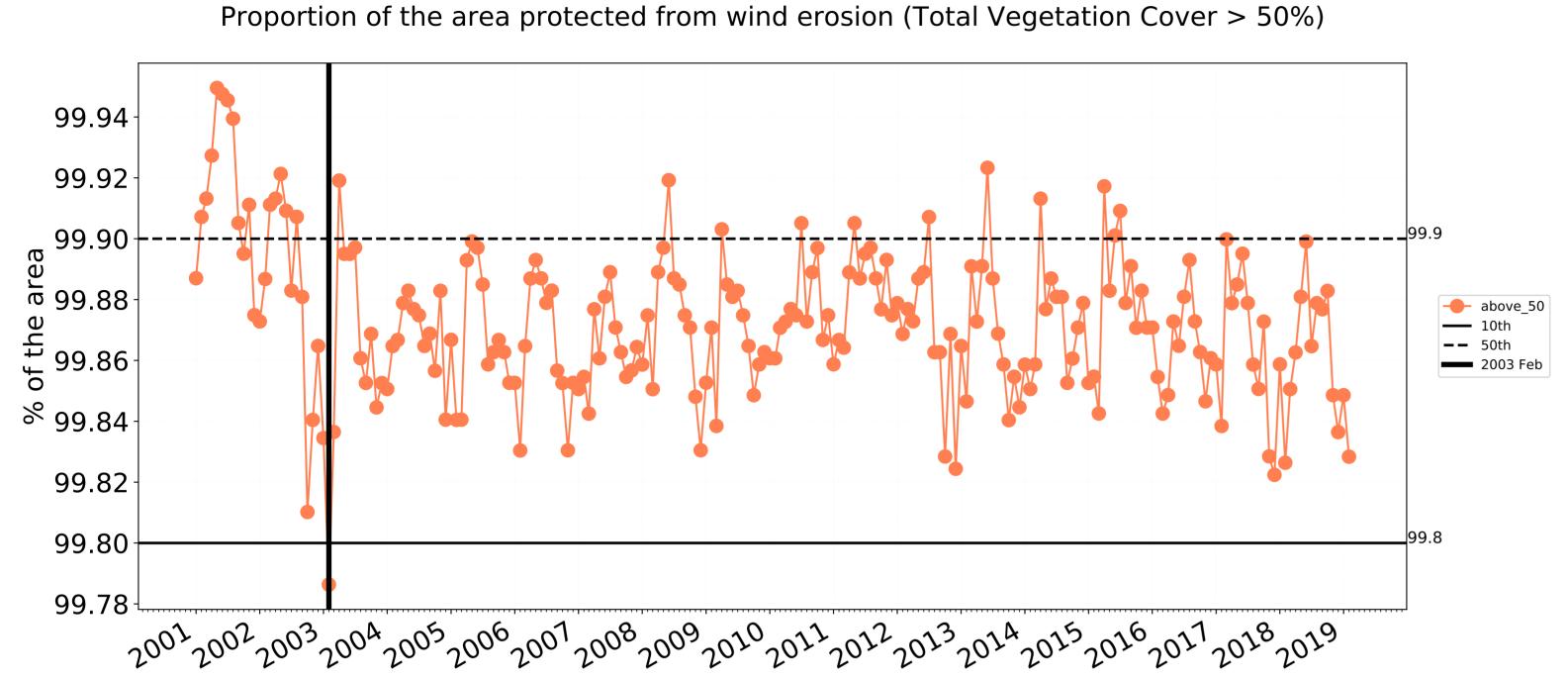


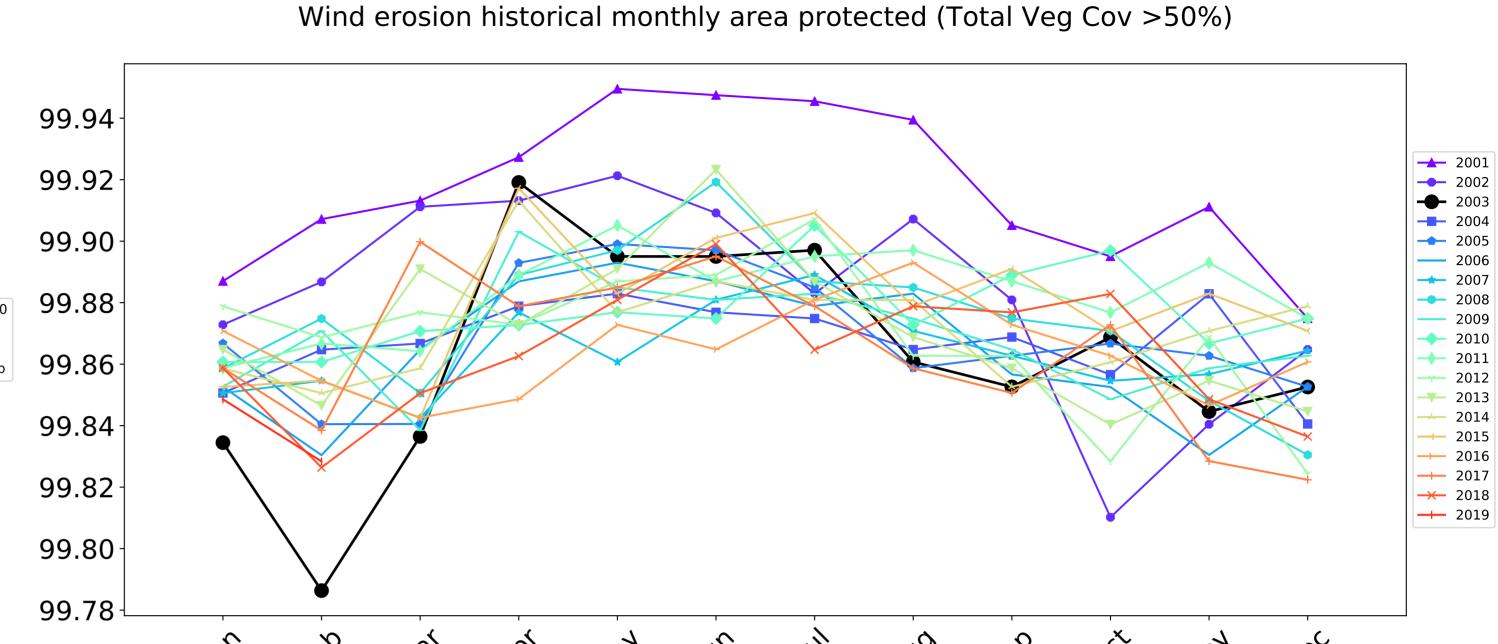
.

### **Conservation and natural environments**

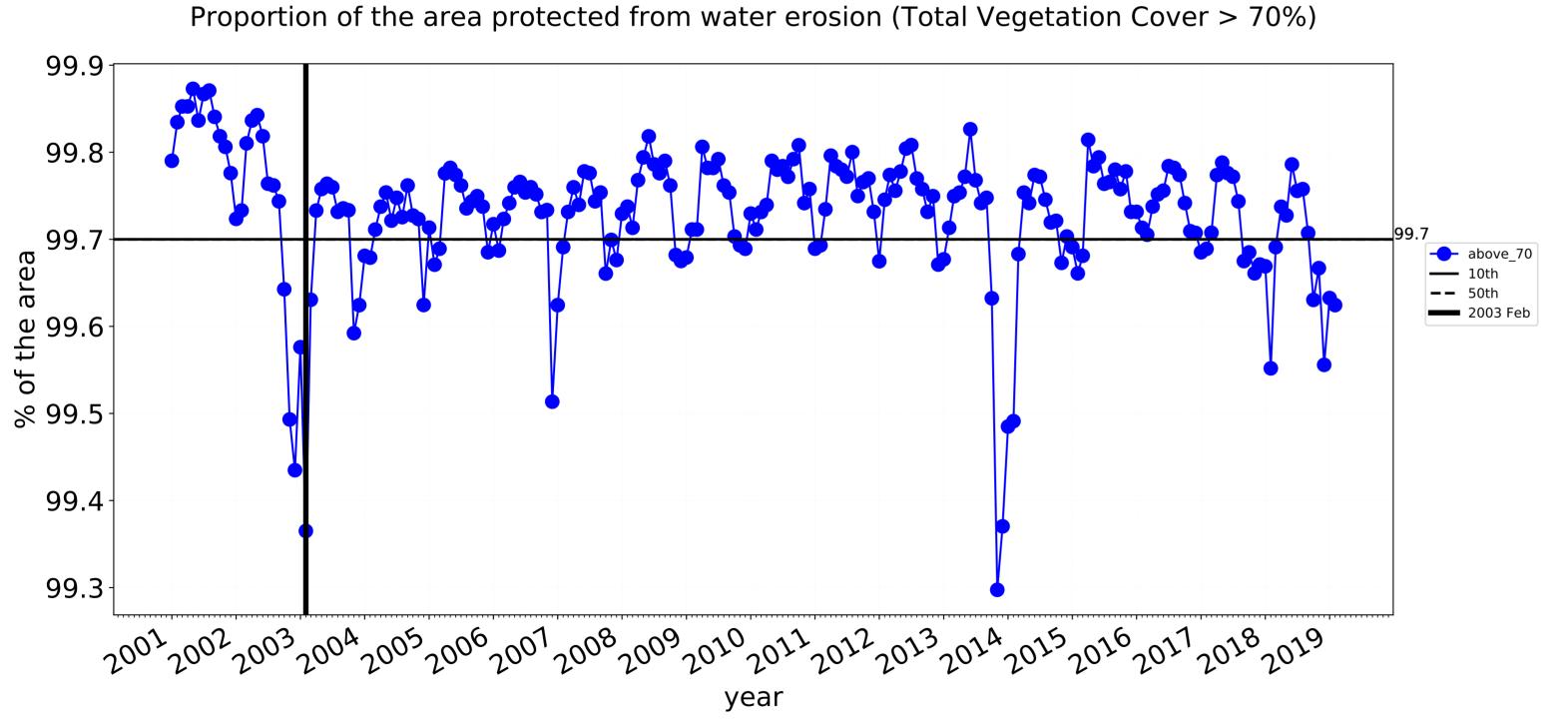


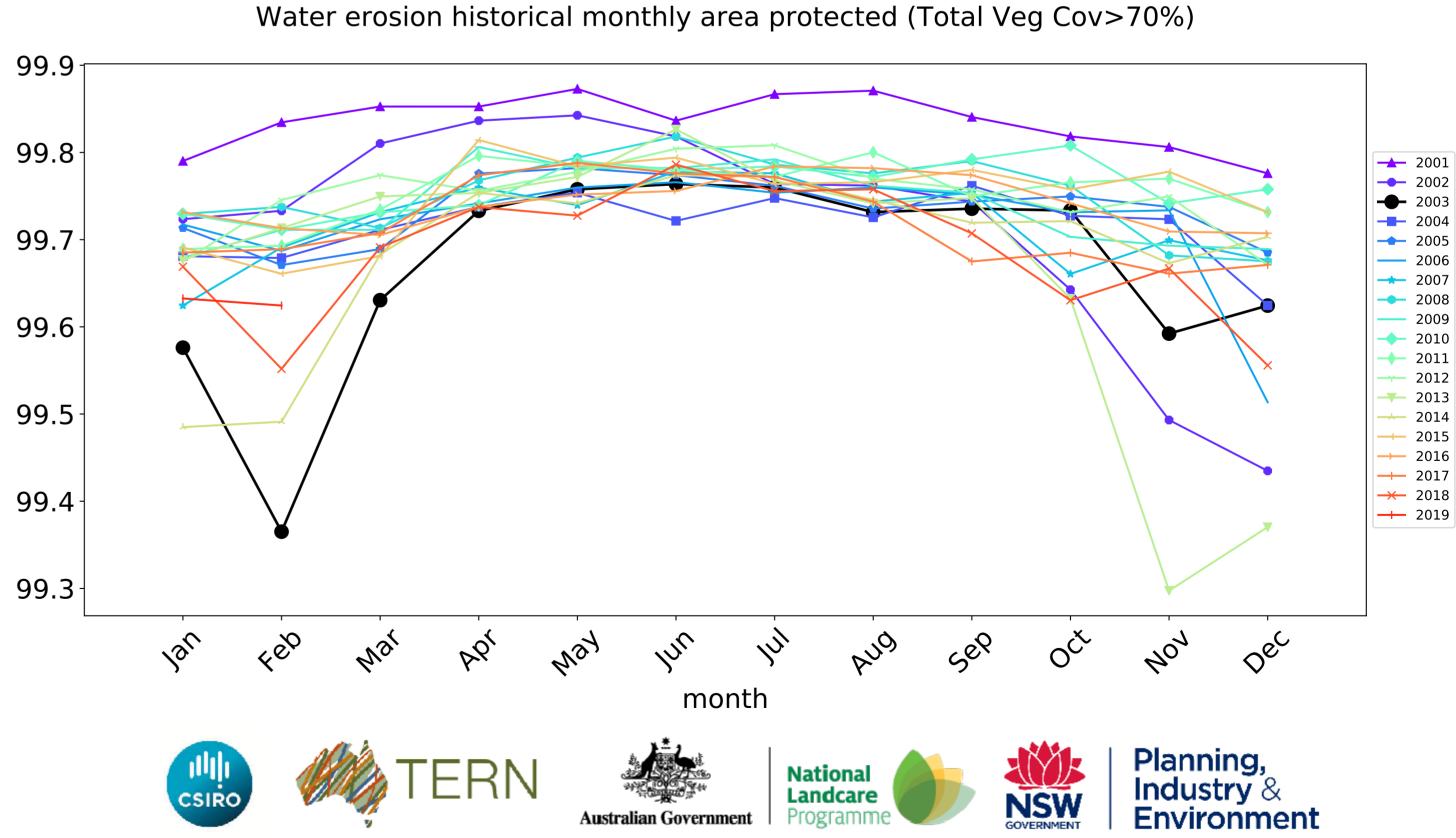
### **Conservation and natural environments timeseries**

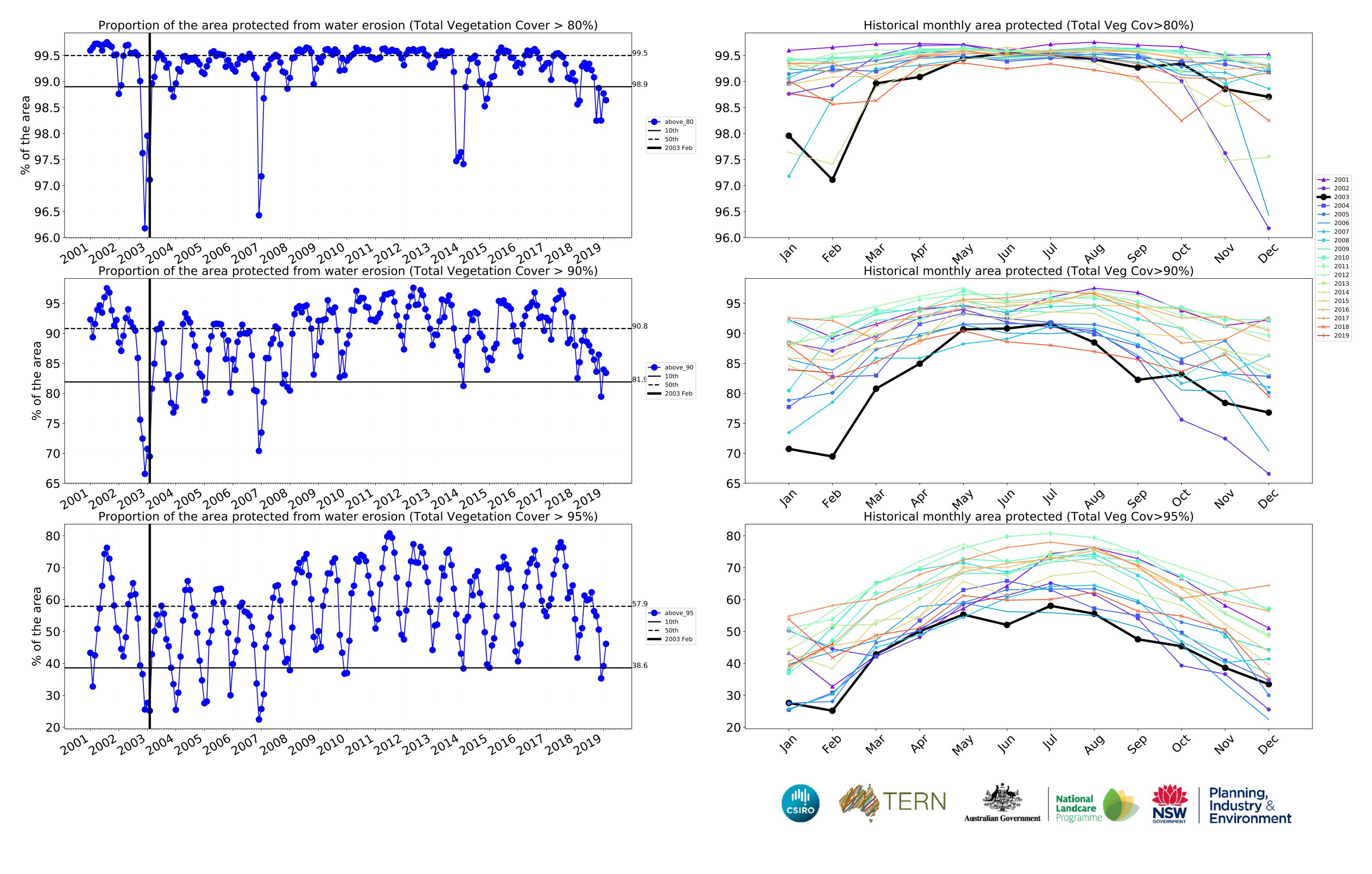




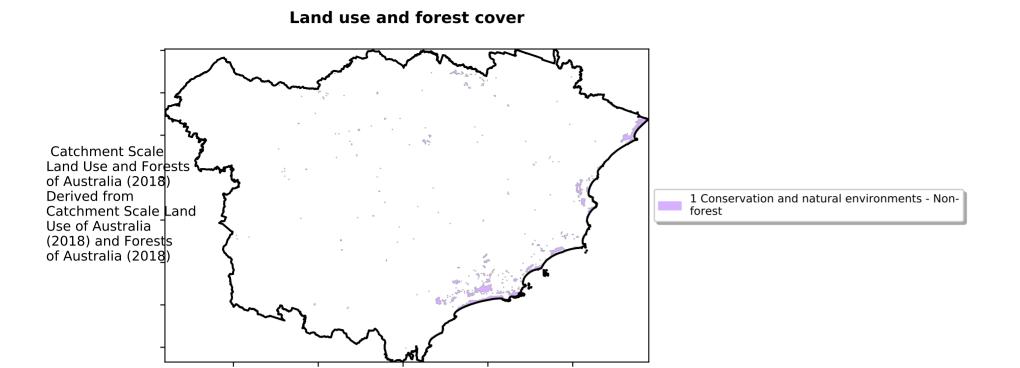
month



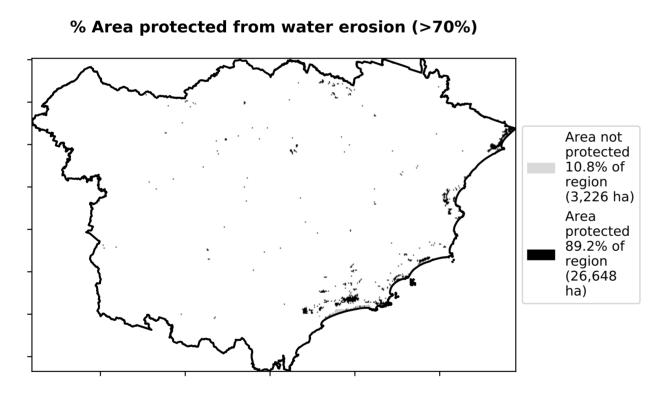


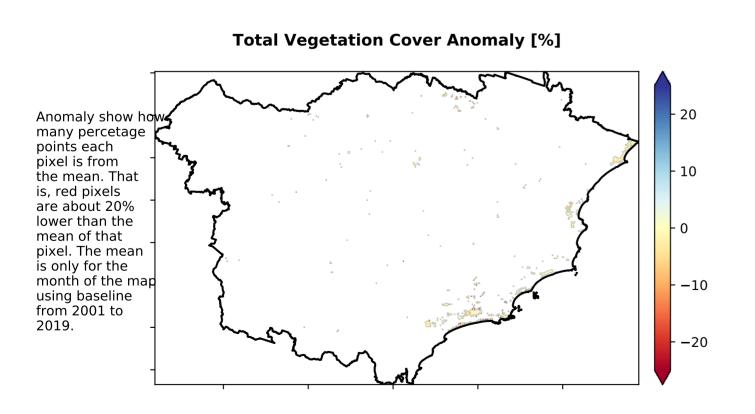


### **Conservation and natural environments non forest**



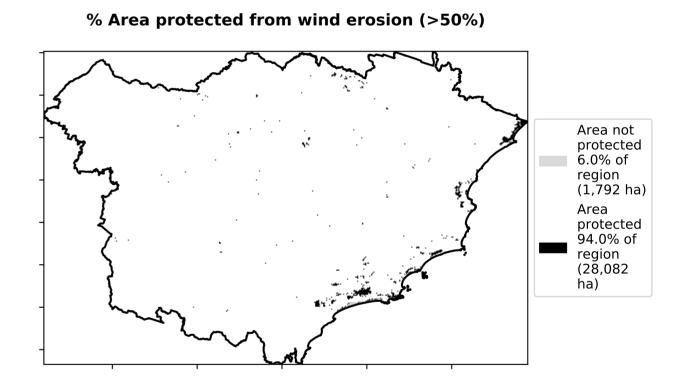
# Total Vegetation Cover [%] Talestage Tales

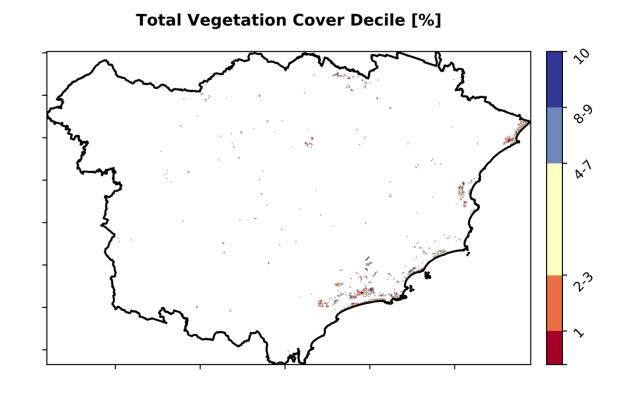




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### 











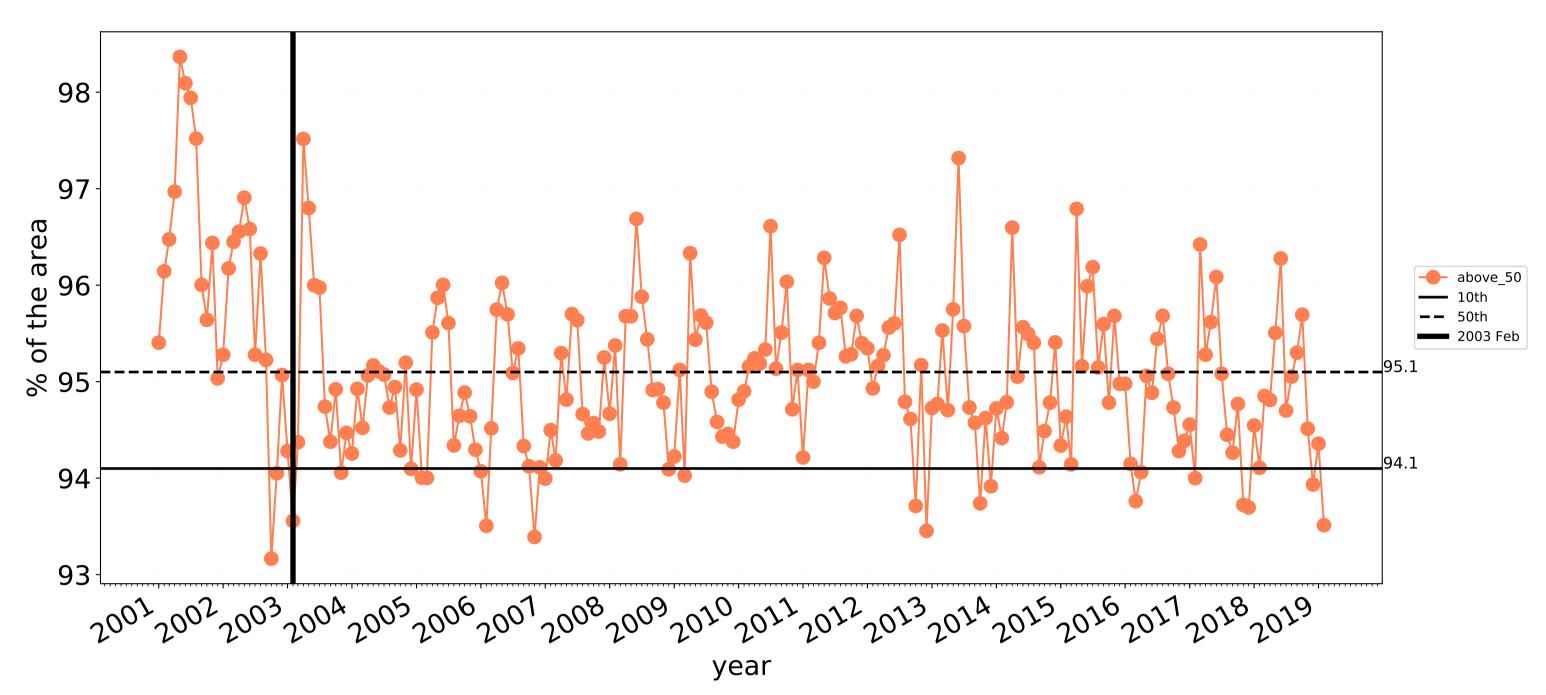




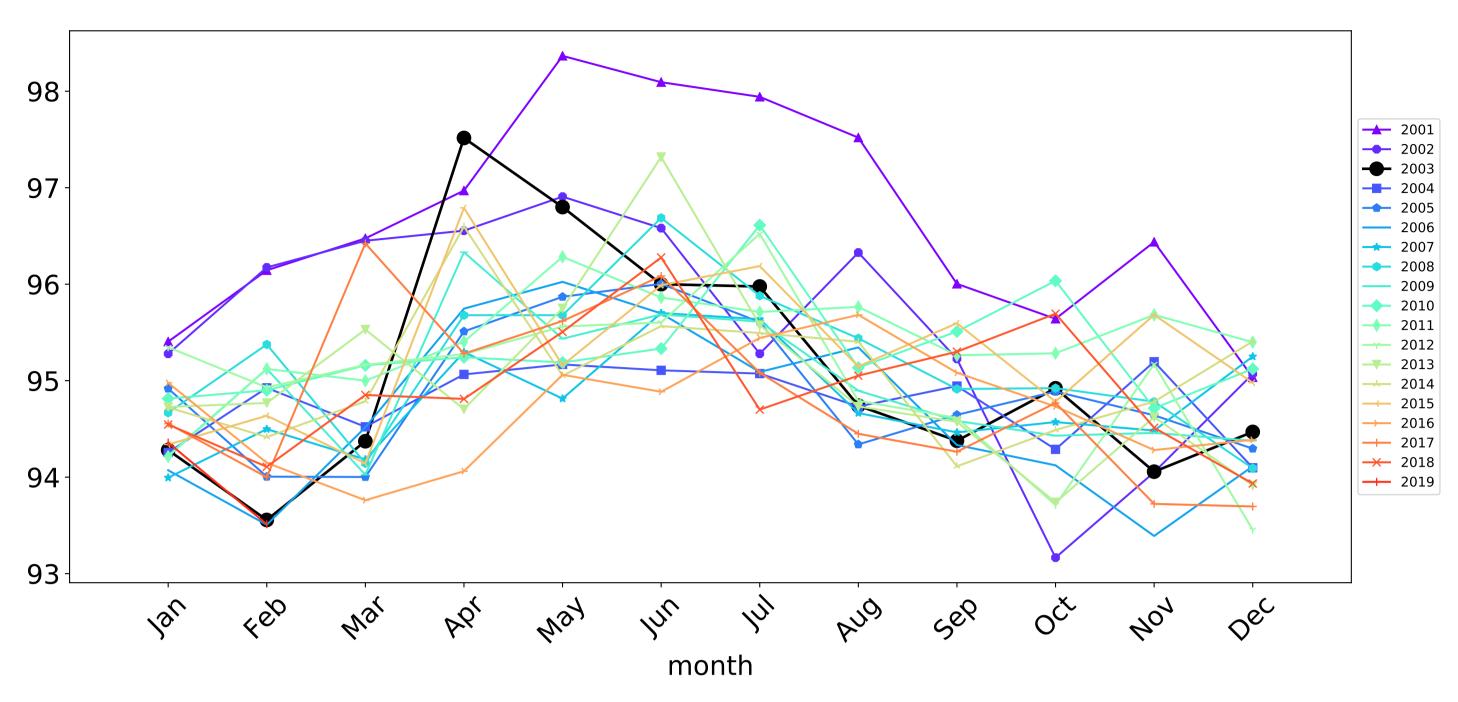


### **Conservation and natural environments non forest timeseries**

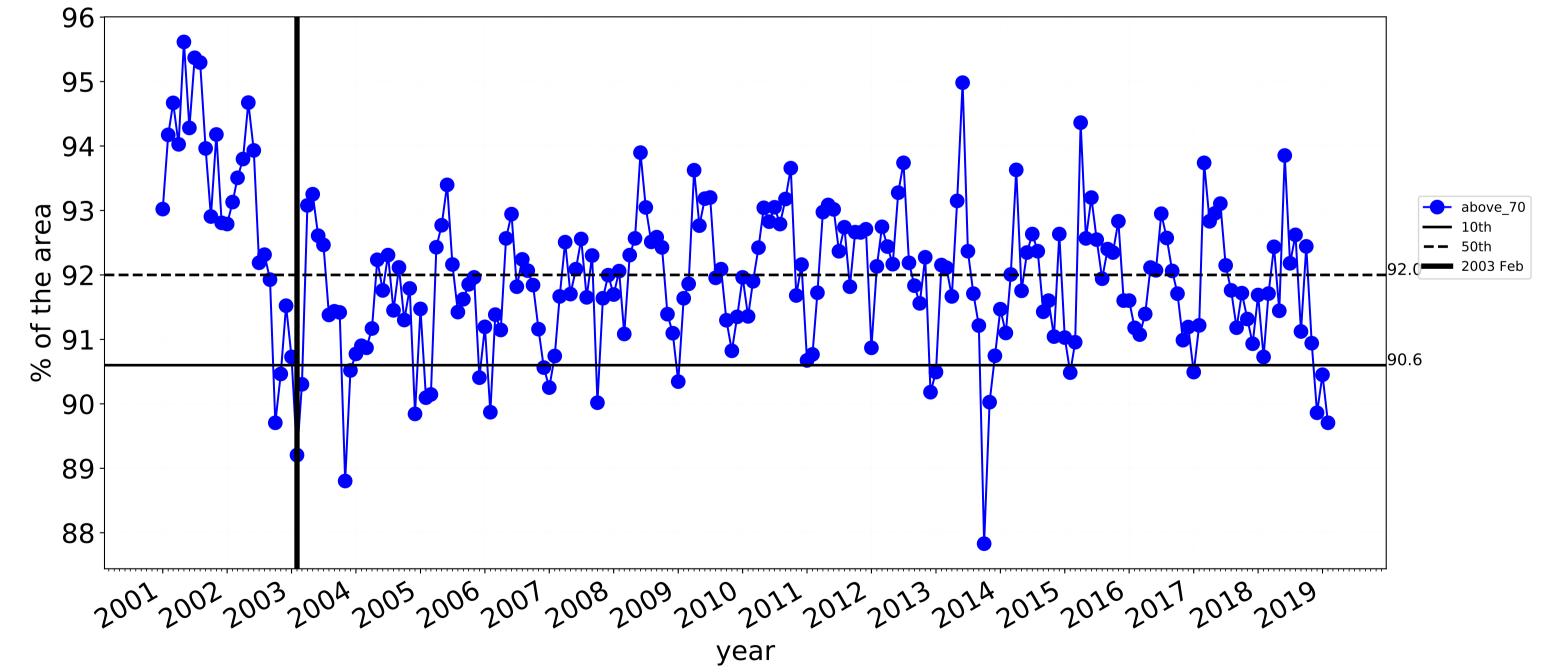




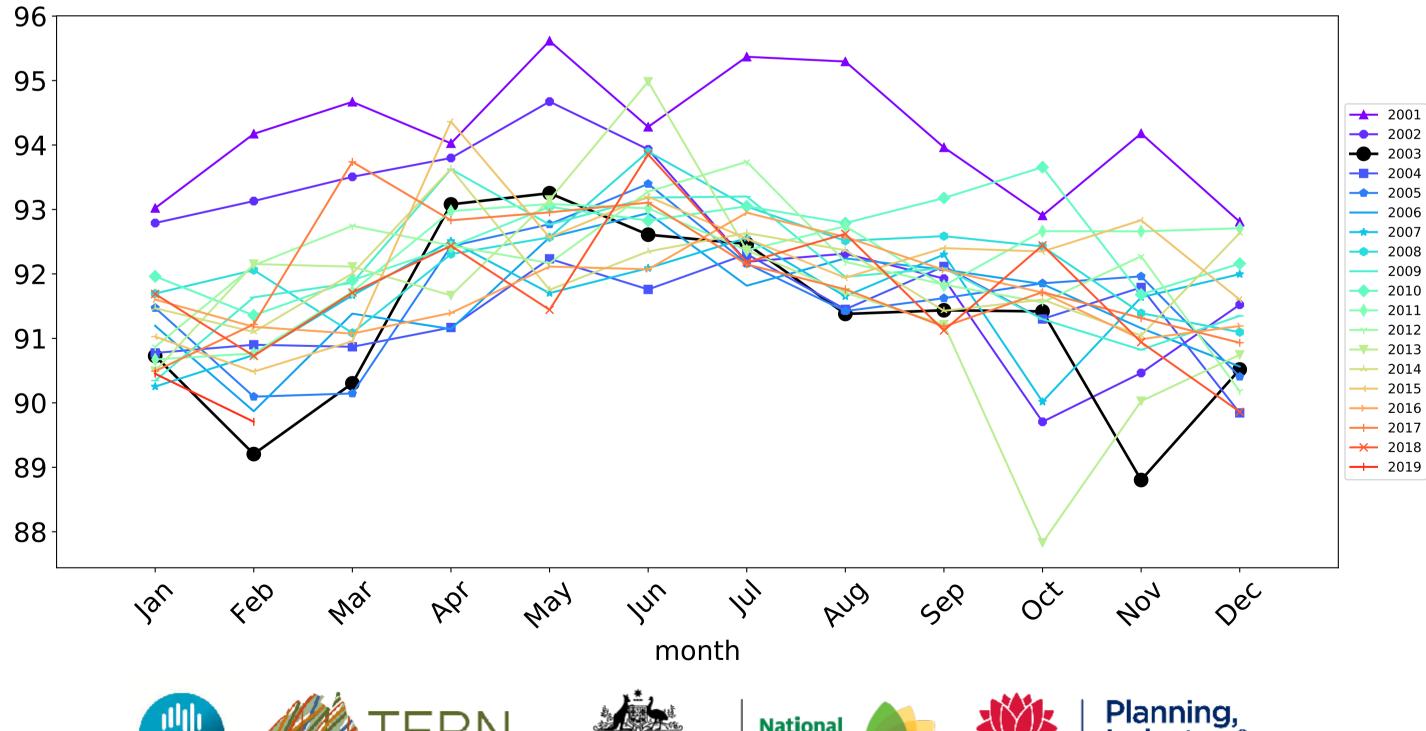
### Wind erosion historical monthly area protected (Total Veg Cov >50%)







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





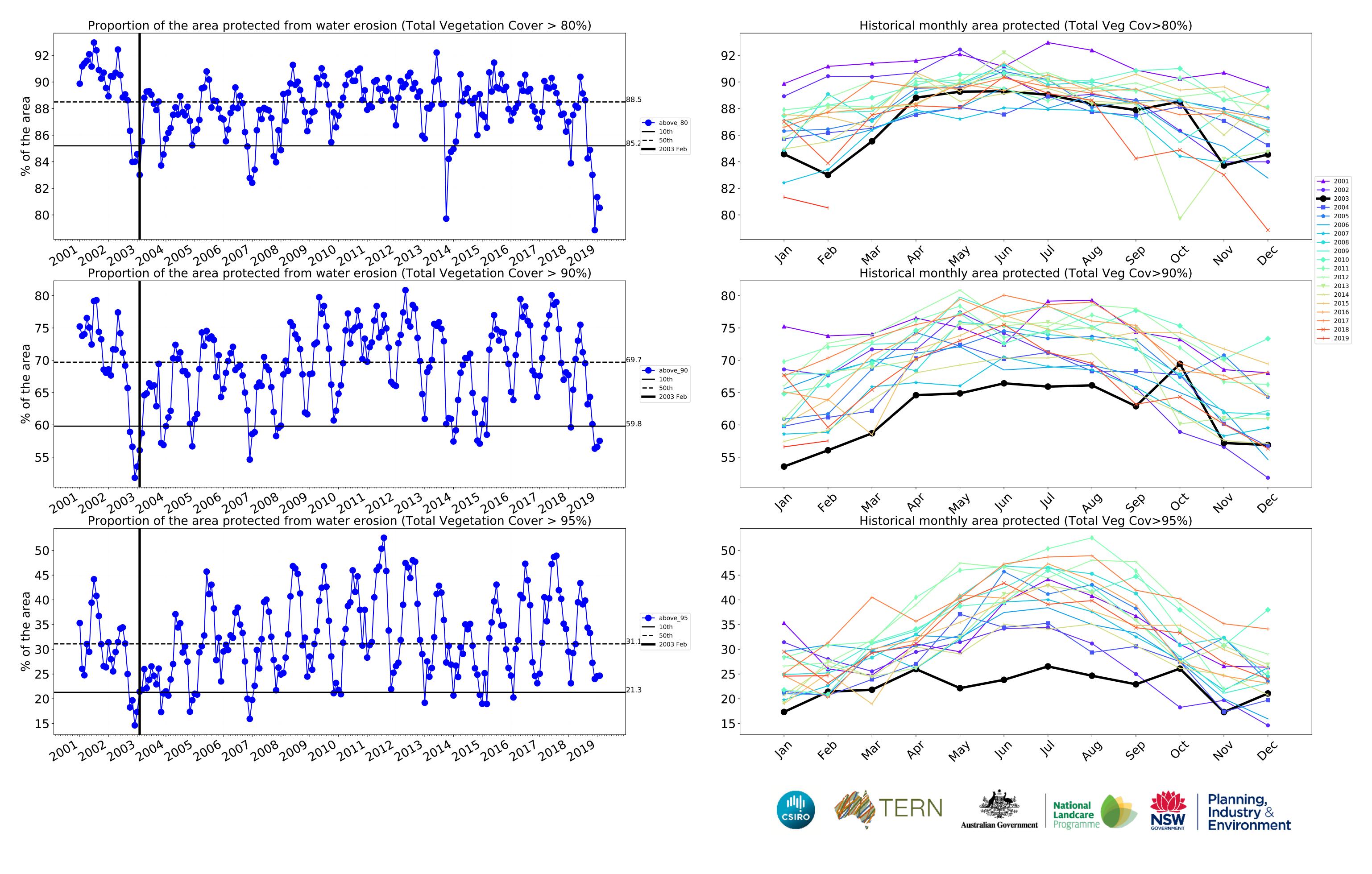




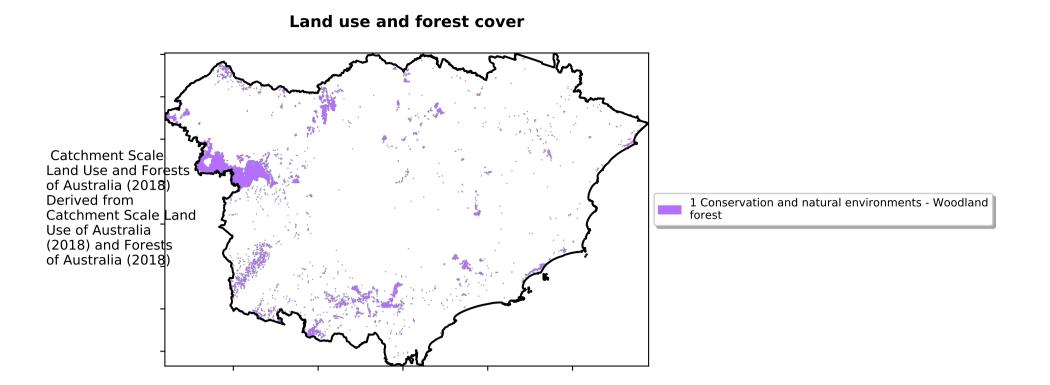


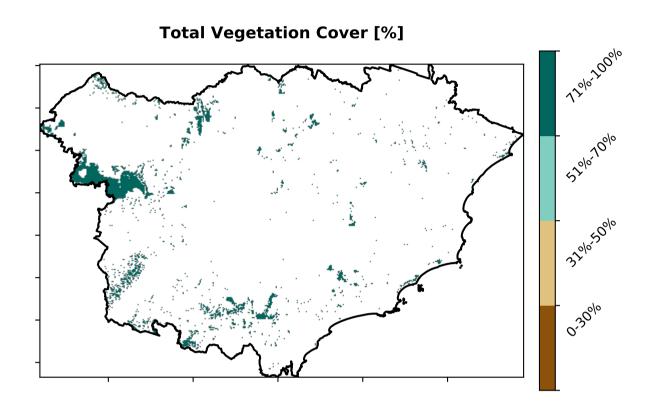


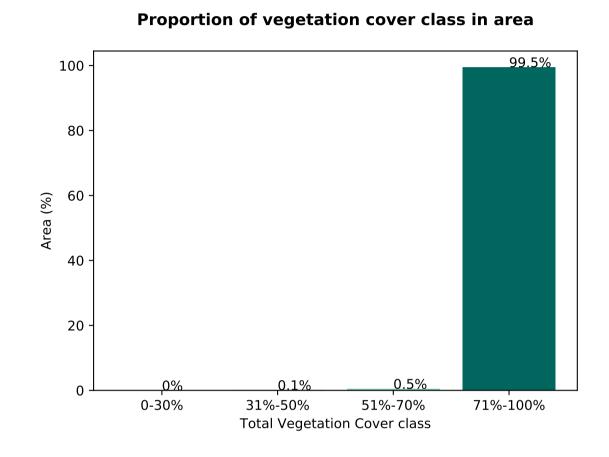


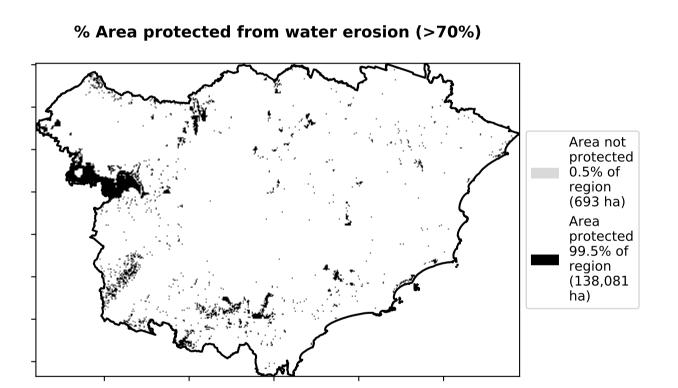


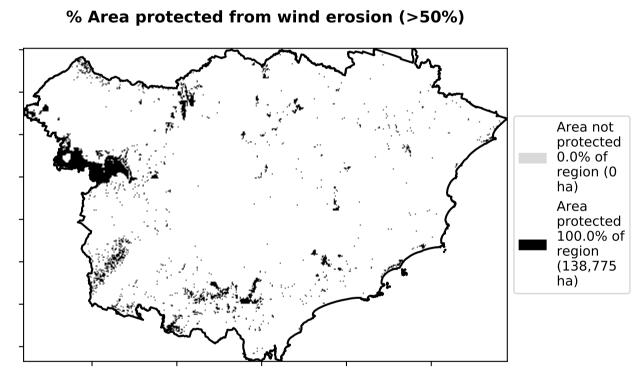
### **Conservation and natural environments Woodland forest**

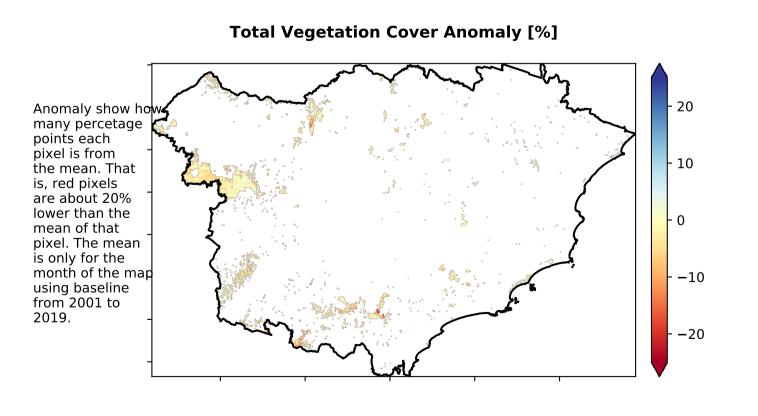




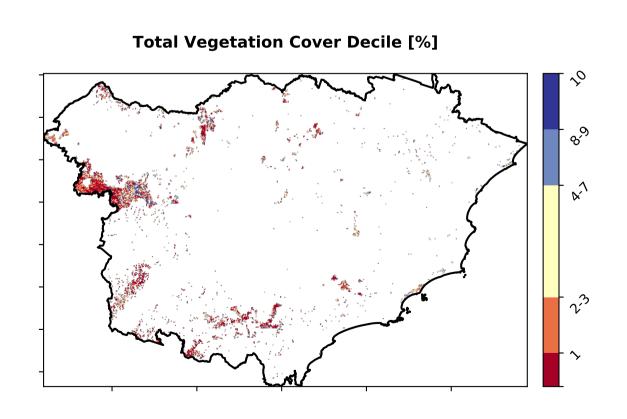








Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.







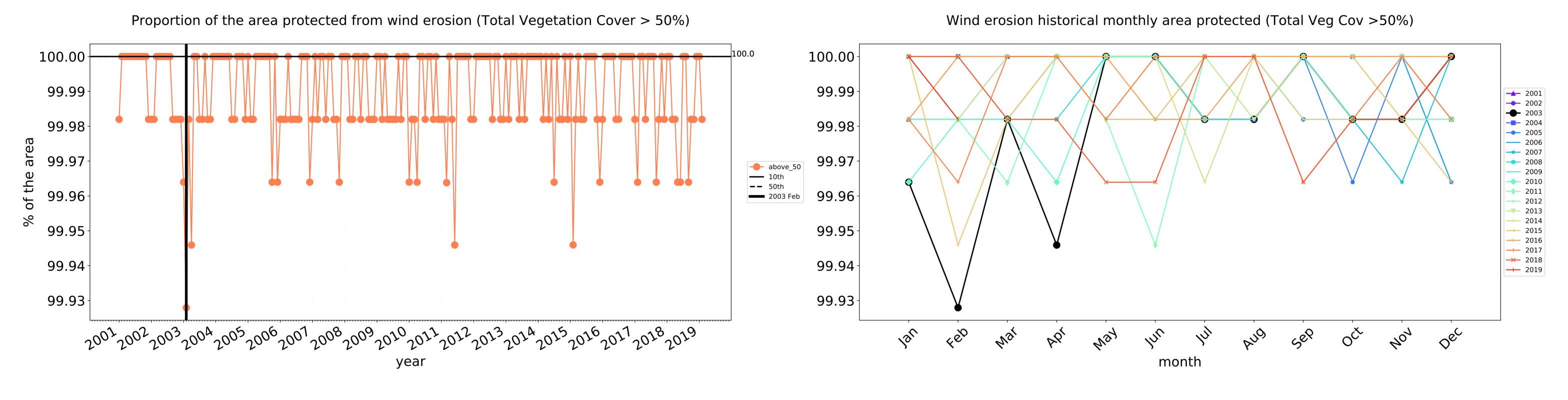


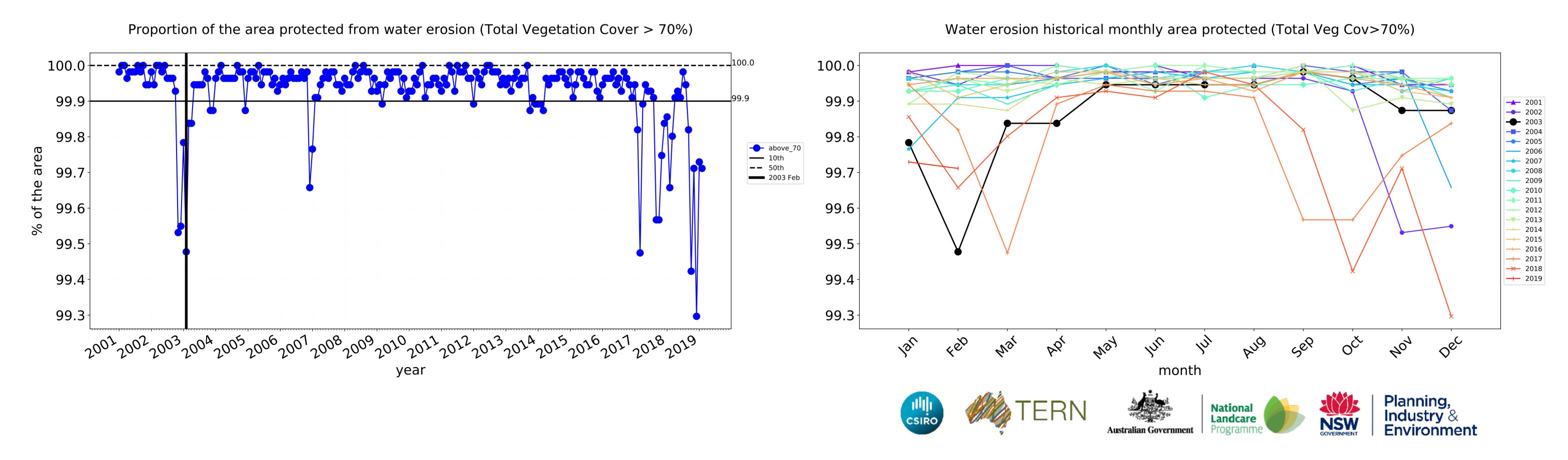


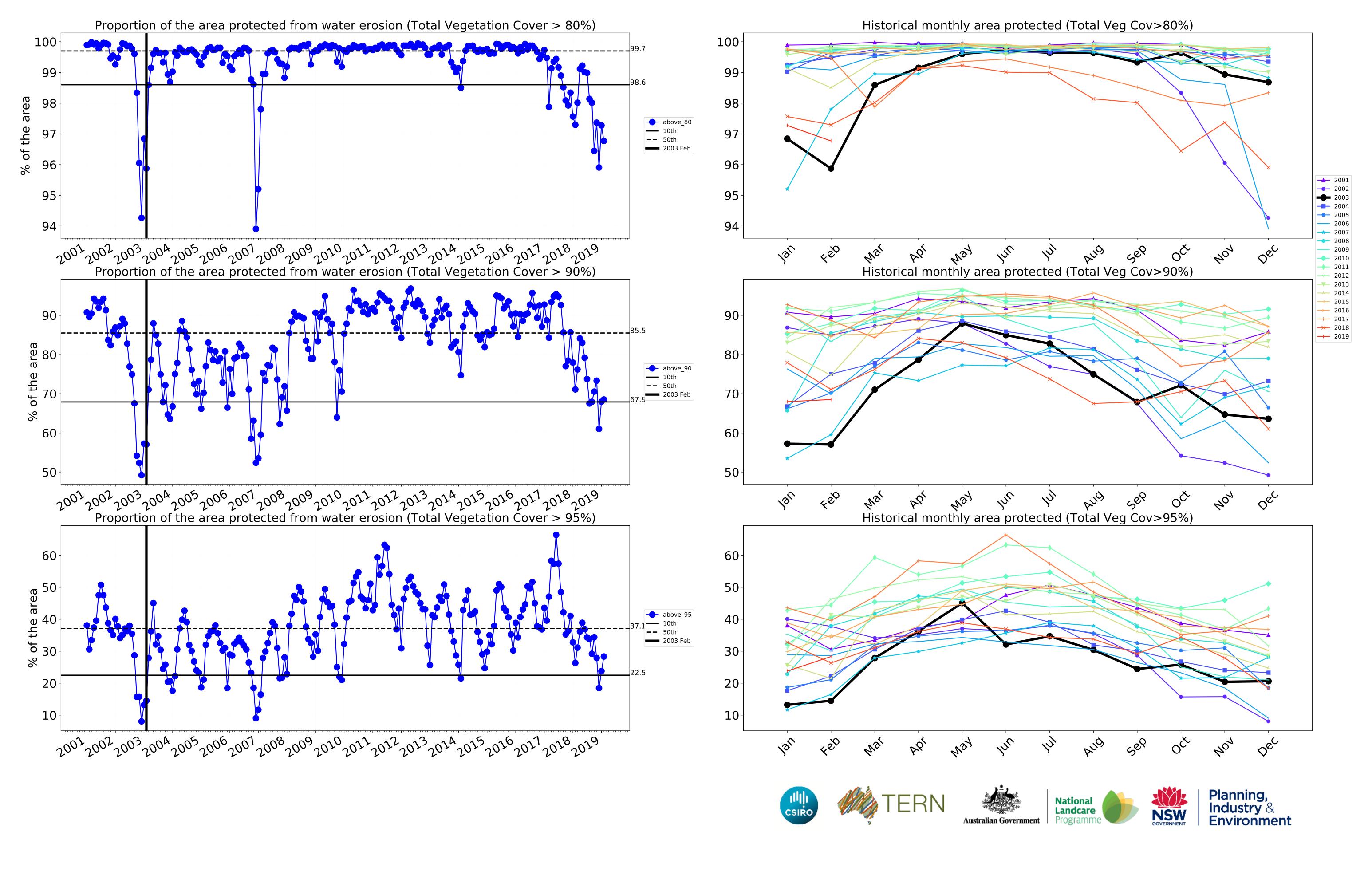


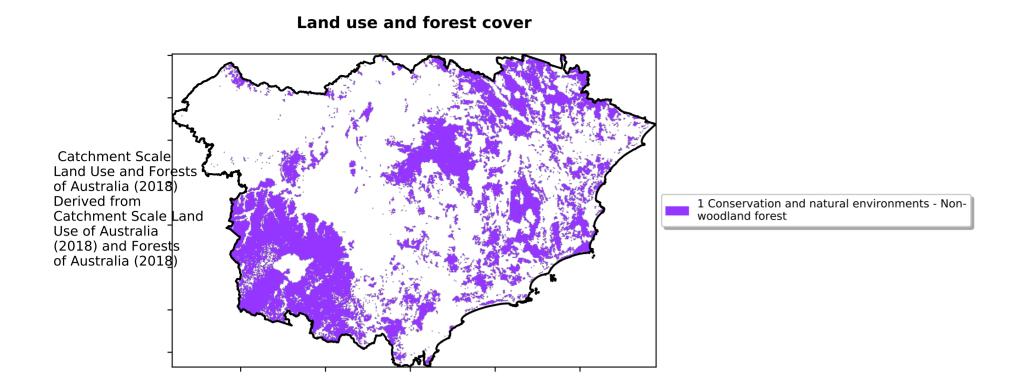


### Conservation and natural environments Woodland forest timeseries

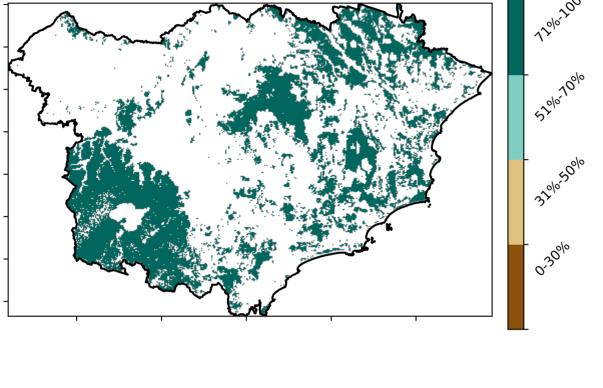


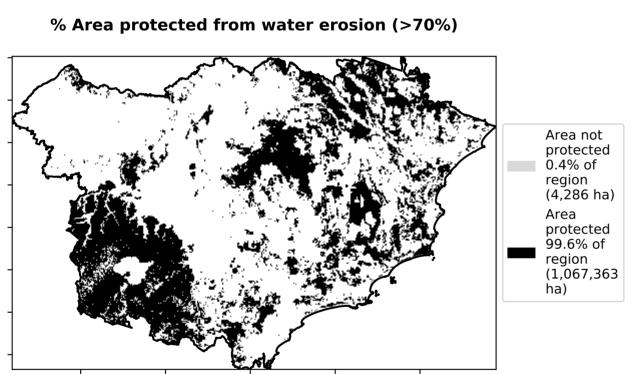


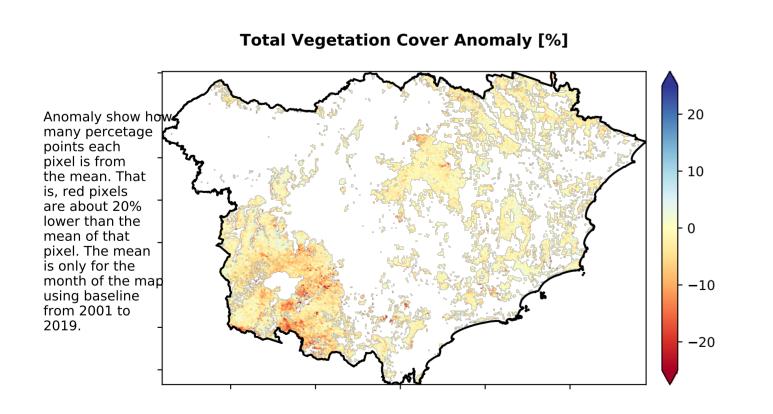




# **Total Vegetation Cover [%]**

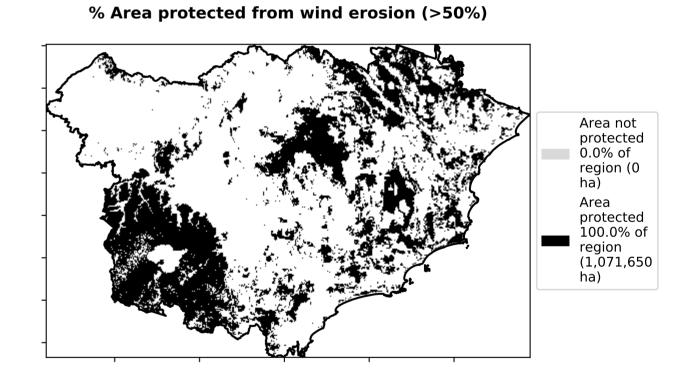


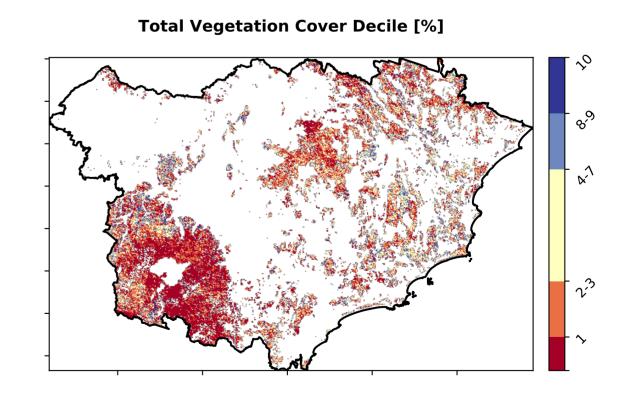




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area 99.6% 100 80 20 0.0%0-30% 51%-70% 31%-50% 71%-100% **Total Vegetation Cover class**







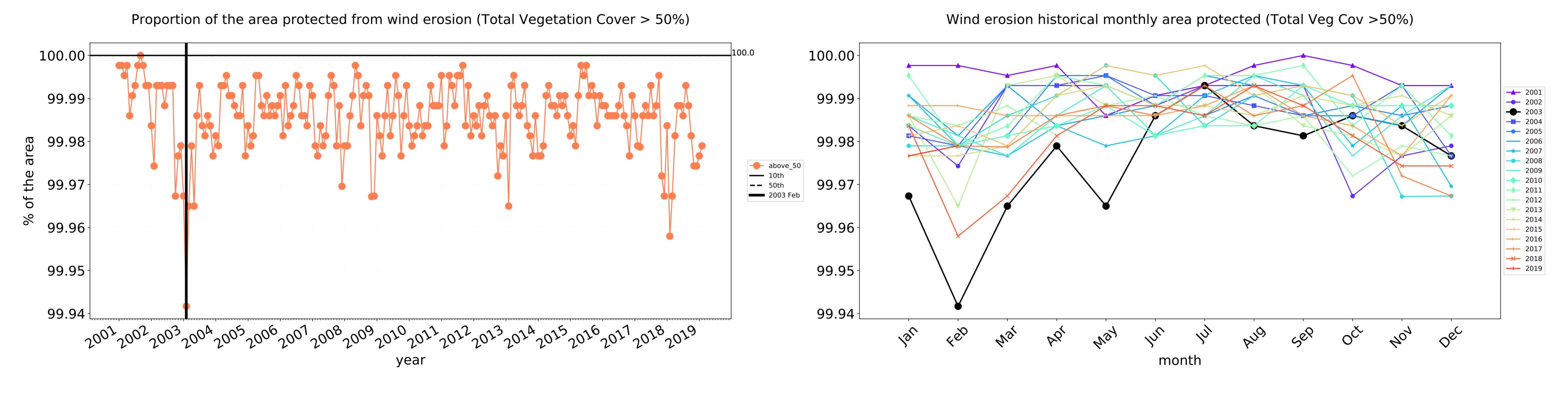


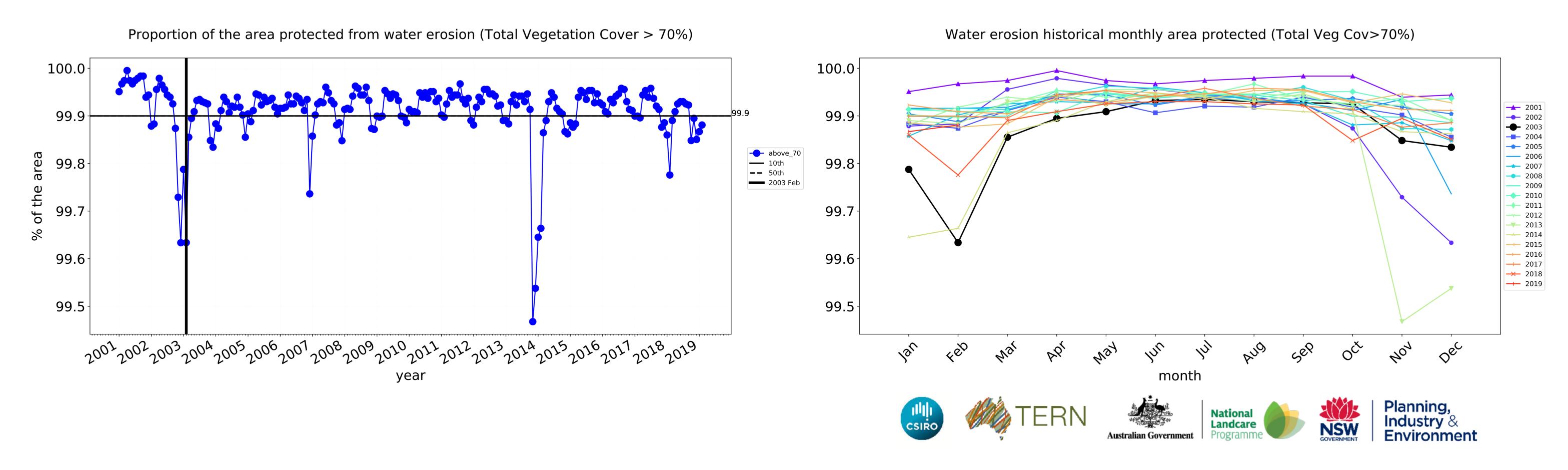


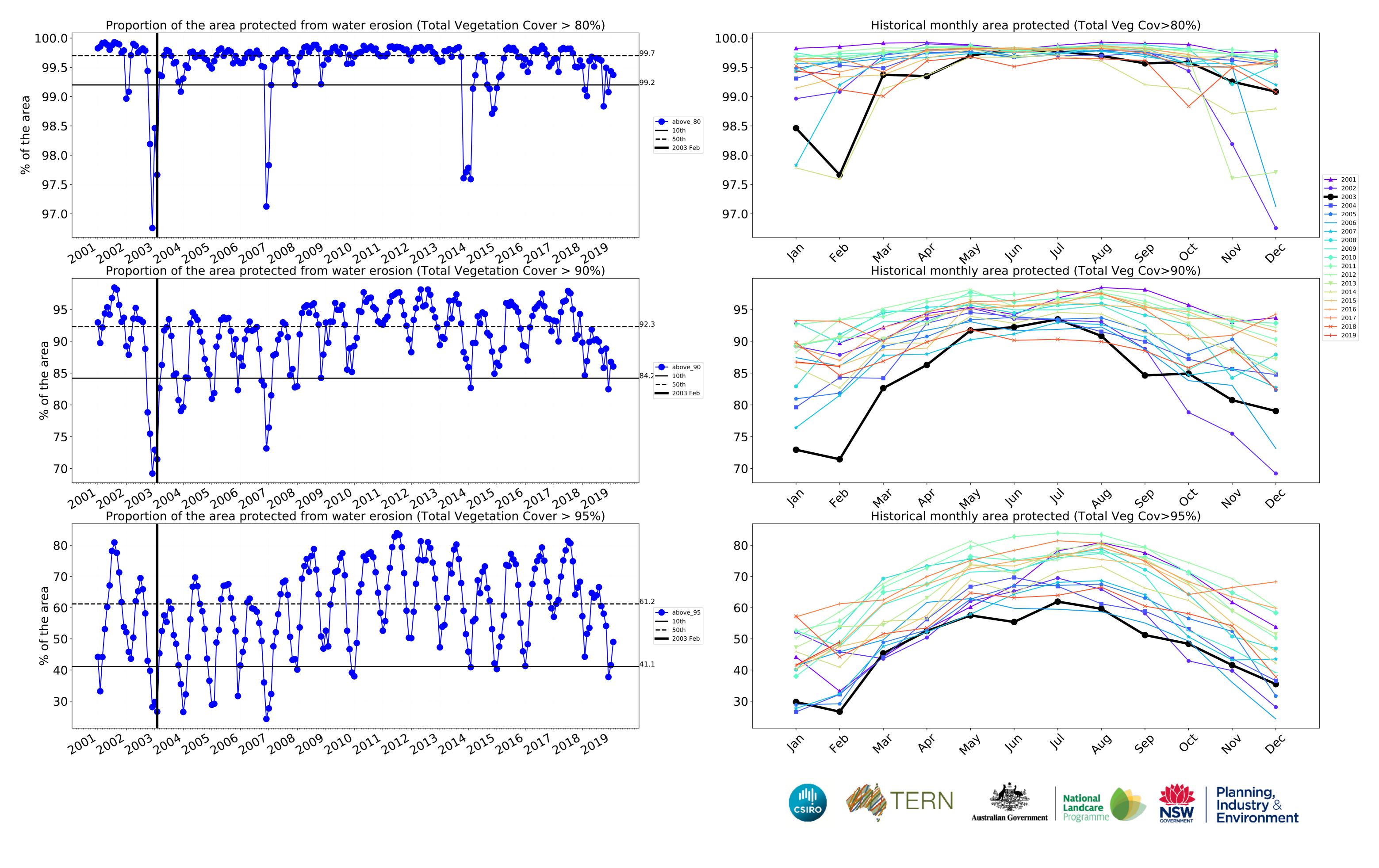




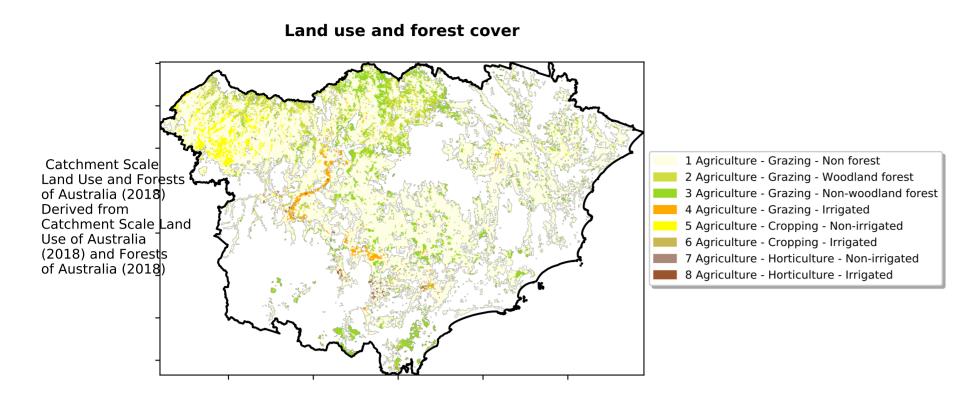


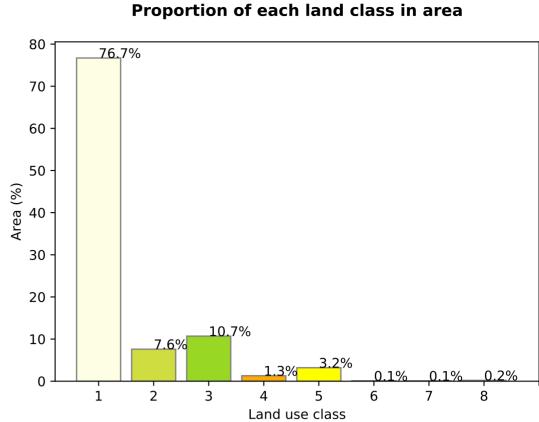


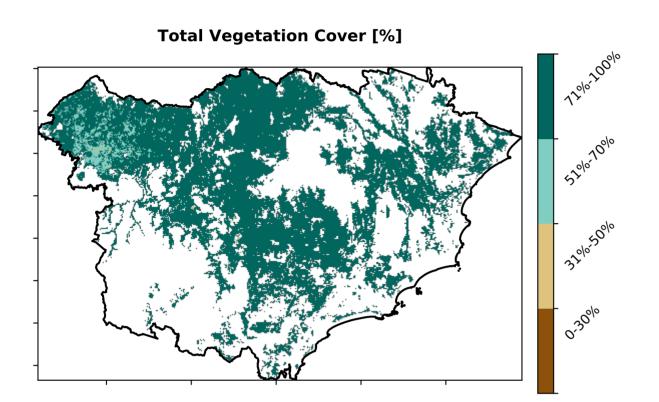


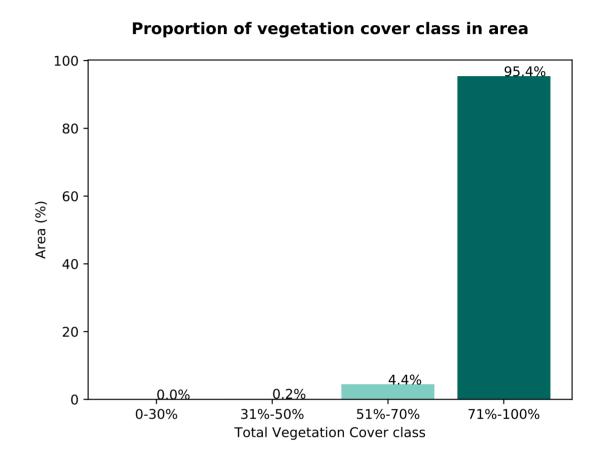


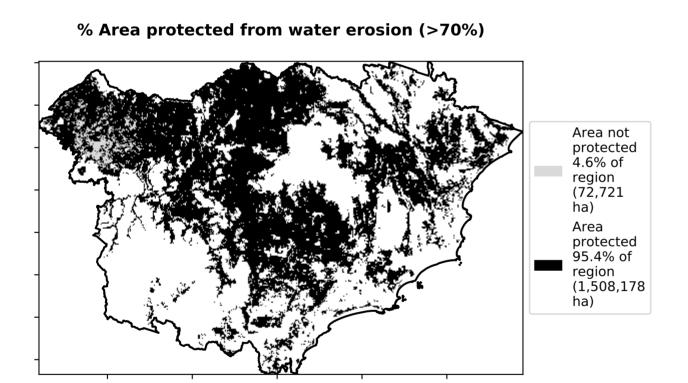
### **Agriculture**

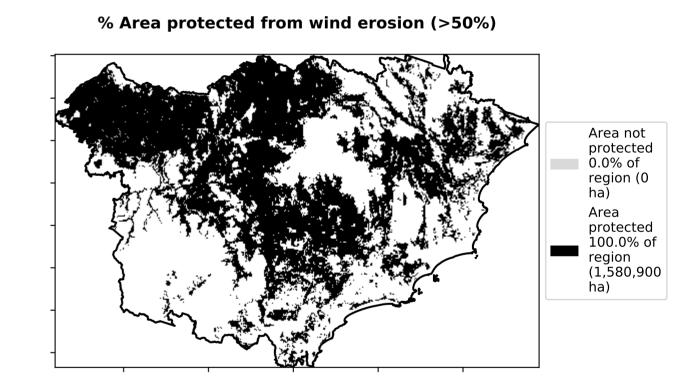


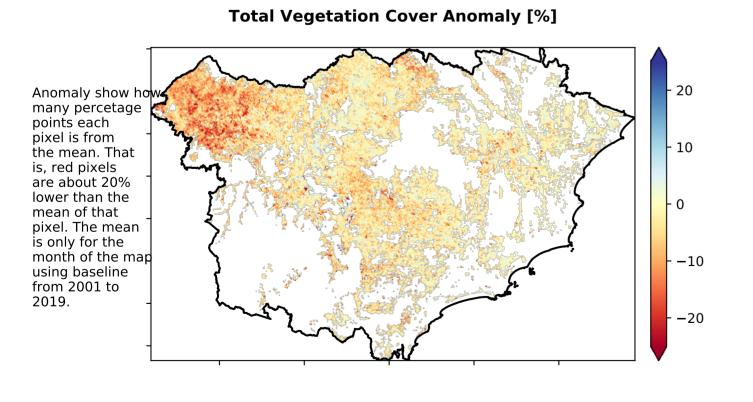




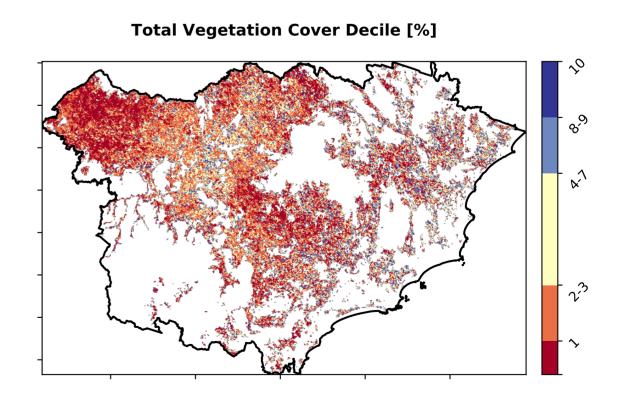








Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.







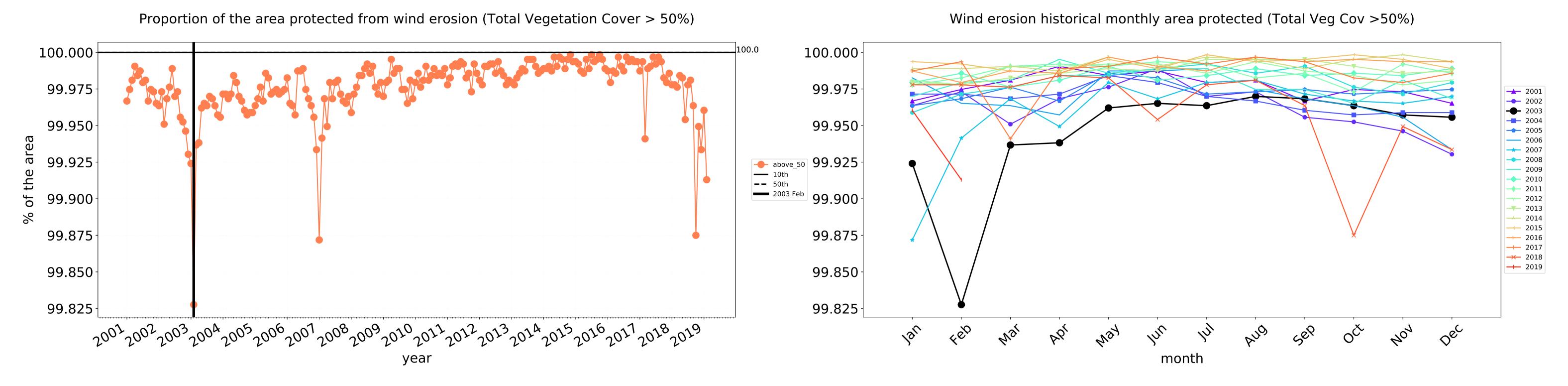


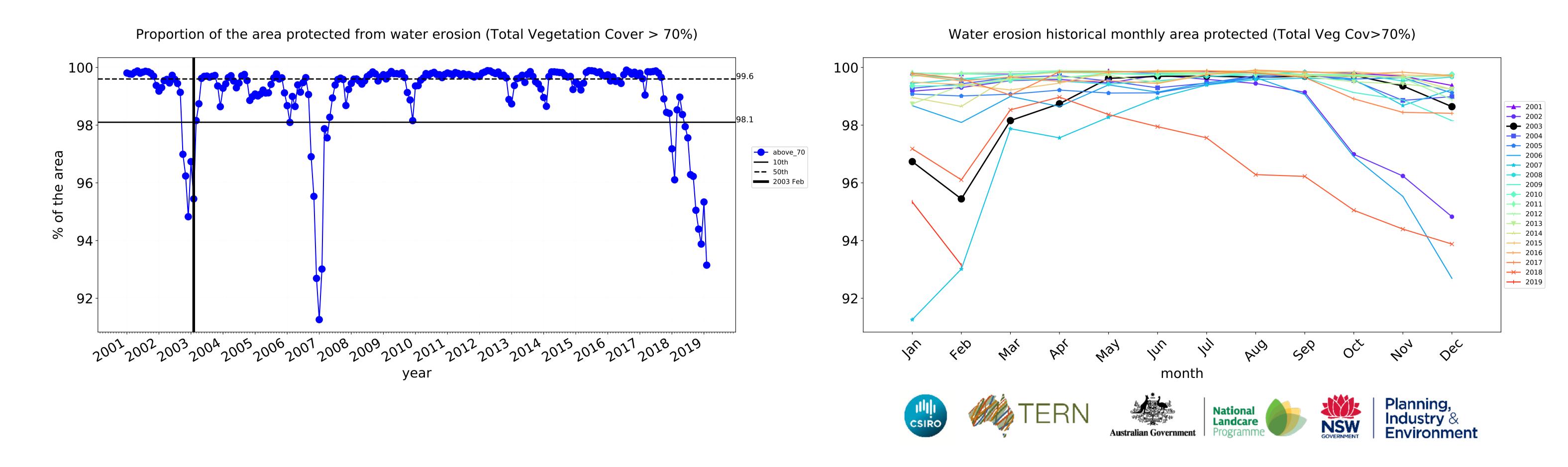


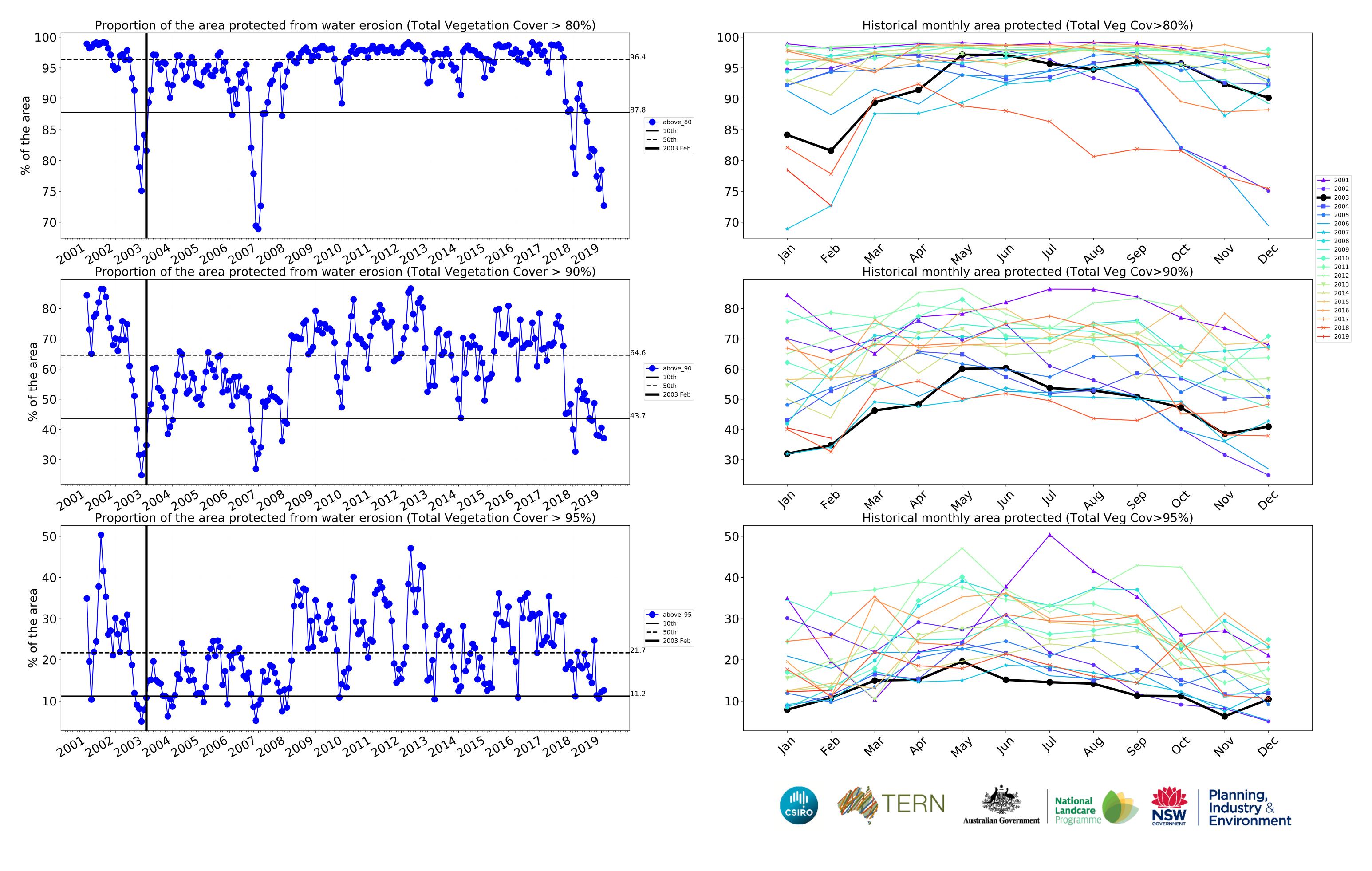




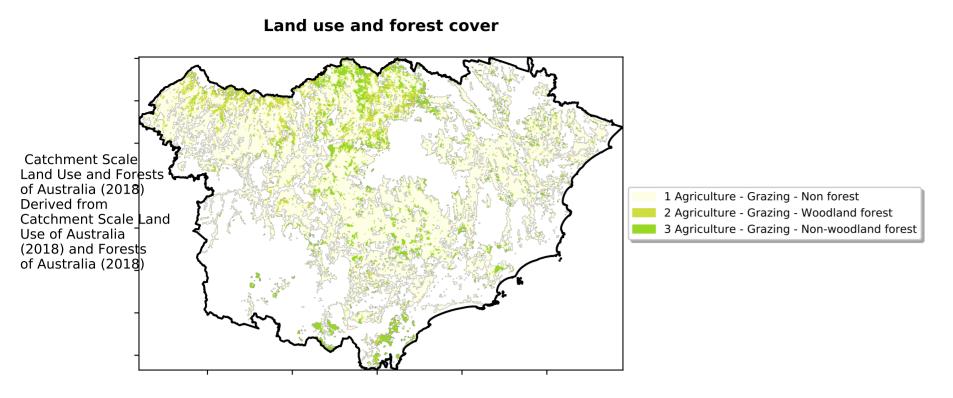
### **Agriculture timeseries**



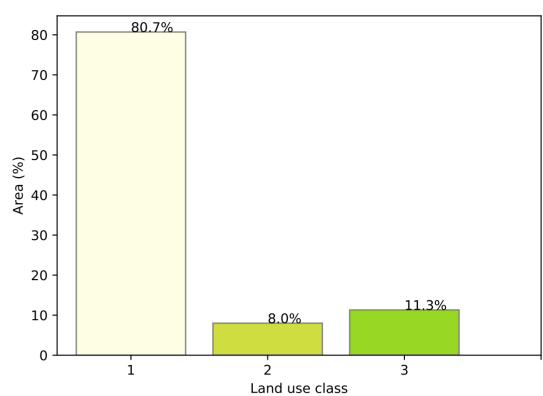




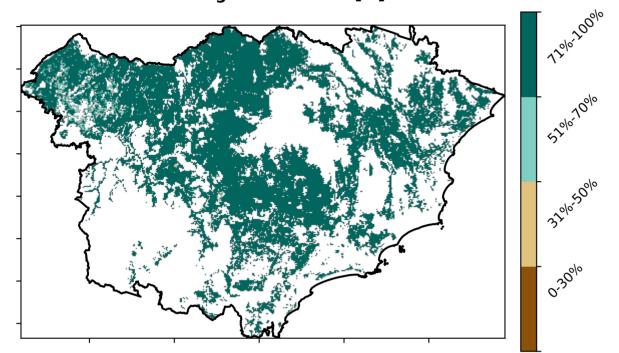
### **Grazing**



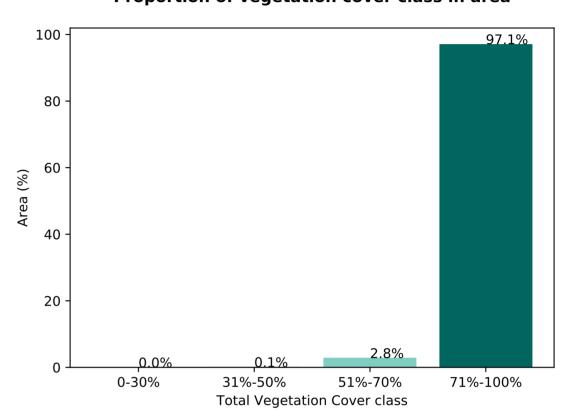
### Proportion of each land class in area



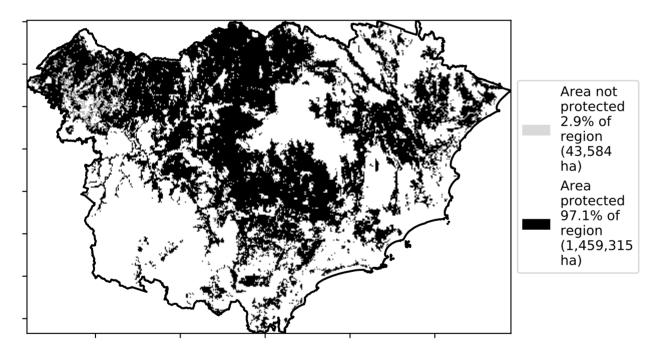




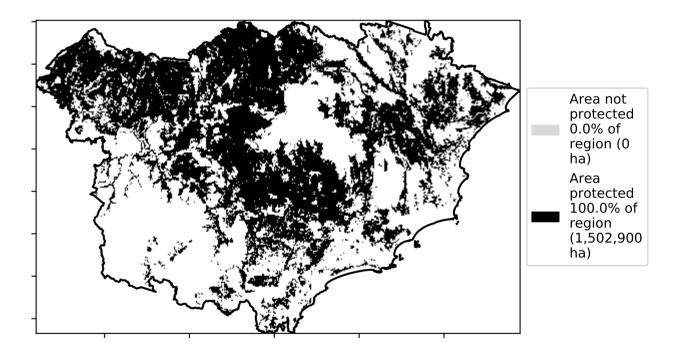
Proportion of vegetation cover class in area



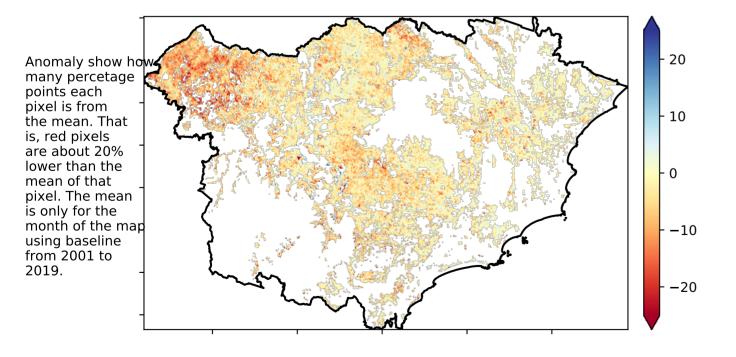
### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



### Total Vegetation Cover Anomaly [%]



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 [%]





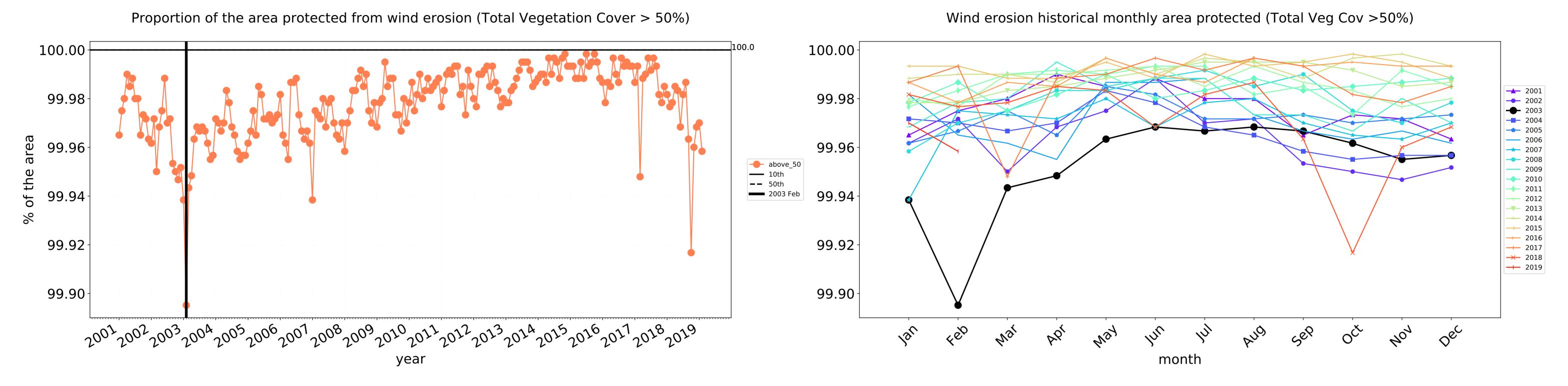


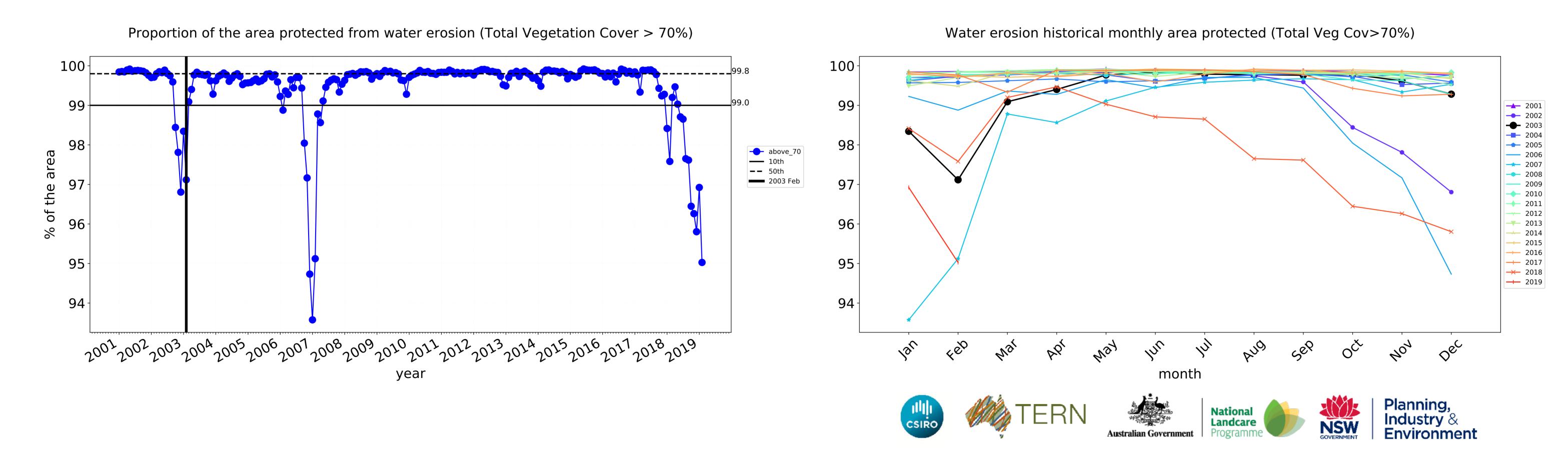


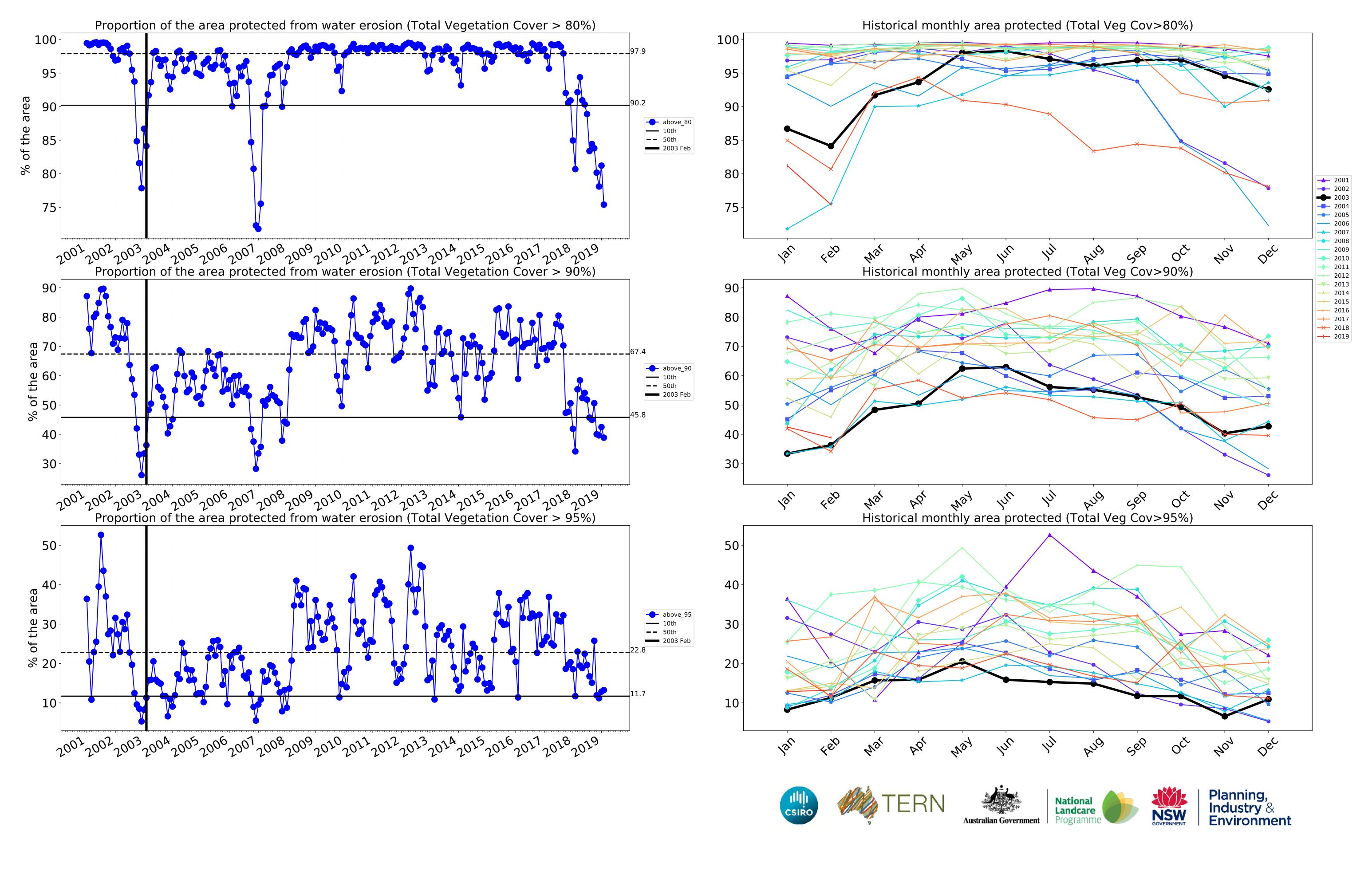




### **Grazing timeseries**

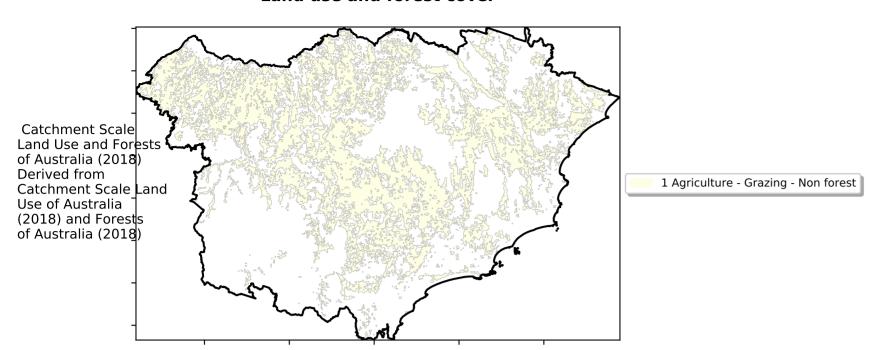




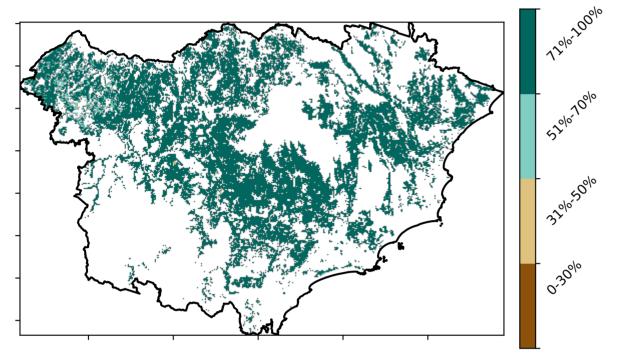


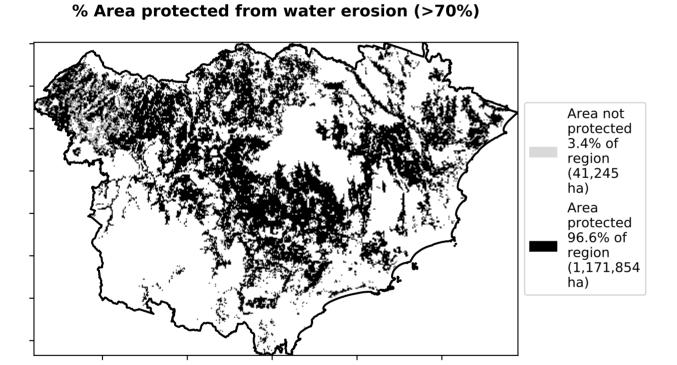
### **Grazing non forest**

### Land use and forest cover

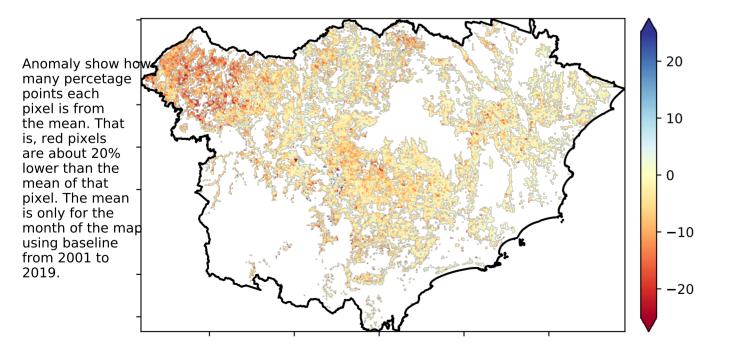


### Total Vegetation Cover [%]



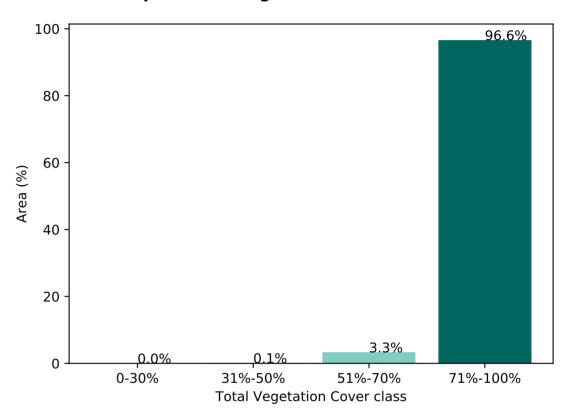


### Total Vegetation Cover Anomaly [%]

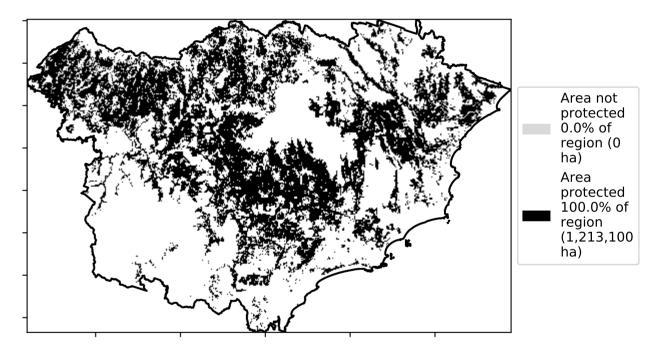


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

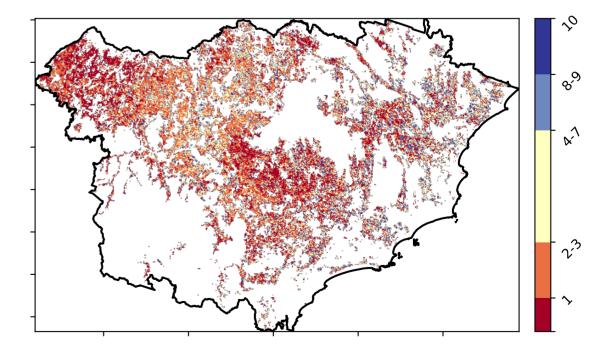
### **Proportion of vegetation cover class in area**



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



### Total Vegetation Cover Decile [%]







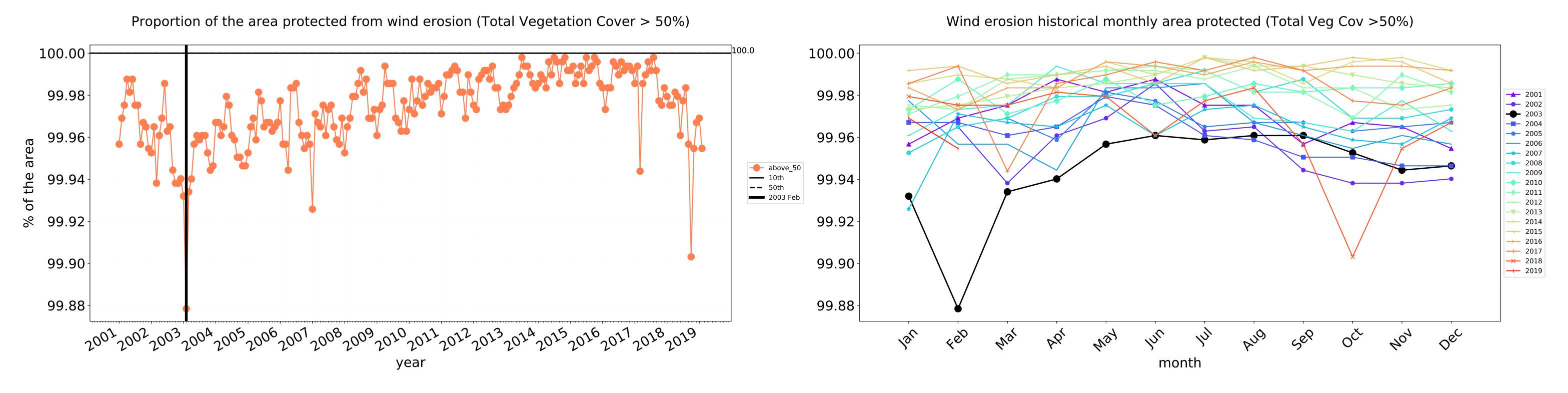


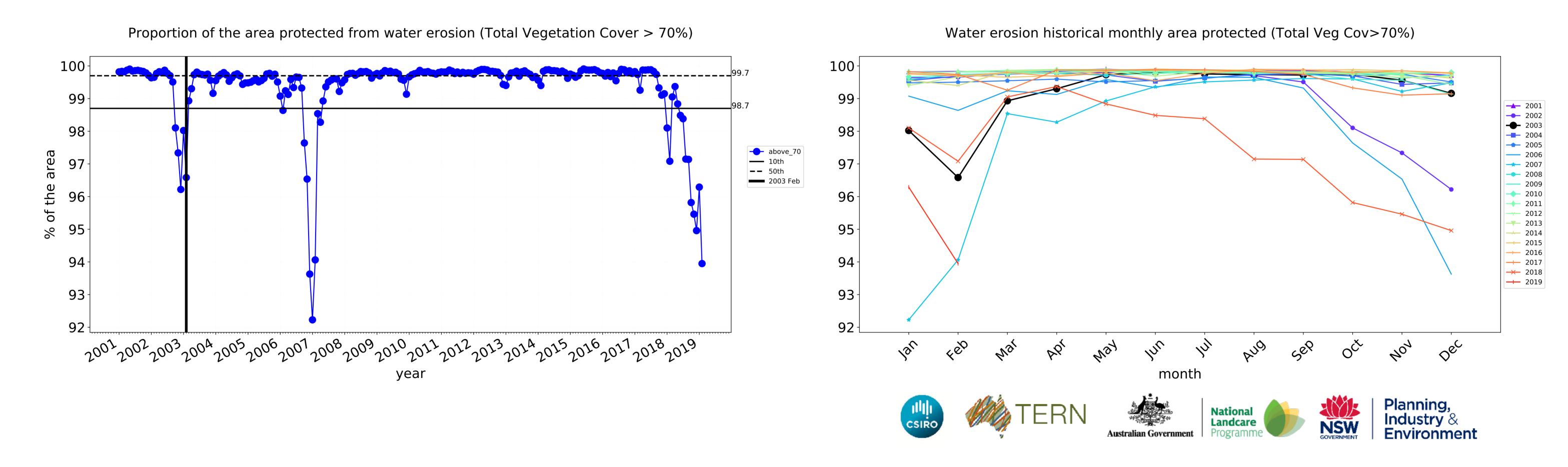


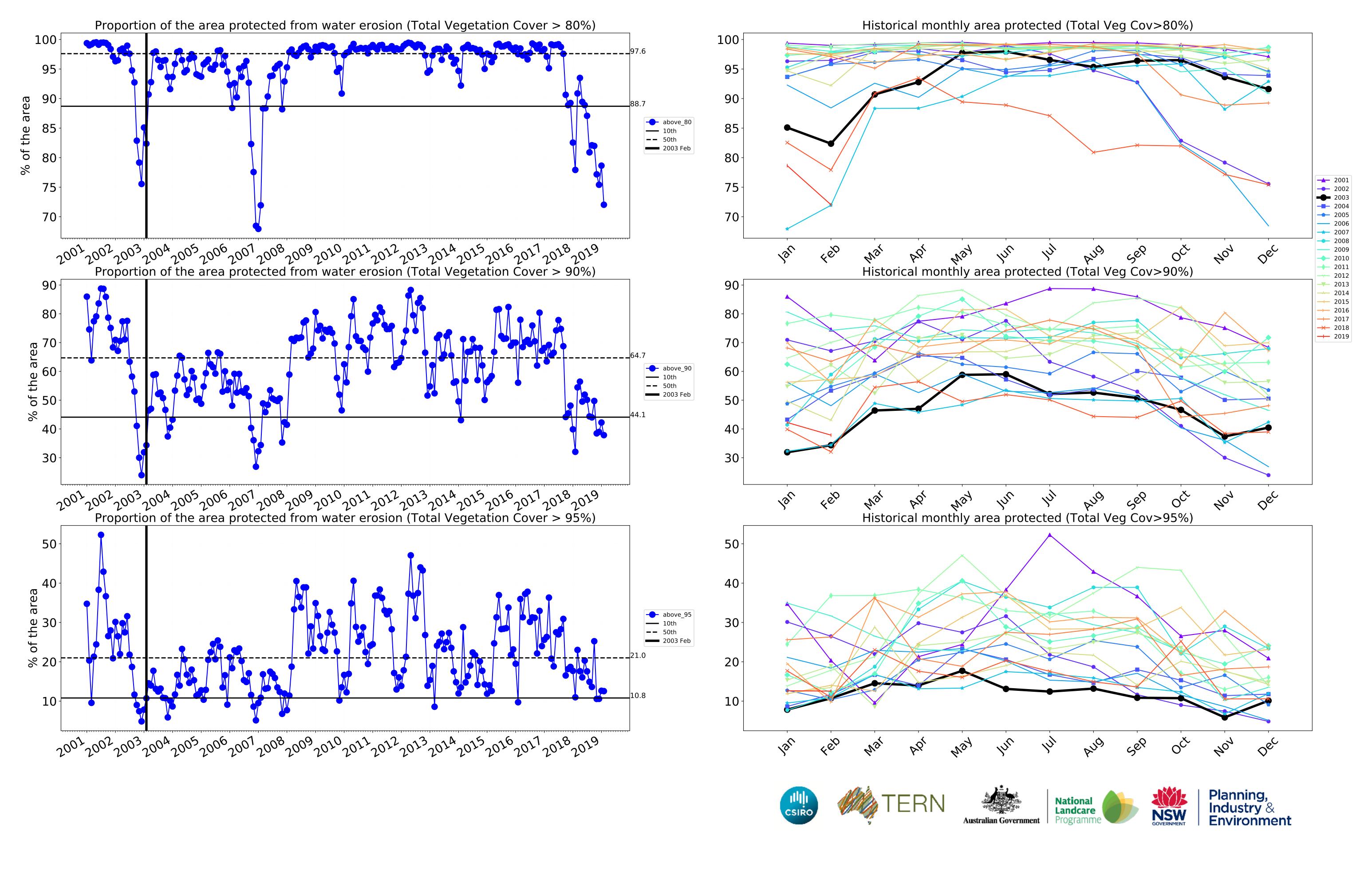




### **Grazing non forest timeseries**





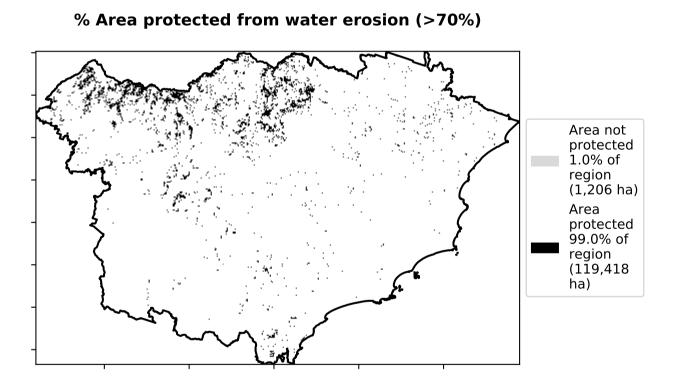


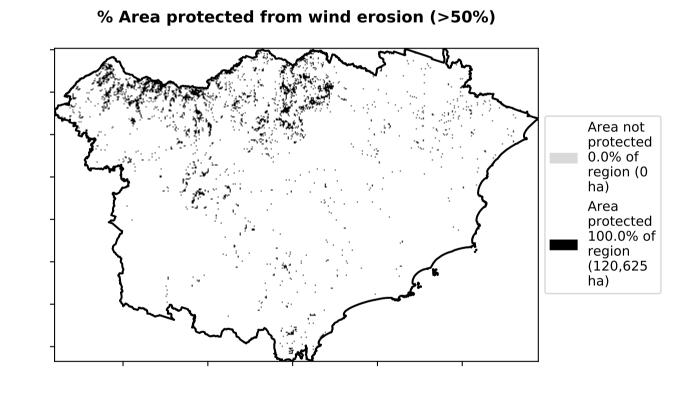
### **Grazing Woodland forest**

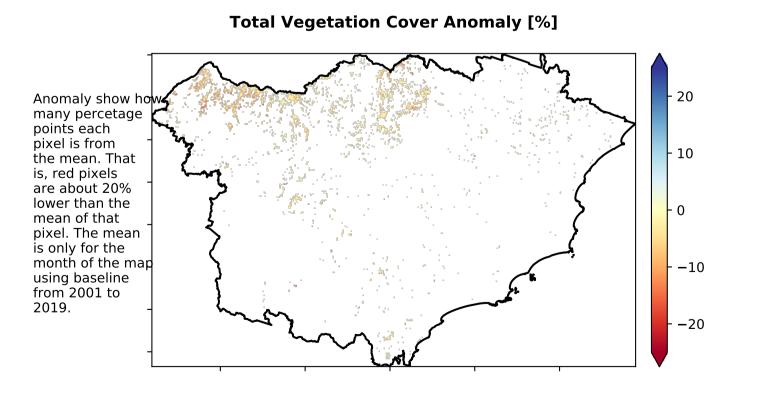
### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) Of Australia (2018)

# Total Vegetation Cover [%]

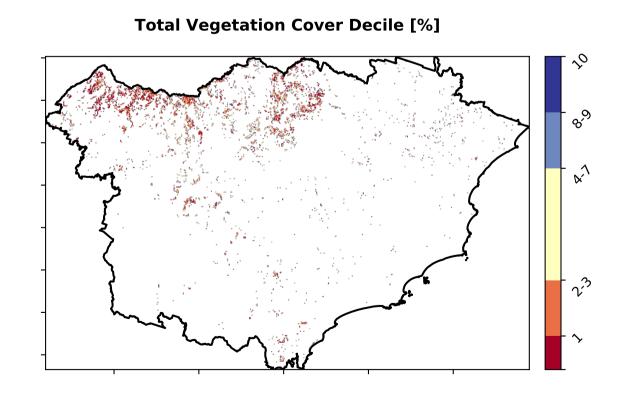
# Proportion of vegetation cover class in area 100 - 99.0% 80 - 99.0% 40 - 20 - 0.0% 0-30% 31%-50% 51%-70% Total Vegetation Cover class







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.







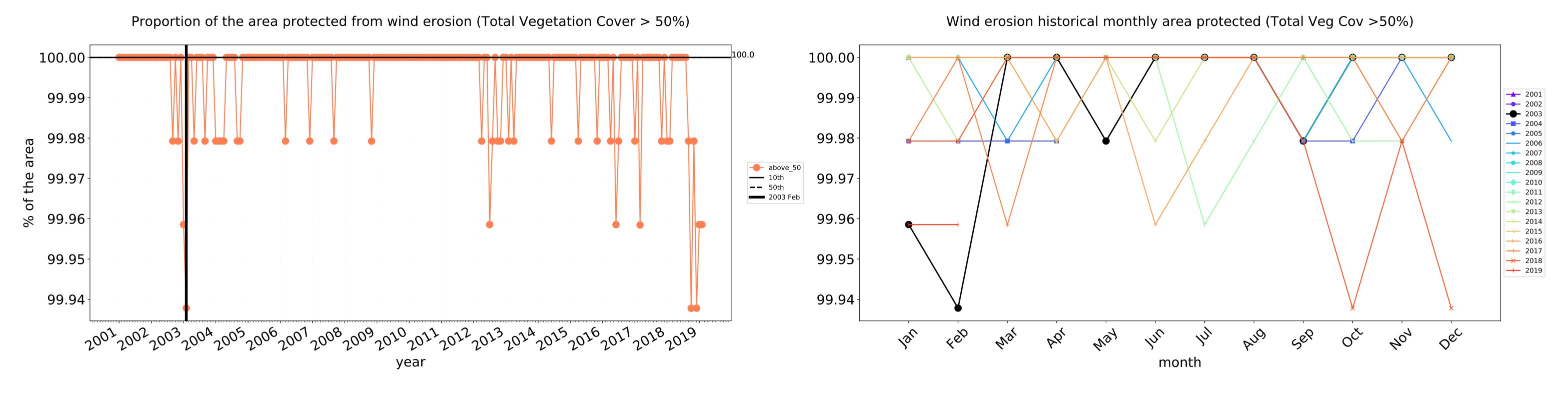


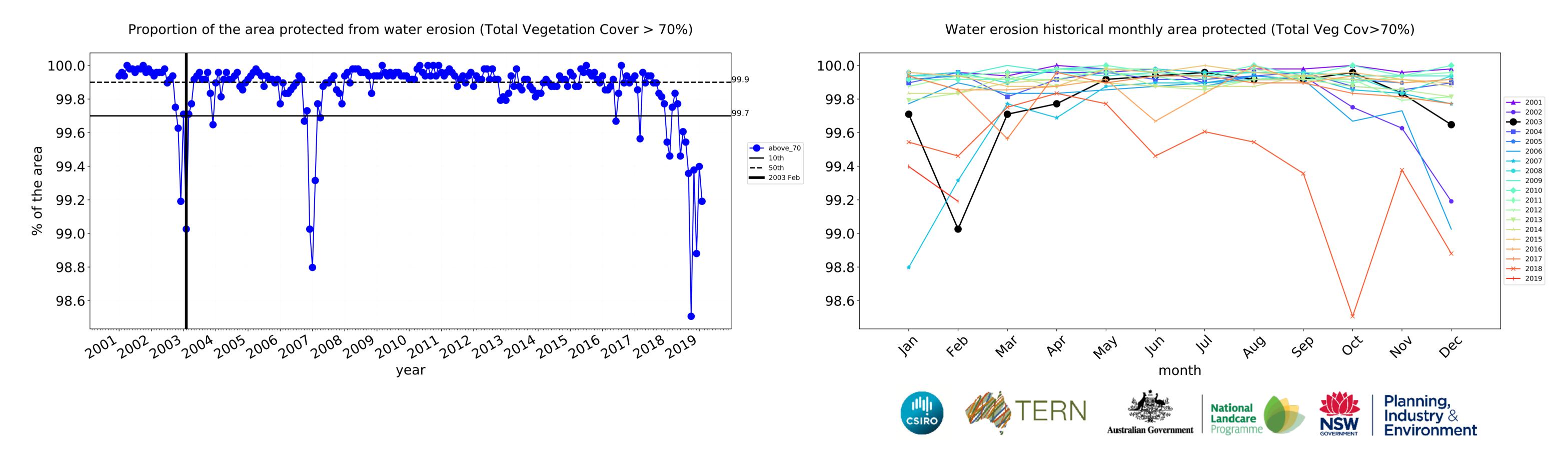


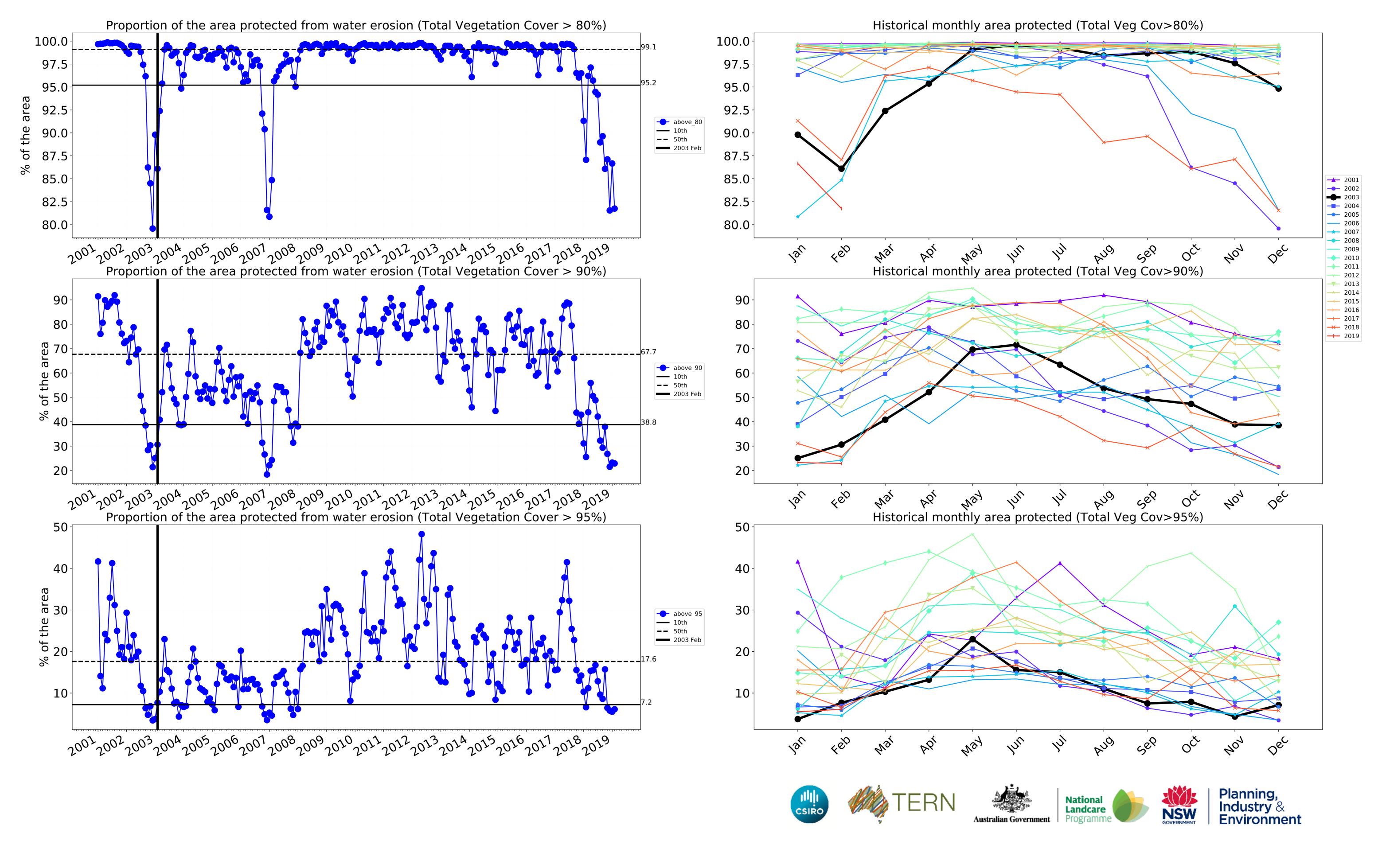




### **Grazing Woodland forest timeseries**



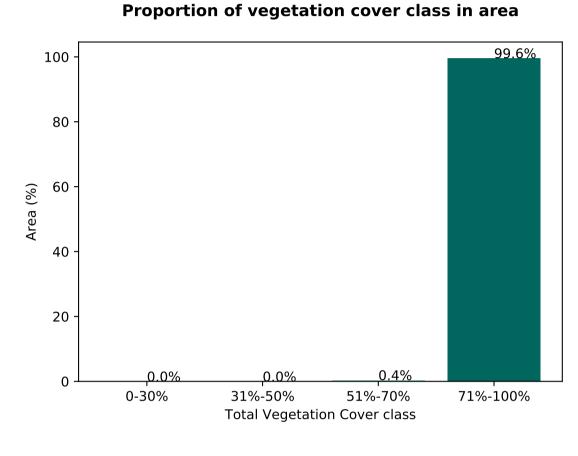


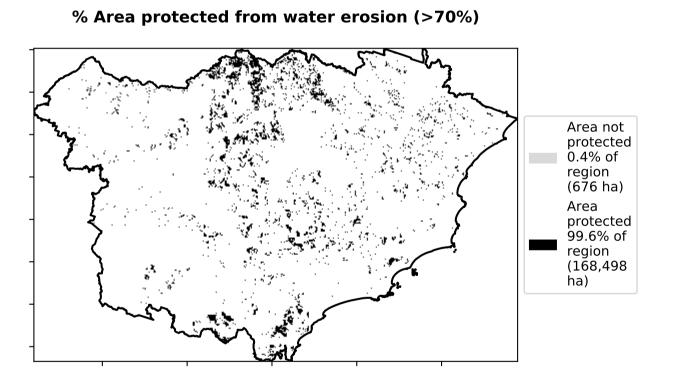


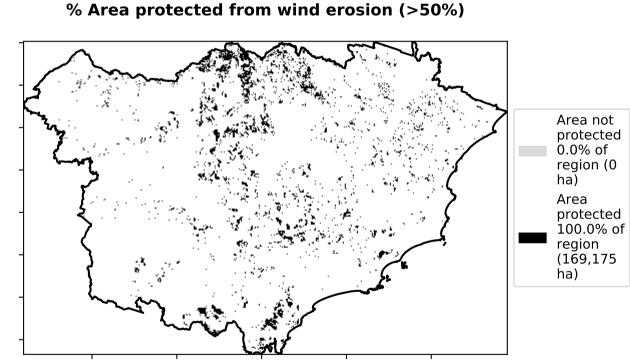
### **Grazing - Forest (non woodland)**

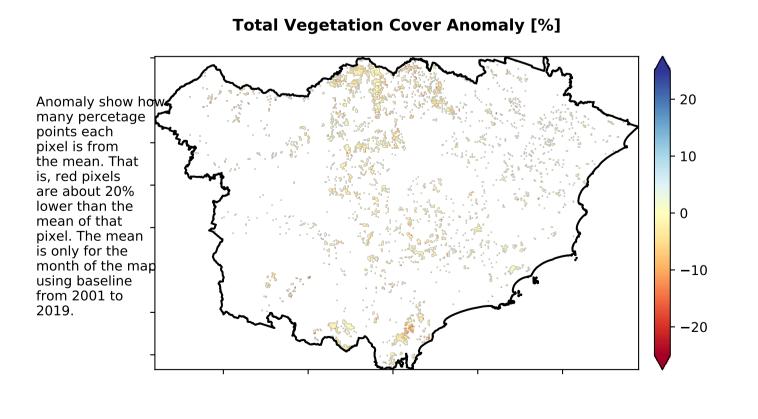
### **Land use and forest cover** Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Agriculture - Grazing - Non-woodland forest Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

# **Total Vegetation Cover [%]**

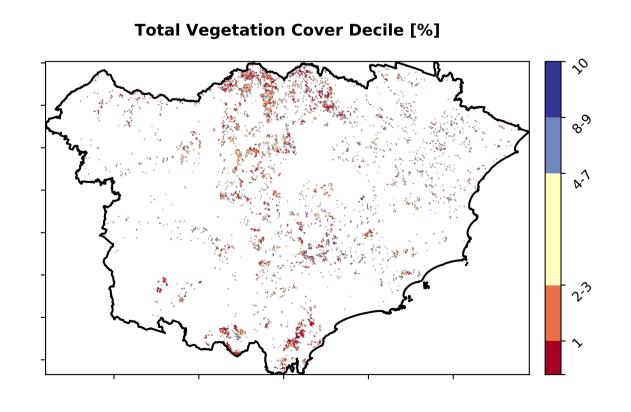








Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseling. the map using baseline from 2001 to 2019.





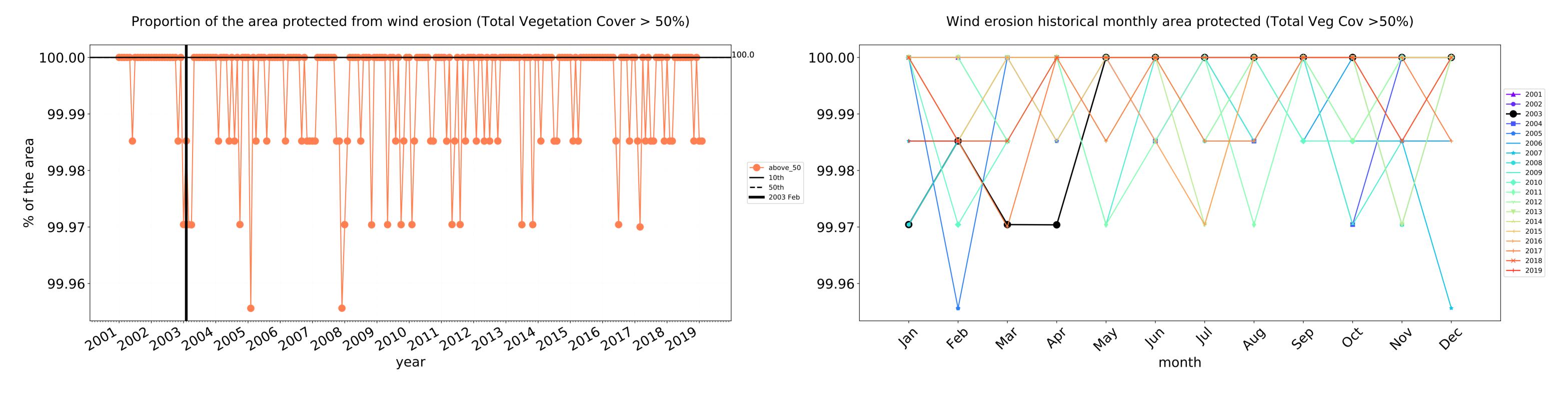


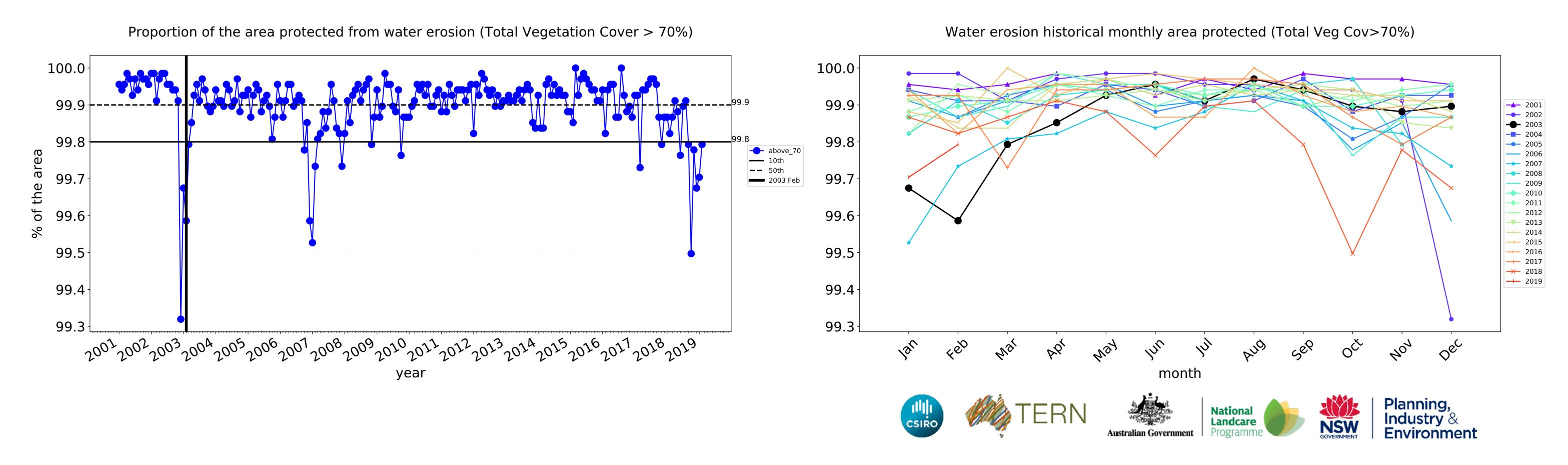


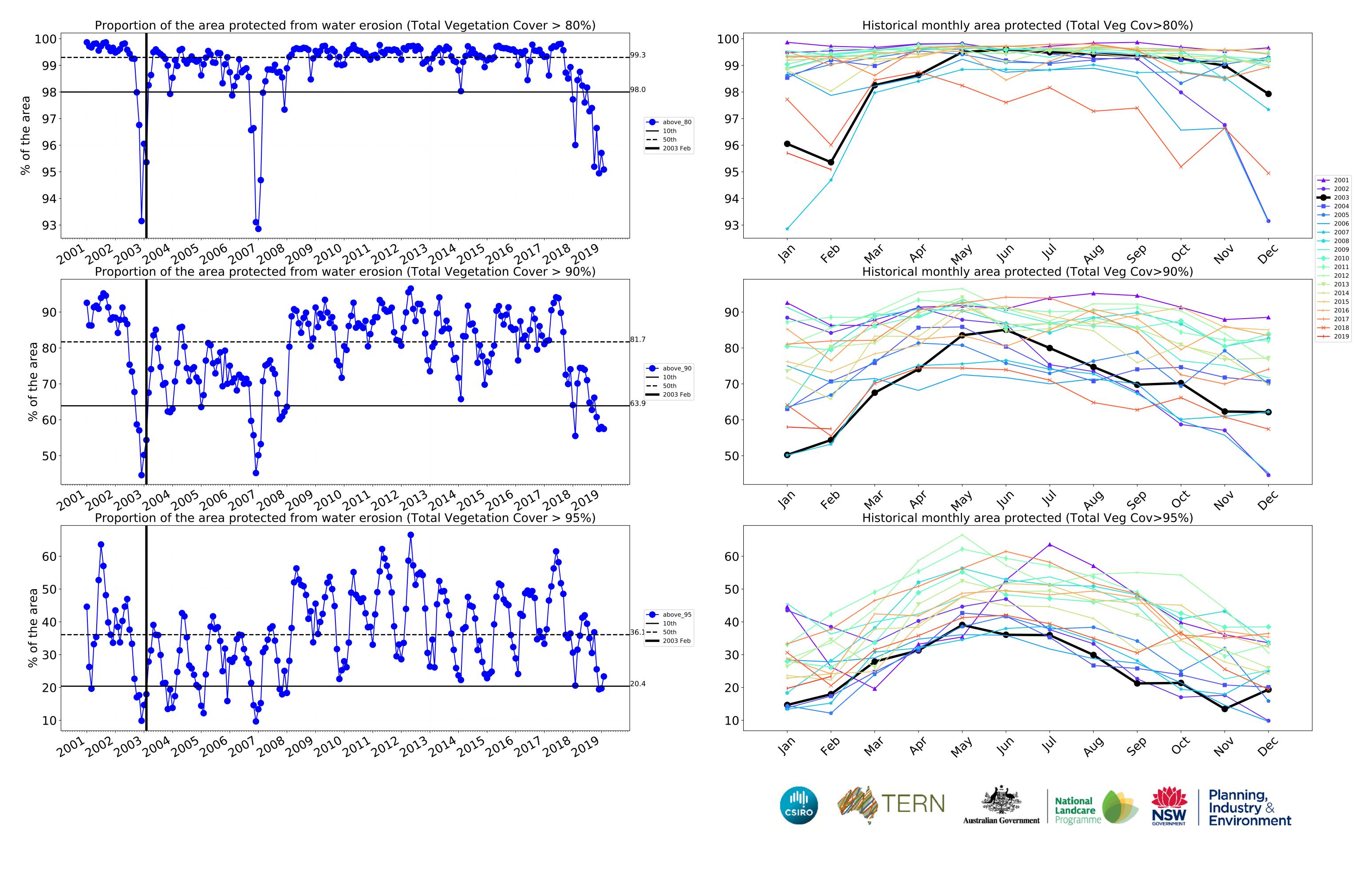






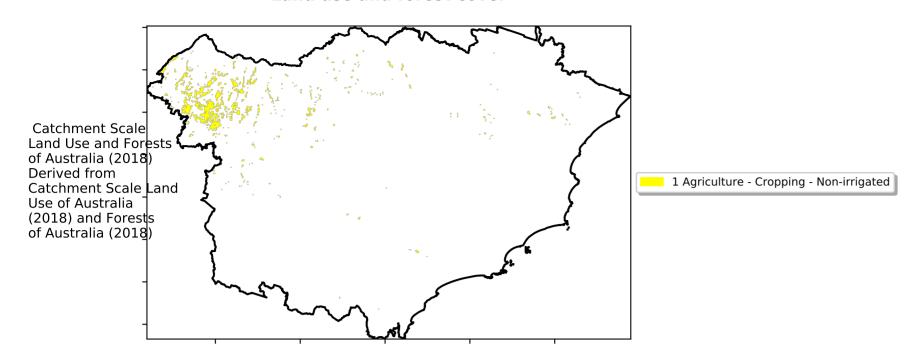




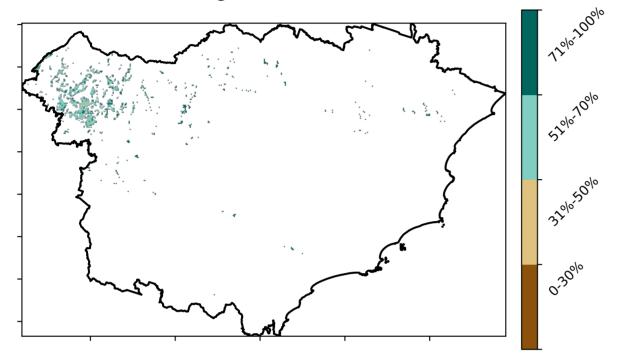


### **Cropping**

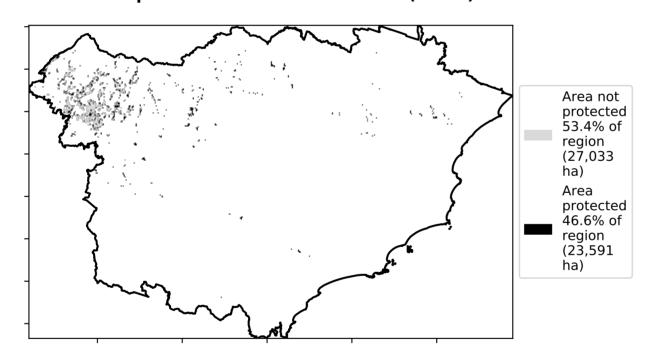
### Land use and forest cover



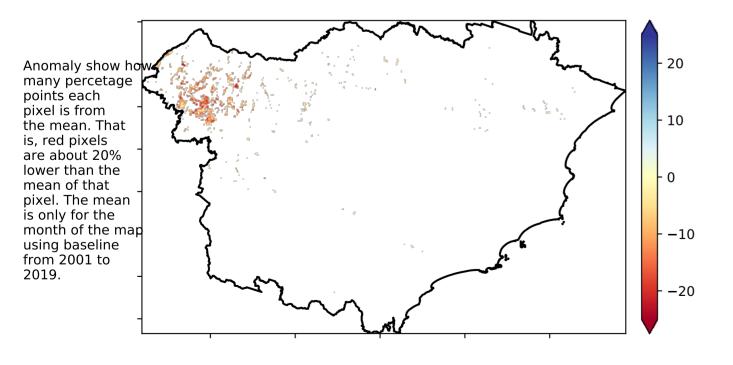
### **Total Vegetation Cover [%]**



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

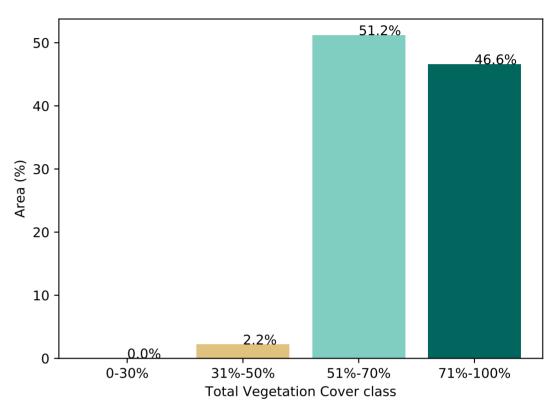


### Total Vegetation Cover Anomaly [%]

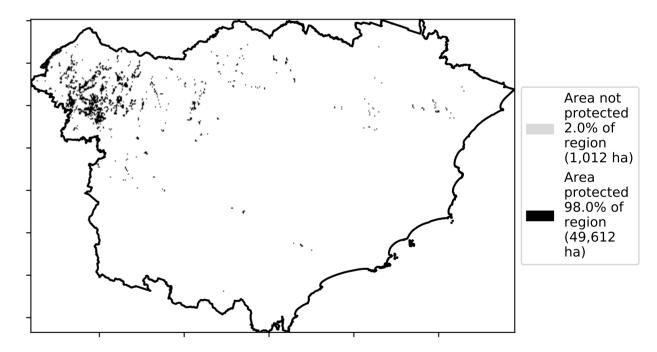


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

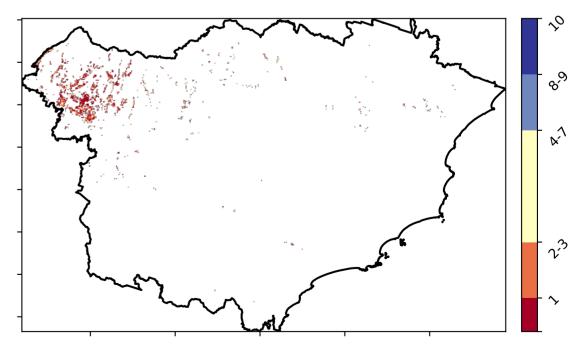
### **Proportion of vegetation cover class in area**



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



### Total Vegetation Cover Decile [%]







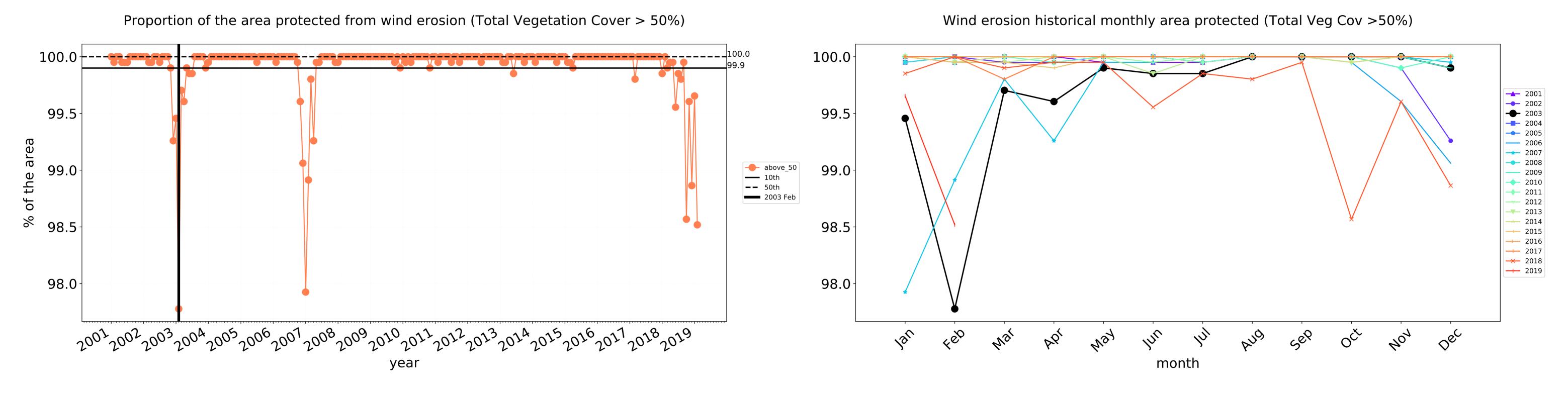


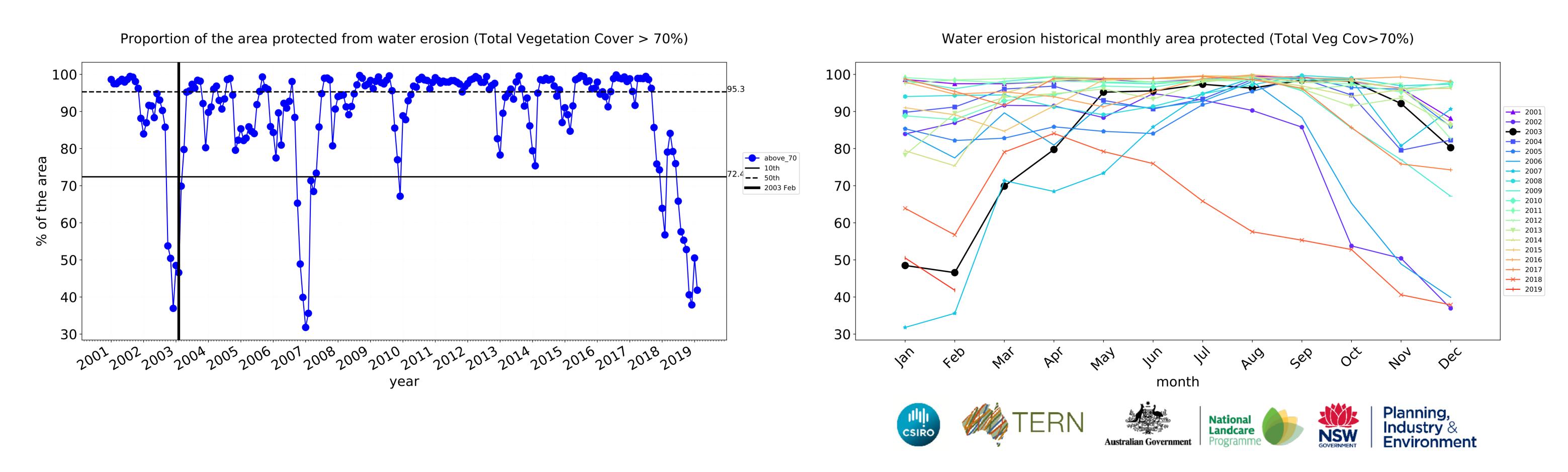


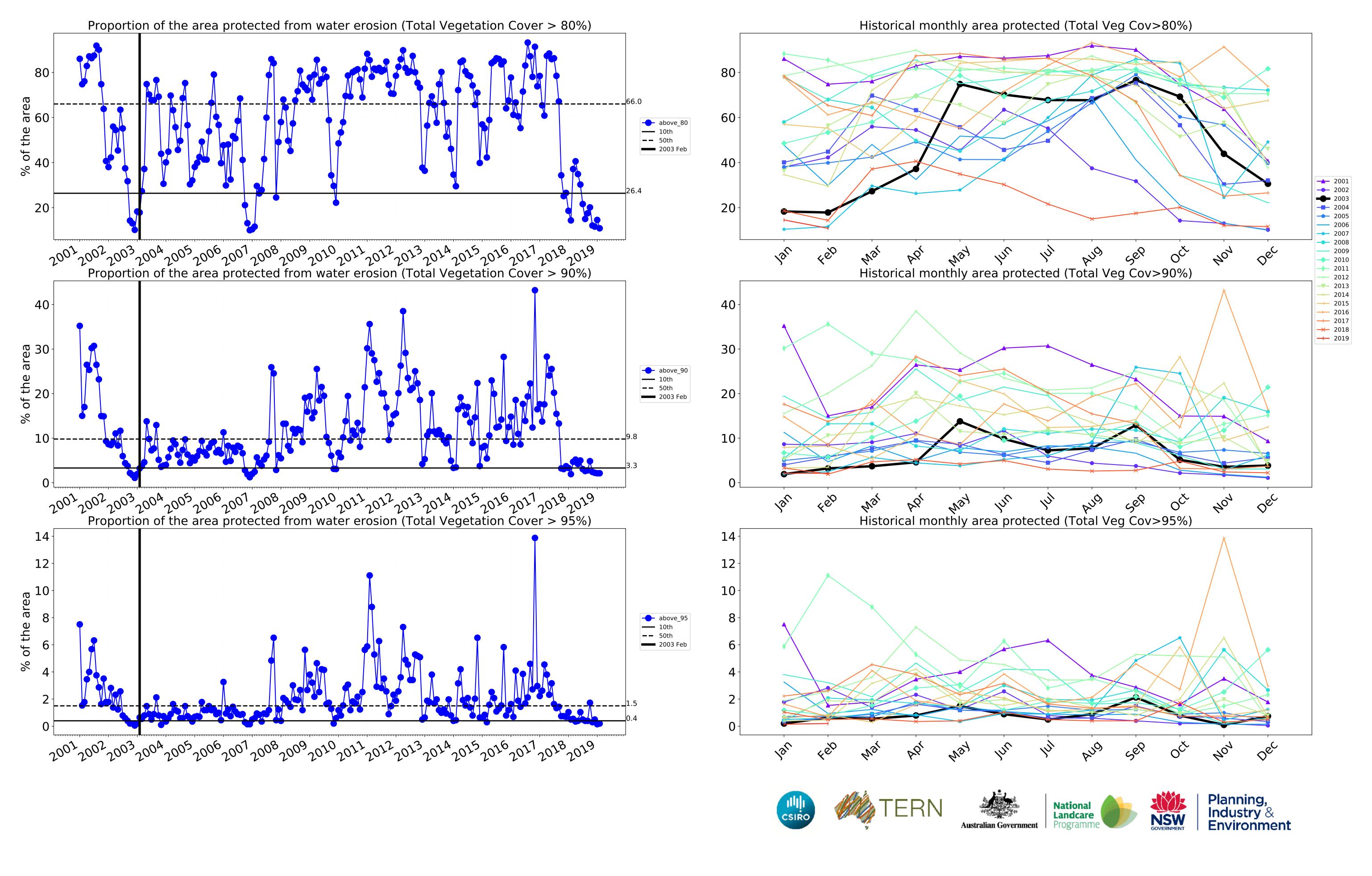




### **Cropping timeseries**





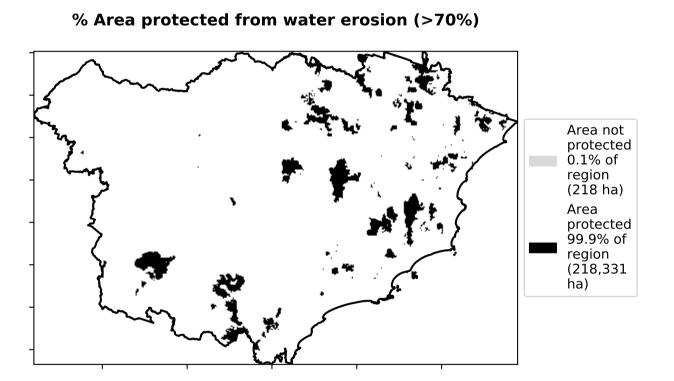


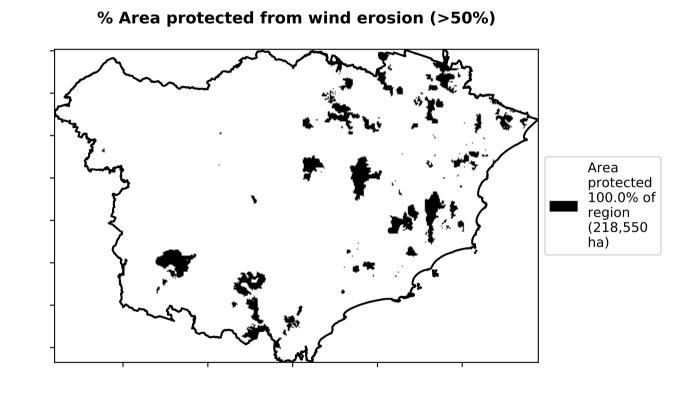
### **Production native forests and plantation forests**

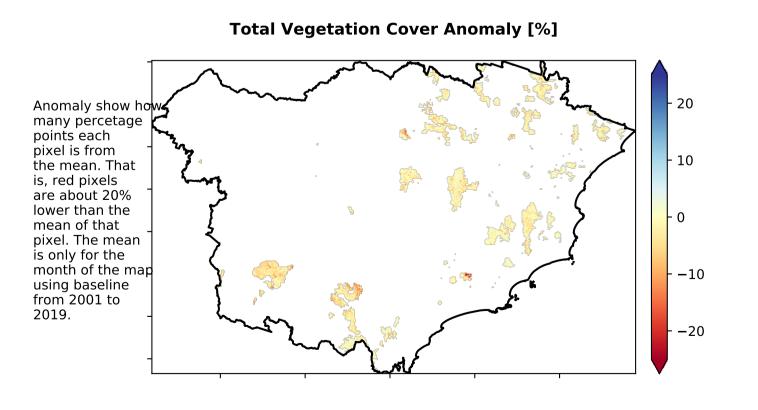
### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 1 Production native forests and plantation forests of Australia (2018)

# Total Vegetation Cover [%]

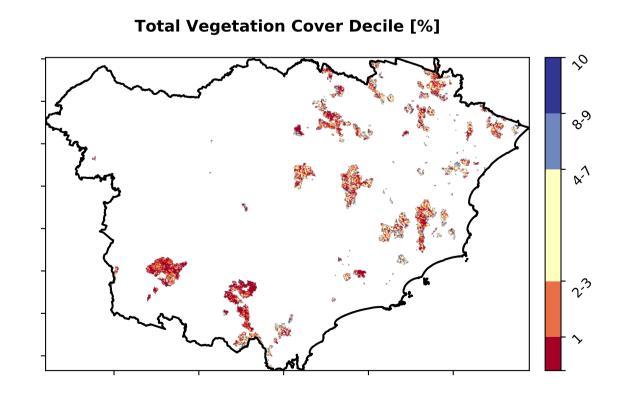
# Proportion of vegetation cover class in area 100 - 99.9% 80 - 80 - 40 - 40 - 20 - 0.3% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class







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.







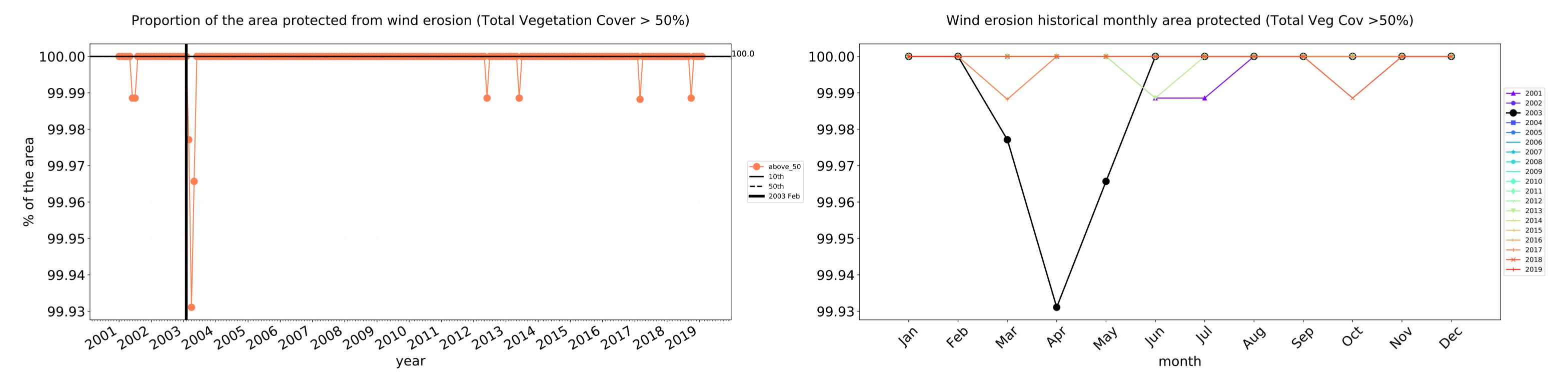


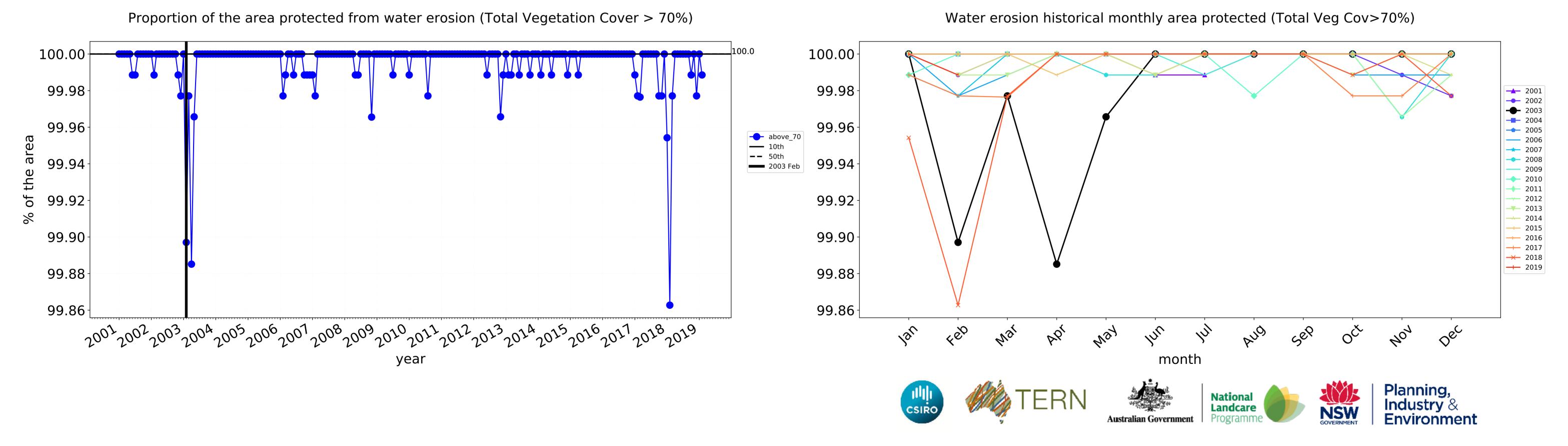


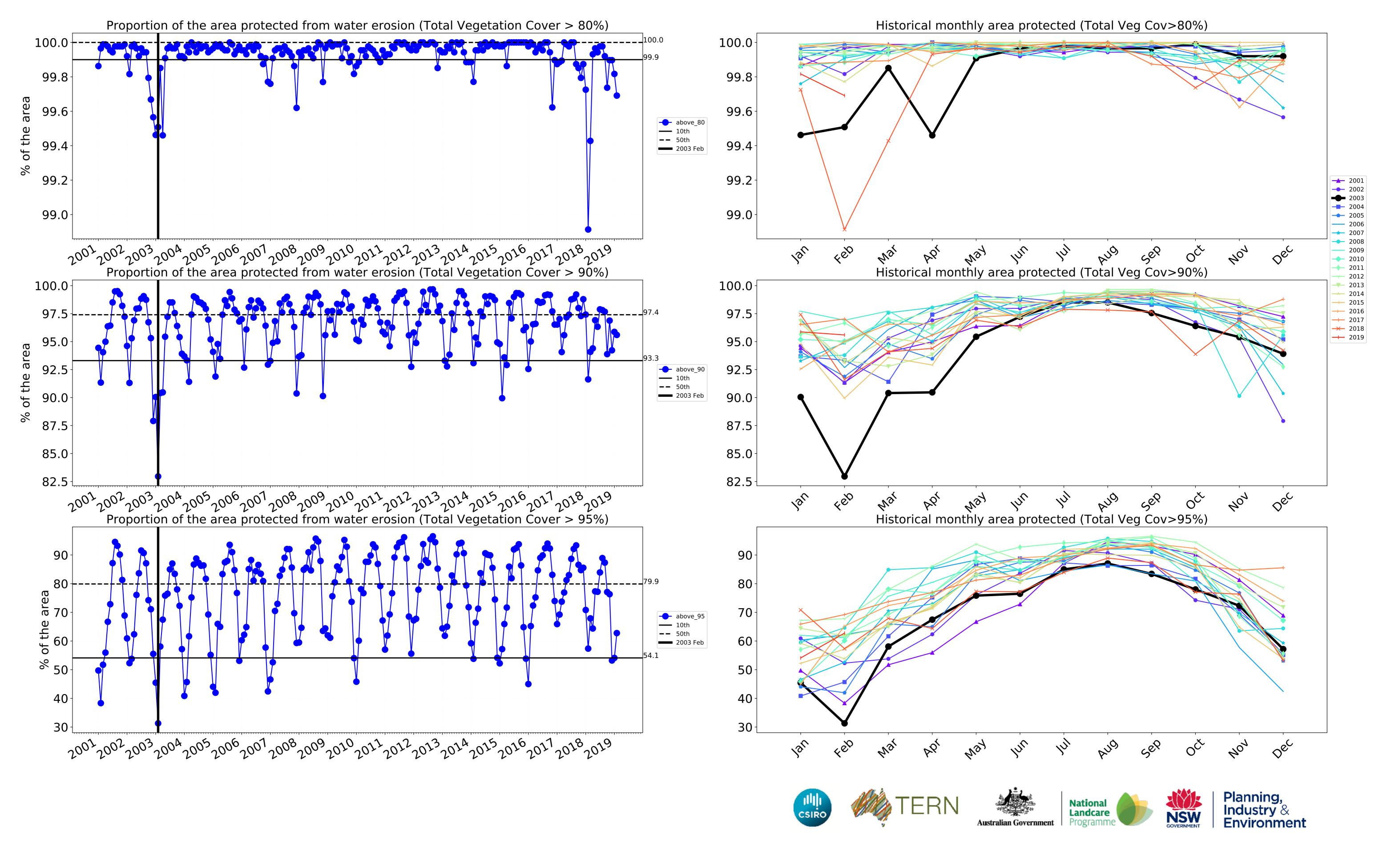




### **Production native forests and plantation forests timeseries**







### Hunter (3,239,175 ha and no data 61,250 ha) Percentage area and hectares protected with TVC threshold 30,50,70,80,90 and 95%

Land use and forest cover Class	area(ha)	above_30	above_50	above_70	above_80	above_90	above_95
Entire region	3,239,175	99.9% 3,235,076	99.6% 3,225,654	96.4% 3,121,114	87.3% 2,828,861	50.4% 1,633,982	17.4% 562,788
Conservation and natural environments	1,240,300	99.9% 1,238,750	99.8% 1,237,650	99.4% 1,232,425	97.1% 1,204,475	69.5% 861,675	25.2% 312,050
Conservation and natural environments non forest	29,875	95.5% 28,525	93.6% 27,950	89.2% 26,650	83.0% 24,800	56.1% 16,750	21.4% 6,400
Conservation and natural environments Woodland forest	138,775	100.0% 138,750	99.9% 138,675	99.5% 138,050	95.9% 133,050	57.0% 79,150	14.5% 20,125
Conservation and natural environments Forest (non woodland)	1,071,650	100.0% 1,071,475	99.9% 1,071,025	99.6% 1,067,725	97.7% 1,046,625	71.5% 765,775	26.6% 285,525
Agriculture	1,580,900	100.0% 1,580,800	99.8% 1,578,175	95.4% 1,508,875	81.6% 1,290,050	34.7% 549,325	10.8% 170,425
Grazing	1,502,900	100.0% 1,502,800	99.9% 1,501,325	97.1% 1,459,575	84.1% 1,264,400	36.3% 545,700	11.3% 169,725
Grazing non forest	1,213,100	100.0% 1,213,000	99.9% 1,211,625	96.6% 1,171,650	82.4% 999,225	34.4% 416,775	10.7% 130,100
Grazing Woodland forest	120,625	100.0% 120,625	99.9% 120,550	99.0% 119,450	86.1% 103,850	30.6% 36,950	7.7% 9,250
Grazing - Forest (non woodland)	169,175	100.0% 169,175	100.0% 169,150	99.6% 168,475	95.4% 161,325	54.4% 91,975	18.0% 30,375
Cropping	50,625	100.0% 50,625	97.8% 49,500	46.6% 23,575	17.9% 9,050	3.2% 1,625	0.6% 325
Production native forests and plantation forests	218,550	100.0% 218,550	100.0% 218,550	99.9% 218,325	99.5% 217,475	83.0% 181,300	31.3% 68,375











