### **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: October 2005** 

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







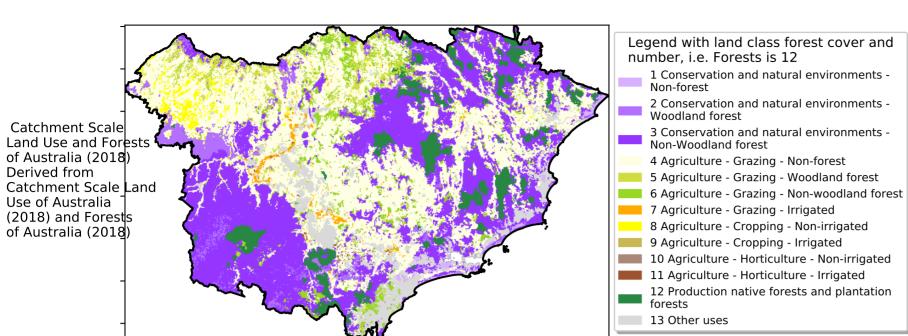




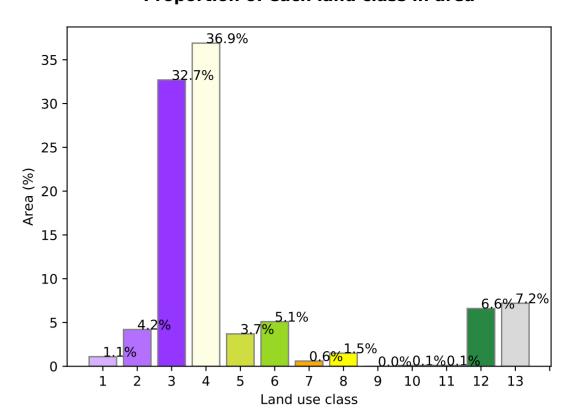


### **Vegetation Cover Oct 2005**

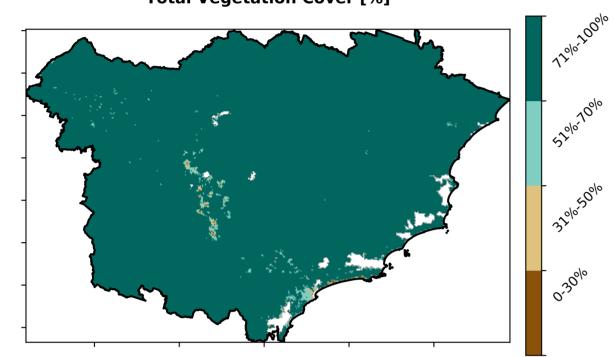
### Land use and forest cover



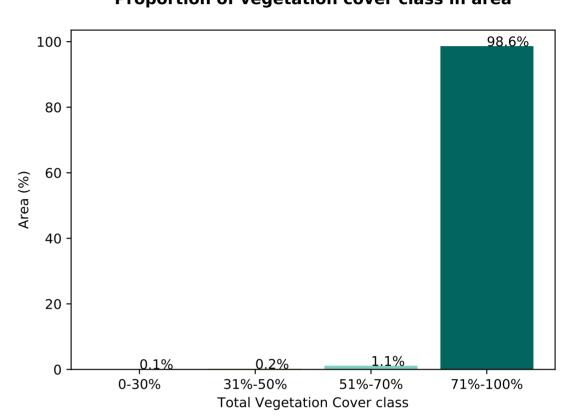
### Proportion of each land class in area



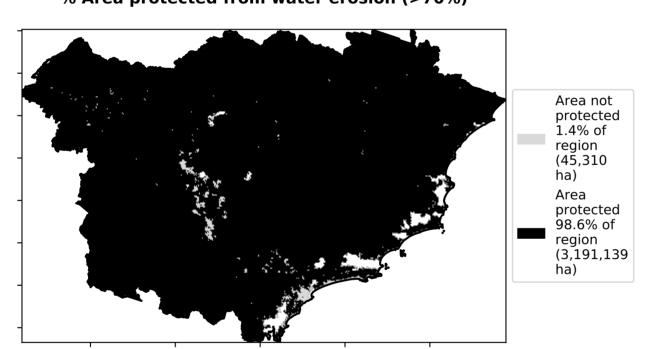
### **Total Vegetation Cover [%]**



Proportion of vegetation cover class in area



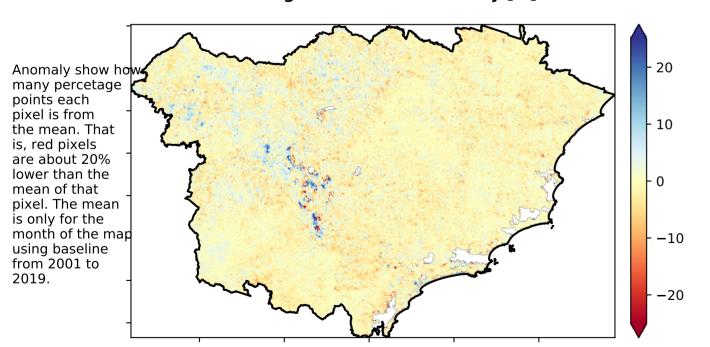
### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

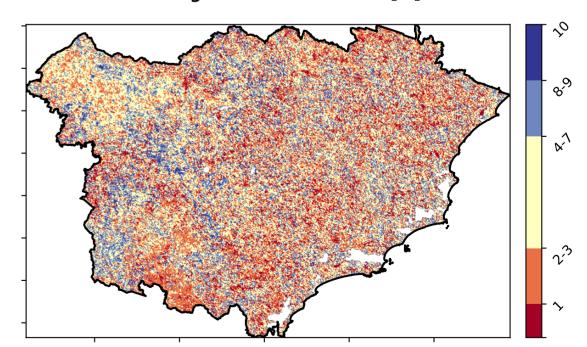


### **Total Vegetation Cover Anomaly [%]**



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 [%]**





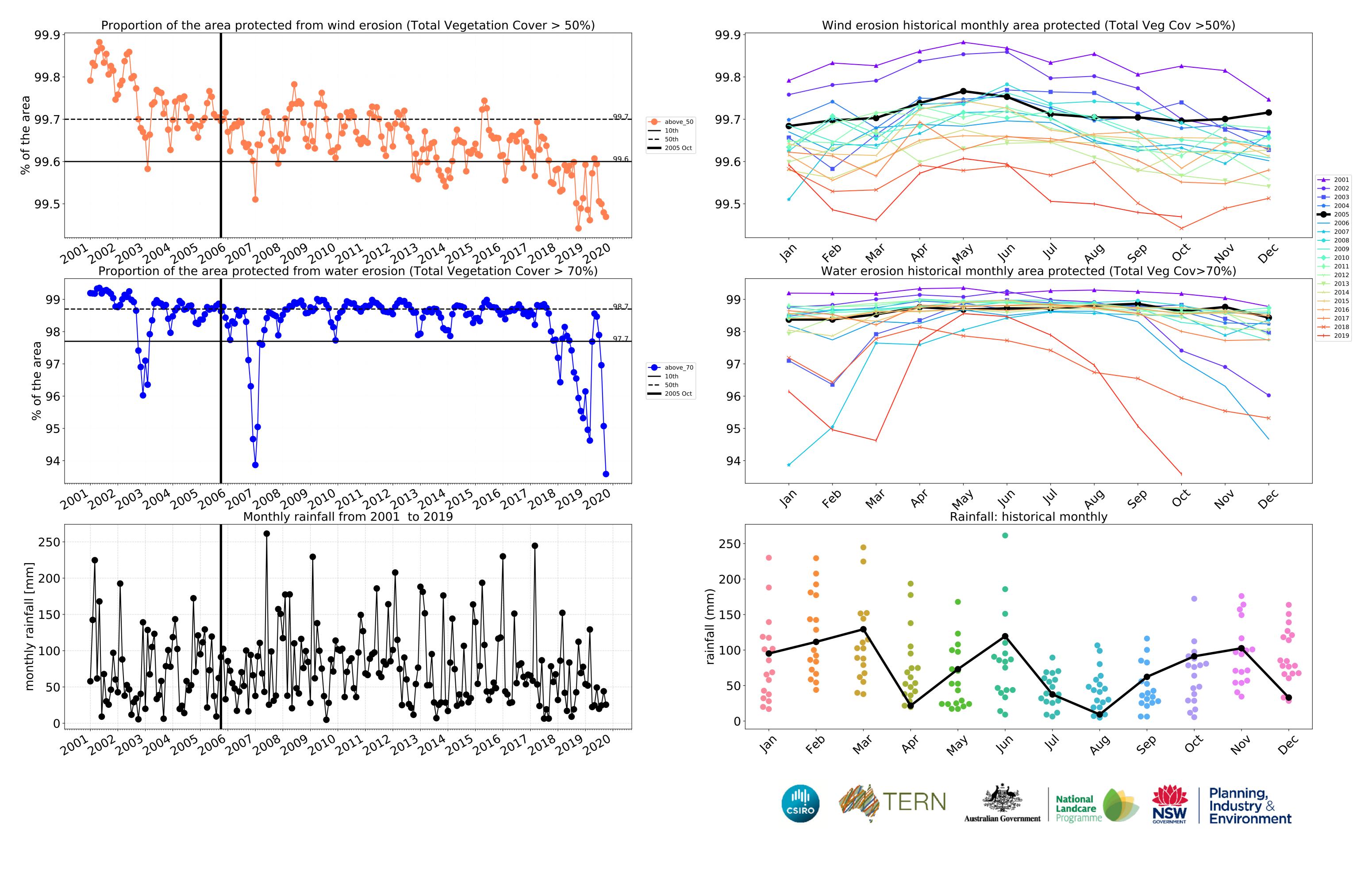


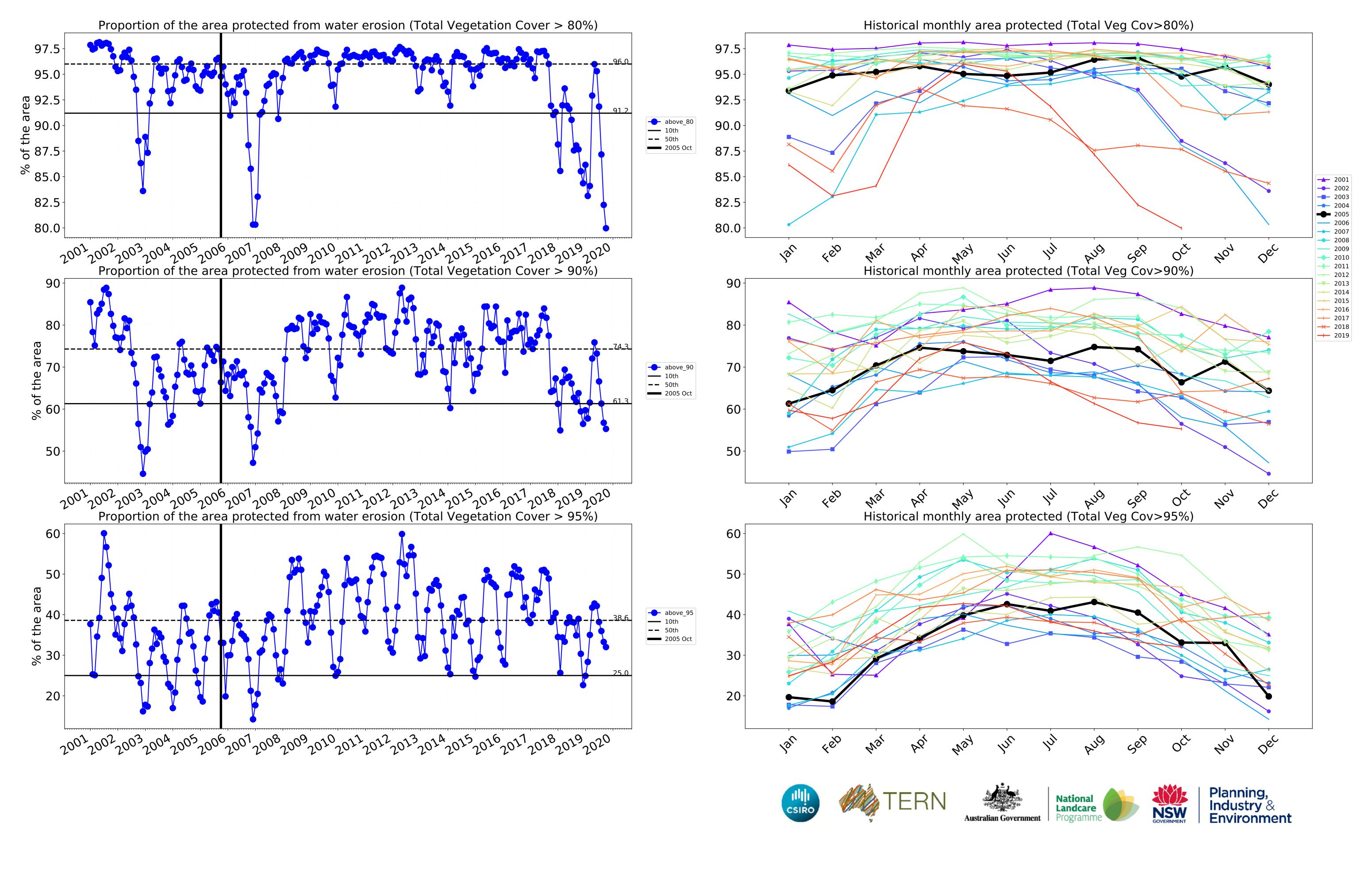






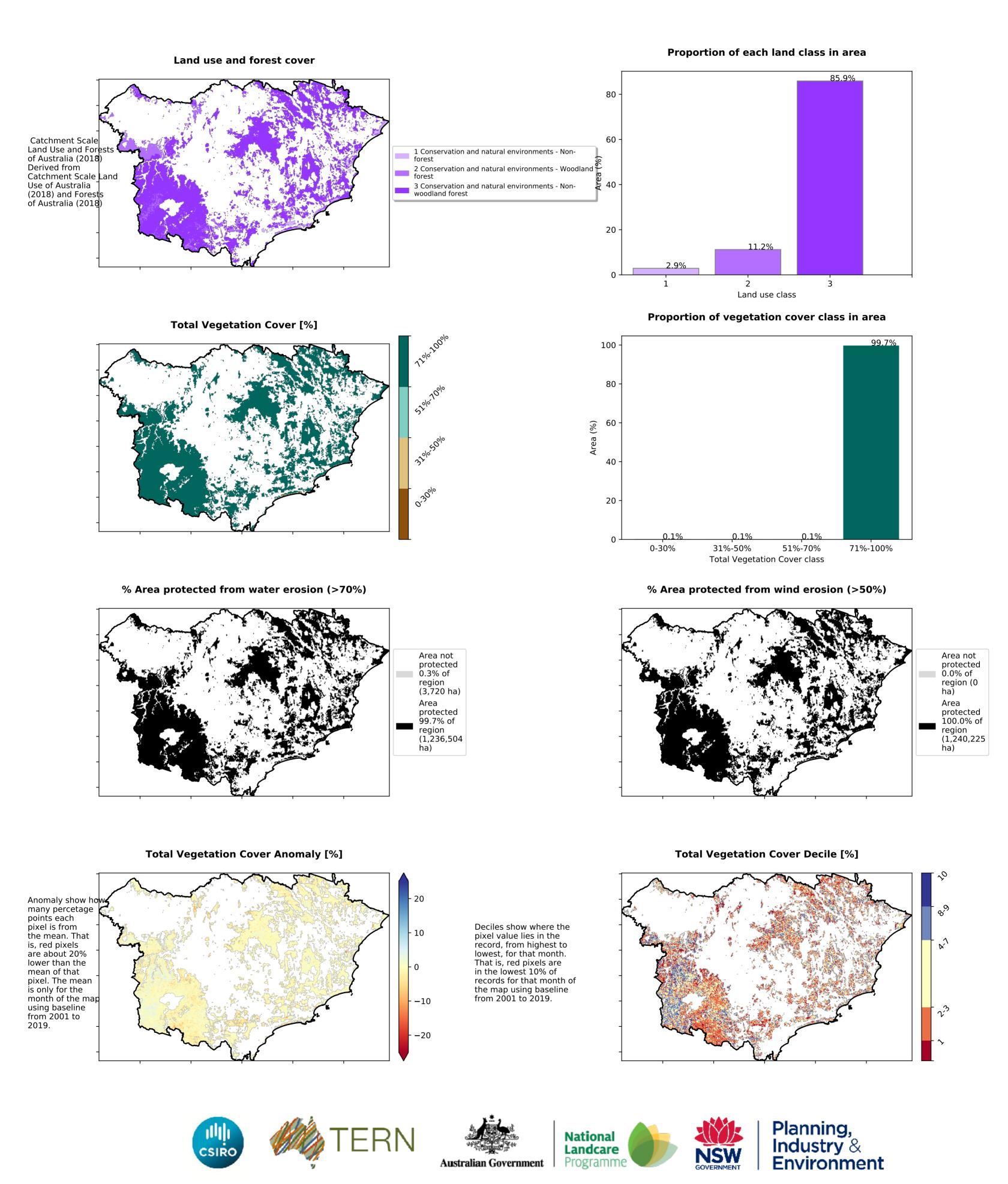






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### **Conservation and natural environments**



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

99.94

99.92

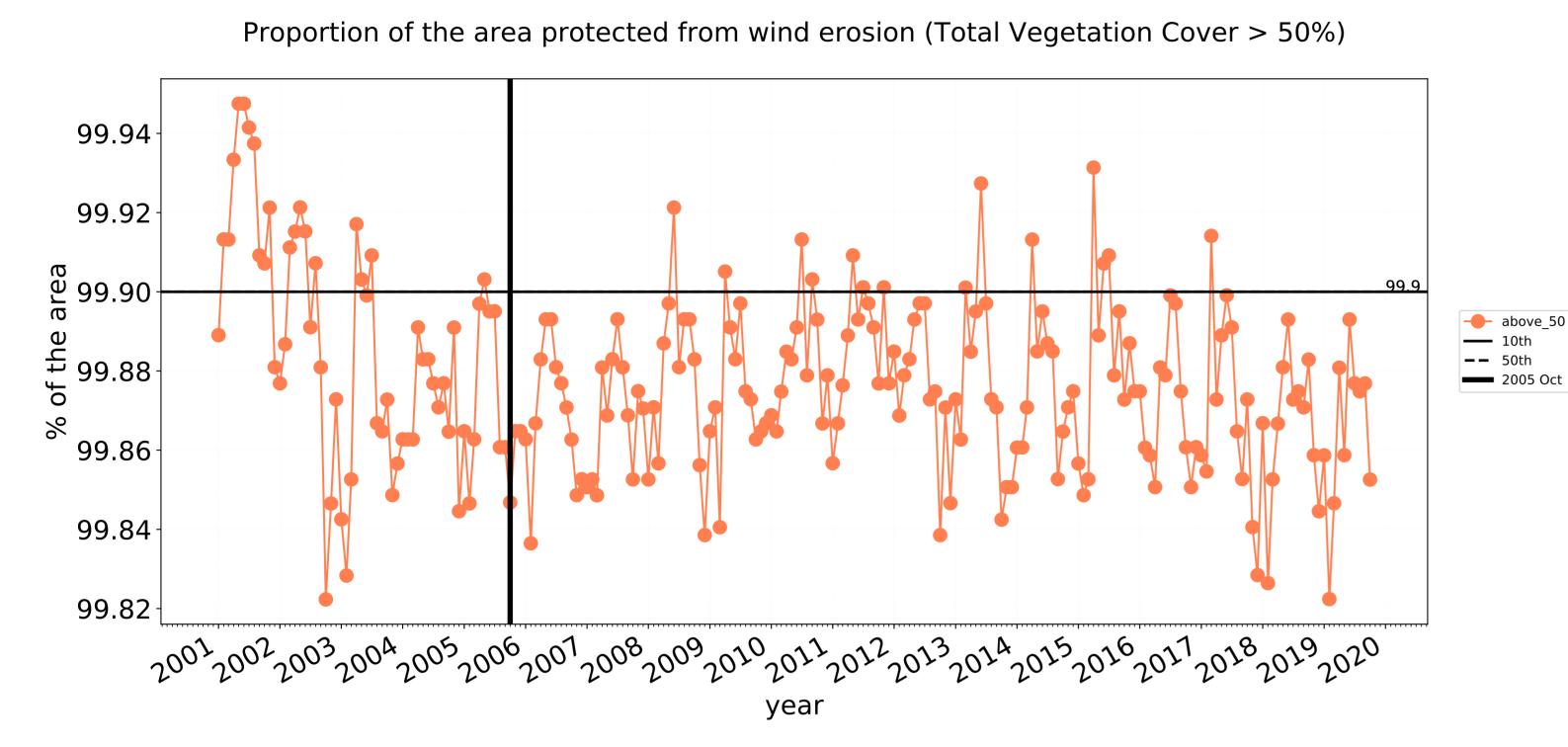
99.90

99.88

99.86

99.84

99.82



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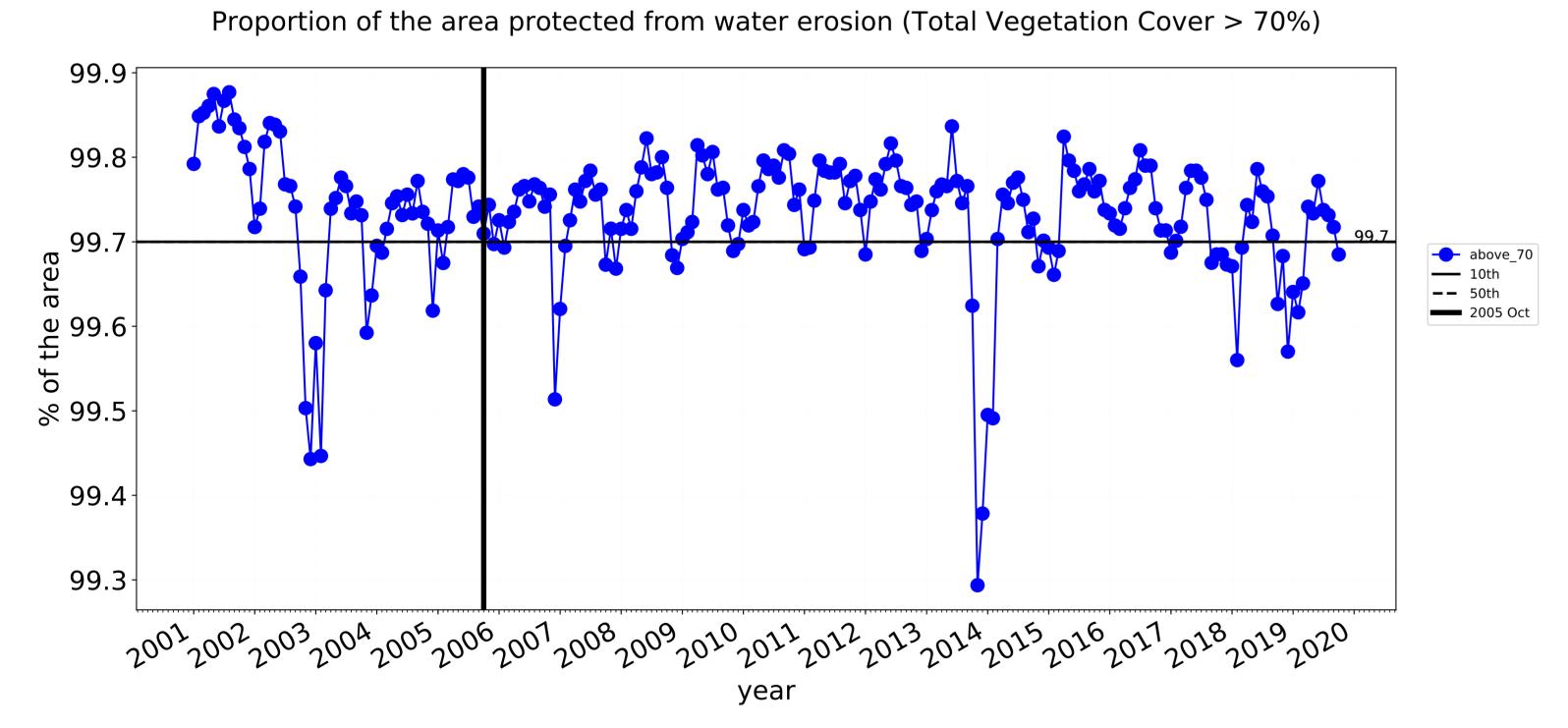
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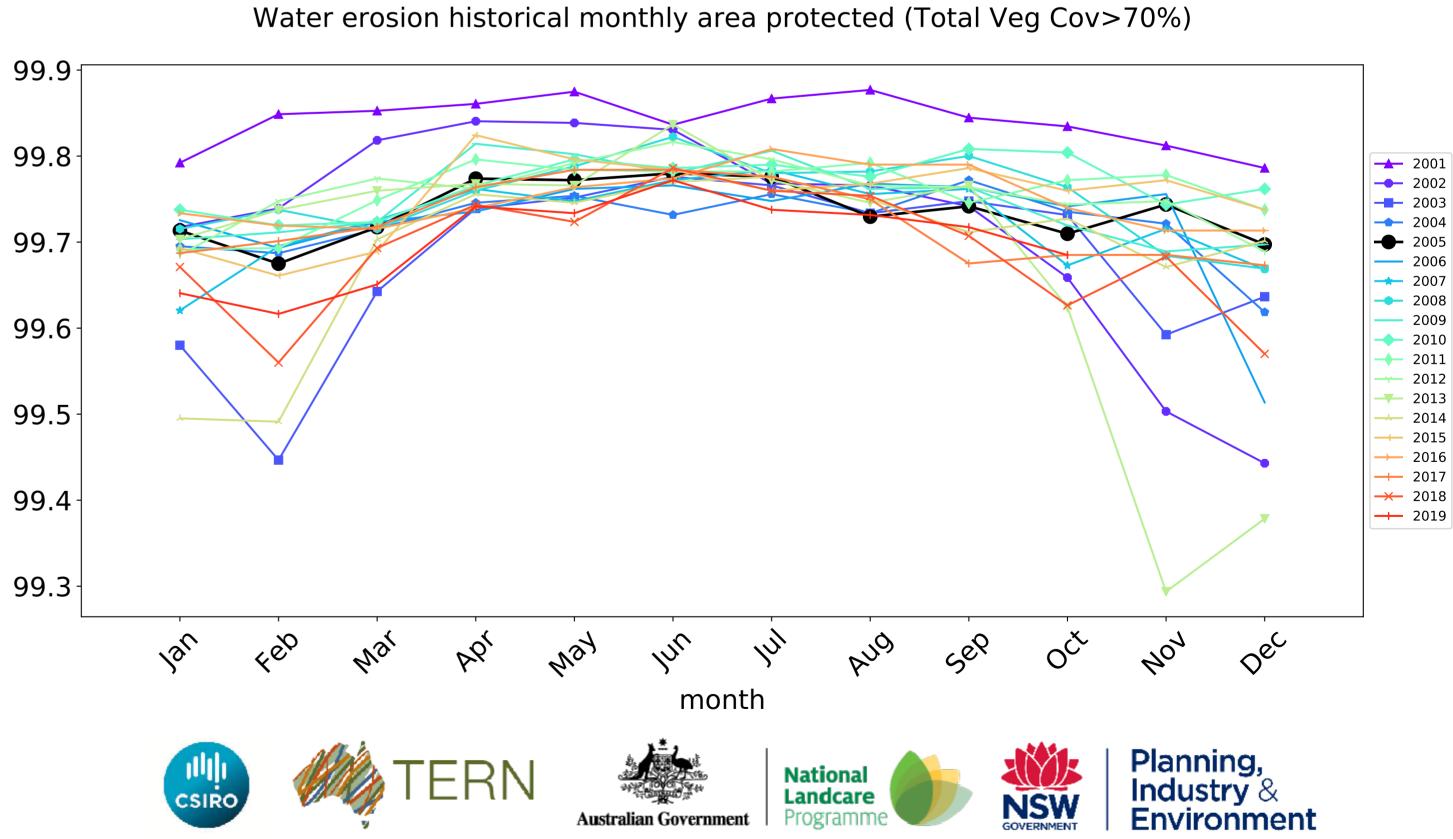
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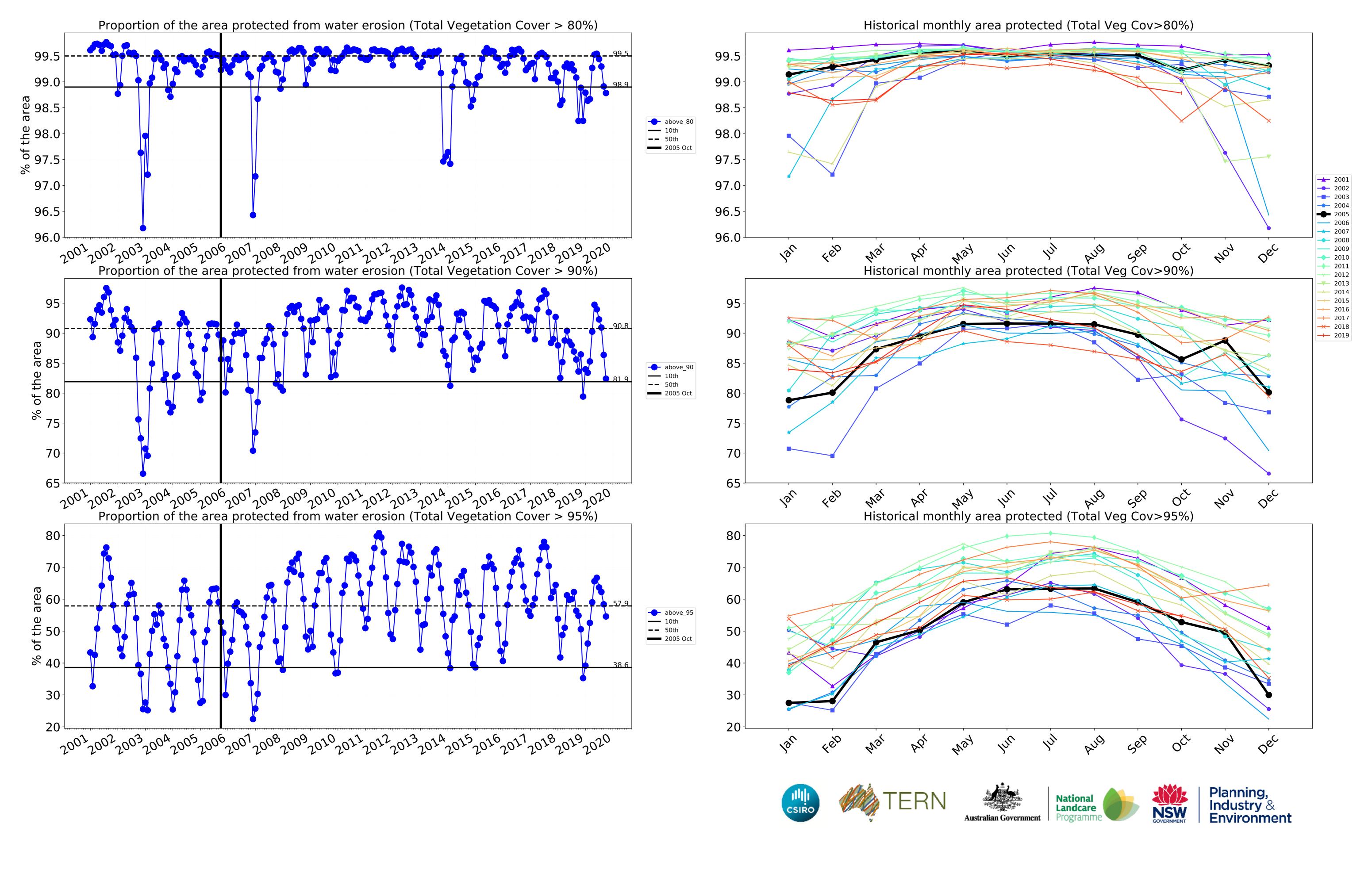
→ 2017 → 2018 → 2019

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

month



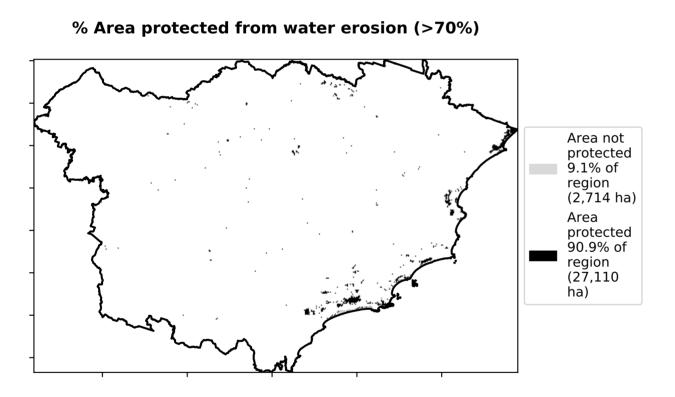


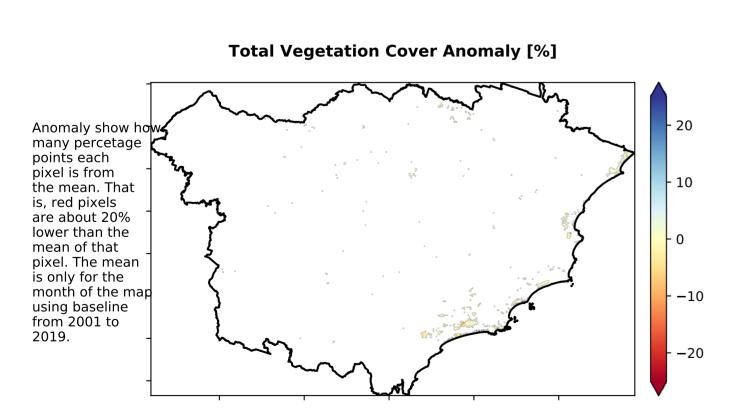


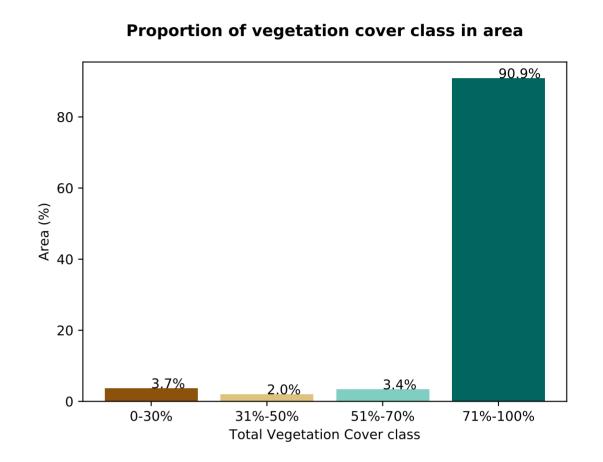
### **Conservation and natural environments non forest**

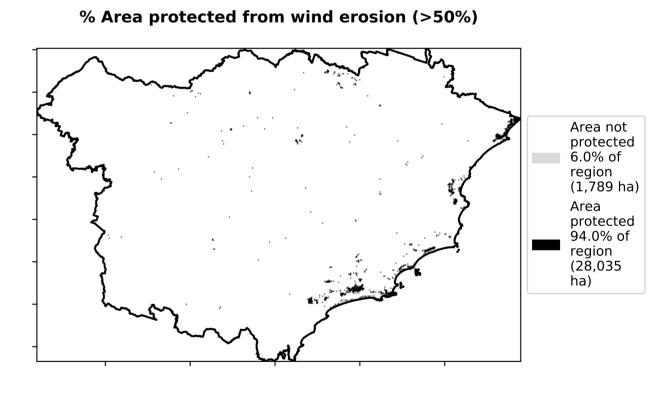
### Catchment Scale Land Use and Forests of Australia (2018) Catchment Scale Land Use and Forests of Australia (2018) 1 Conservation and natural environments - Nonforest 1 Conservation and natural environments - Nonforest

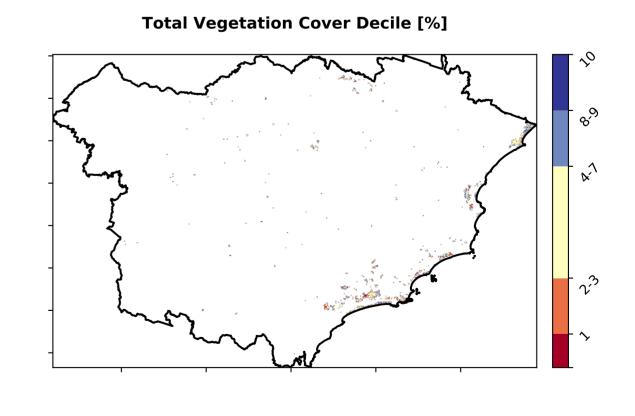
## Total Vegetation Cover [%] Talestadolo Tal

















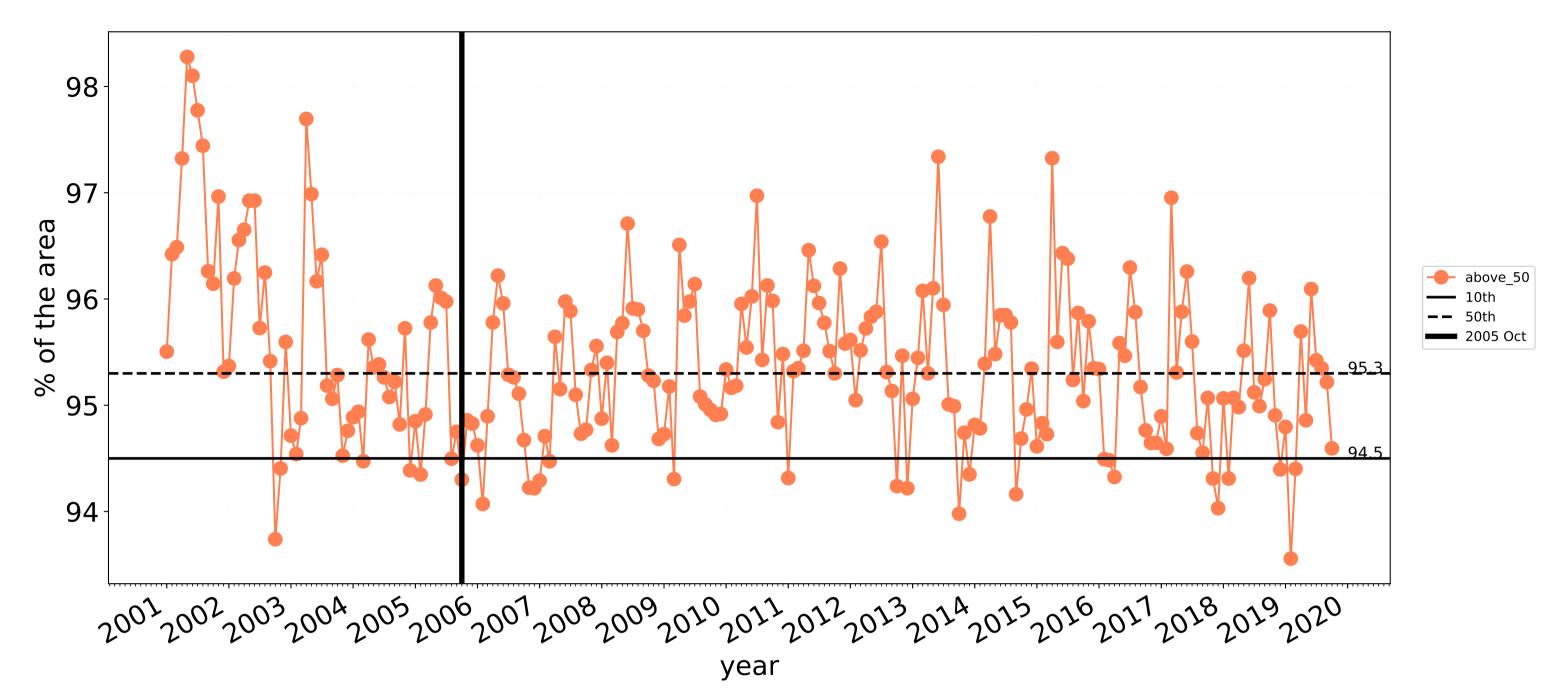




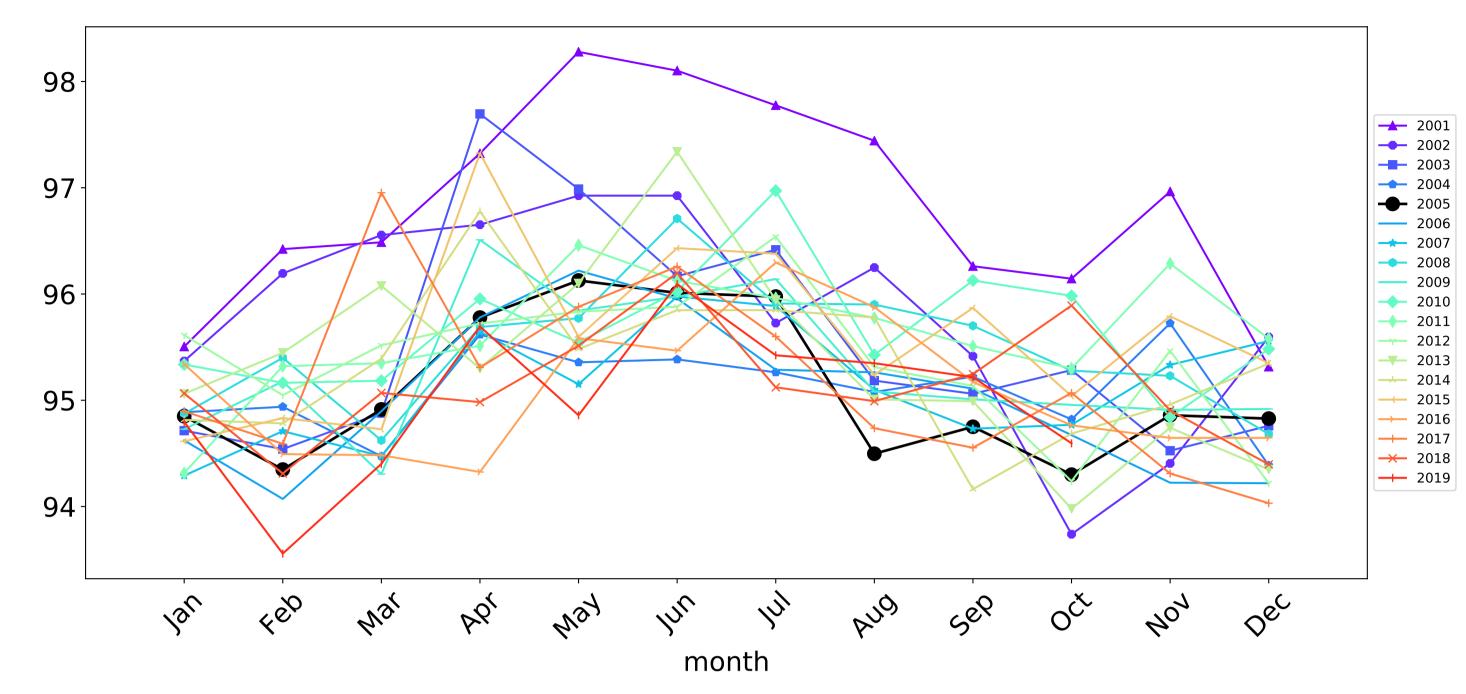


### **Conservation and natural environments non forest timeseries**

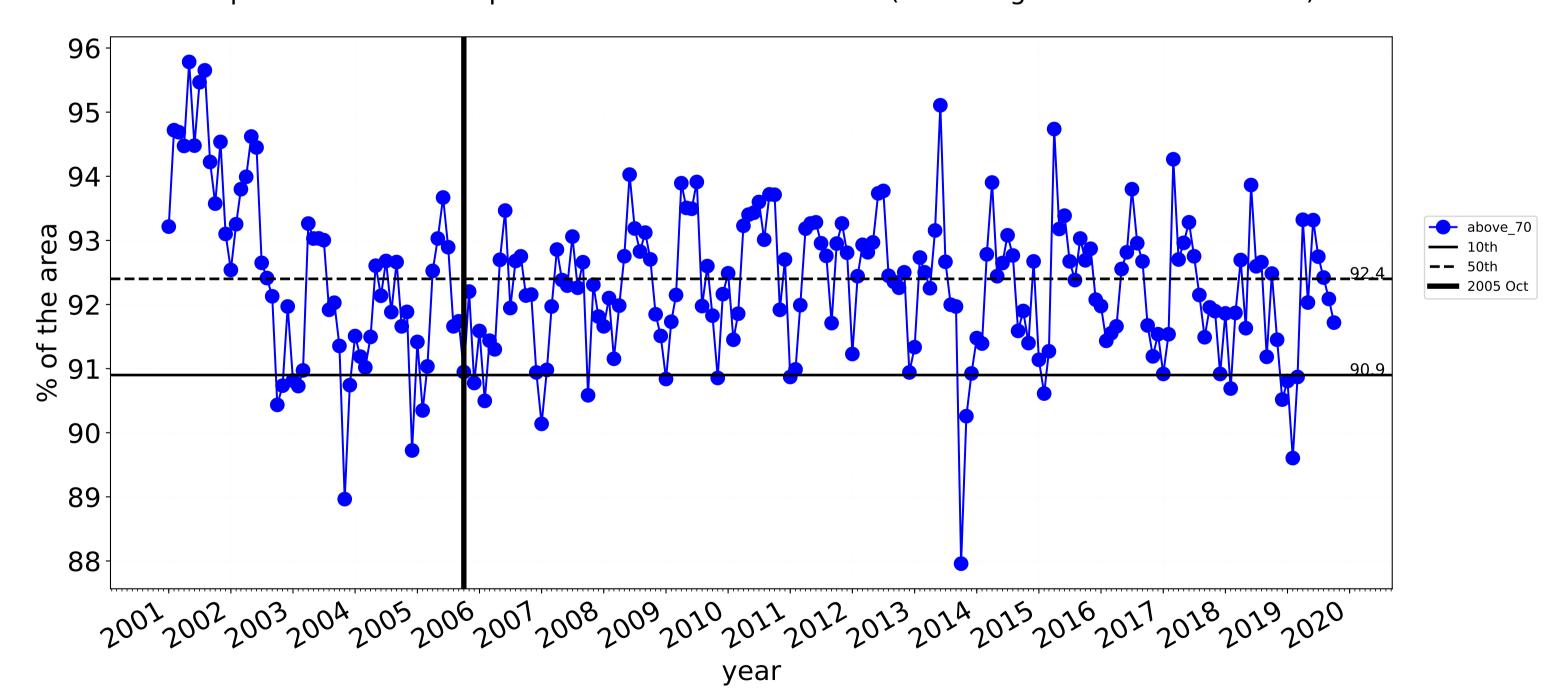




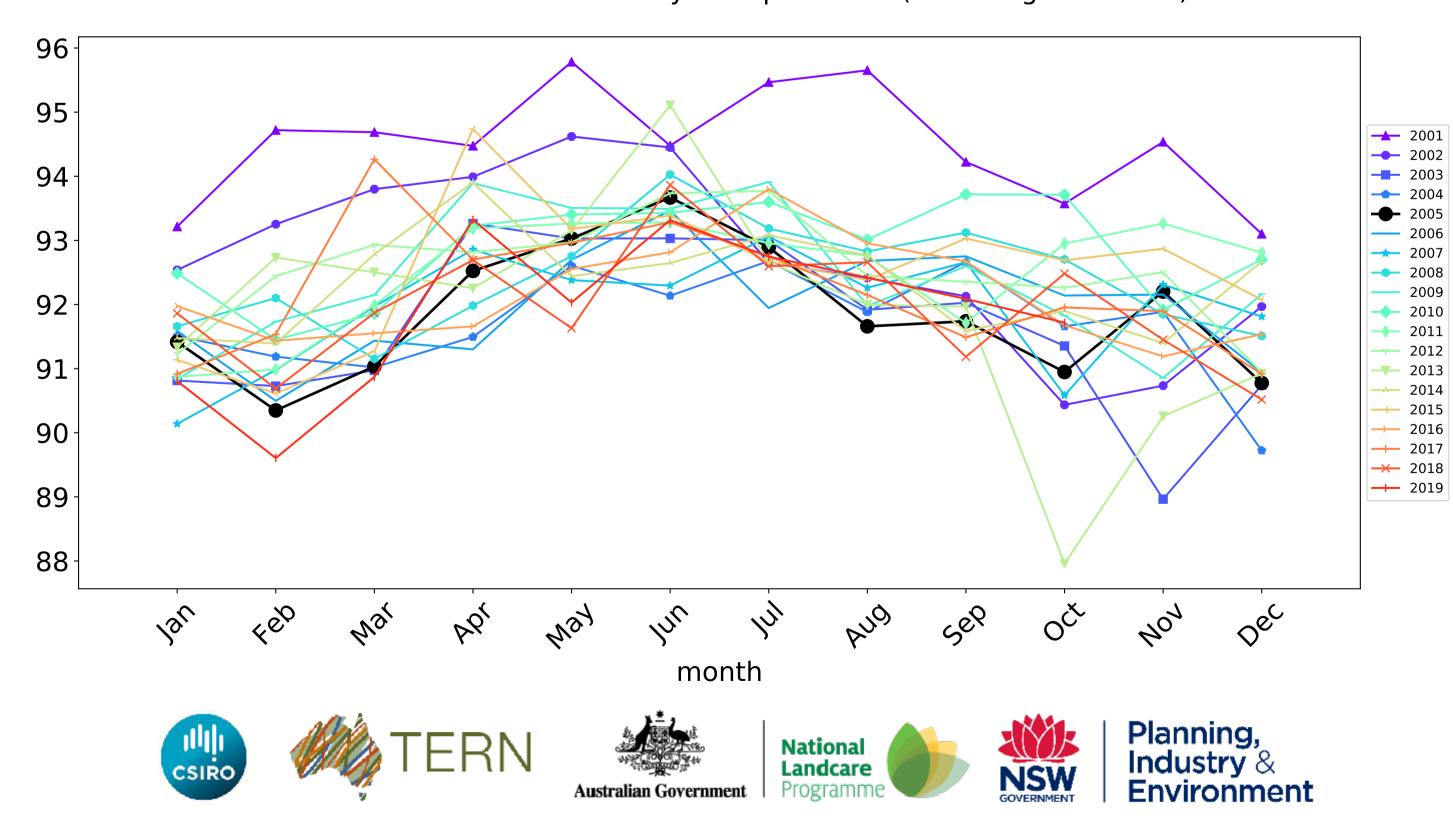
### Wind erosion historical monthly area protected (Total Veg Cov >50%)

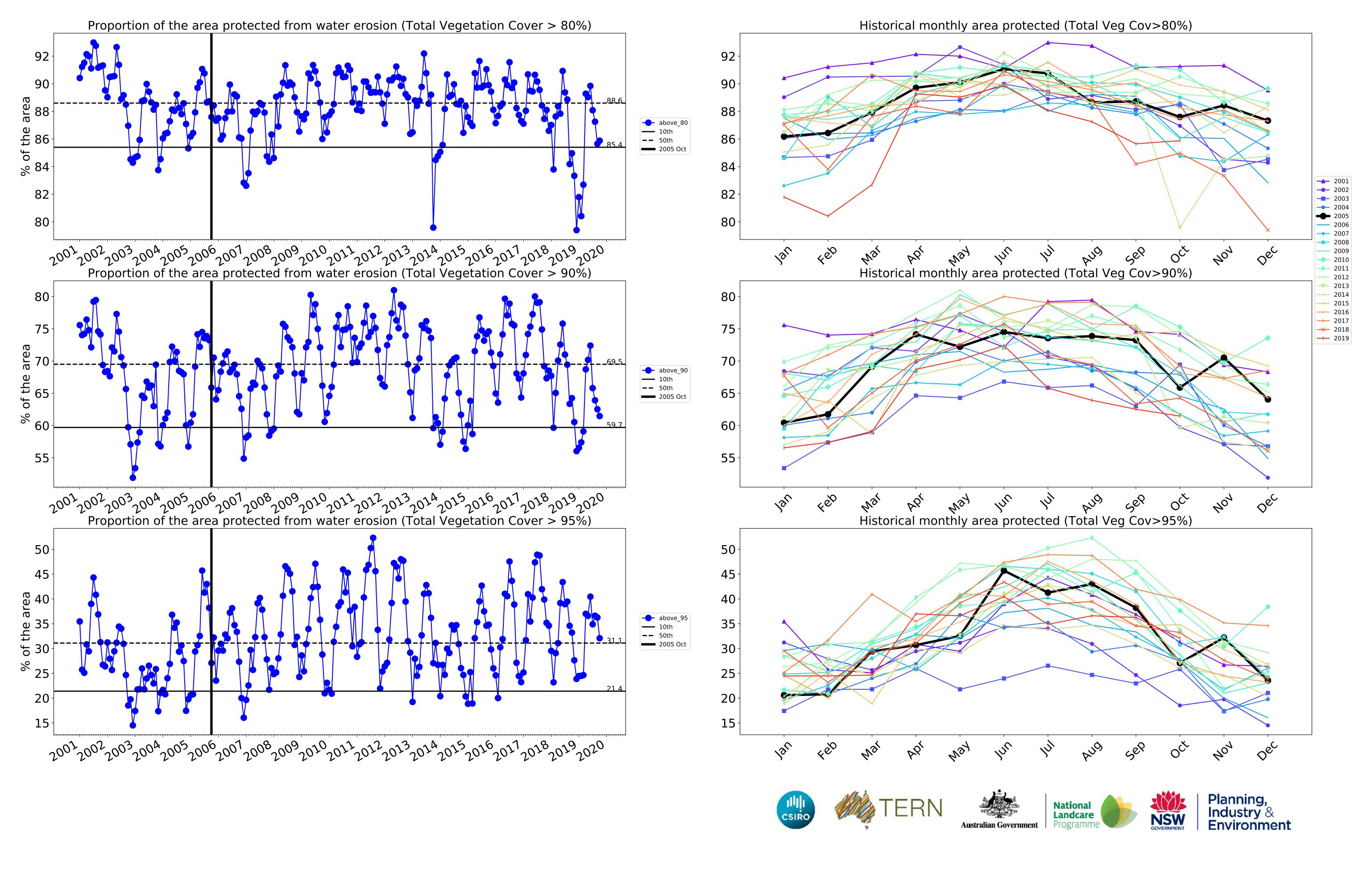


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

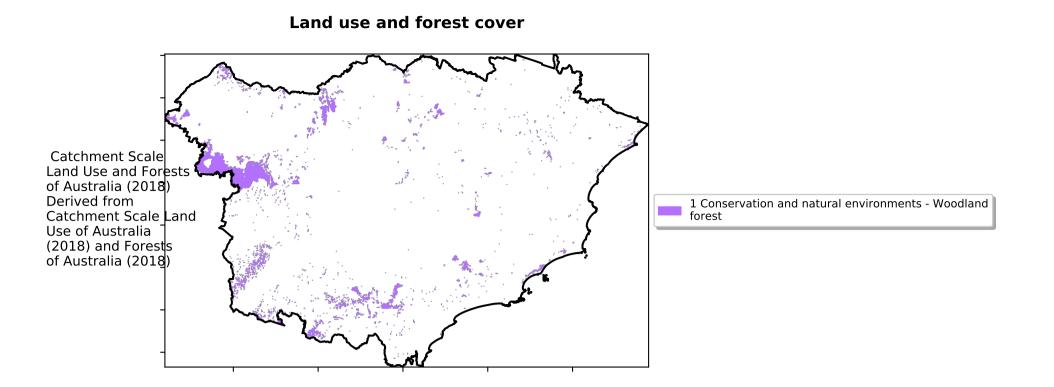


Water erosion historical monthly area protected (Total Veg Cov>70%)

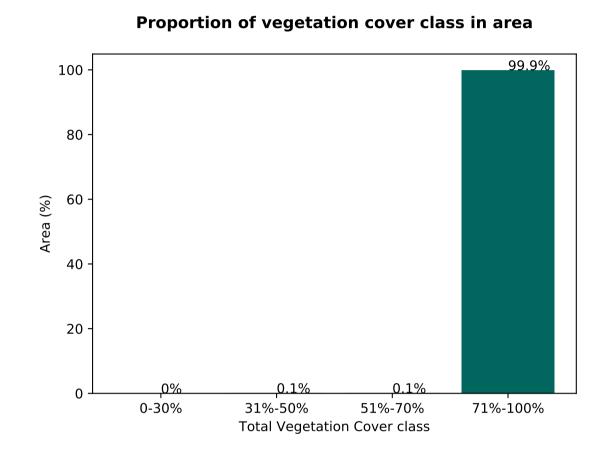


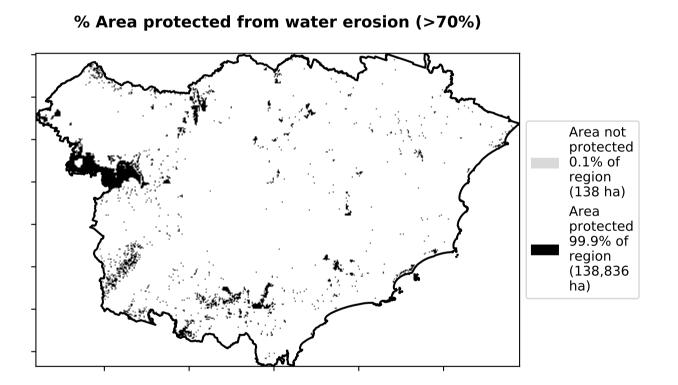


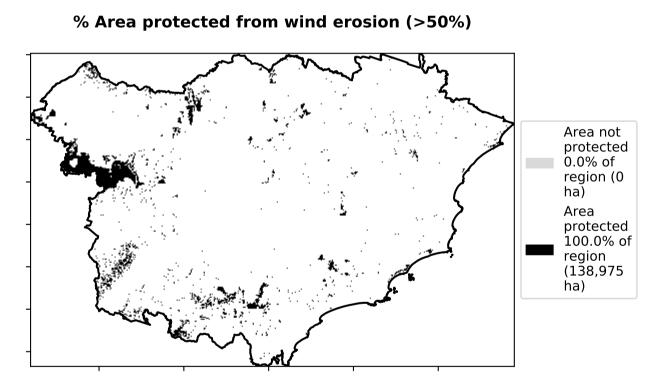
### **Conservation and natural environments Woodland forest**

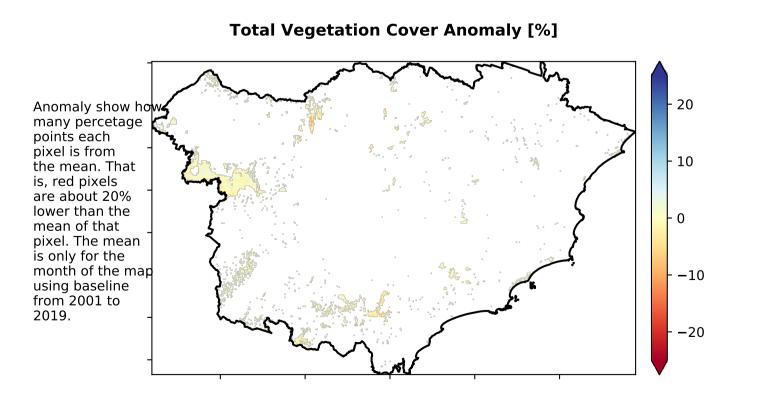


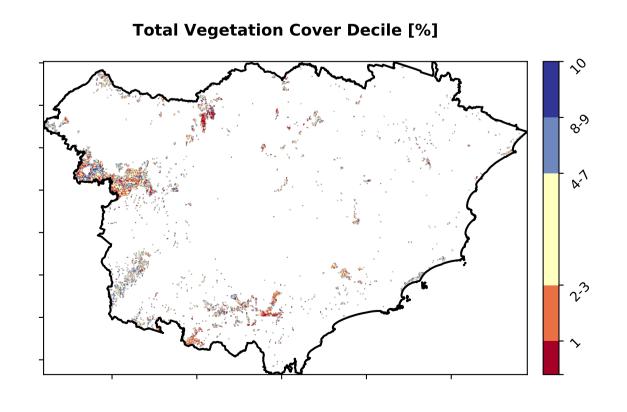
# Total Vegetation Cover [%] Total Vegetation Cover [%] Tieler doele Ti















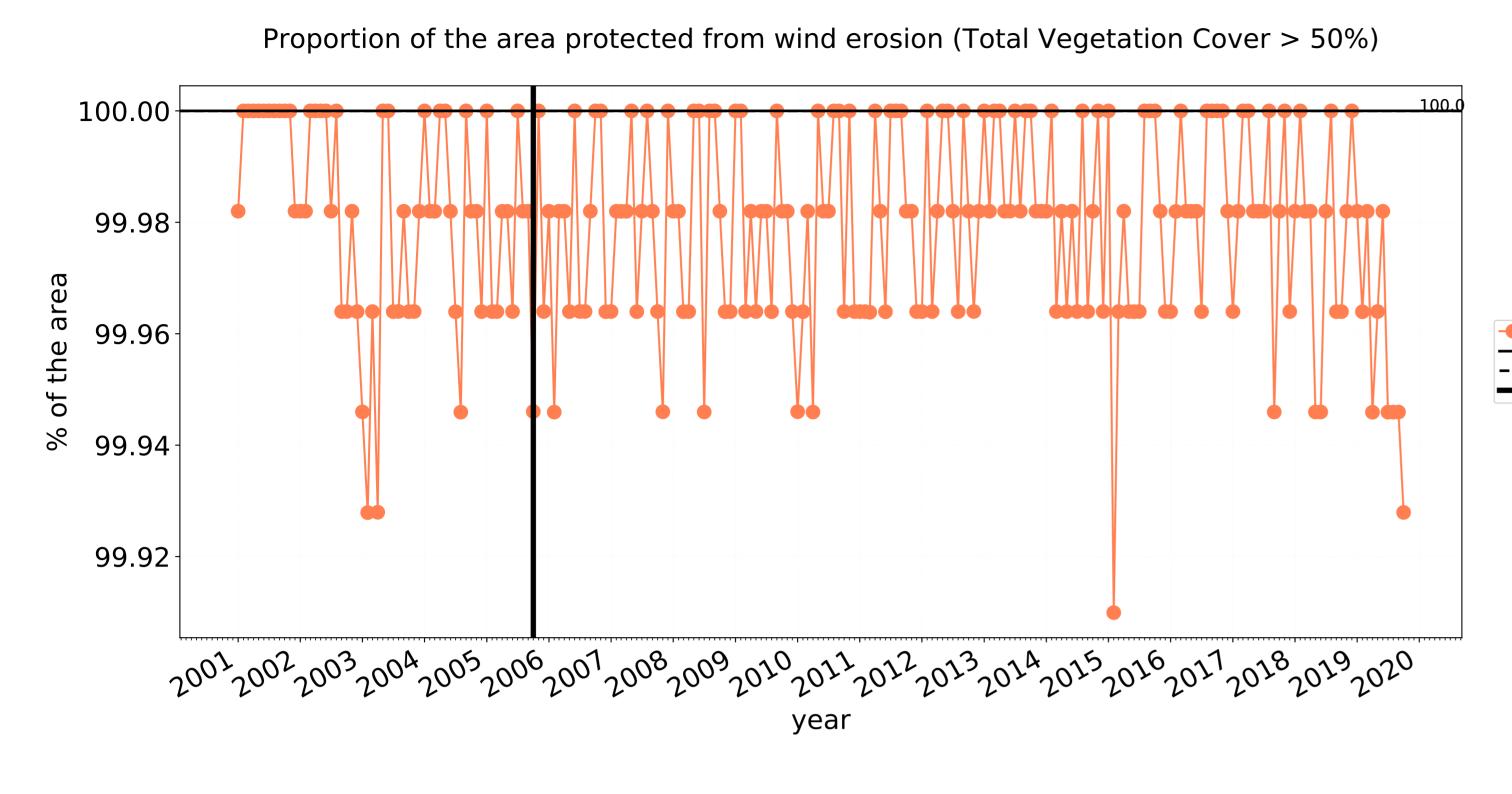


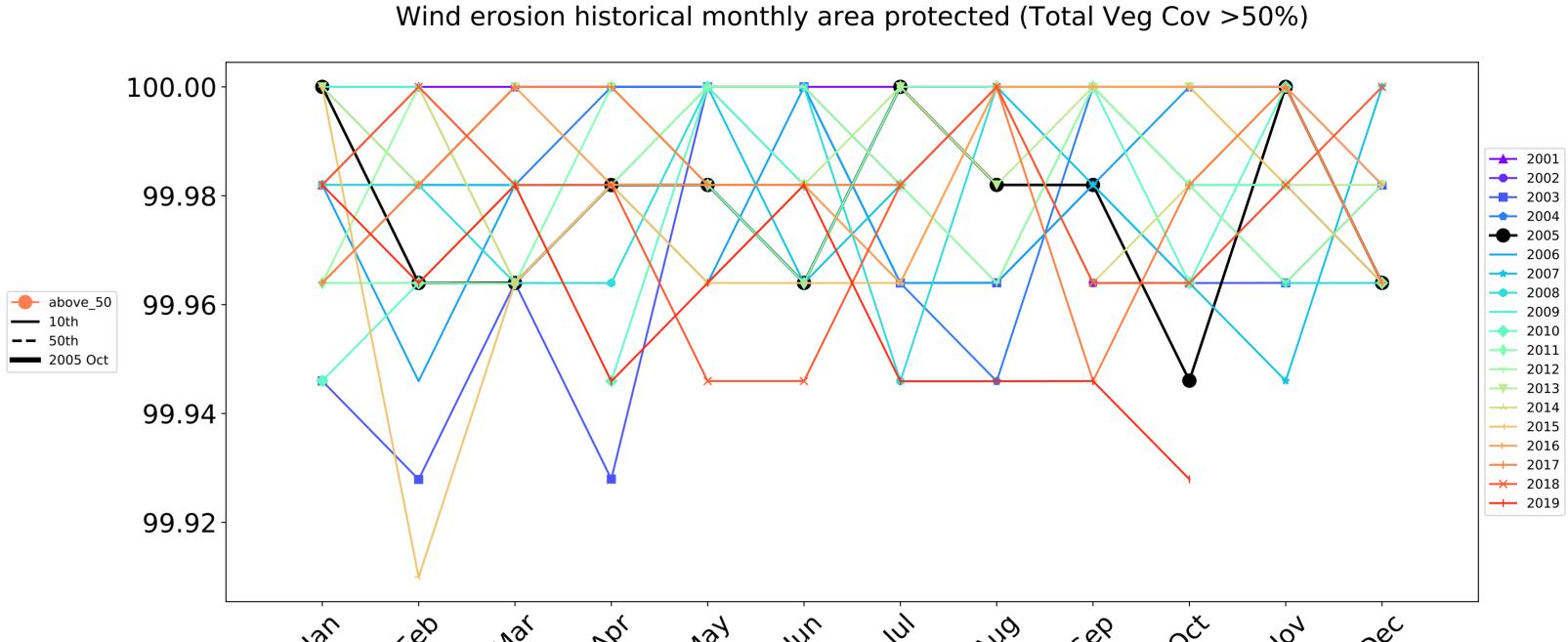




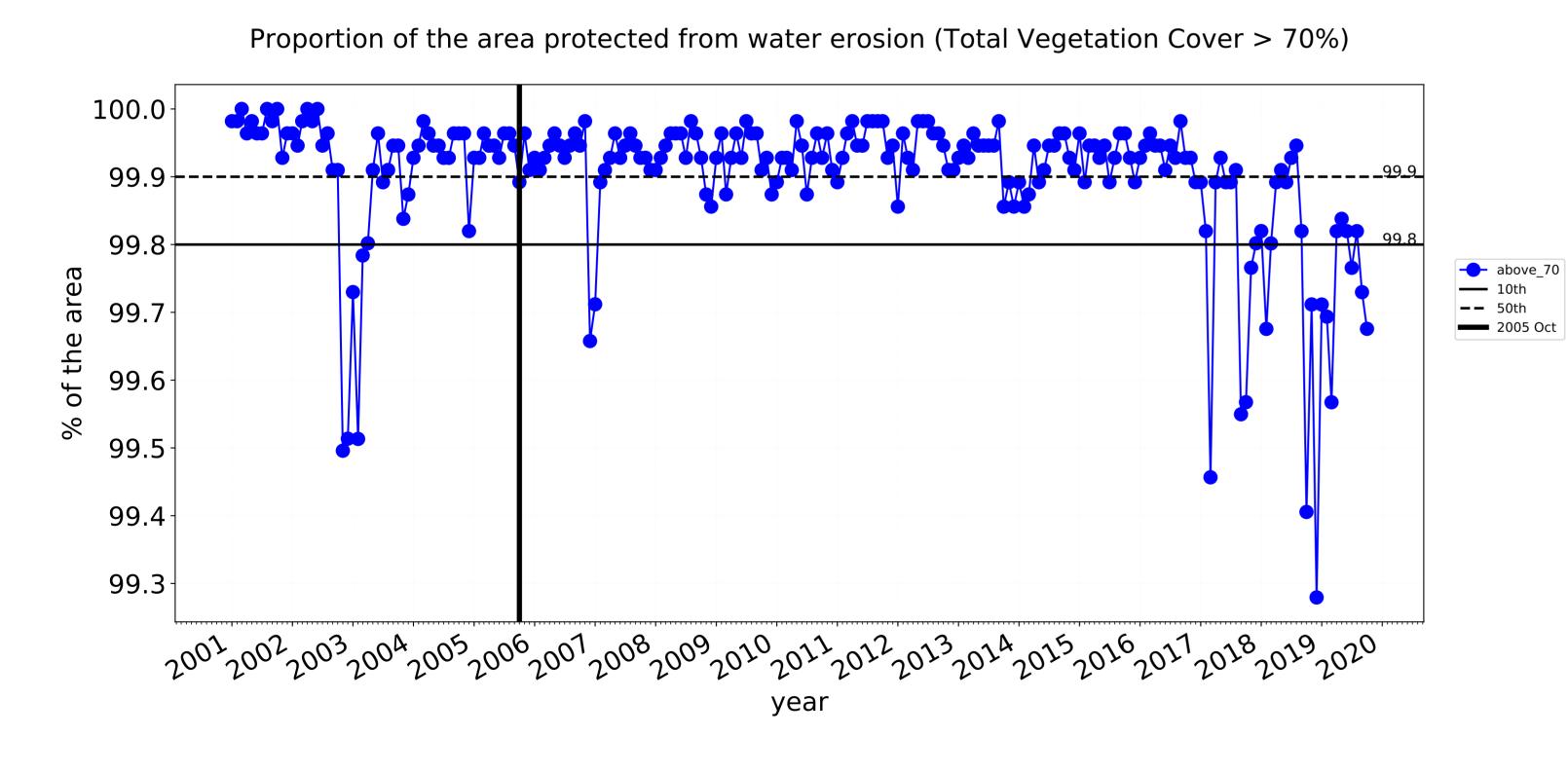


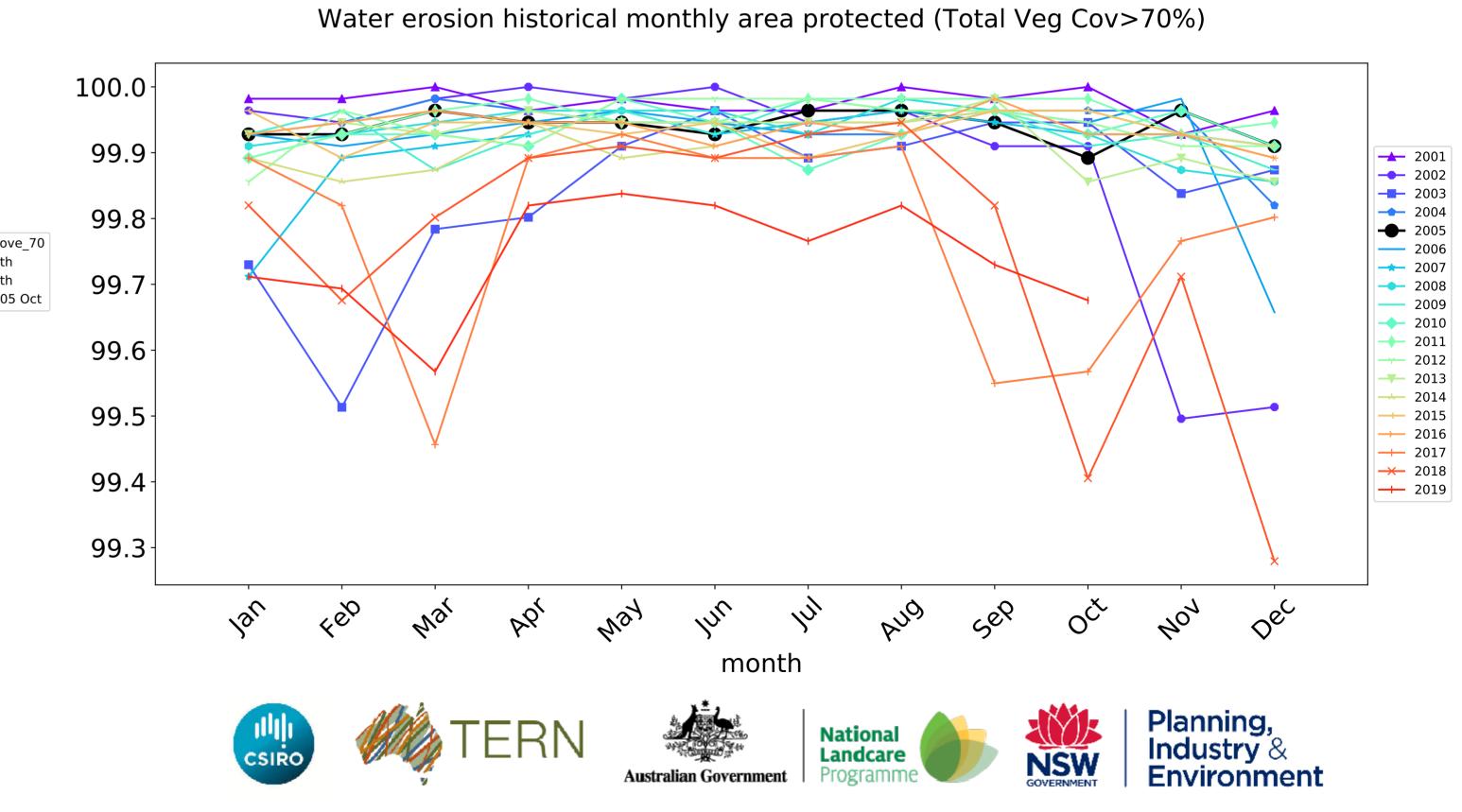
### Conservation and natural environments Woodland forest timeseries

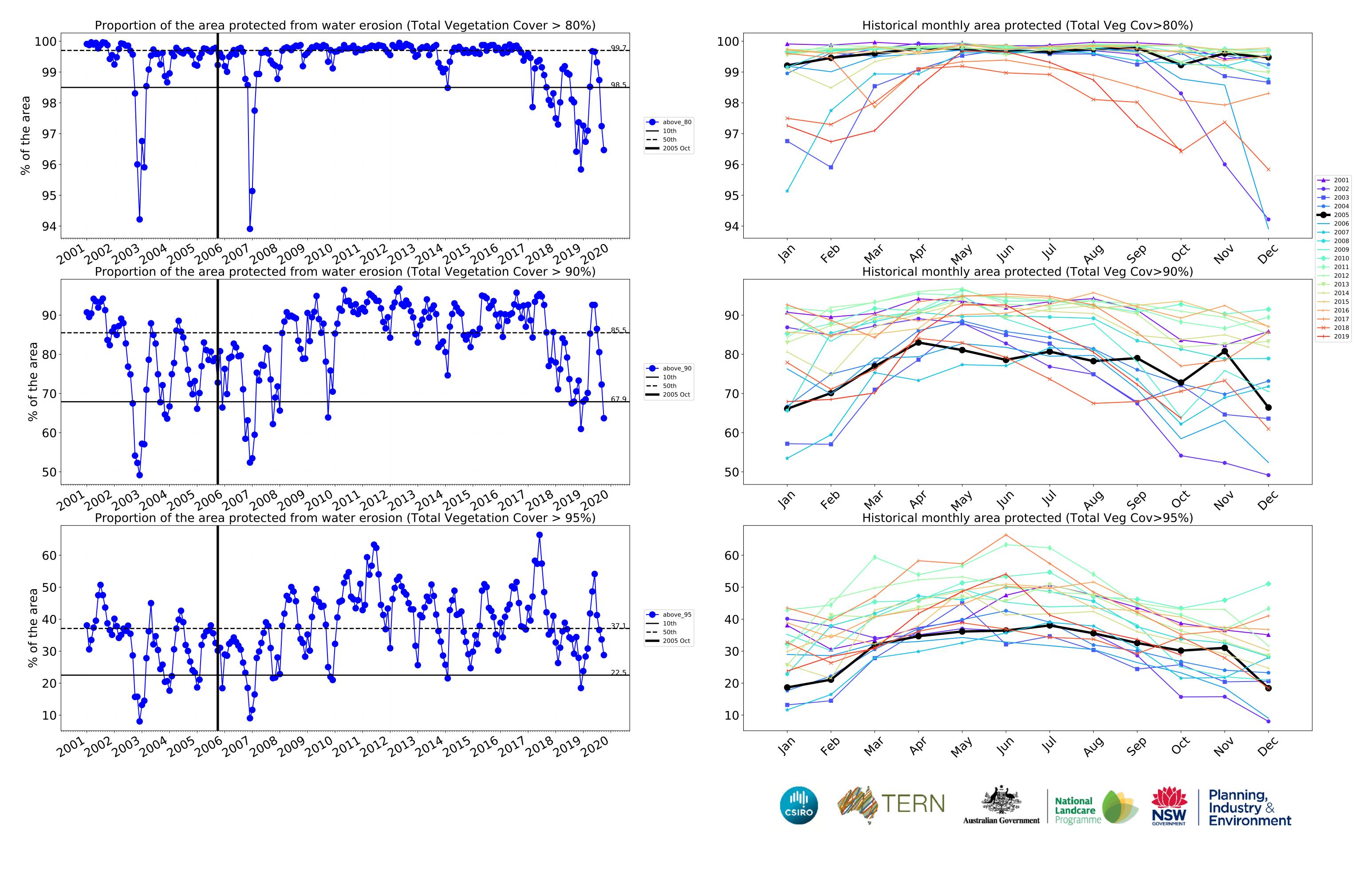




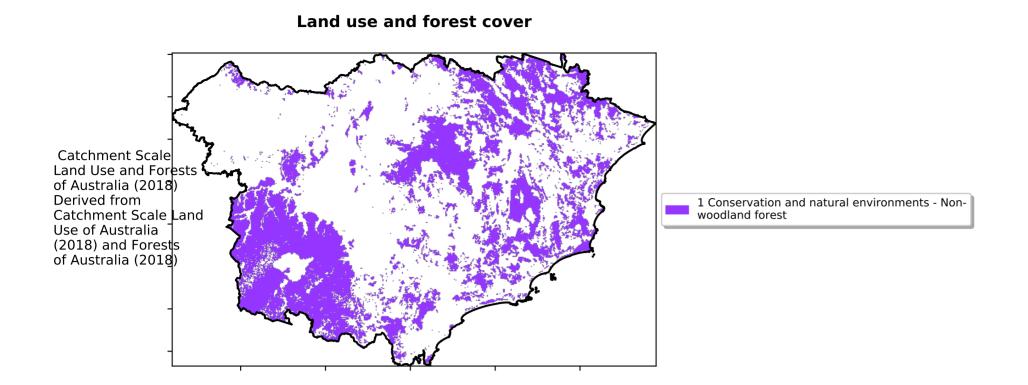
month



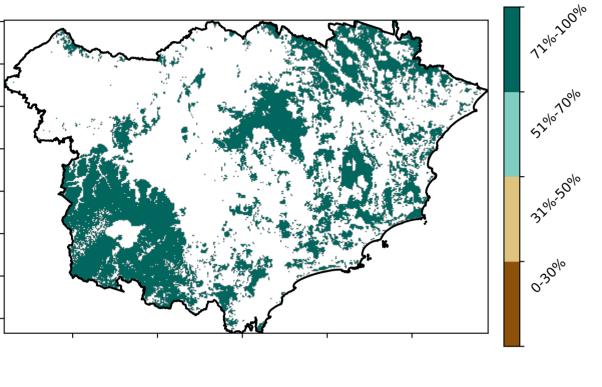


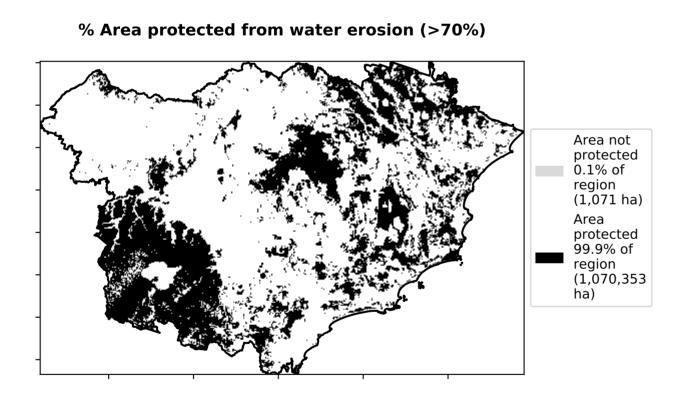


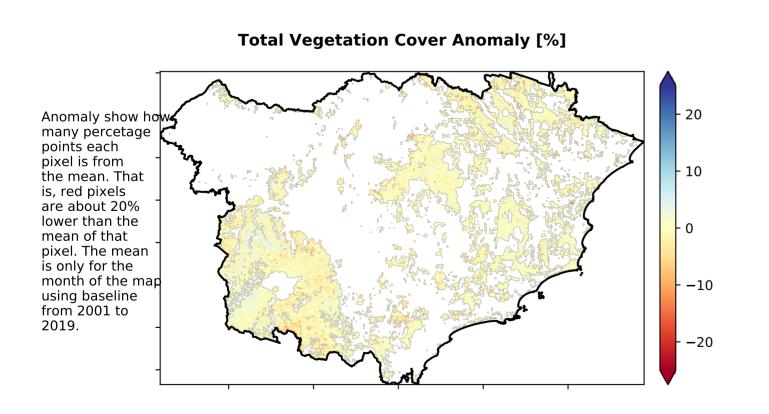
### **Conservation and natural environments Forest (non woodland)**



# **Total Vegetation Cover [%]**

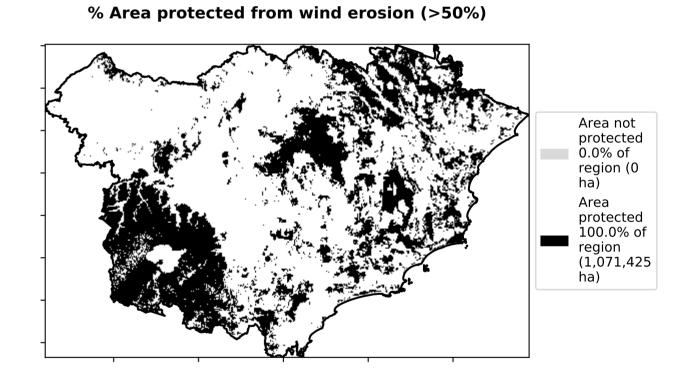


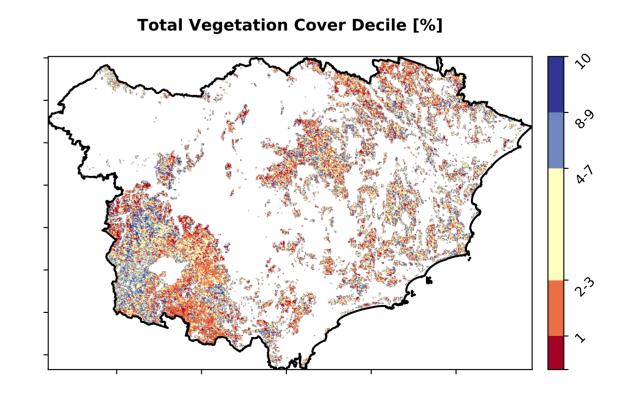




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

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











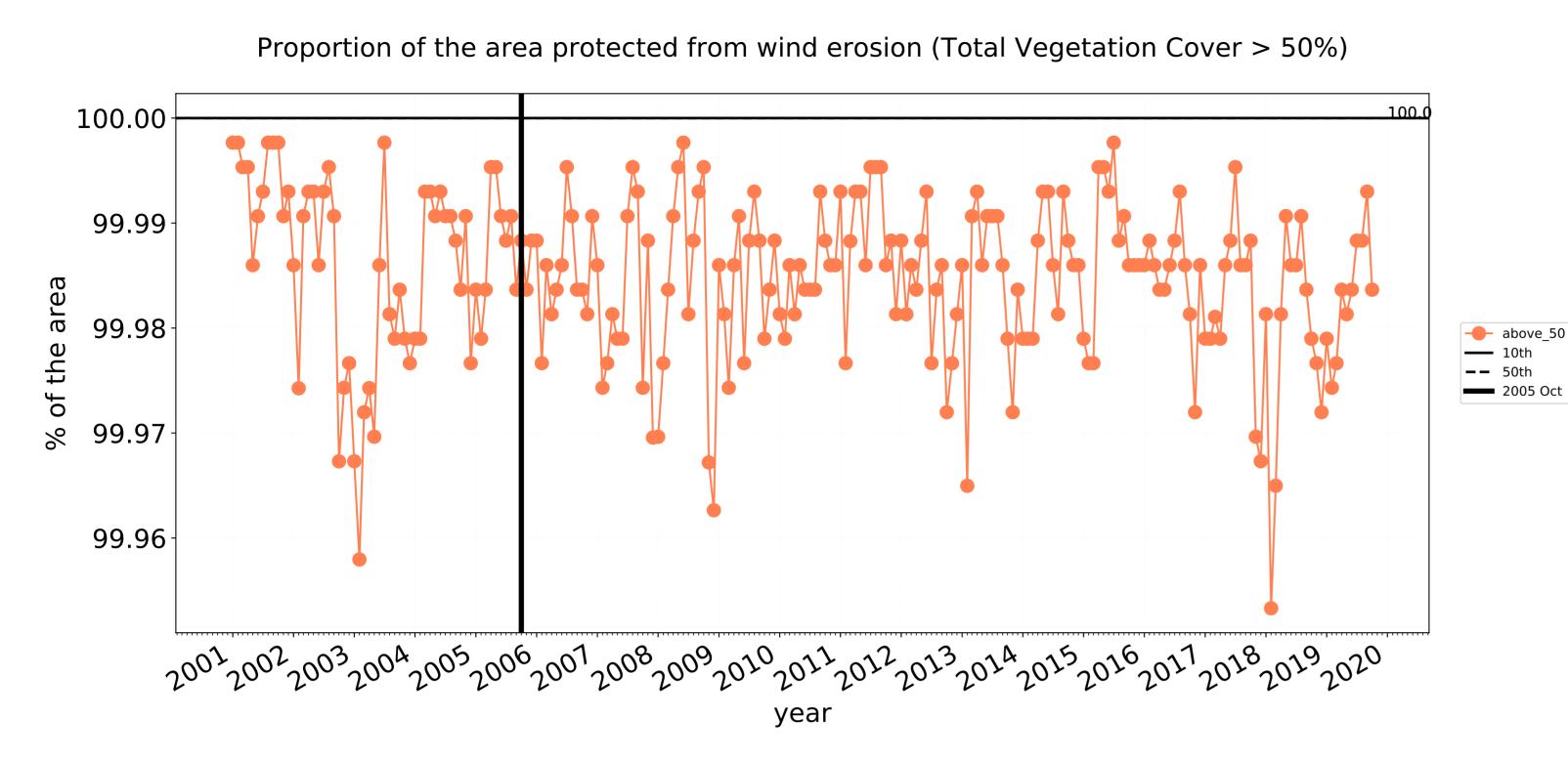


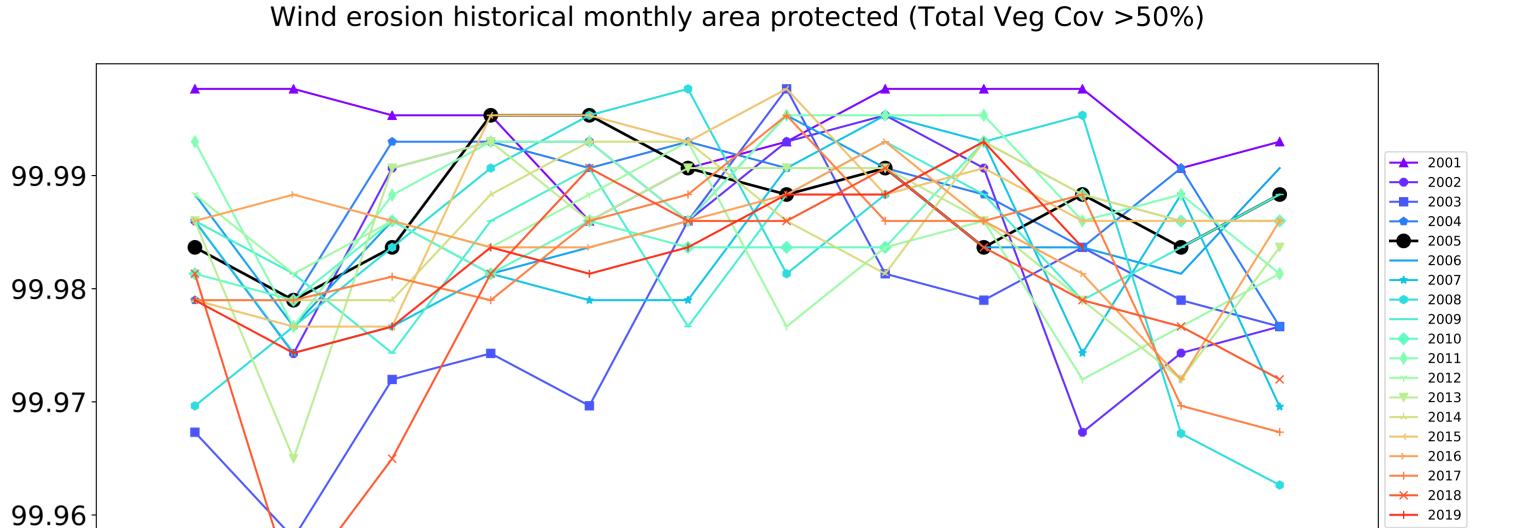




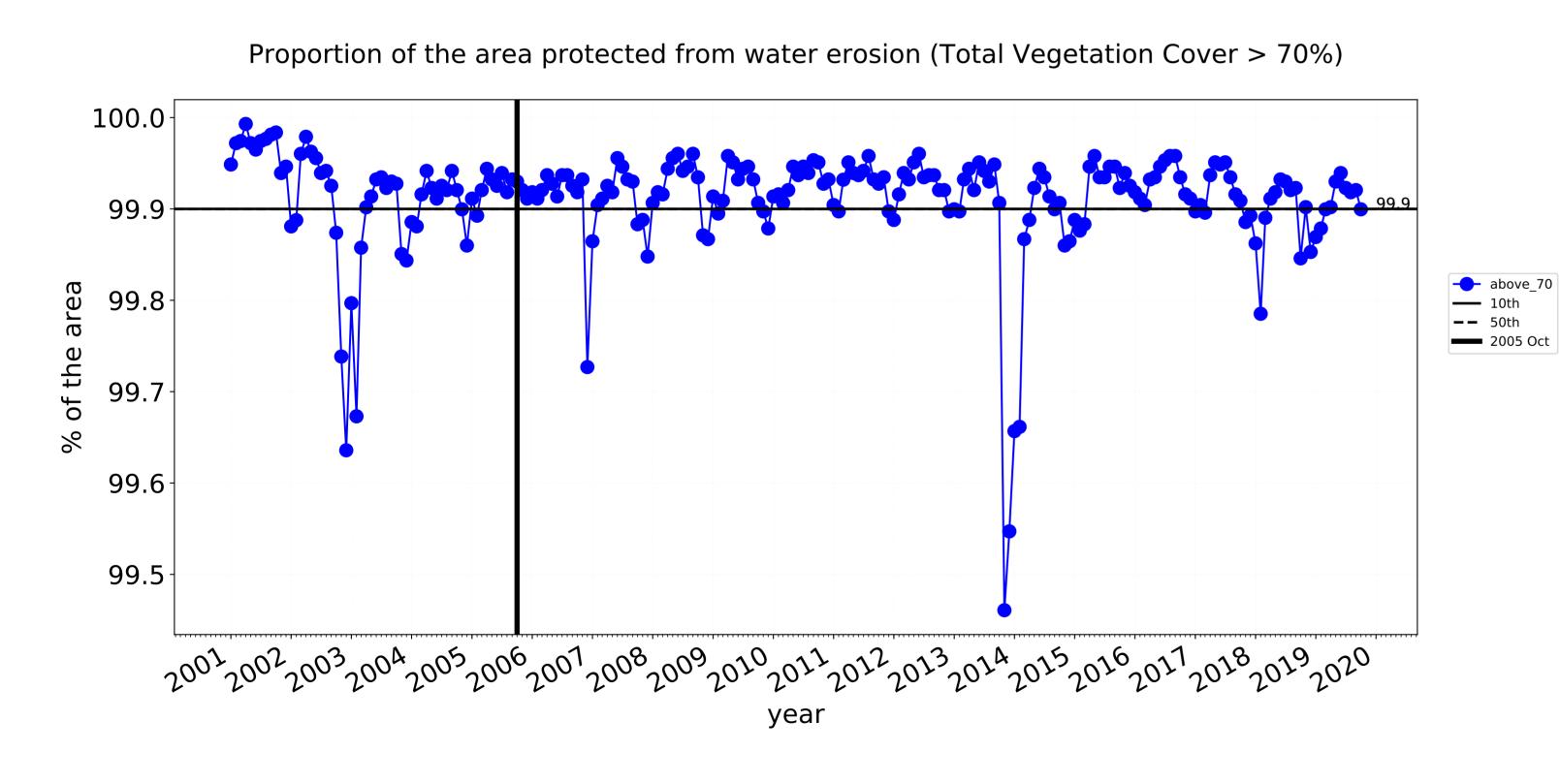
### Conservation and natural environments Forest (non woodland) timeseries

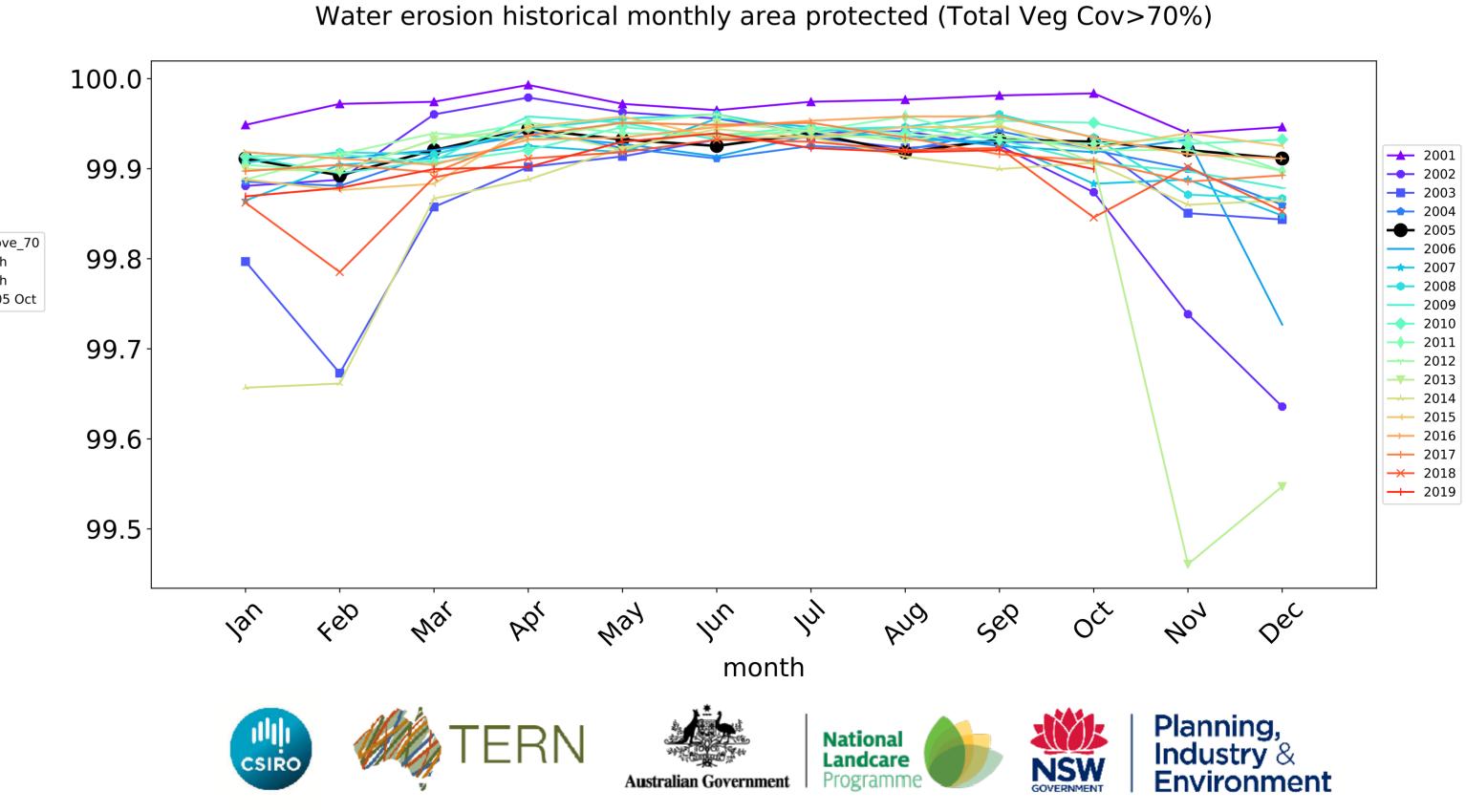
99.96

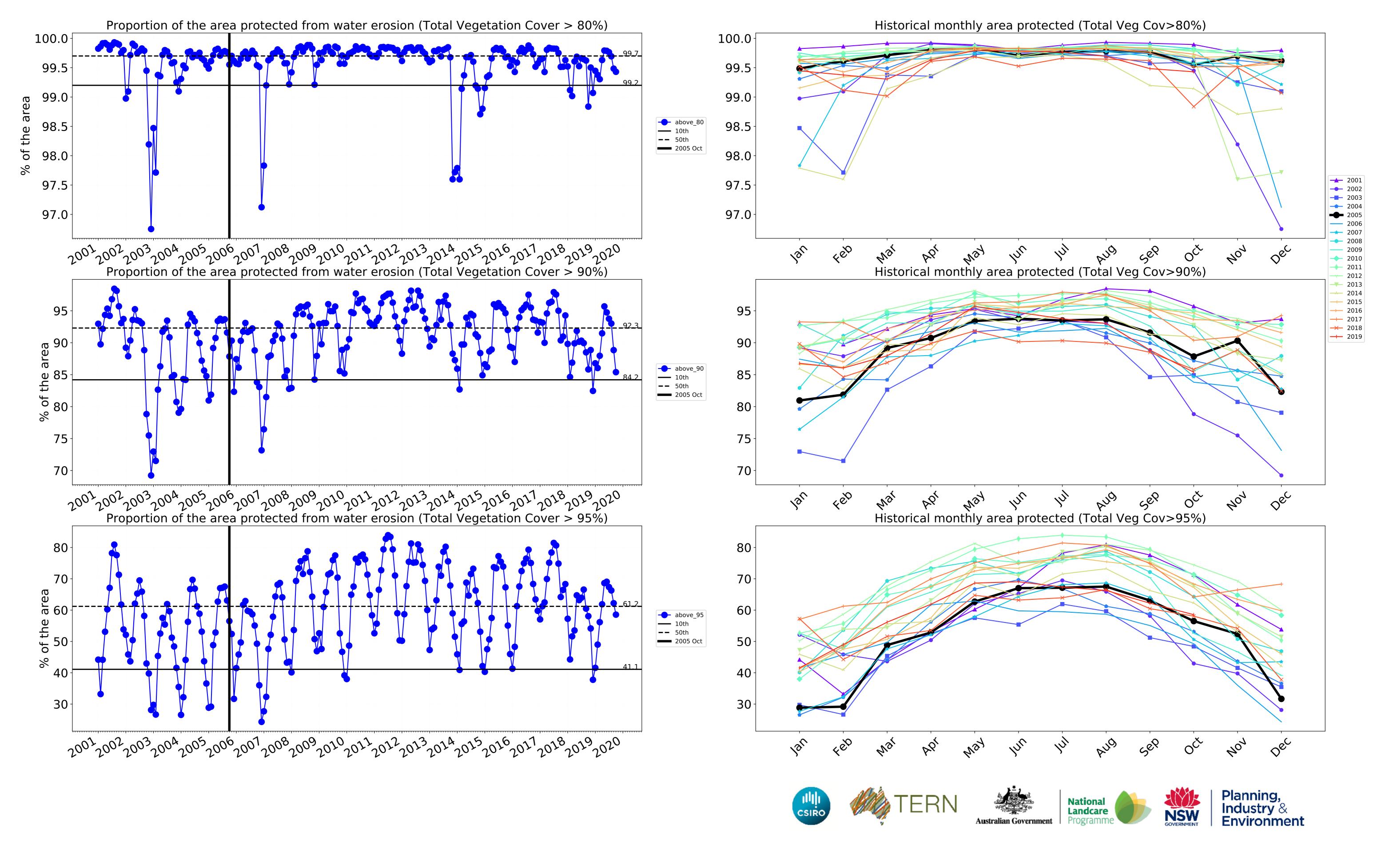




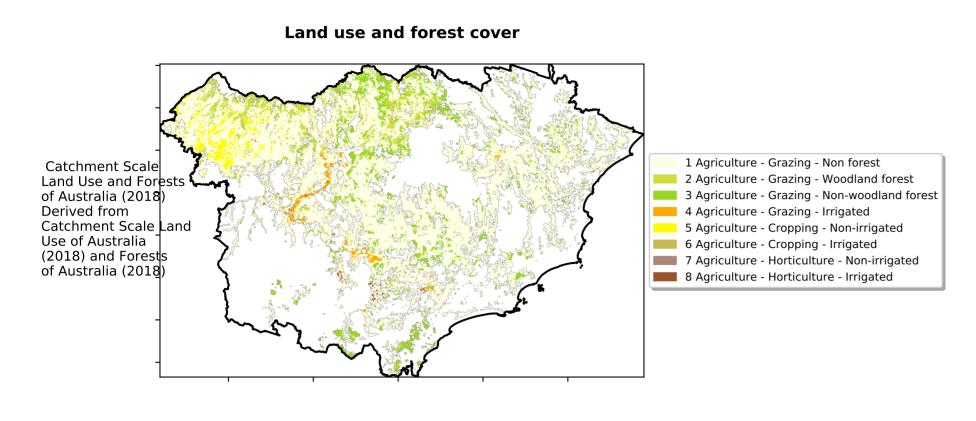
month







### **Agriculture**



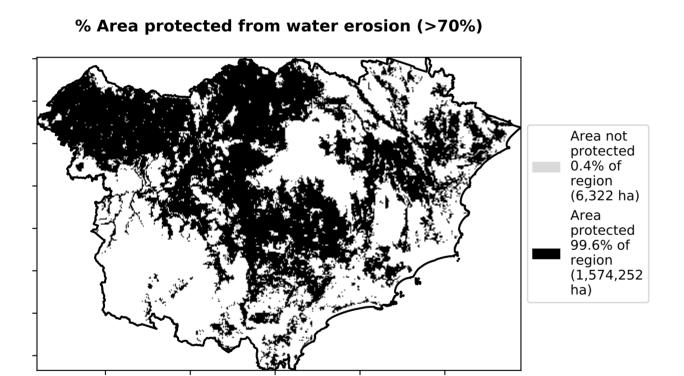


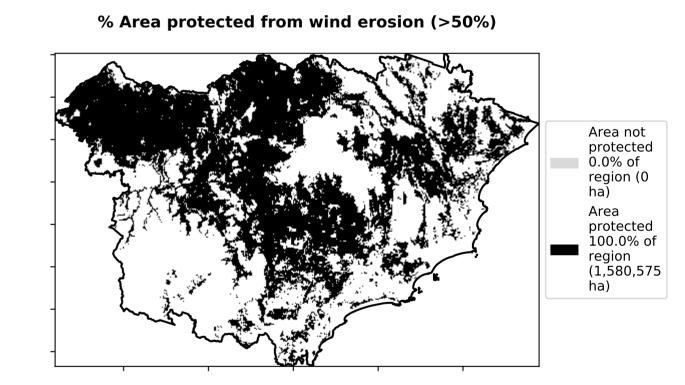
### Total Vegetation Cover [%] Tolar Vegetation Cover [%] Tolar Vegetation Cover [%] Tolar Vegetation Cover [%]



31%-50%

0-30%

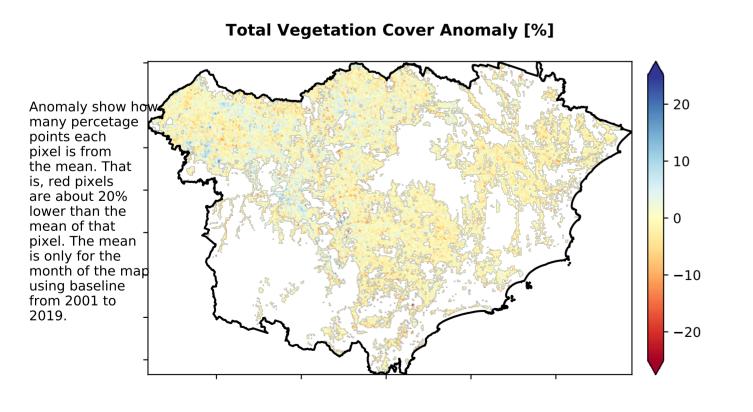


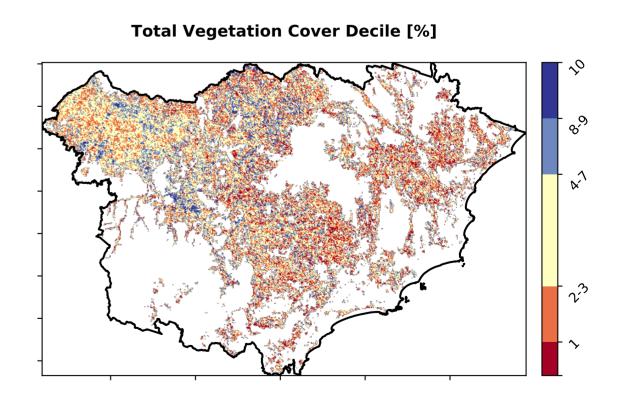


51%-70%

**Total Vegetation Cover class** 

71%-100%









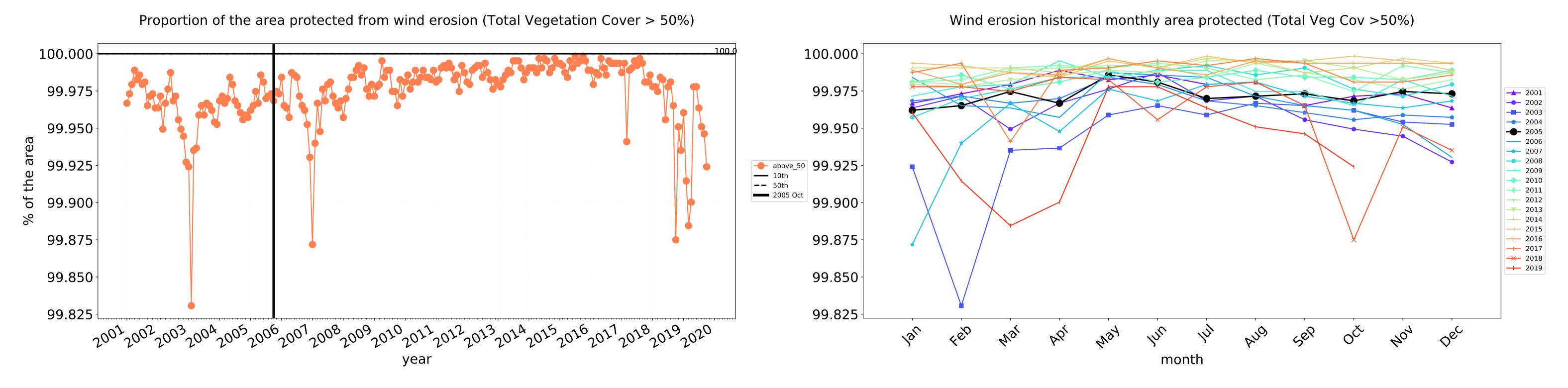


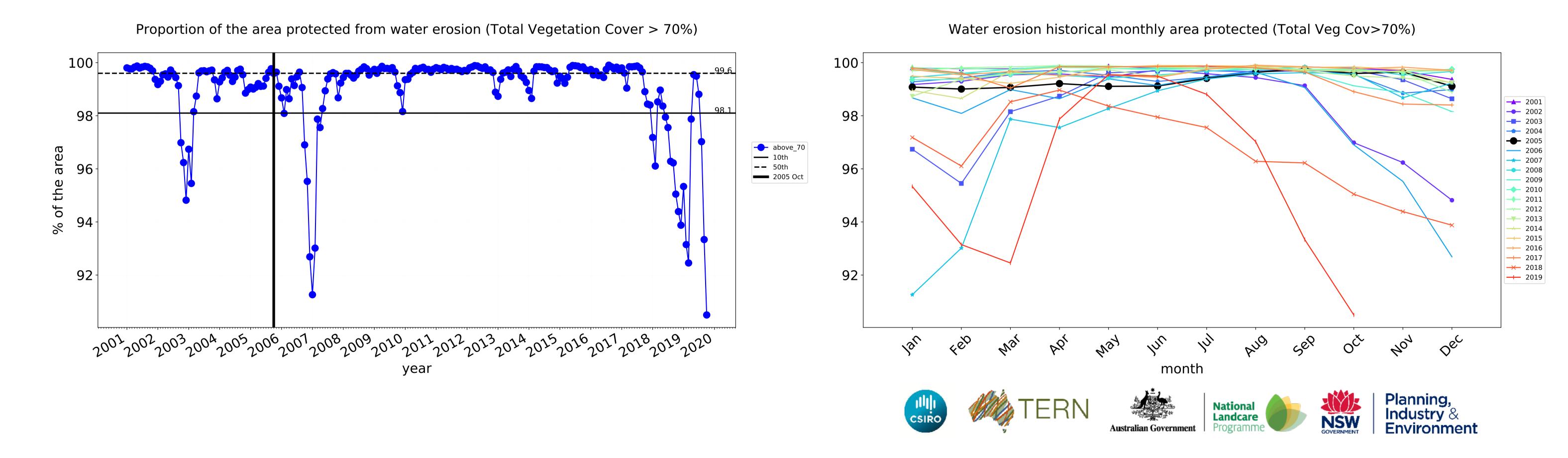


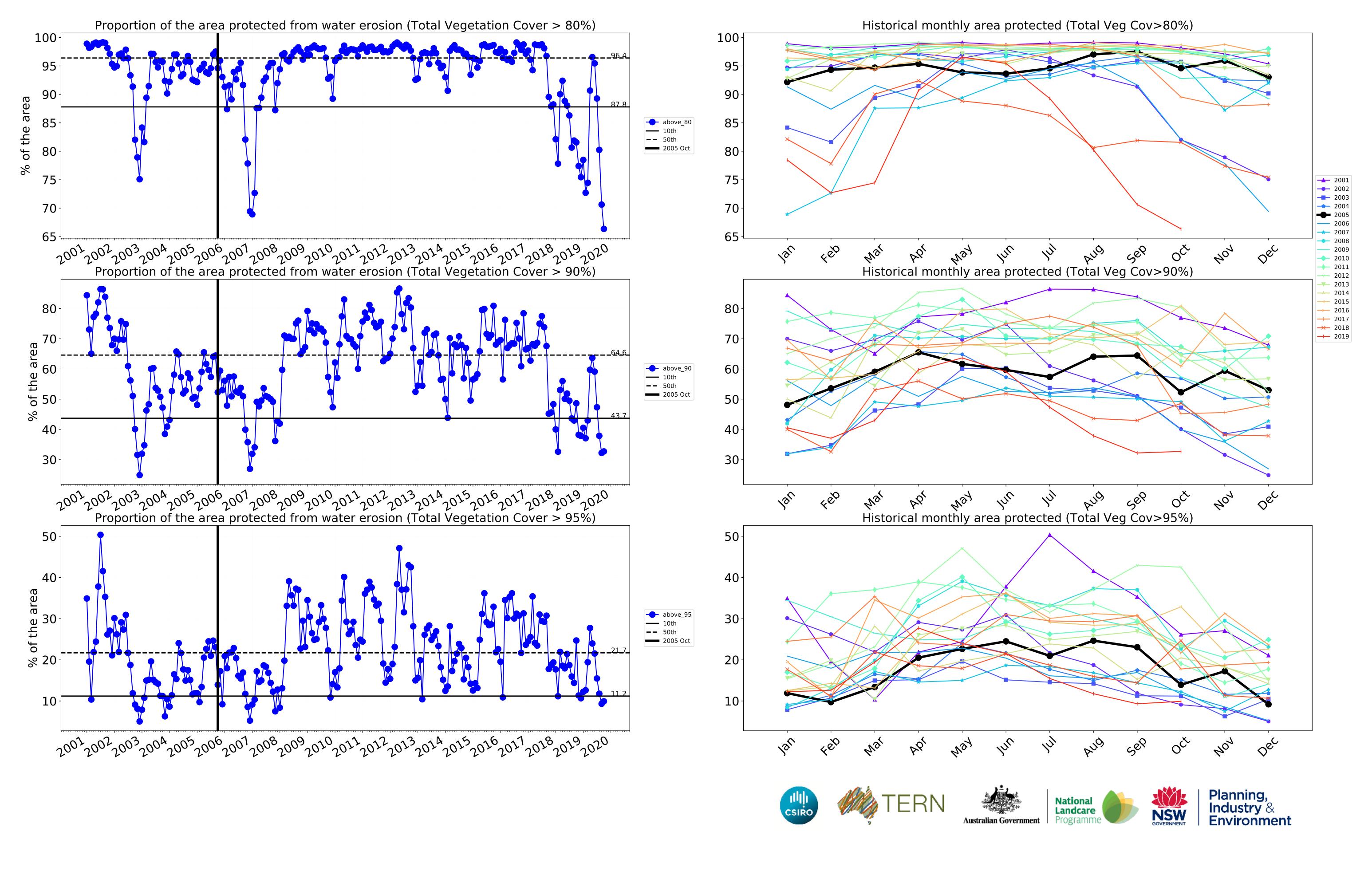




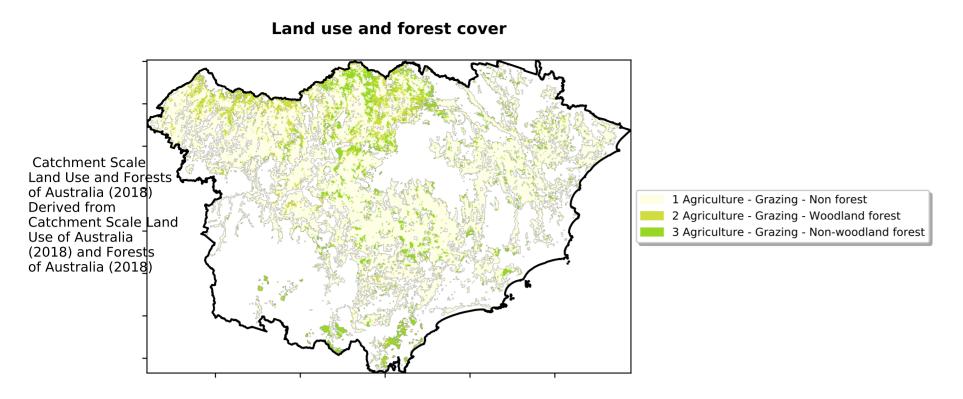
### **Agriculture timeseries**



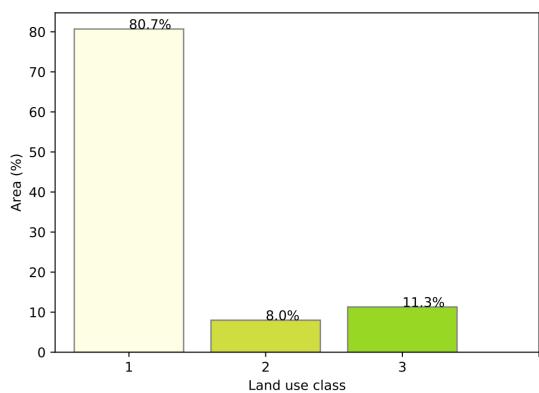




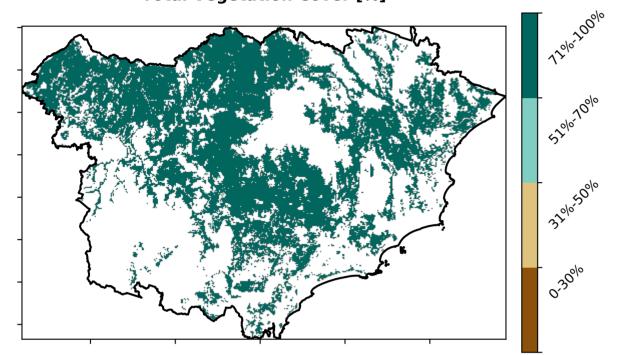
### **Grazing**



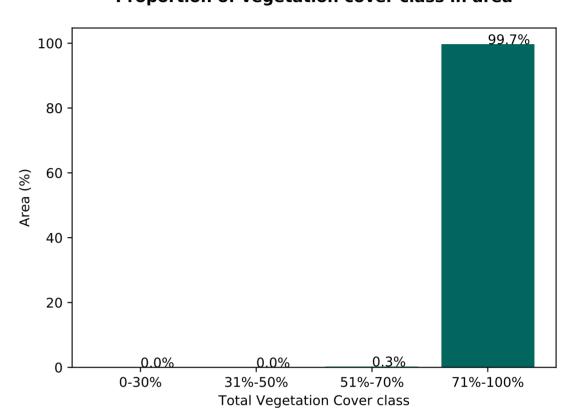
### Proportion of each land class in area



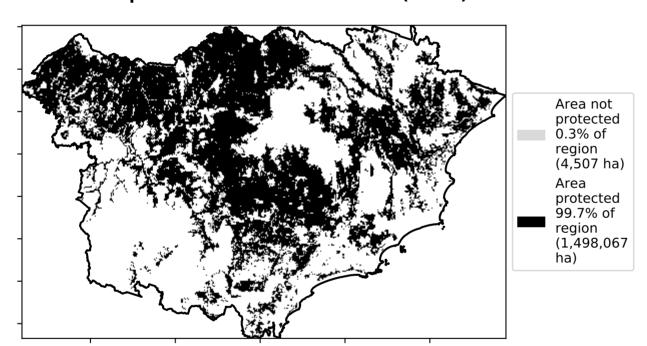




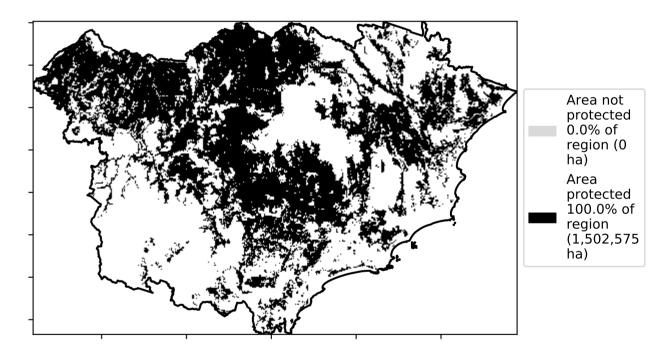
### Proportion of vegetation cover class in area



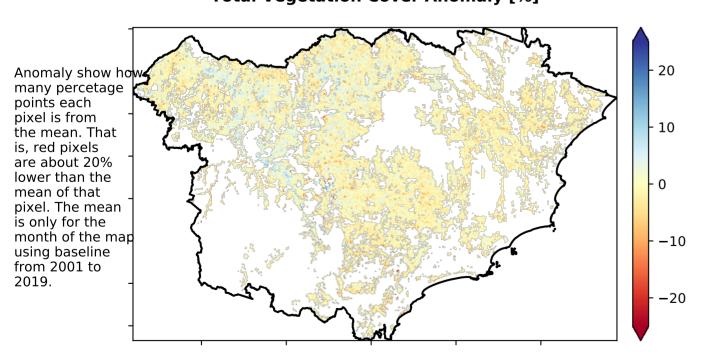
### % Area protected from water erosion (>70%)

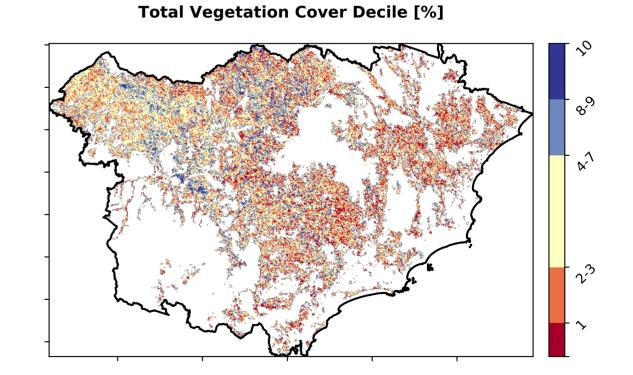


% Area protected from wind erosion (>50%)



### Total Vegetation Cover Anomaly [%]











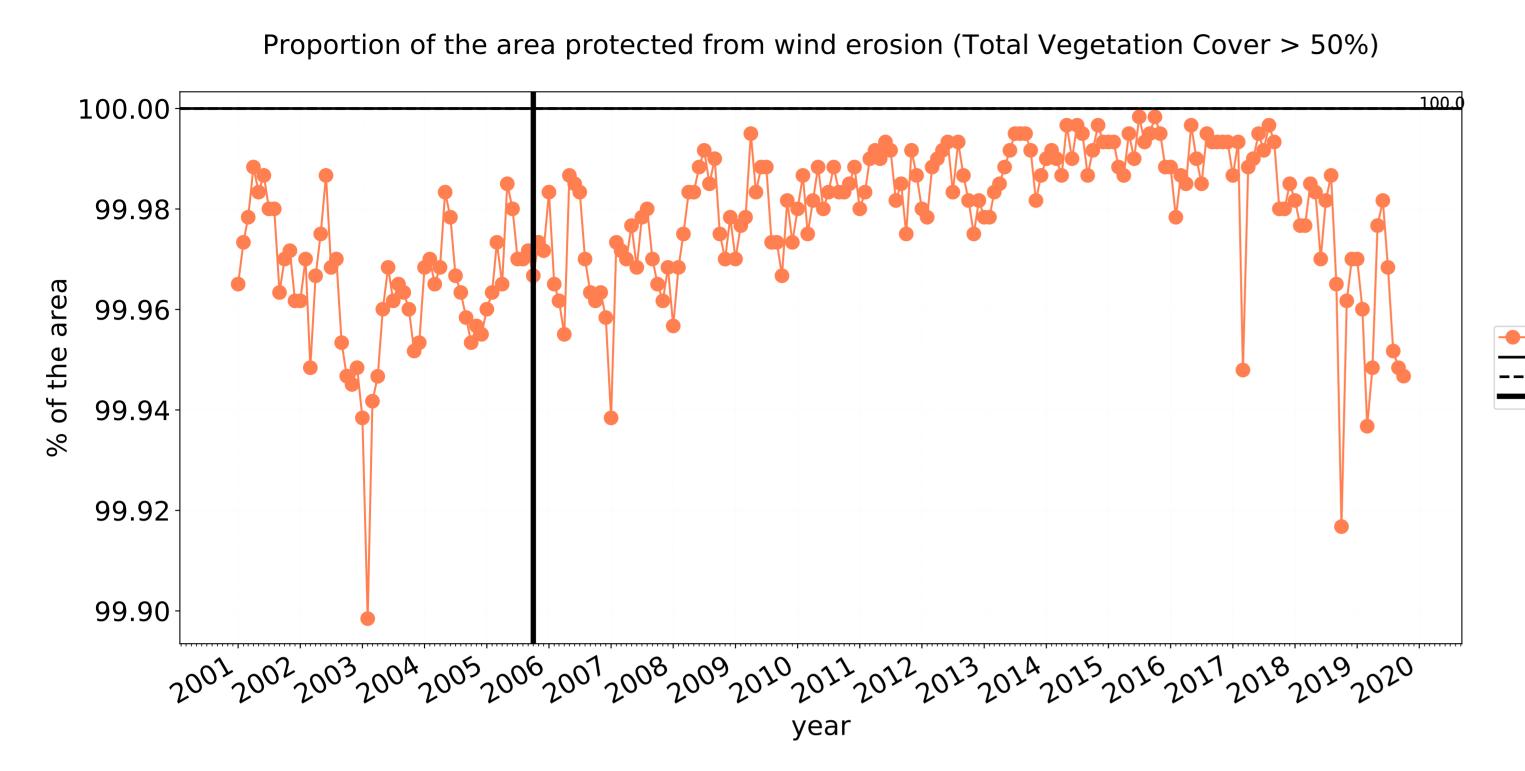


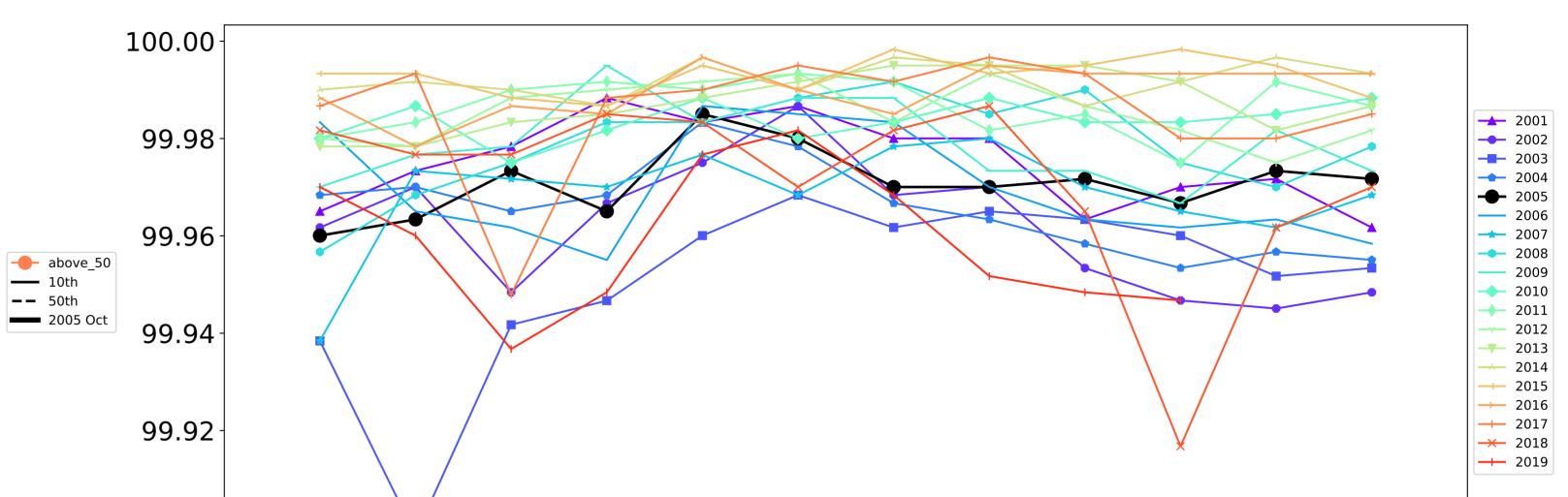




### **Grazing timeseries**

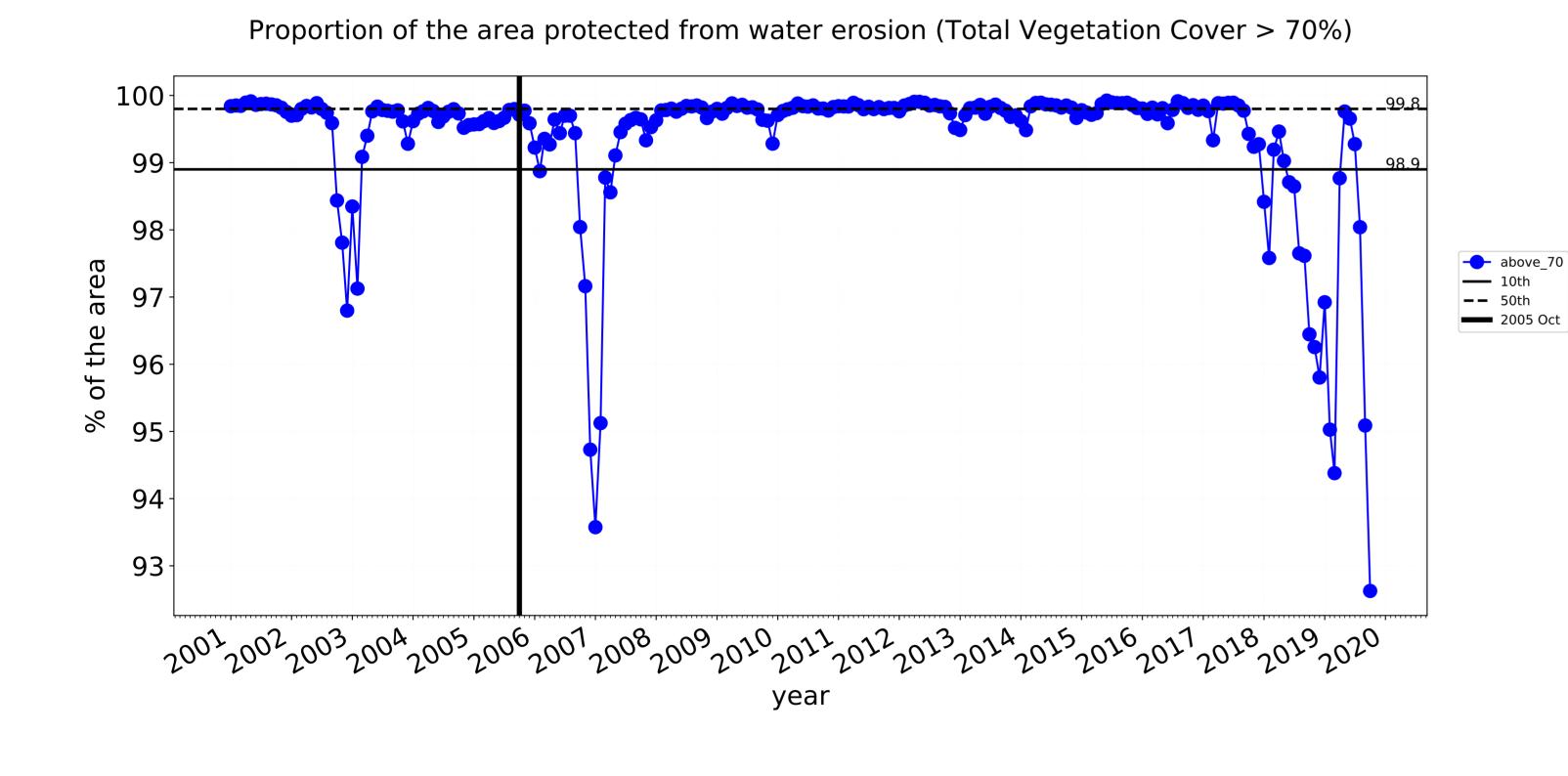
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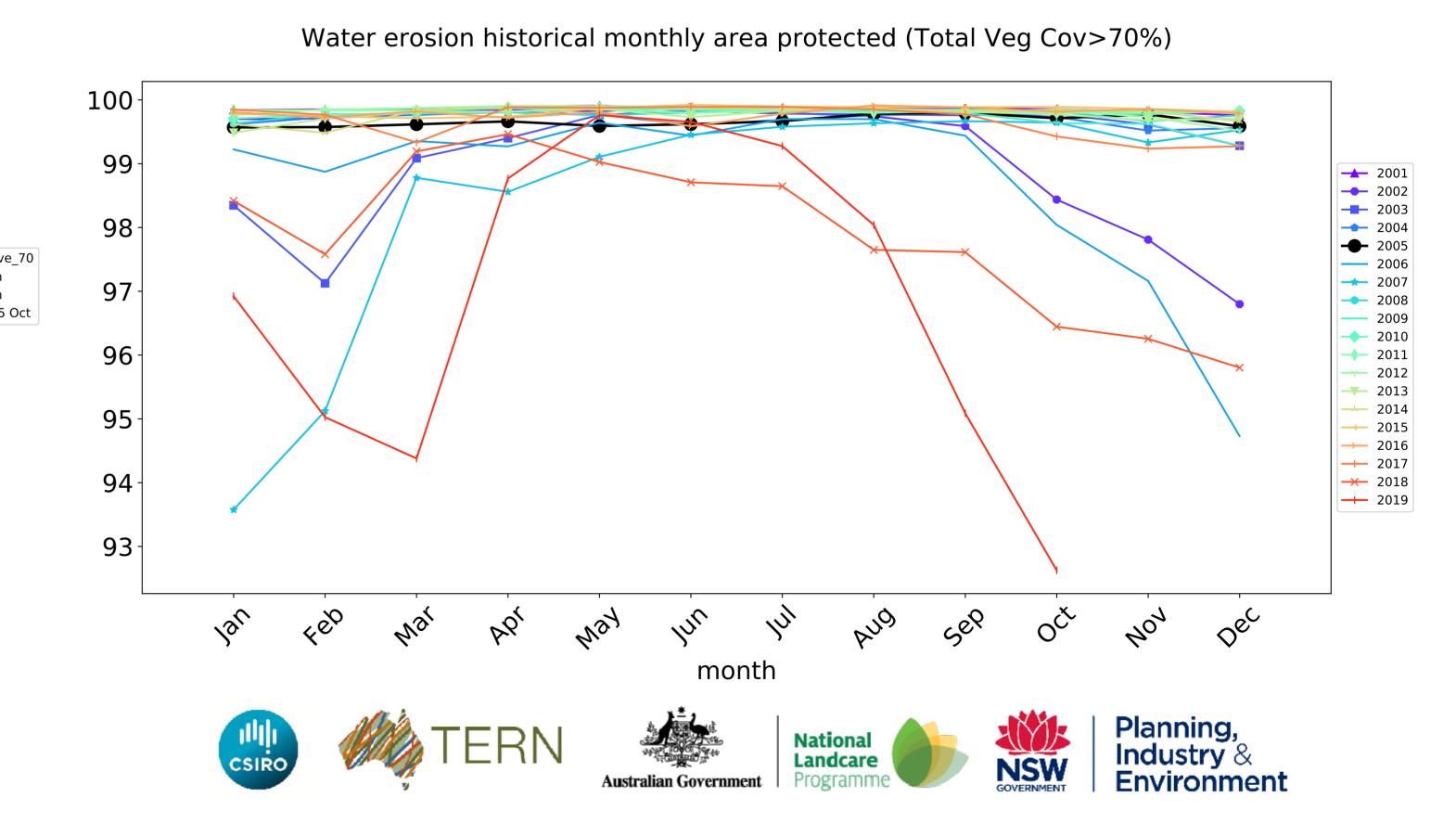


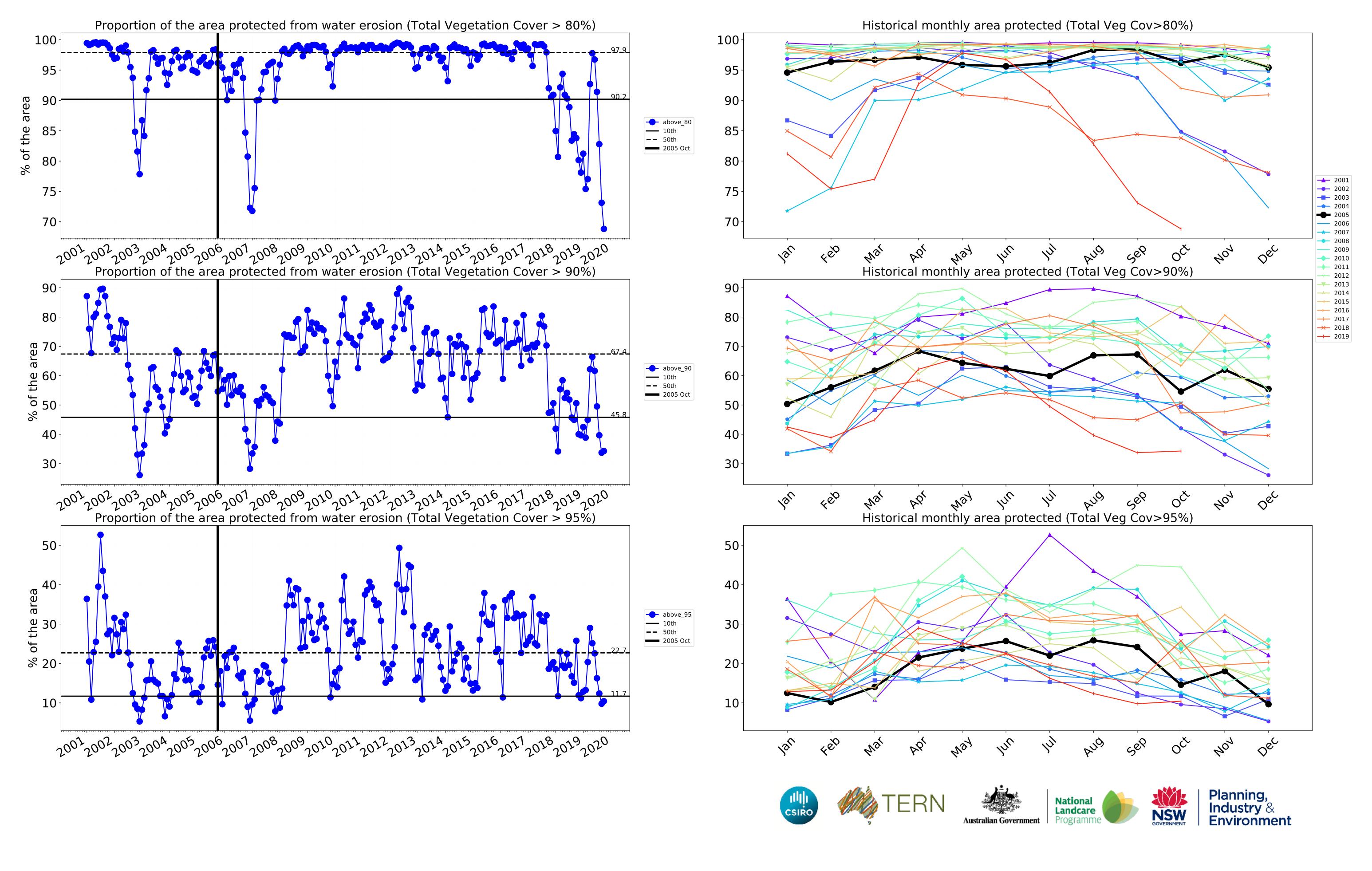


month

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

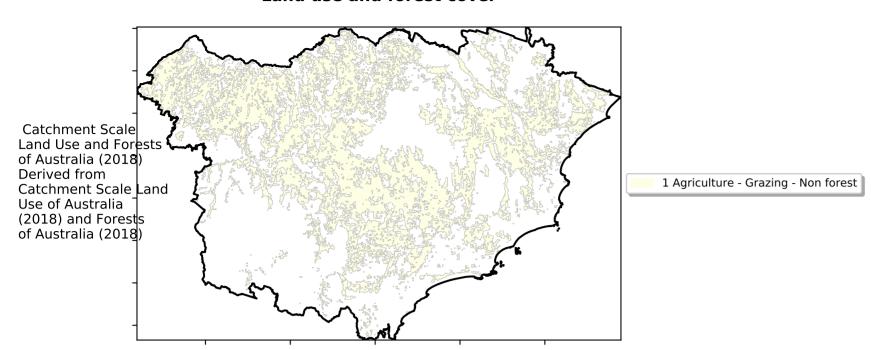




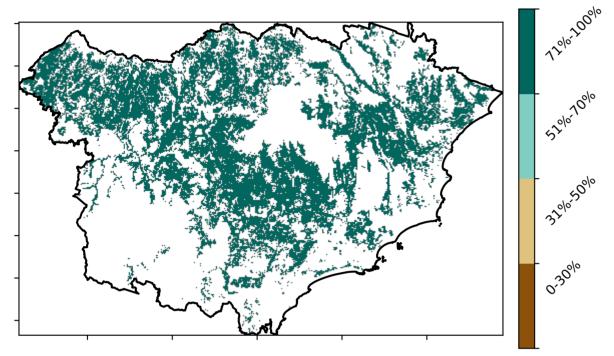


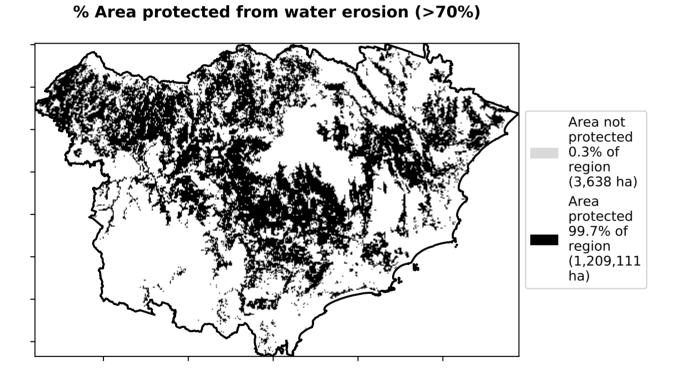
### **Grazing non forest**

### Land use and forest cover

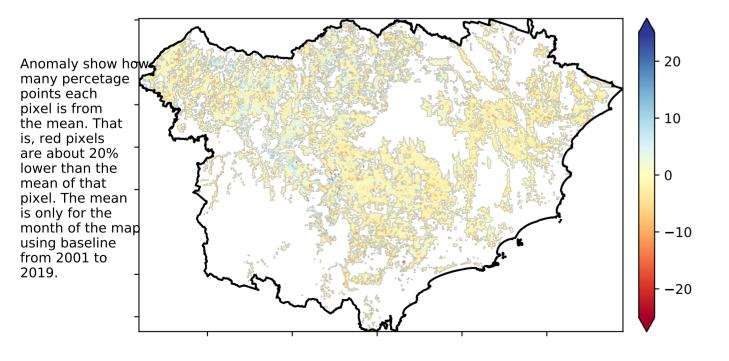


### Total Vegetation Cover [%]



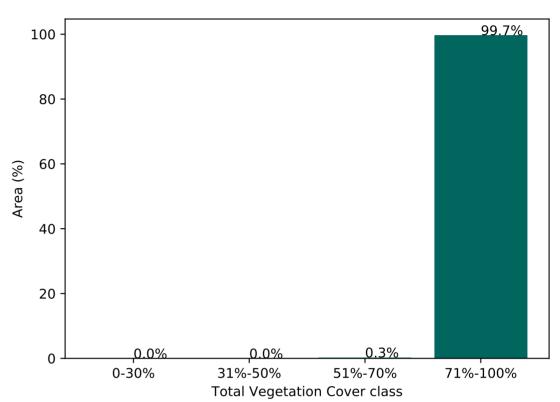


### Total Vegetation Cover Anomaly [%]

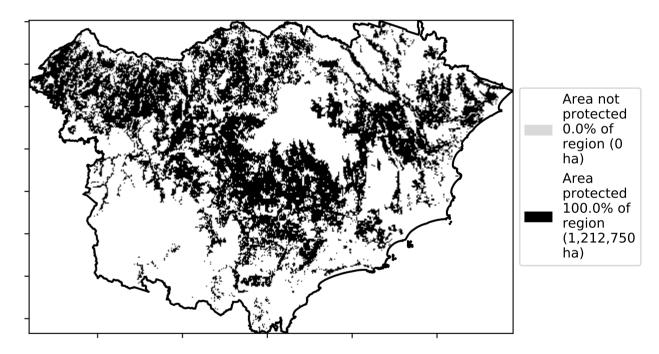


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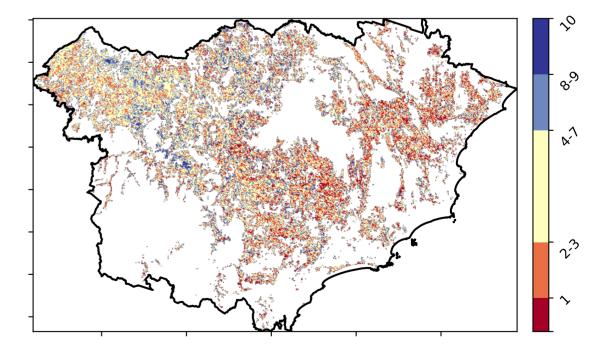
### **Proportion of vegetation cover class in area**



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



### Total Vegetation Cover Decile [%]







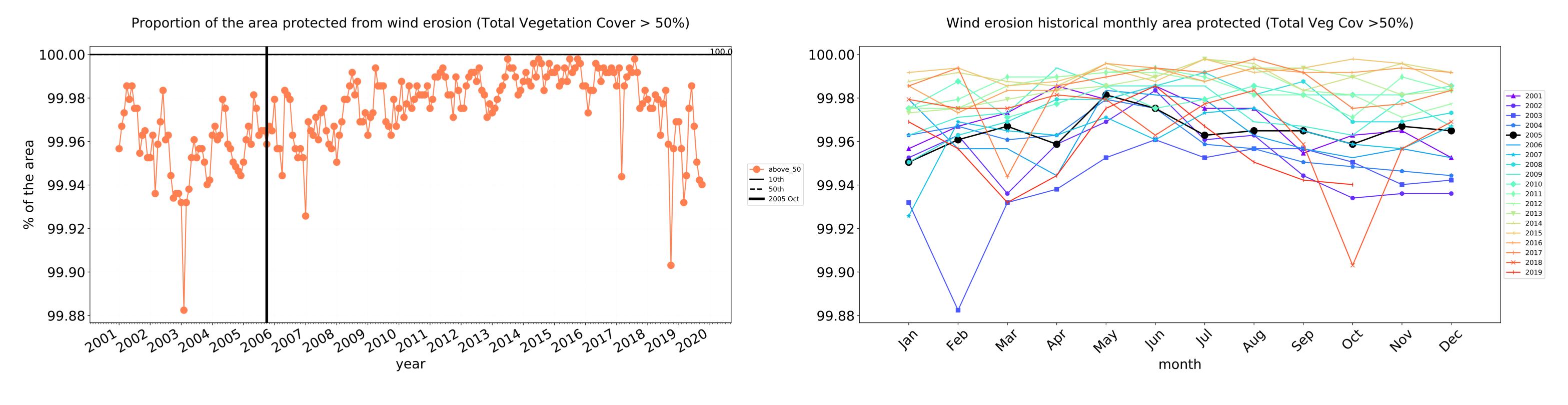


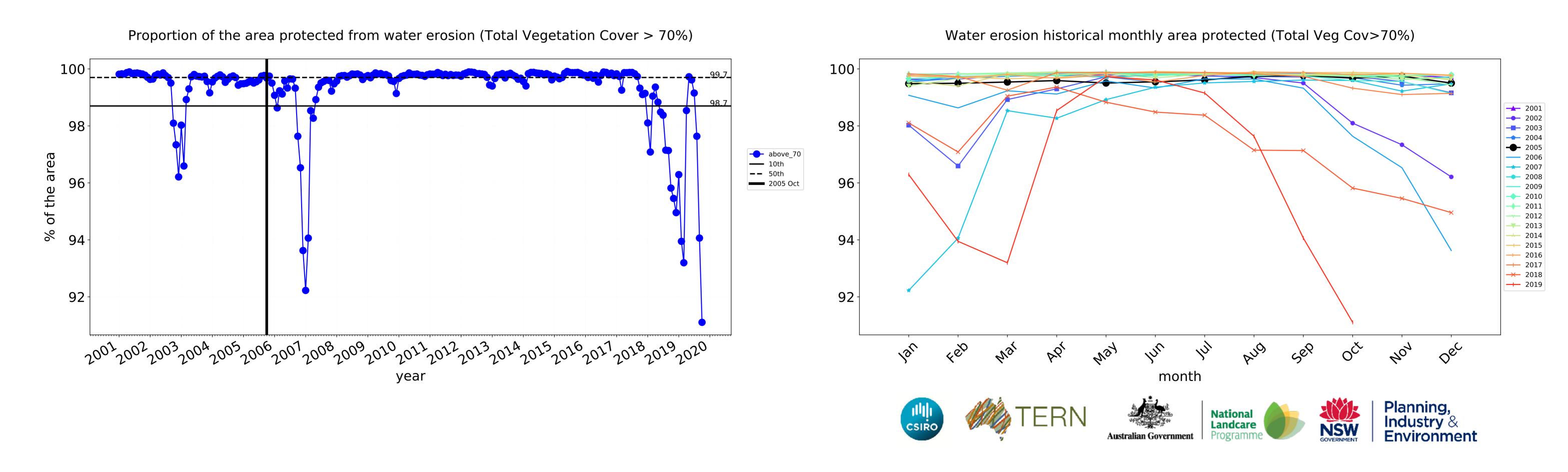


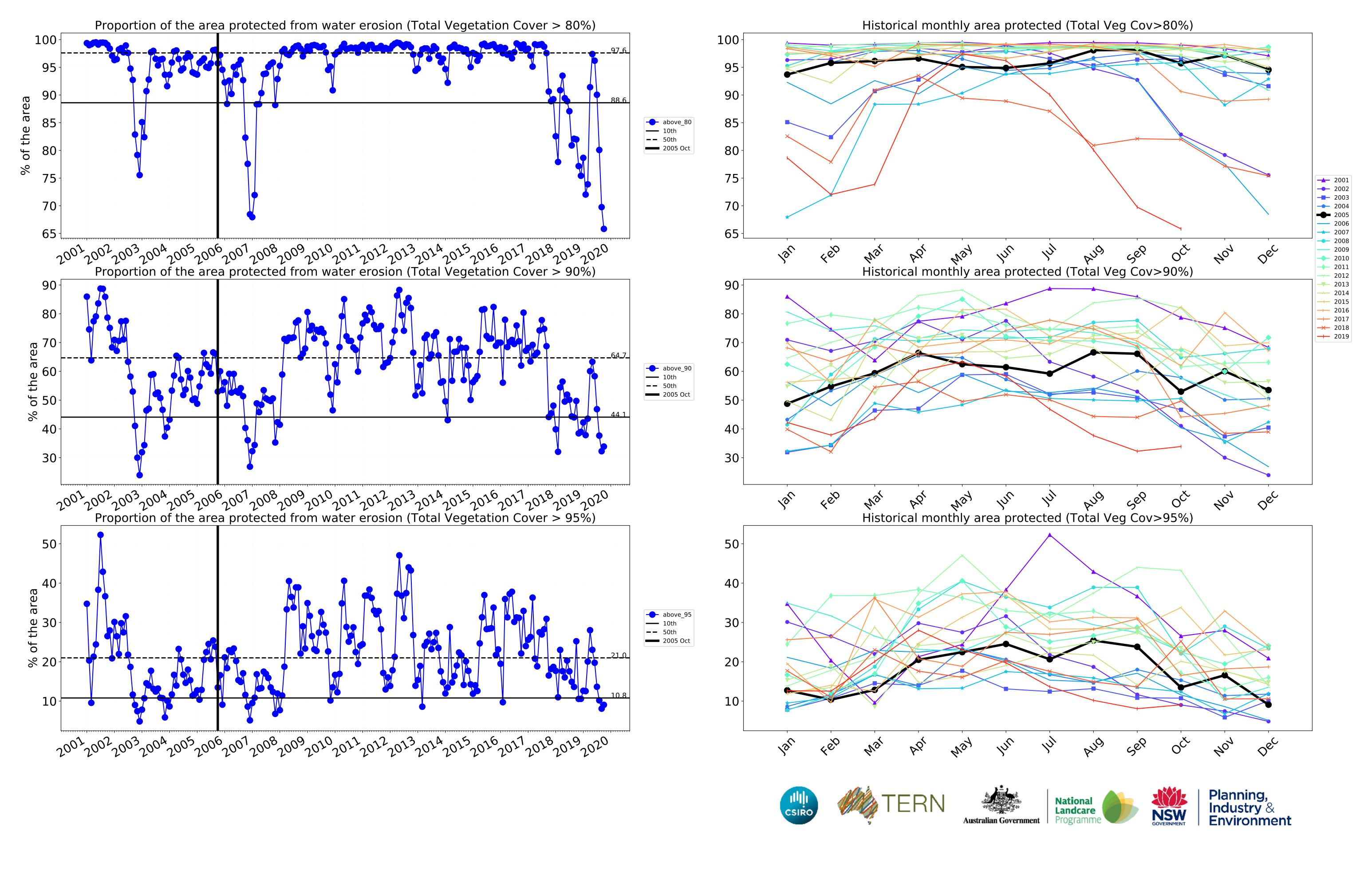




### **Grazing non forest timeseries**





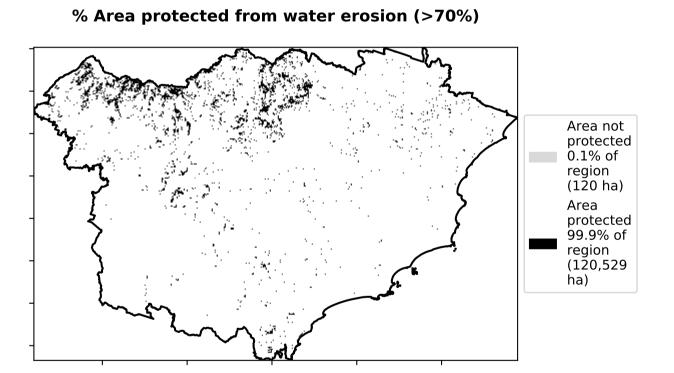


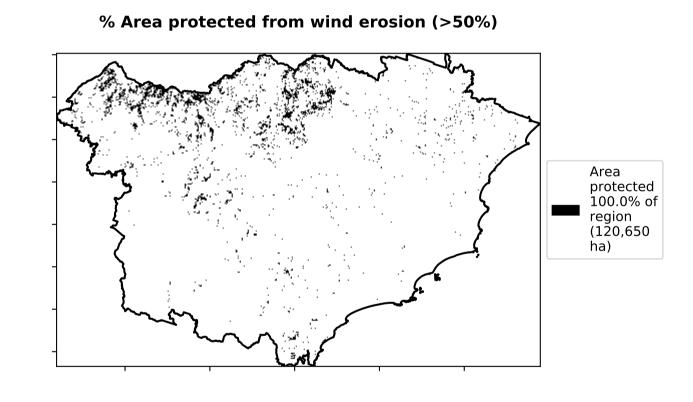
### **Grazing Woodland forest**

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

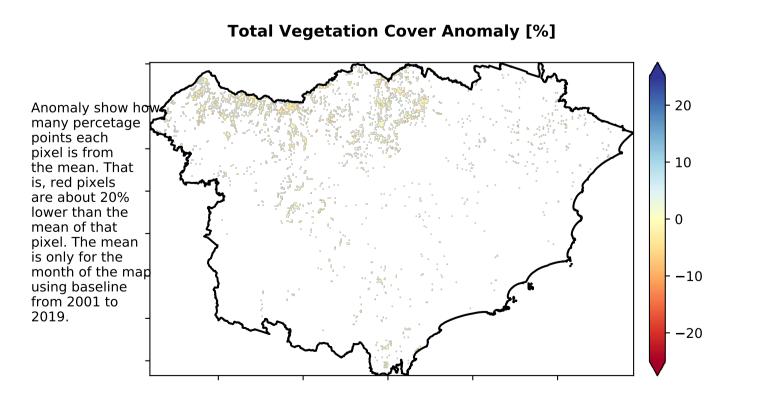
## Total Vegetation Cover [%]

# Proportion of vegetation cover class in area 100 99.9% 80 - 99.9% 40 - 20 - 0.0% 0.0% 0.1% Total Vegetation Cover class 71%-100% Total Vegetation Cover class





**Total Vegetation Cover Decile [%]** 





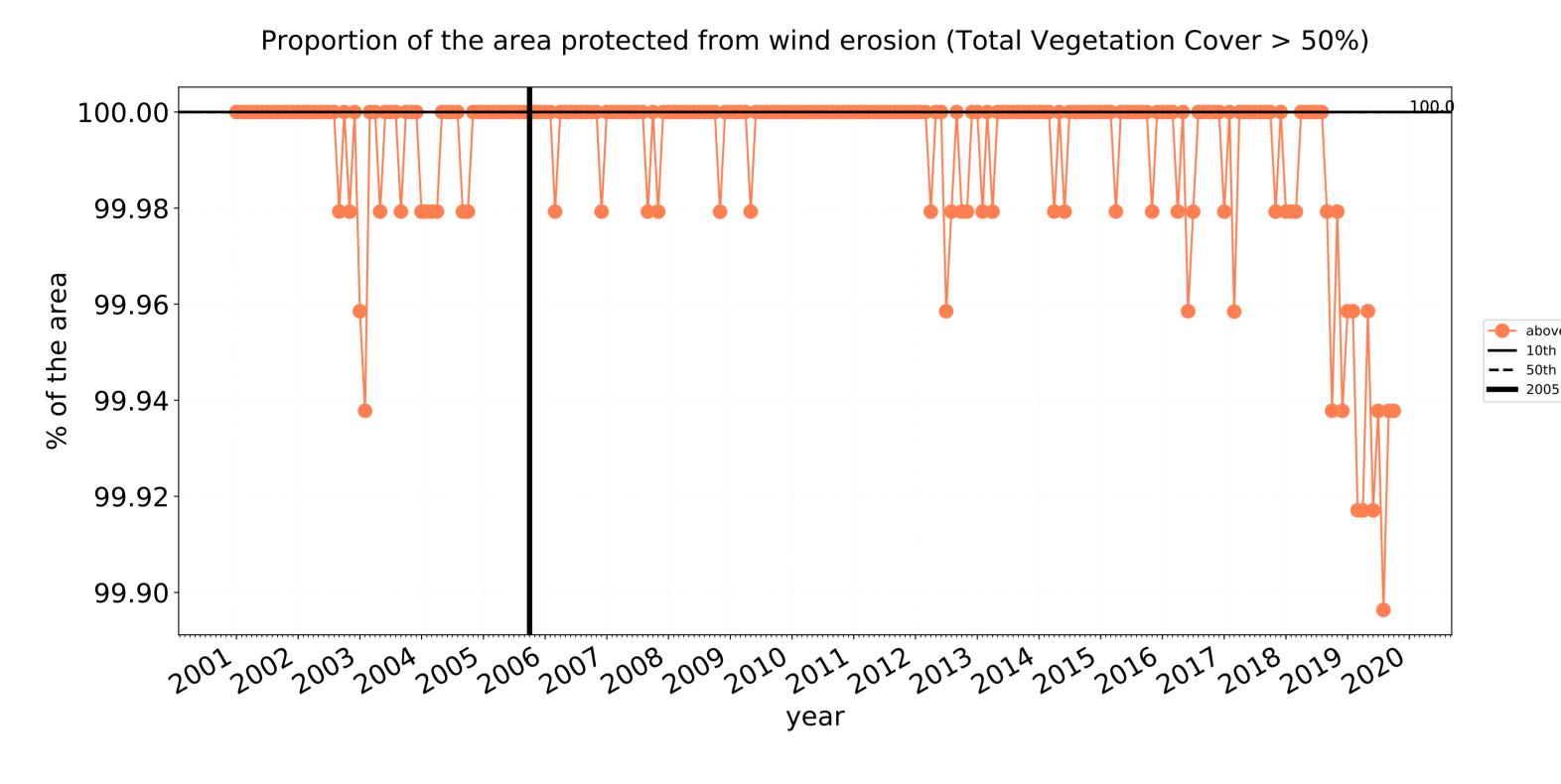


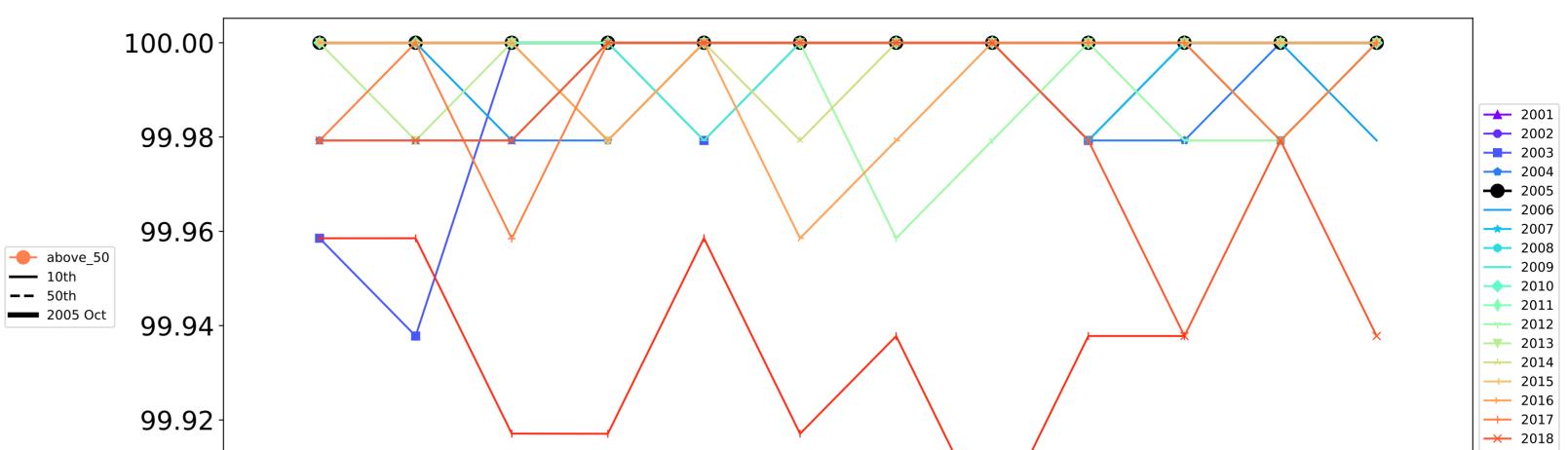




### **Grazing Woodland forest timeseries**

99.90

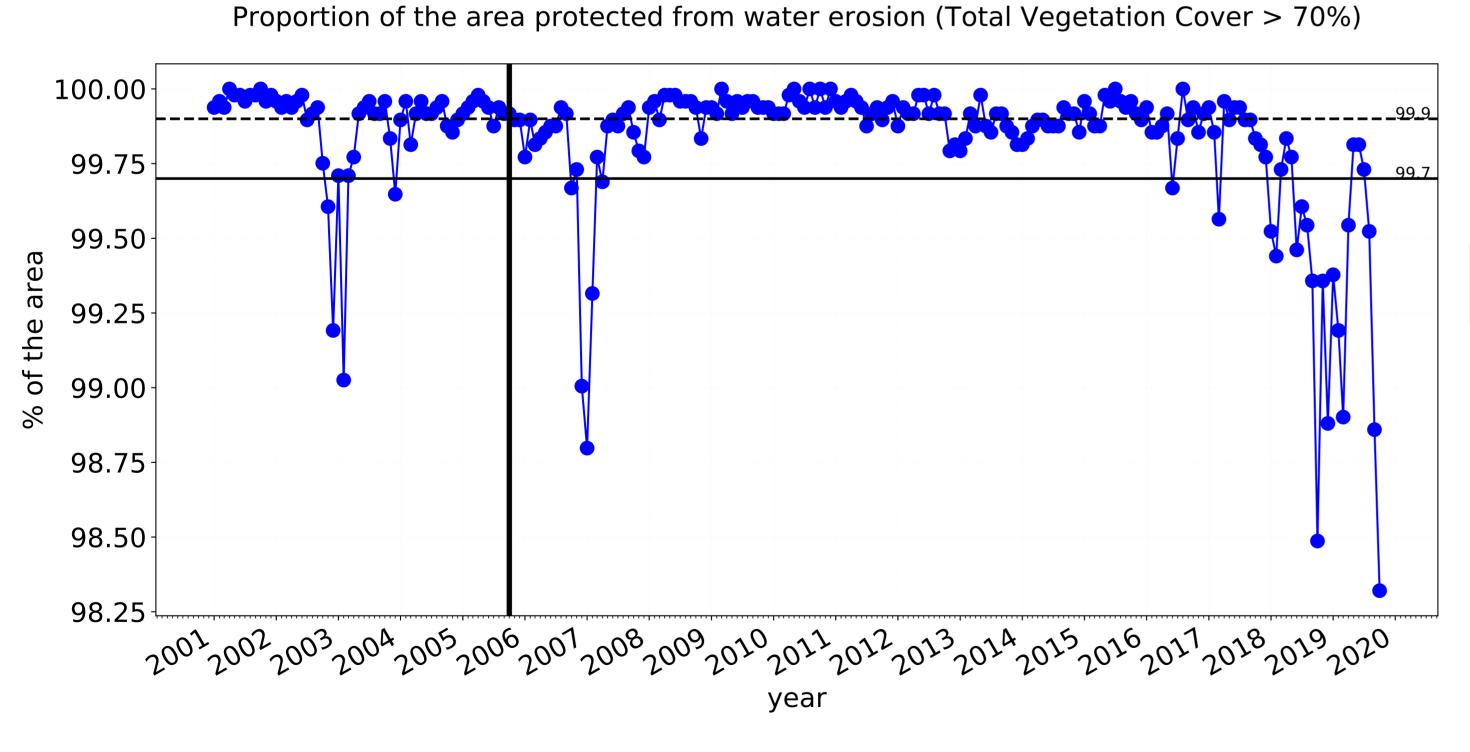


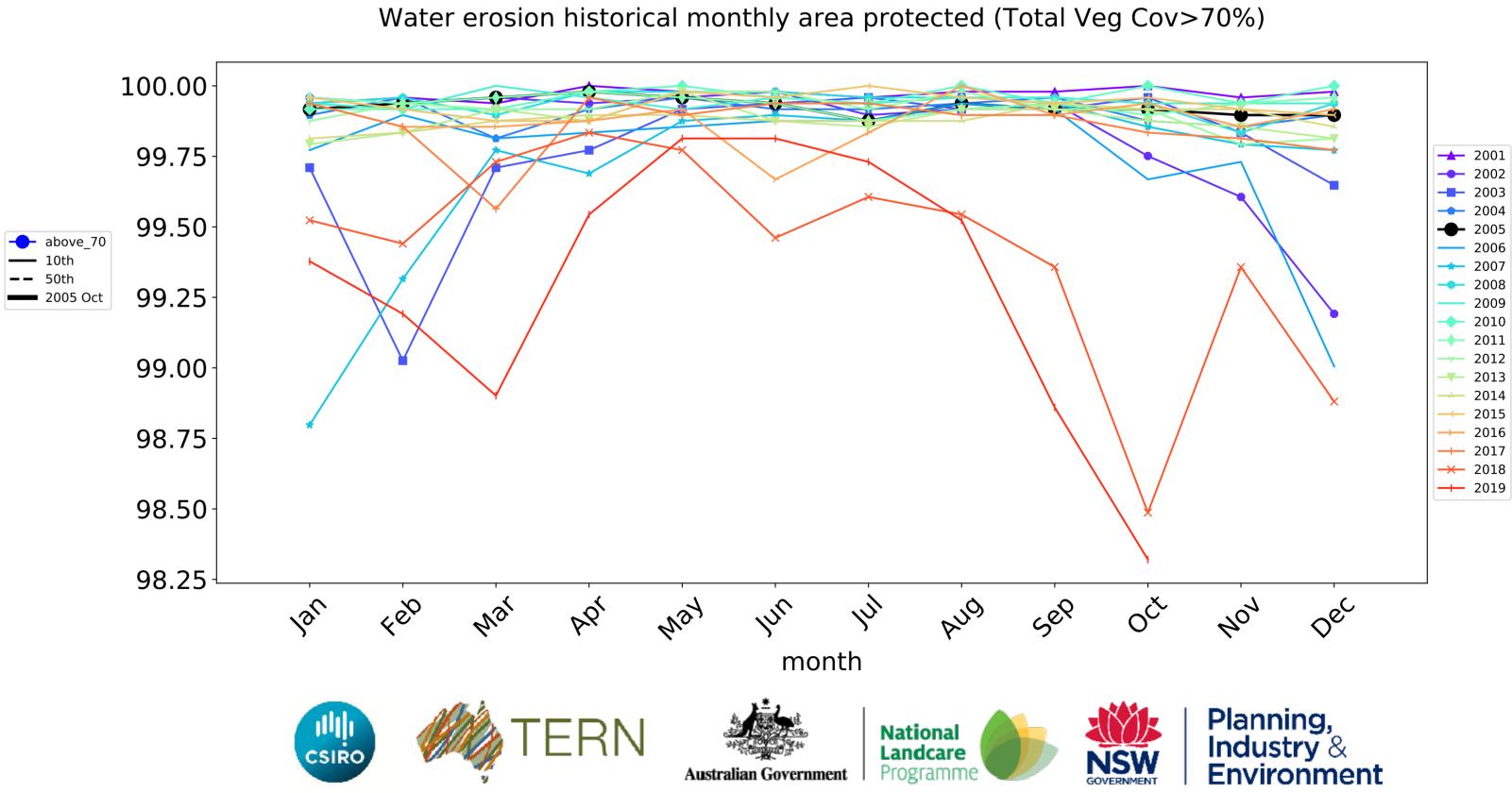


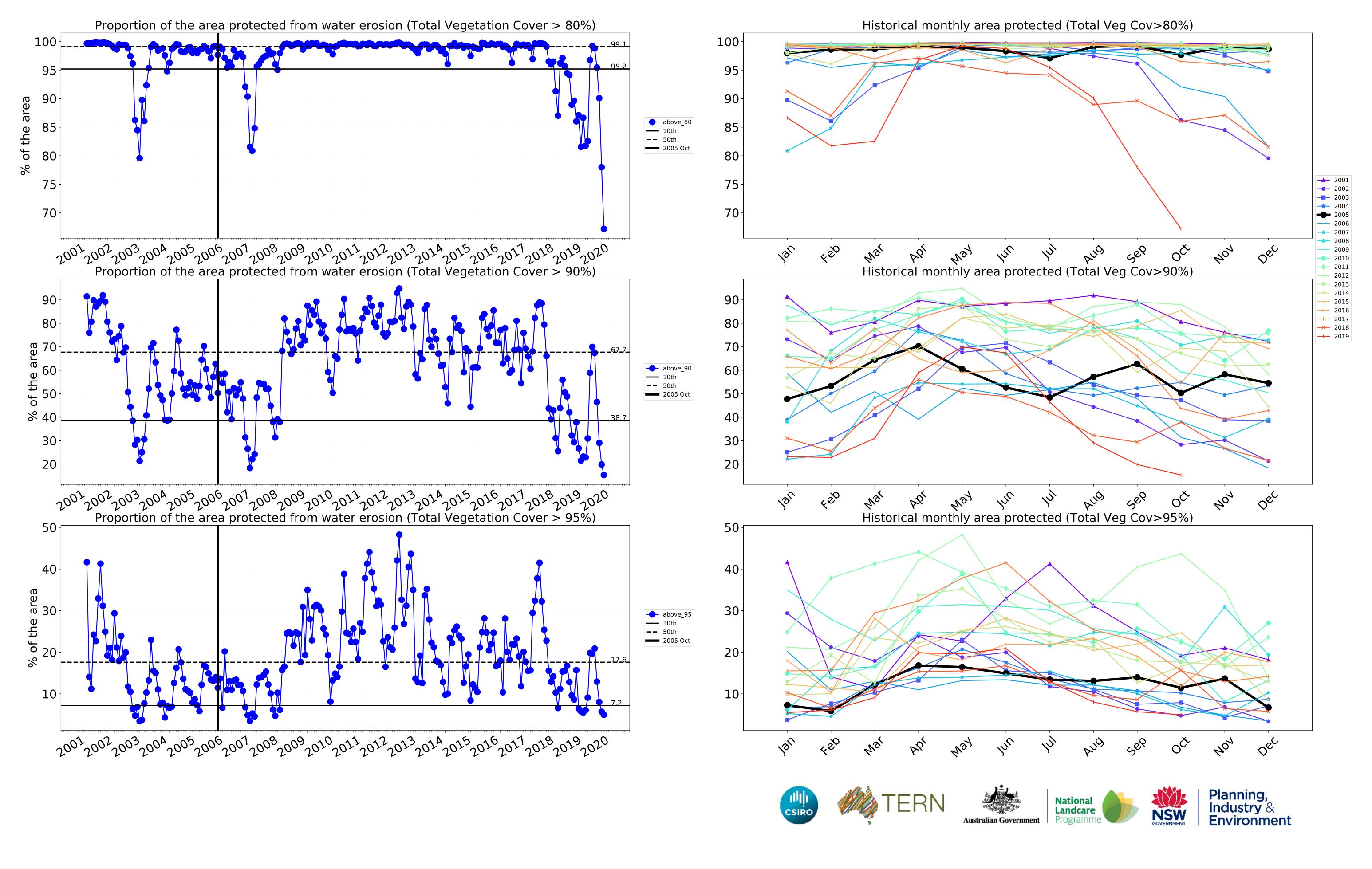
month

**→** 2019

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



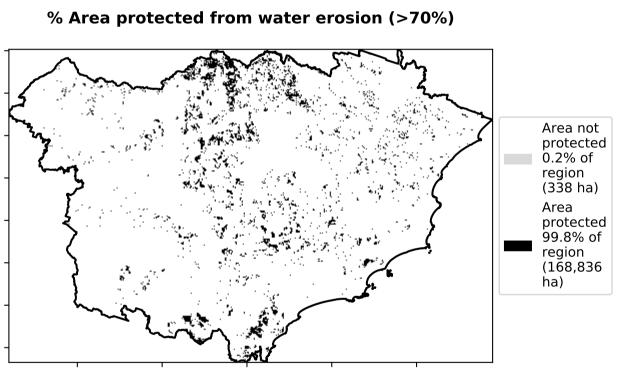


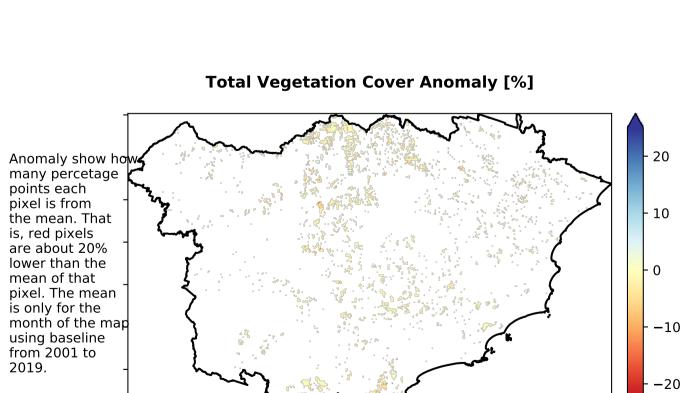


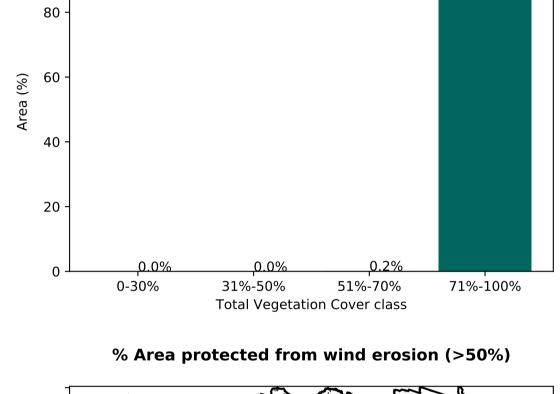
### **Grazing - Forest (non woodland)**

### **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 [%]**



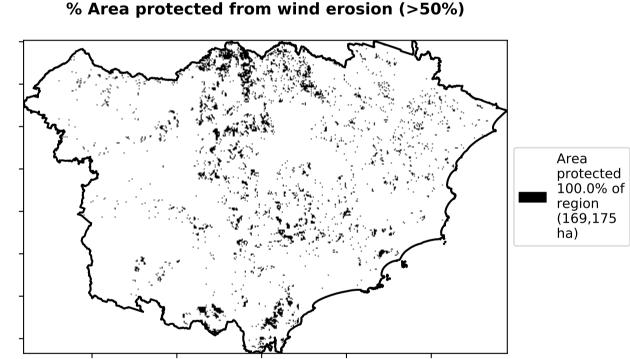


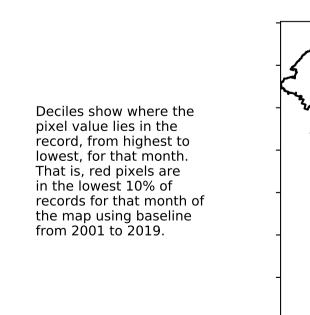


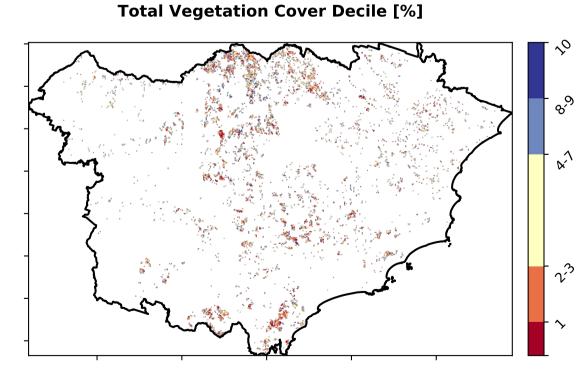
**Proportion of vegetation cover class in area** 

100

99.8%









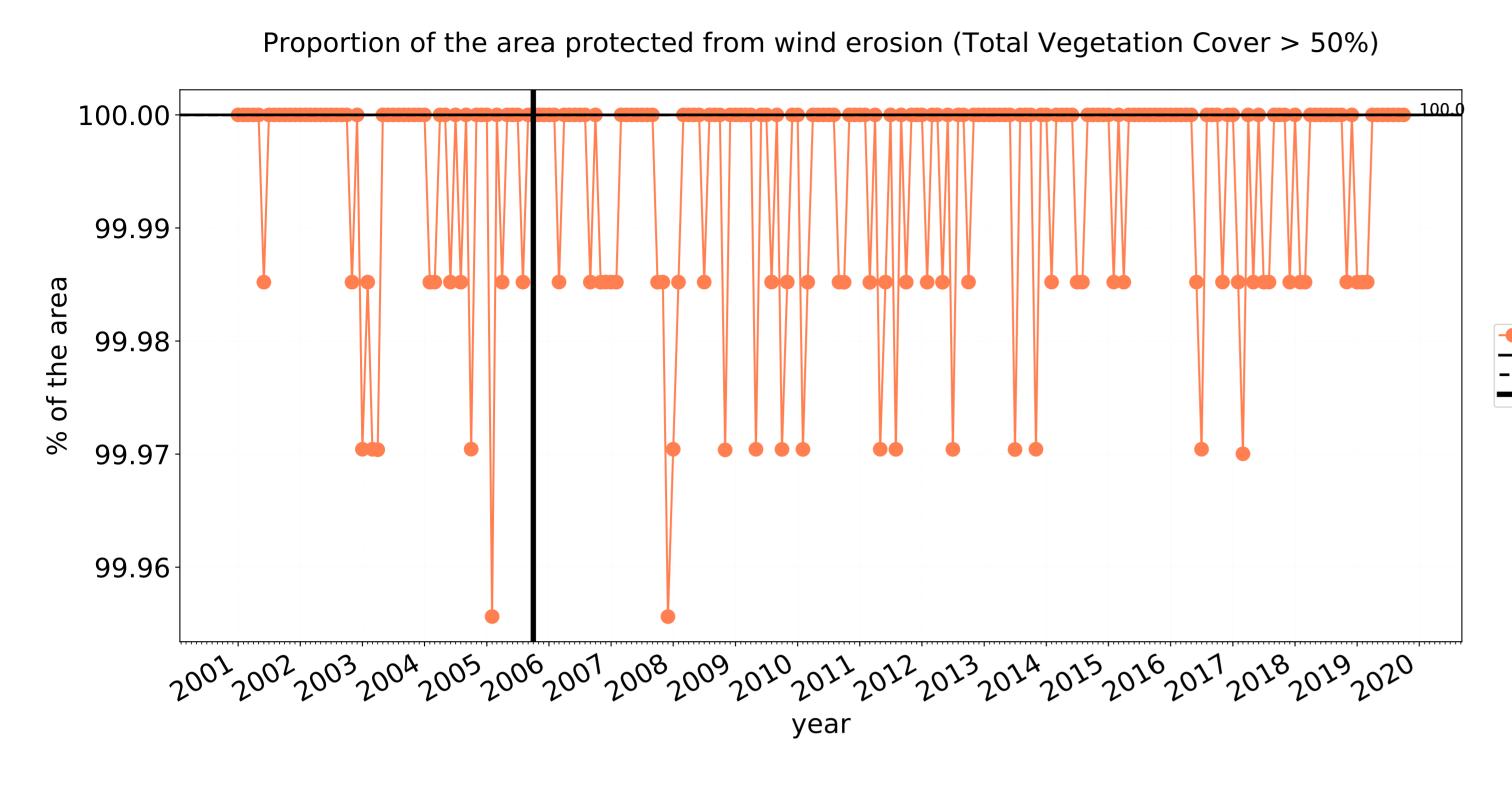


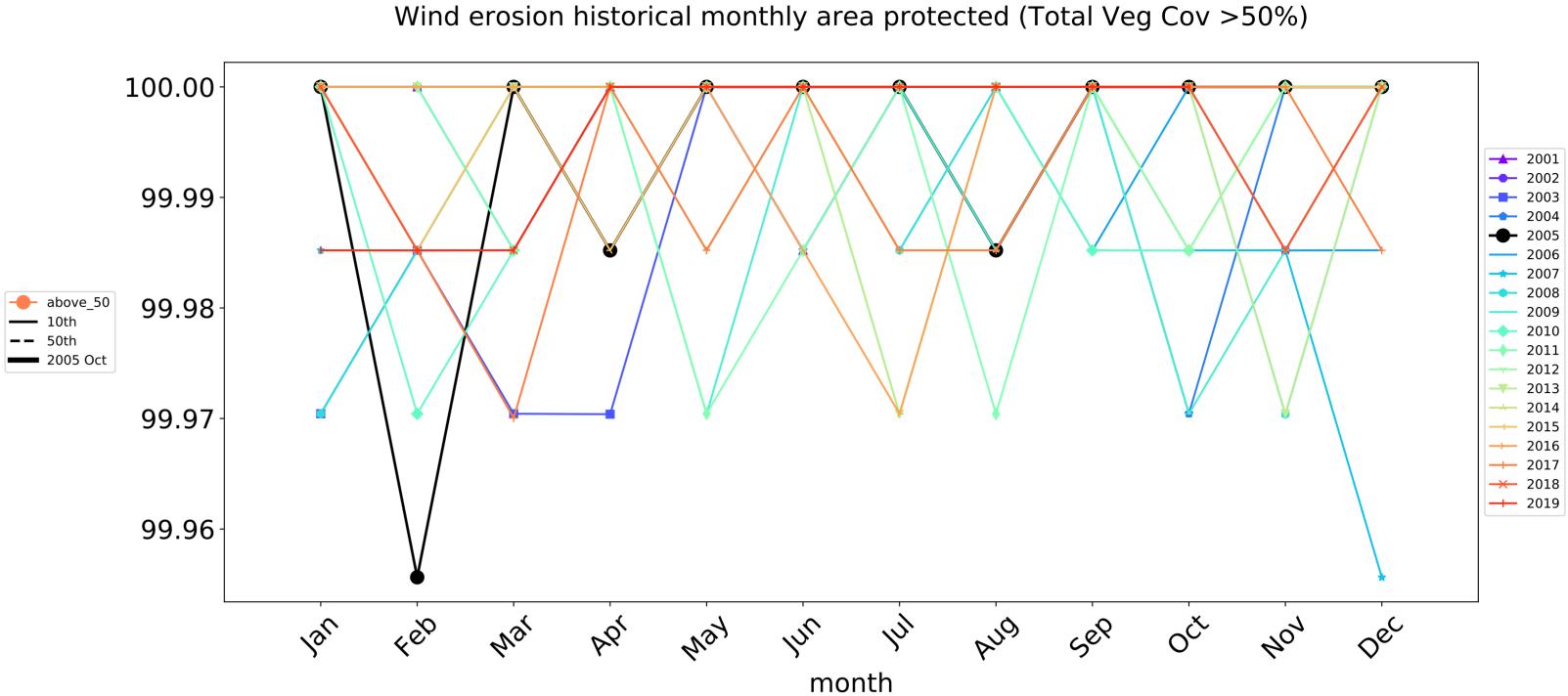


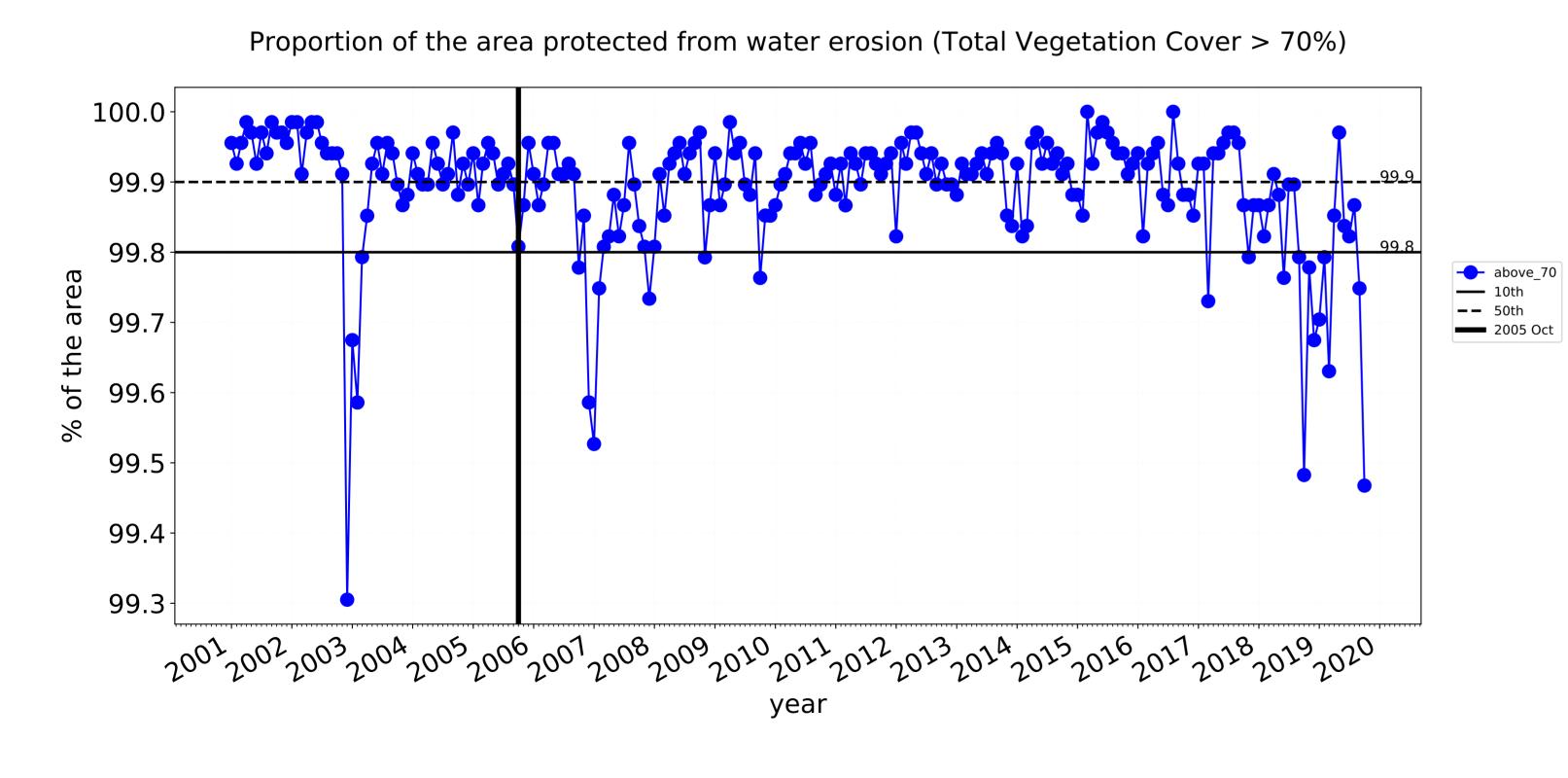


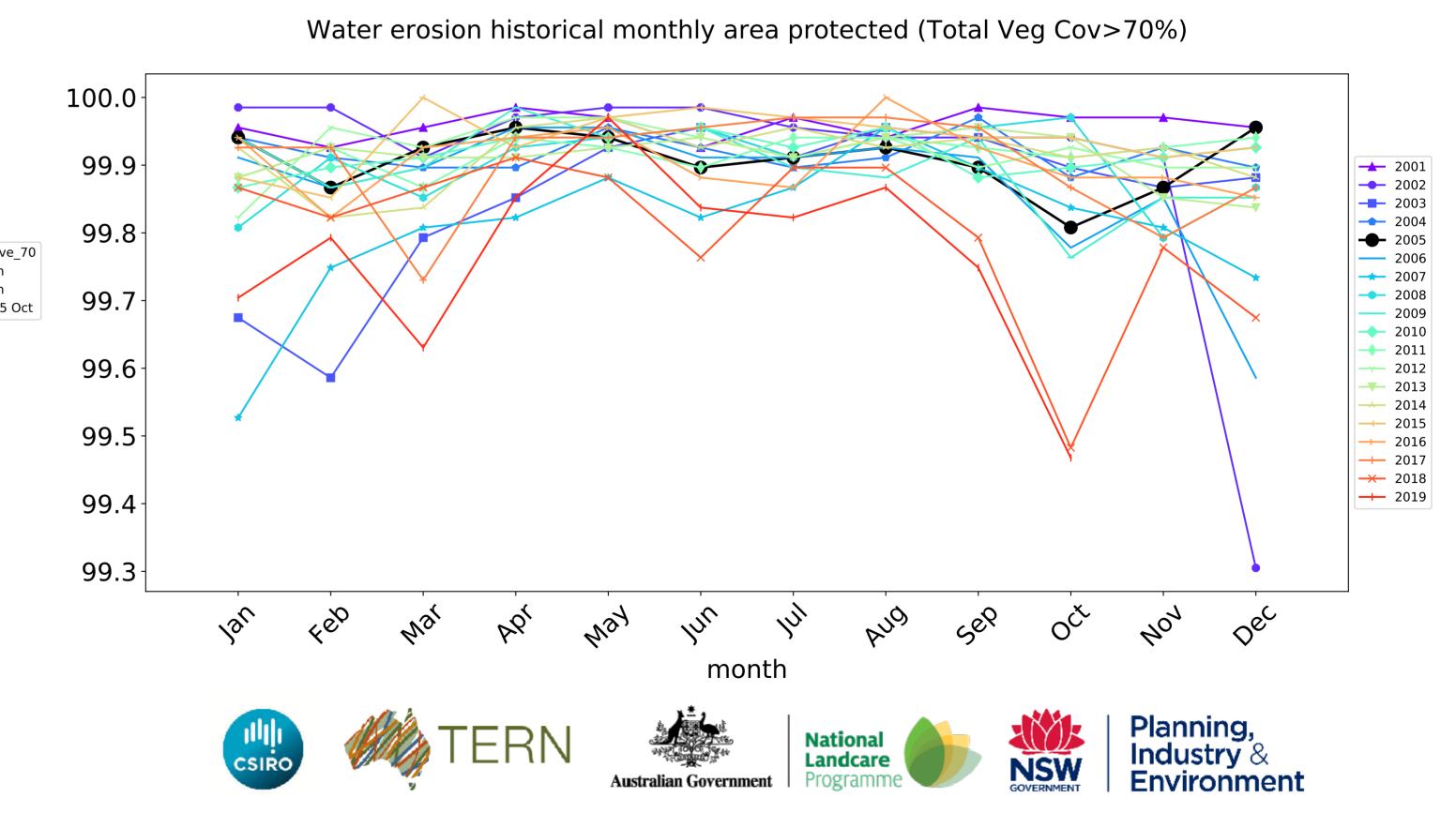


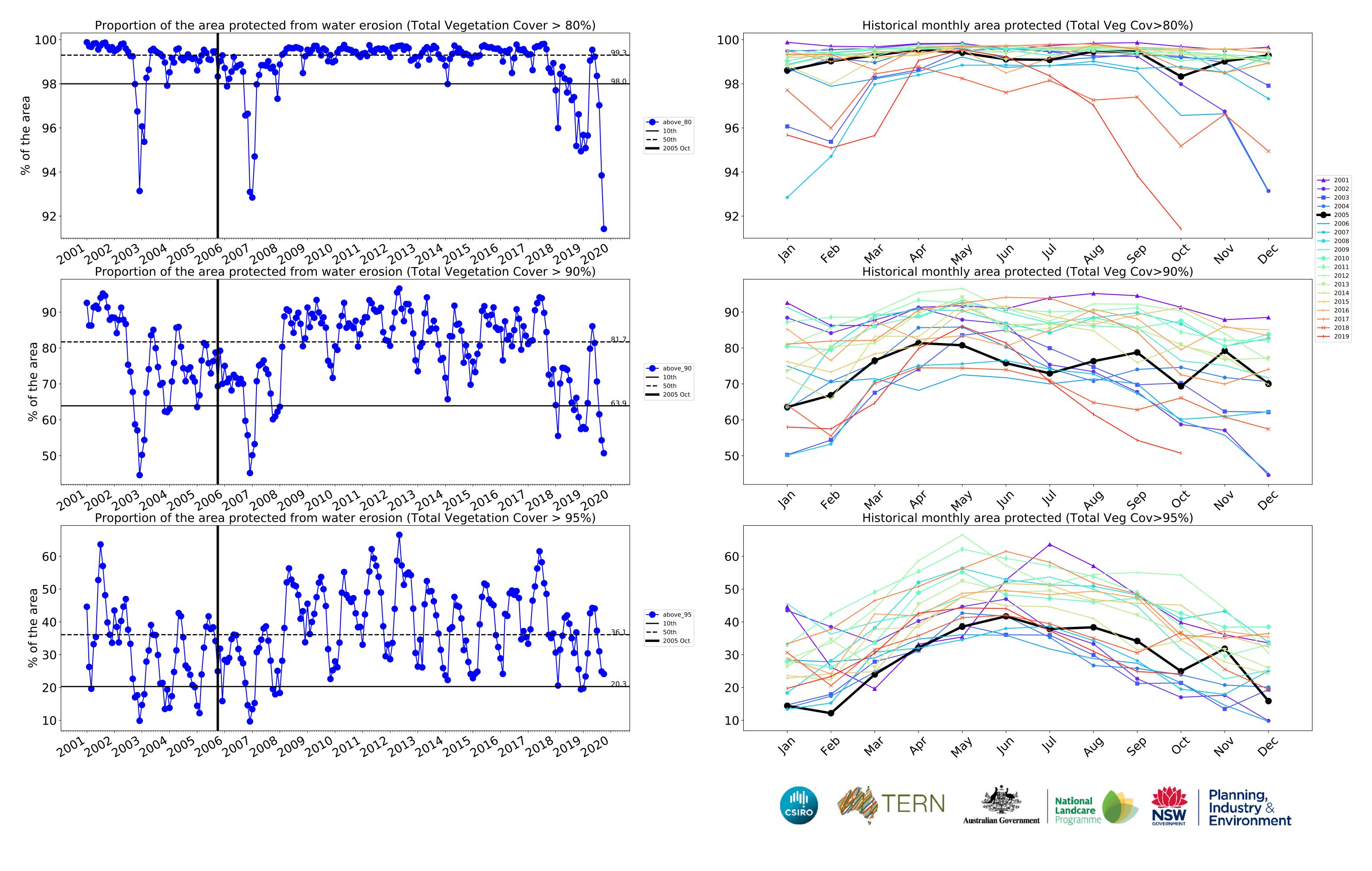






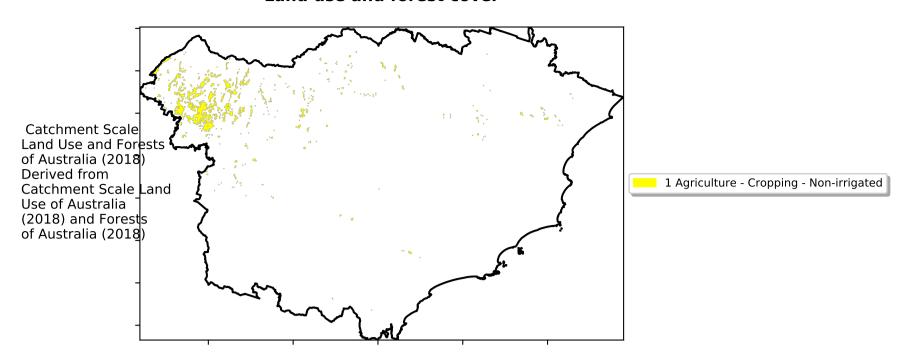




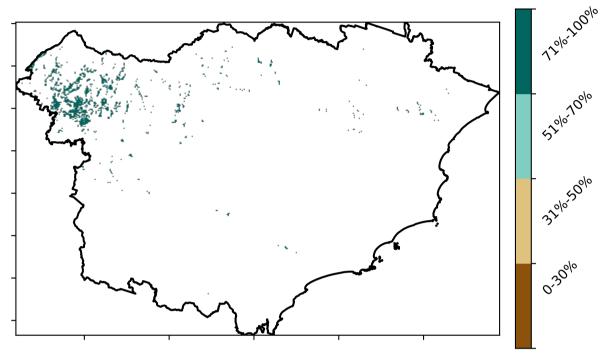


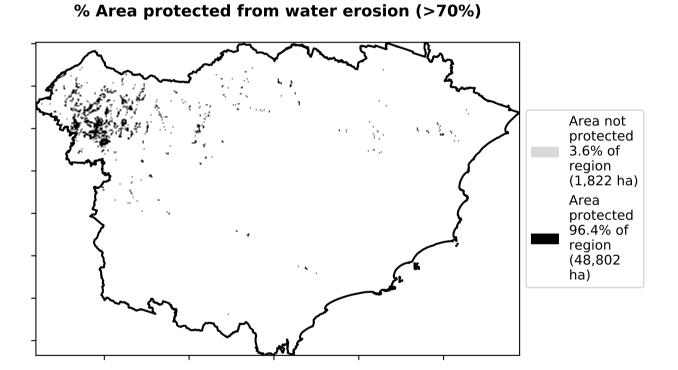
### **Cropping**

### Land use and forest cover

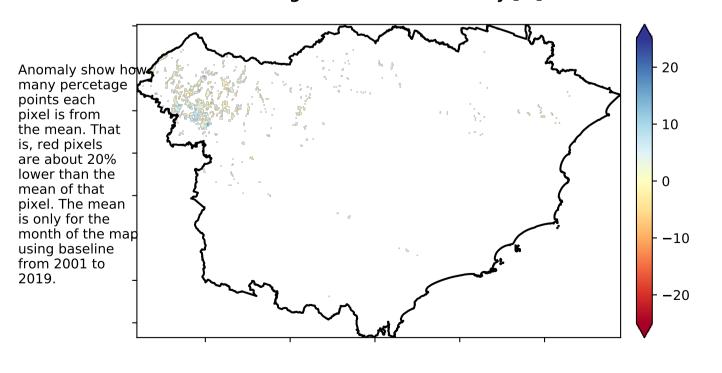


### **Total Vegetation Cover [%]**



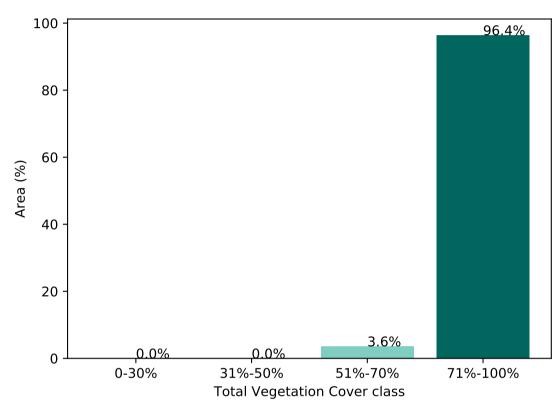


### Total Vegetation Cover Anomaly [%]

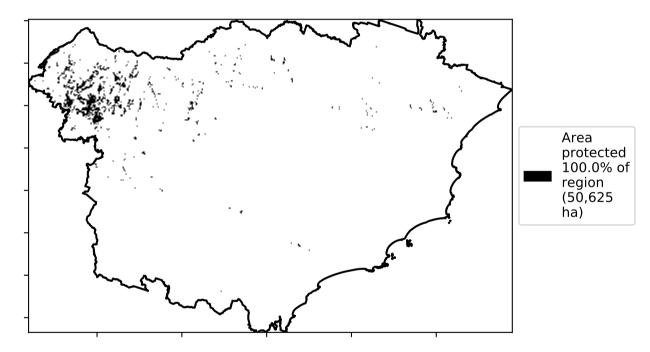


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

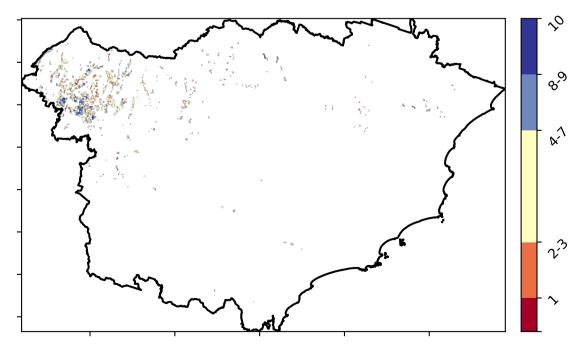
### **Proportion of vegetation cover class in area**



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



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







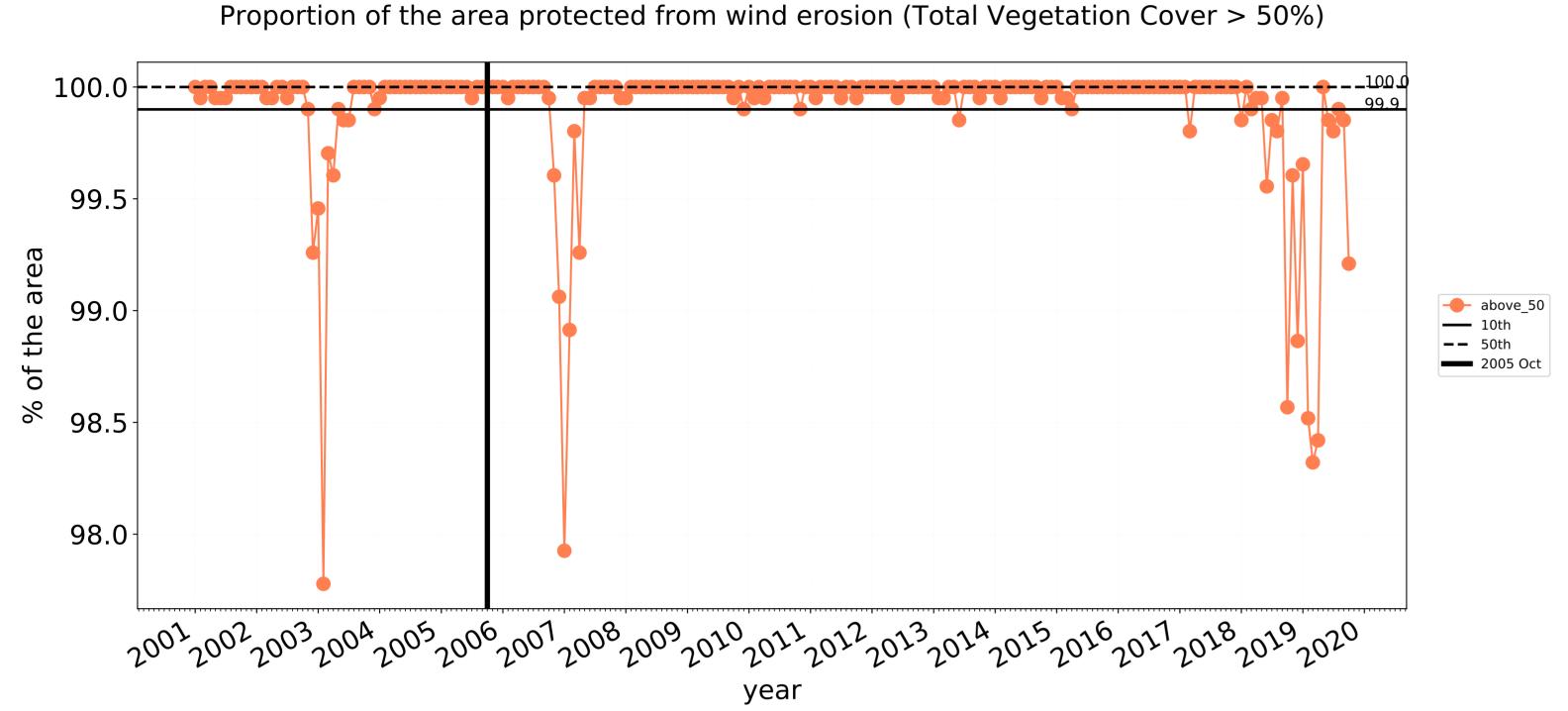


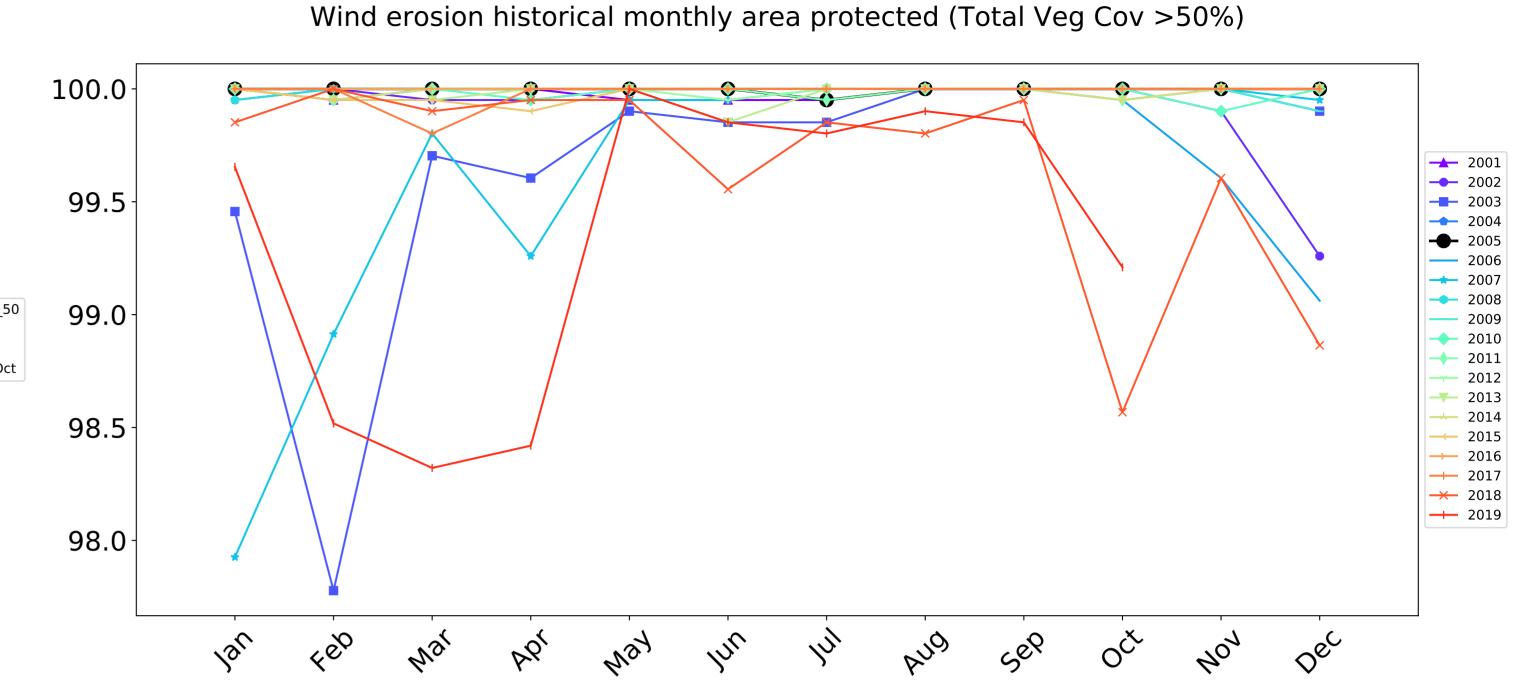




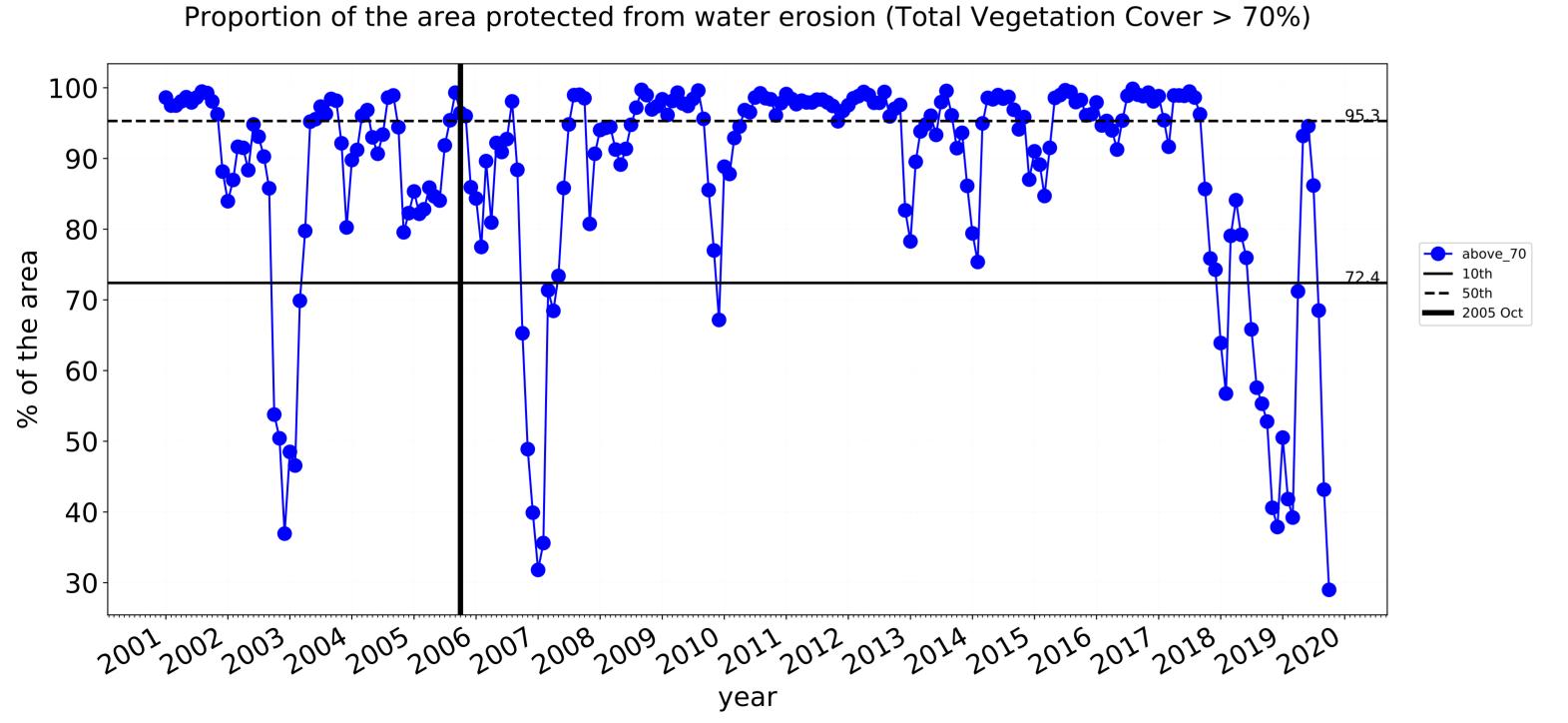


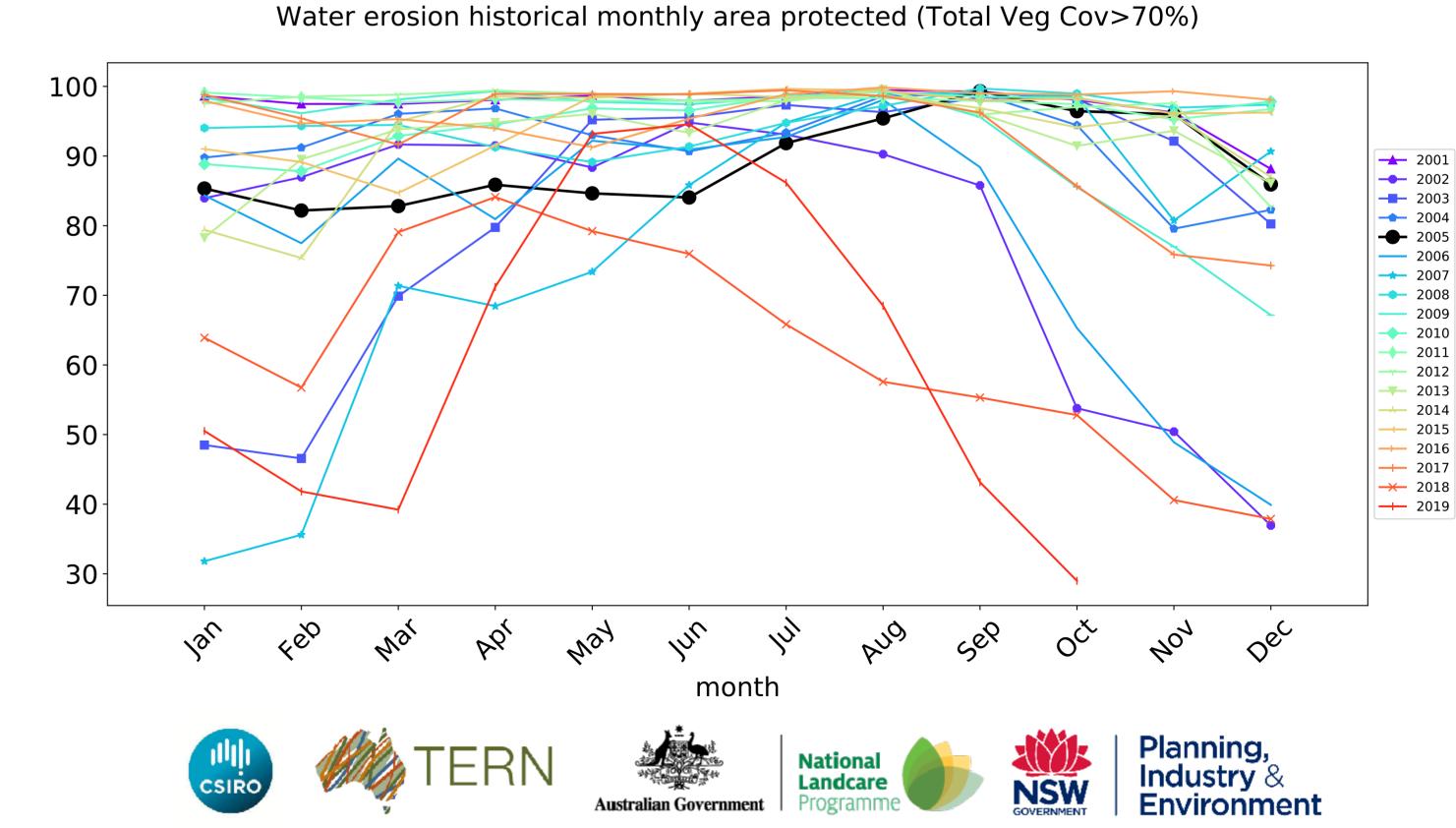
### **Cropping timeseries**

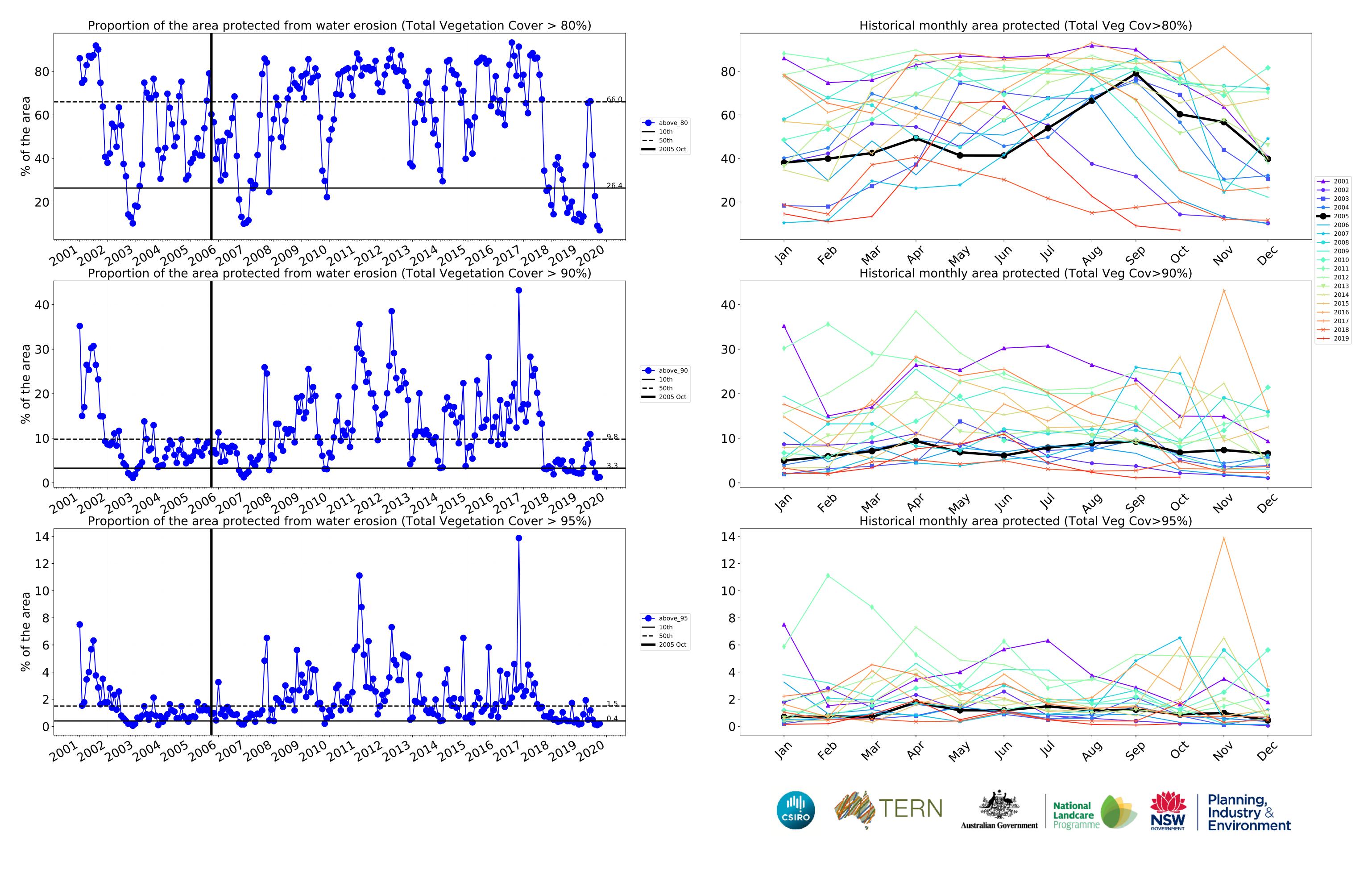




month







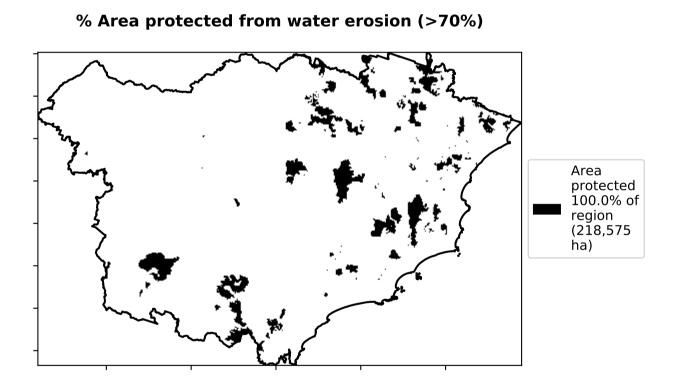
### **Production native forests and plantation forests**

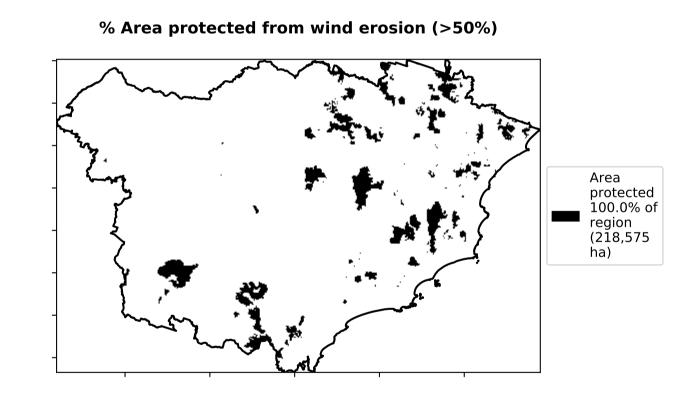
### Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) When the state of the stat

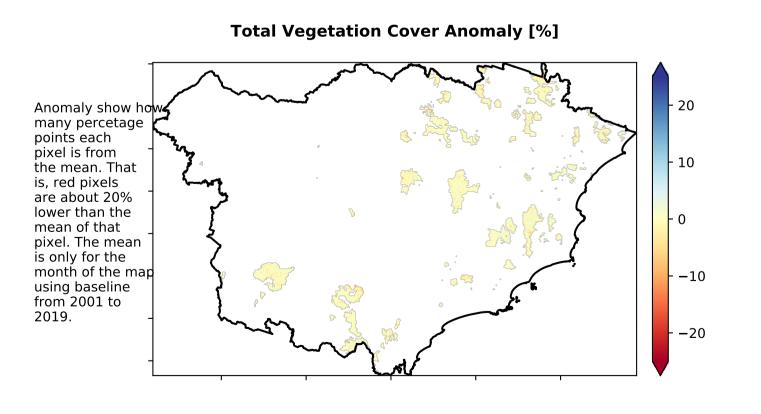
## Total Vegetation Cover [%]

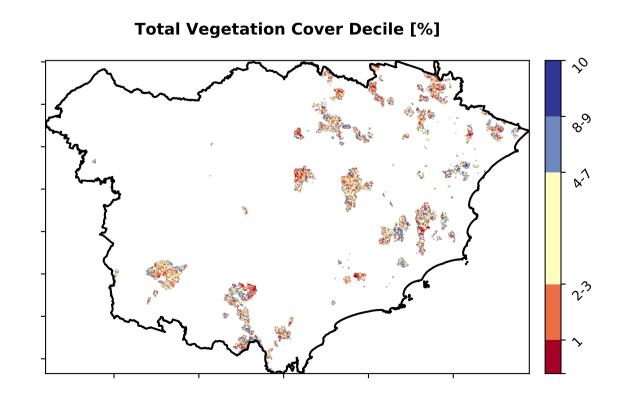
Proportion of vegetation cover class in area

100
80
80
20
0-30% 31%-50% 51%-70% 71%-100%
Total Vegetation Cover class













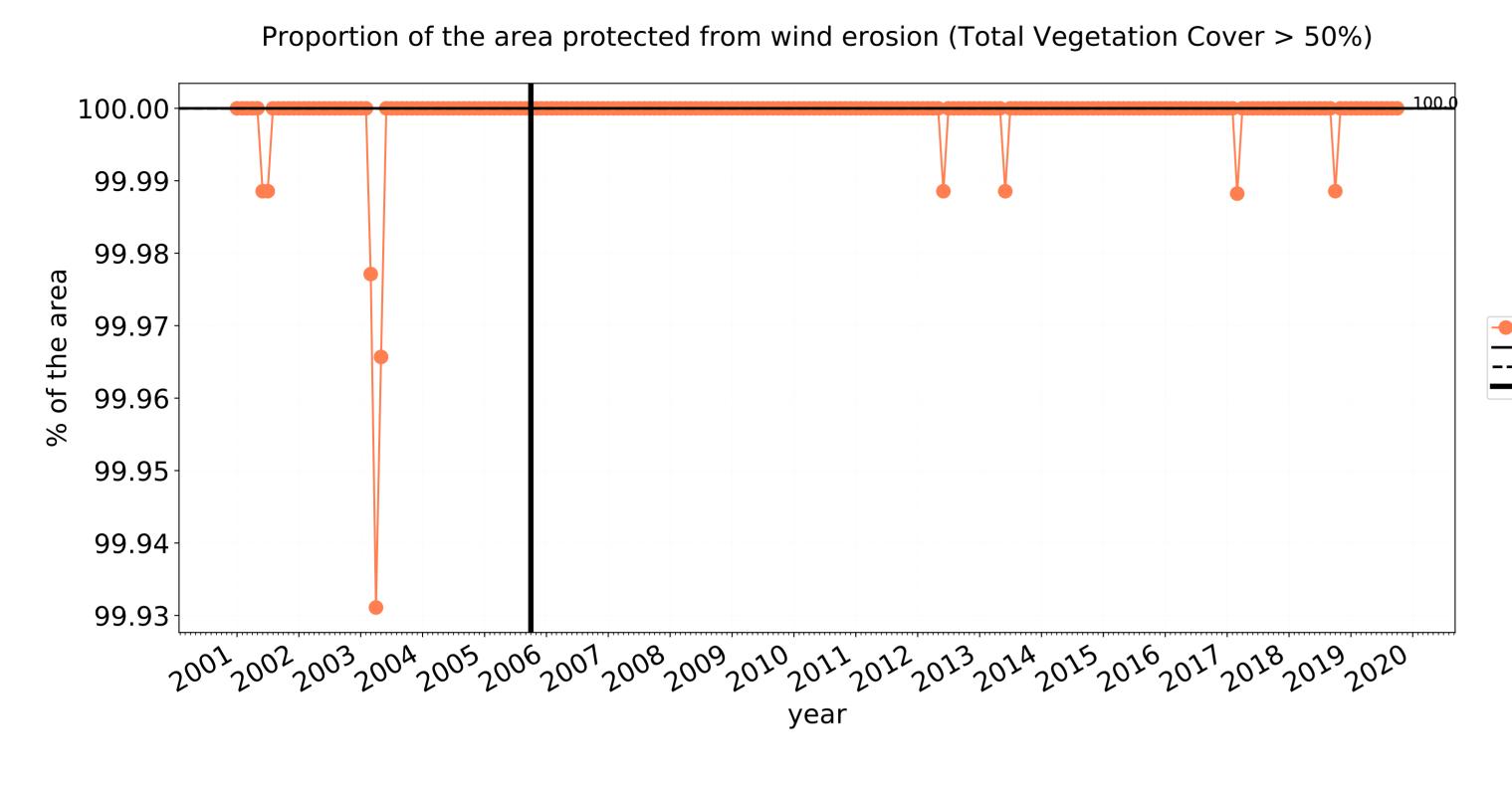


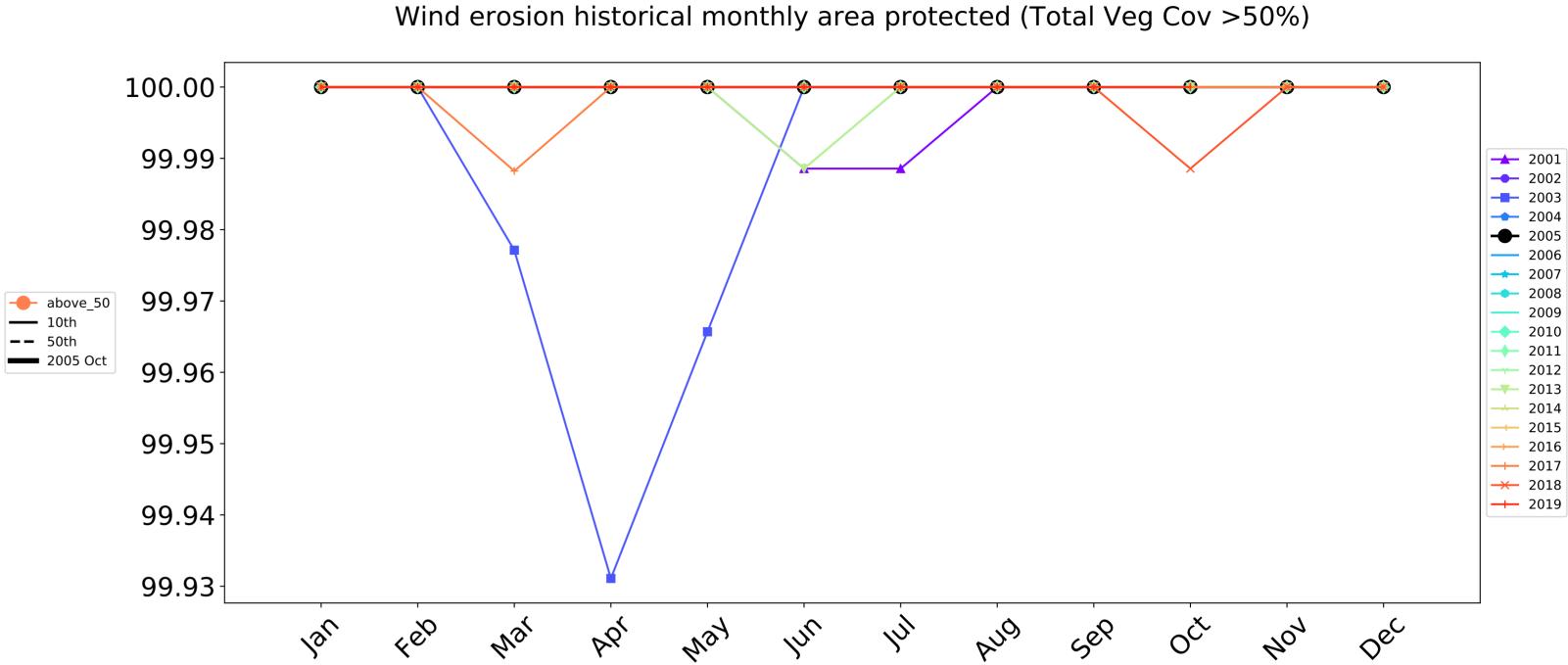




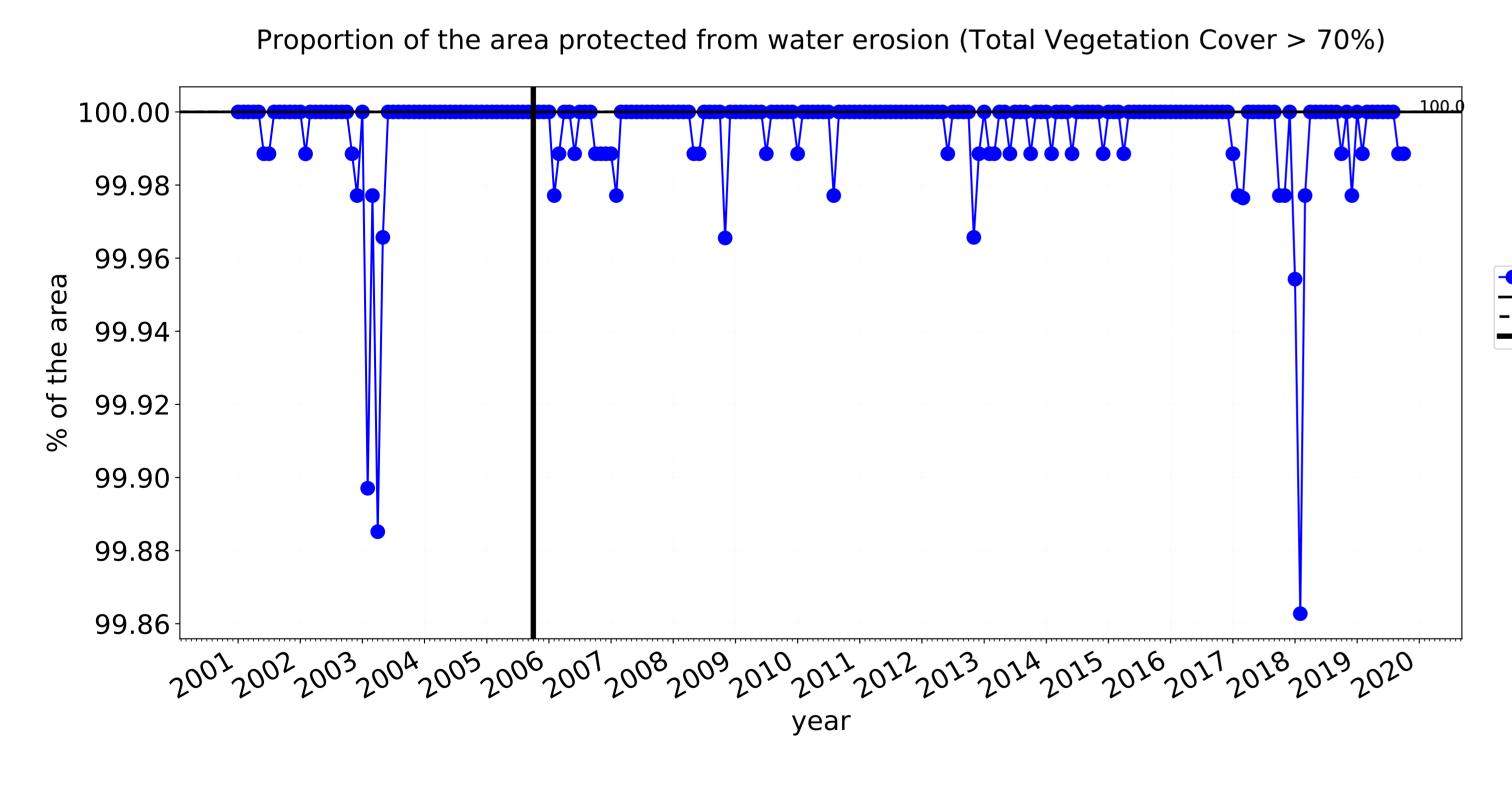


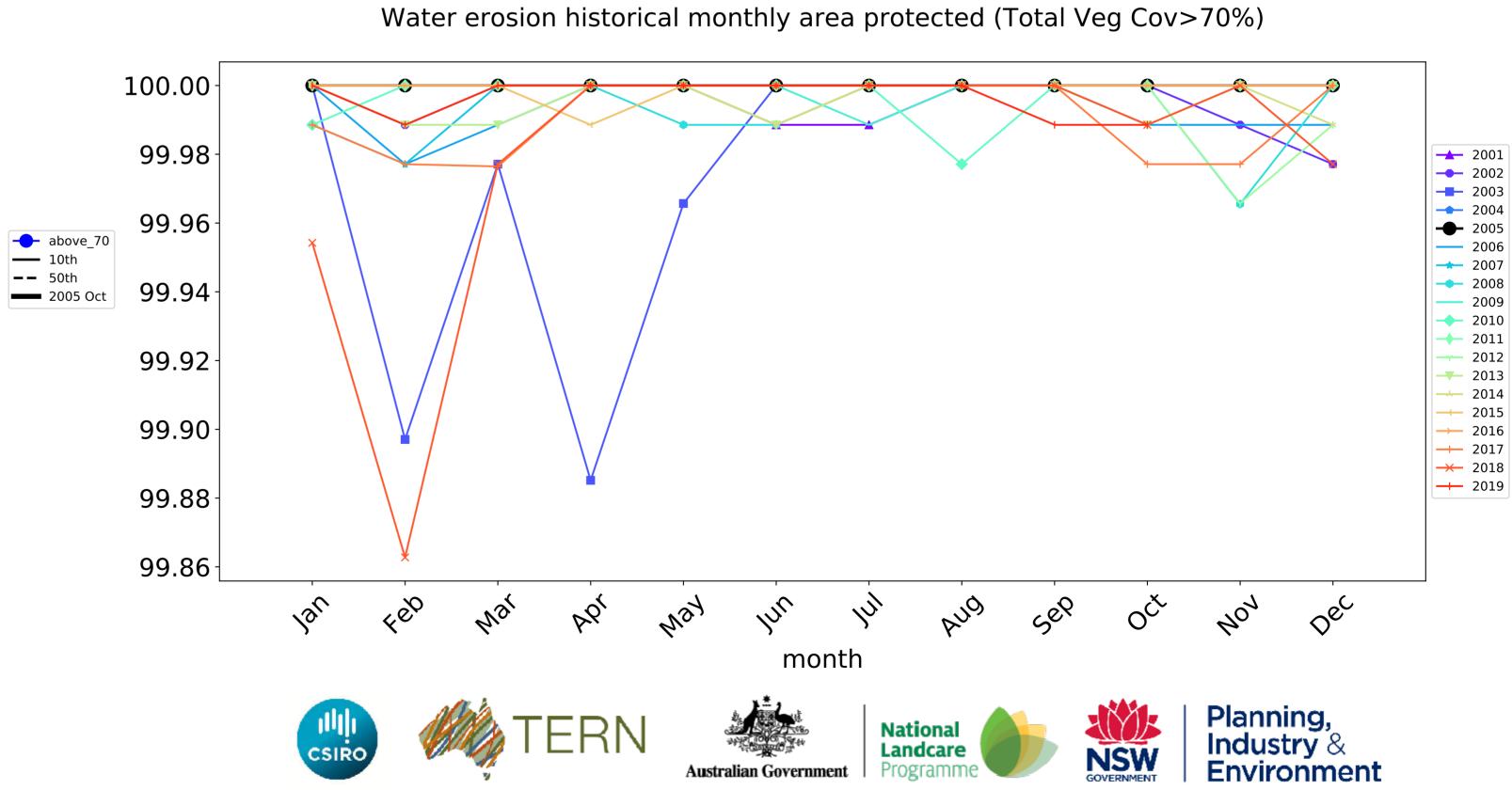
### **Production native forests and plantation forests timeseries**

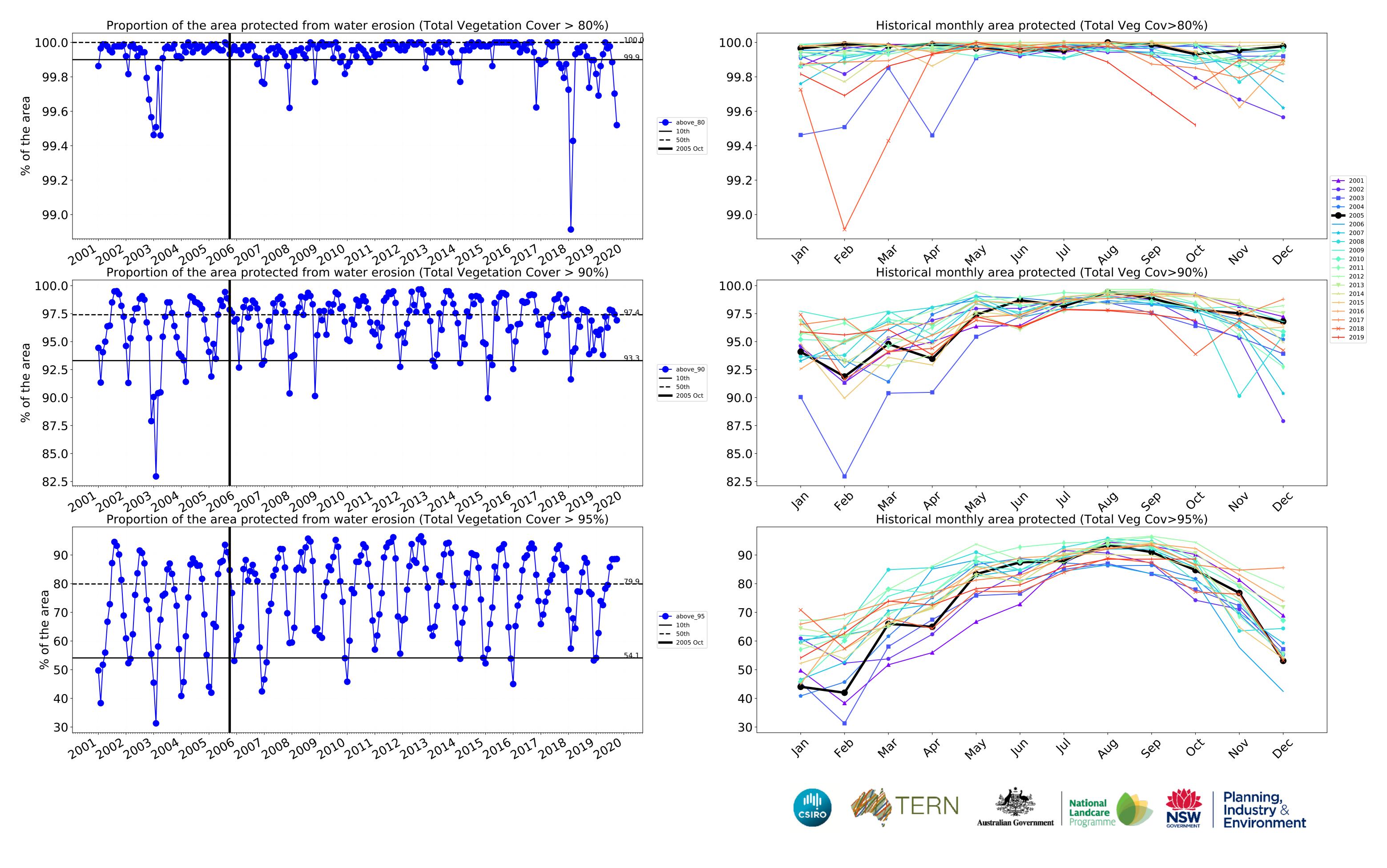




month







### Hunter (3,236,450 ha and no data 63,975 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	3,236,450	99.9% 3,233,875	99.7% 3,226,603	98.6% 3,192,163	94.8% 3,067,527	66.4% 2,148,236	33.1% 1,072,018
Conservation and natural environments	1,240,225	99.9% 1,239,125	99.8% 1,238,325	99.7% 1,236,625	99.2% 1,230,650	85.6% 1,061,975	52.8% 655,350
Conservation and natural environments non forest	29,825	96.3% 28,725	94.3% 28,125	90.9% 27,125	87.6% 26,125	65.9% 19,650	27.1% 8,075
Conservation and natural environments Woodland forest	138,975	100.0% 138,975	99.9% 138,900	99.9% 138,825	99.2% 137,900	72.8% 101,150	30.2% 41,925
Conservation and natural environments Forest (non woodland)	1,071,425	100.0% 1,071,425	100.0% 1,071,300	99.9% 1,070,675	99.6% 1,066,625	87.8% 941,175	56.5% 605,350
Agriculture	1,580,575	100.0% 1,580,500	100.0% 1,580,075	99.6% 1,574,150	94.6% 1,495,300	52.3% 826,450	13.9% 220,275
Grazing	1,502,575	100.0% 1,502,500	100.0% 1,502,075	99.7% 1,498,250	96.2% 1,445,050	54.6% 820,275	14.6% 219,350
Grazing non forest	1,212,750	100.0% 1,212,675	100.0% 1,212,250	99.7% 1,208,850	95.7% 1,160,850	53.0% 642,275	13.5% 163,300
Grazing Woodland forest	120,650	100.0% 120,650	100.0% 120,650	99.9% 120,550	97.7% 117,850	50.3% 60,725	11.5% 13,825
Grazing - Forest (non woodland)	169,175	100.0% 169,175	100.0% 169,175	99.8% 168,850	98.3% 166,350	69.3% 117,275	25.0% 42,225
Cropping	50,625	100.0% 50,625	100.0% 50,625	96.4% 48,825	60.3% 30,525	6.8% 3,450	0.9% 450
Production native forests and plantation forests	218,575	100.0% 218,575	100.0% 218,575	100.0% 218,575	99.9% 218,425	97.8% 213,875	84.7% 185,200











