Total vegetation cover soil protection Region:NRM Hunter NSW

Date: January 2020

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:

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





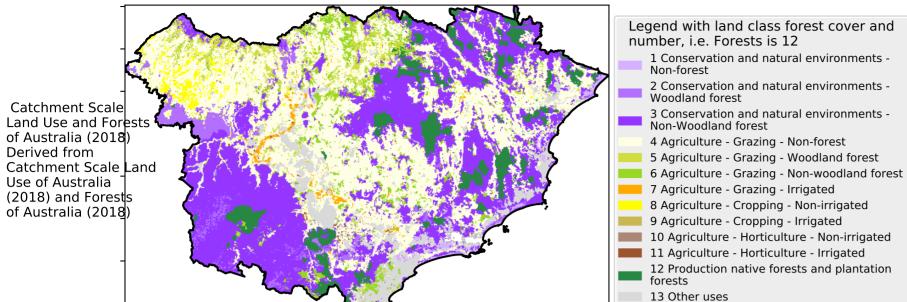




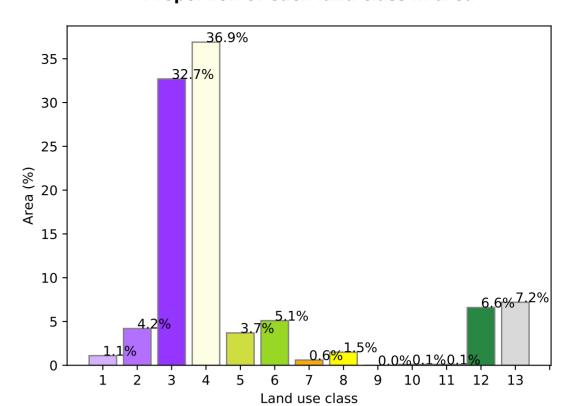


Vegetation Cover Jan 2020

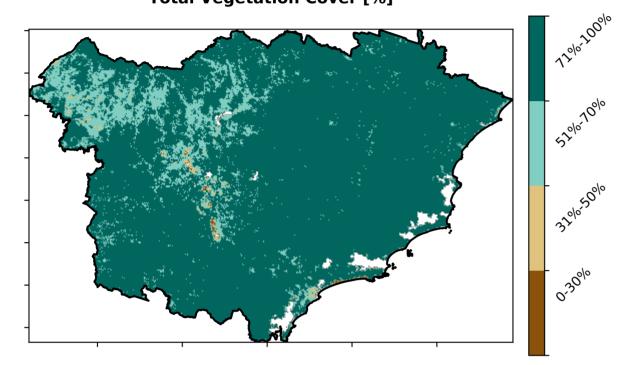
Land use and forest cover



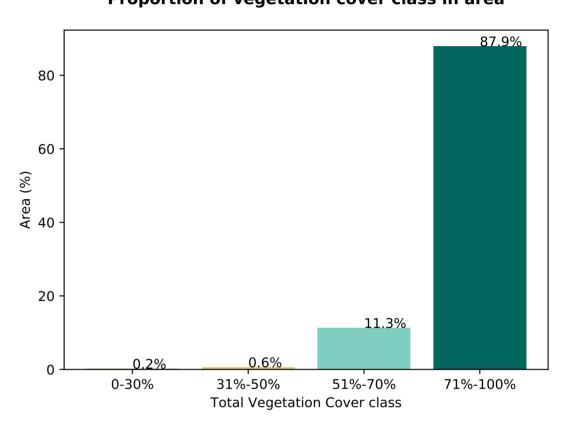
Proportion of each land class in area

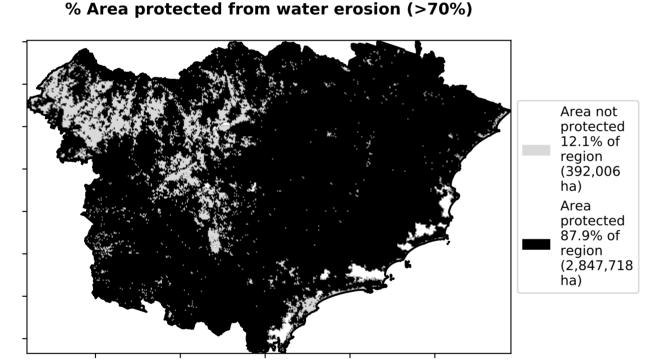


Total Vegetation Cover [%]

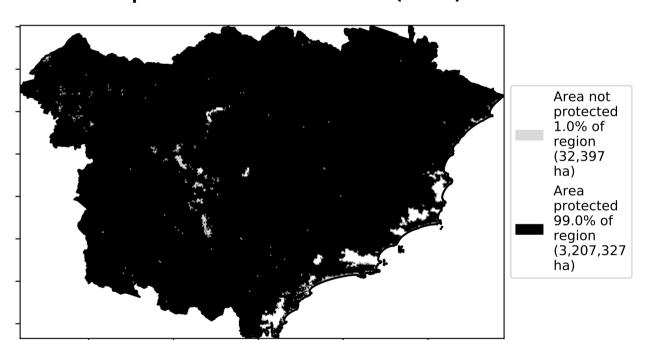


Proportion of vegetation cover class in area

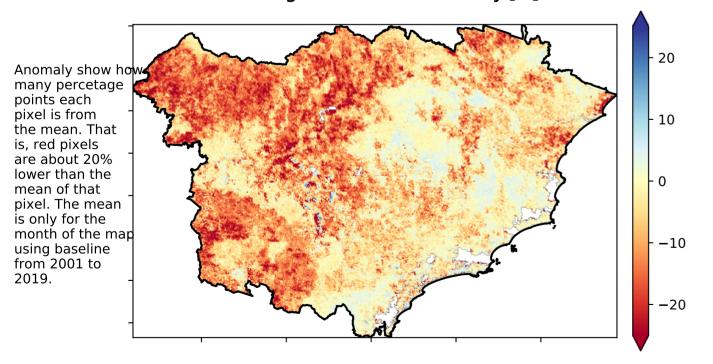


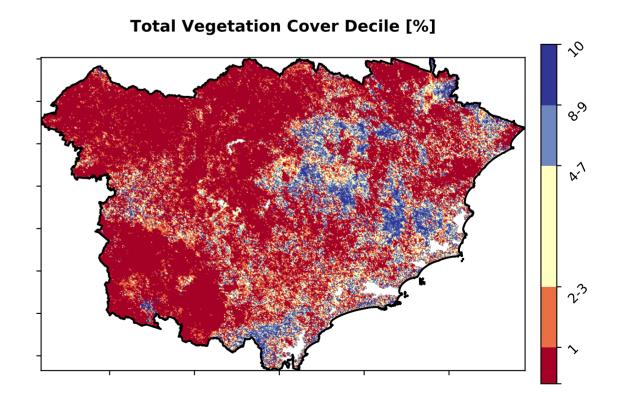


% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]







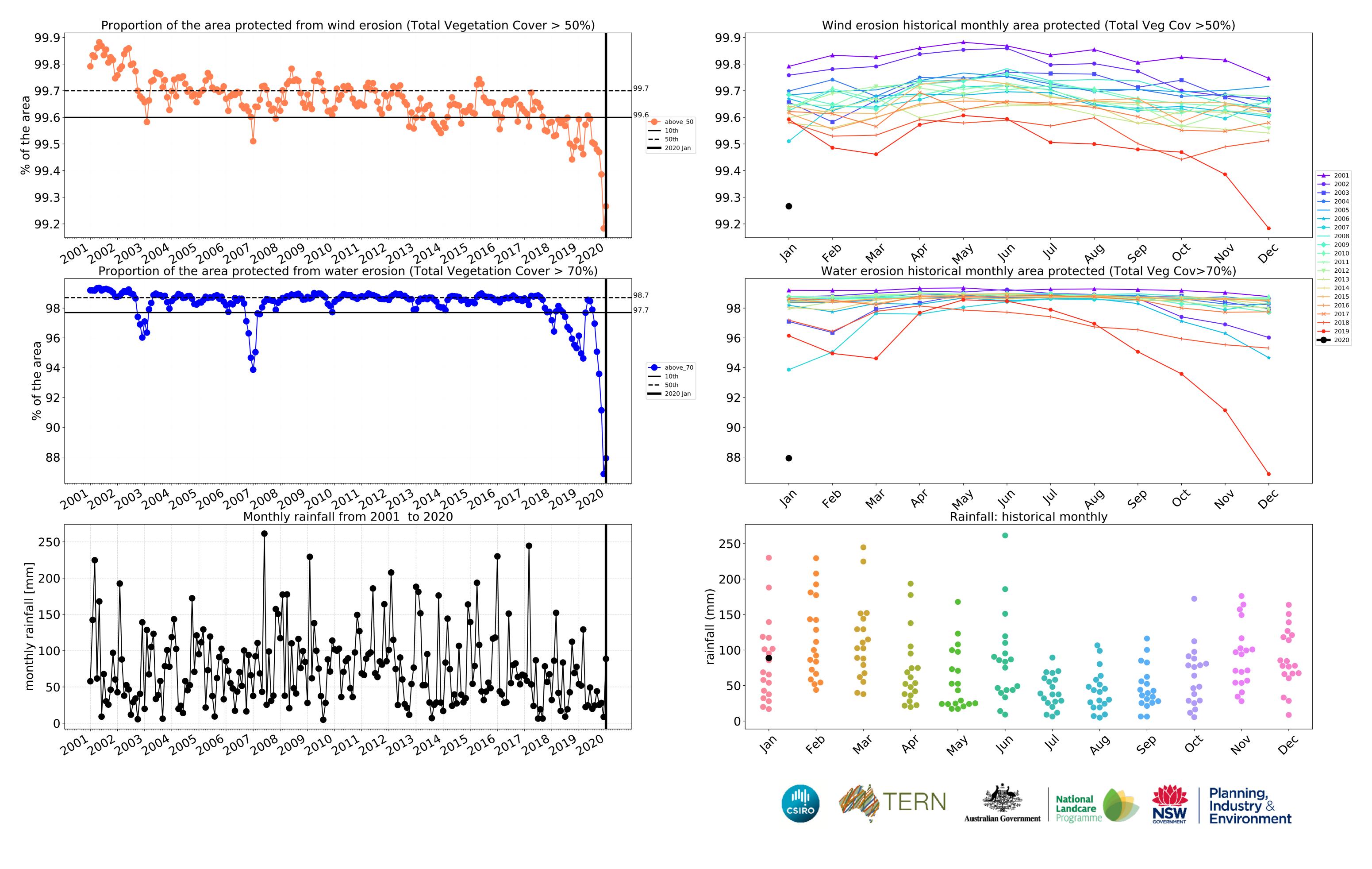


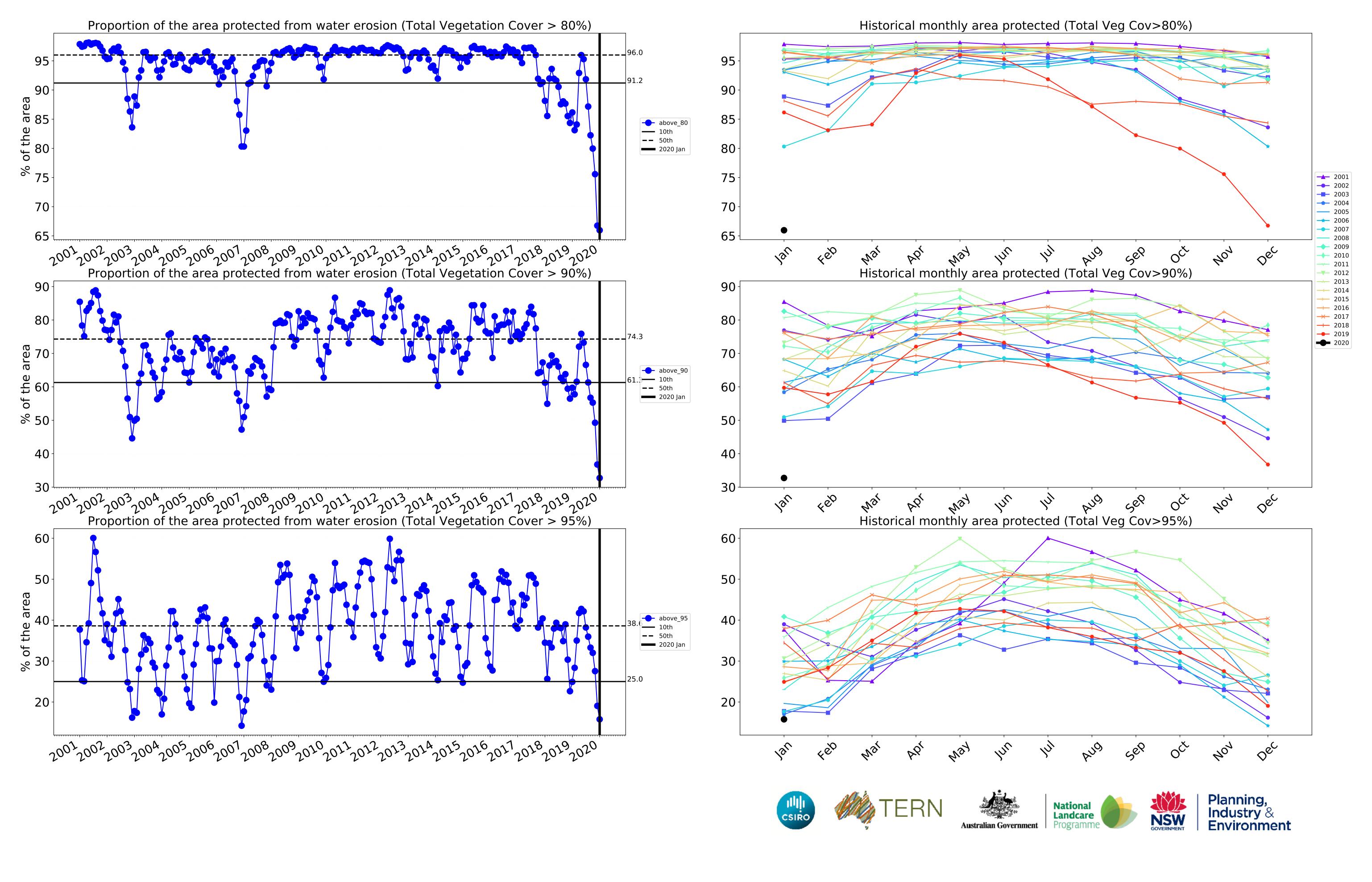




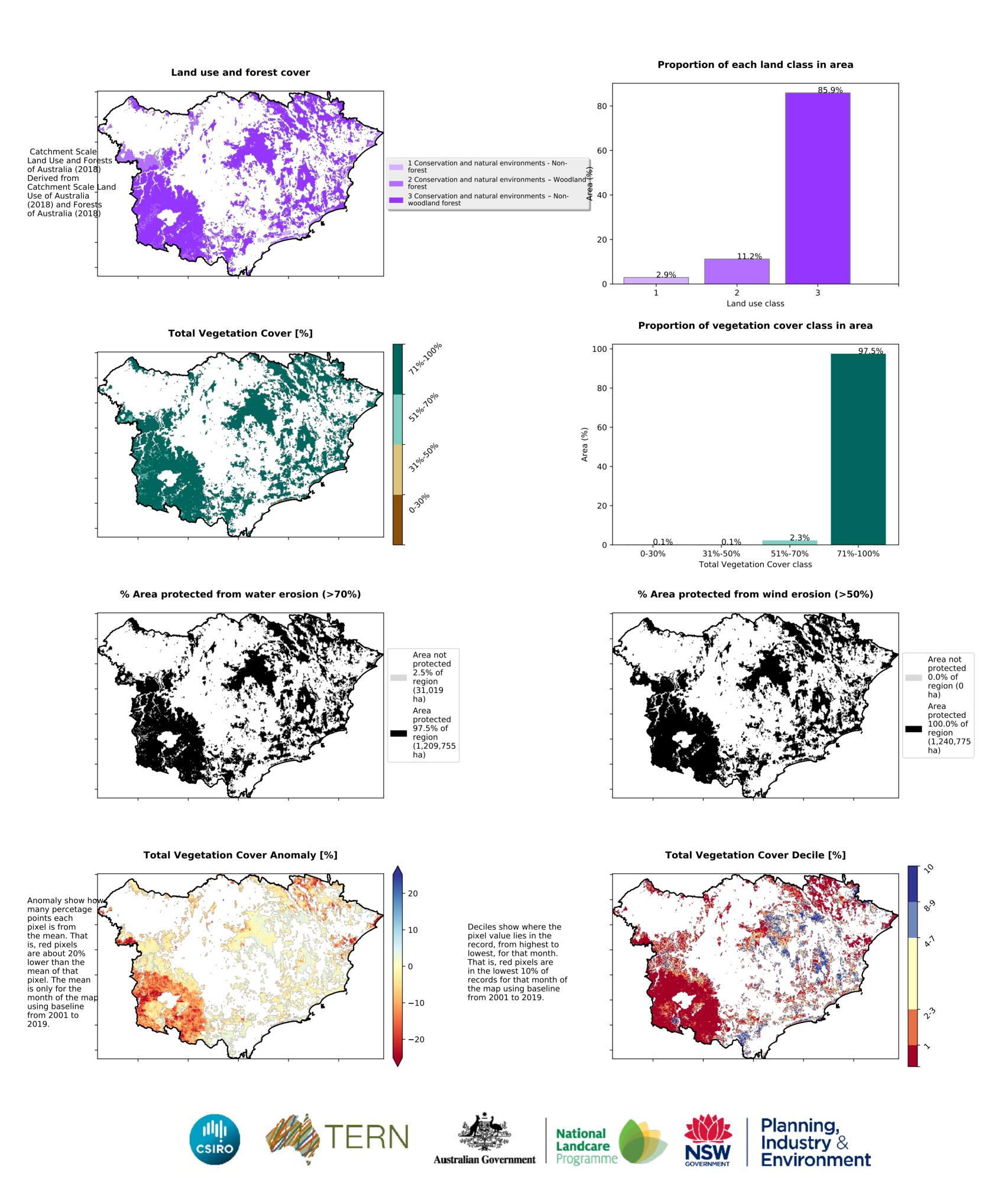




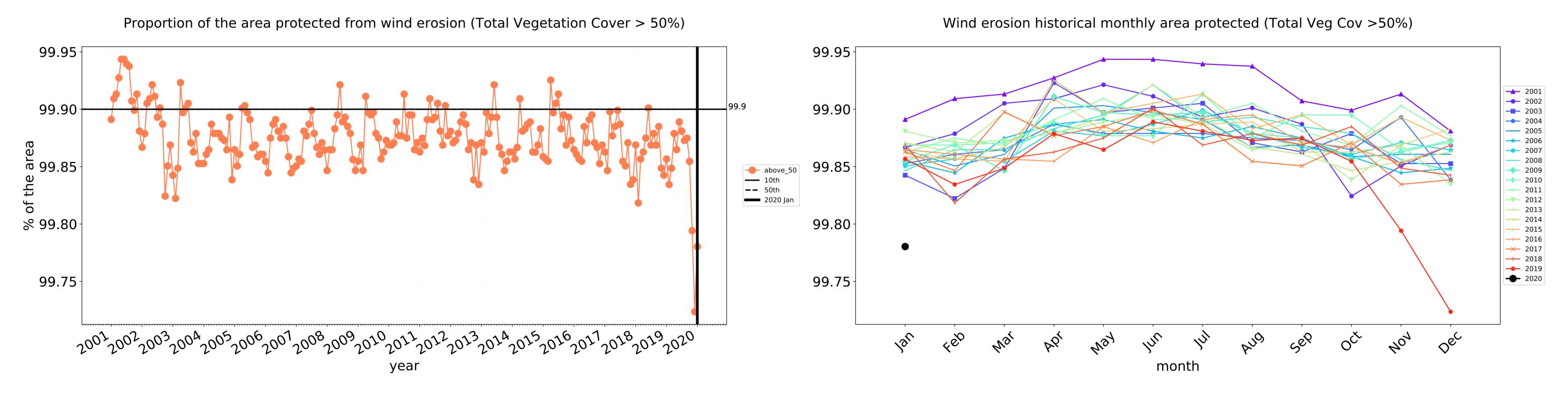


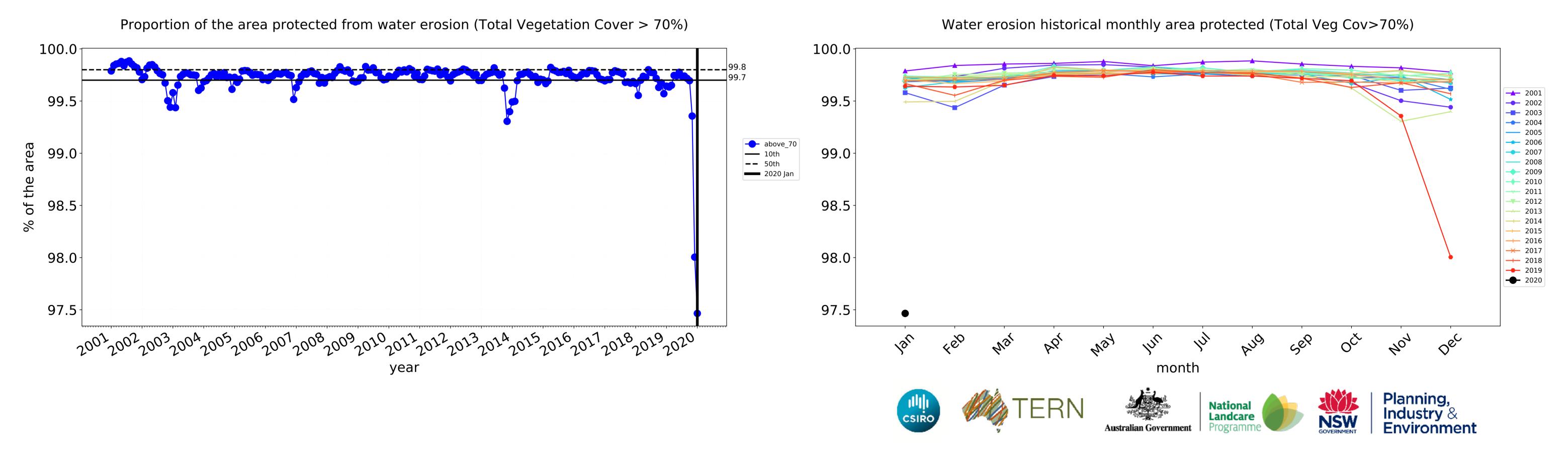


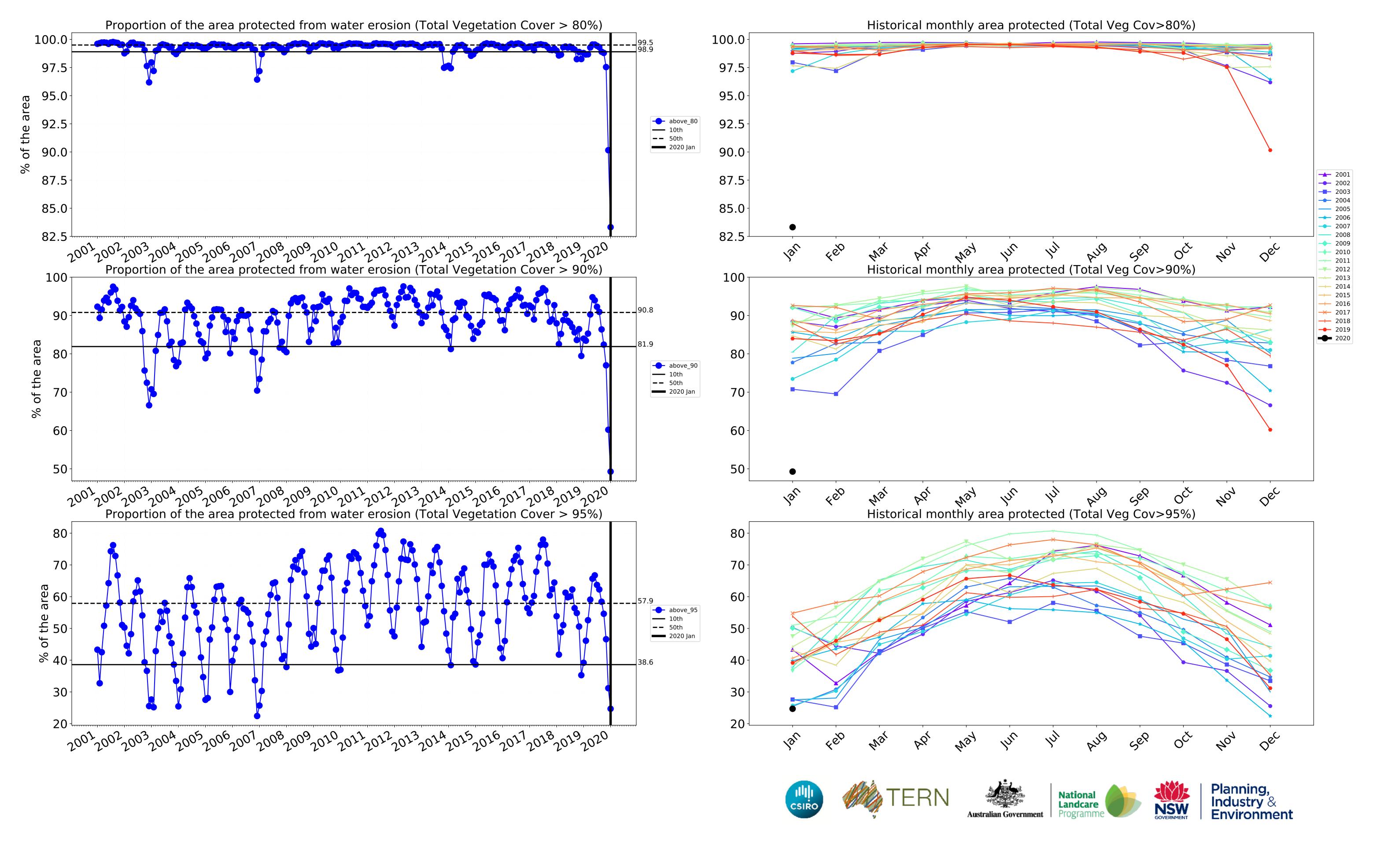
Conservation and natural environments



Conservation and natural environments timeseries



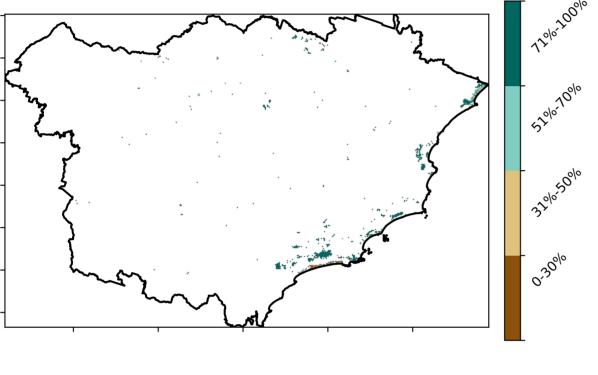


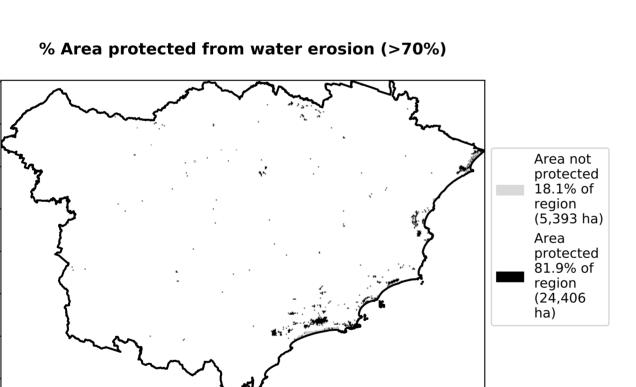


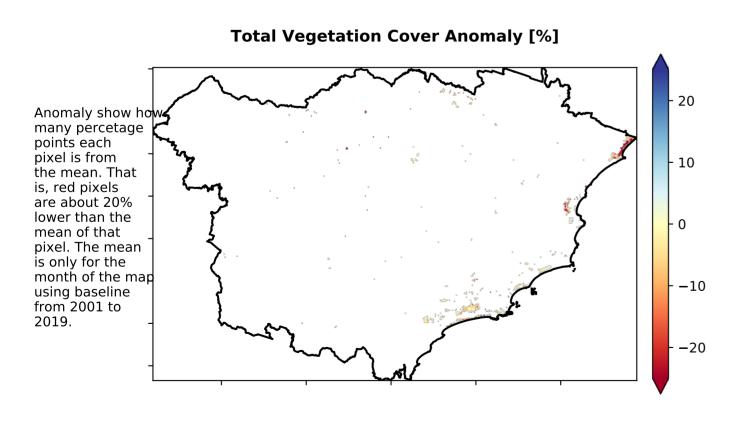
Conservation and natural environments non forest

Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments - Non-Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]

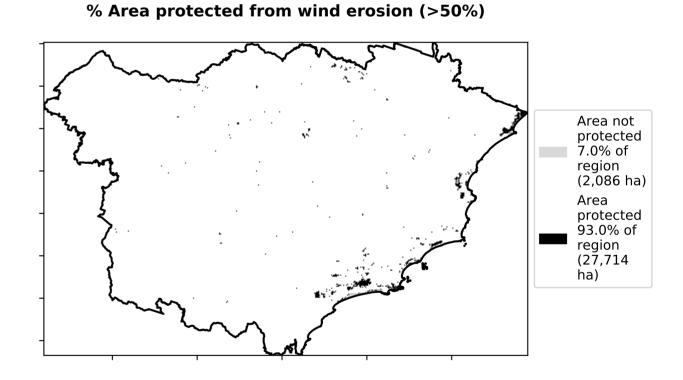


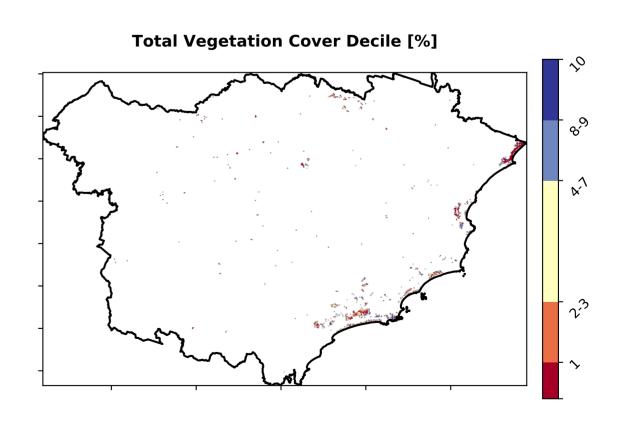




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area 81.9% 80 -70 60 Area (%) 30 20 -10.8% 10 2.7% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**









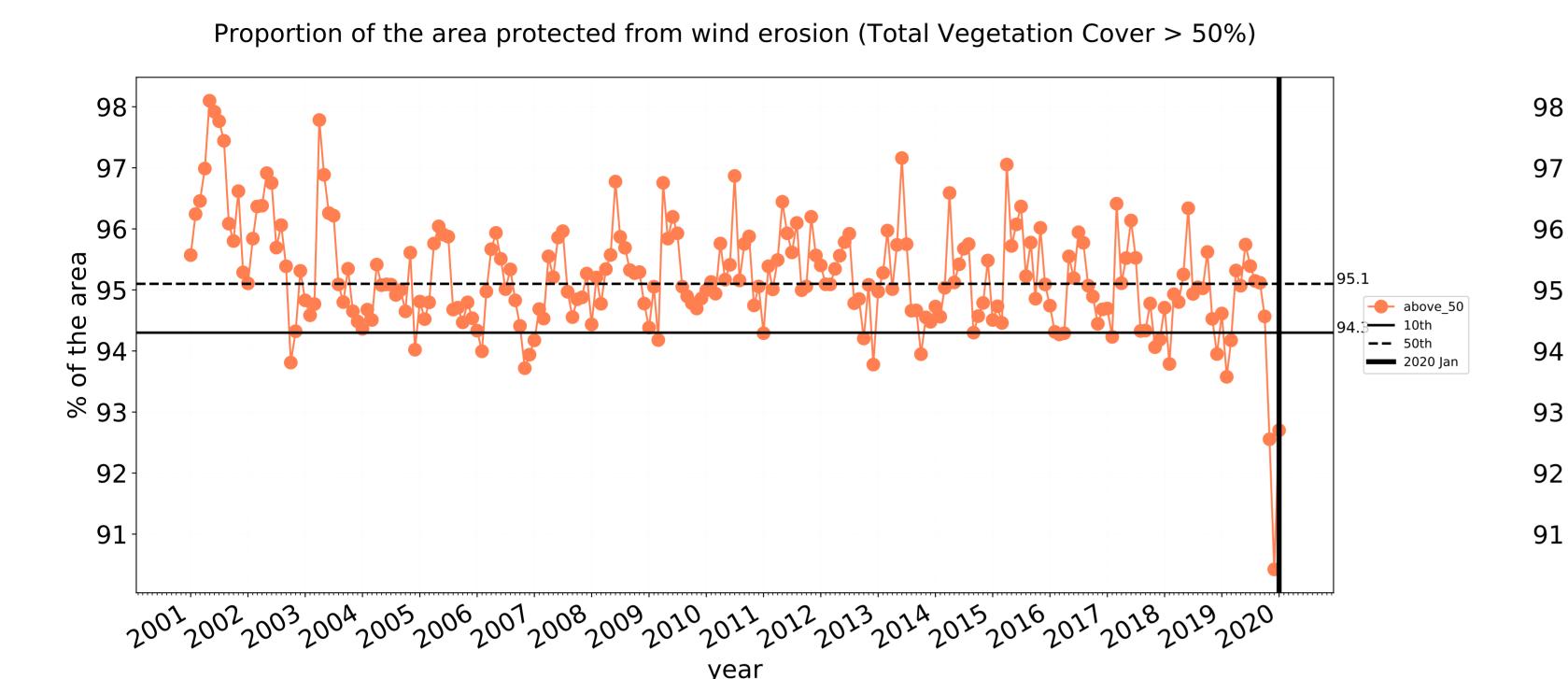






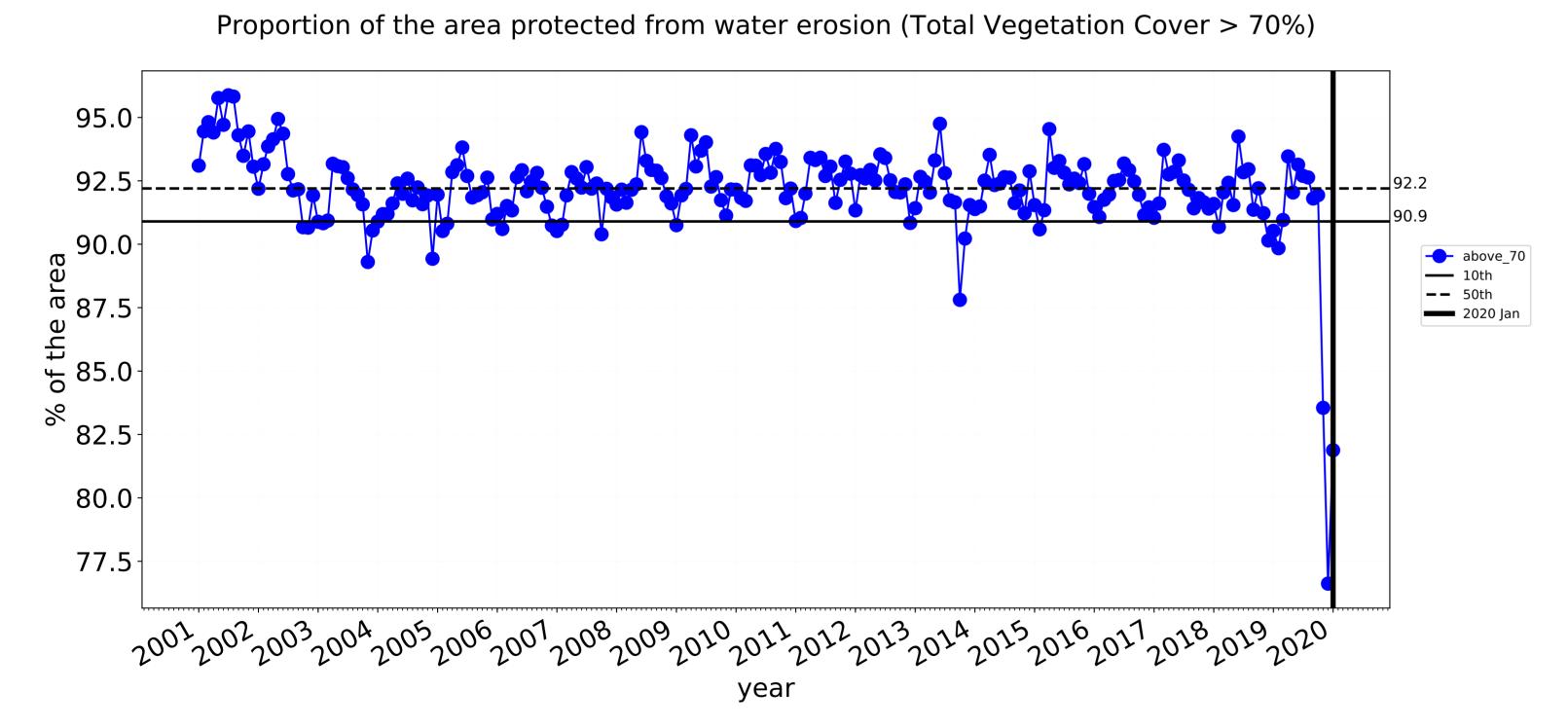


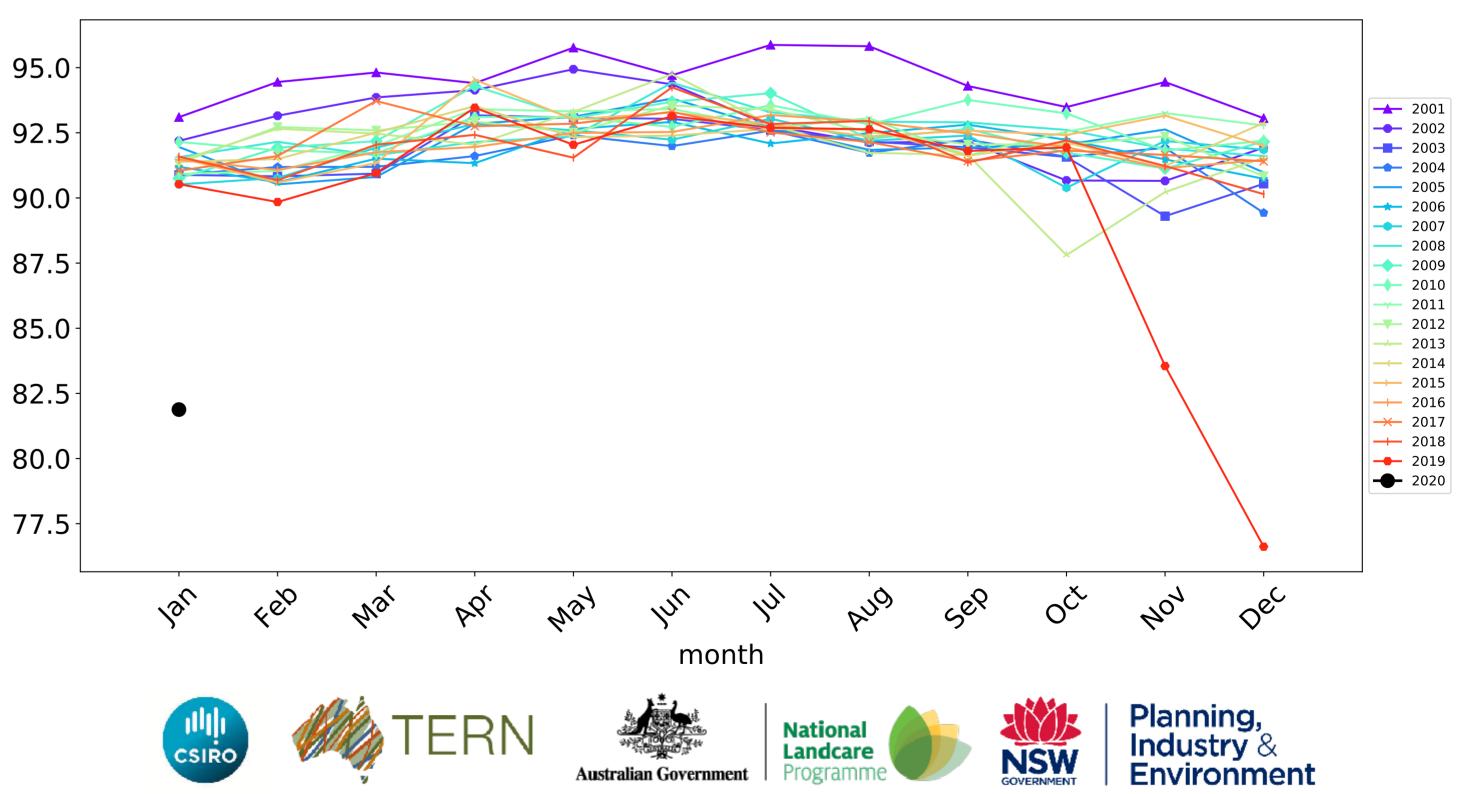
Conservation and natural environments non forest timeseries



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

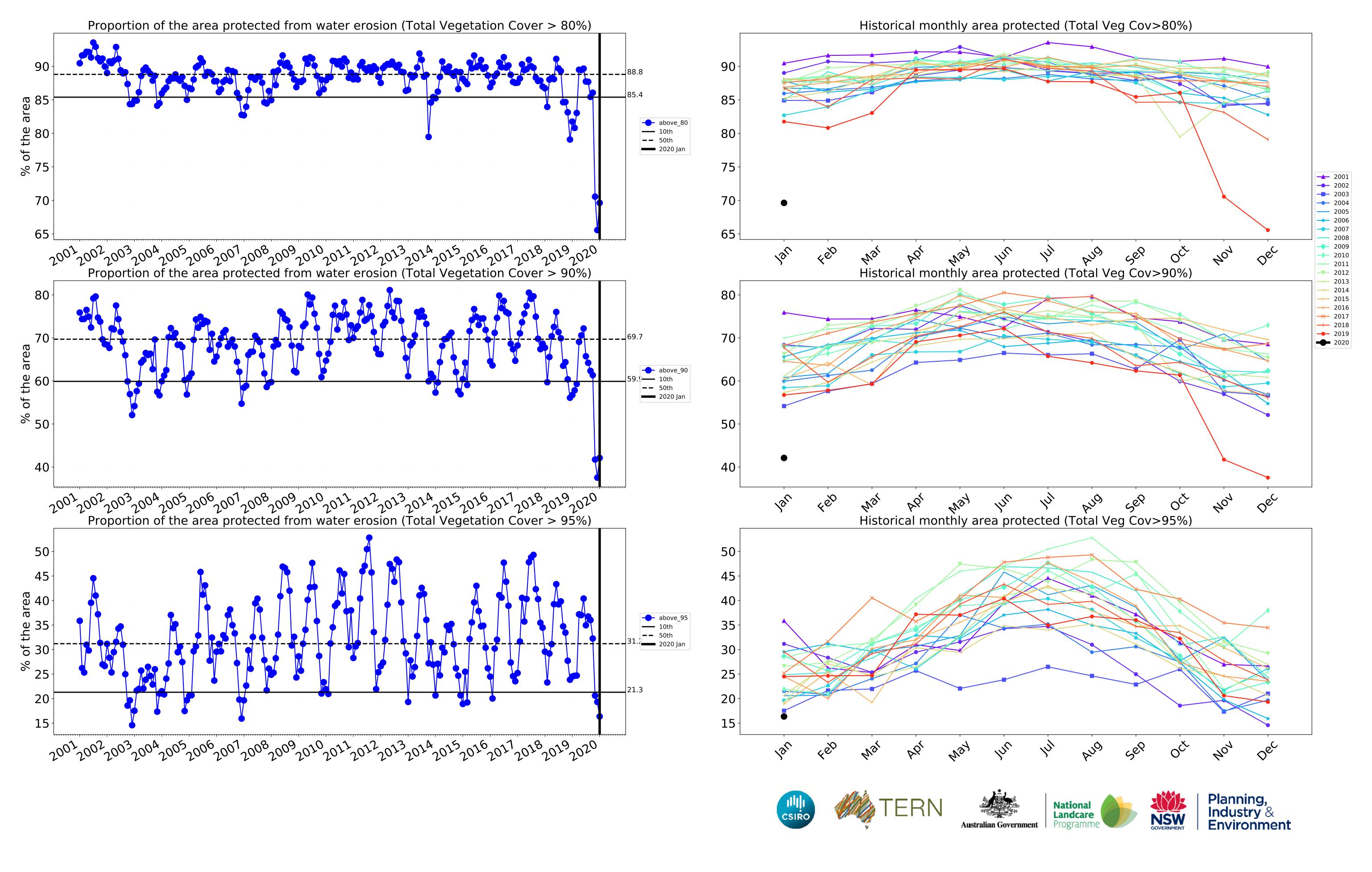
2018 2019 2020



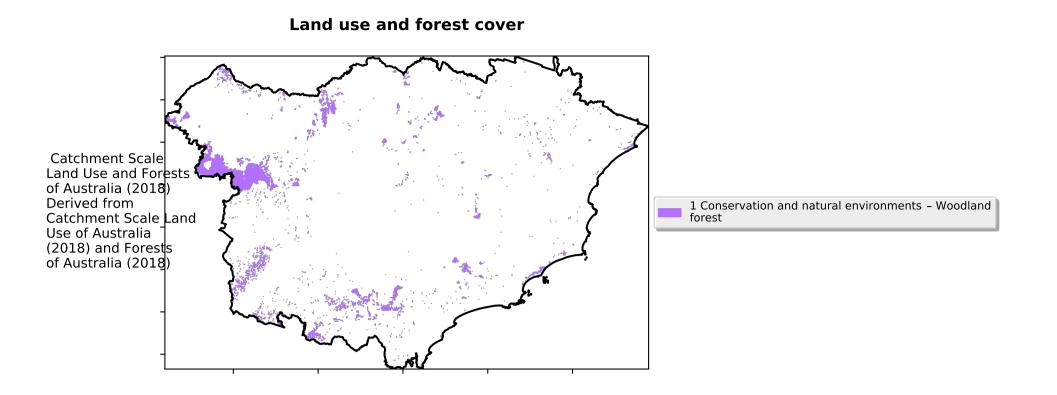


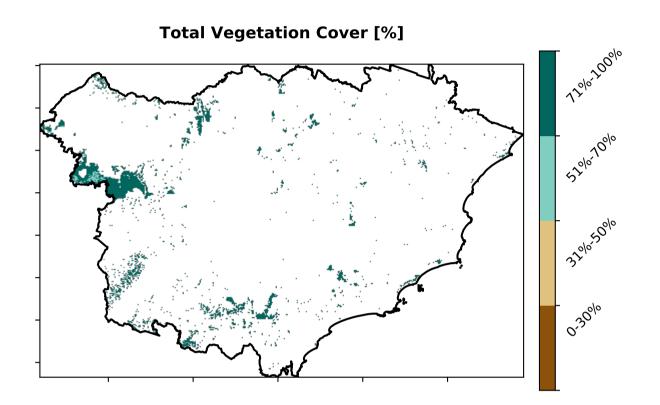
month

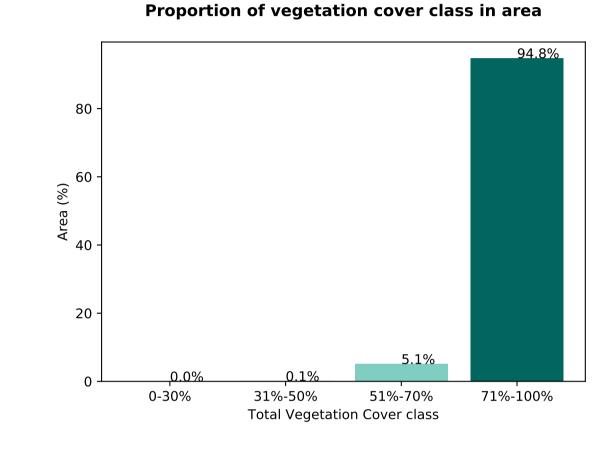
Water erosion historical monthly area protected (Total Veg Cov>70%)

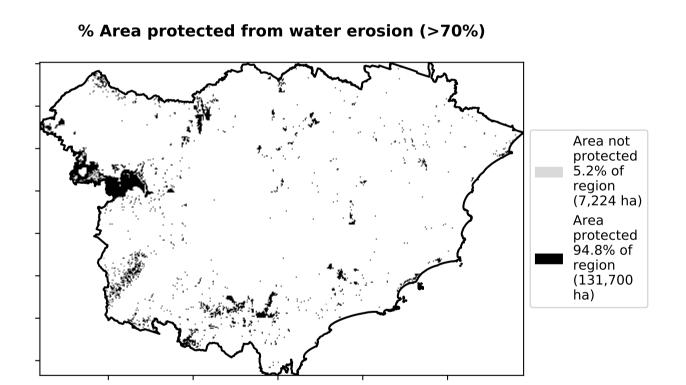


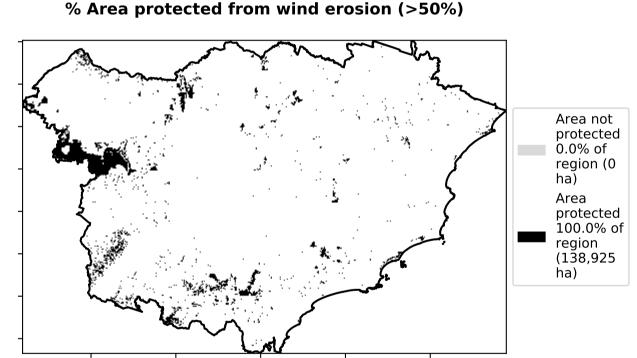
Conservation and natural environments Woodland forest

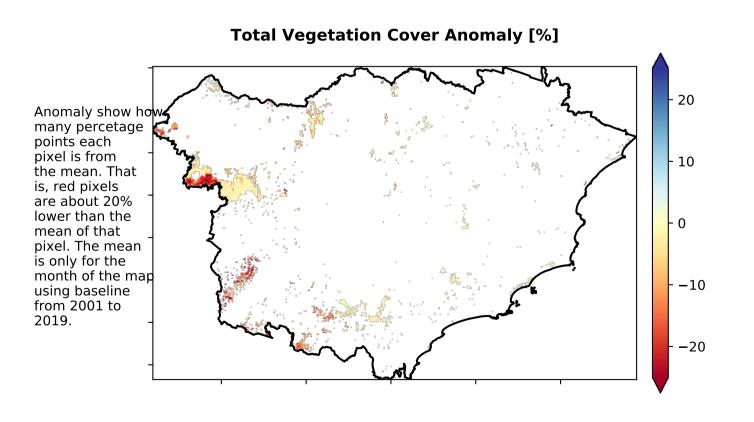


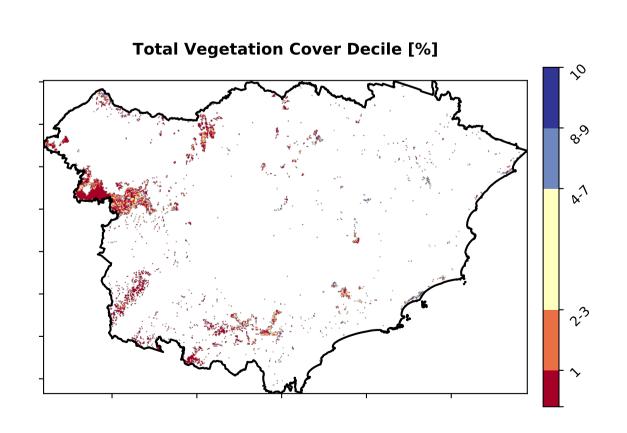














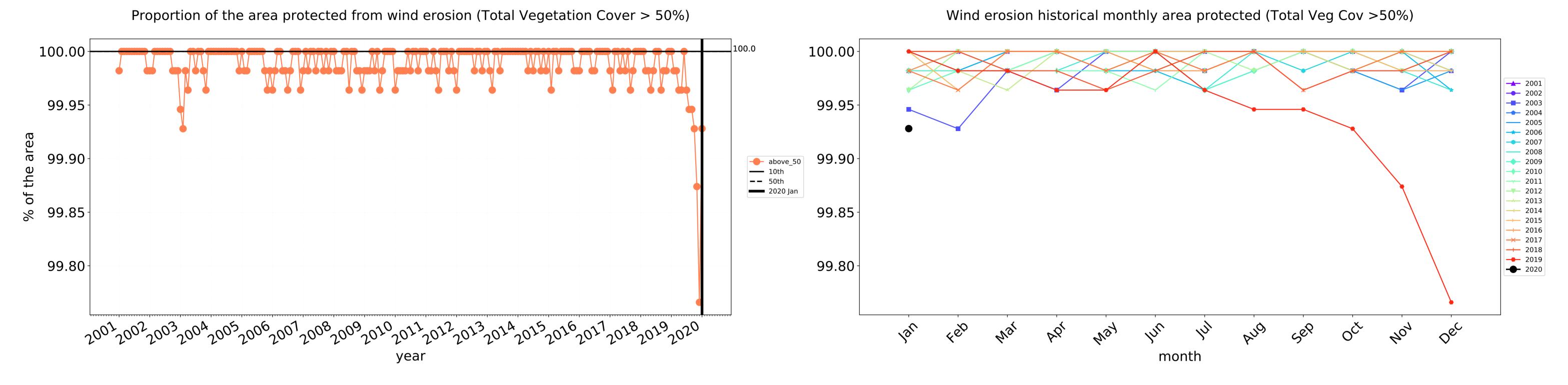


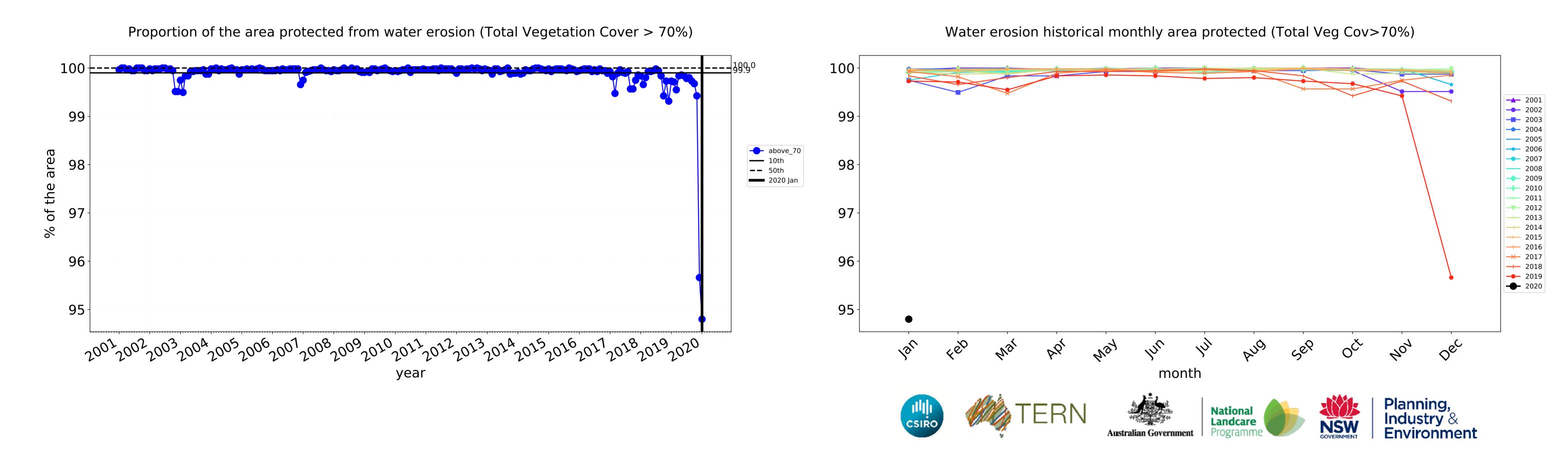


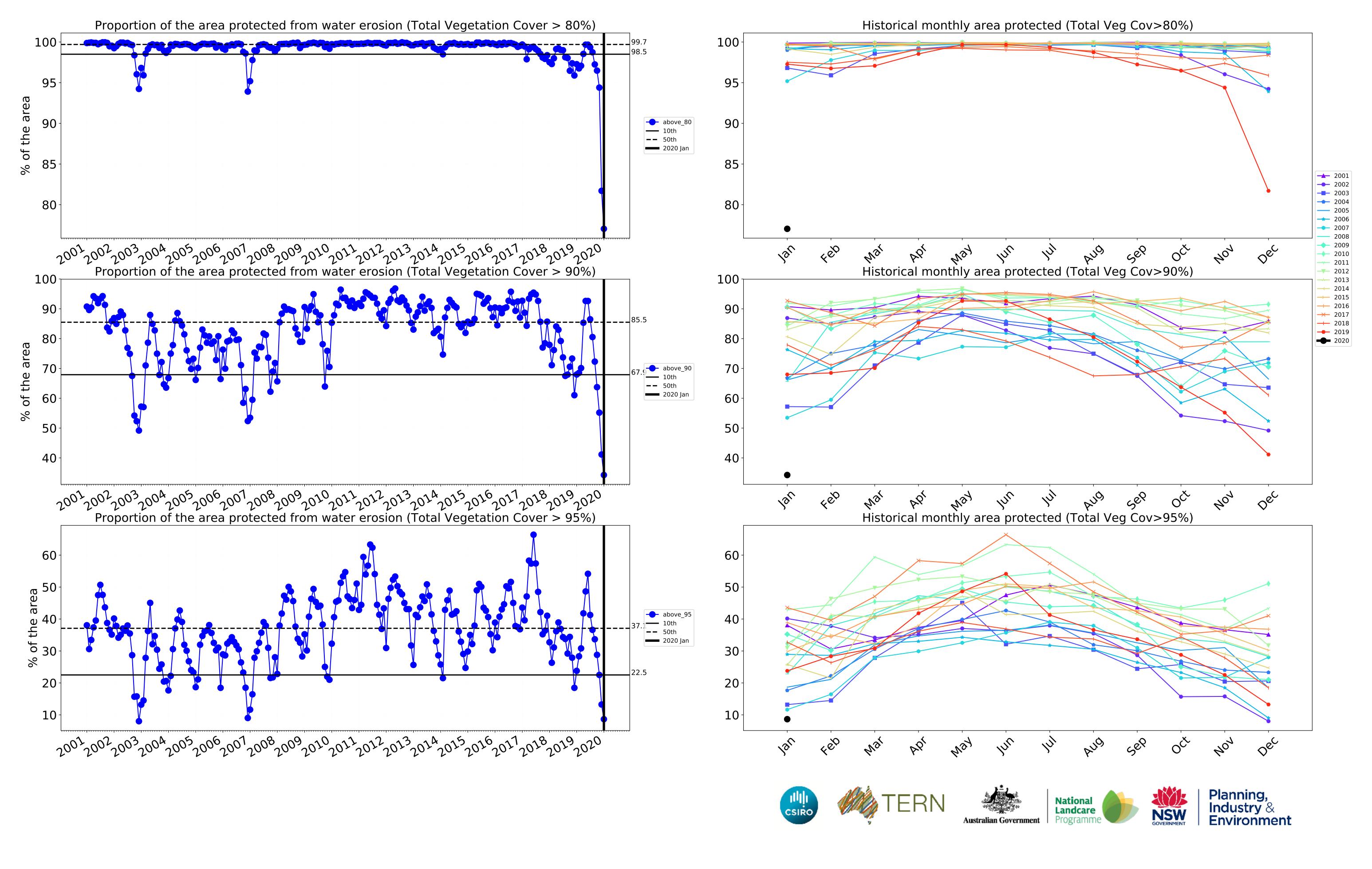


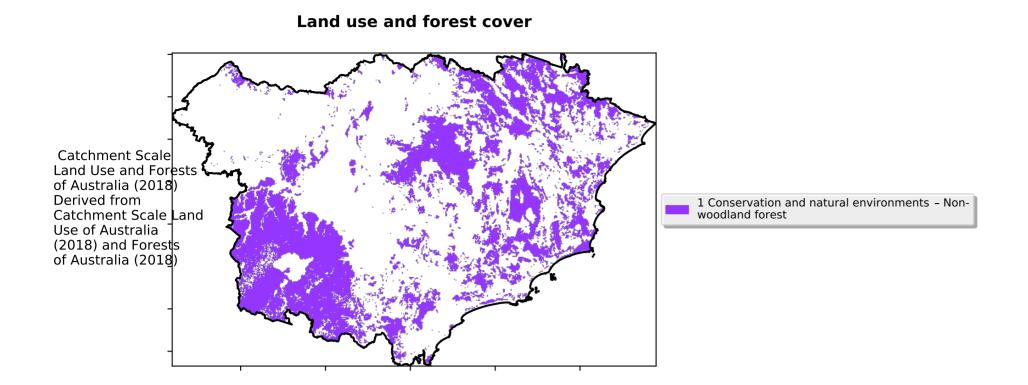


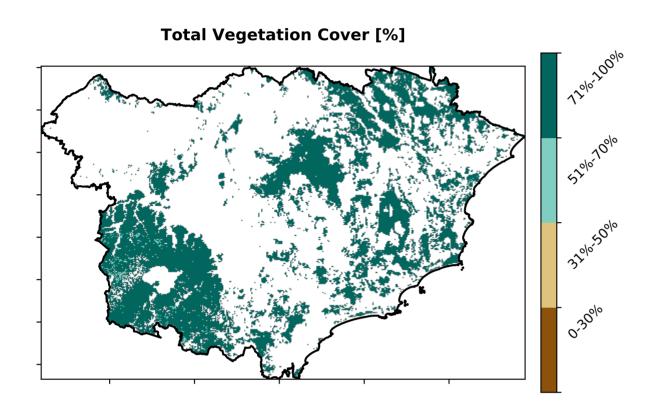


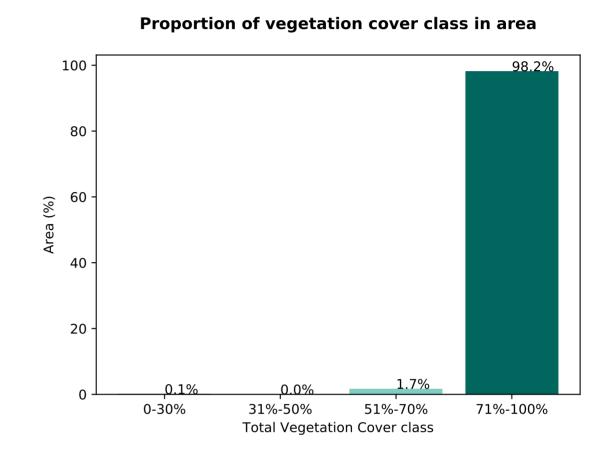


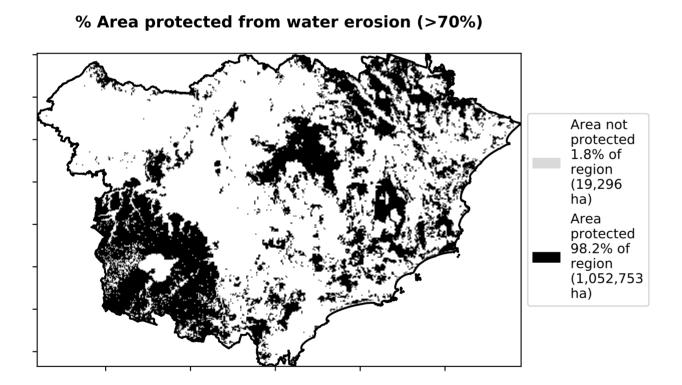


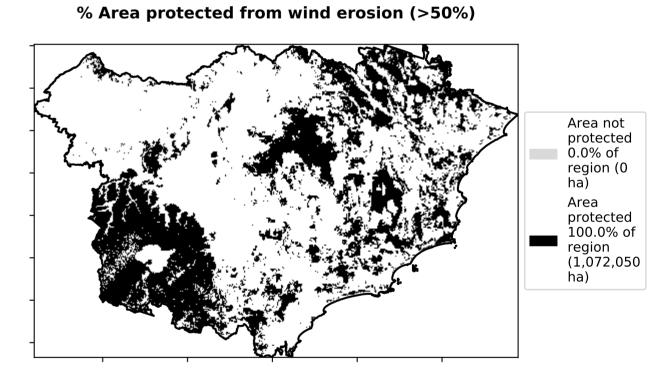


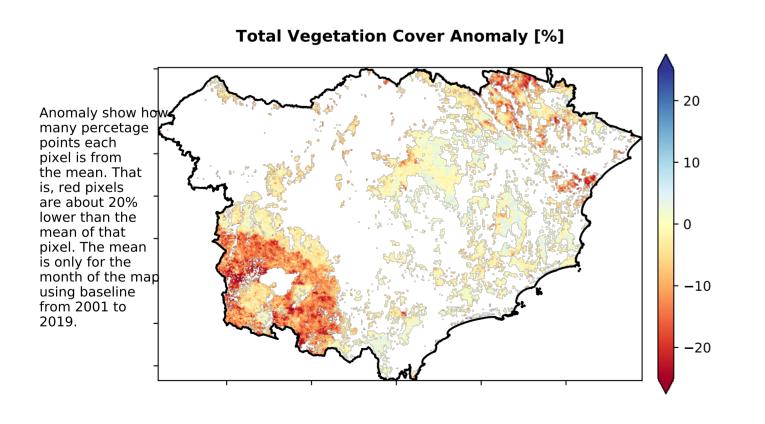


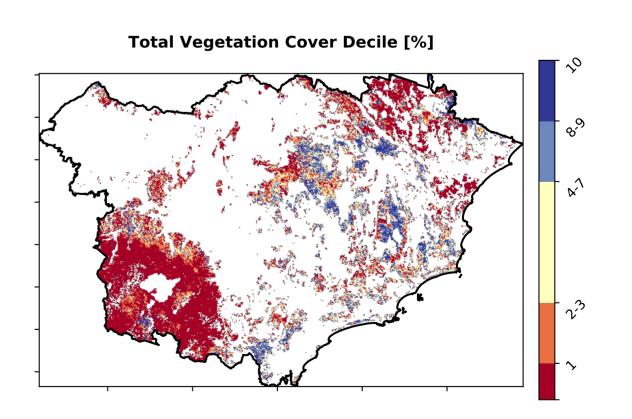














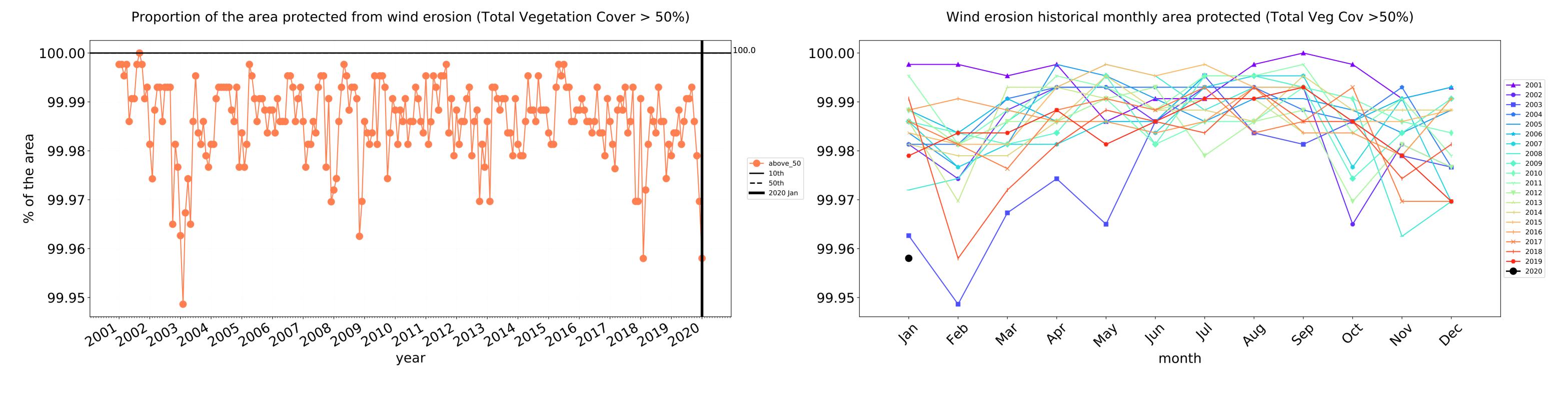


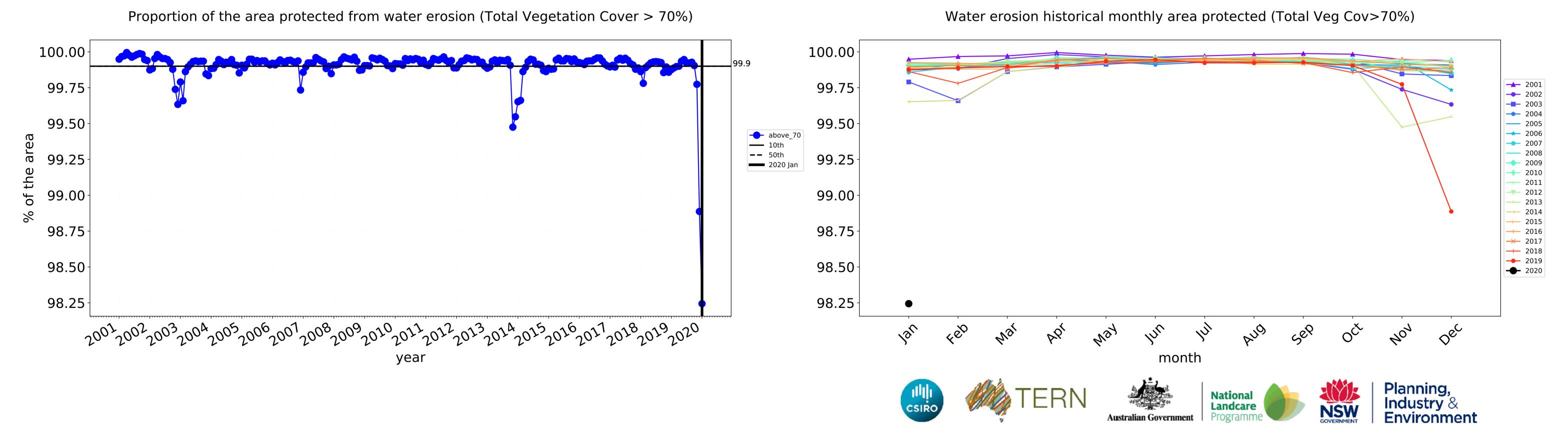


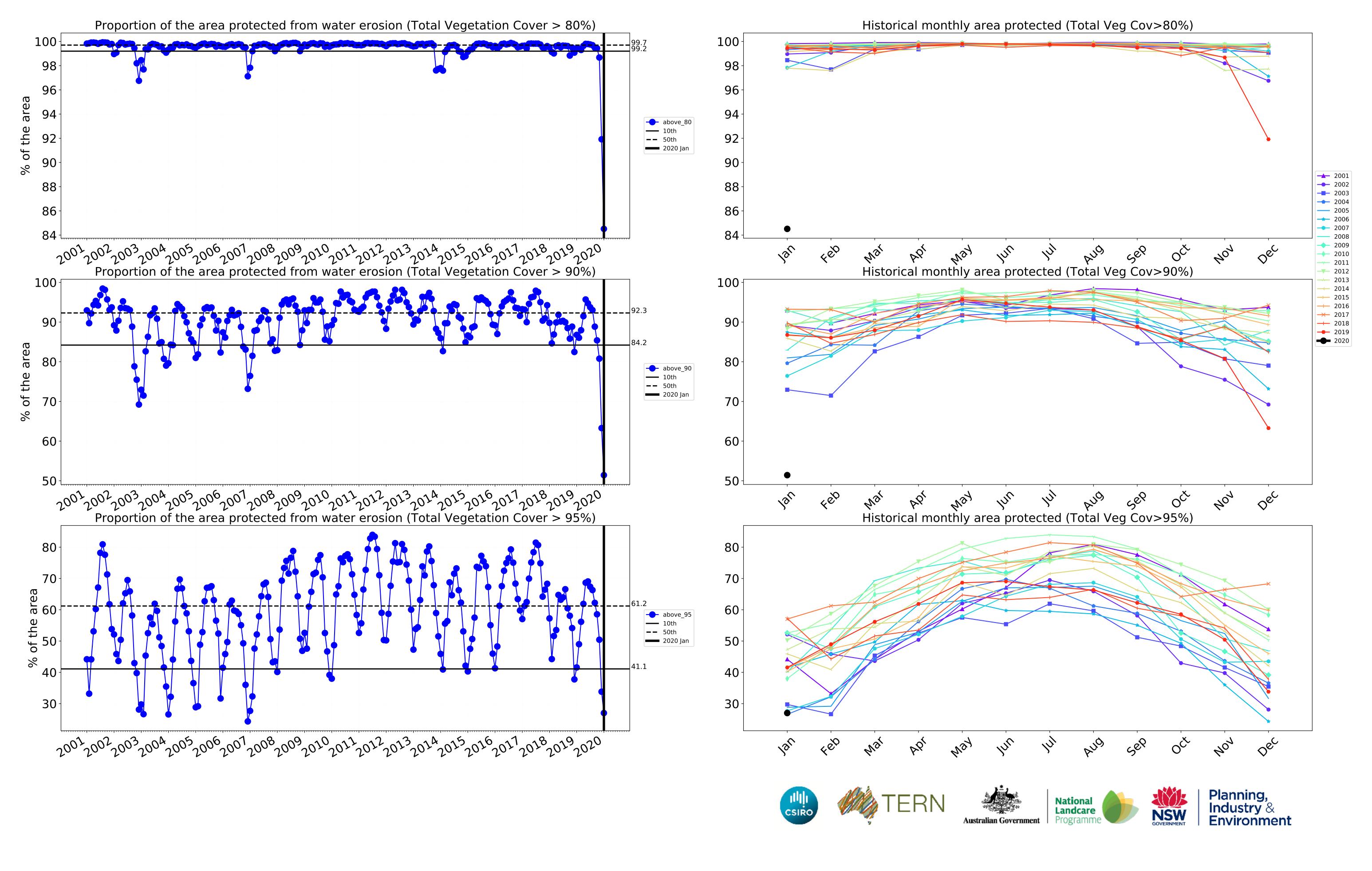




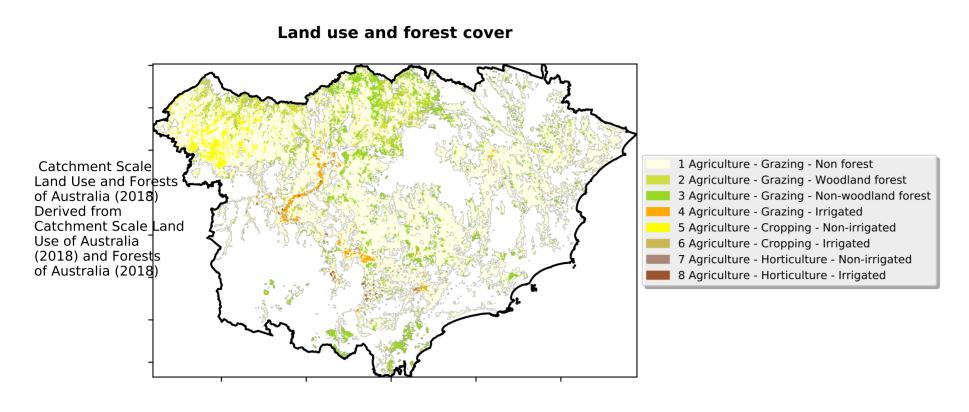


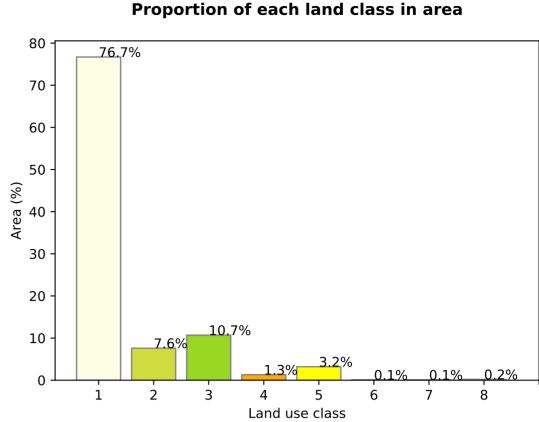


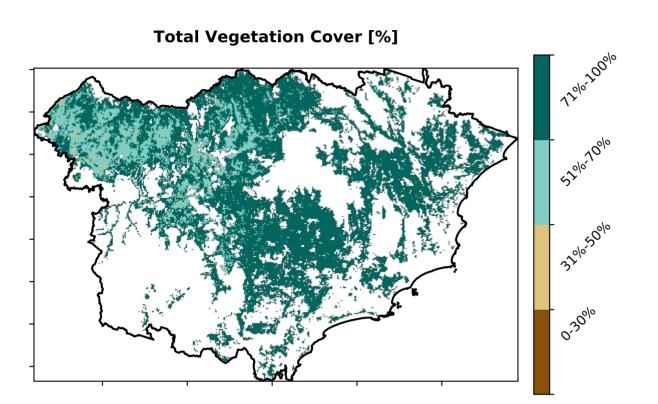


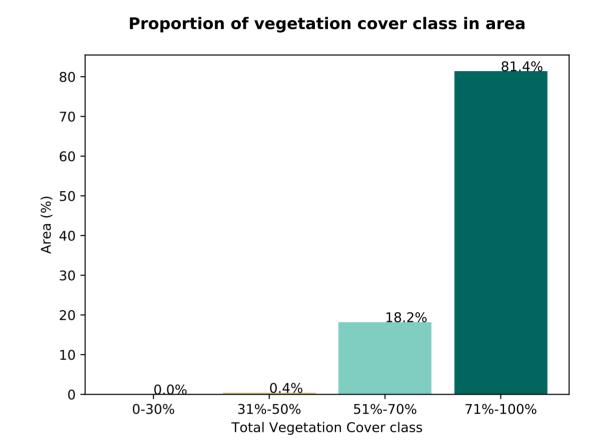


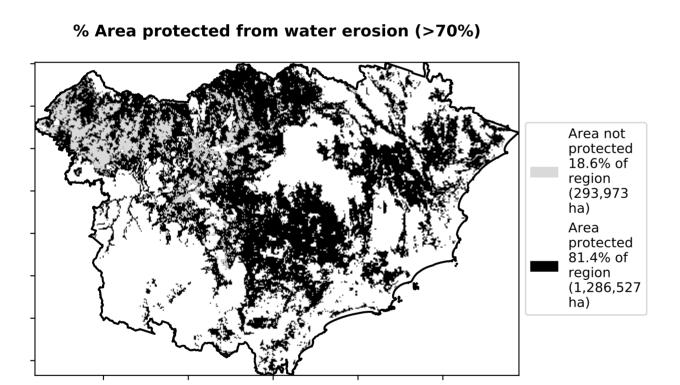
Agriculture

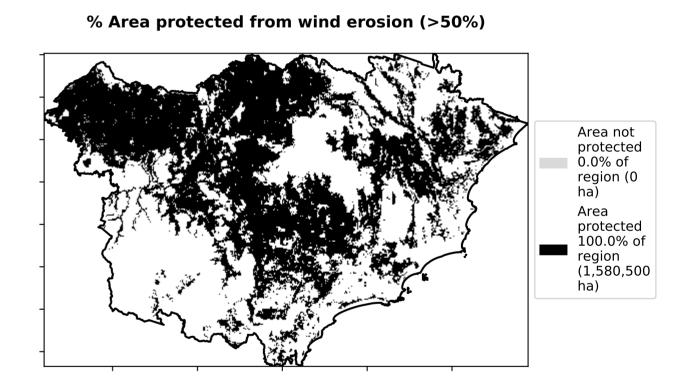


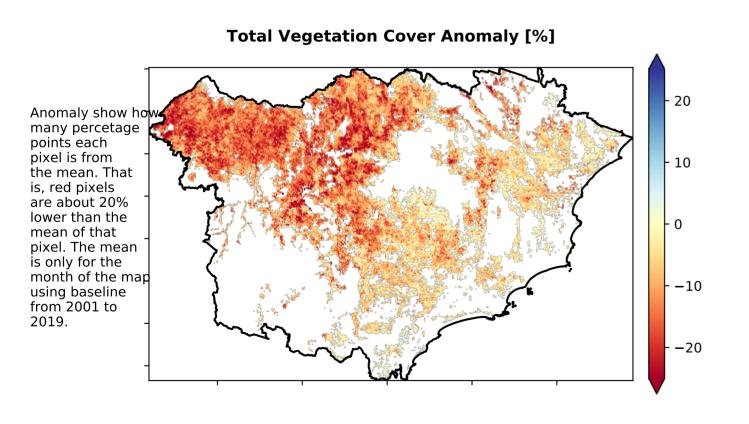


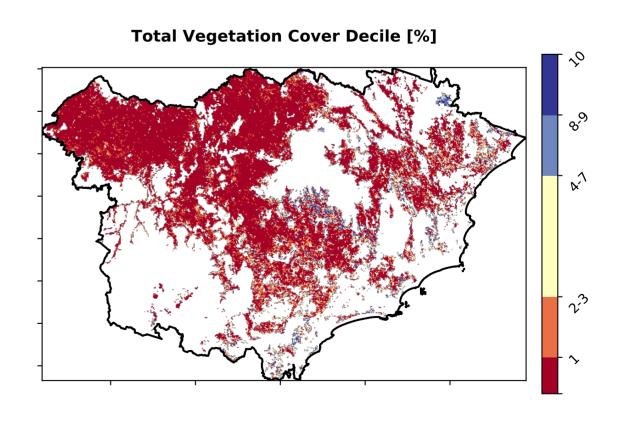
















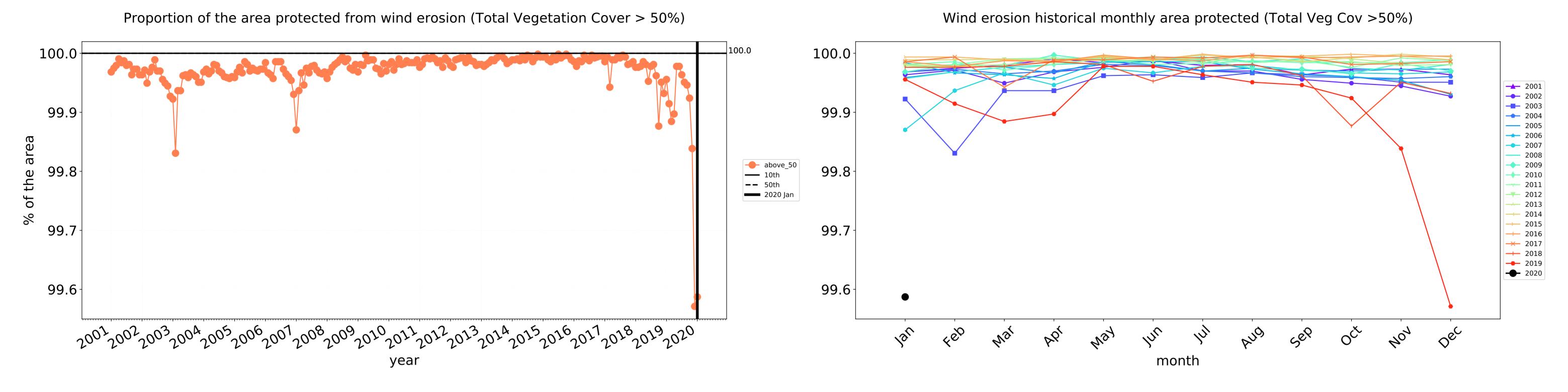


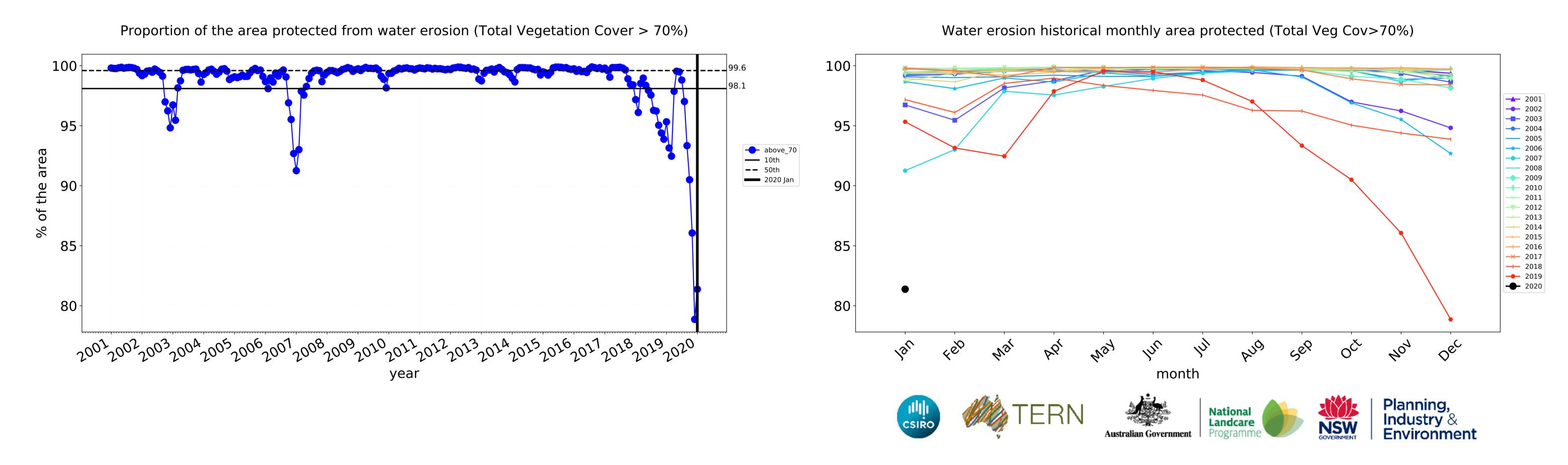


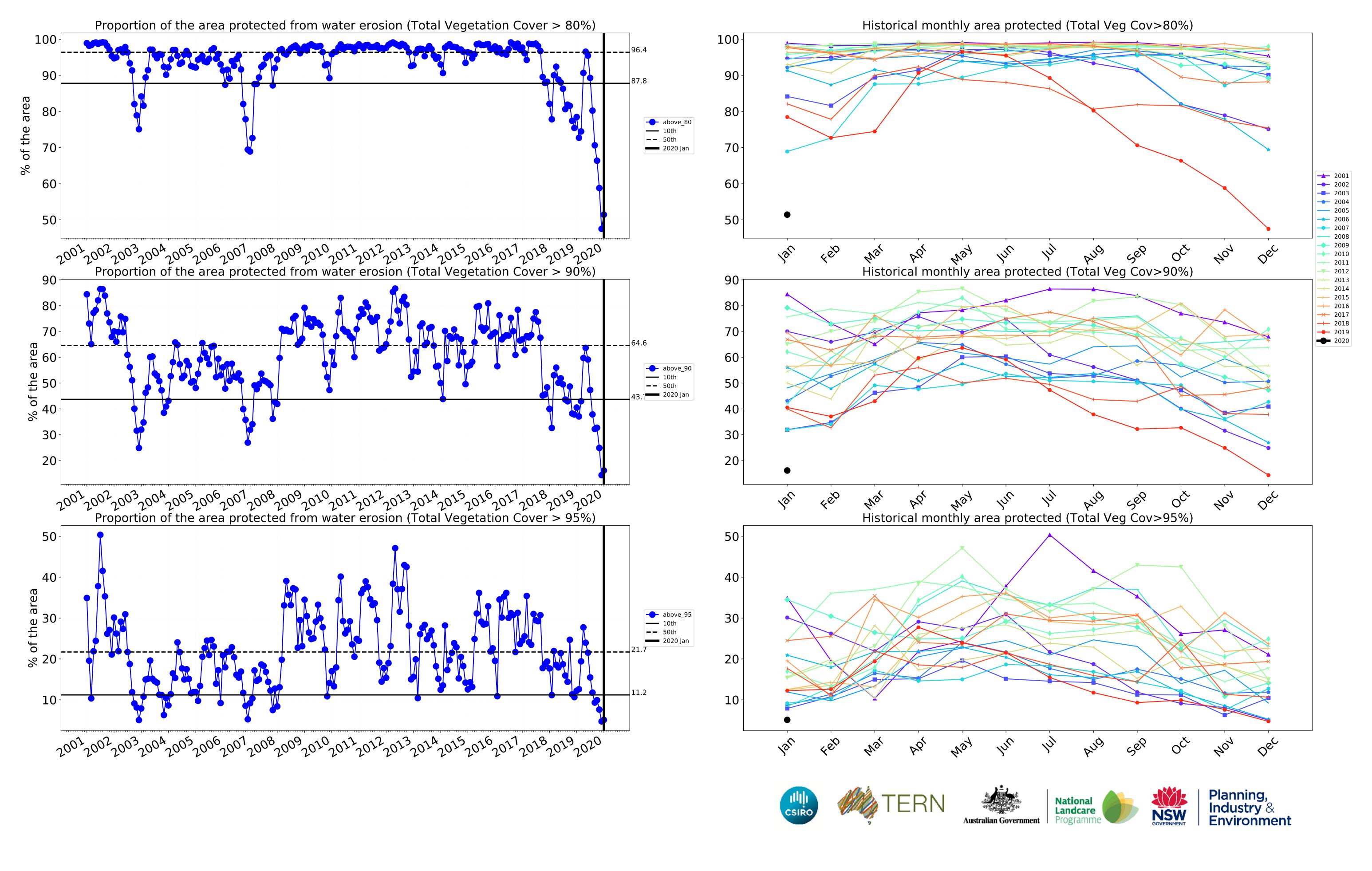




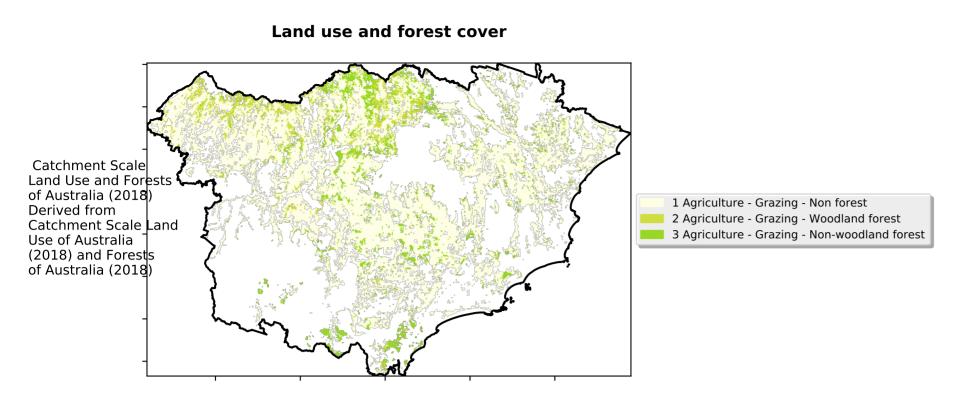
Agriculture timeseries



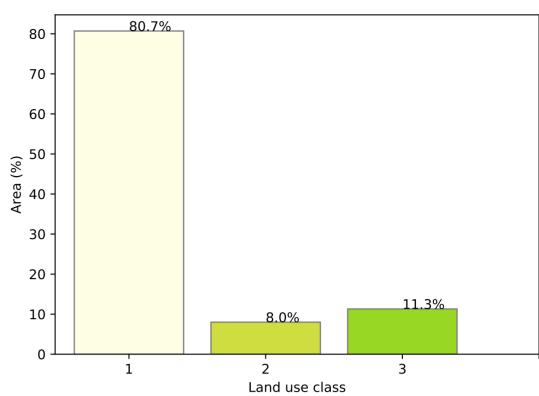




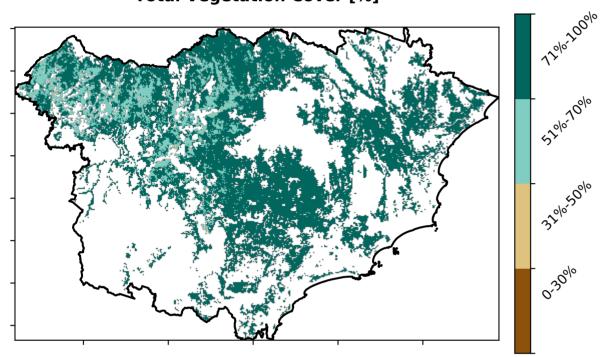
Grazing



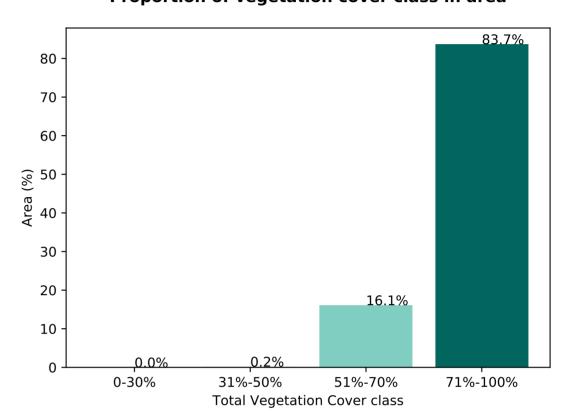
Proportion of each land class in area



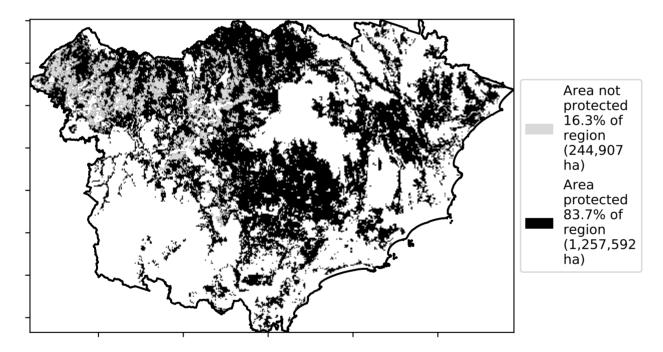
Total Vegetation Cover [%]



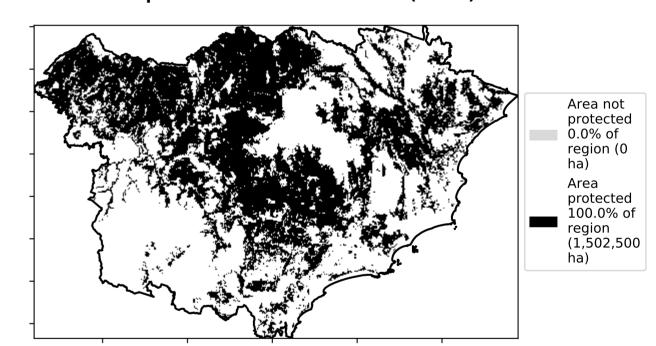
Proportion of vegetation cover class in area



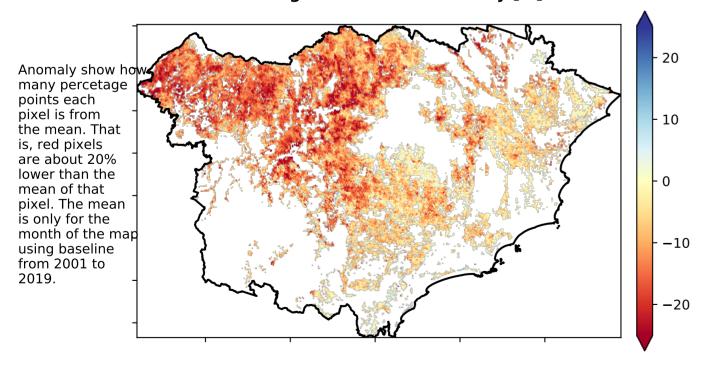
% Area protected from water erosion (>70%)

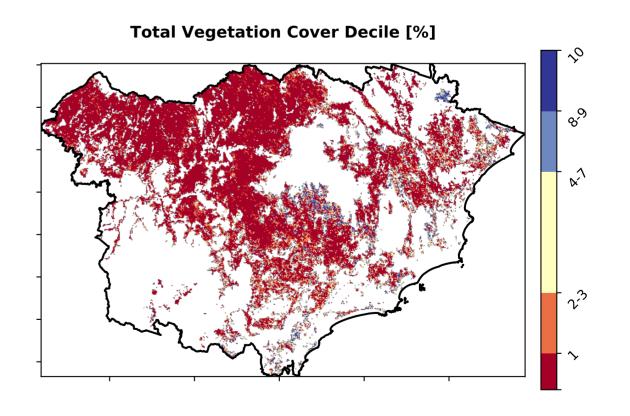


% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]









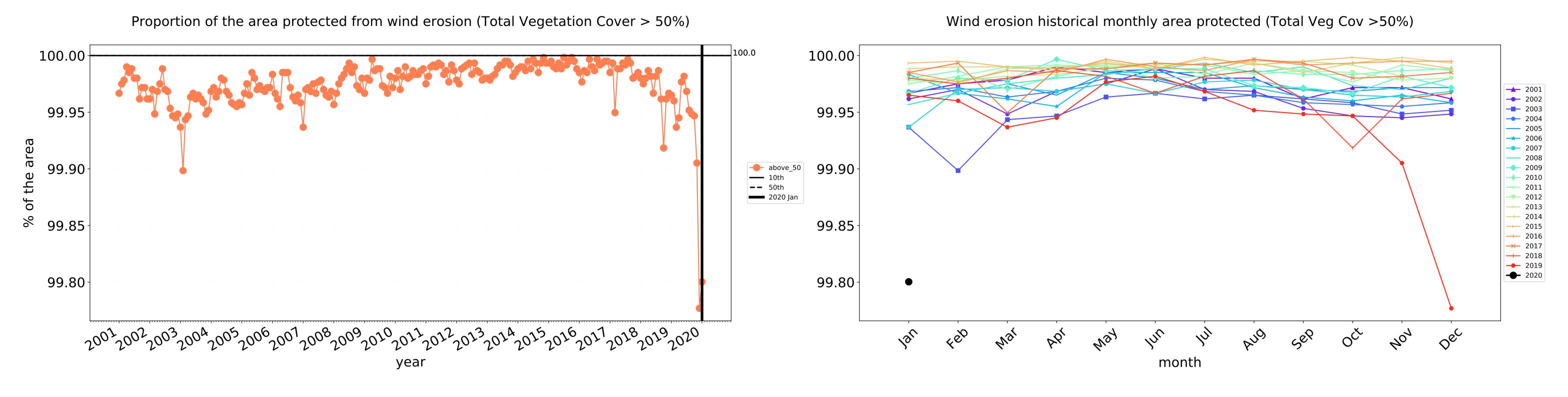


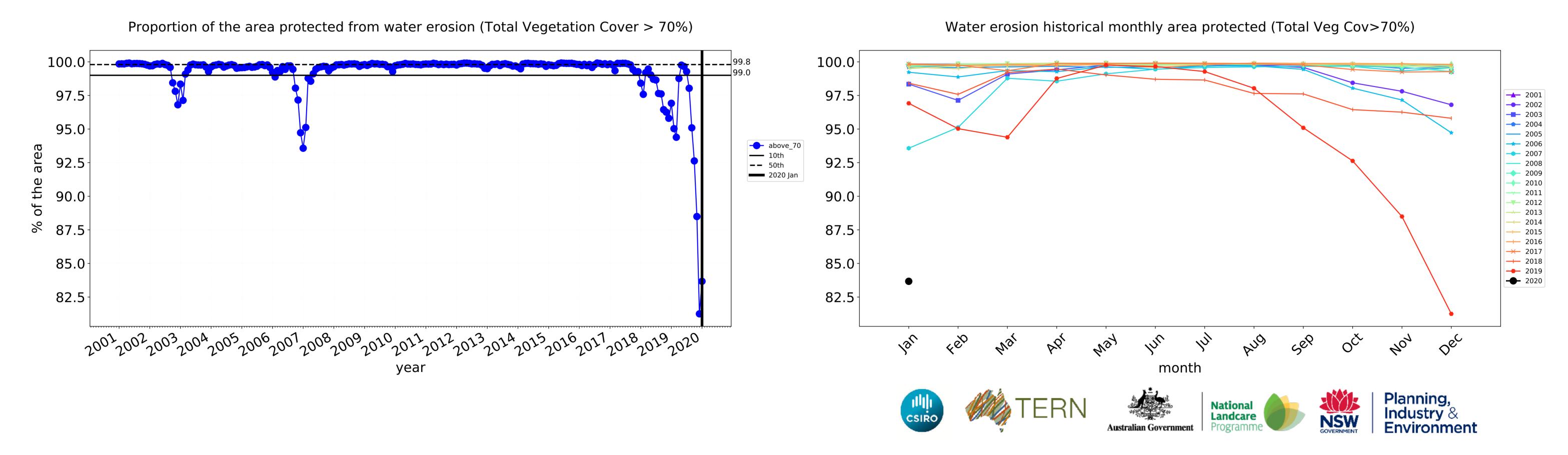


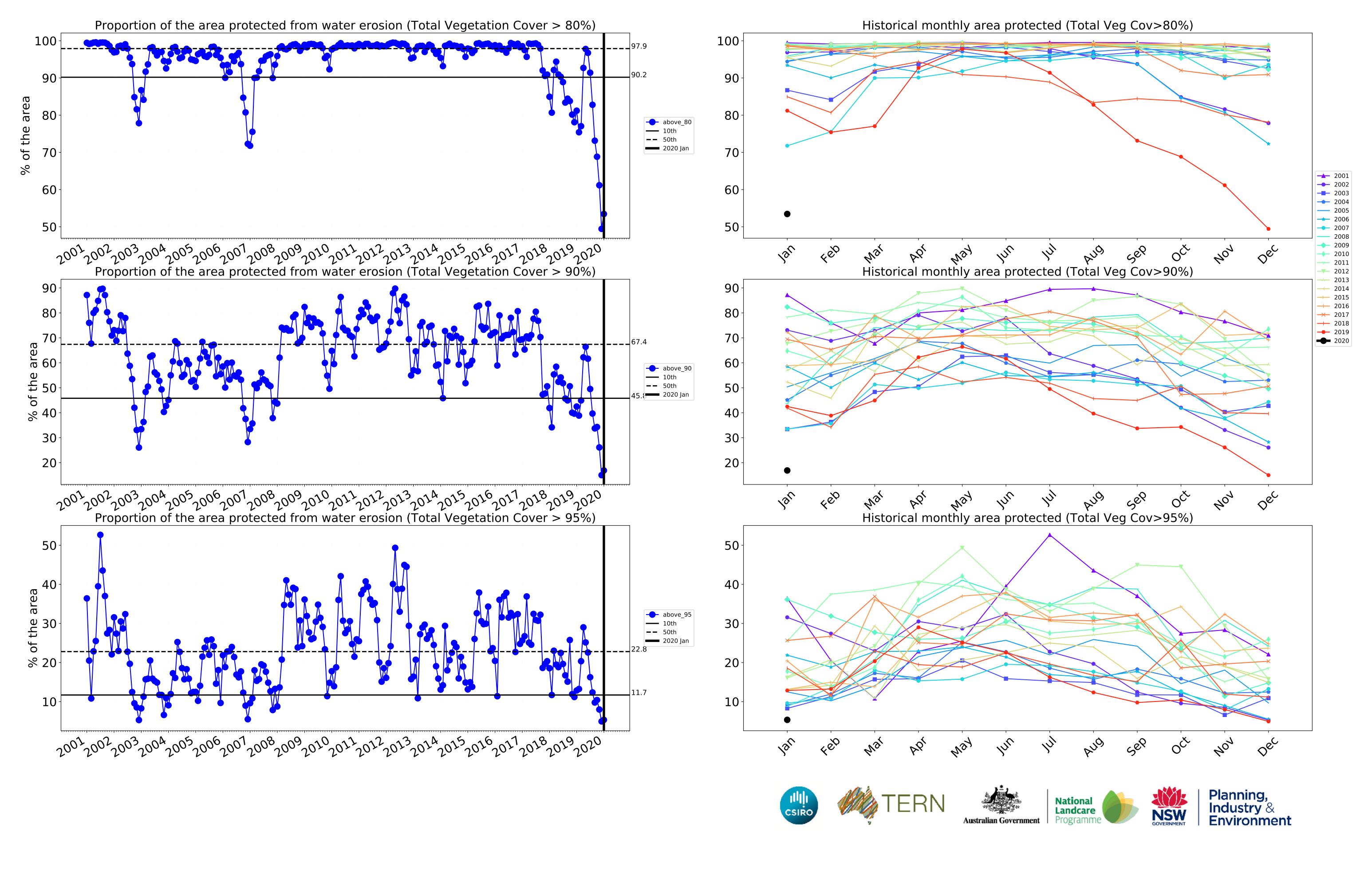




Grazing timeseries

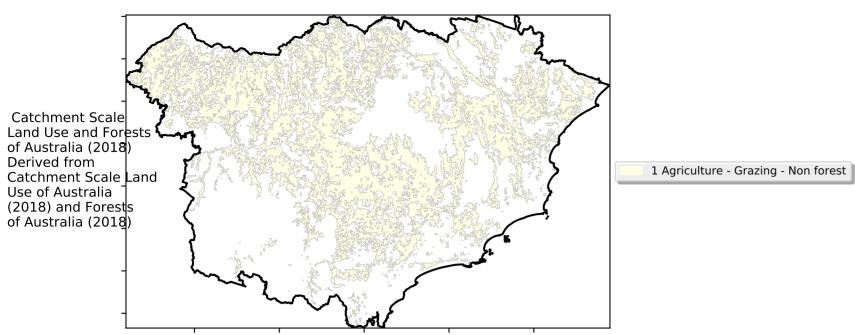




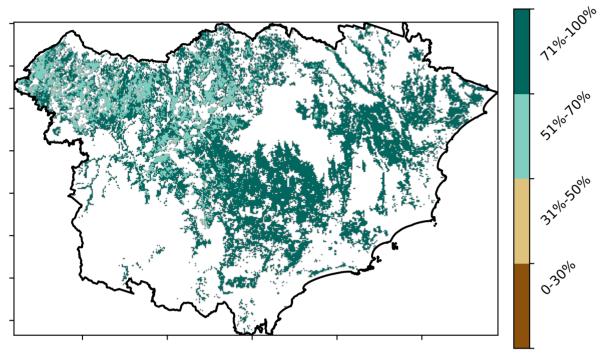


Grazing non forest

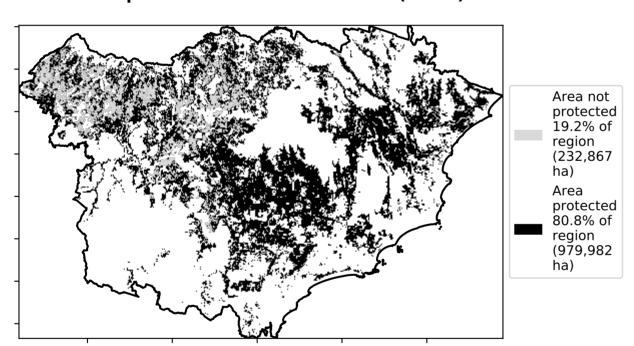
Land use and forest cover



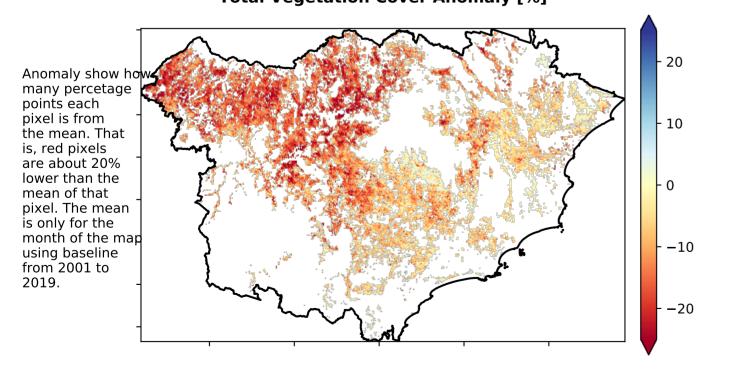
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

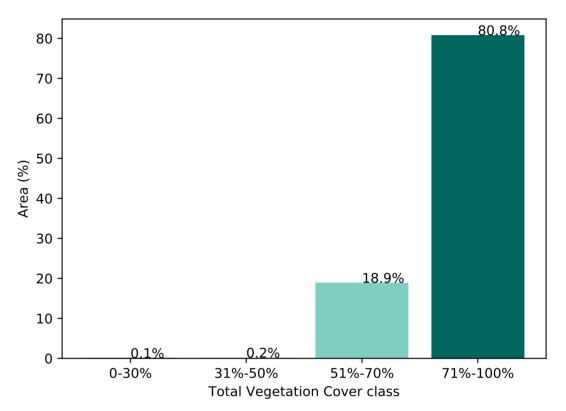


Total Vegetation Cover Anomaly [%]

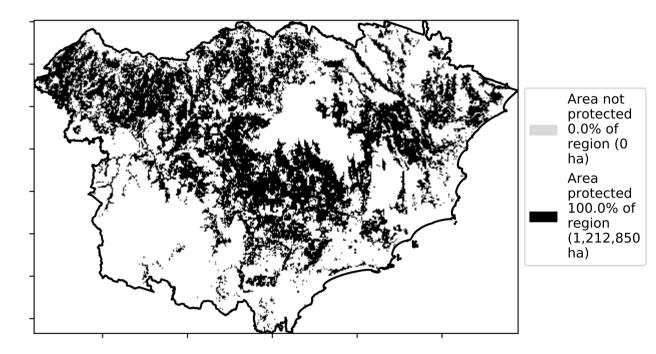


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

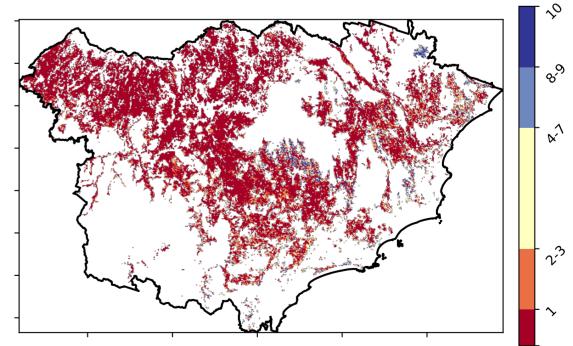
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







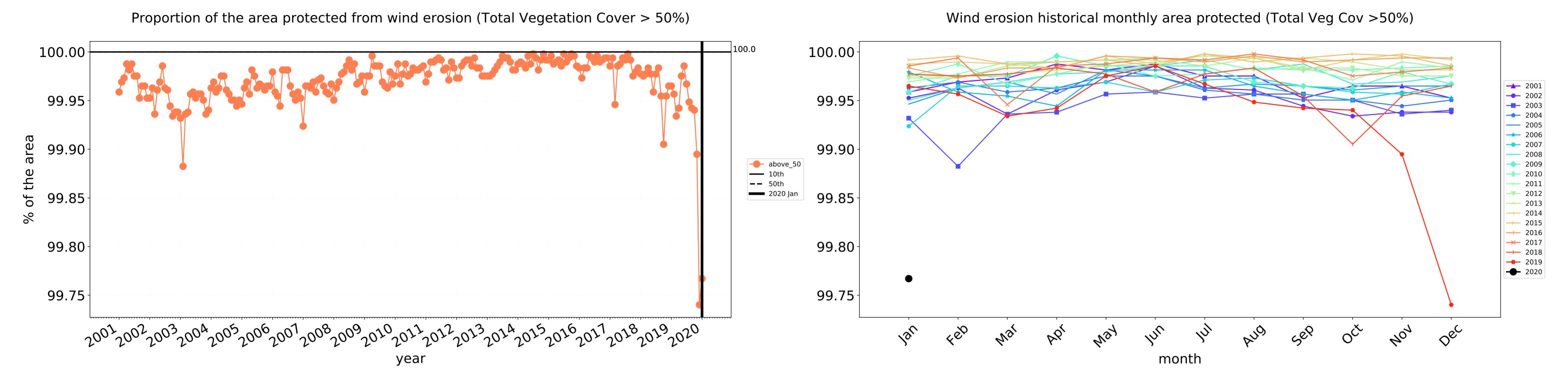


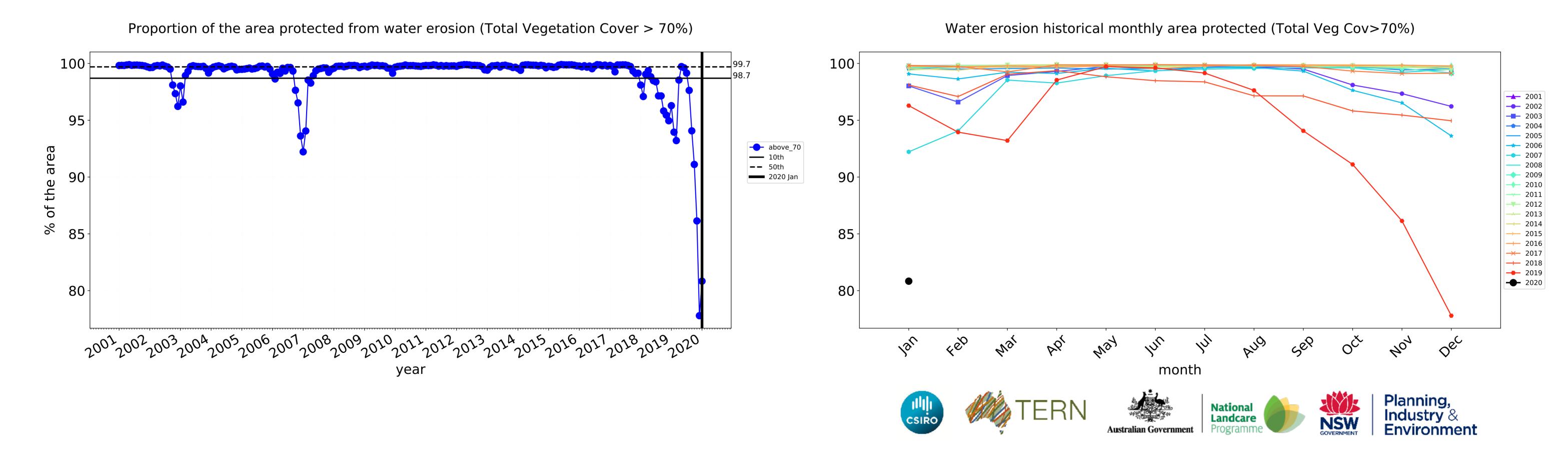


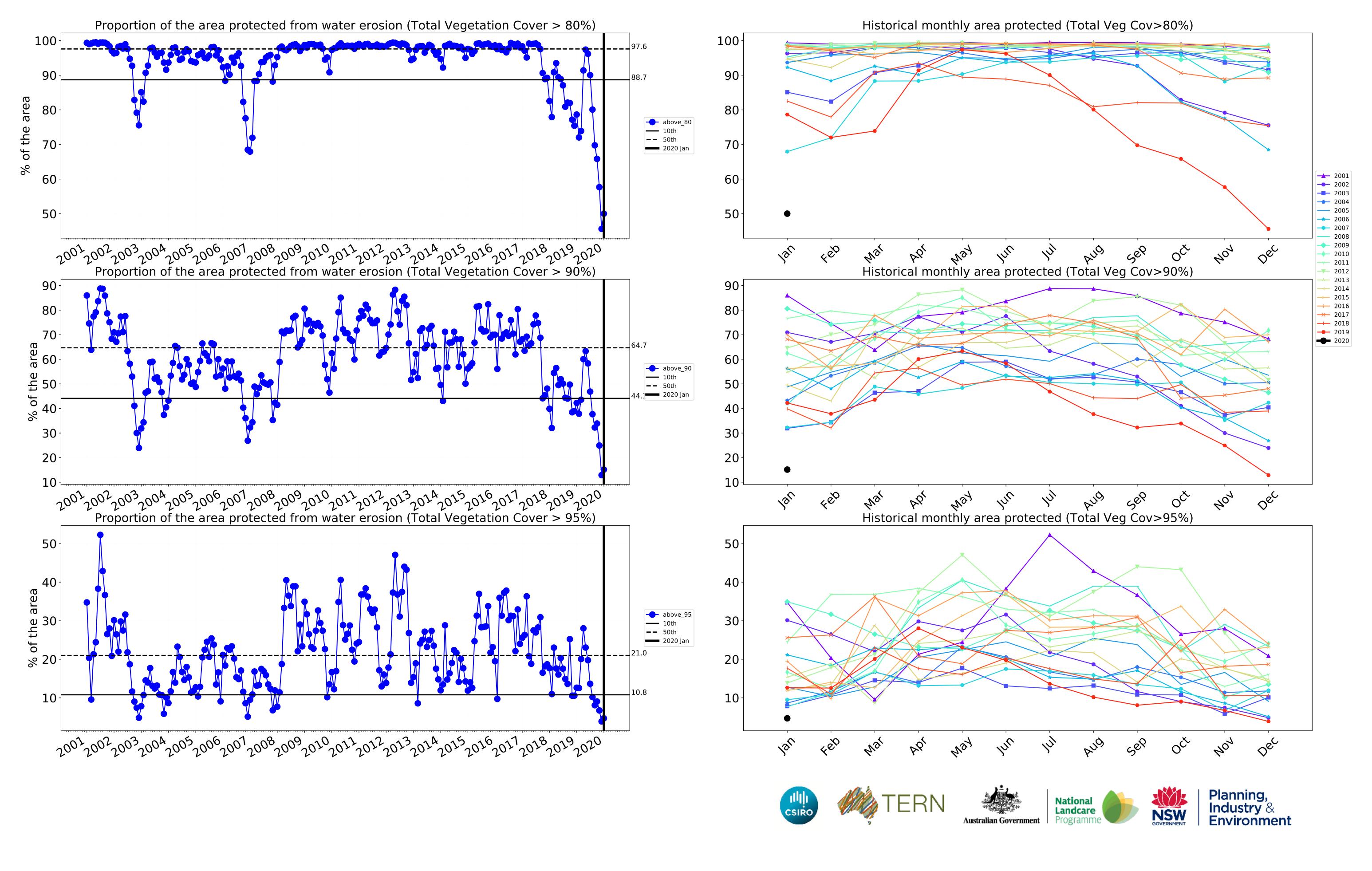




Grazing non forest timeseries





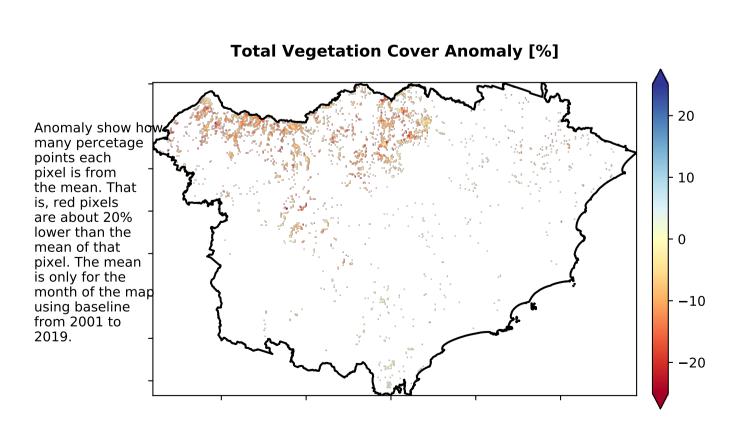


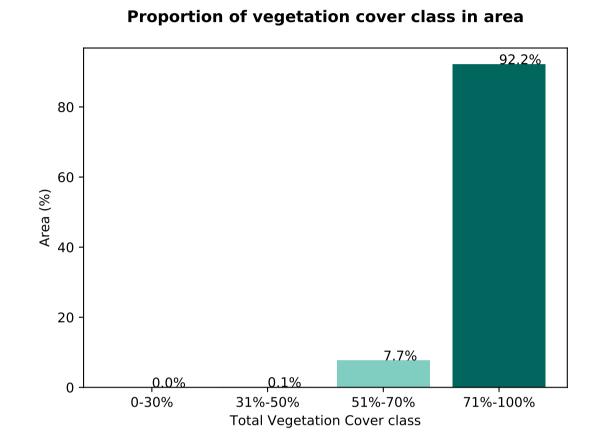
Grazing Woodland forest

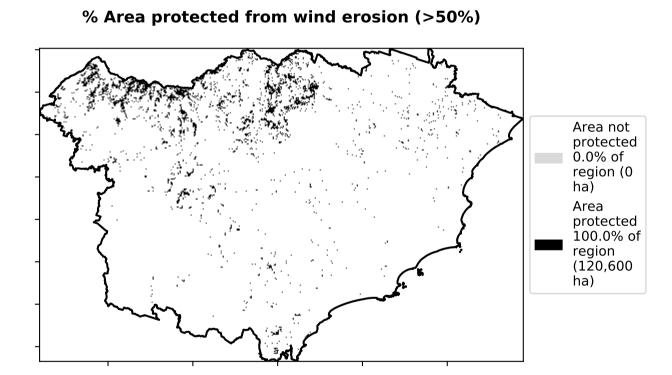
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) Of Australia (2018)

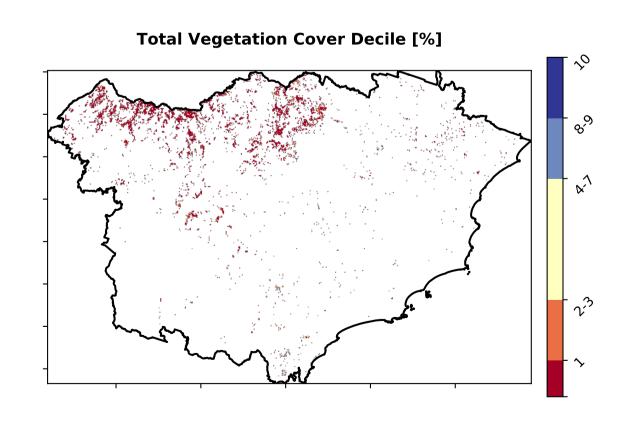
Total Vegetation Cover [%] Total Vegetation Cover [%] Total Vegetation Cover [%]

Area not protected 7.8% of region (9,406 ha) Area protected 7.2% of region (111,193 ha)













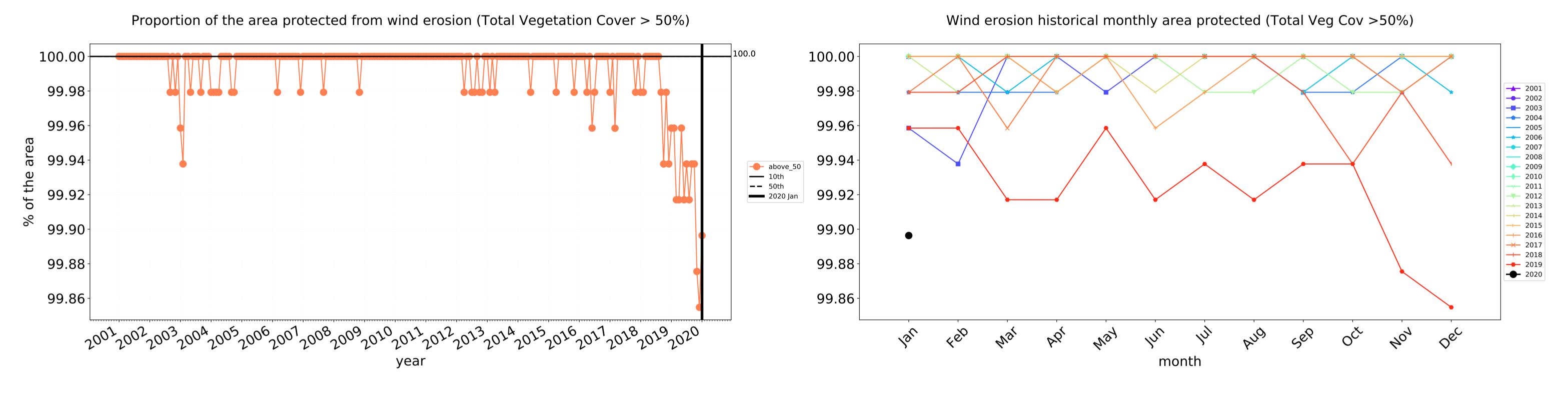


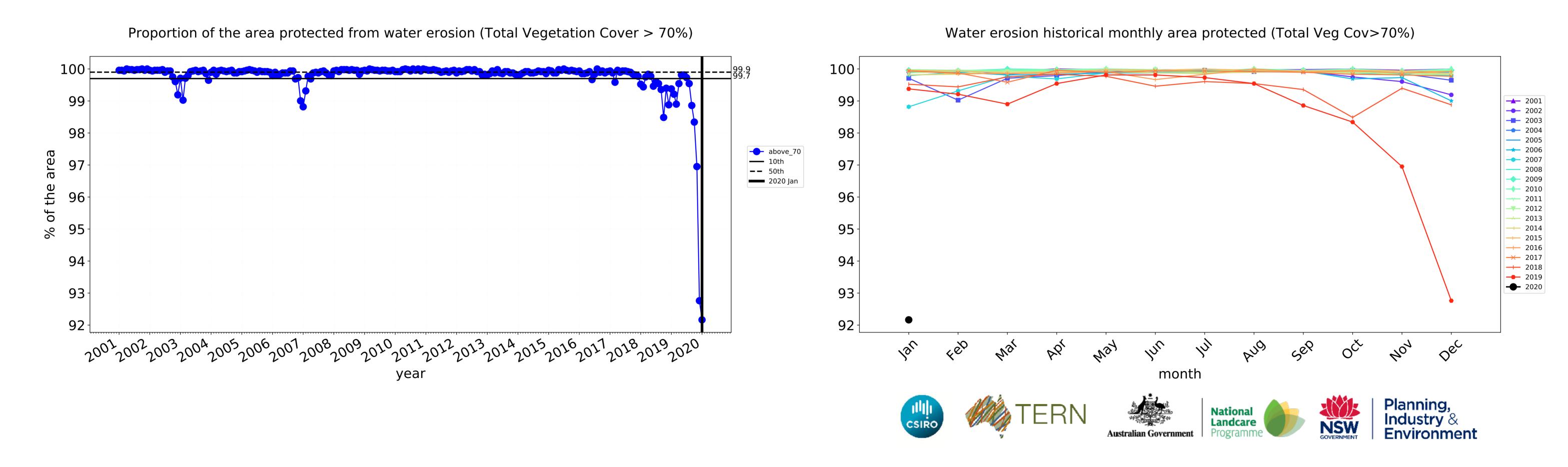


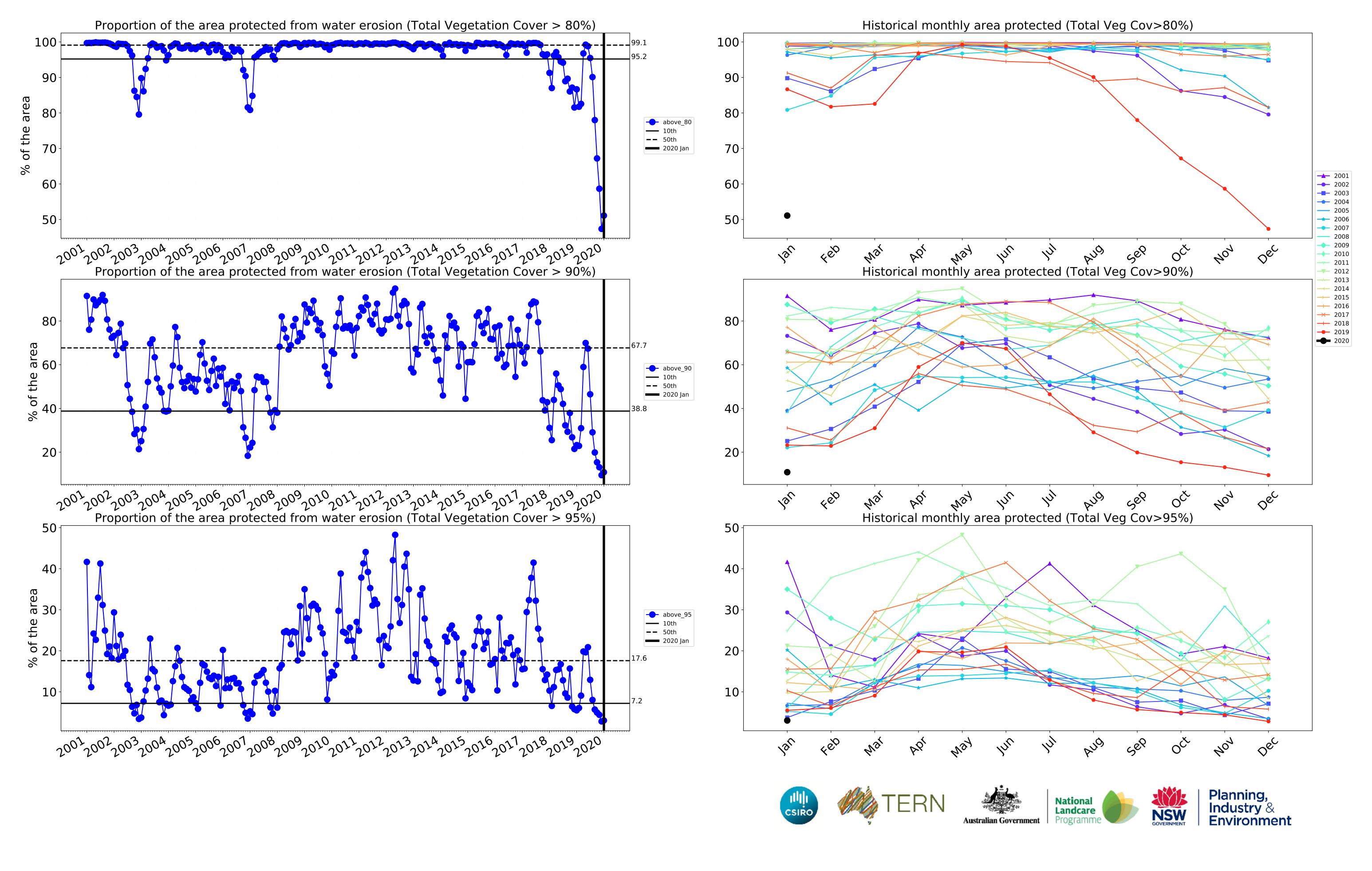




Grazing Woodland forest timeseries



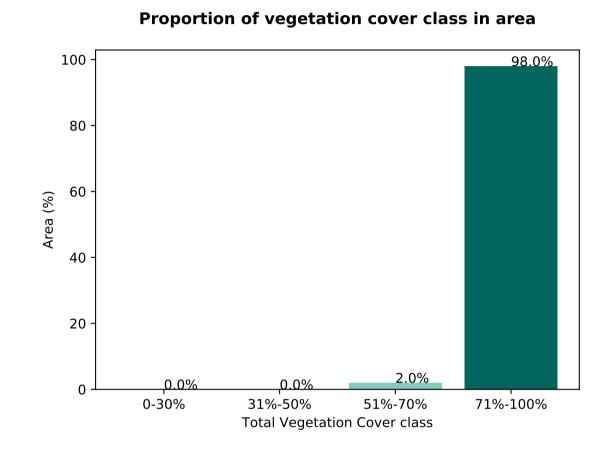


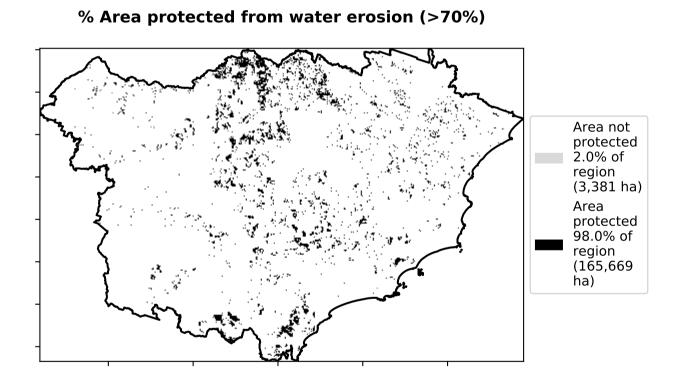


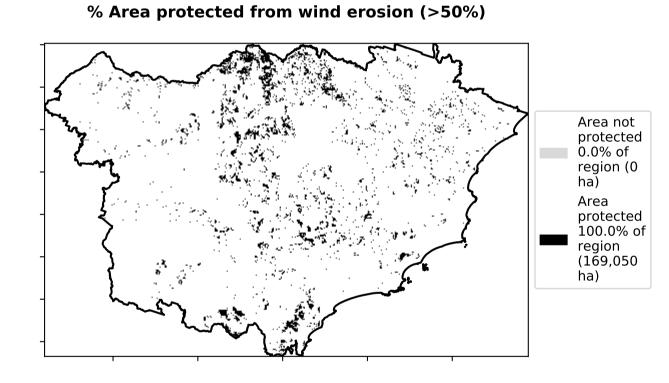
Grazing - Forest (non woodland)

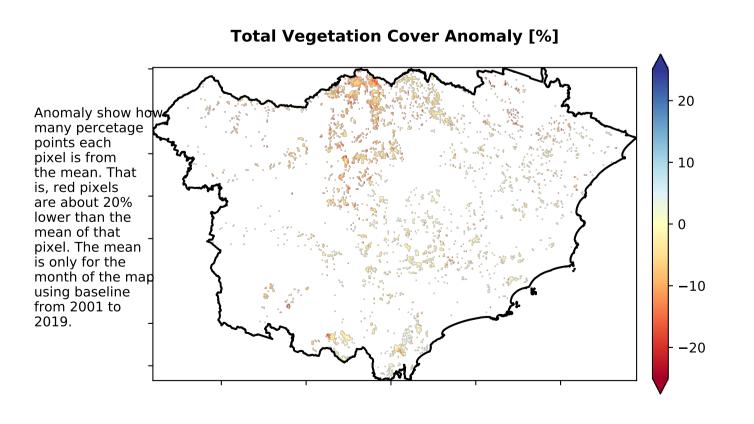
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) 1 Agriculture - Grazing - Non-woodland forest 1 Agriculture - Grazing - Non-woodland forest

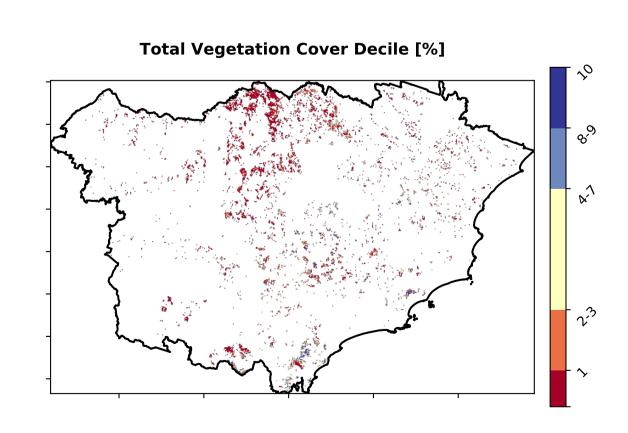
Total Vegetation Cover [%] Tolandolo Telepholo Telep













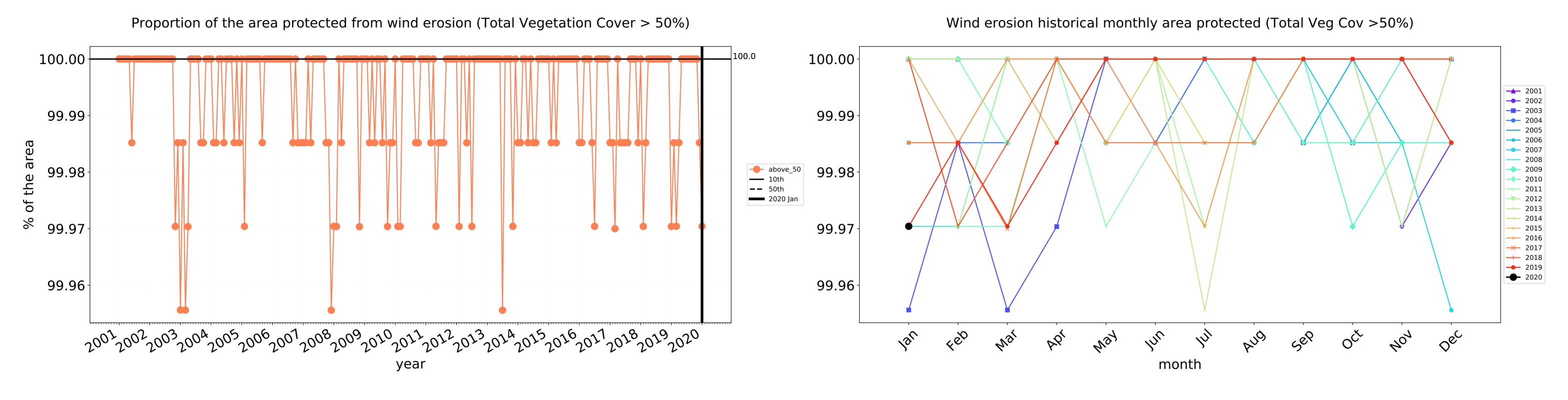


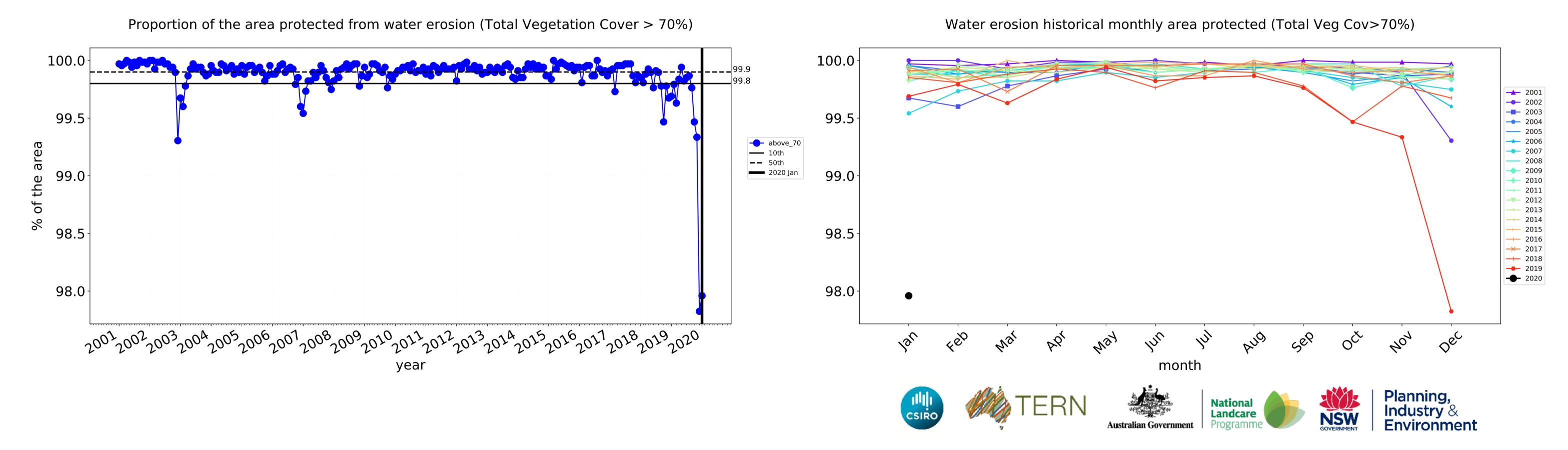


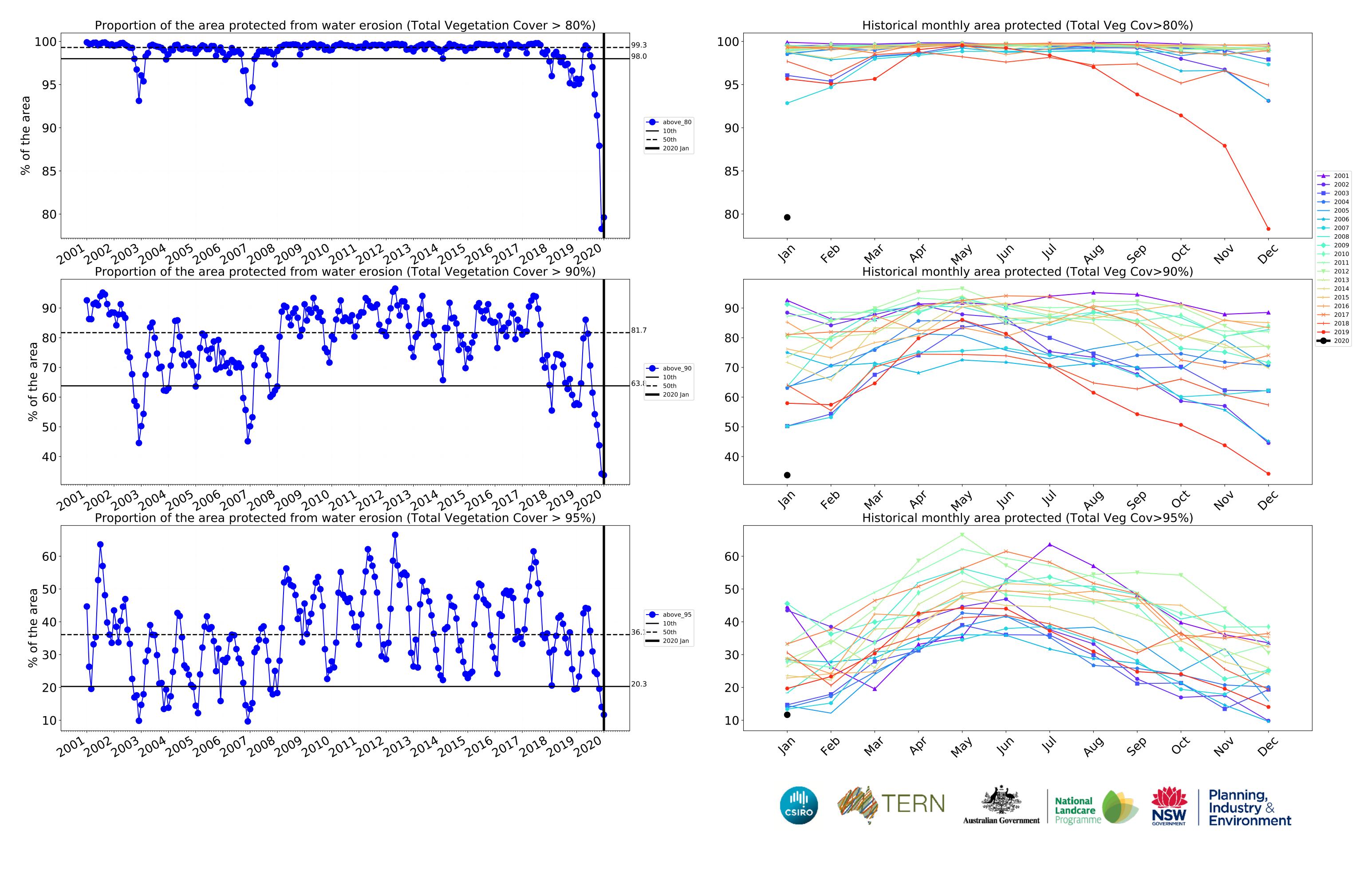






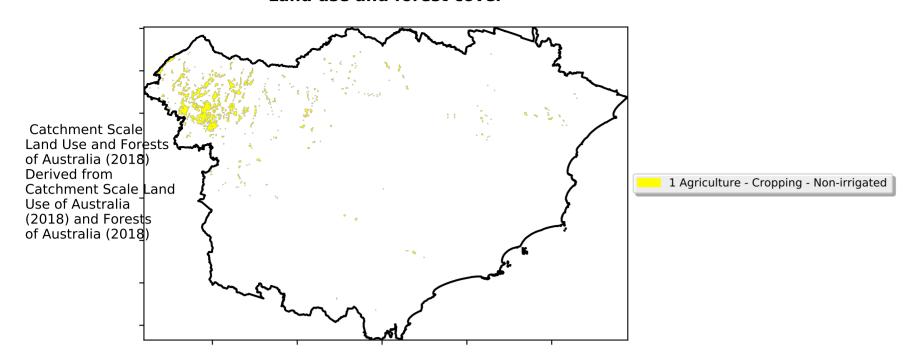




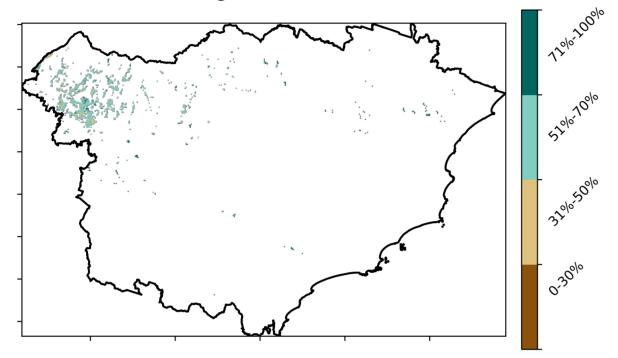


Cropping

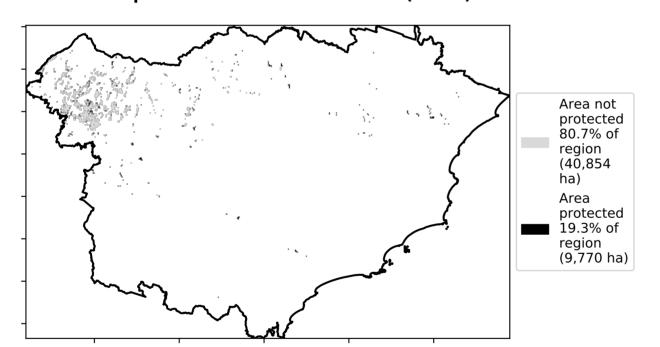
Land use and forest cover



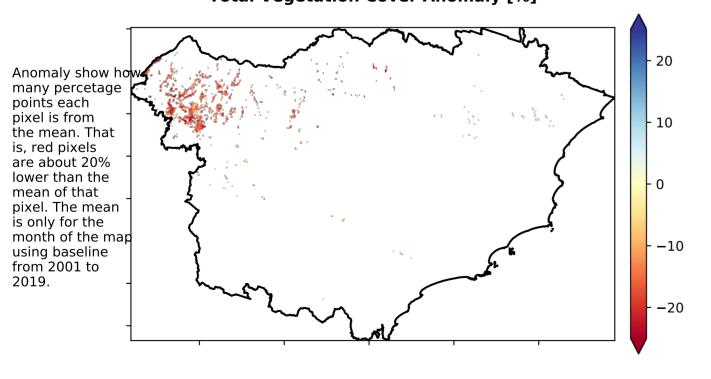
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

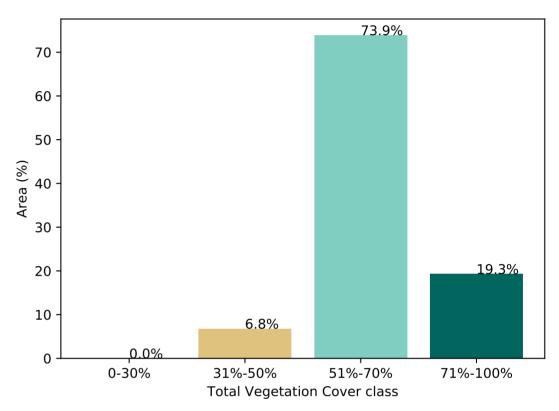


Total Vegetation Cover Anomaly [%]

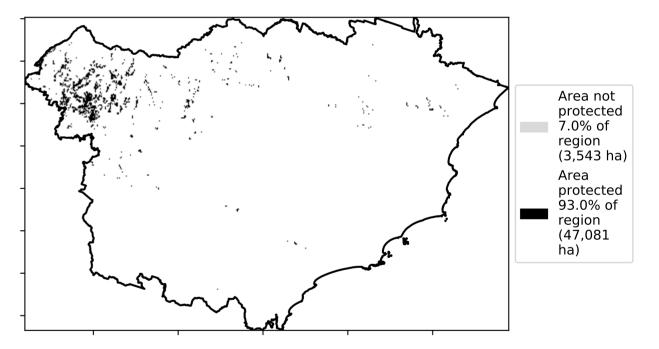


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

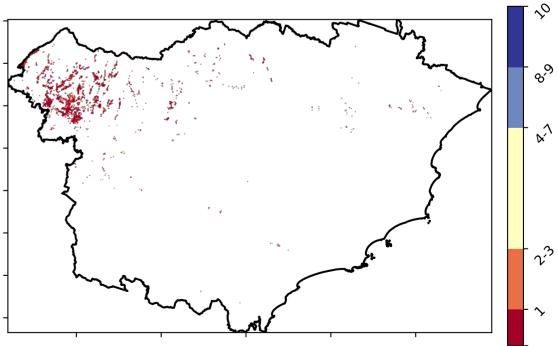
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







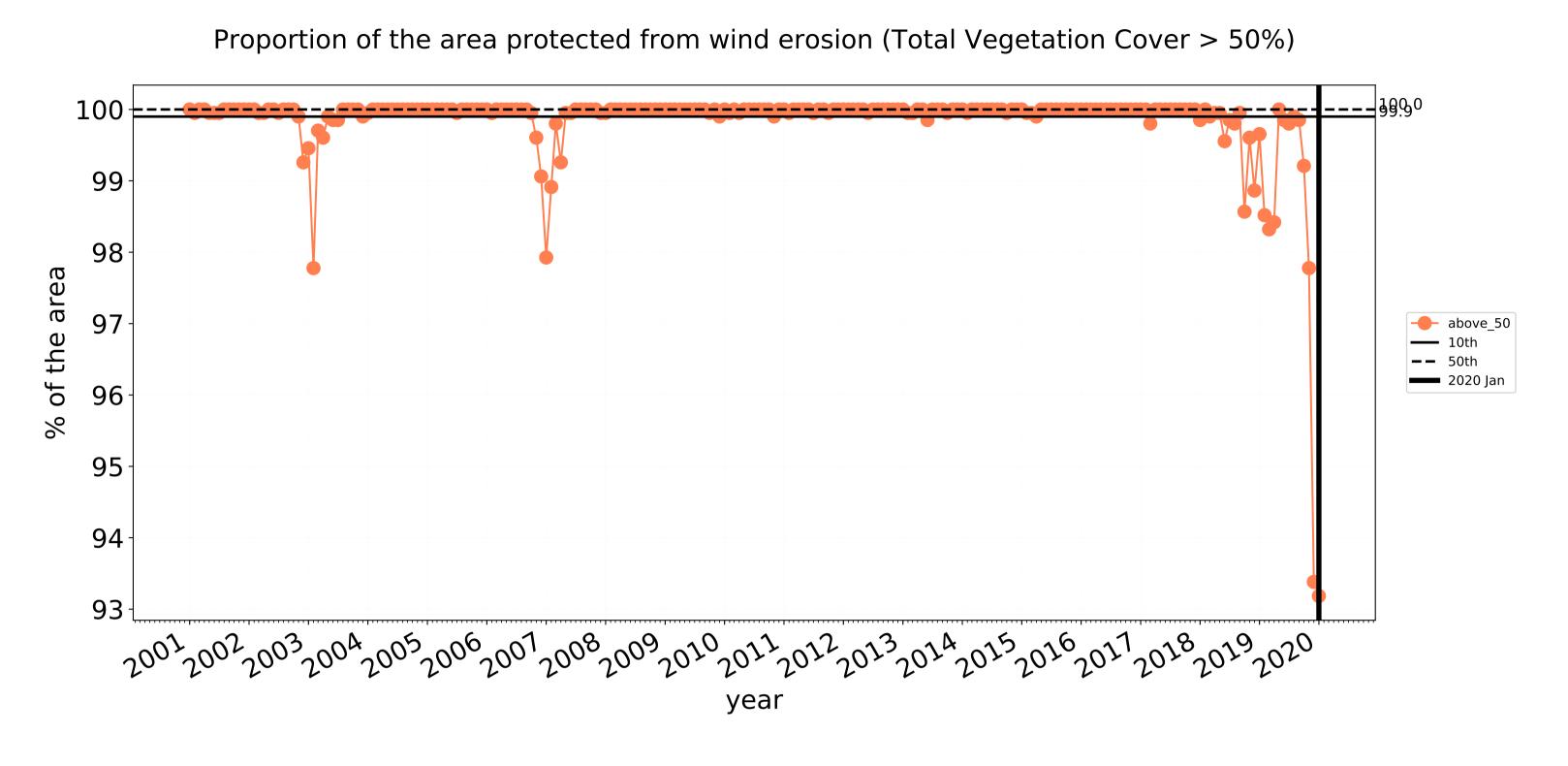


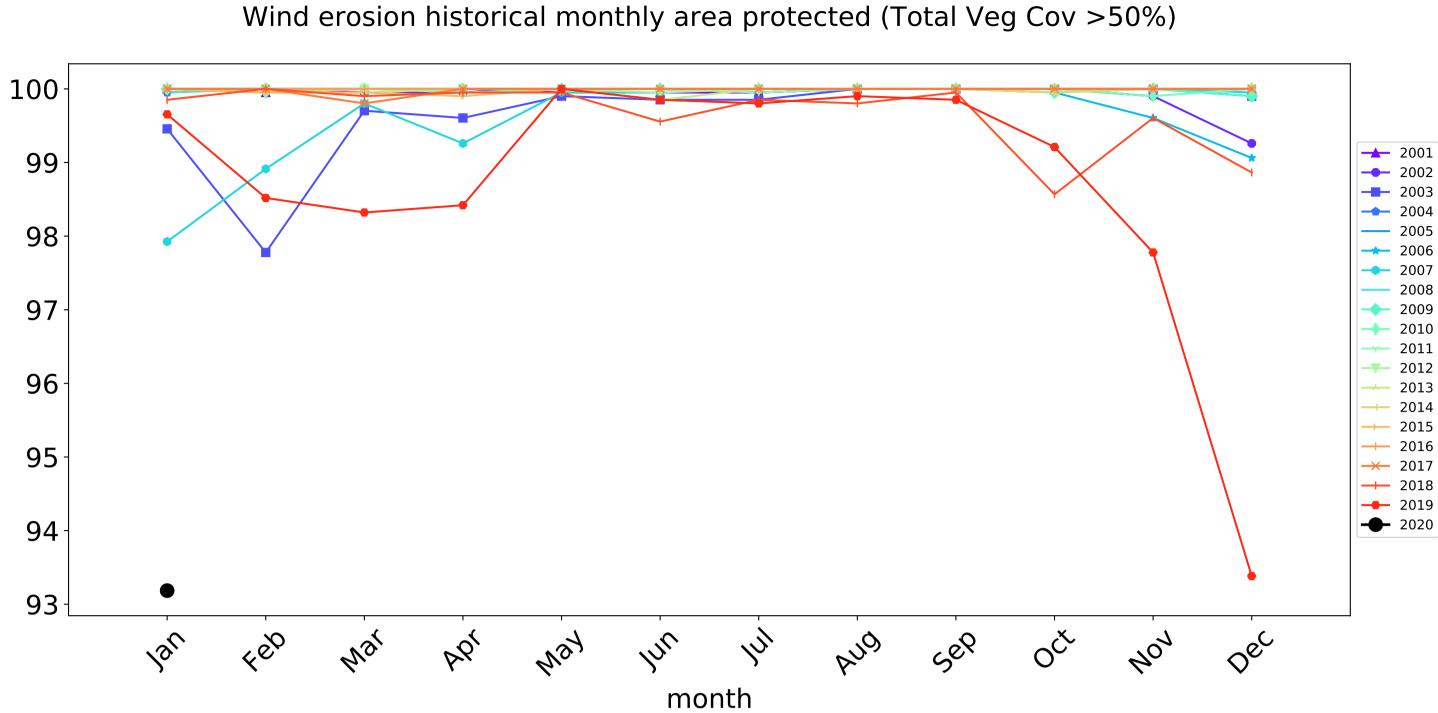


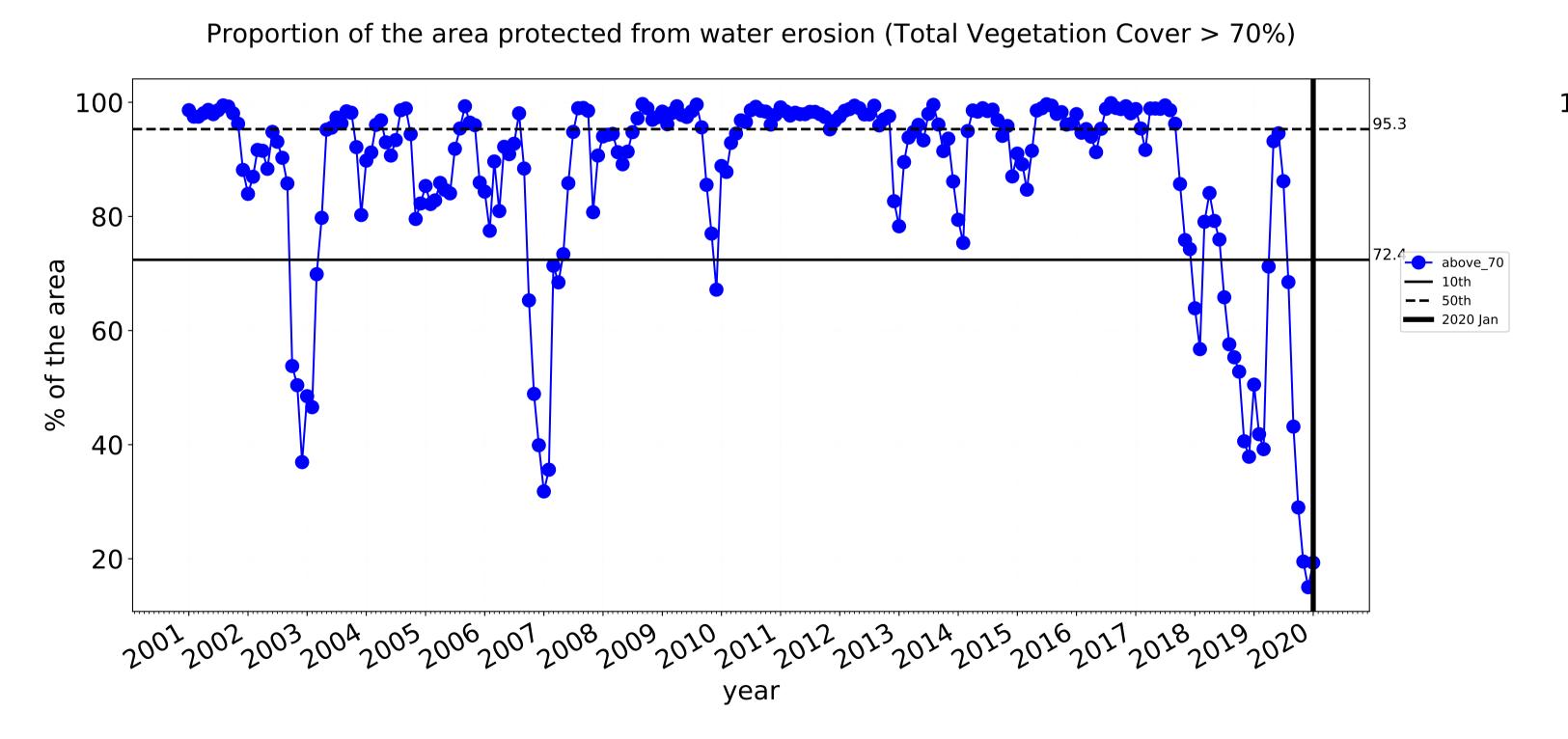


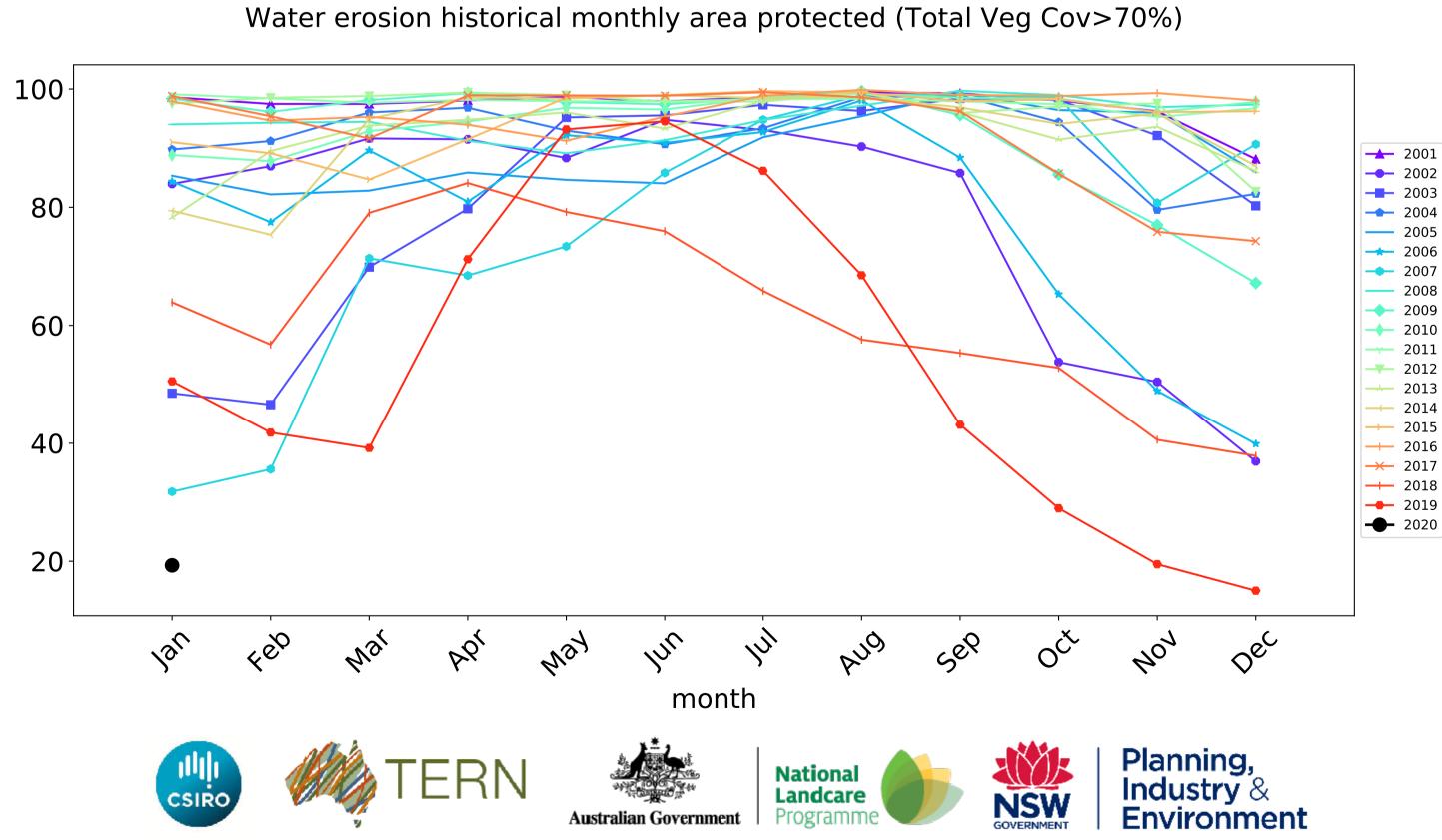


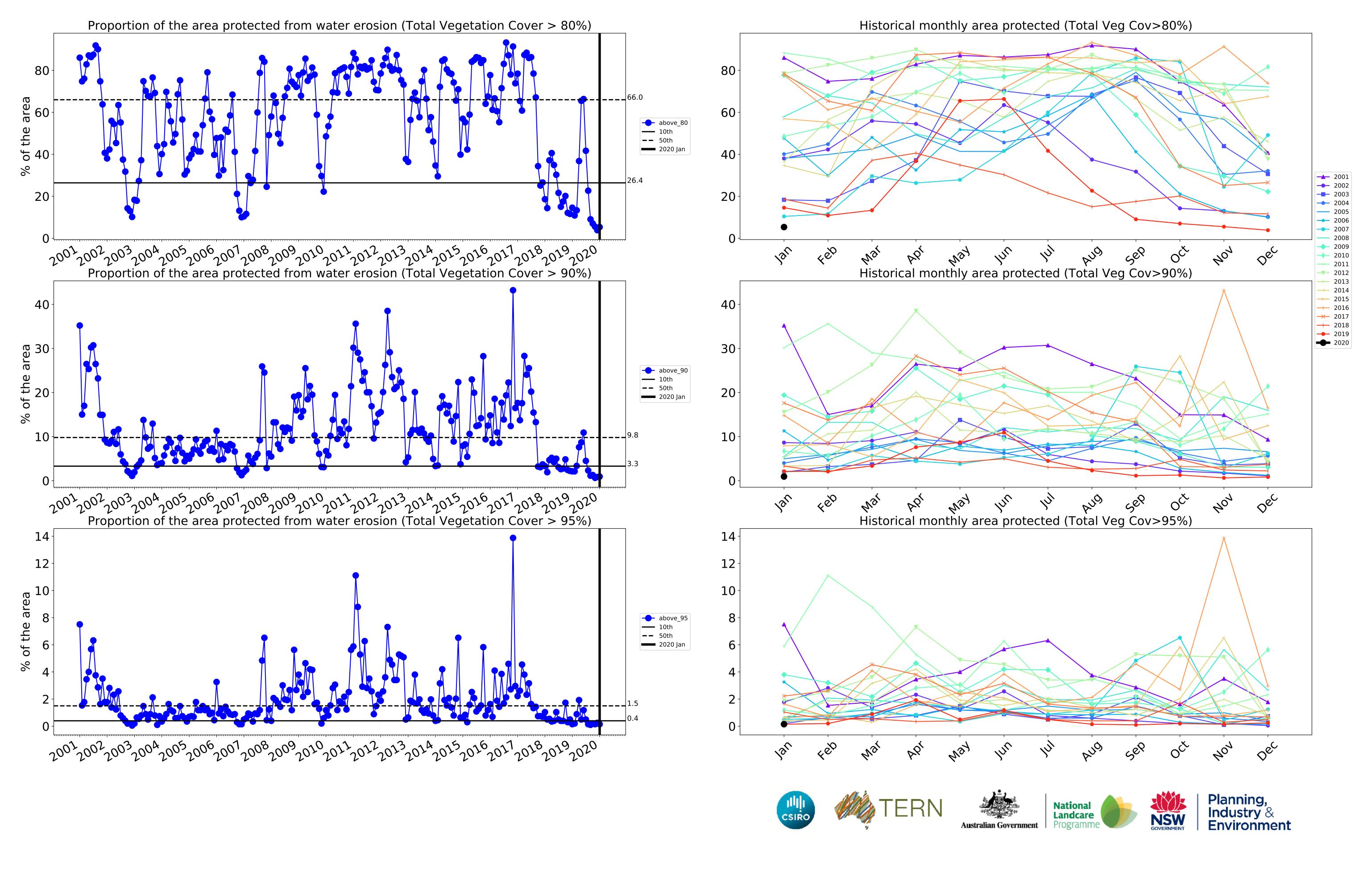
Cropping timeseries





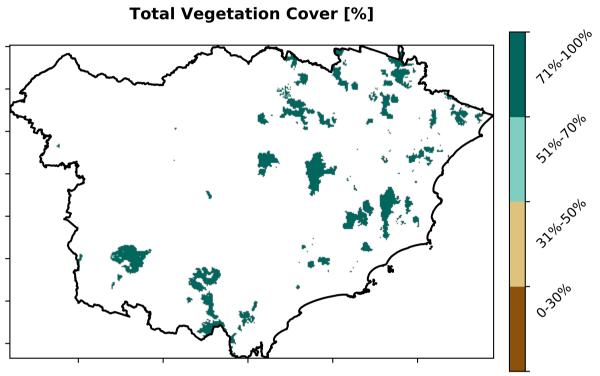


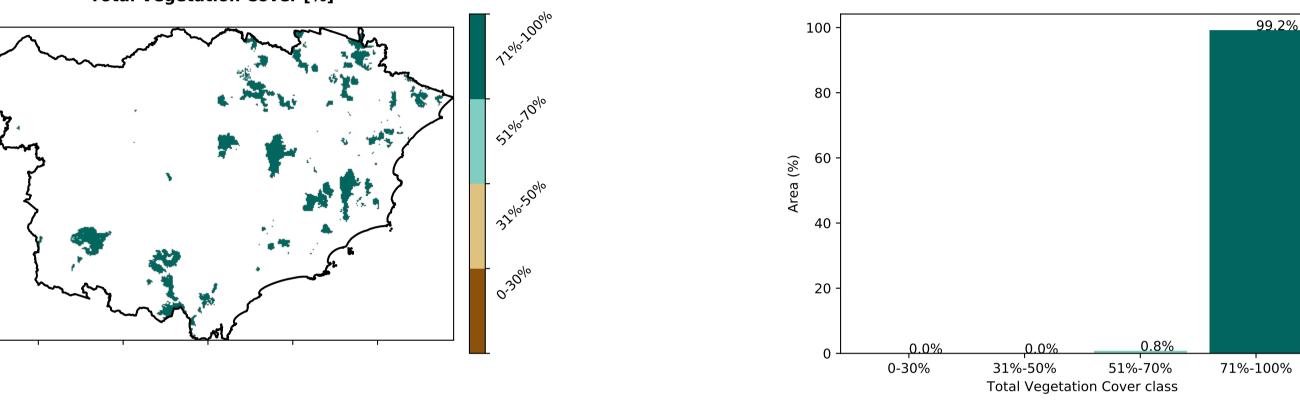


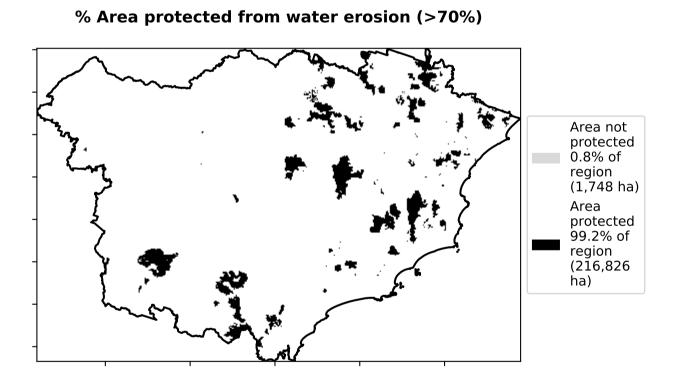


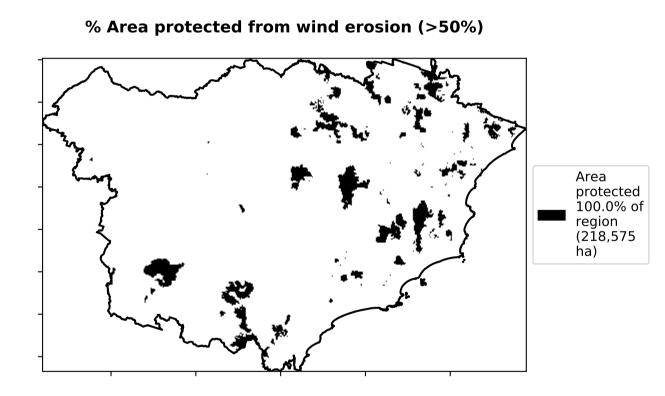
Production native forests and plantation forests

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

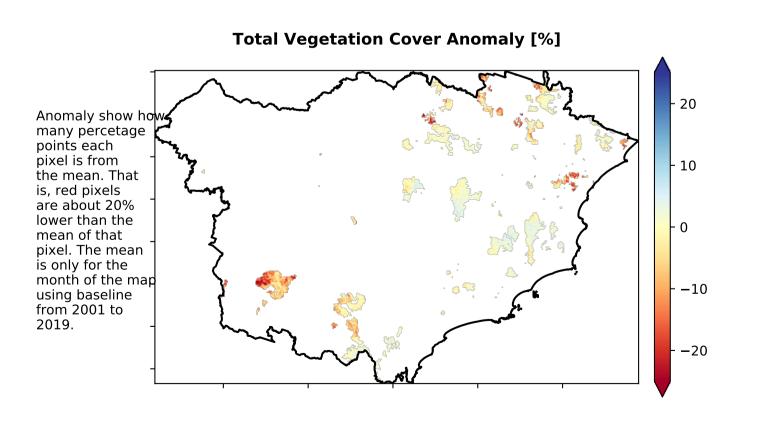


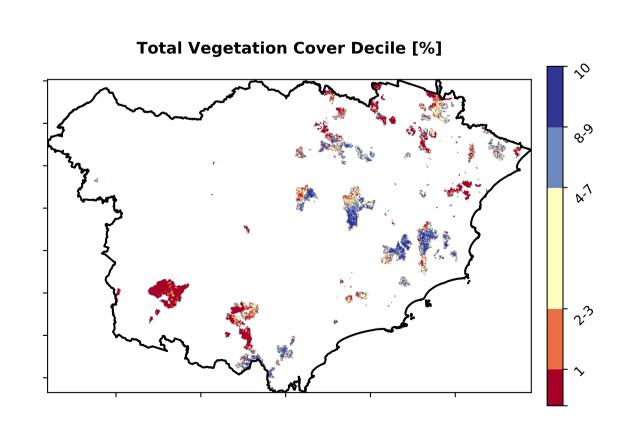






Proportion of vegetation cover class in area









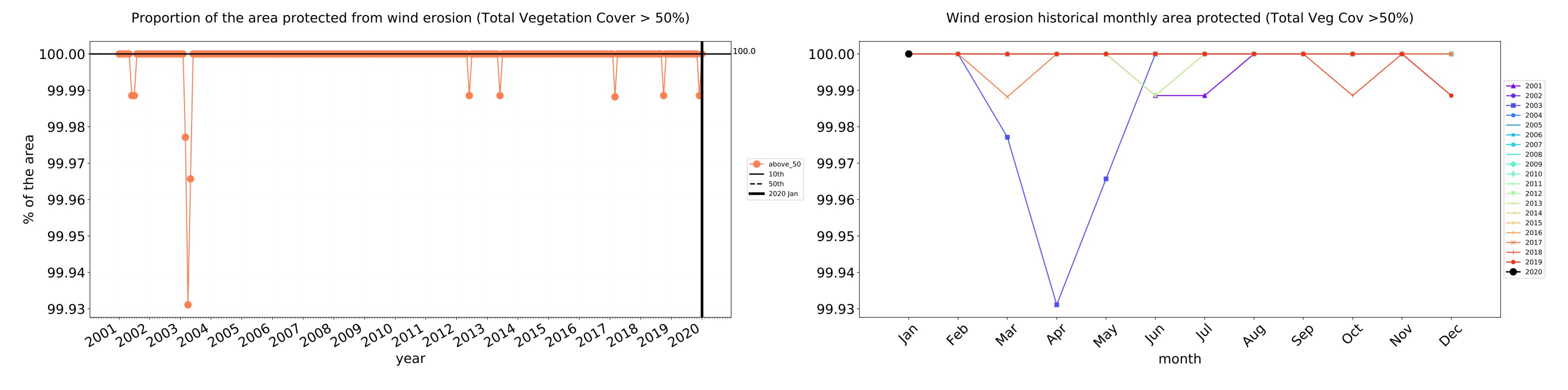


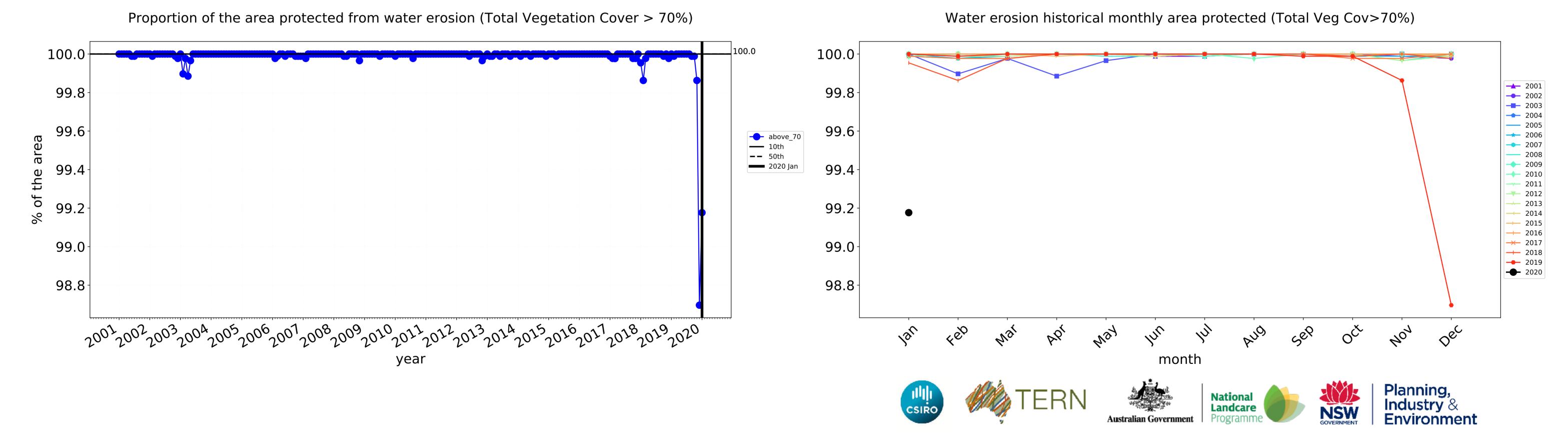


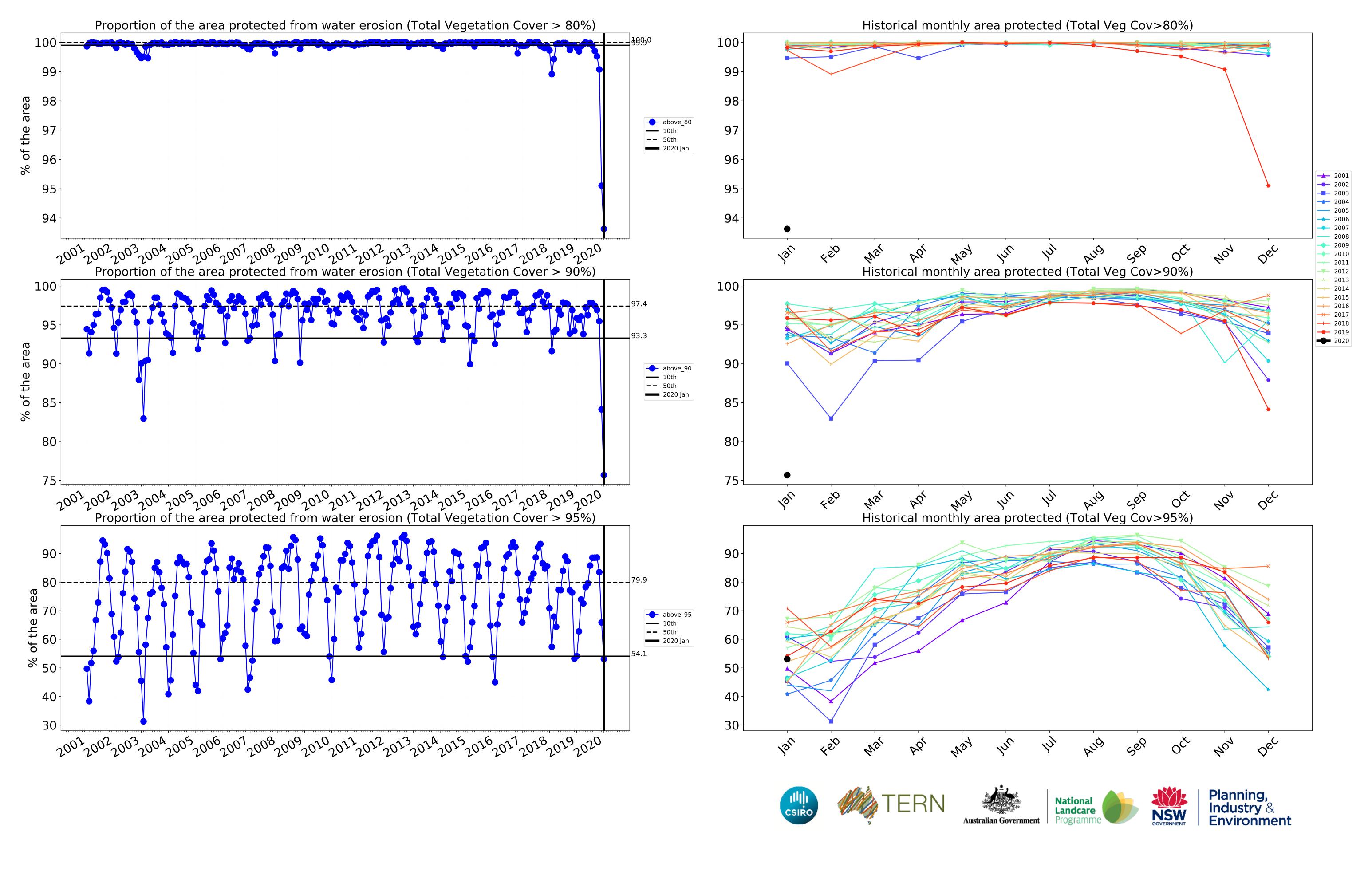




Production native forests and plantation forests timeseries







Hunter (3,239,725 ha and no data 60,700 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	3,239,725	99.8% 3,234,450	99.3% 3,215,950	87.9% 2,848,500	66.0% 2,137,100	32.7% 1,060,625	15.8% 511,150
Conservation and natural environments	1,240,775	99.9% 1,239,275	99.8% 1,238,050	97.5% 1,209,325	83.3% 1,033,800	49.3% 611,425	24.7% 306,400
Conservation and natural environments non forest	29,800	95.4% 28,425	92.7% 27,625	81.9% 24,400	69.6% 20,750	42.1% 12,550	16.4% 4,875
Conservation and natural environments Woodland forest	138,925	100.0% 138,925	99.9% 138,825	94.8% 131,700	77.0% 107,025	34.3% 47,600	8.7% 12,025
Conservation and natural environments Forest (non woodland)	1,072,050	100.0% 1,071,925	100.0% 1,071,600	98.2% 1,053,225	84.5% 906,025	51.4% 551,275	27.0% 289,500
Agriculture	1,580,500	100.0% 1,580,375	99.6% 1,573,975	81.4% 1,286,150	51.4% 812,725	16.1% 254,850	5.1% 80,450
Grazing	1,502,500	100.0% 1,502,375	99.8% 1,499,500	83.7% 1,257,150	53.4% 803,000	16.9% 253,700	5.3% 80,275
Grazing non forest	1,212,850	100.0% 1,212,775	99.8% 1,210,025	80.8% 980,400	50.0% 606,775	15.1% 183,600	4.7% 56,900
Grazing Woodland forest	120,600	100.0% 120,575	99.9% 120,475	92.2% 111,150	51.1% 61,625	10.8% 13,075	3.0% 3,650
Grazing - Forest (non woodland)	169,050	100.0% 169,025	100.0% 169,000	98.0% 165,600	79.6% 134,600	33.7% 57,025	11.7% 19,725
Cropping	50,625	100.0% 50,625	93.2% 47,175	19.3% 9,775	5.3% 2,700	0.9% 475	0.1% 75
Production native forests and plantation forests	218,575	100.0% 218,575	100.0% 218,575	99.2% 216,775	93.6% 204,650	75.7% 165,400	53.1% 116,000











