Total vegetation cover soil protection Region:NRM Hunter NSW

Date: January 2001

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





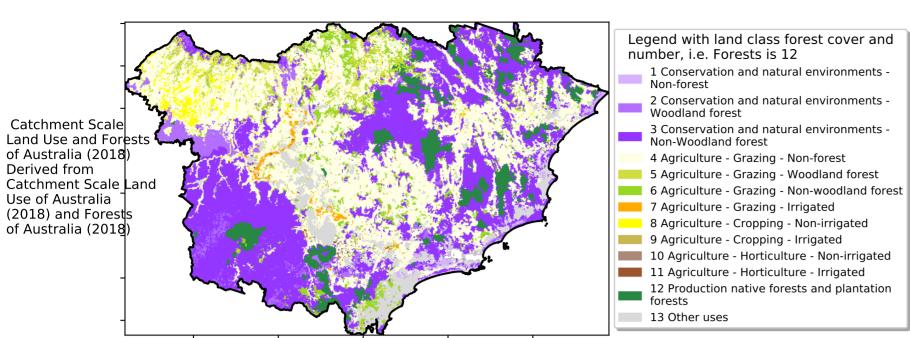




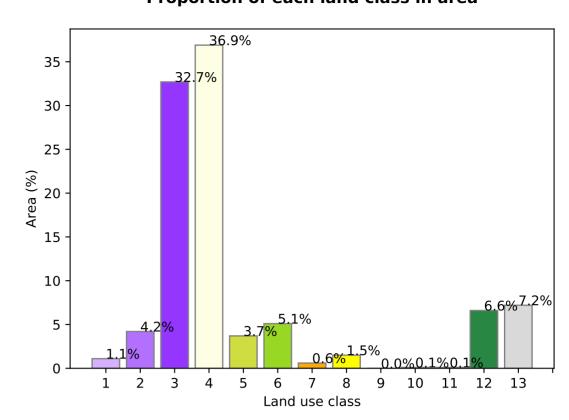


Vegetation Cover Jan 2001

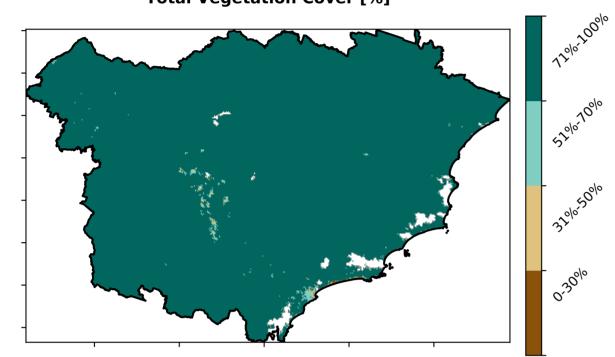
Land use and forest cover



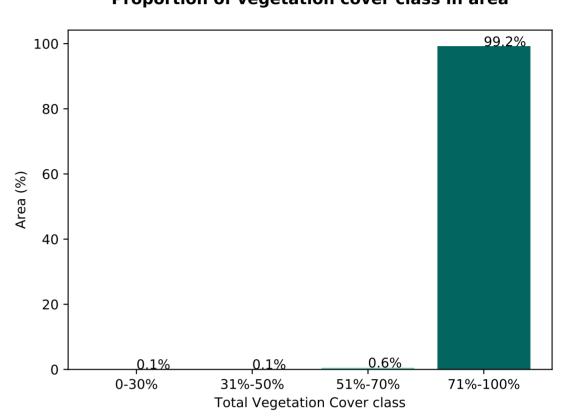
Proportion of each land class in area



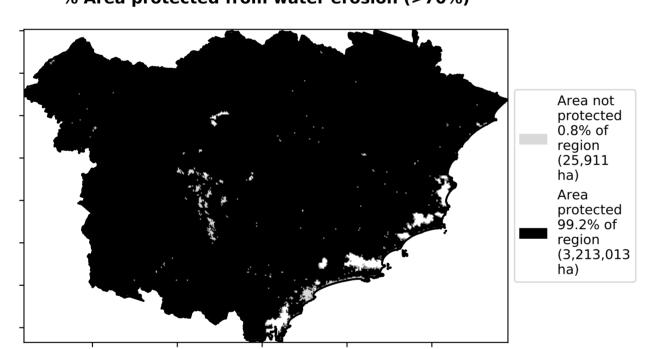
Total Vegetation Cover [%]



Proportion of vegetation cover class in area



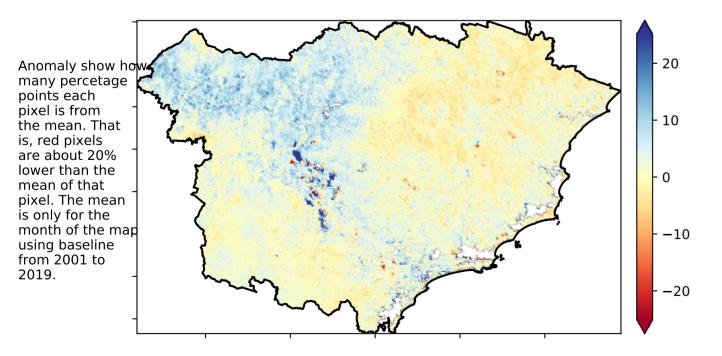
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

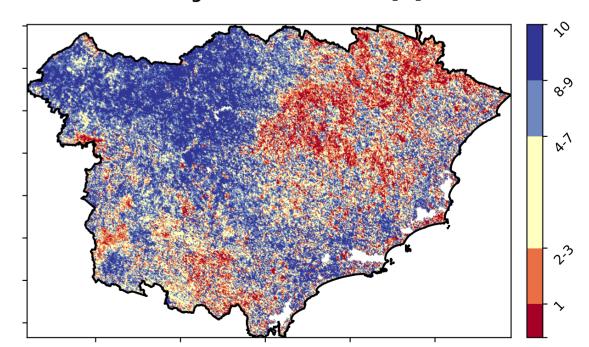


Total Vegetation Cover Anomaly [%]



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 [%]





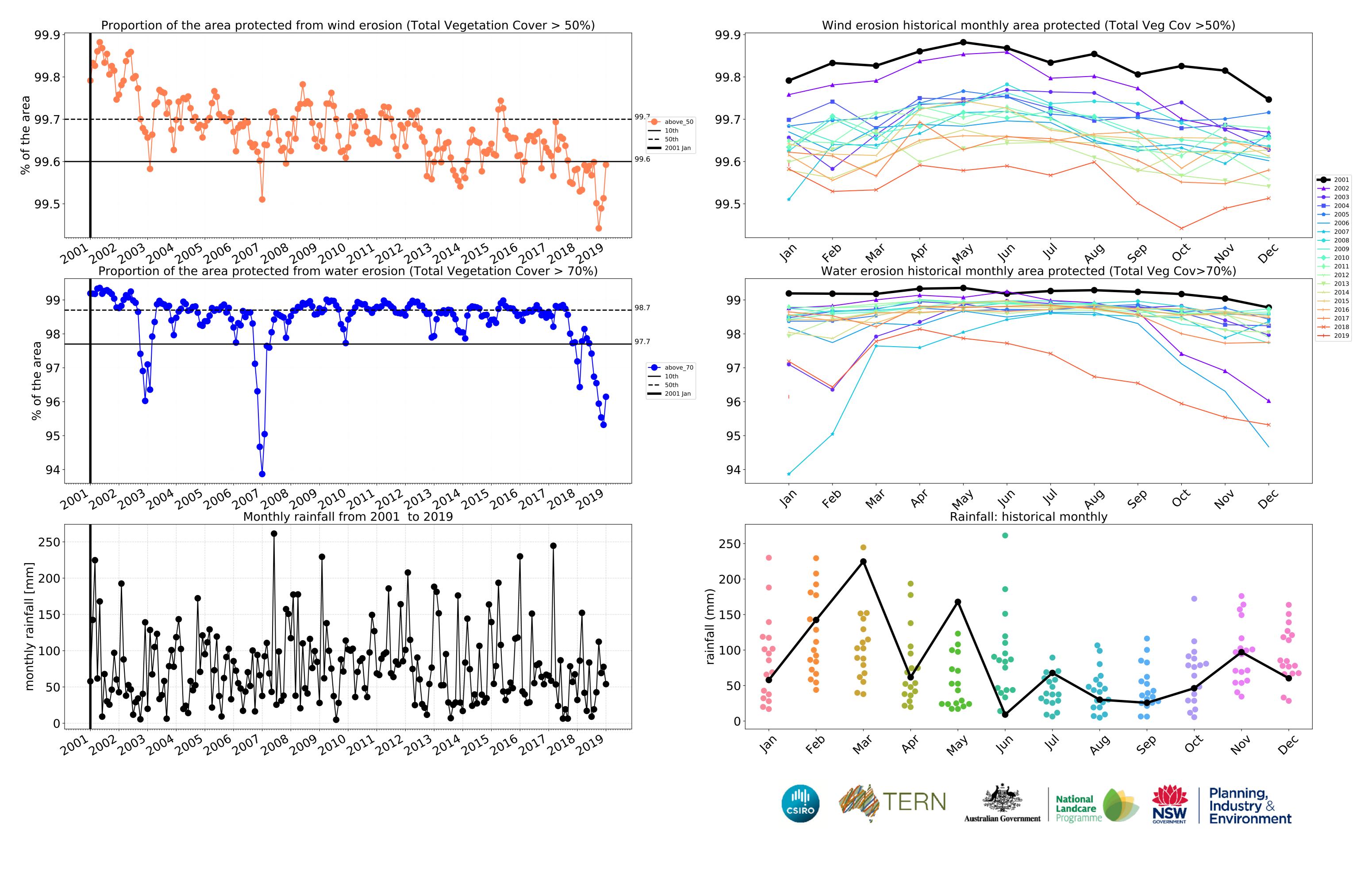


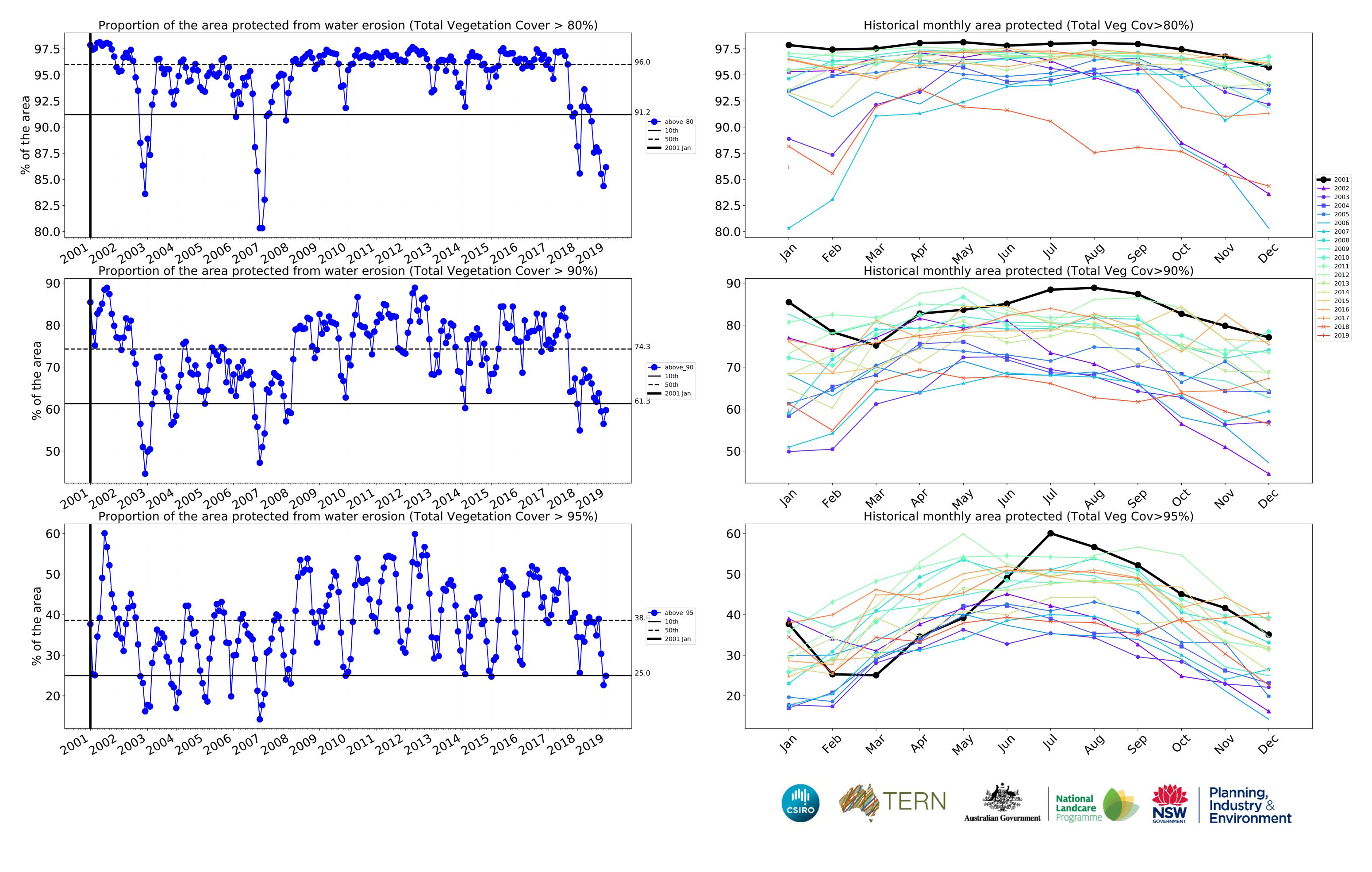






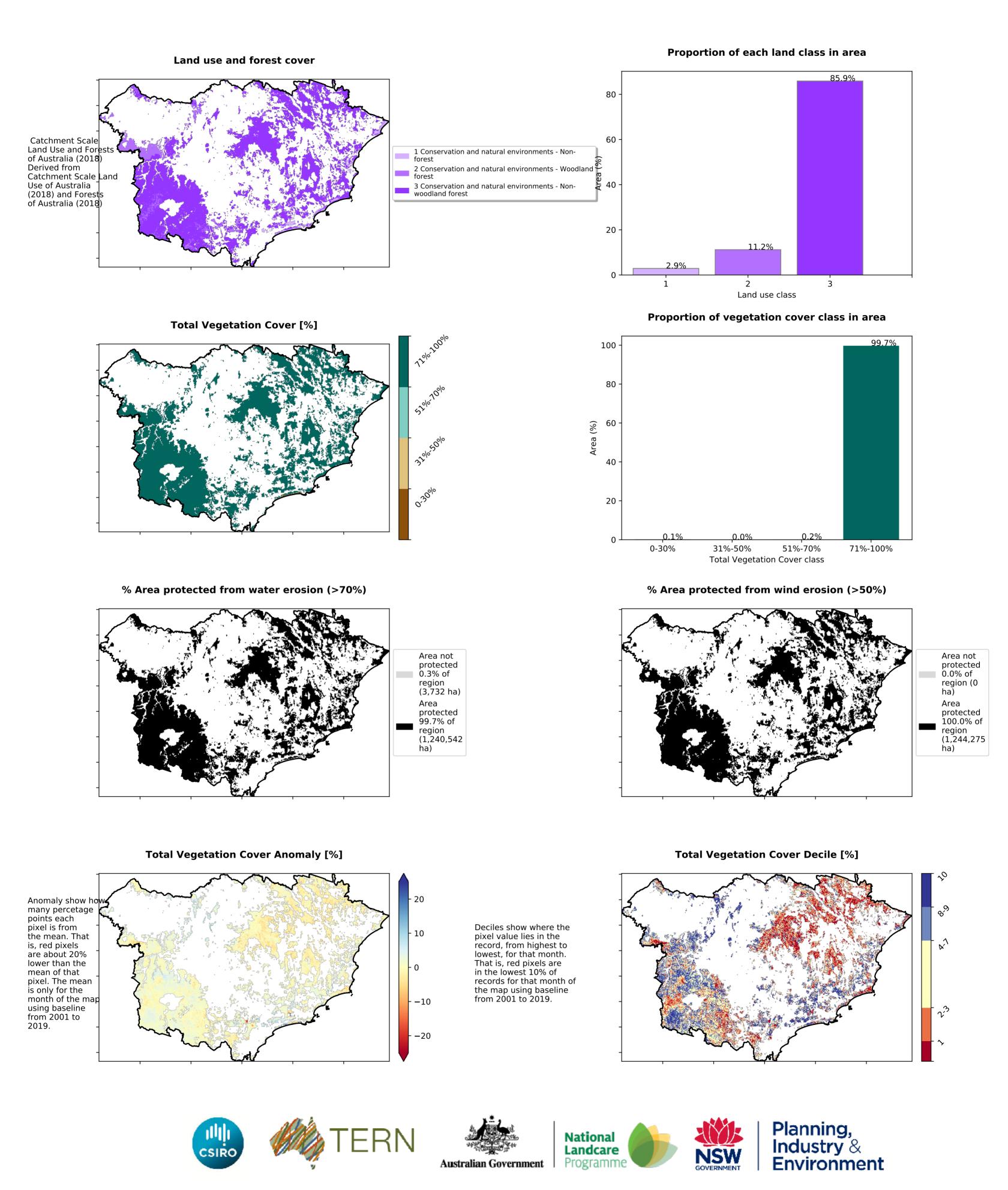




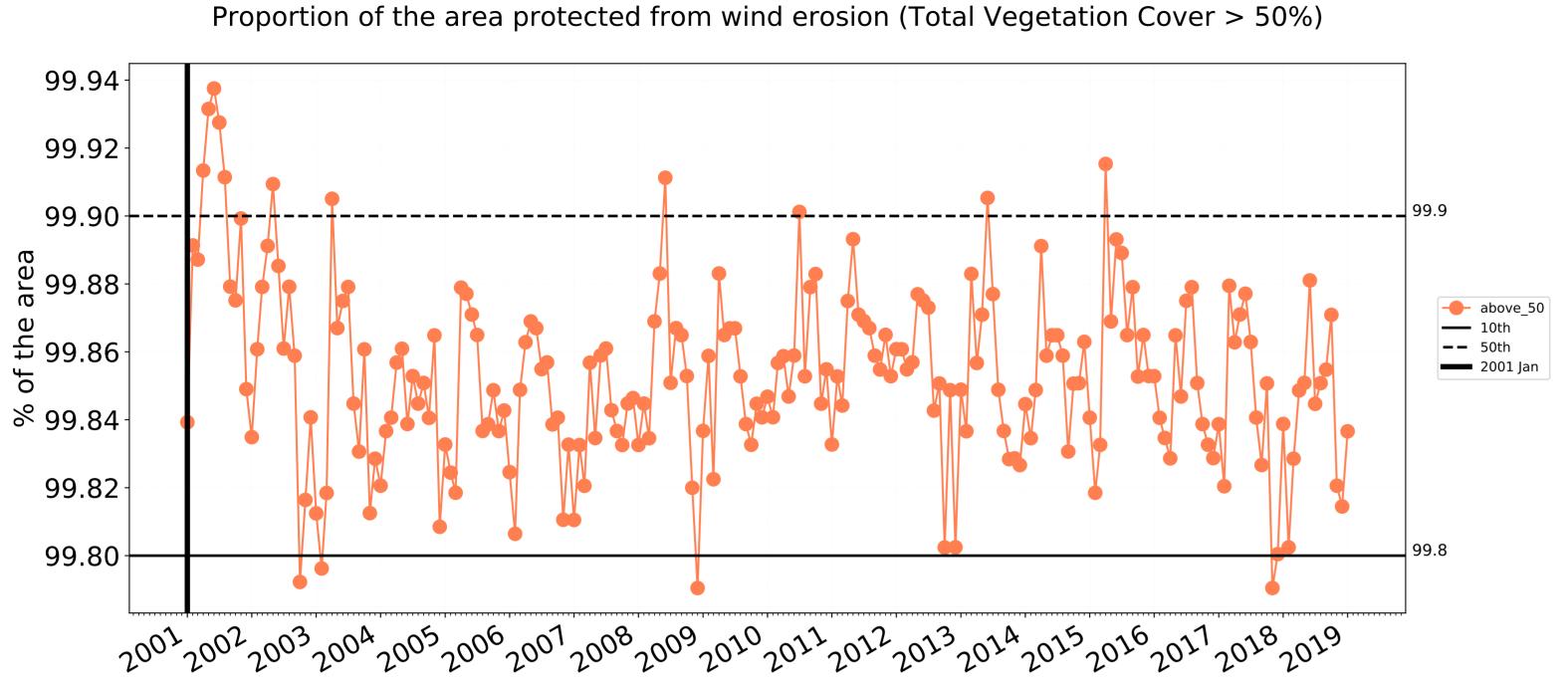


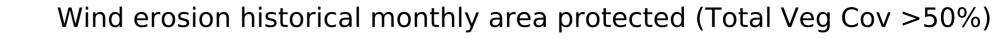
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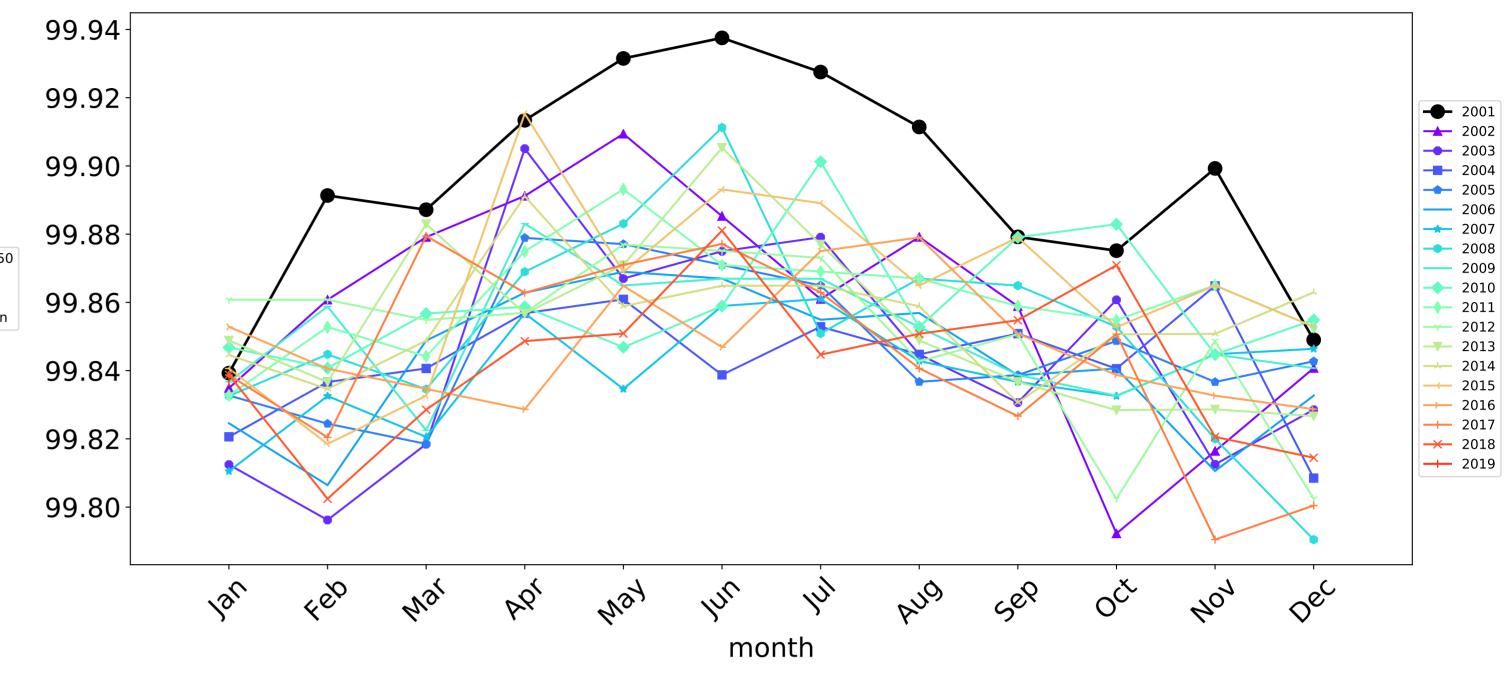
Conservation and natural environments

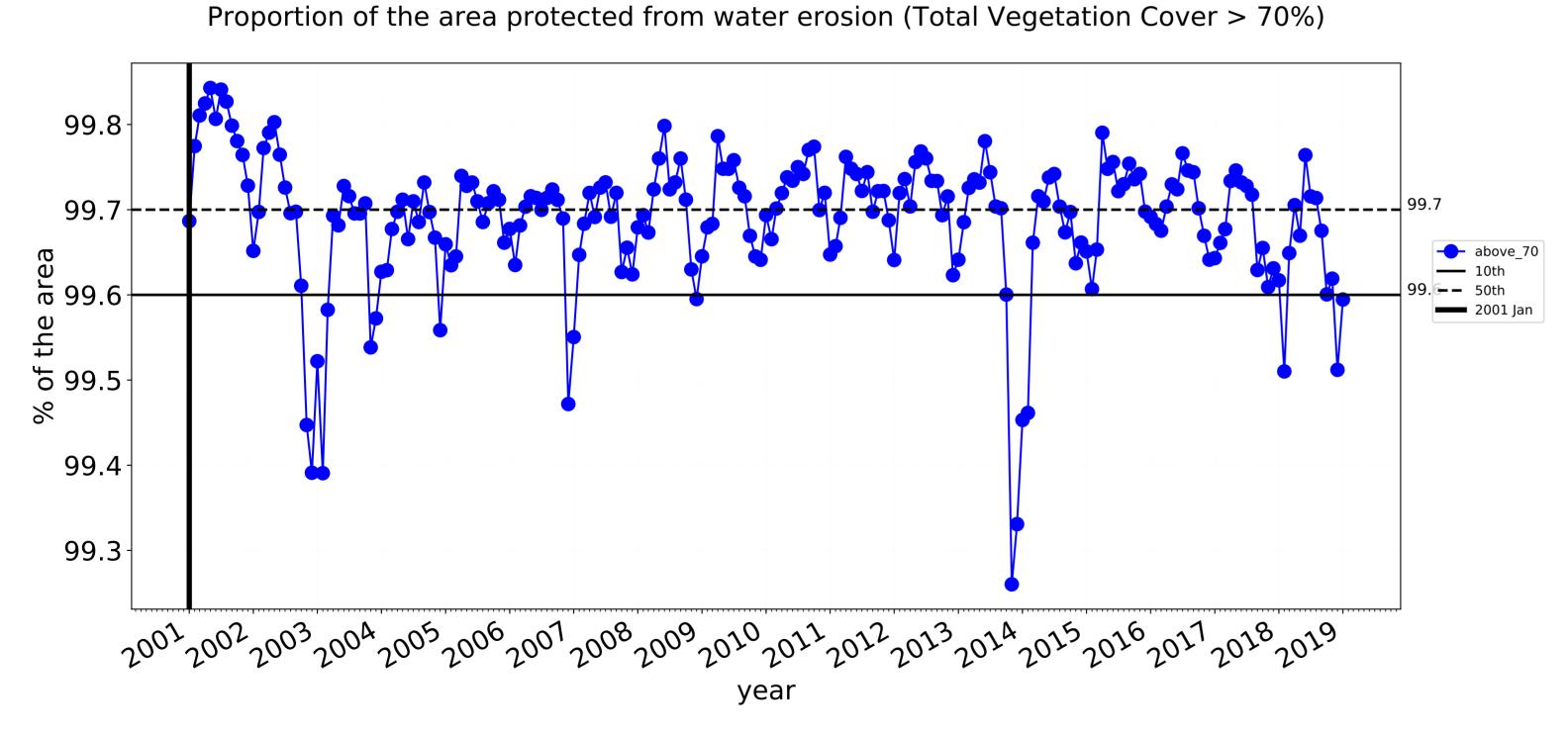


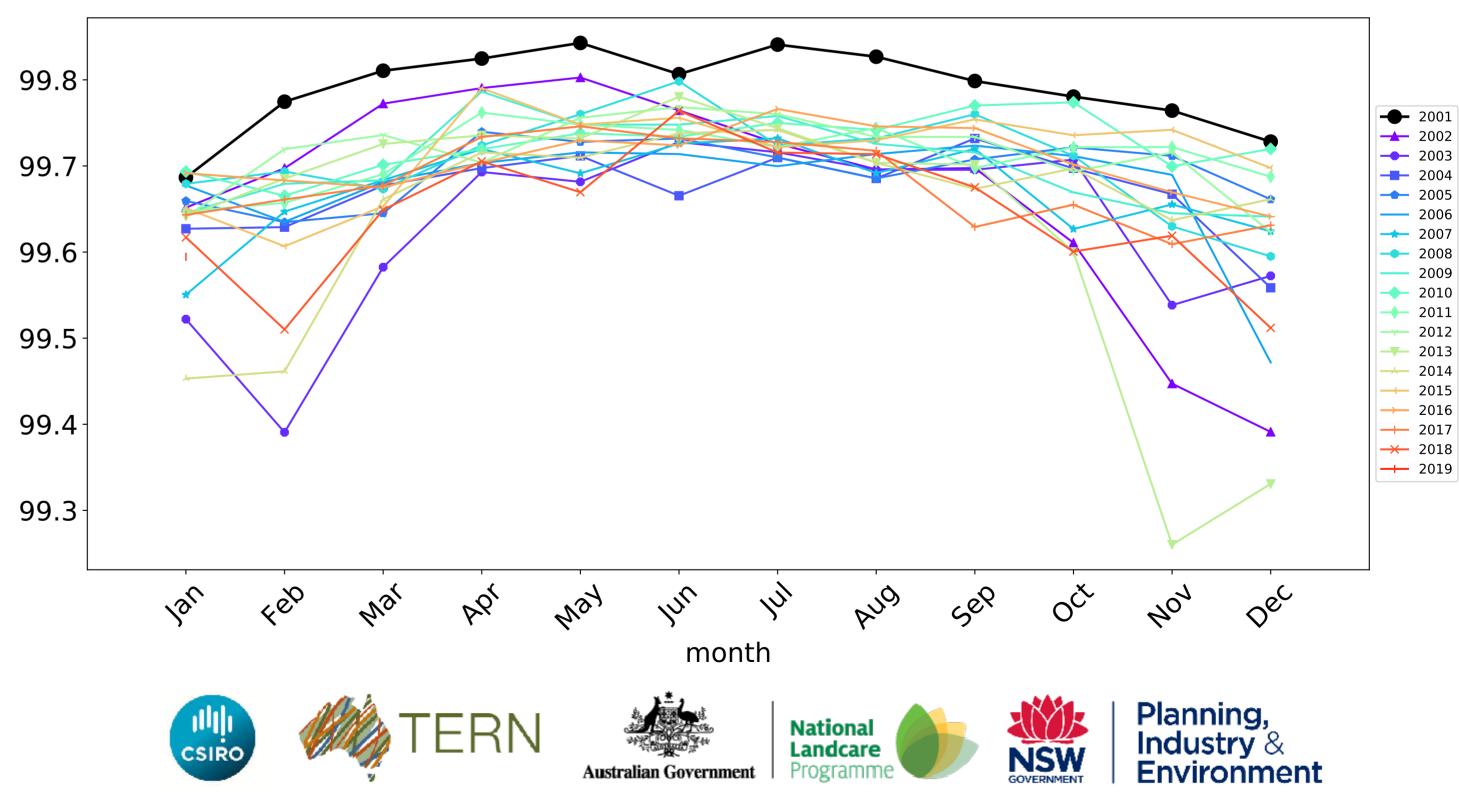
Conservation and natural environments timeseries



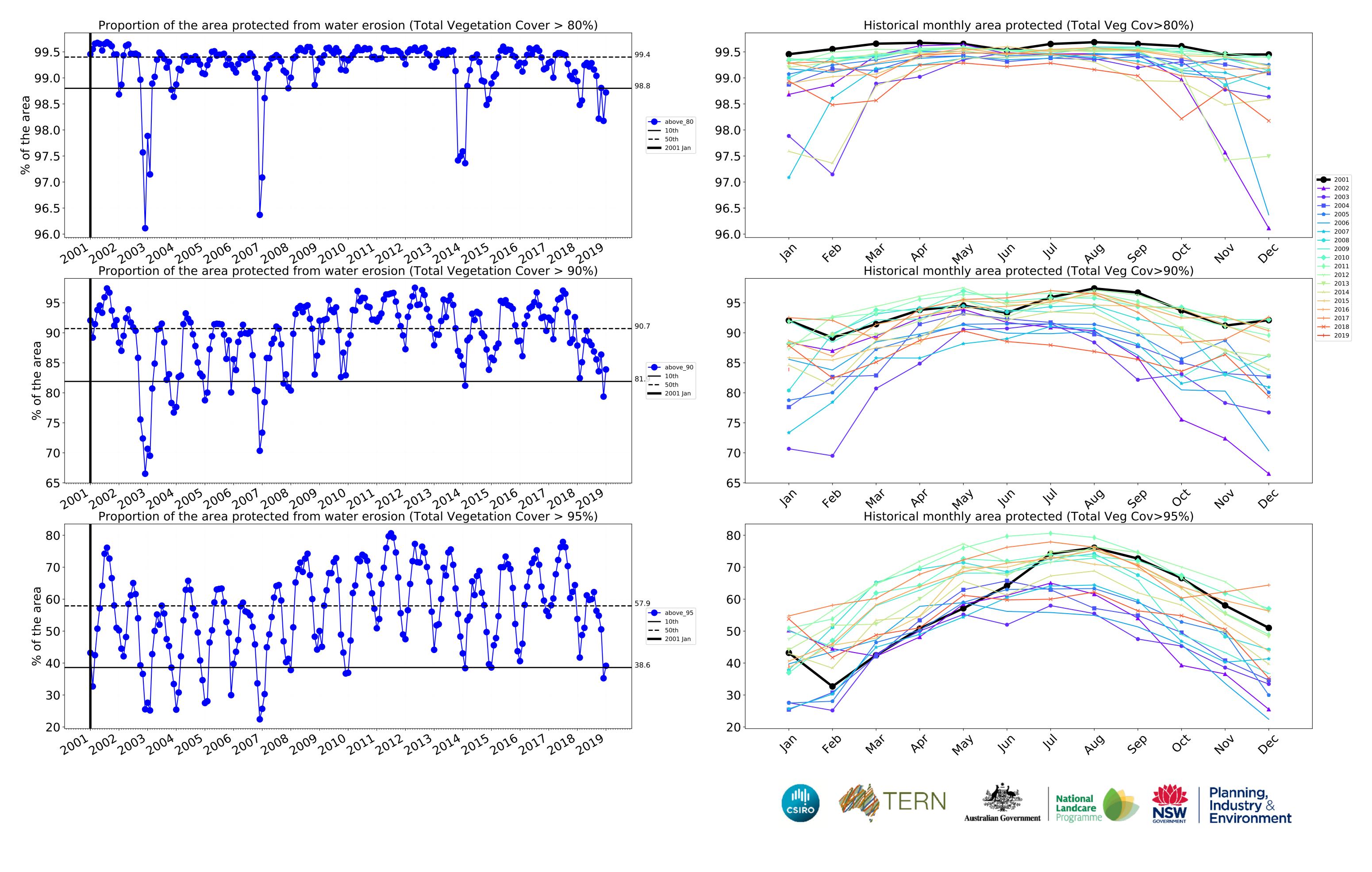




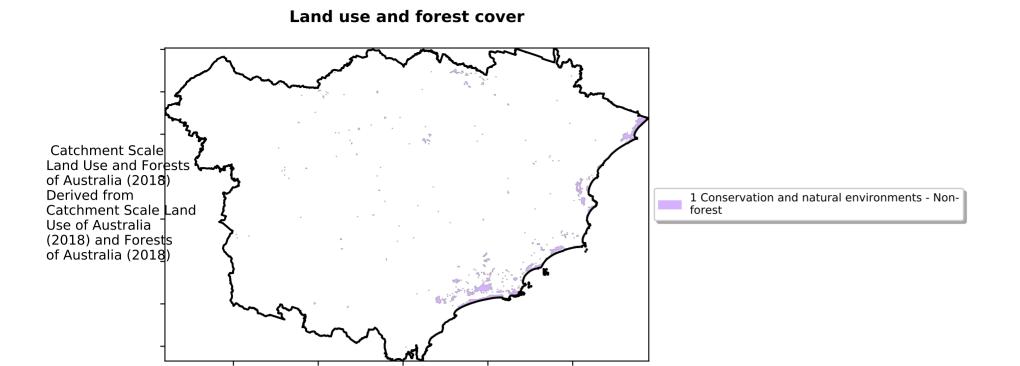




Water erosion historical monthly area protected (Total Veg Cov>70%)

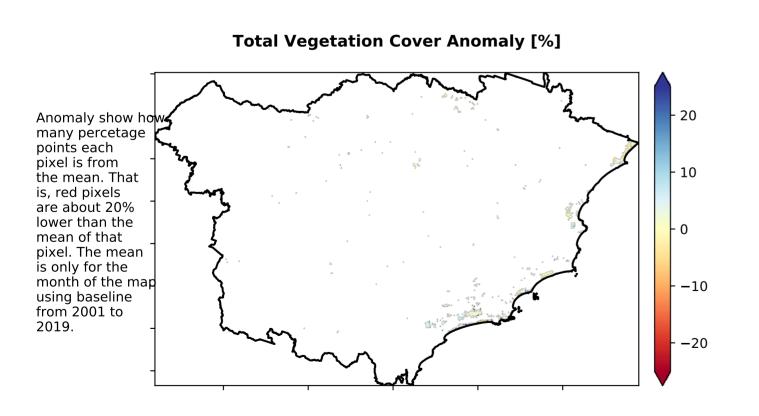


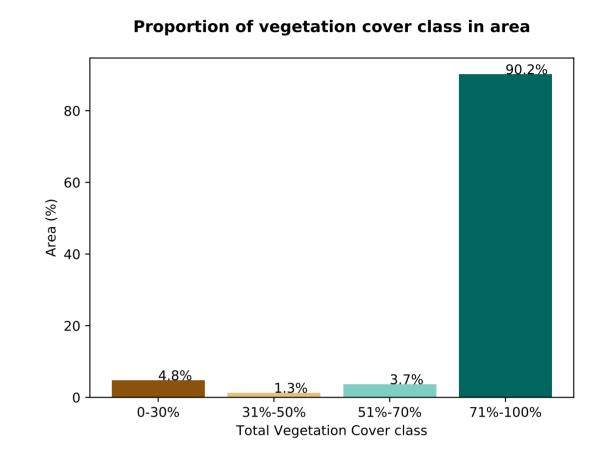
Conservation and natural environments non forest

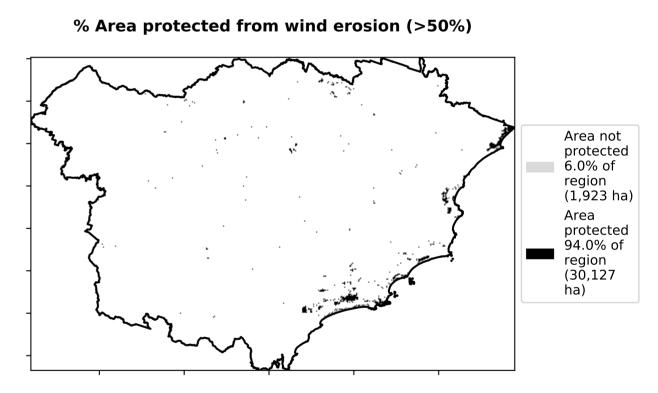


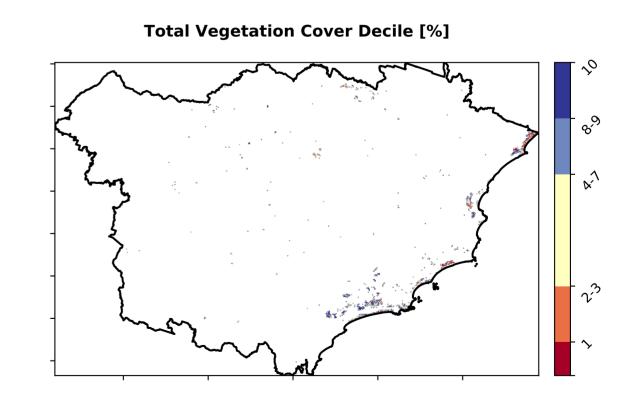
Total Vegetation Cover [%] Talestage Tales

% Area protected from water erosion (>70%) Area not protected 9.8% of region (3,140 ha) Area protected 90.2% of region (28,909 ha)













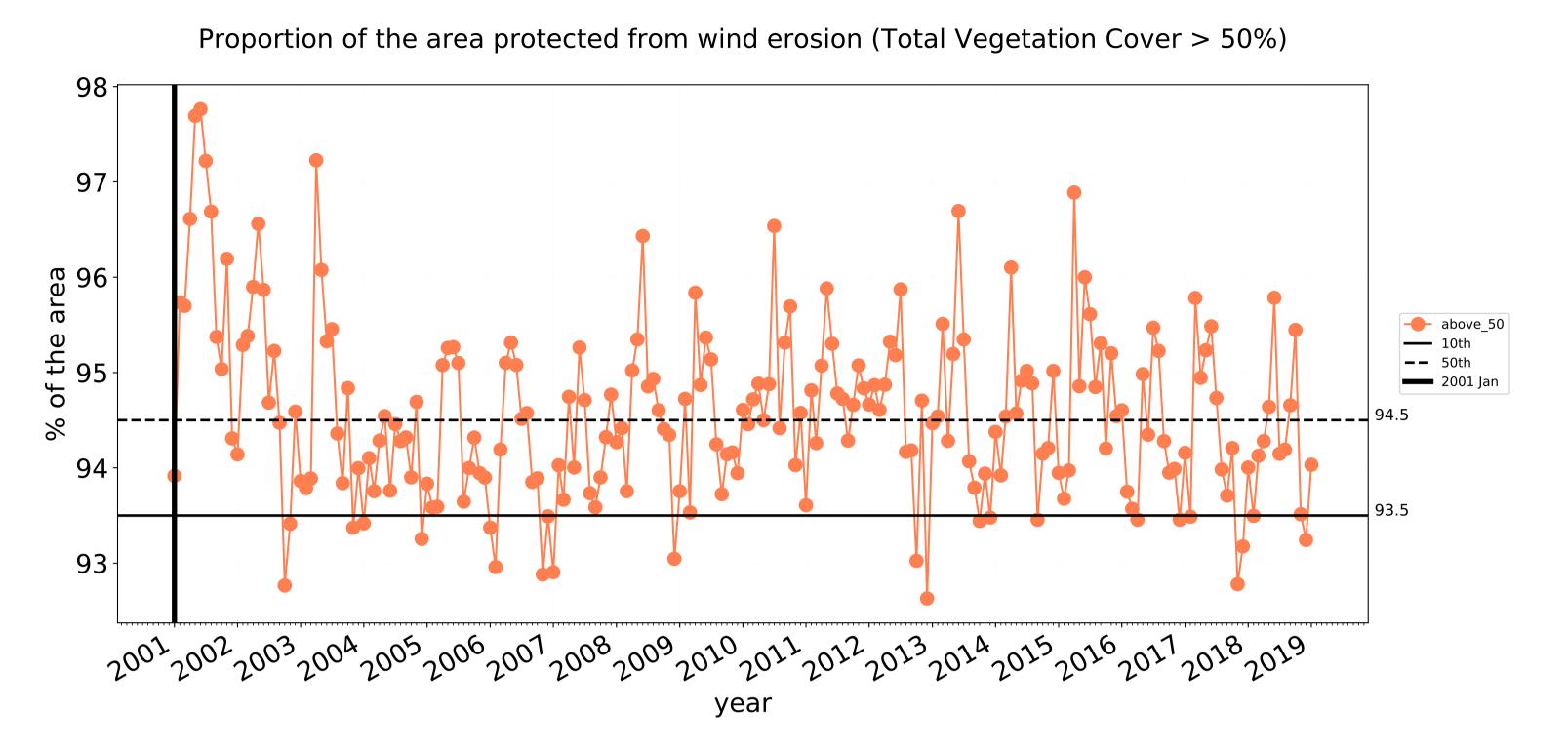


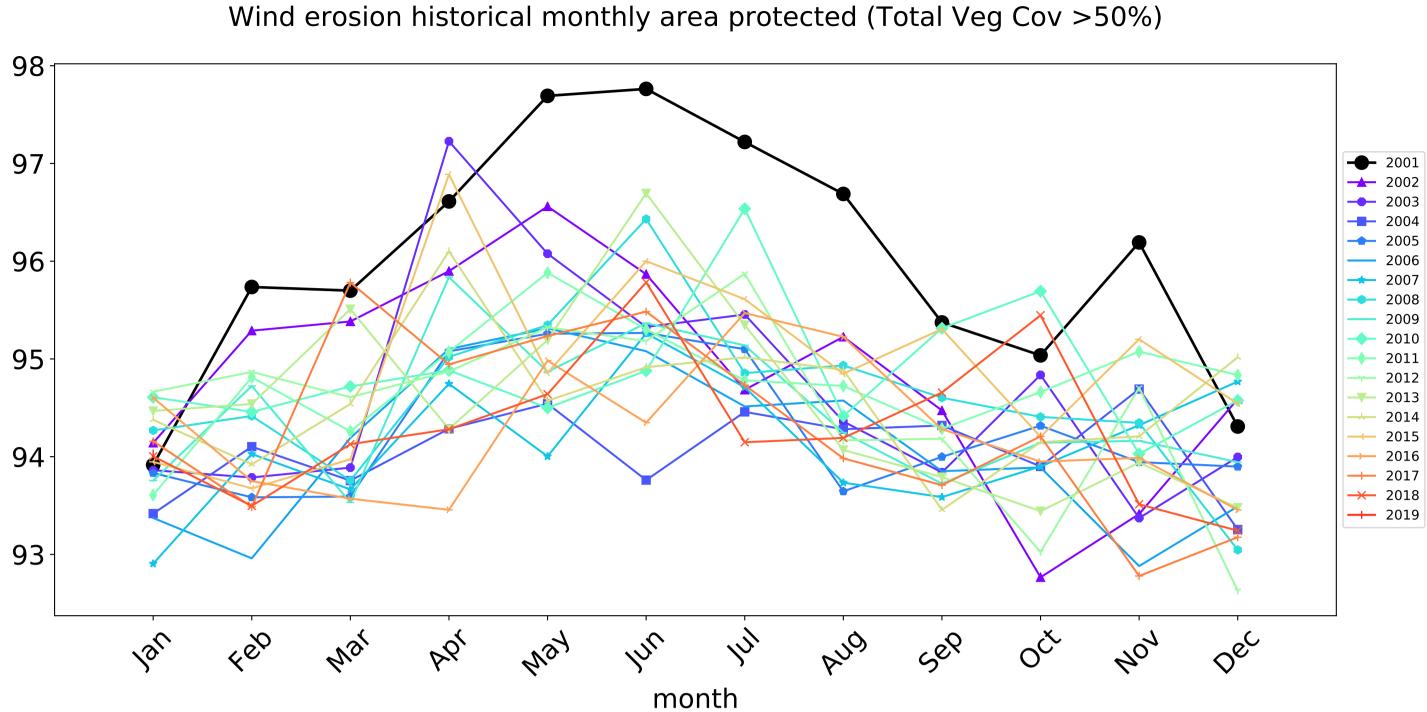


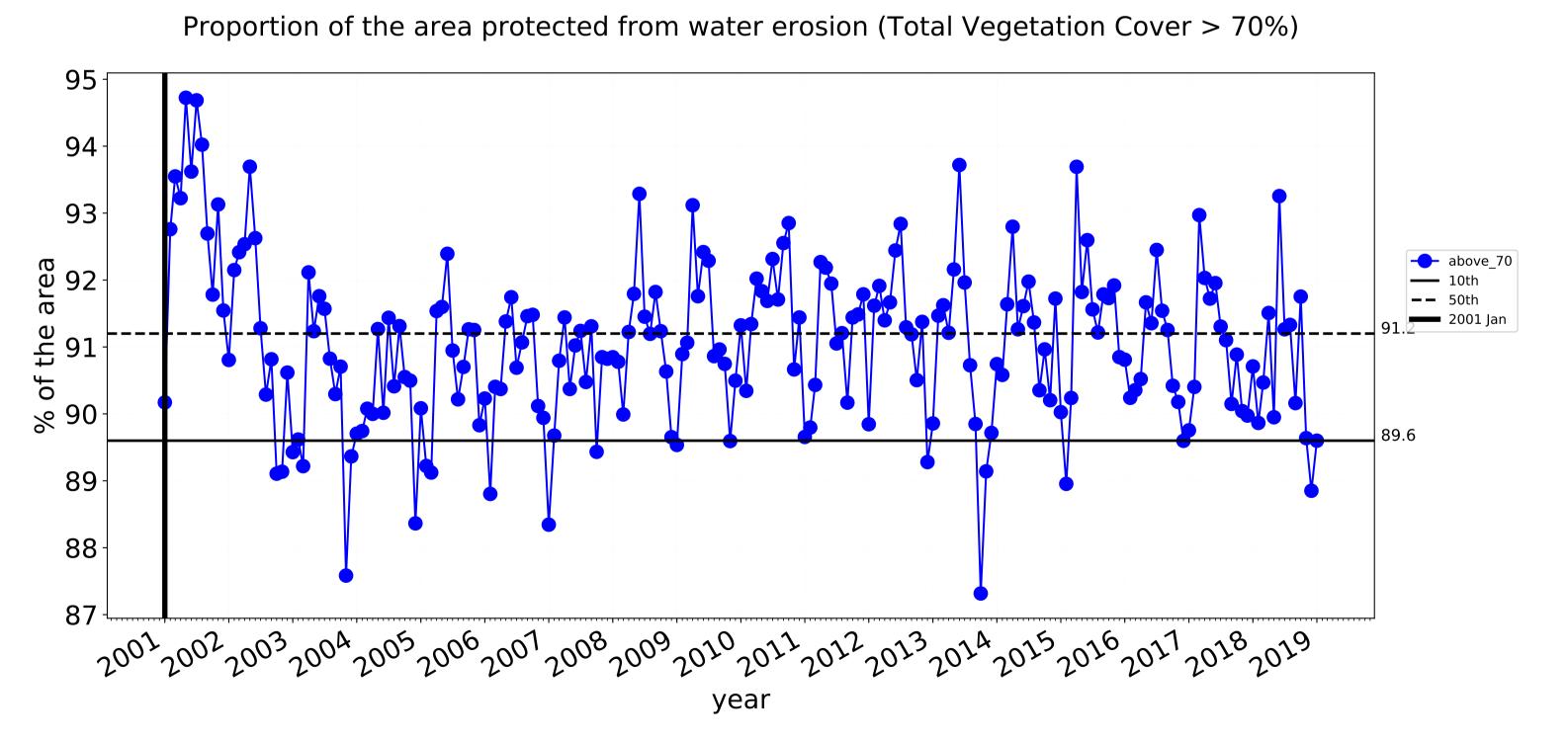


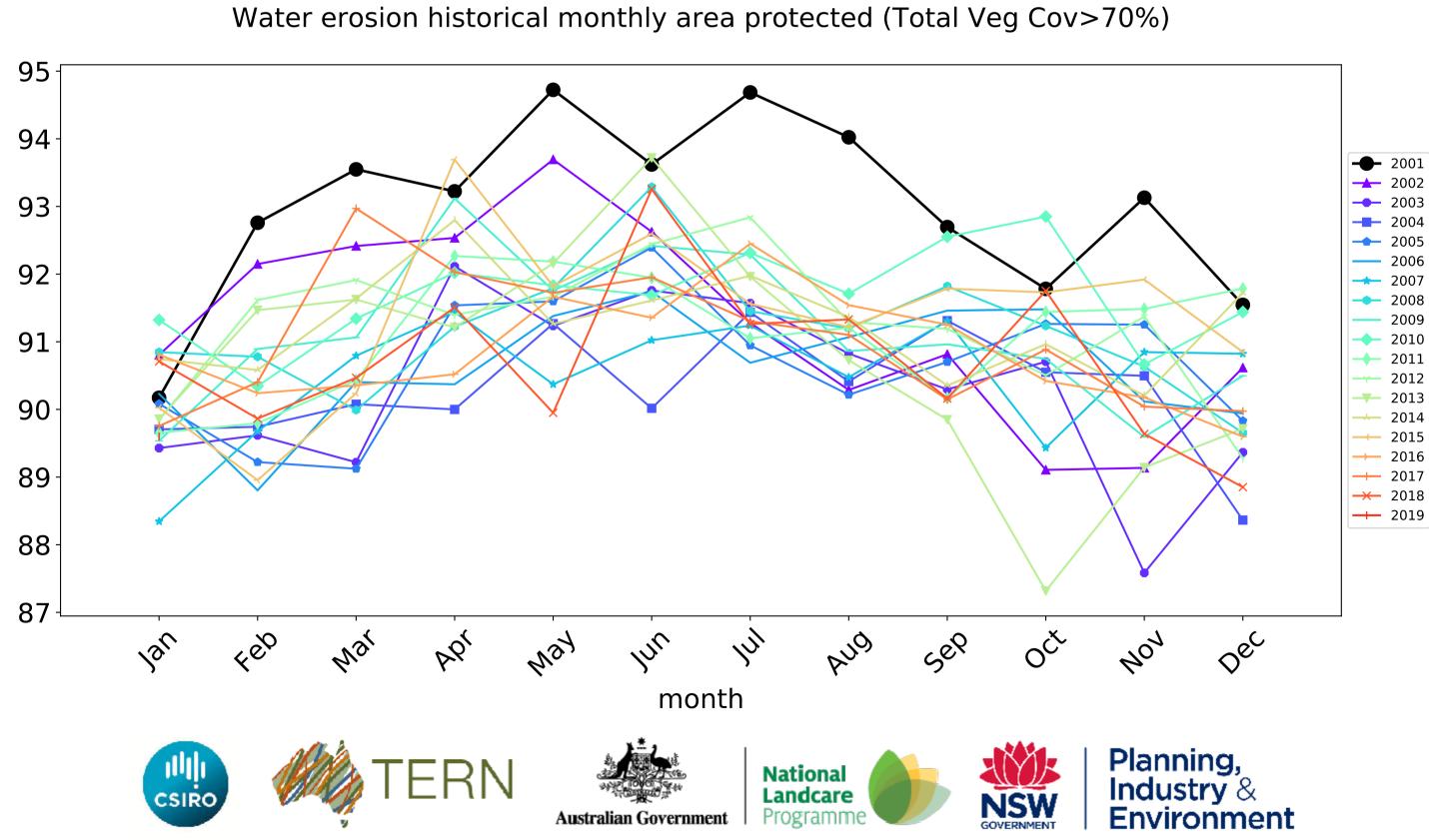


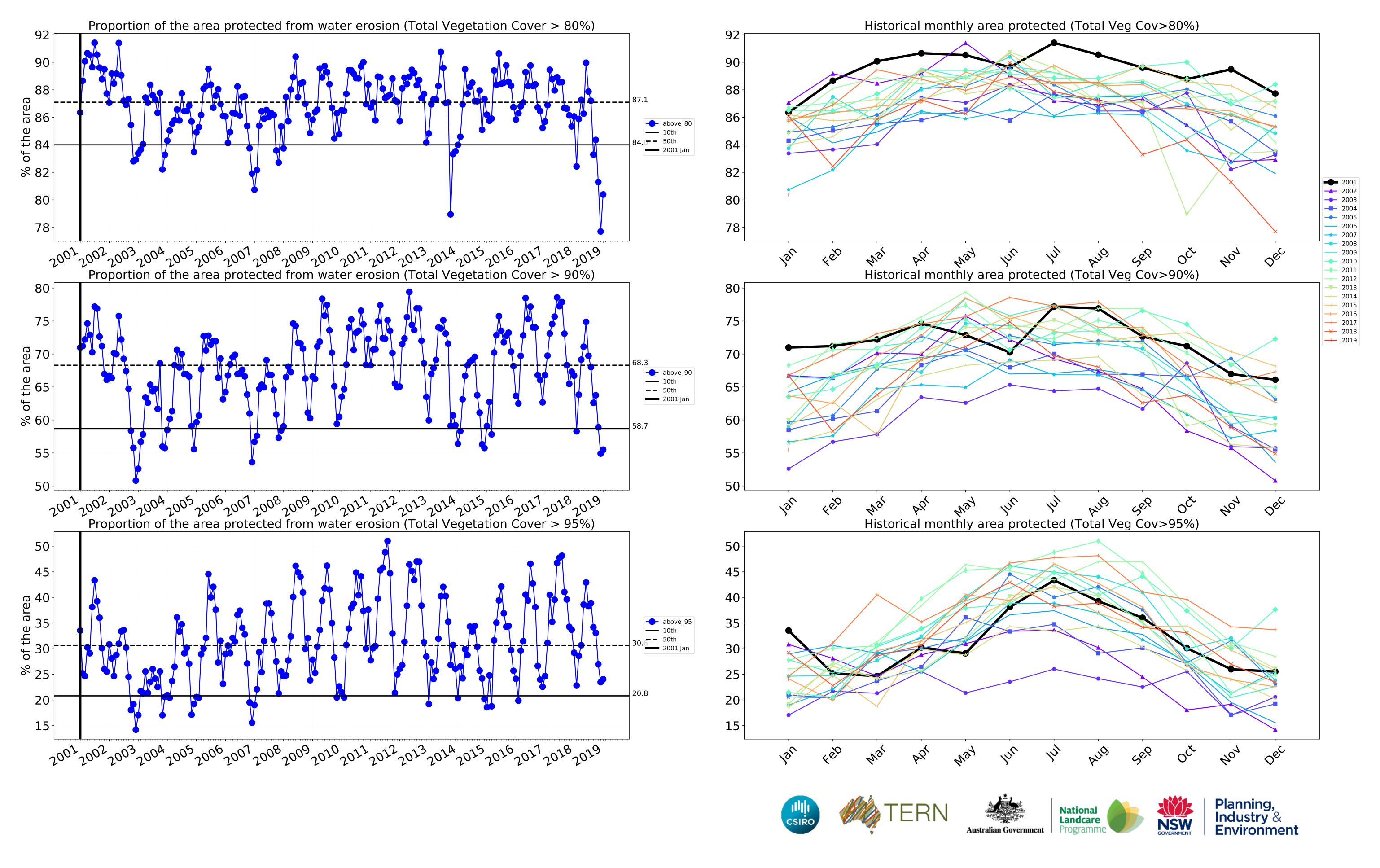
Conservation and natural environments non forest timeseries



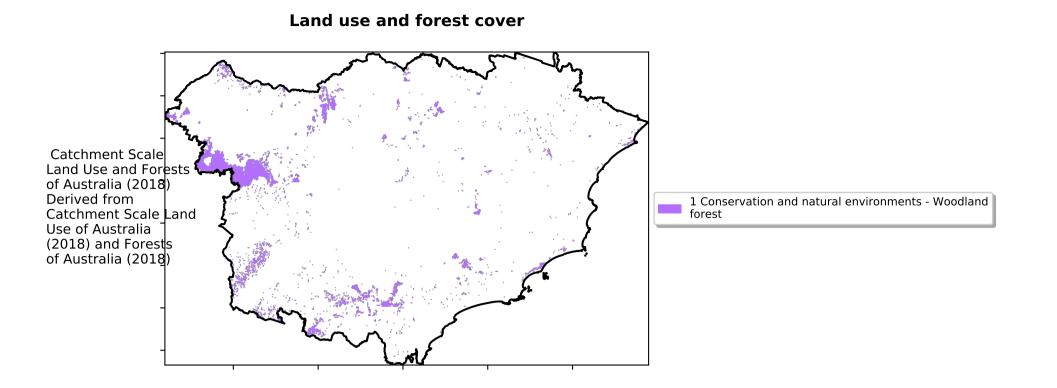


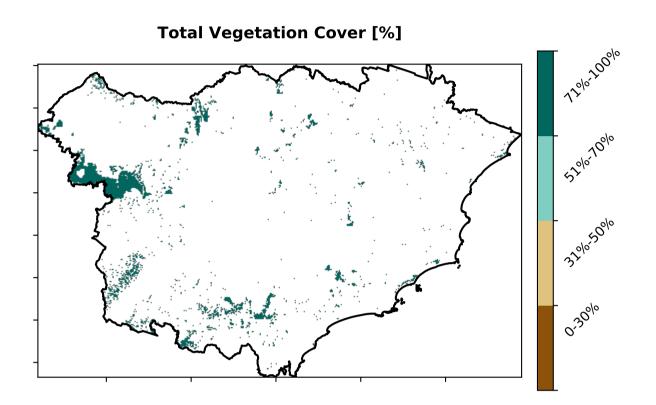


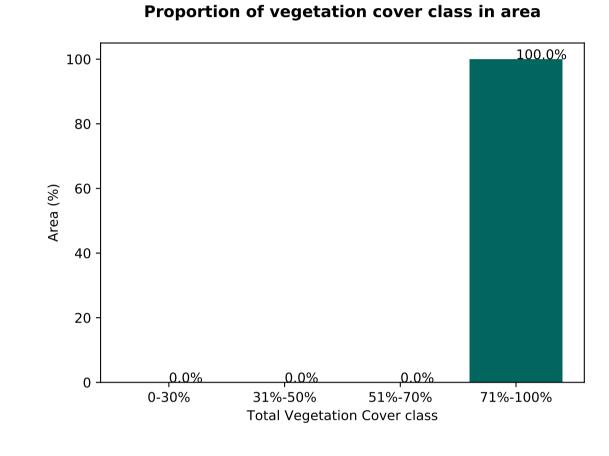


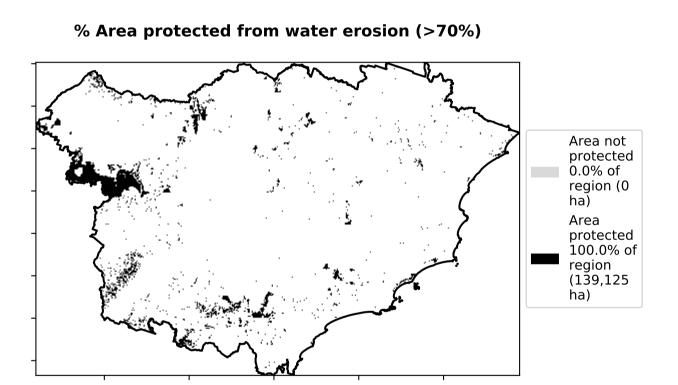


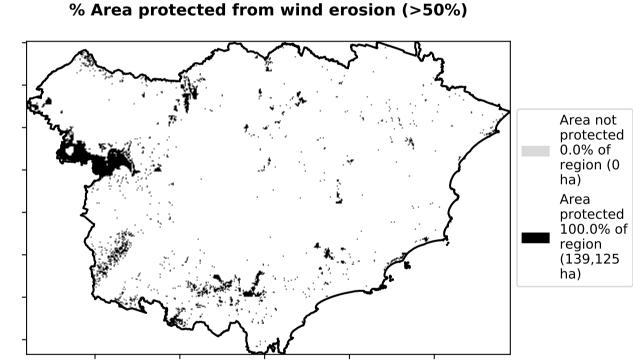
Conservation and natural environments Woodland forest

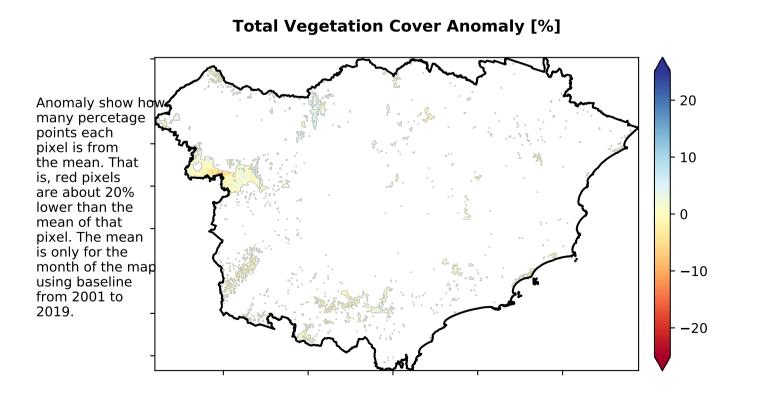


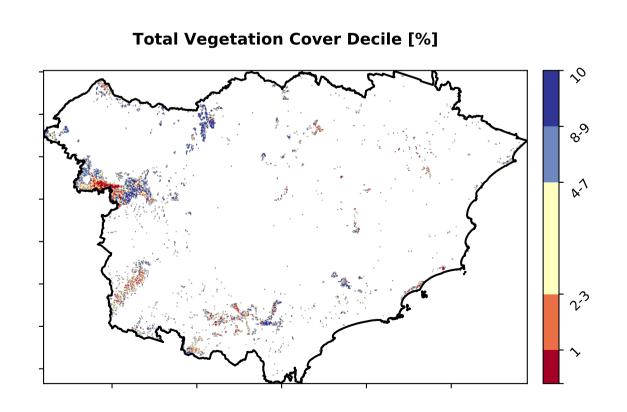
















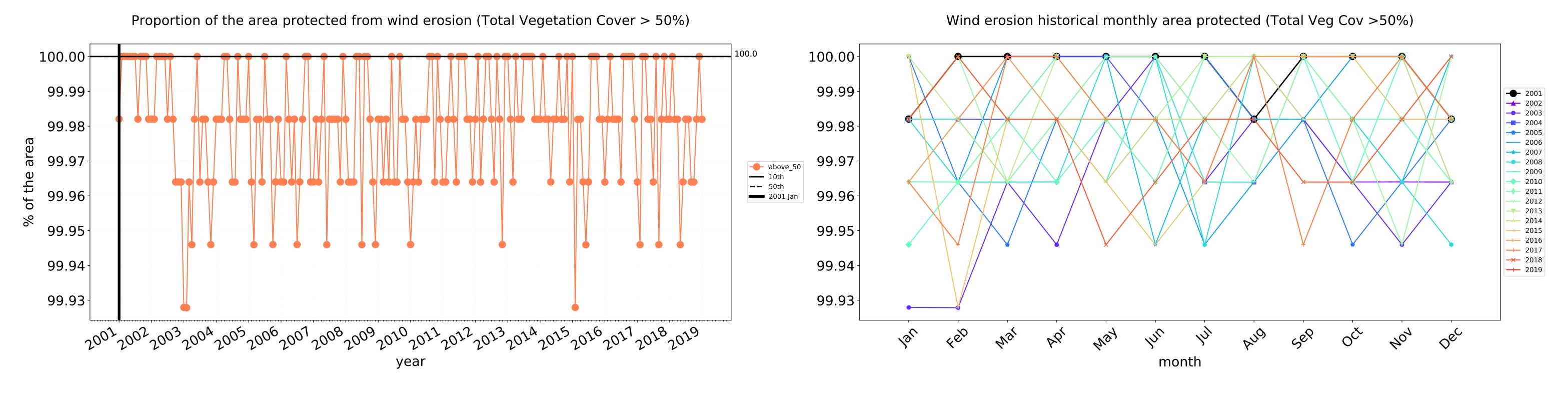


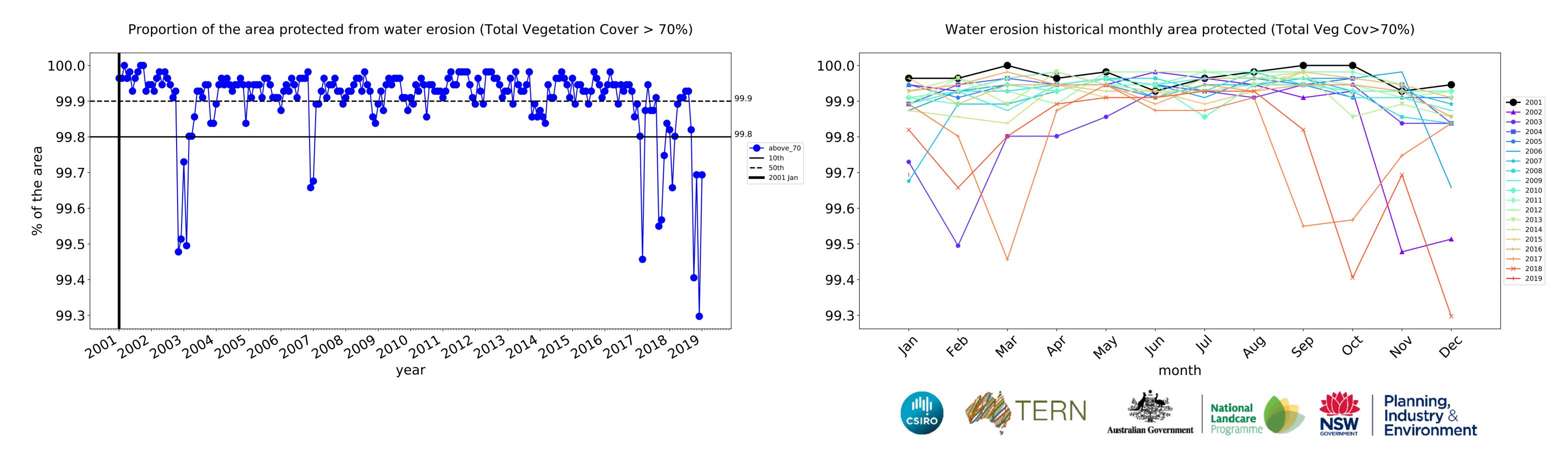


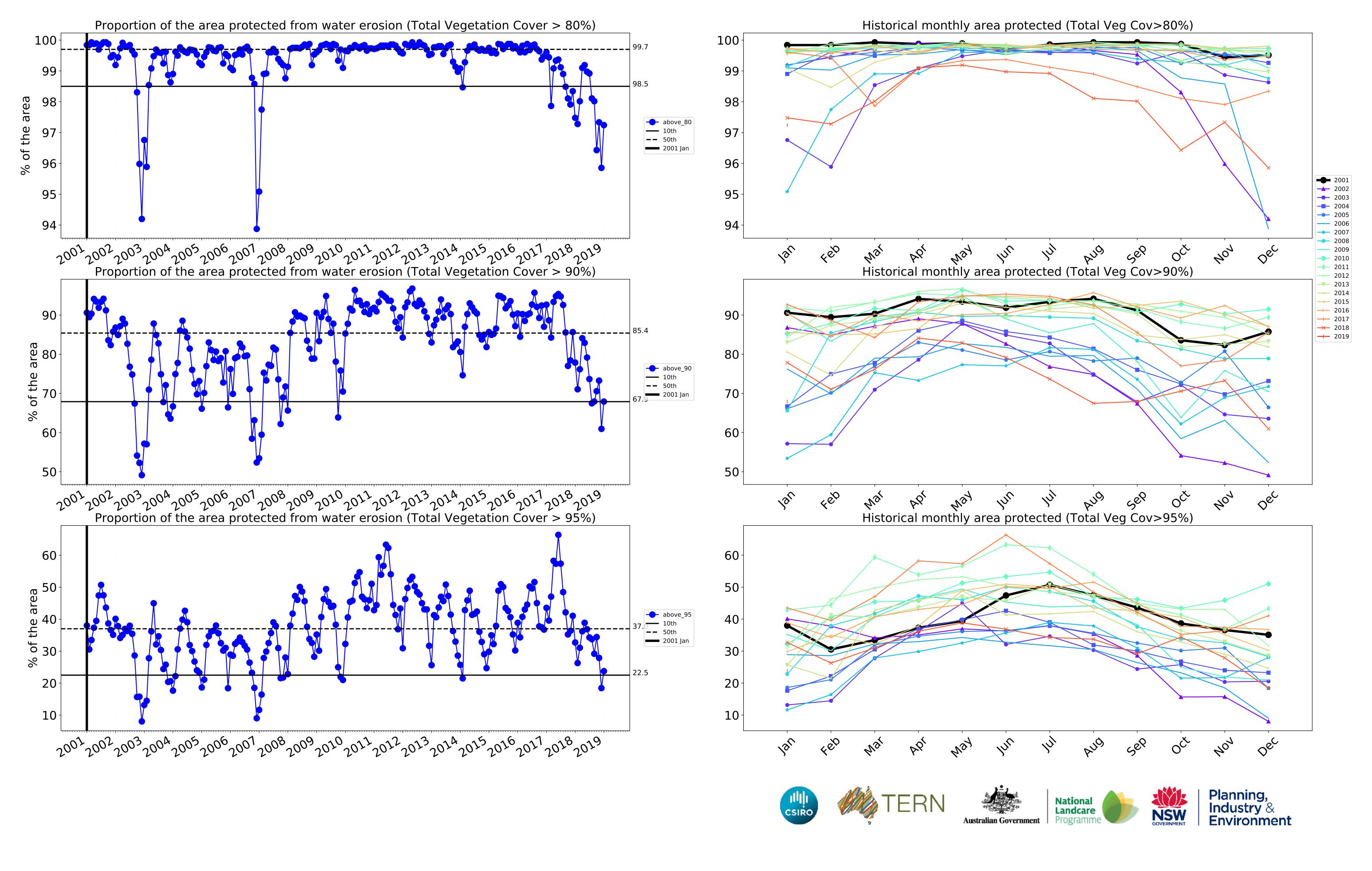




Conservation and natural environments Woodland forest timeseries

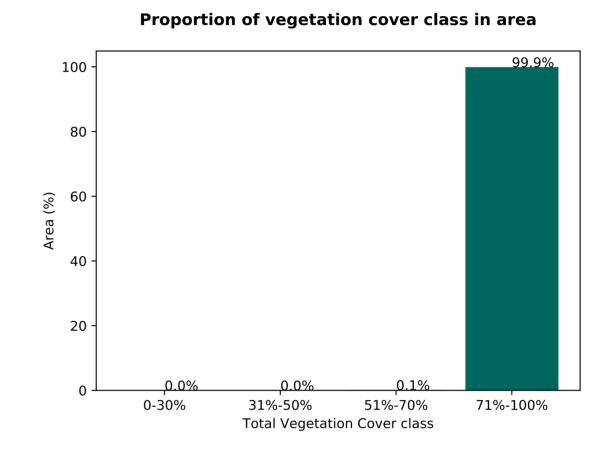


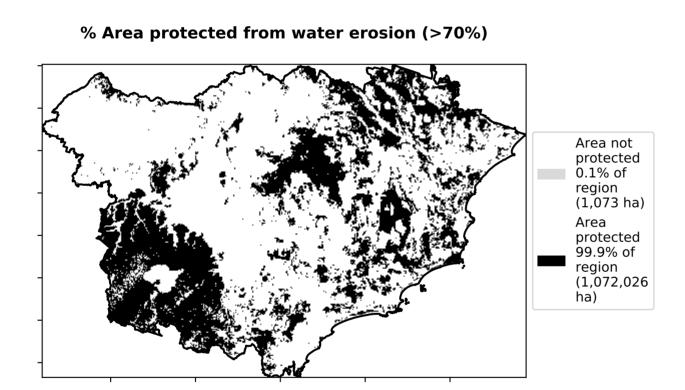


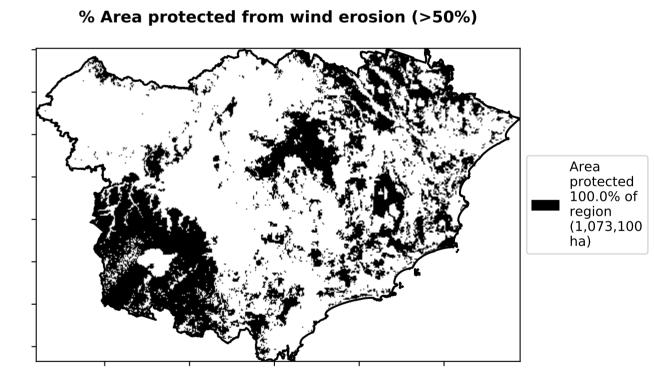


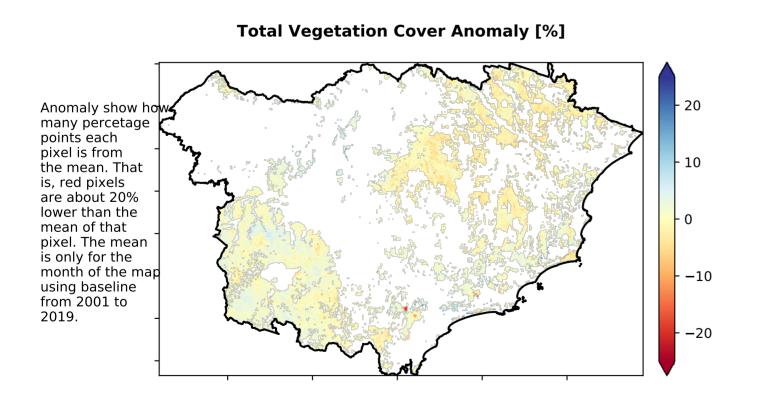
Conservation and natural environments Forest (non woodland)

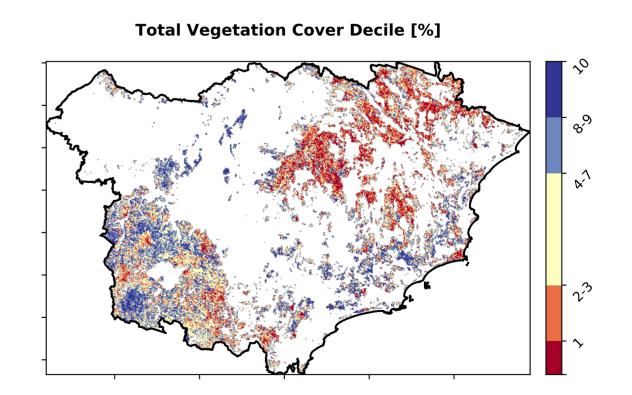
Total Vegetation Cover [%] Total Vegetation Cover [%] Total Vegetation Cover [%]













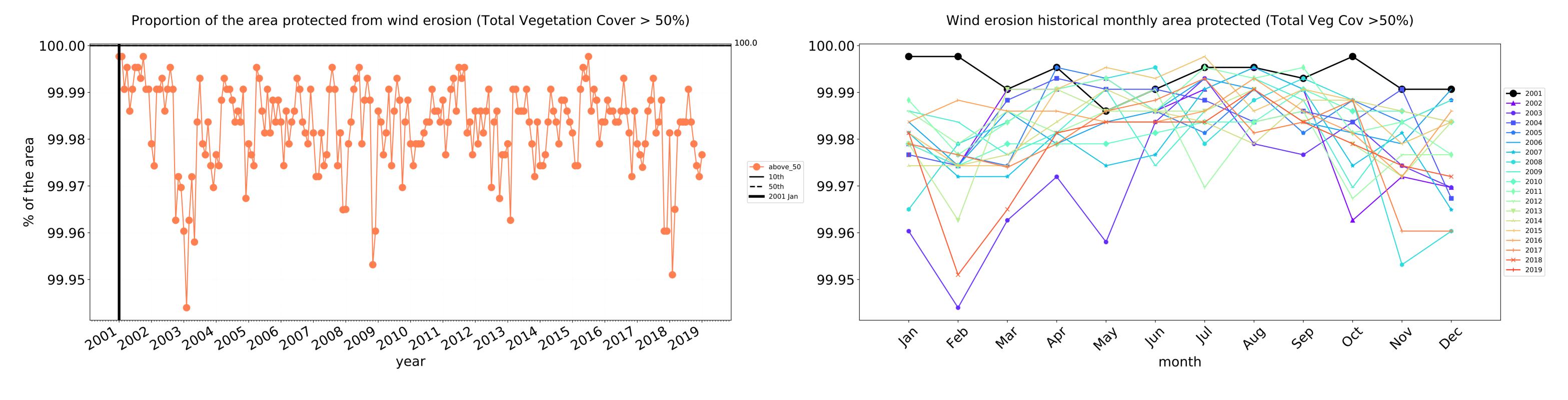


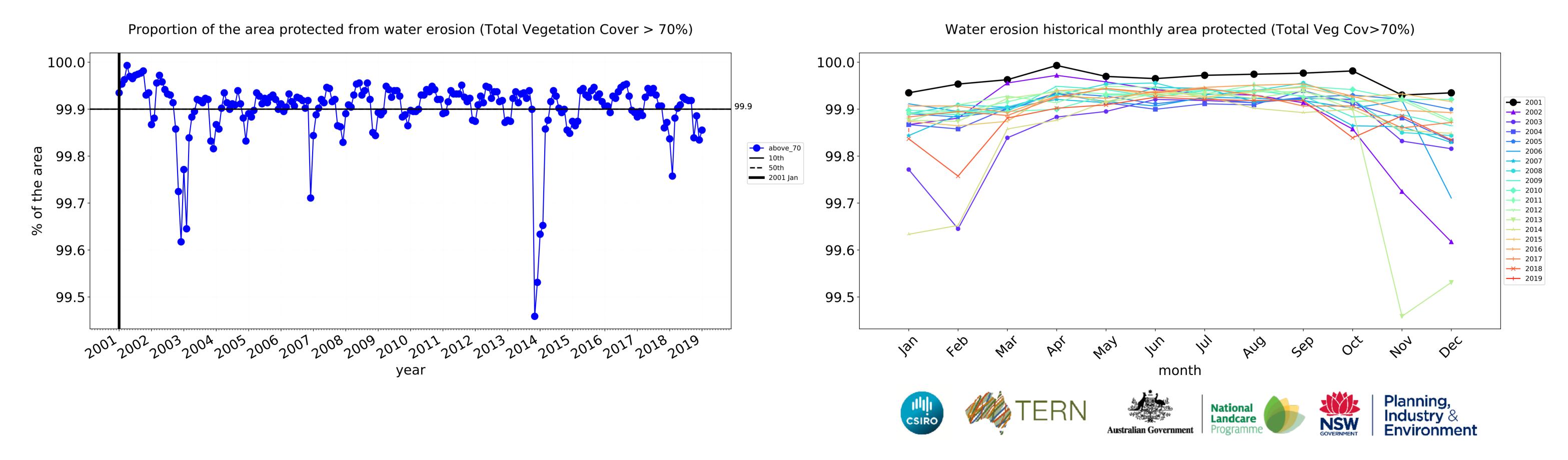


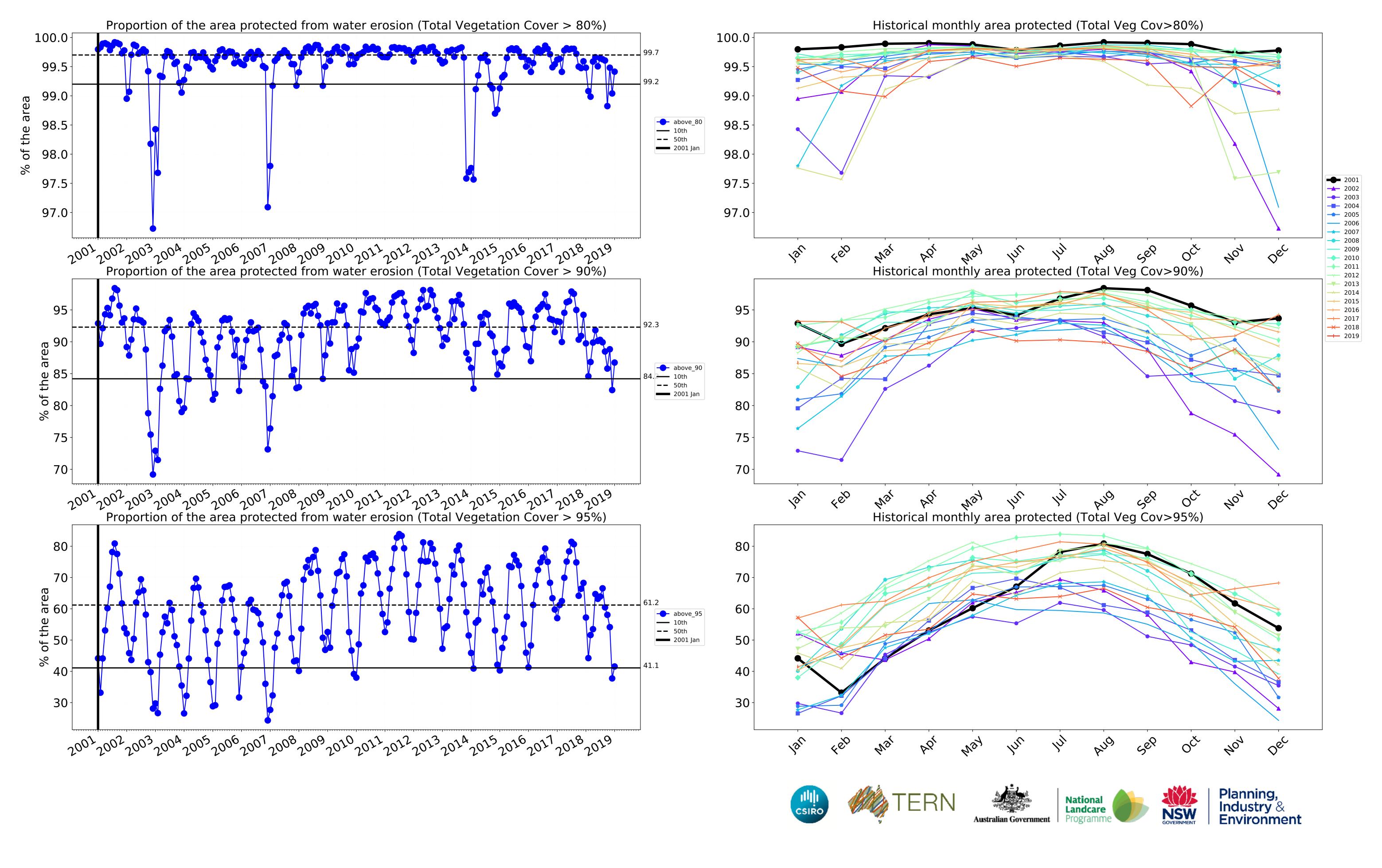






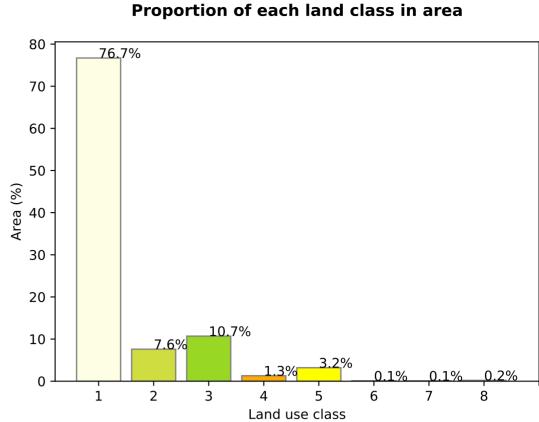


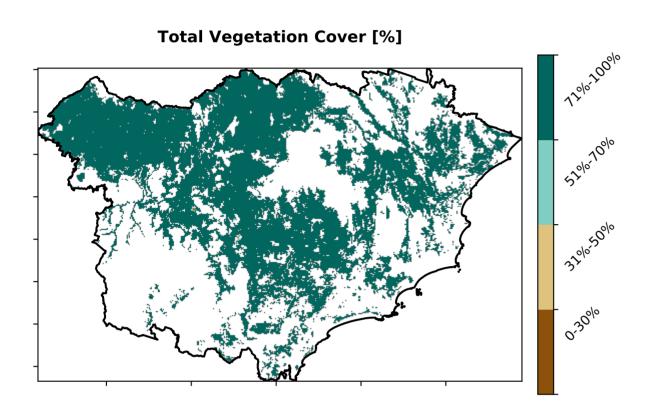


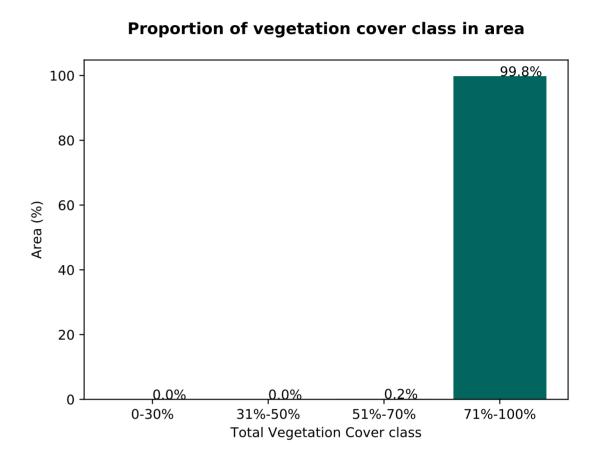


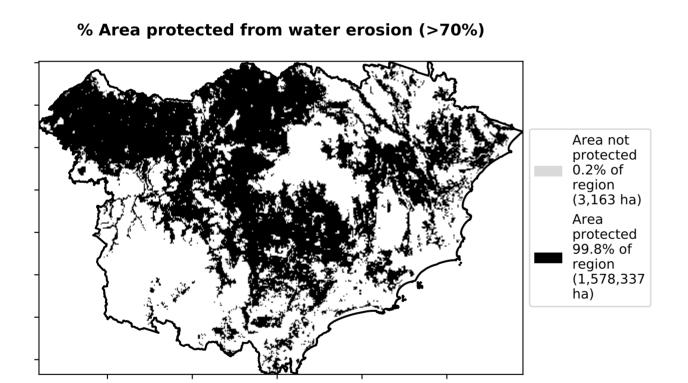
Agriculture

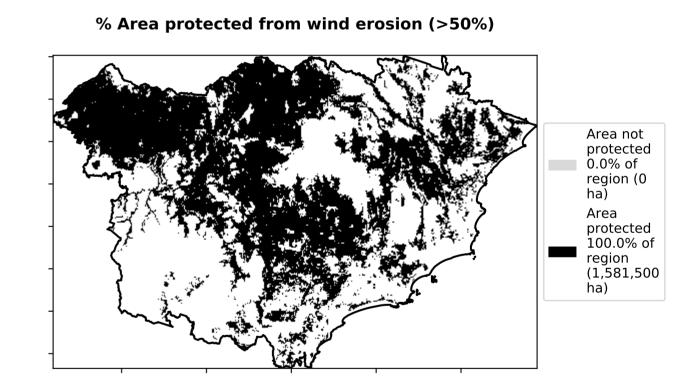


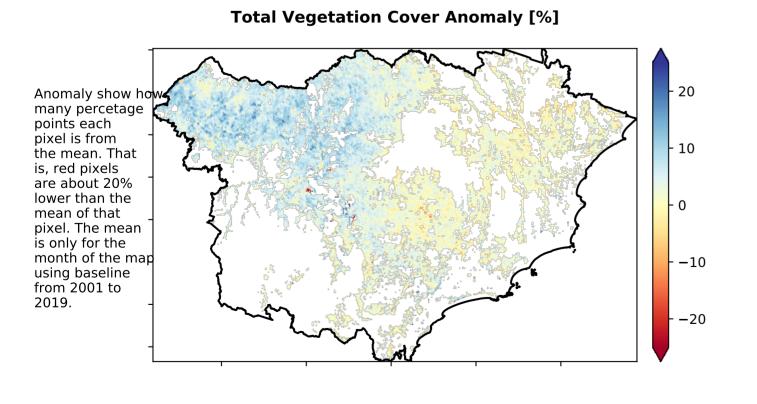


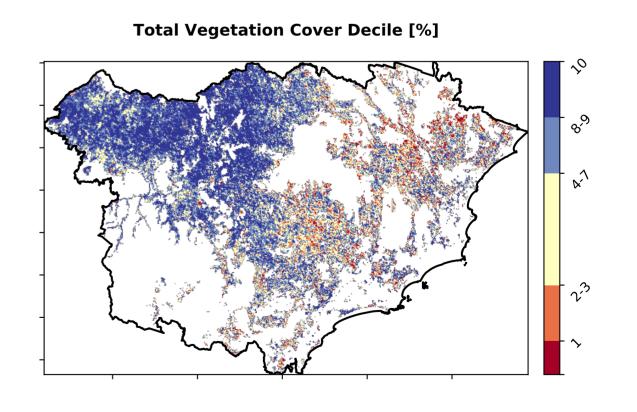
















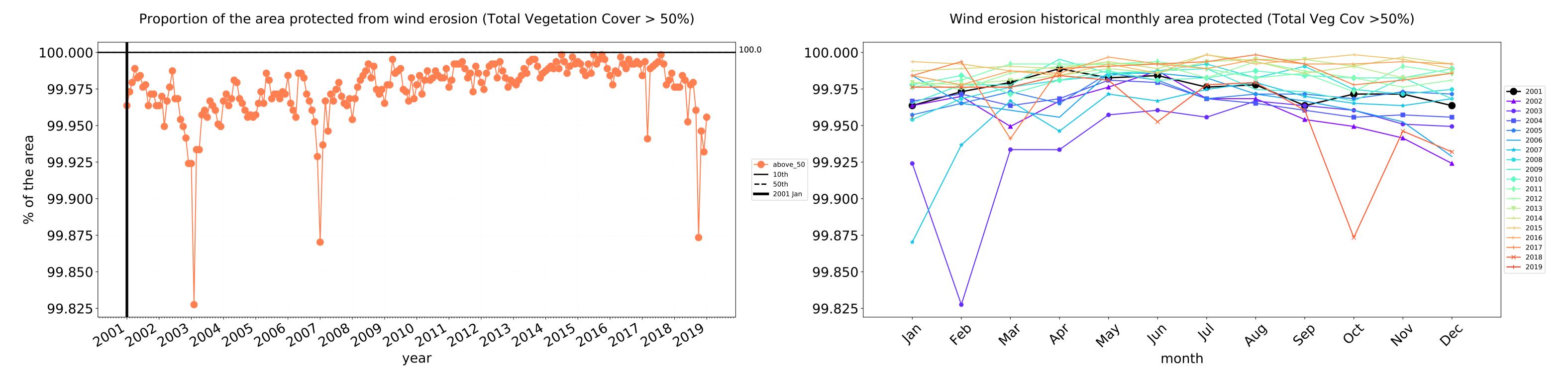


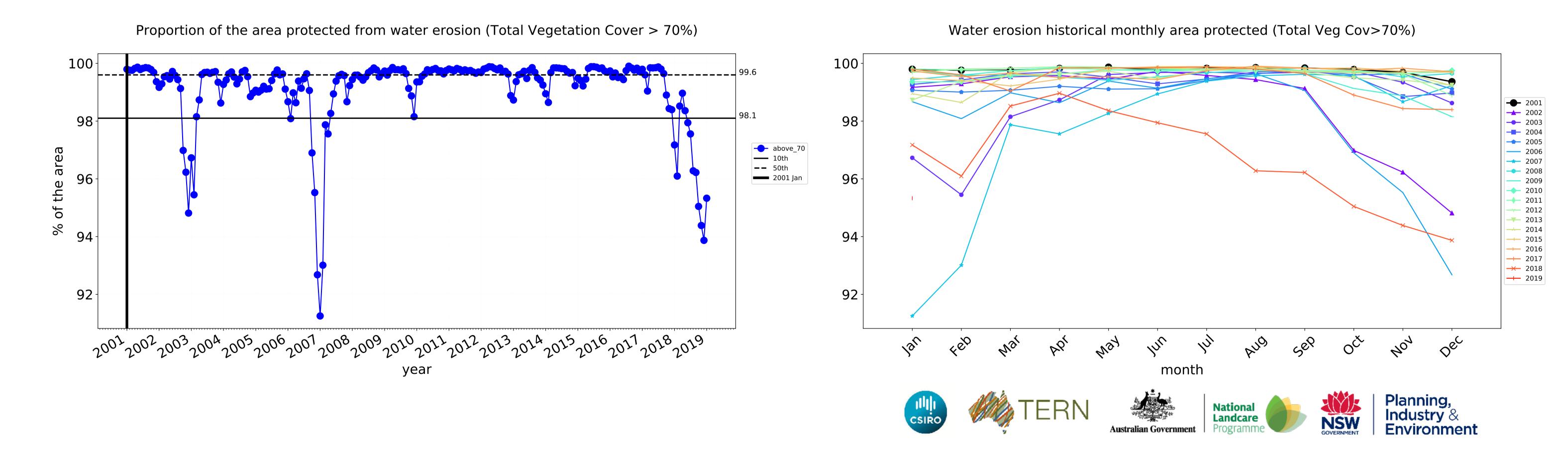


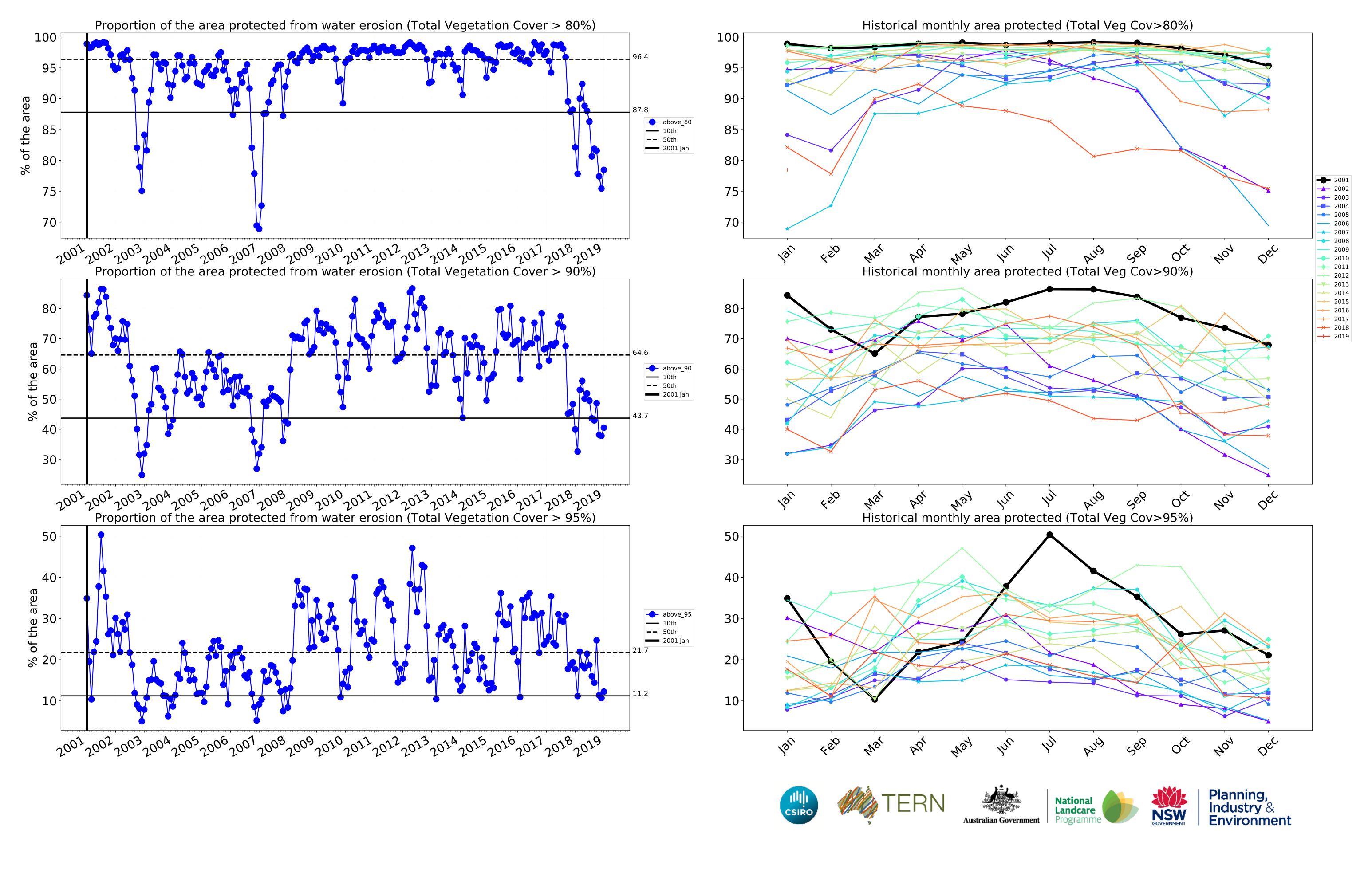




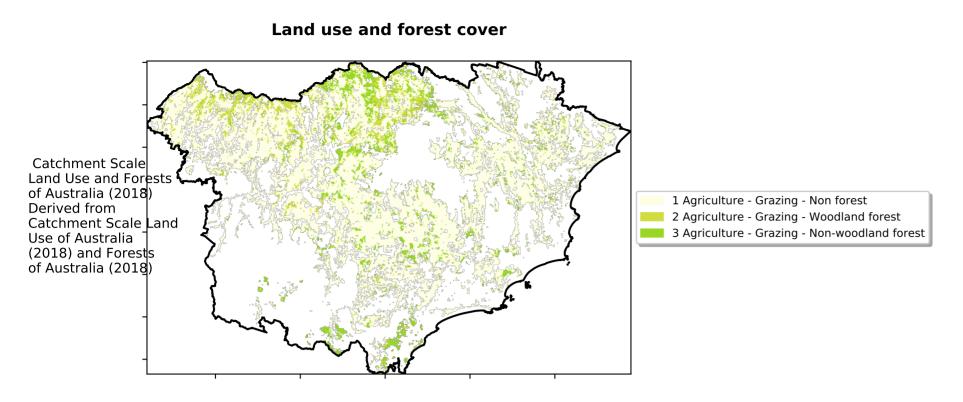
Agriculture timeseries



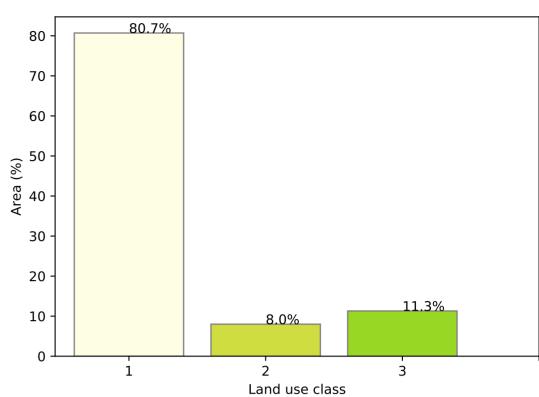




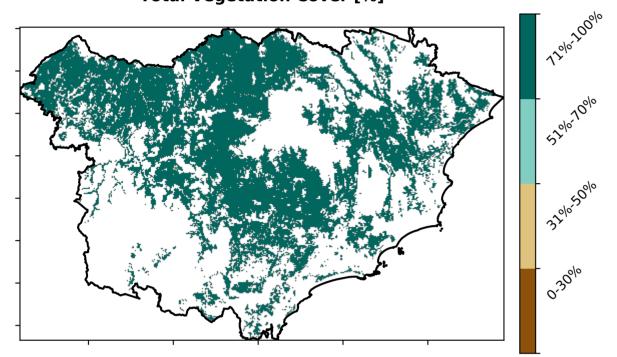
Grazing



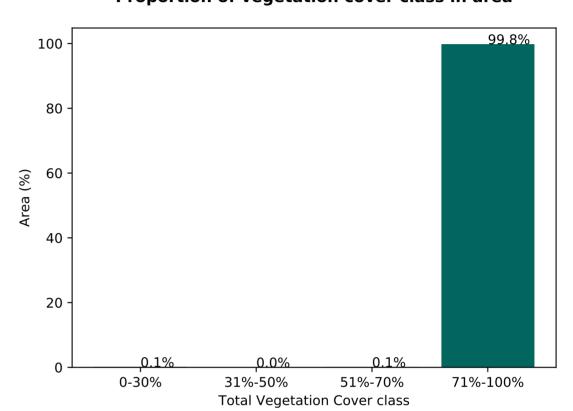
Proportion of each land class in area



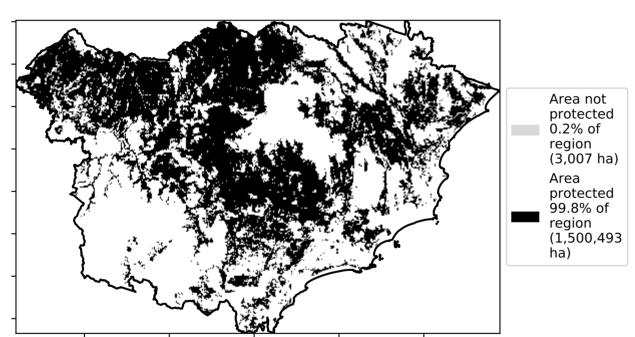
Total Vegetation Cover [%]



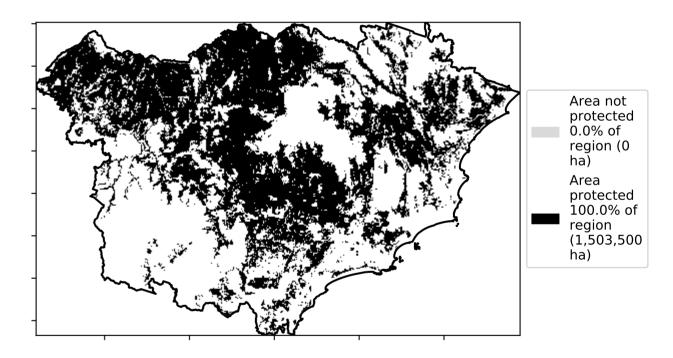
Proportion of vegetation cover class in area



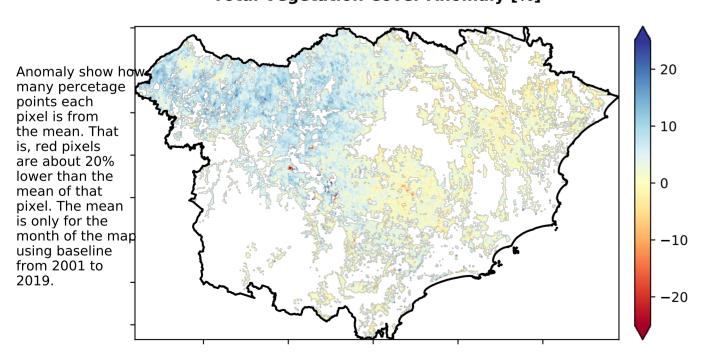
% Area protected from water erosion (>70%)

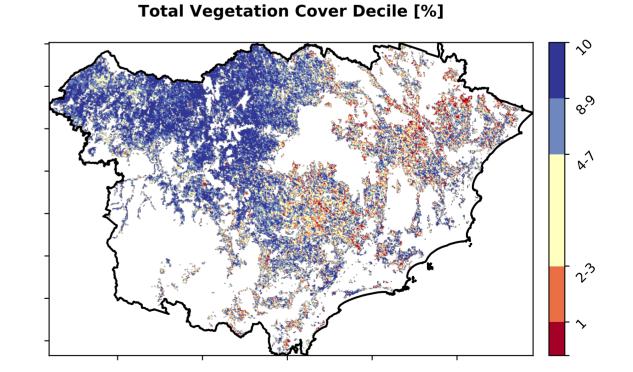


% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]









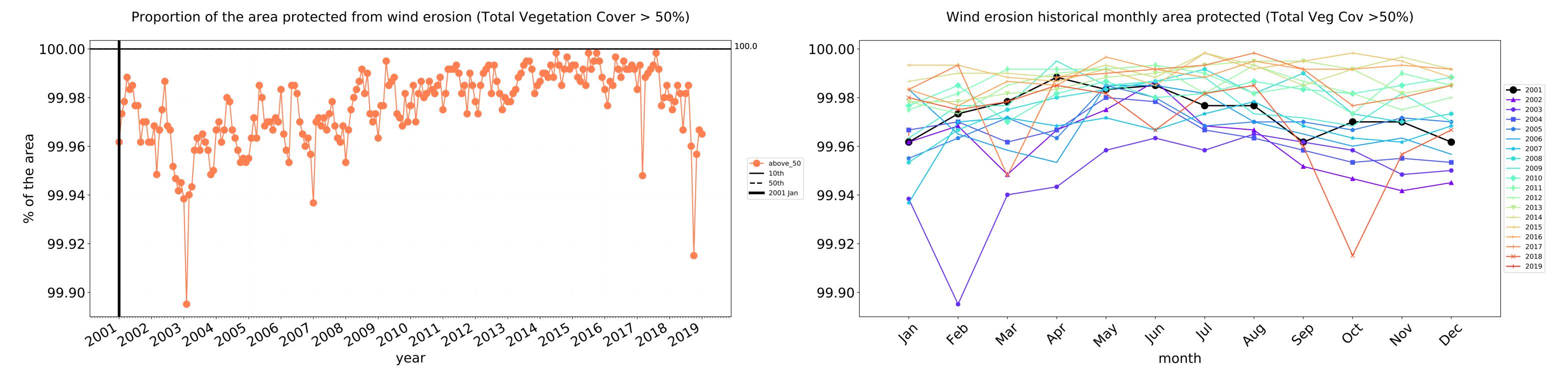


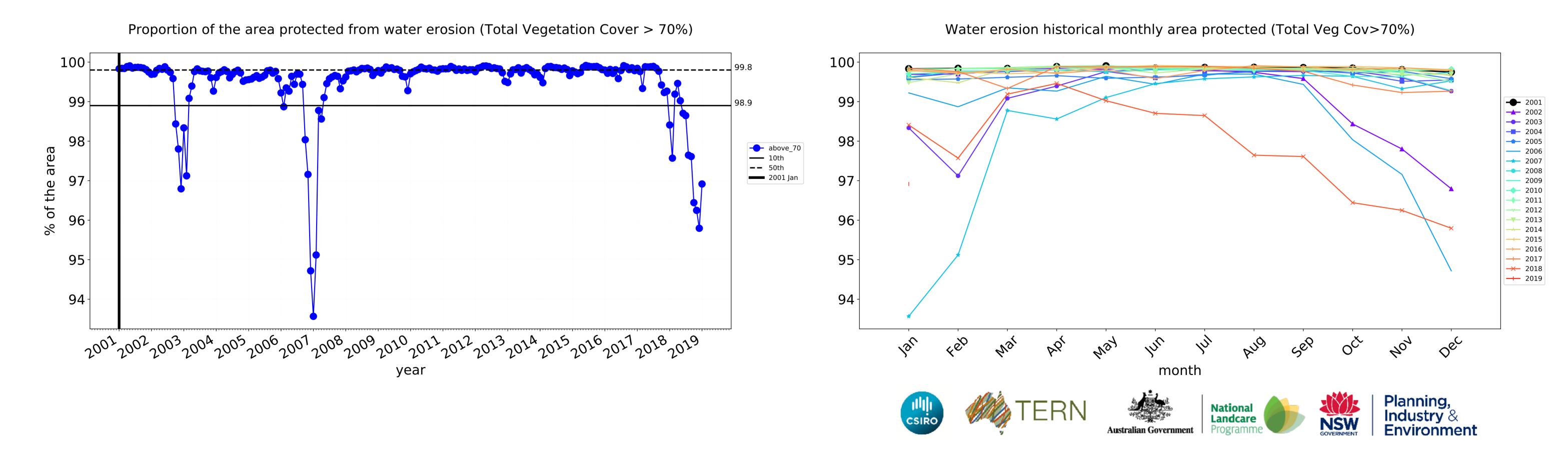


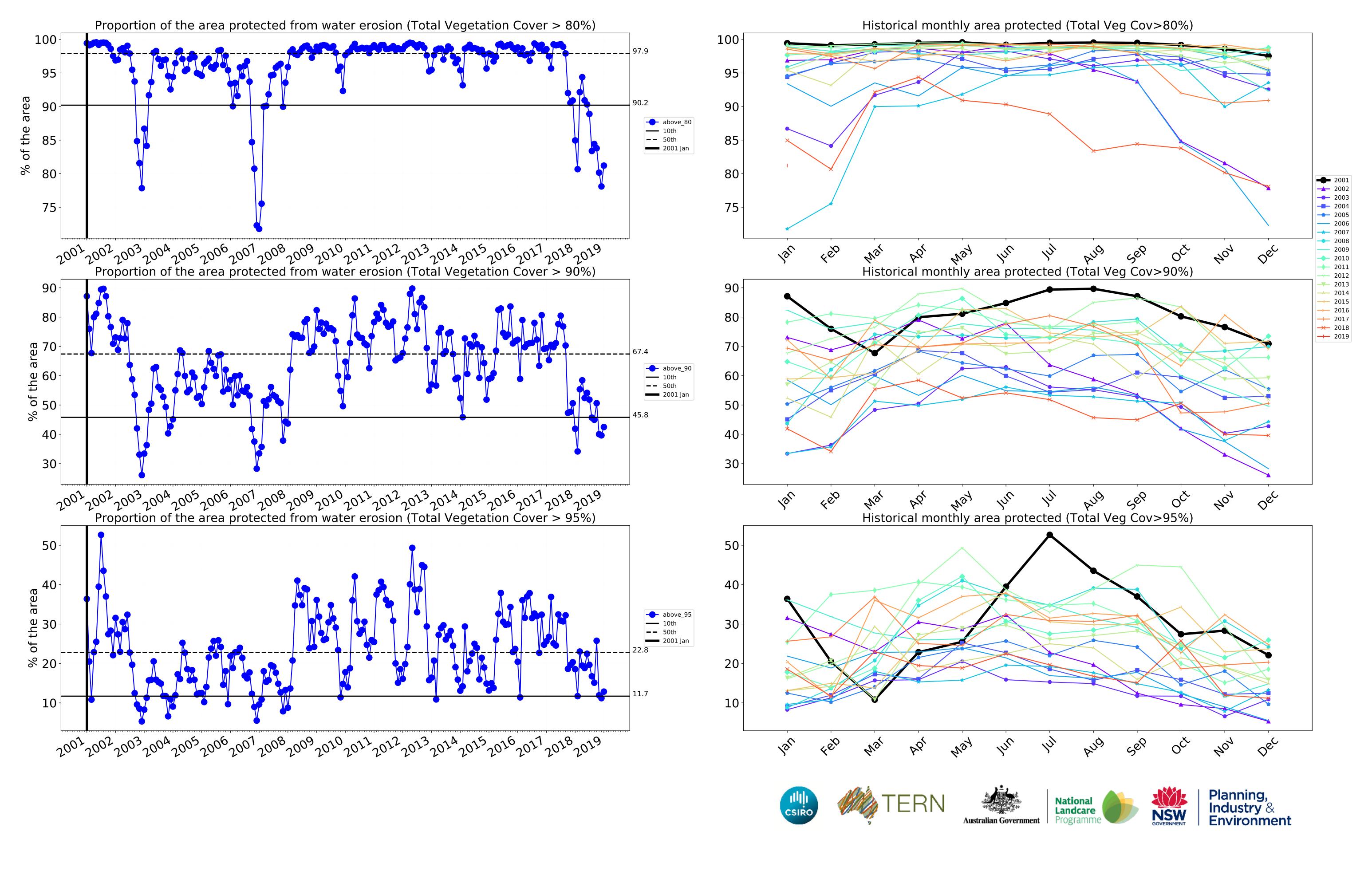




Grazing timeseries

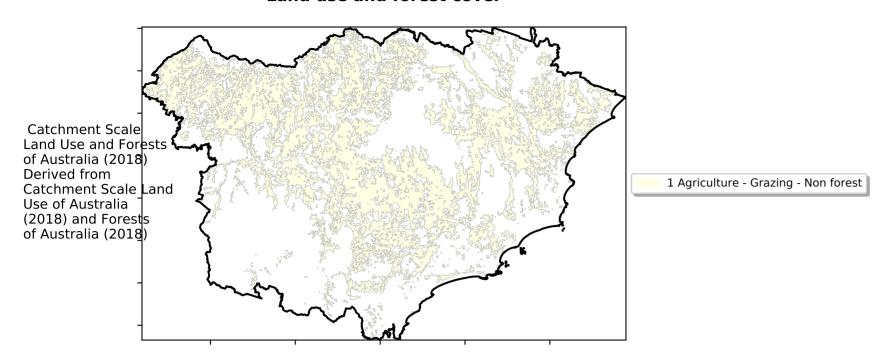




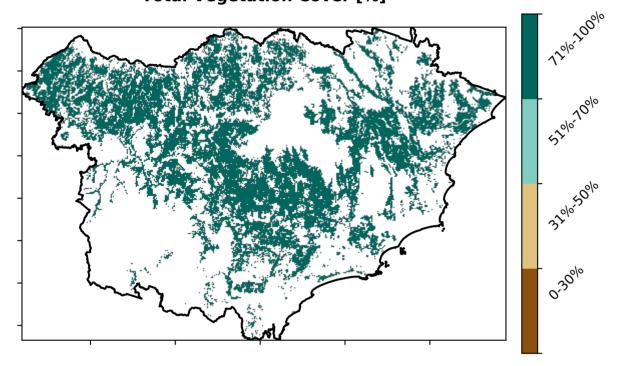


Grazing non forest

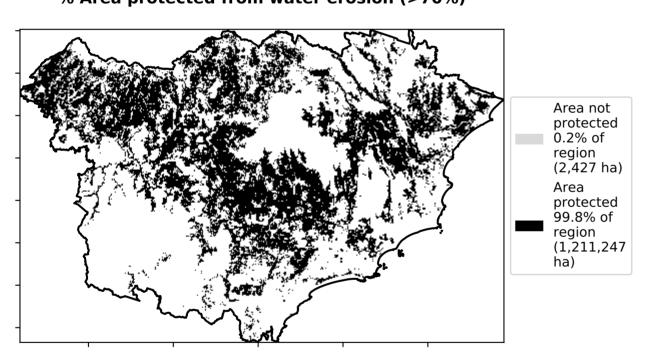
Land use and forest cover



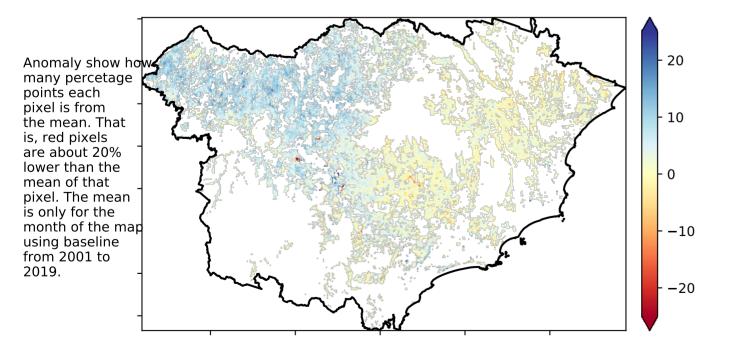
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

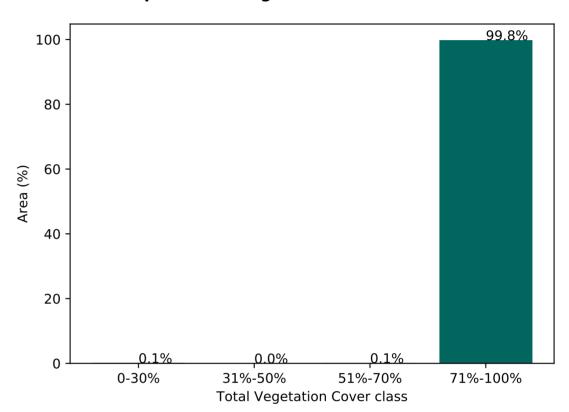


Total Vegetation Cover Anomaly [%]

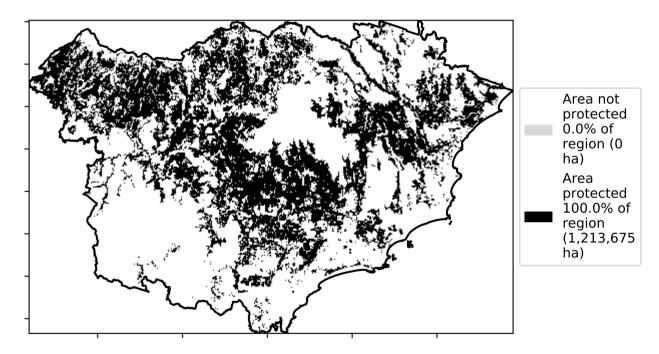


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

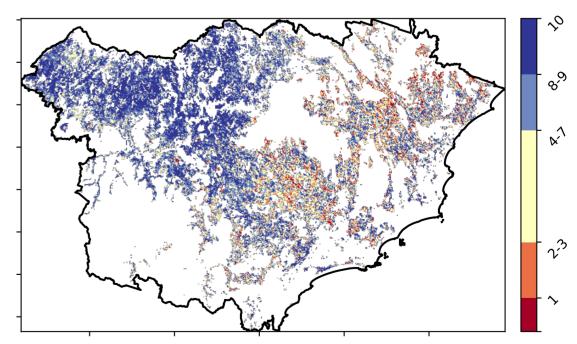
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







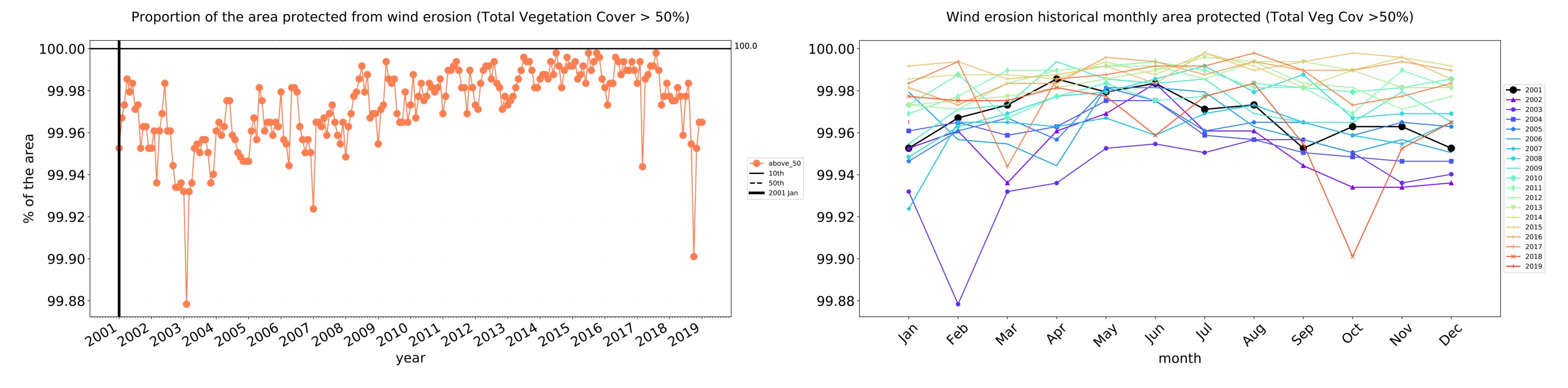


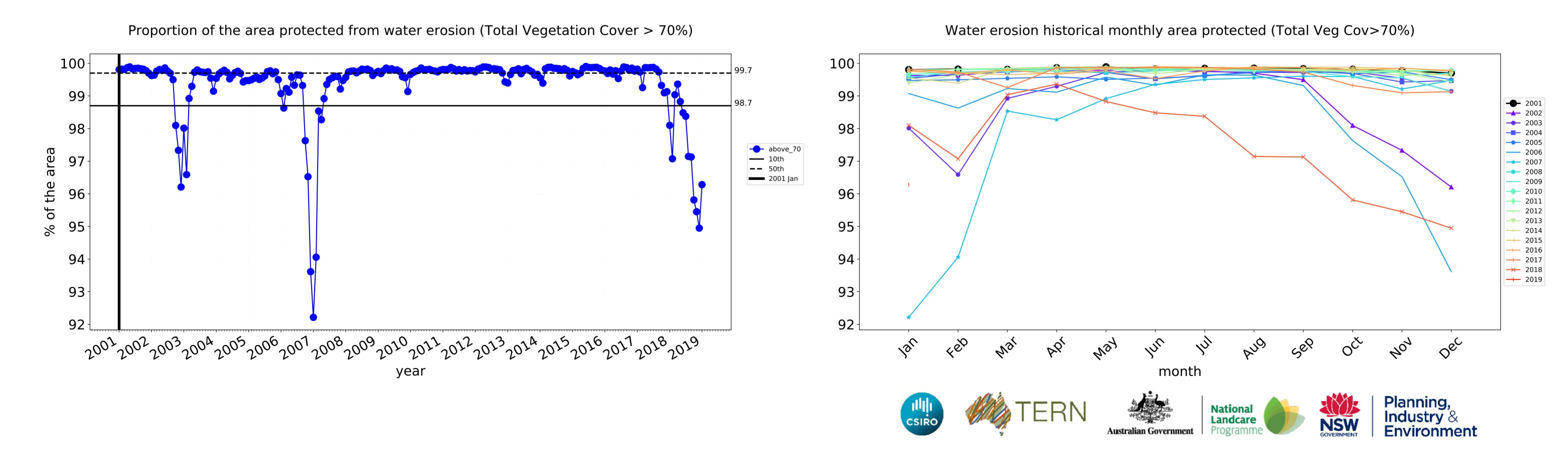


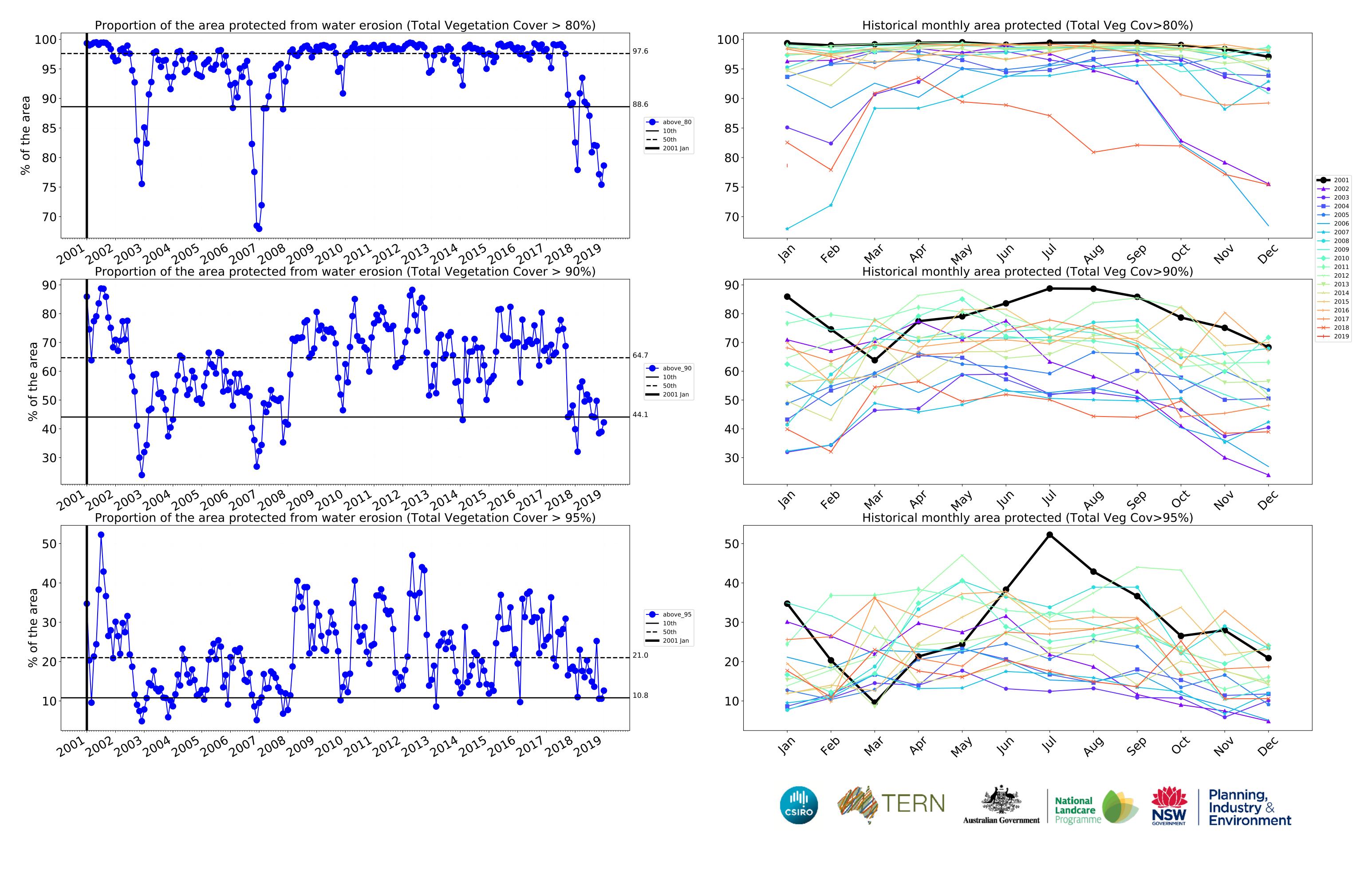




Grazing non forest timeseries





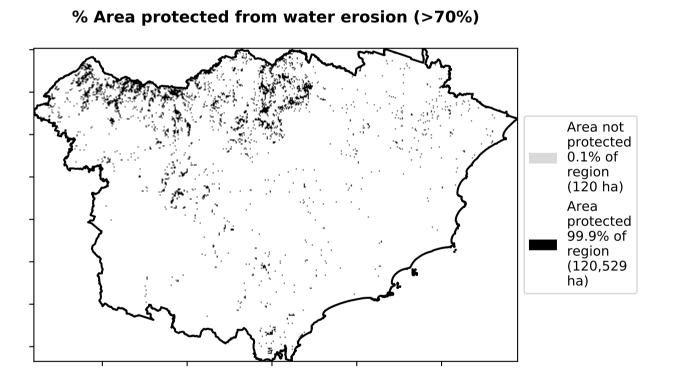


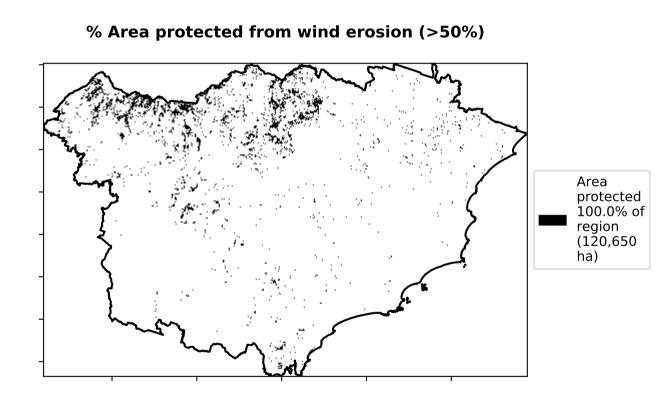
Grazing Woodland forest

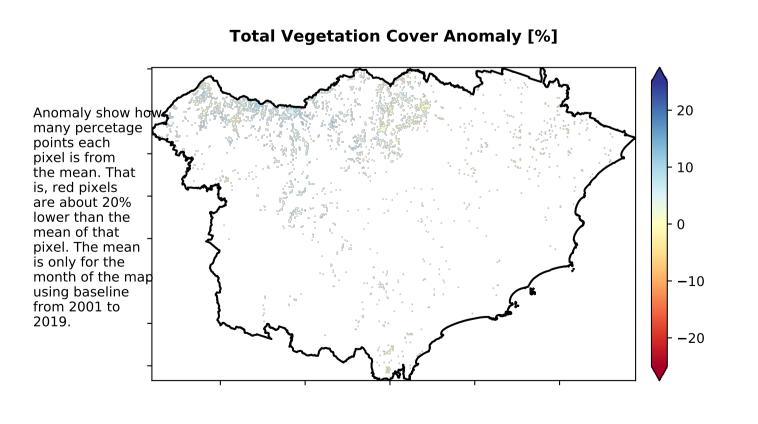
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Agriculture - Grazing - Woodland forest Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

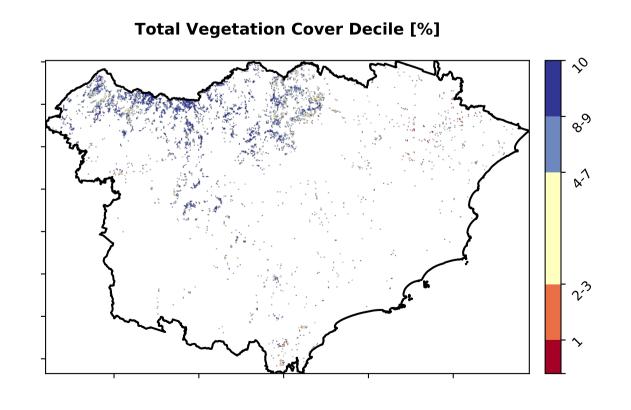
Total Vegetation Cover [%]

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













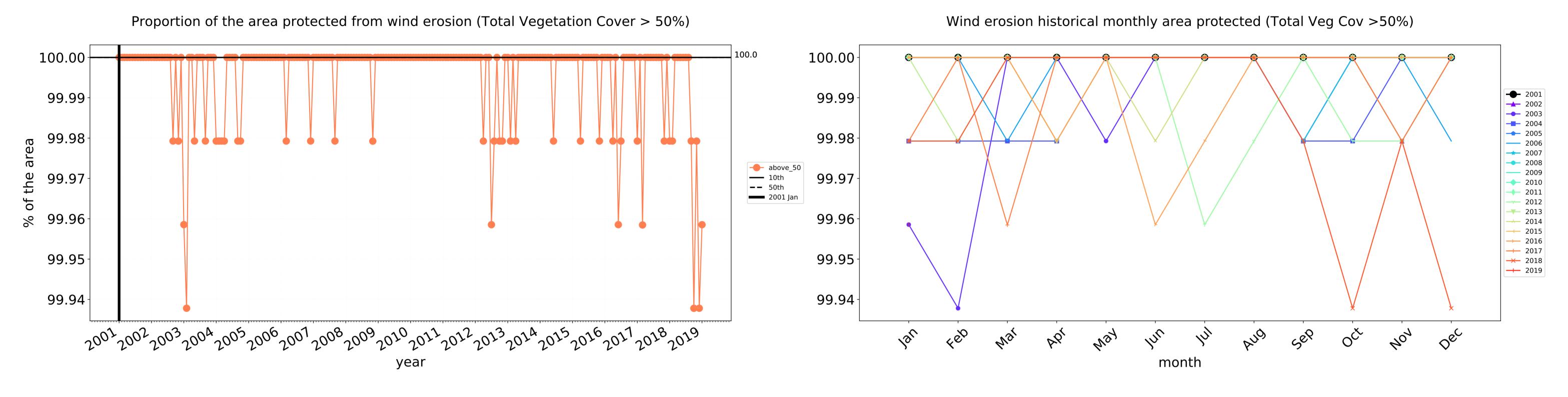


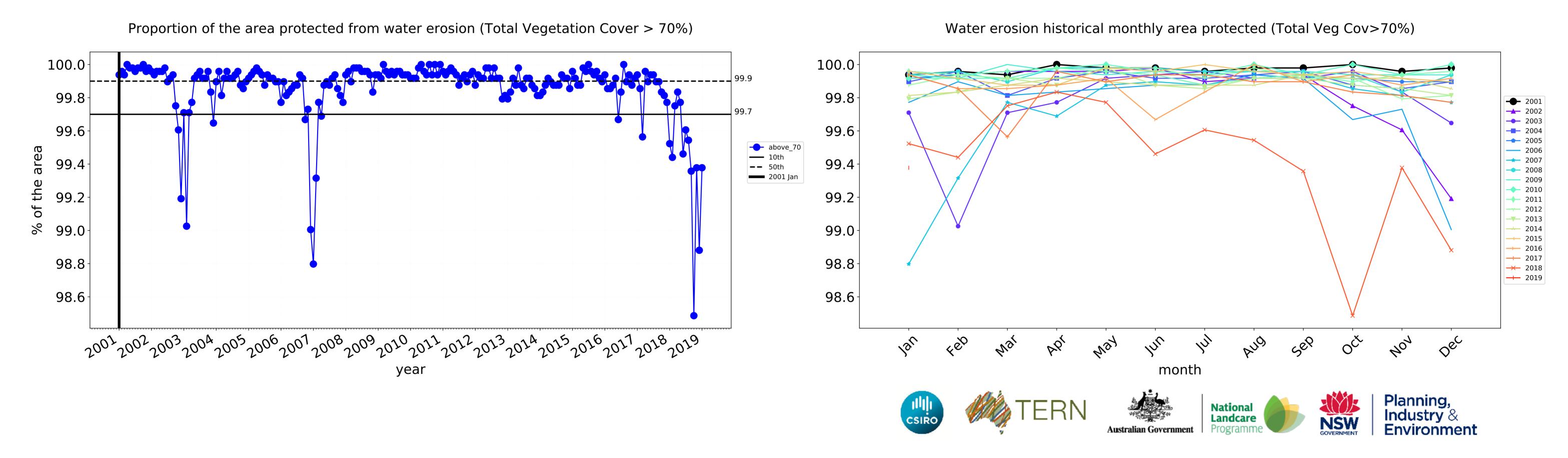


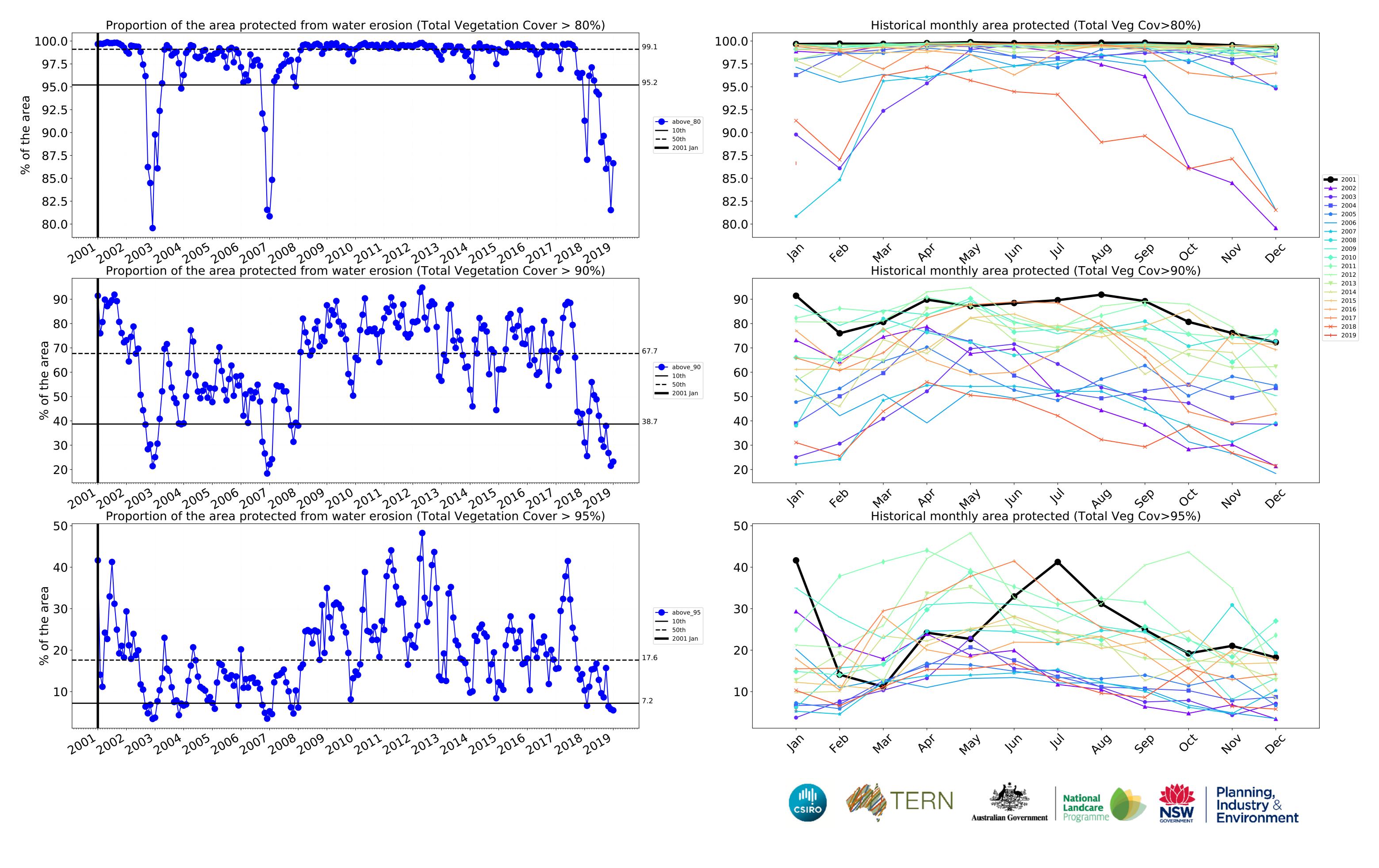




Grazing Woodland forest timeseries





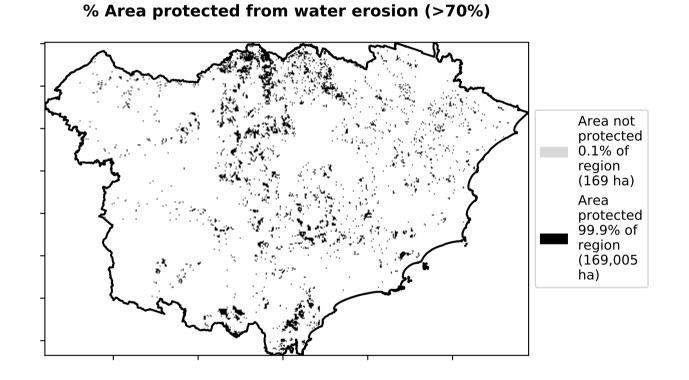


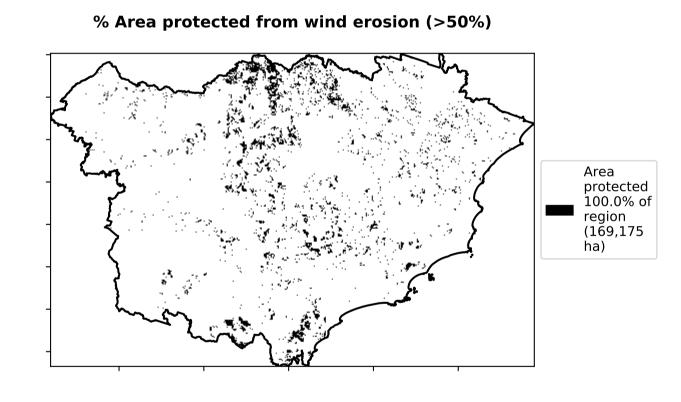
Grazing - Forest (non woodland)

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

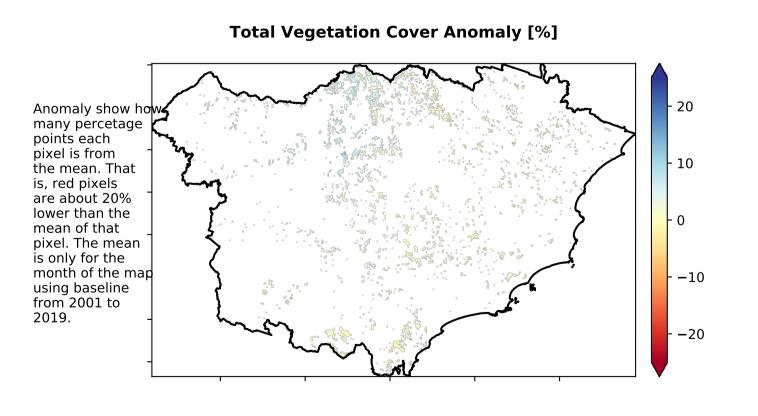
Total Vegetation Cover [%]

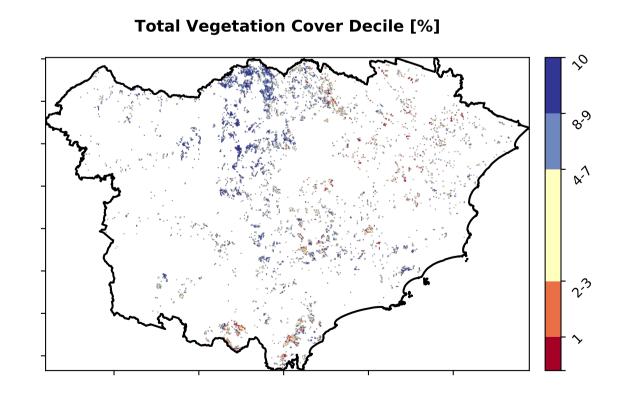
99.9% 100 Area (%) 60 40 20 -0.1% 31%-50% 51%-70% 0-30% 71%-100% **Total Vegetation Cover class**





Proportion of vegetation cover class in area







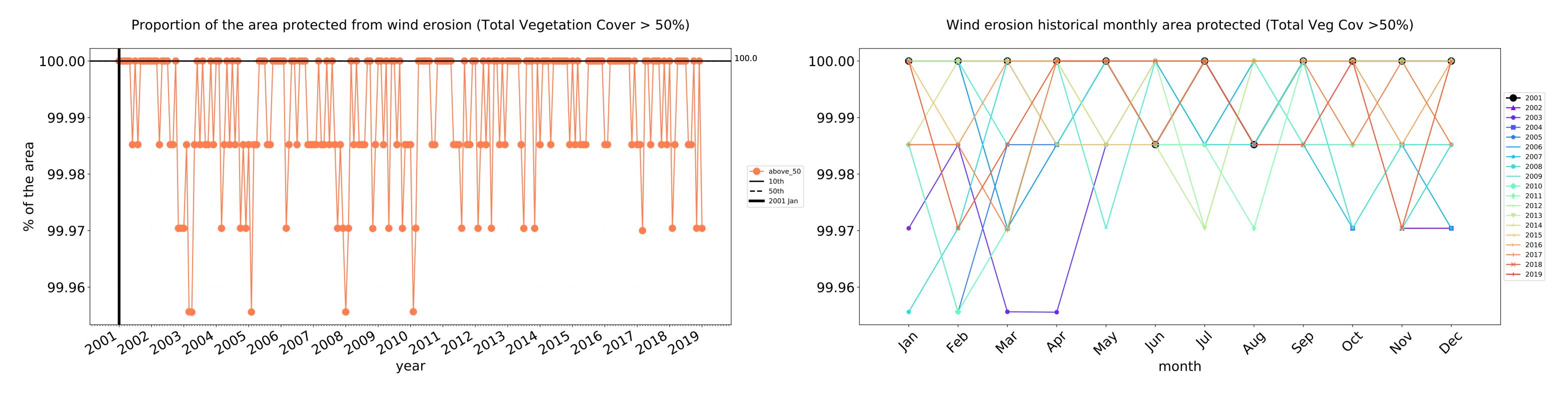


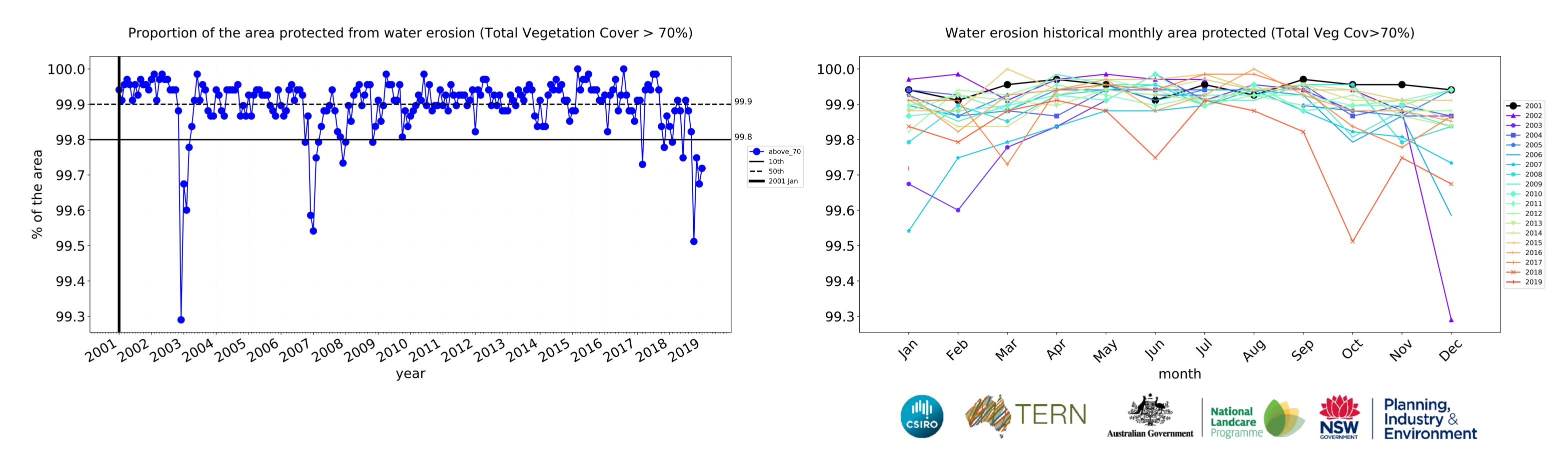


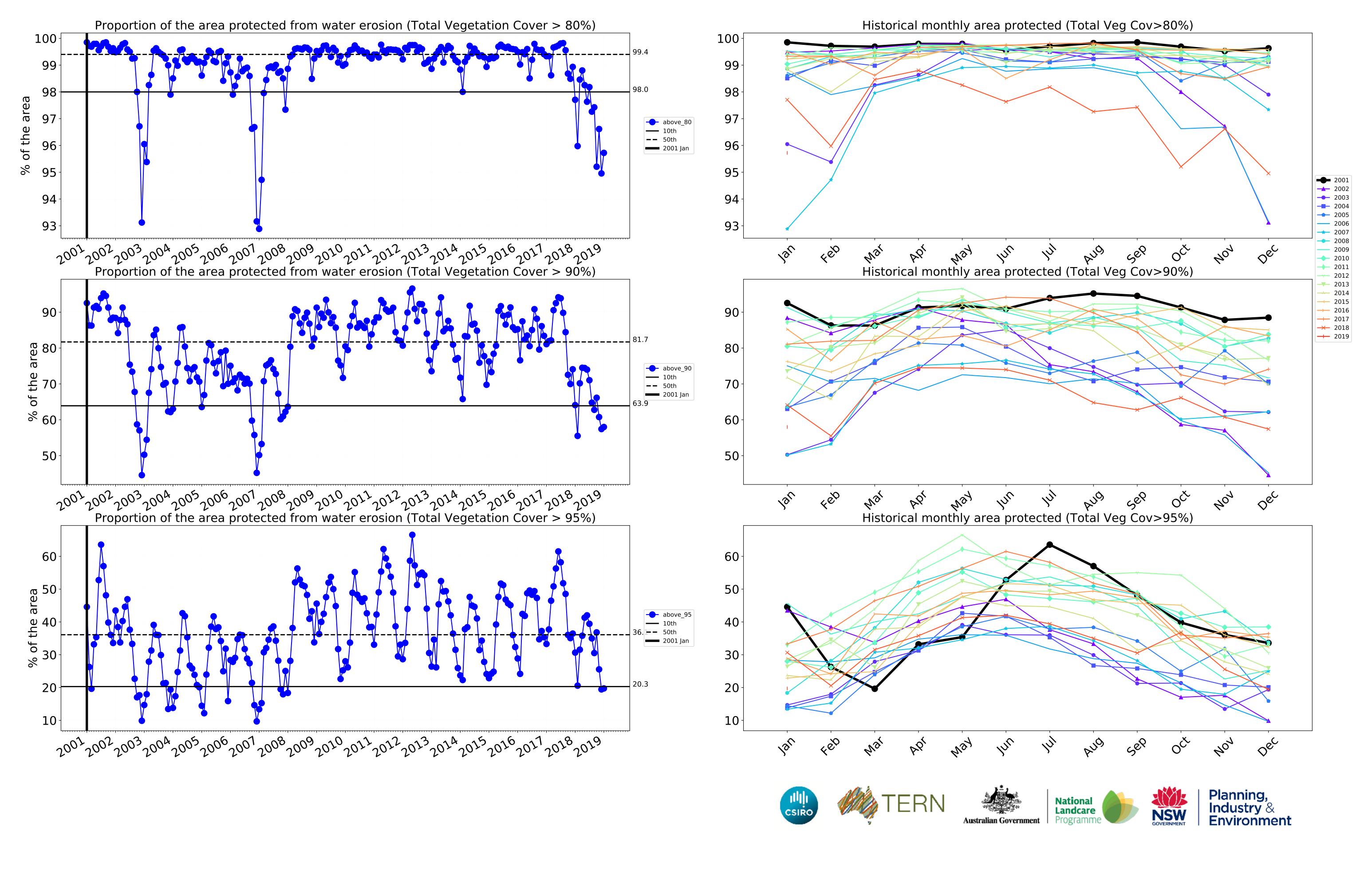






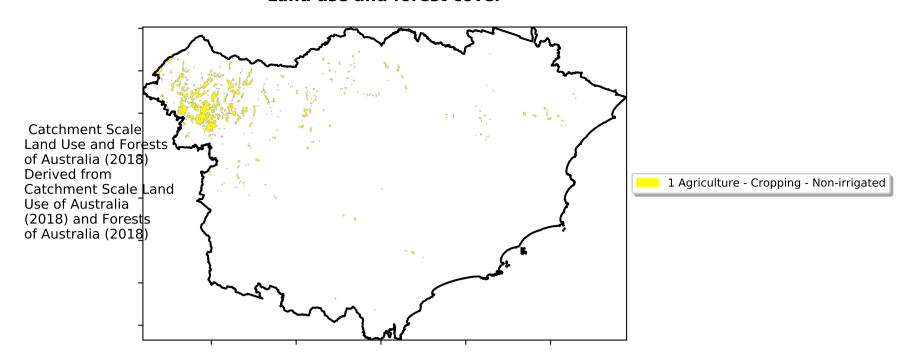




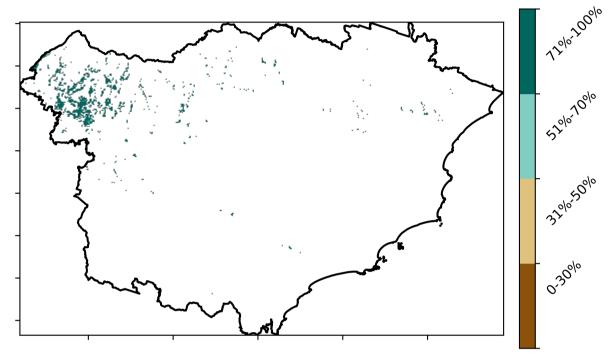


Cropping

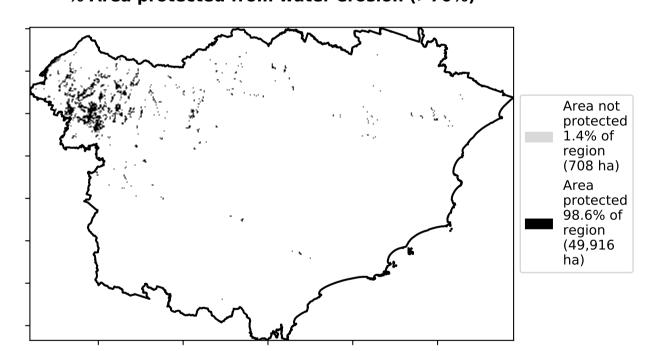
Land use and forest cover



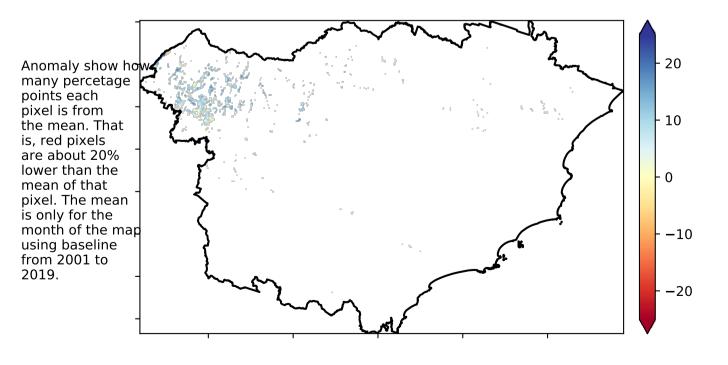
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

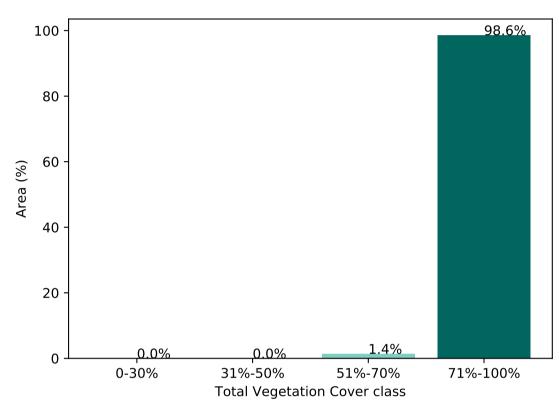


Total Vegetation Cover Anomaly [%]

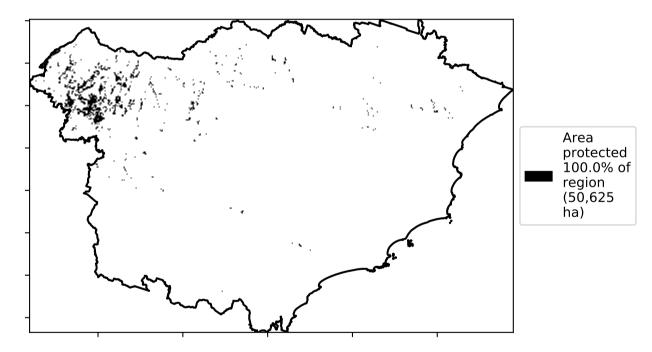


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

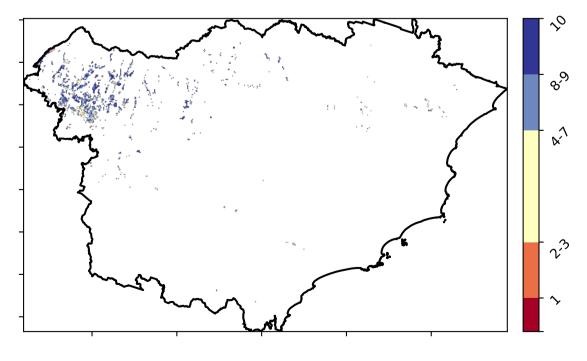
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







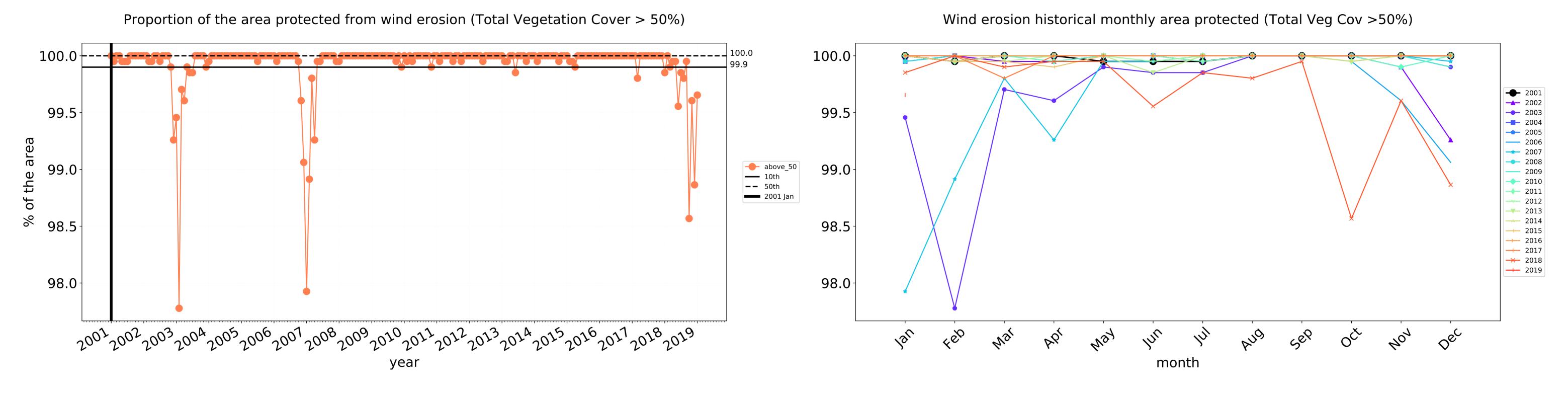


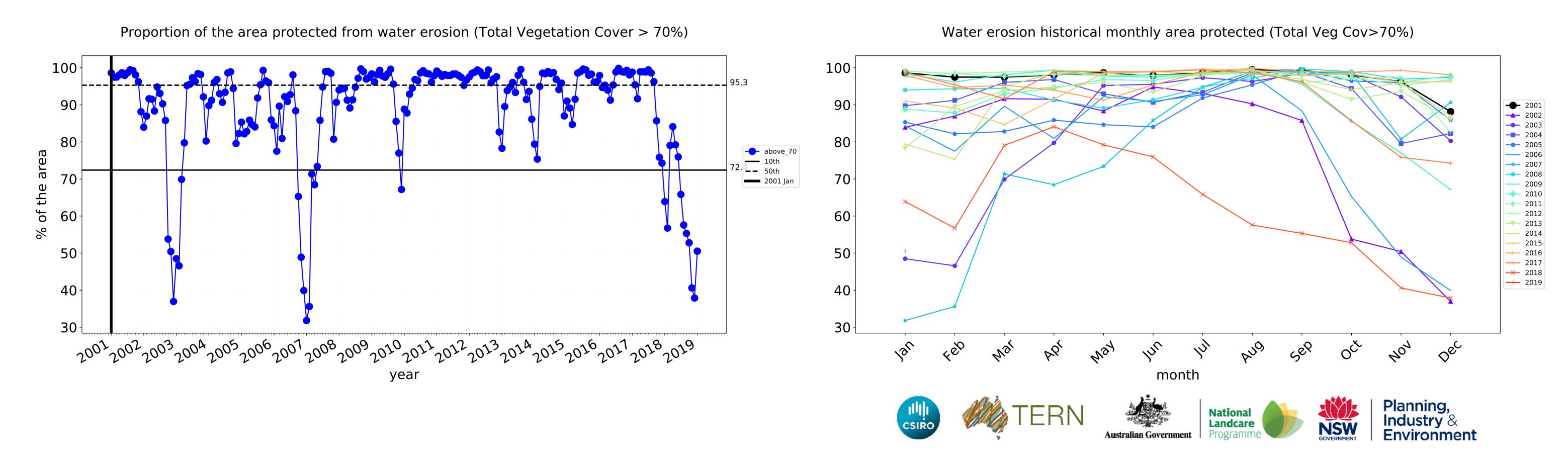


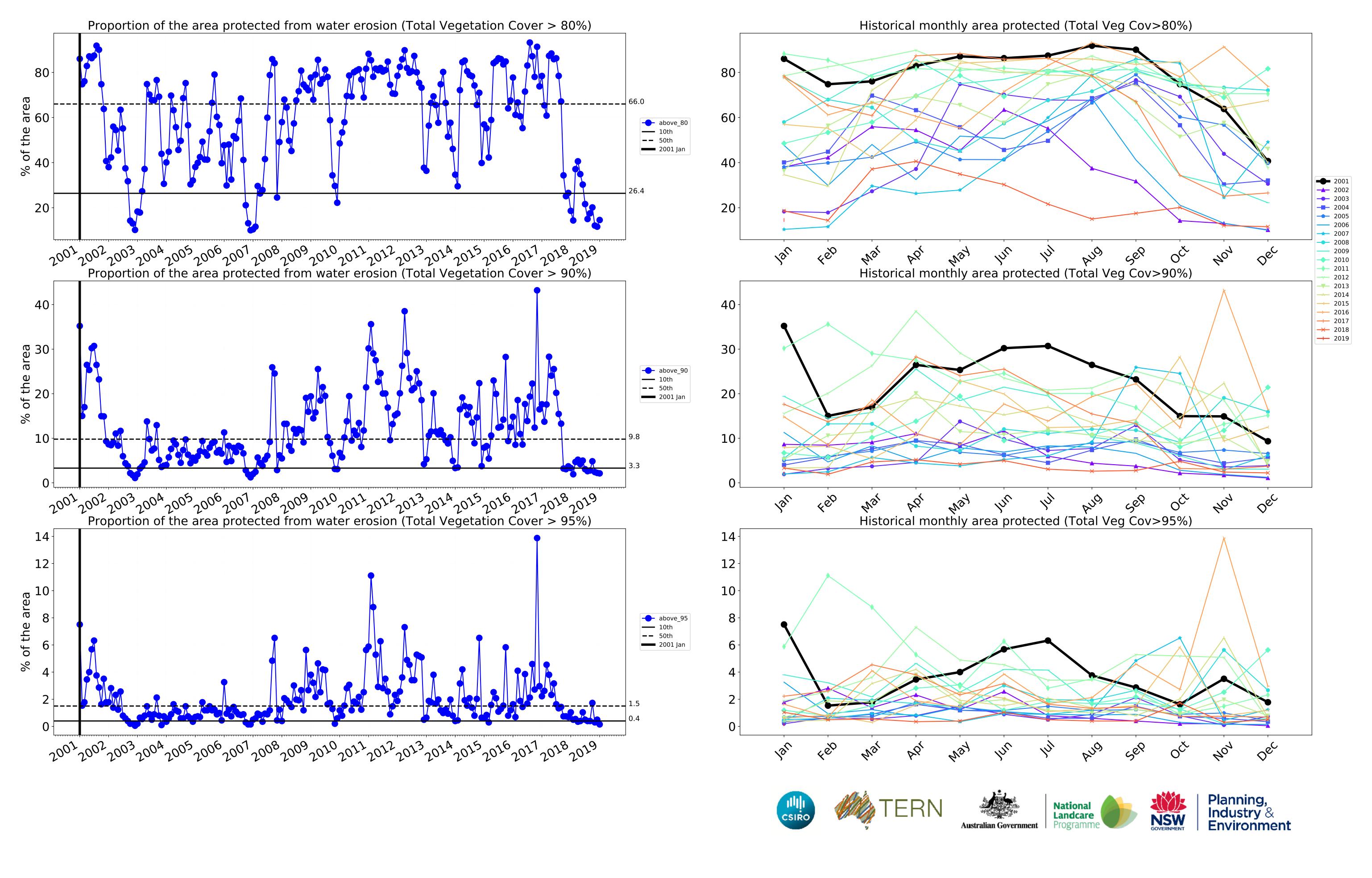




Cropping timeseries





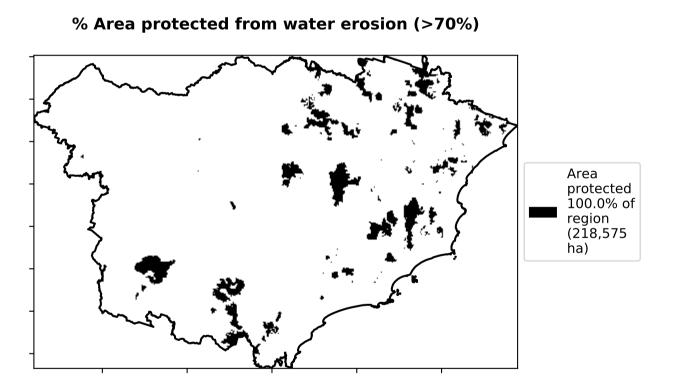


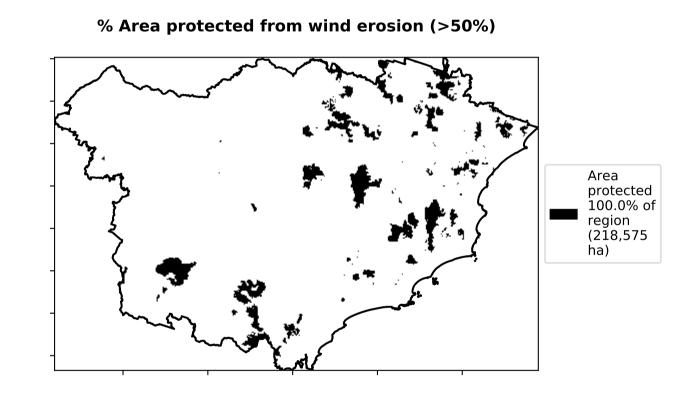
Production native forests and plantation forests

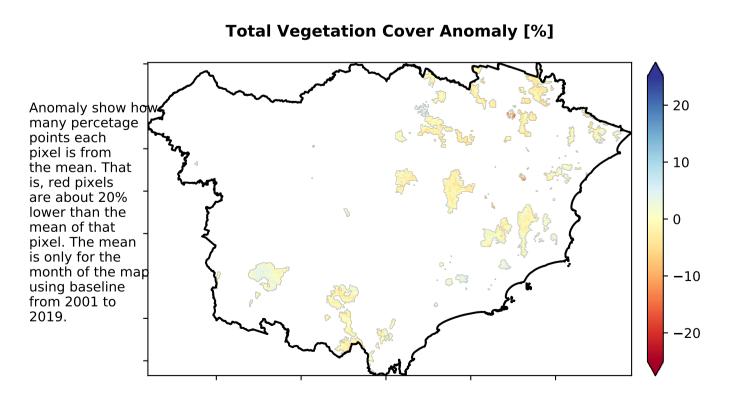
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) When the state of the stat

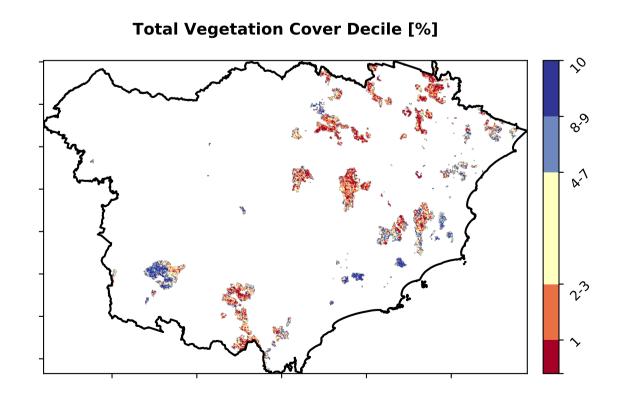
Total Vegetation Cover [%]

Proportion of vegetation cover class in area 100 - 100.0% 80 - 20 - 20 - 20 - 0.0% 0-30% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class













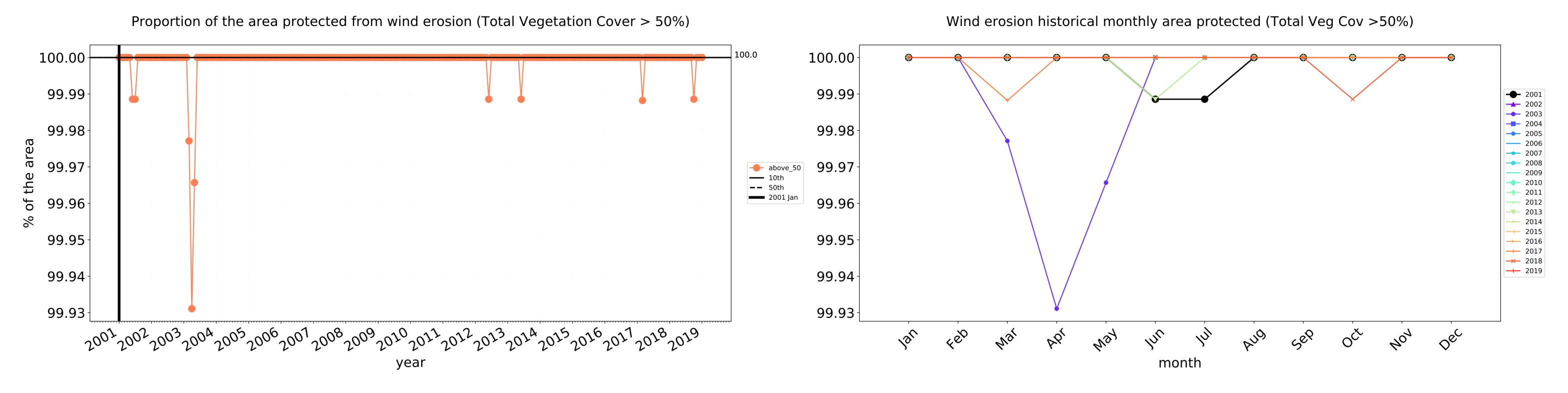


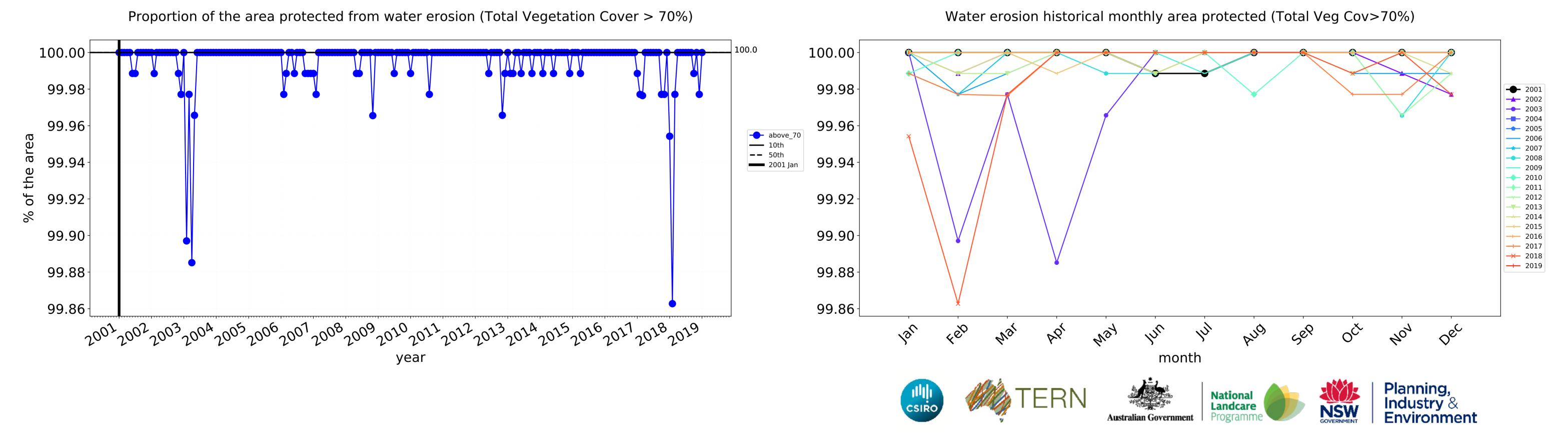


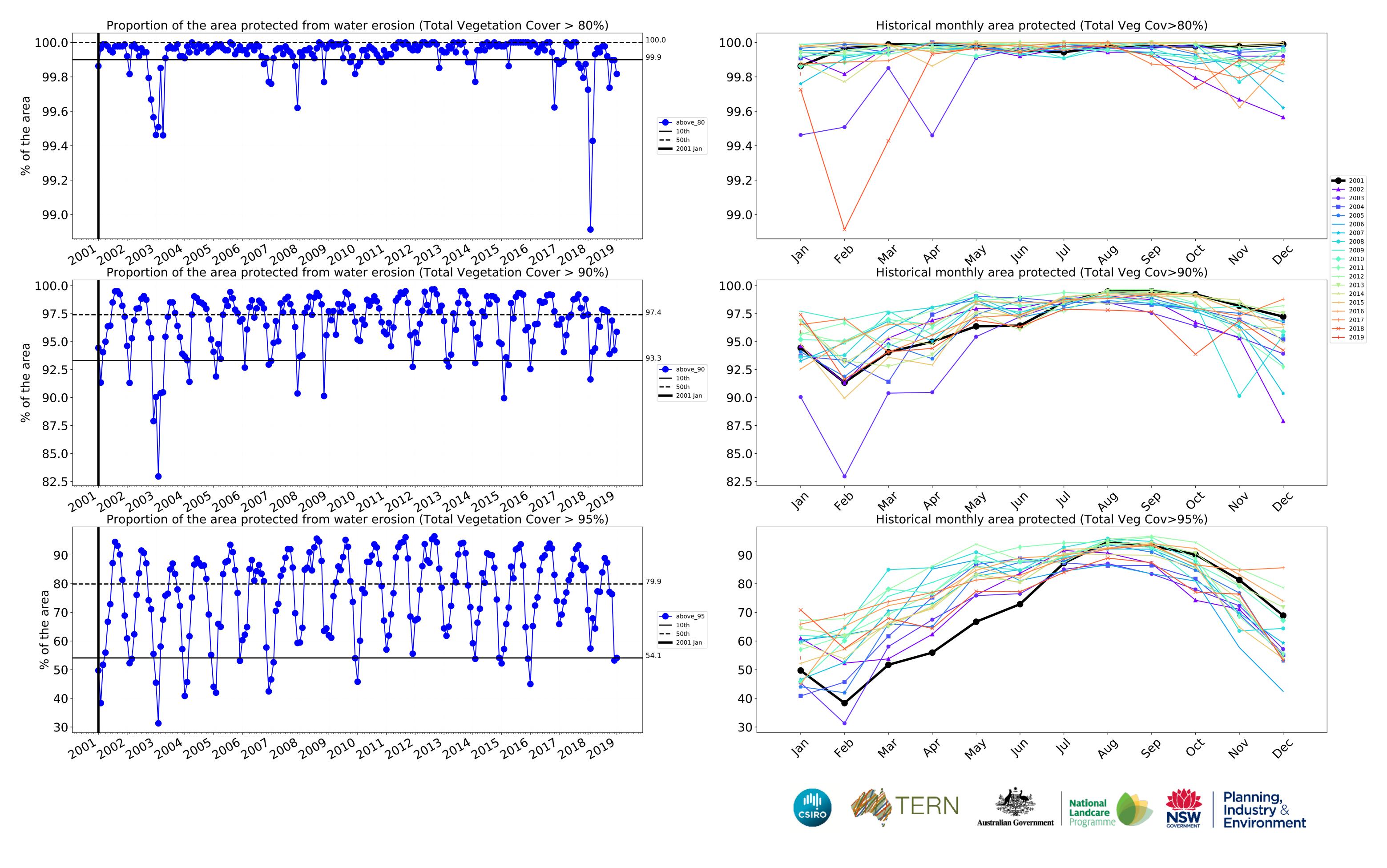




Production native forests and plantation forests timeseries







Hunter (3,238,925 ha and no data 61,500 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	3,238,925	99.9% 3,236,382	99.8% 3,232,170	99.2% 3,212,778	97.9% 3,169,482	85.4% 2,767,536	37.7% 1,220,818
Conservation and natural environments	1,244,275	99.9% 1,242,750	99.8% 1,242,275	99.7% 1,240,375	99.5% 1,237,500	92.1% 1,145,575	43.2% 537,550
Conservation and natural environments non forest	32,050	95.2% 30,525	93.9% 30,100	90.2% 28,900	86.3% 27,675	71.0% 22,750	33.5% 10,750
Conservation and natural environments Woodland forest	139,125	100.0% 139,125	100.0% 139,100	100.0% 139,075	99.8% 138,900	90.6% 126,050	38.0% 52,875
Conservation and natural environments Forest (non woodland)	1,073,100	100.0% 1,073,100	100.0% 1,073,075	99.9% 1,072,400	99.8% 1,070,925	92.9% 996,775	44.2% 473,925
Agriculture	1,581,500	100.0% 1,581,375	100.0% 1,580,925	99.8% 1,578,275	98.9% 1,563,925	84.4% 1,334,450	34.9% 551,875
Grazing	1,503,500	100.0% 1,503,375	100.0% 1,502,925	99.8% 1,500,975	99.4% 1,494,950	87.1% 1,309,750	36.4% 547,250
Grazing non forest	1,213,675	100.0% 1,213,550	100.0% 1,213,100	99.8% 1,211,325	99.3% 1,205,775	85.9% 1,042,850	34.7% 421,575
Grazing Woodland forest	120,650	100.0% 120,650	100.0% 120,650	99.9% 120,575	99.7% 120,250	91.4% 110,325	41.6% 50,250
Grazing - Forest (non woodland)	169,175	100.0% 169,175	100.0% 169,175	99.9% 169,075	99.9% 168,925	92.6% 156,575	44.6% 75,425
Cropping	50,625	100.0% 50,625	100.0% 50,625	98.6% 49,925	86.0% 43,550	35.2% 17,825	7.5% 3,800
Production native forests and plantation forests	218,575	100.0% 218,575	100.0% 218,575	100.0% 218,575	99.9% 218,275	94.4% 206,425	49.7% 108,675











