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: November 2013

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







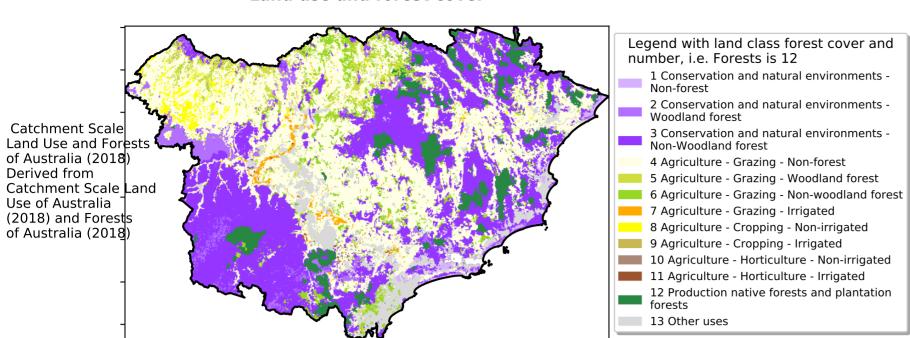




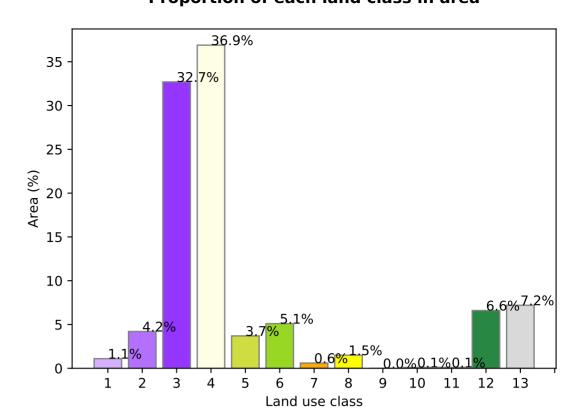


Vegetation Cover Nov 2013

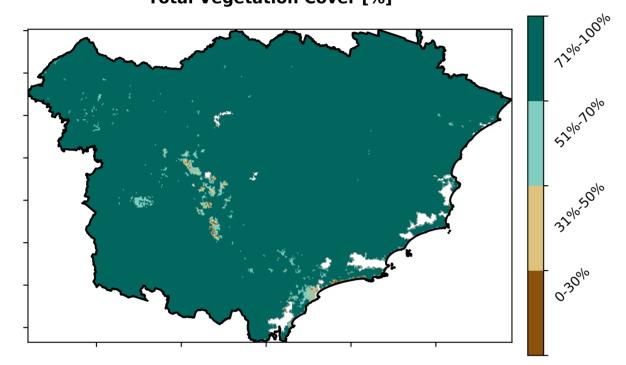
Land use and forest cover



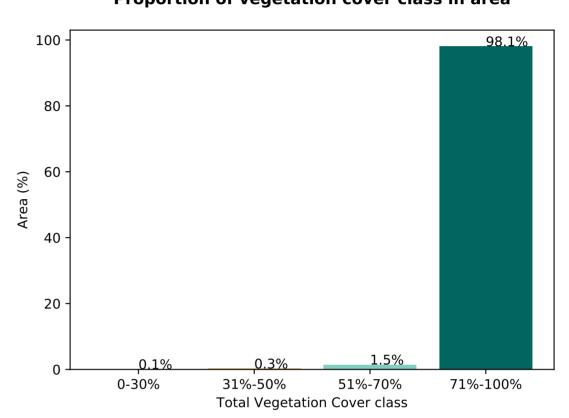
Proportion of each land class in area



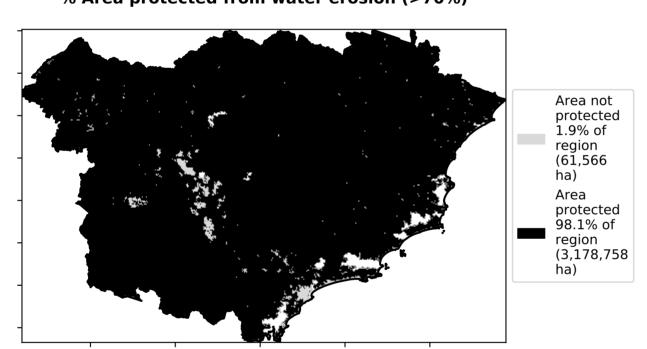
Total Vegetation Cover [%]



Proportion of vegetation cover class in area



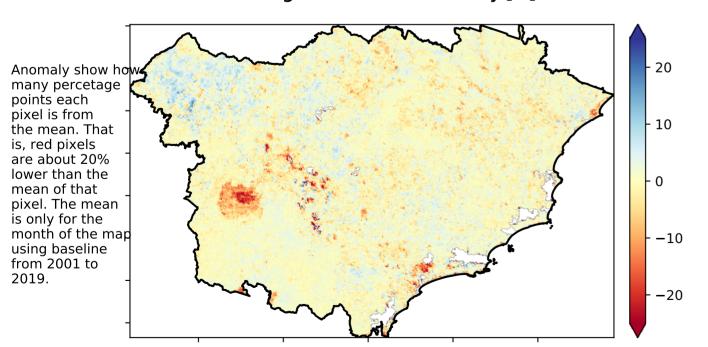
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

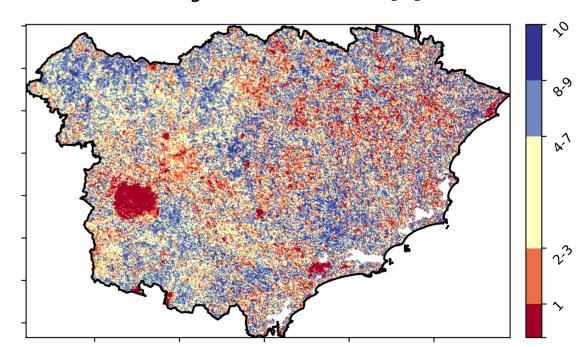


Total Vegetation Cover Anomaly [%]



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 [%]





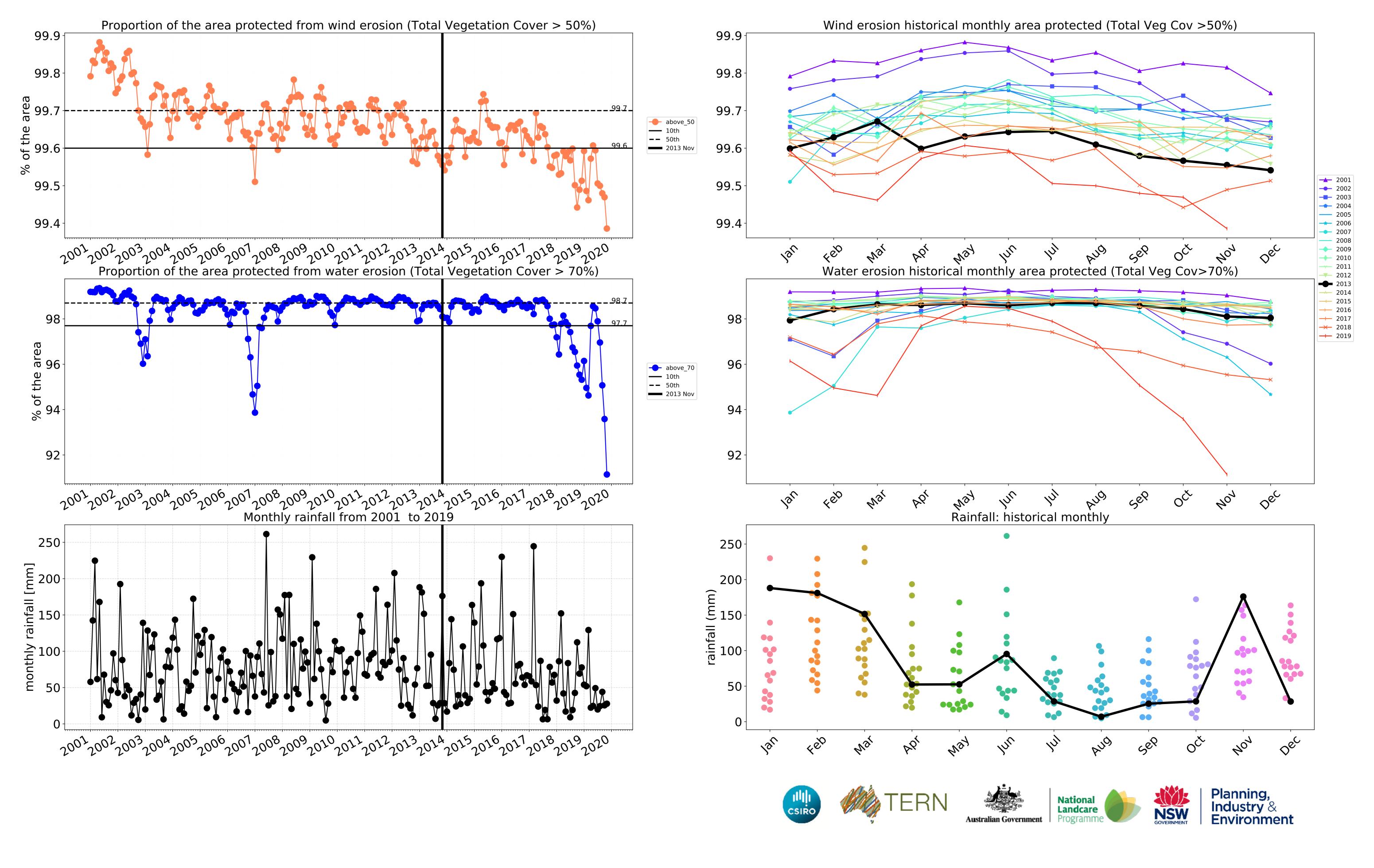




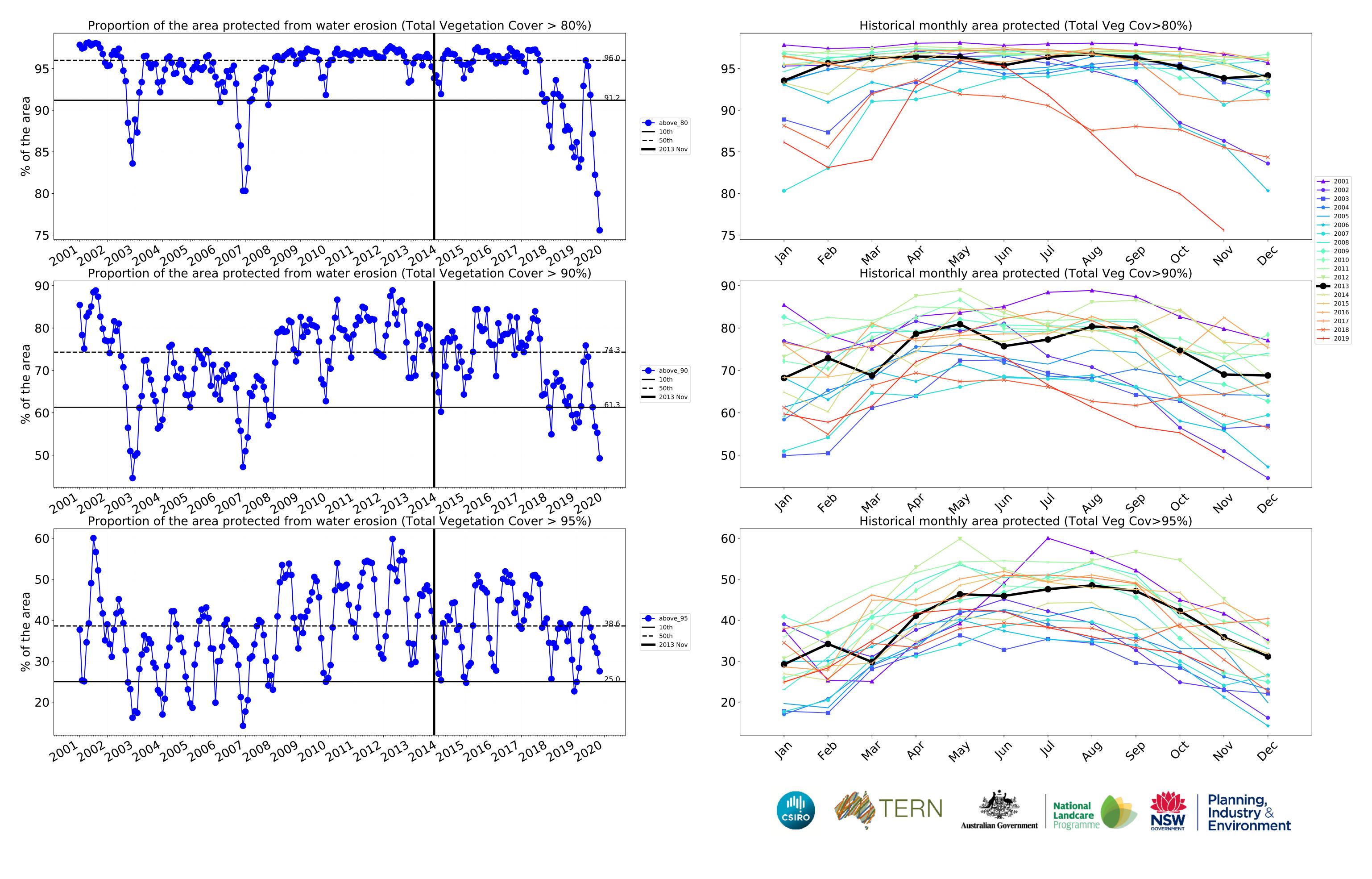




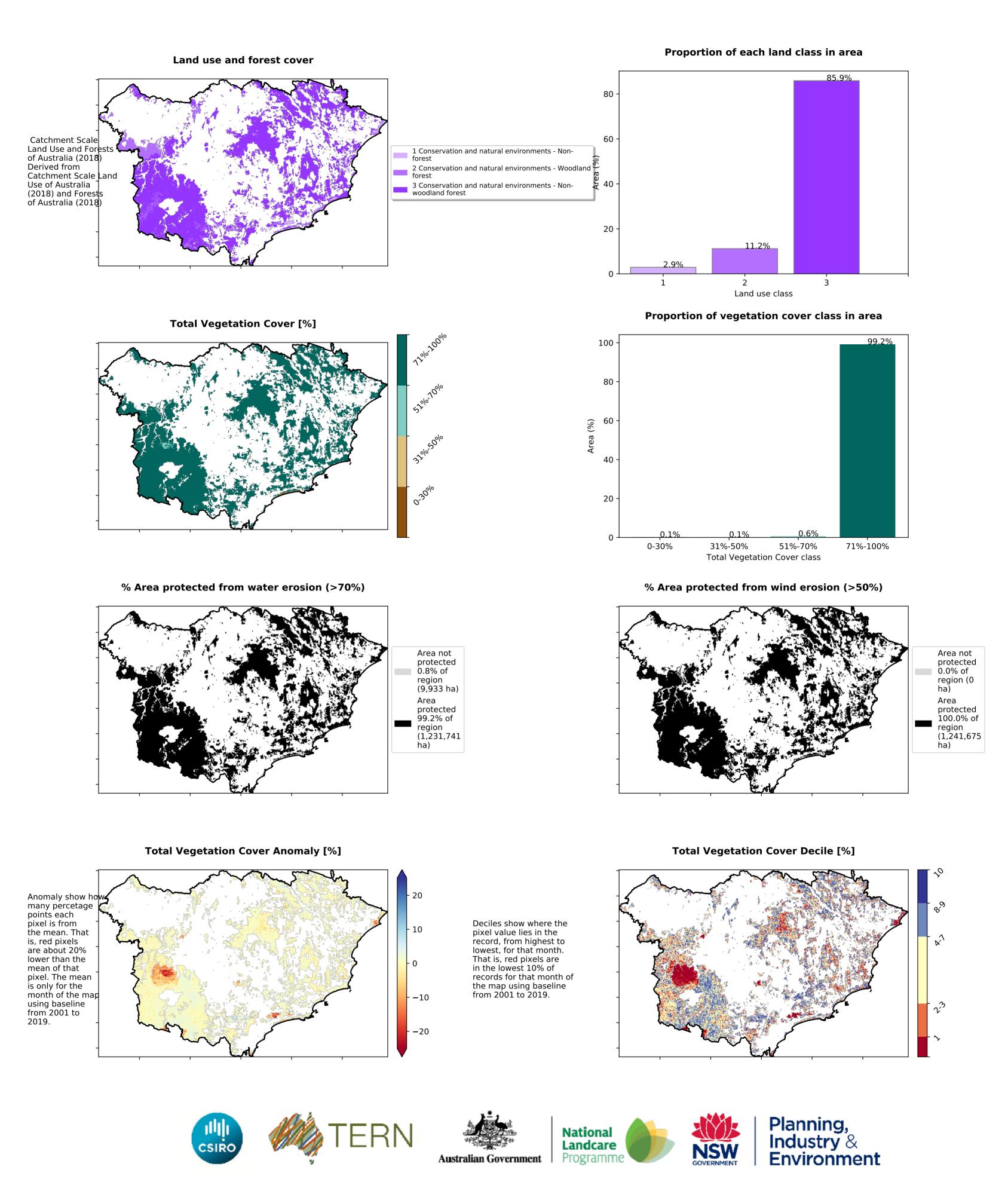




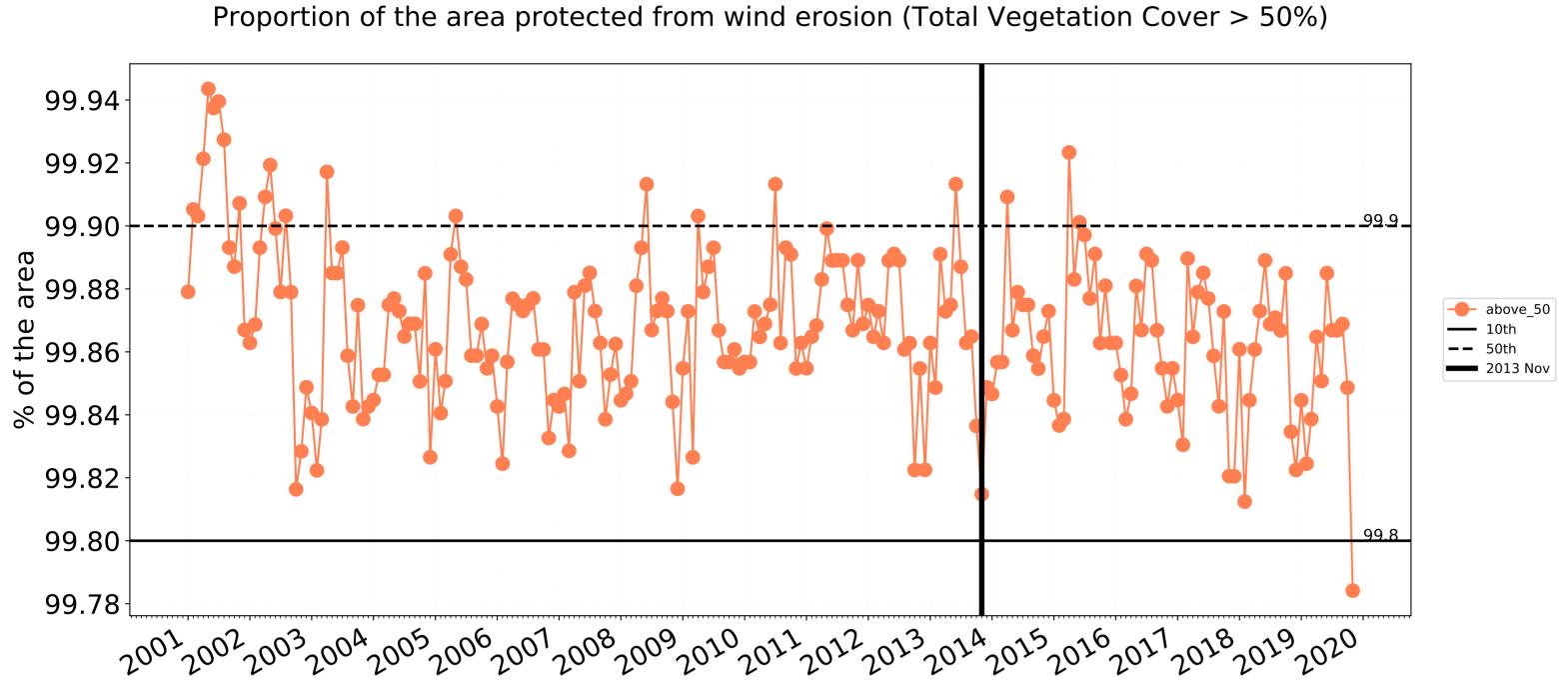
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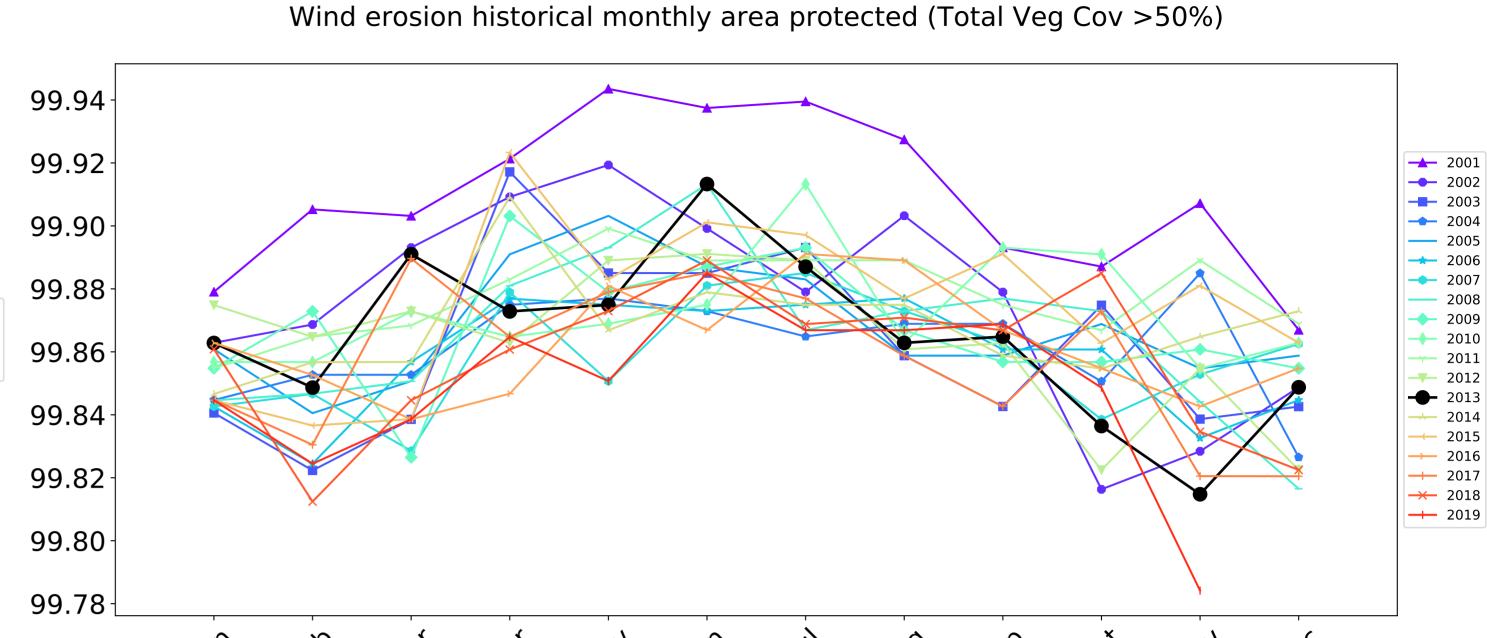


Conservation and natural environments

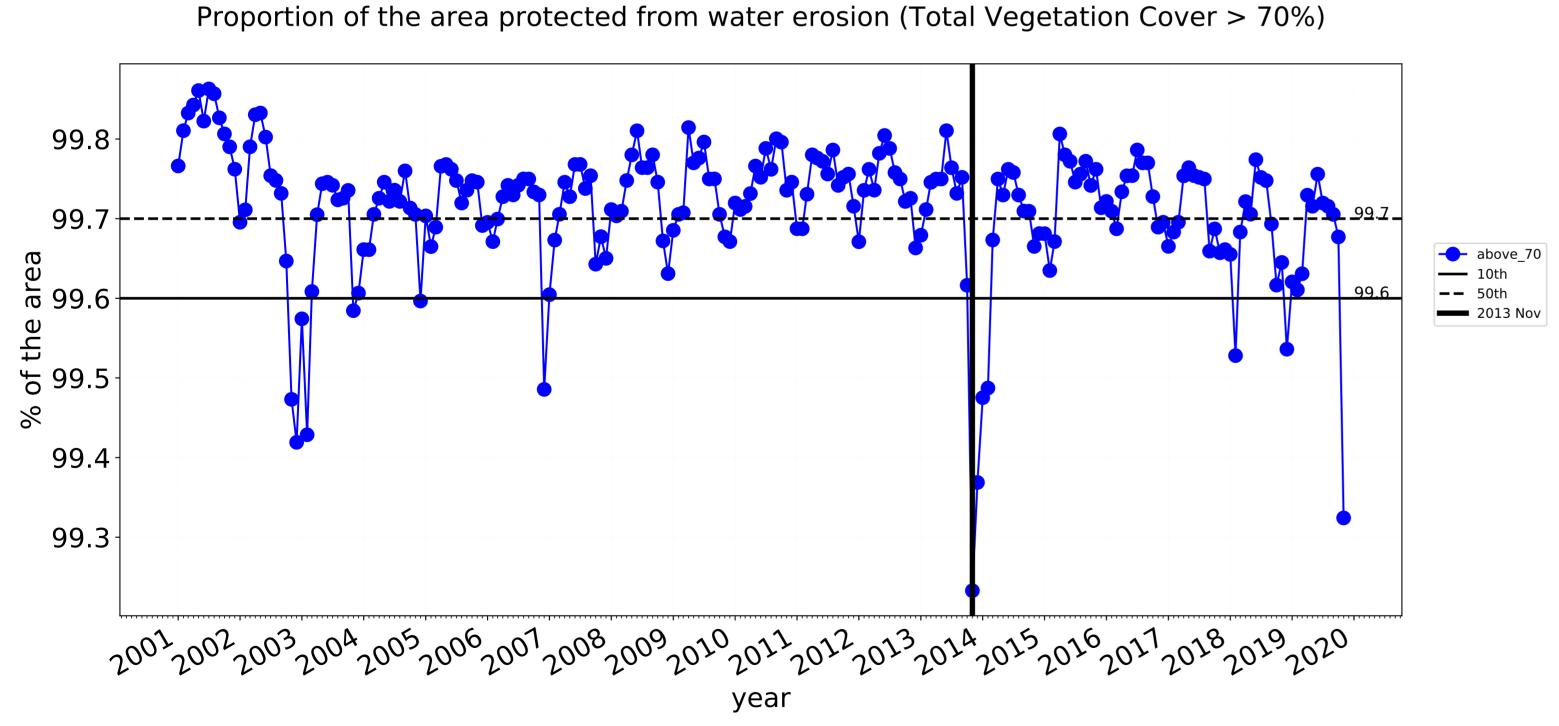


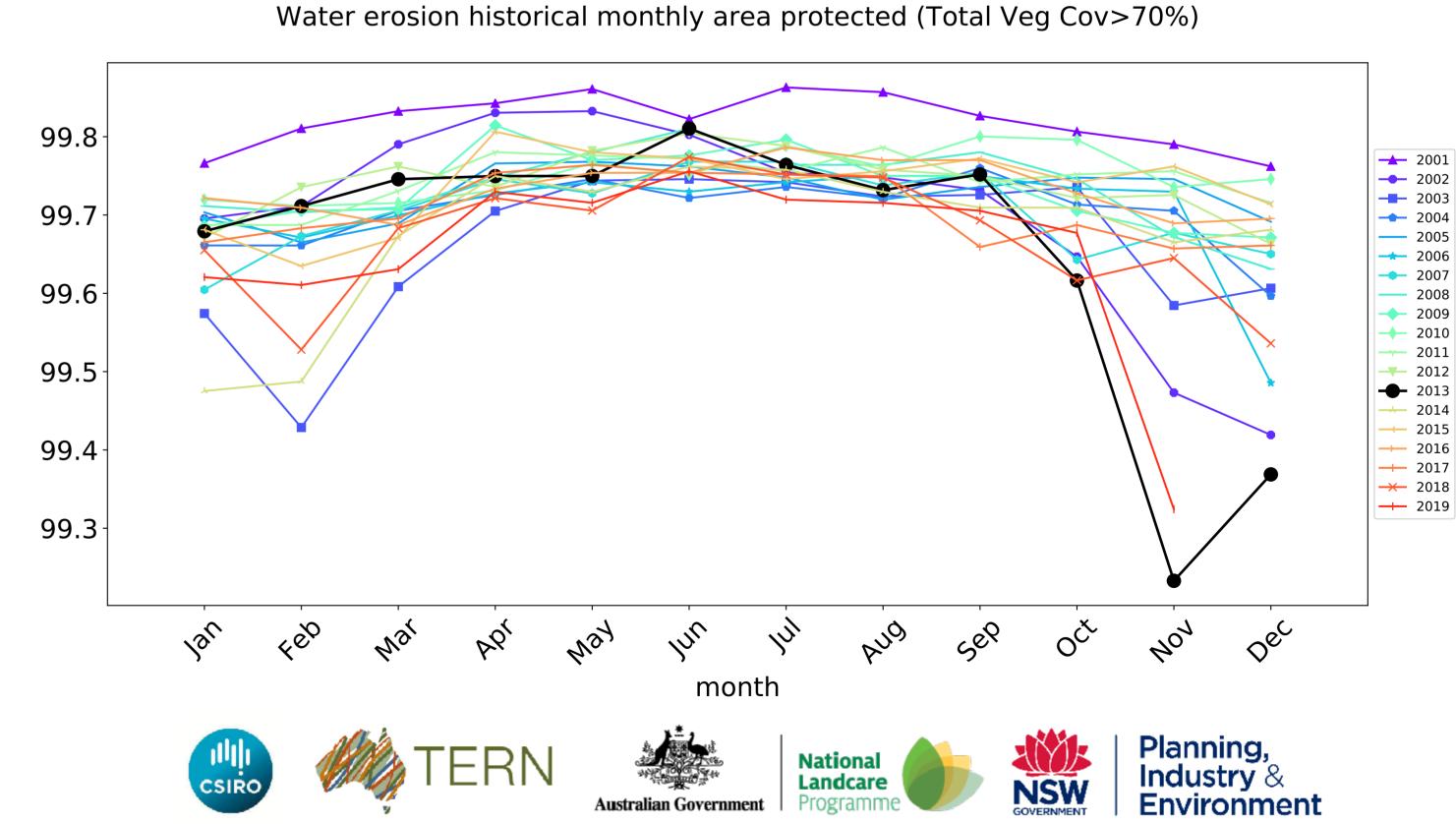
Conservation and natural environments timeseries

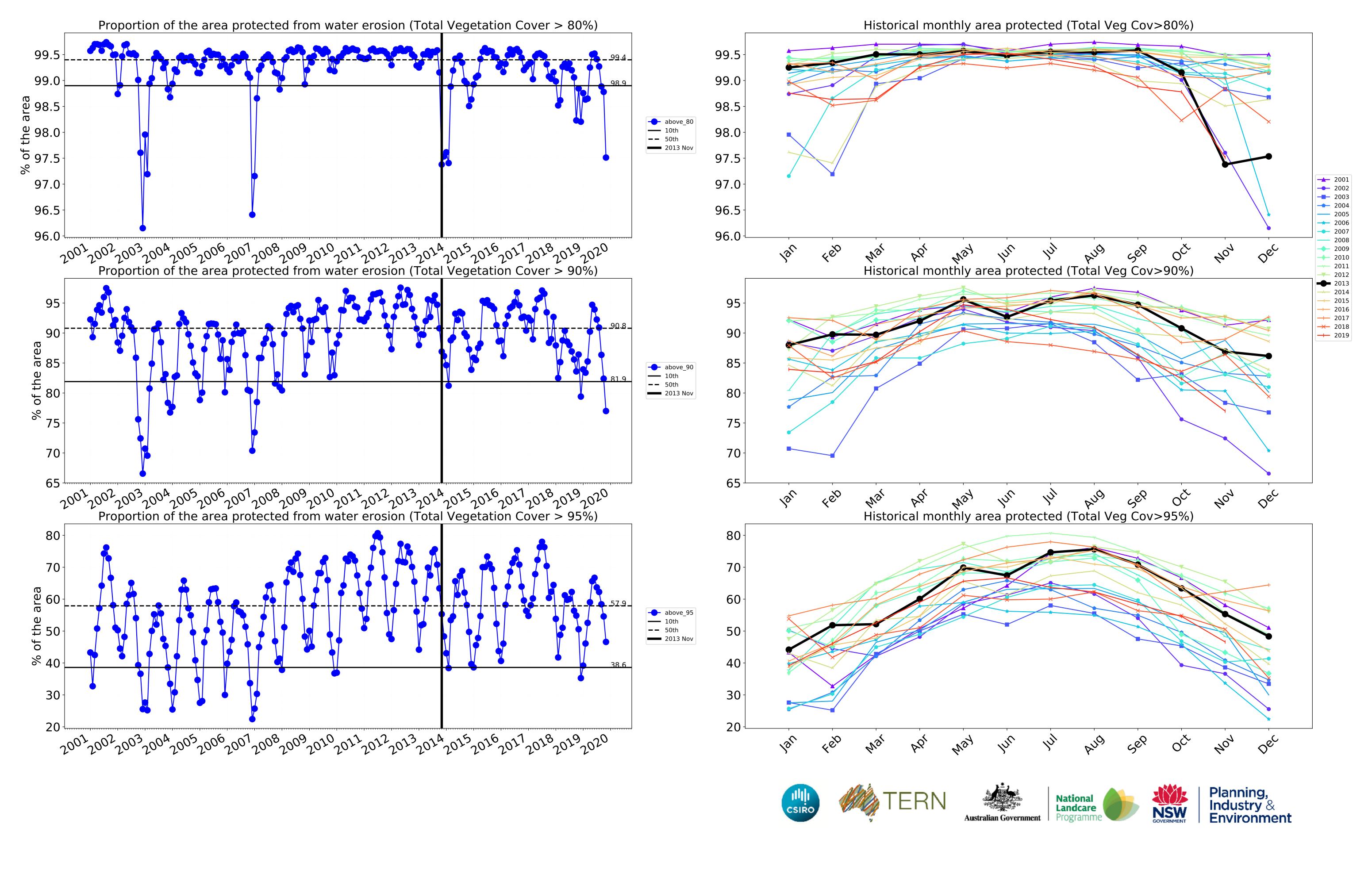




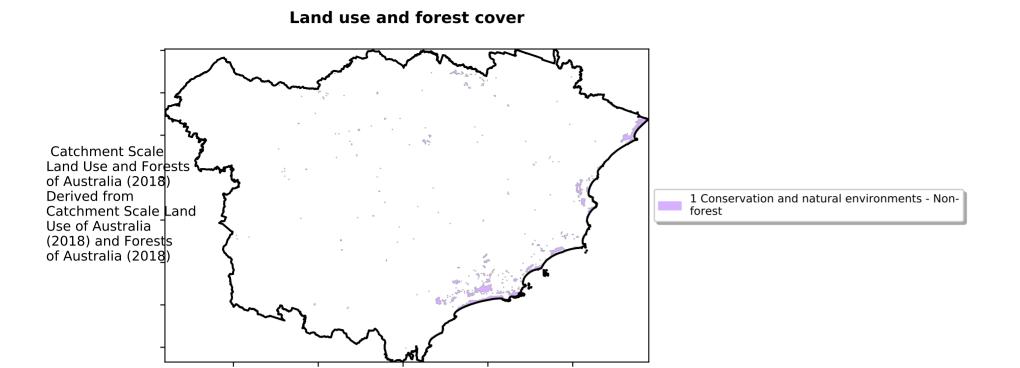
month





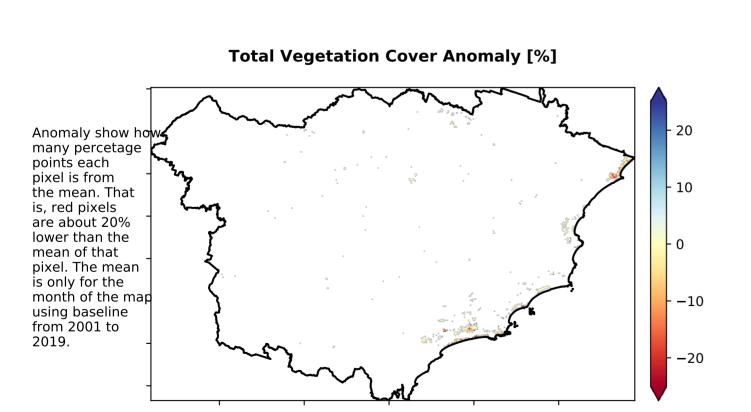


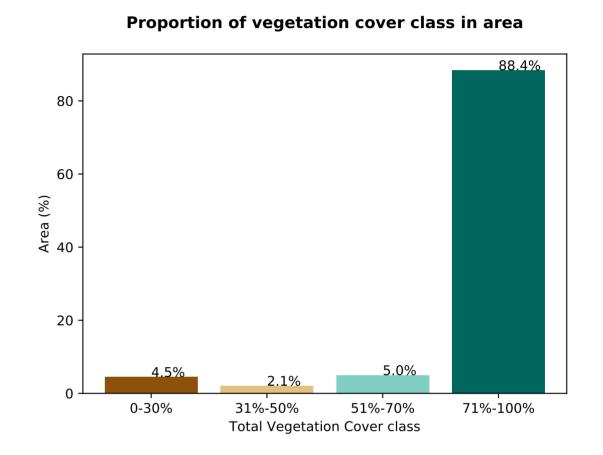
Conservation and natural environments non forest

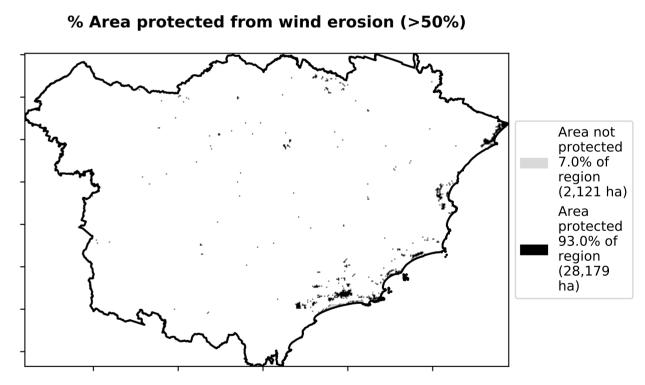


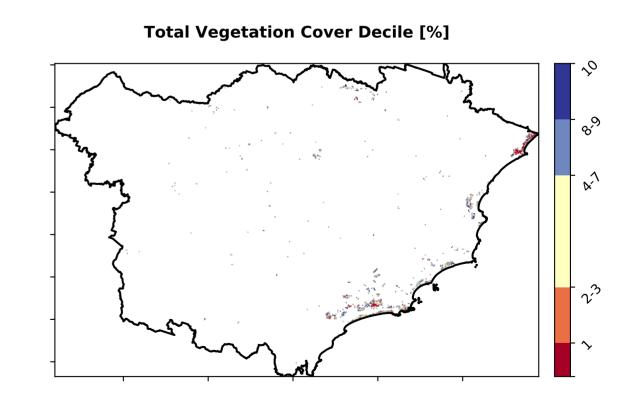
Total Vegetation Cover [%]

Area not protected 11.6% of region (3,514 ha) Area protected 88.4% of region (26,785 ha)













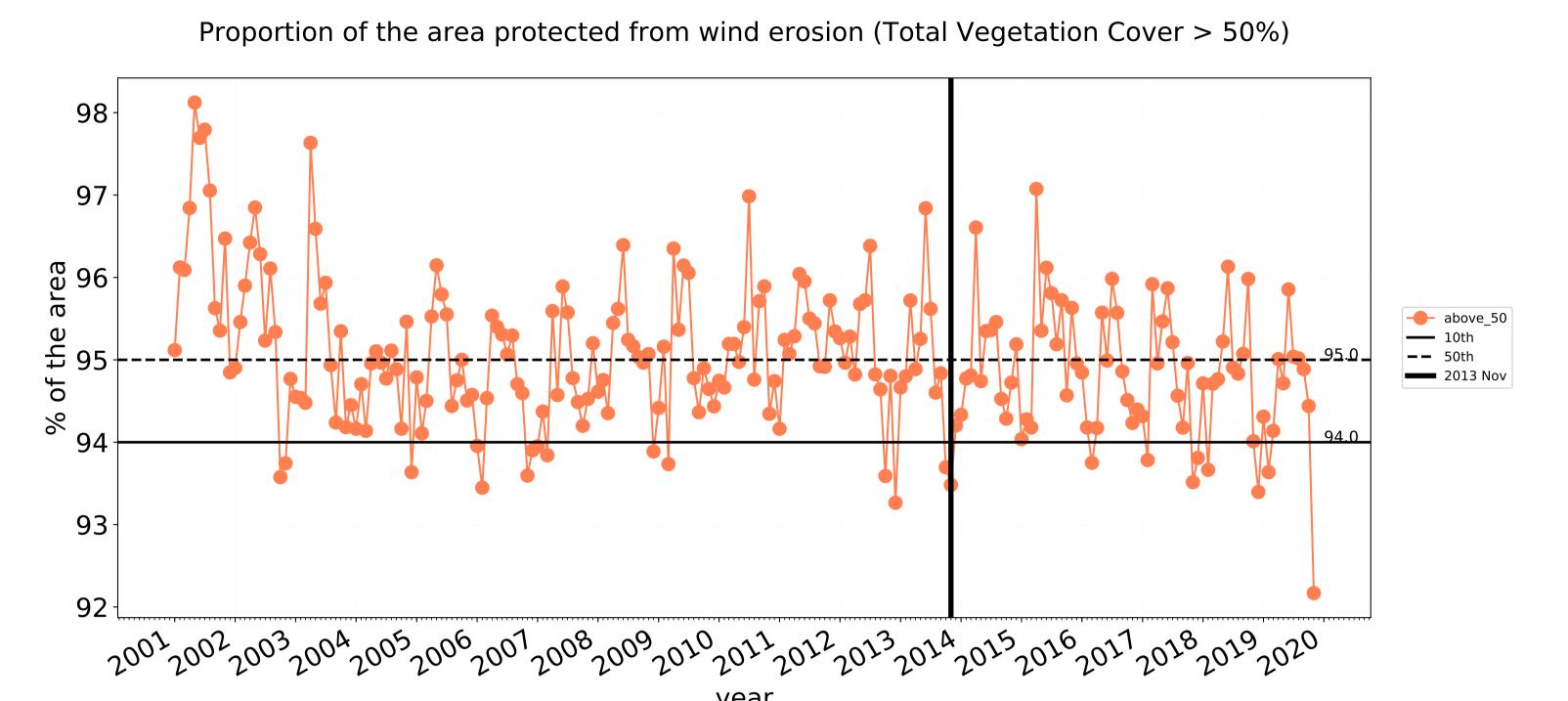




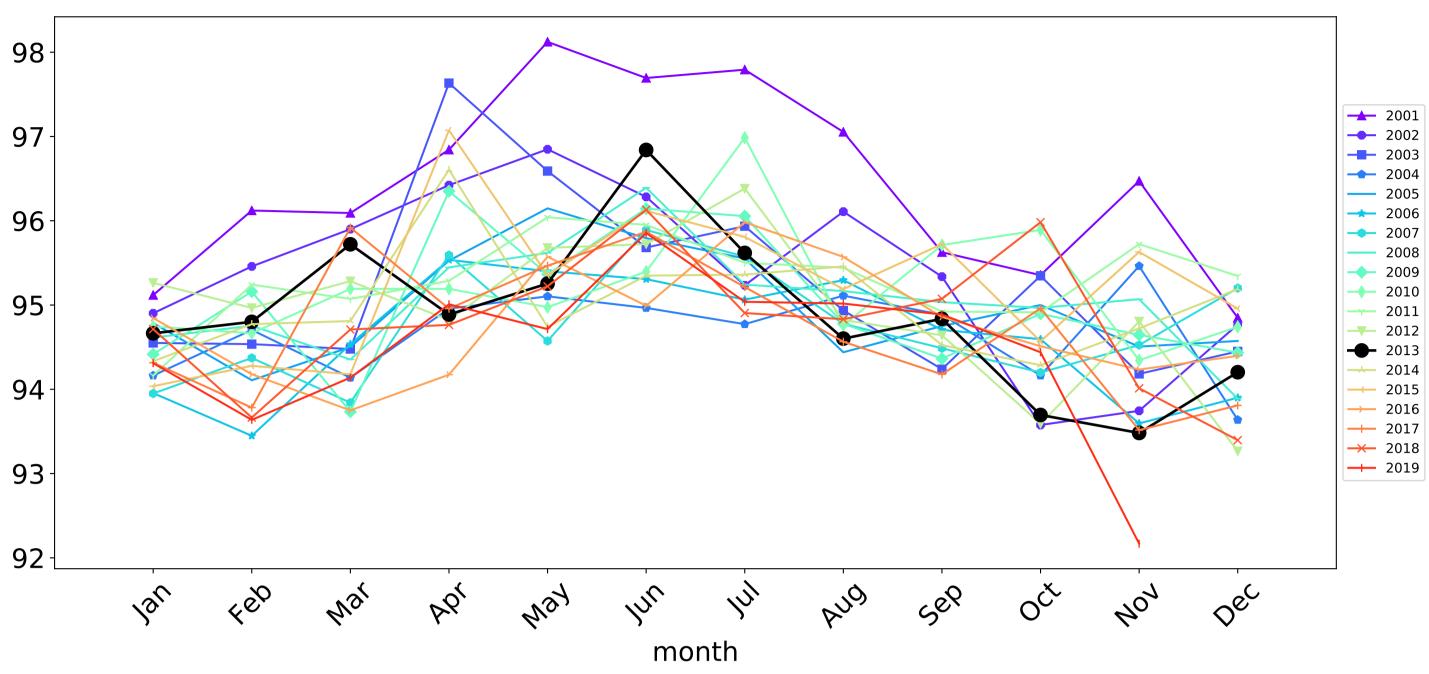


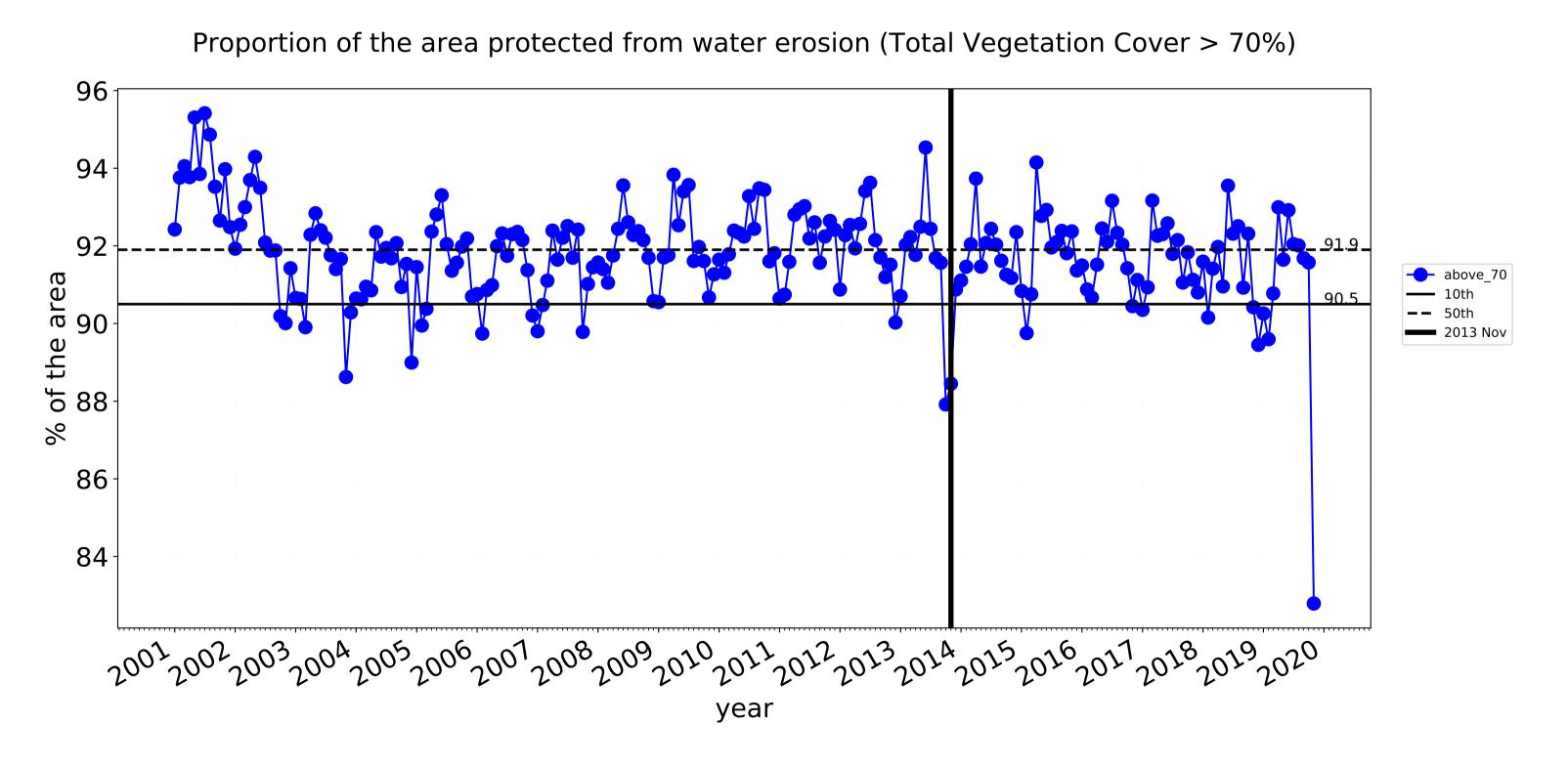


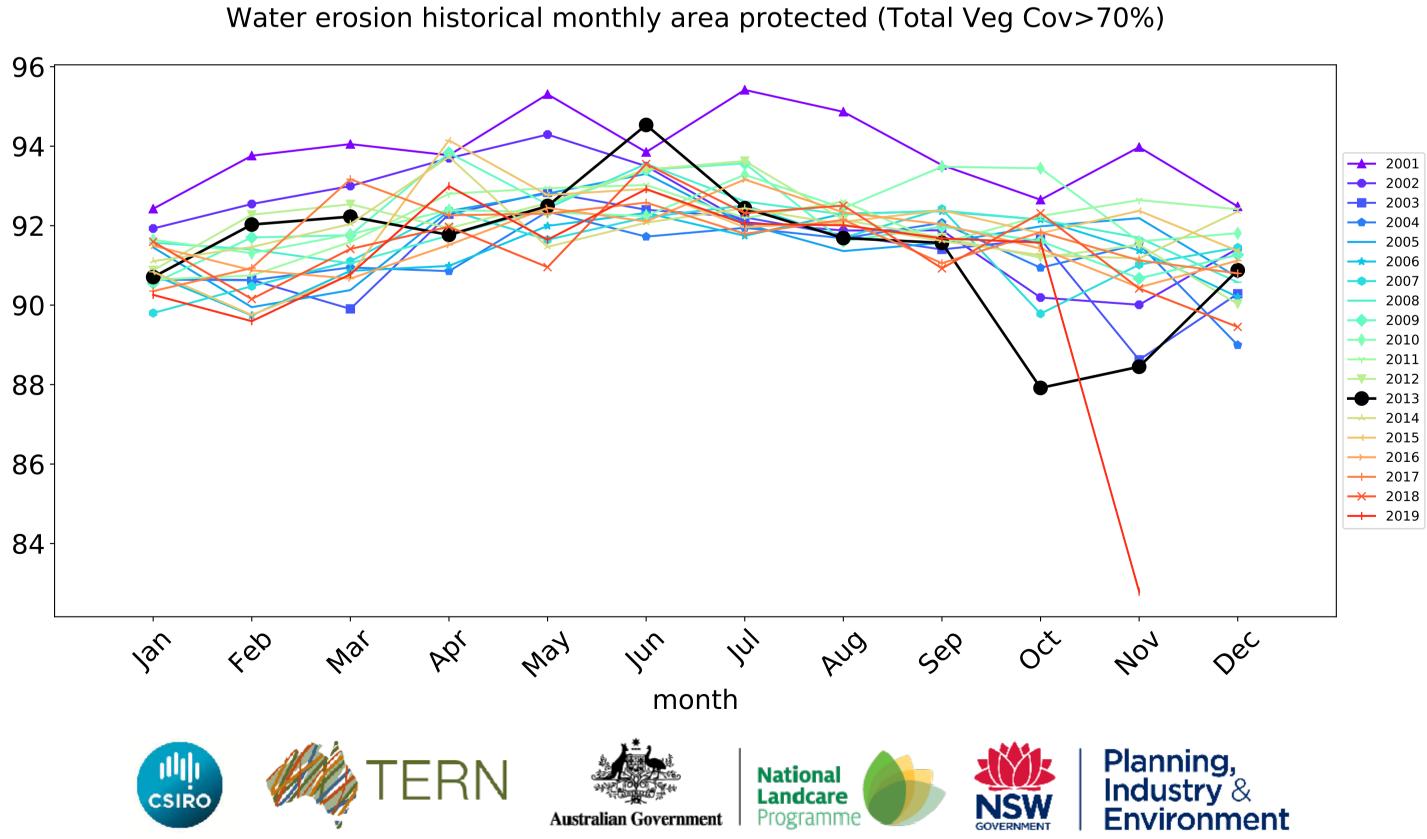
Conservation and natural environments non forest timeseries

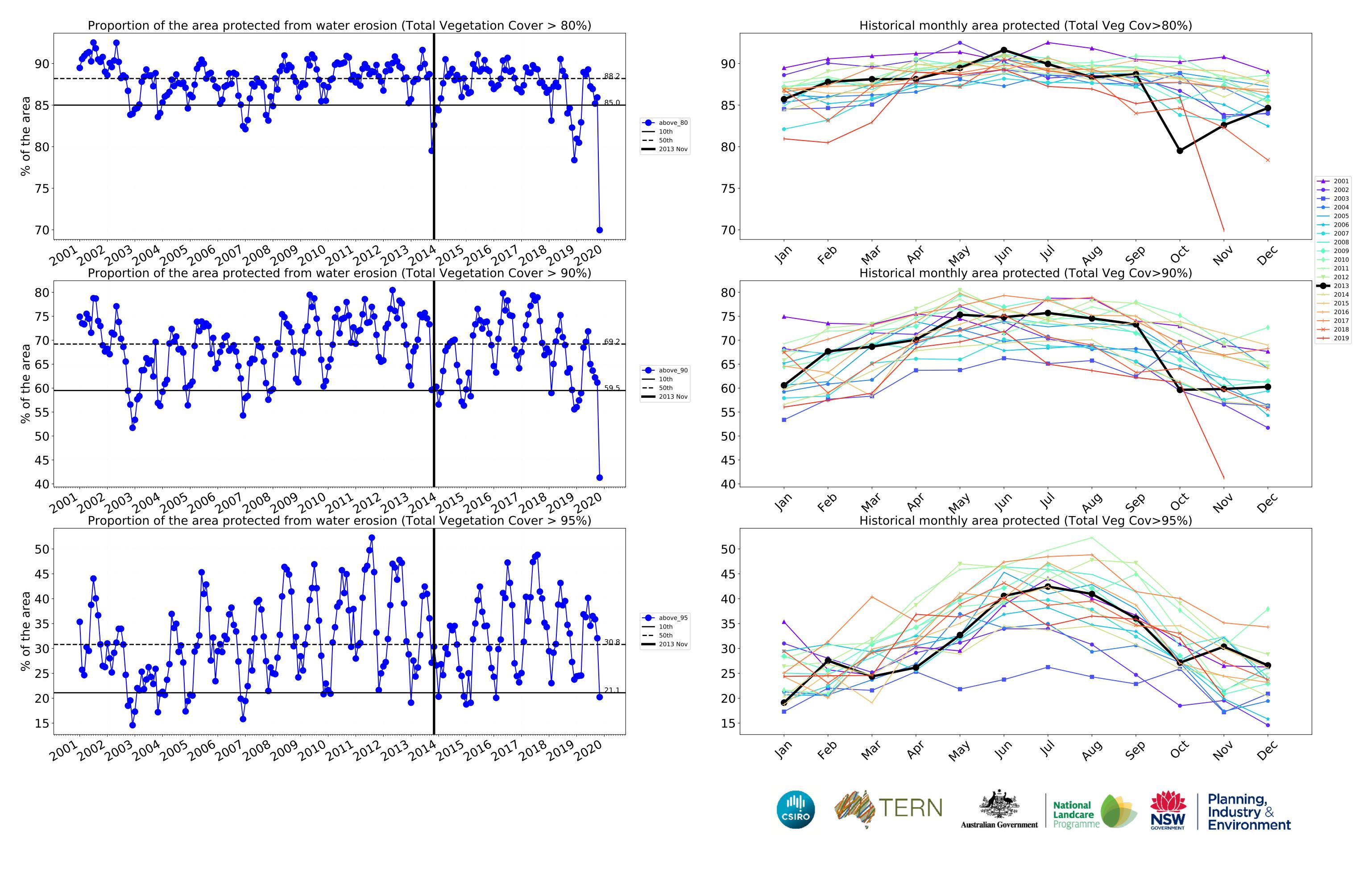




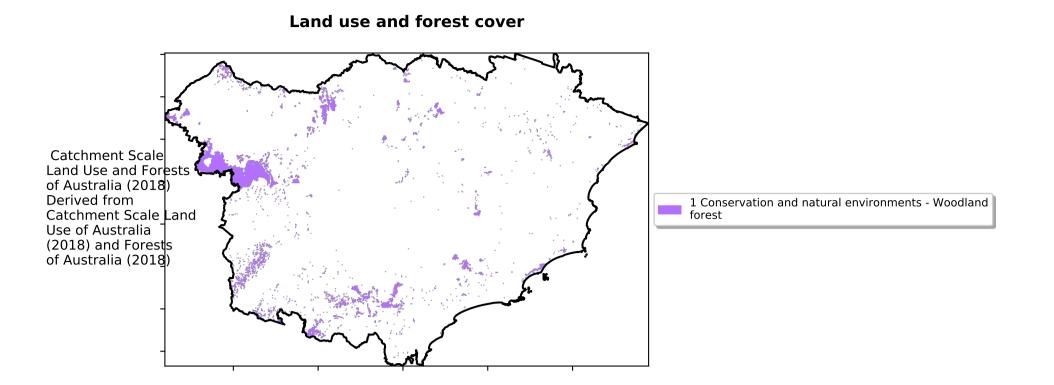


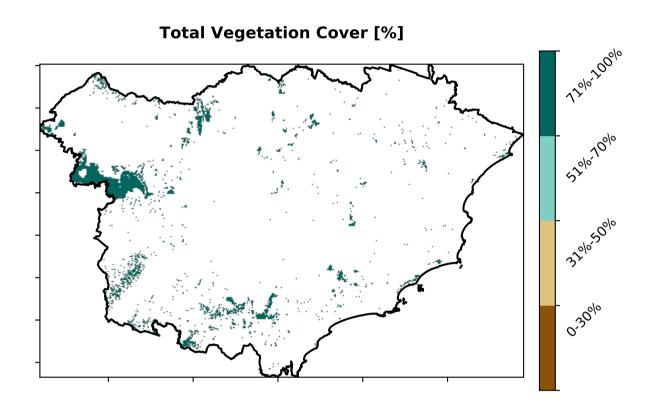


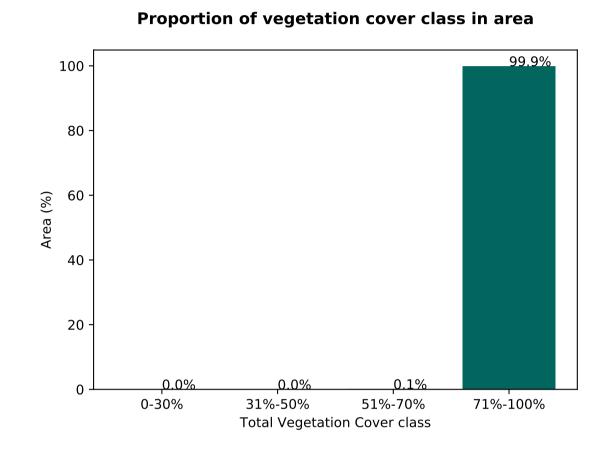


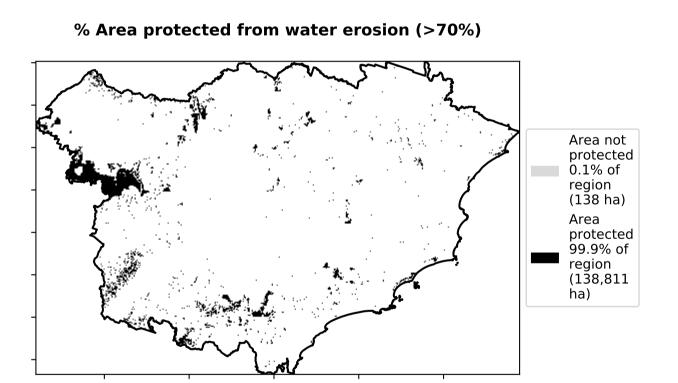


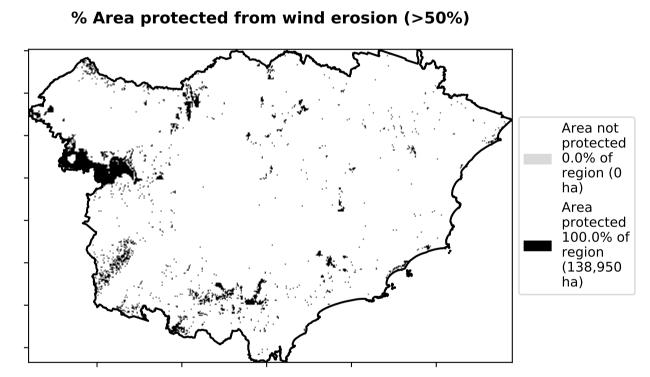
Conservation and natural environments Woodland forest

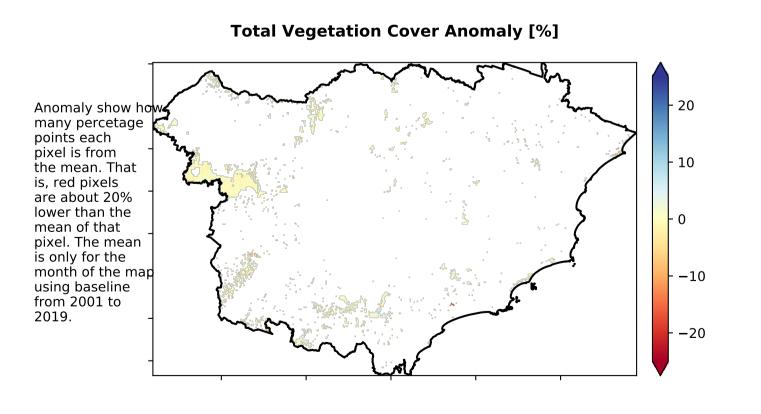


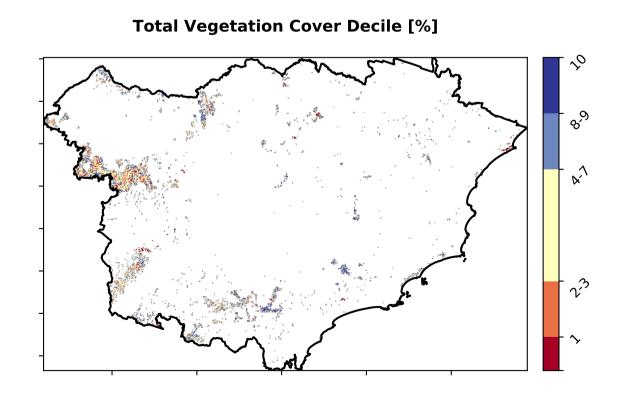
















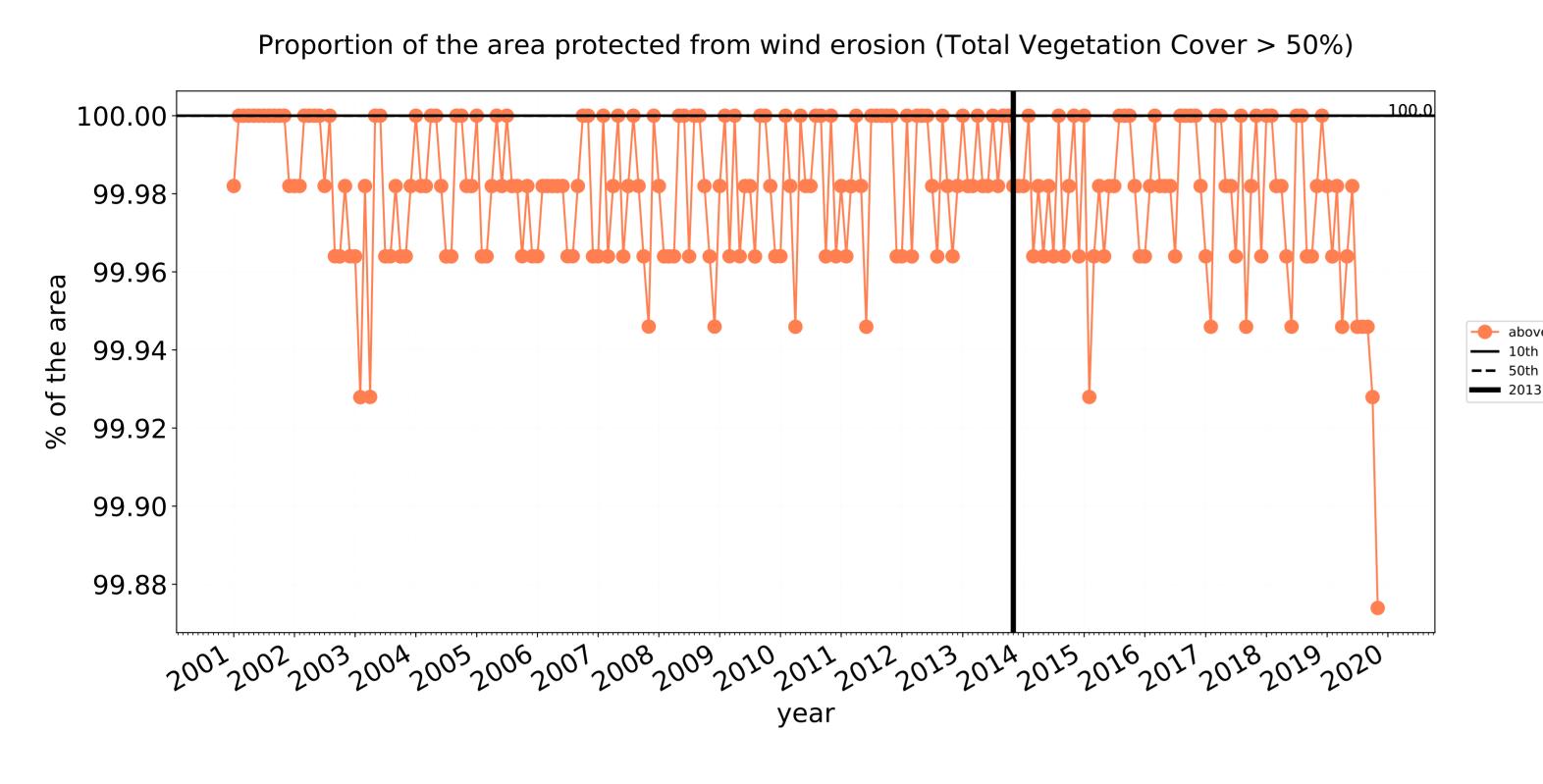


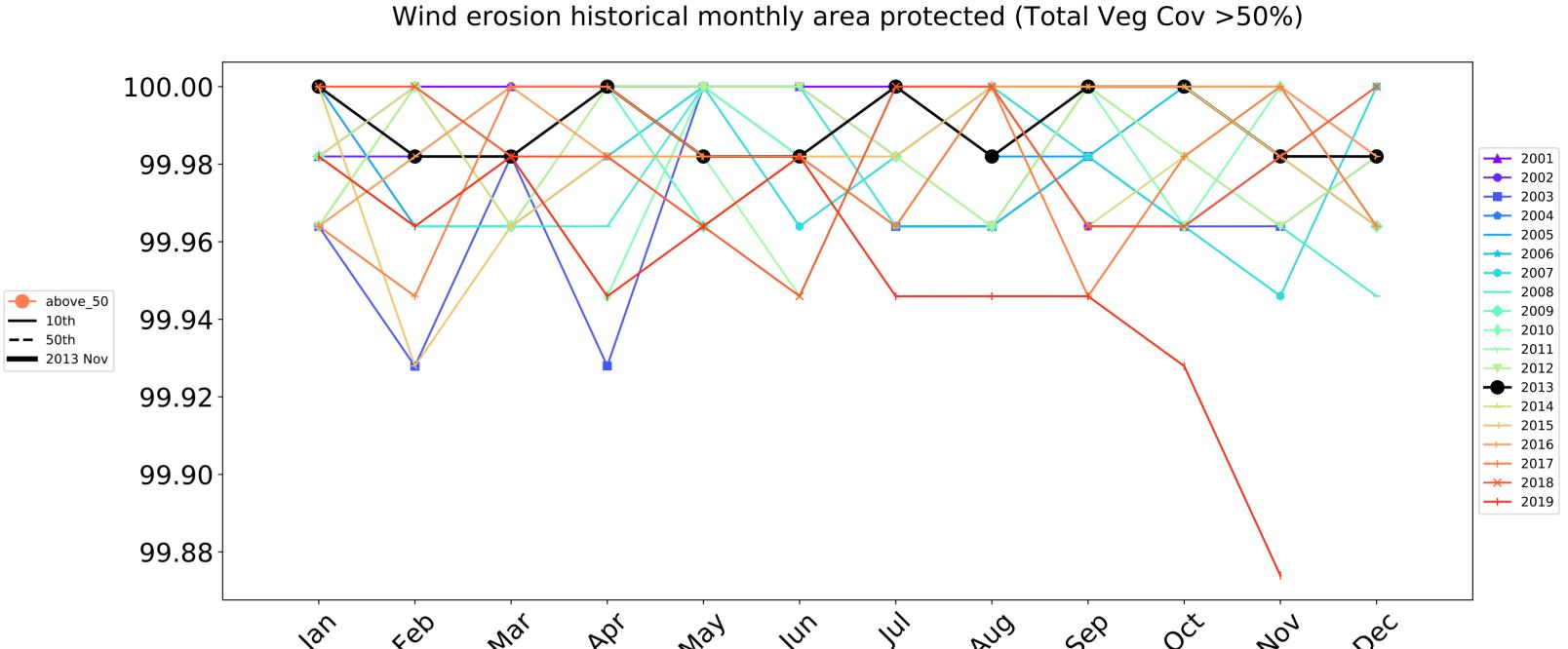




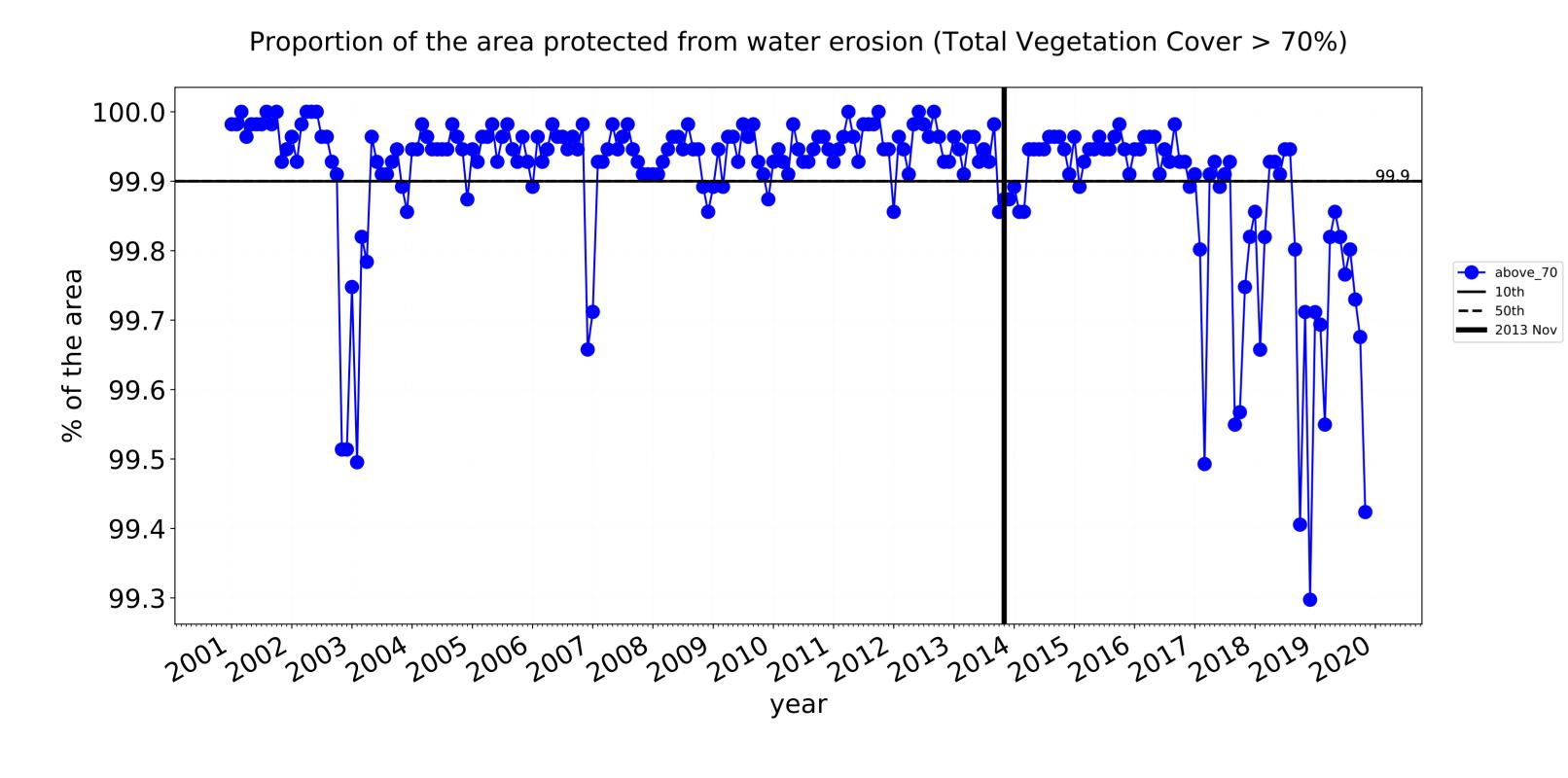


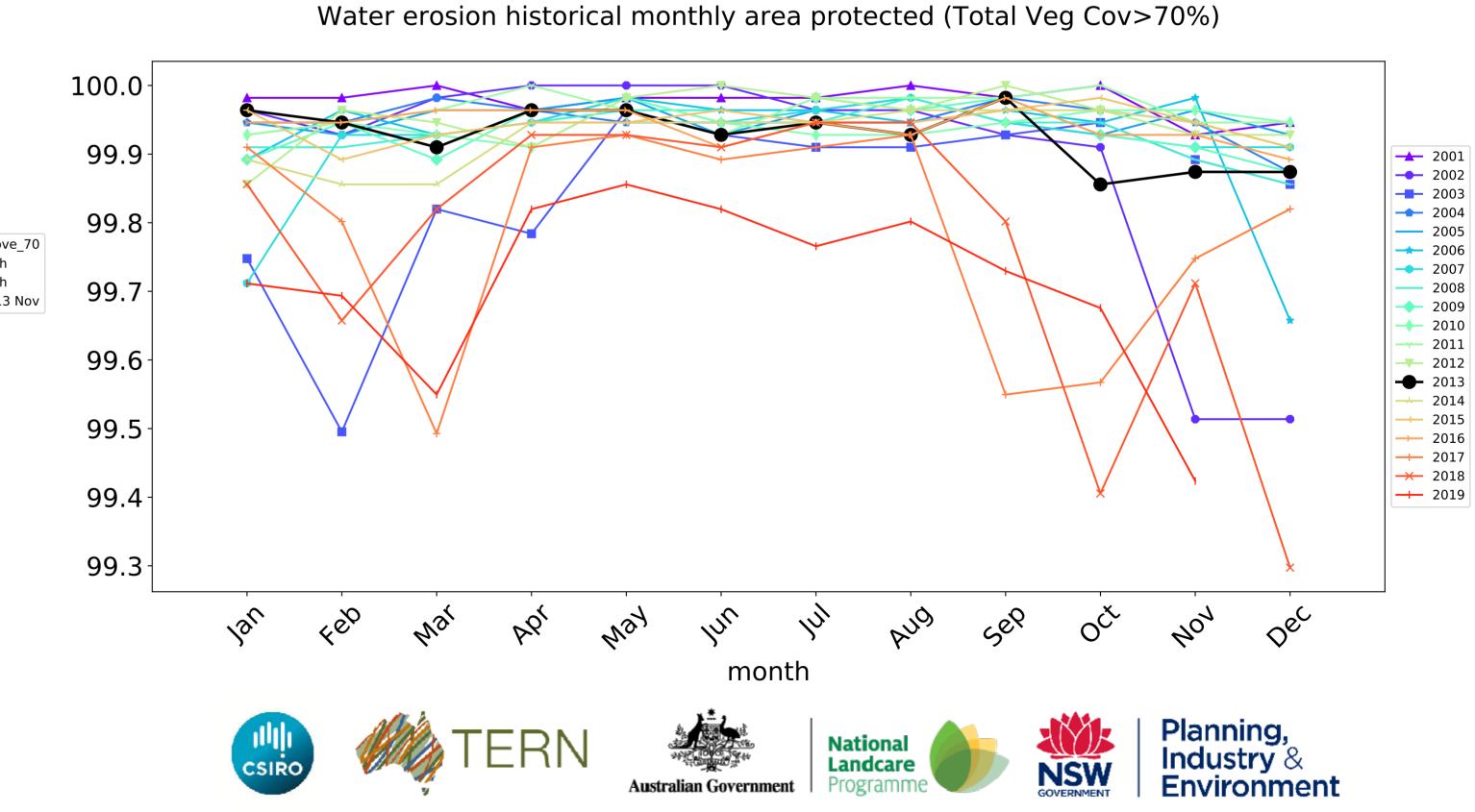
Conservation and natural environments Woodland forest timeseries

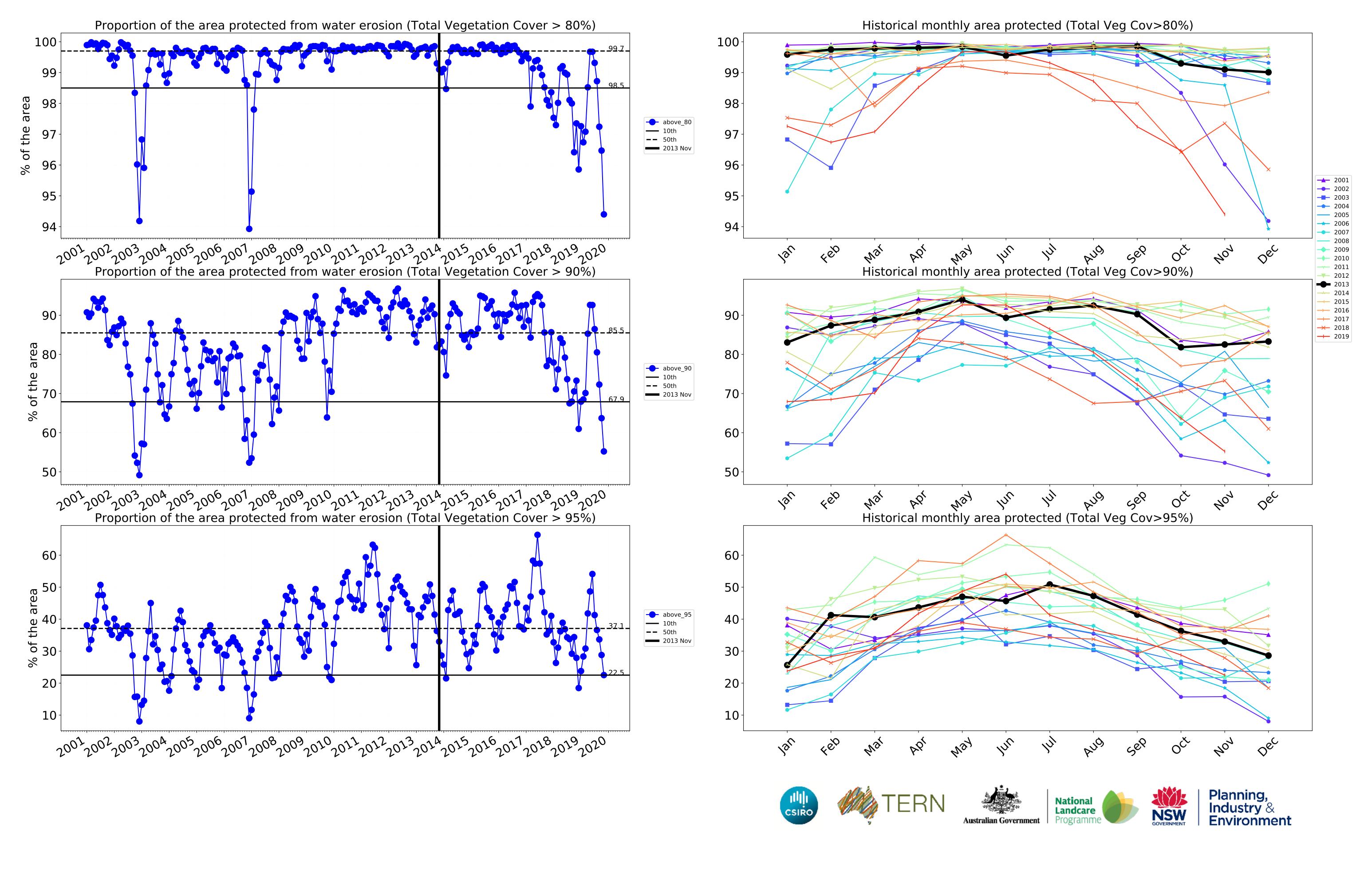




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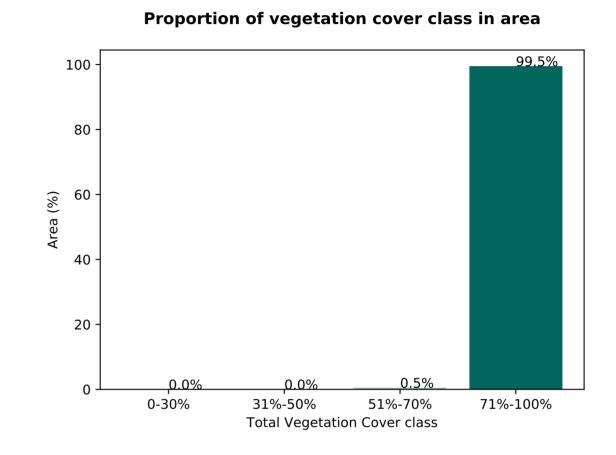


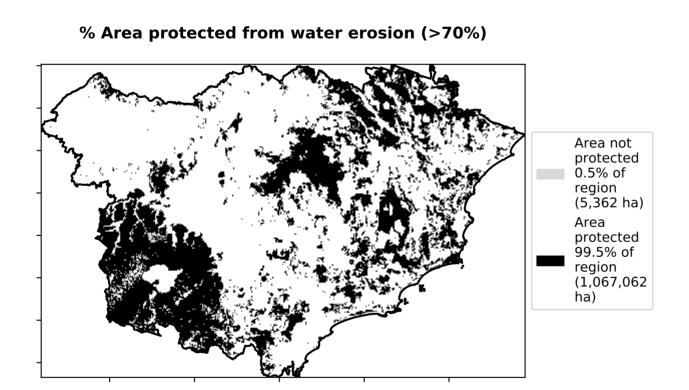


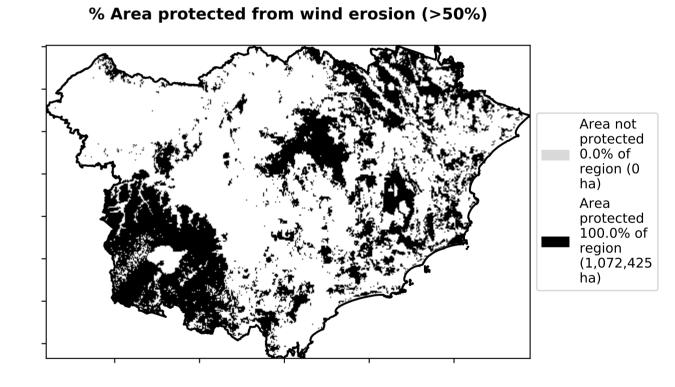


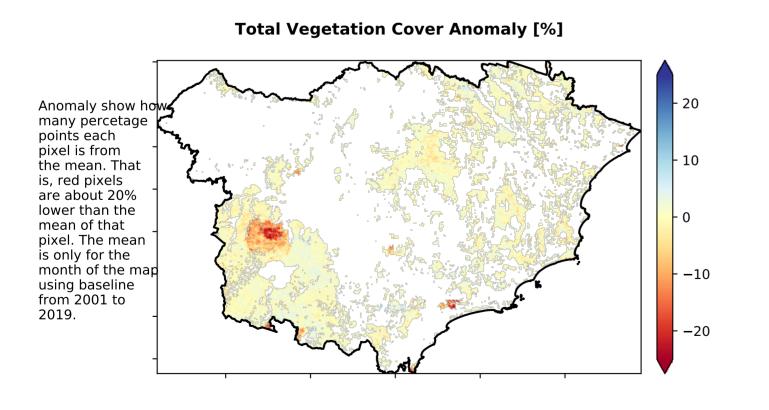
Conservation and natural environments Forest (non woodland)

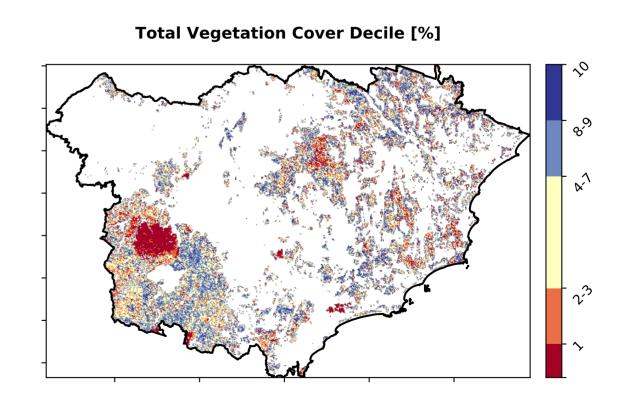
Total Vegetation Cover [%] Total Vegetation Cover [%] Total Vegetation Cover [%]















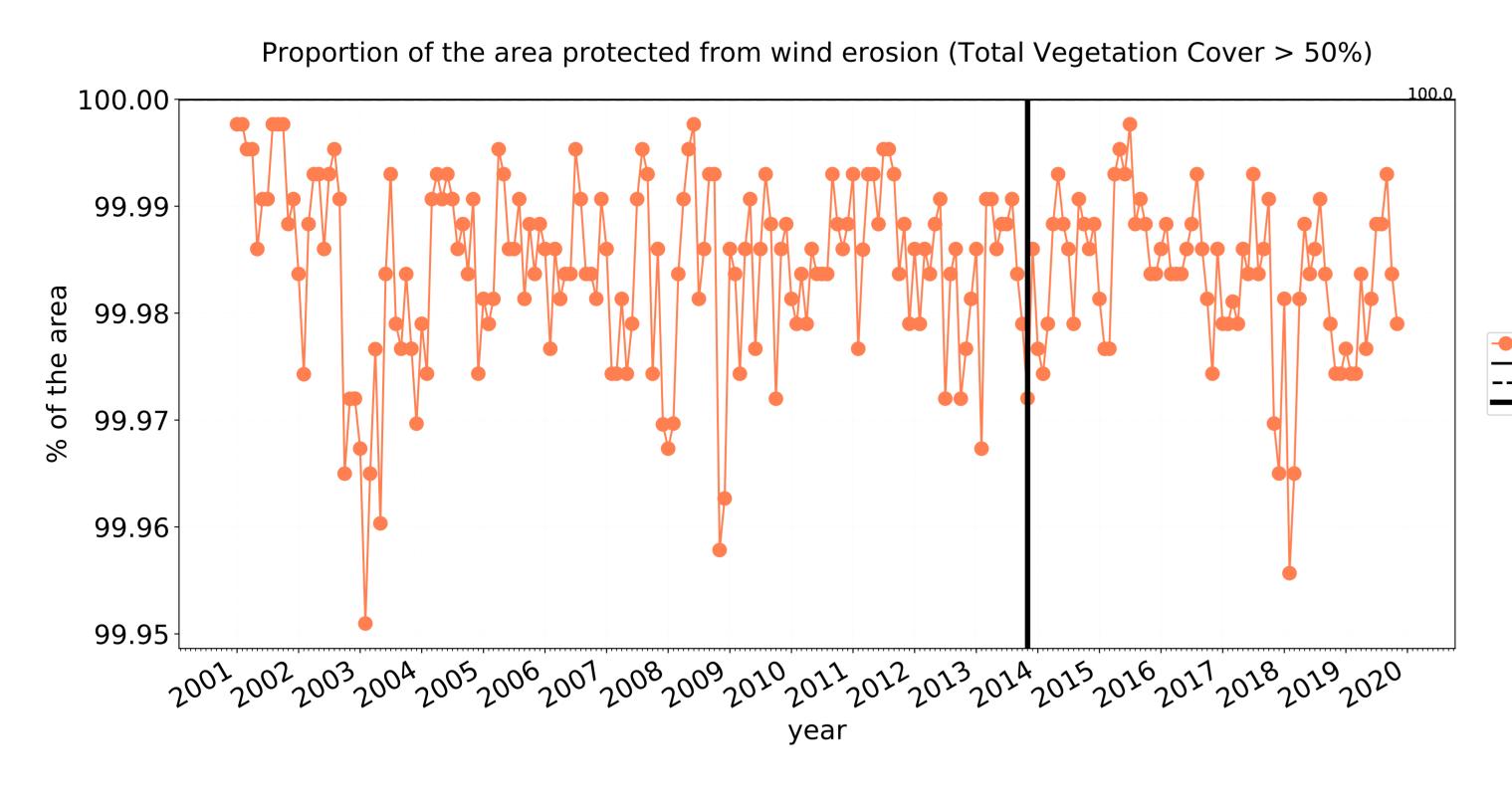


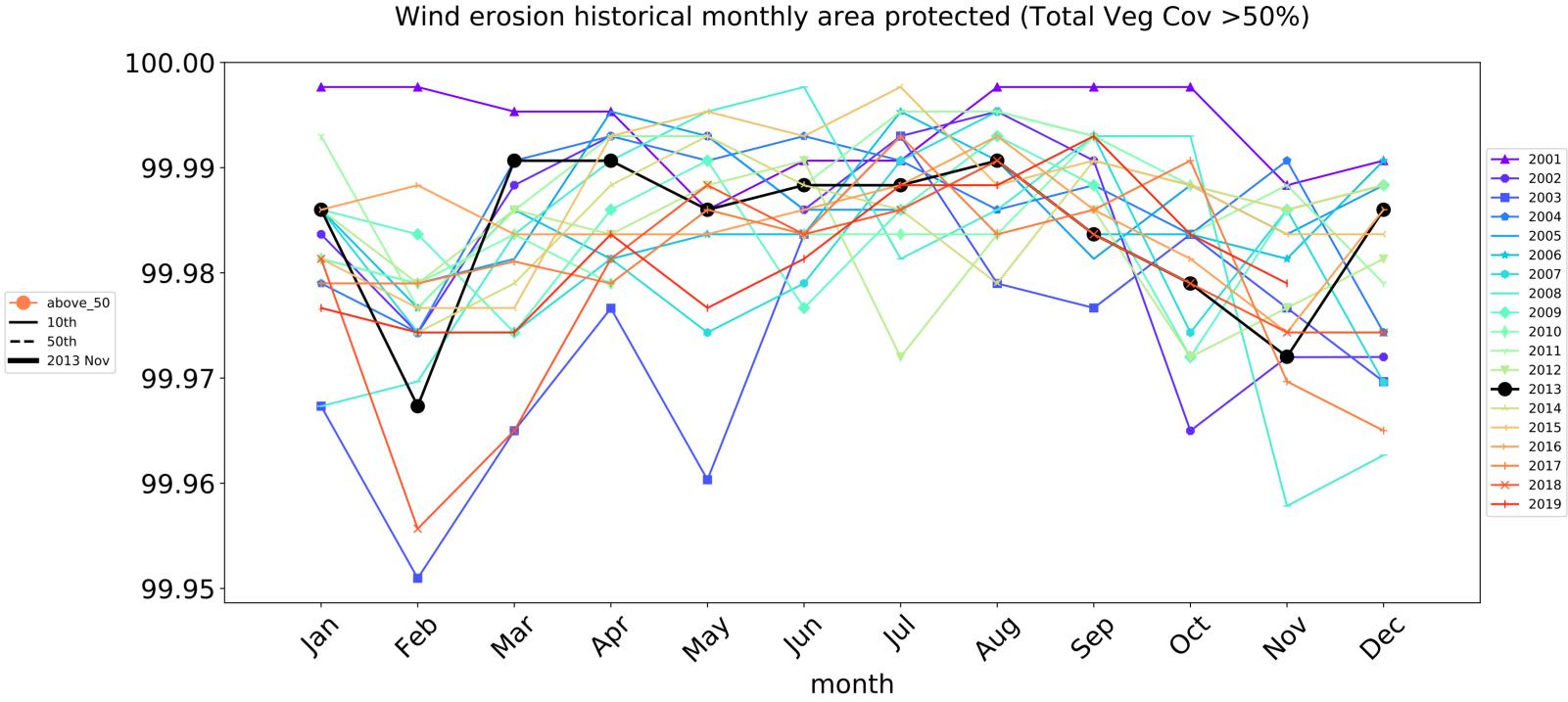


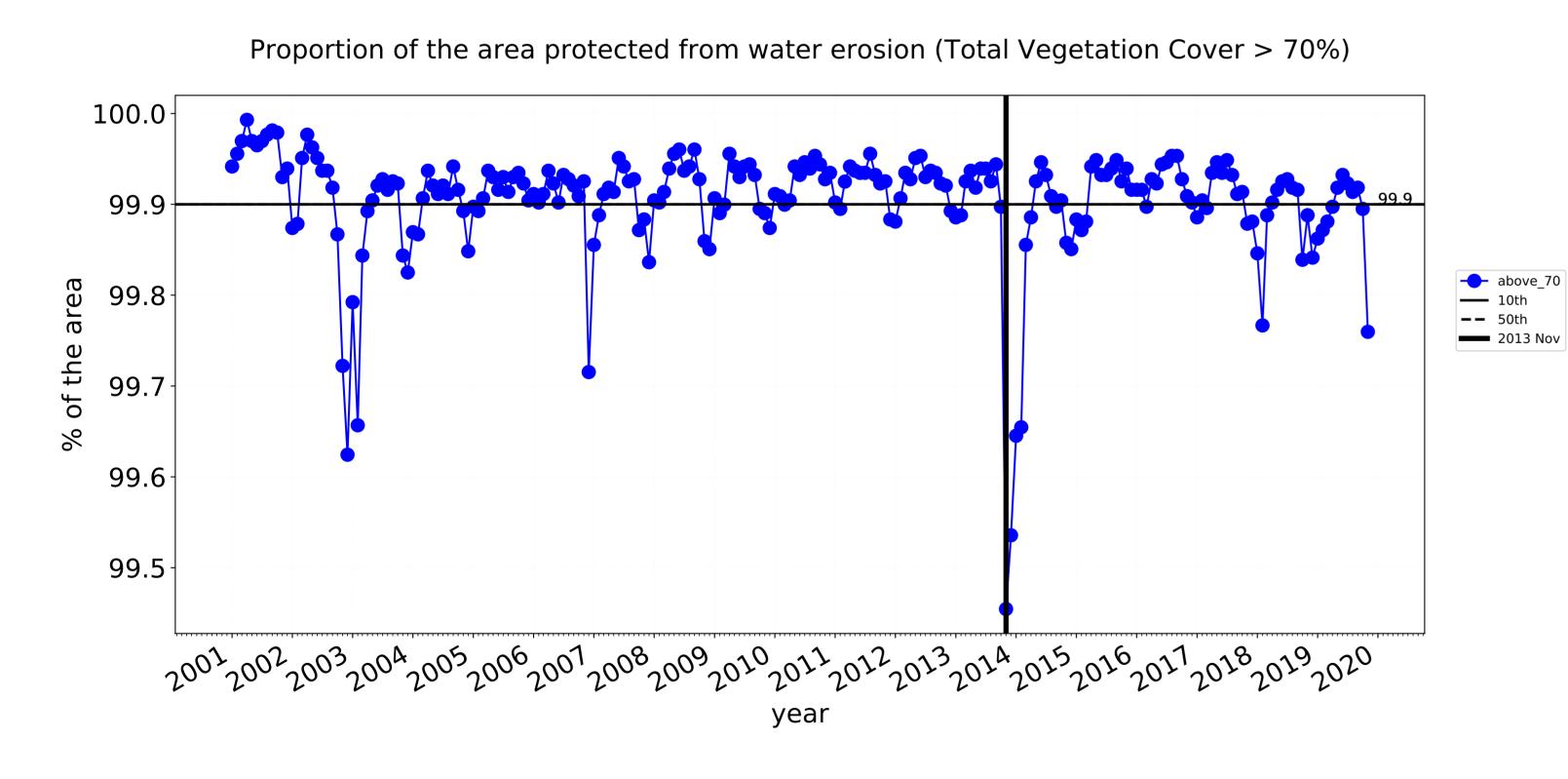


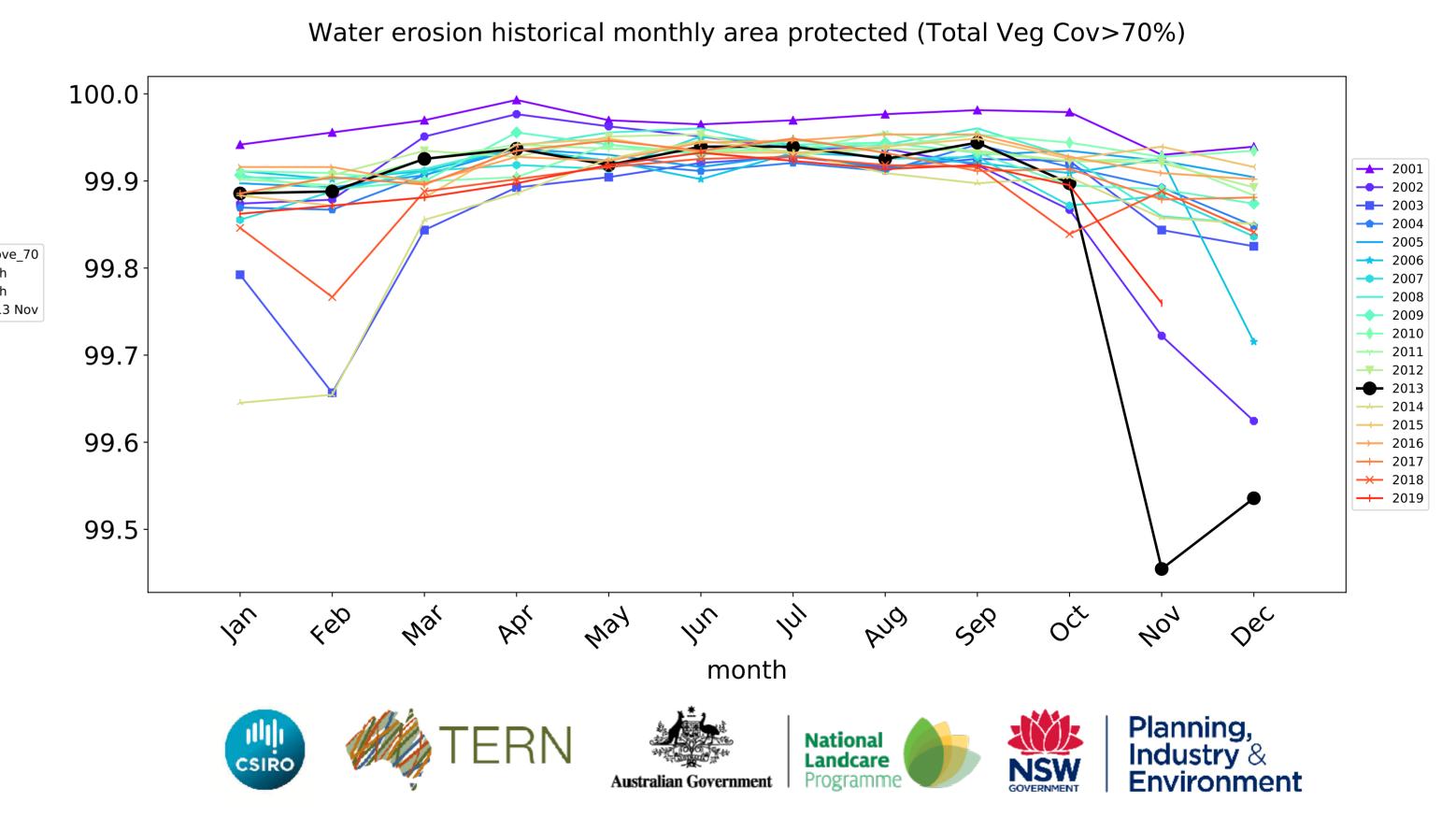


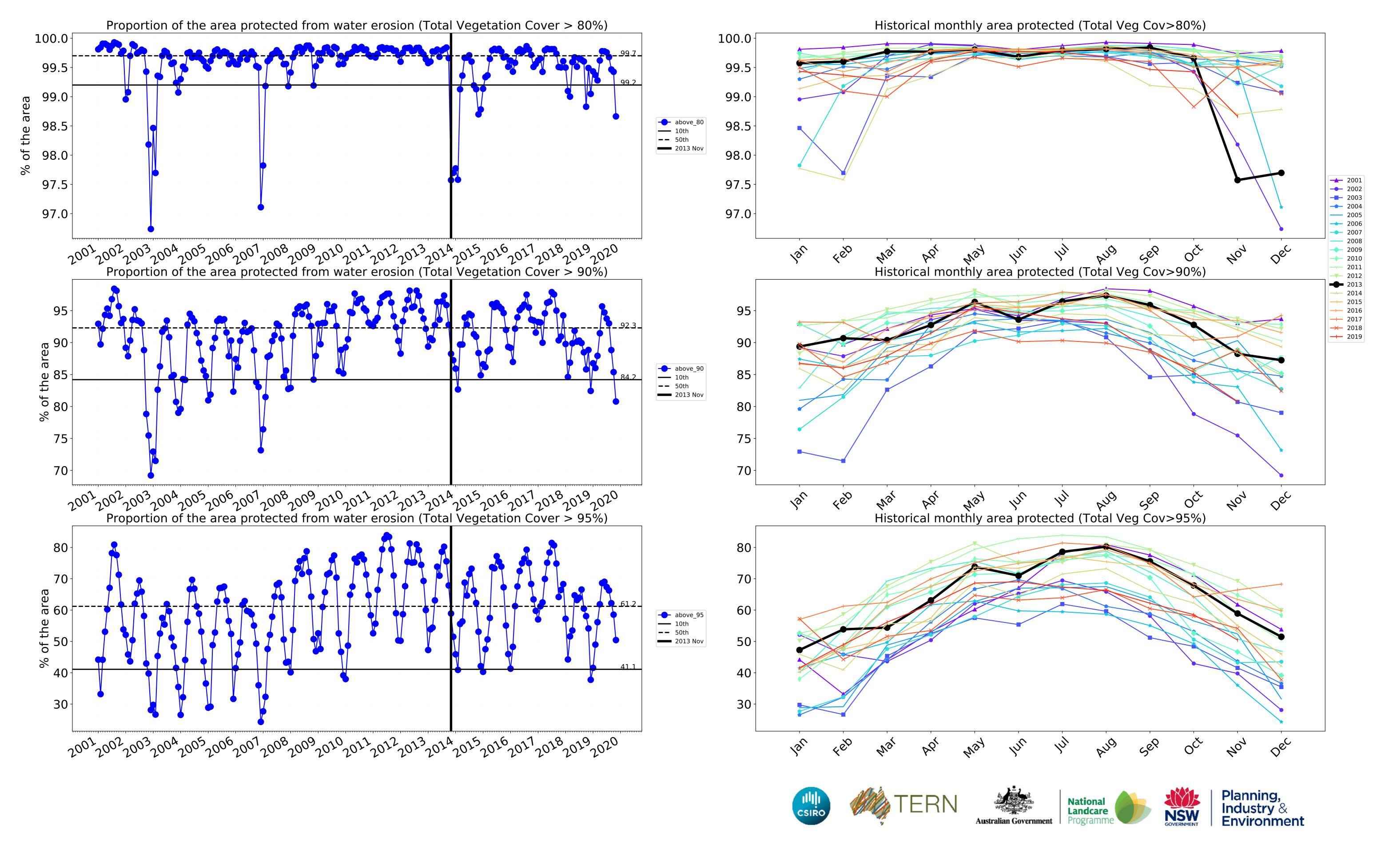
Conservation and natural environments Forest (non woodland) timeseries



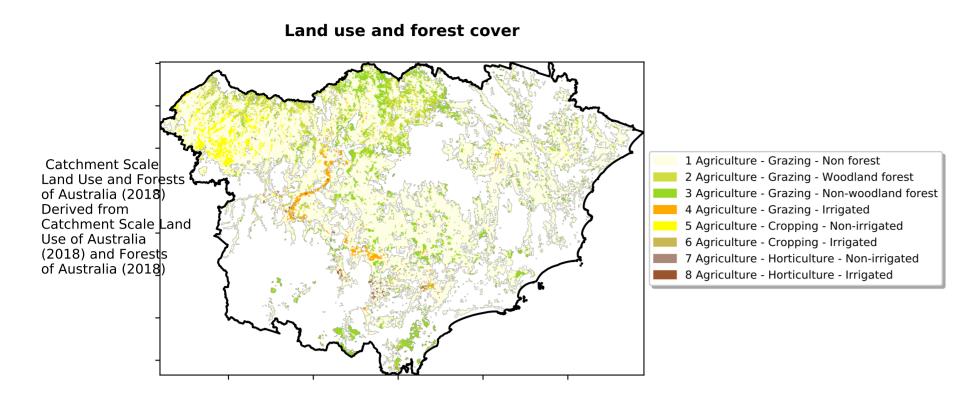


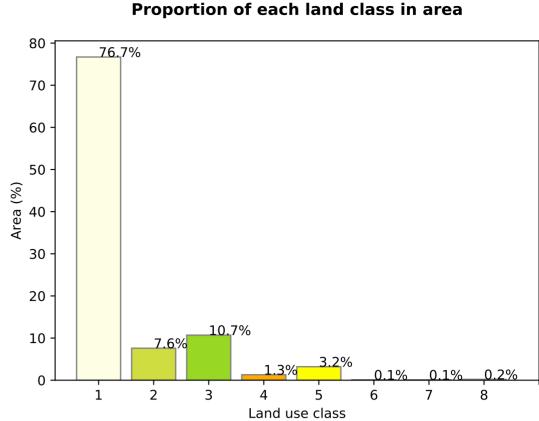




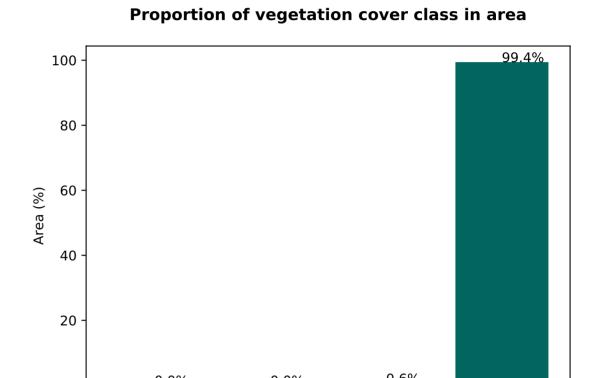


Agriculture



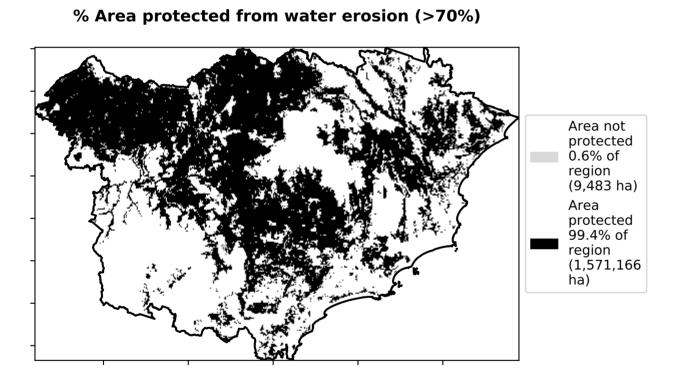


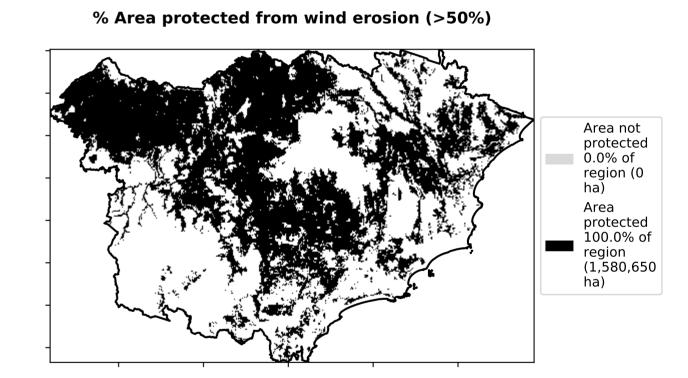
Total Vegetation Cover [%] Total Vegetation Cover [%] Total Vegetation Cover [%]



31%-50%

0-30%

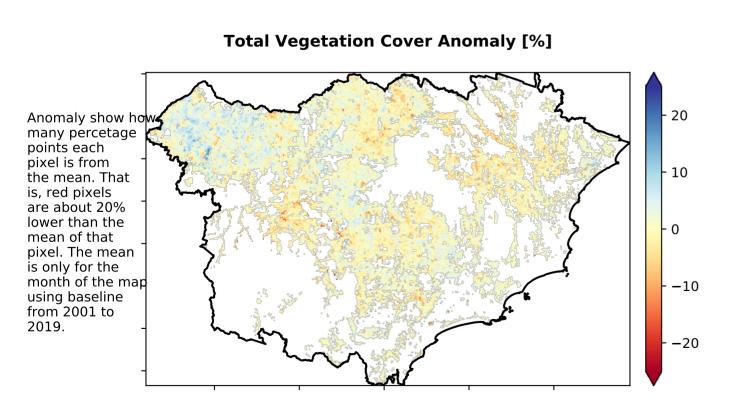


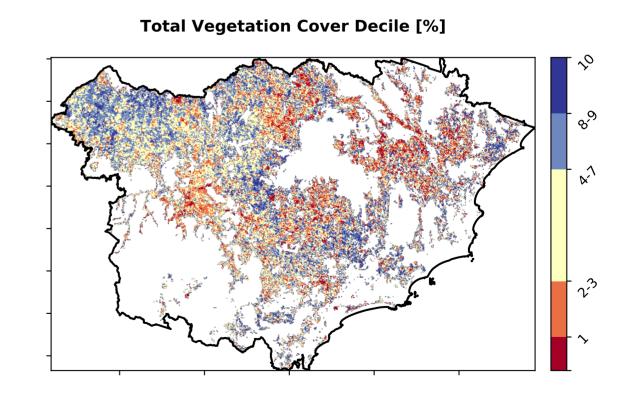


51%-70%

Total Vegetation Cover class

71%-100%









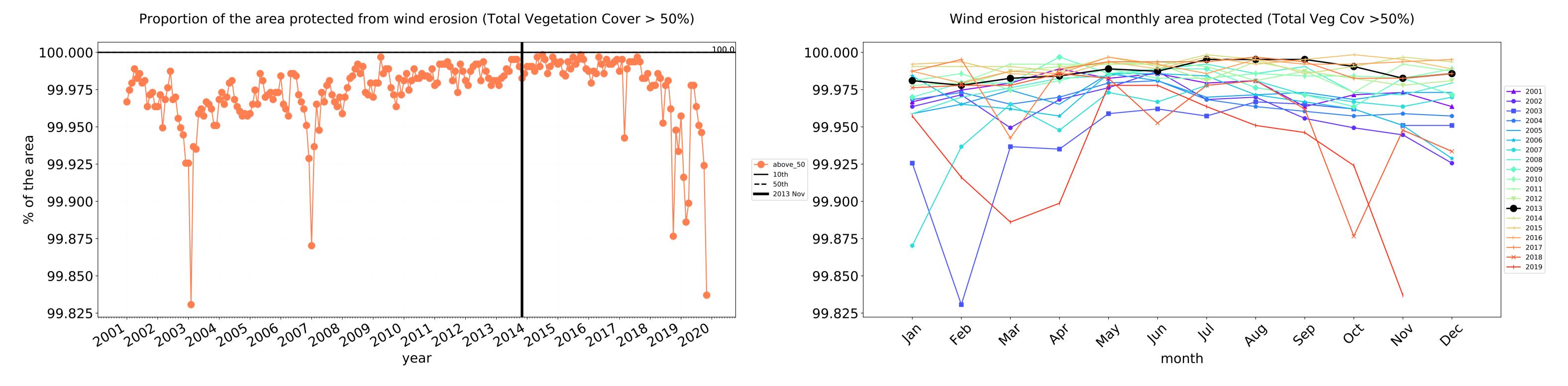


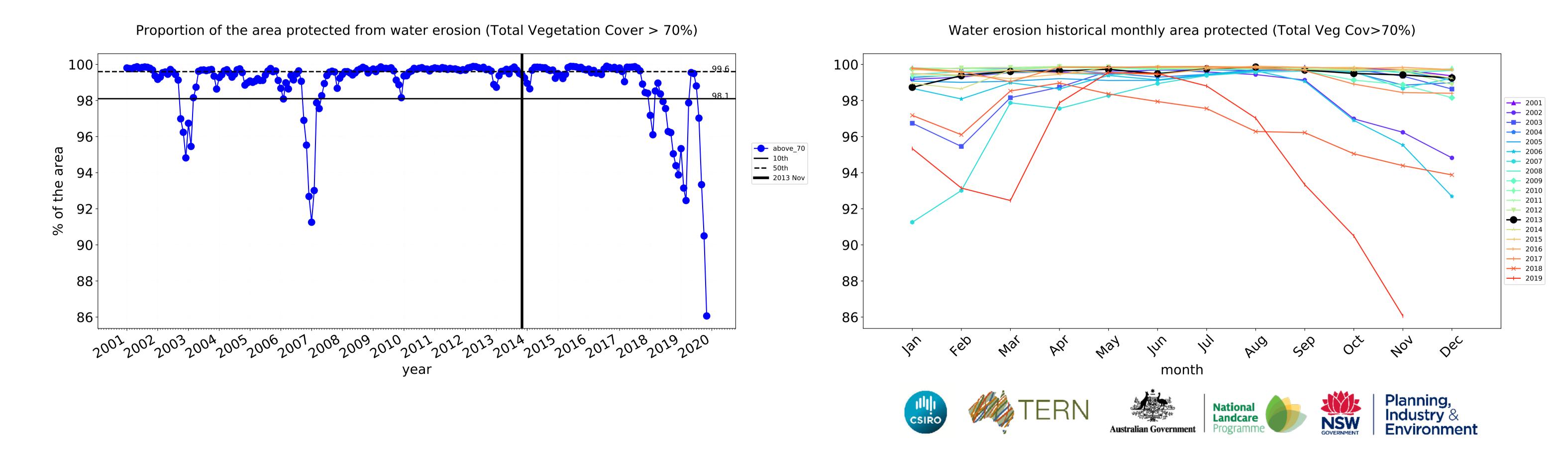


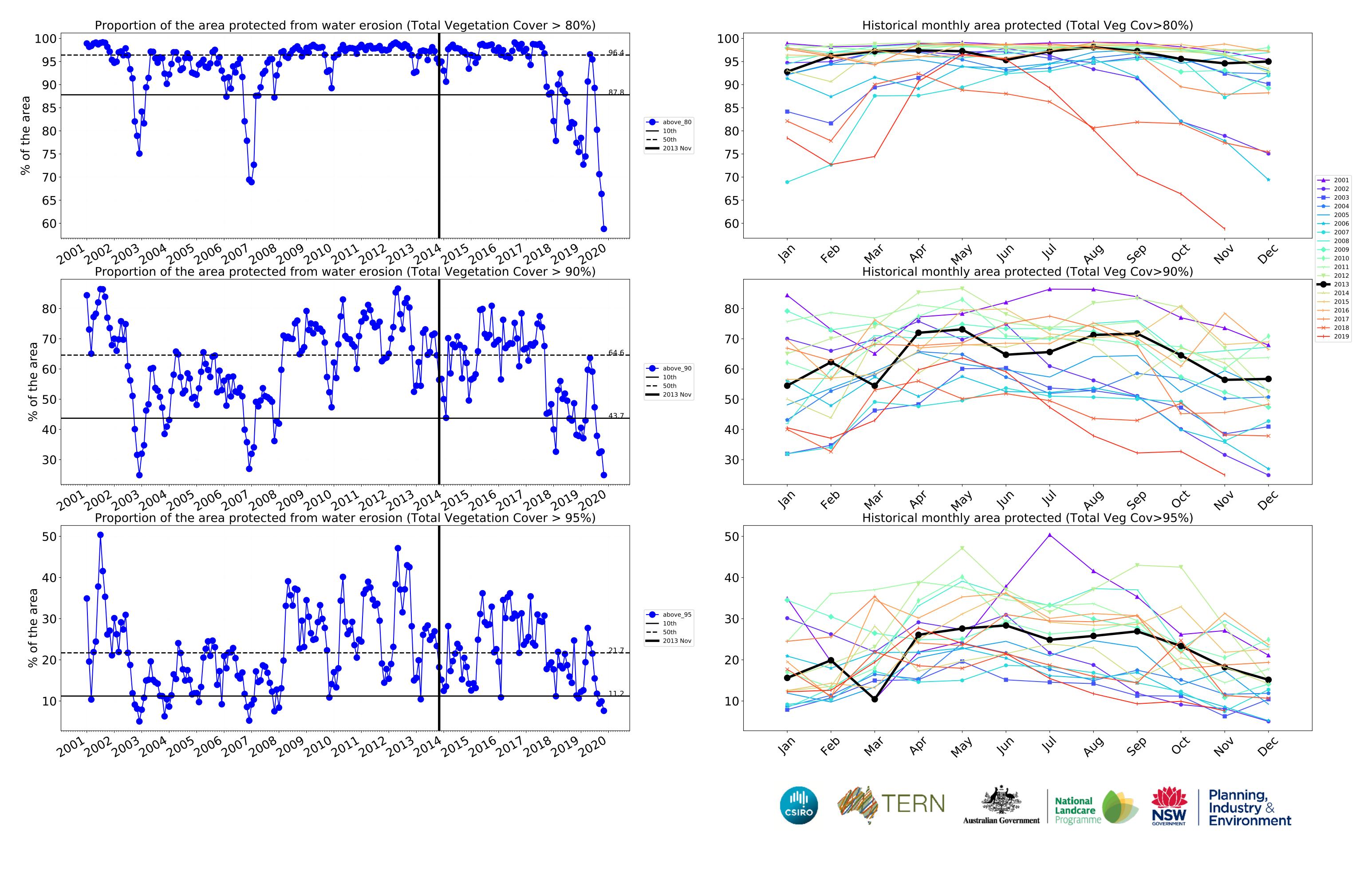




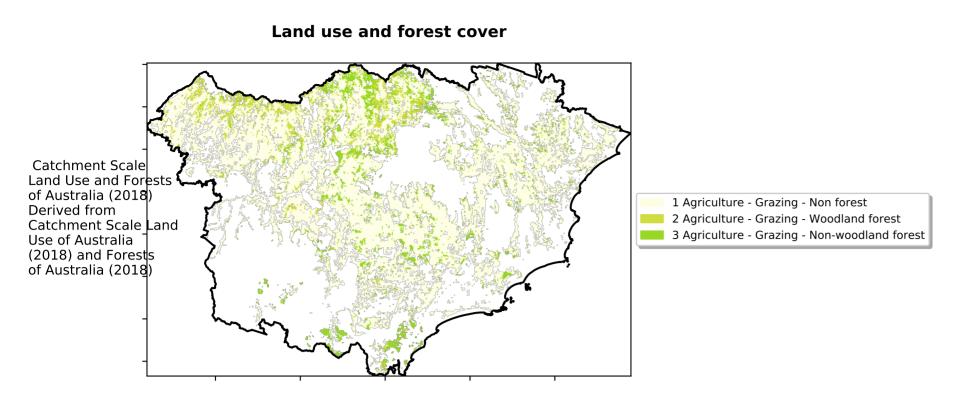
Agriculture timeseries



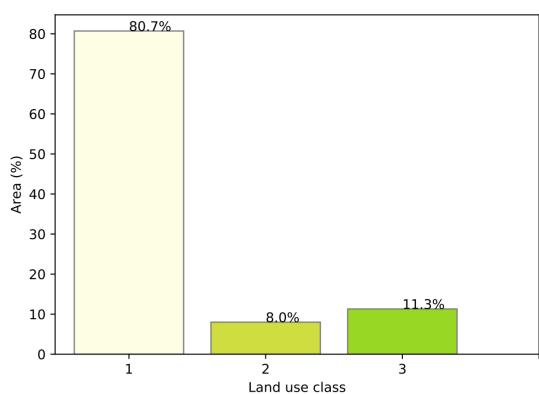




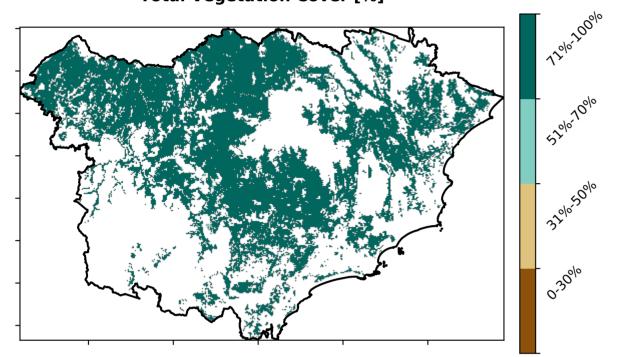
Grazing



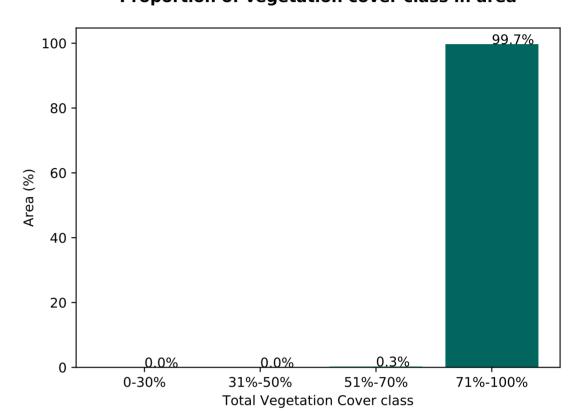
Proportion of each land class in area



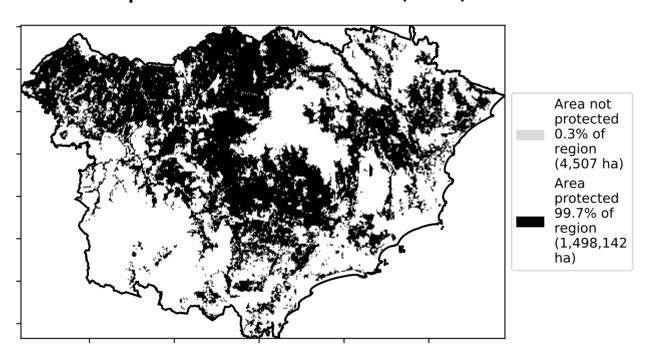
Total Vegetation Cover [%]



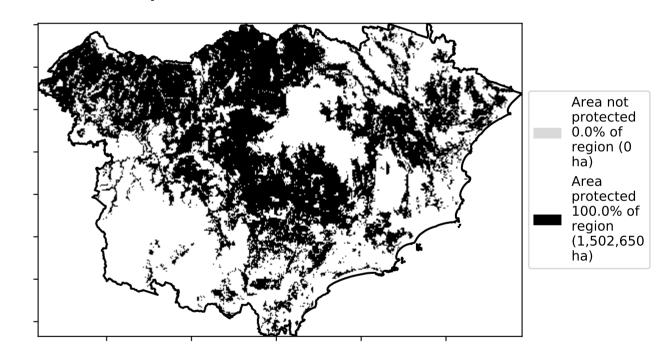
Proportion of vegetation cover class in area



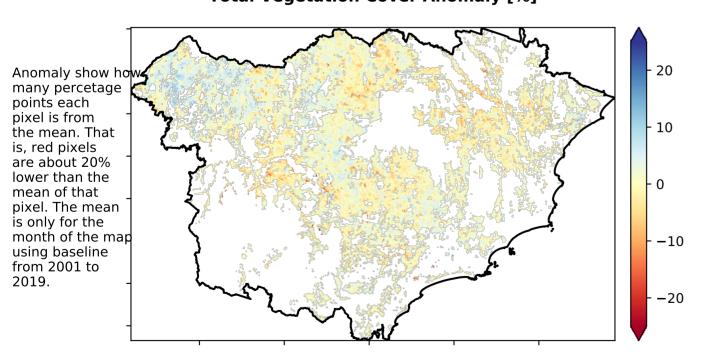
% Area protected from water erosion (>70%)

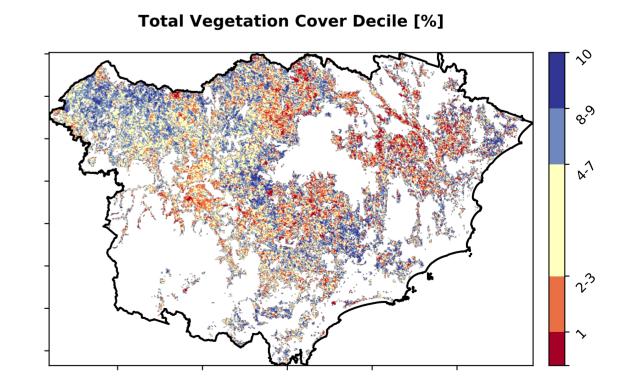


% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]









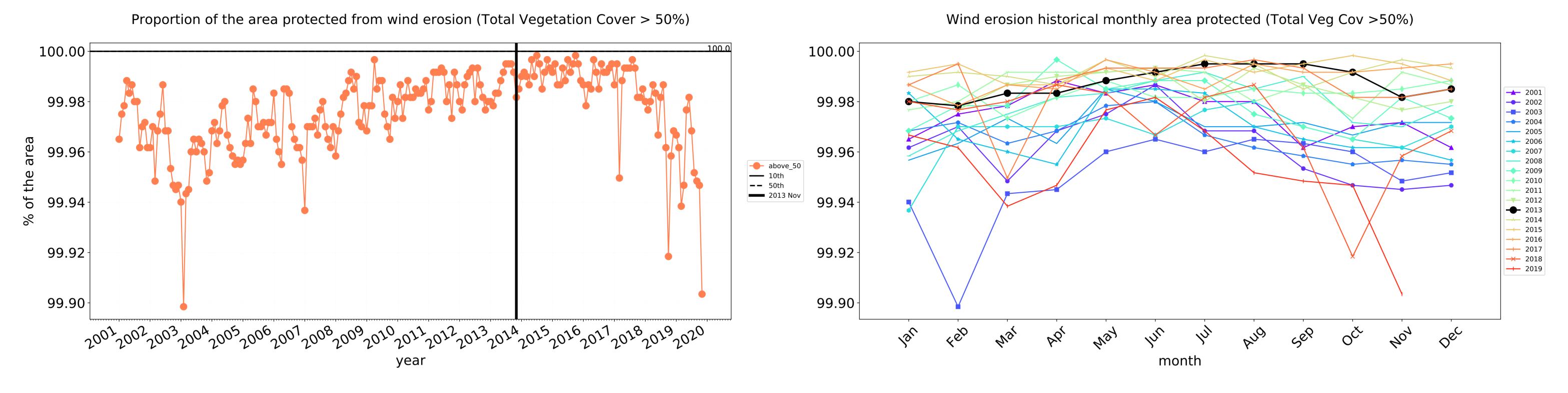


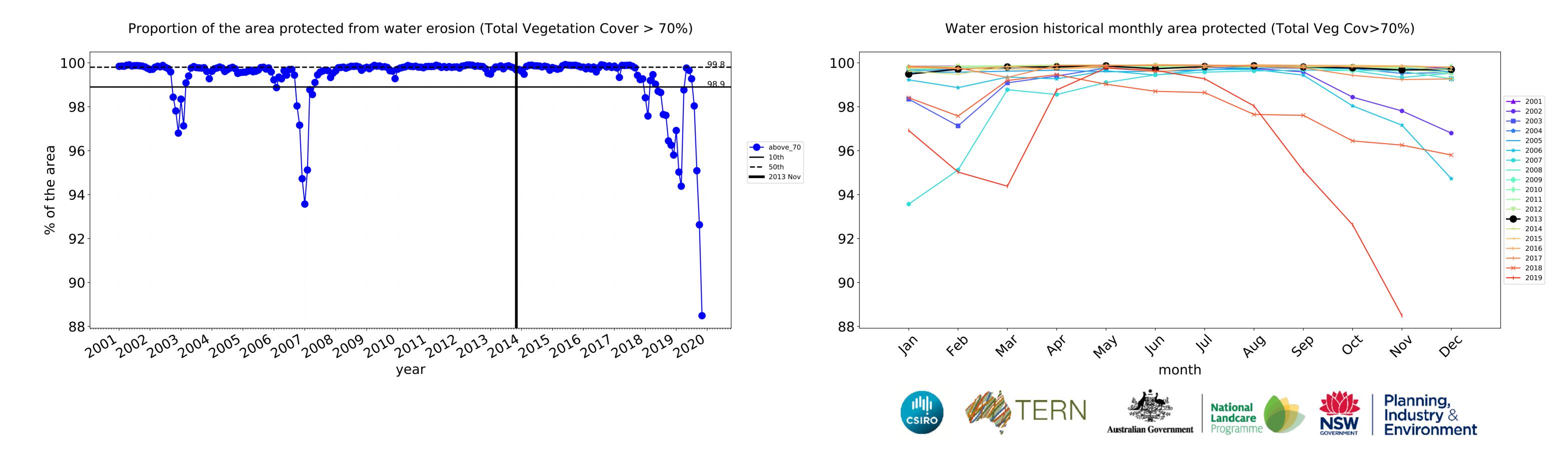


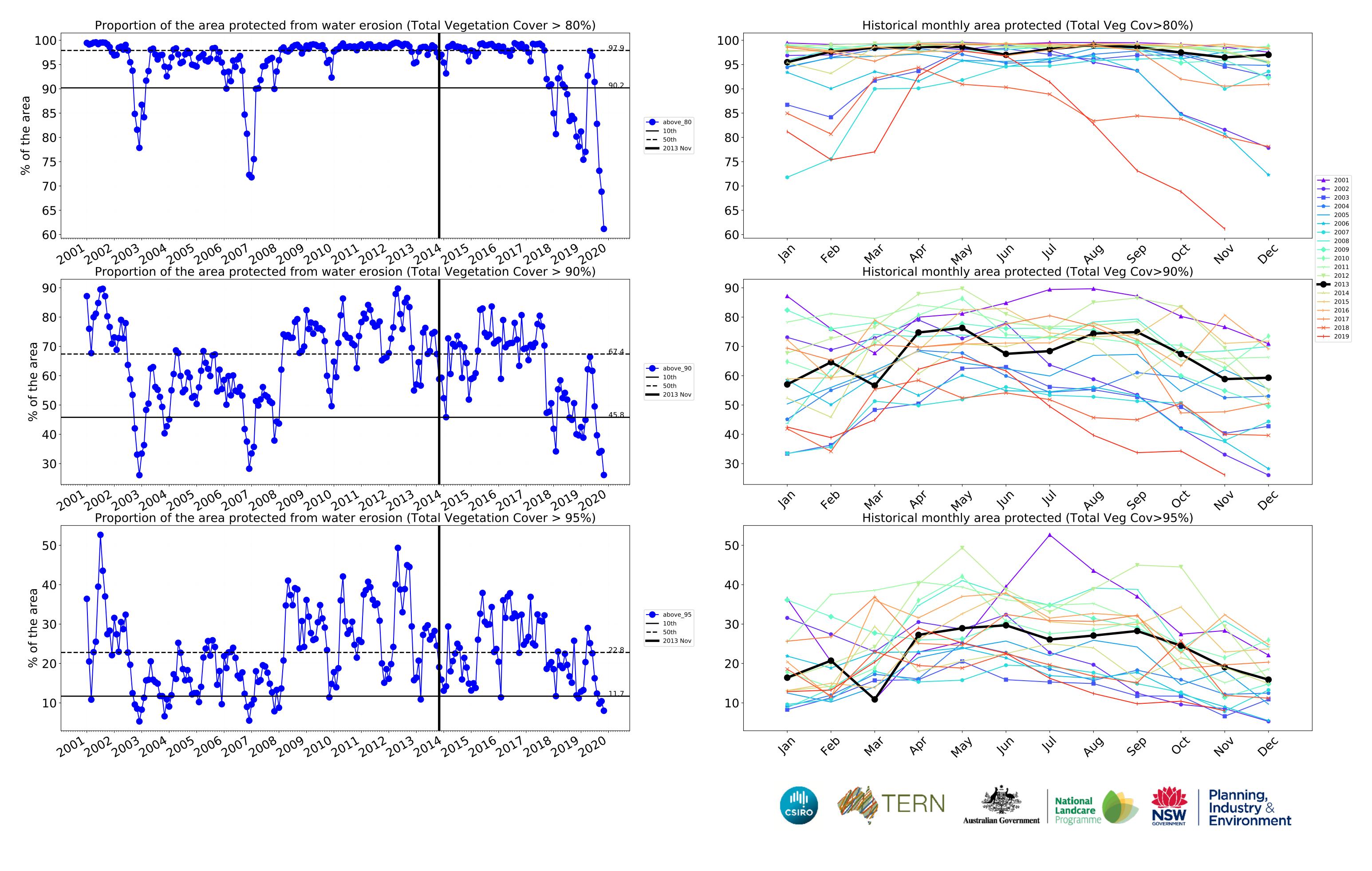




Grazing timeseries

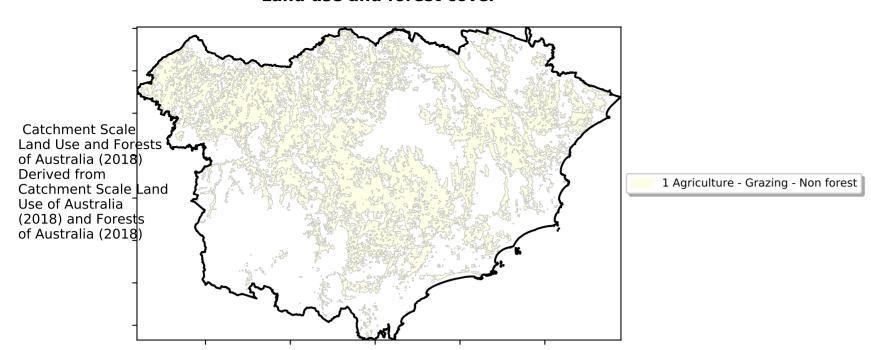




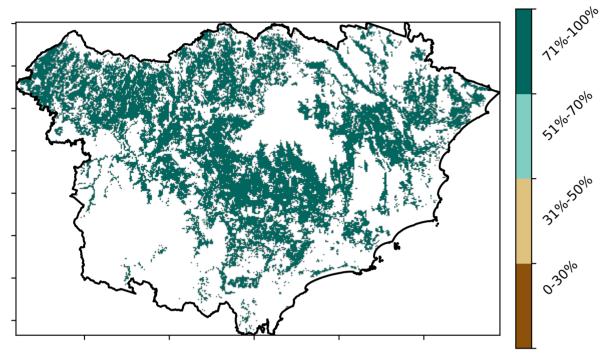


Grazing non forest

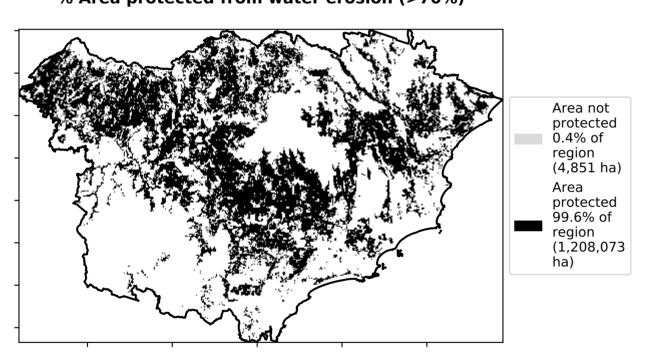
Land use and forest cover



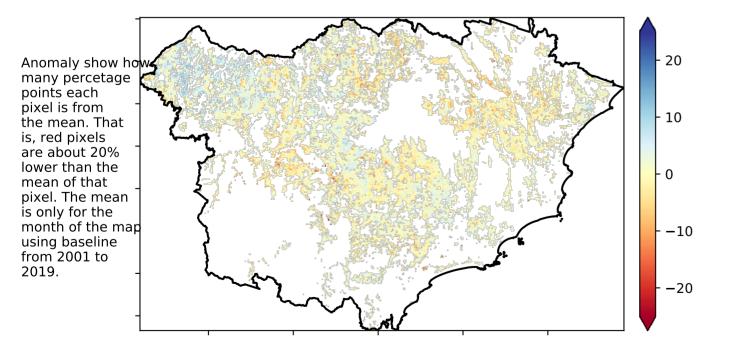
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

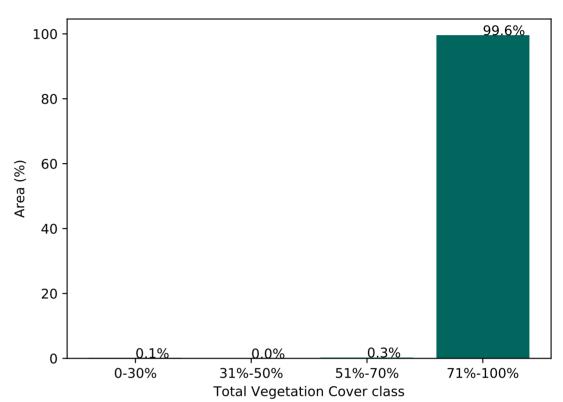


Total Vegetation Cover Anomaly [%]

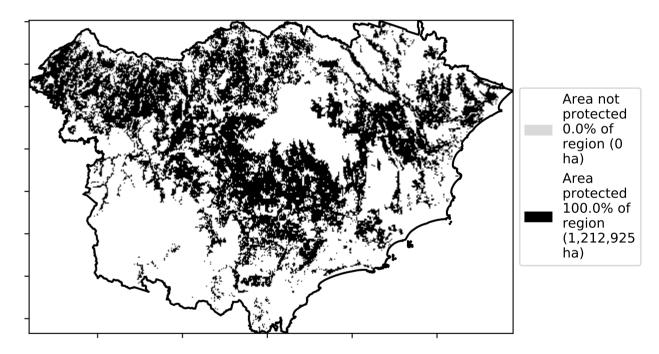


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

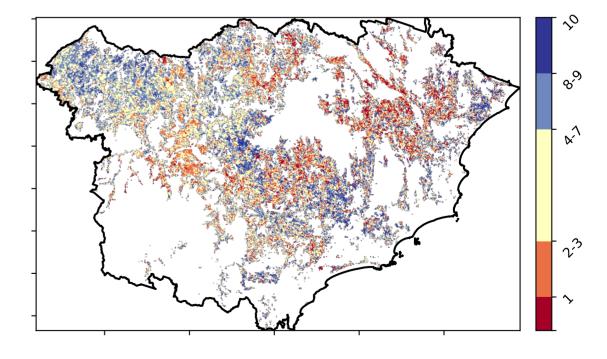
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







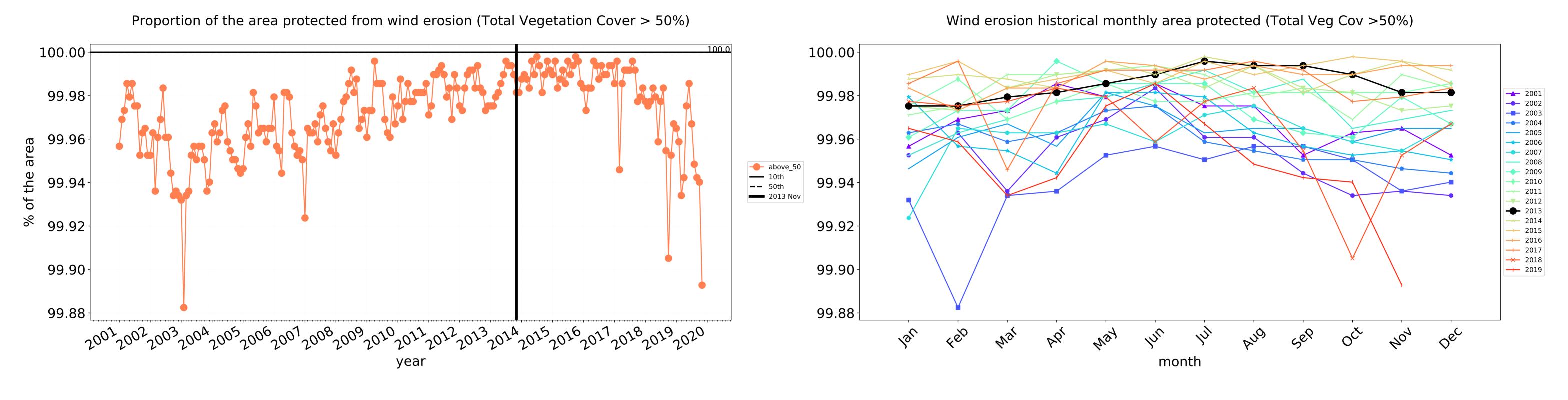


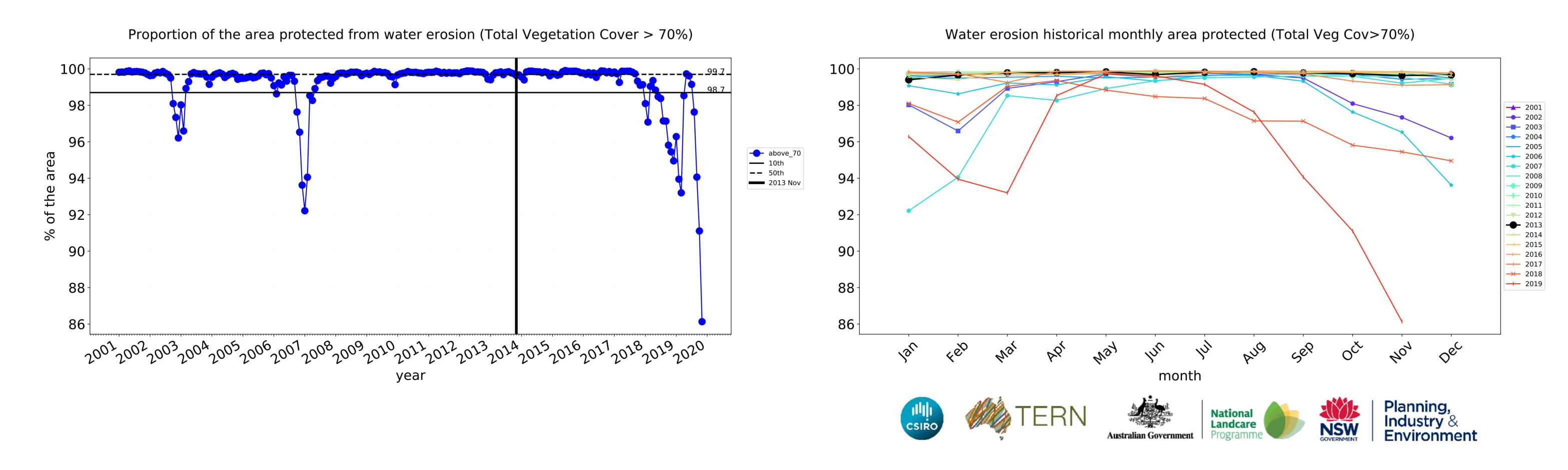


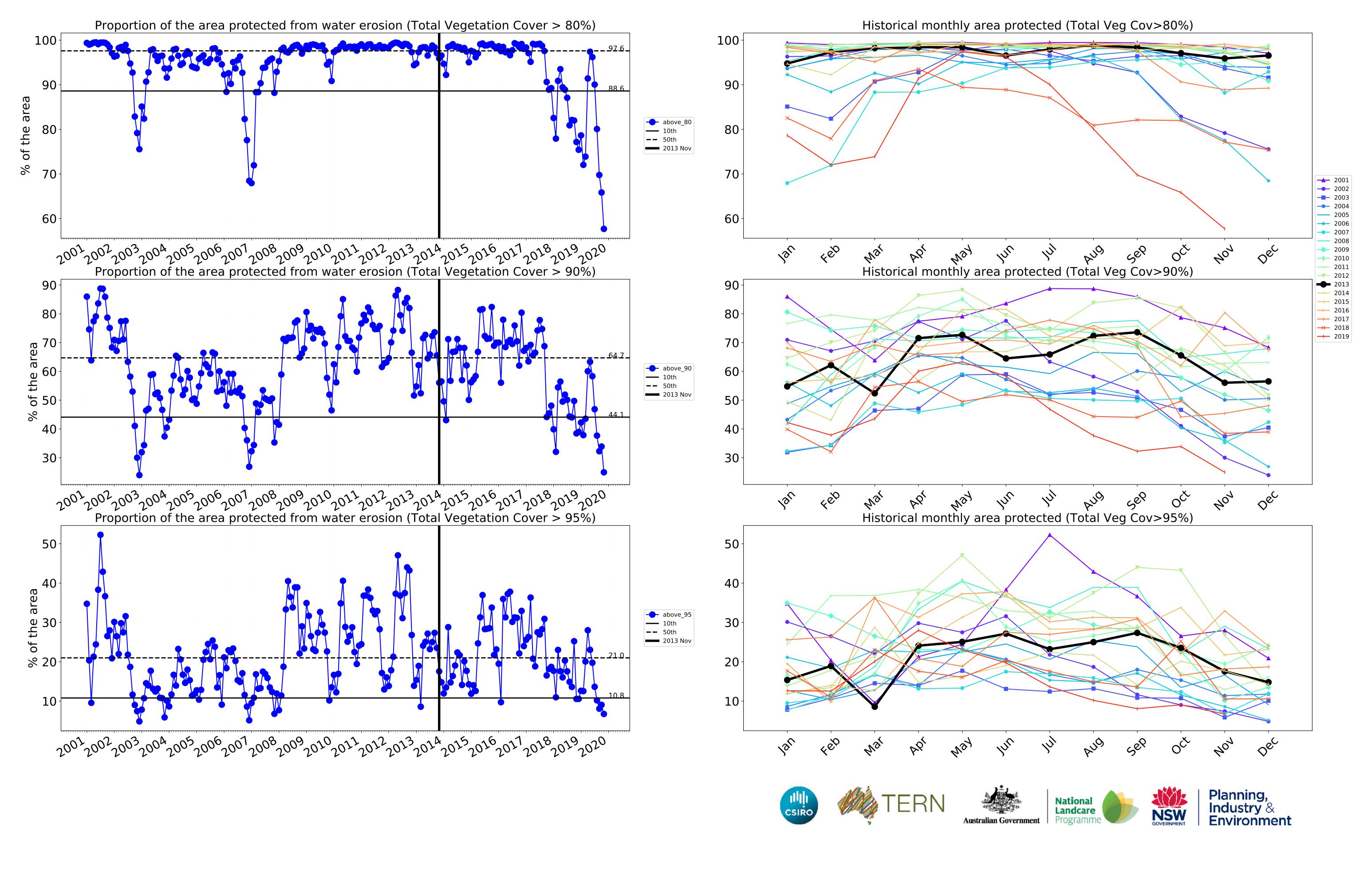




Grazing non forest timeseries







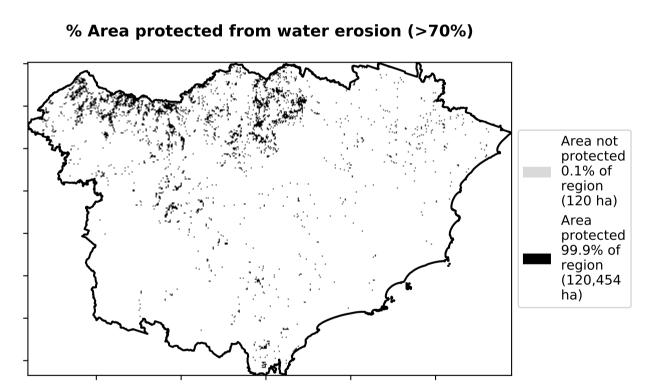
Grazing Woodland forest

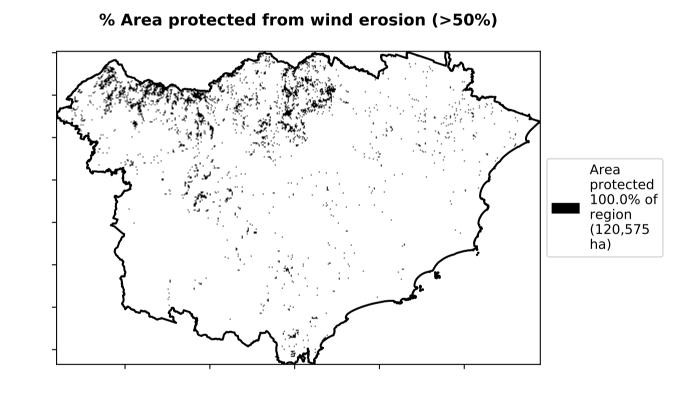
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Use of Australia (2018) 1 Agriculture - Grazing - Woodland forest of Australia (2018)

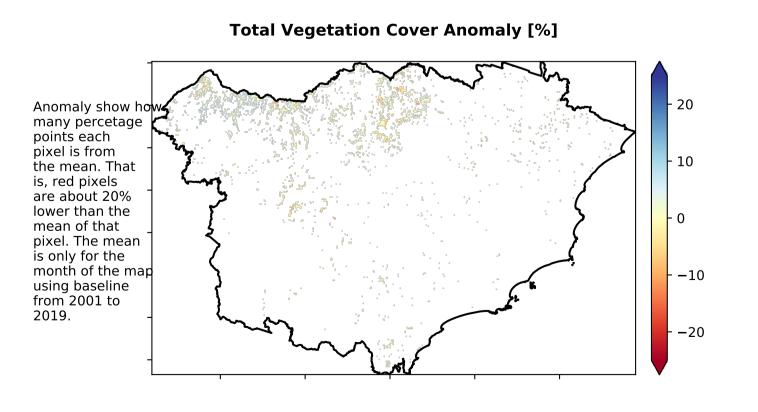
Total Vegetation Cover [%]

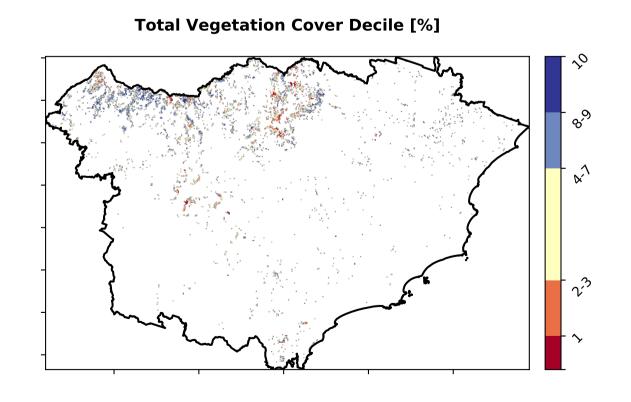
100 - 99.9% 80 - 99.9% 40 - 20 - 0.0% 0.0% 0.1% 0-30% 31%-50% 51%-70% Total Vegetation Cover class

Proportion of vegetation cover class in area













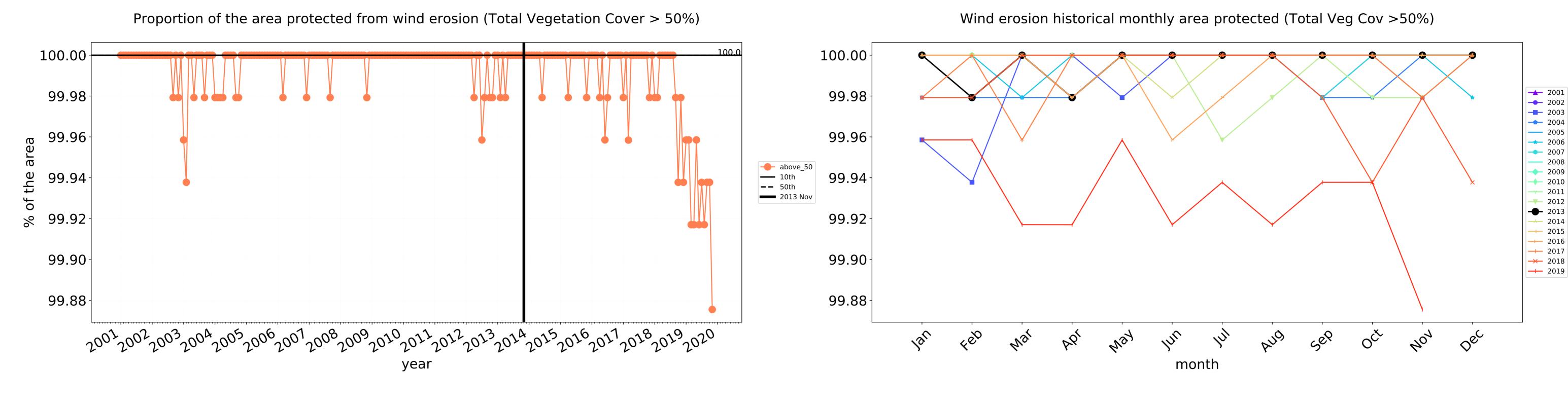


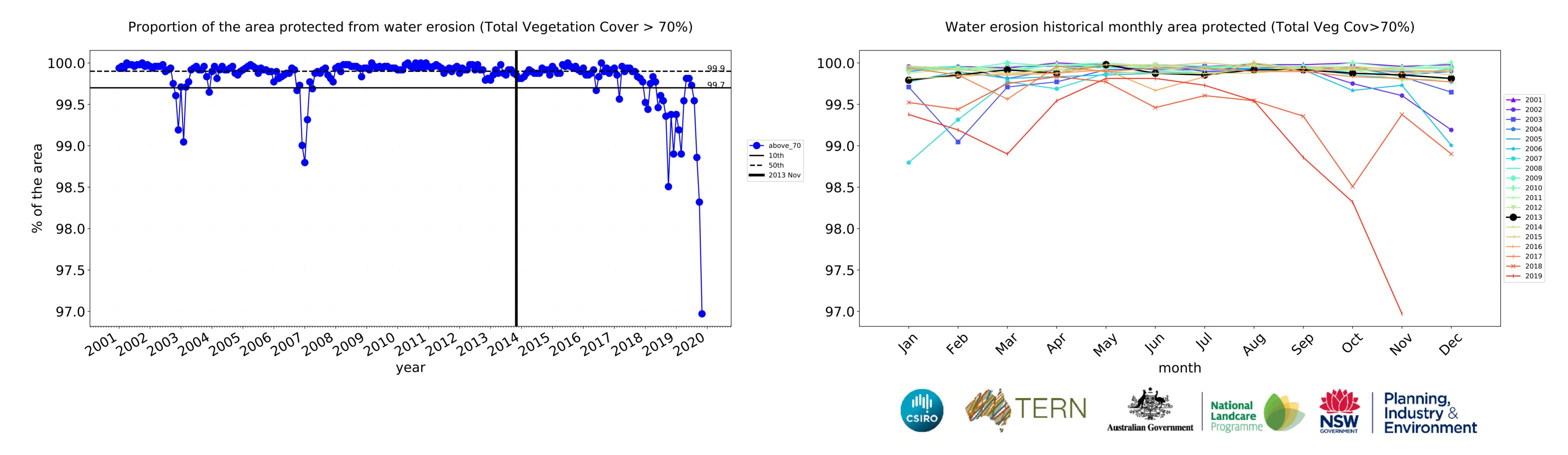


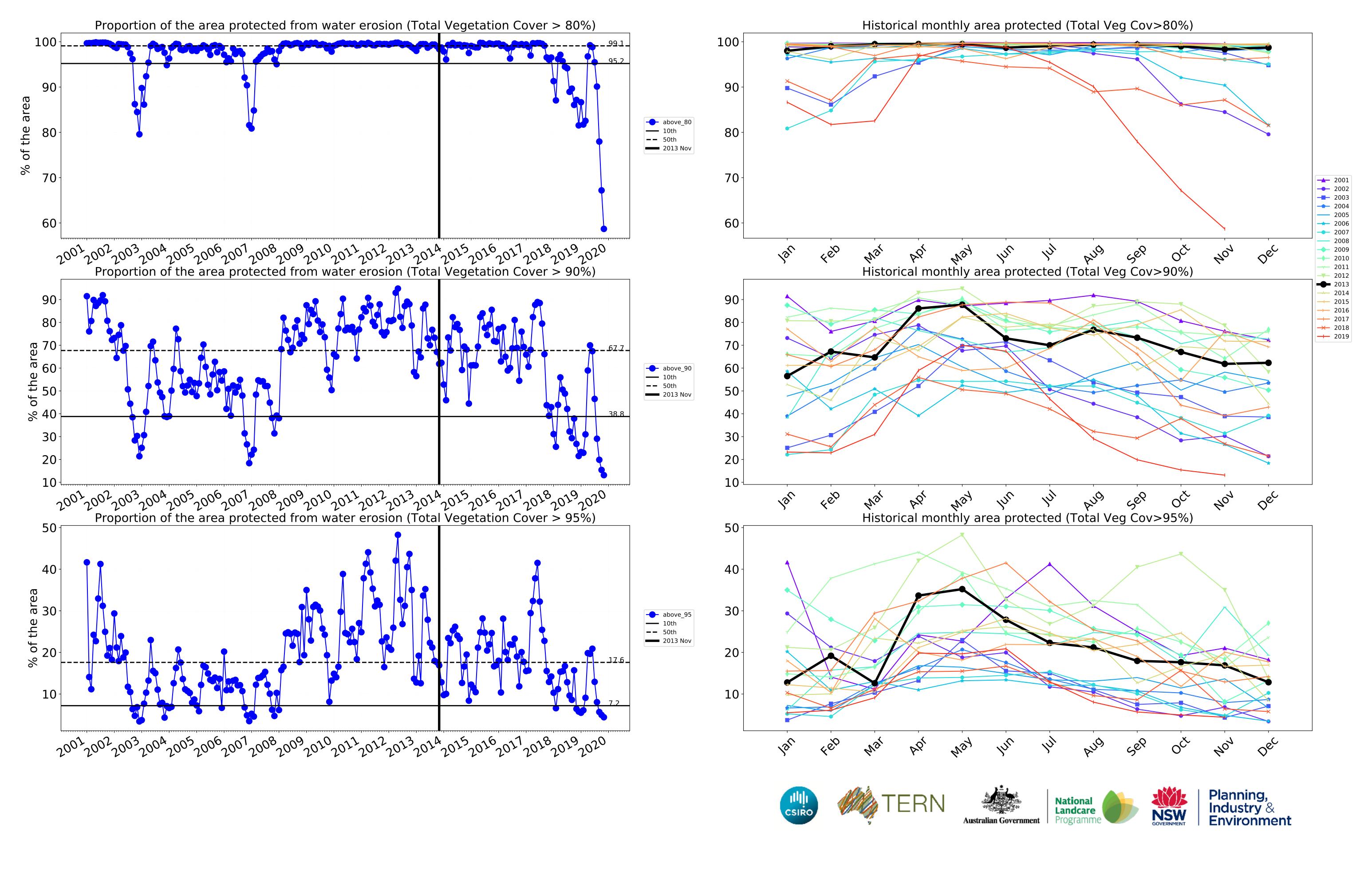




Grazing Woodland forest timeseries





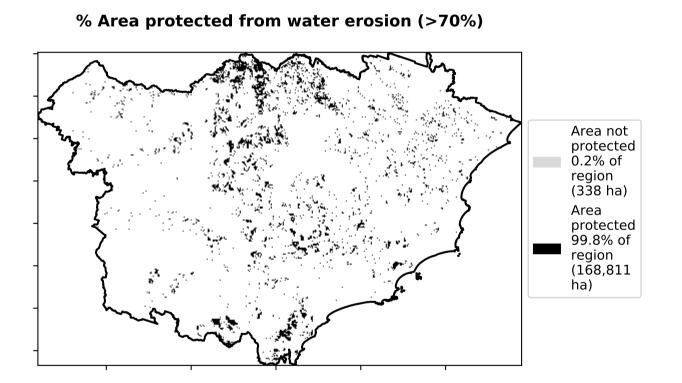


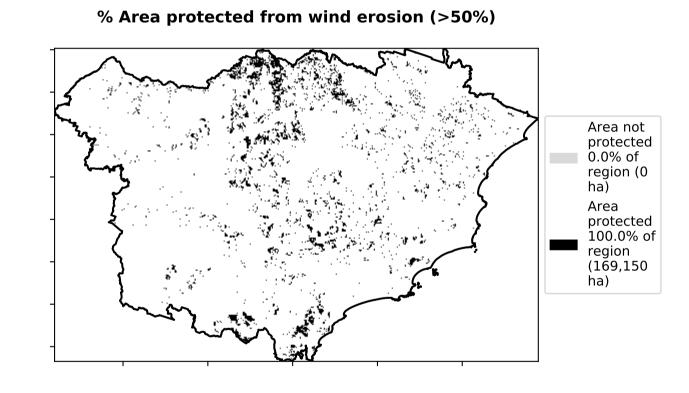
Grazing - Forest (non woodland)

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

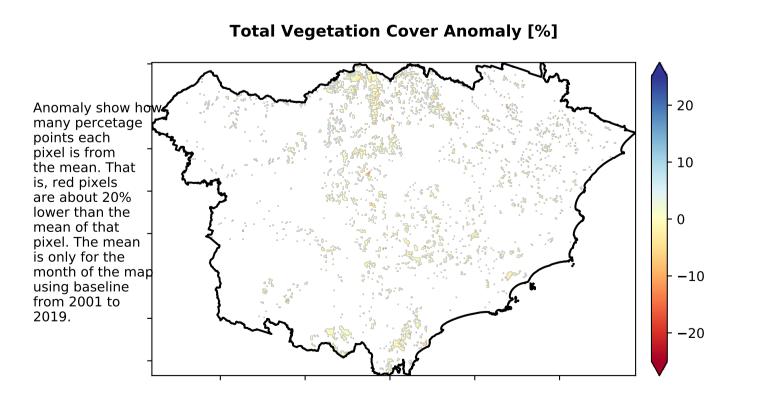
Total Vegetation Cover [%] Total Vegetation Cover [%] Total Vegetation Cover [%]

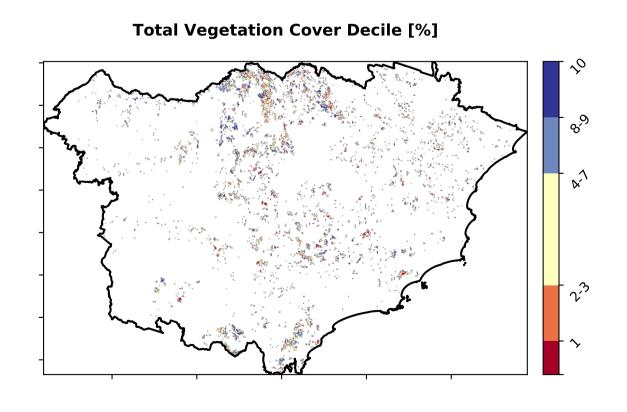
Tuels to dele Tuels





Proportion of vegetation cover class in area







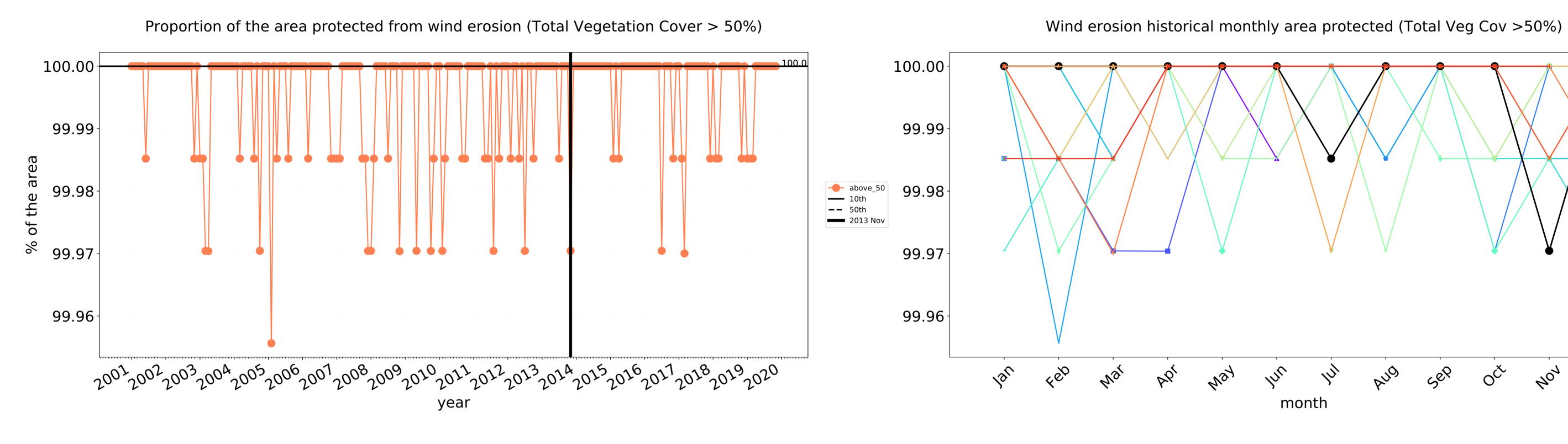


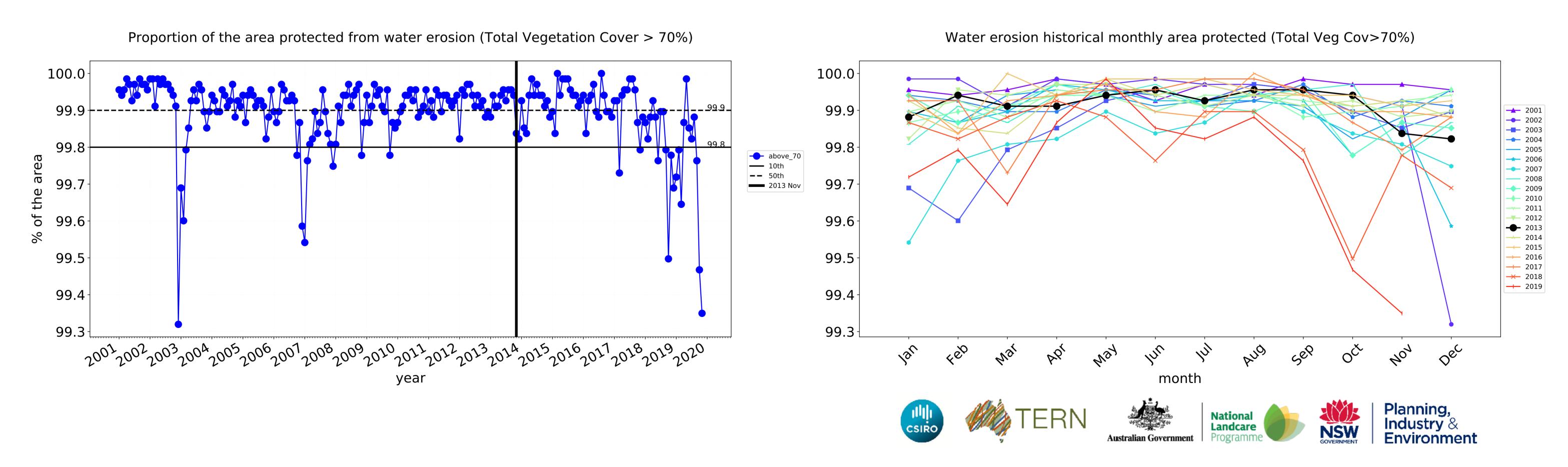












2001 2002

2009

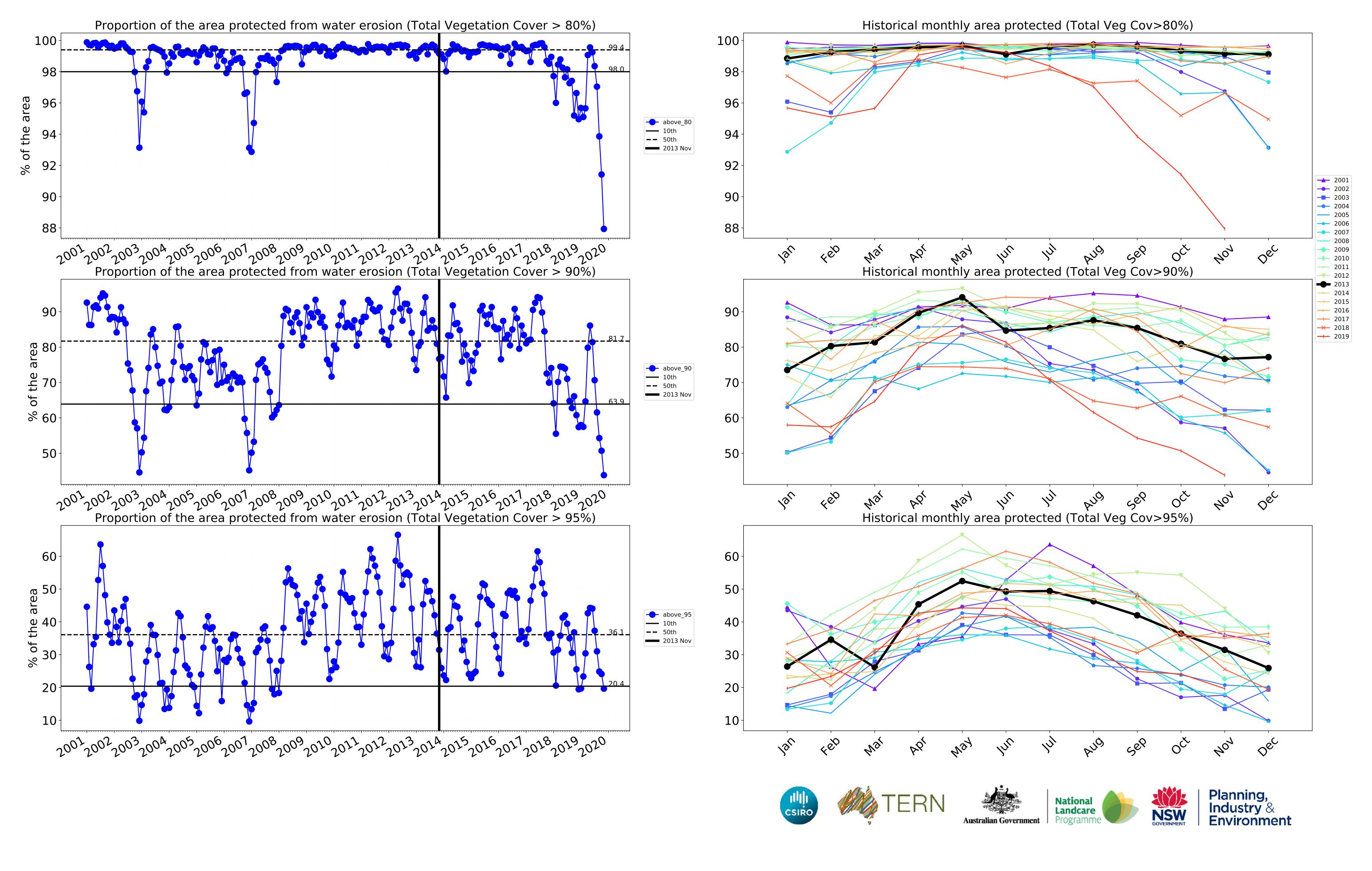
2011

2012 2013 2014

← 2015

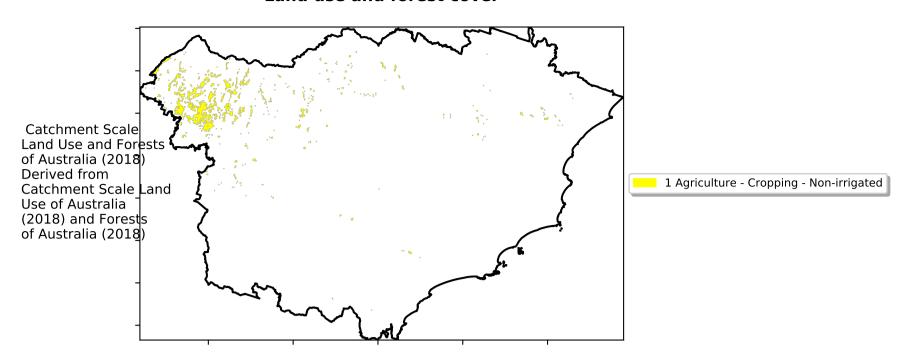
→ 2016 → 2017 → 2018

→ 2019

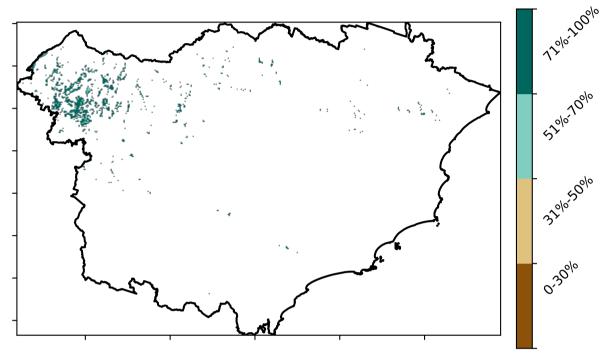


Cropping

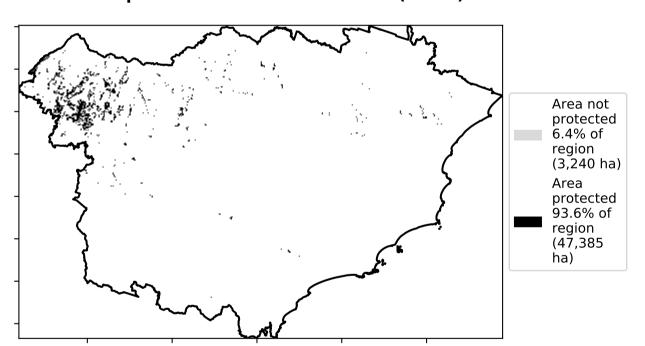
Land use and forest cover



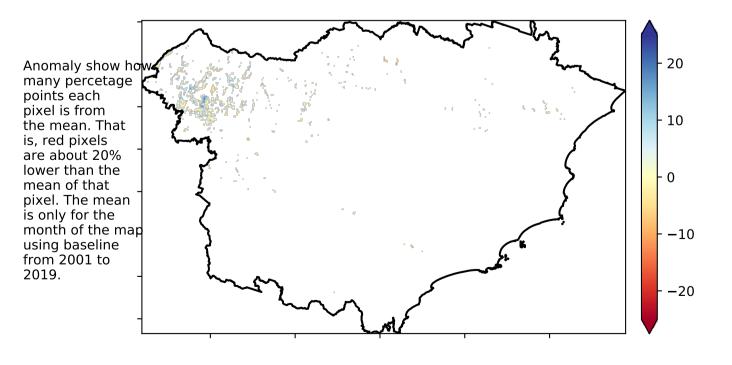
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

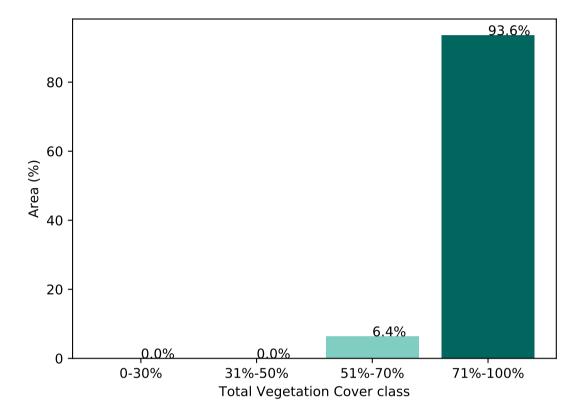


Total Vegetation Cover Anomaly [%]

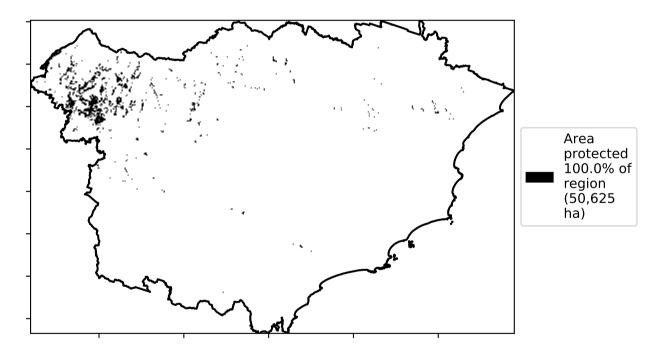


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

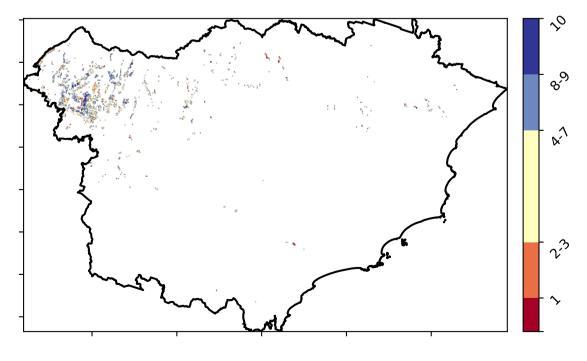
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







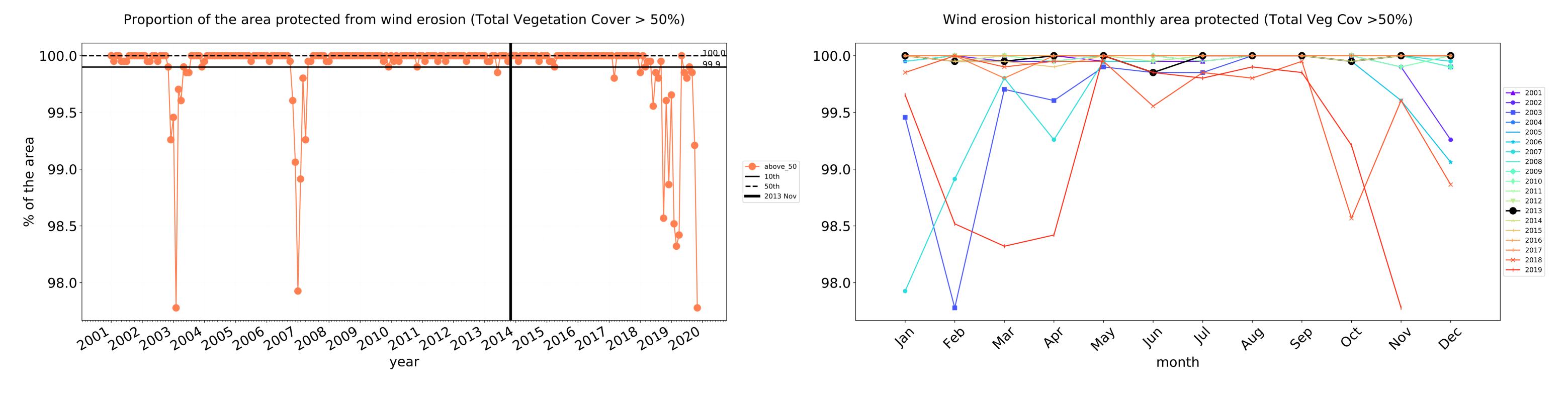


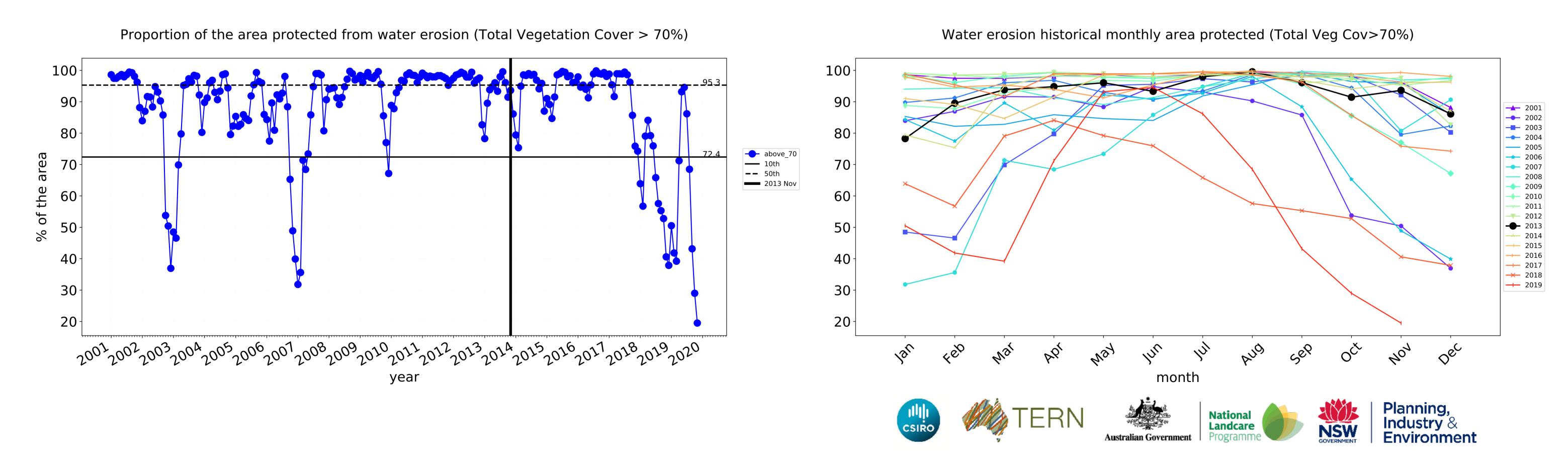


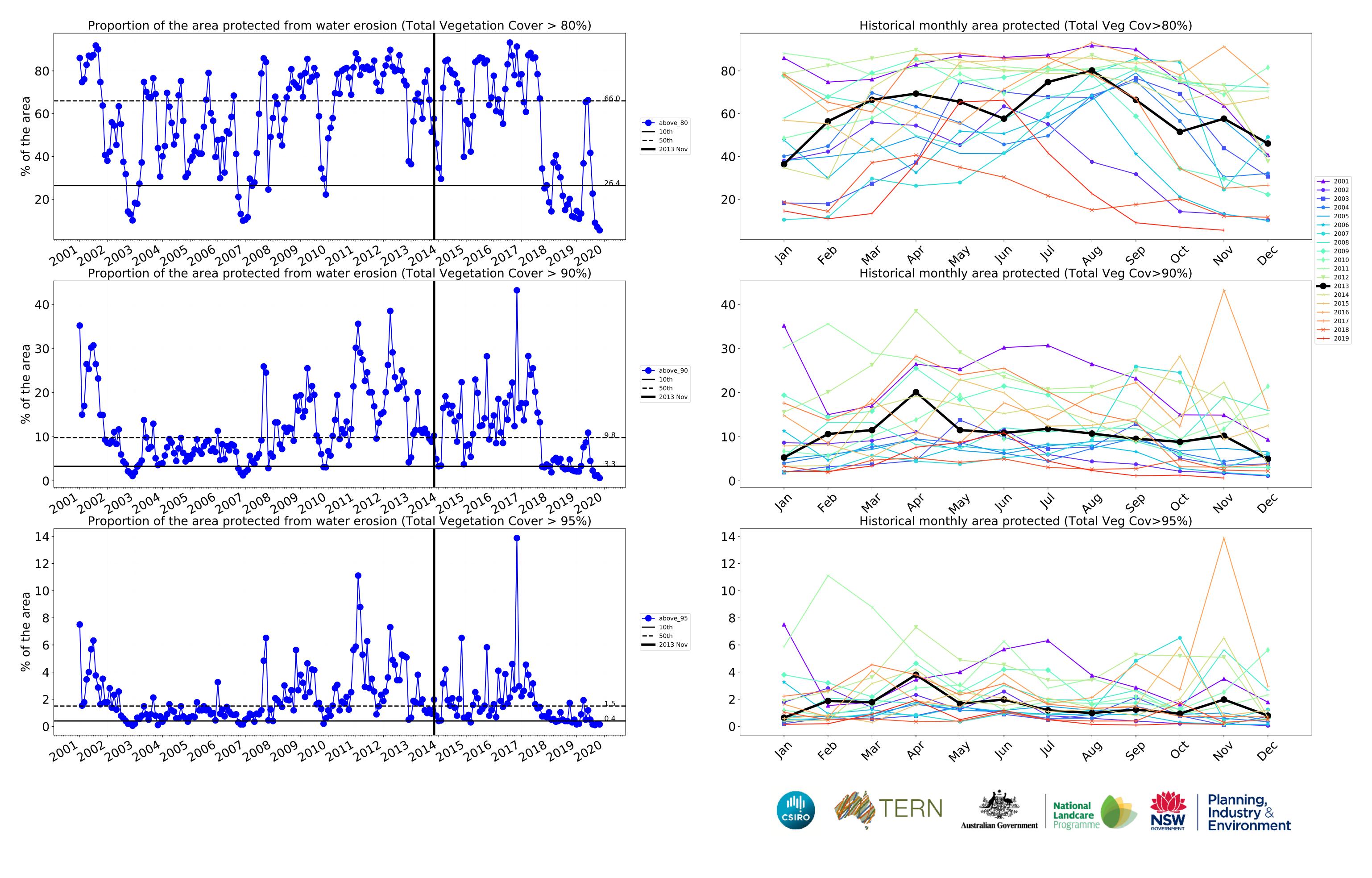




Cropping timeseries





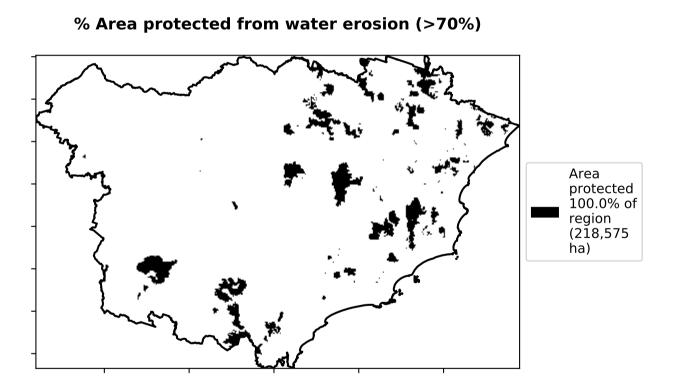


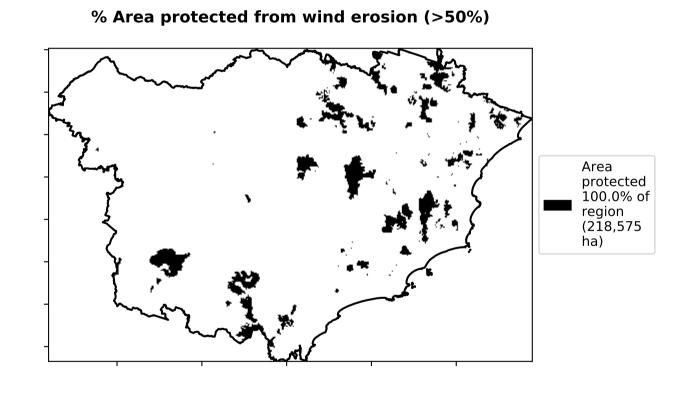
Production native forests and plantation forests

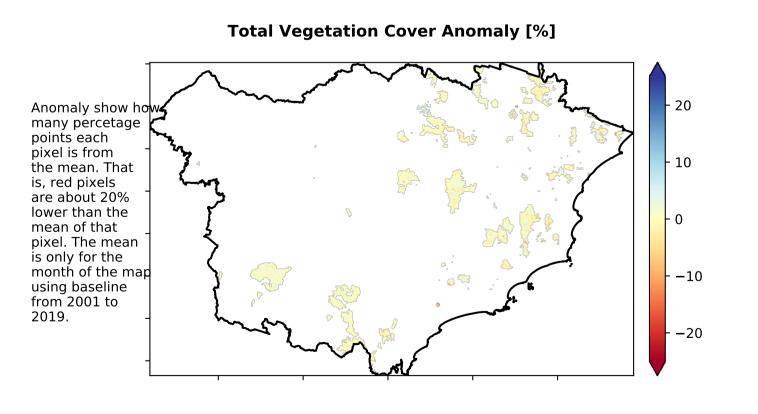
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) 1 Production native forests and plantation forests of Australia (2018)

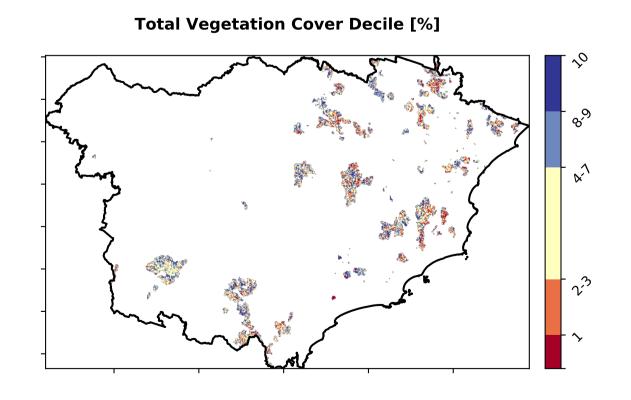
Total Vegetation Cover [%]

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













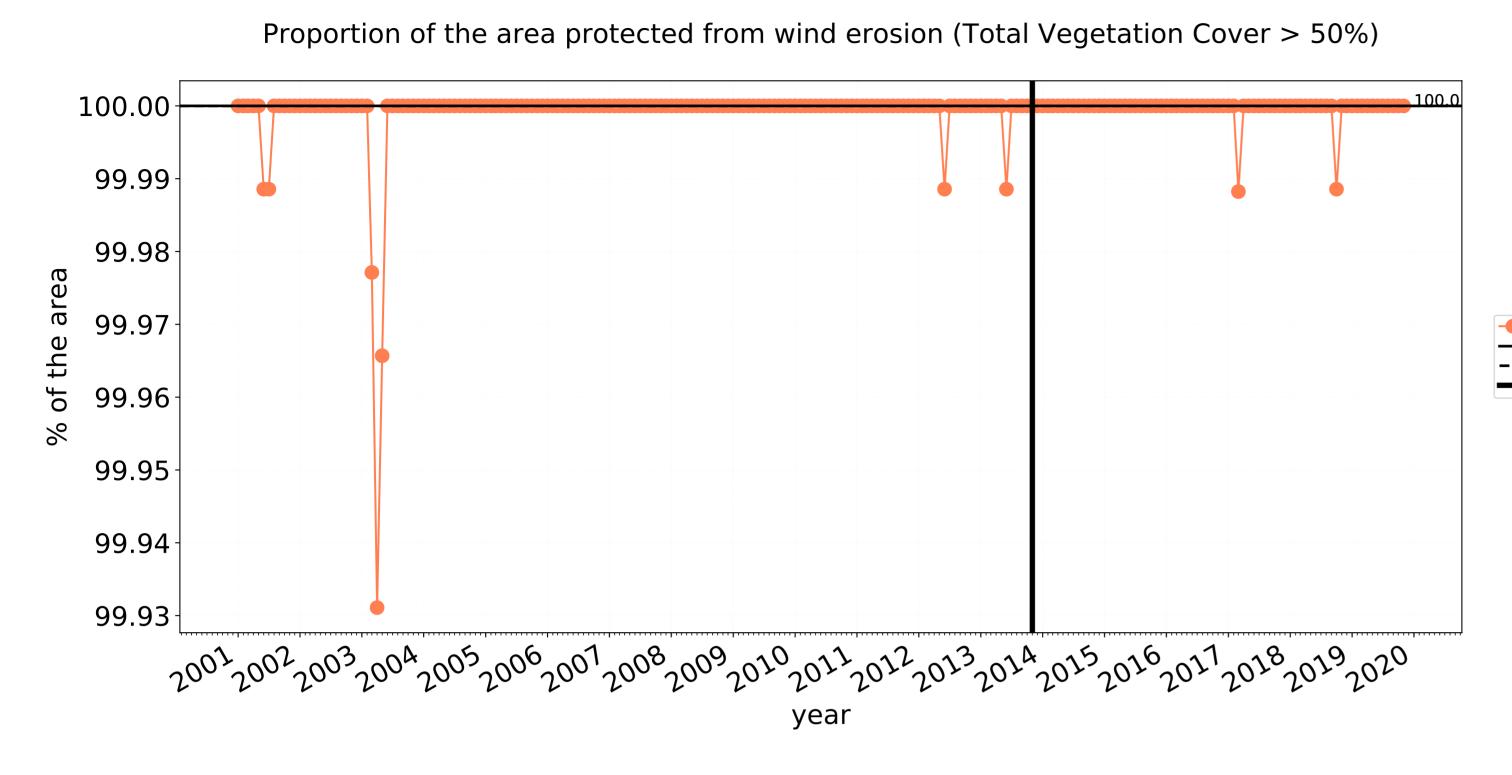


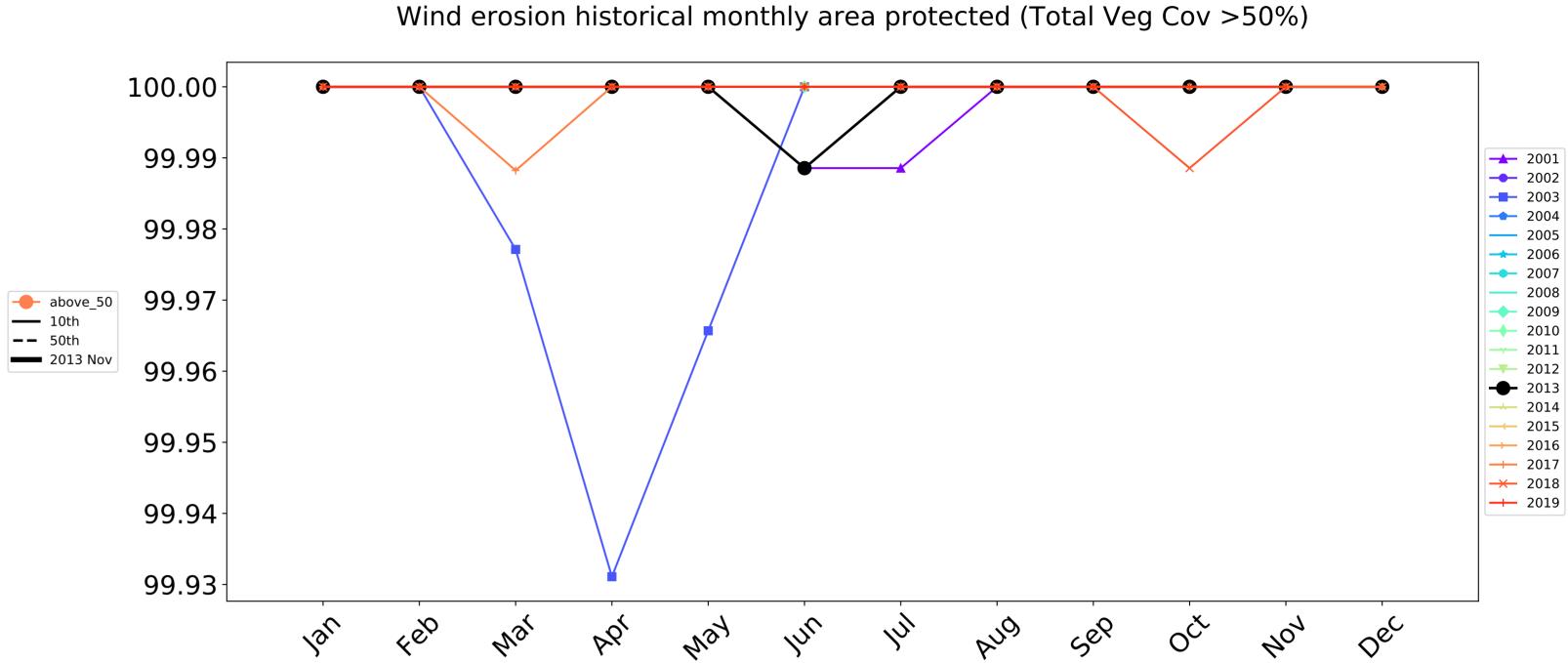




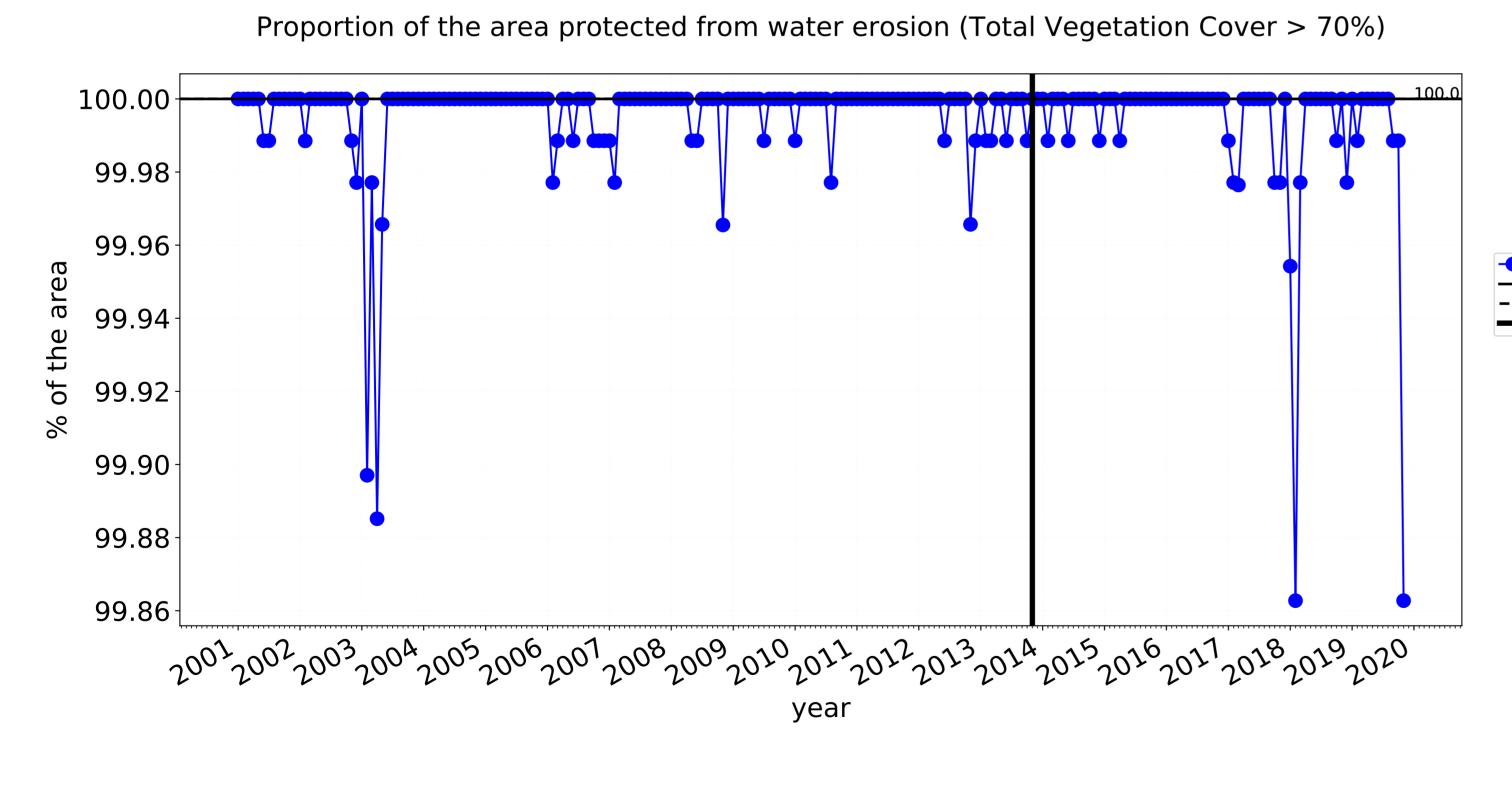


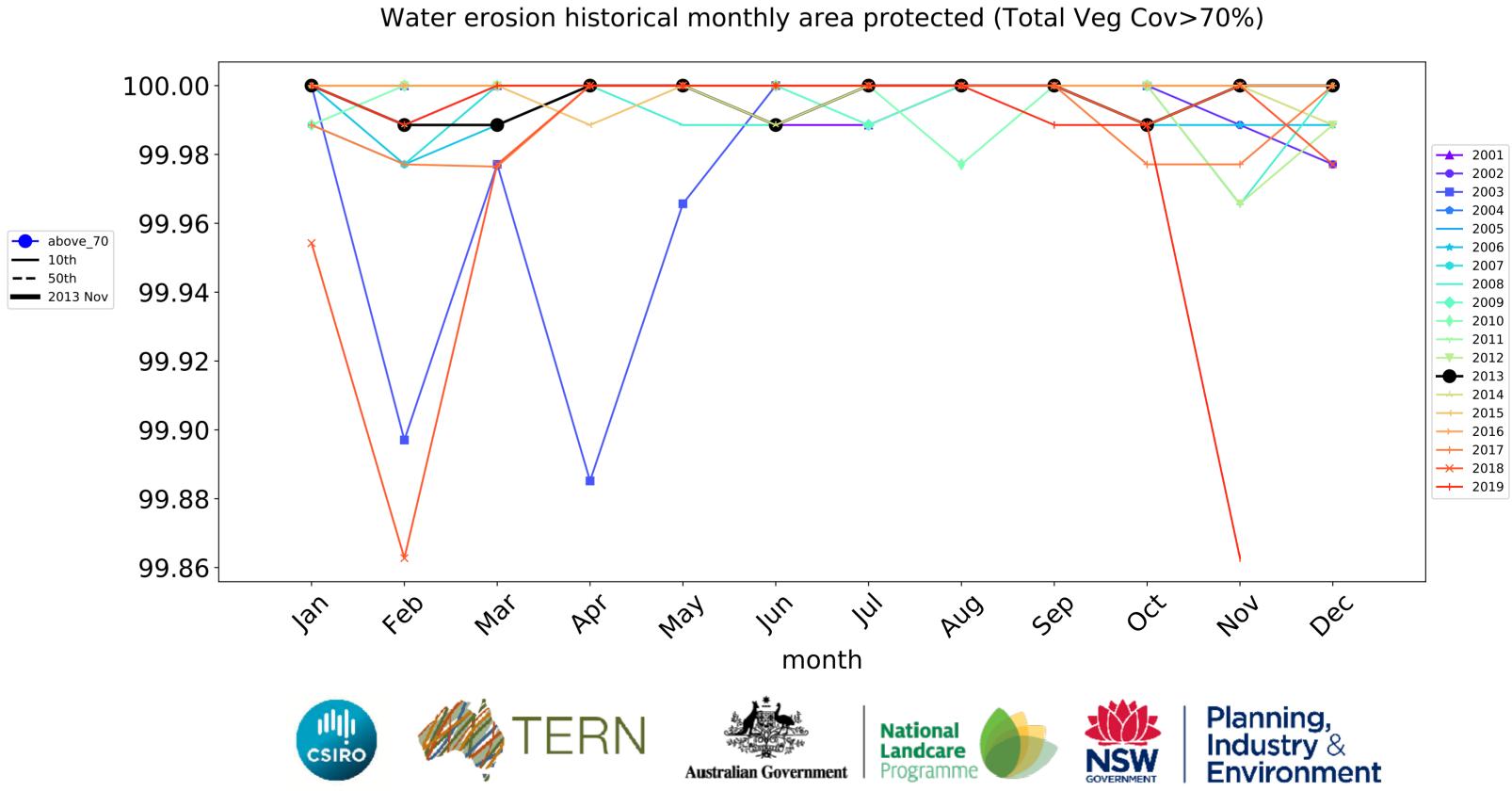
Production native forests and plantation forests timeseries

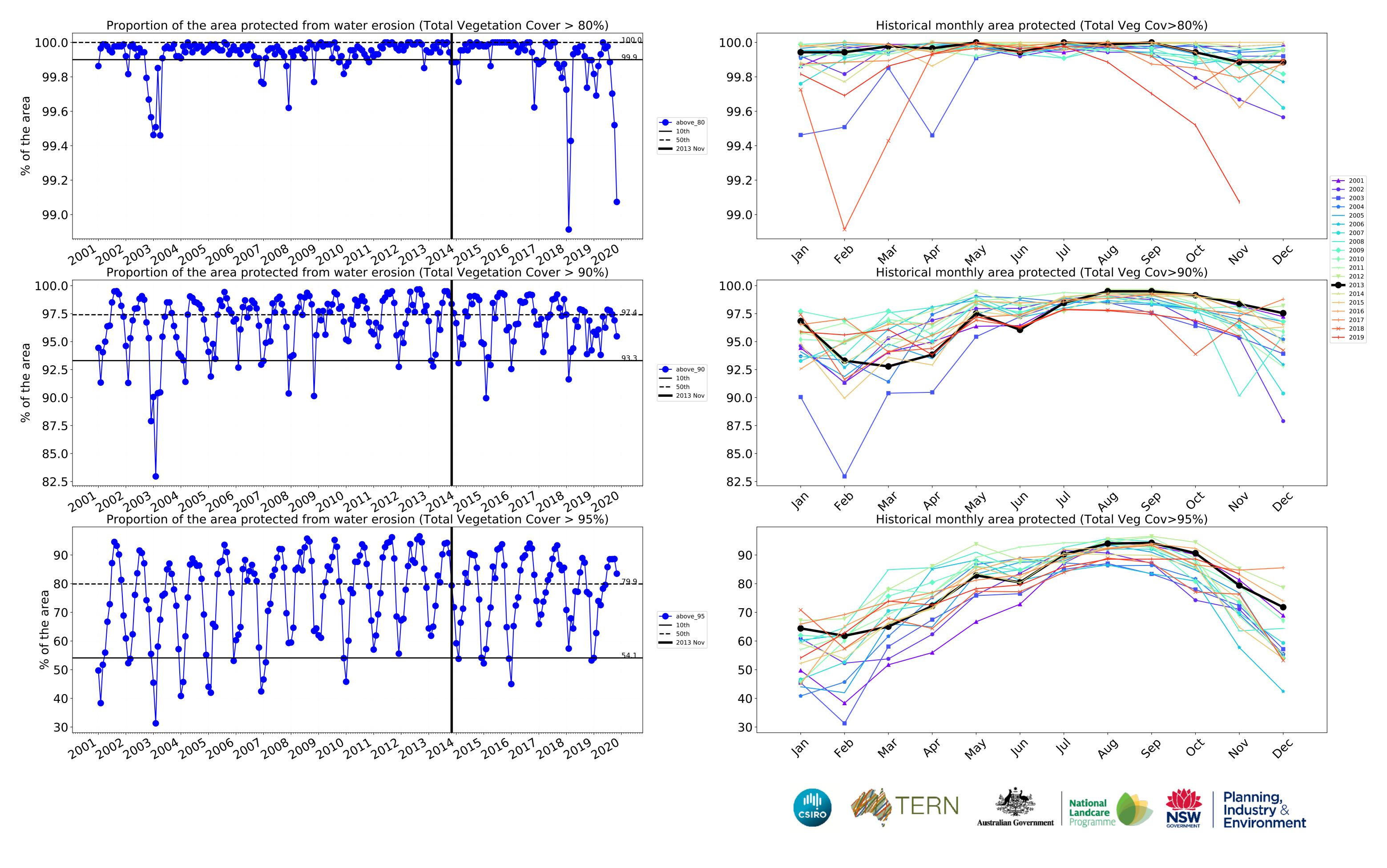




month







Hunter (3,240,325 ha and no data 60,100 ha) Percentage area and hectares protected with TVC threshold 30,50,70,80,90 and 95%

Land use and forest cover Class	area(ha)	above_30	above_50	above_70	above_80	above_90	above_95
Entire region	3,240,325	99.9% 3,236,427	99.6% 3,225,908	98.1% 3,178,909	93.8% 3,040,987	69.0% 2,236,815	35.9% 1,162,120
Conservation and natural environments	1,241,675	99.9% 1,240,300	99.8% 1,239,375	99.2% 1,232,150	97.4% 1,209,125	86.9% 1,079,150	55.3% 686,800
Conservation and natural environments non forest	30,300	95.5% 28,950	93.5% 28,325	88.4% 26,800	82.6% 25,025	59.8% 18,125	30.4% 9,200
Conservation and natural environments Woodland forest	138,950	100.0% 138,925	100.0% 138,925	99.9% 138,775	99.1% 137,700	82.5% 114,675	33.0% 45,825
Conservation and natural environments Forest (non woodland)	1,072,425	100.0% 1,072,425	100.0% 1,072,125	99.5% 1,066,575	97.6% 1,046,400	88.2% 946,350	58.9% 631,775
Agriculture	1,580,650	100.0% 1,580,650	100.0% 1,580,375	99.4% 1,571,425	94.6% 1,495,350	56.4% 891,625	18.2% 287,825
Grazing	1,502,650	100.0% 1,502,650	100.0% 1,502,375	99.7% 1,497,775	96.5% 1,449,550	58.8% 884,175	19.1% 286,525
Grazing non forest	1,212,925	100.0% 1,212,925	100.0% 1,212,700	99.6% 1,208,500	95.9% 1,163,225	56.1% 679,900	17.6% 212,950
Grazing Woodland forest	120,575	100.0% 120,575	100.0% 120,575	99.9% 120,400	98.4% 118,600	61.8% 74,575	16.9% 20,350
Grazing - Forest (non woodland)	169,150	100.0% 169,150	100.0% 169,100	99.8% 168,875	99.2% 167,725	76.7% 129,700	31.5% 53,225
Cropping	50,625	100.0% 50,625	100.0% 50,625	93.6% 47,400	57.7% 29,200	10.2% 5,175	2.0% 1,000
Production native forests and plantation forests	218,575	100.0% 218,575	100.0% 218,575	100.0% 218,575	99.9% 218,325	98.4% 215,000	79.4% 173,500











