Total vegetation cover soil protection Region:NRM Hunter NSW

Date: January 2019

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





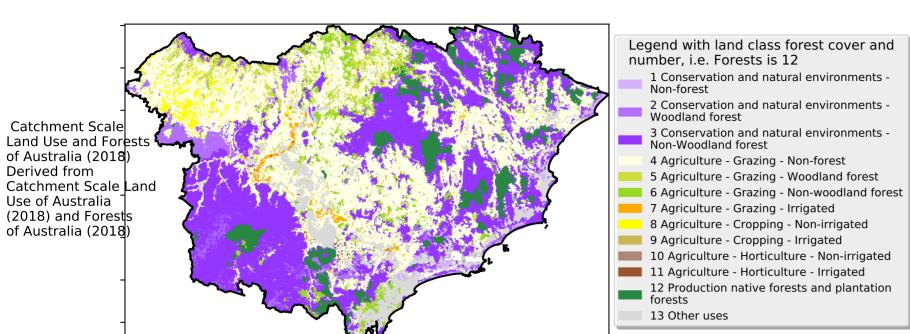




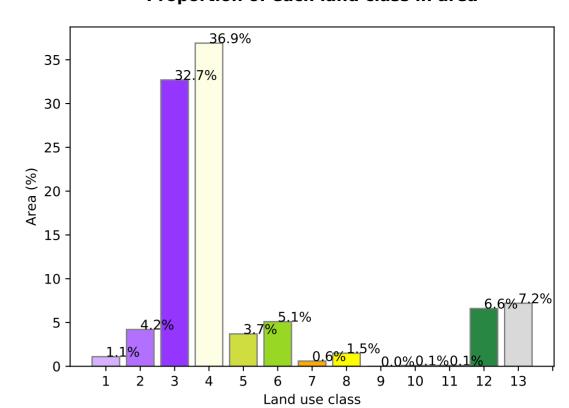


Vegetation Cover Jan 2019

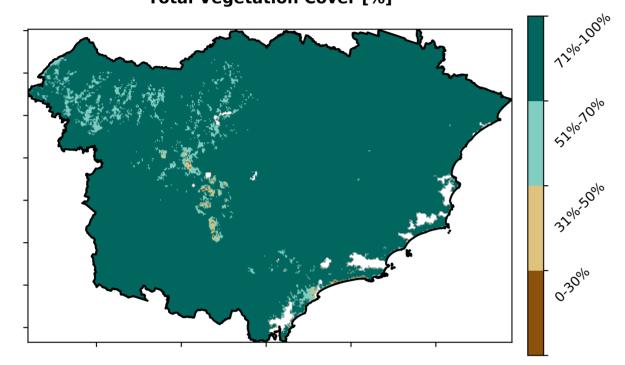
Land use and forest cover



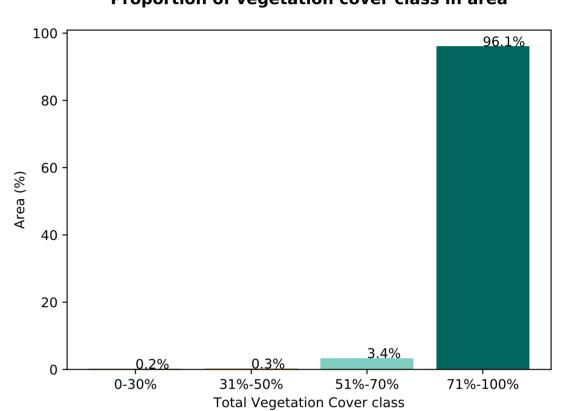
Proportion of each land class in area

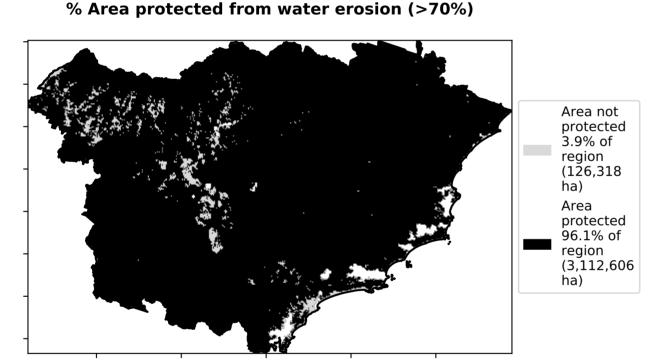


Total Vegetation Cover [%]

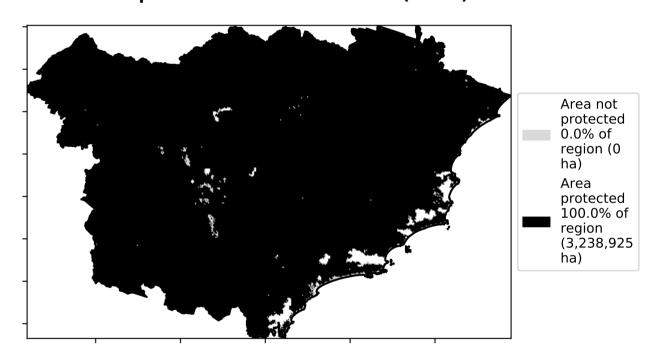


Proportion of vegetation cover class in area

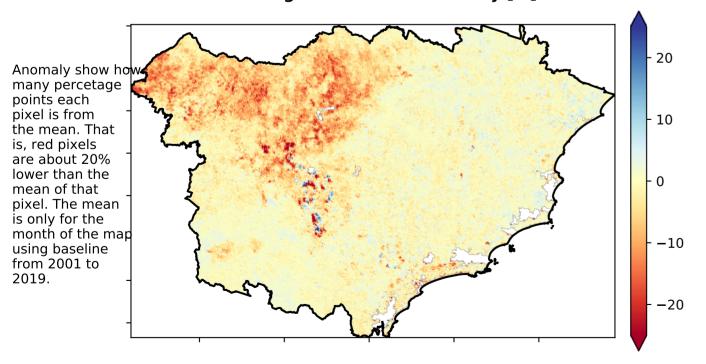




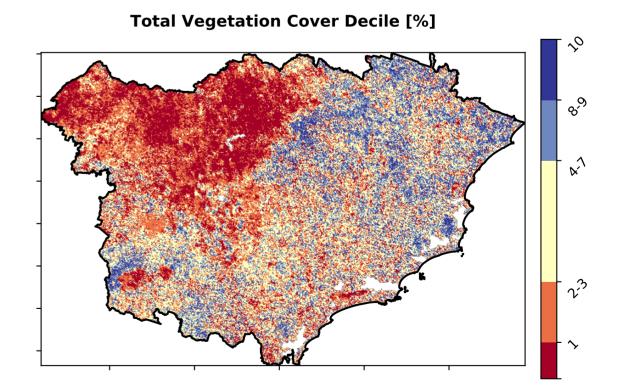
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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.





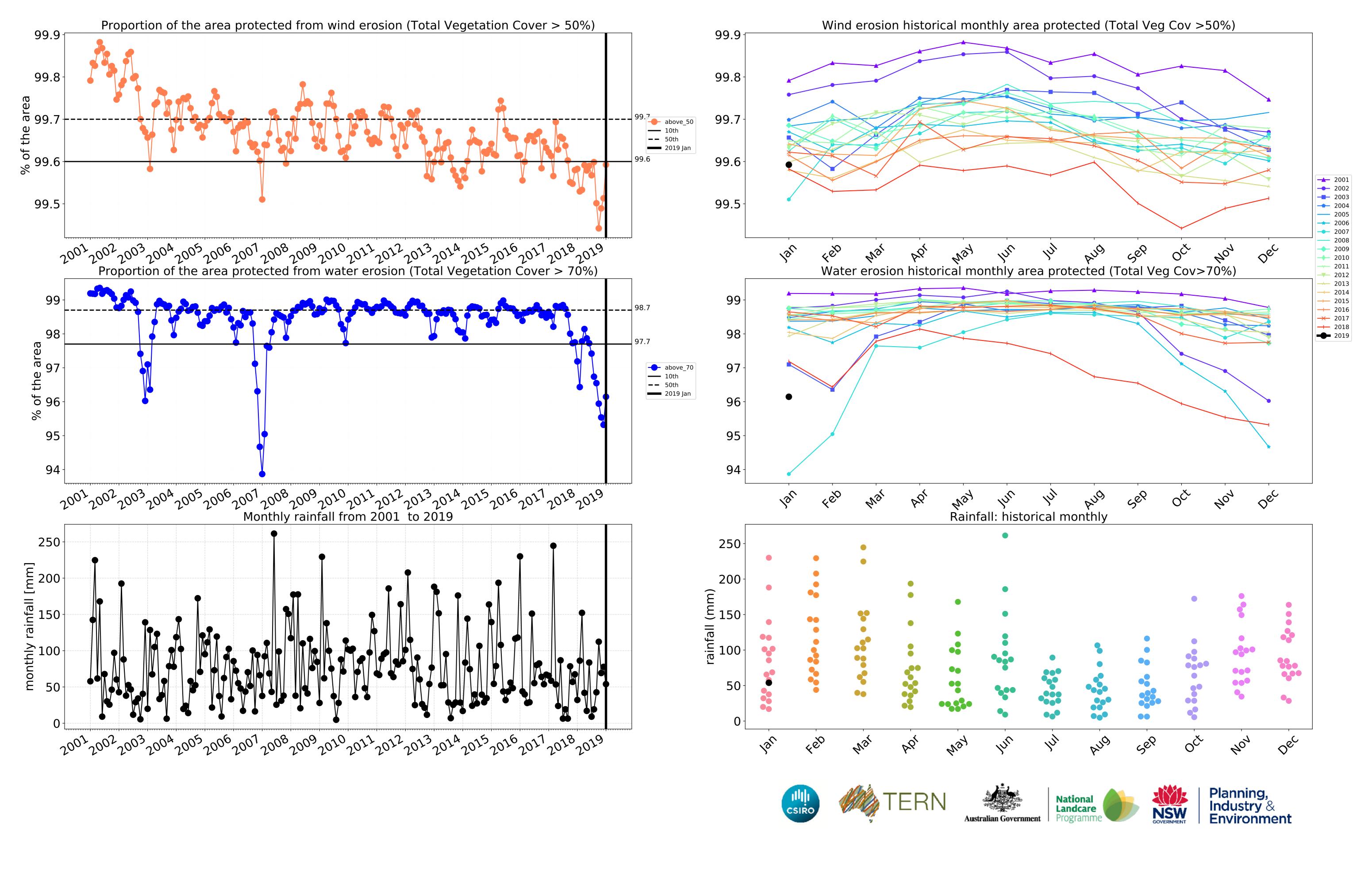




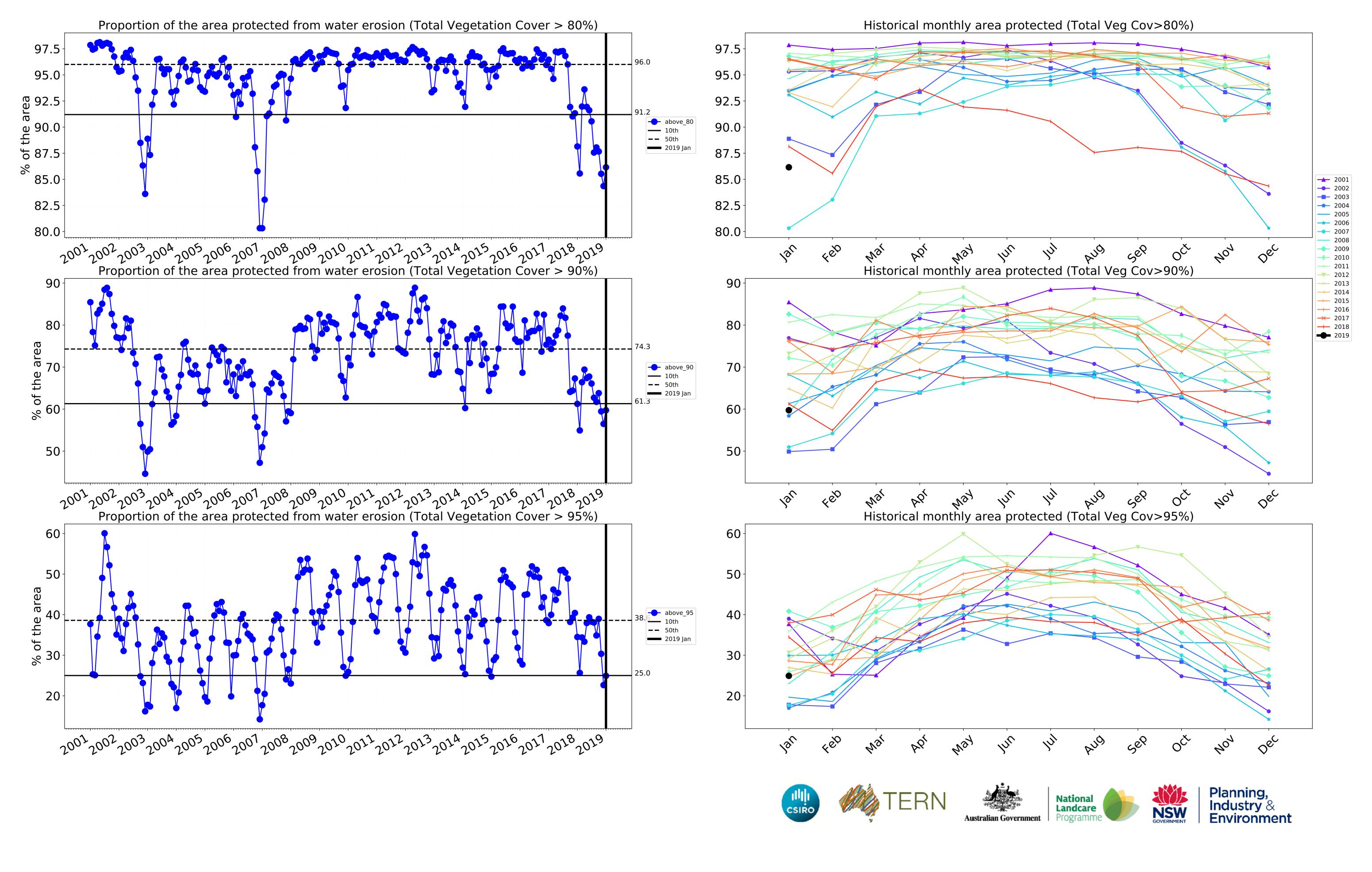






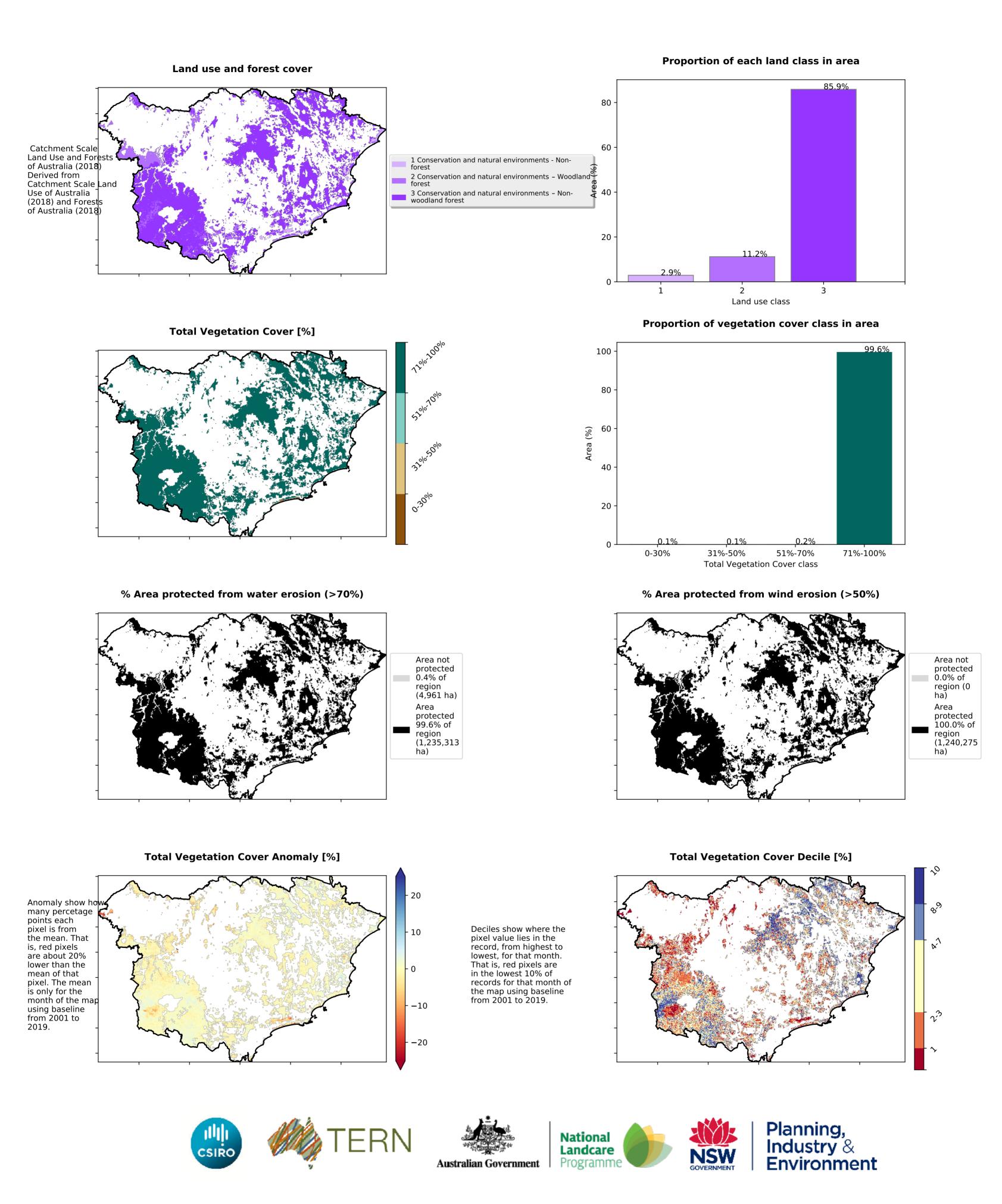


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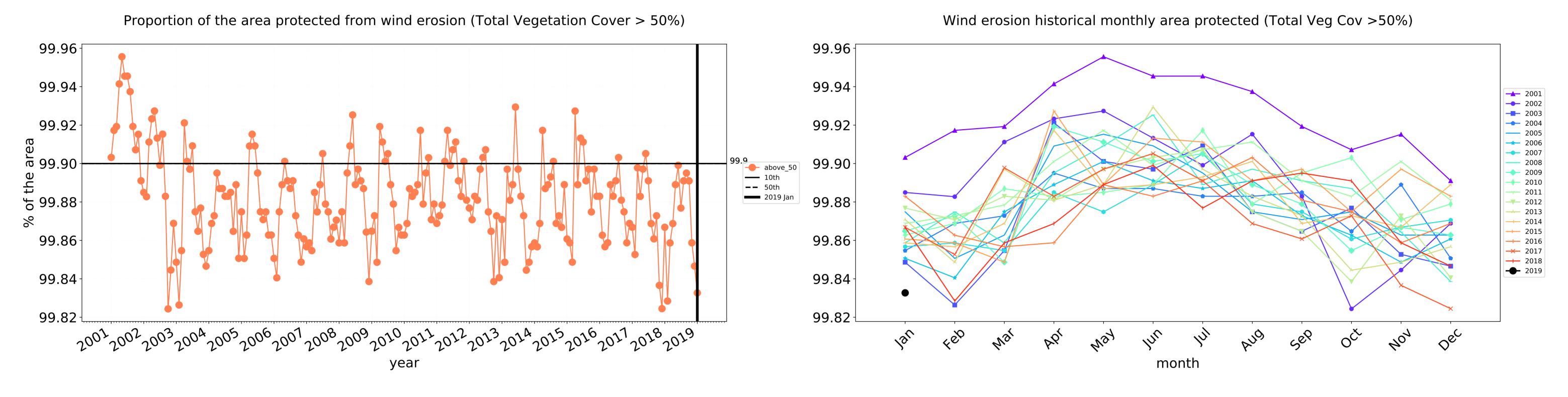


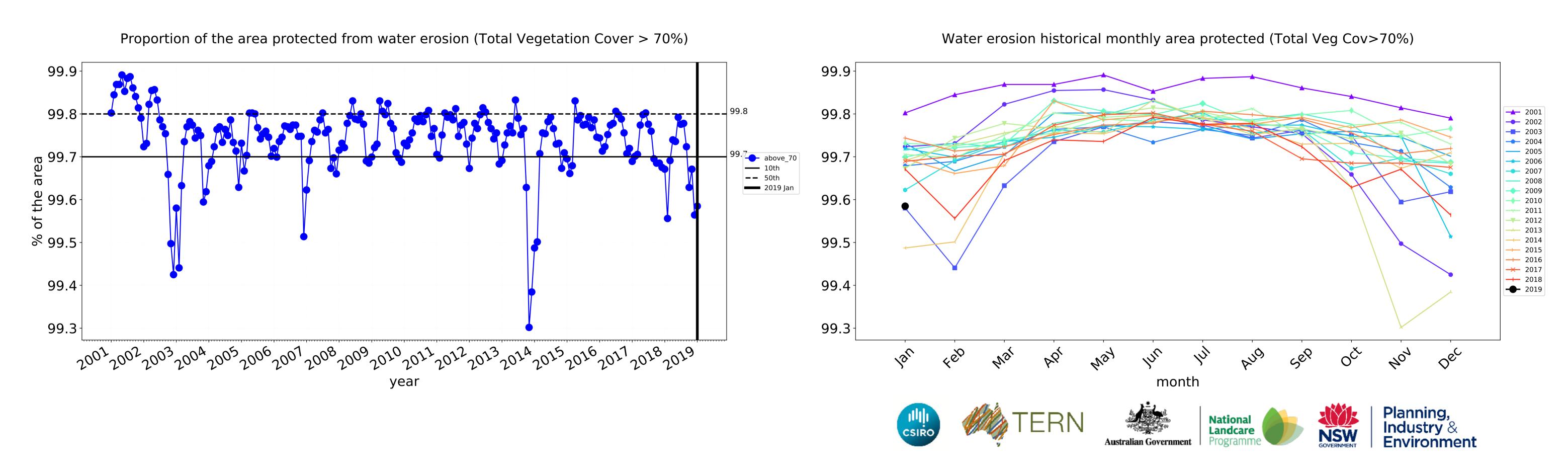
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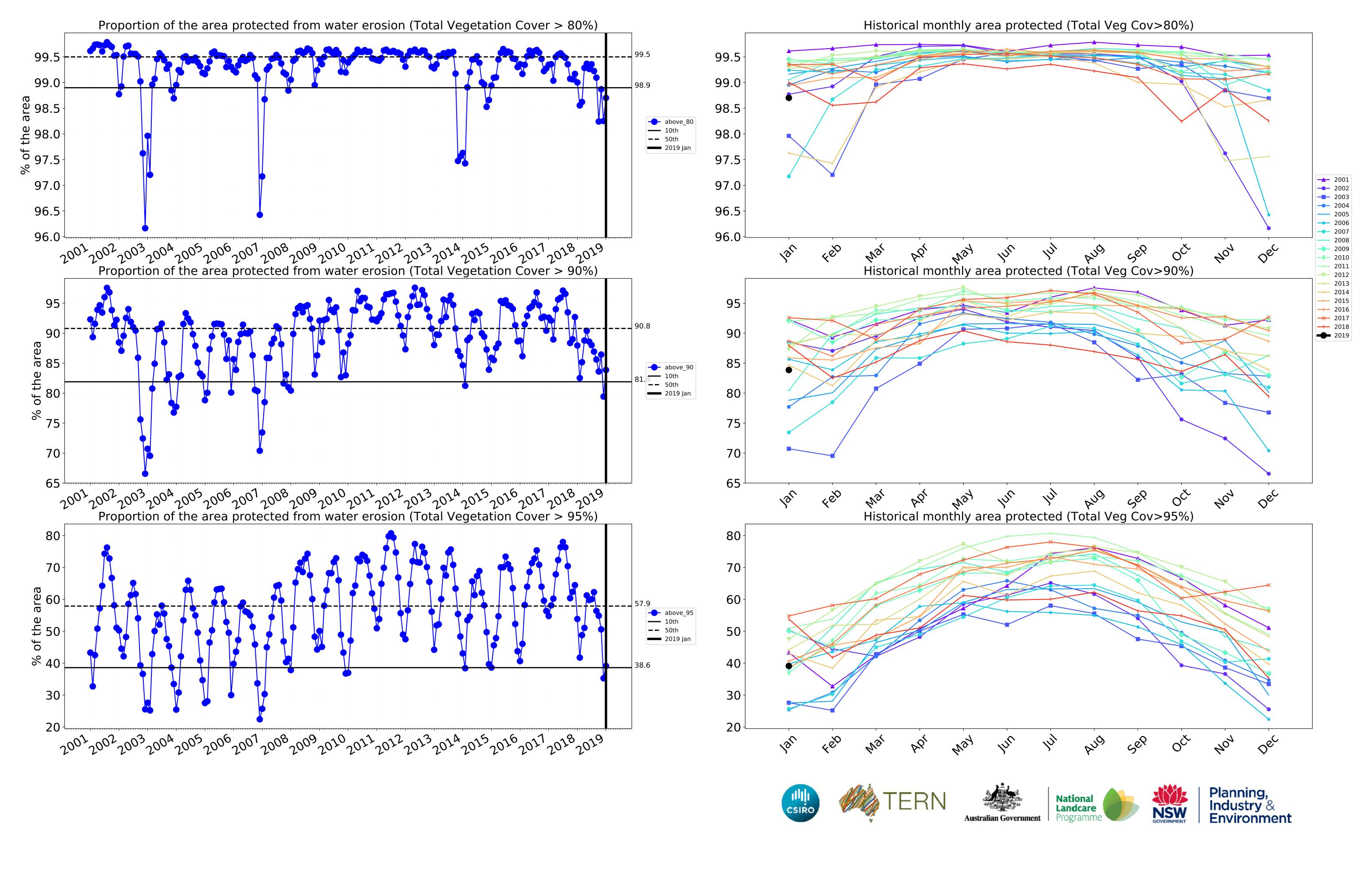
Conservation and natural environments



Conservation and natural environments timeseries



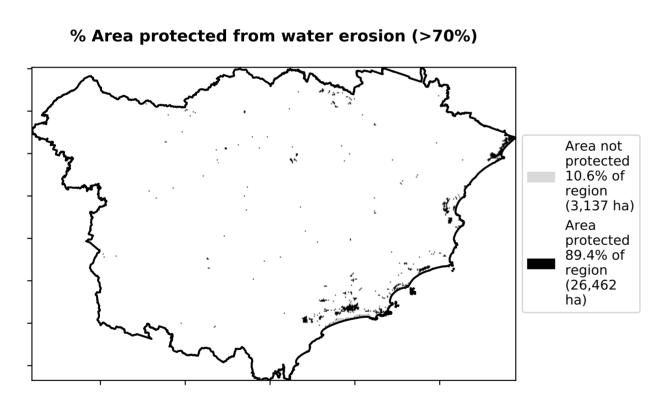


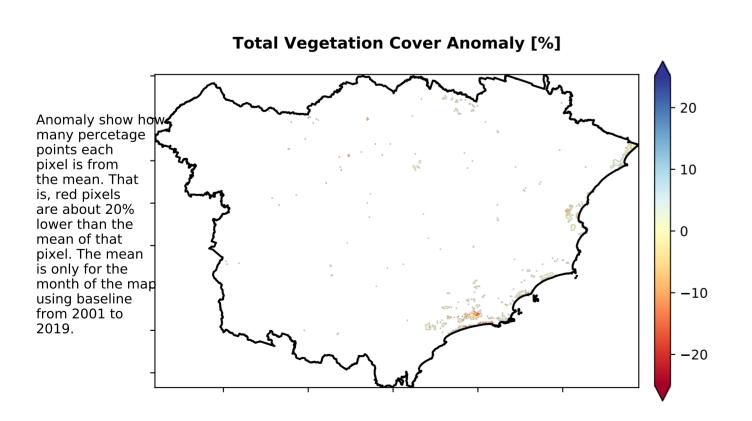


Conservation and natural environments non forest

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

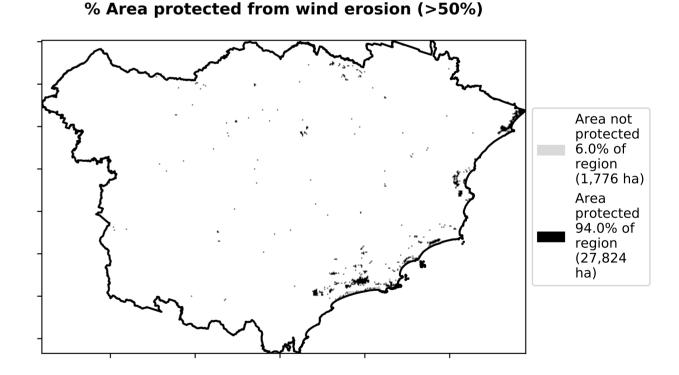
Total Vegetation Cover [%] Tipological and the state of the state of

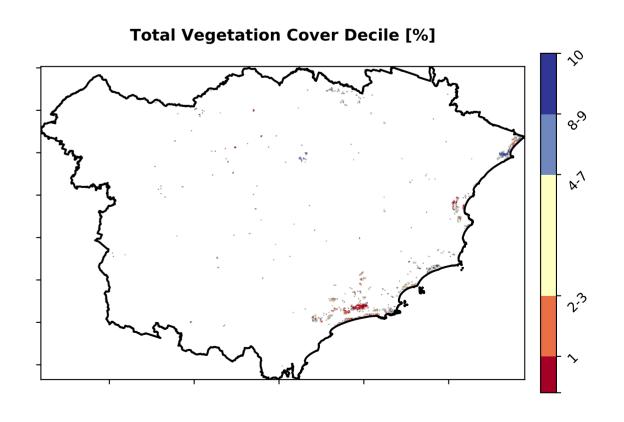




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80 - 89.4% 89.4% 89.4% 40 - 20 - 3.7% 2.4% 4.5% 71%-100% Total Vegetation Cover class









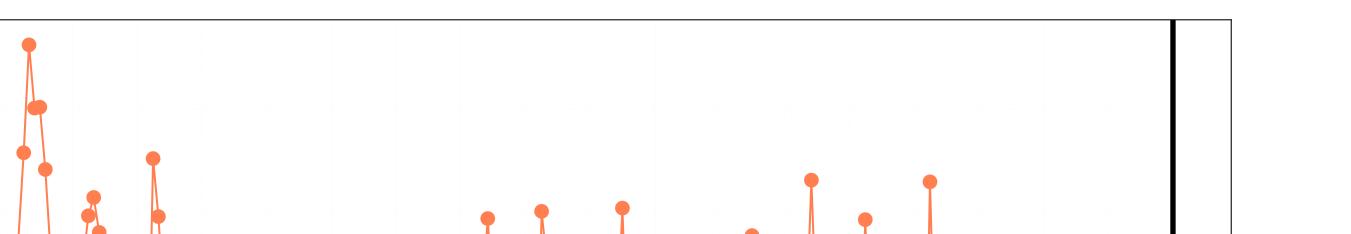




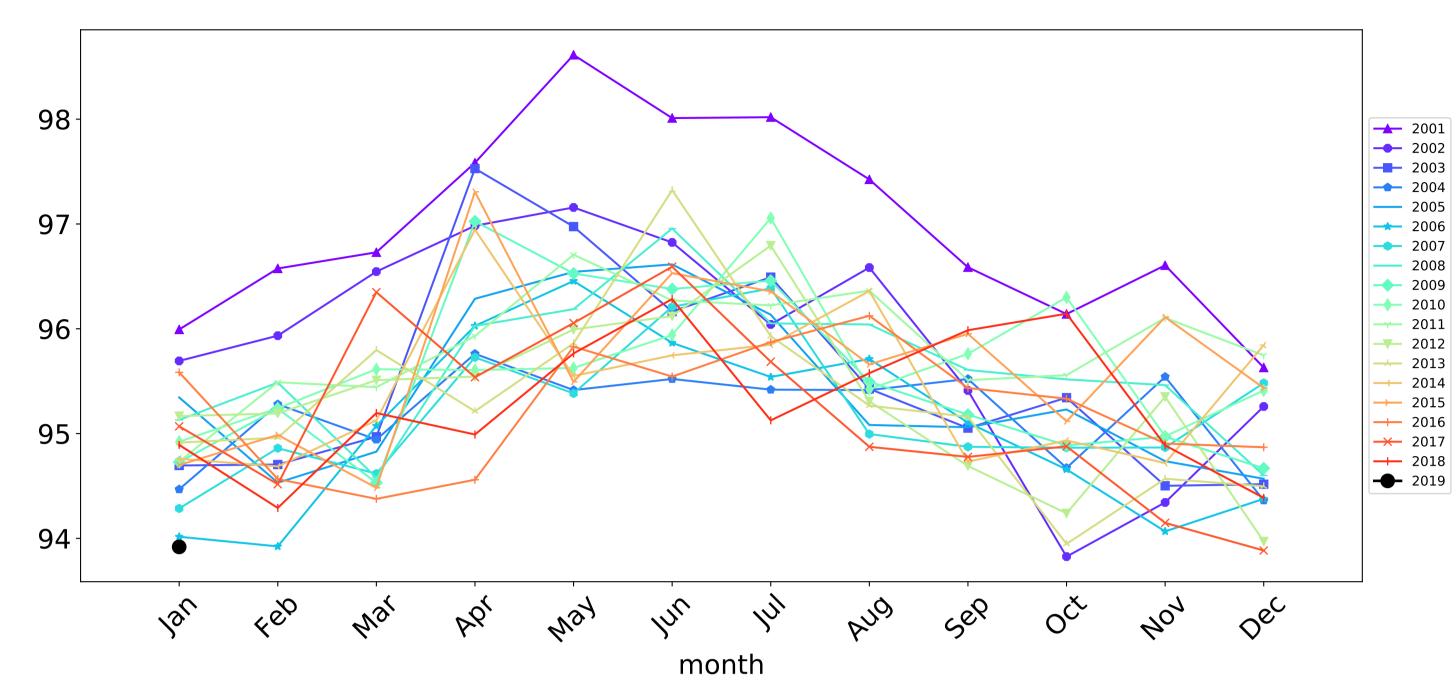


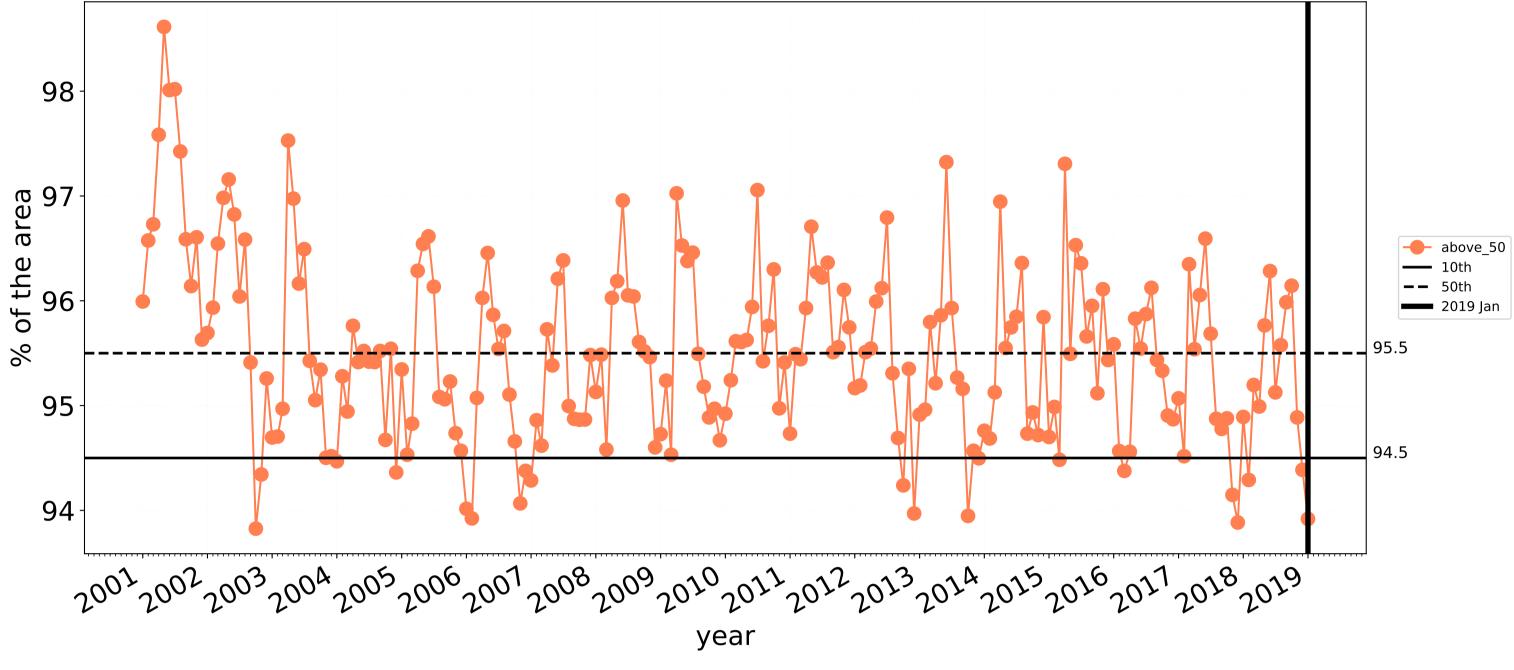


Conservation and natural environments non forest timeseries

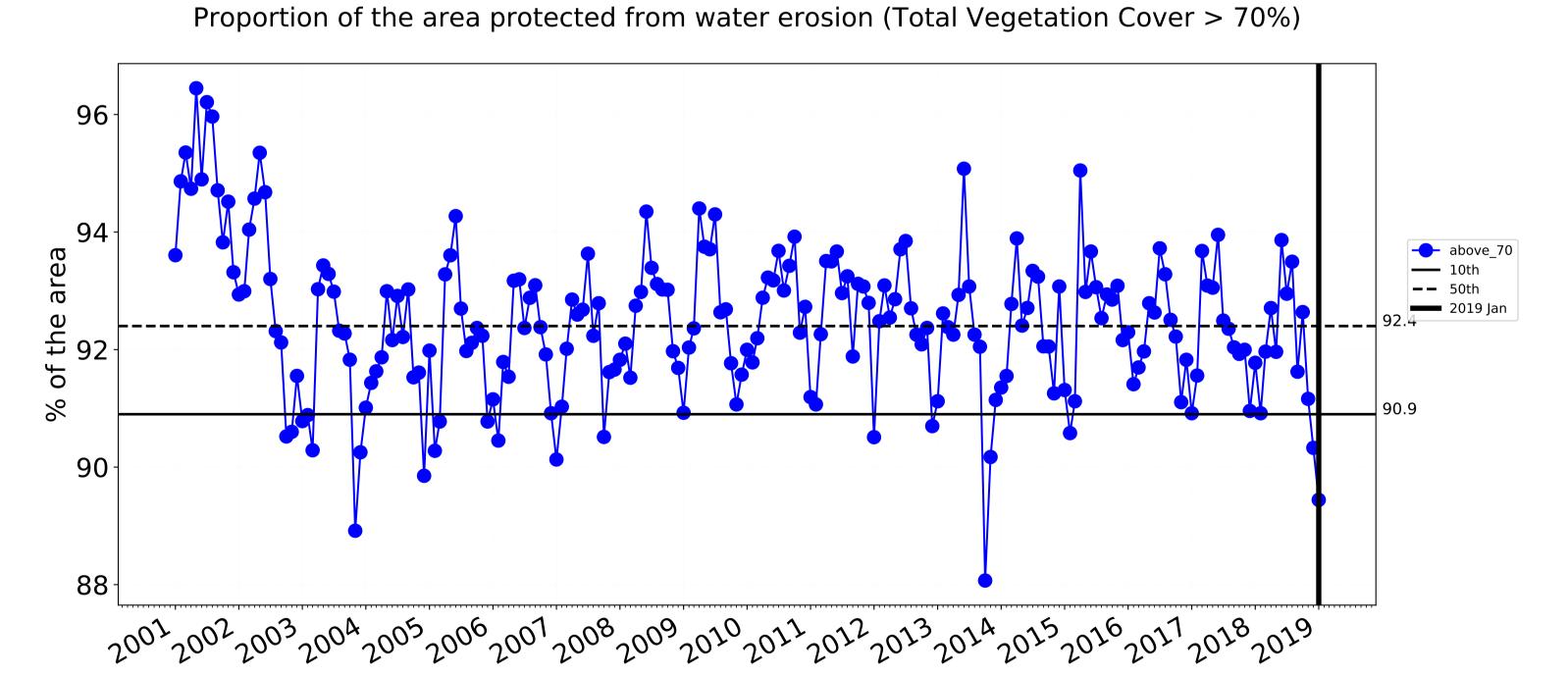




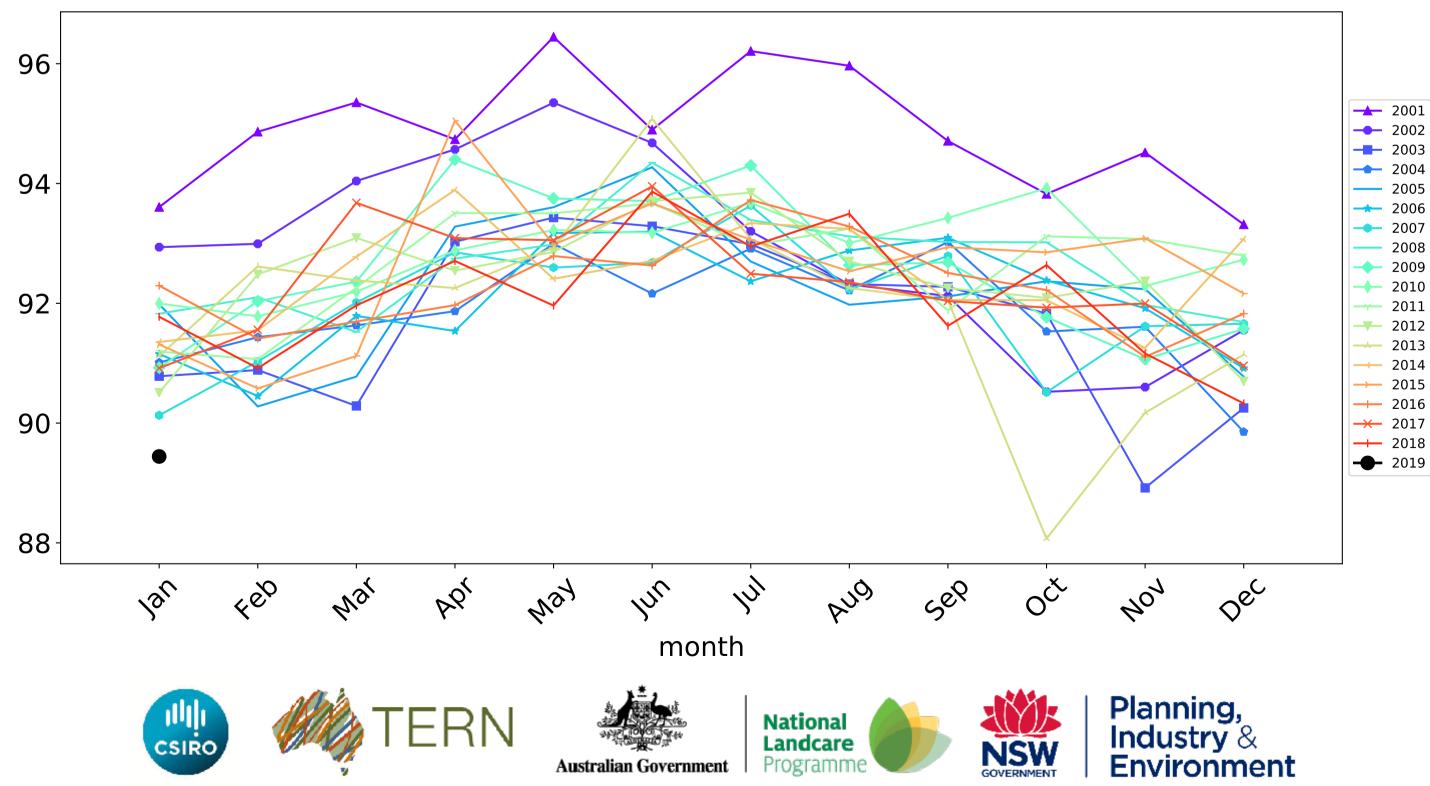


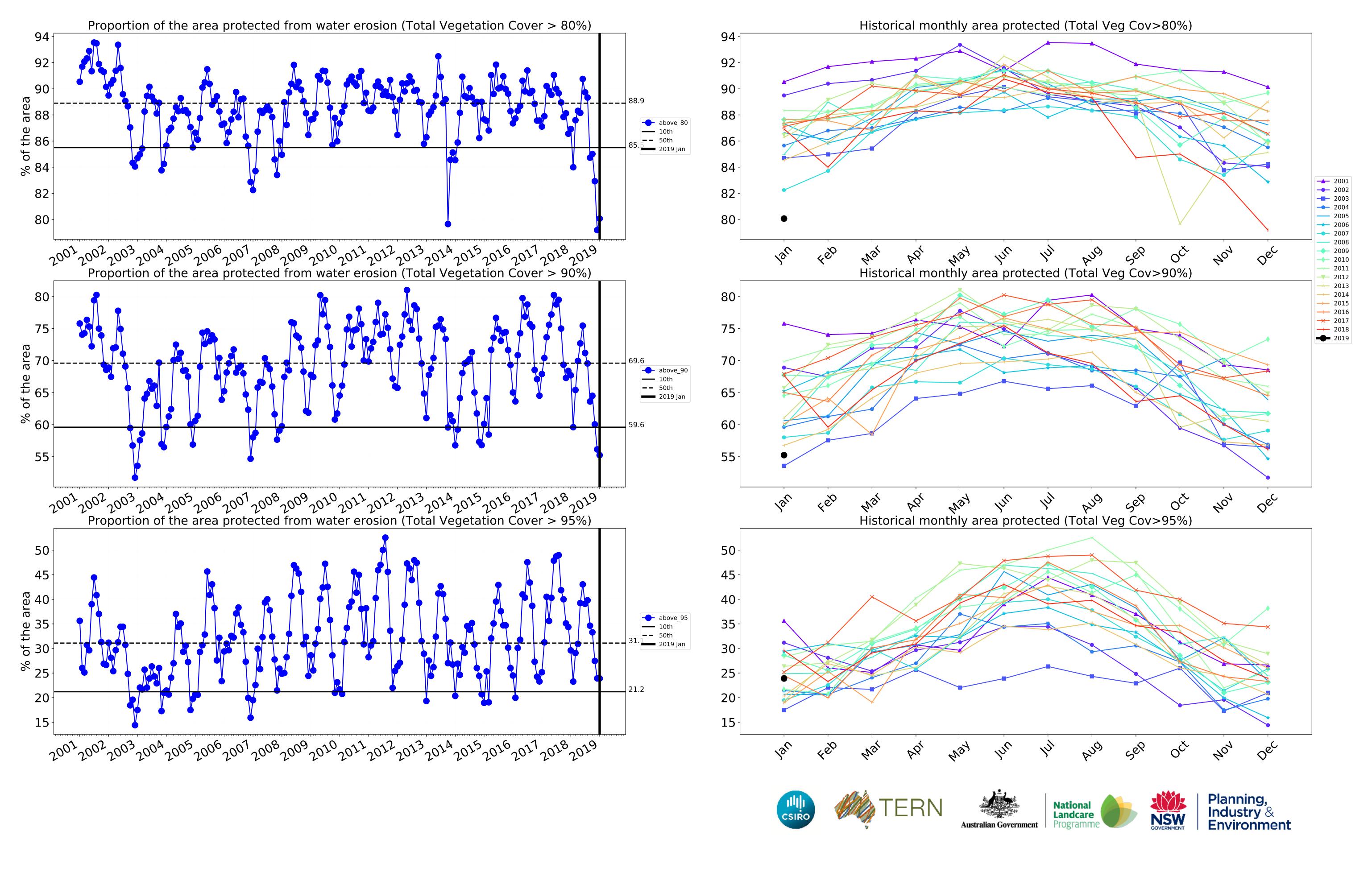


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

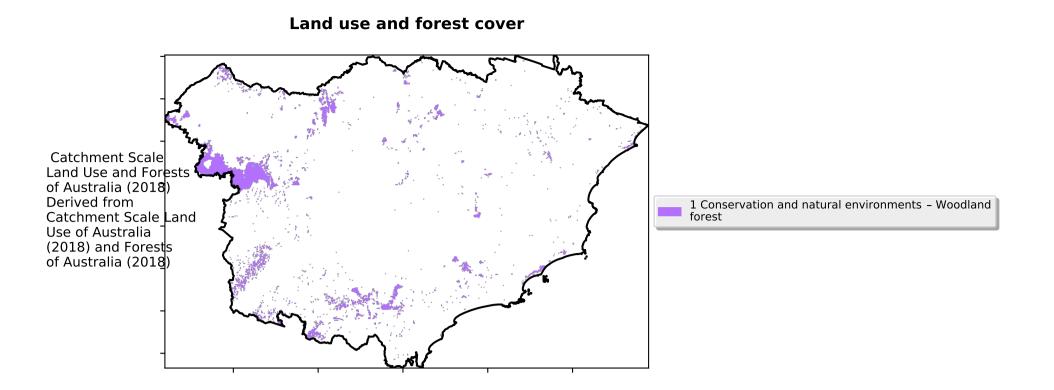


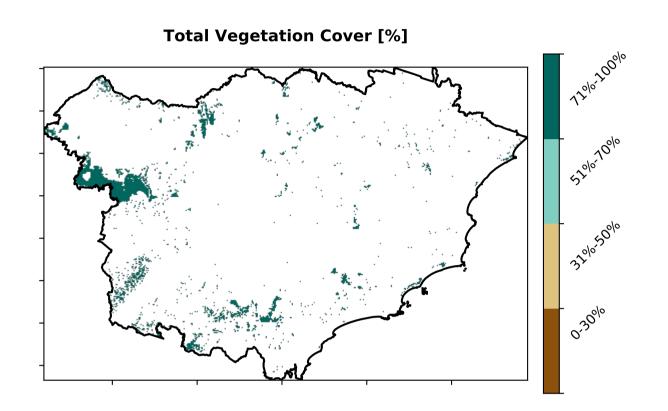
Water erosion historical monthly area protected (Total Veg Cov>70%)

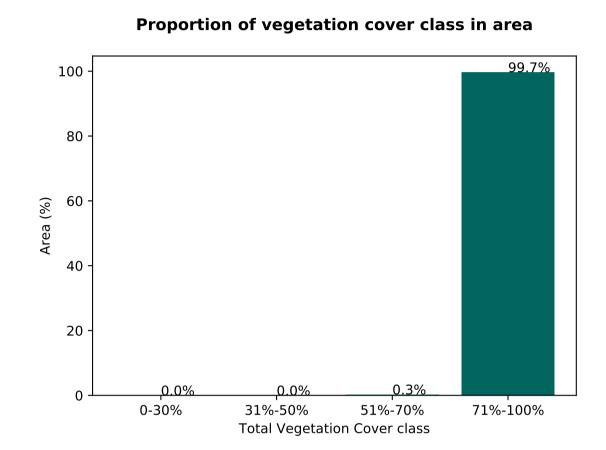


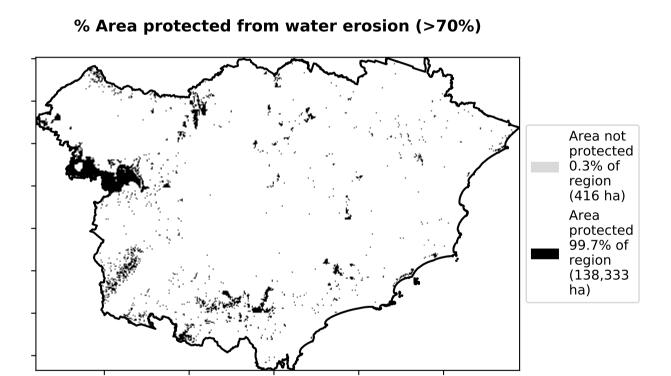


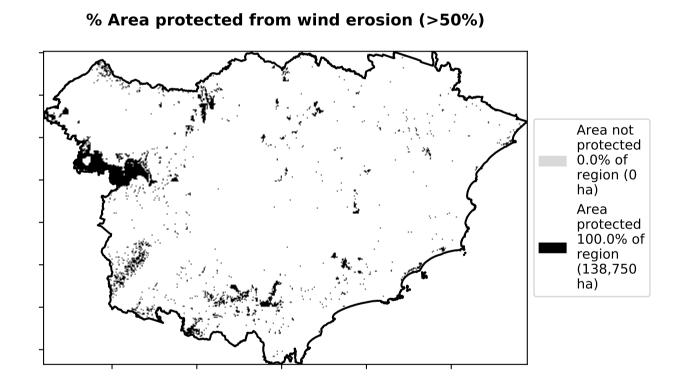
Conservation and natural environments Woodland forest

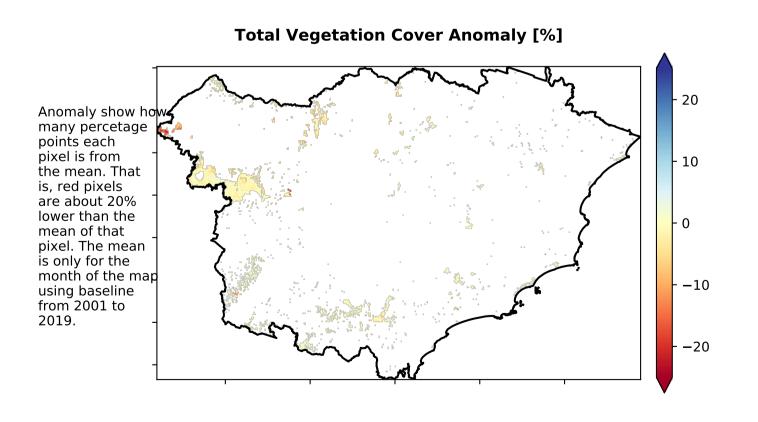




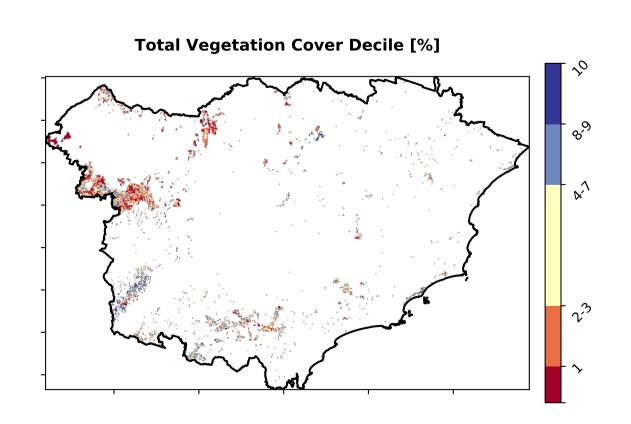








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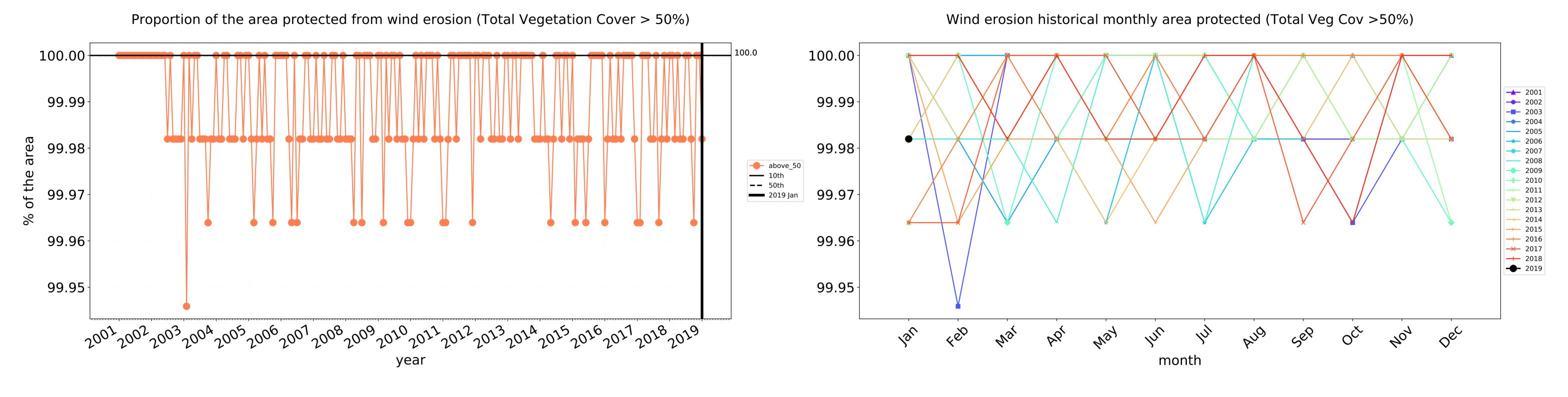


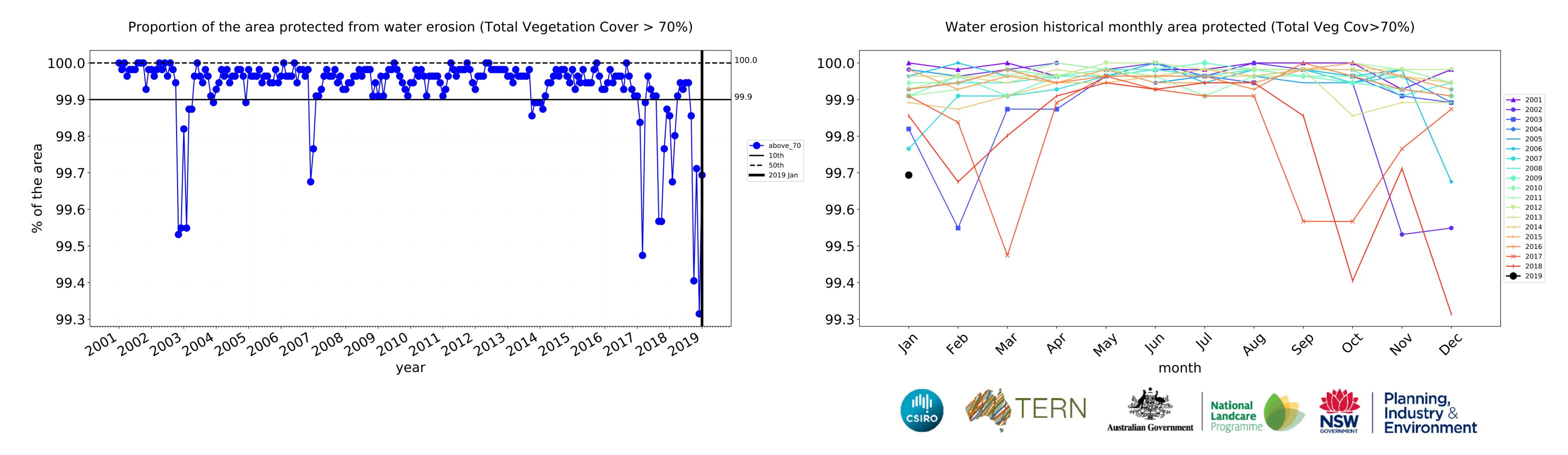


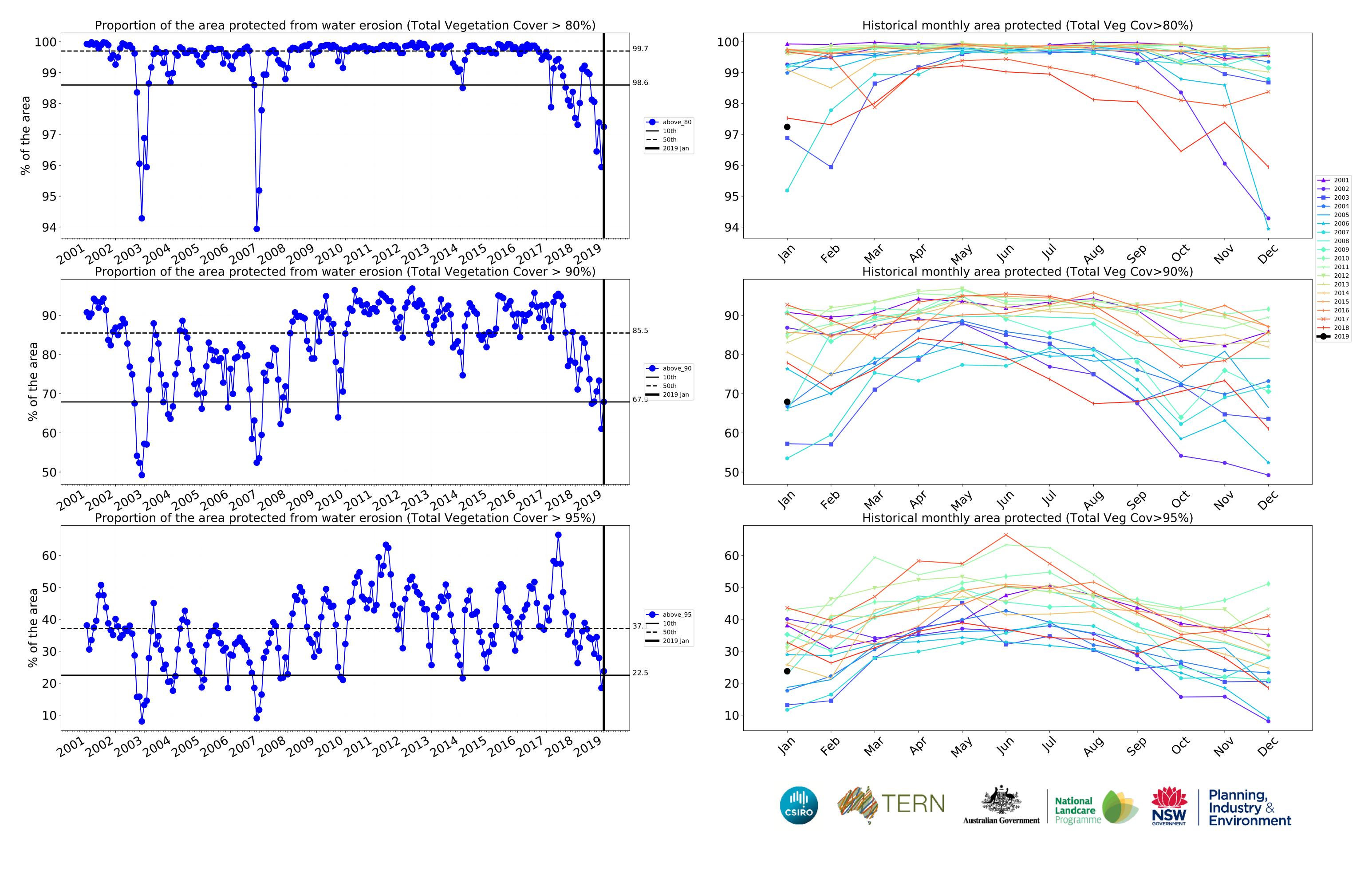


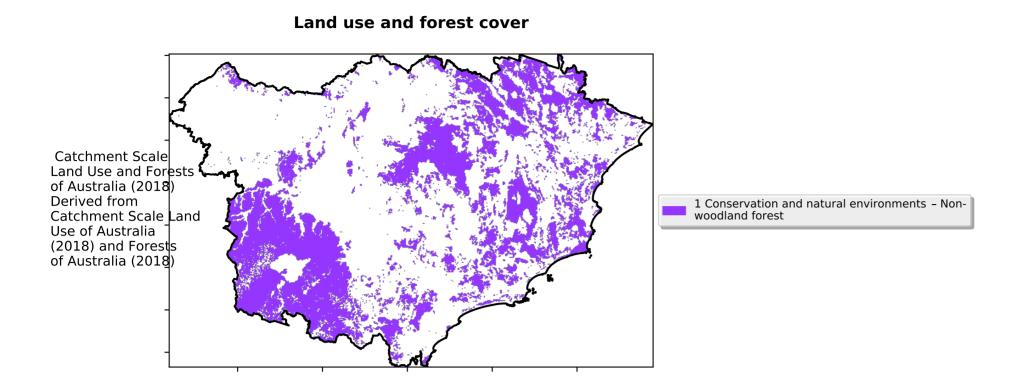


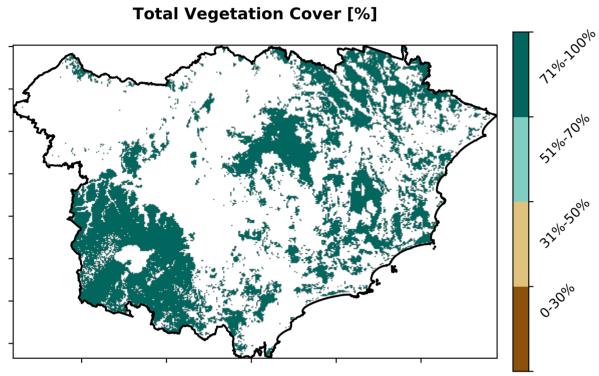
Conservation and natural environments Woodland forest timeseries

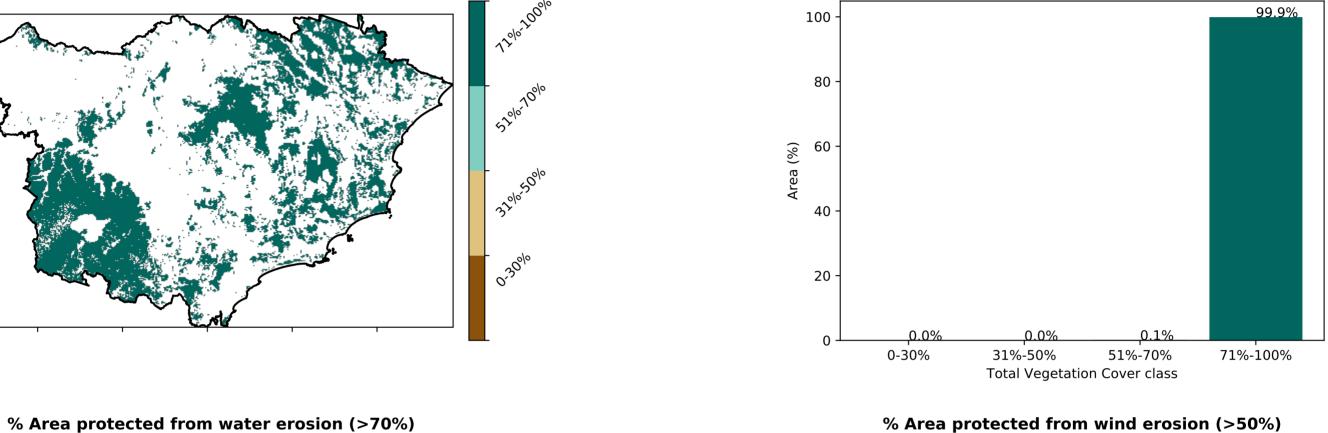


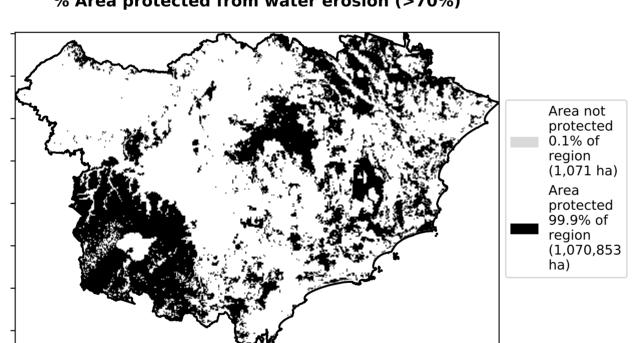


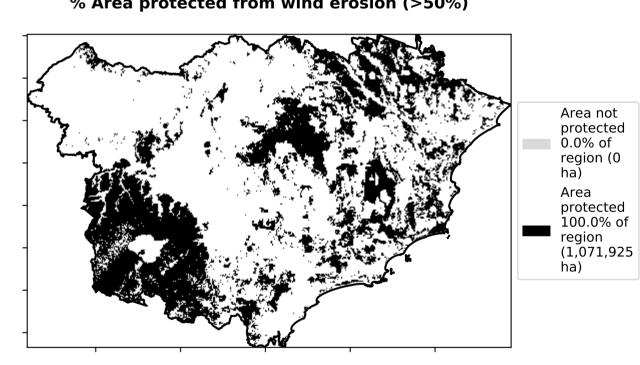




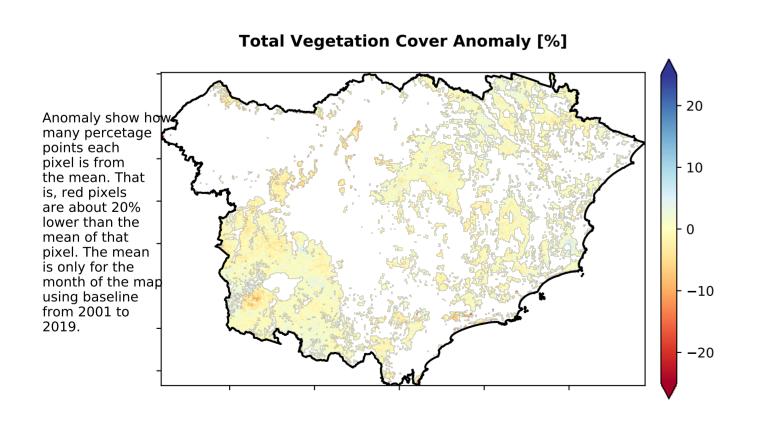




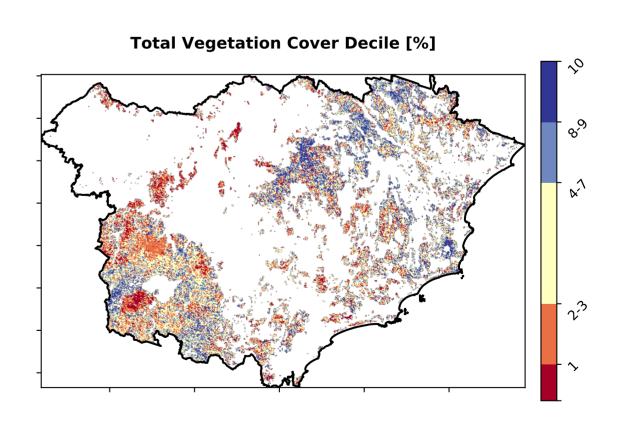




Proportion of vegetation cover class in area



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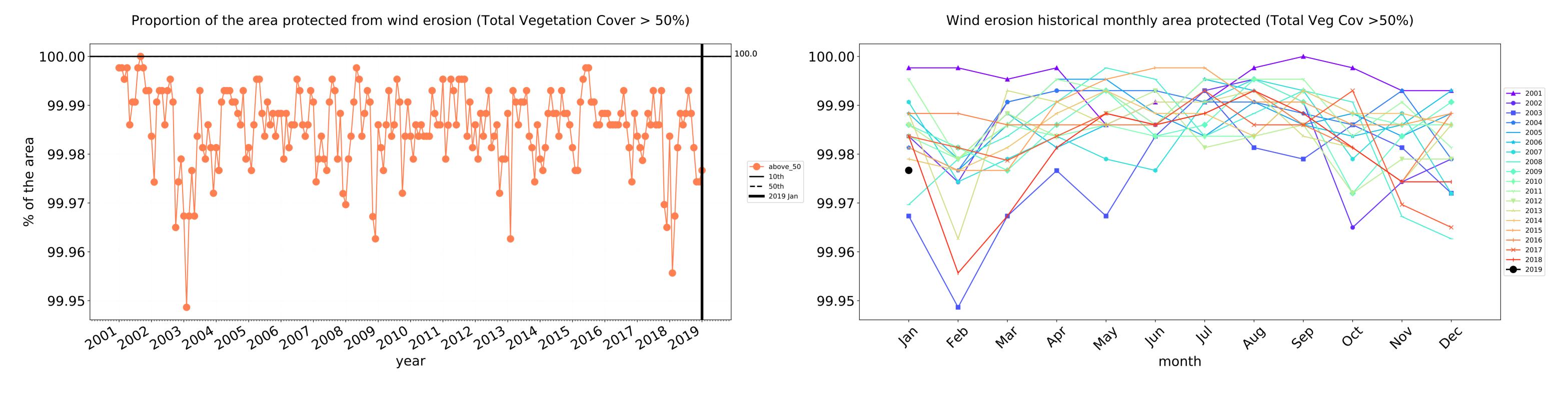


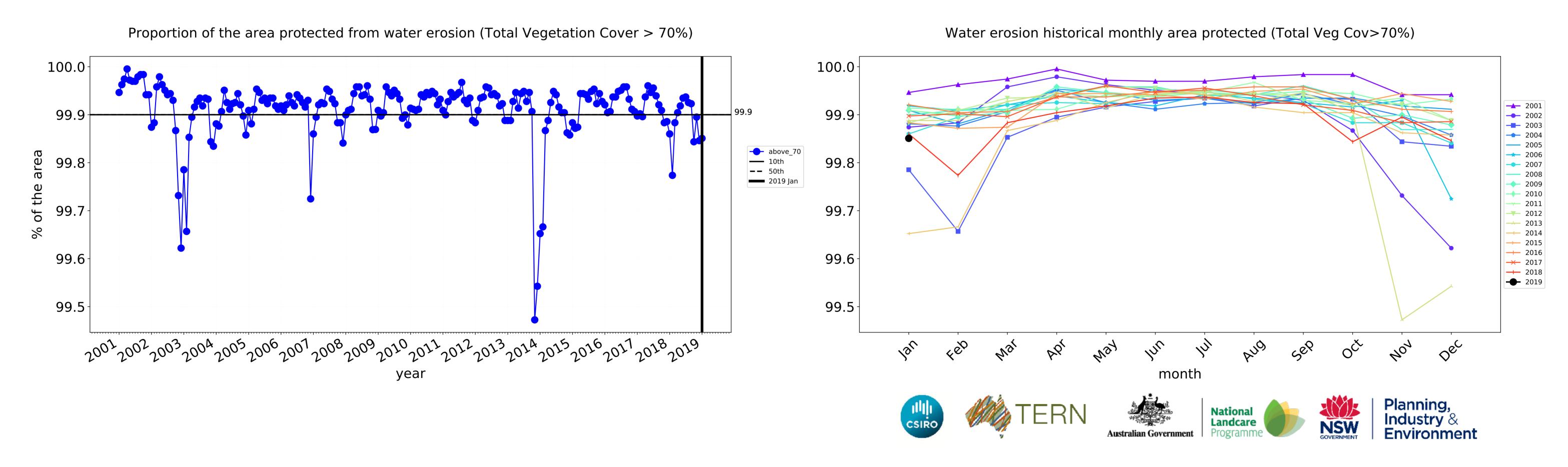


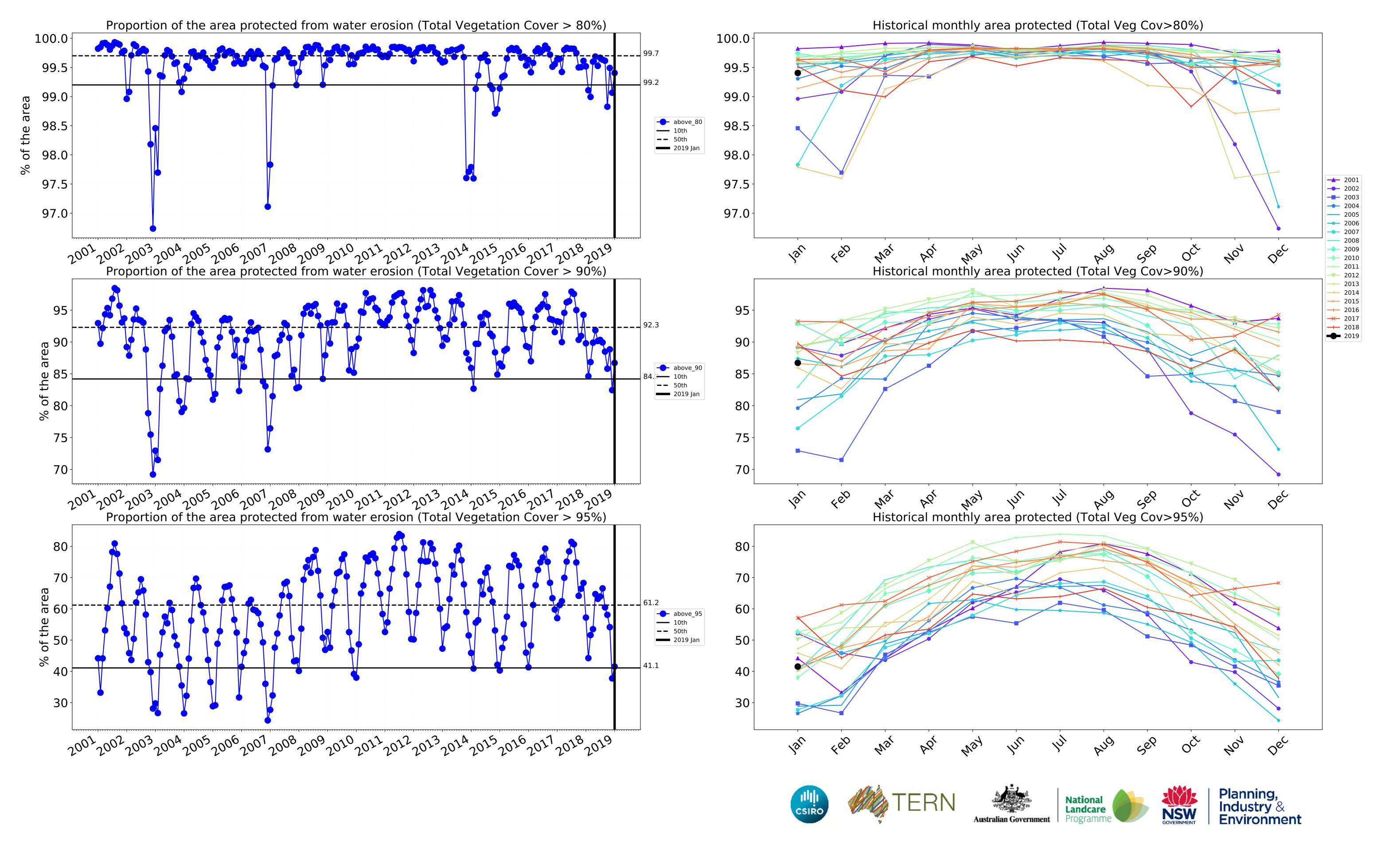




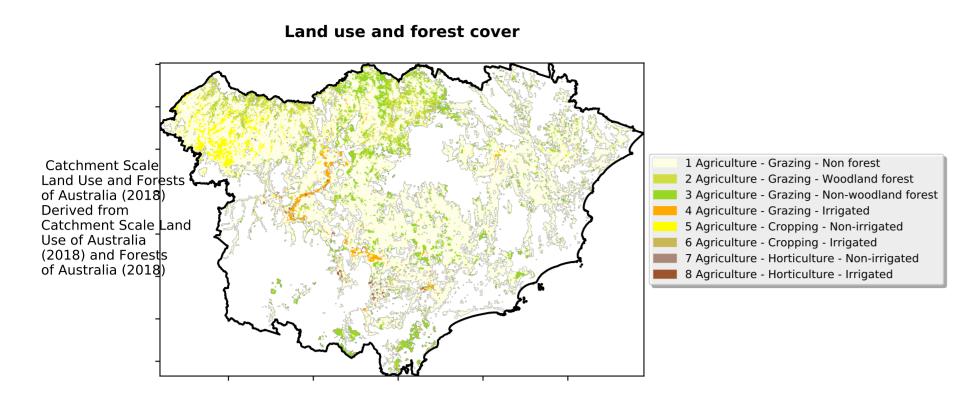


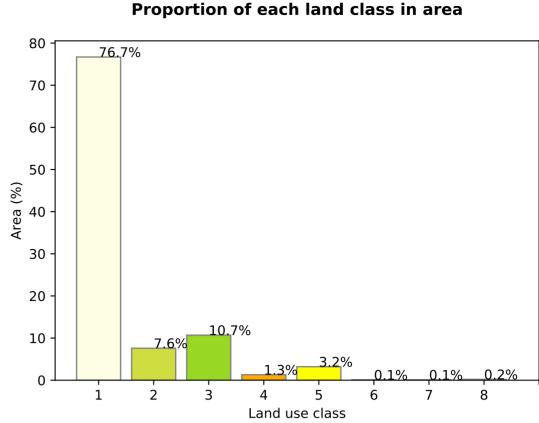




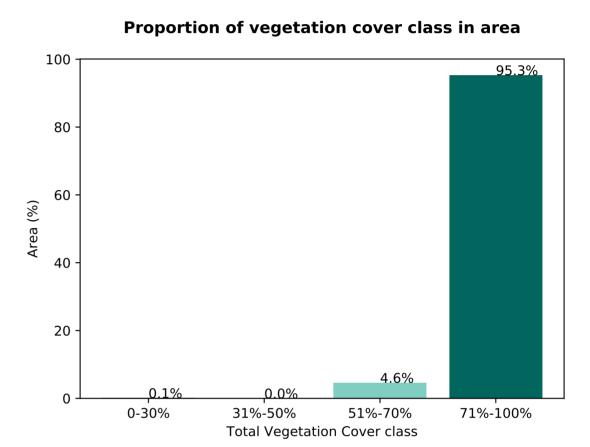


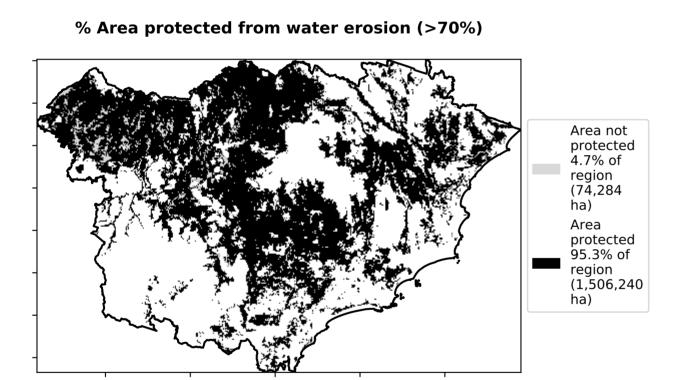
Agriculture

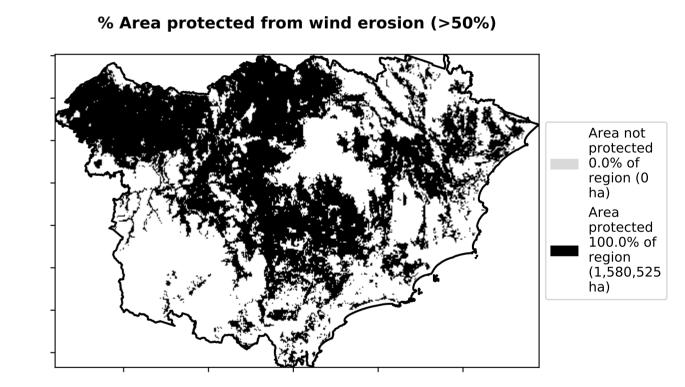


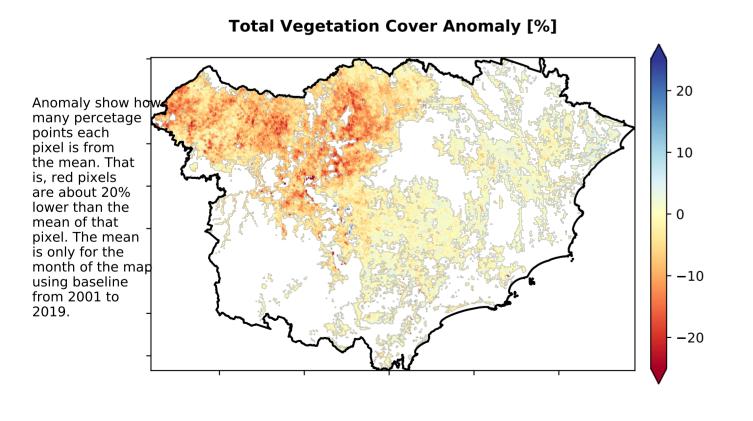


Total Vegetation Cover [%] Tale radio Tal

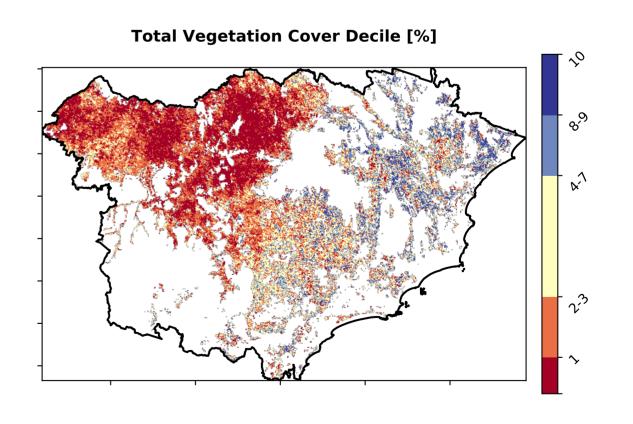








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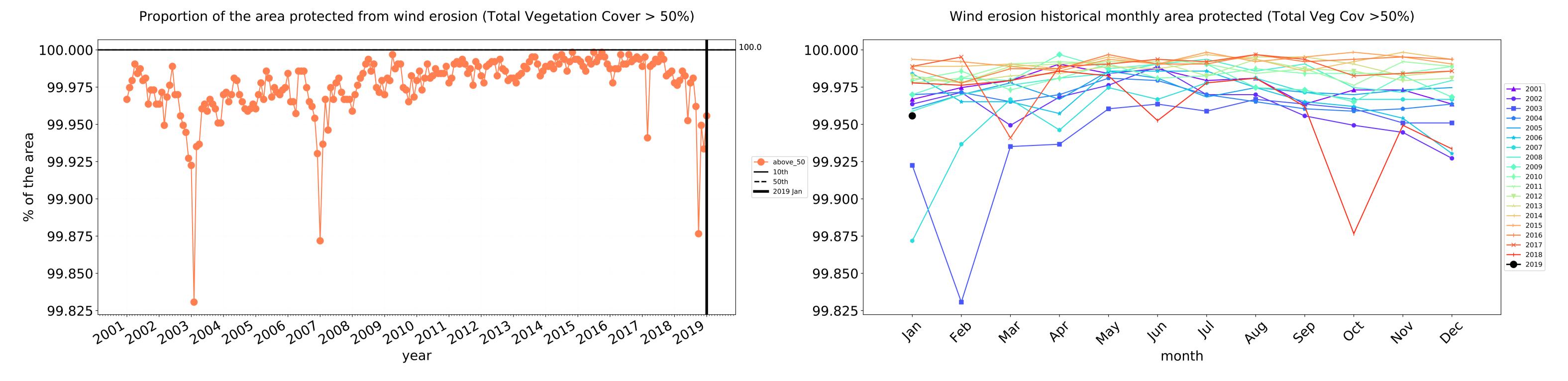


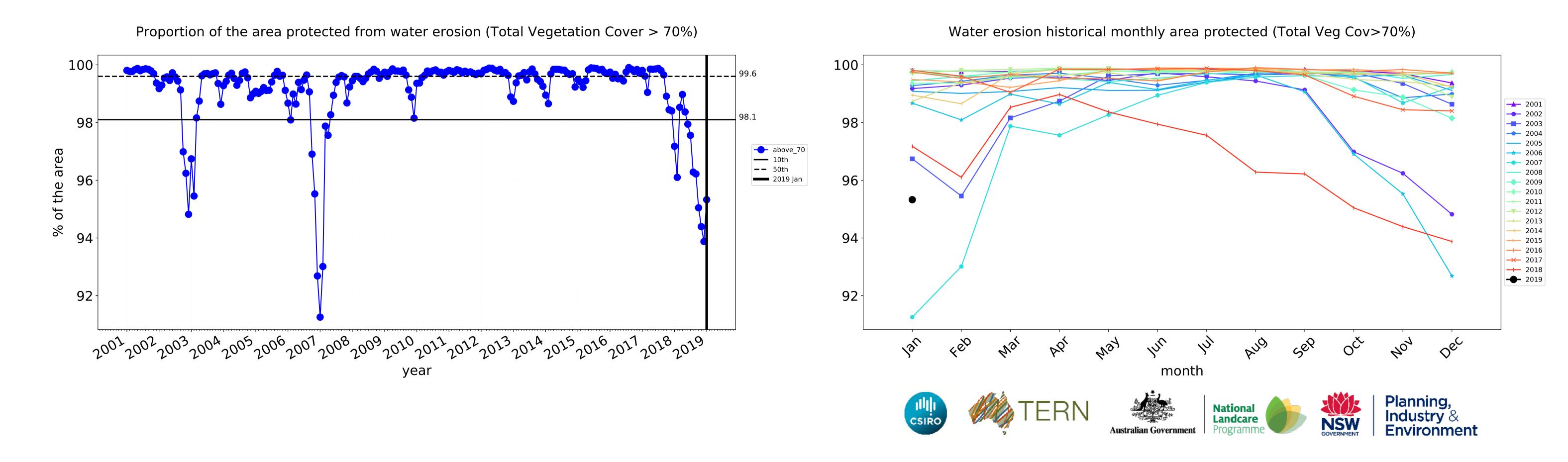


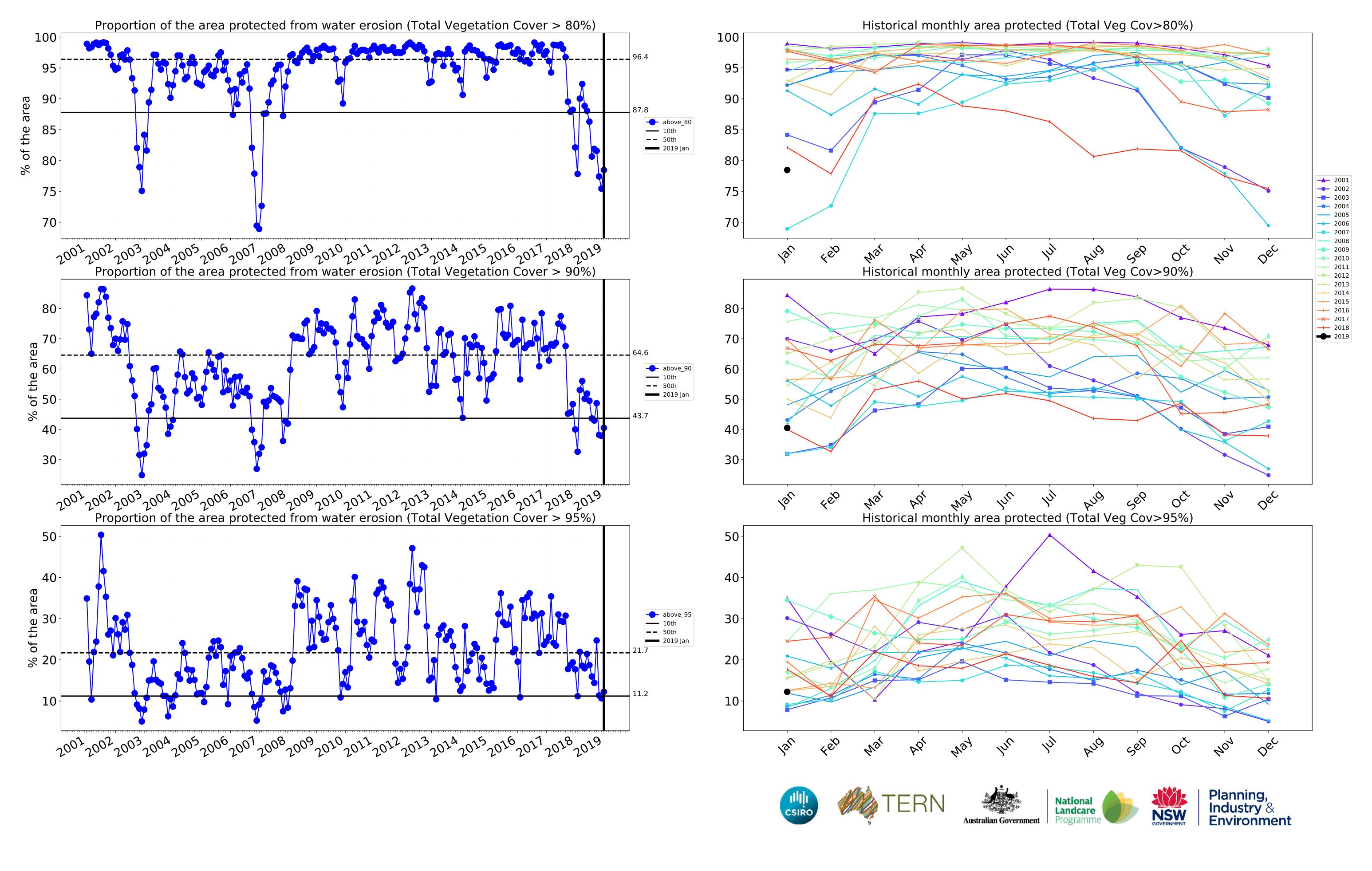




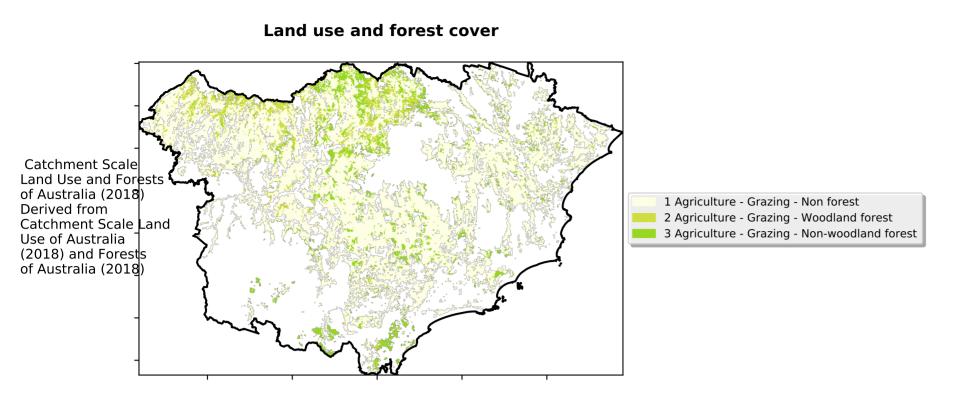
Agriculture timeseries



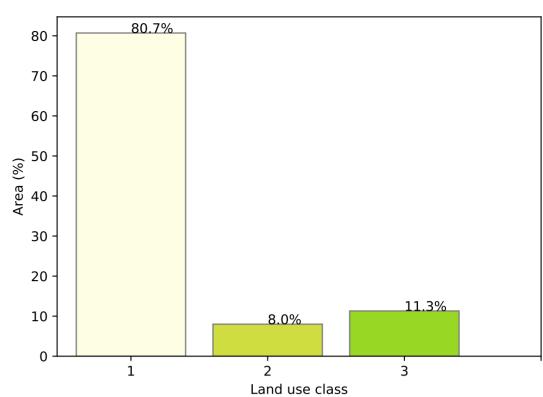




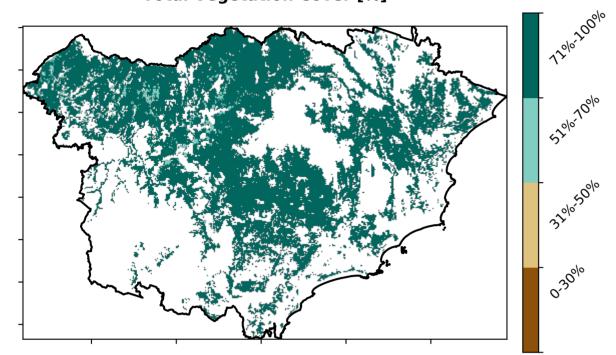
Grazing



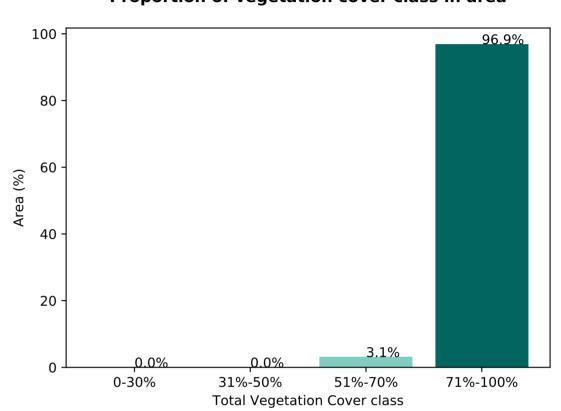
Proportion of each land class in area



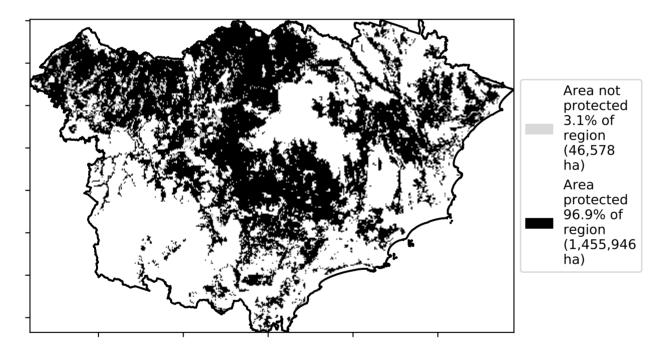




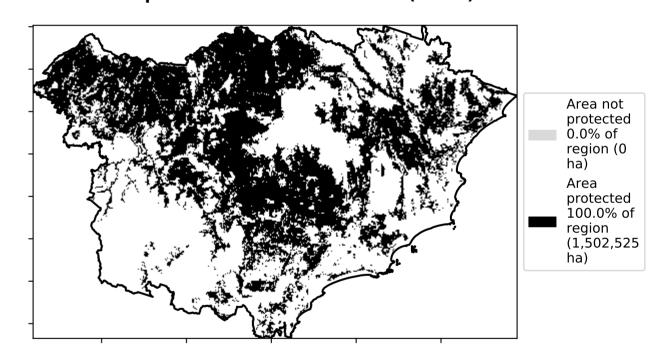
Proportion of vegetation cover class in area



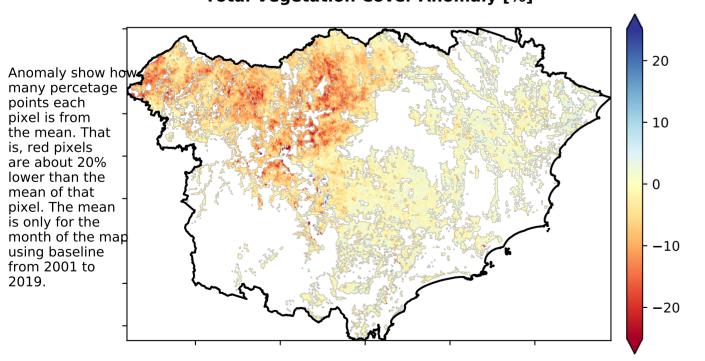
% Area protected from water erosion (>70%)



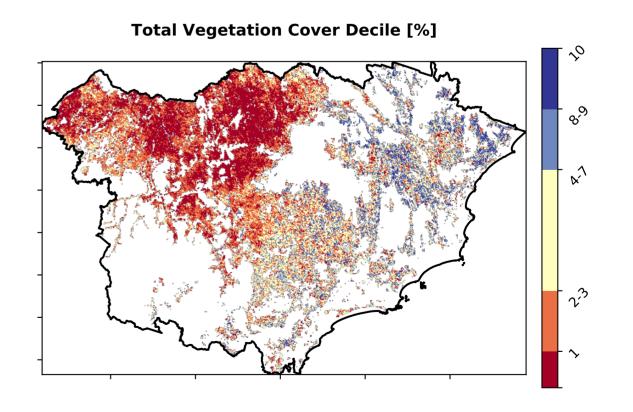
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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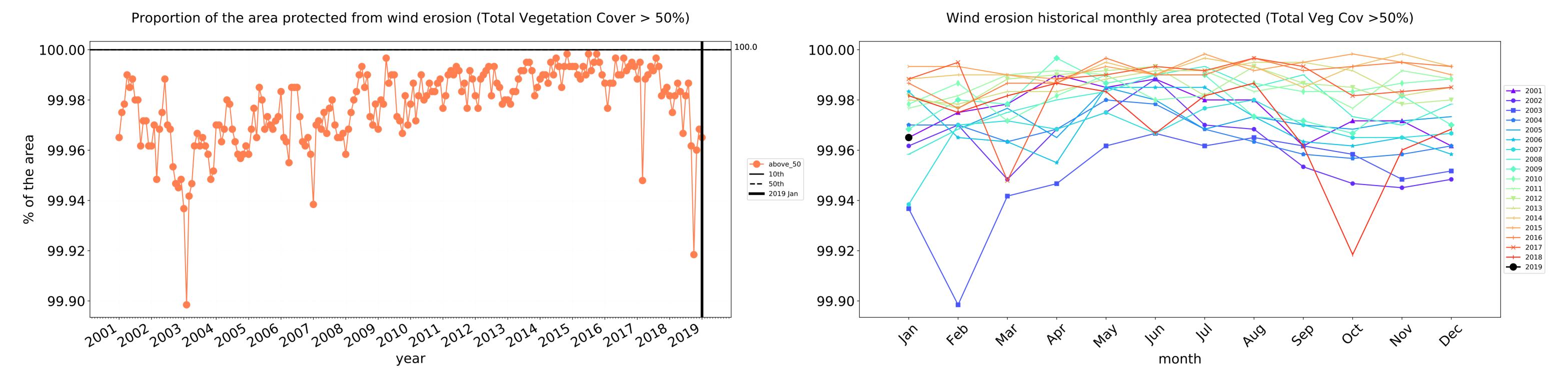


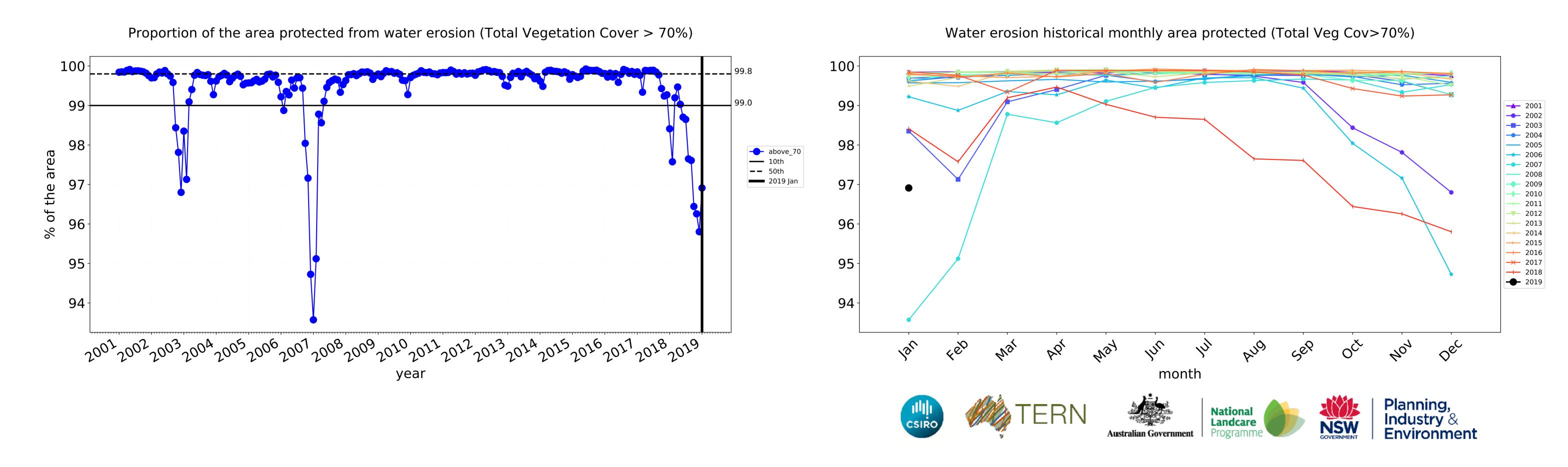


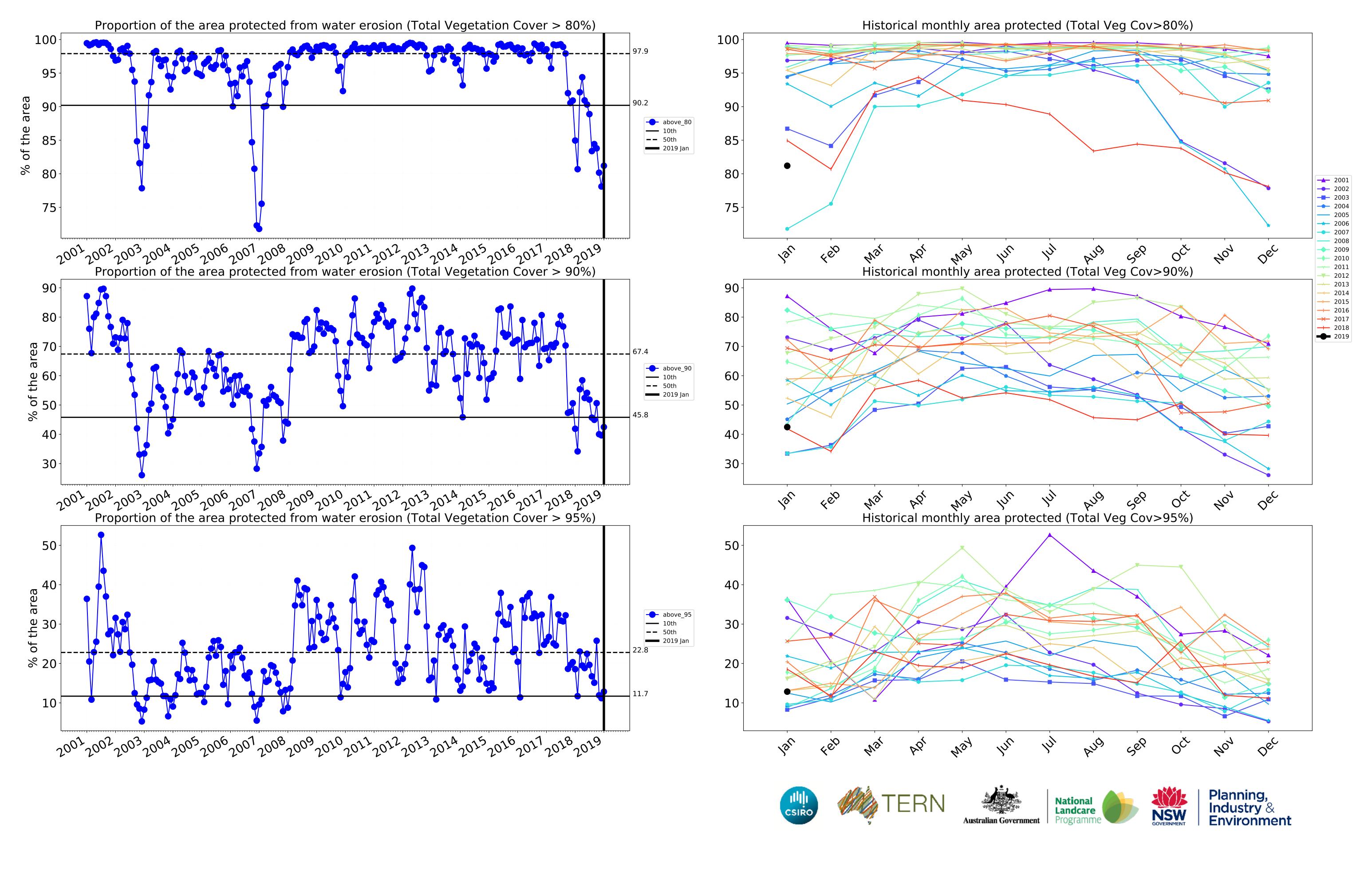




Grazing timeseries

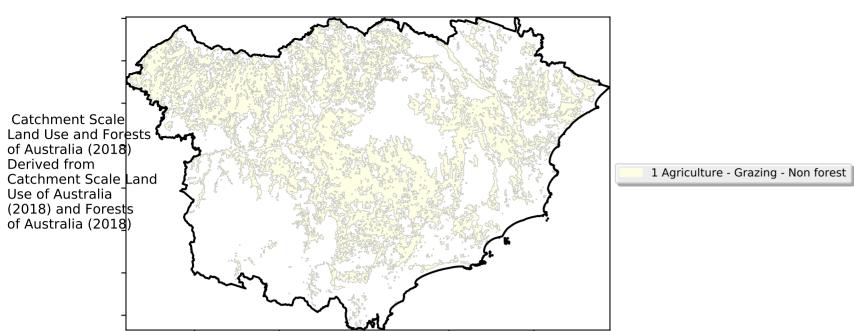




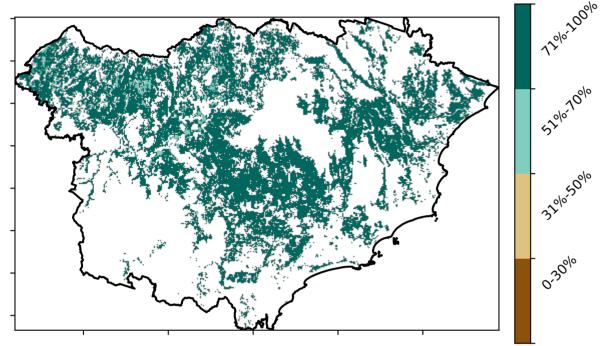


Grazing non forest

Land use and forest cover



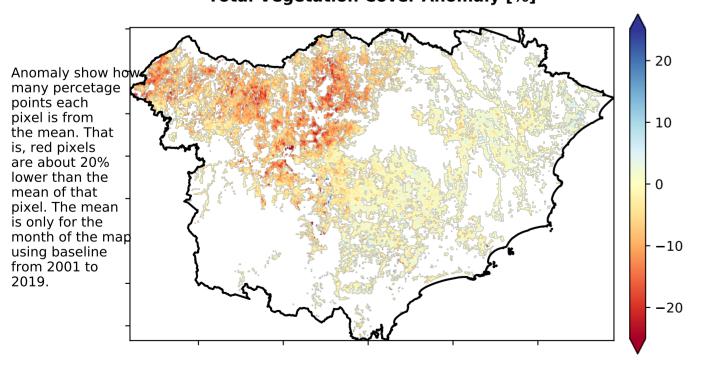
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

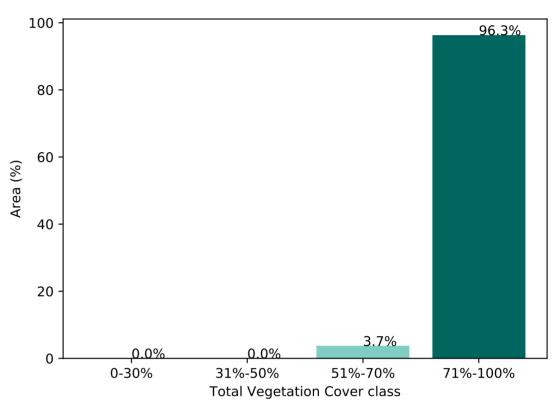
Area not protected 3.7% of region (44,874 ha) Area protected 96.3% of region (1,167,950 ha)

Total Vegetation Cover Anomaly [%]

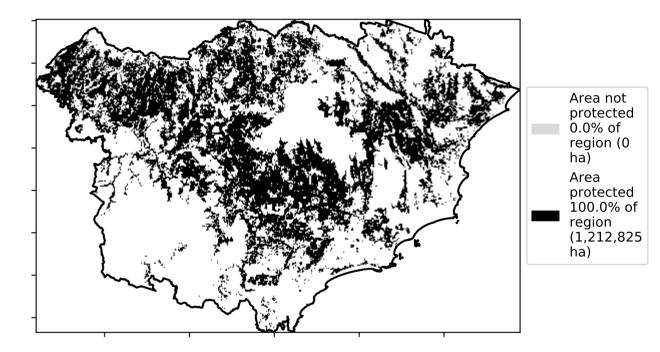


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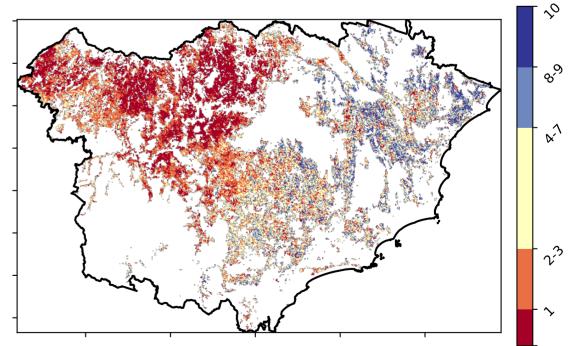
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







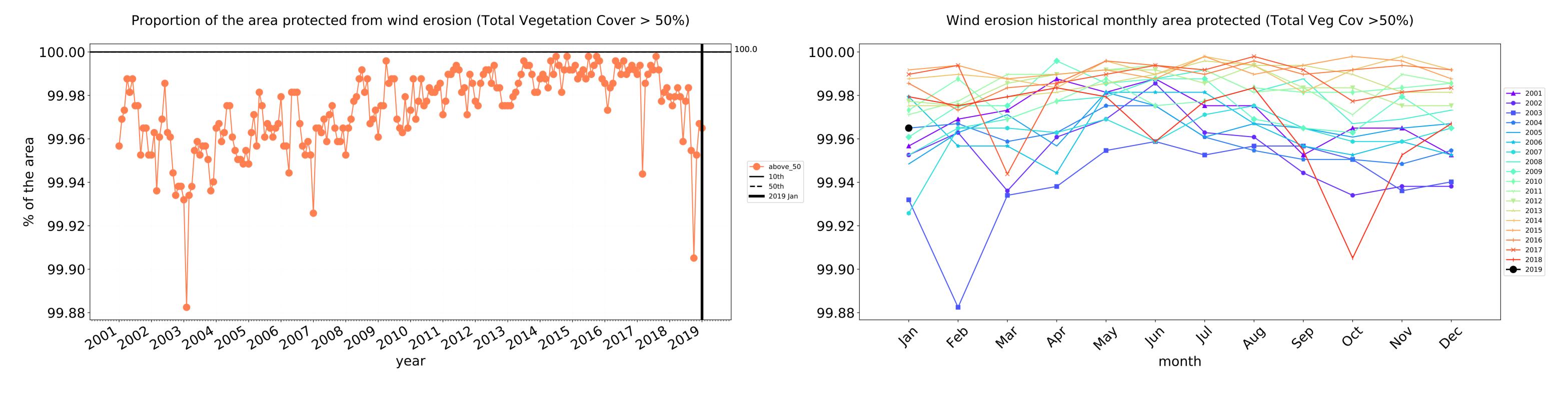


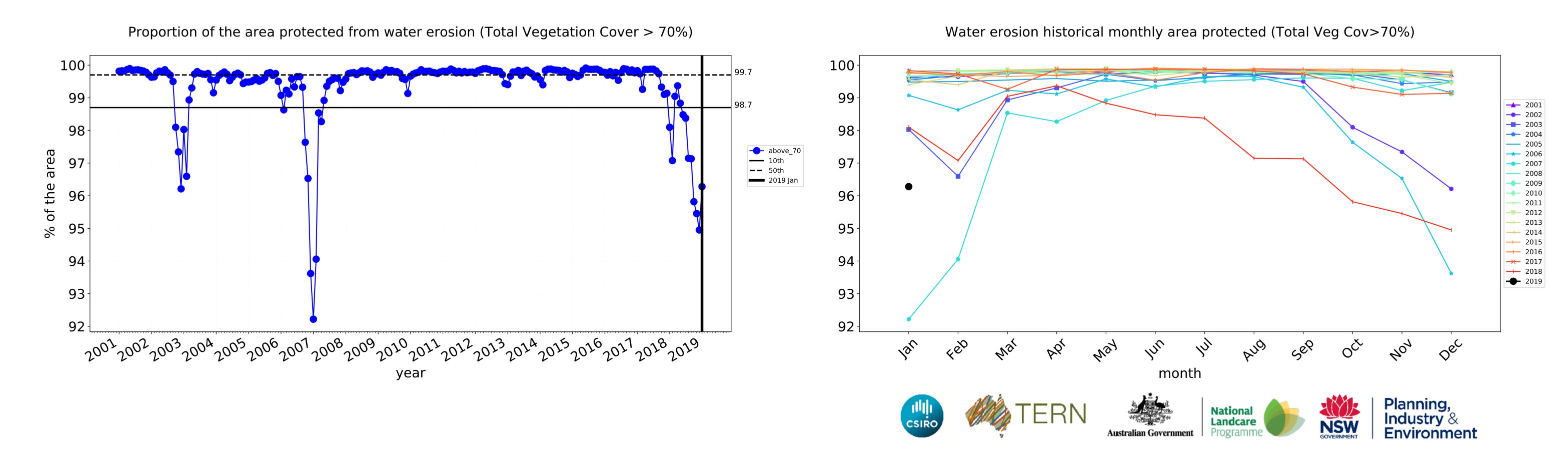


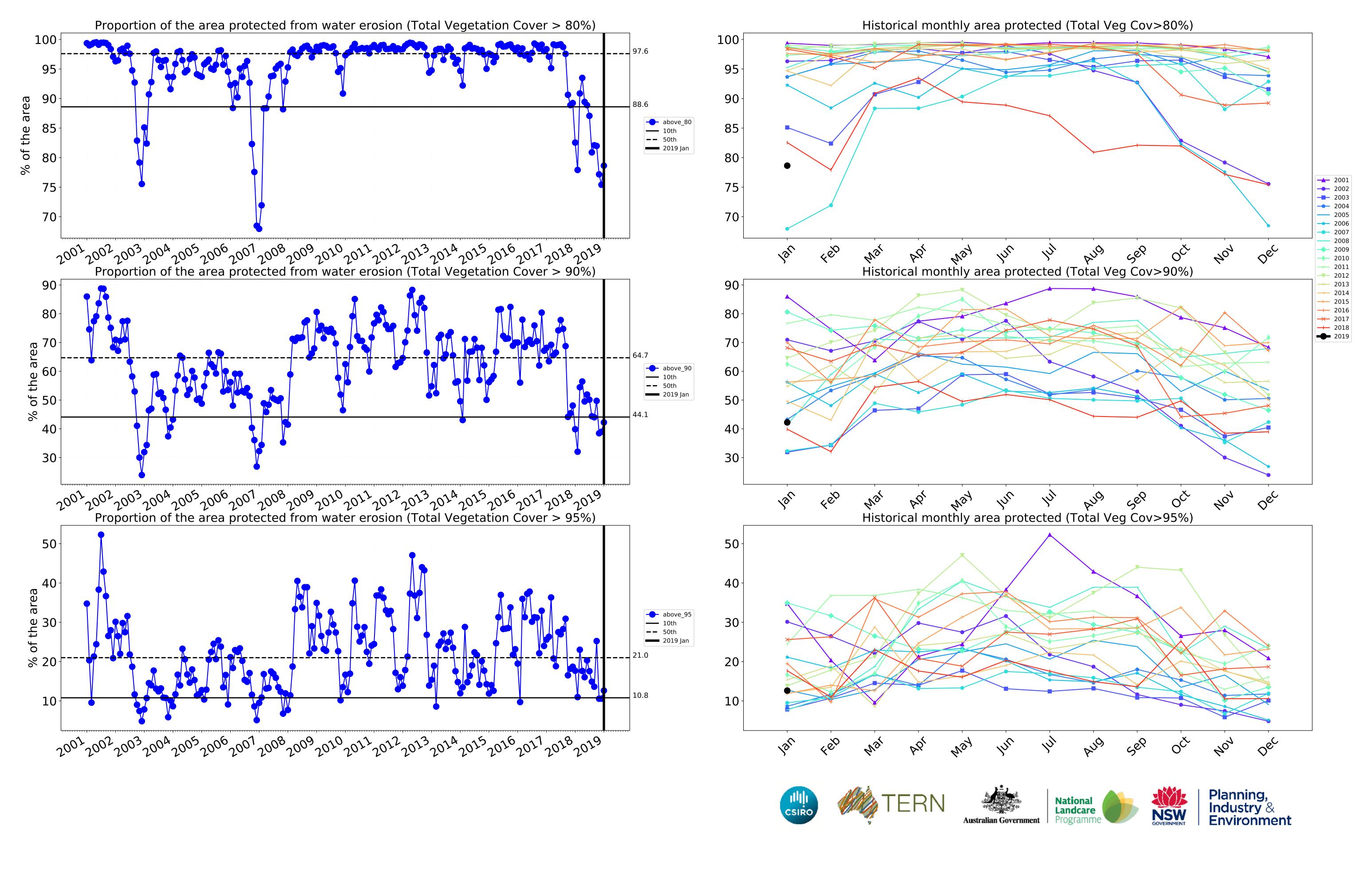




Grazing non forest timeseries



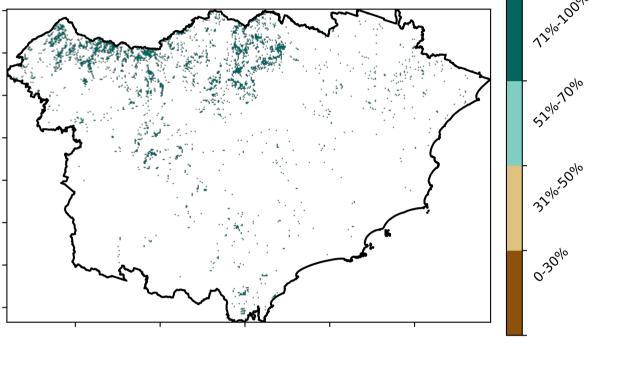


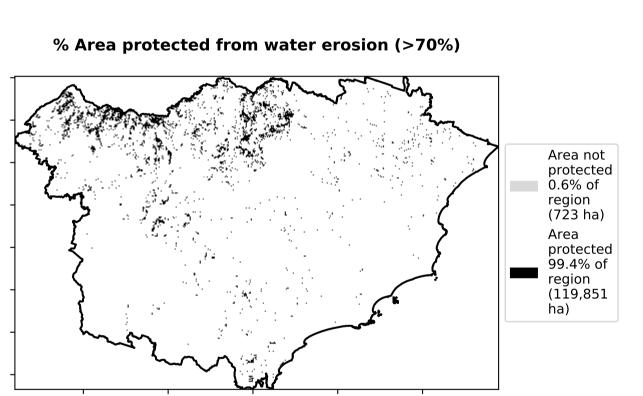


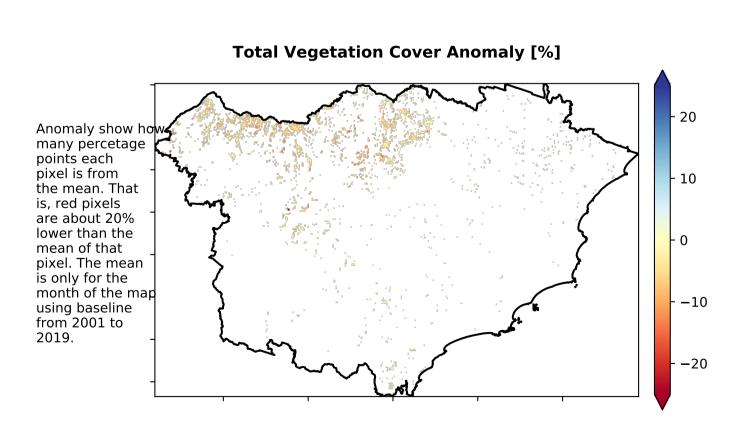
Grazing Woodland forest

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)

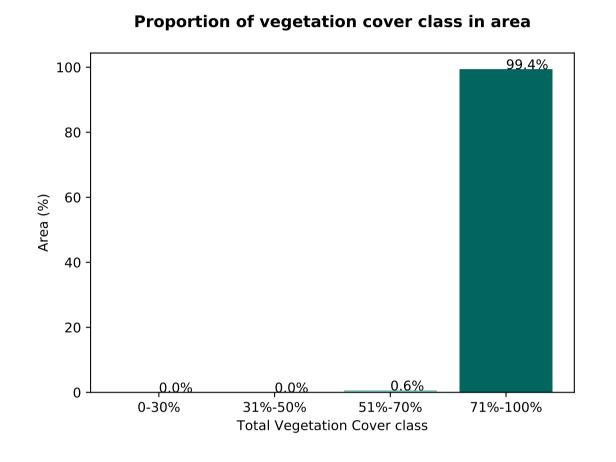
Total Vegetation Cover [%]

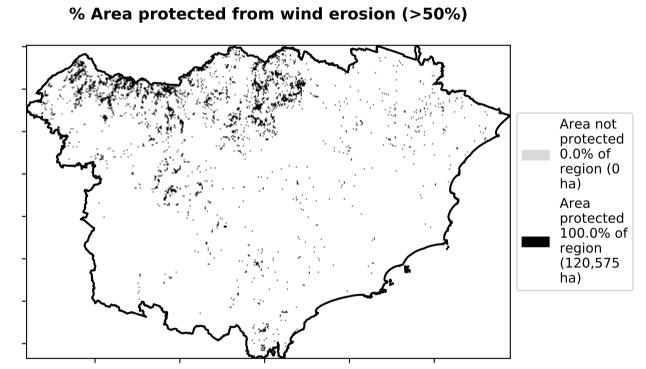


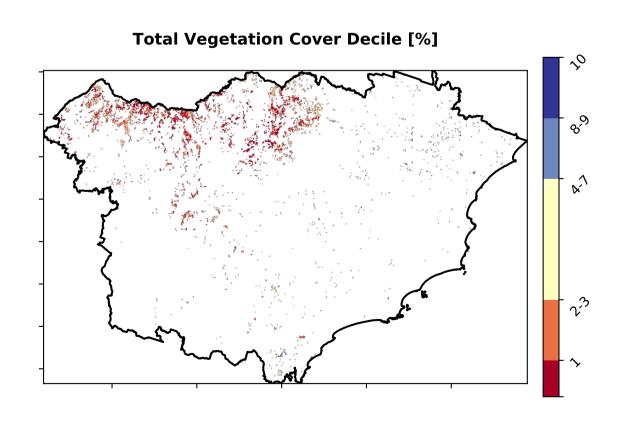




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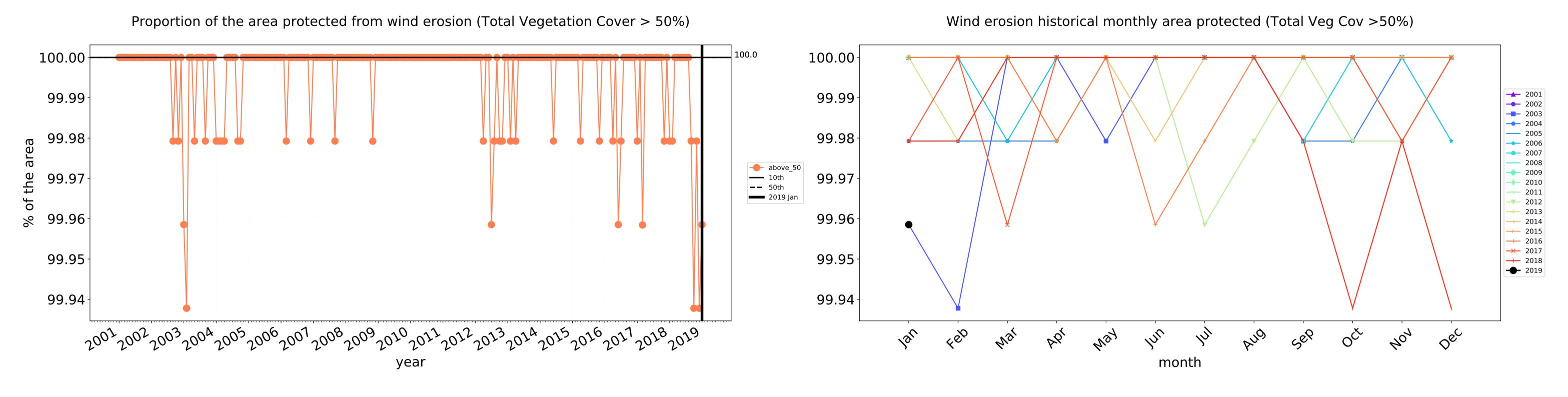


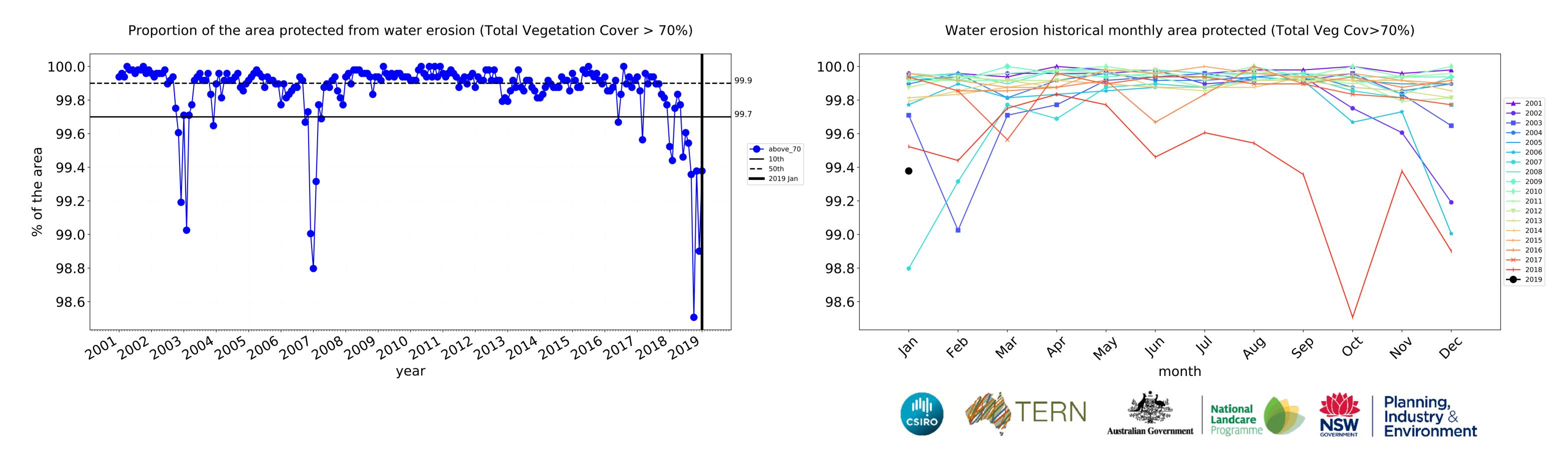


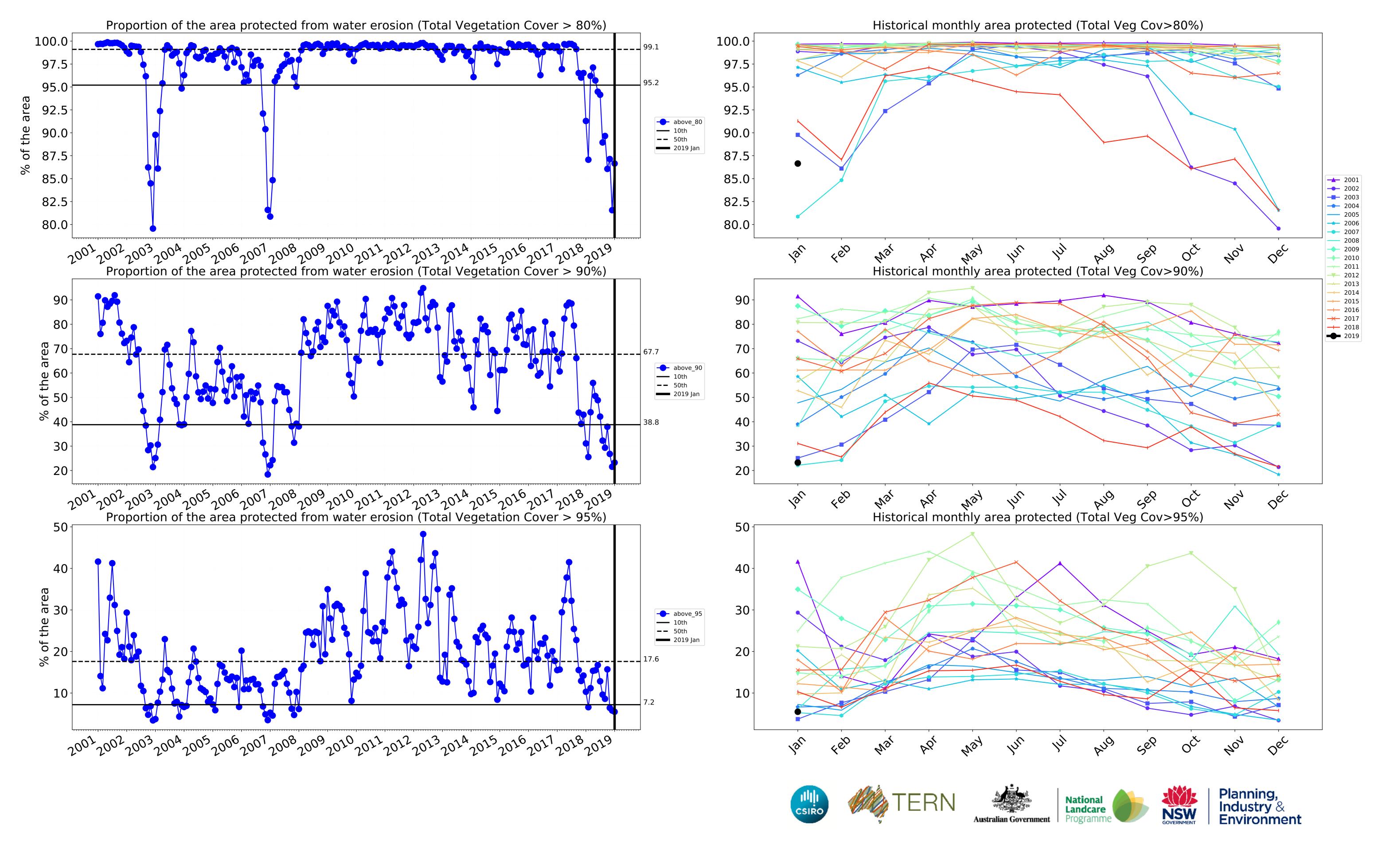




Grazing Woodland forest timeseries



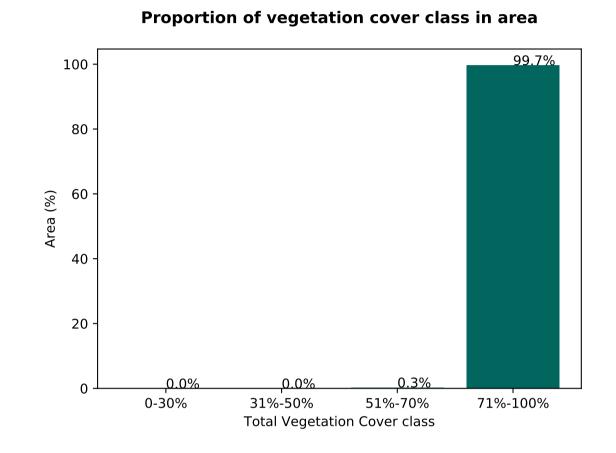


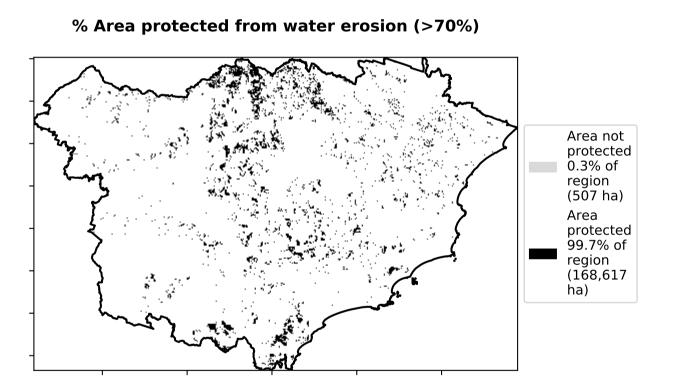


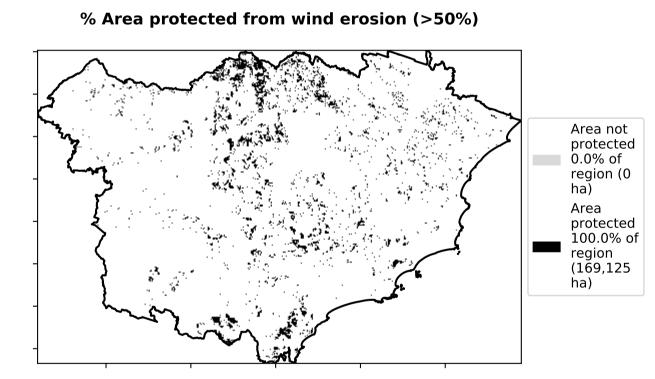
Grazing - Forest (non woodland)

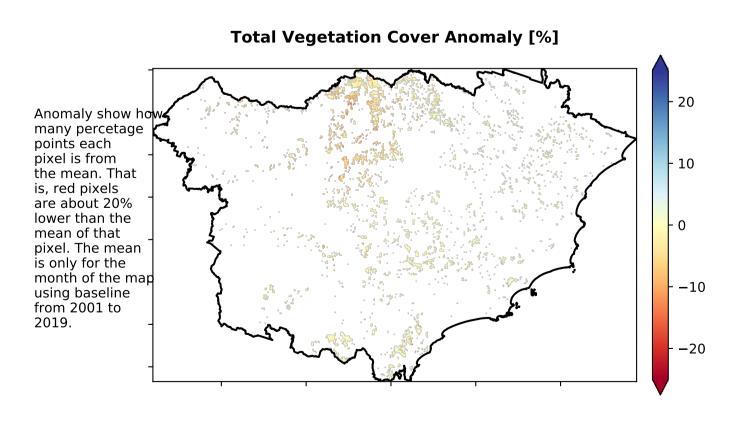
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) 1 Agriculture - Grazing - Non-woodland forest 1 Agriculture - Grazing - Non-woodland forest

Total Vegetation Cover [%] Tolandolo Tolan

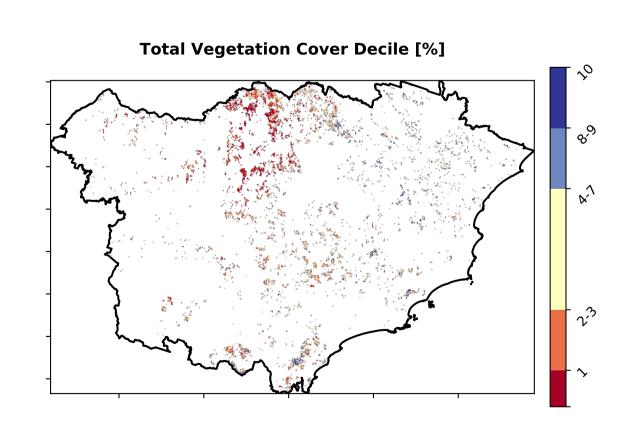








Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.





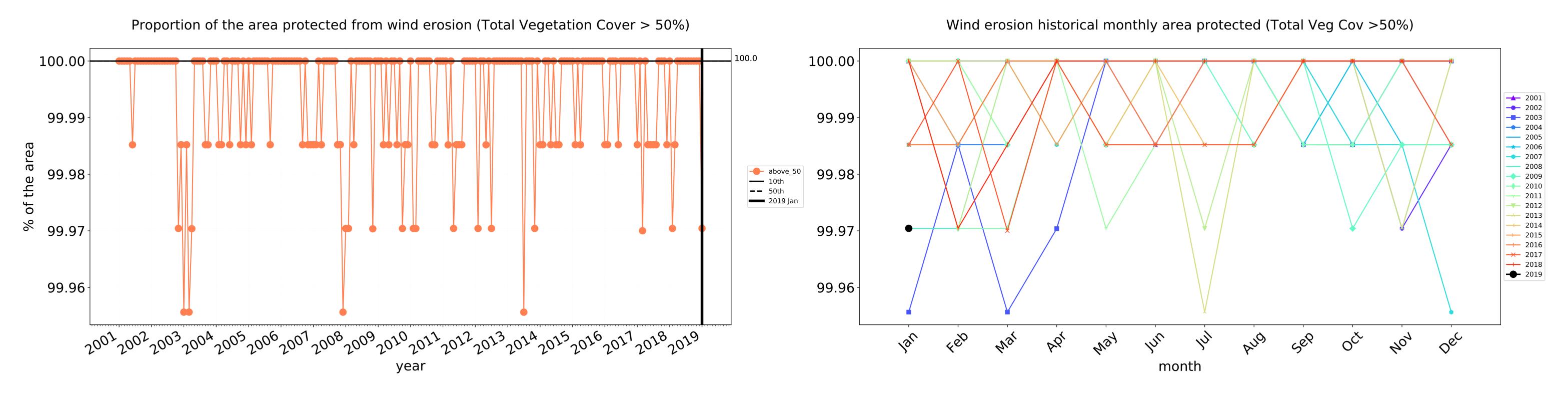


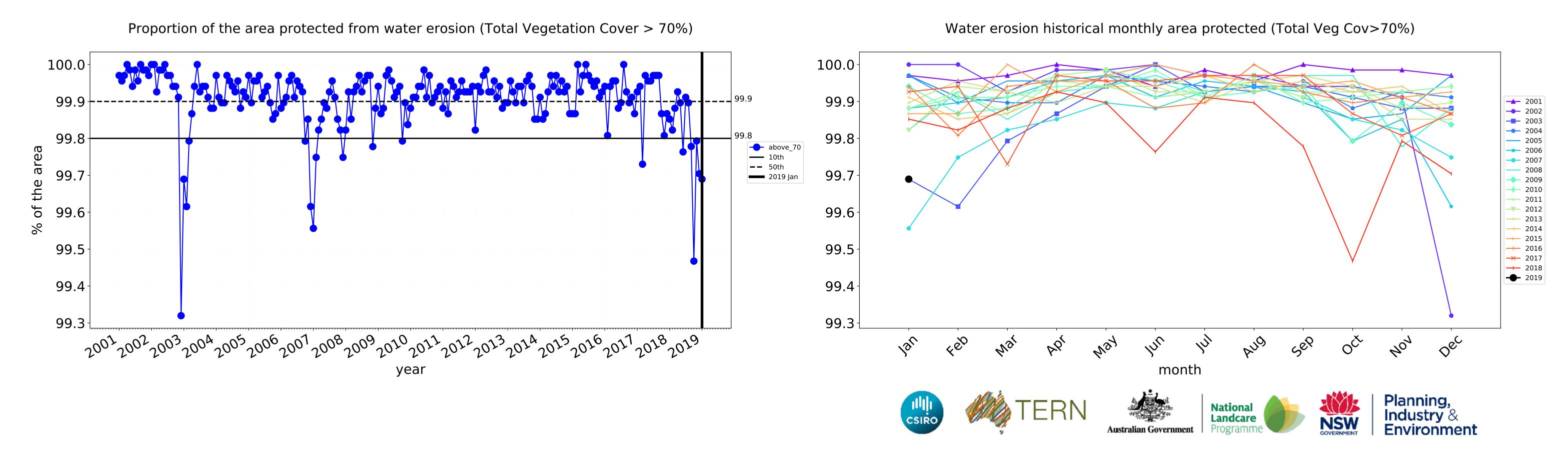


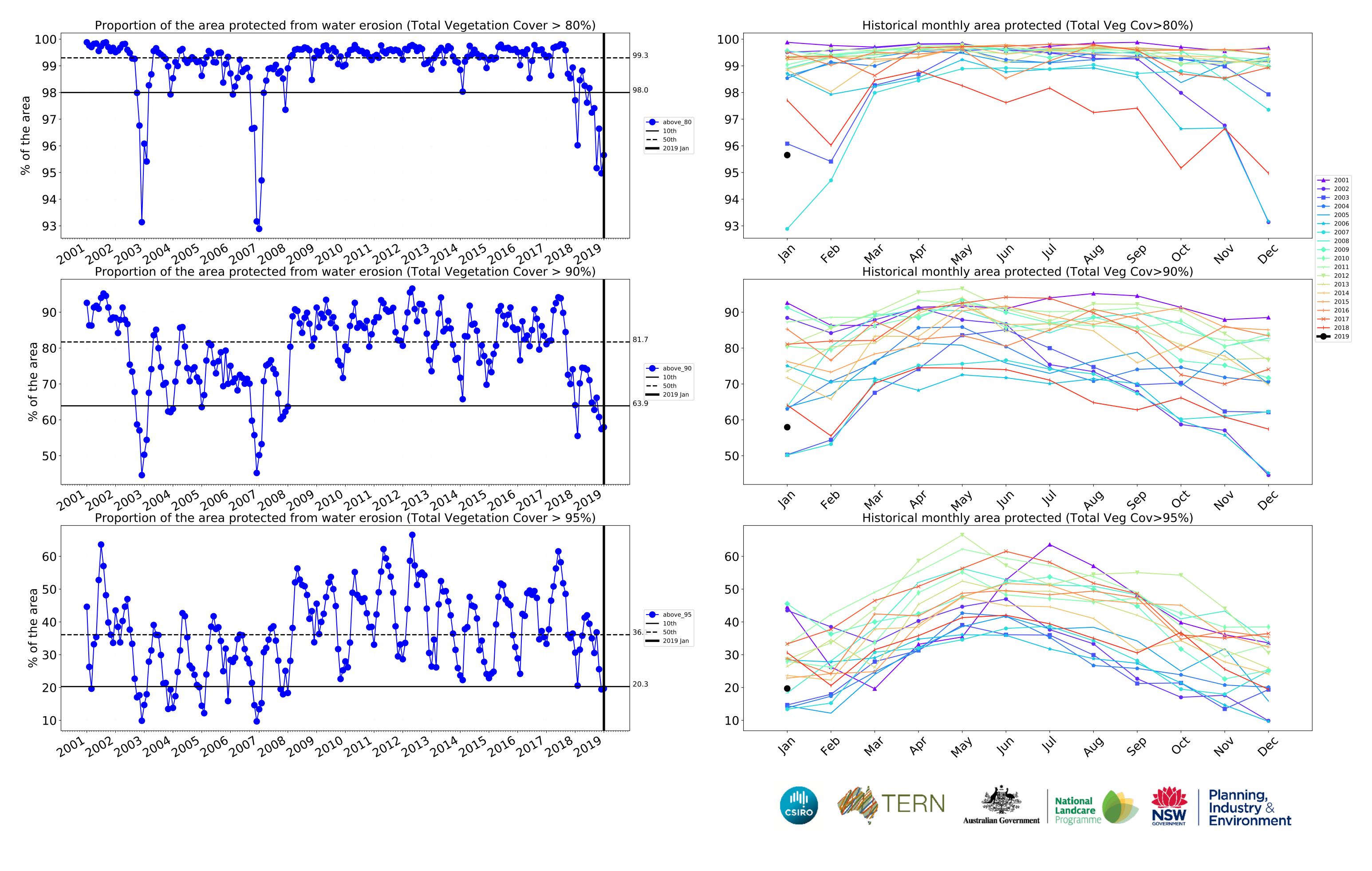






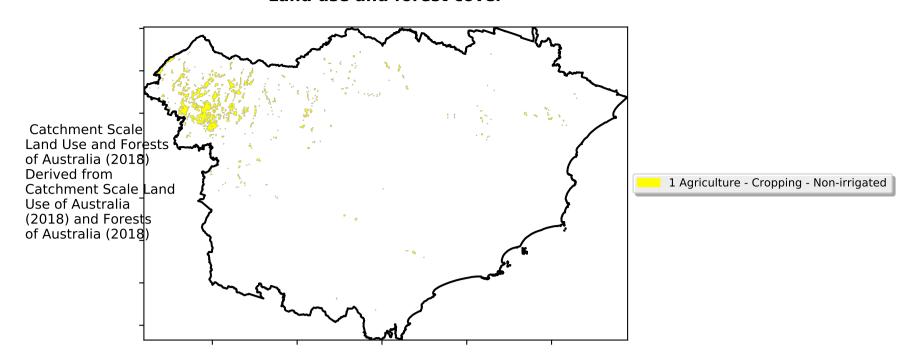




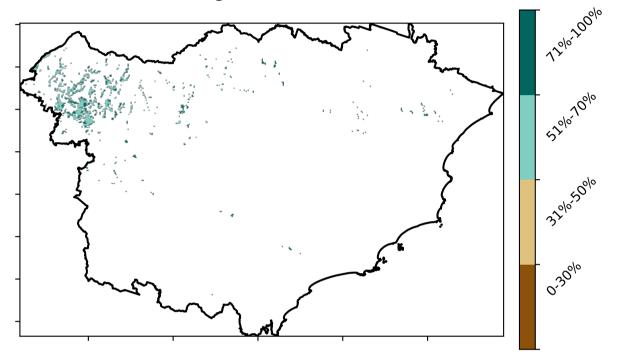


Cropping

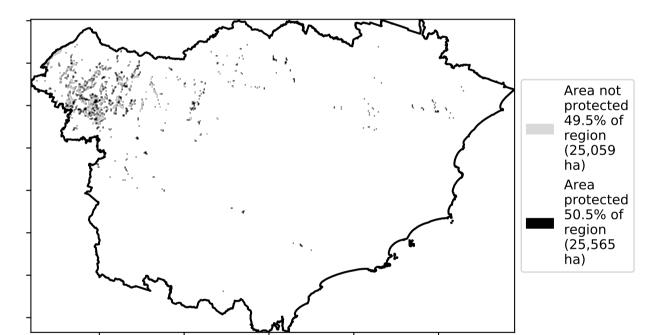
Land use and forest cover



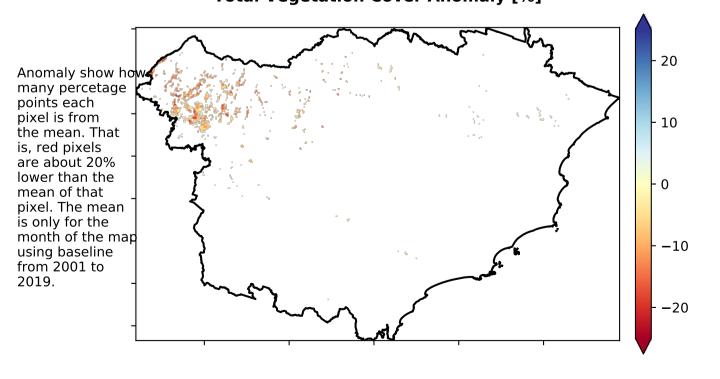
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

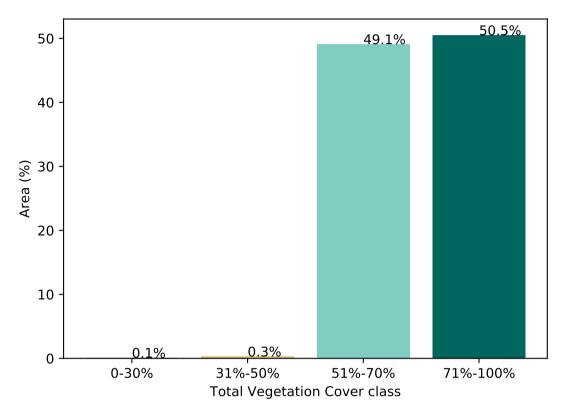


Total Vegetation Cover Anomaly [%]

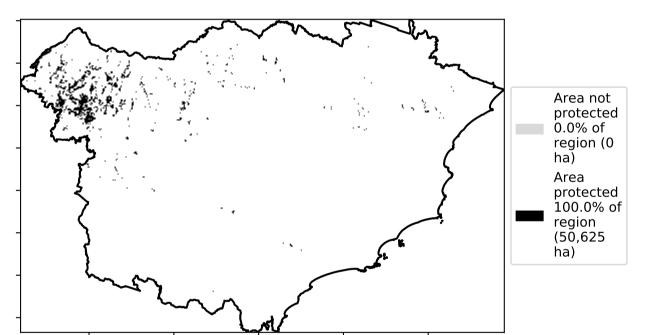


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

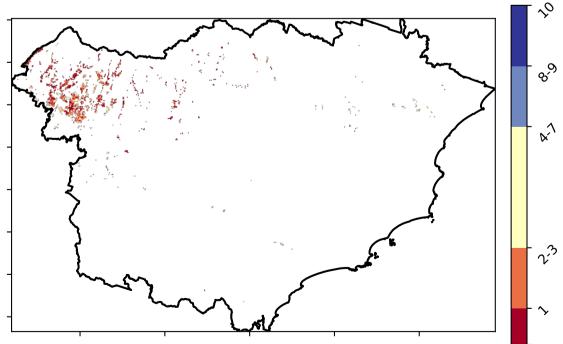
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







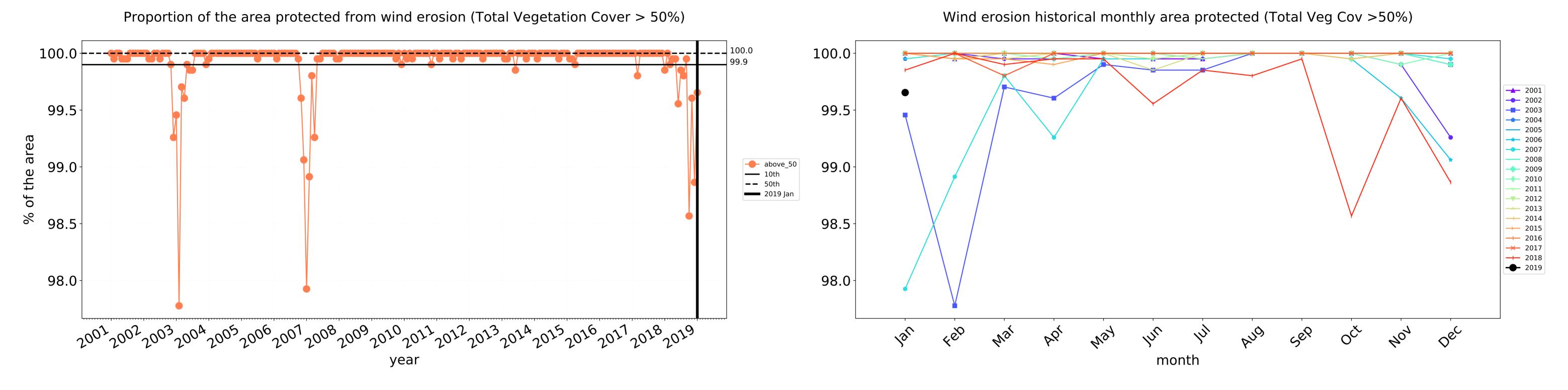


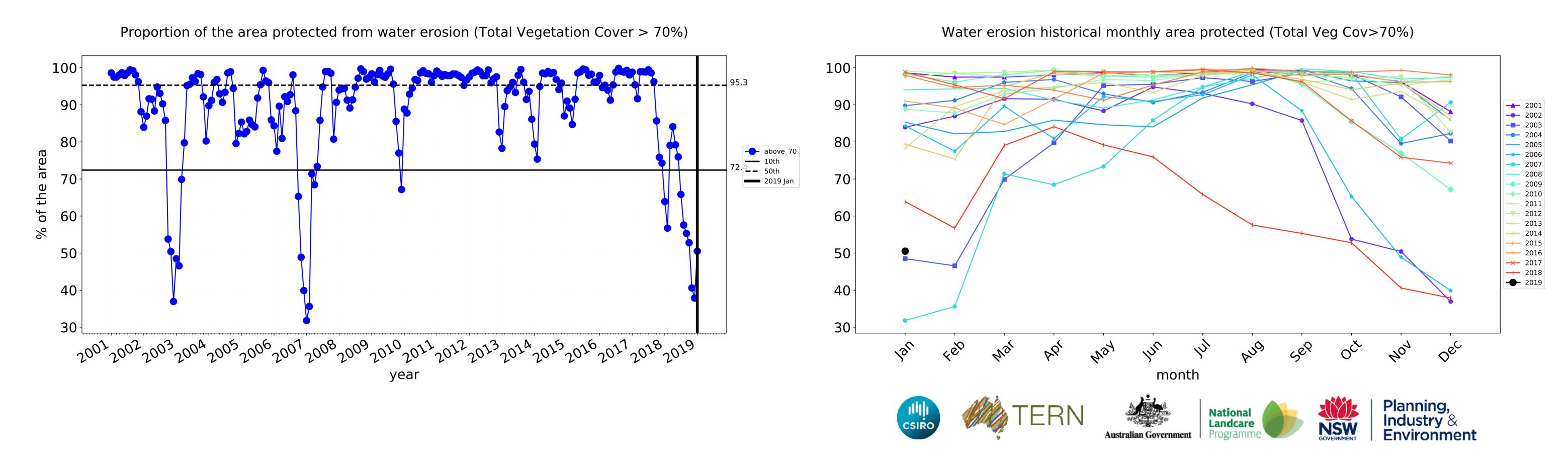


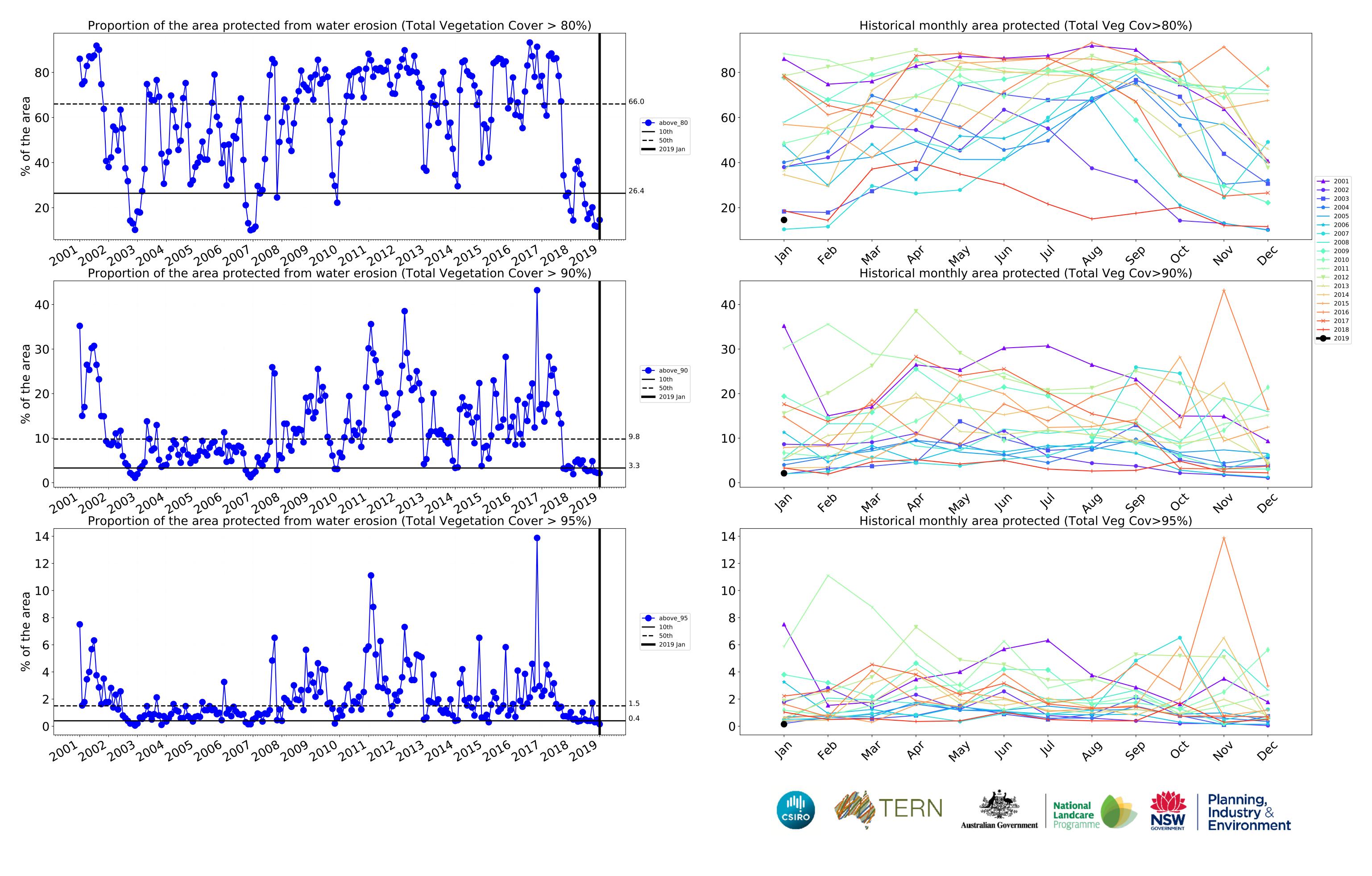




Cropping timeseries





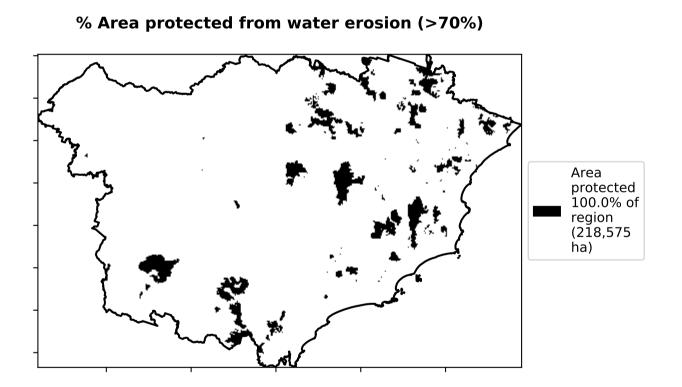


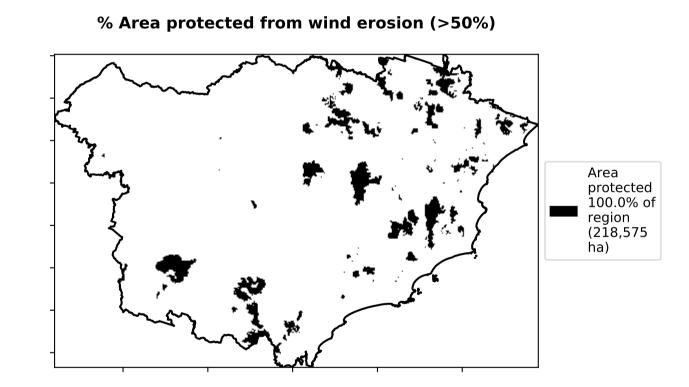
Production native forests and plantation forests

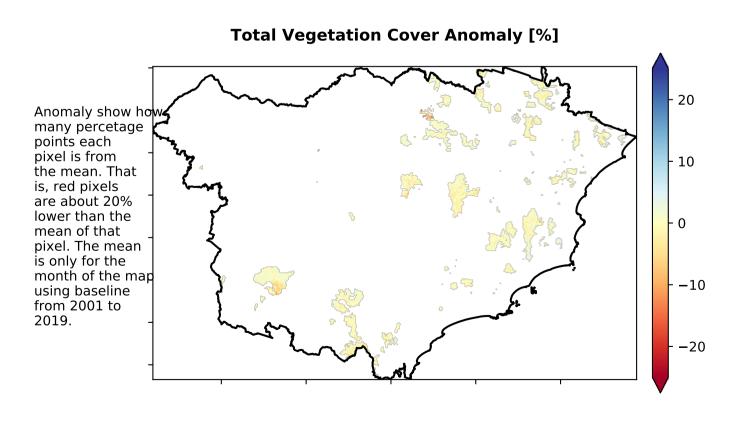
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]

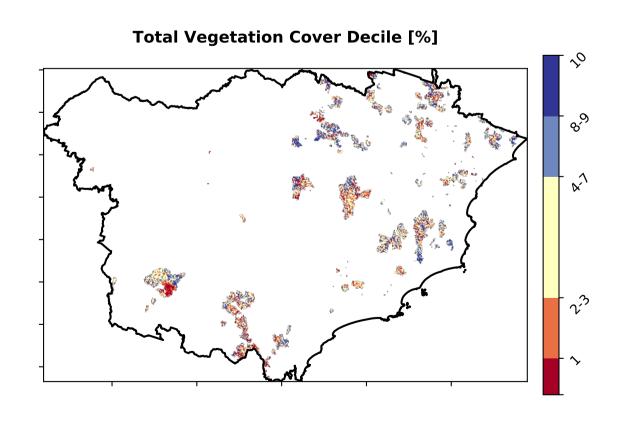
Proportion of vegetation cover class in area 100 - 100.0% 80 - 20 - 20 - 20 - 0.0% 0-30% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class







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







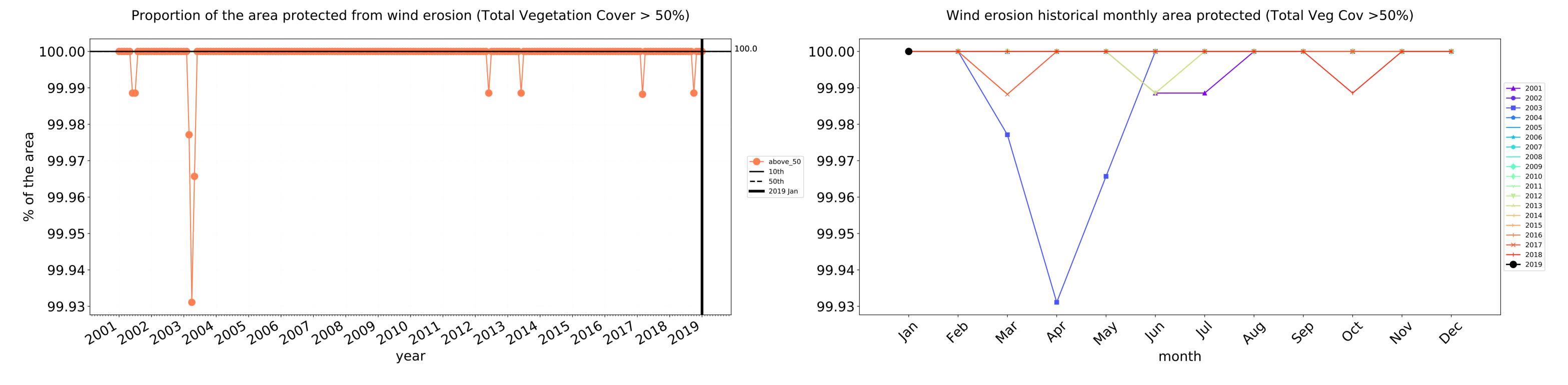


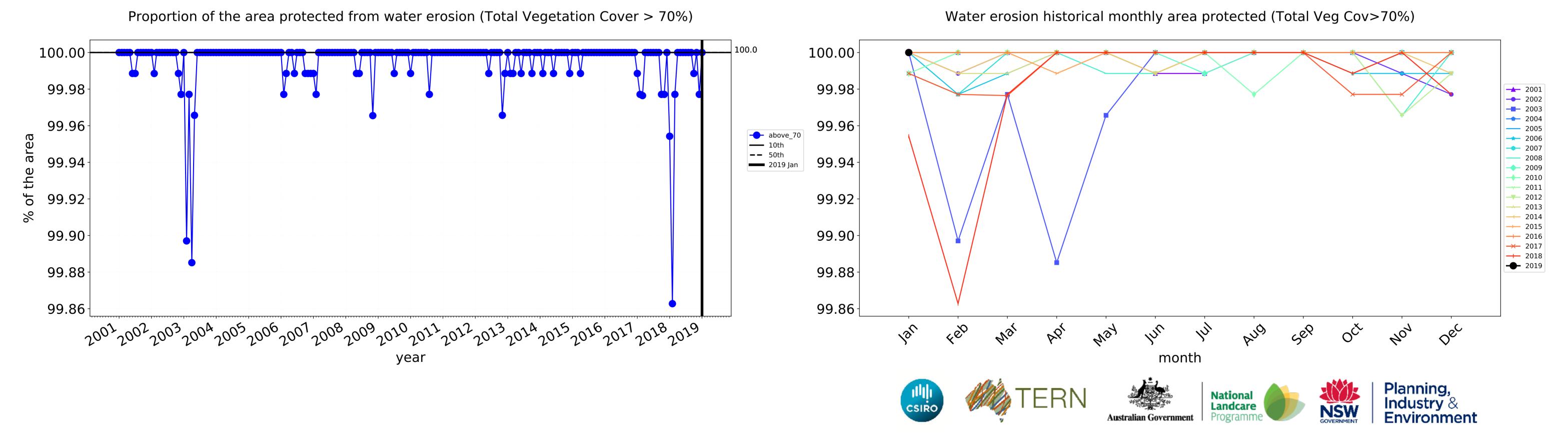


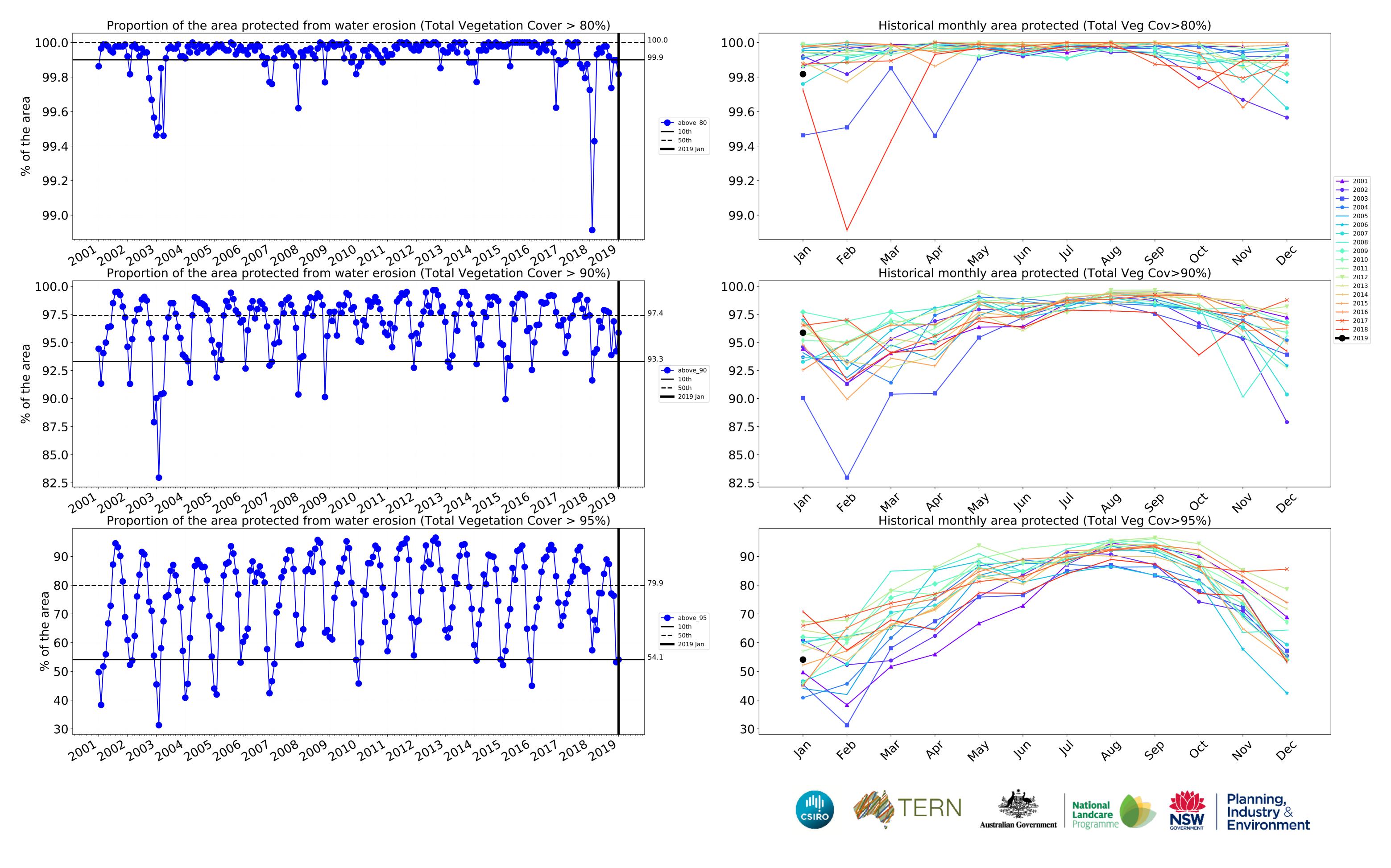




Production native forests and plantation forests timeseries







Hunter (3,238,925 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% 3,236,150	99.6% 3,225,725	96.1% 3,114,075	86.2% 2,790,475	59.7% 1,934,700	24.9% 807,325
Conservation and natural environments	1,240,275	99.9% 1,239,075	99.8% 1,238,200	99.6% 1,235,125	98.7% 1,224,175	83.9% 1,040,200	39.1% 485,275
Conservation and natural environments non forest	29,600	96.3% 28,500	93.9% 27,800	89.4% 26,475	80.1% 23,700	55.2% 16,350	23.9% 7,075
Conservation and natural environments Woodland forest	138,750	100.0% 138,725	100.0% 138,725	99.7% 138,325	97.2% 134,925	67.9% 94,250	23.7% 32,950
Conservation and natural environments Forest (non woodland)	1,071,925	100.0% 1,071,850	100.0% 1,071,675	99.9% 1,070,325	99.4% 1,065,550	86.7% 929,600	41.5% 445,250
Agriculture	1,580,525	100.0% 1,580,525	100.0% 1,579,825	95.3% 1,506,650	78.5% 1,240,050	40.5% 640,500	12.2% 193,275
Grazing	1,502,525	100.0% 1,502,525	100.0% 1,502,000	96.9% 1,456,125	81.2% 1,220,000	42.5% 638,200	12.9% 193,100
Grazing non forest	1,212,825	100.0% 1,212,825	100.0% 1,212,400	96.3% 1,167,700	78.6% 953,750	42.2% 512,175	12.6% 153,150
Grazing Woodland forest	120,575	100.0% 120,575	100.0% 120,525	99.4% 119,825	86.6% 104,475	23.2% 28,025	5.5% 6,625
Grazing - Forest (non woodland)	169,125	100.0% 169,125	100.0% 169,075	99.7% 168,600	95.7% 161,775	57.9% 98,000	19.7% 33,325
Cropping	50,625	100.0% 50,625	99.7% 50,450	50.5% 25,575	14.6% 7,375	2.1% 1,075	0.1% 75
Production native forests and plantation forests	218,575	100.0% 218,575	100.0% 218,575	100.0% 218,575	99.8% 218,175	95.9% 209,550	54.1% 118,250











