Total vegetation cover soil protection Region:NRM Hunter NSW

Date: January 2007

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







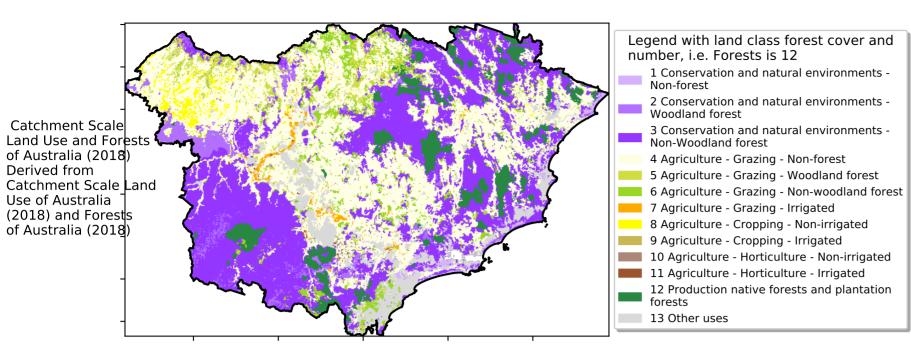




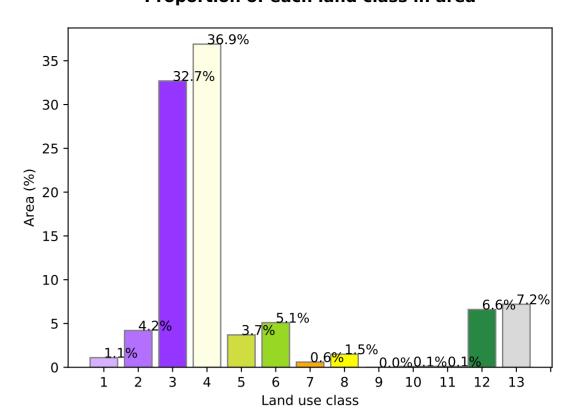


Vegetation Cover Jan 2007

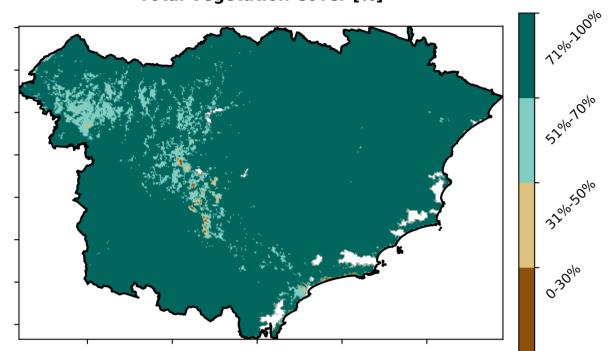
Land use and forest cover



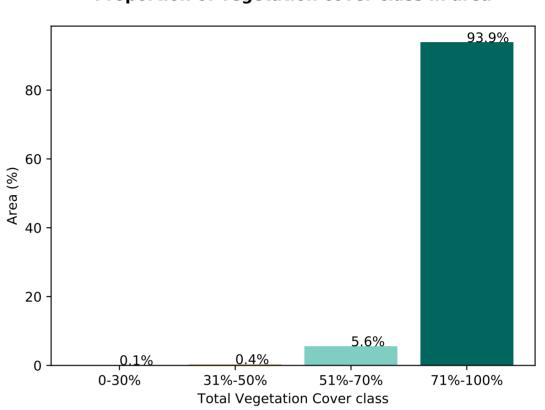
Proportion of each land class in area



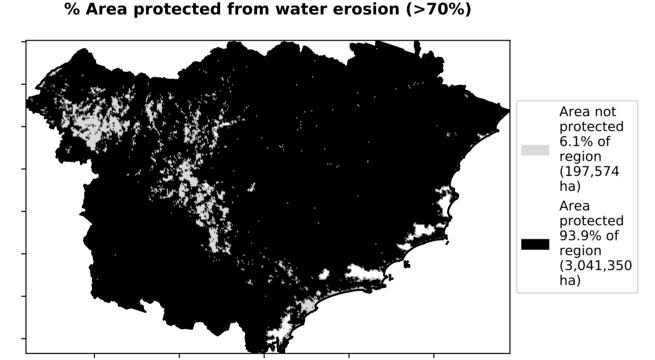
Total Vegetation Cover [%]



Proportion of vegetation cover class in area



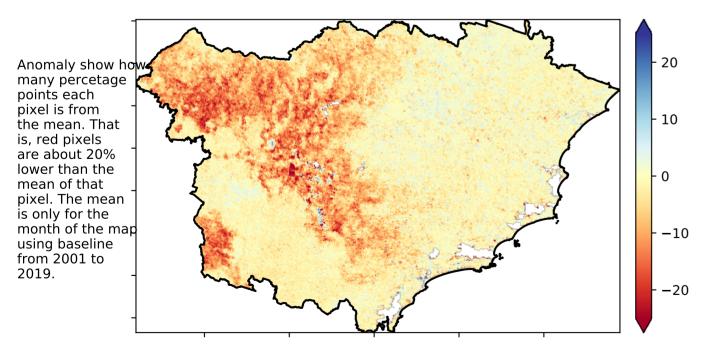
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% Area protected from wind erosion (>50%)

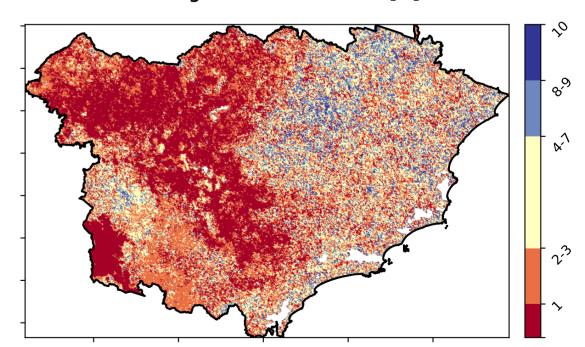


Total Vegetation Cover Anomaly [%]



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 [%]





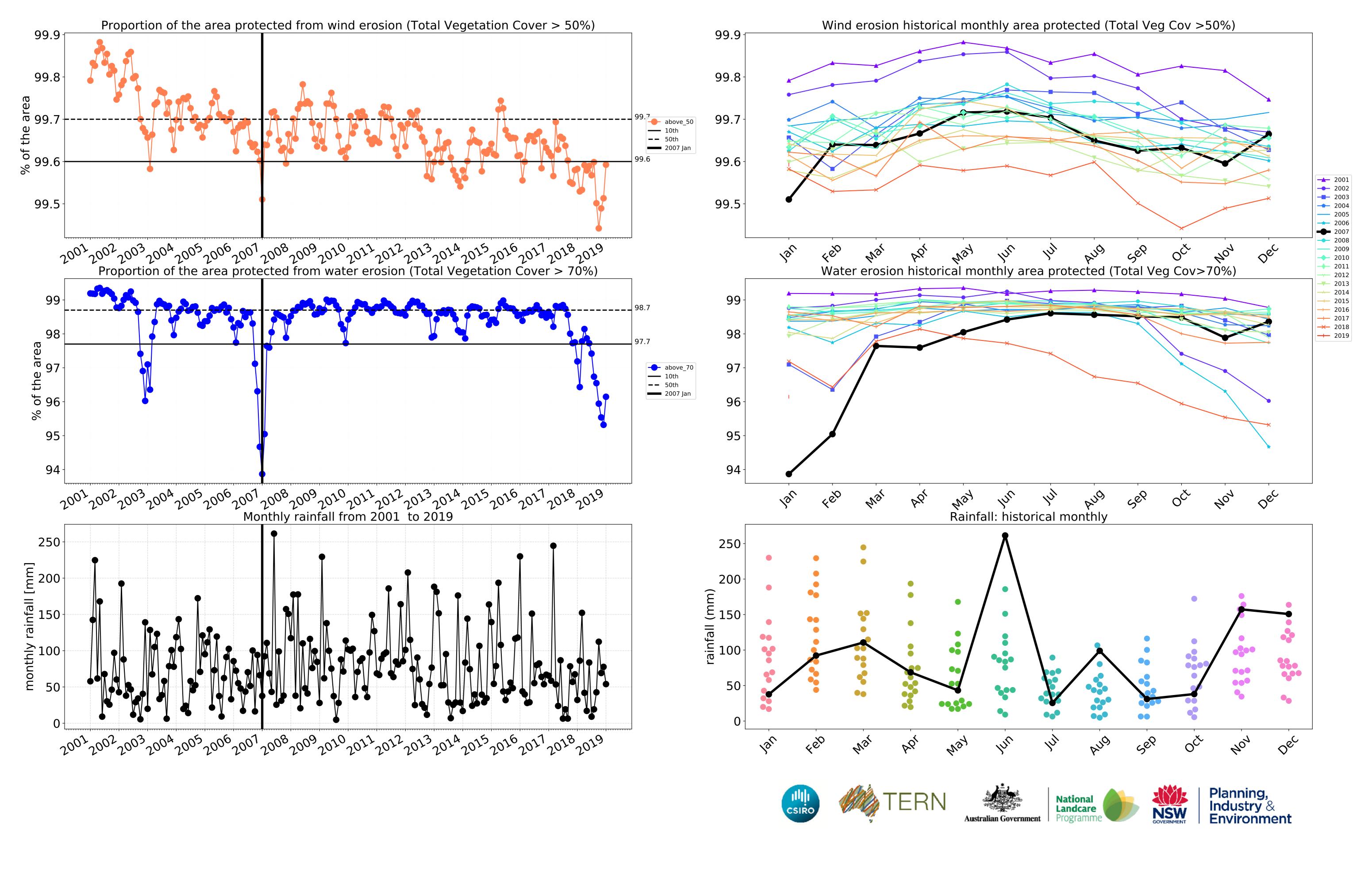


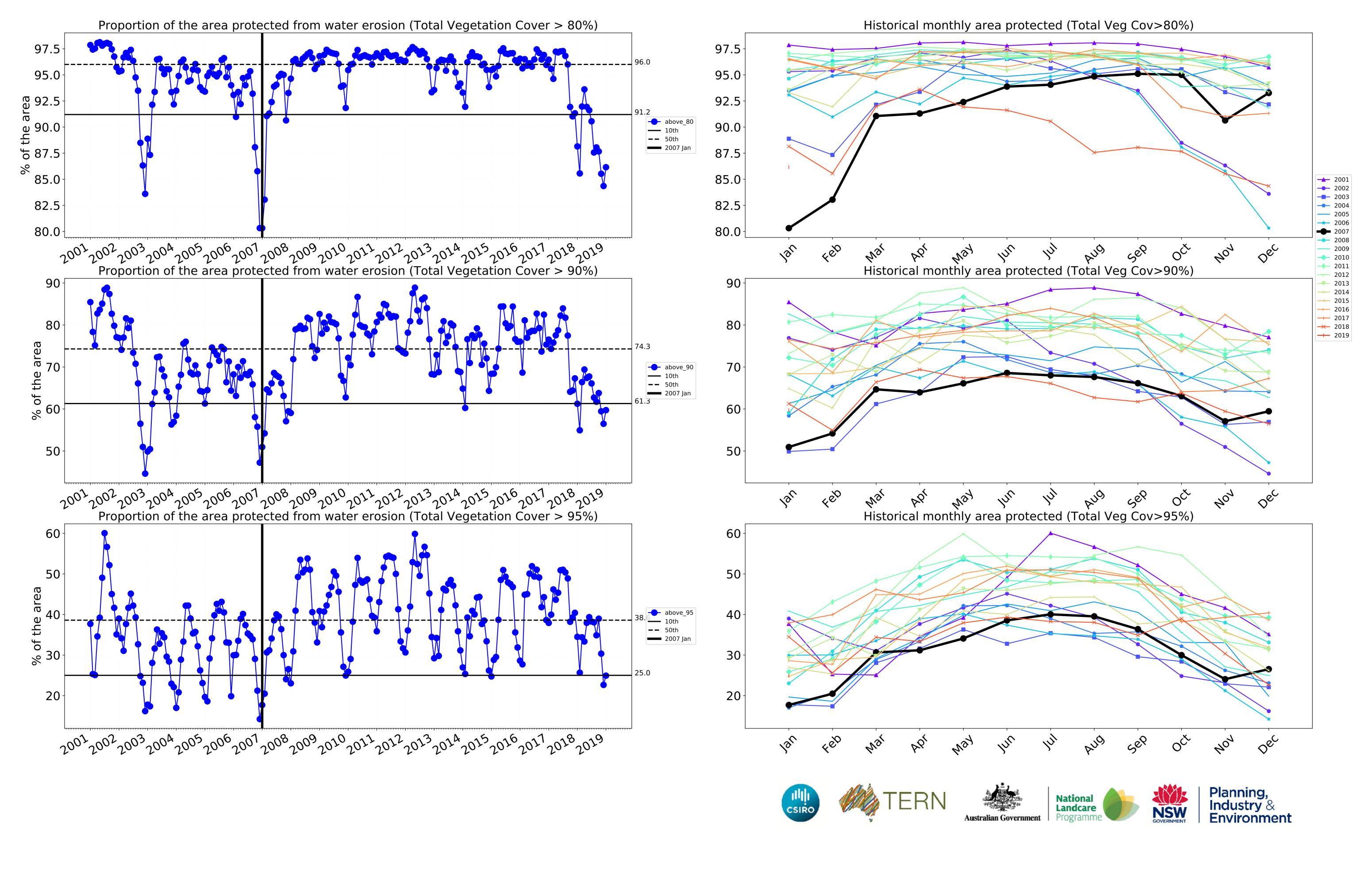




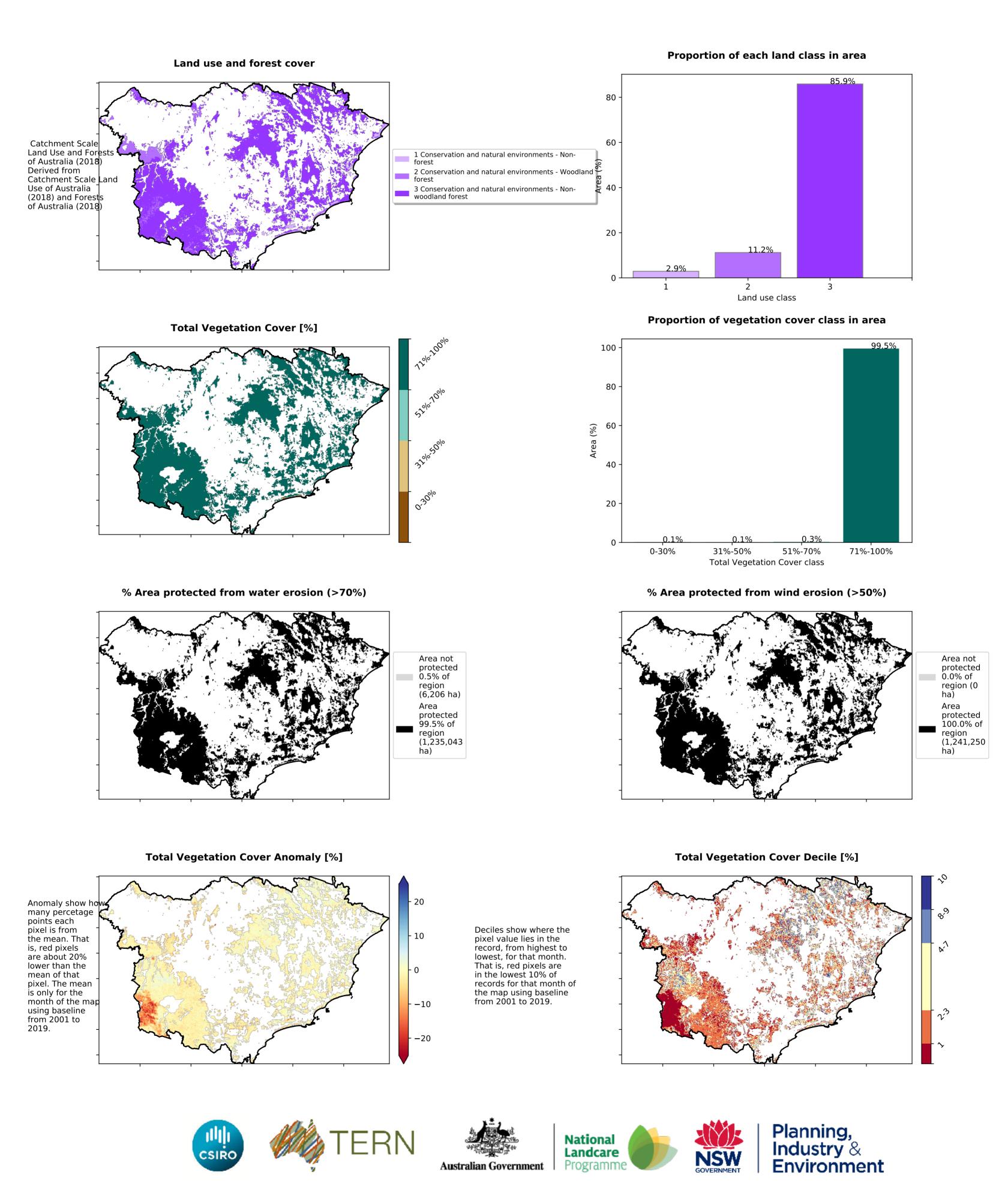




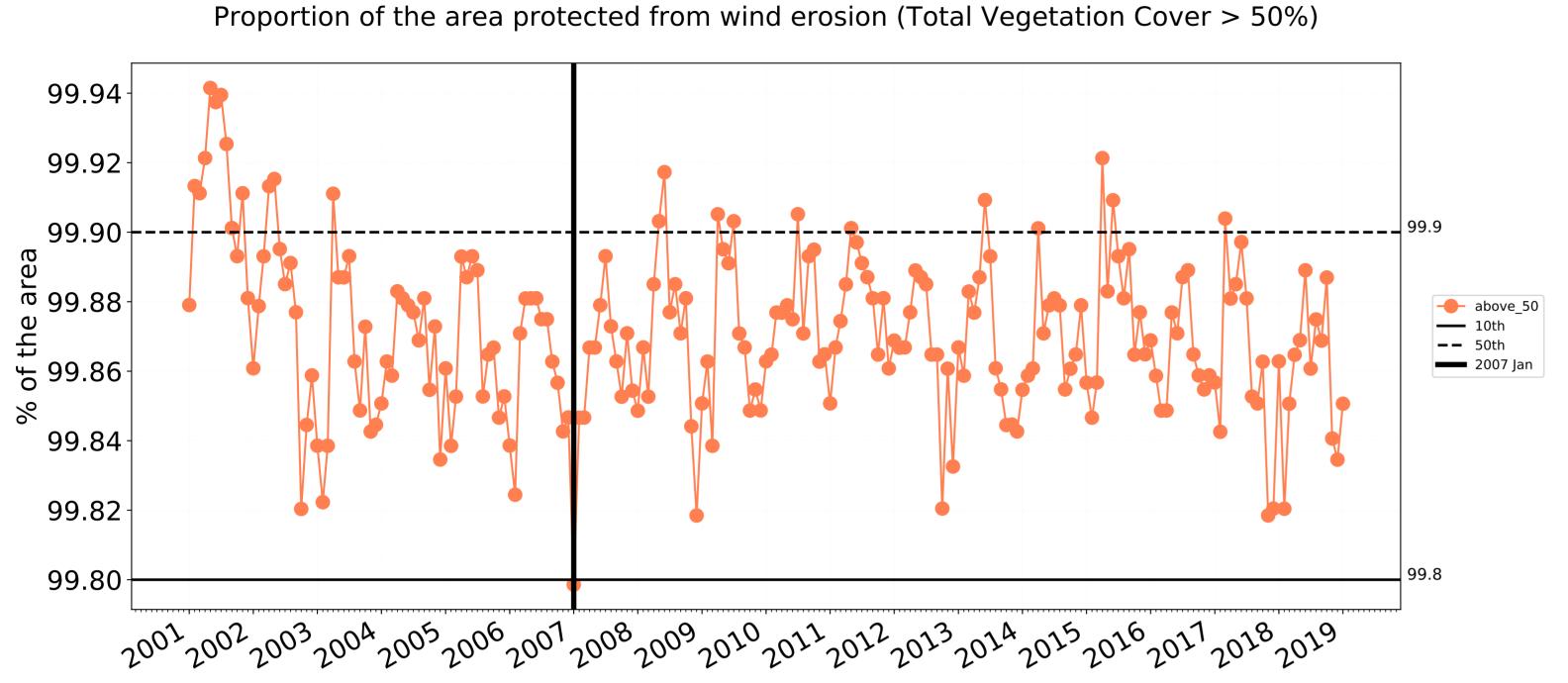


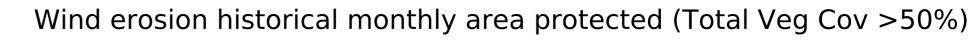


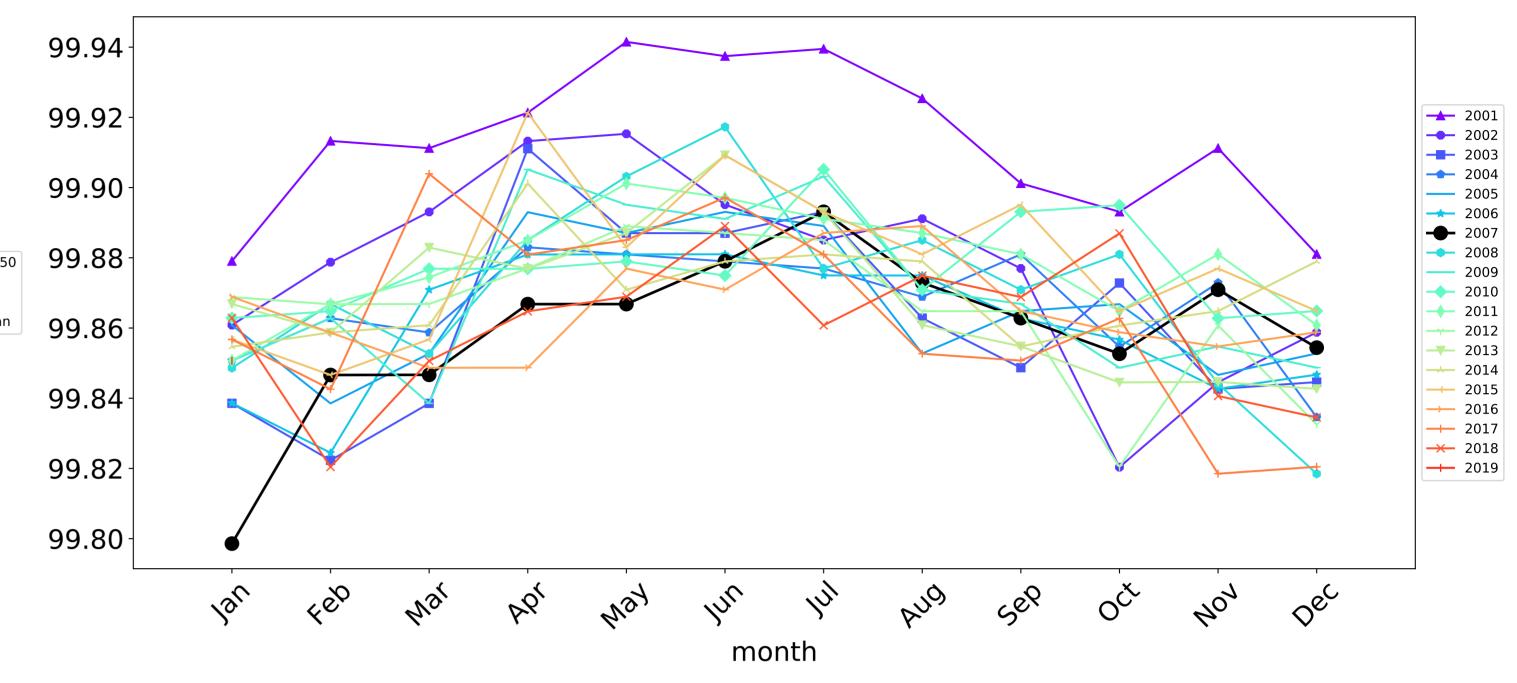
Conservation and natural environments

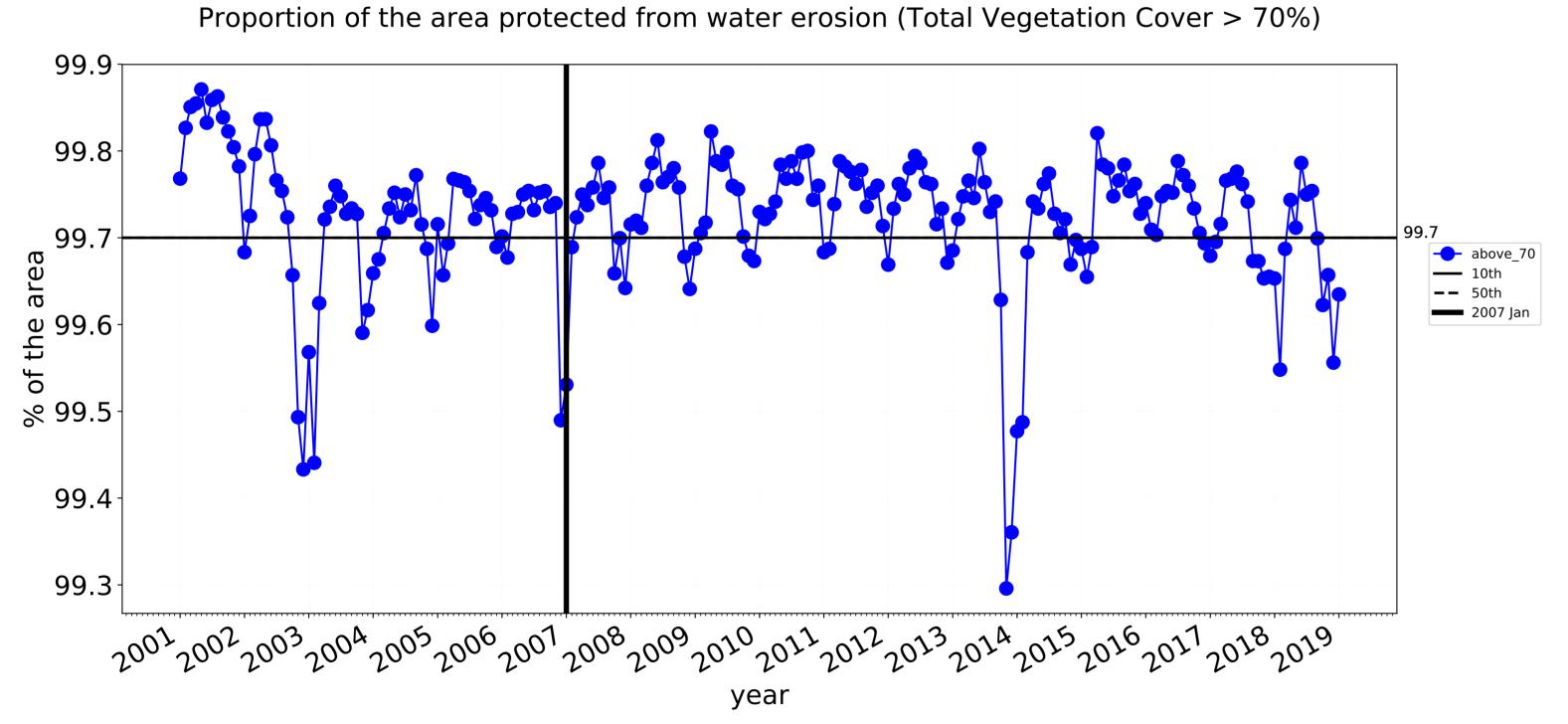


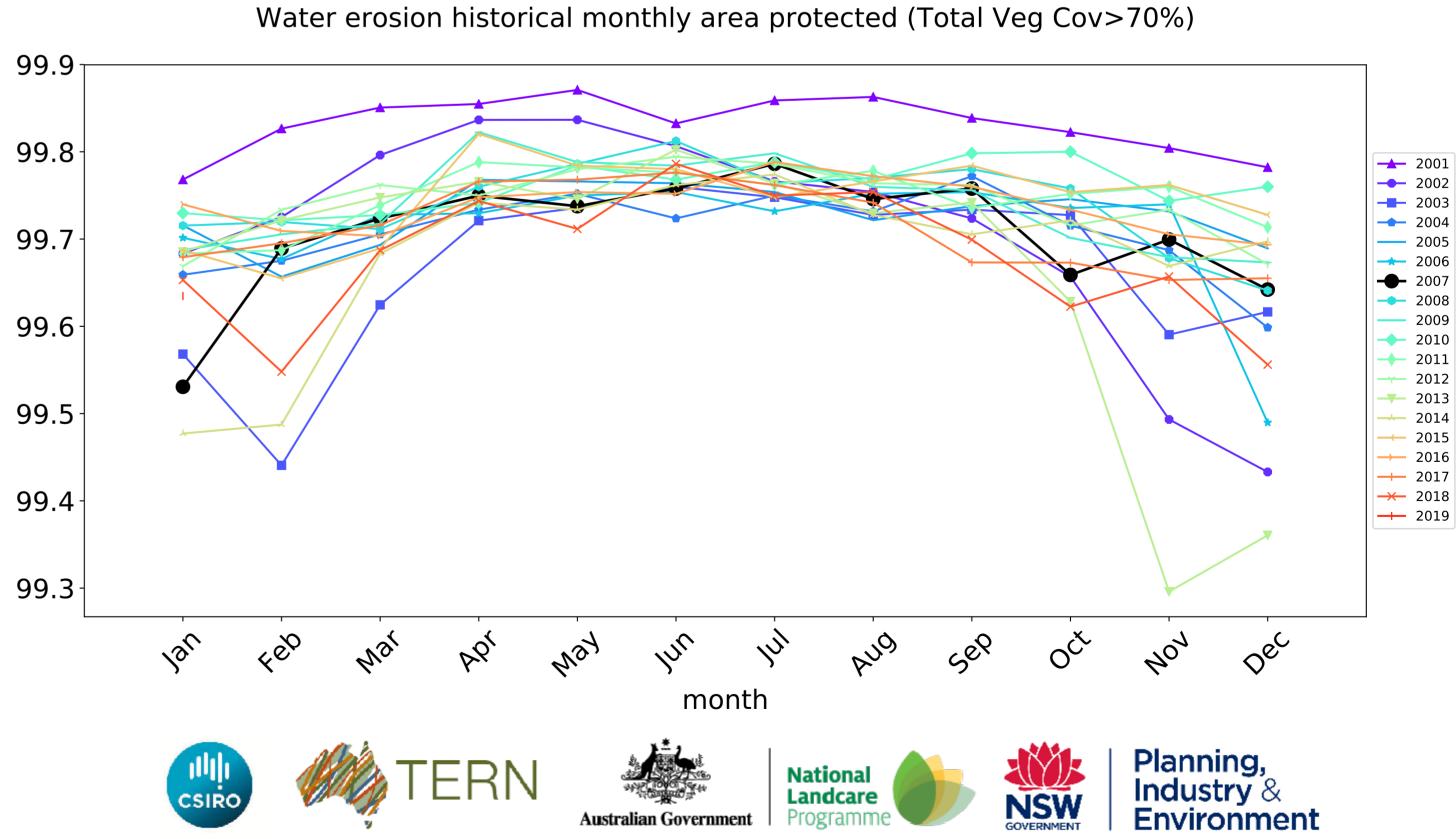
Conservation and natural environments timeseries

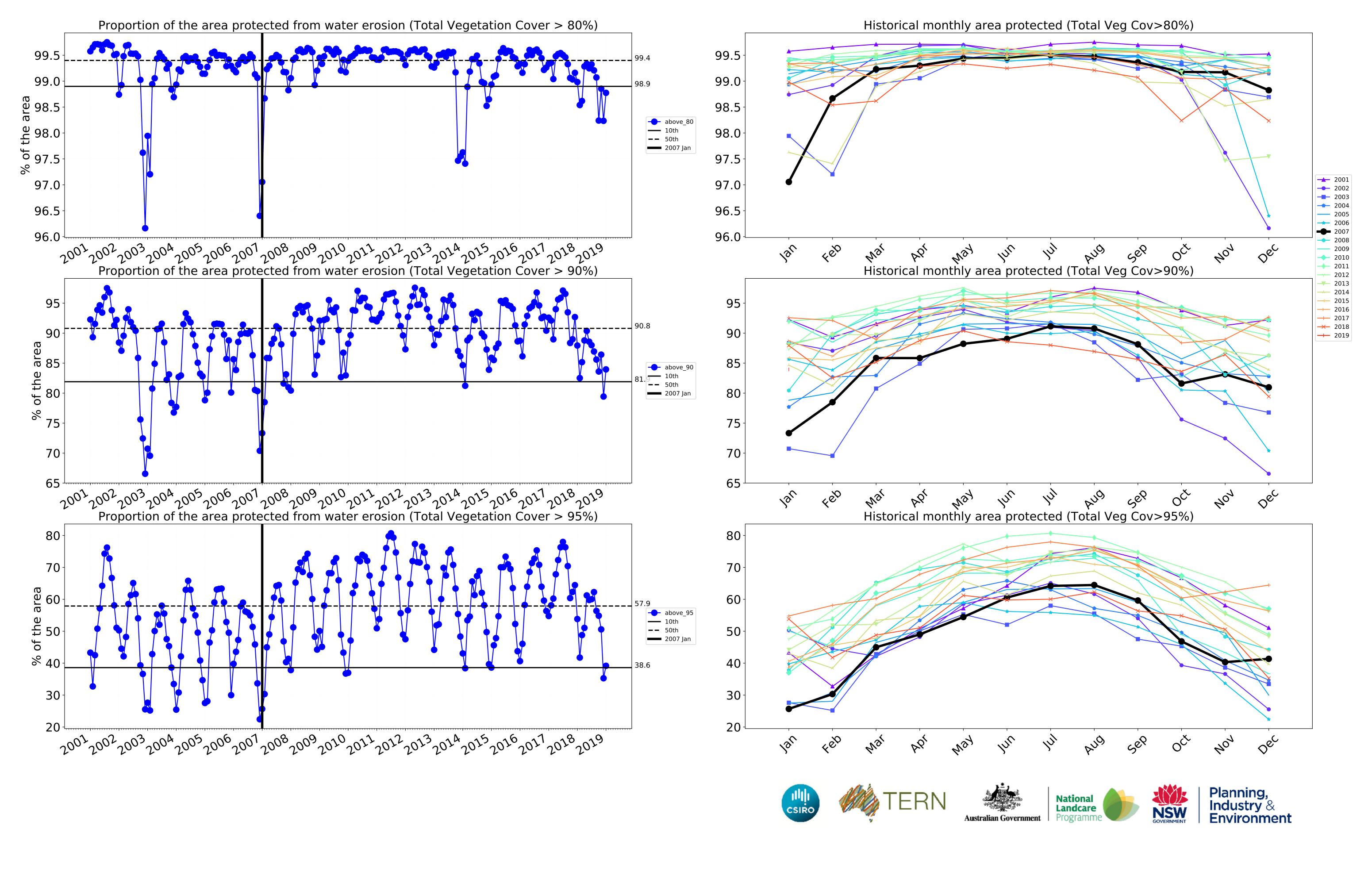




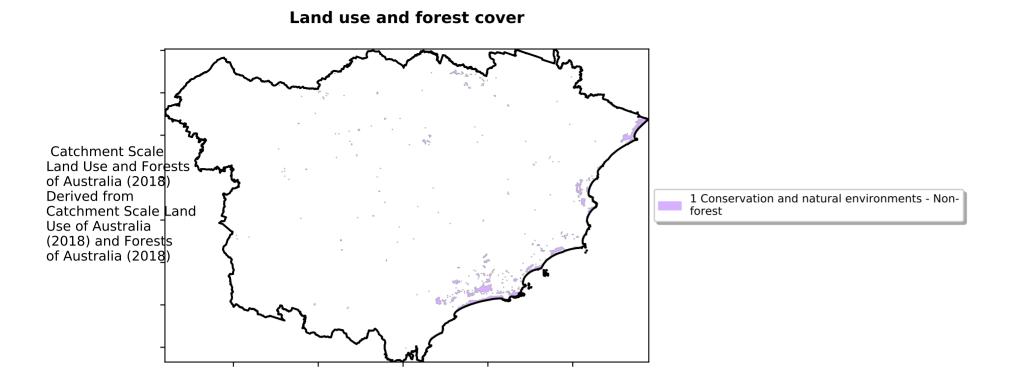




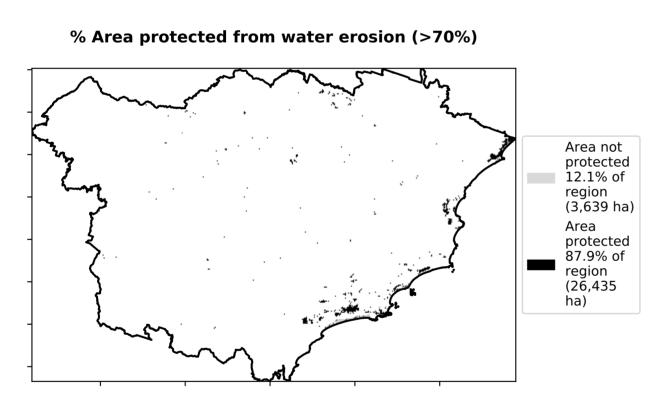


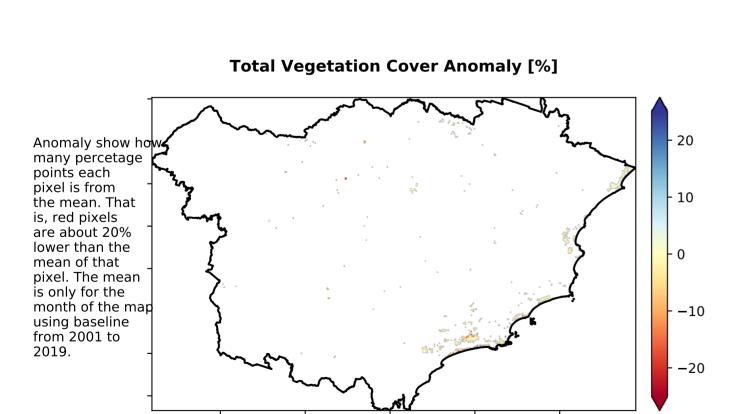


Conservation and natural environments non forest



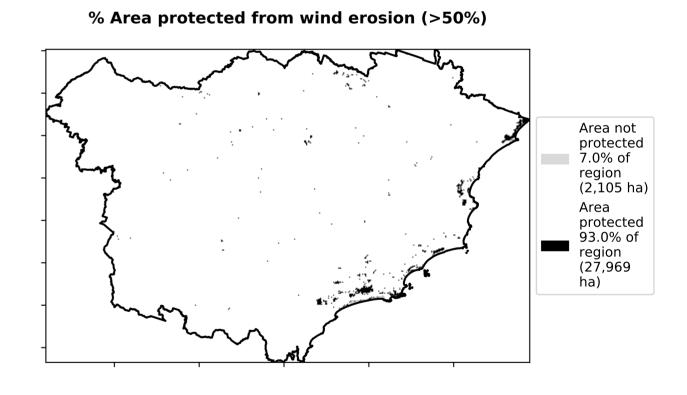
Total Vegetation Cover [%] Tipological and the state of the state of

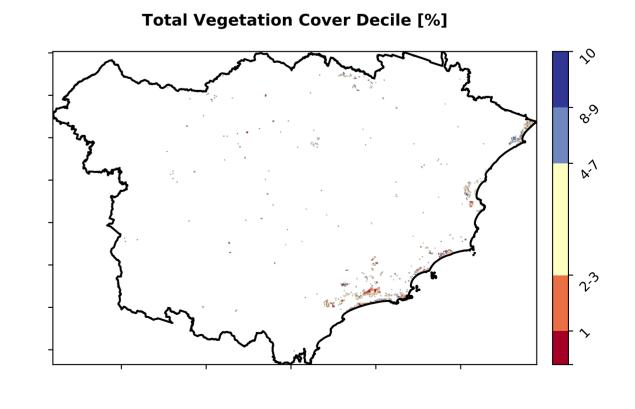




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87.9% 80 - 87.9% 80 - 87.9% 40 - 20 - 4.3% 0-30% 31%-50% Total Vegetation Cover class









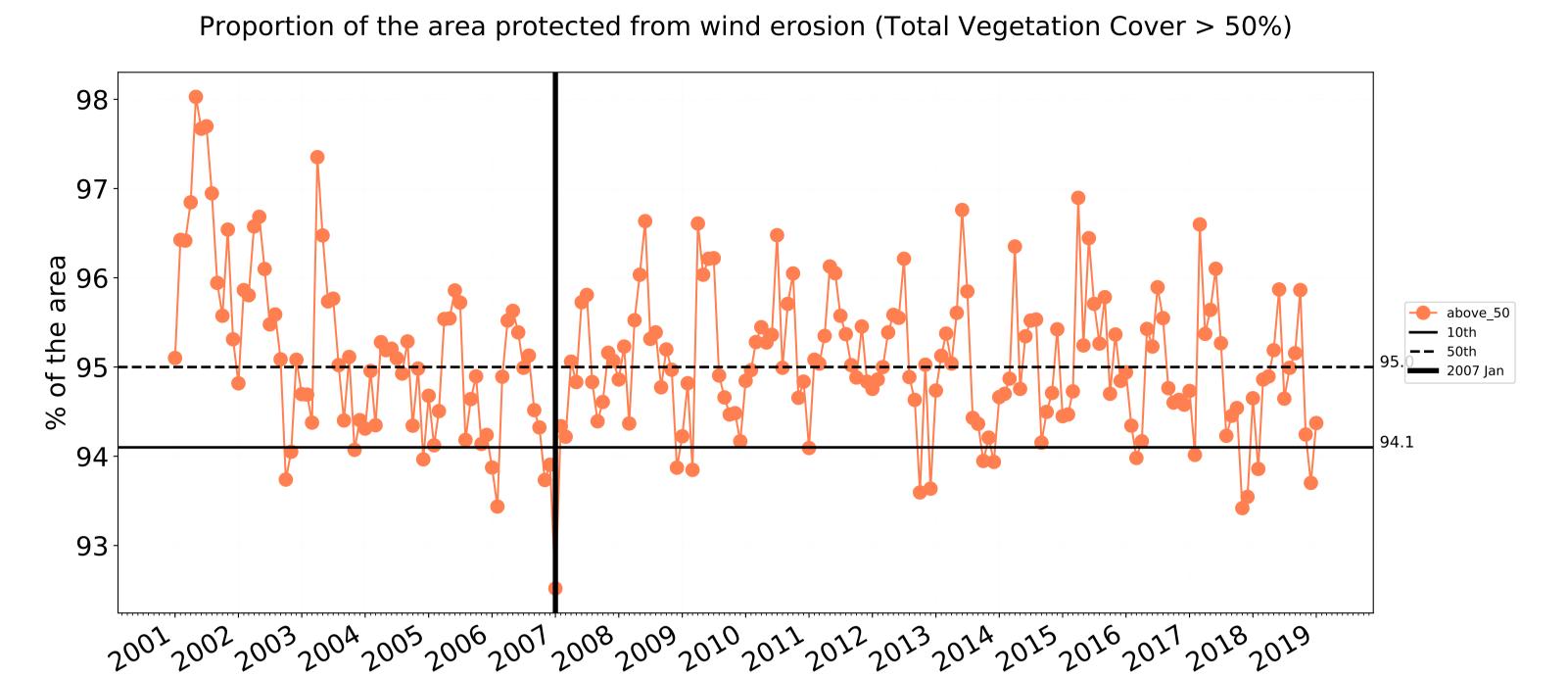




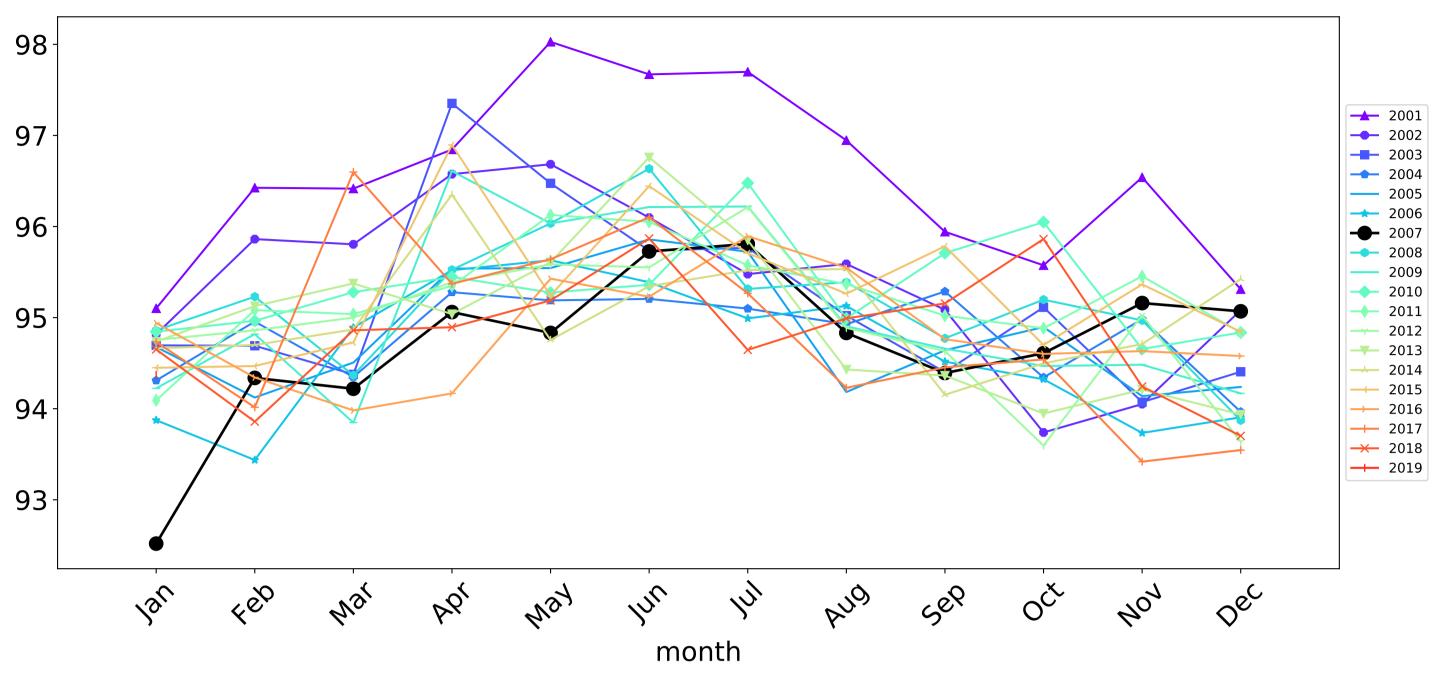




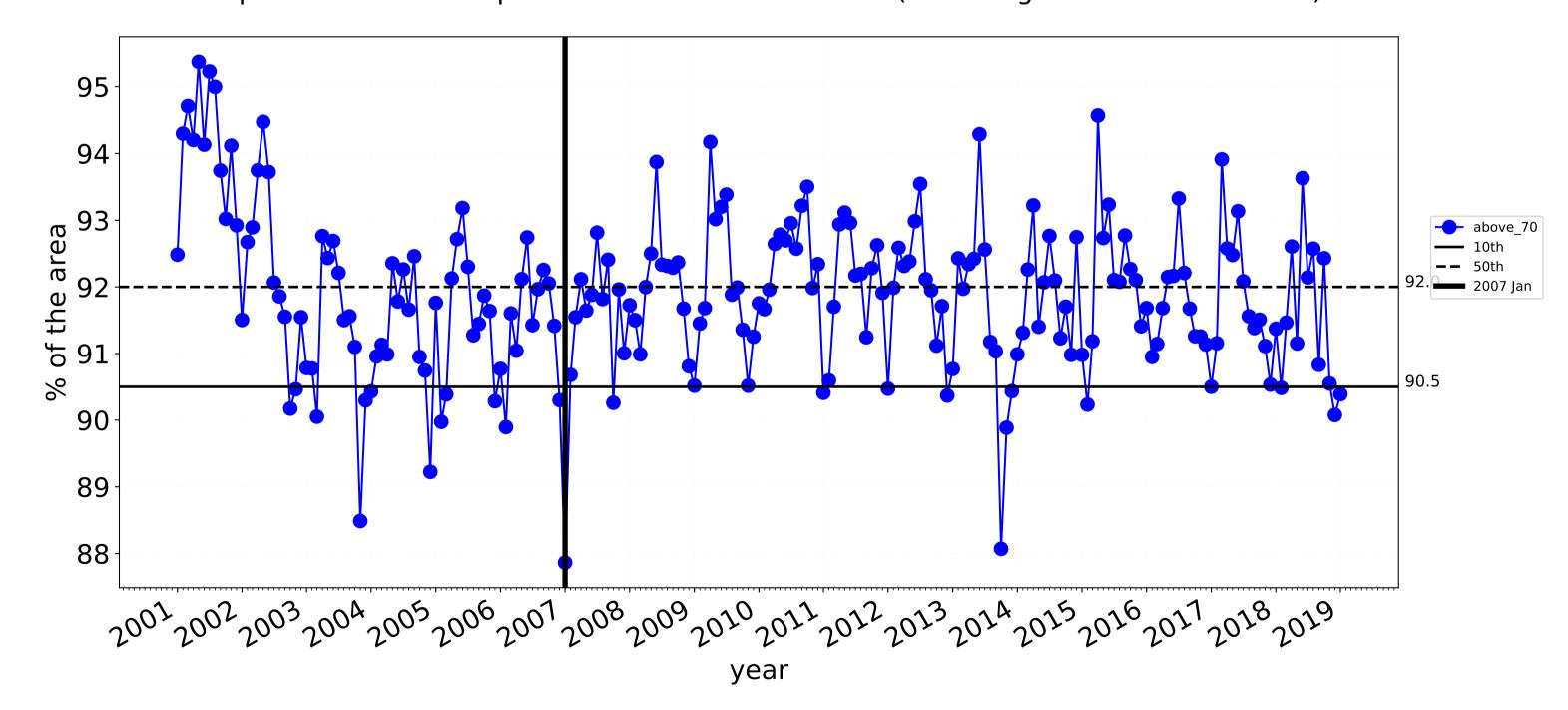
Conservation and natural environments non forest timeseries



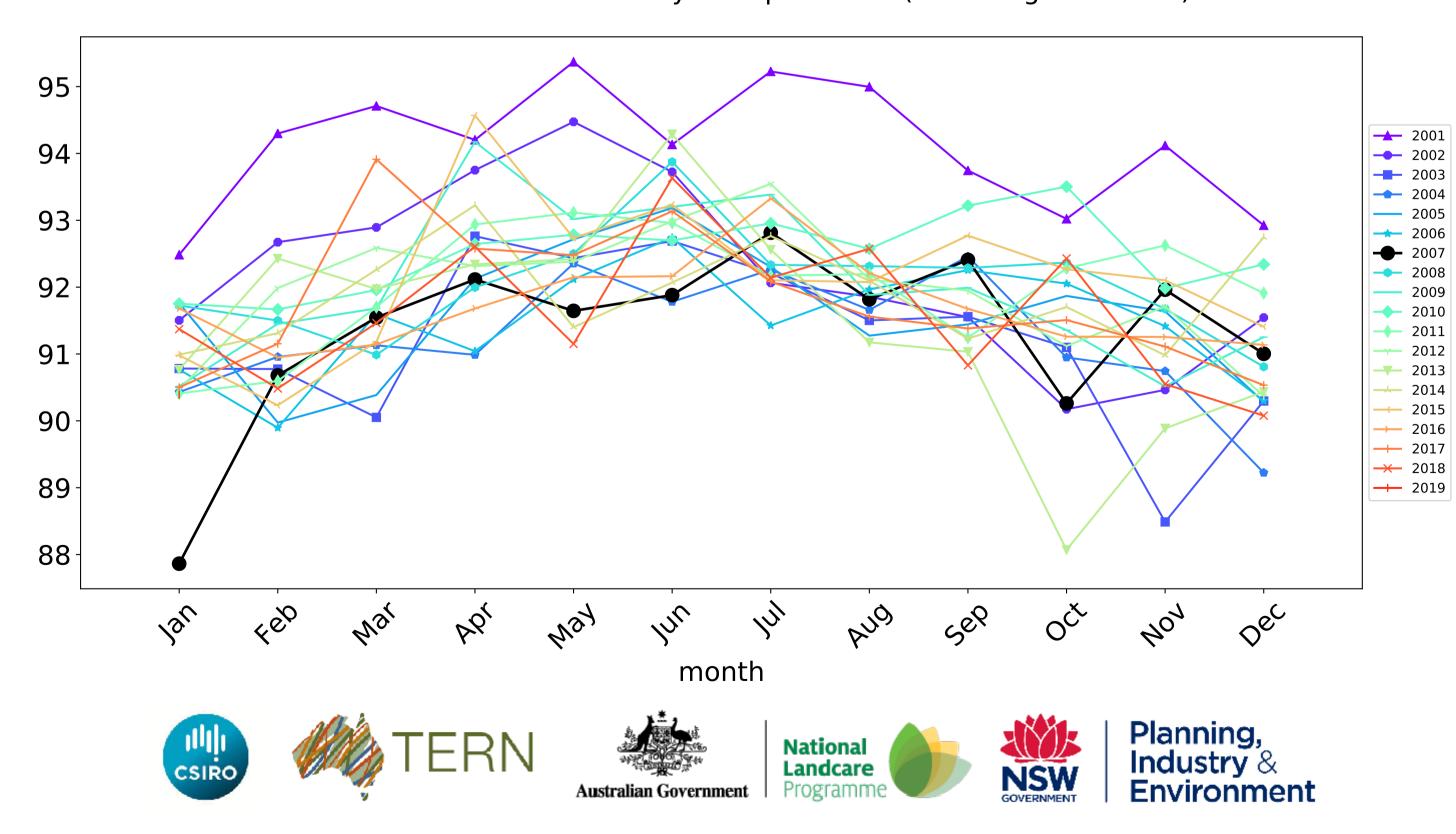


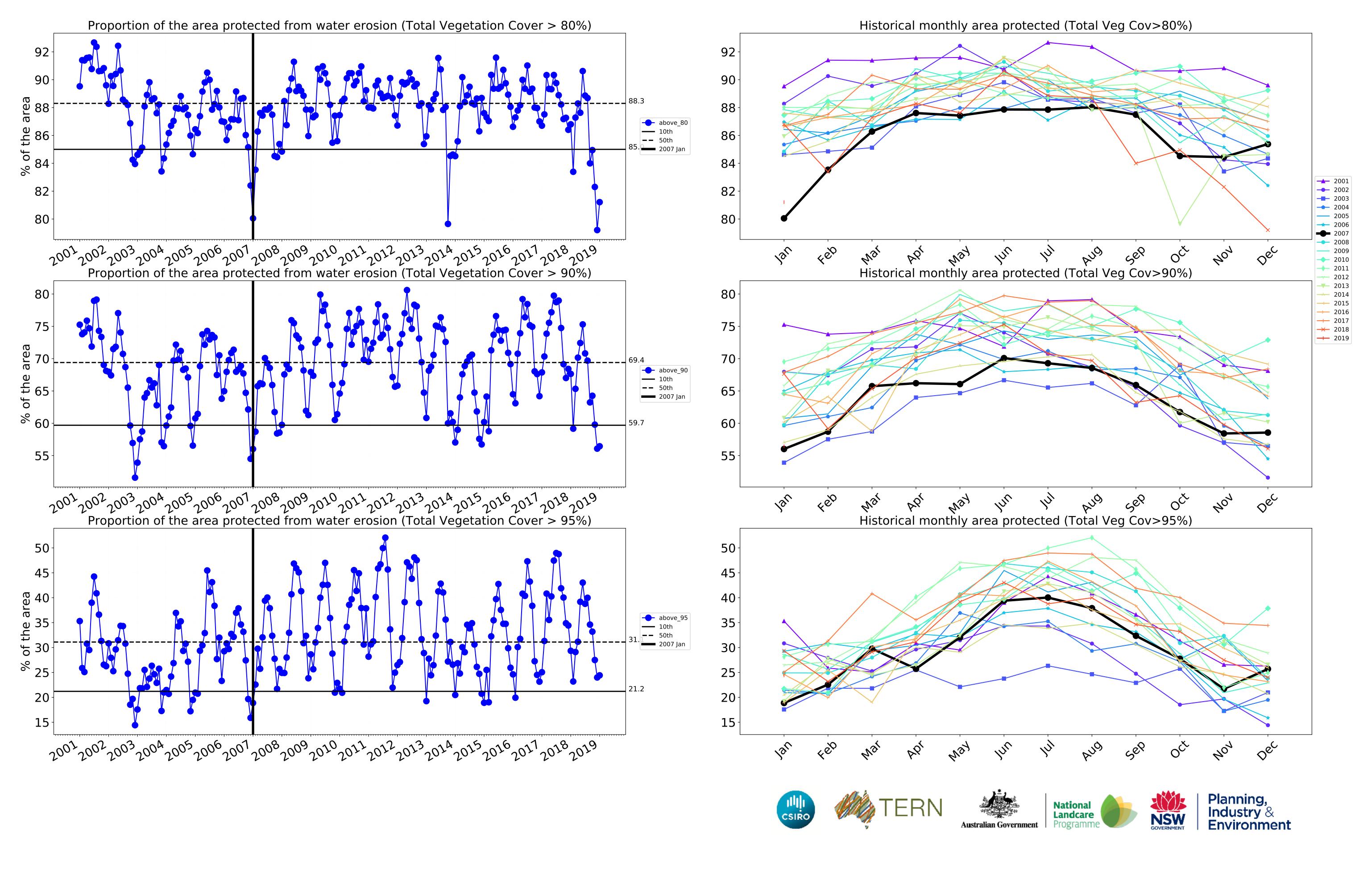


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

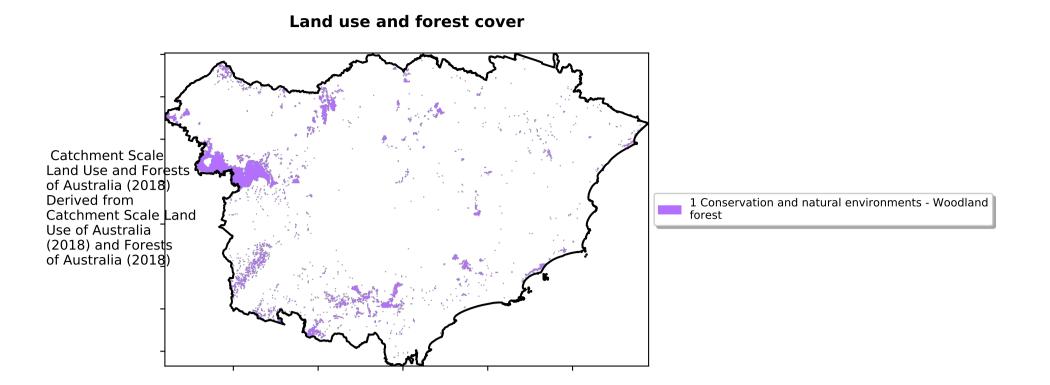


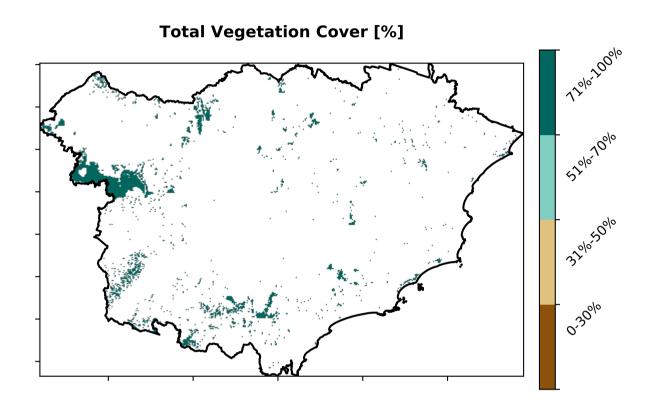
Water erosion historical monthly area protected (Total Veg Cov>70%)

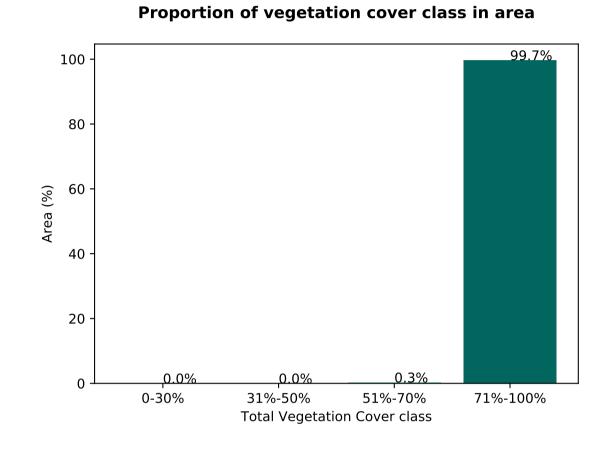


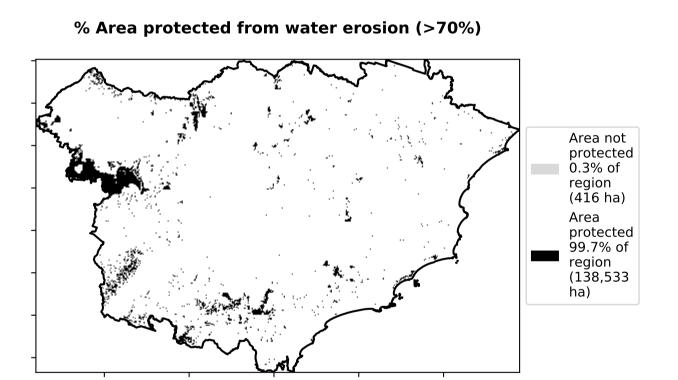


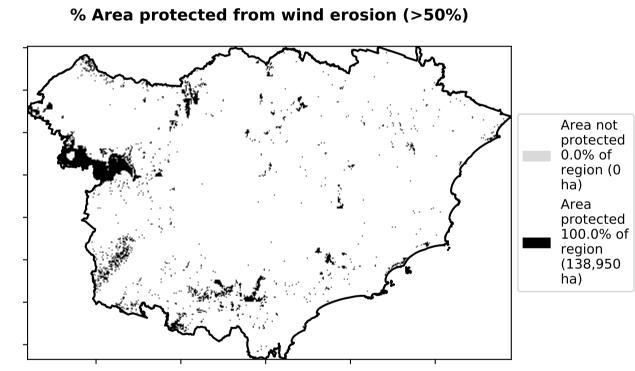
Conservation and natural environments Woodland forest

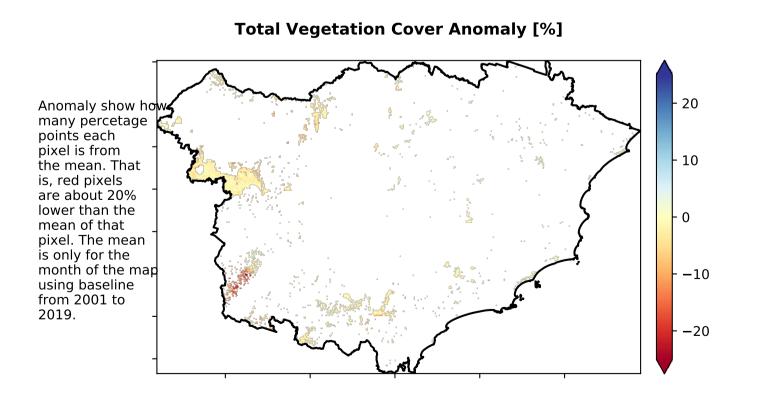




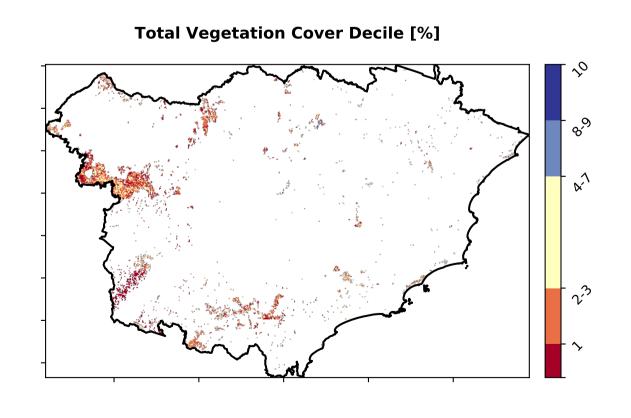








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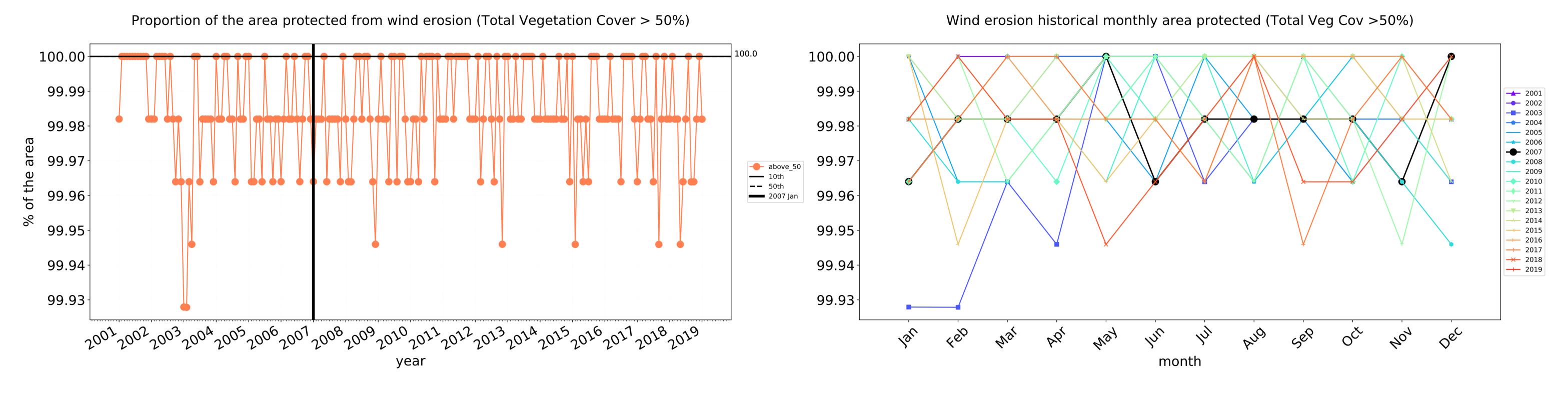


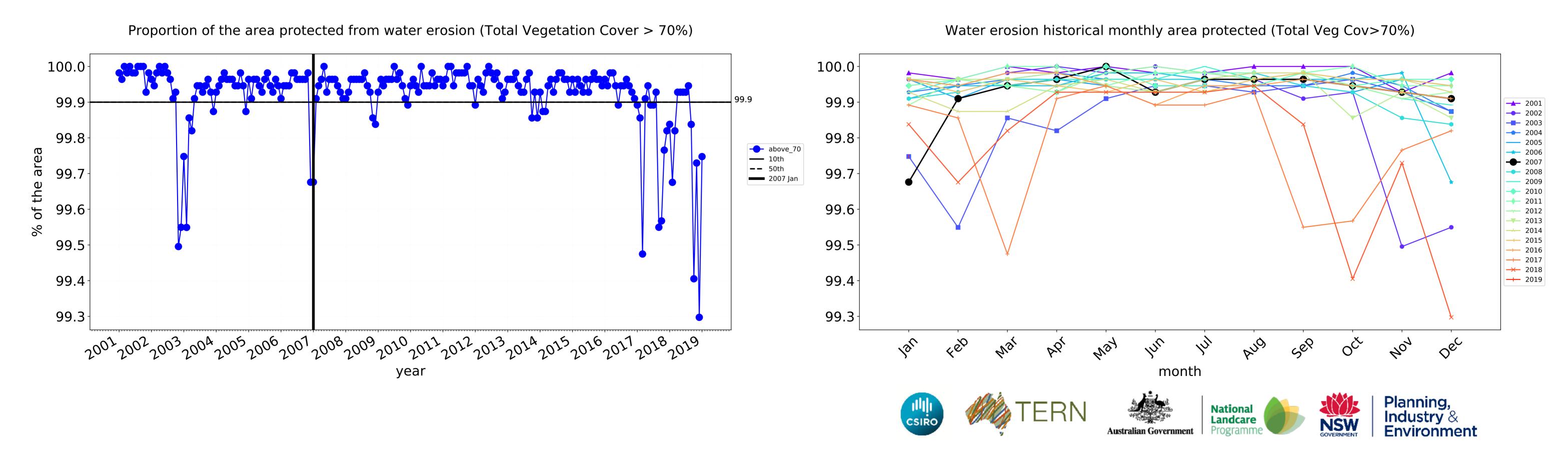


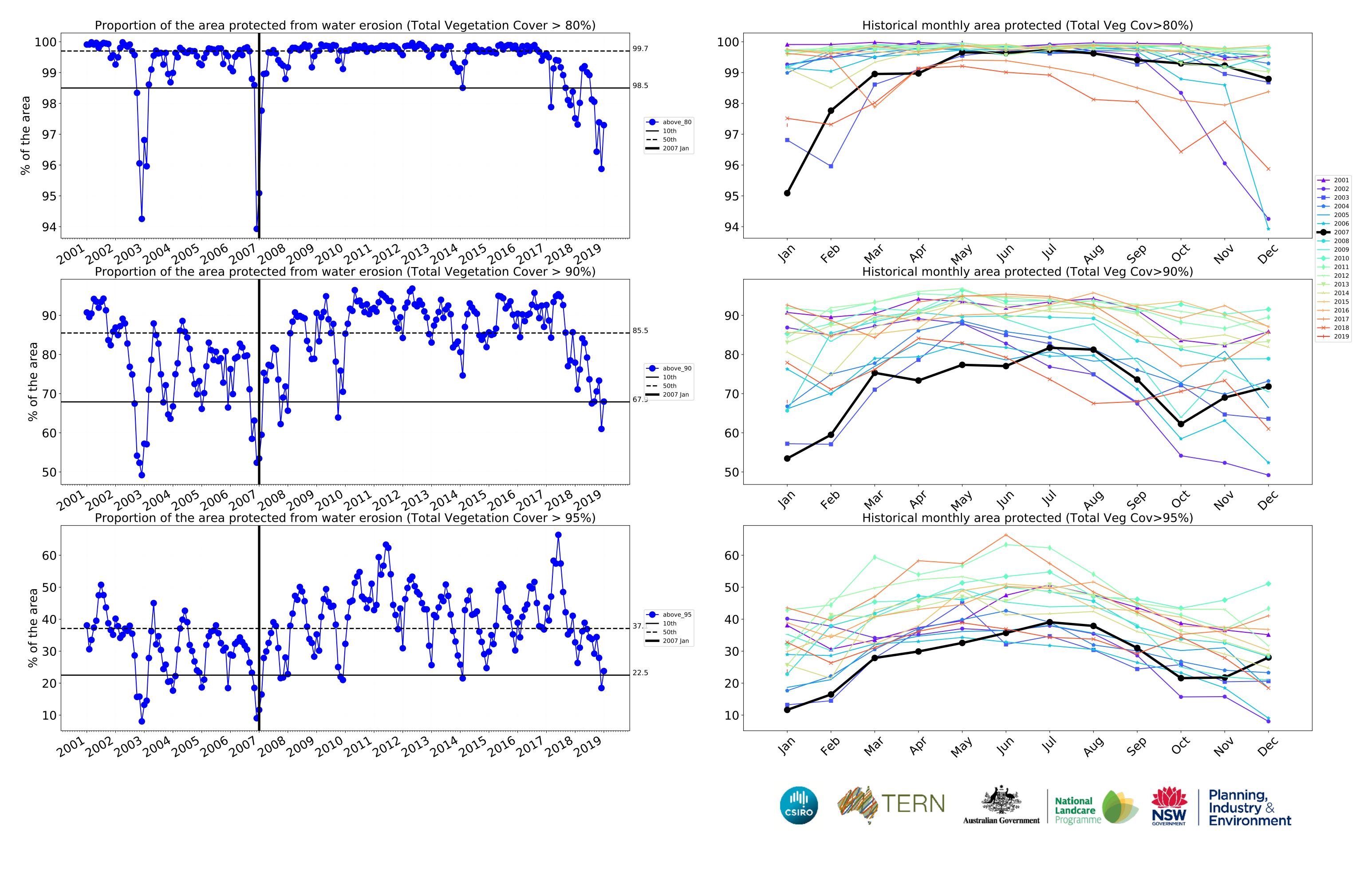




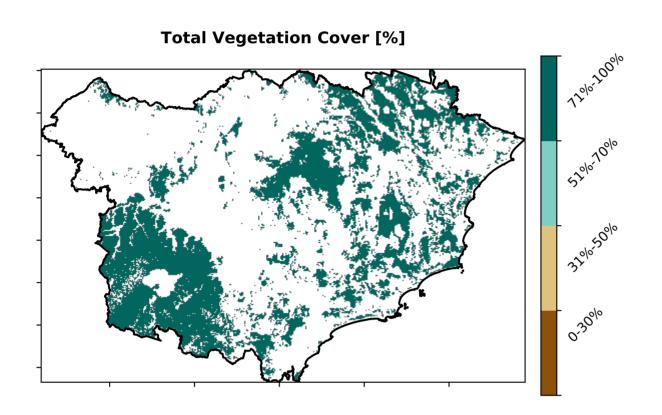


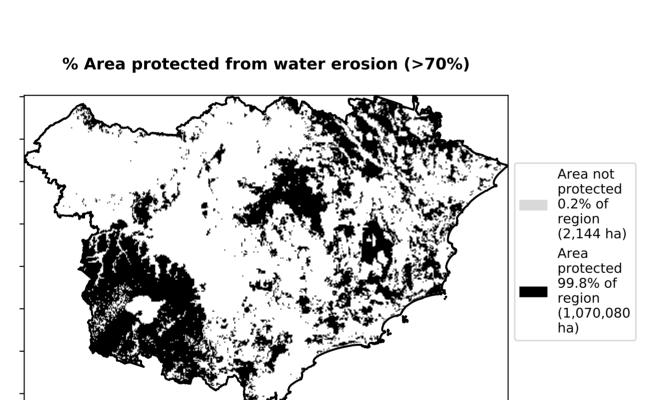


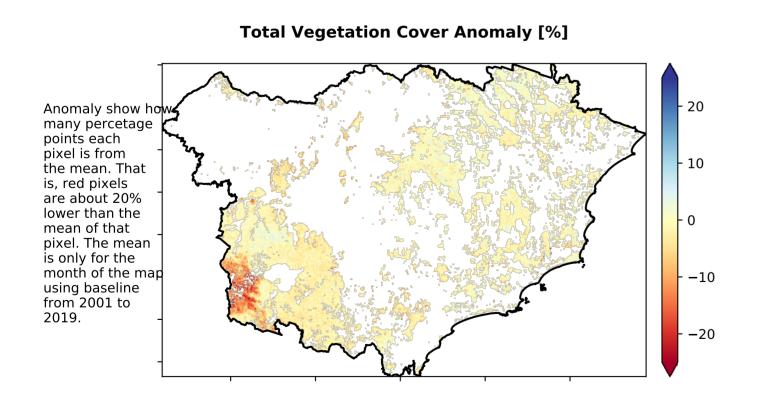




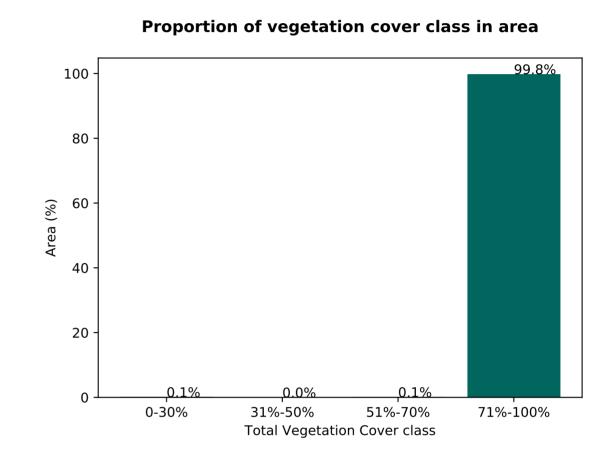
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) and Forests of Australia (2018)

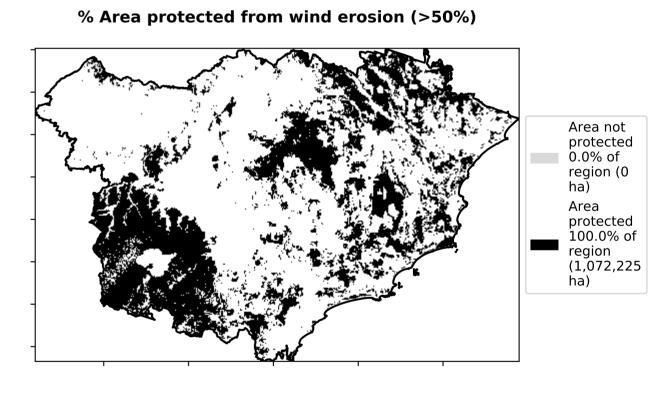


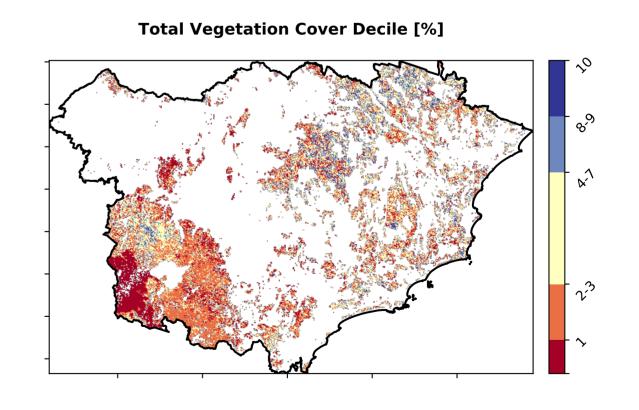




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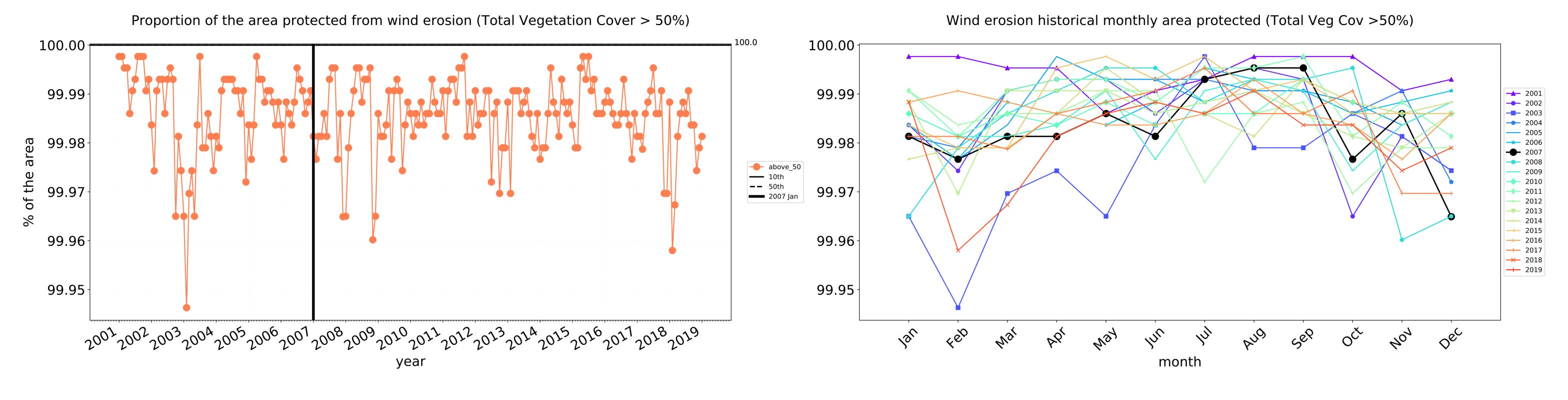


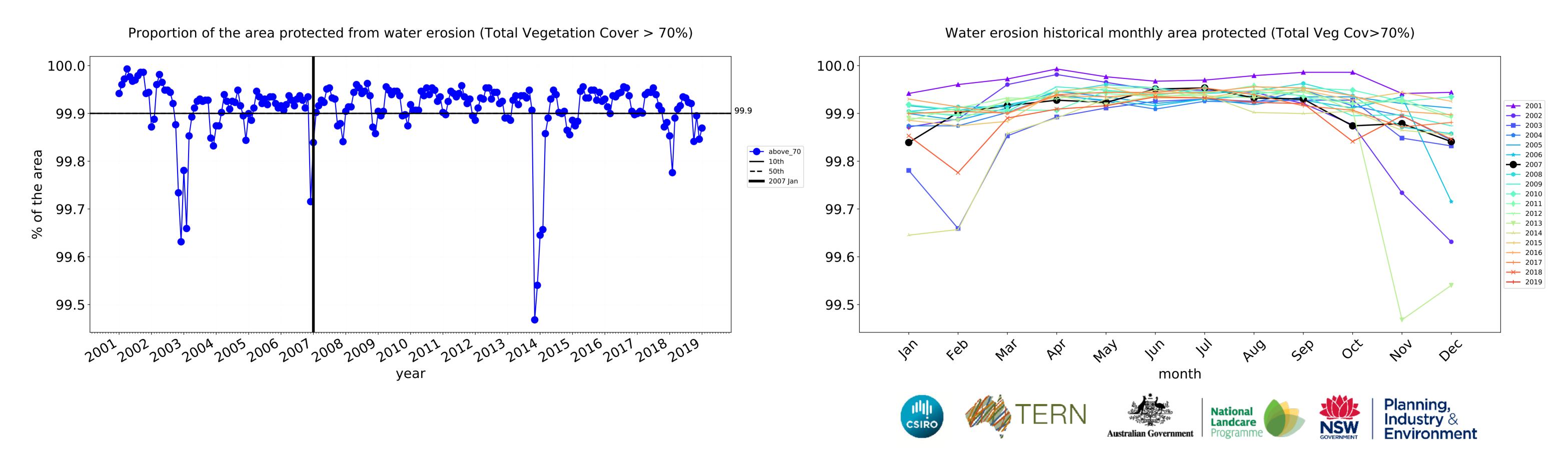


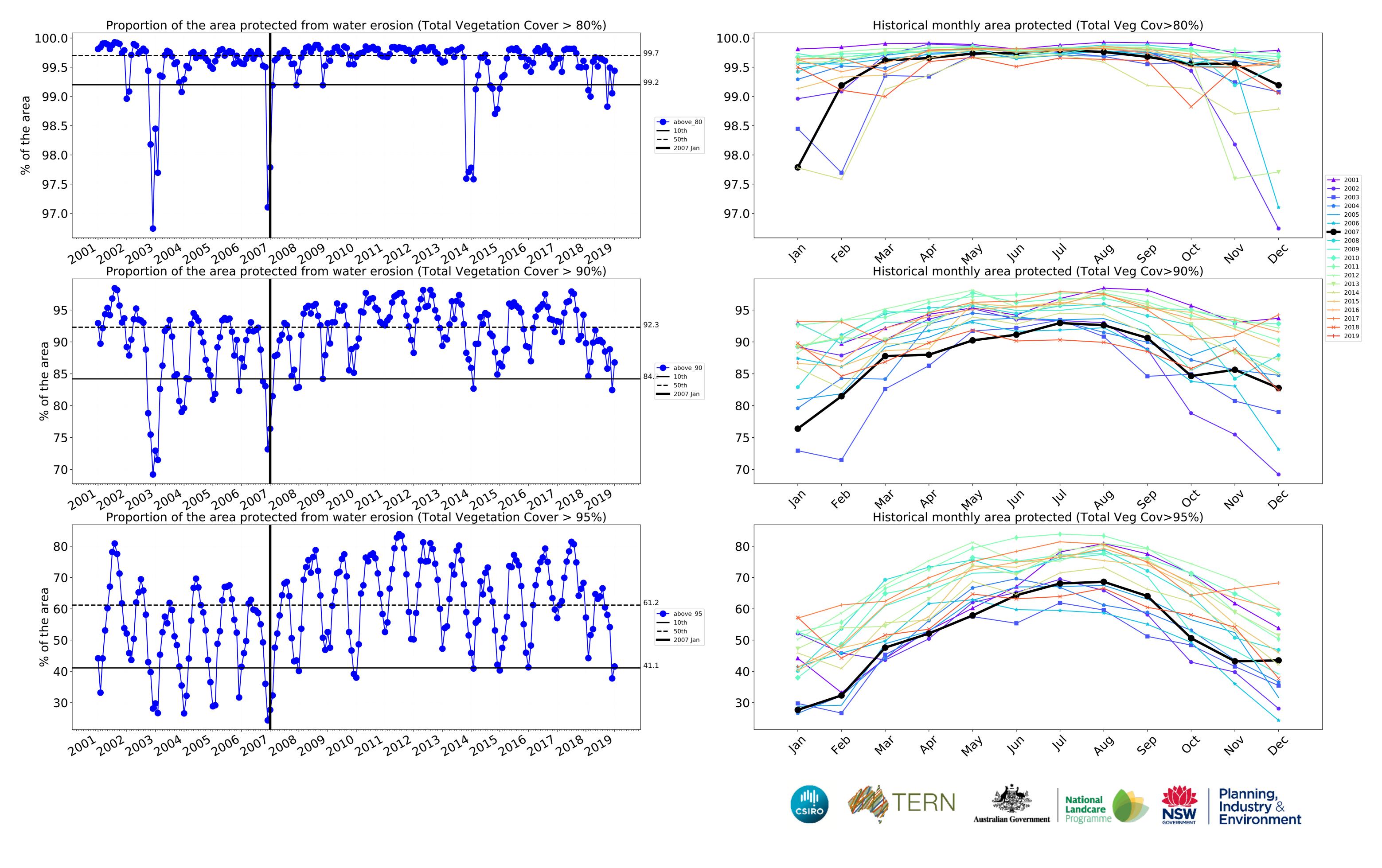




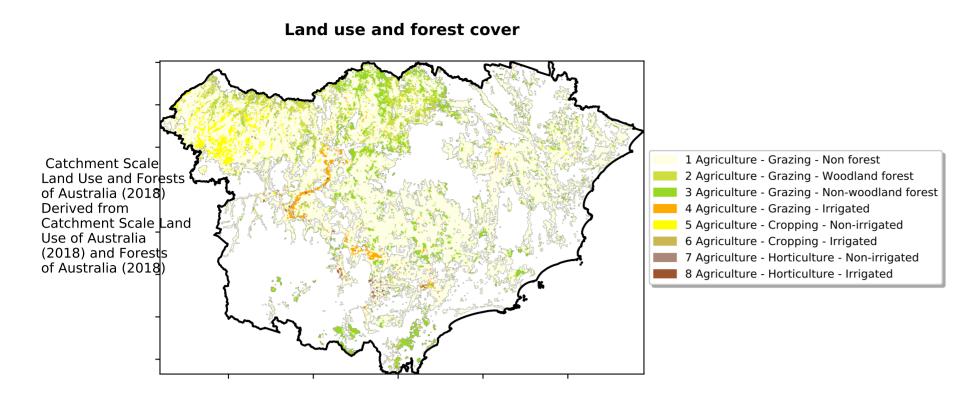
Conservation and natural environments Forest (non woodland) timeseries







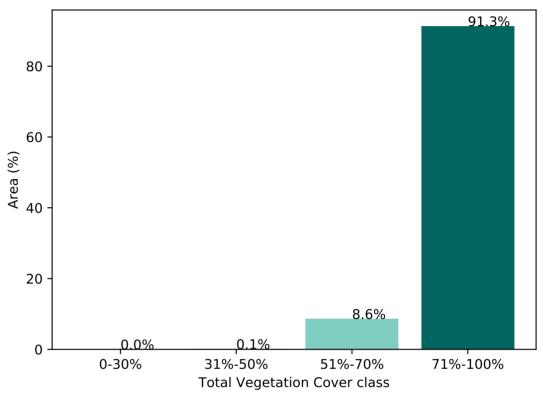
Agriculture

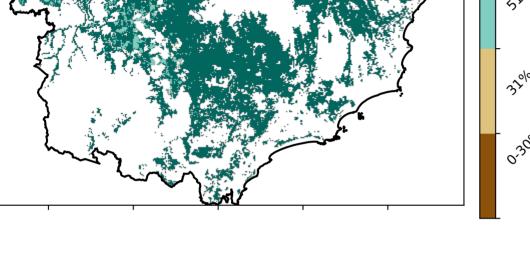


Proportion of each land class in area 80 -76.7% 70 -60 50 Area (%) 30 20 10 Land use class

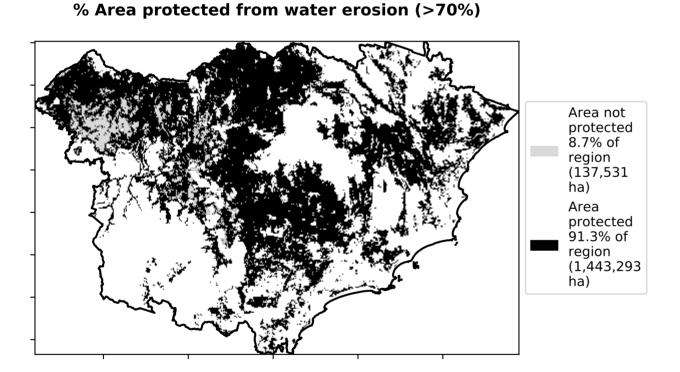
Total Vegetation Cover [%]

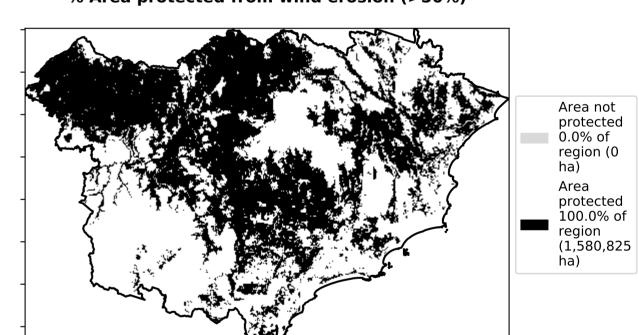
Proportion of vegetation cover class in area

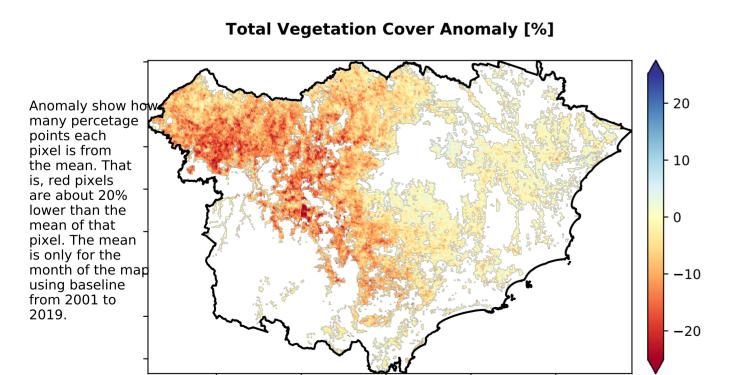




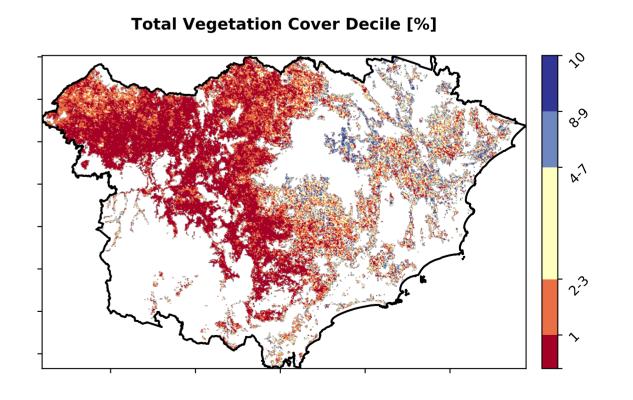
% Area protected from wind erosion (>50%)







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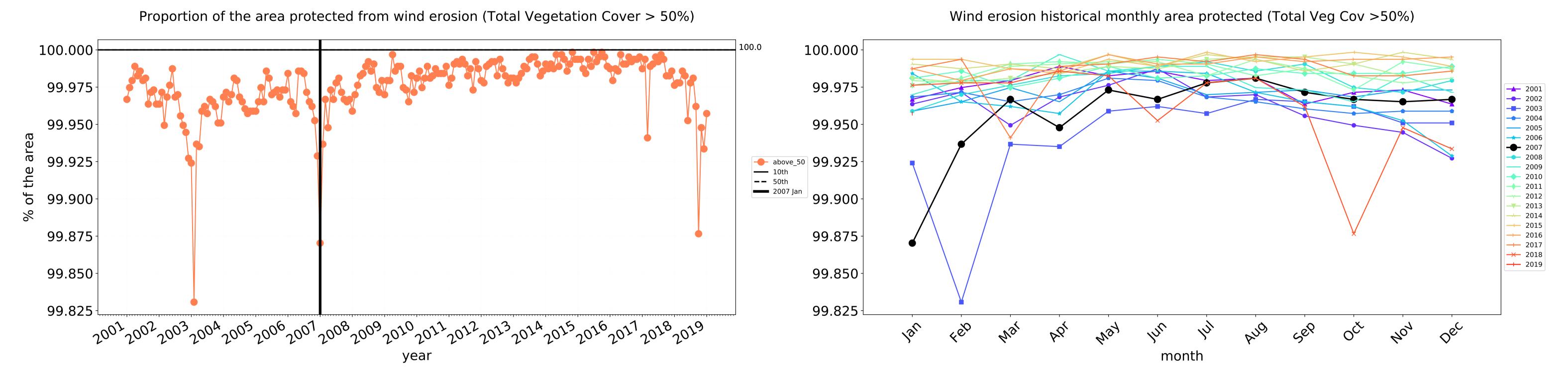


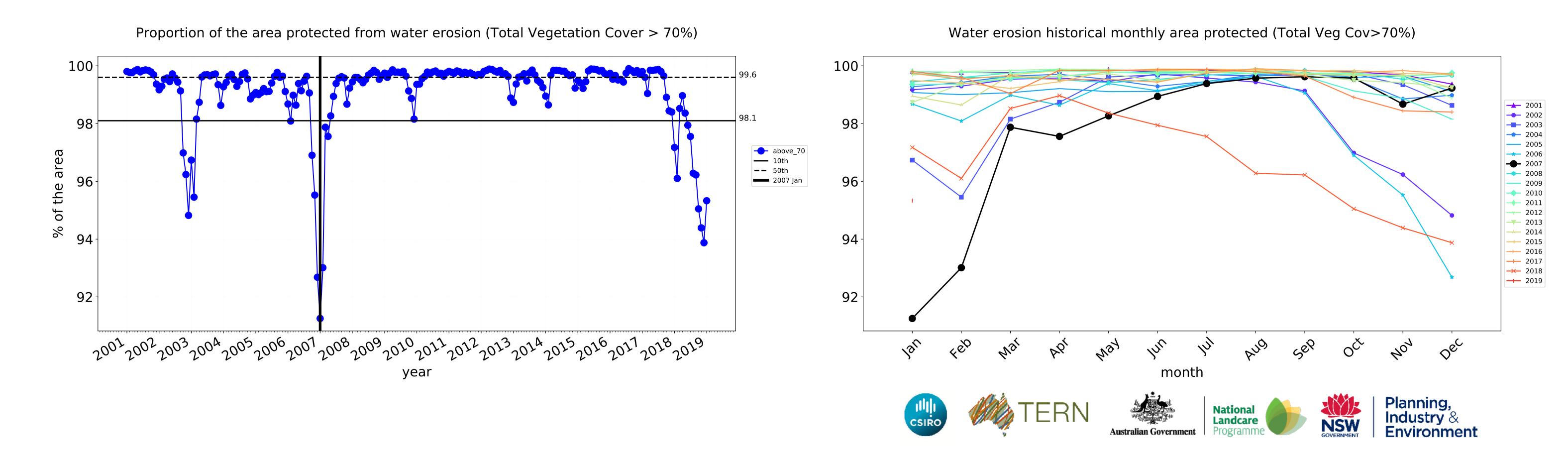


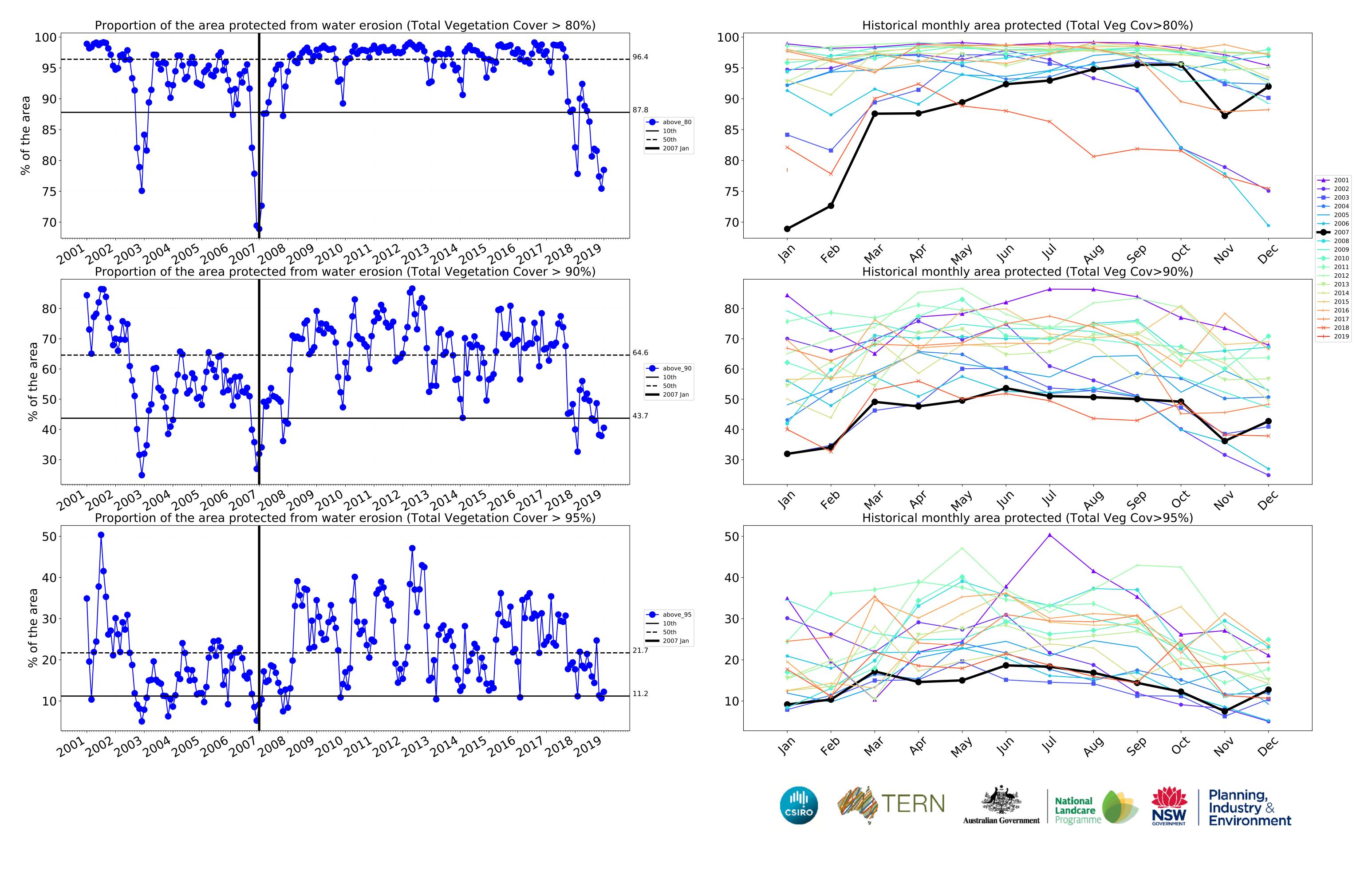




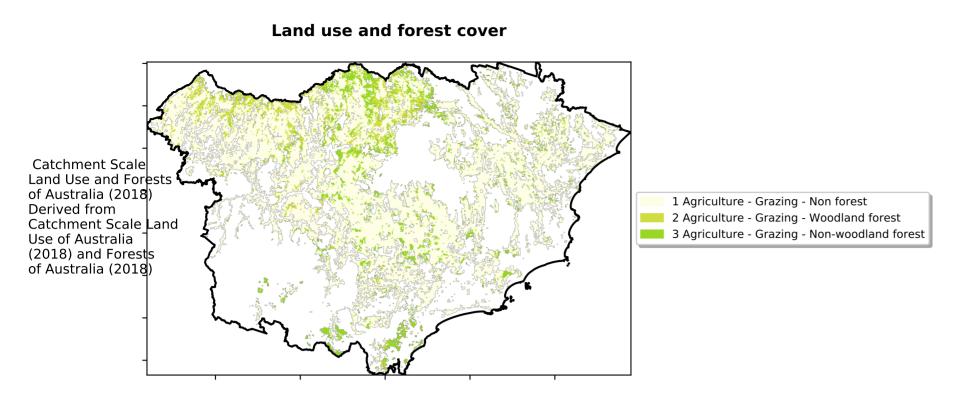
Agriculture timeseries



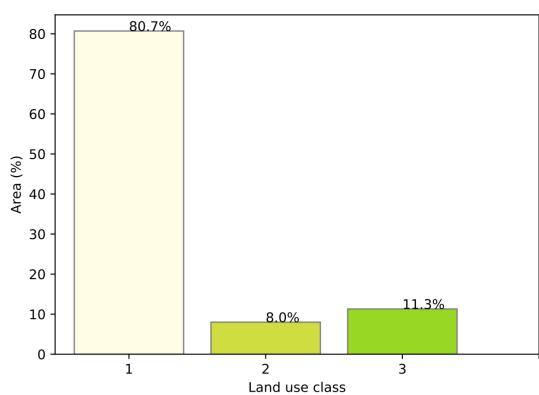




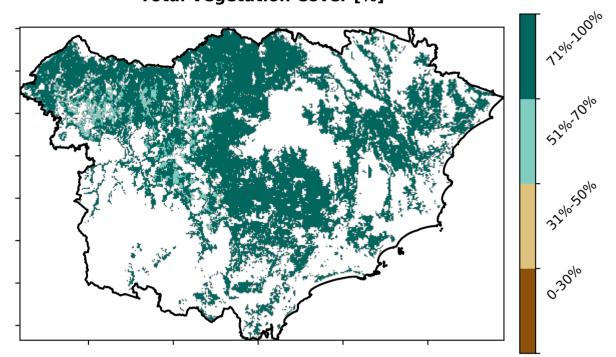
Grazing



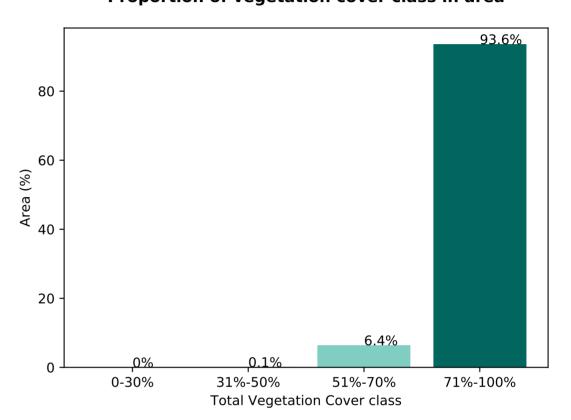
Proportion of each land class in area



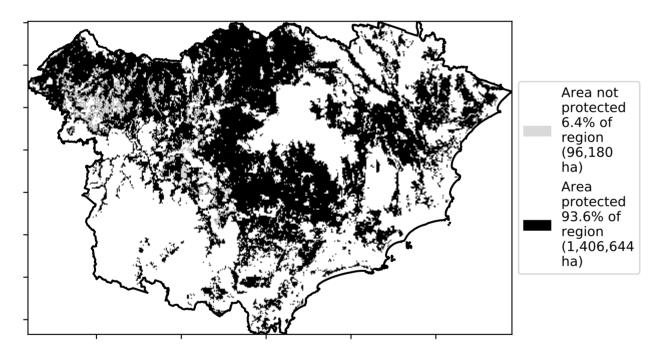
Total Vegetation Cover [%]



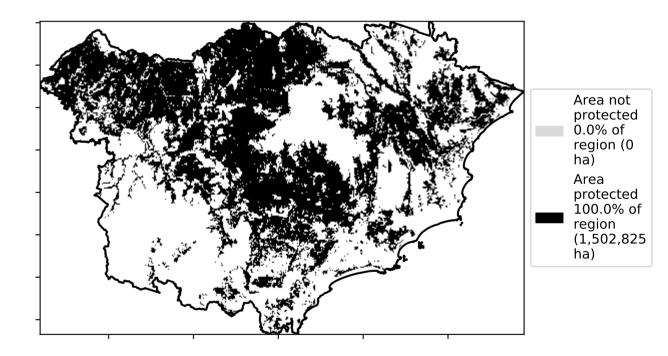
Proportion of vegetation cover class in area



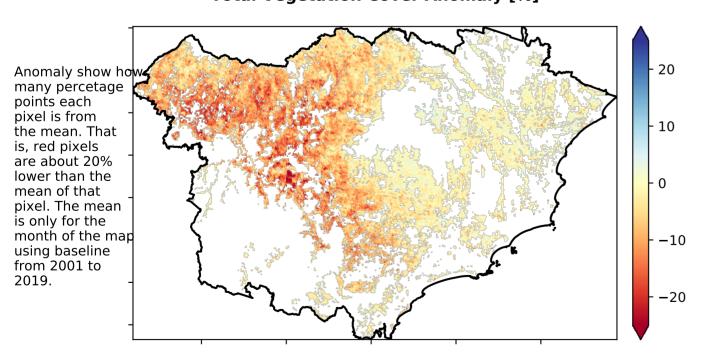
% Area protected from water erosion (>70%)



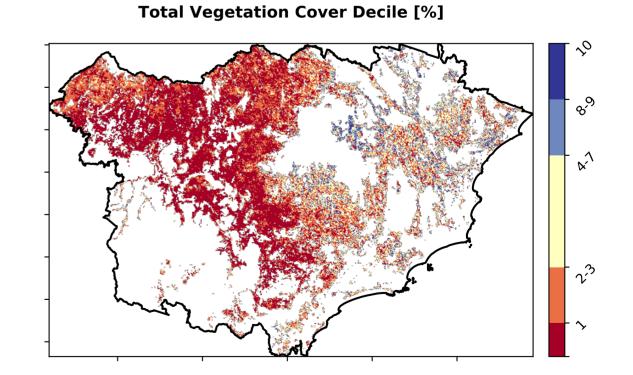
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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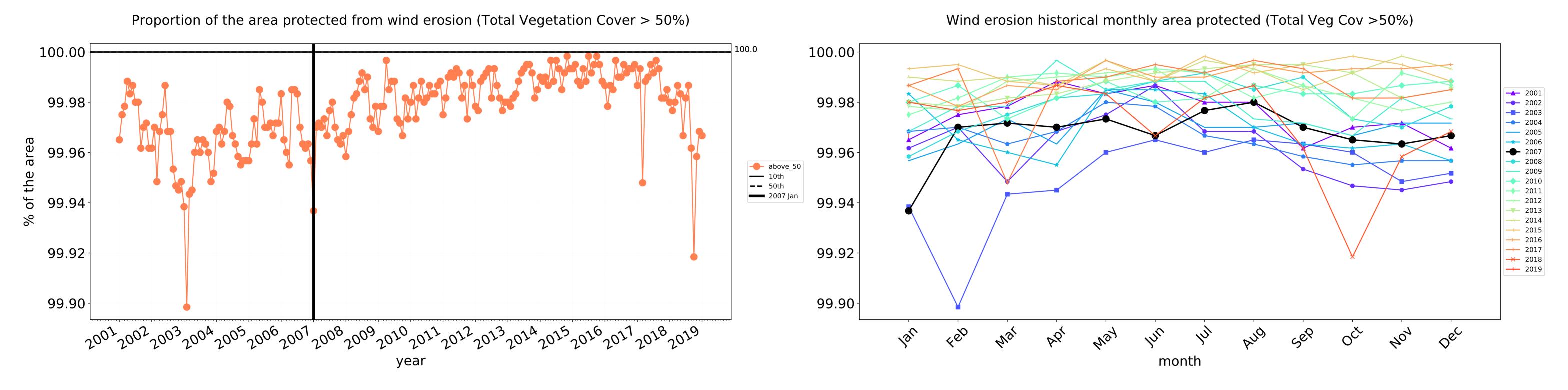


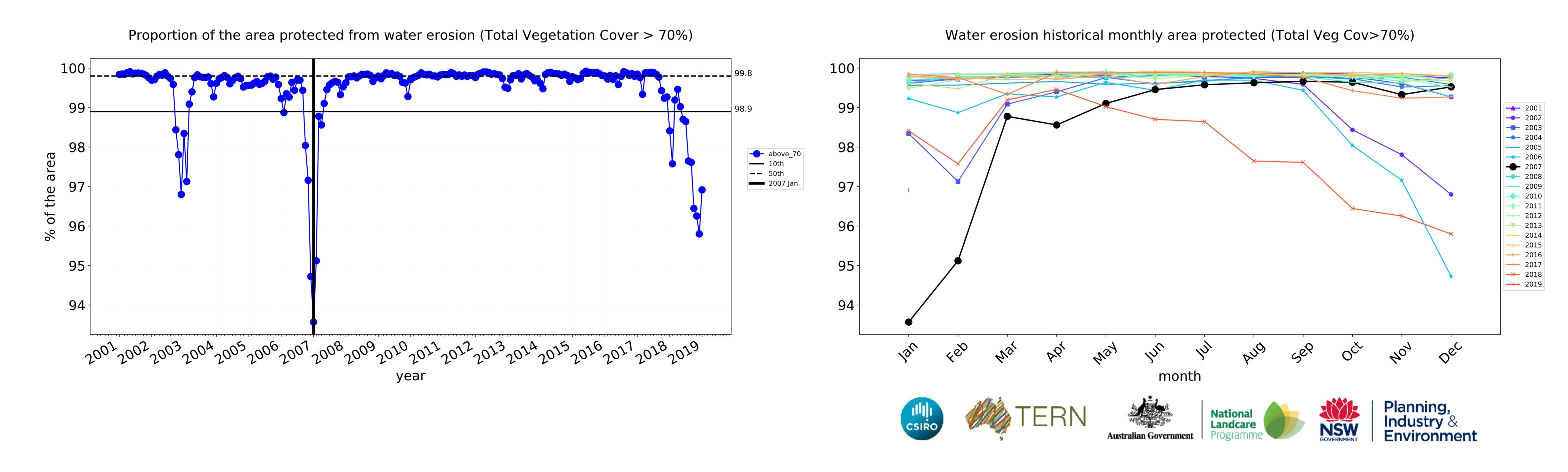


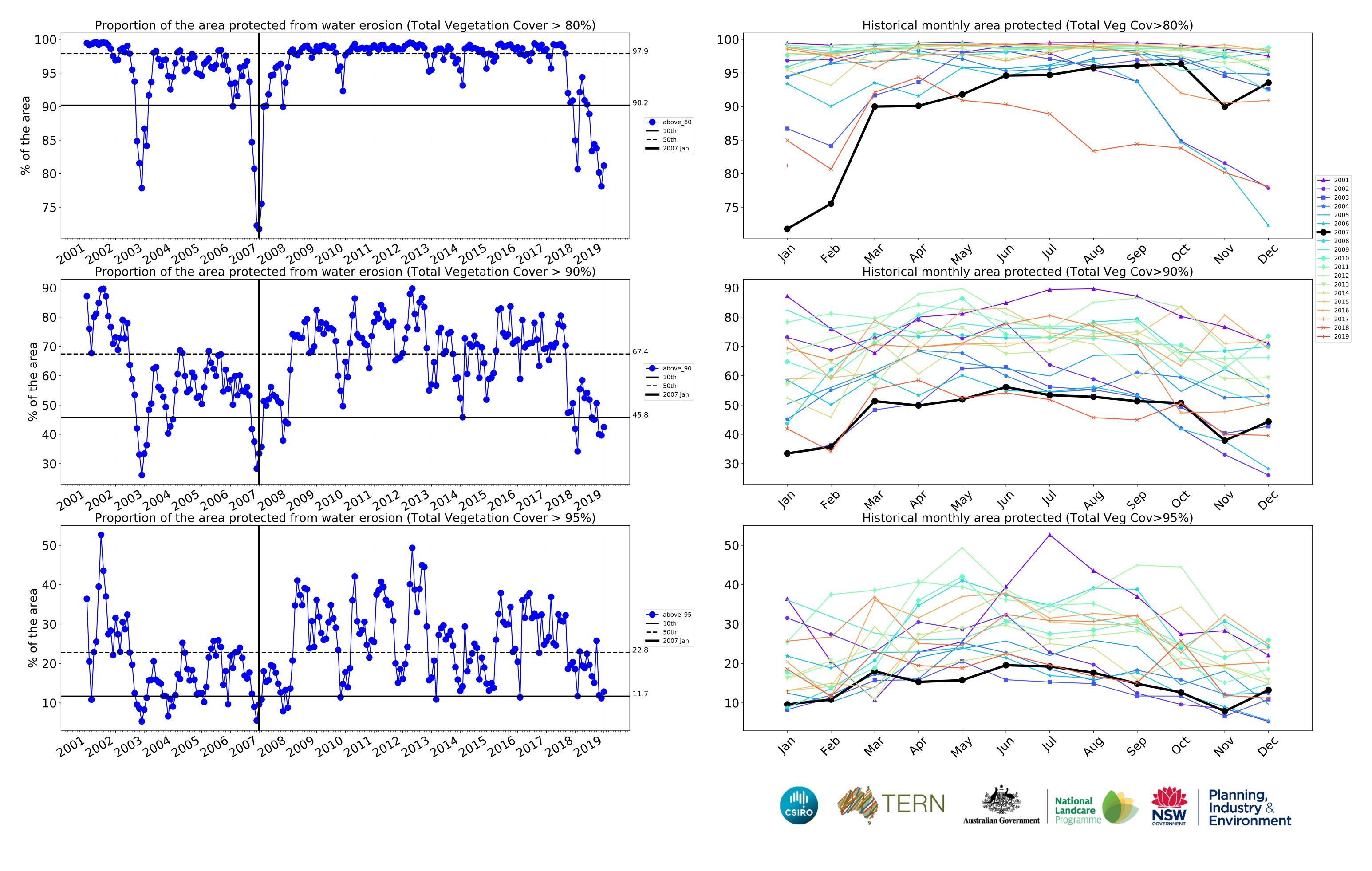




Grazing timeseries

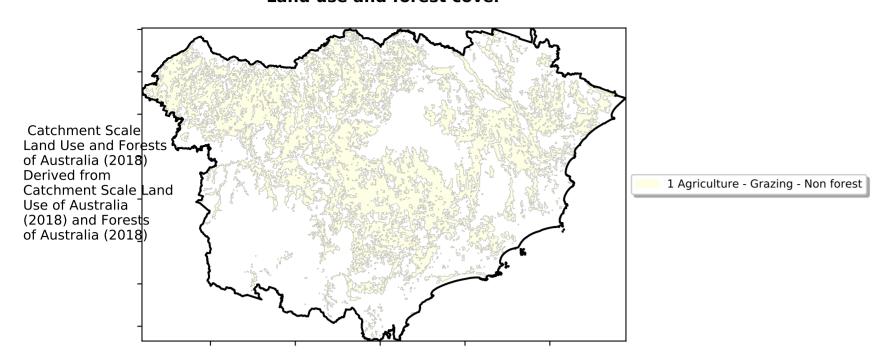




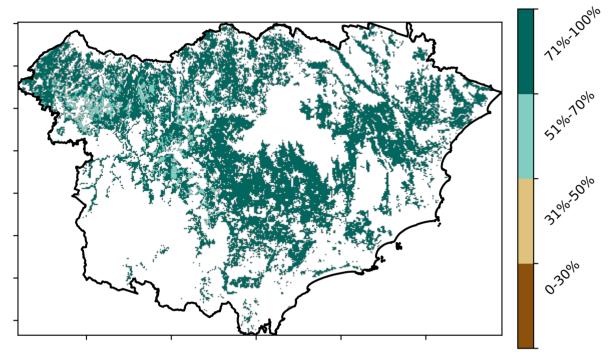


Grazing non forest

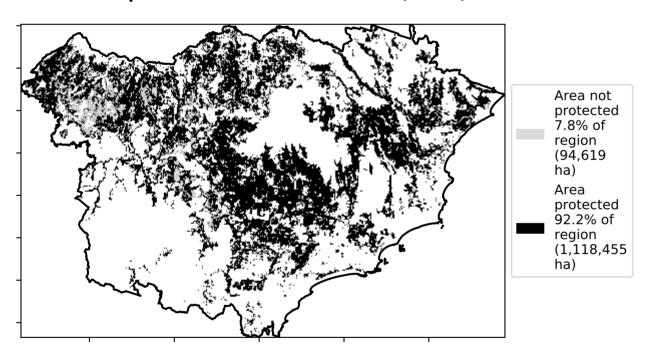
Land use and forest cover



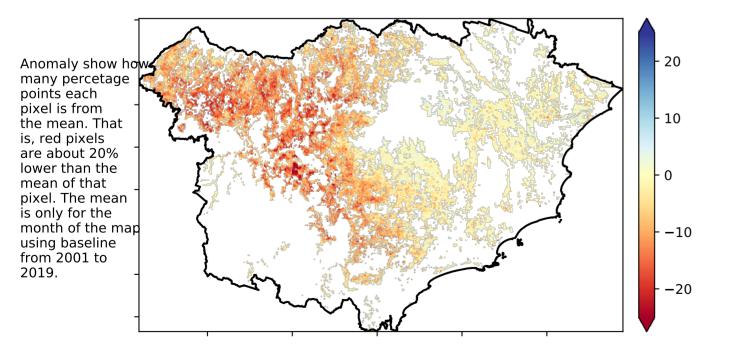
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

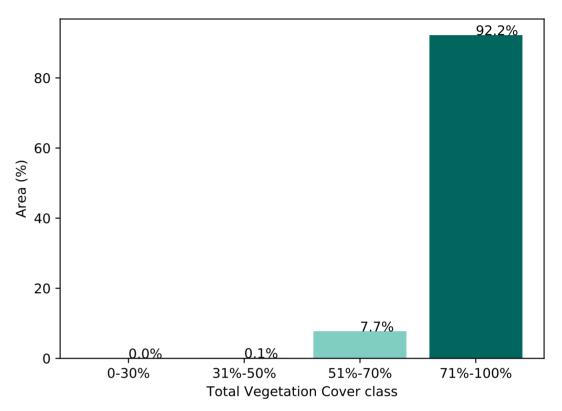


Total Vegetation Cover Anomaly [%]

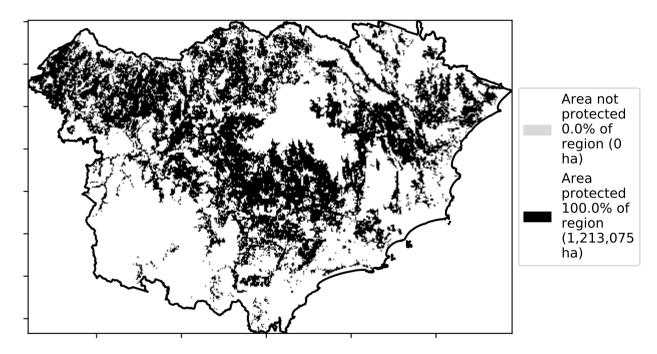


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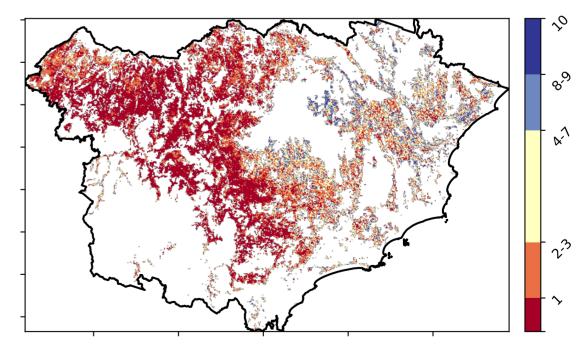
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







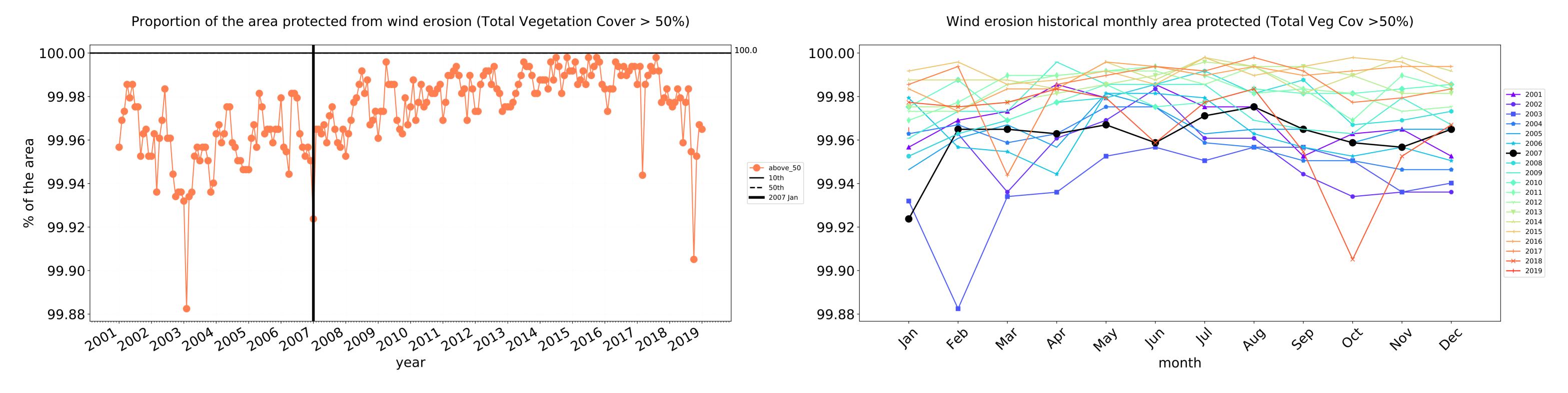


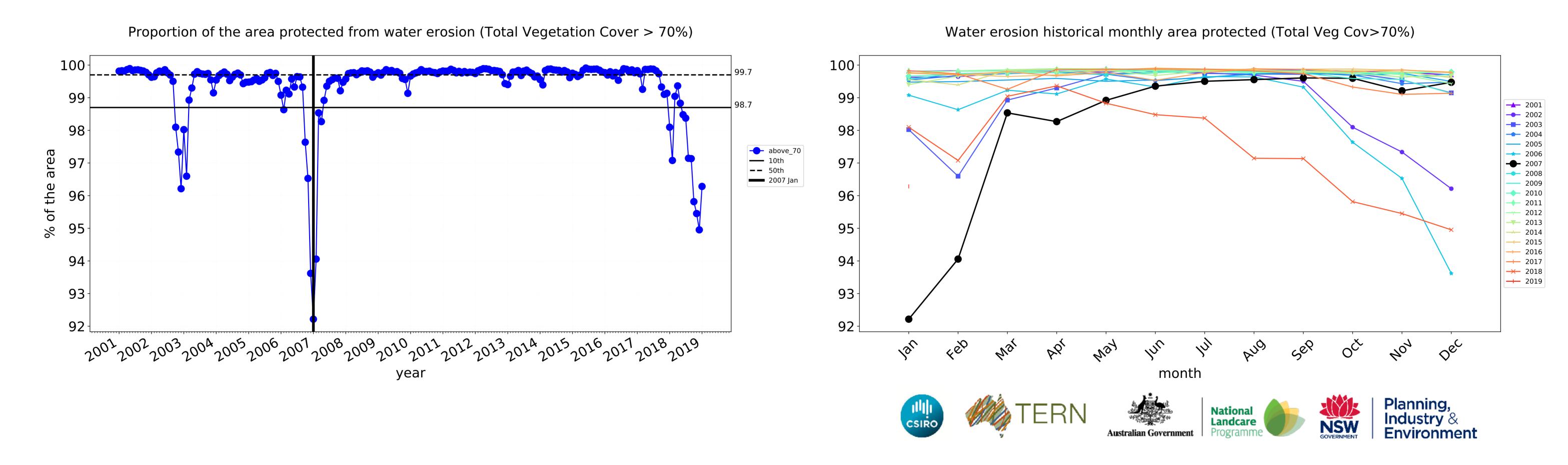


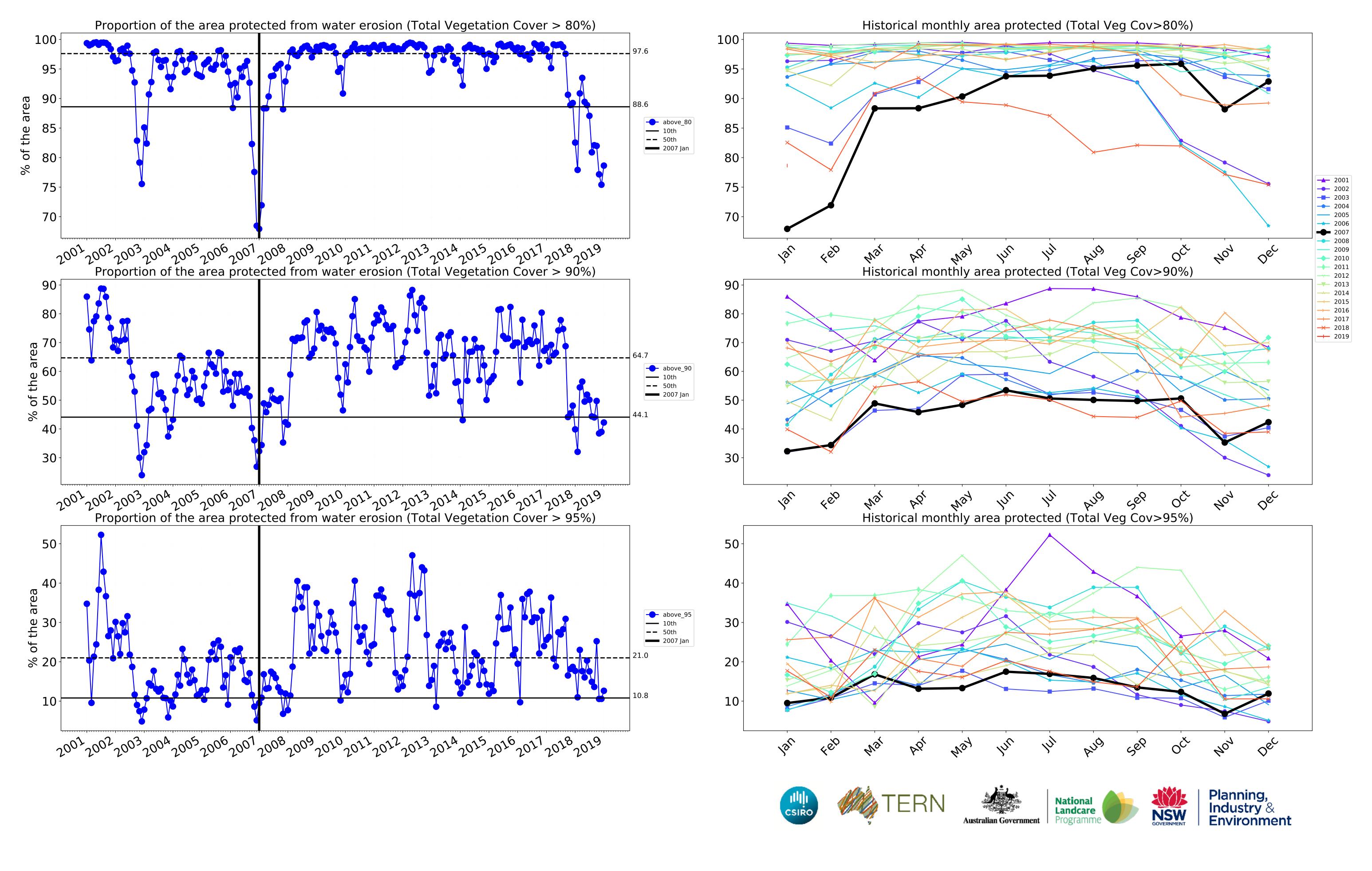




Grazing non forest timeseries





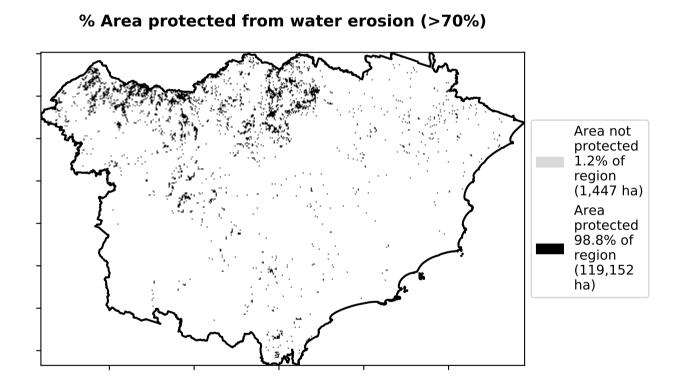


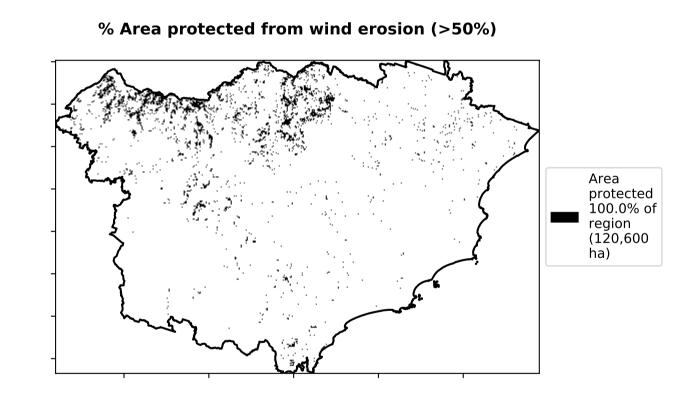
Grazing Woodland forest

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 [%]

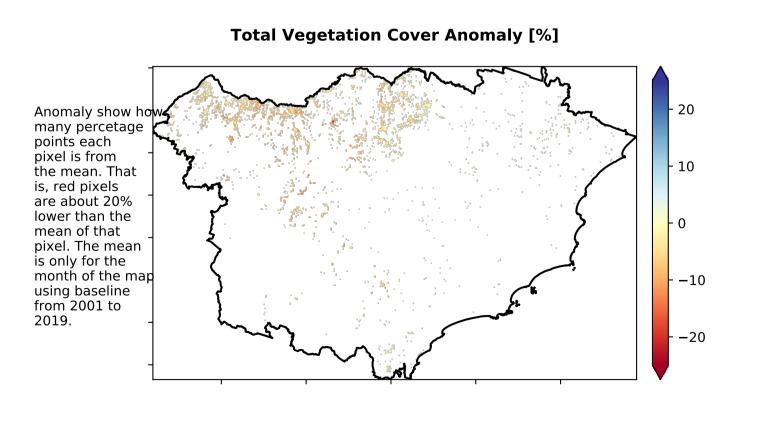
100 80 Area (%) 60 20 31%-50% 51%-70% 0-30% 71%-100% **Total Vegetation Cover class**



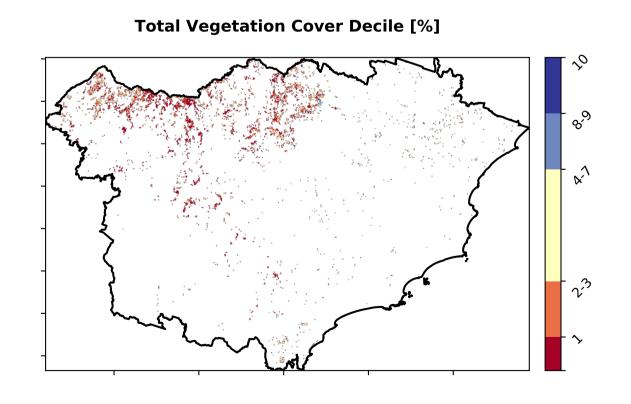


Proportion of vegetation cover class in area

98.8%



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







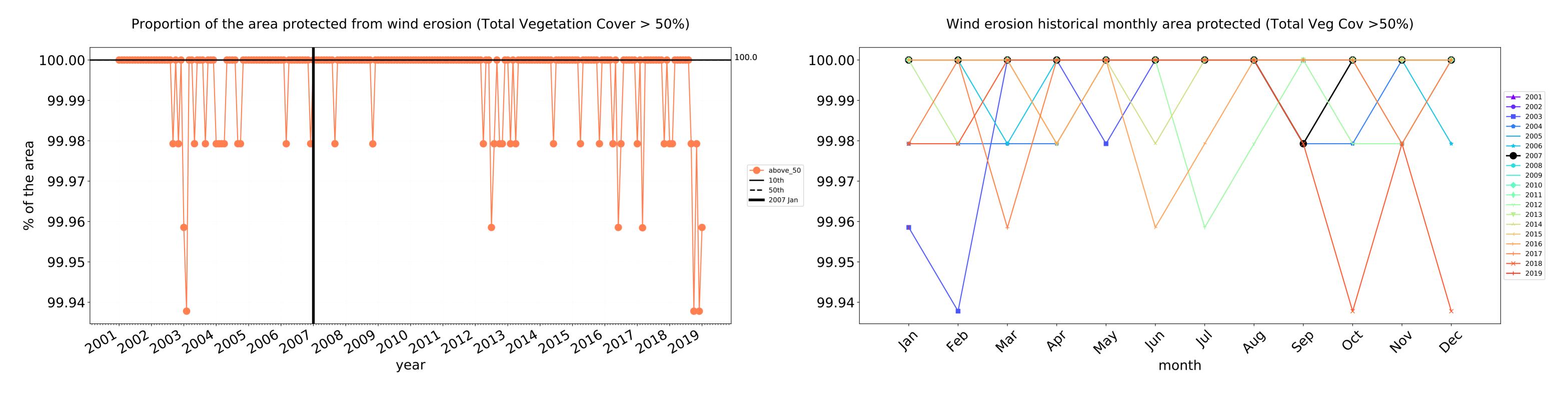


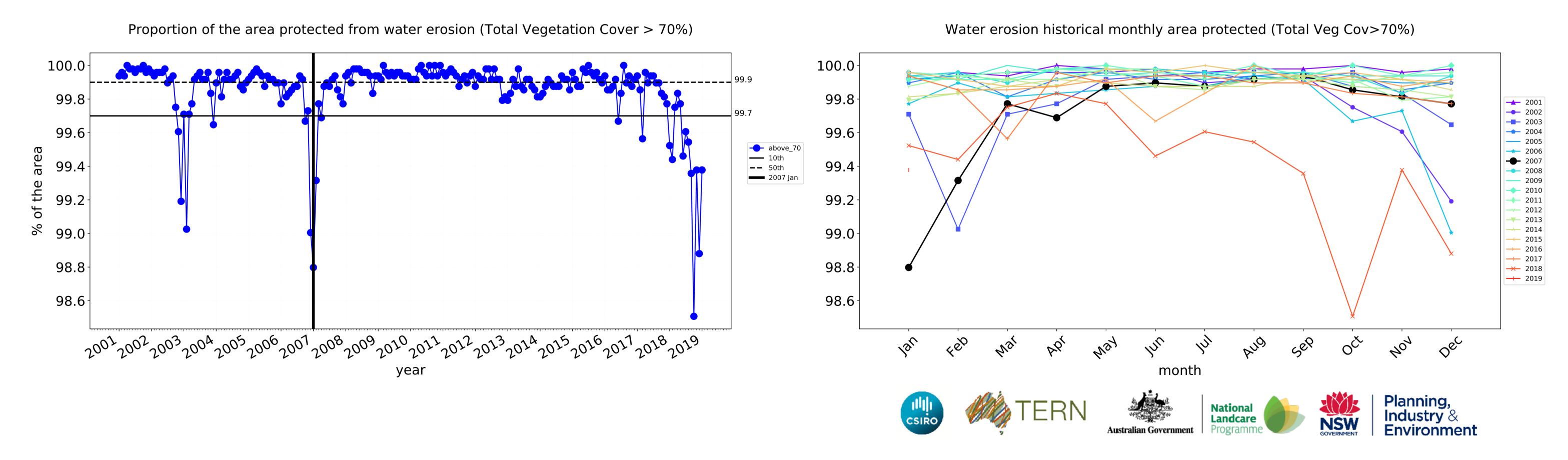


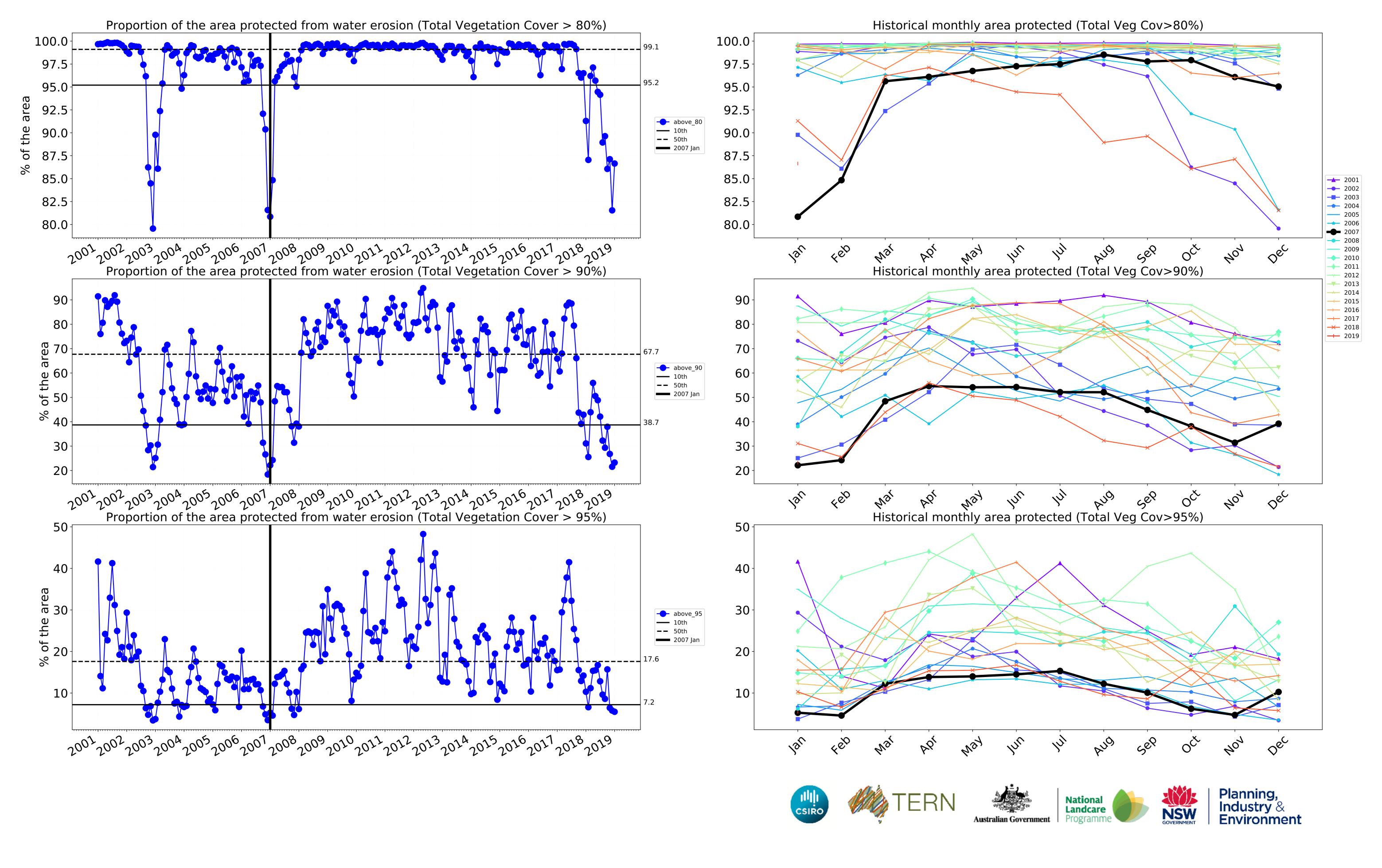




Grazing Woodland forest timeseries





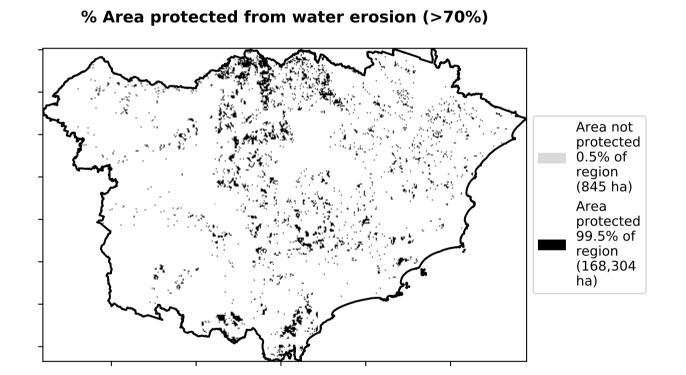


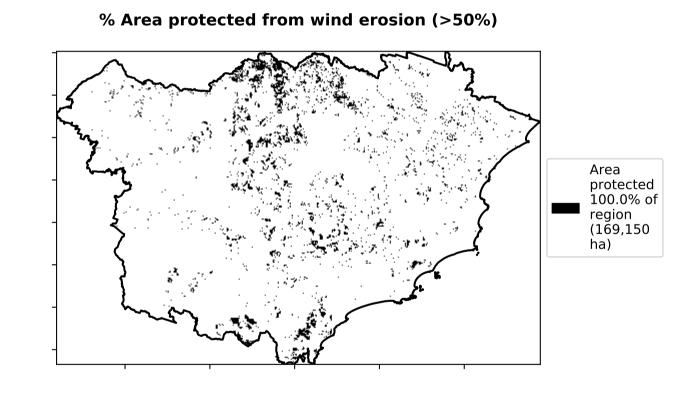
Grazing - Forest (non woodland)

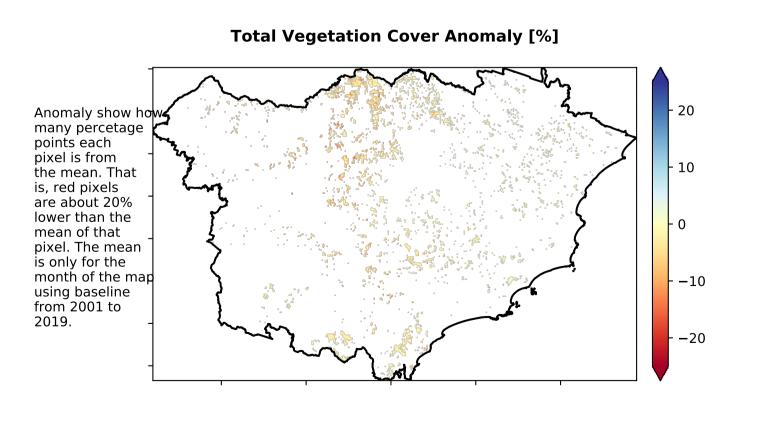
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Agriculture - Grazing - Non-woodland forest Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]

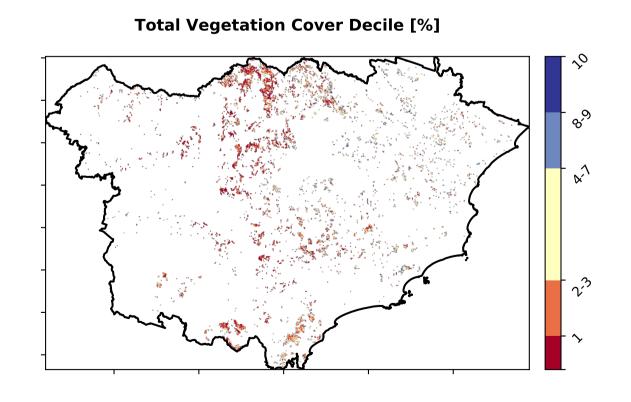
Proportion of vegetation cover class in area 99.5% 100 80 Area (%) 20 · 31%-50% 51%-70% 0-30% 71%-100% **Total Vegetation Cover class**







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 man using baseling. the map using baseline from 2001 to 2019.





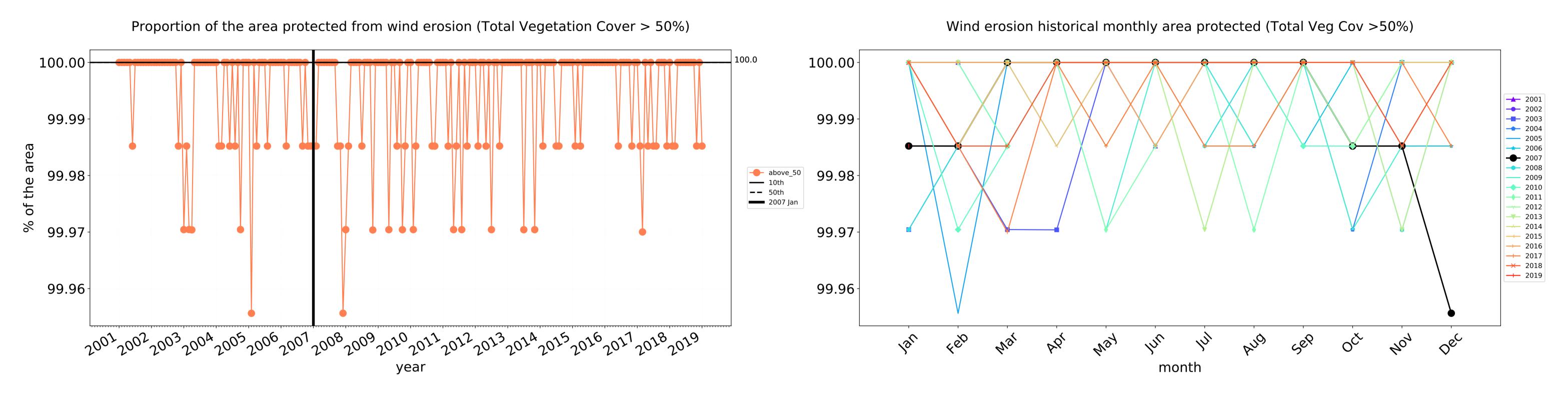


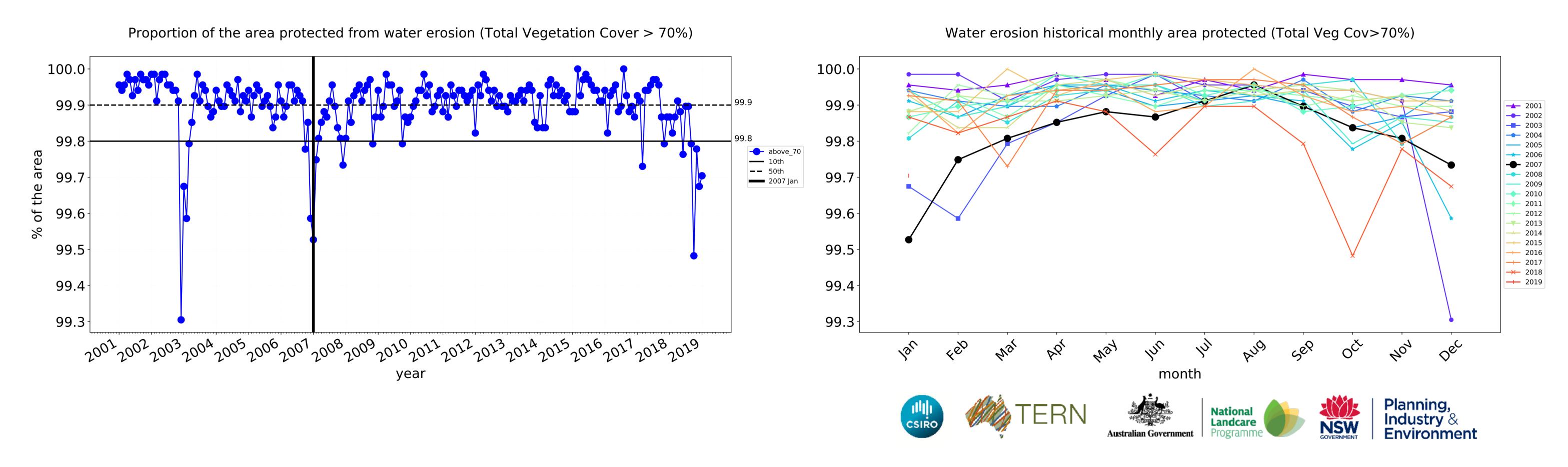


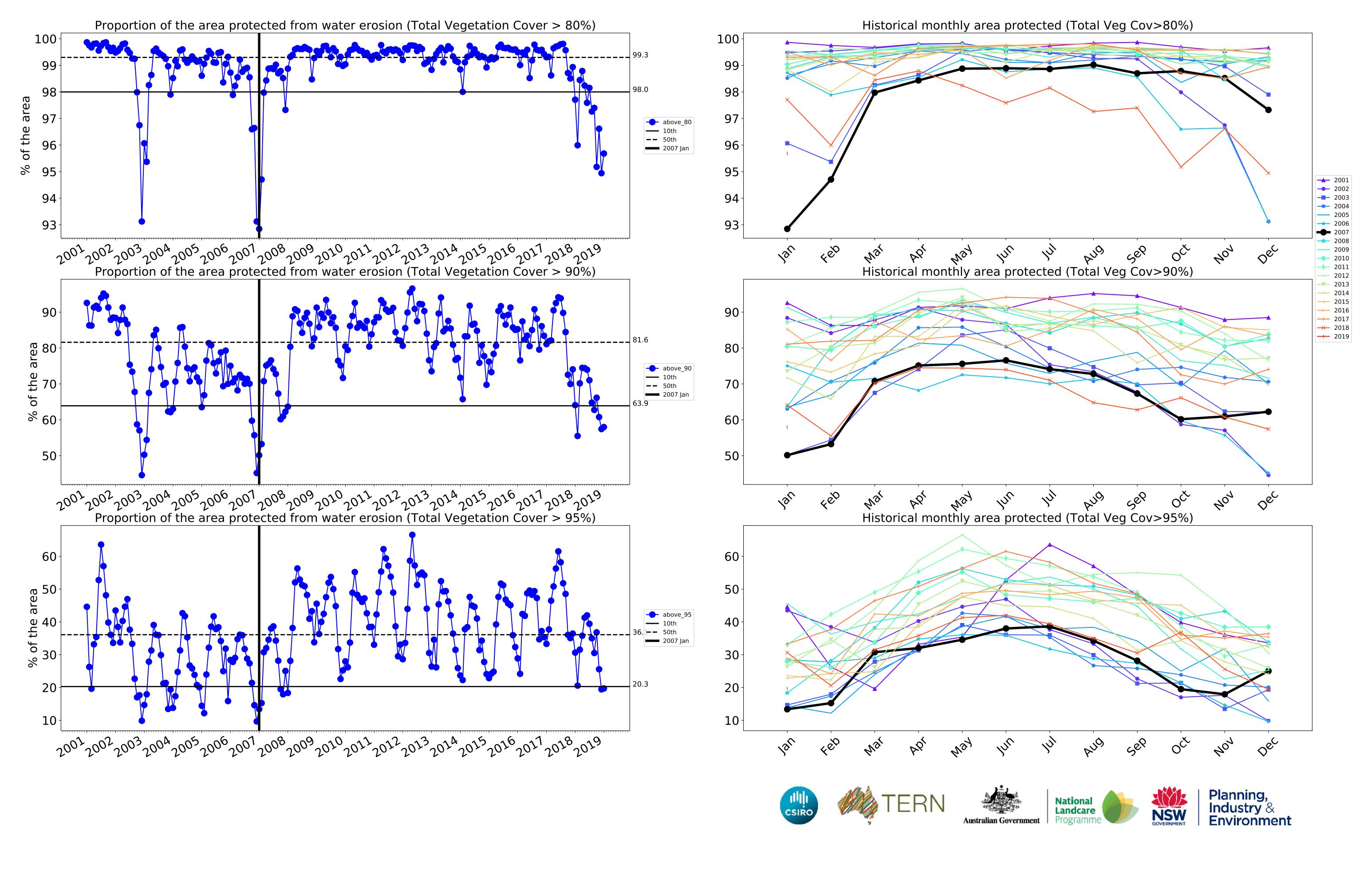






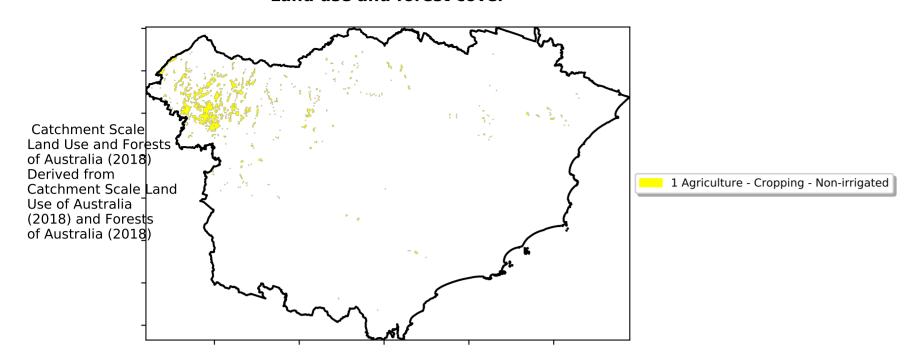




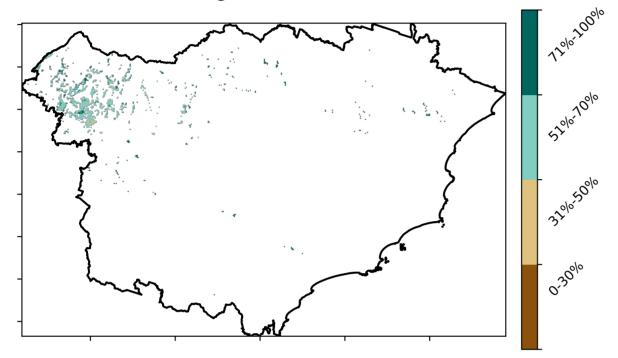


Cropping

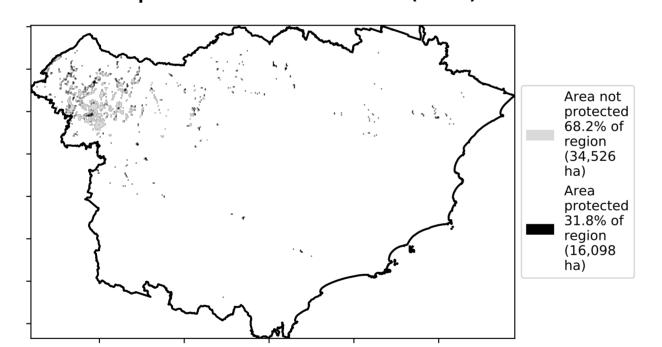
Land use and forest cover



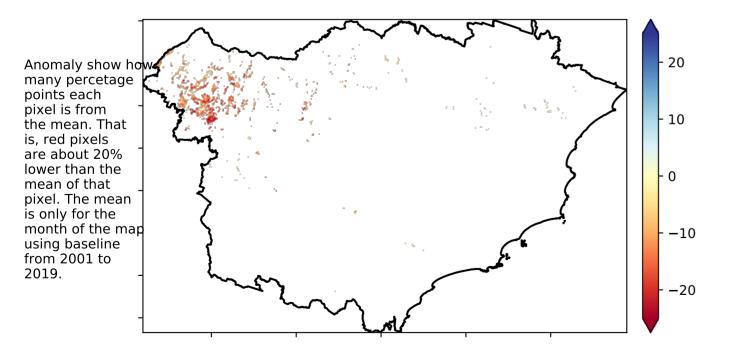
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

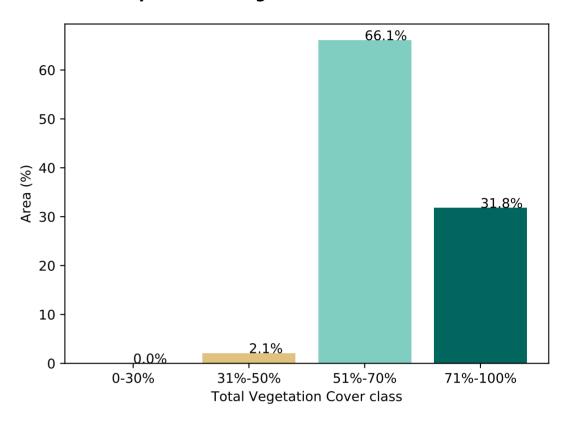


Total Vegetation Cover Anomaly [%]

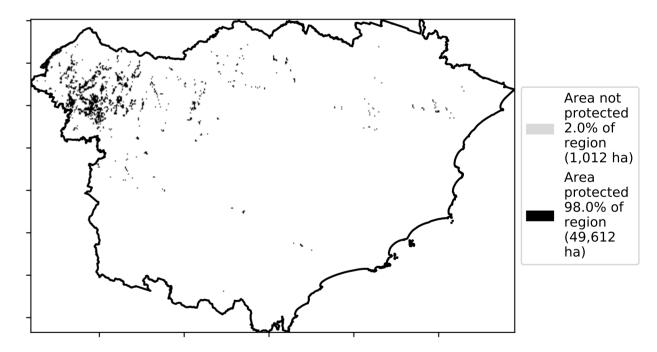


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

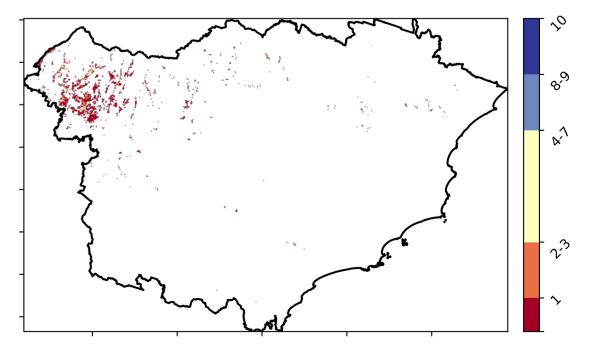
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







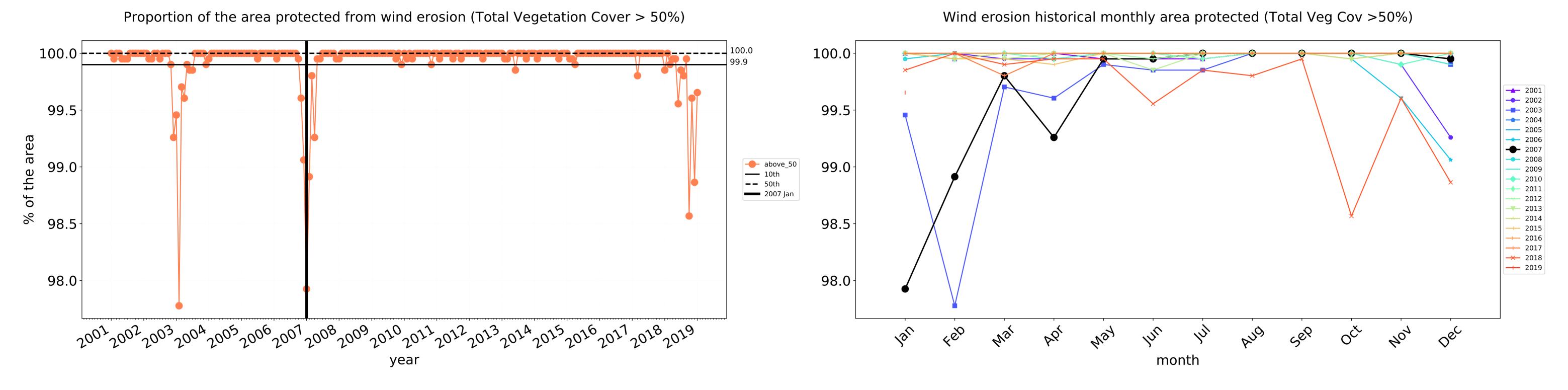


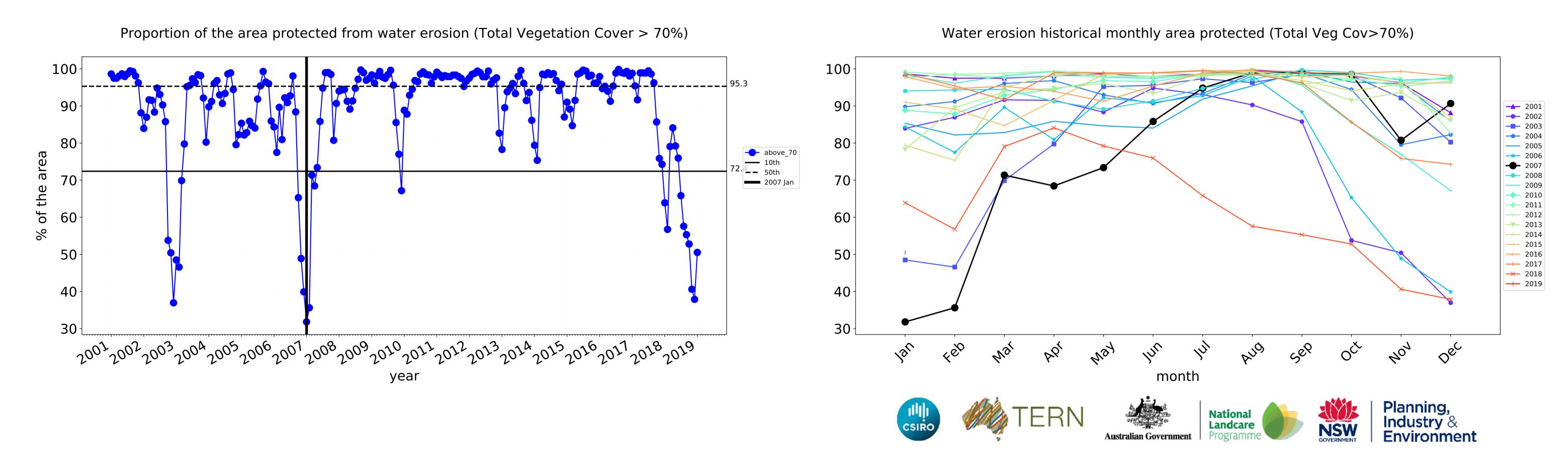


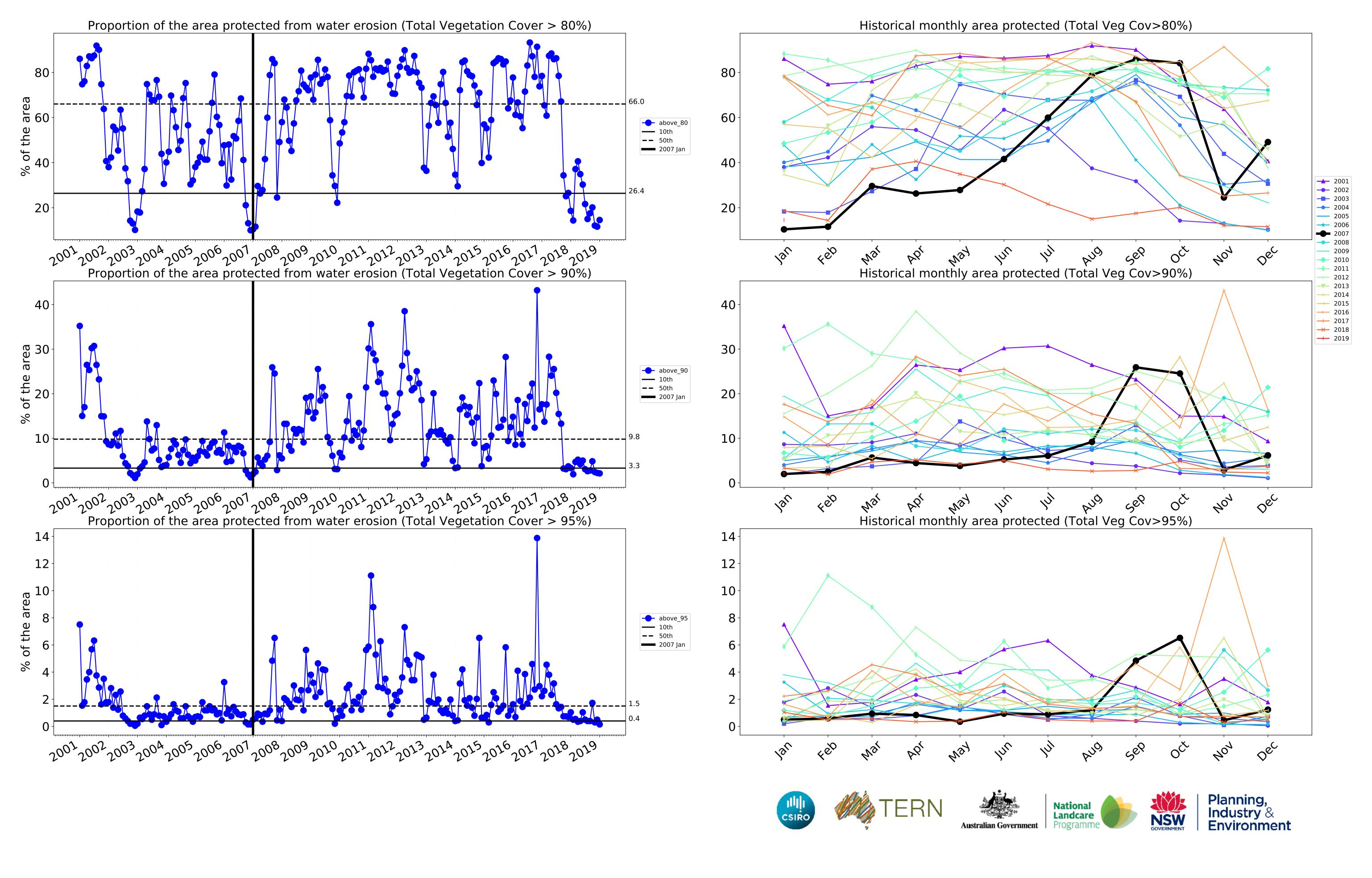




Cropping timeseries





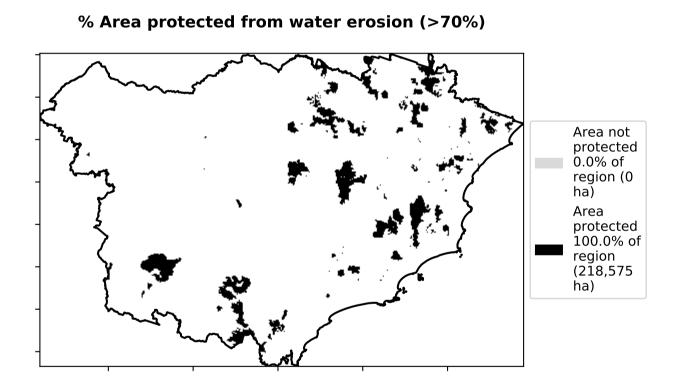


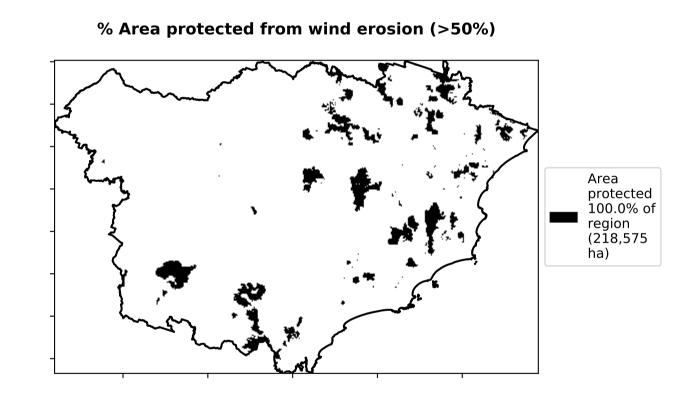
Production native forests and plantation forests

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

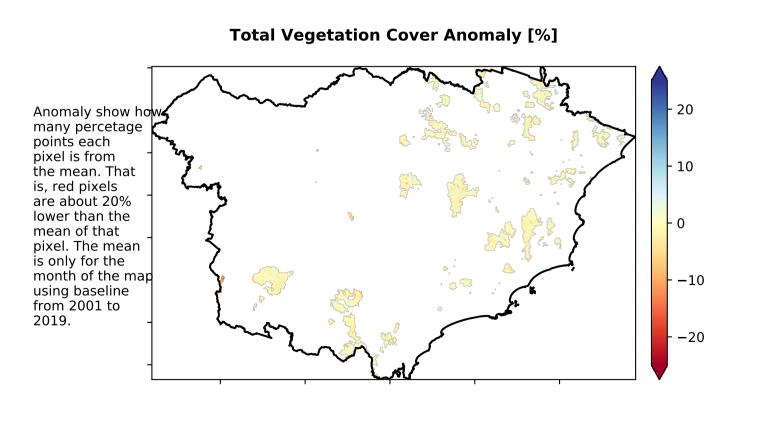
Total Vegetation Cover [%]

100.0% 100 Area (%) 40 20 -0.0% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**

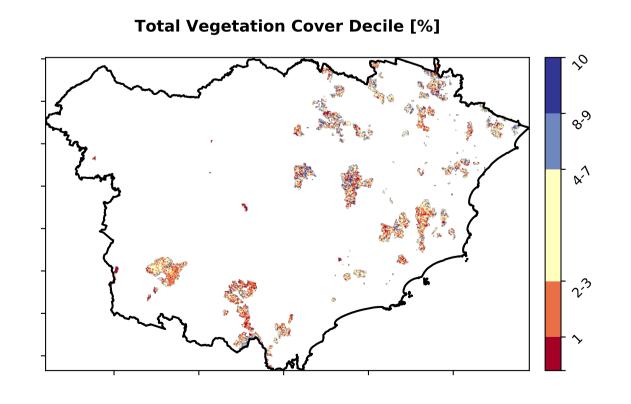




Proportion of vegetation cover class in area



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







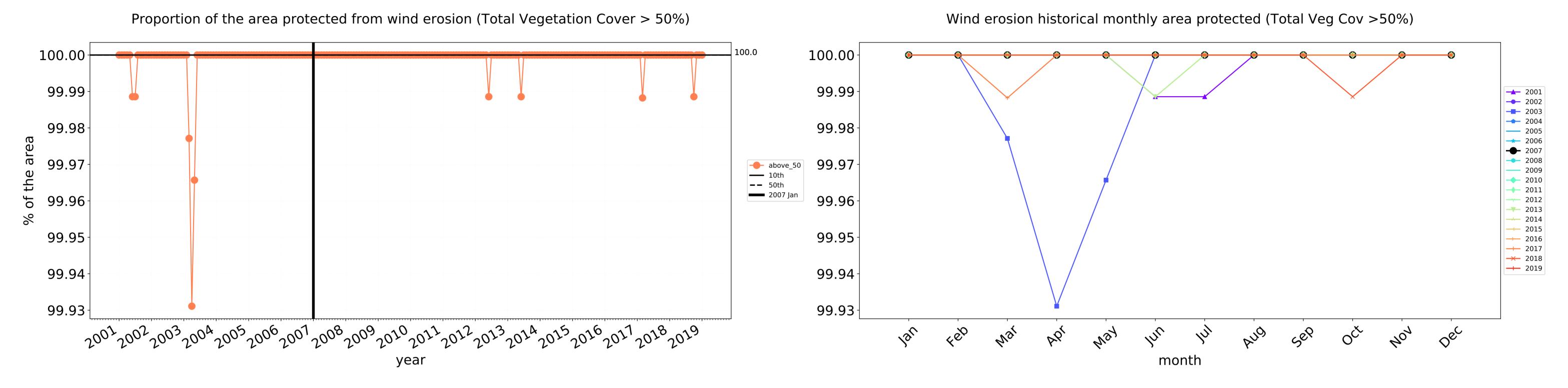


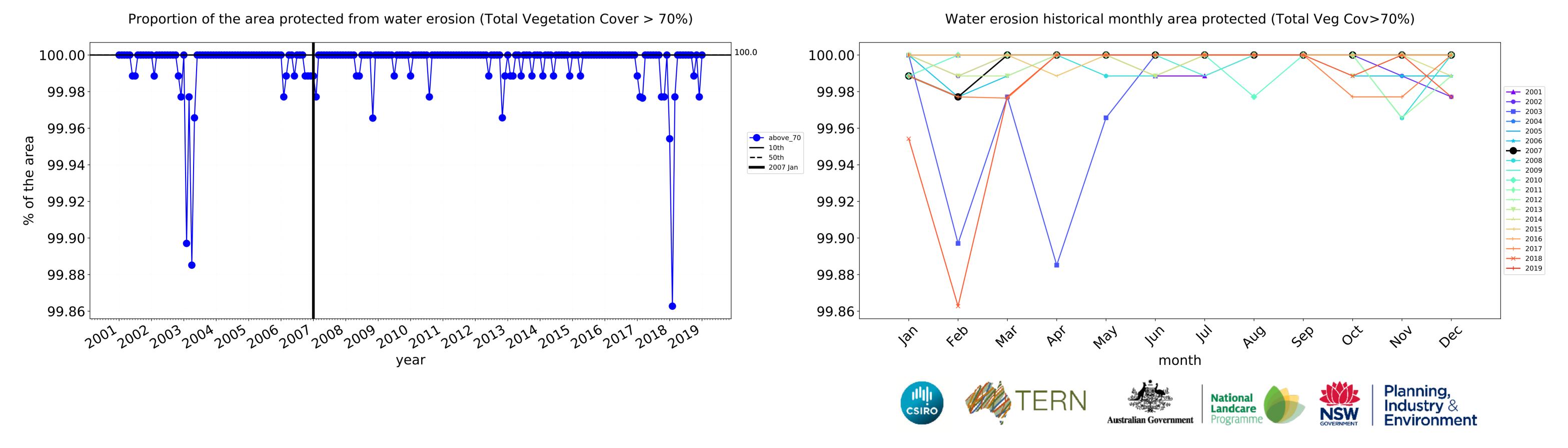


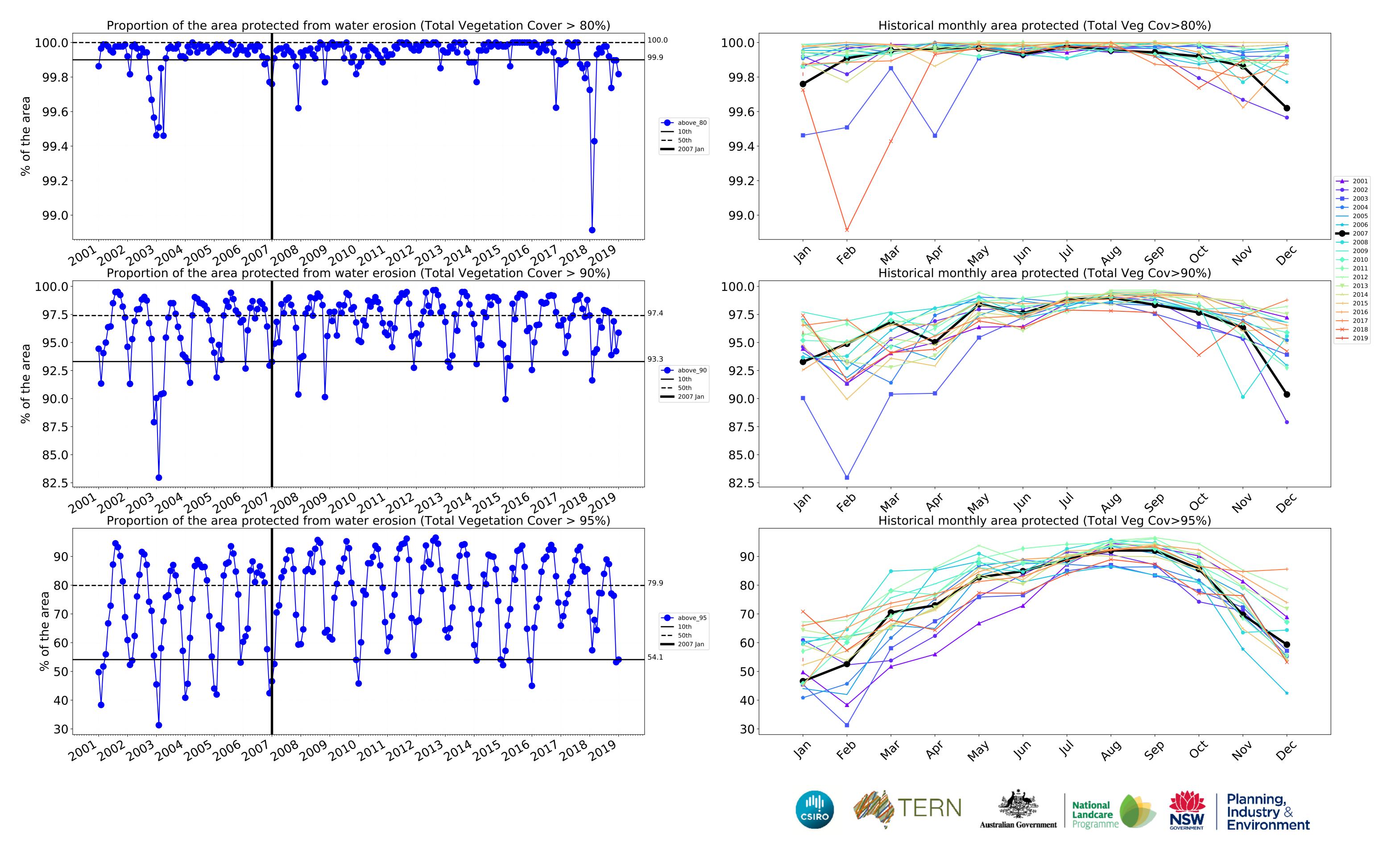




Production native forests and plantation forests timeseries







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% 3,235,153	99.5% 3,223,066	93.9% 3,040,283	80.3% 2,601,419	50.9% 1,649,818	17.7% 572,998
Conservation and natural environments	1,241,250	99.9% 1,239,850	99.8% 1,238,750	99.5% 1,235,425	97.1% 1,204,700	73.3% 910,175	25.7% 318,625
Conservation and natural environments non forest	30,075	95.6% 28,750	92.5% 27,825	87.9% 26,425	80.0% 24,075	56.0% 16,850	18.9% 5,675
Conservation and natural environments Woodland forest	138,950	100.0% 138,900	100.0% 138,900	99.7% 138,500	95.1% 132,125	53.4% 74,250	11.6% 16,175
natural environments Forest (non woodland)	1,072,225	100.0% 1,072,200	100.0% 1,072,025	99.8% 1,070,500	97.8% 1,048,500	76.4% 819,075	27.7% 296,775
Agriculture	1,580,825	100.0% 1,580,750	99.9% 1,578,775	91.3% 1,442,550	68.9% 1,089,275	31.9% 504,425	9.2% 144,800
Grazing	1,502,825	100.0% 1,502,750	99.9% 1,501,875	93.6% 1,406,150	71.8% 1,078,675	33.5% 502,850	9.6% 144,375
Grazing non forest	1,213,075	100.0% 1,213,000	99.9% 1,212,150	92.2% 1,118,650	67.9% 824,125	32.3% 391,350	9.5% 115,400
Grazing Woodland forest	120,600	100.0% 120,600	100.0% 120,600	98.8% 119,150	80.8% 97,500	22.1% 26,700	5.3% 6,350
Grazing - Forest (non woodland)	169,150	100.0% 169,150	100.0% 169,125	99.5% 168,350	92.8% 157,050	50.1% 84,800	13.4% 22,625
Cropping	50,625	100.0% 50,625	97.9% 49,575	31.8% 16,100	10.4% 5,275	2.0% 1,000	0.5% 250
Production native forests and plantation forests	218,575	100.0% 218,575	100.0% 218,575	100.0% 218,550	99.8% 218,050	93.3% 203,875	46.6% 101,825











