Total vegetation cover soil protection Region:NRM Riverina 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 2019

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







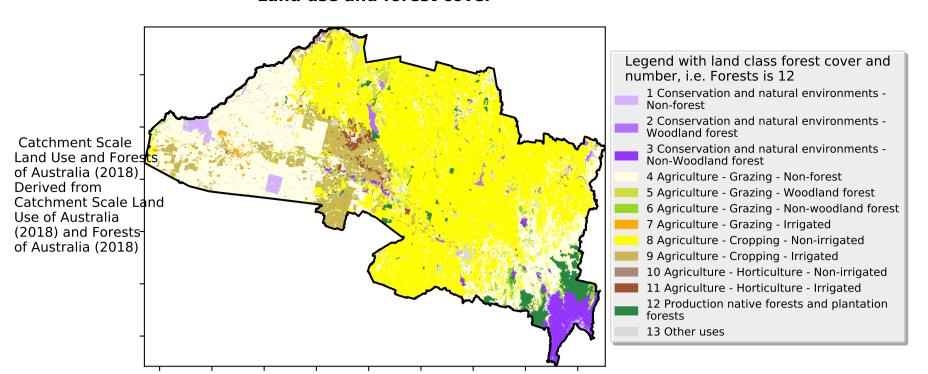




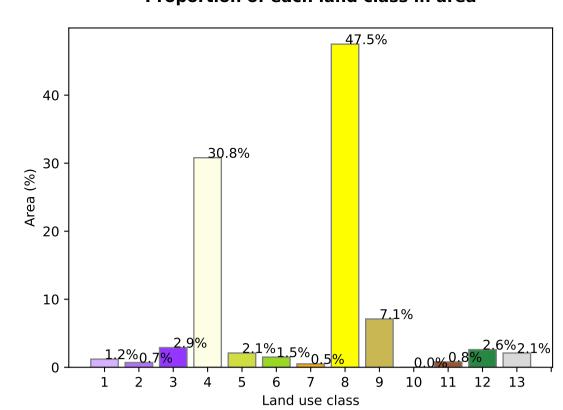


Vegetation Cover Nov 2019

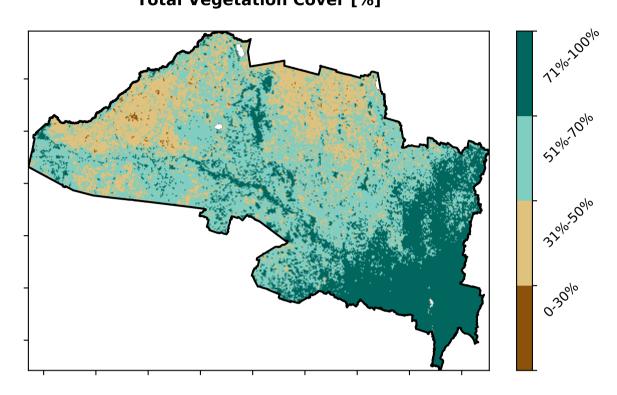
Land use and forest cover



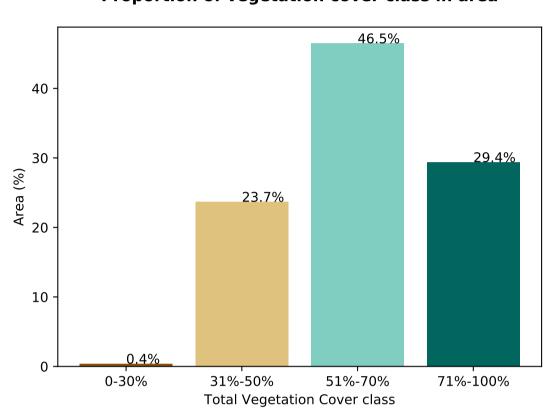
Proportion of each land class in area



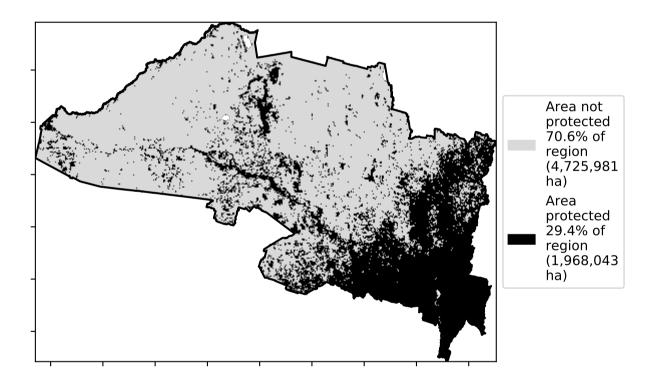
Total Vegetation Cover [%]



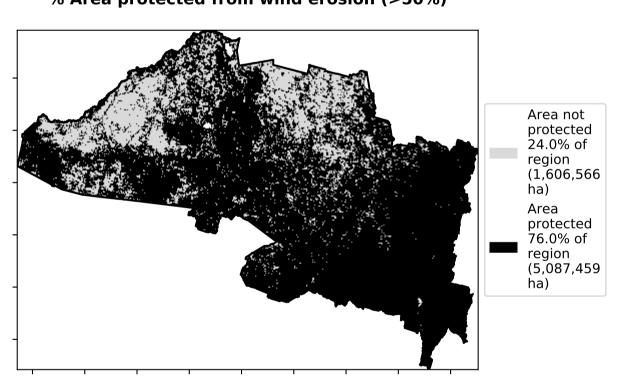
Proportion of vegetation cover class in area



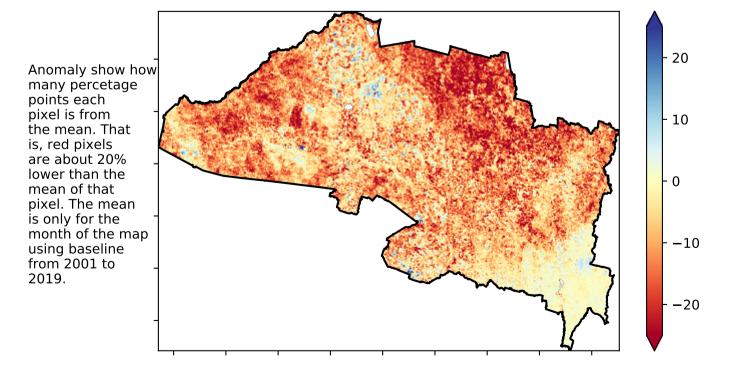
% Area protected from water erosion (>70%)



% 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 [%]



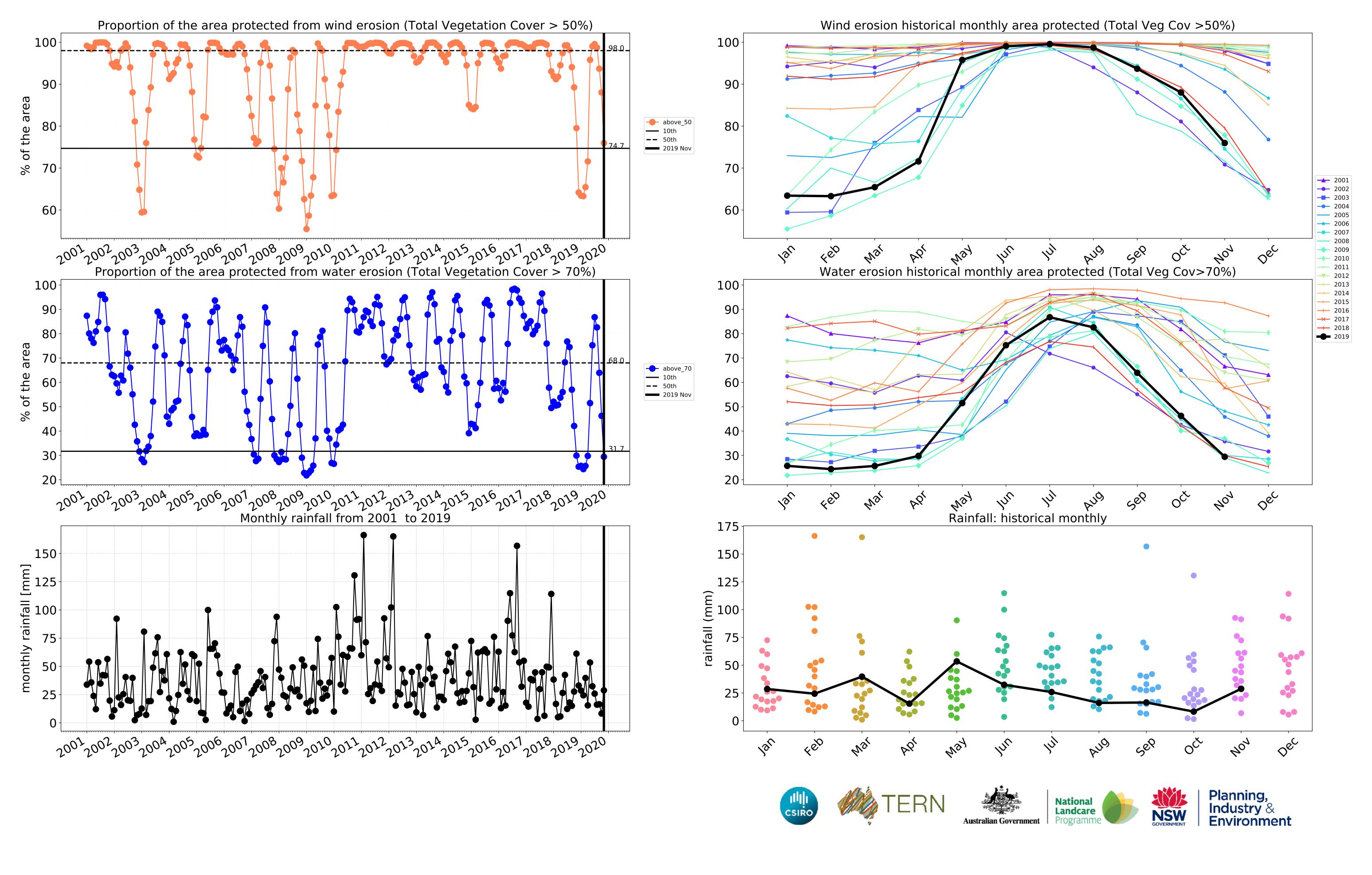




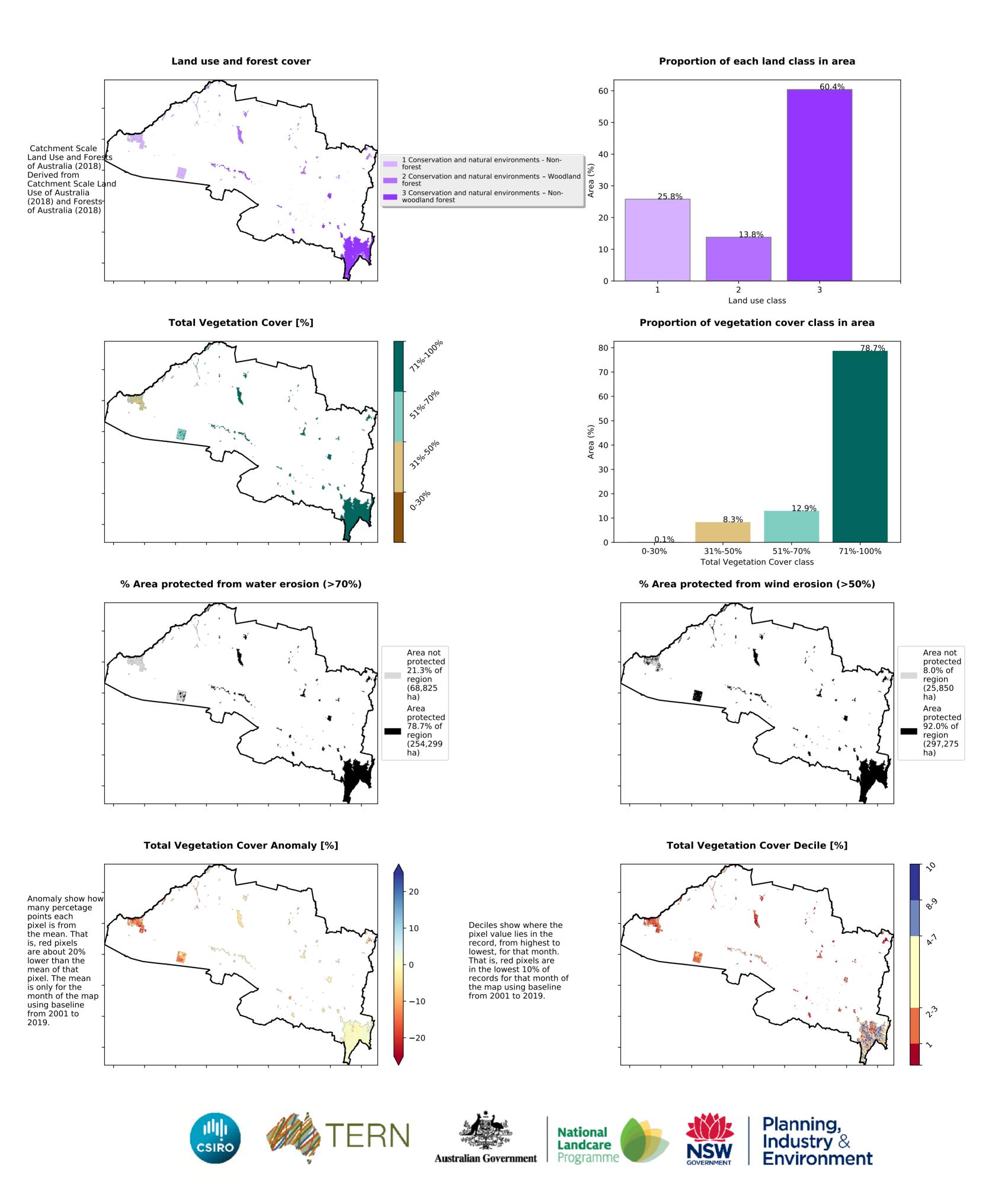




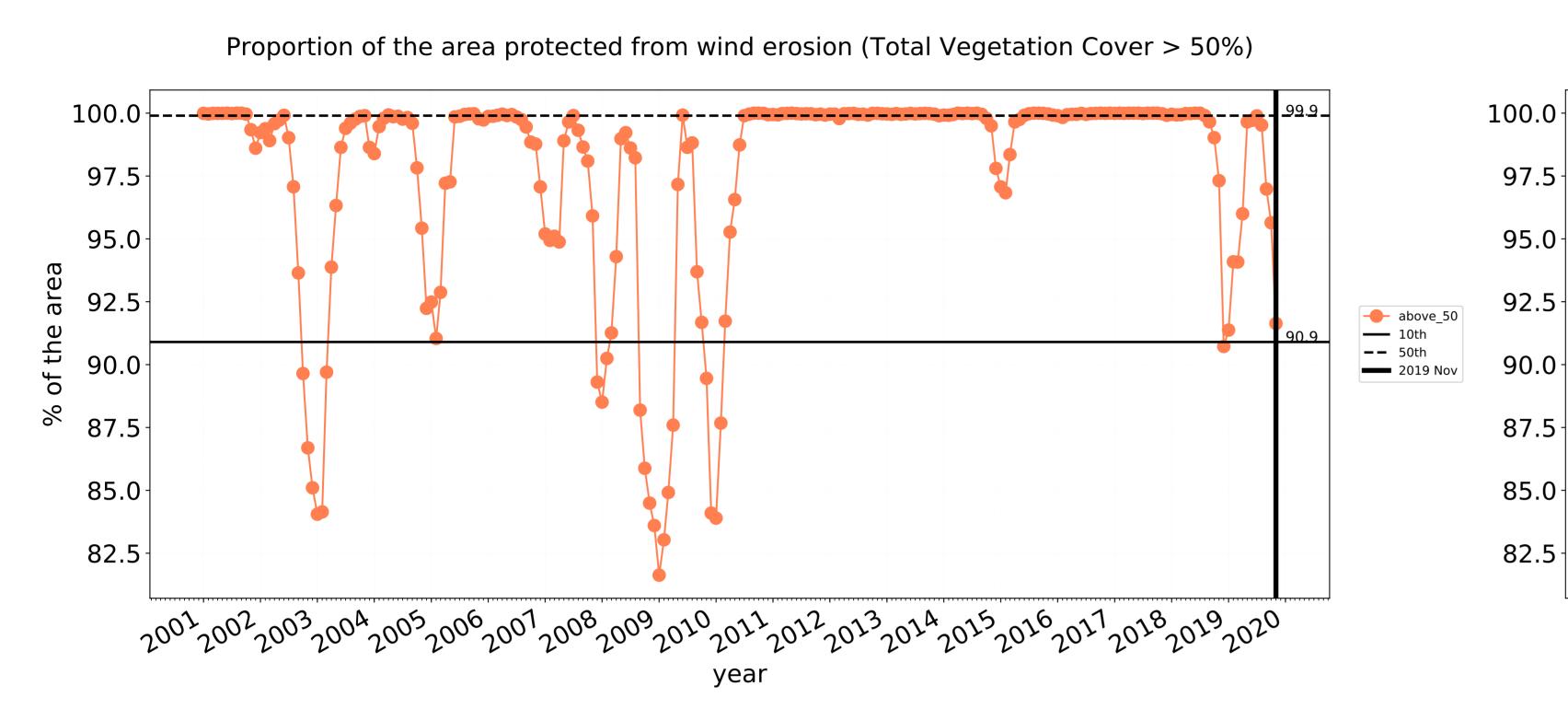




Conservation and natural environments



Conservation and natural environments timeseries



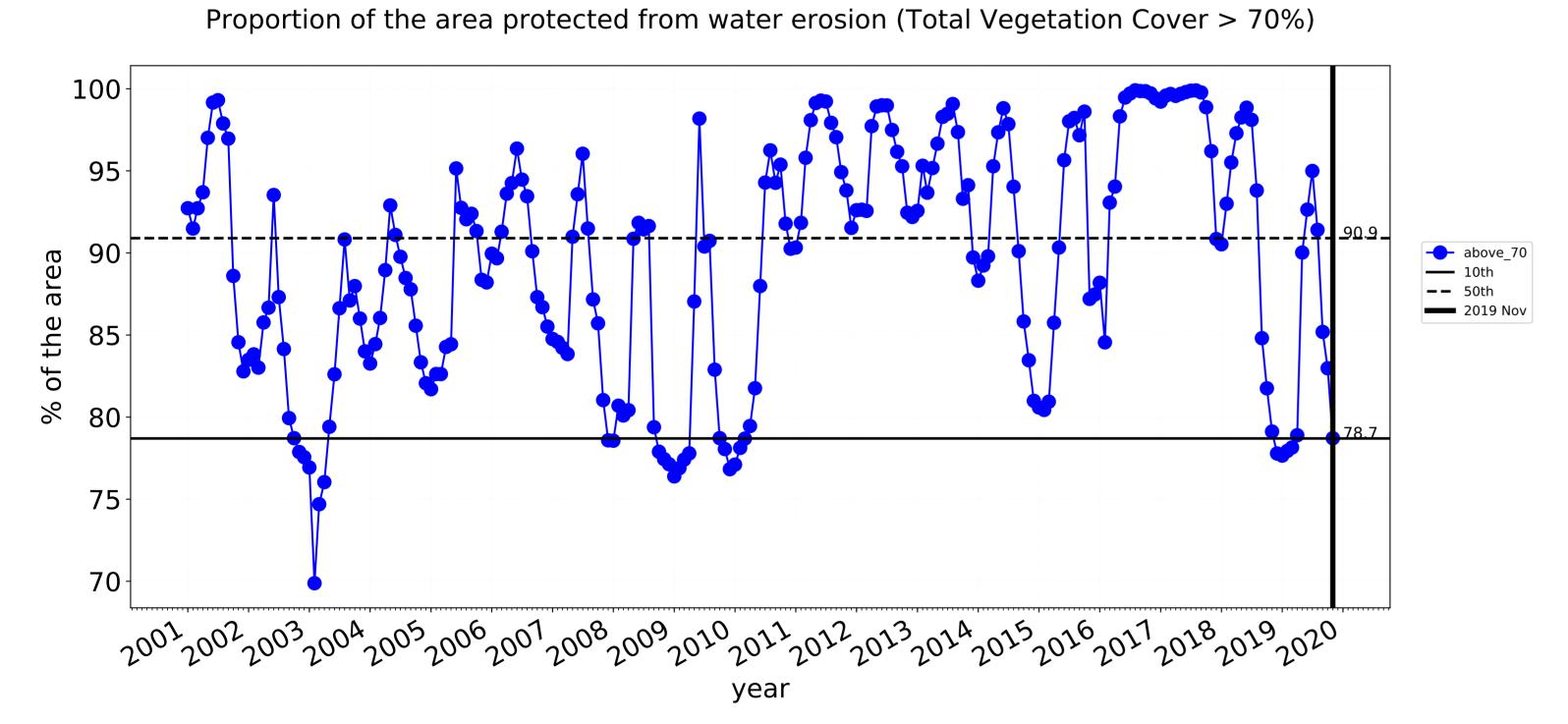
2012 2013 2014

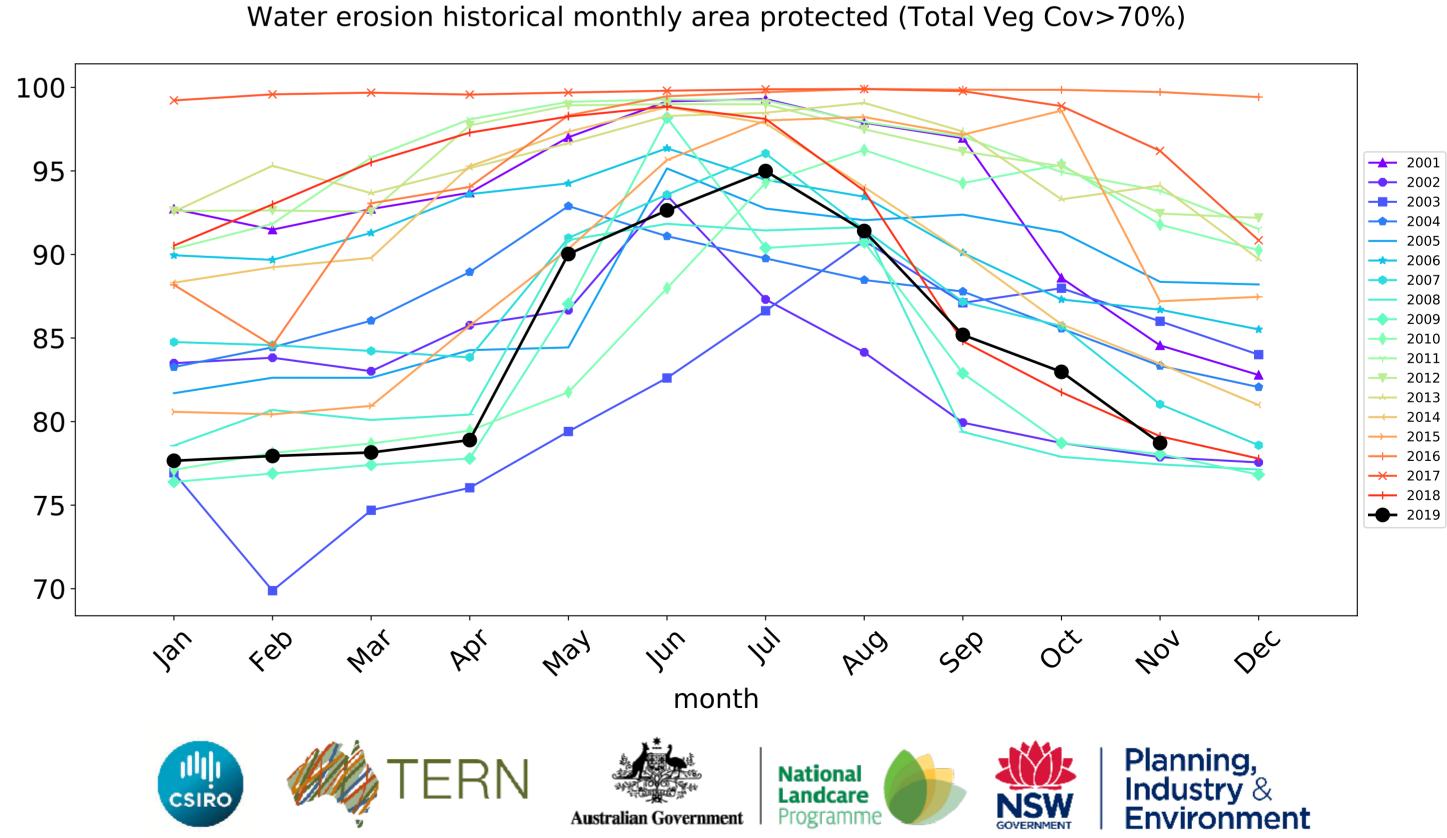
→ 2015 → 2016 → 2017

2018 2019

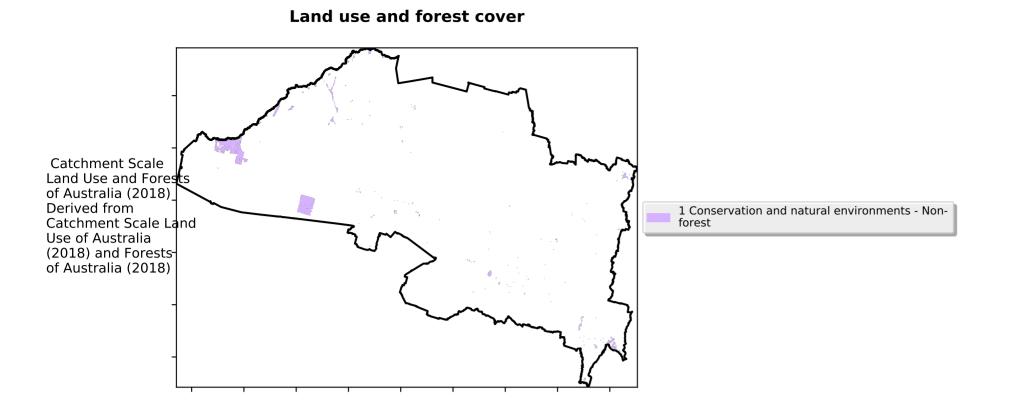
Wind erosion historical monthly area protected (Total Veg Cov >50%)

month





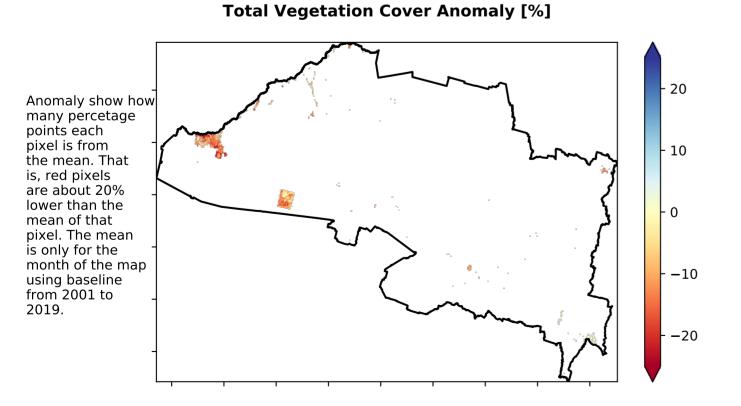
Conservation and natural environments non forest



Total Vegetation Cover [%]

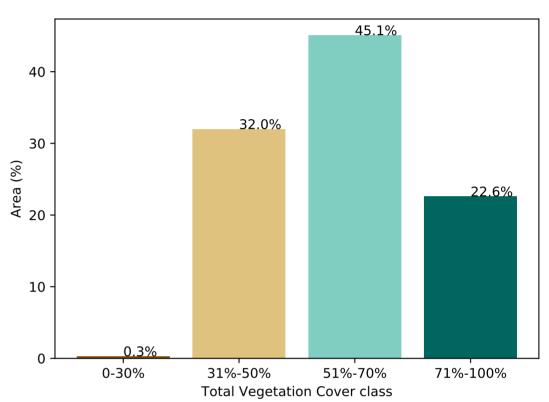
% Area protected from water erosion (>70%)



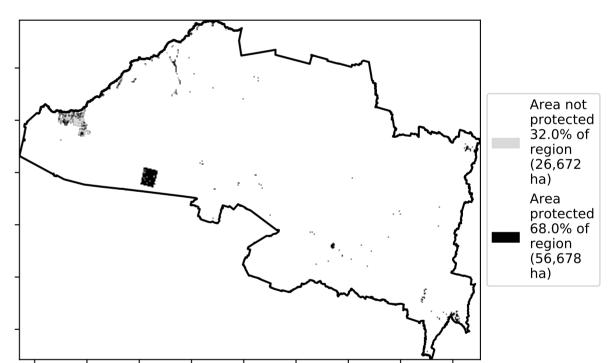


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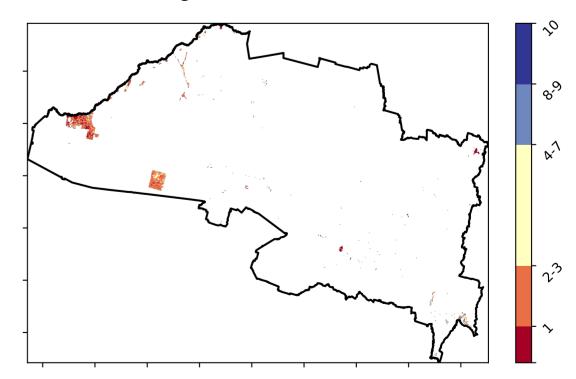
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







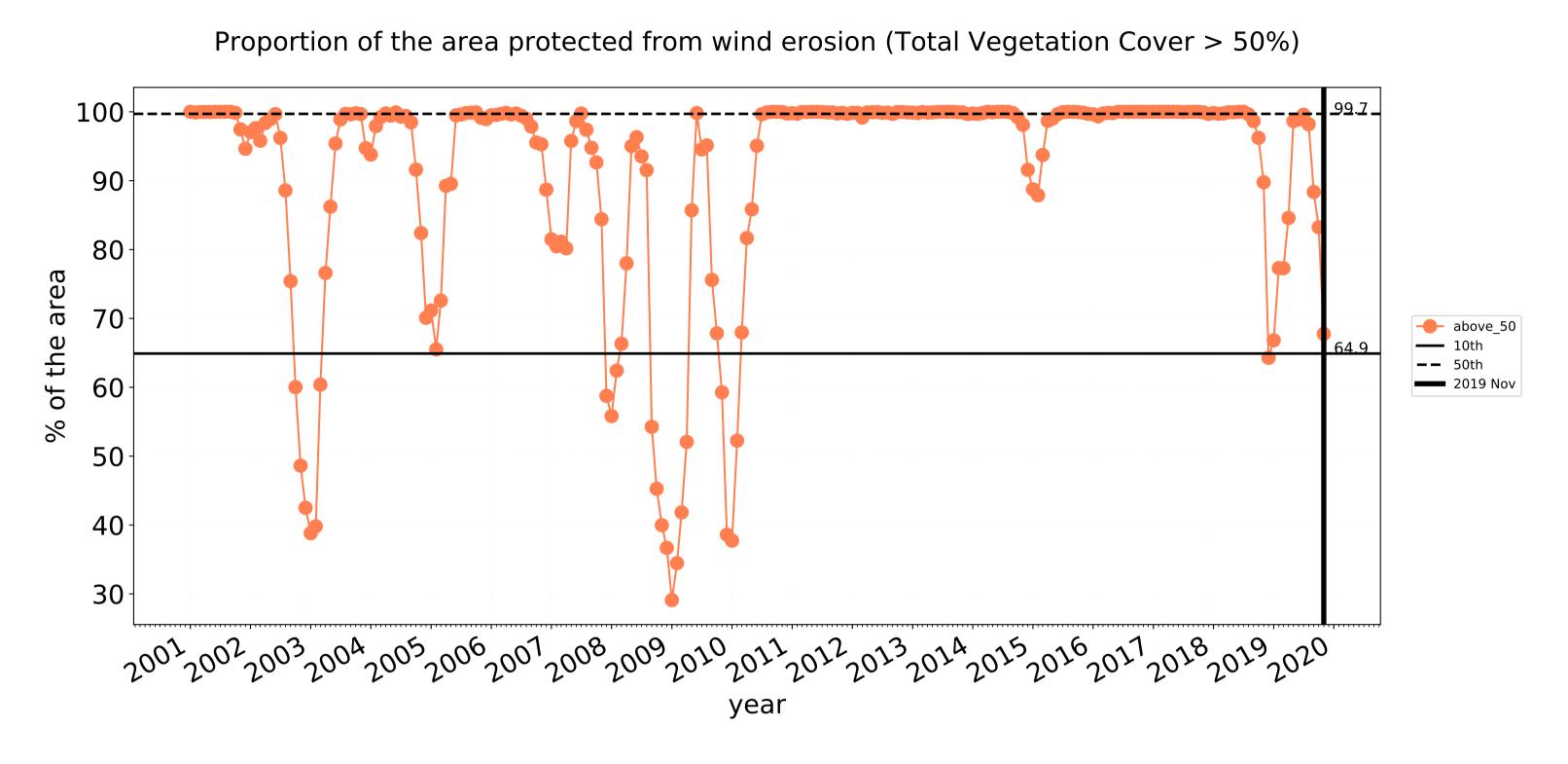


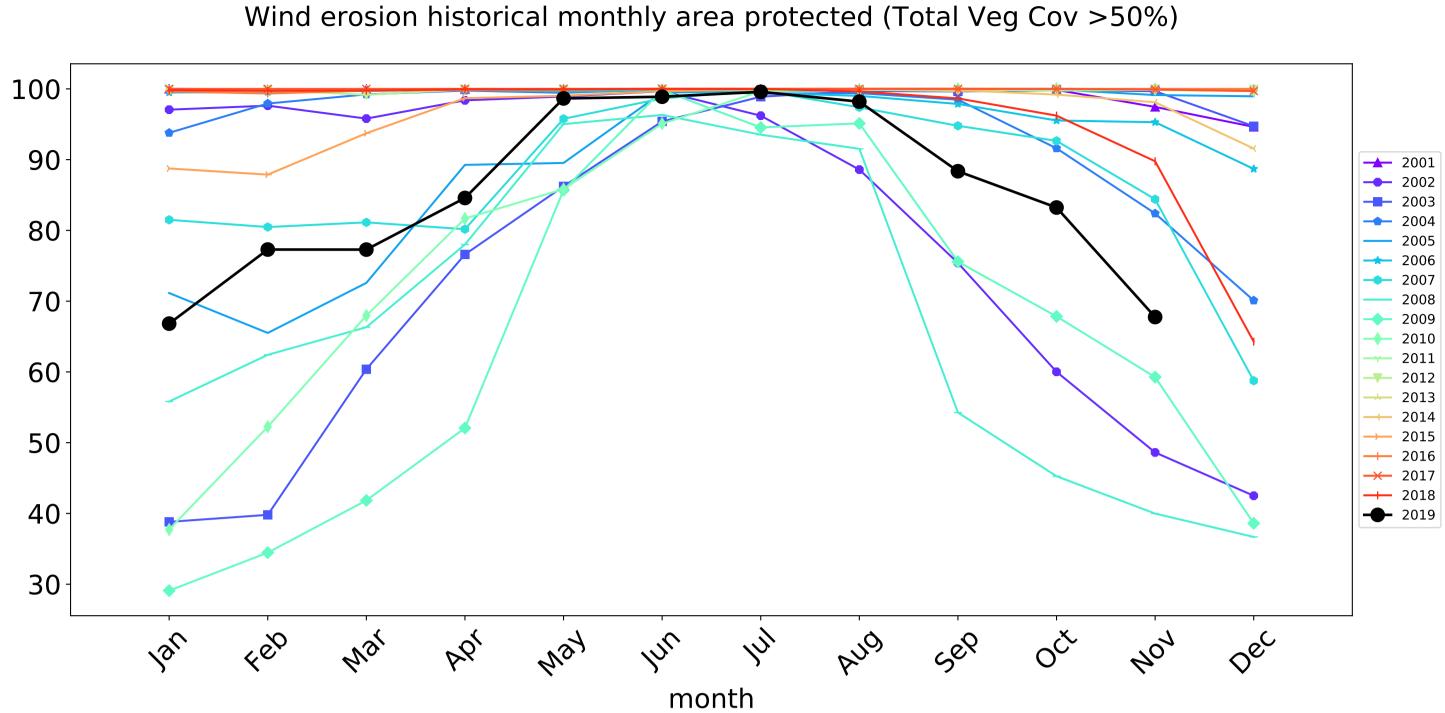


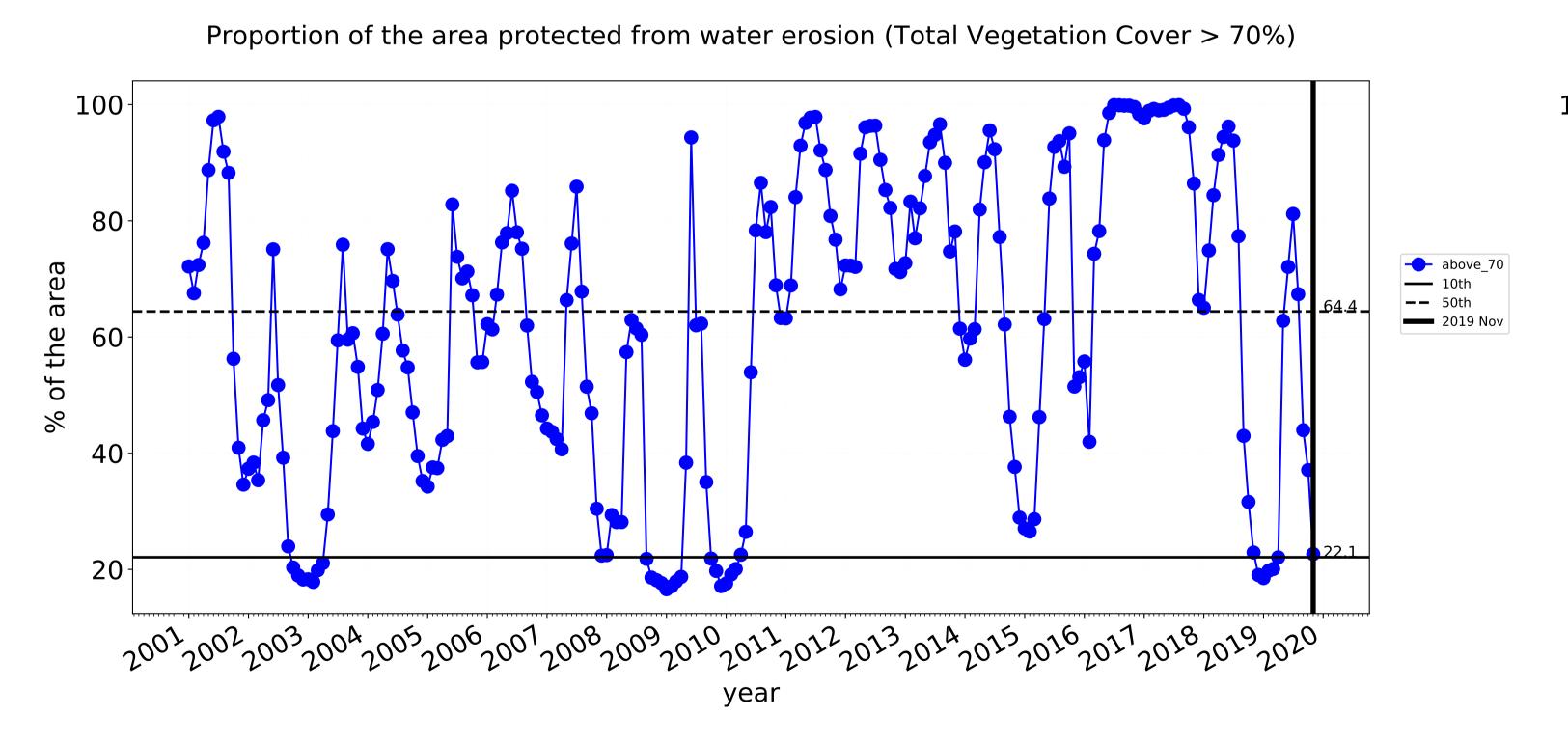


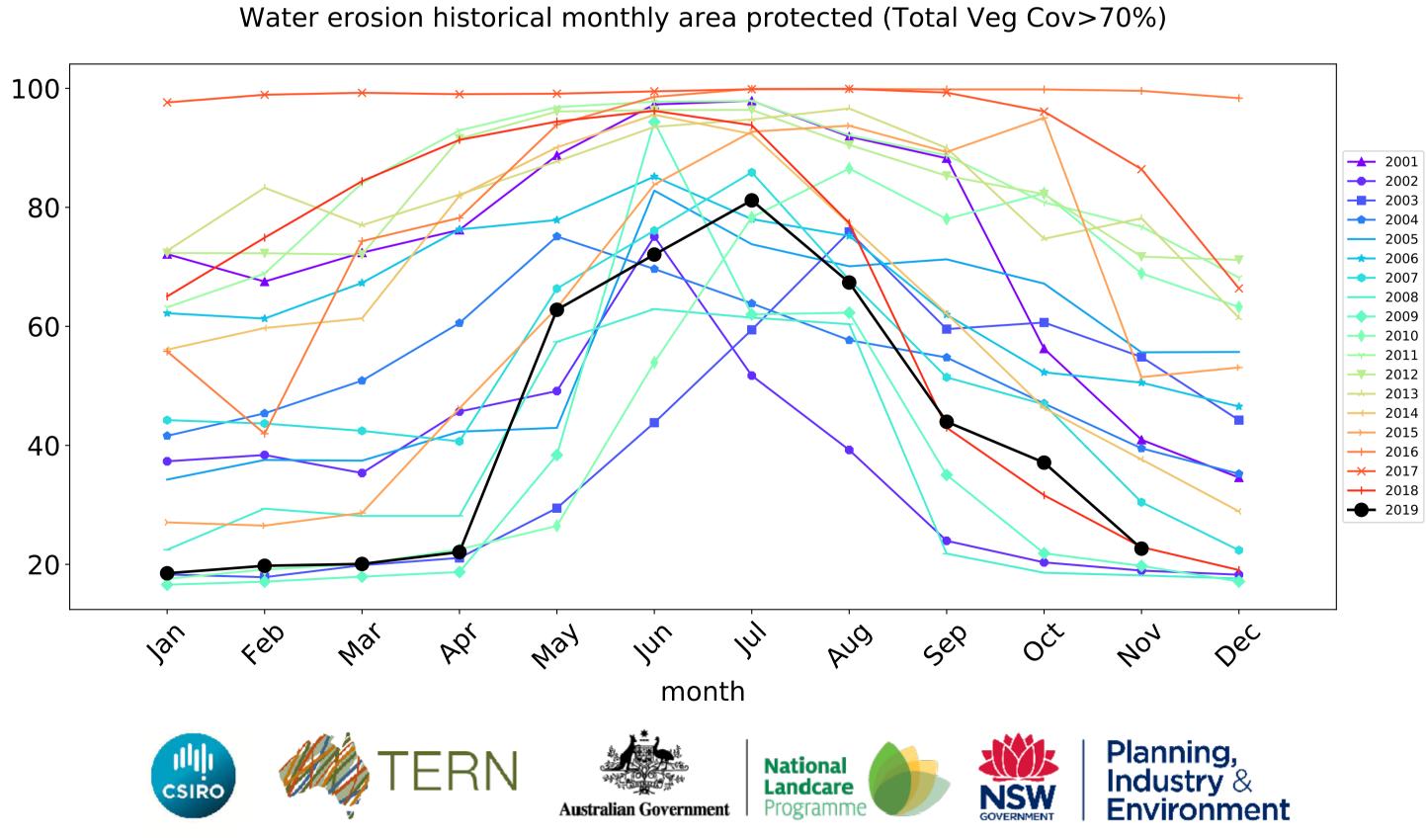


Conservation and natural environments non forest timeseries

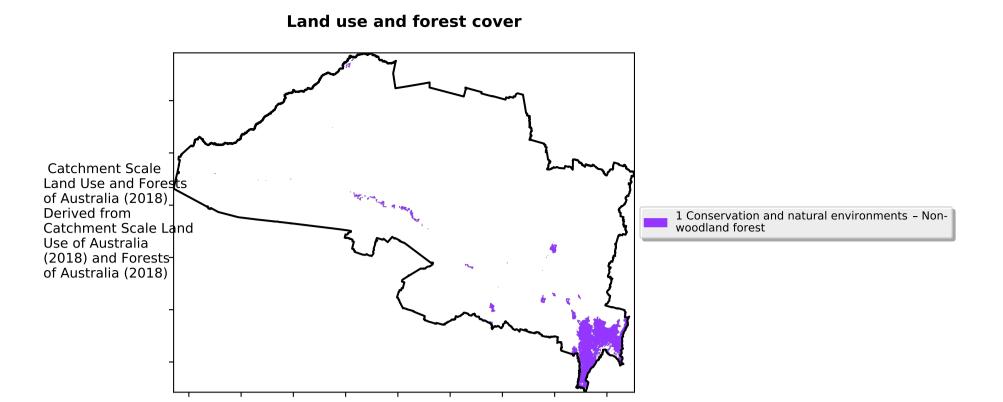




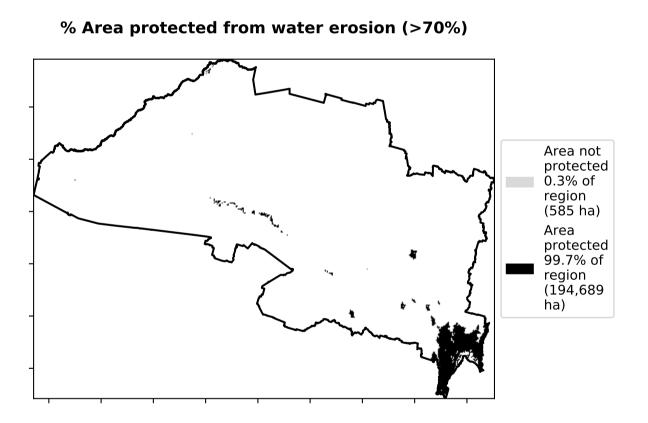


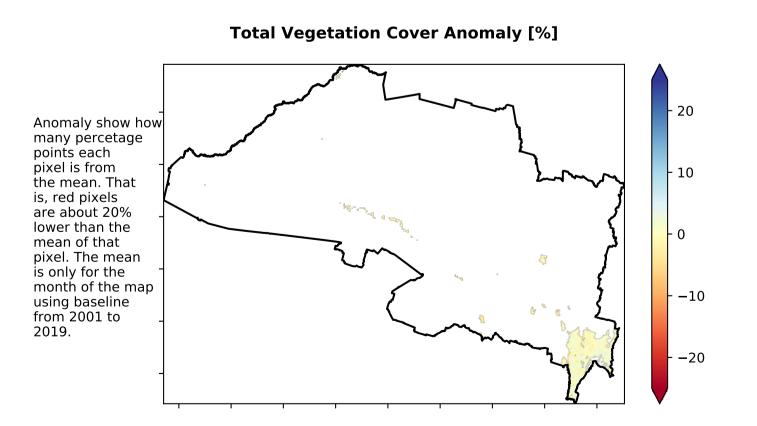


Conservation and natural environments Forest (non woodland)

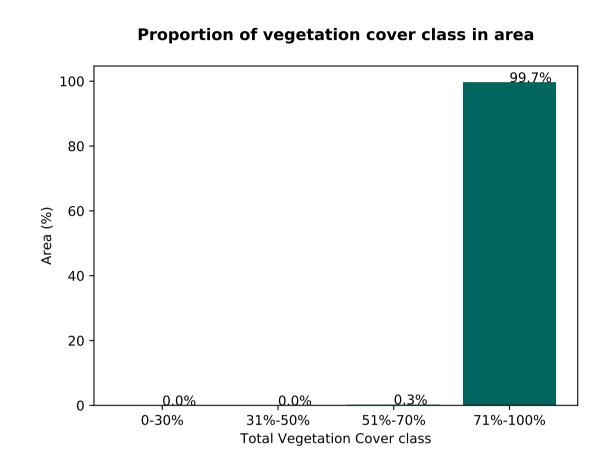


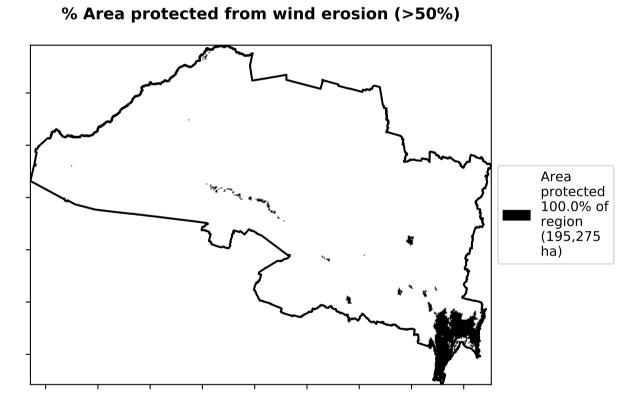
Total Vegetation Cover [%] Table Ta

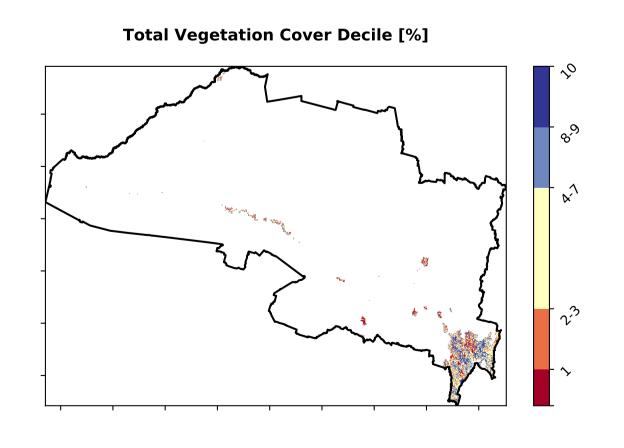




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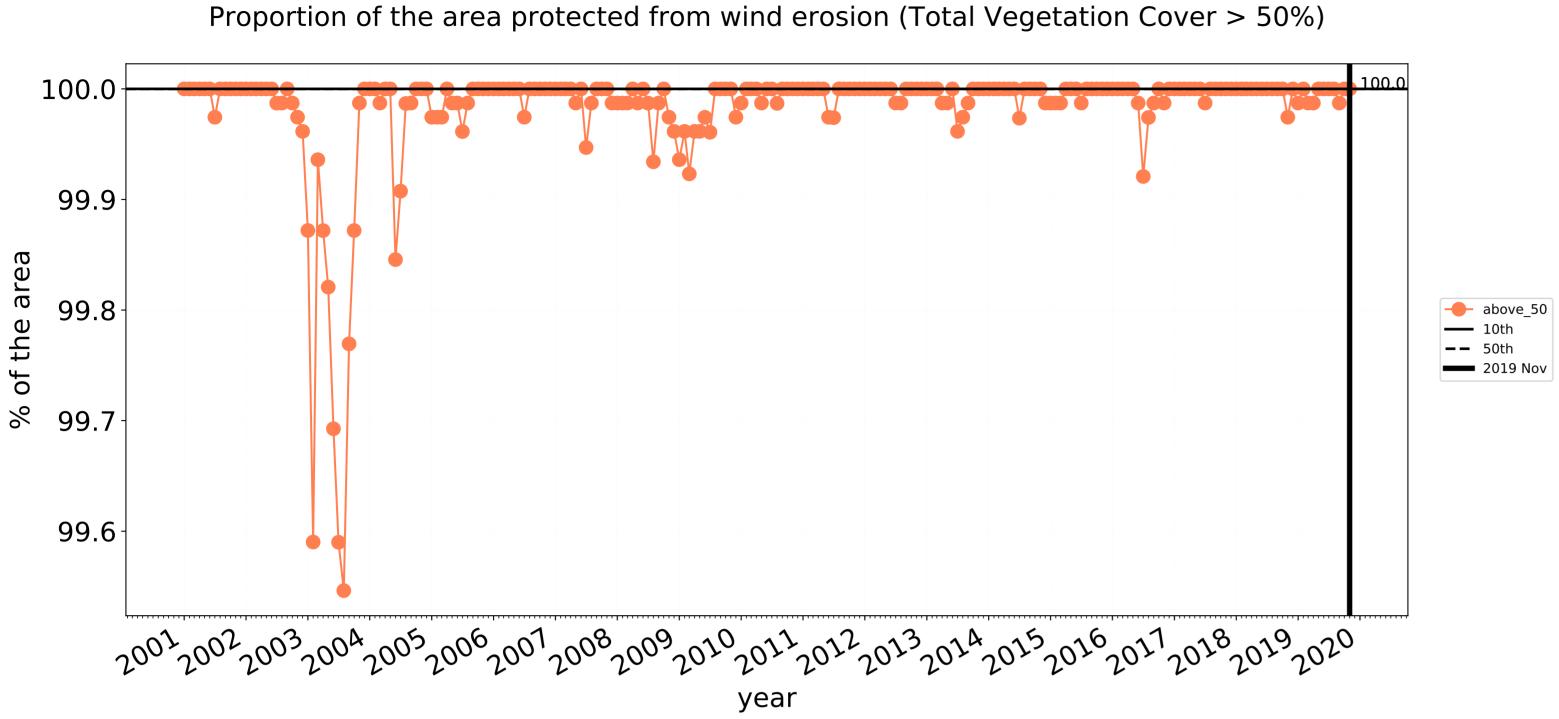


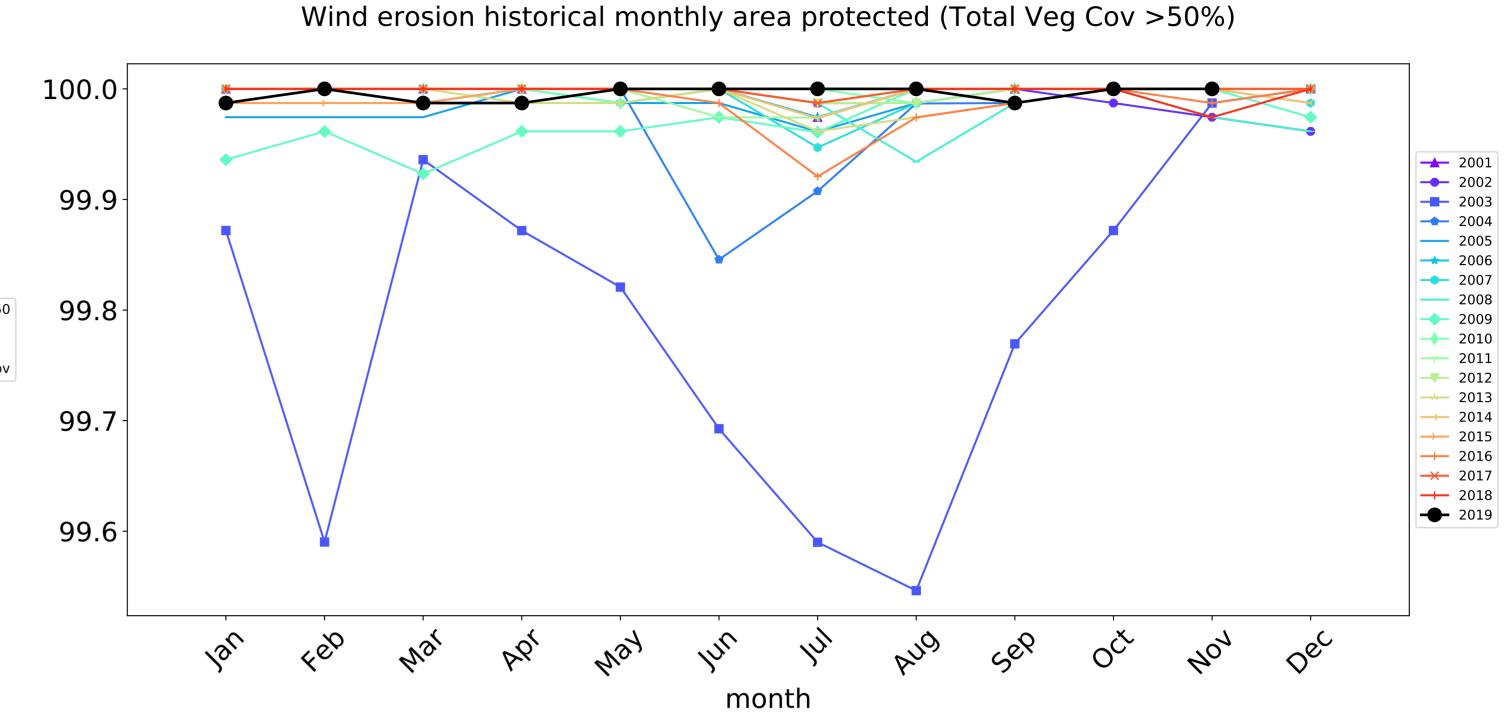


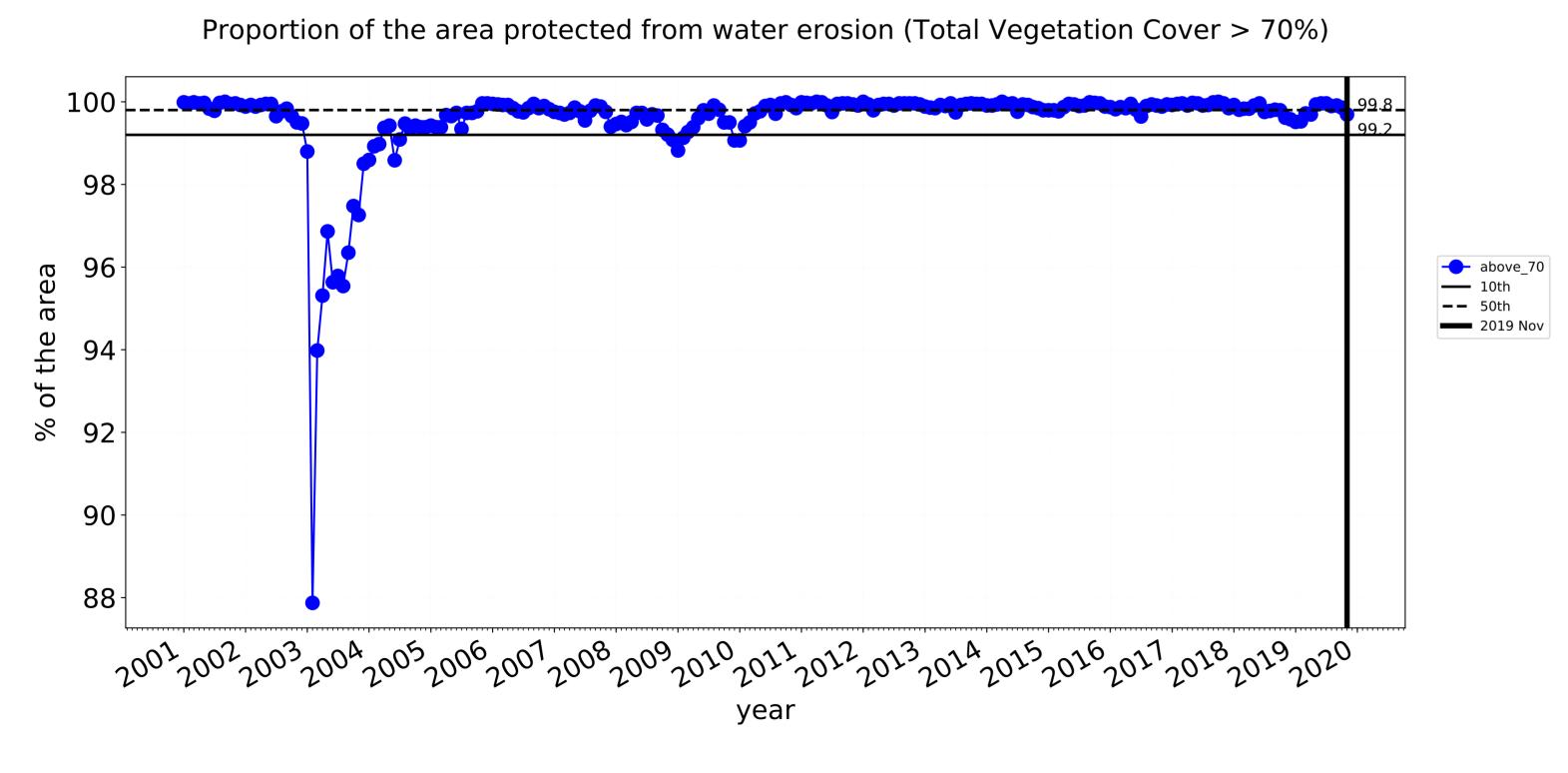


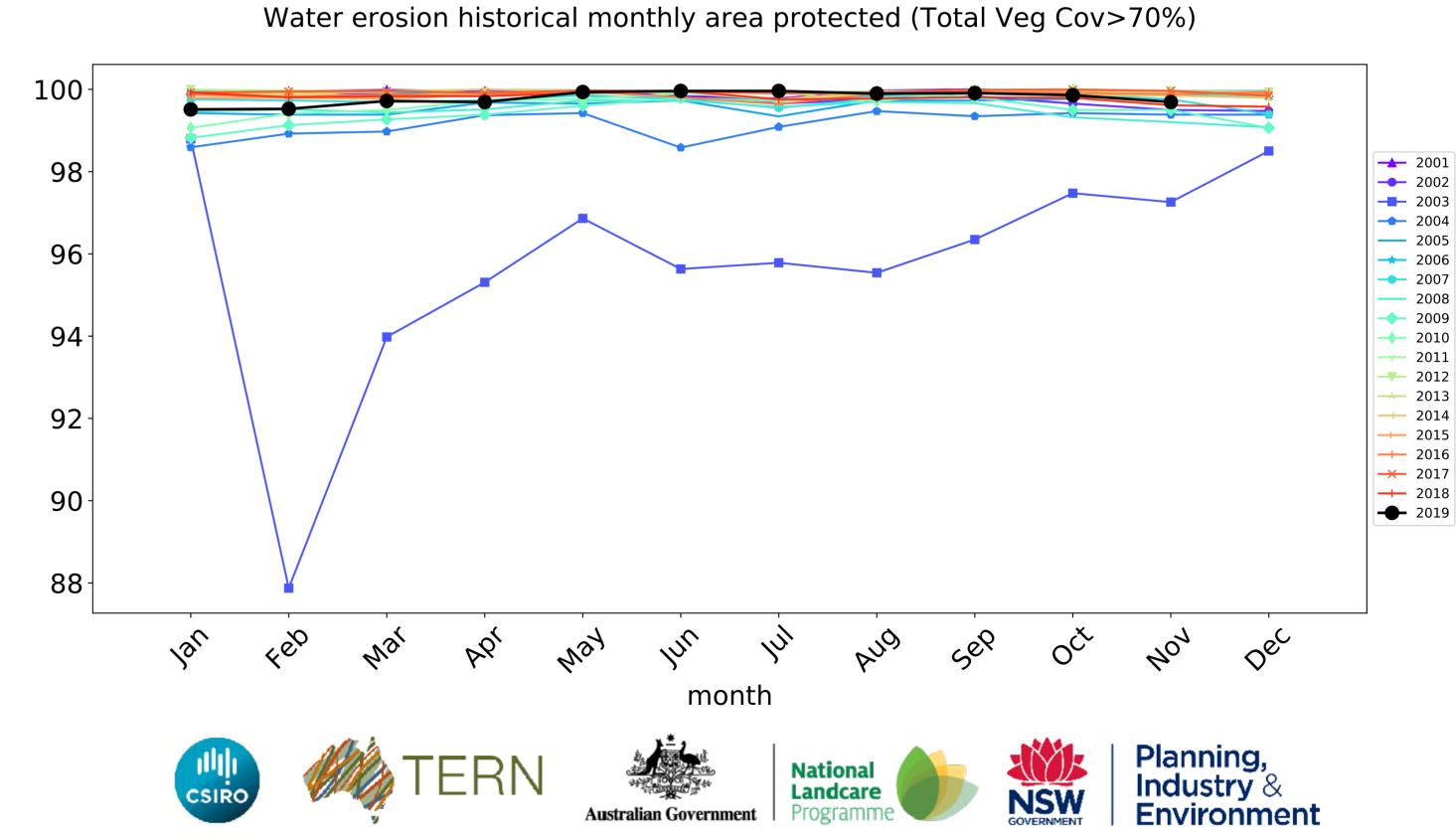










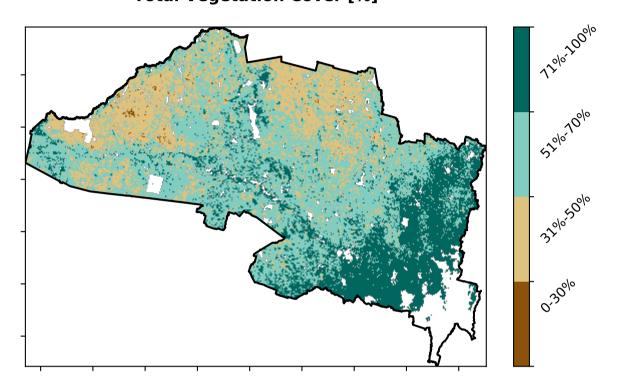


Agriculture

50 -40 -8 30 -8 30 -10 -10 -

Proportion of each land class in area

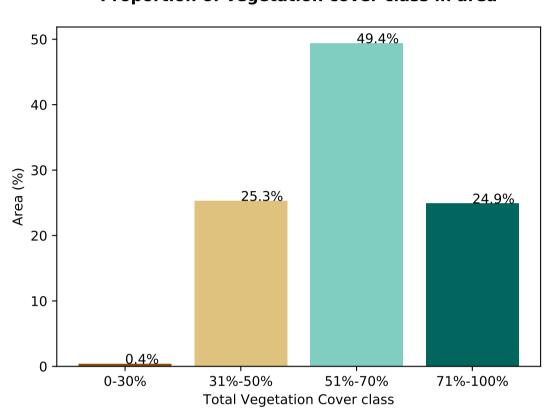
Total Vegetation Cover [%]



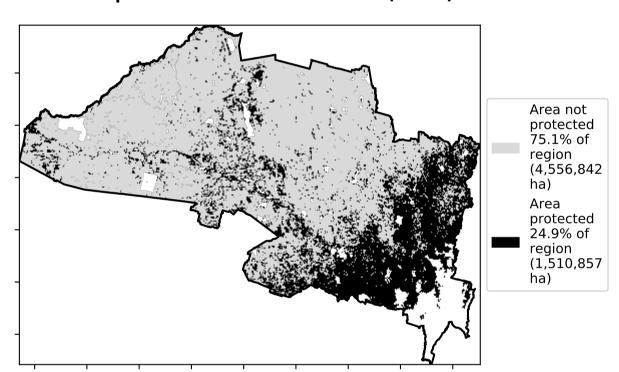
Proportion of vegetation cover class in area

Land use class

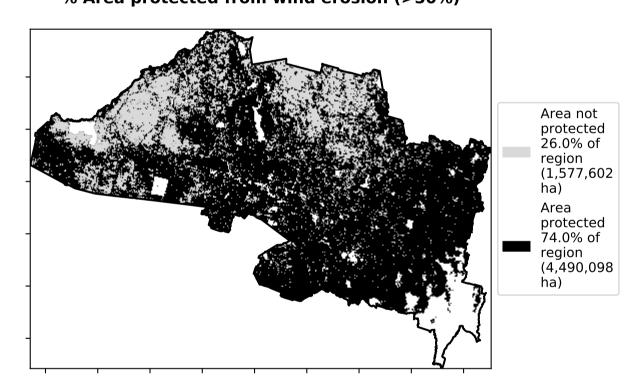
0.9%



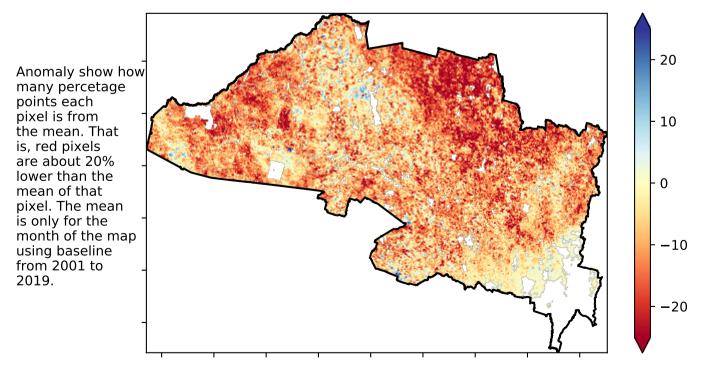
% Area protected from water erosion (>70%)



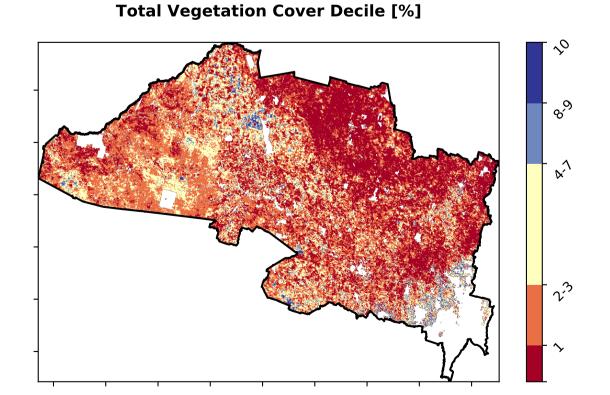
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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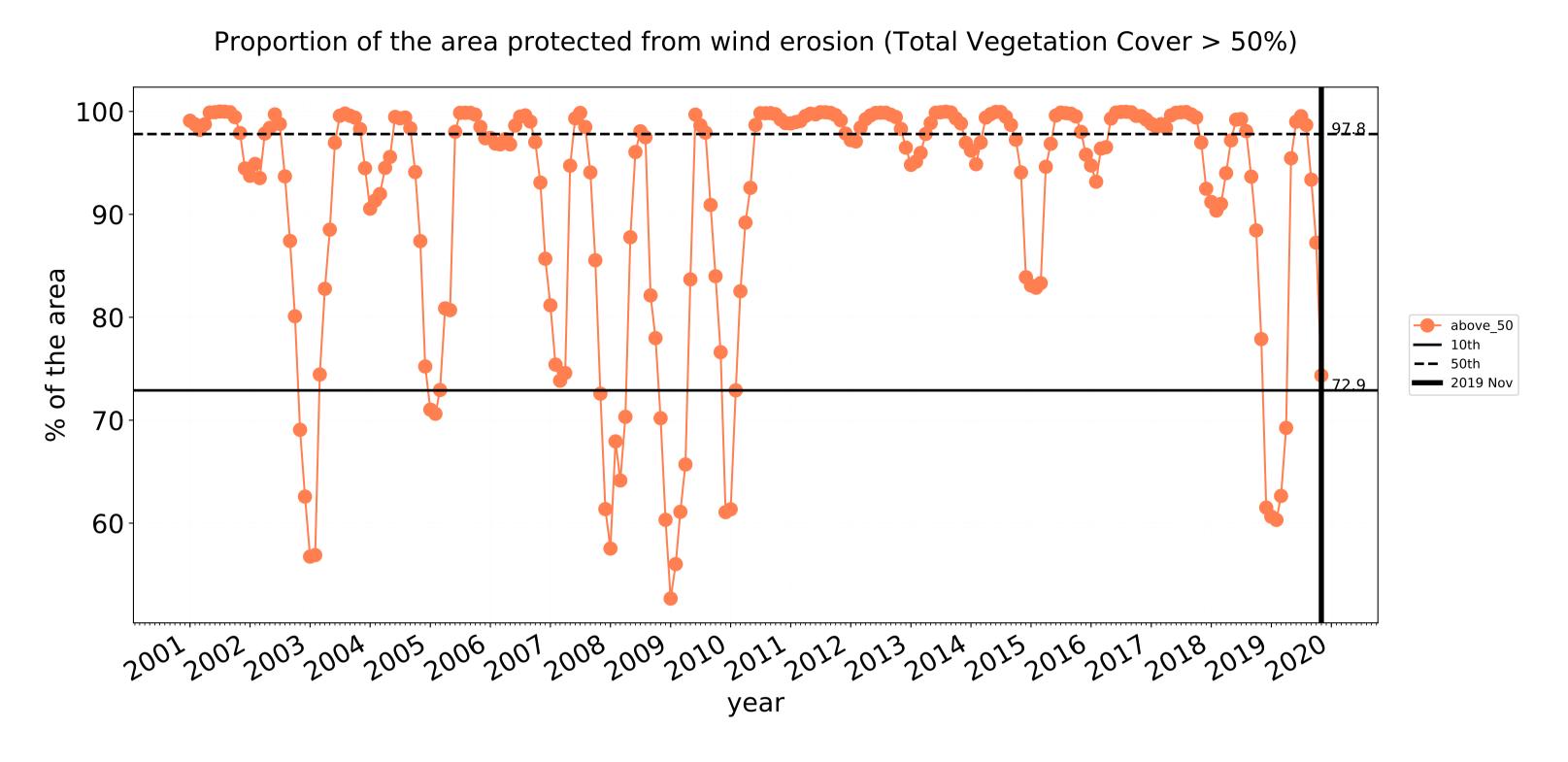


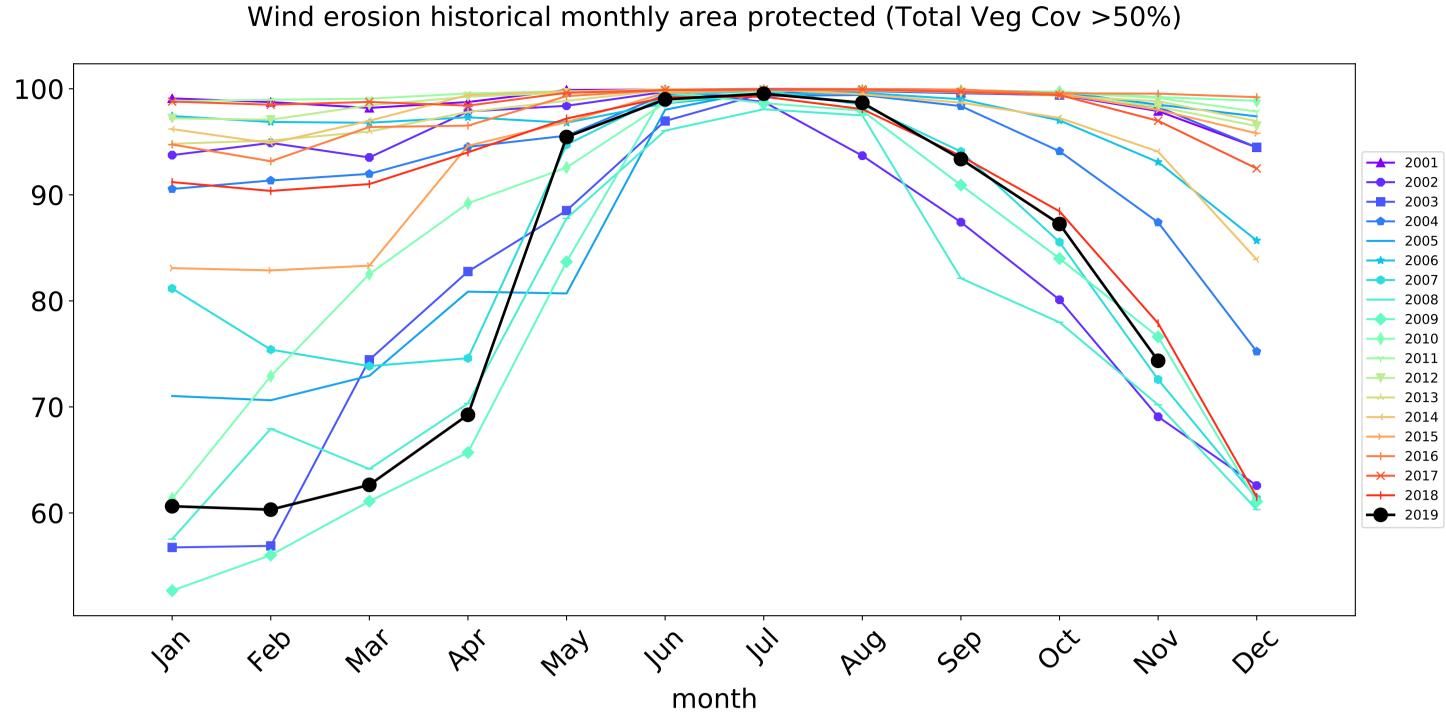


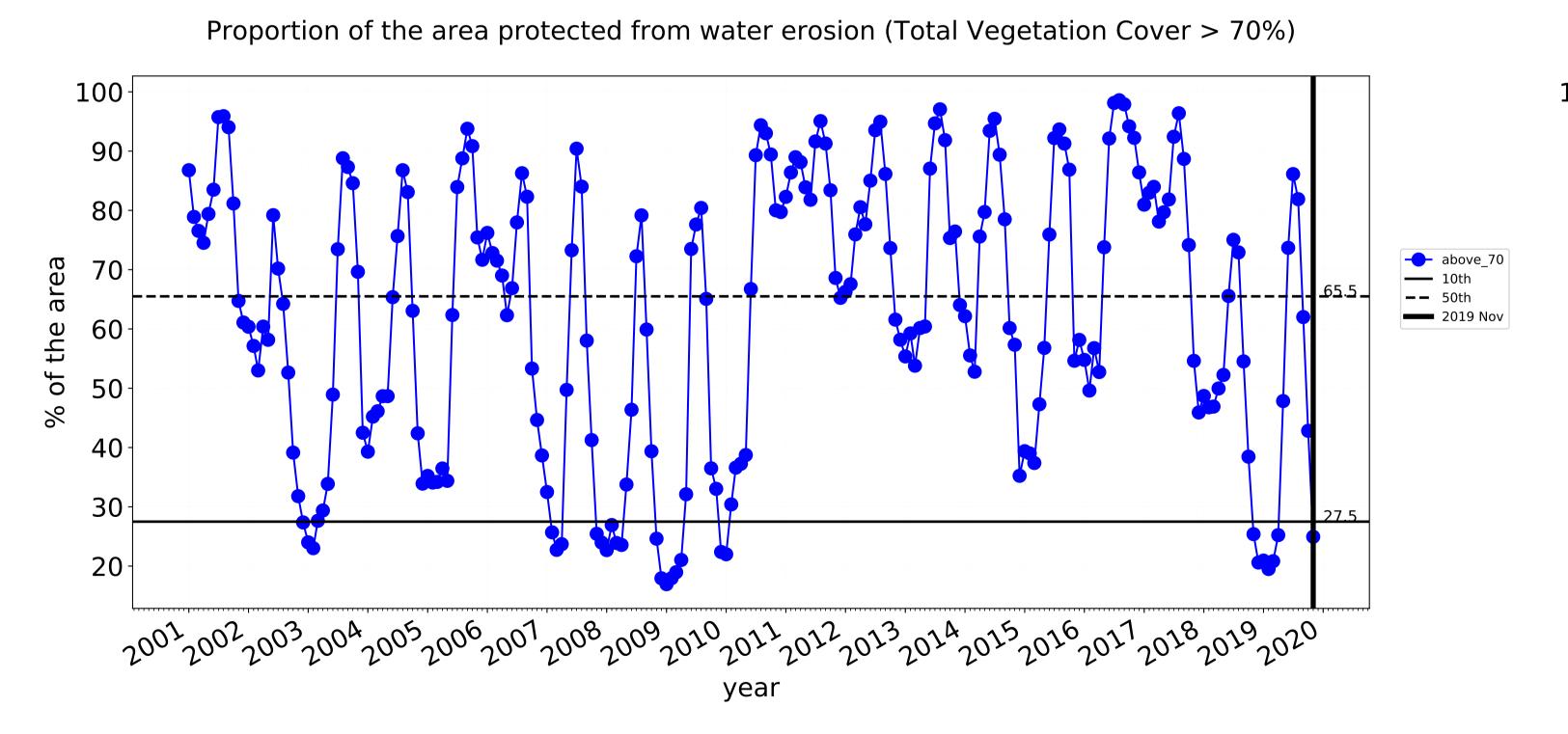


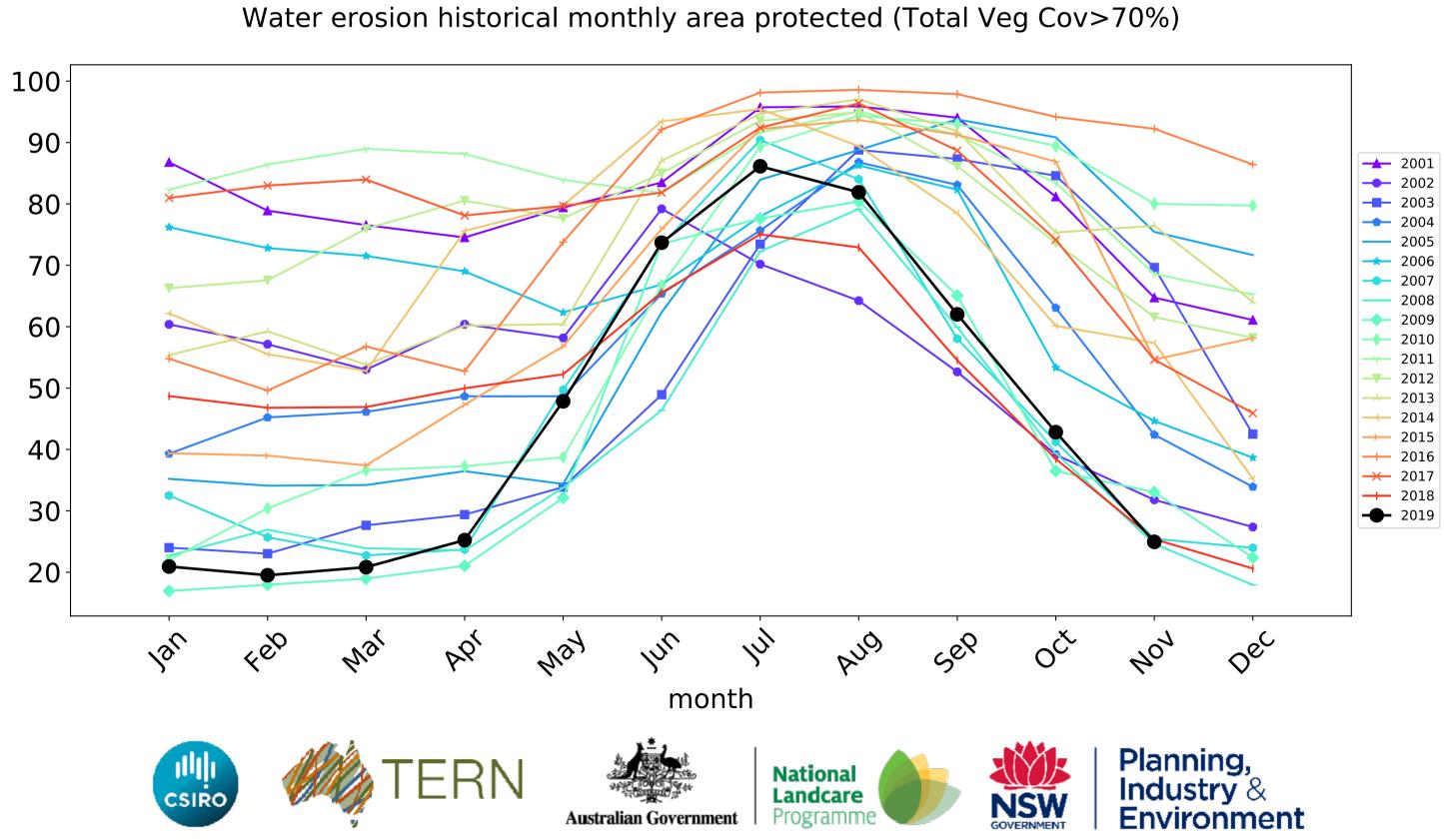


Agriculture timeseries

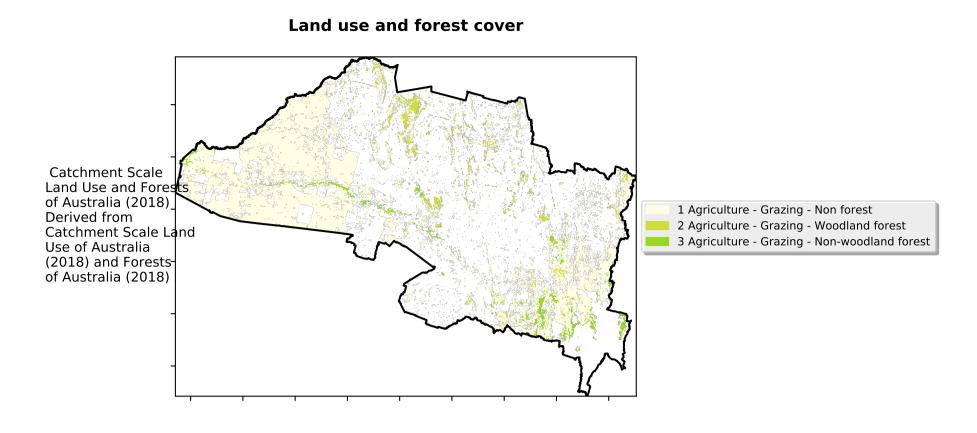




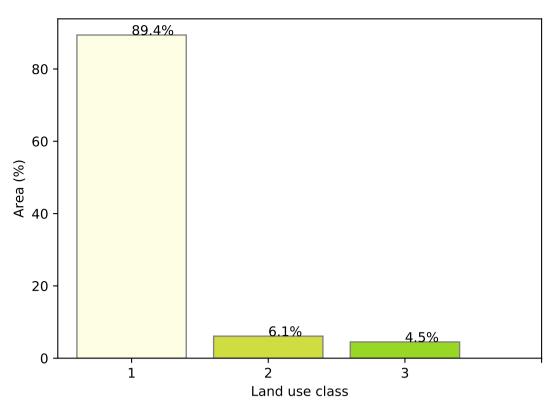




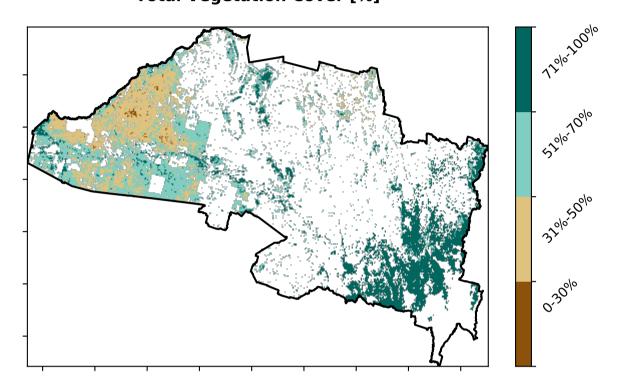
Grazing



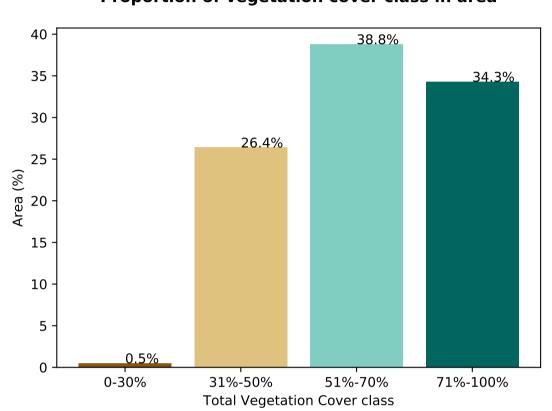
Proportion of each land class in area



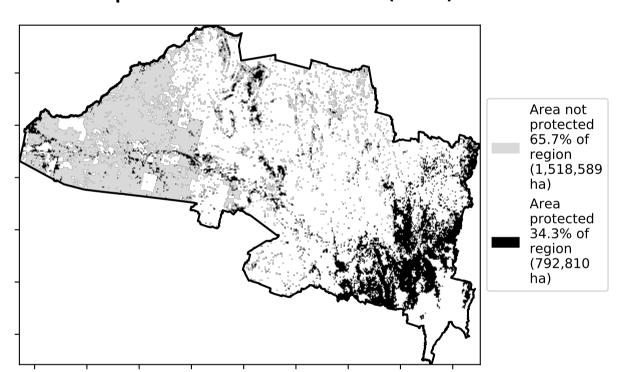
Total Vegetation Cover [%]



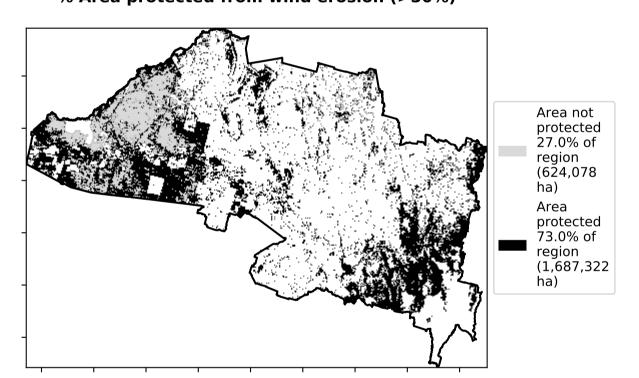
Proportion of vegetation cover class in area



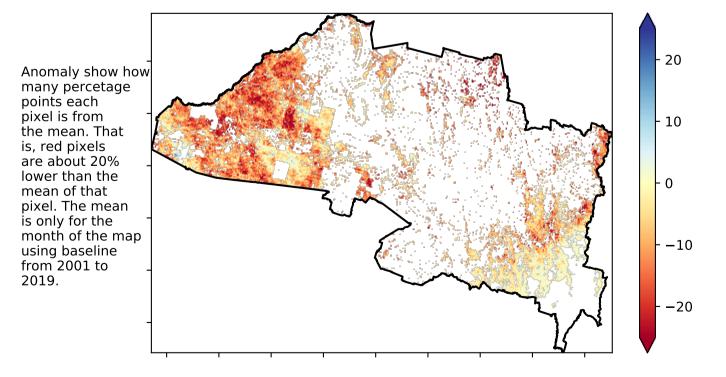
% Area protected from water erosion (>70%)



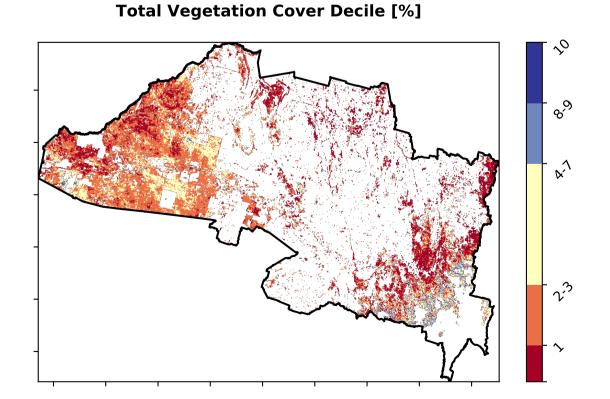
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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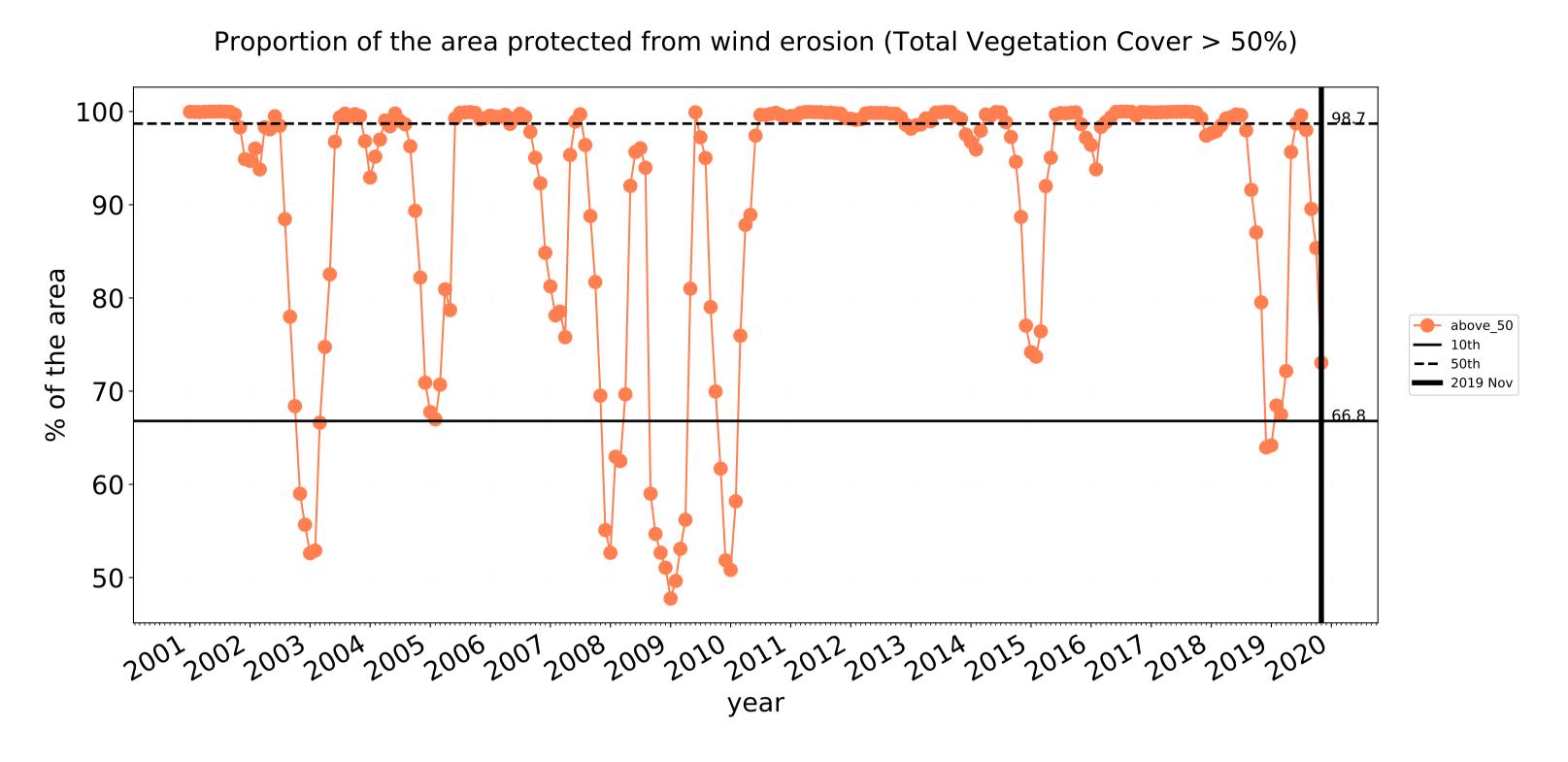


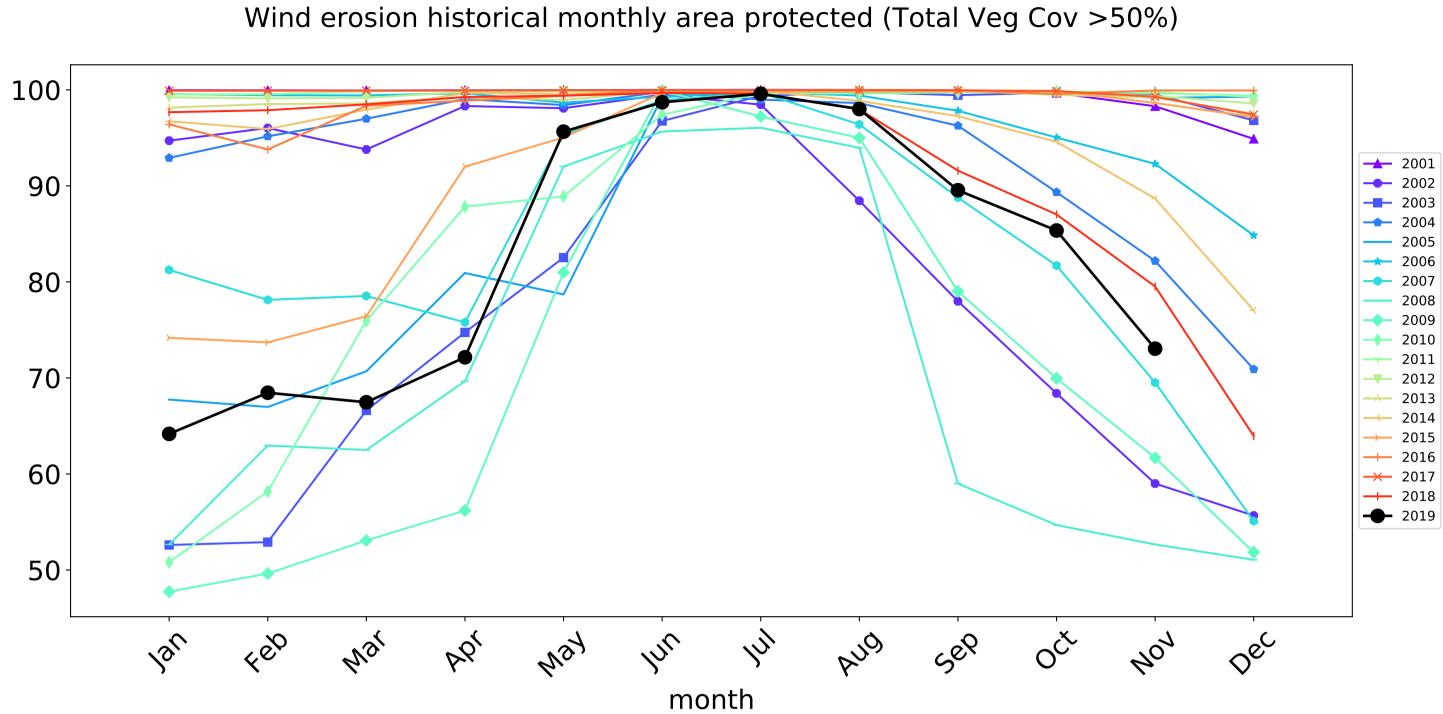


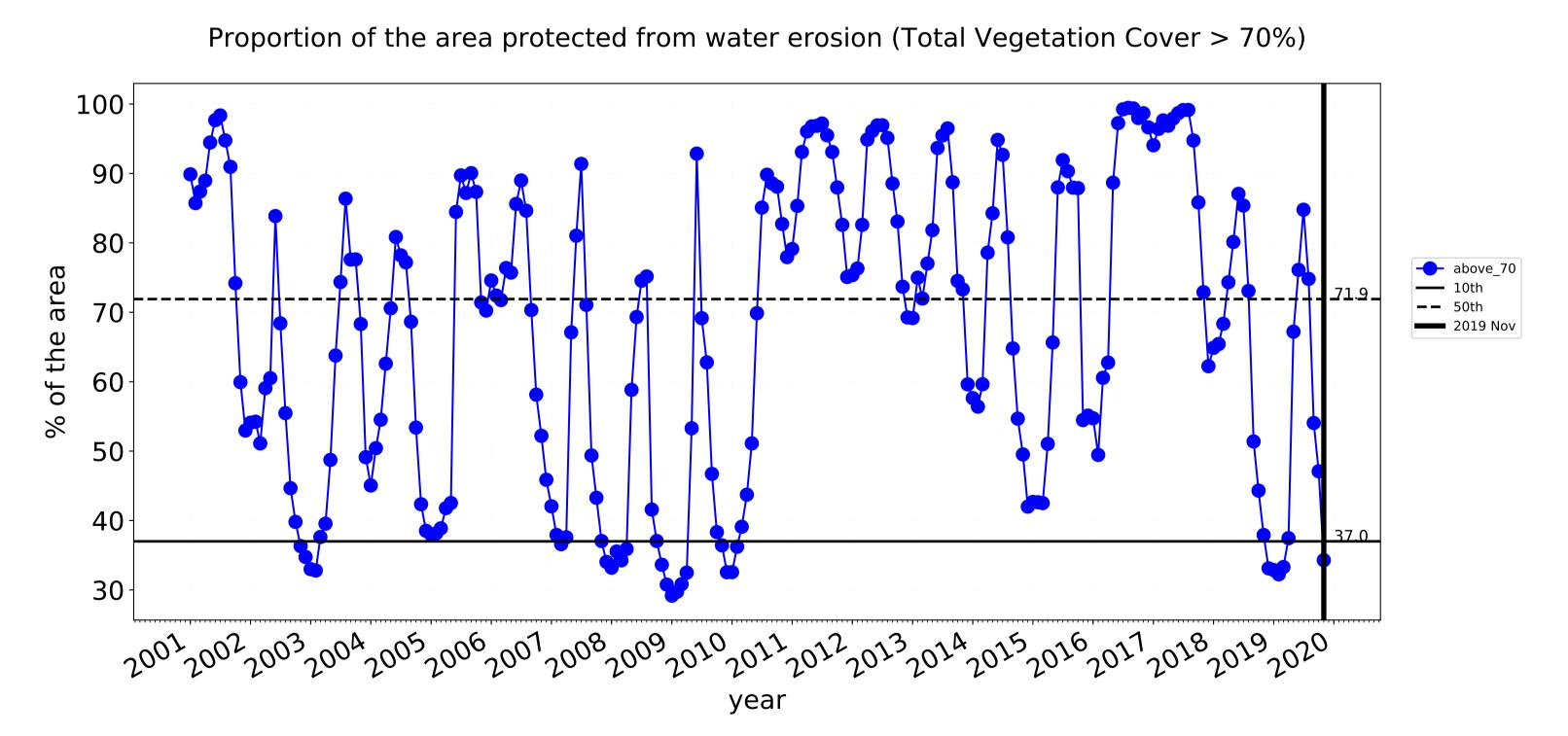


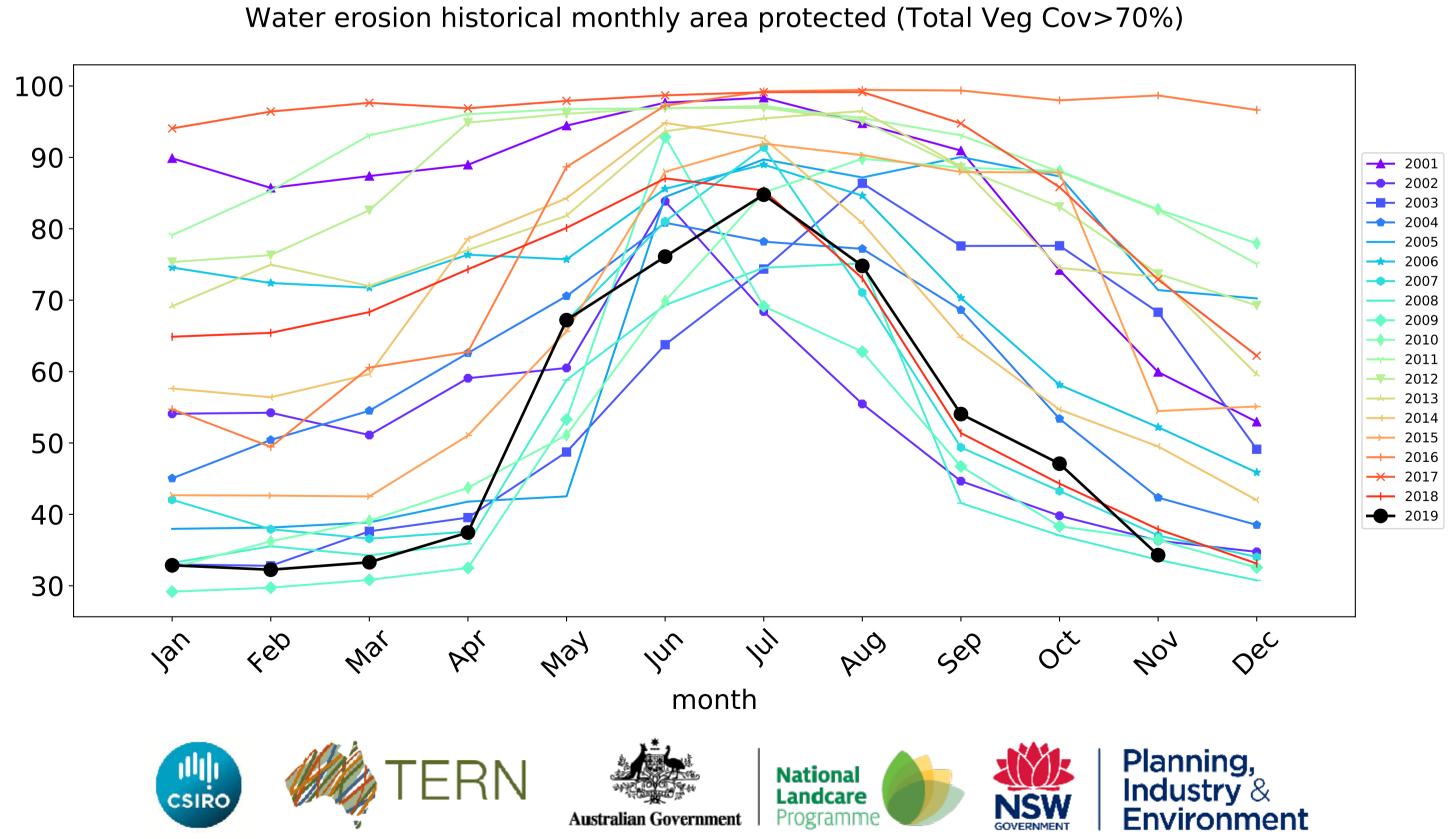


Grazing timeseries



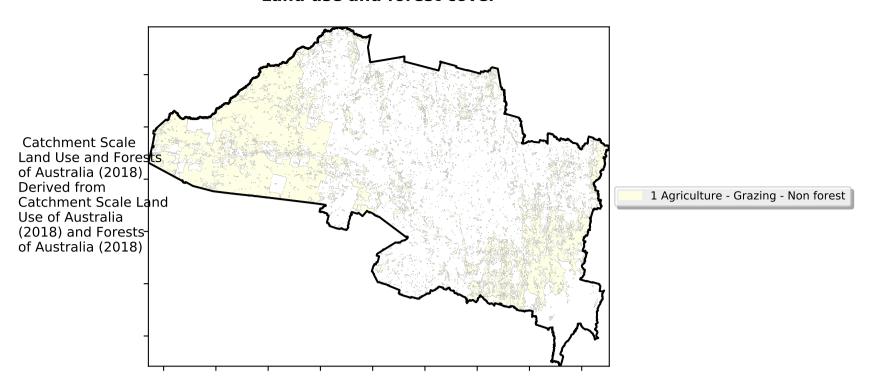




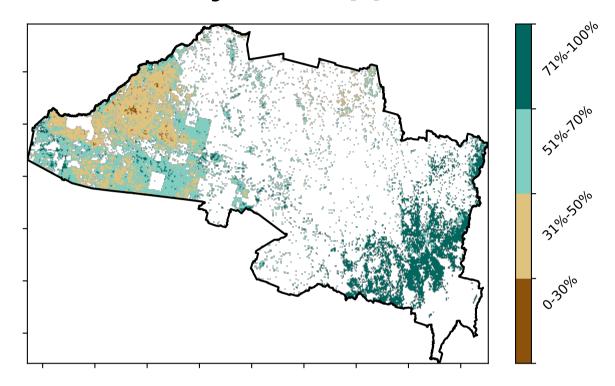


Grazing non forest

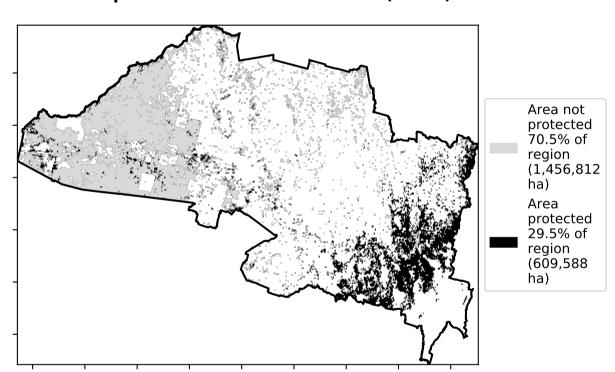
Land use and forest cover



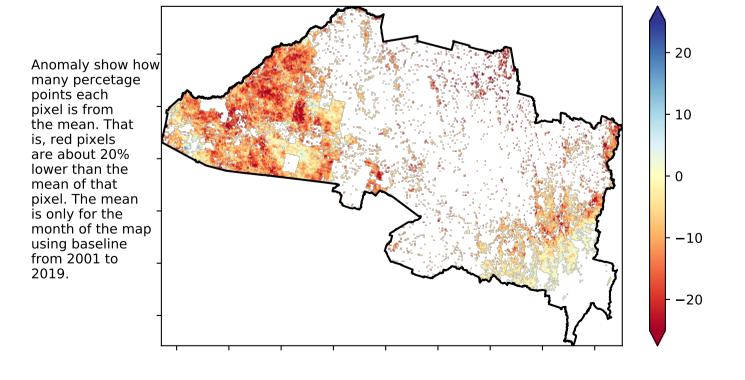
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

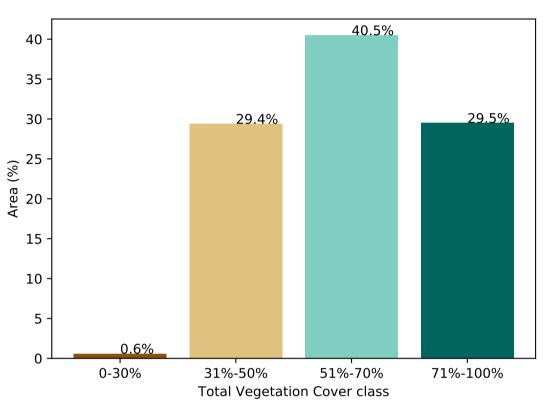


Total Vegetation Cover Anomaly [%]

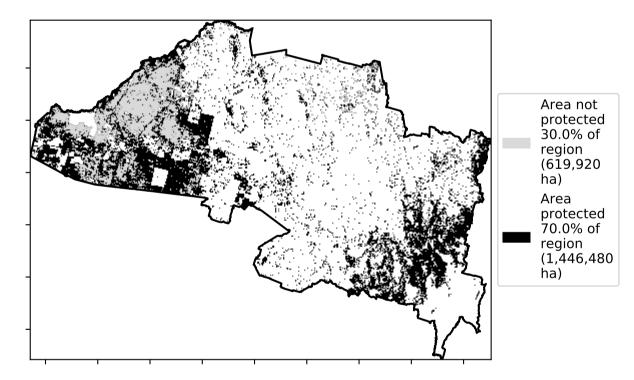


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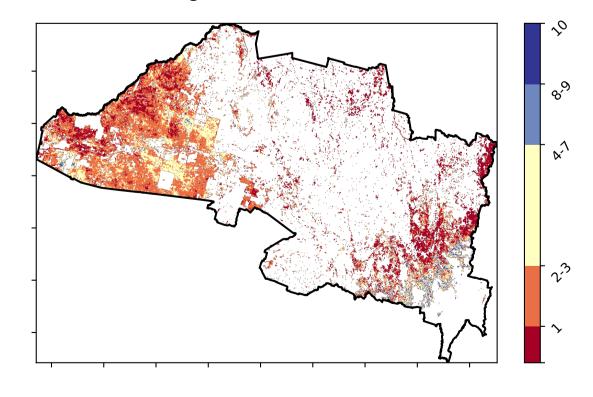
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







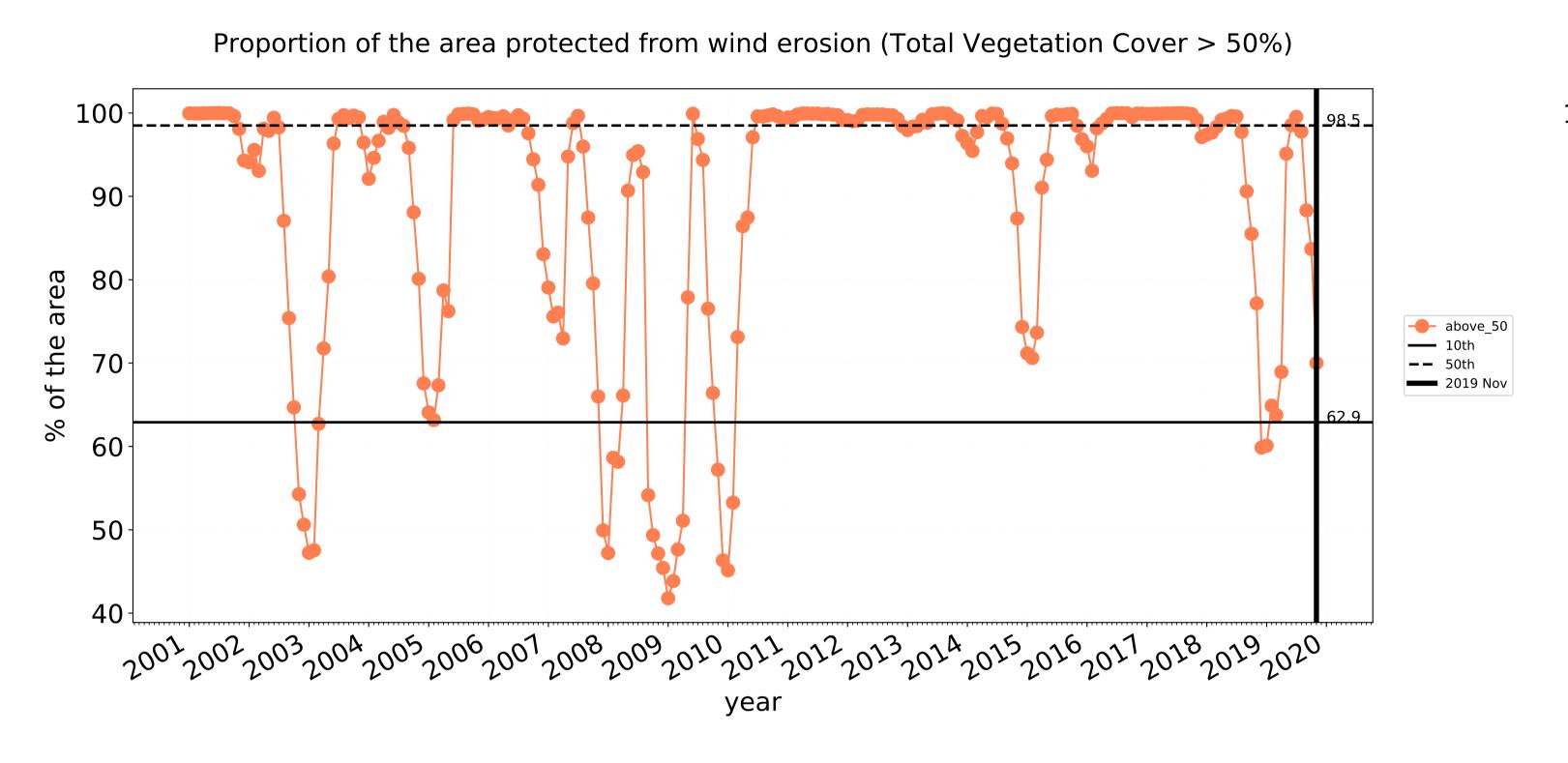


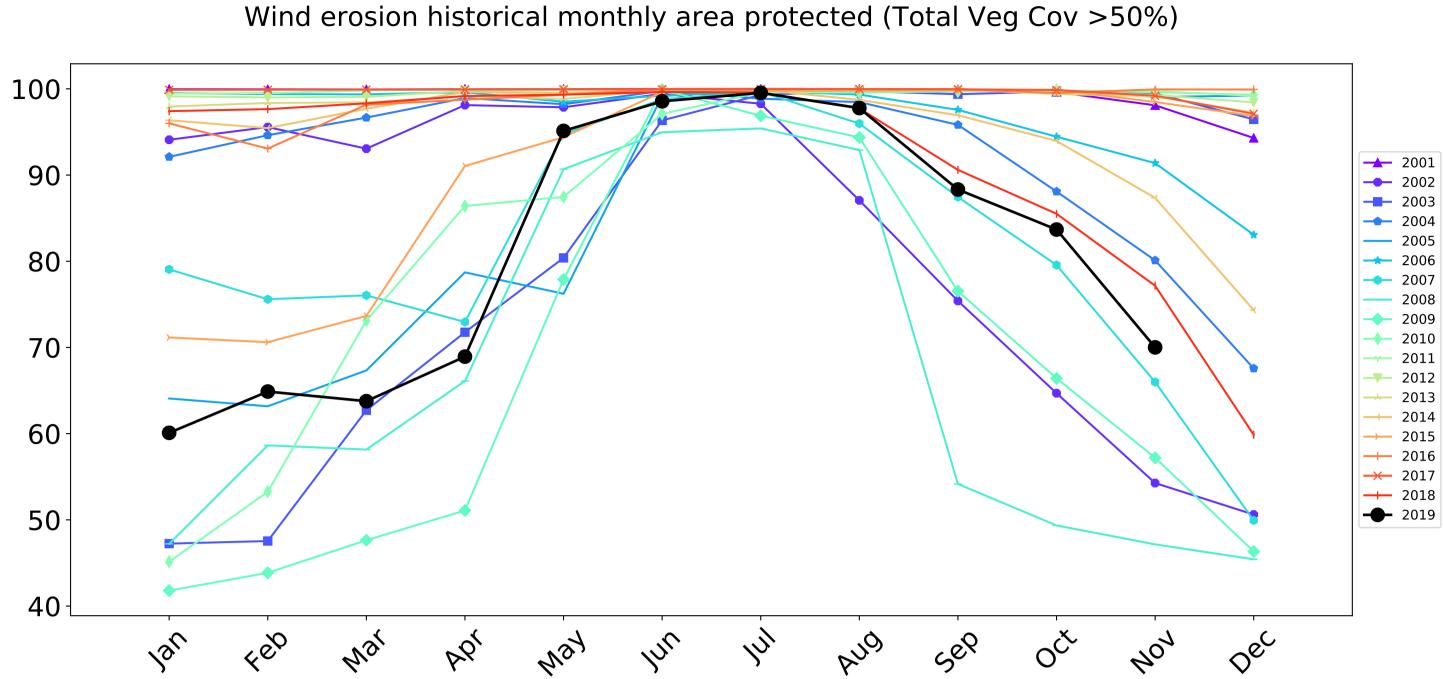






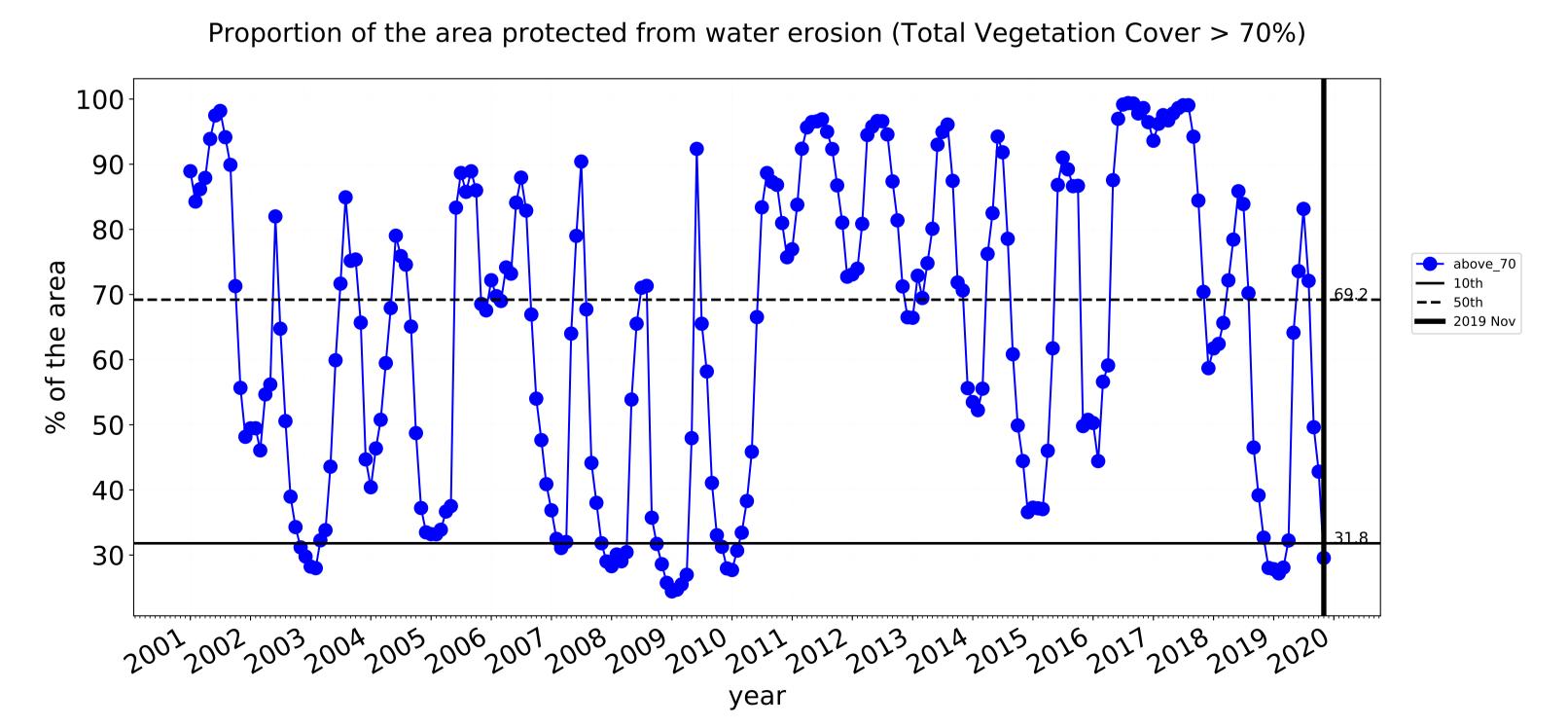
Grazing non forest timeseries

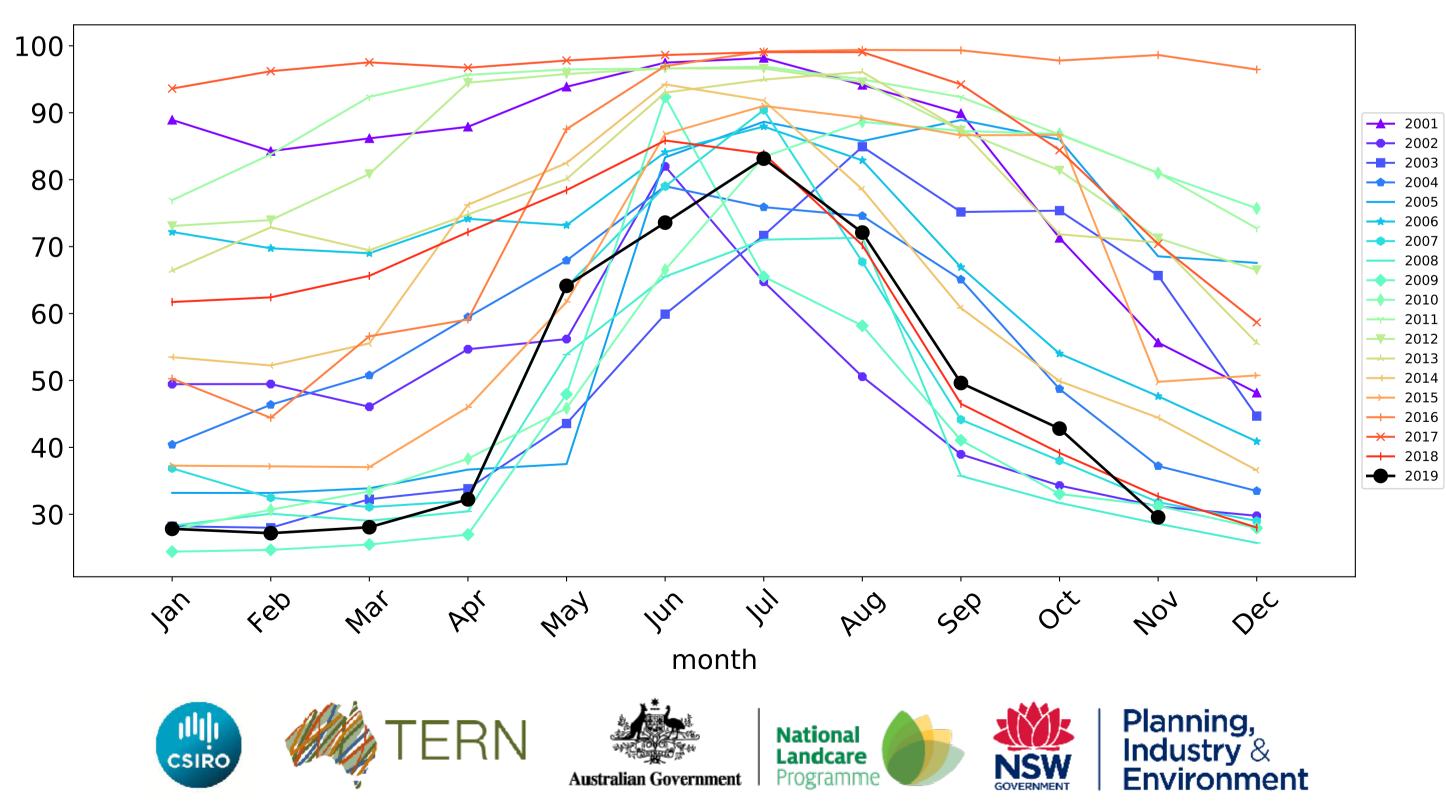




month

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



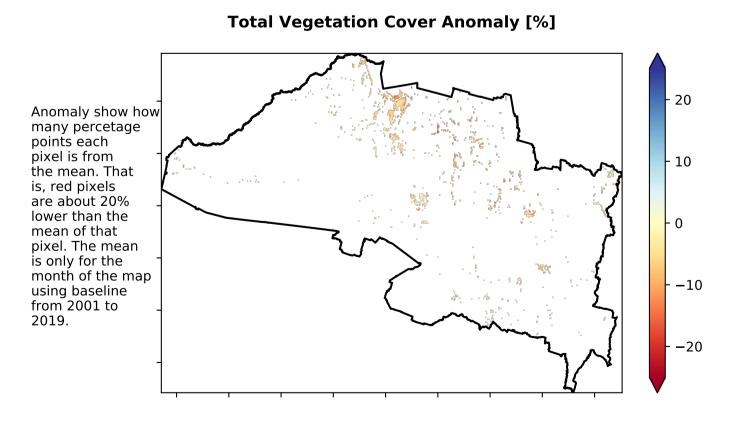


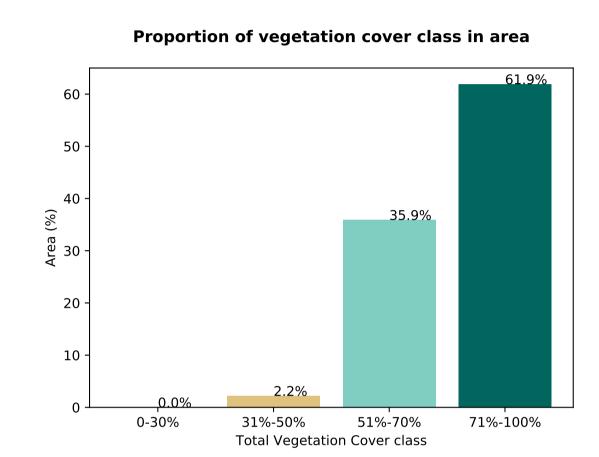
Grazing Woodland forest

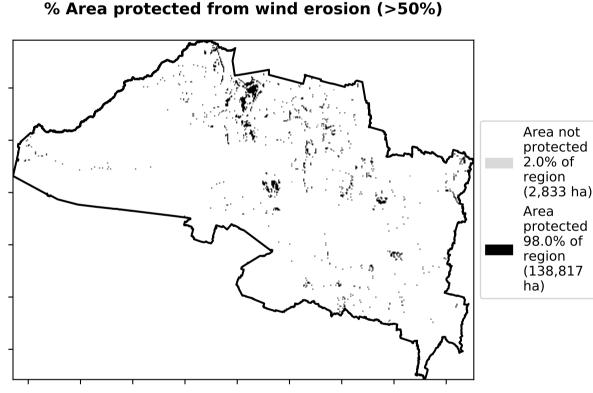
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 1 Agriculture - Grazing - Woodland forest

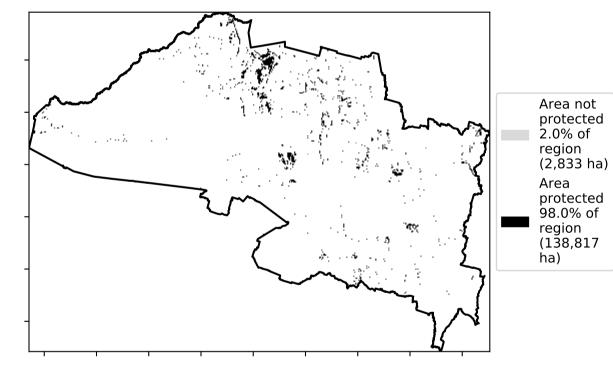
Total Vegetation Cover [%]

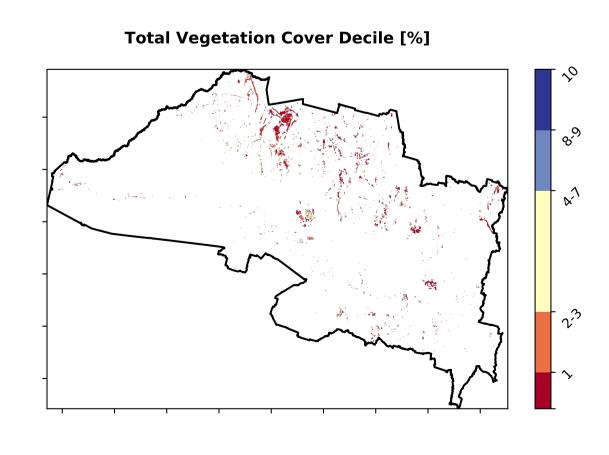
% Area protected from water erosion (>70%) Area not protected 38.1% of region (53,968 ha) Area protected 61.9% of region (87,681 ha)















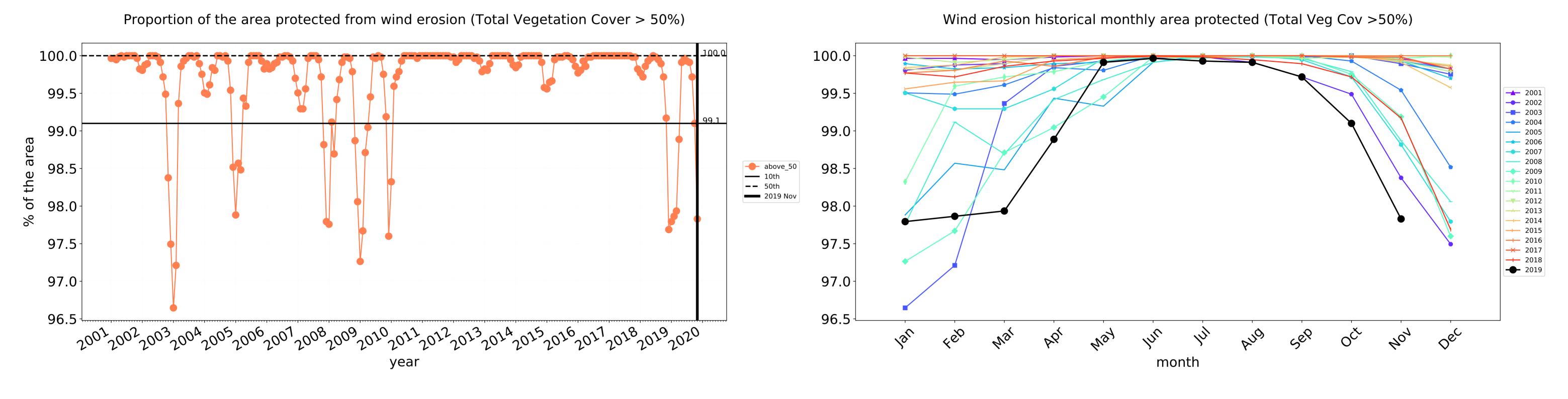
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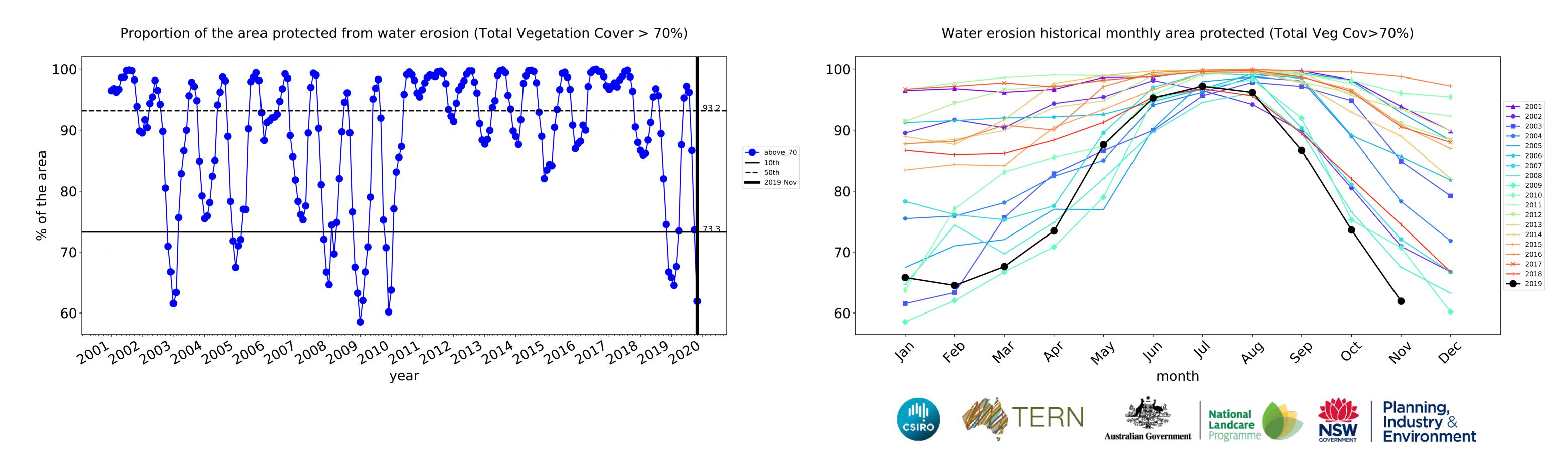
the map using baseline from 2001 to 2019.





Grazing Woodland forest timeseries



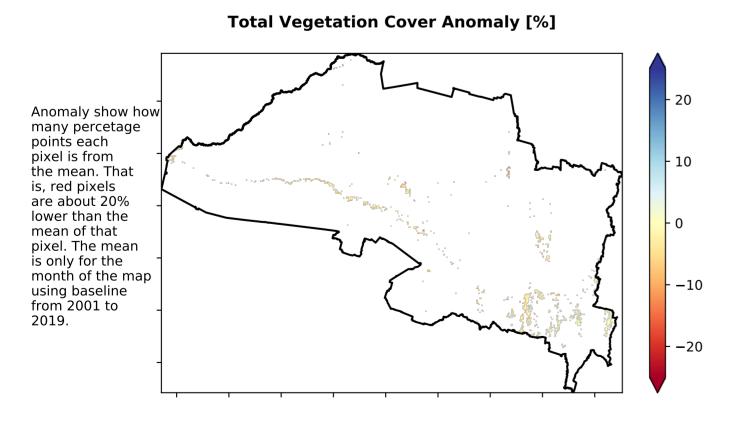


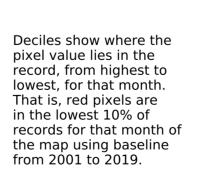
Grazing - Forest (non woodland)

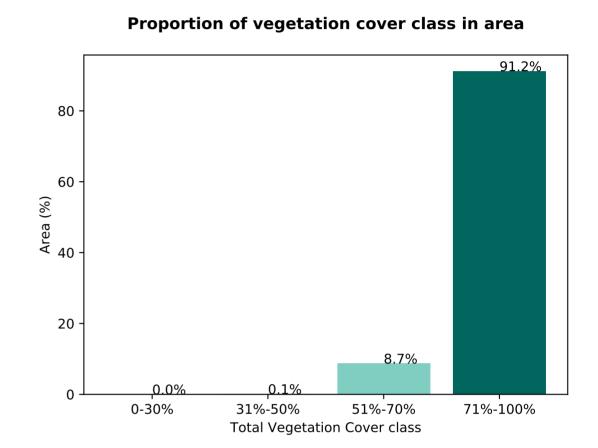
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) Of Australia (2018) 1 Agriculture - Grazing - Non-woodland forest of Australia (2018)

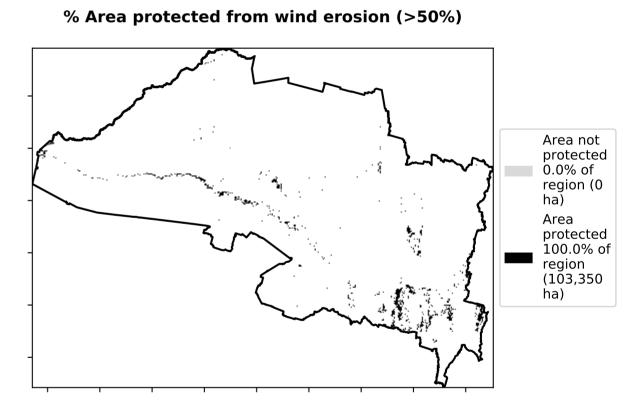
Total Vegetation Cover [%]

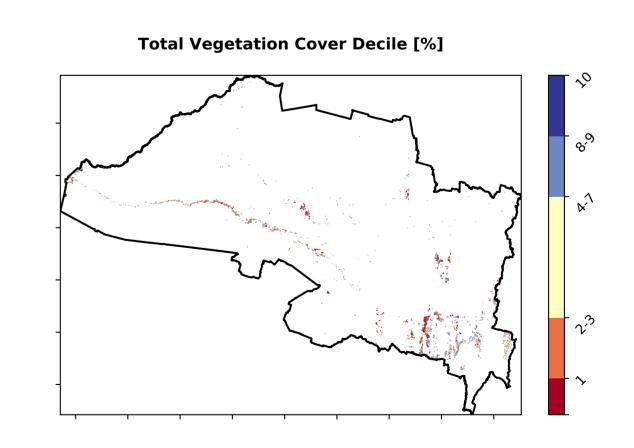
Area not protected 8.8% of region (9,094 ha) Area protected 91.2% of region (94,255 ha)













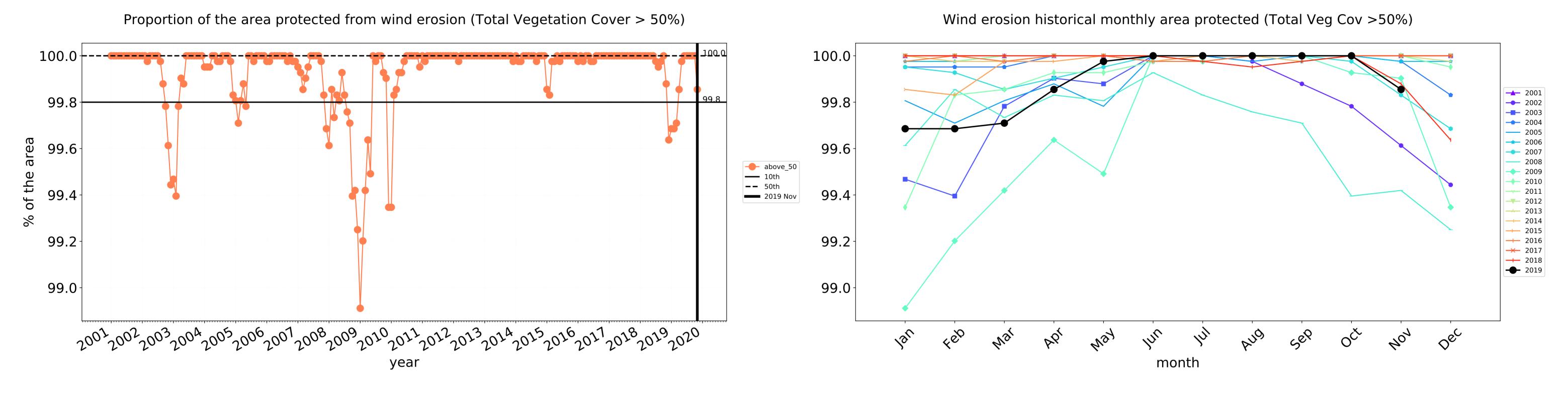


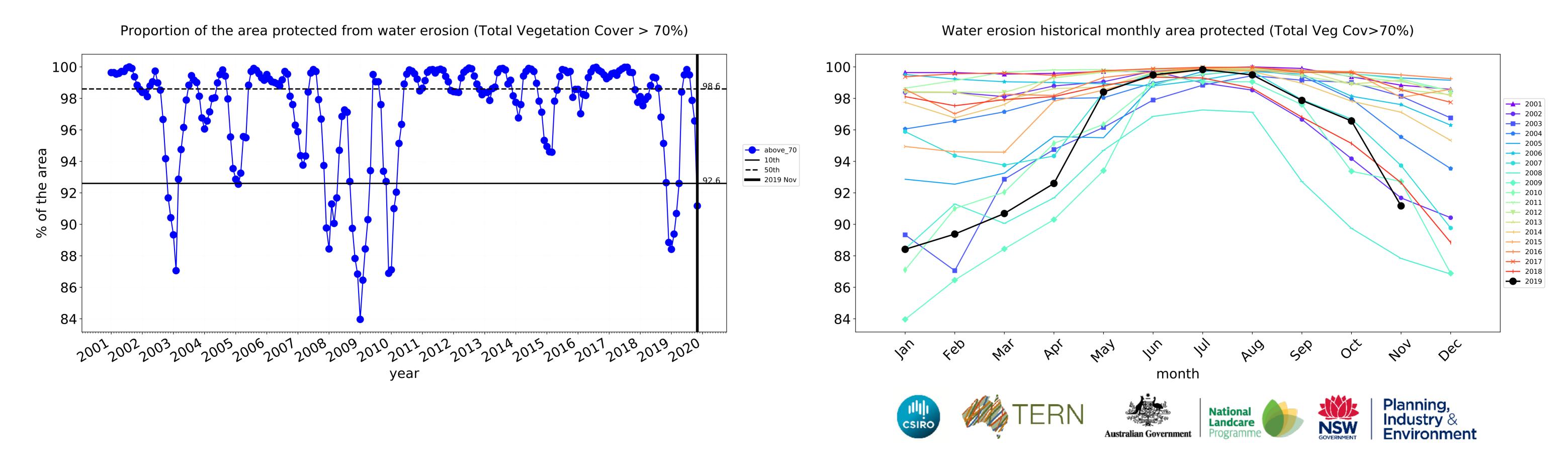






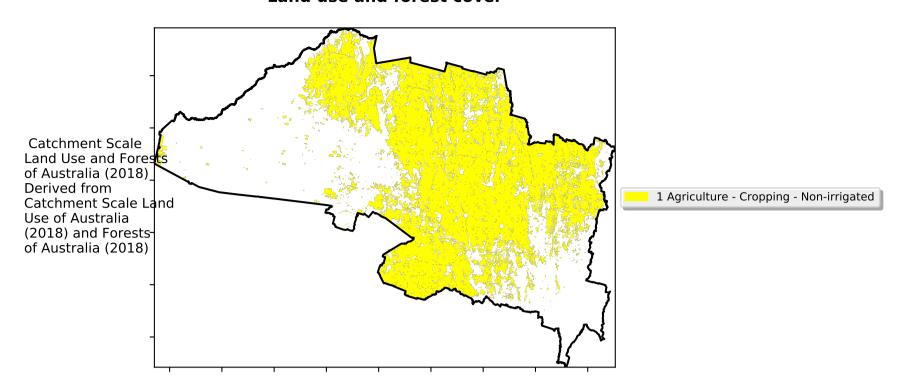




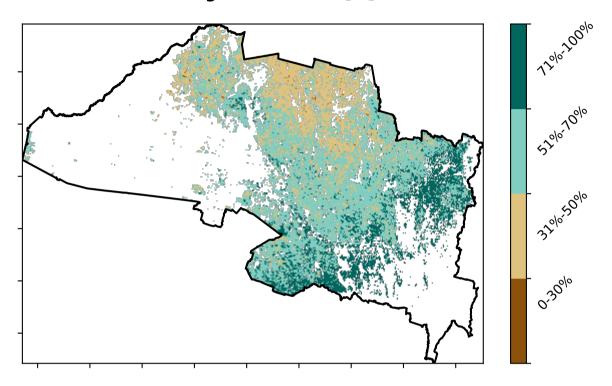


Cropping

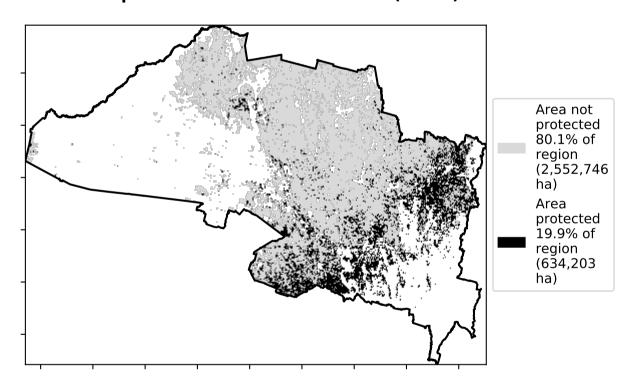
Land use and forest cover



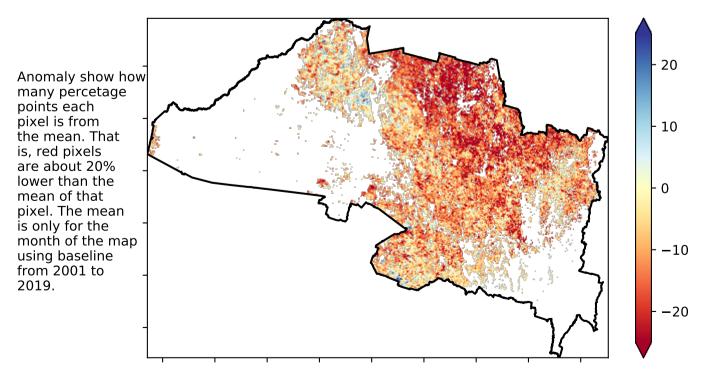
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

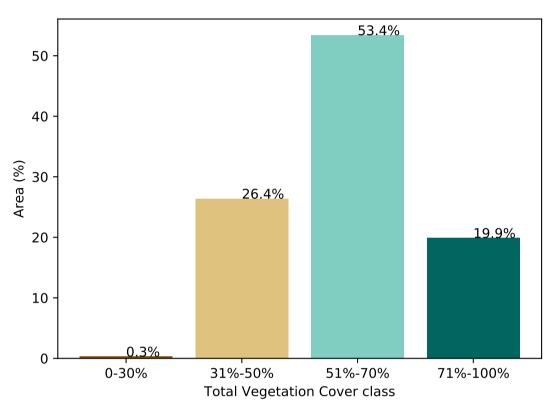


Total Vegetation Cover Anomaly [%]

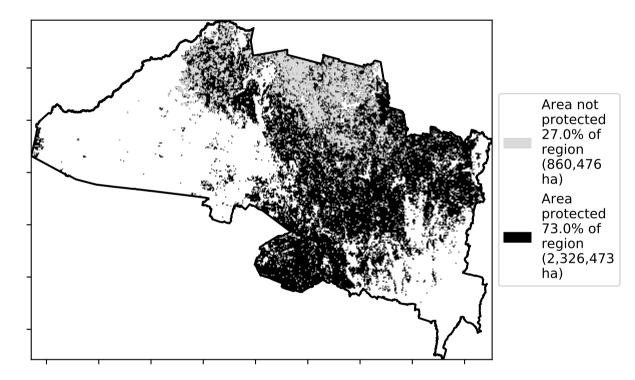


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

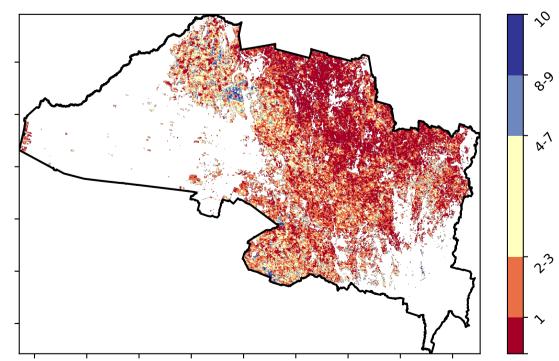
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







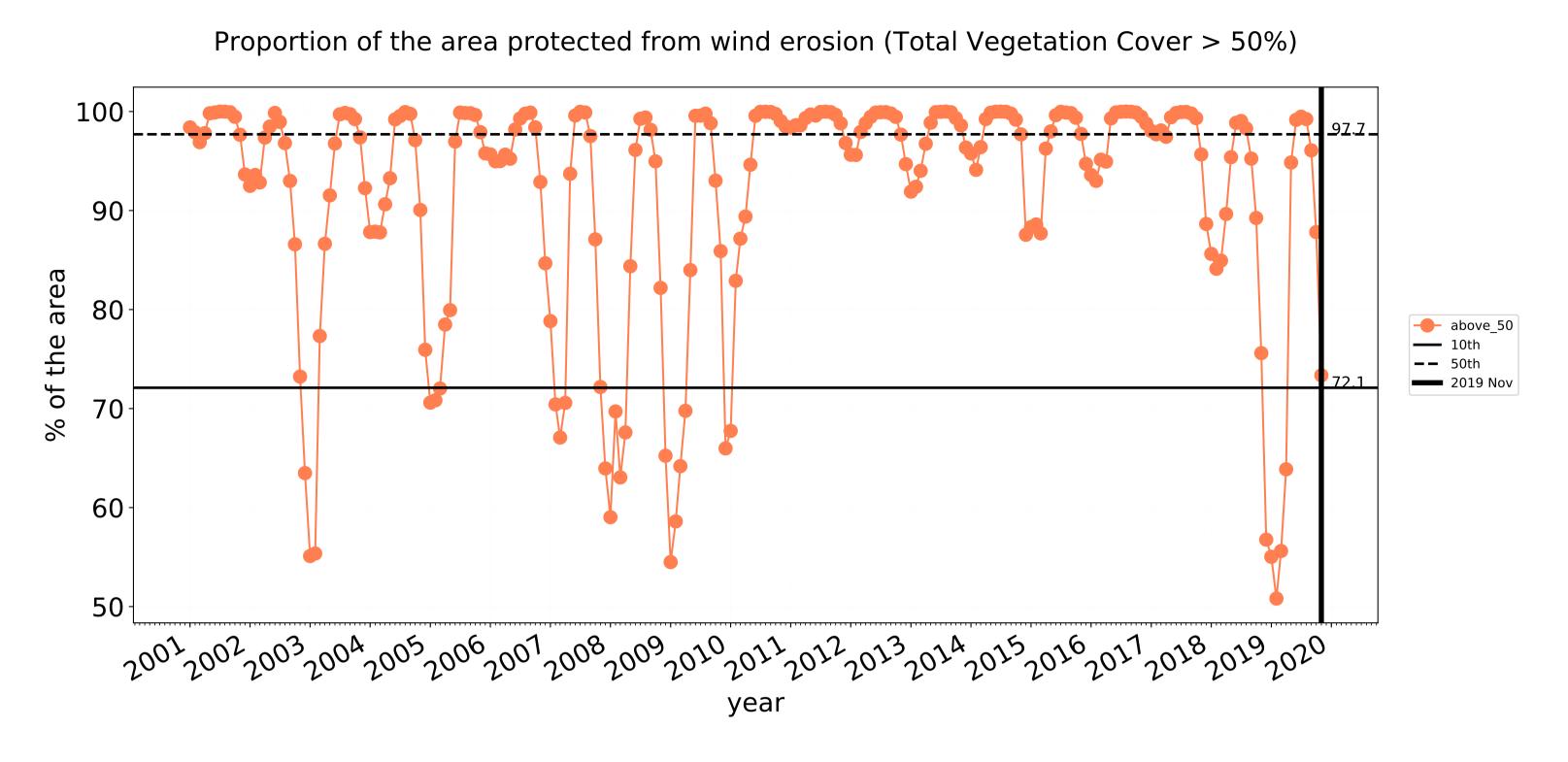


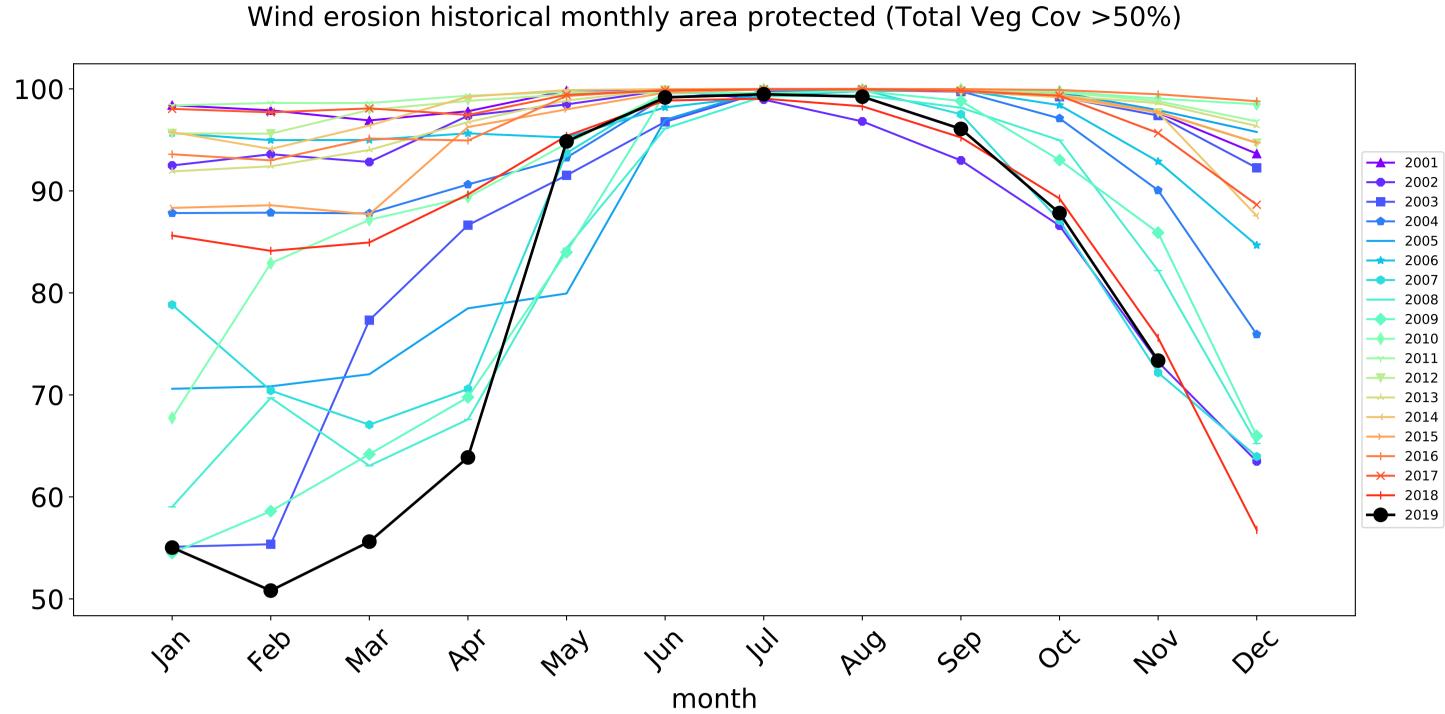


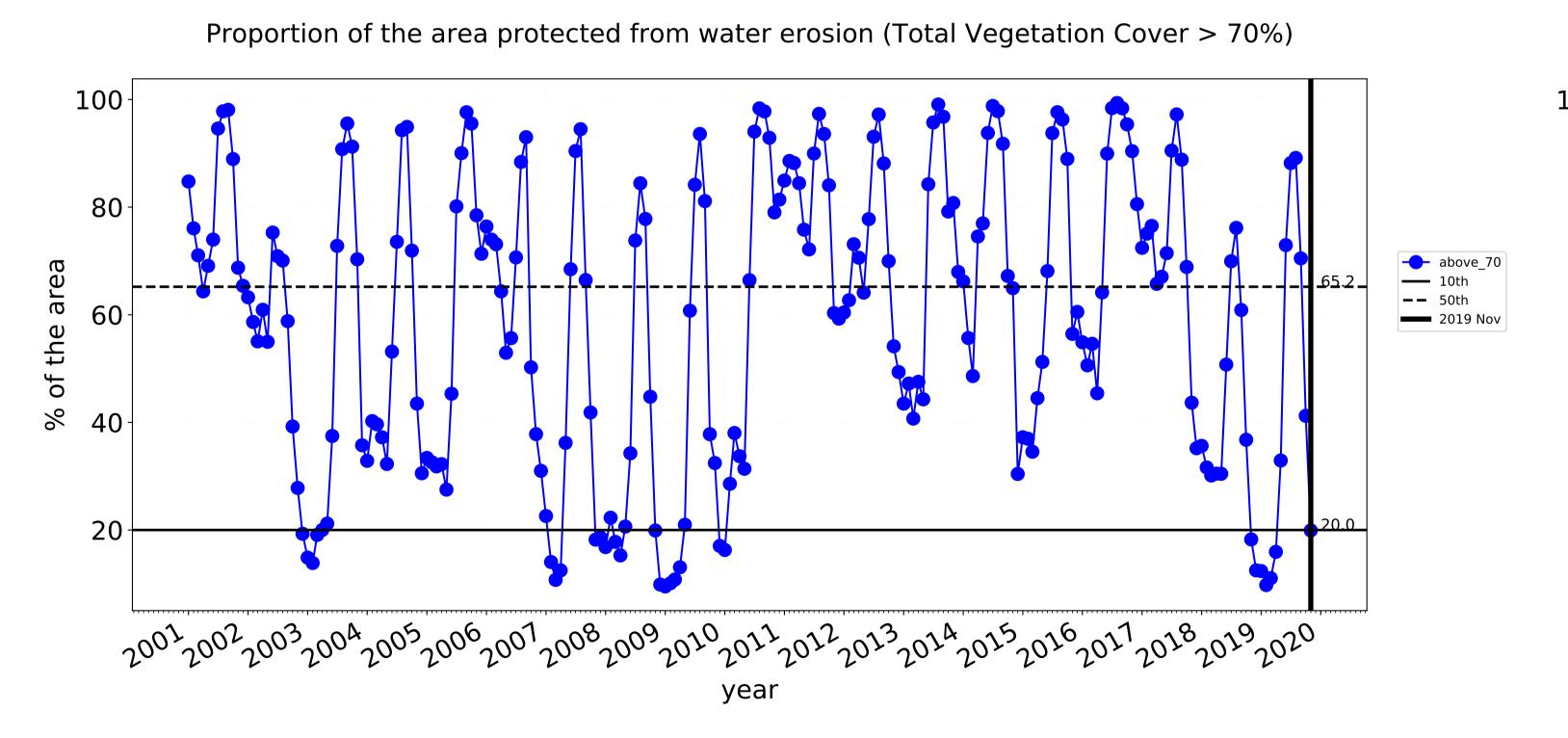


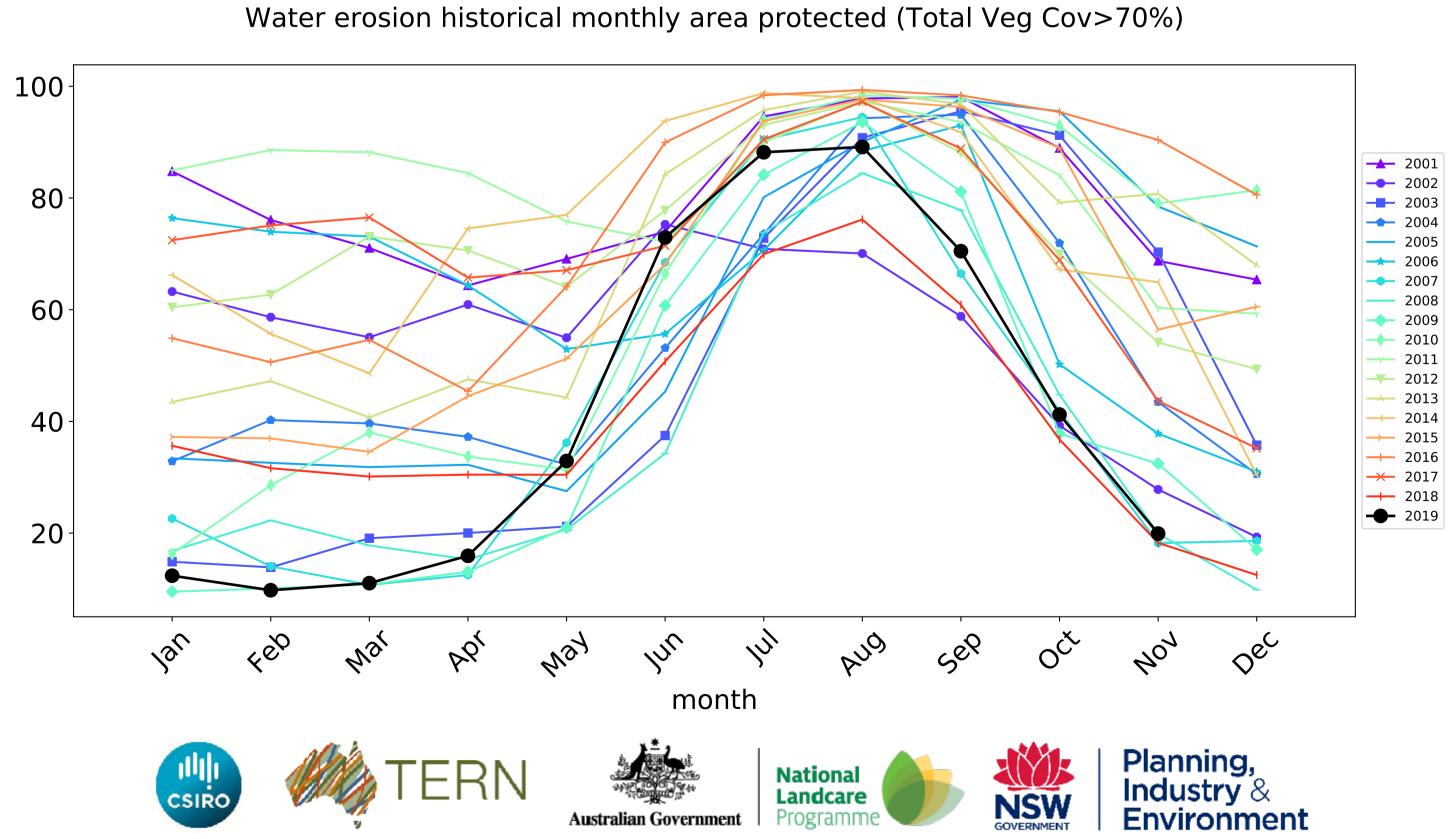


Cropping timeseries

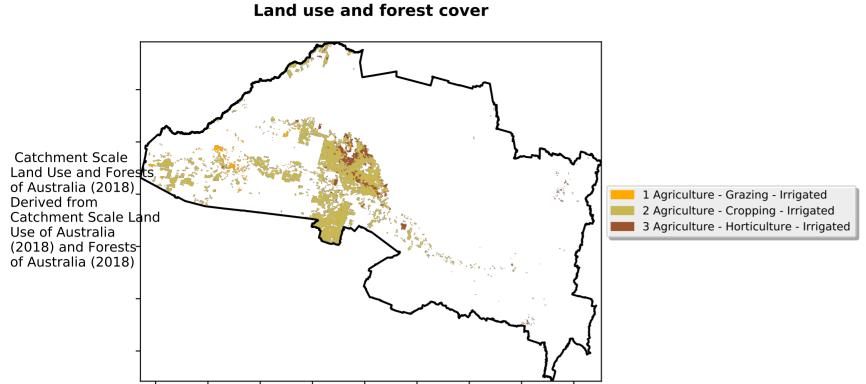


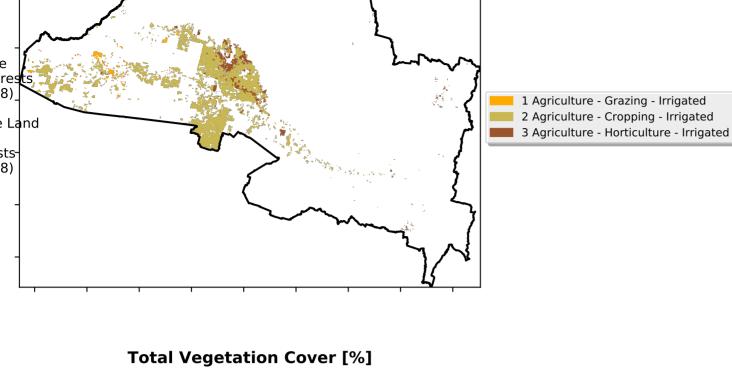


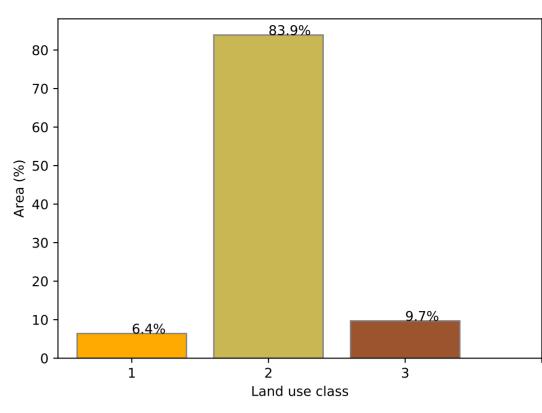


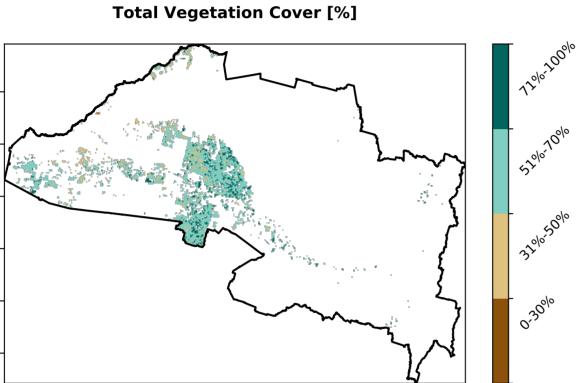


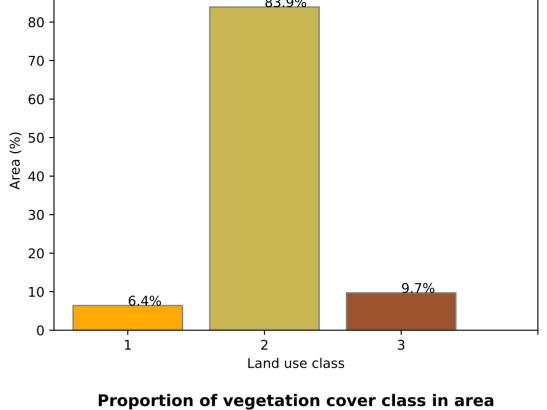
Irrigation





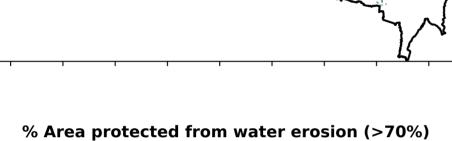


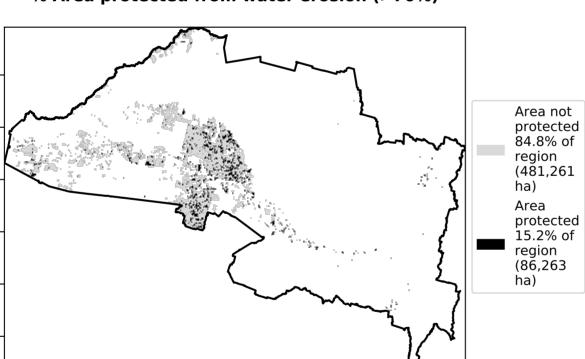




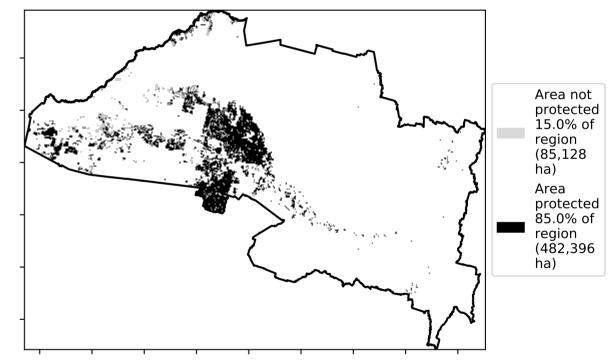
Proportion of each land class in area

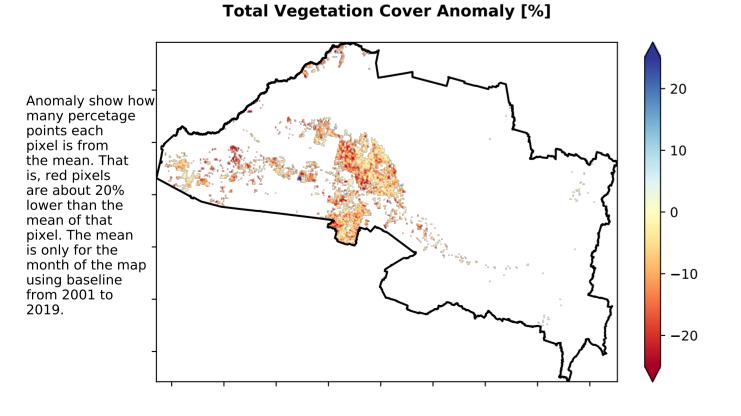
70.0% 70 60 50 Area (%) 20 -15.2% 14.6% 10 31%-50% 71%-100% 0-30% 51%-70% **Total Vegetation Cover class**

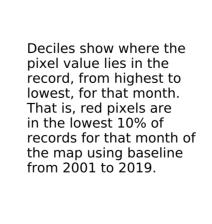


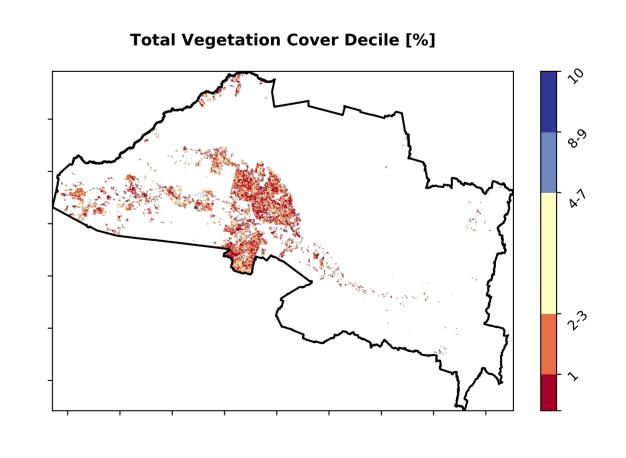


% Area protected from wind erosion (>50%)









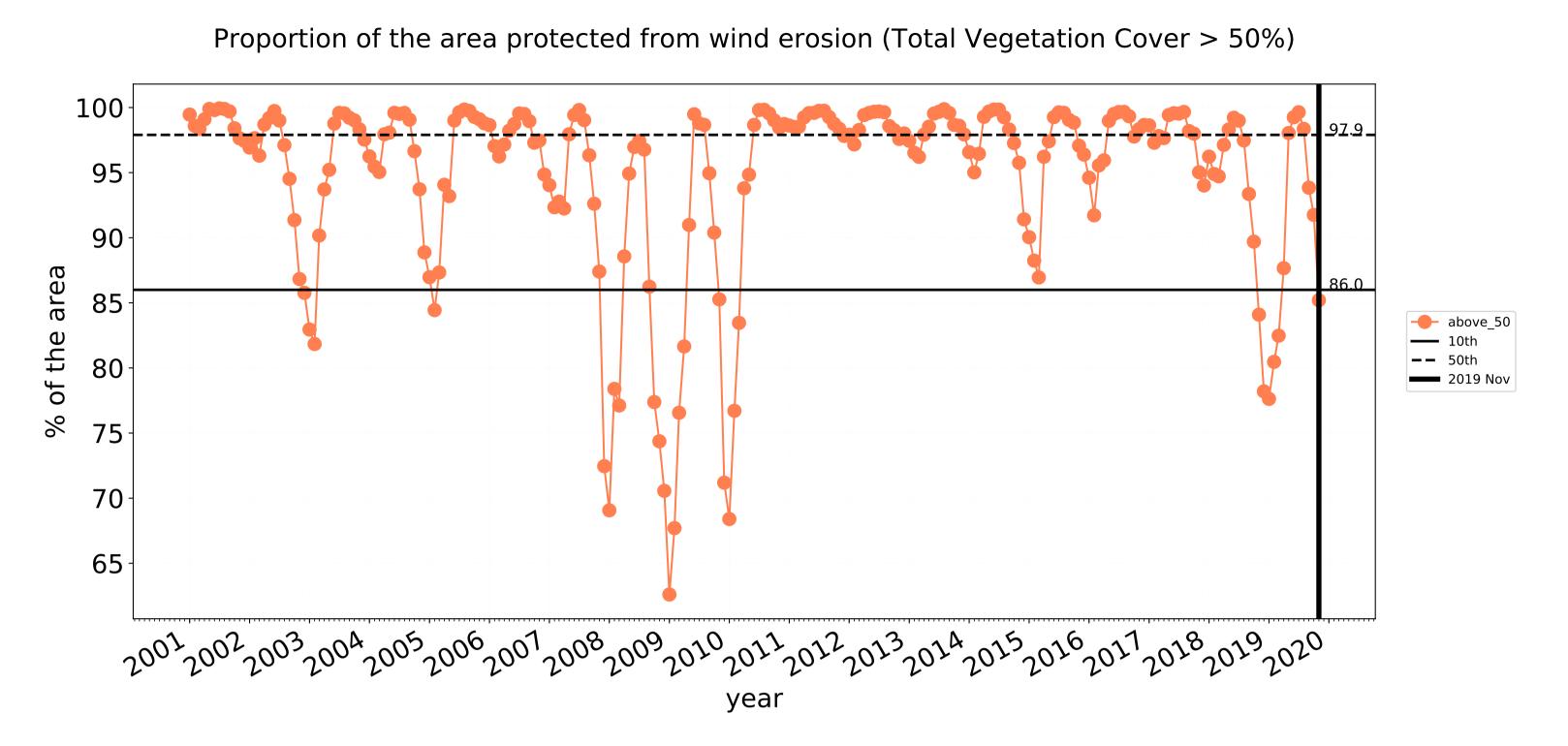


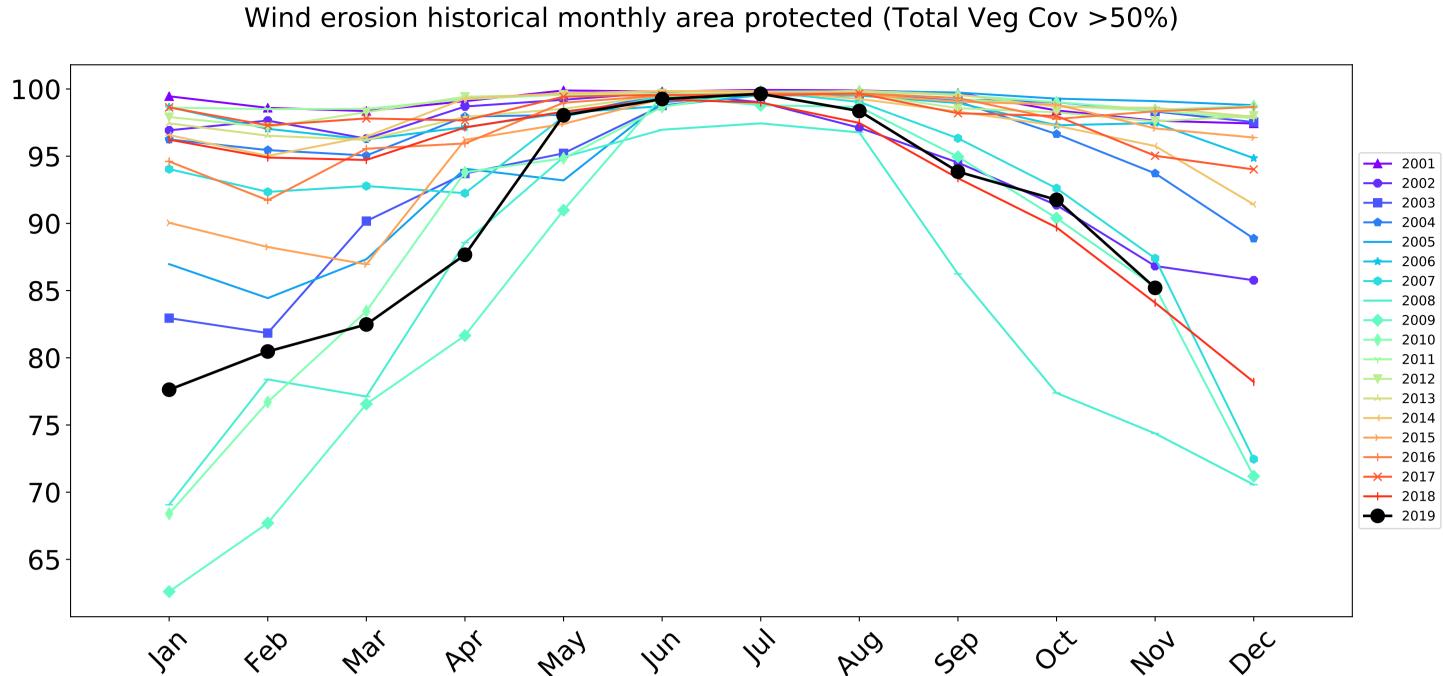




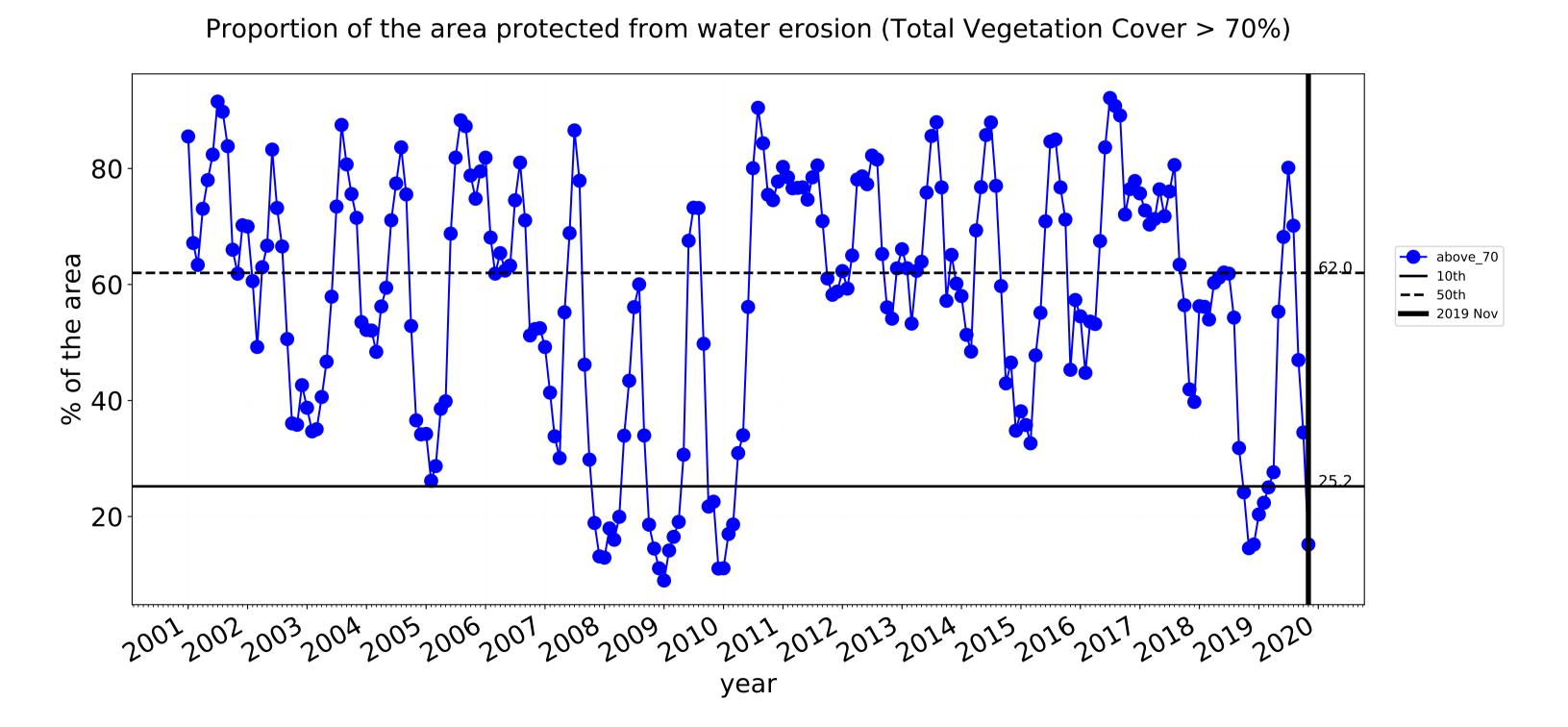


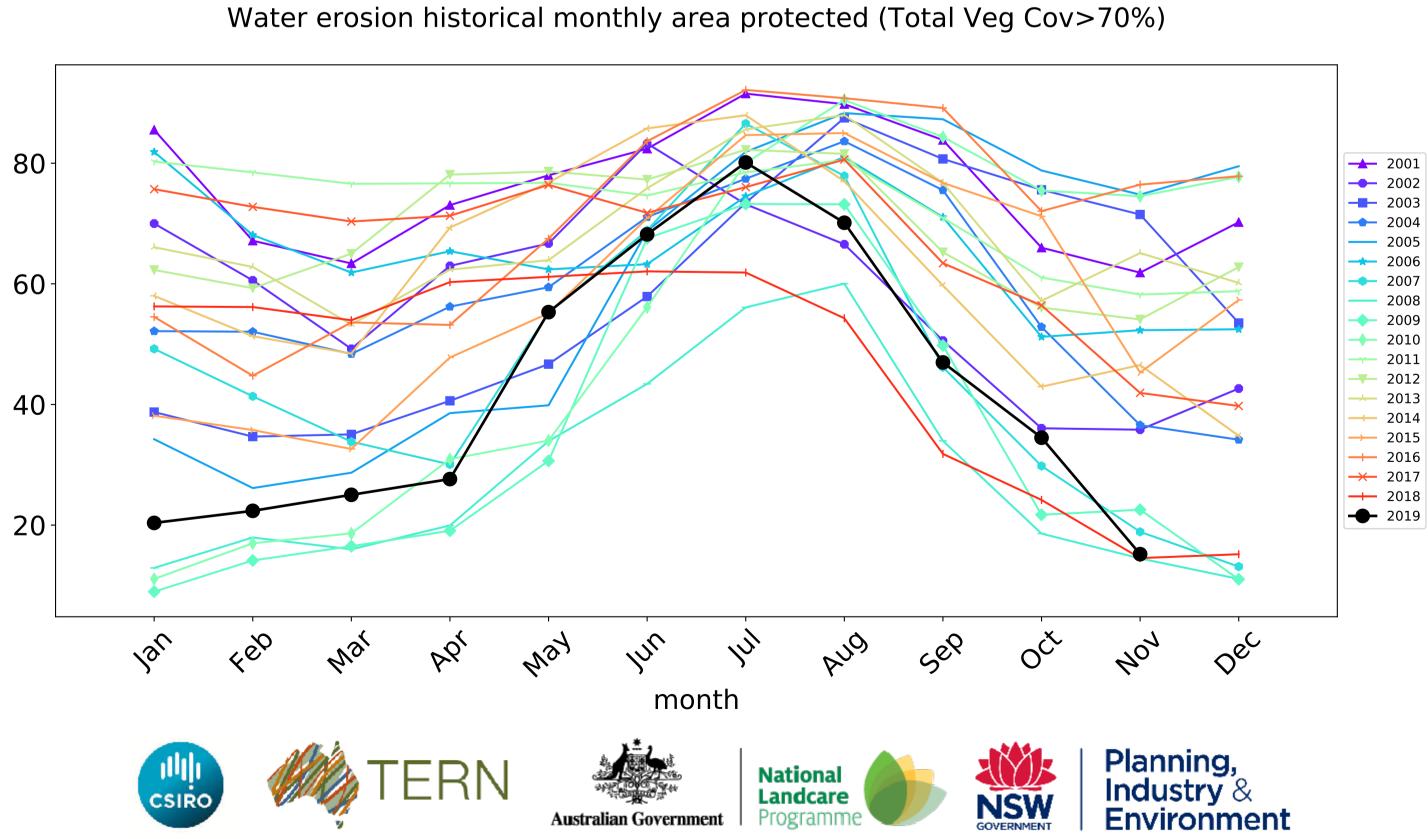






month



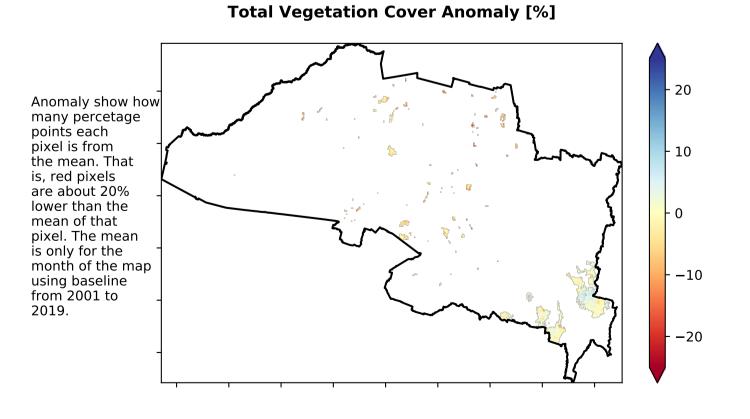


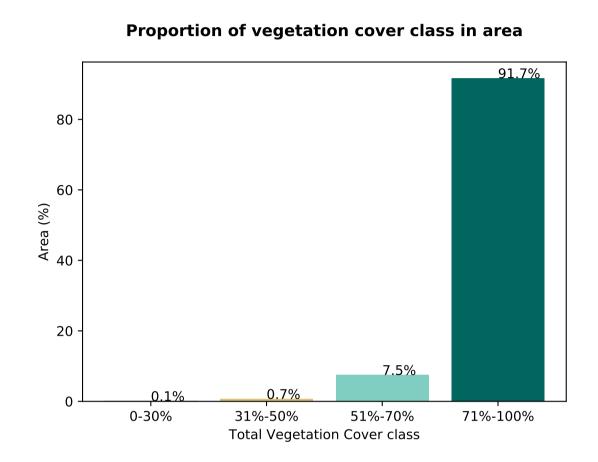
Production native forests and plantation forests

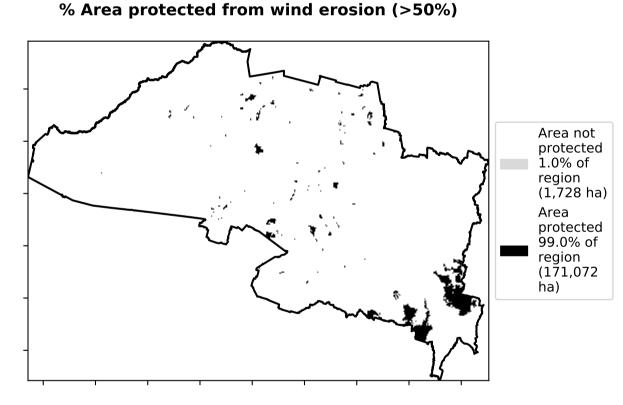
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) I Production native forests and plantation forests of Australia (2018)

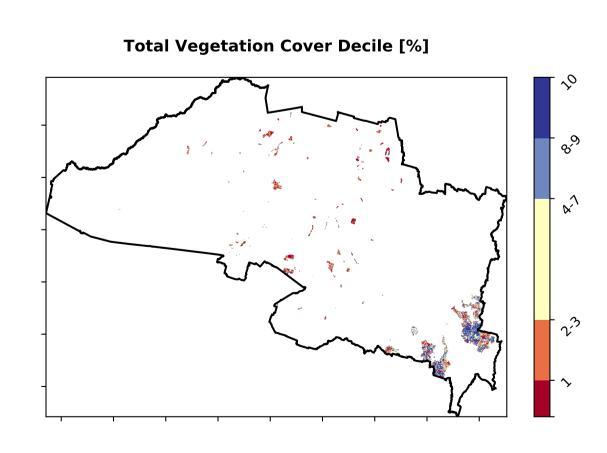
Total Vegetation Cover [%]

% Area protected from water erosion (>70%) Area not protected 8.3% of region (14,342 ha) Area protected 91.7% of region (158,457 ha)















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.

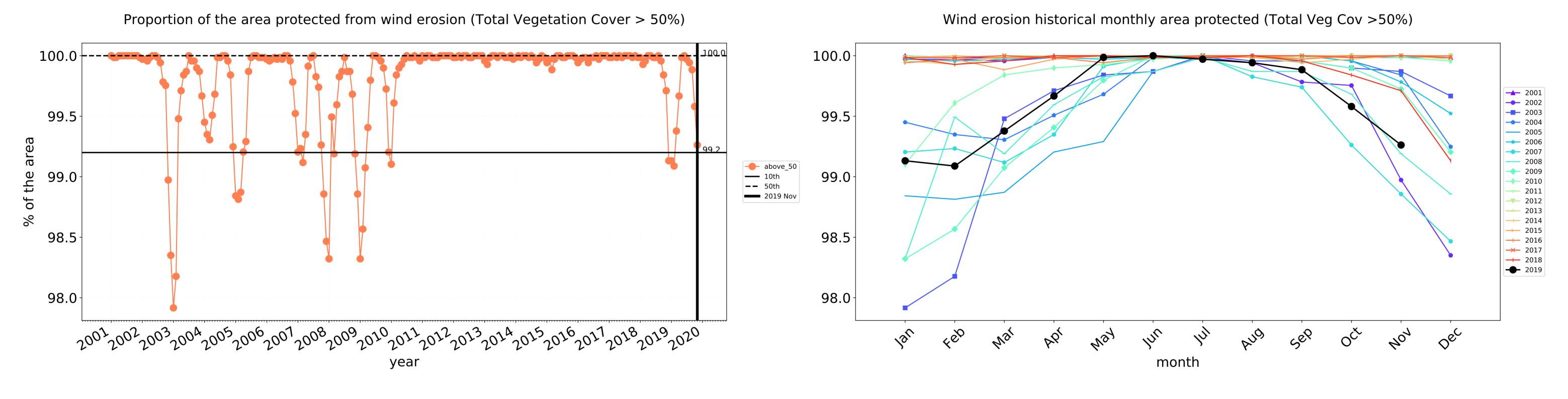
the map using baseline from 2001 to 2019.

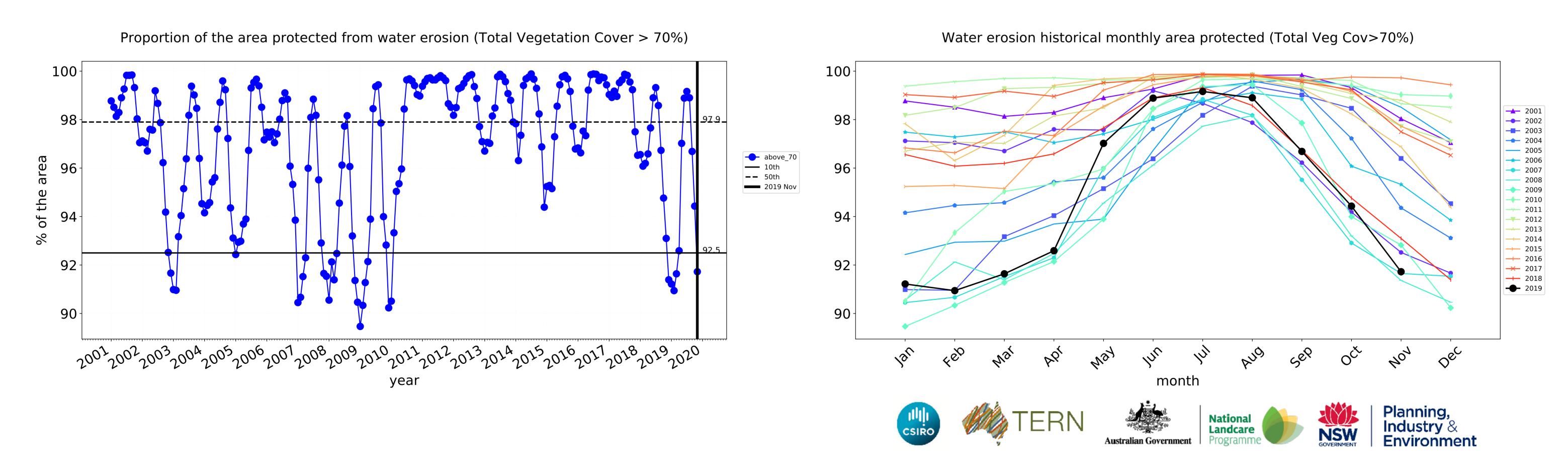






Production native forests and plantation forests timeseries





Riverina (6,694,025 ha and no data 14,310 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	6,694,025	99.7% 6,673,375	76.0% 5,085,500	29.4% 1,969,800	16.1% 1,080,600	6.8% 458,525	2.5% 166,850
Conservation and natural environments	323,125	99.9% 322,925	91.6% 296,100	78.7% 254,350	71.4% 230,600	52.8% 170,650	21.6% 69,900
Conservation and natural environments non forest	83,350	99.8% 83,150	67.8% 56,475	22.6% 18,875	12.4% 10,375	8.0% 6,700	4.5% 3,750
Conservation and natural environments Forest (non woodland)	195,275	100.0% 195,275	100.0% 195,275	99.7% 194,675	97.9% 191,175	79.7% 155,725	33.2% 64,875
Agriculture	6,067,700	99.7% 6,047,850	74.3% 4,511,275	24.9% 1,513,725	11.5% 694,775	2.9% 175,025	0.6% 34,675
Grazing	2,311,400	99.5% 2,299,175	73.0% 1,688,475	34.3% 792,525	20.8% 480,825	6.5% 150,975	1.3% 30,575
Grazing non forest	2,066,400	99.4% 2,054,175	70.0% 1,446,700	29.5% 610,575	17.8% 368,425	5.7% 118,275	1.2% 24,400
Grazing Woodland forest	141,650	100.0% 141,650	97.8% 138,575	61.9% 87,725	27.2% 38,525	1.6% 2,250	0.3% 375
Grazing - Forest (non woodland)	103,350	100.0% 103,350	99.9% 103,200	91.2% 94,225	71.5% 73,875	29.5% 30,450	5.6% 5,800
Cropping	3,186,950	99.8% 3,180,275	73.4% 2,337,900	19.9% 634,825	6.3% 202,050	0.7% 22,675	0.1% 3,750
Irrigation	567,525	99.8% 566,575	85.2% 483,550	15.2% 86,175	2.1% 11,775	0.2% 1,350	0.1% 350
Production native forests and plantation forests	172,800	100.0% 172,800	99.3% 171,525	91.7% 158,500	81.5% 140,850	64.4% 111,200	35.9% 62,025











