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: February 2007

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







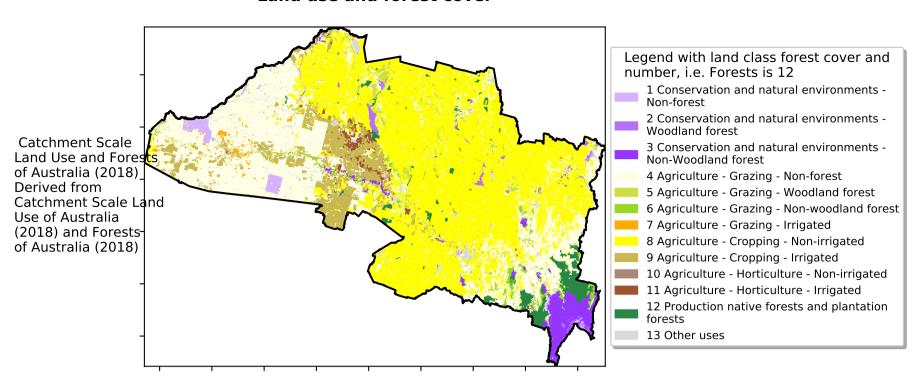




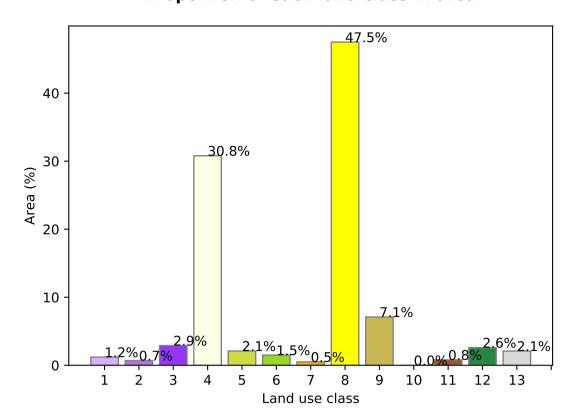


Vegetation Cover Feb 2007

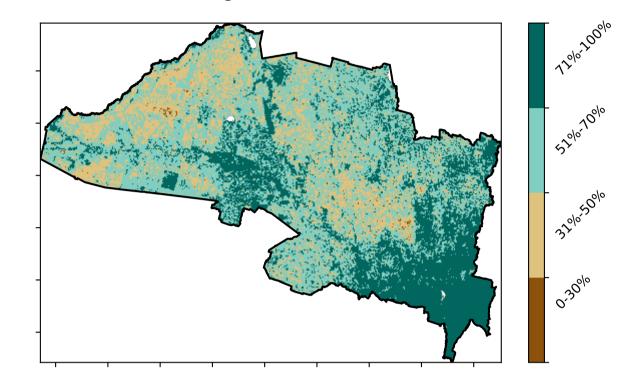
Land use and forest cover



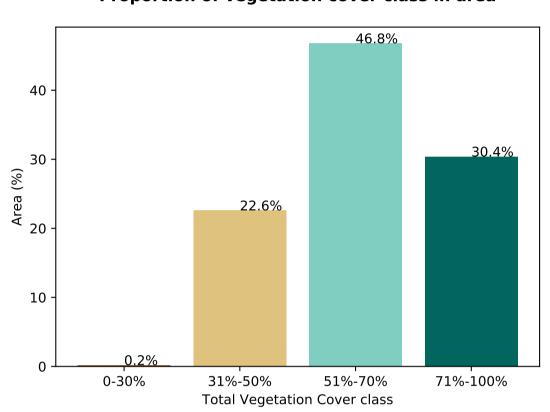
Proportion of each land class in area



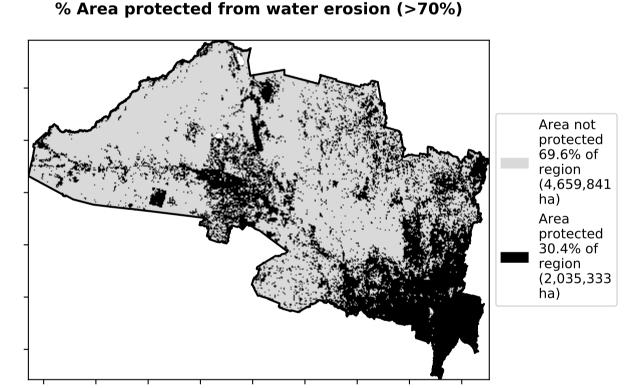
Total Vegetation Cover [%]



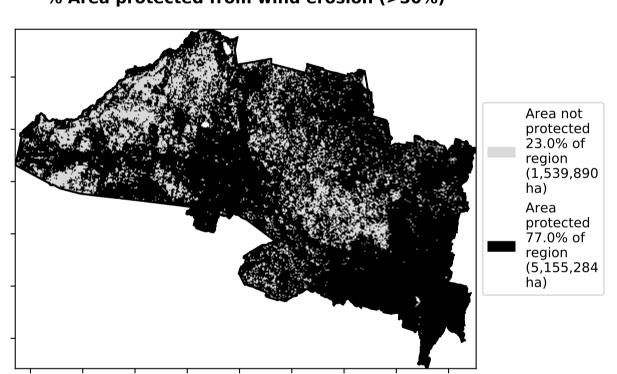
Proportion of vegetation cover class in area



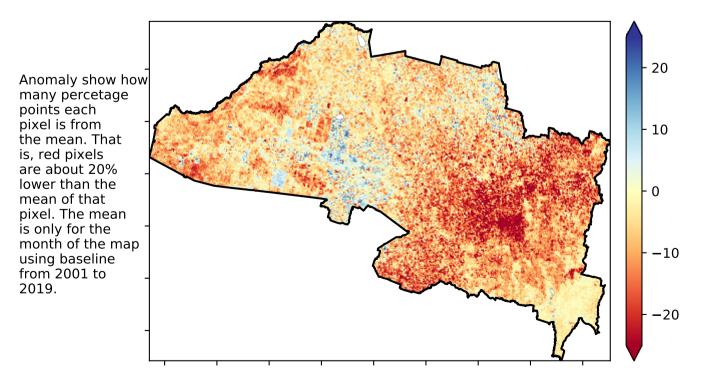
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% Area protected from wind erosion (>50%)

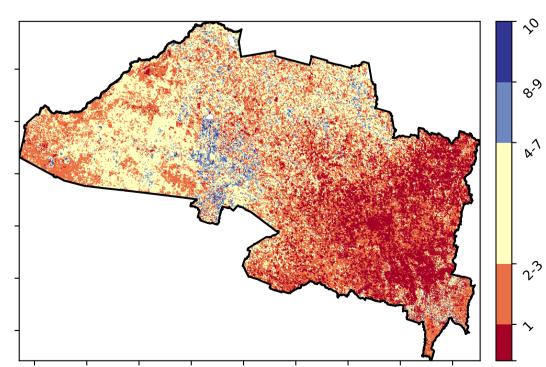


Total Vegetation Cover Anomaly [%]



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 [%]





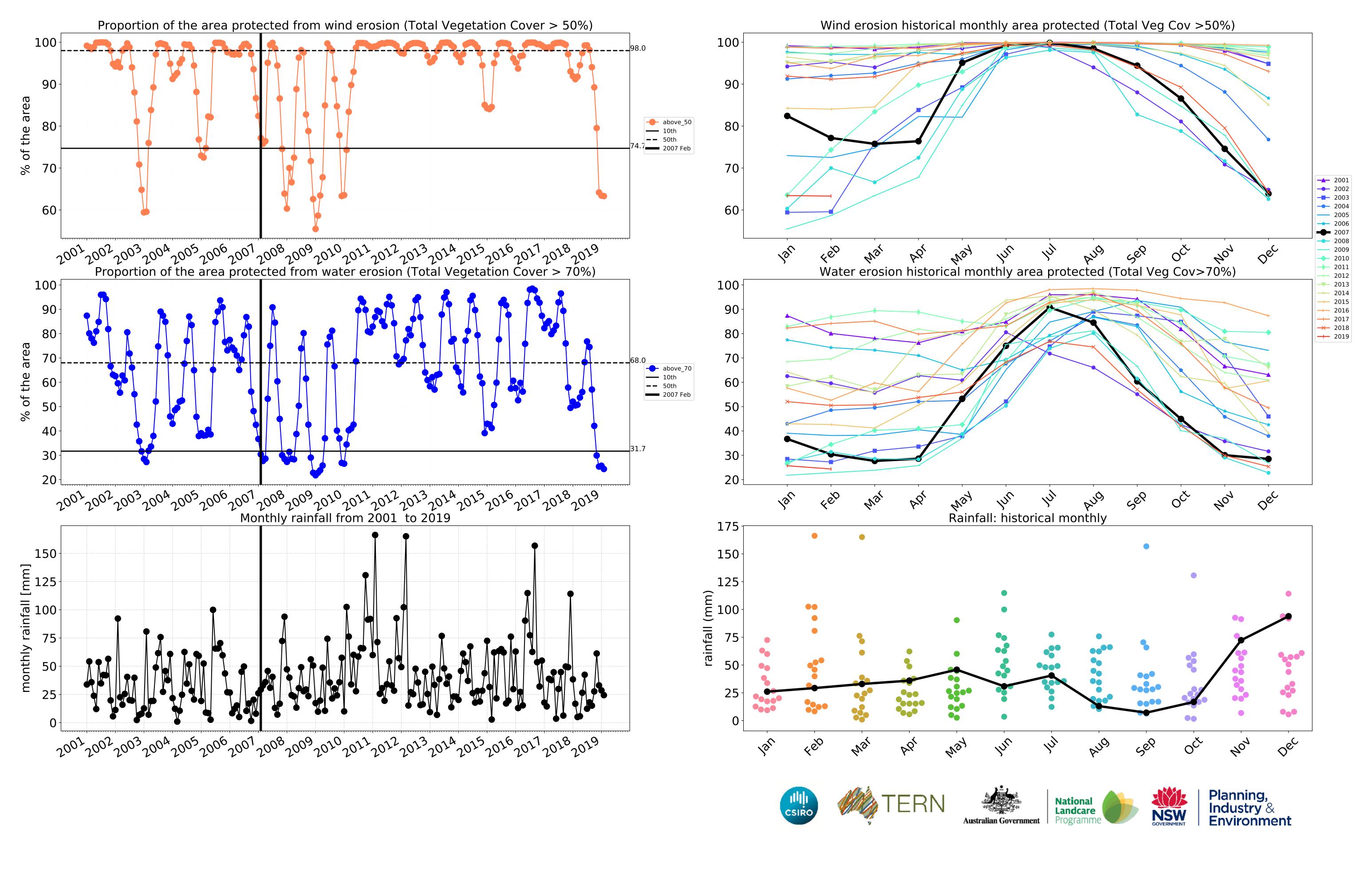




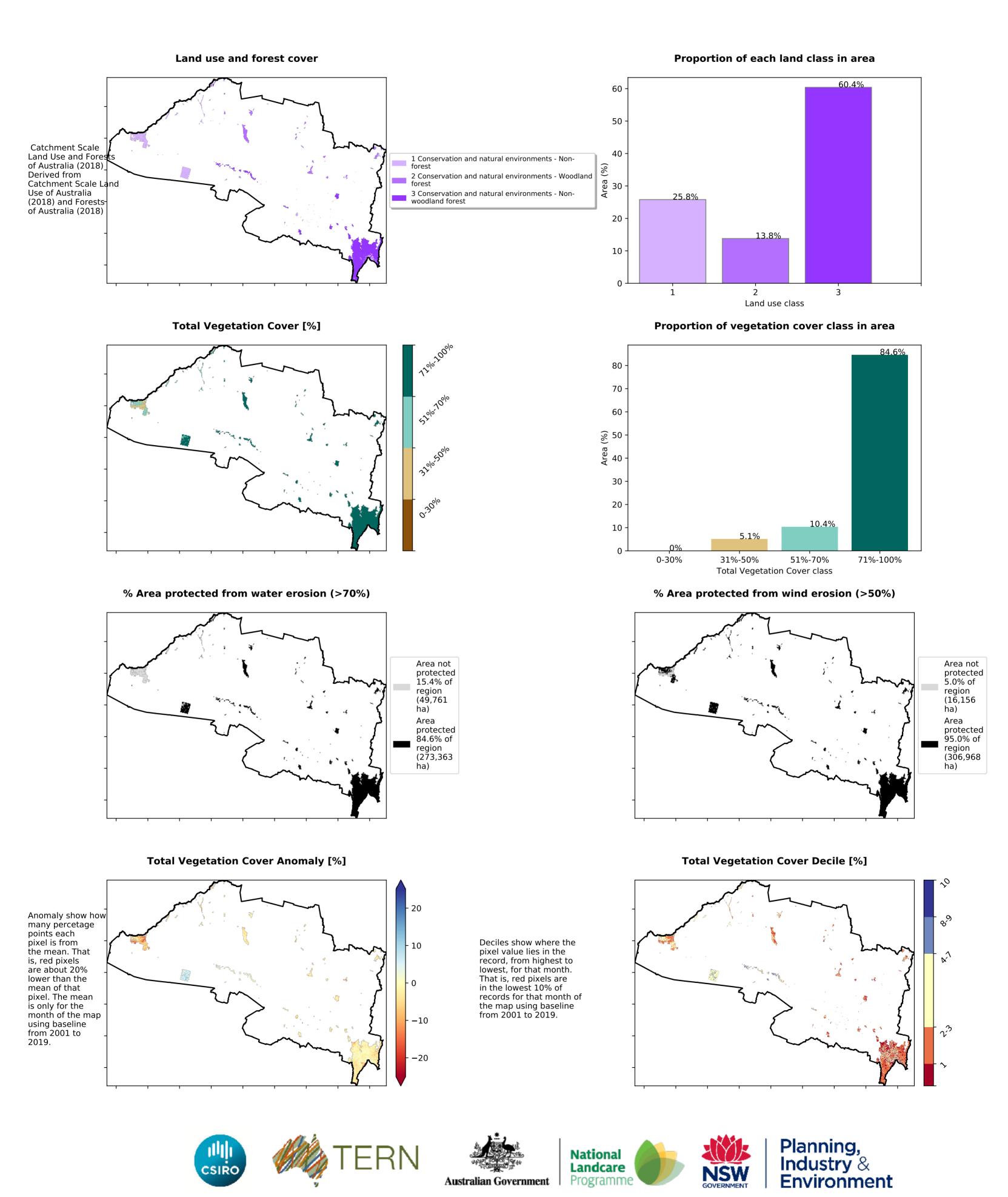




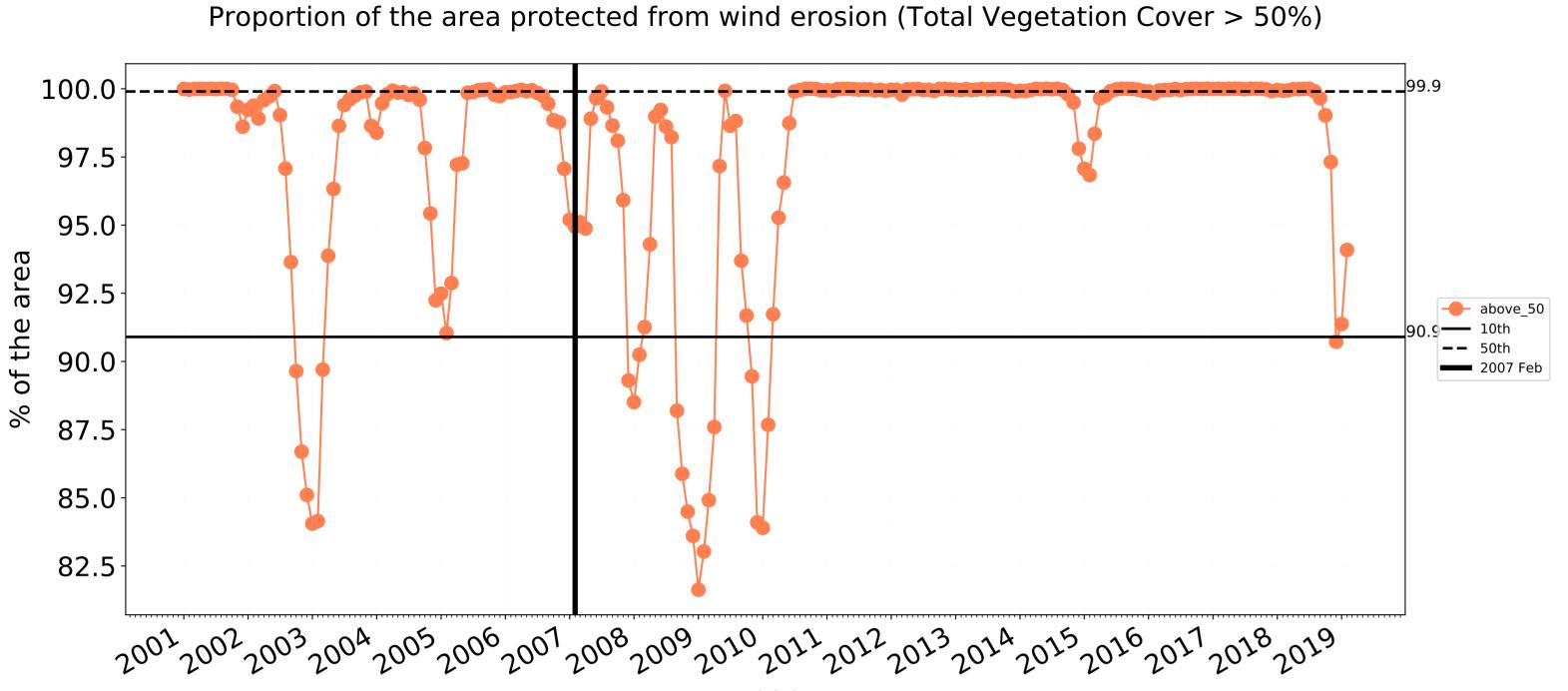


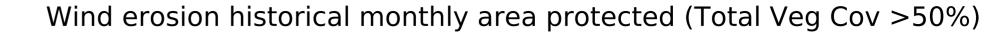


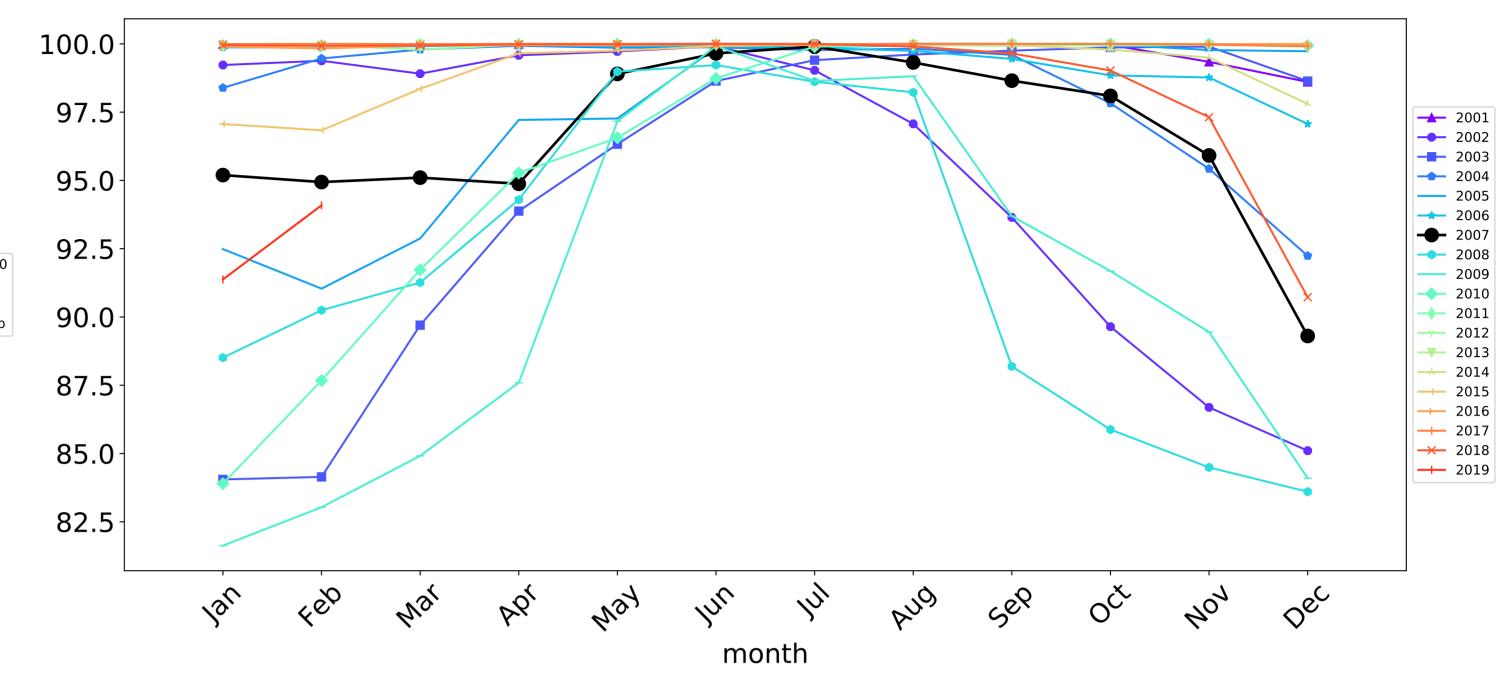
Conservation and natural environments

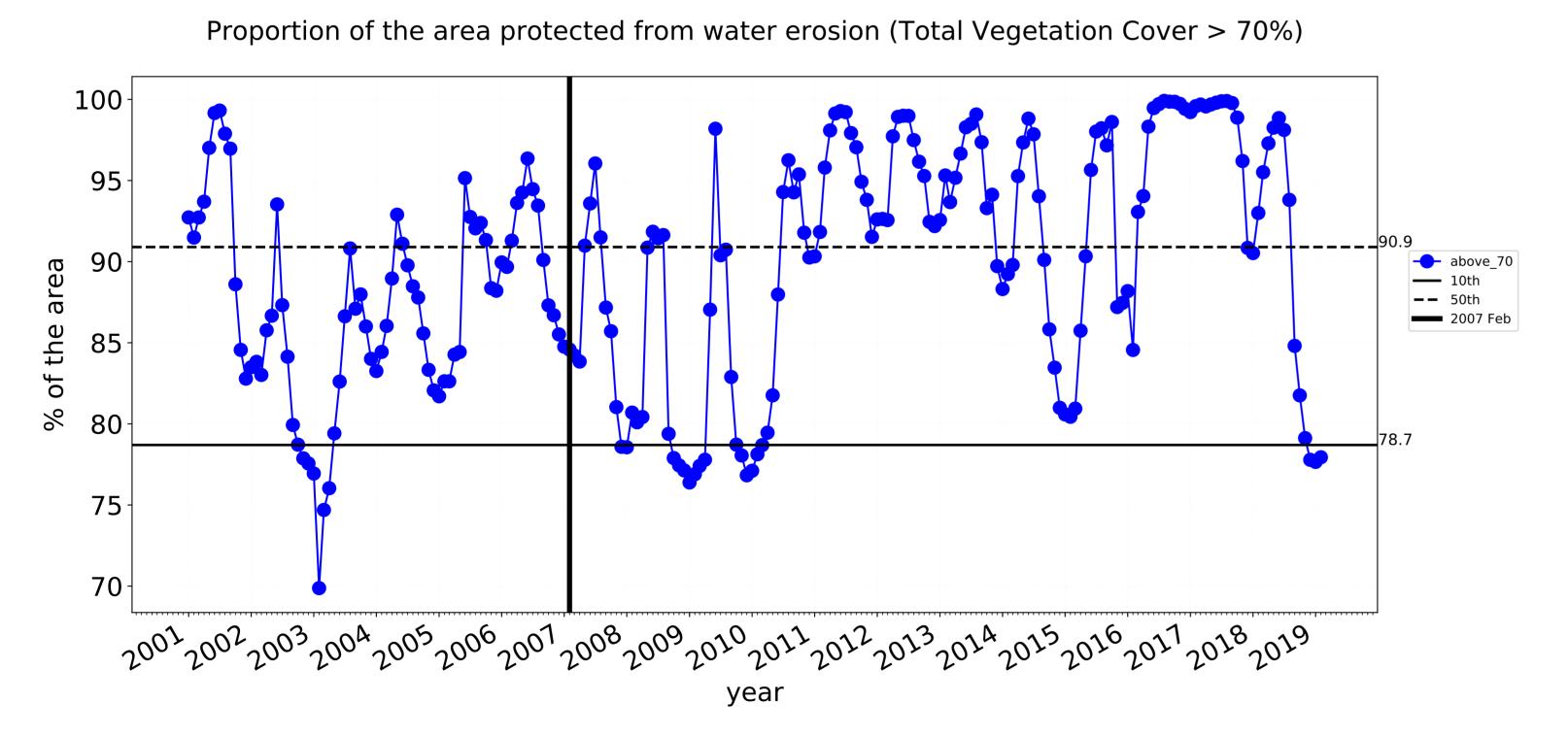


Conservation and natural environments timeseries

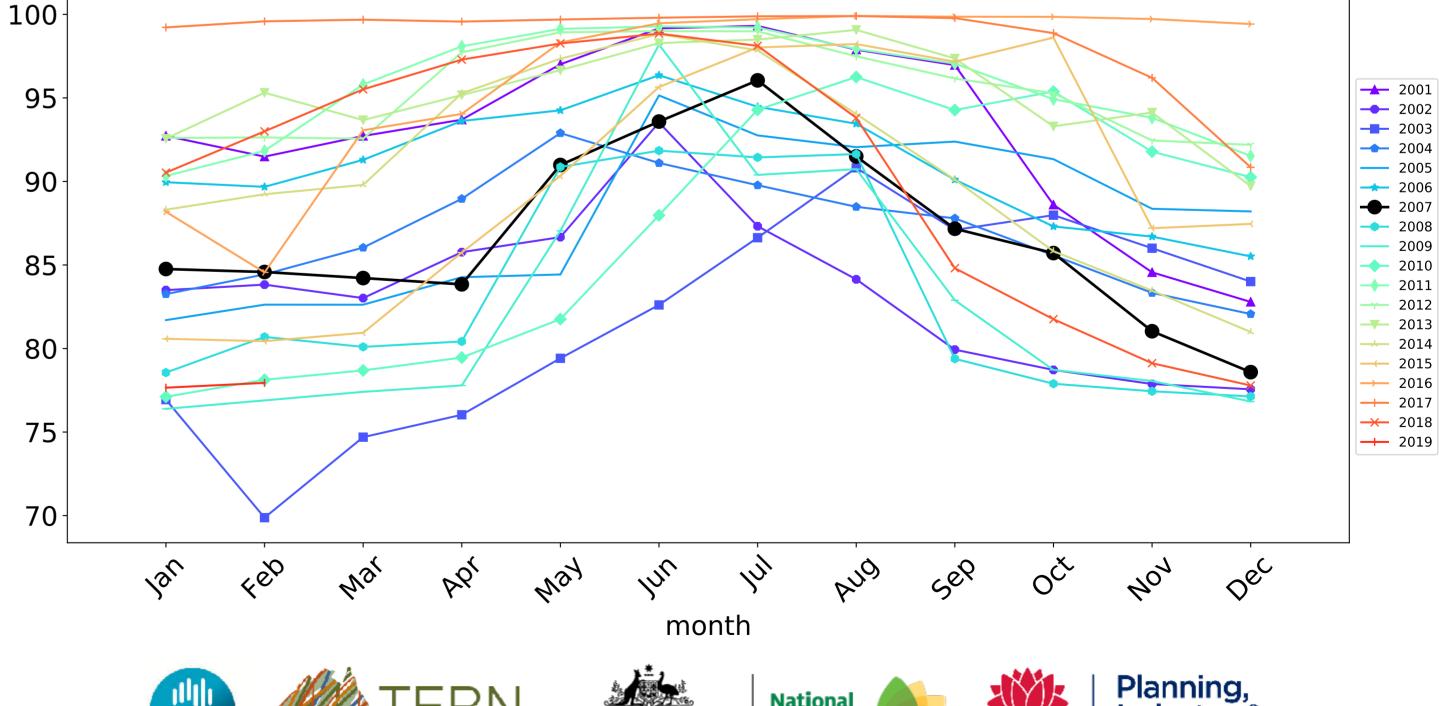








Water erosion historical monthly area protected (Total Veg Cov>70%)











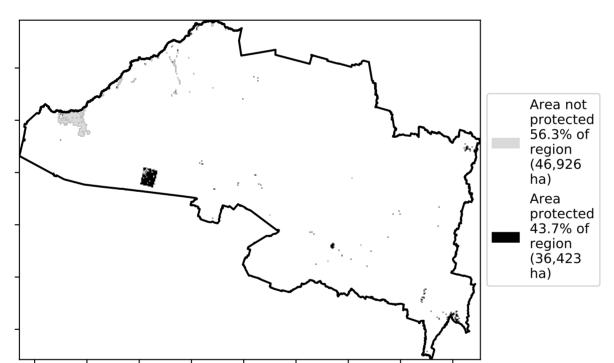


Conservation and natural environments non forest

Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments - Non-Catchment Scale Land Use of Australia (2018) and Forestsof Australia (2018)

% Area protected from water erosion (>70%)

Total Vegetation Cover [%]



- 20 Anomaly show how many percetage points each pixel is from - 10 the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019. -10**-**20

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.

43.7% 40 36.8% 30 Area (%) 19.5% 10

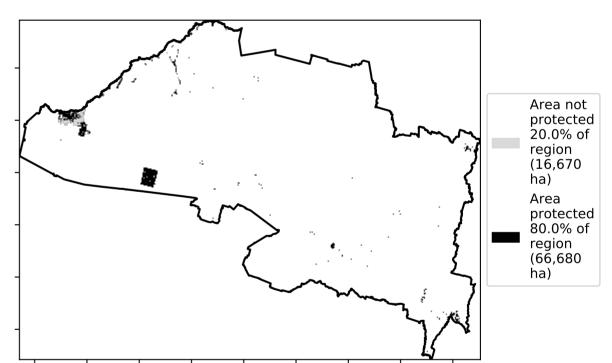
Proportion of vegetation cover class in area

% Area protected from wind erosion (>50%)

Total Vegetation Cover class

31%-50%

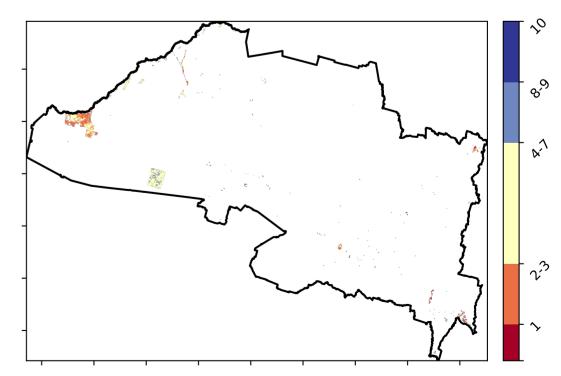
0-30%



51%-70%

71%-100%









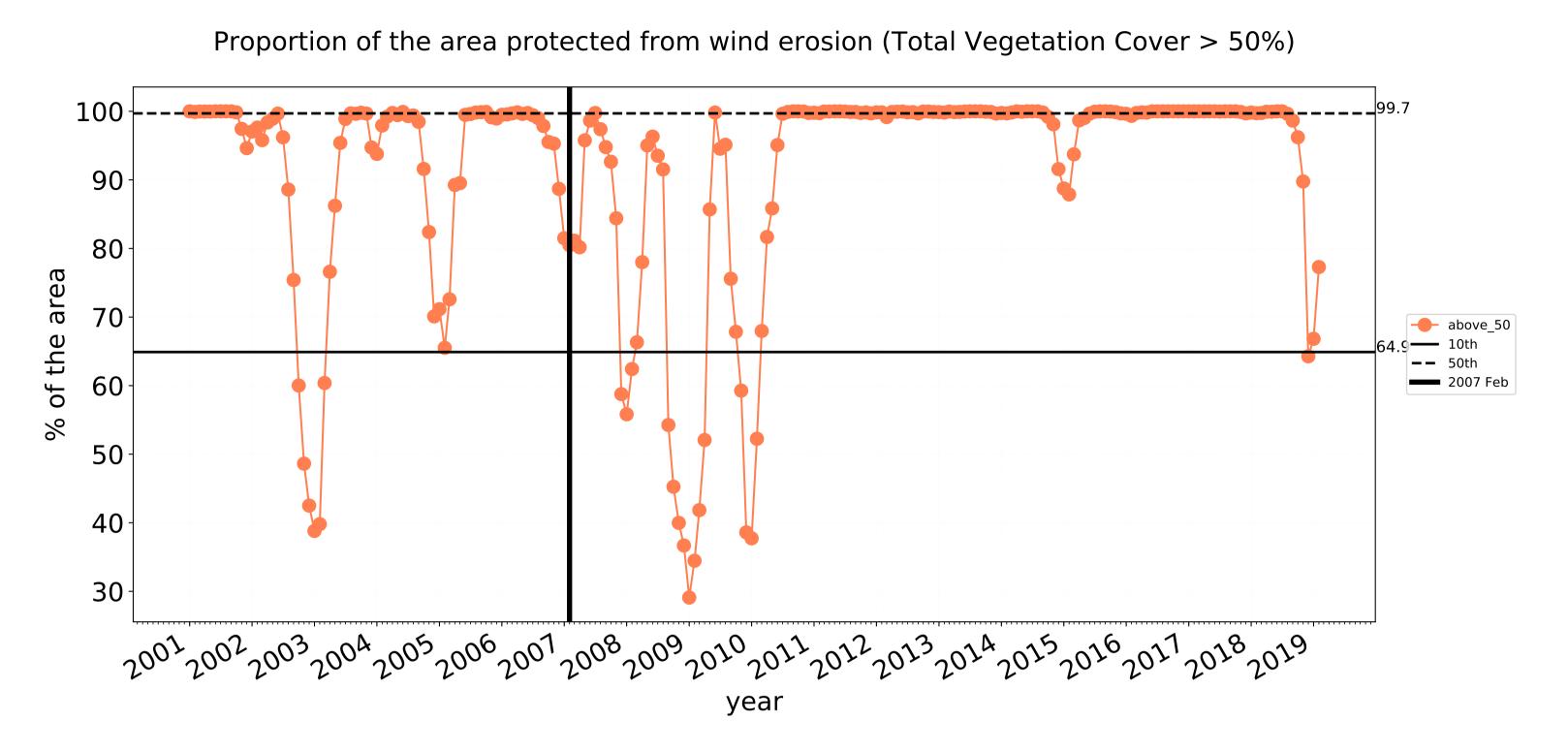


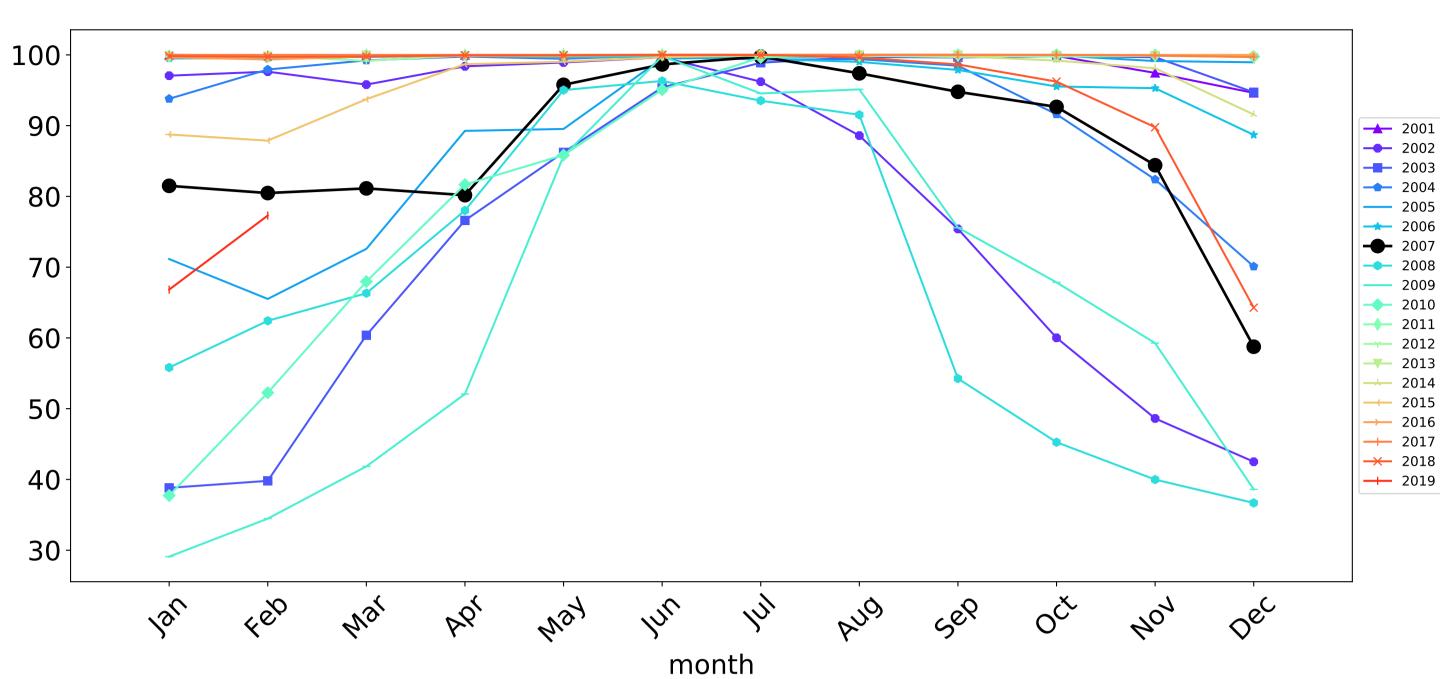




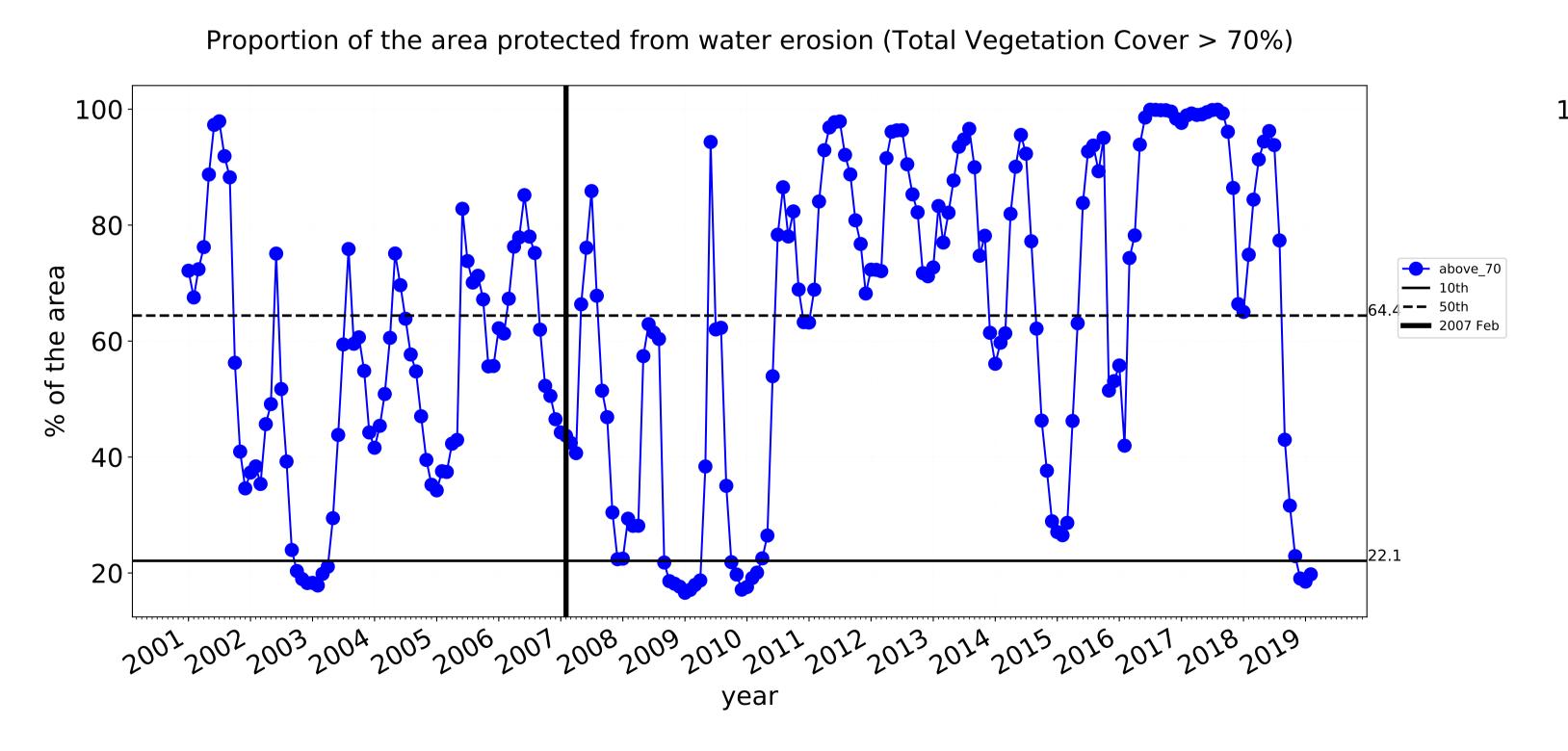


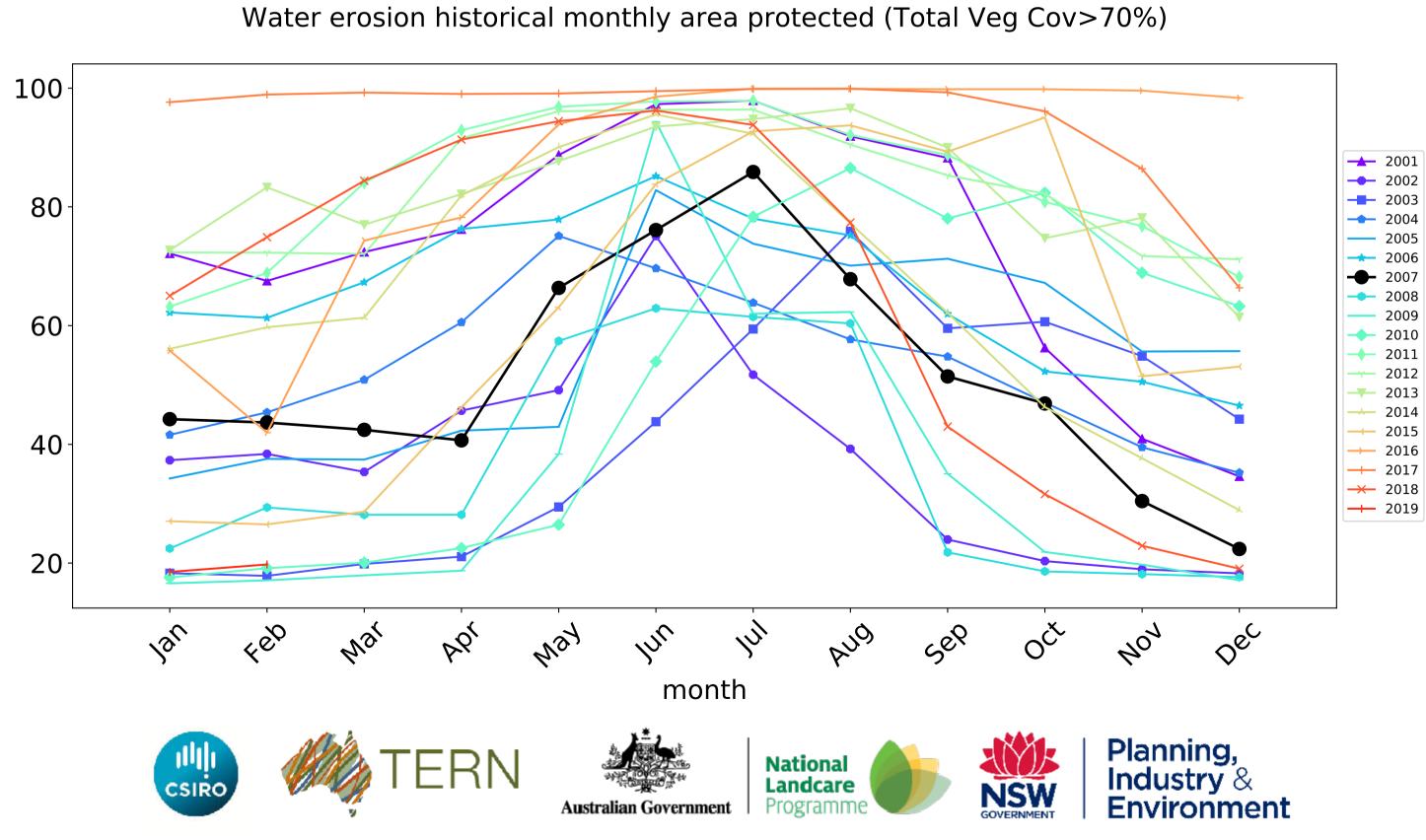
Conservation and natural environments non forest timeseries



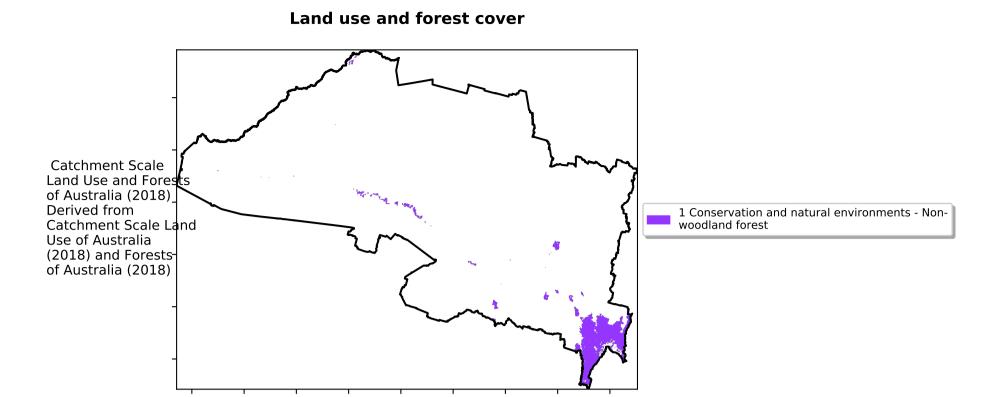


Wind erosion historical monthly area protected (Total Veg Cov >50%)

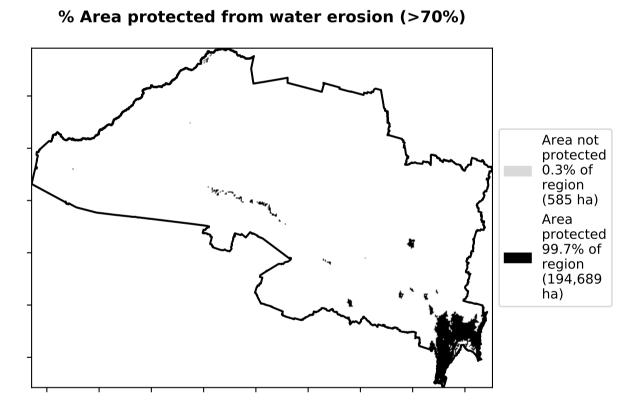


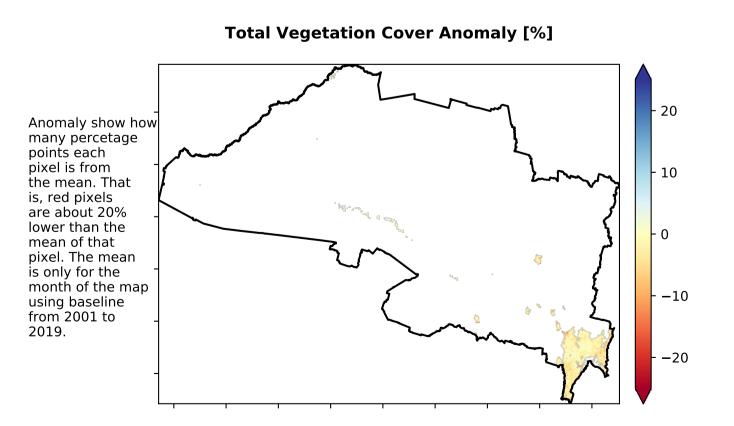


Conservation and natural environments Forest (non woodland)

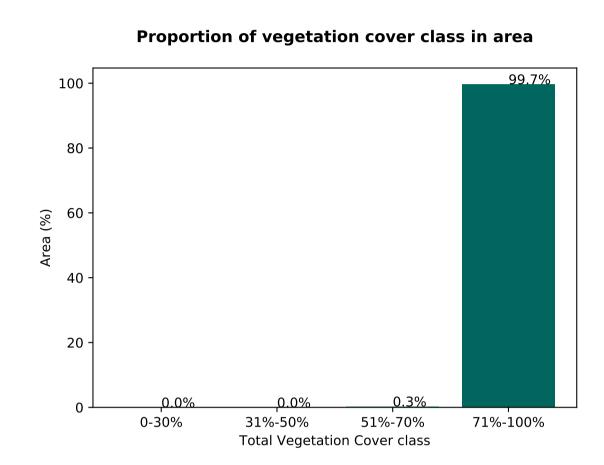


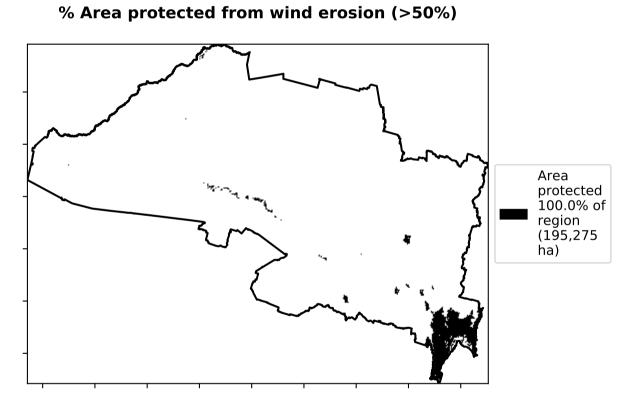
Total Vegetation Cover [%] Trolo Indolo Trol Indolo Trolo Indolo Trol Indolo Trolo Indolo Trolo Indolo Trolo Indolo Trol

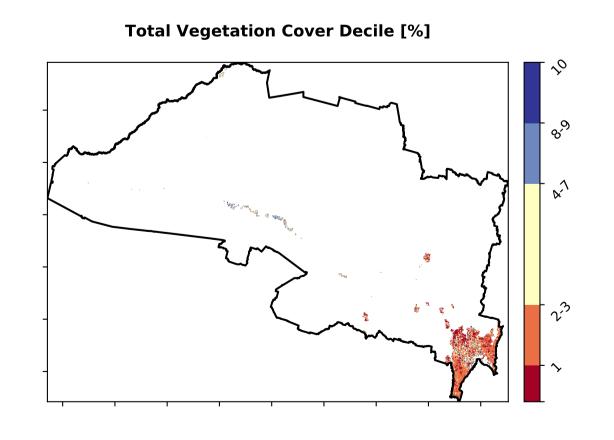




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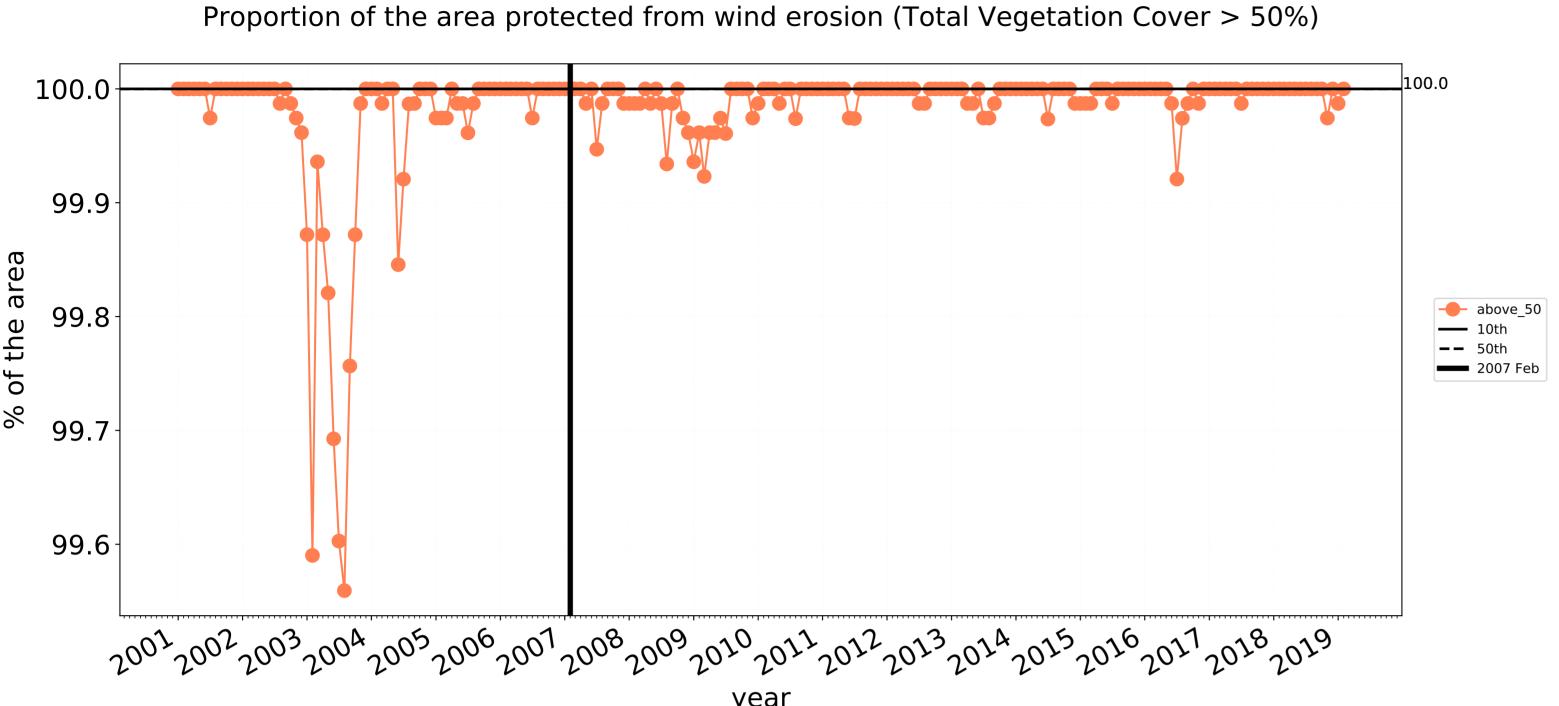


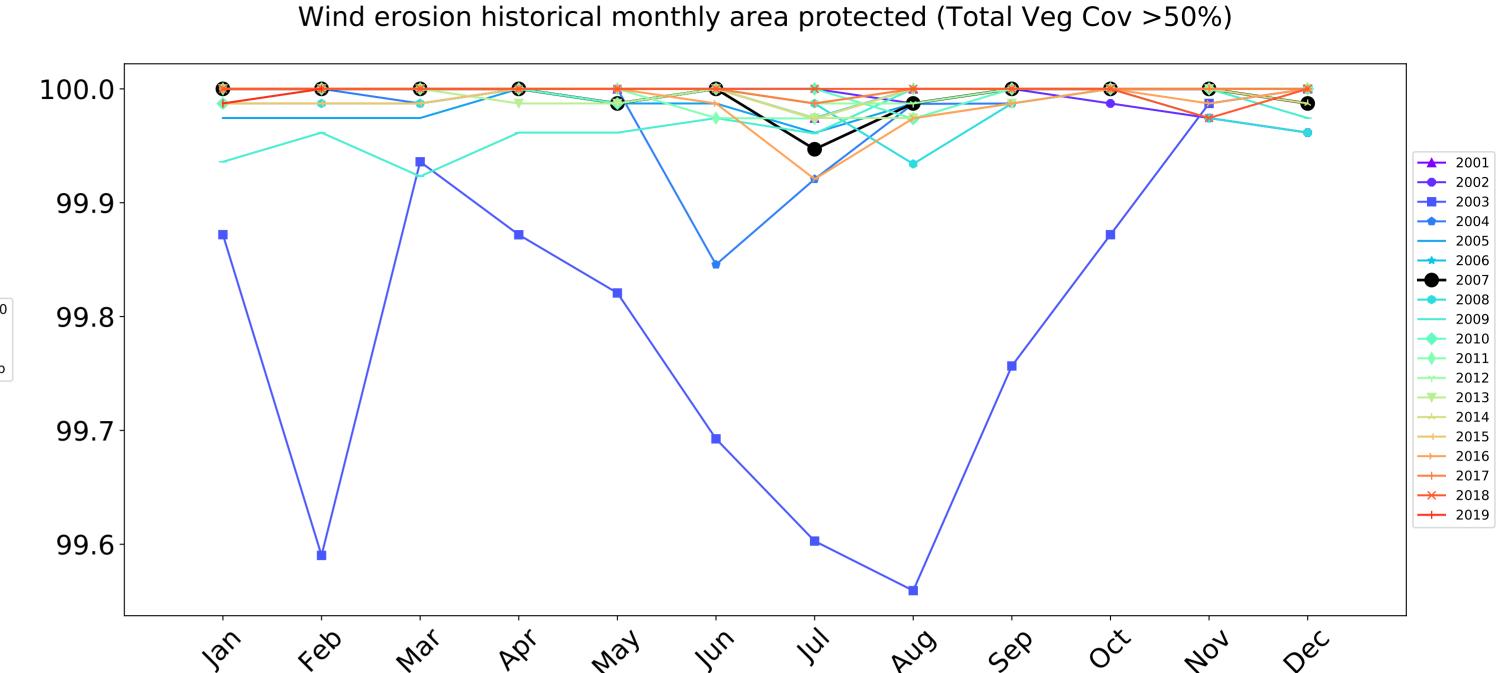




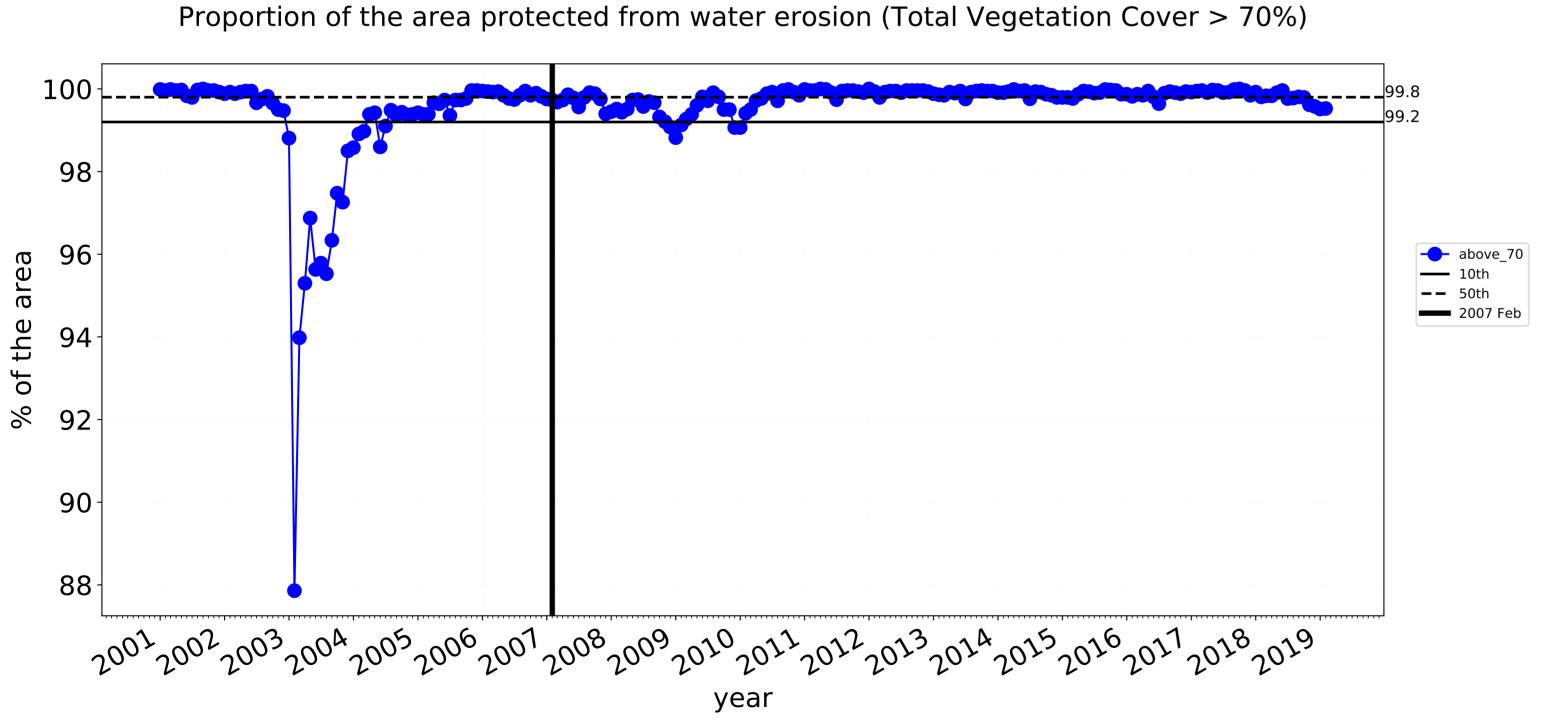


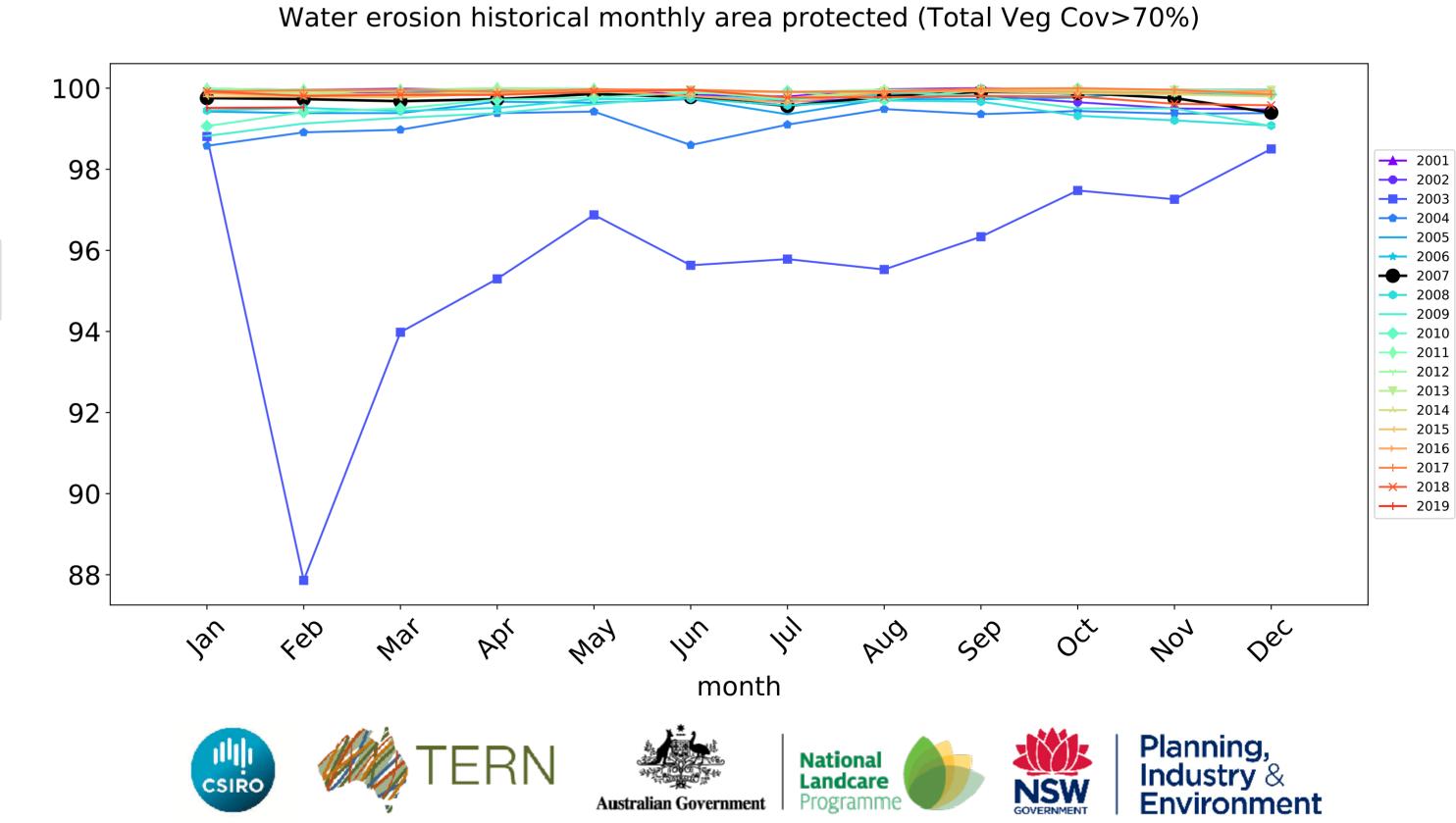






month





Agriculture

50

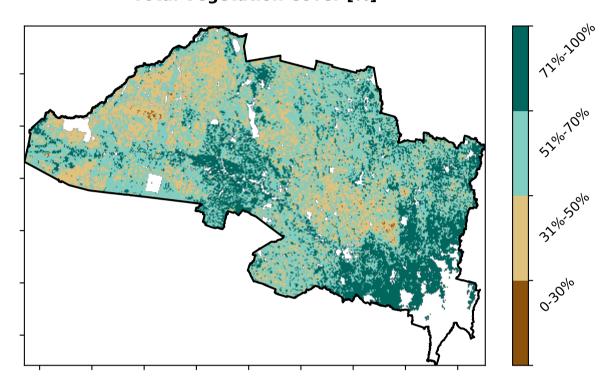
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest 4 Agriculture - Grazing - Irrigated Catchment Scale Land Use of Australia 5 Agriculture - Cropping - Non-irrigated 6 Agriculture - Cropping - Irrigated (2018) and Forests-7 Agriculture - Horticulture - Non-irrigated of Australia (2018) 8 Agriculture - Horticulture - Irrigated

52.5% 34.1%

Proportion of each land class in area

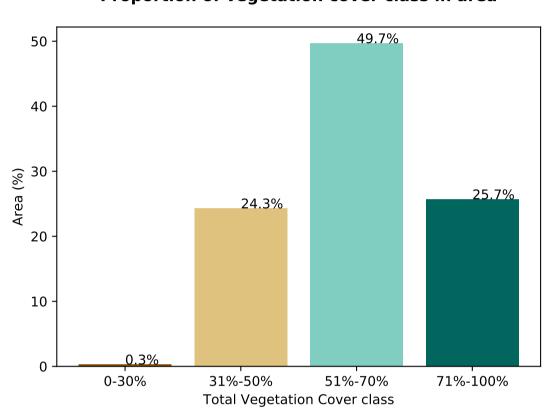
40 Area (%) 0 20 10 0.9%

Total Vegetation Cover [%]

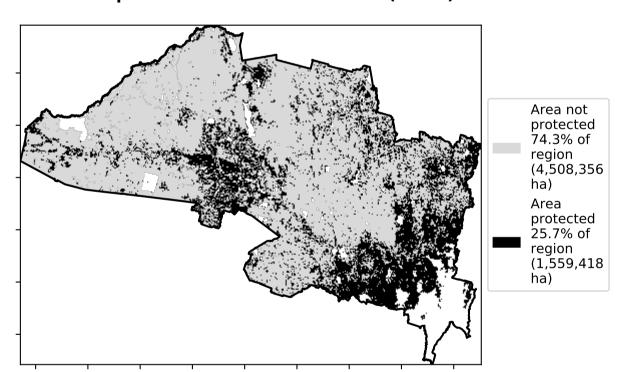


Proportion of vegetation cover class in area

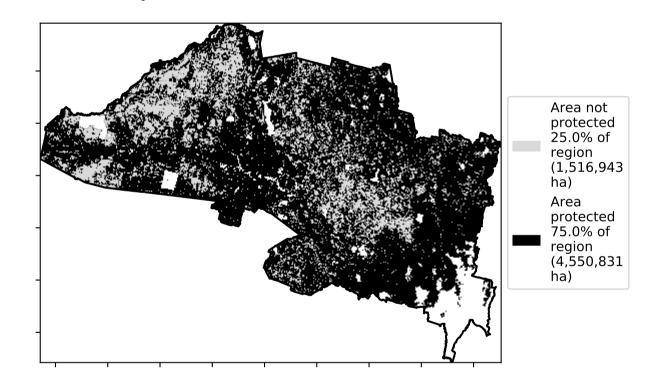
Land use class



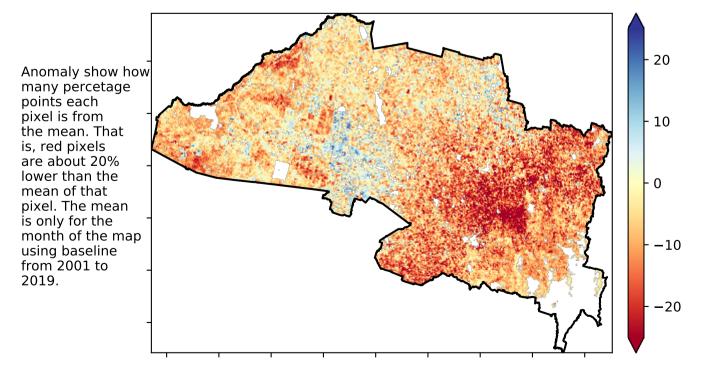
% Area protected from water erosion (>70%)



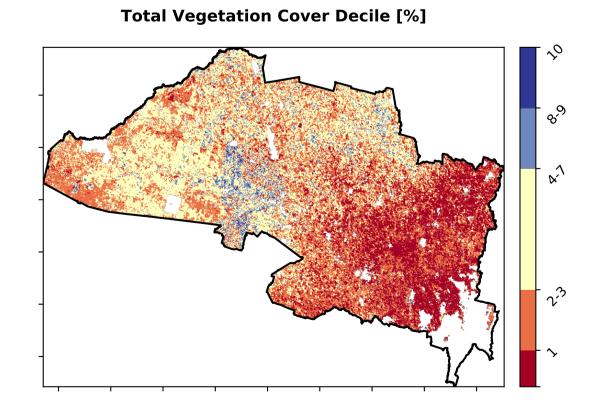
% Area protected from wind erosion (>50%)



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







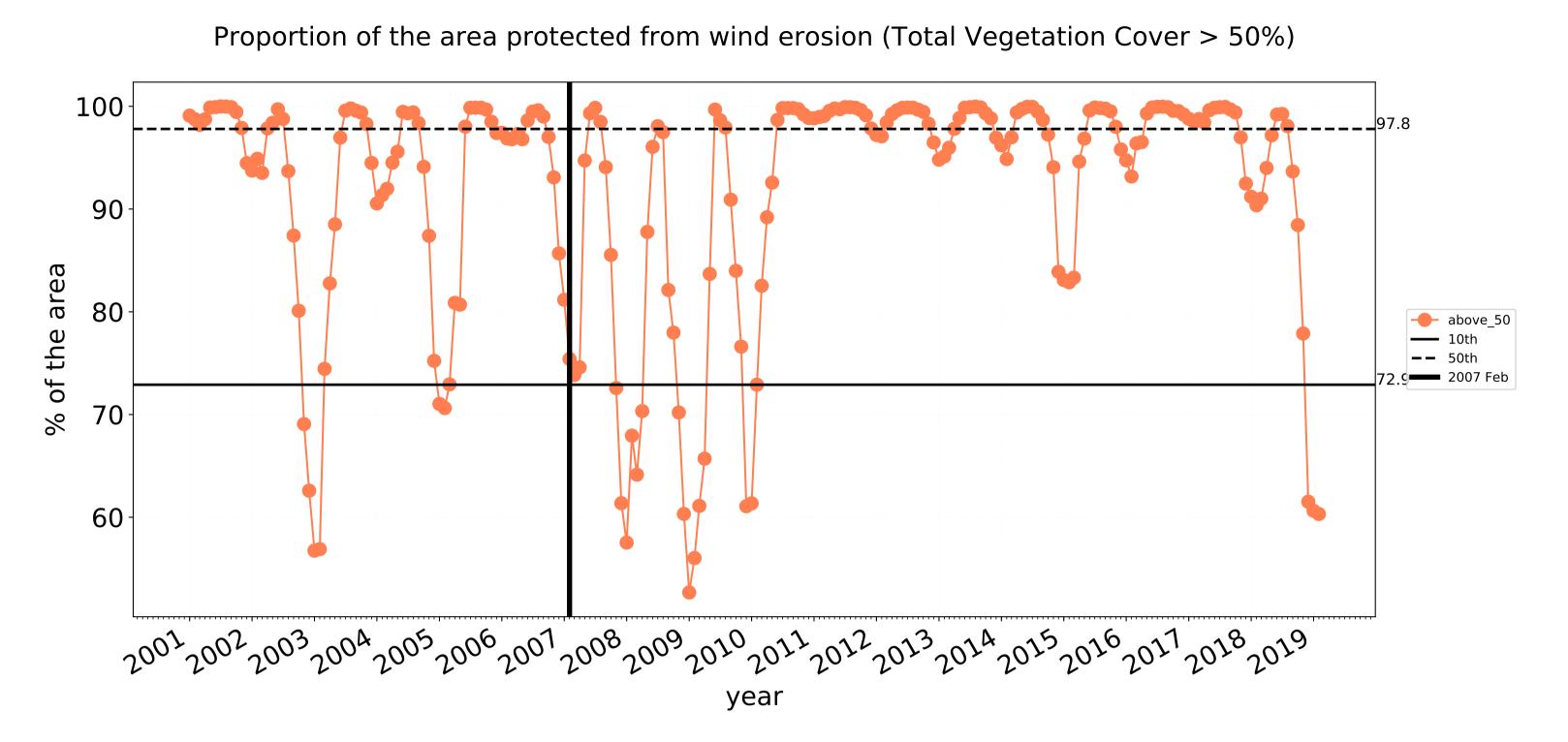


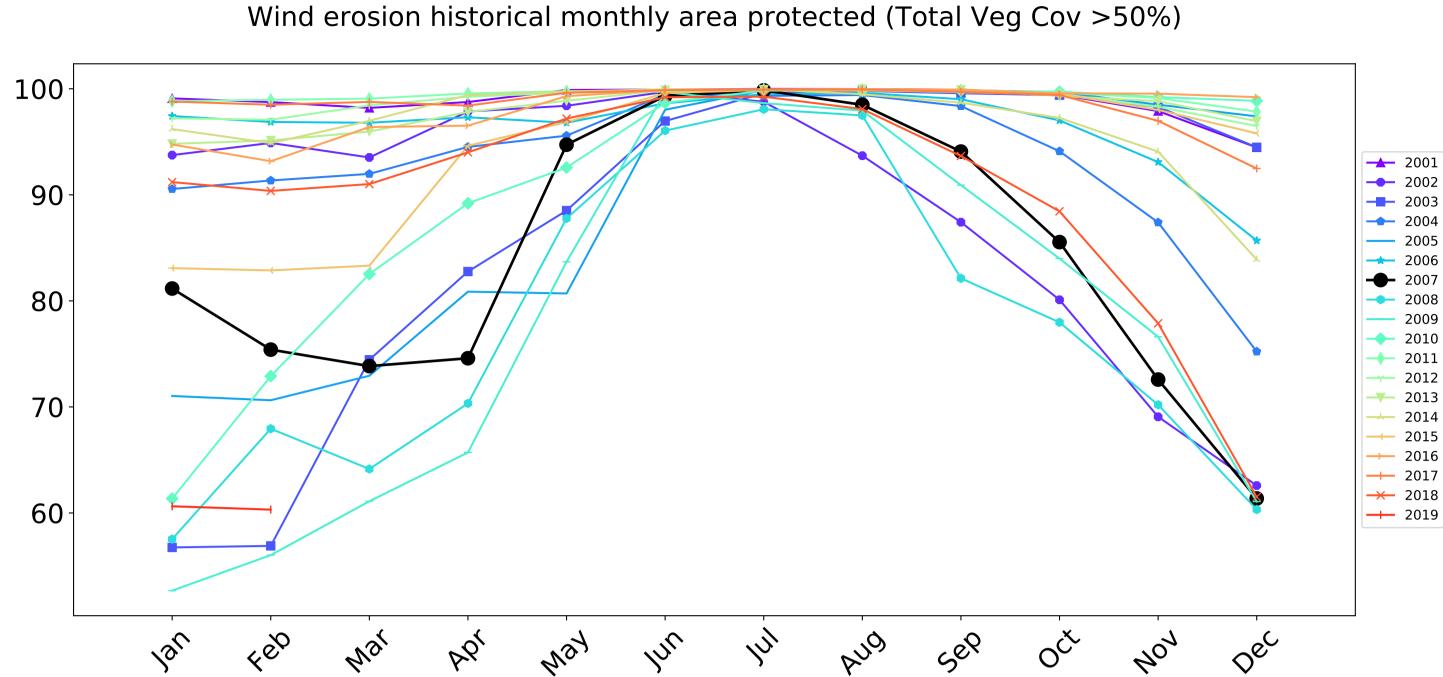




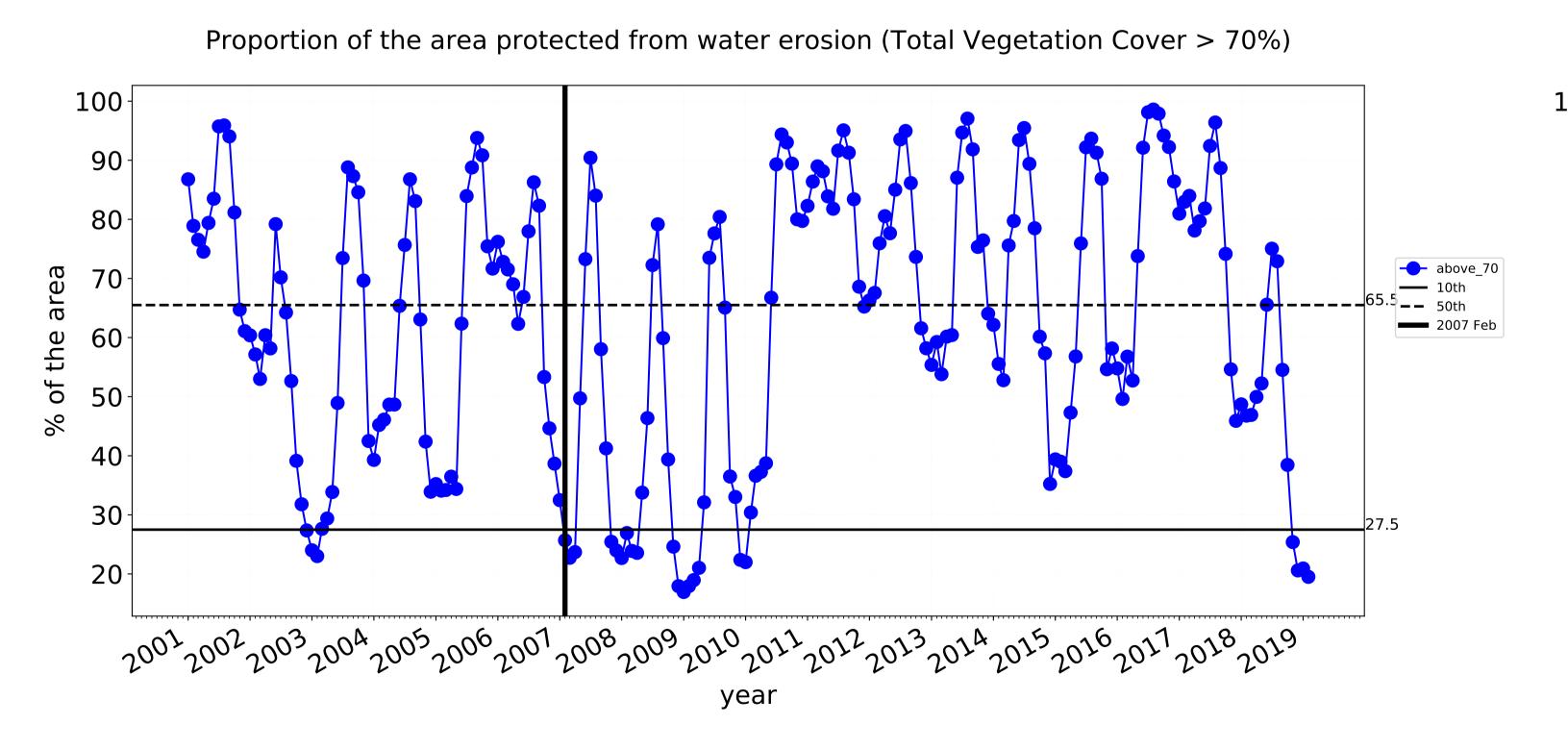


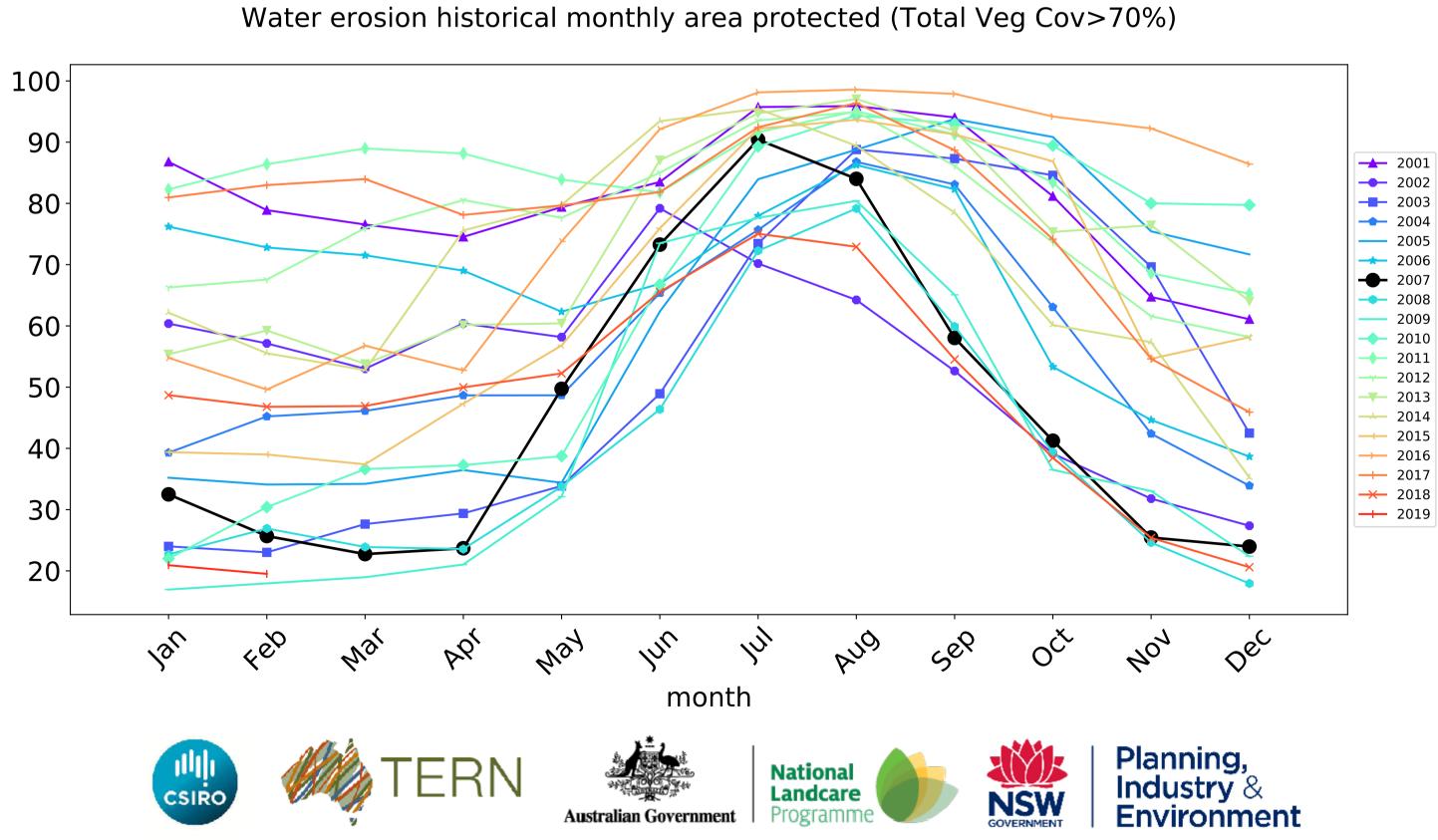
Agriculture timeseries



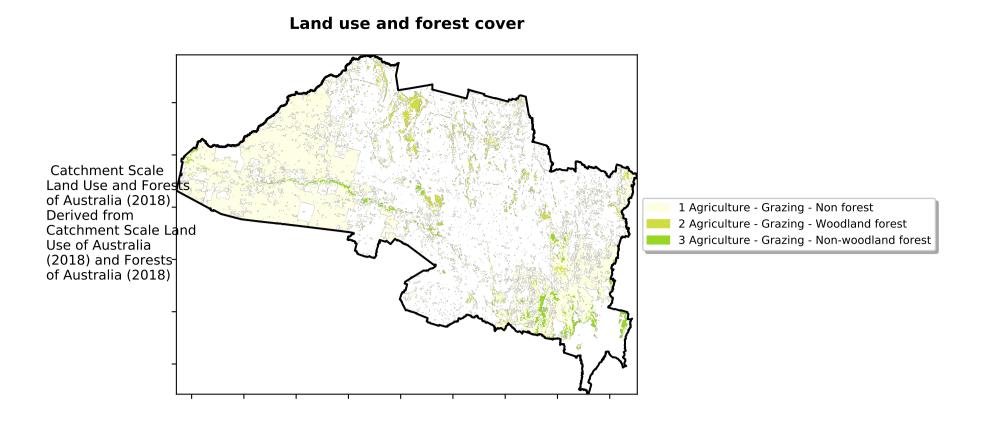


month

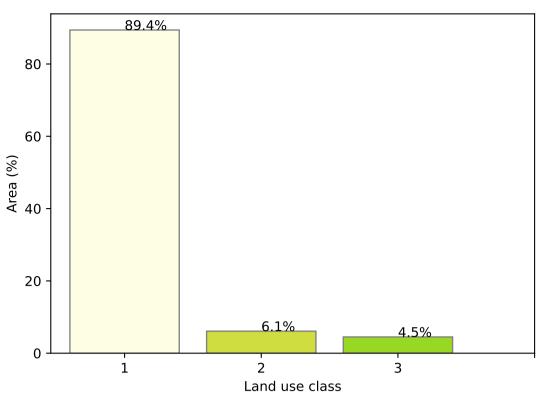




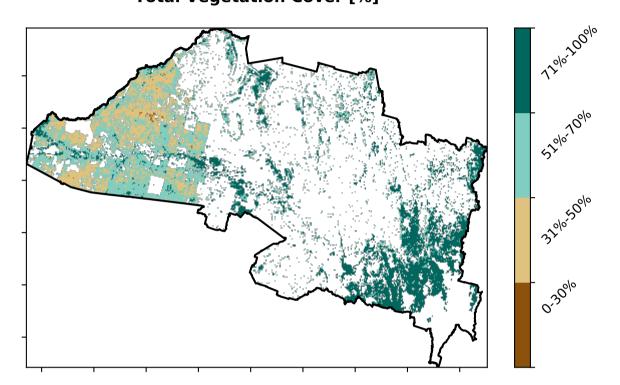
Grazing



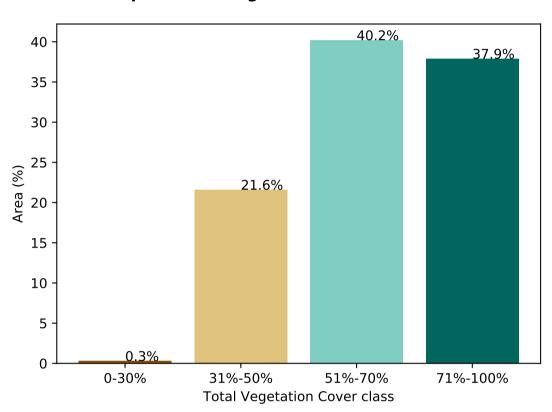
Proportion of each land class in area



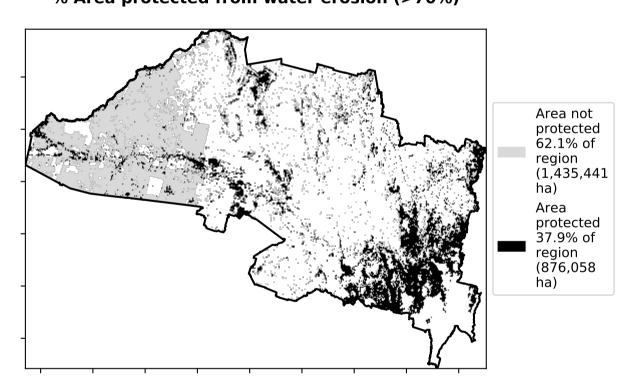
Total Vegetation Cover [%]



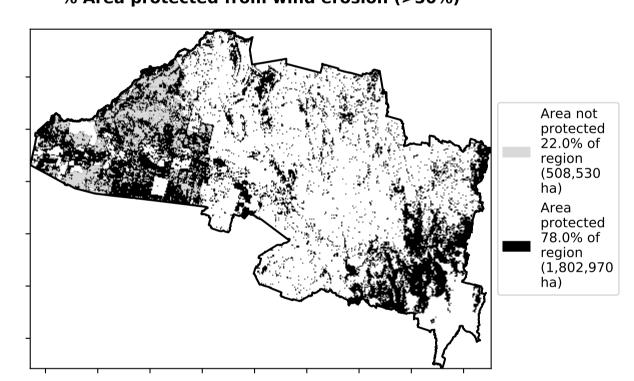
Proportion of vegetation cover class in area



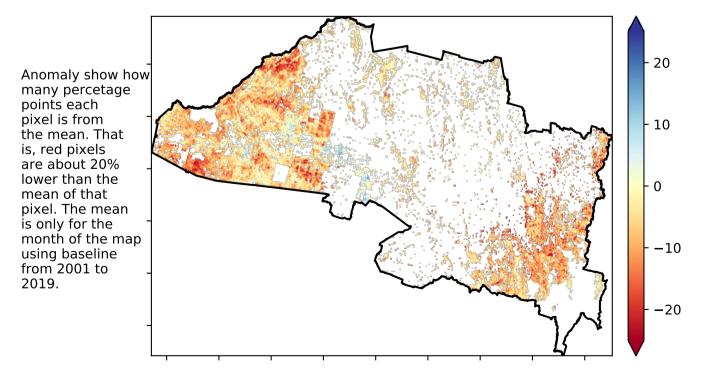
% Area protected from water erosion (>70%)



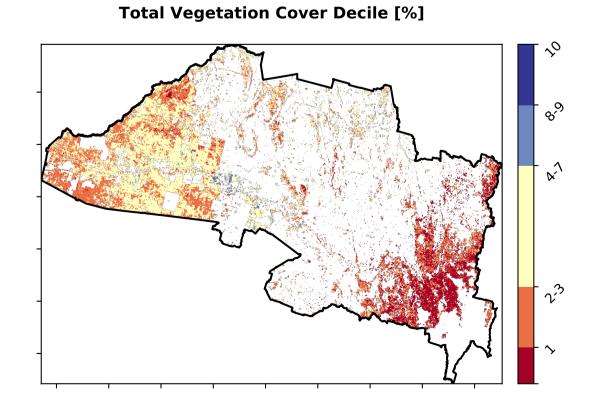
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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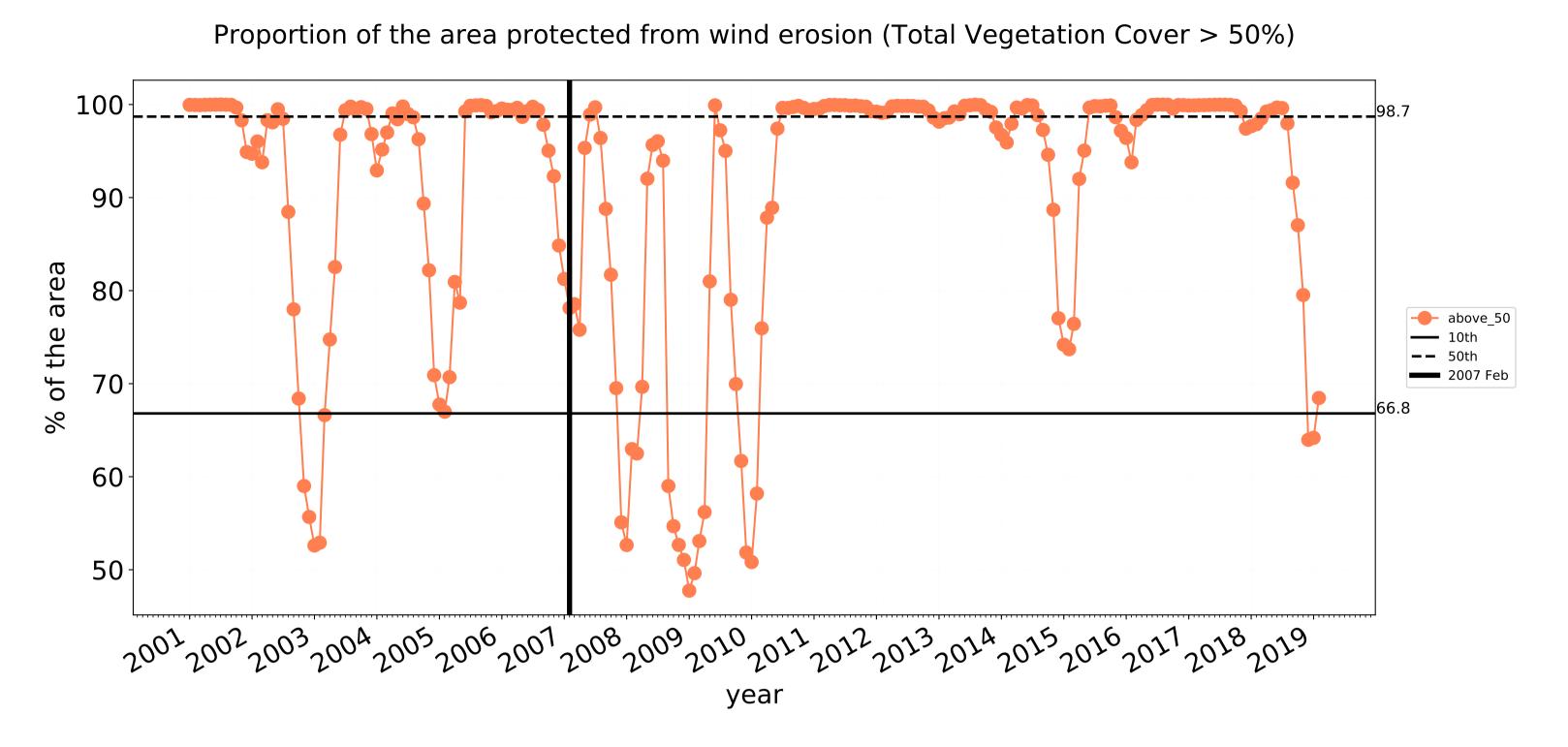


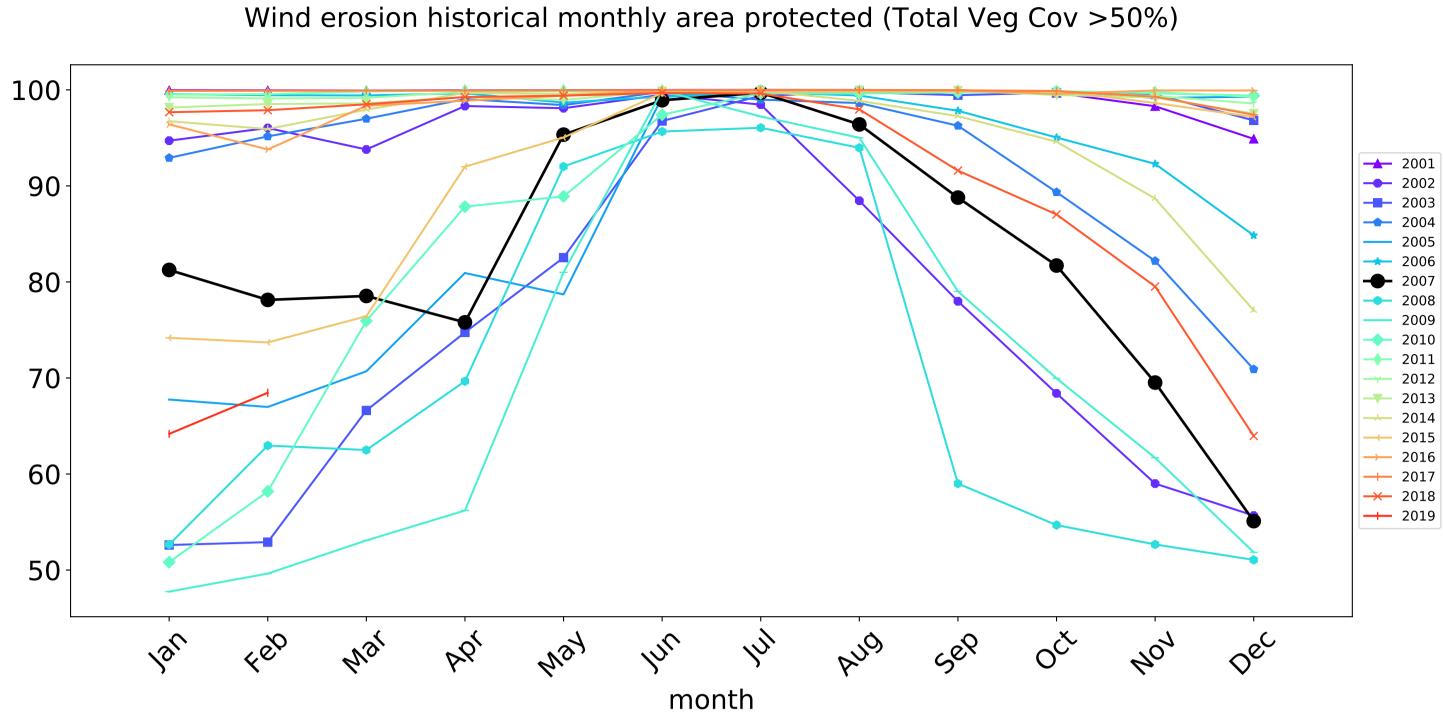


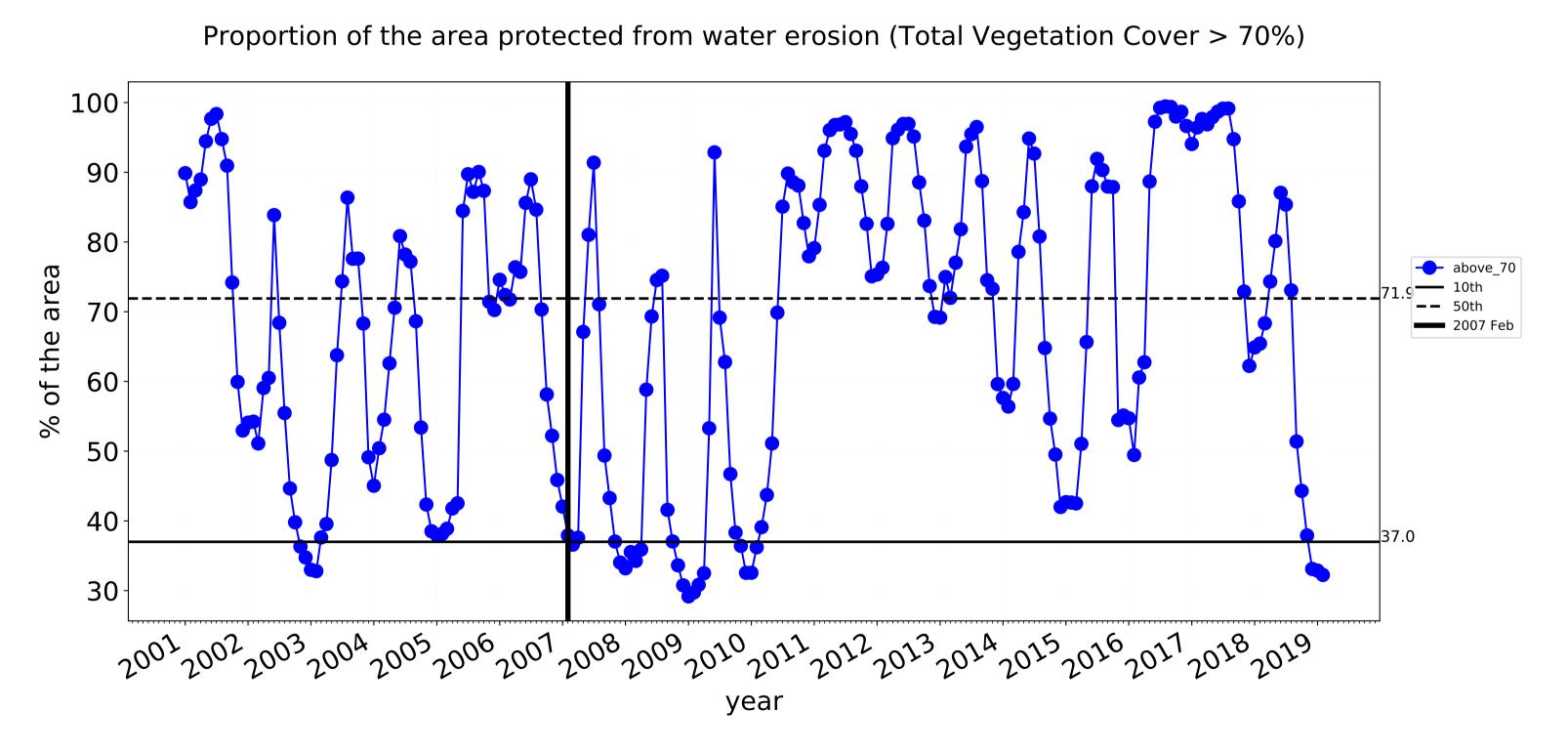


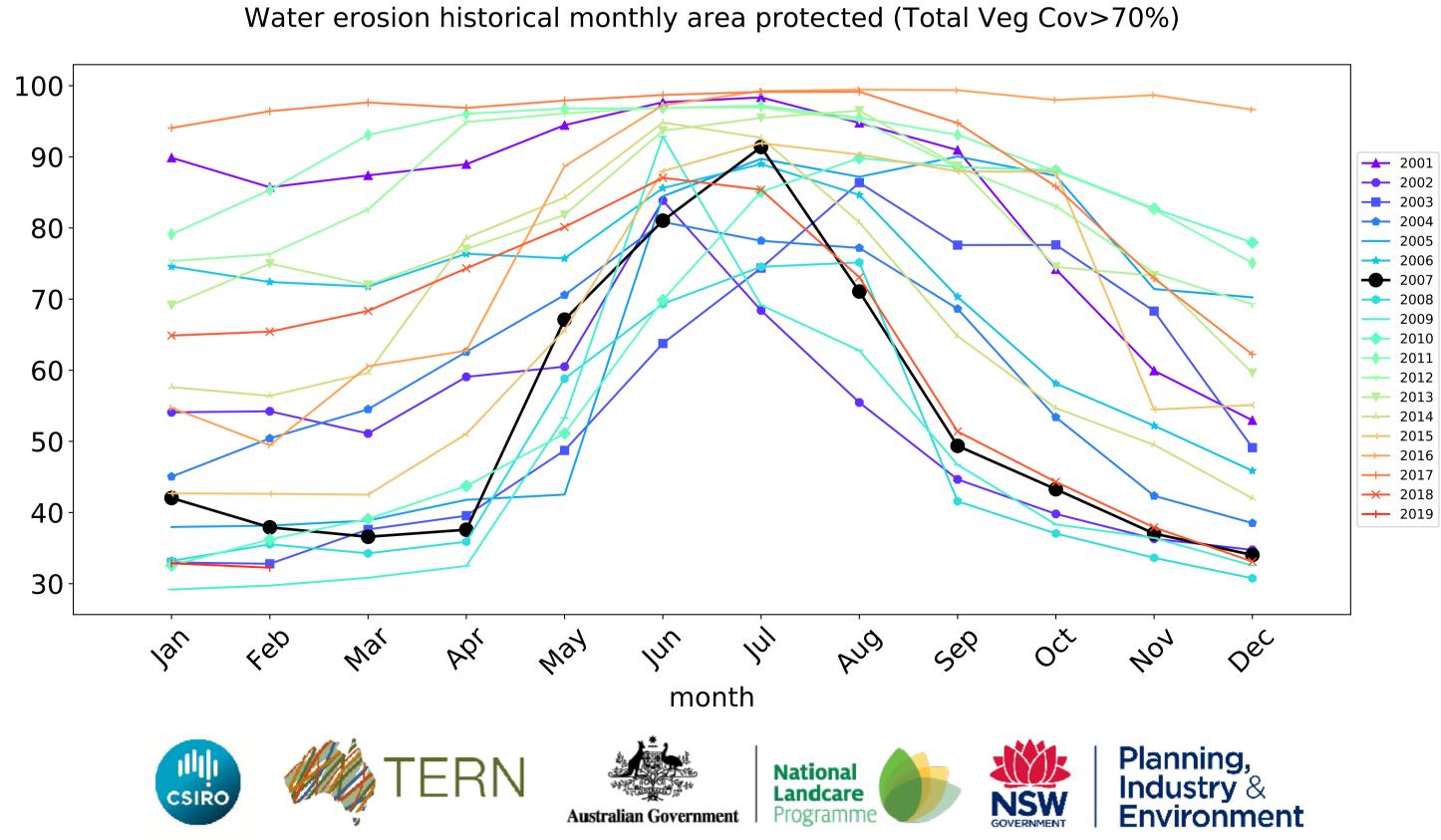


Grazing timeseries



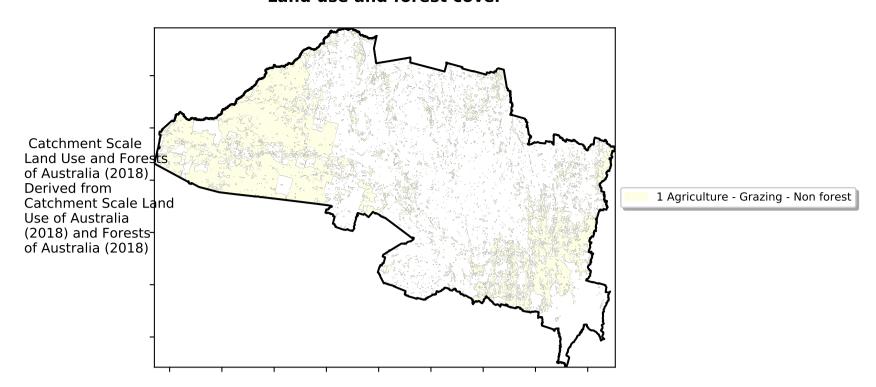




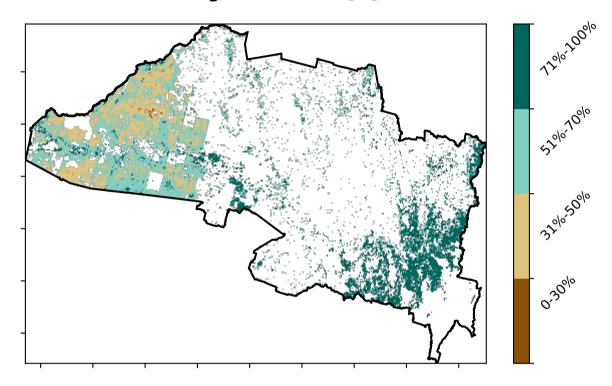


Grazing non forest

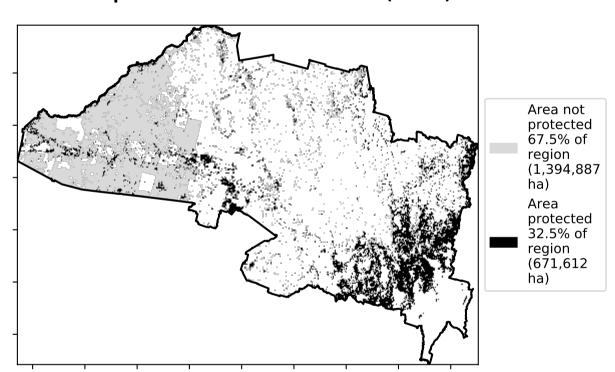
Land use and forest cover



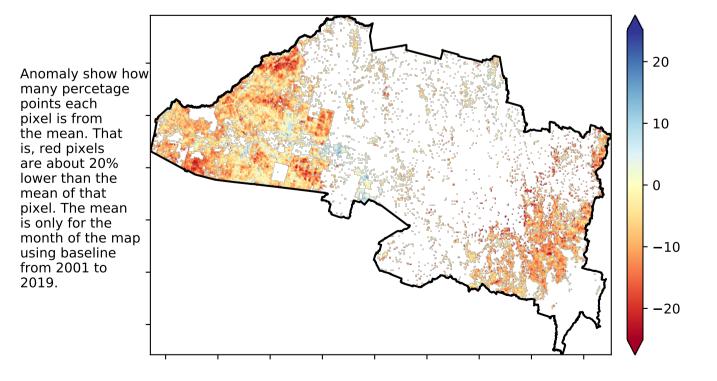
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

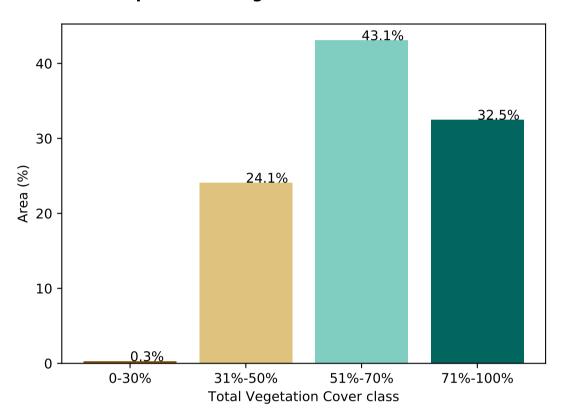


Total Vegetation Cover Anomaly [%]

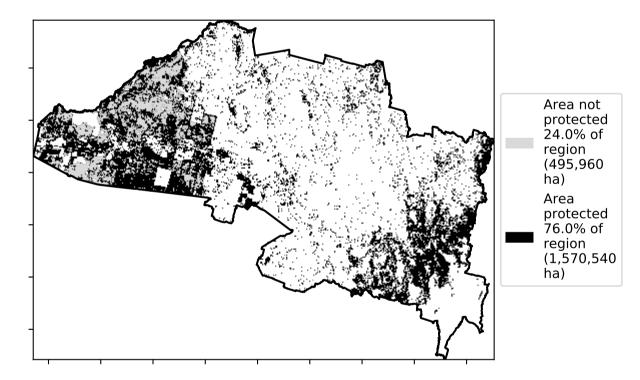


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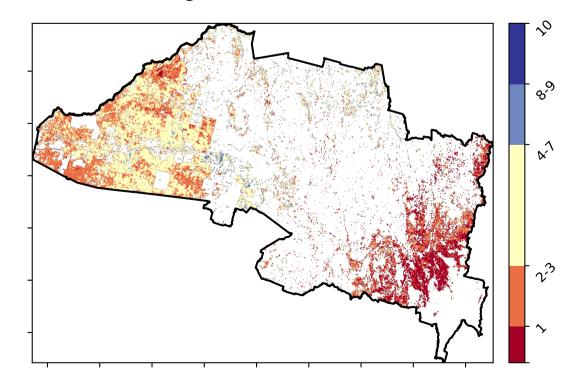
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







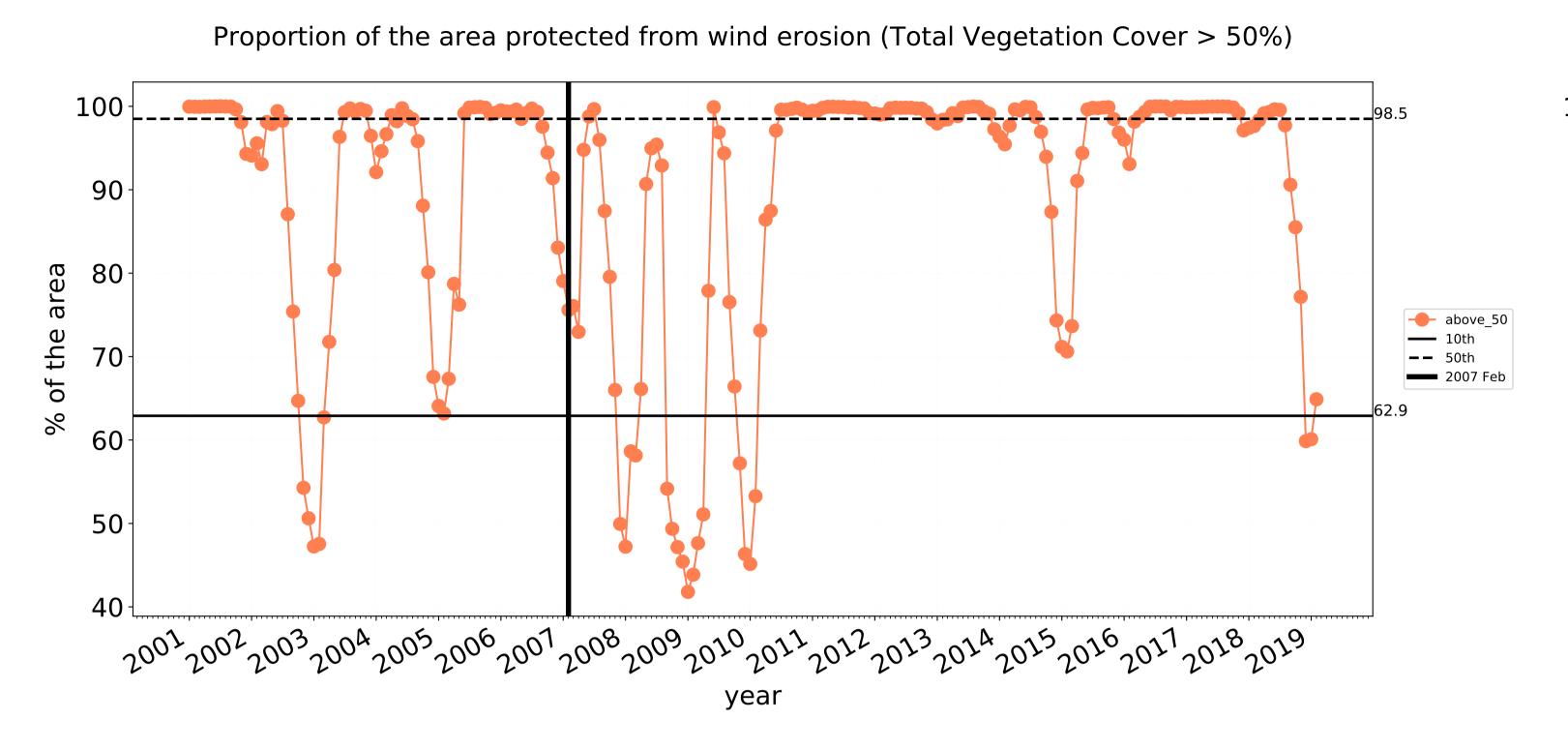


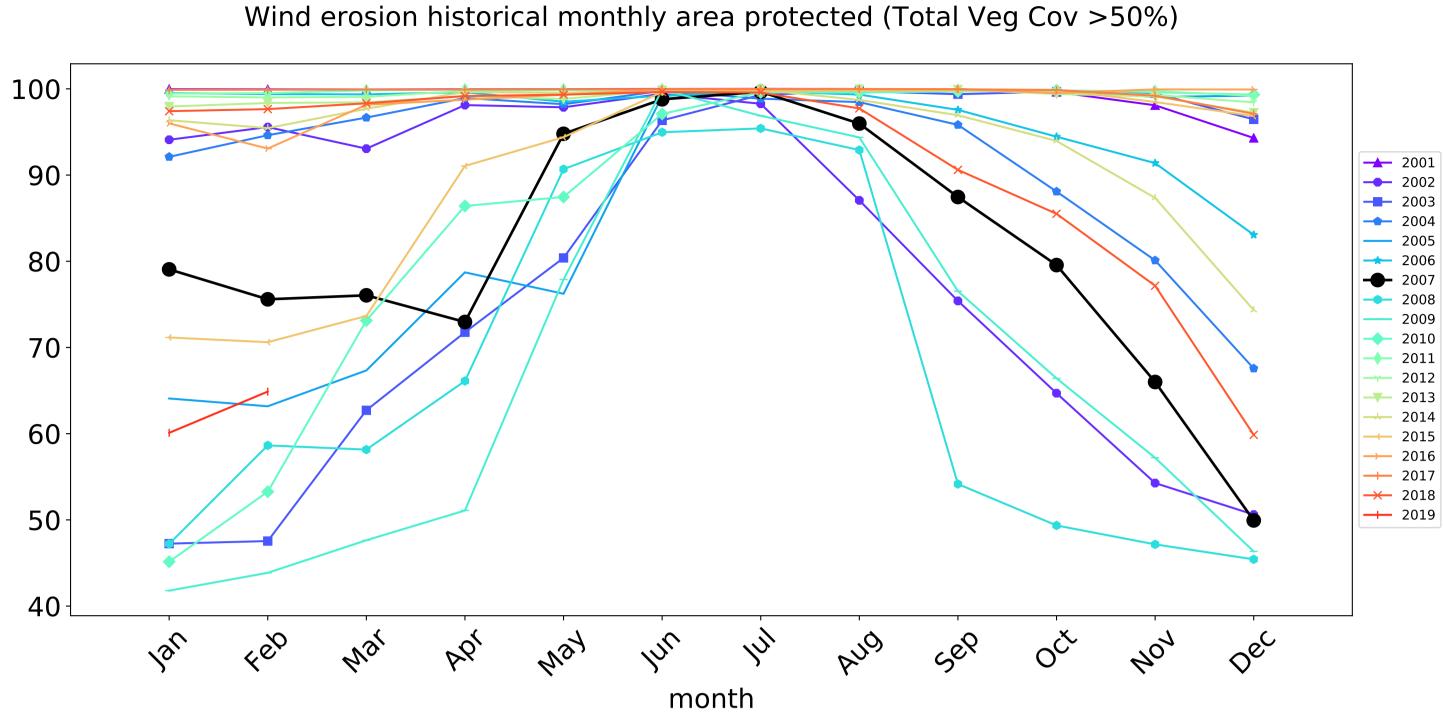


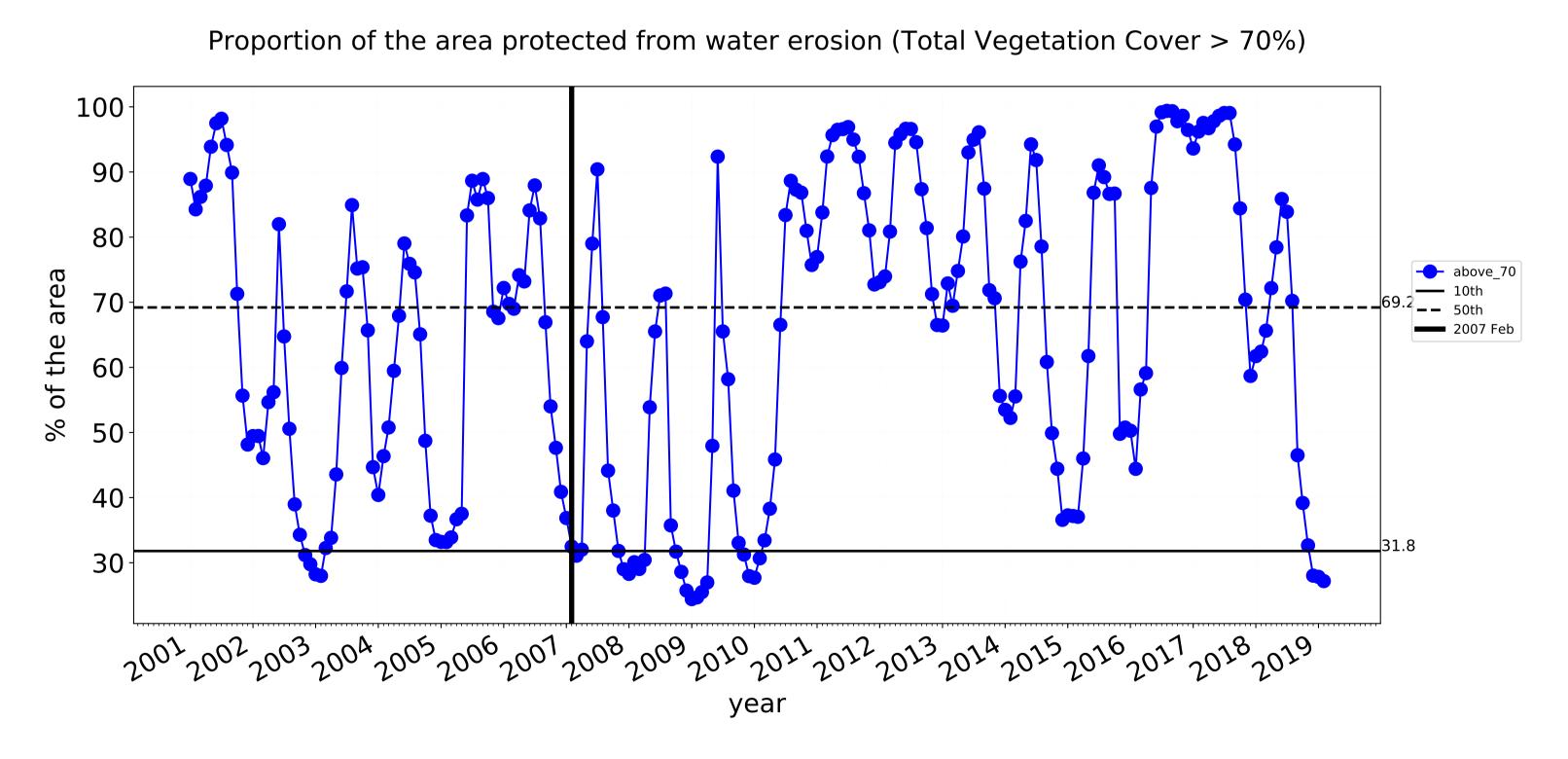


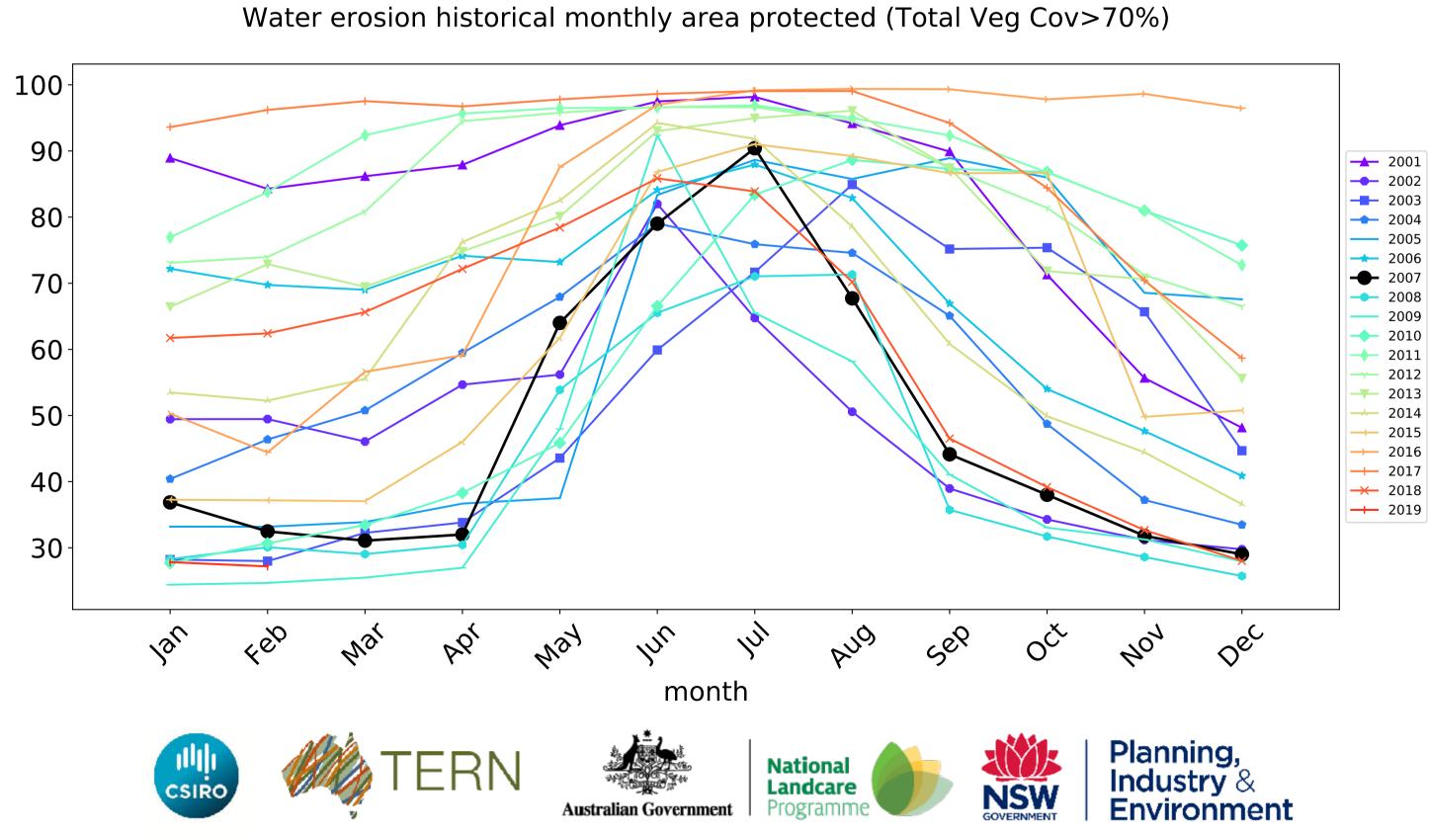


Grazing non forest timeseries



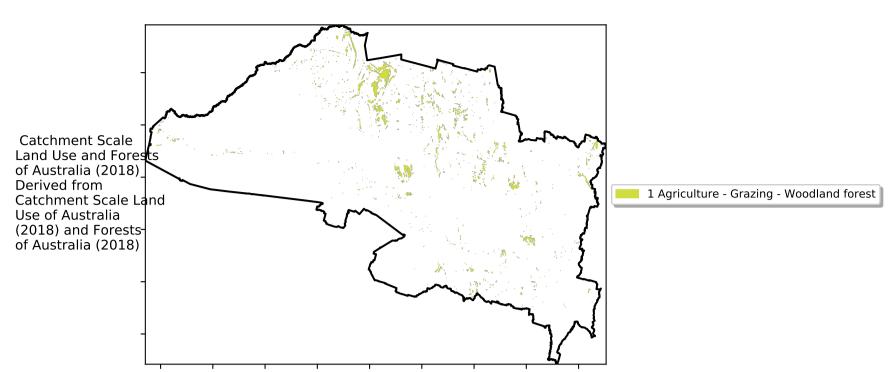




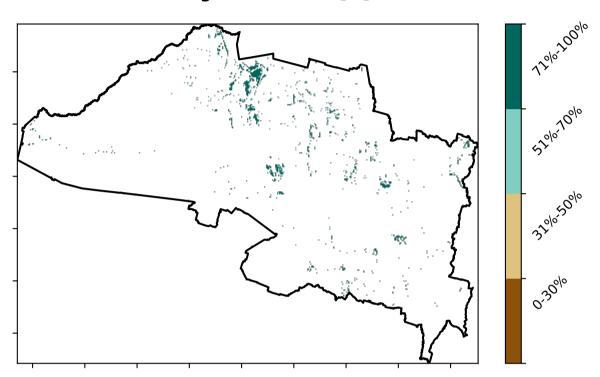


Grazing Woodland forest

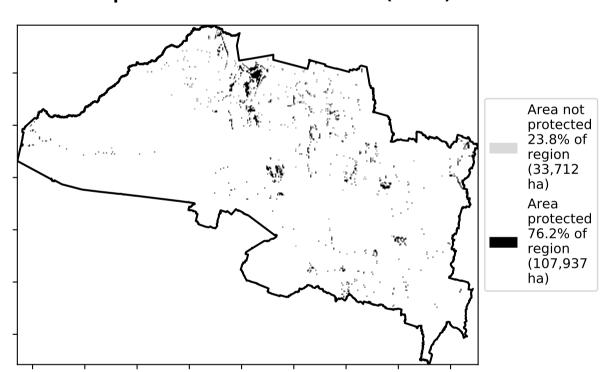
Land use and forest cover



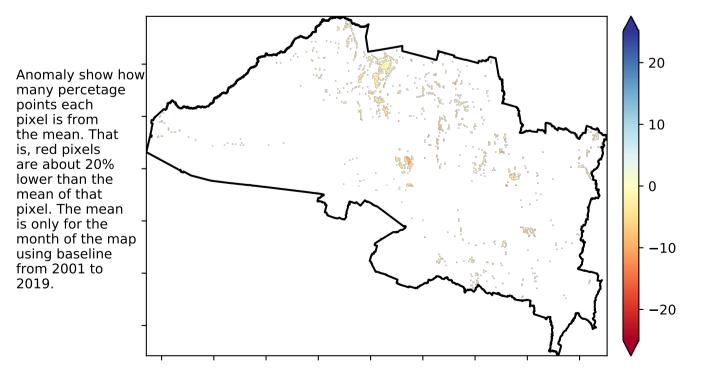
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

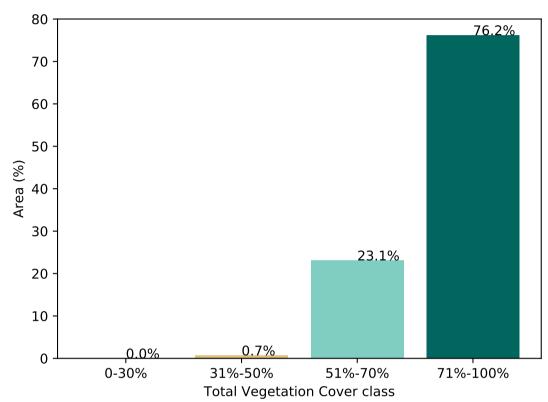


Total Vegetation Cover Anomaly [%]

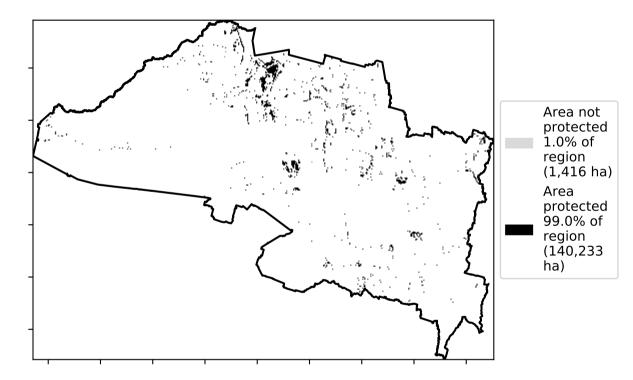


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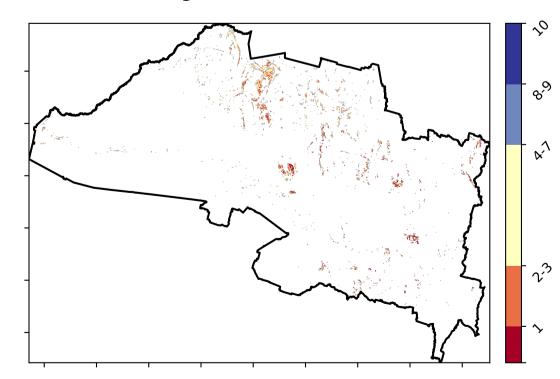
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







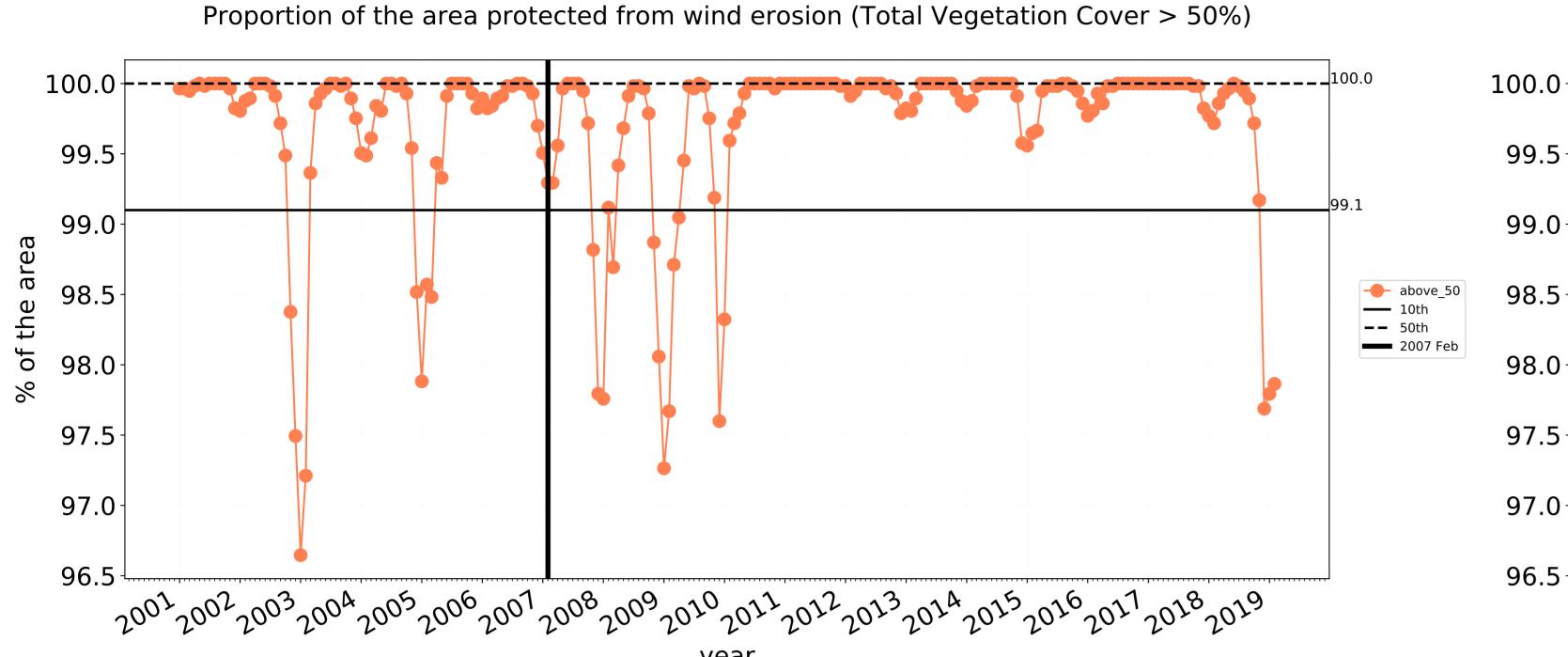


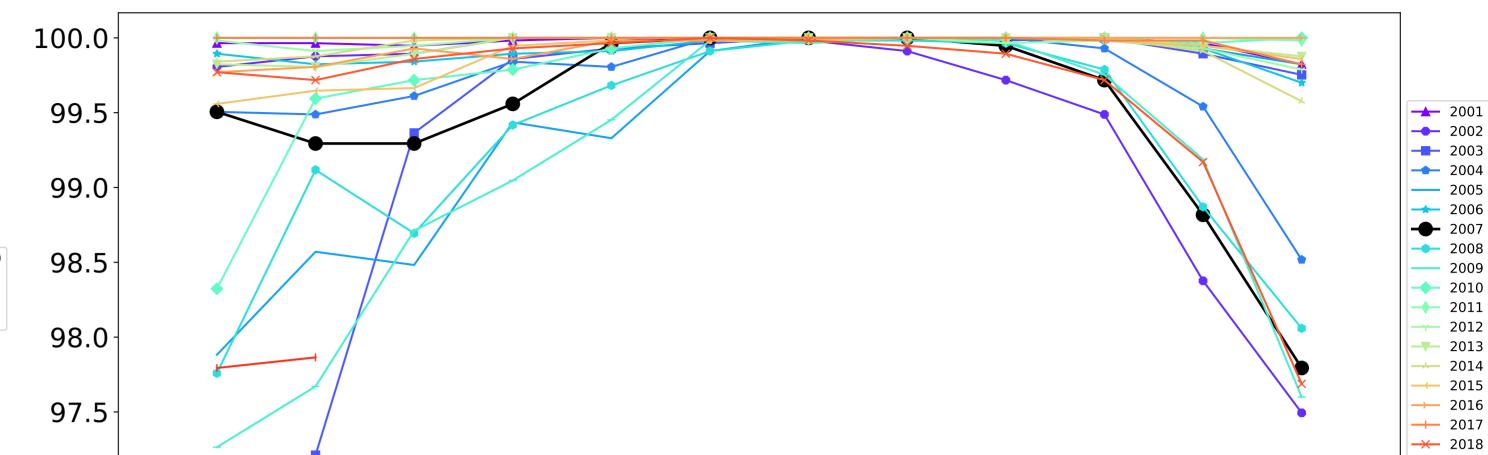






Grazing Woodland forest timeseries

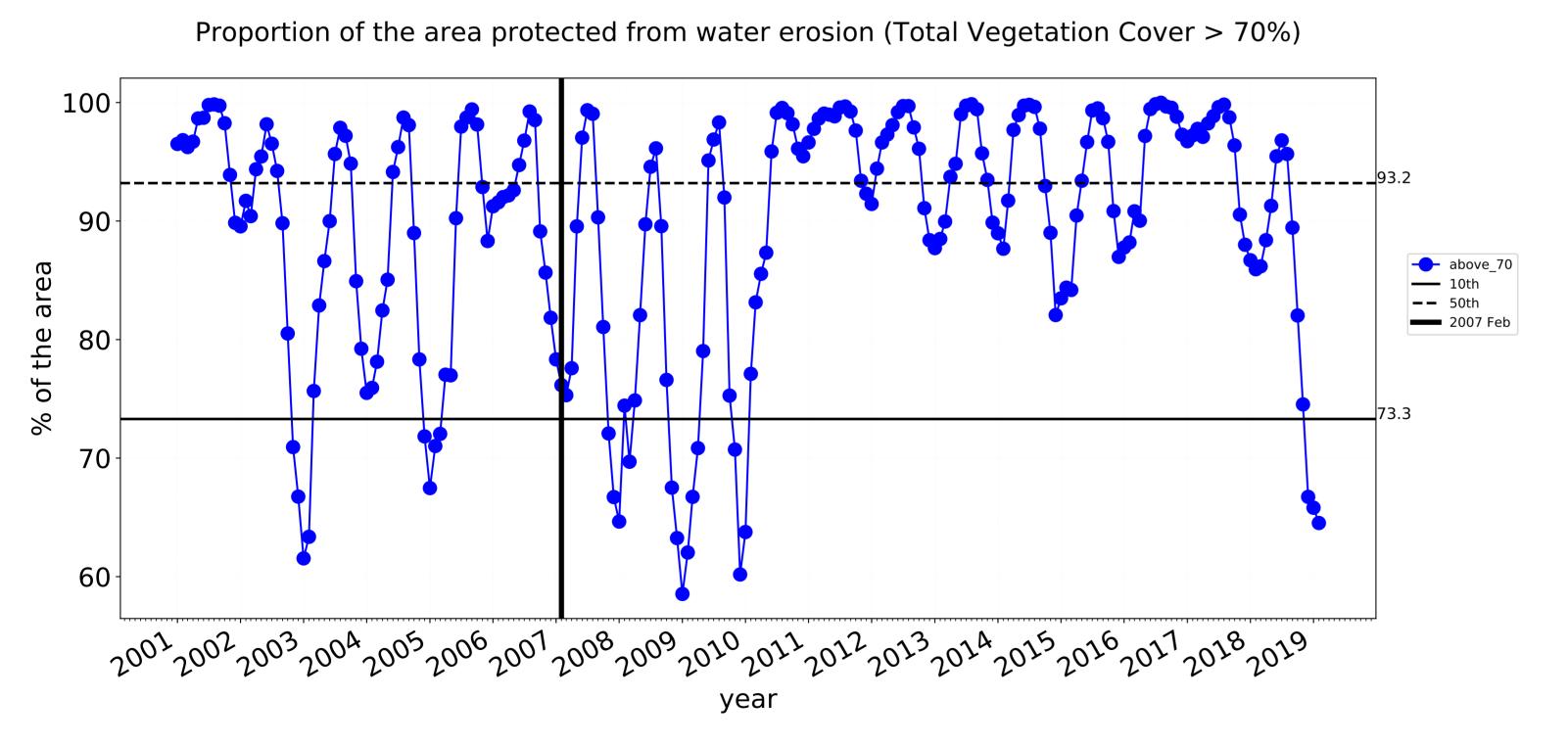


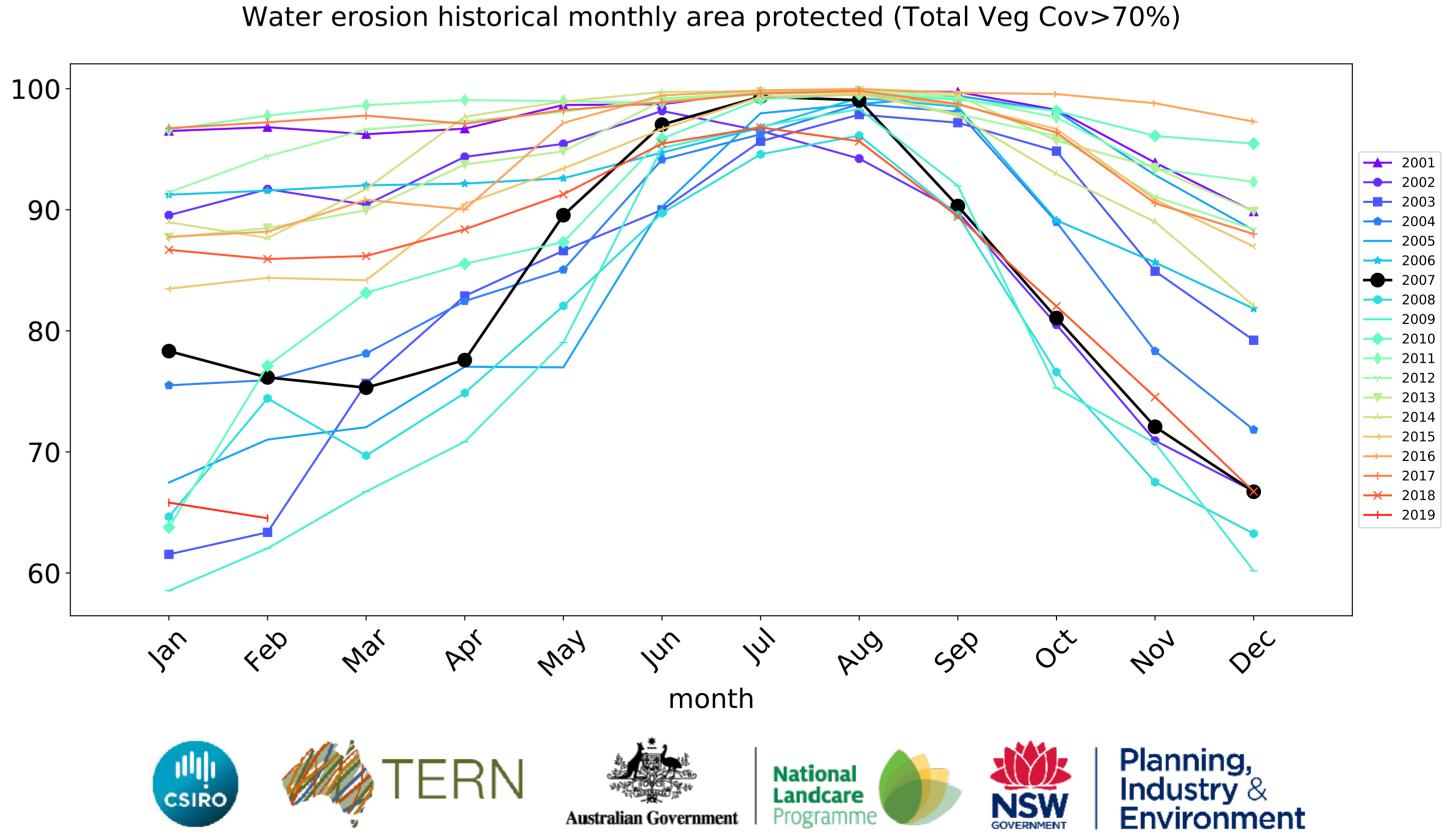


month

→ 2019

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



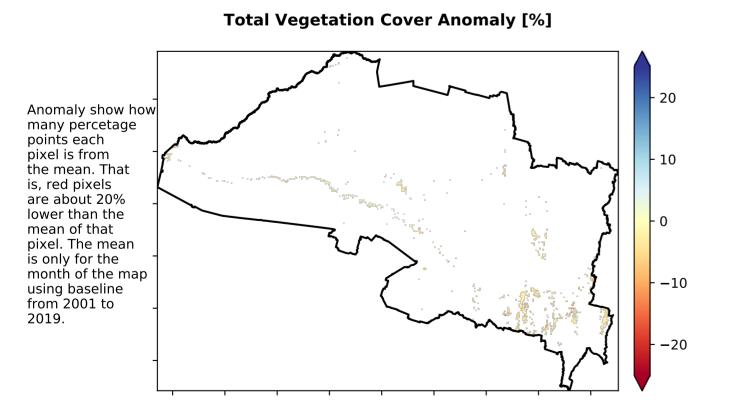


Grazing - Forest (non woodland)

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

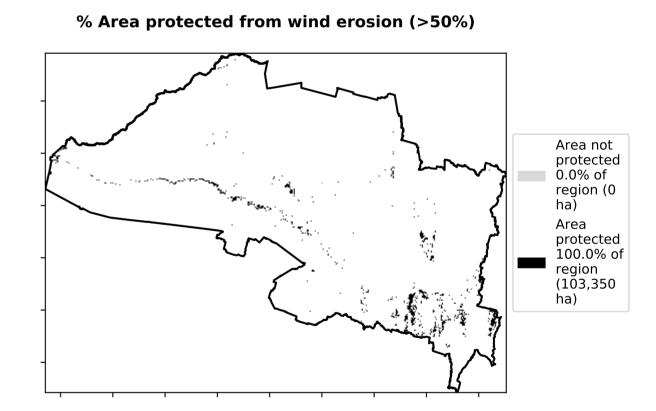
Total Vegetation Cover [%]

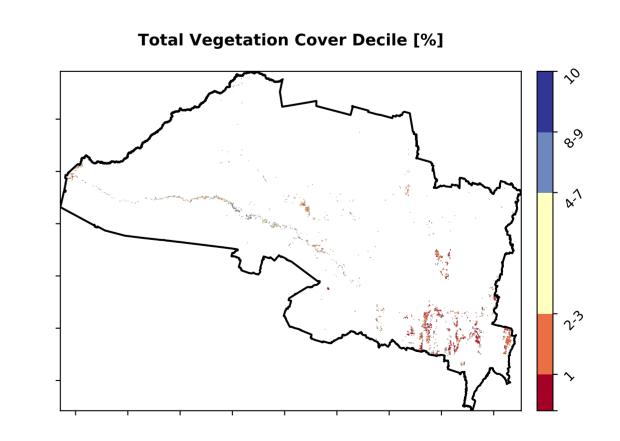
Area not protected 5.6% of region (5,787 ha) Area protected 94.4% of region (97,562 ha)



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 map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area 94.4% 80 60 20 0-30% 31%-50% 5.6% Total Vegetation Cover class







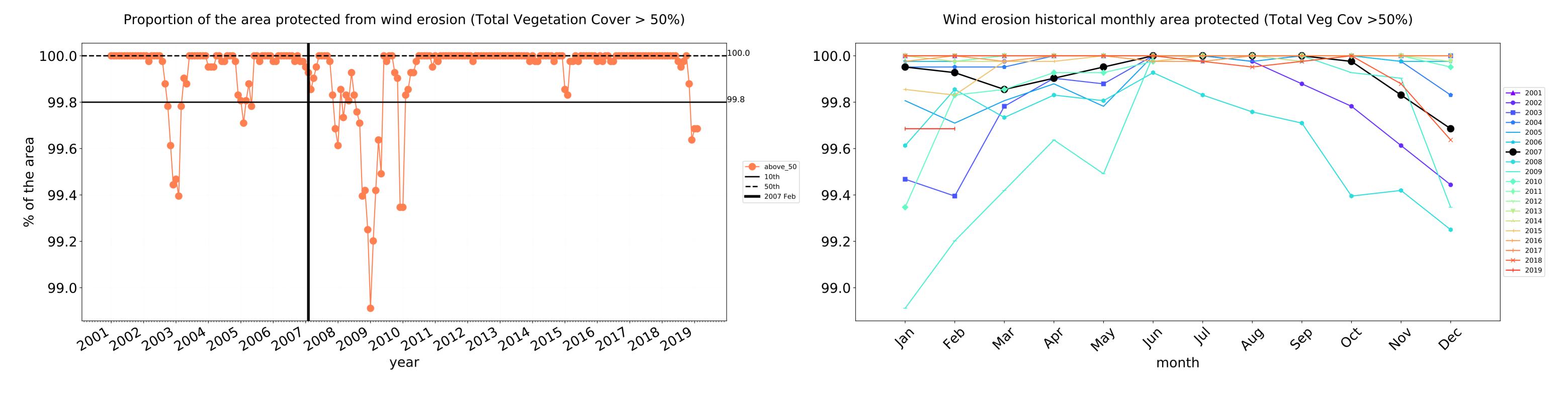


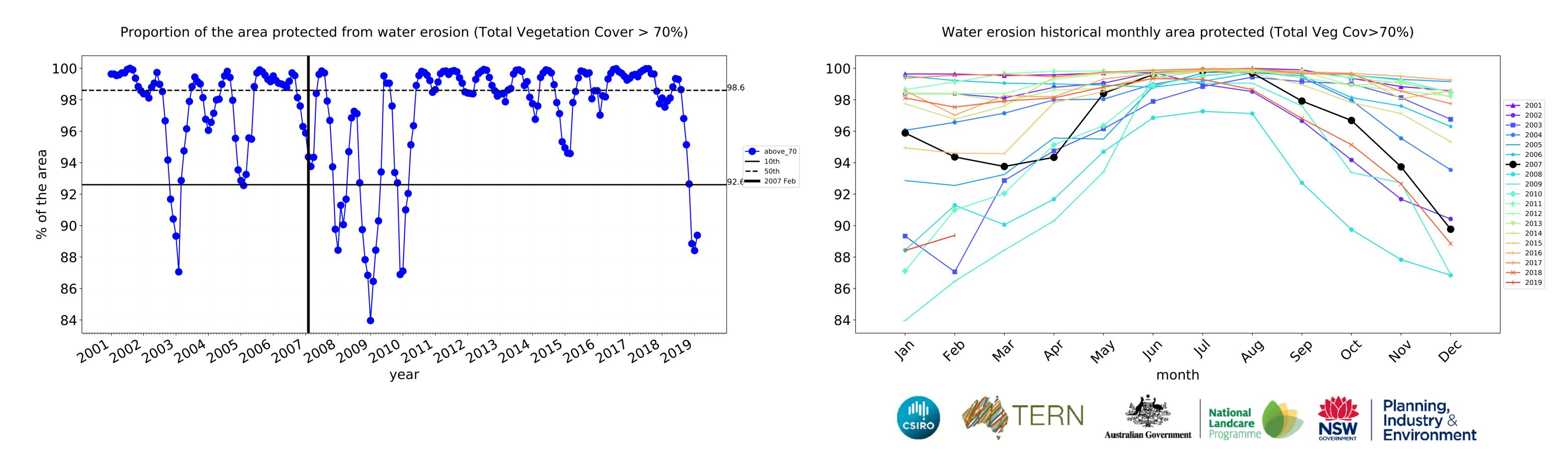






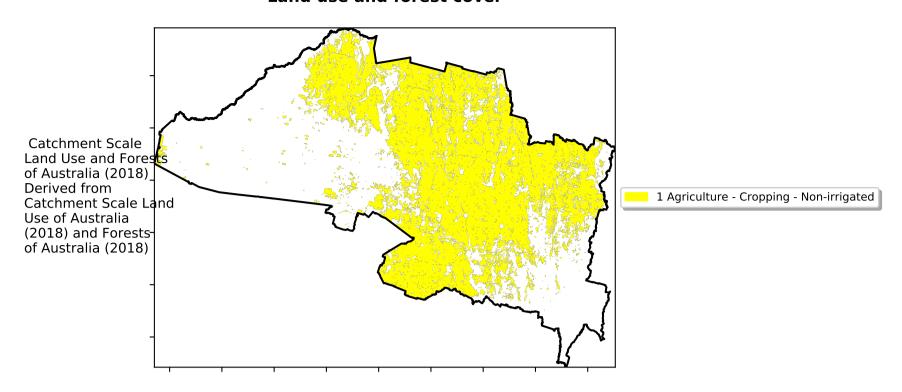




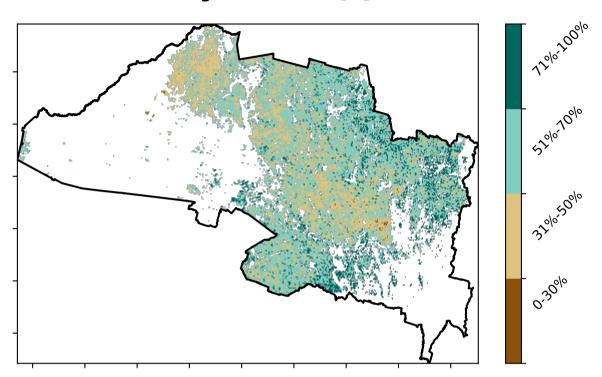


Cropping

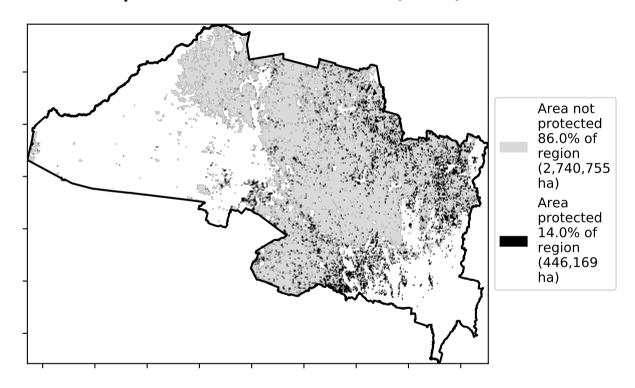
Land use and forest cover



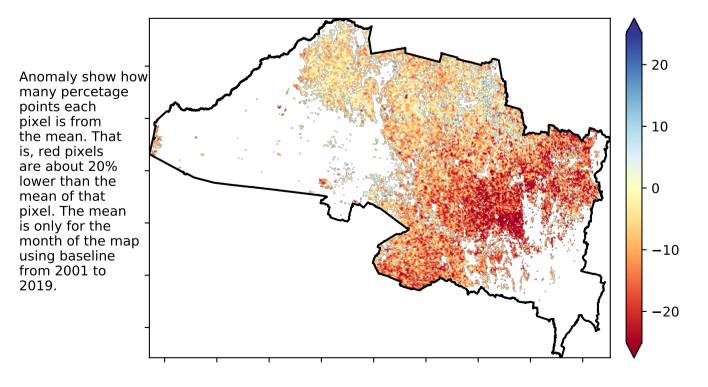
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

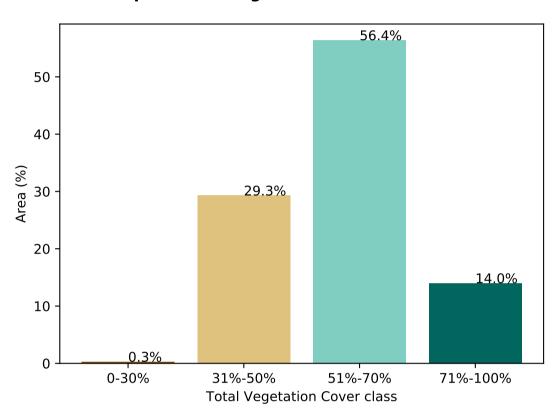


Total Vegetation Cover Anomaly [%]

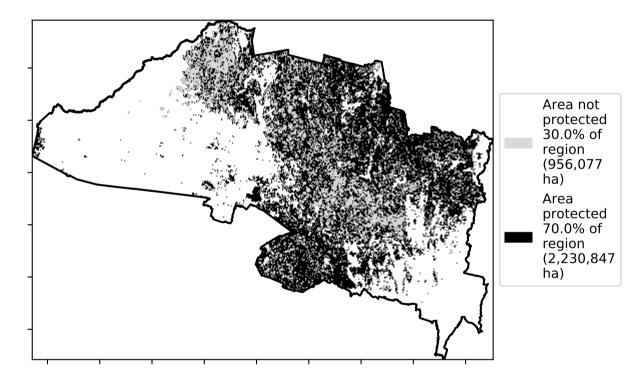


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

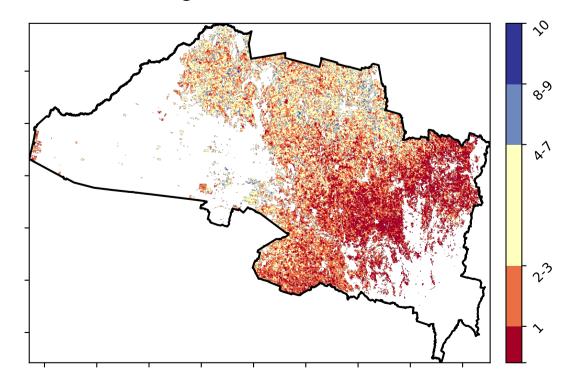
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







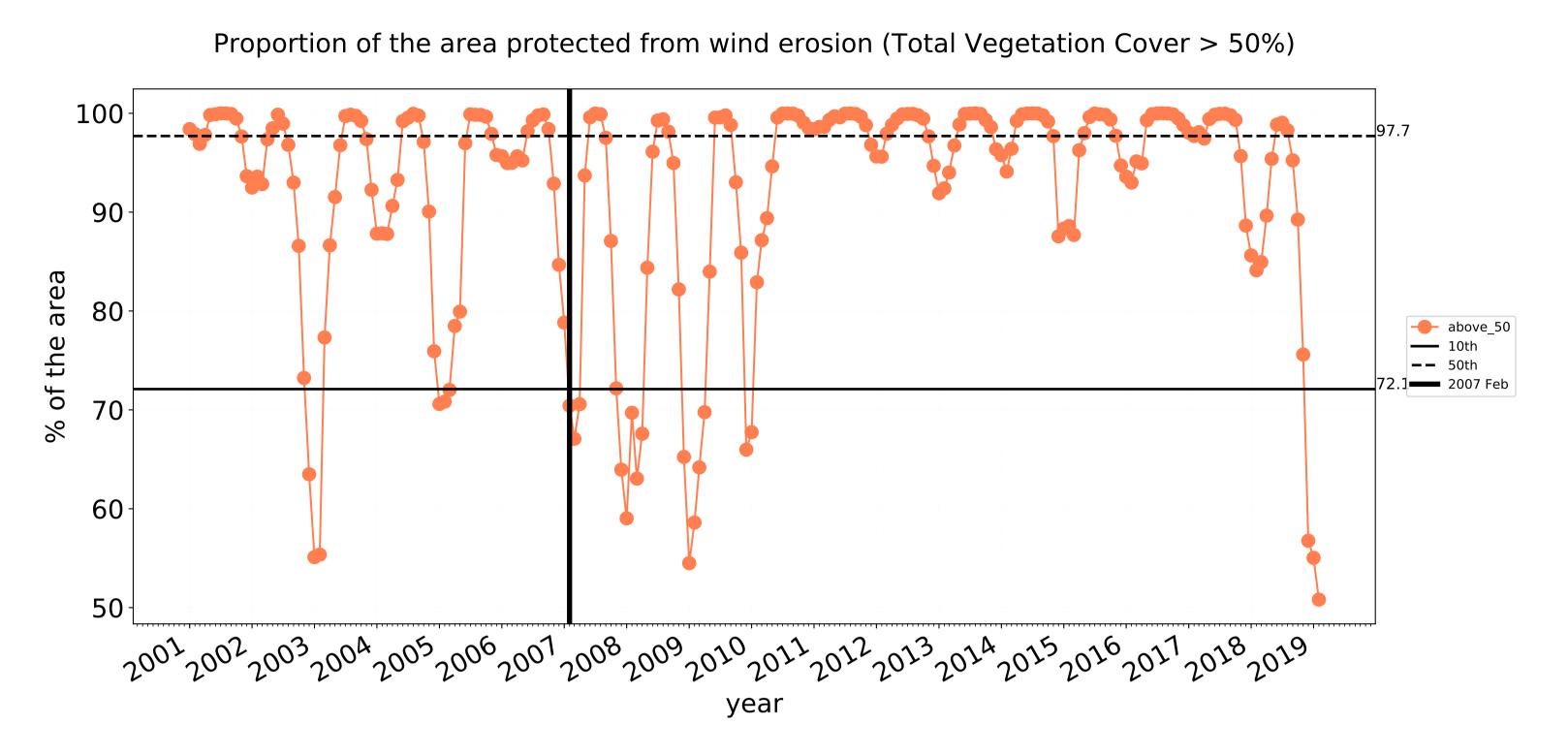


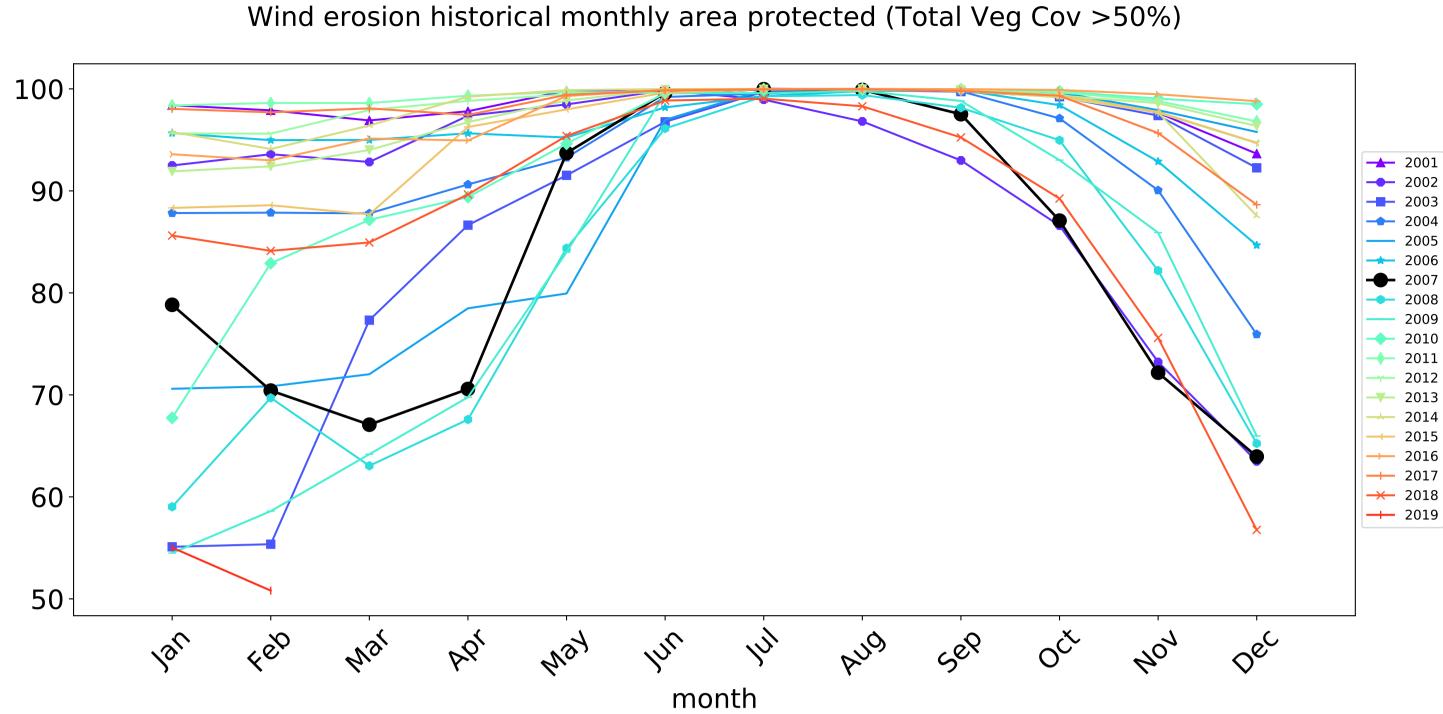


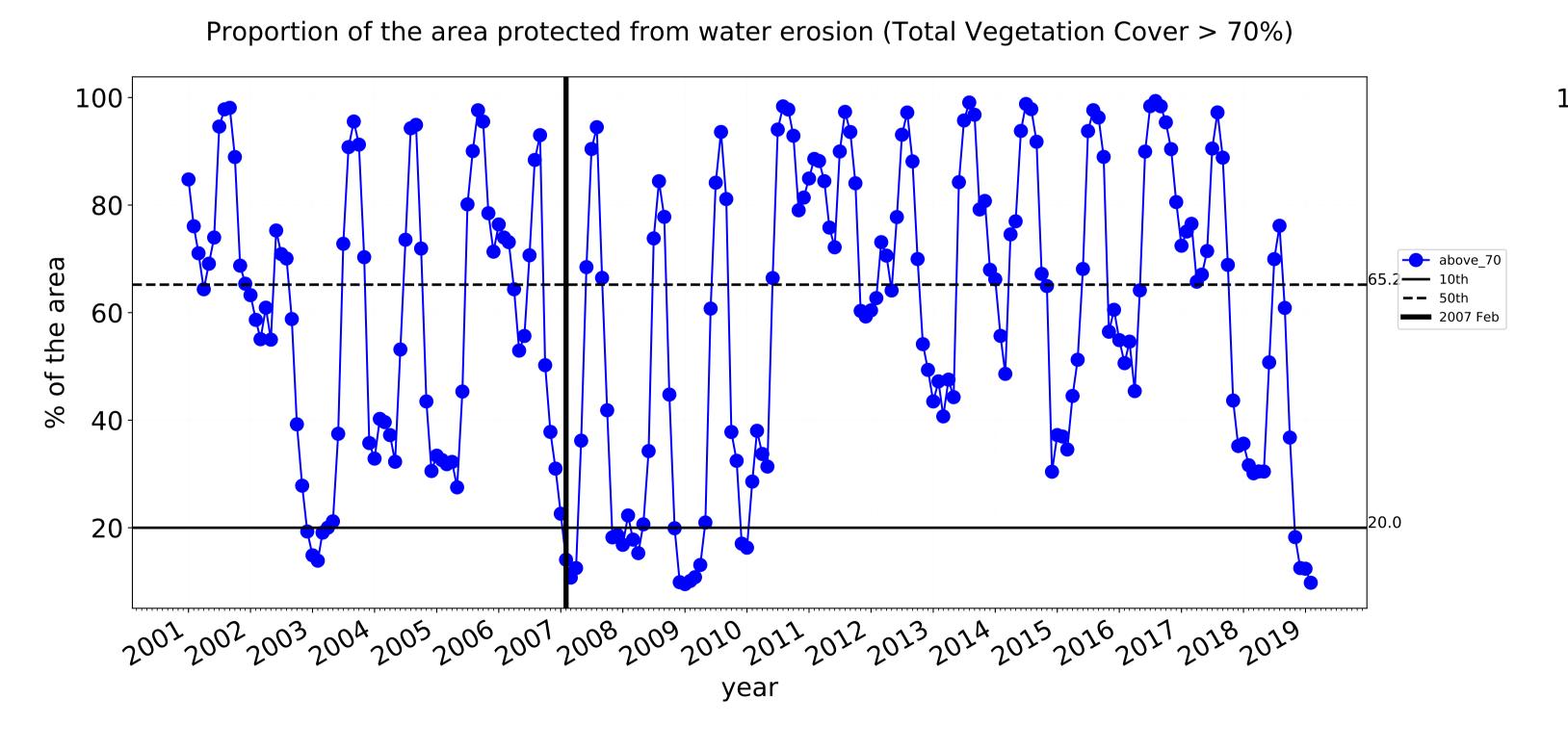


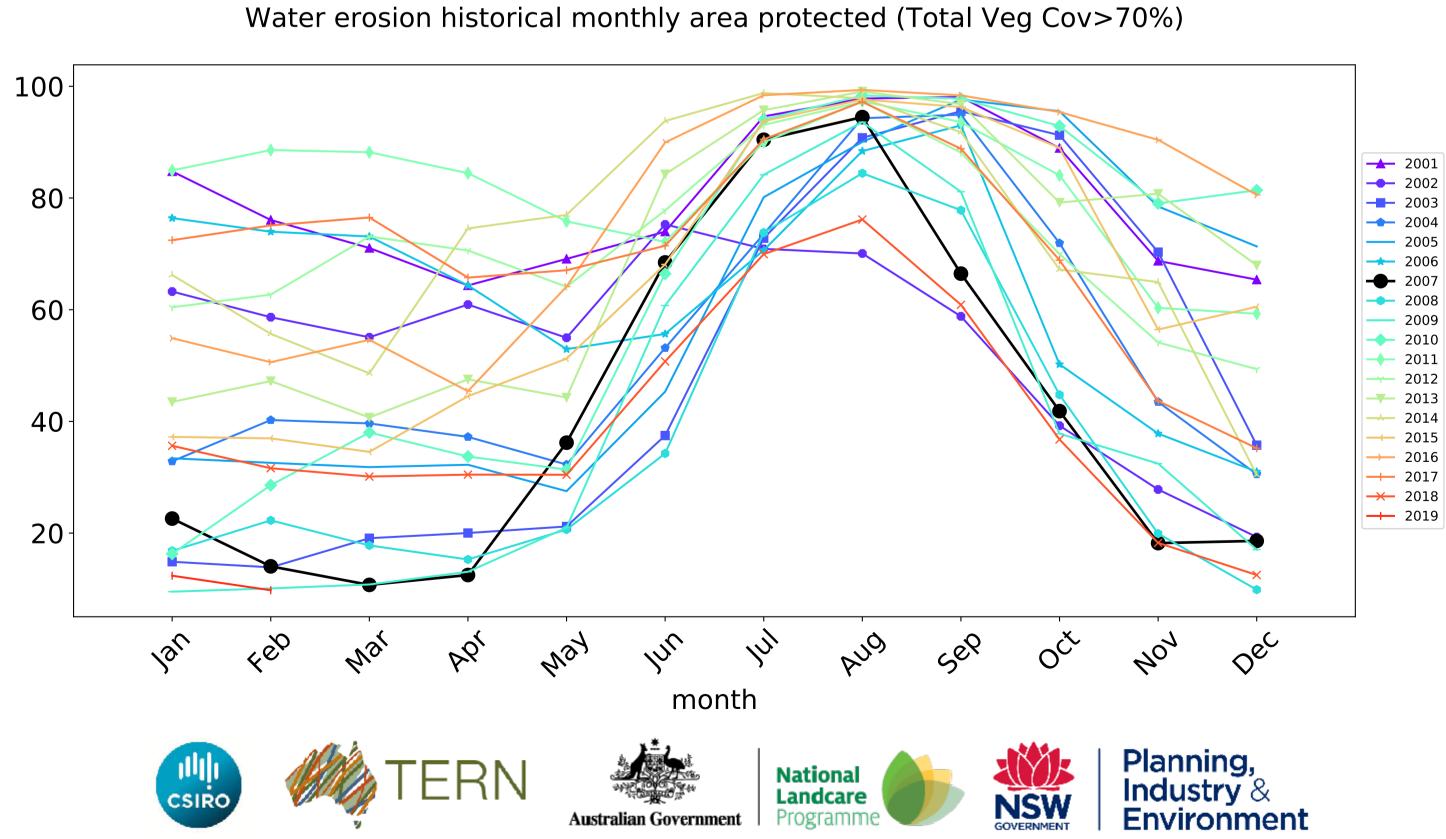


Cropping timeseries





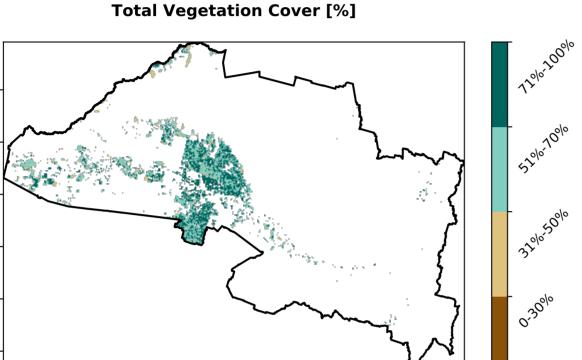


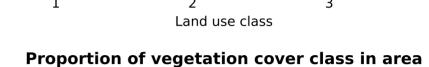


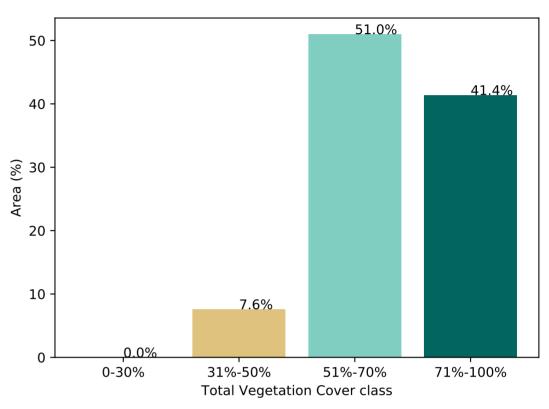
Irrigation

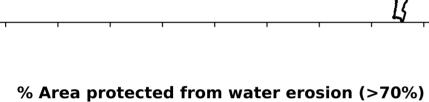
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 1 Agriculture - Grazing - Irrigated 2 Agriculture - Cropping - Irrigated 3 Agriculture - Horticulture - Irrigated

Proportion of each land class in area 83.9% 80 70 60 Area (%) 30 20 9.7% 10 6.4% 2 3



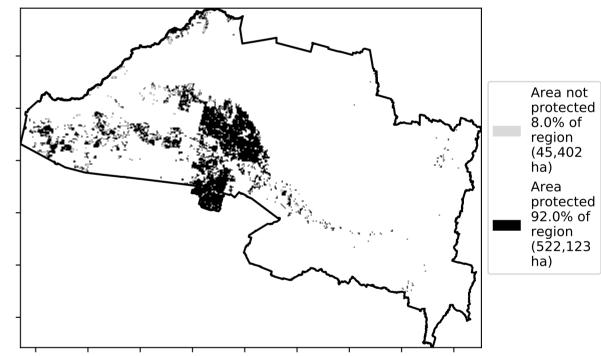


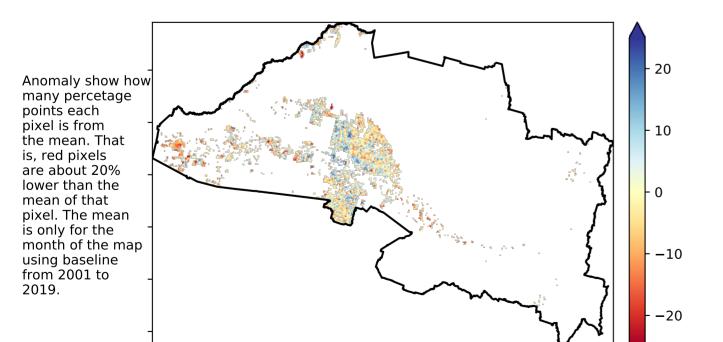




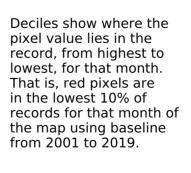
Area not protected 58.6% of region (332,569 ha) Area protected 41.4% of region (234,955 ha)

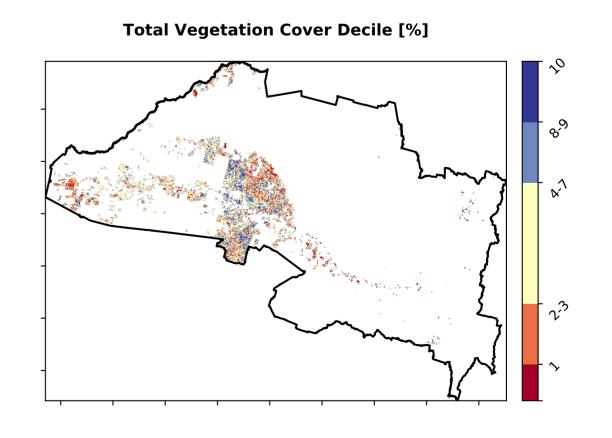
% Area protected from wind erosion (>50%)





Total Vegetation Cover Anomaly [%]







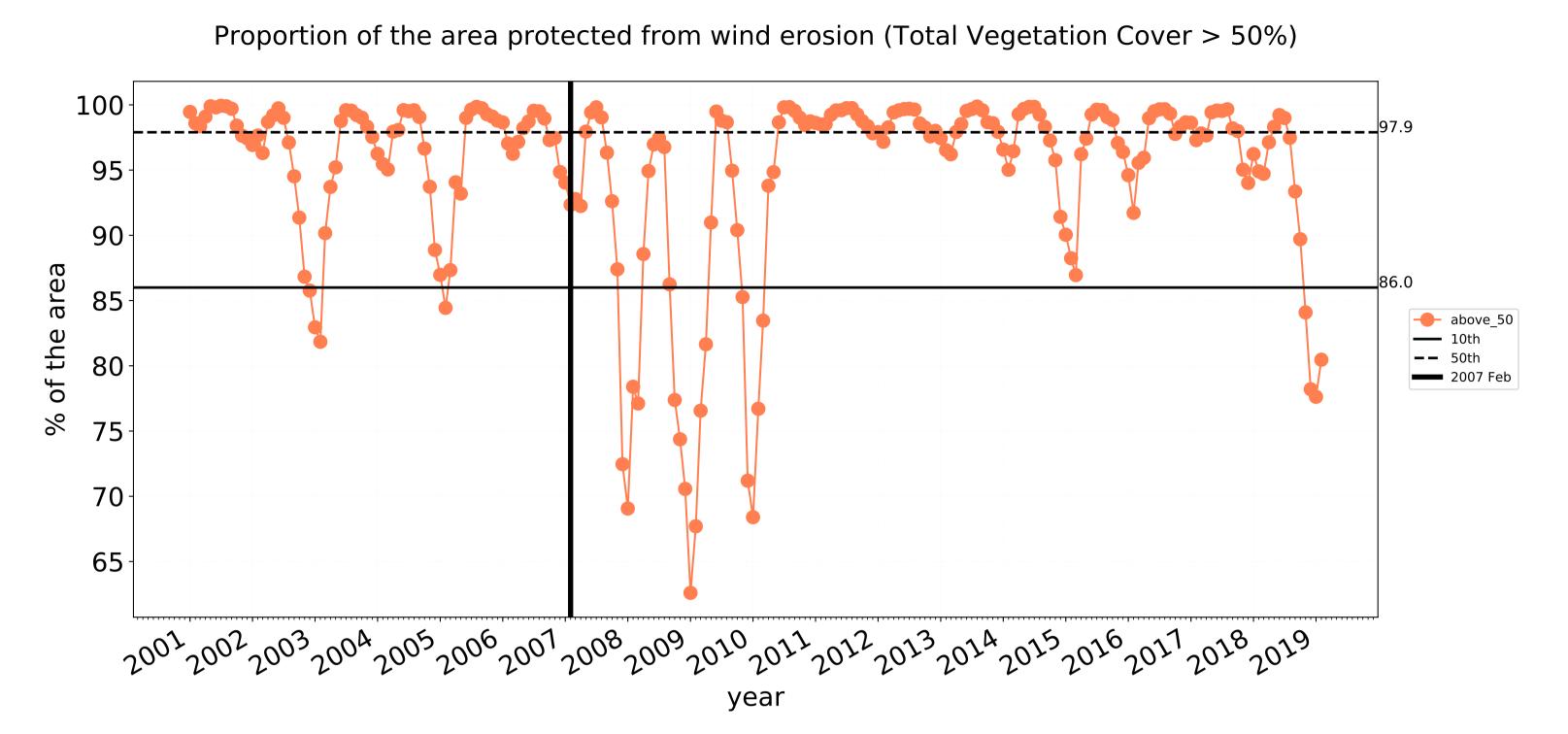


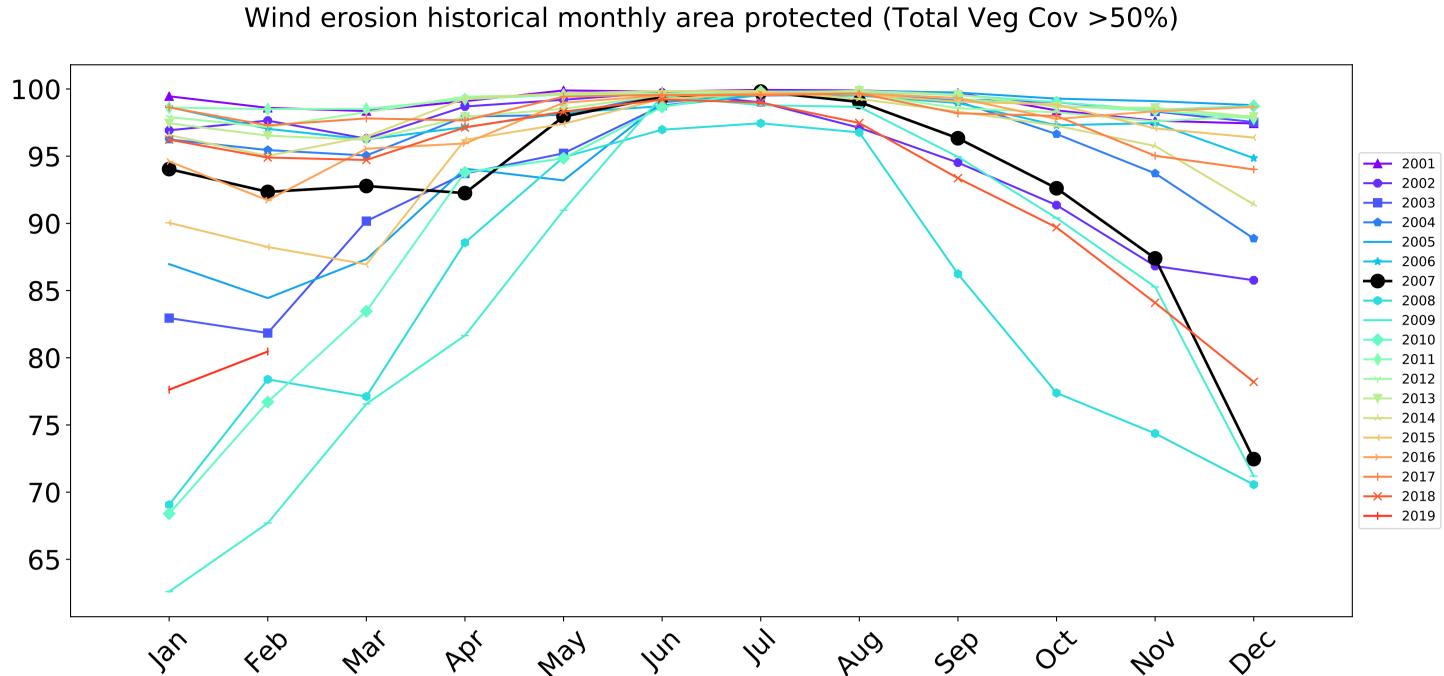




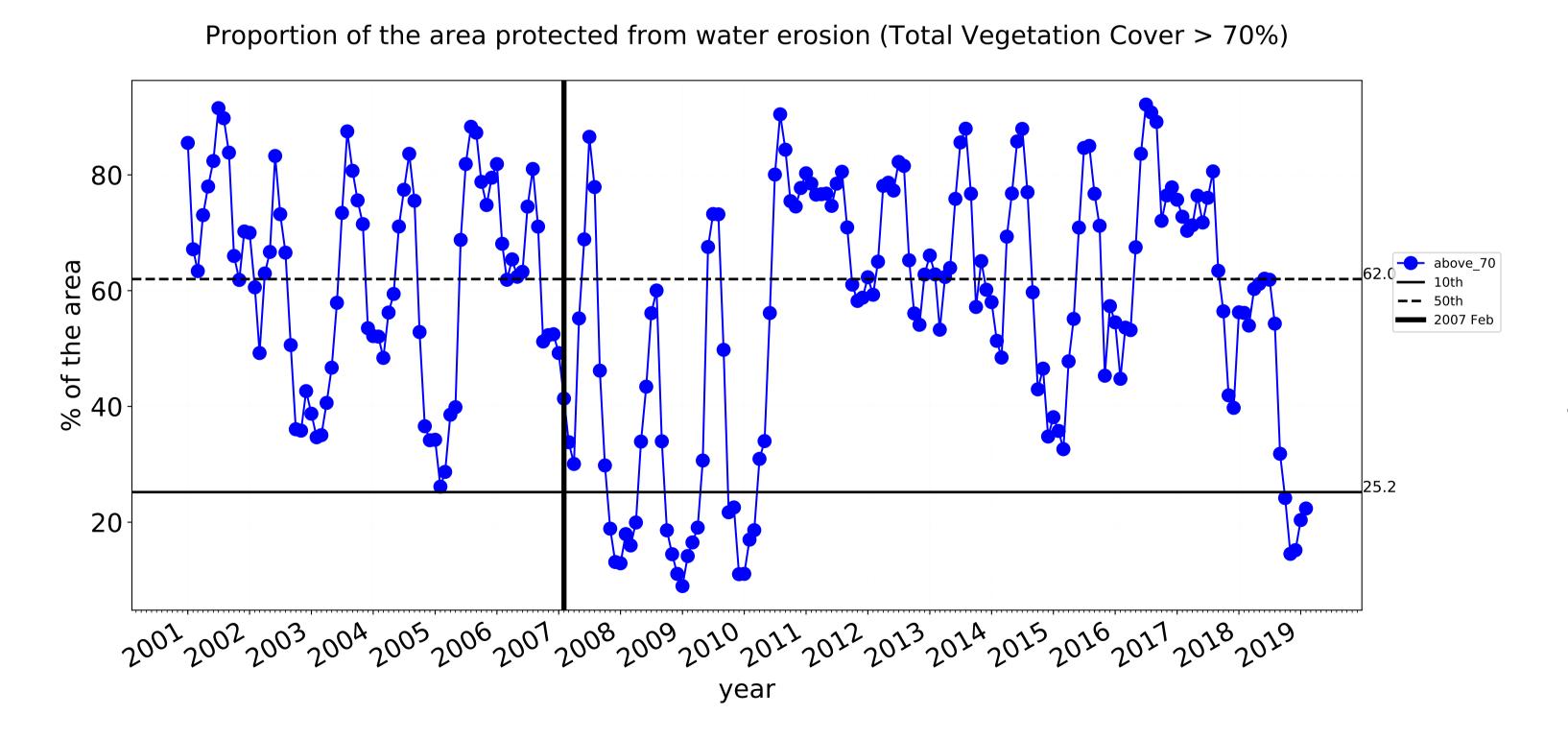


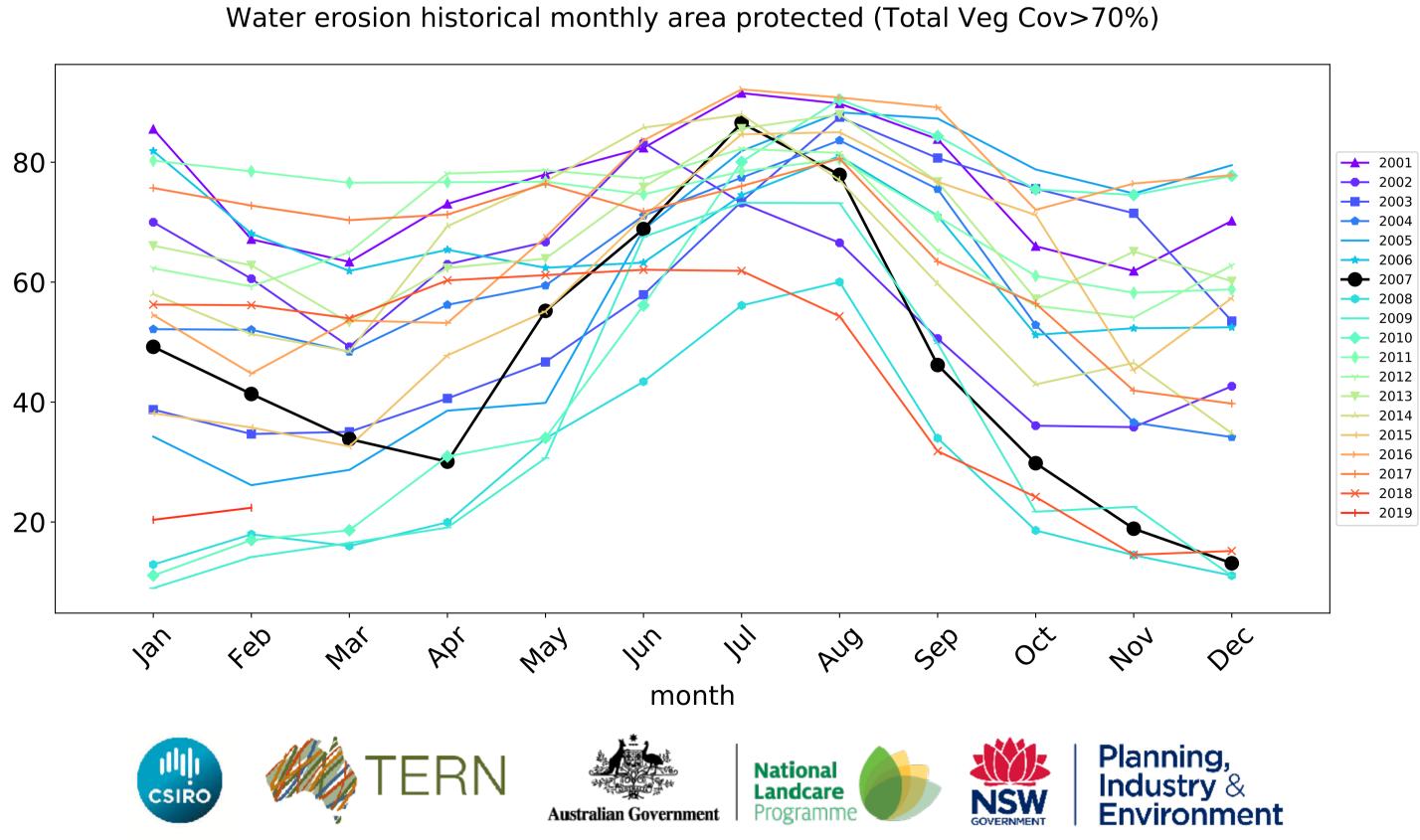






month



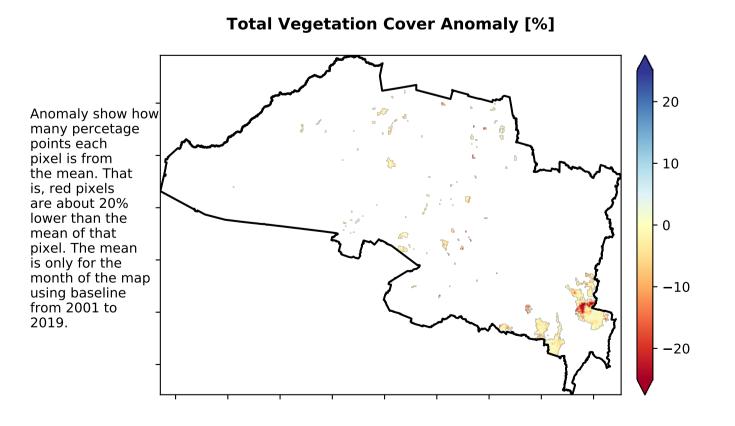


Production native forests and plantation forests

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

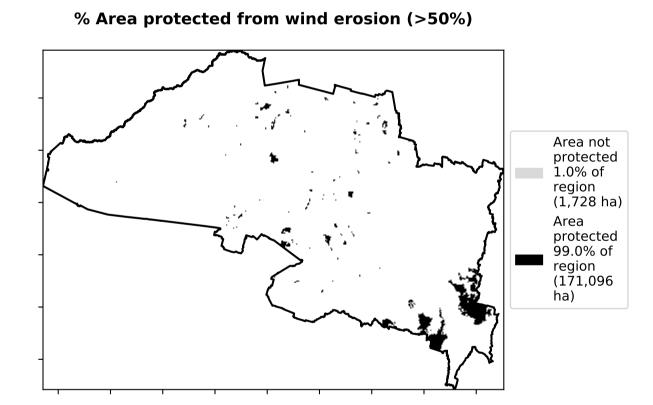
Total Vegetation Cover [%]

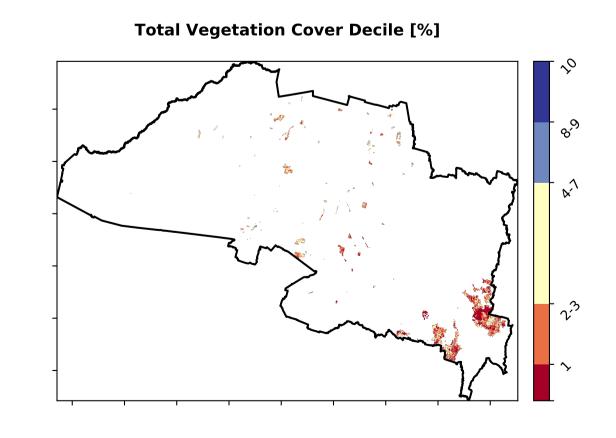
Area not protected 9.3% of region (16,072 ha) Area protected 90.7% of region (156,752 ha)



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 map using baseline from 2001 to 2019.

80 - 90.7% 80 - 60 - 60 - 20 - 8.6% 0 - 0% 0.8% 0 - 30% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class









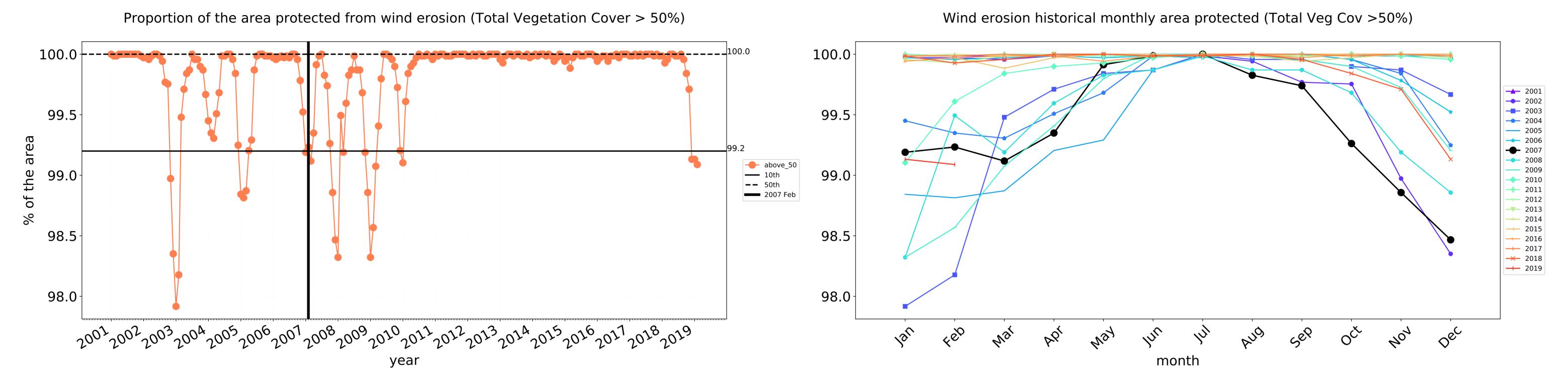


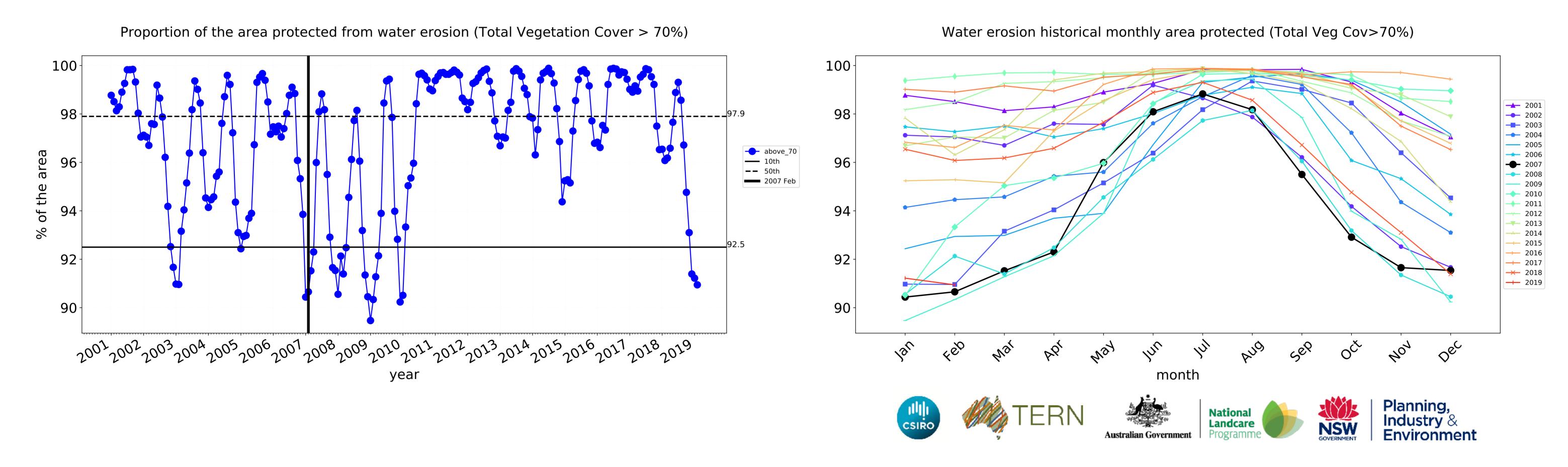






Production native forests and plantation forests timeseries





Riverina (6,695,175 ha and no data 13,160 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	6,695,175	99.8% 6,679,573	77.2% 5,166,192	30.4% 2,035,593	13.8% 923,810	3.9% 258,155	1.4% 91,885
Conservation and natural environments	323,125	100.0% 323,125	94.9% 306,775	84.6% 273,300	76.1% 245,950	40.8% 131,750	16.0% 51,825
Conservation and natural environments non forest	83,350	100.0% 83,350	80.5% 67,075	43.7% 36,400	24.6% 20,475	7.5% 6,275	3.4% 2,850
Conservation and natural environments Forest (non woodland)	195,275	100.0% 195,275	100.0% 195,275	99.7% 194,750	97.6% 190,675	61.3% 119,625	24.3% 47,375
Agriculture	6,067,775	99.7% 6,052,325	75.4% 4,575,300	25.7% 1,559,075	8.8% 531,325	0.7% 45,100	0.1% 5,125
Grazing	2,311,500	99.7% 2,305,525	78.1% 1,805,950	37.9% 876,500	16.6% 383,725	1.4% 33,400	0.1% 2,725
Grazing non forest	2,066,500	99.7% 2,060,525	75.6% 1,562,025	32.5% 671,100	12.3% 253,750	0.7% 14,575	0.1% 1,300
Grazing Woodland forest	141,650	100.0% 141,650	99.3% 140,650	76.2% 107,875	37.4% 52,925	1.6% 2,225	0.1% 125
Grazing - Forest (non woodland)	103,350	100.0% 103,350	99.9% 103,275	94.4% 97,525	74.6% 77,050	16.1% 16,600	1.3% 1,300
Cropping	3,186,925	99.7% 3,177,825	70.4% 2,244,250	14.0% 447,725	2.4% 77,550	0.1% 2,725	0.0% 250
Irrigation	567,525	99.9% 567,150	92.3% 524,075	41.4% 234,675	12.3% 70,000	1.6% 8,975	0.4% 2,150
Production native forests and plantation forests	172,825	100.0% 172,825	99.2% 171,500	90.7% 156,675	77.7% 134,350	46.3% 80,050	20.0% 34,650











