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: April 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







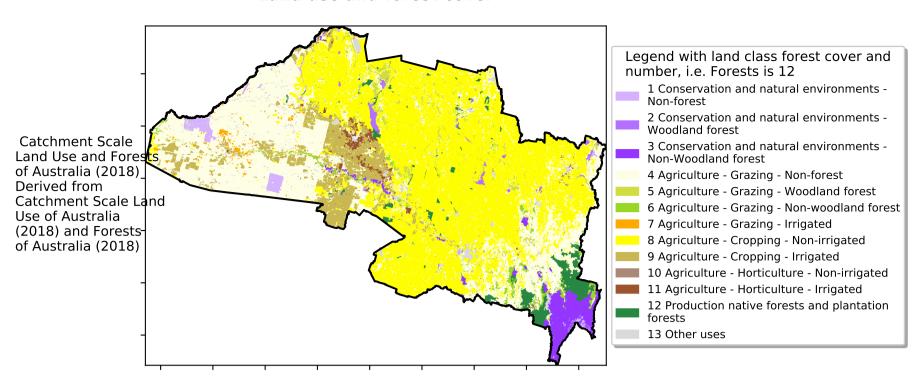




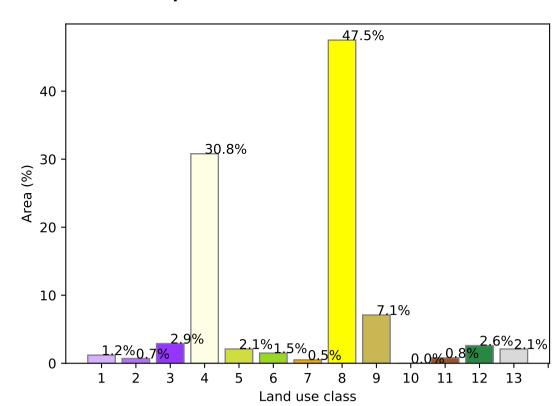


Vegetation Cover Apr 2007

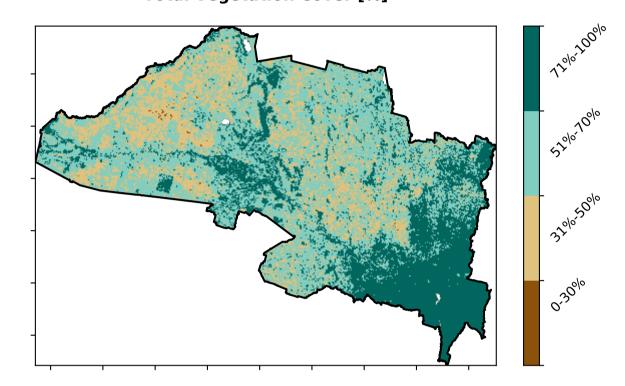
Land use and forest cover



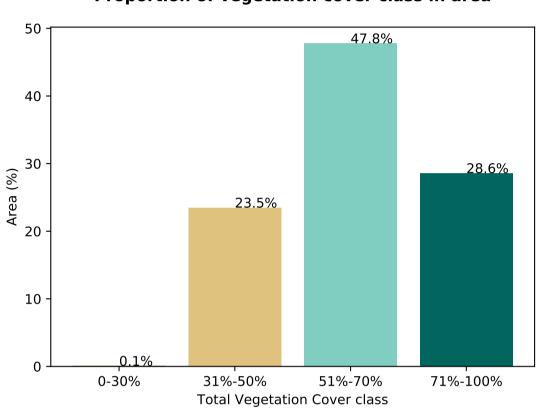
Proportion of each land class in area



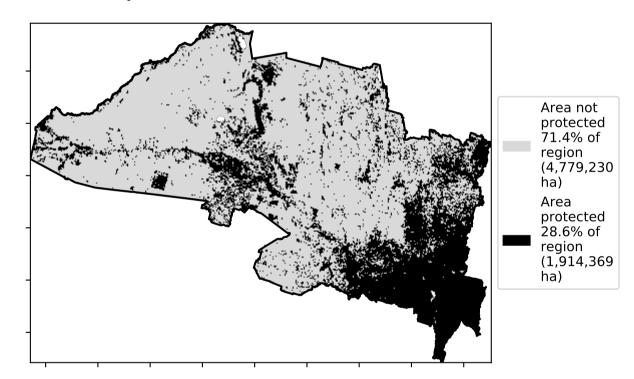
Total Vegetation Cover [%]



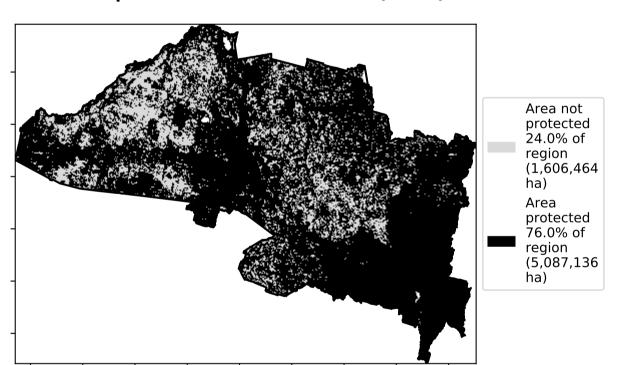
Proportion of vegetation cover class in area



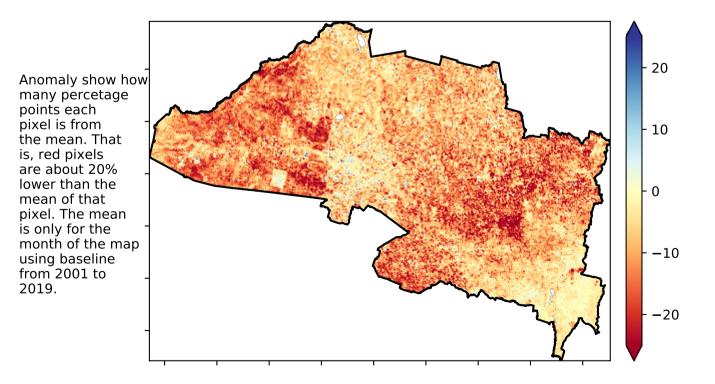
% Area protected from water erosion (>70%)



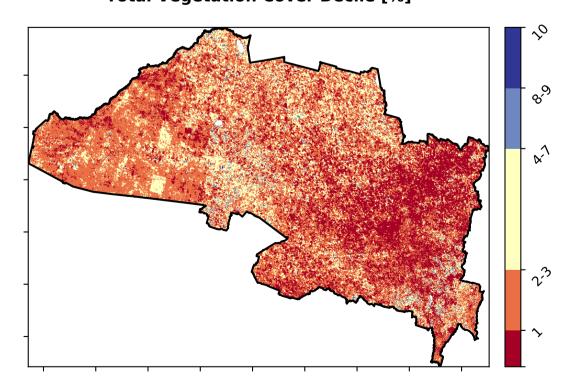
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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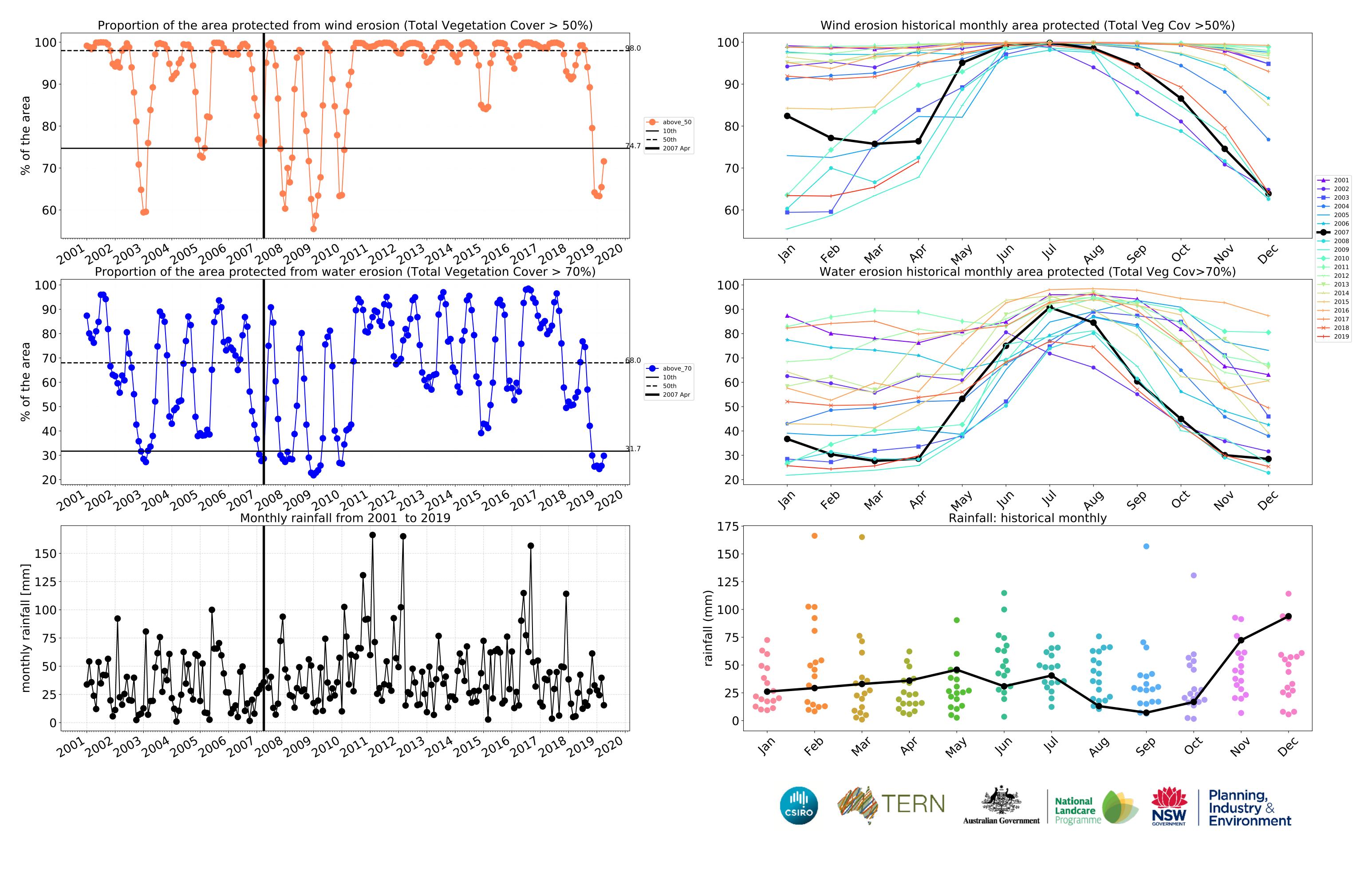




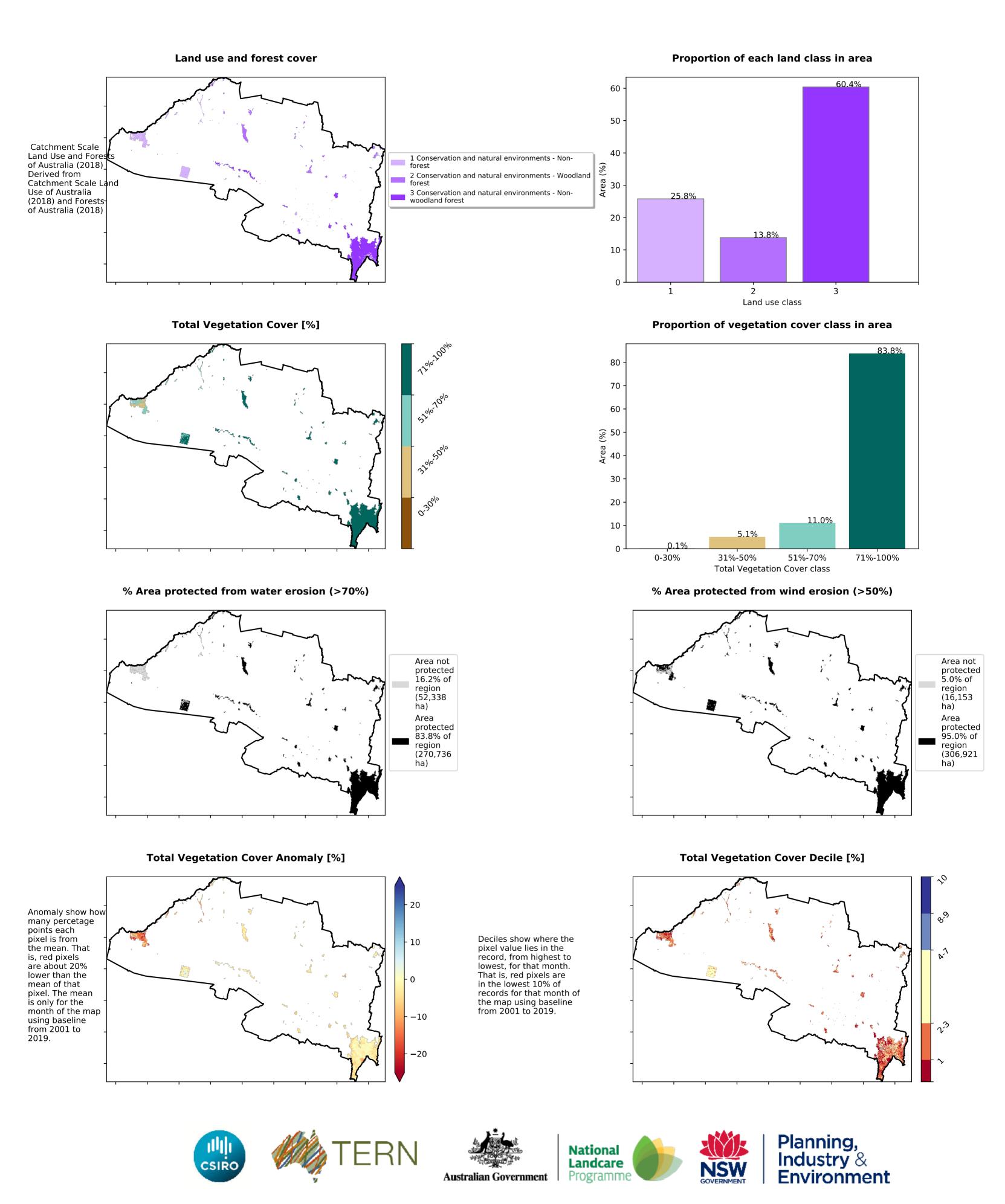




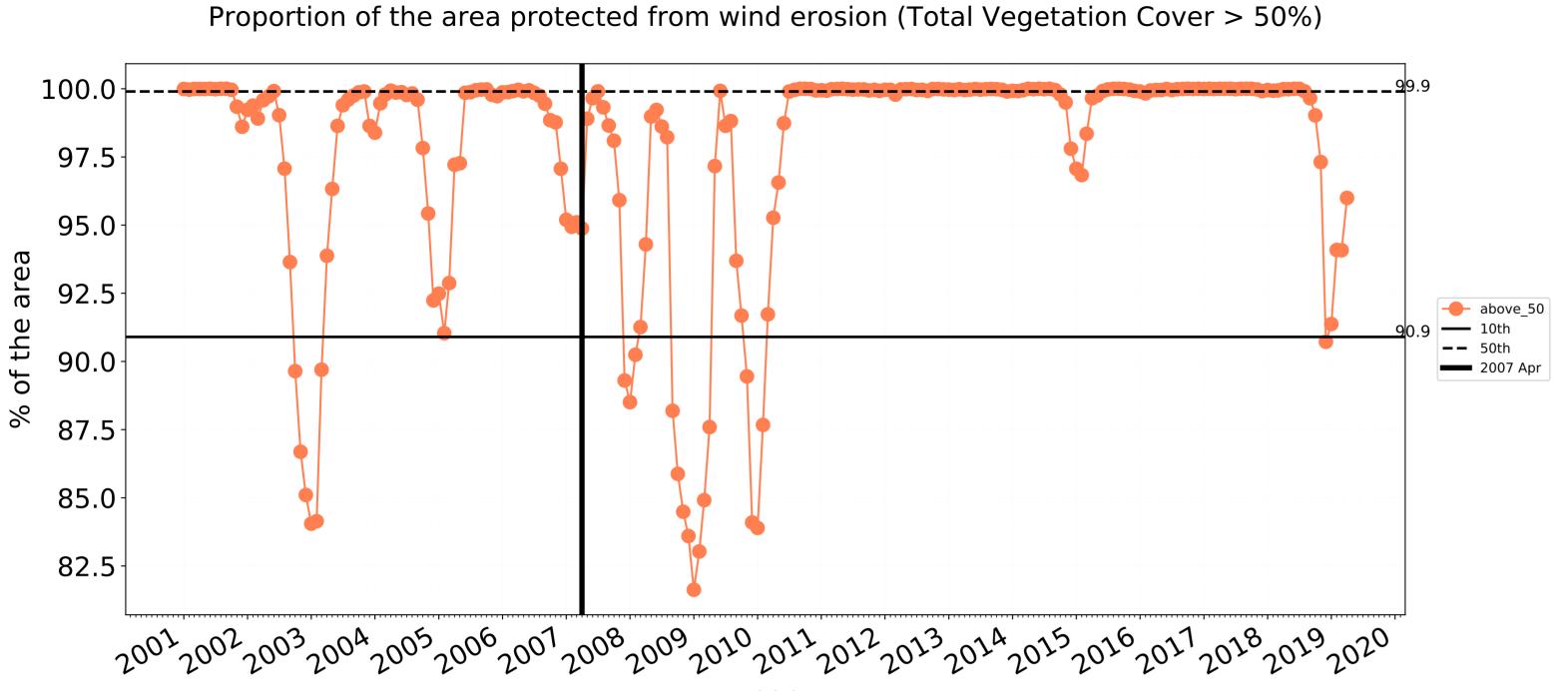


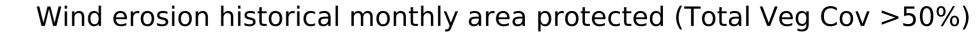


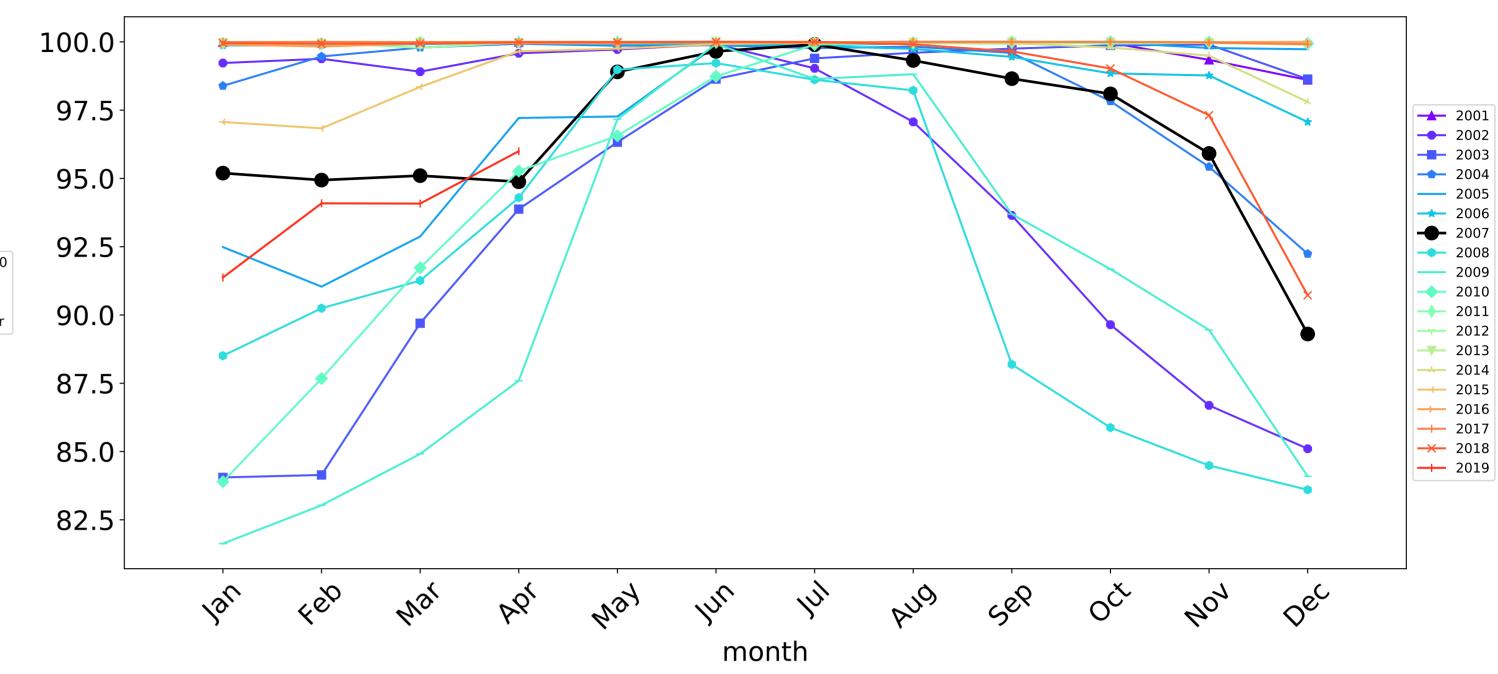
Conservation and natural environments

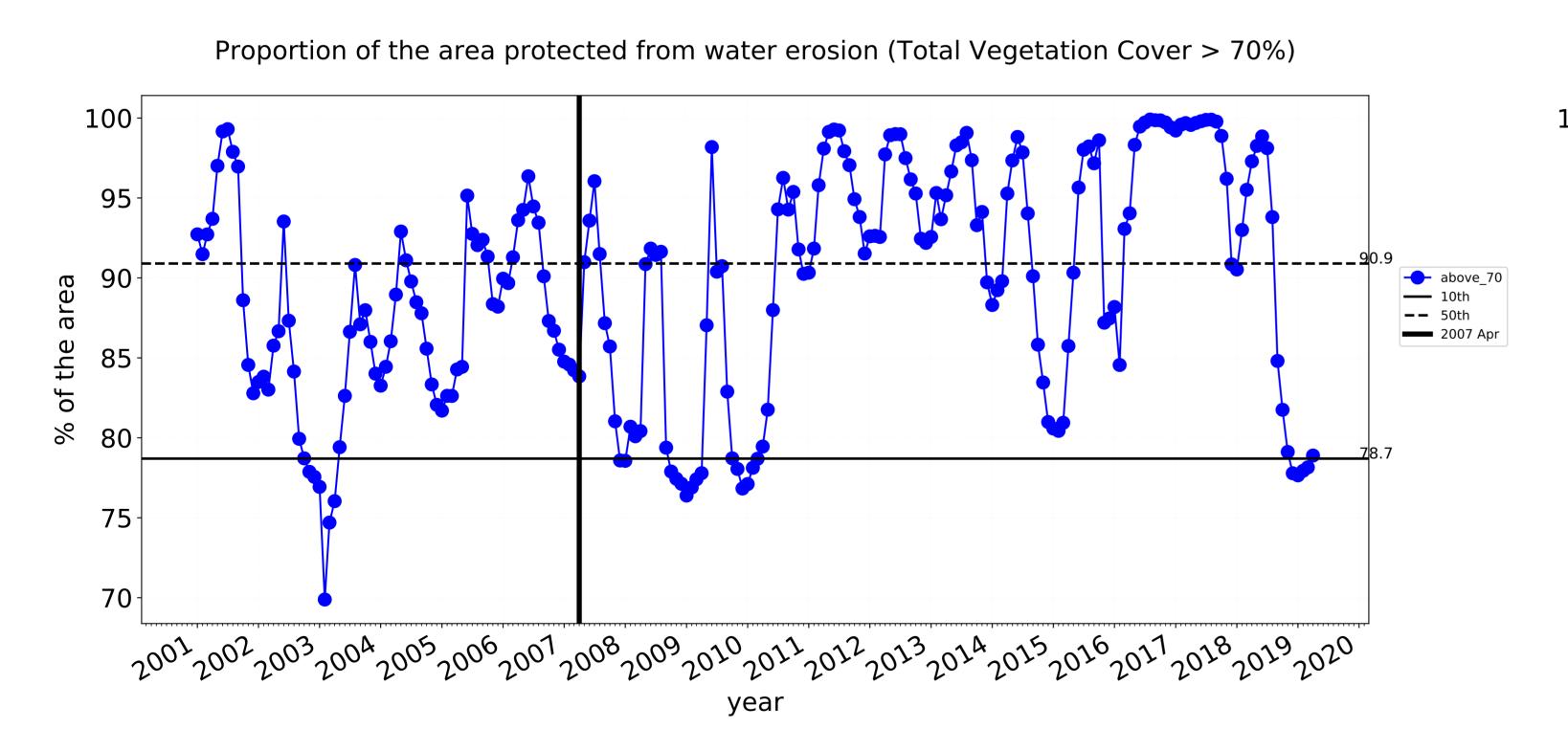


Conservation and natural environments timeseries









100 2001 2002 2003 95 ---- 2005 90 **---** 2007 85 2011 2012 2013 2014 80 ← 2015 **→** 2016 ---- 2017 × 2018 75 ---- 2019 70month Planning, Industry & Environment ΓERN NSW GOVERNMENT National

Landcare

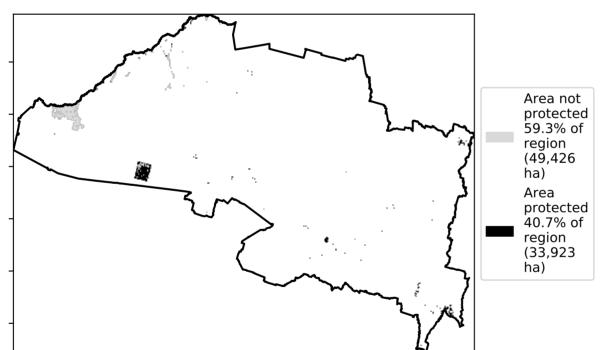
Water erosion historical monthly area protected (Total Veg Cov>70%)

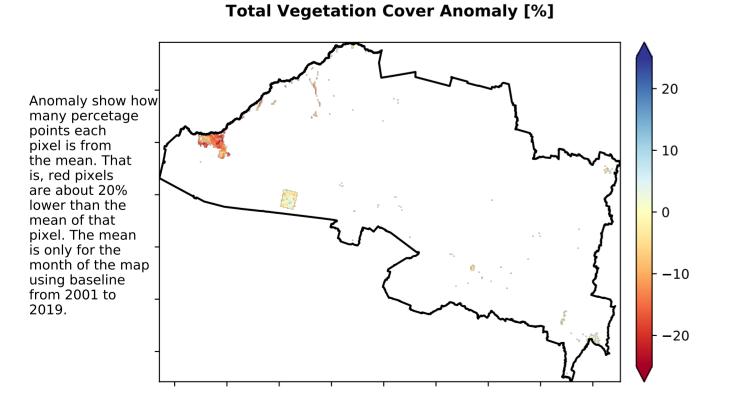
Conservation and natural environments non forest

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

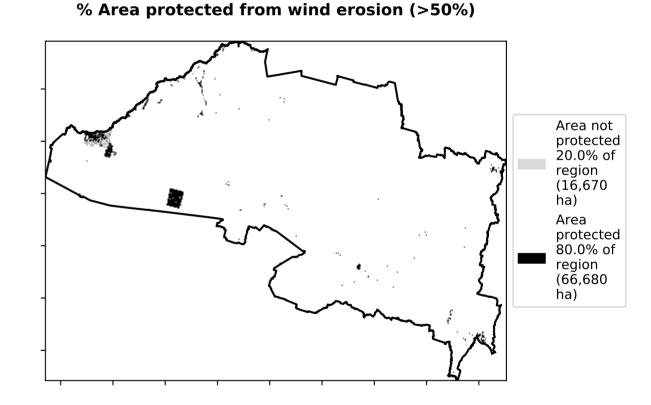
Total Vegetation Cover [%]

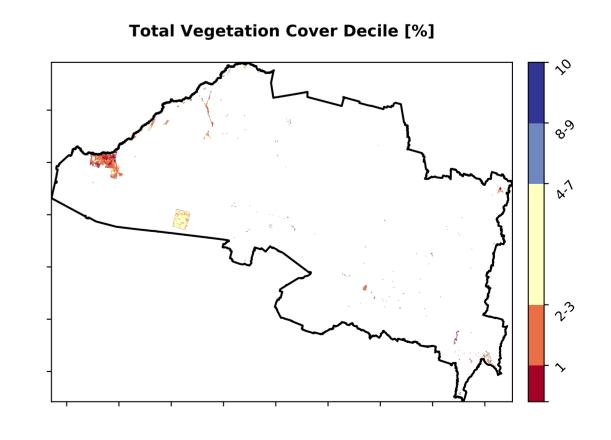
% Area protected from water erosion (>70%)





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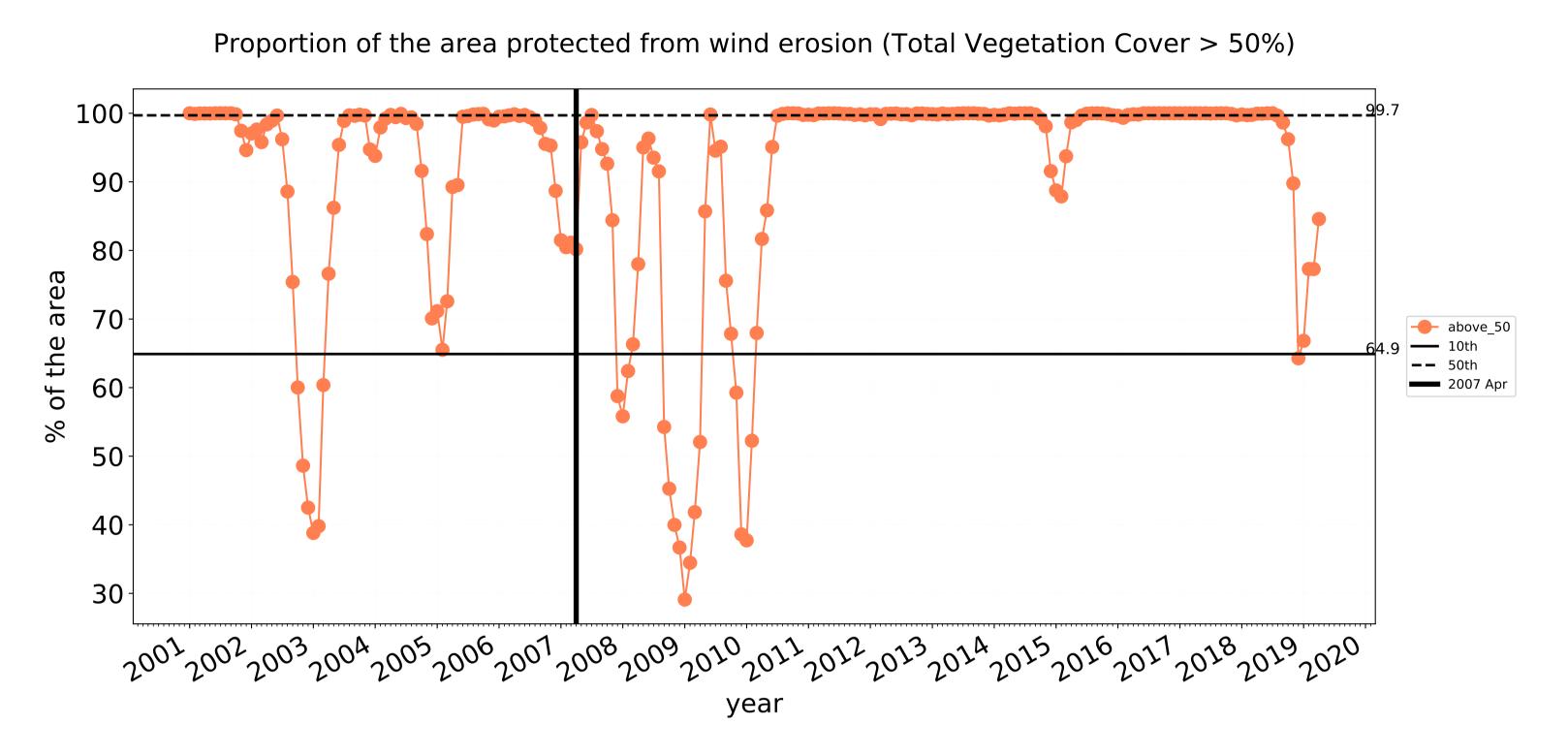


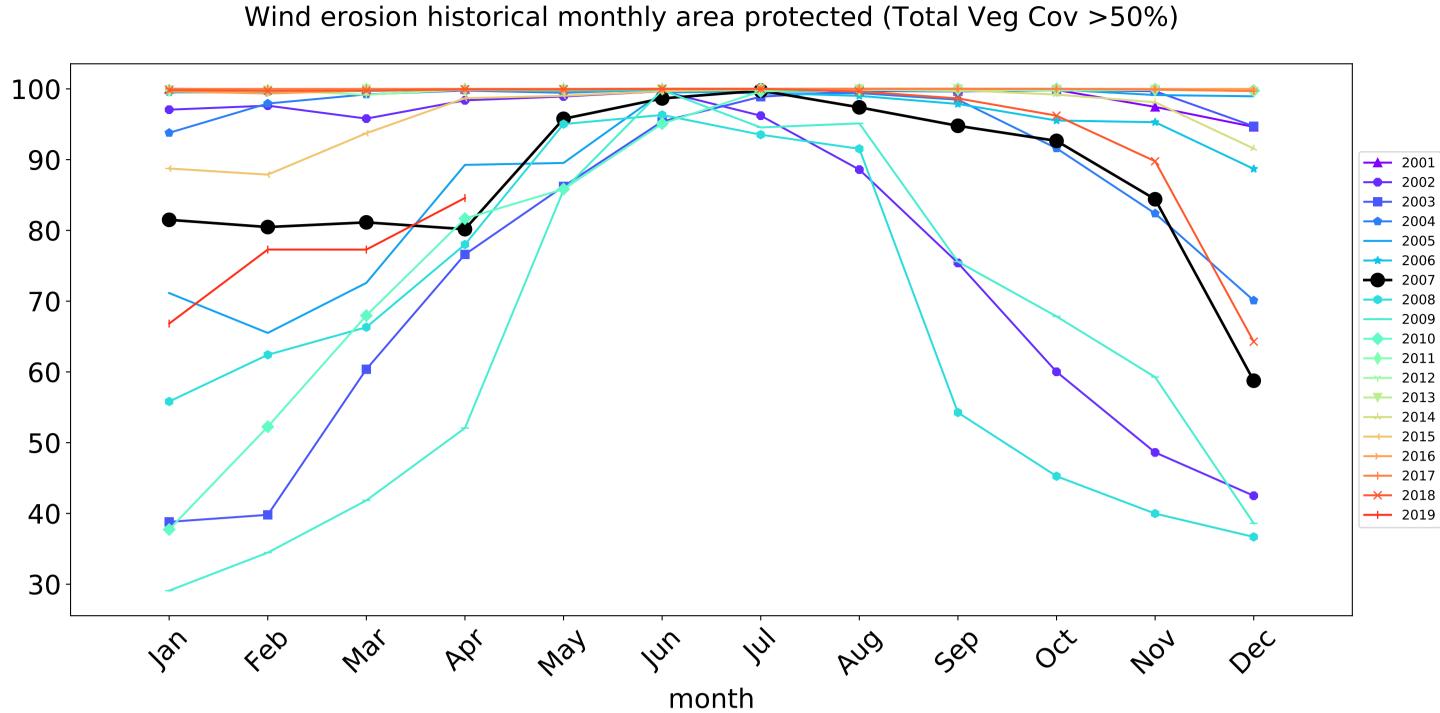


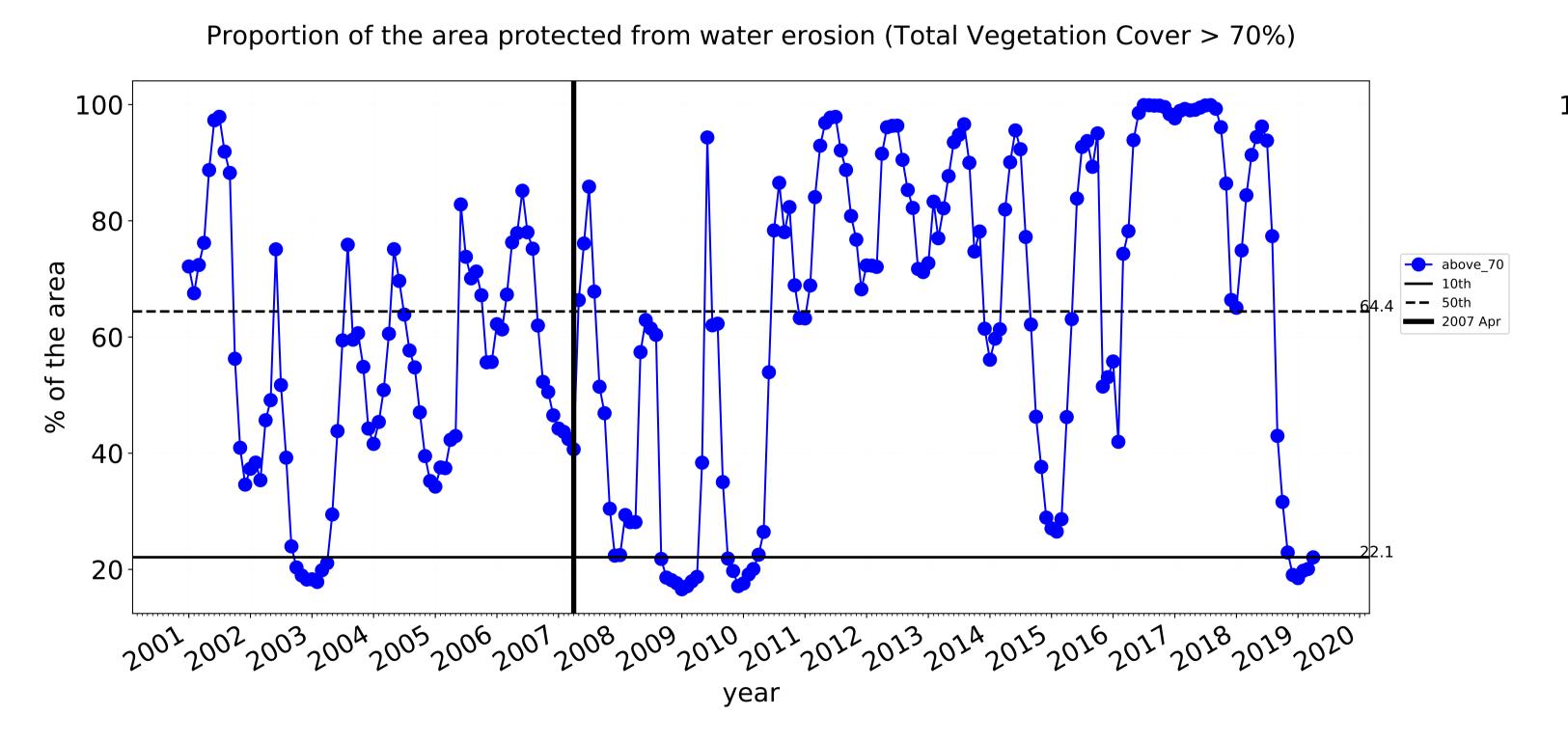


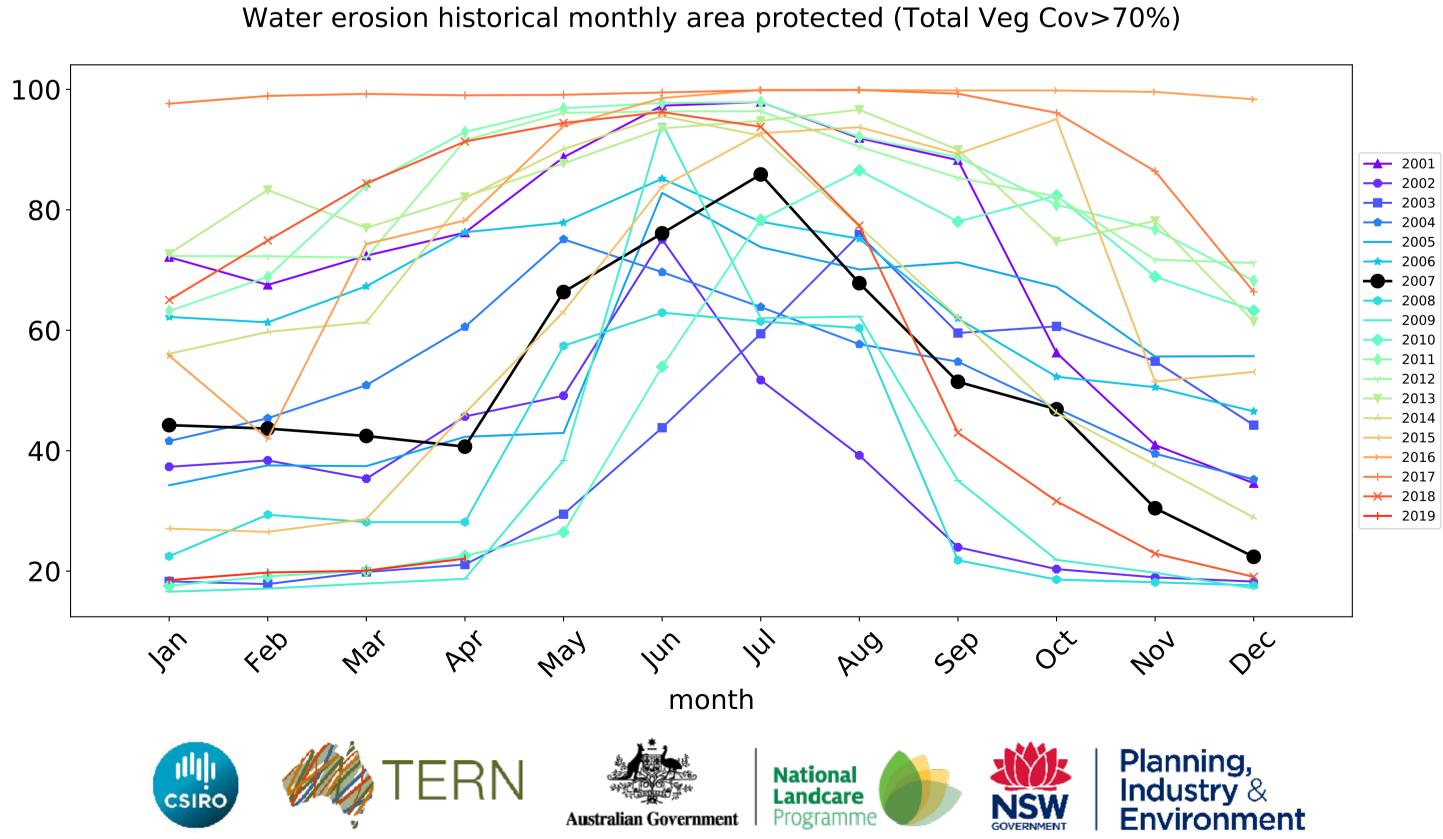


Conservation and natural environments non forest timeseries

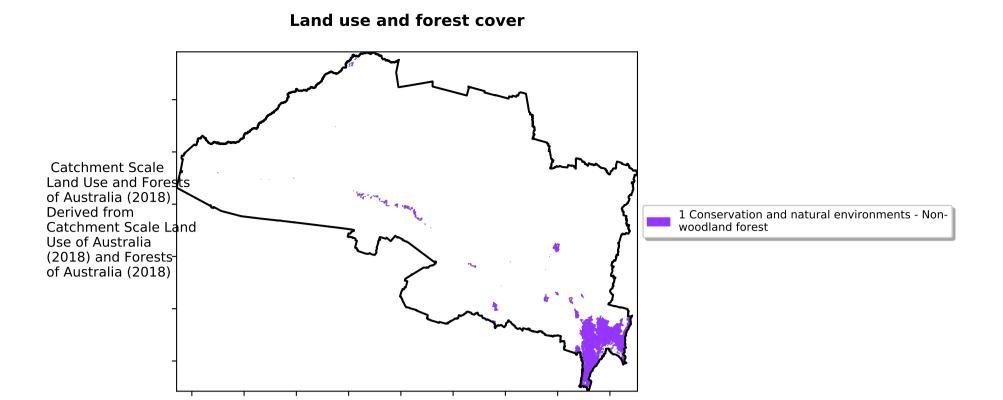




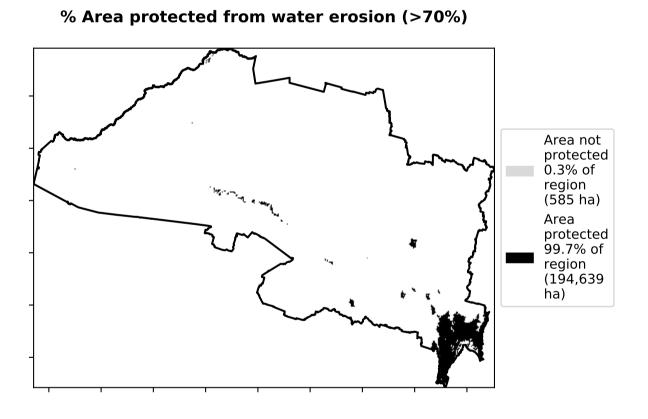


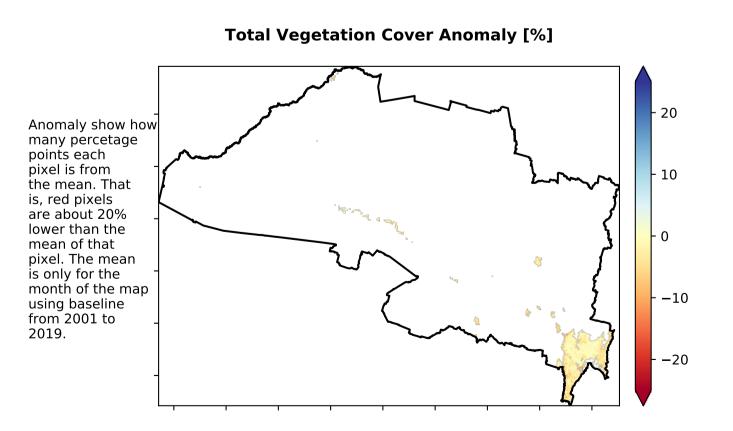


Conservation and natural environments Forest (non woodland)

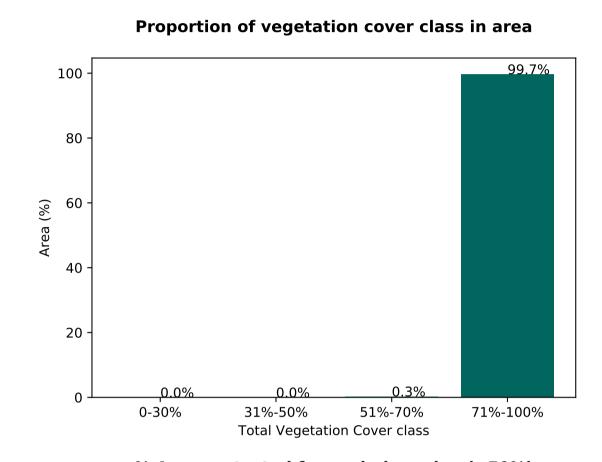


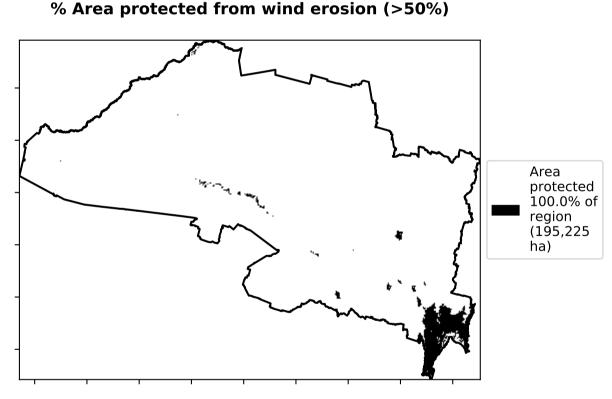
Total Vegetation Cover [%] Trolo Indolo Trol Indolo Trolo Indolo Trol Indolo Trolo Indolo Trolo Indolo Trolo Indolo Trol

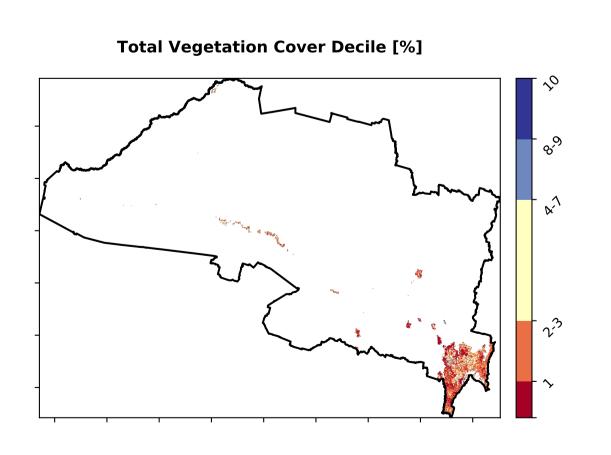




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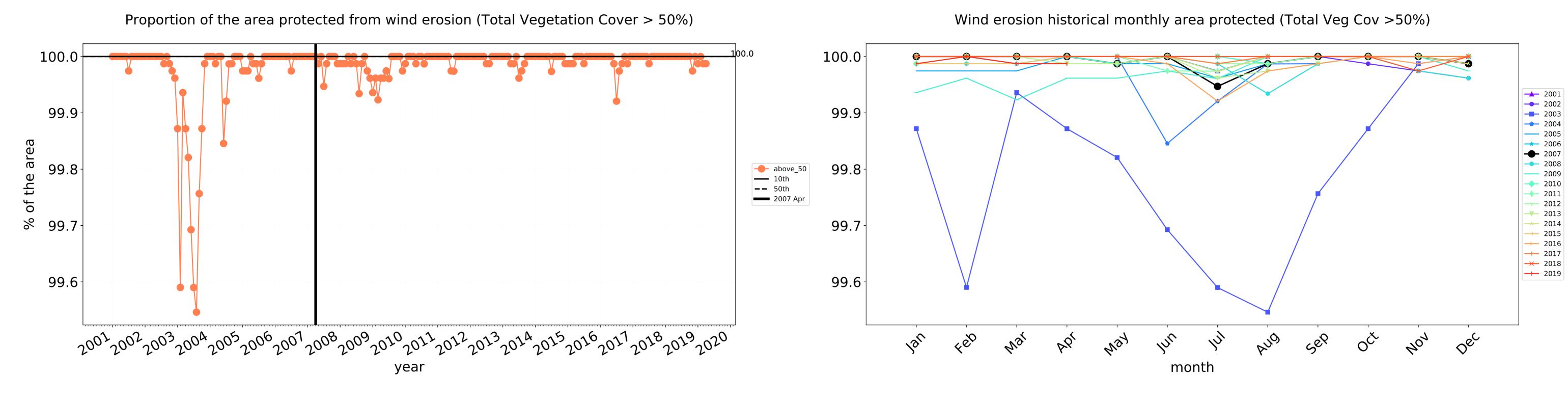


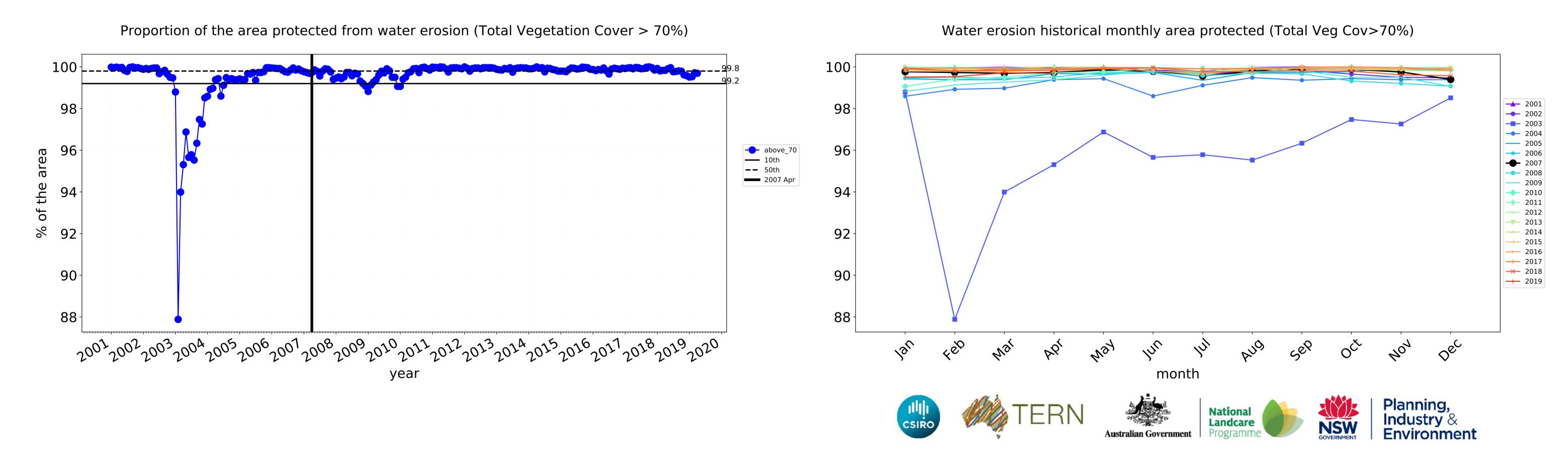










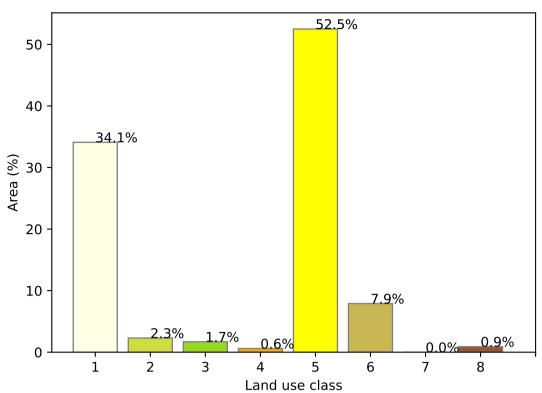


Agriculture

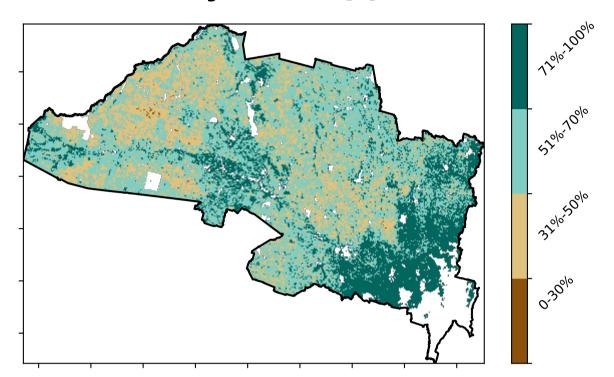
Land use and forest cover 1 Agriculture - Grazing - Non forest Catchment Scale Land Use and Forests of Australia (2018) 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest Derived from 4 Agriculture - Grazing - Irrigated Catchment Scale Land Use of Australia 5 Agriculture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

50 40

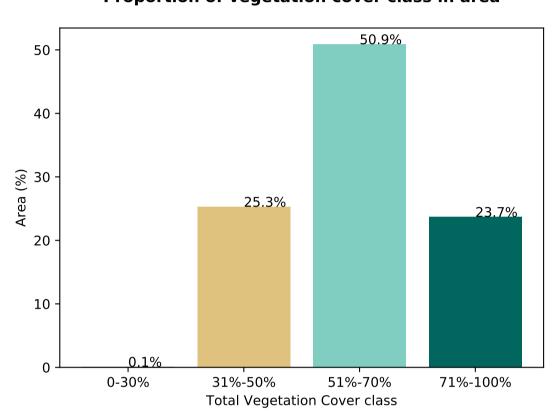
Proportion of each land class in area



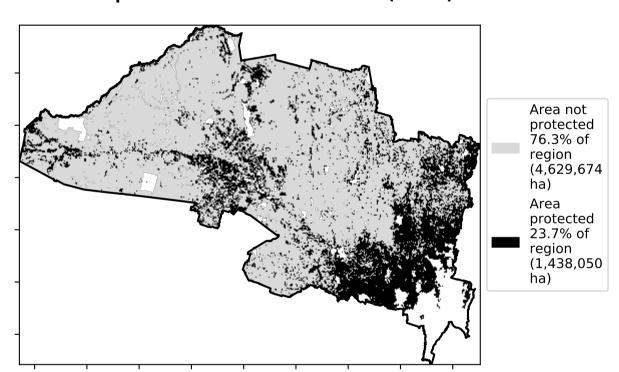
Total Vegetation Cover [%]



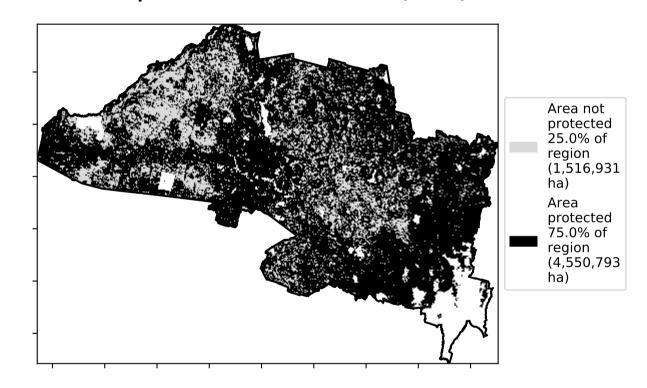
Proportion of vegetation cover class in area



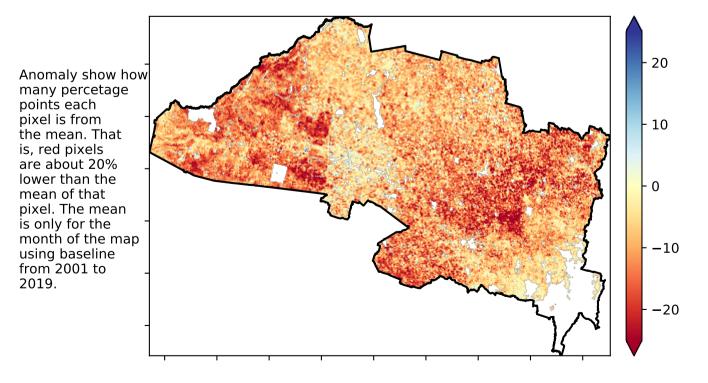
% Area protected from water erosion (>70%)



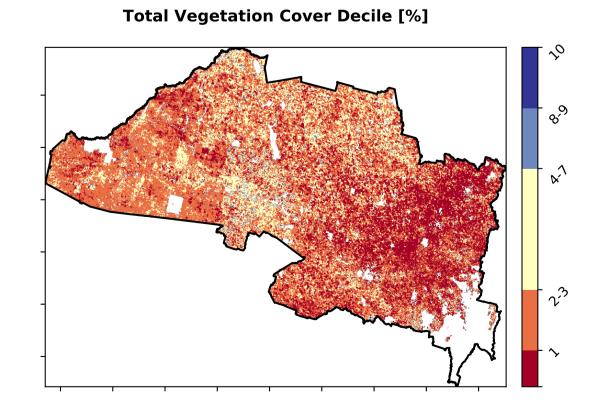
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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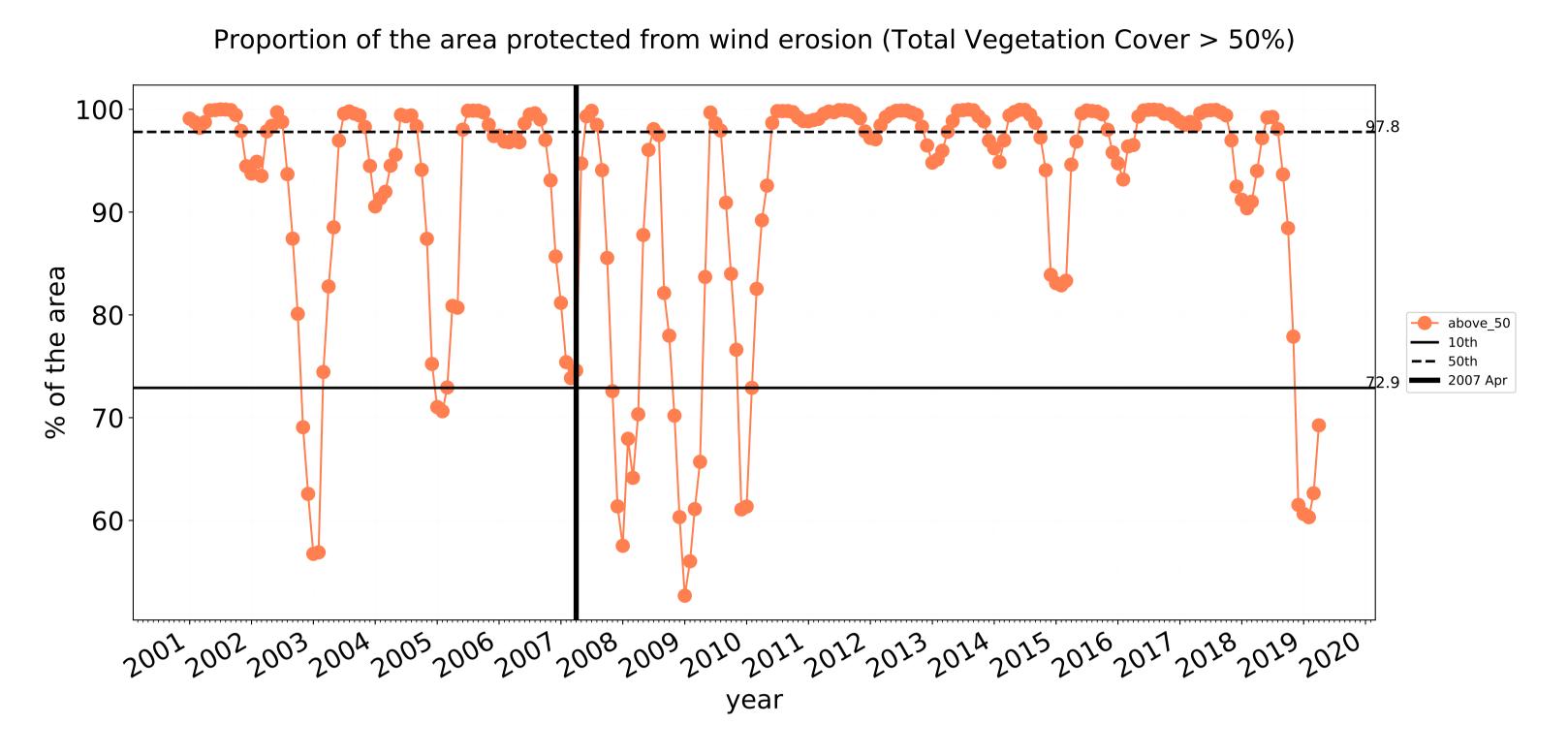


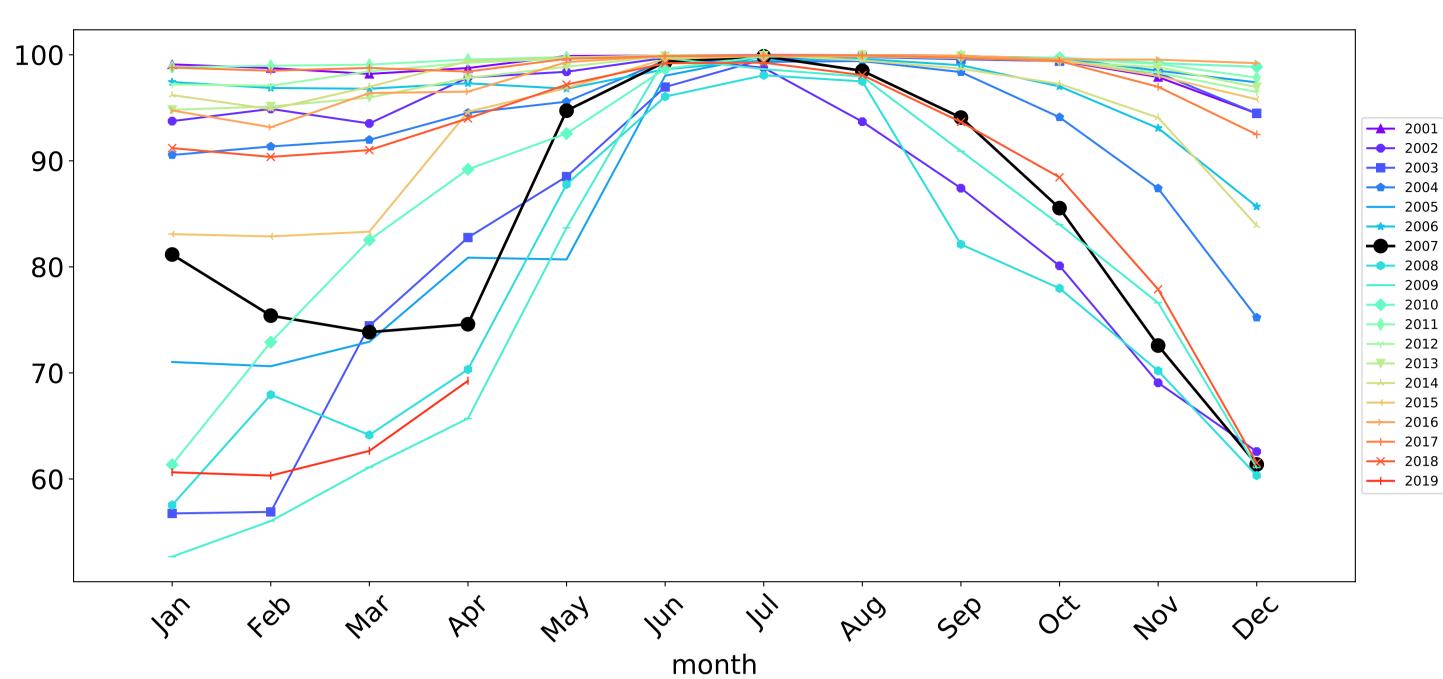




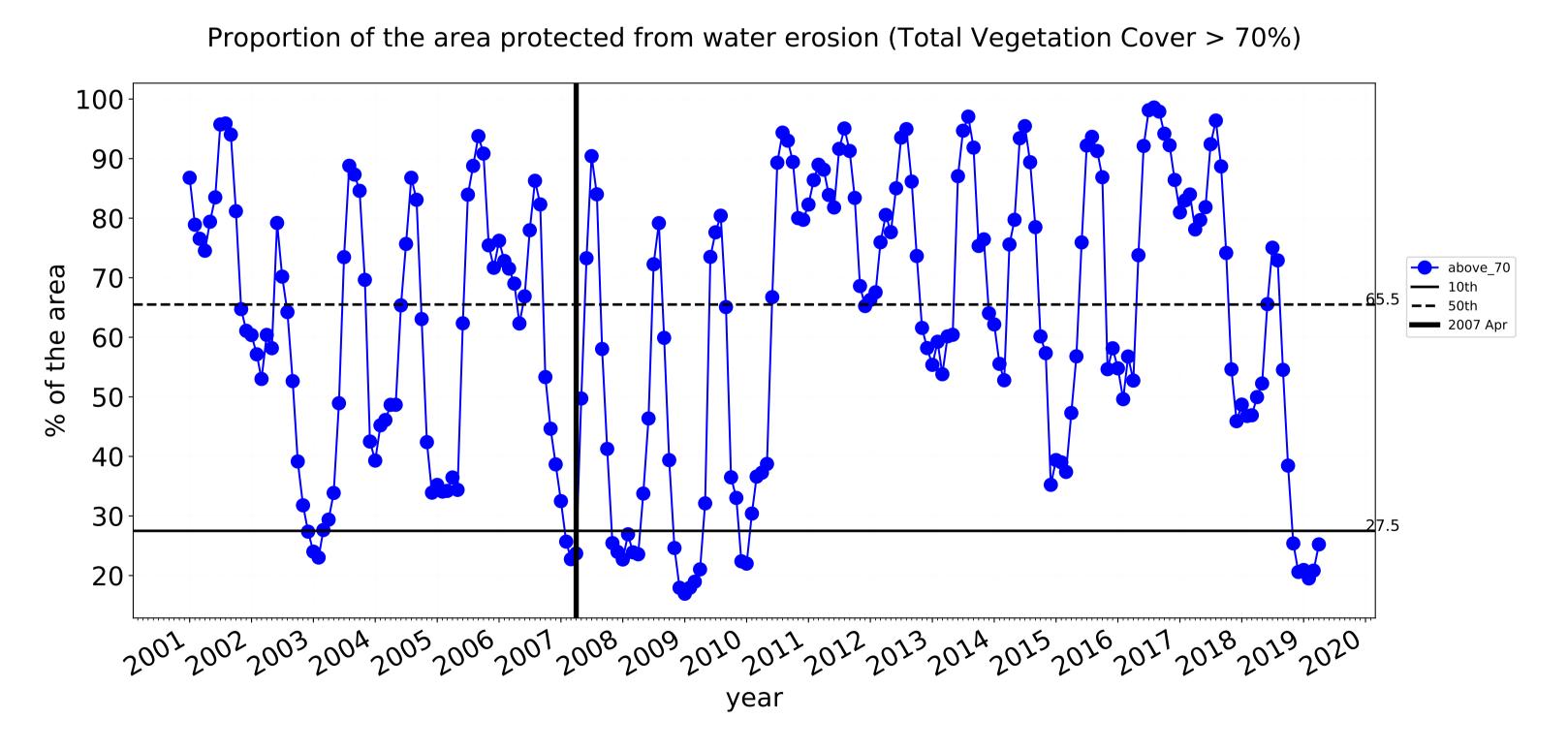


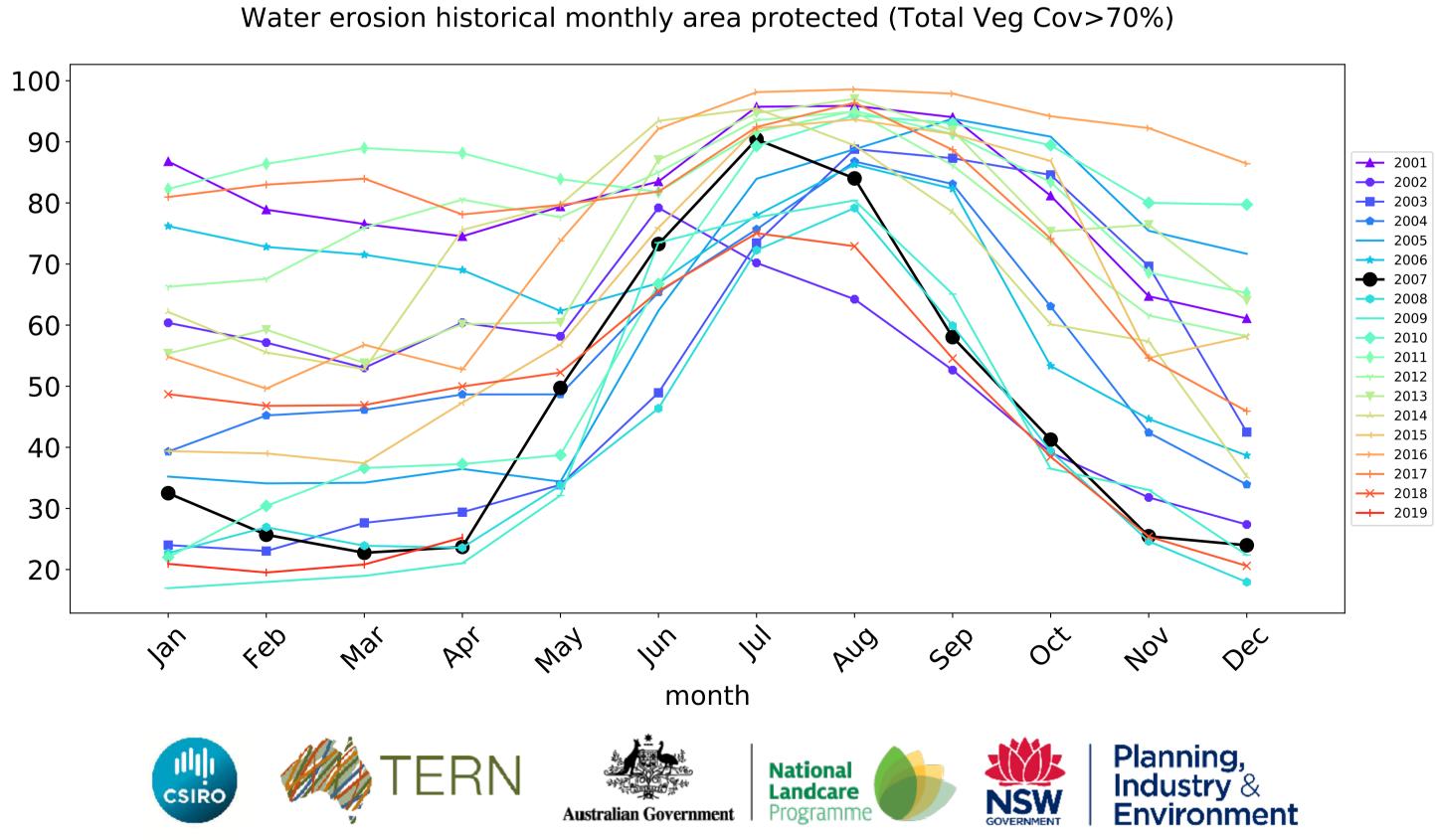
Agriculture timeseries





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





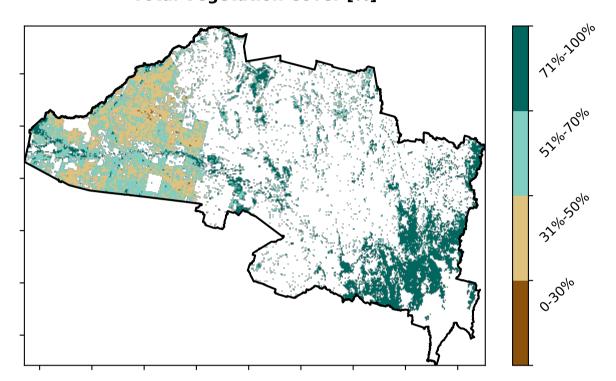
Grazing

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 Catchment Scale Land Use of Australia (2018) and Forests-of Australia (2018) 3 Agriculture - Grazing - Non-woodland forest

89.4% 80 60 20

Proportion of each land class in area

Total Vegetation Cover [%]



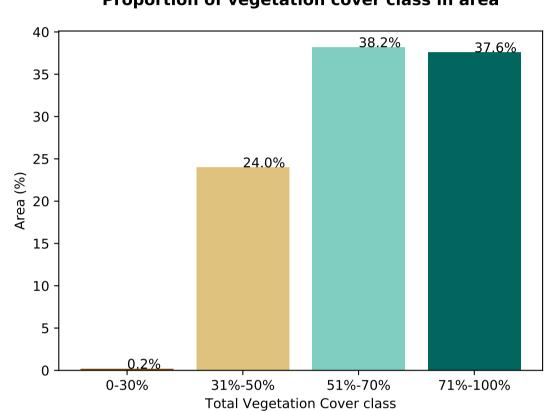
Proportion of vegetation cover class in area

Land use class

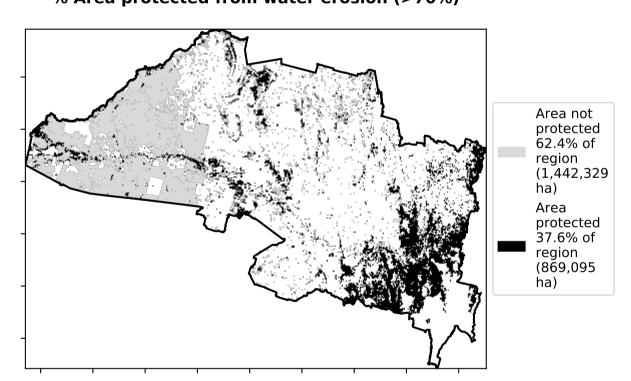
6.1%

4.5%

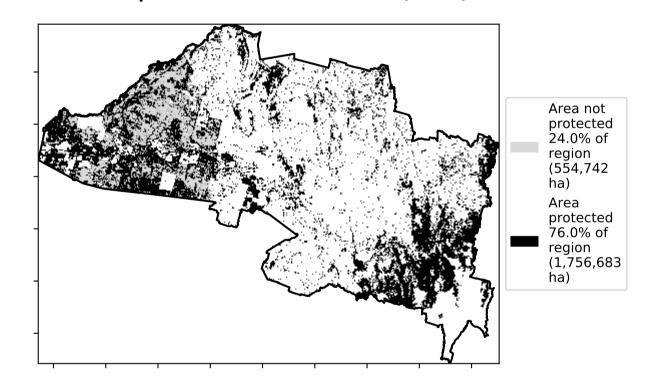
3



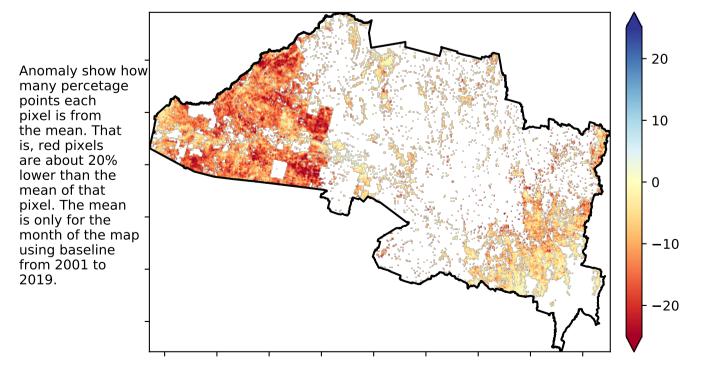
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

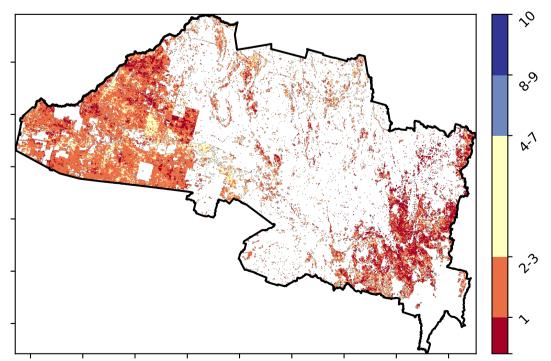


Total Vegetation Cover Anomaly [%]



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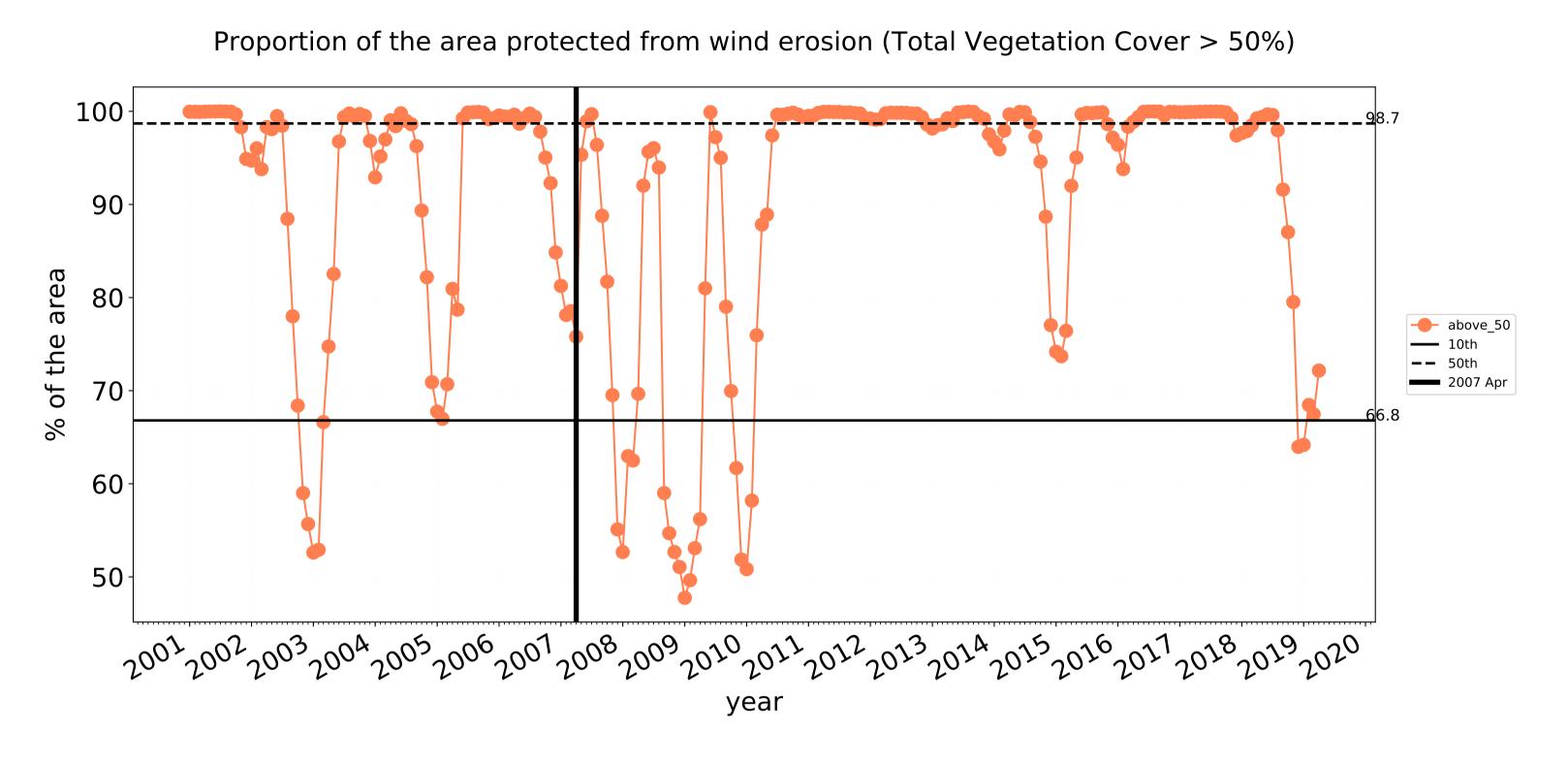


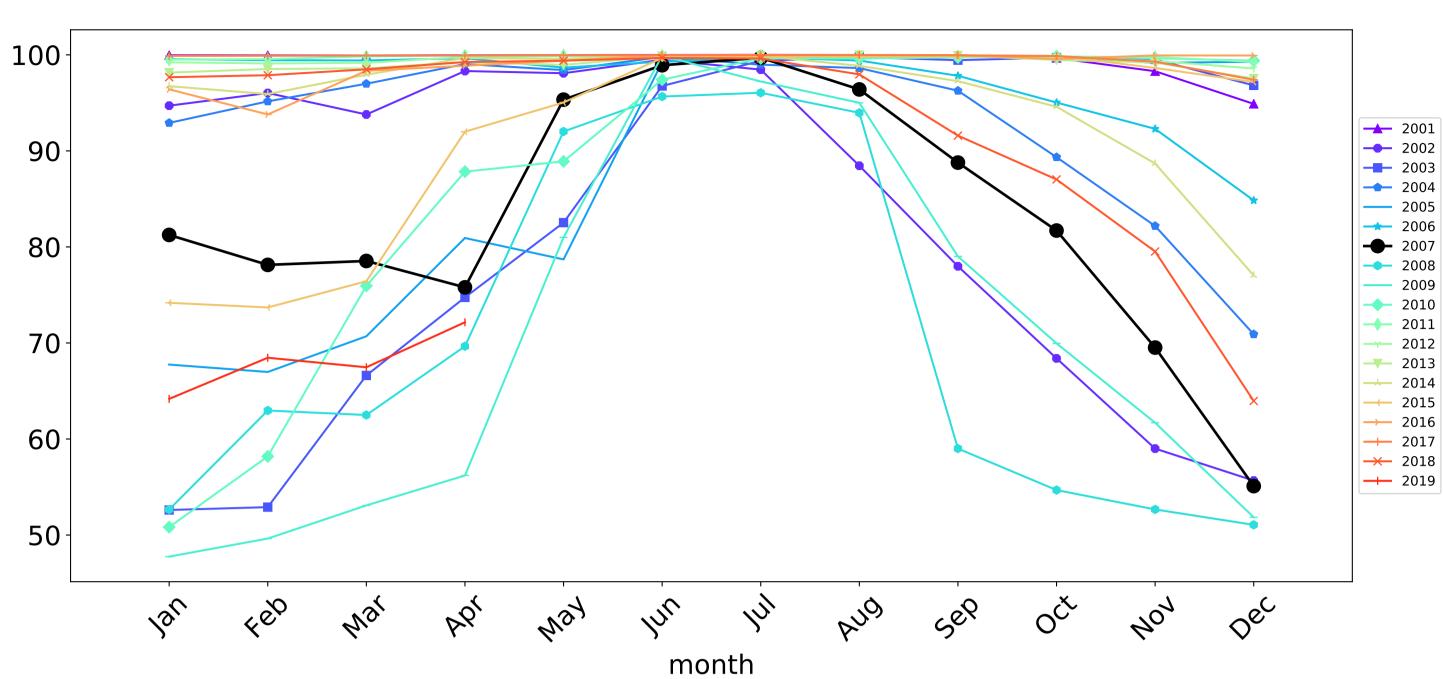




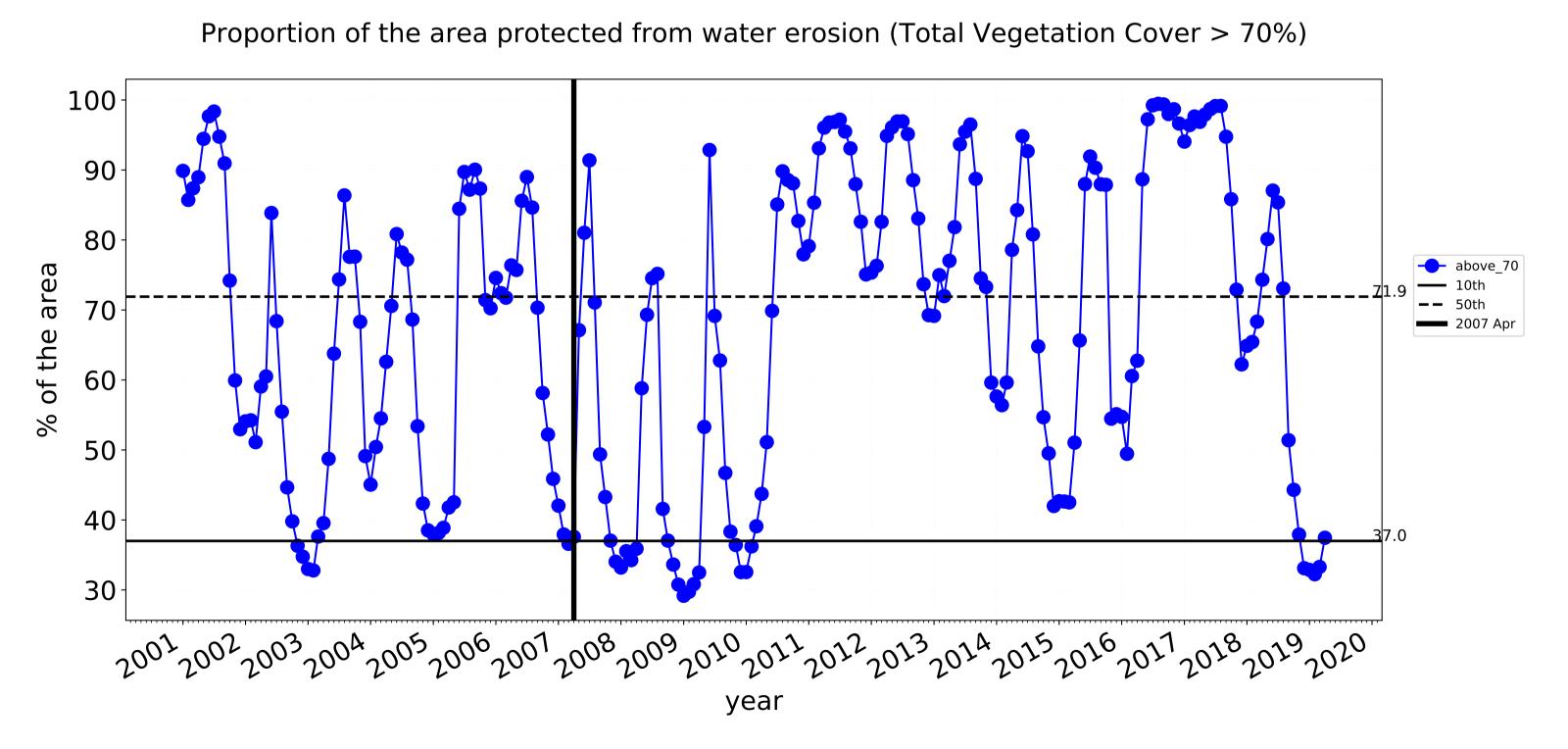


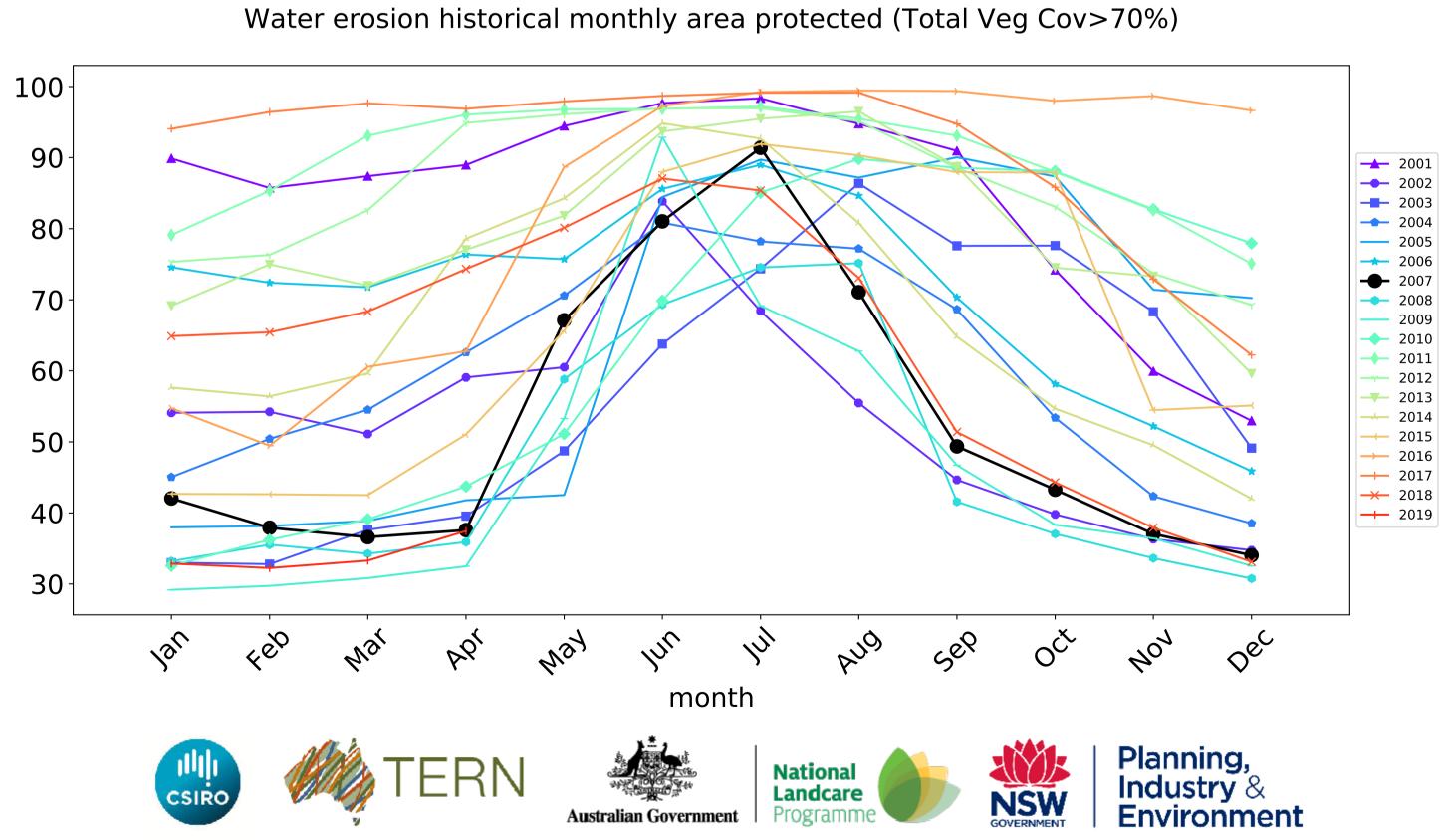
Grazing timeseries





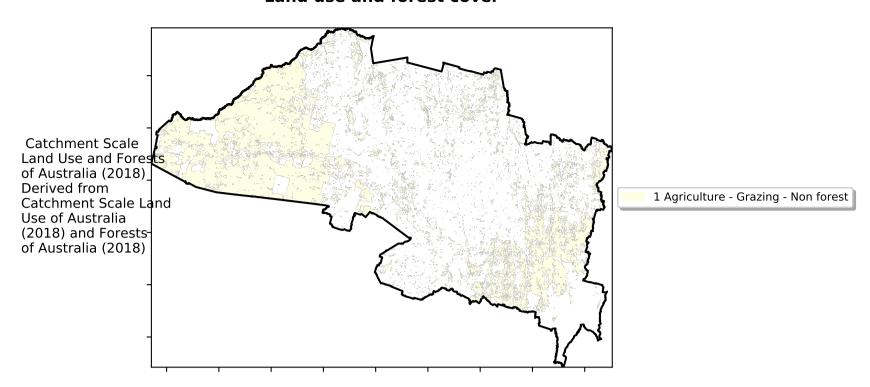
Wind erosion historical monthly area protected (Total Veg Cov >50%)



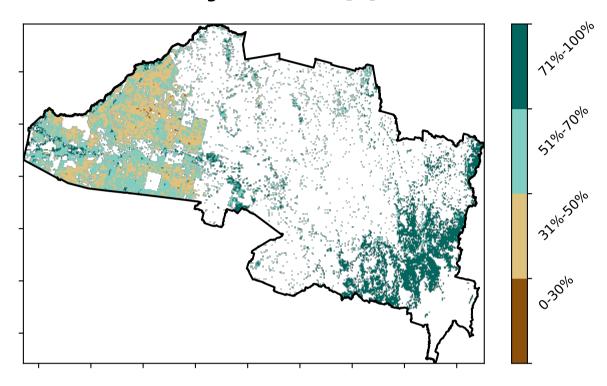


Grazing non forest

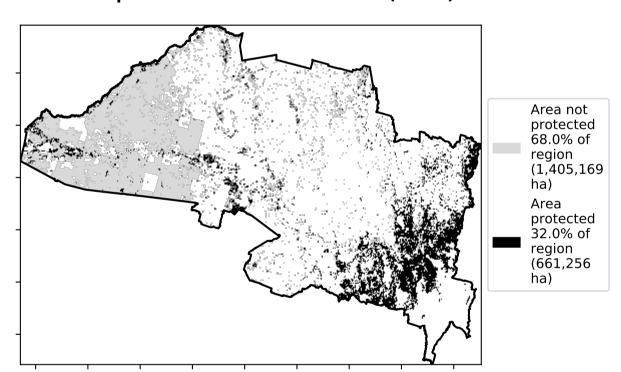
Land use and forest cover



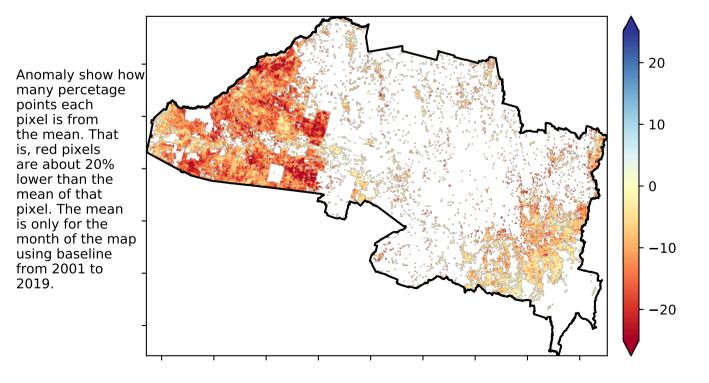
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

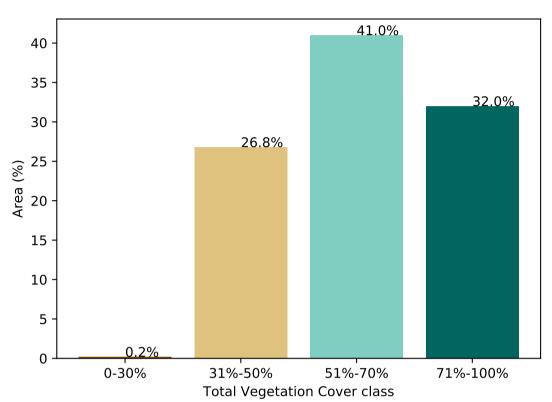


Total Vegetation Cover Anomaly [%]

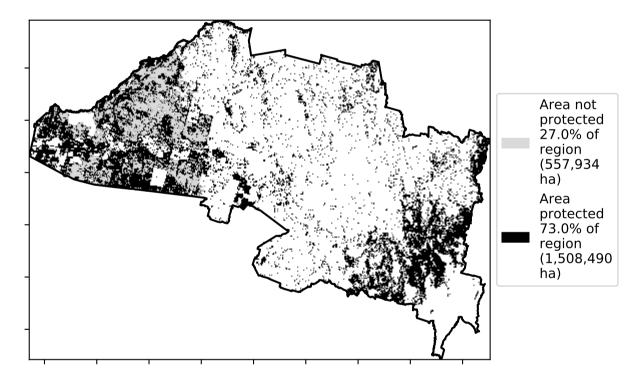


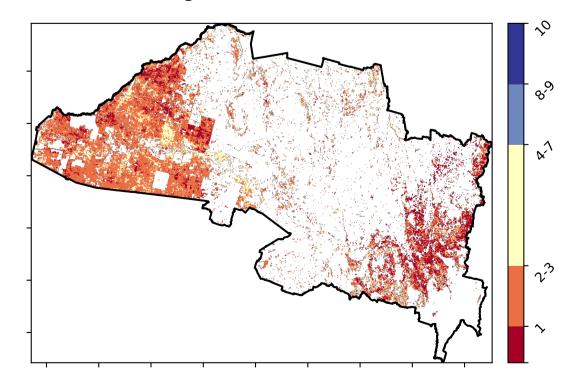
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Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









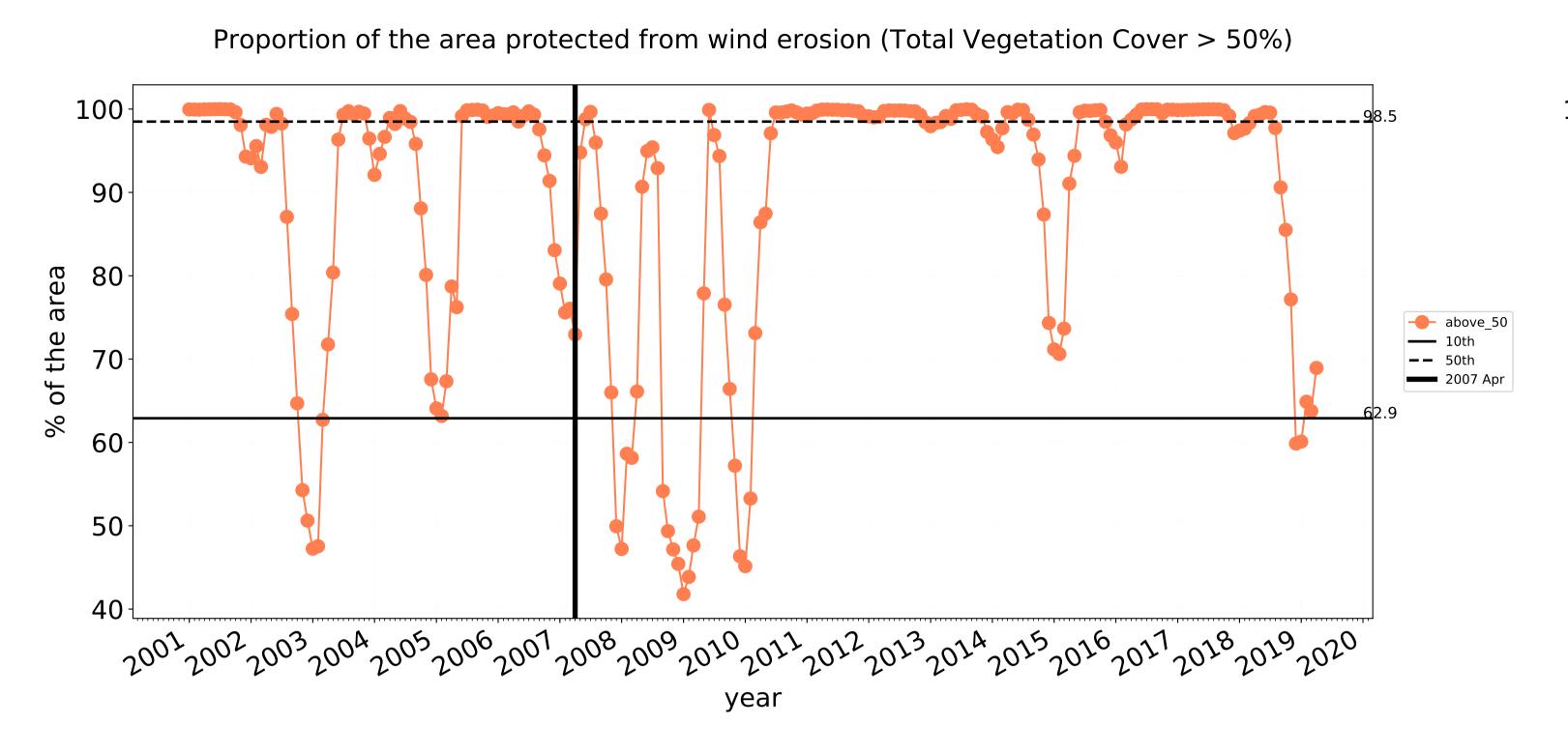


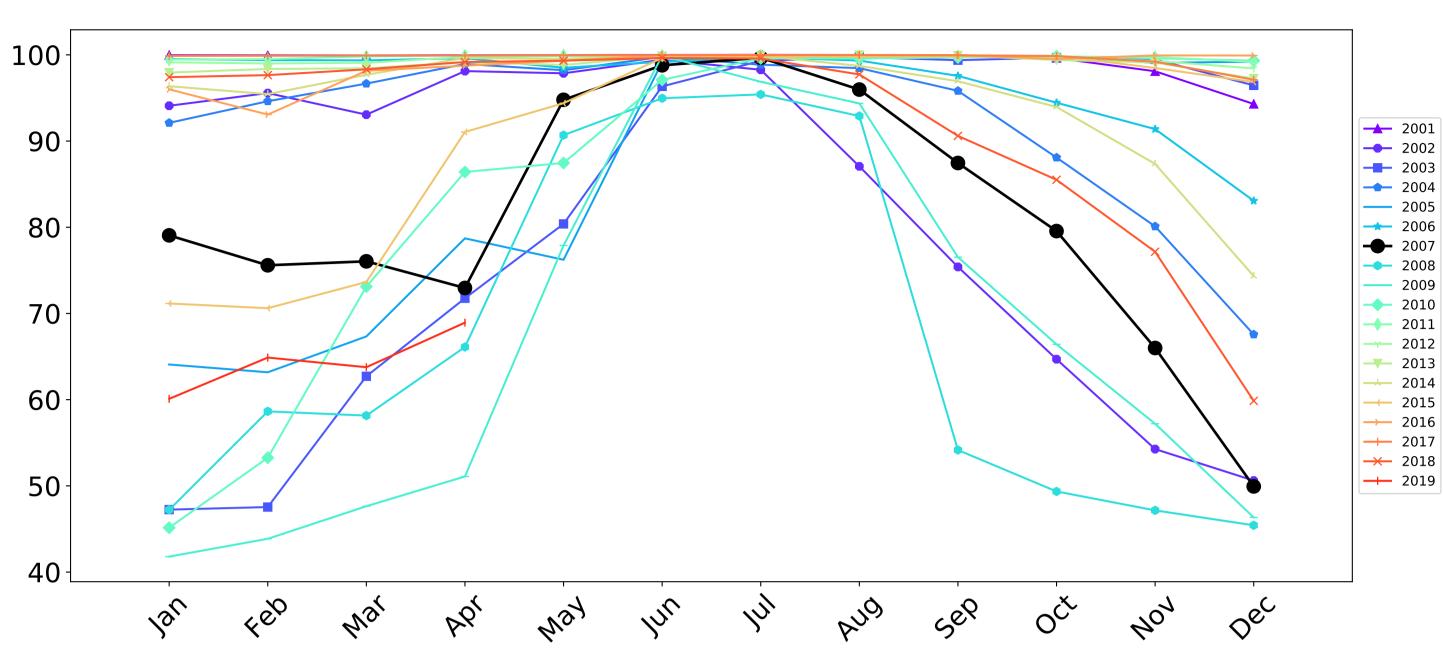






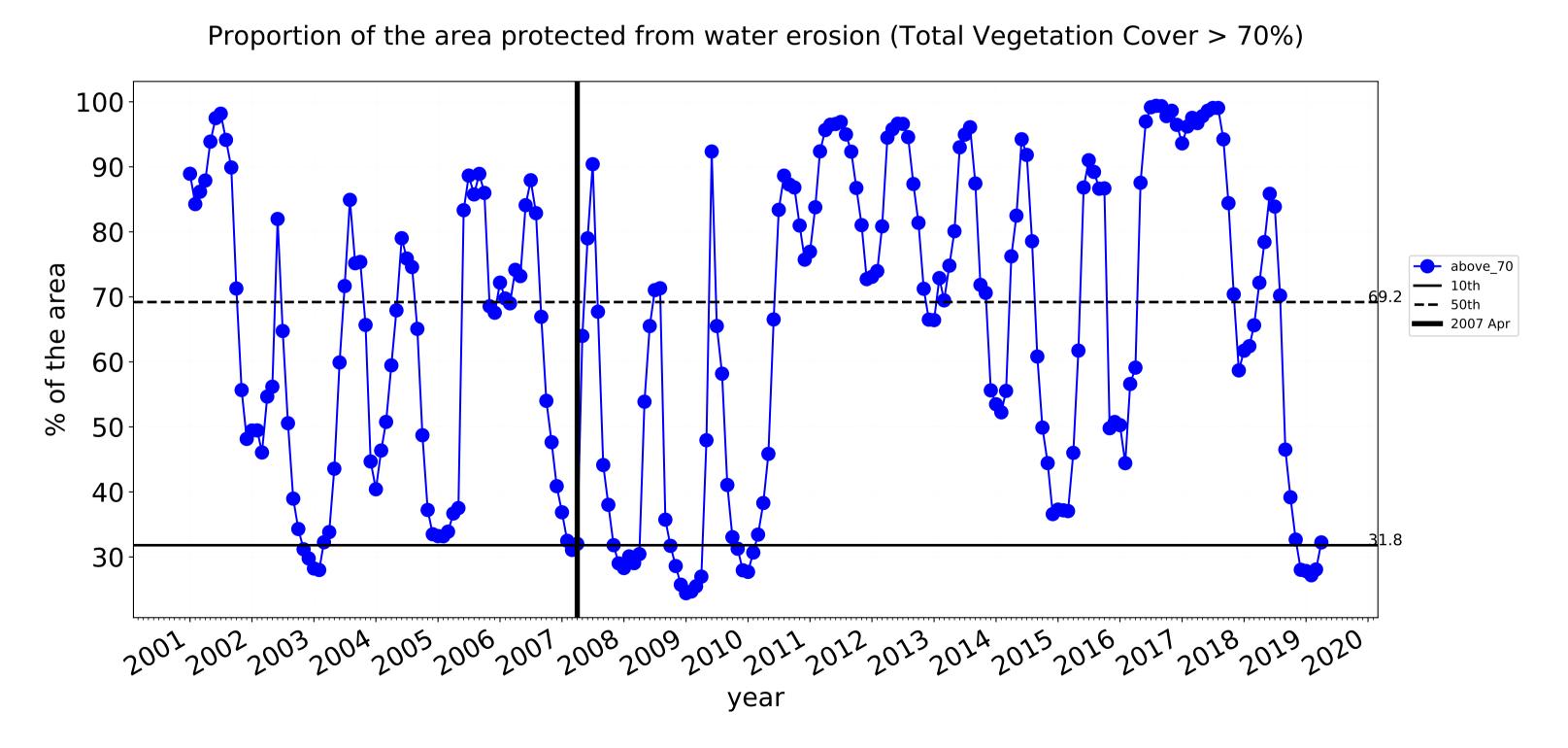
Grazing non forest timeseries

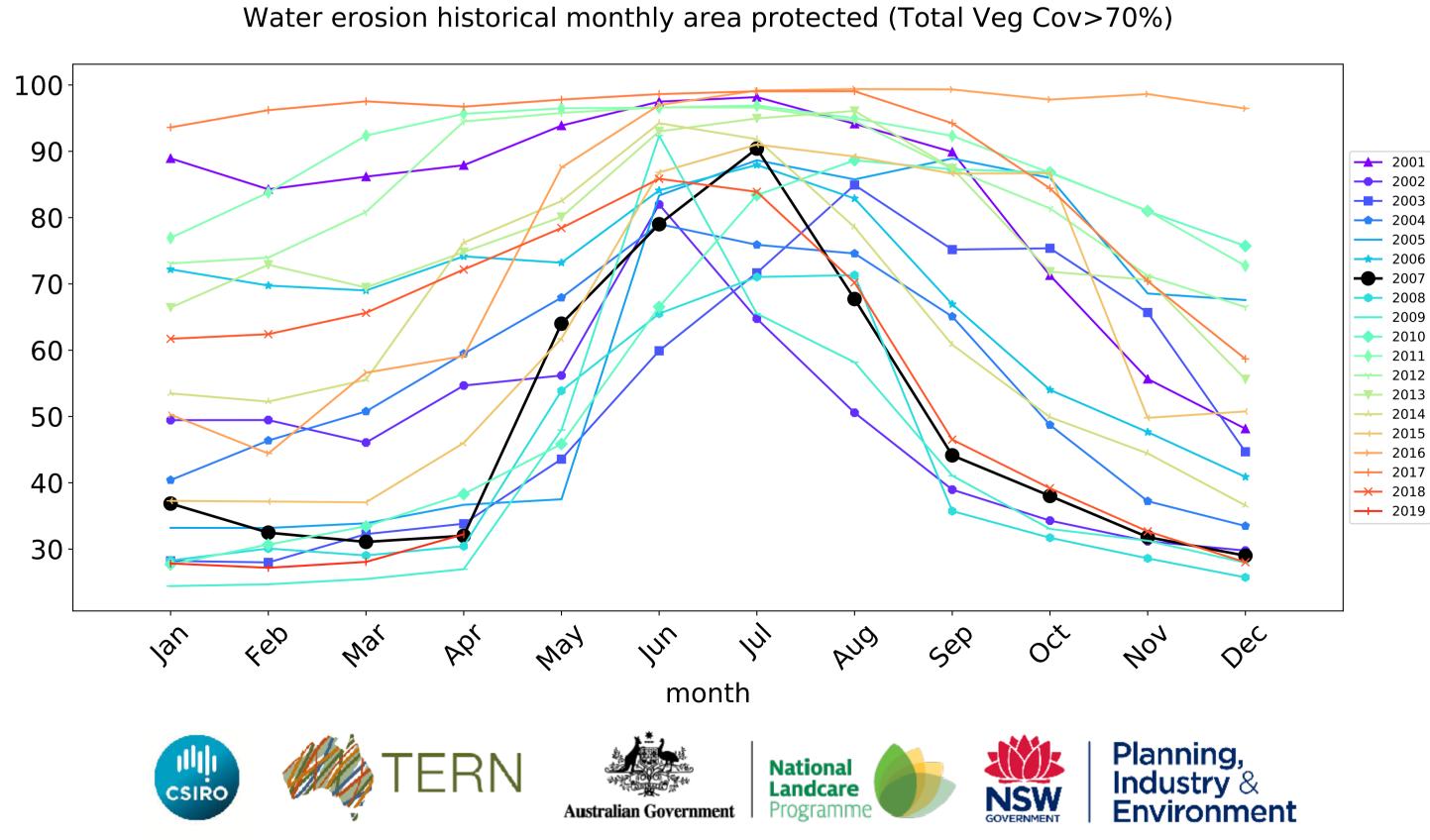




month

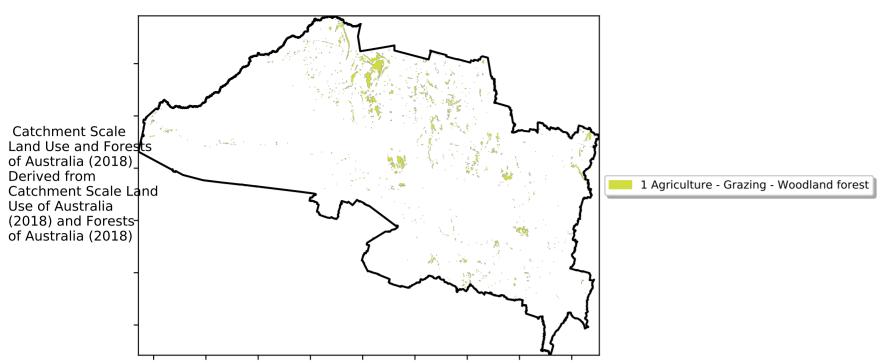
Wind erosion historical monthly area protected (Total Veg Cov >50%)



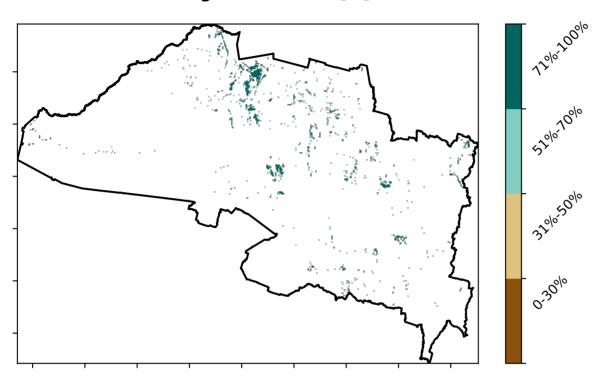


Grazing Woodland forest

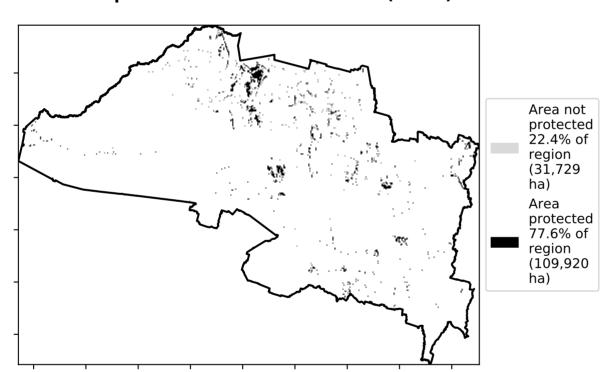
Land use and forest cover



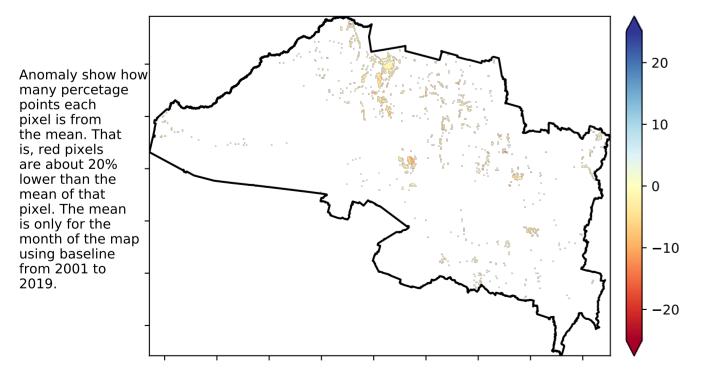
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

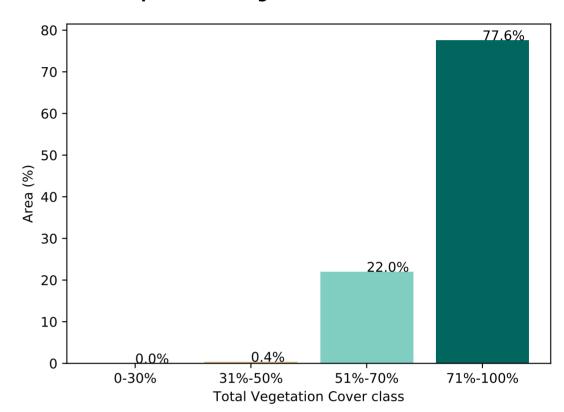


Total Vegetation Cover Anomaly [%]

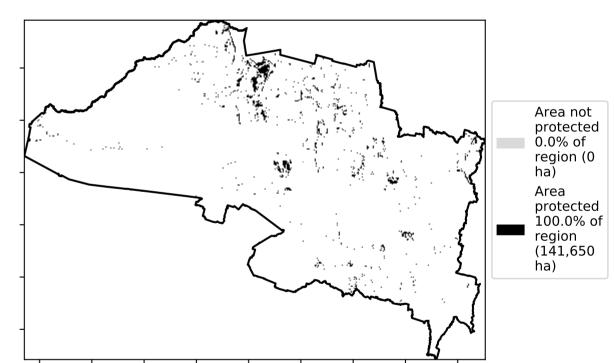


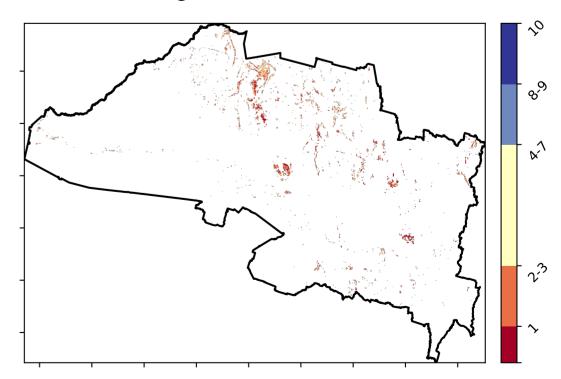
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Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









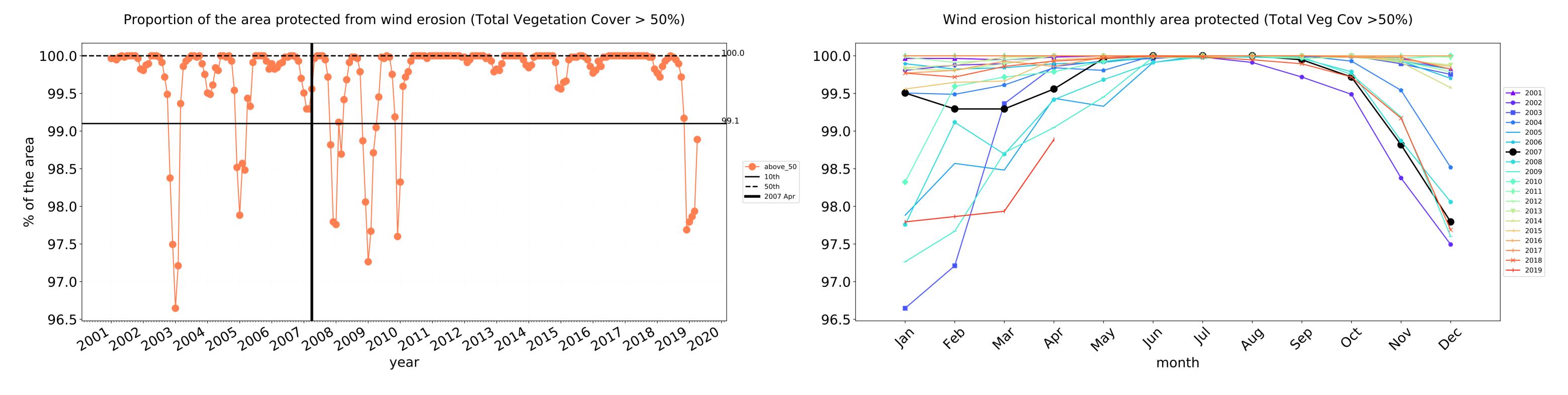


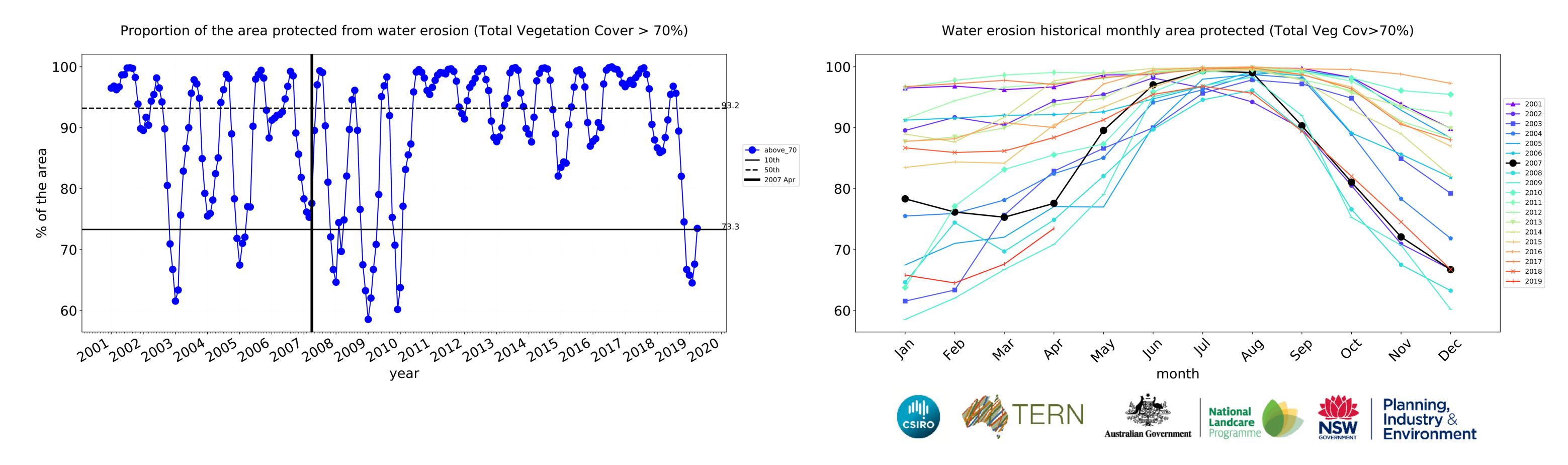






Grazing Woodland forest timeseries



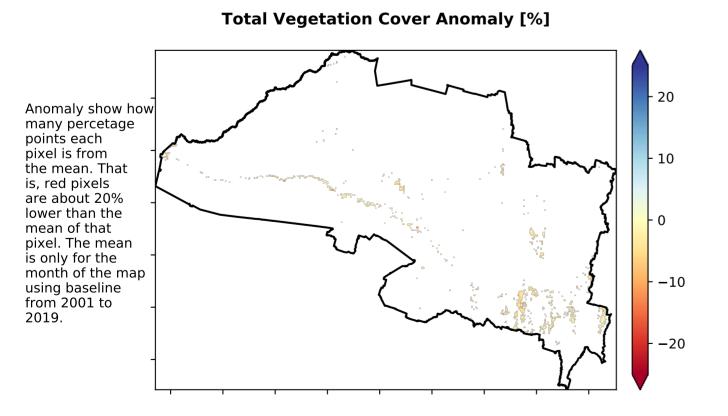


Grazing - Forest (non woodland)

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

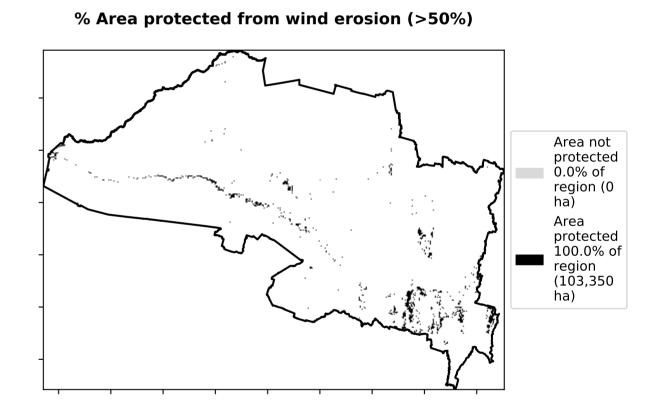
Total Vegetation Cover [%]

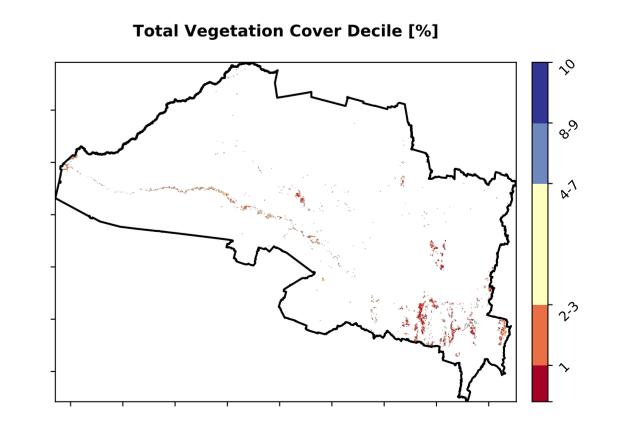
% Area protected from water erosion (>70%) Area not protected 5.7% of region (5,890 ha) Area protected 94.3% of region (97,459 ha)



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 94.3% 94.3% 94.3% 94.3% 94.3% 94.3% 94.3% 94.3% 94.3% 71%-100% Total Vegetation Cover class







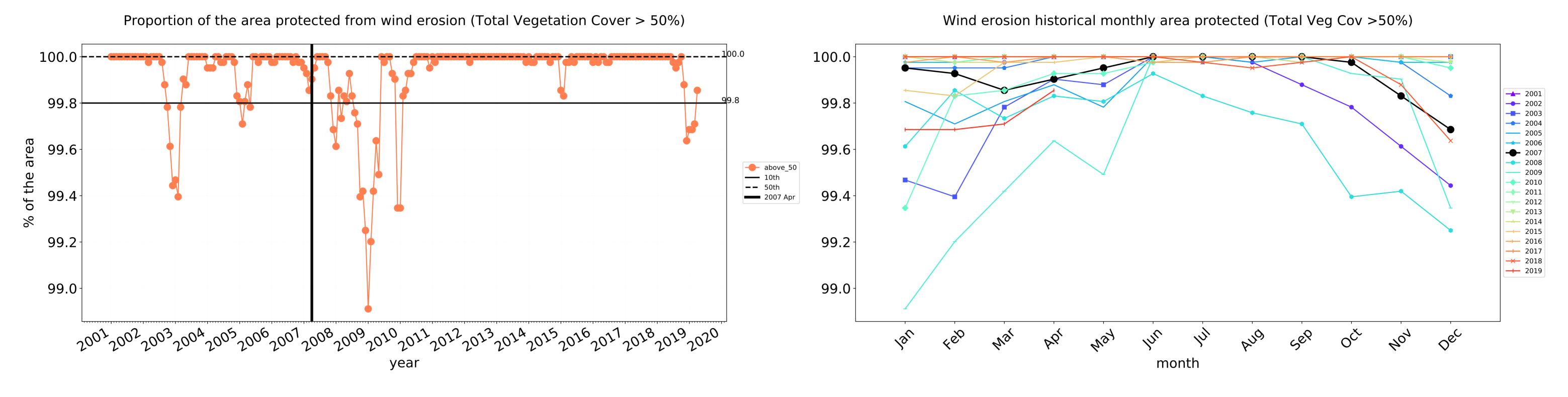


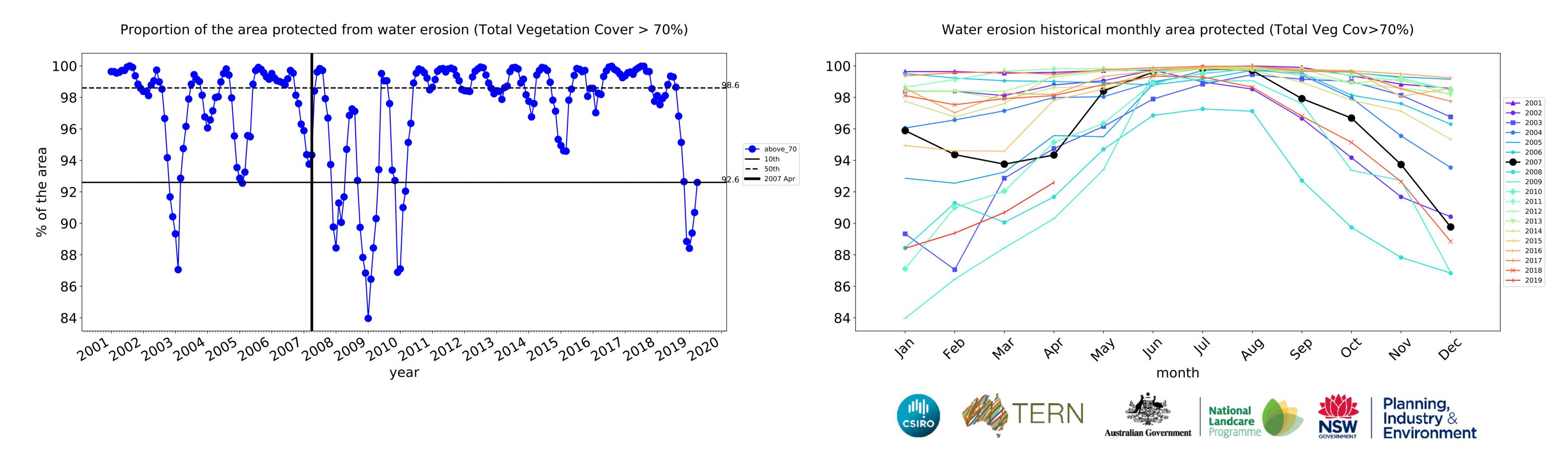






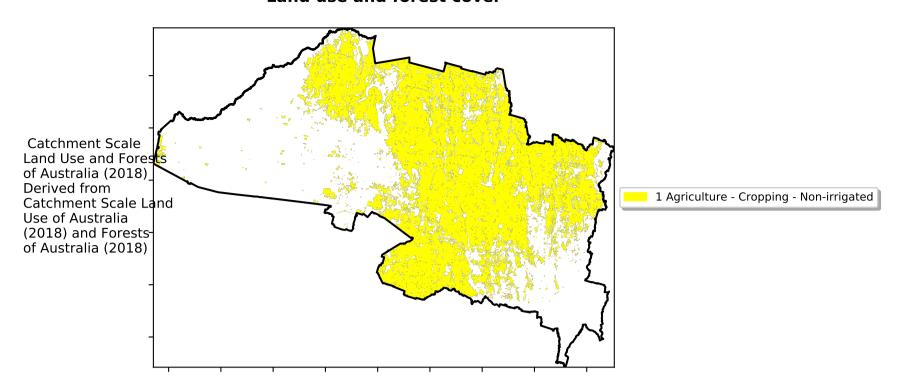




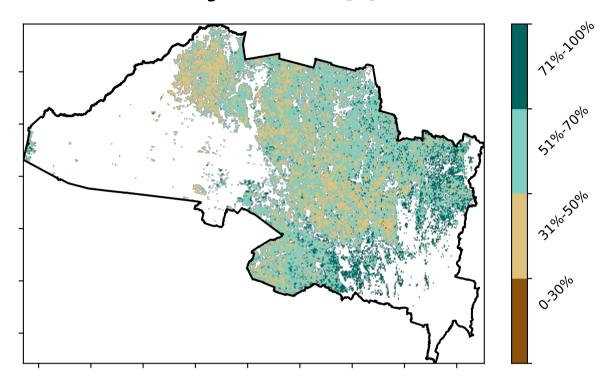


Cropping

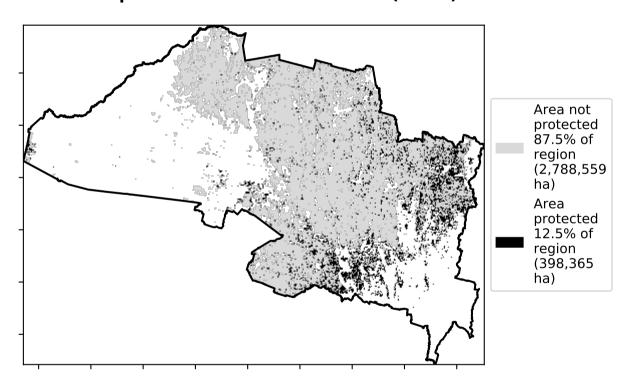
Land use and forest cover



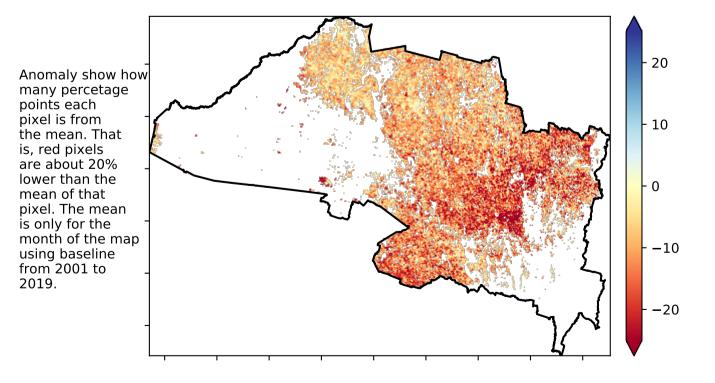
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

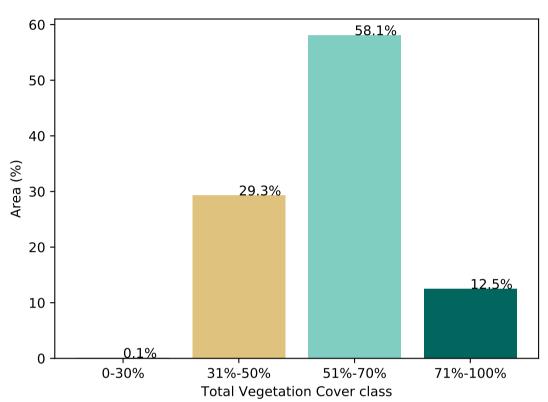


Total Vegetation Cover Anomaly [%]

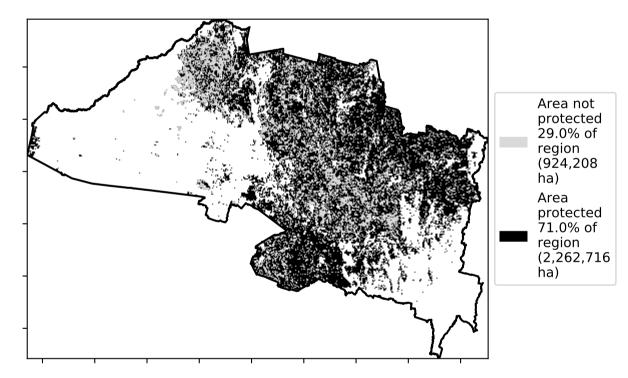


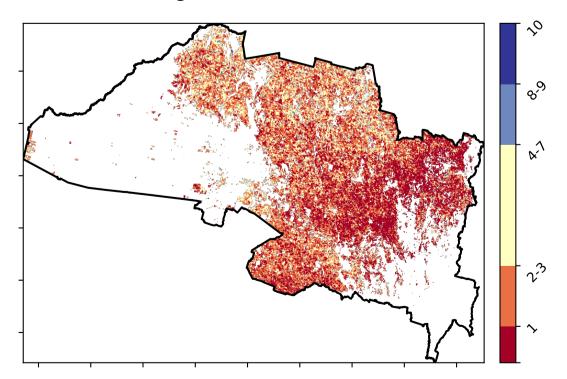
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









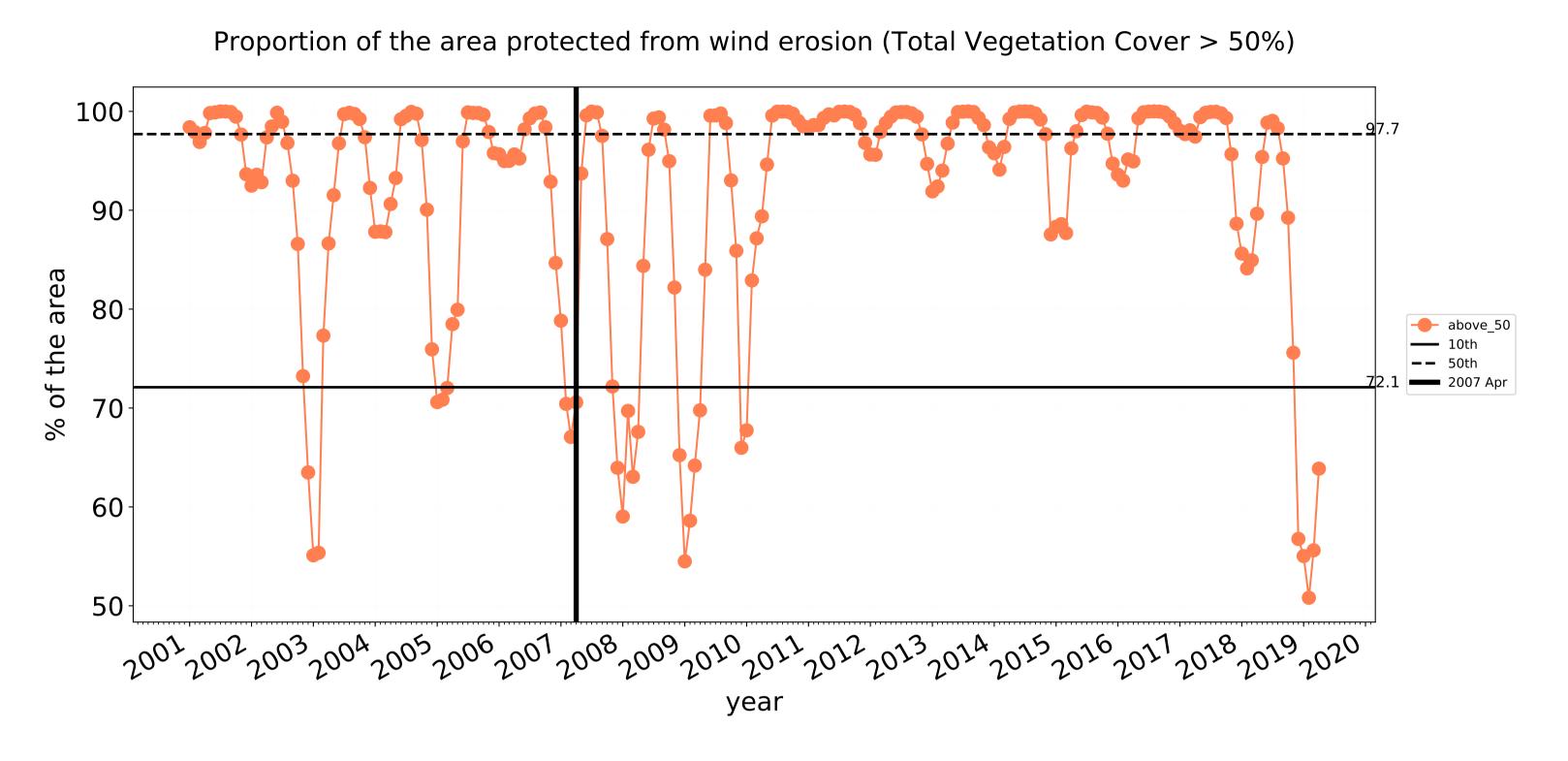


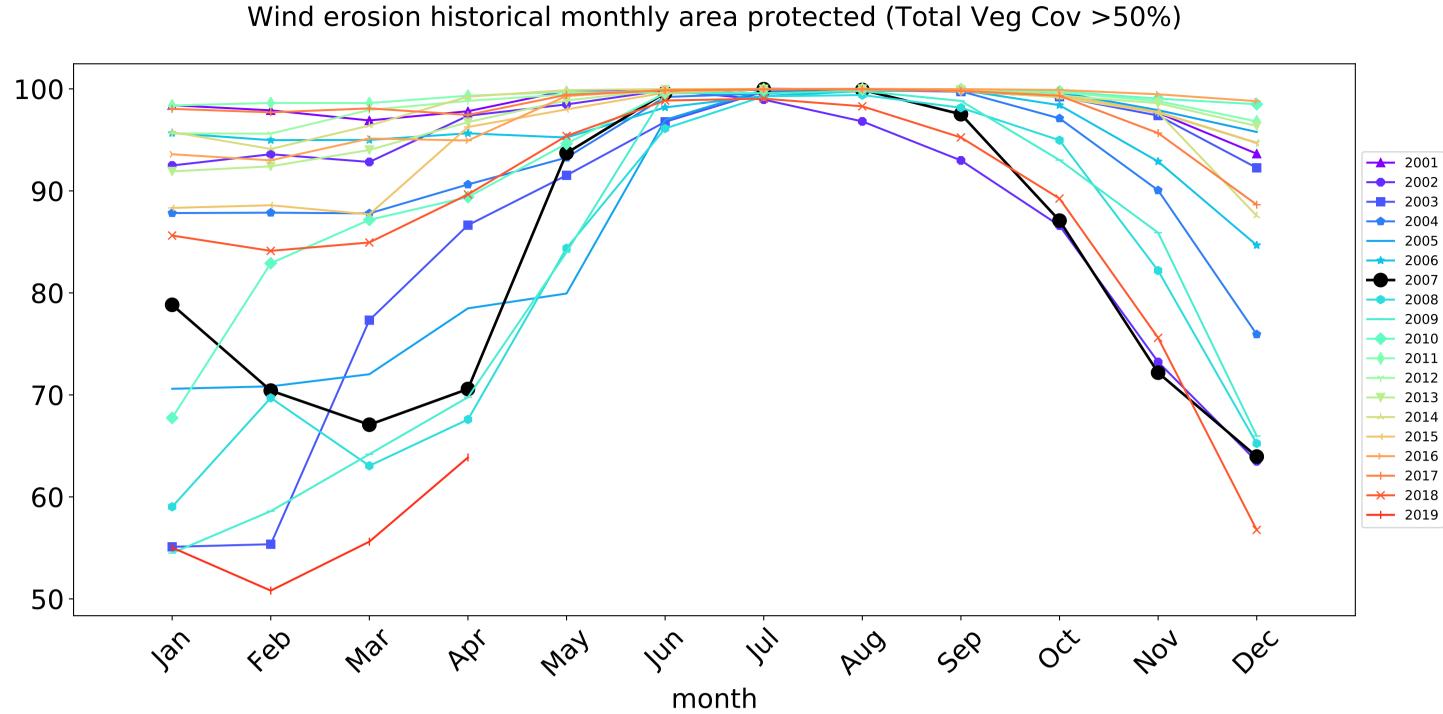


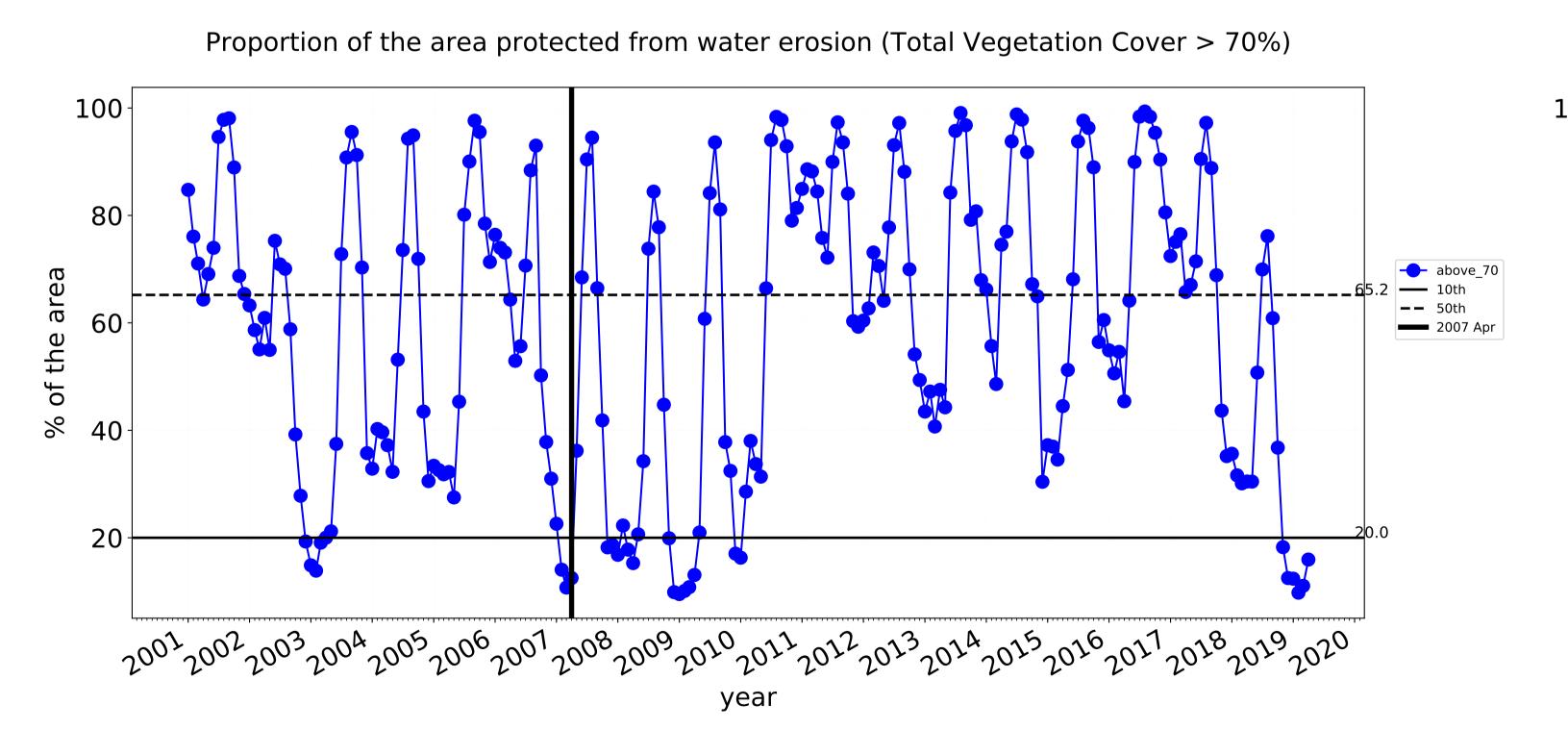


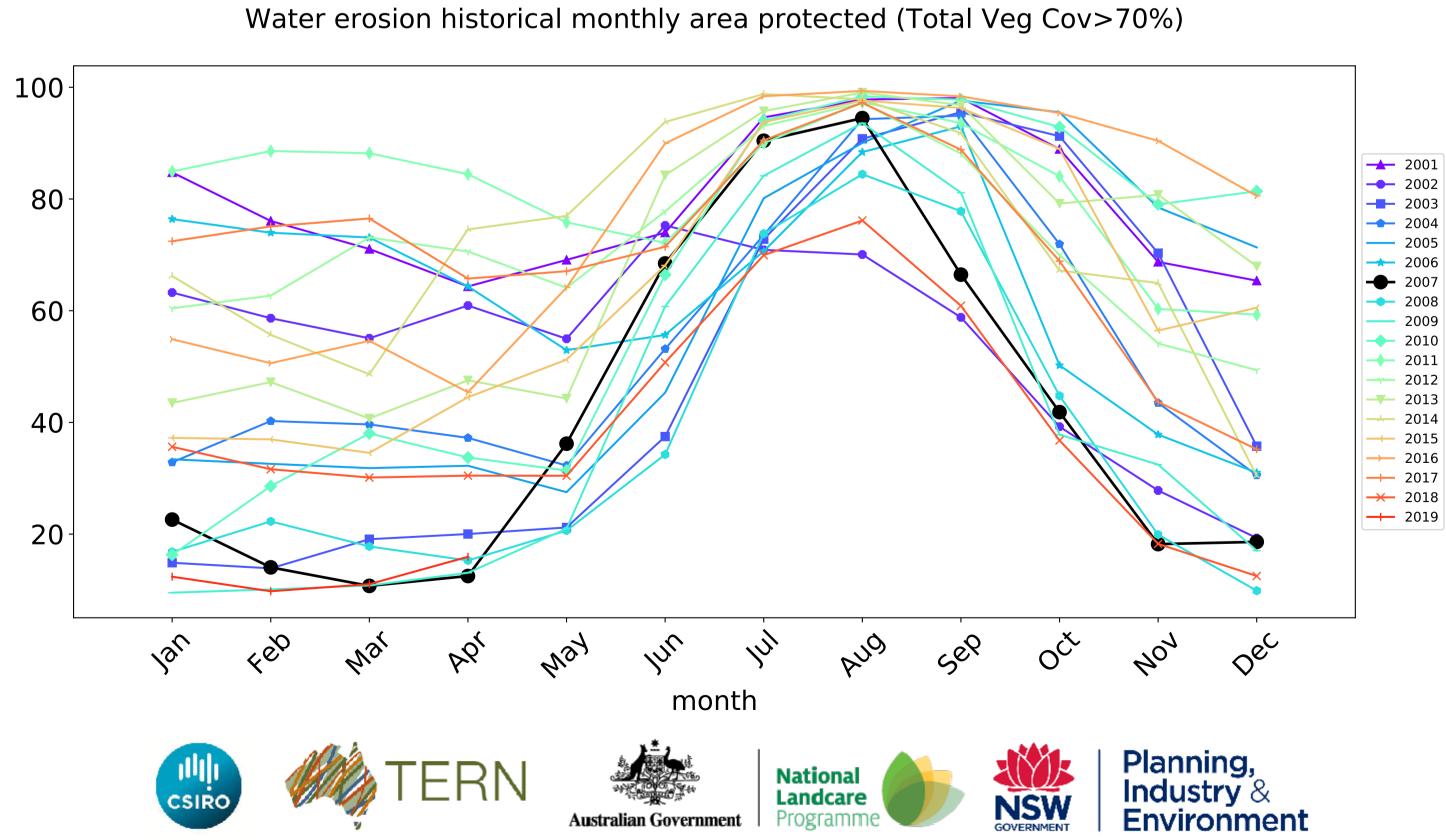


Cropping timeseries





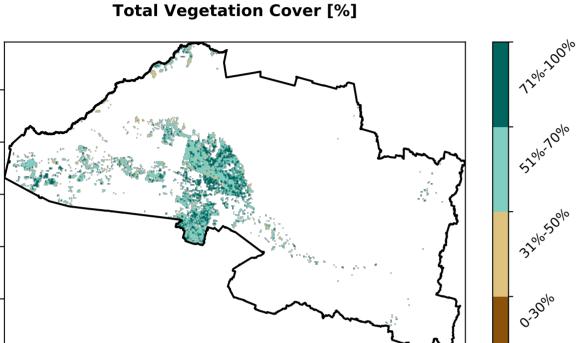


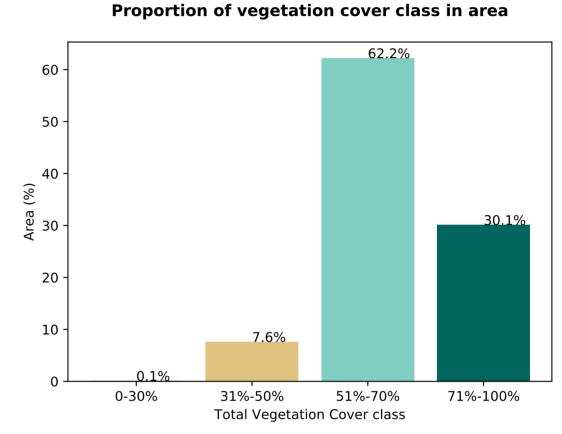


Irrigation

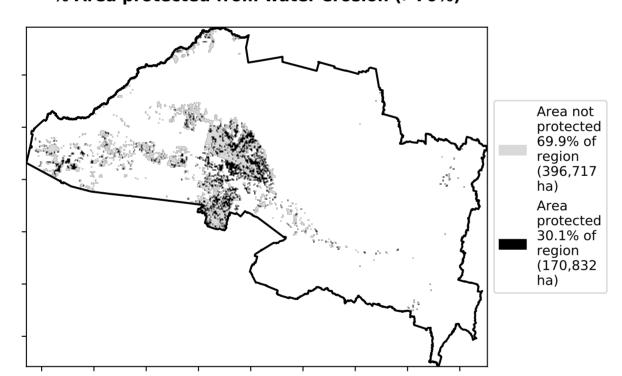
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 1 Agriculture - Grazing - Irrigated 2 Agriculture - Cropping - Irrigated 3 Agriculture - Horticulture - Irrigated

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

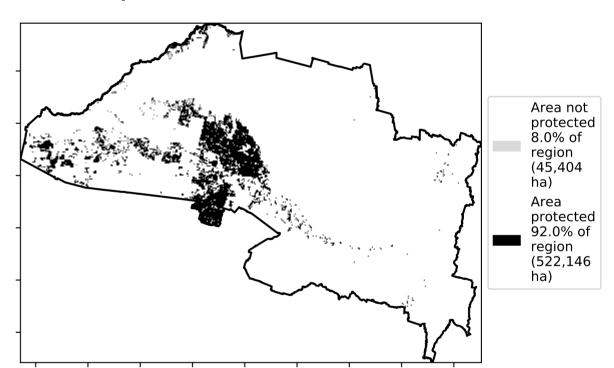




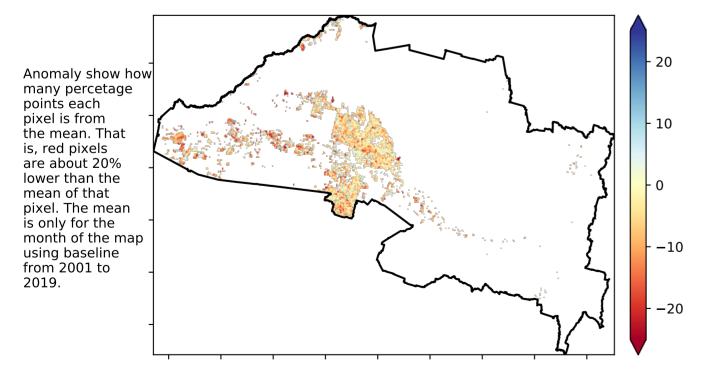




% Area protected from wind erosion (>50%)







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.



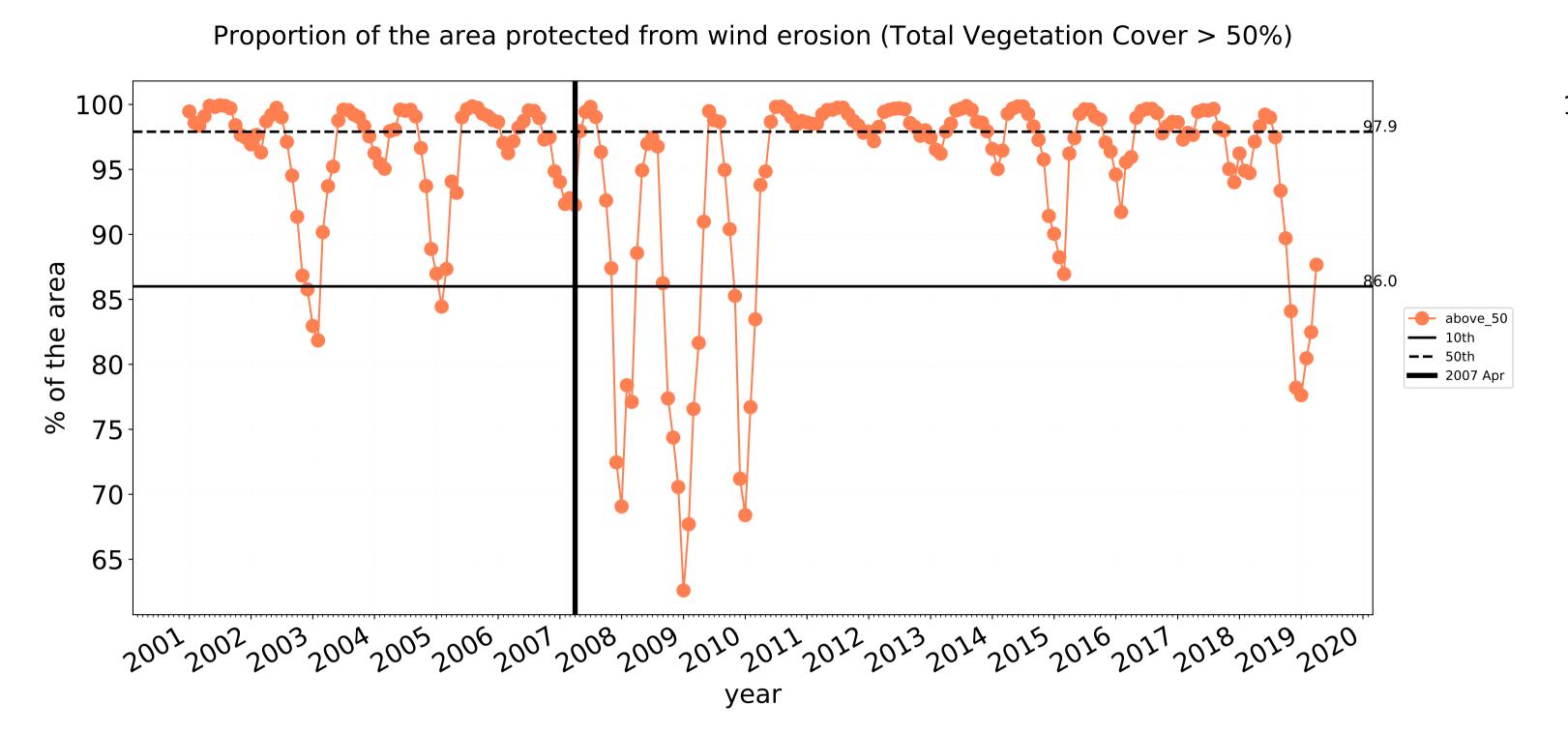


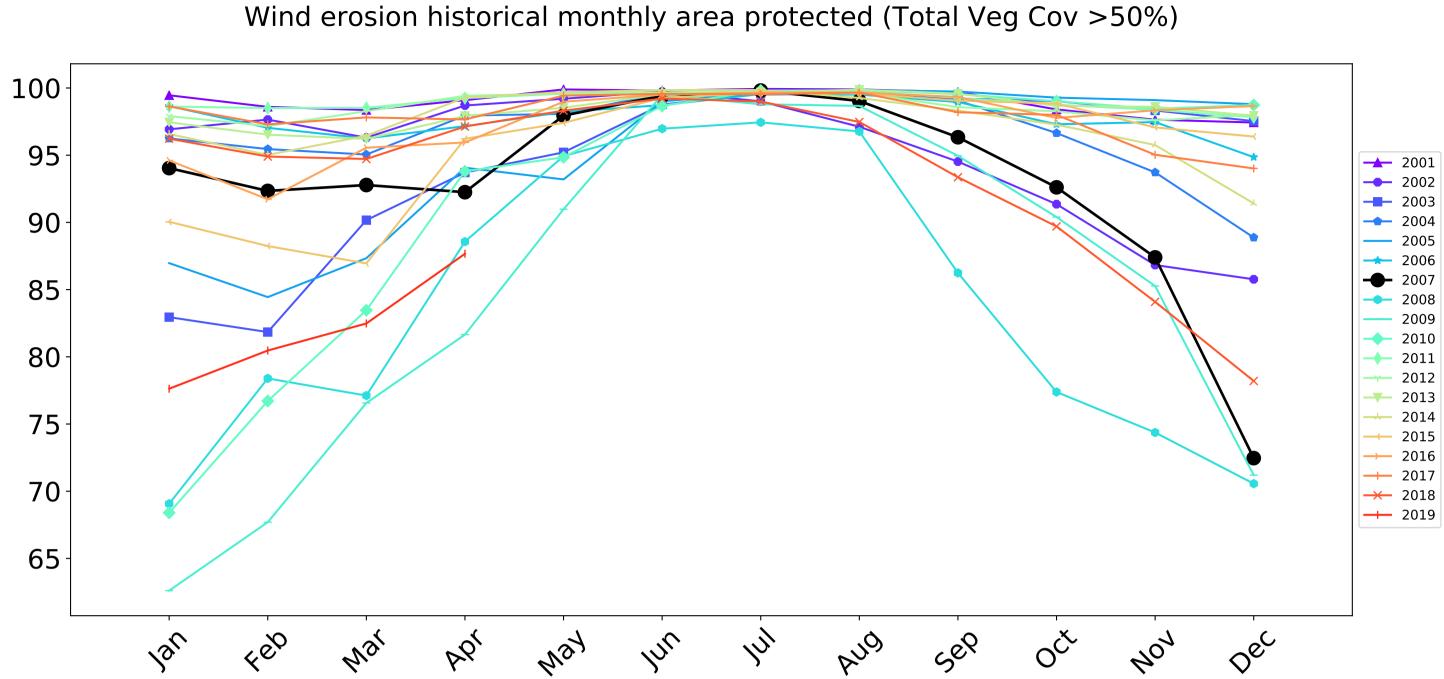




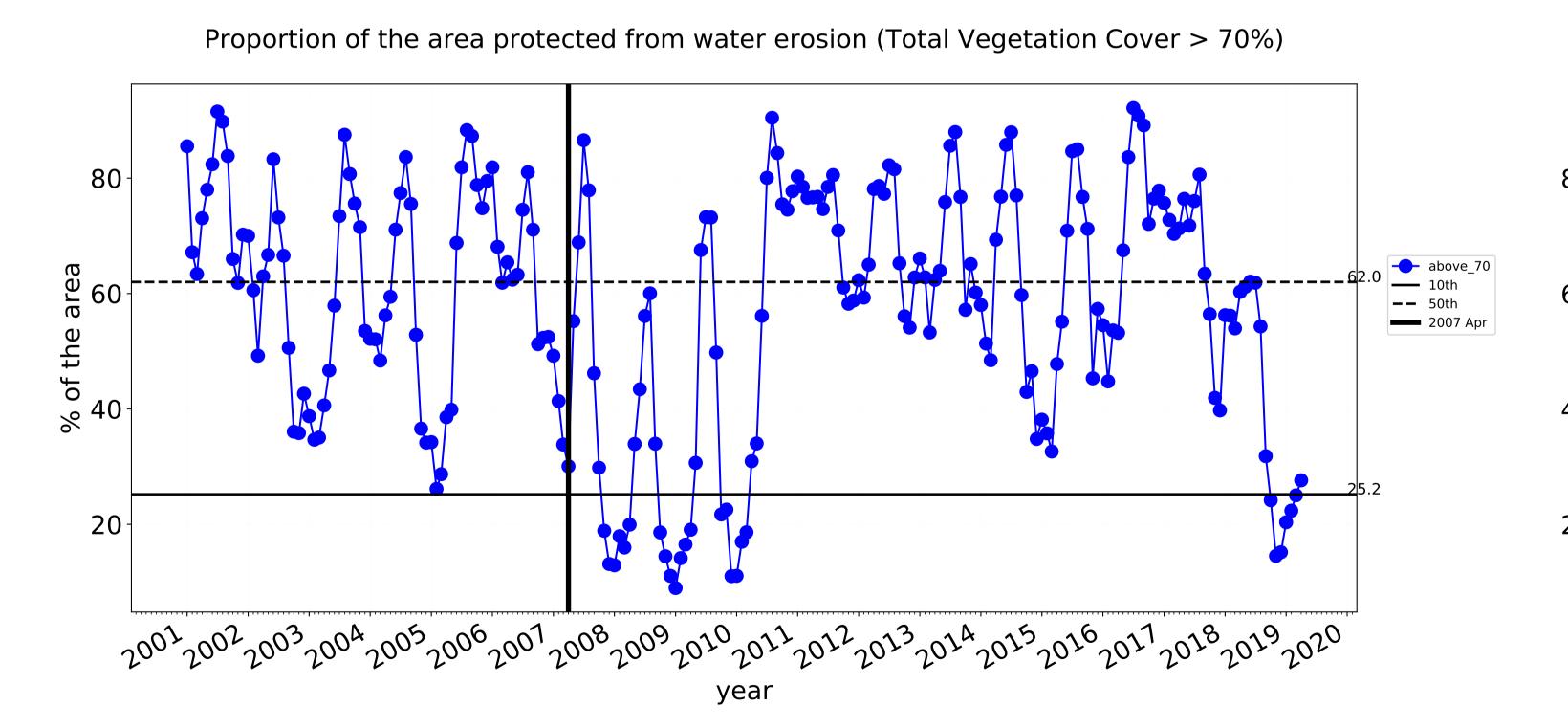


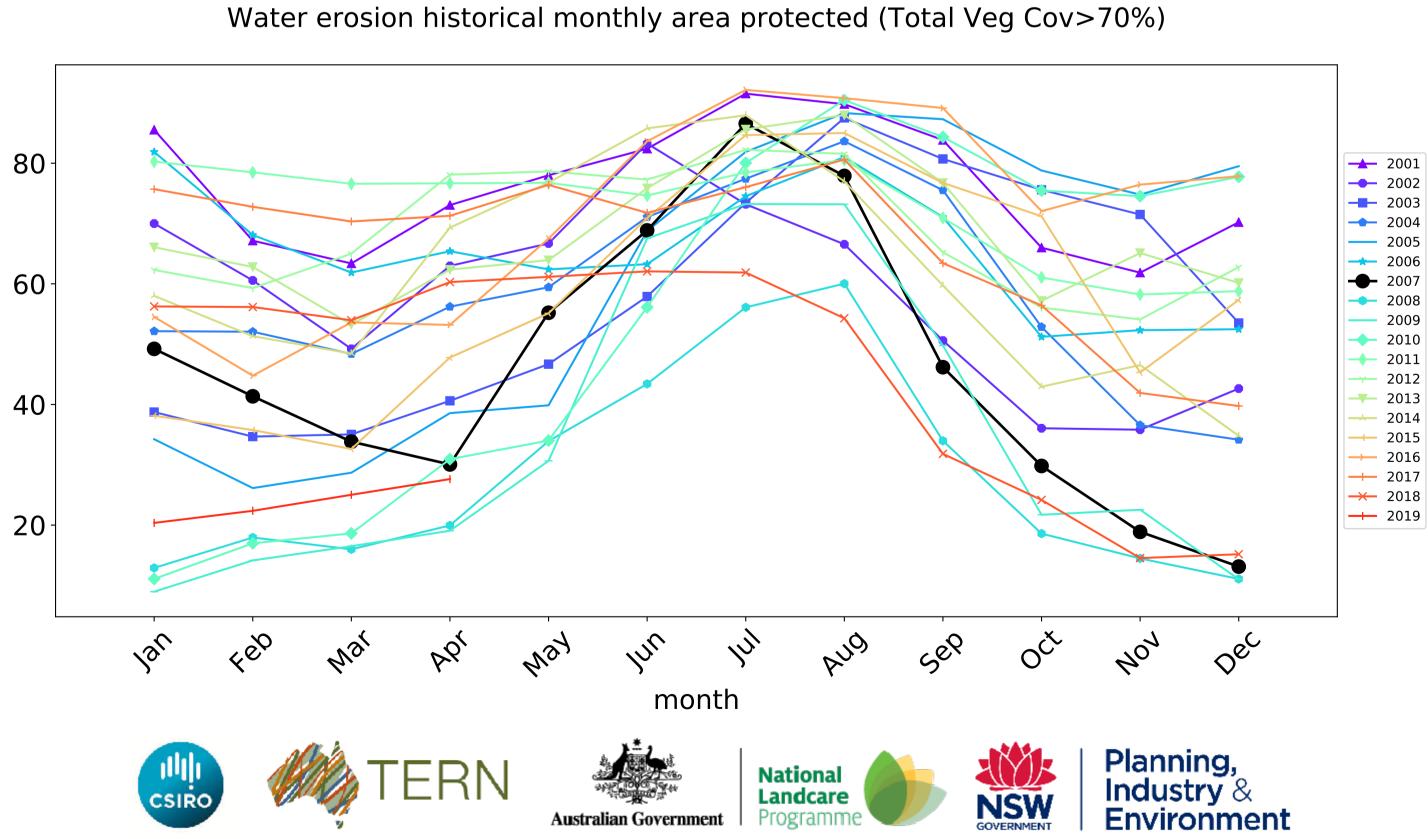






month



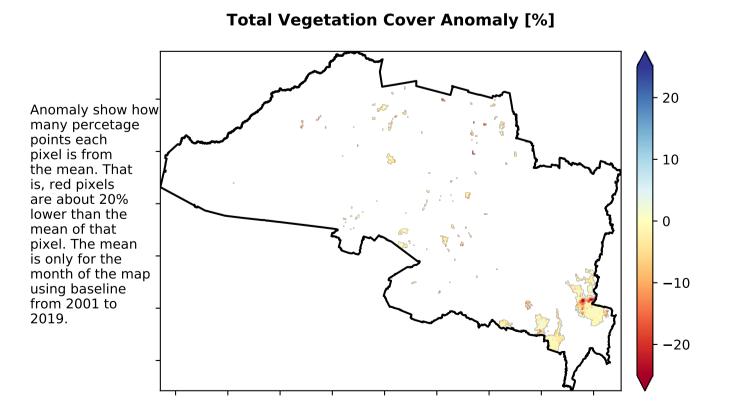


Production native forests and plantation forests

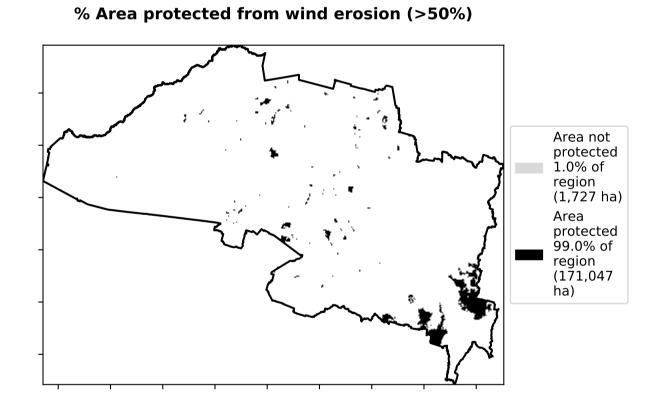
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) Australia (2018) Of Australia (2018) Of Australia (2018)

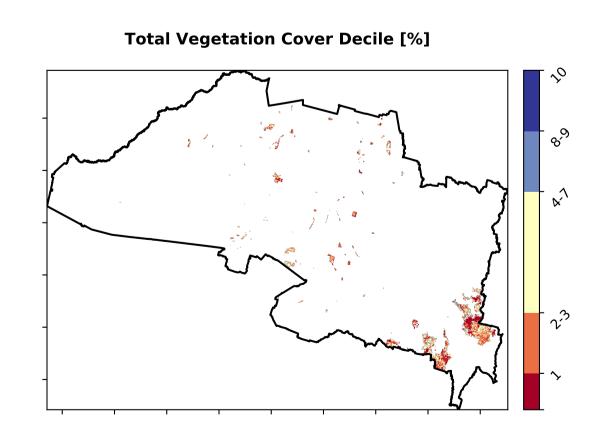
Total Vegetation Cover [%] Typic toolo Typ

% Area protected from water erosion (>70%) Area not protected 7.7% of region (13,303 ha) Area protected 92.3% of region (159,471 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.









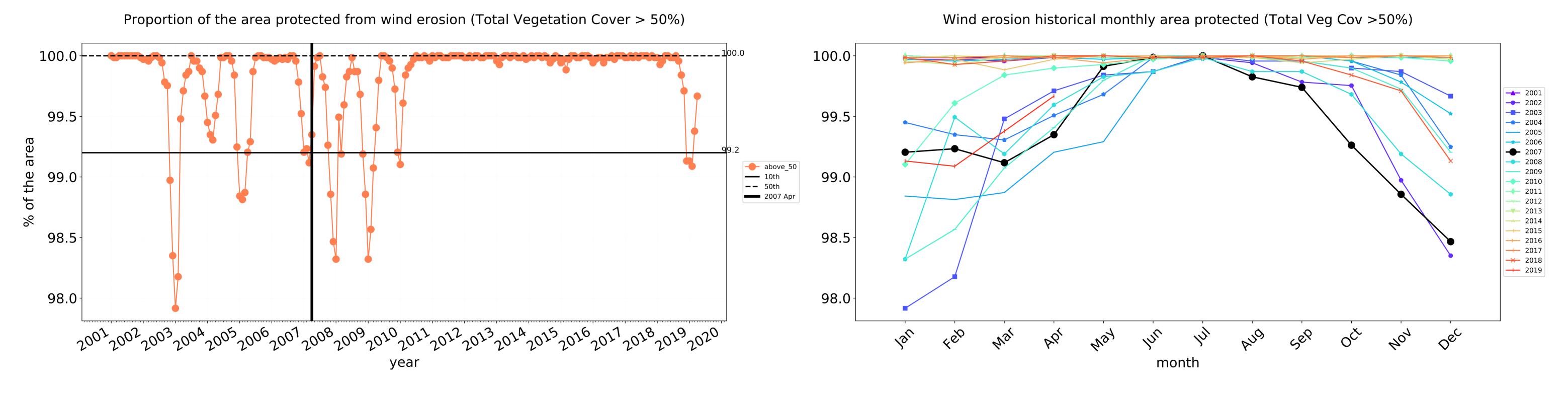


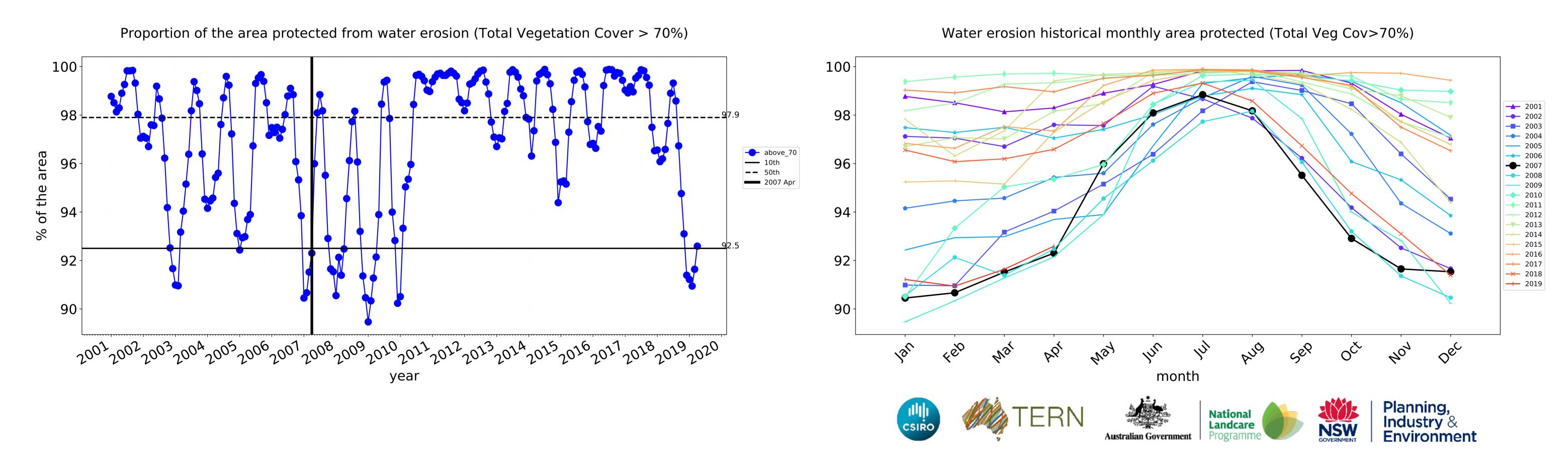






Production native forests and plantation forests timeseries





Riverina (6,693,600 ha and no data 14,735 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	6,693,600	99.9% 6,684,674	76.4% 5,113,185	28.6% 1,914,753	14.6% 980,165	4.8% 320,538	2.0% 132,955
Conservation and natural environments	323,075	100.0% 323,075	94.9% 306,525	83.8% 270,875	75.4% 243,550	44.6% 144,000	19.0% 61,425
Conservation and natural environments non forest	83,350	100.0% 83,350	80.2% 66,825	40.7% 33,900	20.7% 17,225	8.3% 6,925	4.0% 3,300
Conservation and natural environments Forest (non woodland)	195,225	100.0% 195,225	100.0% 195,225	99.7% 194,700	97.7% 190,775	66.4% 129,600	29.1% 56,825
Agriculture	6,067,725	99.9% 6,059,000	74.6% 4,525,975	23.7% 1,437,875	9.6% 580,900	1.3% 78,025	0.2% 11,525
Grazing	2,311,425	99.8% 2,306,525	75.8% 1,751,900	37.6% 868,750	20.2% 468,025	3.2% 73,175	0.5% 10,775
Grazing non forest	2,066,425	99.8% 2,061,525	73.0% 1,507,625	32.0% 661,350	16.0% 330,075	2.2% 44,550	0.3% 6,200
Grazing Woodland forest	141,650	100.0% 141,650	99.6% 141,025	77.6% 109,900	41.6% 58,975	2.6% 3,725	0.2% 325
Grazing - Forest (non woodland)	103,350	100.0% 103,350	99.9% 103,250	94.3% 97,500	76.4% 78,975	24.1% 24,900	4.1% 4,250
Cropping	3,186,925	99.9% 3,183,725	70.6% 2,249,175	12.5% 398,325	2.6% 81,900	0.1% 2,975	0.0% 250
Irrigation	567,550	99.9% 566,925	92.2% 523,550	30.1% 170,600	5.4% 30,900	0.3% 1,875	0.1% 500
Production native forests and plantation forests	172,775	100.0% 172,775	99.3% 171,650	92.3% 159,475	82.7% 142,950	56.5% 97,550	34.7% 59,875











