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: December 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







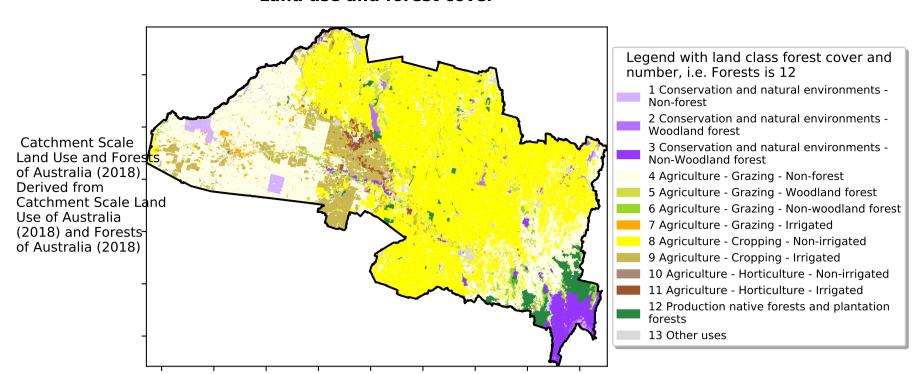




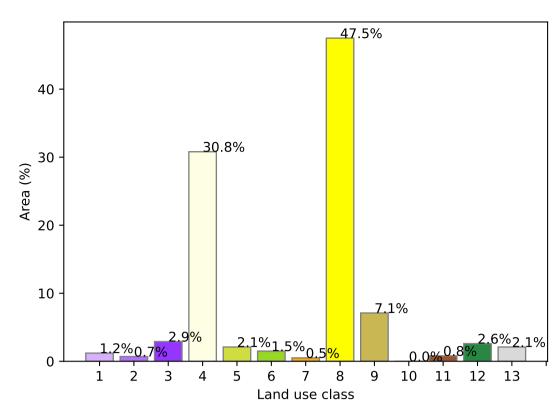


Vegetation Cover Dec 2007

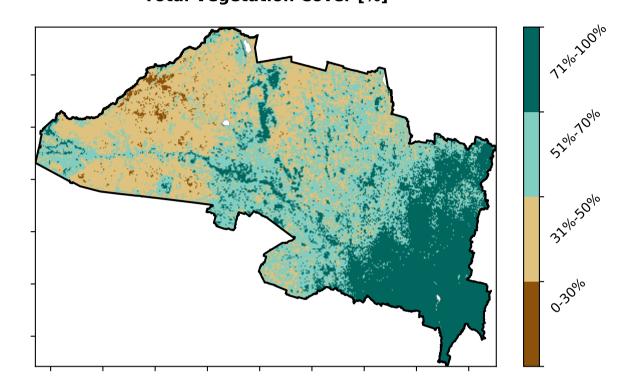
Land use and forest cover



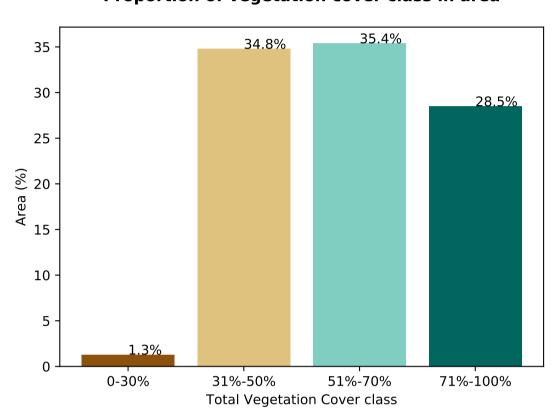
Proportion of each land class in area



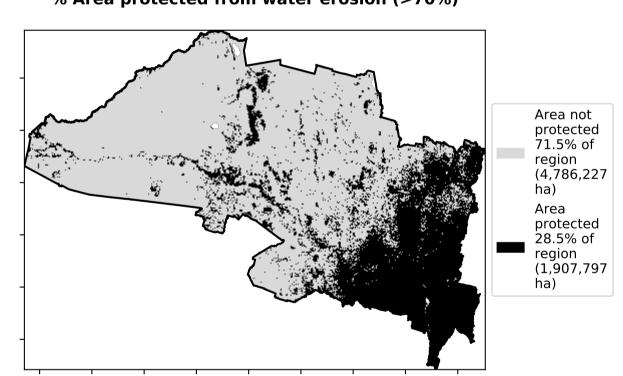
Total Vegetation Cover [%]



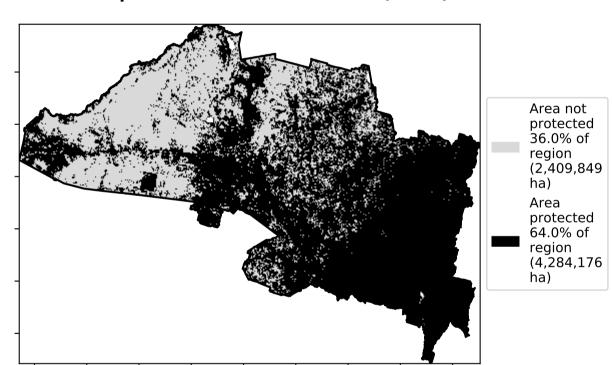
Proportion of vegetation cover class in area



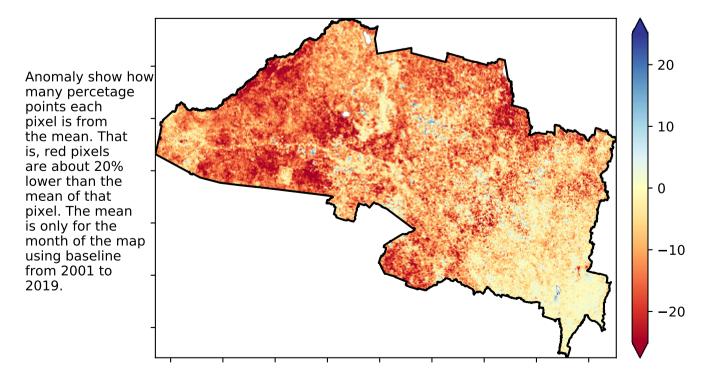
% Area protected from water erosion (>70%)



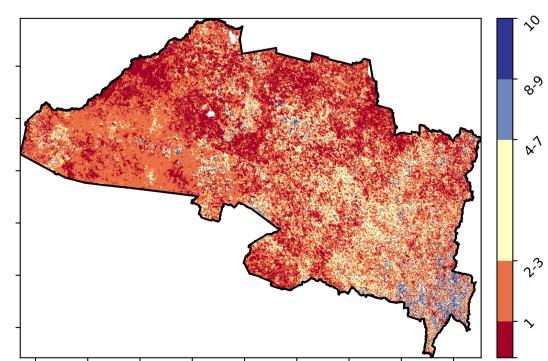
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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.





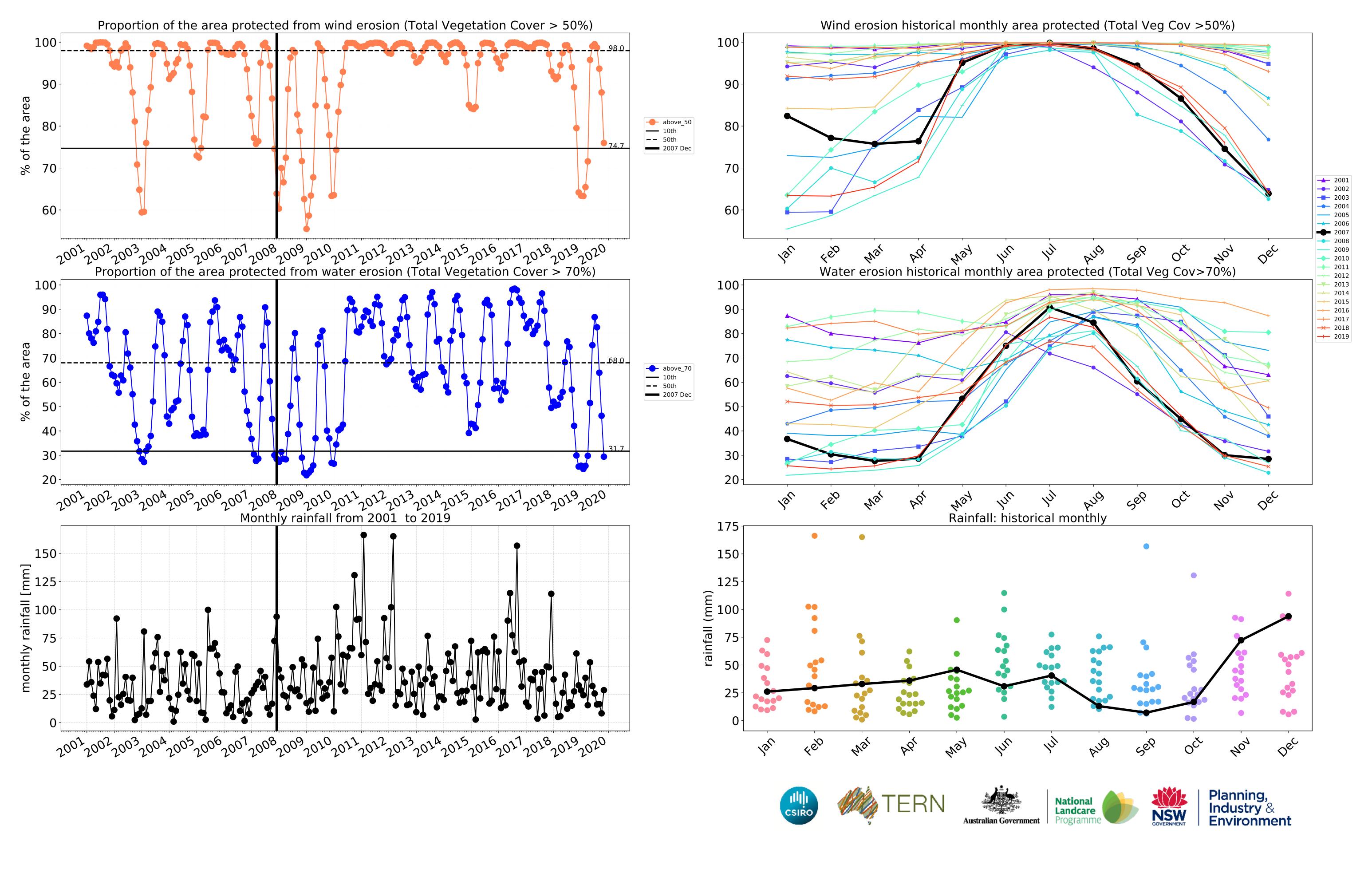




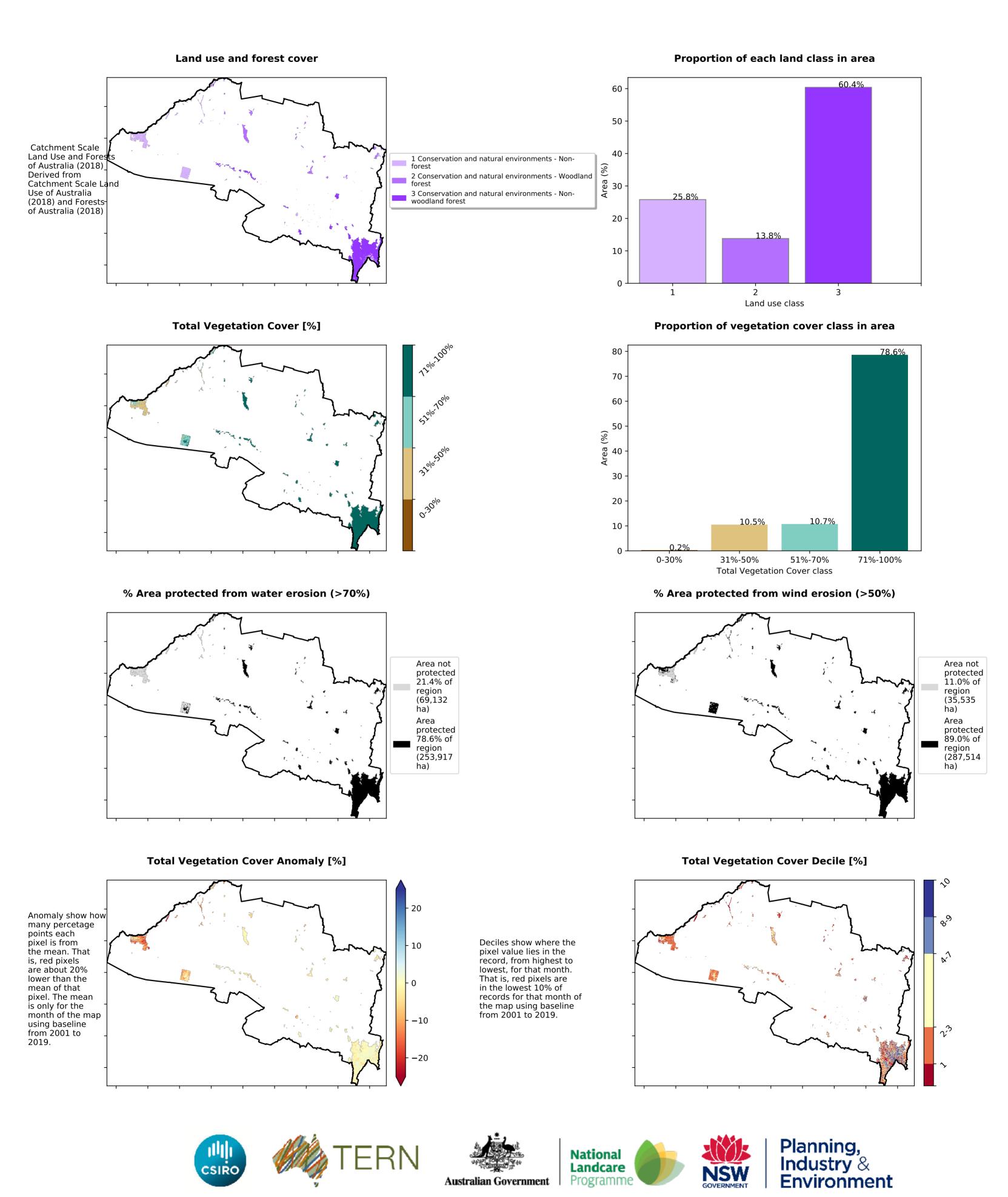






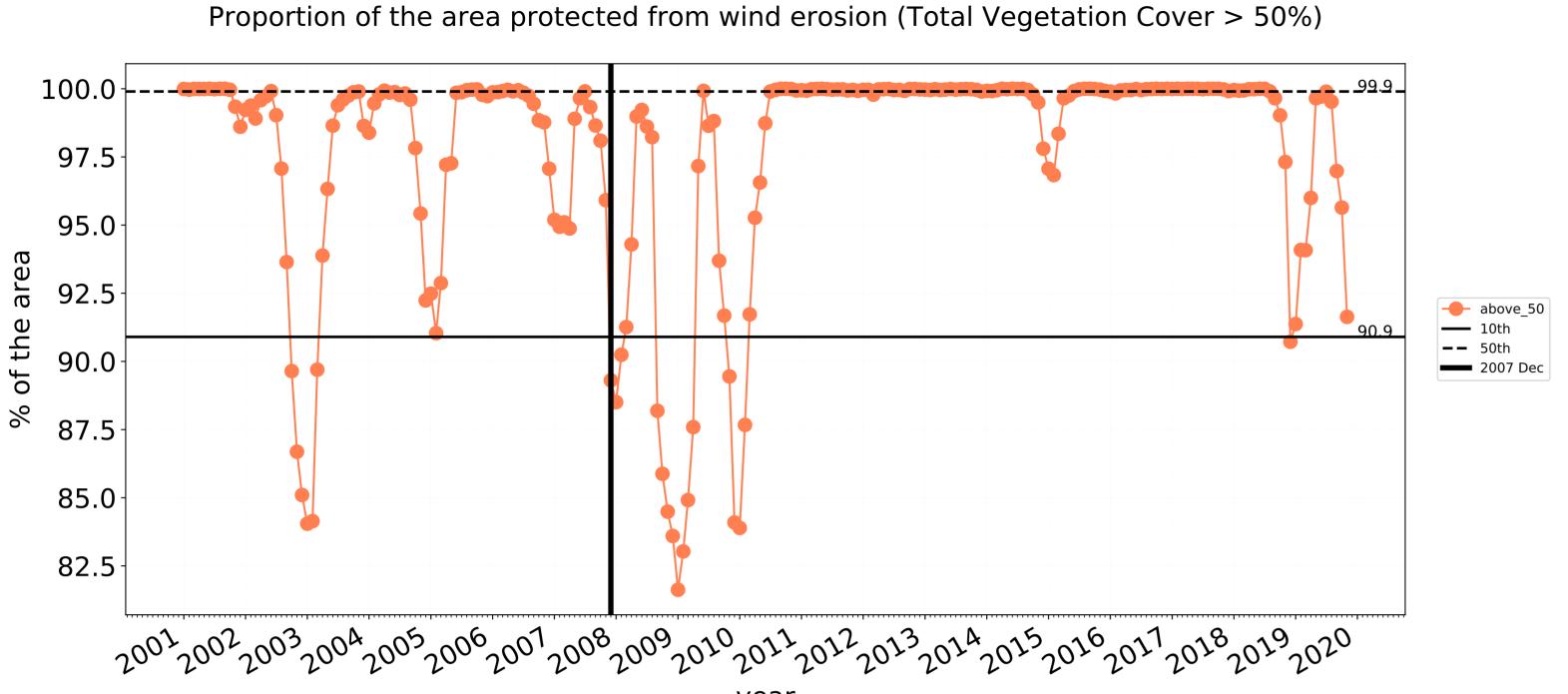


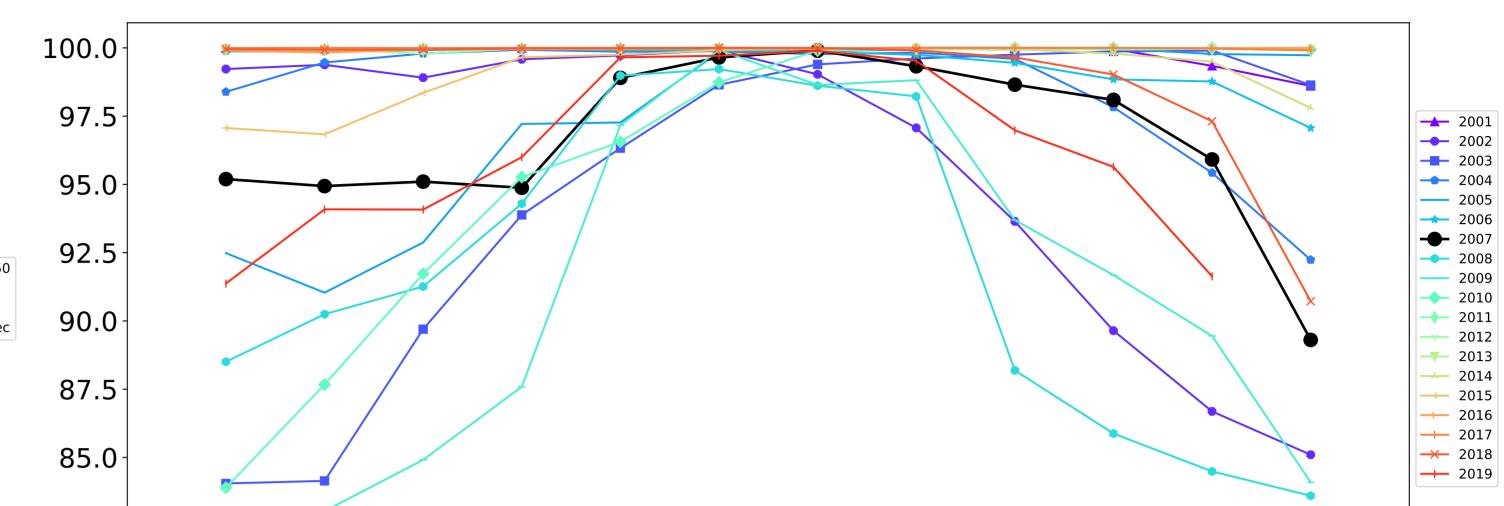
Conservation and natural environments



Conservation and natural environments timeseries

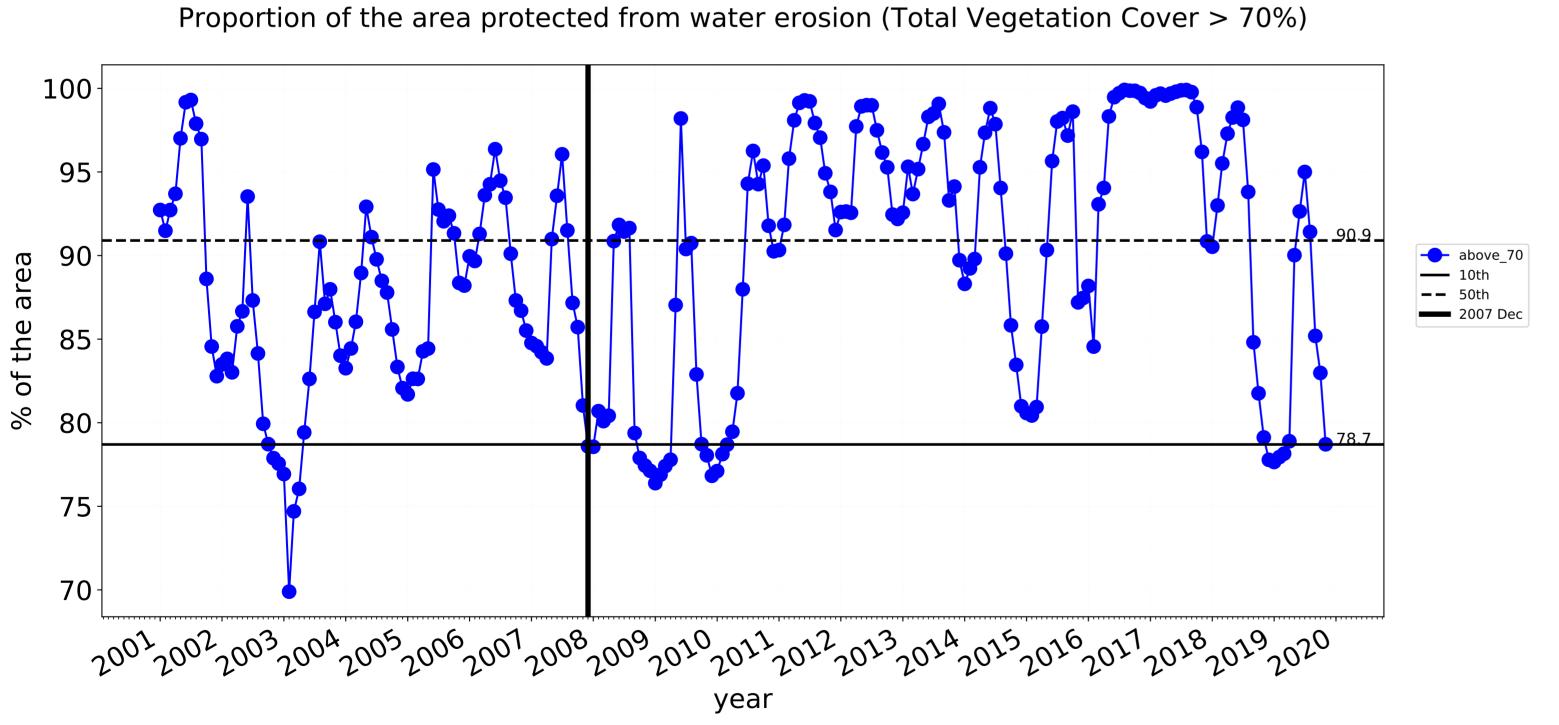
82.5

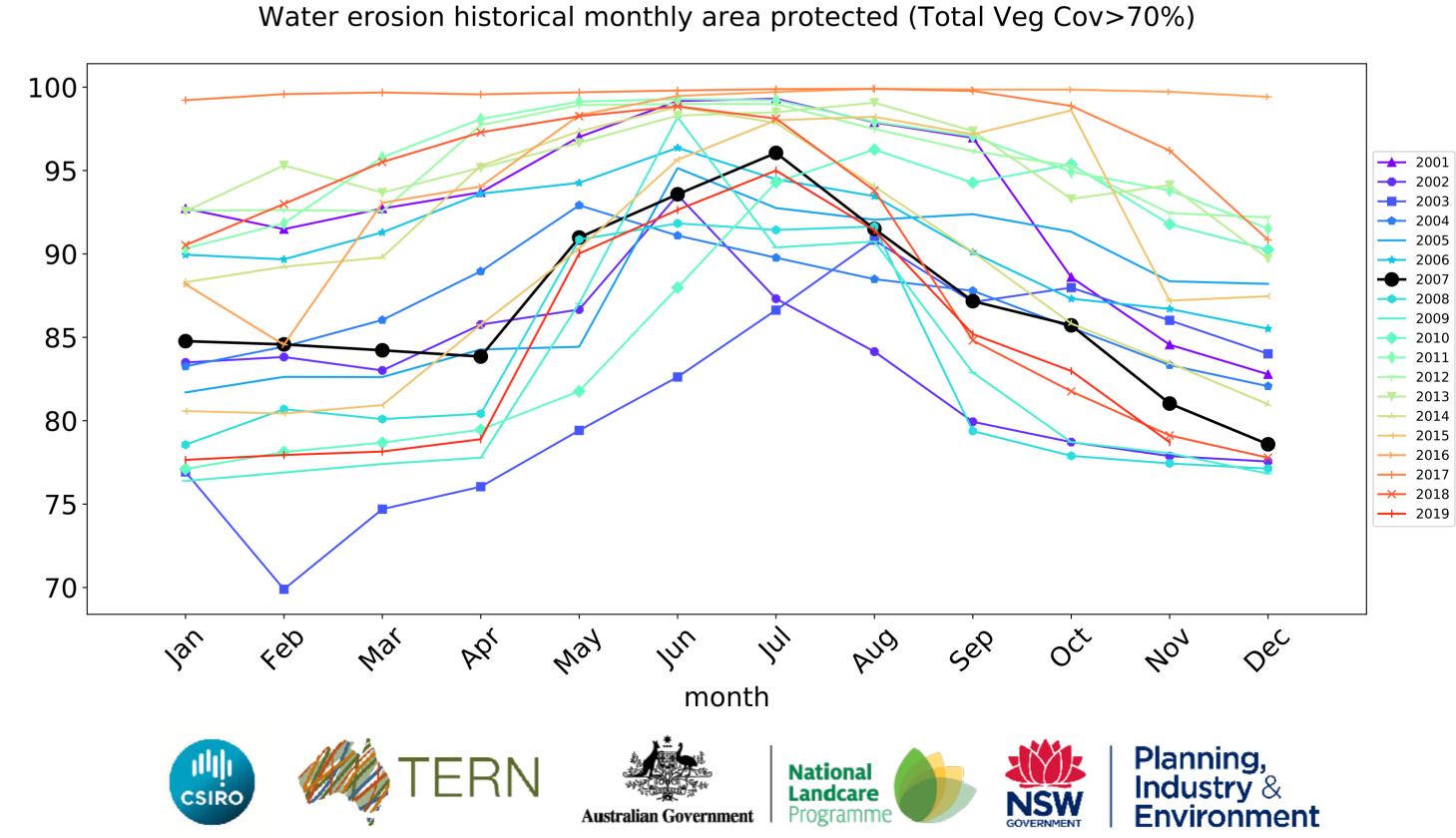




month

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



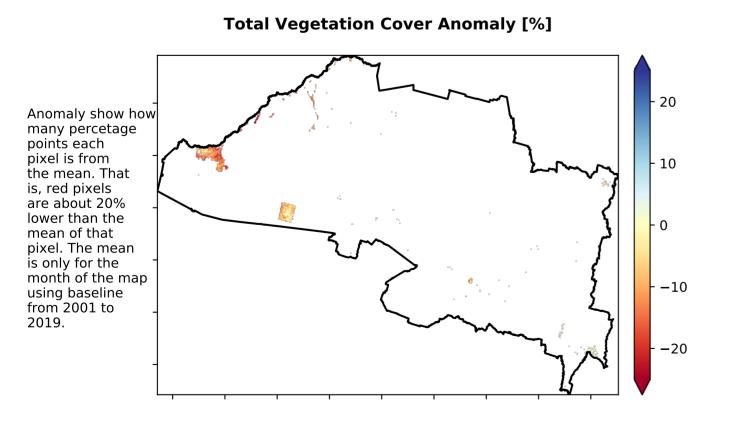


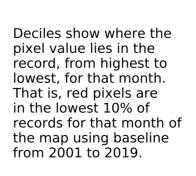
Conservation and natural environments non forest

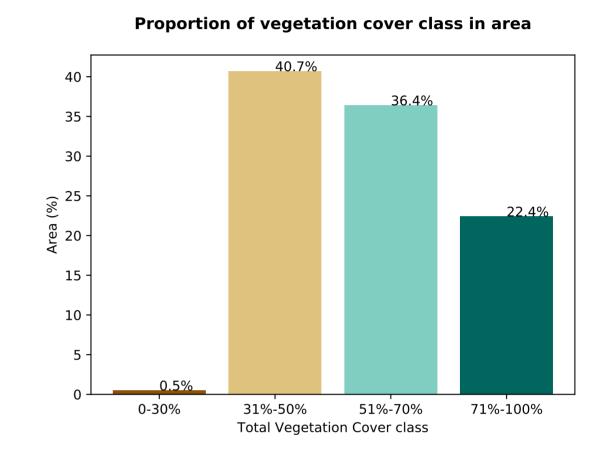
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) Of Australia (2018) 1 Conservation and natural environments - Nonforest forest

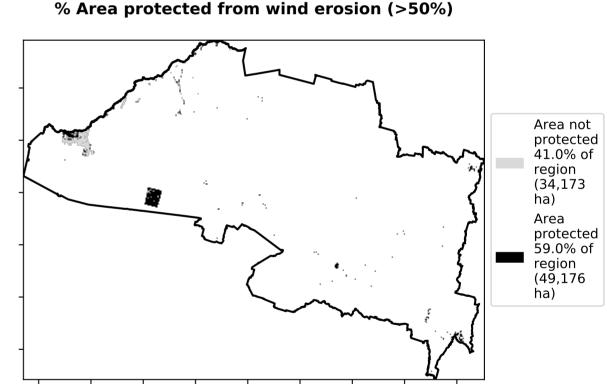
Total Vegetation Cover [%] Typic Julio 1 Typic Ju

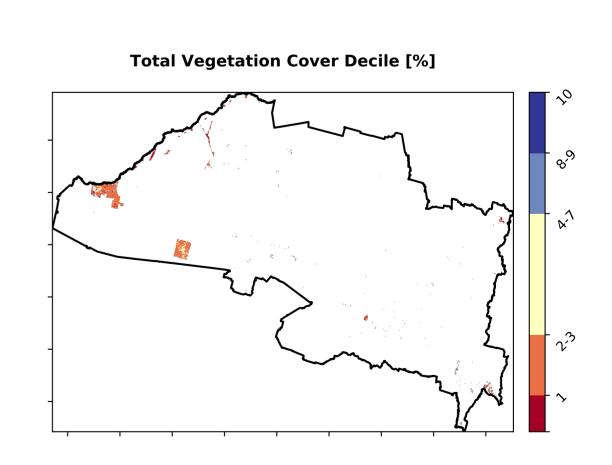
% Area protected from water erosion (>70%) Area not protected 77.6% of region (64,679 ha) Area protected 22.4% of region (18,670 ha)















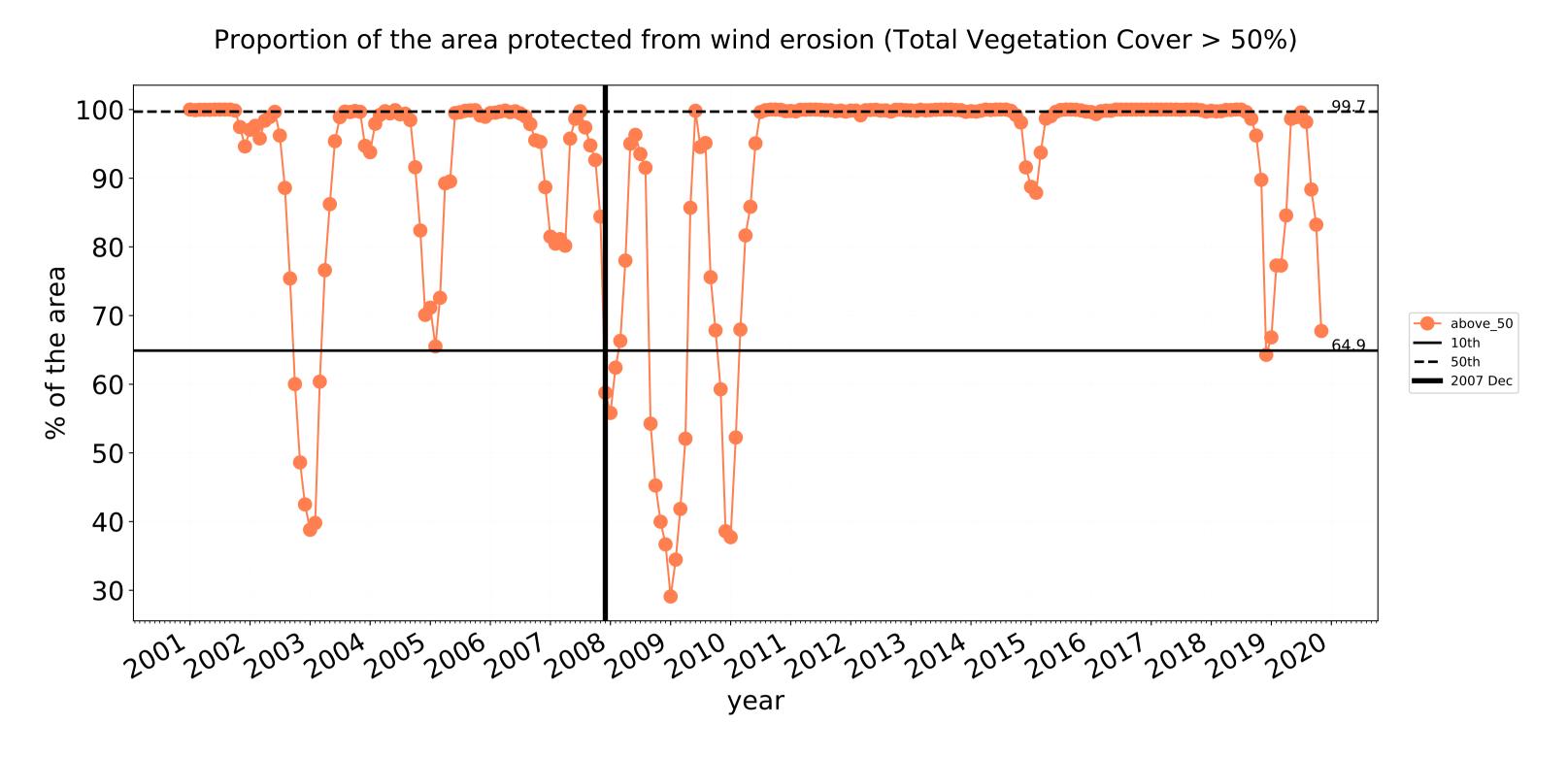


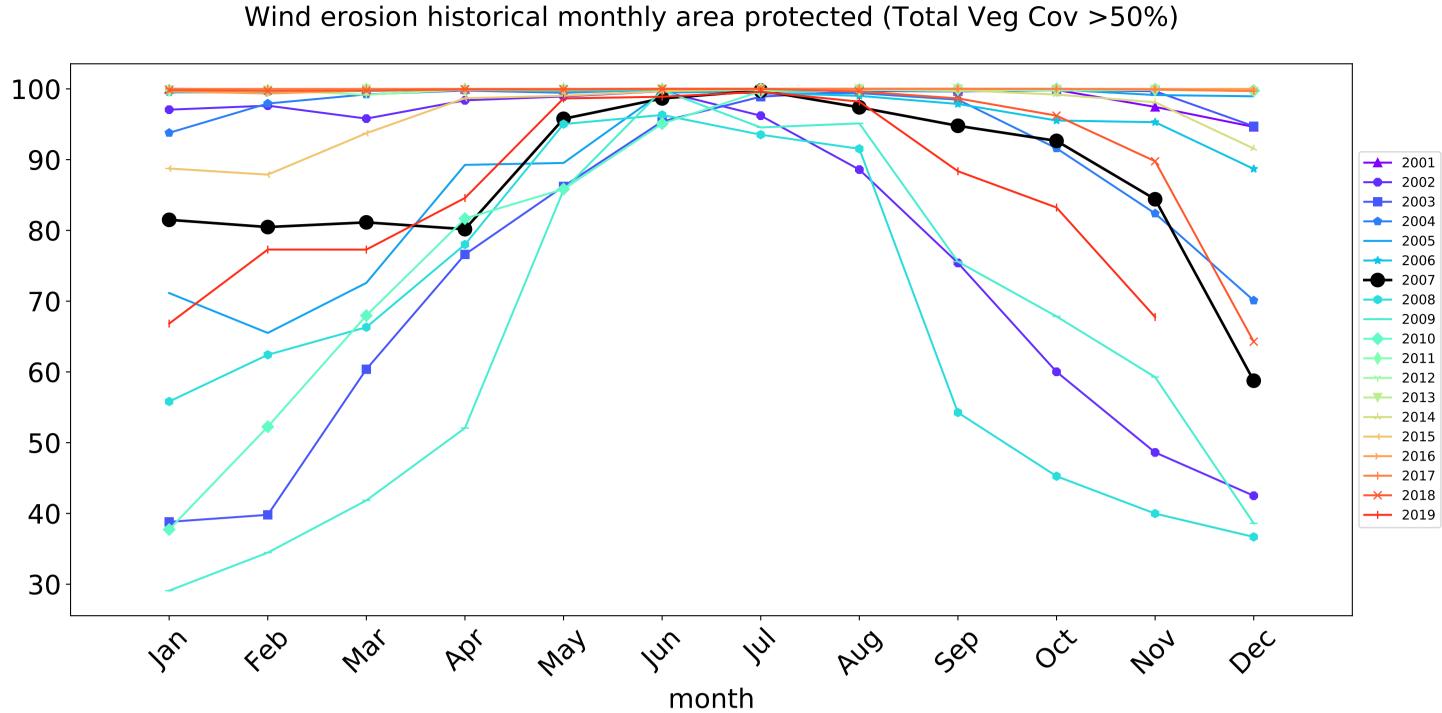


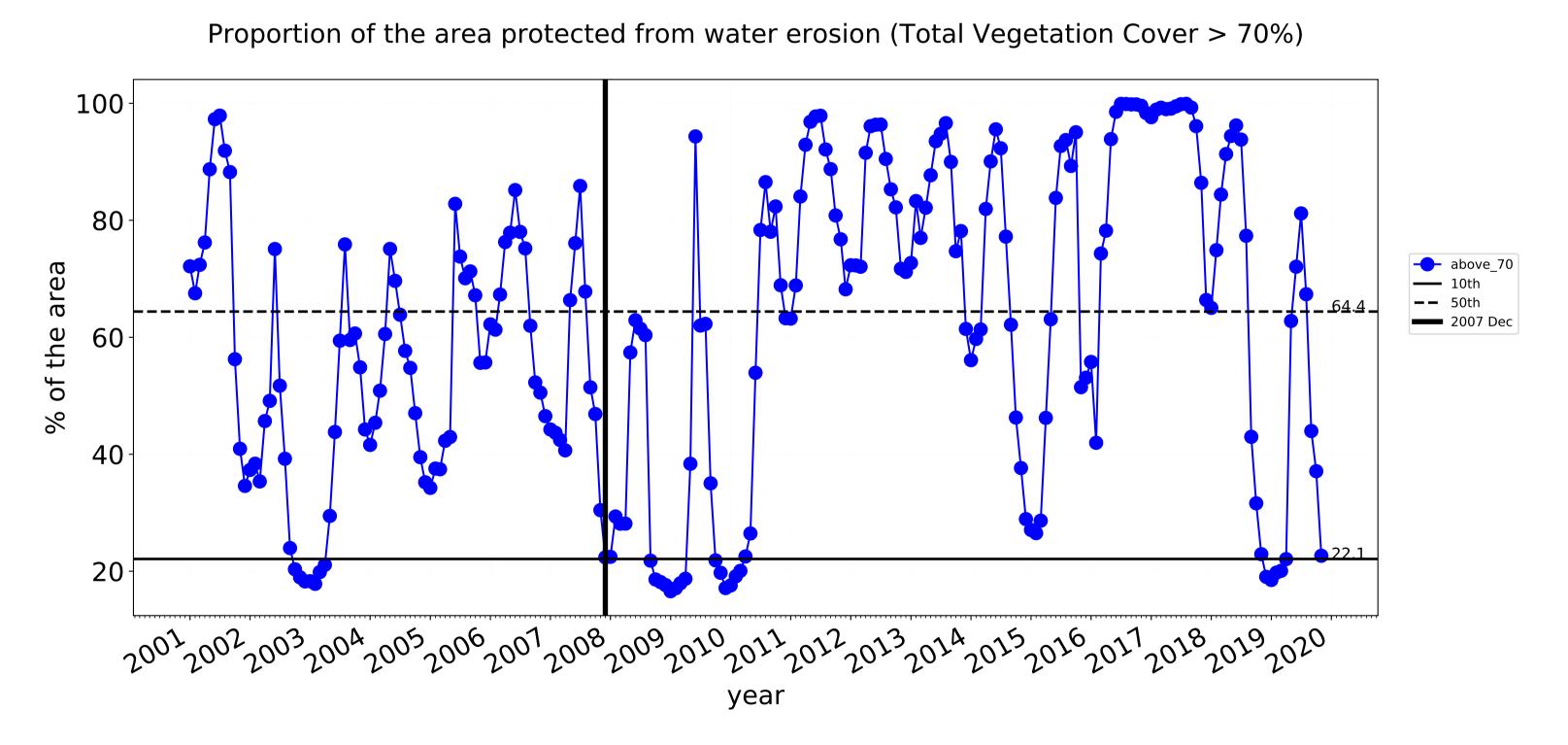


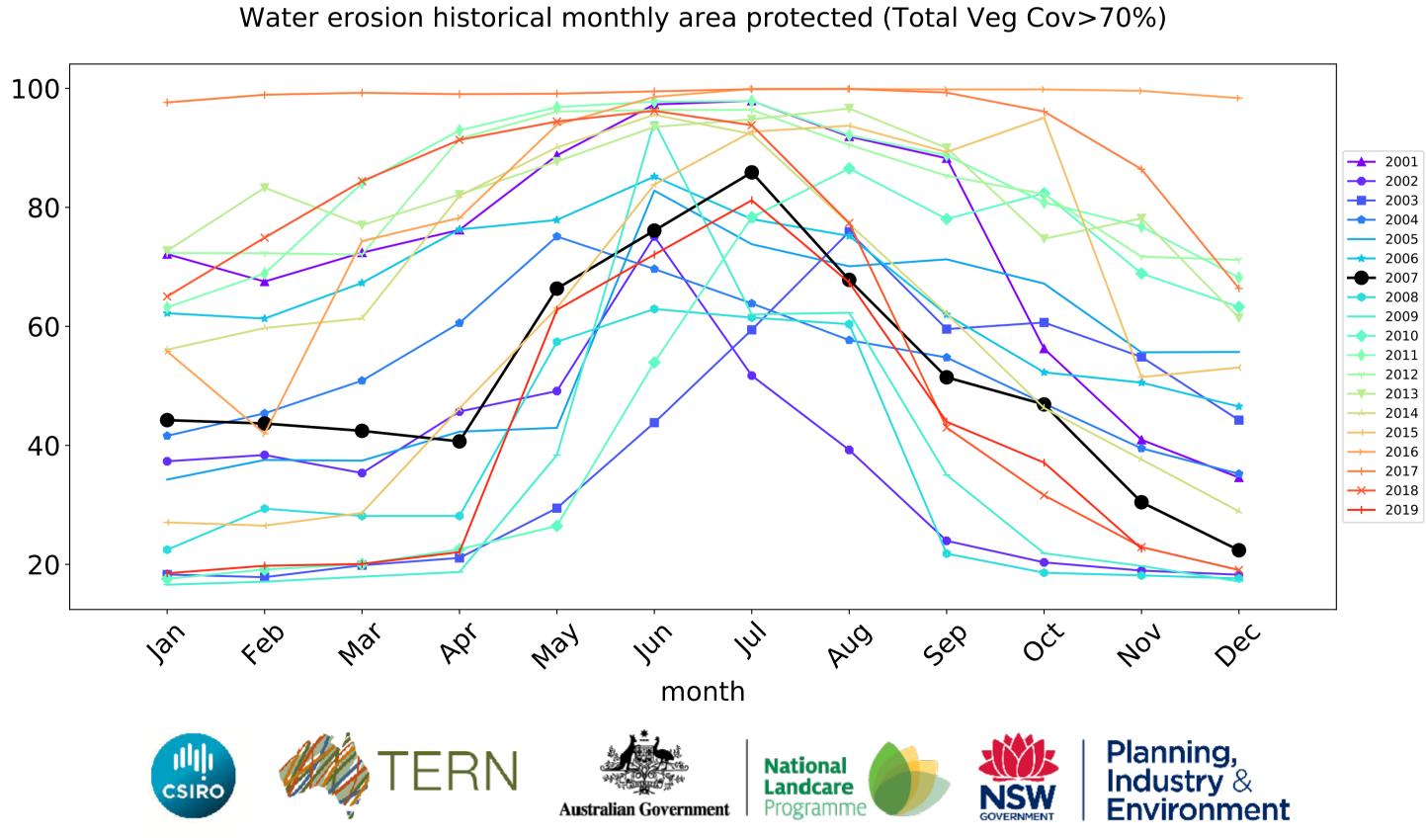


Conservation and natural environments non forest timeseries

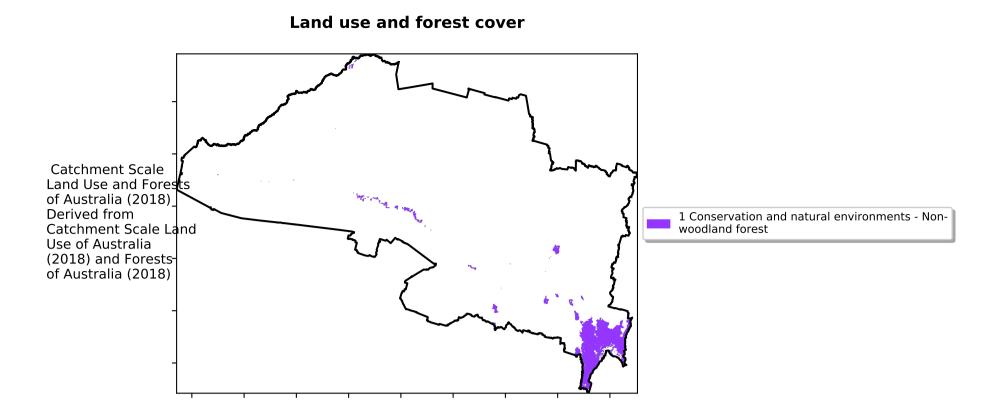




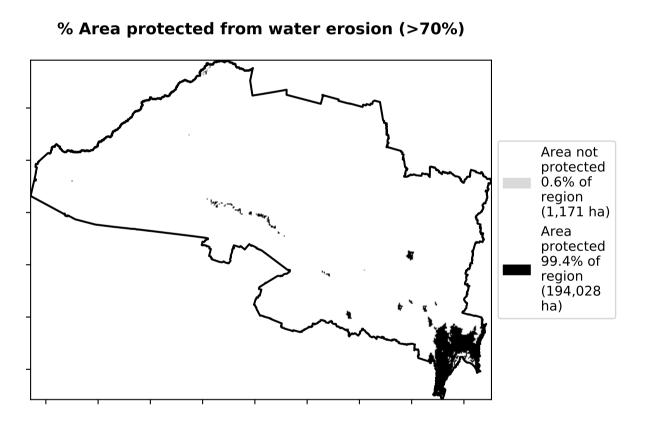


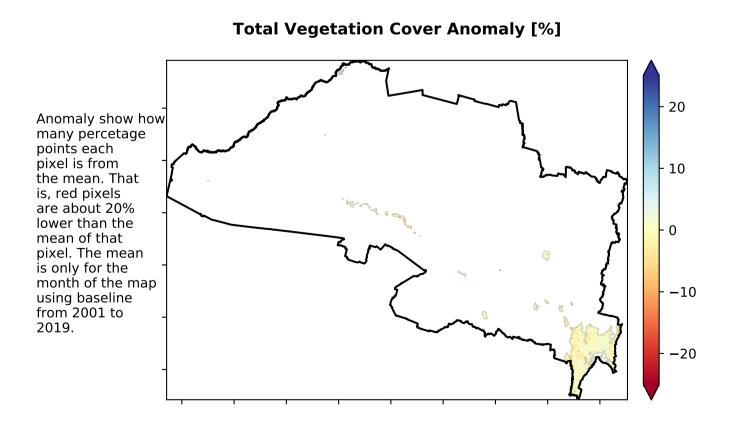


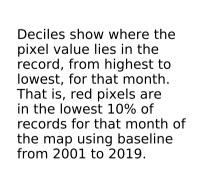
Conservation and natural environments Forest (non woodland)

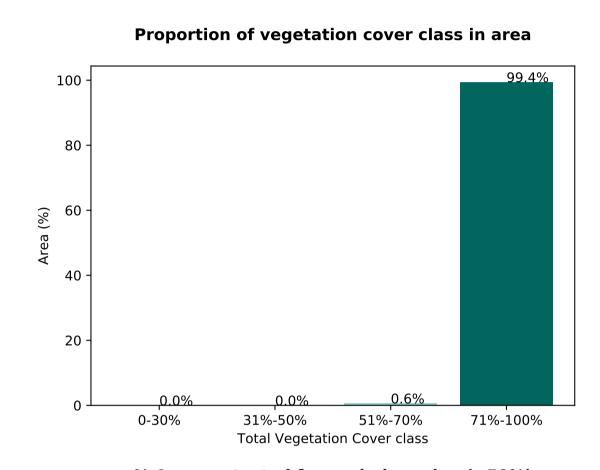


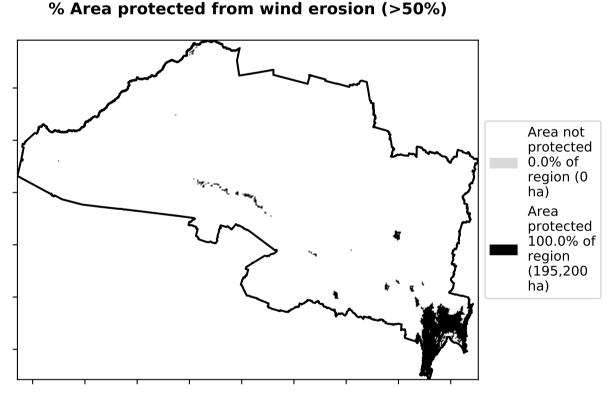
Total Vegetation Cover [%] Train-radio Tra

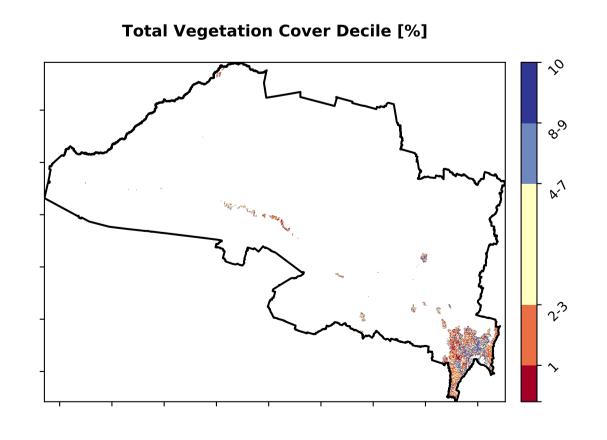














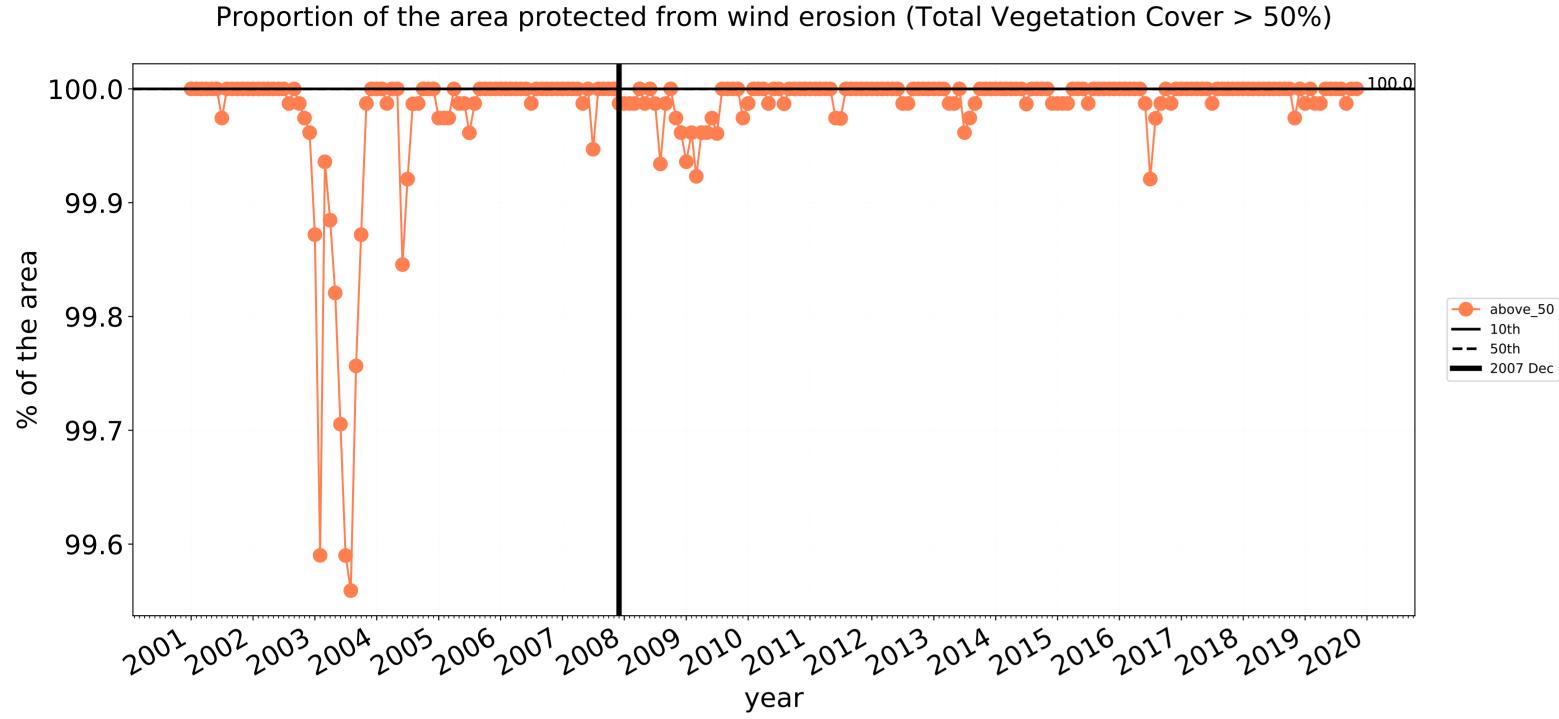


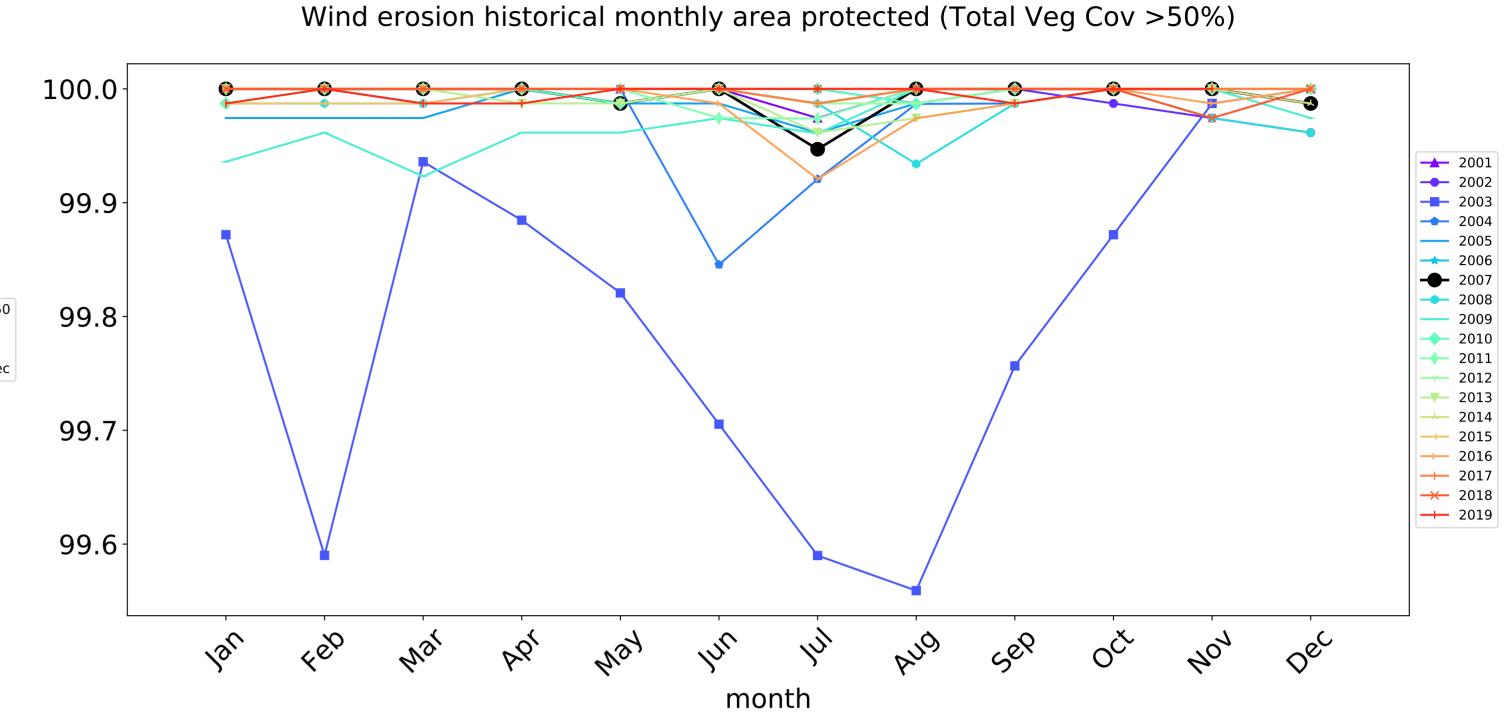


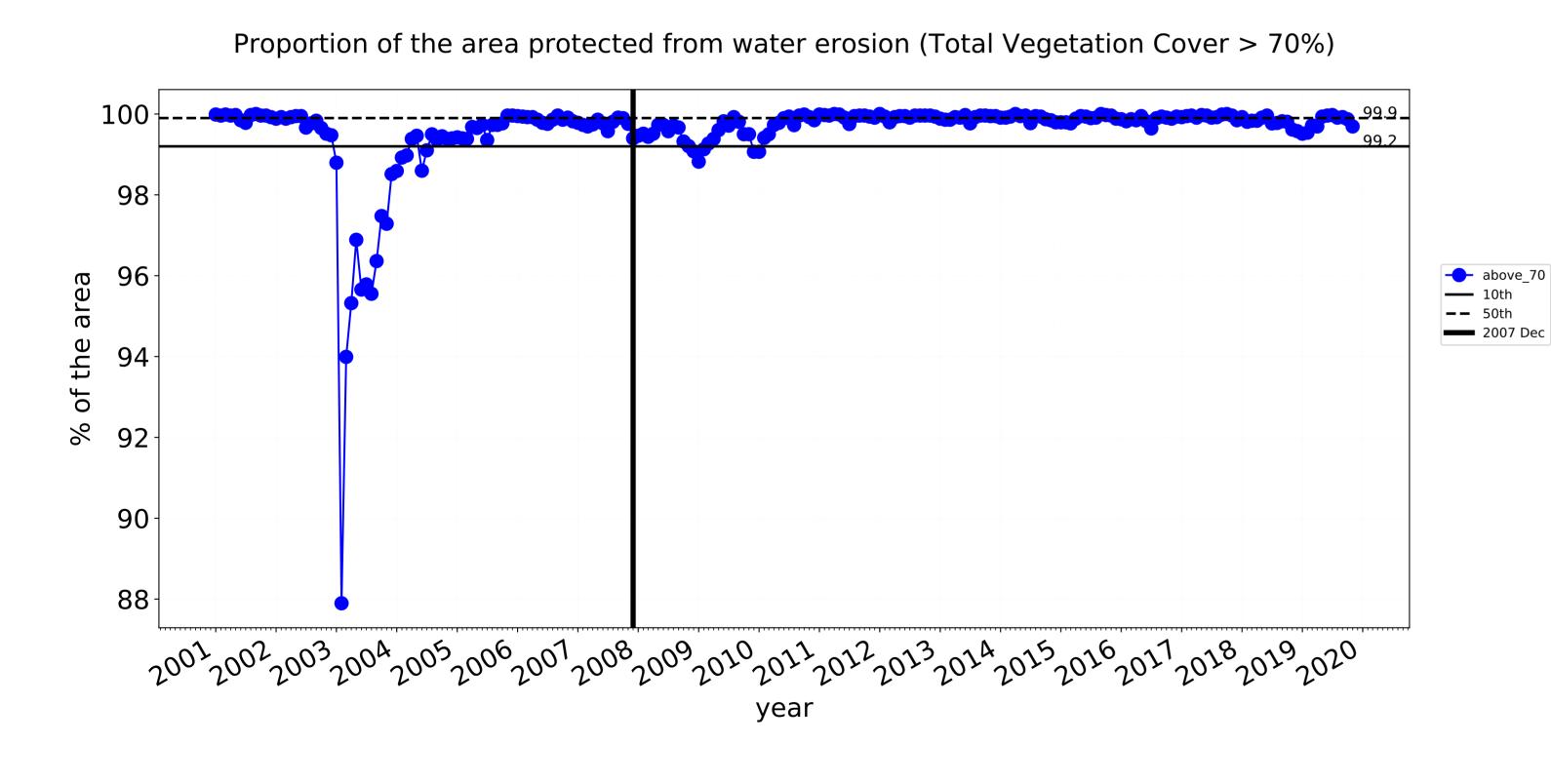


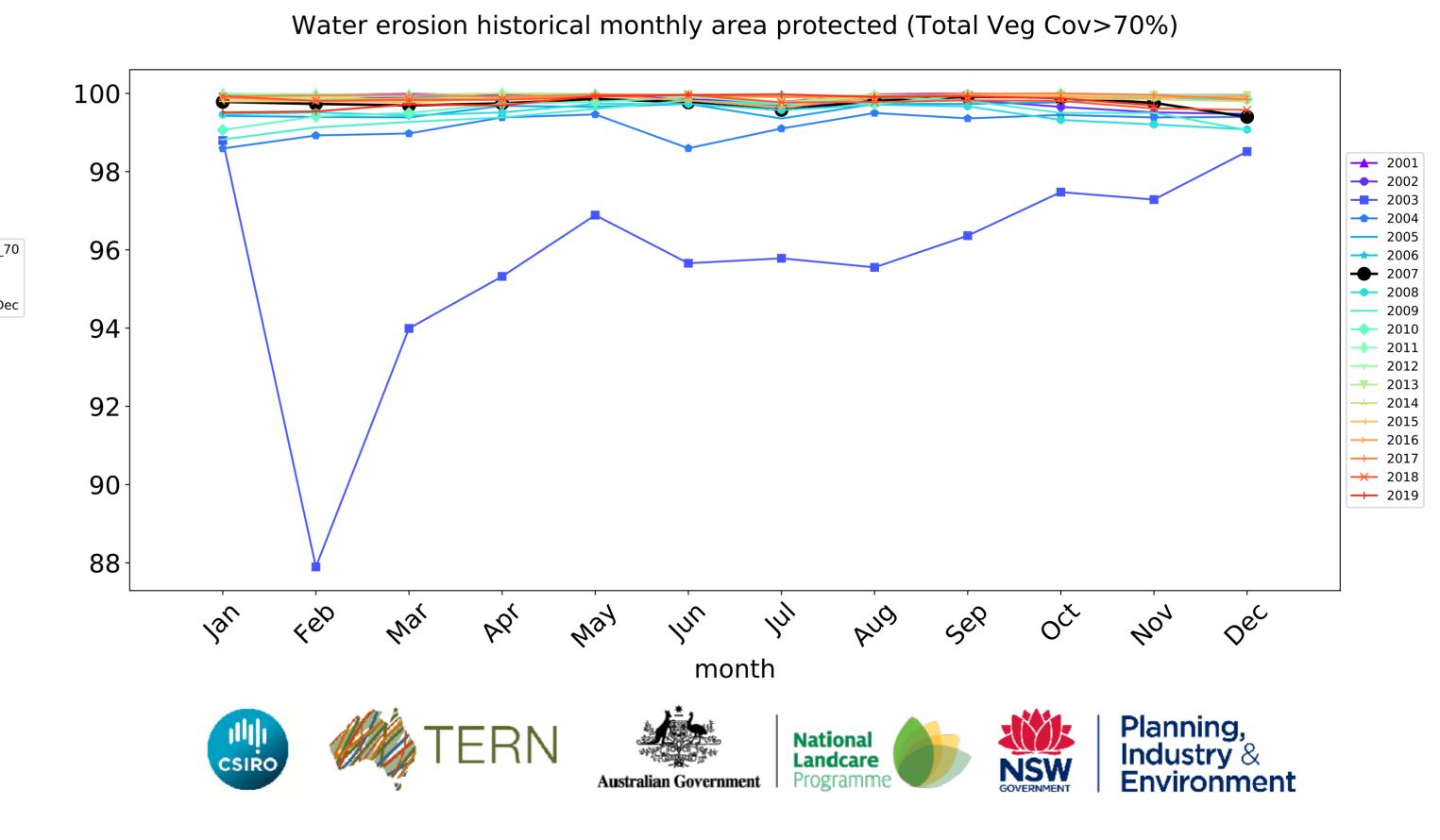










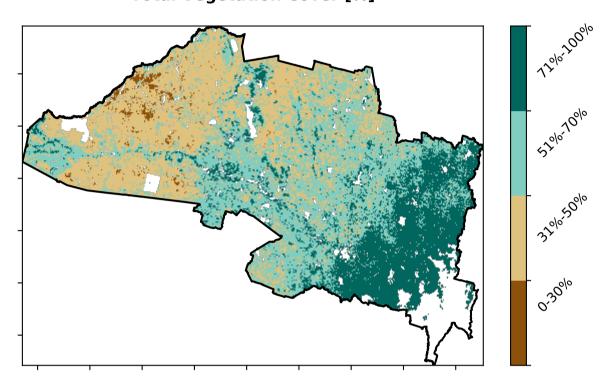


Agriculture

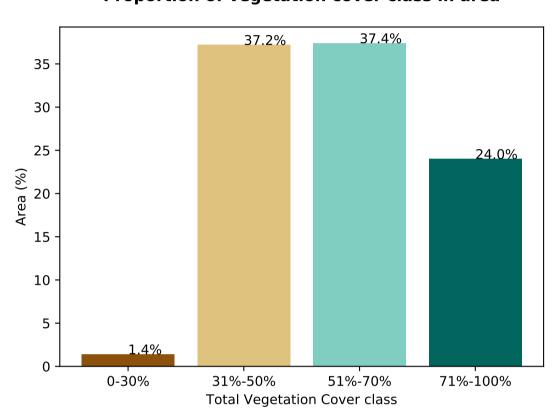
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest 4 Agriculture - Grazing - Irrigated Catchment Scale Land Use of Australia 5 Agriculture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

Proportion of each land class in area 52.5% 50 40 34.1% Area (%) 0 20 10 0.9% Land use class

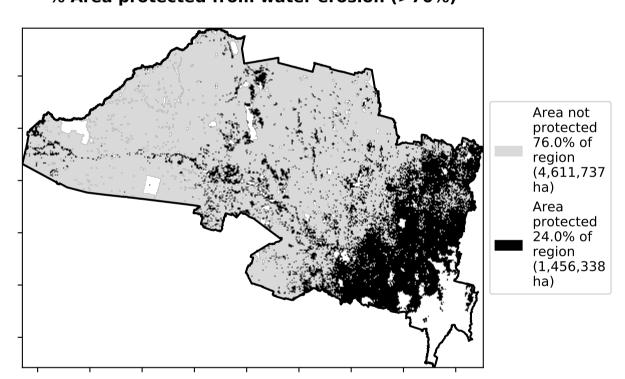




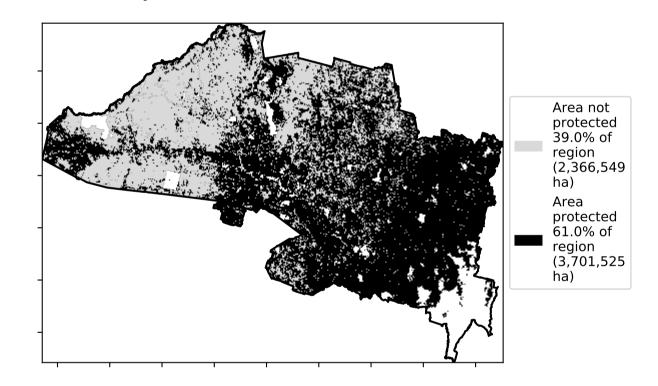
Proportion of vegetation cover class in area



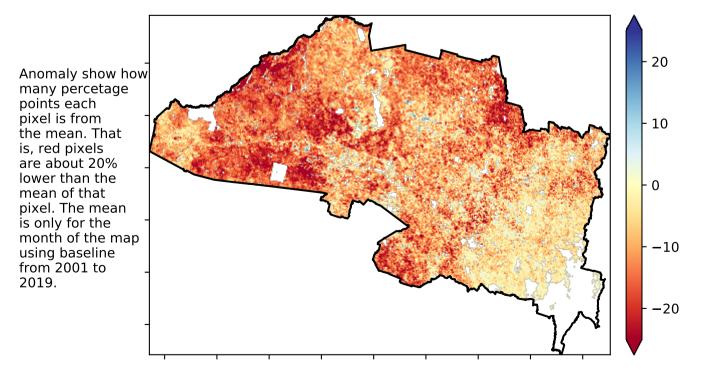
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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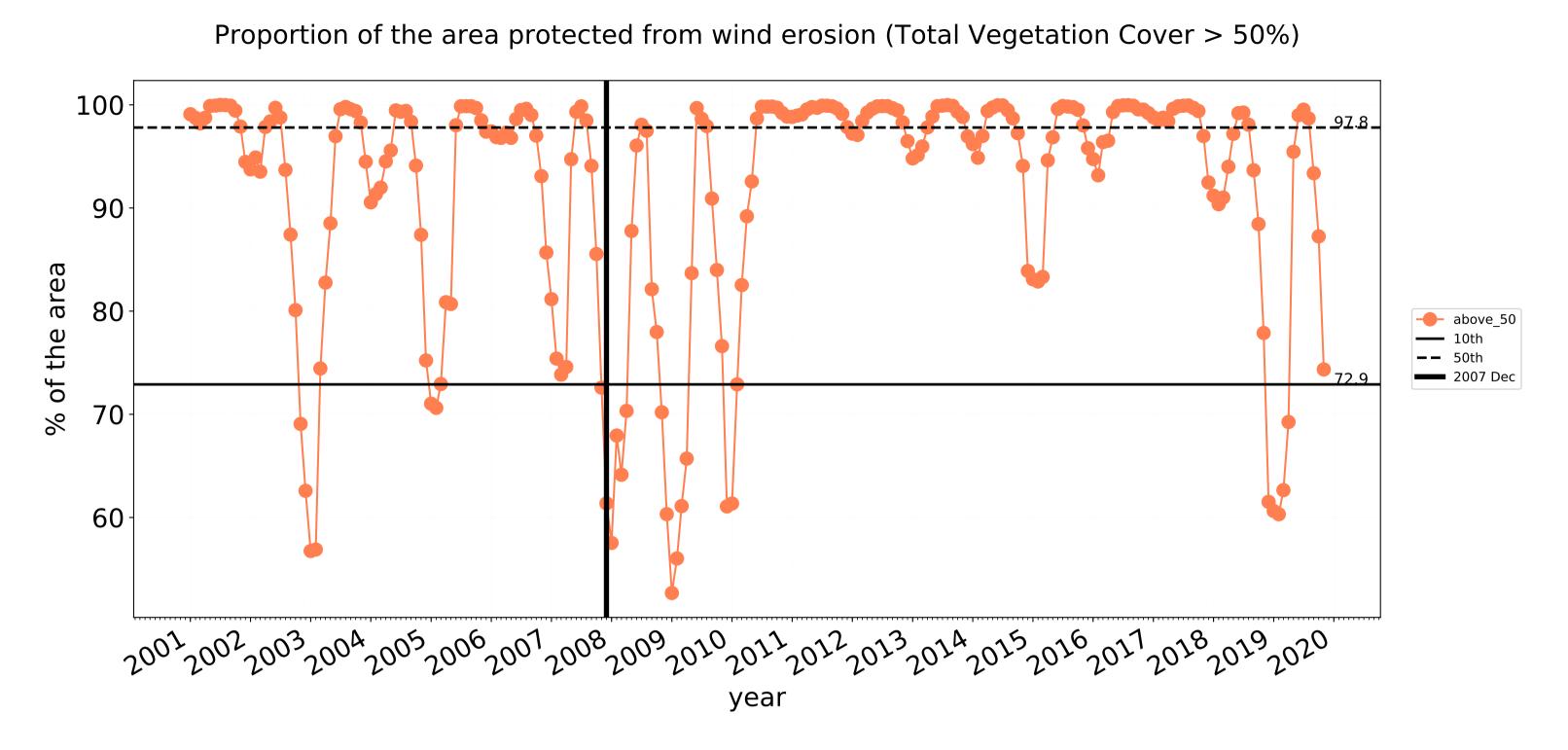








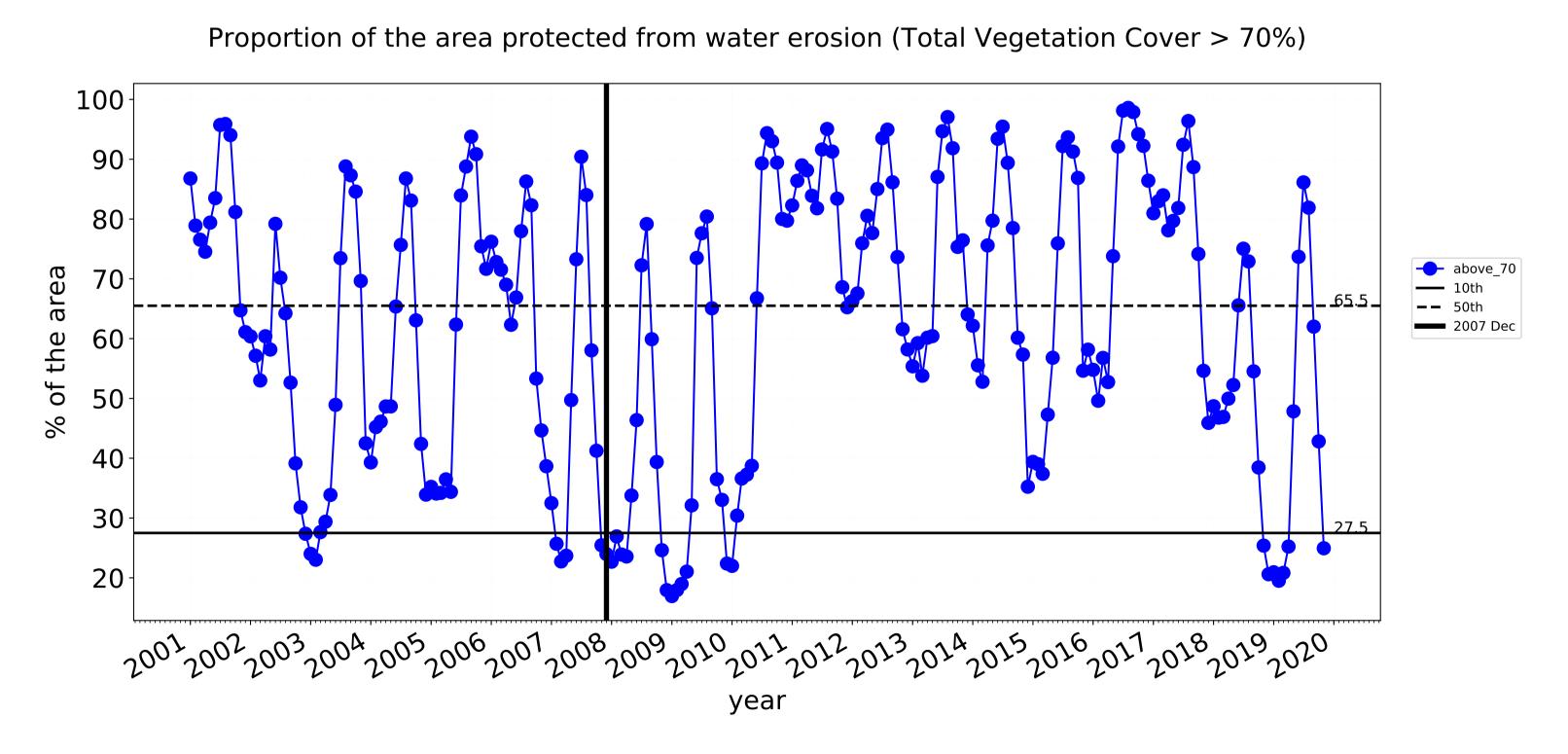
Agriculture timeseries

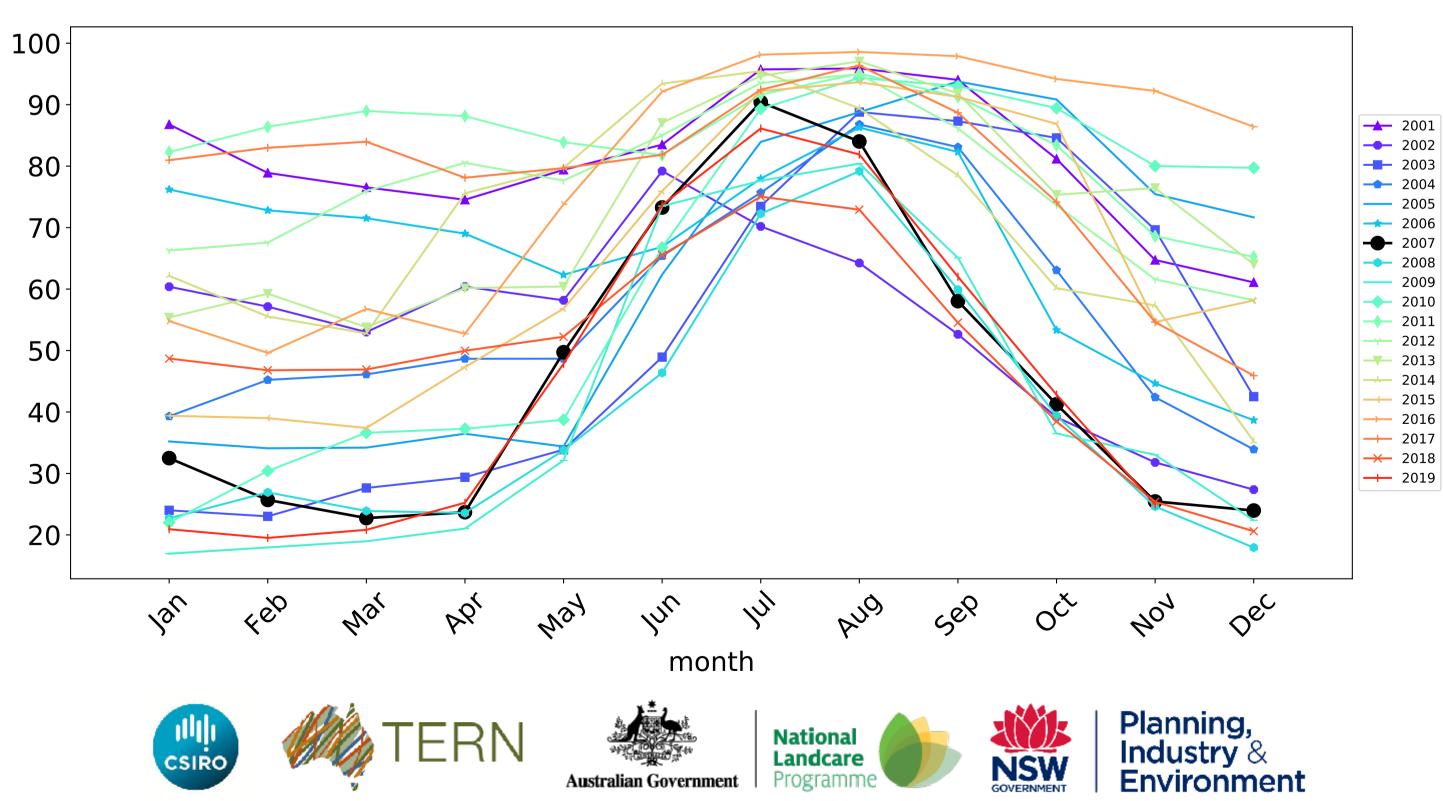


Wind erosion historical monthly area protected (Total Veg Cov >50%) 100 90 2003 80 ___ 2009 **~** 2010 2012 2013 70 2014 ← 2015 **→** 2016 ---- 2017 × 2018 60 ---- 2019

month

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

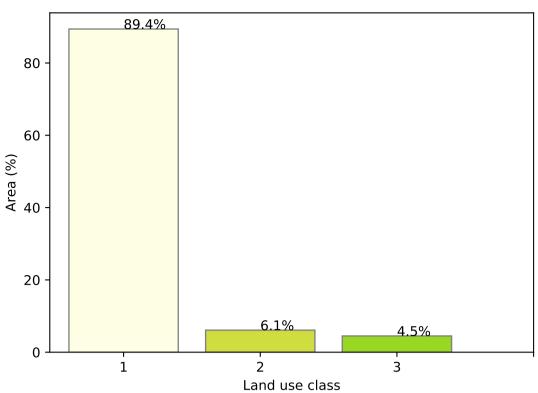




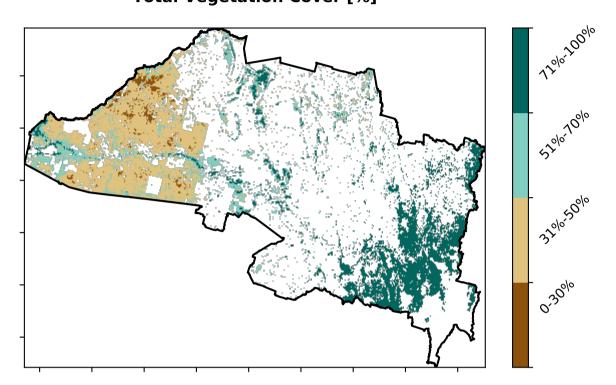
Grazing

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest of Australia (2018)

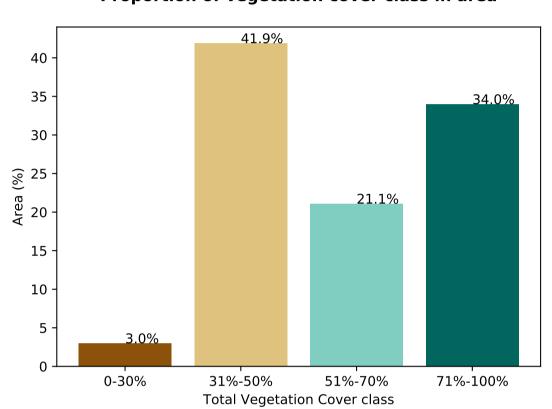
Proportion of each land class in area



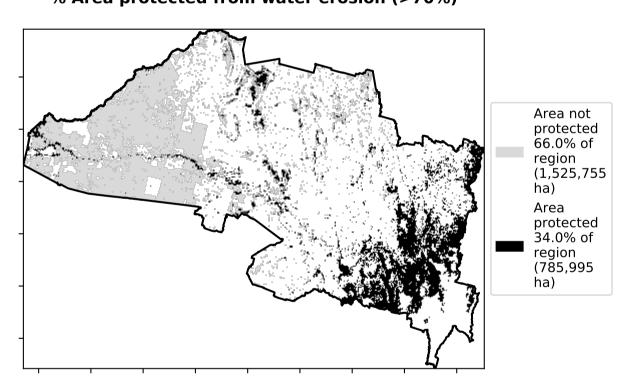
Total Vegetation Cover [%]



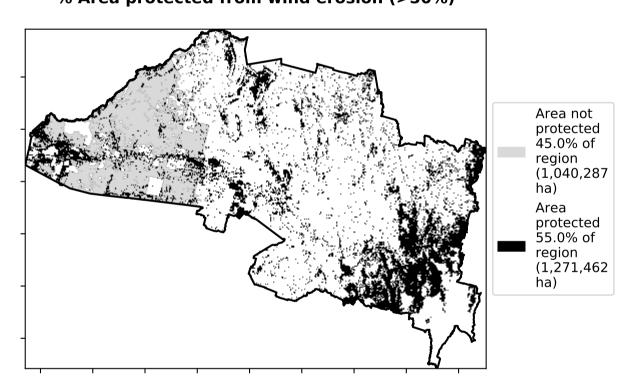
Proportion of vegetation cover class in area



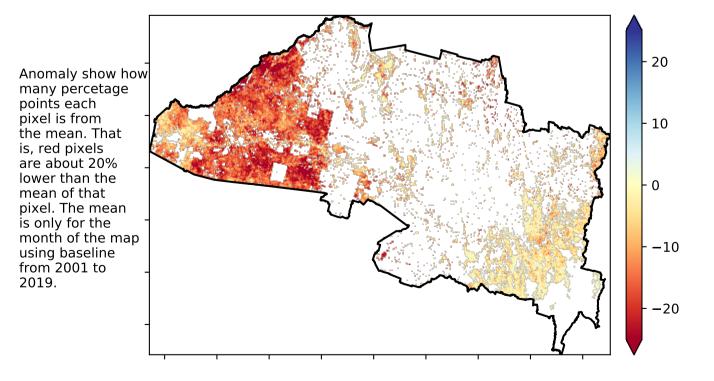
% Area protected from water erosion (>70%)



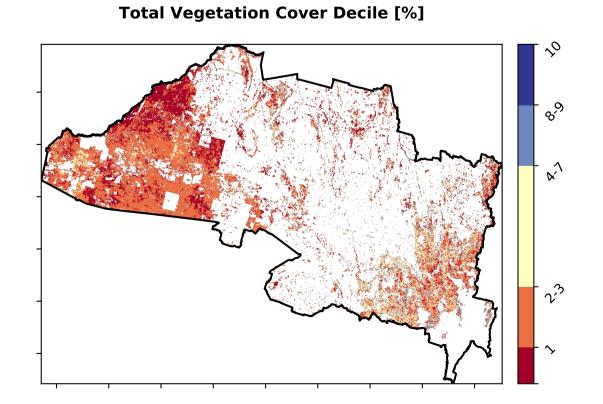
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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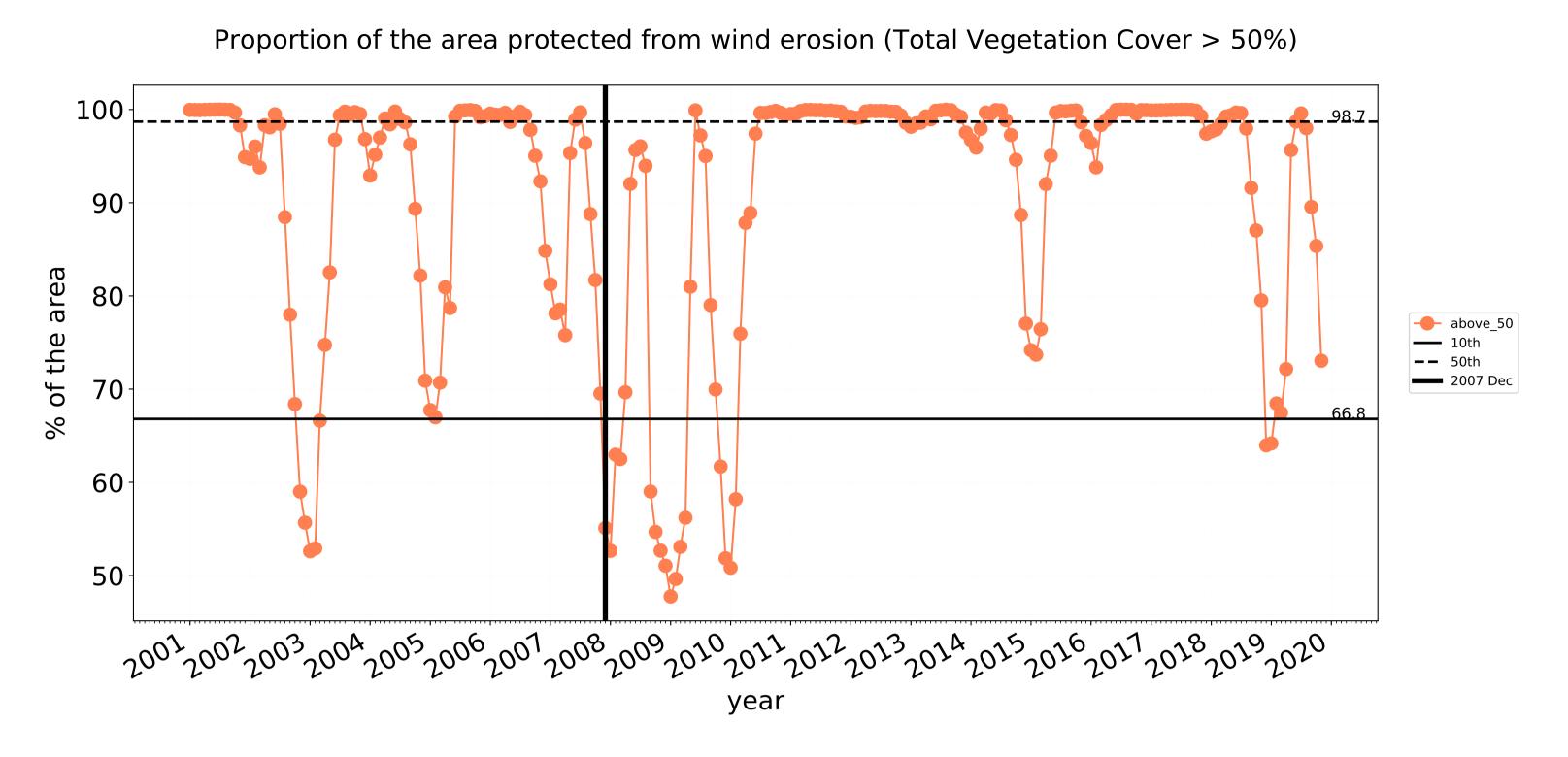


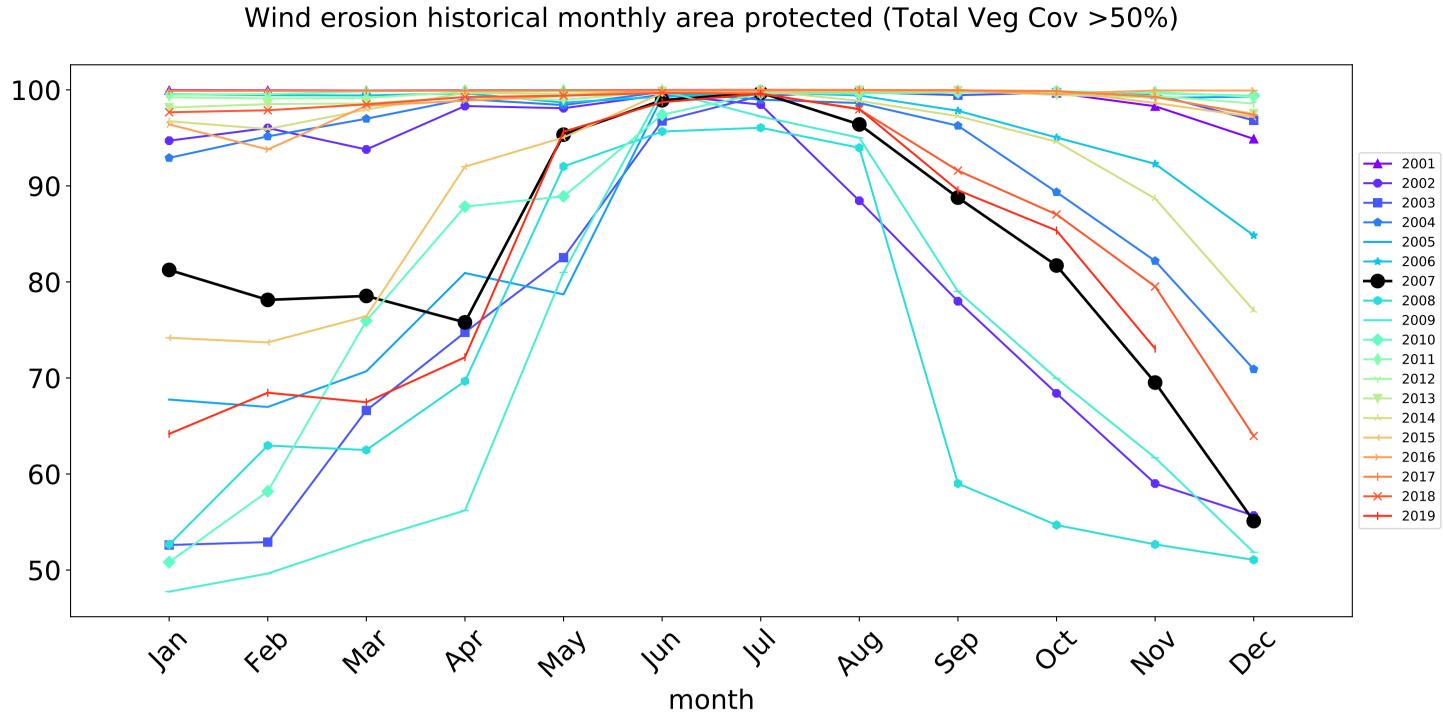


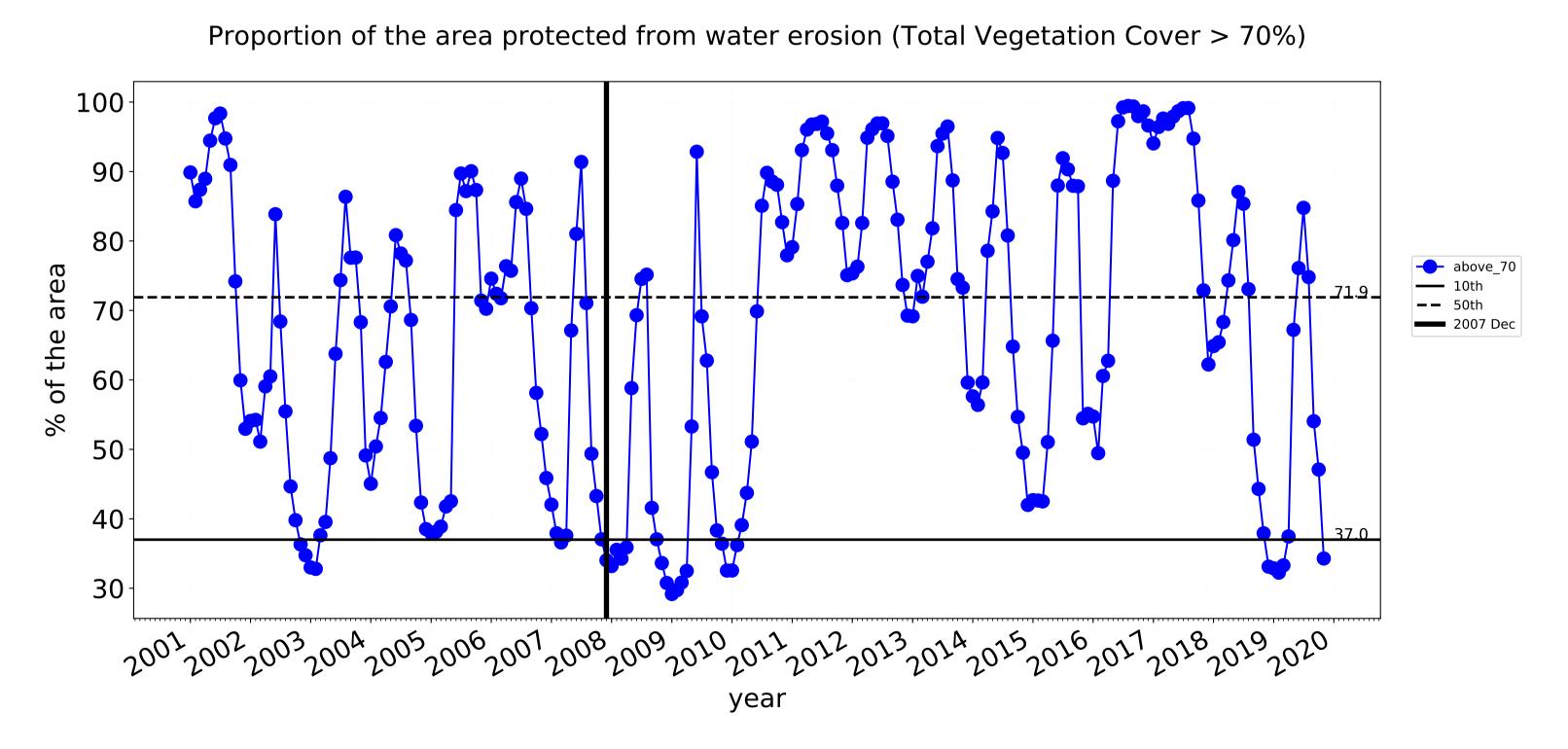


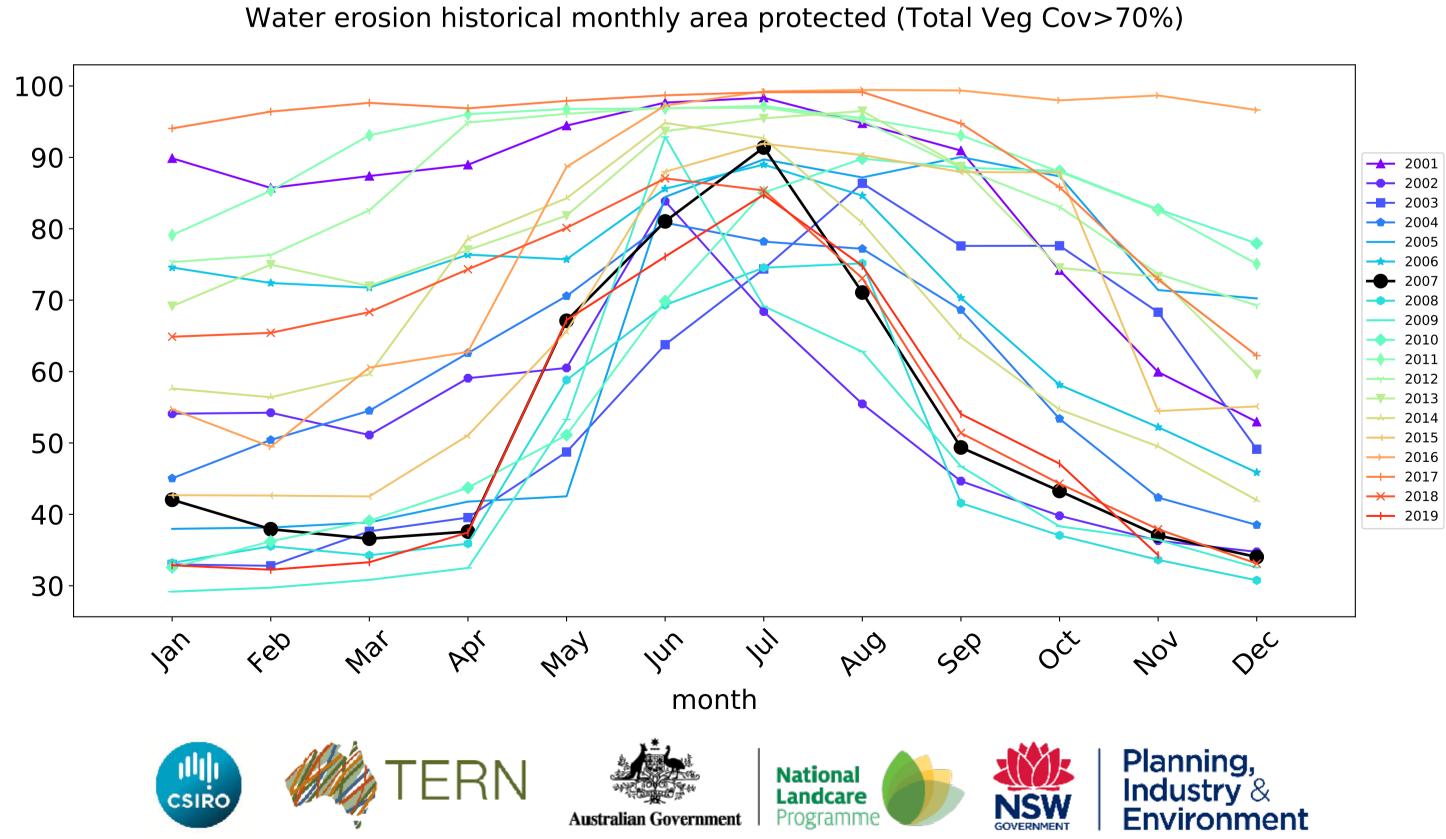


Grazing timeseries



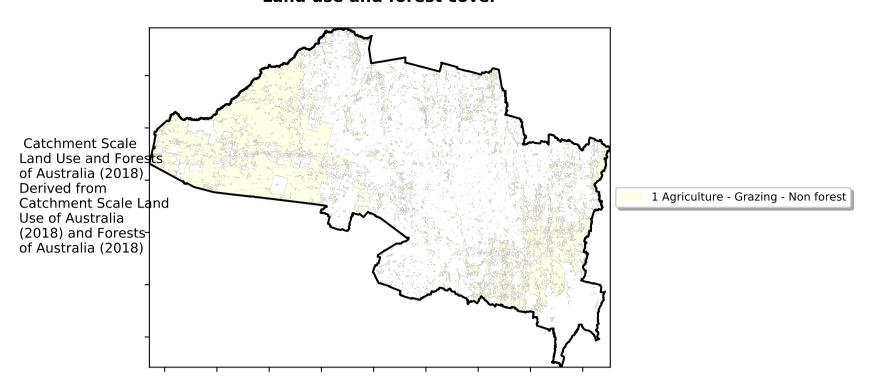




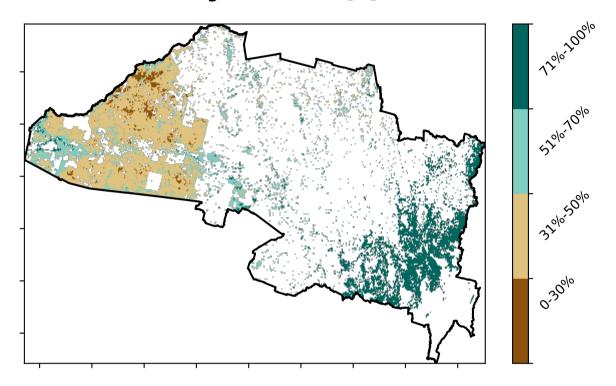


Grazing non forest

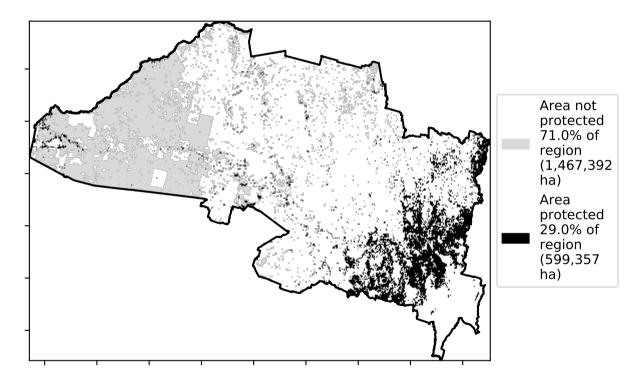
Land use and forest cover



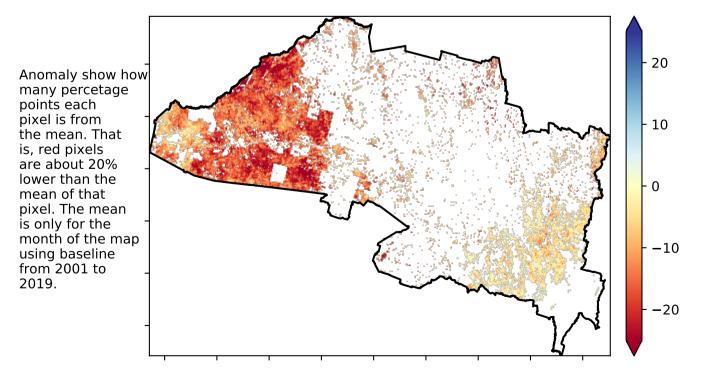
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

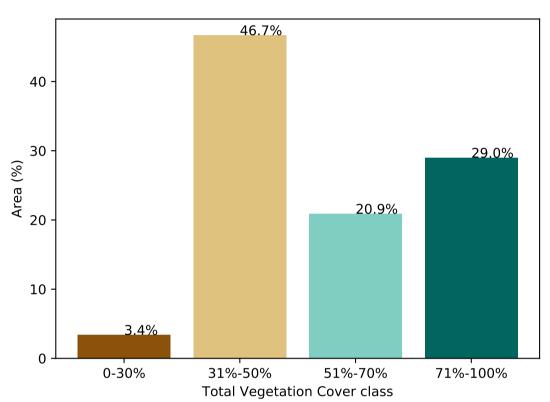


Total Vegetation Cover Anomaly [%]

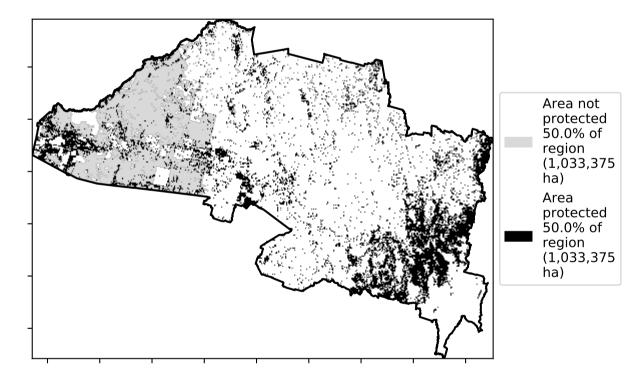


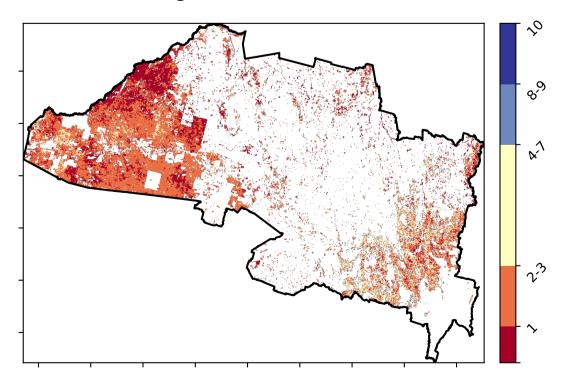
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Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









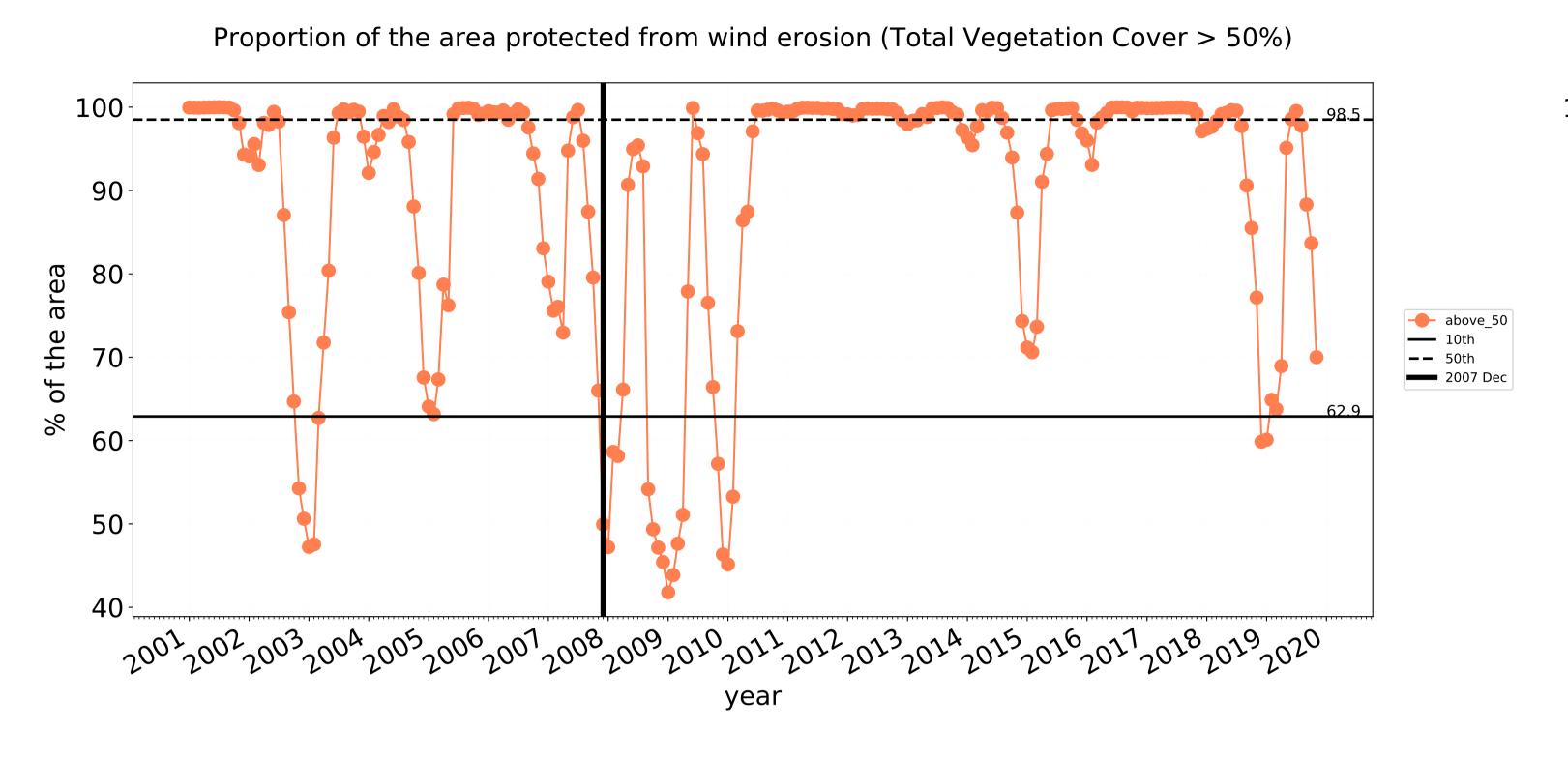


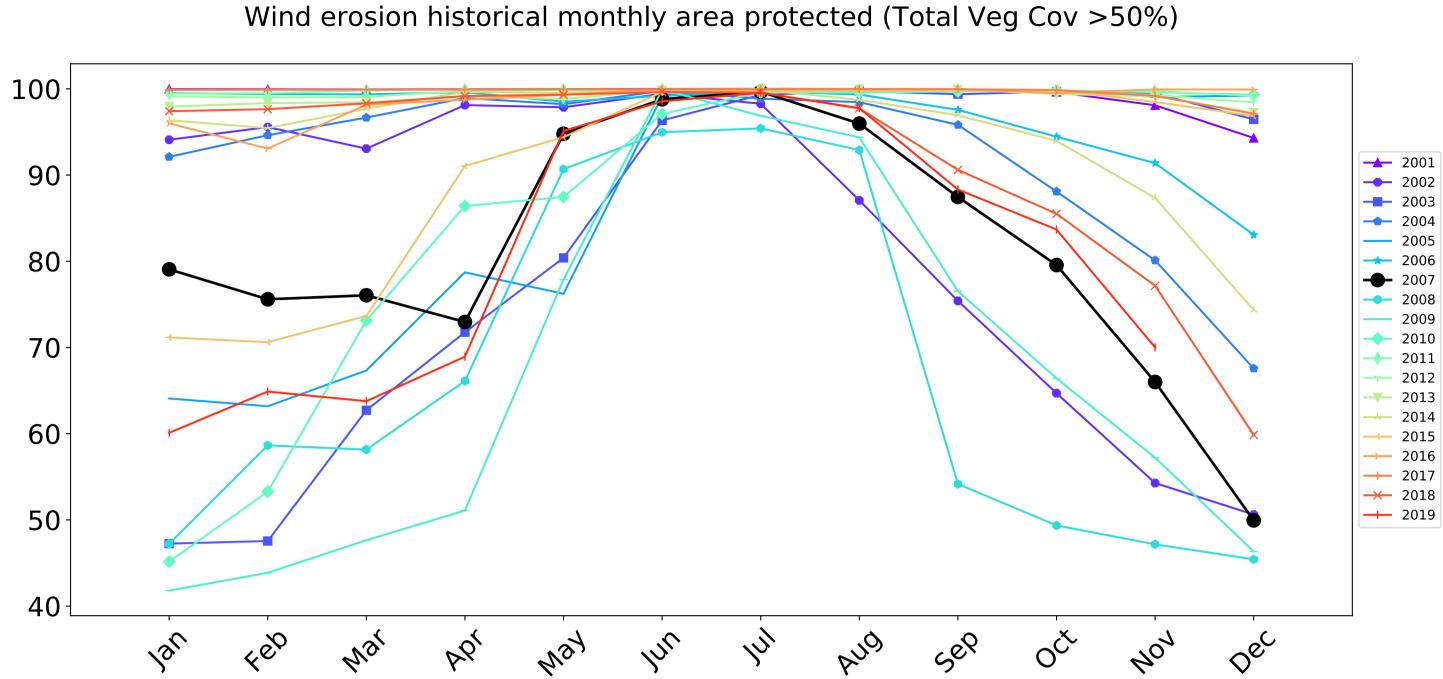




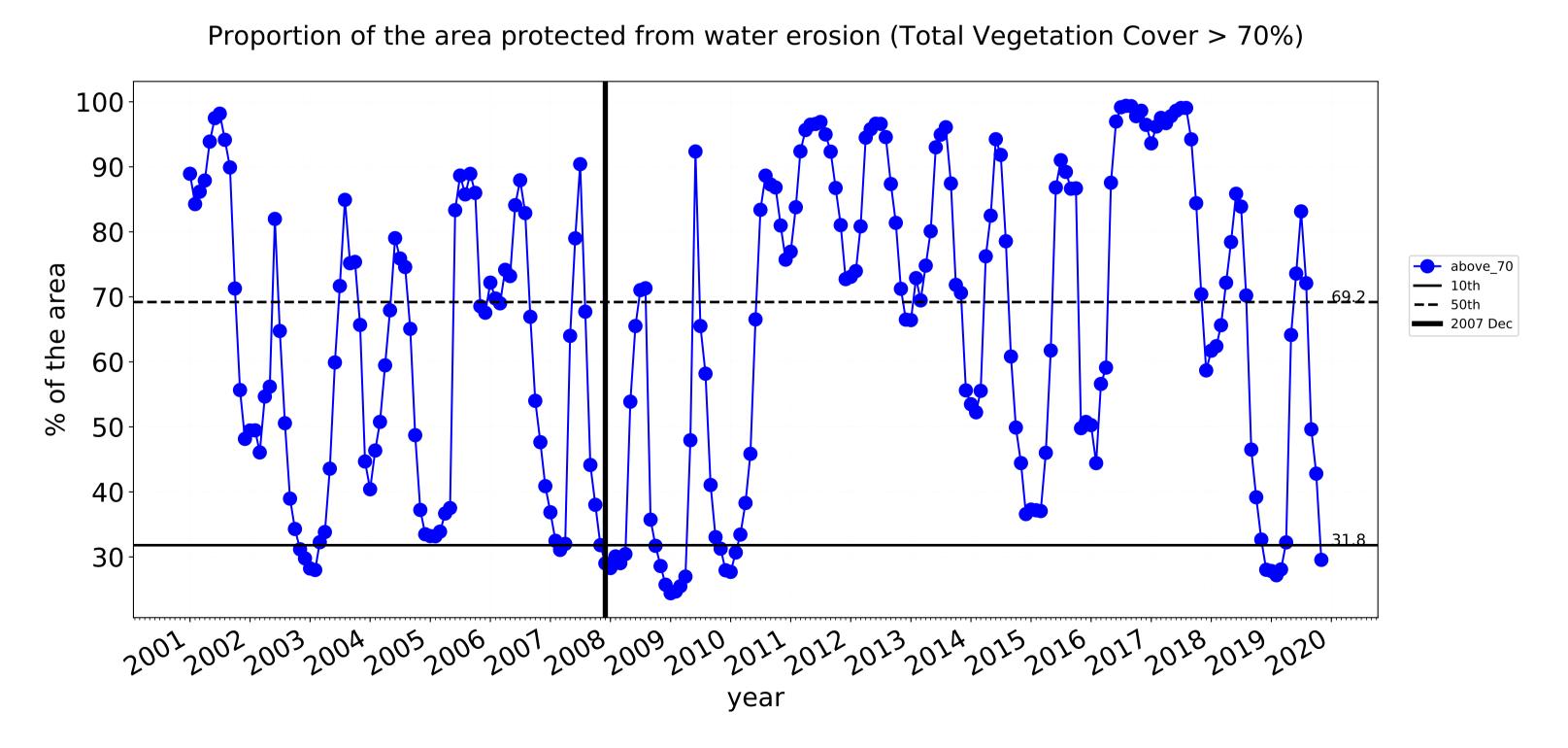


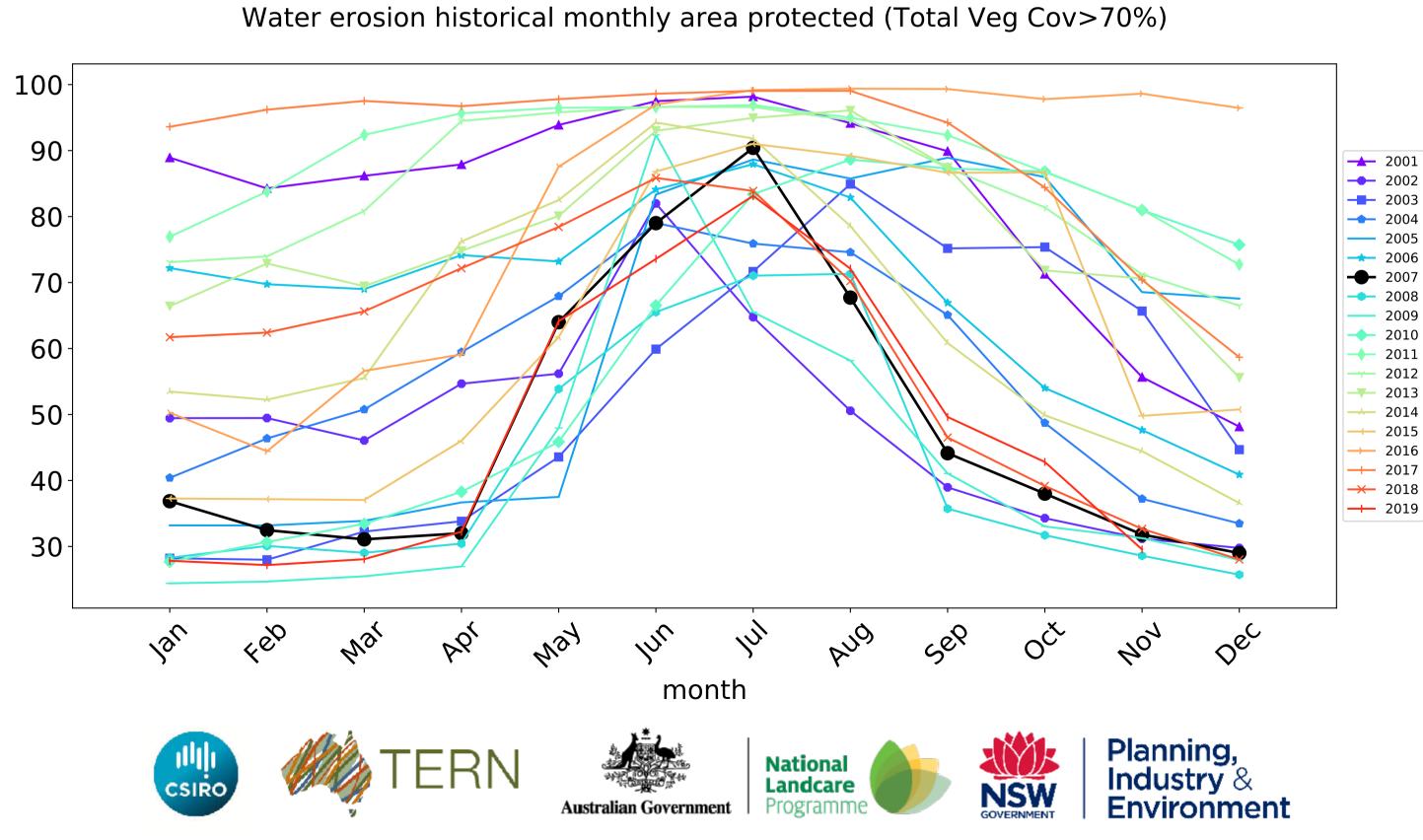
Grazing non forest timeseries





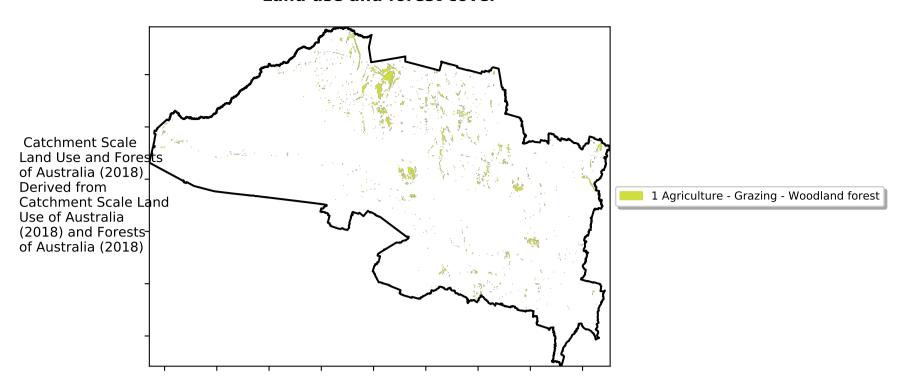
month



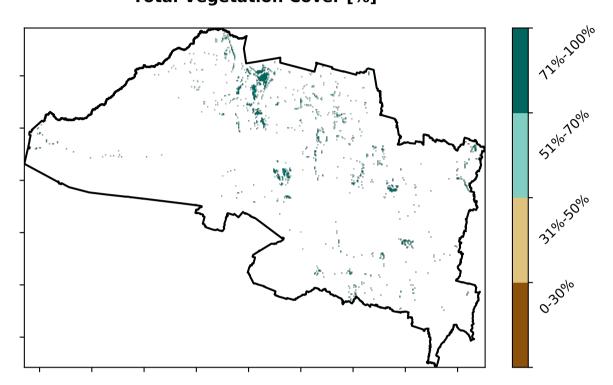


Grazing Woodland forest

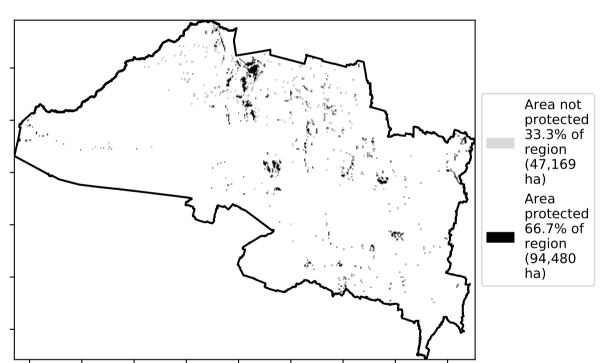
Land use and forest cover



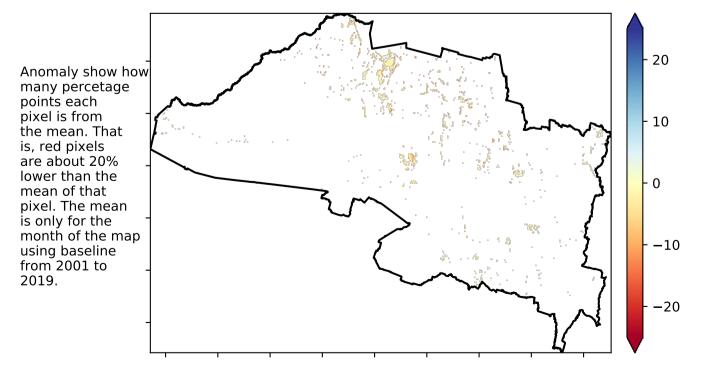
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

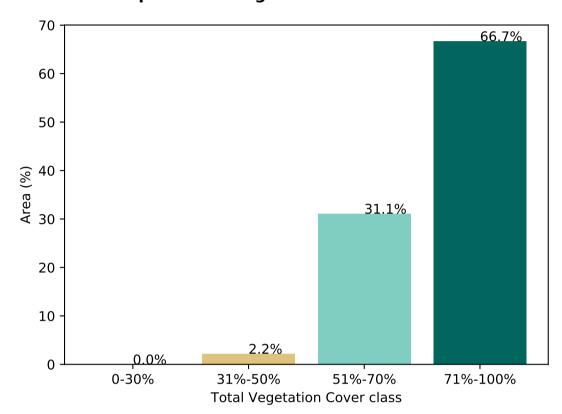


Total Vegetation Cover Anomaly [%]

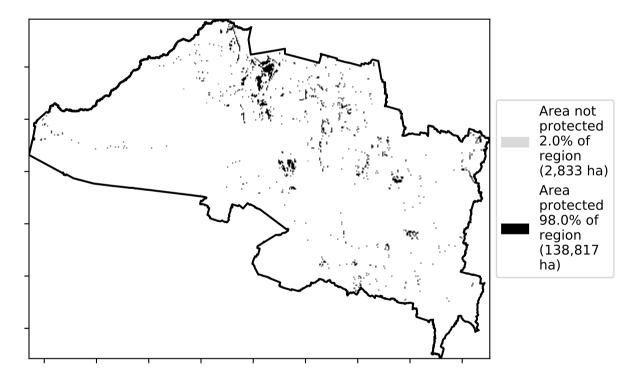


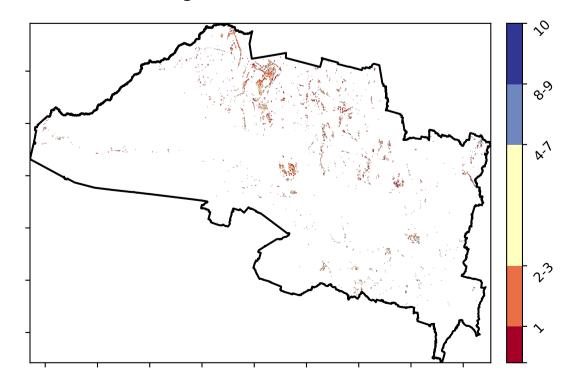
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Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









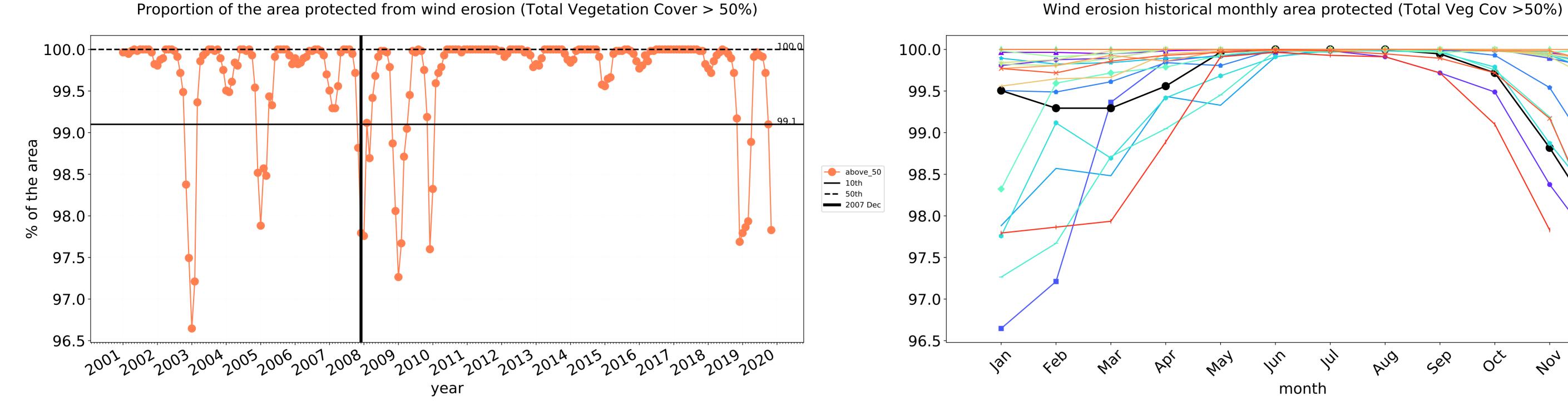


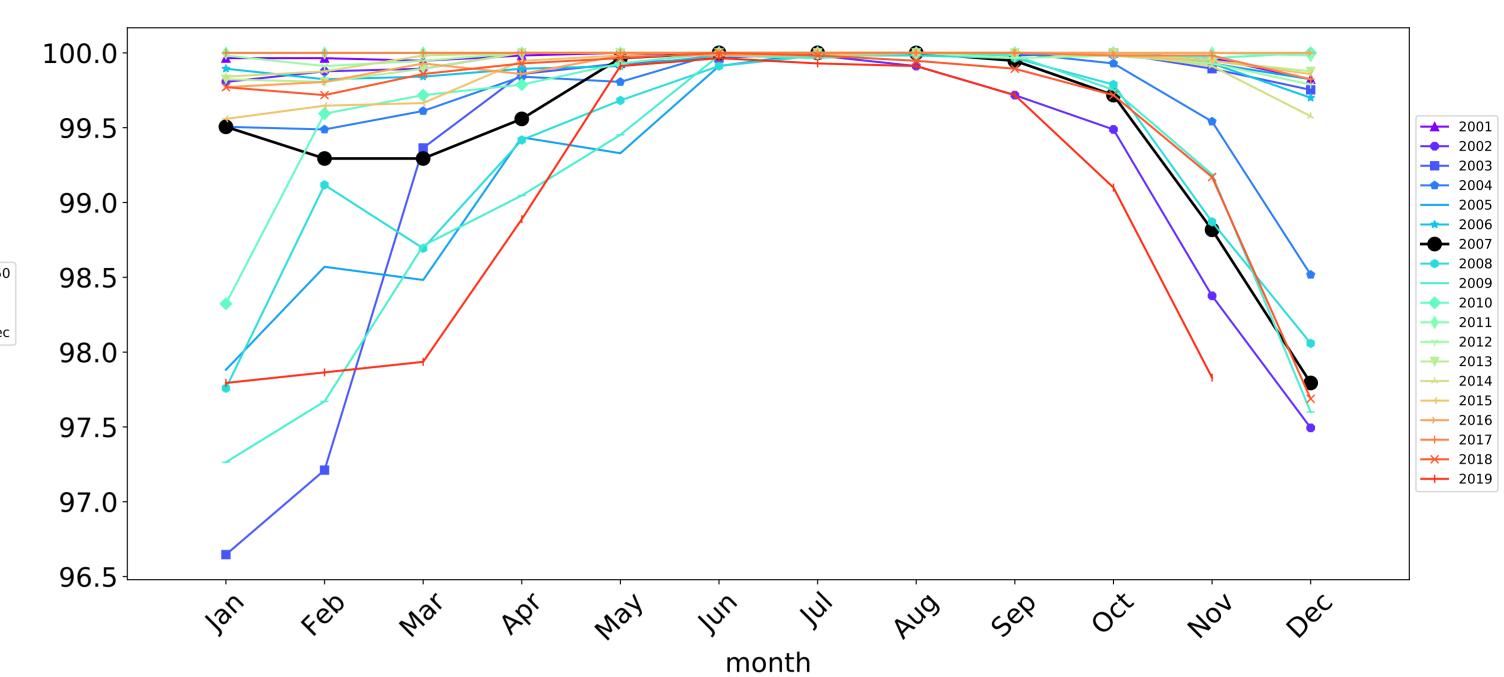


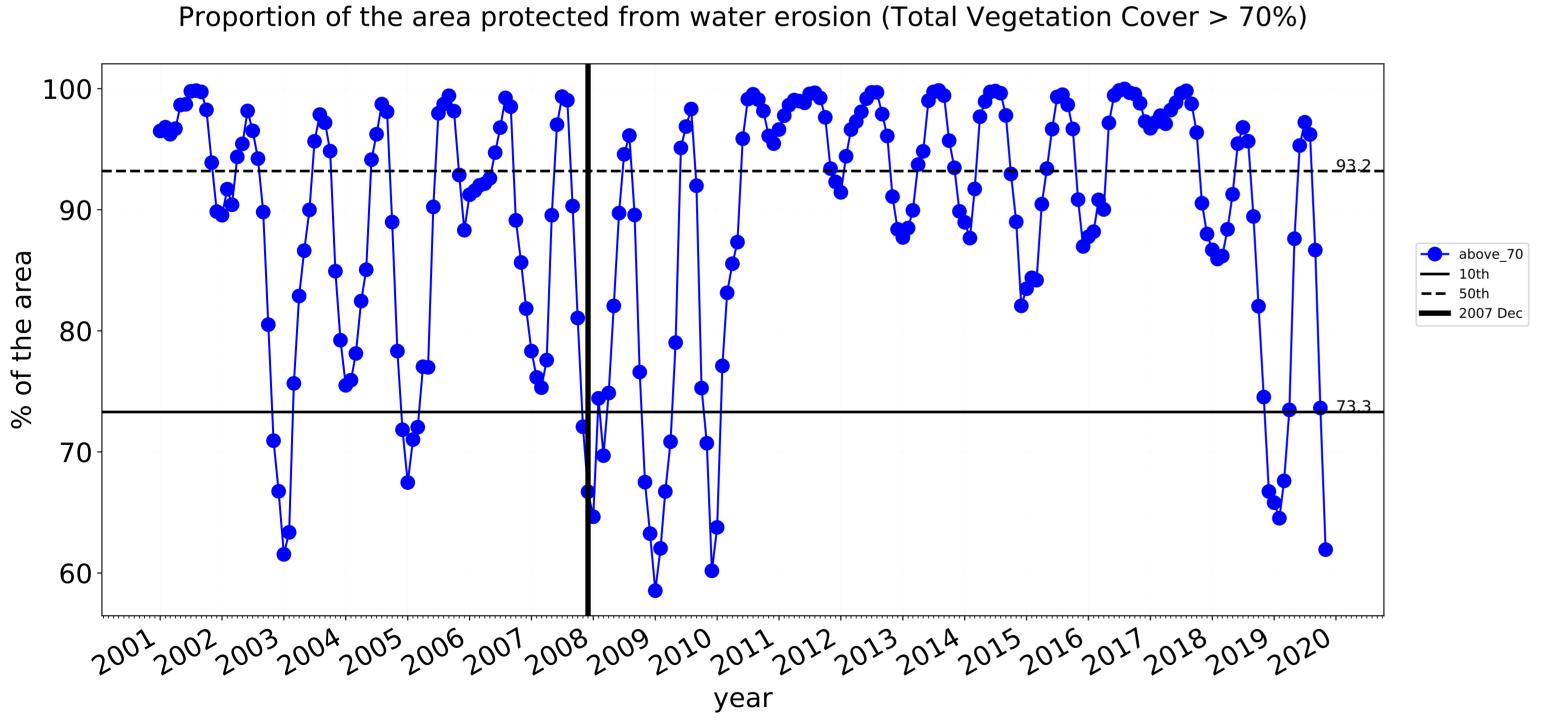


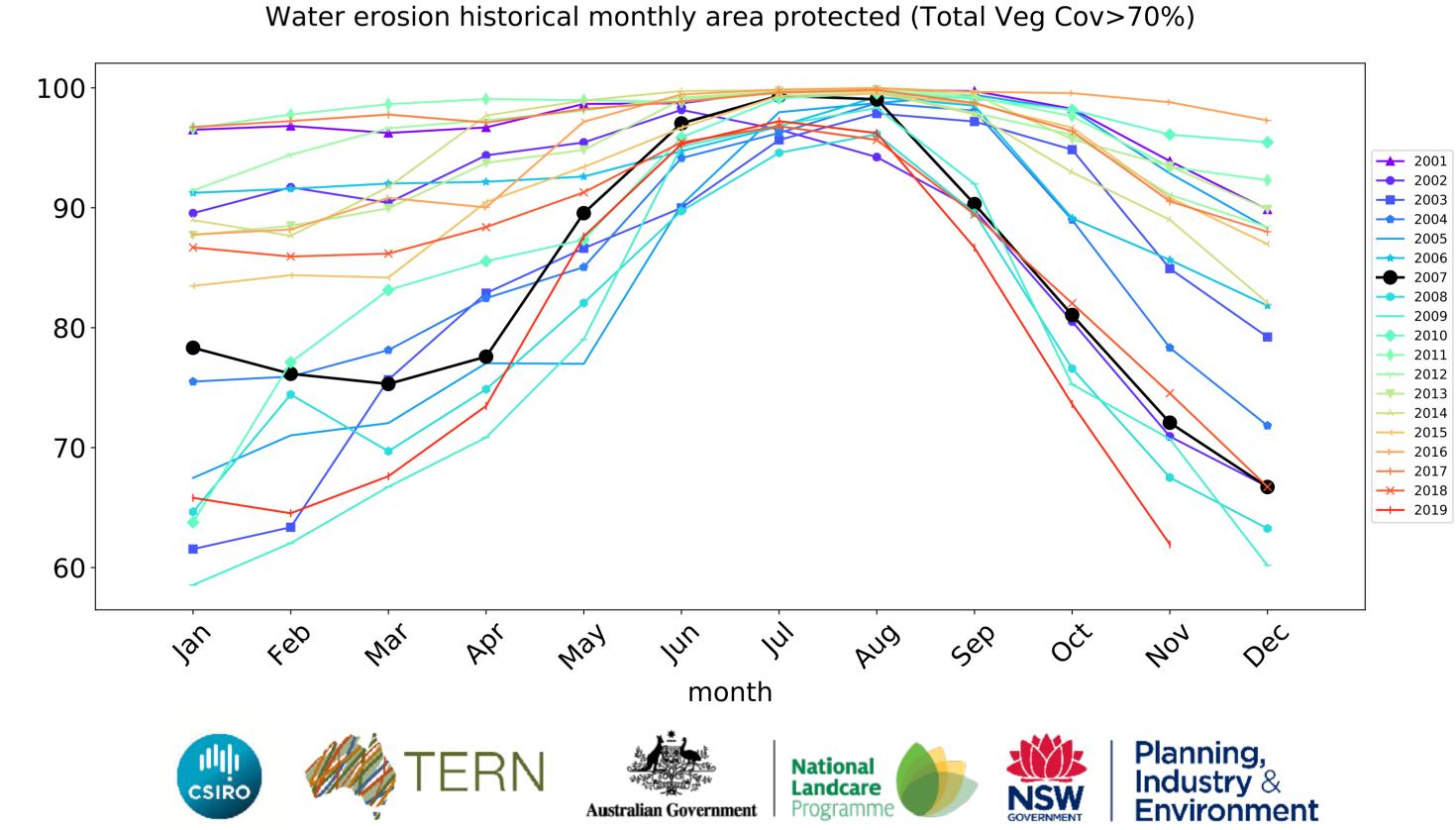


Grazing Woodland forest timeseries







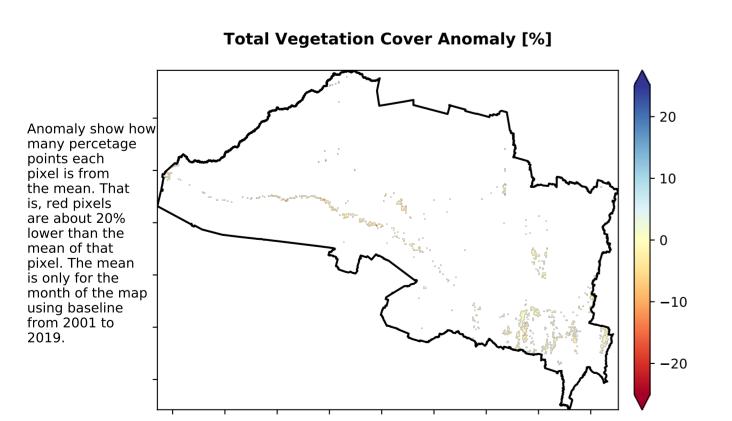


Grazing - Forest (non woodland)

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

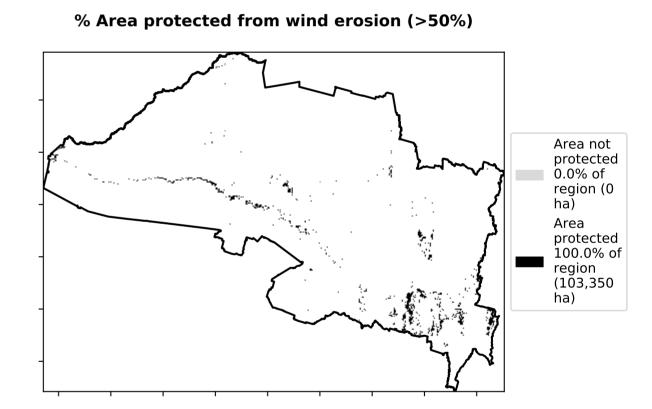
Total Vegetation Cover [%]

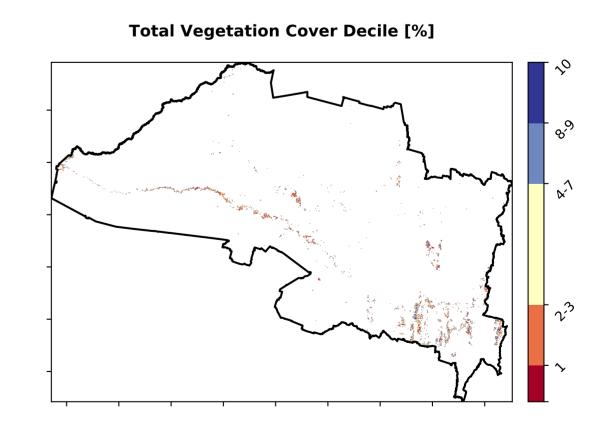
Area not protected 10.2% of region (10,541 ha) Area protected 89.8% of region (92,808 ha)



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 - 89.8% 80 - 60 - 60 - 9.9% 40 - 20 - 9.9% Total Vegetation Cover class in area 89.8% 71%-100% Total Vegetation Cover class







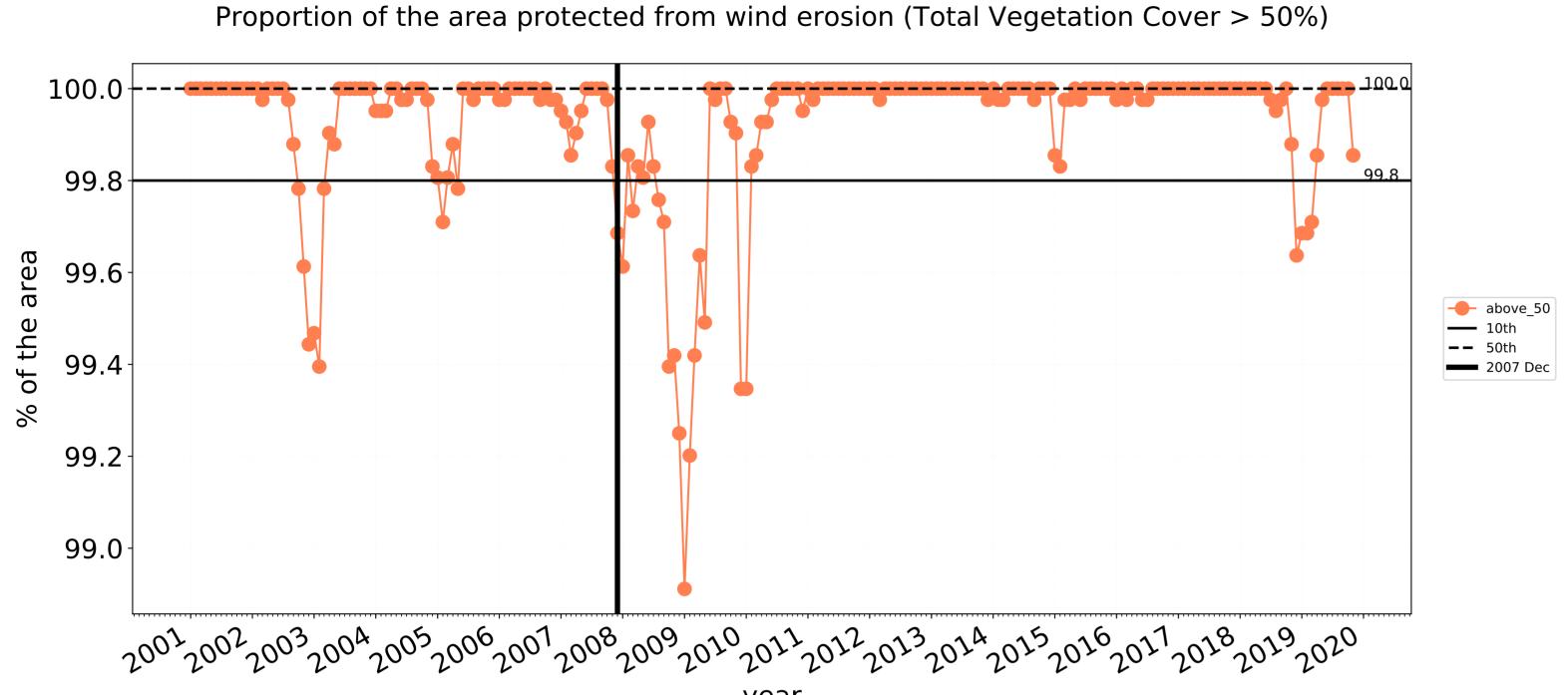


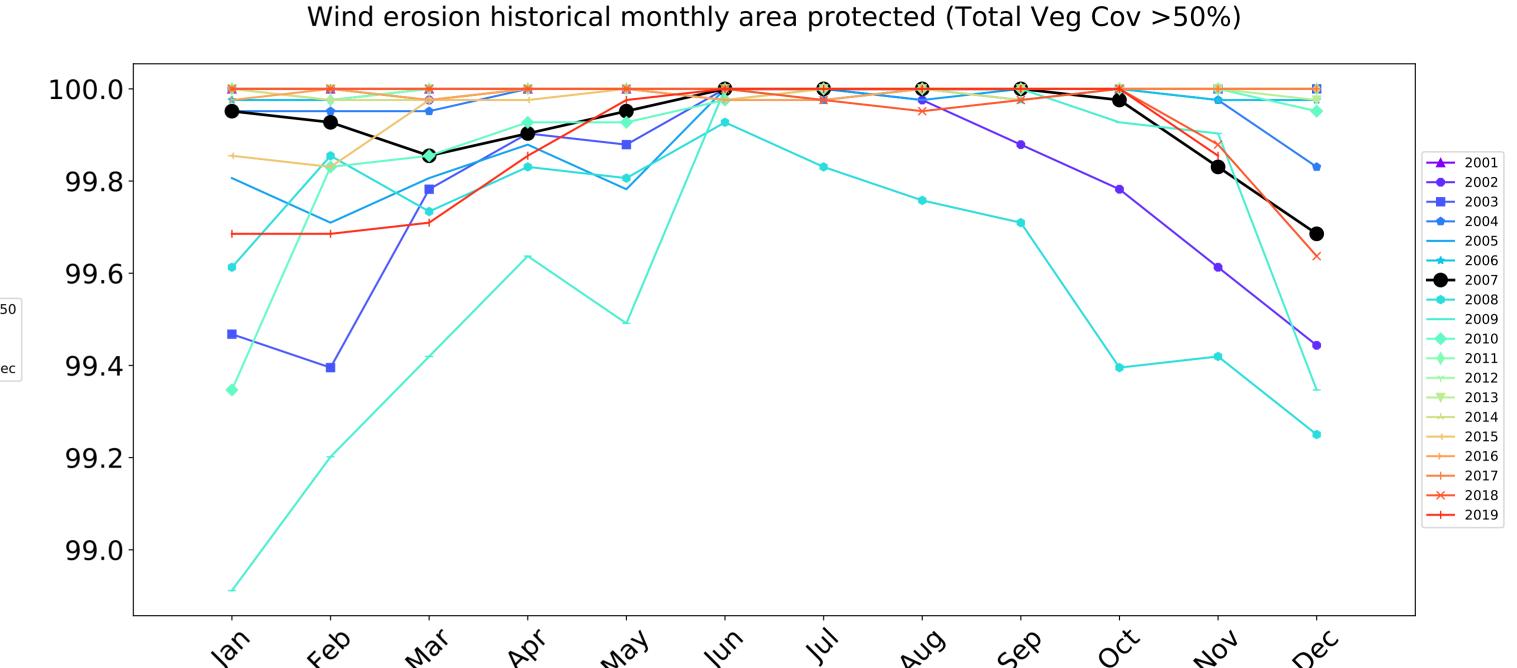




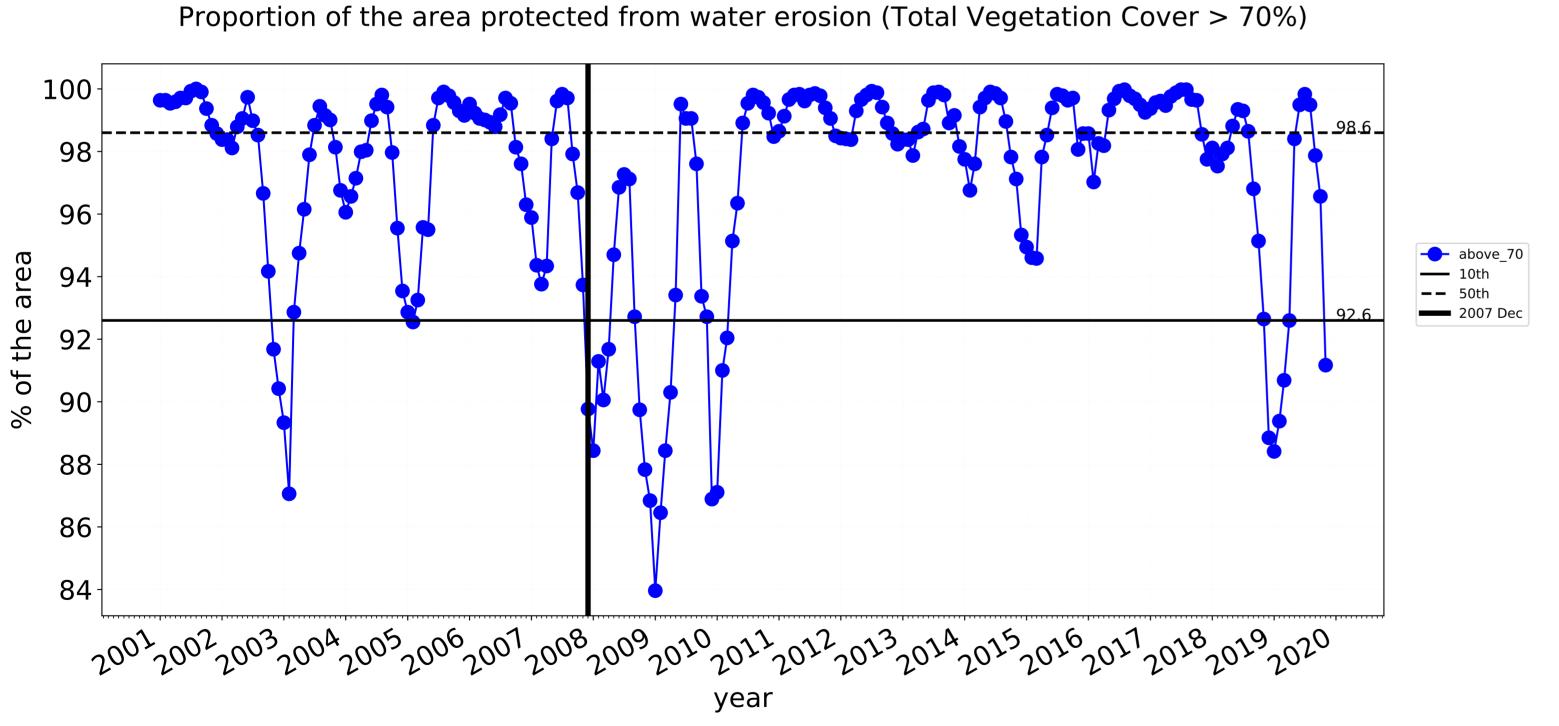


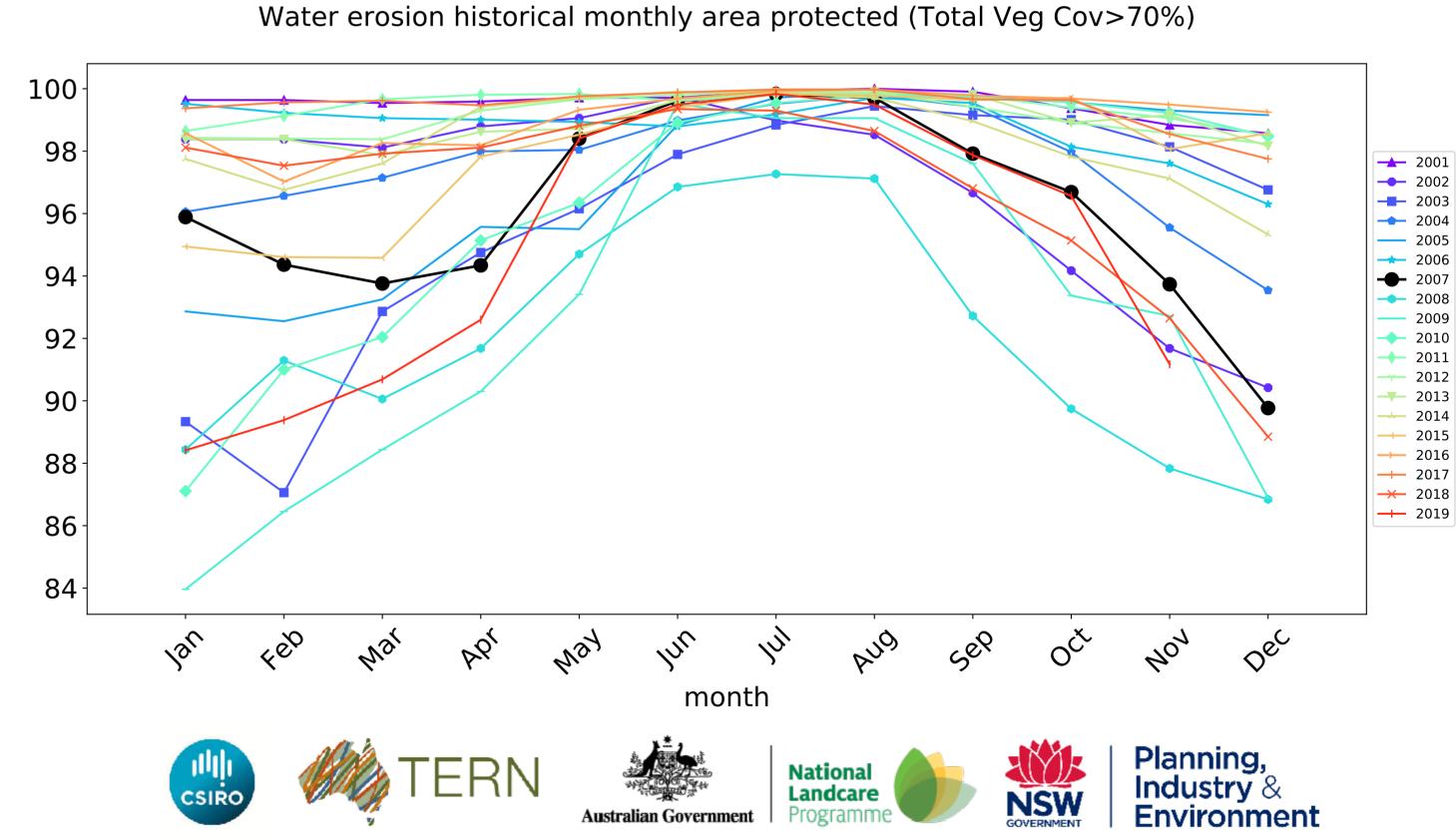






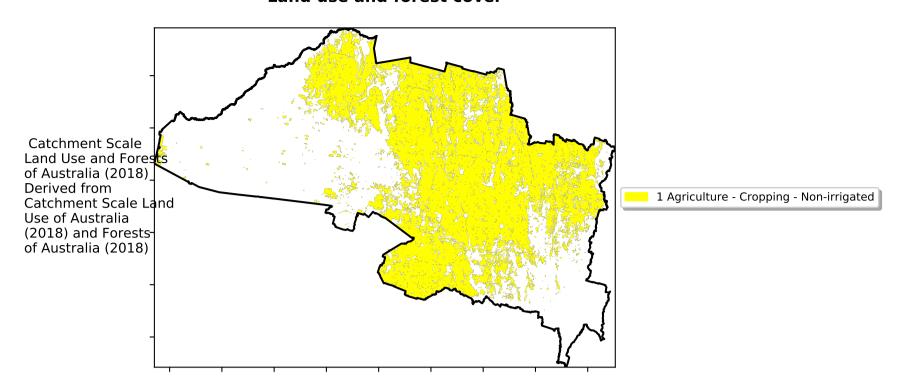
month



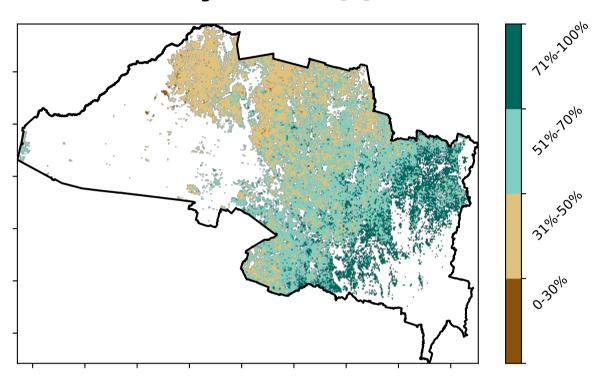


Cropping

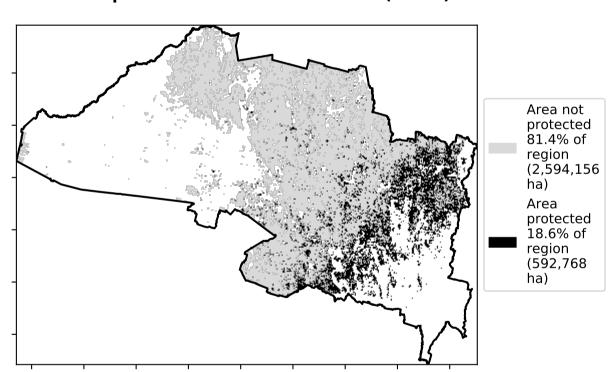
Land use and forest cover



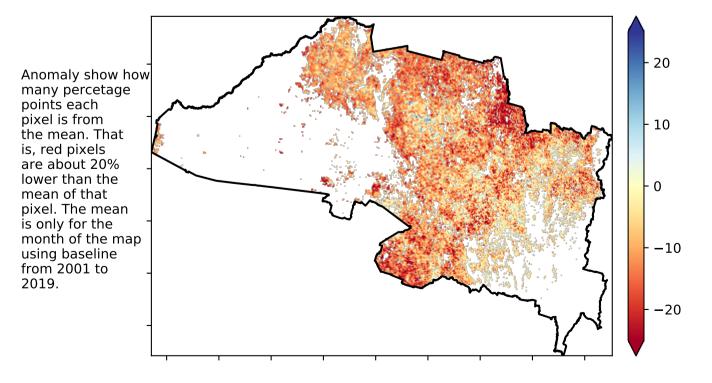
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

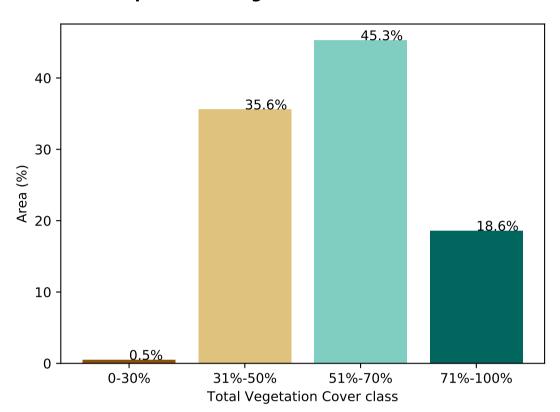


Total Vegetation Cover Anomaly [%]

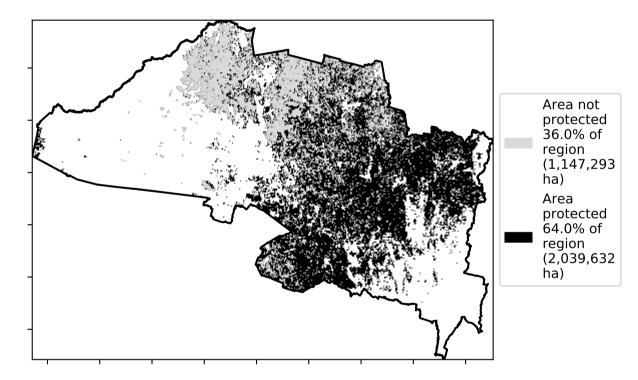


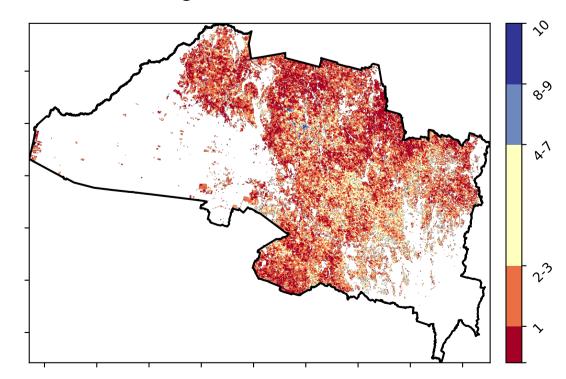
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









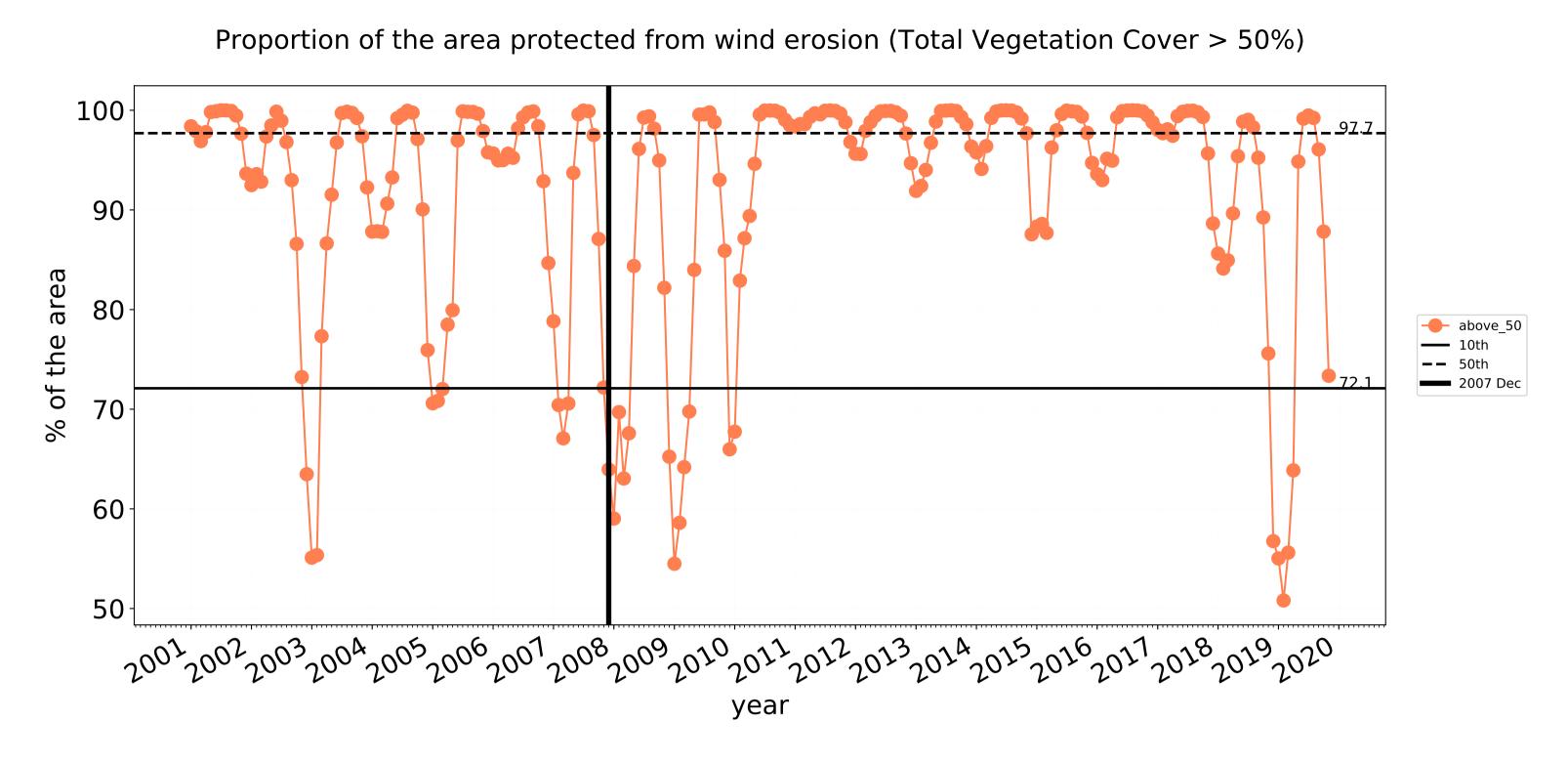


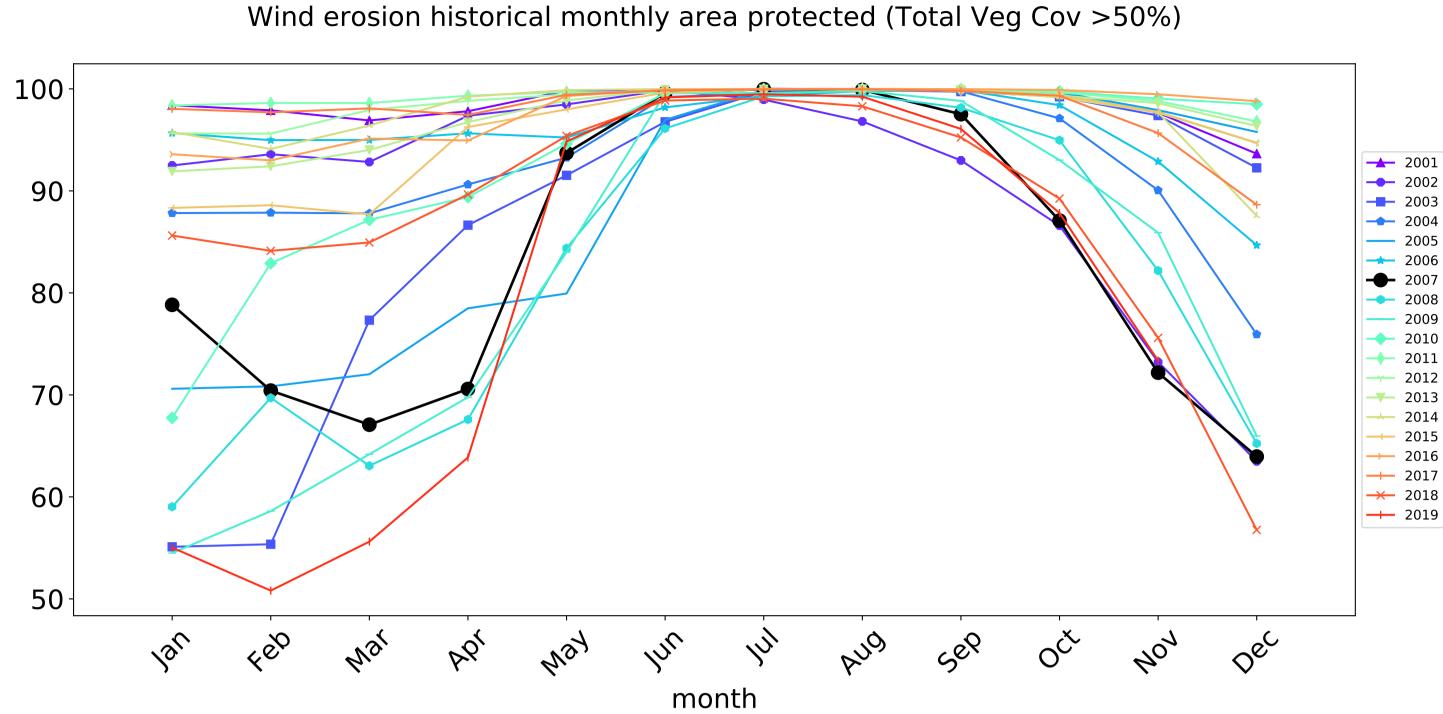


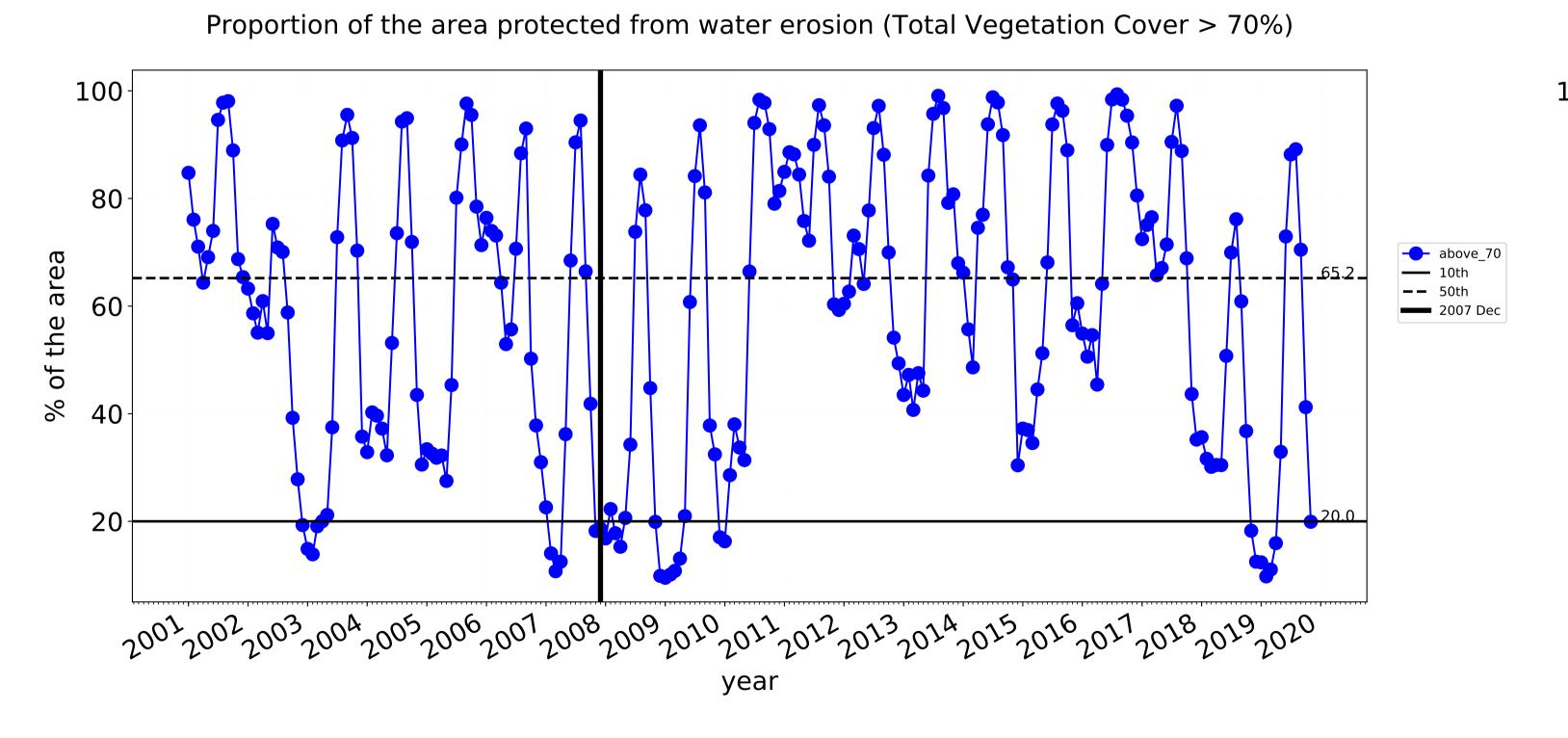


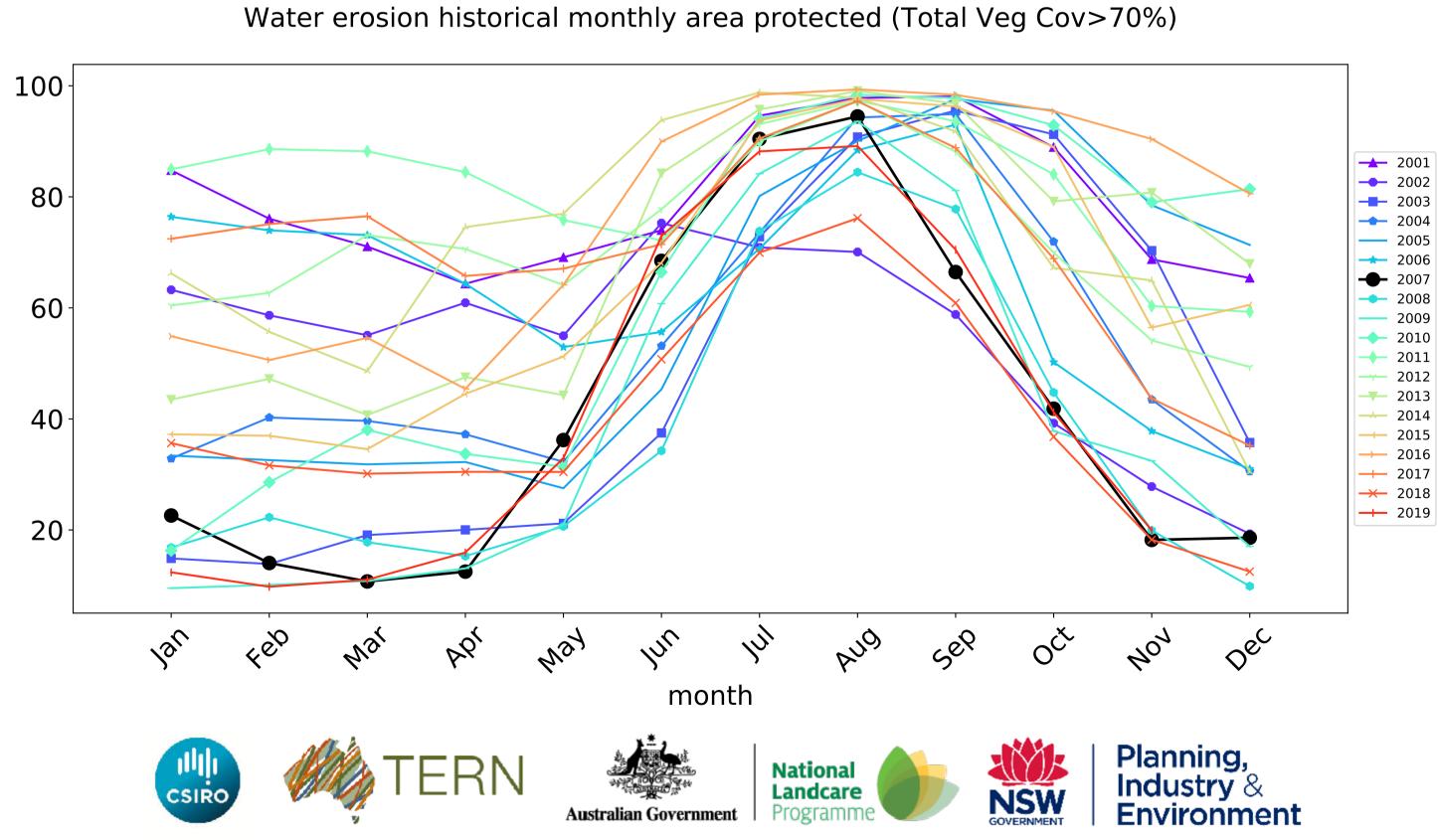


Cropping timeseries

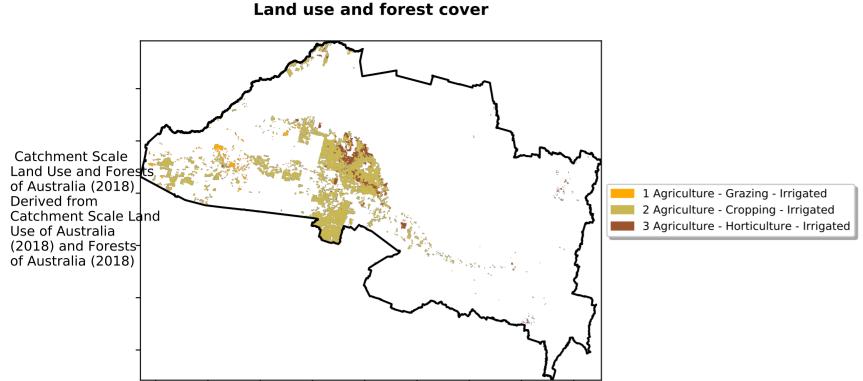


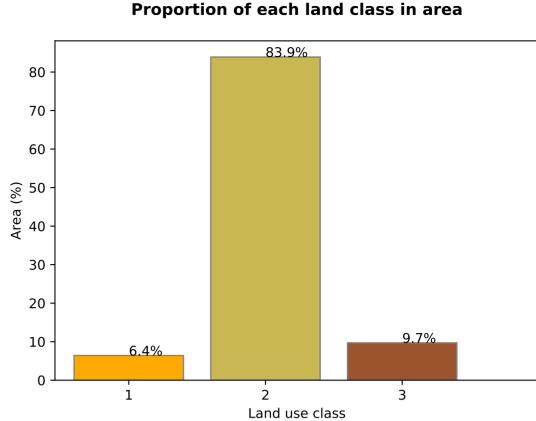


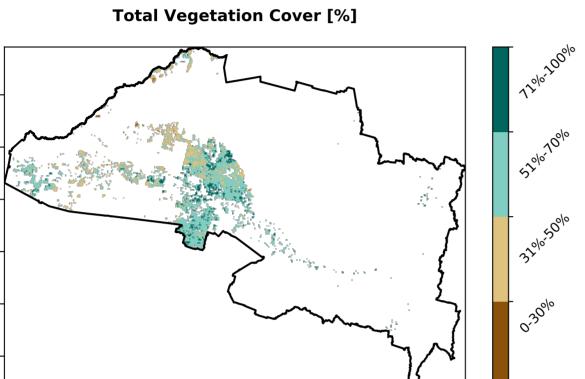


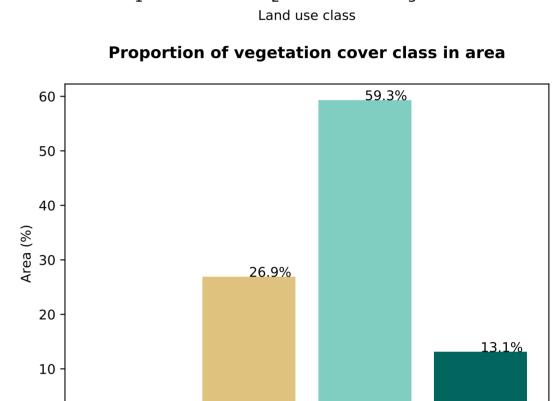


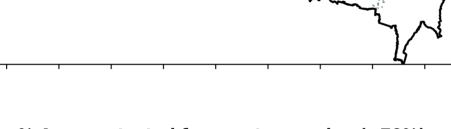
Irrigation









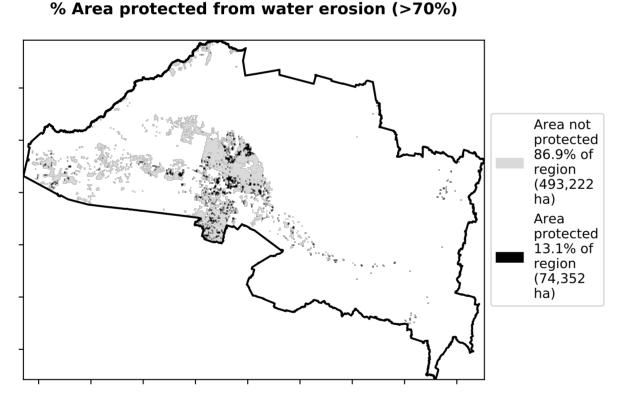


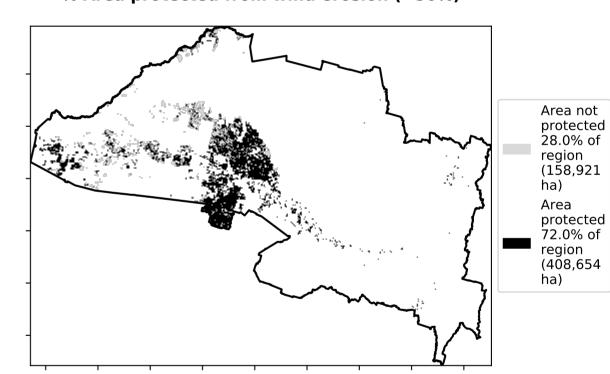
% Area protected from wind erosion (>50%)

Total Vegetation Cover class

31%-50%

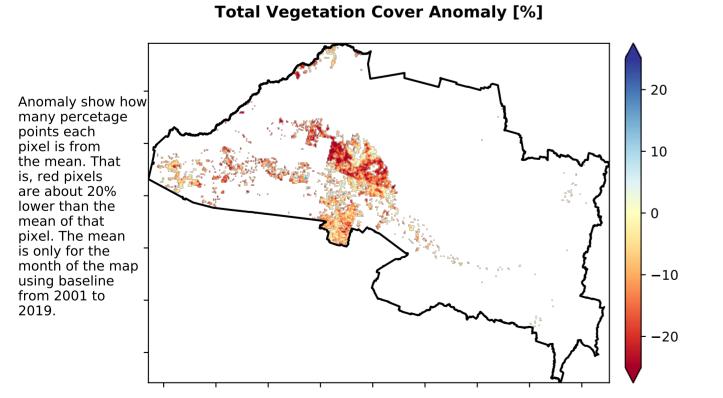
0-30%

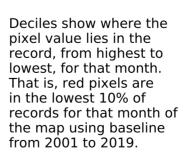


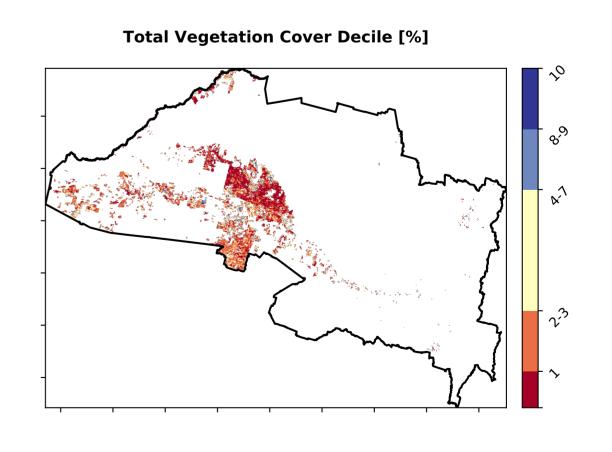


51%-70%

71%-100%









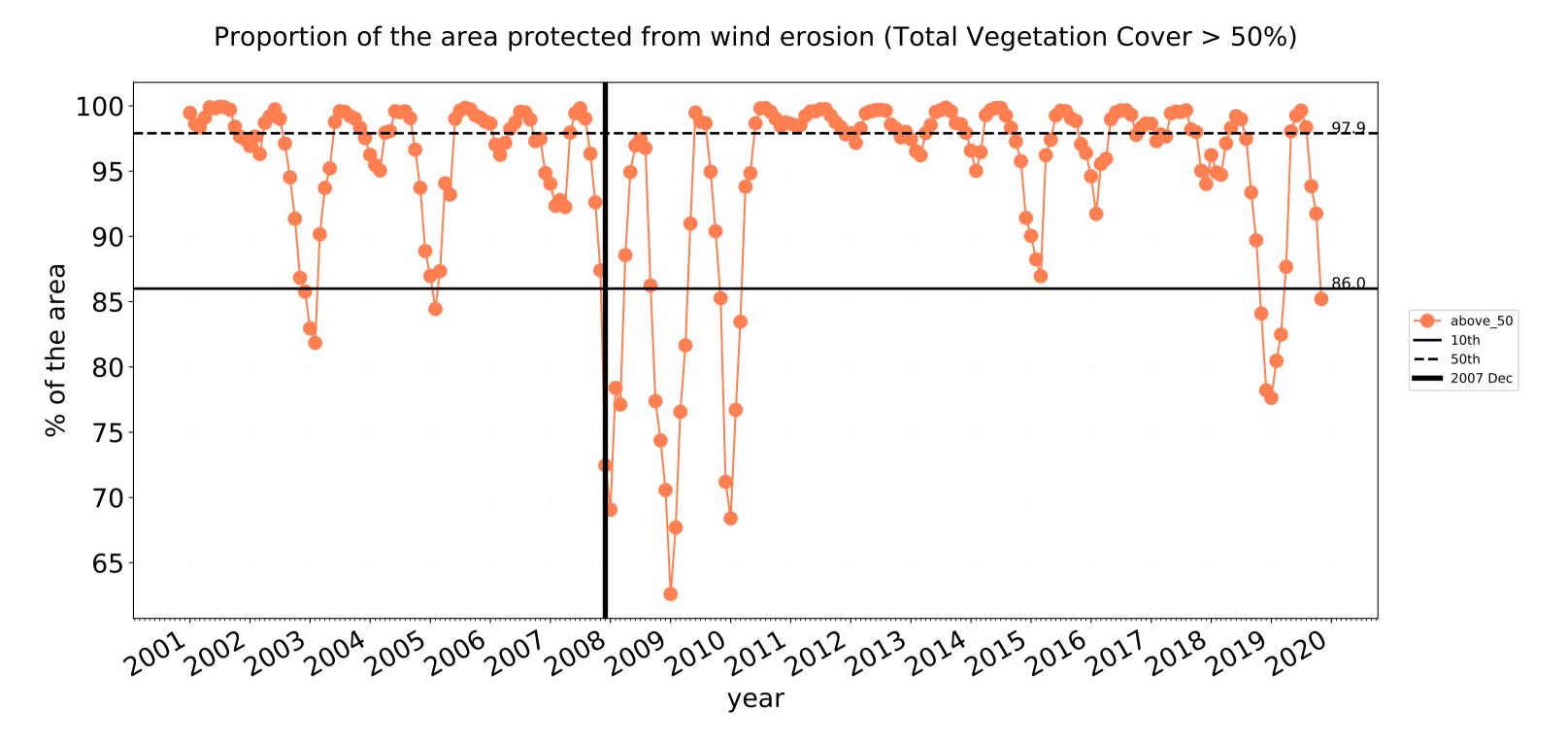


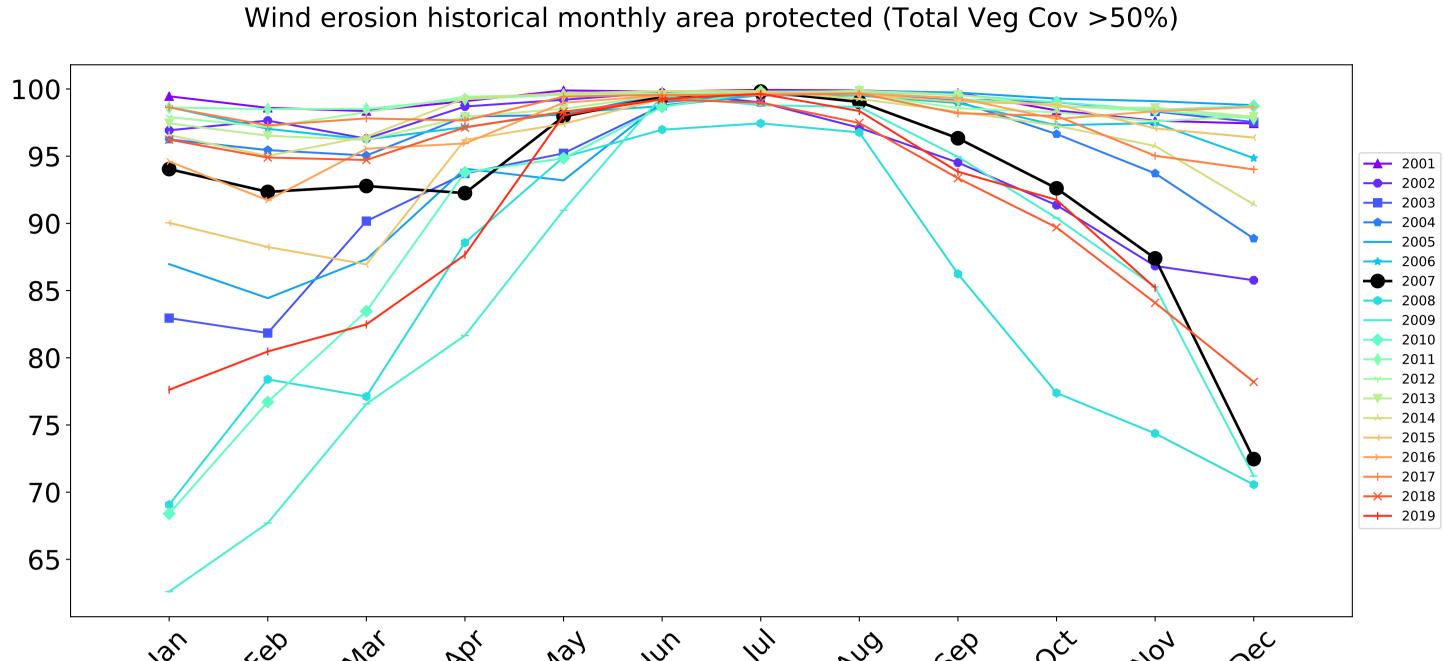




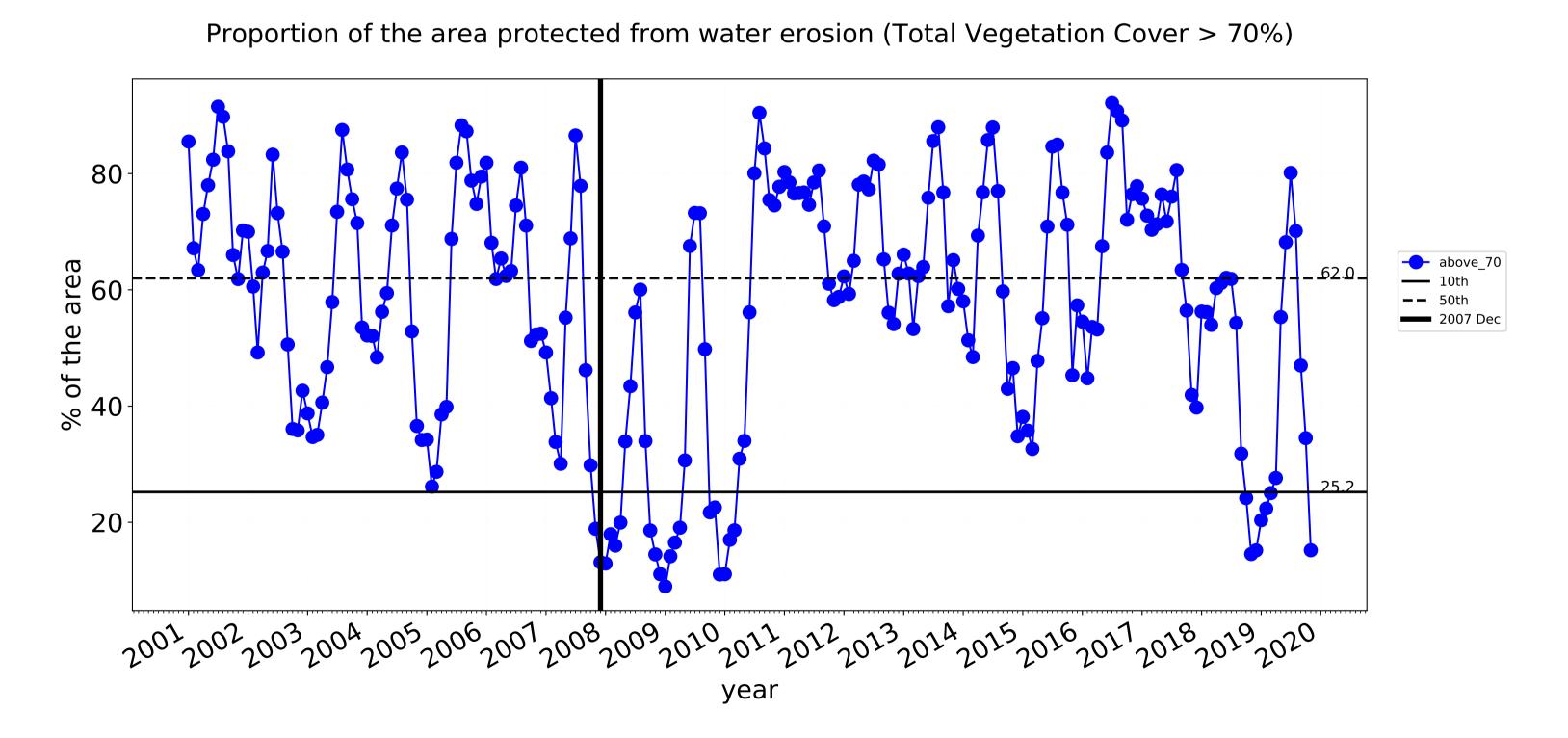


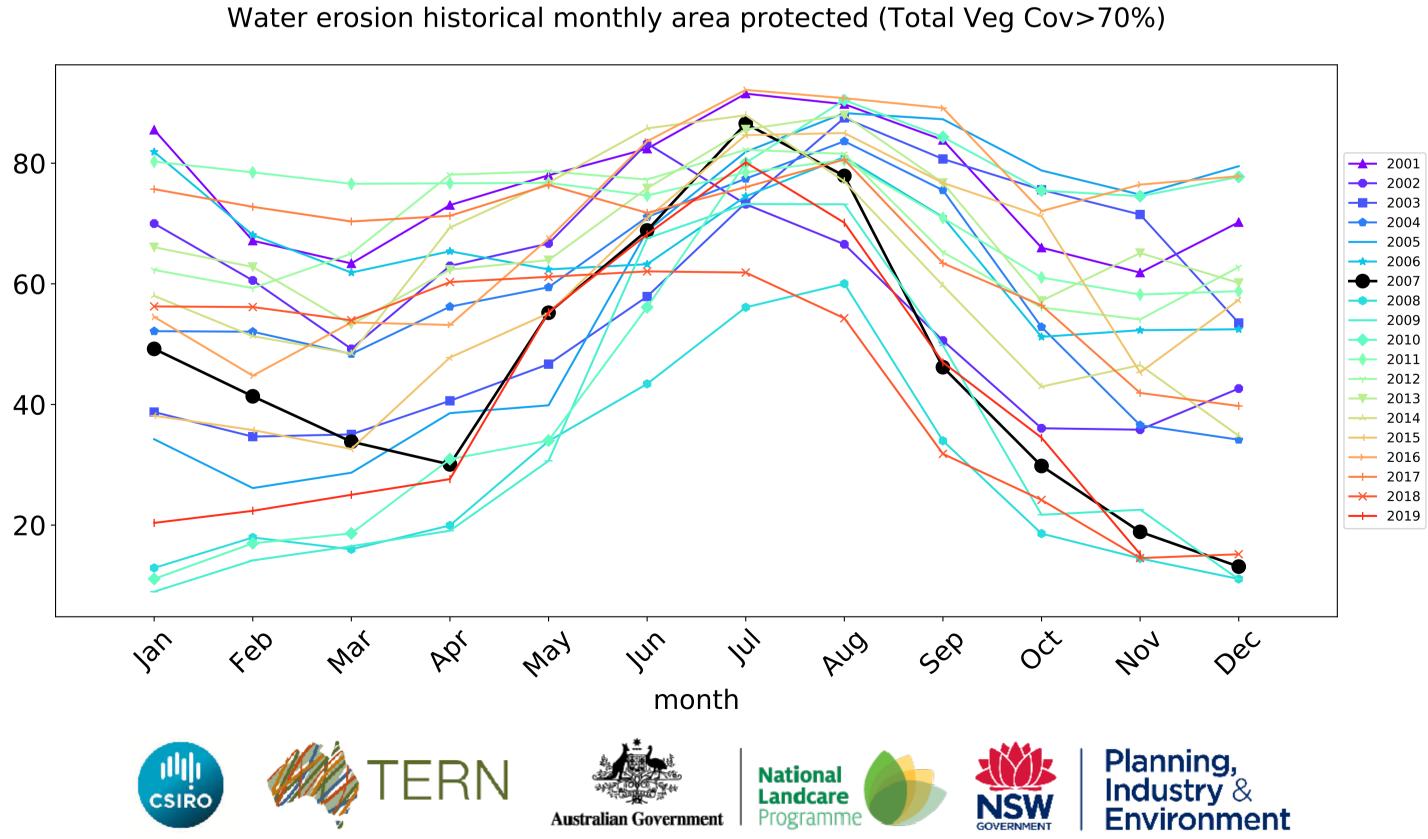






month



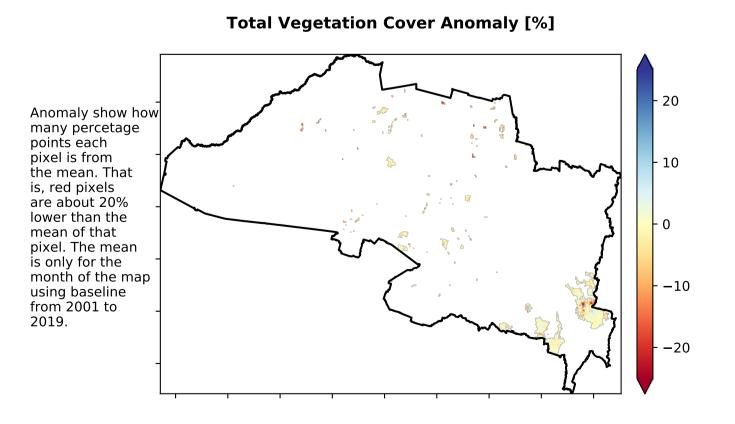


Production native forests and plantation forests

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)

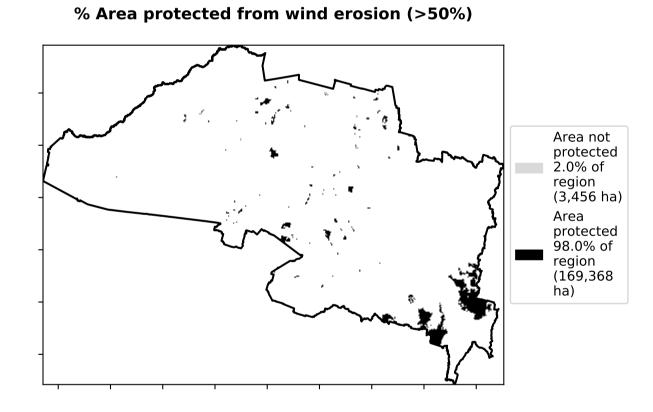
Total Vegetation Cover [%]

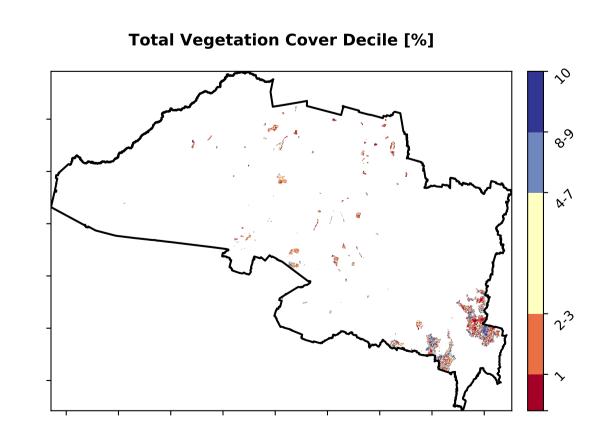
Area not protected 8.5% of region (14,690 ha) Area protected 91.5% of region (158,134 ha)



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 - 91.5% 80 - 60 - 60 - 20 - 0.1% 1.5% 51%-70% 71%-100% Total Vegetation Cover class









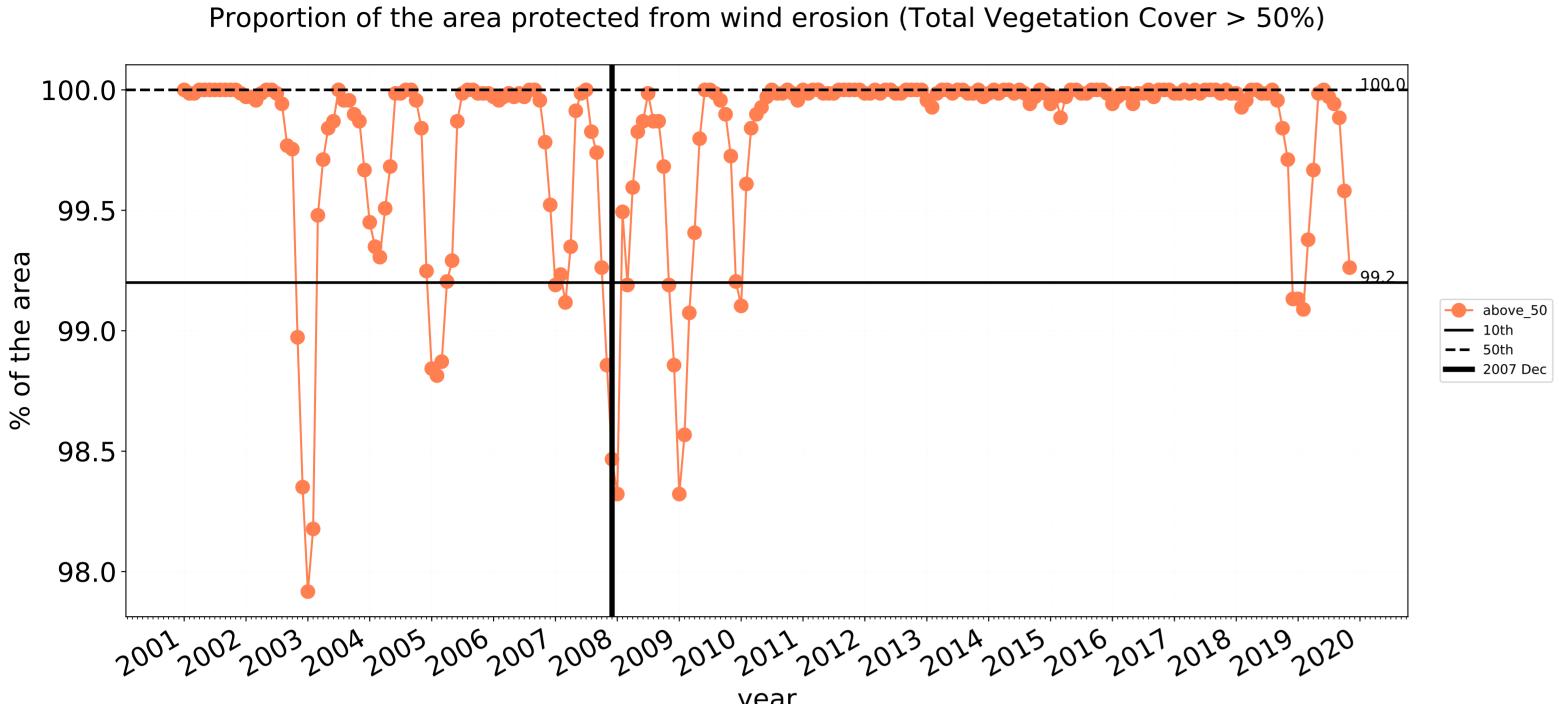


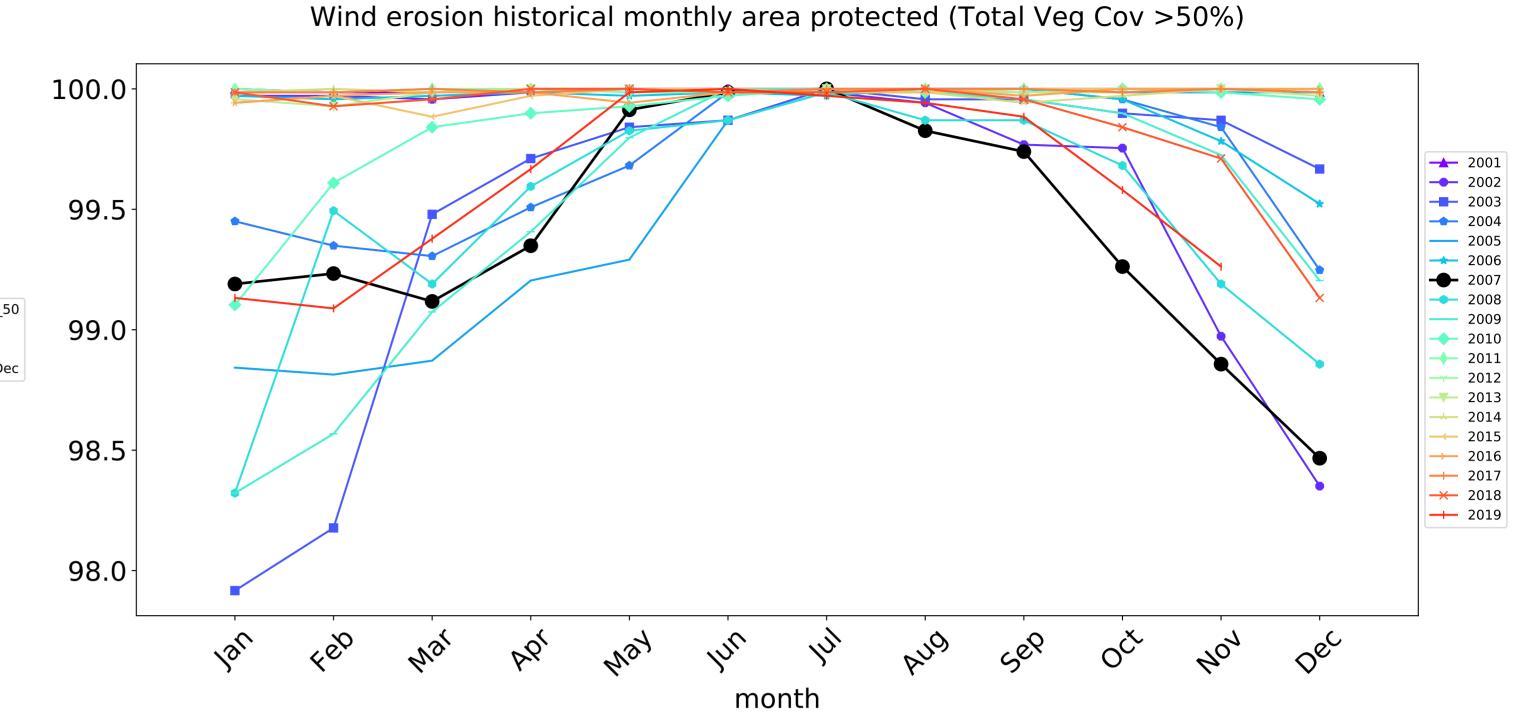


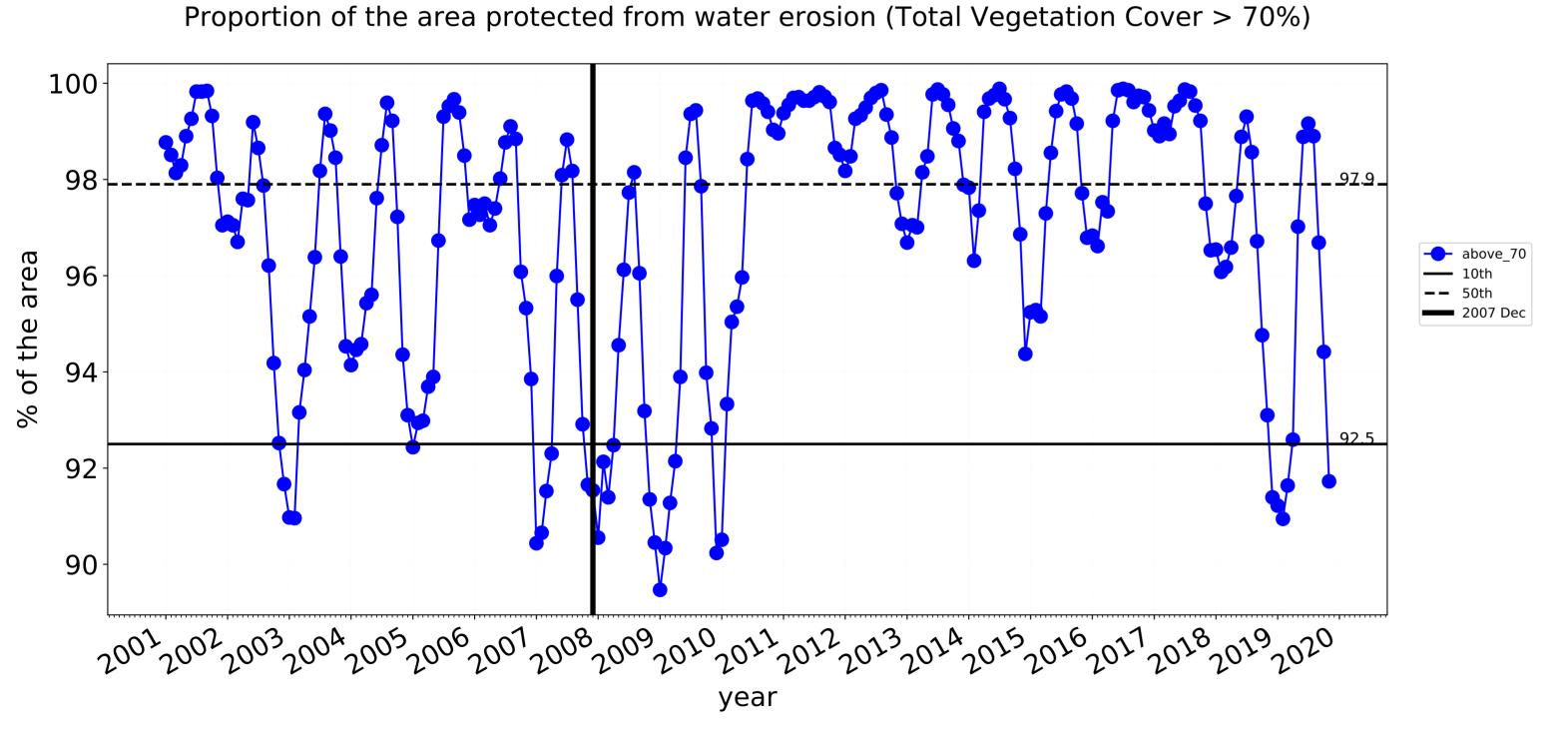


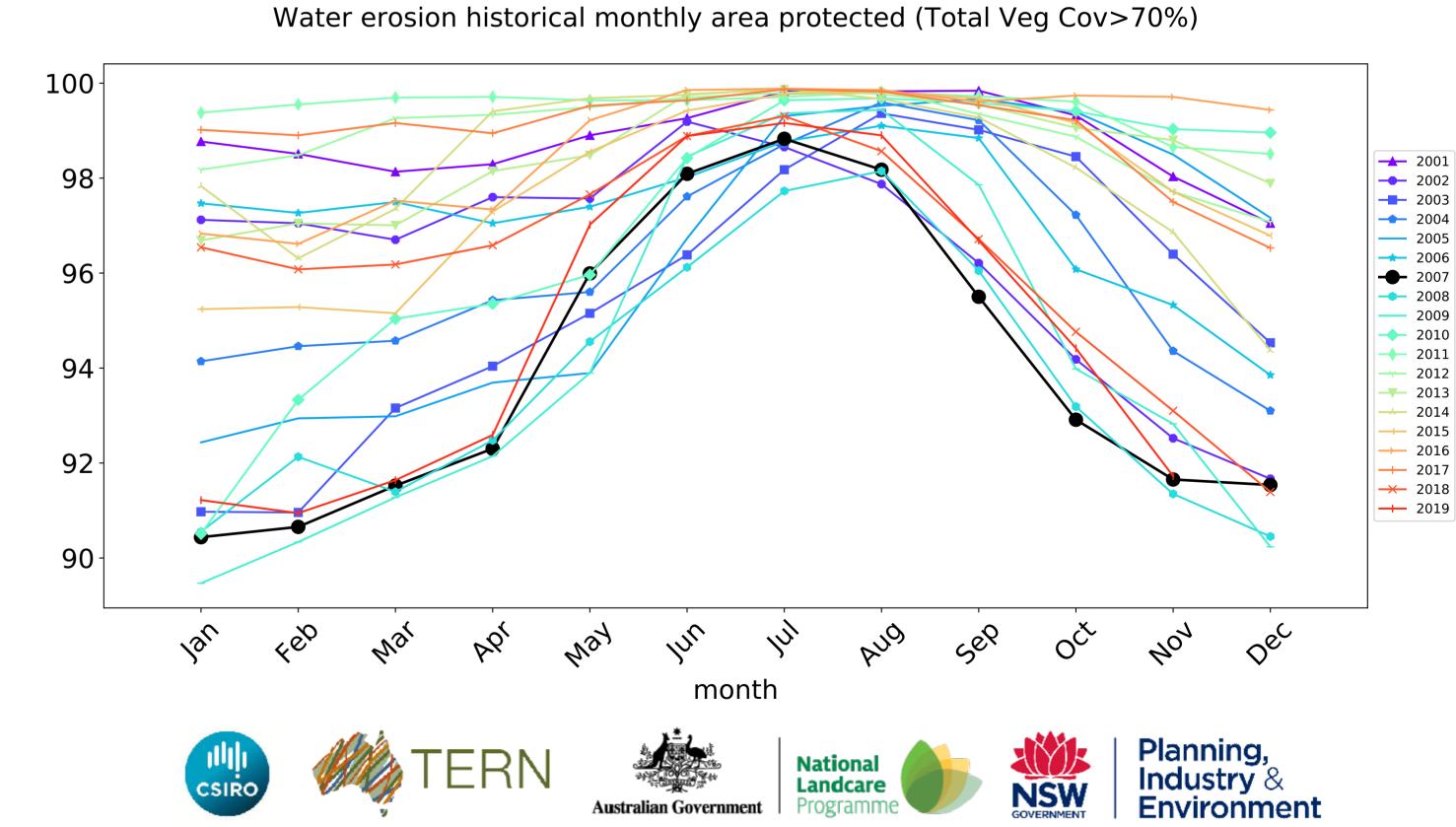


Production native forests and plantation forests timeseries









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	98.7% 6,605,308	63.9% 4,276,843	28.5% 1,907,032	16.7% 1,119,037	5.6% 372,512	2.1% 140,260
Conservation and natural environments	323,050	99.9% 322,575	89.3% 288,500	78.6% 253,875	72.8% 235,175	50.5% 163,275	22.9% 74,050
Conservation and natural environments non forest	83,350	99.4% 82,875	58.8% 48,975	22.4% 18,650	13.7% 11,400	8.3% 6,900	3.3% 2,725
Conservation and natural environments Forest (non woodland)	195,200	100.0% 195,200	100.0% 195,175	99.4% 194,025	97.5% 190,250	75.1% 146,650	35.2% 68,675
Agriculture	6,068,075	98.6% 5,982,050	61.4% 3,723,850	24.0% 1,454,475	12.0% 728,175	1.9% 112,575	0.3% 15,775
Grazing	2,311,750	97.0% 2,242,100	55.1% 1,273,675	34.0% 786,675	23.4% 540,425	4.5% 104,800	0.7% 15,050
Grazing non forest	2,066,750	96.6% 1,997,100	49.9% 1,032,125	29.0% 599,400	20.0% 414,025	3.2% 66,200	0.4% 8,250
Grazing Woodland forest	141,650	100.0% 141,650	97.8% 138,525	66.7% 94,500	36.3% 51,425	5.1% 7,250	0.5% 675
Grazing - Forest (non woodland)	103,350	100.0% 103,350	99.7% 103,025	89.8% 92,775	72.5% 74,975	30.3% 31,350	5.9% 6,125
Cropping	3,186,925	99.6% 3,173,900	64.0% 2,038,075	18.6% 593,100	5.5% 175,750	0.2% 7,200	0.0% 725
Irrigation	567,575	99.4% 564,225	72.5% 411,275	13.1% 74,475	2.1% 11,975	0.1% 575	0.0%
Production native forests and plantation forests	172,825	100.0% 172,825	98.5% 170,175	91.5% 158,200	81.6% 141,050	55.0% 94,975	28.9% 49,925











