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: October 2003

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





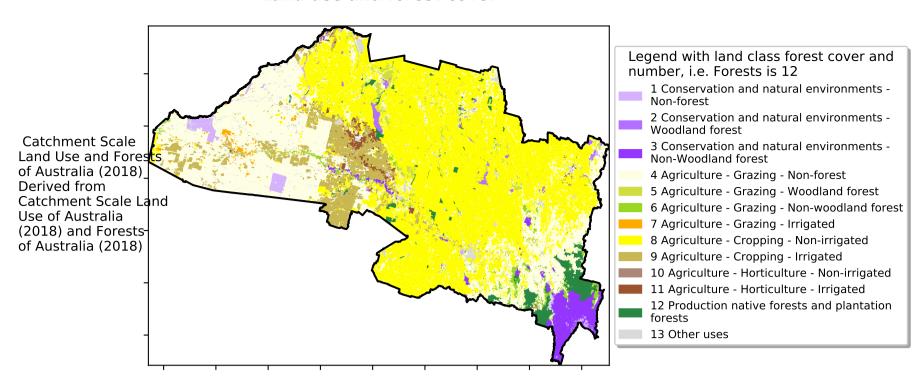




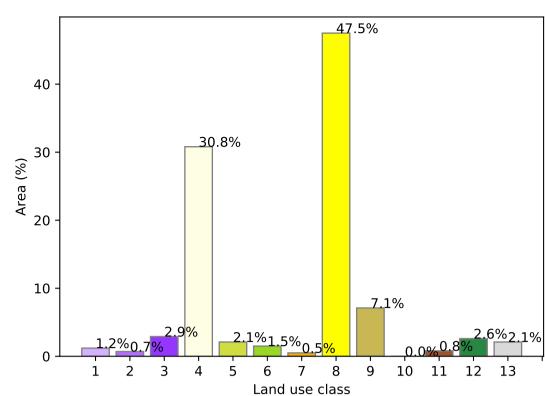


Vegetation Cover Oct 2003

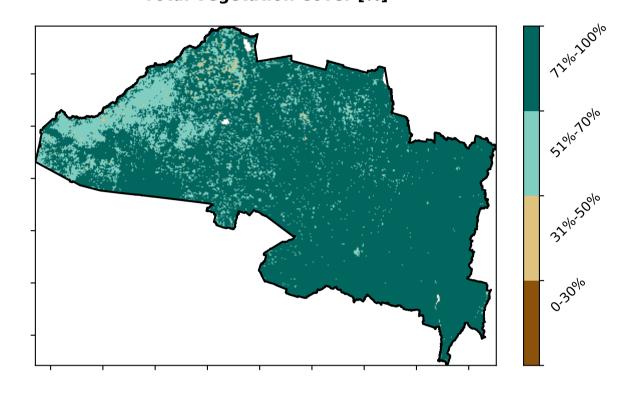
Land use and forest cover



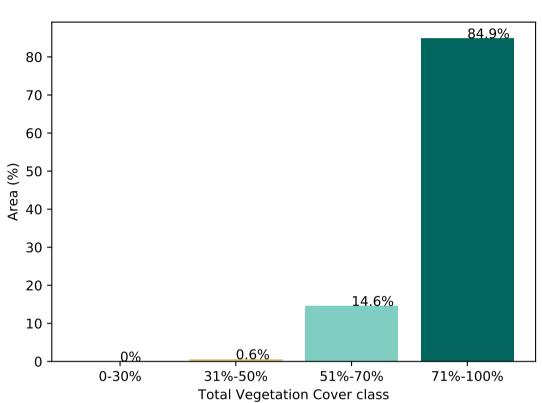
Proportion of each land class in area



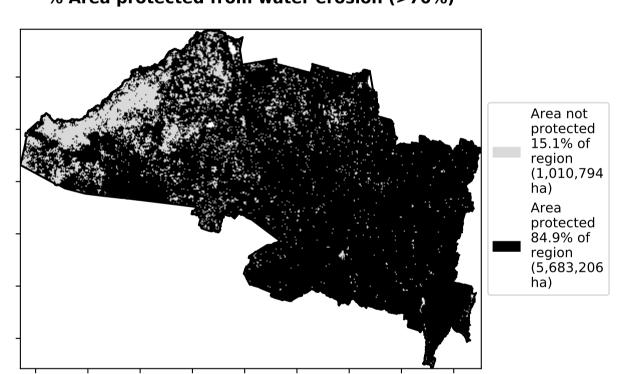
Total Vegetation Cover [%]



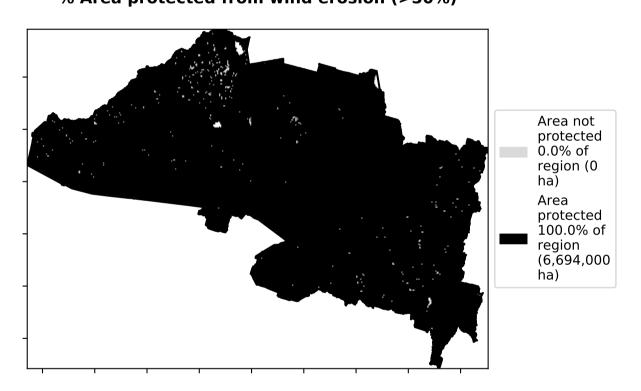
Proportion of vegetation cover class in area



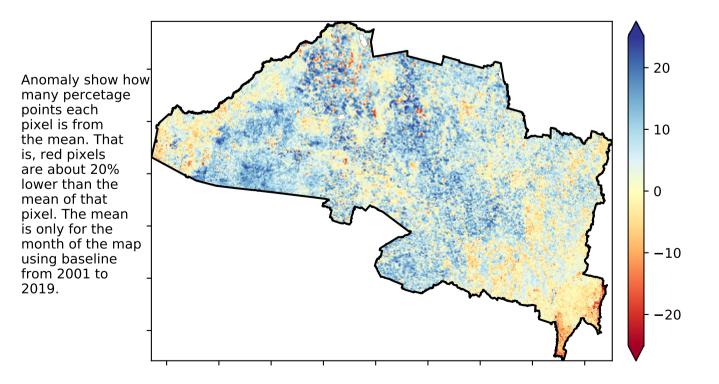
% Area protected from water erosion (>70%)



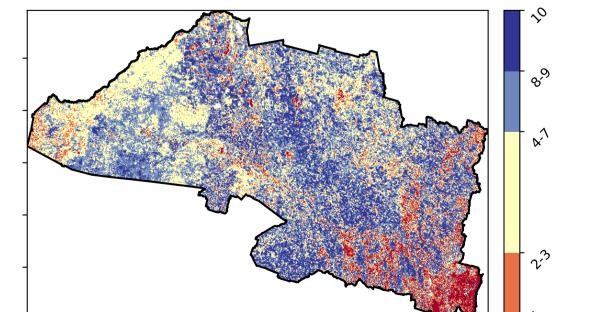
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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



Total Vegetation Cover Decile [%]



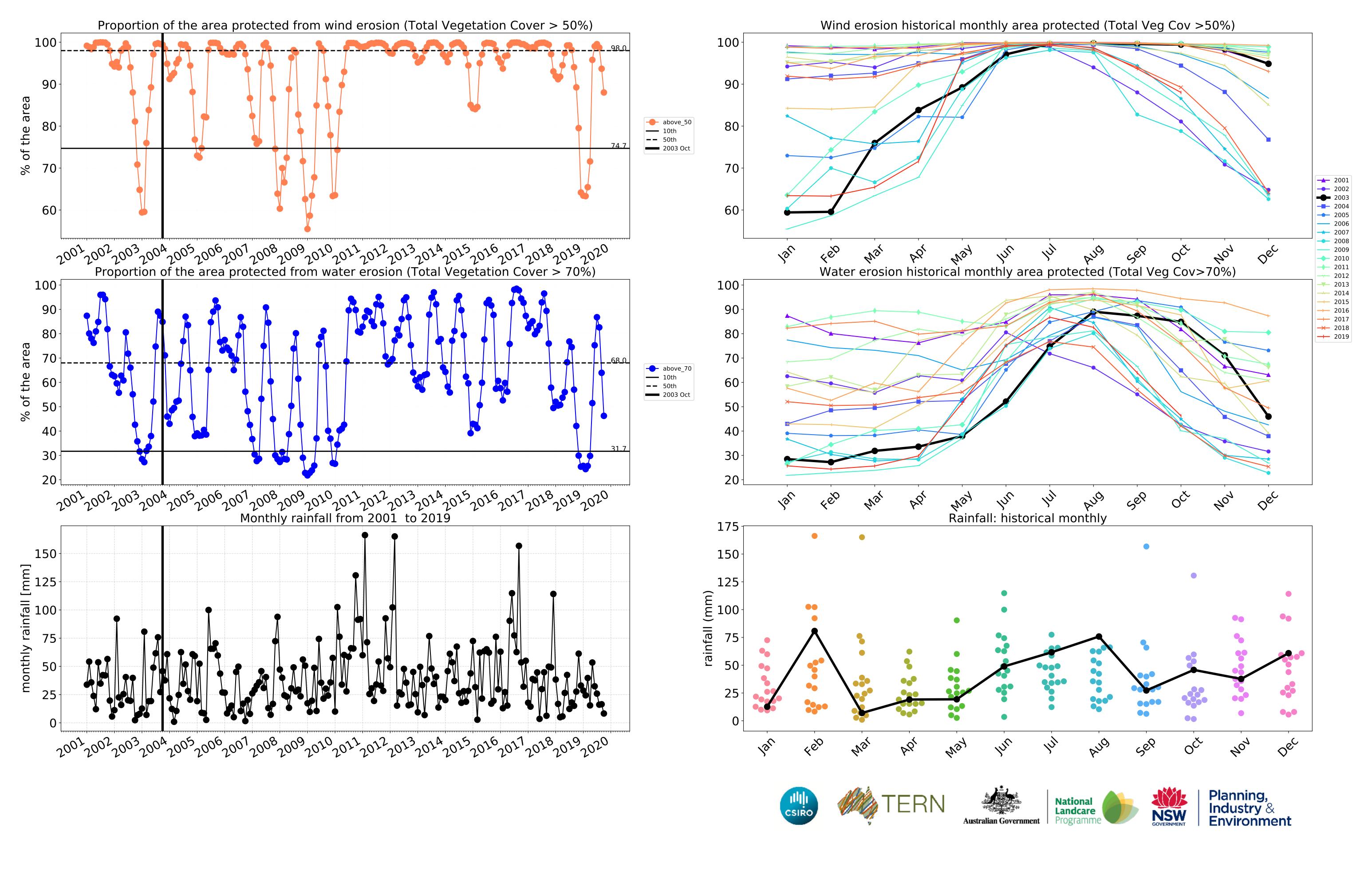




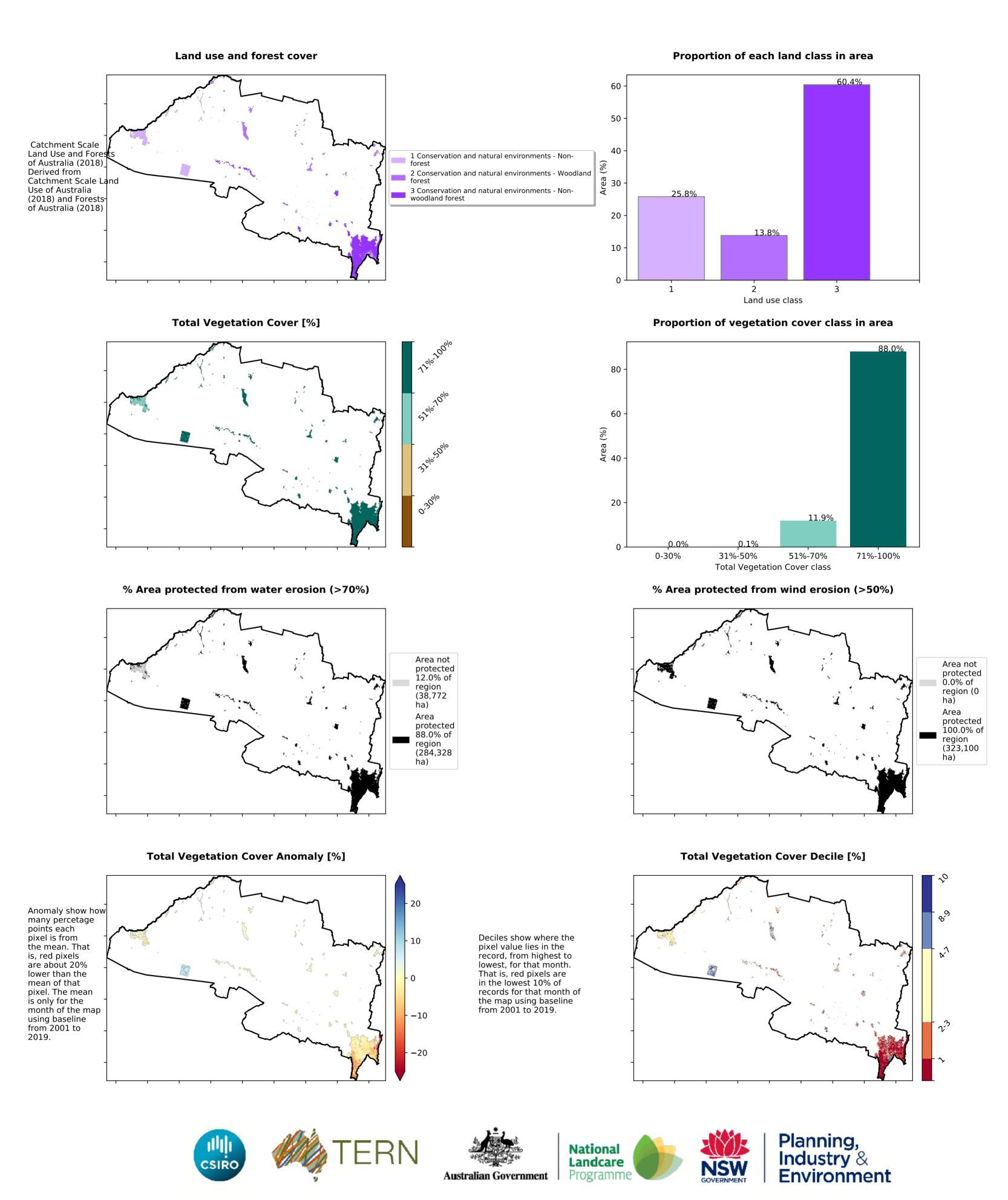




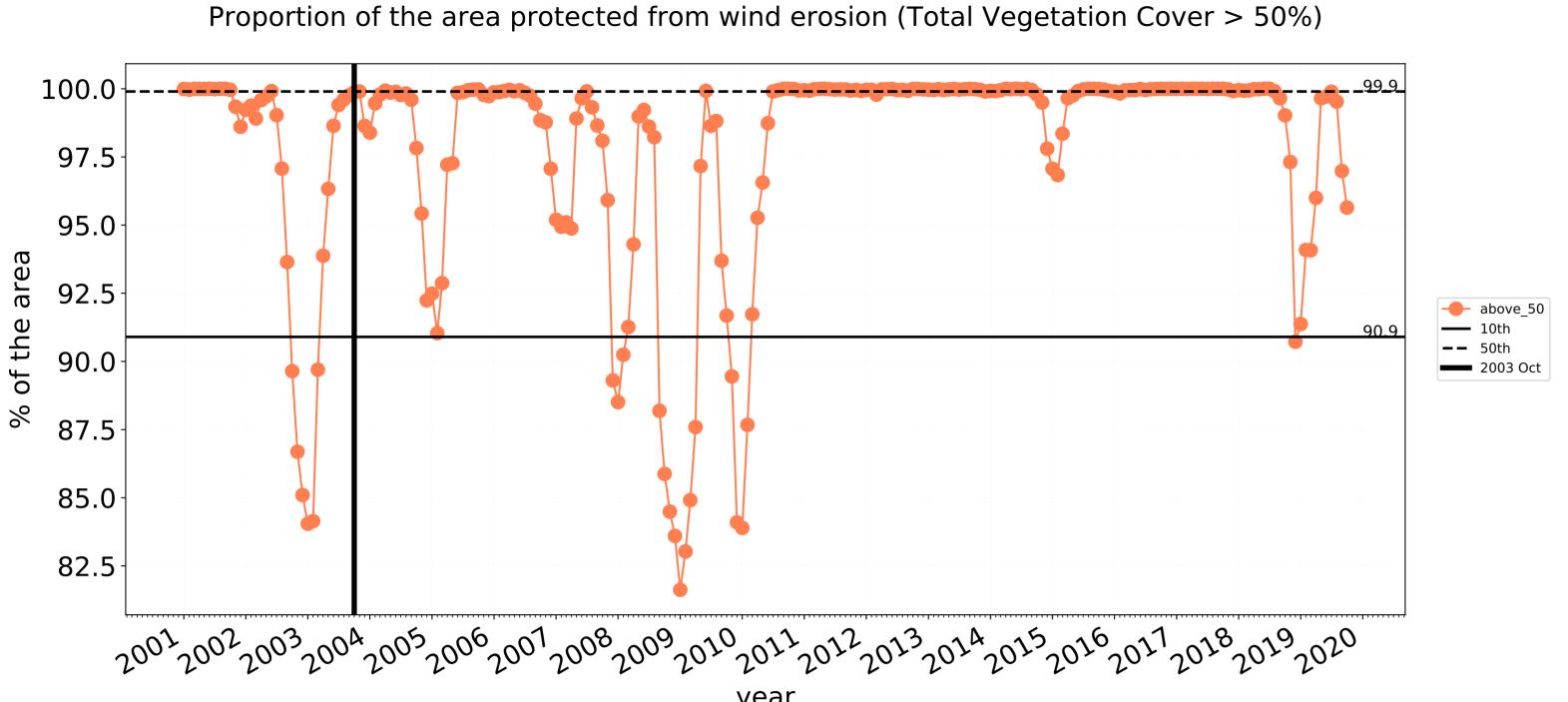


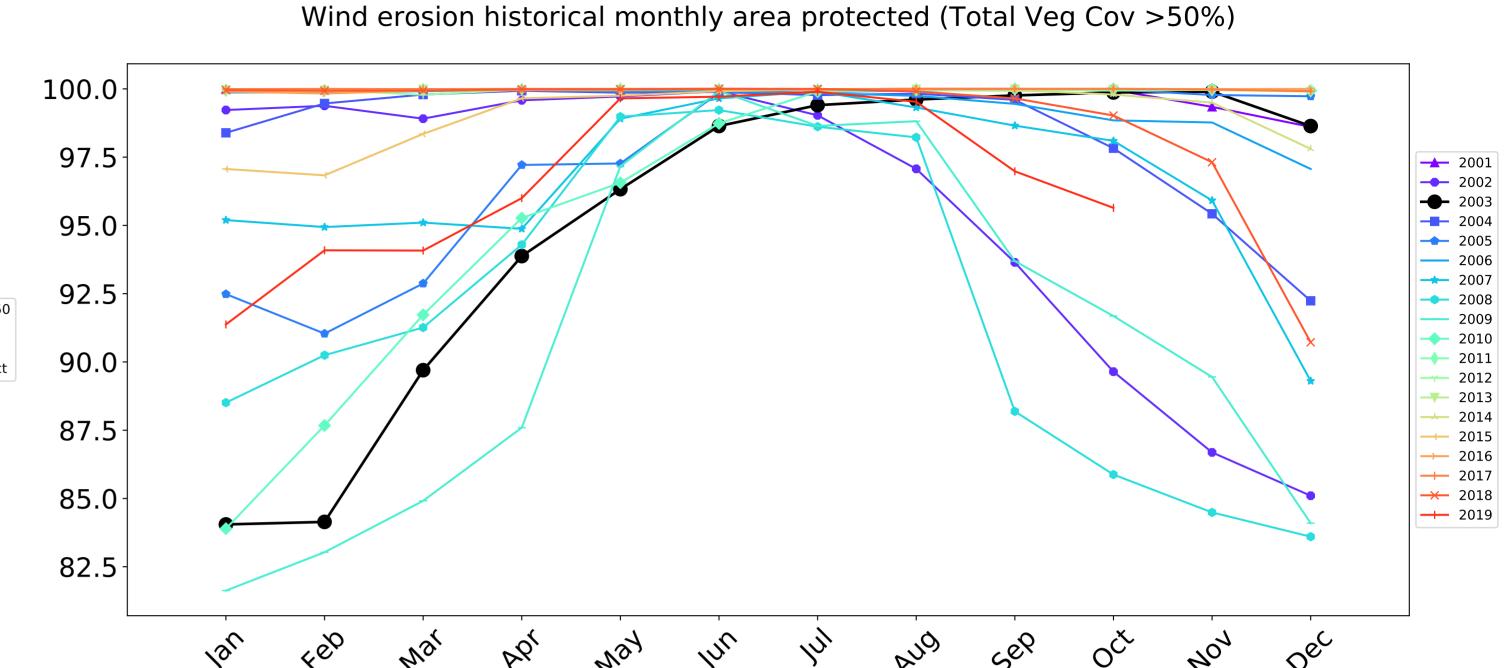


Conservation and natural environments

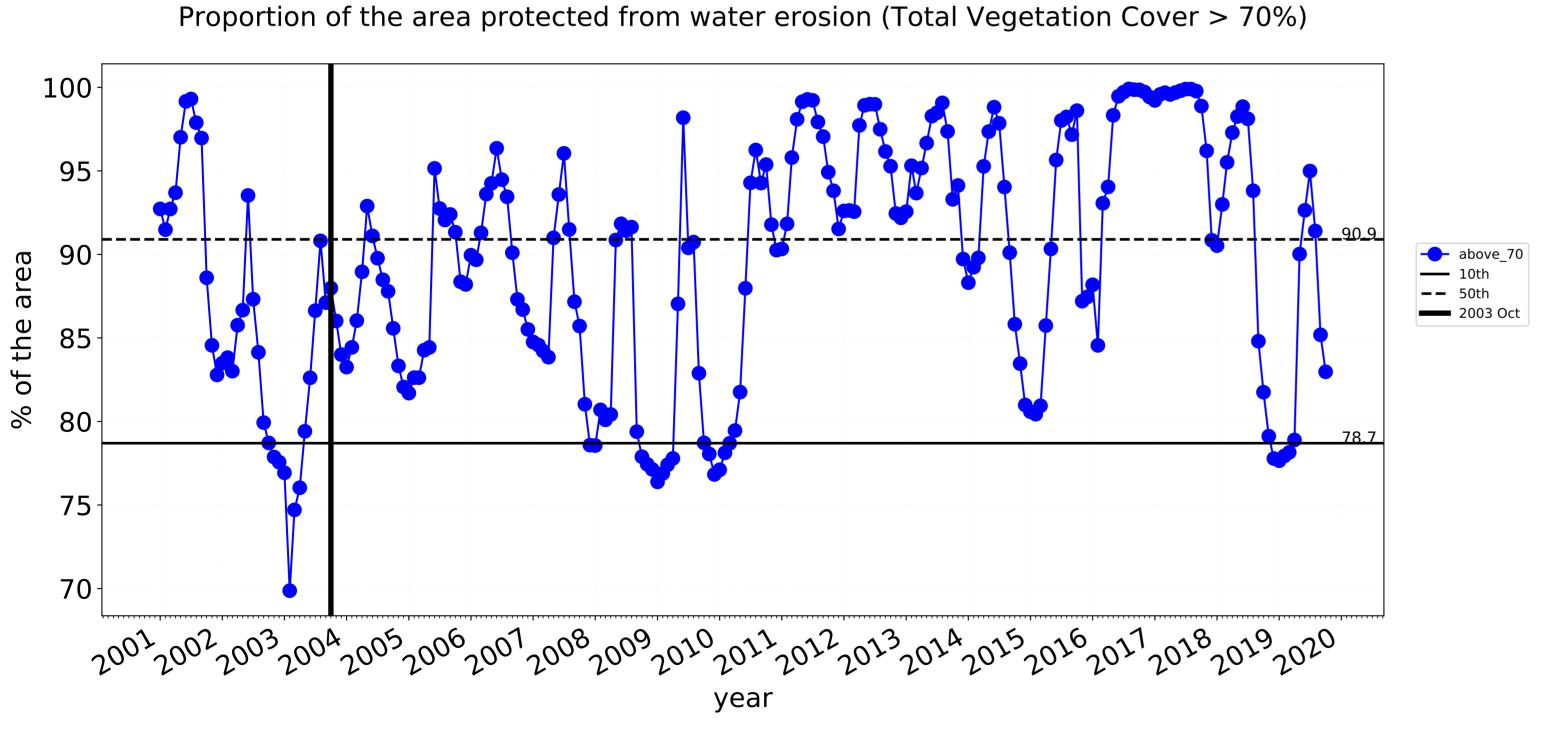


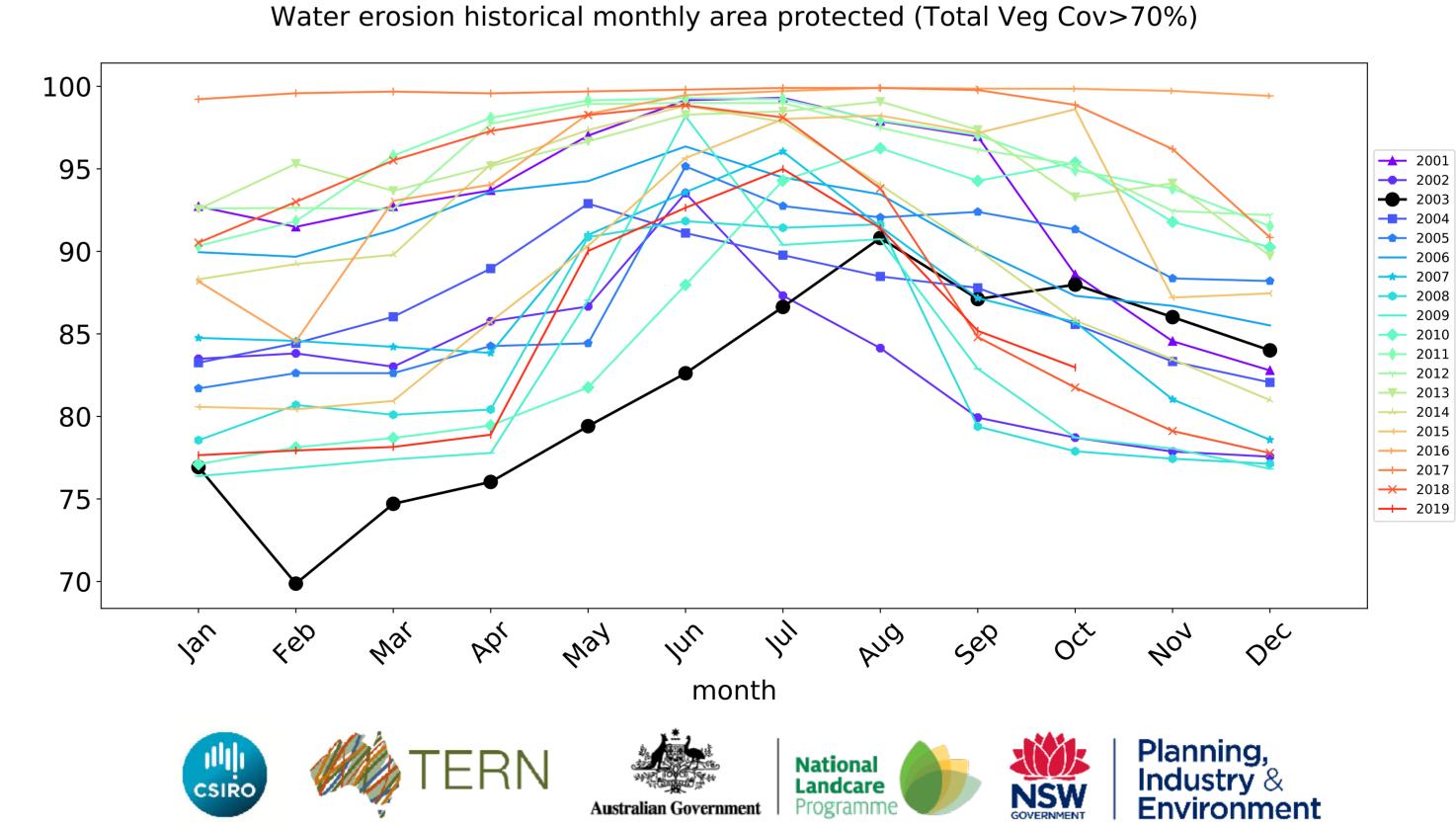
Conservation and natural environments timeseries





month



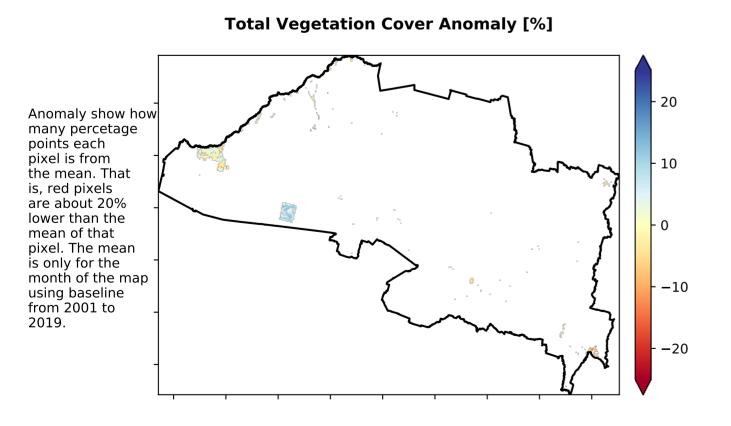


Conservation and natural environments non forest

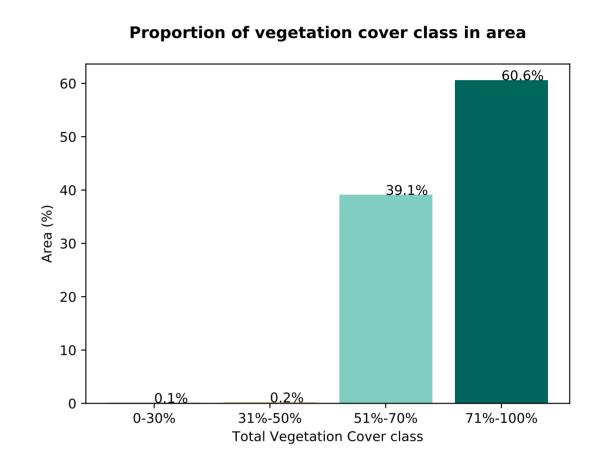
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 1 Conservation and natural environments - Nonforest

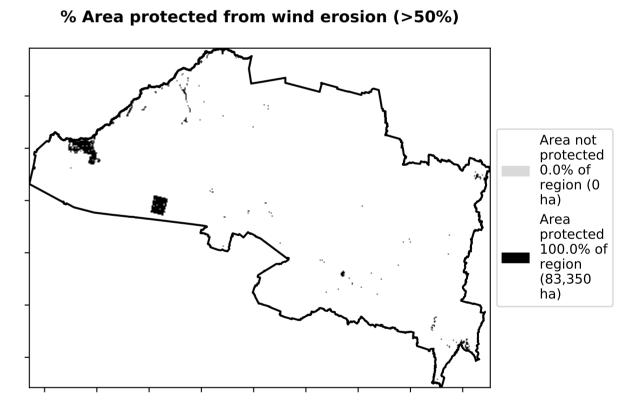
Total Vegetation Cover [%]

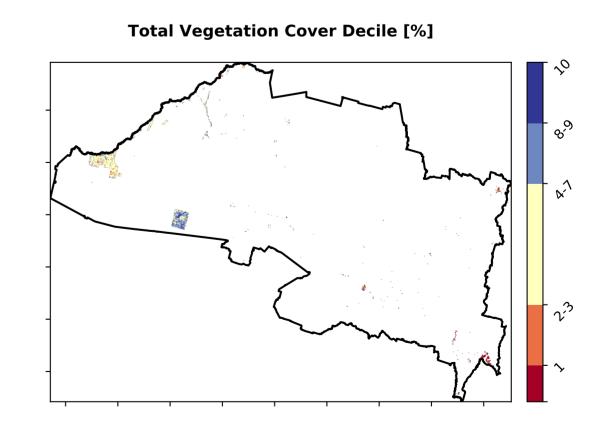
% Area protected from water erosion (>70%) Area not protected 39.4% of region (32,839 ha) Area protected 60.6% of region (50,510 ha)



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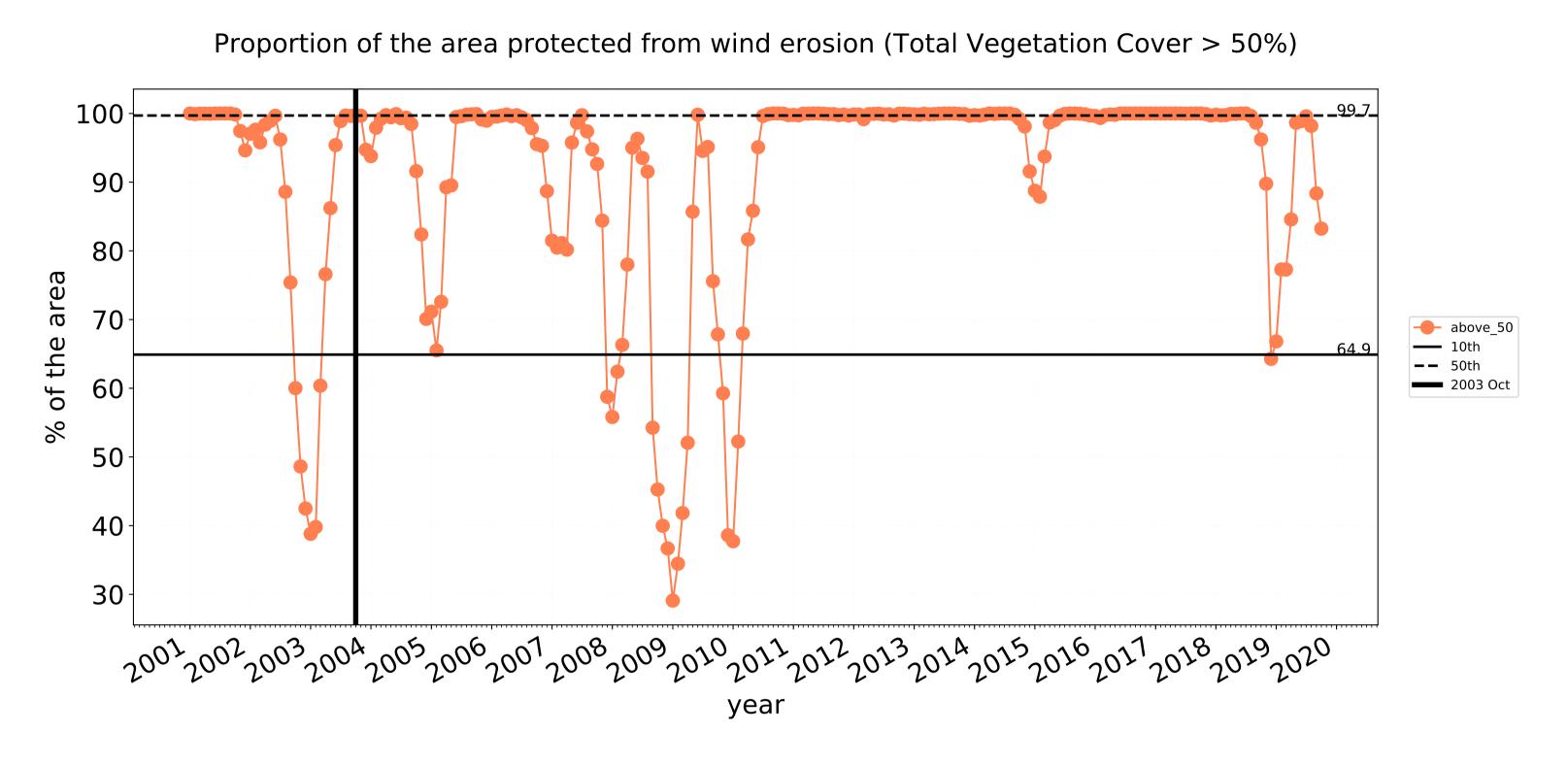


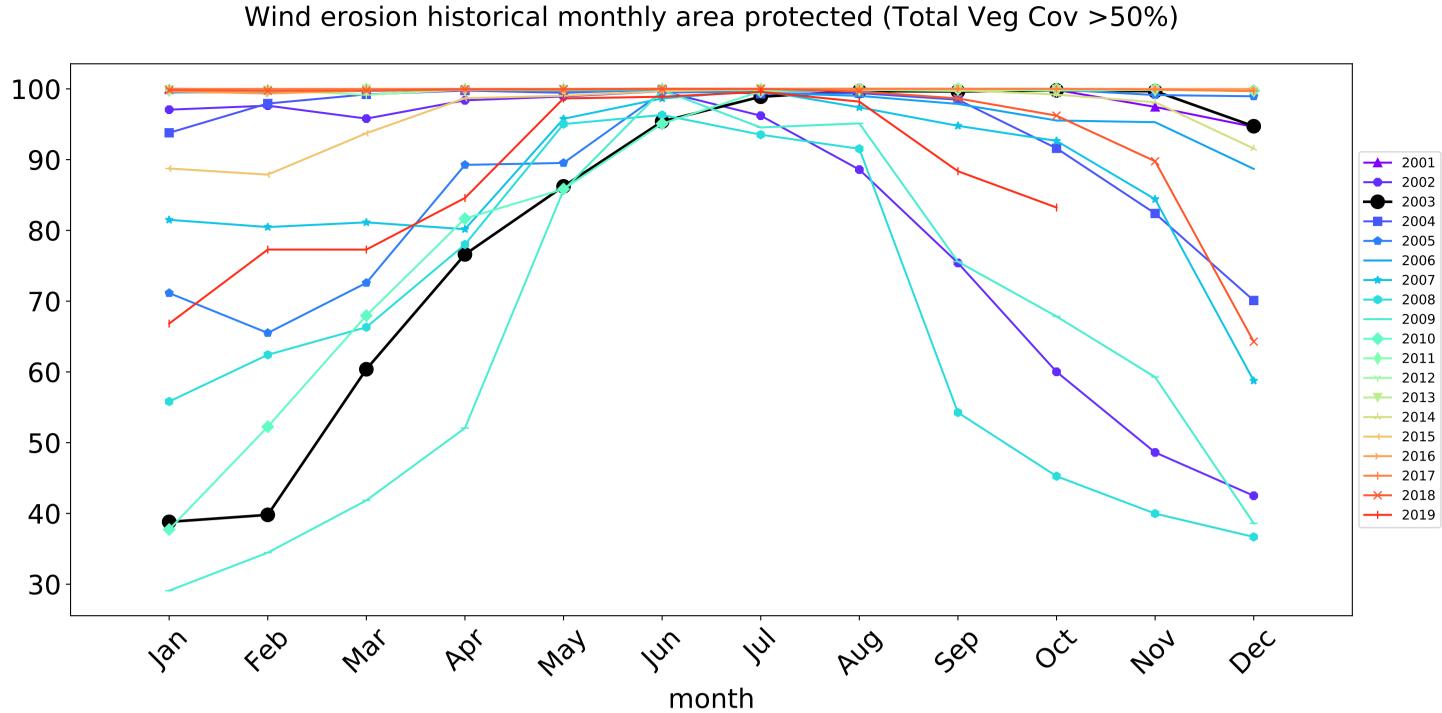


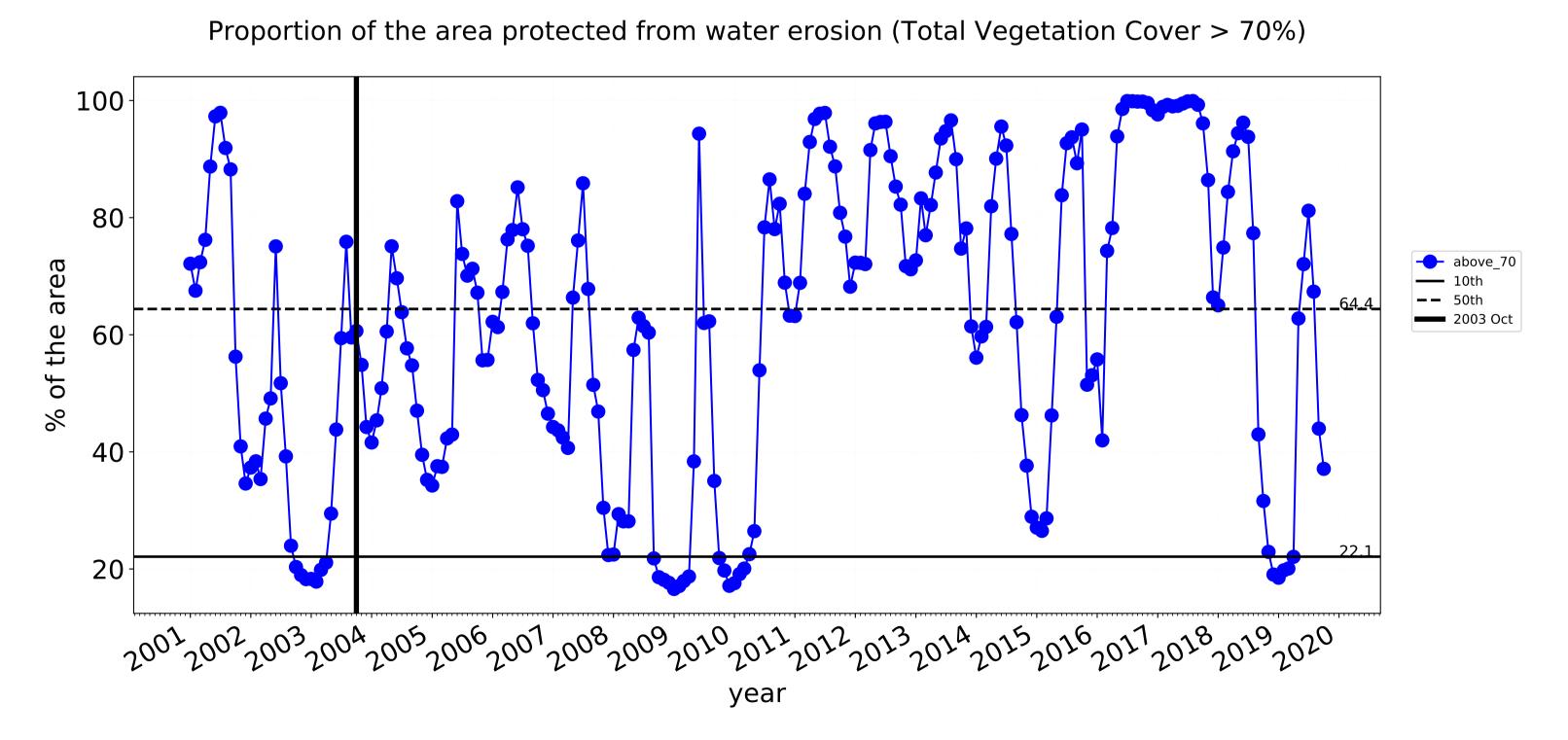


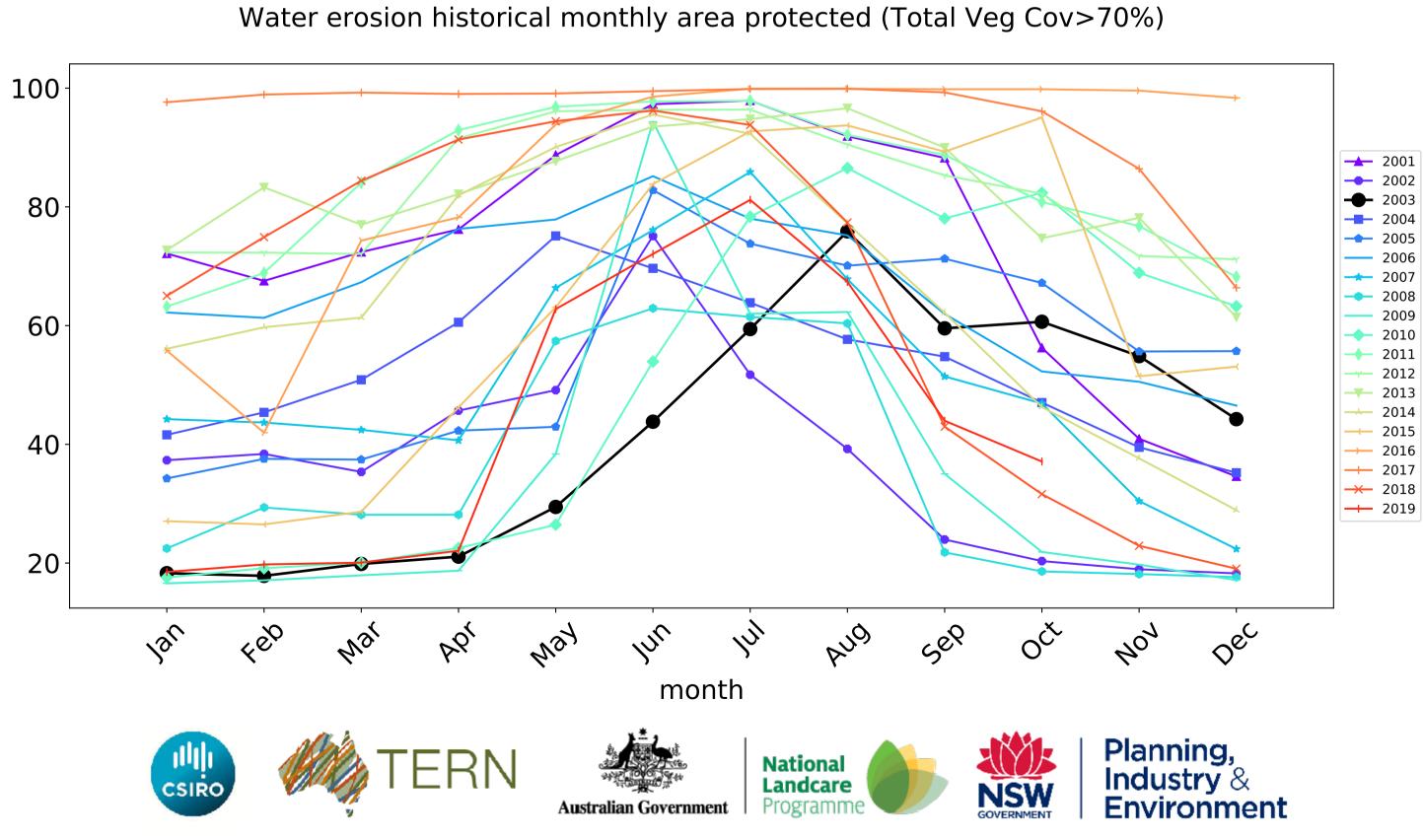


Conservation and natural environments non forest timeseries

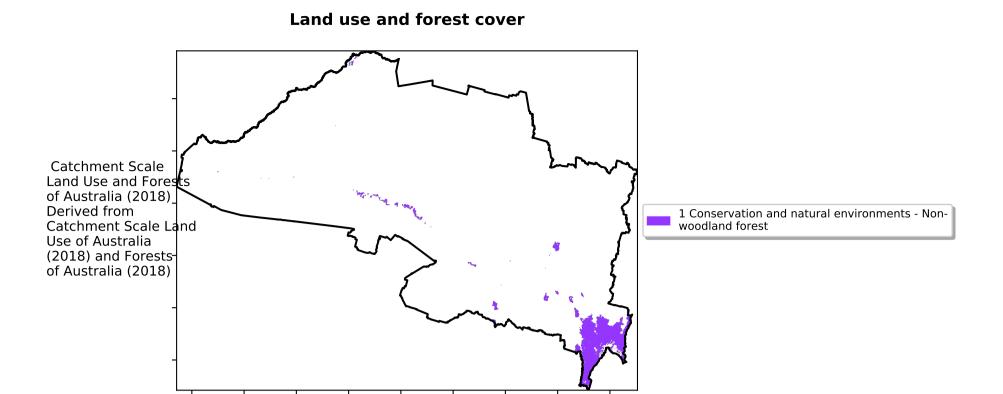




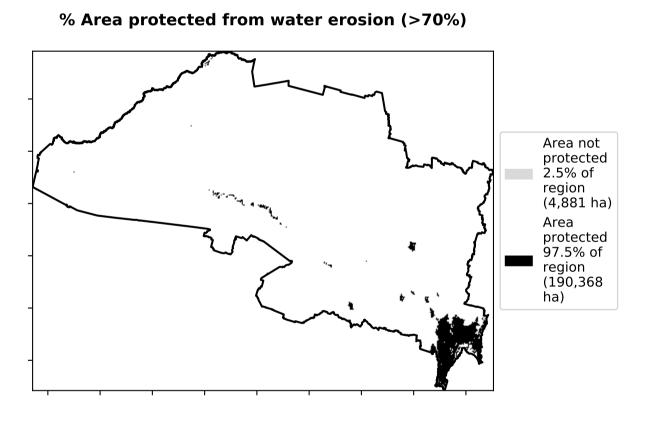


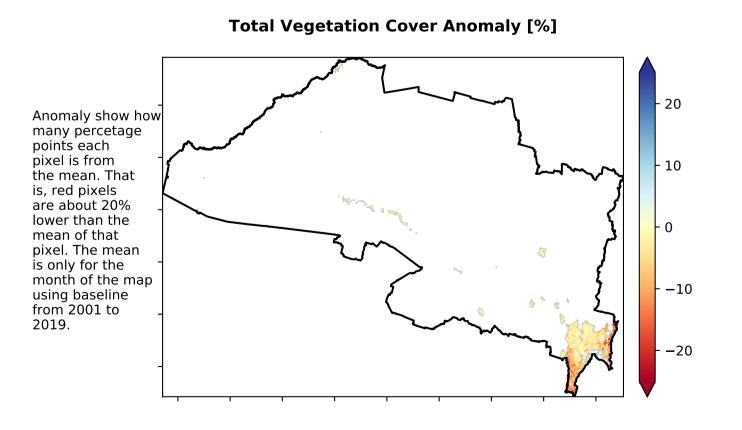


Conservation and natural environments Forest (non woodland)

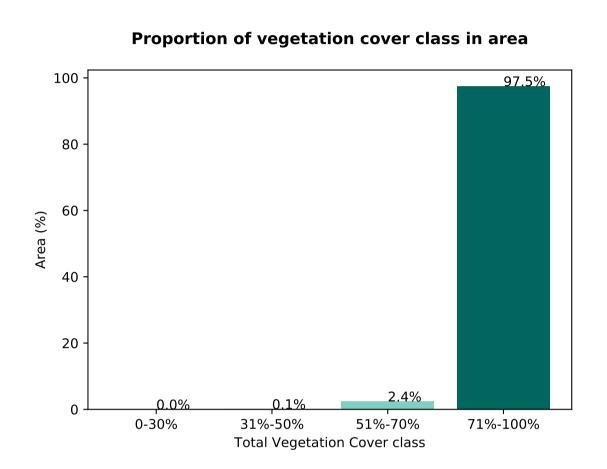


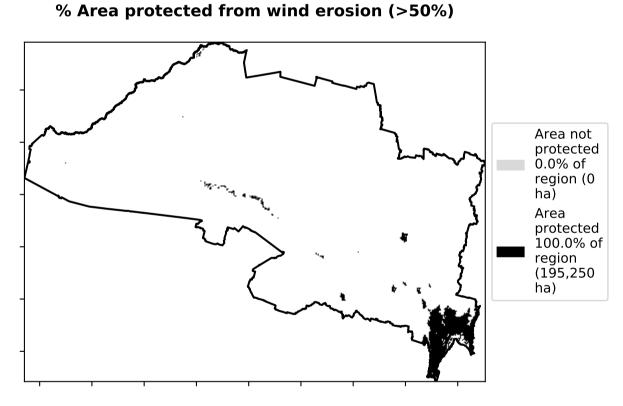
Total Vegetation Cover [%]

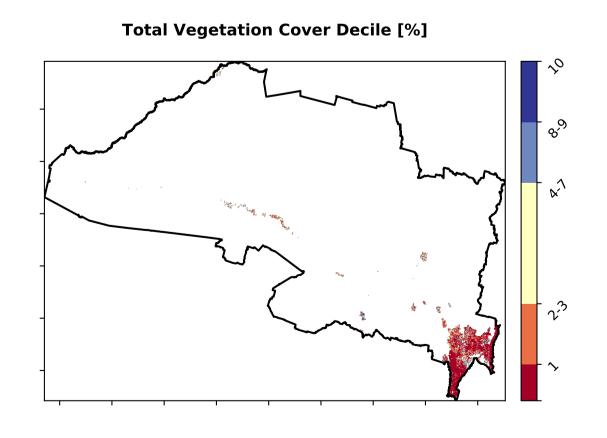




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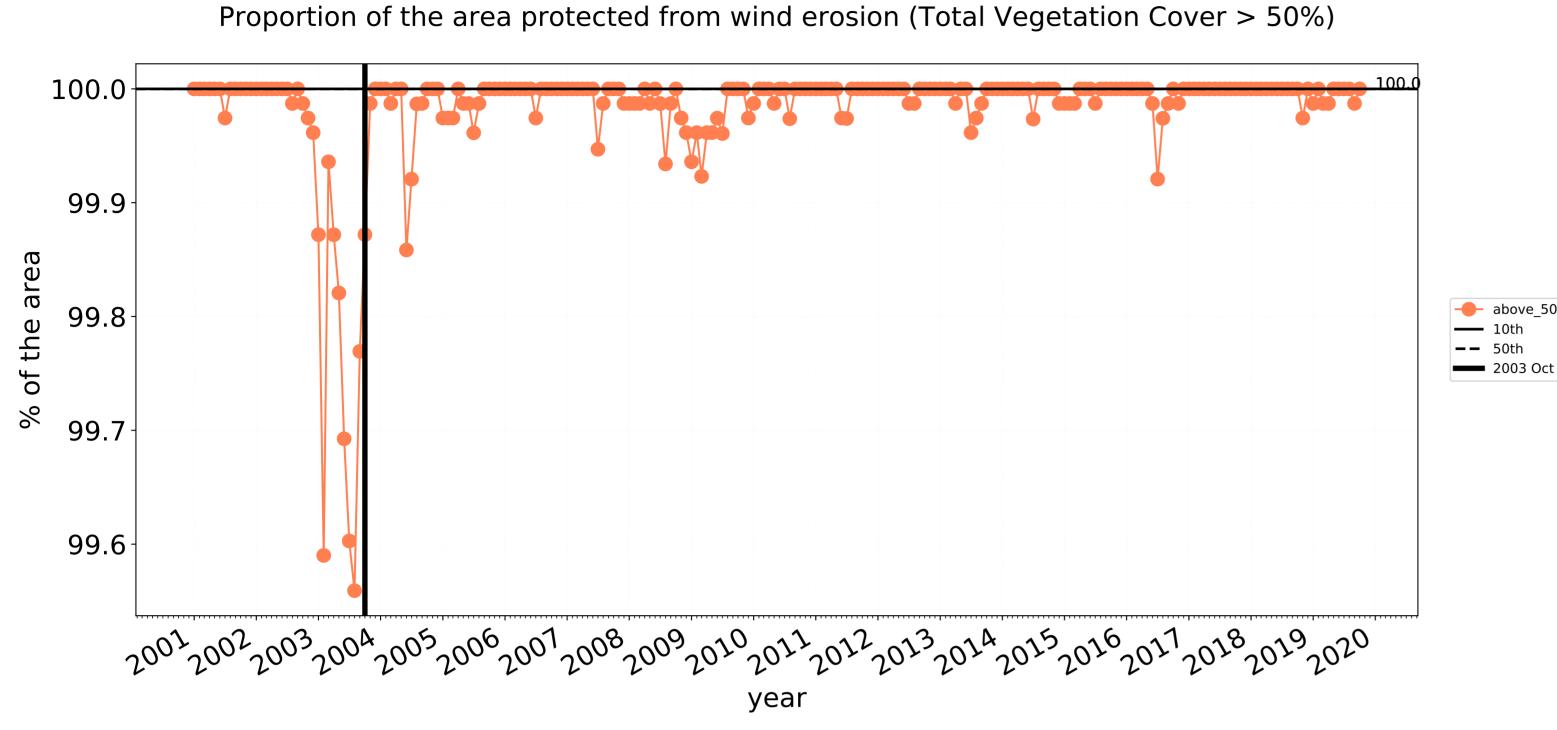


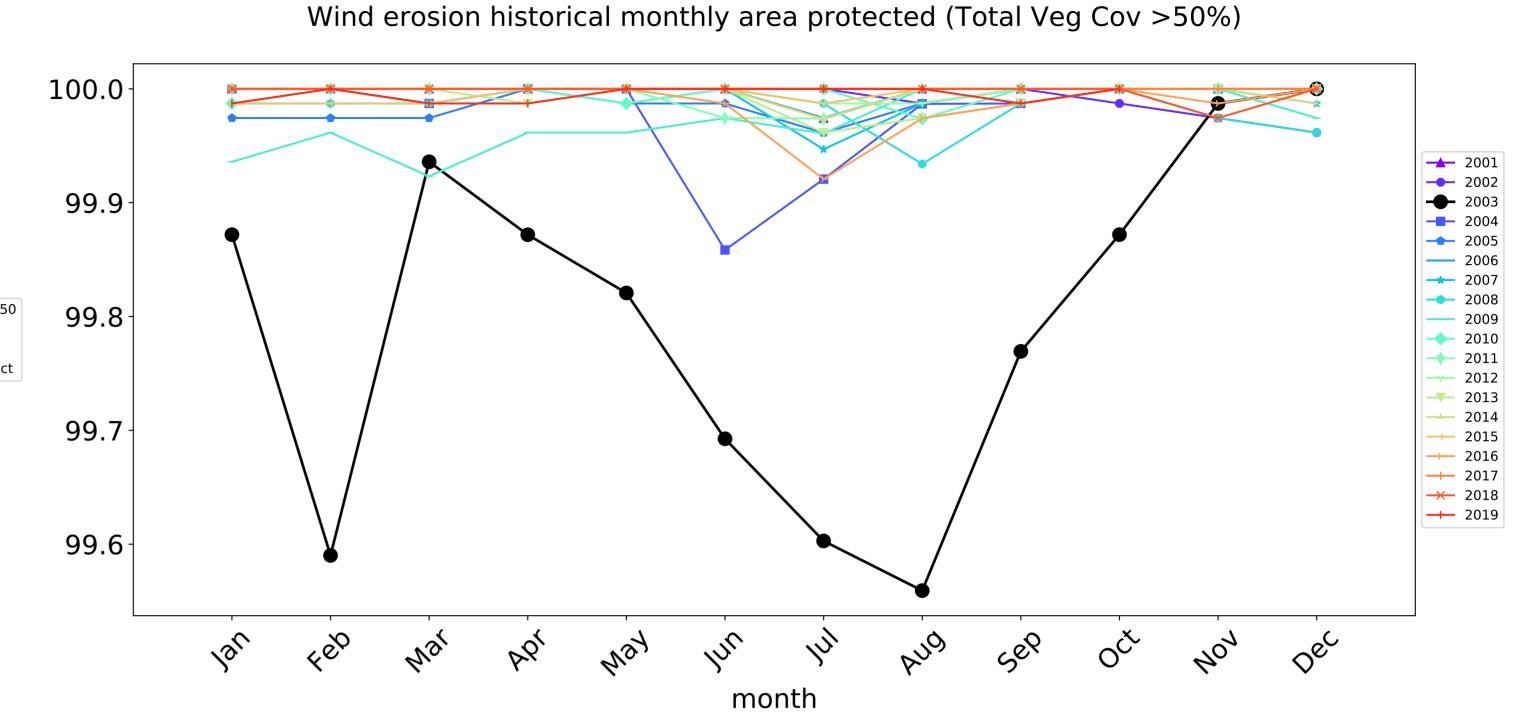


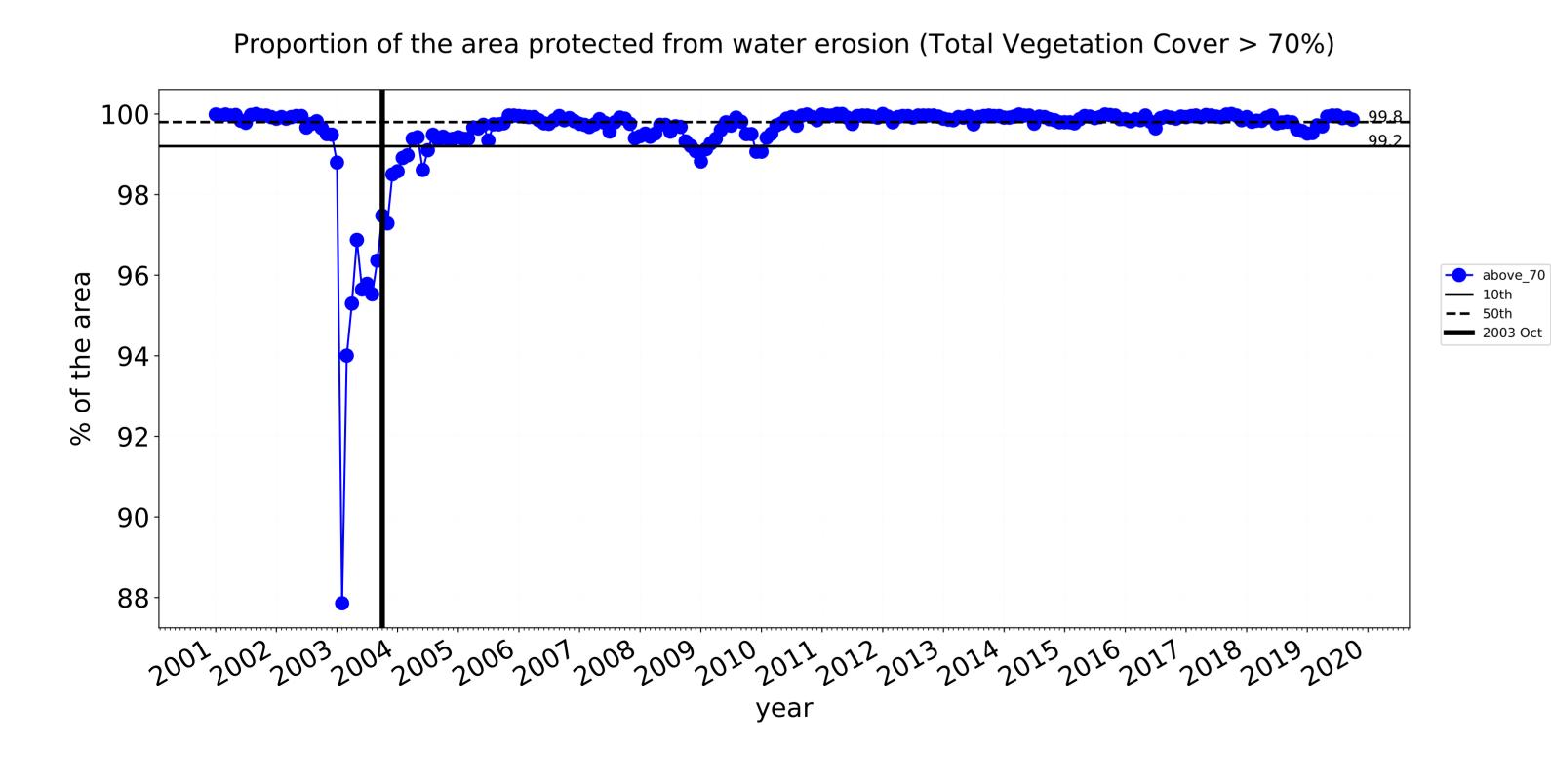


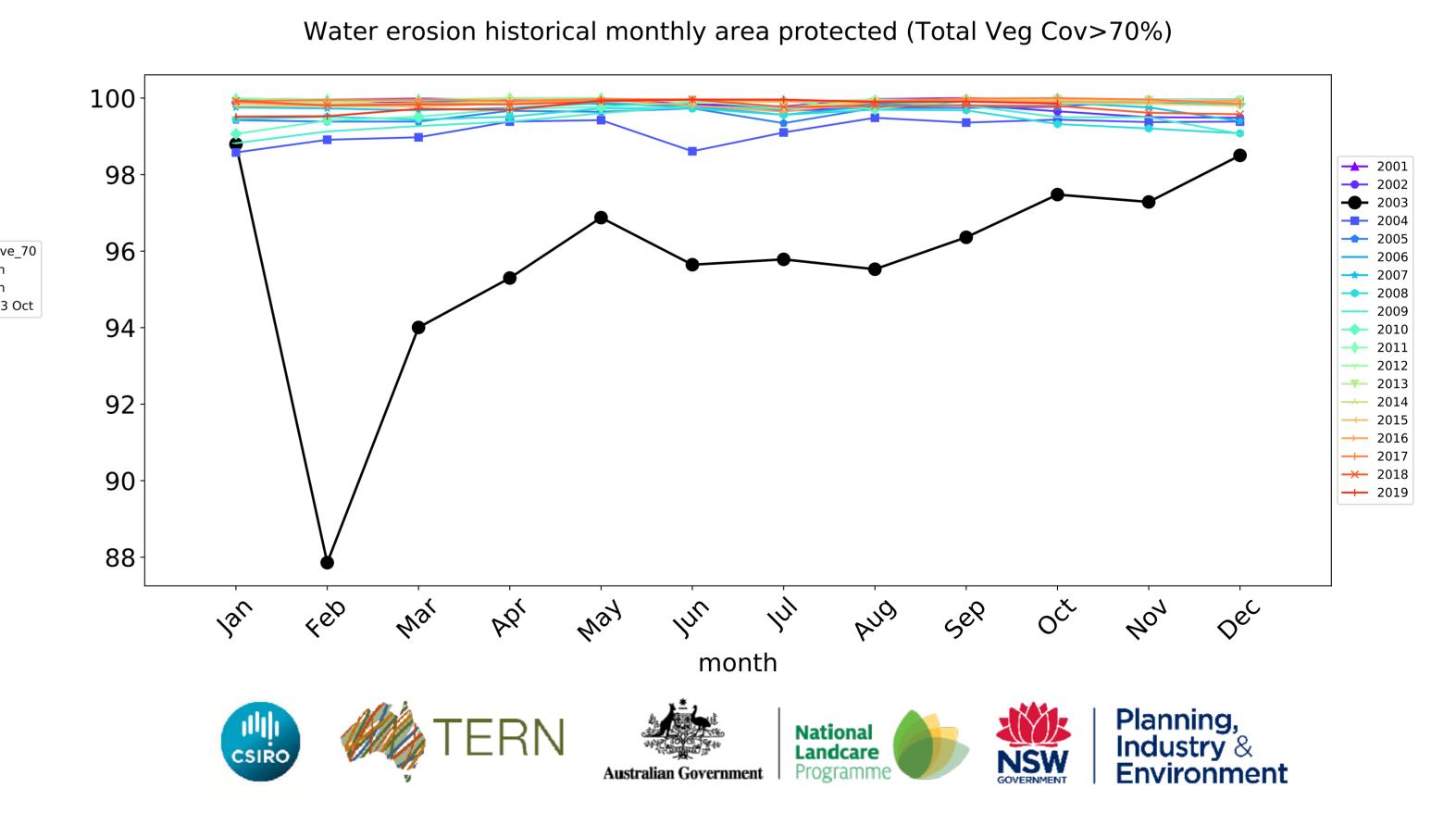








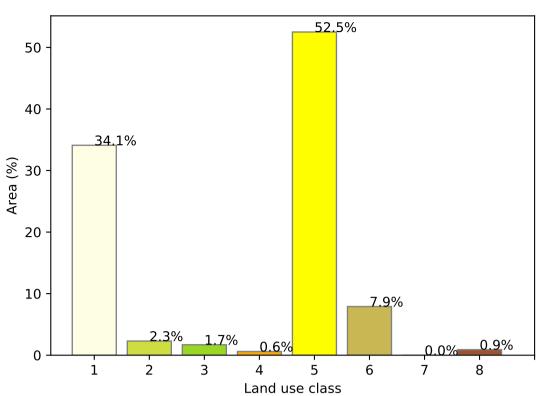




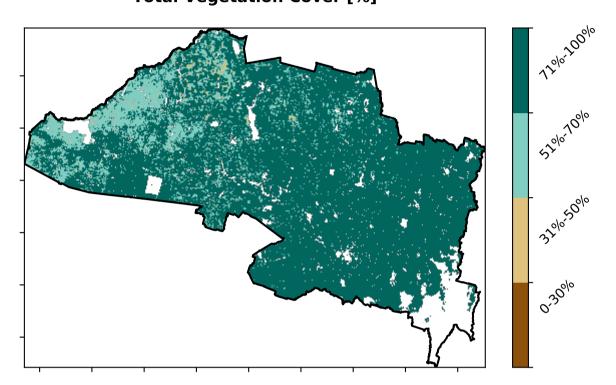
Agriculture

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

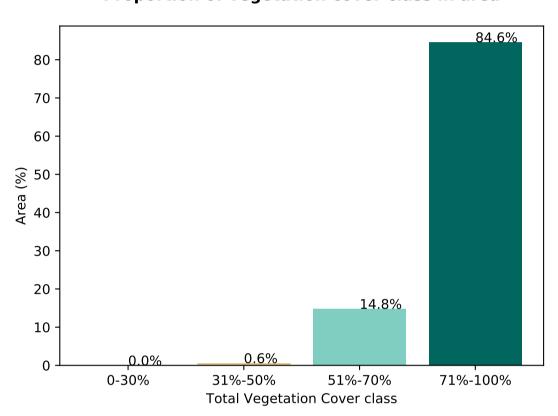
Proportion of each land class in area



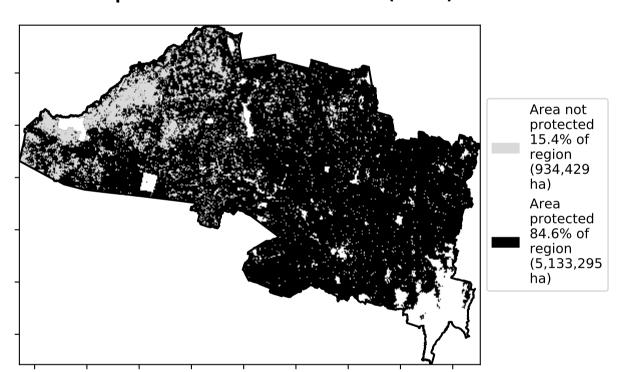
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

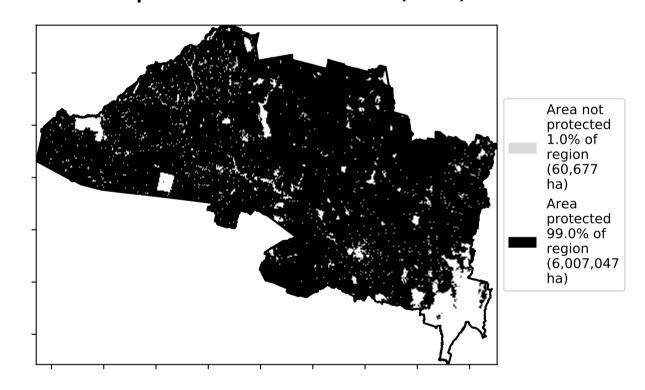


% Area protected from water erosion (>70%)

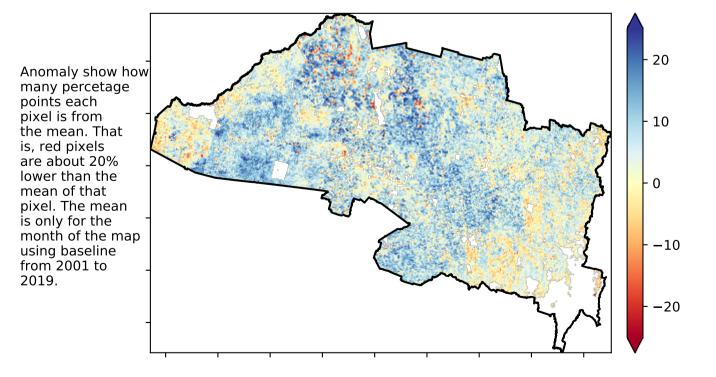


% Area protected from wind erosion (>50%)

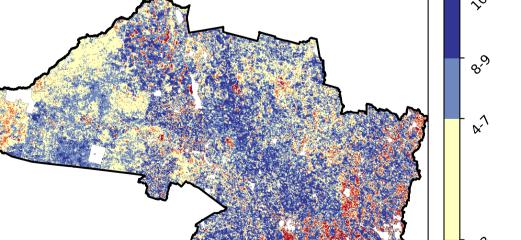
Total Vegetation Cover Decile [%]



Total Vegetation Cover Anomaly [%]



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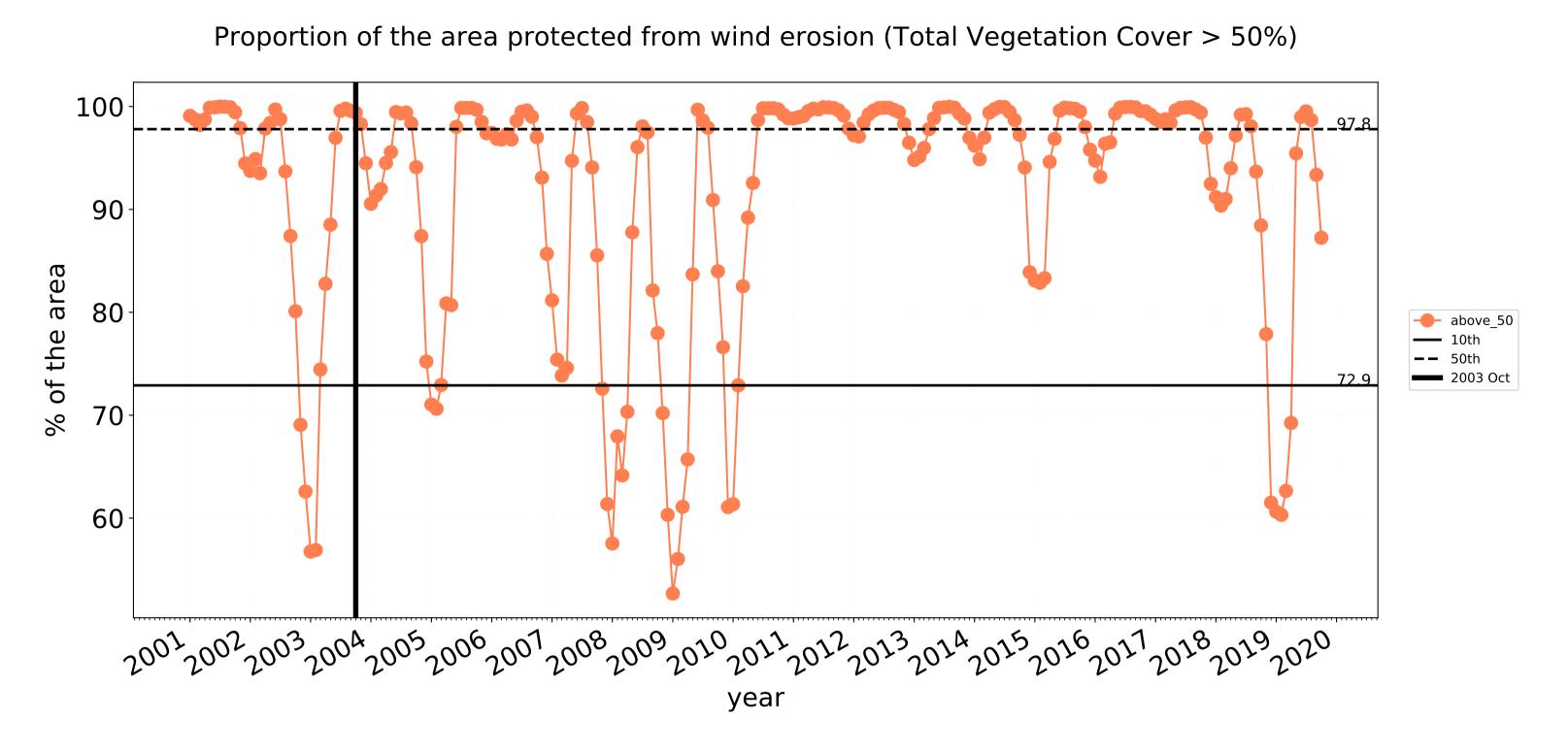


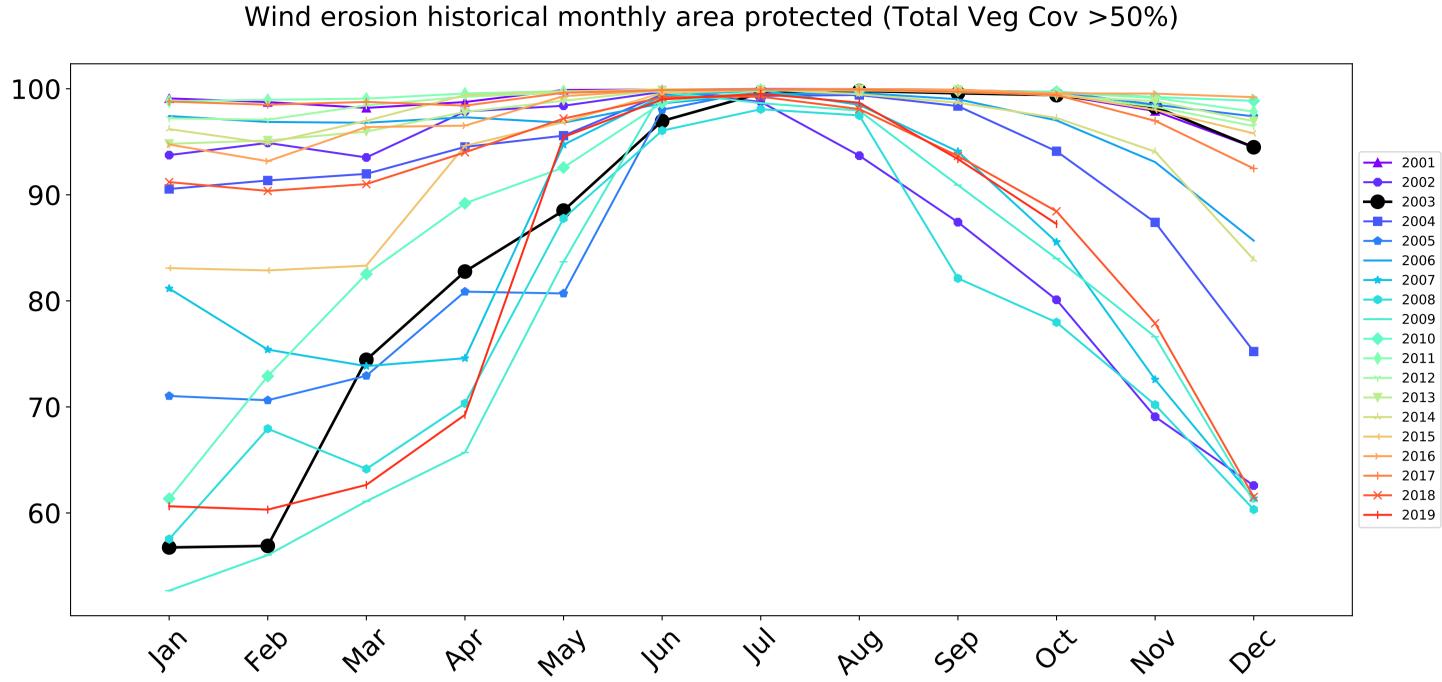






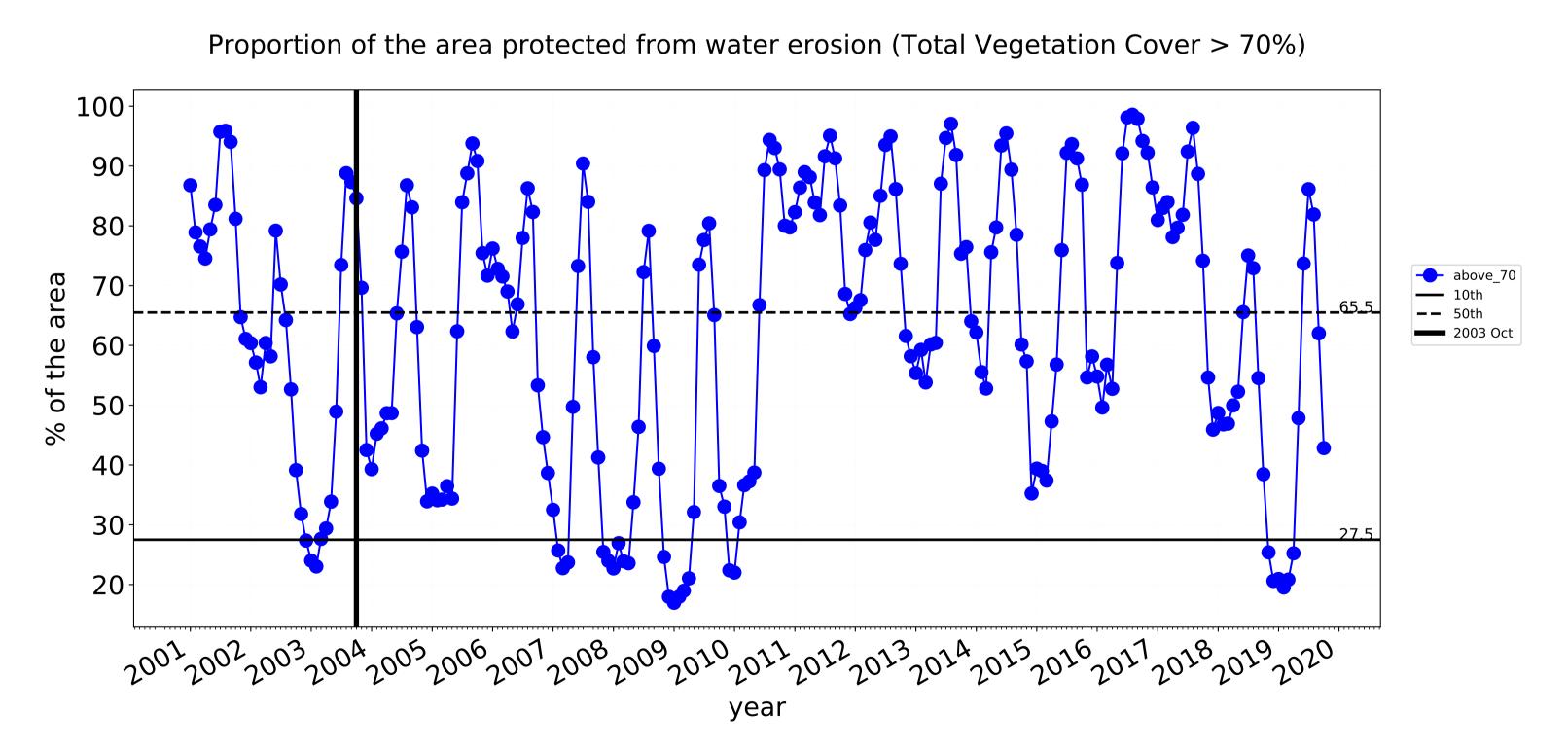
Agriculture timeseries

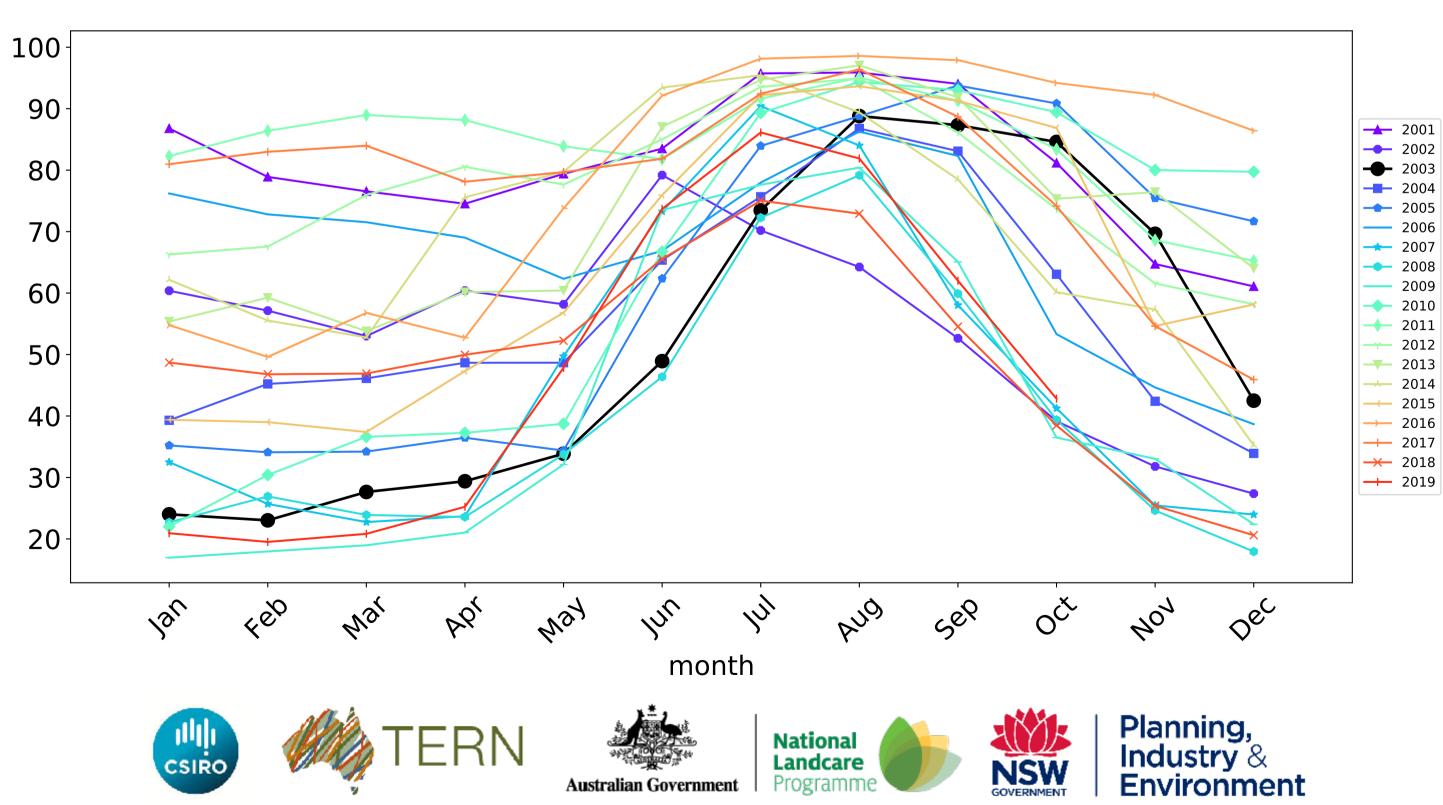




month

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

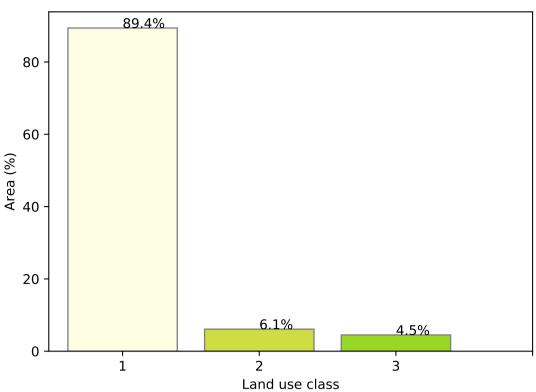




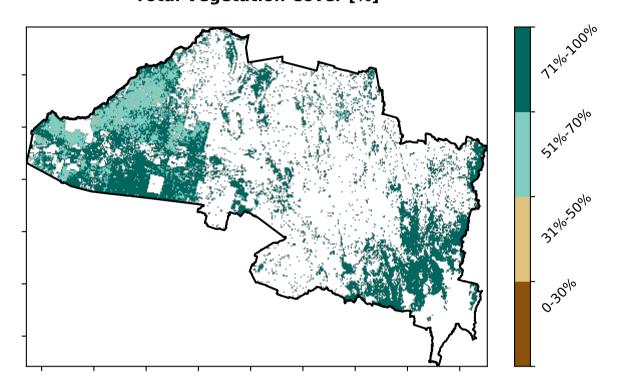
Grazing

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)

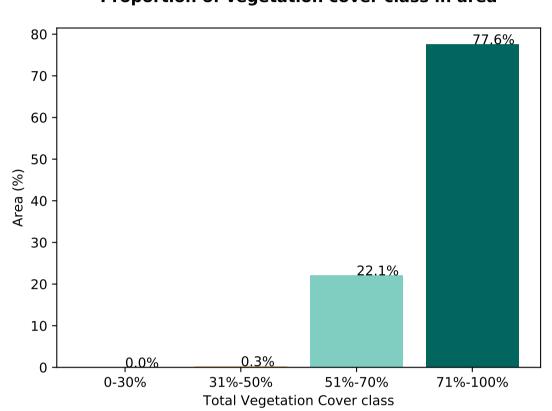
Proportion of each land class in area



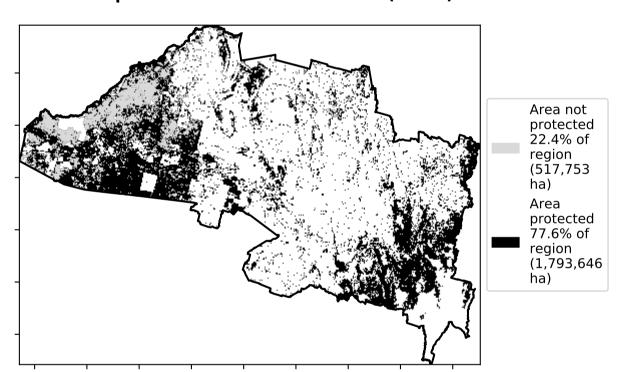
Total Vegetation Cover [%]



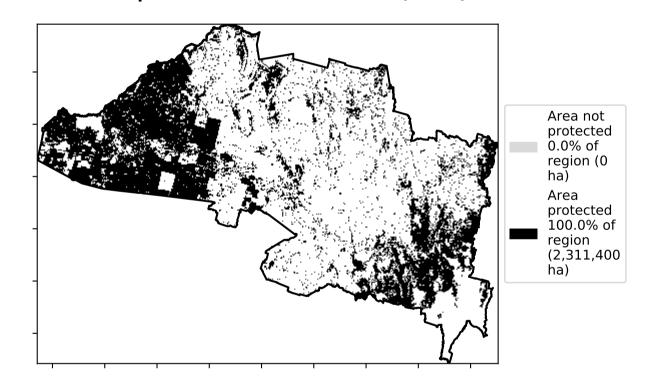
Proportion of vegetation cover class in area



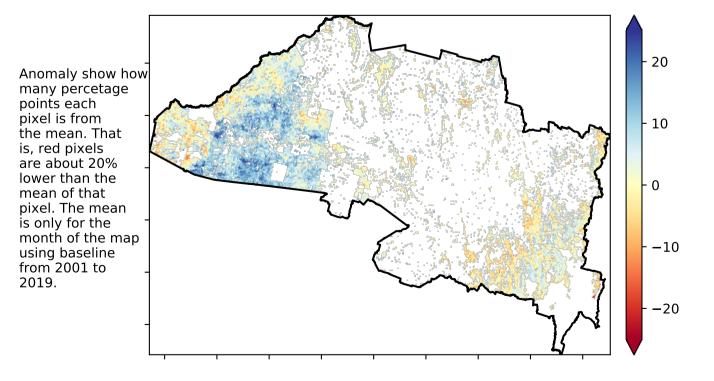
% Area protected from water erosion (>70%)



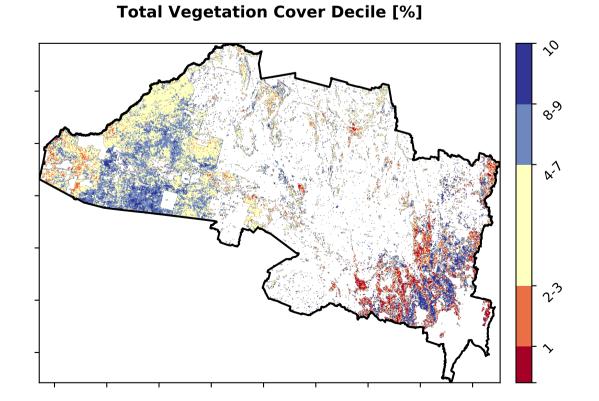
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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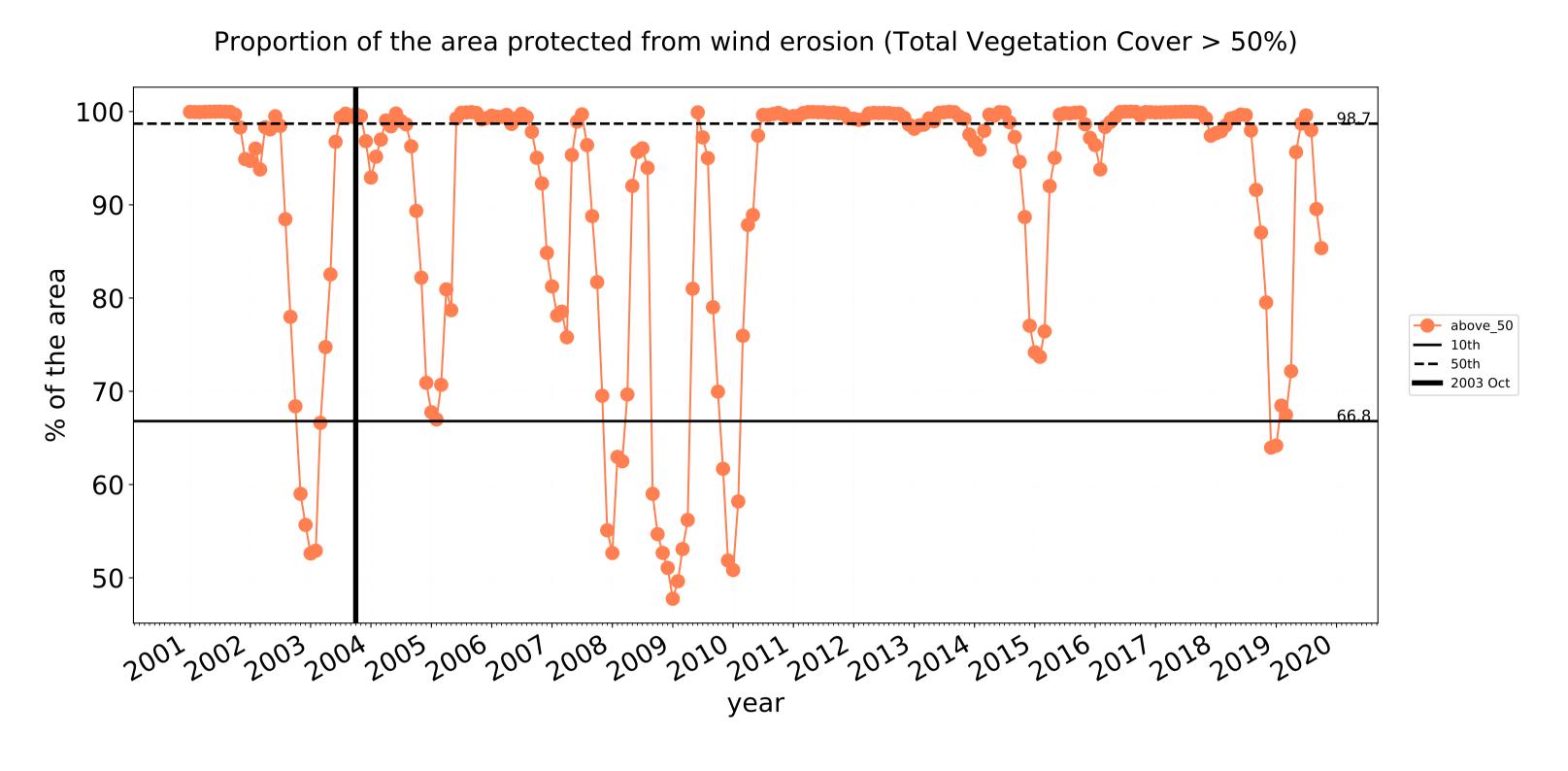


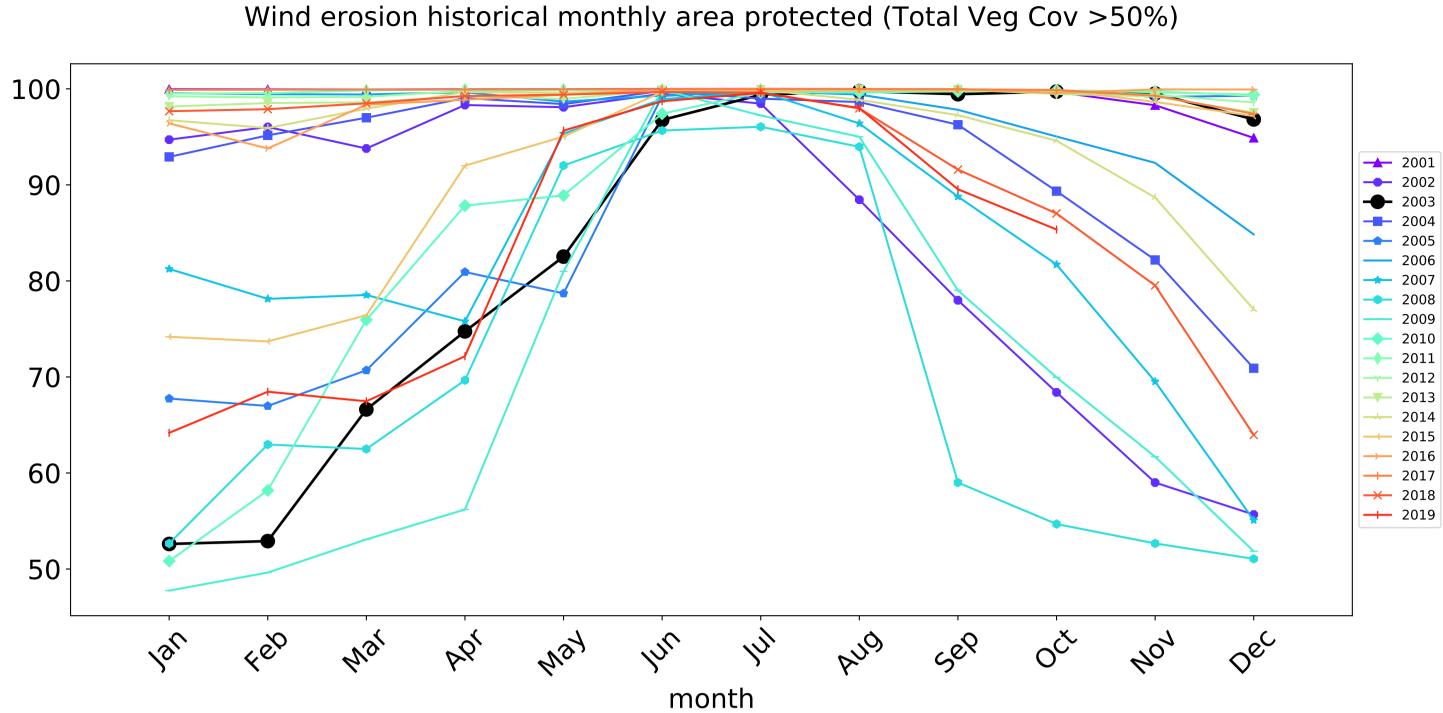


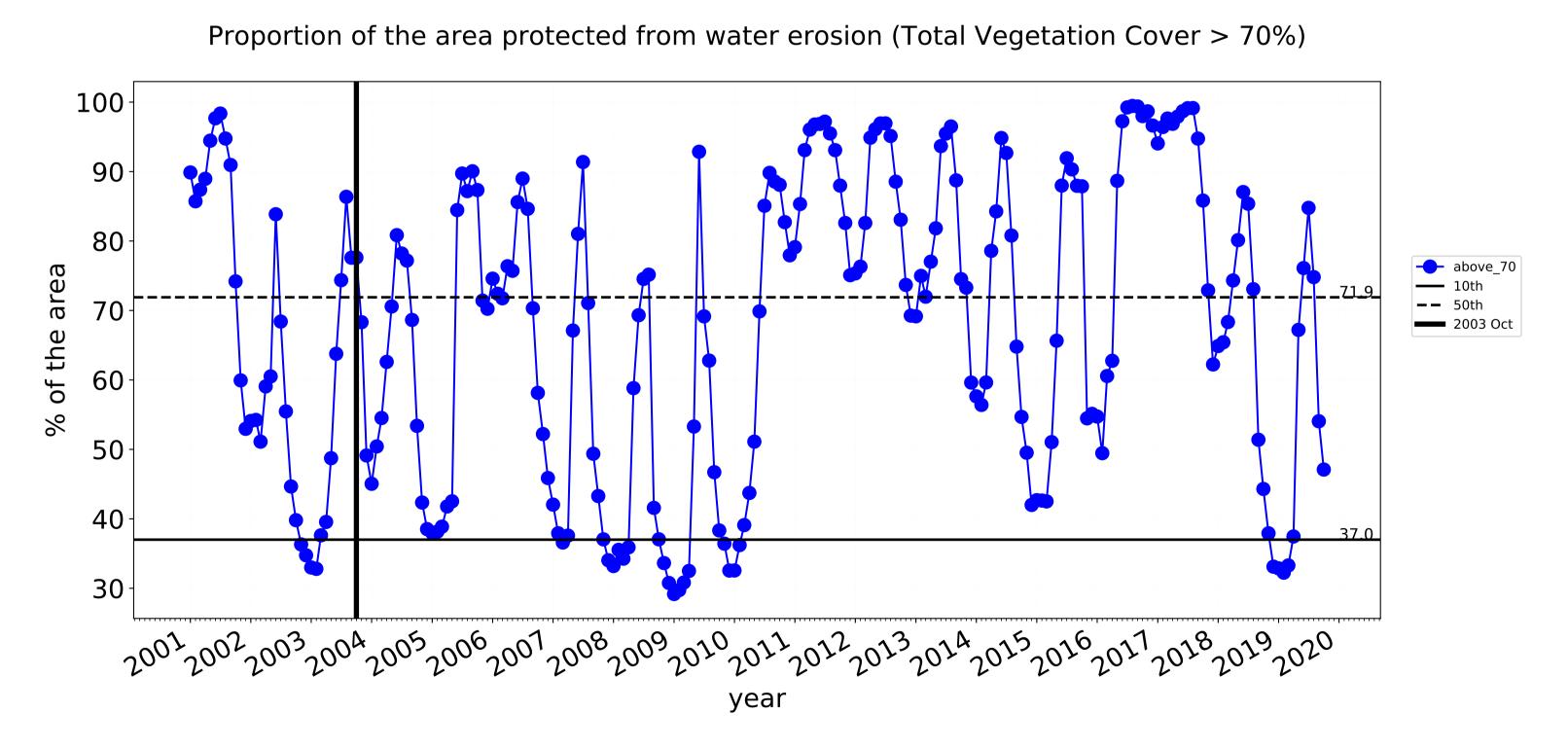


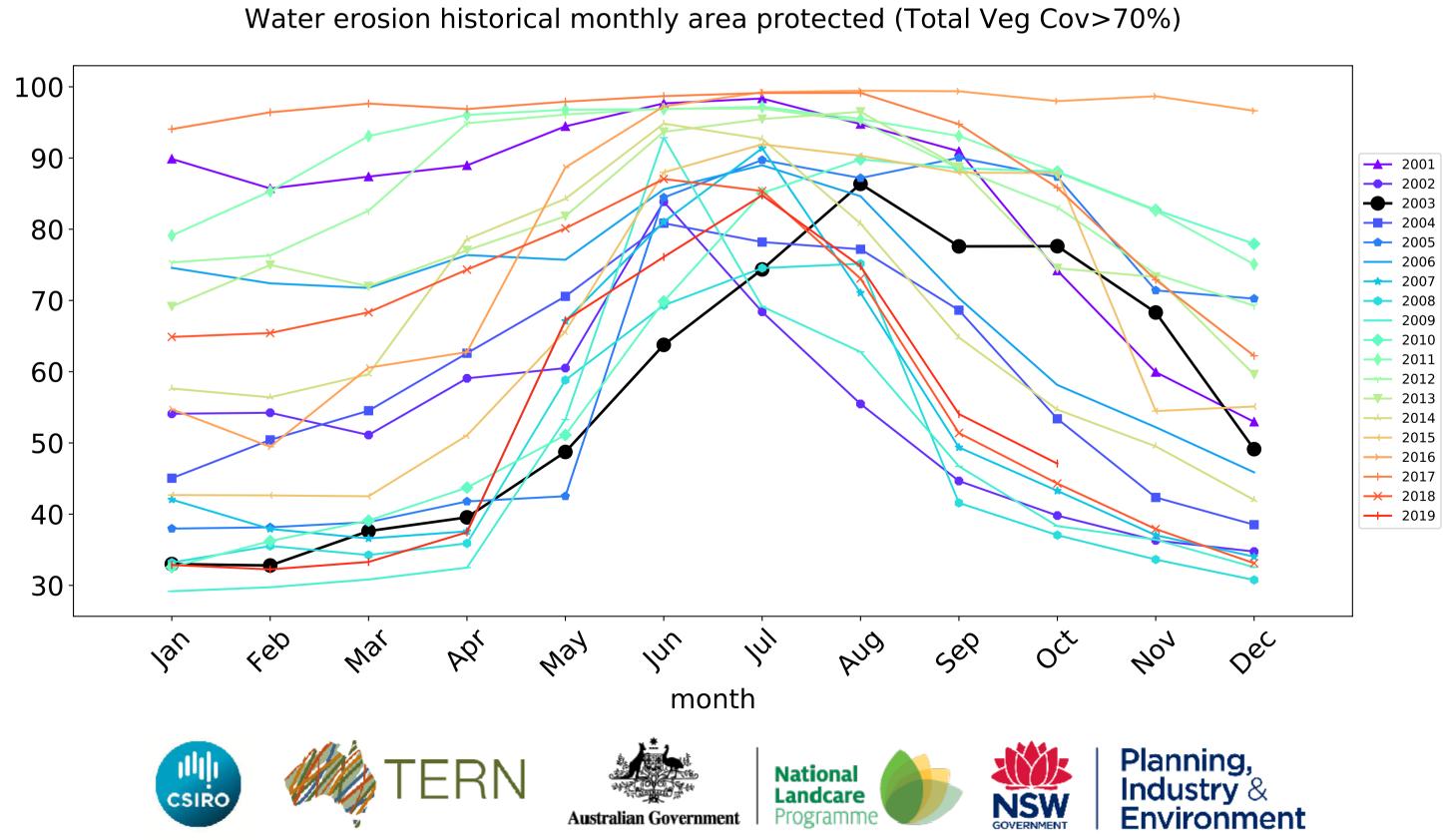


Grazing timeseries



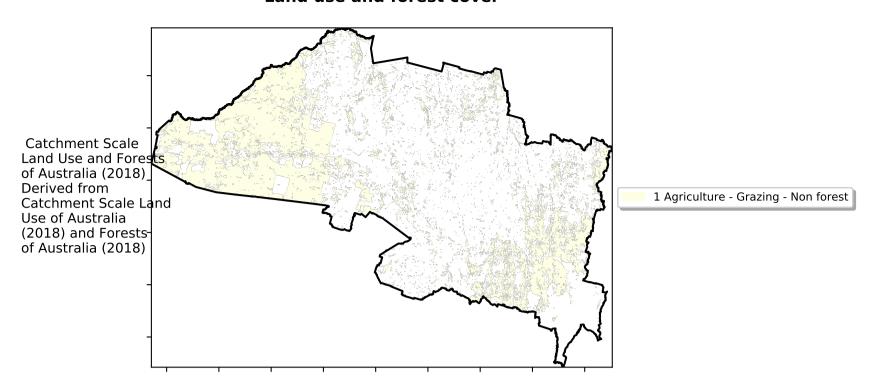




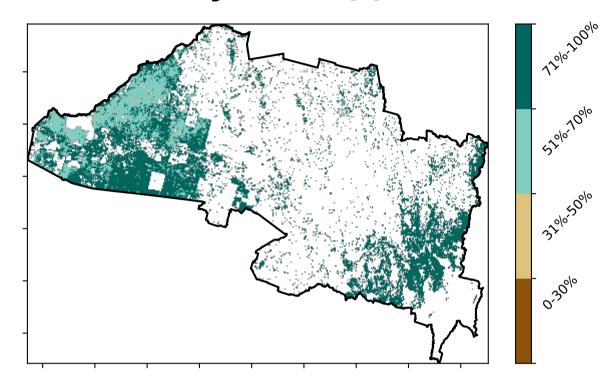


Grazing non forest

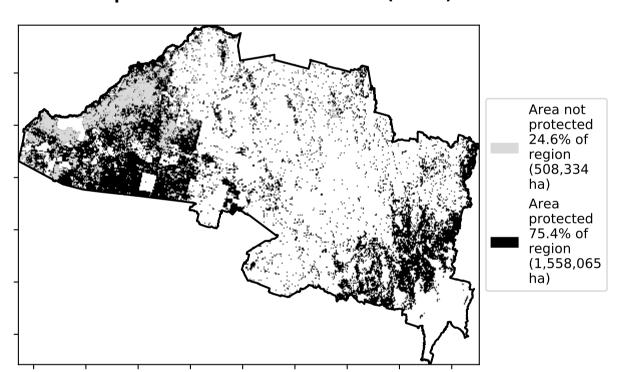
Land use and forest cover



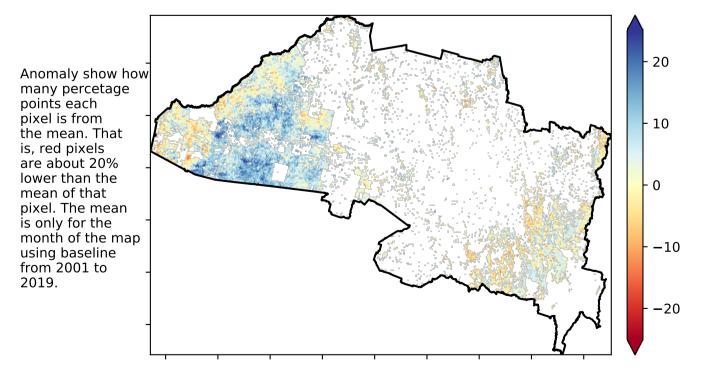
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

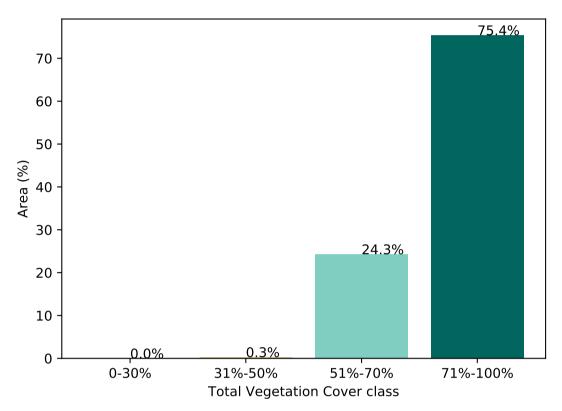


Total Vegetation Cover Anomaly [%]

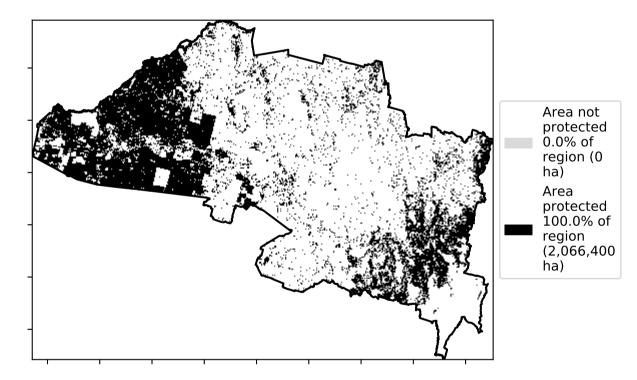


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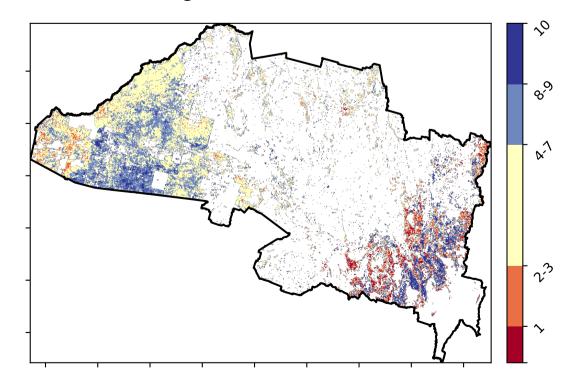
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







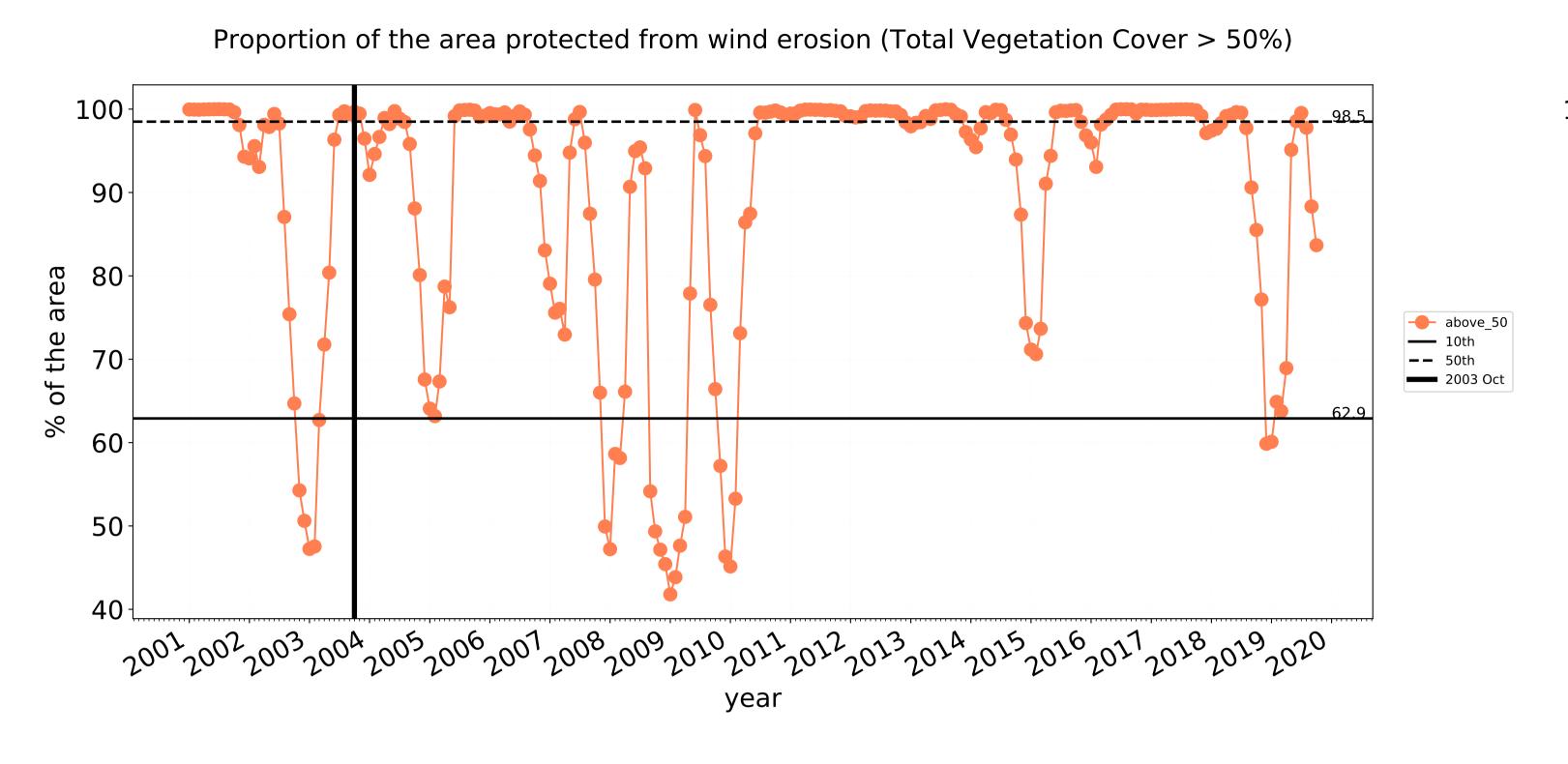


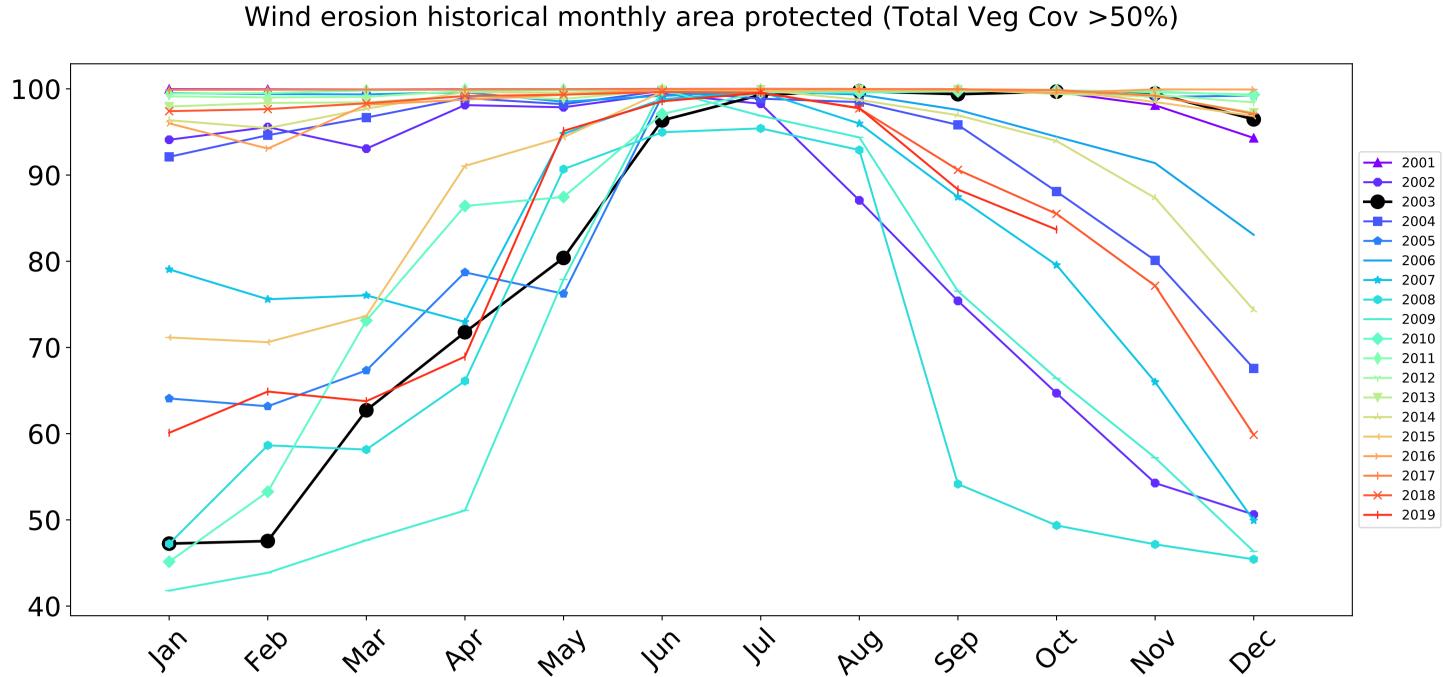




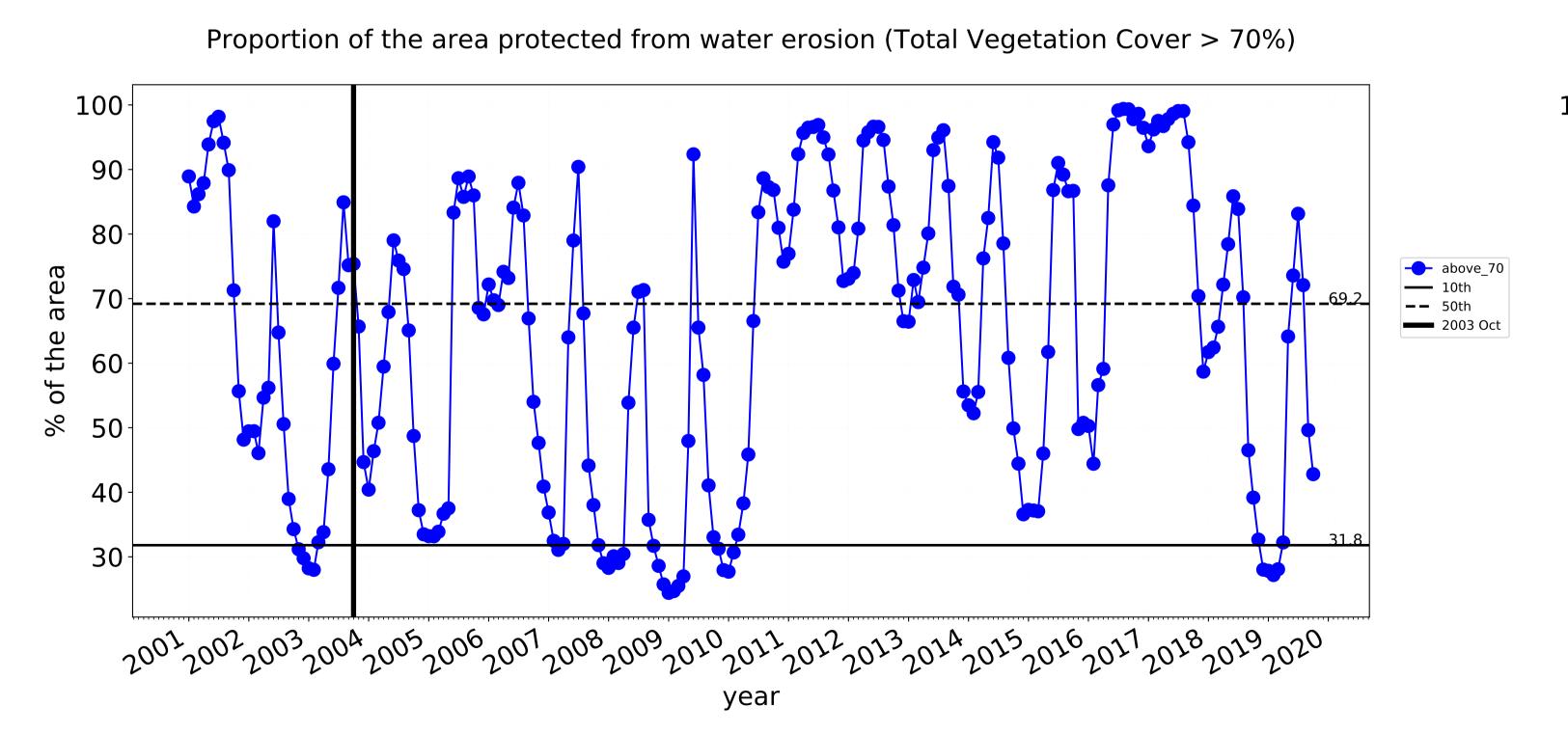


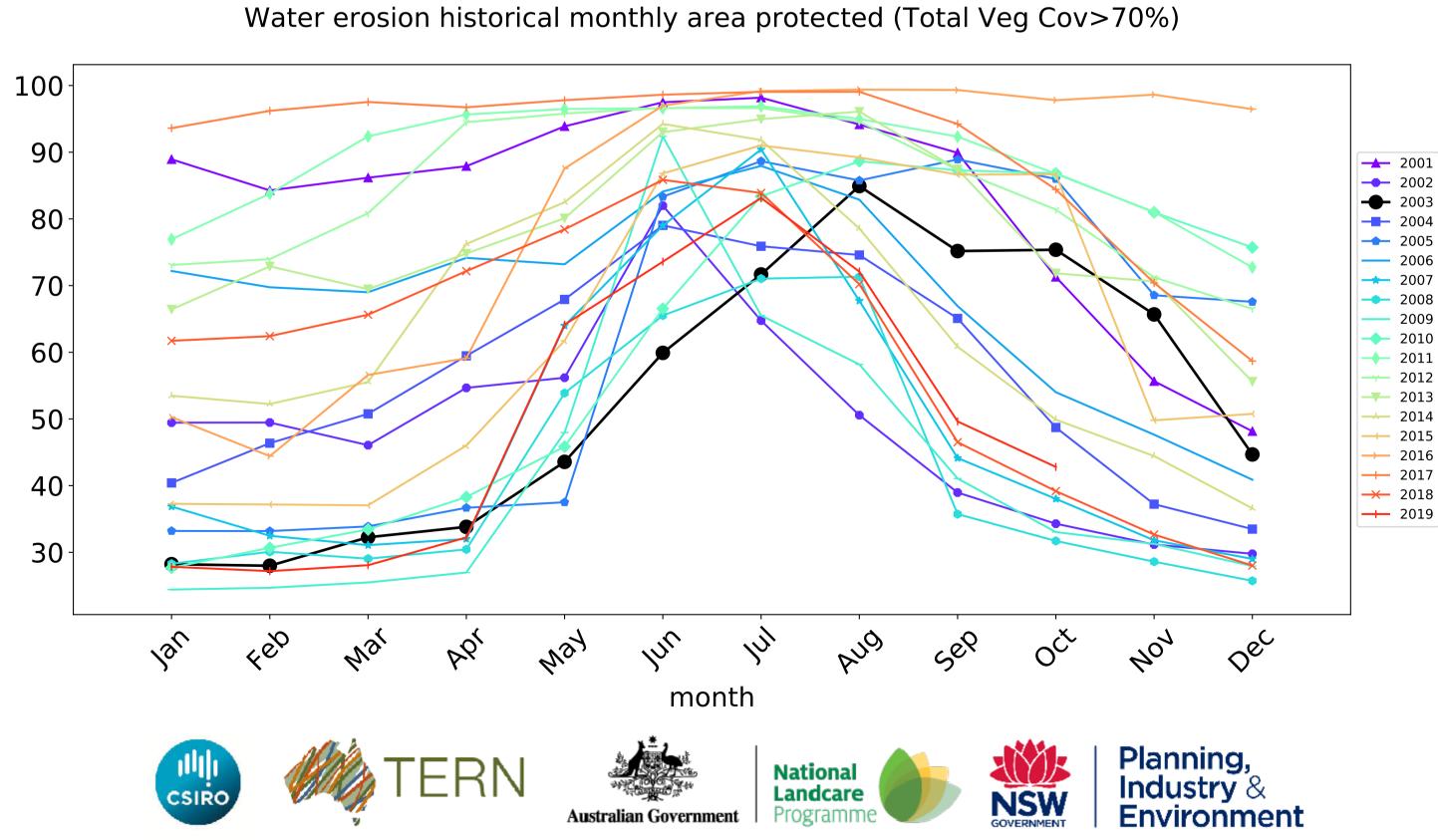
Grazing non forest timeseries





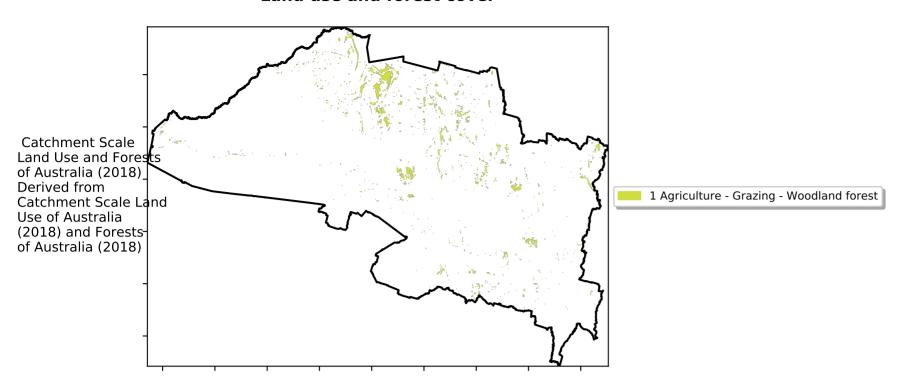
month



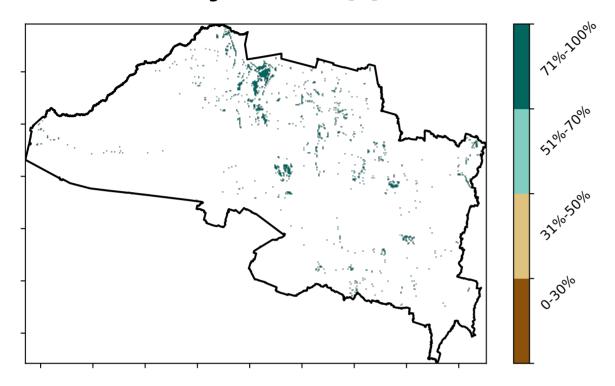


Grazing Woodland forest

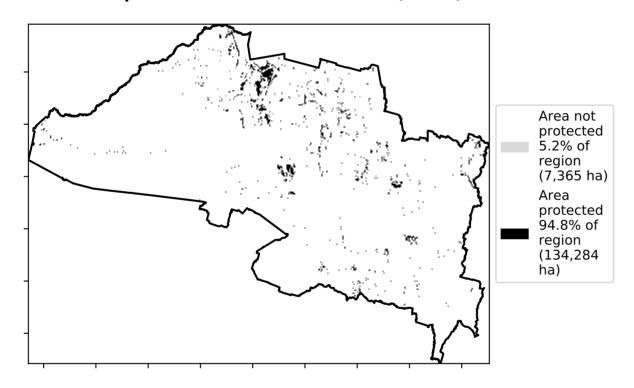
Land use and forest cover



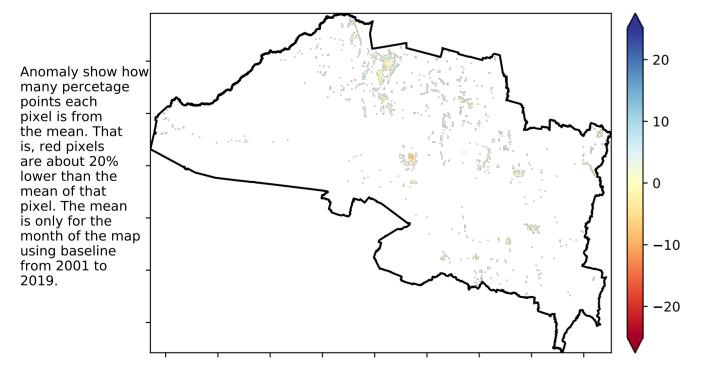
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

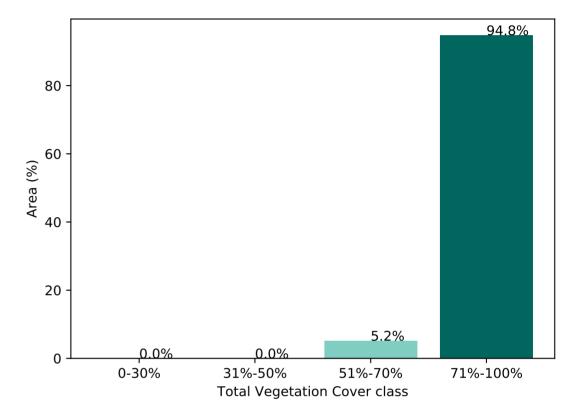


Total Vegetation Cover Anomaly [%]

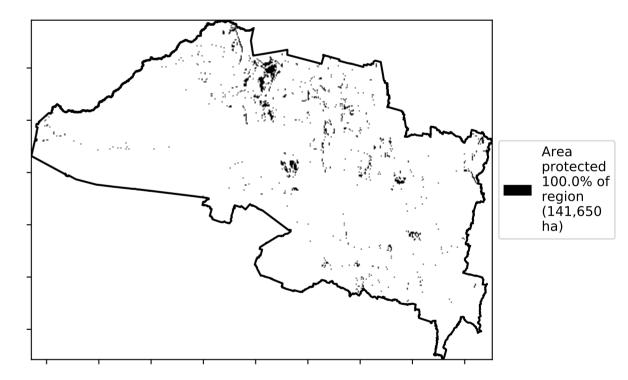


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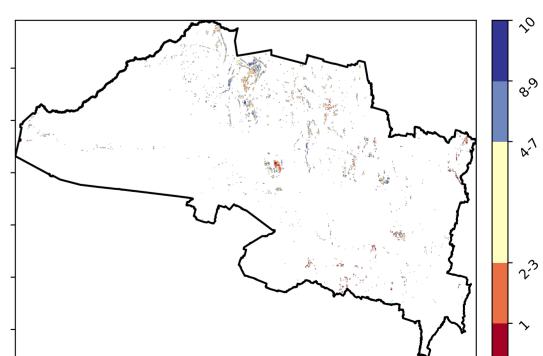
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







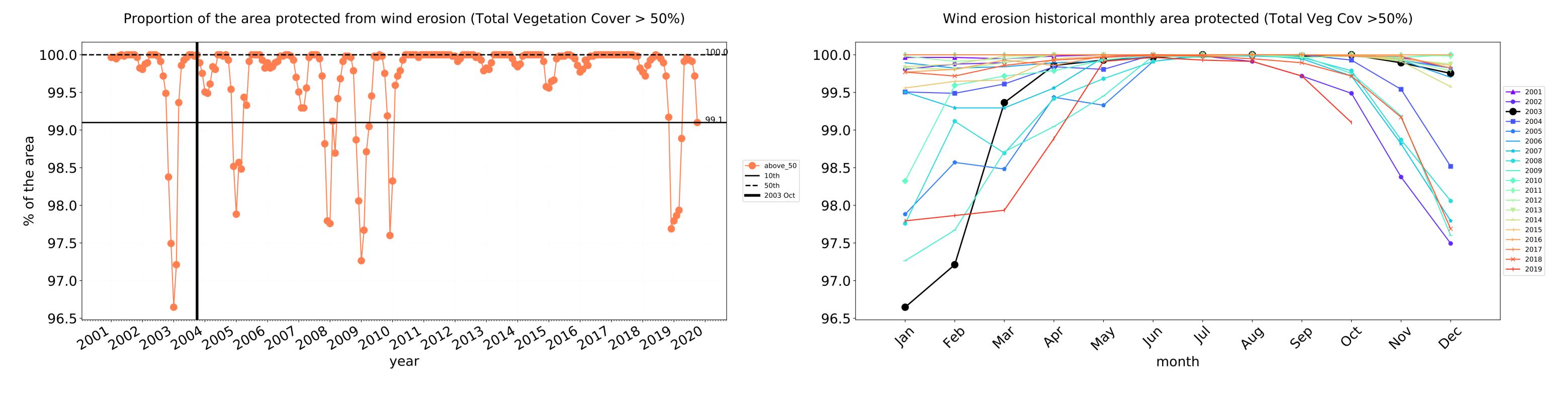


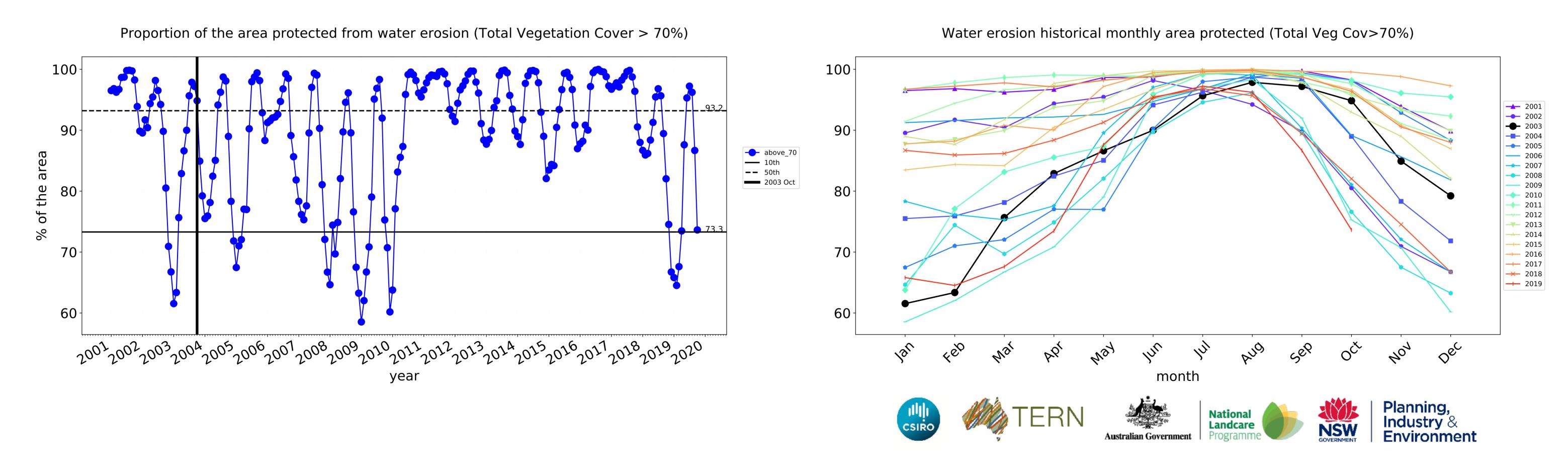






Grazing Woodland forest timeseries



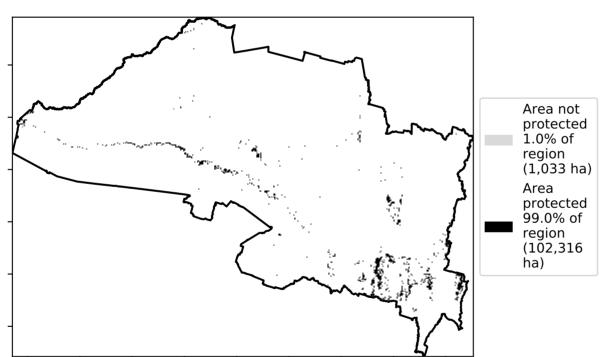


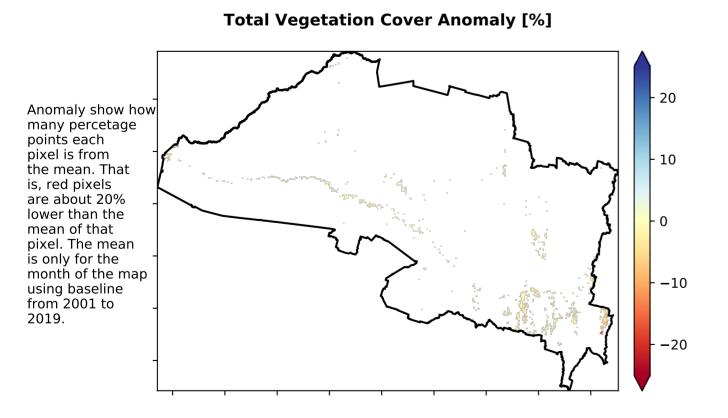
Grazing - Forest (non woodland)

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

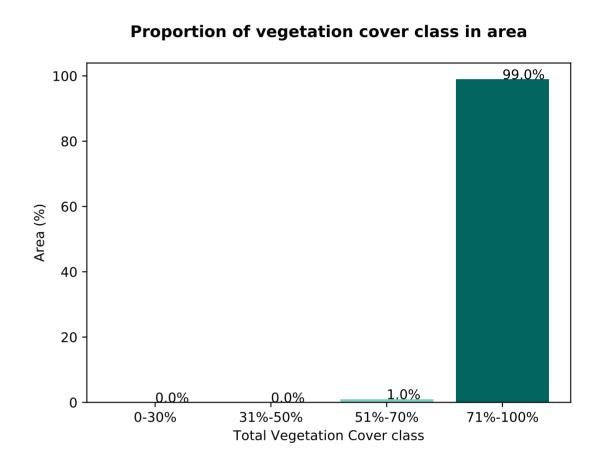
Total Vegetation Cover [%]

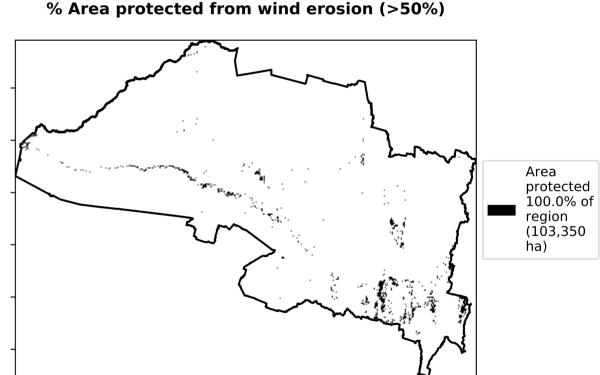
% Area protected from water erosion (>70%)

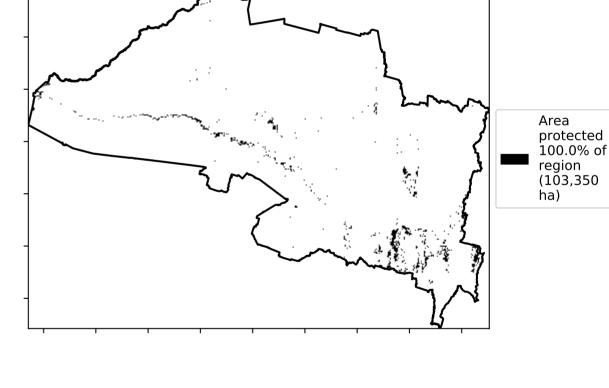


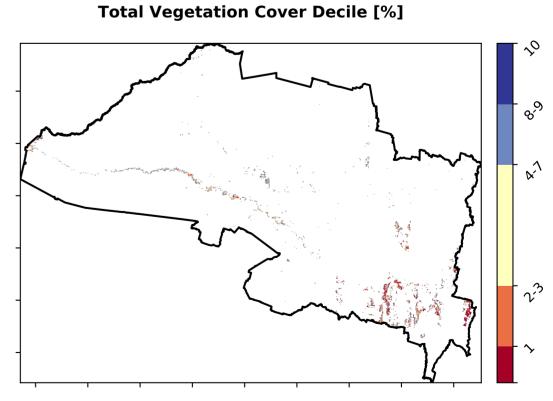


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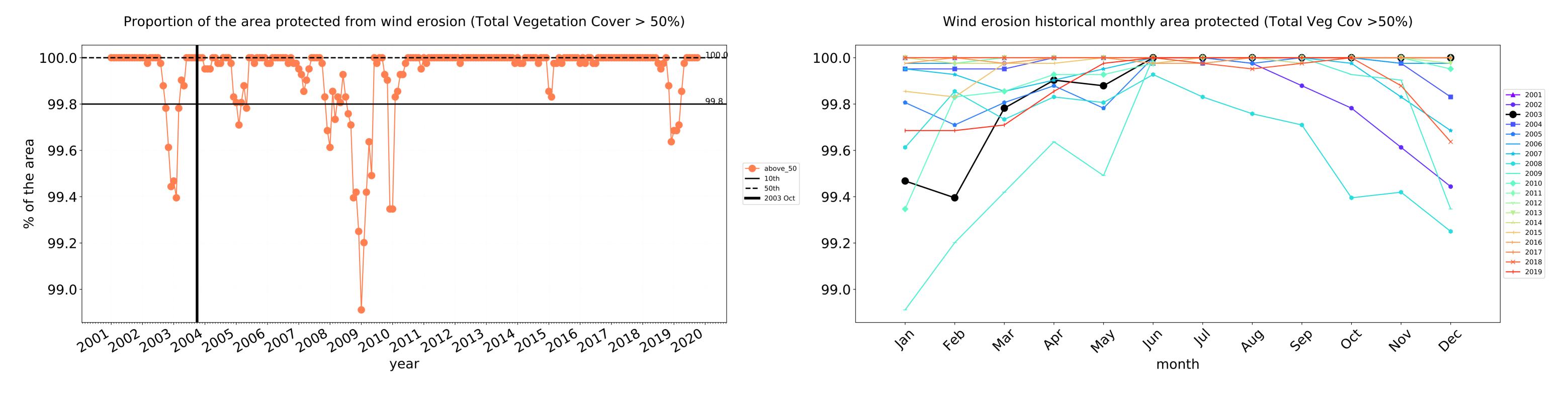


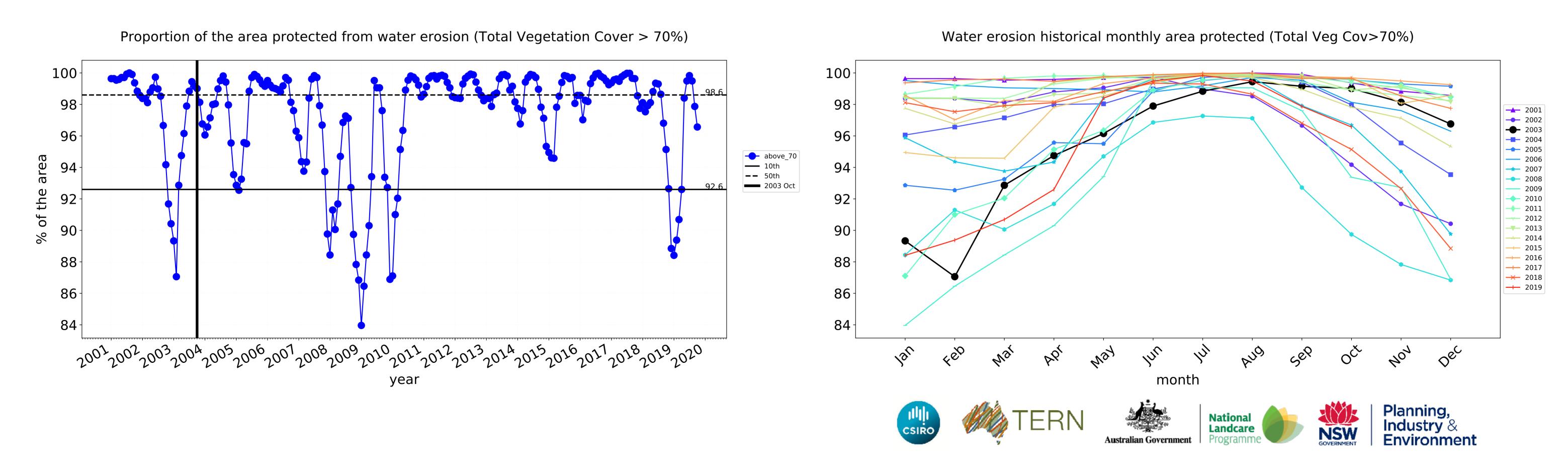






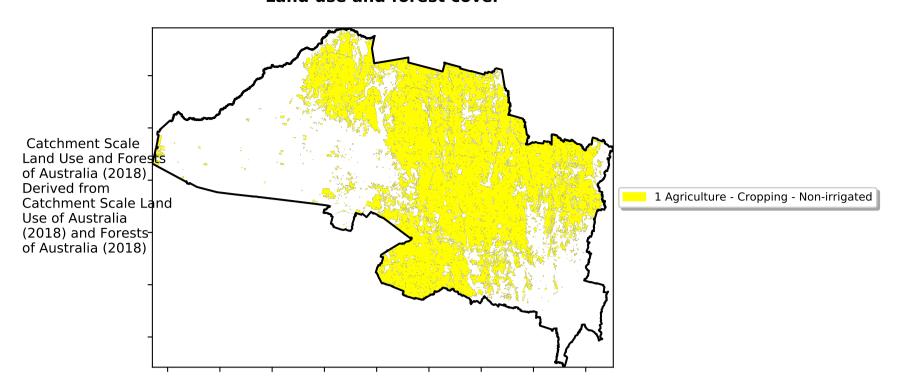




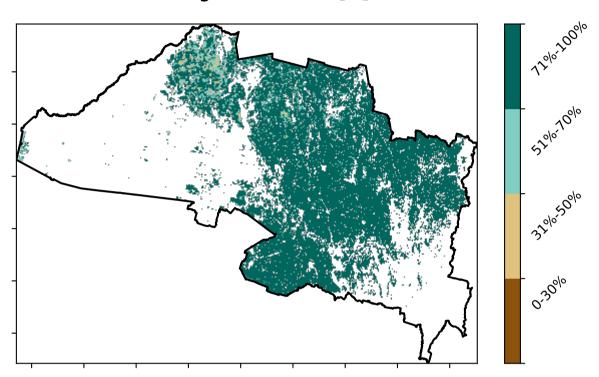


Cropping

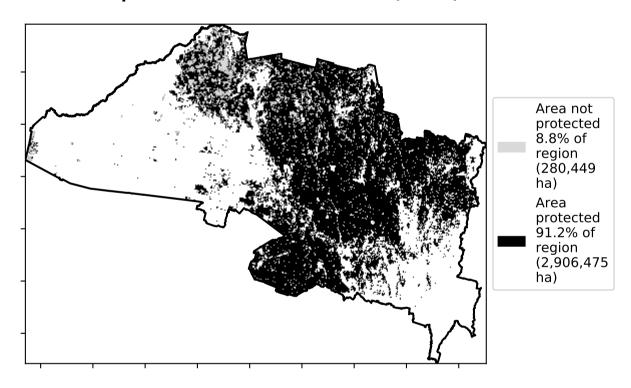
Land use and forest cover



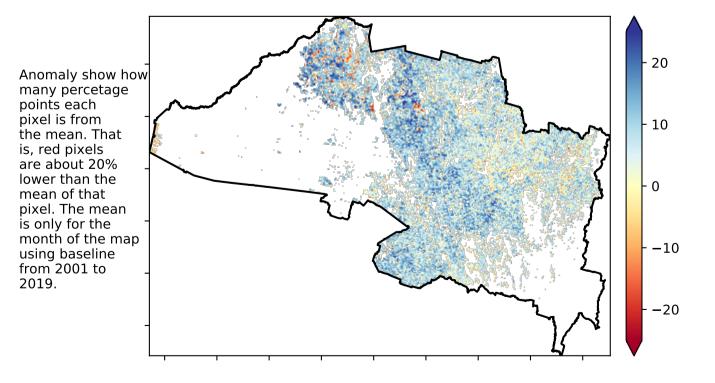
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

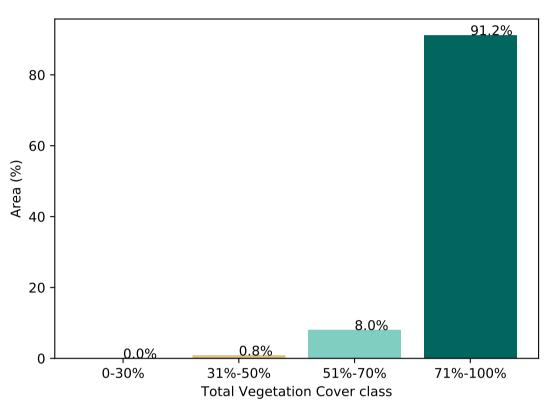


Total Vegetation Cover Anomaly [%]

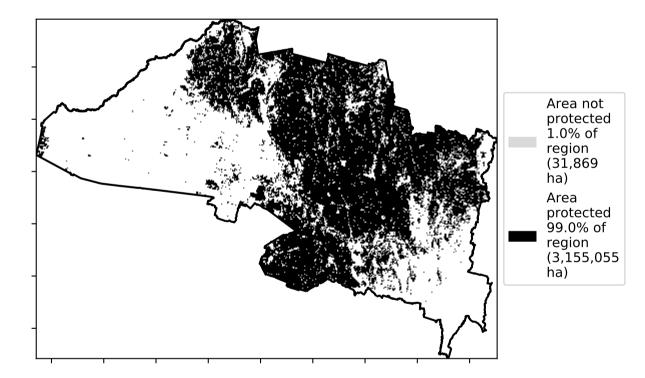


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

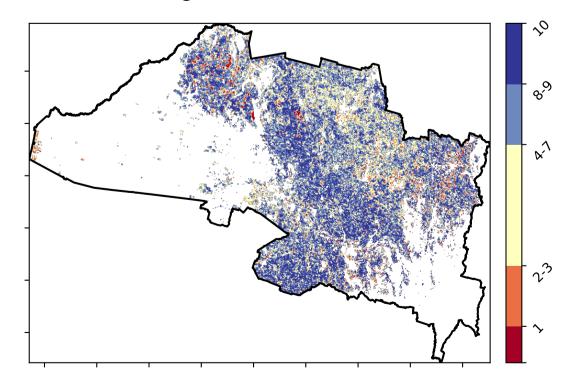
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







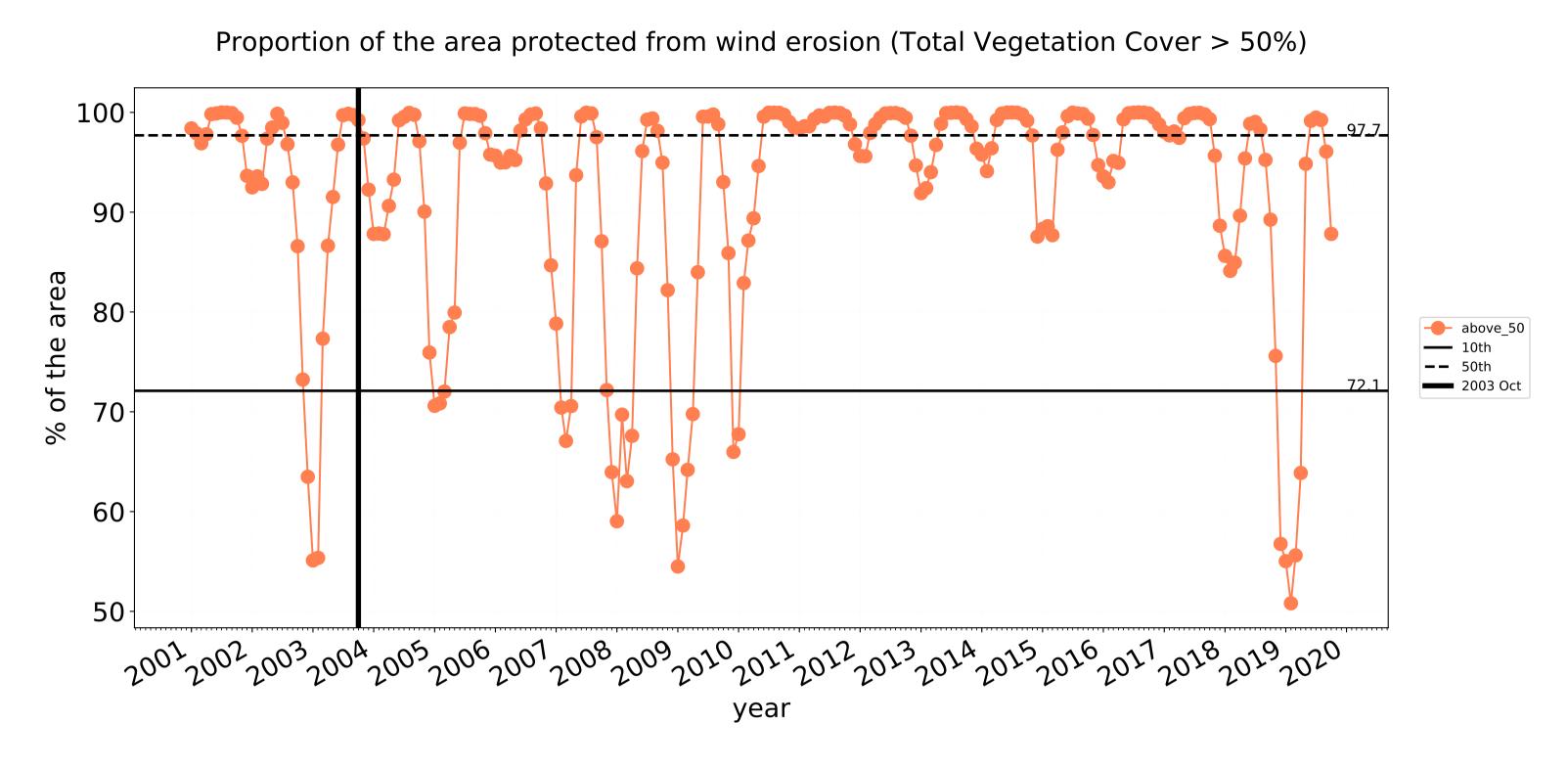


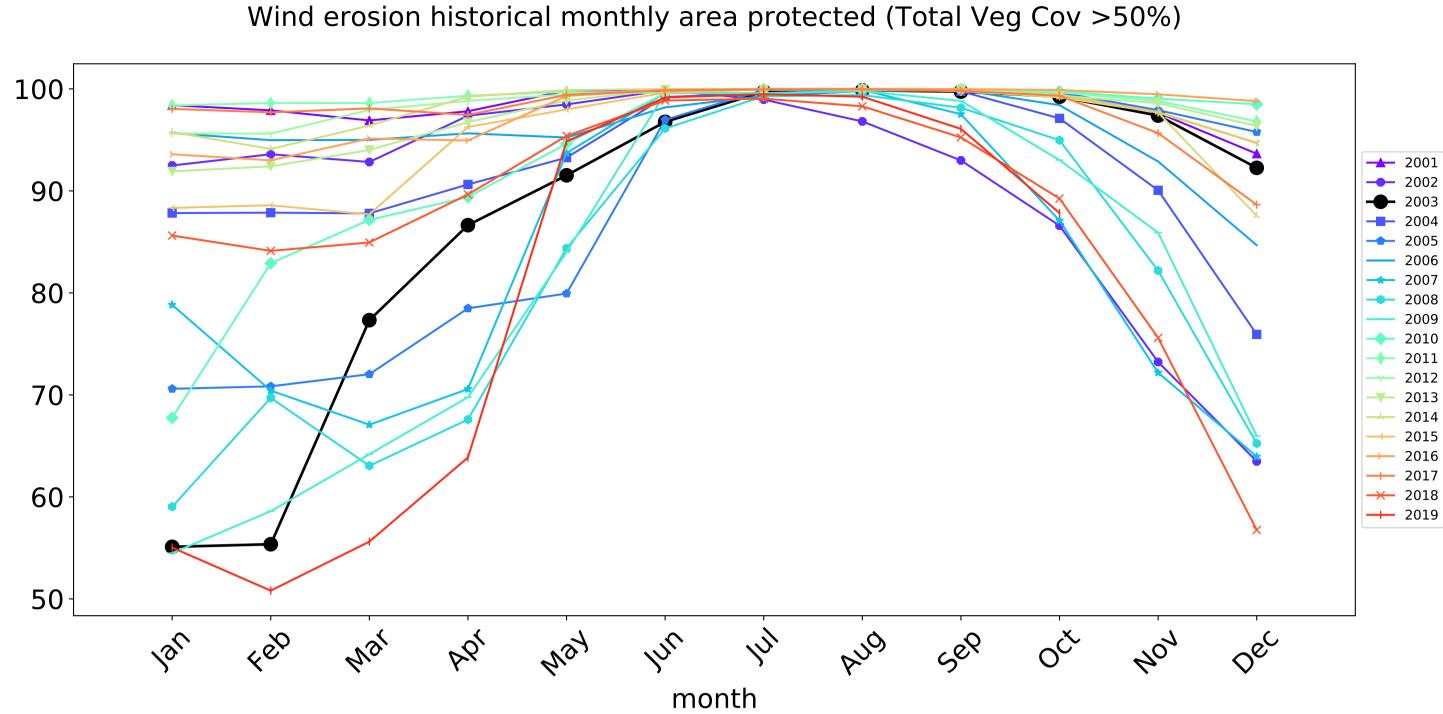


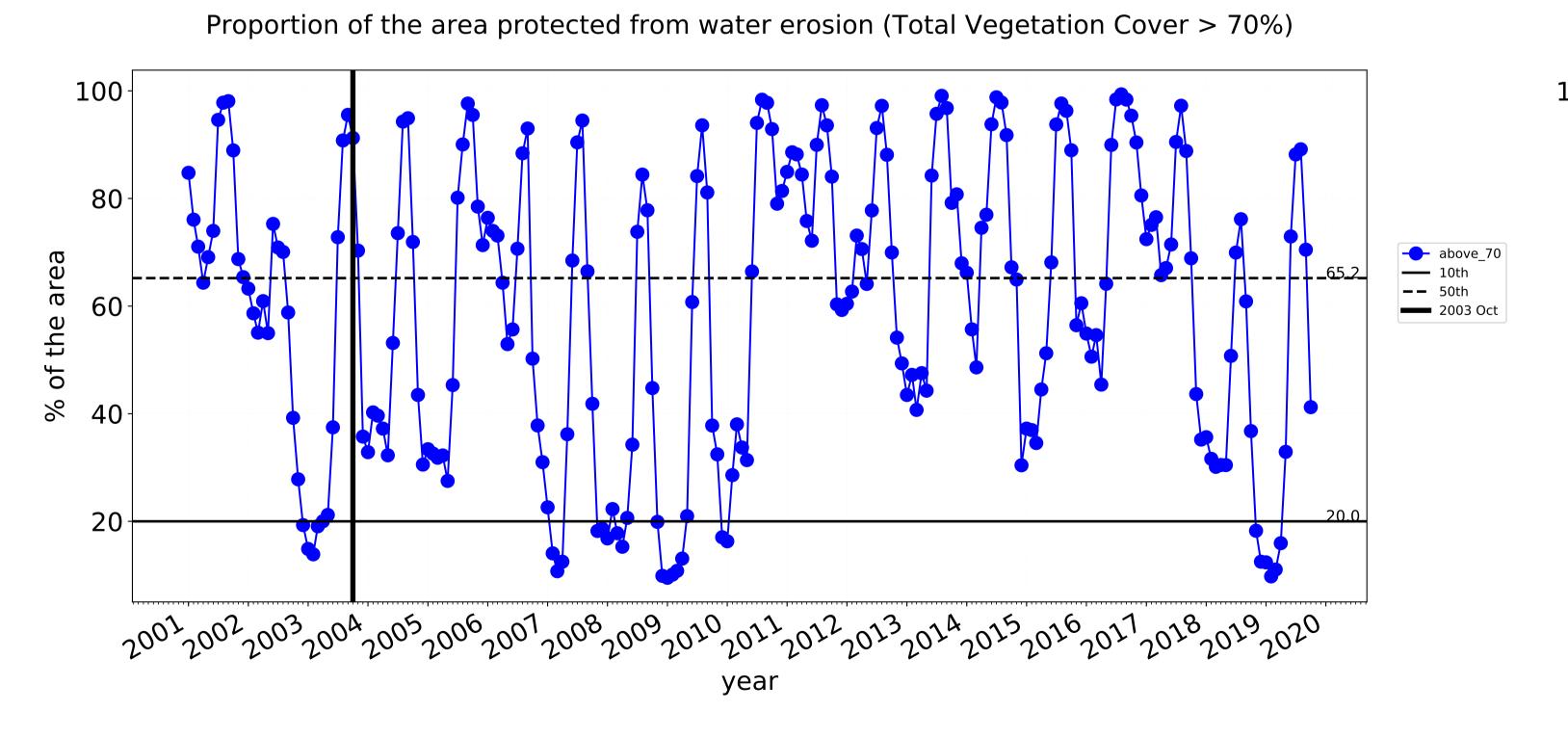


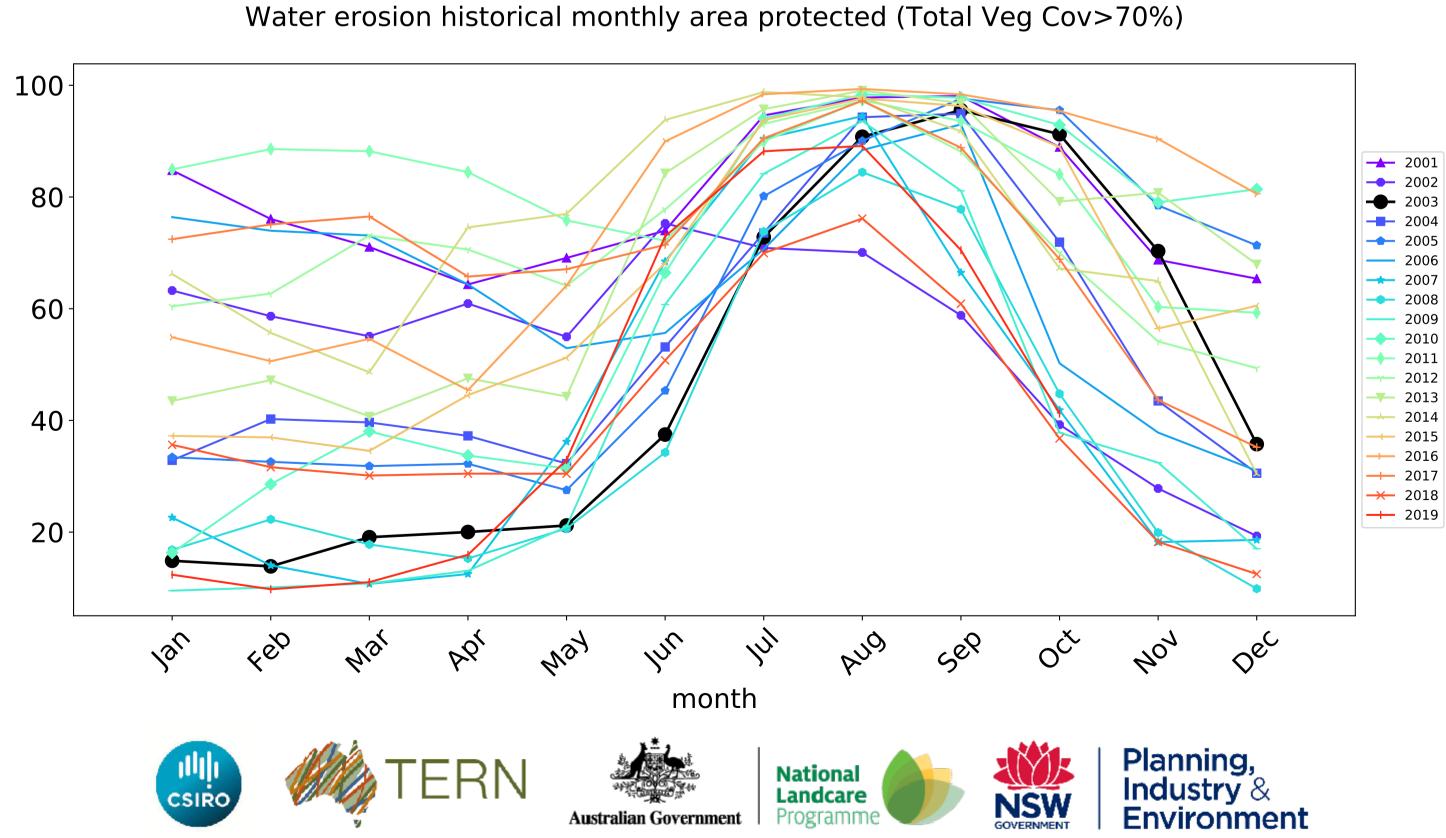


Cropping timeseries

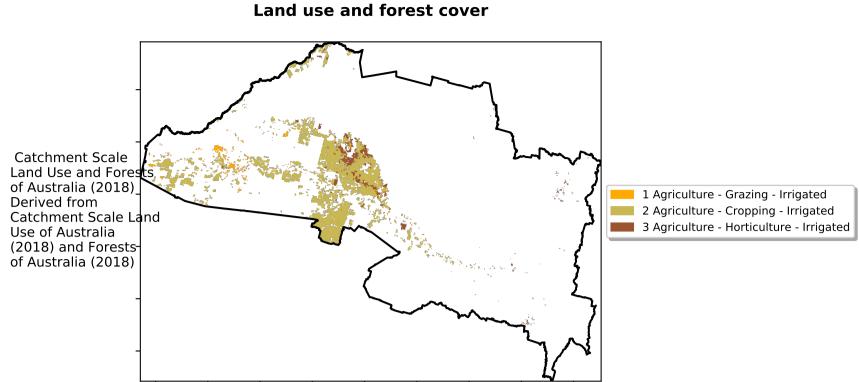




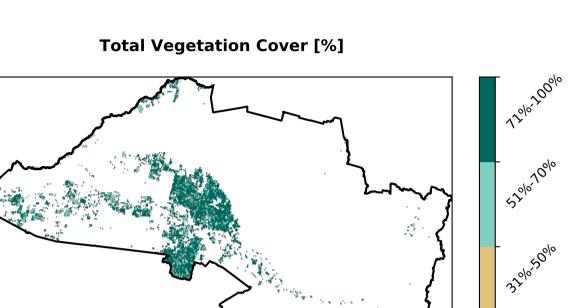


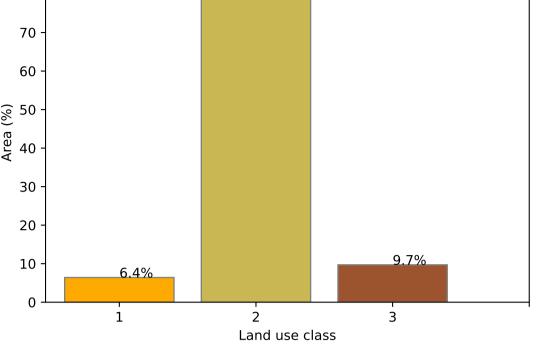


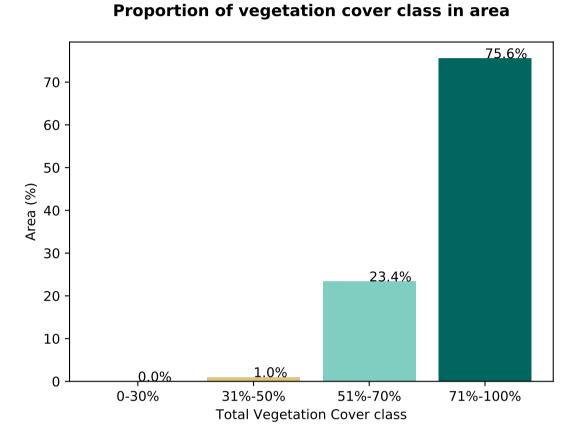
Irrigation



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

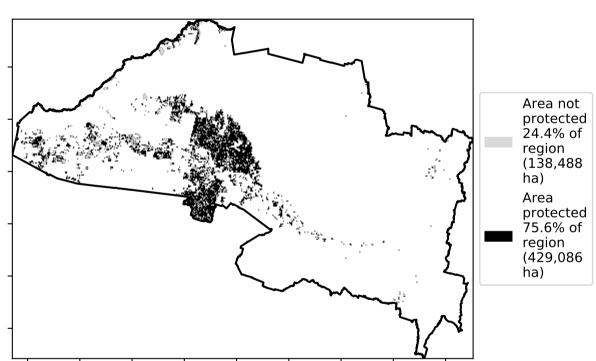


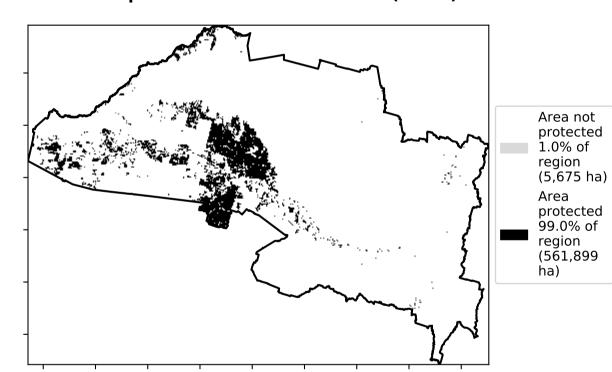






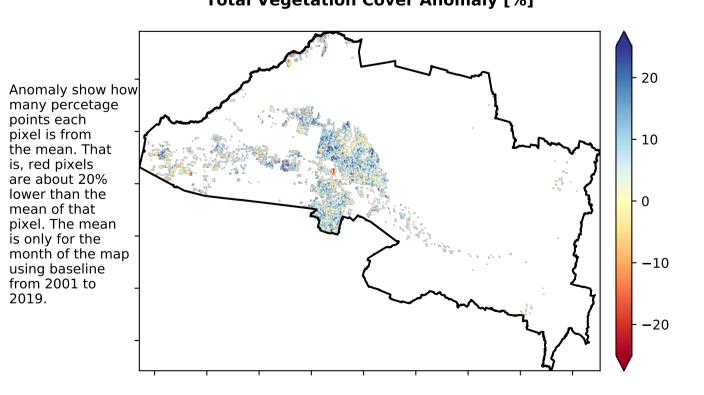


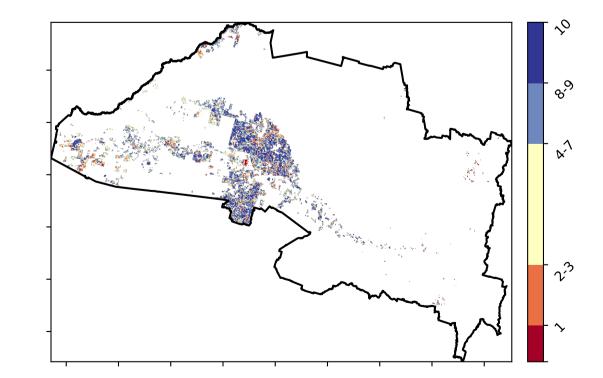




Total Vegetation Cover Anomaly [%]

Total Vegetation Cover Decile [%]





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



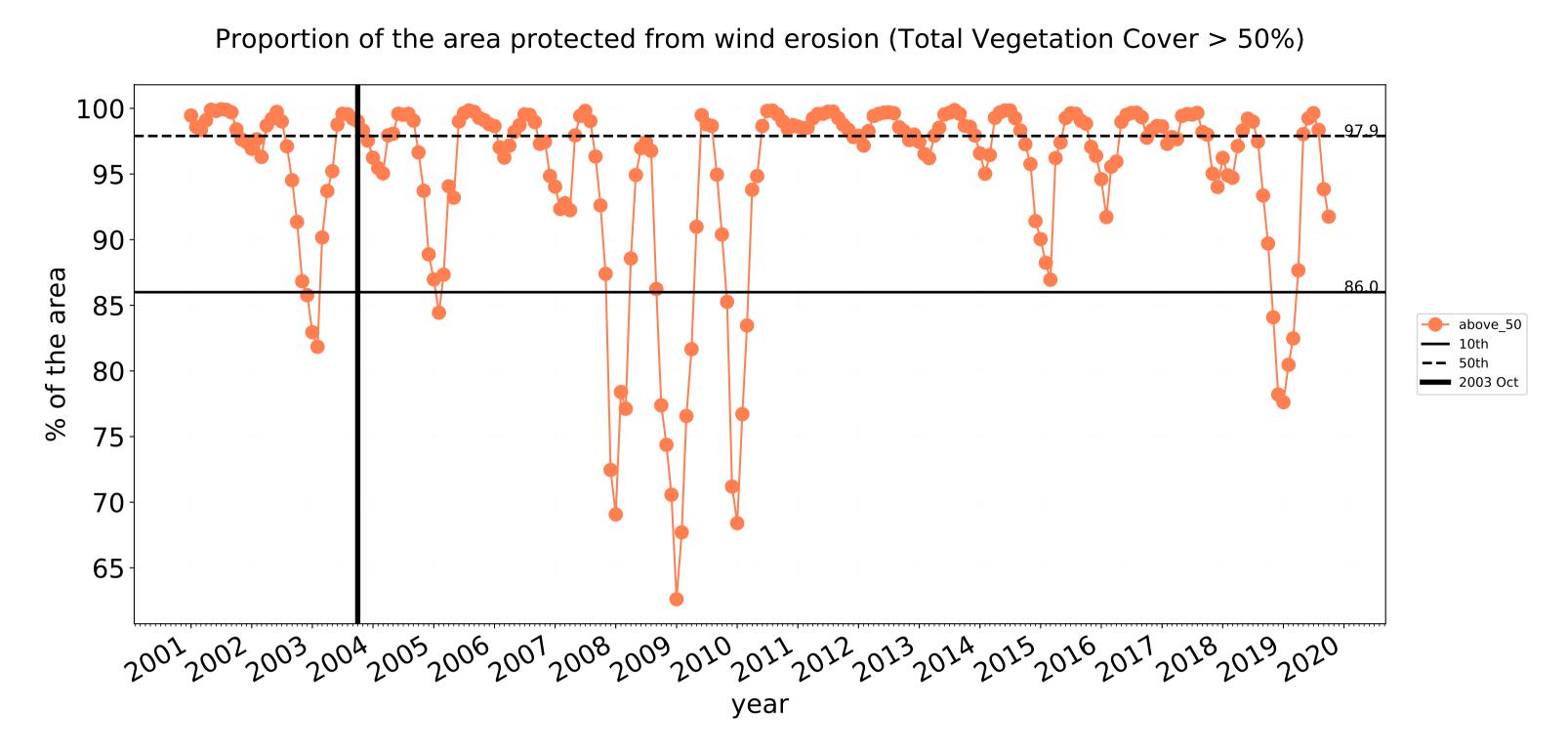


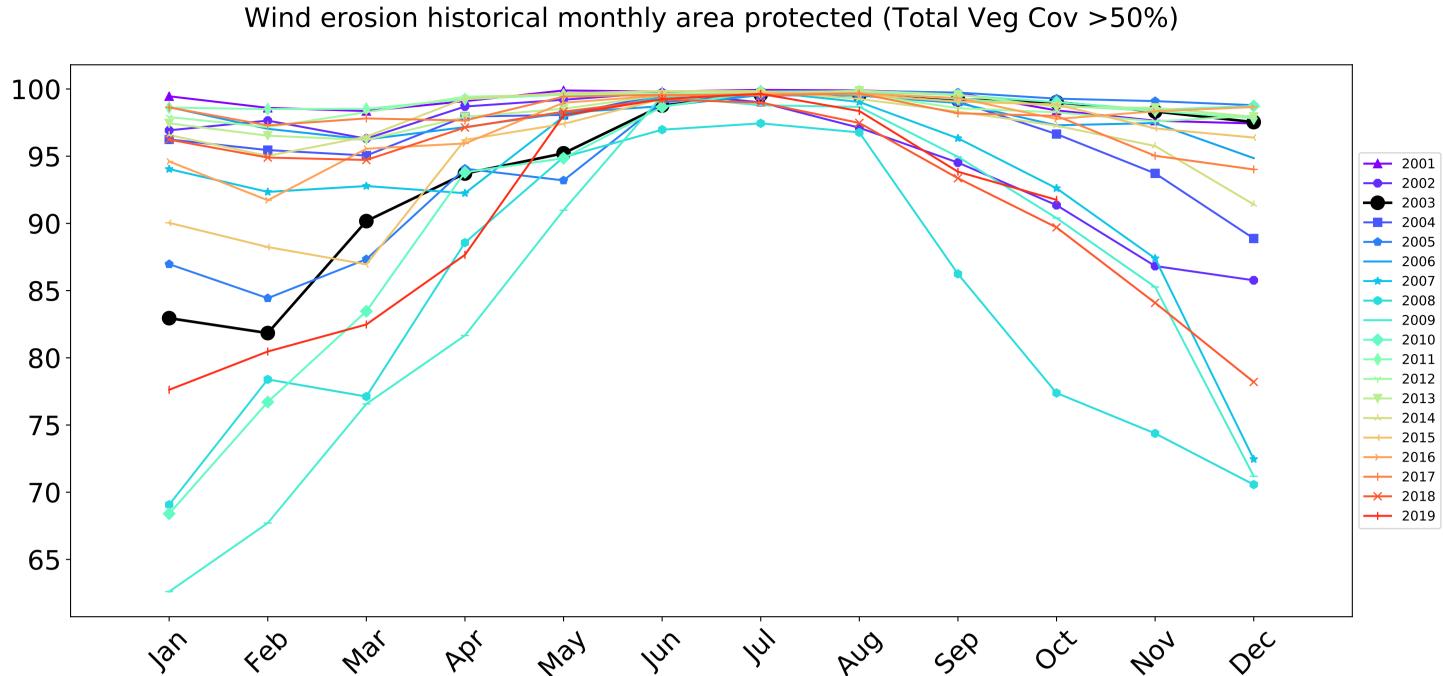




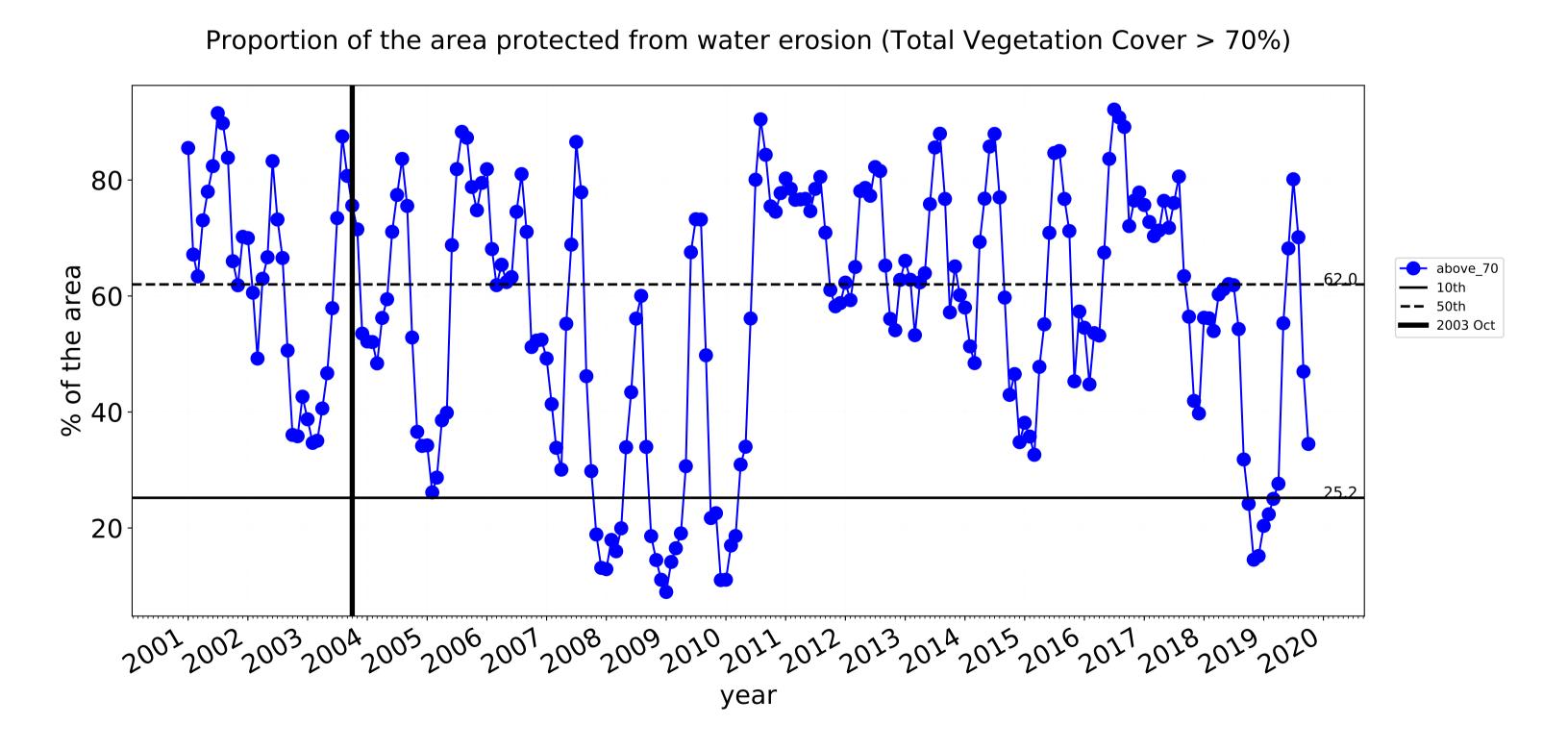


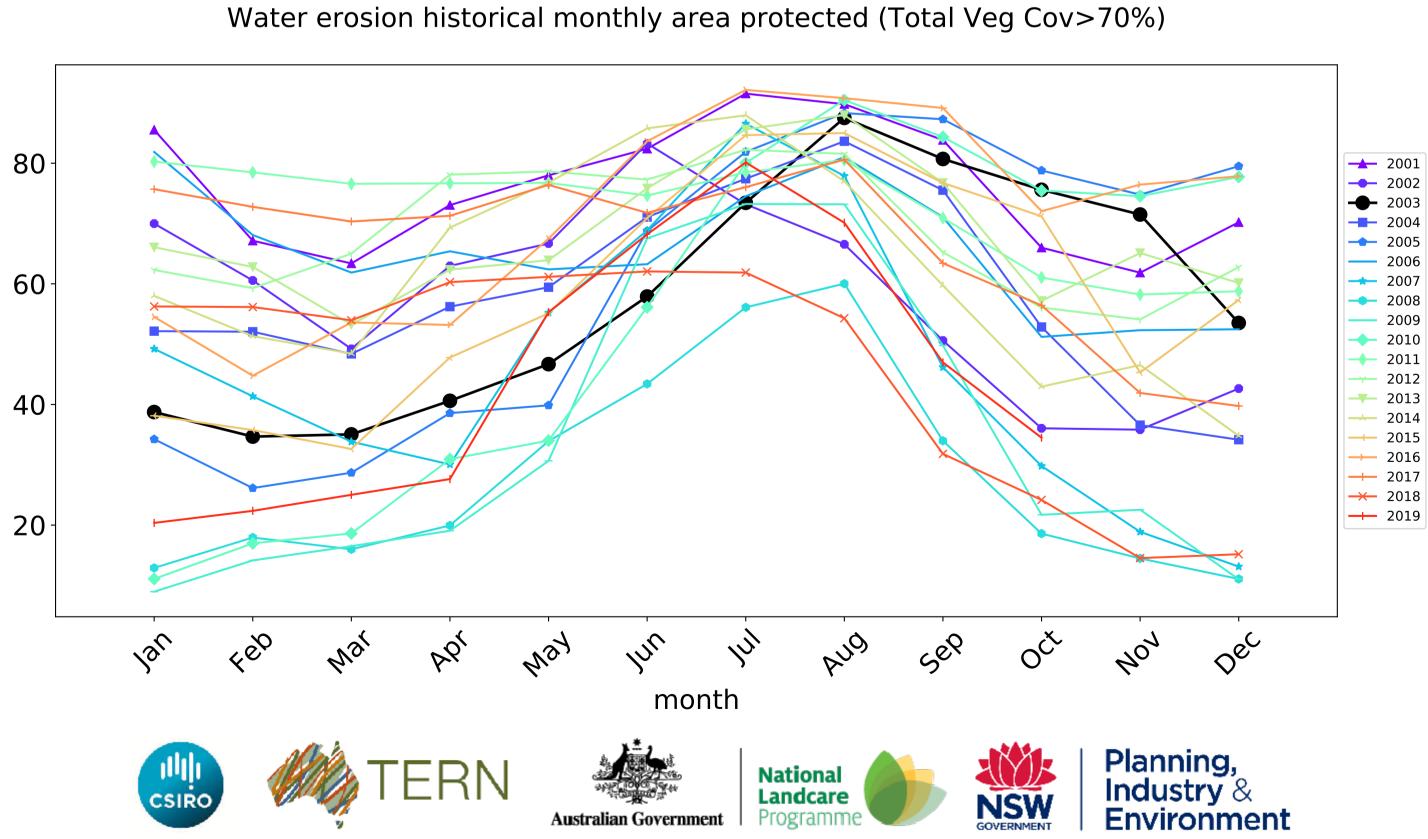






month



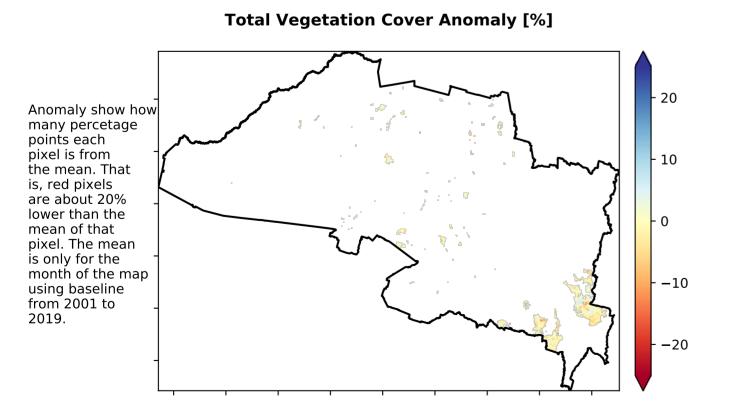


Production native forests and plantation forests

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

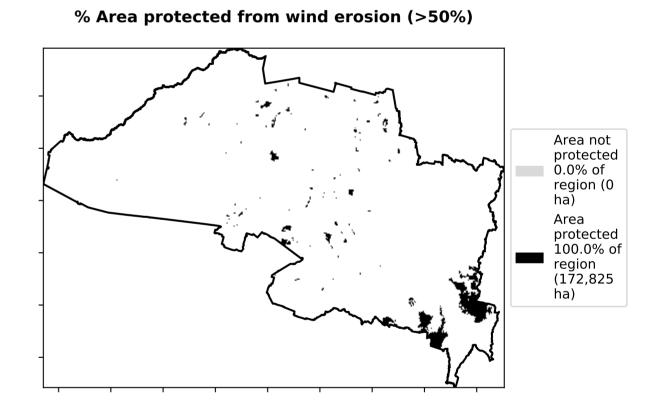
Total Vegetation Cover [%]

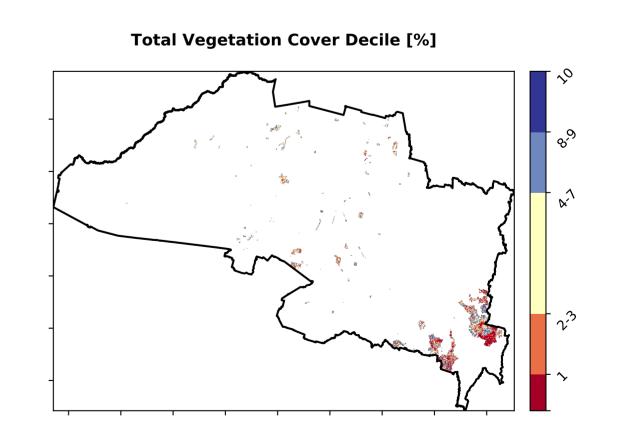
% Area protected from water erosion (>70%) Area not protected 1.5% of region (2,592 ha) Area protected 98.5% of region (170,232 ha)



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 98.5% 98.5% 90.0% 0.1% 1.4% 0-30% 31%-50% Total Vegetation Cover class









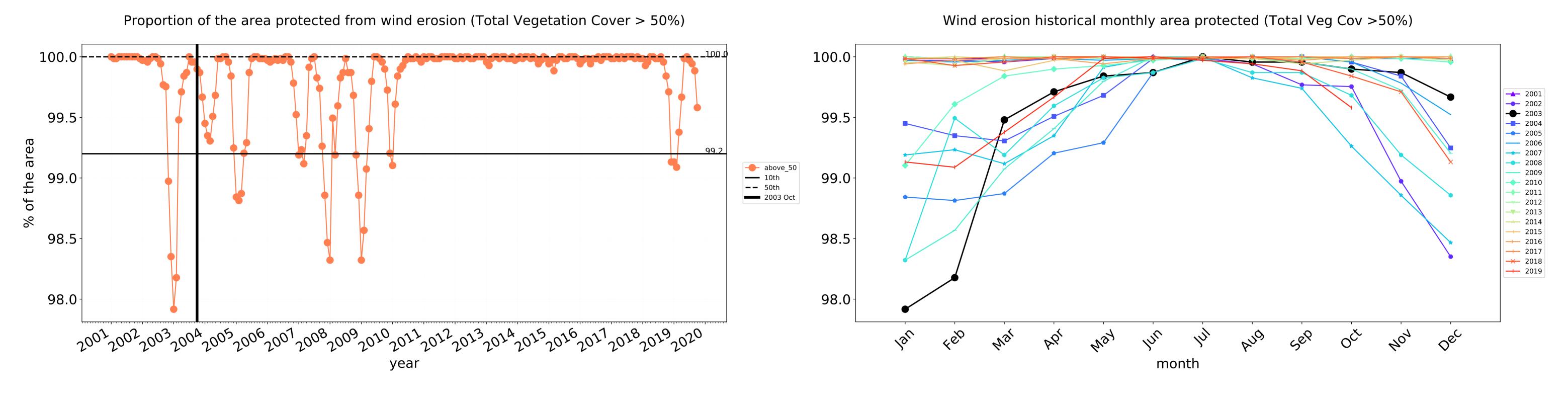


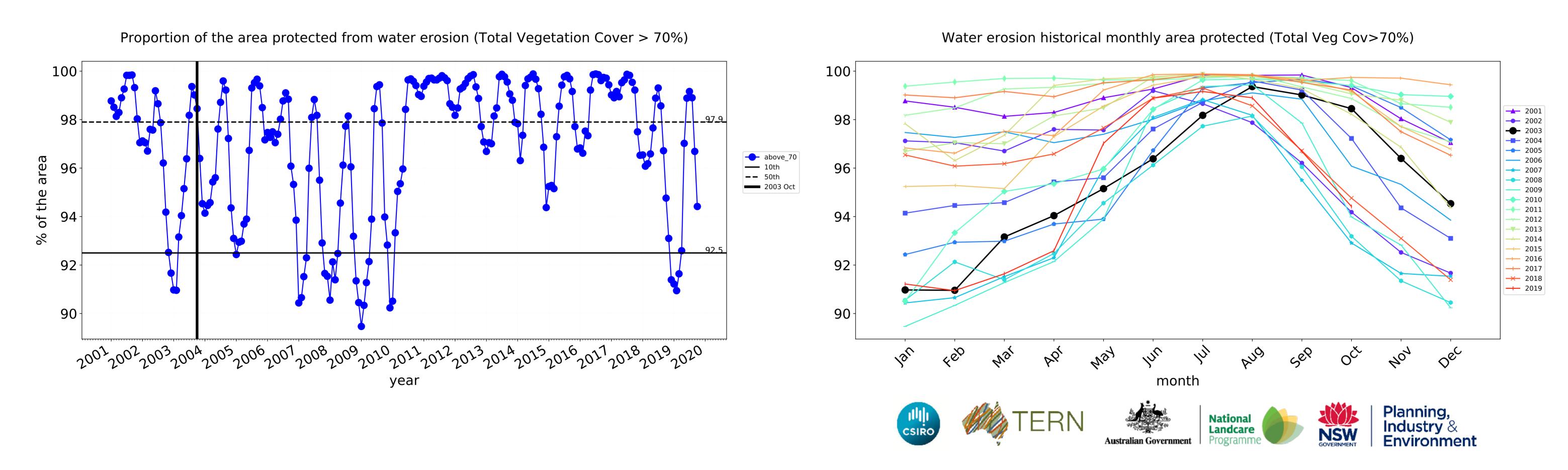






Production native forests and plantation forests timeseries





Riverina (6,694,000 ha and no data 14,335 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	6,694,000	100.0% 6,693,749	99.4% 6,655,322	84.9% 5,681,147	54.8% 3,668,491	18.4% 1,229,114	7.8% 520,752
Conservation and natural environments	323,100	100.0% 323,100	99.9% 322,675	88.0% 284,275	74.5% 240,750	33.8% 109,200	9.1% 29,500
Conservation and natural environments non forest	83,350	100.0% 83,350	99.8% 83,175	60.6% 50,550	39.8% 33,200	7.9% 6,550	1.6% 1,350
Conservation and natural environments Forest (non woodland)	195,250	100.0% 195,250	99.9% 195,000	97.5% 190,325	86.7% 169,225	45.3% 88,425	13.5% 26,375
Agriculture	6,067,725	100.0% 6,067,525	99.4% 6,031,025	84.6% 5,132,650	53.1% 3,221,850	16.7% 1,010,750	7.4% 447,000
Grazing	2,311,400	100.0% 2,311,400	99.7% 2,304,825	77.6% 1,794,150	45.8% 1,058,575	15.2% 351,975	7.2% 166,525
Grazing non forest	2,066,400	100.0% 2,066,400	99.7% 2,059,825	75.4% 1,557,475	42.3% 873,500	14.7% 303,250	7.7% 158,700
Grazing Woodland forest	141,650	100.0% 141,650	100.0% 141,650	94.8% 134,350	66.0% 93,525	13.4% 18,925	1.1% 1,575
Grazing - Forest (non woodland)	103,350	100.0% 103,350	100.0% 103,350	99.0% 102,325	88.6% 91,550	28.8% 29,800	6.0% 6,250
Cropping	3,186,925	100.0% 3,186,900	99.2% 3,162,375	91.2% 2,907,875	61.6% 1,961,900	19.8% 631,675	8.6% 273,025
Irrigation	567,575	100.0% 567,400	99.0% 562,000	75.6% 429,050	35.3% 200,550	4.8% 27,075	1.3% 7,450
Production native forests and plantation forests	172,825	100.0% 172,825	99.9% 172,650	98.5% 170,150	92.5% 159,825	58.1% 100,425	24.4% 42,100











