Total vegetation cover soil protection Region:NRM Riverina NSW

This report describes vegetation protecting the soil surface from erosion during a chosen month compared to previous years. This report has been generated using MODIS fractional vegetation cover information available in Rangelands and Pasture Productivity (RAPP) map tool https://map.geo-rapp.org/#australia. The report is based on 500 metre pixel data on monthly time steps.

Land use forest cover:

Date: February 2005

Results can be shown for the whole region (polygon), and separated by land use and forest cover classes which are likely to show different cover patterns and targets. Land use is divided into four broad classes: Conservation and natural environments, Agriculture, production native forests and plantation forests (no report), and other (no report). Agriculture is divided into grazing, crops and horticulture which are sub-divided into non-irrigated and irrigated. If forest is present land use is further divided into: non-forest, woodland forest and non-woodland forest. The area of each land use and forest class are shown as a map and chart. The report content is repeated for each land use and forest cover class that covers at least 1% of the area of the chosen region. Total vegetation Cover:

The total vegetation cover indicates where soil is likely to be protected from wind and or water hillslope erosion. Total vegetation cover for this month is shown on a map and chart classified into 4 classes.

• 71-100% High cover – protected from wind and usually water erosion (high rainfall, steep slopes, and erodible soils may need greater than 80, 90, 95 and up to 100% cover)

- 51-70% Moderate cover protected from wind erosion
- 31-50% Low cover not protected
- 0-30% Very Low cover not protected

Erosion protection: Wind erosion 50% total vegetation cover

The vegetation cover threshold required to prevent soil erosion is usually 50% to reduce wind erosion, 70% or 80% to reduce water (hillslope) erosion depending on the steepness and rainfall. Areas protected from erosion for the month:

- Map: water erosion protection (>70% cover) percentage area and hectares.
- Map: wind erosion protection (>50% cover) percentage area and hectares.

Comparison with previous years:

- Map: anomaly comparing this month to the average cover from the same month in previous years.
- Map: deciles rank of month against the same month in previous years.

Anomalies and deciles until September 2019 are calculated comparing to the same months 2001 to 2019. Extra monthly data will be used to calculate anomalies and deciles post September 2019 as they become available. Time series monthly from January 2001 to current:

Erosion protection

- Wind erosion protection time series: percentage of the area of the region with greater than 50% cover for each month (orange lines). Horizontal lines are 10th (cover target) and 50th percentiles.
- Water erosion protection time series: percentage of the area of the region with greater than 70% cover for each month (blue line). Horizontal lines are 10th (cover target) and 50th percentiles.

Rainfall

• Millimetres rainfall each month (black line).

Each time series is also stacked by year. The black line shows the current year of data.

Water erosion protection for higher rainfall and steeper slopes:

Water erosion protection on higher slopes. As slope increases, more cover is required to control water erosion. The thresholds reported are:

- the percentage area with pixels greater than 80% total cover.
- the percentage area with pixels greater than 90% total cover.
- the percentage area with pixels greater than 95% total cover.

Acknowledgment of data:

- 1. http://www.agriculture.gov.au/abares/aclump/land-use/alum-classification
- 2. http://www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2018
- 3. https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/establishment-mgmt/production-management2/groundcover
- 4. MODIS Fractional cover algorithm:

https://doi.org/10.4225/08/5848a3f19a7b3







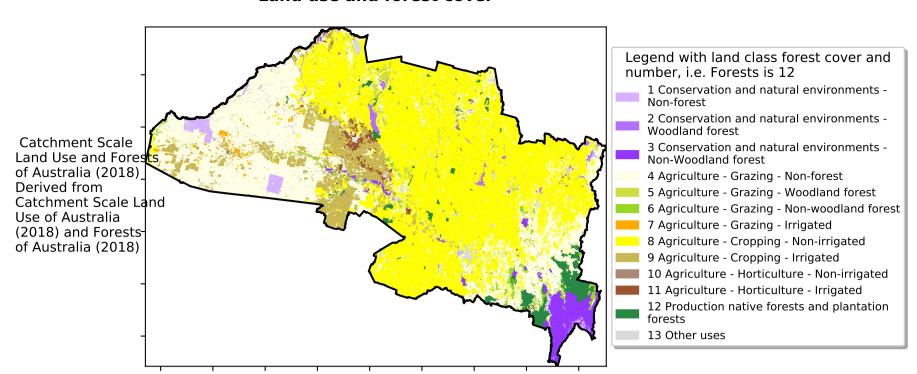




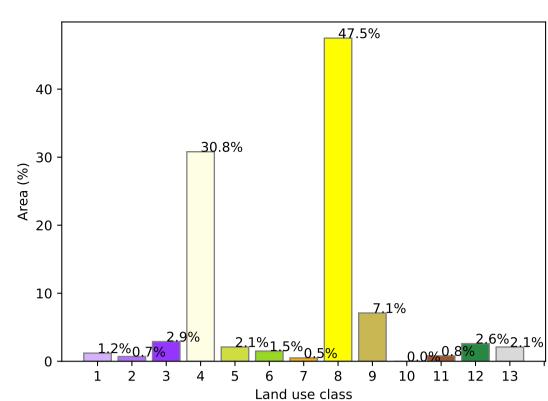


Vegetation Cover Feb 2005

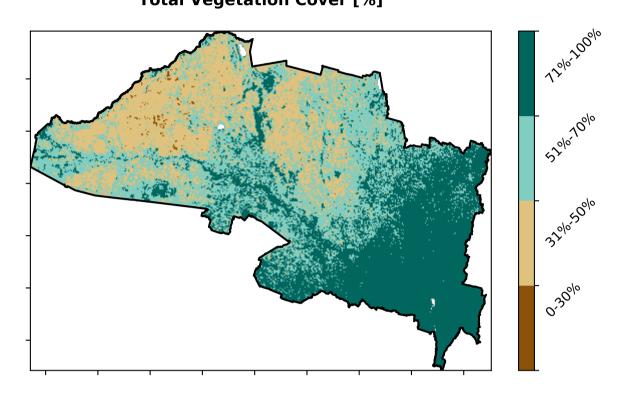
Land use and forest cover



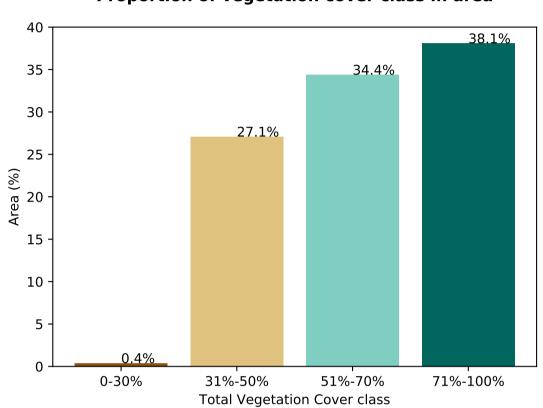
Proportion of each land class in area



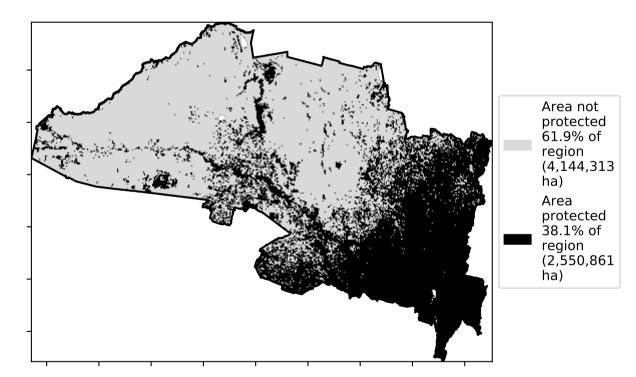
Total Vegetation Cover [%]



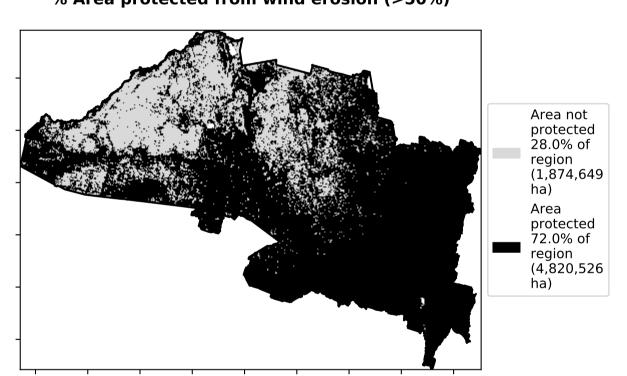
Proportion of vegetation cover class in area



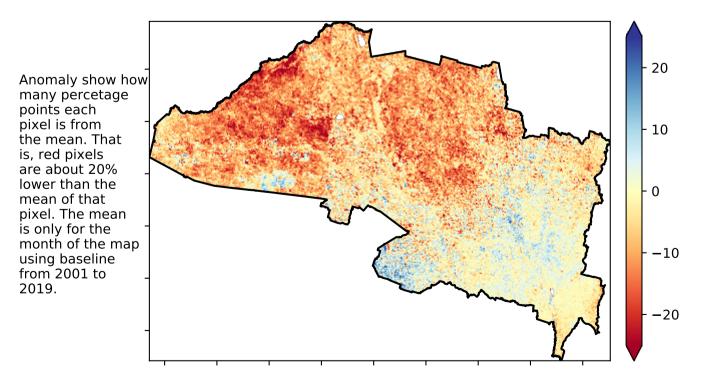
% Area protected from water erosion (>70%)



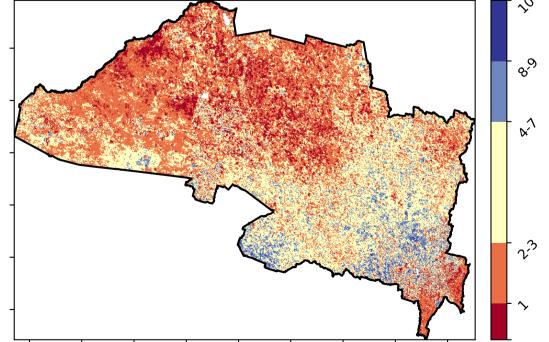
% Area protected from wind erosion (>50%)



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.





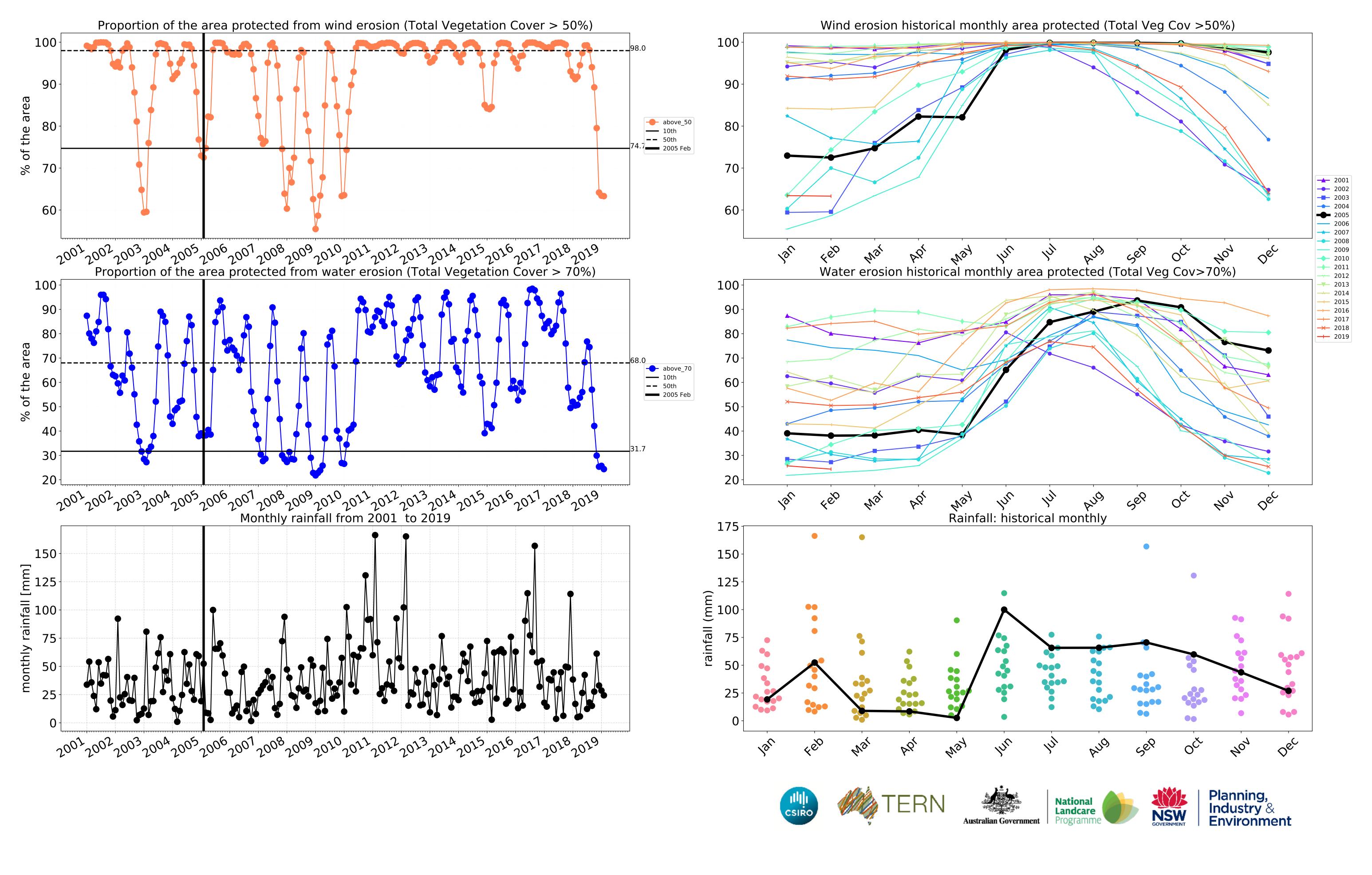




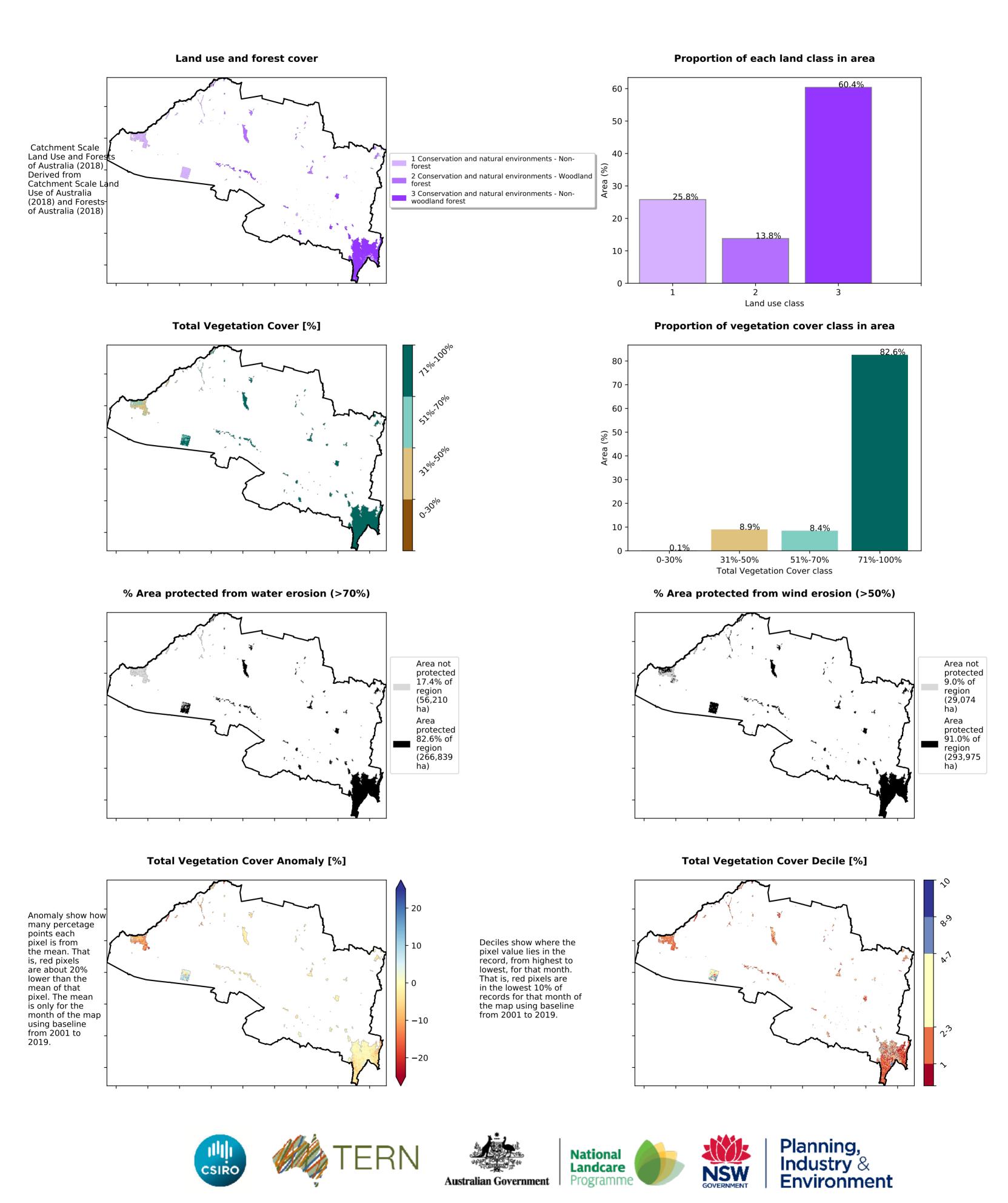




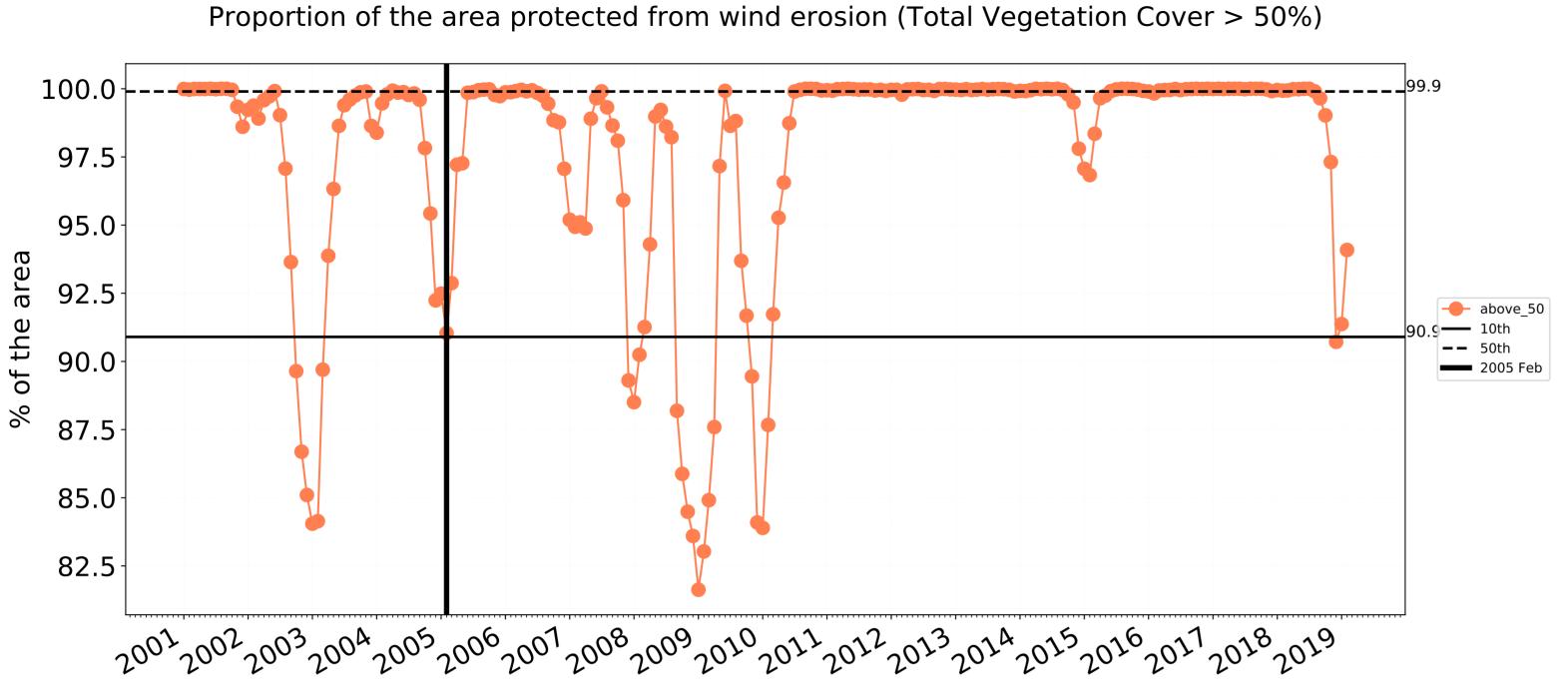


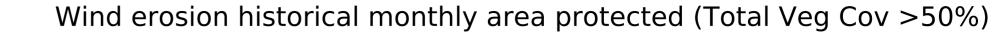


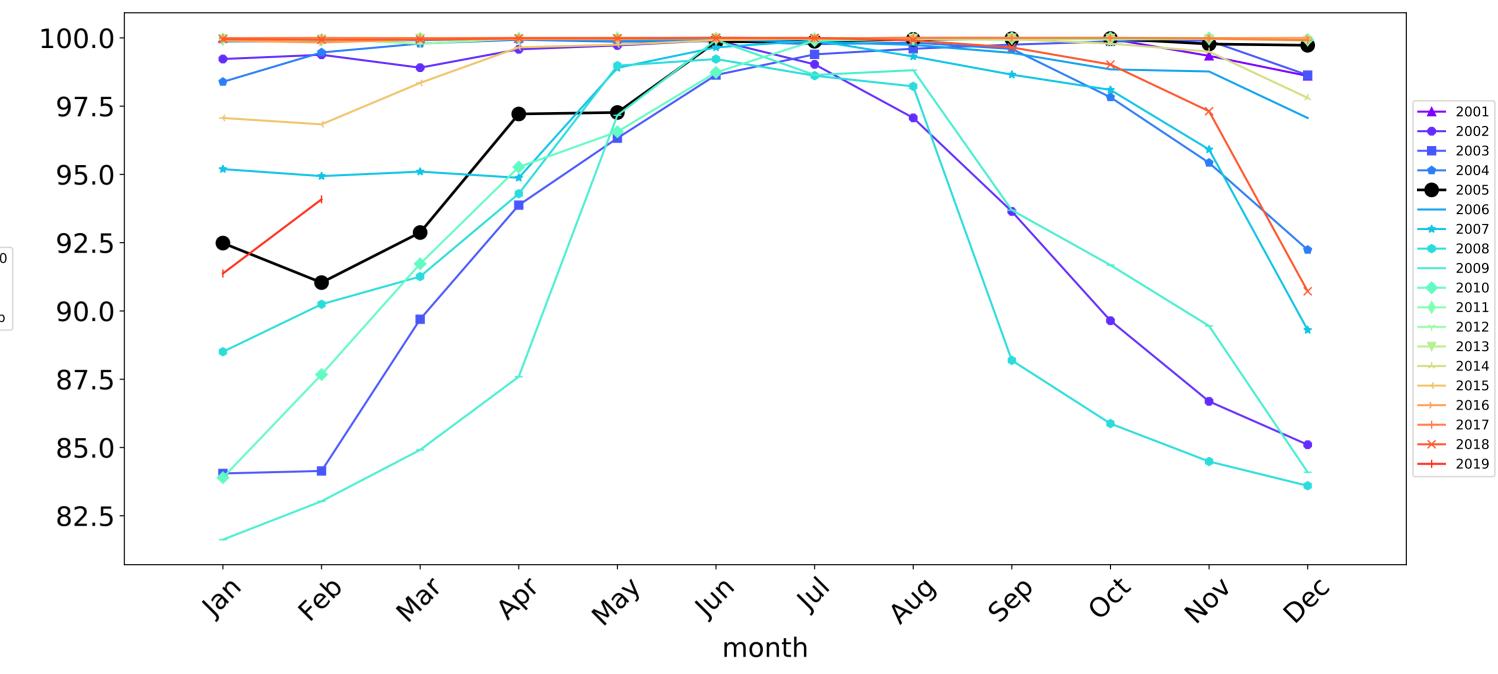
Conservation and natural environments

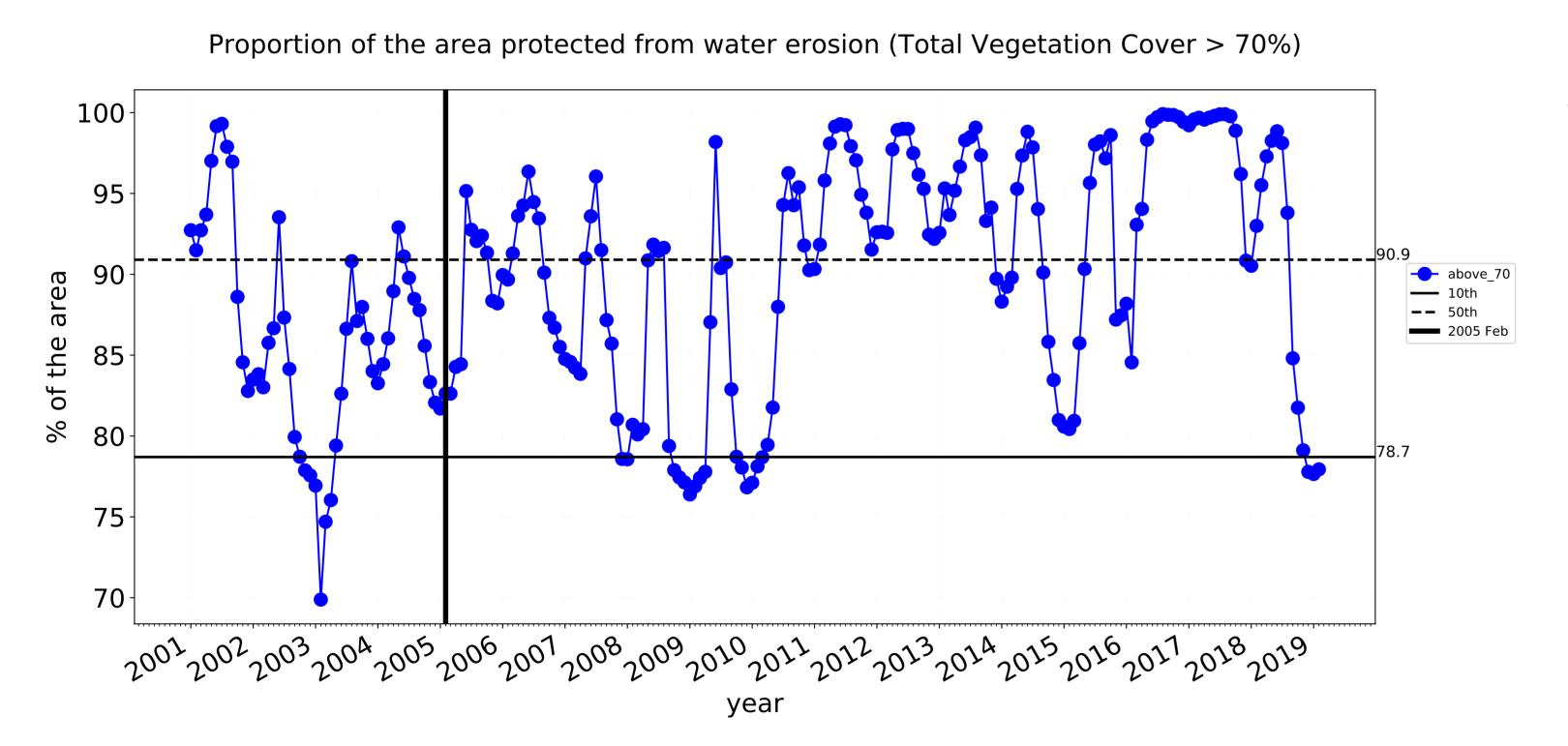


Conservation and natural environments timeseries

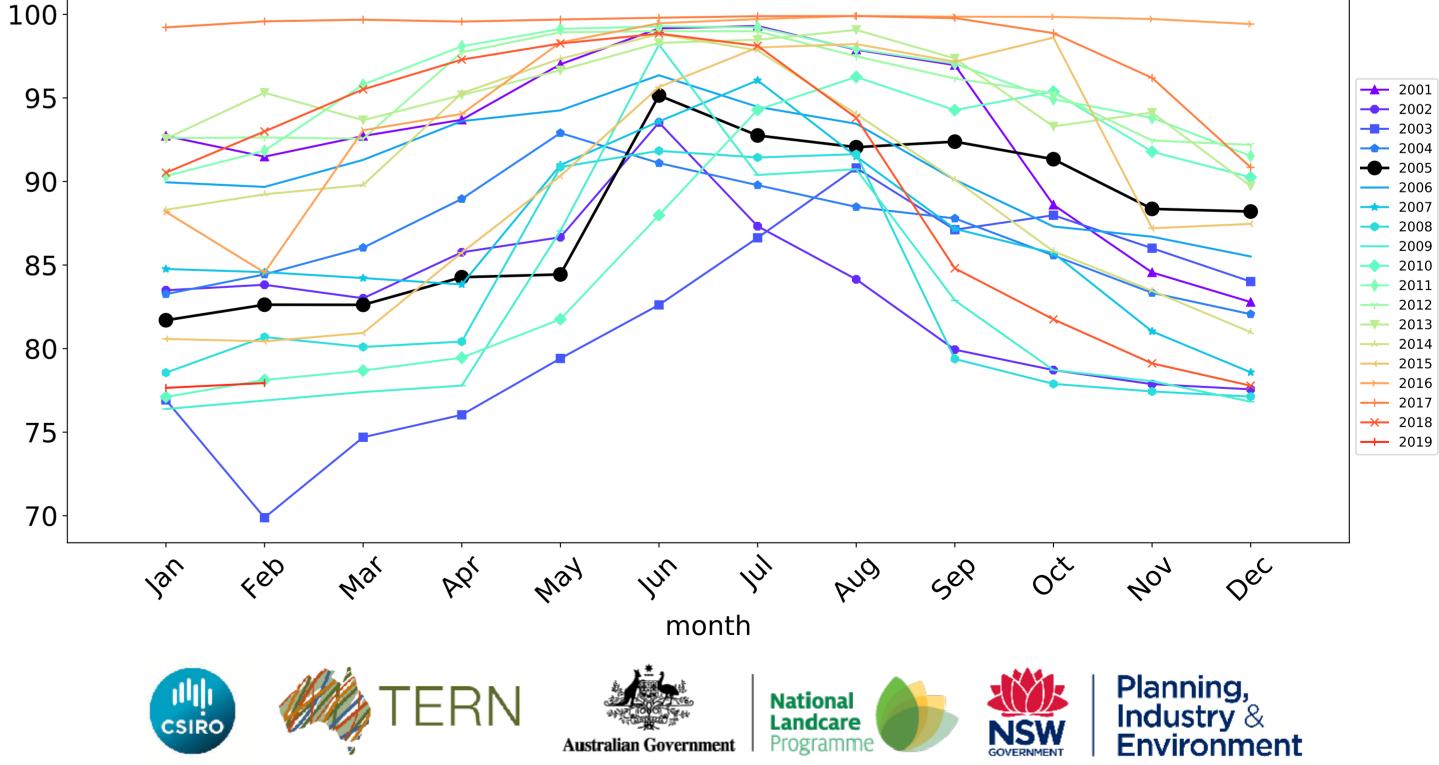








Water erosion historical monthly area protected (Total Veg Cov>70%)



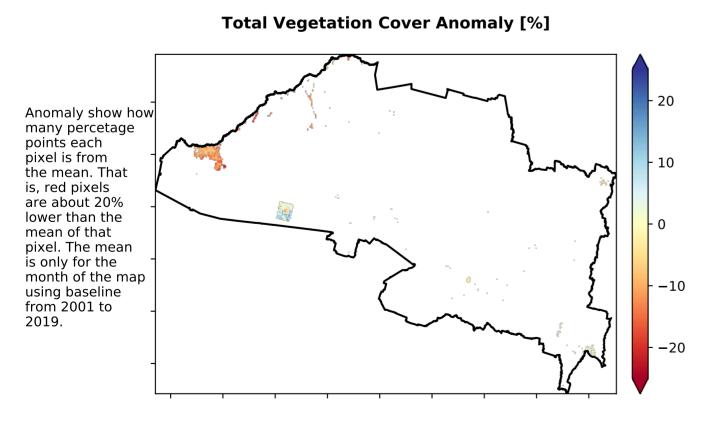
Landcare

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

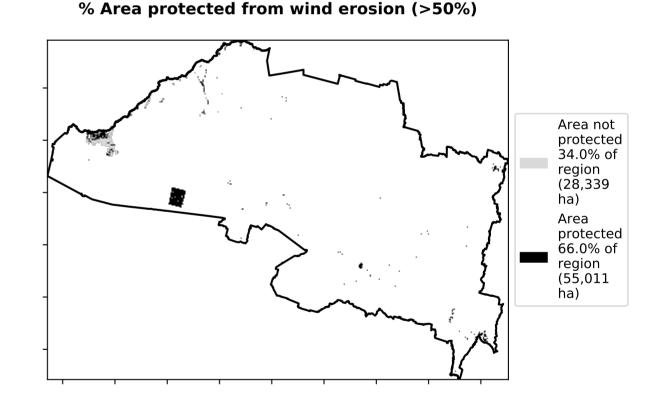
Total Vegetation Cover [%]

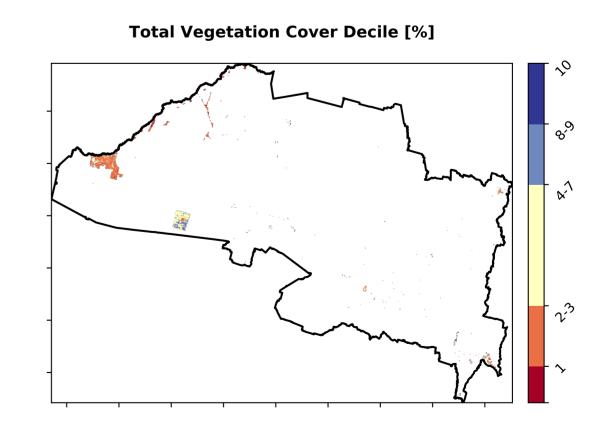
% Area protected from water erosion (>70%) Area not protected 62.4% of region (52,010 ha) Area protected 37.6% of region (31,339 ha)



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 37.6% 35 34.3% 30 -28.0% 25 Area (%) 15 -10 5 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**









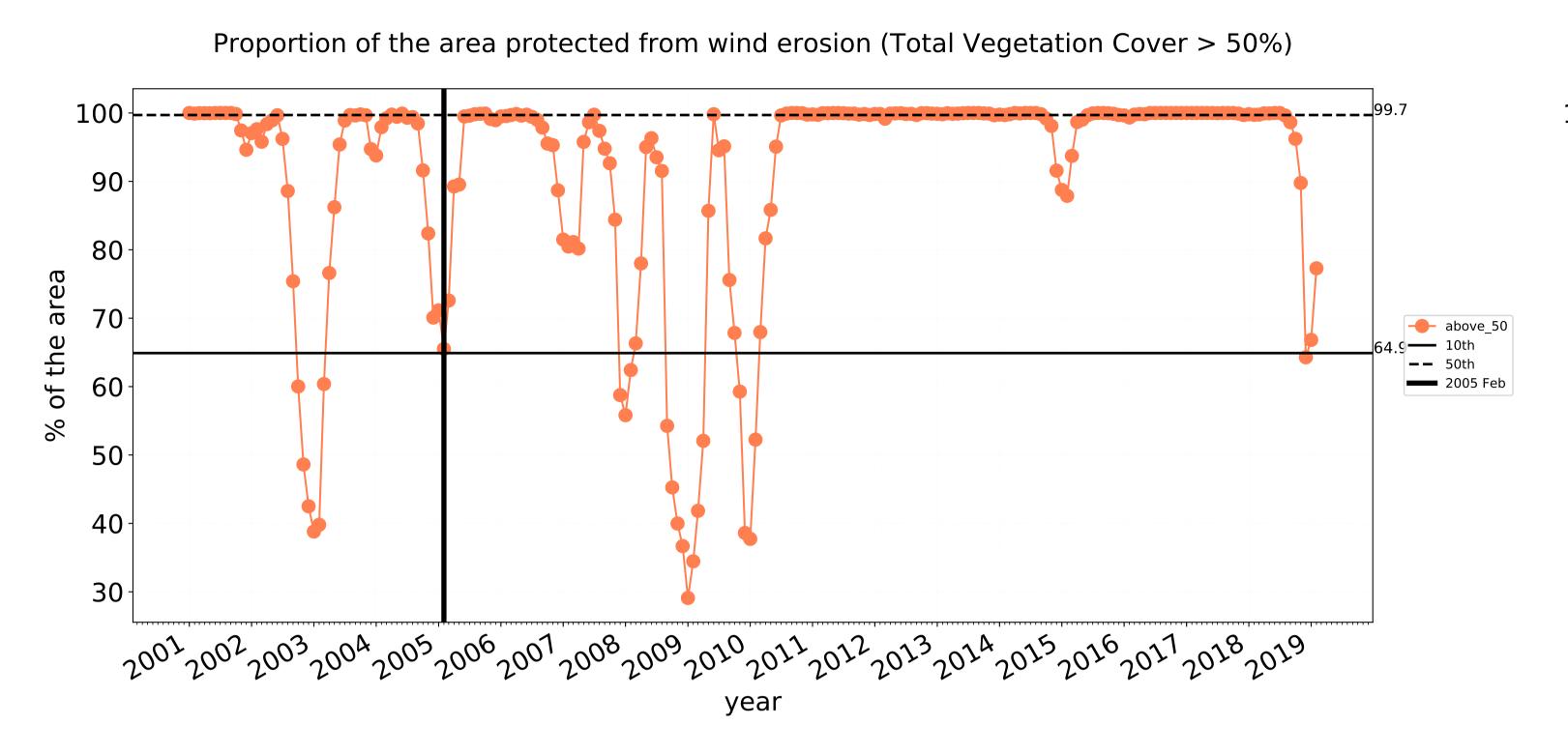


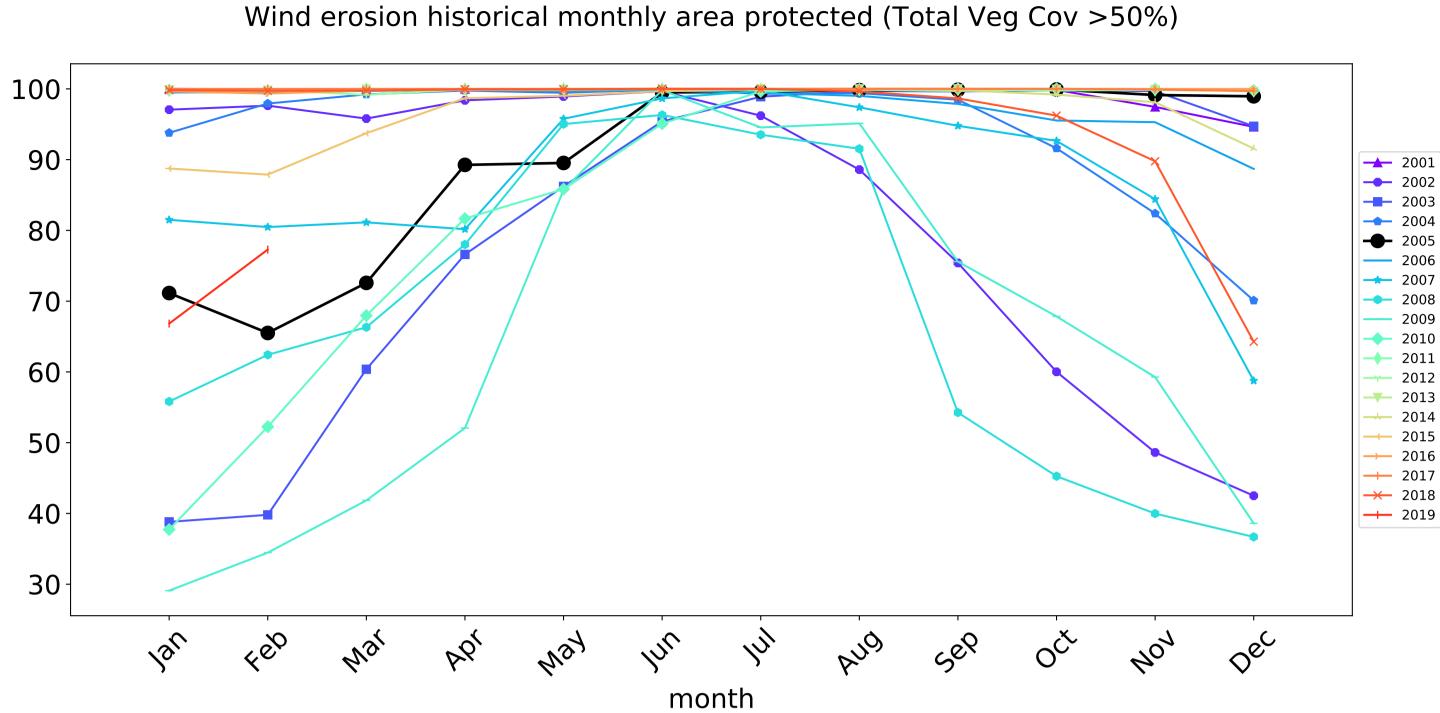


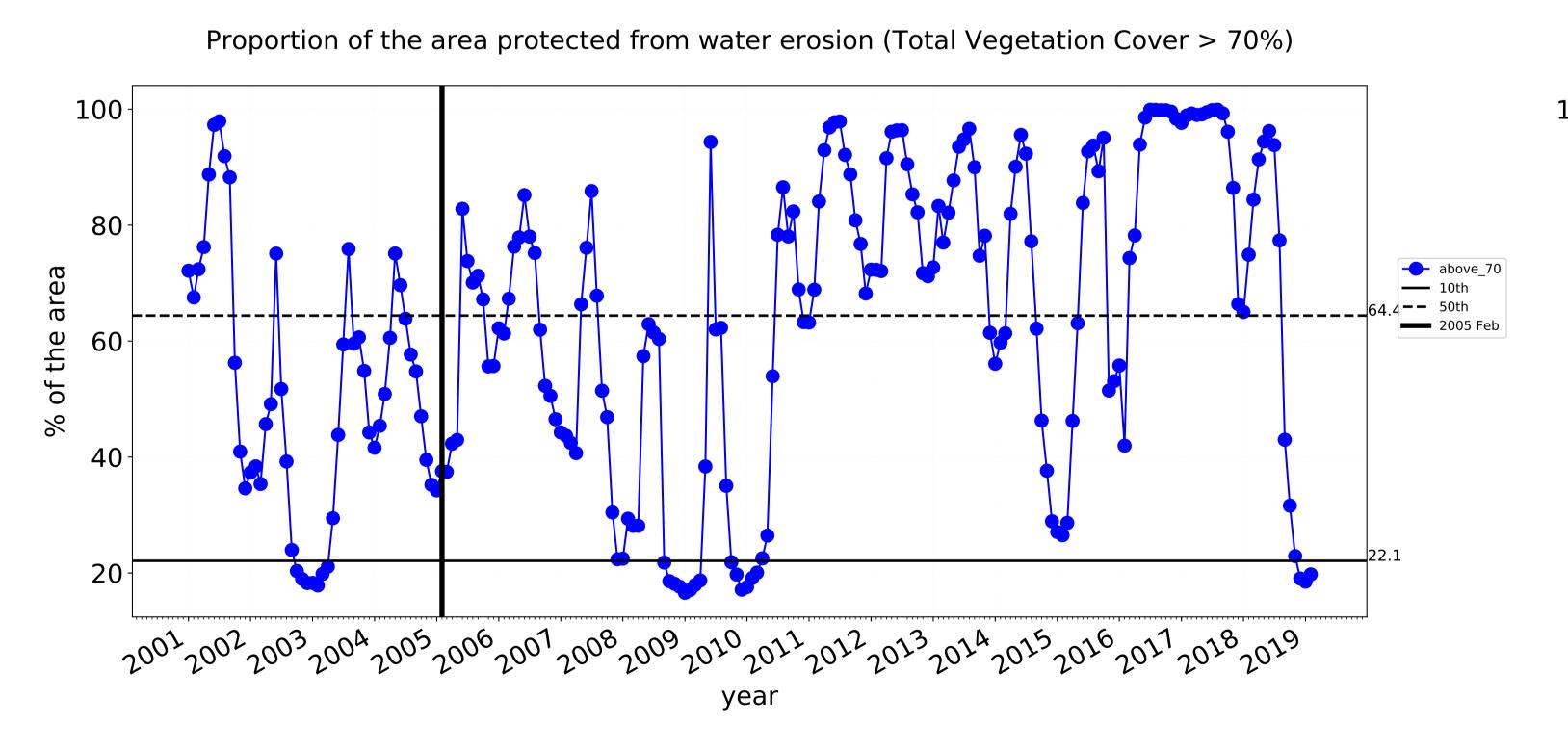


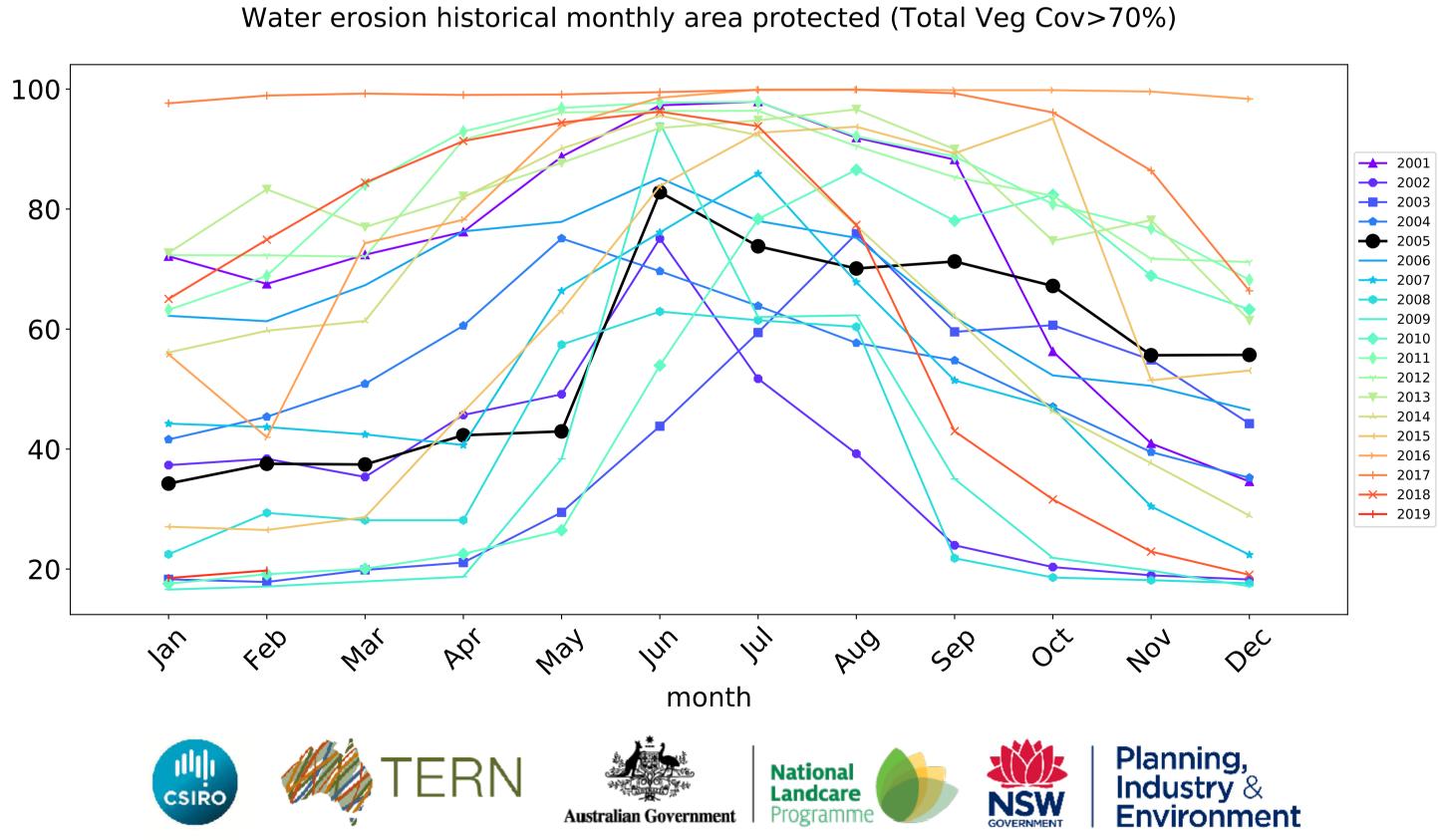


Conservation and natural environments non forest timeseries

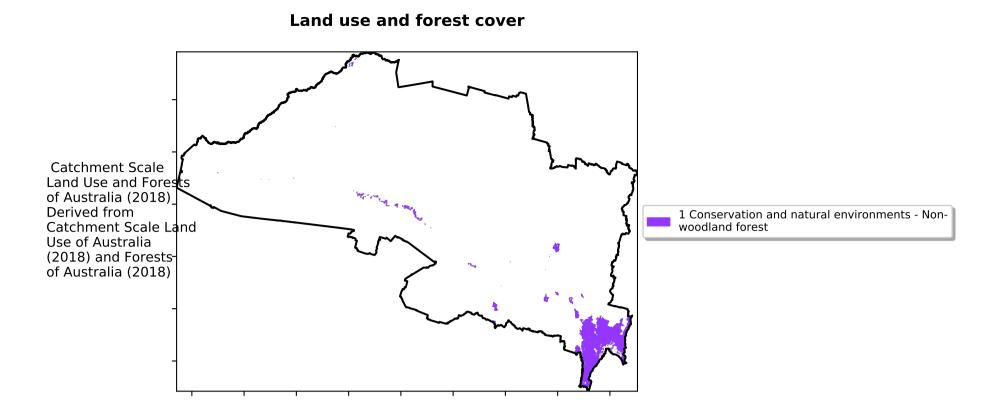




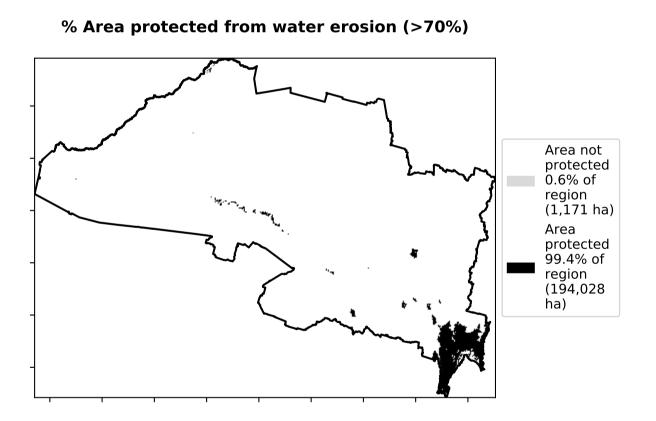


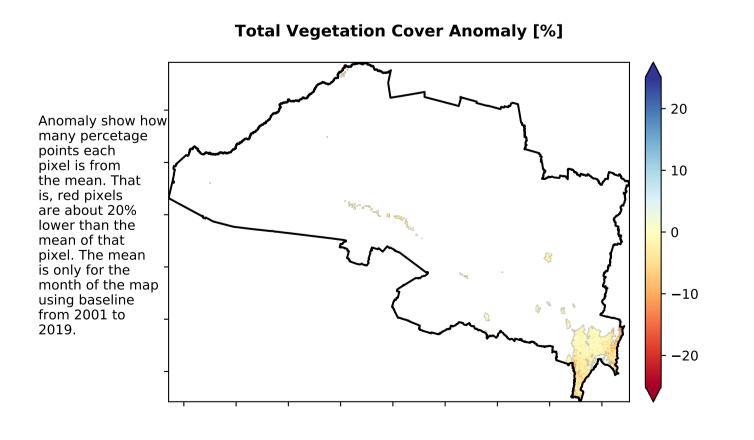


Conservation and natural environments Forest (non woodland)

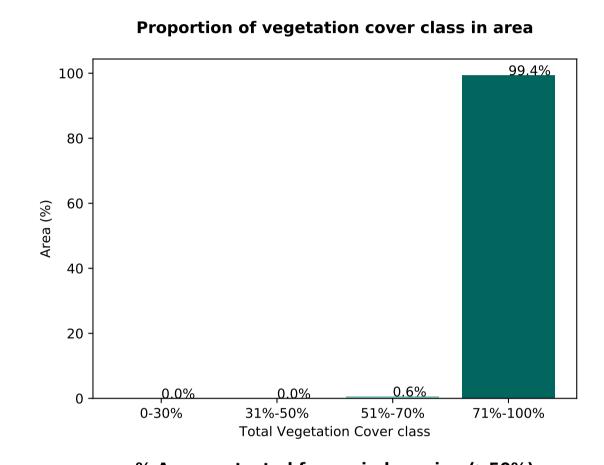


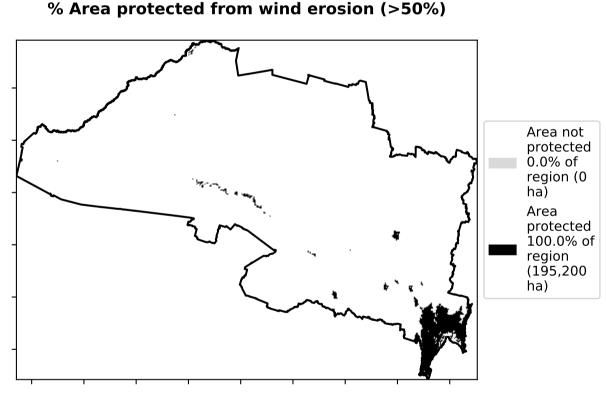
Total Vegetation Cover [%] Trolo Indolo Trol Indolo Trolo Indolo Trol Indolo Trolo Indolo Trolo Indolo Trolo Indolo Trol

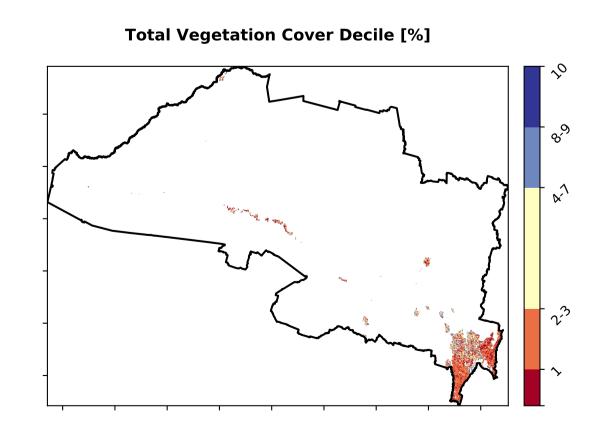




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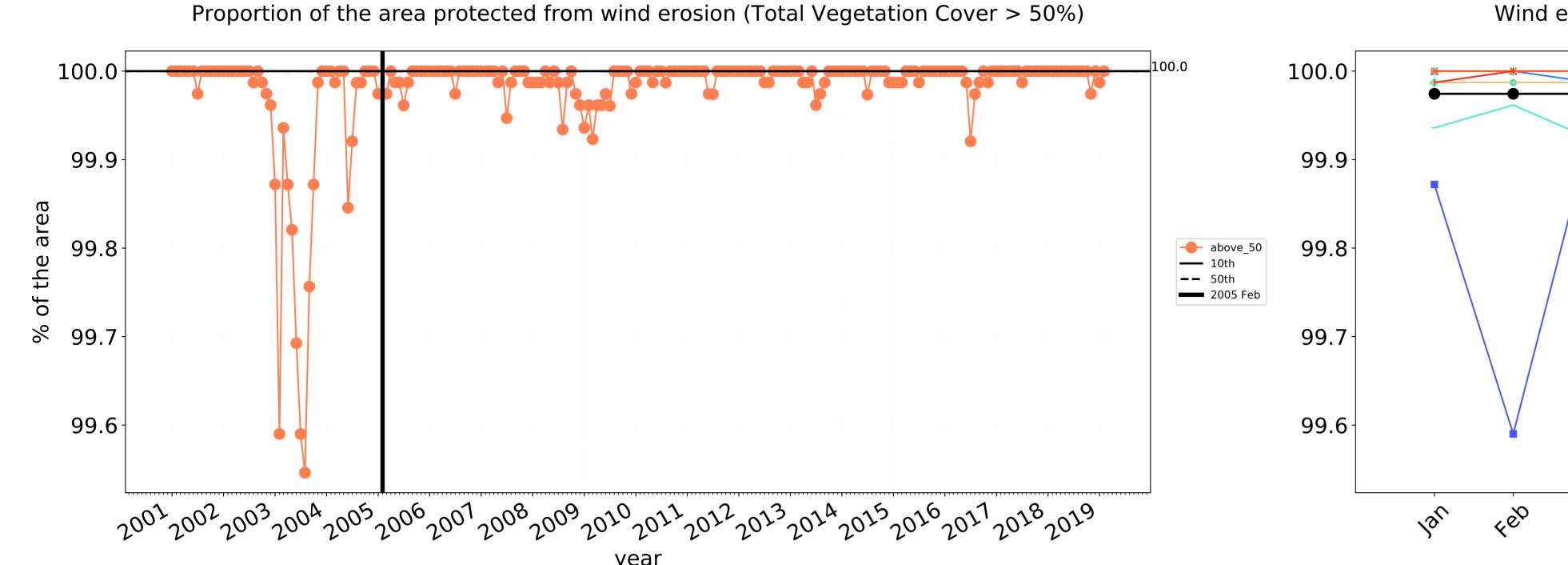


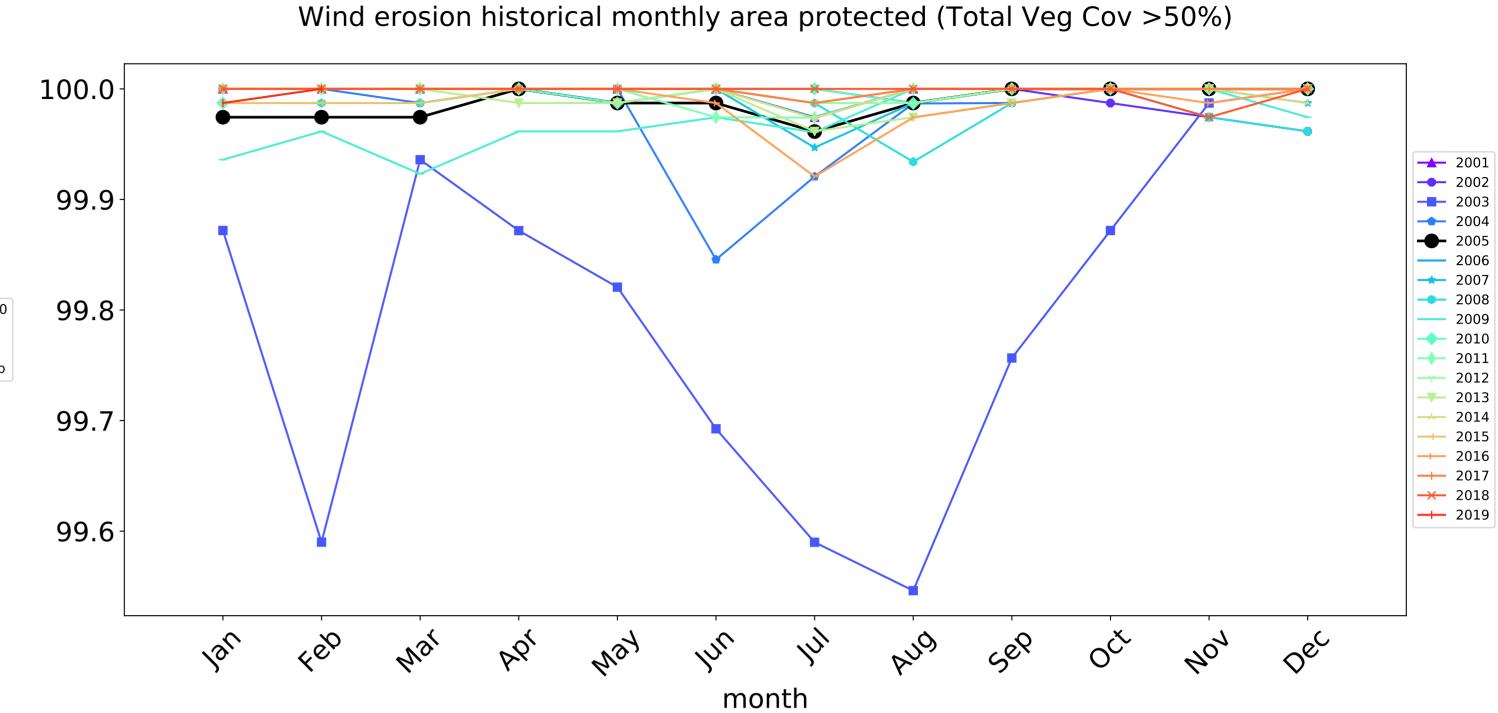


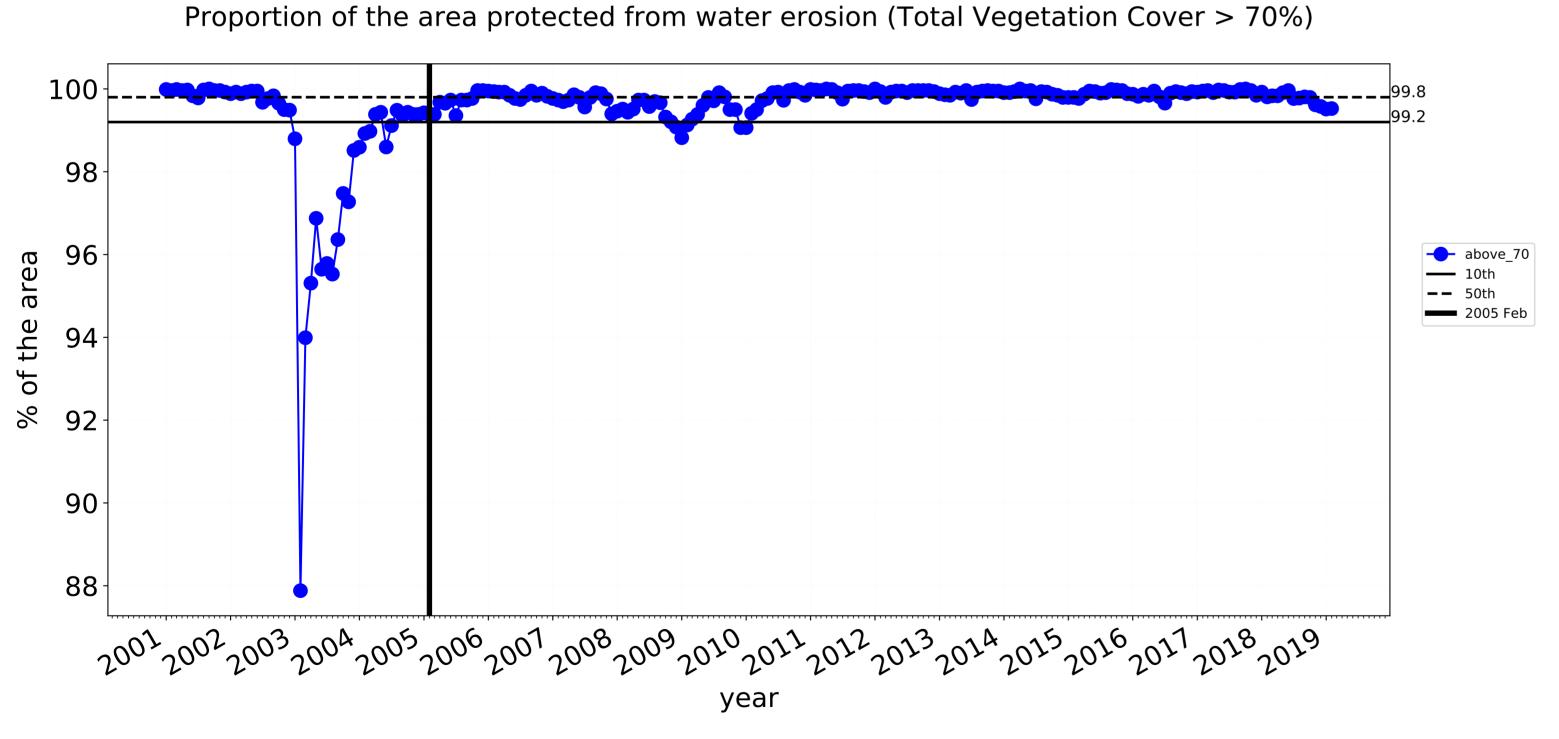


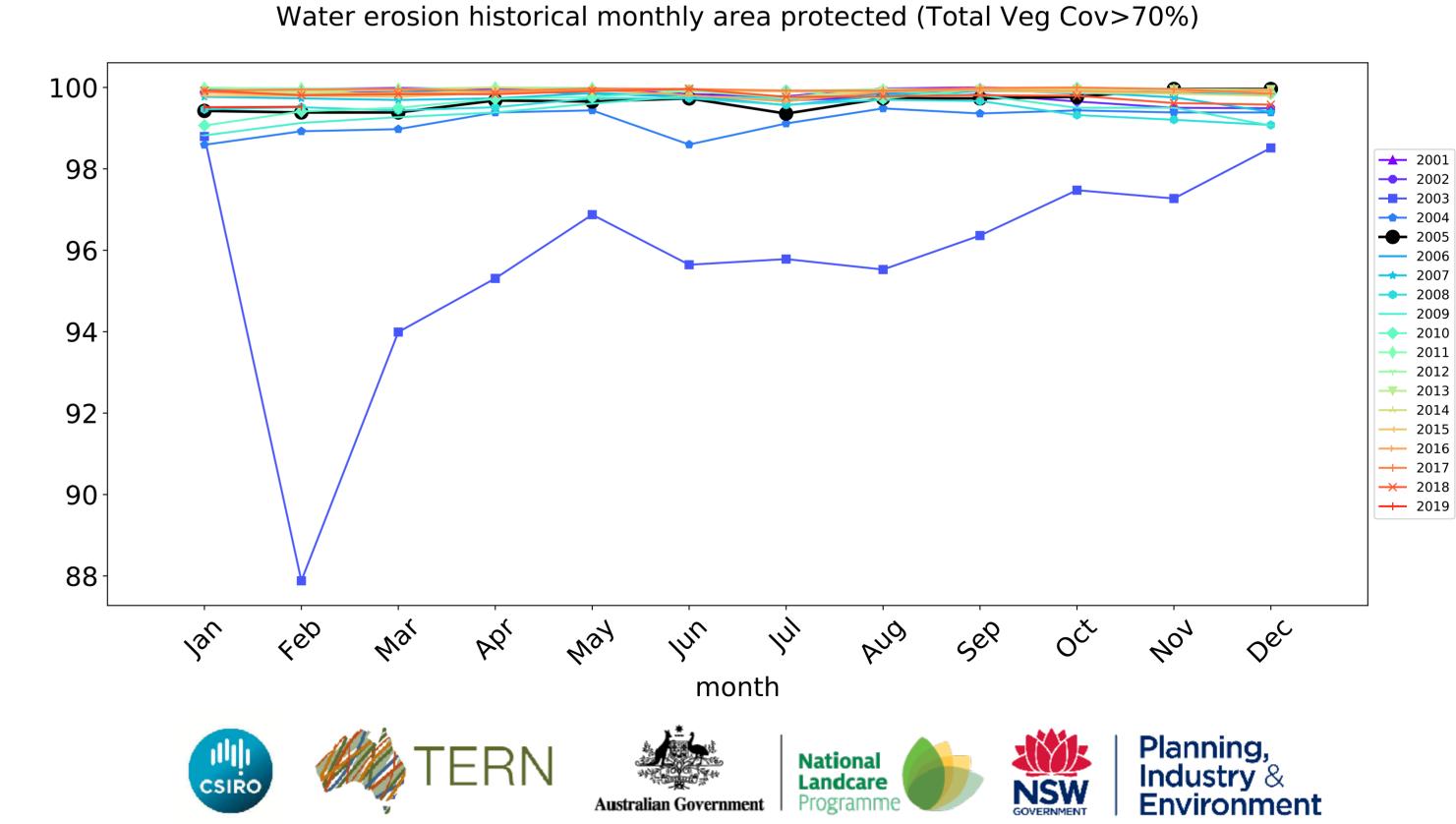










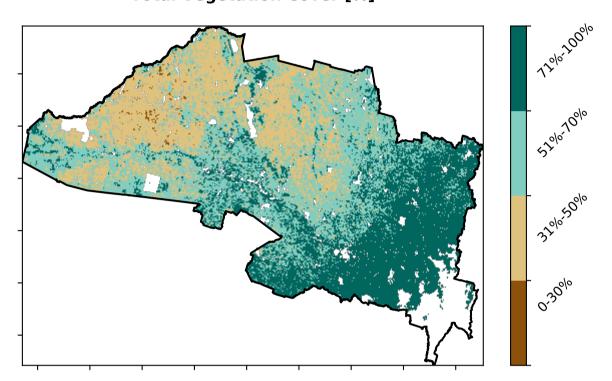


Agriculture

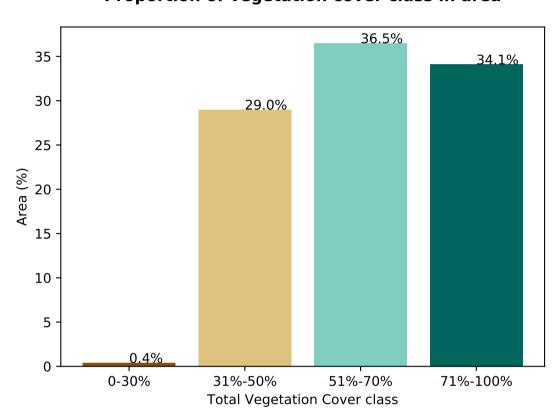
Land use and forest cover 1 Agriculture - Grazing - Non forest Catchment Scale Land Use and Forests of Australia (2018) 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest Derived from 4 Agriculture - Grazing - Irrigated Catchment Scale Land Use of Australia 5 Agriculture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

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

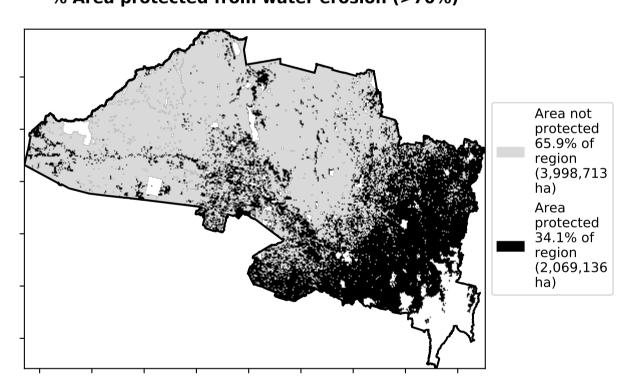


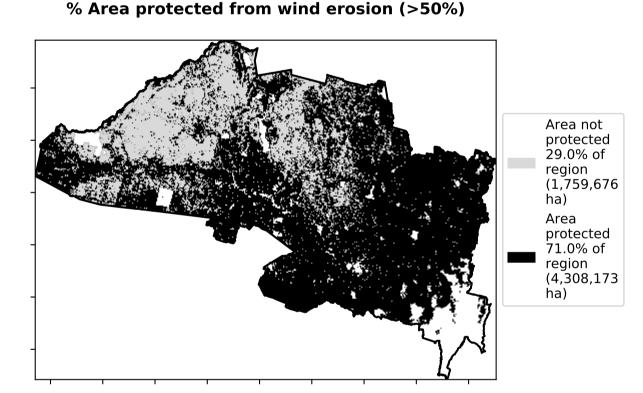


Proportion of vegetation cover class in area

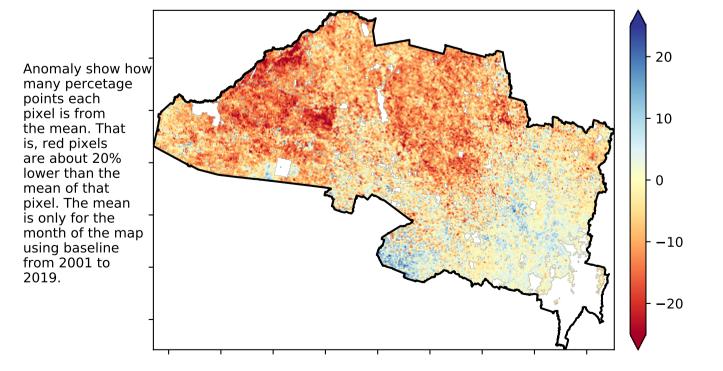


% Area protected from water erosion (>70%)

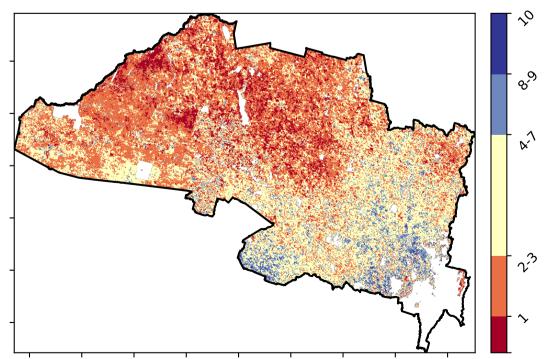




Total Vegetation Cover Anomaly [%]



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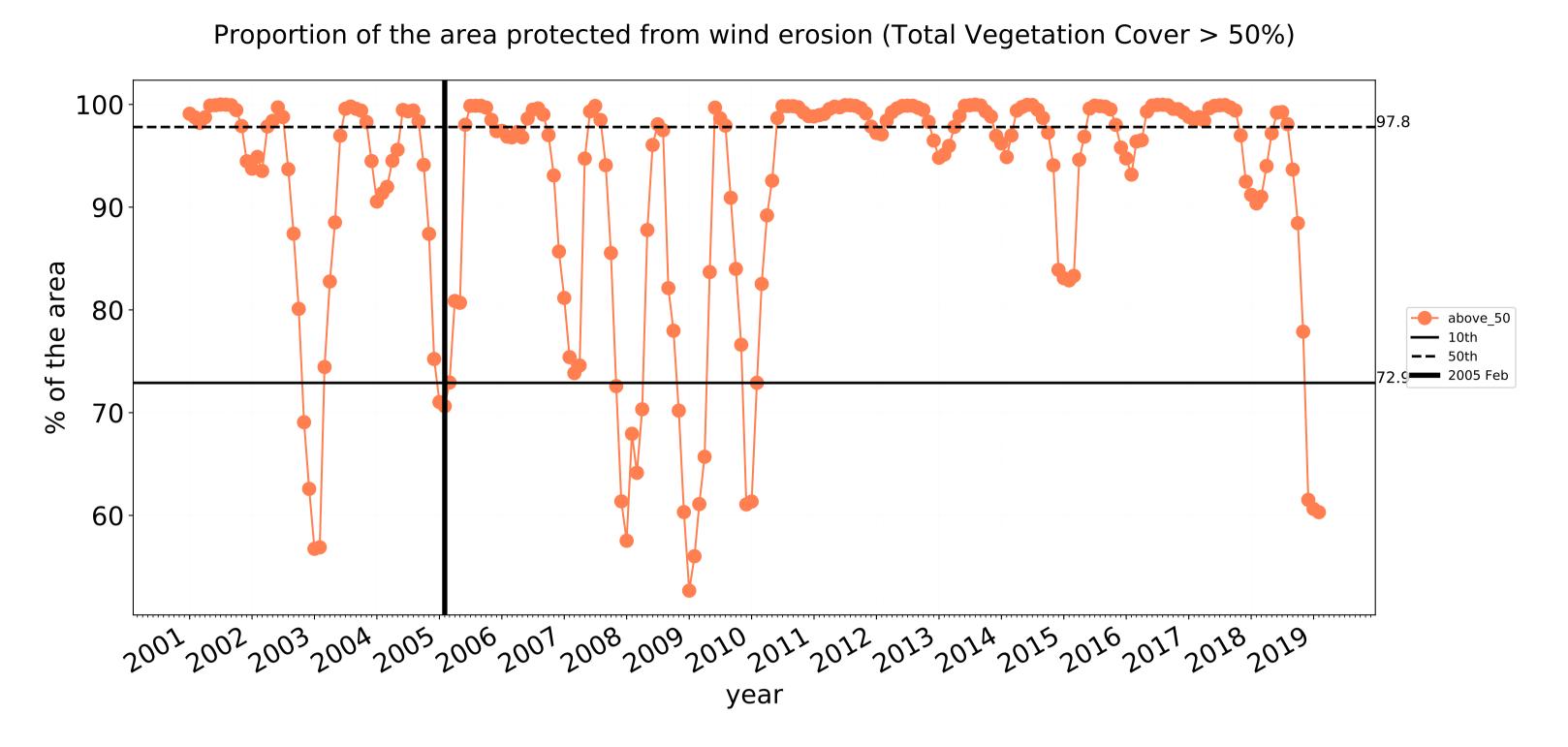


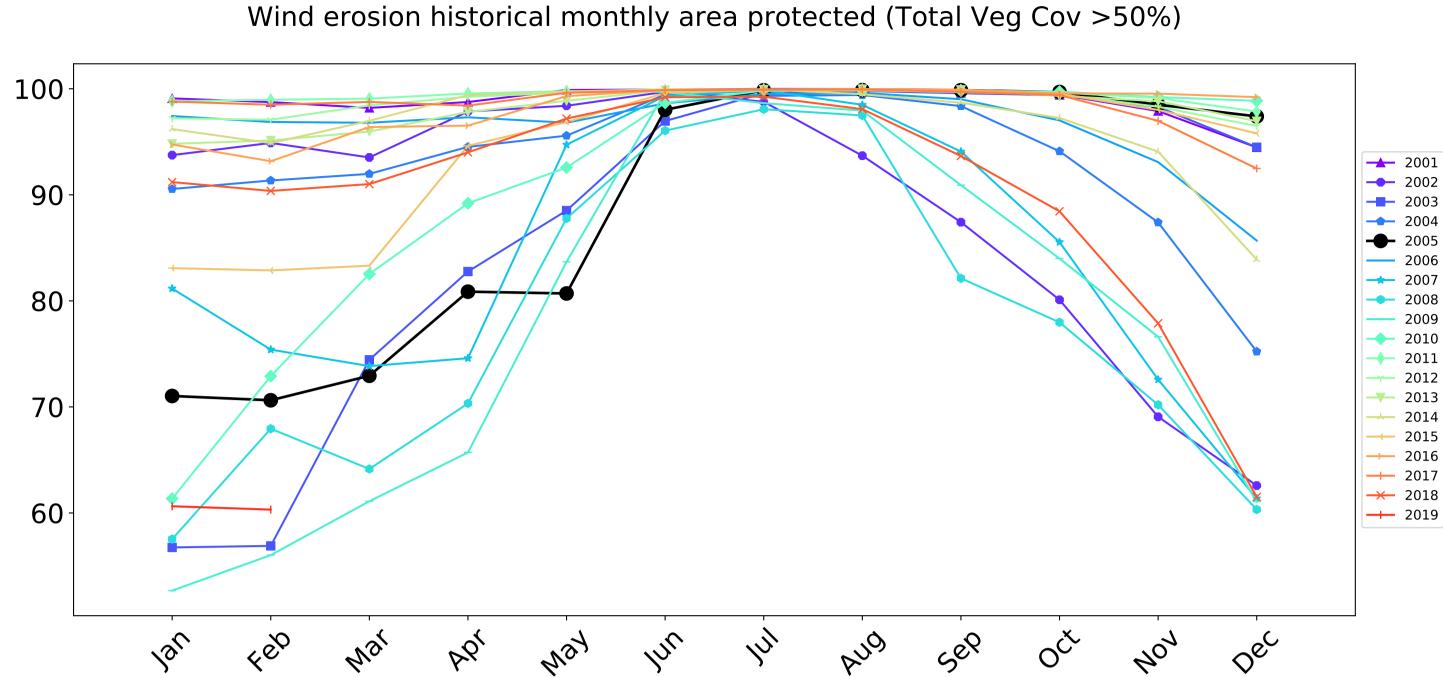




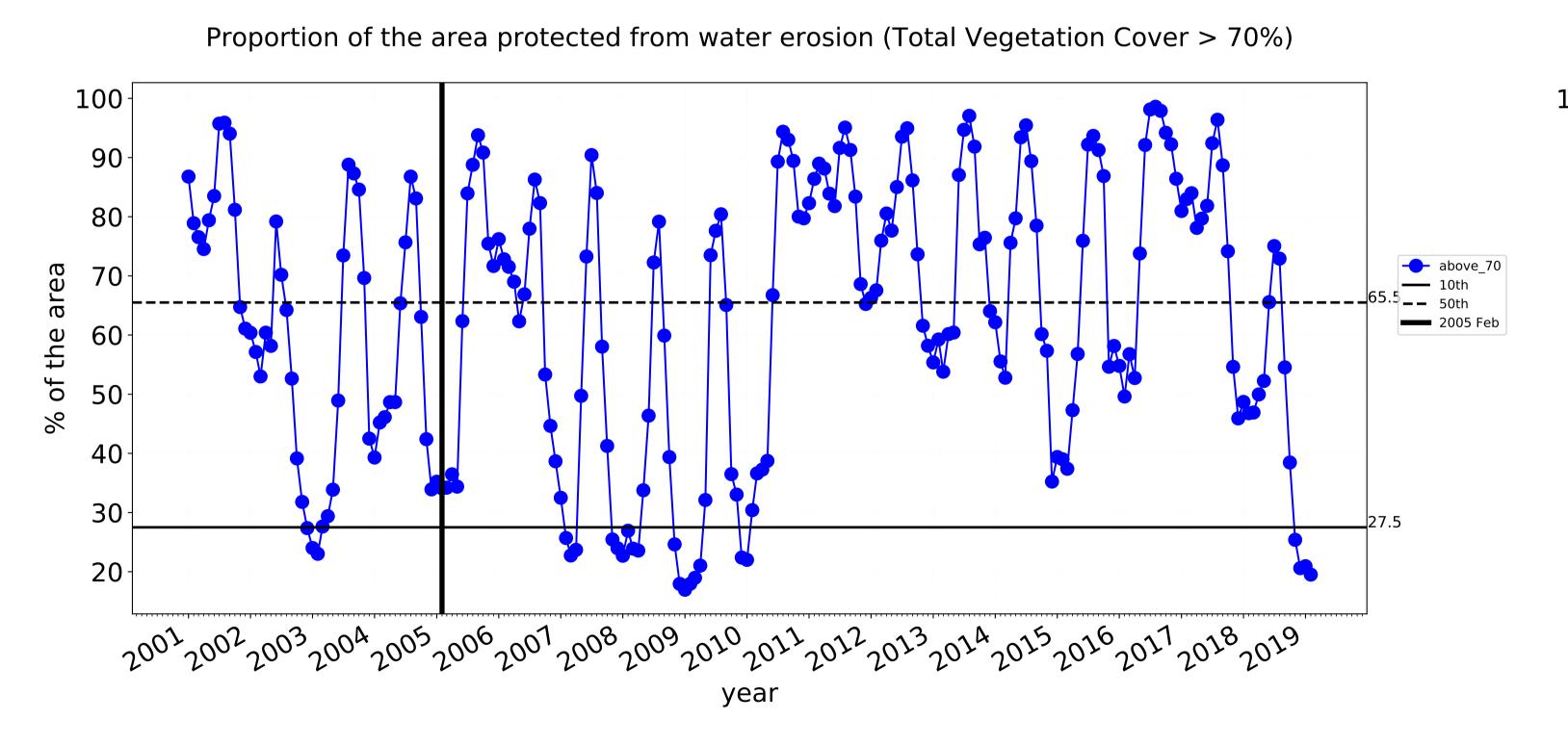


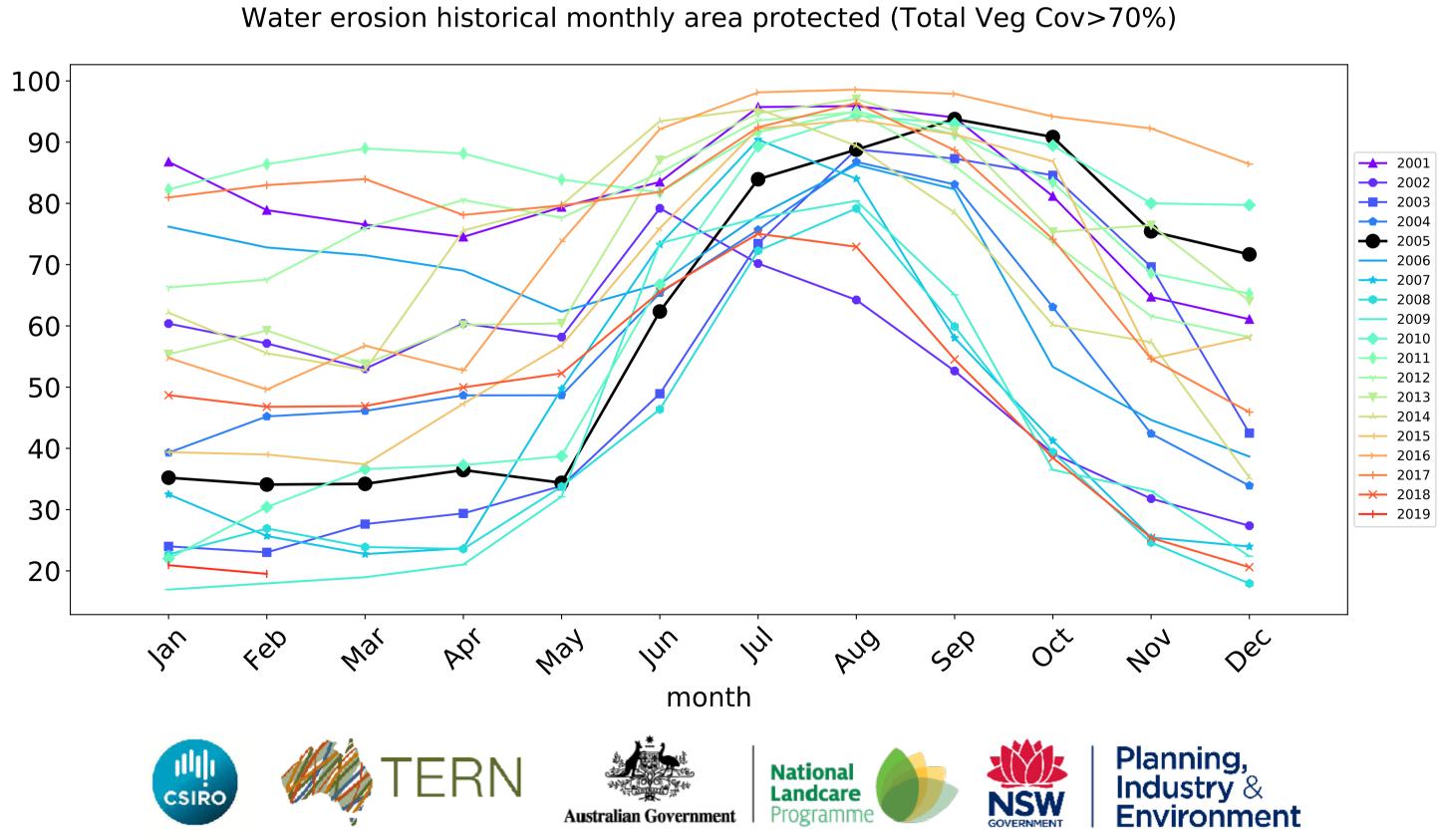
Agriculture timeseries





month



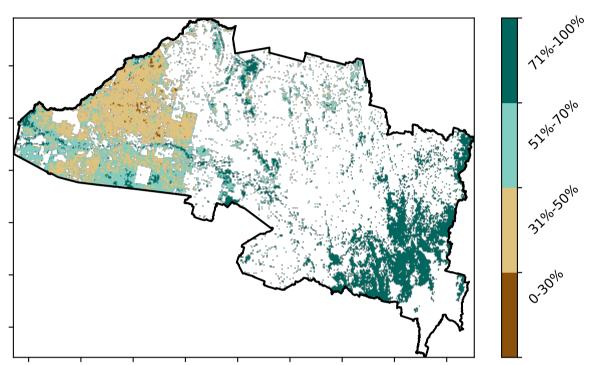


Grazing

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

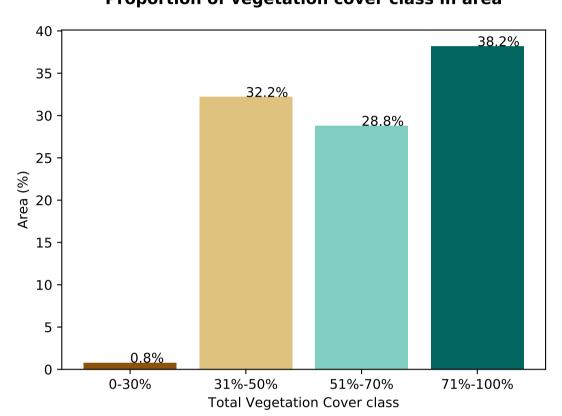
Total Vegetation Cover [%]



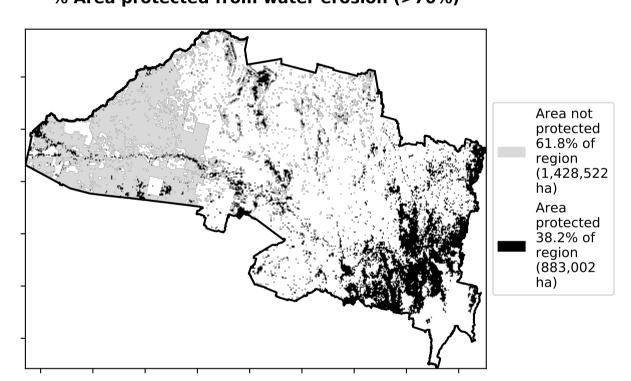
Proportion of vegetation cover class in area

Land use class

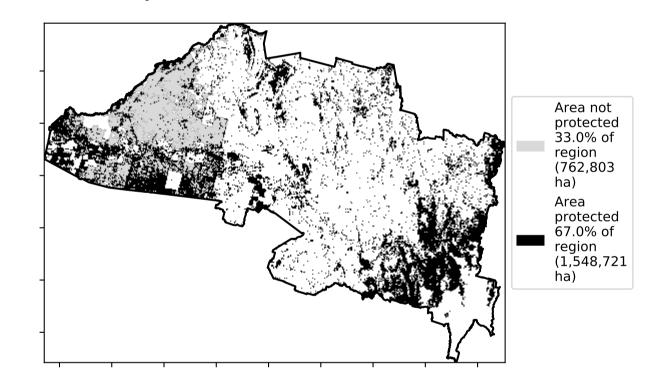
3



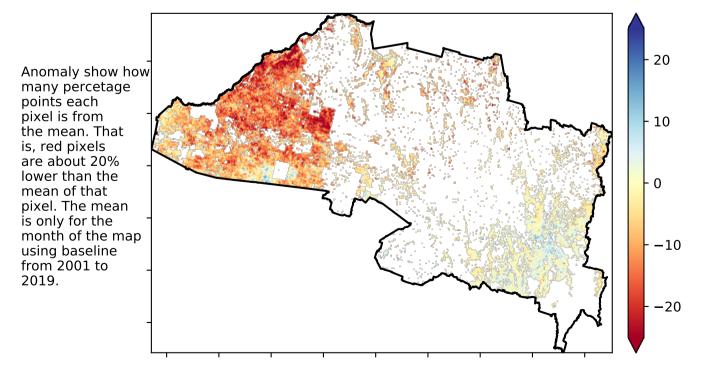
% Area protected from water erosion (>70%)



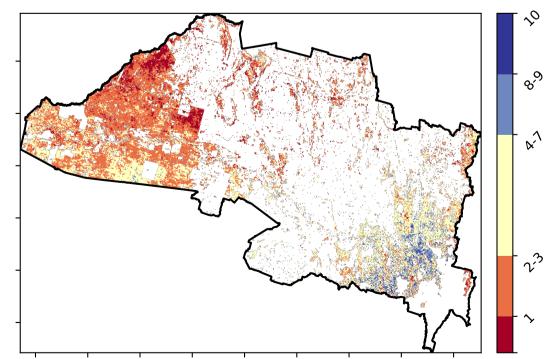
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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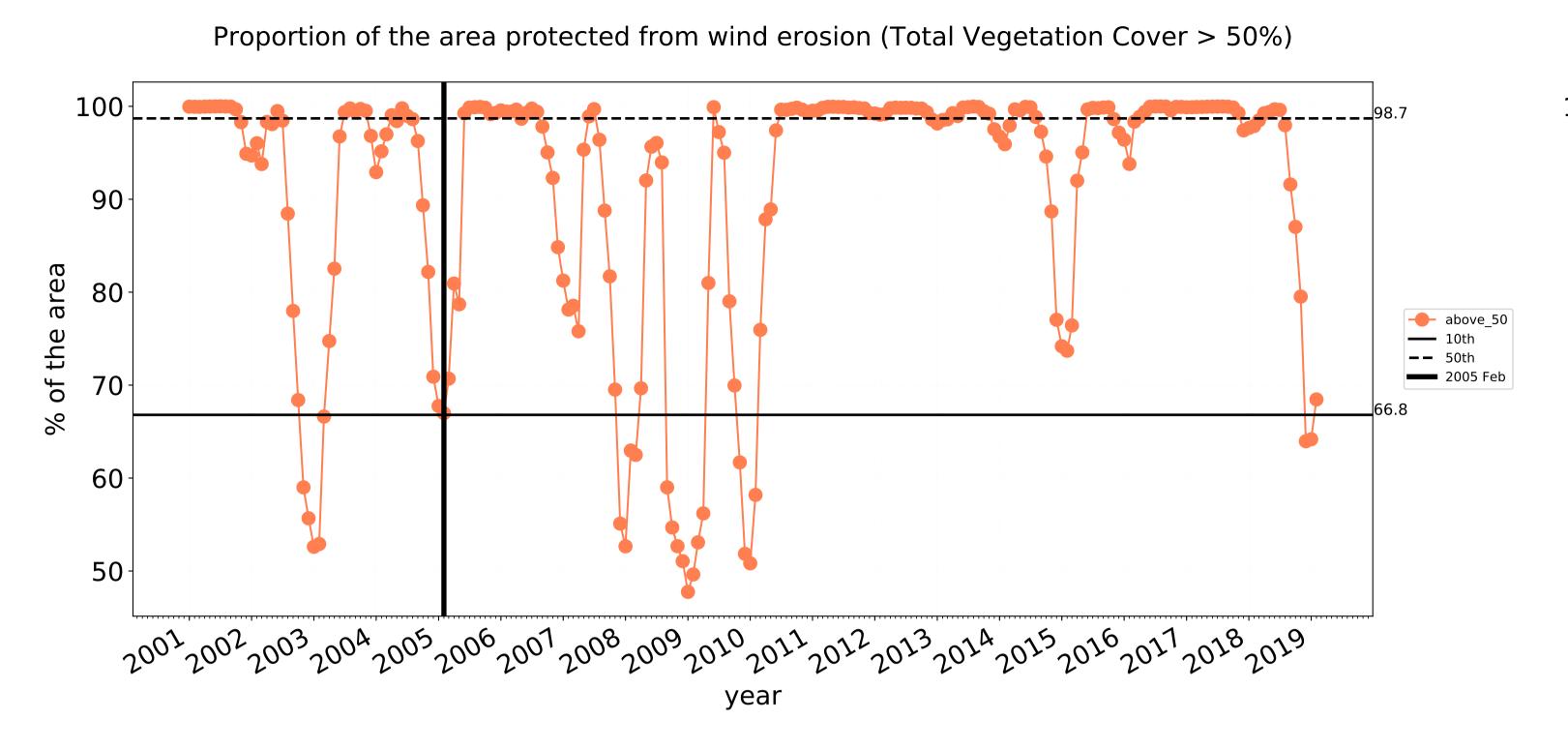


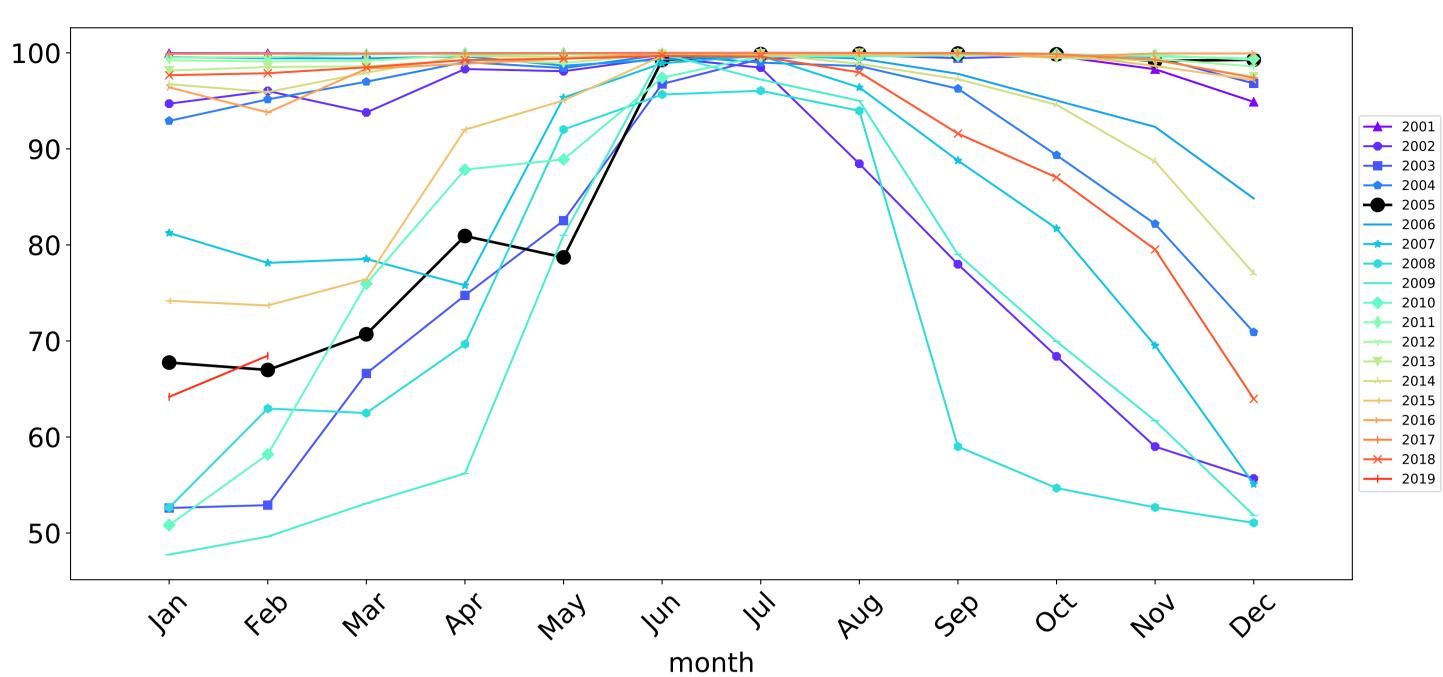




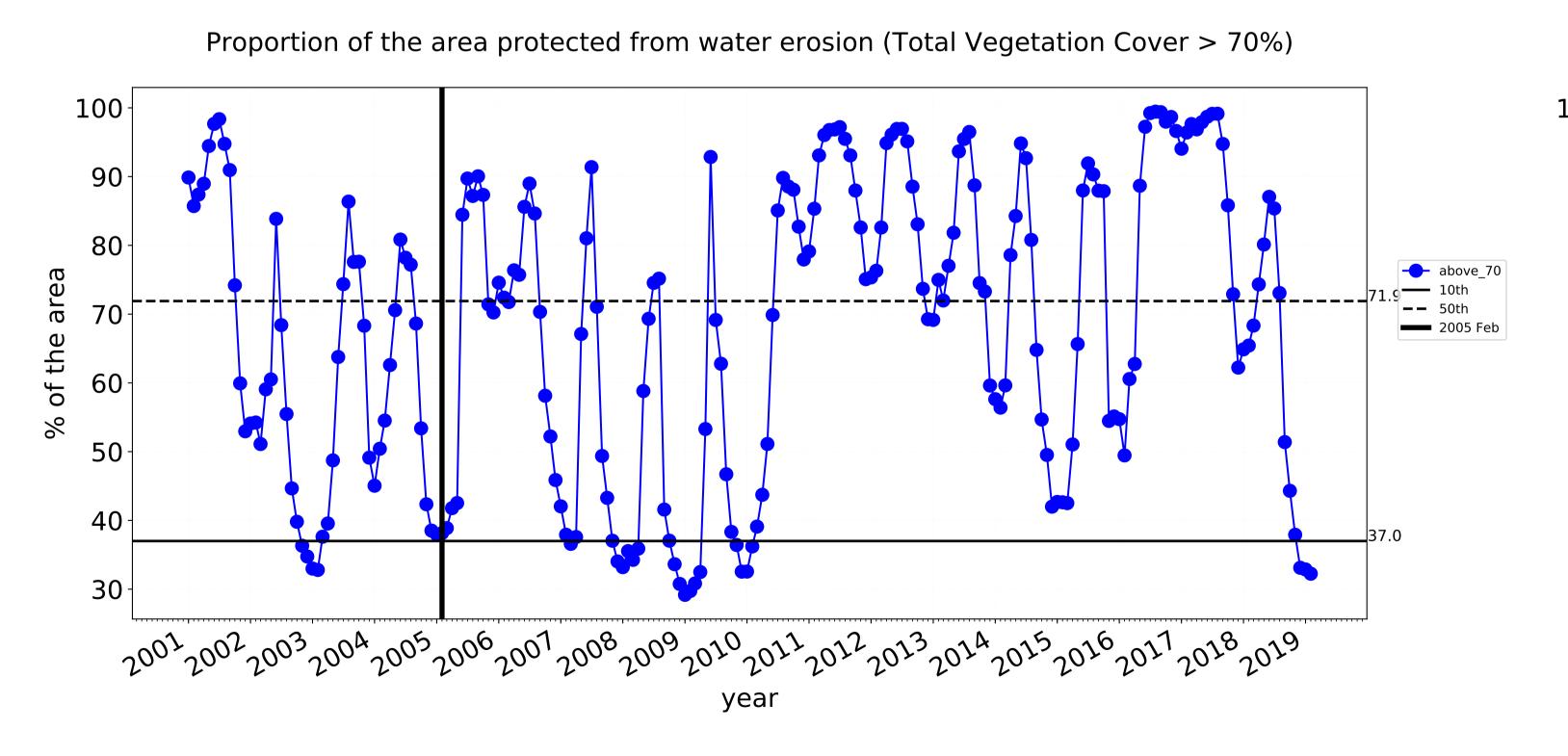


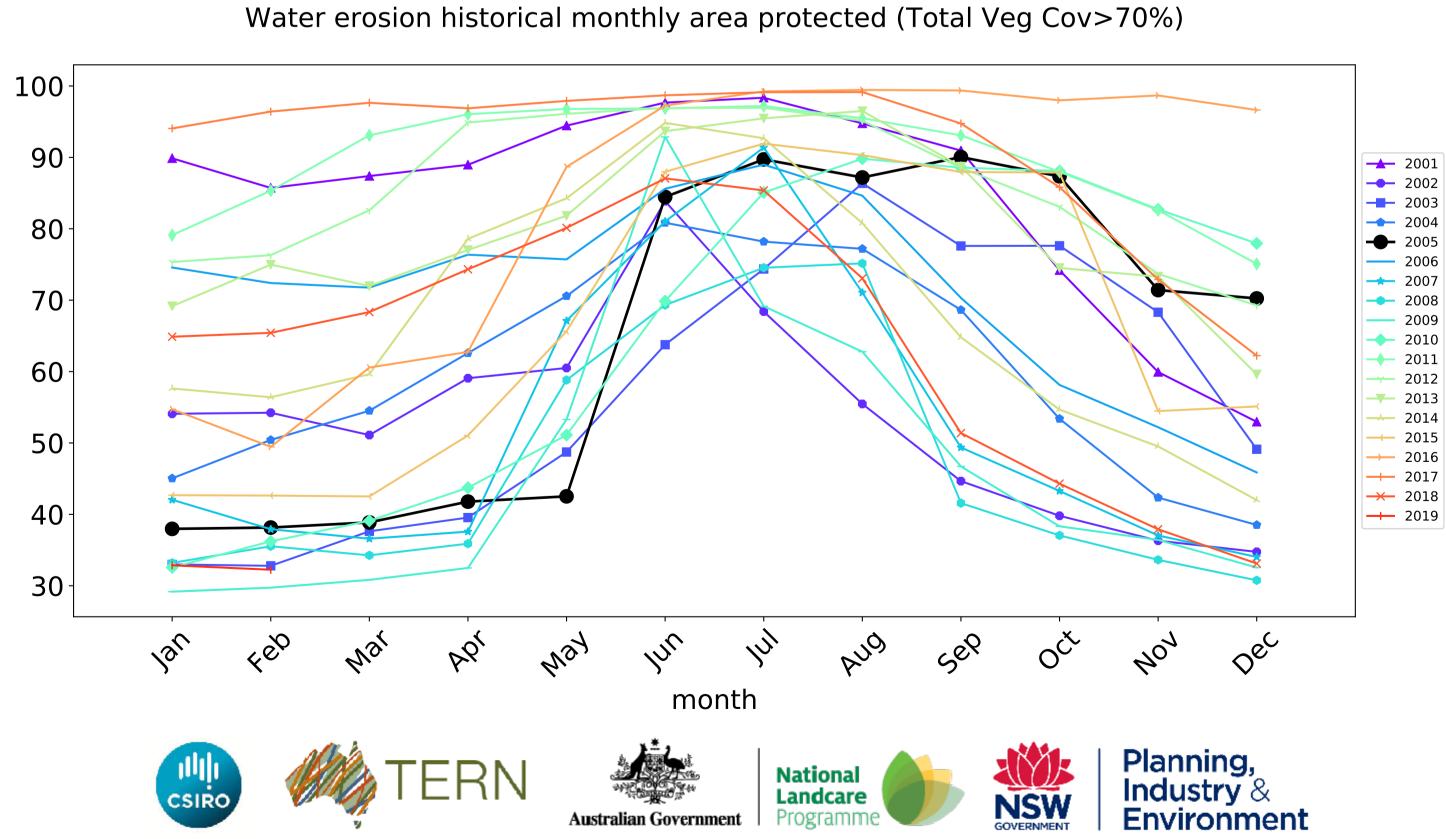
Grazing timeseries





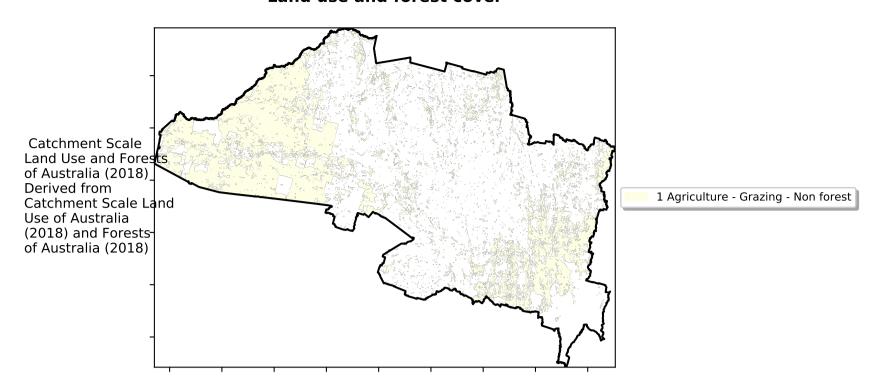
Wind erosion historical monthly area protected (Total Veg Cov >50%)



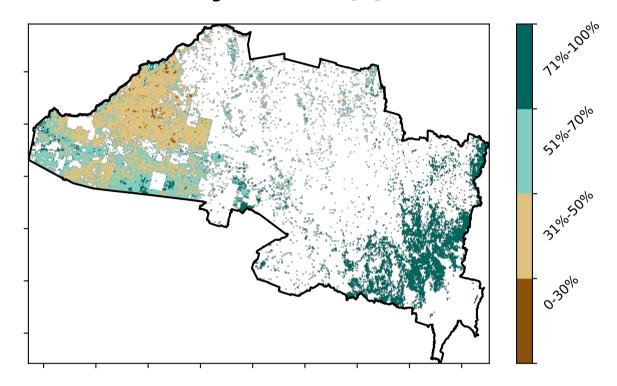


Grazing non forest

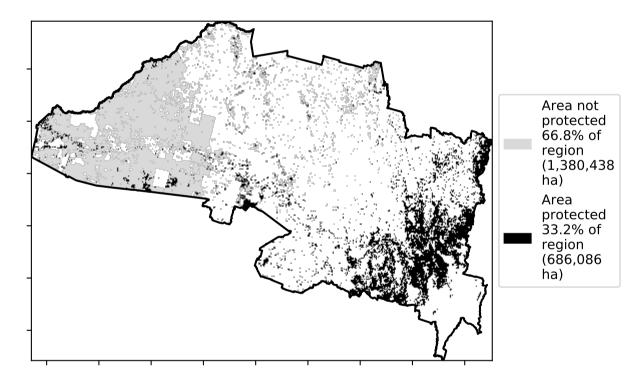
Land use and forest cover



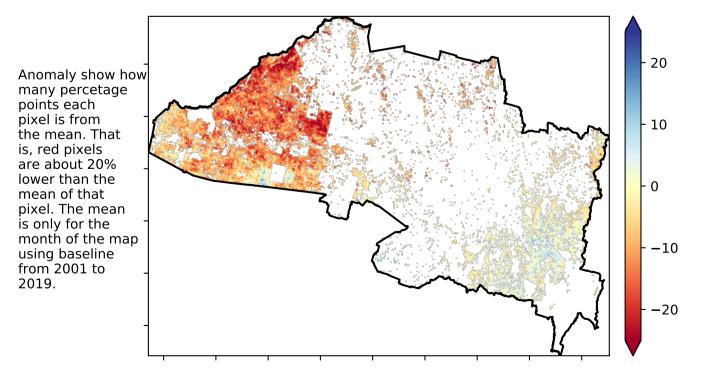
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

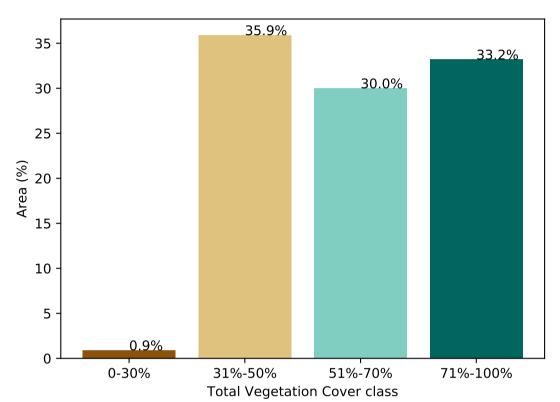


Total Vegetation Cover Anomaly [%]

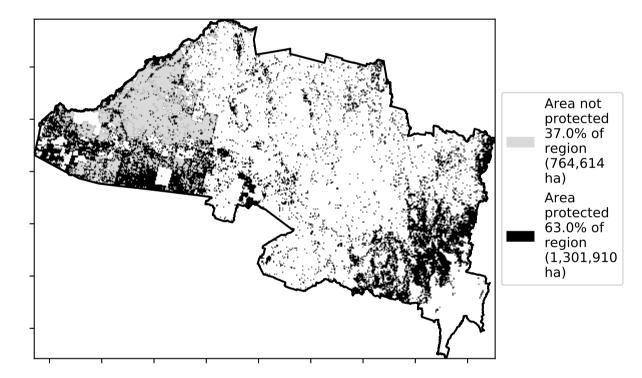


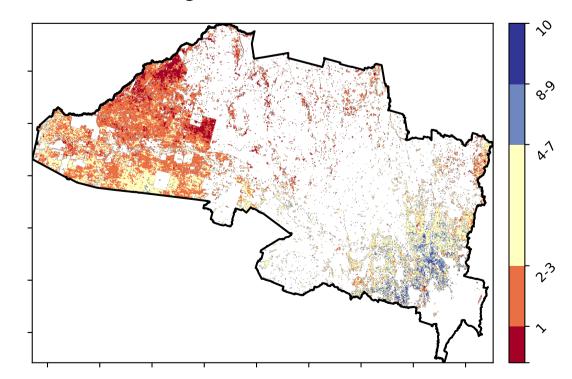
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Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









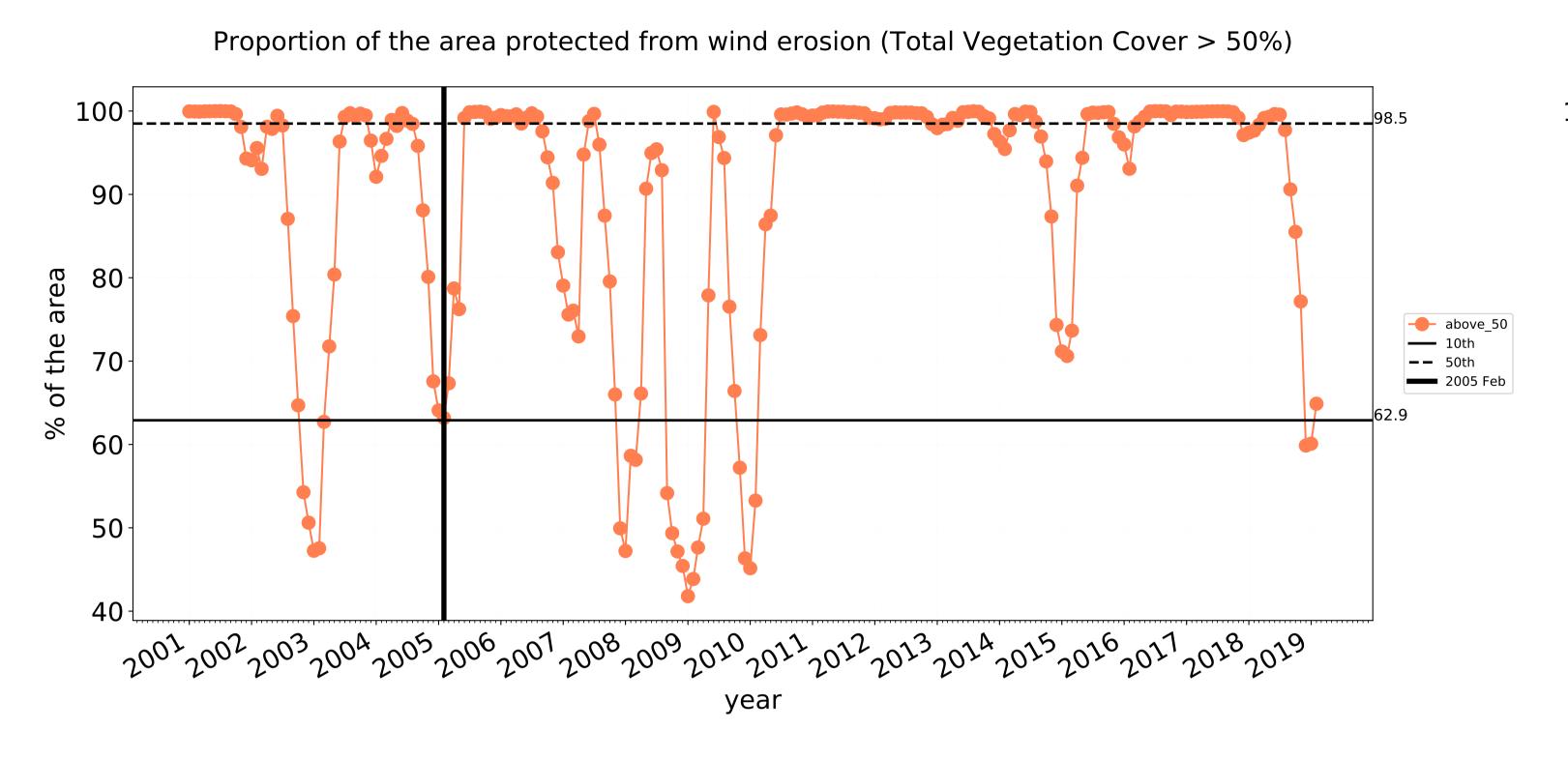


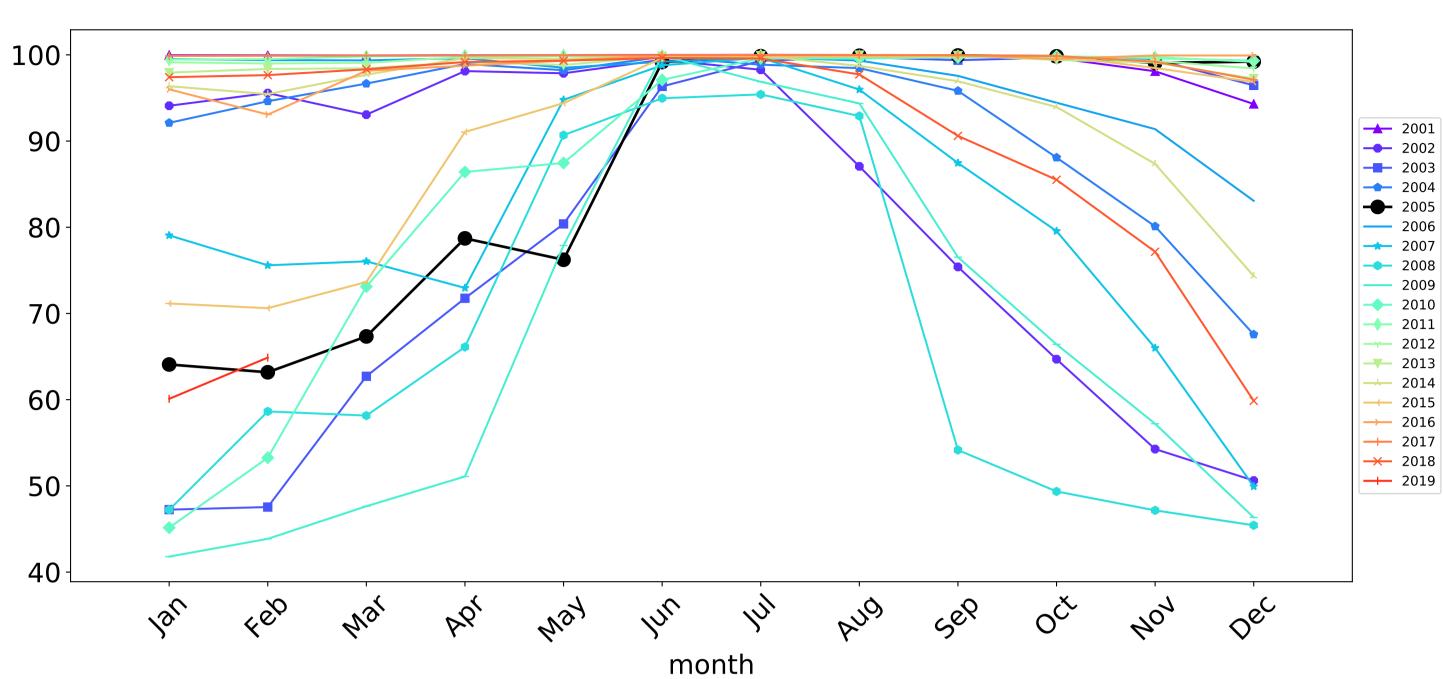




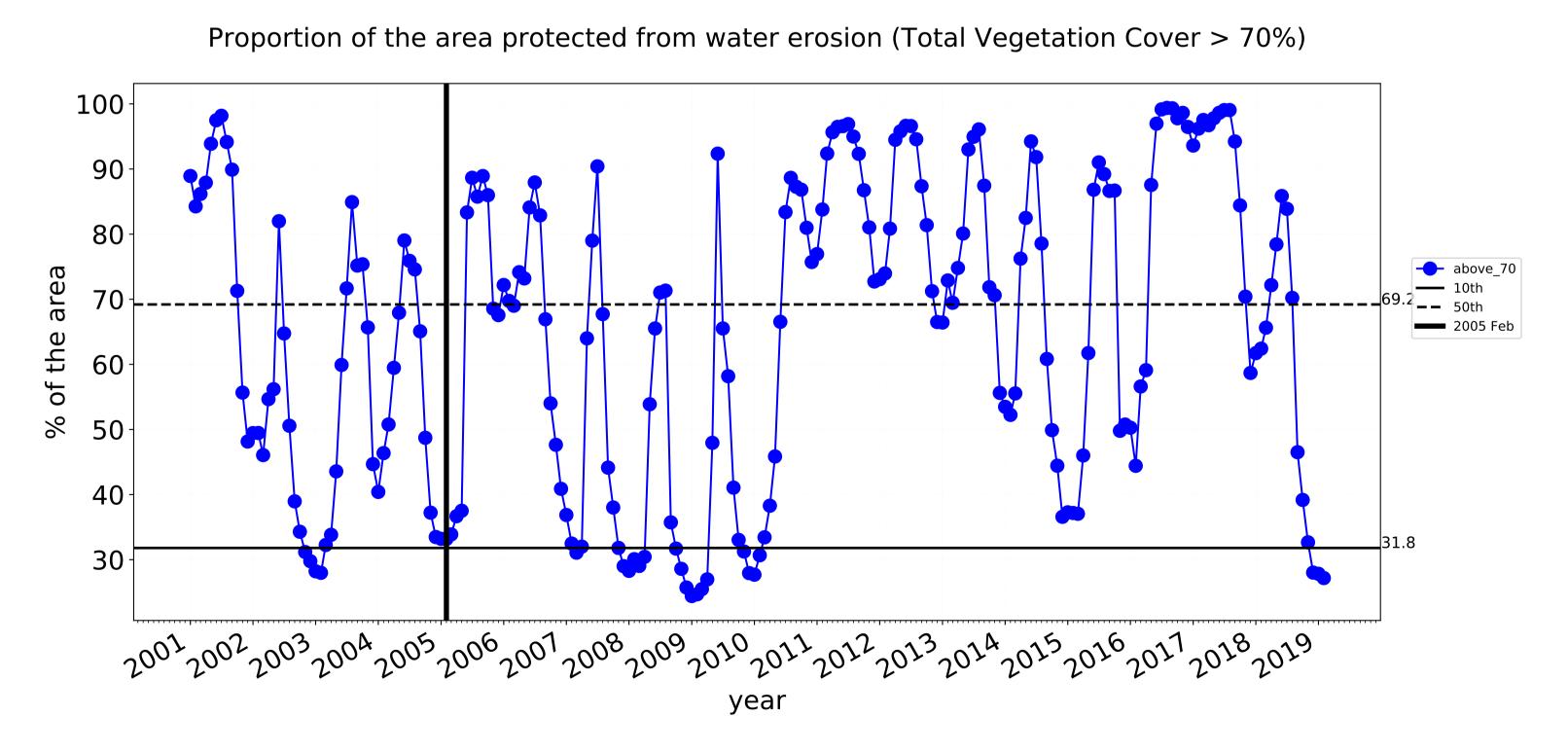


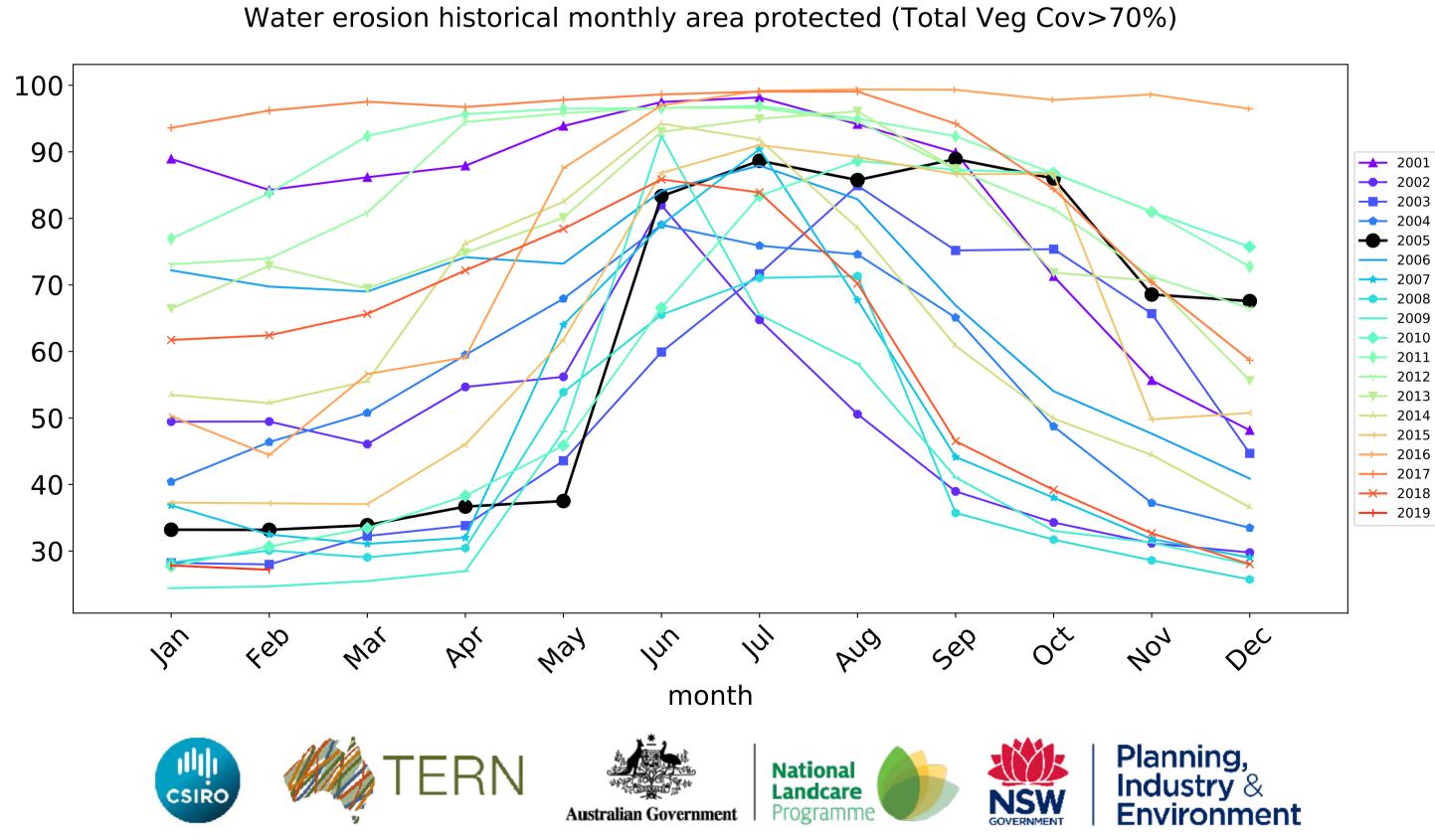
Grazing non forest timeseries





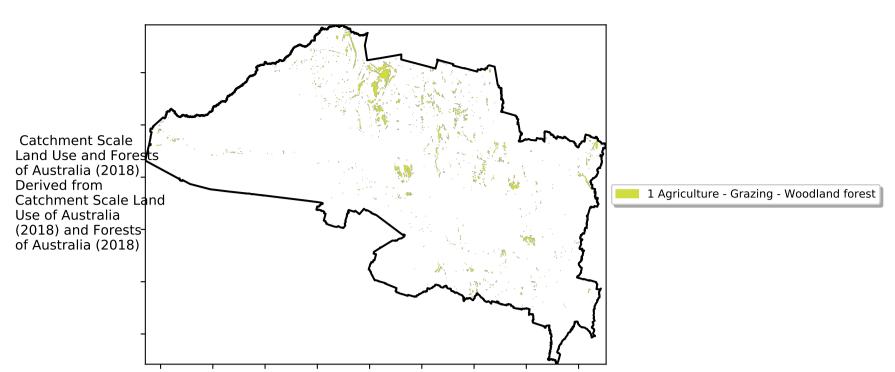
Wind erosion historical monthly area protected (Total Veg Cov >50%)



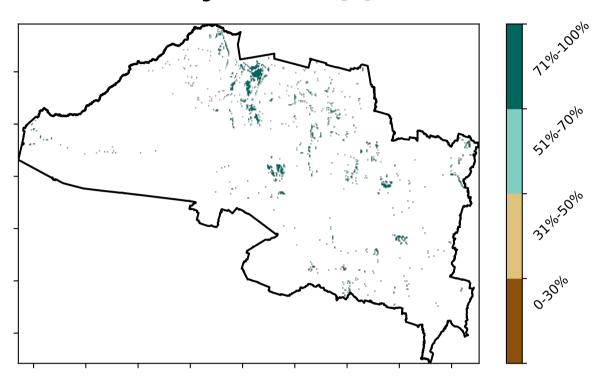


Grazing Woodland forest

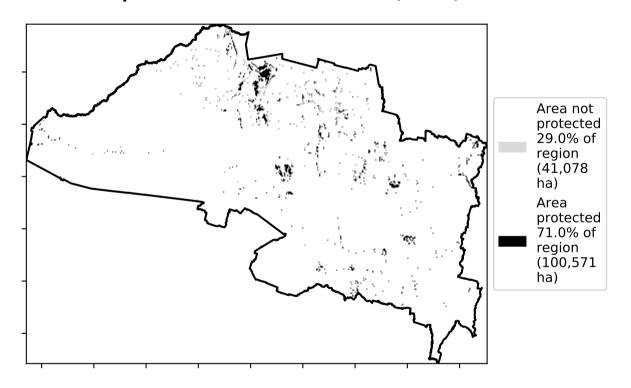
Land use and forest cover



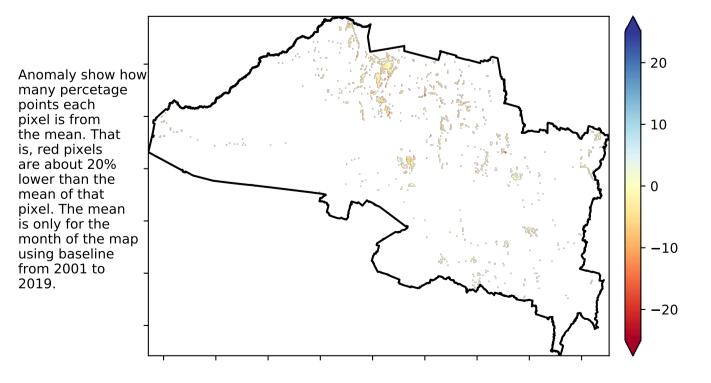
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

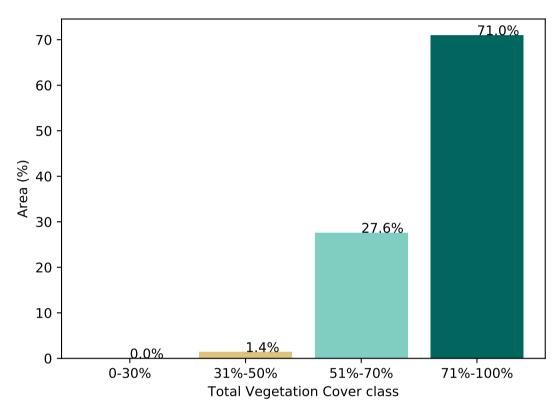


Total Vegetation Cover Anomaly [%]

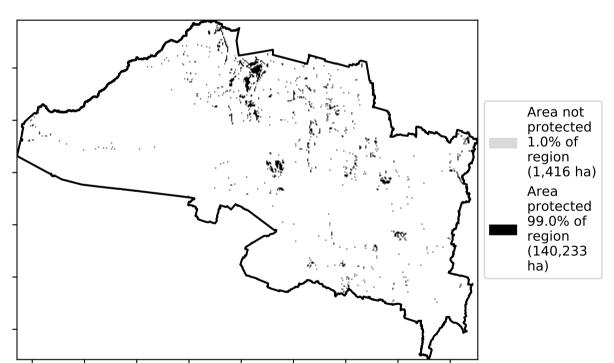


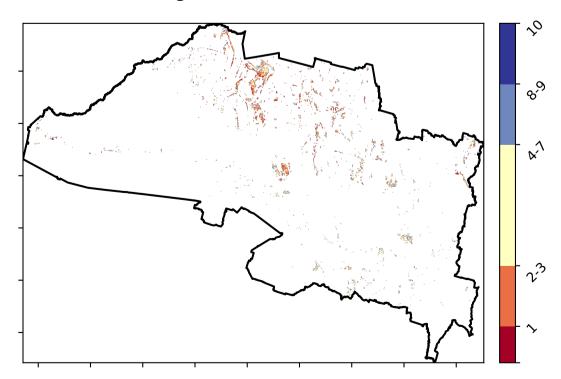
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Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









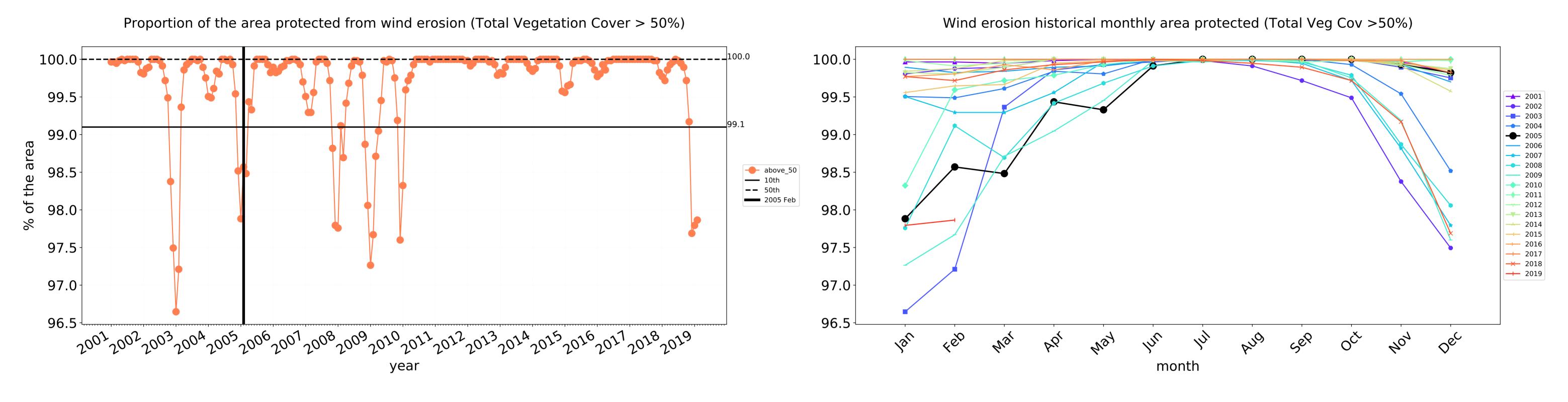


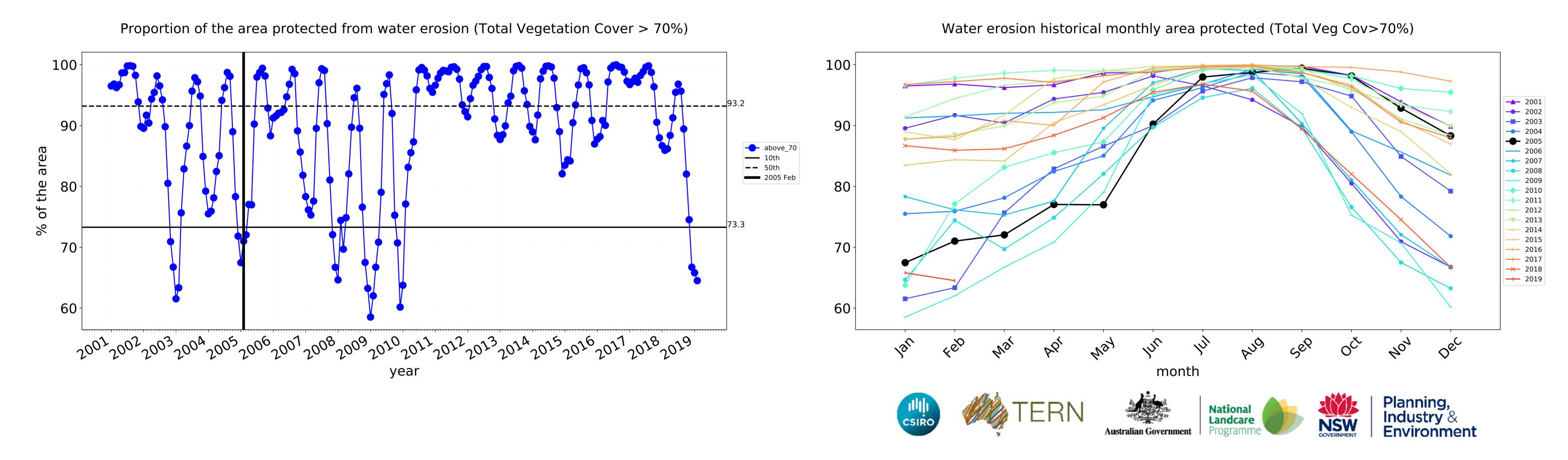






Grazing Woodland forest timeseries



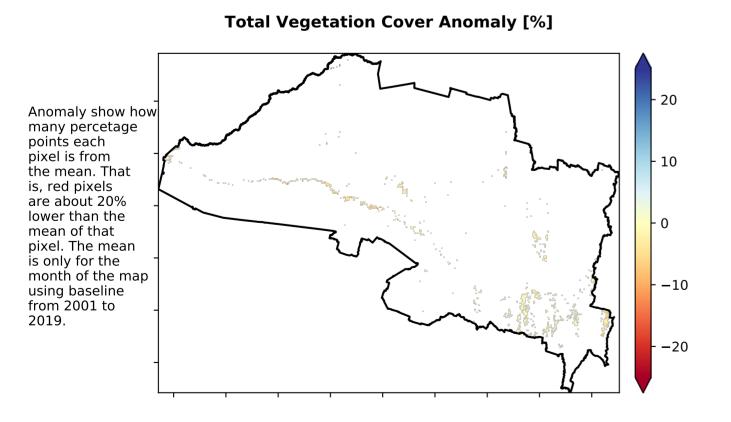


Grazing - Forest (non woodland)

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

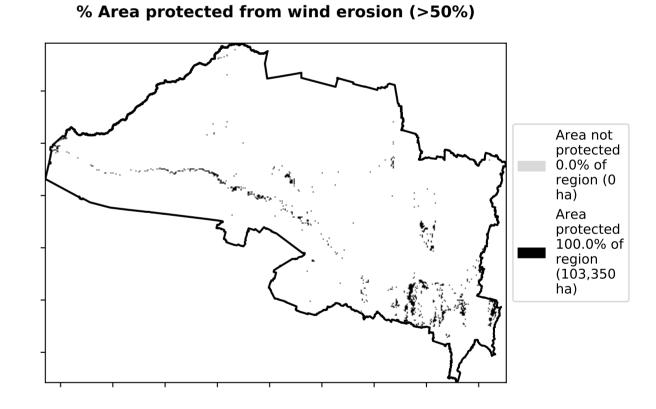
Total Vegetation Cover [%]

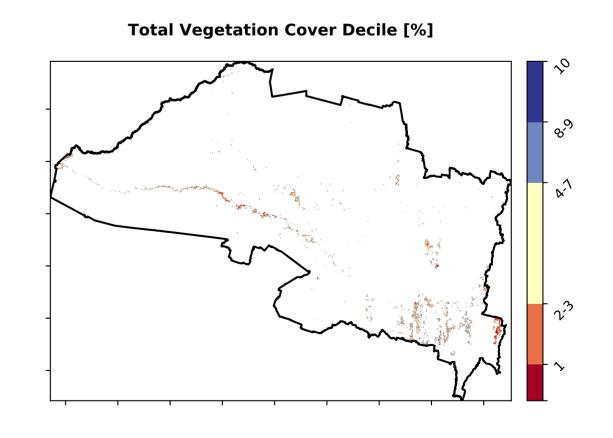
Area not protected 7.5% of region (7,751 ha) Area protected 92.5% of region (95,598 ha)



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 - 92.5% 80 - 60 - 60 - 7.2% 40 - 20 - 0.3% 0-30% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class







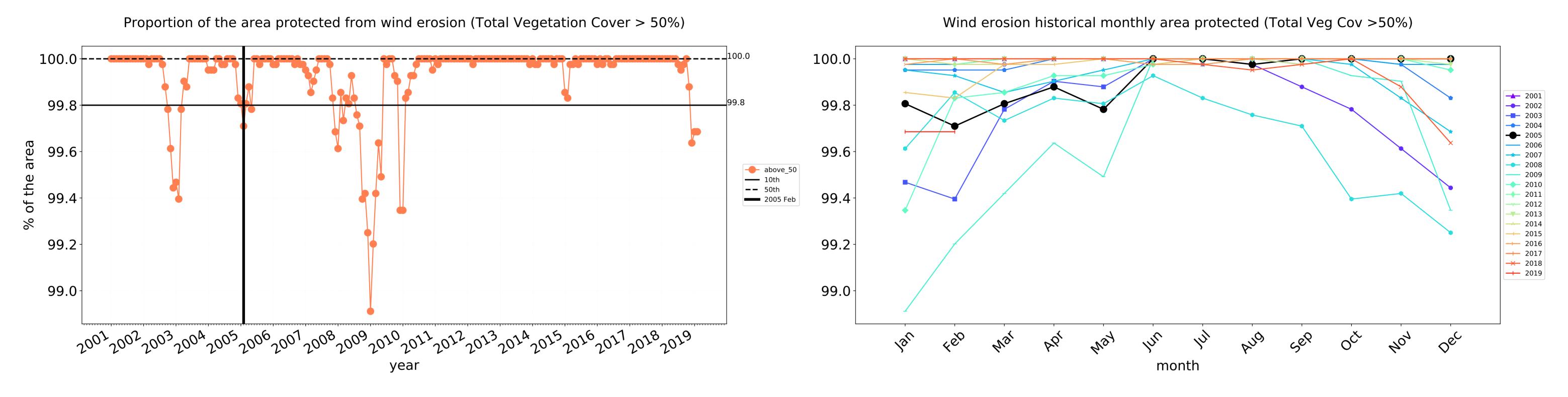


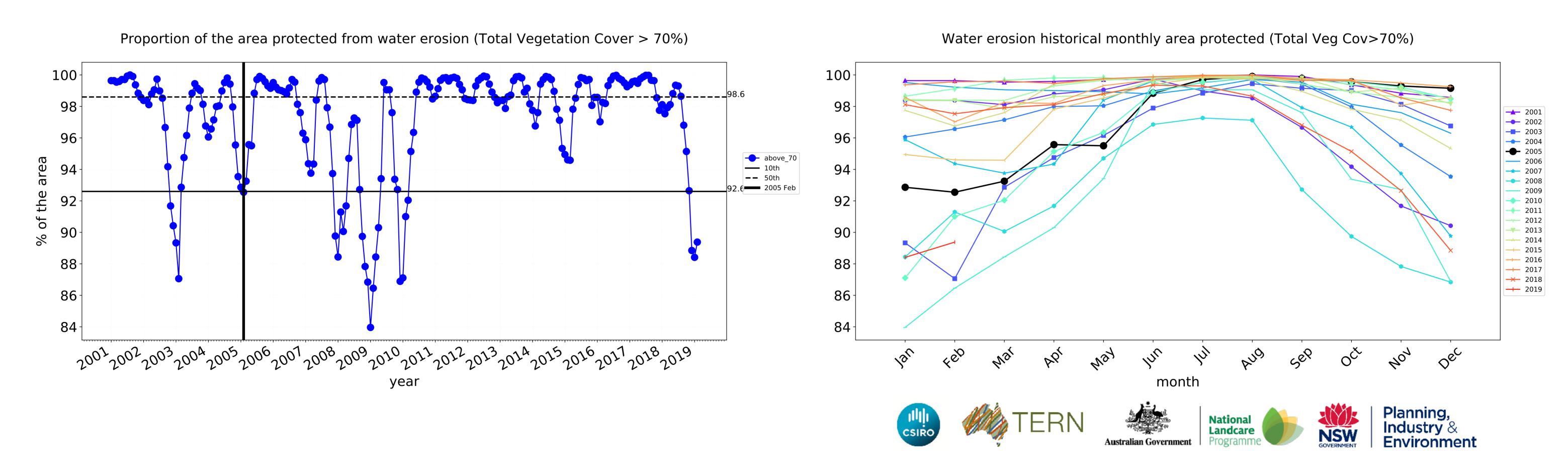






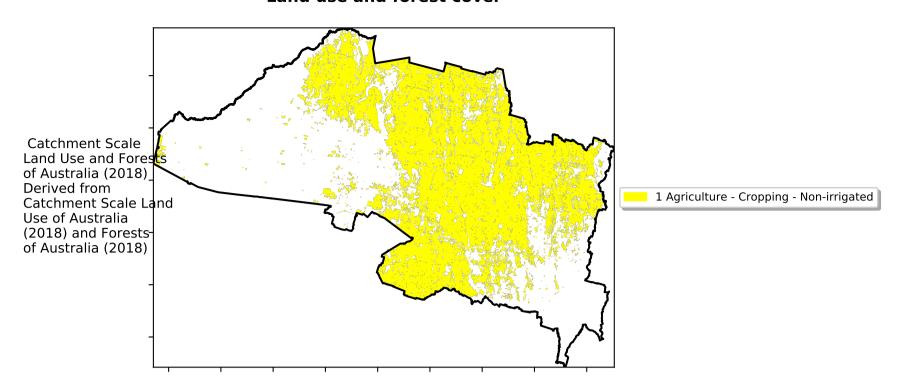




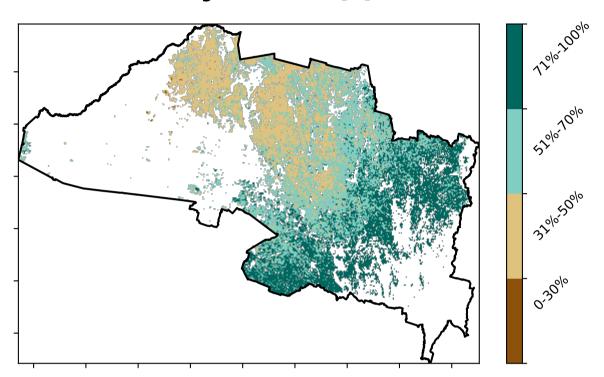


Cropping

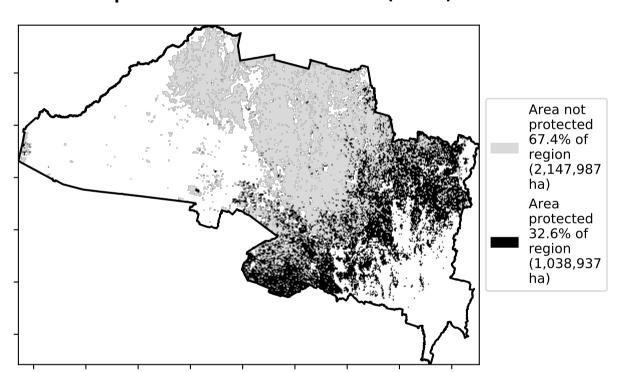
Land use and forest cover



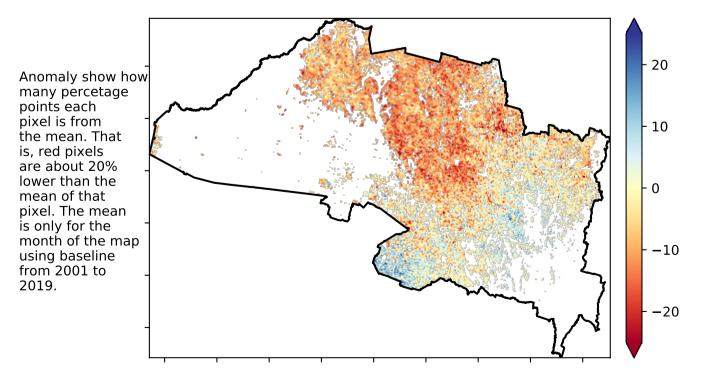
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

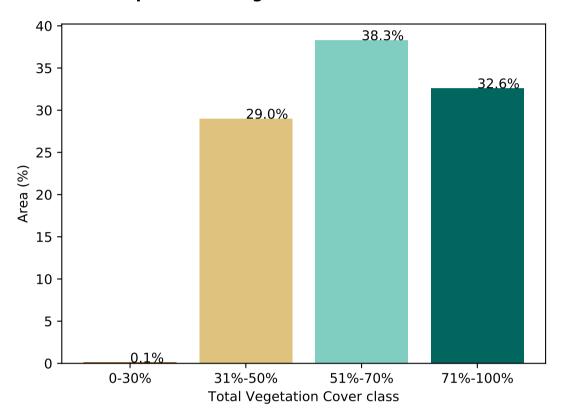


Total Vegetation Cover Anomaly [%]

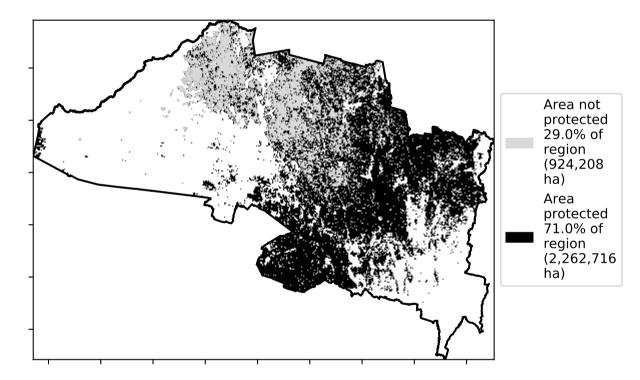


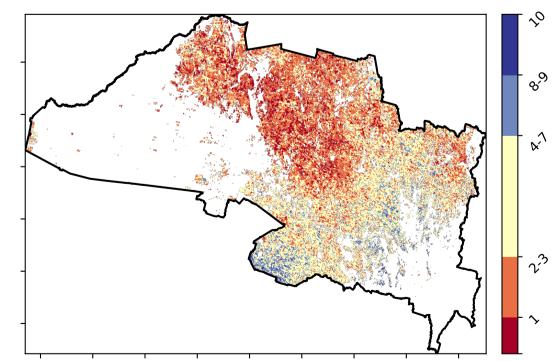
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









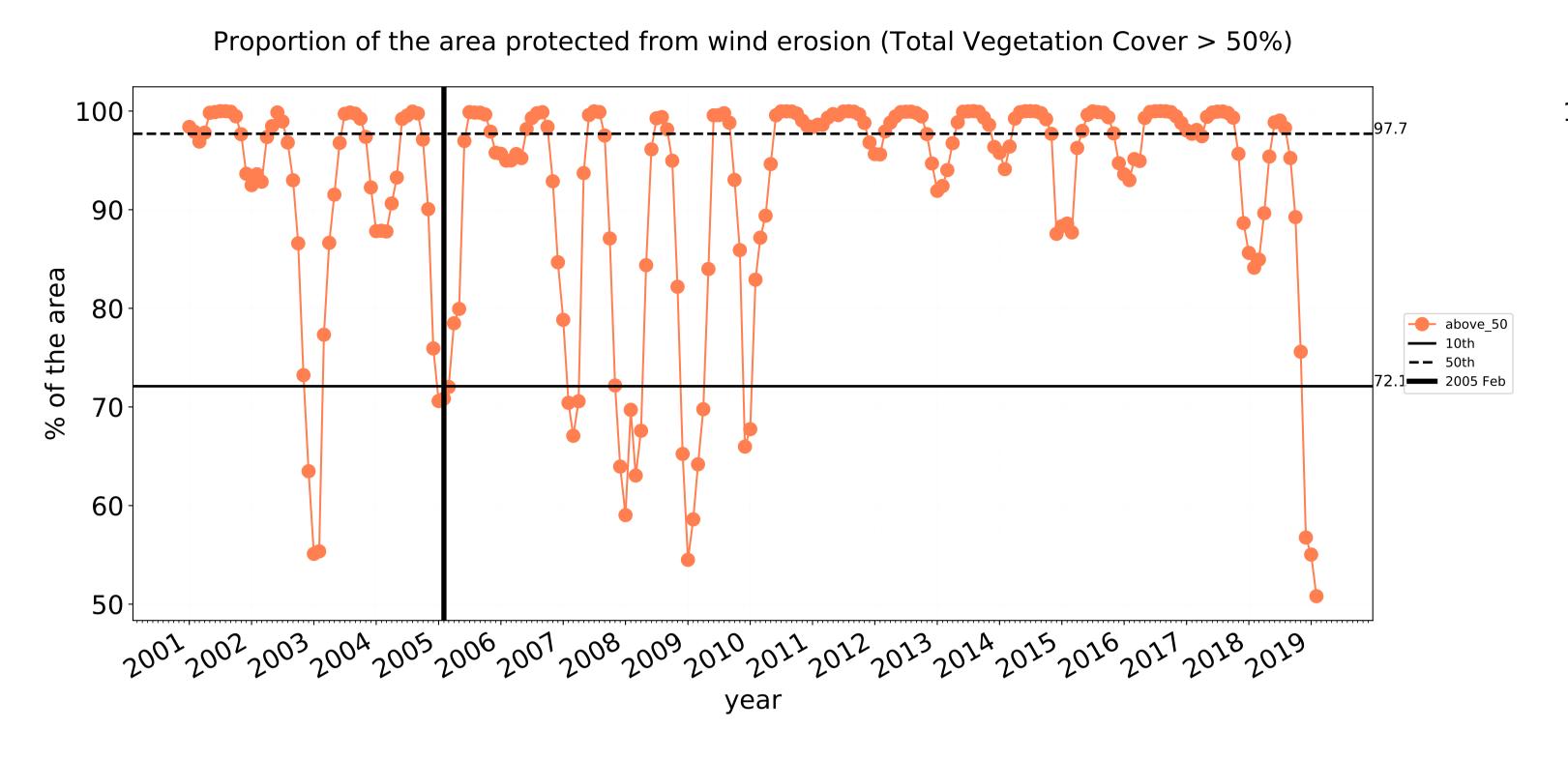


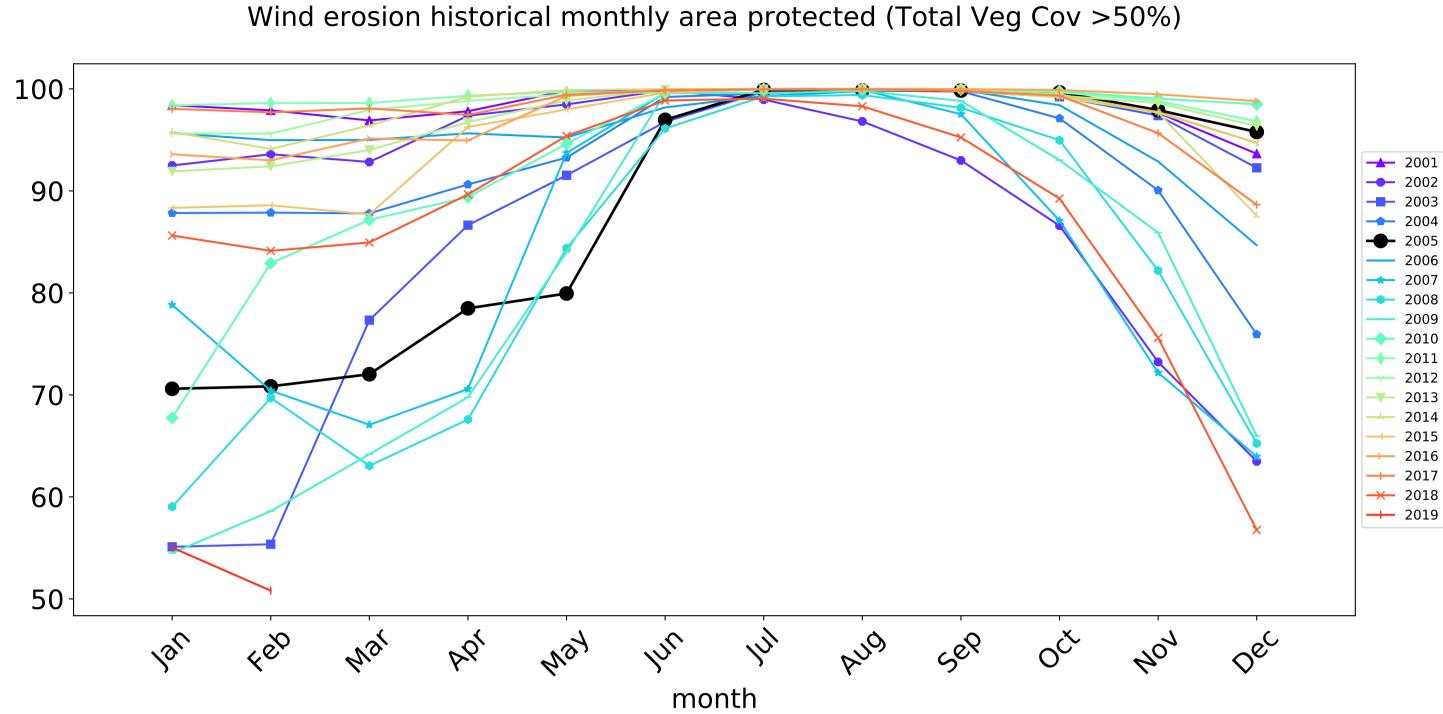


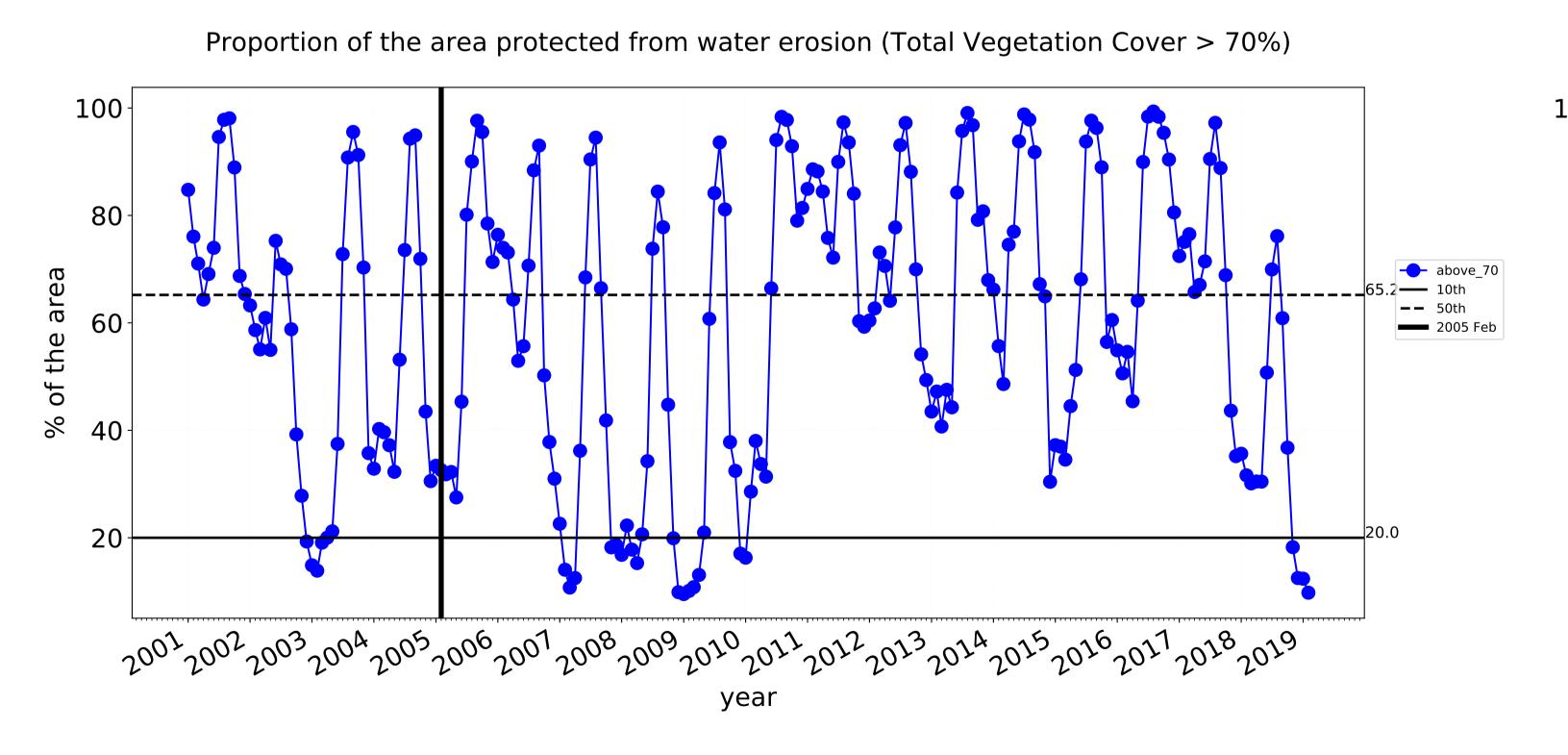


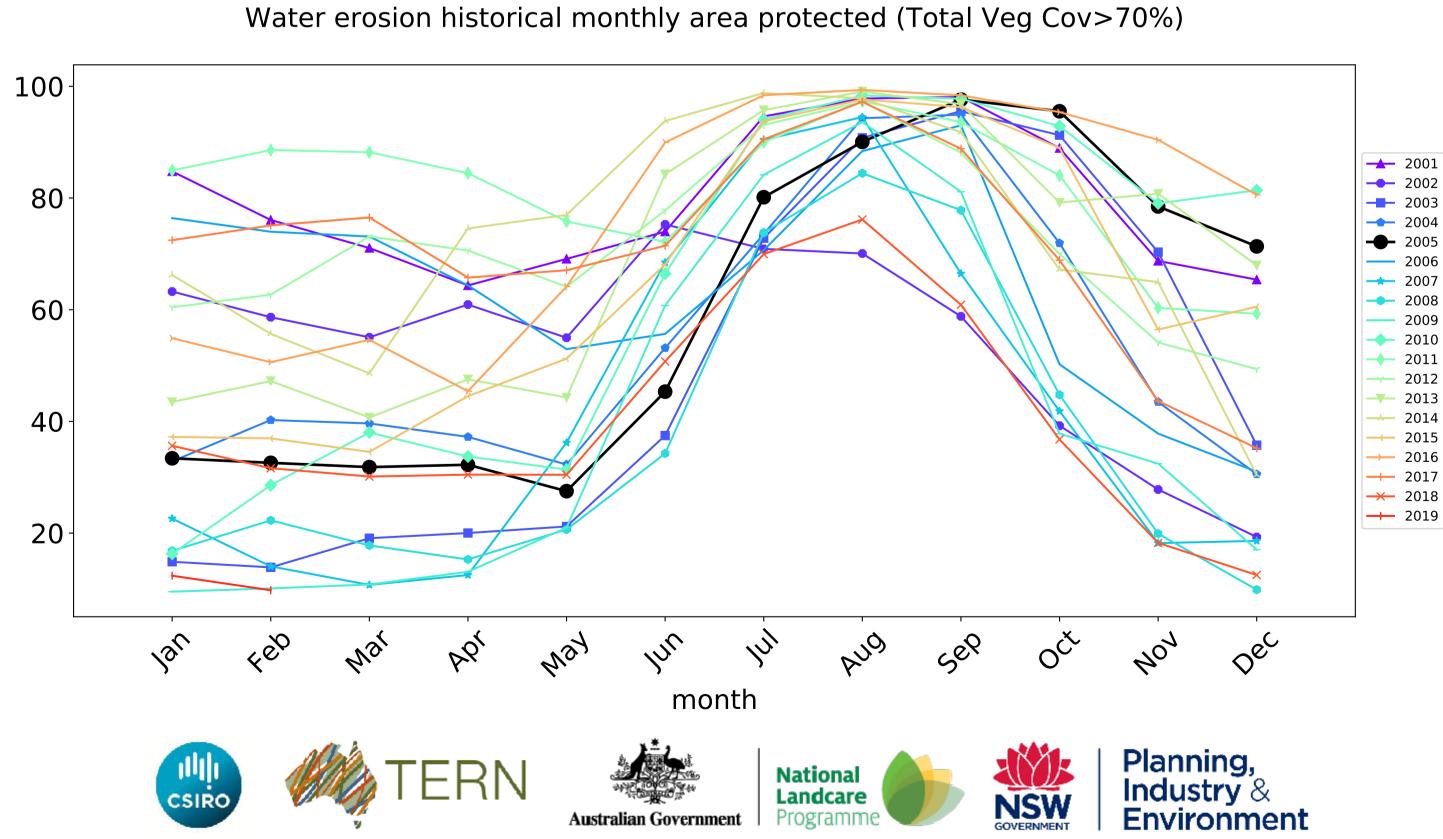


Cropping timeseries



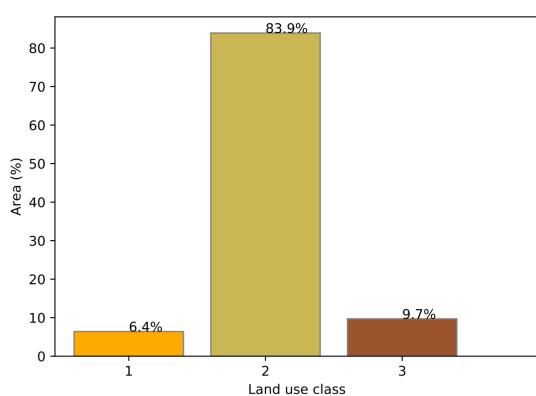


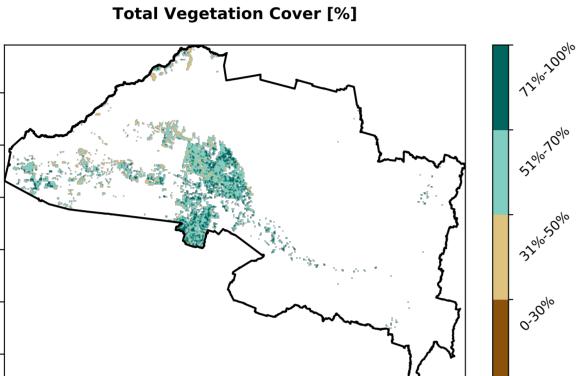


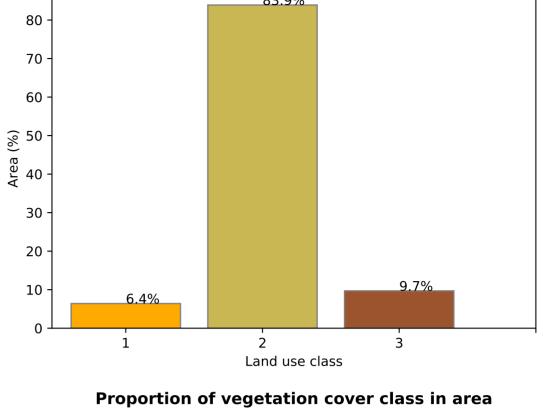


Irrigation

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

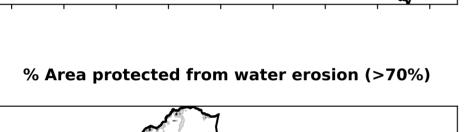


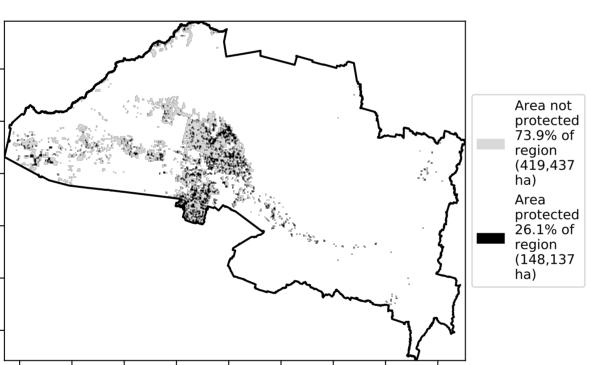




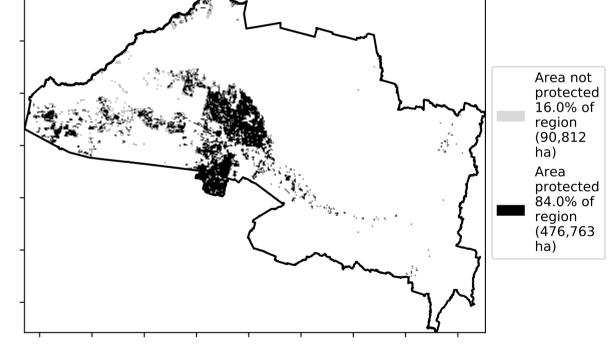
Proportion of each land class in area

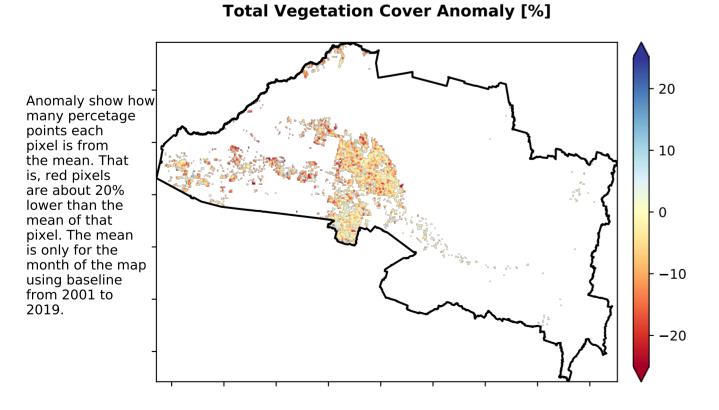
60 58.3% 50 40 Area (%) 26.1% 20 15.5% 10 31%-50% 71%-100% 0-30% 51%-70% **Total Vegetation Cover class**

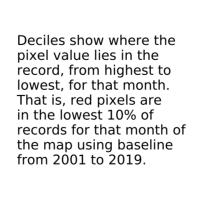


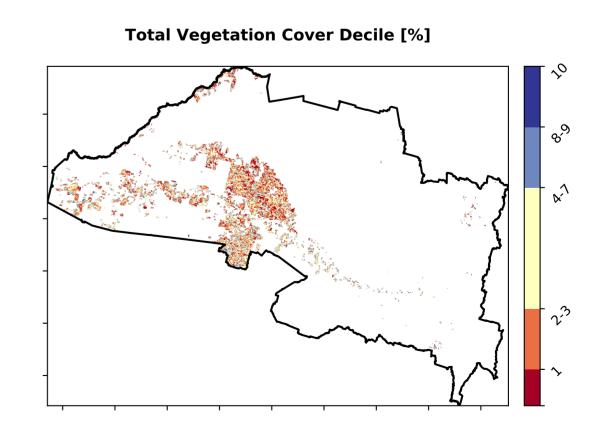


% Area protected from wind erosion (>50%)











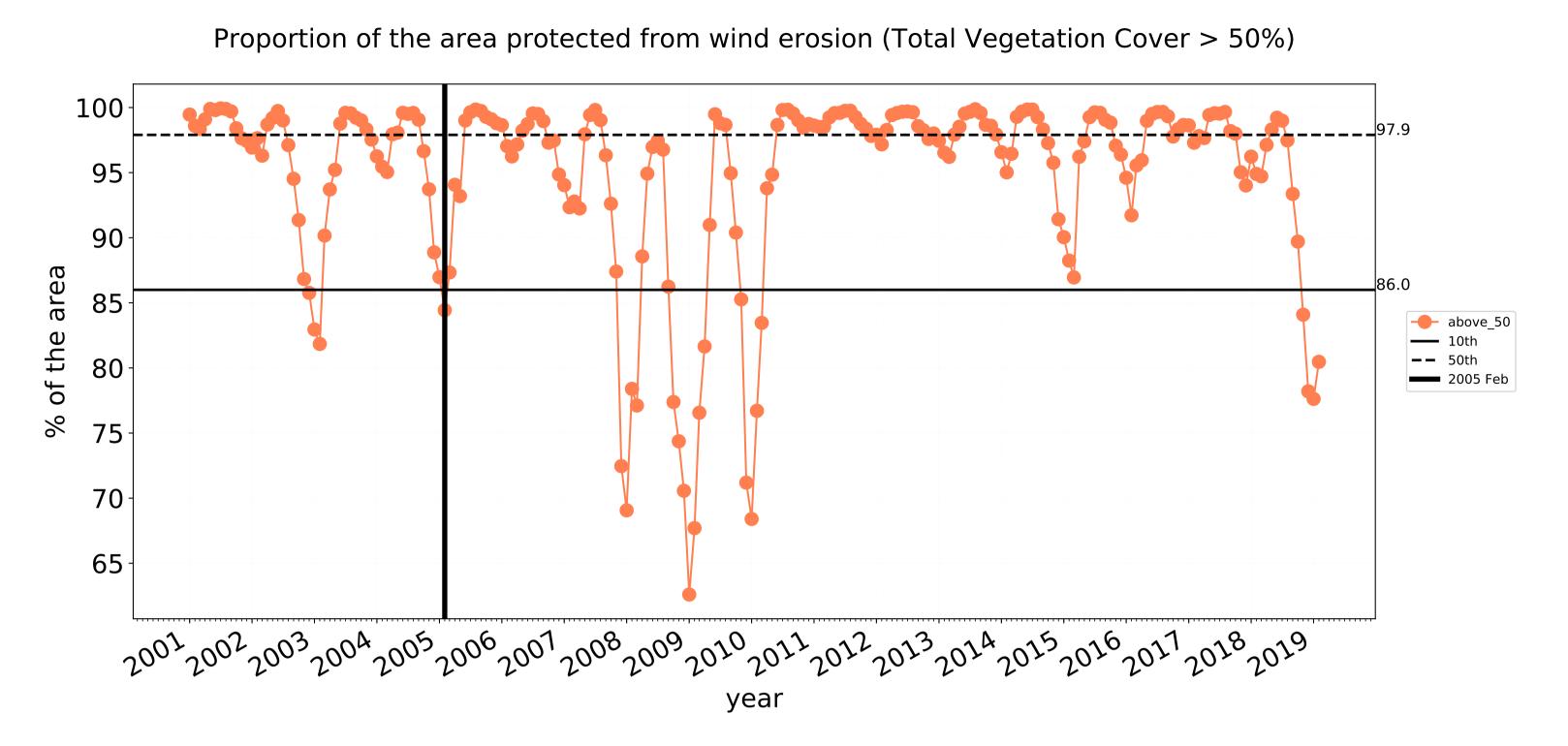


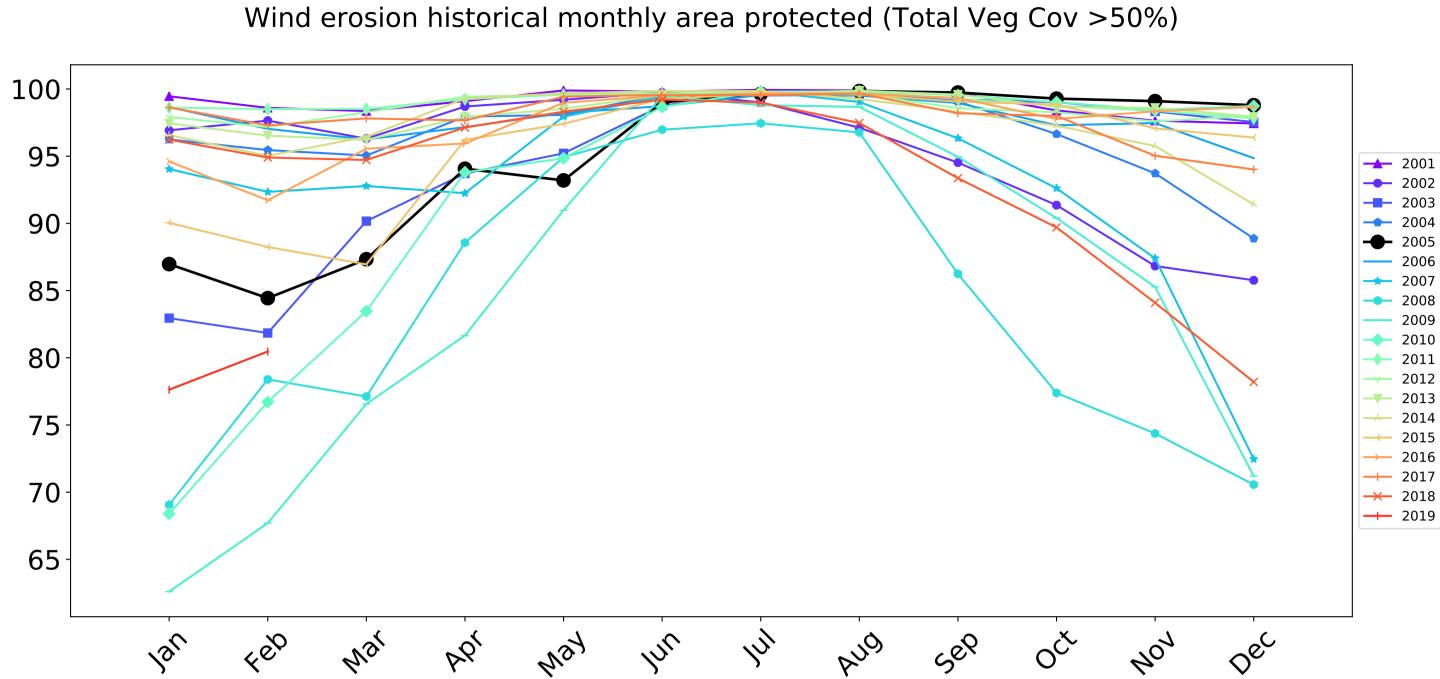




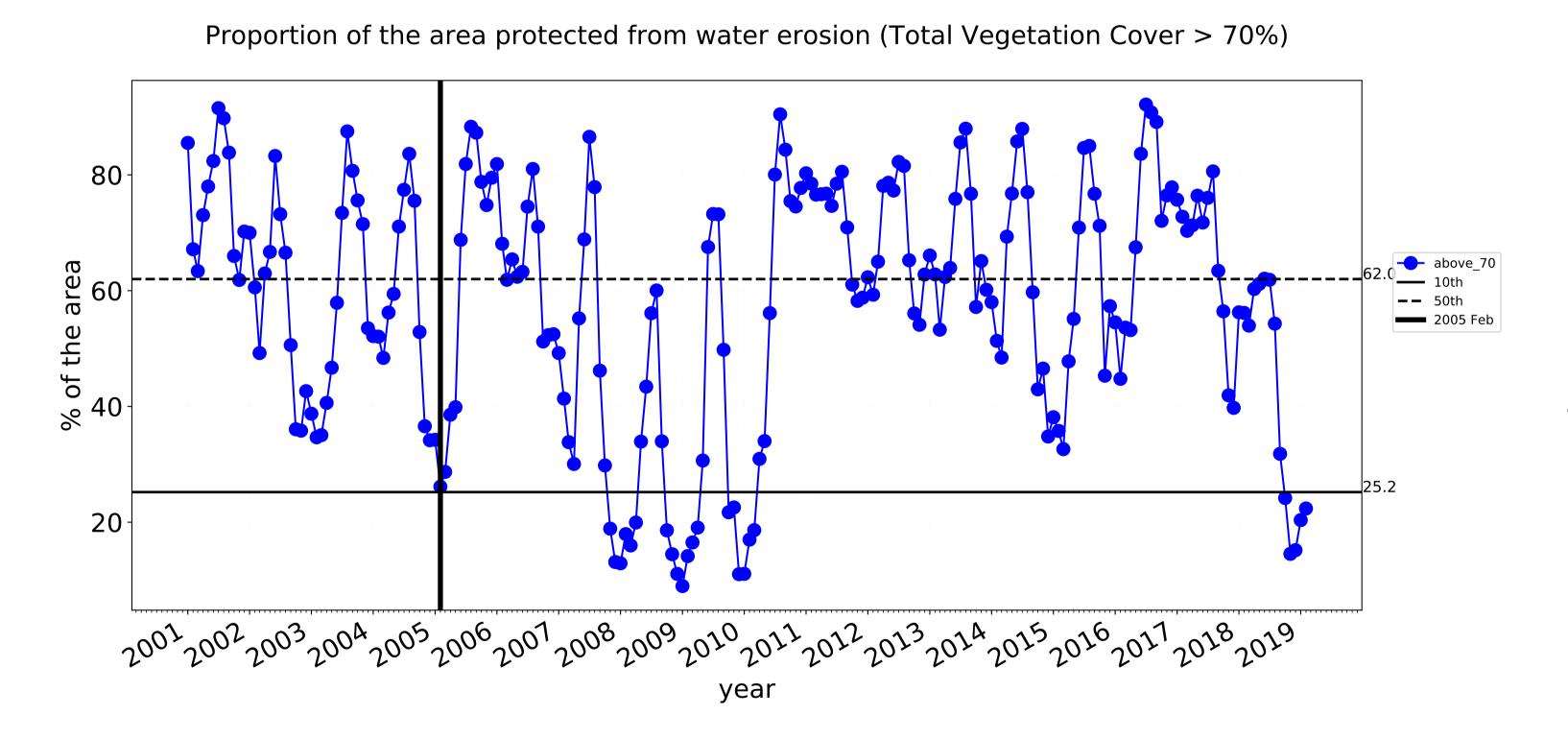


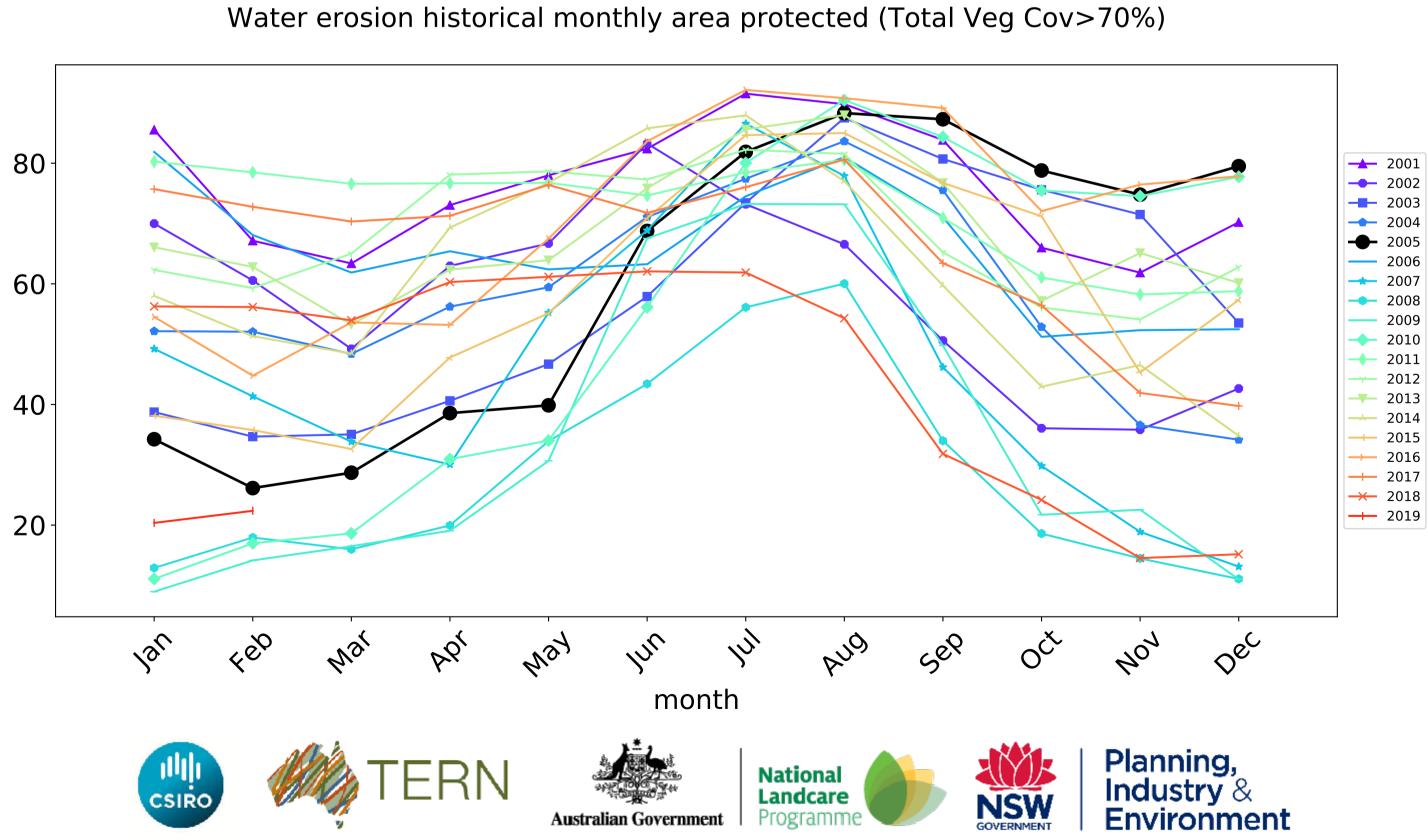






month



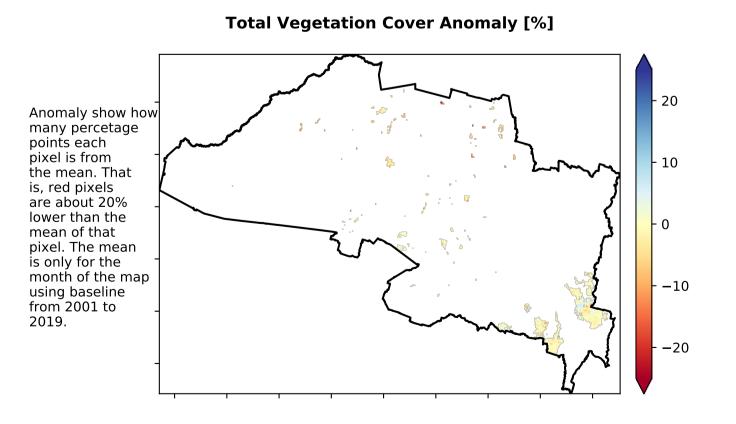


Production native forests and plantation forests

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

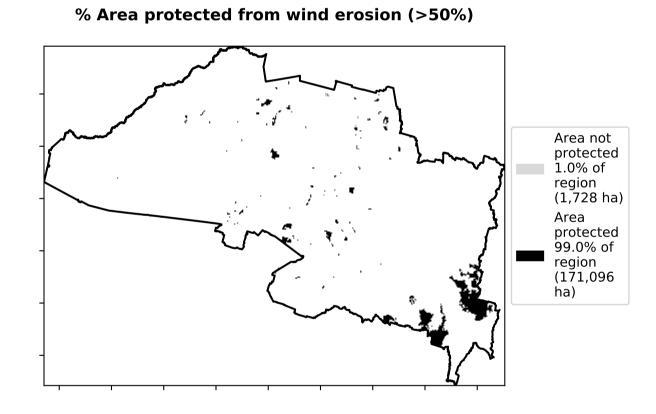
Total Vegetation Cover [%]

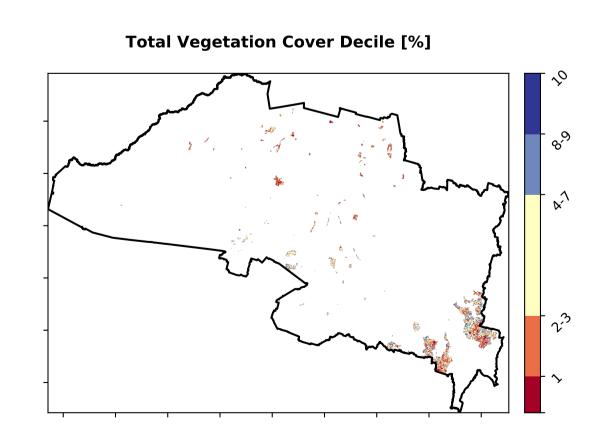
Area not protected 7.1% of region (12,270 ha) Area protected 92.9% of region (160,554 ha)



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 - 92.9% 80 - 60 - 20 - 20 - 0.0% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class









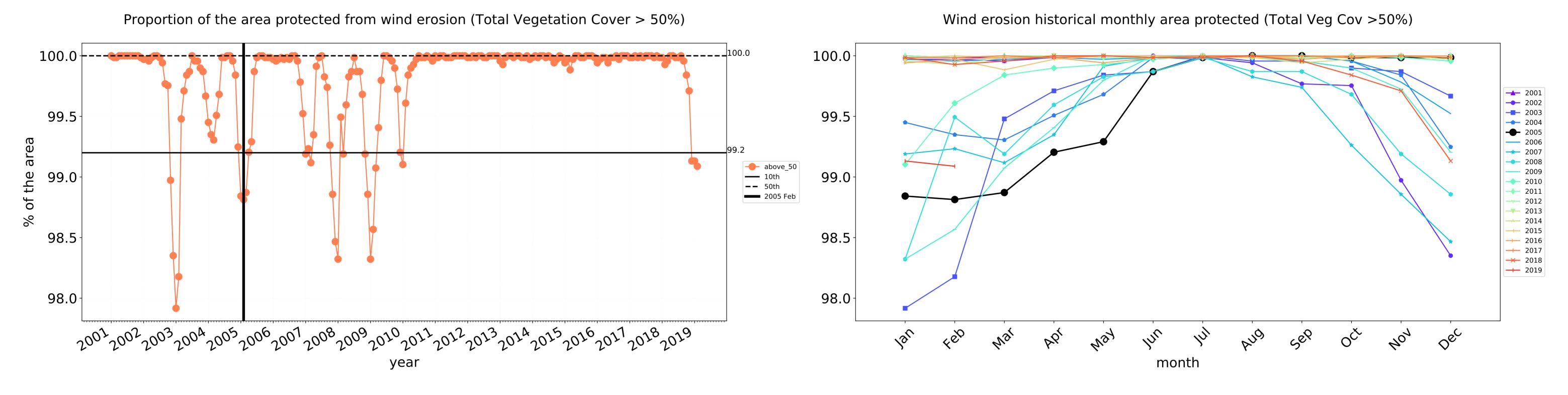


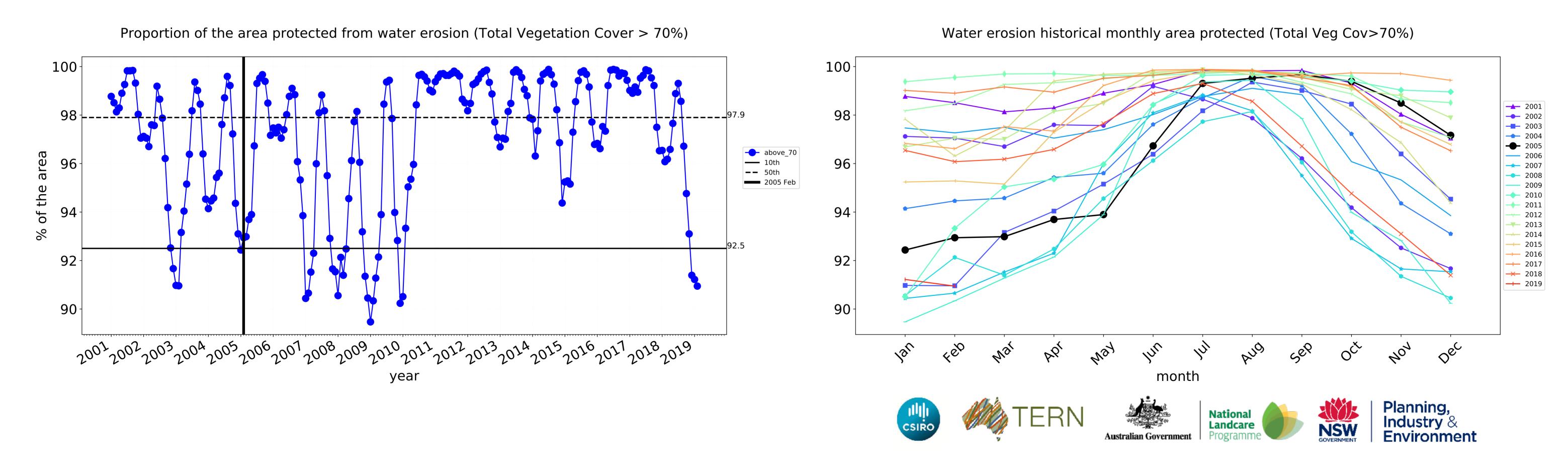






Production native forests and plantation forests timeseries





Riverina (6,695,175 ha and no data 13,160 ha) Percentage area and hectares protected with TVC threshold 30,50,70,80,90 and 95%

Land use and forest cover Class	area(ha)	above_30	above_50	above_70	above_80	above_90	above_95
Entire region	6,695,175	99.6% 6,671,146	72.5% 4,854,409	38.1% 2,552,158	22.9% 1,536,500	8.0% 536,570	2.6% 177,298
Conservation and natural environments	323,050	100.0% 322,900	91.0% 294,100	82.6% 266,925	74.3% 240,175	41.3% 133,275	19.3% 62,250
Conservation and natural environments non forest	83,350	99.8% 83,200	65.5% 54,600	37.6% 31,300	24.1% 20,075	9.9% 8,250	4.0% 3,325
Conservation and natural environments Forest (non woodland)	195,200	100.0% 195,200	100.0% 195,150	99.4% 194,000	95.3% 186,050	59.9% 116,900	29.2% 56,975
Agriculture	6,067,850	99.6% 6,044,500	70.6% 4,285,550	34.1% 2,068,875	18.5% 1,124,075	4.8% 292,800	1.0% 58,475
Grazing	2,311,525	99.2% 2,293,000	67.0% 1,548,275	38.2% 881,950	28.8% 665,100	10.5% 243,500	2.3% 52,225
Grazing non forest	2,066,525	99.1% 2,048,000	63.2% 1,305,600	33.2% 685,700	25.7% 531,100	9.9% 205,525	2.2% 44,825
Grazing Woodland forest	141,650	100.0% 141,650	98.6% 139,625	71.0% 100,600	39.3% 55,600	5.3% 7,500	0.5% 700
Grazing - Forest (non woodland)	103,350	100.0% 103,350	99.7% 103,050	92.5% 95,650	75.9% 78,400	29.5% 30,475	6.5% 6,700
Cropping	3,186,925	99.9% 3,182,575	70.8% 2,257,525	32.6% 1,038,400	13.6% 434,350	1.5% 47,675	0.2% 5,900
Irrigation	567,575	99.9% 567,100	84.4% 479,250	26.1% 148,350	4.3% 24,525	0.3% 1,625	0.1% 350
Production native forests and plantation forests	172,825	100.0% 172,825	98.8% 170,775	92.9% 160,625	85.4% 147,650	62.1% 107,250	32.4% 56,050











