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: June 2001

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







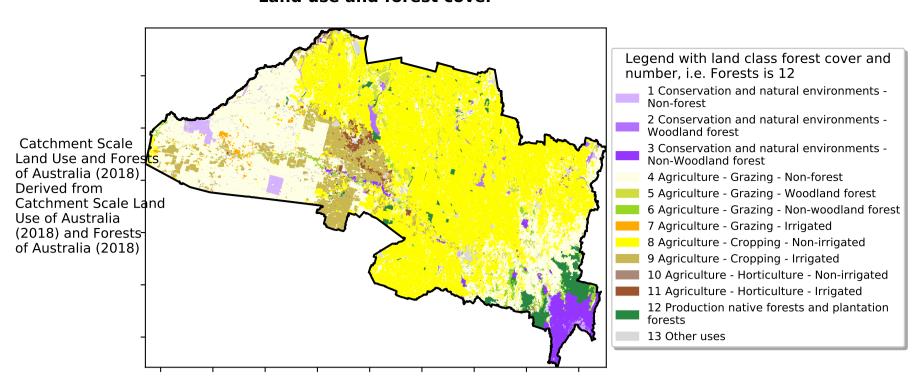


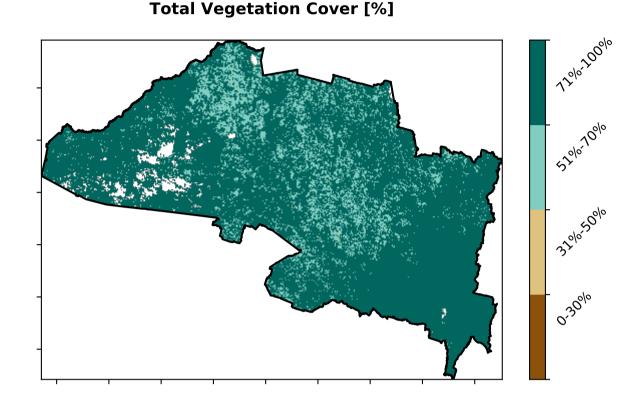




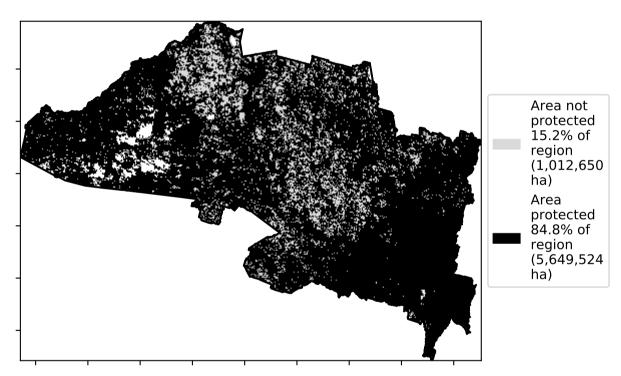
Vegetation Cover Jun 2001

Land use and forest cover

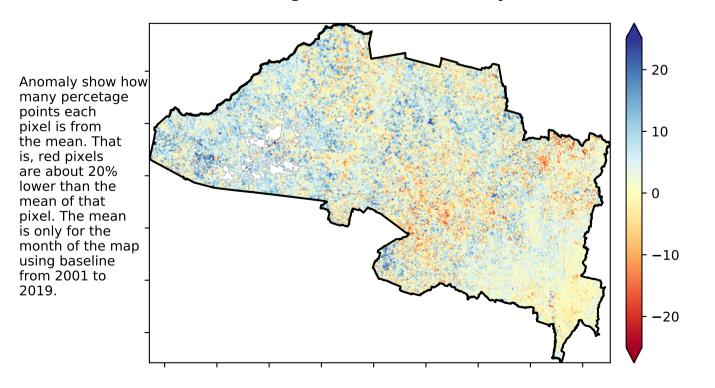




% Area protected from water erosion (>70%)

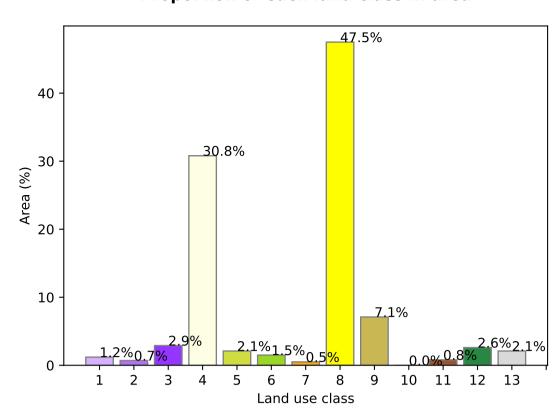


Total Vegetation Cover Anomaly [%]

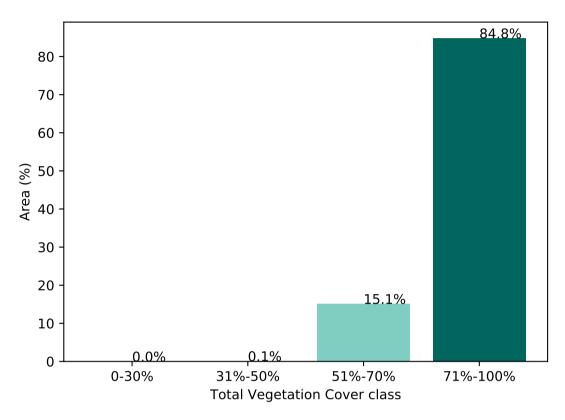


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

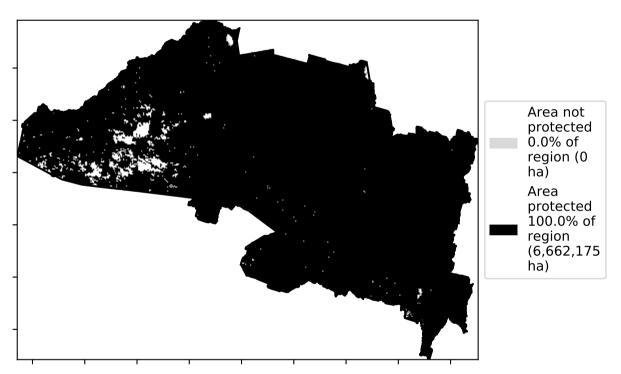
Proportion of each land class in area



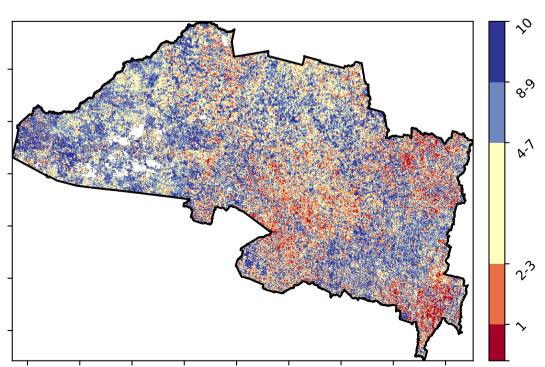
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]





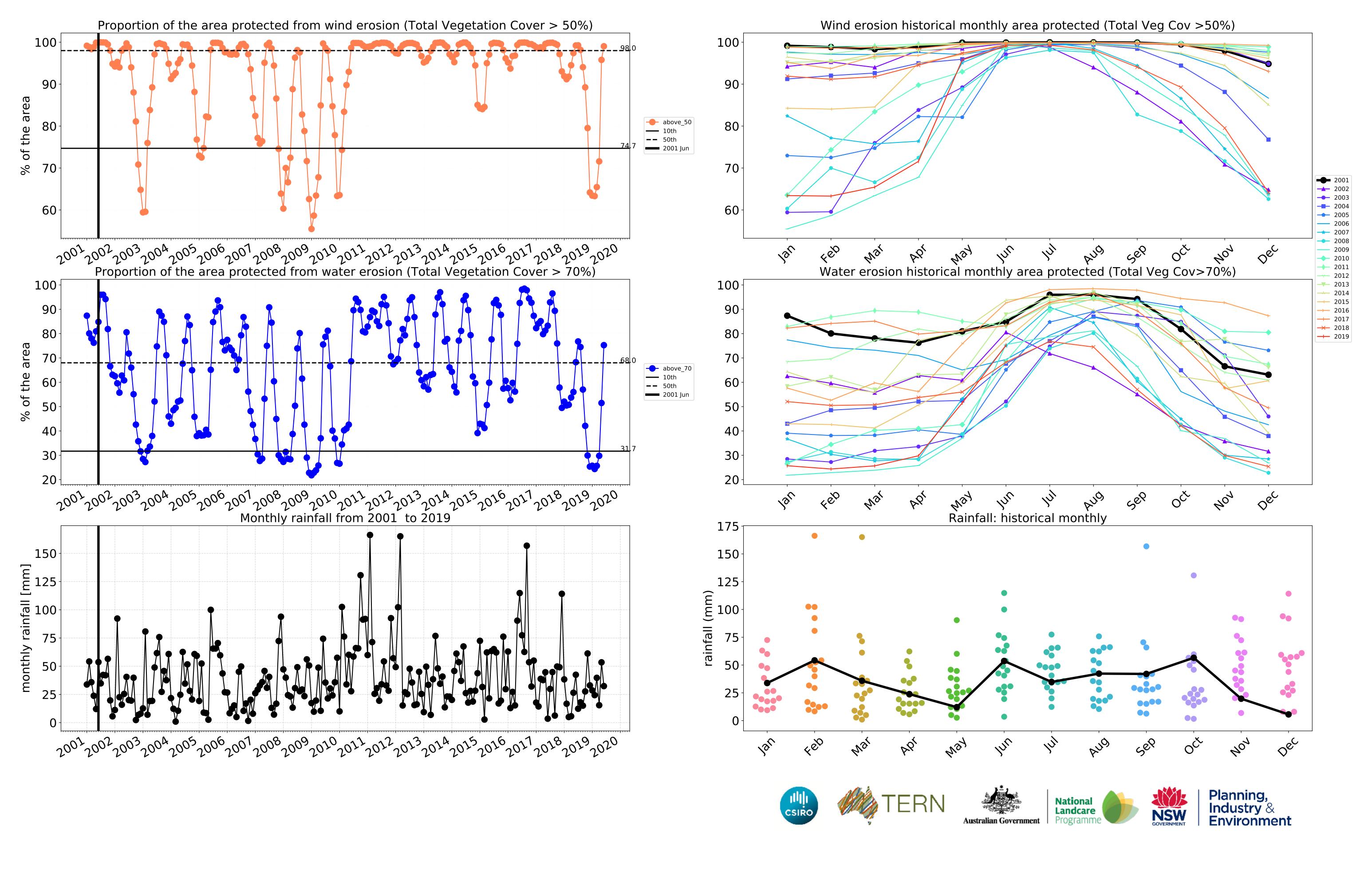




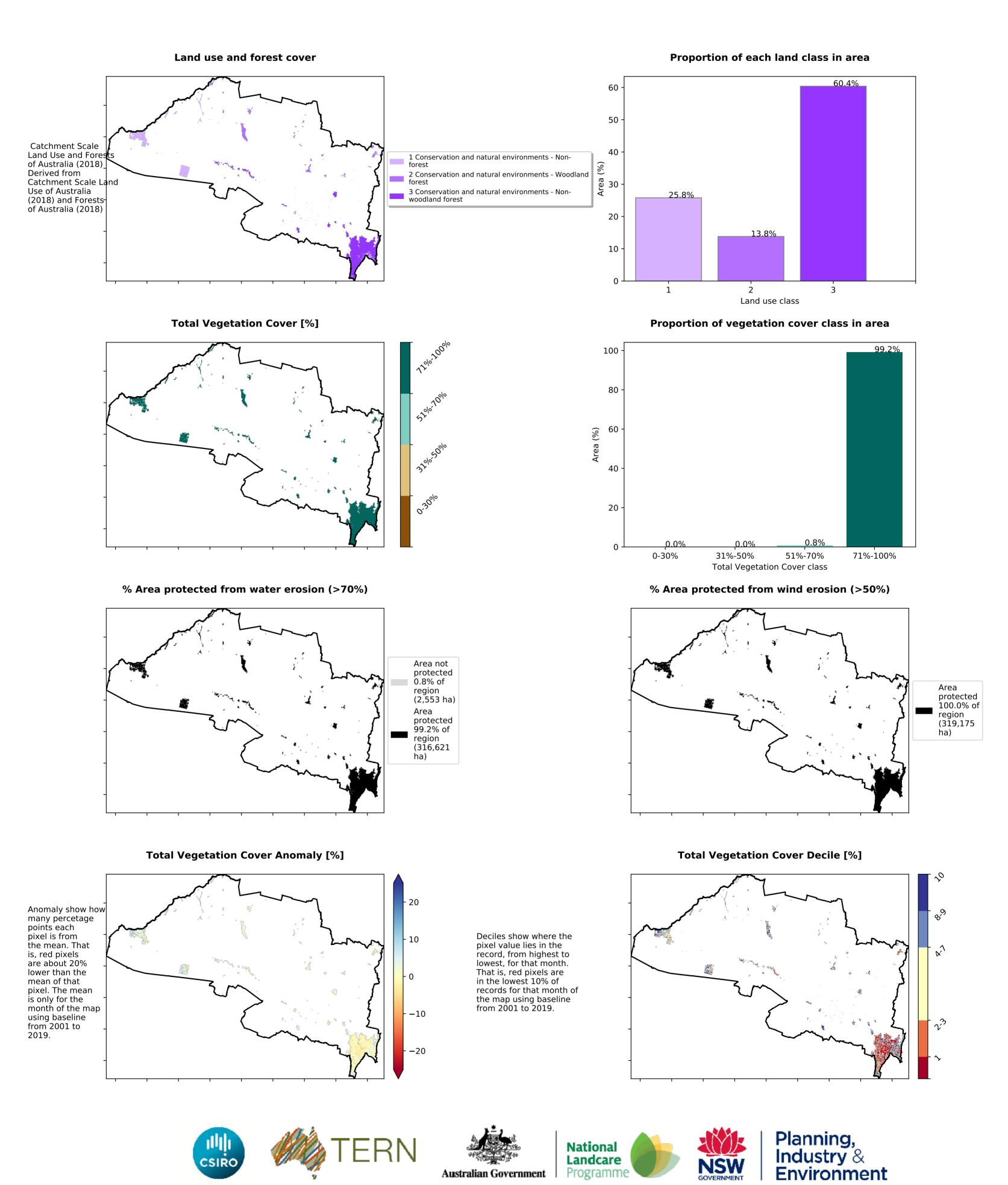




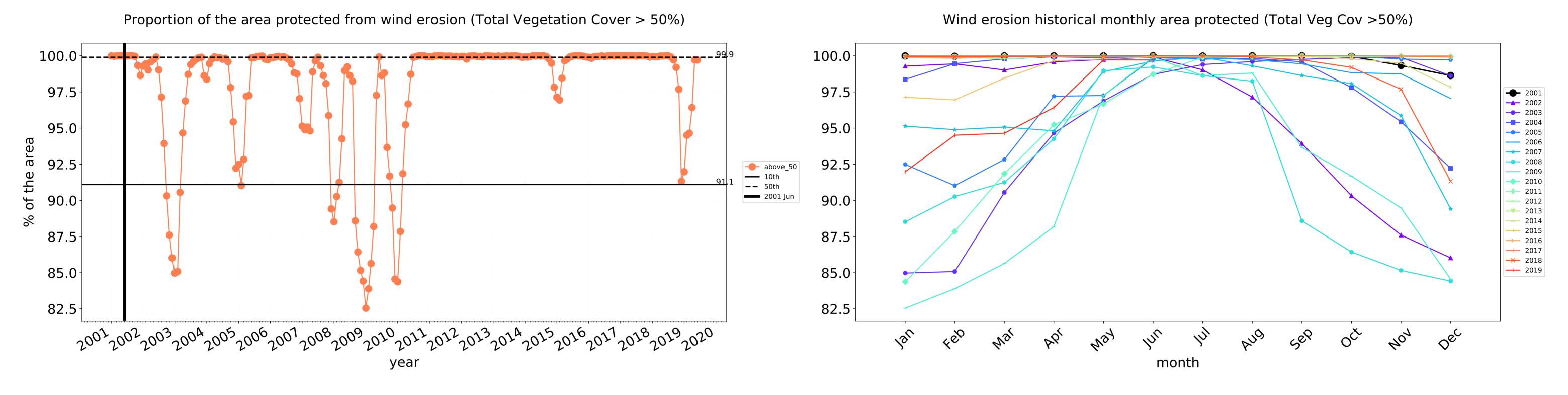


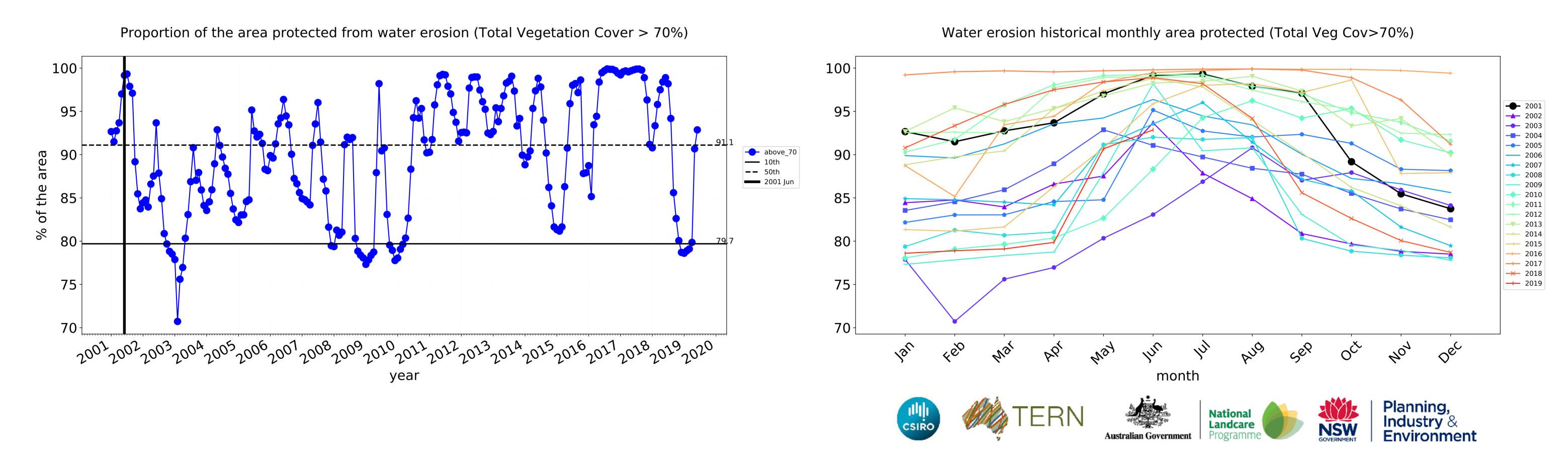


Conservation and natural environments



Conservation and natural environments timeseries



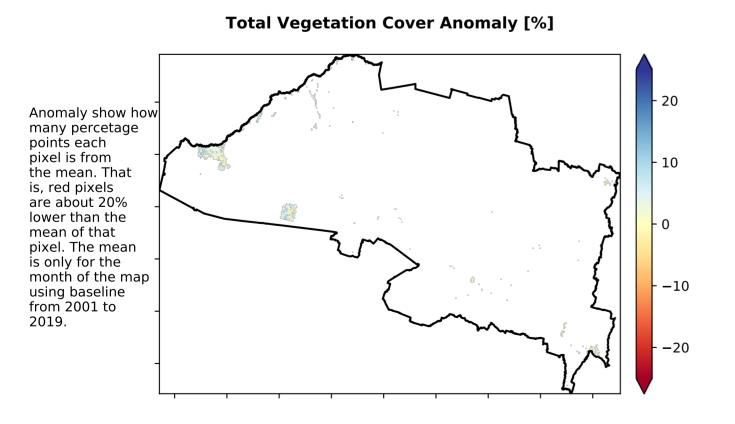


Conservation and natural environments non forest

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

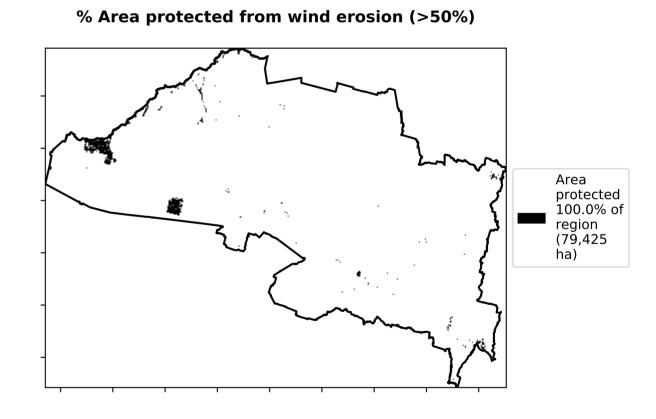
Total Vegetation Cover [%]

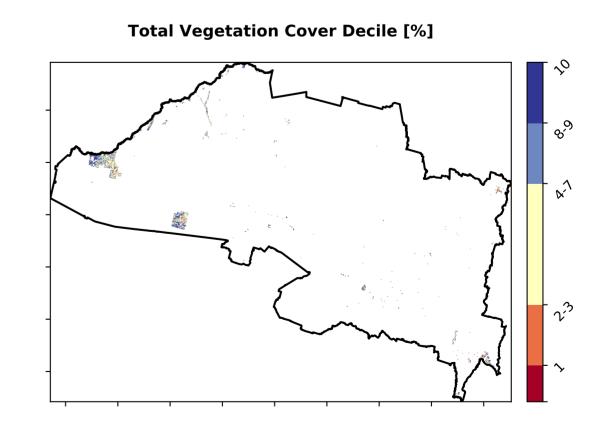
Area not protected 2.7% of region (2,144 ha) Area protected 97.3% of region (77,280 ha)



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 100 - 97.3% 80 - 60 - 97.3% 40 - 20 - 0.0% 0.0% 51%-70% 71%-100% Total Vegetation Cover class









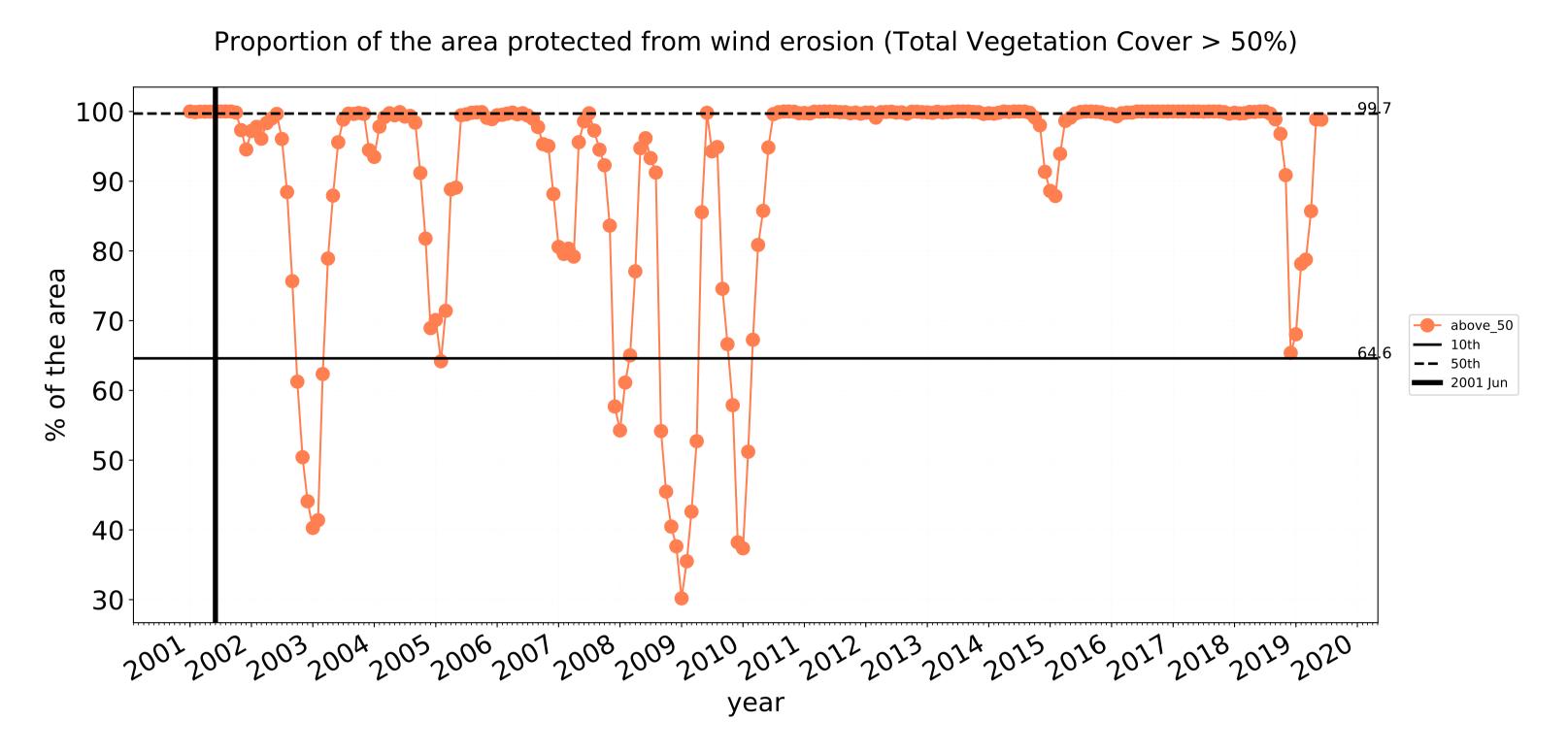


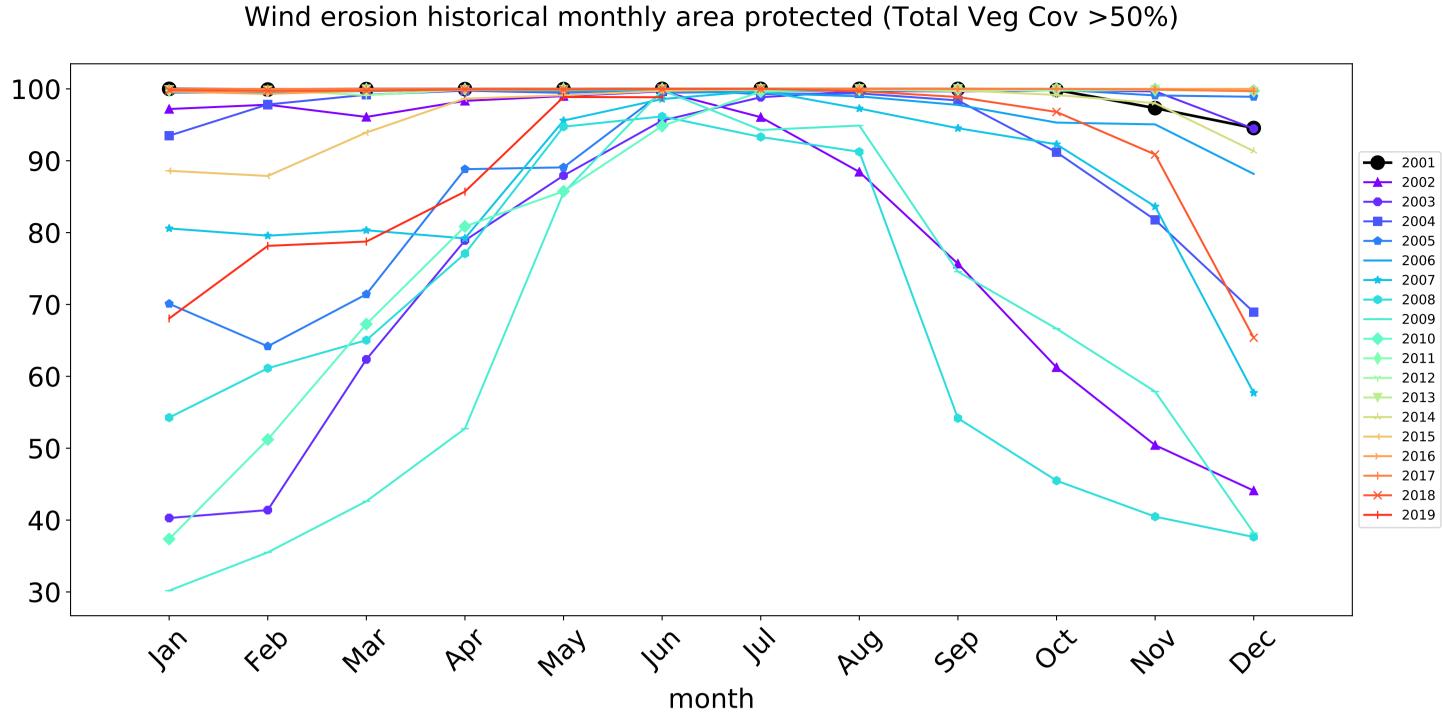


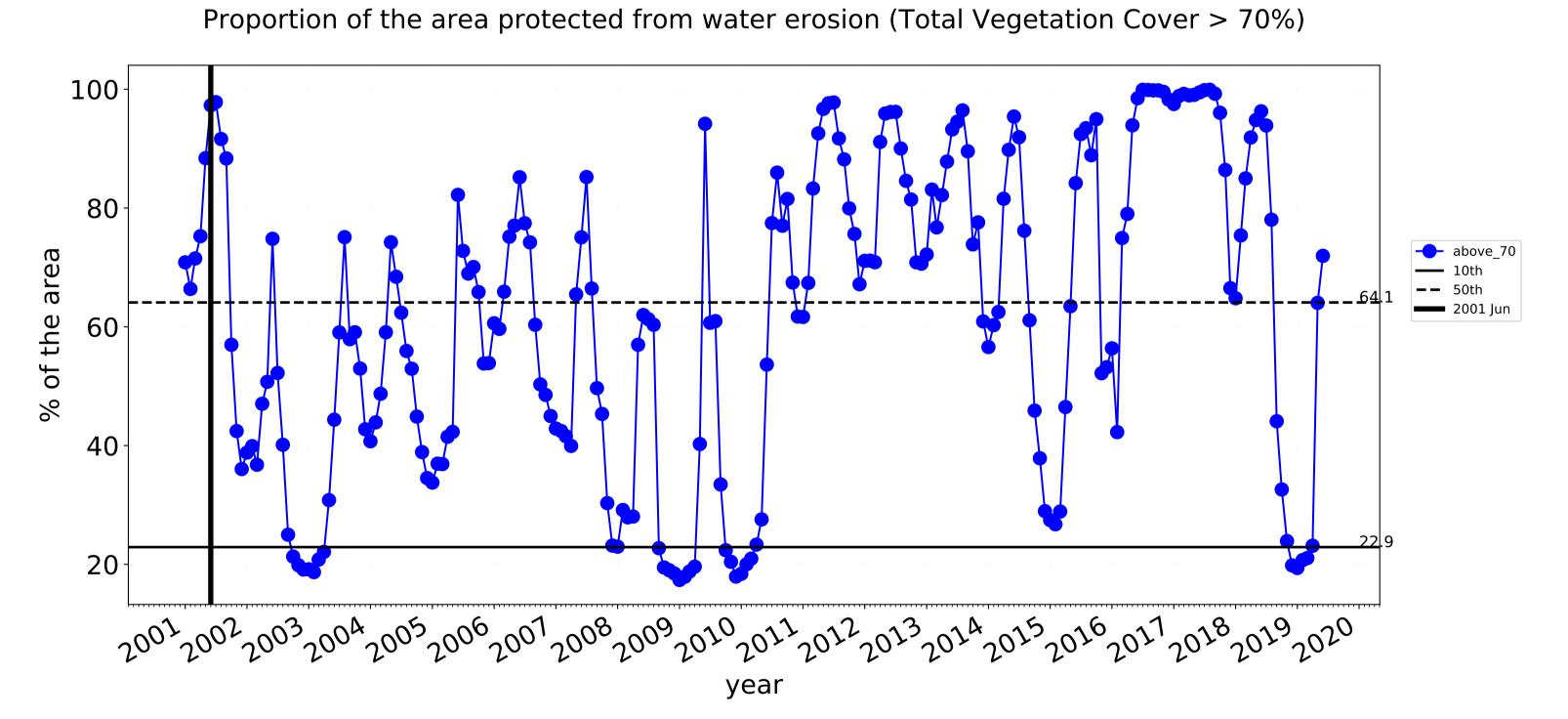


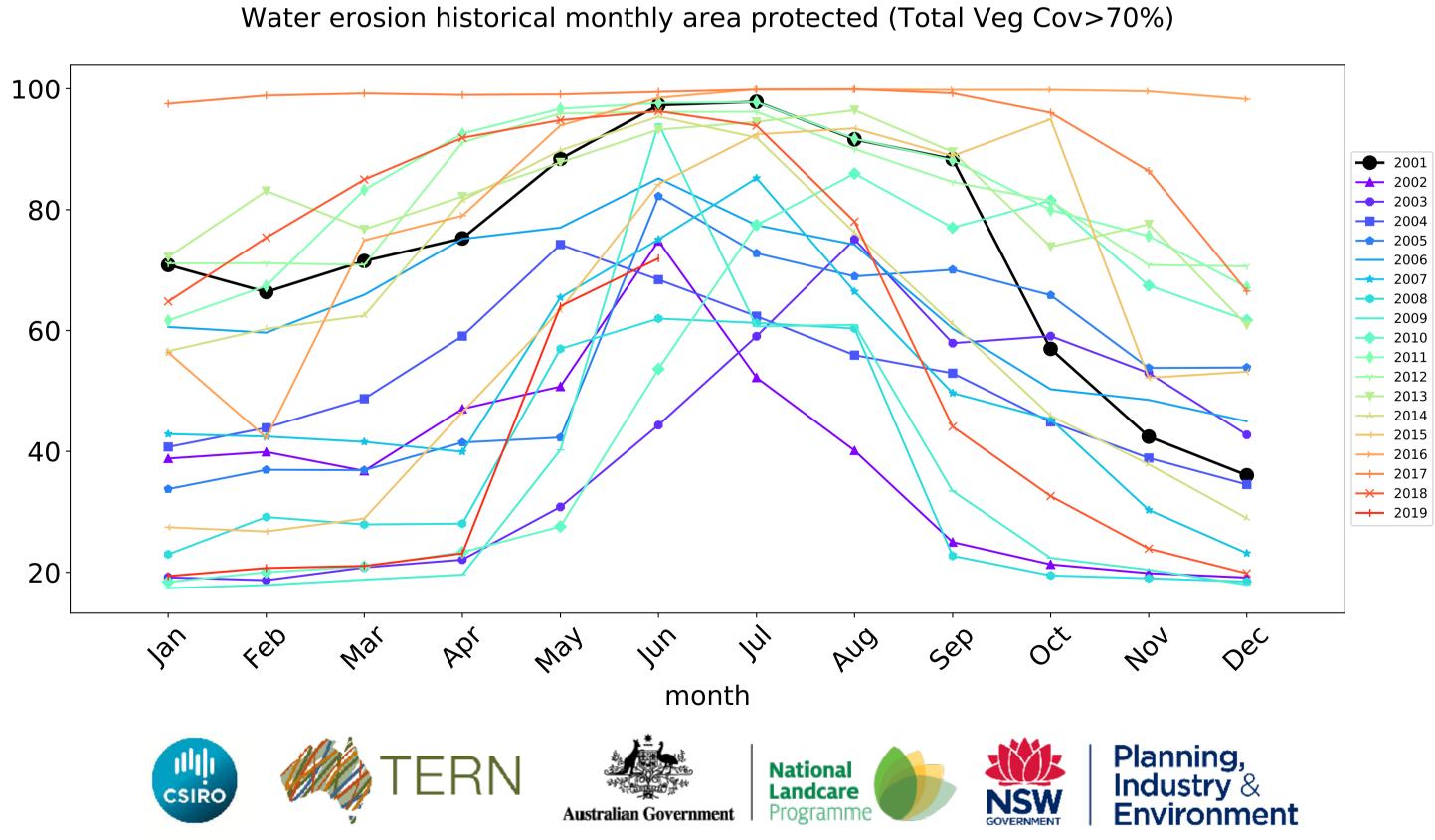


Conservation and natural environments non forest timeseries

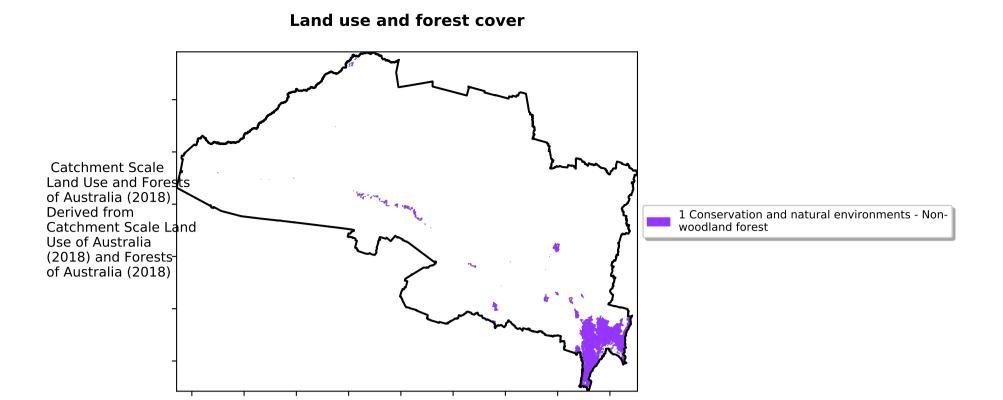




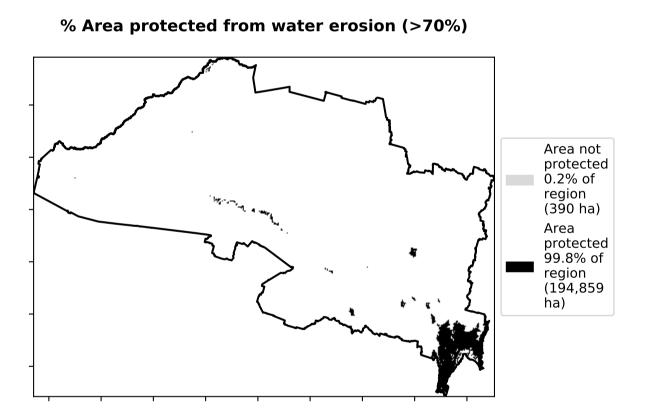


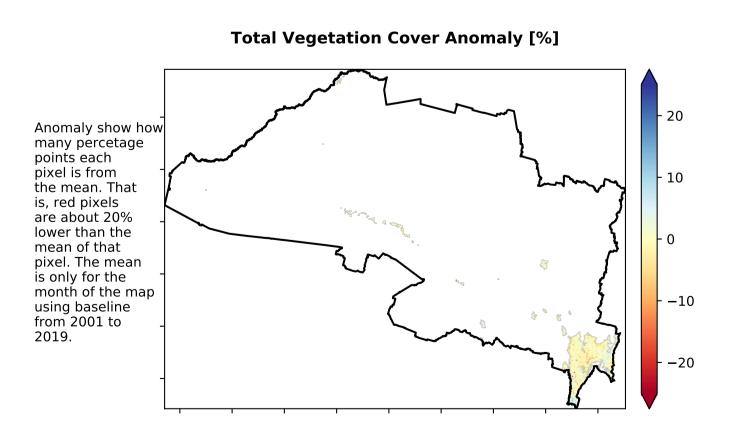


Conservation and natural environments Forest (non woodland)

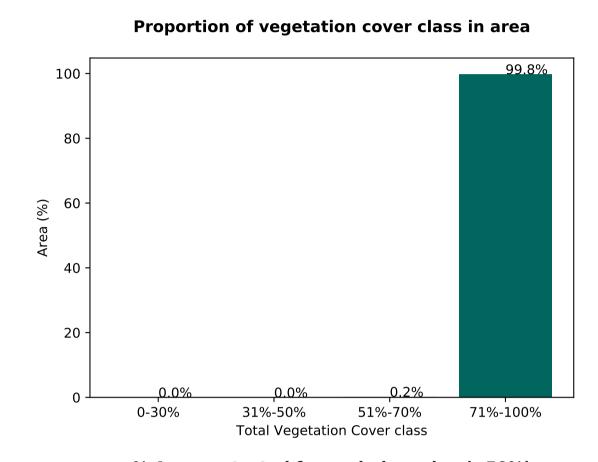


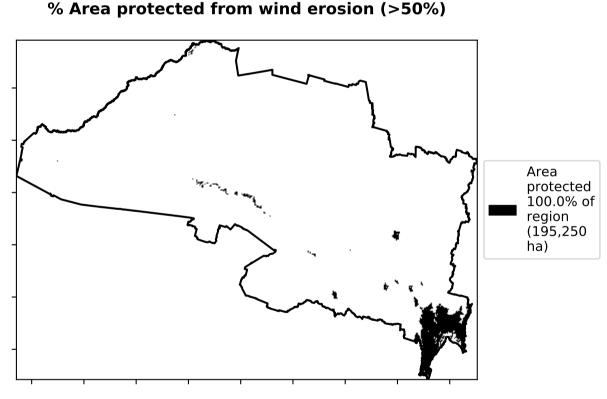
Total Vegetation Cover [%] Trolo Indolo Trol Indolo Trolo Indolo Trol Indolo Trolo Indolo Trolo Indolo Trolo Indolo Trol

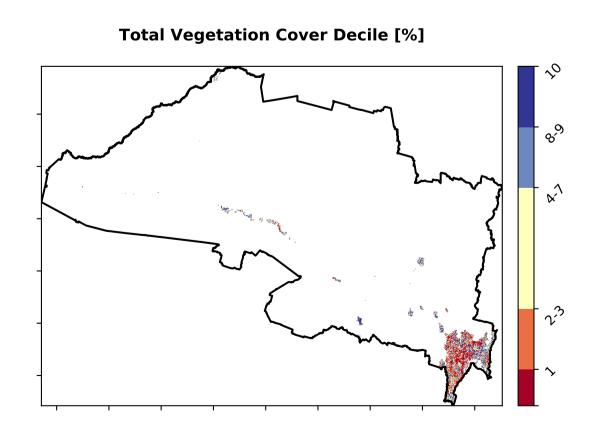




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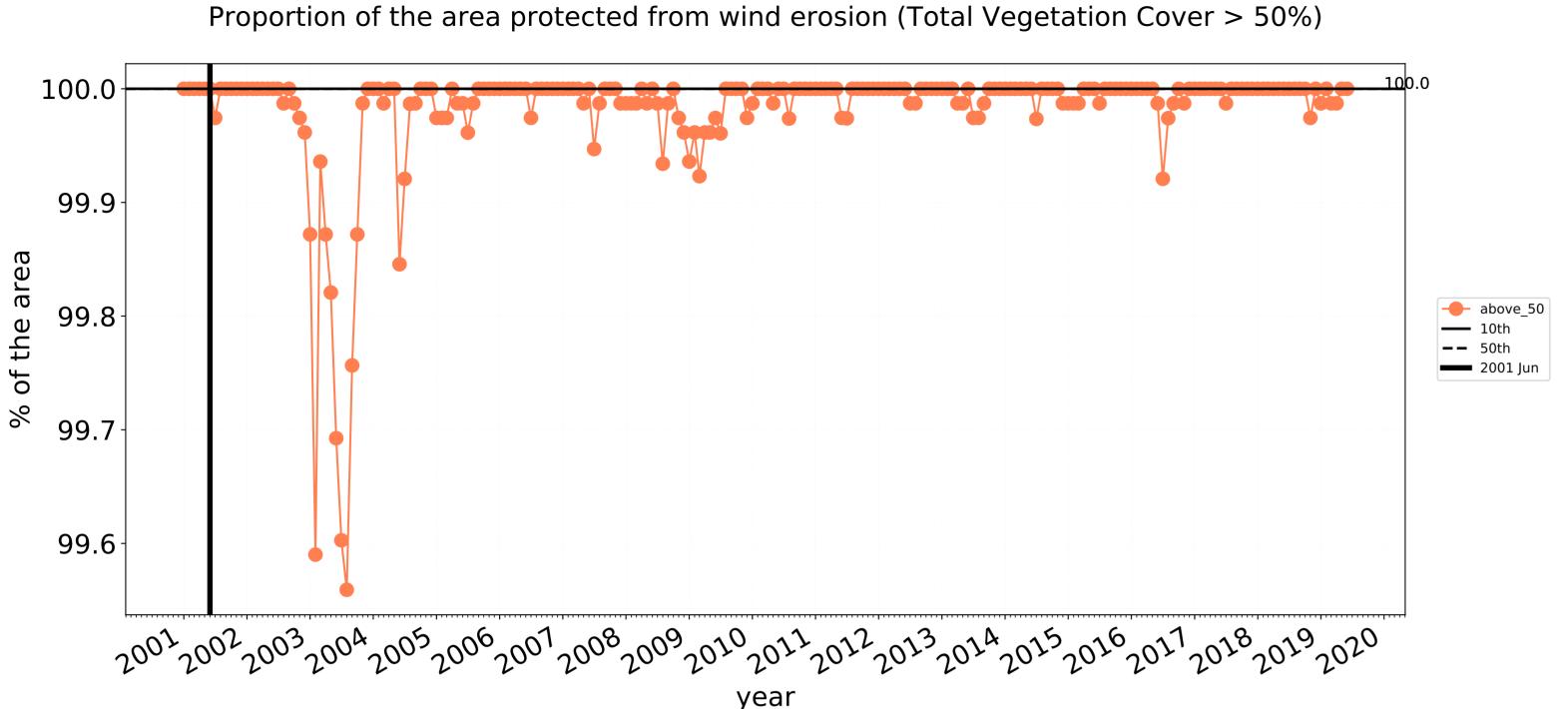


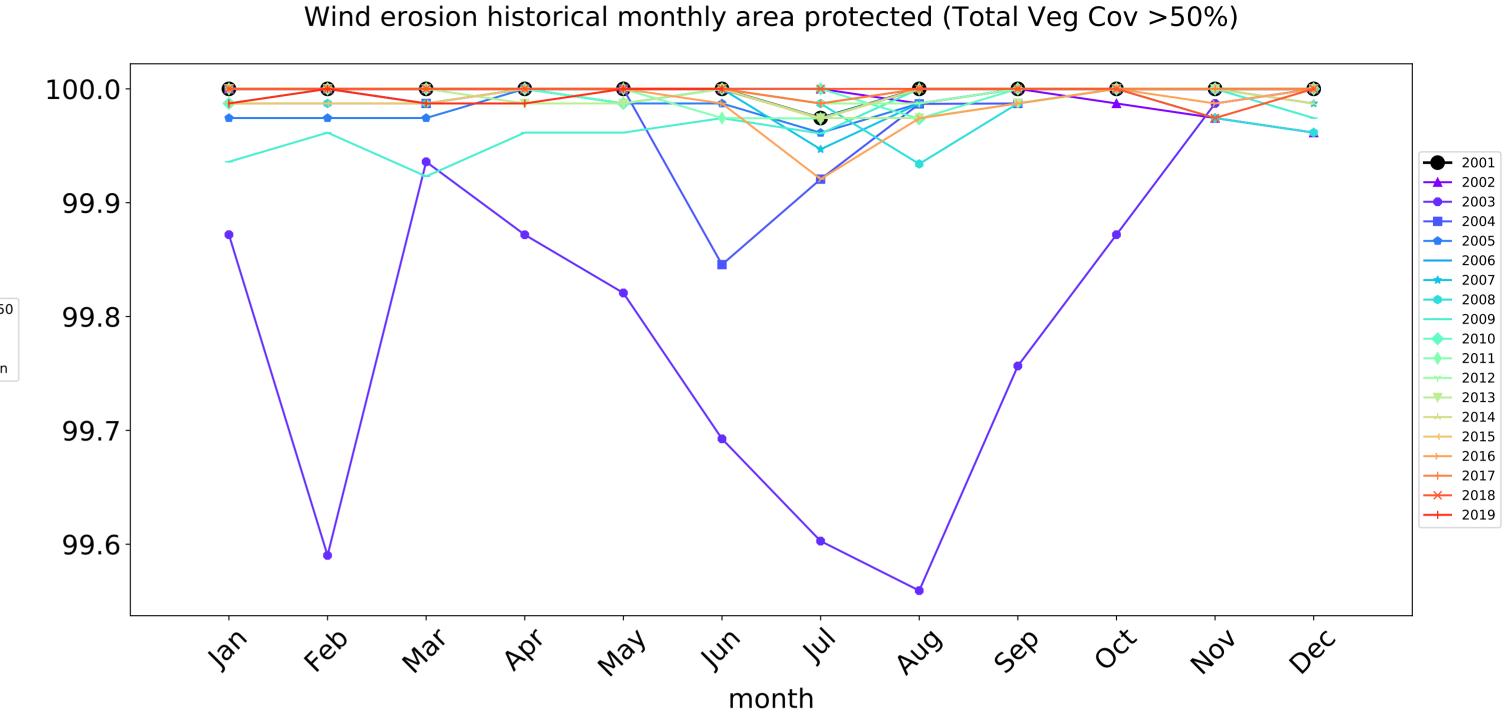


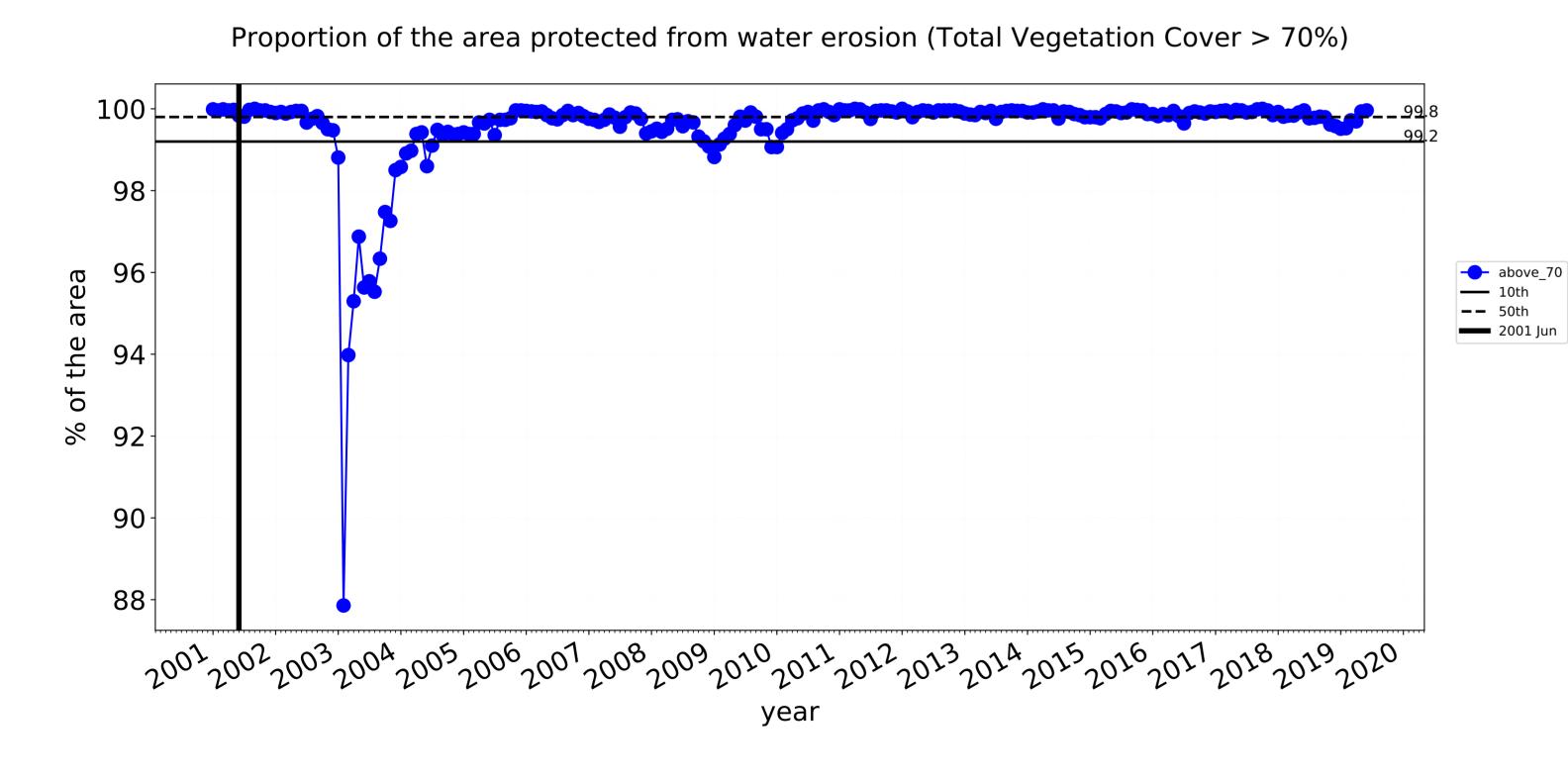


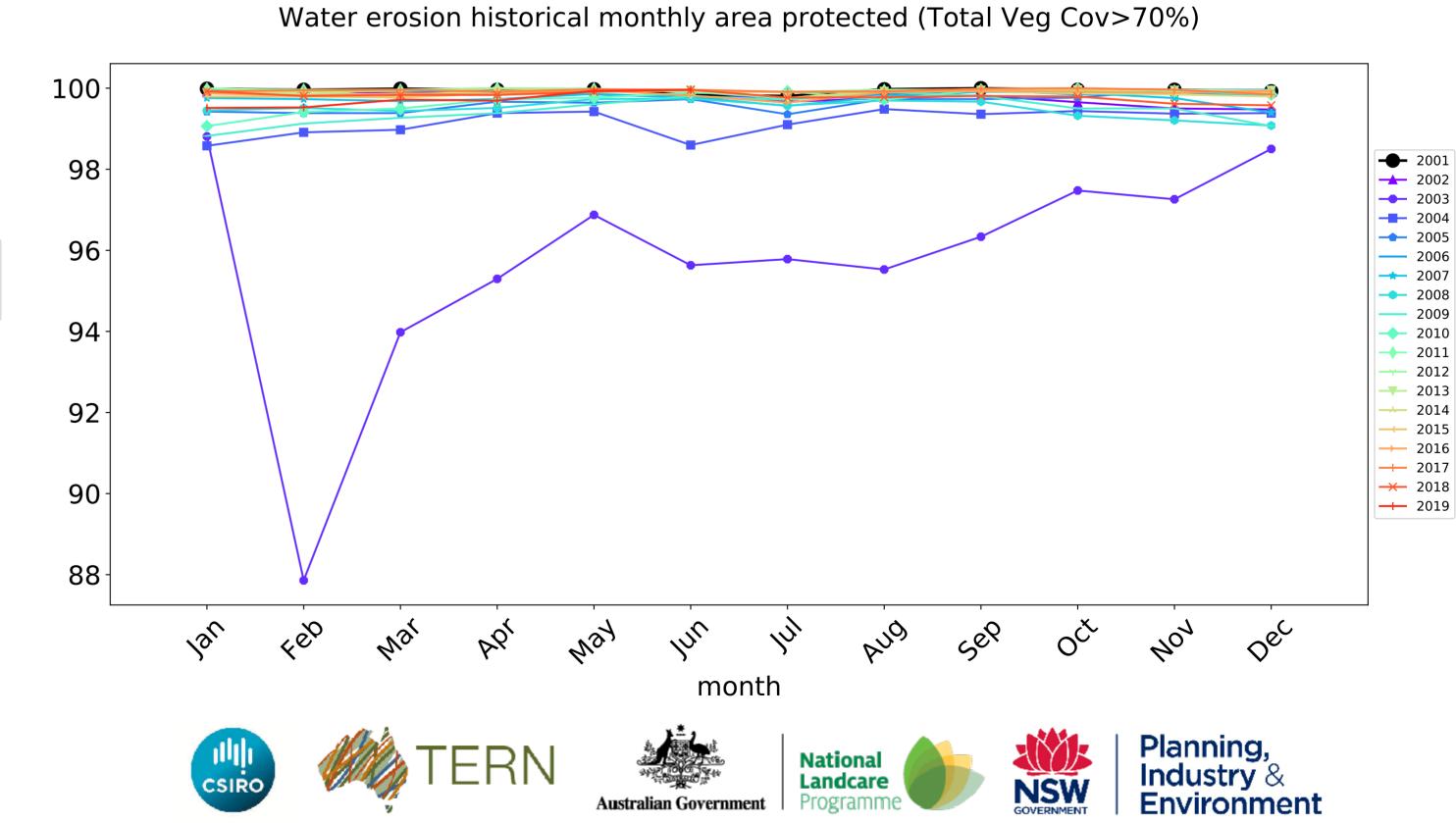








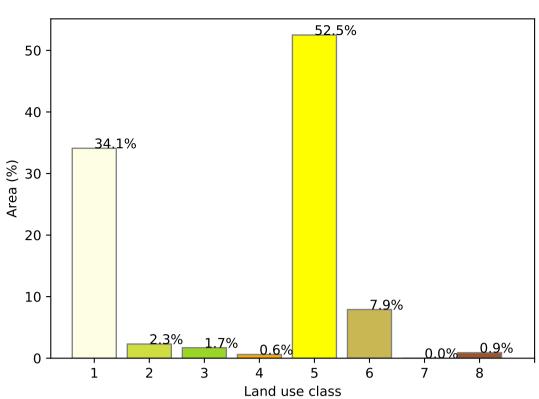




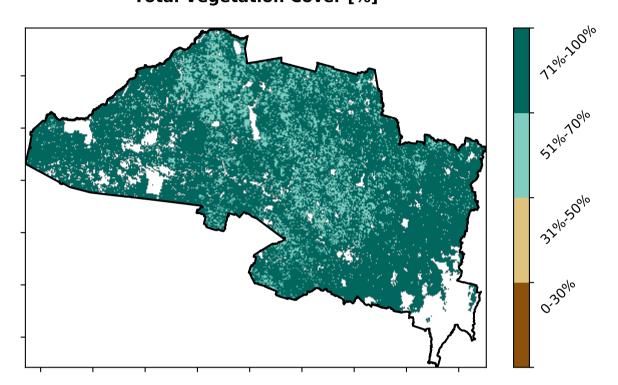
Agriculture

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

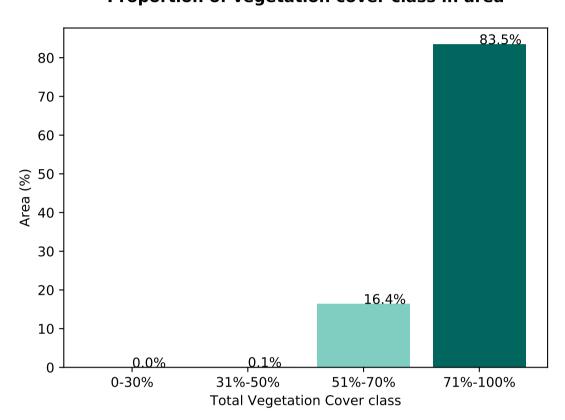
Proportion of each land class in area



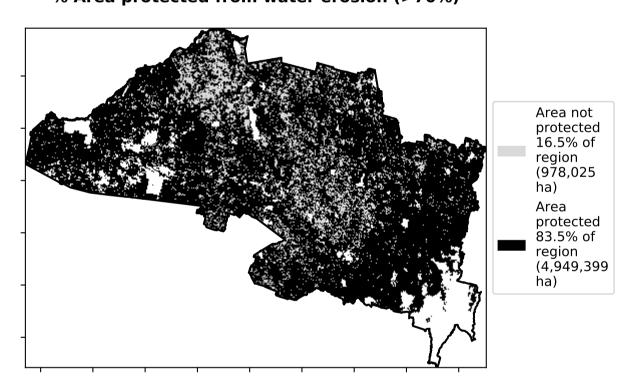
Total Vegetation Cover [%]



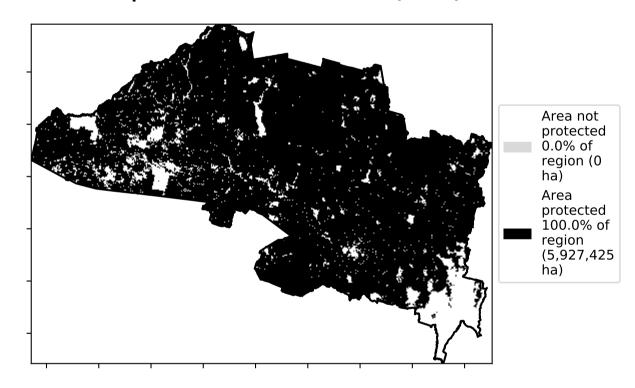
Proportion of vegetation cover class in area



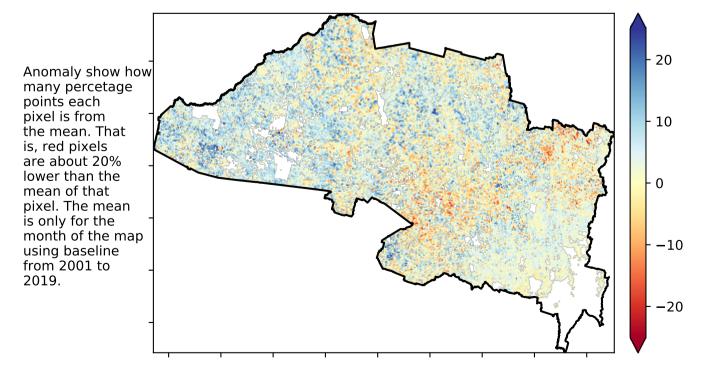
% Area protected from water erosion (>70%)



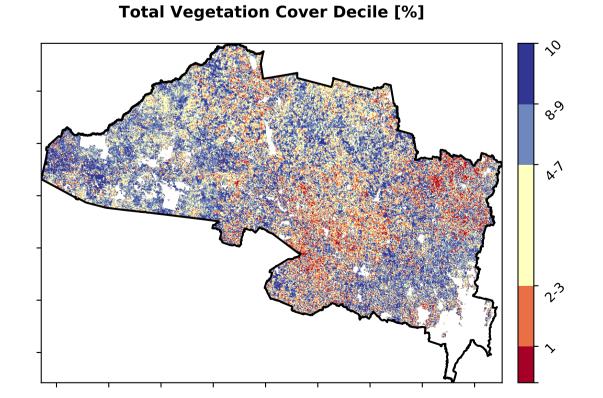
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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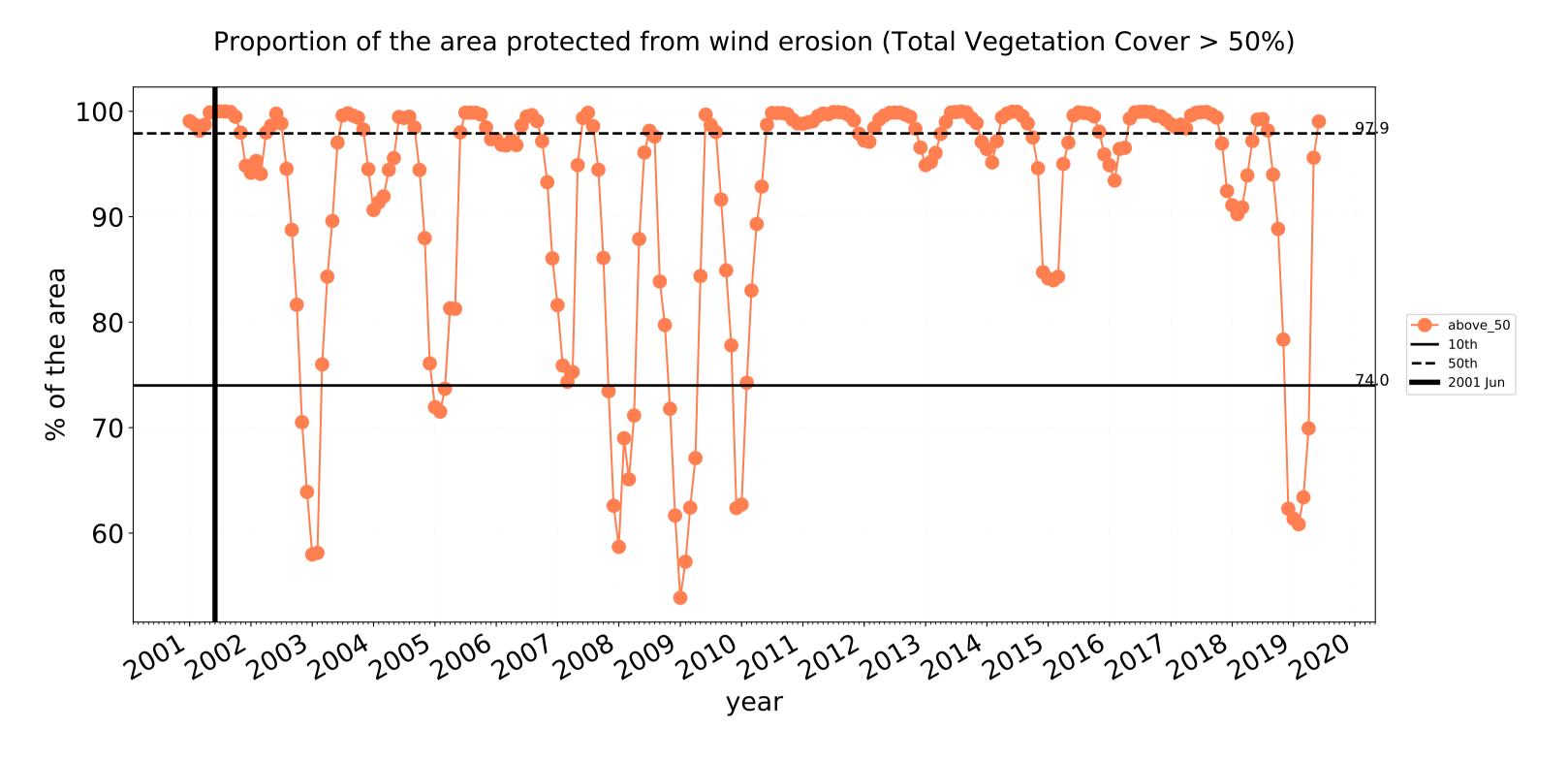


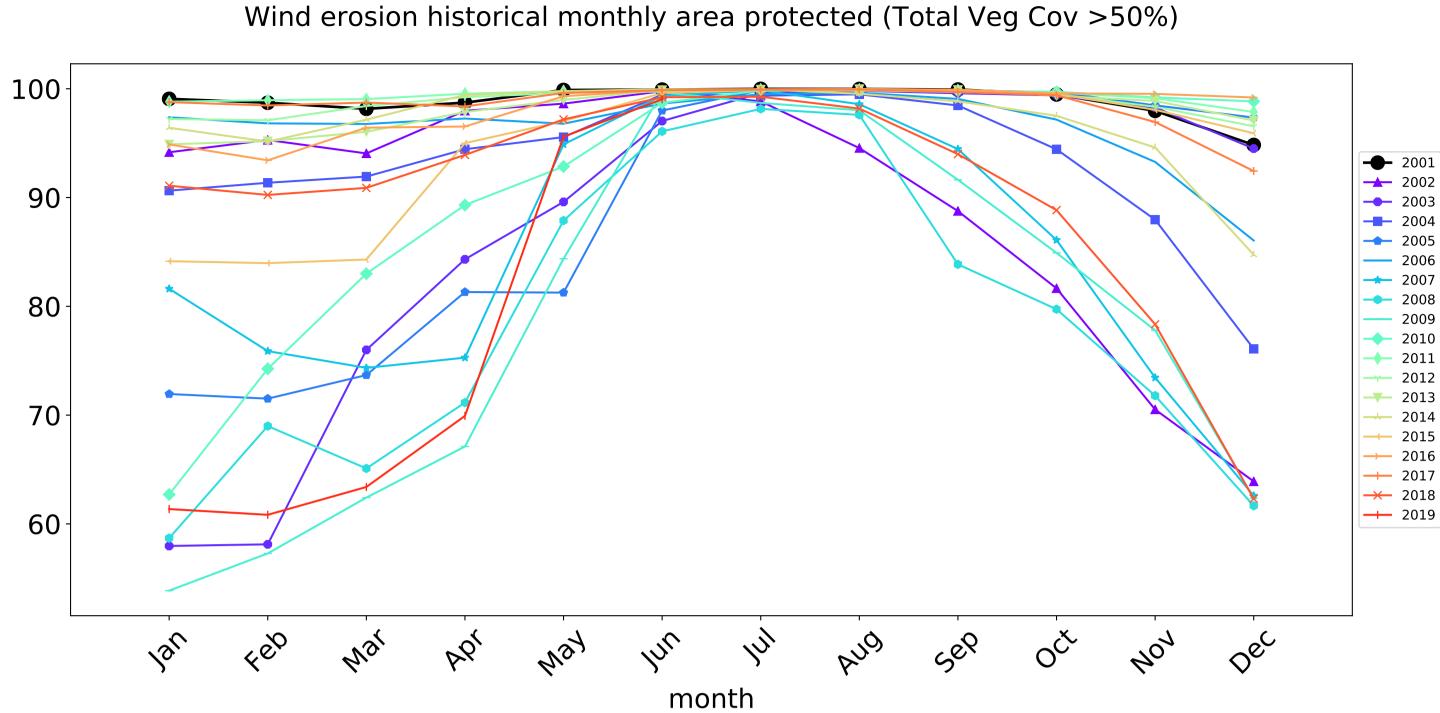


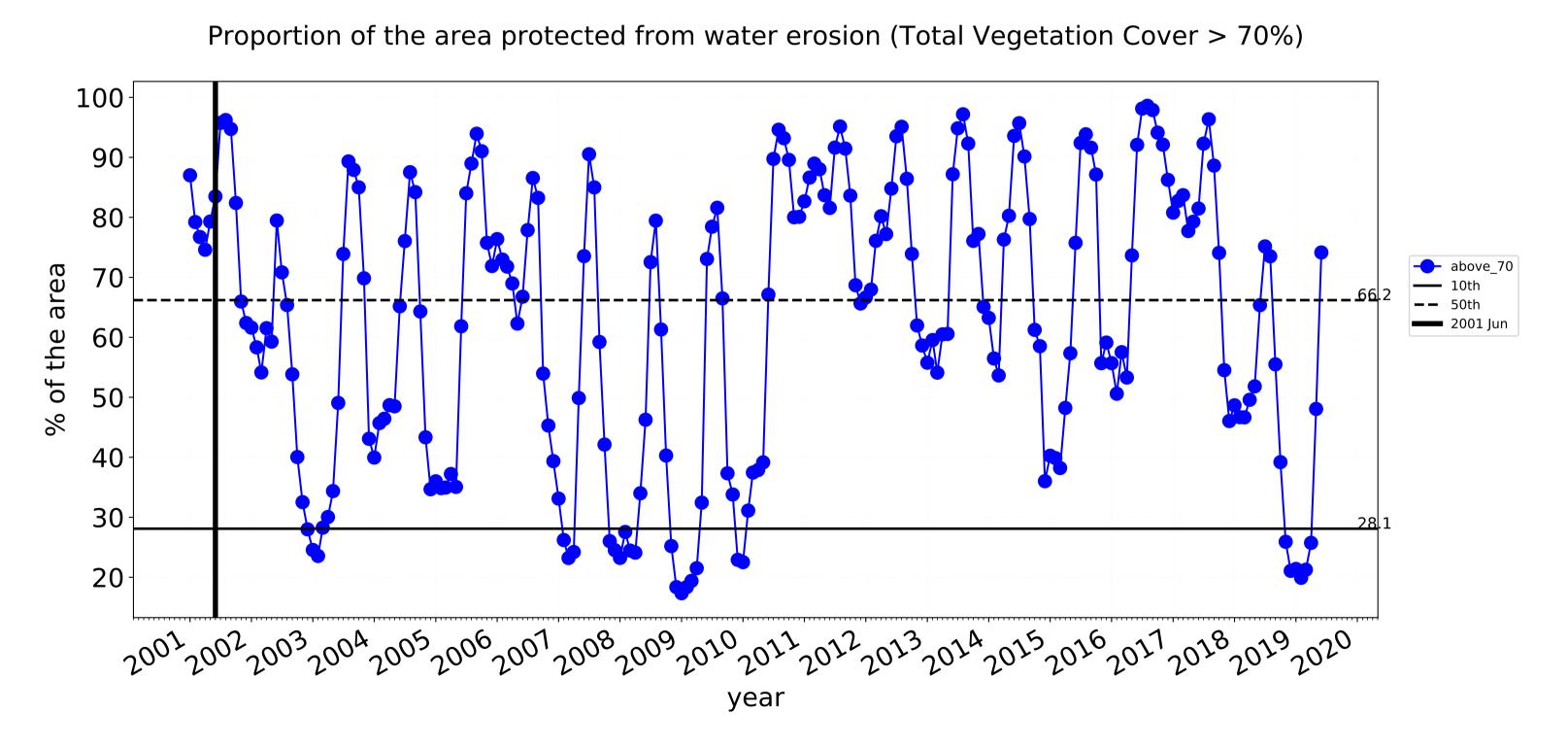


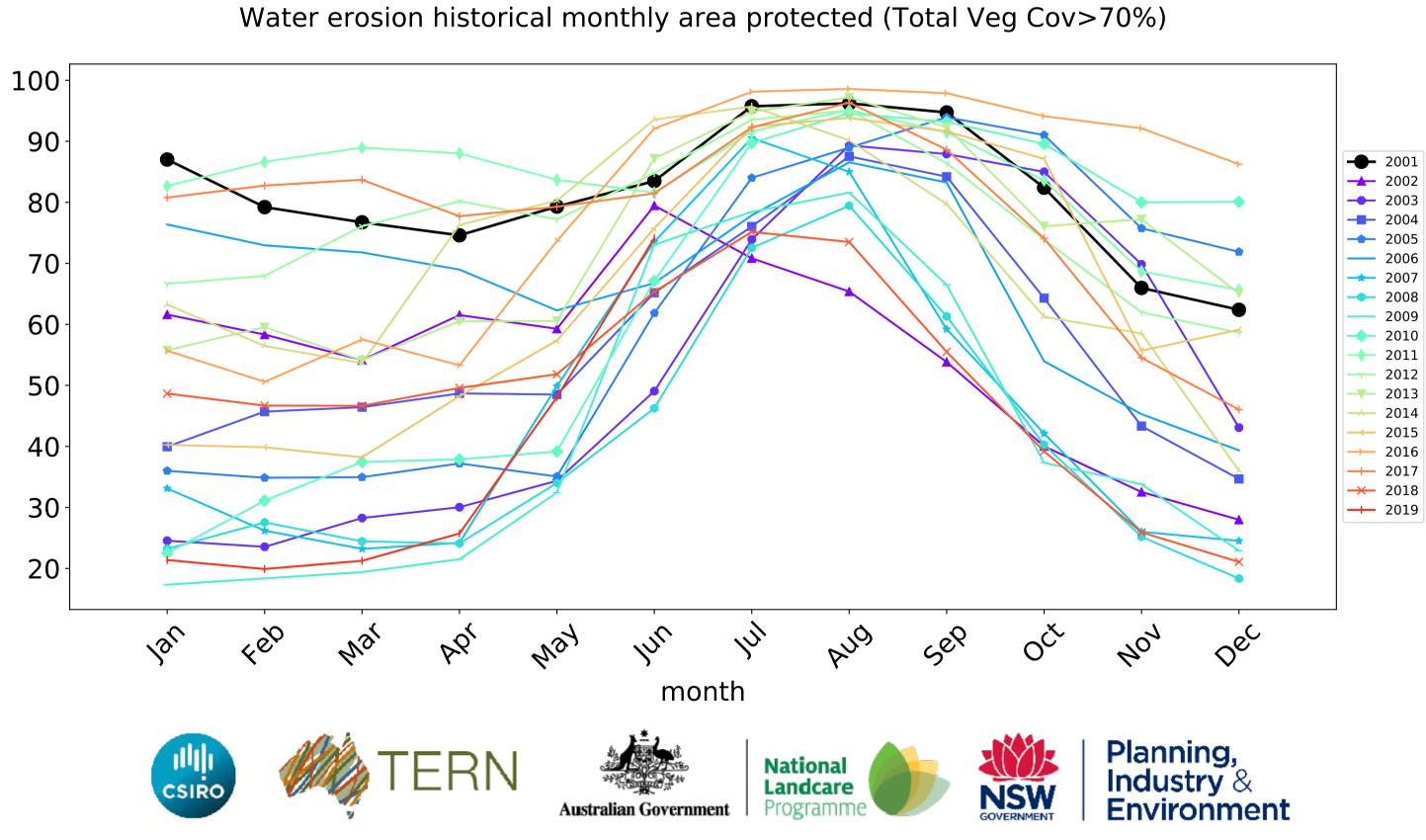


Agriculture timeseries

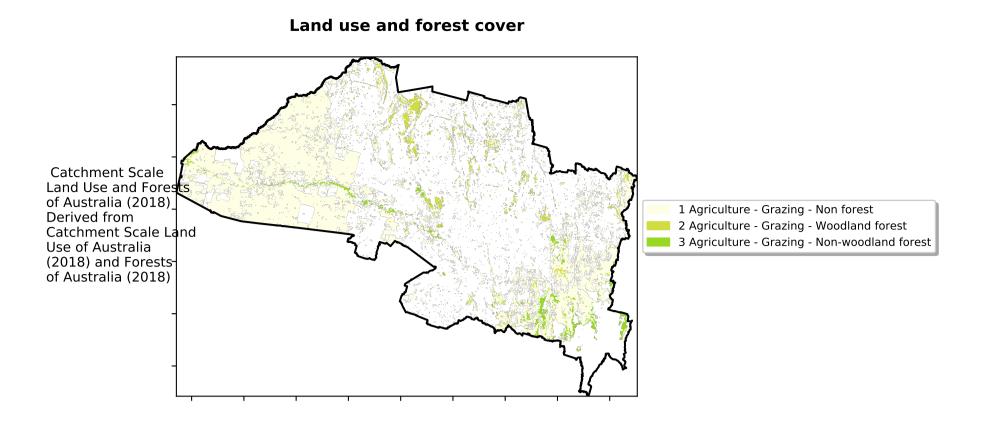




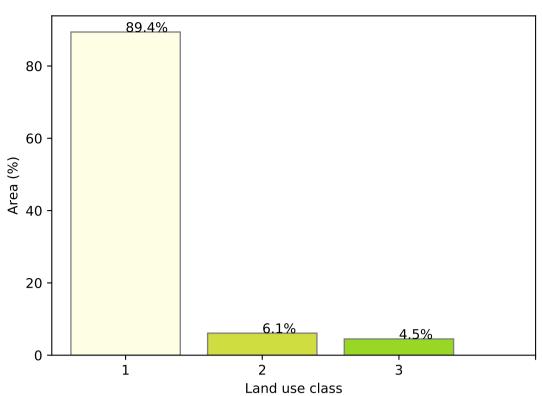




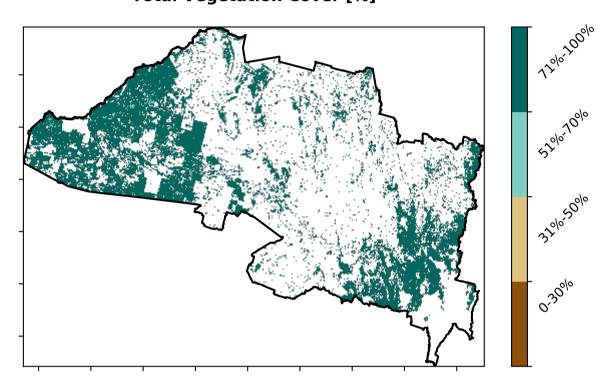
Grazing



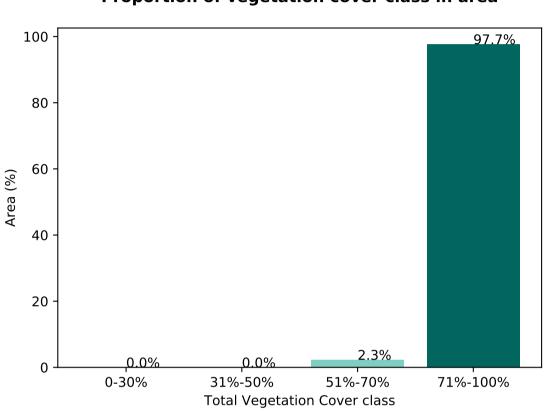
Proportion of each land class in area



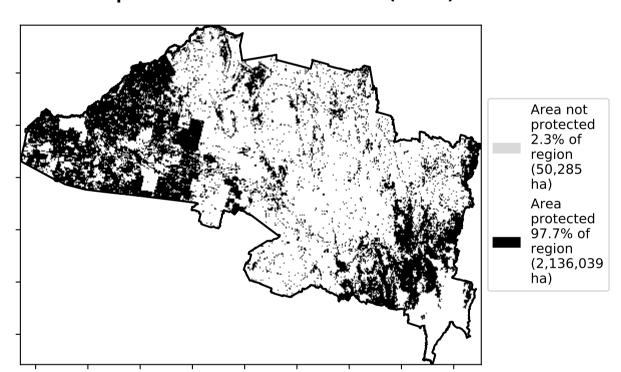
Total Vegetation Cover [%]



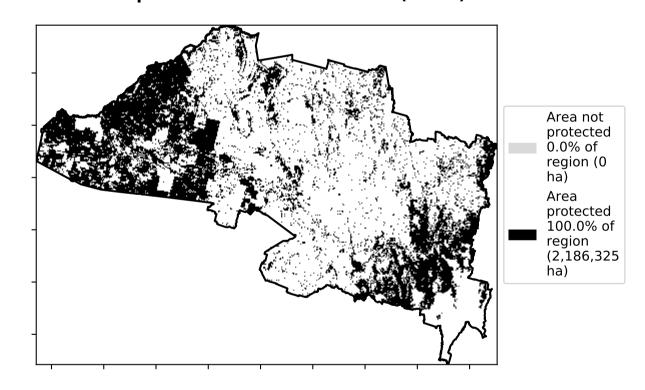
Proportion of vegetation cover class in area



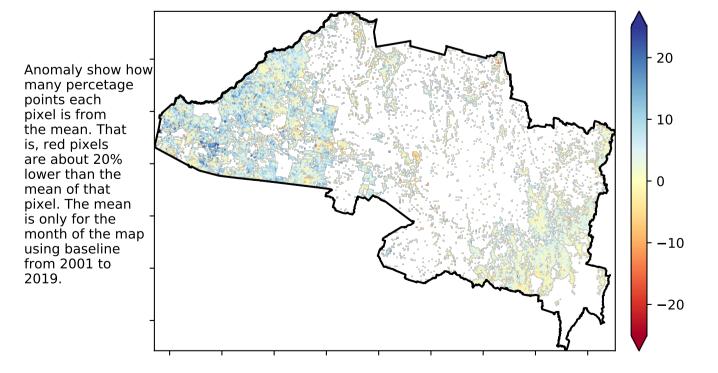
% Area protected from water erosion (>70%)



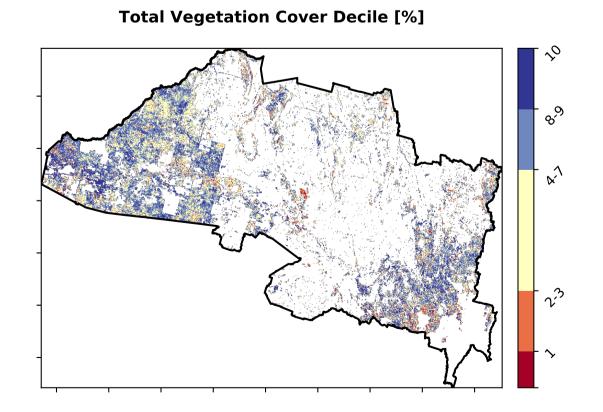
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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.







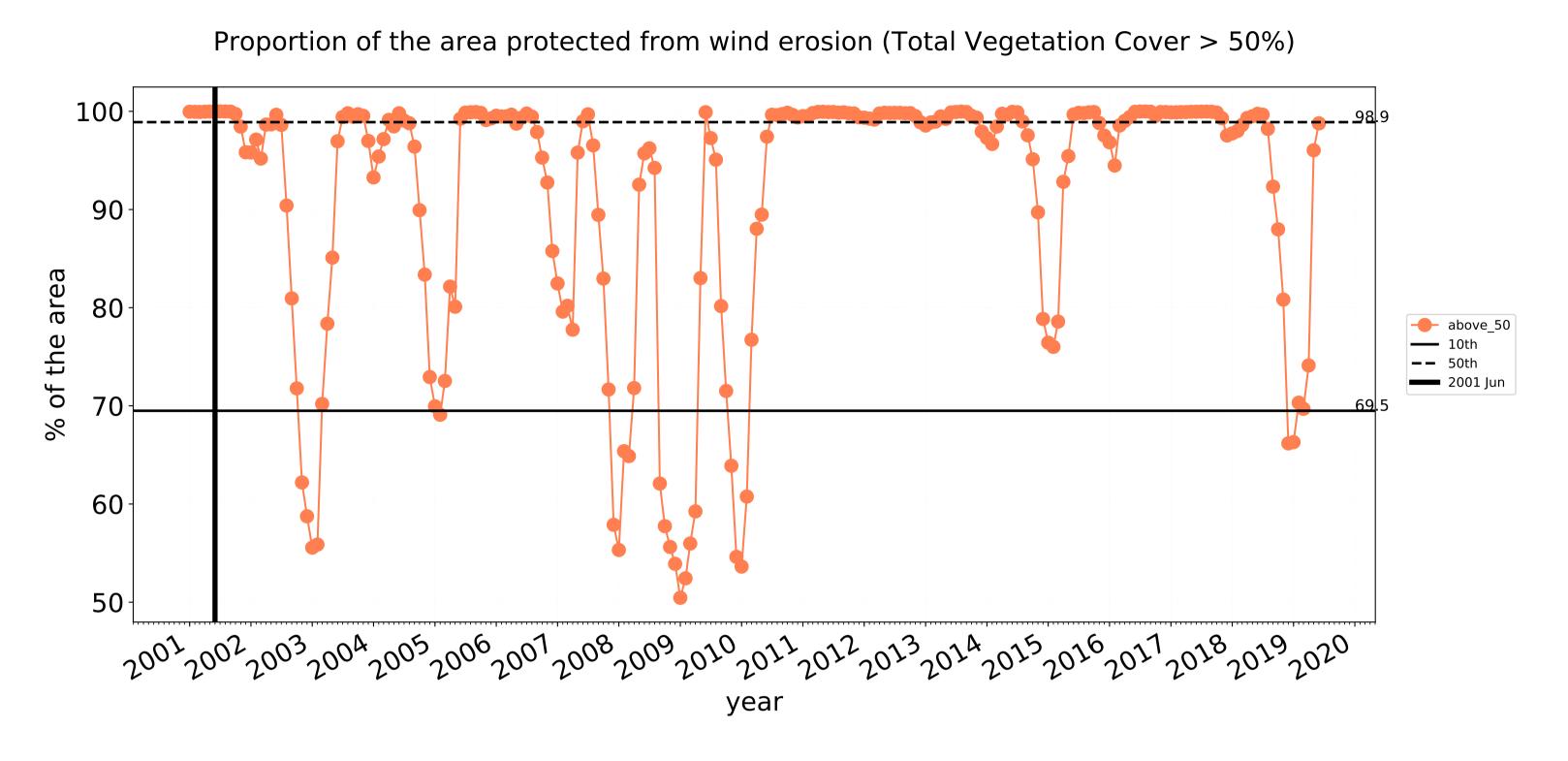


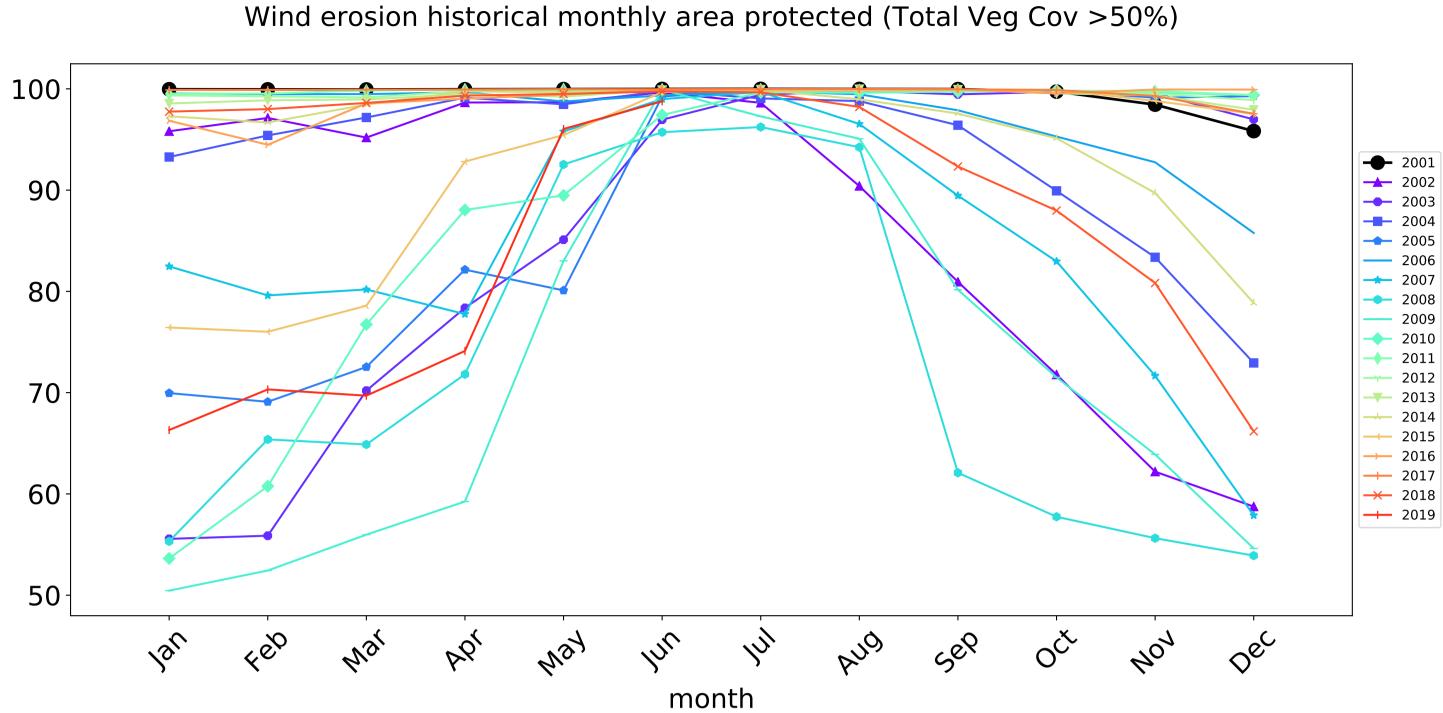


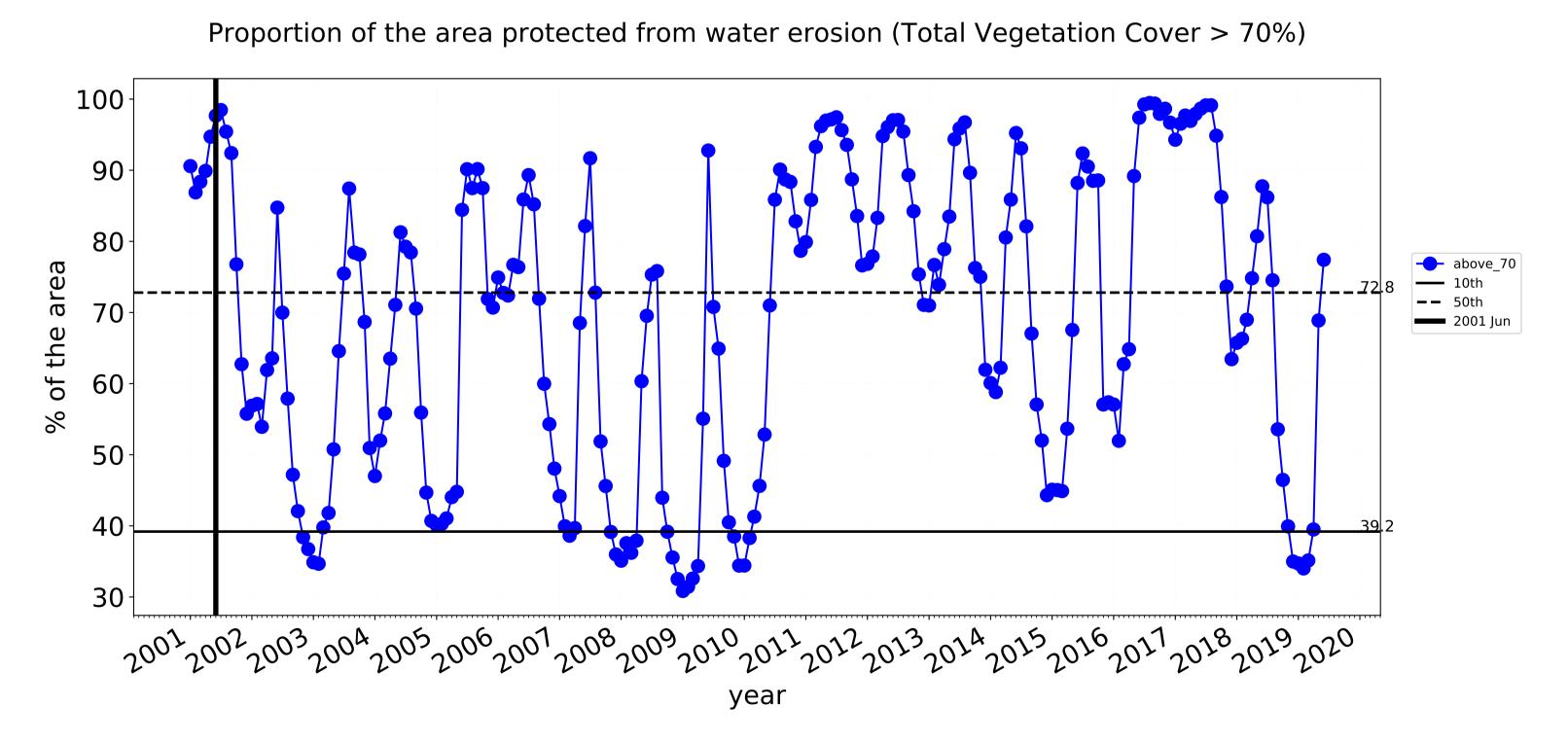


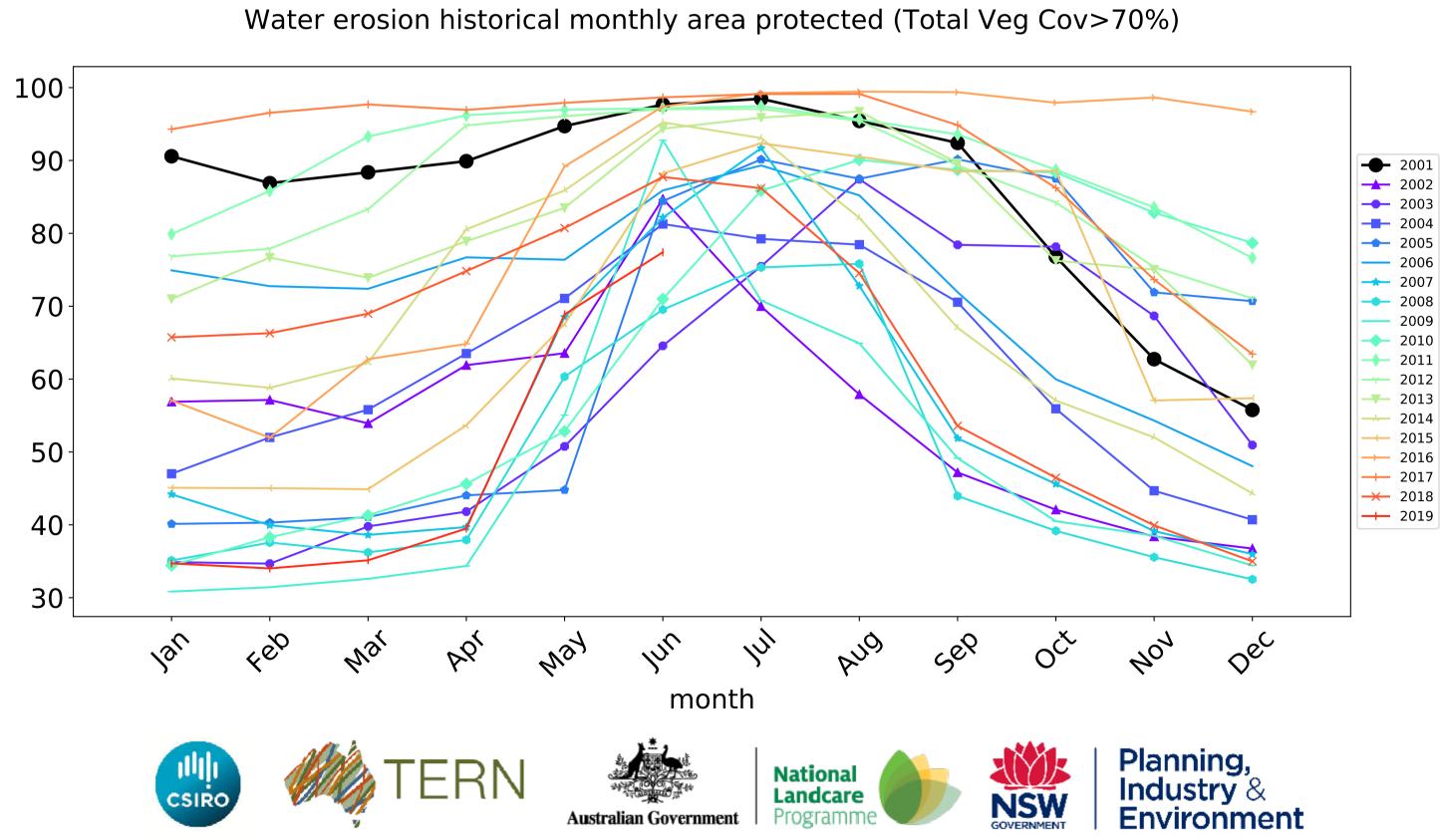


Grazing timeseries



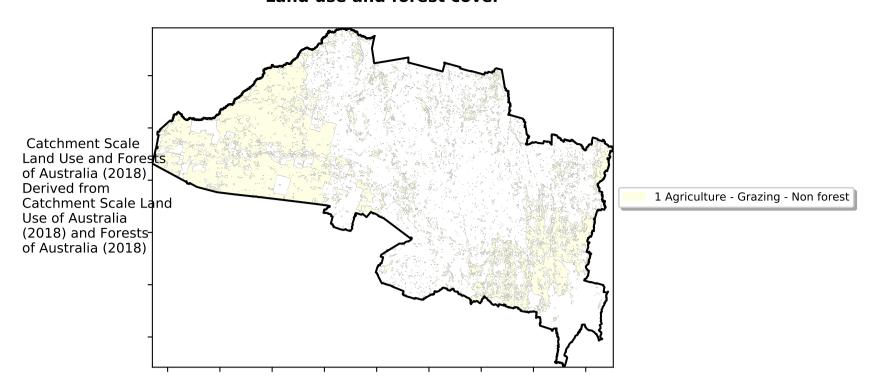




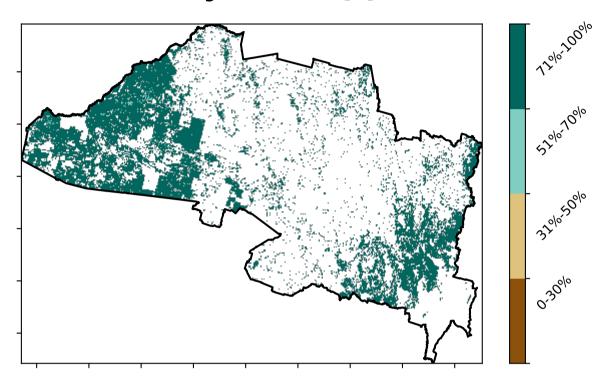


Grazing non forest

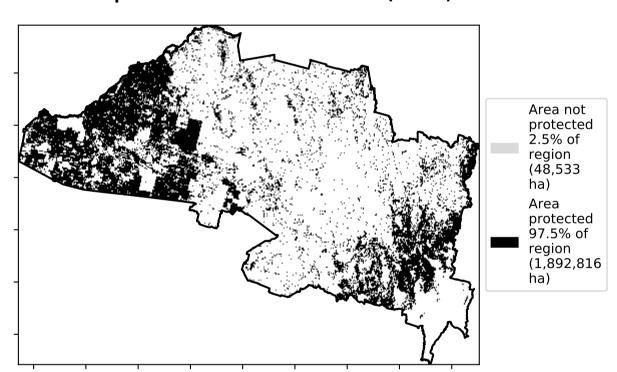
Land use and forest cover



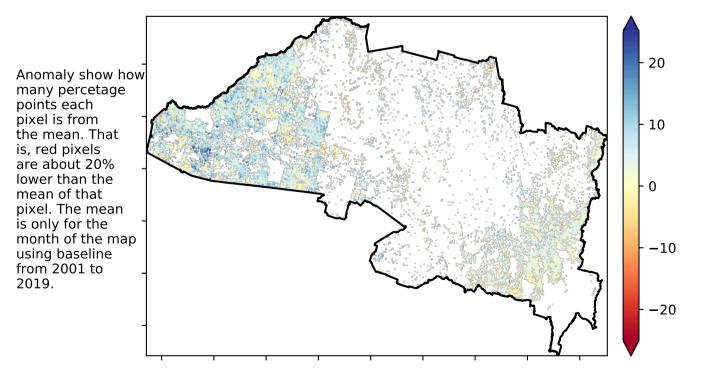
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

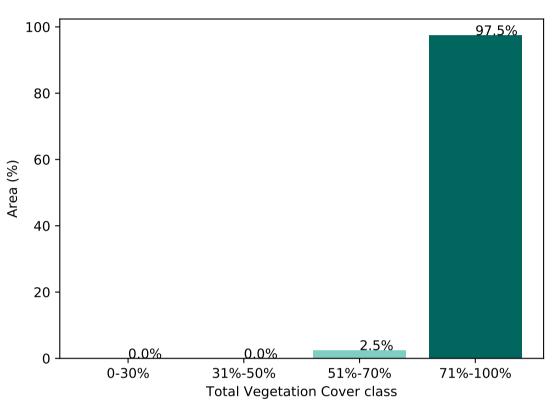


Total Vegetation Cover Anomaly [%]

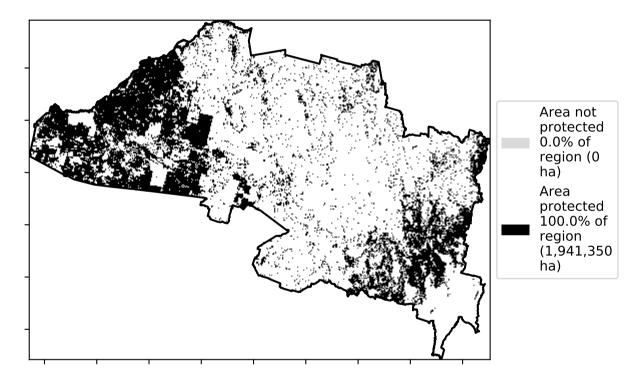


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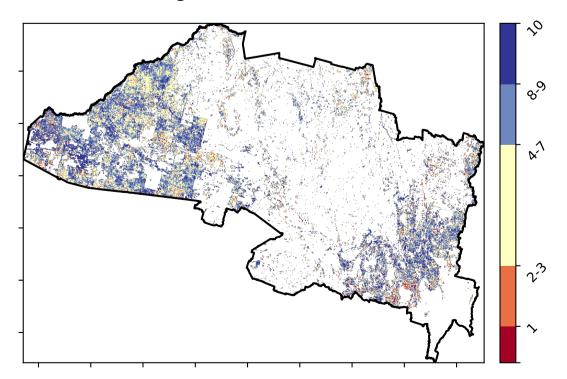
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







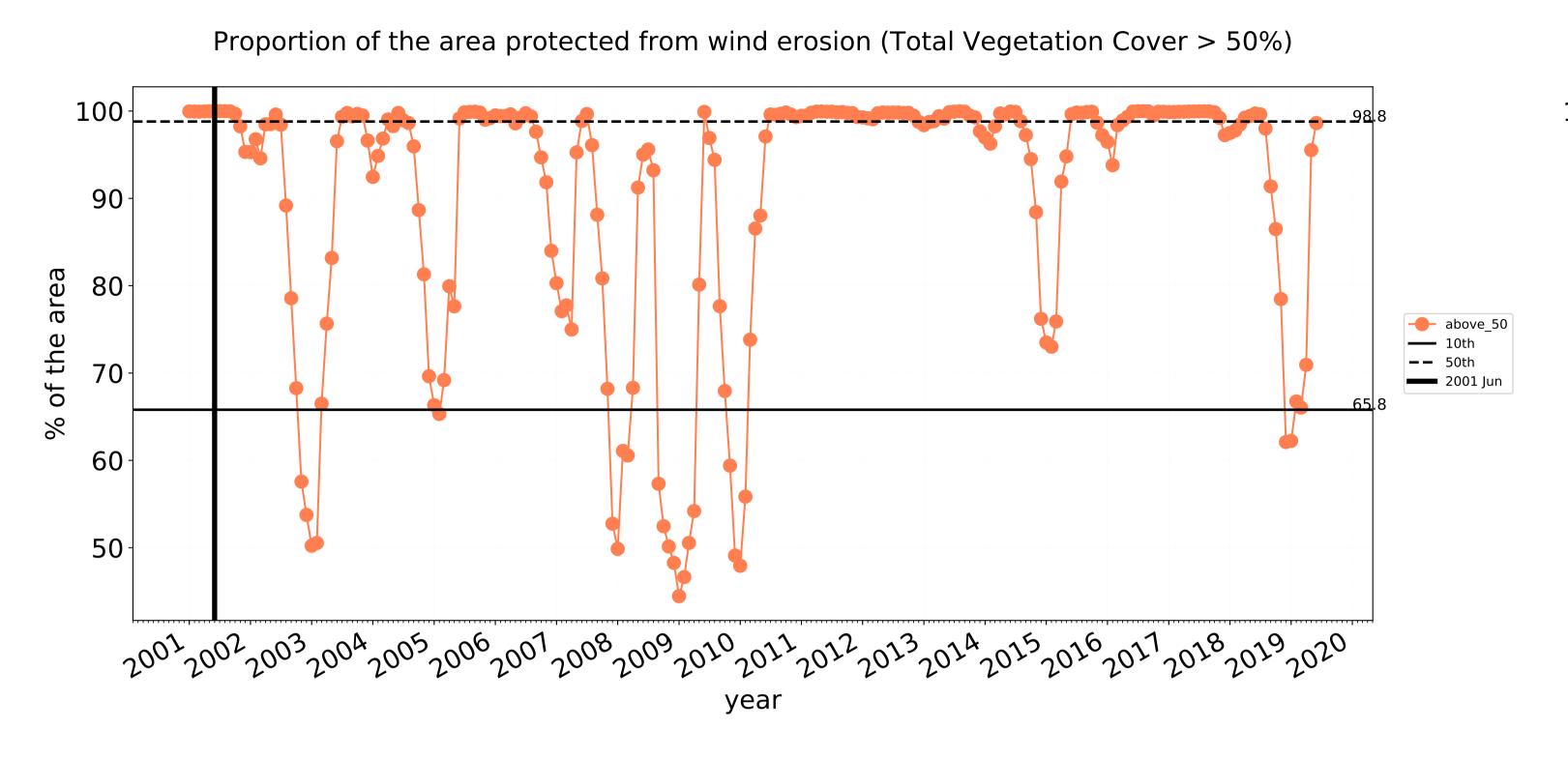


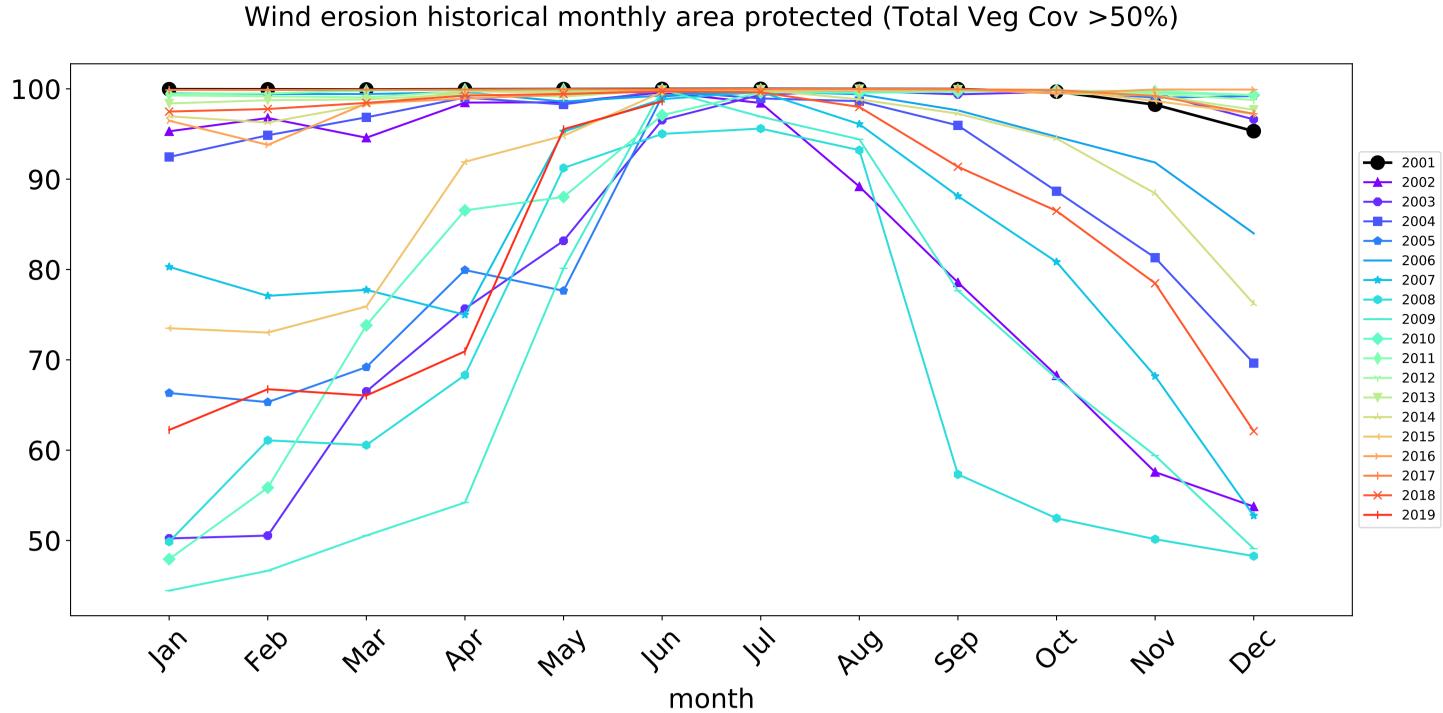


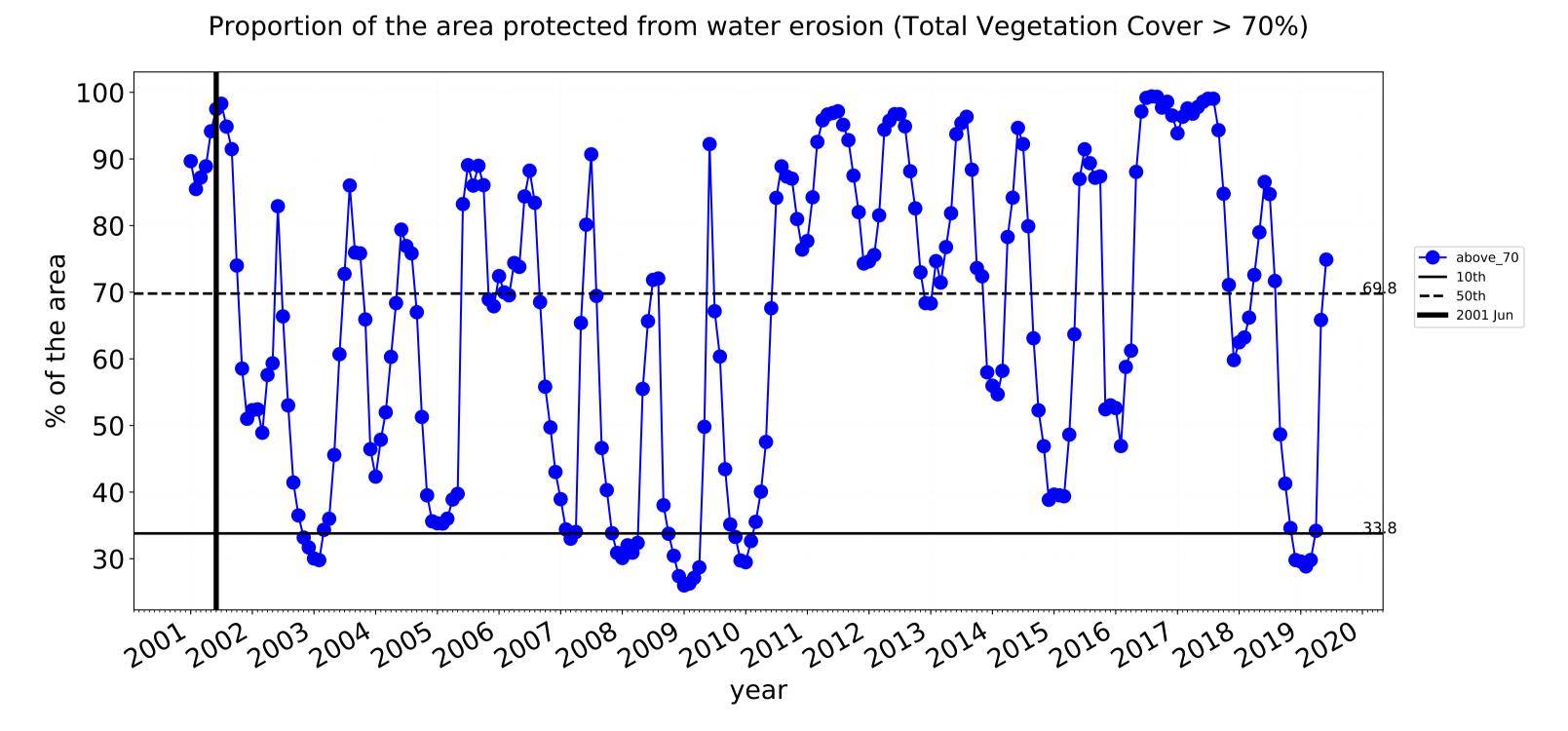


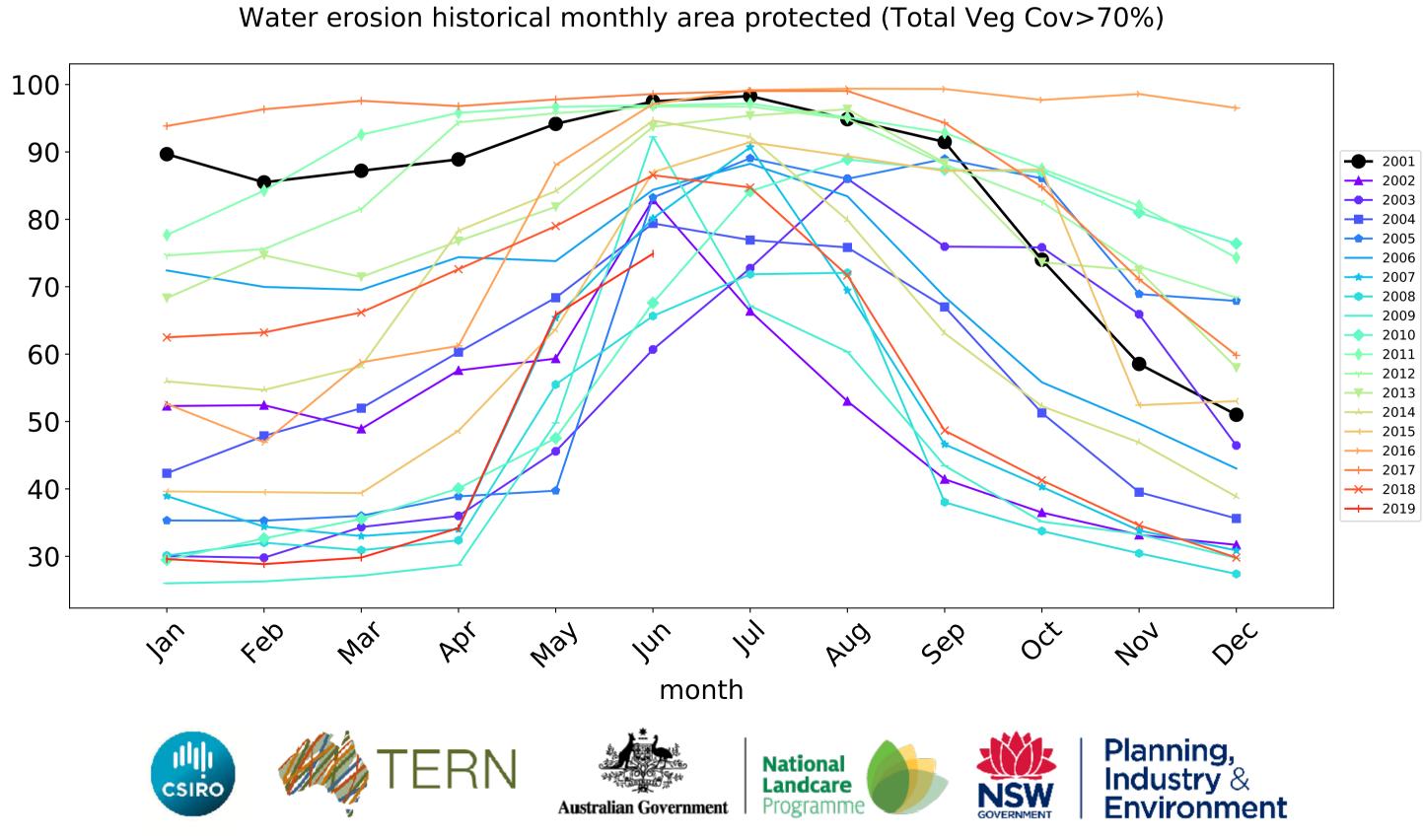


Grazing non forest timeseries



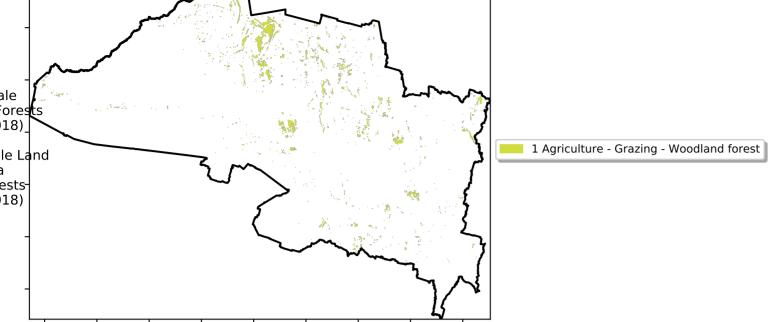






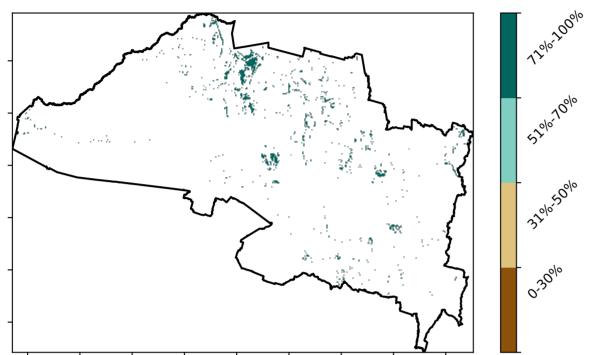
Grazing Woodland forest

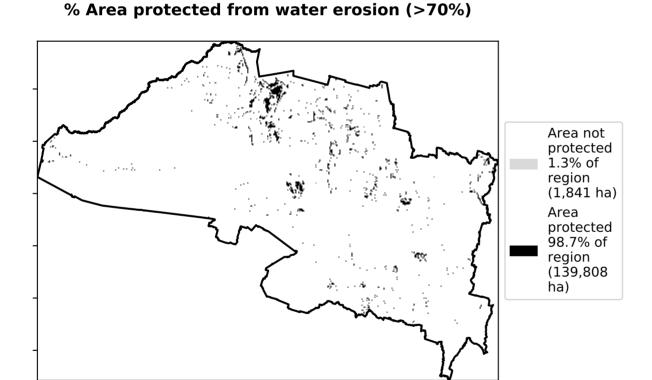
Catchment Scale
Land Use and Forests
of Australia (2018)
Derived from Catchment Scale Land Use of Australia (2018) and Forests-of Australia (2018)



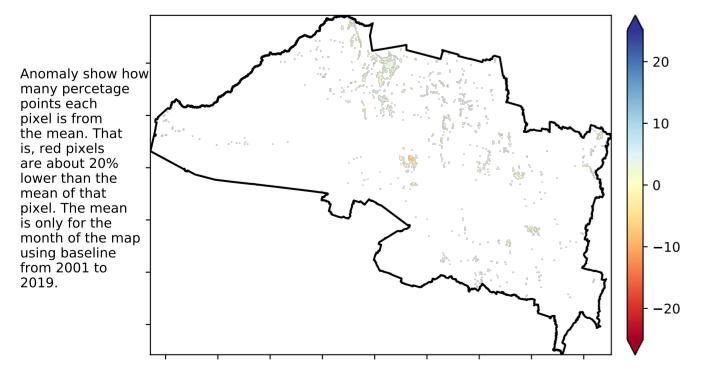
Total Vegetation Cover [%]

Land use and forest cover



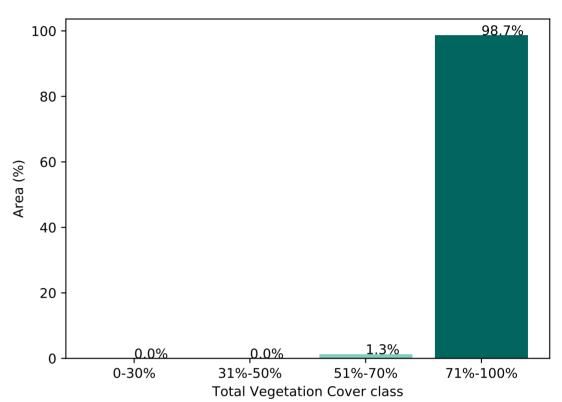


Total Vegetation Cover Anomaly [%]

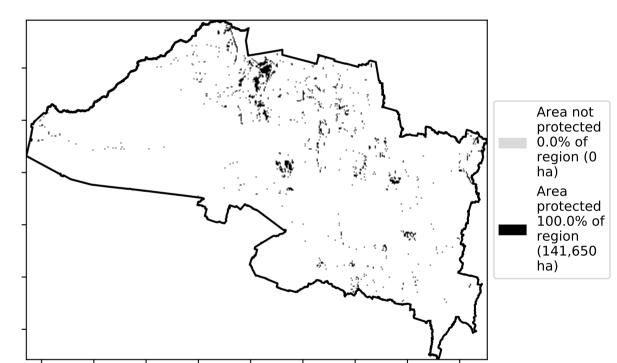


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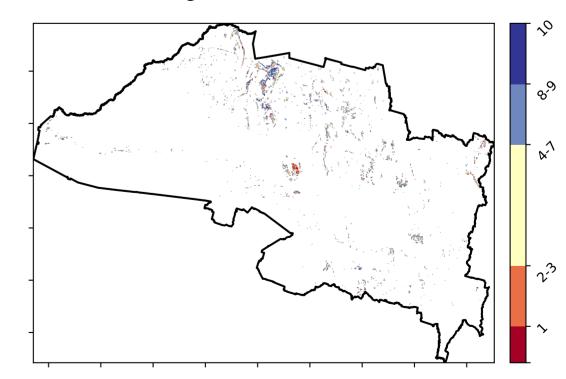
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







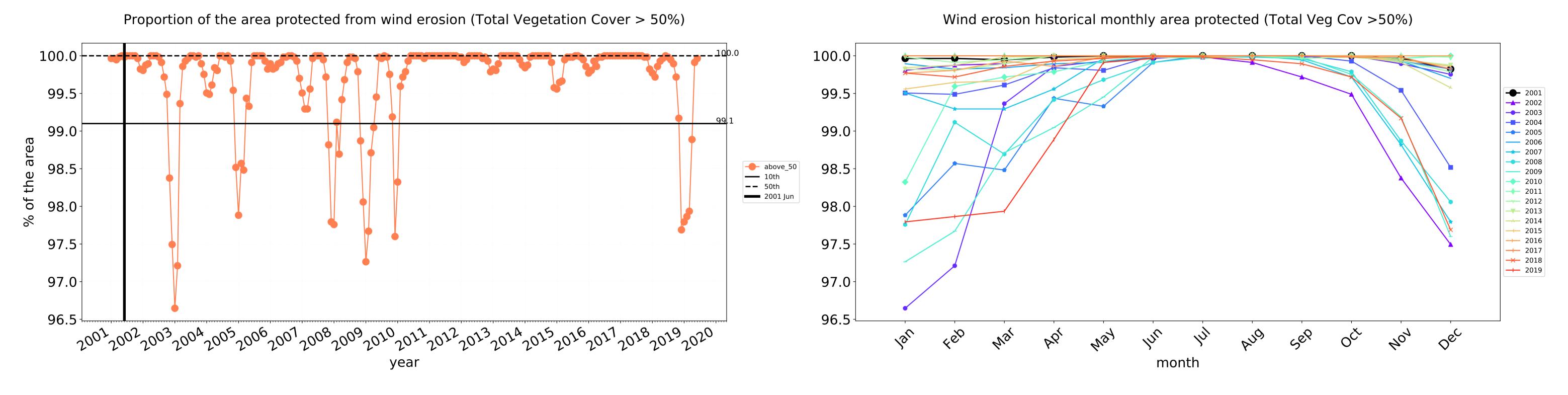


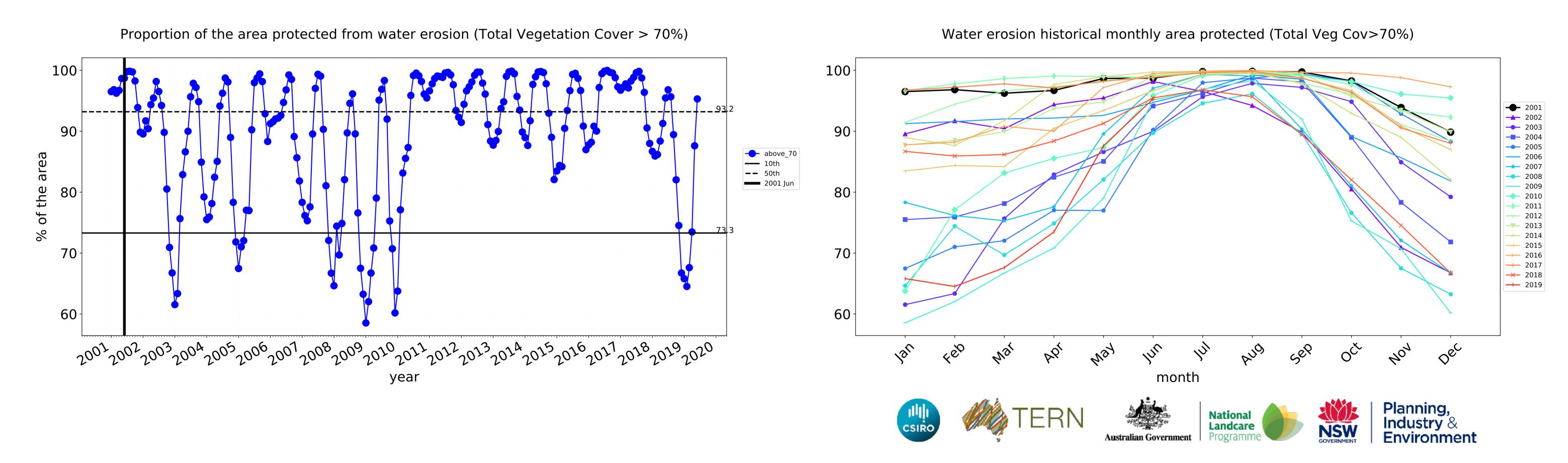






Grazing Woodland forest timeseries



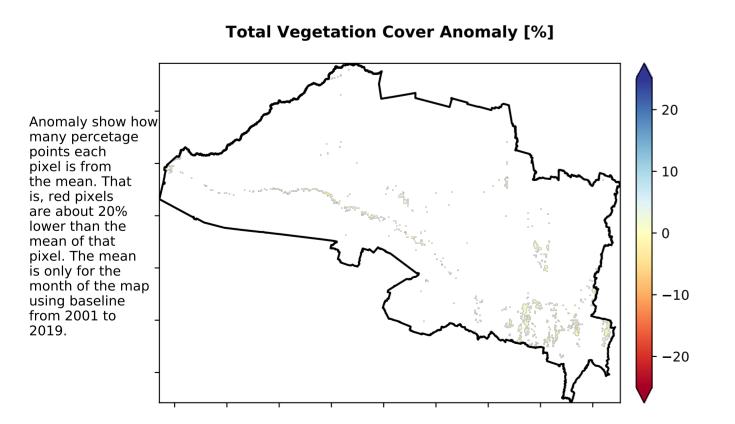


Grazing - Forest (non woodland)

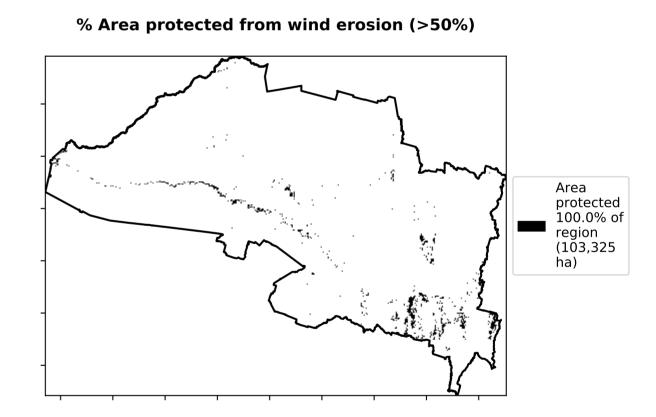
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

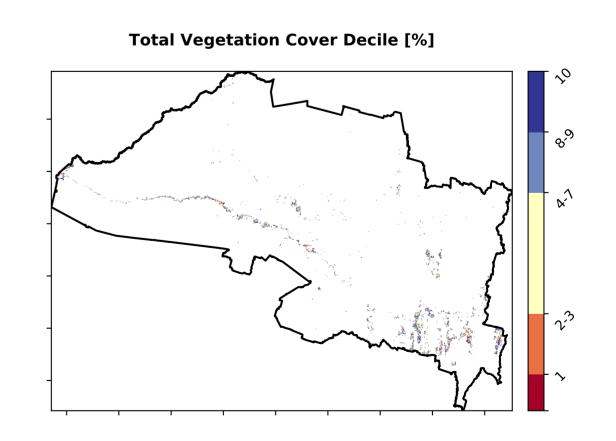
Total Vegetation Cover [%]

% Area protected from water erosion (>70%) Area not protected 0.3% of region (309 ha) Area protected 99.7% of region (103,015 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.







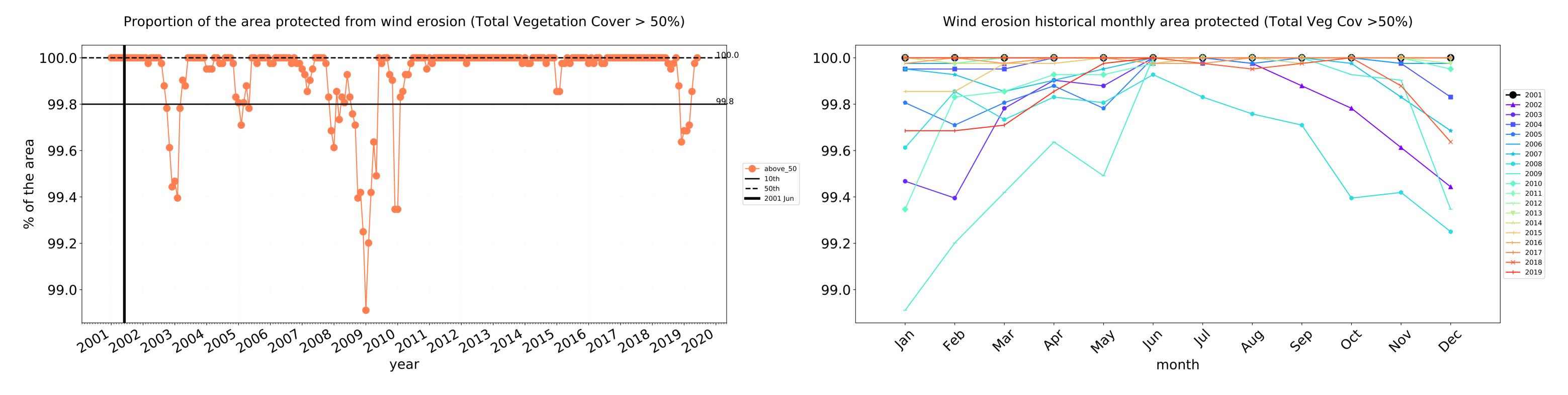


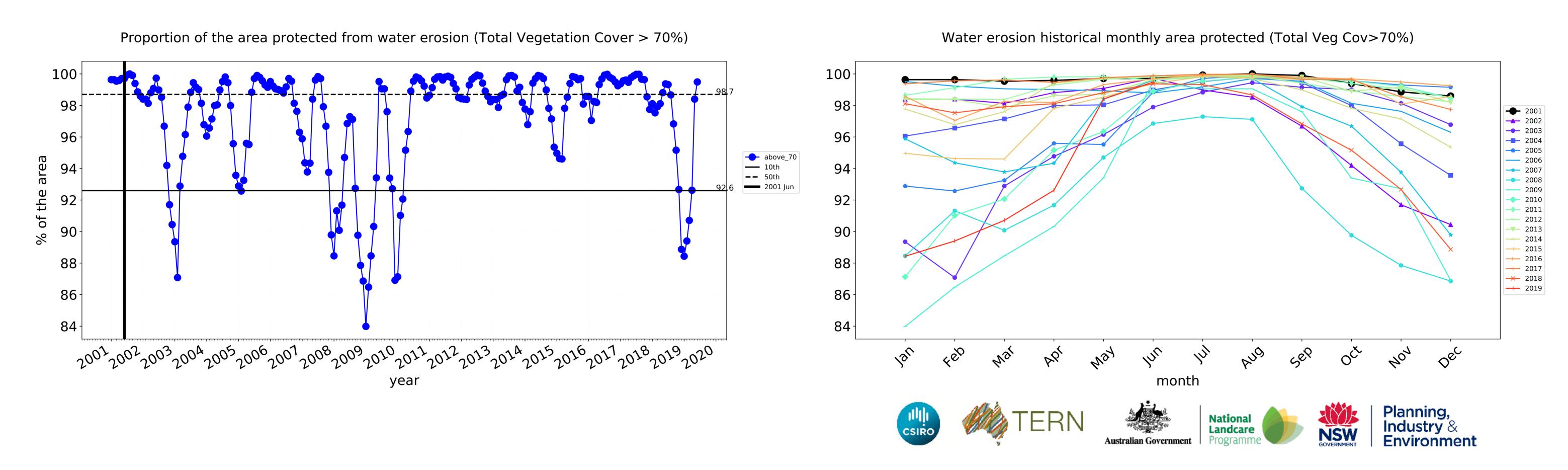






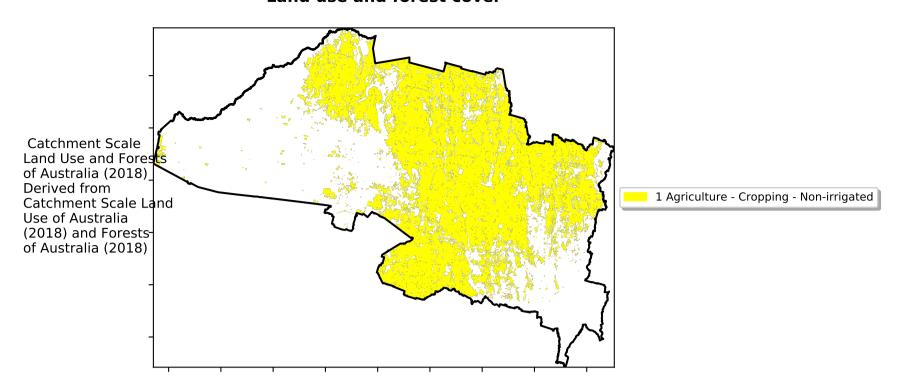




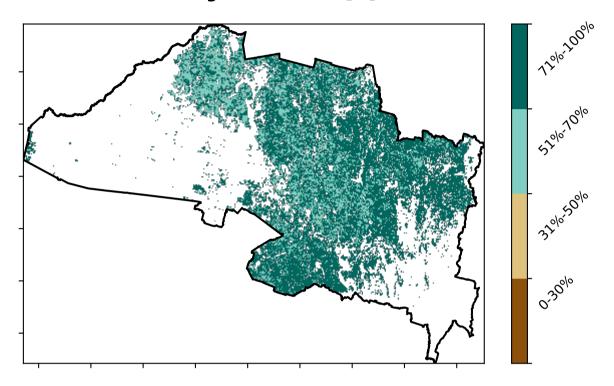


Cropping

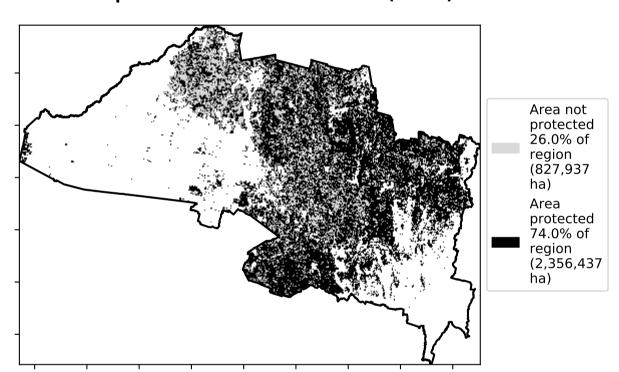
Land use and forest cover



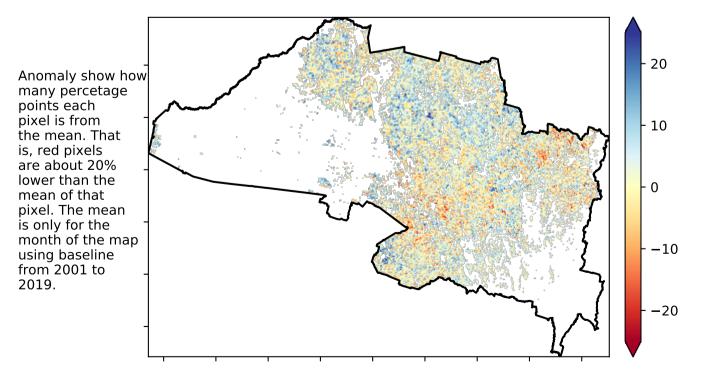
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

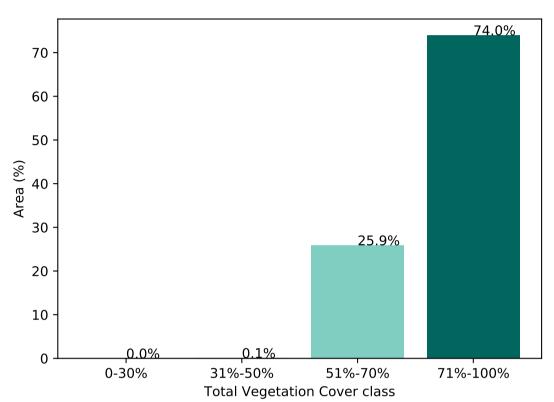


Total Vegetation Cover Anomaly [%]

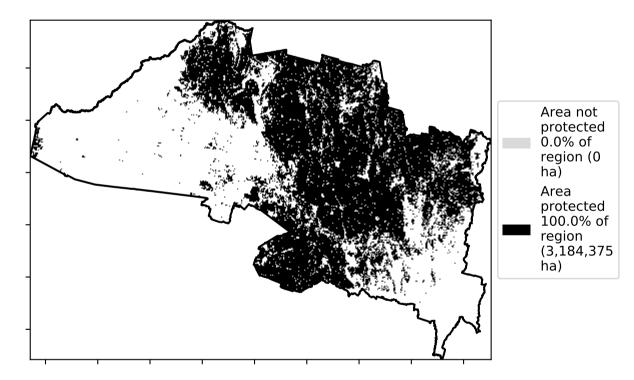


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

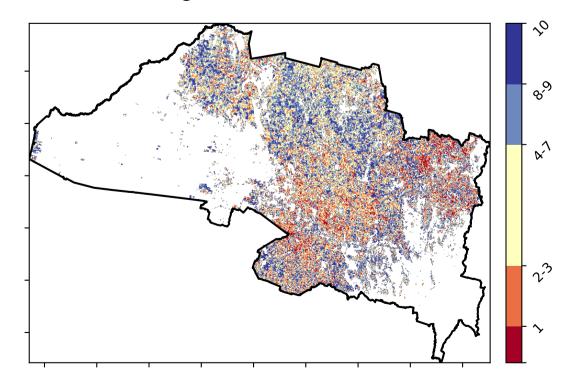
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







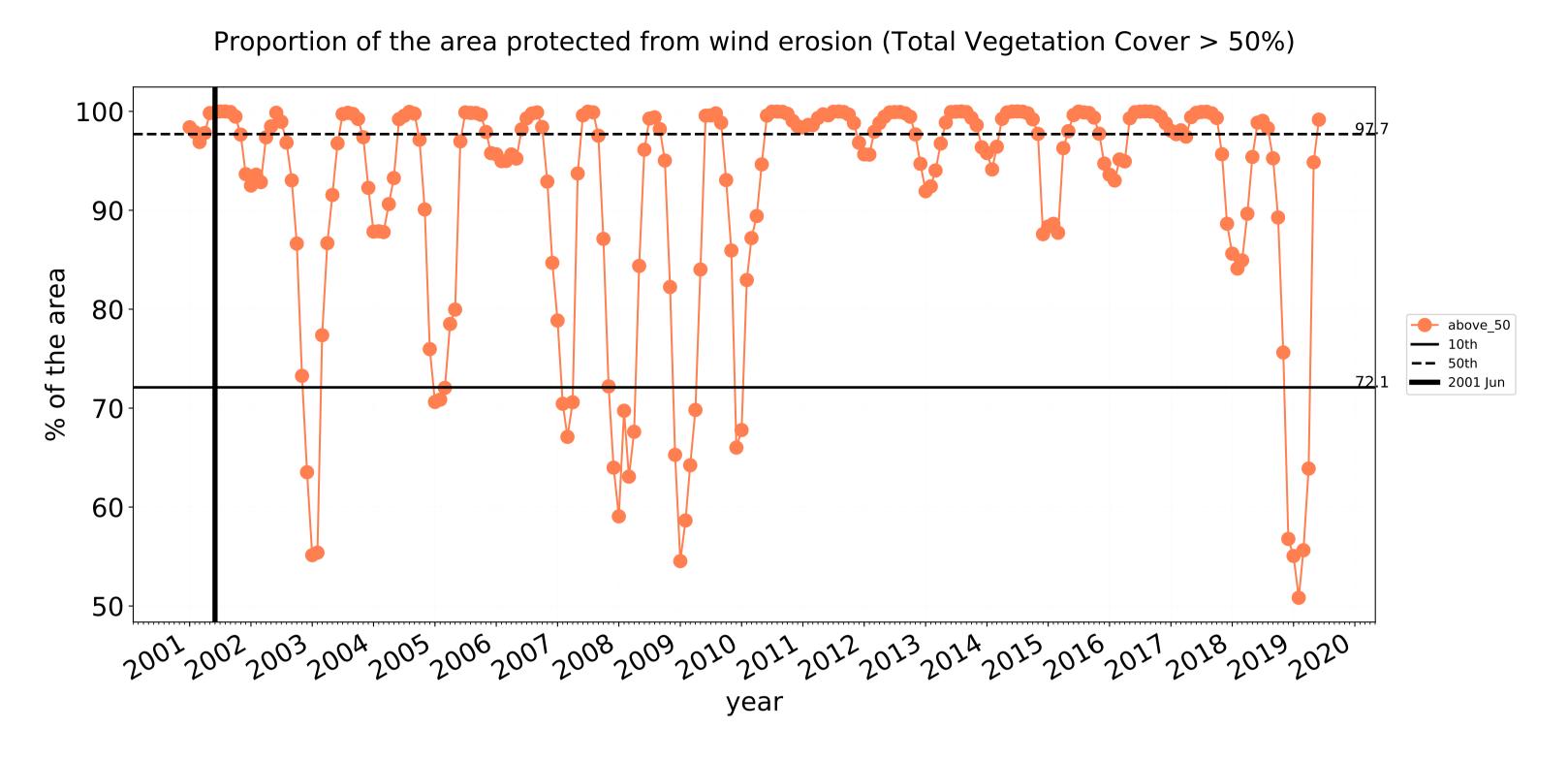


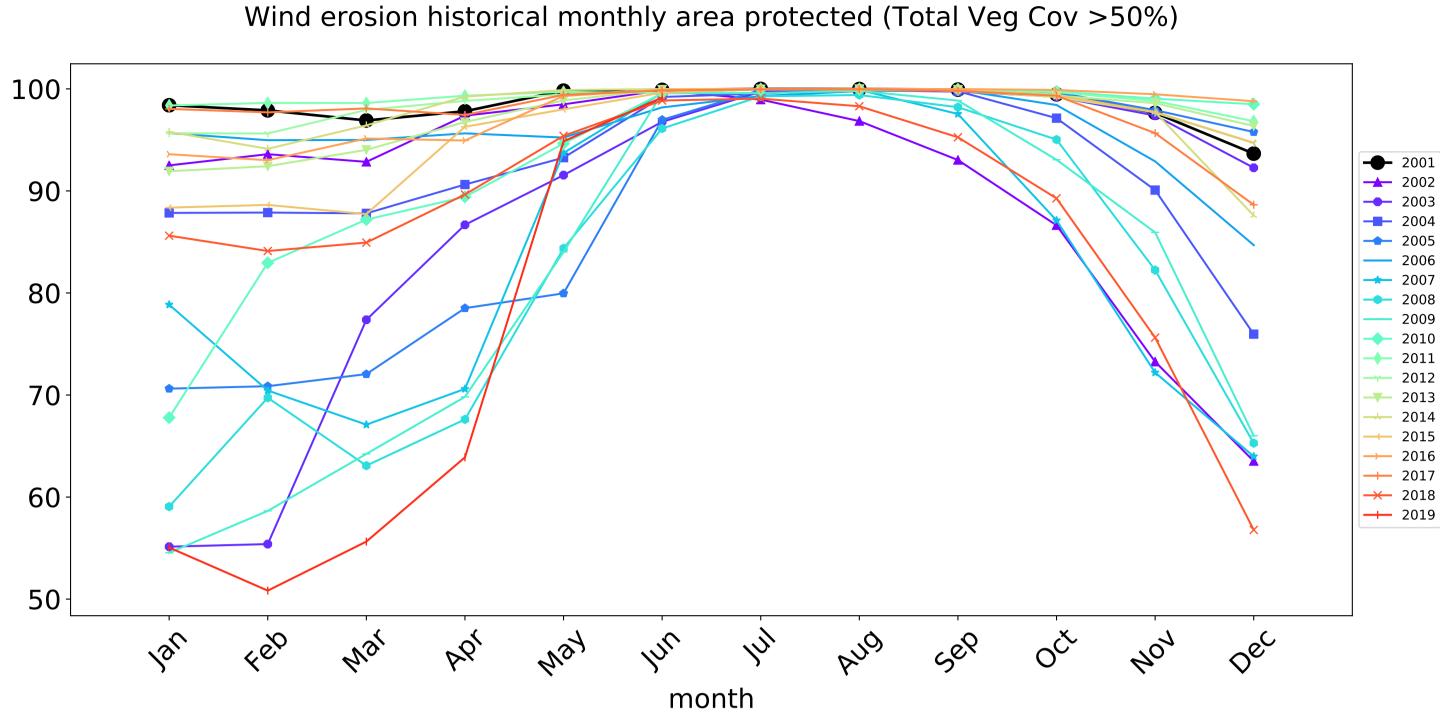


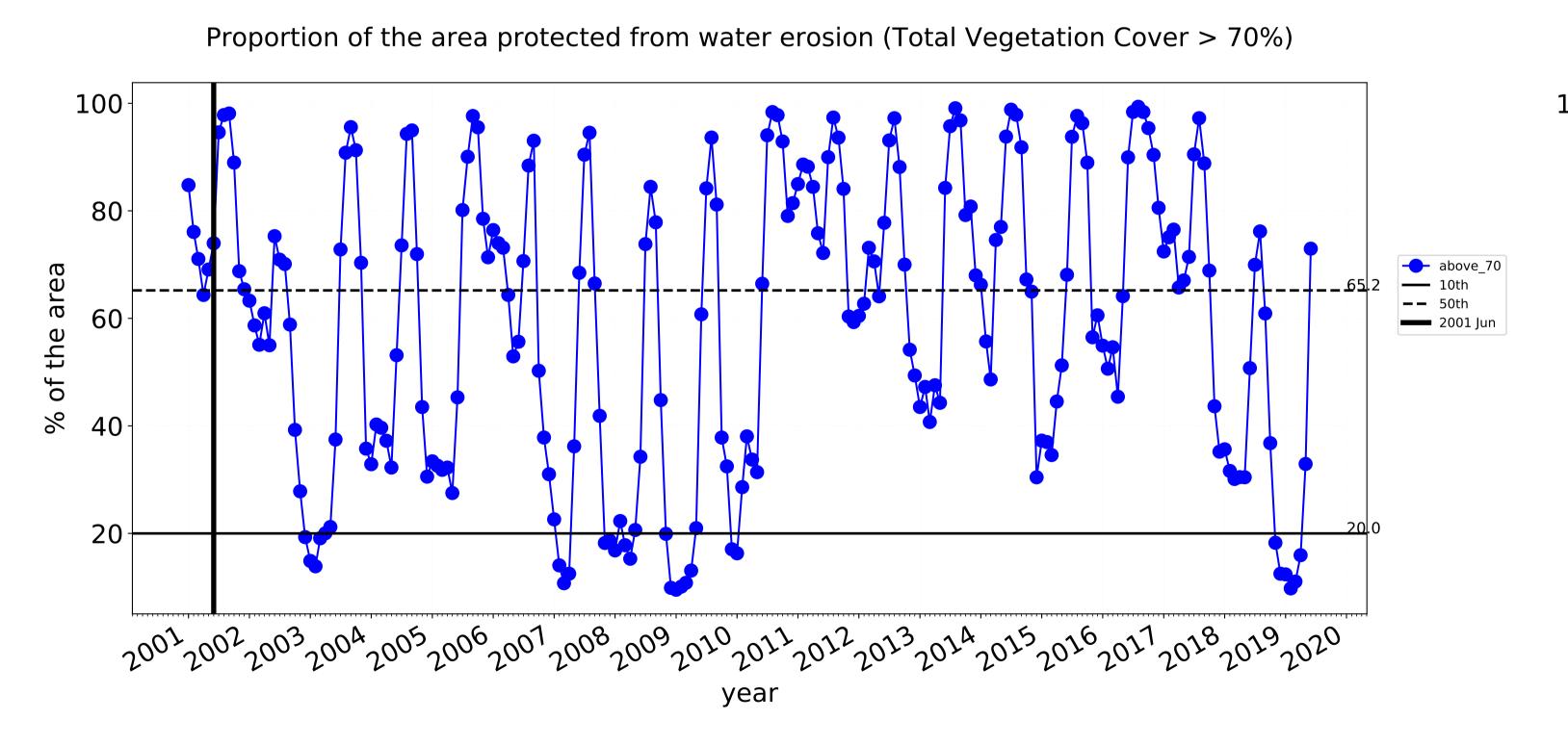


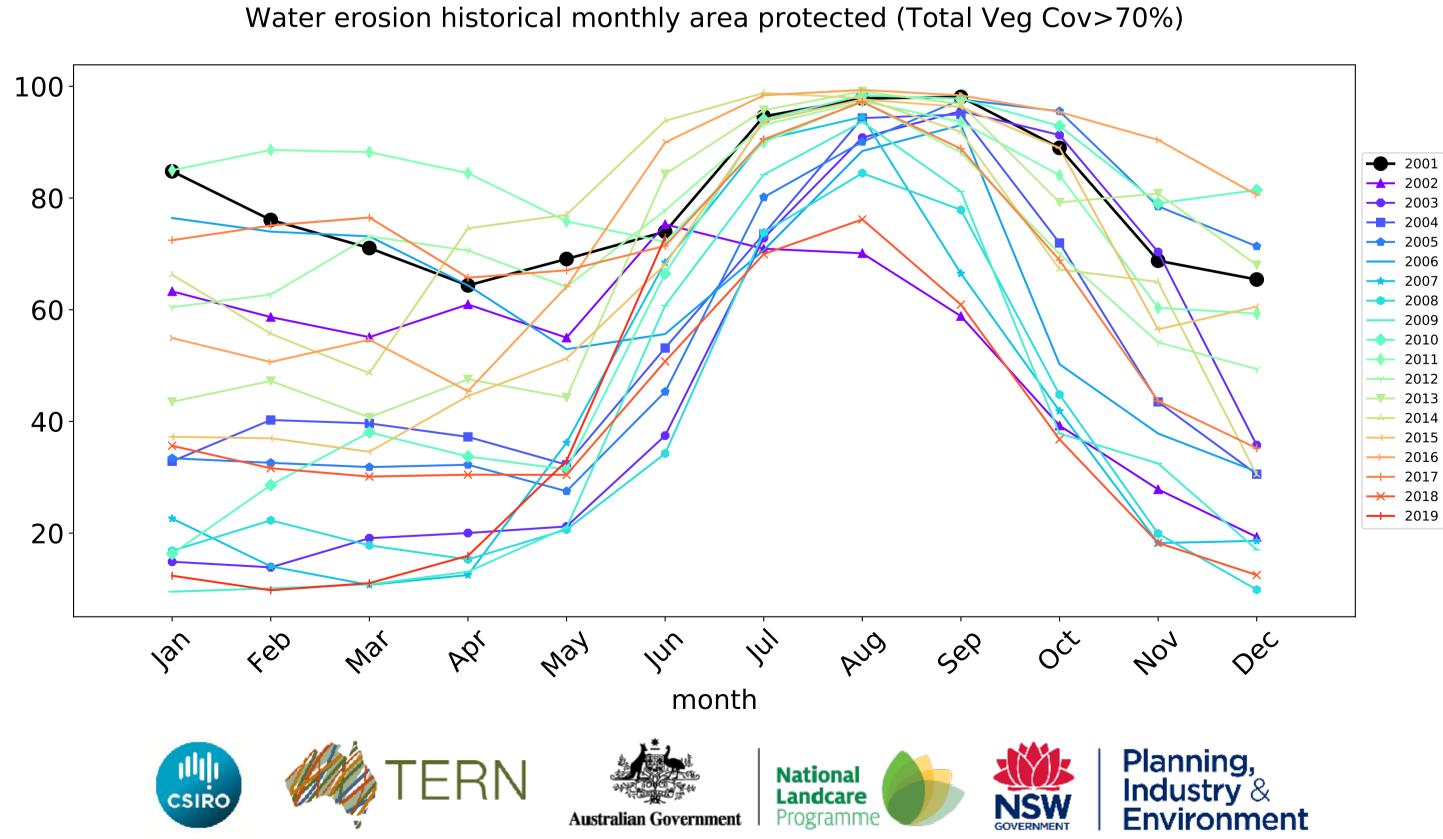


Cropping timeseries

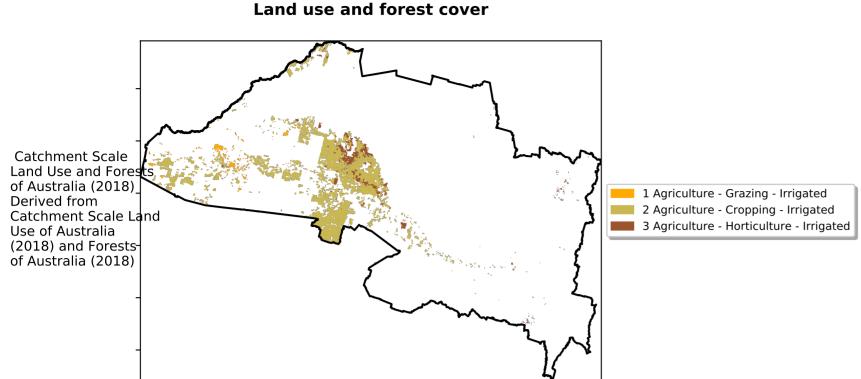




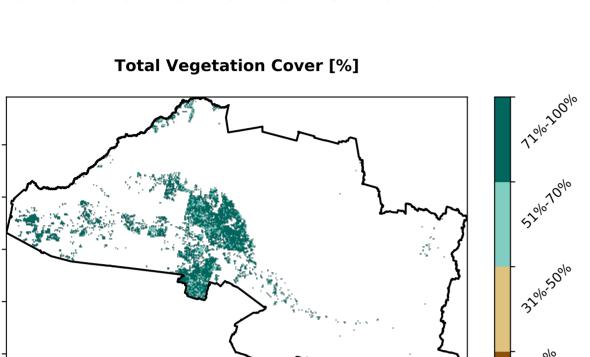


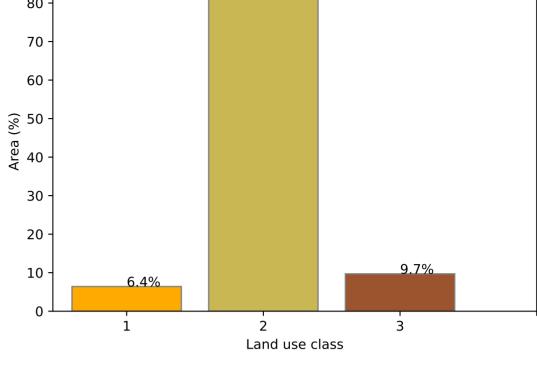


Irrigation



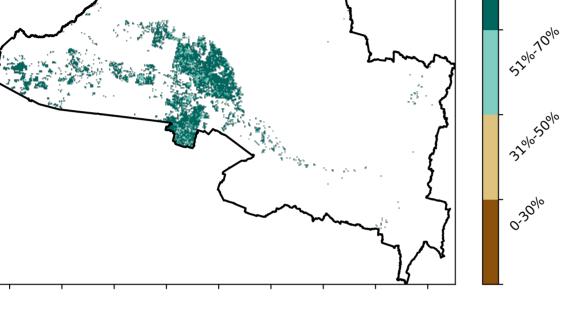
Proportion of each land class in area 83.9% 80 70 60 Area (%) 30 20 9.7% 10 6.4% 3 2



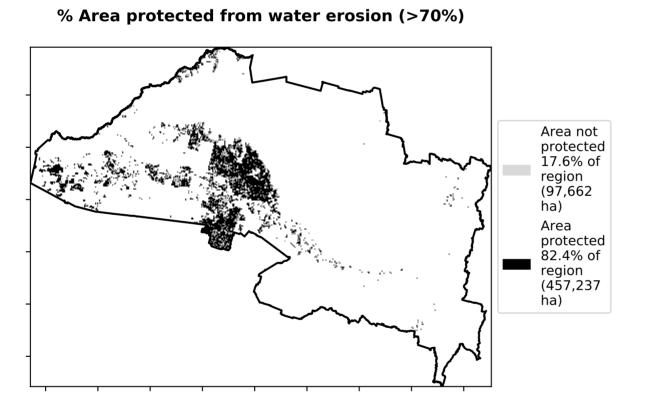


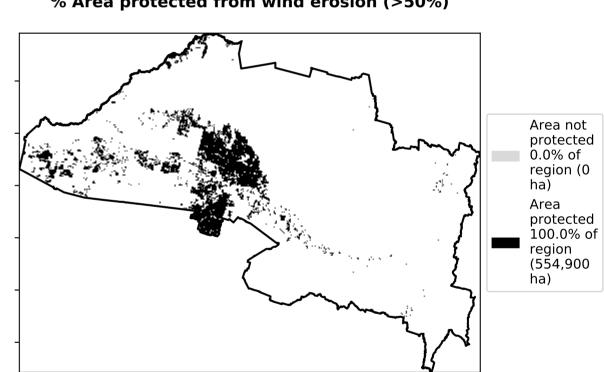
Proportion of vegetation cover class in area

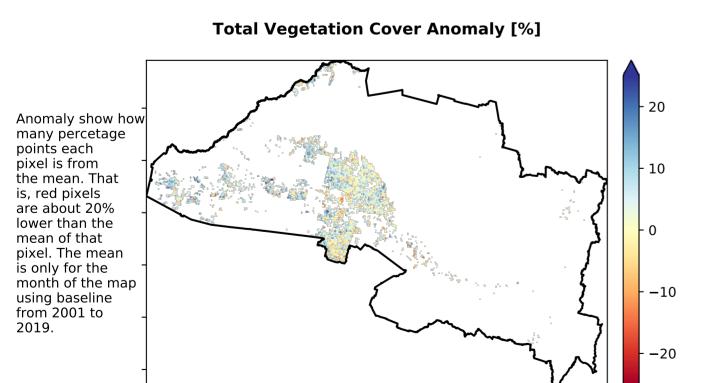
82.4% 80 70 60 Area (%) 30 20 17.4% 10 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**



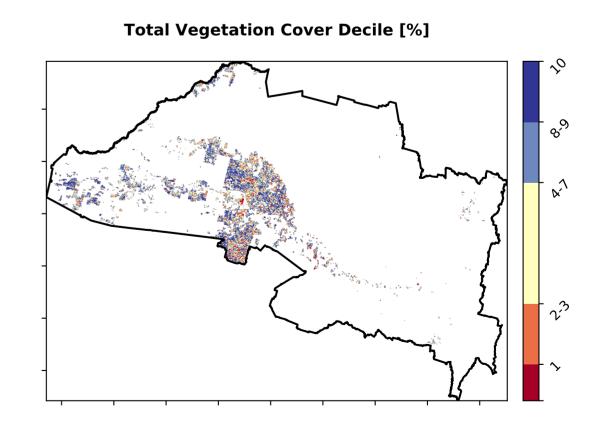
% Area protected from wind erosion (>50%)







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



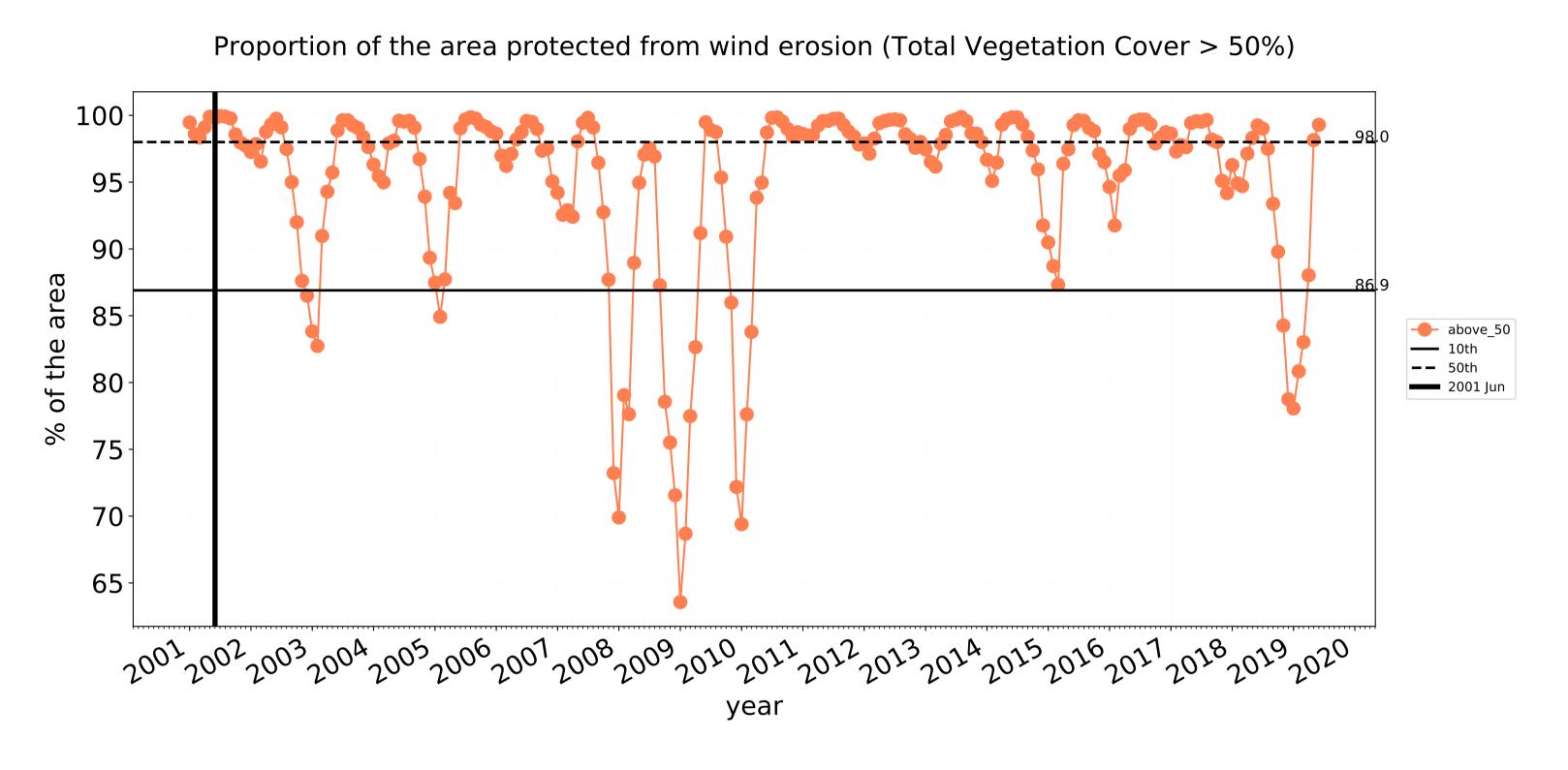


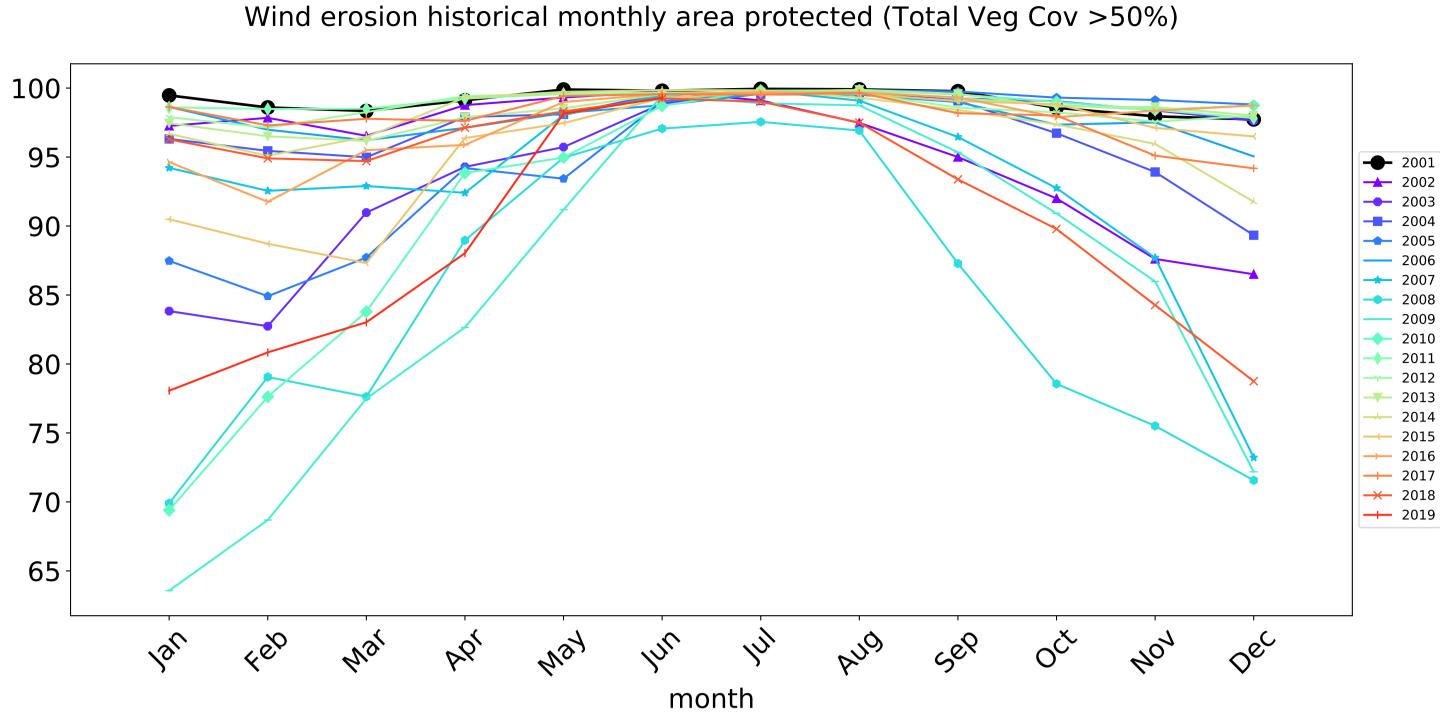


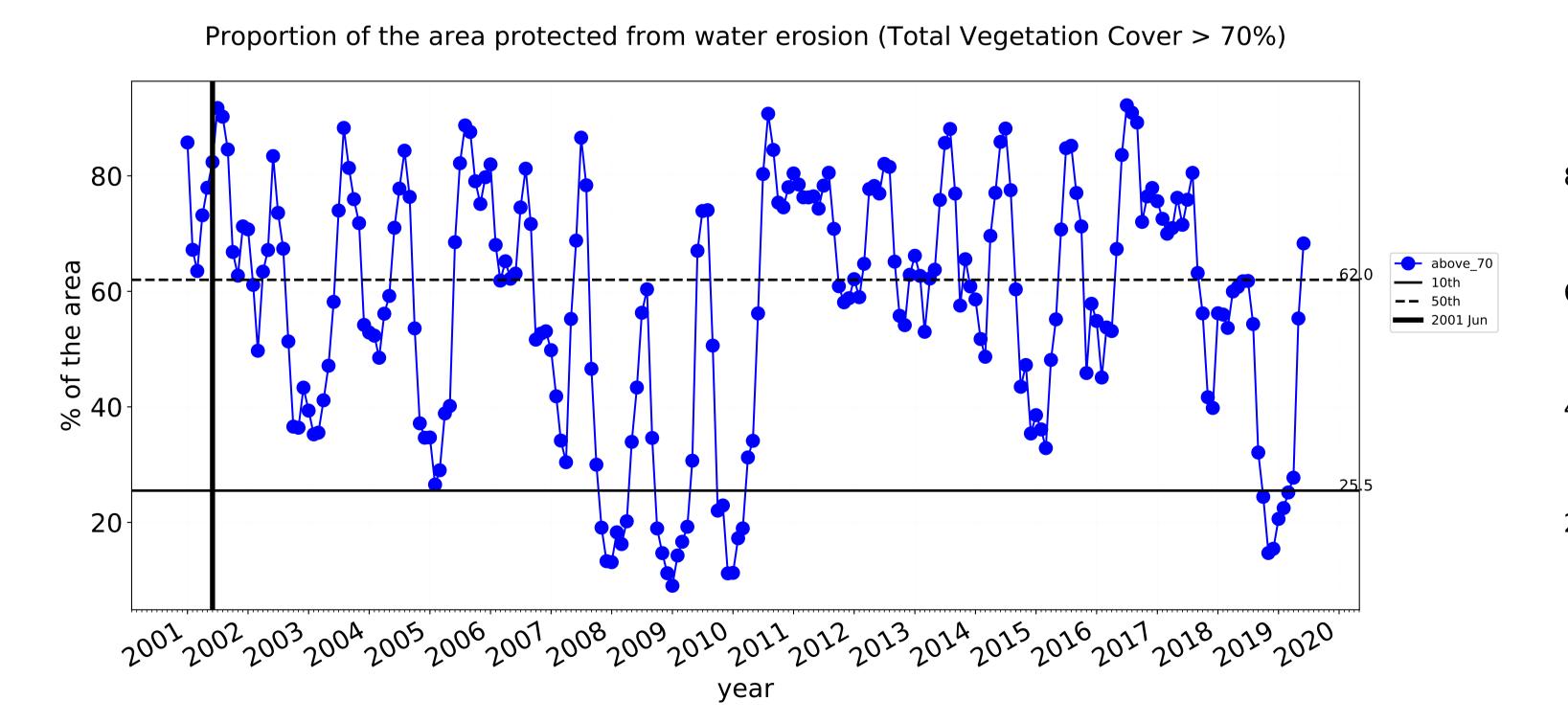


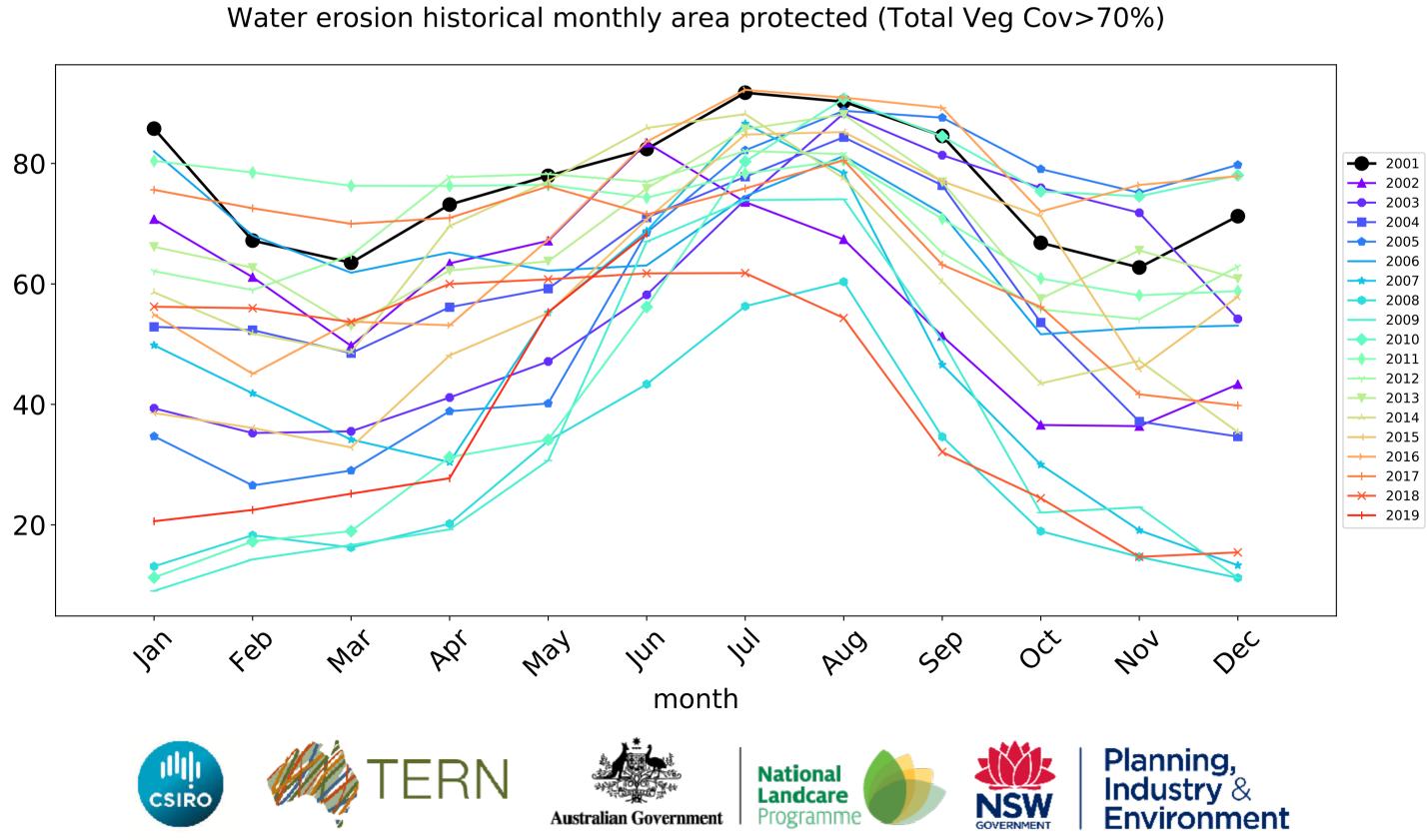










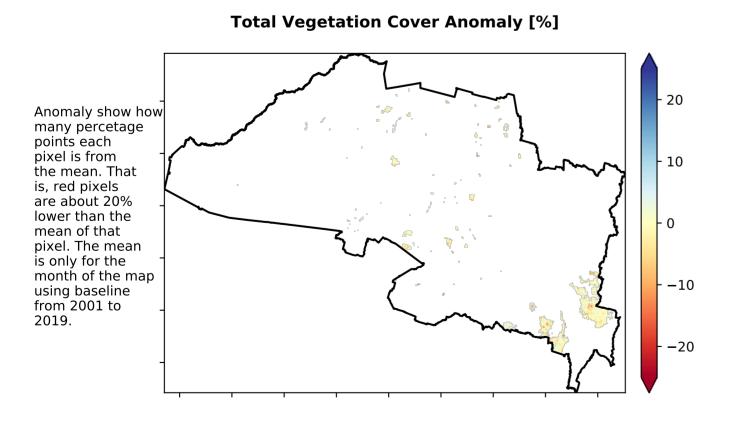


Production native forests and plantation forests

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

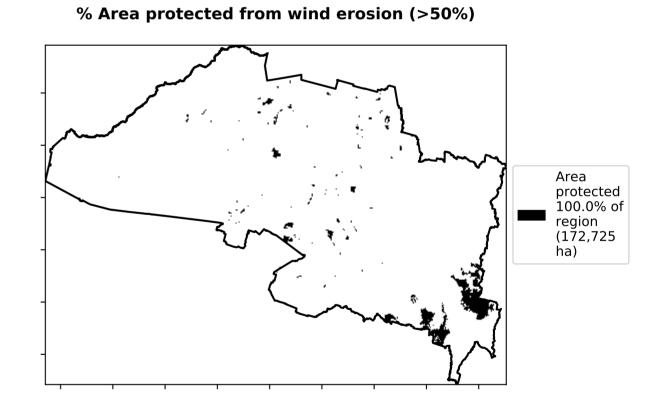
Total Vegetation Cover [%]

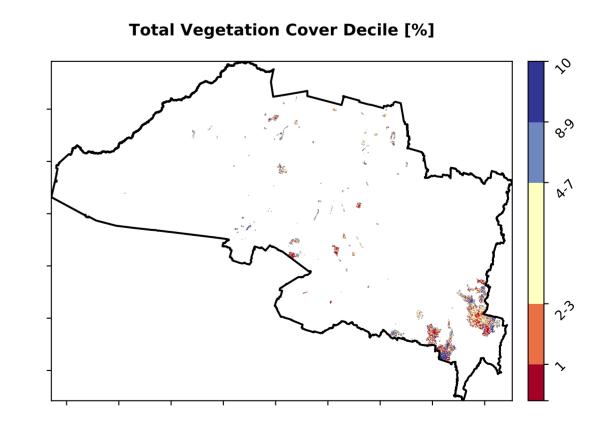
% Area protected from water erosion (>70%) Area not protected 0.7% of region (1,209 ha) Area protected 99.3% of region (171,515 ha)



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 99.3% 99.3% 40 - 20 - 0.0% 0.0% 0.7% 0-30% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class









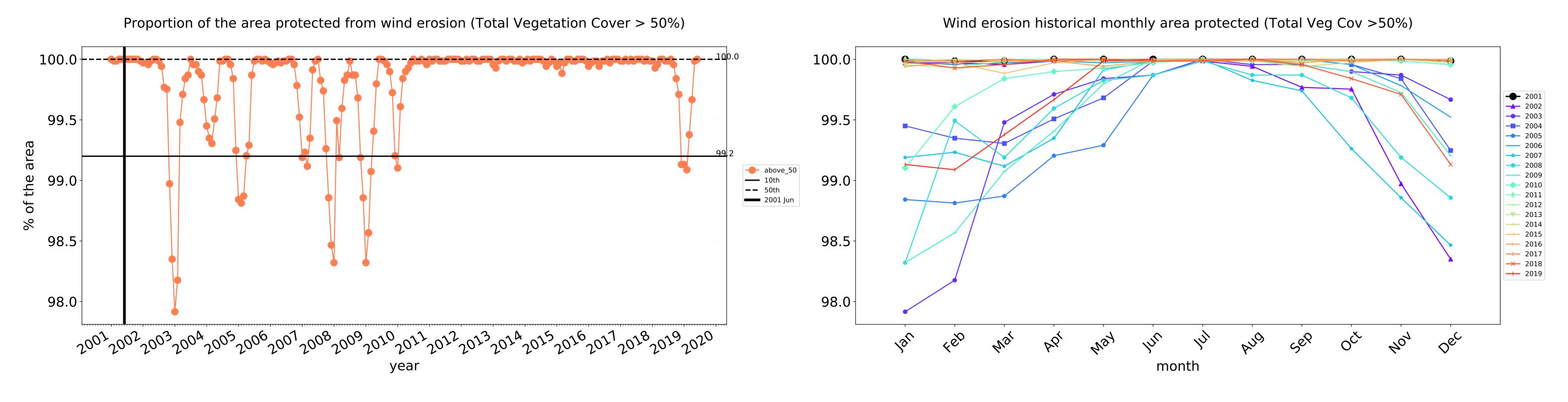


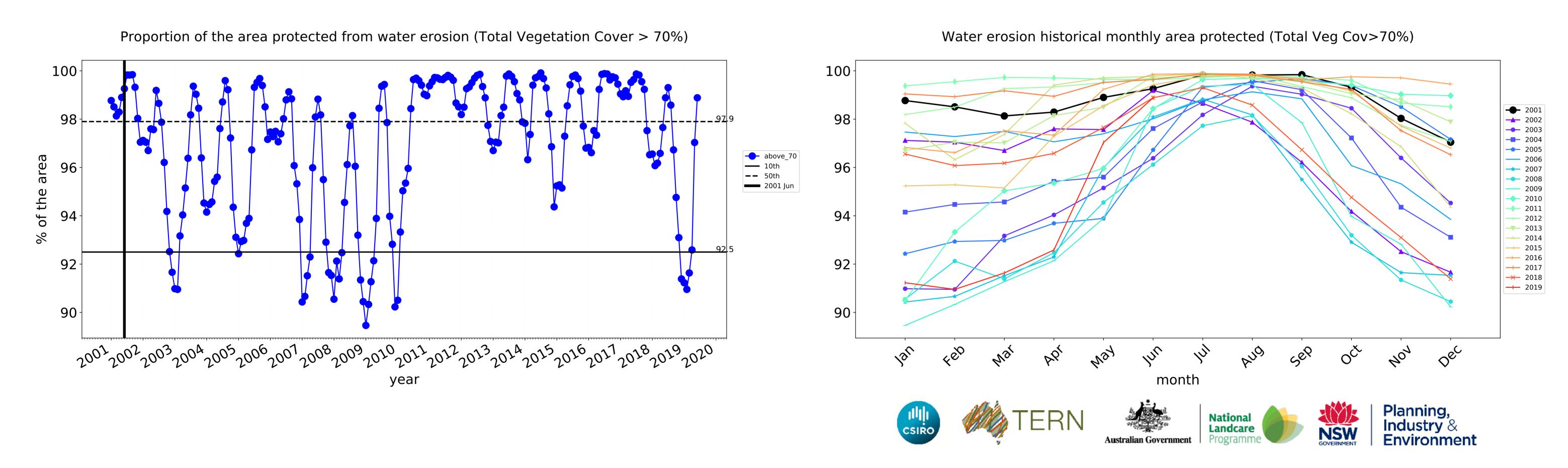






Production native forests and plantation forests timeseries





Riverina (6,662,175 ha and no data 46,160 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	6,662,175	100.0% 6,661,437	99.9% 6,656,223	84.8% 5,651,633	56.9% 3,790,898	22.7% 1,511,603	7.7% 510,904
Conservation and natural environments	319,175	100.0% 319,175	100.0% 319,175	99.2% 316,500	90.5% 288,725	68.5% 218,625	34.2% 109,000
Conservation and natural environments non forest	79,425	100.0% 79,425	100.0% 79,425	97.3% 77,275	65.3% 51,825	23.2% 18,400	8.8% 6,975
Conservation and natural environments Forest (non woodland)	195,250	100.0% 195,250	100.0% 195,250	99.8% 194,925	99.2% 193,650	87.4% 170,675	47.8% 93,275
Agriculture	5,927,425	100.0% 5,927,275	99.9% 5,922,875	83.5% 4,948,950	53.8% 3,189,875	18.9% 1,118,850	5.3% 311,750
Grazing	2,186,325	100.0% 2,186,300	100.0% 2,186,075	97.7% 2,135,425	78.5% 1,715,750	34.3% 749,300	10.0% 218,575
Grazing non forest	1,941,350	100.0% 1,941,325	100.0% 1,941,125	97.5% 1,892,575	76.9% 1,492,150	31.9% 619,400	9.2% 177,700
Grazing Woodland forest	141,650	100.0% 141,650	100.0% 141,625	98.7% 139,825	87.3% 123,625	39.8% 56,400	7.2% 10,175
Grazing - Forest (non woodland)	103,325	100.0% 103,325	100.0% 103,325	99.7% 103,025	96.8% 99,975	71.1% 73,500	29.7% 30,700
Cropping	3,184,375	100.0% 3,184,250	99.9% 3,181,150	74.0% 2,355,475	38.5% 1,225,000	10.0% 317,150	2.4% 75,075
Irrigation	554,900	100.0% 554,900	99.8% 553,825	82.4% 457,200	44.8% 248,825	9.4% 52,375	3.3% 18,075
Production native forests and plantation forests	172,725	100.0% 172,725	100.0% 172,725	99.3% 171,450	95.3% 164,525	72.2% 124,625	43.6% 75,325











