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: August 2009

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







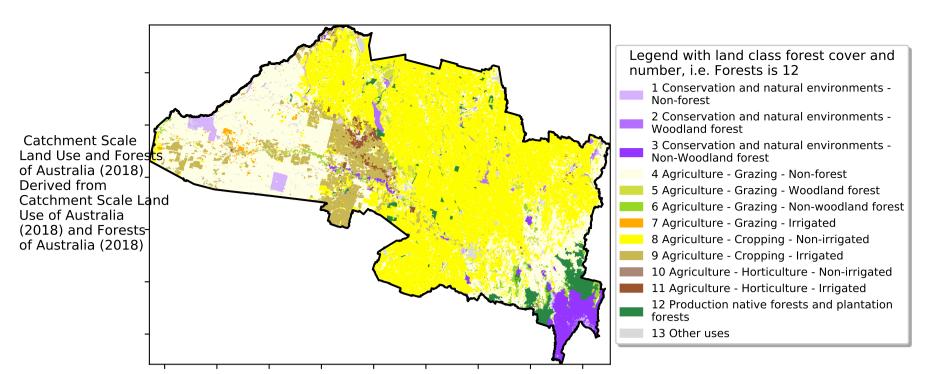




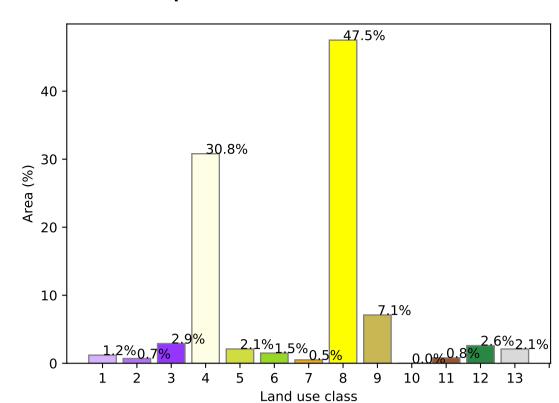


Vegetation Cover Aug 2009

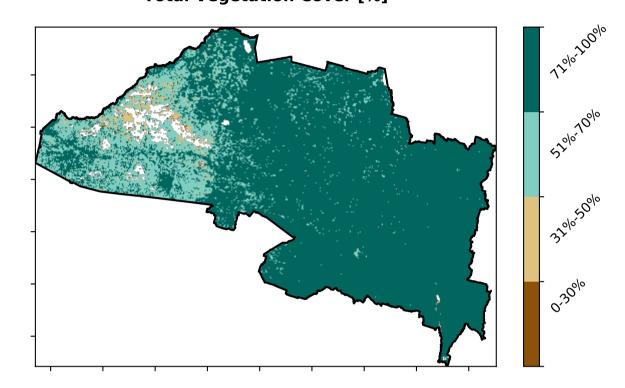
Land use and forest cover



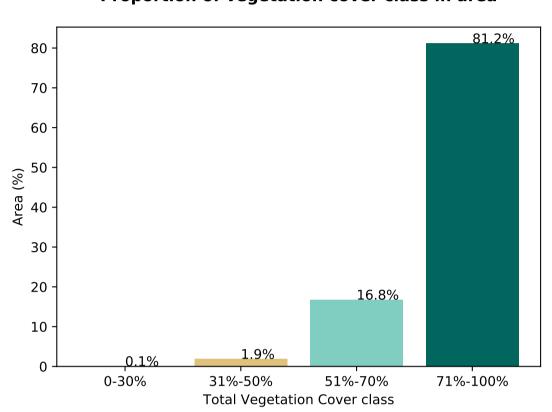
Proportion of each land class in area



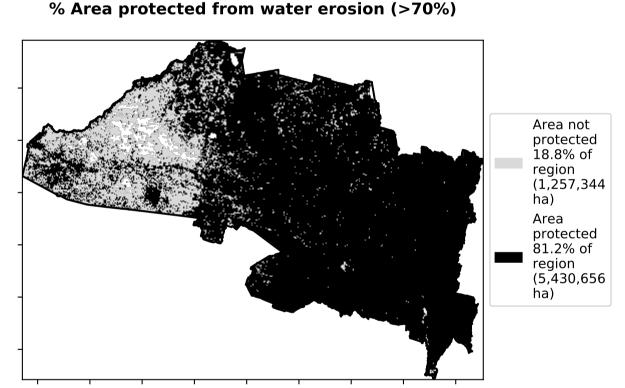
Total Vegetation Cover [%]



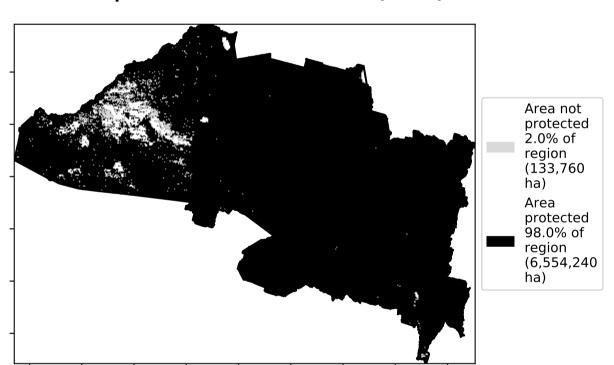
Proportion of vegetation cover class in area



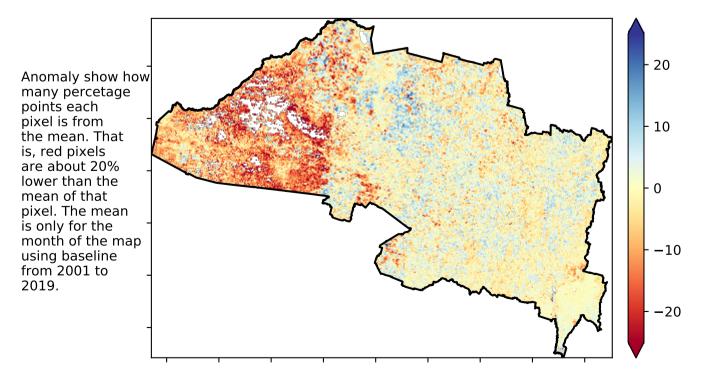
0/ Aven protected from water evenier (> 700/)



% Area protected from wind erosion (>50%)

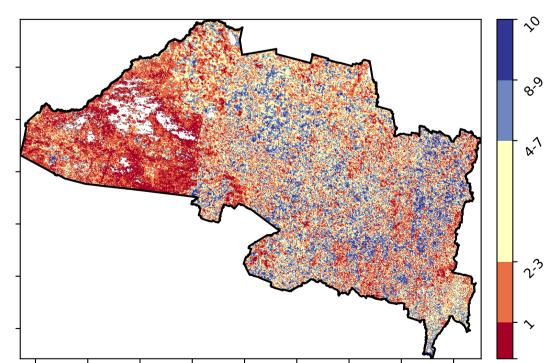


Total Vegetation Cover Anomaly [%]



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 [%]





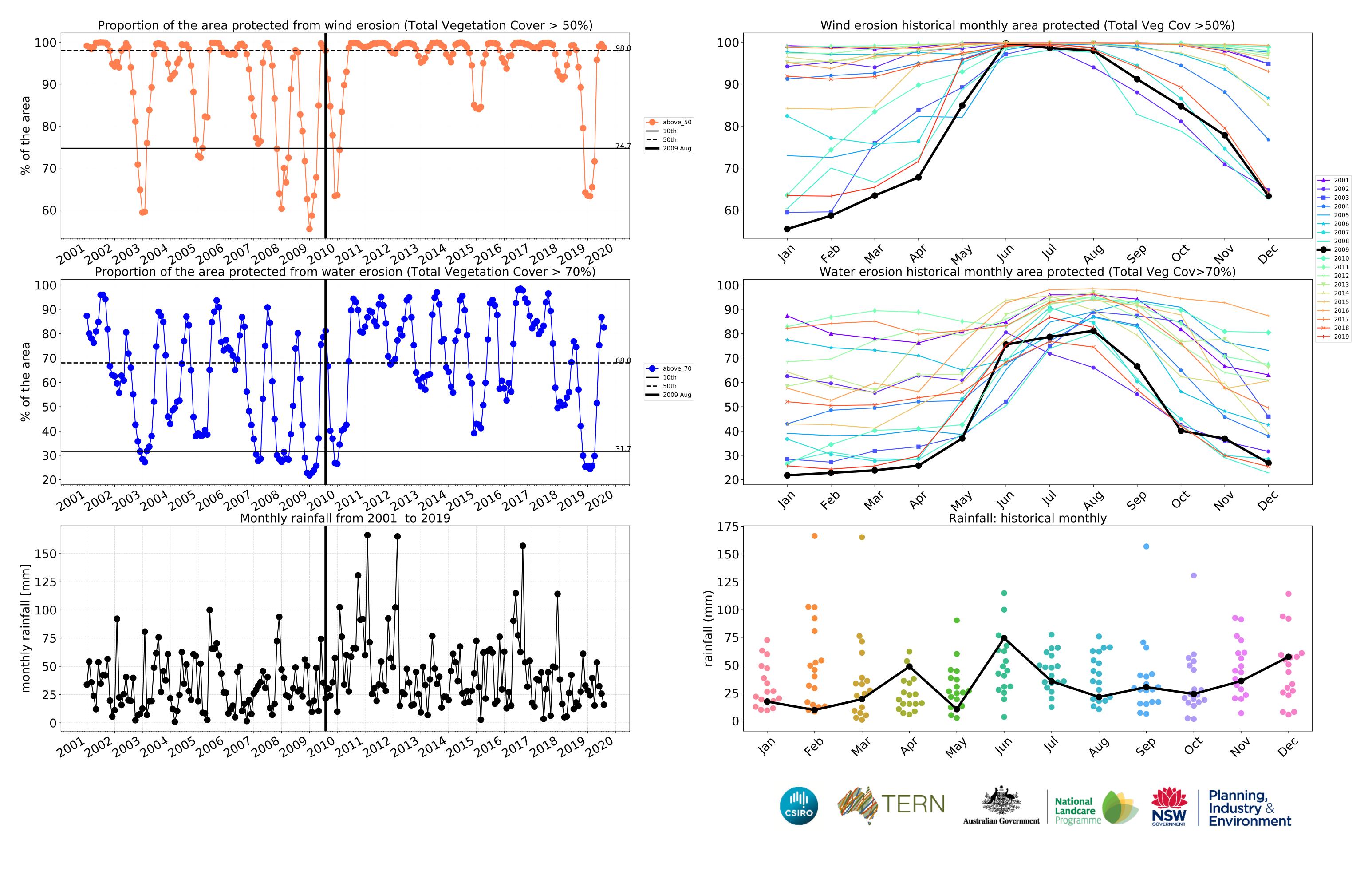




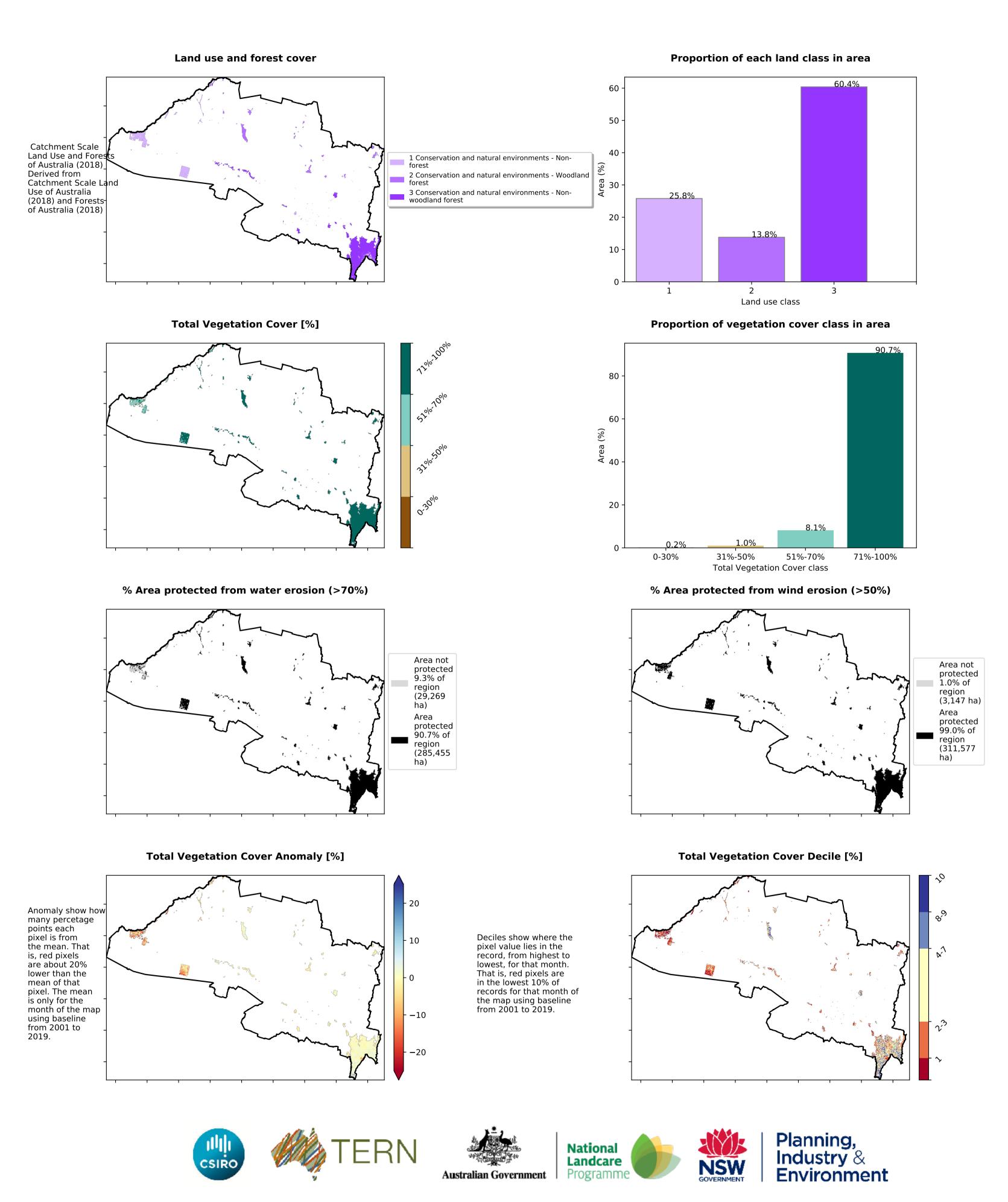




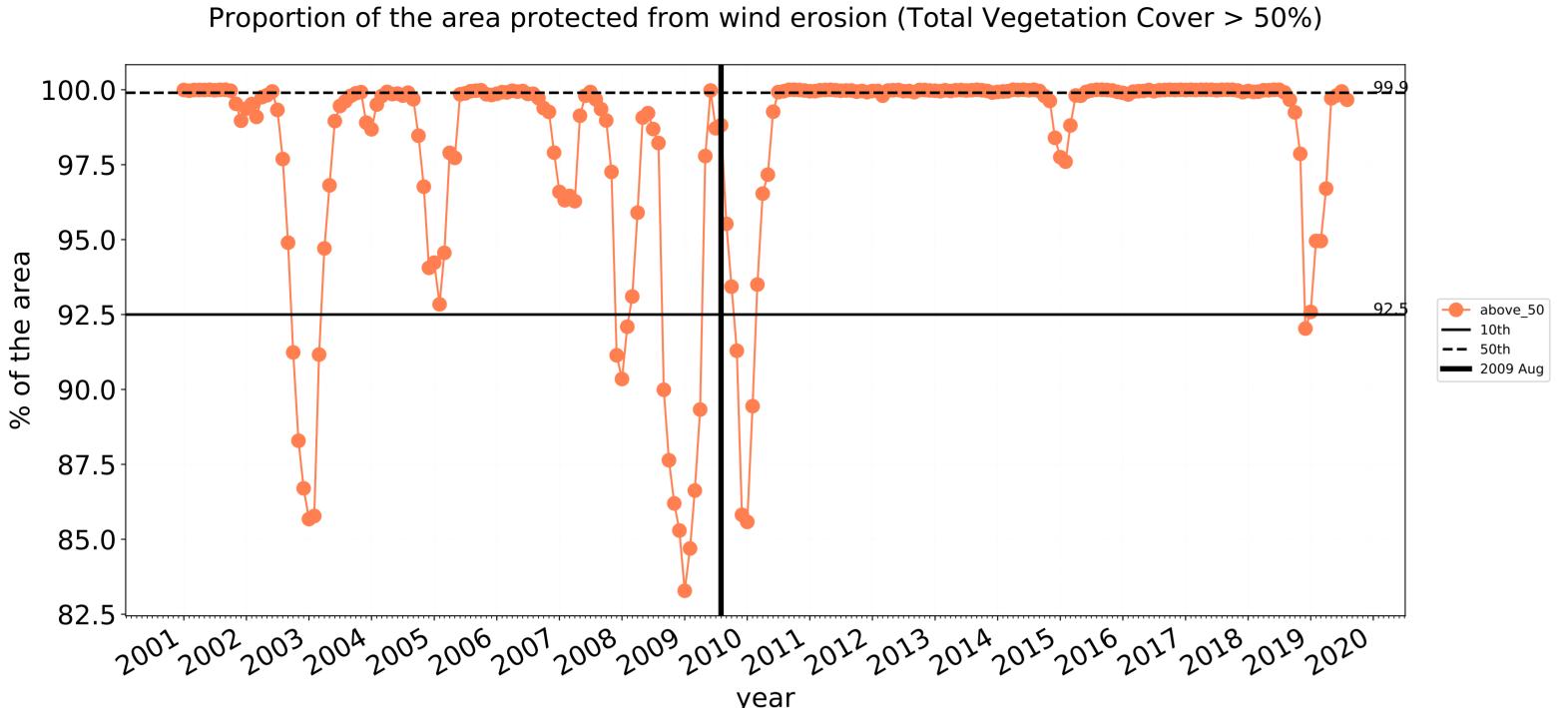


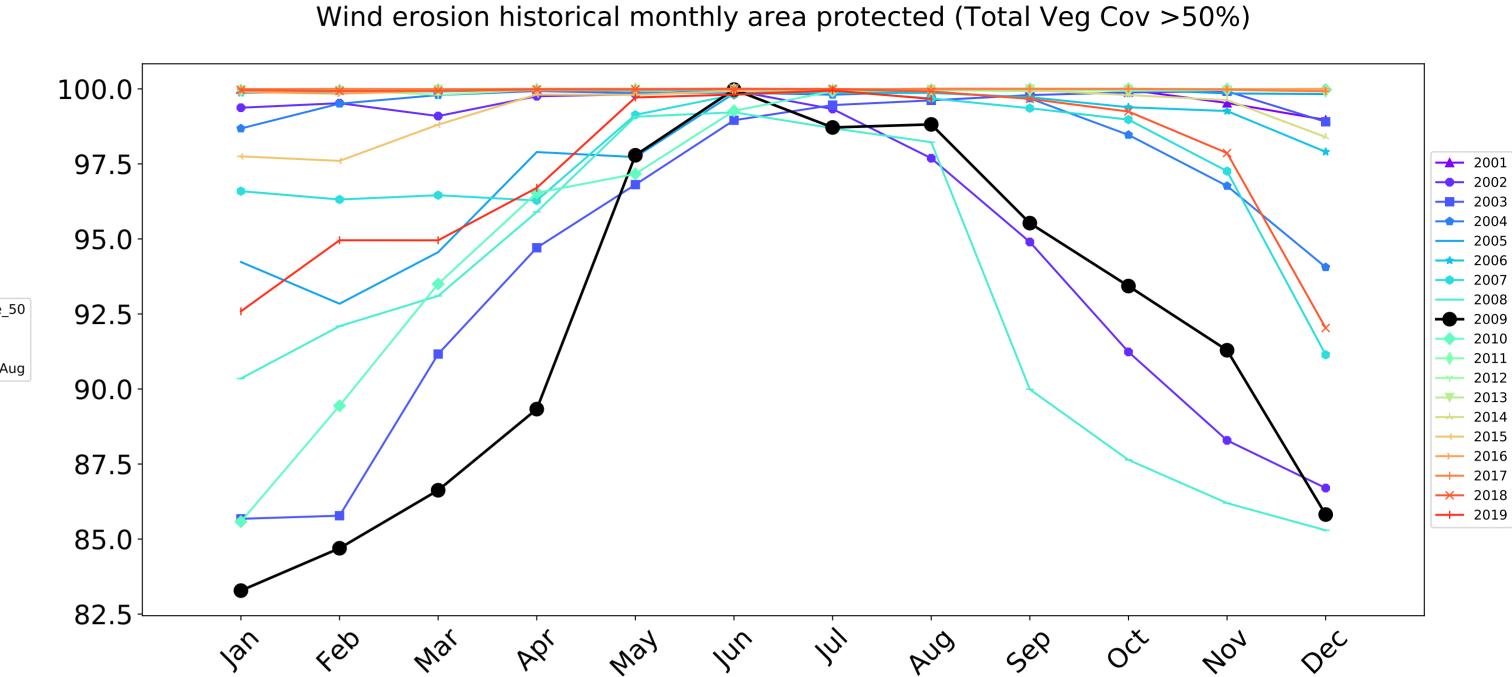


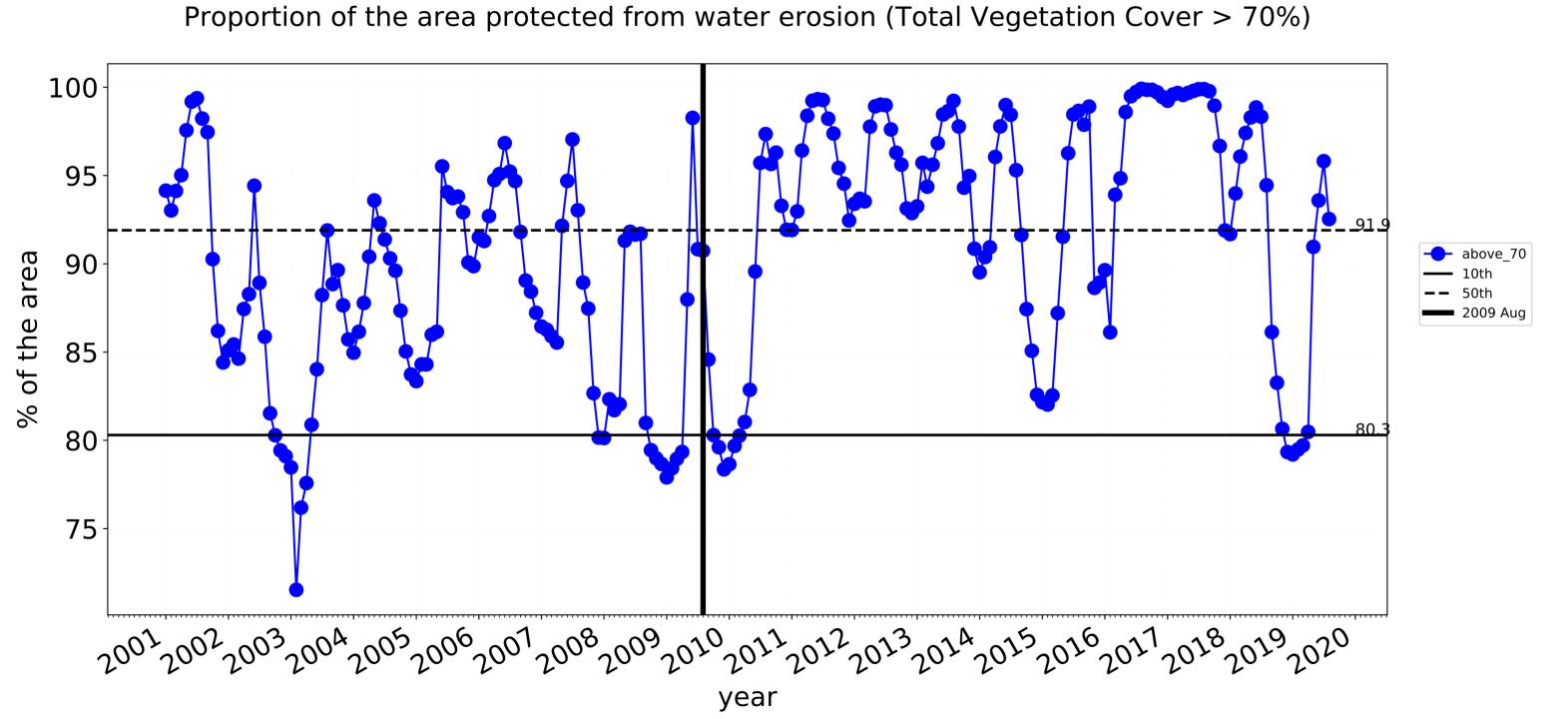
Conservation and natural environments

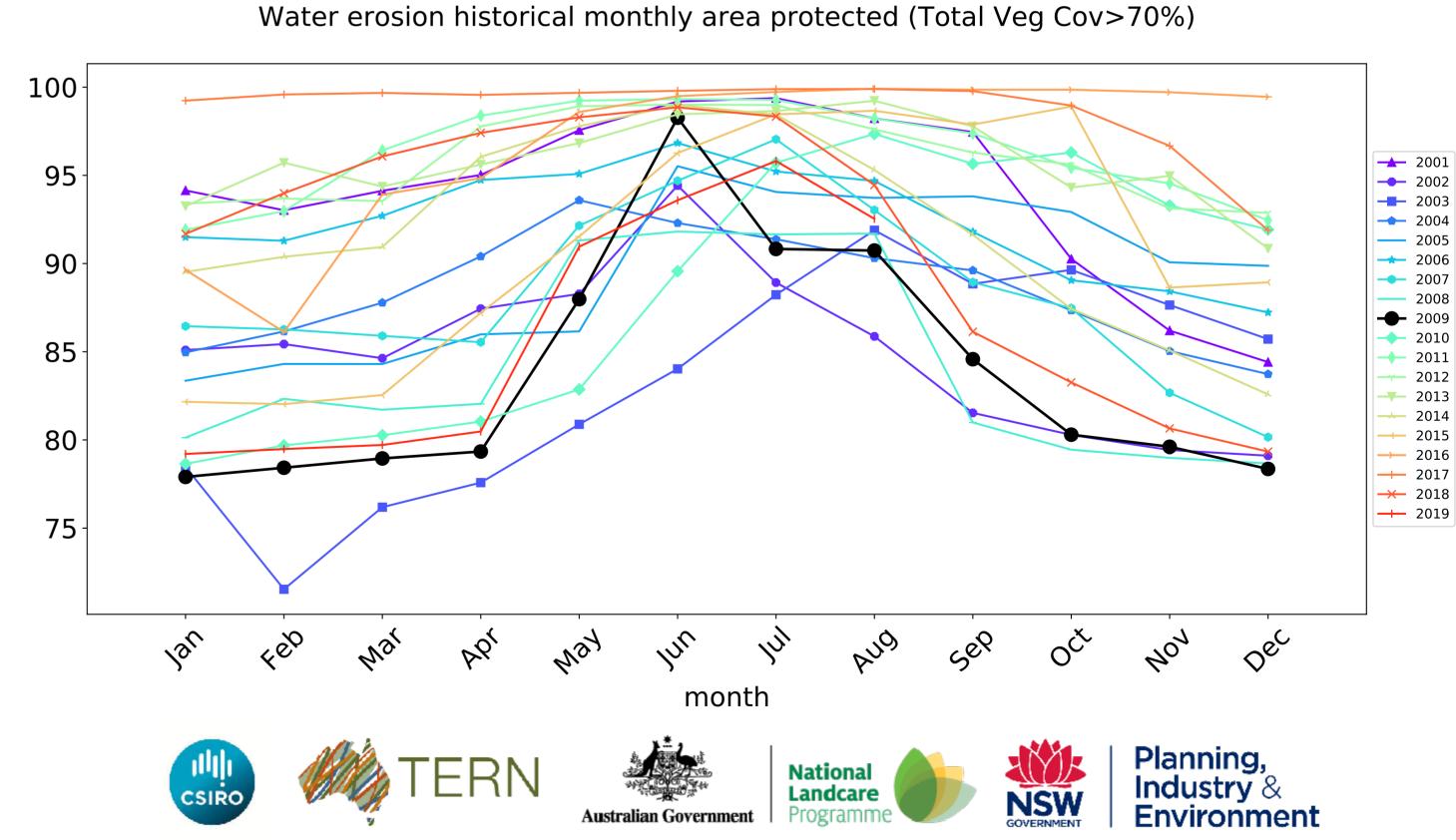


Conservation and natural environments timeseries



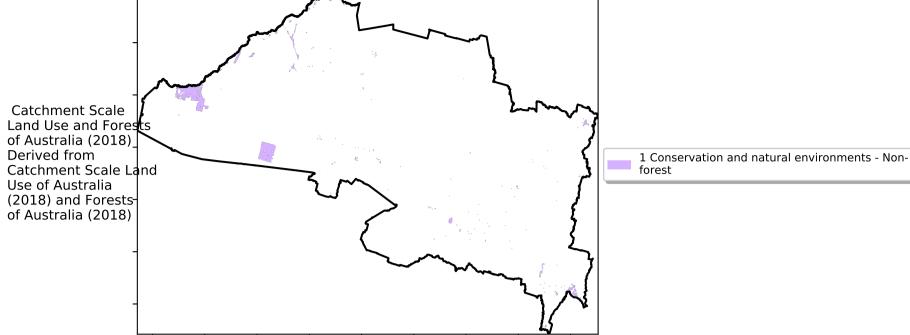




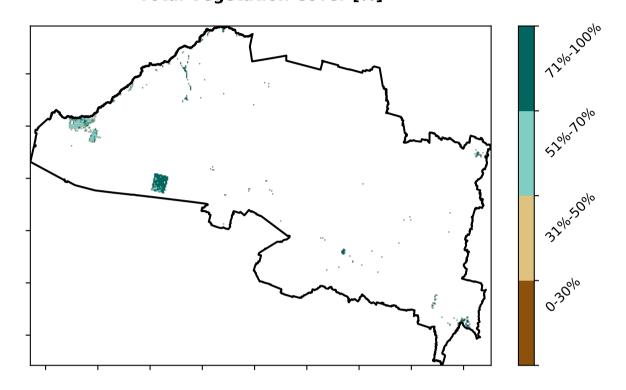


Conservation and natural environments non forest

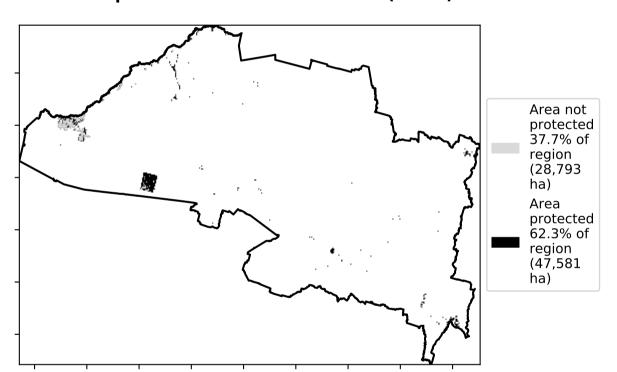
Land use and forest cover



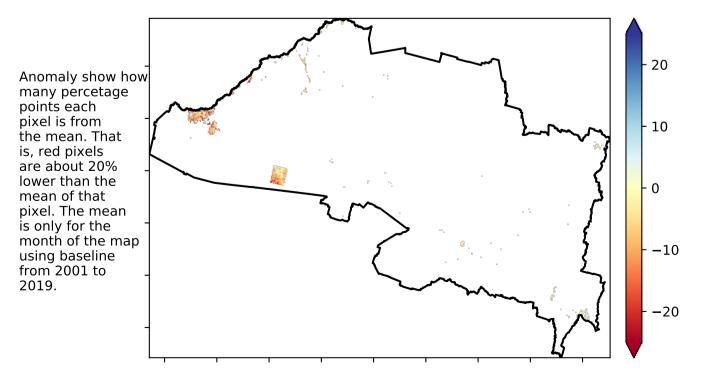
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

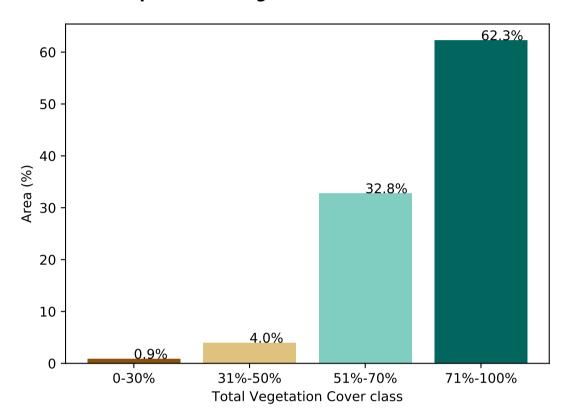


Total Vegetation Cover Anomaly [%]

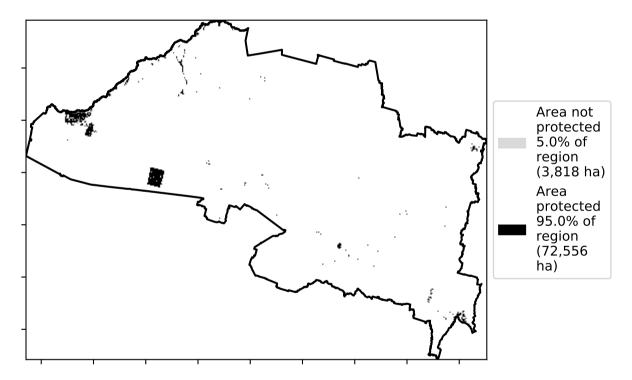


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

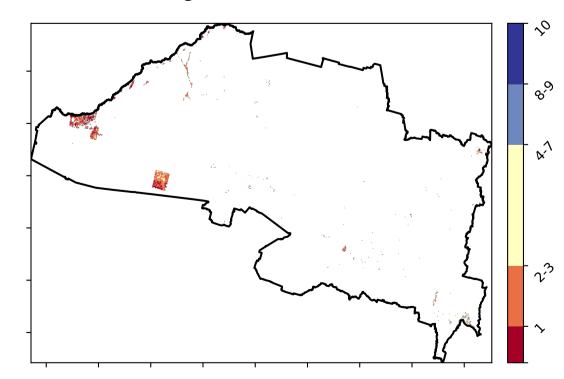
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







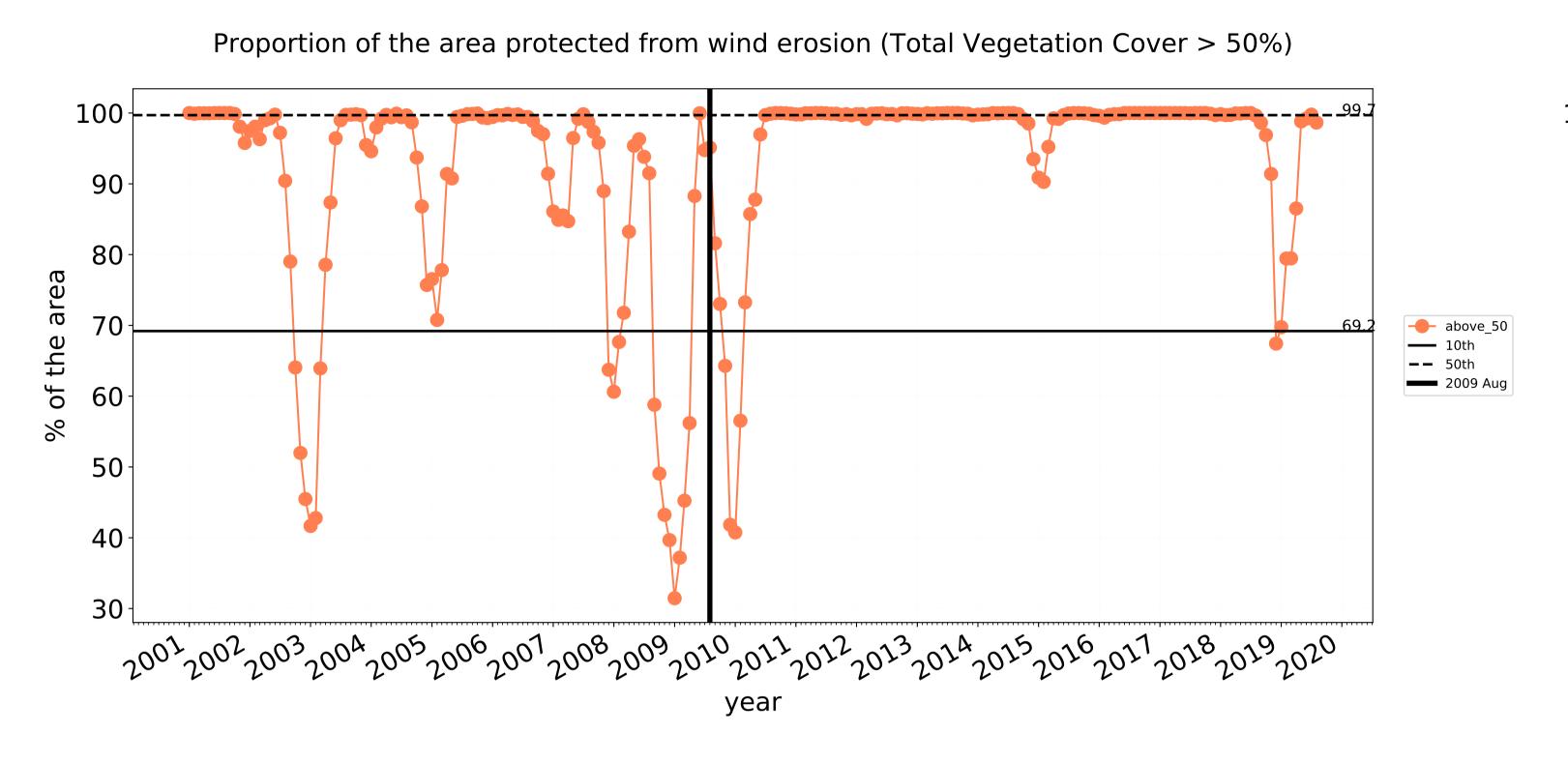


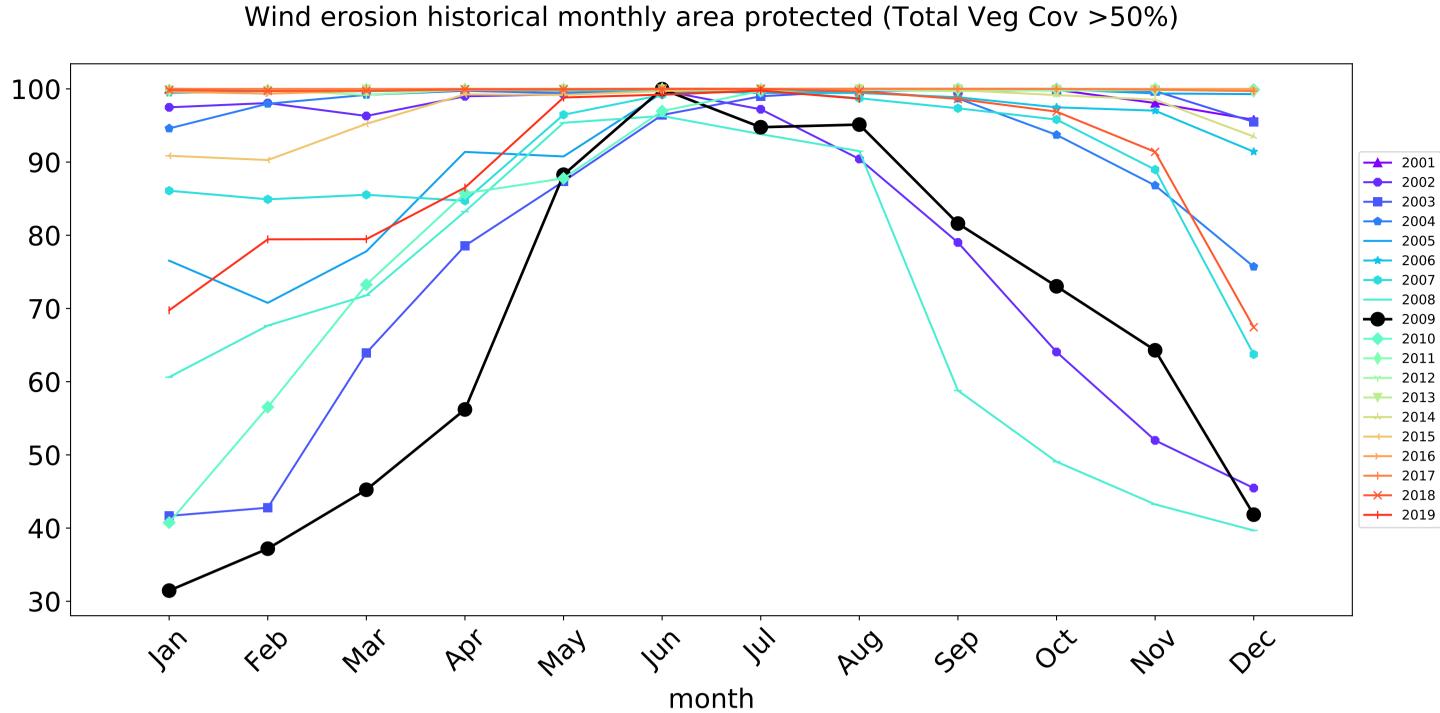


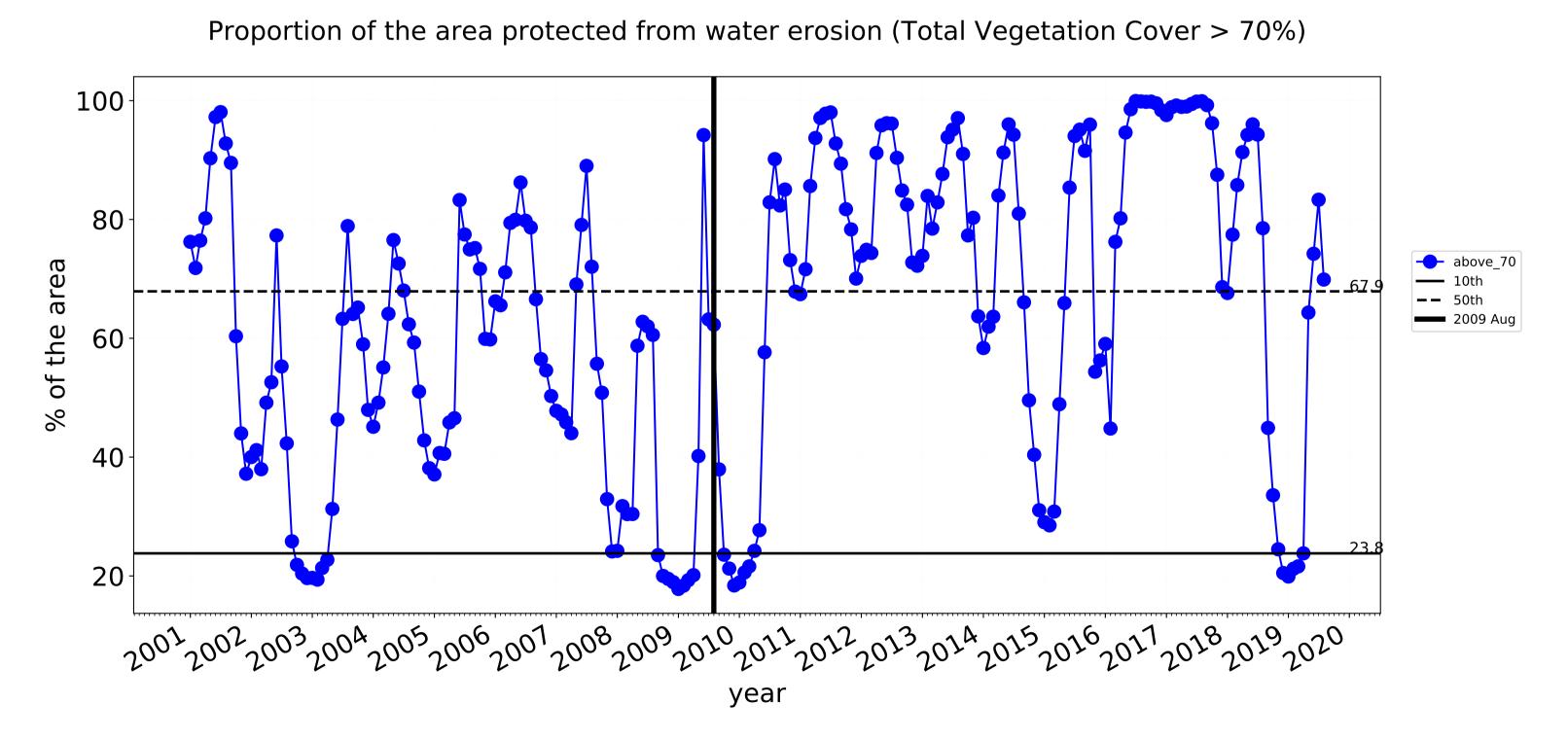


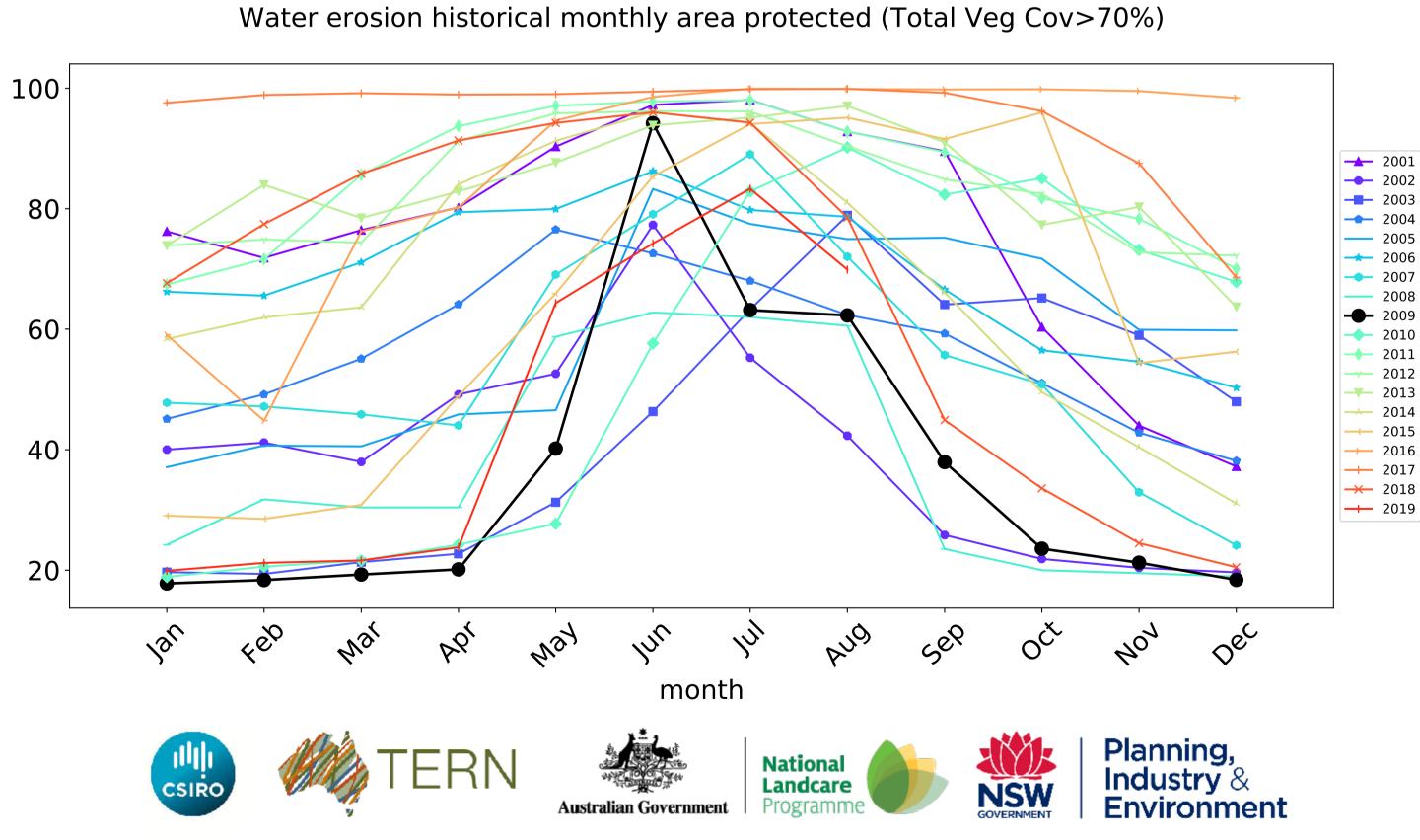


Conservation and natural environments non forest timeseries

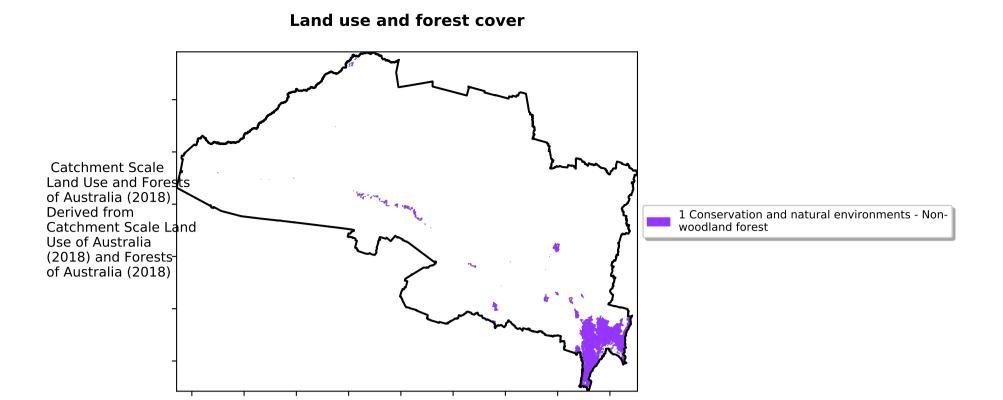




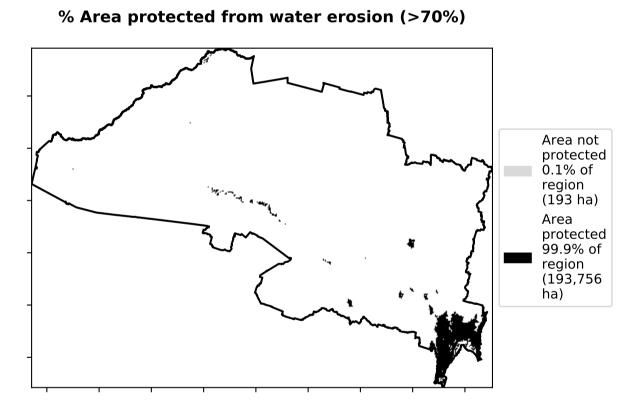


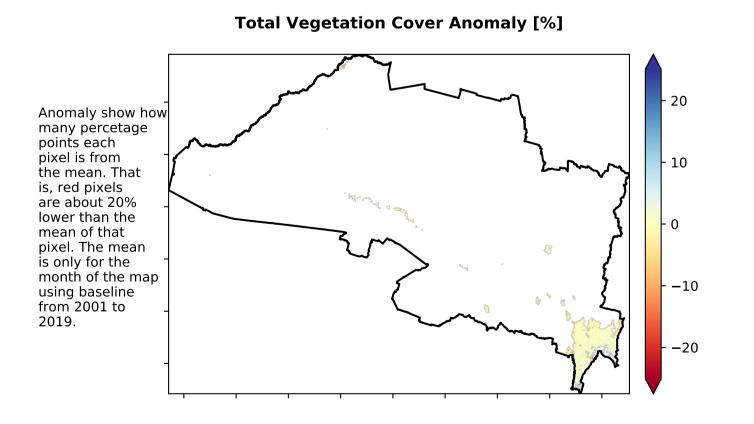


Conservation and natural environments Forest (non woodland)

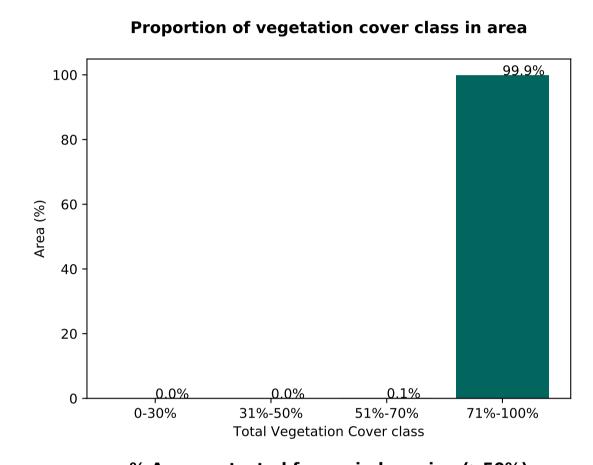


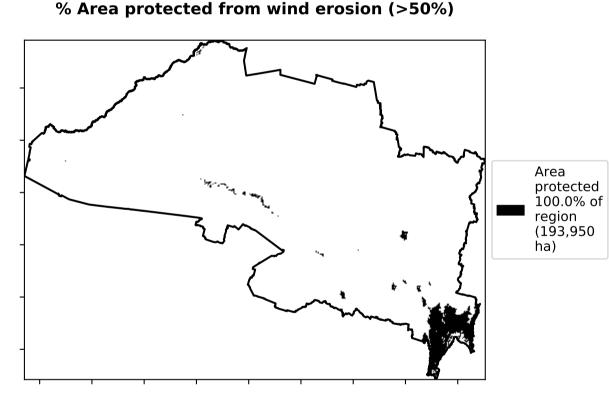
Total Vegetation Cover [%] Trolo Indolo Trol Indolo Trolo Indolo Trol Indolo Trolo Indolo Trolo Indolo Trolo Indolo Trol

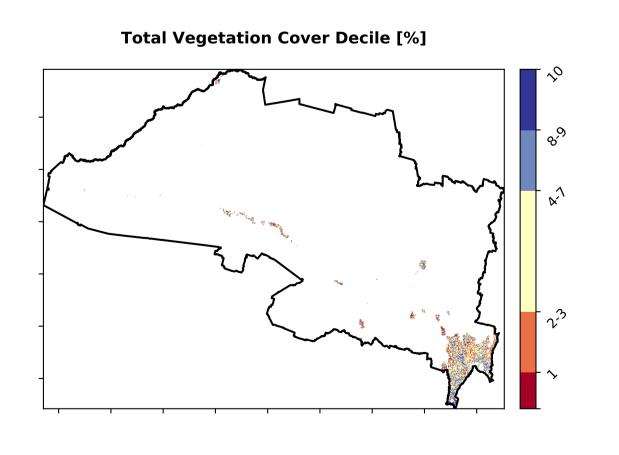




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.









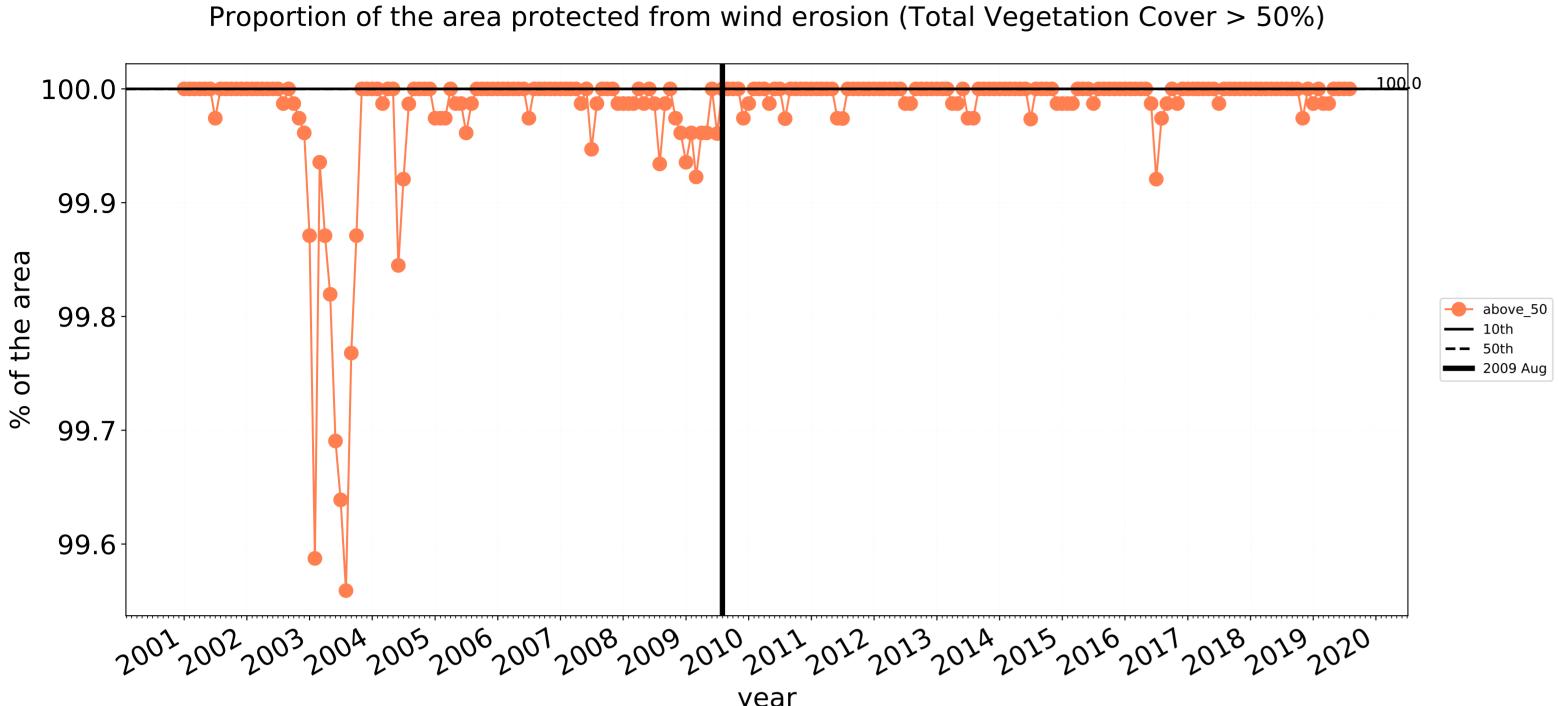


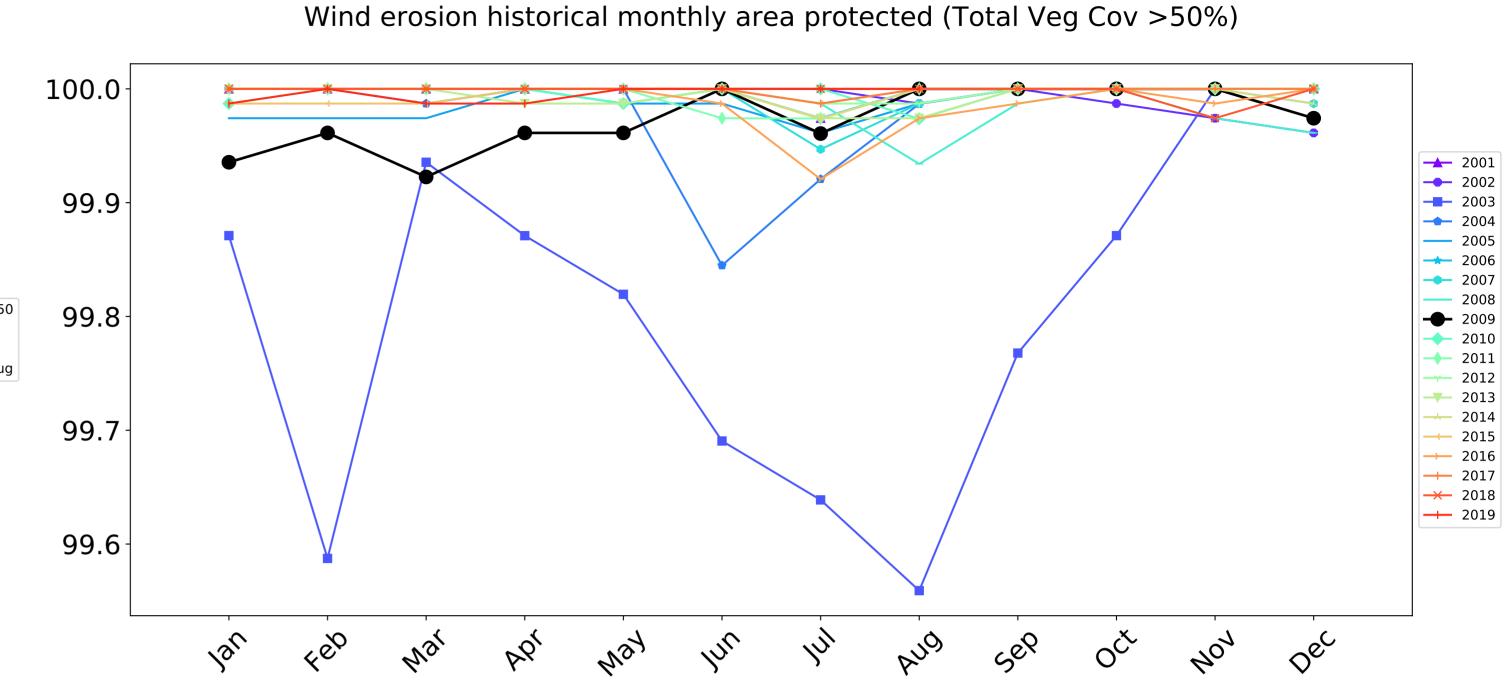


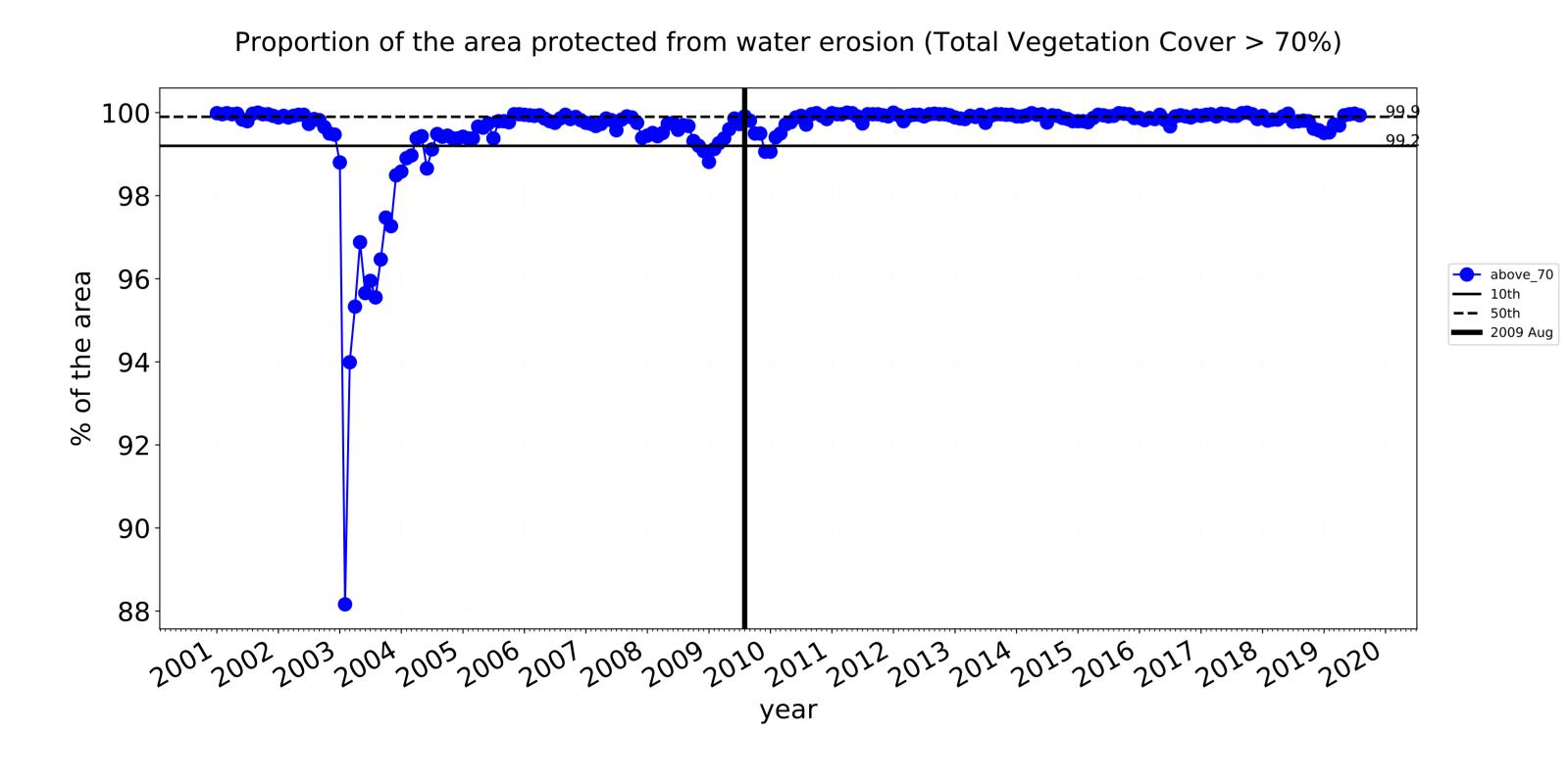


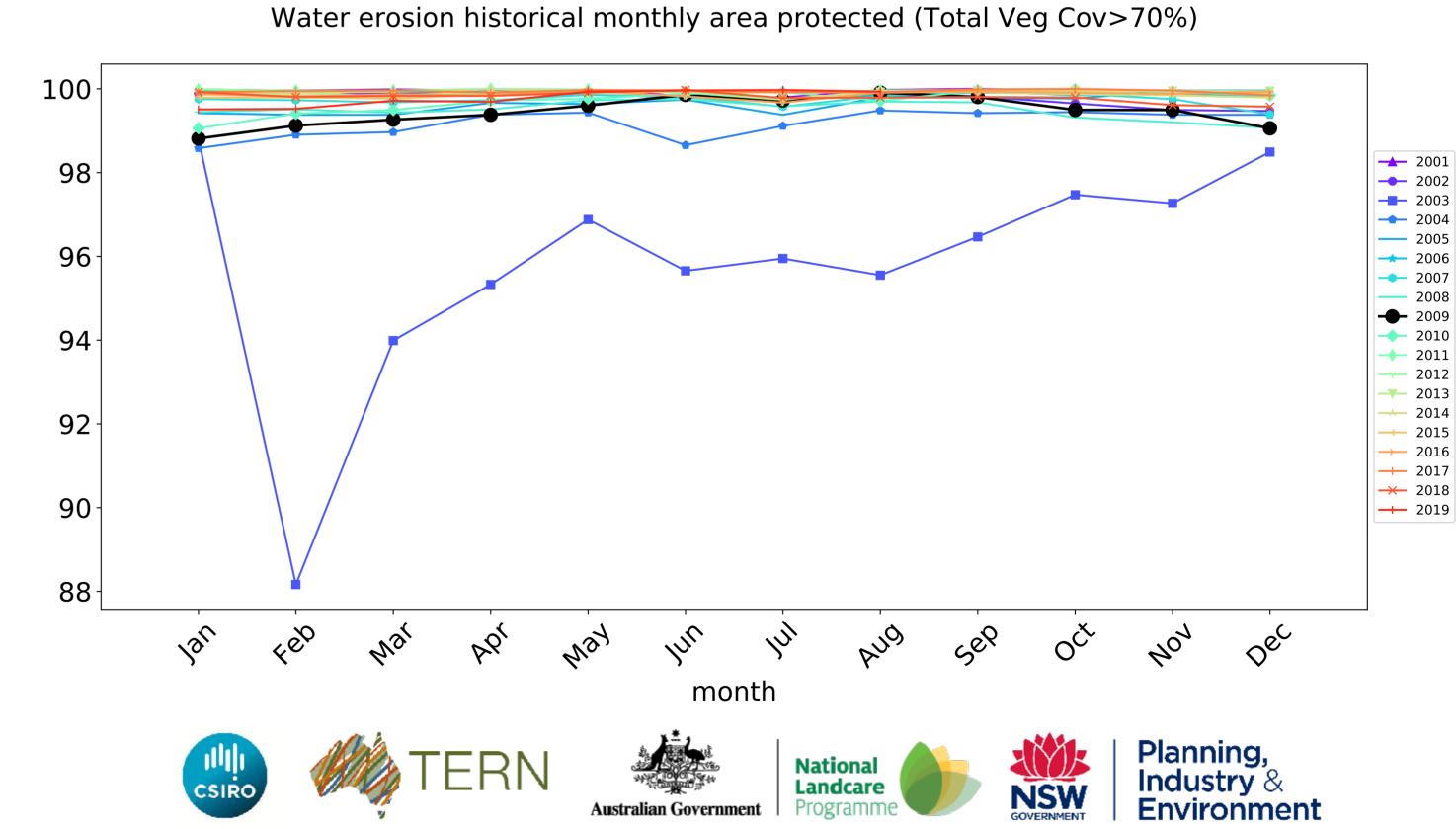








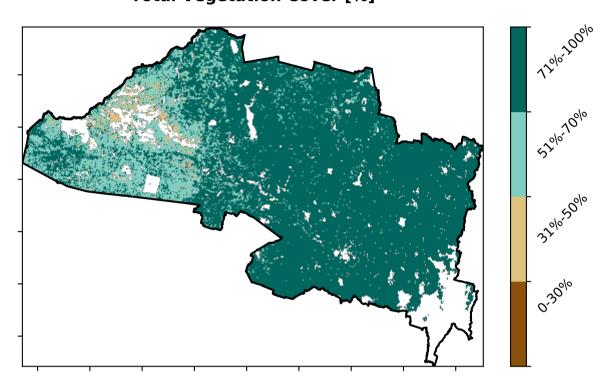




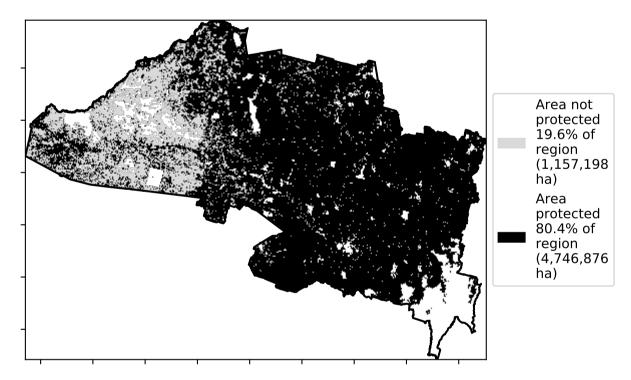
Agriculture

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

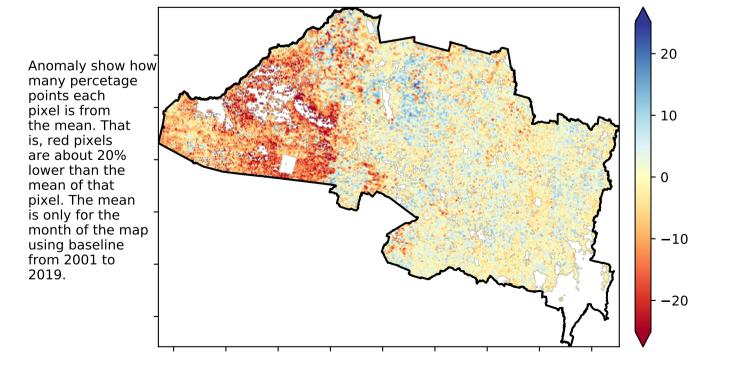
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

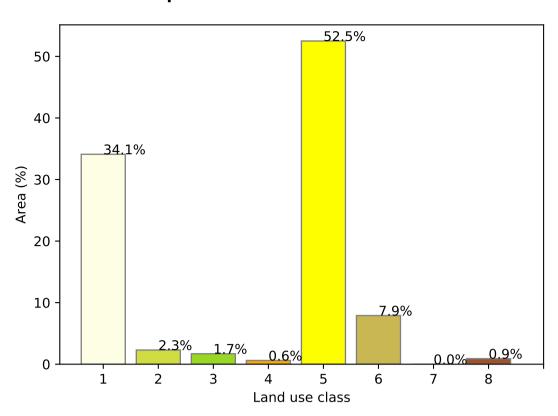


Total Vegetation Cover Anomaly [%]

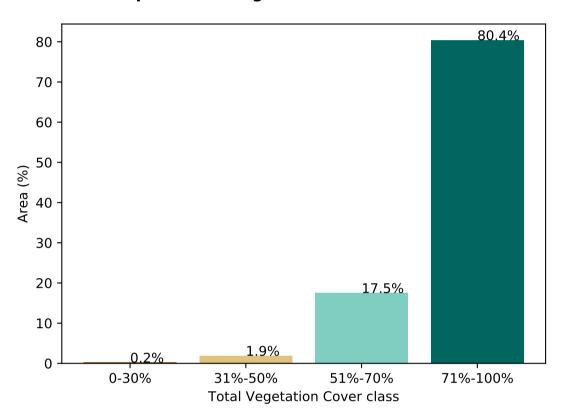


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

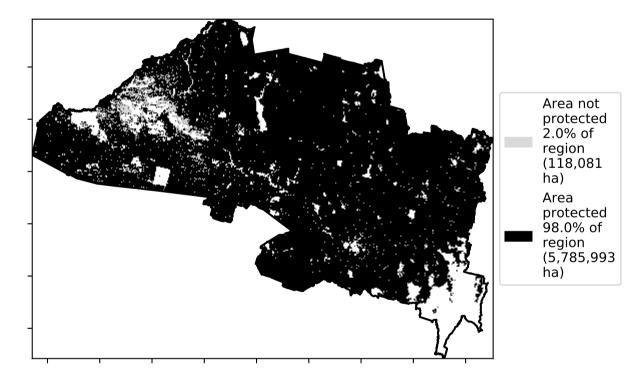
Proportion of each land class in area



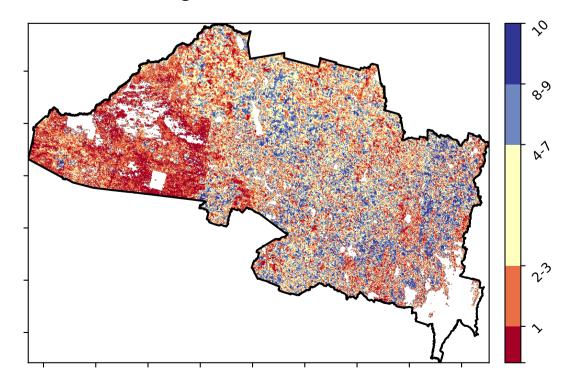
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







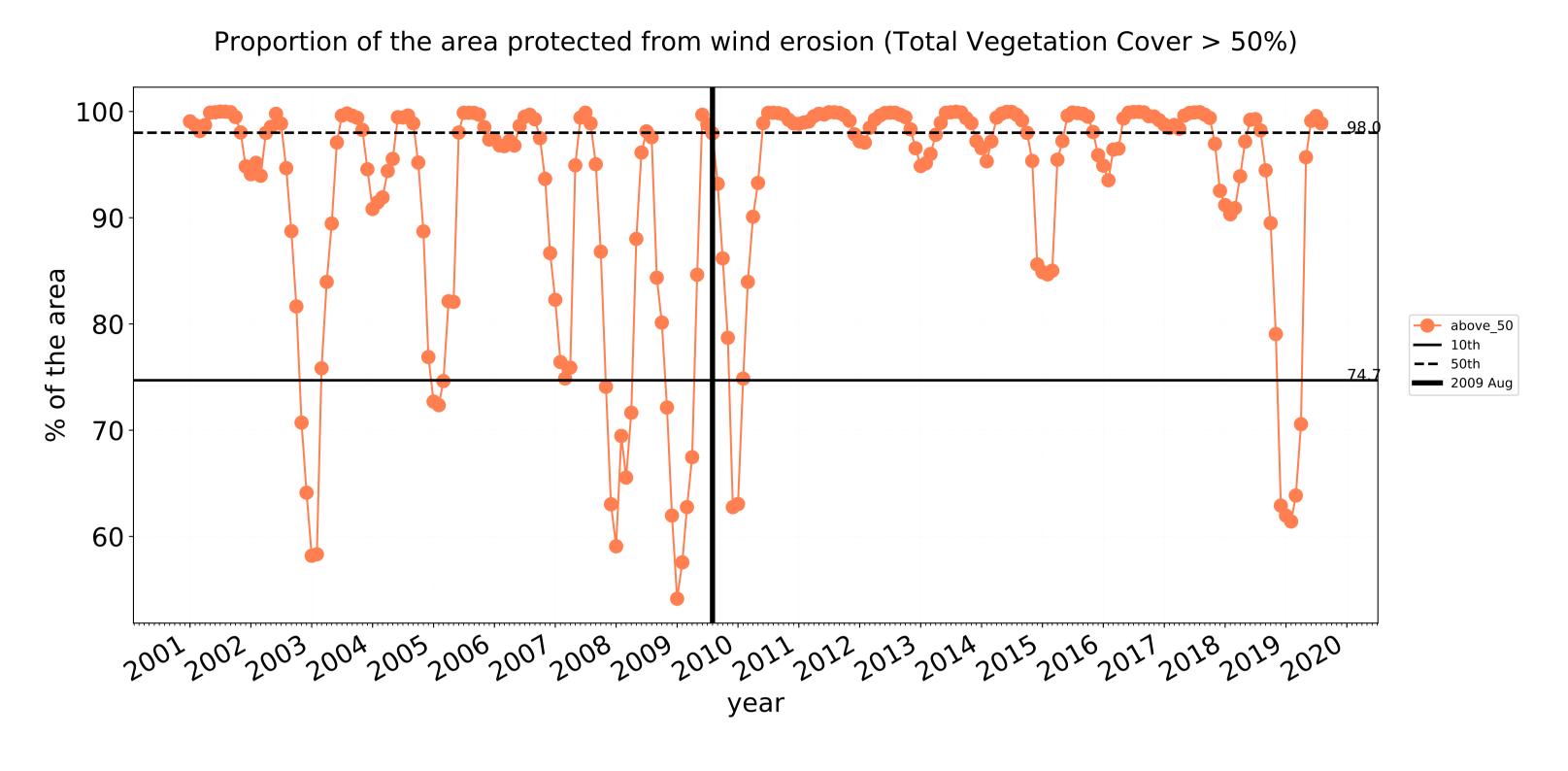


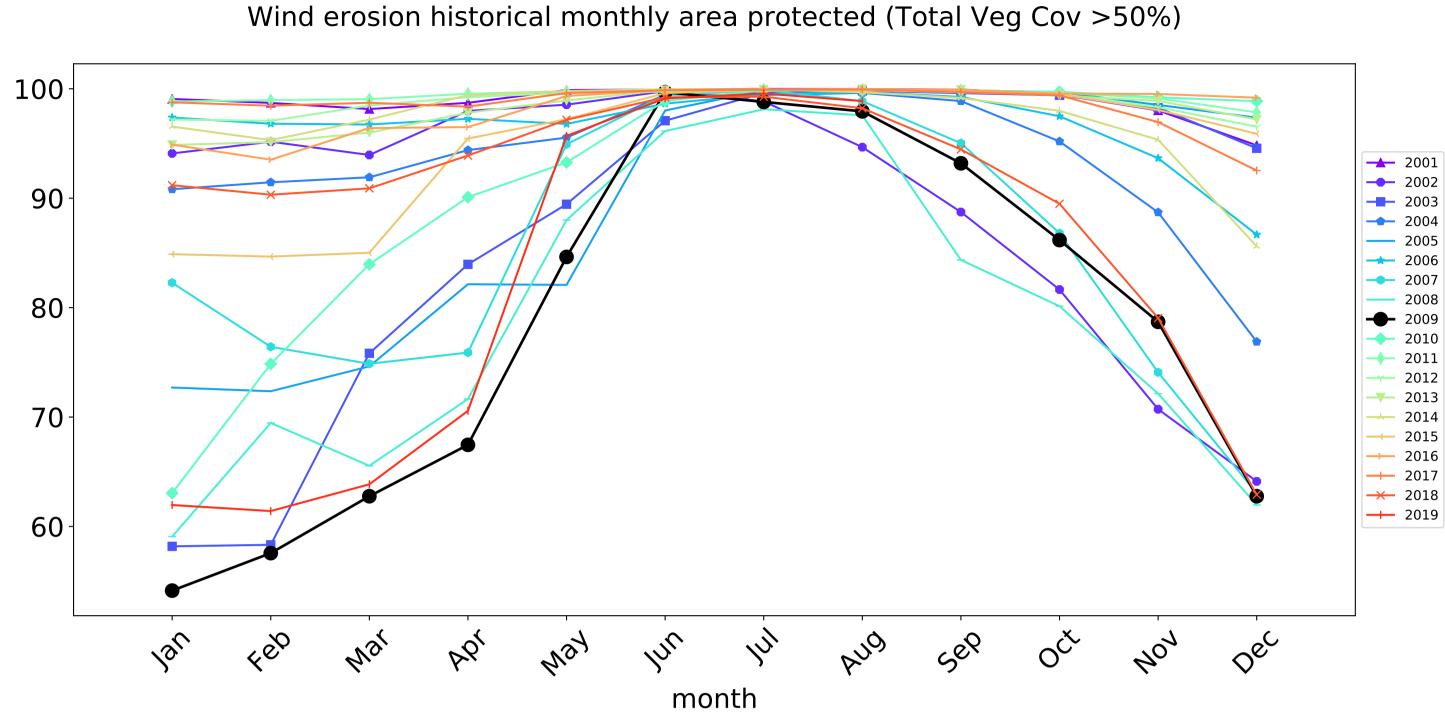


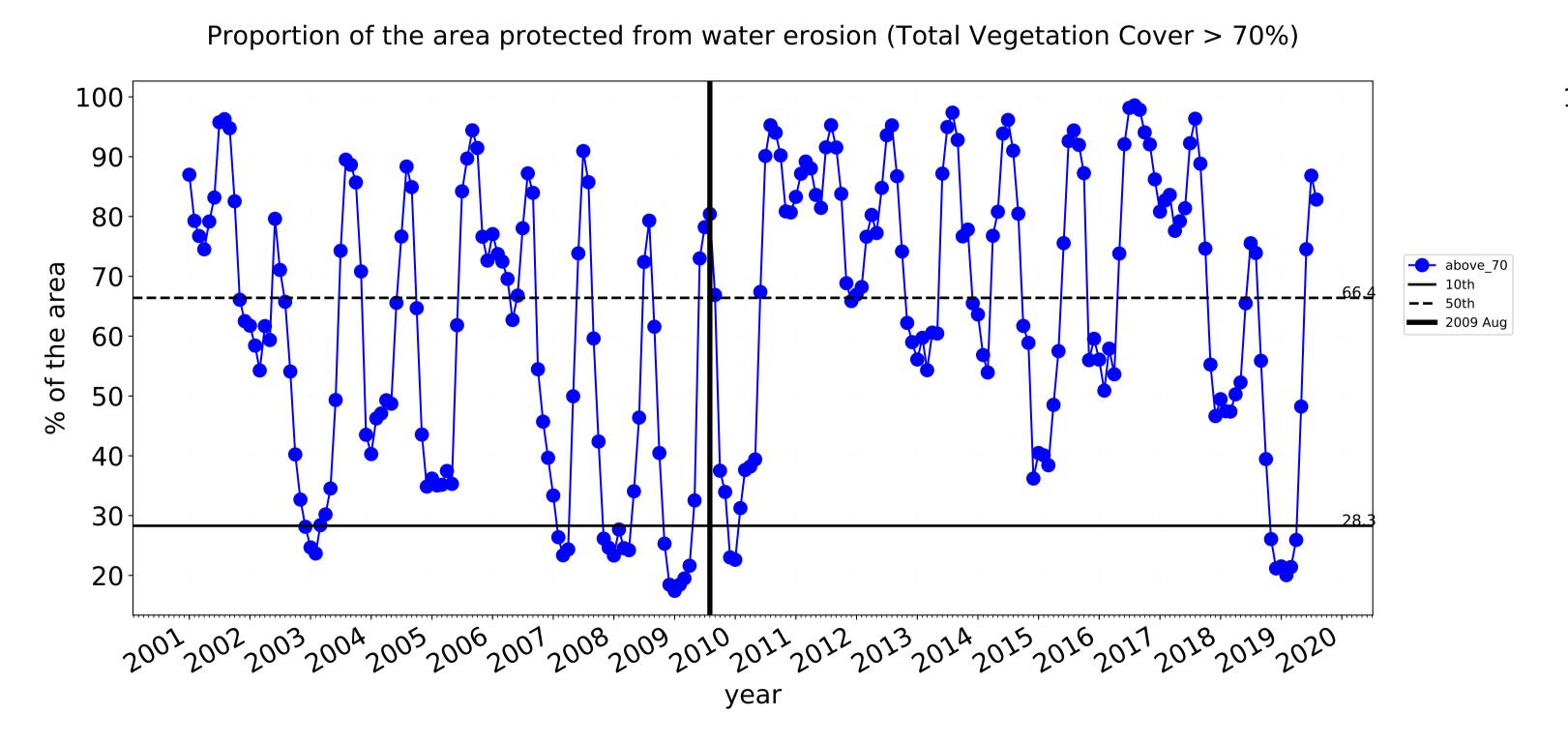


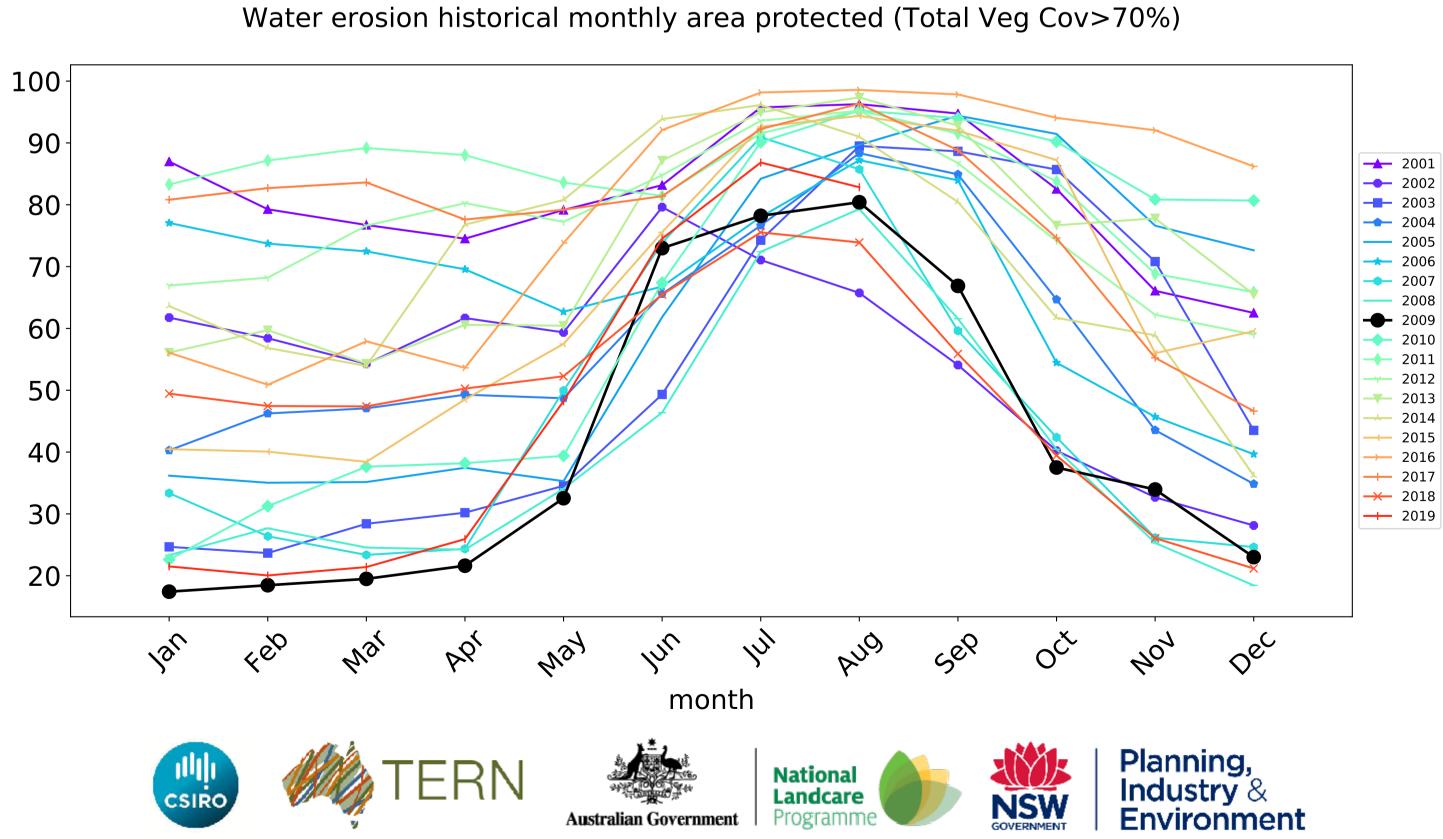


Agriculture timeseries





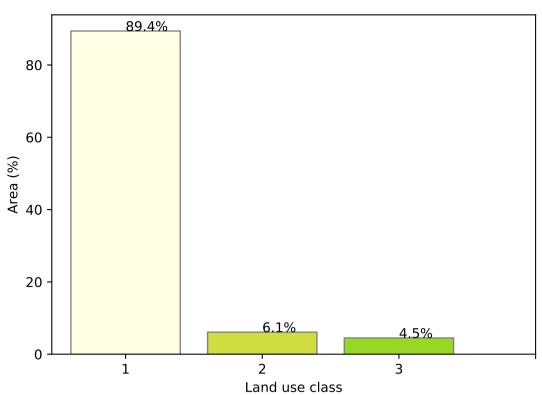




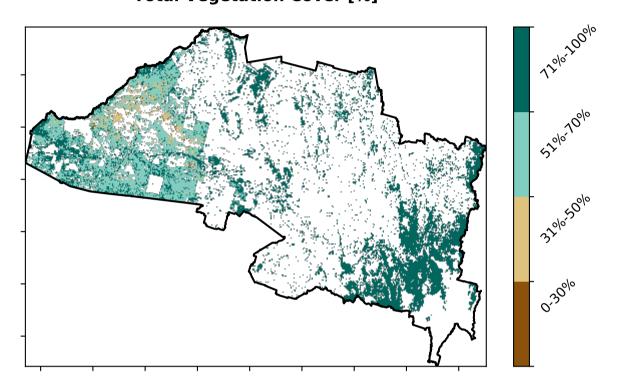
Grazing

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)

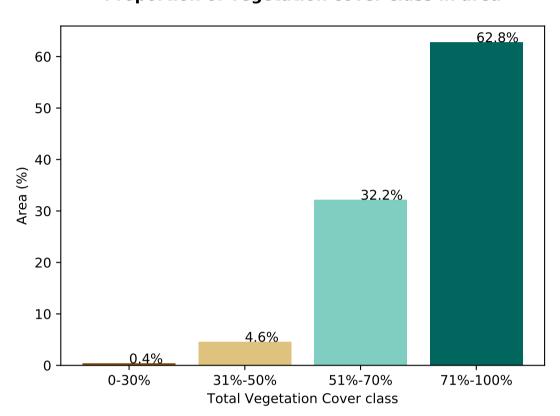
Proportion of each land class in area



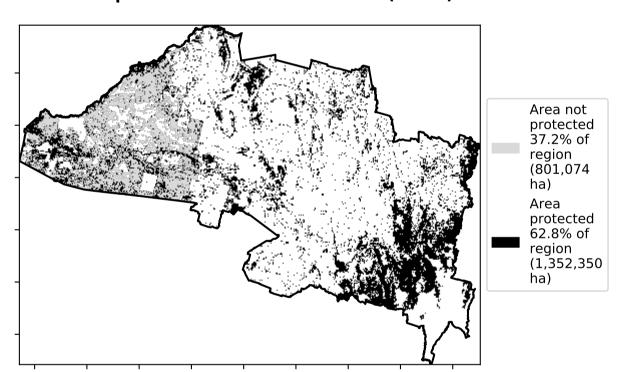
Total Vegetation Cover [%]



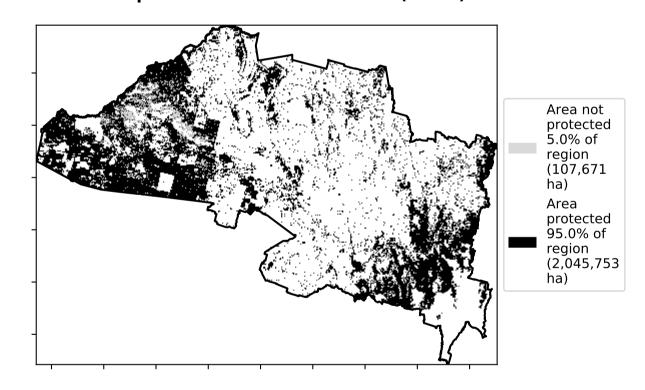
Proportion of vegetation cover class in area



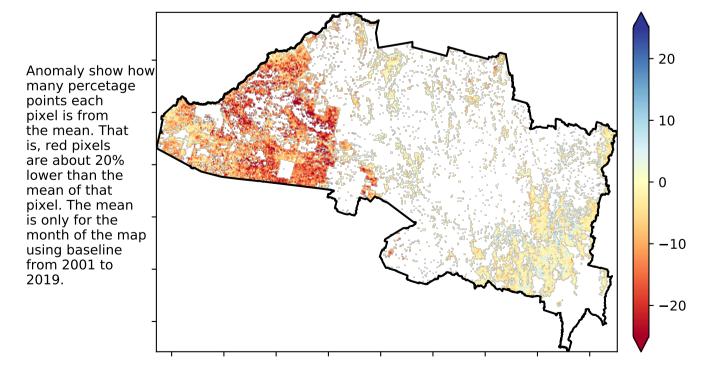
% Area protected from water erosion (>70%)



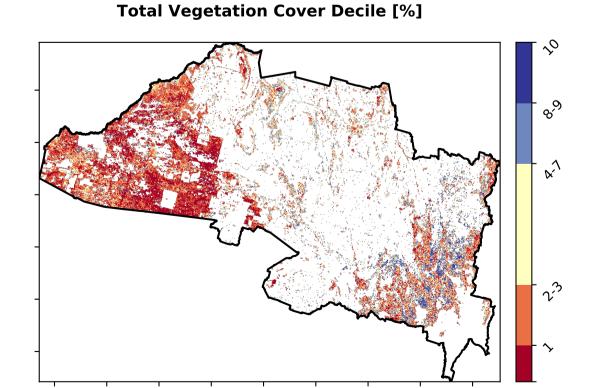
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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.







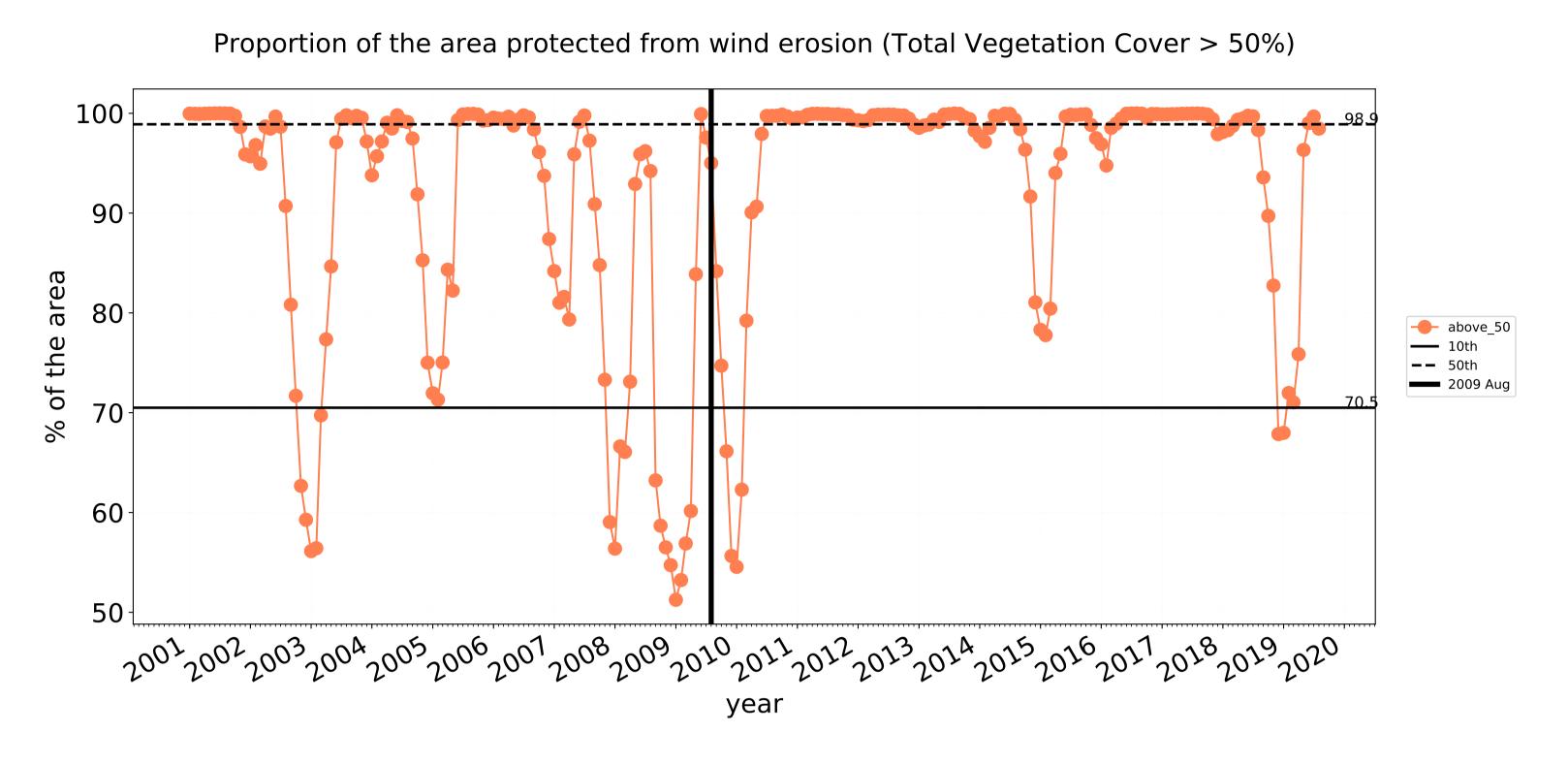


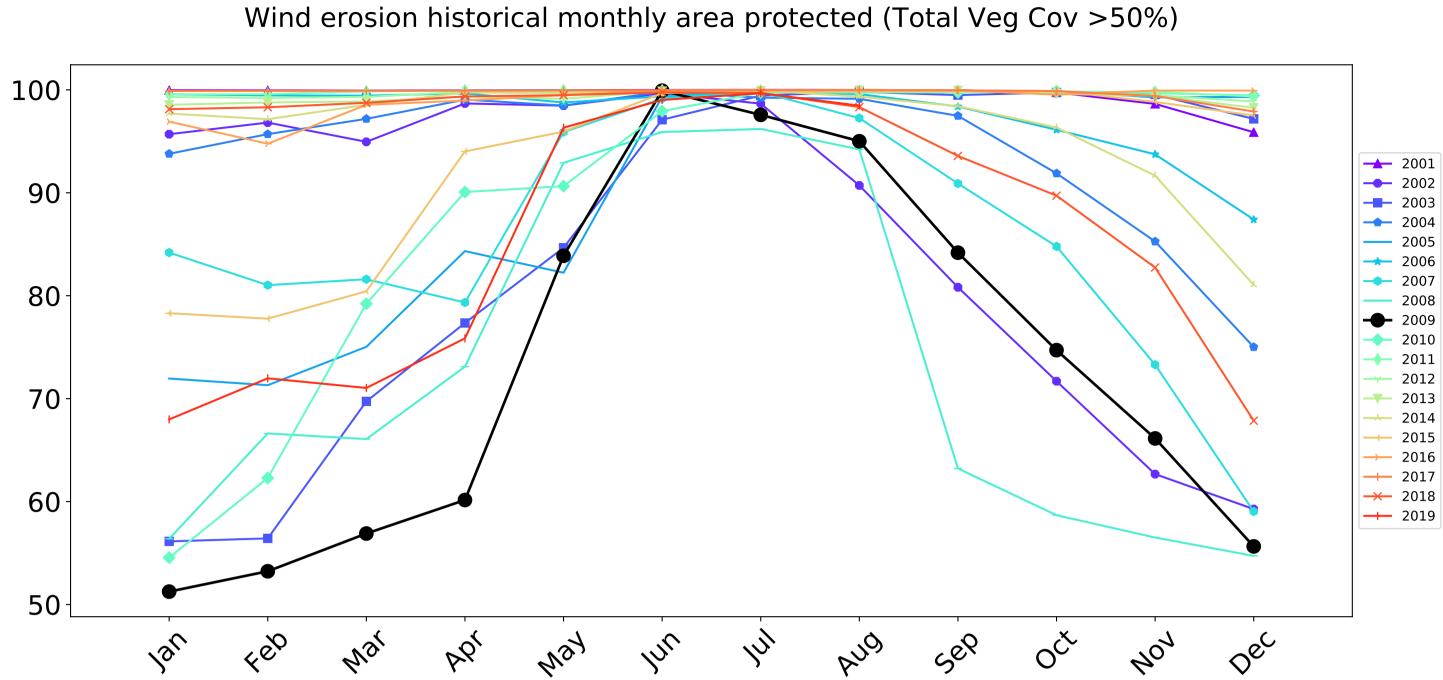


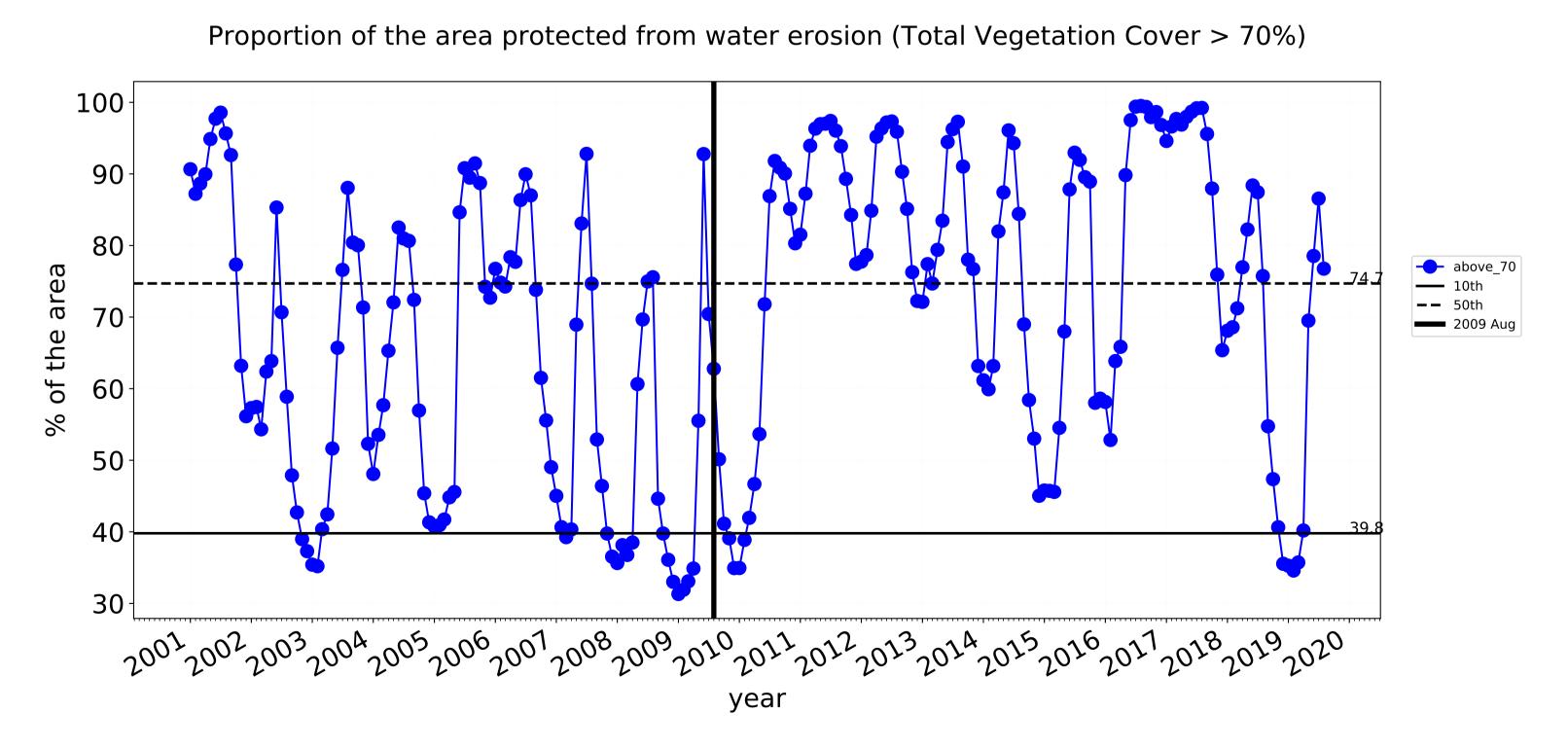


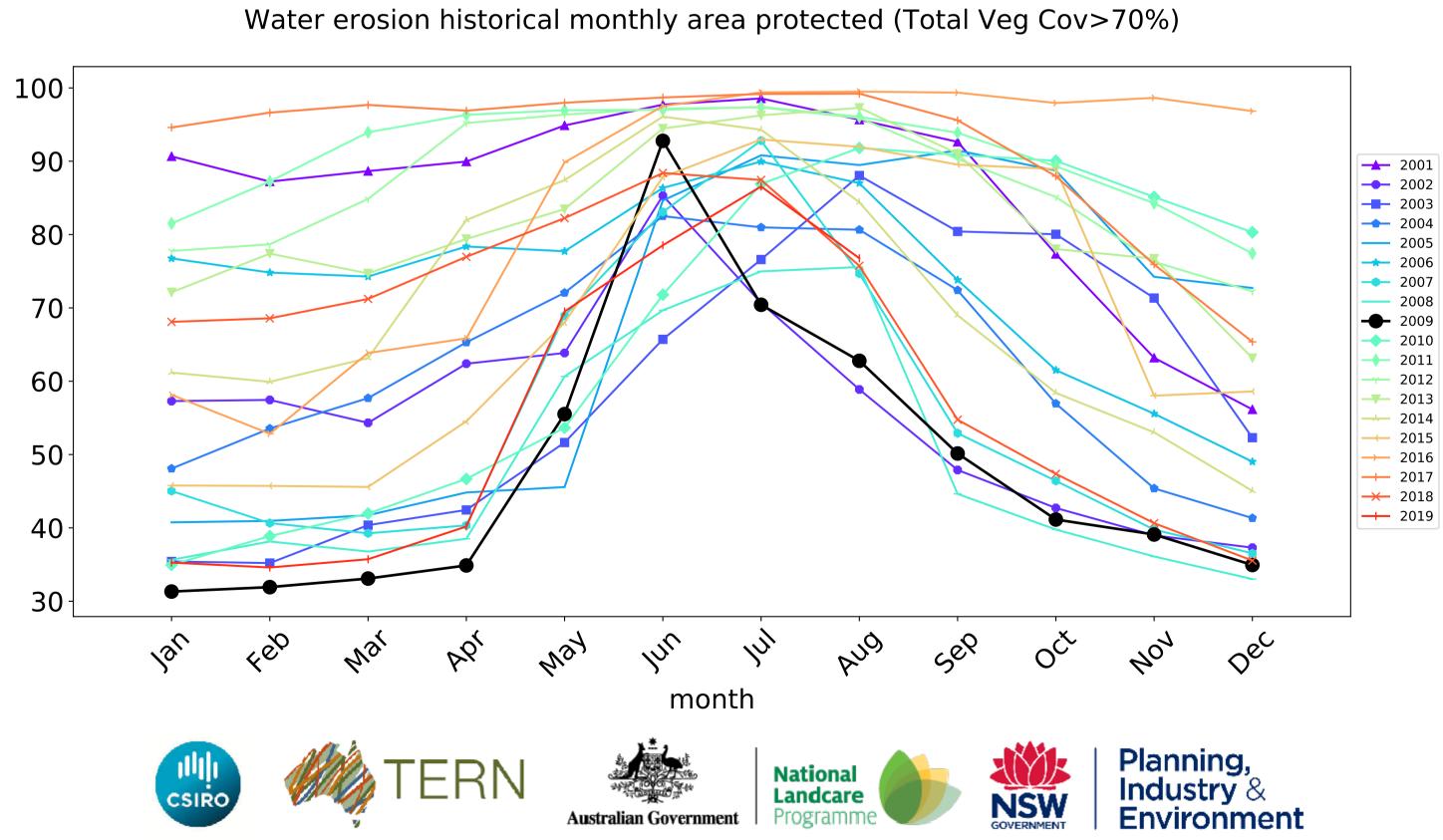


Grazing timeseries



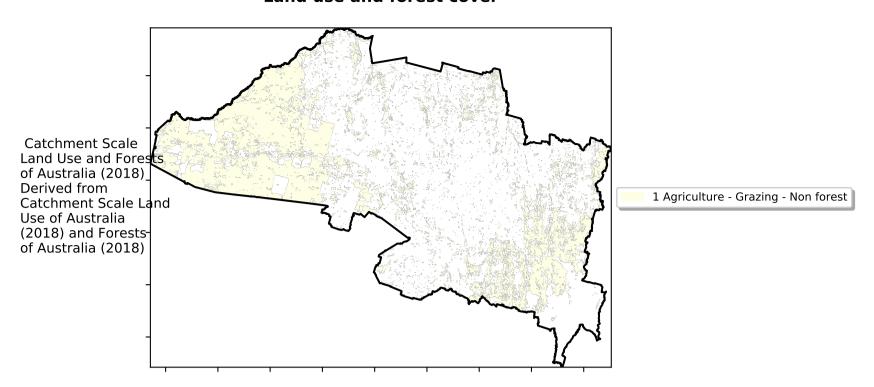




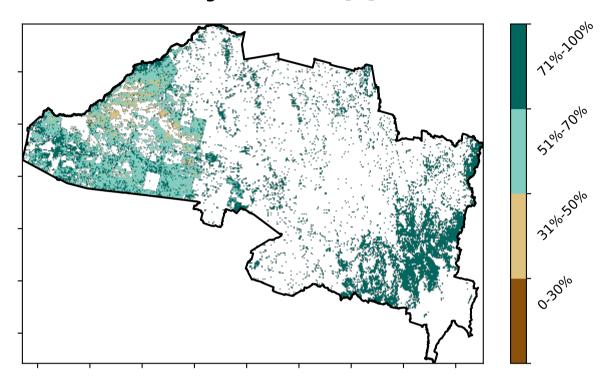


Grazing non forest

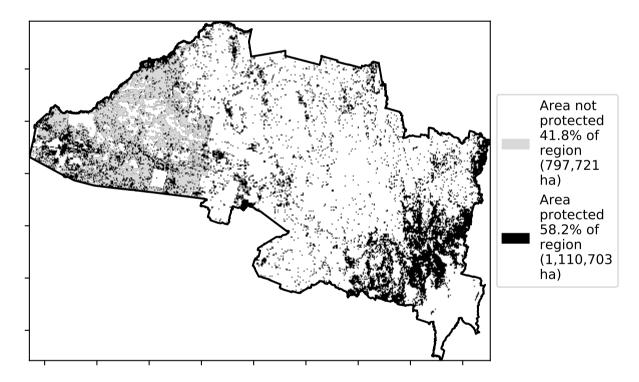
Land use and forest cover



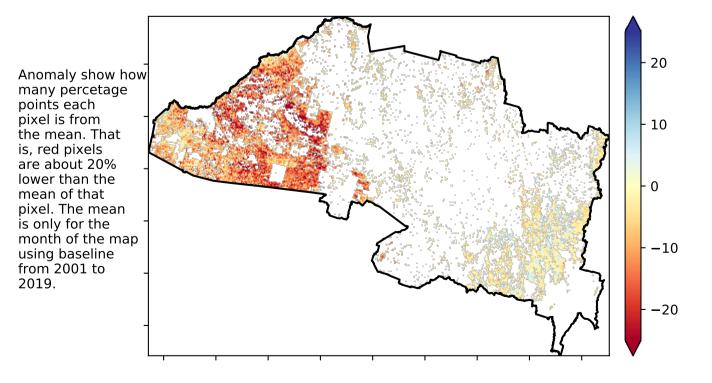
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

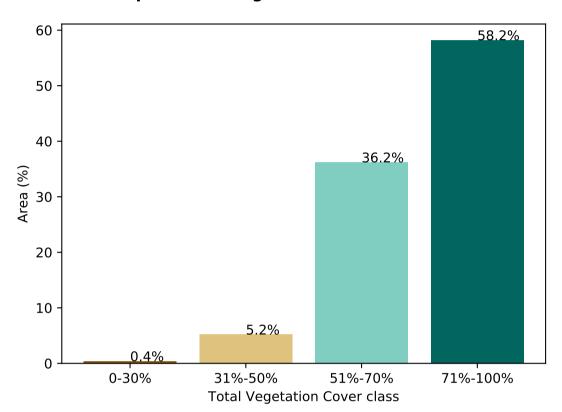


Total Vegetation Cover Anomaly [%]

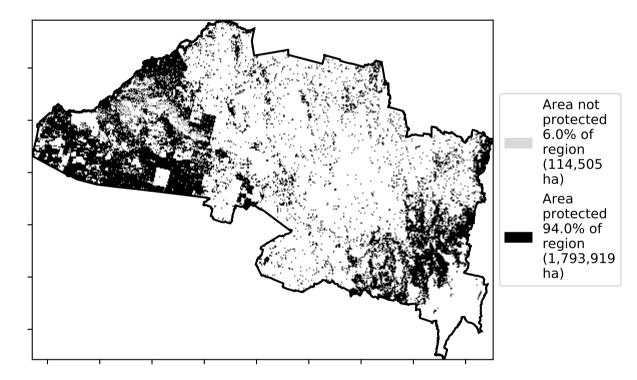


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

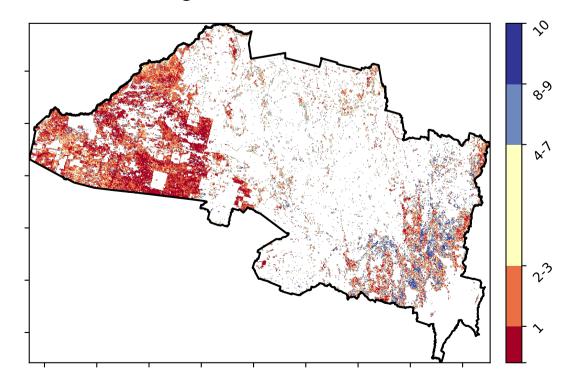
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







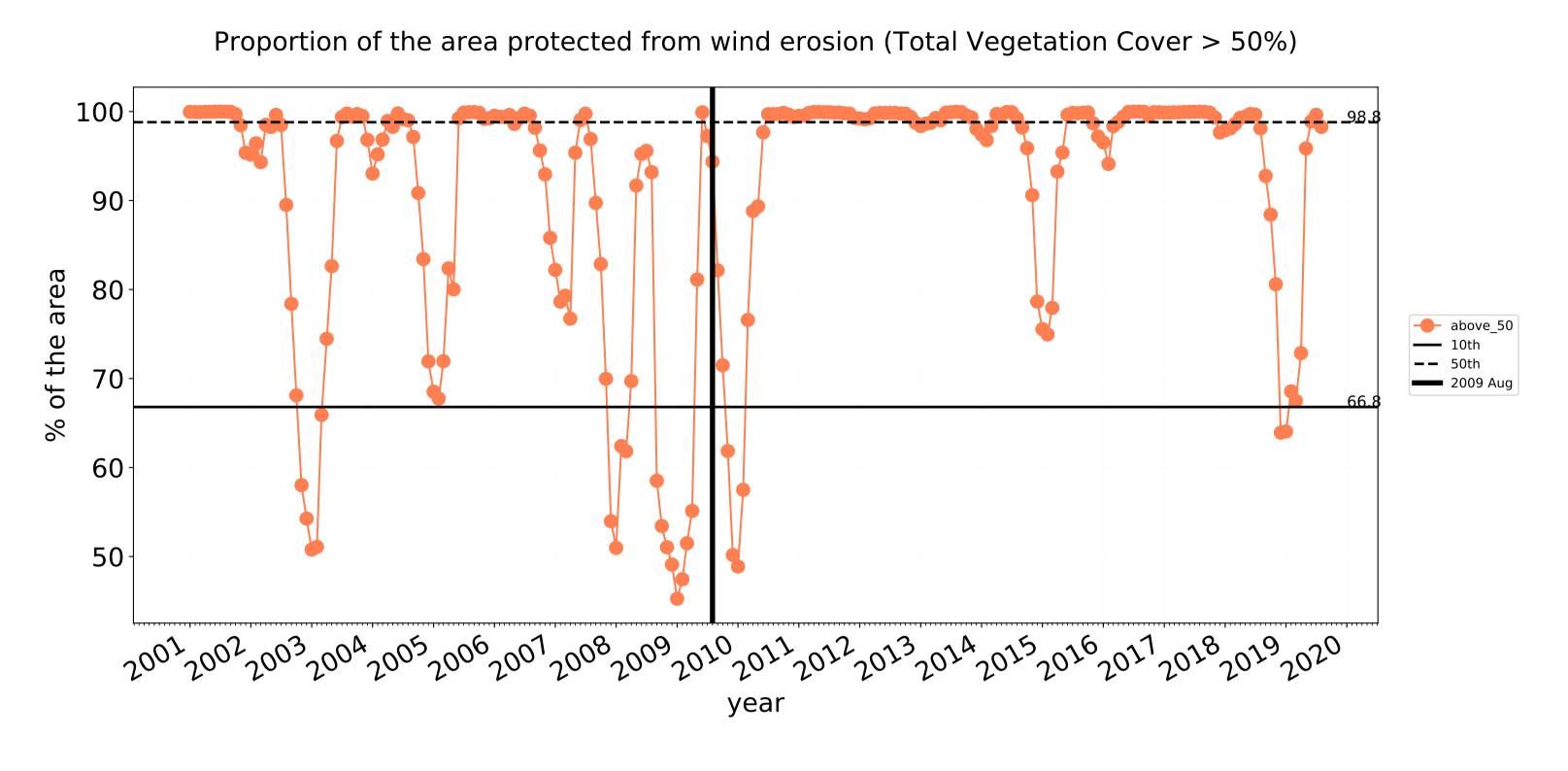


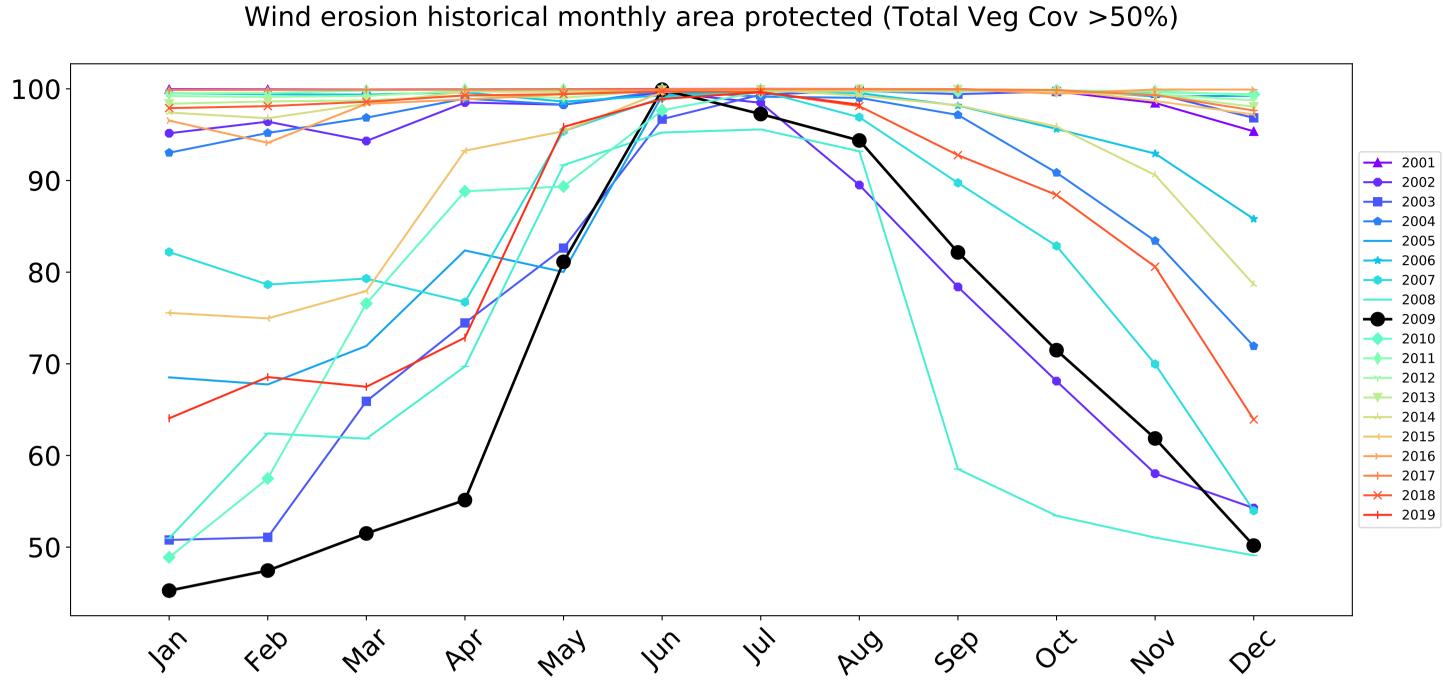


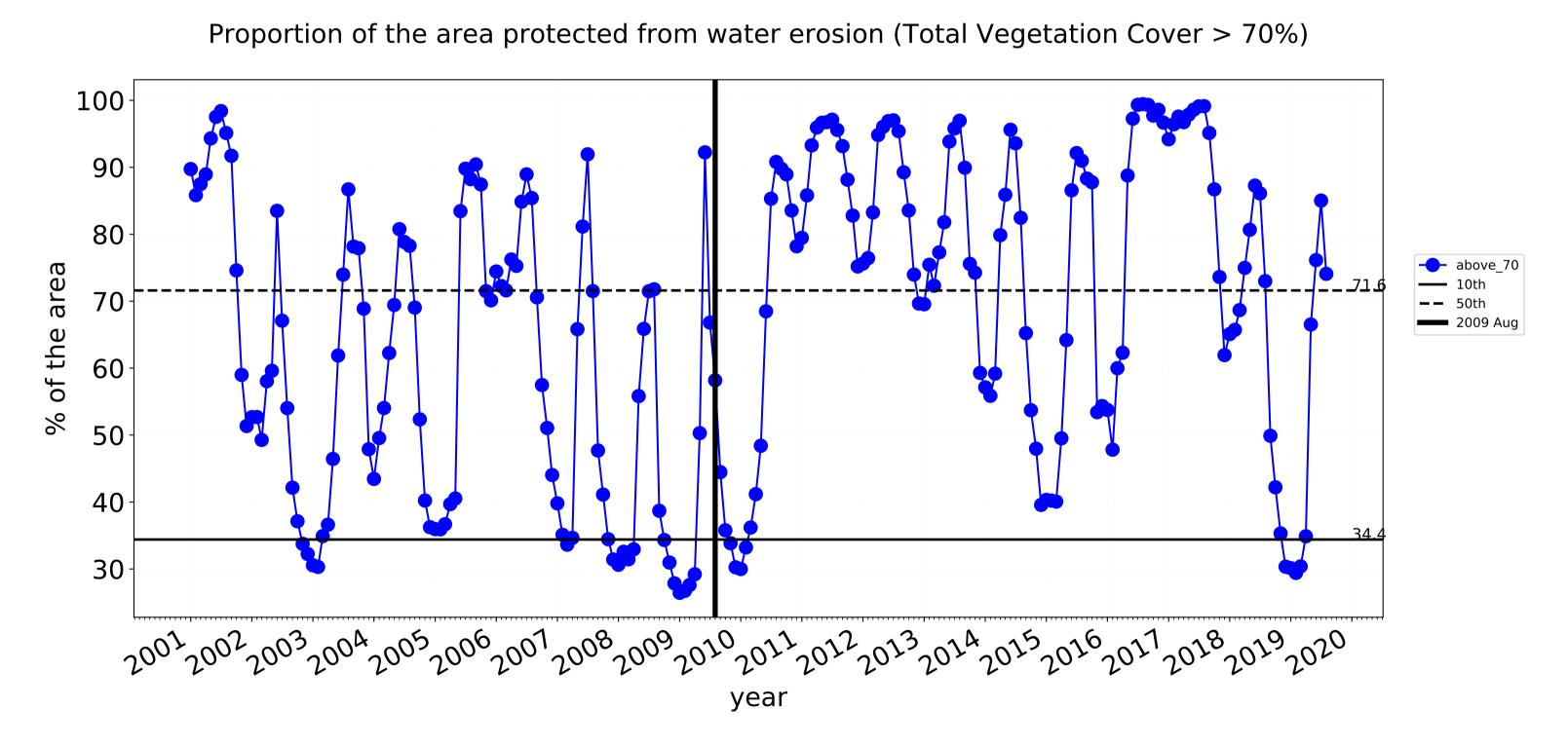


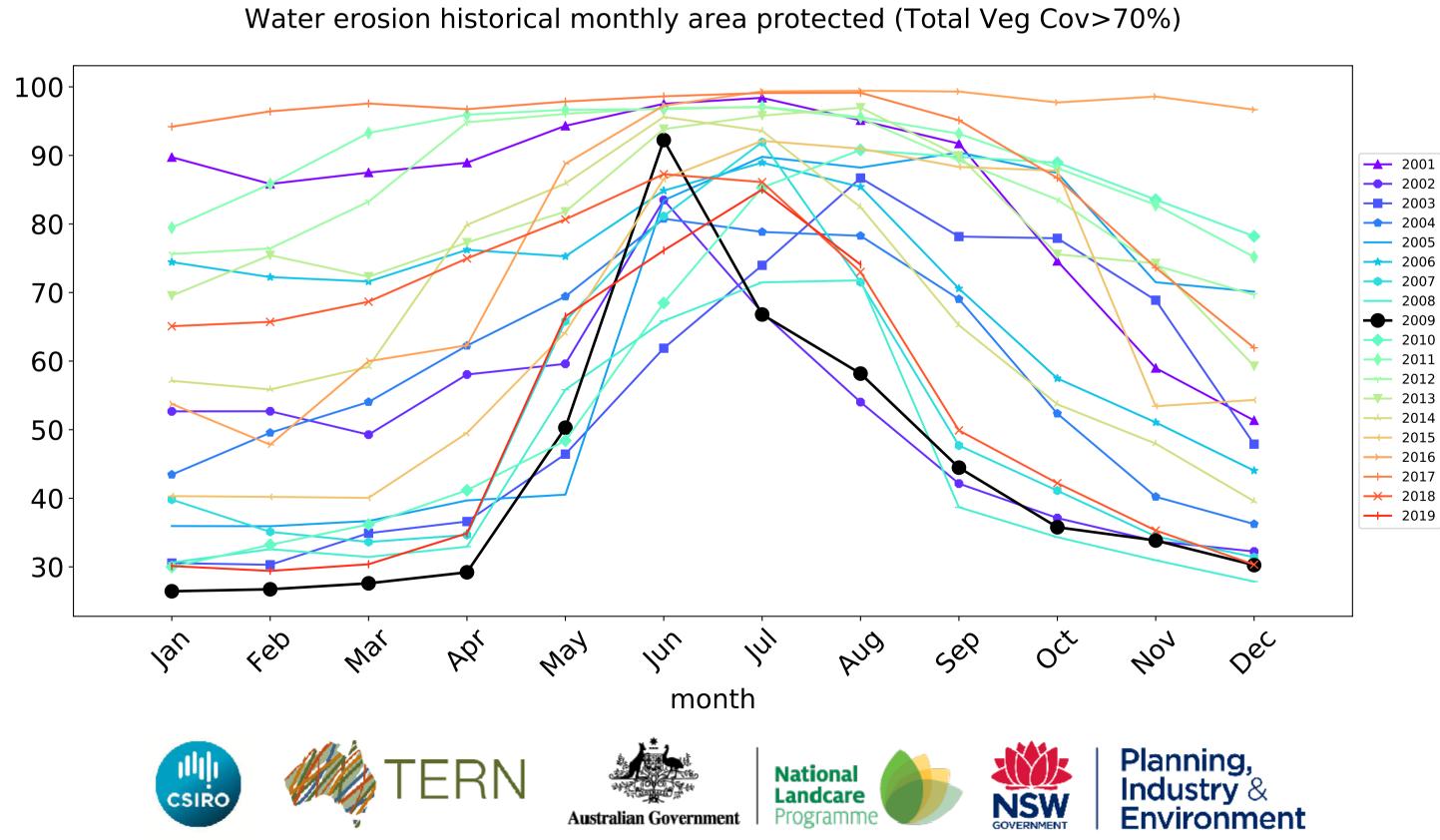


Grazing non forest timeseries



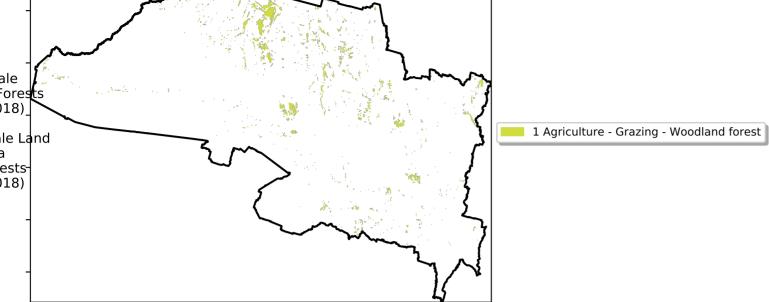






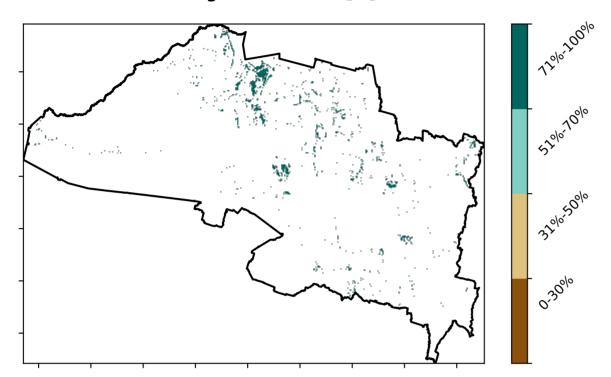
Grazing Woodland forest

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

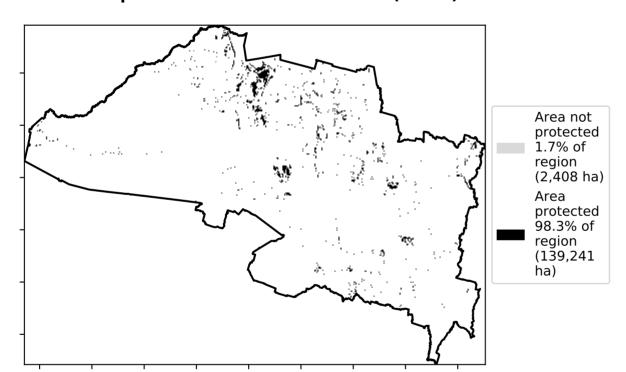


Total Vegetation Cover [%]

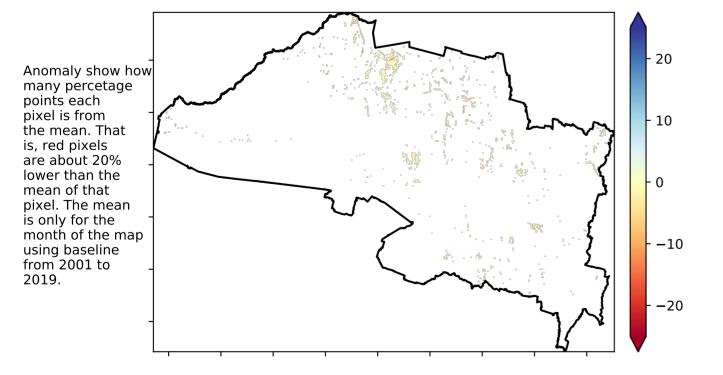
Land use and forest cover



% Area protected from water erosion (>70%)

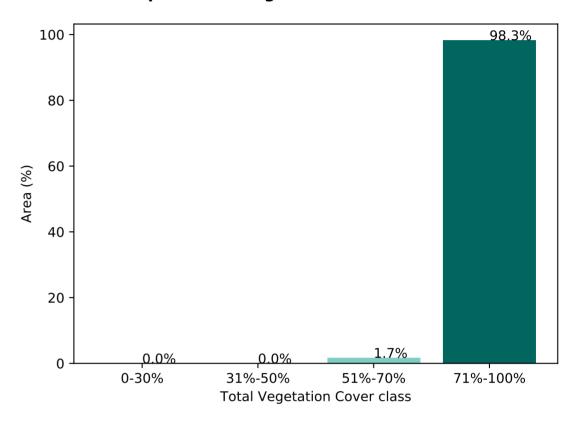


Total Vegetation Cover Anomaly [%]

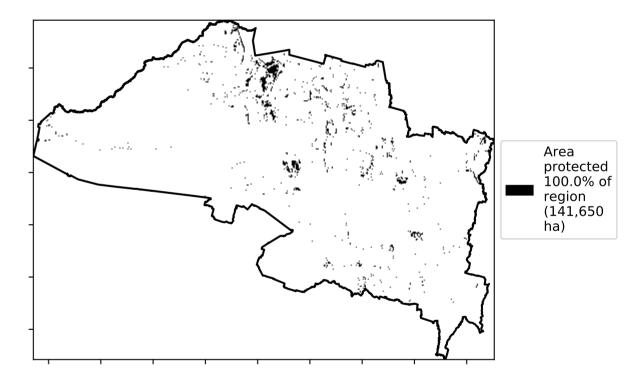


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

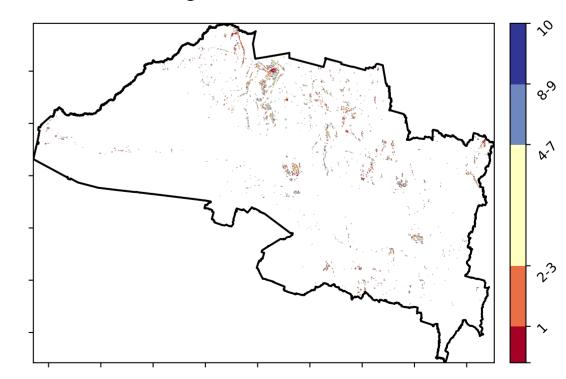
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







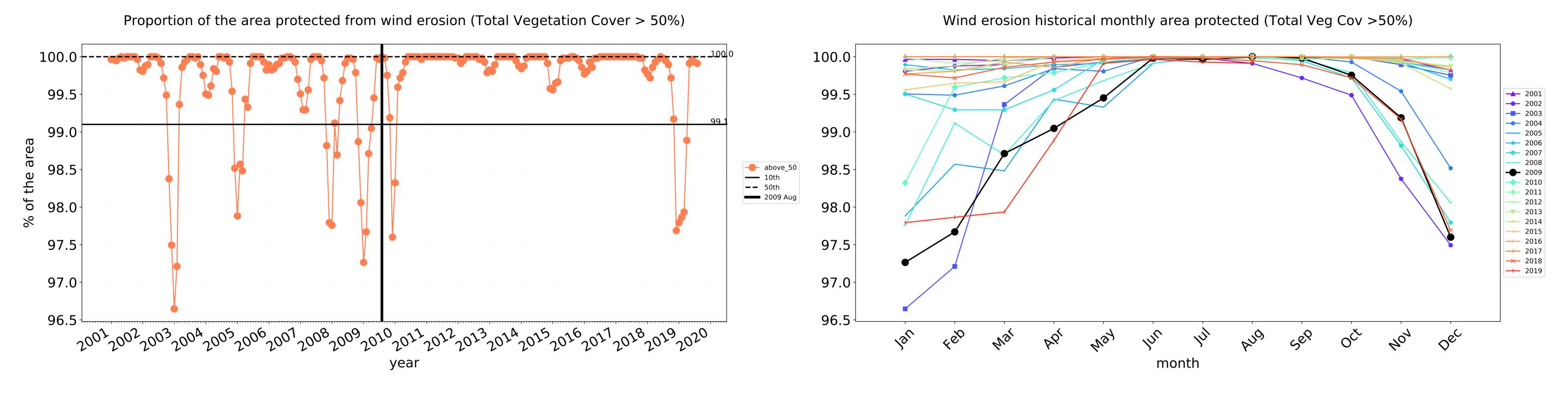


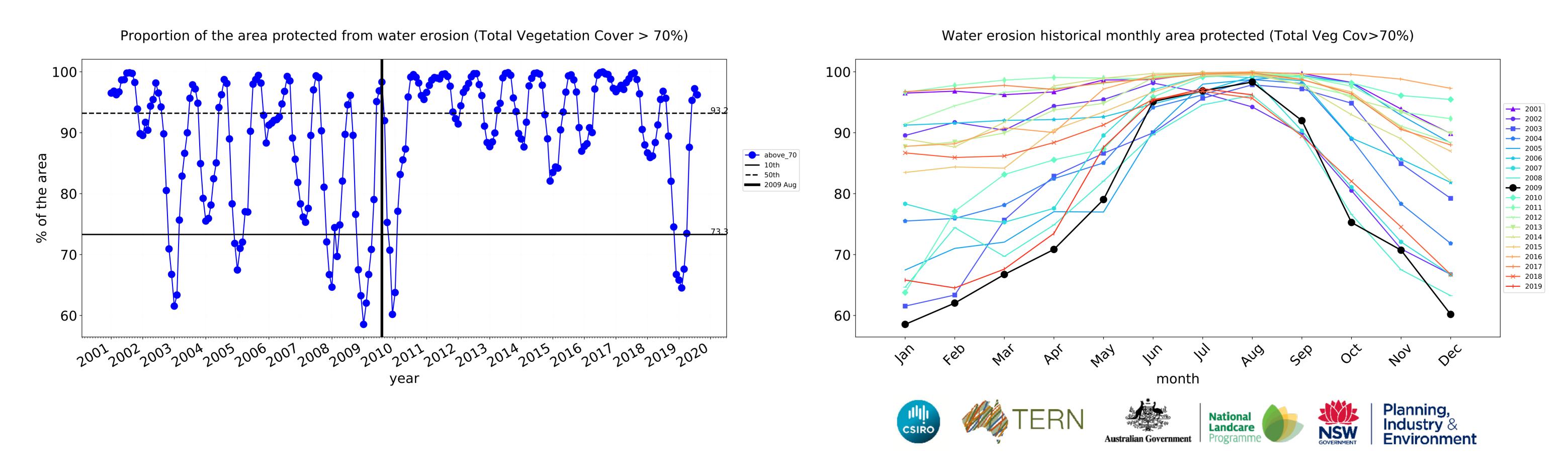






Grazing Woodland forest timeseries



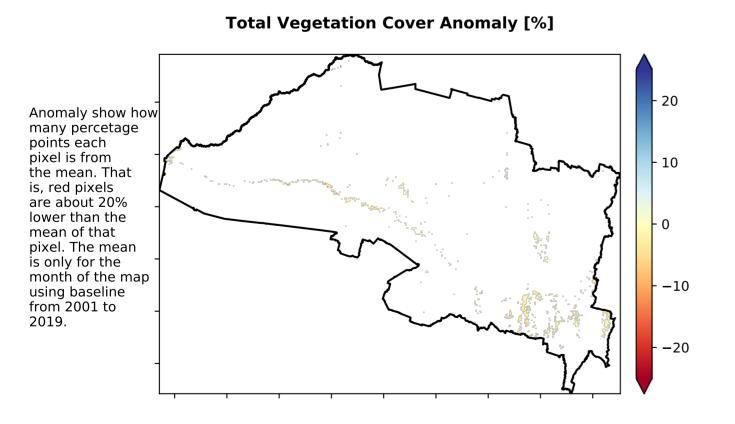


Grazing - Forest (non woodland)

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

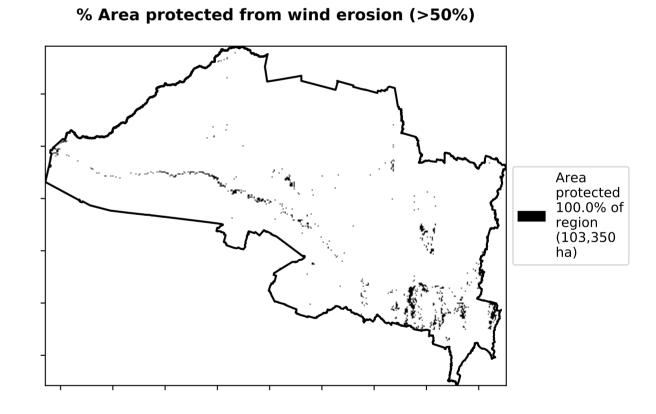
Total Vegetation Cover [%]

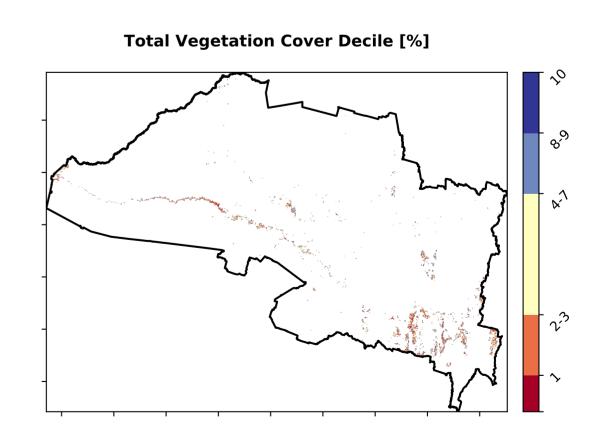
% Area protected from water erosion (>70%) Area not protected 0.9% of region (930 ha) Area protected 99.1% of region (102,419 ha)



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 99.1% 80 - 99.1% 40 - 20 - 0.0% 0.0% 0.9% O-30% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class







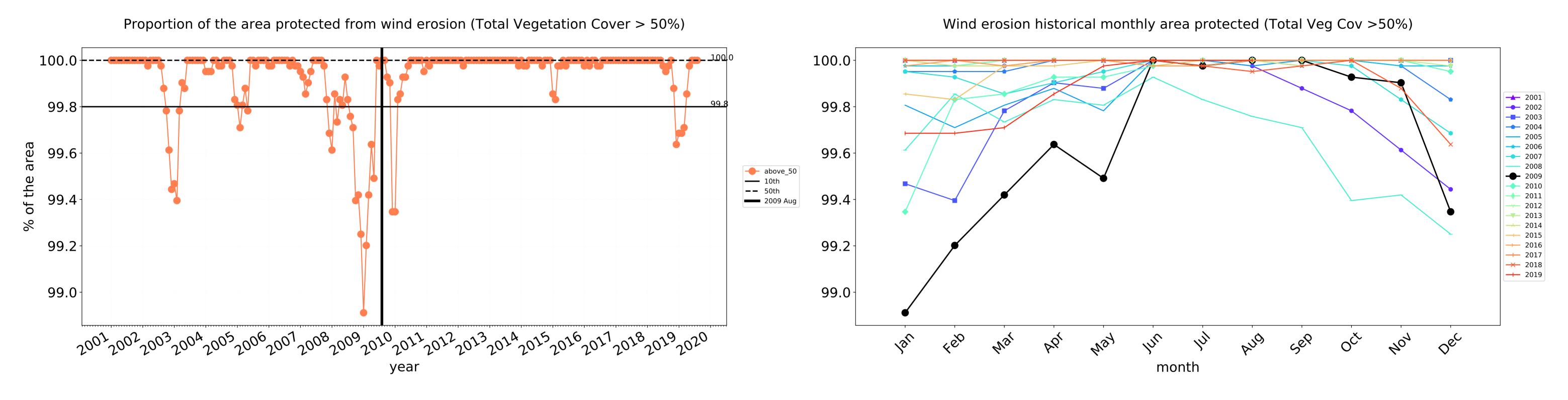


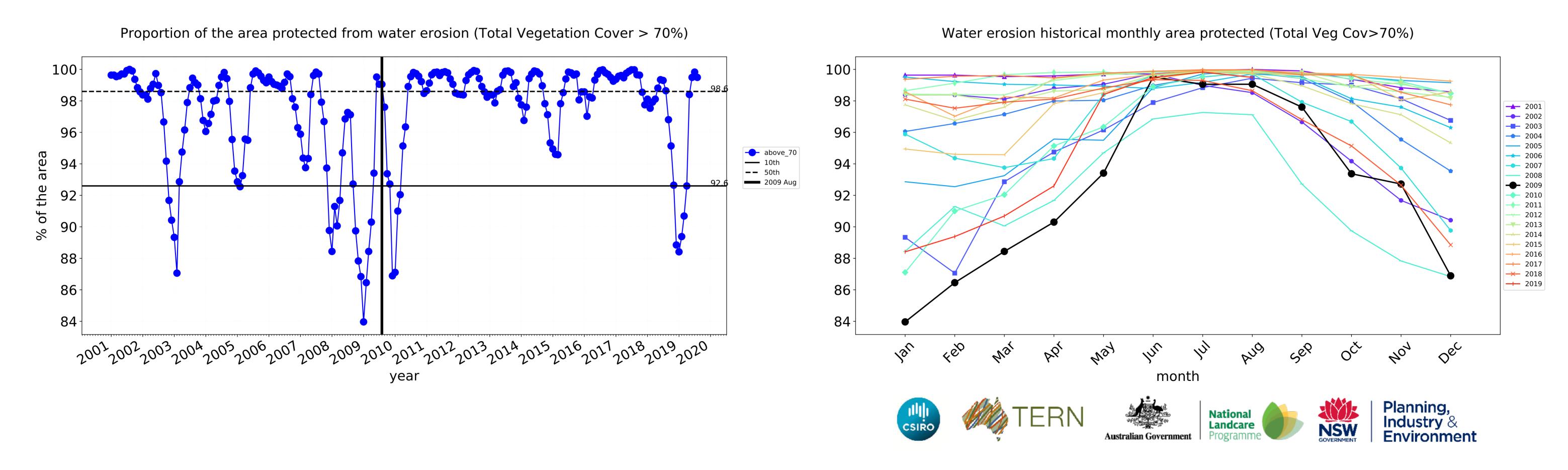






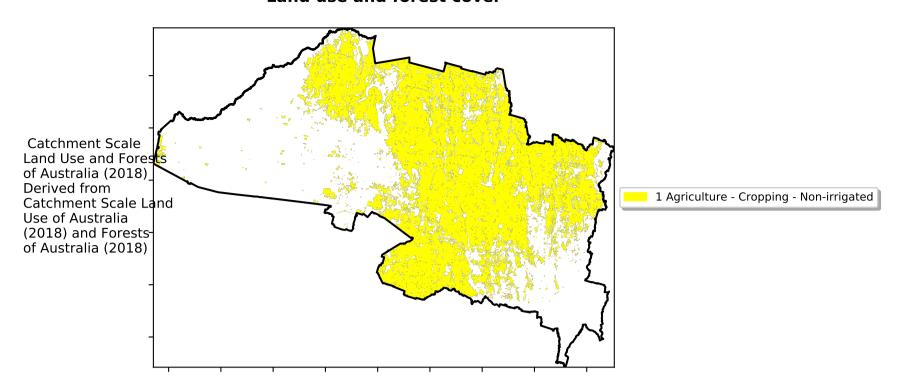




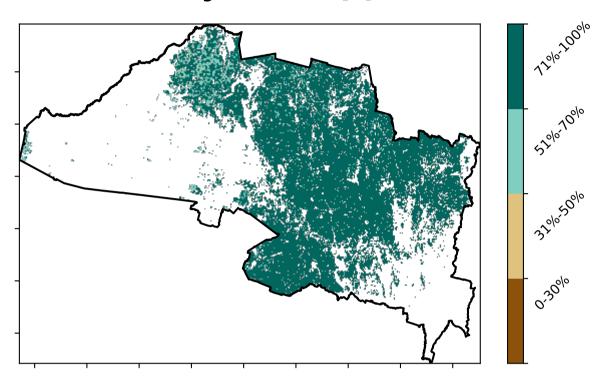


Cropping

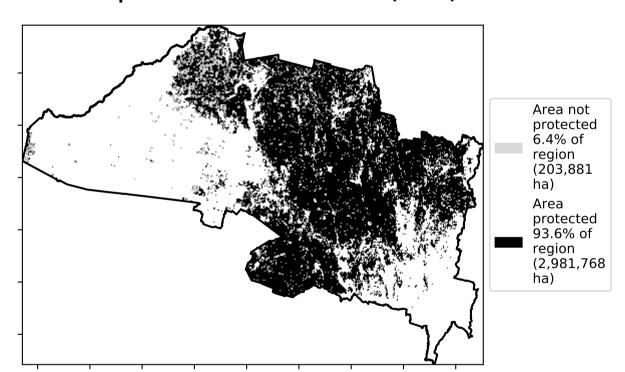
Land use and forest cover



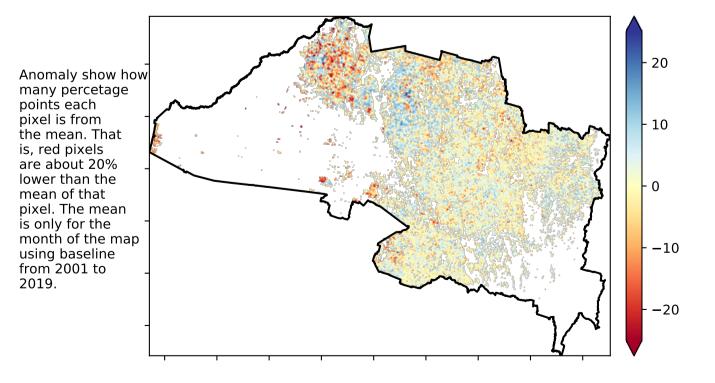
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

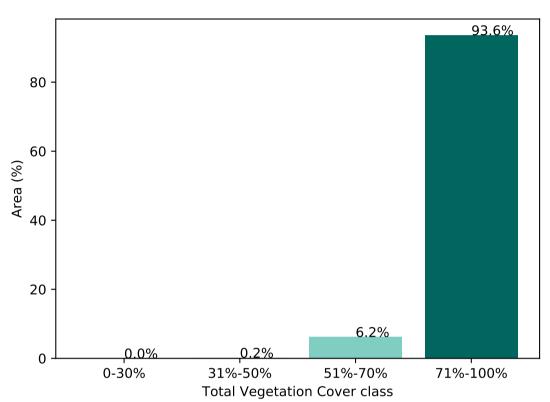


Total Vegetation Cover Anomaly [%]

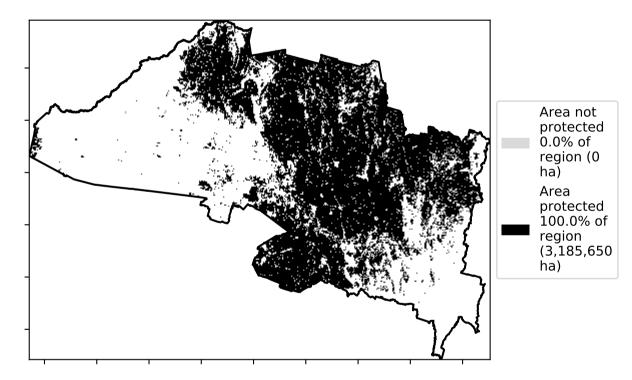


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

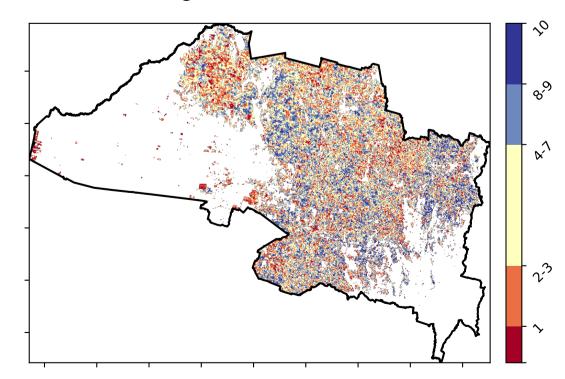
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







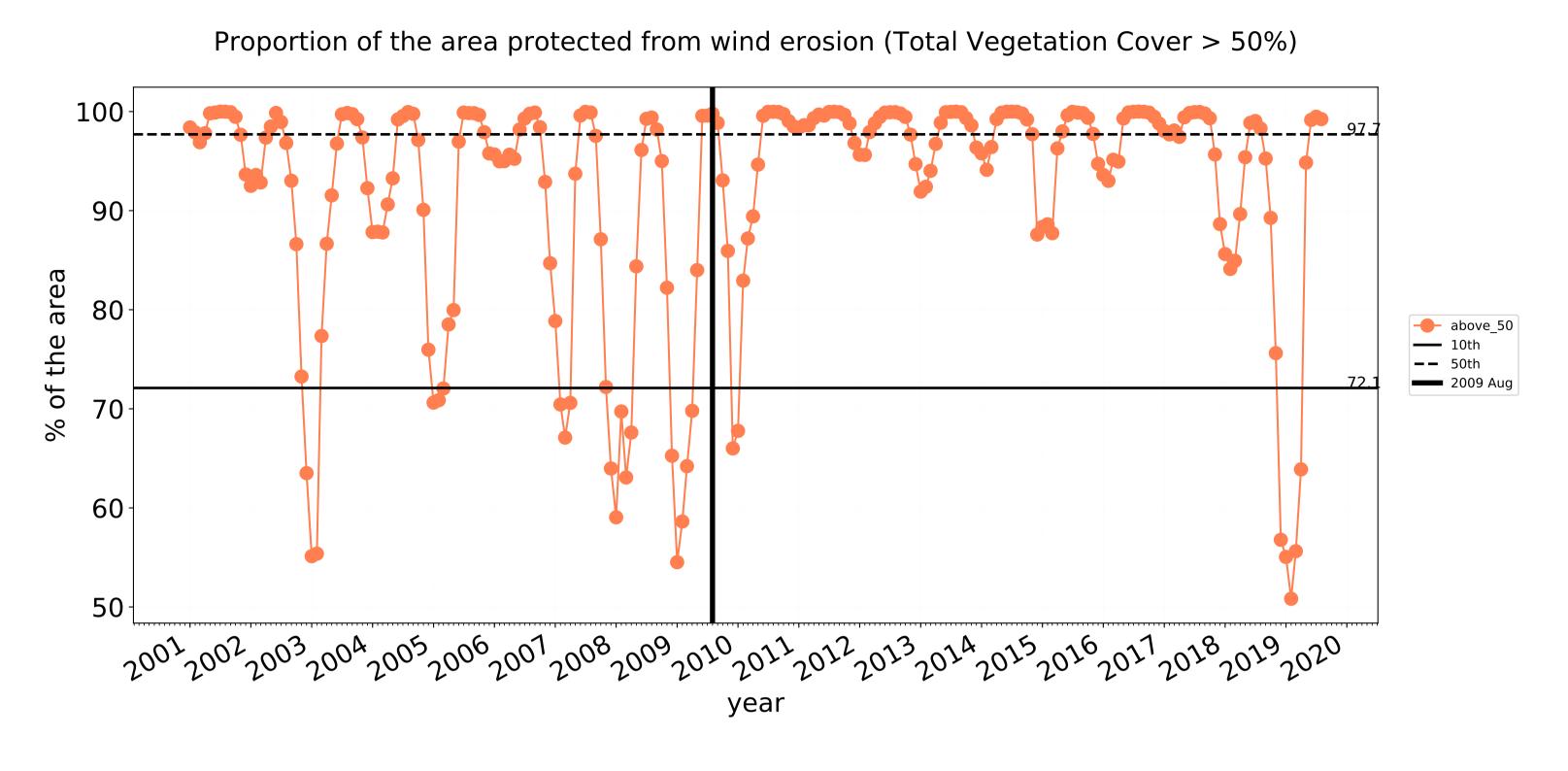


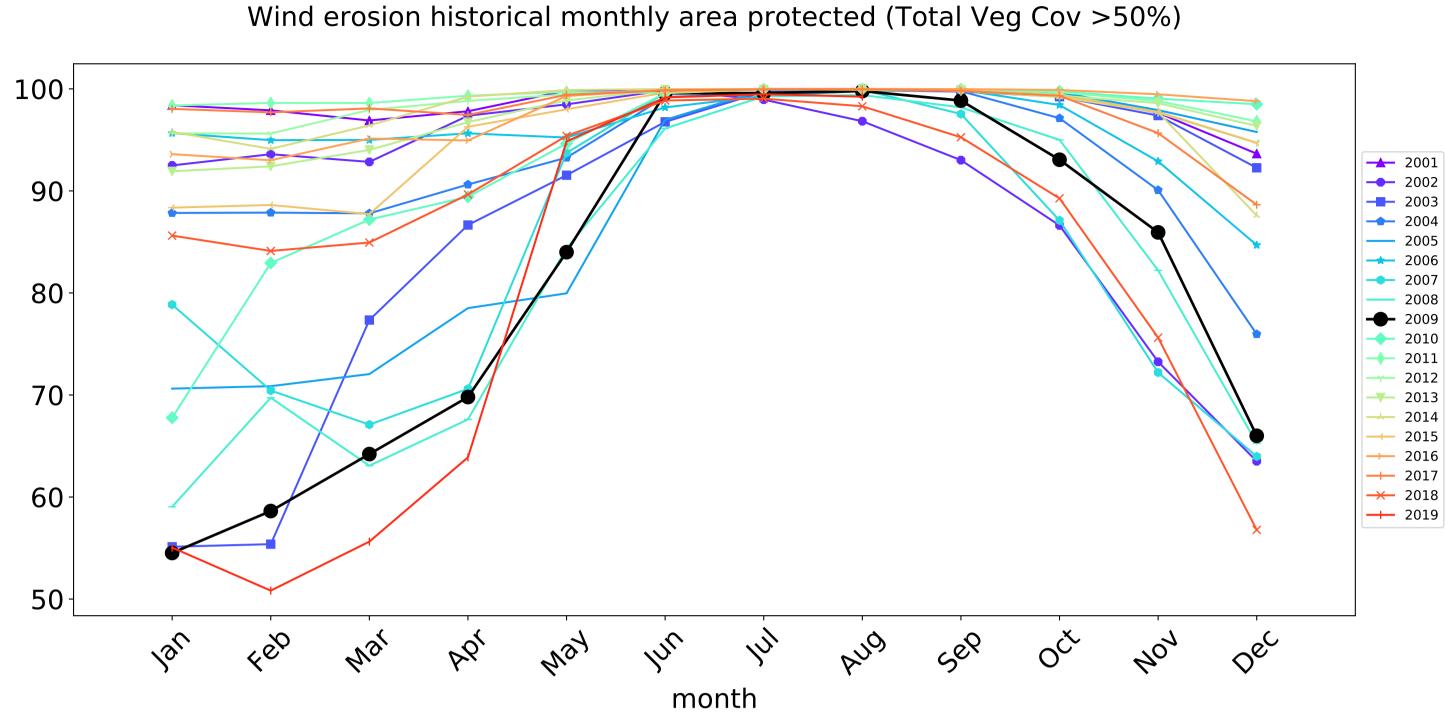


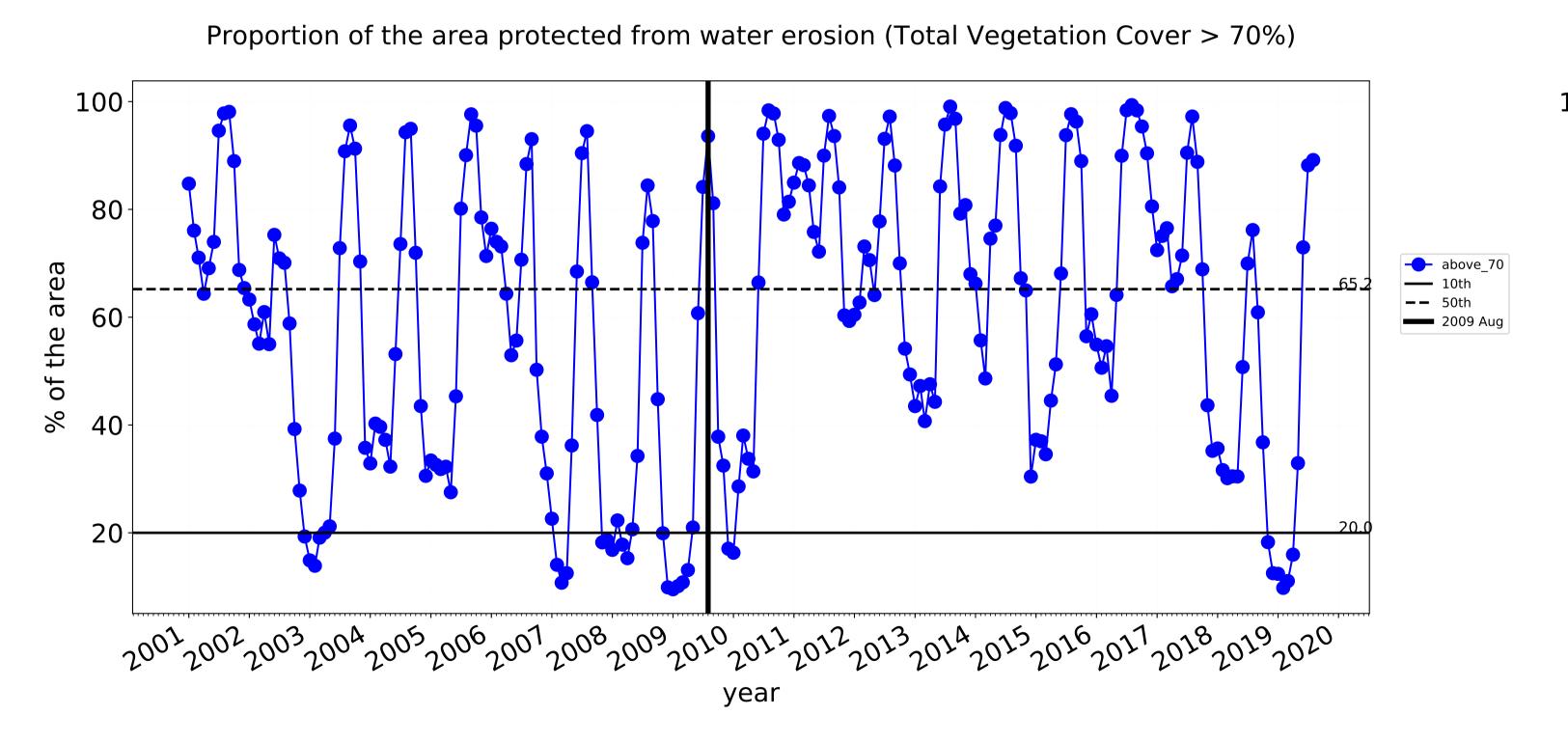


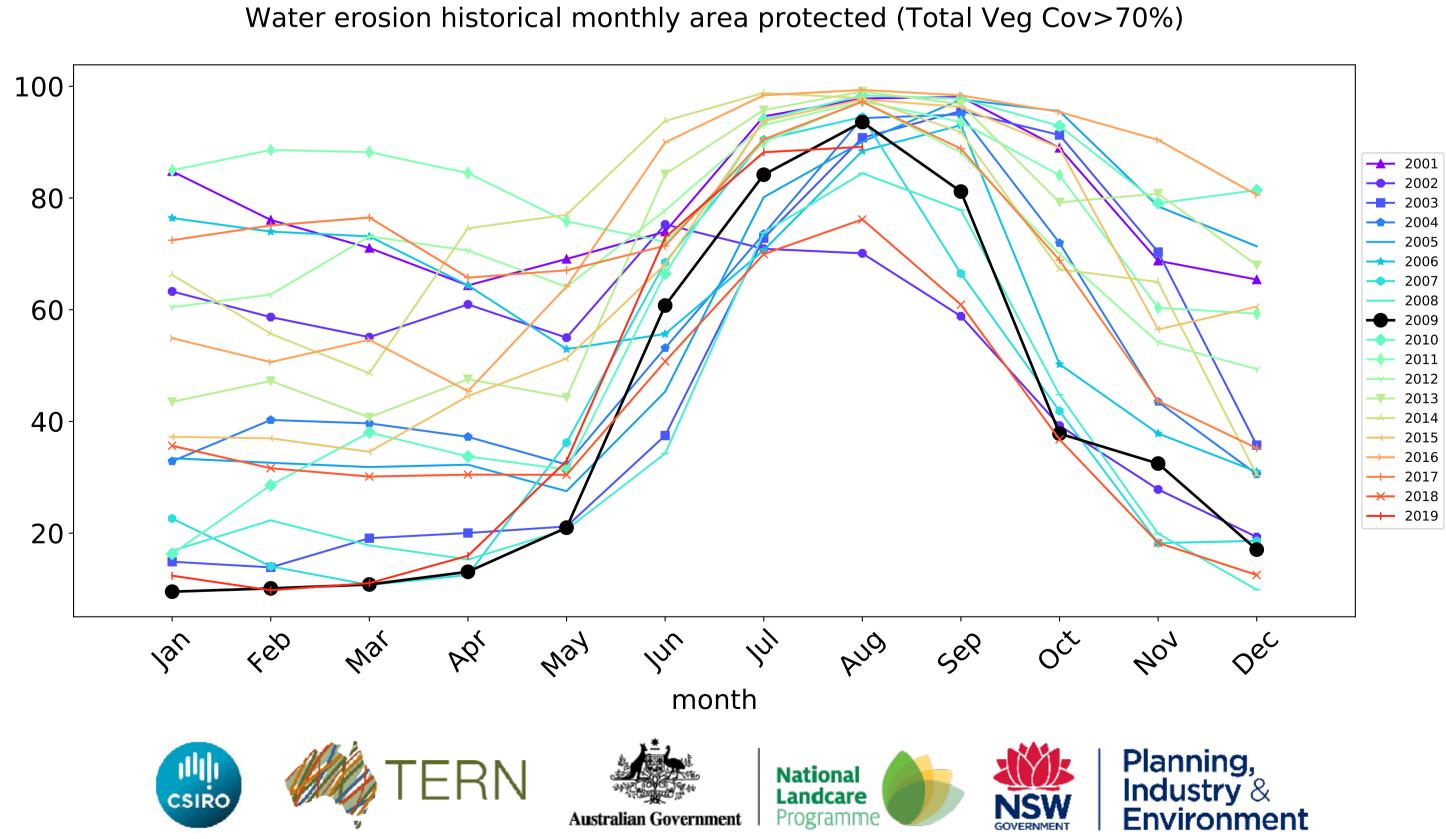


Cropping timeseries

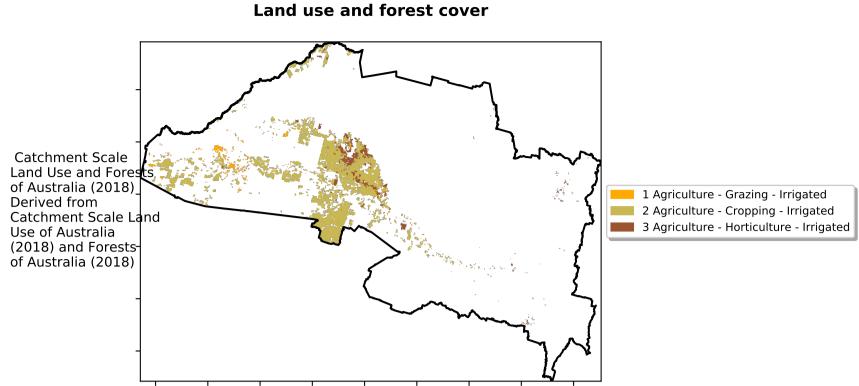




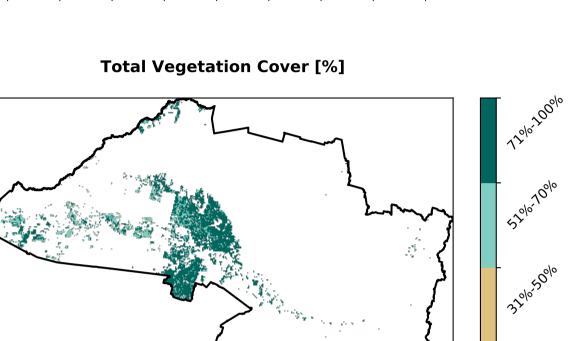


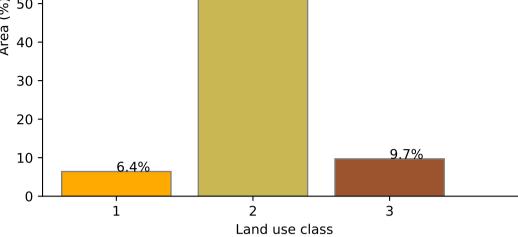


Irrigation



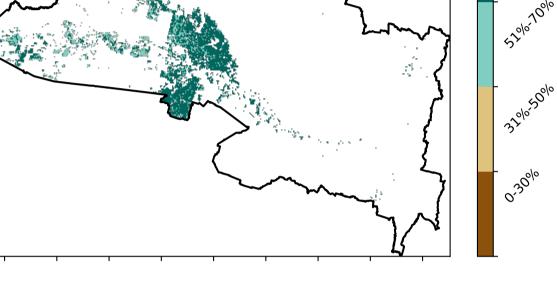
Proportion of each land class in area 83.9% 80 70 60 Area (%) 30 20 9.7% 10 6.4% 3 2





Proportion of vegetation cover class in area

73.2% 70 60 50 Area (%) 30 25.5% 20 10 1.3%

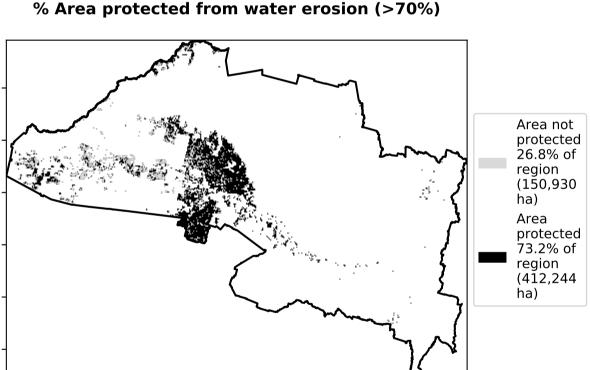


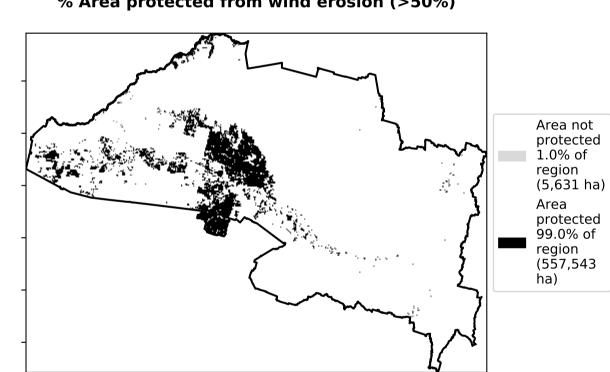
% Area protected from wind erosion (>50%)

Total Vegetation Cover class

31%-50%

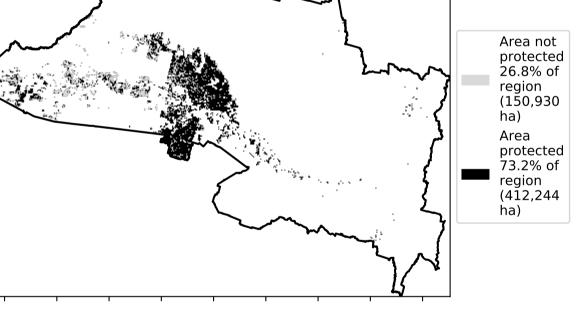
0-30%



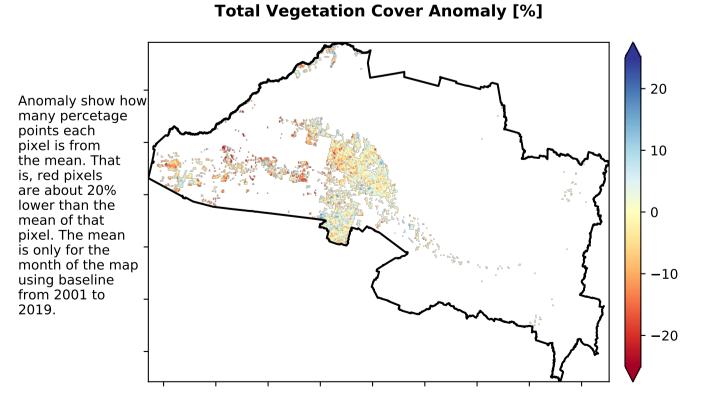


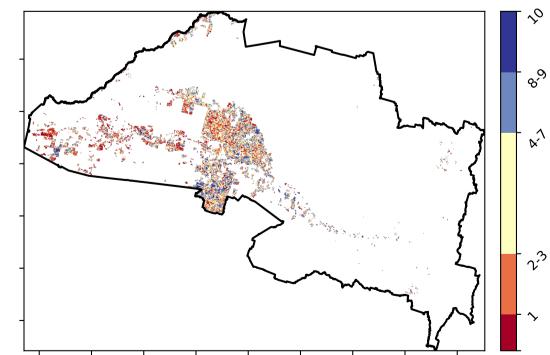
51%-70%

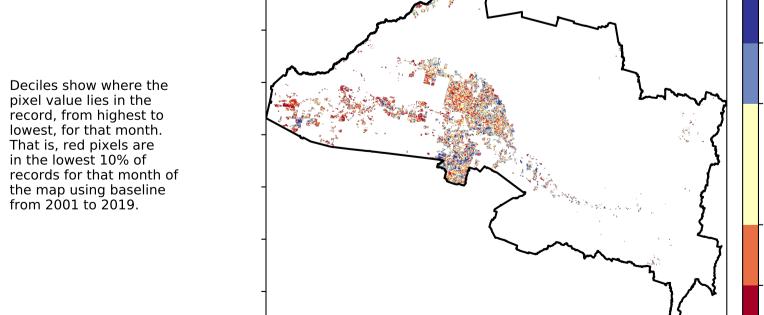
71%-100%



Total Vegetation Cover Decile [%]









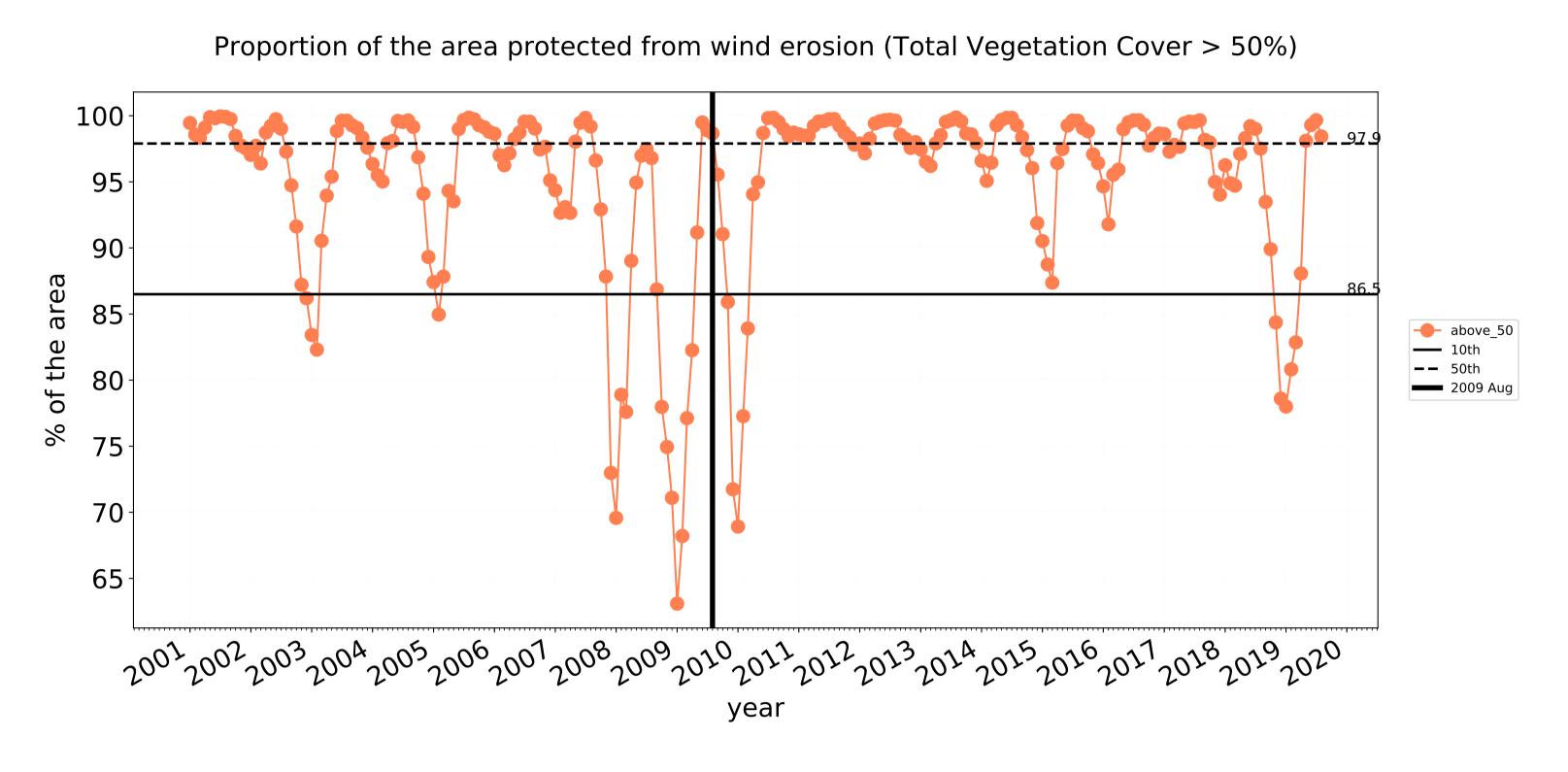


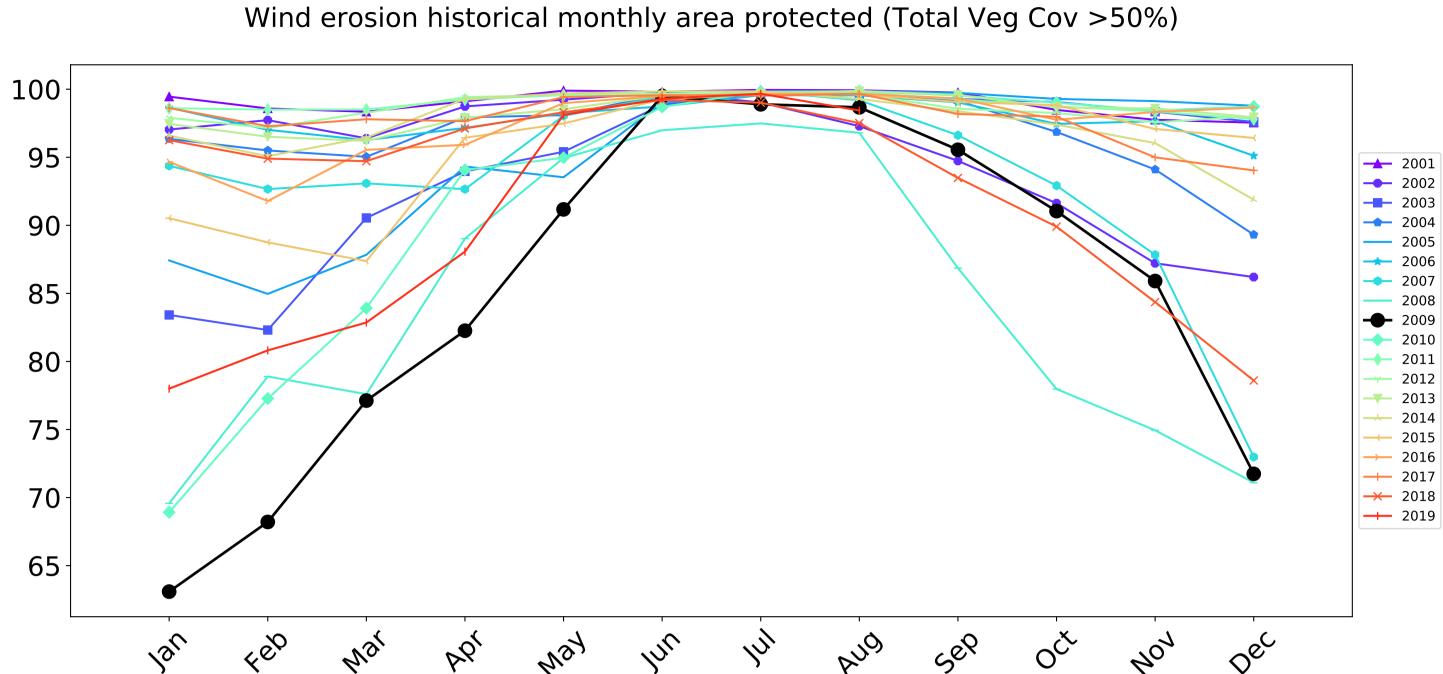


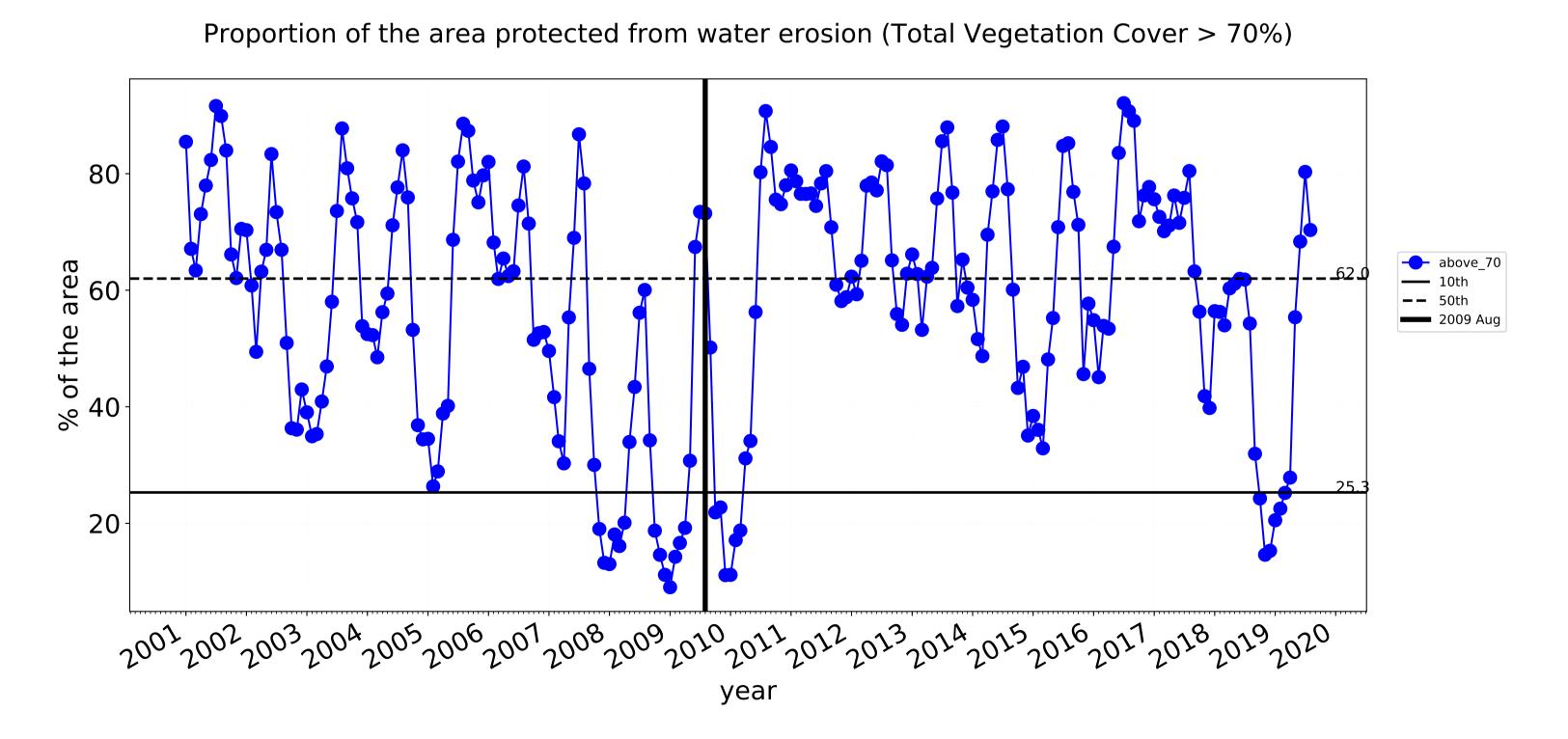


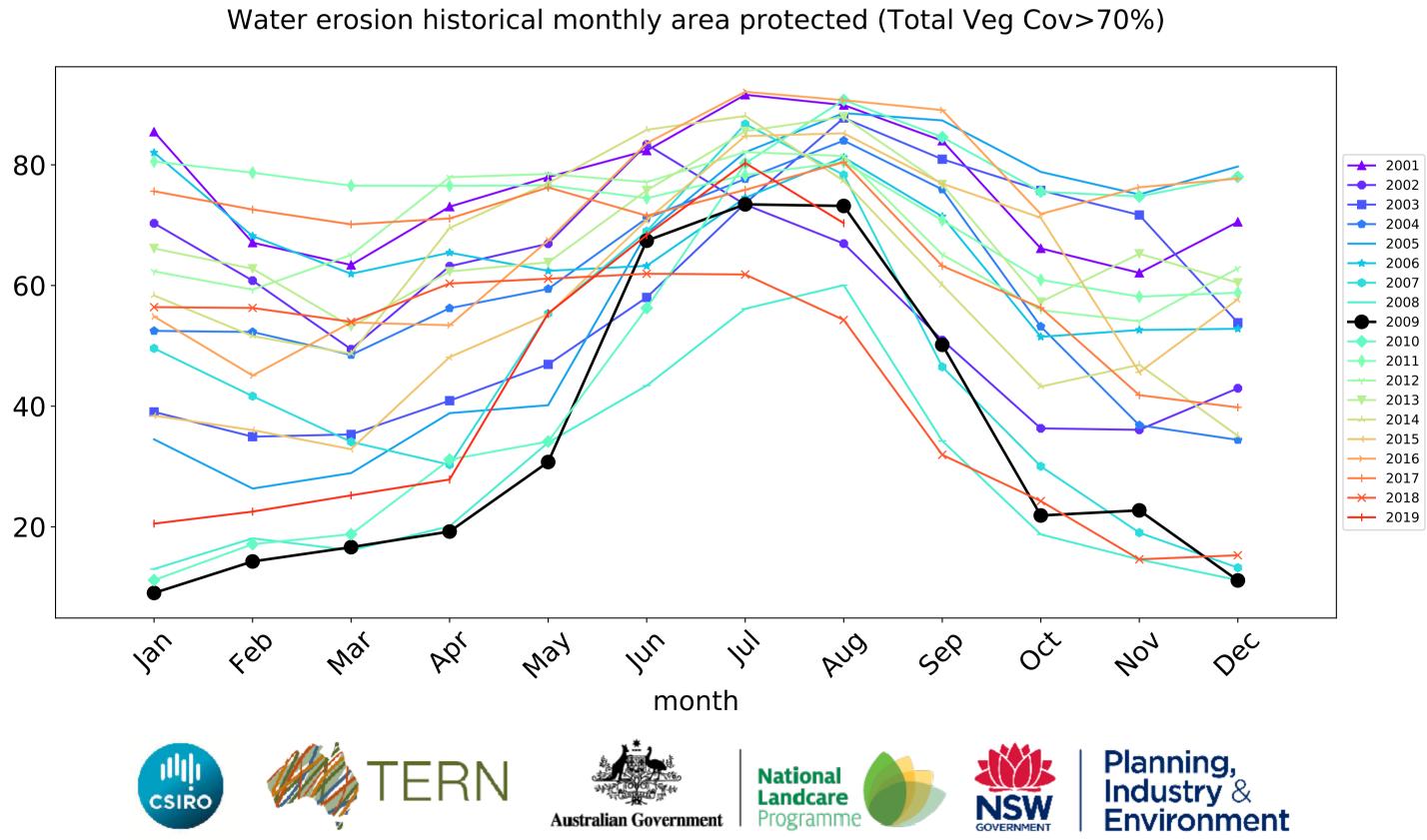










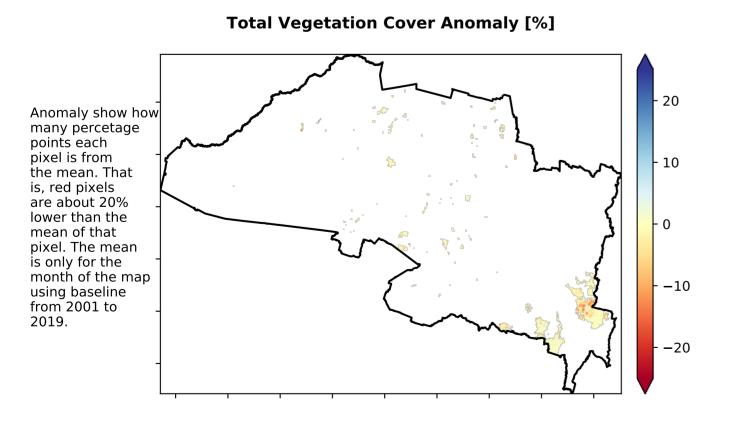


Production native forests and plantation forests

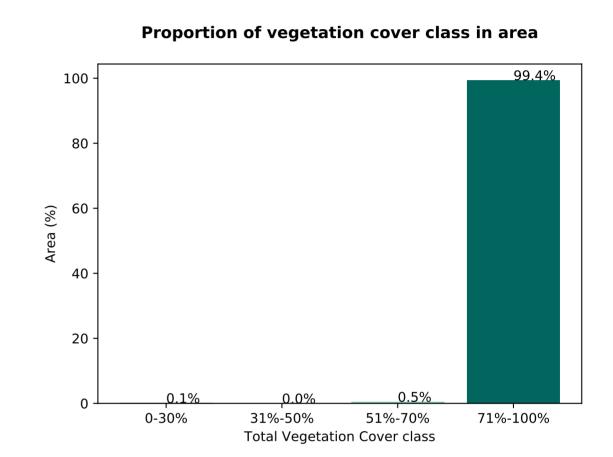
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) 1 Production native forests and plantation forests of Australia (2018)

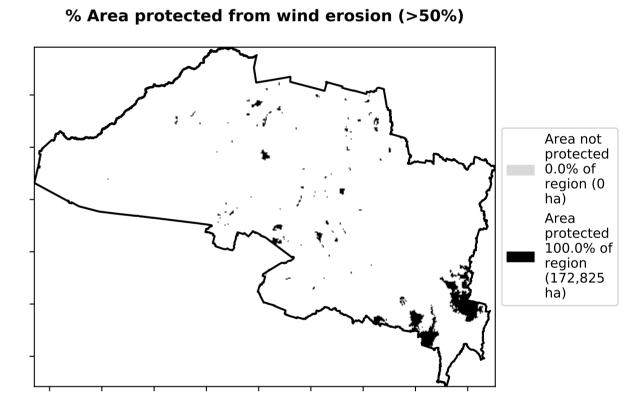
Total Vegetation Cover [%]

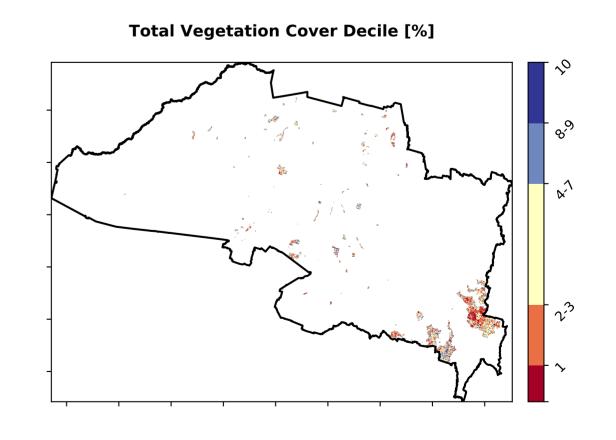
Area not protected 0.6% of region (1,036 ha) Area protected 99.4% of region (171,788 ha)



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











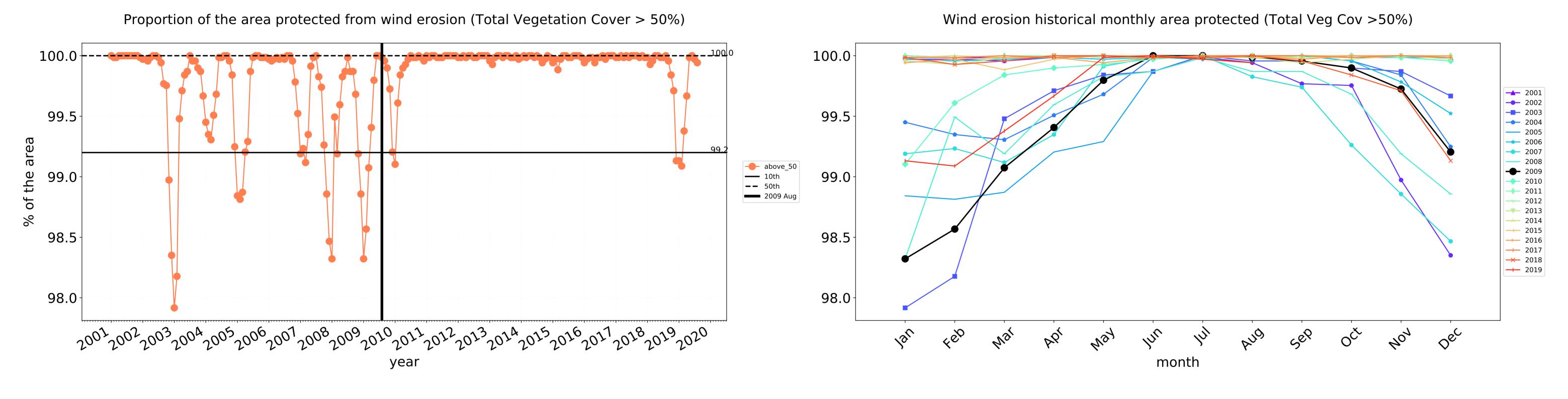


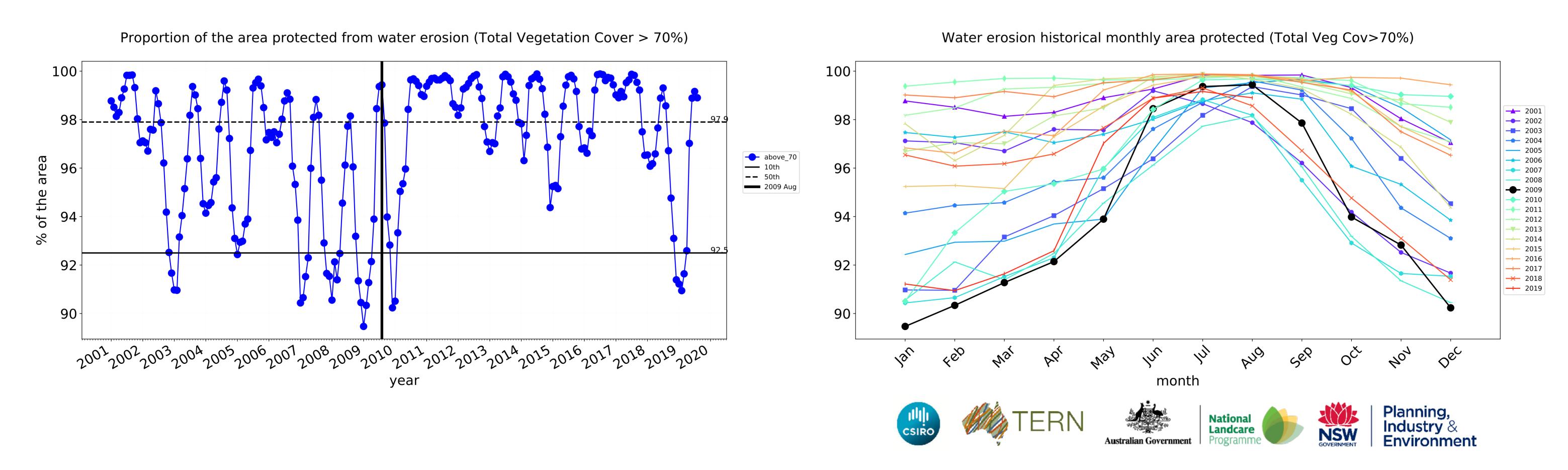






Production native forests and plantation forests timeseries





Riverina (6,688,000 ha and no data 20,335 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	6,688,000	99.9% 6,678,375	98.0% 6,553,748	81.2% 5,430,437	60.6% 4,054,125	20.8% 1,389,965	6.8% 455,930
Conservation and natural environments	314,725	99.8% 314,050	98.8% 311,000	90.7% 285,575	82.1% 258,475	61.9% 194,800	32.2% 101,325
Conservation and natural environments non forest	76,375	99.1% 75,700	95.1% 72,650	62.3% 47,575	32.6% 24,875	11.1% 8,500	4.2% 3,200
Conservation and natural environments Forest (non woodland)	193,950	100.0% 193,950	100.0% 193,950	99.9% 193,775	98.9% 191,800	84.7% 164,200	47.0% 91,175
Agriculture	5,904,075	99.9% 5,896,075	97.9% 5,782,250	80.4% 4,747,575	58.9% 3,474,800	17.6% 1,038,975	4.7% 280,150
Grazing	2,153,425	99.6% 2,145,850	95.0% 2,045,975	62.8% 1,351,975	45.1% 971,150	17.2% 370,525	4.6% 99,800
Grazing non forest	1,908,425	99.6% 1,900,850	94.4% 1,800,975	58.2% 1,110,325	39.8% 759,275	14.7% 281,350	4.2% 81,050
Grazing Woodland forest	141,650	100.0% 141,650	100.0% 141,650	98.3% 139,275	82.5% 116,825	28.9% 40,875	5.8% 8,225
Grazing - Forest (non woodland)	103,350	100.0% 103,350	100.0% 103,350	99.1% 102,375	92.0% 95,050	46.7% 48,300	10.2% 10,525
Cropping	3,185,650	100.0% 3,185,475	99.8% 3,178,775	93.6% 2,981,650	72.6% 2,313,250	20.2% 642,525	5.5% 174,250
Irrigation	563,175	100.0% 562,925	98.7% 555,675	73.2% 412,175	33.6% 189,100	4.4% 25,025	1.0% 5,600
Production native forests and plantation forests	172,825	100.0% 172,825	100.0% 172,800	99.4% 171,850	95.1% 164,400	64.8% 112,075	35.3% 61,050











