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 2019

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







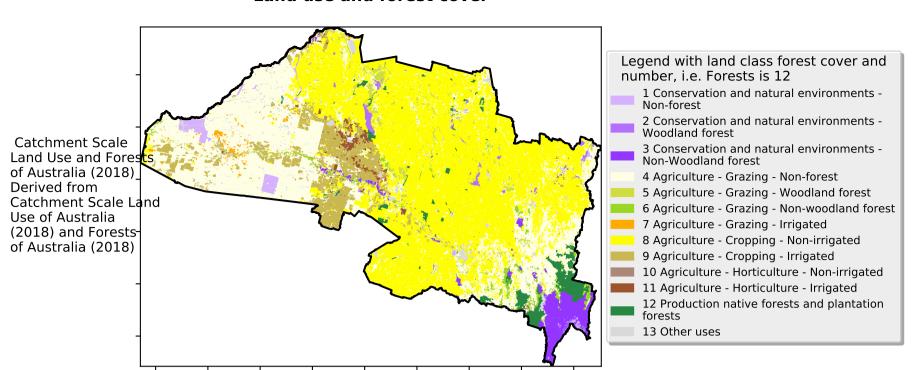




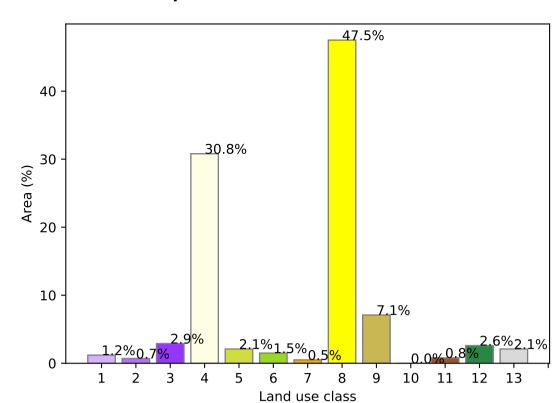


Vegetation Cover Aug 2019

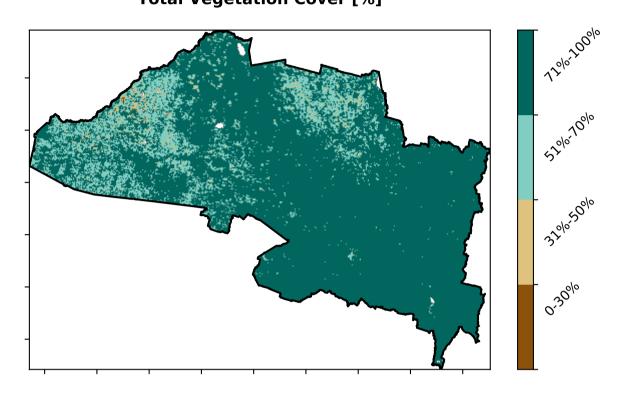
Land use and forest cover



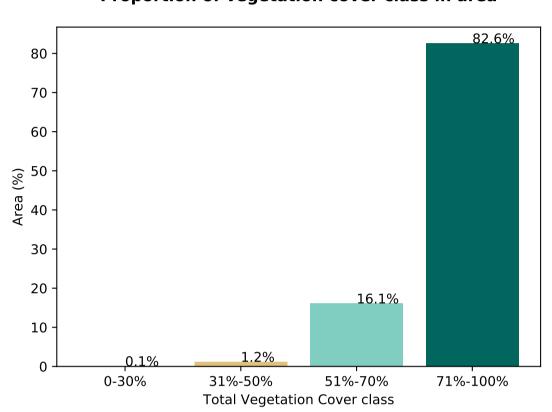
Proportion of each land class in area



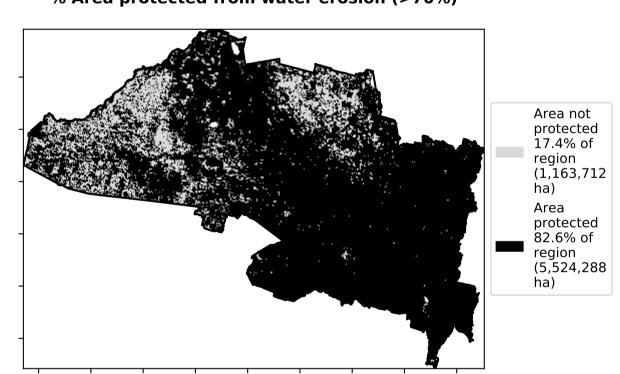
Total Vegetation Cover [%]



Proportion of vegetation cover class in area



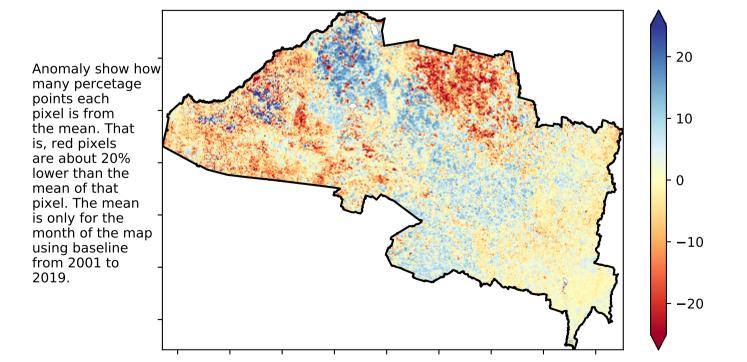
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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

Total Vegetation Cover Decile [%]



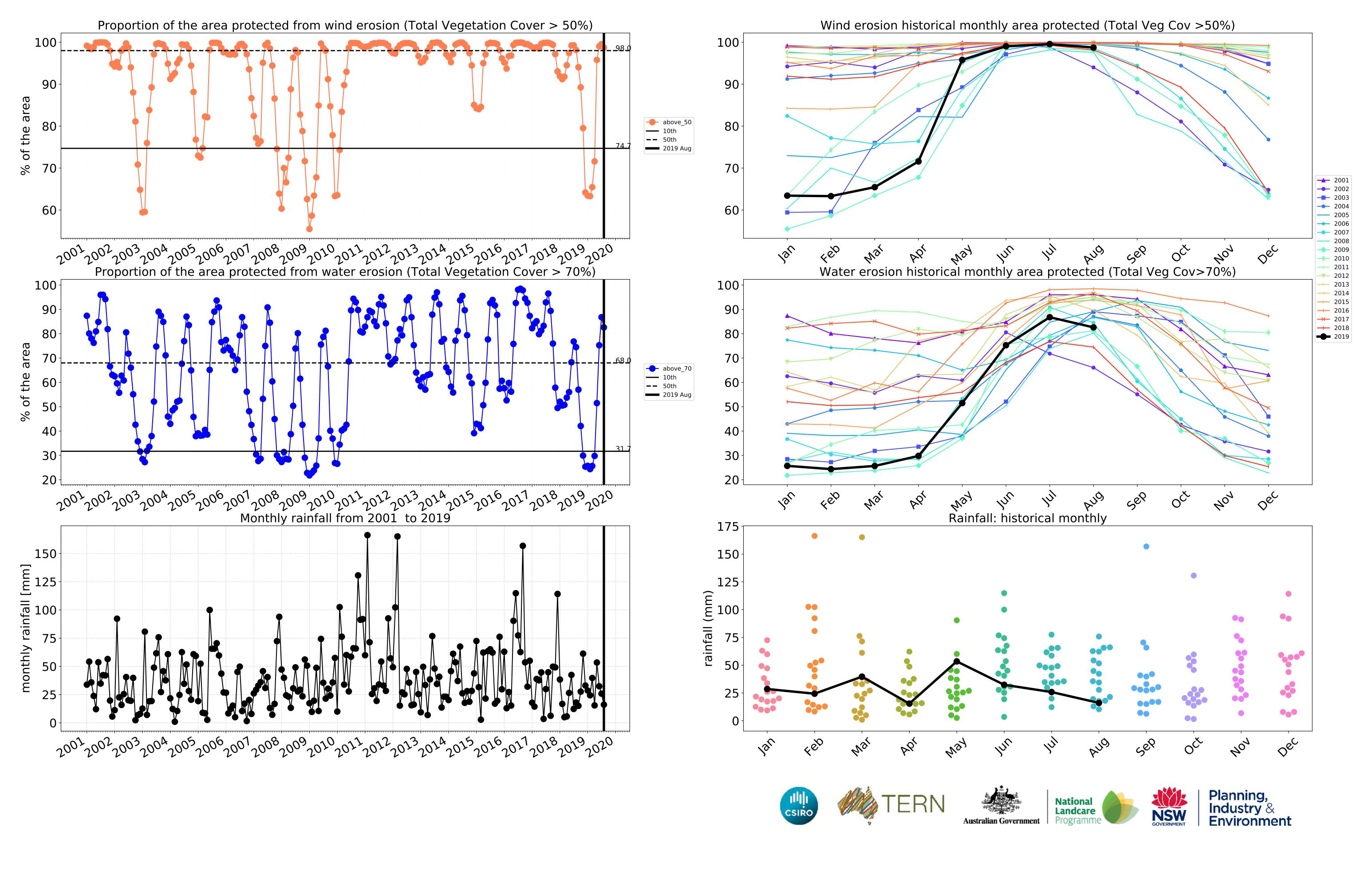




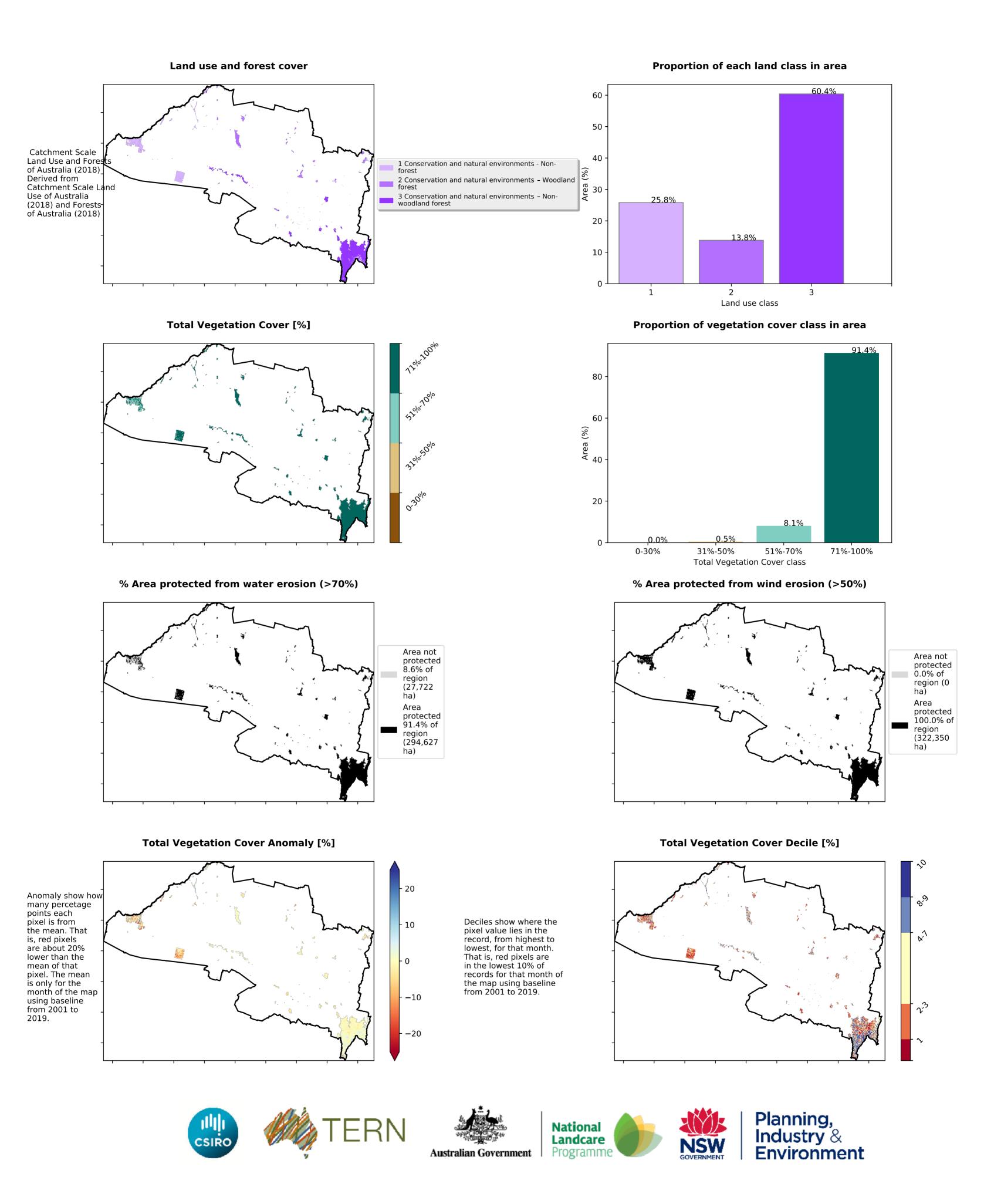




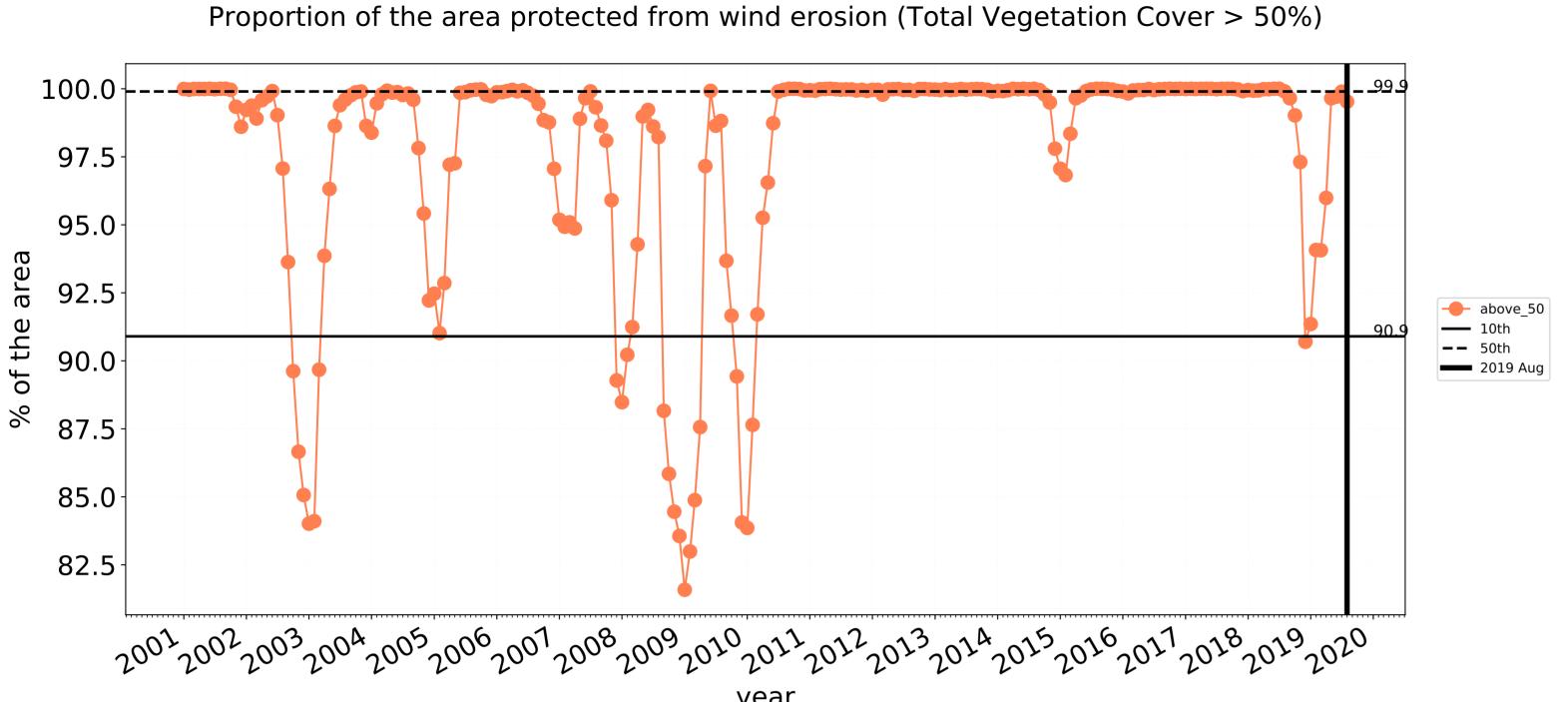


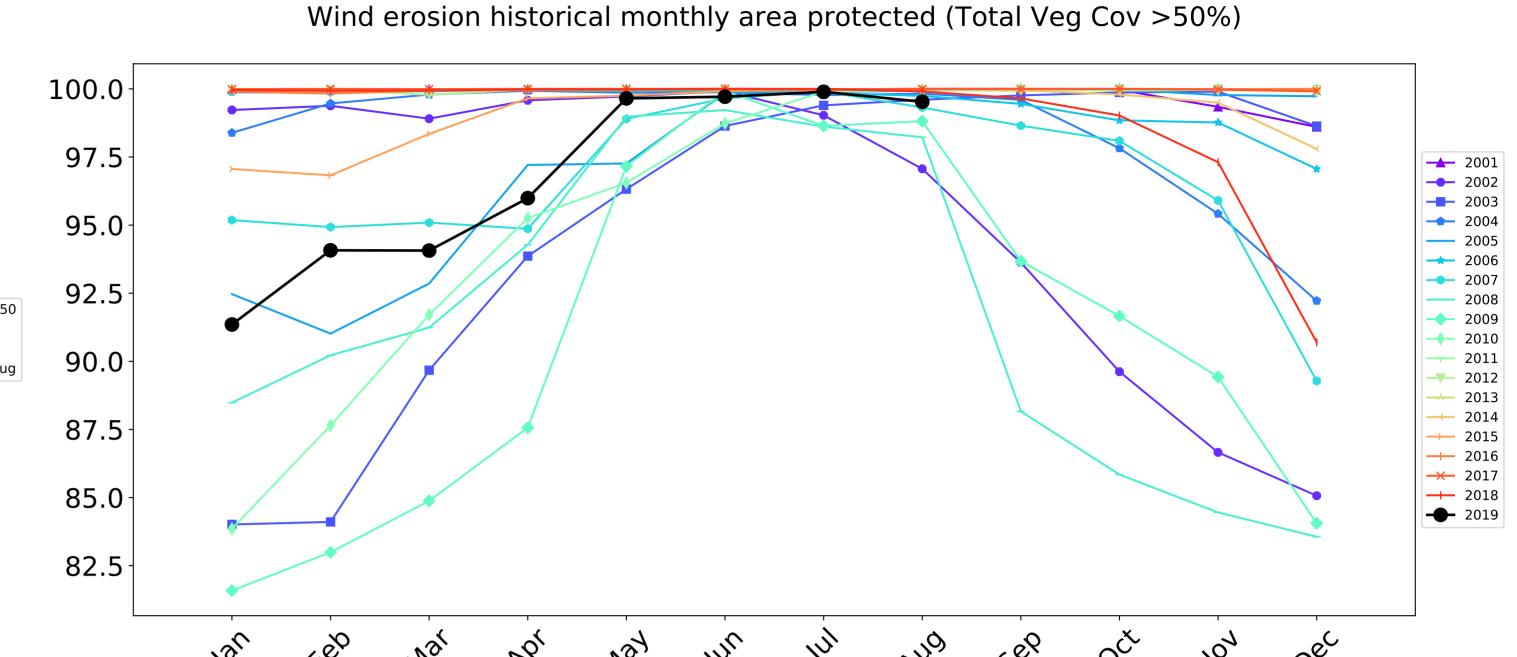


Conservation and natural environments

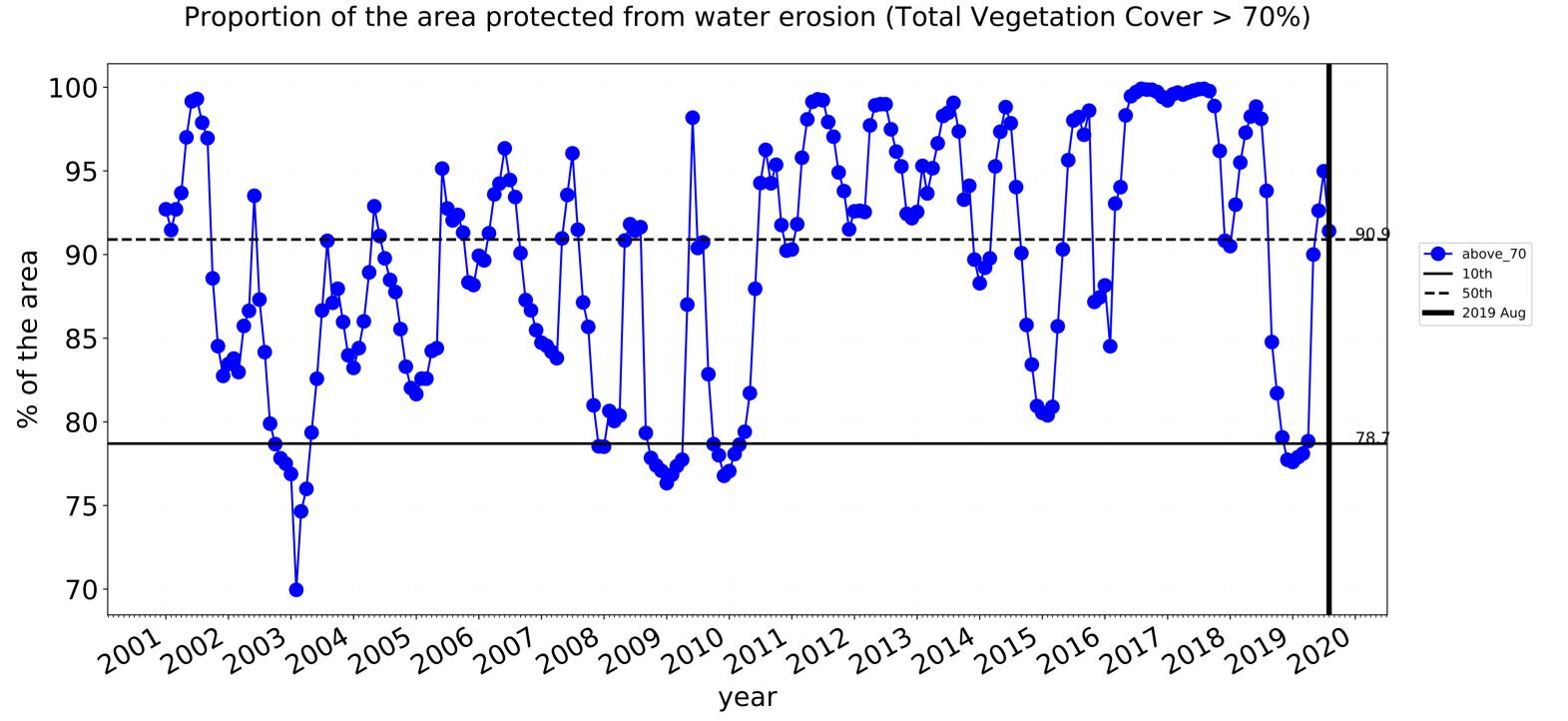


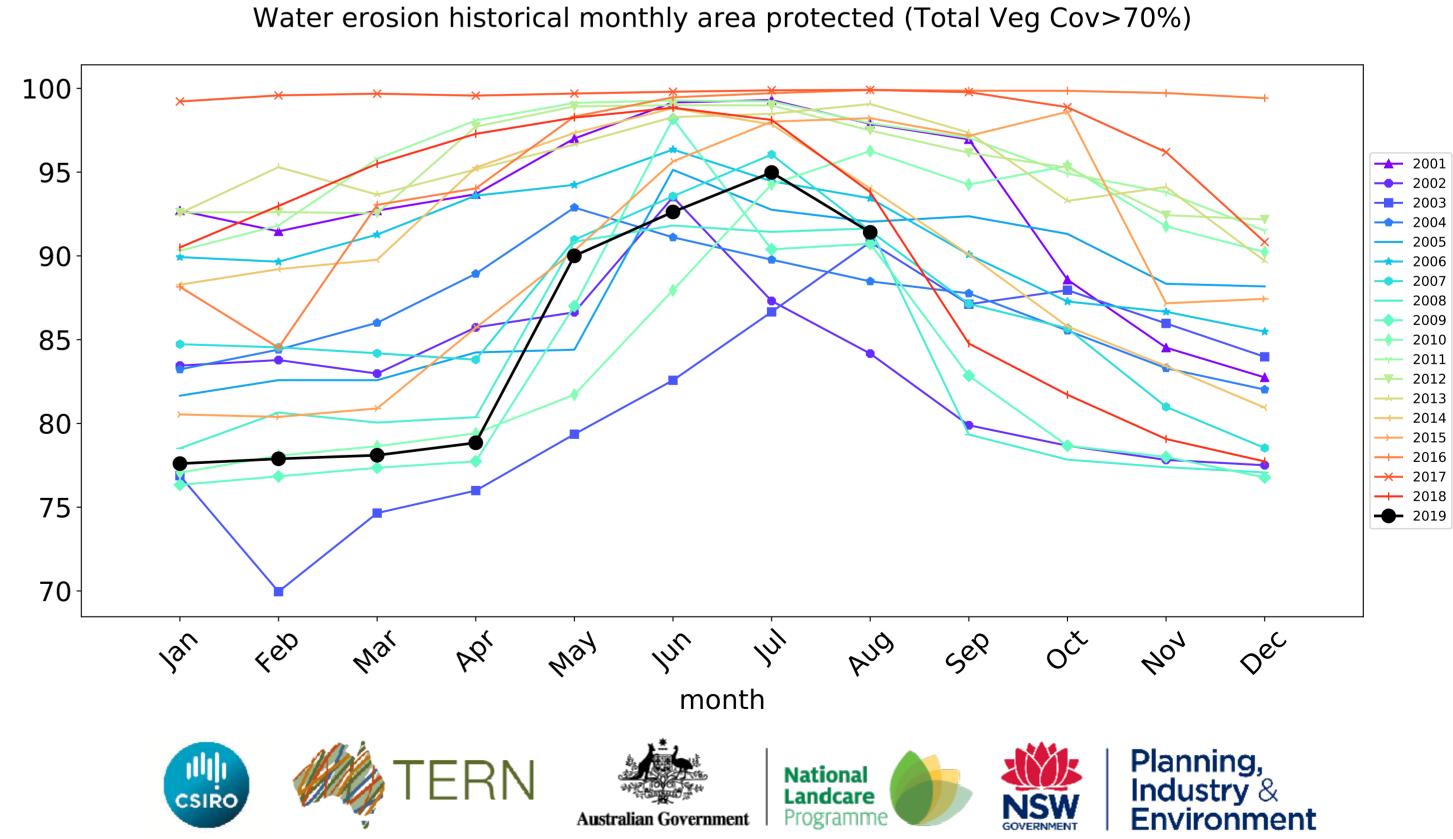
Conservation and natural environments timeseries





month



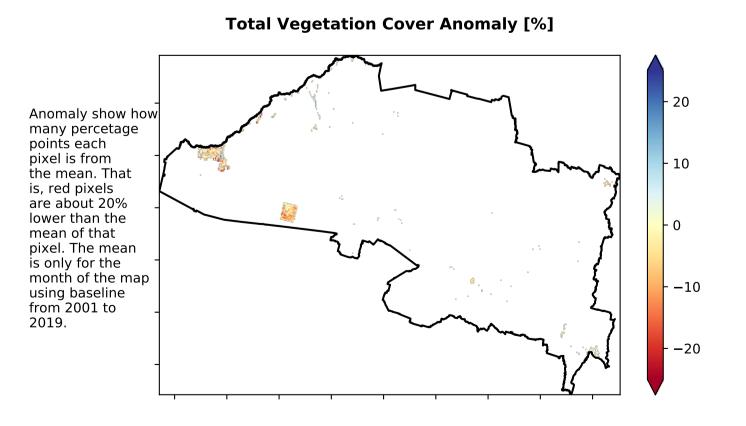


Conservation and natural environments non forest

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

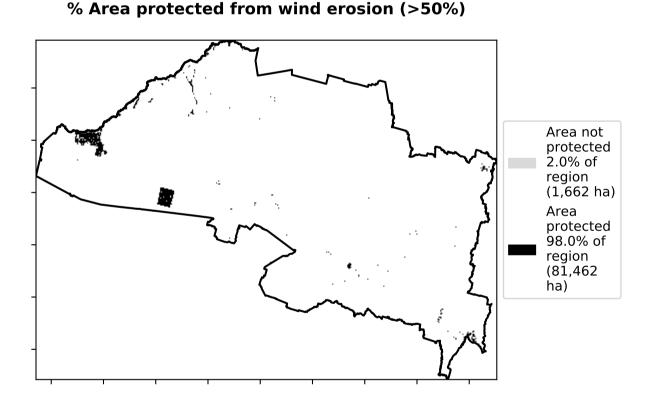
Total Vegetation Cover [%]

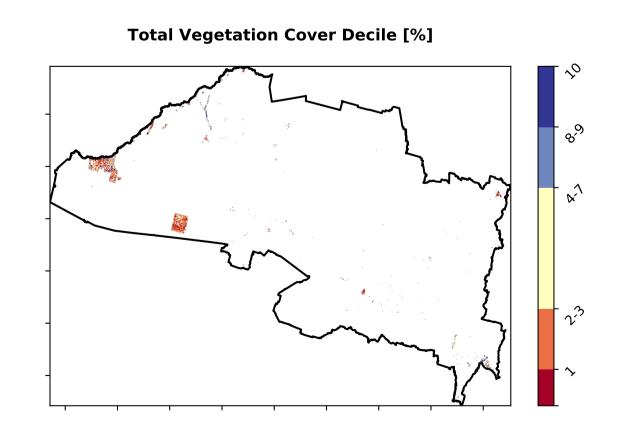
% Area protected from water erosion (>70%) Area not protected 32.6% of region (27,098 ha) Area protected 67.4% of region (56,026 ha)



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 70 60 50 50 20 10 0-30% 31%-50% Total Vegetation Cover class









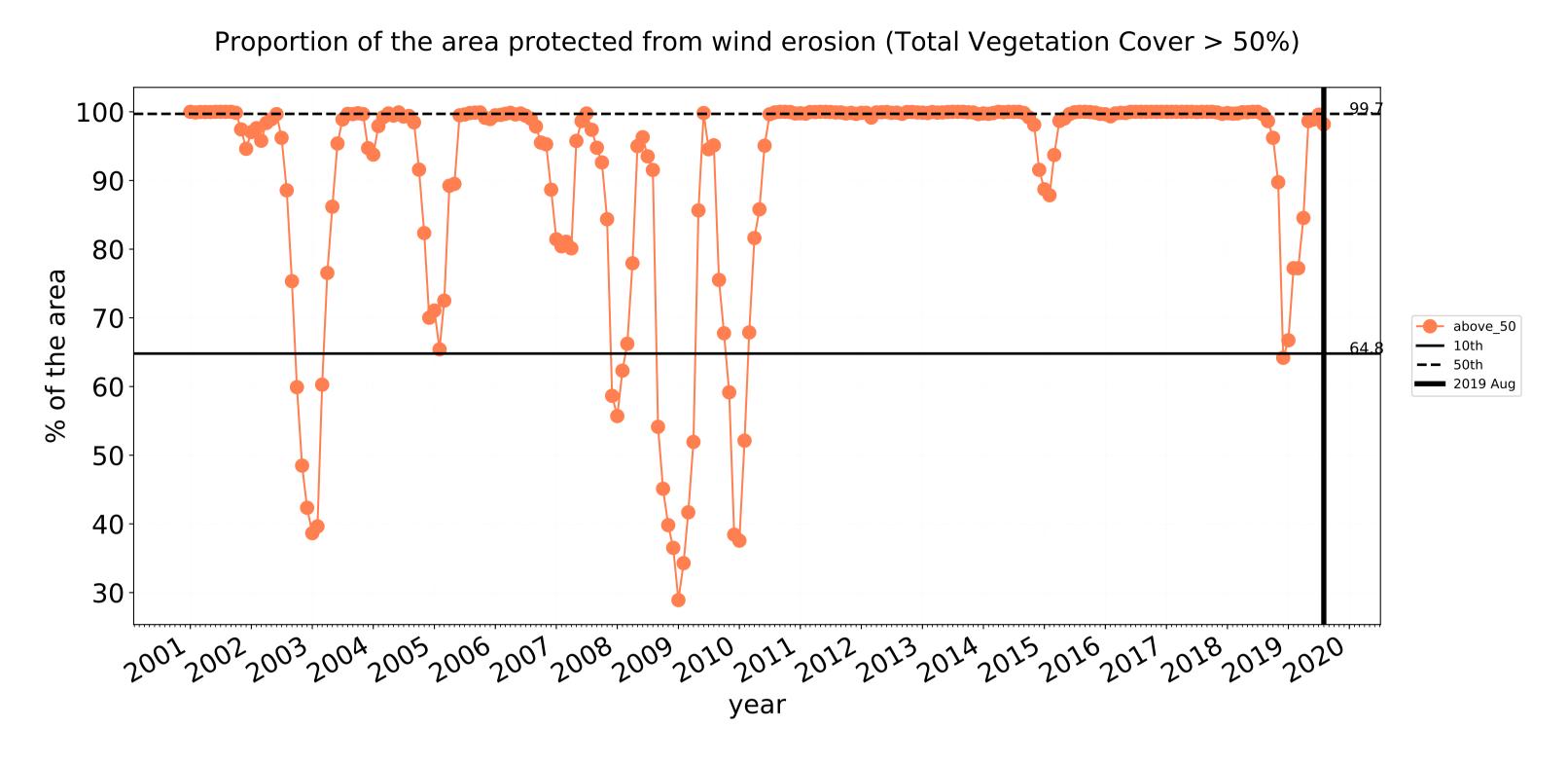


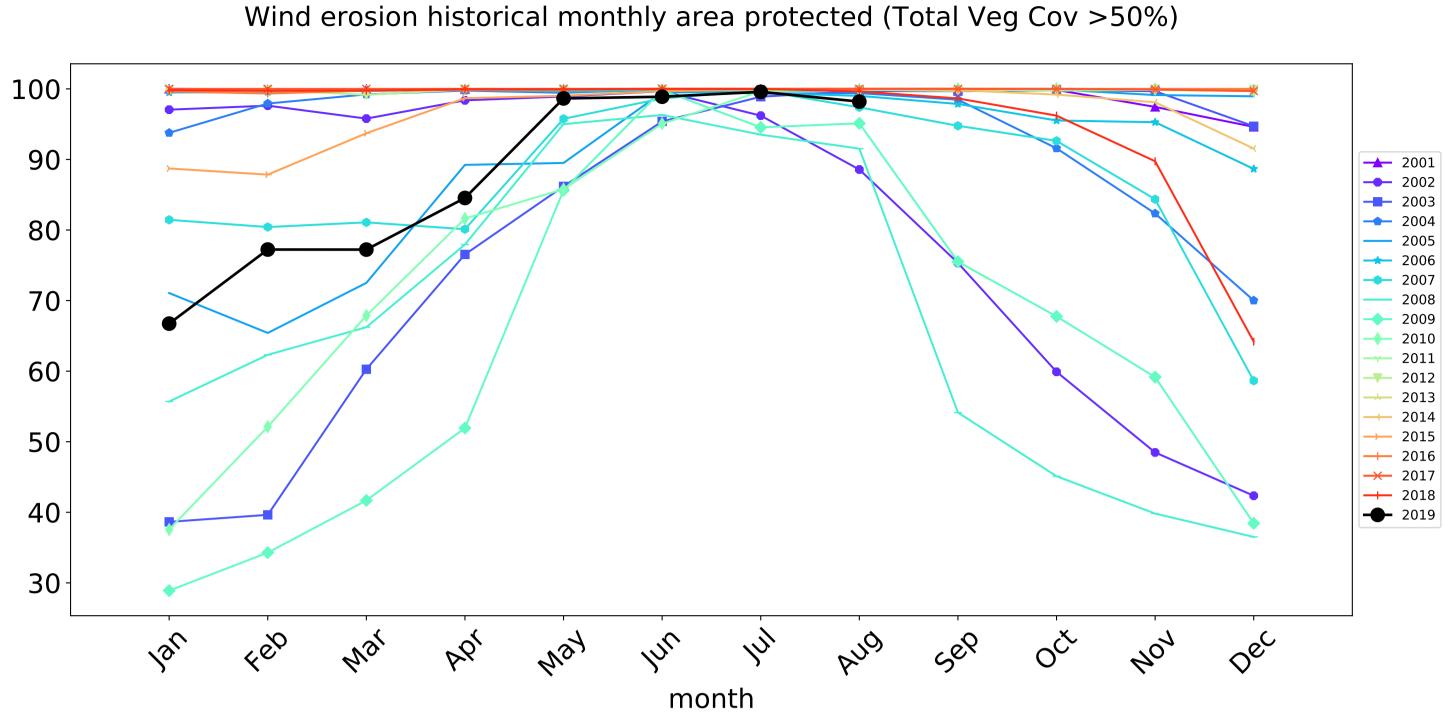


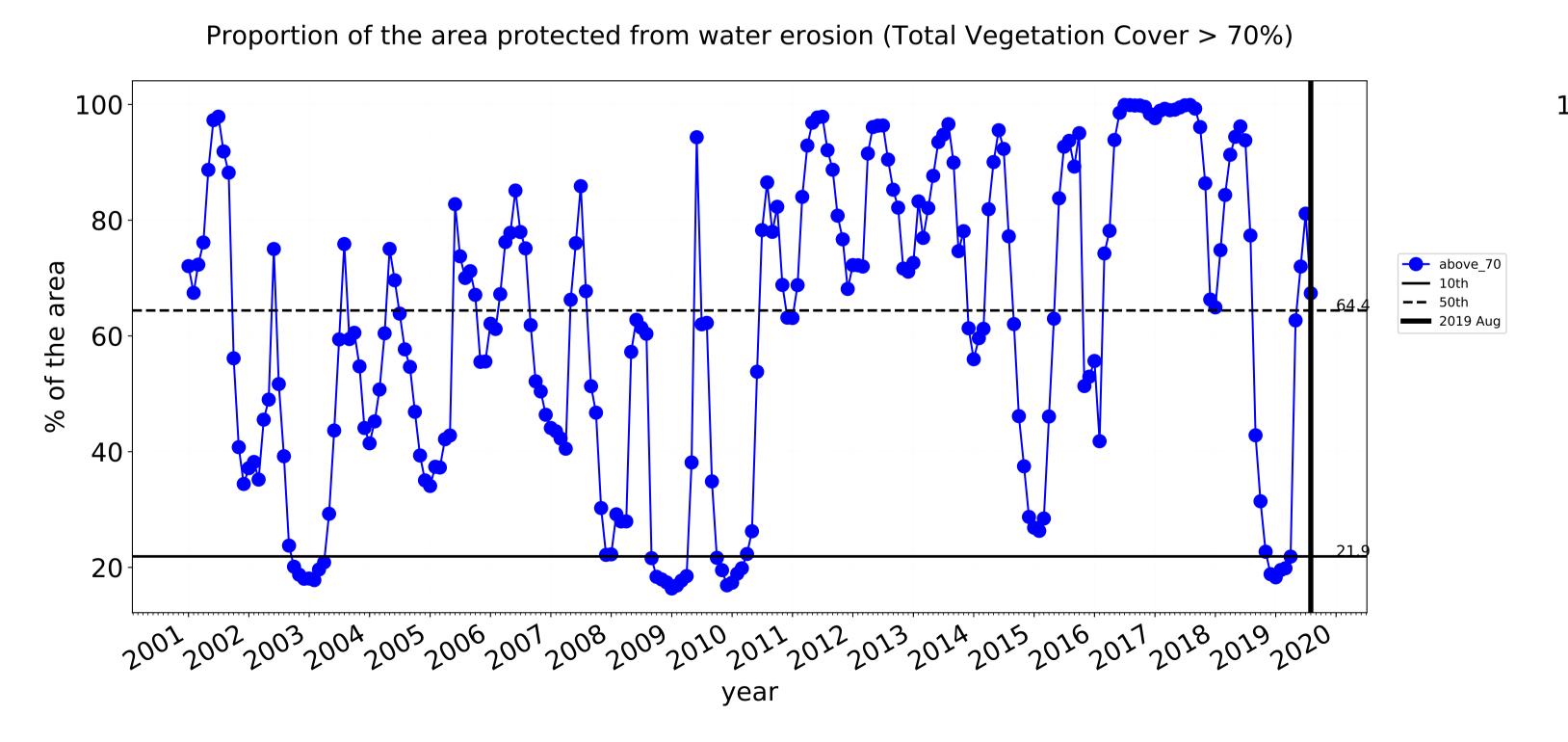


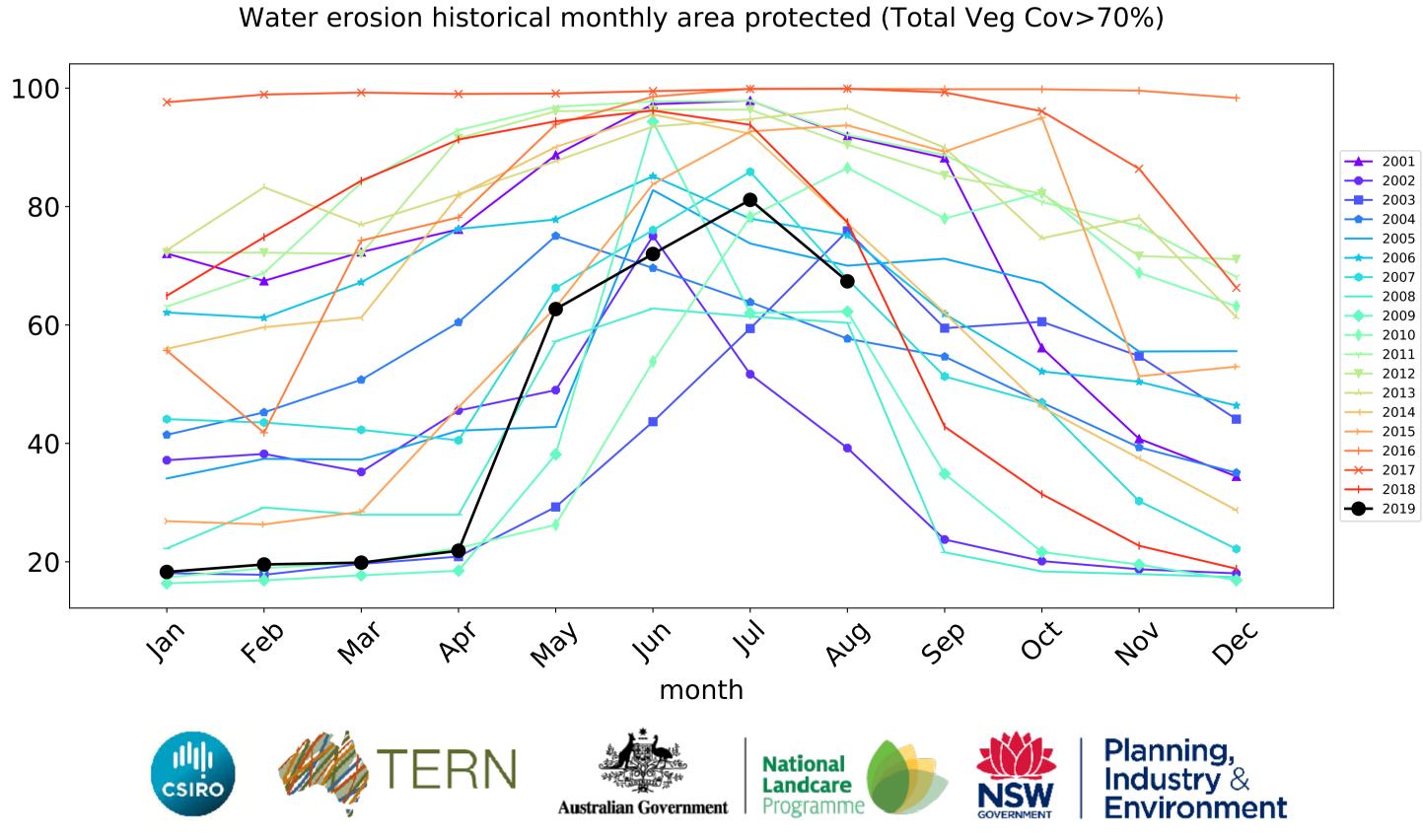


Conservation and natural environments non forest timeseries

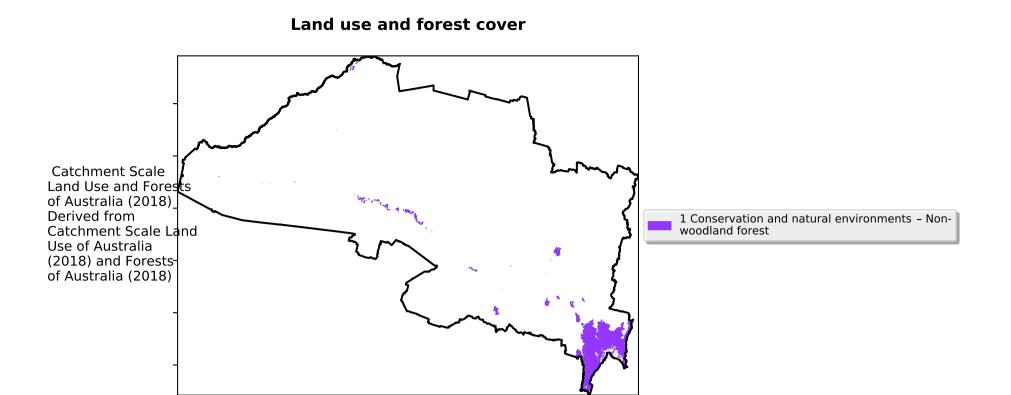




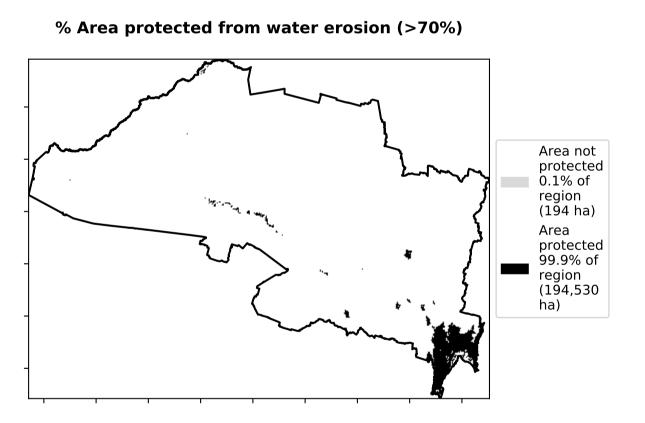


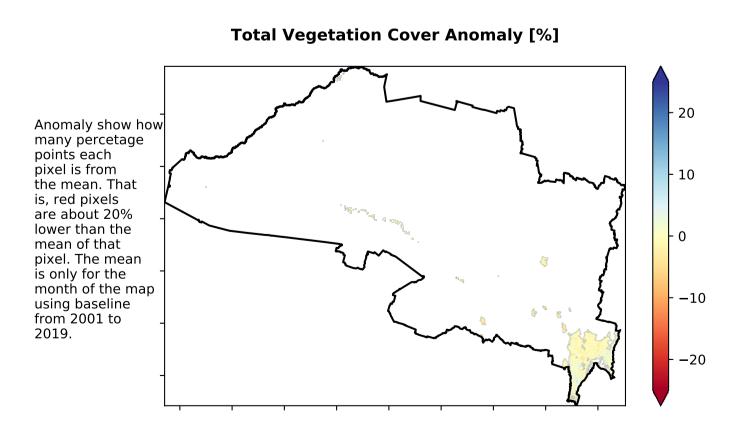


Conservation and natural environments Forest (non woodland)

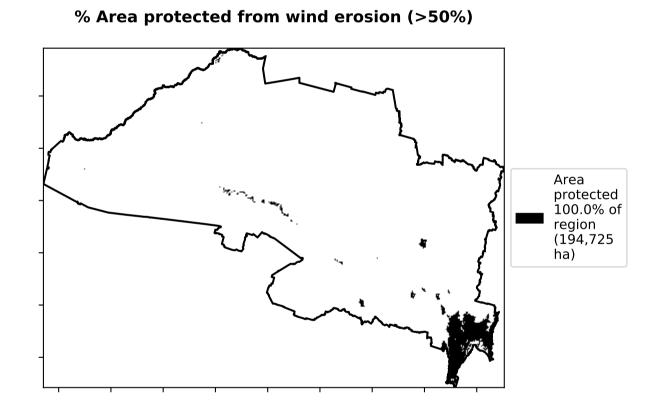


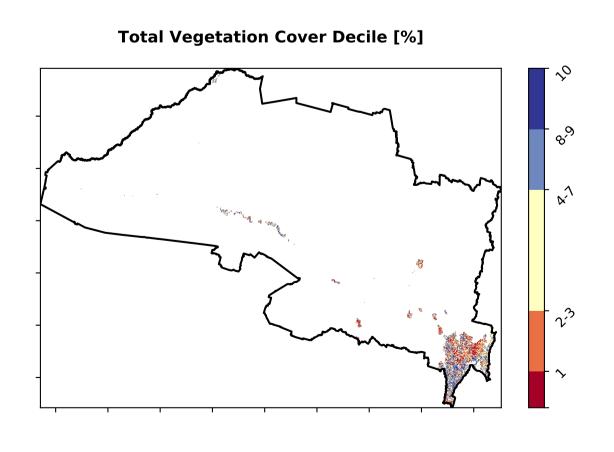
Total Vegetation Cover [%] Total Vegetation Cover [%] Tolographic T





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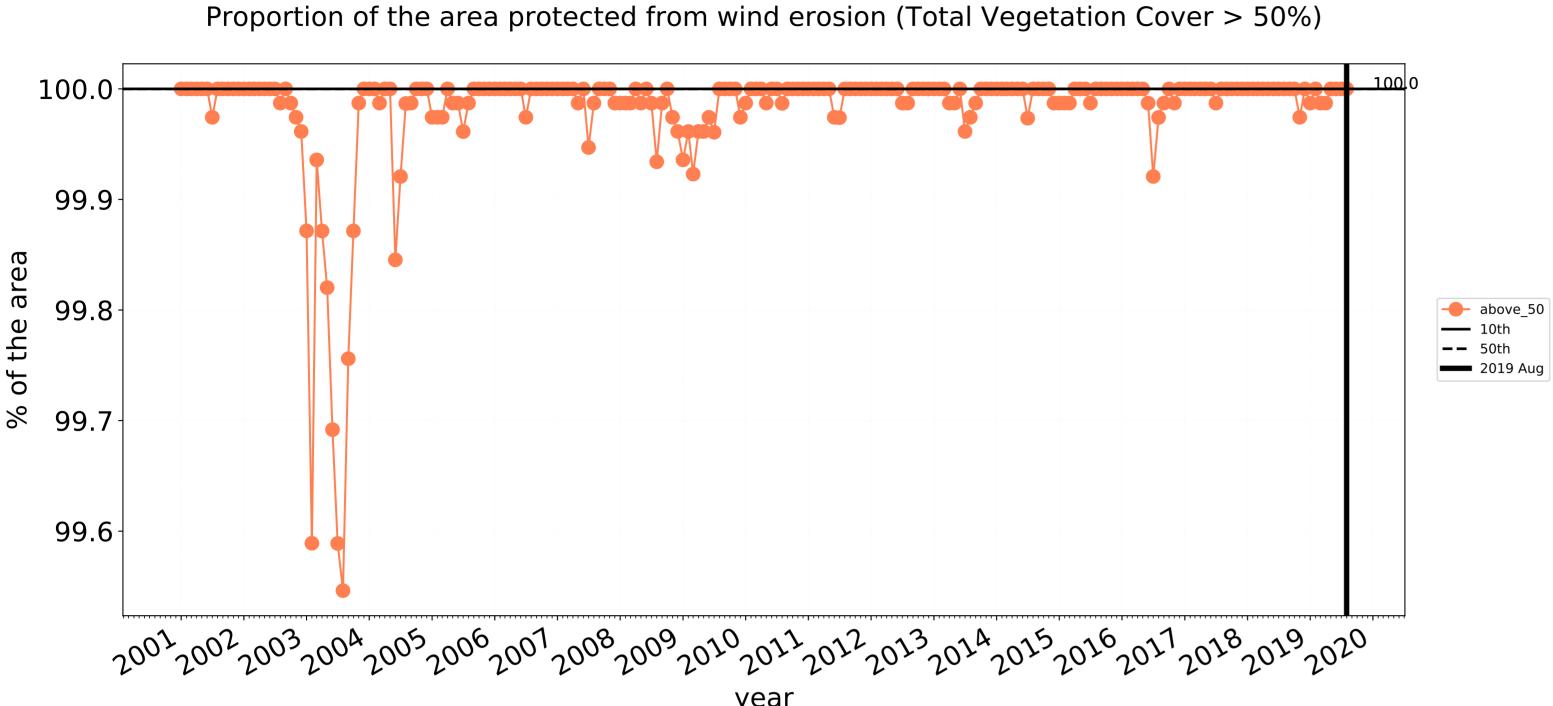


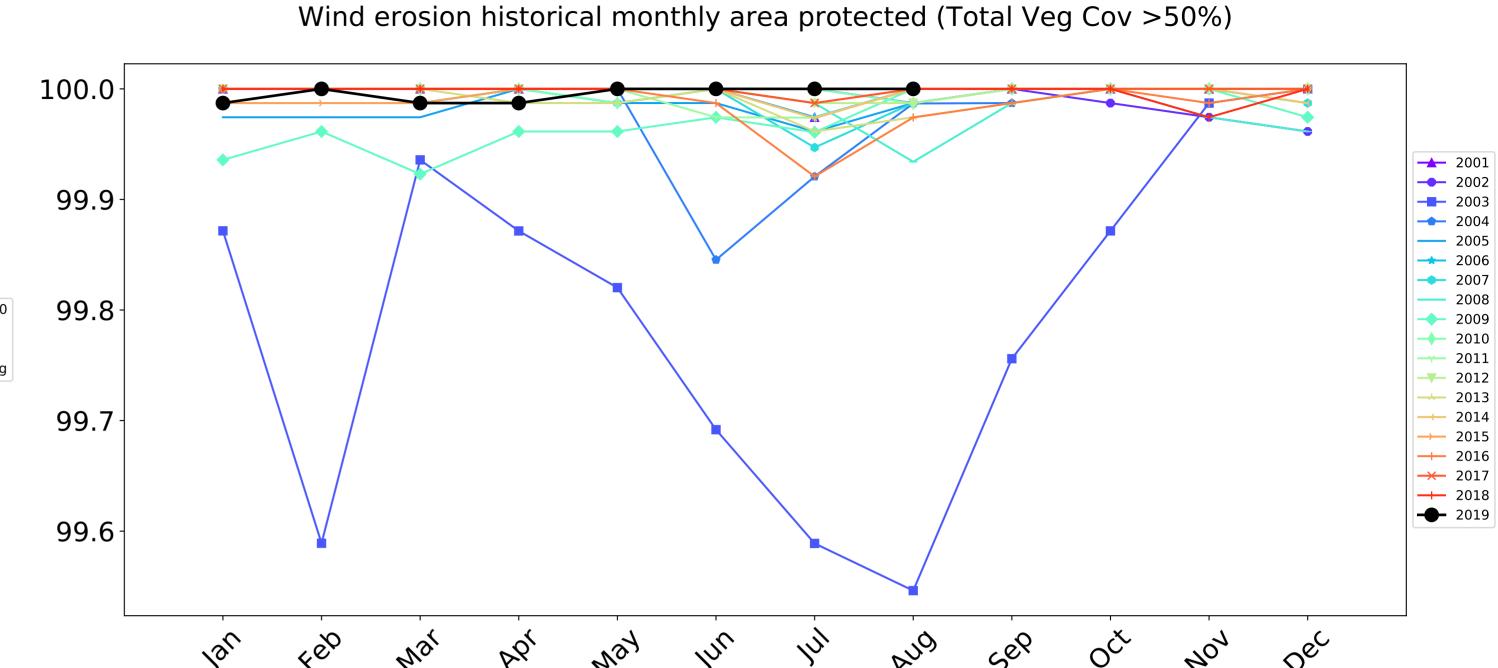




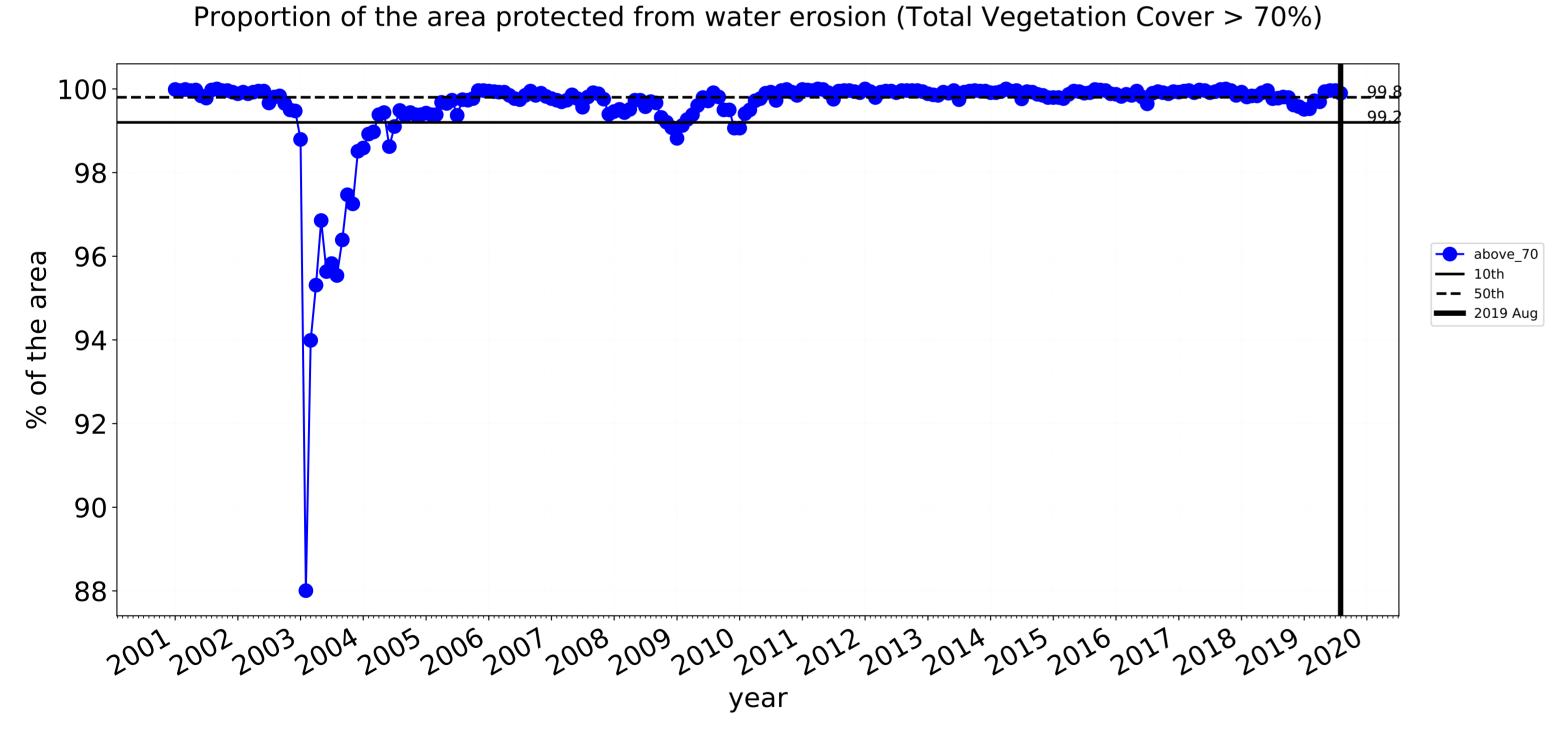


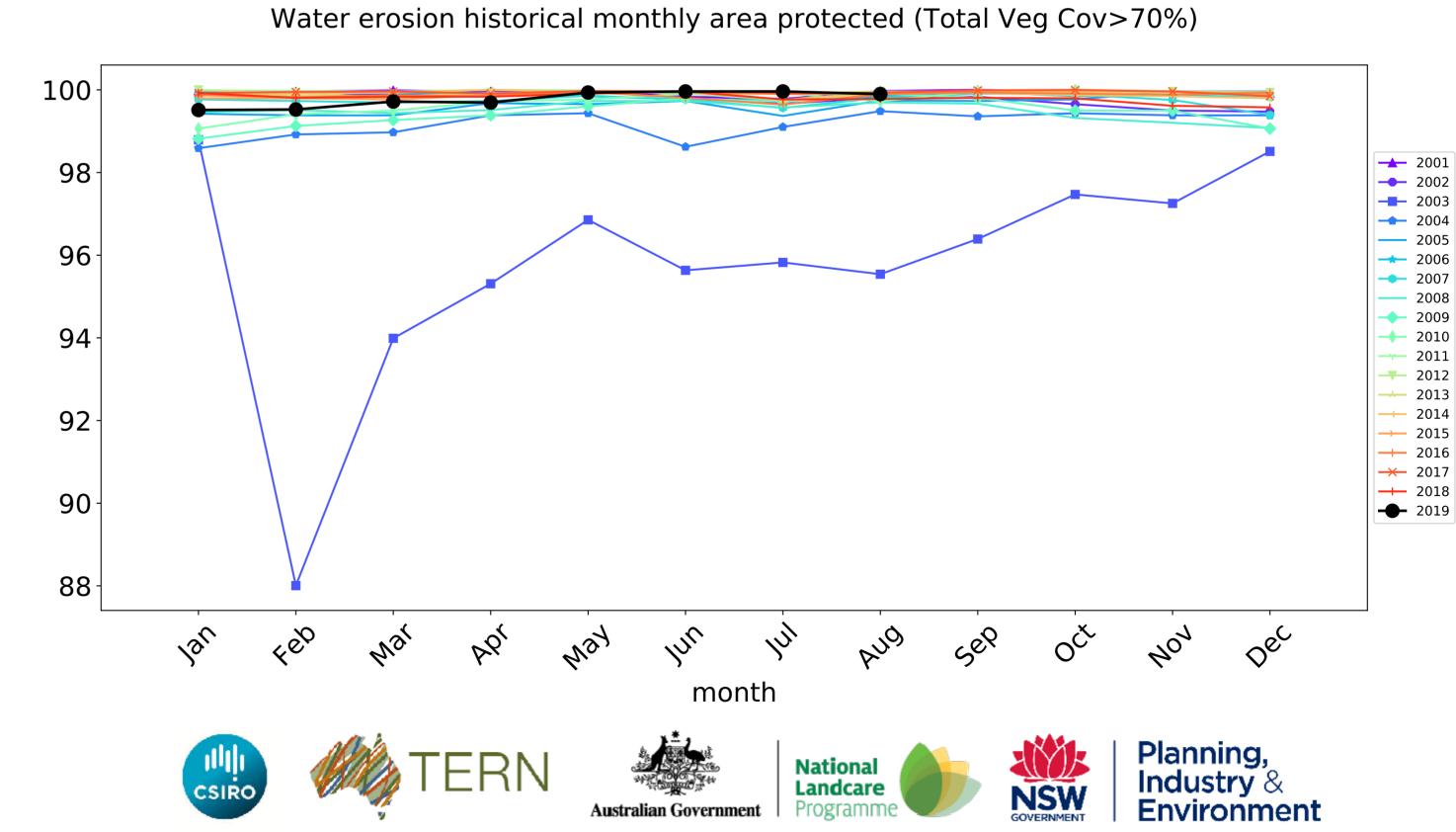






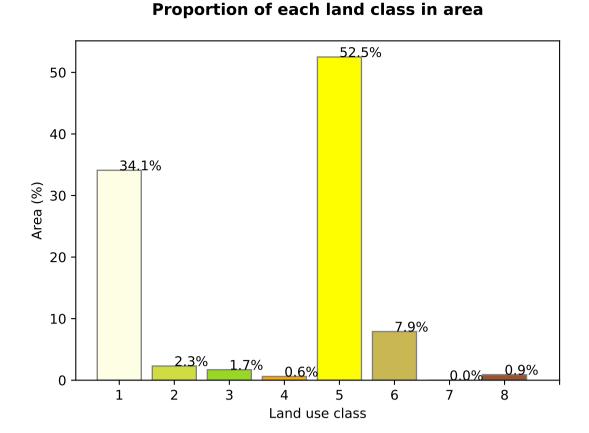
month



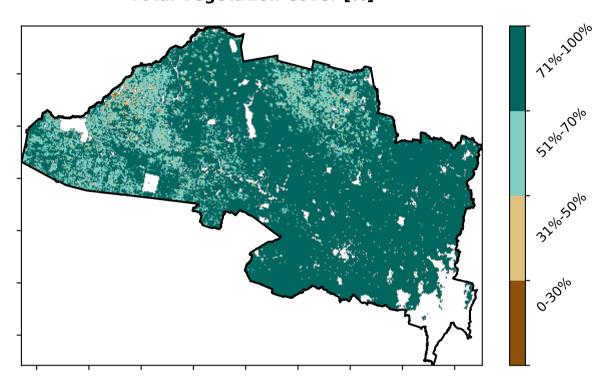


Agriculture

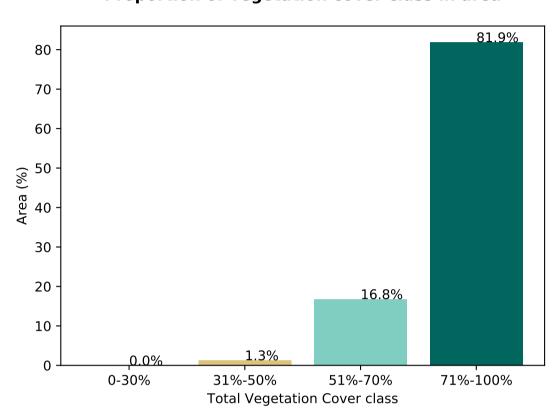
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) S Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest 4 Agriculture - Grazing - Non-woodland forest 5 Agriculture -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



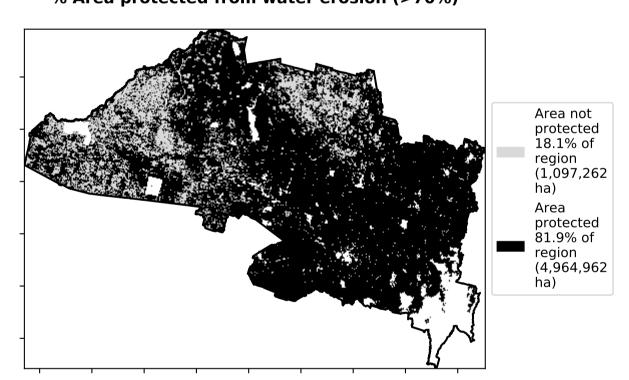




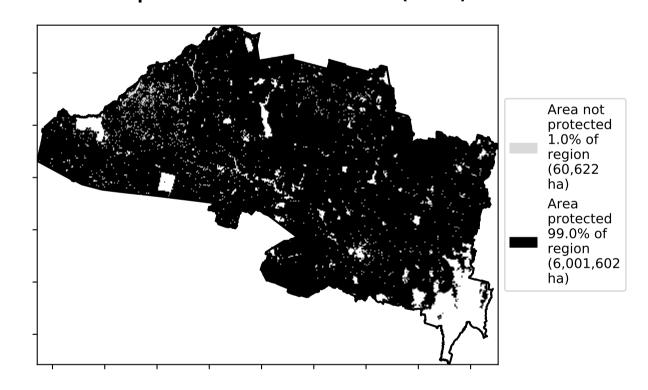
Proportion of vegetation cover class in area



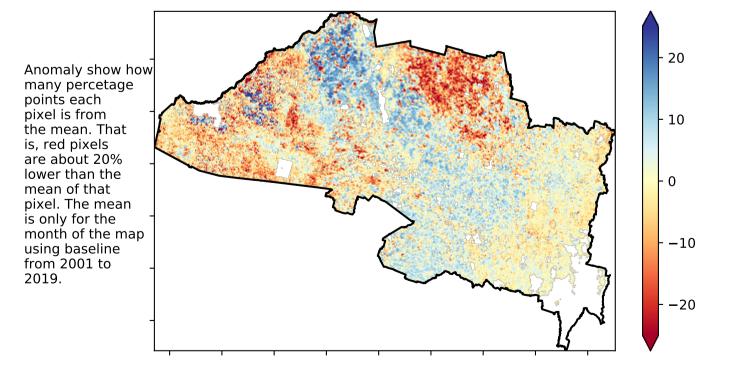
% Area protected from water erosion (>70%)



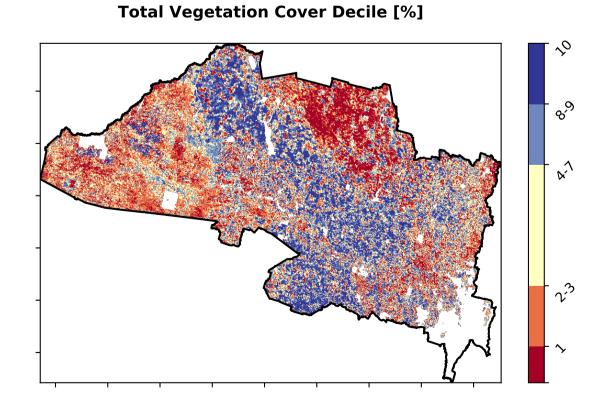
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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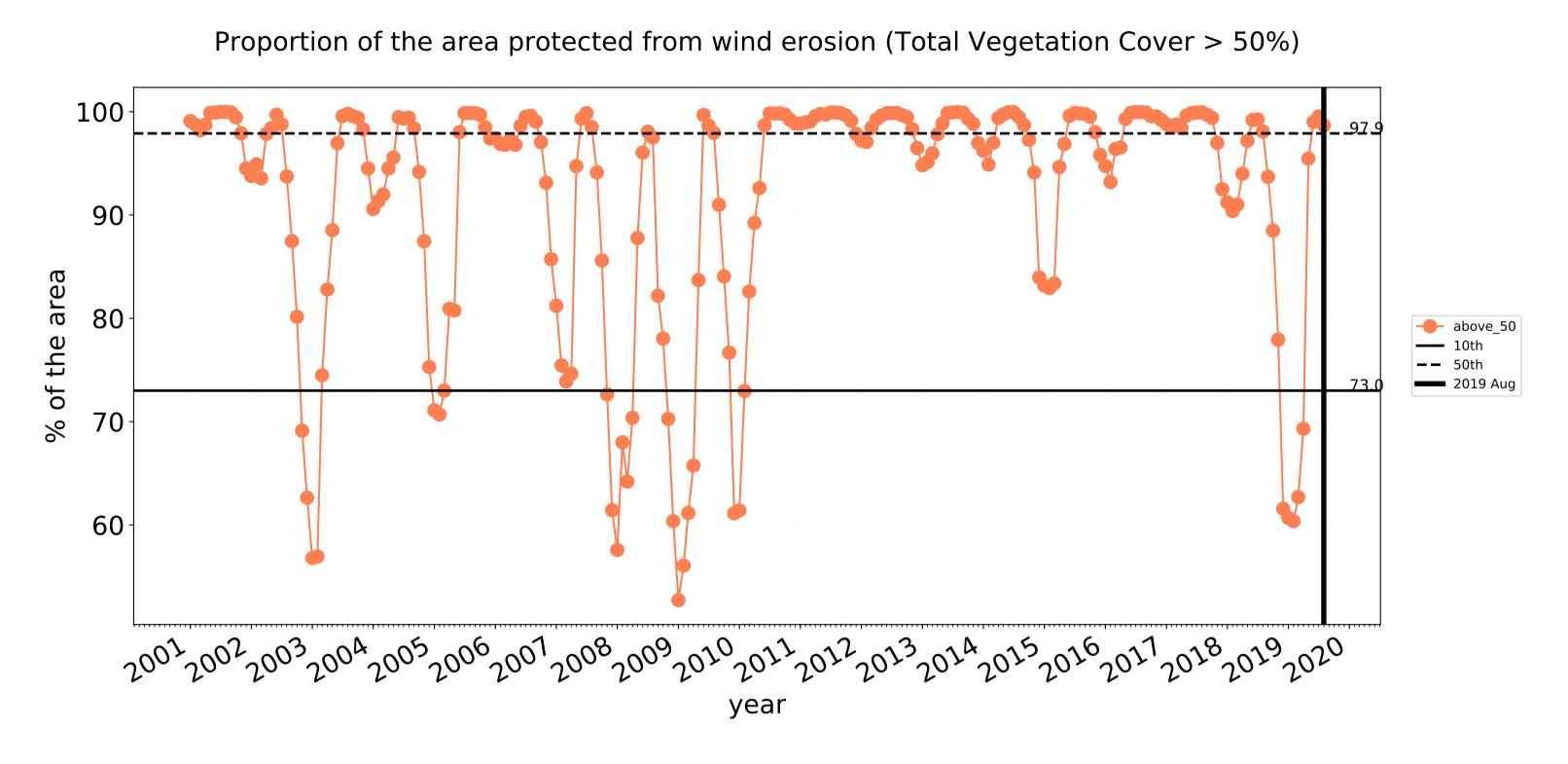


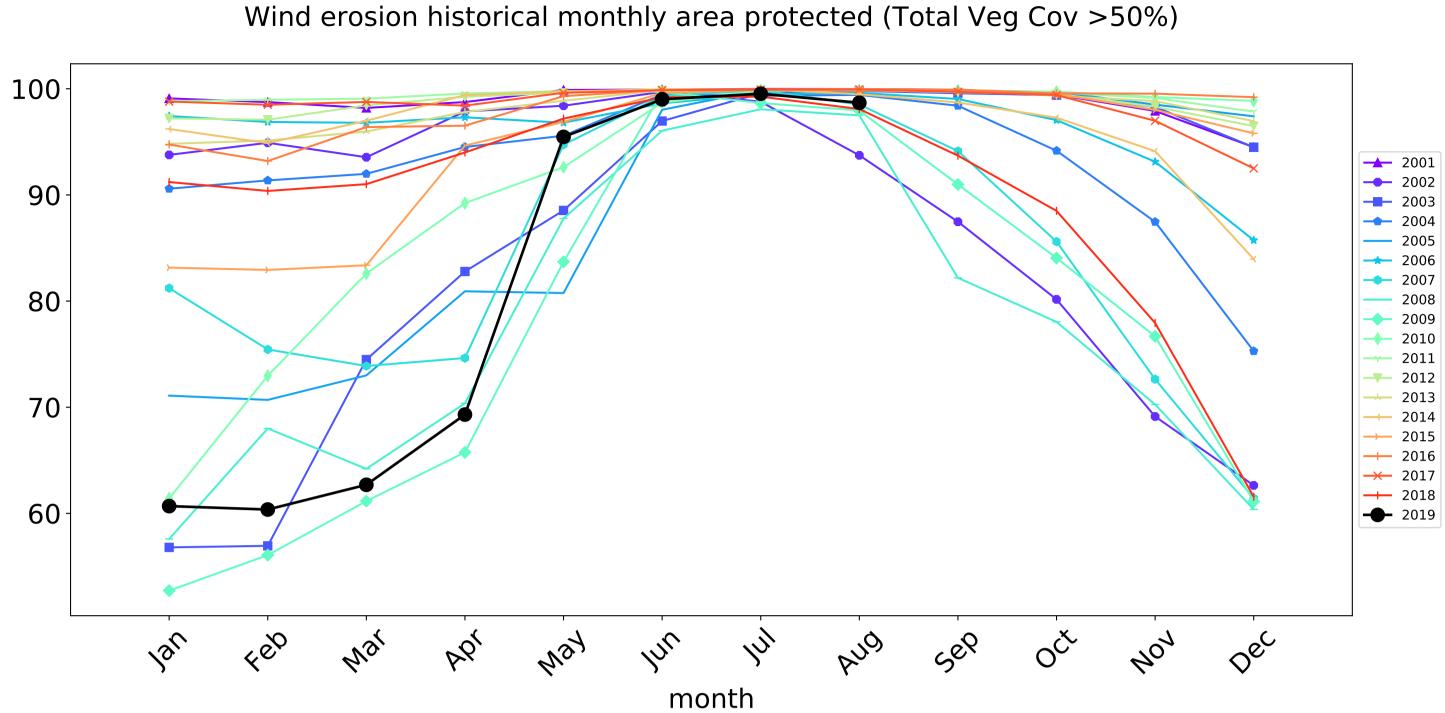


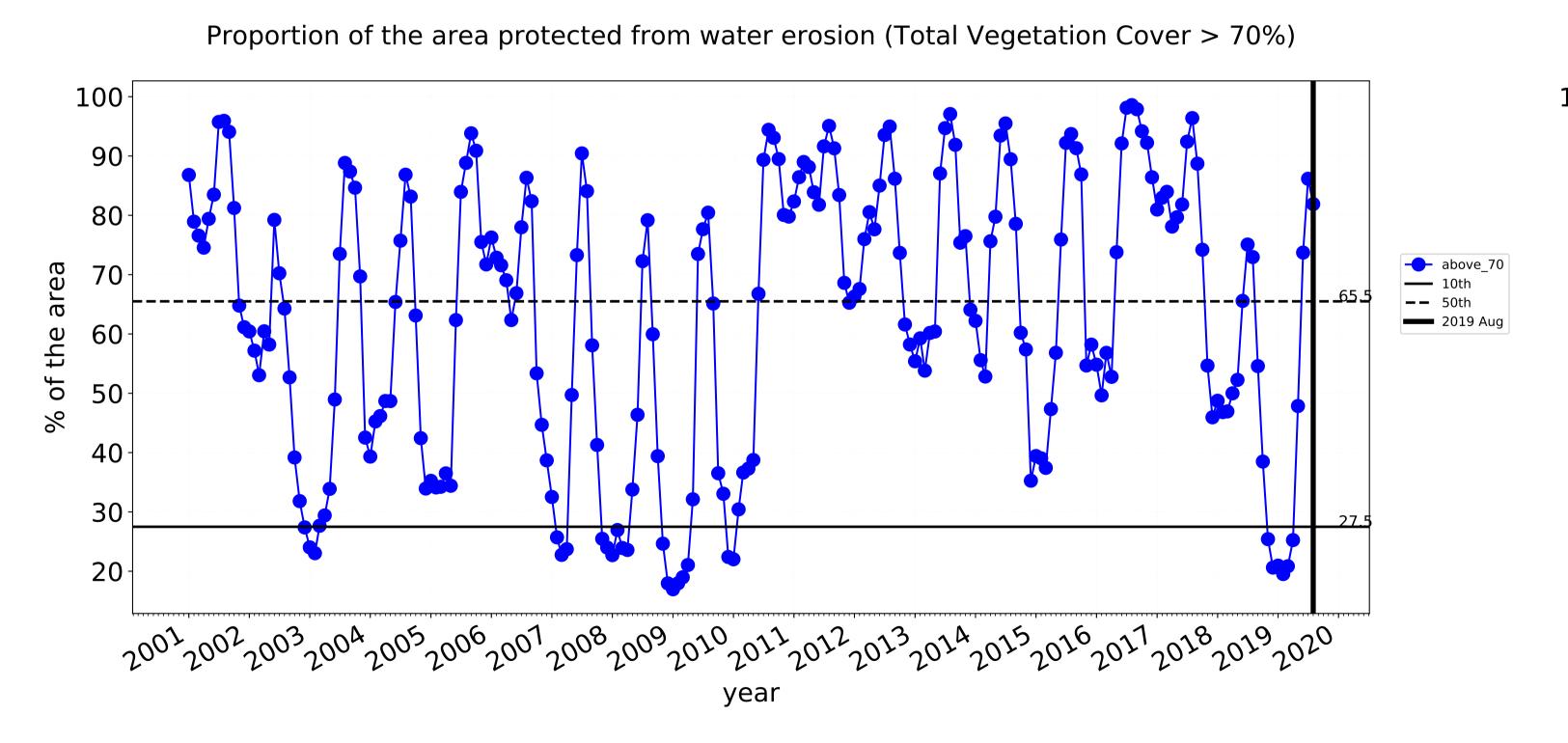


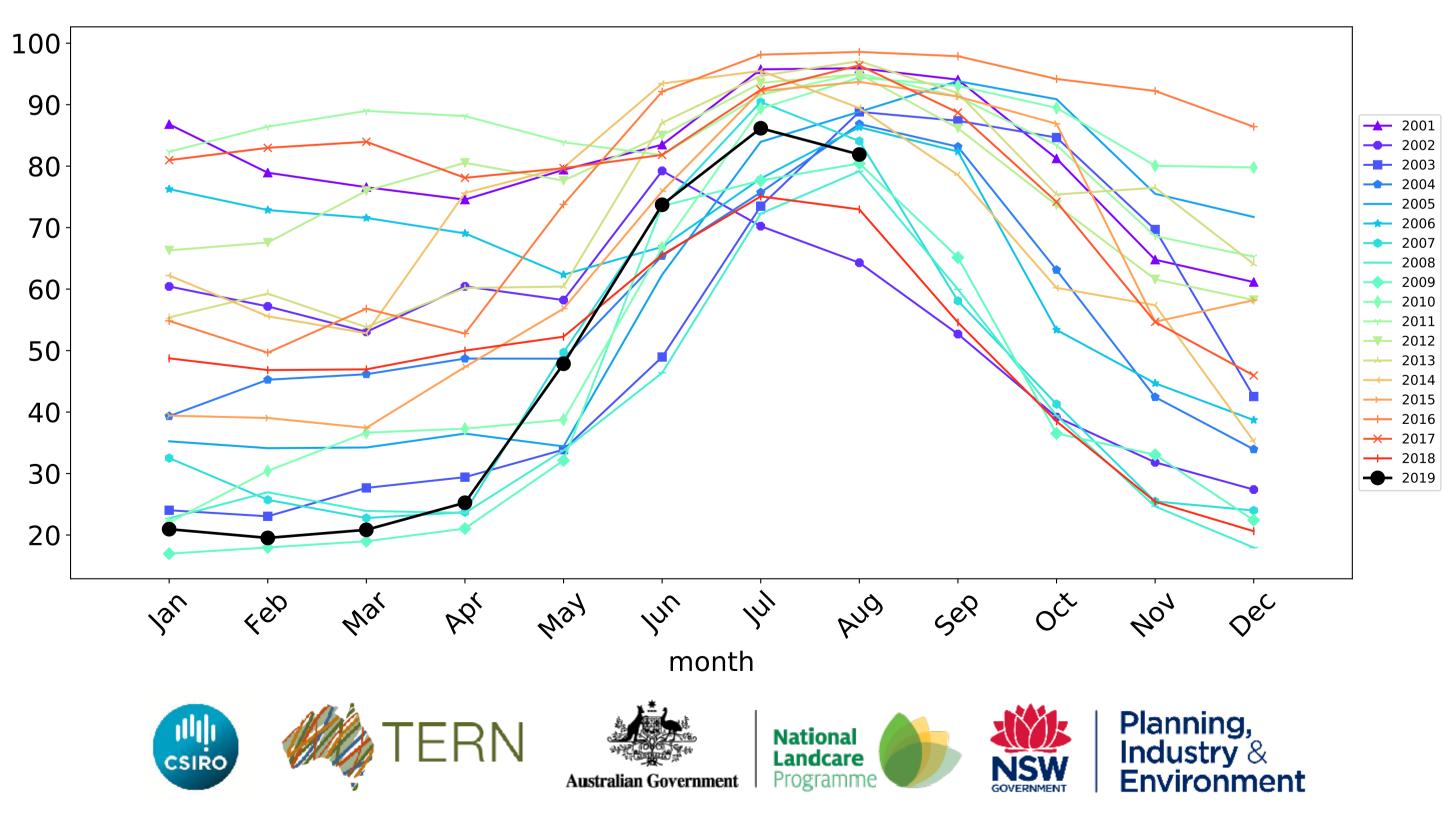


Agriculture timeseries



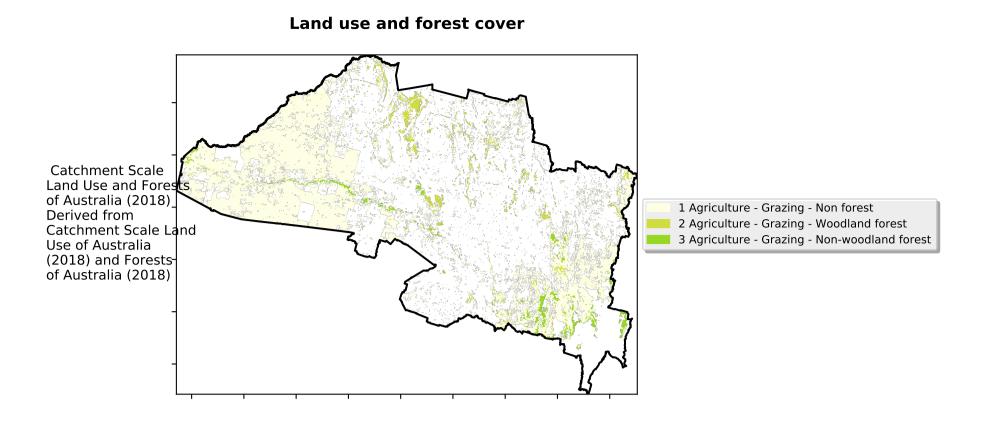




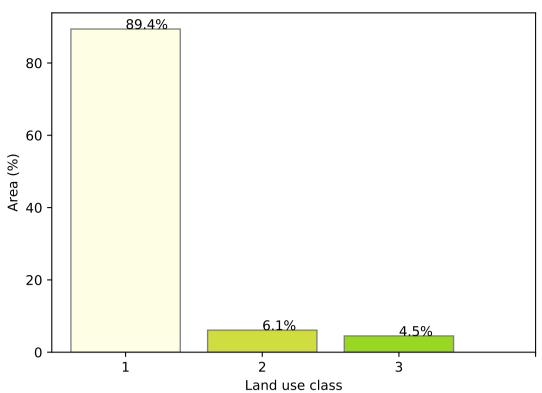


Water erosion historical monthly area protected (Total Veg Cov>70%)

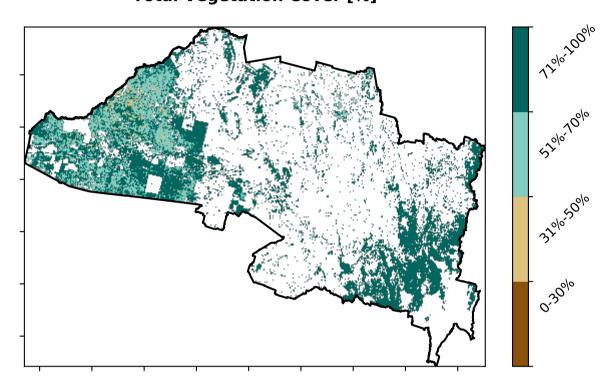
Grazing



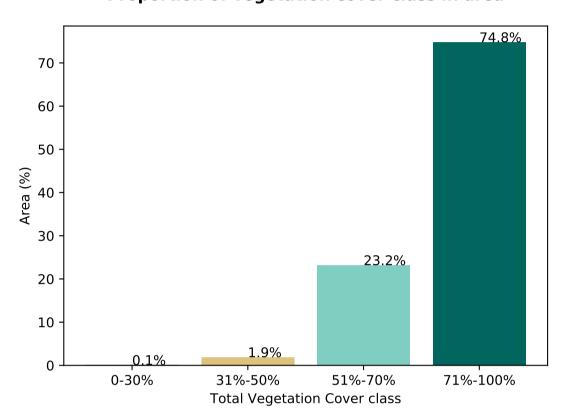
Proportion of each land class in area



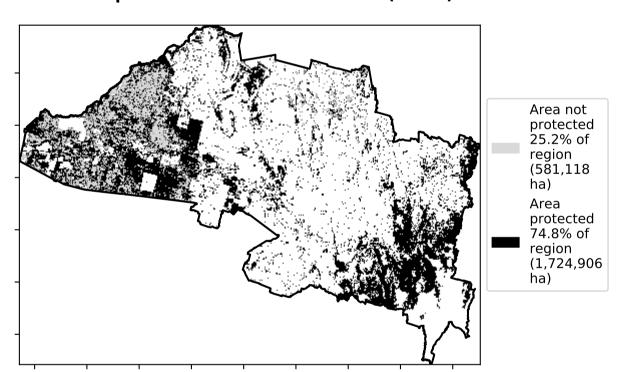
Total Vegetation Cover [%]



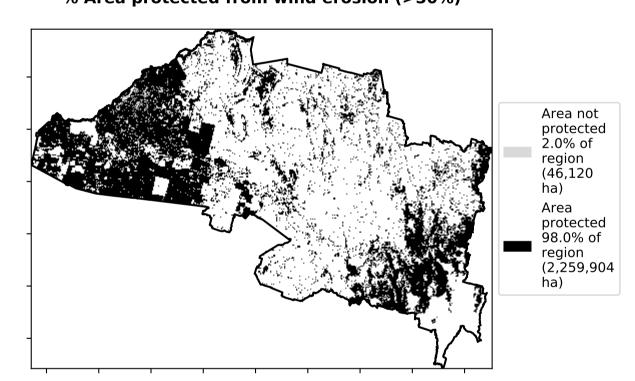
Proportion of vegetation cover class in area



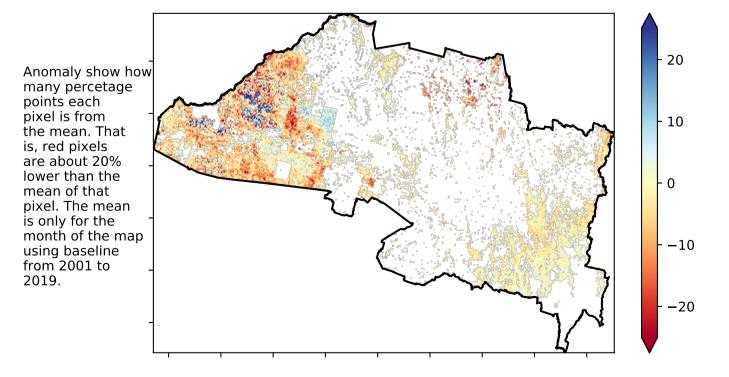
% Area protected from water erosion (>70%)



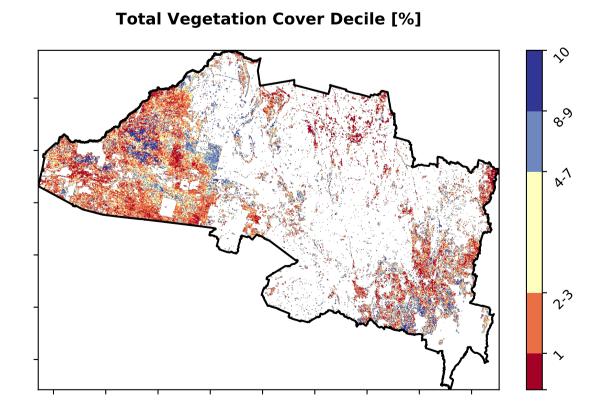
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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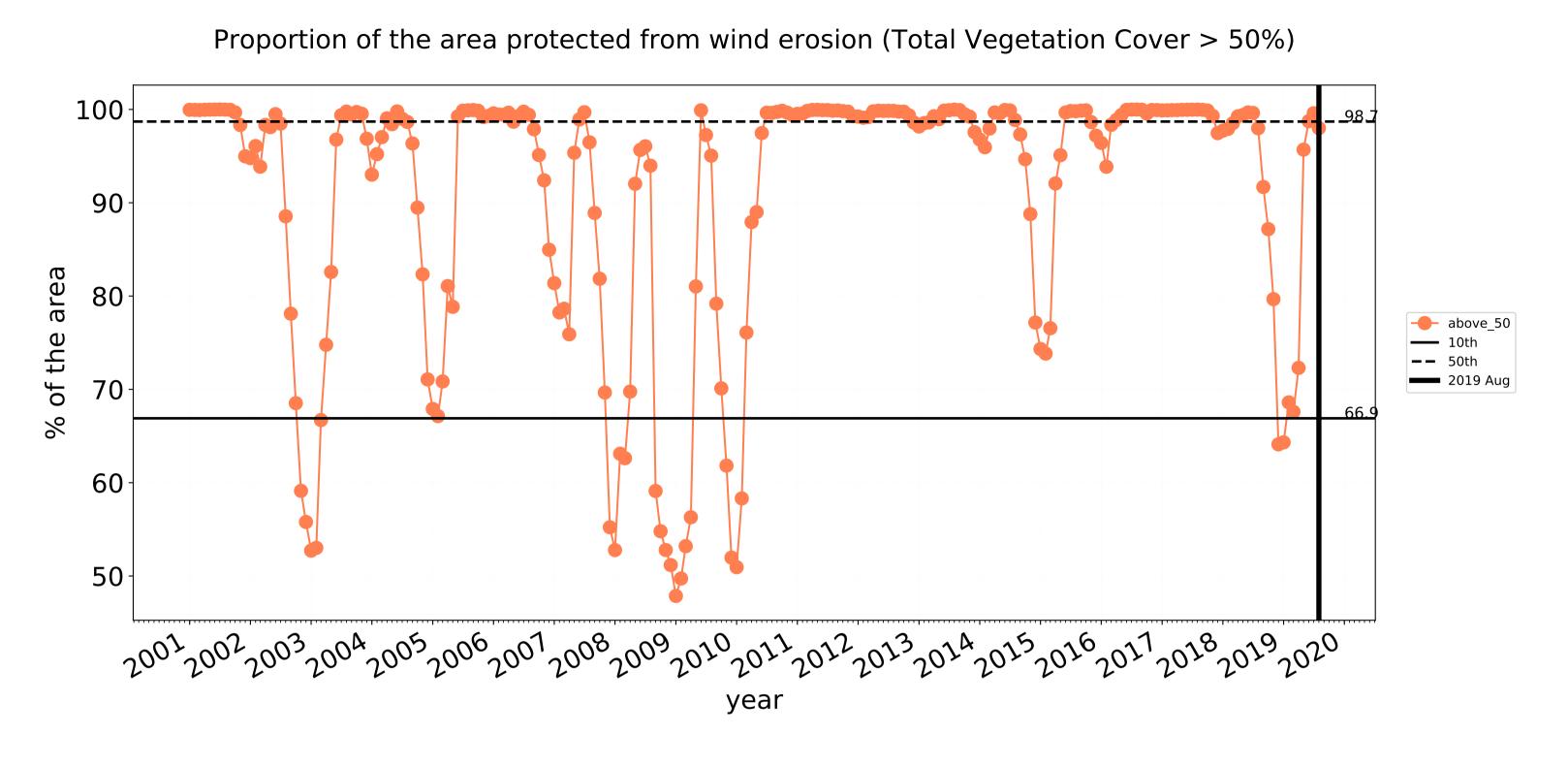


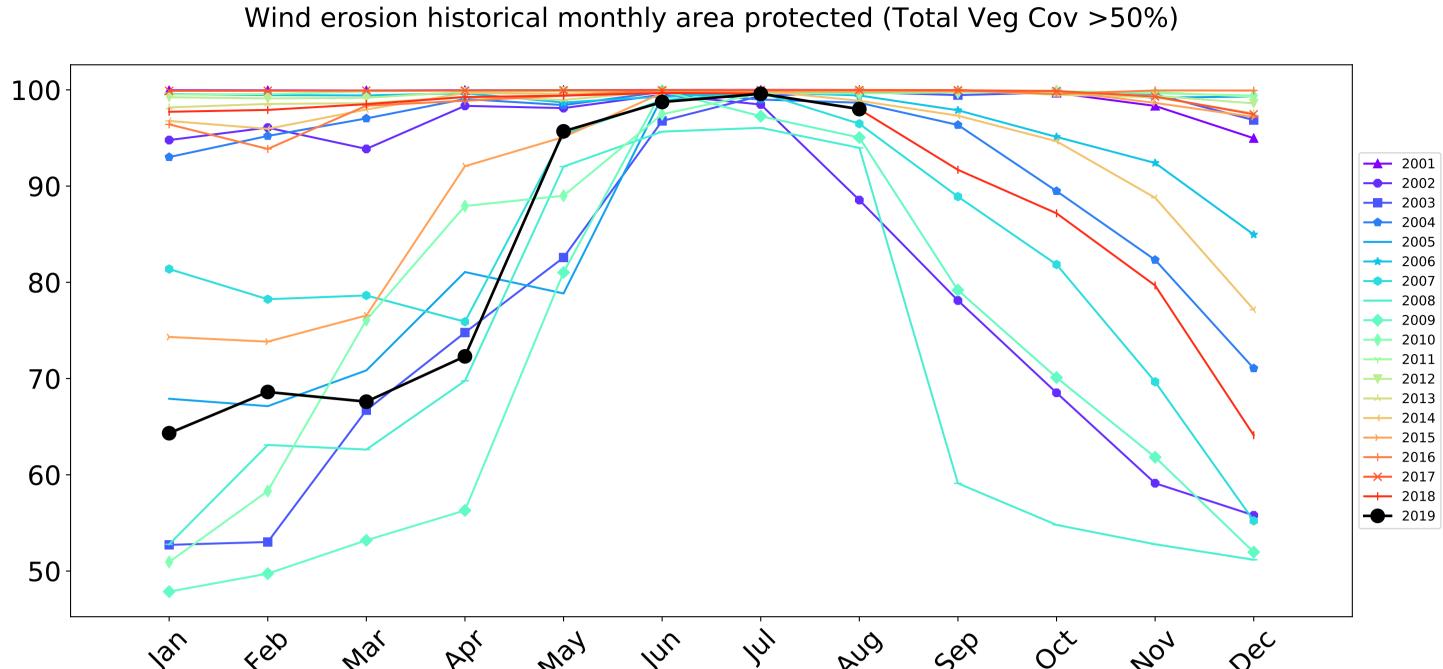




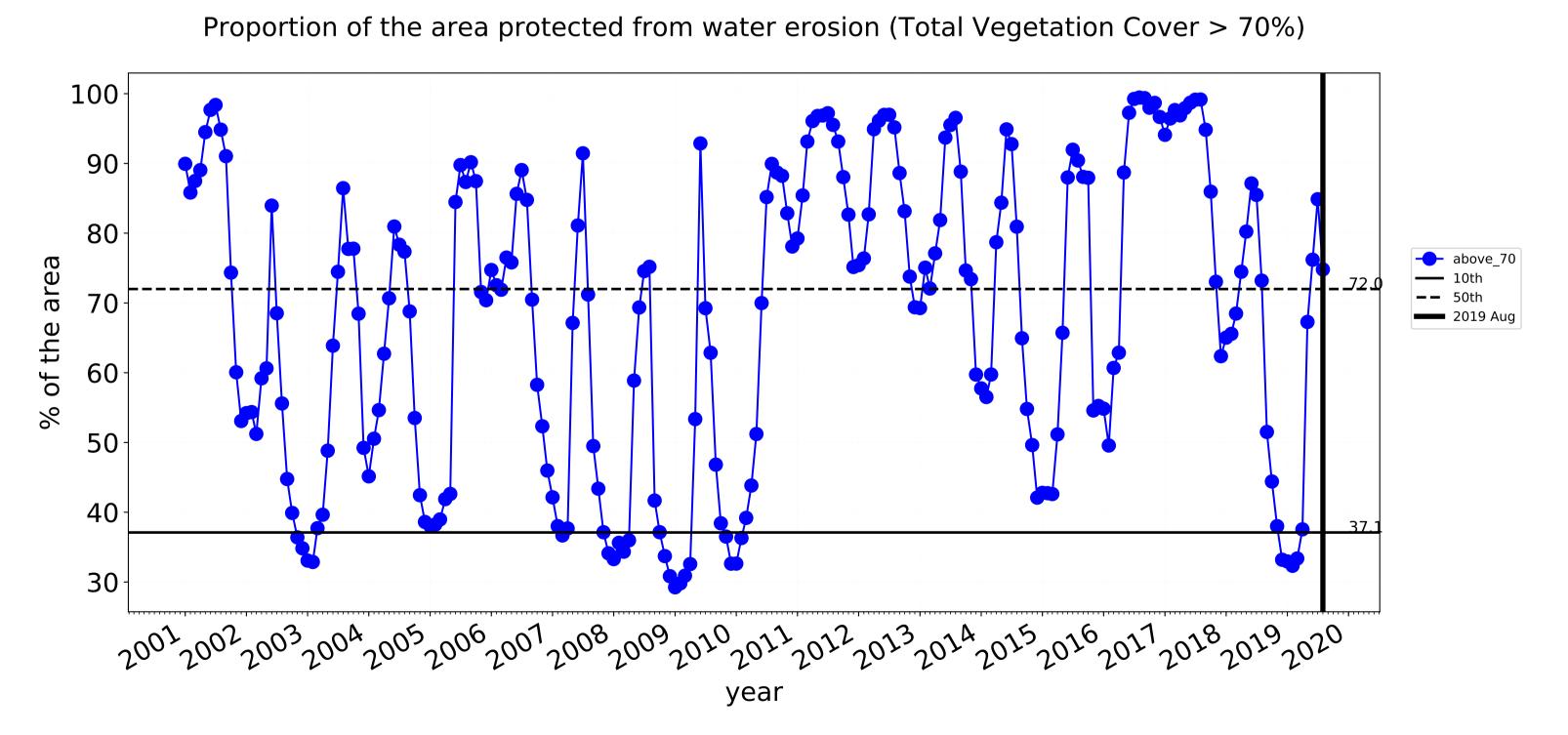


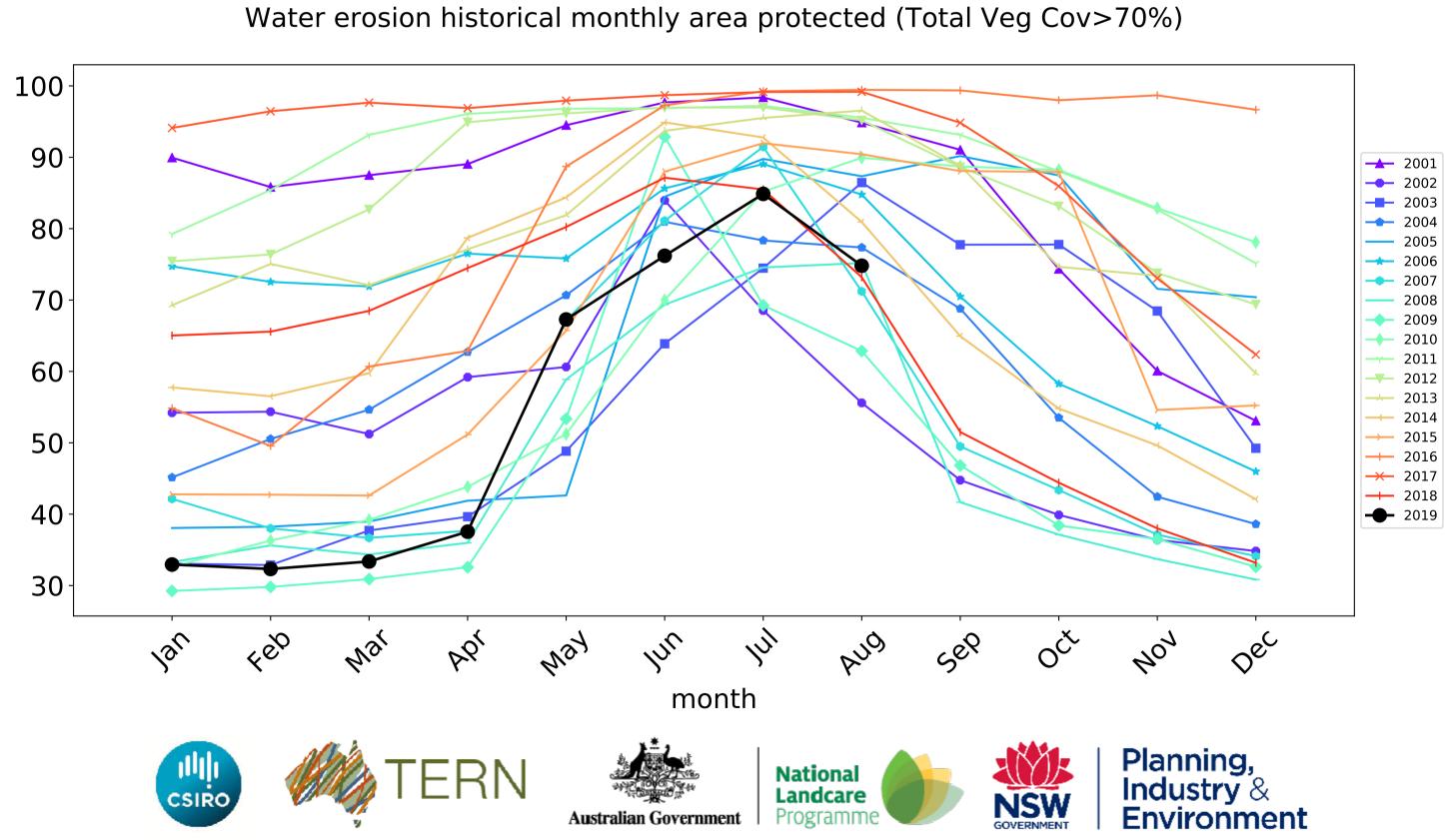
Grazing timeseries





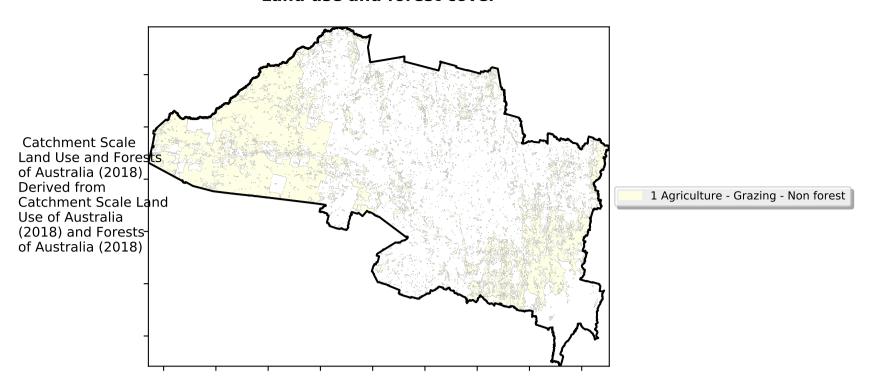
month



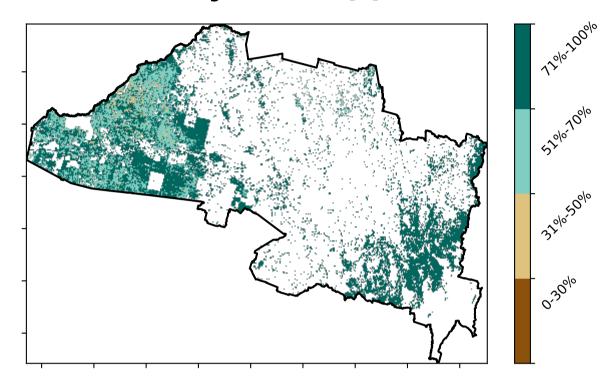


Grazing non forest

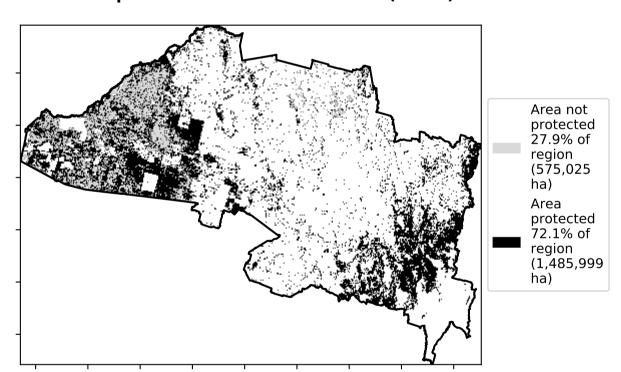
Land use and forest cover



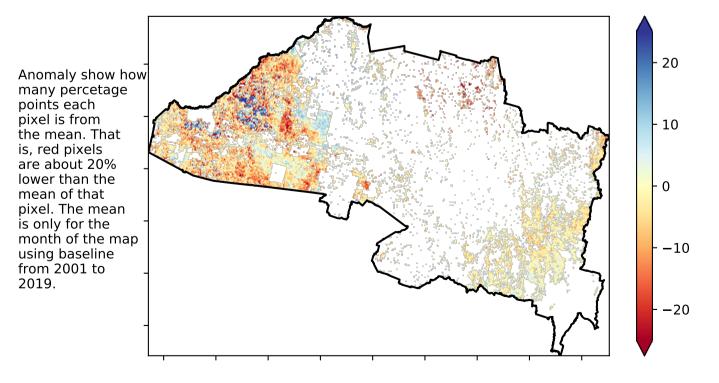
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

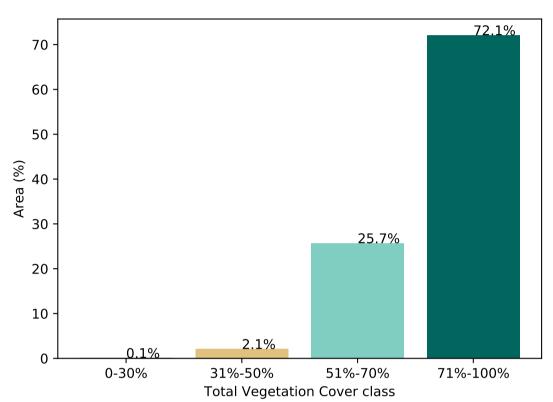


Total Vegetation Cover Anomaly [%]

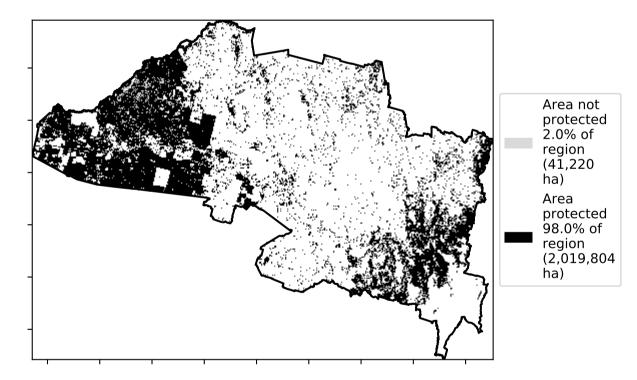


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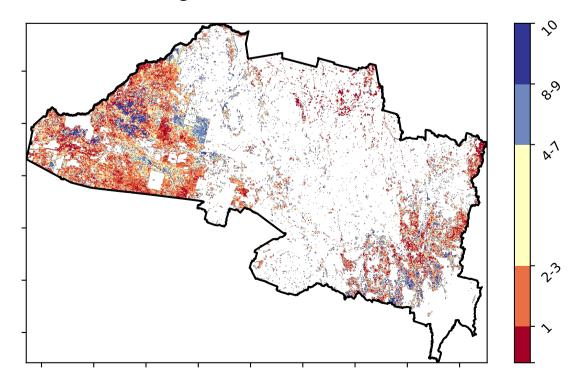
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







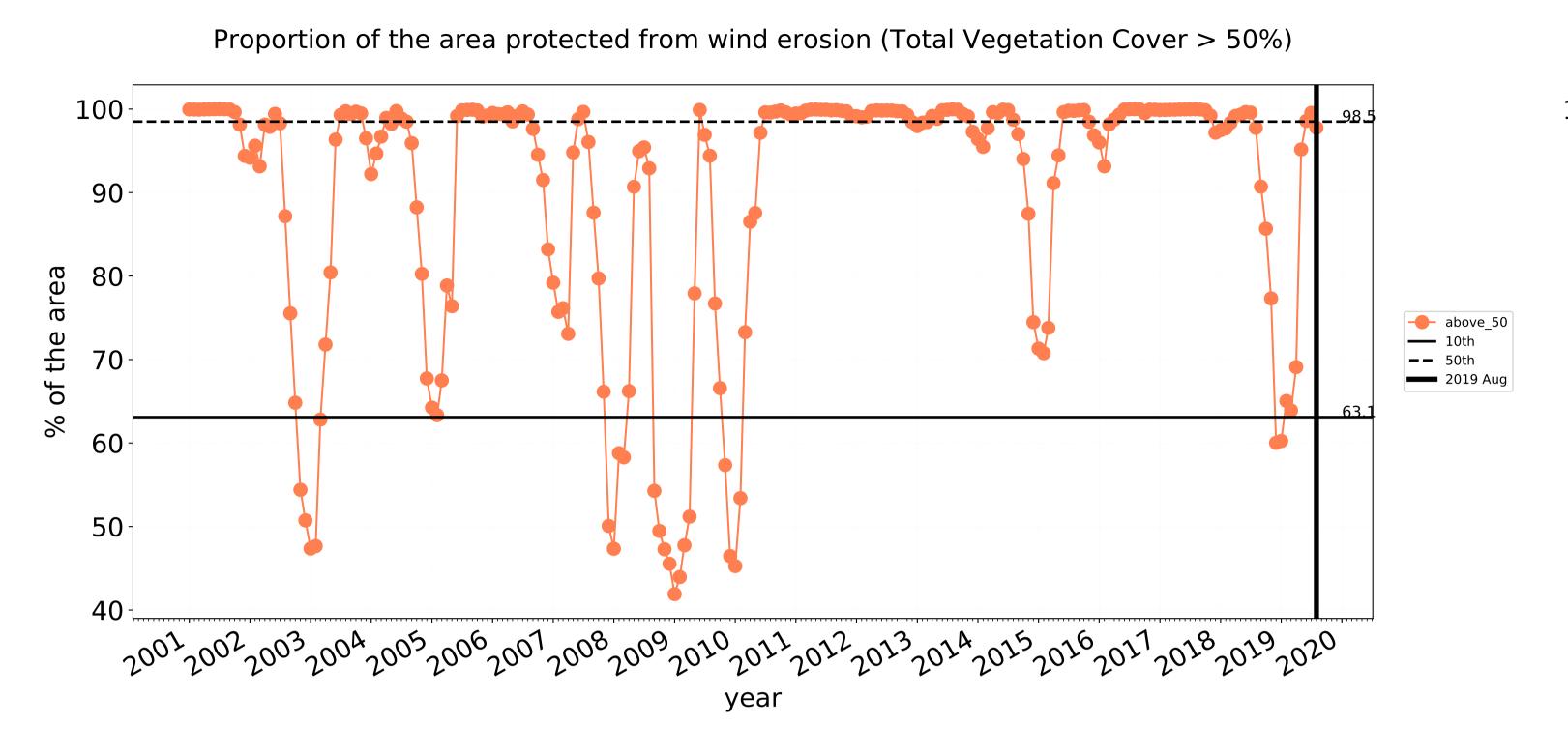


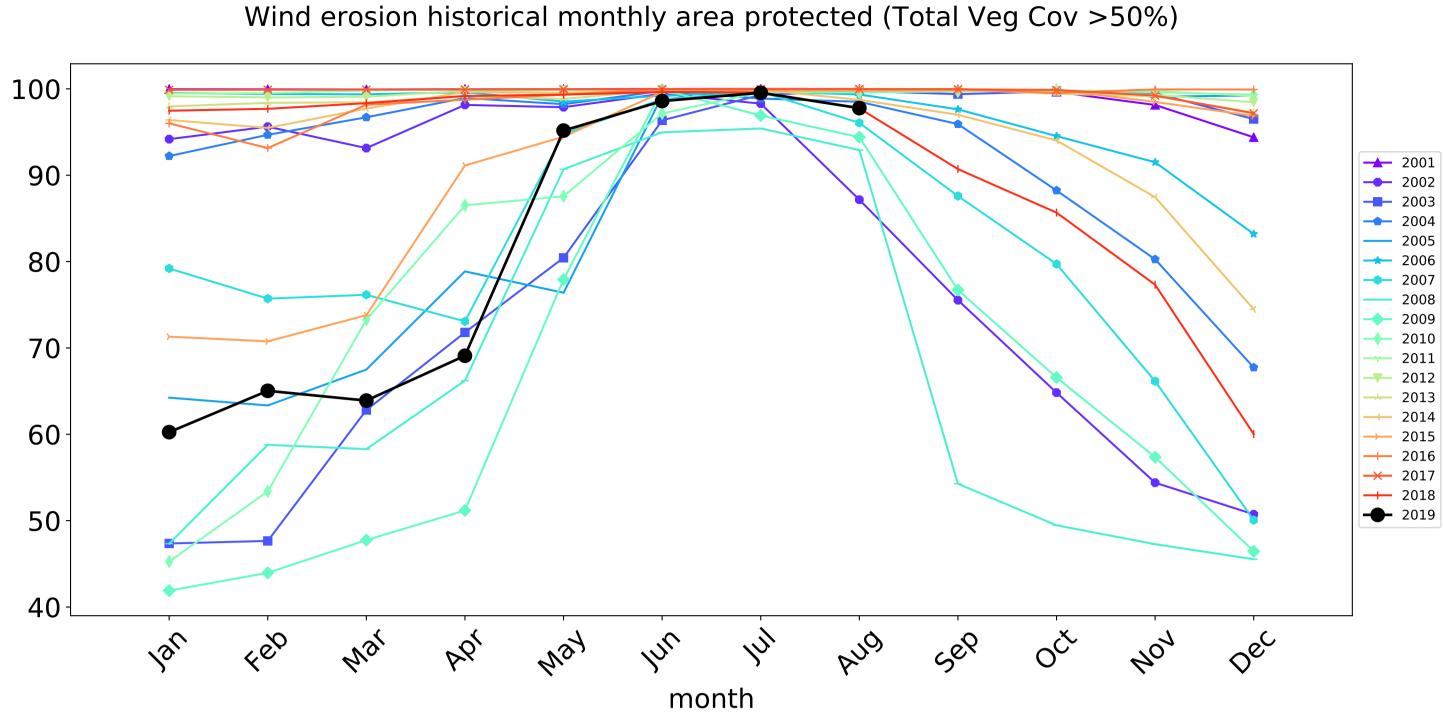


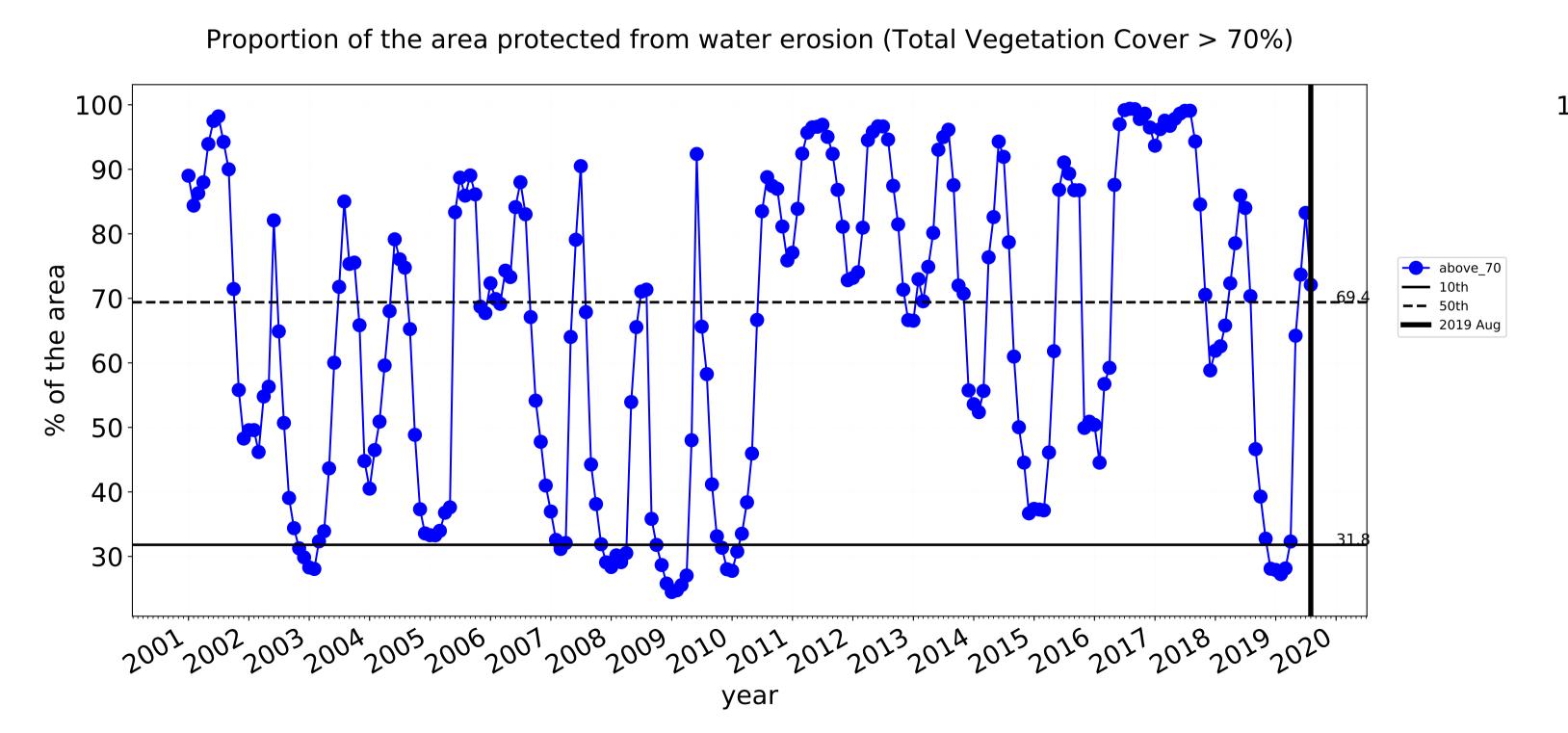


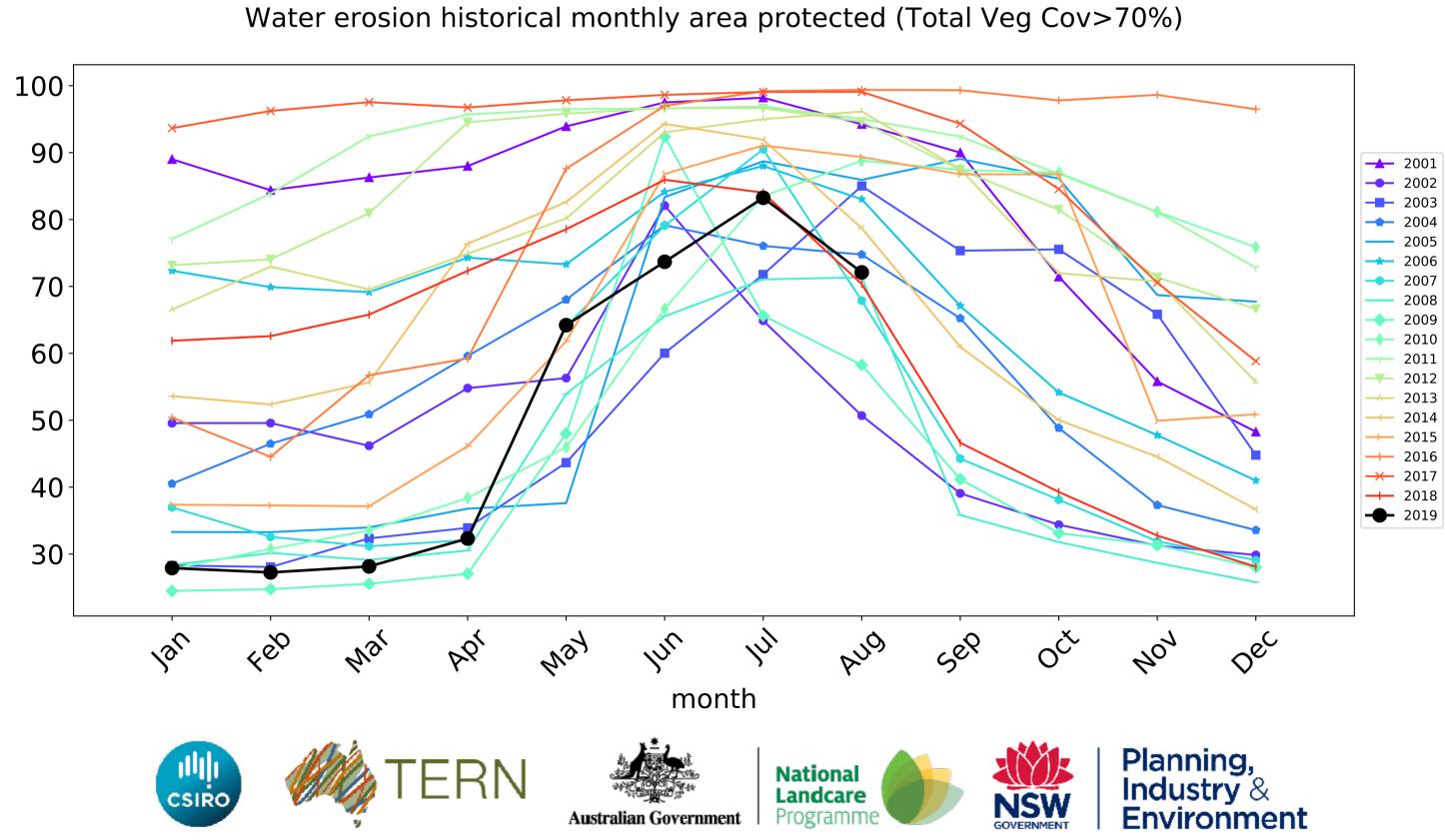


Grazing non forest timeseries







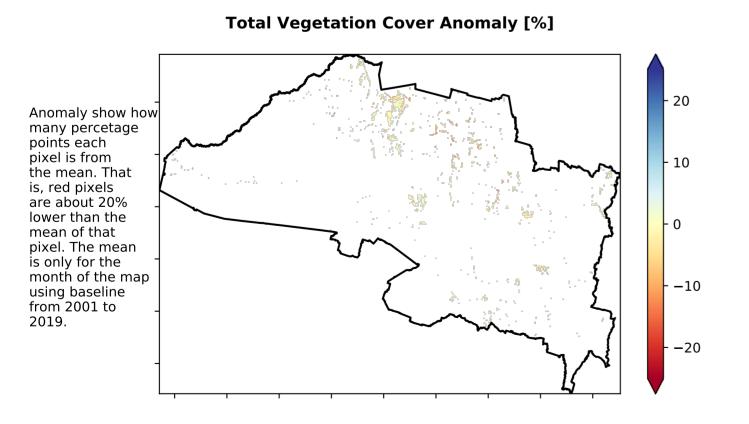


Grazing Woodland forest

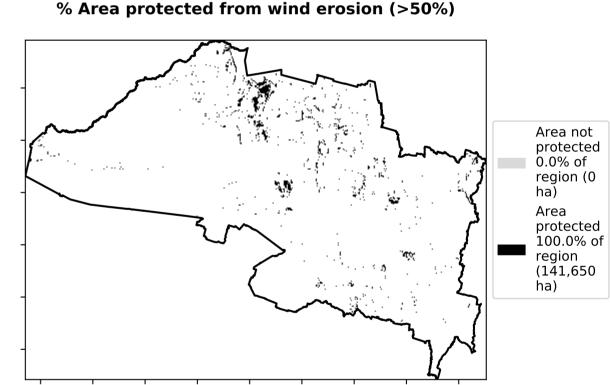
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) and Forests of Australia (2018)

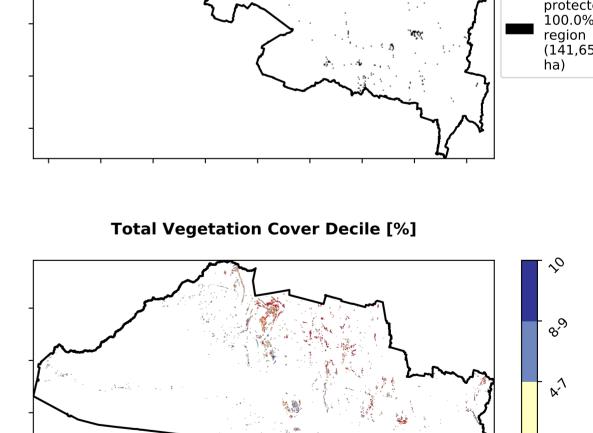
Total Vegetation Cover [%]

Area not protected 3.8% of region (5,382 ha) Area protected 96.2% of region (136,267 ha)



Proportion of vegetation cover class in area 96.2% 80 60 20 0 0.0% 0.1% 71%-100% Total Vegetation Cover class









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.

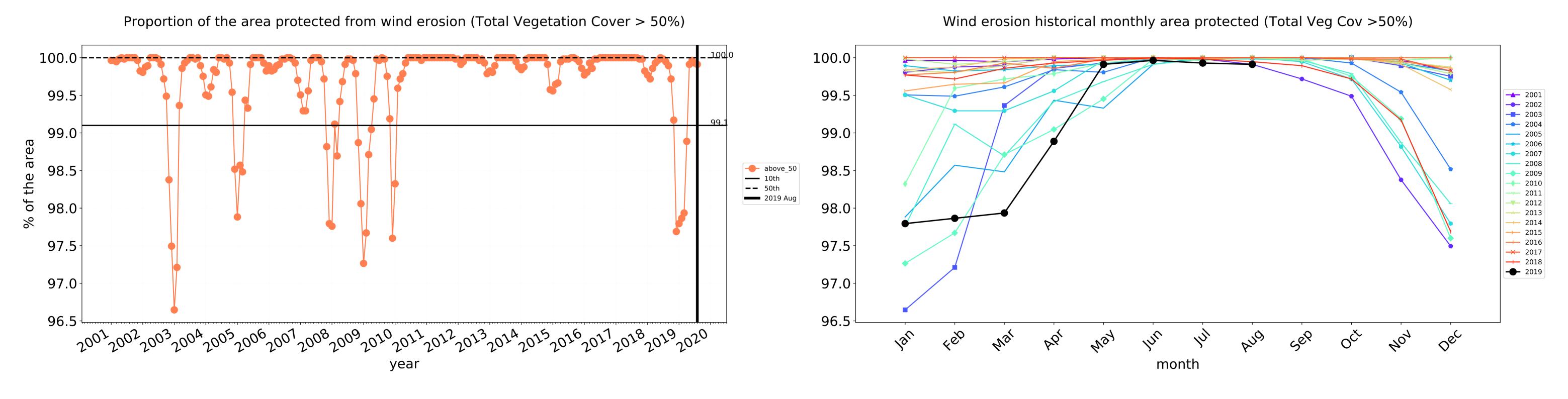
the map using baseline from 2001 to 2019.

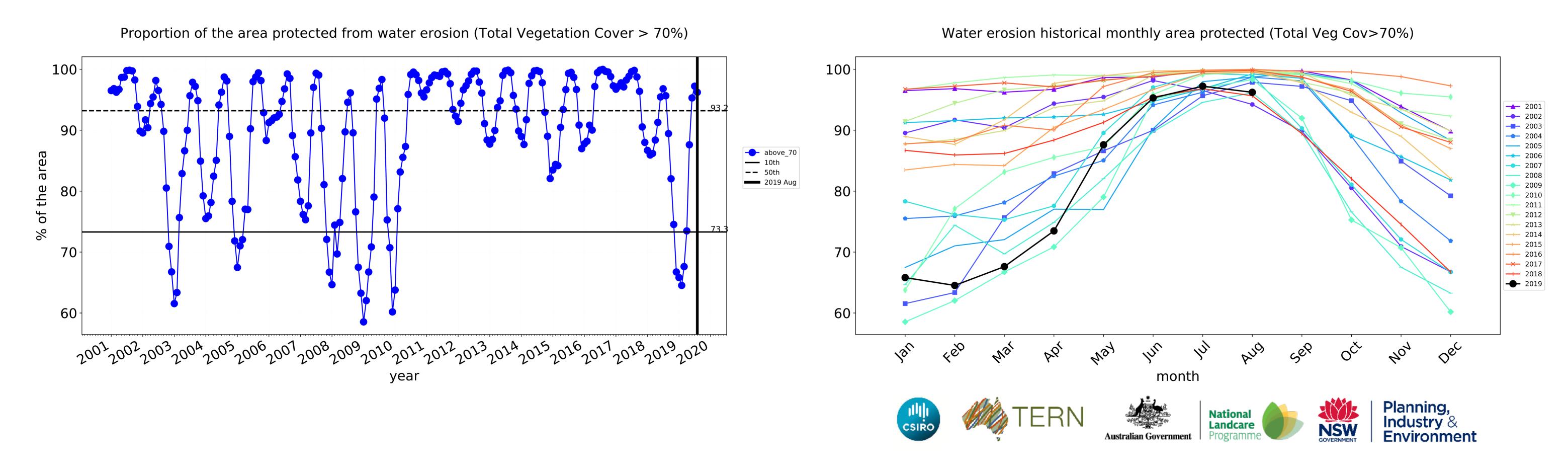






Grazing Woodland forest timeseries



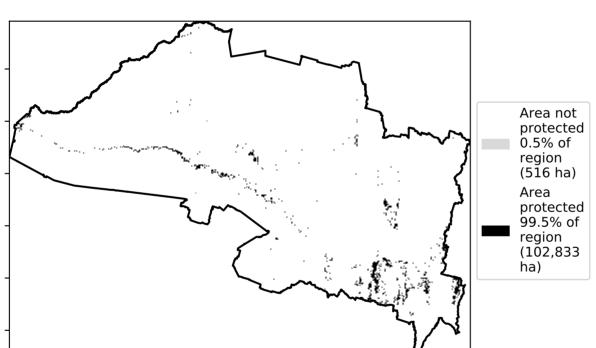


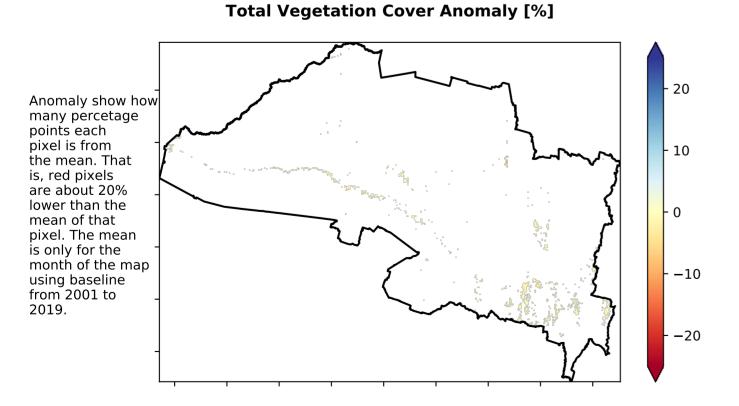
Grazing - Forest (non woodland)

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 [%] Trolo India Trolo India Trolo India Trolo India Trolo India Trolo India Trolo India

% Area protected from water erosion (>70%)



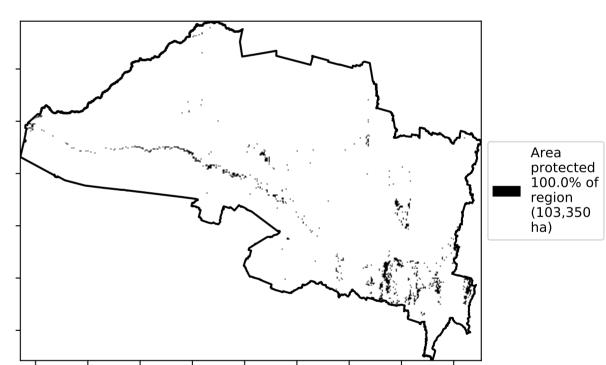


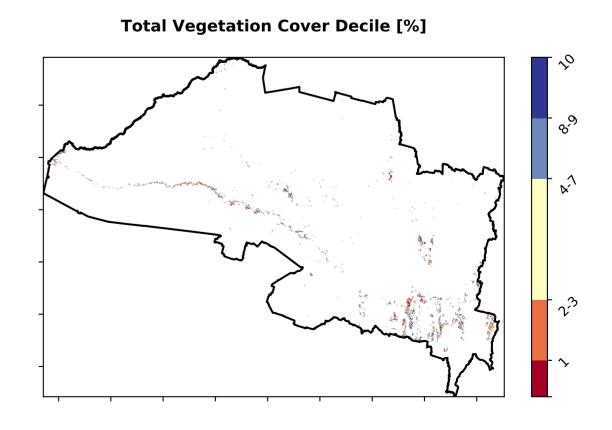
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area 100 - 99.5% 80 - 60 - 99.5% 40 - 20 - 0.0% 0.0% 0.5% 0-30% 31%-50% 51%-70% 71%-100%

% Area protected from wind erosion (>50%)

Total Vegetation Cover class







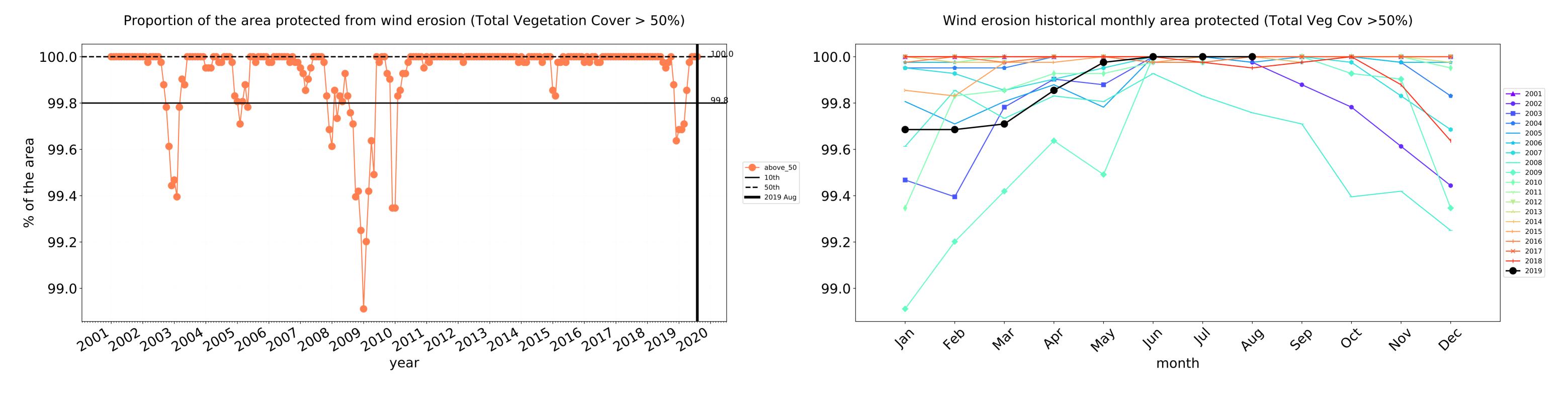


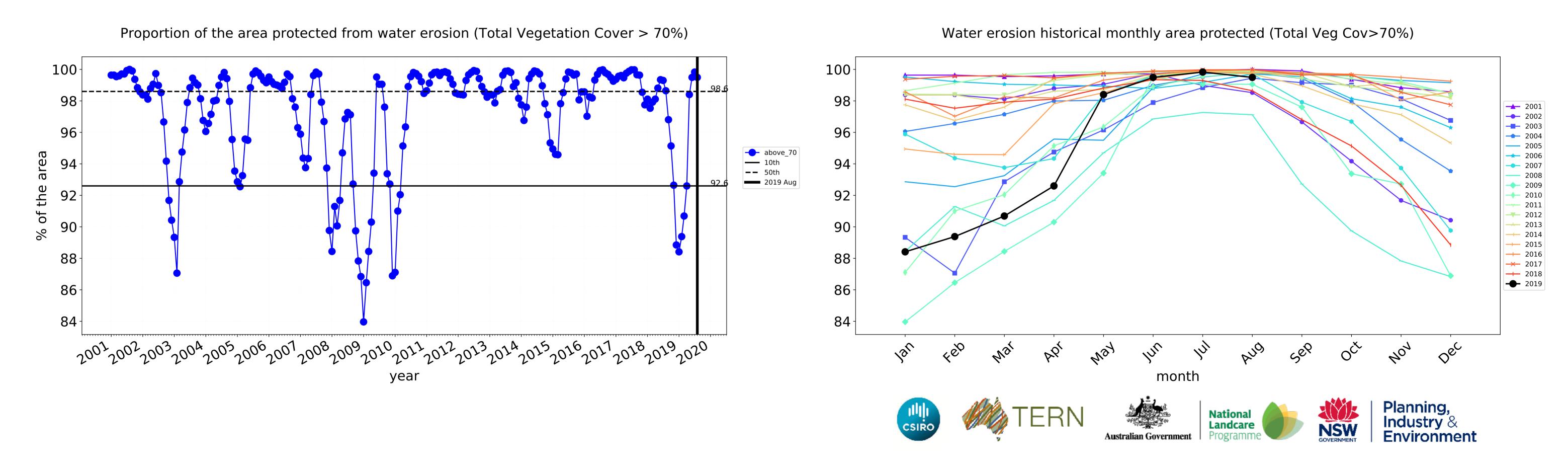






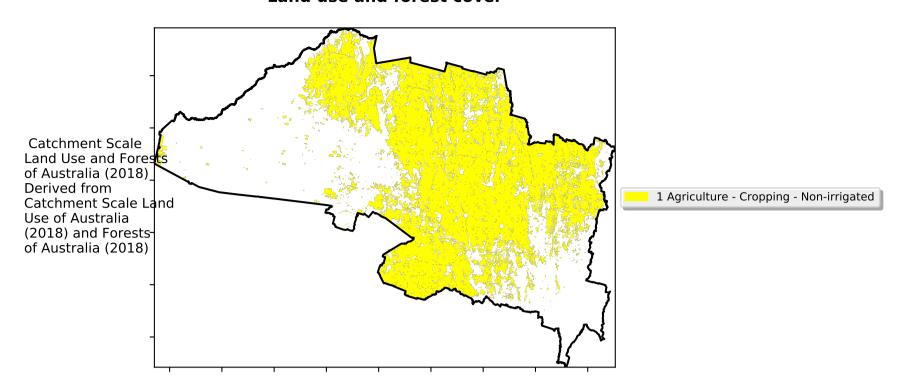




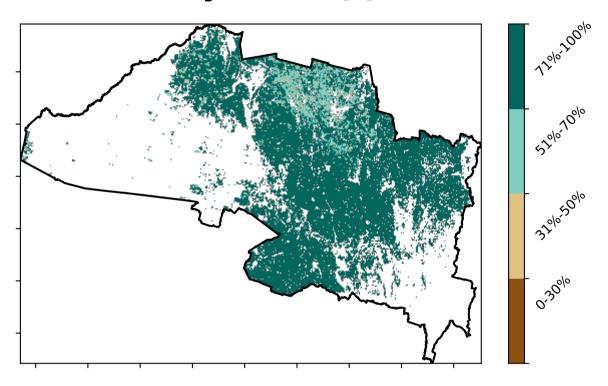


Cropping

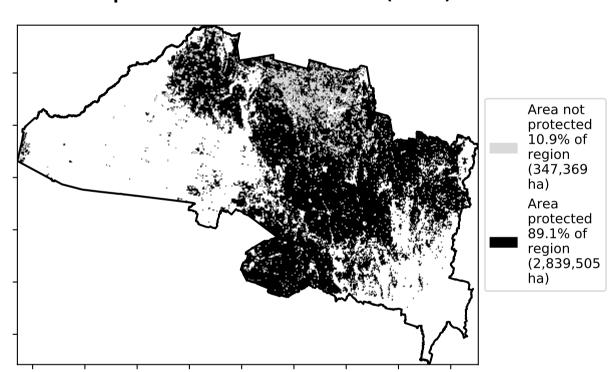
Land use and forest cover



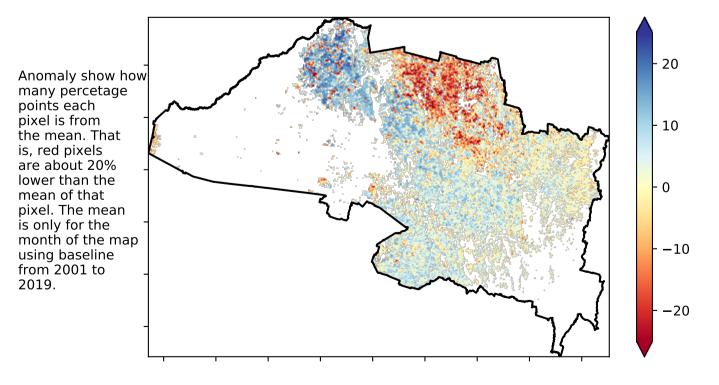
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

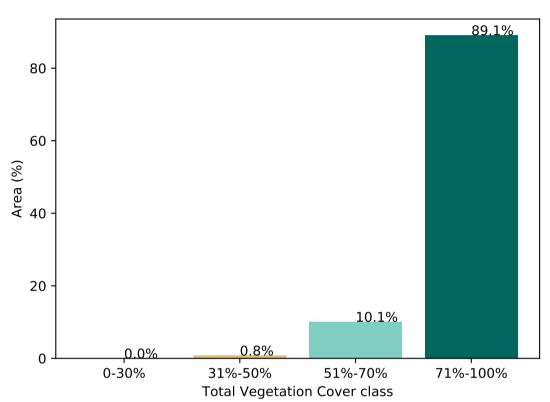


Total Vegetation Cover Anomaly [%]

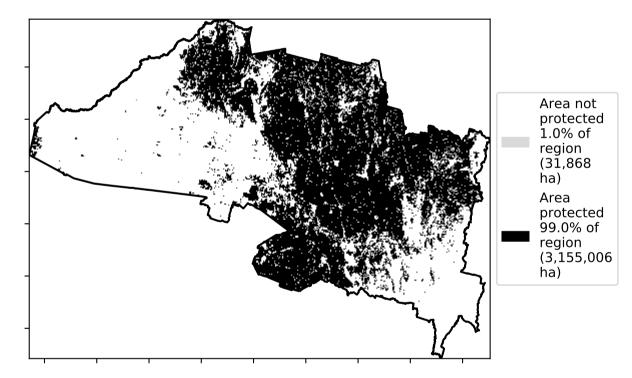


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

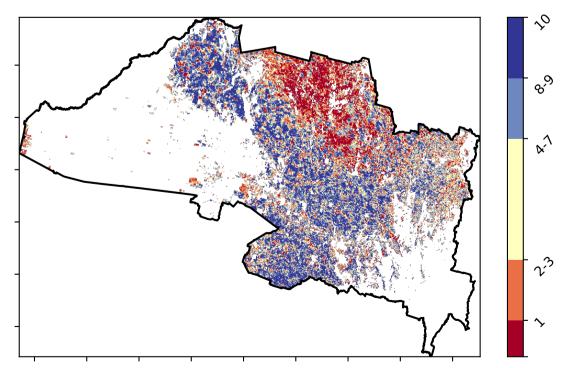
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







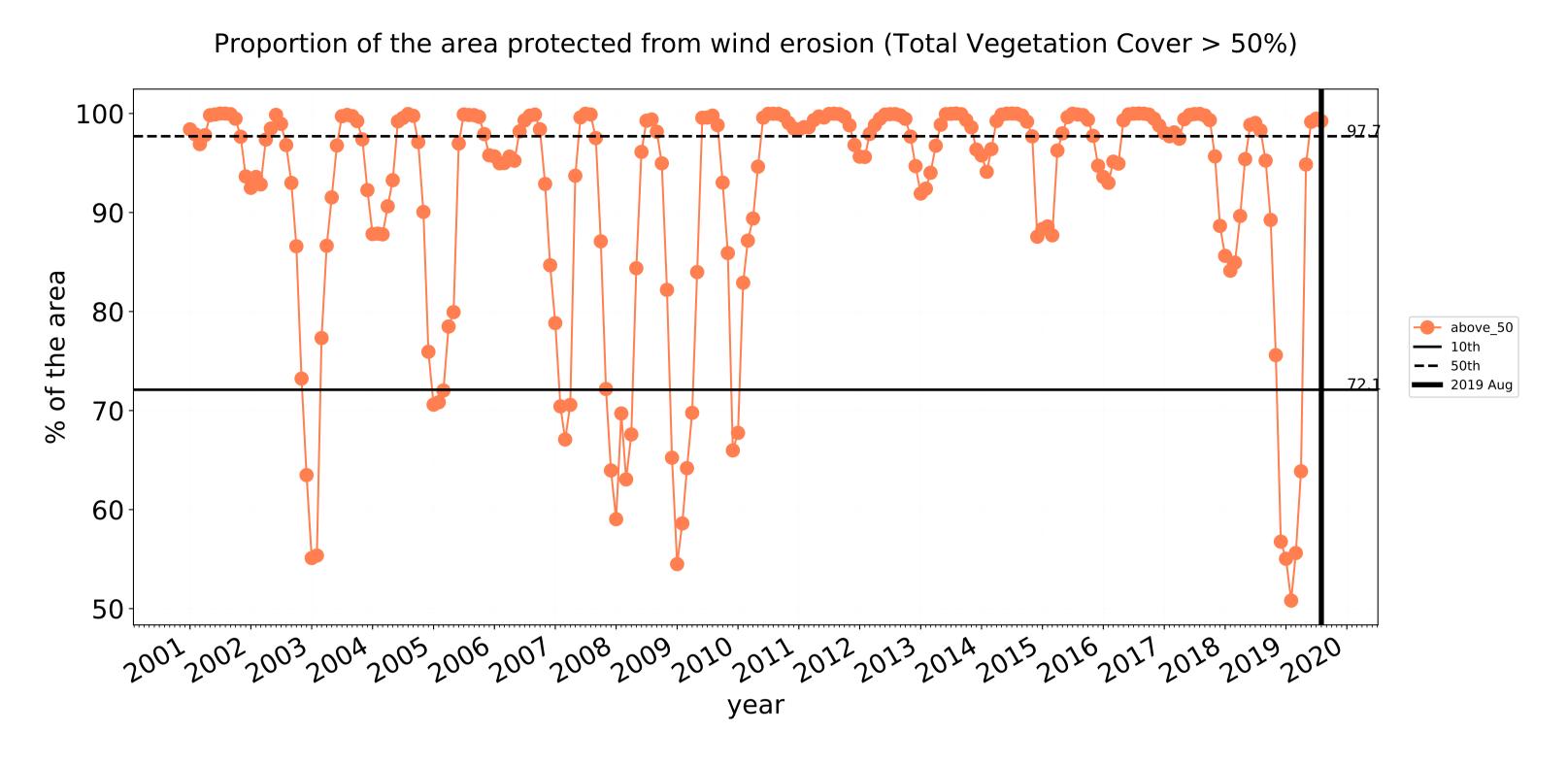


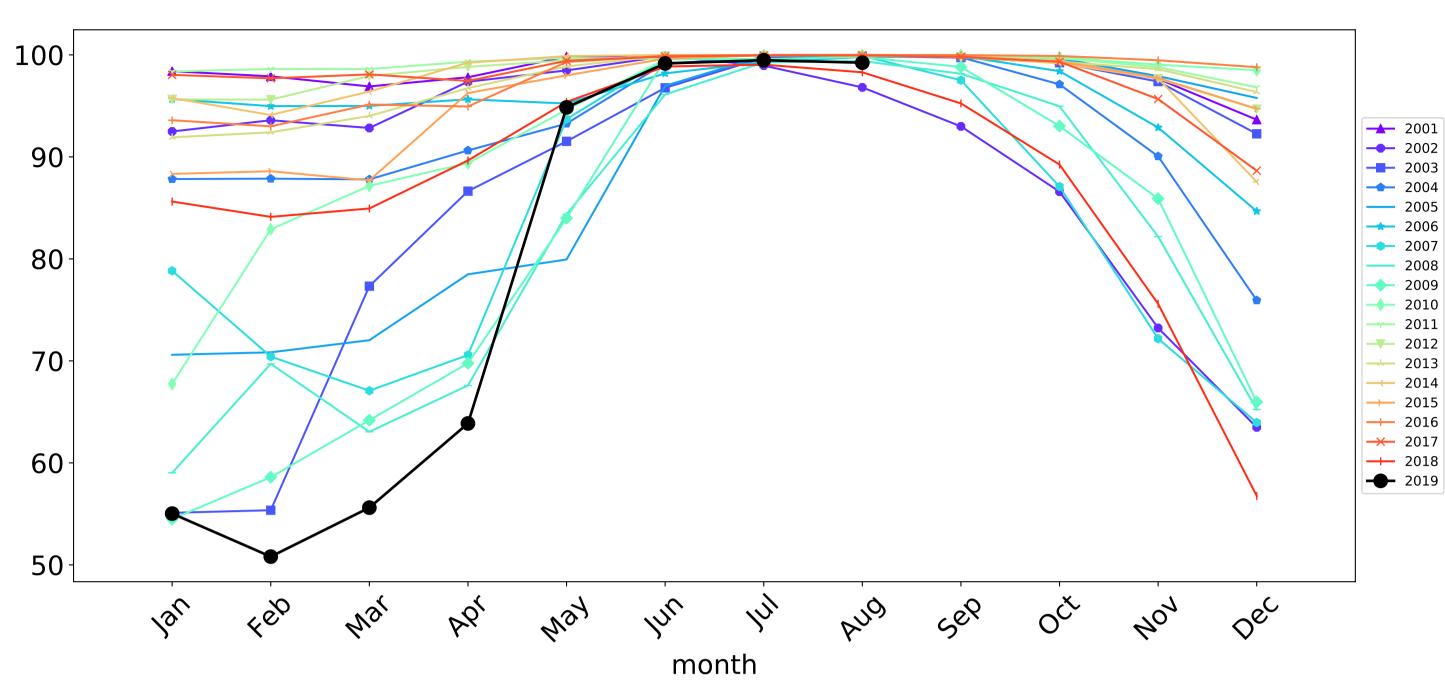




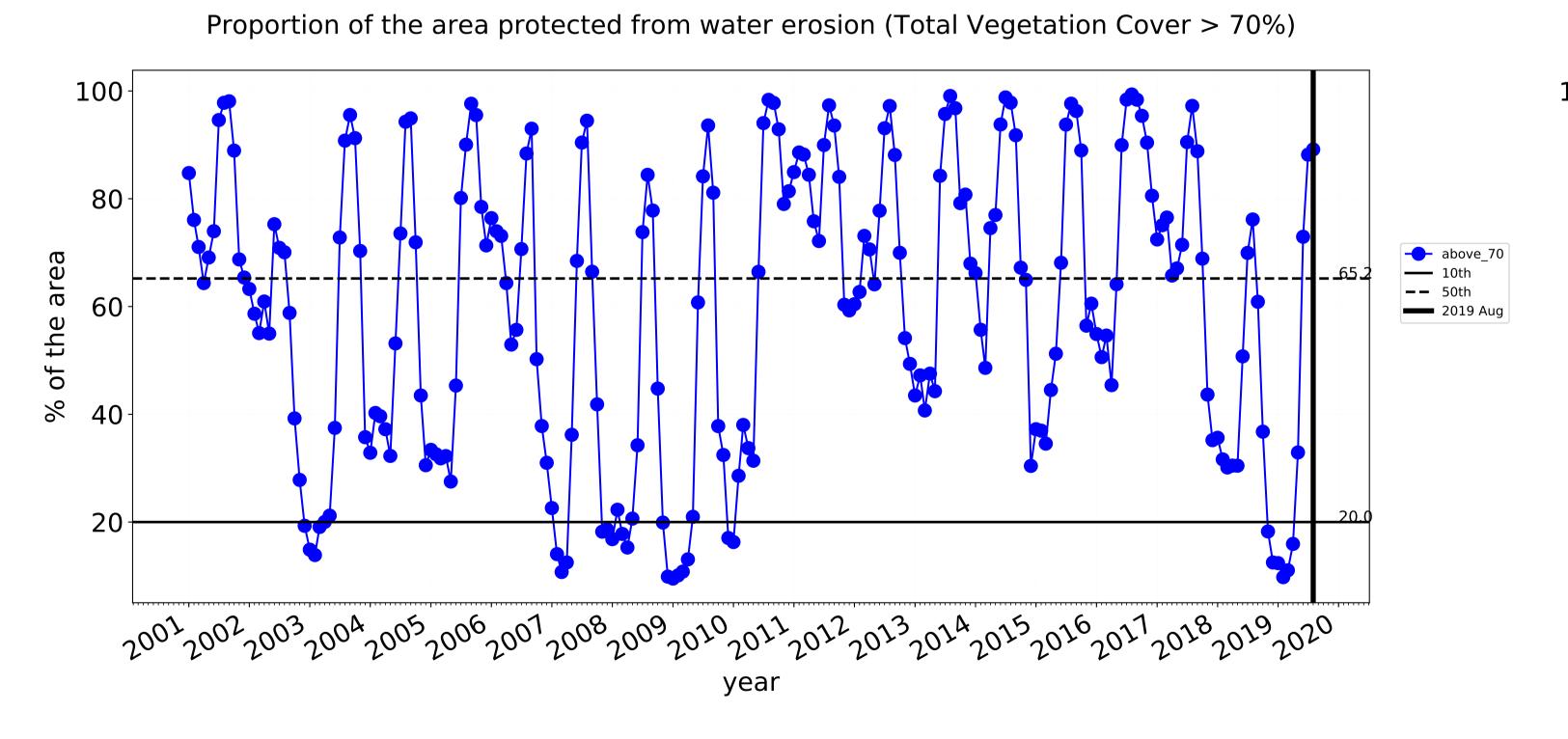


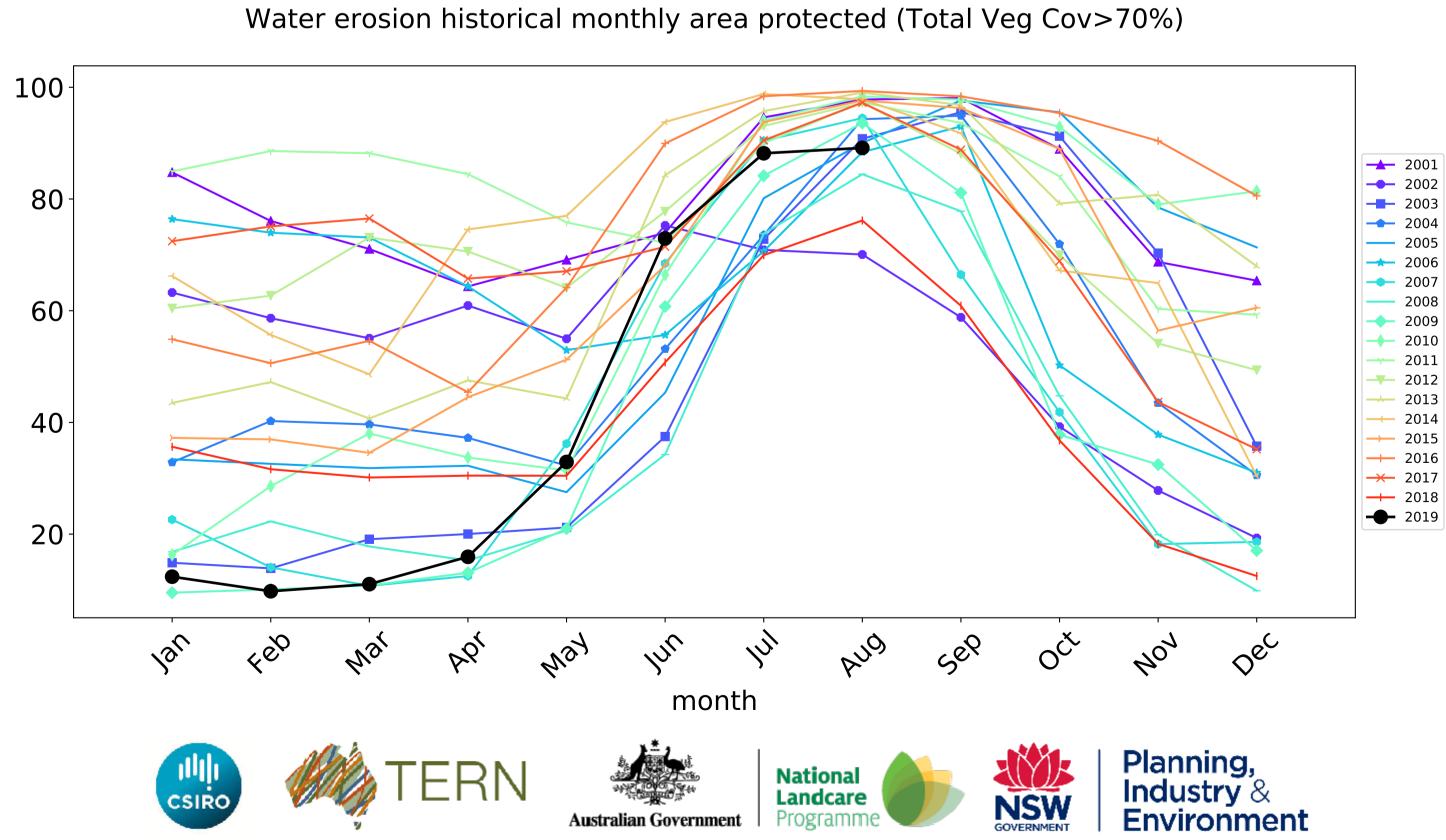
Cropping timeseries



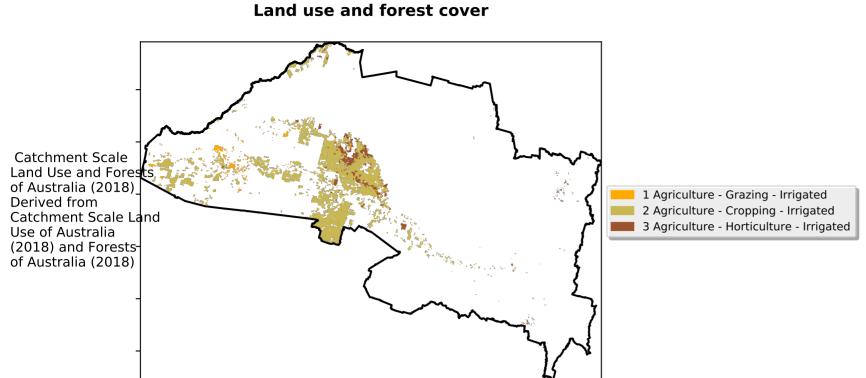


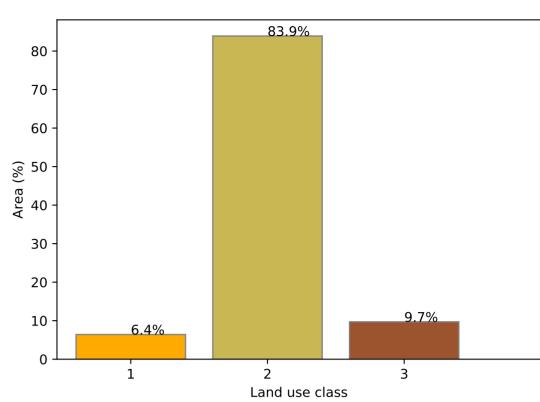
Wind erosion historical monthly area protected (Total Veg Cov >50%)



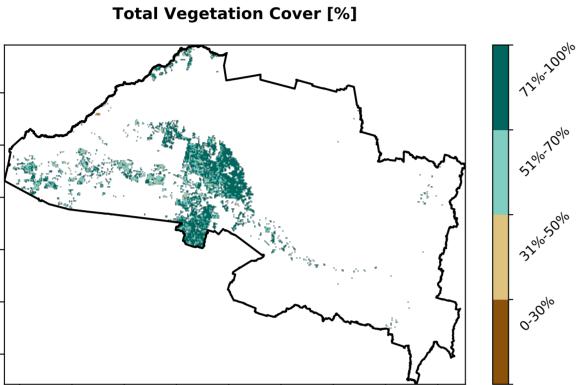


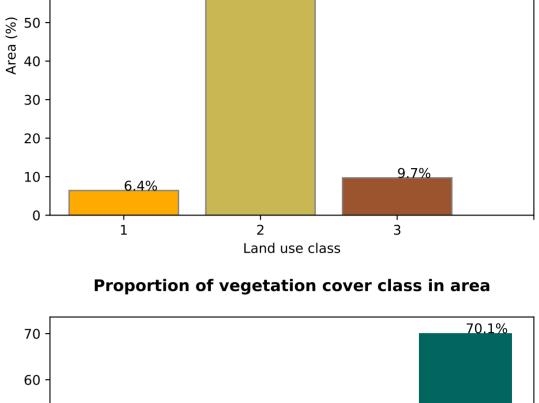
Irrigation





Proportion of each land class in area

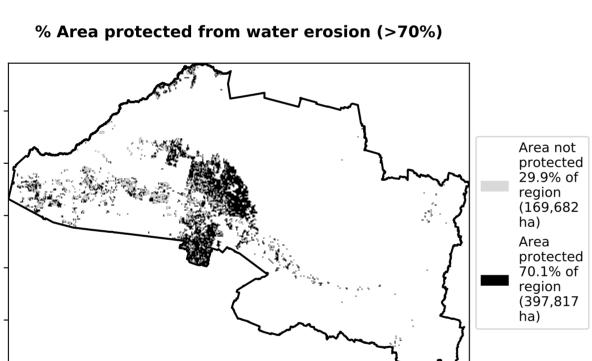


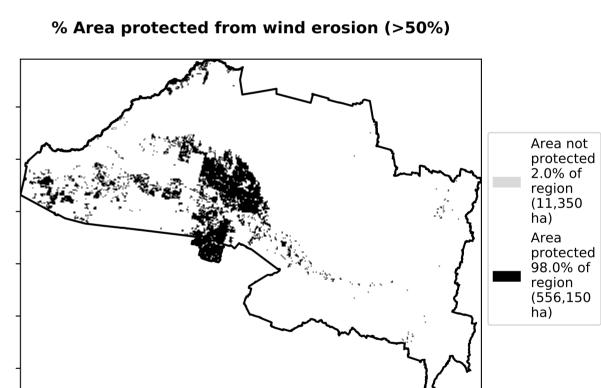


1.6%

Total Vegetation Cover class

31%-50%

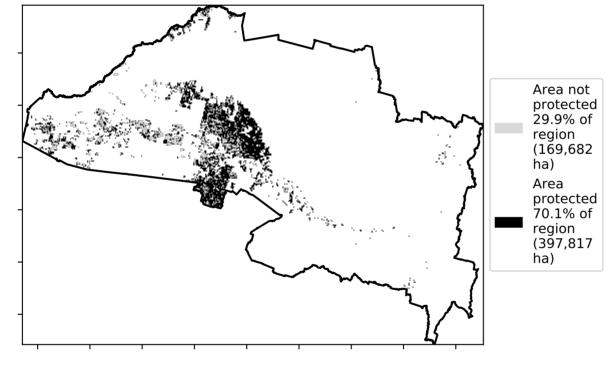


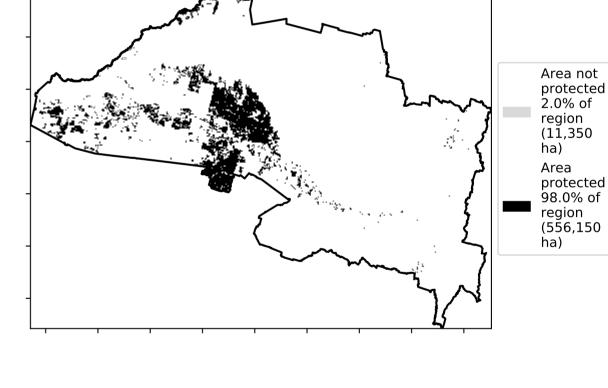


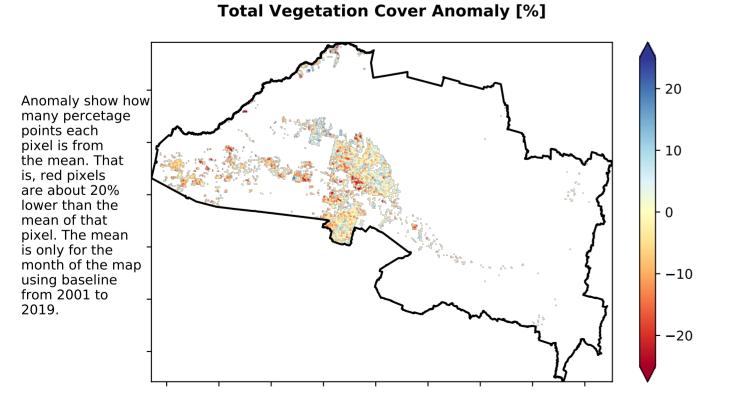
51%-70%

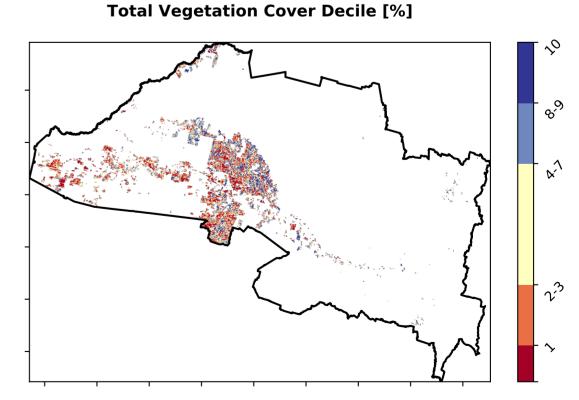
71%-100%

28.2%









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.









50

Area (%)

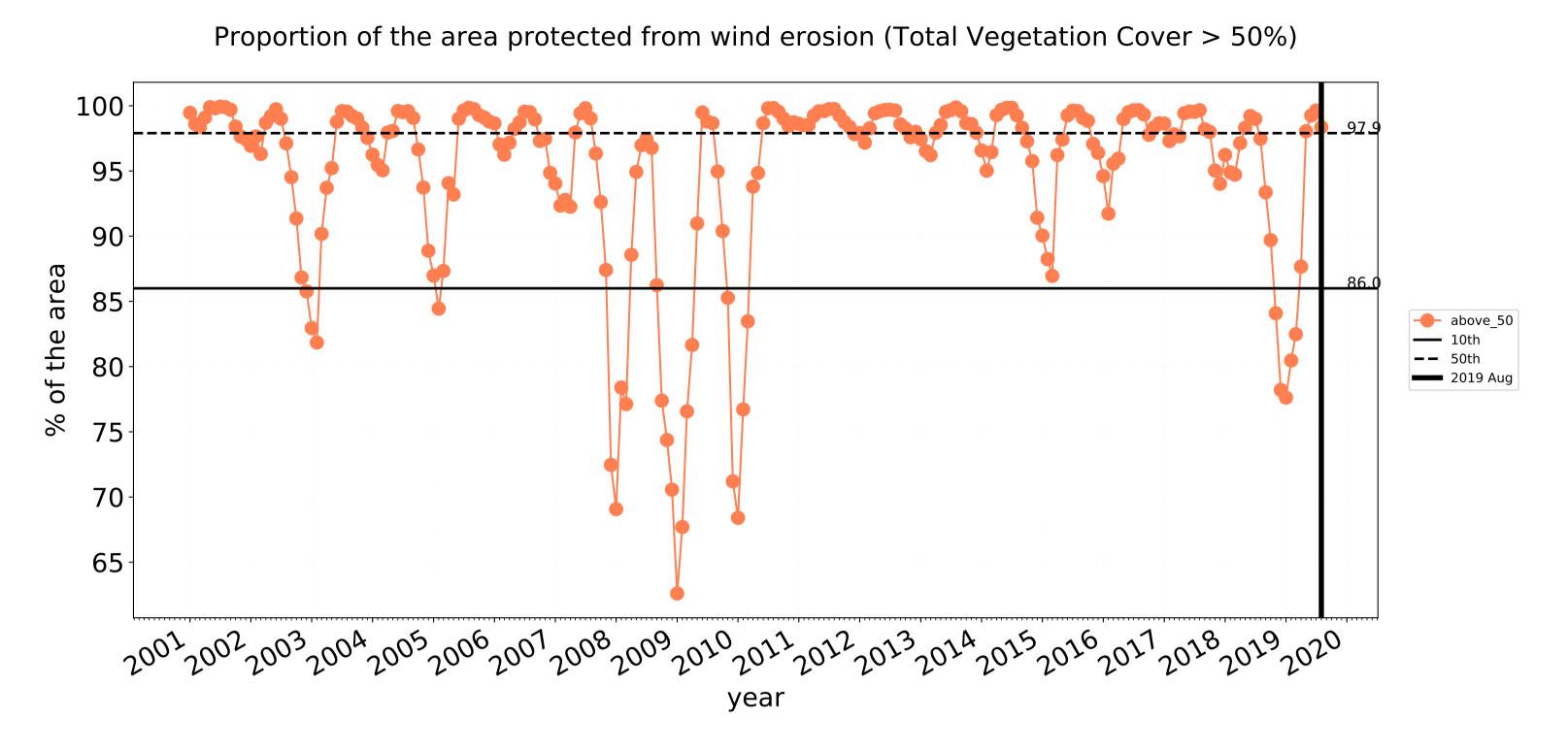
20 -

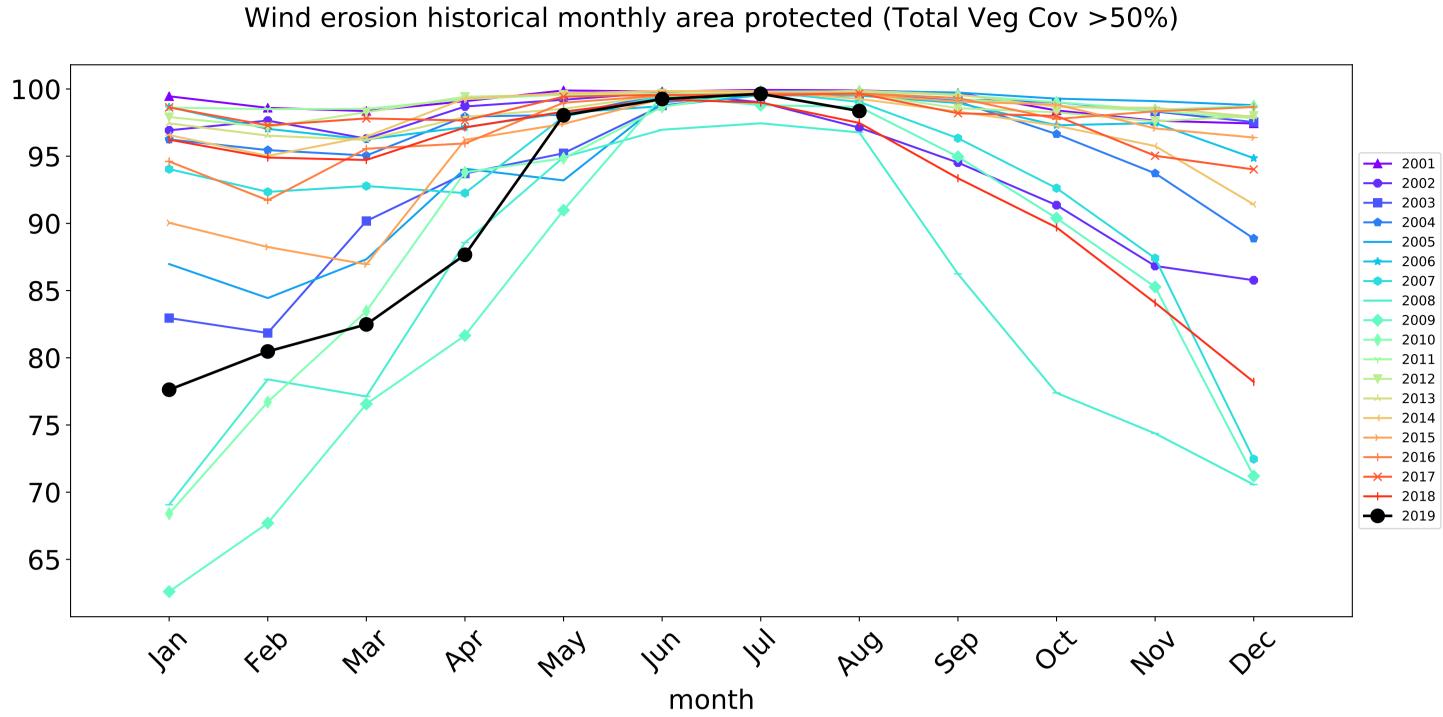
10

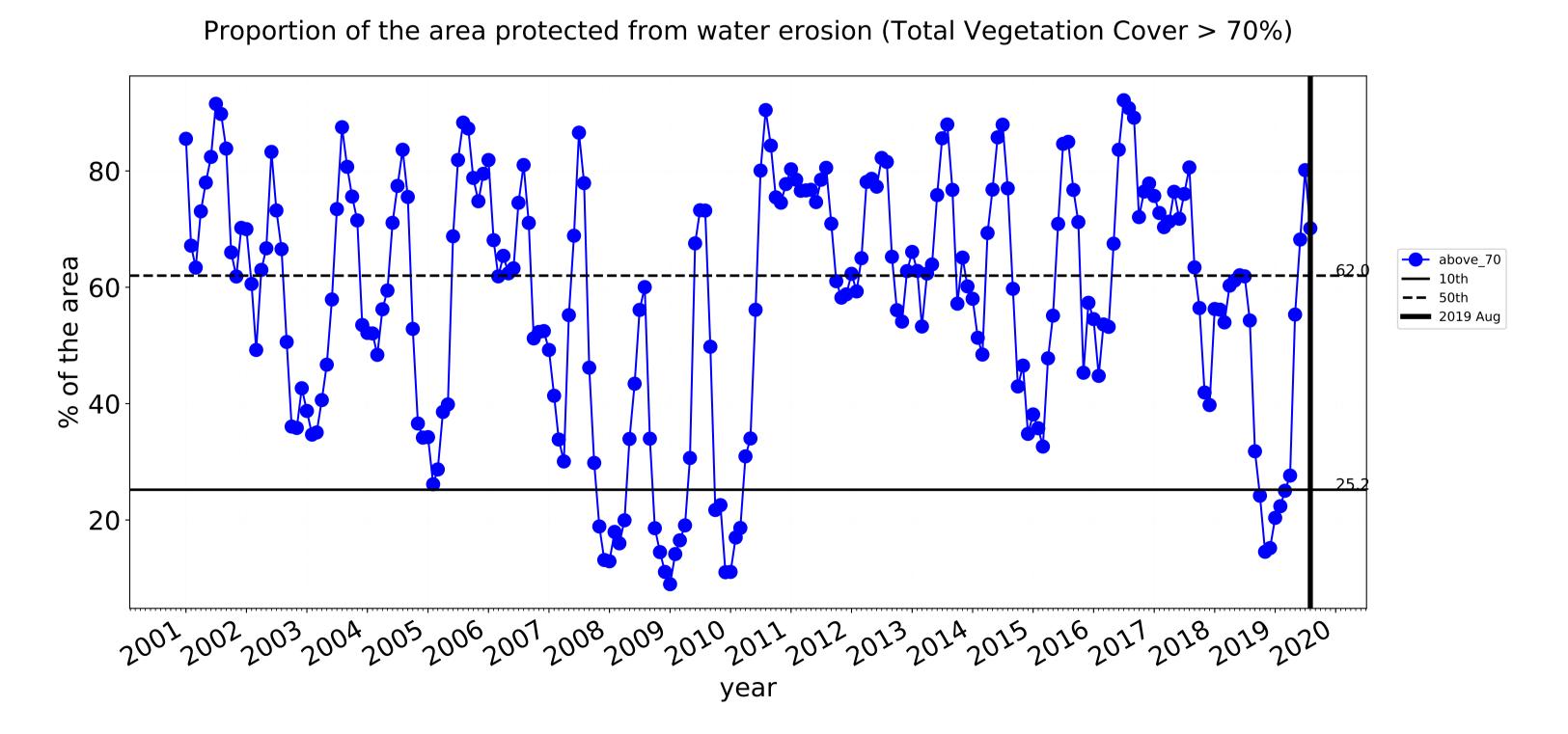
0-30%

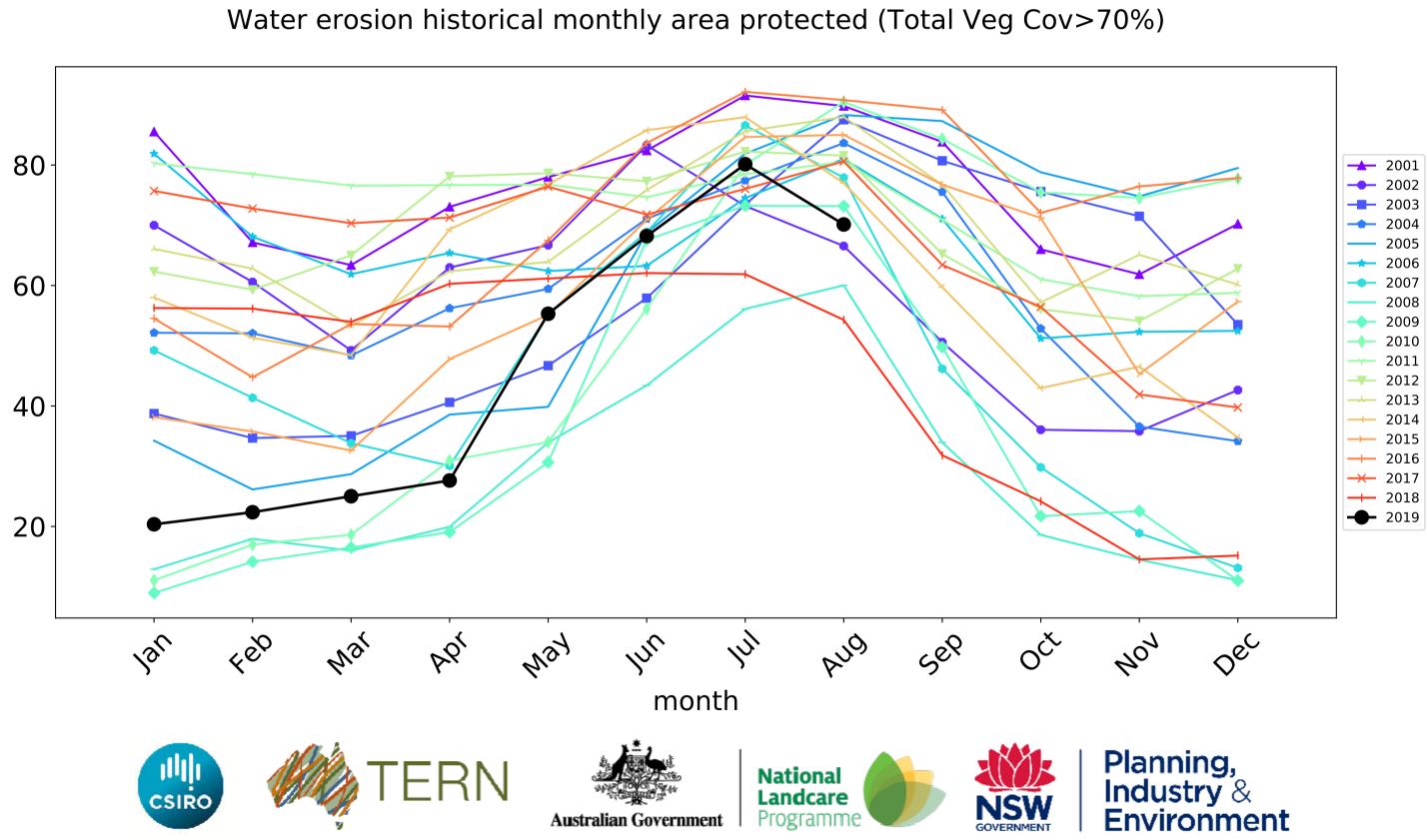










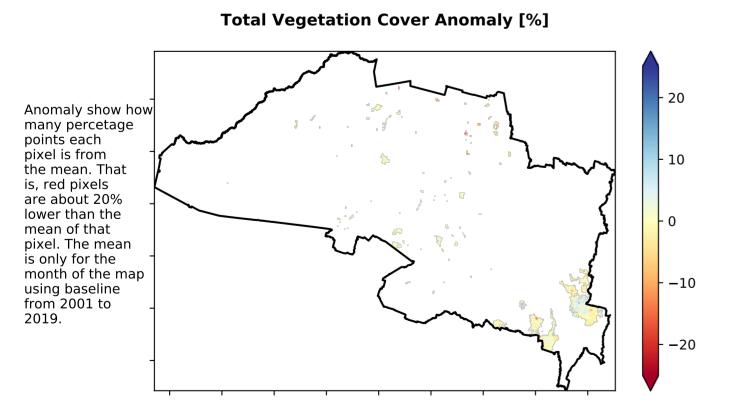


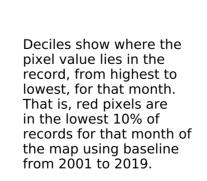
Production native forests and plantation forests

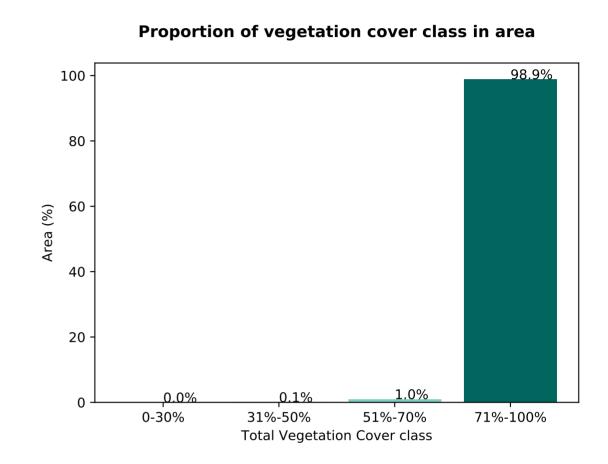
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) I Production native forests and plantation forests of Australia (2018)

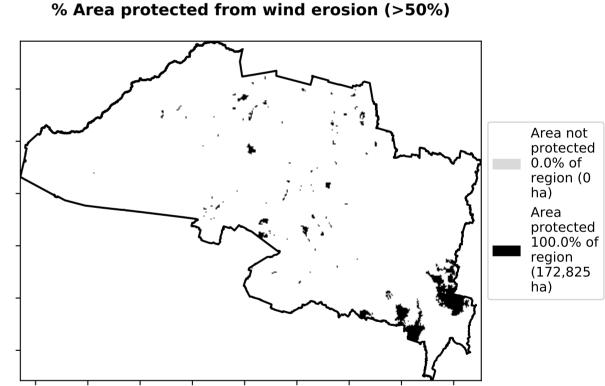
Total Vegetation Cover [%]

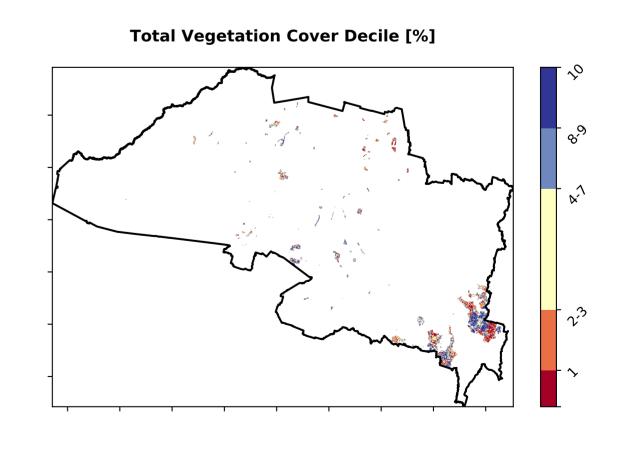
Area not protected 1.1% of region (1,901 ha) Area protected 98.9% of region (170,923 ha)















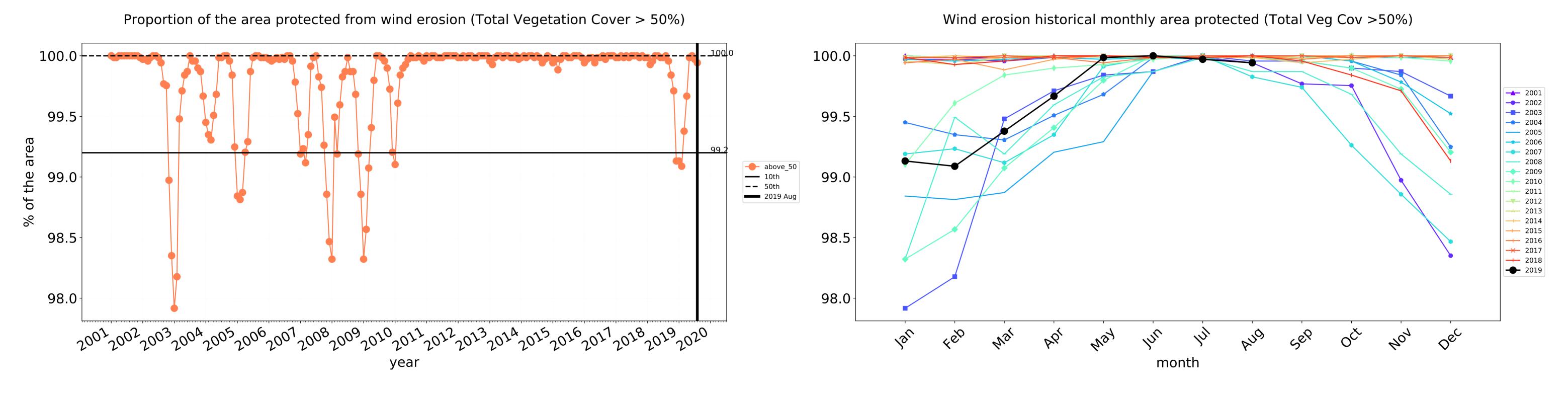


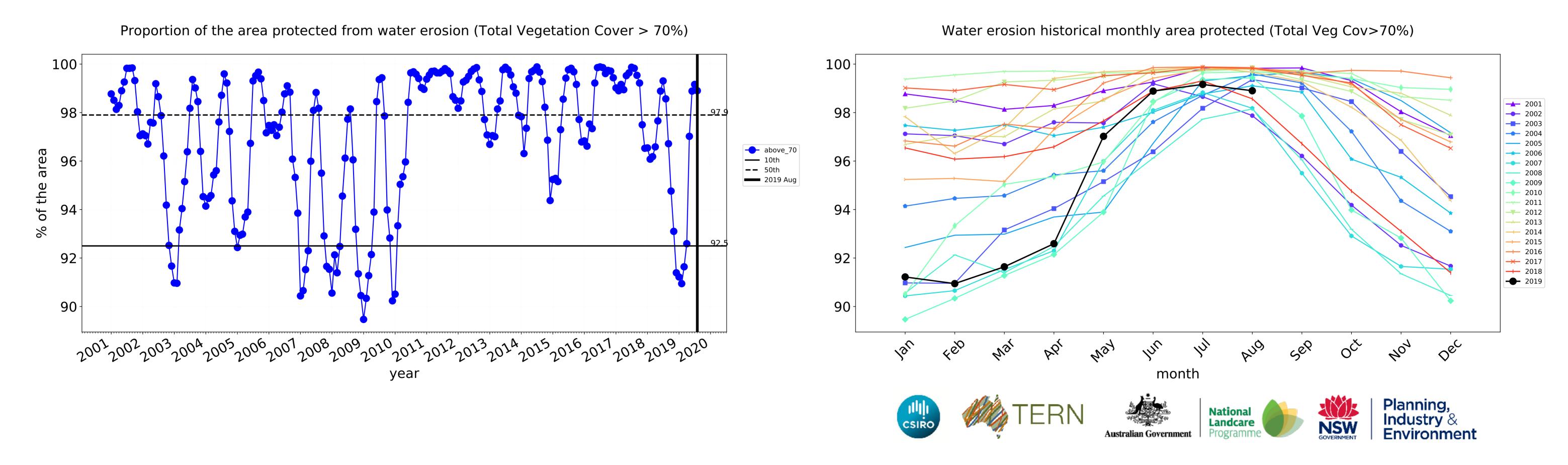






Production native forests and plantation forests timeseries





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% 6,684,625	98.7% 6,602,550	82.6% 5,524,550	63.5% 4,243,650	28.6% 1,910,325	11.7% 782,625
Conservation and natural environments	322,350	100.0% 322,350	99.5% 320,825	91.4% 294,650	82.5% 265,975	63.9% 205,875	28.0% 90,400
Conservation and natural environments non forest	83,125	100.0% 83,125	98.2% 81,625	67.4% 56,000	36.5% 30,350	11.5% 9,525	5.4% 4,450
Conservation and natural environments Forest (non woodland)	194,725	100.0% 194,725	100.0% 194,725	99.9% 194,525	99.2% 193,150	88.0% 171,300	40.7% 79,200
Agriculture	6,062,225	100.0% 6,059,275	98.7% 5,982,375	81.9% 4,964,725	61.9% 3,755,350	25.7% 1,557,925	10.1% 611,500
Grazing	2,306,025	99.9% 2,303,475	98.0% 2,259,950	74.8% 1,725,050	51.2% 1,180,625	18.0% 413,975	4.5% 104,375
Grazing non forest	2,061,025	99.9% 2,058,475	97.8% 2,015,075	72.1% 1,485,925	47.0% 967,825	15.2% 313,750	3.8% 78,525
Grazing Woodland forest	141,650	100.0% 141,650	99.9% 141,525	96.2% 136,300	81.4% 115,250	30.1% 42,700	6.3% 8,900
Grazing - Forest (non woodland)	103,350	100.0% 103,350	100.0% 103,350	99.5% 102,825	94.4% 97,550	55.7% 57,525	16.4% 16,950
Cropping	3,186,875	100.0% 3,186,800	99.2% 3,162,525	89.1% 2,840,900	74.6% 2,375,825	34.9% 1,113,075	15.7% 499,100
Irrigation	567,500	99.9% 567,175	98.4% 558,200	70.1% 398,000	35.0% 198,550	5.4% 30,800	1.4% 8,025
Production native forests and plantation forests	172,825	100.0% 172,825	99.9% 172,725	98.9% 170,925	95.7% 165,350	78.4% 135,500	45.3% 78,325











