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: December 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







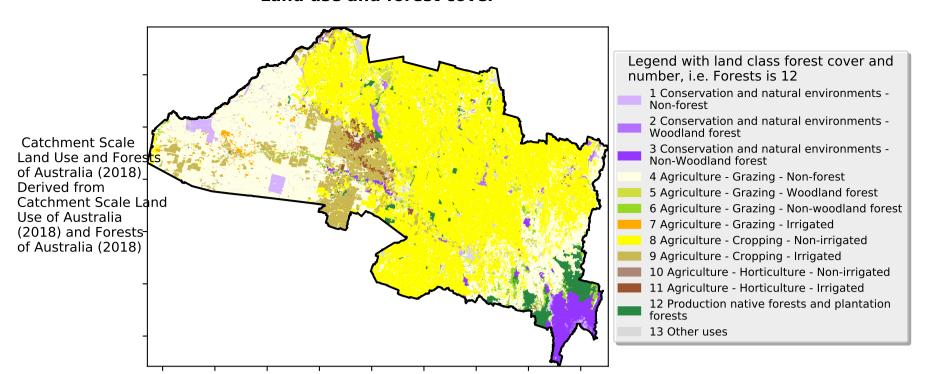




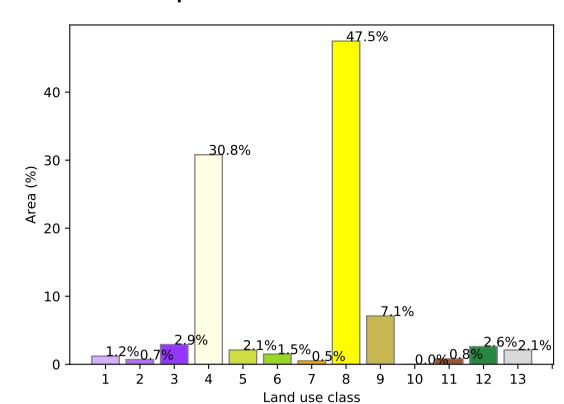


Vegetation Cover Dec 2019

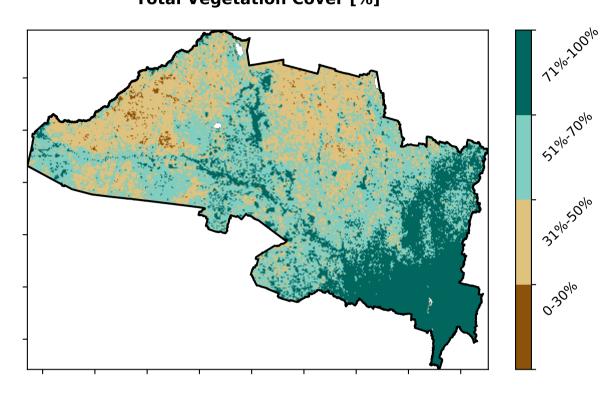
Land use and forest cover



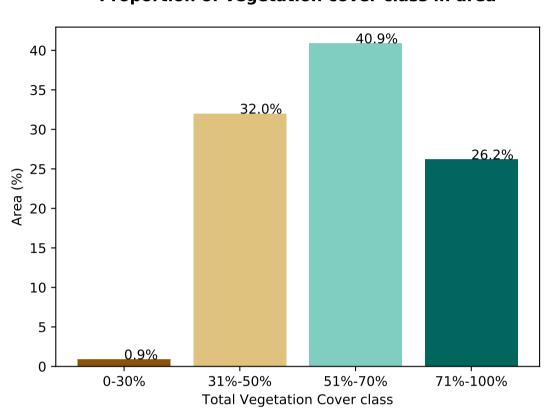
Proportion of each land class in area



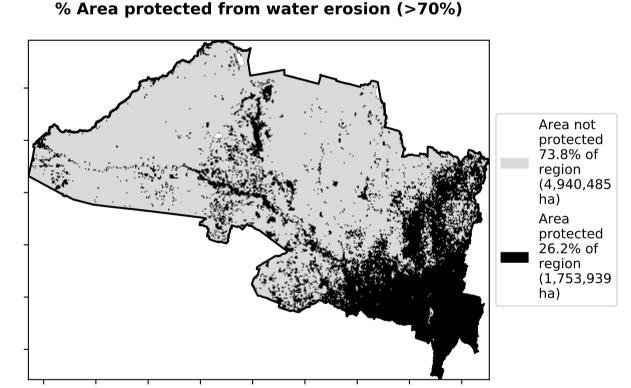
Total Vegetation Cover [%]



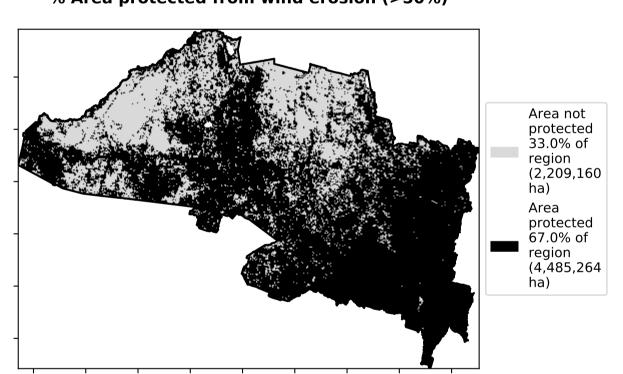
Proportion of vegetation cover class in area



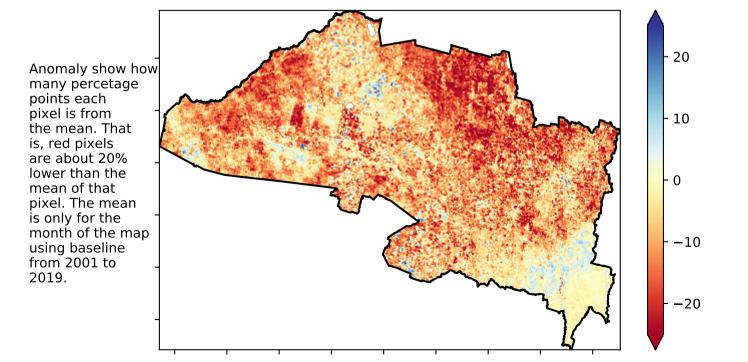
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% Area protected from wind erosion (>50%)



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 [%]



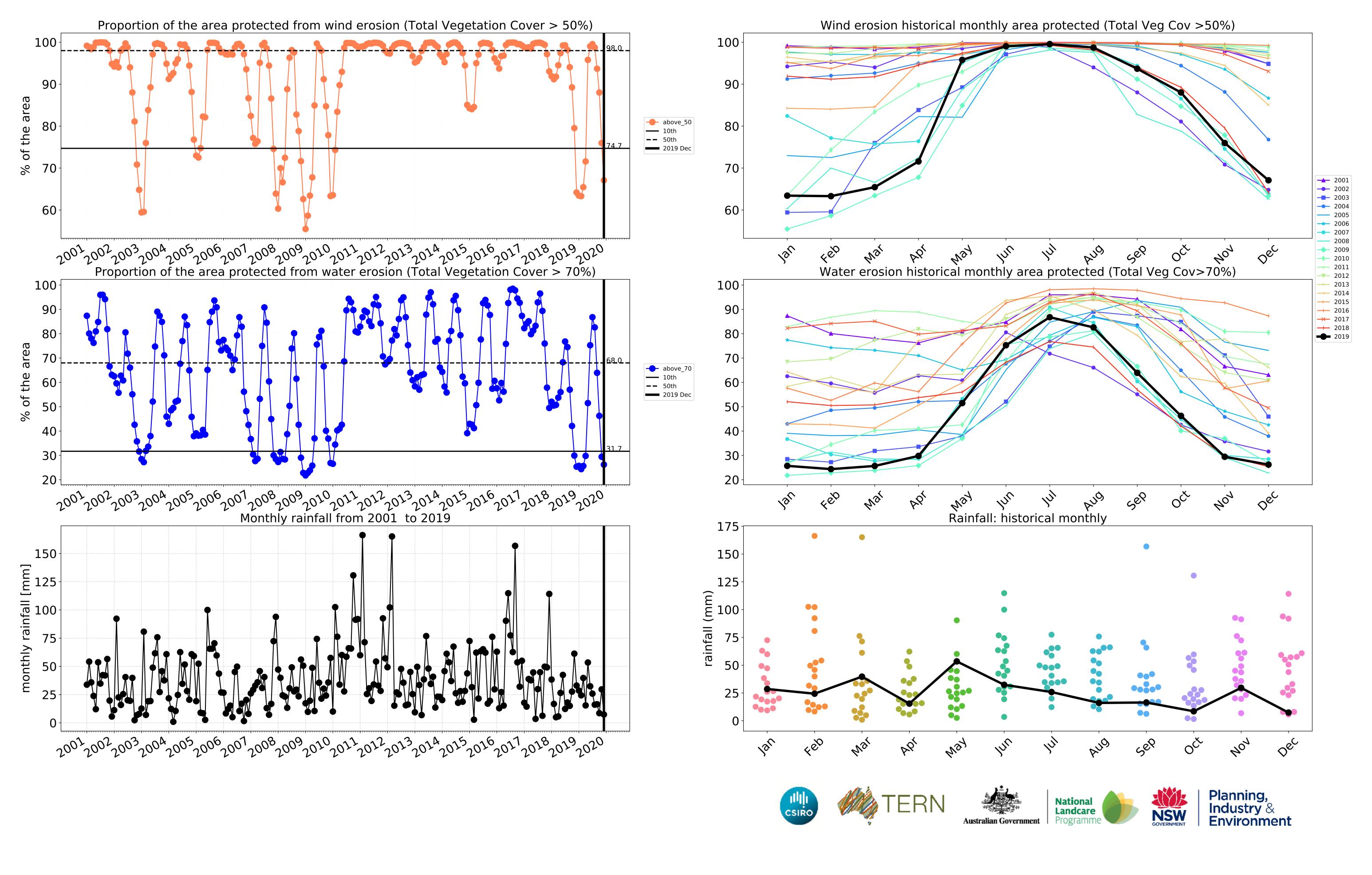




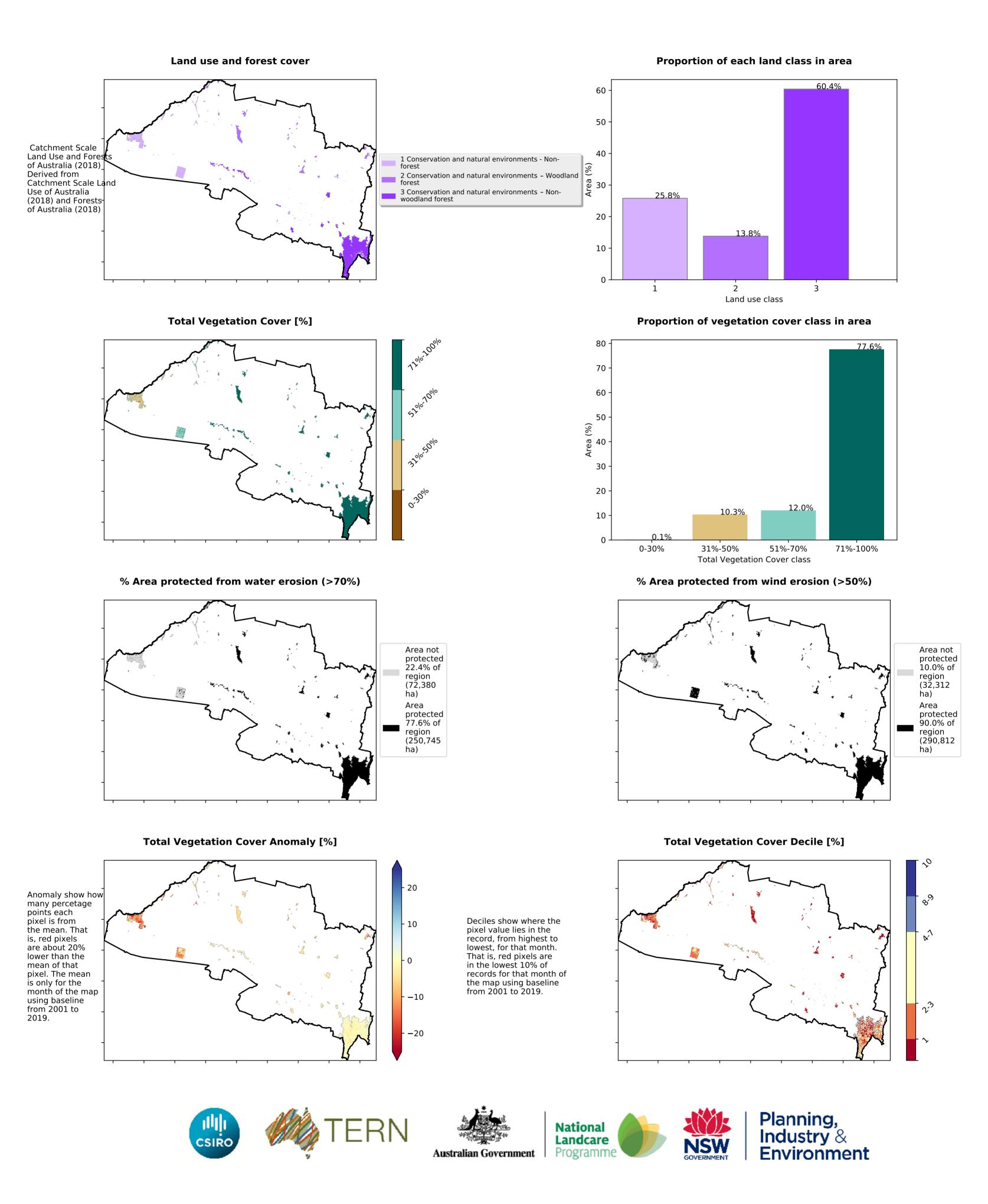




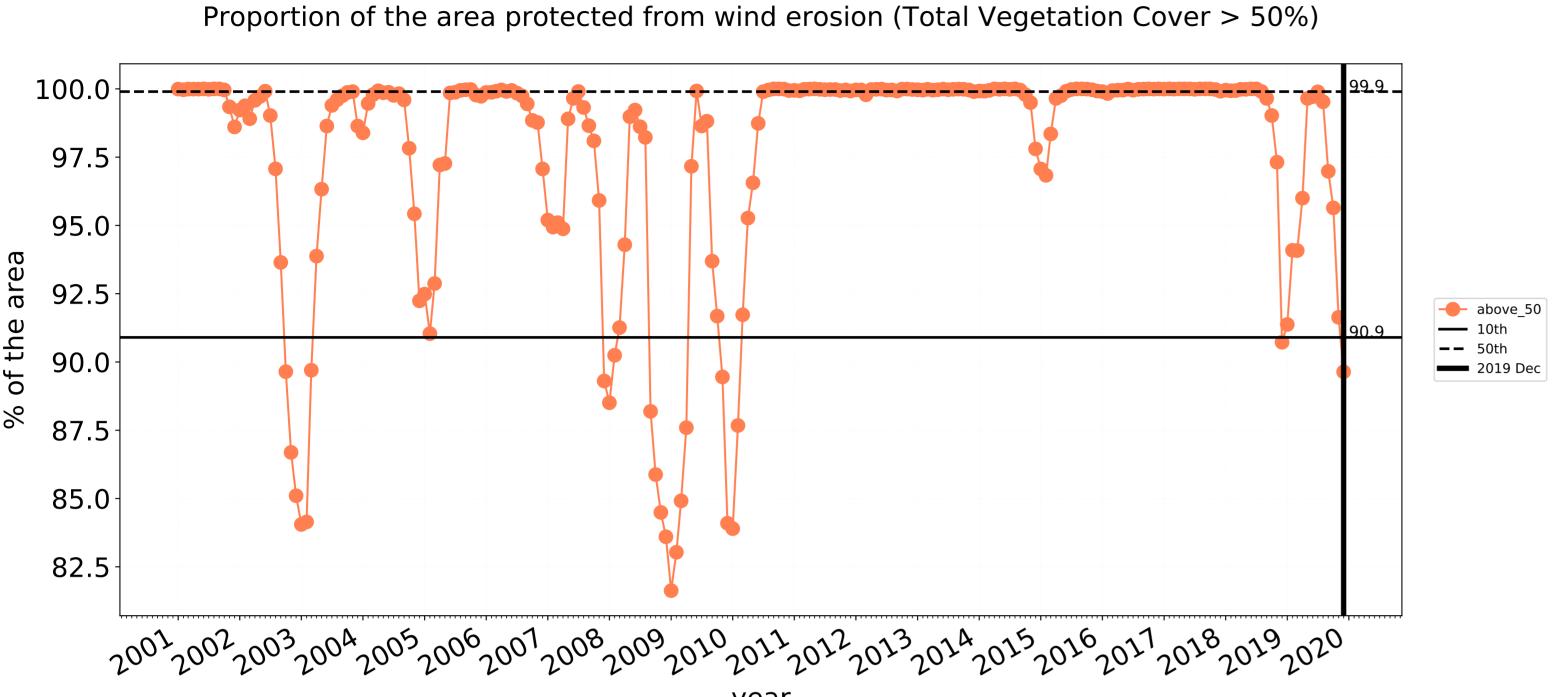


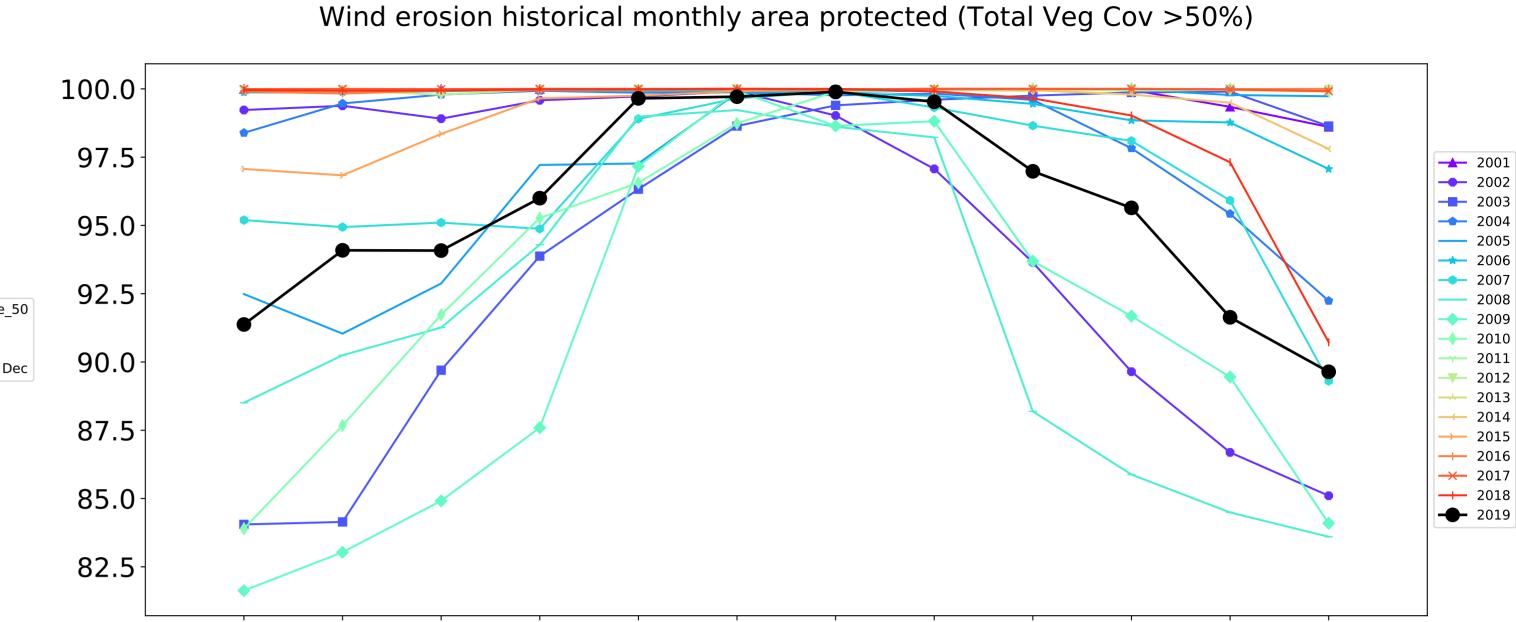


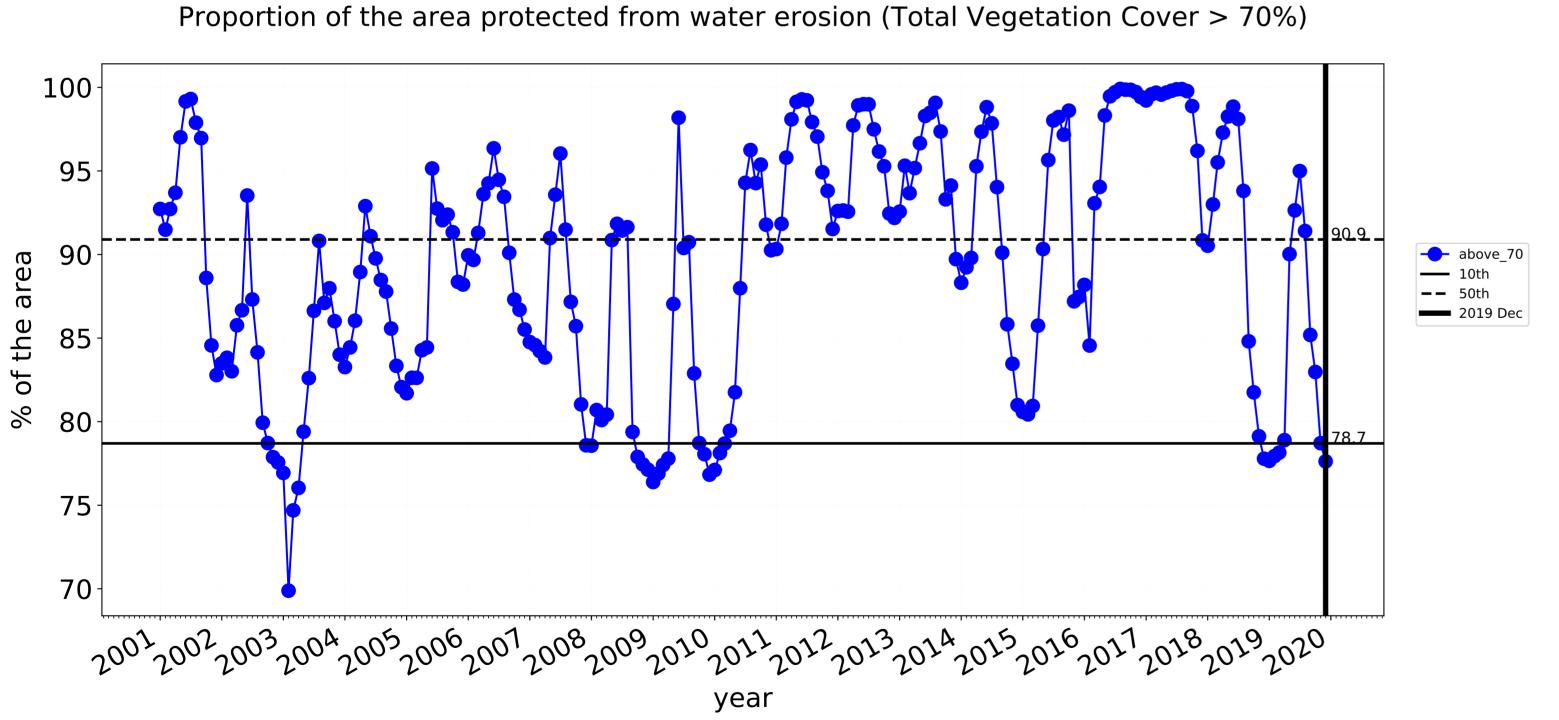
Conservation and natural environments

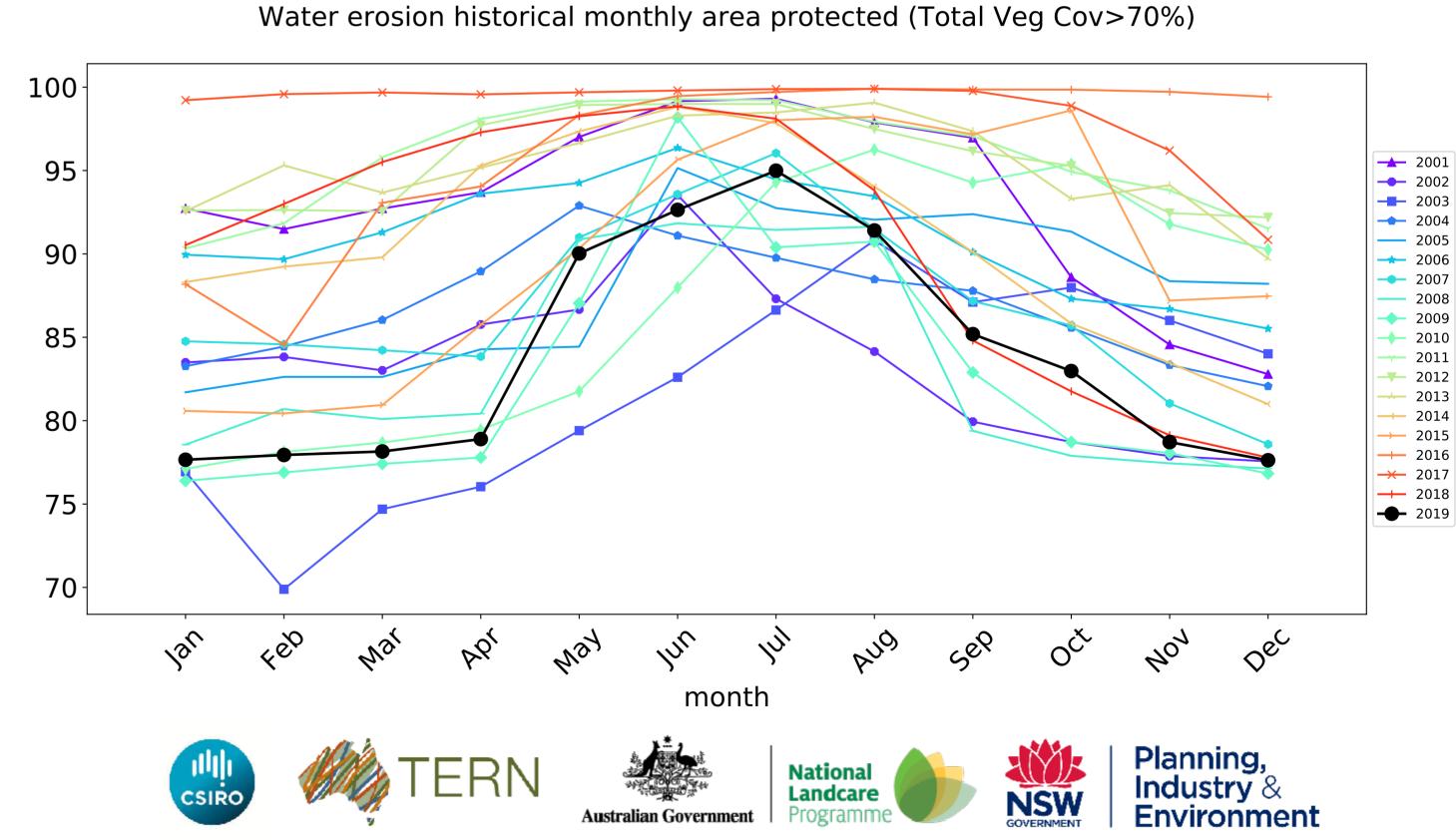


Conservation and natural environments timeseries







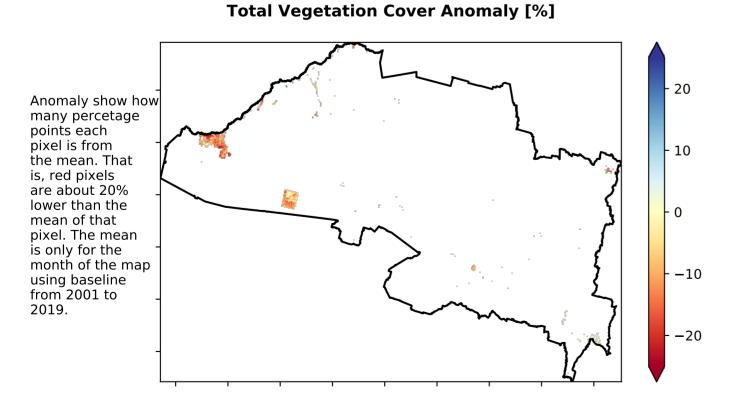


Conservation and natural environments non forest

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

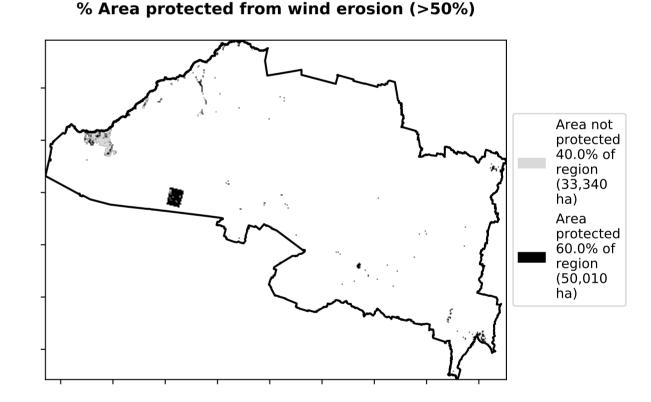
Total Vegetation Cover [%]

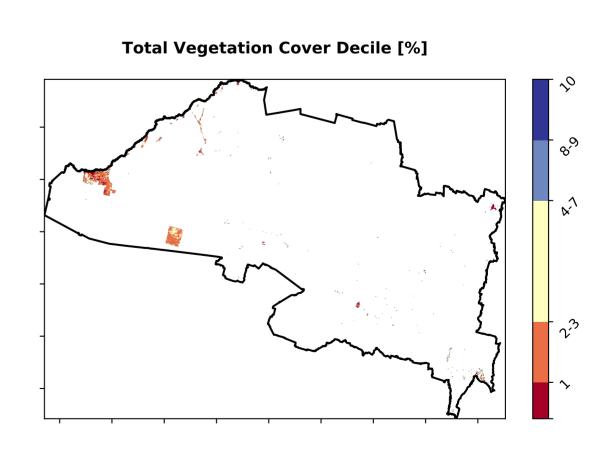
% Area protected from water erosion (>70%) Area not protected 80.1% of region (66,763 ha) Area protected 19.9% of region (16,586 ha)



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 40 - 39.5% 40.2% 40.









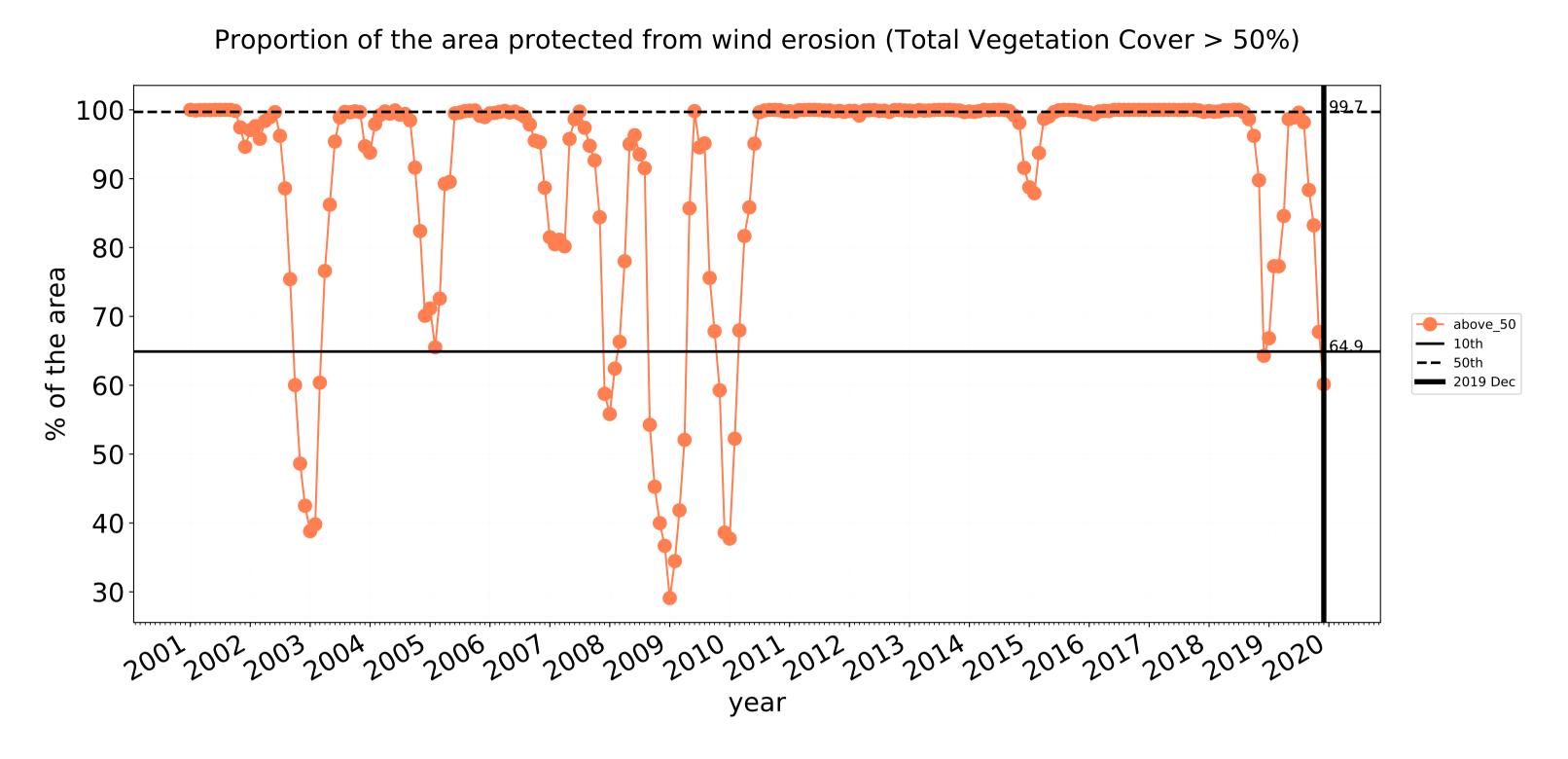


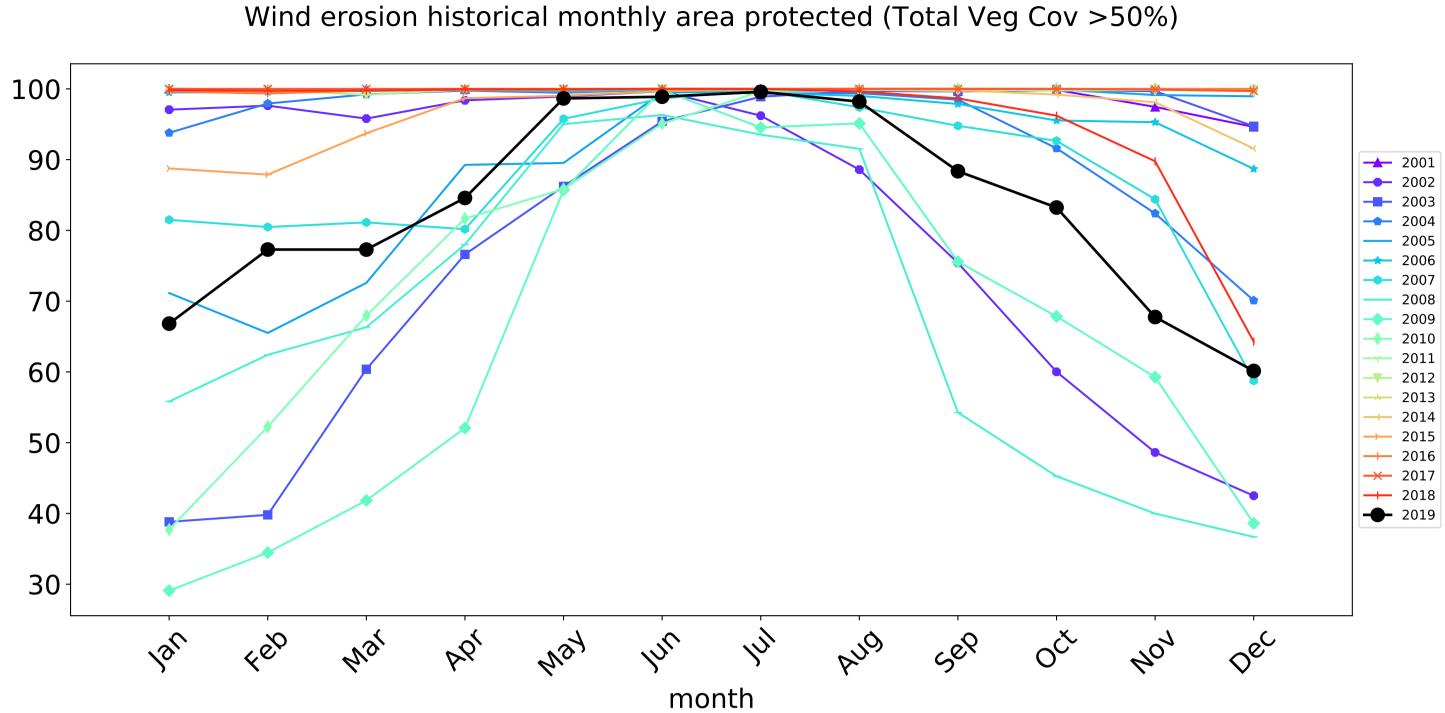


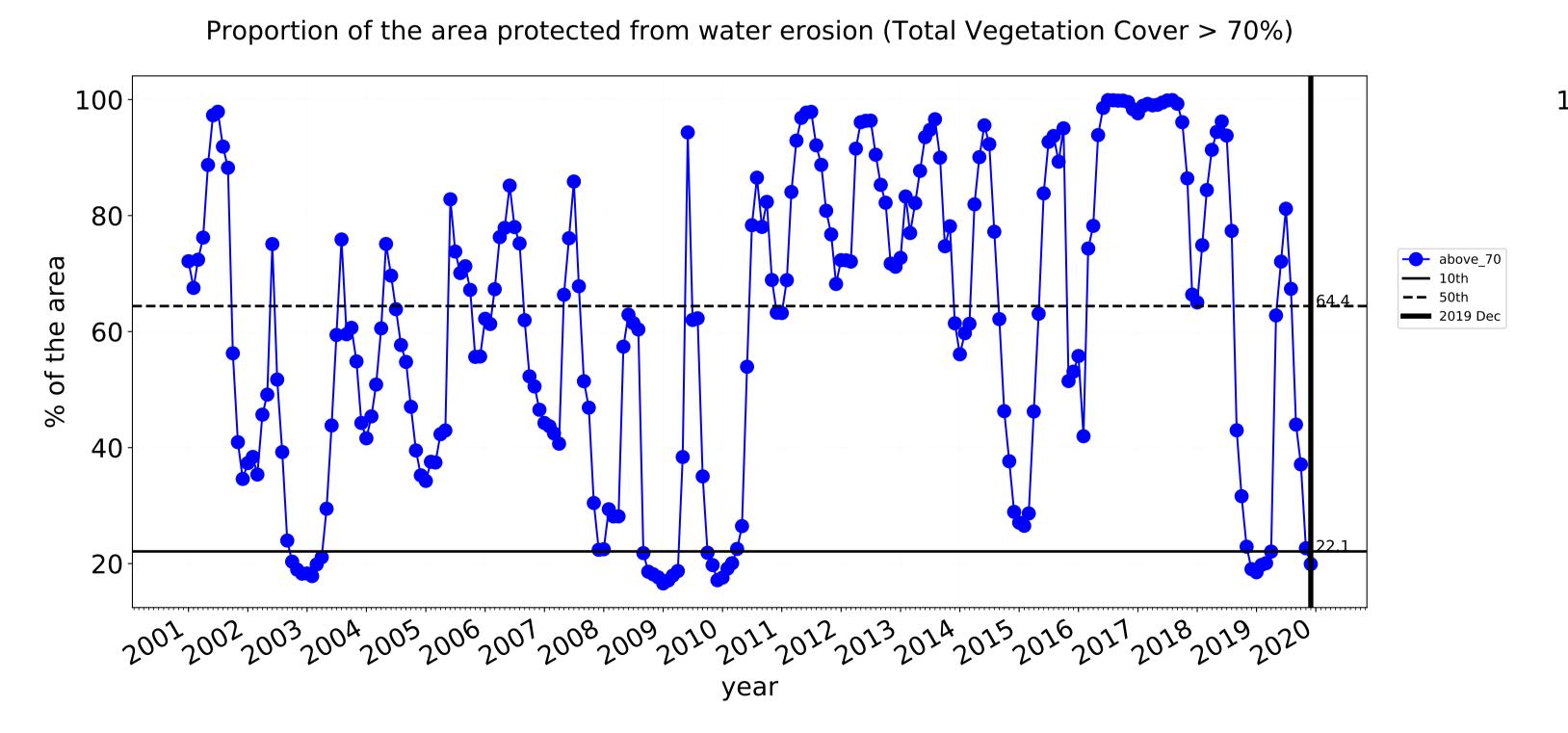


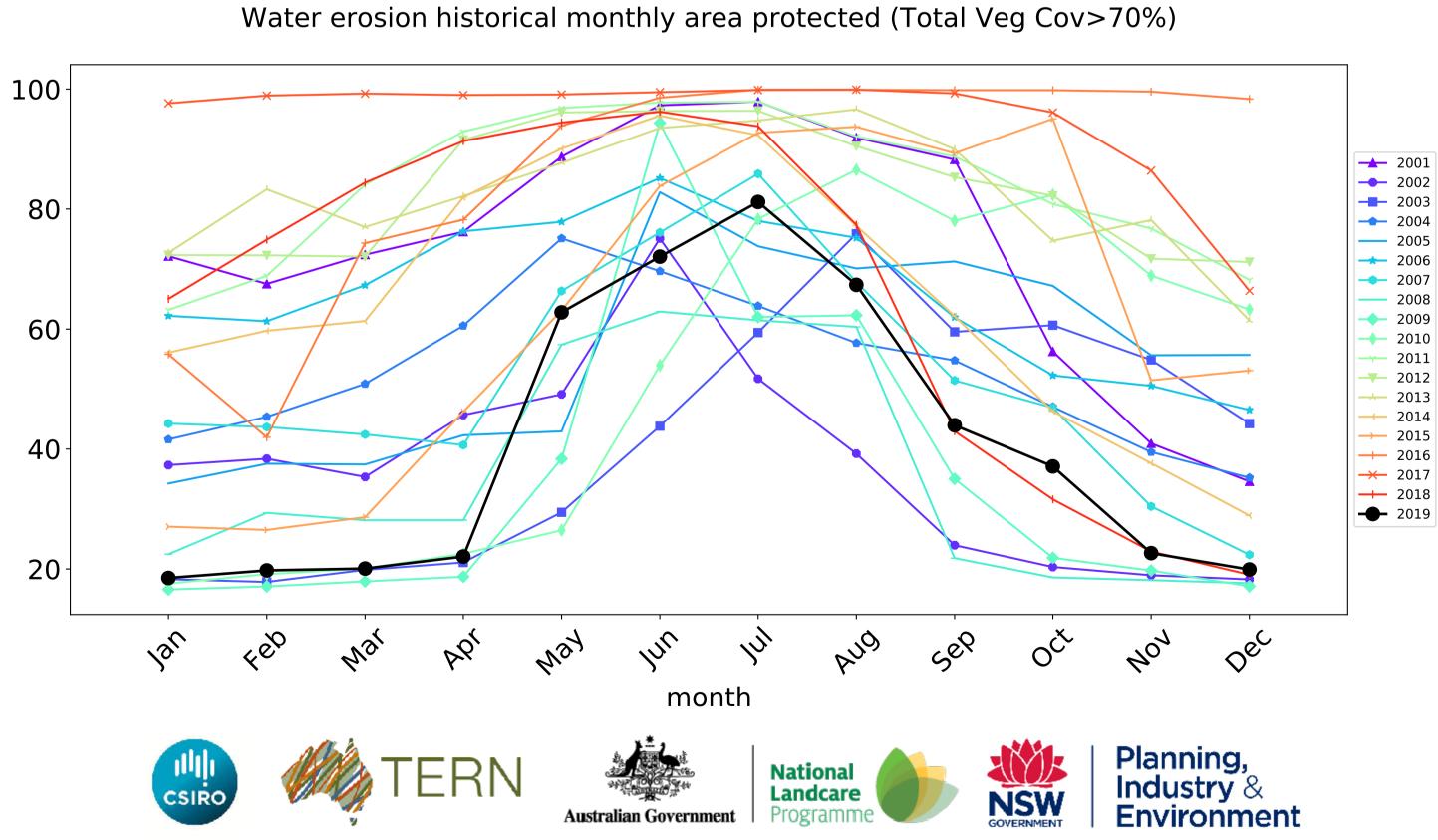


Conservation and natural environments non forest timeseries

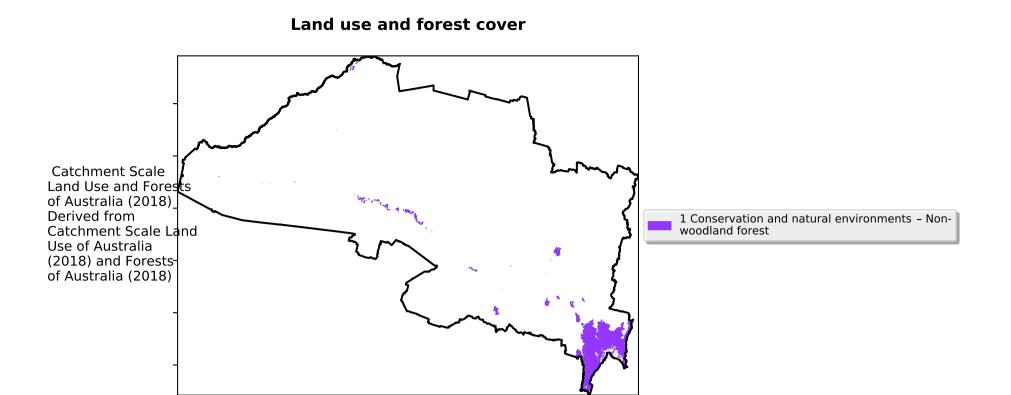




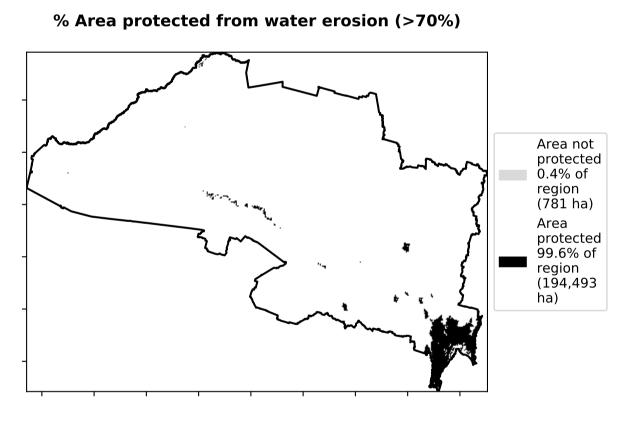


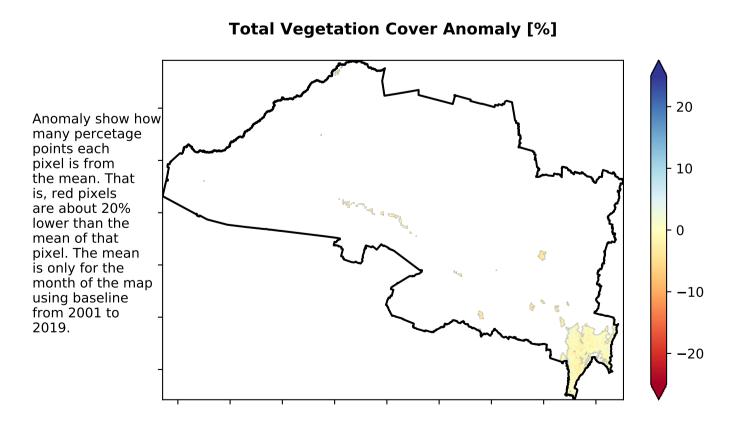


Conservation and natural environments Forest (non woodland)

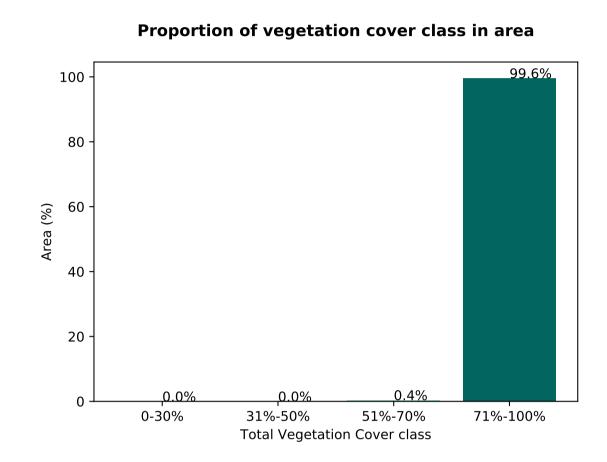


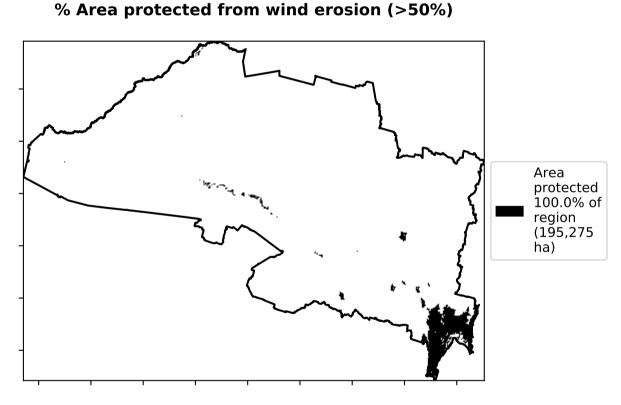
Total Vegetation Cover [%] Total Vegetation Cover [%] Tolographic T

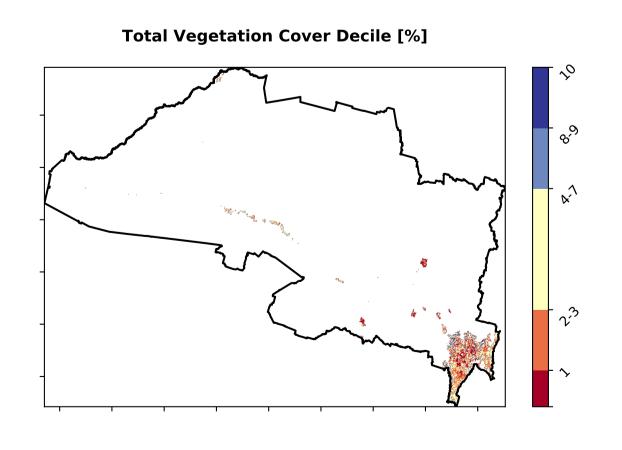




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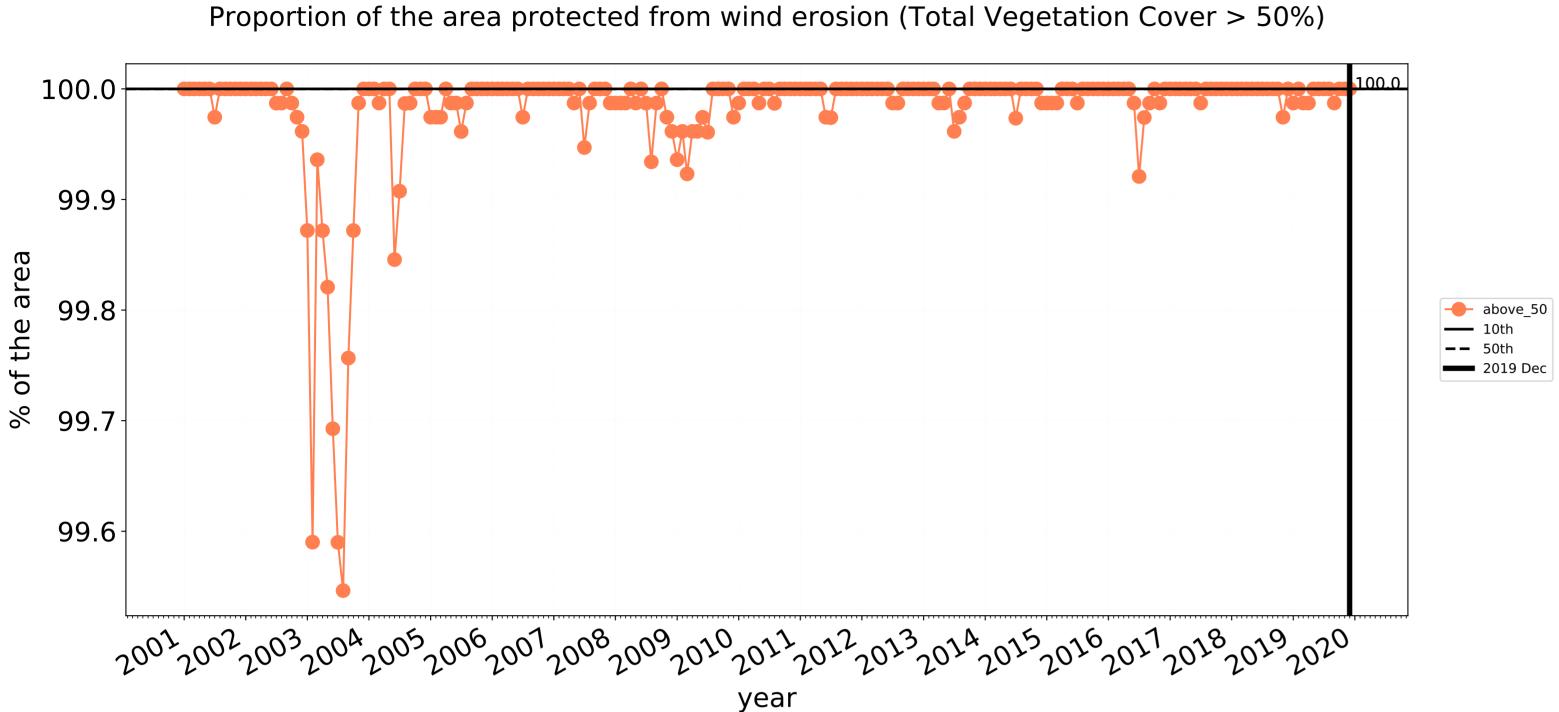


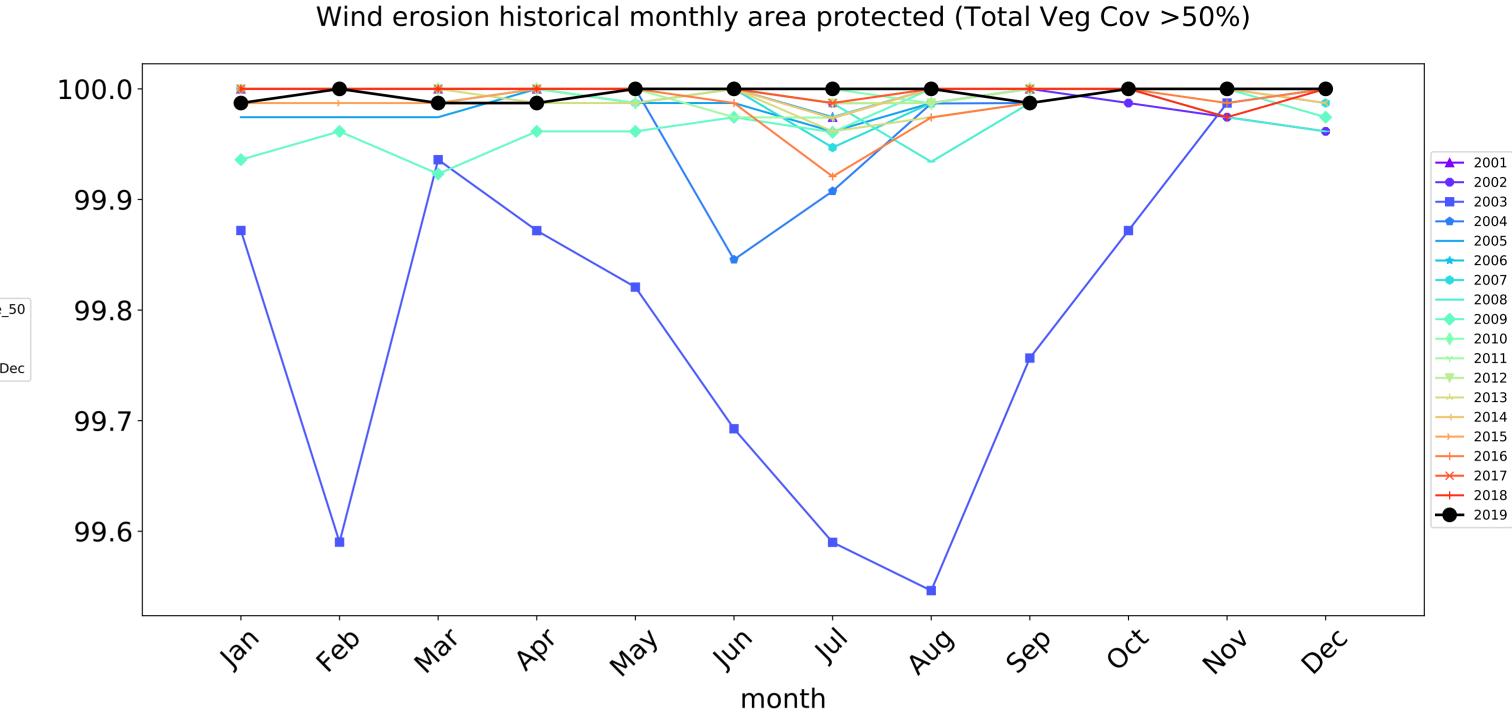


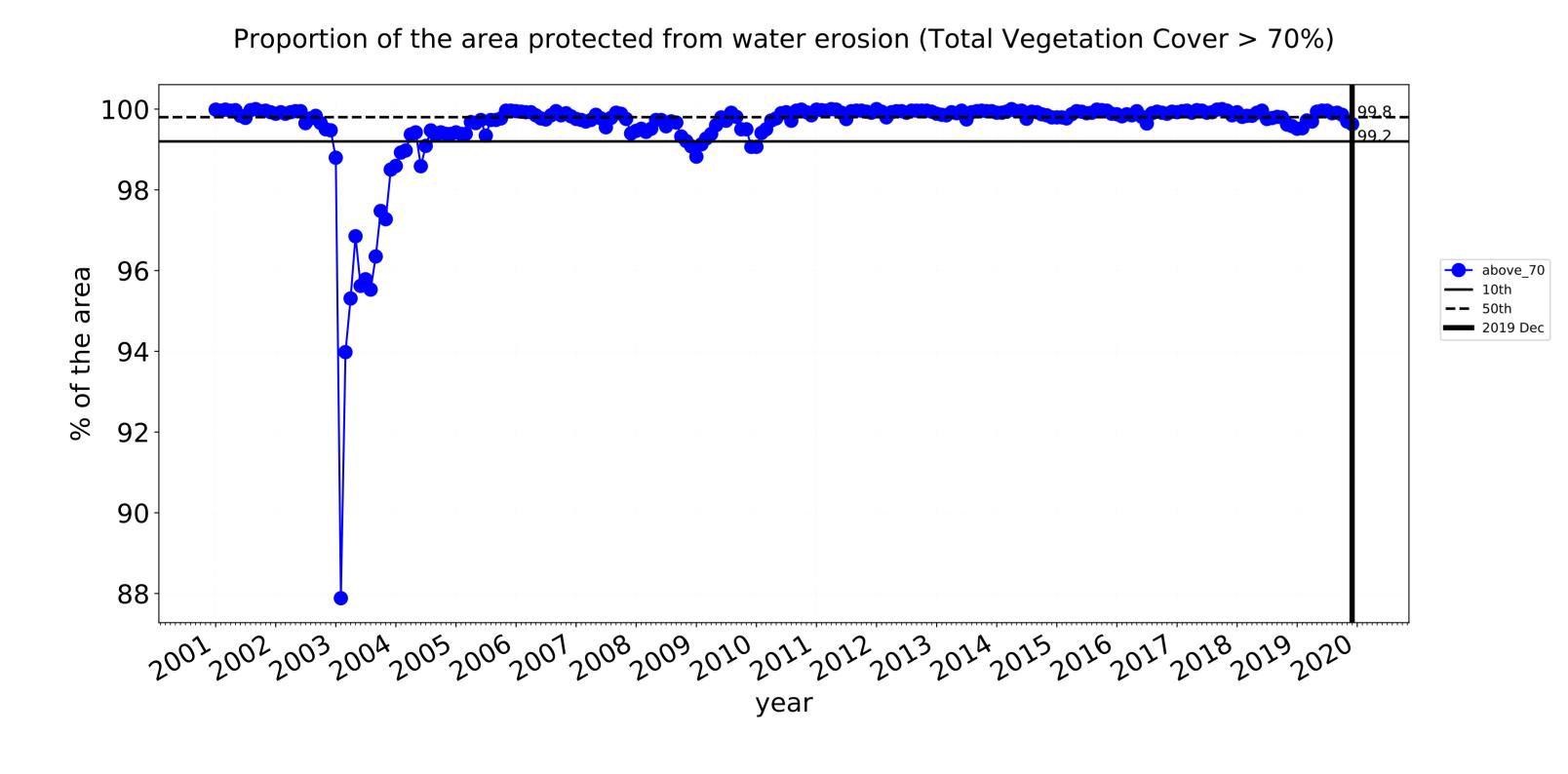


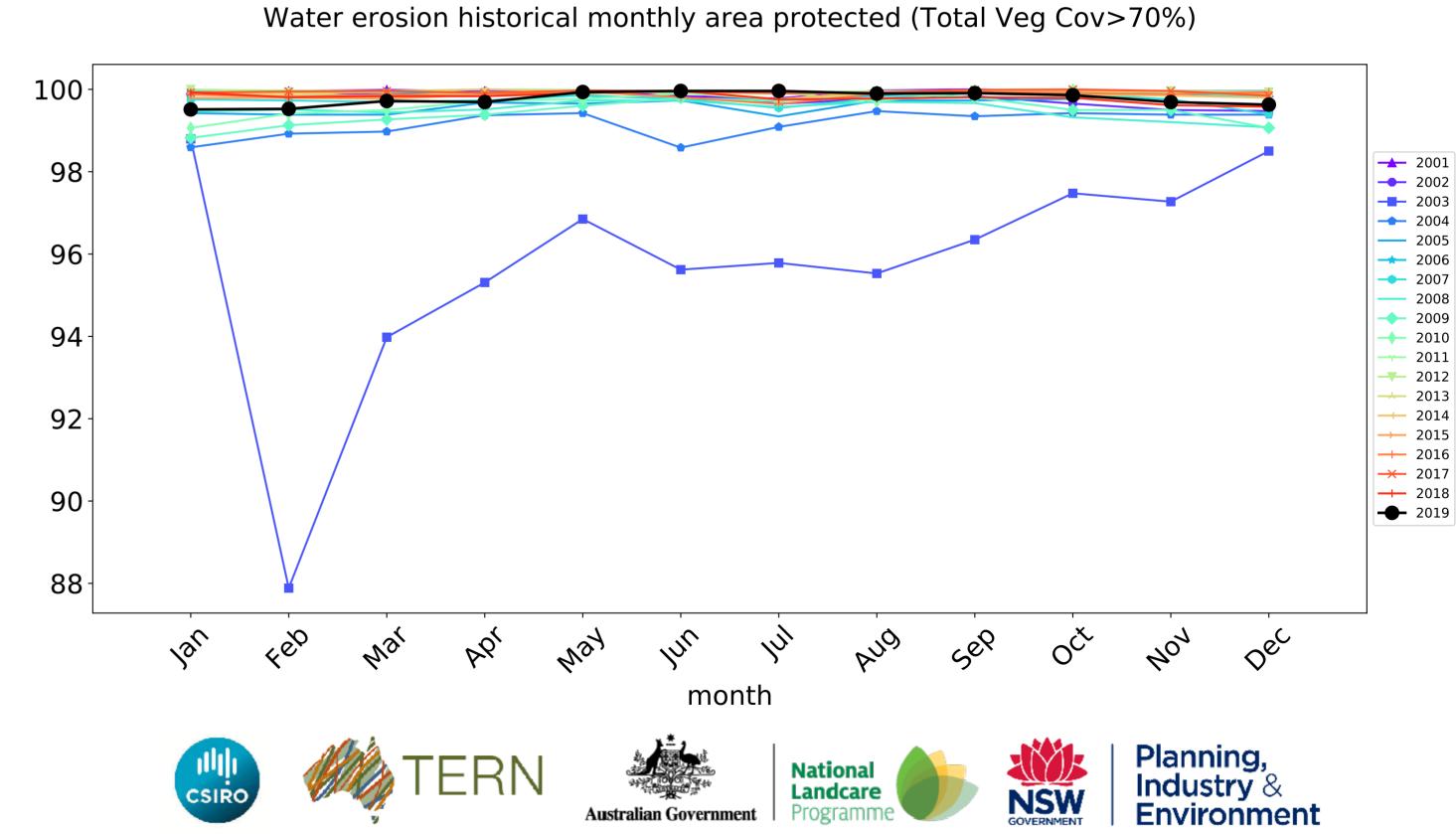












Agriculture

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

Proportion of each land class in area 52.5% 34.1%

Land use class

0.9%

Total Vegetation Cover [%] Proportion of vegetation cover class in area

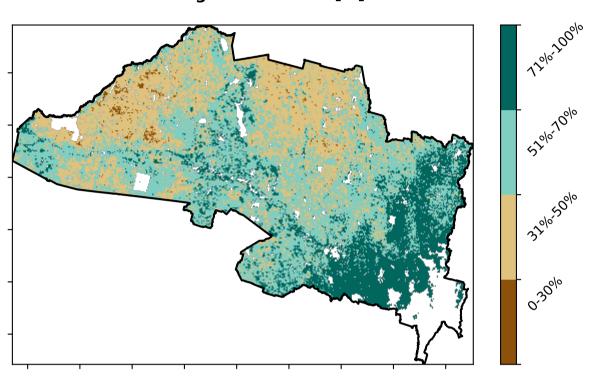
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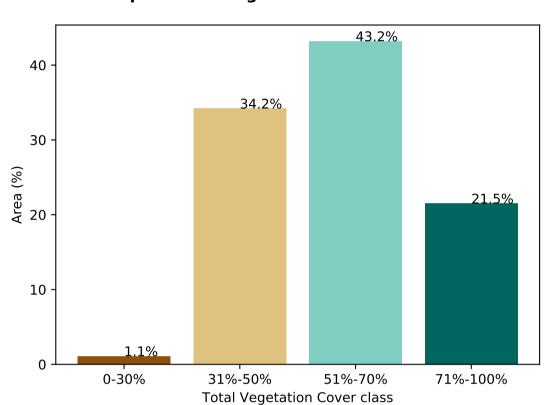
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Area (%) 05

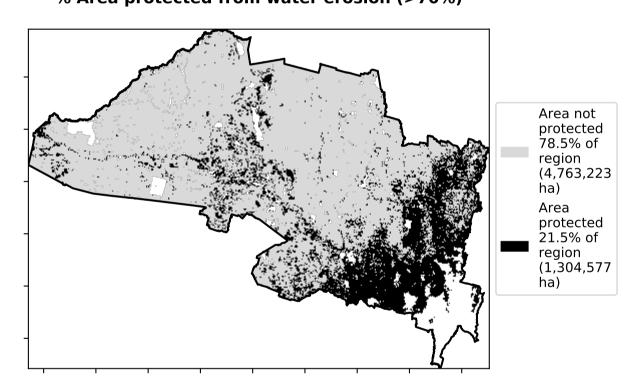
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10

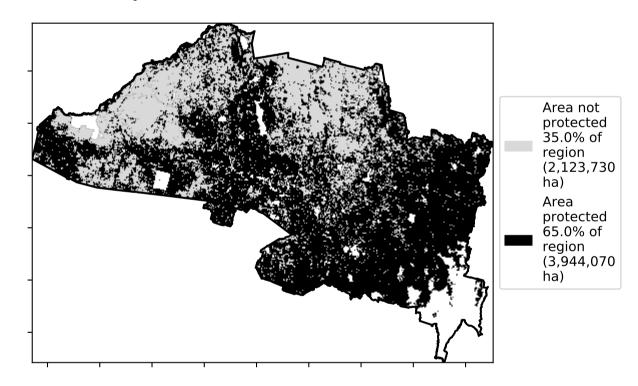




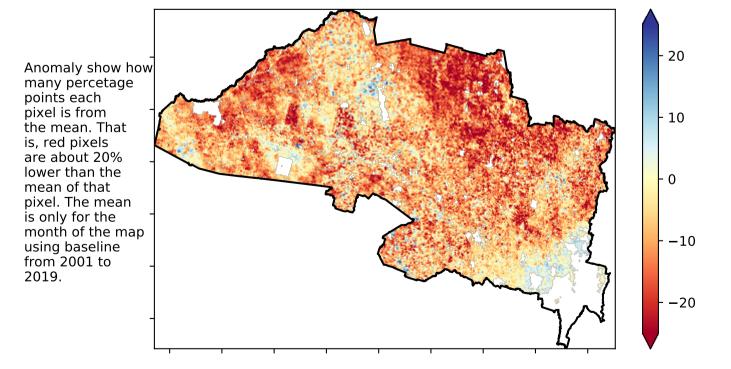
% Area protected from water erosion (>70%)



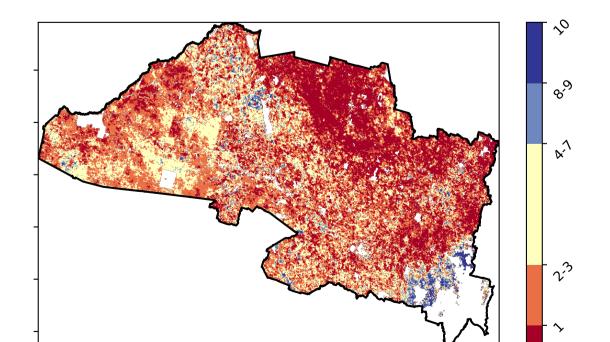
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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Total Vegetation Cover Decile [%]





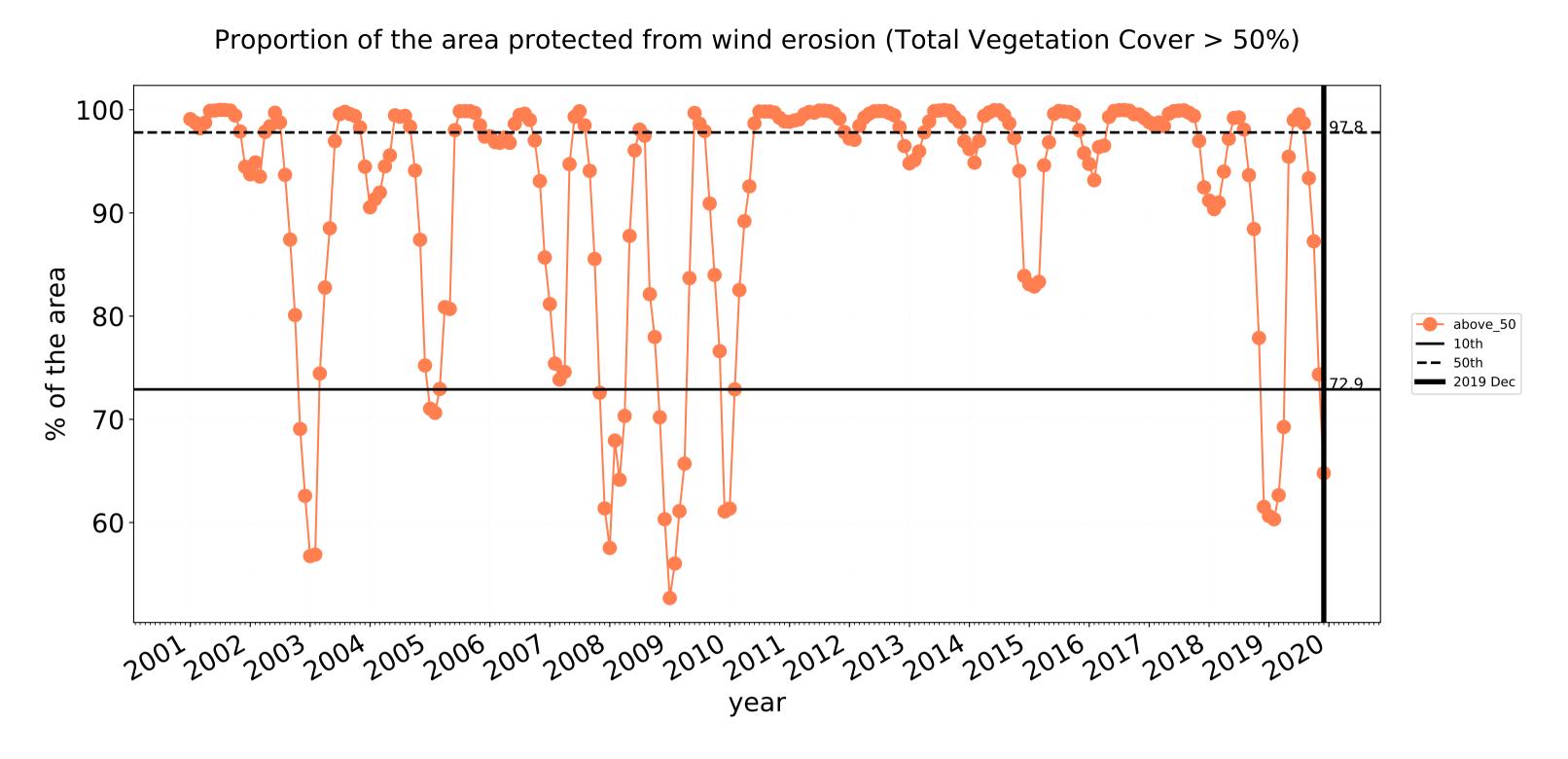


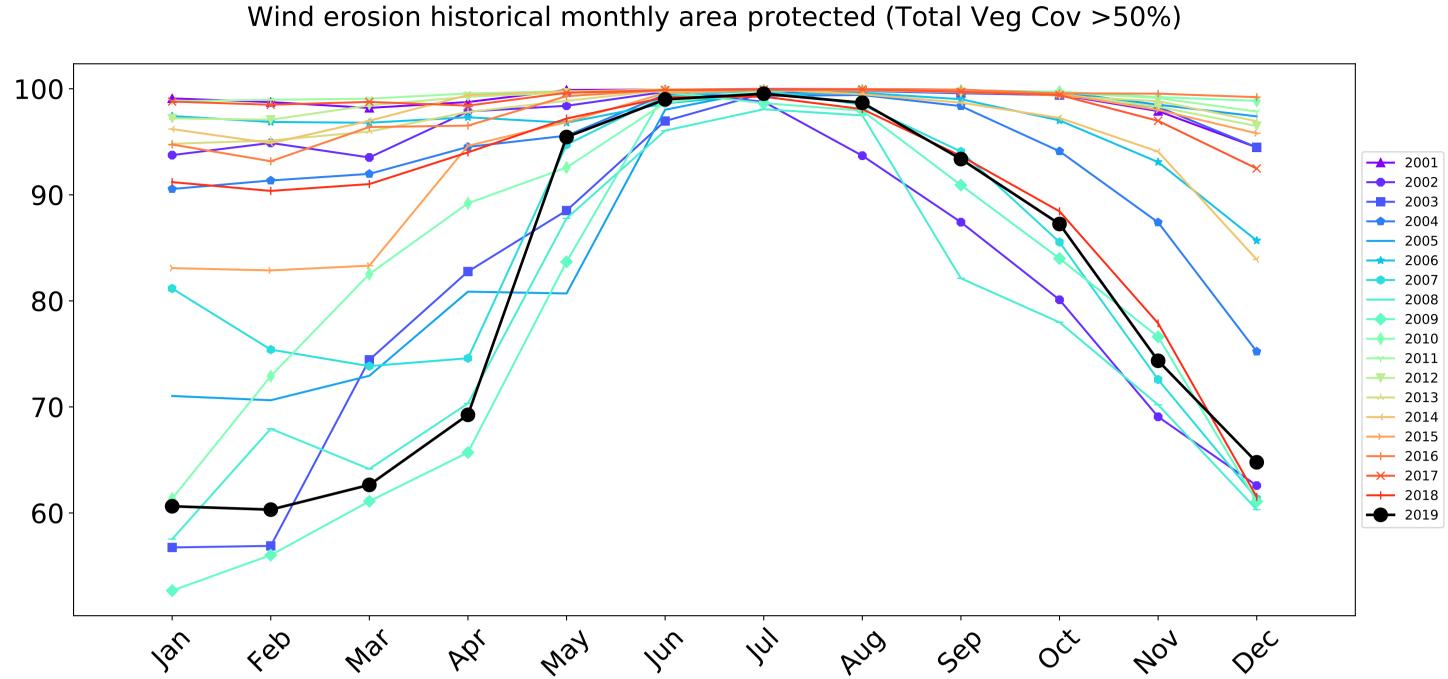






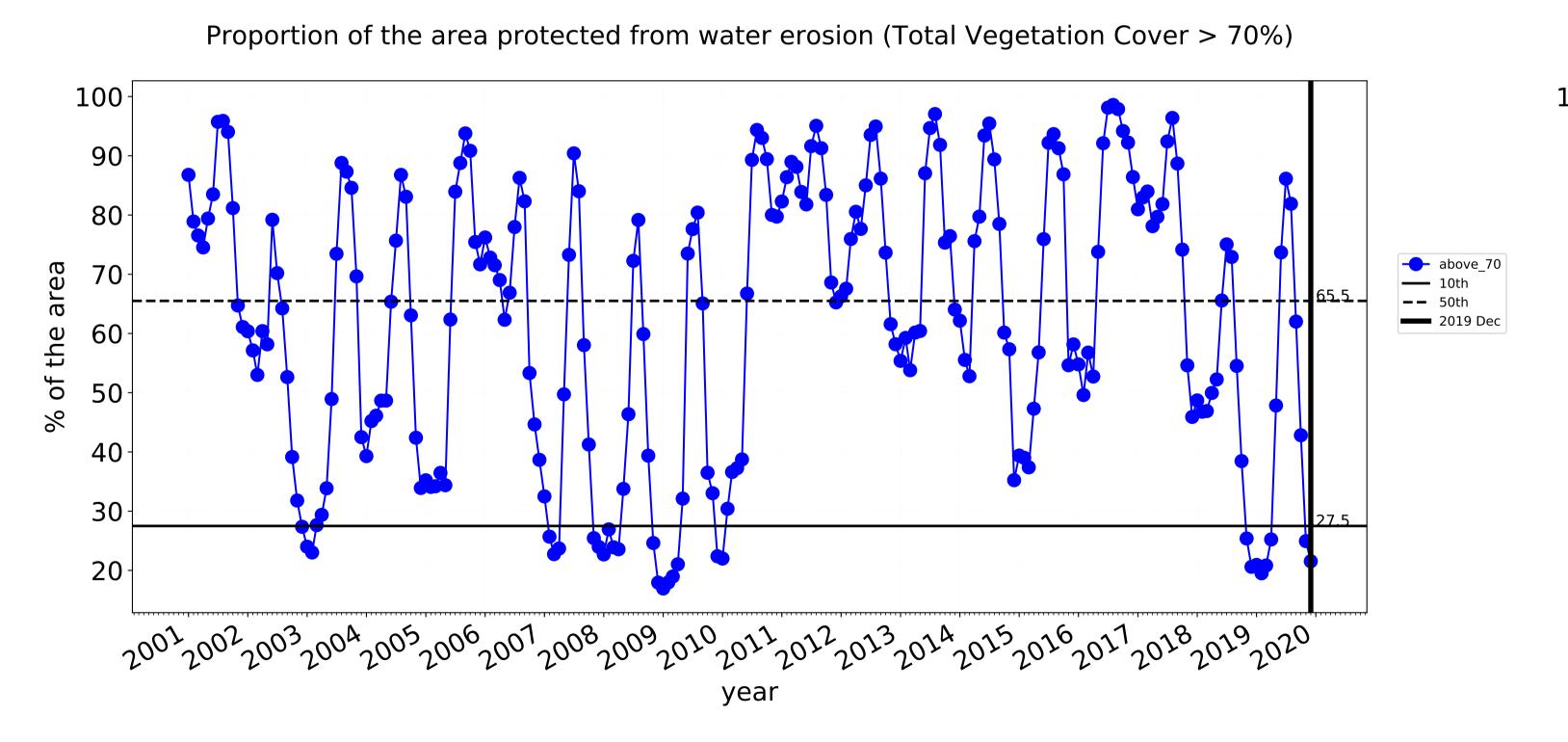
Agriculture timeseries

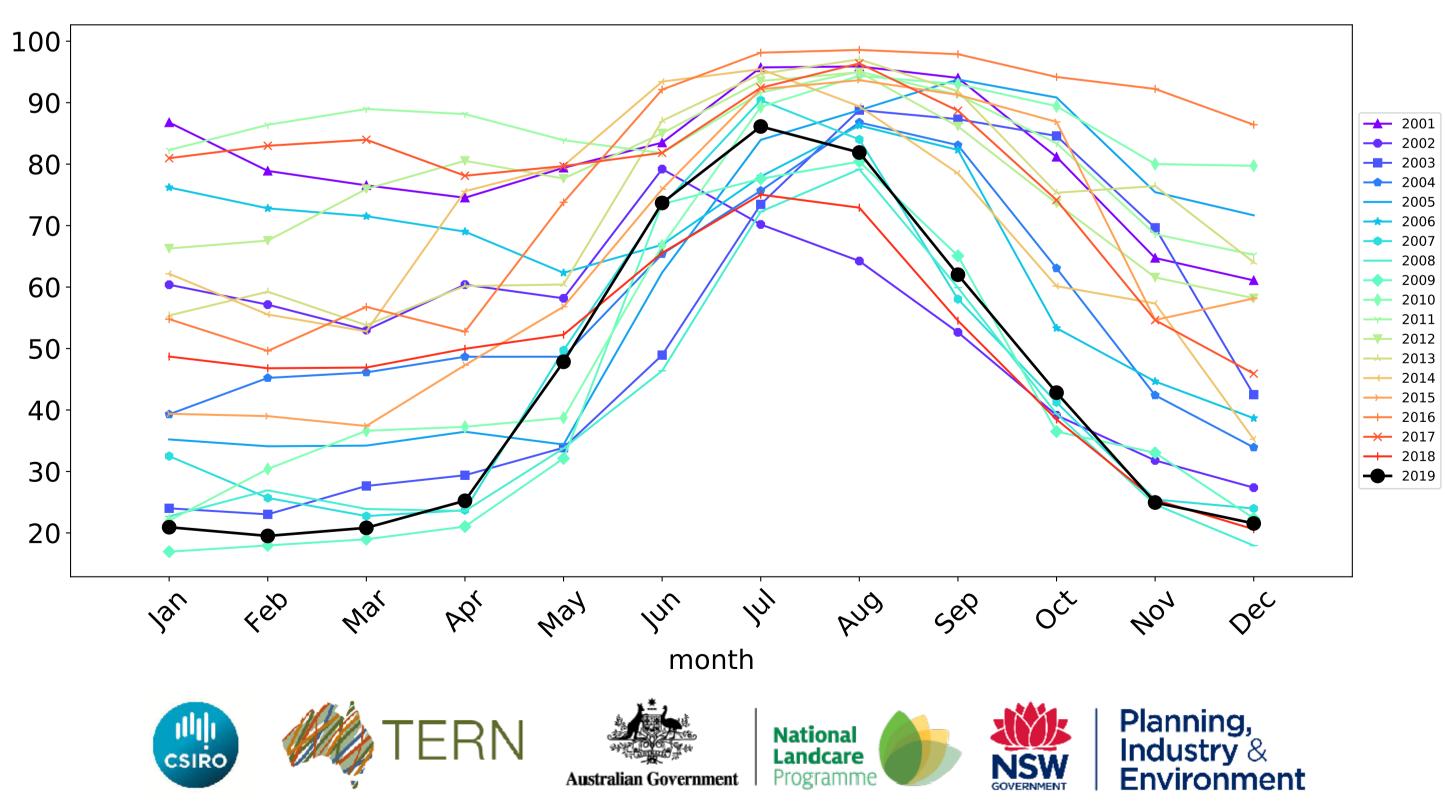




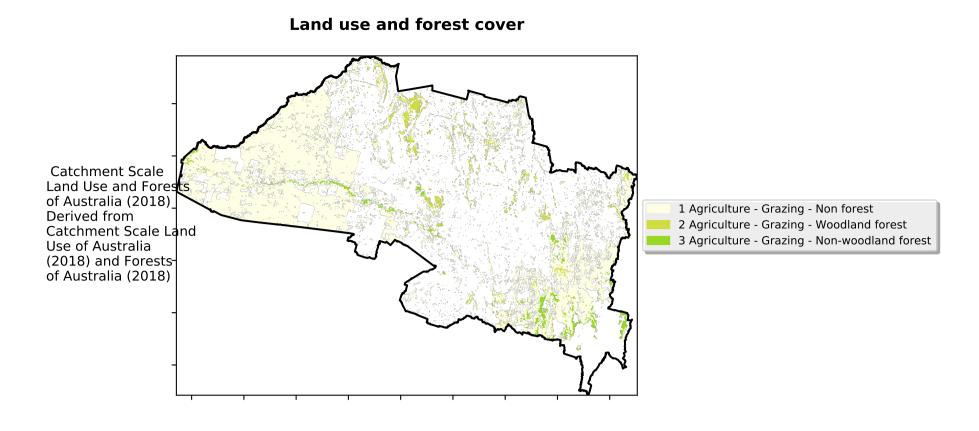
month

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

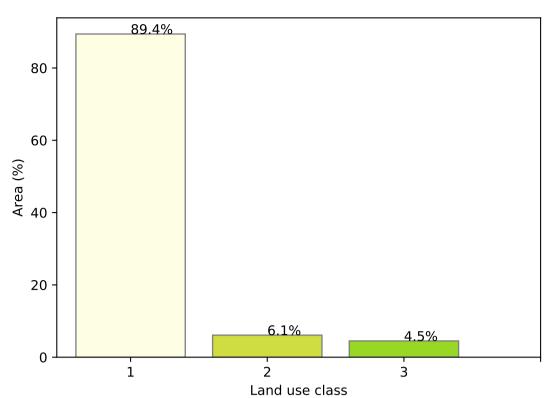




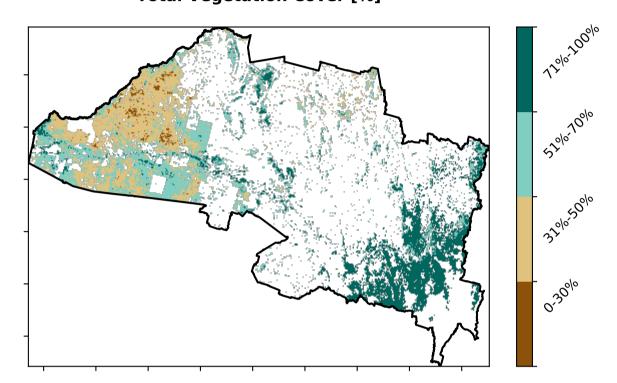
Grazing



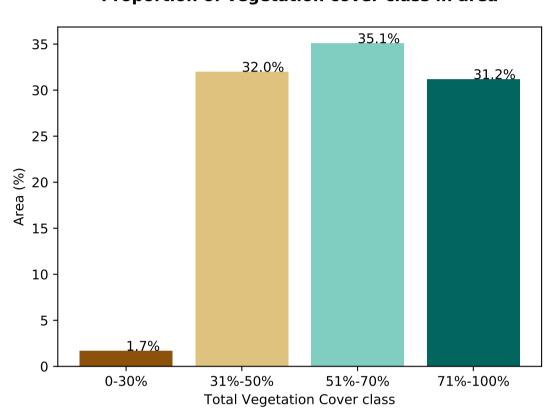
Proportion of each land class in area



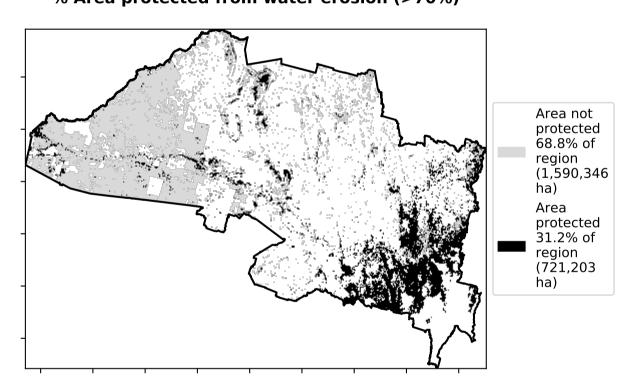
Total Vegetation Cover [%]



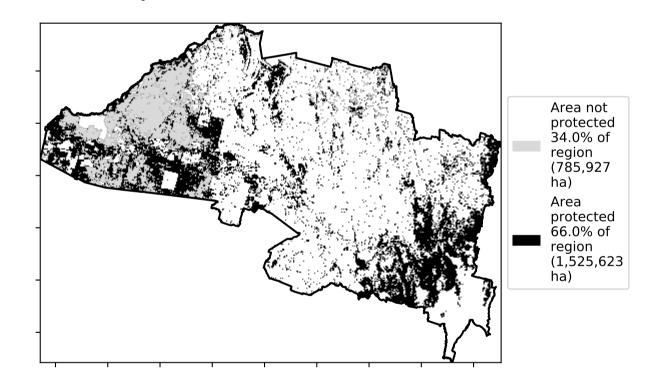
Proportion of vegetation cover class in area



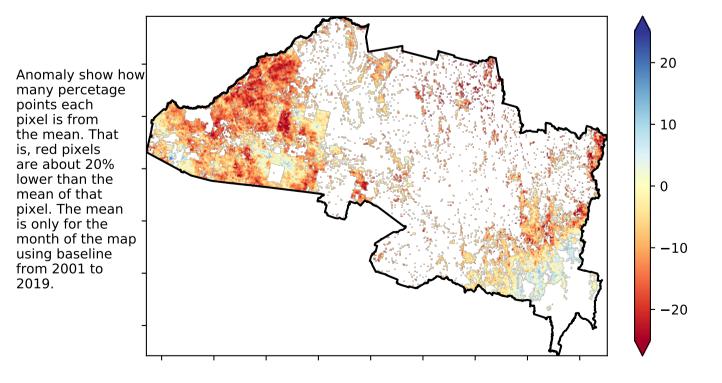
% Area protected from water erosion (>70%)



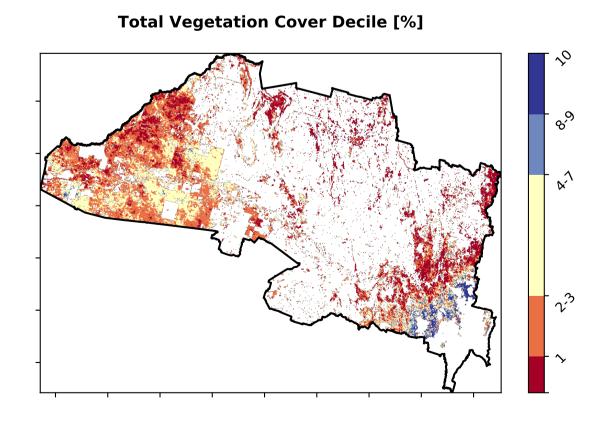
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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.







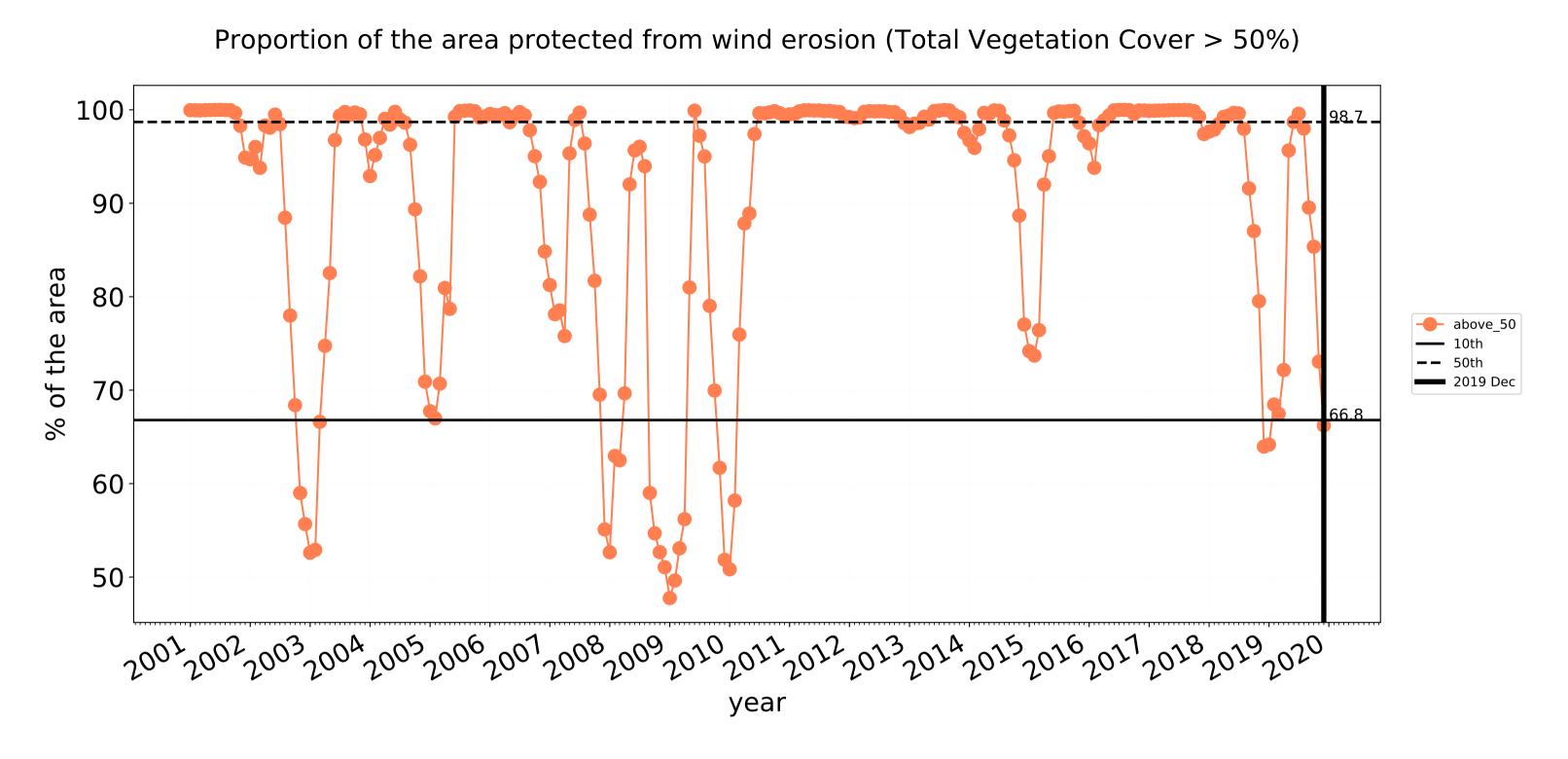


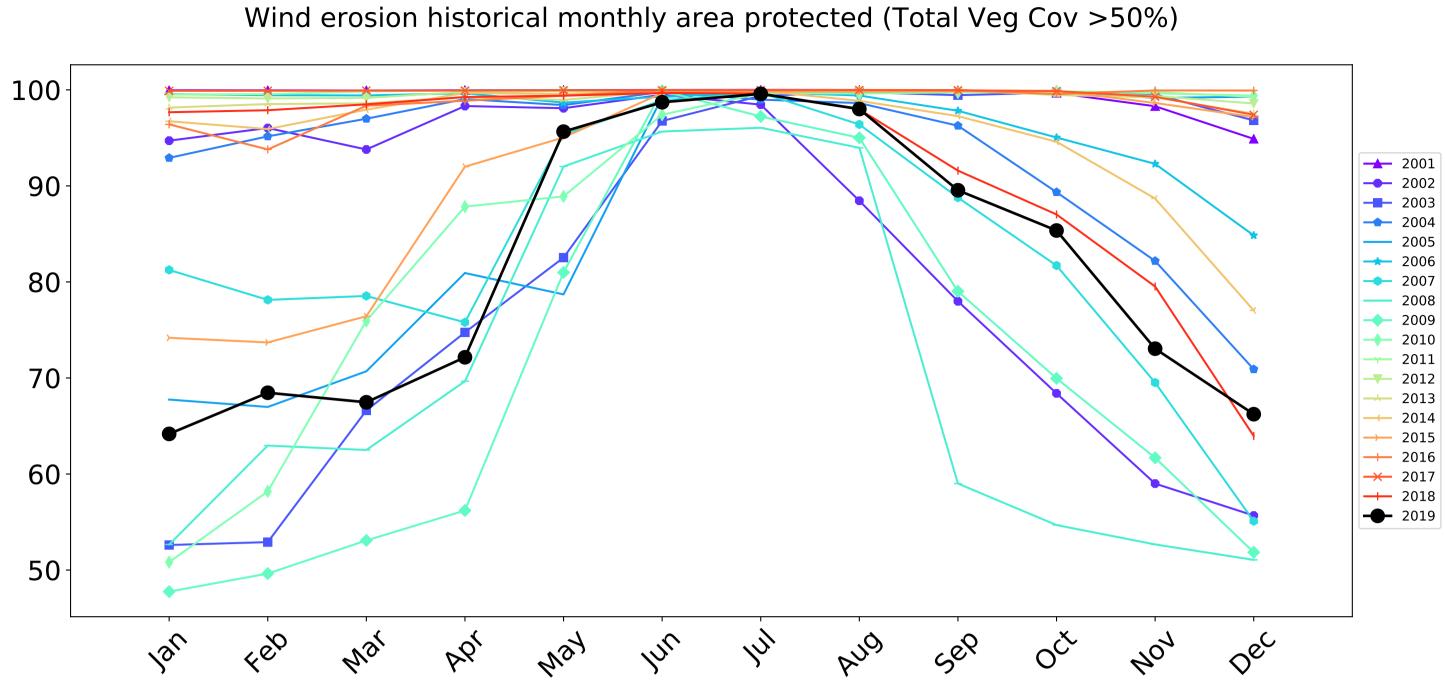


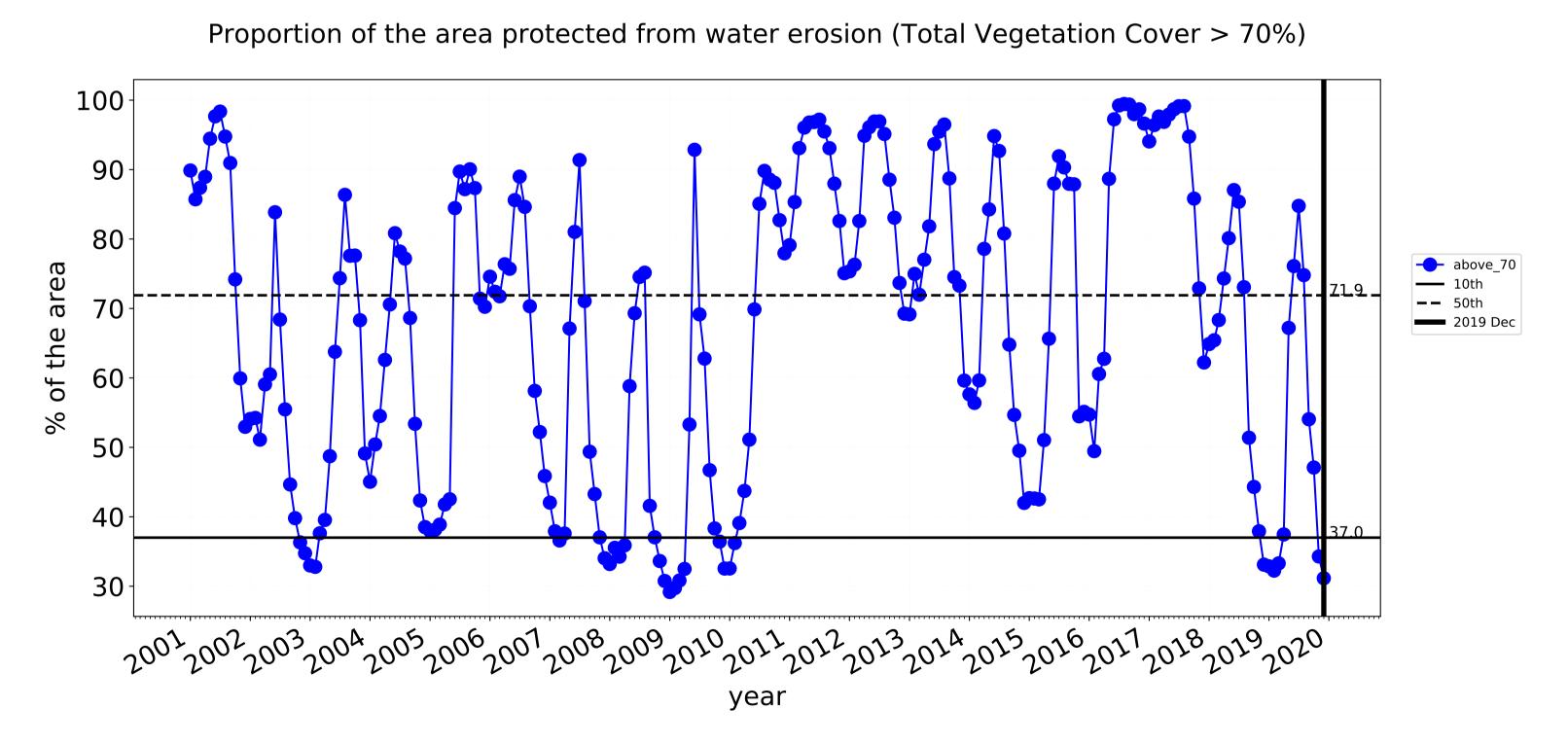


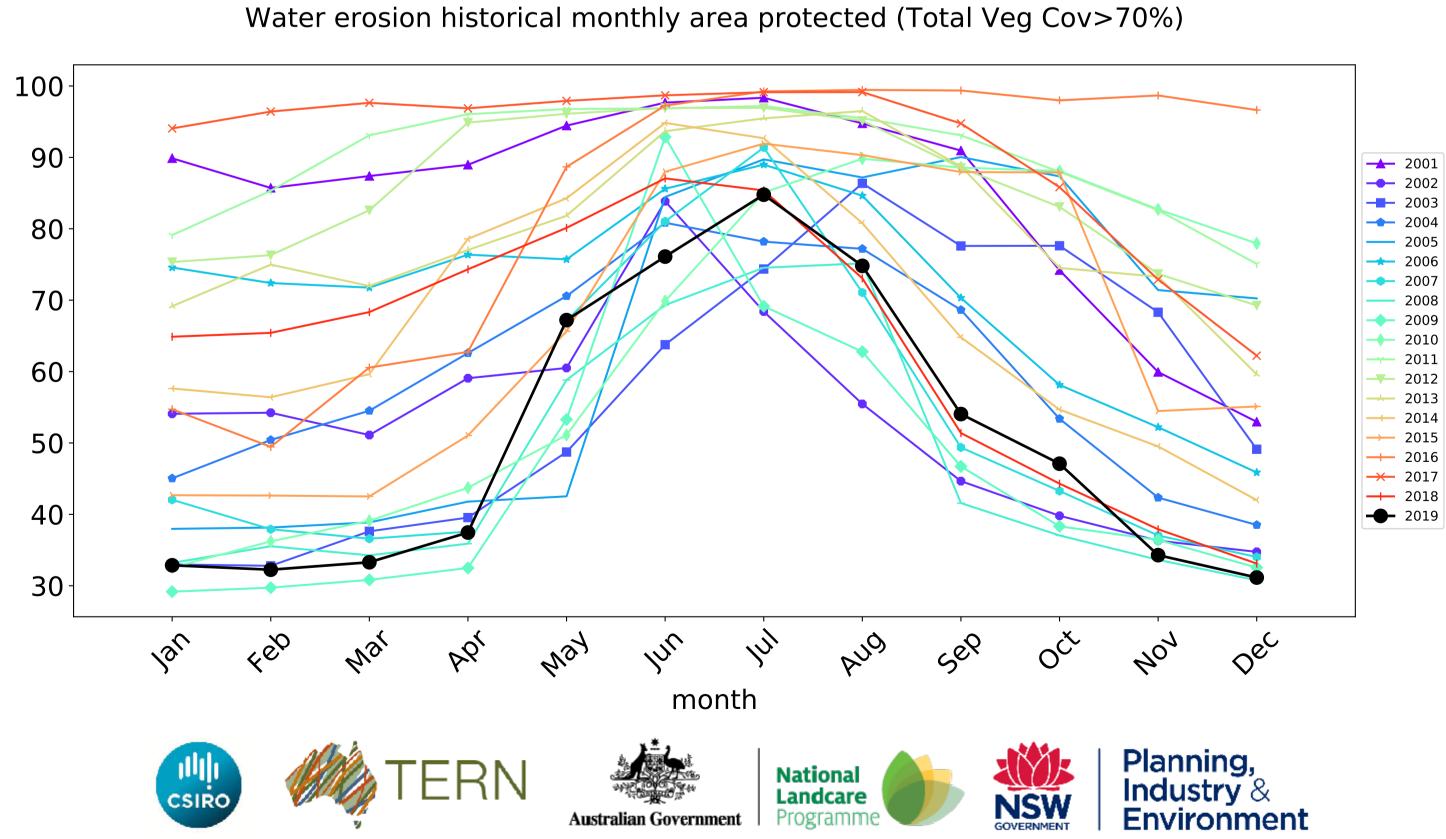


Grazing timeseries



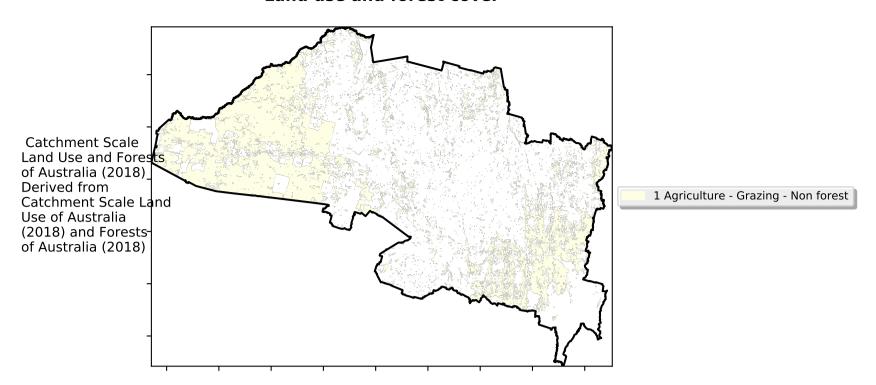




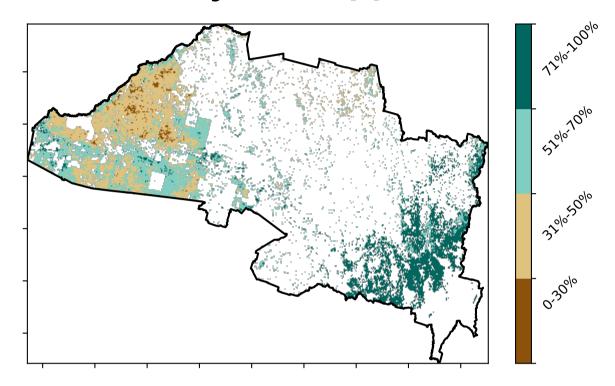


Grazing non forest

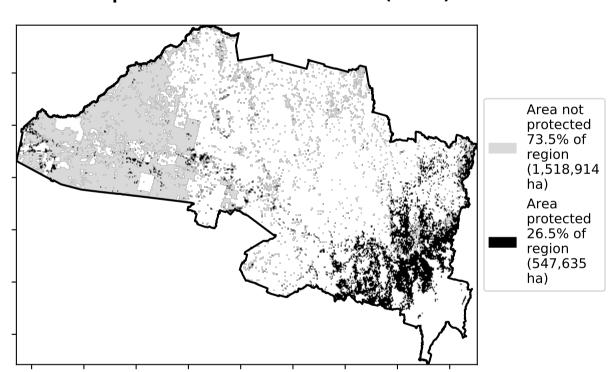
Land use and forest cover



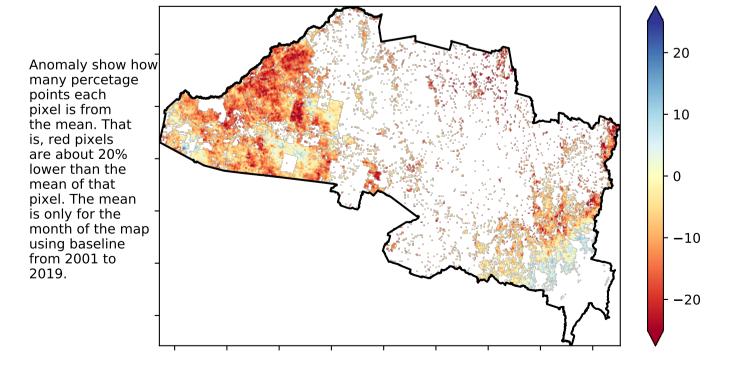
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

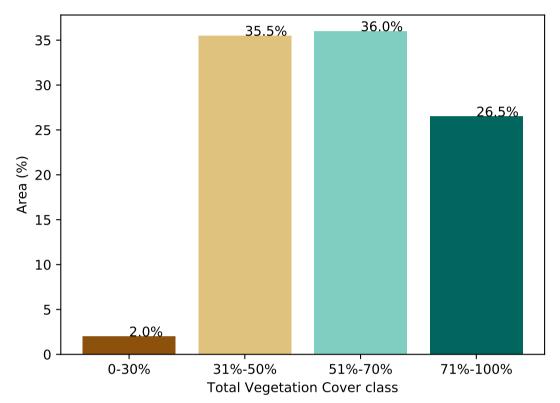


Total Vegetation Cover Anomaly [%]

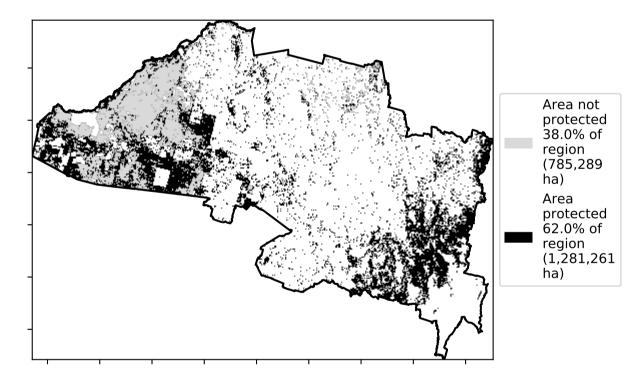


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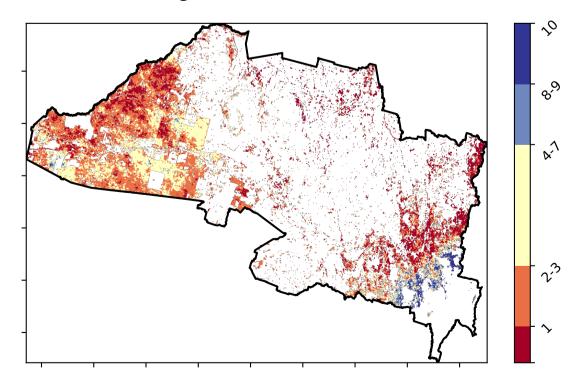
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







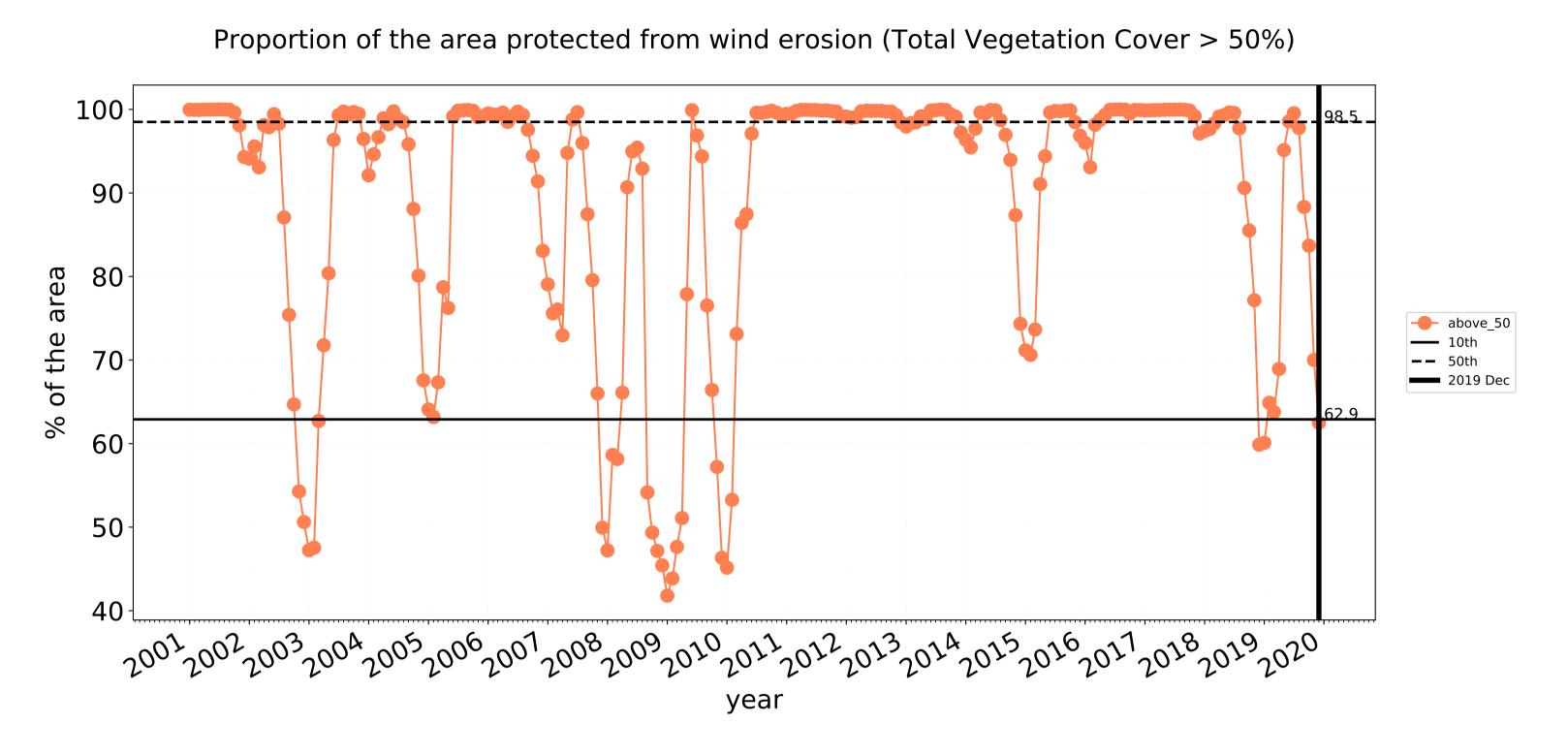


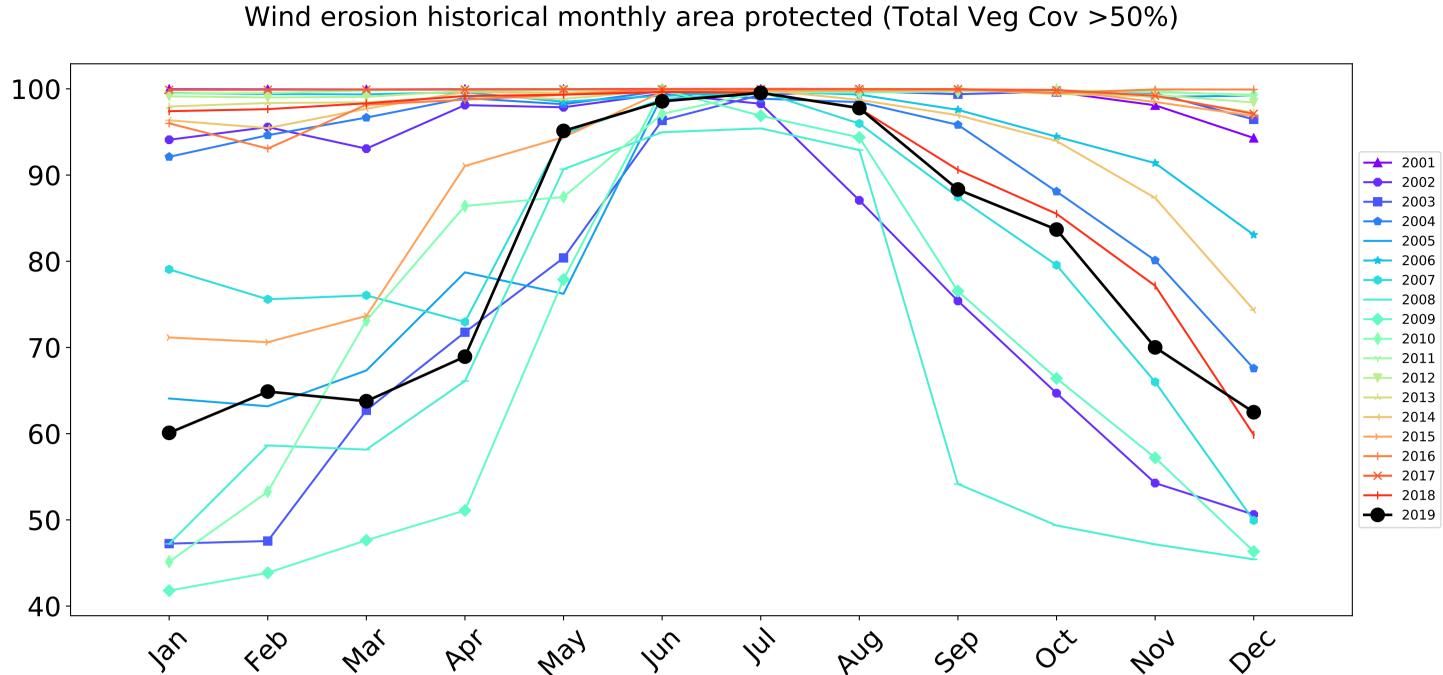


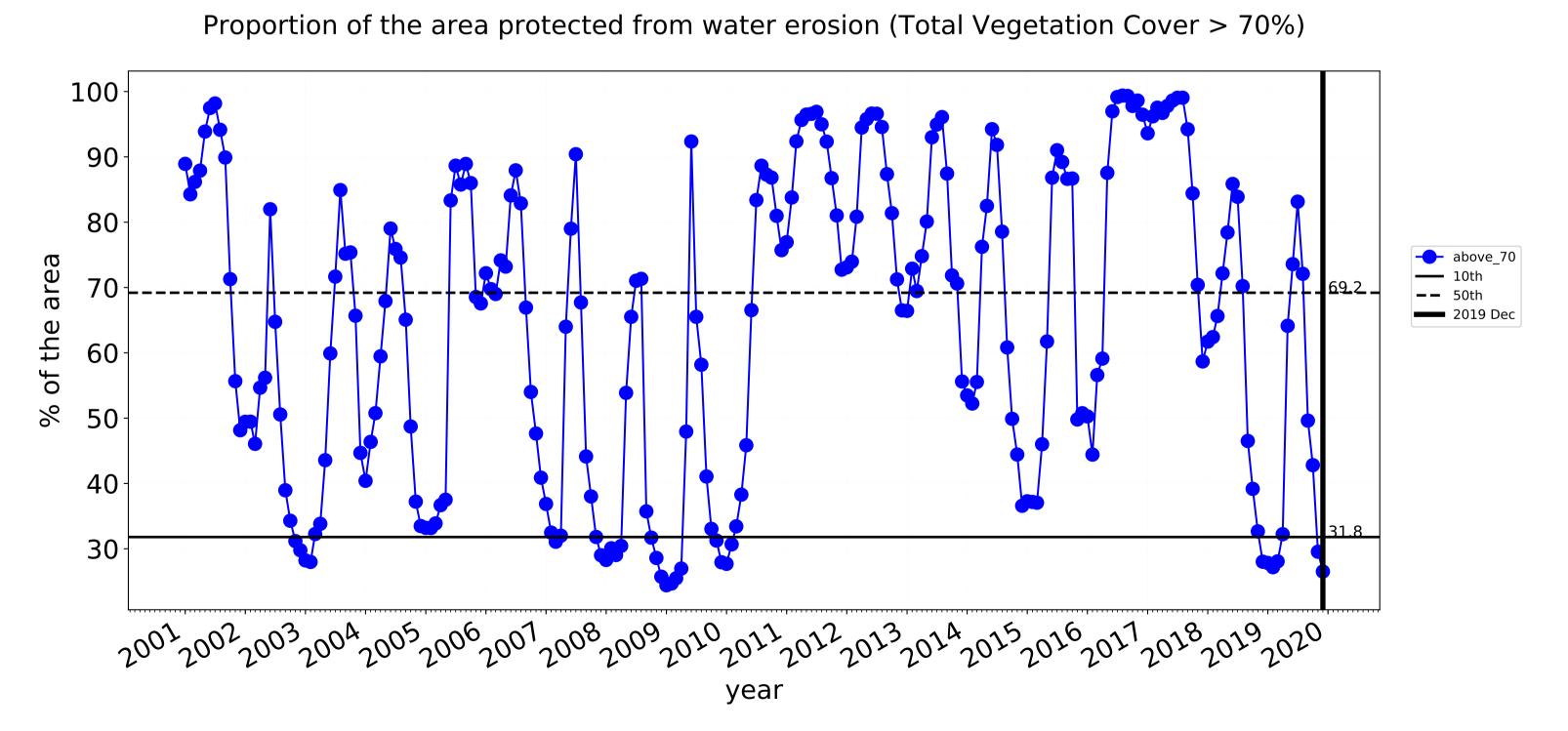


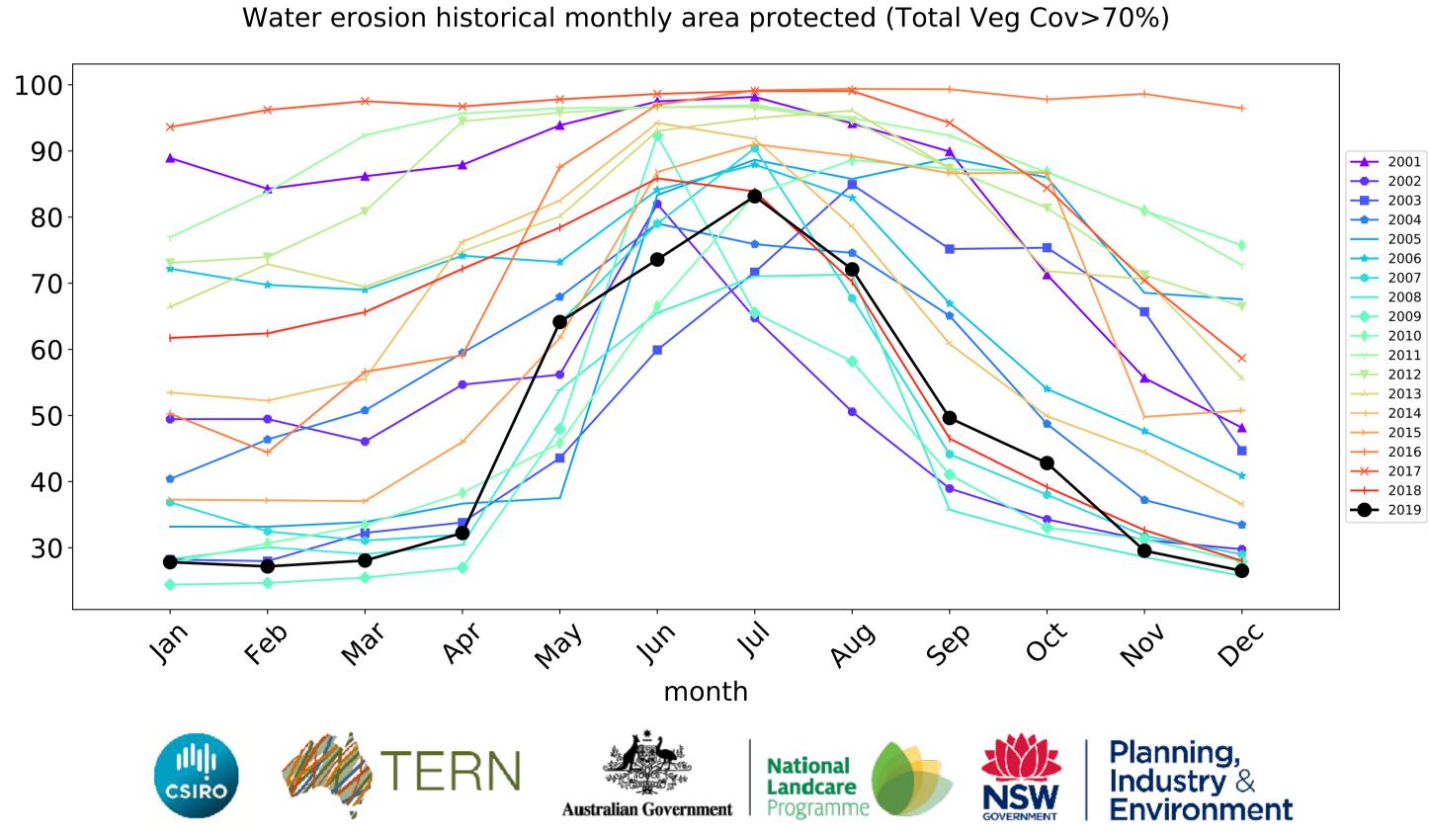


Grazing non forest timeseries









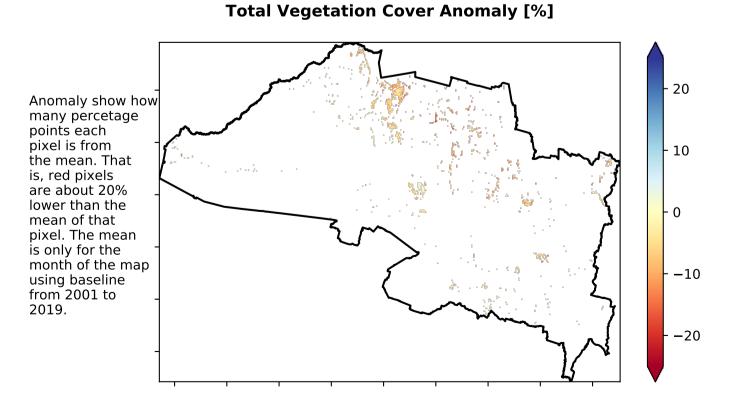
Grazing Woodland forest

Land use and forest cover 1 Agriculture - Grazing - Woodland forest

Total Vegetation Cover [%]

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

% Area protected from water erosion (>70%) Area not protected 43.6% of region (61,759 ha) Area protected 56.4% of region (79,890 ha)



Area not protected 4.0% of region (5,666 ha) Area protected 96.0% of region (135,984 ha) **Total Vegetation Cover Decile [%]** δ_.δ) 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. Planning, Industry & Environment

Proportion of vegetation cover class in area

3.7%

Total Vegetation Cover class

% Area protected from wind erosion (>50%)

31%-50%

39.9%

51%-70%

50

40

Area (%) 0

20

10

National Landcare Programme 0-30%

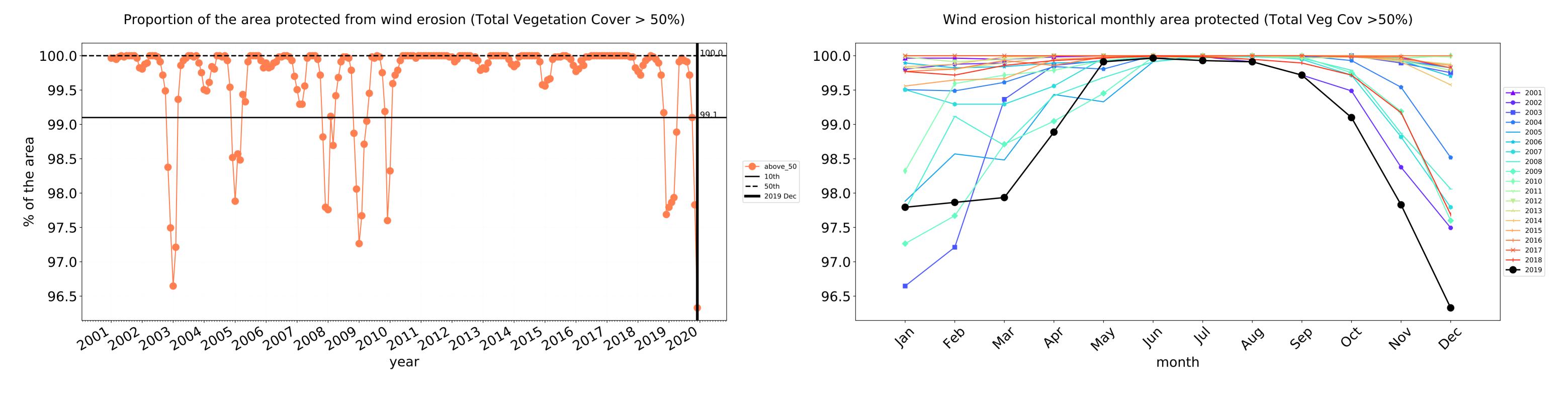
56.4%

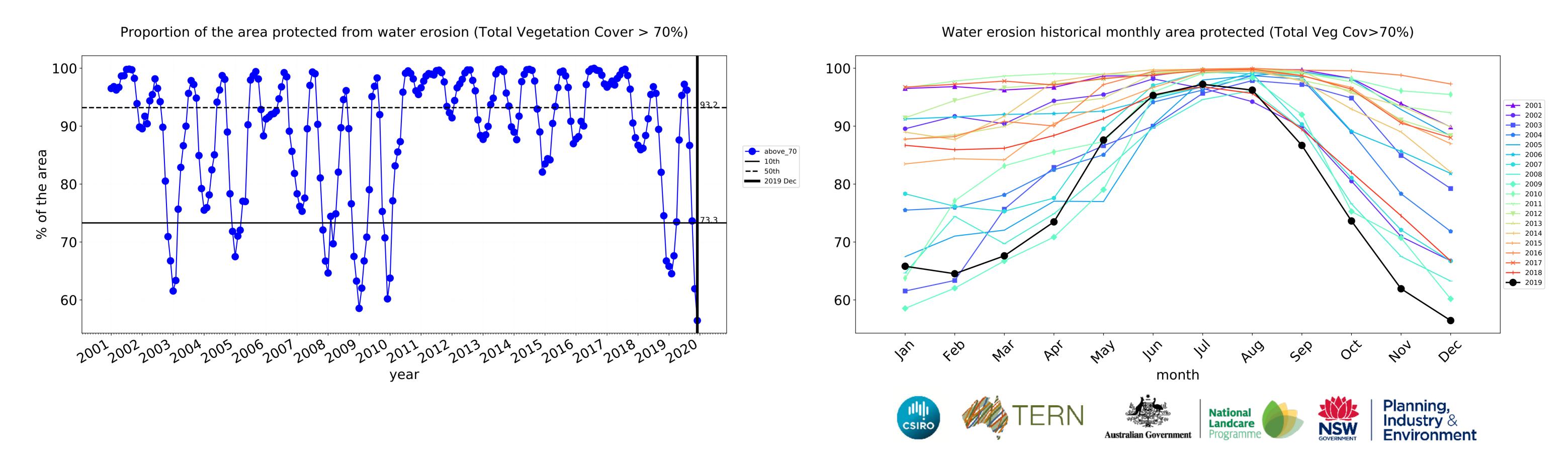
71%-100%



Australian Government

Grazing Woodland forest timeseries



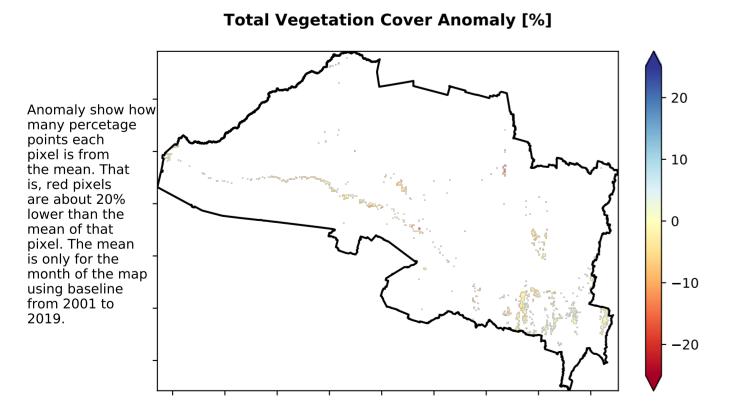


Grazing - Forest (non woodland)

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

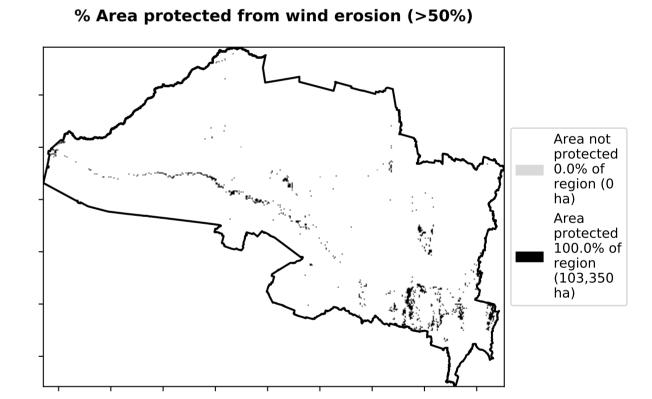
Total Vegetation Cover [%]

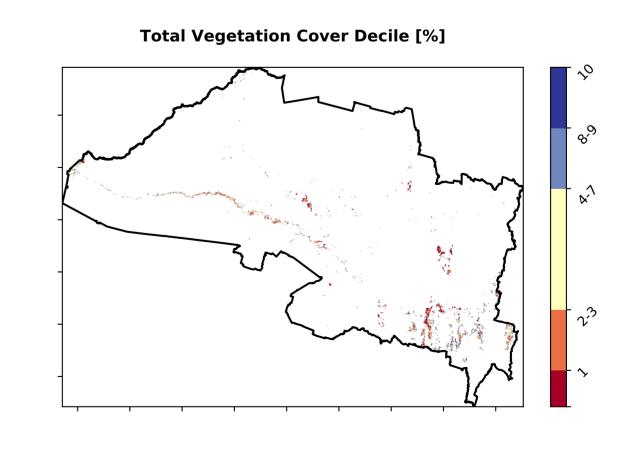
Area not protected 10.8% of region (11,161 ha) Area protected 89.2% of region (92,188 ha)



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

80 - 89.2% 80 - 60 - 20 - 10.5% 0 - 0.3% 0 - 30% 31%-50% Total Vegetation Cover class 89.2% 71%-100% Total Vegetation Cover class







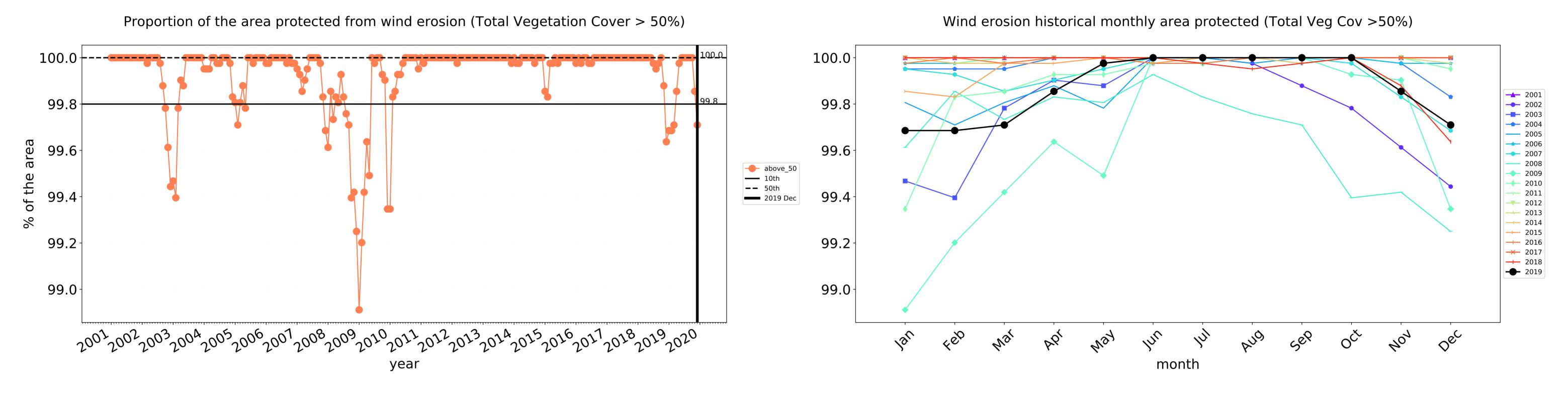


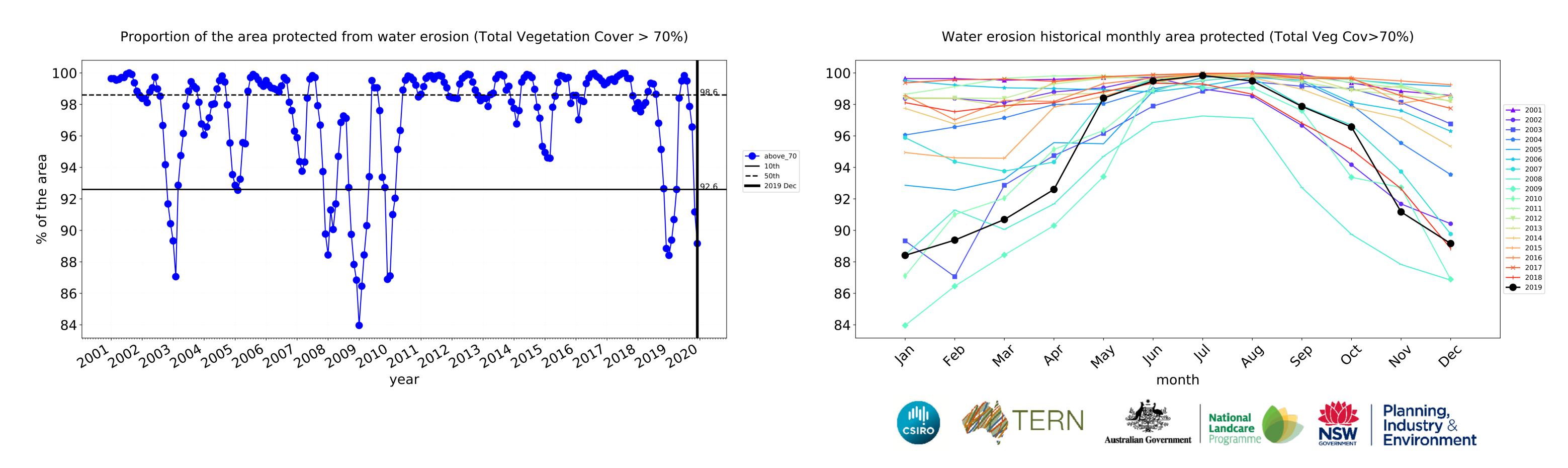






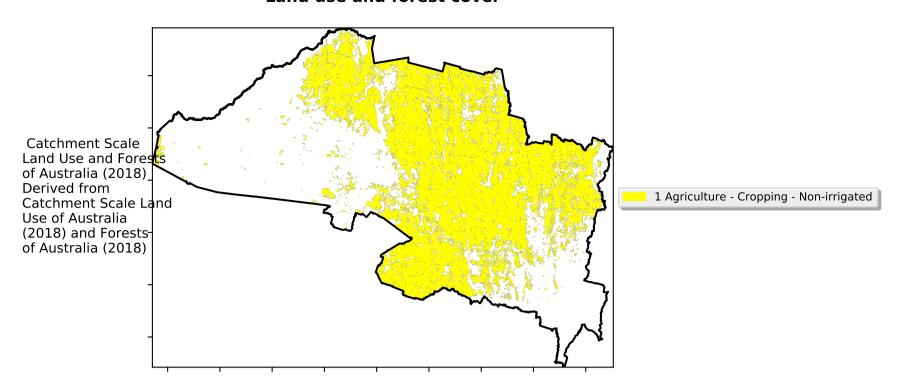




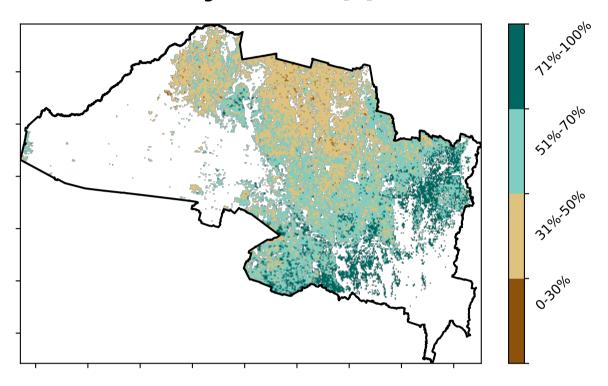


Cropping

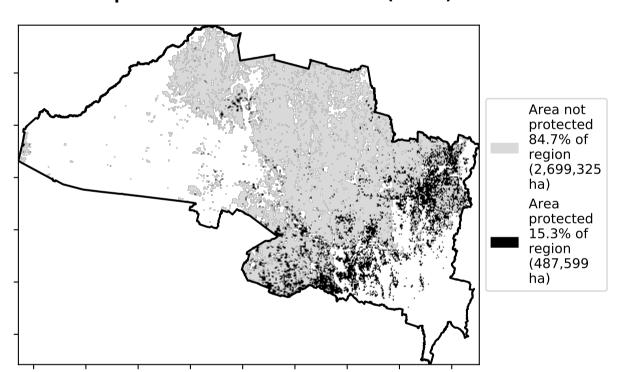
Land use and forest cover



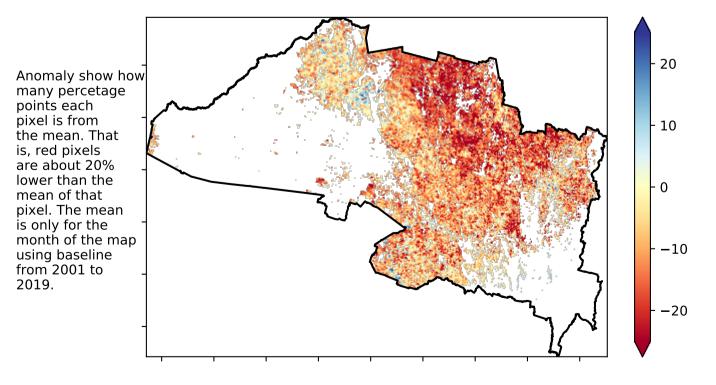
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

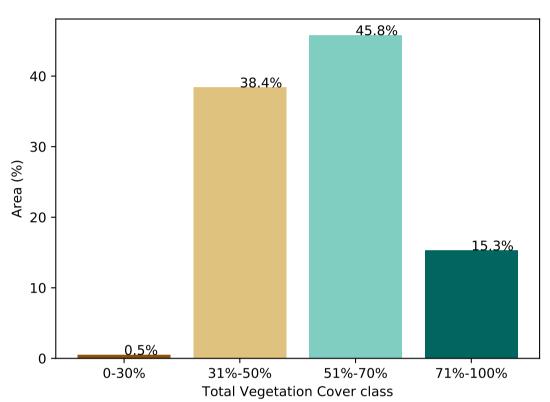


Total Vegetation Cover Anomaly [%]

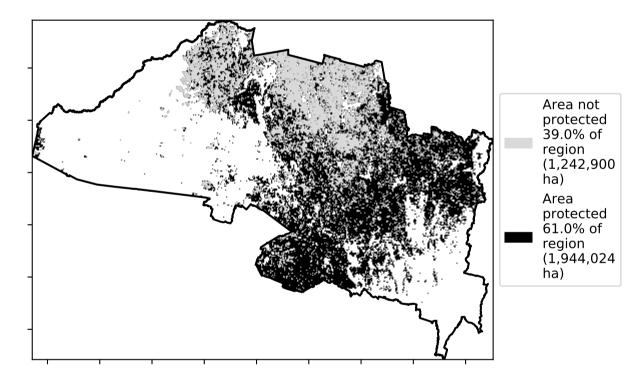


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

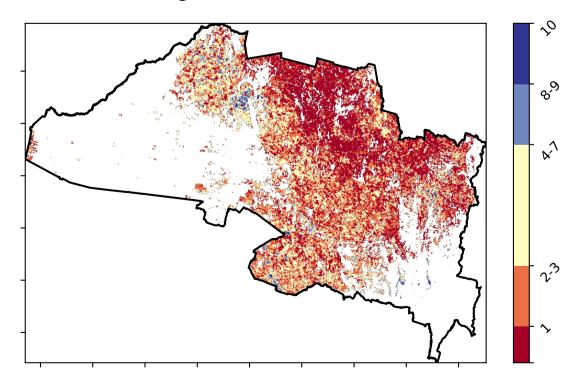
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







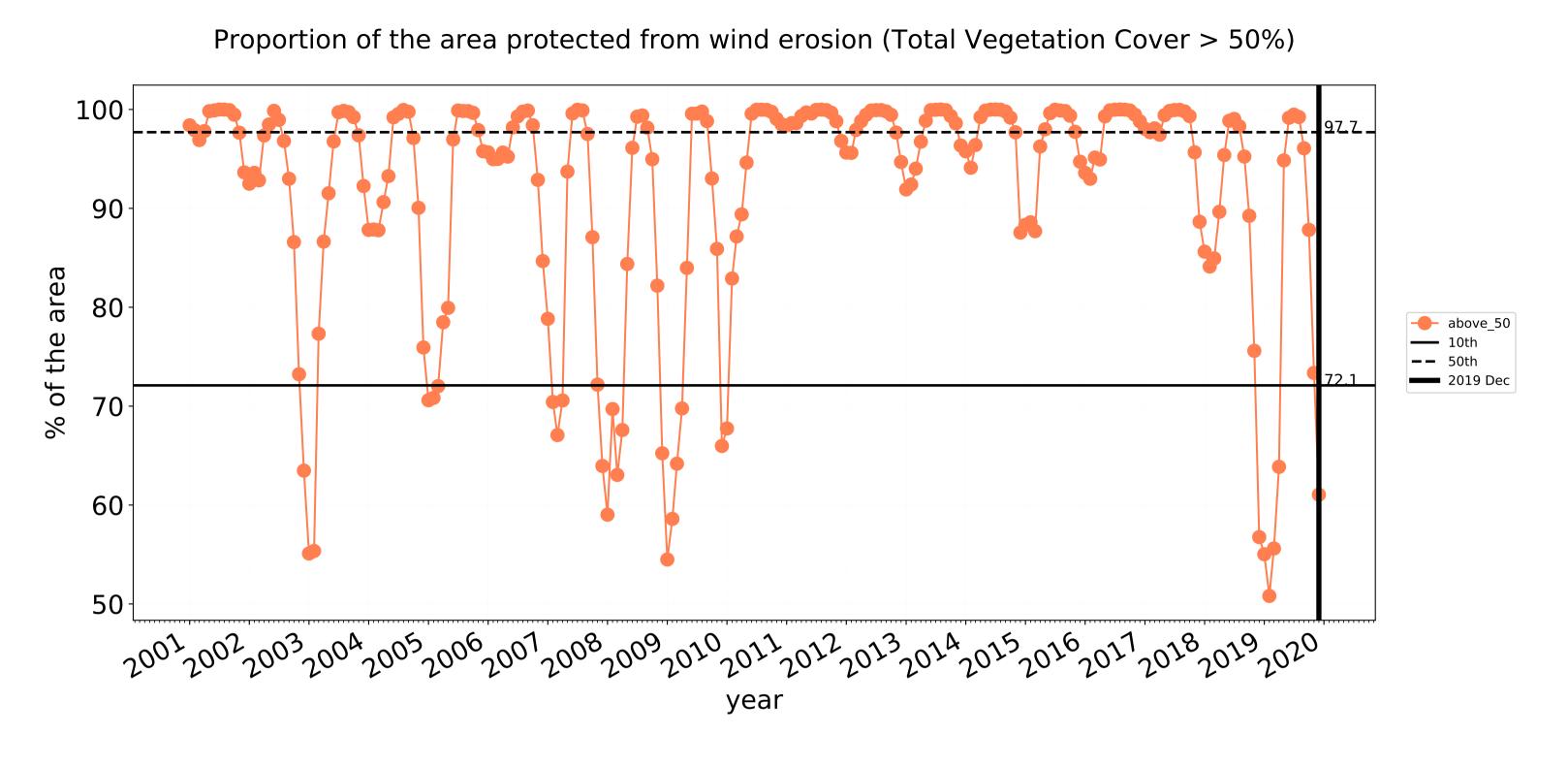


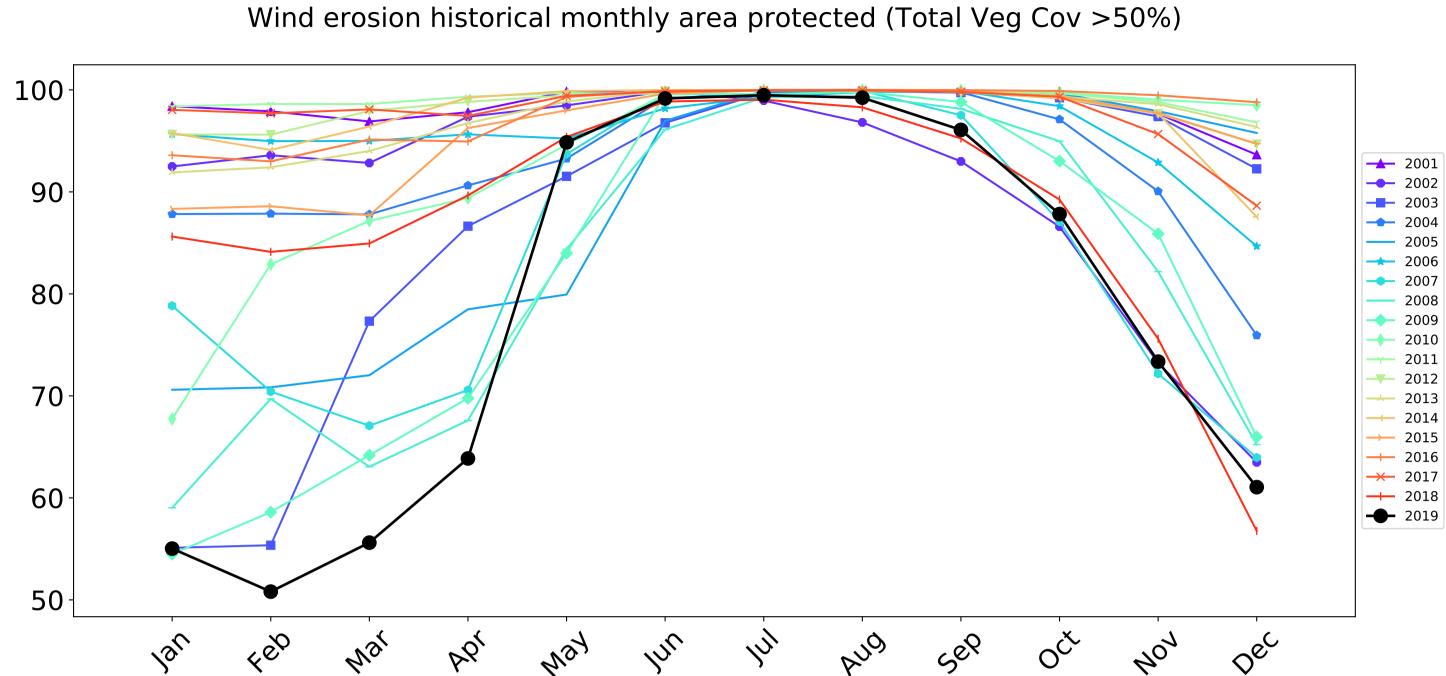


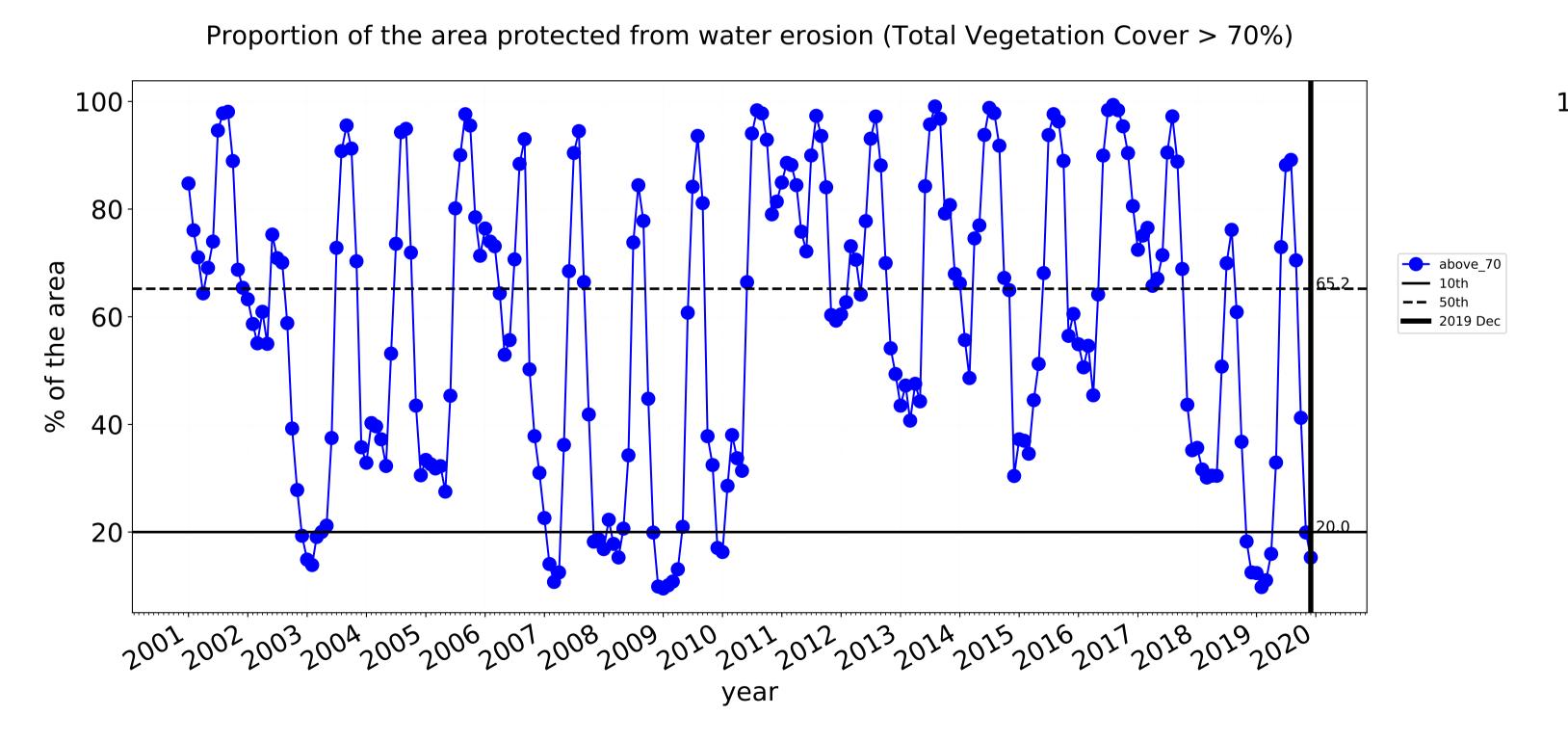


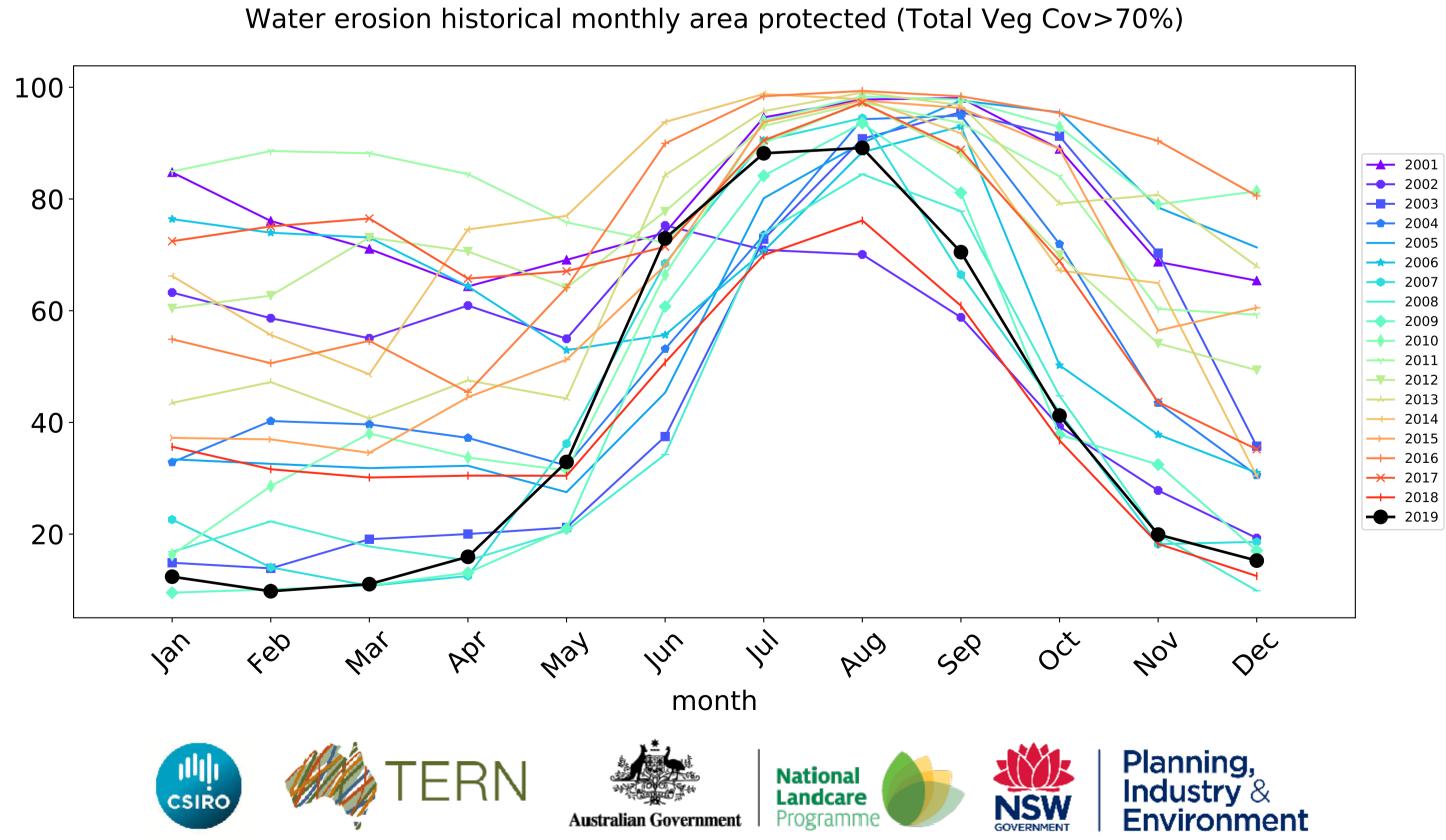


Cropping timeseries

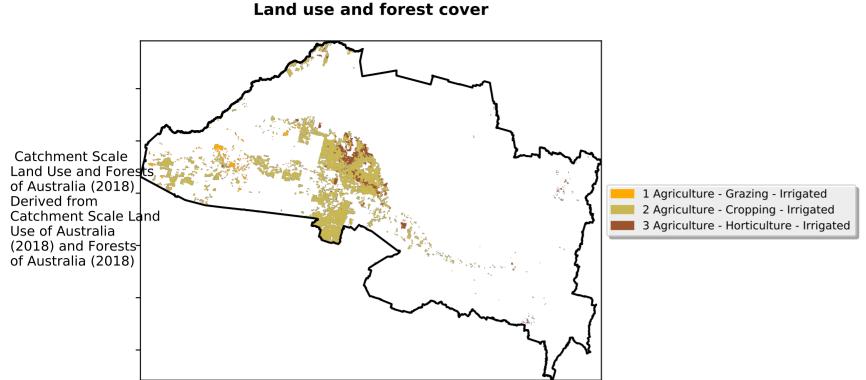


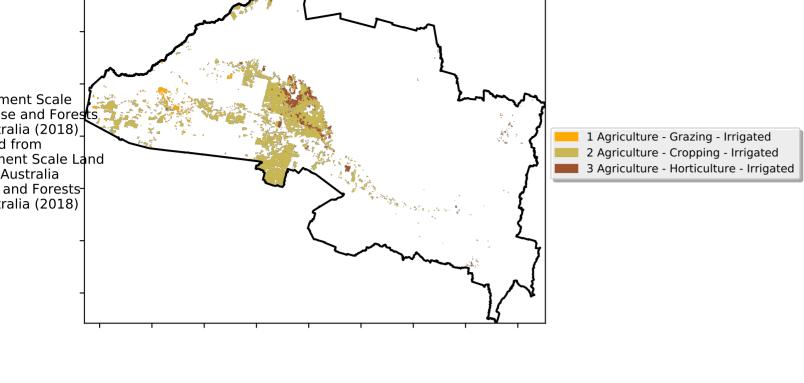


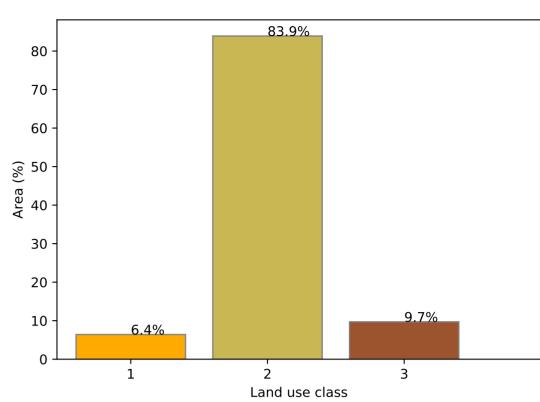


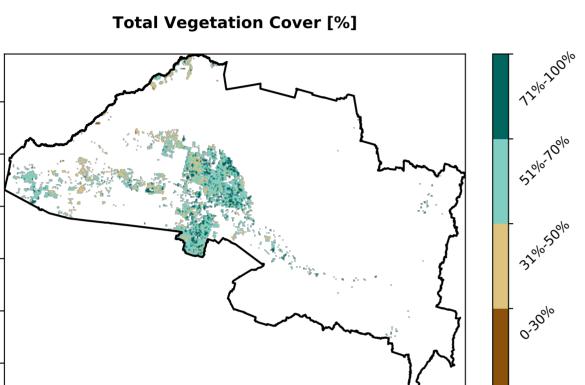


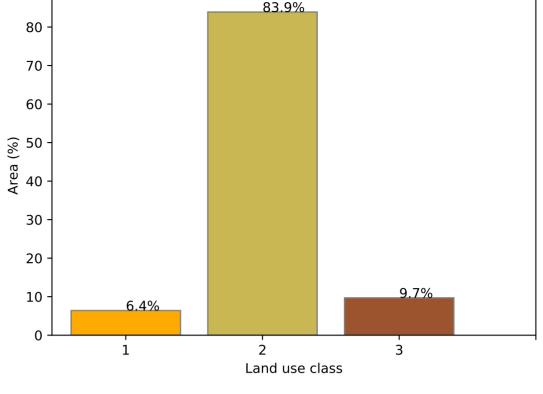
Irrigation





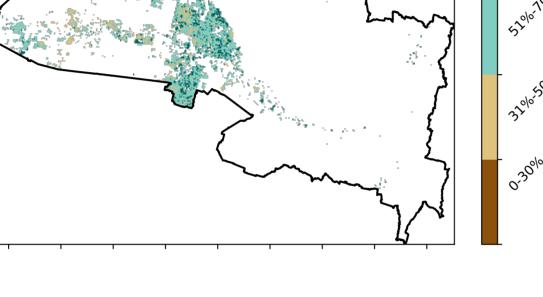






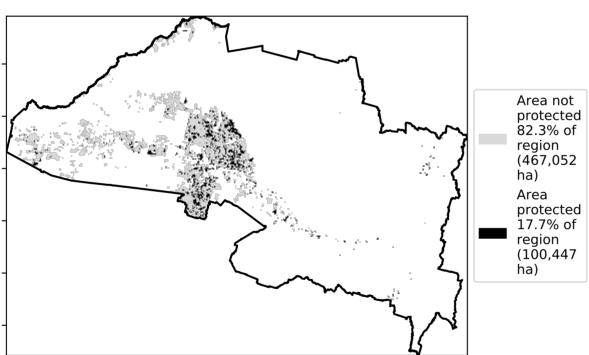
Proportion of each land class in area

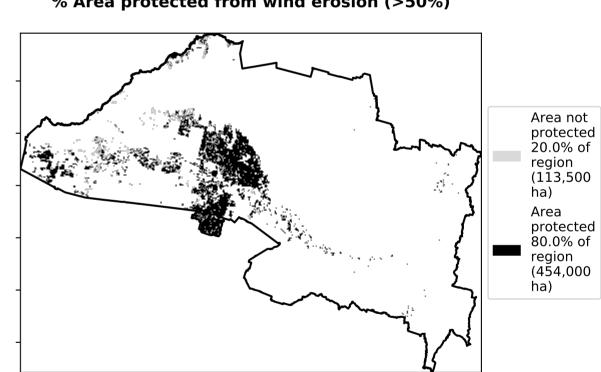
Proportion of vegetation cover class in area 62.0% 60 50 40 Area (%) 19.9% 20 17.7% 10 71%-100% 0-30% 31%-50% 51%-70% **Total Vegetation Cover class**

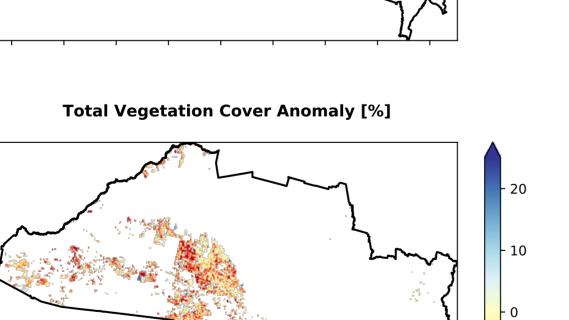


% Area protected from water erosion (>70%)

% Area protected from wind erosion (>50%)



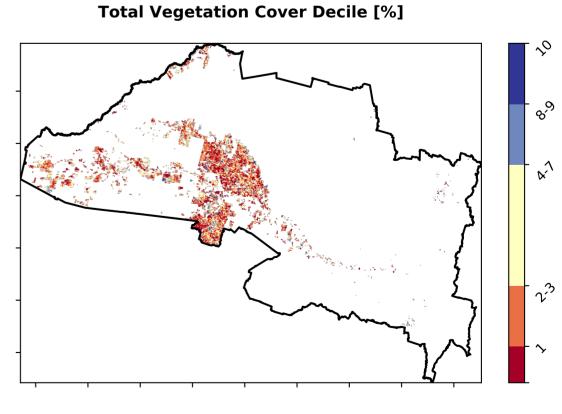




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of

records for that month of

the map using baseline from 2001 to 2019.





Anomaly show how many percetage points each

pixel is from

is, red pixels are about 20% lower than the mean of that pixel. The mean

the mean. That

is only for the month of the map

using baseline from 2001 to 2019.





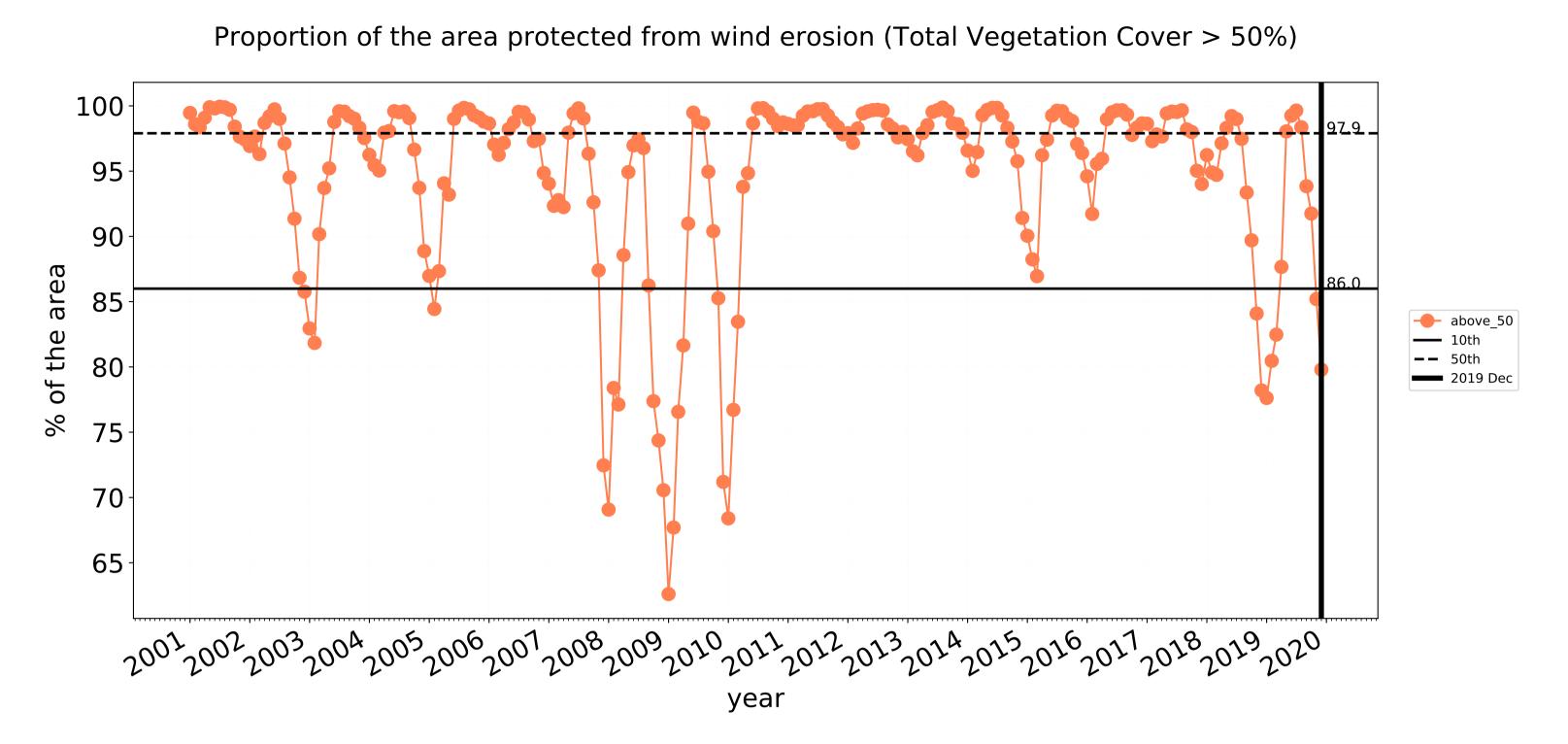


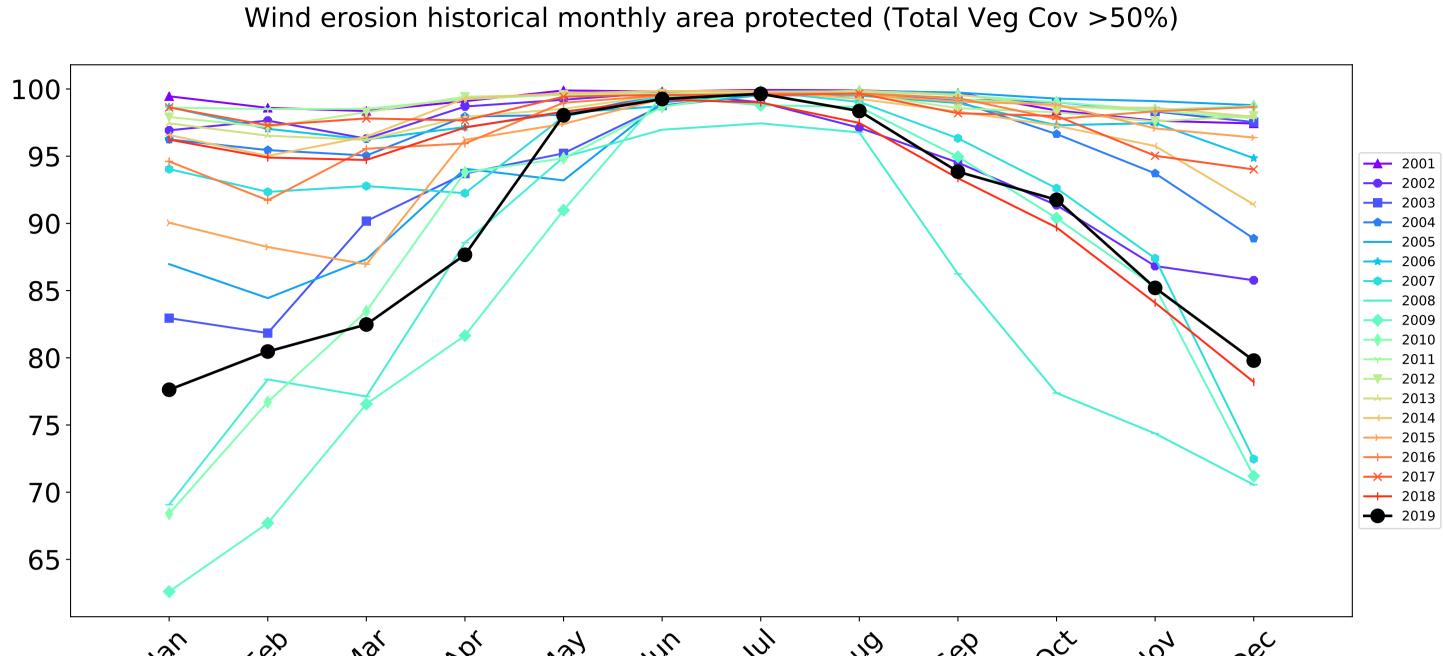


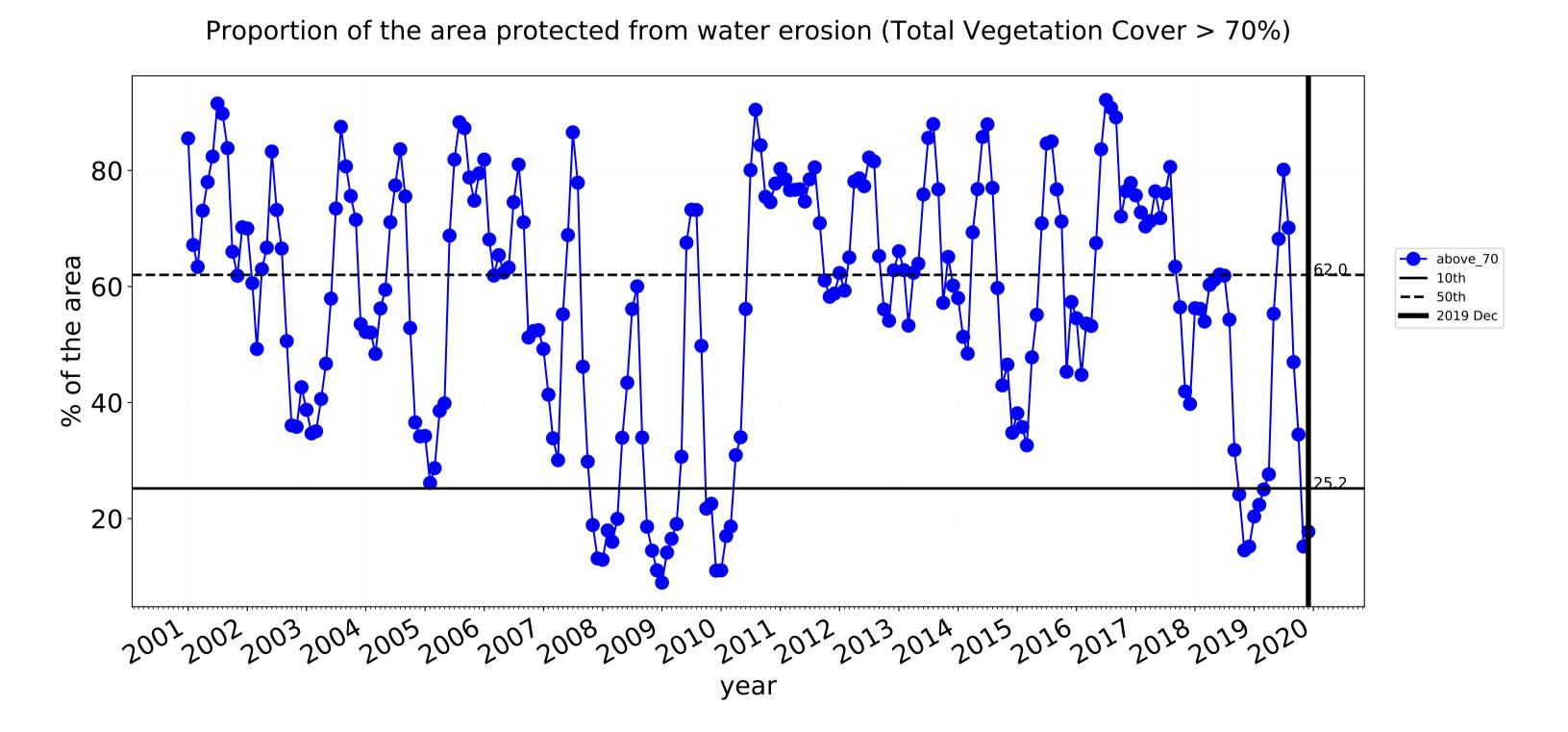


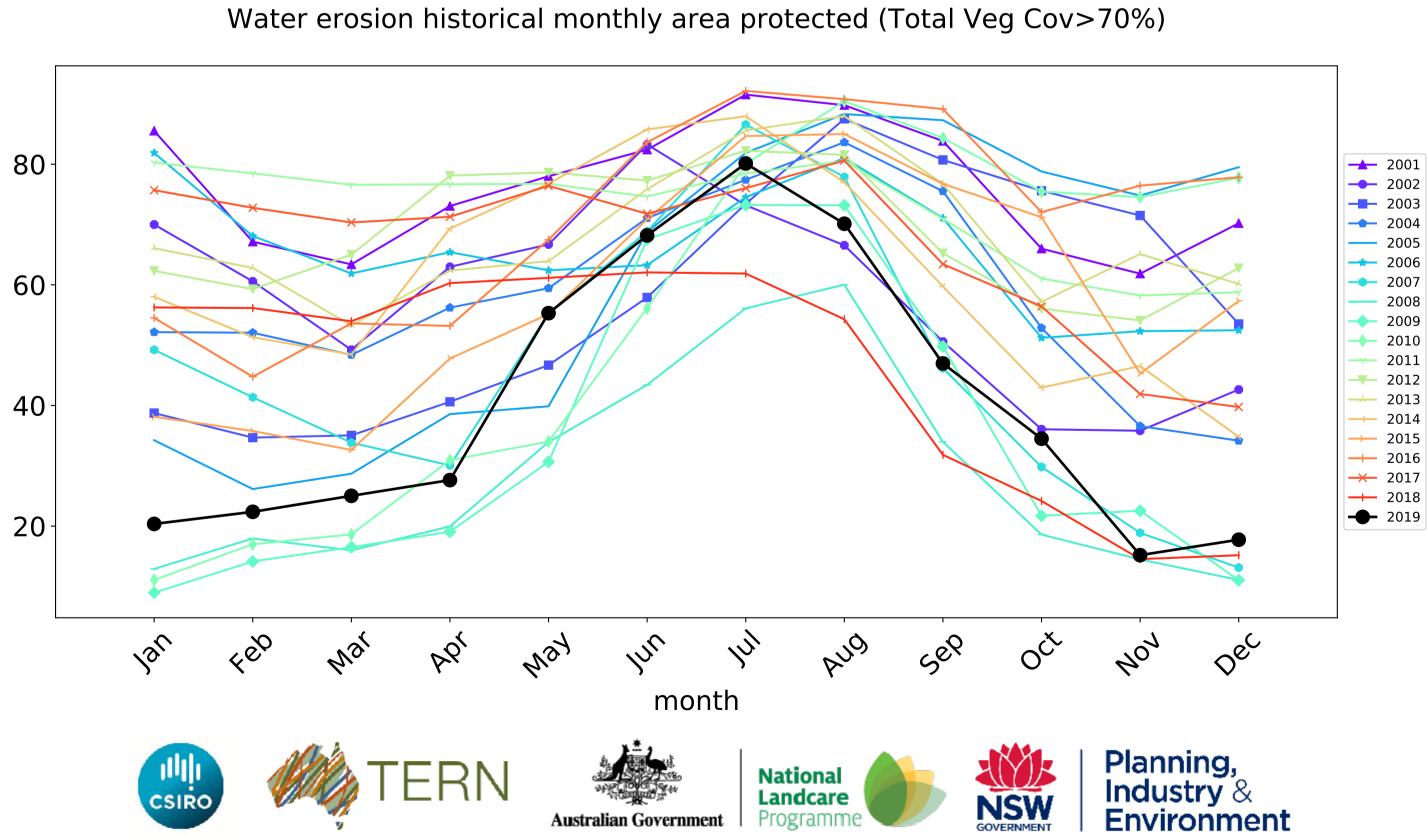
-10

-20







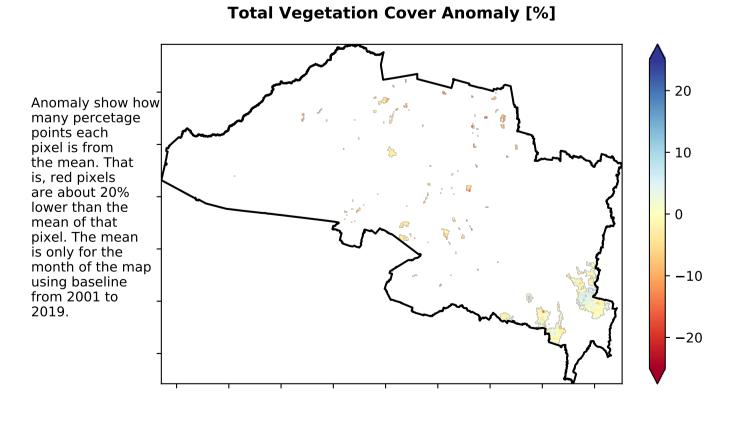


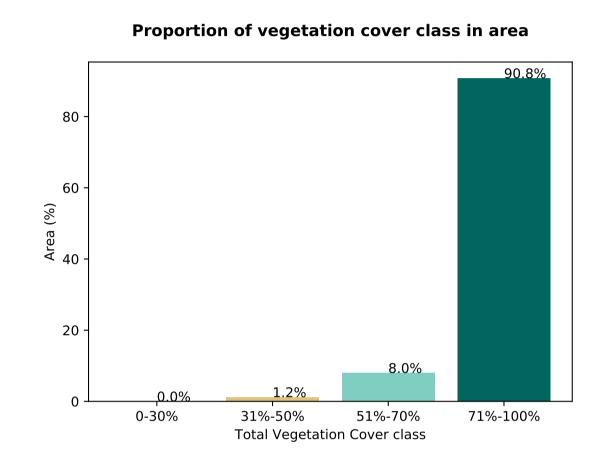
Production native forests and plantation forests

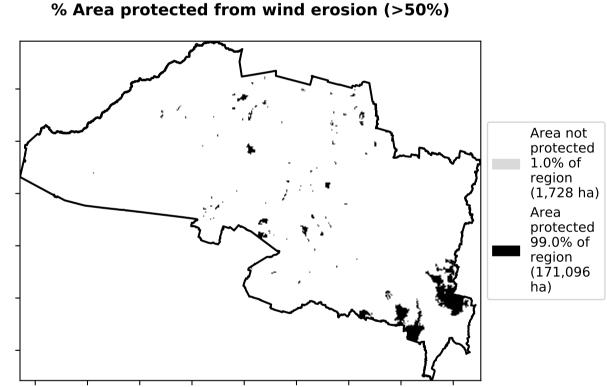
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

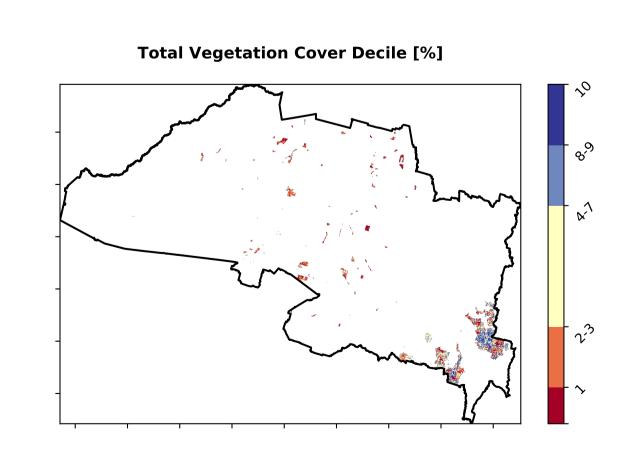
Total Vegetation Cover [%] Total Vegetation Cover [%] Tiple rate of the state of

% Area protected from water erosion (>70%) Area not protected 9.2% of region (15,899 ha) Area protected 90.8% of region (156,925 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 man using baseling.

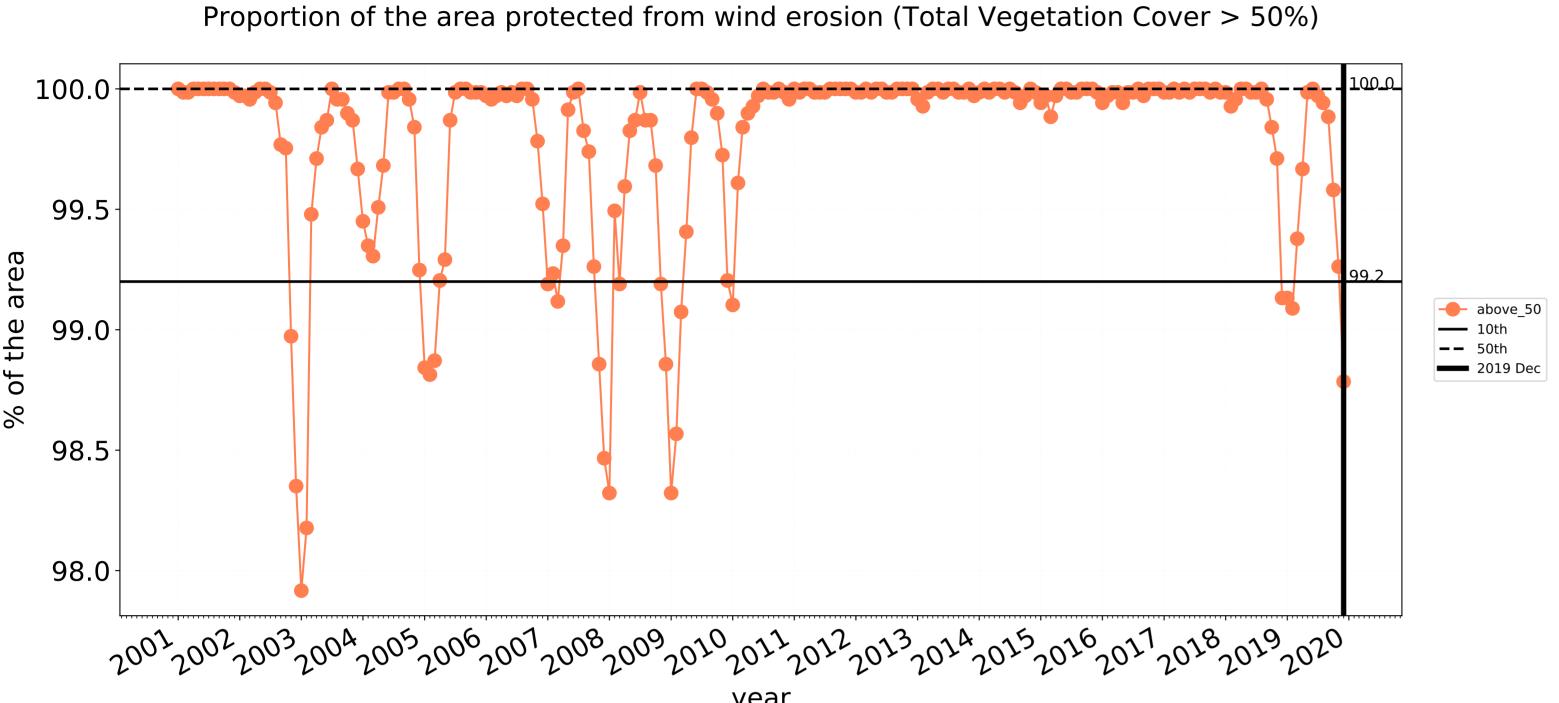
the map using baseline from 2001 to 2019.

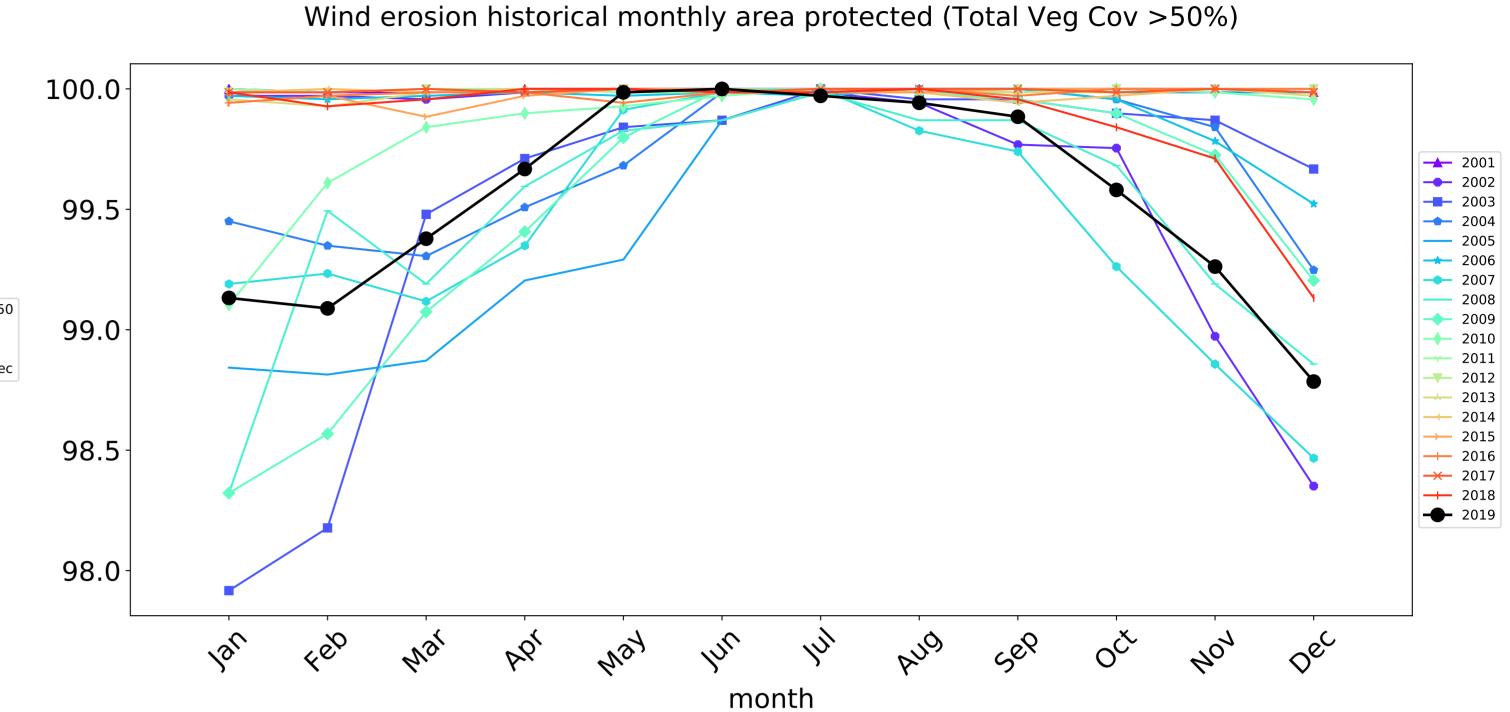


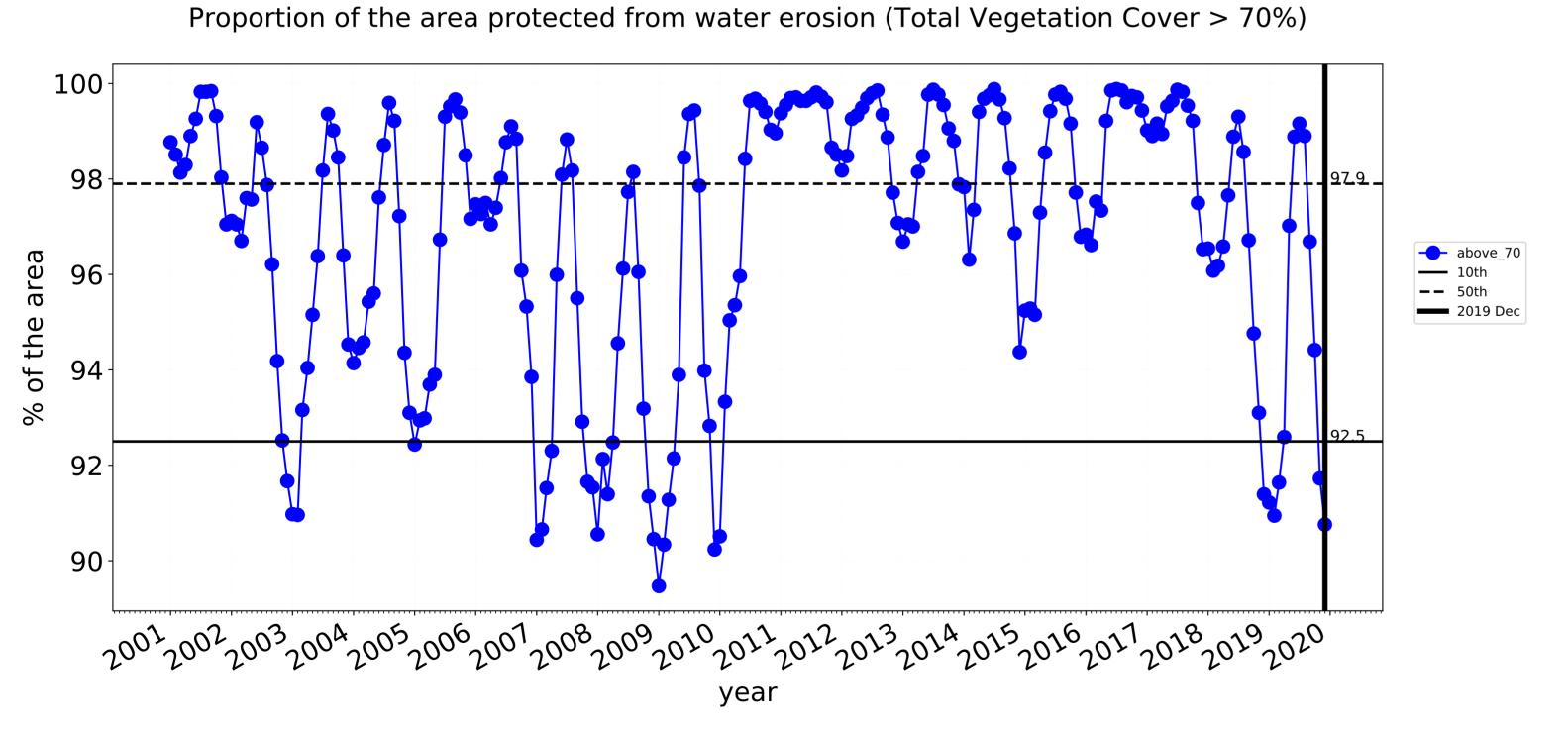


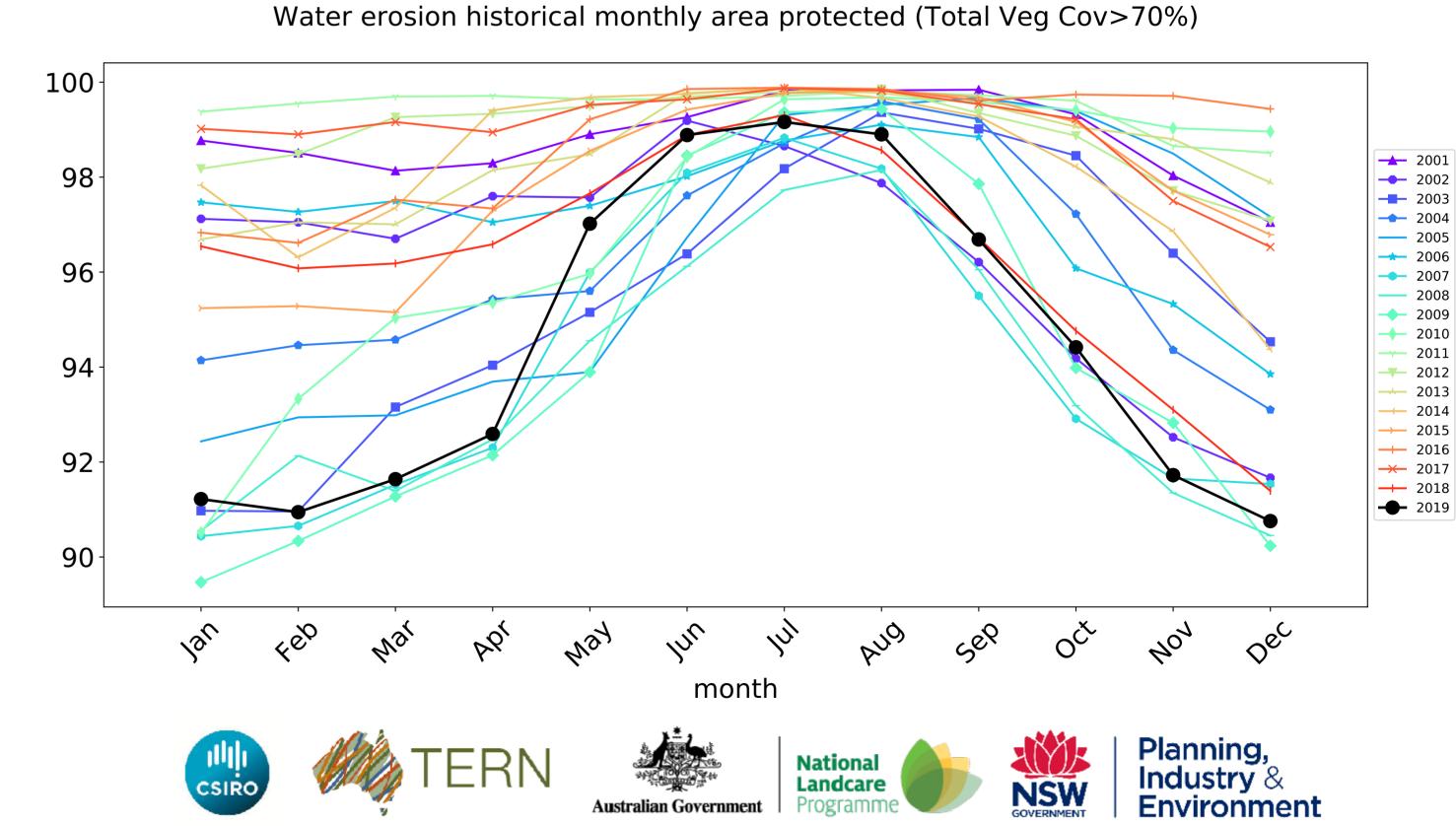


Production native forests and plantation forests timeseries









Riverina (6,694,425 ha and no data 13,910 ha) Percentage area and hectares protected with TVC threshold 30,50,70,80,90 and 95%

Land use and forest cover Class	area(ha)	above_30	above_50	above_70	above_80	above_90	above_95
Entire region	6,694,425	99.1% 6,631,425	67.1% 4,491,025	26.2% 1,755,100	14.4% 964,400	6.7% 446,150	2.8% 185,700
Conservation and natural environments	323,125	99.9% 322,825	89.6% 289,650	77.6% 250,825	70.4% 227,625	52.4% 169,425	17.5% 56,475
Conservation and natural environments non forest	83,350	99.6% 83,050	60.1% 50,125	19.9% 16,600	11.2% 9,300	8.8% 7,375	3.5% 2,950
Conservation and natural environments Forest (non woodland)	195,275	100.0% 195,275	100.0% 195,275	99.6% 194,550	97.7% 190,875	79.1% 154,500	27.1% 52,900
Agriculture	6,067,800	99.0% 6,006,550	64.8% 3,930,675	21.5% 1,307,250	9.6% 583,675	2.7% 165,825	1.3% 76,675
Grazing	2,311,550	98.2% 2,270,975	66.2% 1,530,875	31.2% 720,075	17.9% 413,475	6.1% 141,250	2.9% 67,850
Grazing non forest	2,066,550	98.0% 2,025,975	62.5% 1,291,375	26.5% 547,975	15.0% 310,300	5.3% 108,600	2.8% 57,350
Grazing Woodland forest	141,650	100.0% 141,650	96.3% 136,450	56.4% 79,950	22.0% 31,150	1.5% 2,100	0.6% 850
Grazing - Forest (non woodland)	103,350	100.0% 103,350	99.7% 103,050	89.2% 92,150	69.7% 72,025	29.6% 30,550	9.3% 9,650
Cropping	3,186,925	99.4% 3,168,075	61.1% 1,945,650	15.3% 486,250	4.7% 148,450	0.6% 19,600	0.2% 7,025
Irrigation	567,500	99.7% 565,675	79.8% 452,825	17.7% 100,725	3.8% 21,650	0.9% 4,950	0.3% 1,775
Production native forests and plantation forests	172,825	100.0% 172,825	98.8% 170,725	90.8% 156,850	80.8% 139,625	62.7% 108,400	29.9% 51,600











