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 2021

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



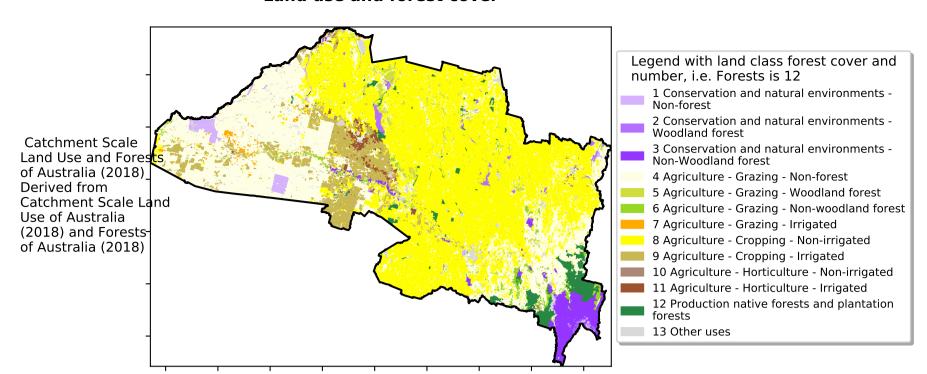




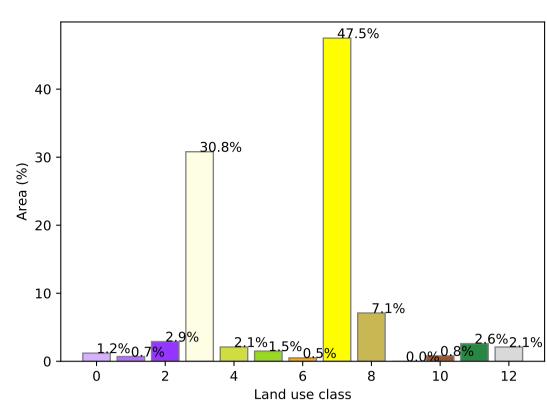


Vegetation Cover Dec 2021

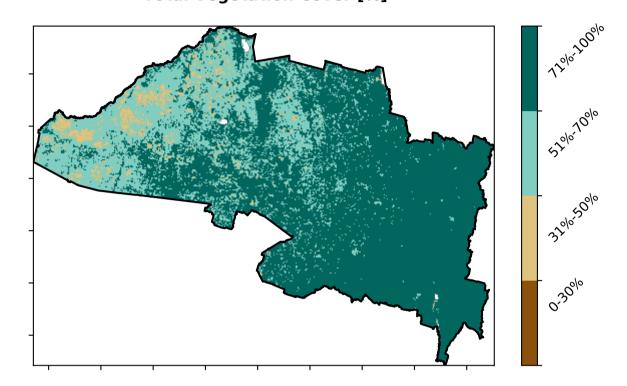
Land use and forest cover



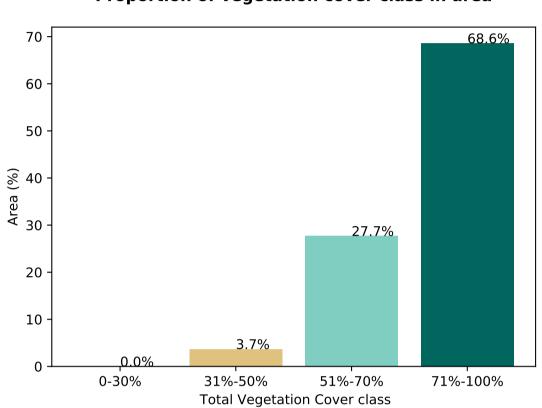
Proportion of each land class in area



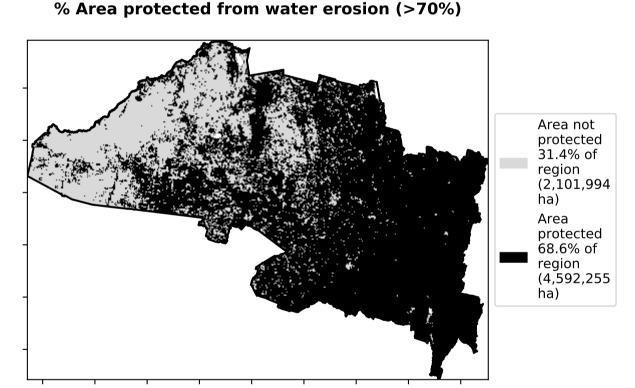
Total Vegetation Cover [%]



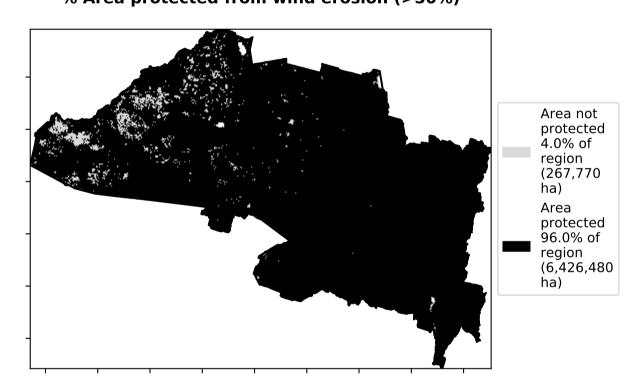
Proportion of vegetation cover class in area



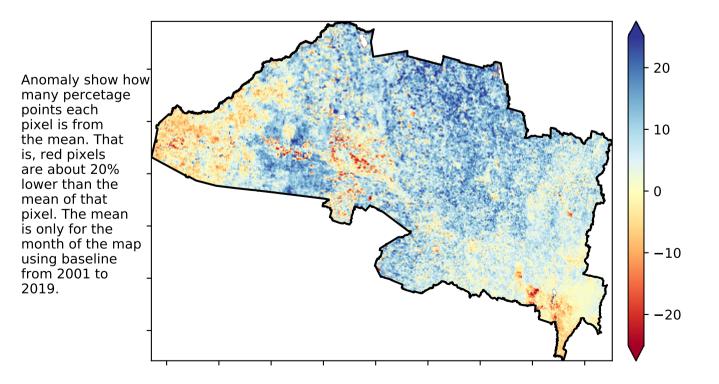
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% Area protected from wind erosion (>50%)



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.

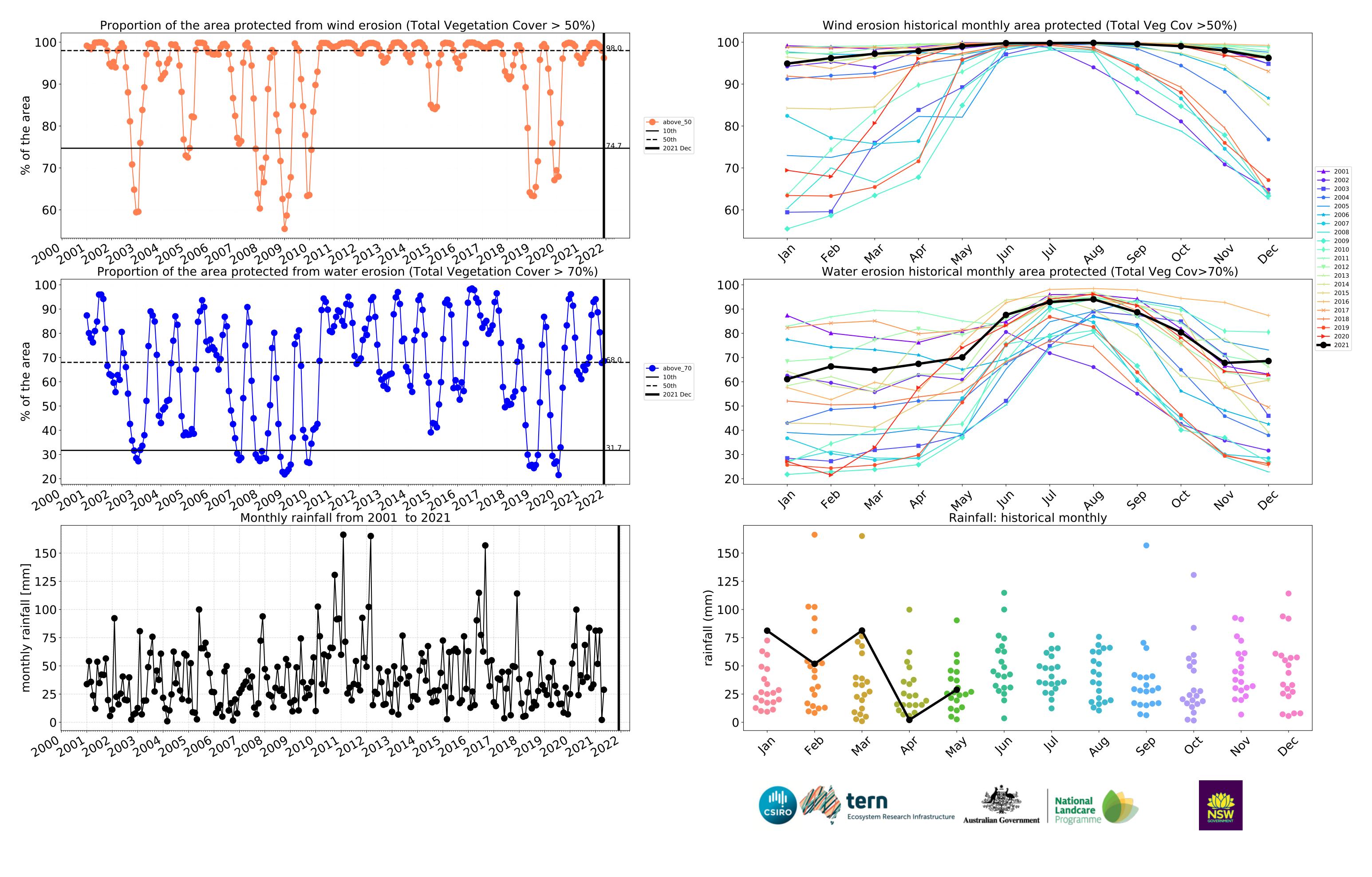
Total Vegetation Cover Decile [%]

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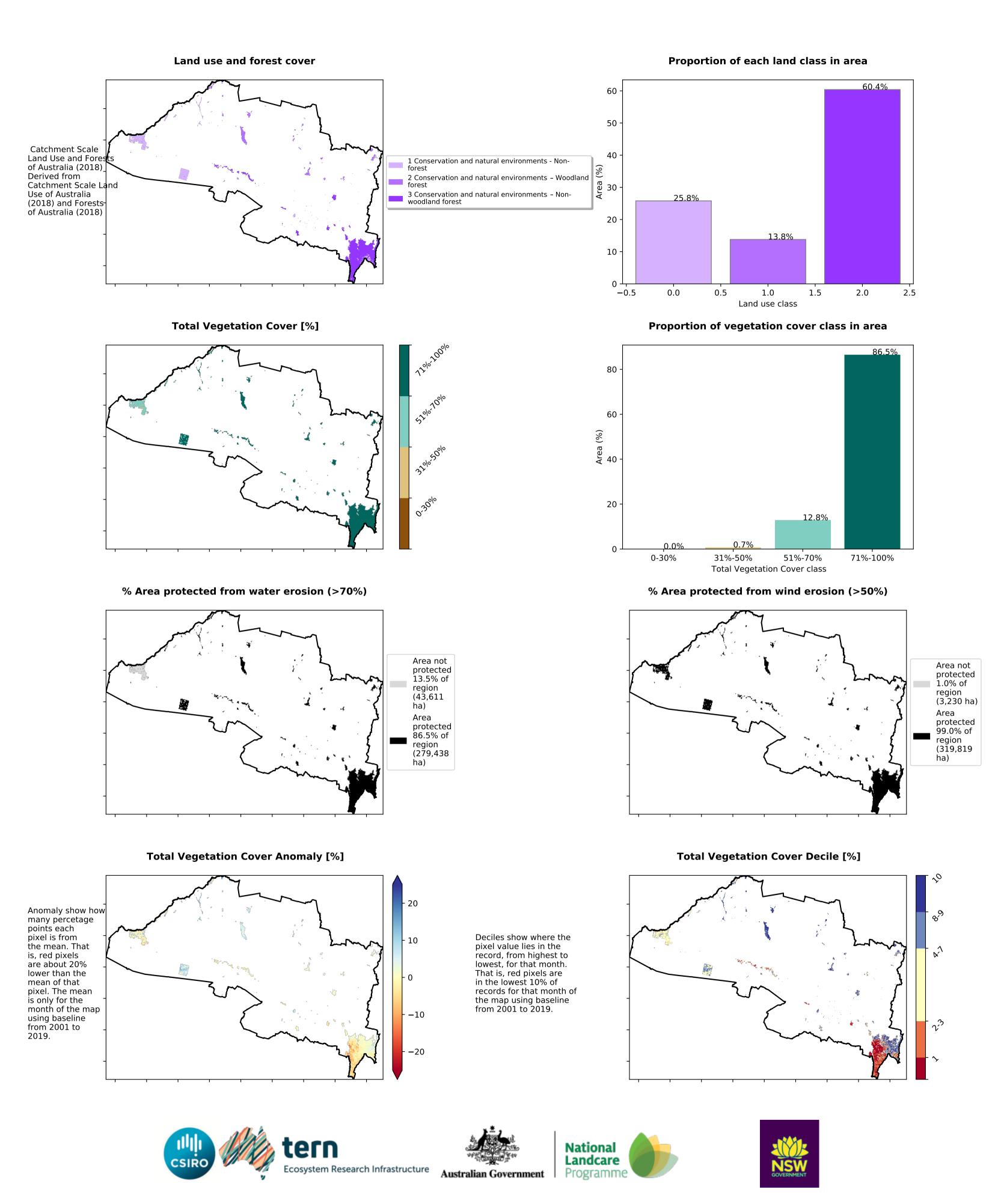




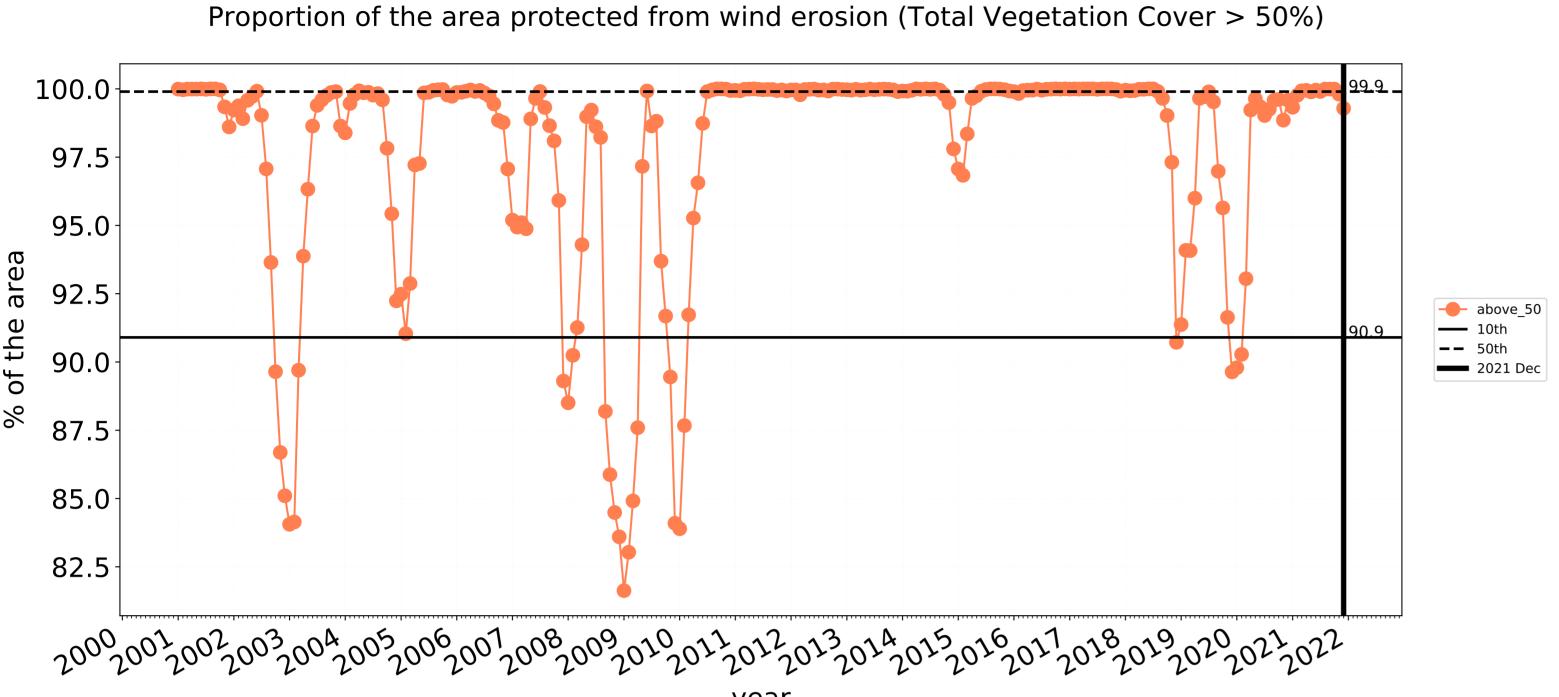


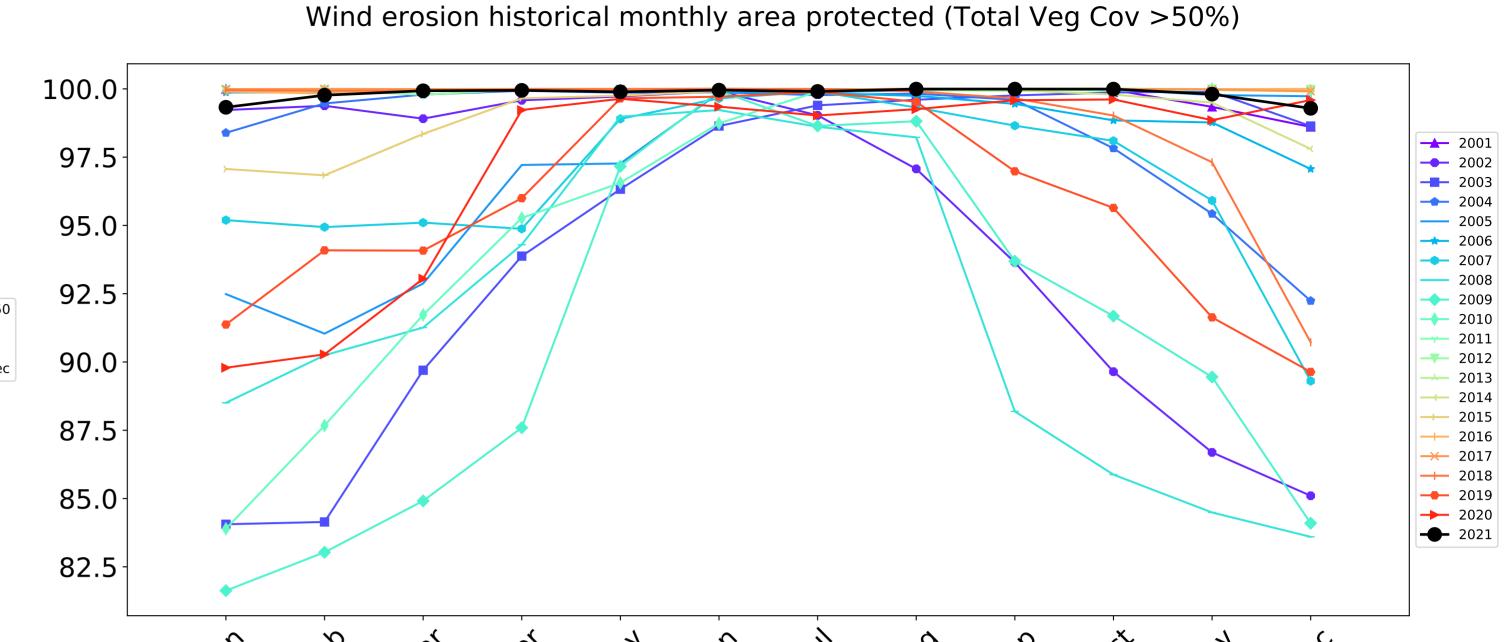


Conservation and natural environments

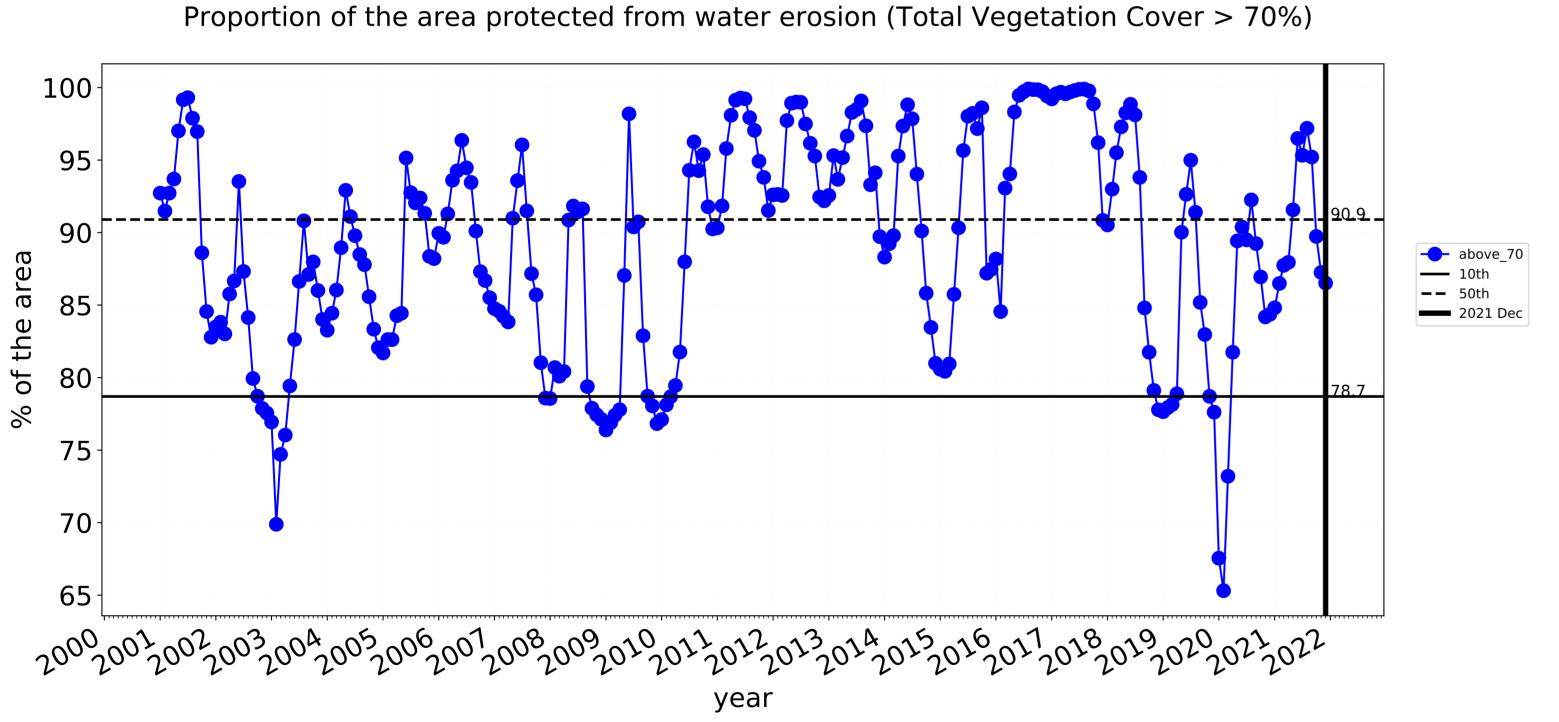


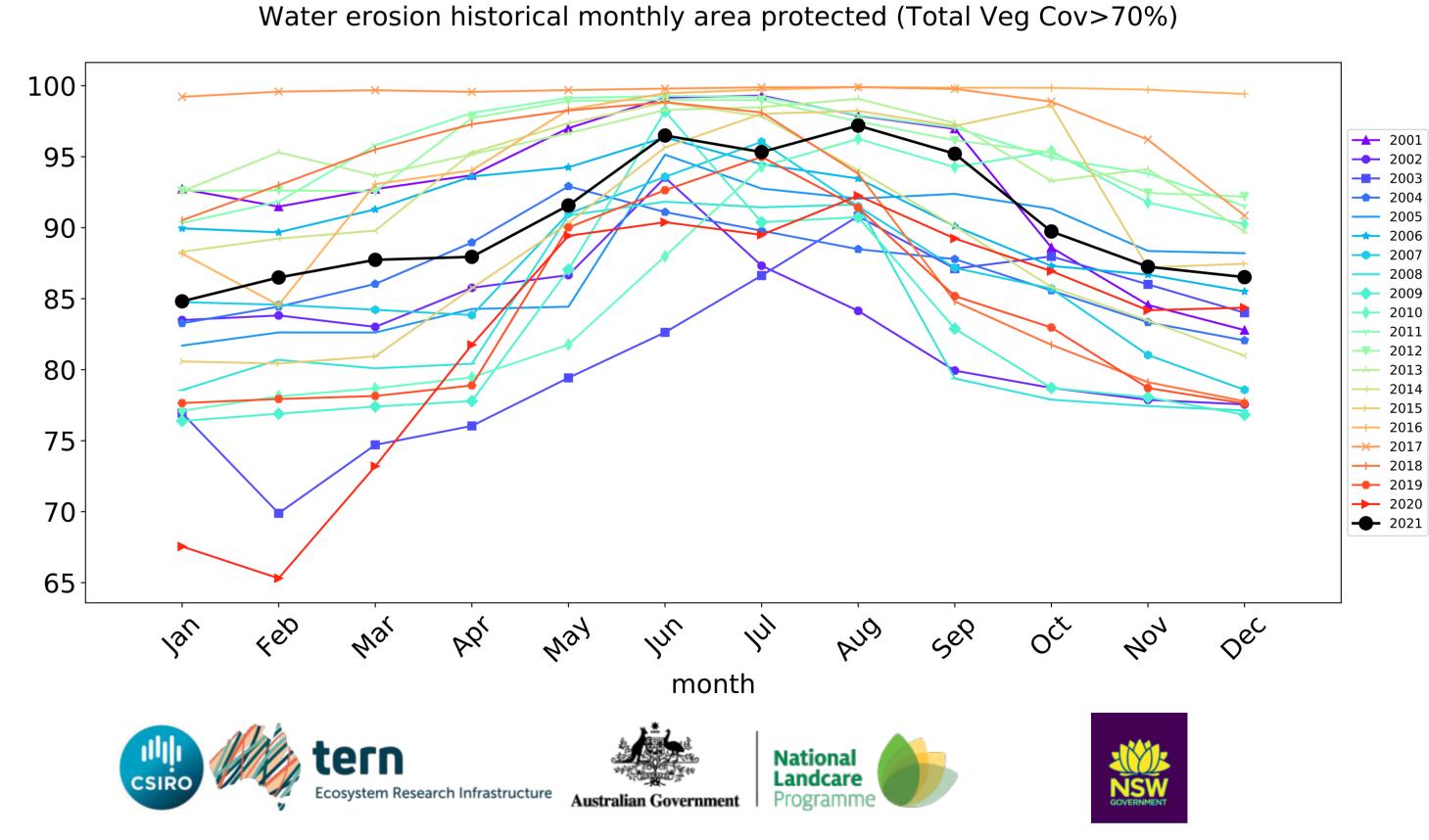
Conservation and natural environments timeseries





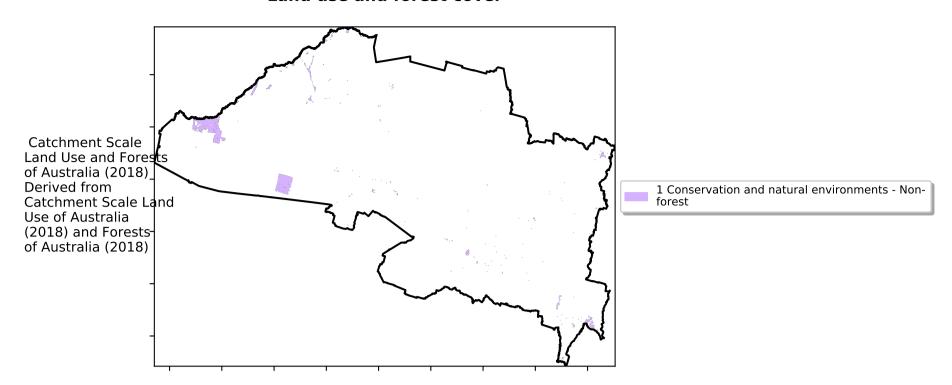
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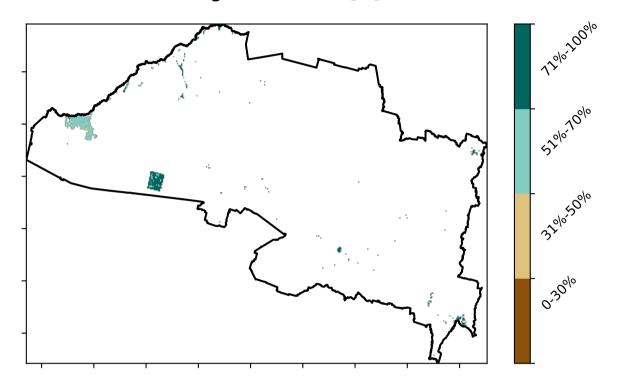


Conservation and natural environments non forest

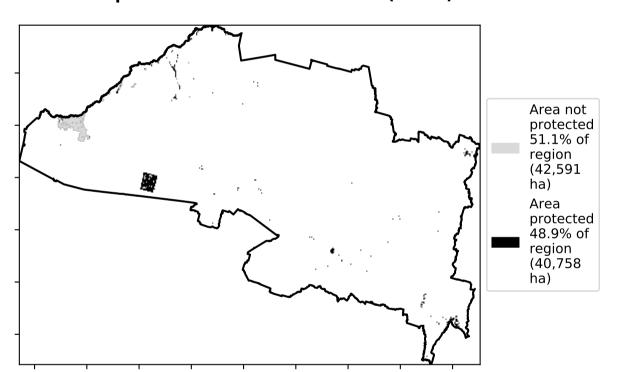
Land use and forest cover



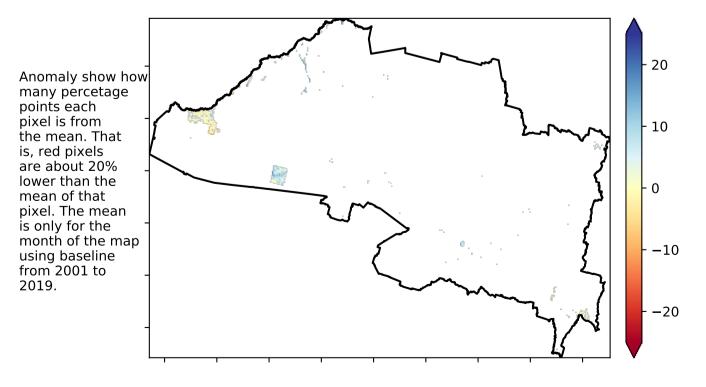
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

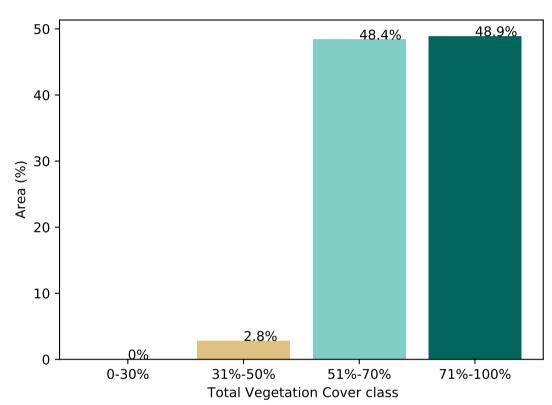


Total Vegetation Cover Anomaly [%]

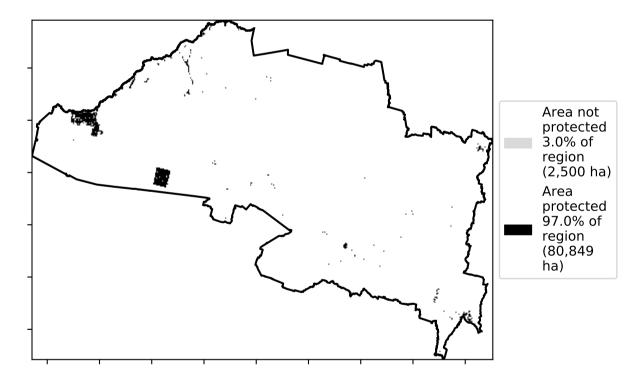


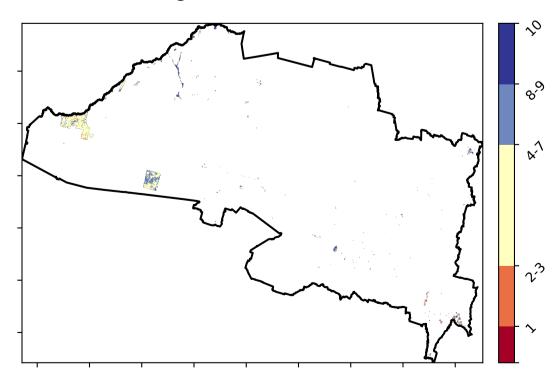
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





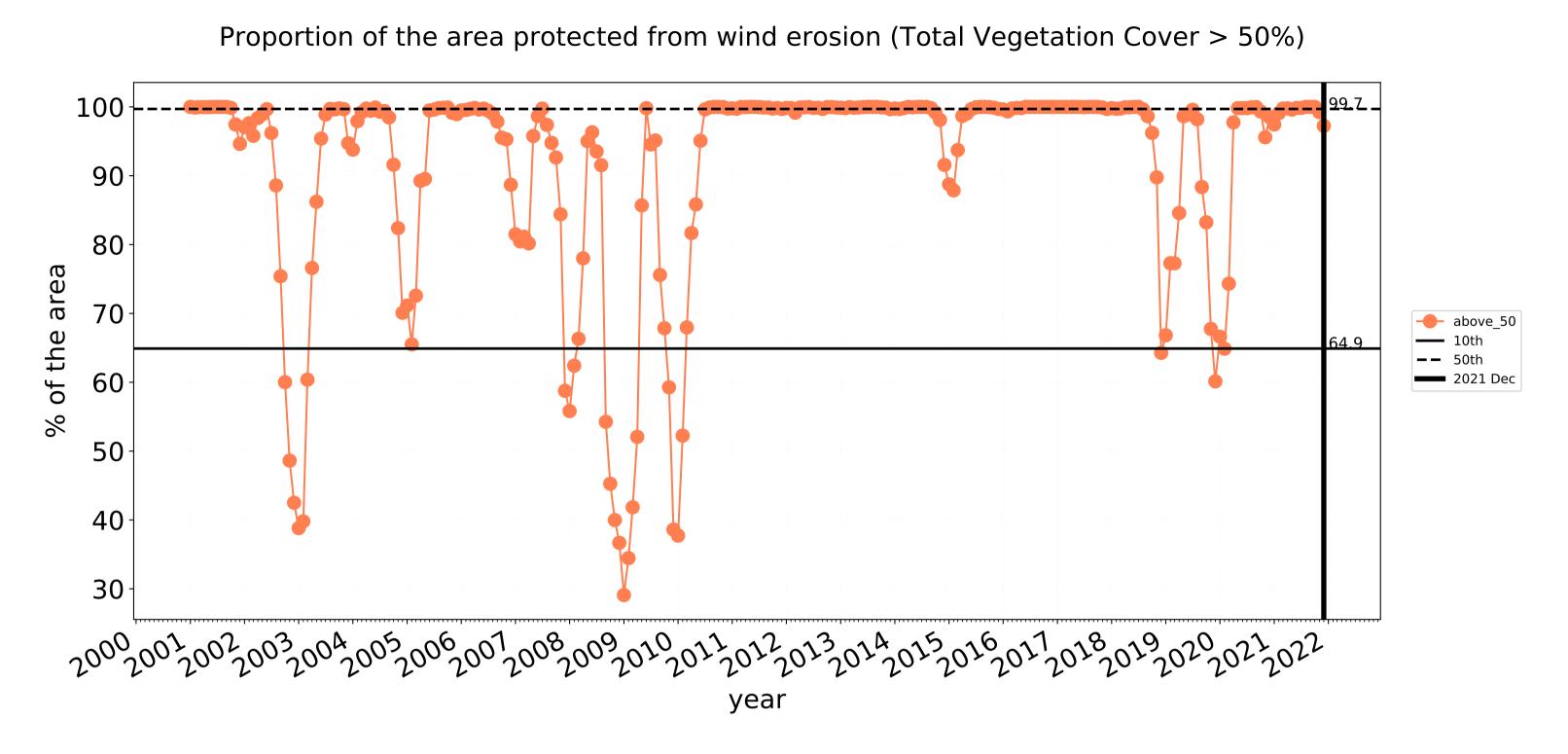


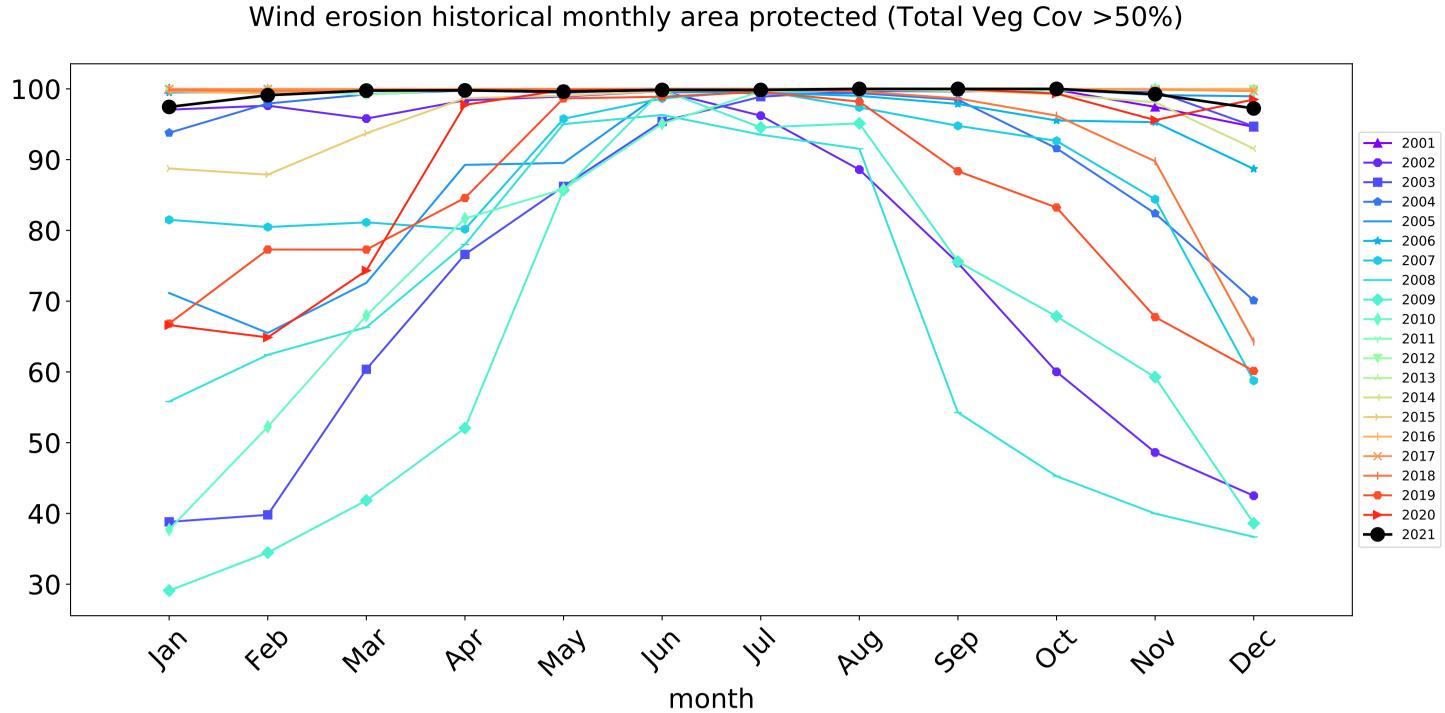


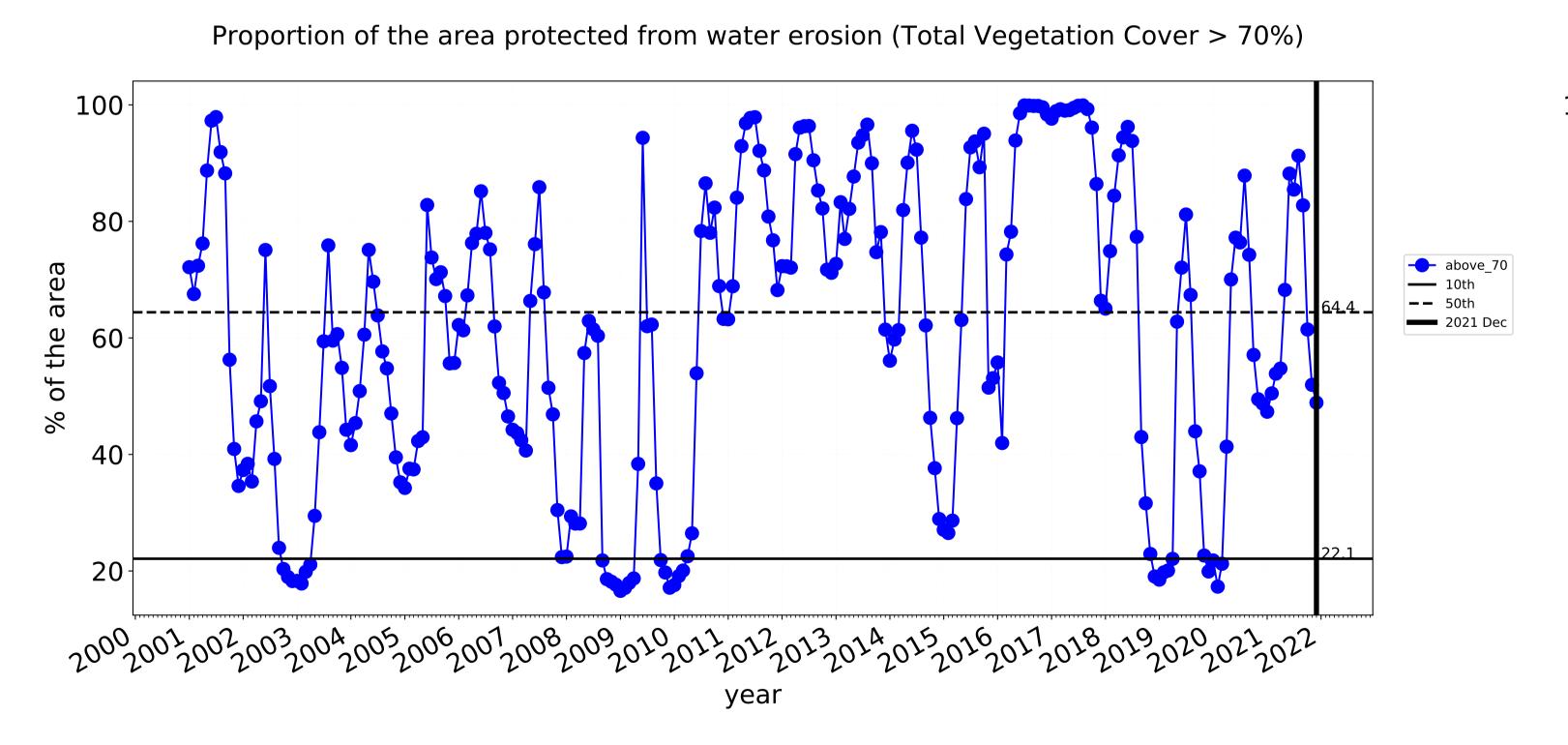


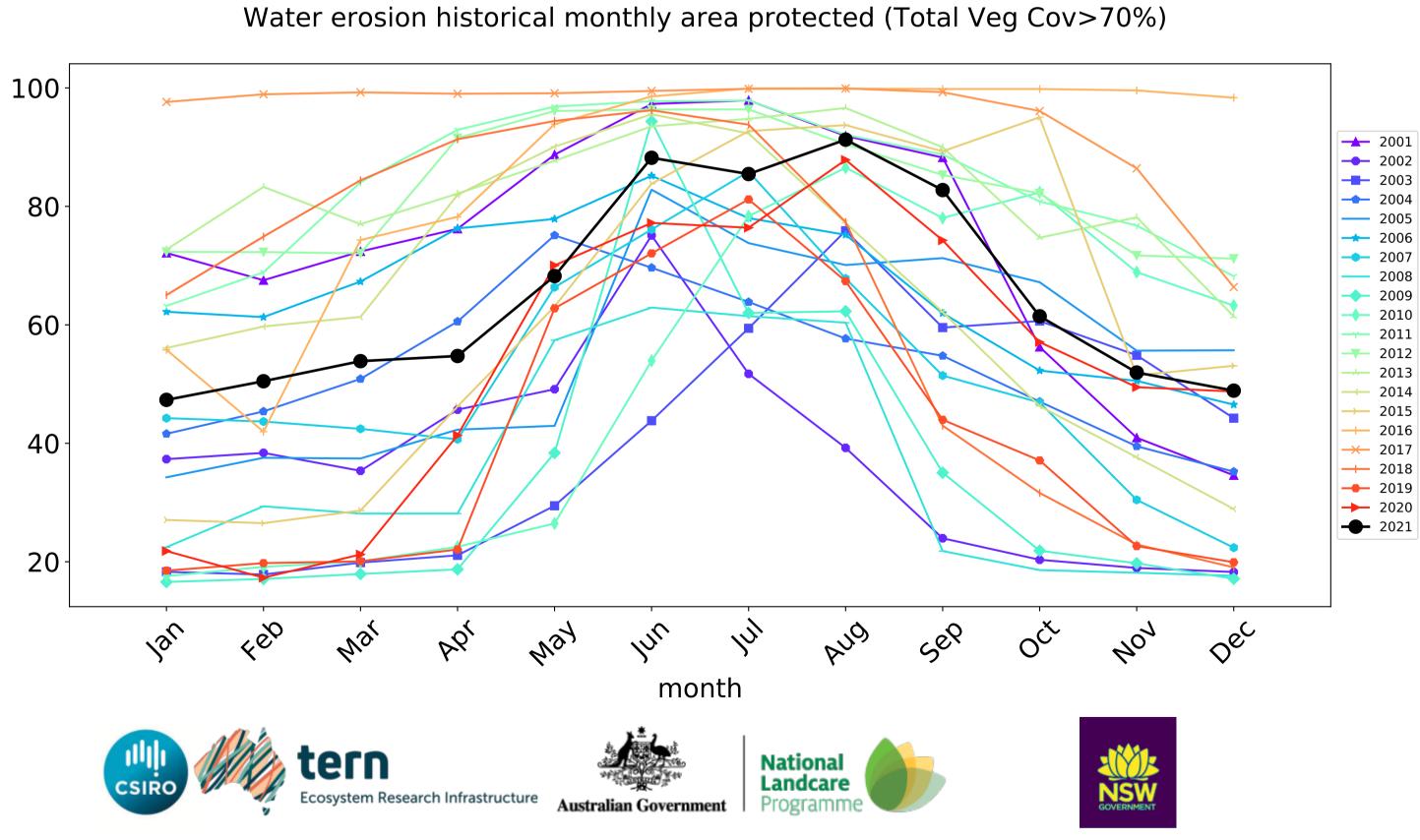


Conservation and natural environments non forest timeseries

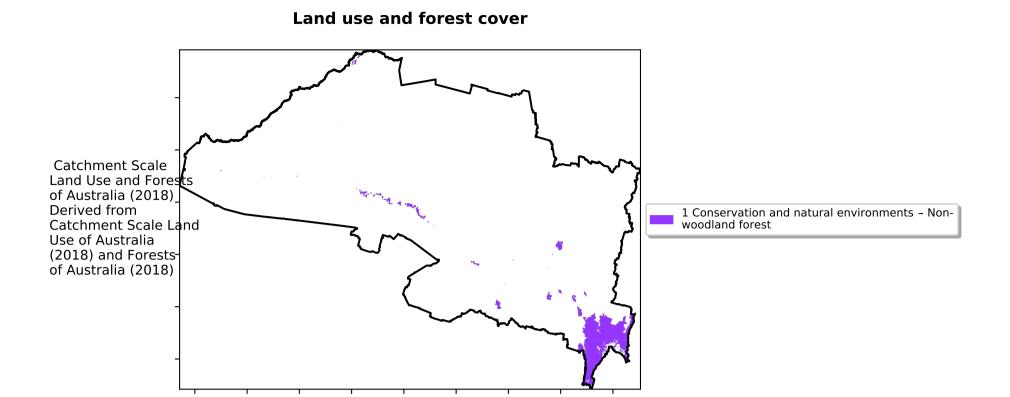




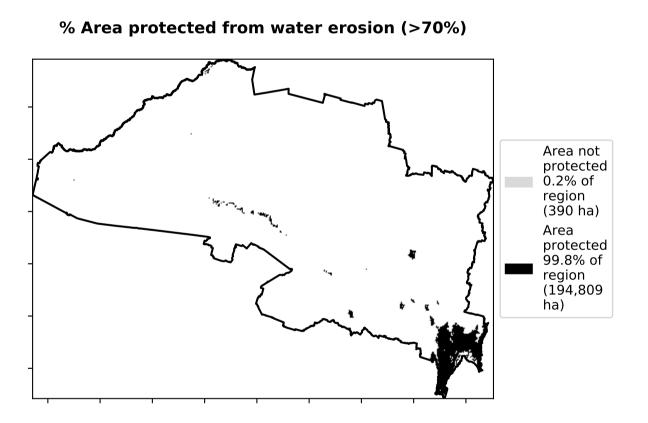


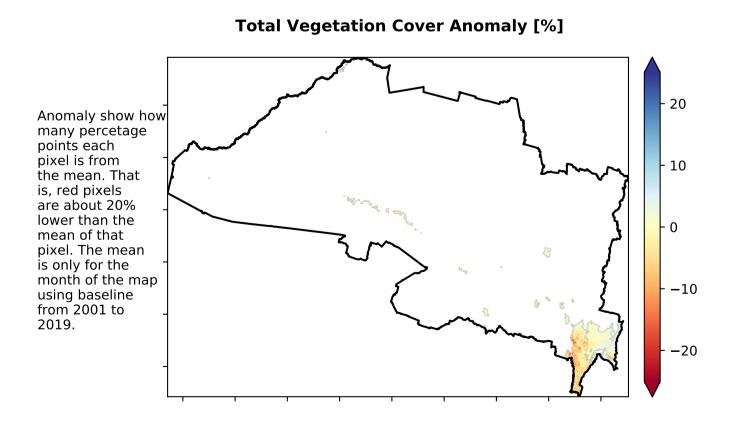


Conservation and natural environments Forest (non woodland)

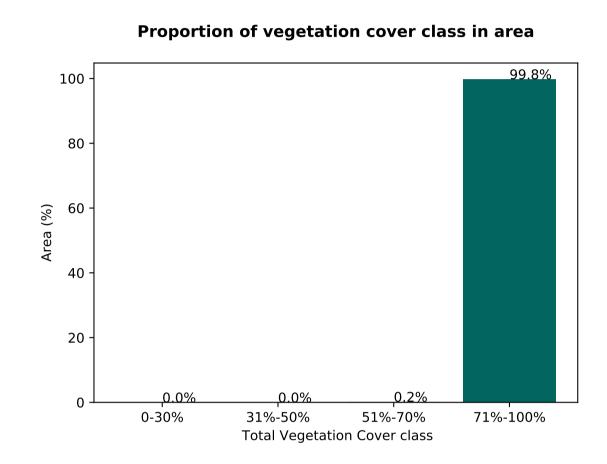


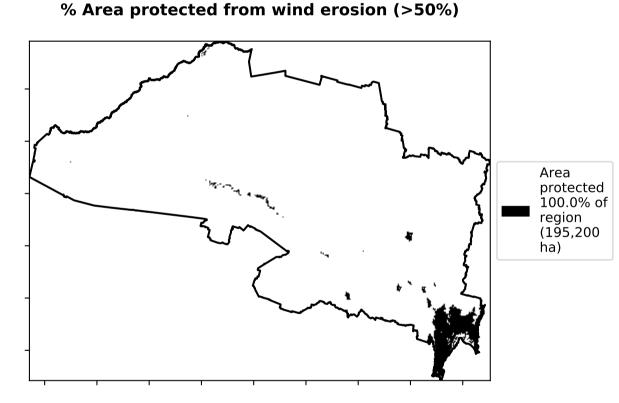
Total Vegetation Cover [%] Typic toolo Typ

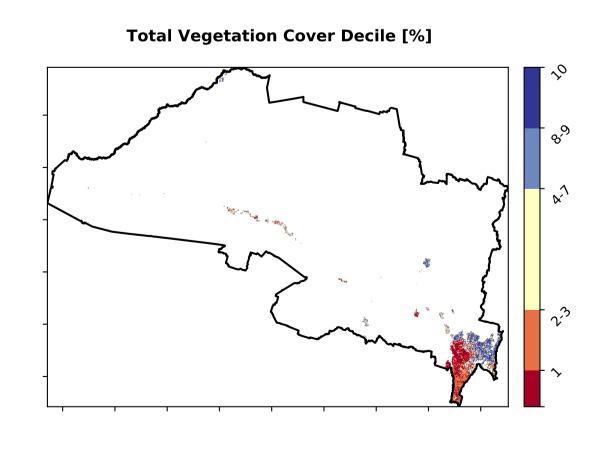




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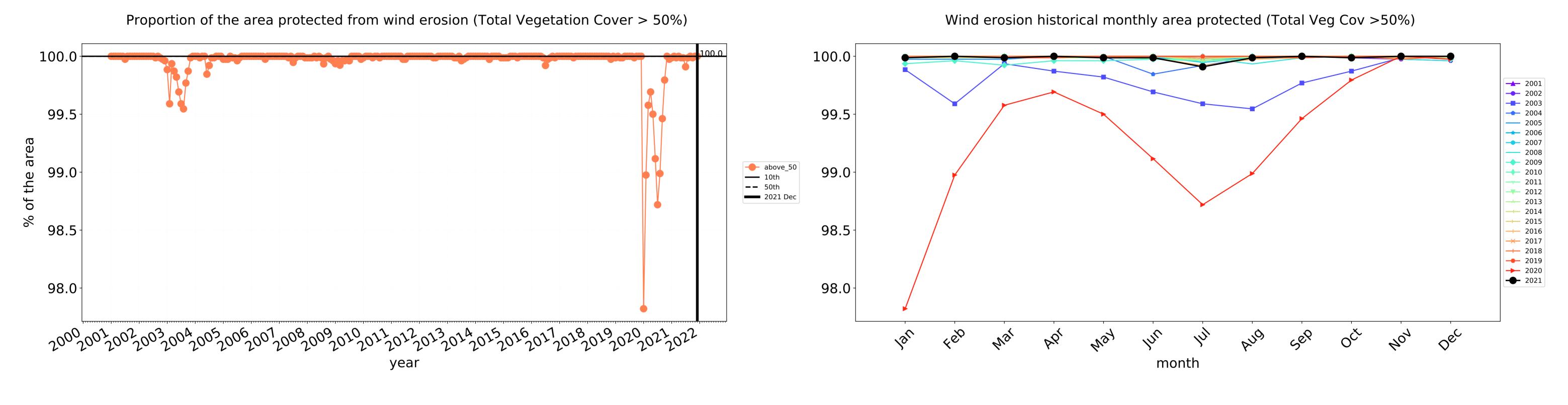


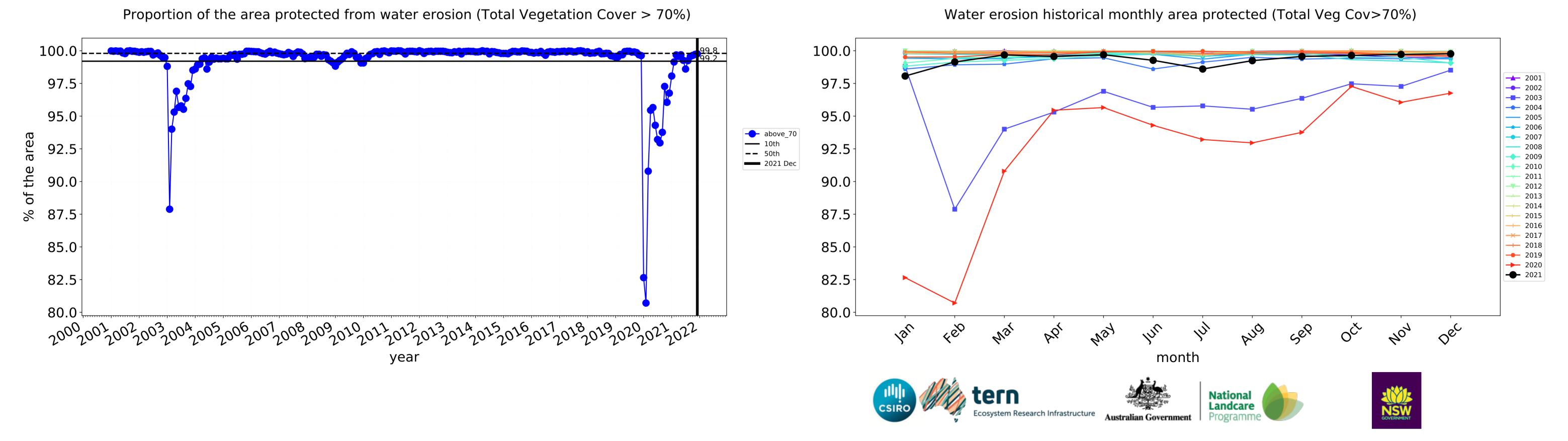








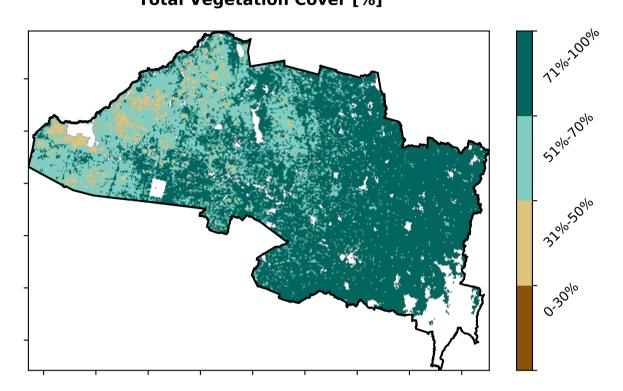




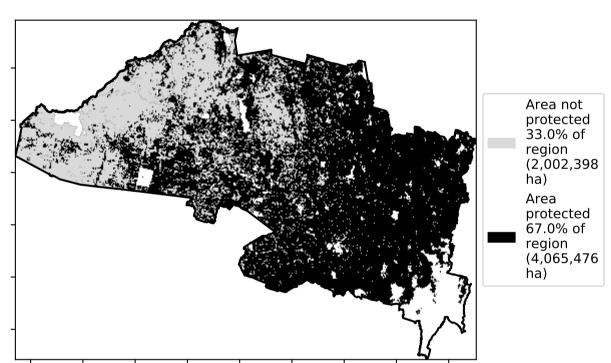
Agriculture

Catchment Scale Land Use and Forest 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 - Hortic

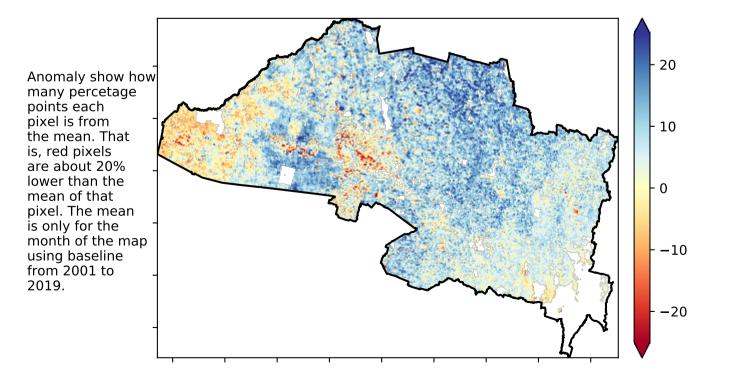
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

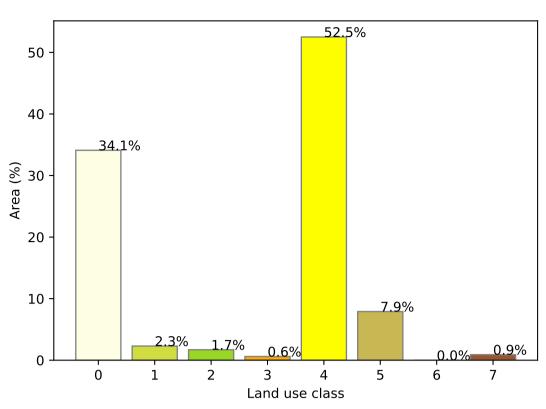


Total Vegetation Cover Anomaly [%]

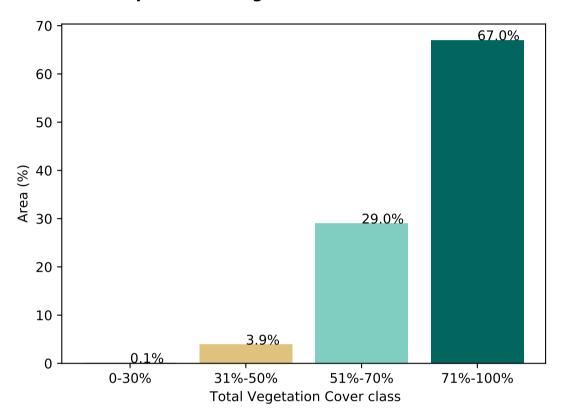


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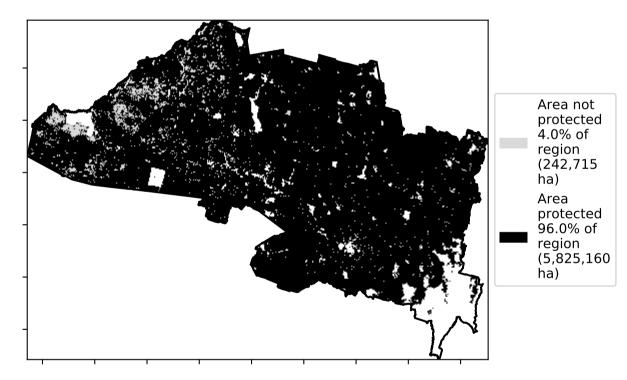
Proportion of each land class in area



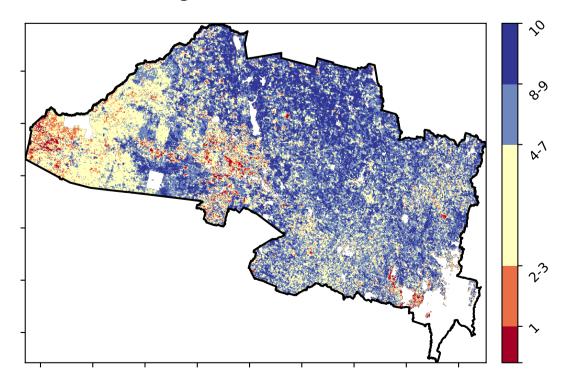
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]



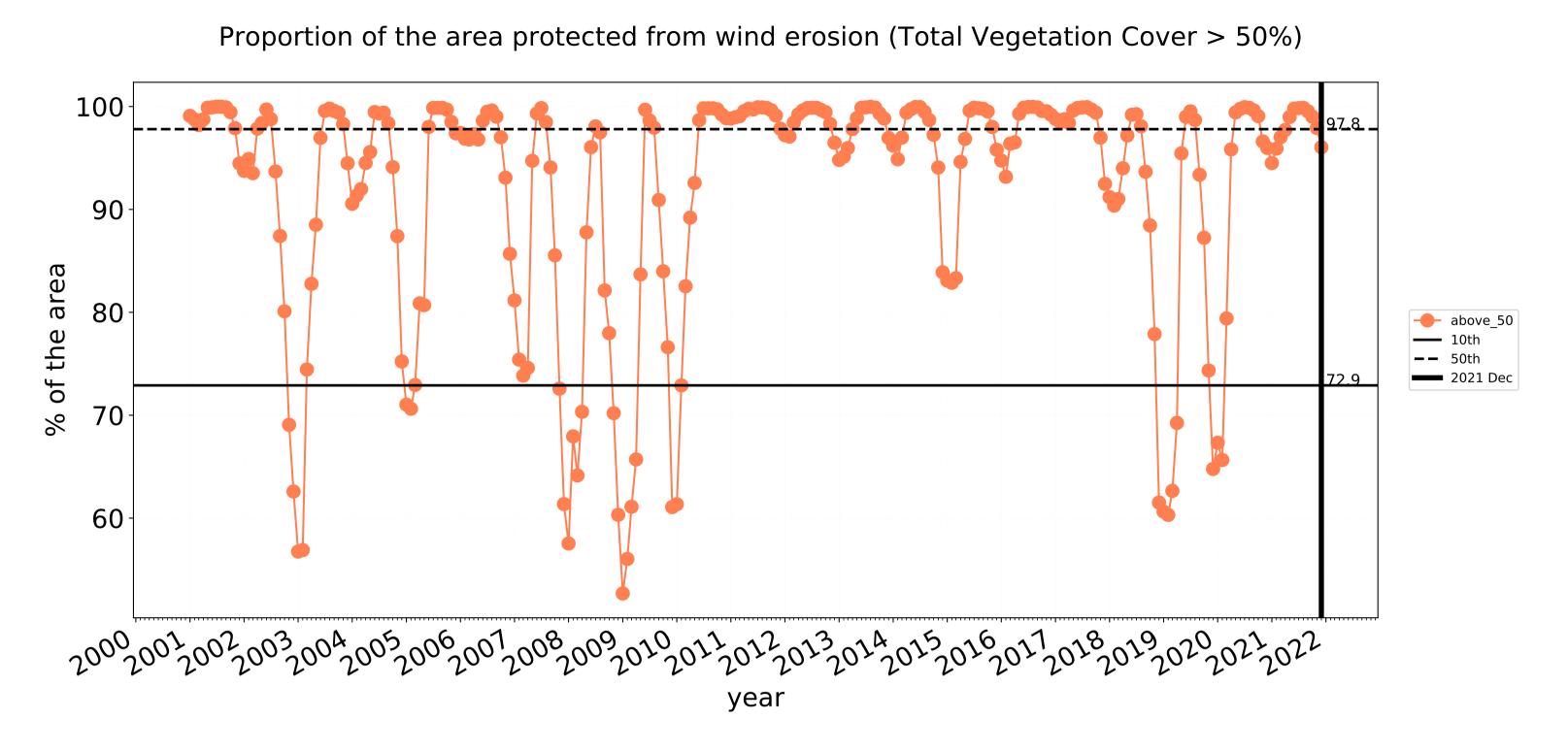


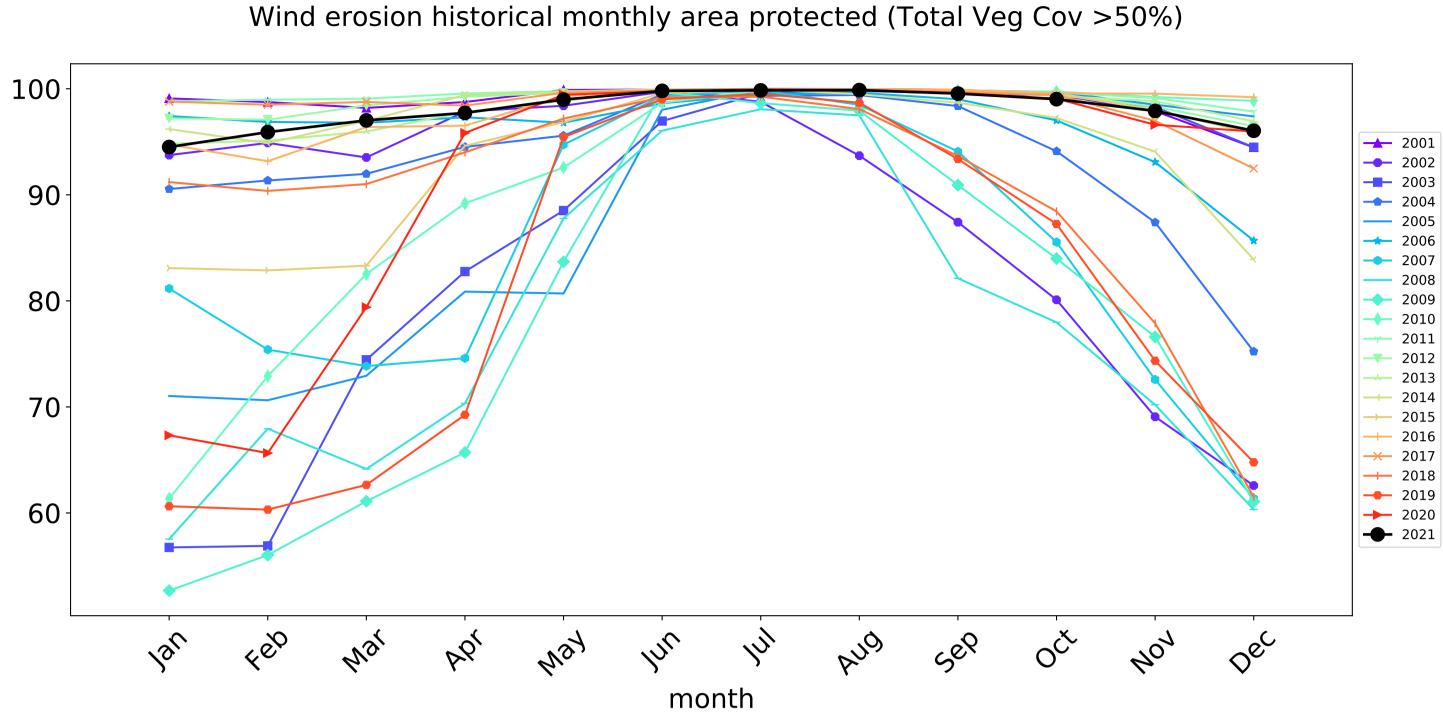


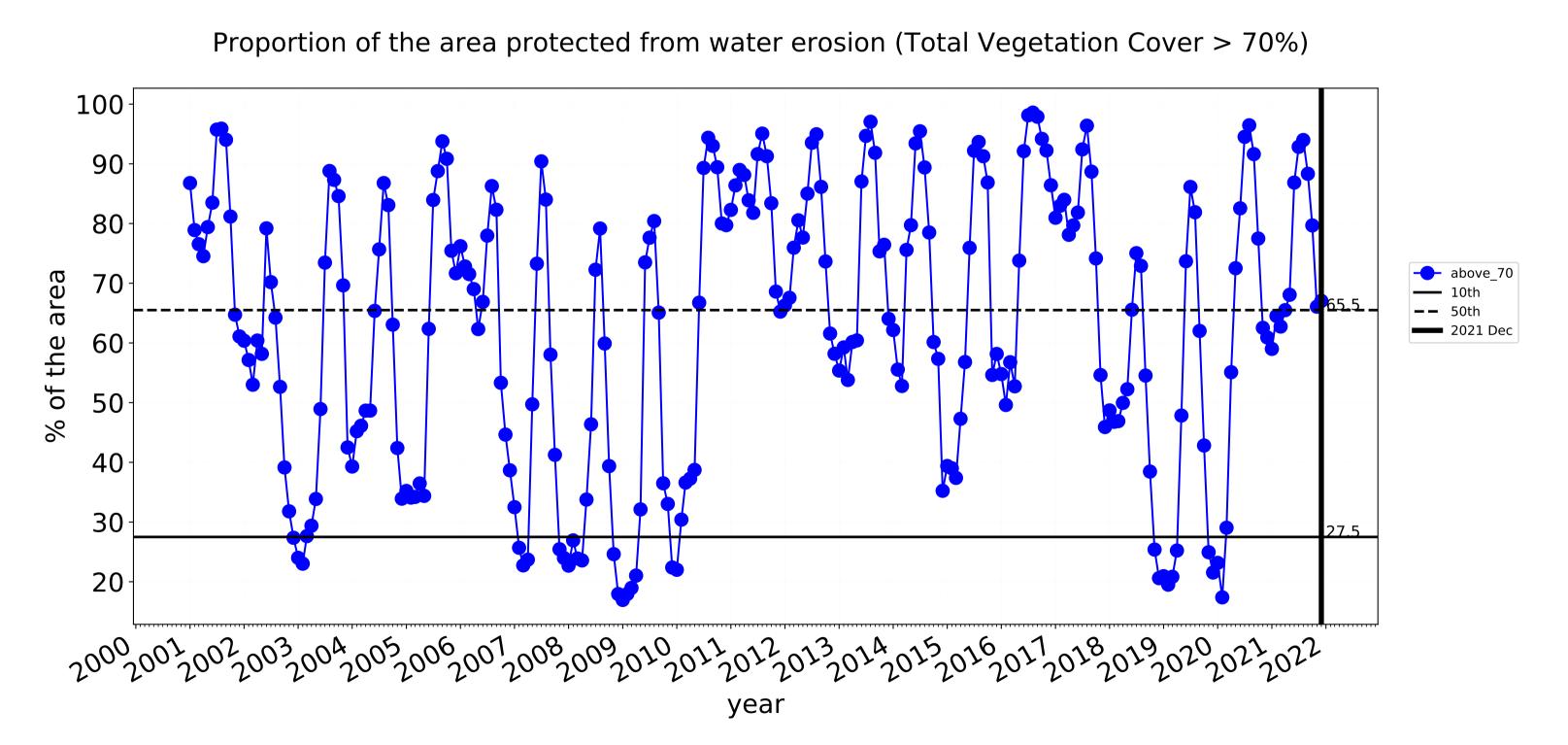


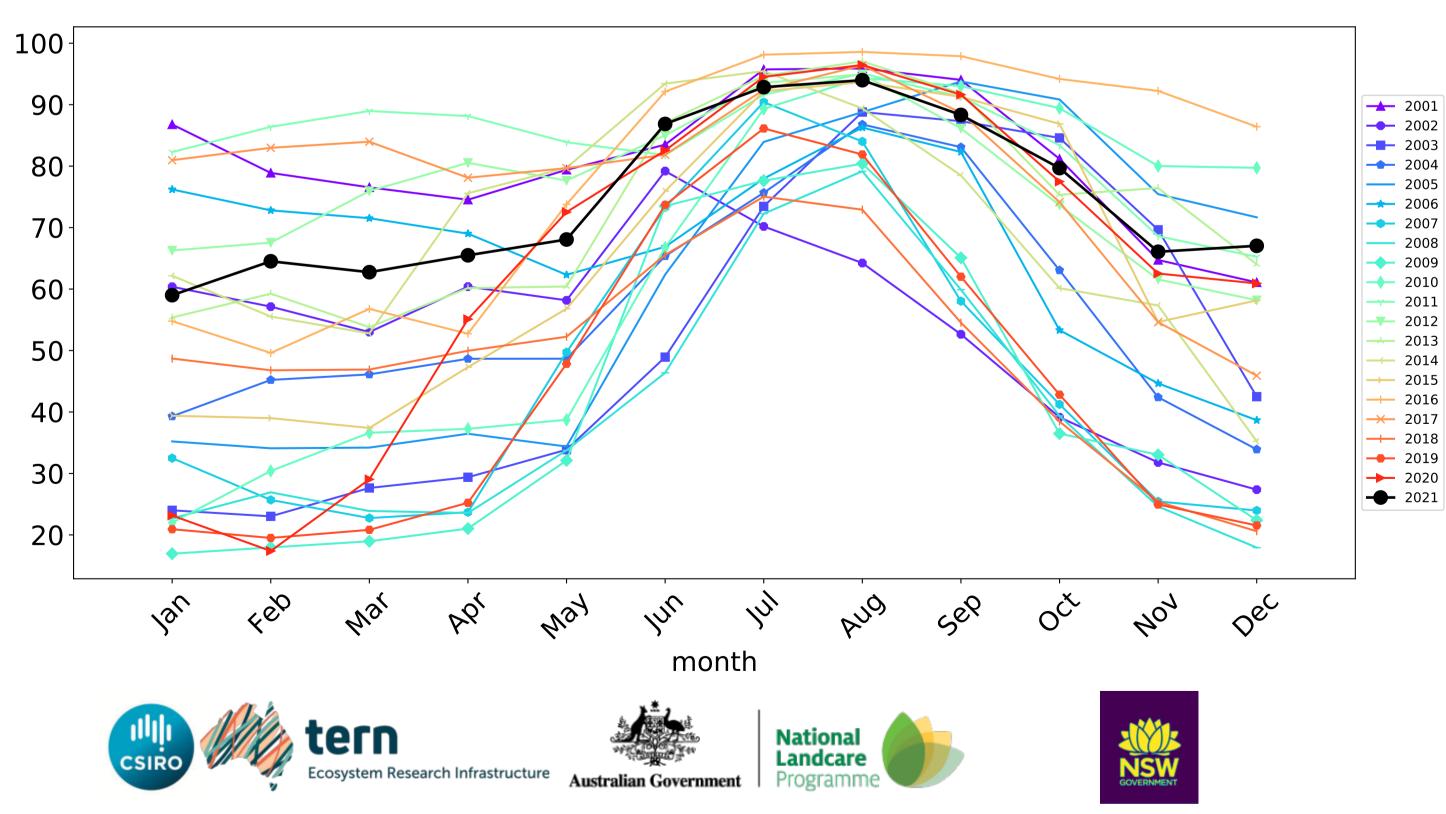


Agriculture timeseries









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

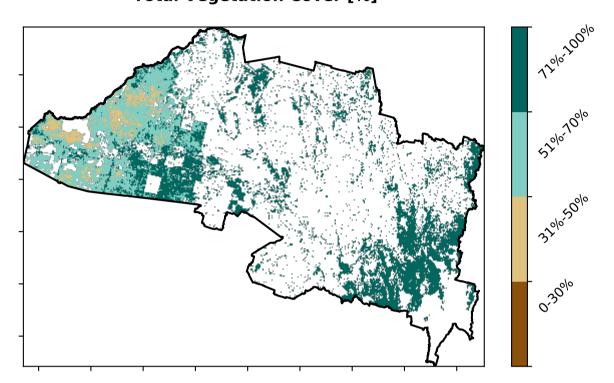
Grazing

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)

89.4% 60 -(%) 40 -20 -

Proportion of each land class in area

Total Vegetation Cover [%]



Proportion of vegetation cover class in area

1.0

Land use class

1.5

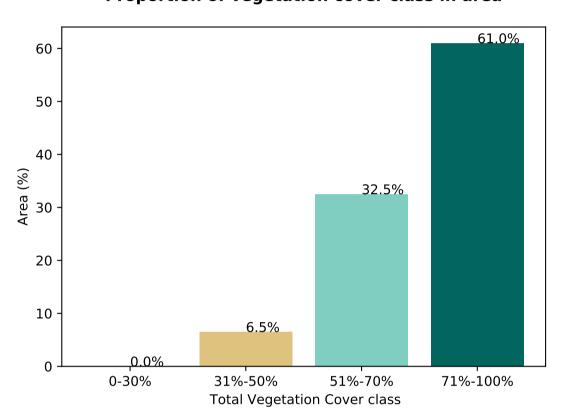
2.0

2.5

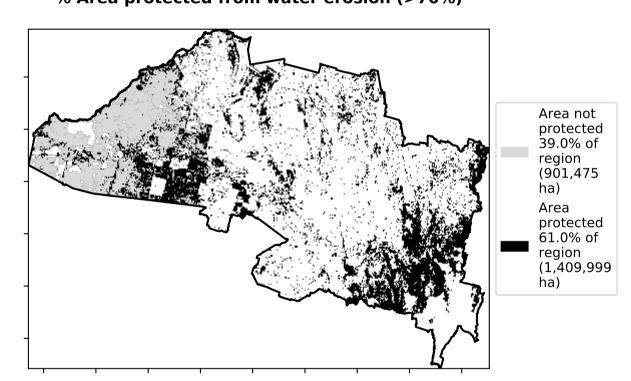
0.5

-0.5

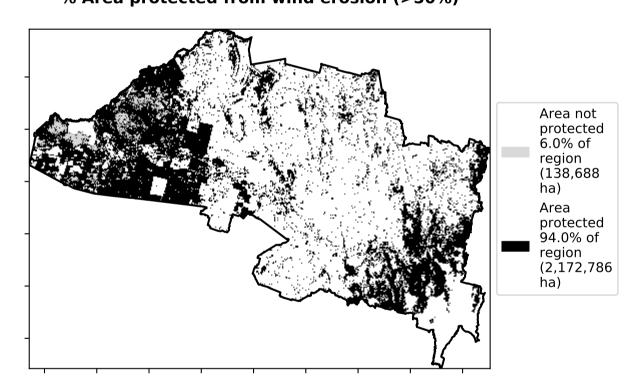
0.0



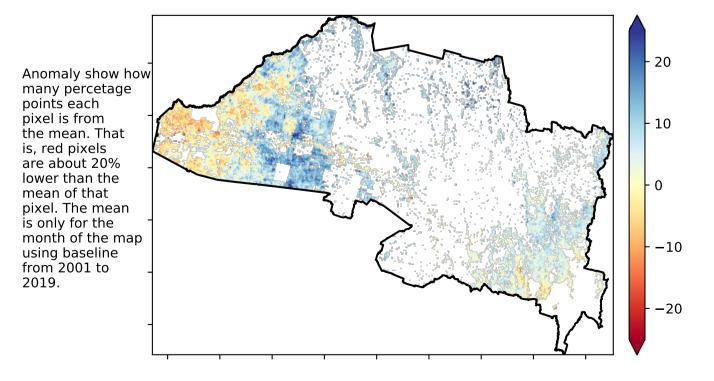
% Area protected from water erosion (>70%)



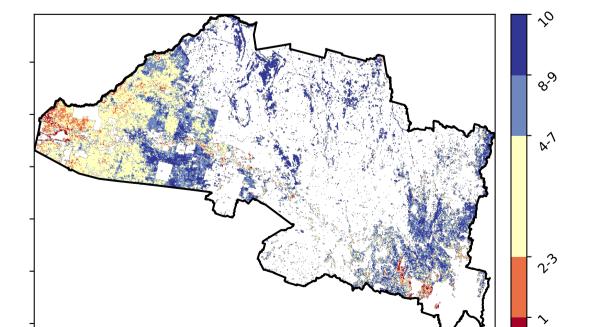
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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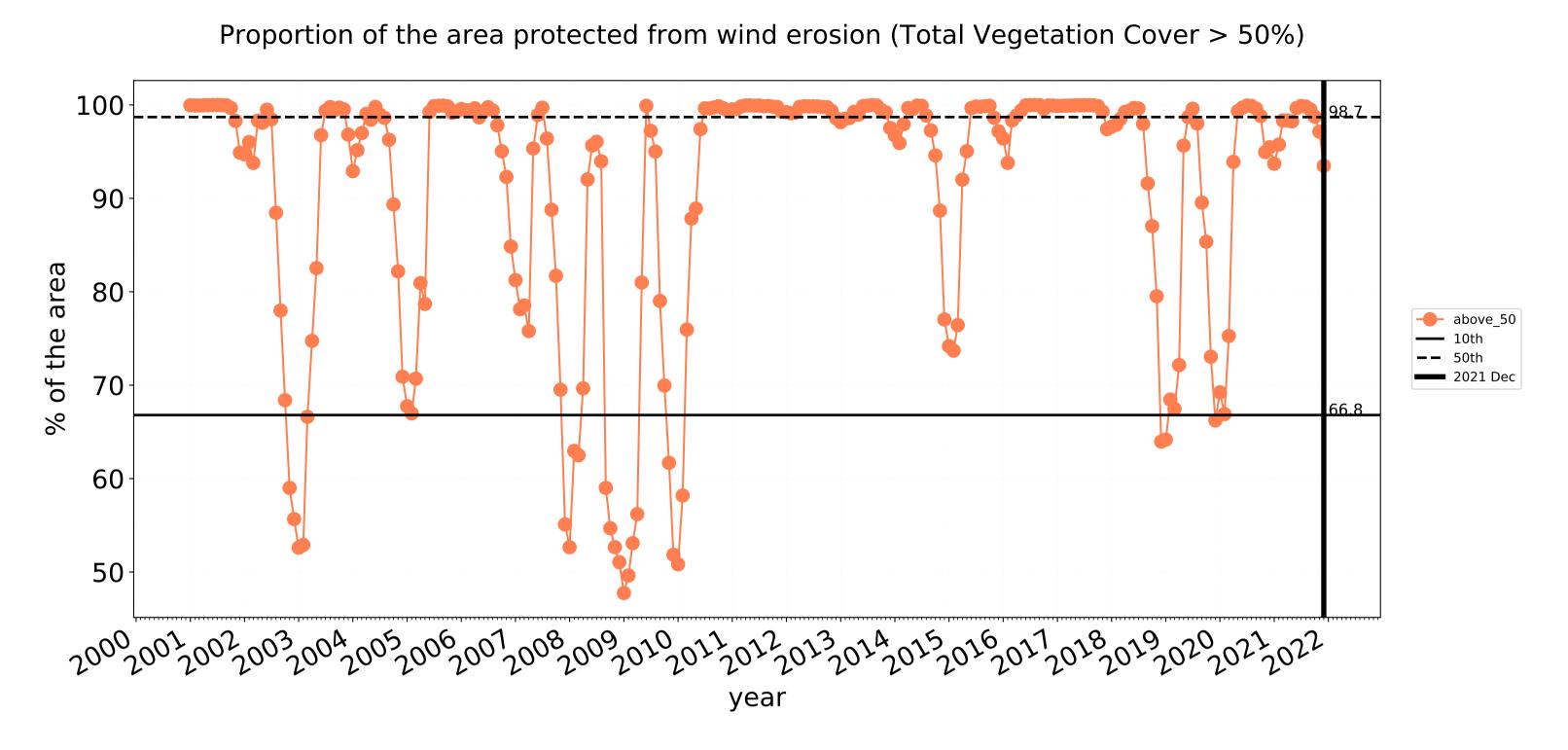


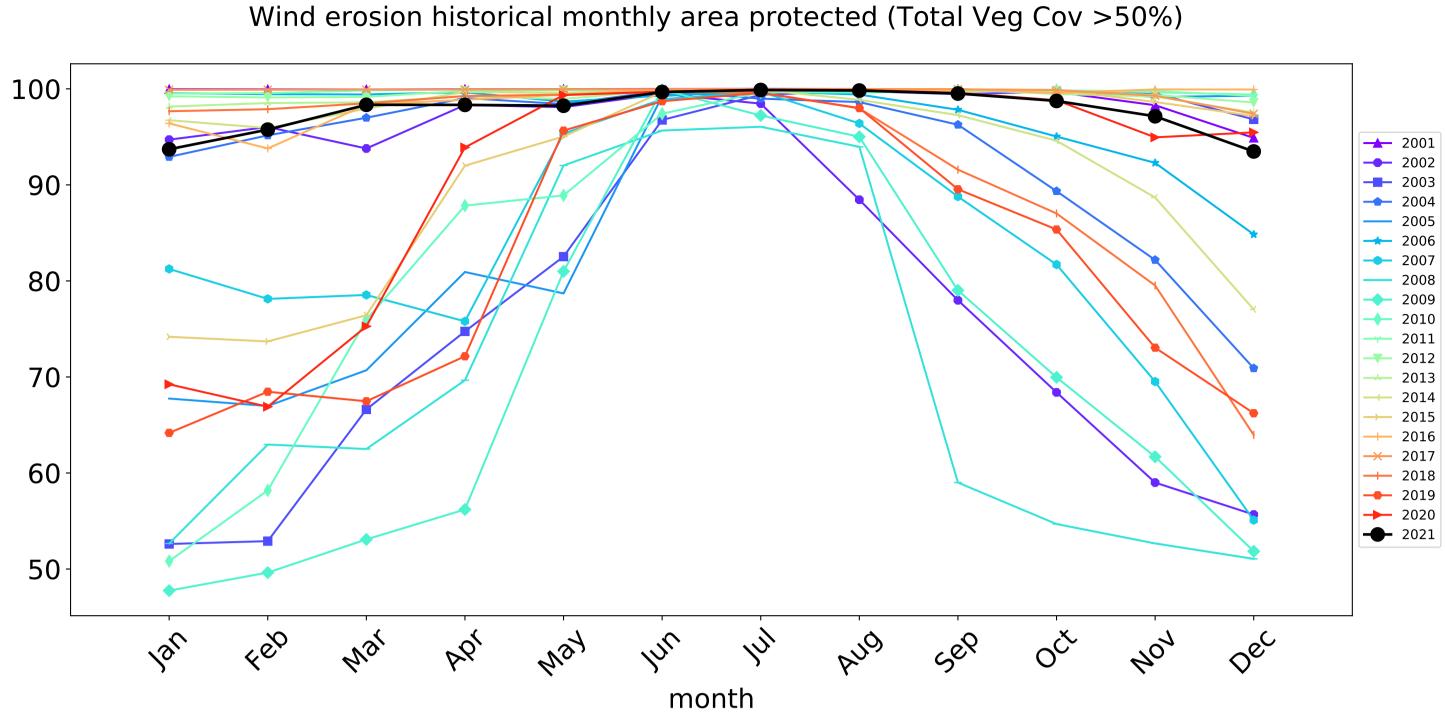


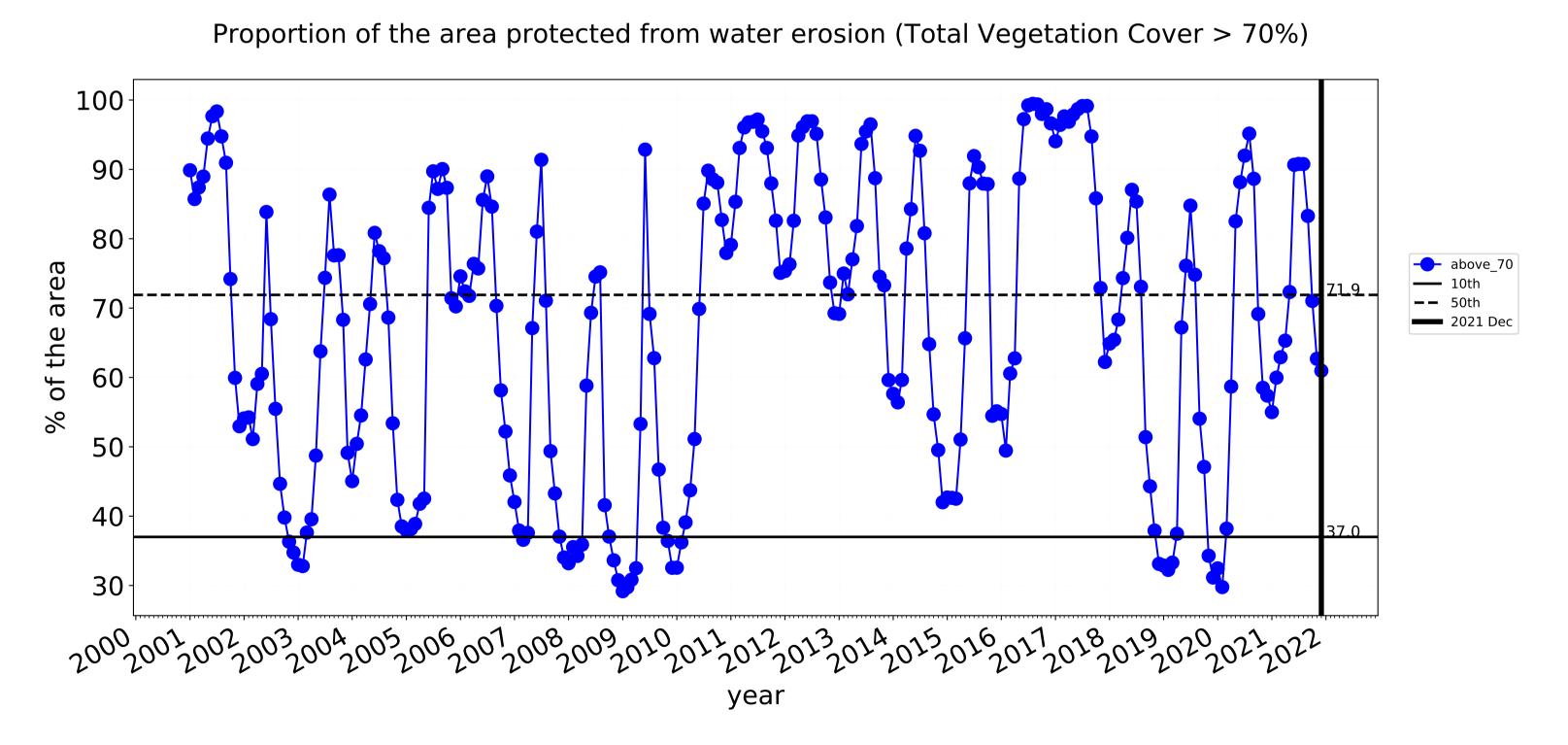


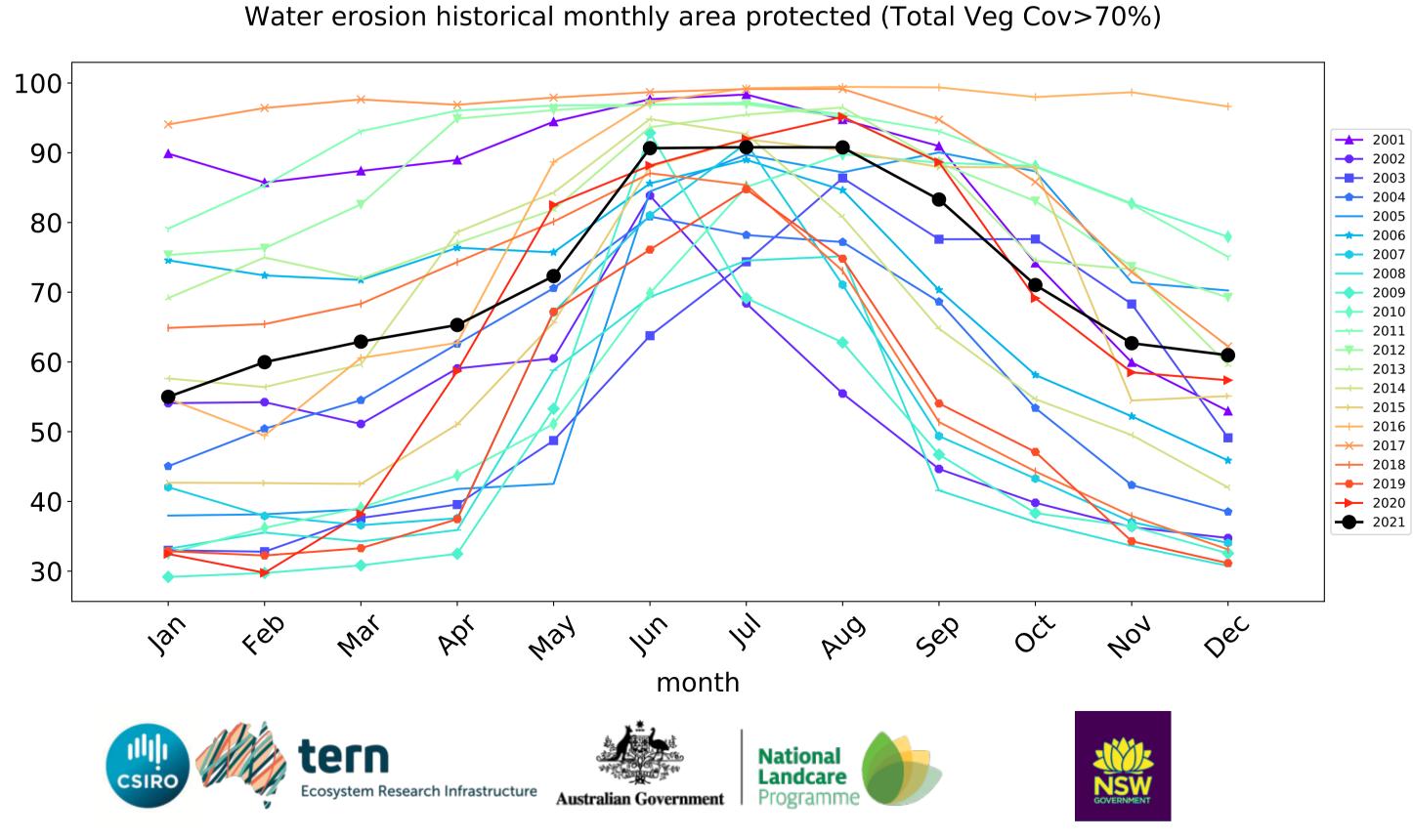


Grazing timeseries



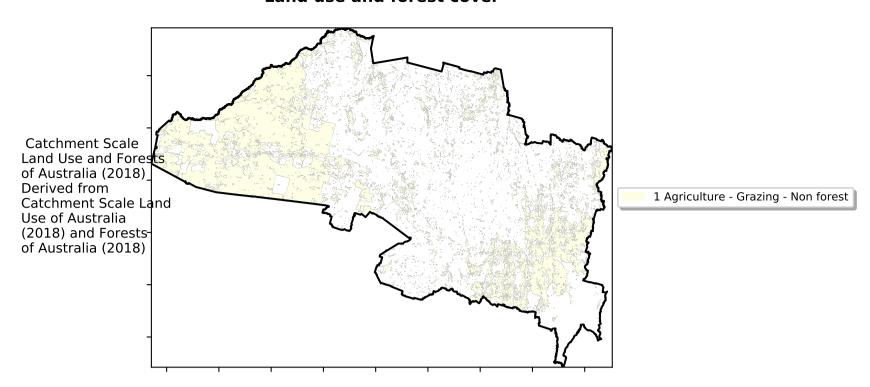




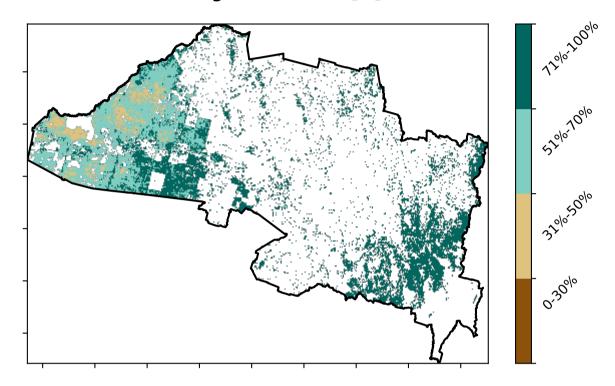


Grazing non forest

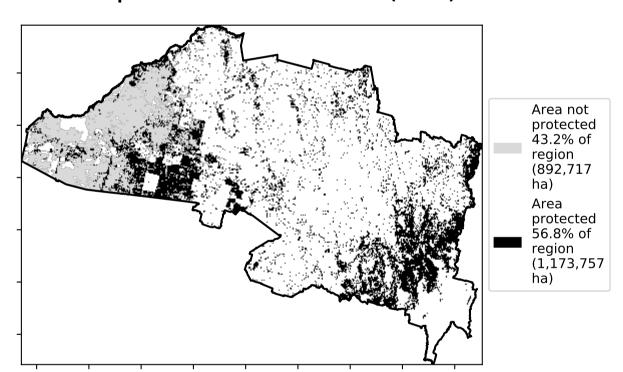
Land use and forest cover



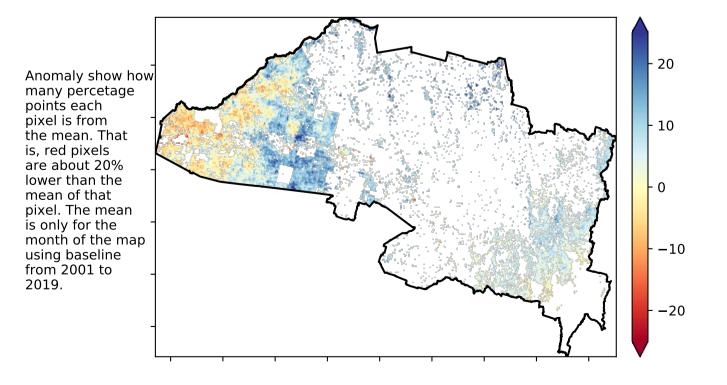
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

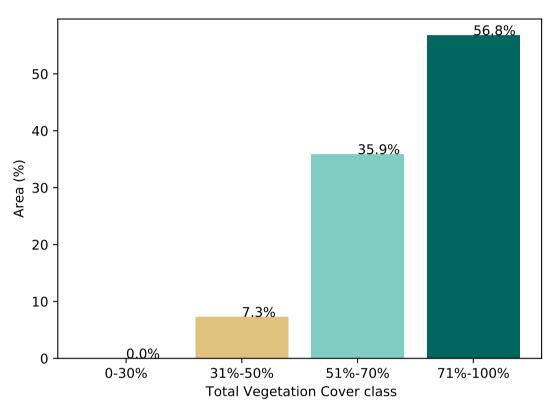


Total Vegetation Cover Anomaly [%]

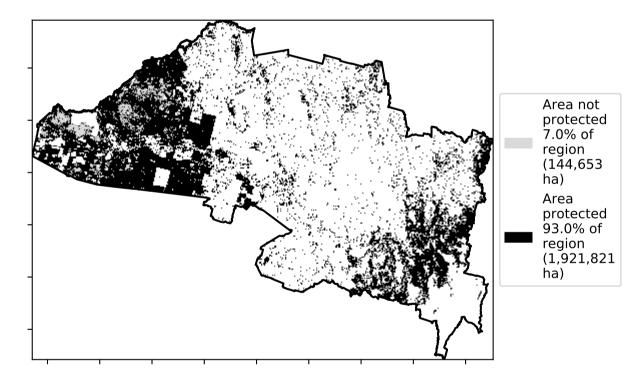


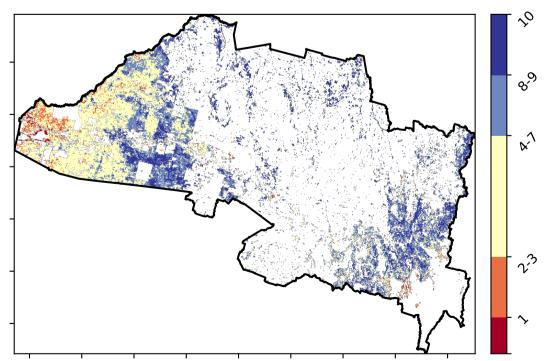
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





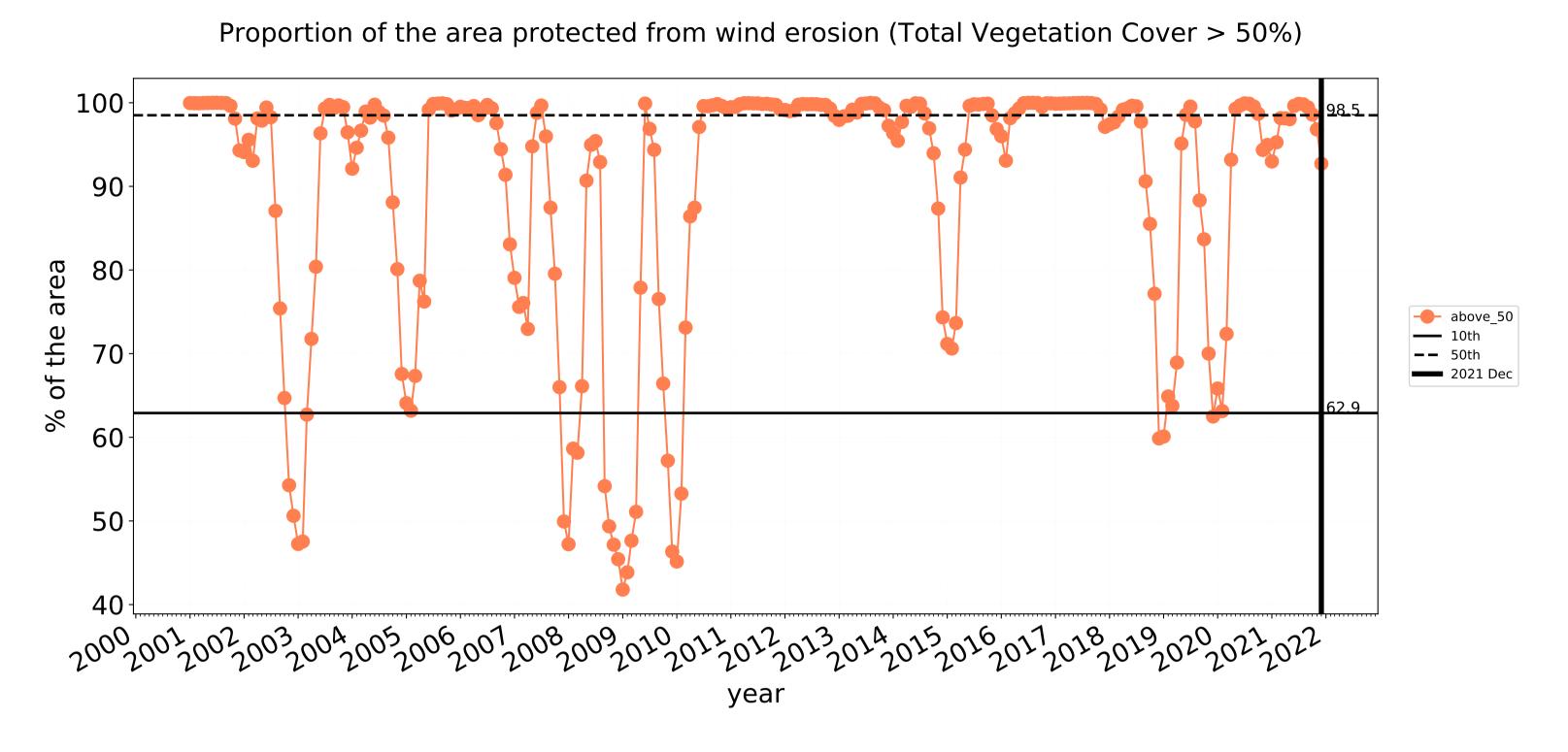


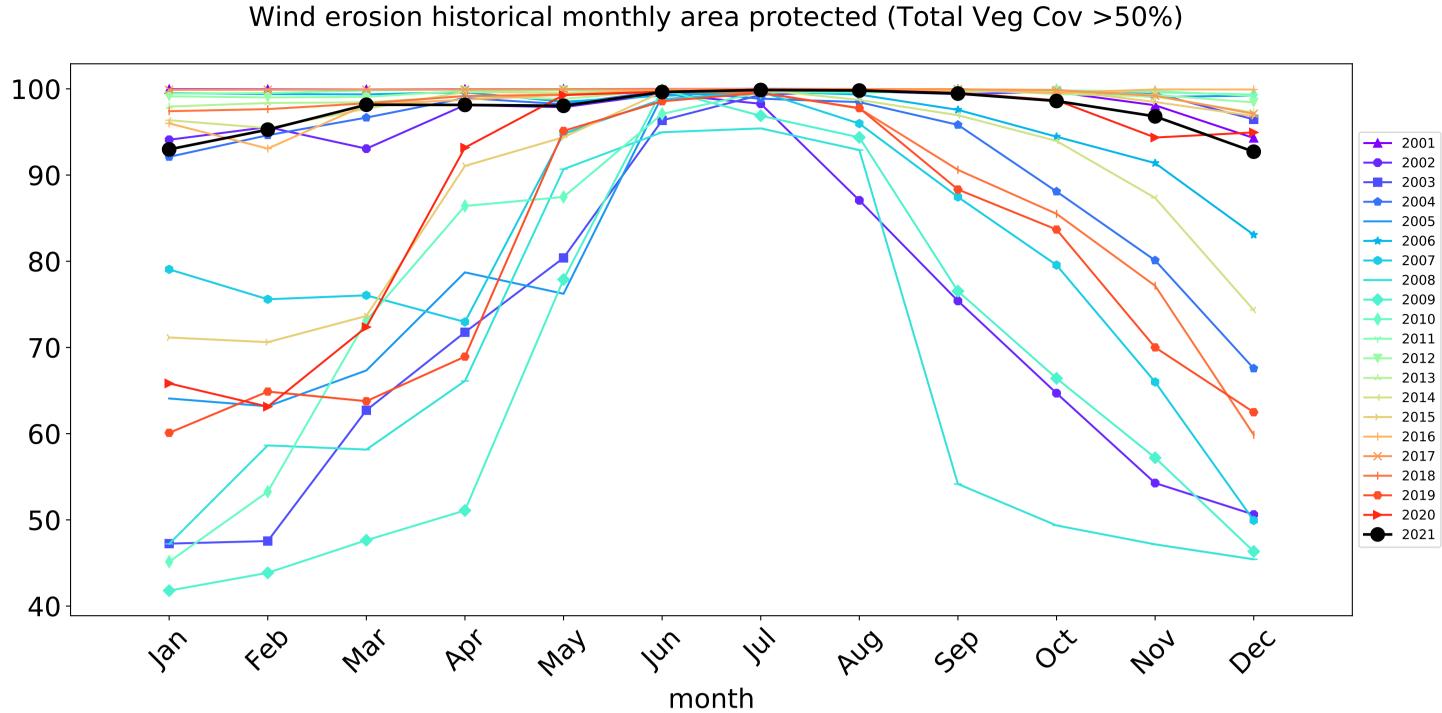


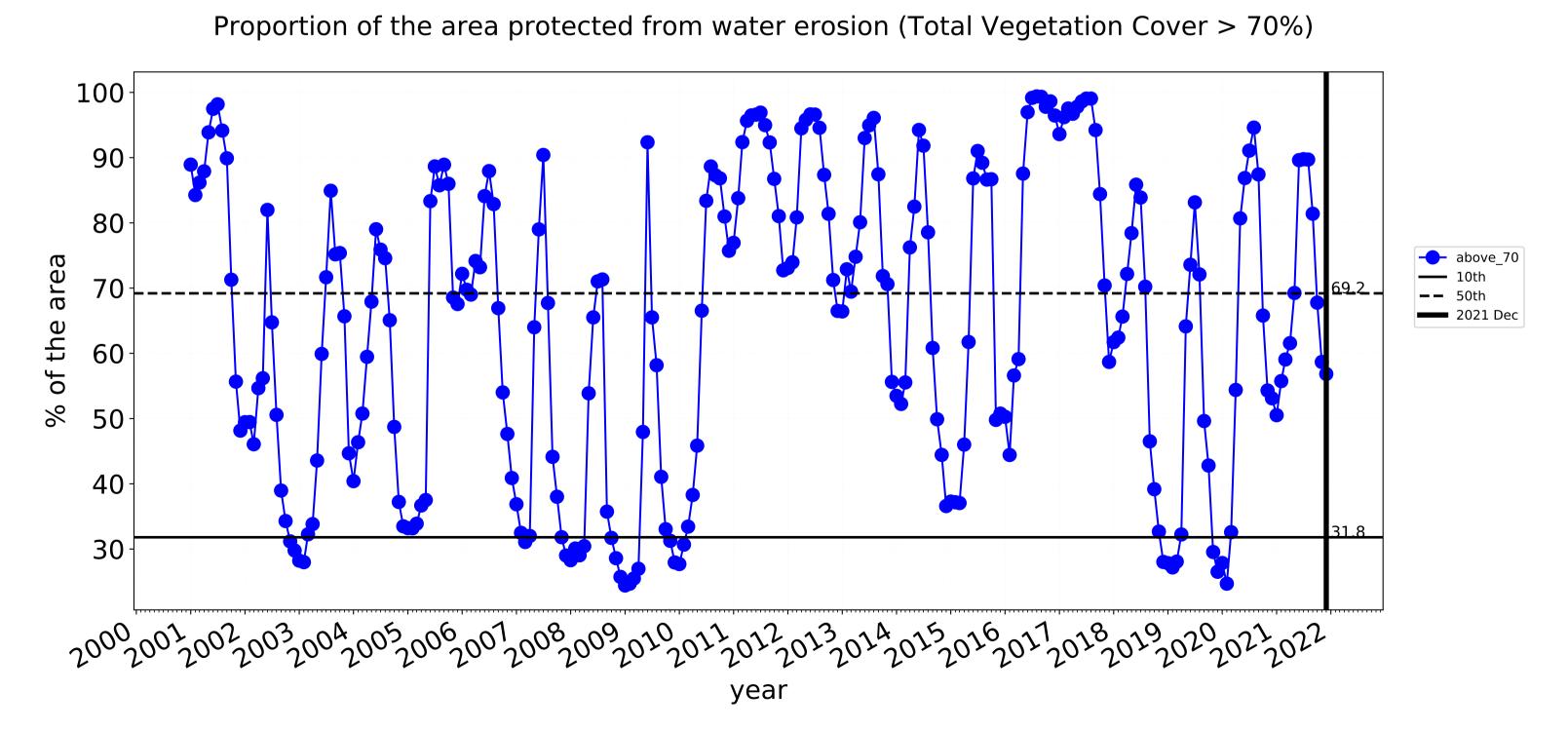


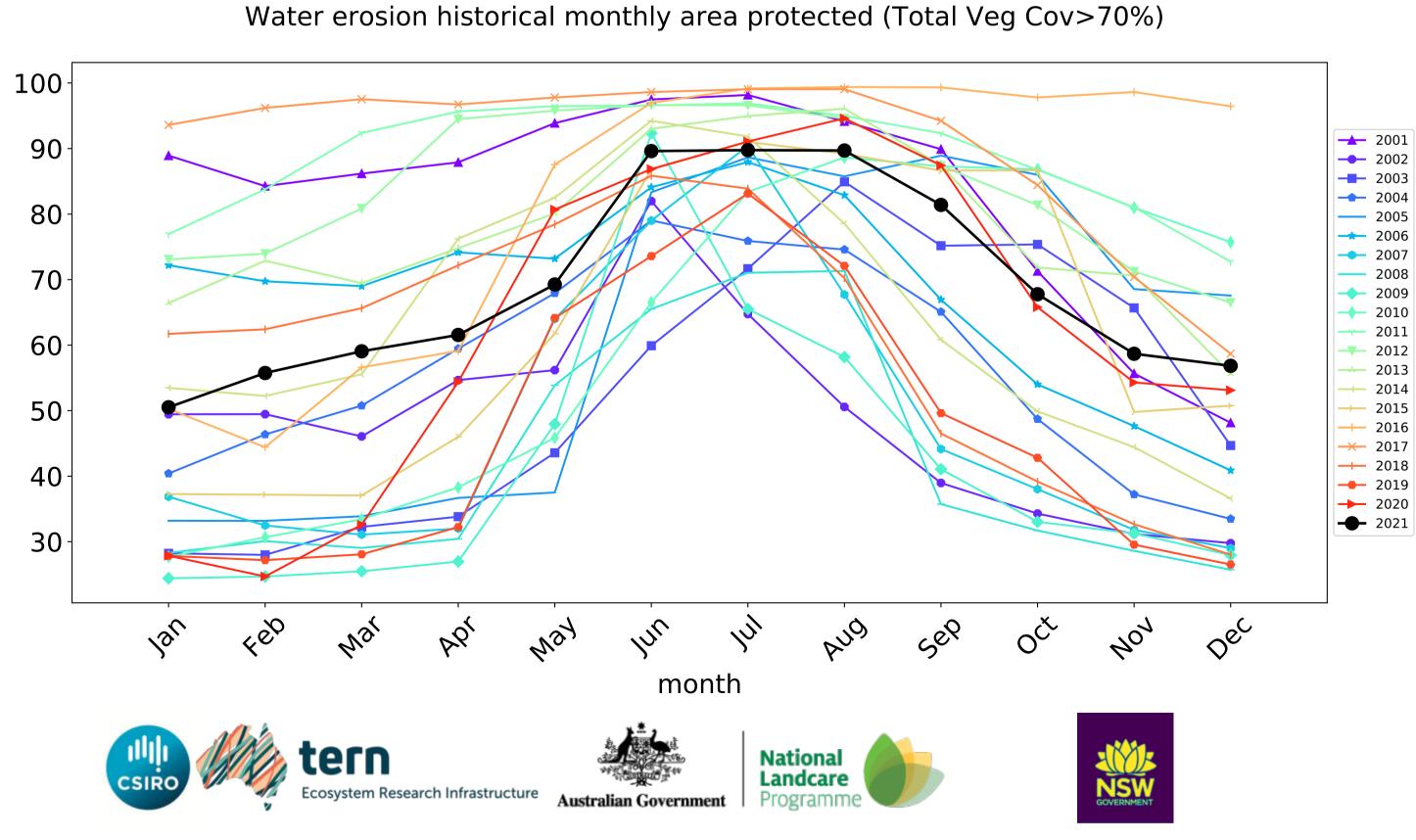


Grazing non forest timeseries



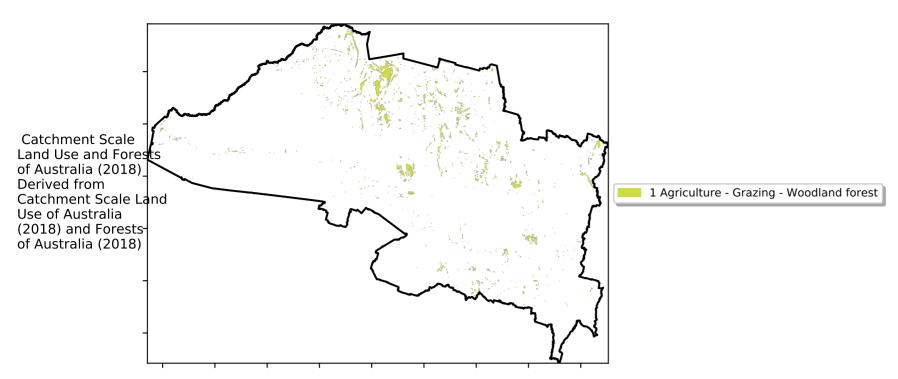




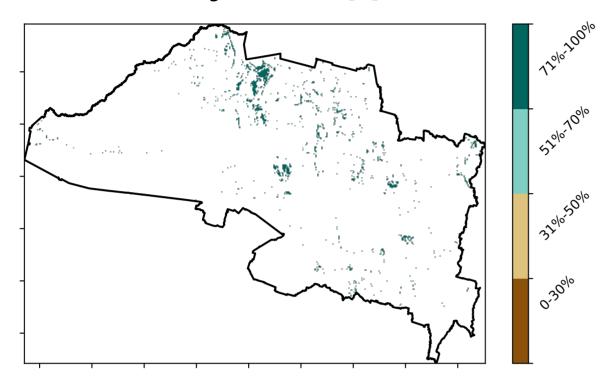


Grazing Woodland forest

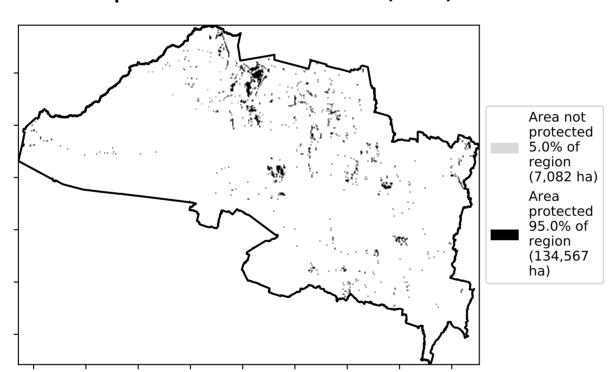
Land use and forest cover



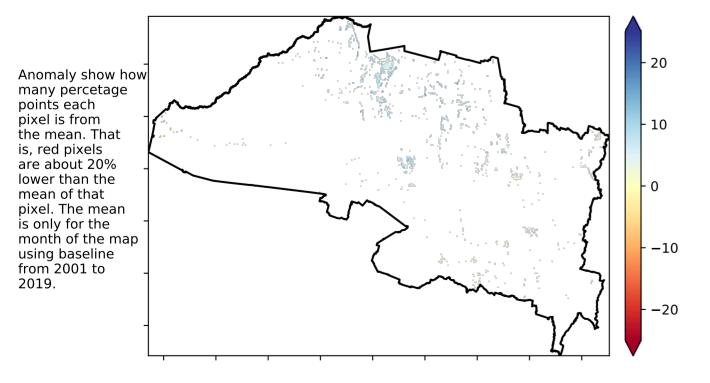
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

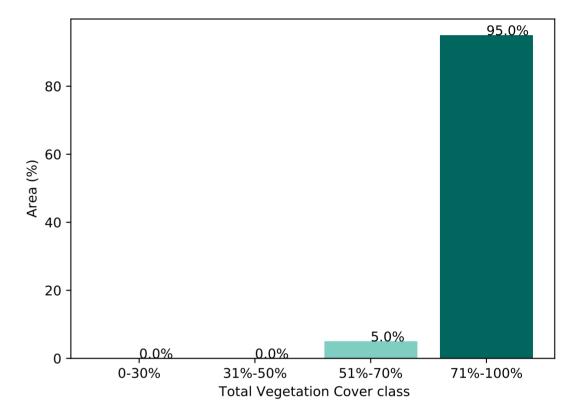


Total Vegetation Cover Anomaly [%]

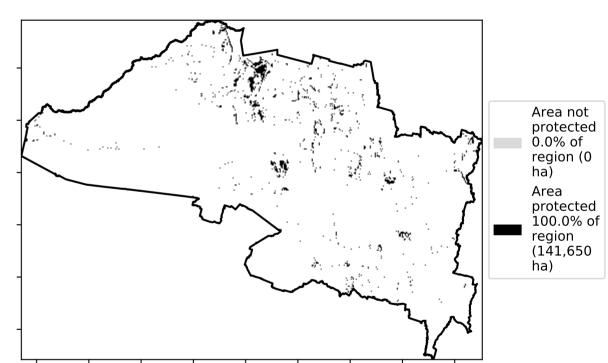


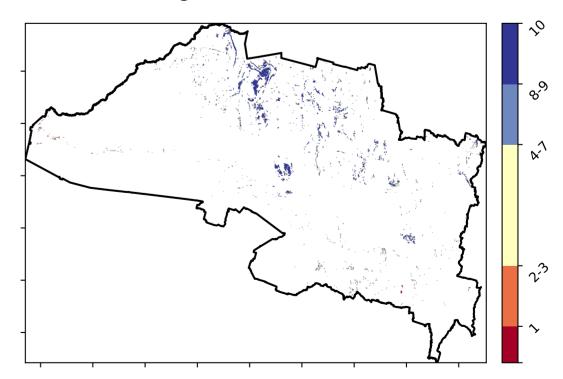
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





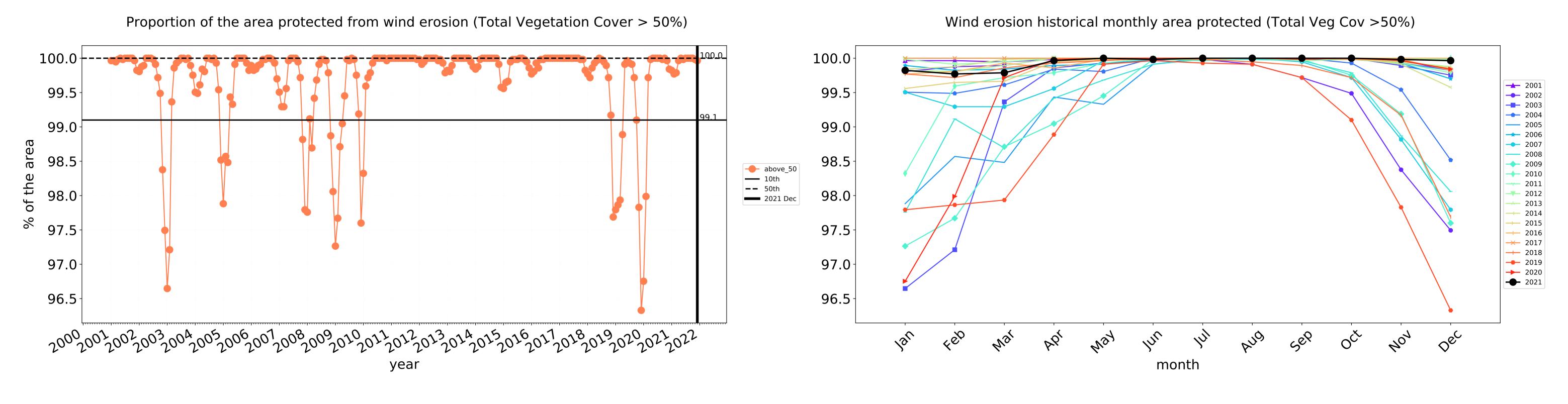


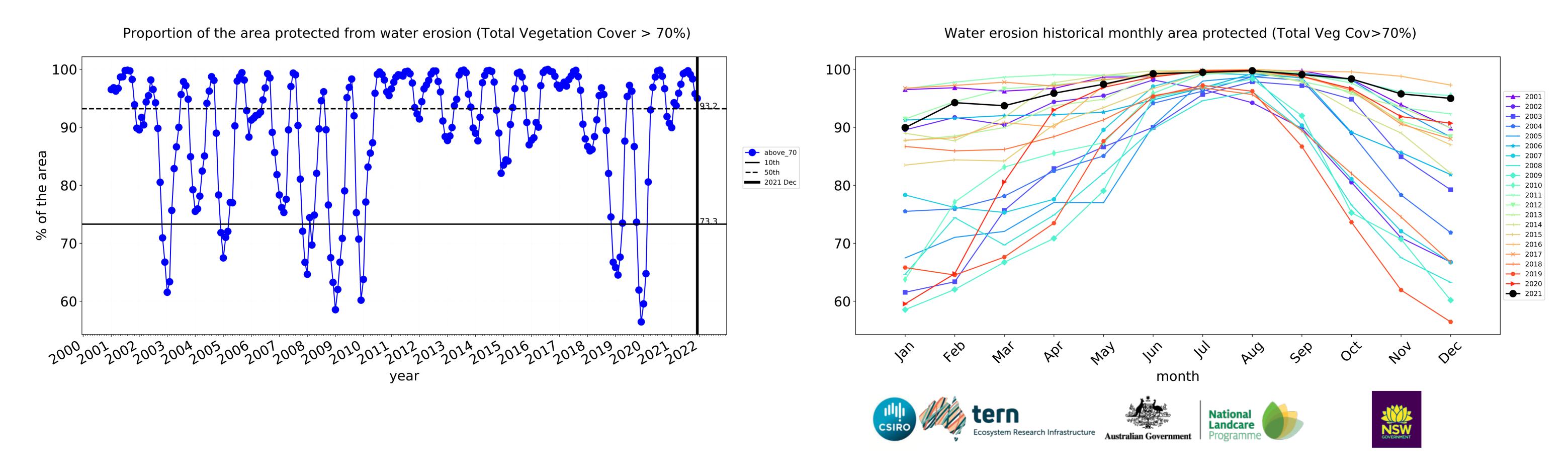






Grazing Woodland forest timeseries



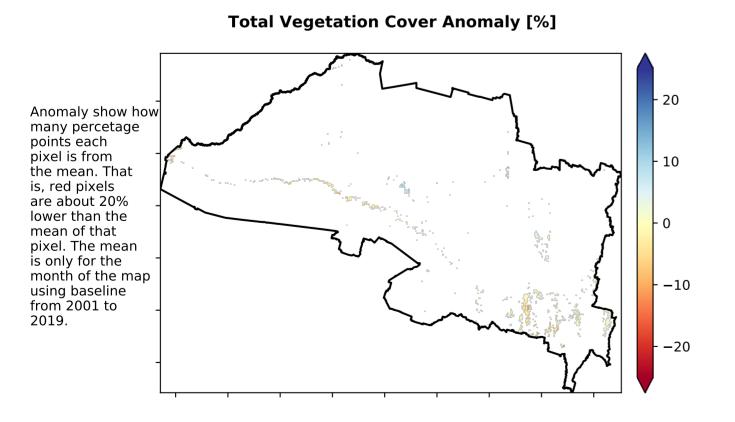


Grazing - Forest (non woodland)

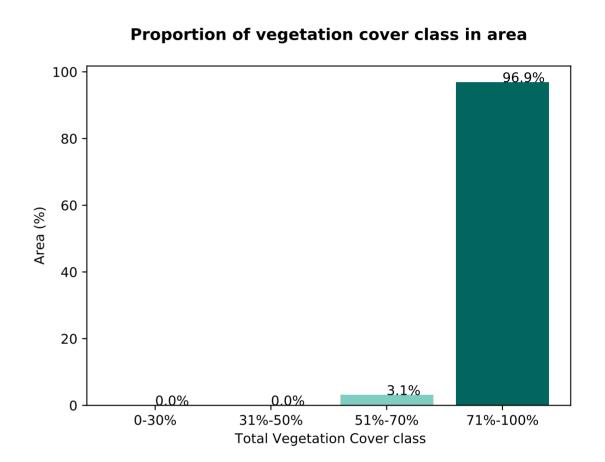
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 1 Agriculture - Grazing - Non-woodland forest

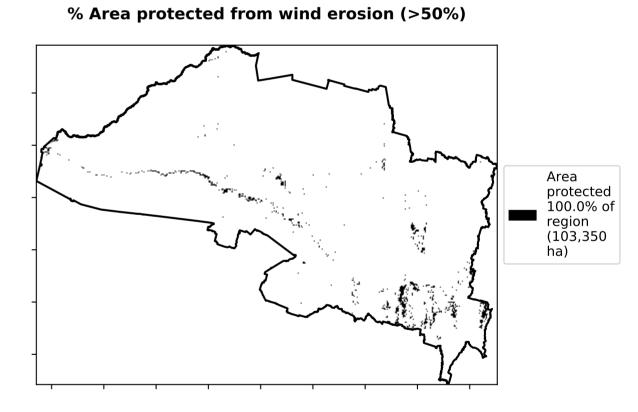
Total Vegetation Cover [%]

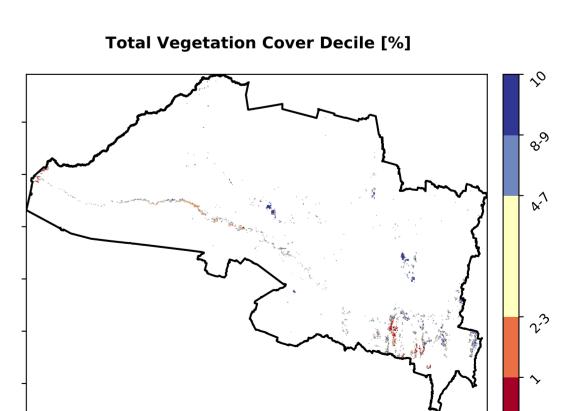
% Area protected from water erosion (>70%) Area not protected 3.1% of region (3,203 ha) Area protected 96.9% of region (100,146 ha)



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 baseline. the map using baseline from 2001 to 2019.





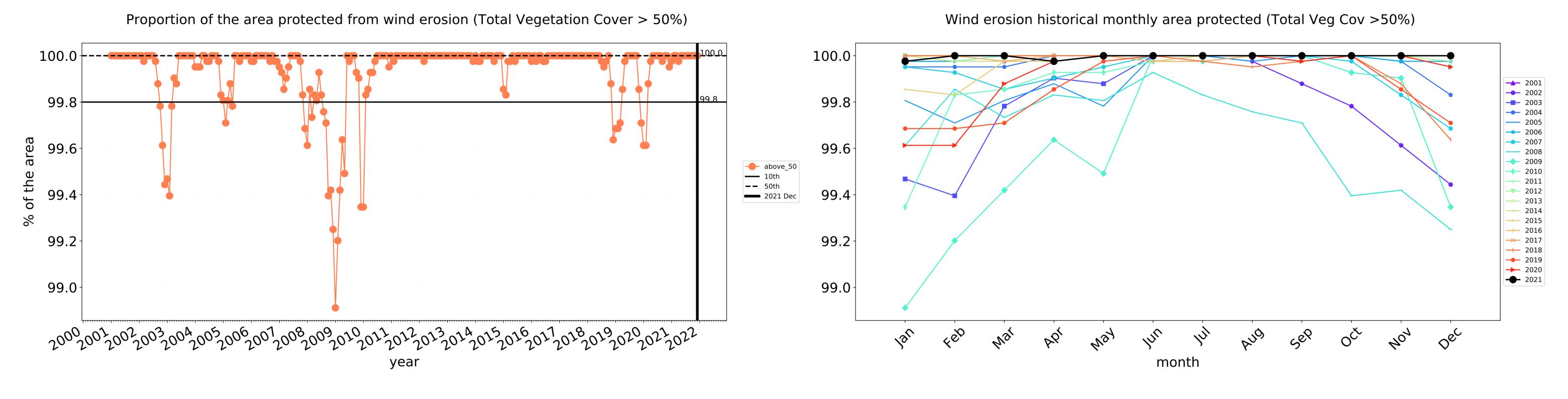


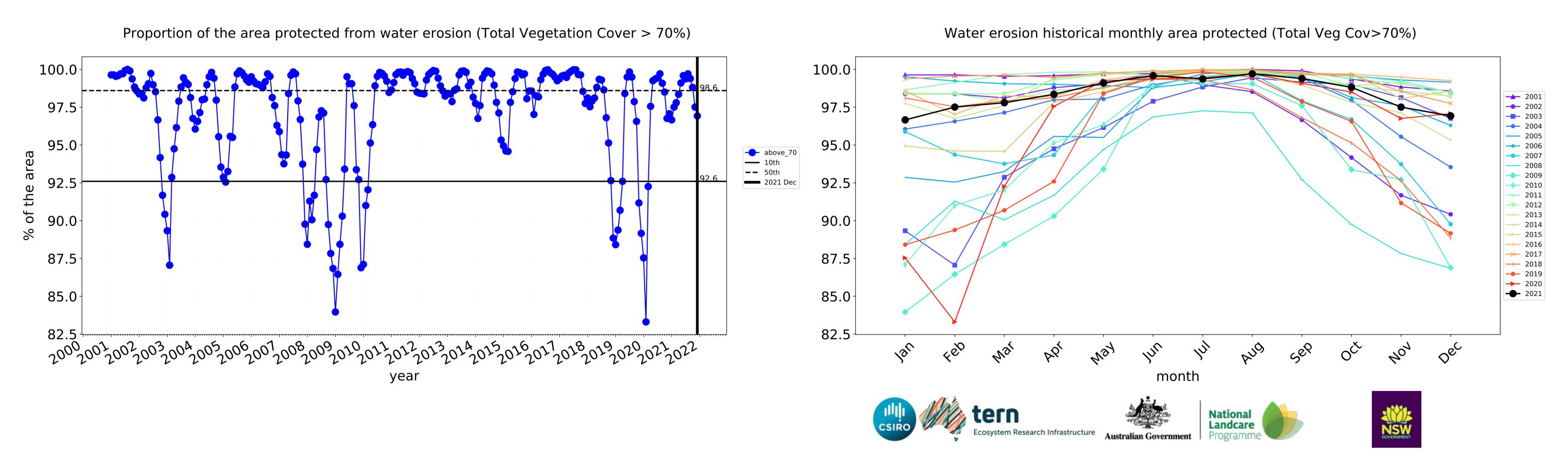






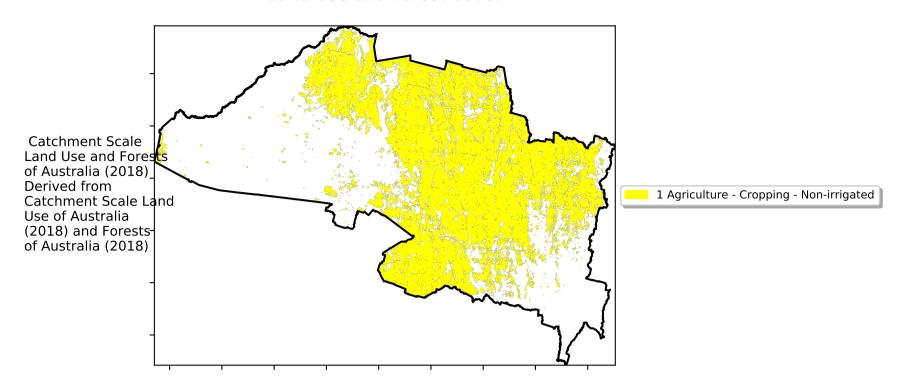




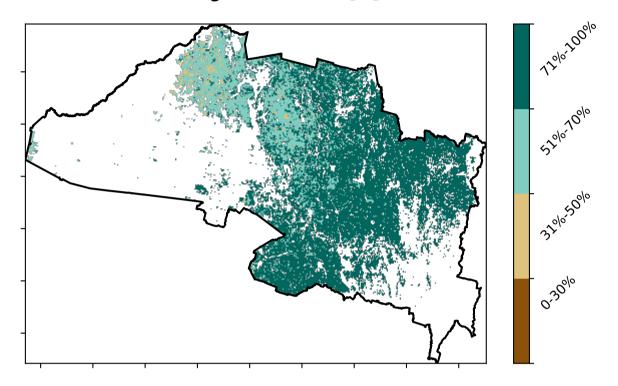


Cropping

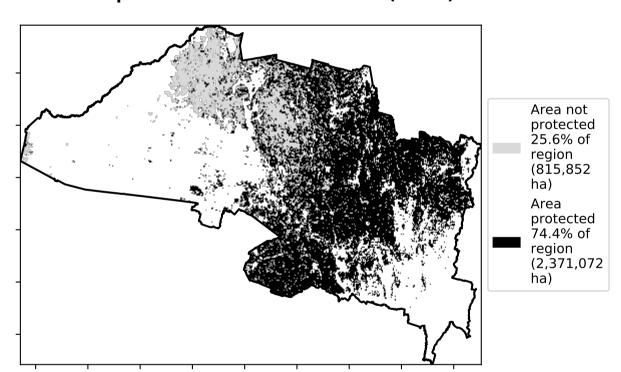
Land use and forest cover



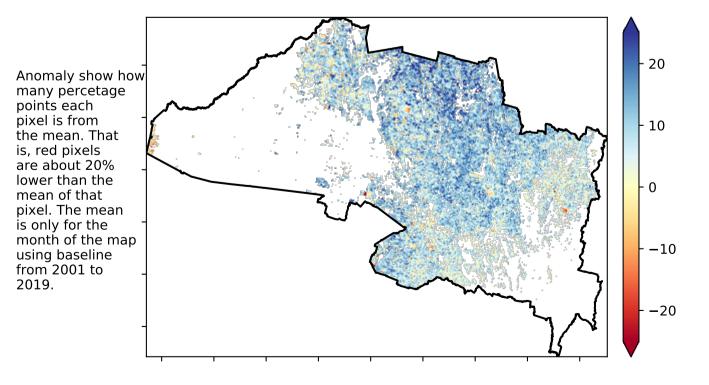
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

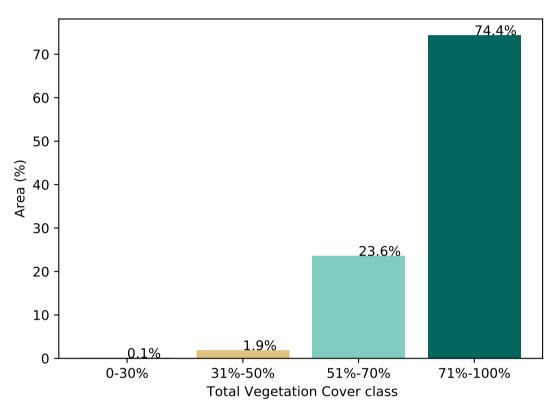


Total Vegetation Cover Anomaly [%]

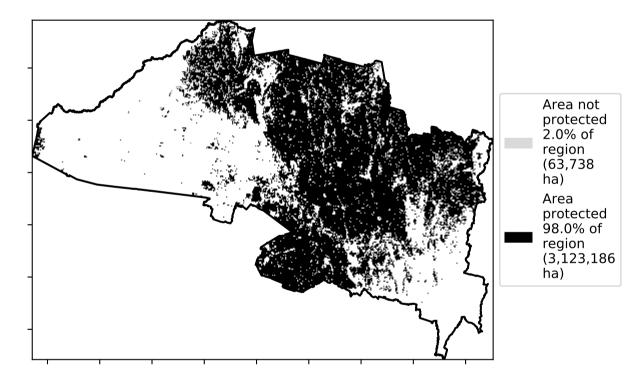


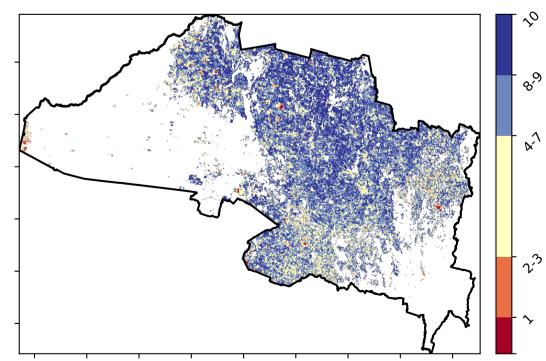
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





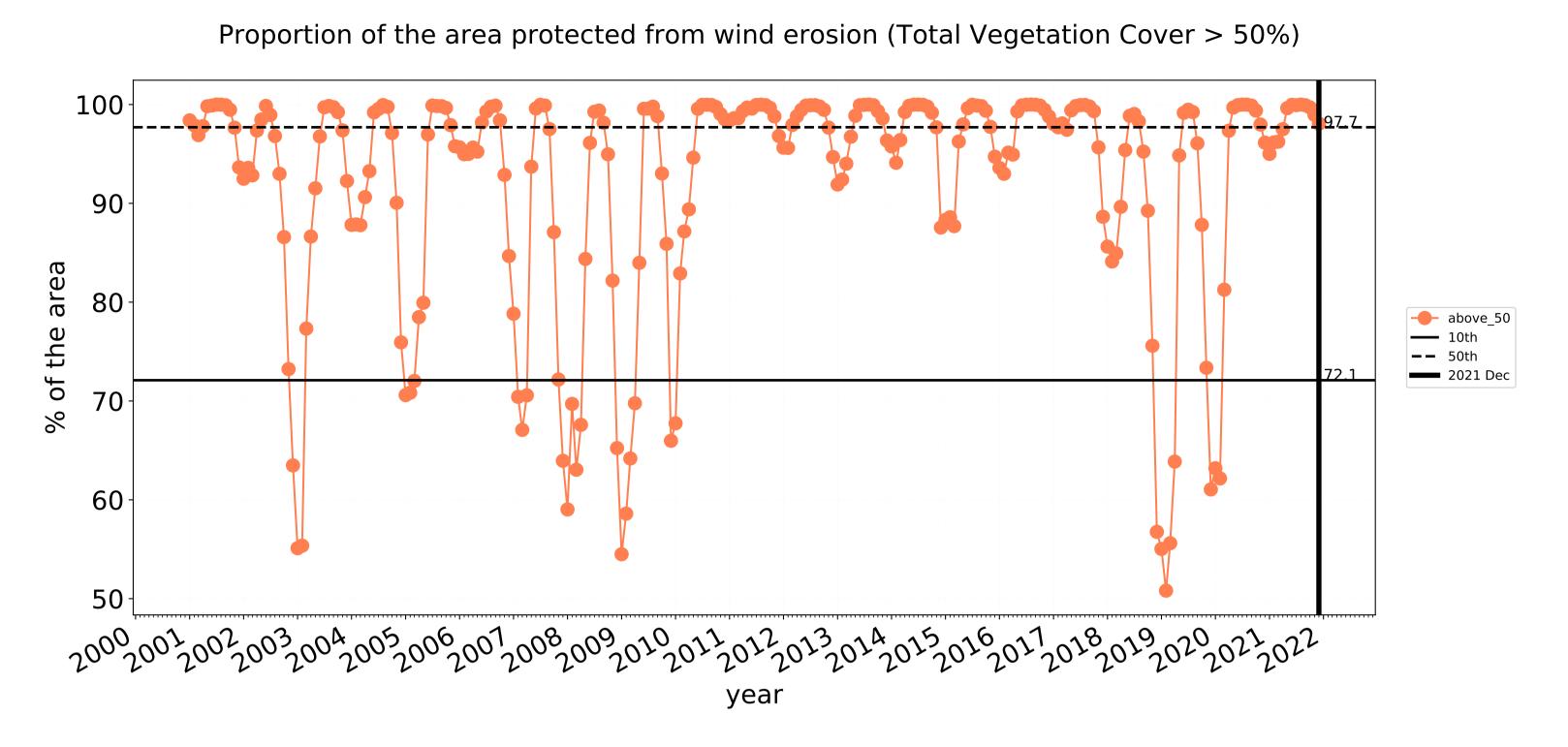


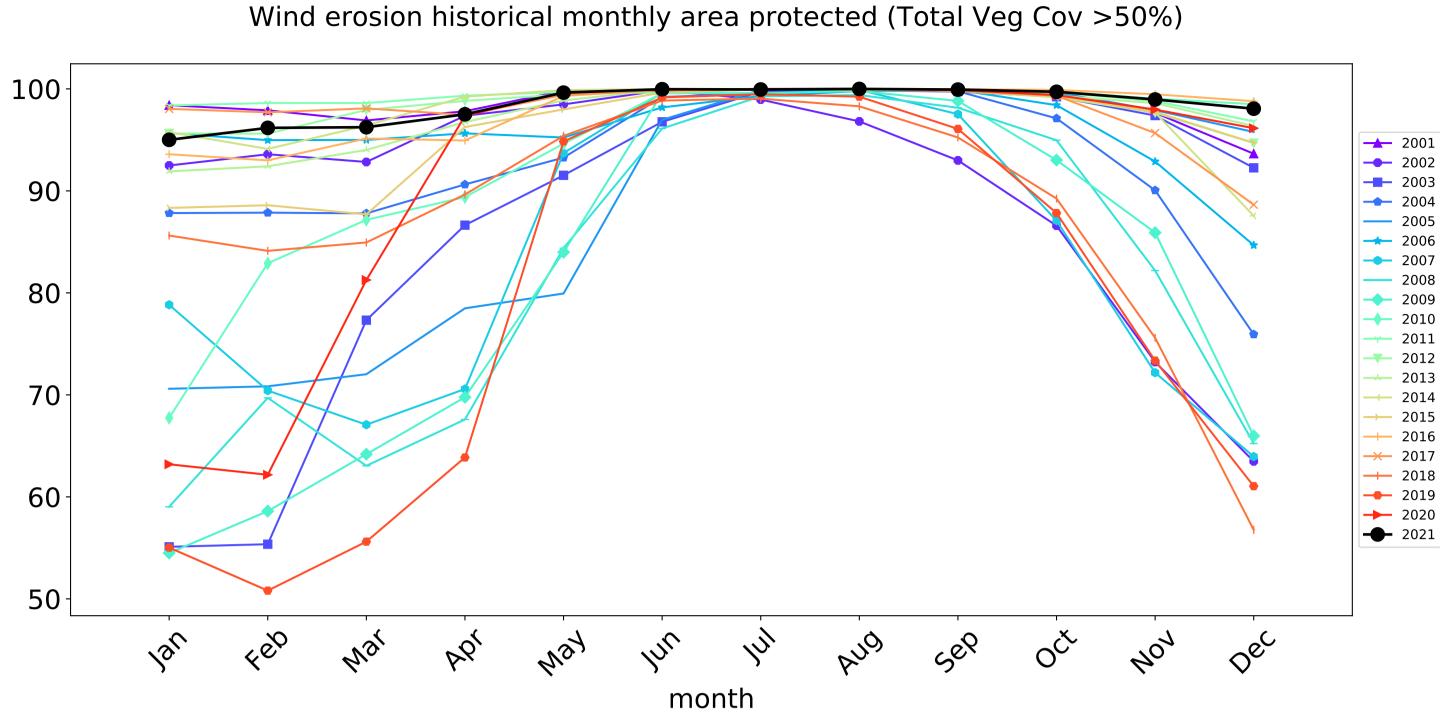


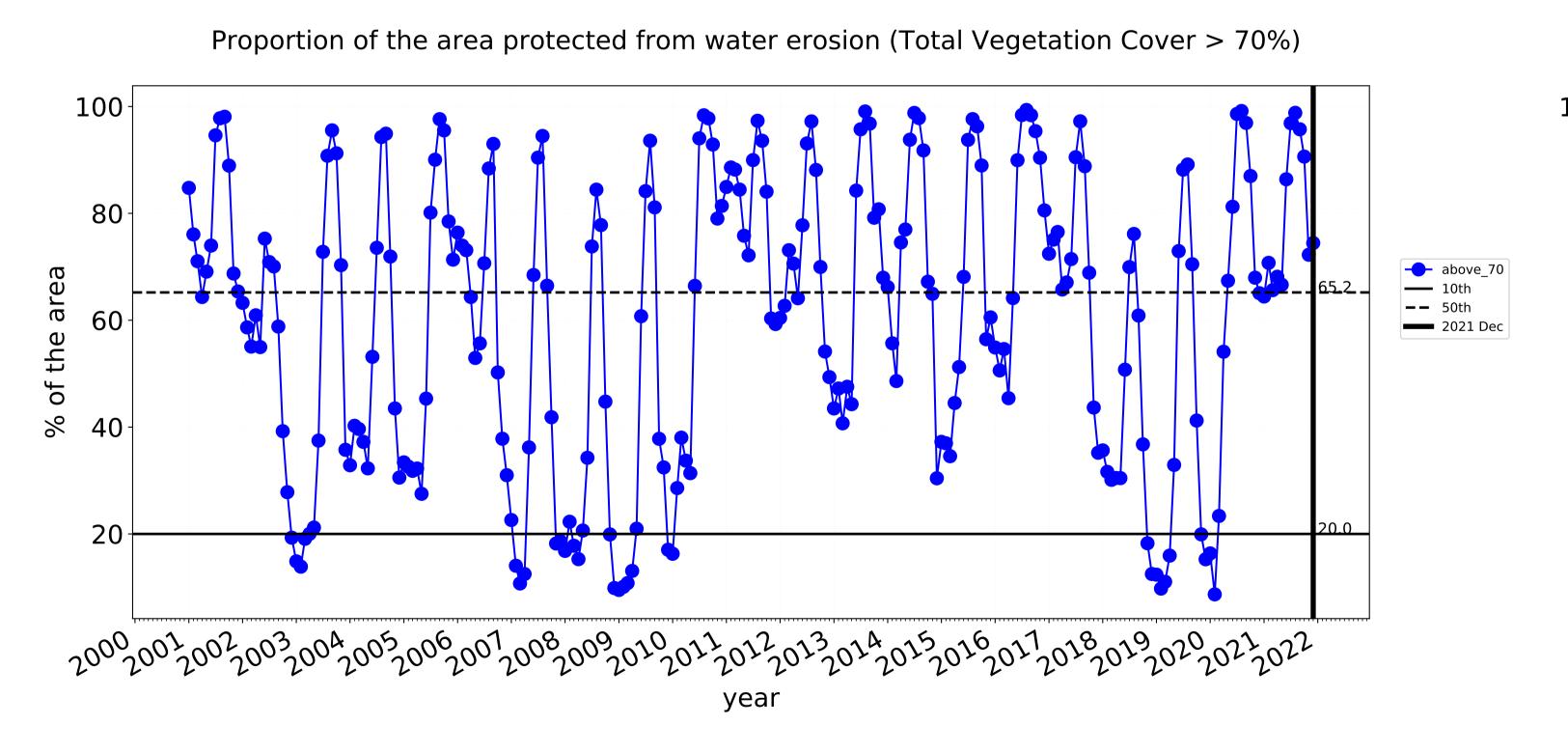


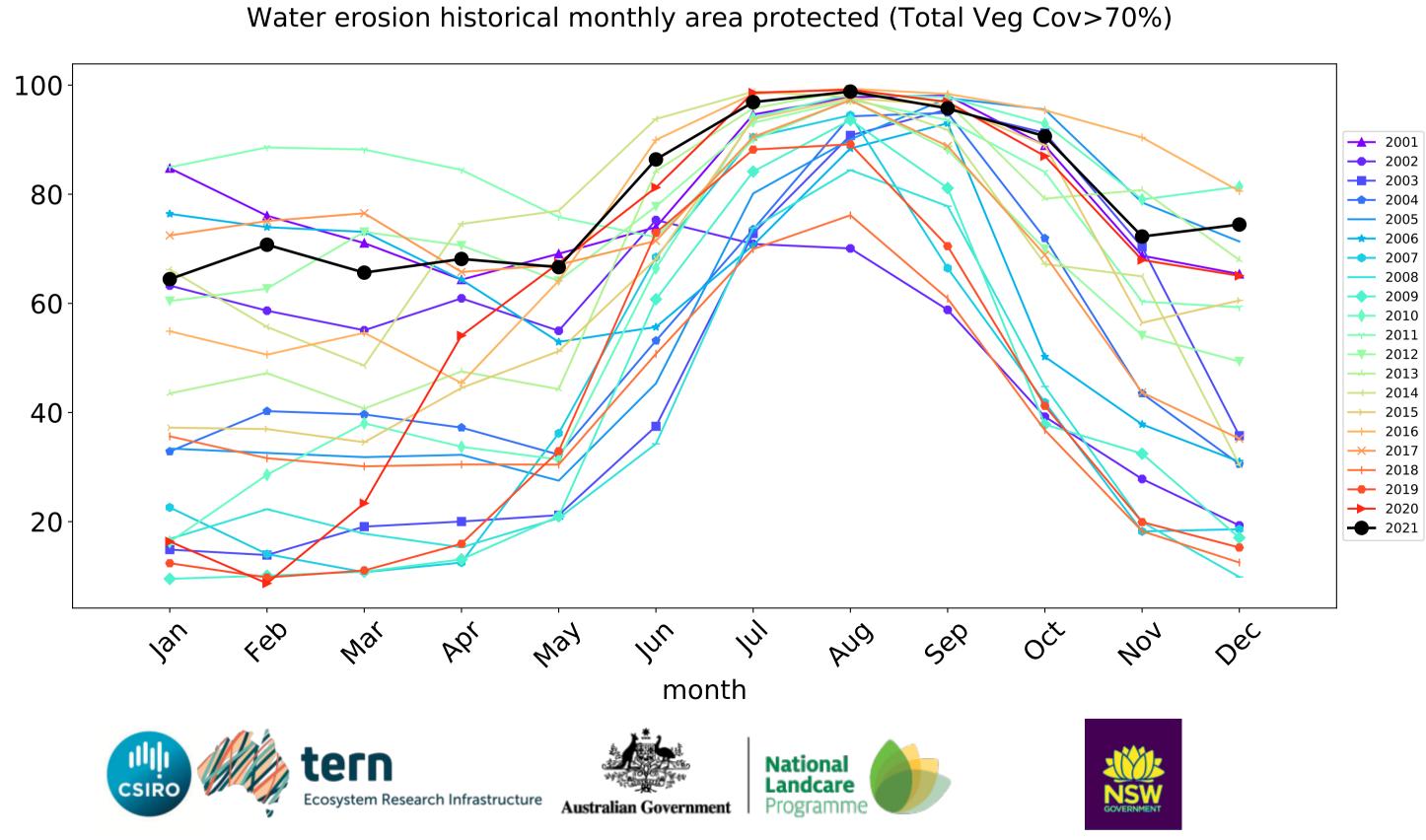


Cropping timeseries

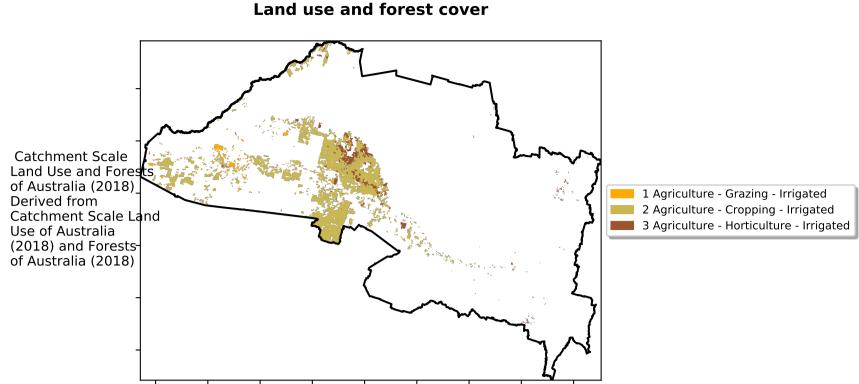


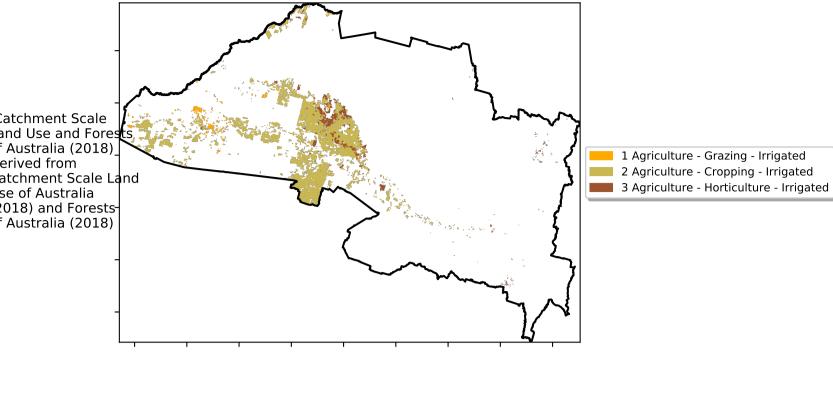






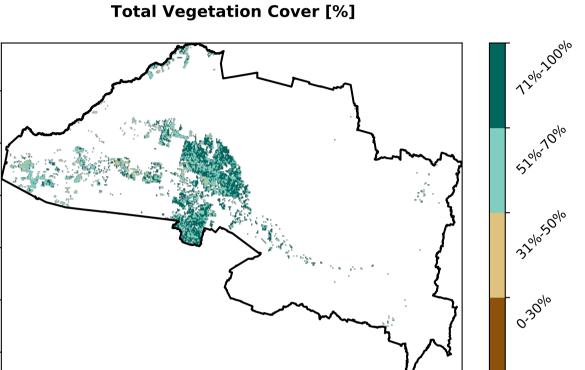
Irrigation

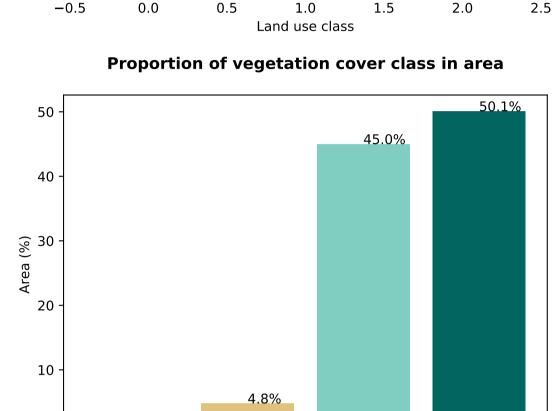


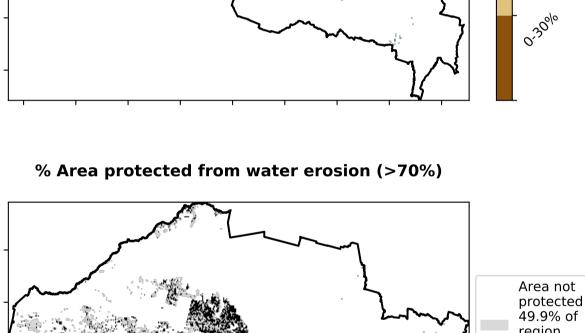


83.9% 80 70 60 Area (%) 30 20 -9.7% 10 1.0 2.0 0.0 0.5 1.5 -0.5

Proportion of each land class in area





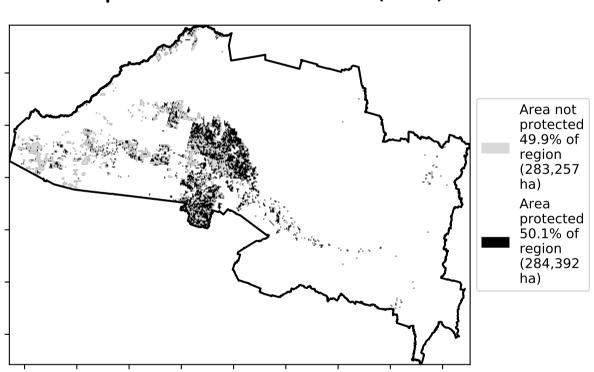


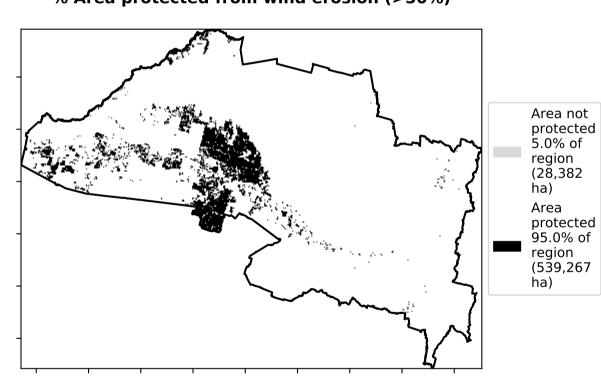


Total Vegetation Cover class

31%-50%

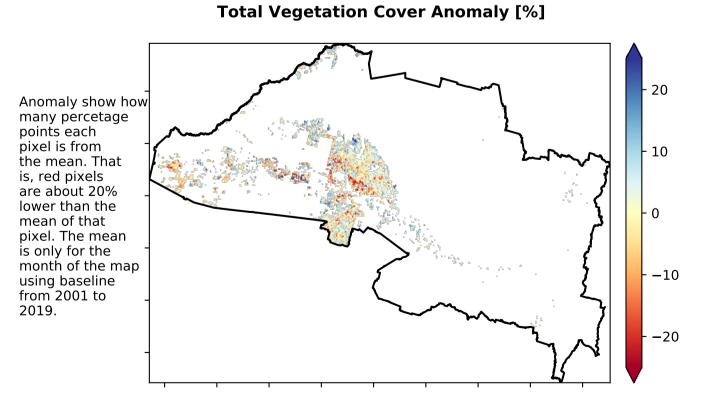
0-30%

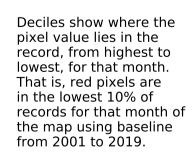


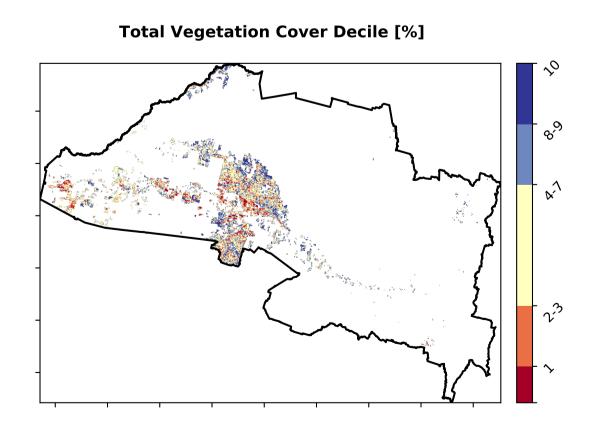


51%-70%

71%-100%



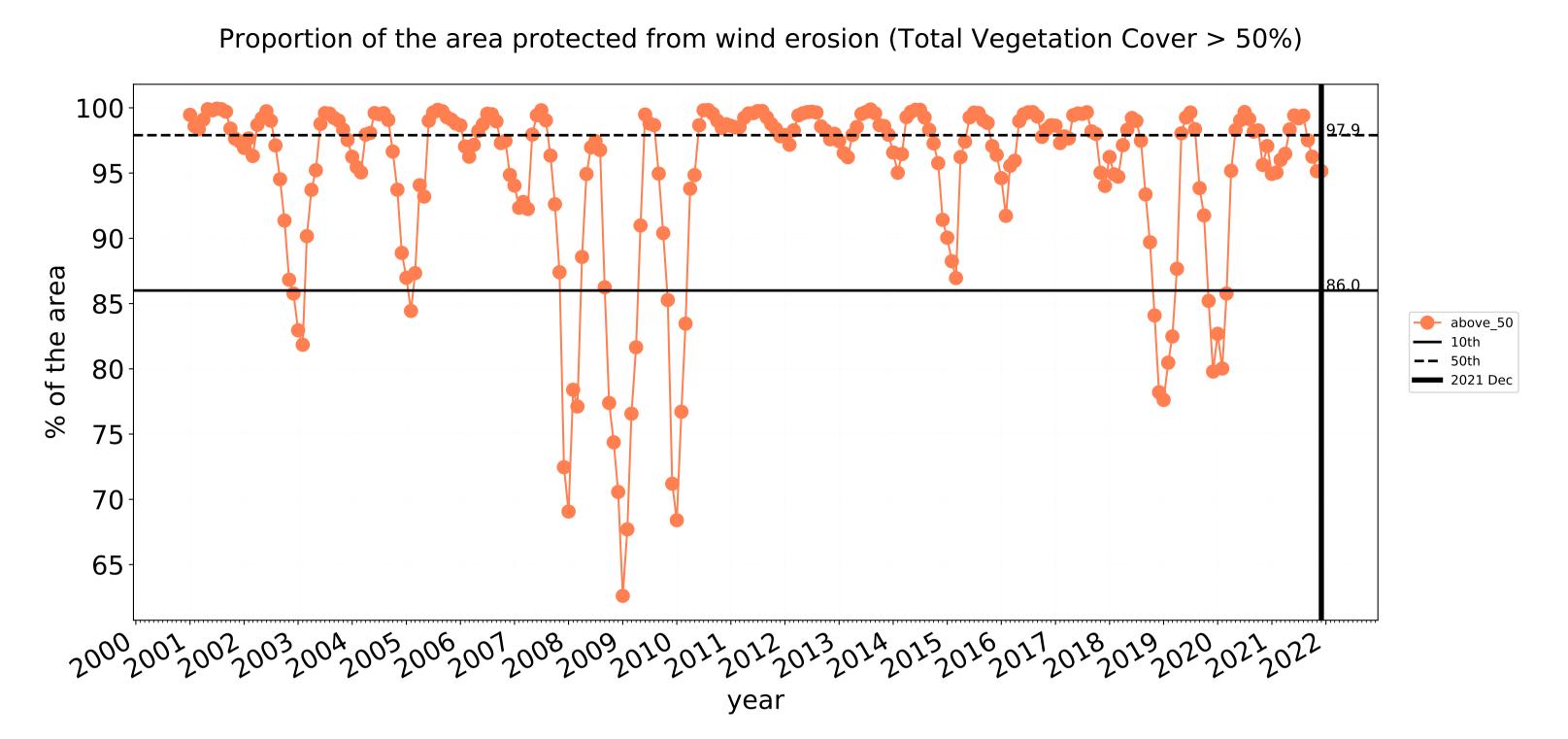


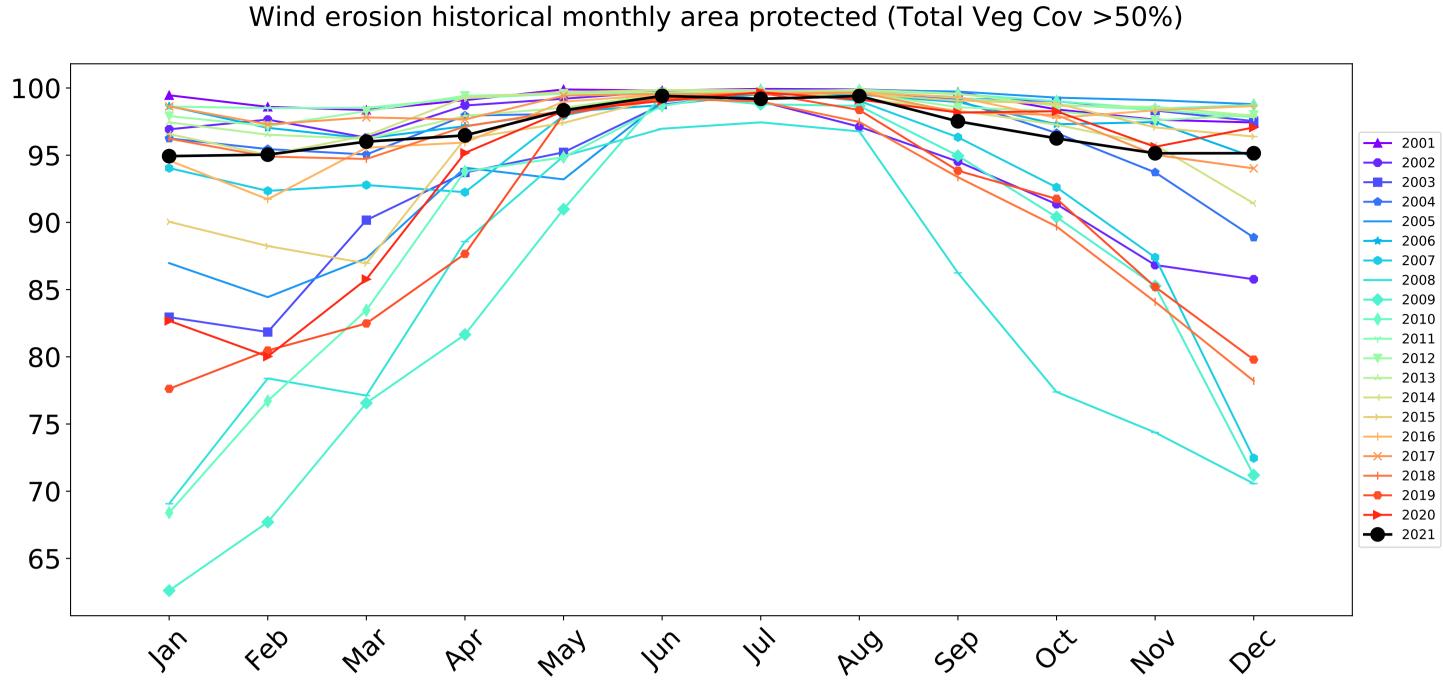




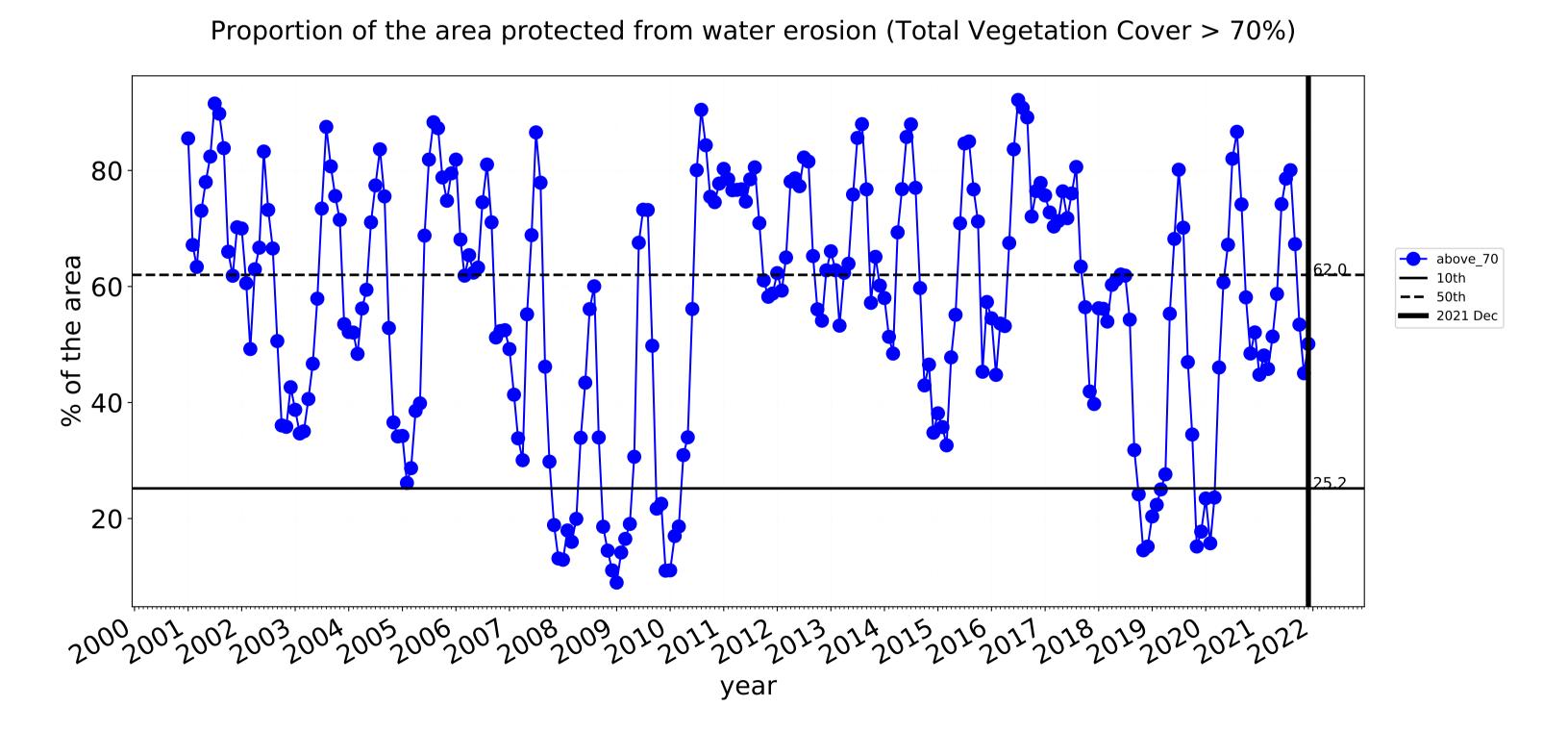


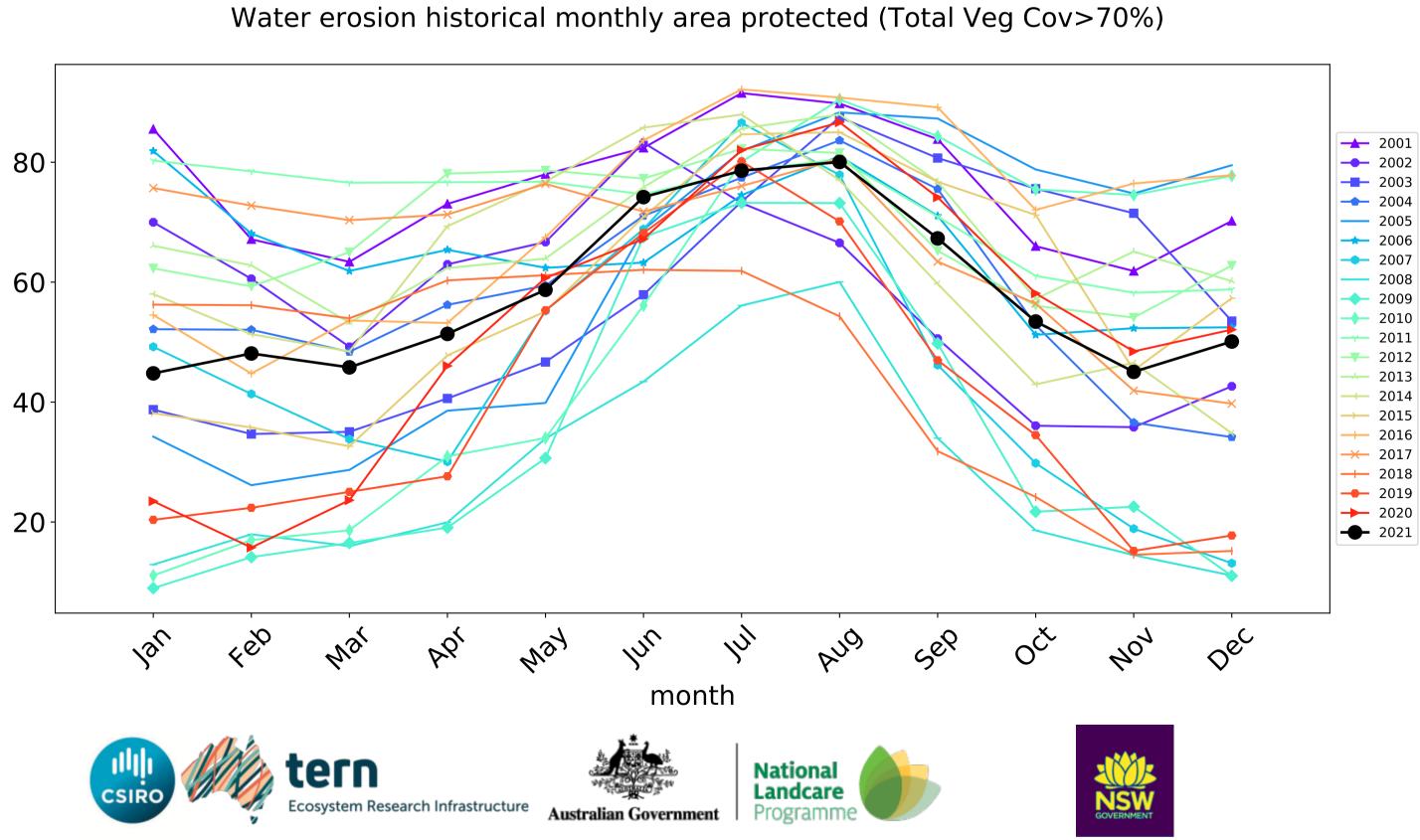






month



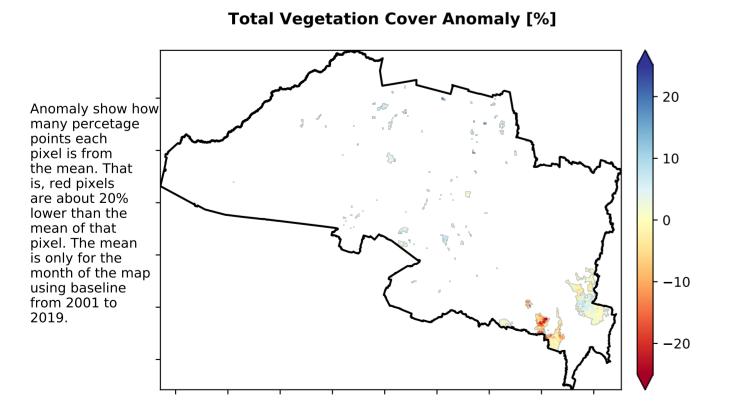


Production native forests and plantation forests

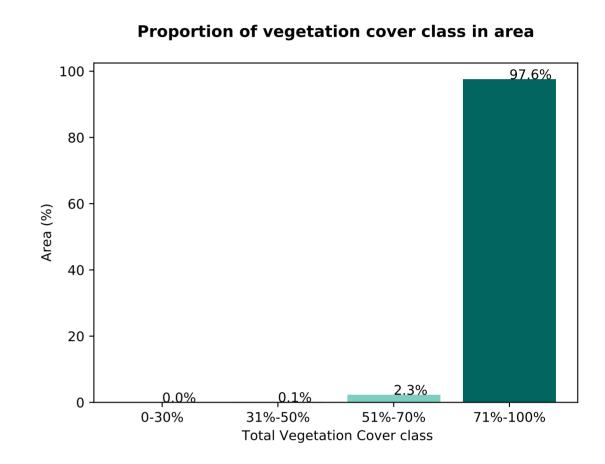
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

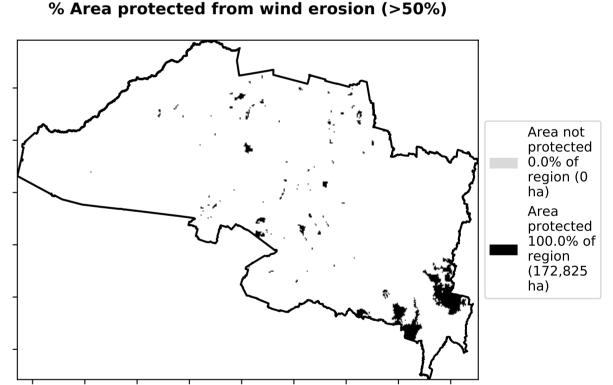
Total Vegetation Cover [%] Tueltuolo Tueltuolo Stelentoolo Stelentoolo

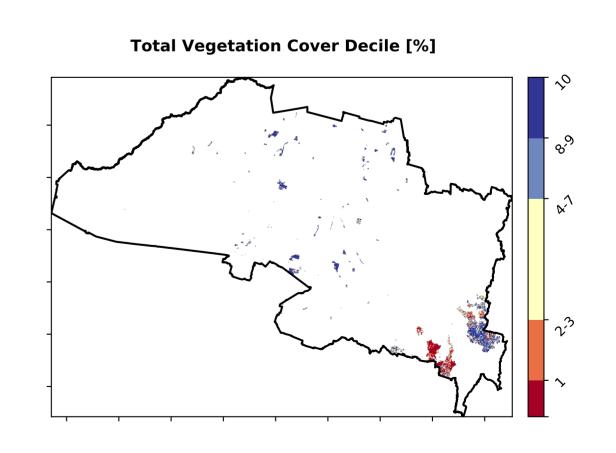
% Area protected from water erosion (>70%) Area not protected 2.4% of region (4,147 ha) Area protected 97.6% of region (168,677 ha)



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.







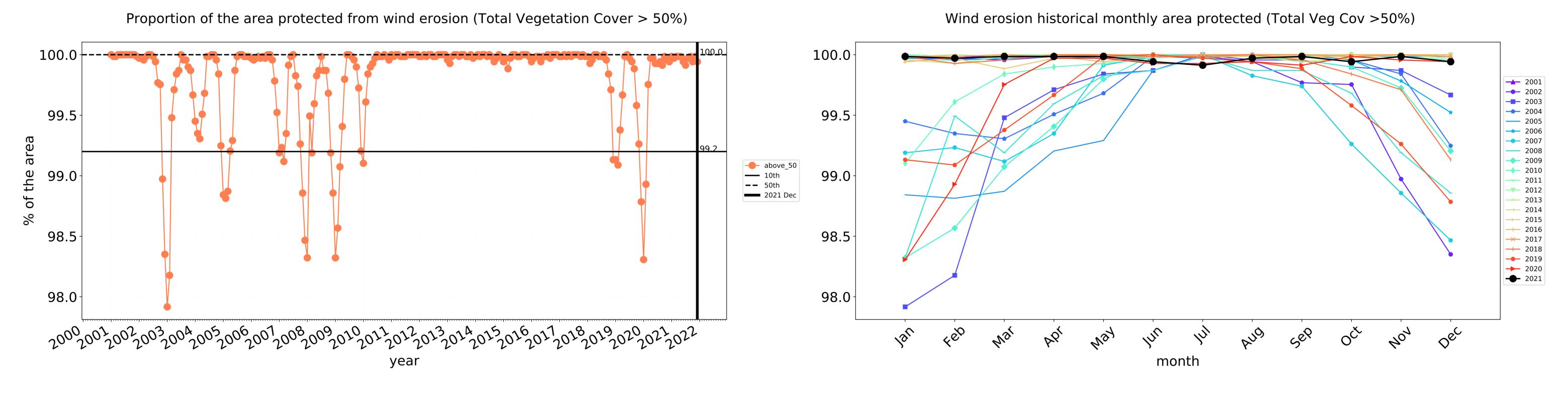


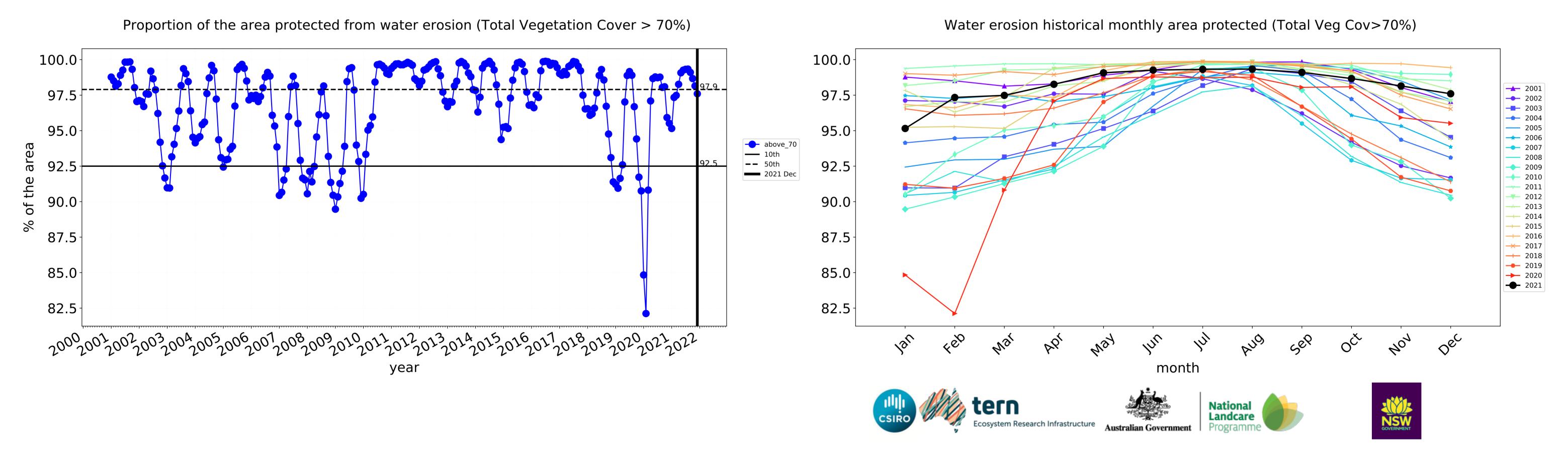






Production native forests and plantation forests timeseries





Riverina (6,694,250 ha and no data 14,085 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	6,694,250	100.0% 6,692,950	96.2% 6,442,350	68.6% 4,590,325	41.2% 2,759,575	15.2% 1,015,650	5.3% 351,800
Conservation and natural environments	323,050	100.0% 323,050	99.3% 320,750	86.5% 279,500	77.9% 251,625	46.4% 149,800	22.9% 73,975
Conservation and natural environments non forest	83,350	100.0% 83,350	97.2% 81,050	48.9% 40,750	26.9% 22,400	12.3% 10,250	6.3% 5,250
Conservation and natural environments Forest (non woodland)	195,200	100.0% 195,200	100.0% 195,200	99.8% 194,750	96.2% 187,700	60.7% 118,550	33.1% 64,600
Agriculture	6,067,875	100.0% 6,067,375	96.0% 5,827,775	67.0% 4,067,800	38.2% 2,317,425	12.5% 756,825	3.7% 221,500
Grazing	2,311,475	100.0% 2,311,325	93.5% 2,160,775	61.0% 1,409,250	40.8% 943,150	22.3% 515,450	7.8% 180,525
Grazing non forest	2,066,475	100.0% 2,066,325	92.7% 1,915,825	56.8% 1,174,525	36.3% 750,650	20.8% 430,150	7.8% 161,375
Grazing Woodland forest	141,650	100.0% 141,650	100.0% 141,600	95.0% 134,550	76.3% 108,100	27.0% 38,250	4.4% 6,225
Grazing - Forest (non woodland)	103,350	100.0% 103,350	100.0% 103,350	96.9% 100,175	81.7% 84,400	45.5% 47,050	12.5% 12,925
Cropping	3,186,925	100.0% 3,186,775	98.1% 3,125,075	74.4% 2,372,500	40.7% 1,296,450	7.3% 234,225	1.2% 38,600
Irrigation	567,650	100.0% 567,450	95.1% 540,100	50.1% 284,375	13.5% 76,875	1.2% 6,950	0.4% 2,300
Production native forests and plantation forests	172,825	100.0% 172,825	99.9% 172,725	97.6% 168,675	88.8% 153,425	59.0% 102,000	31.9% 55,075







