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 2022

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



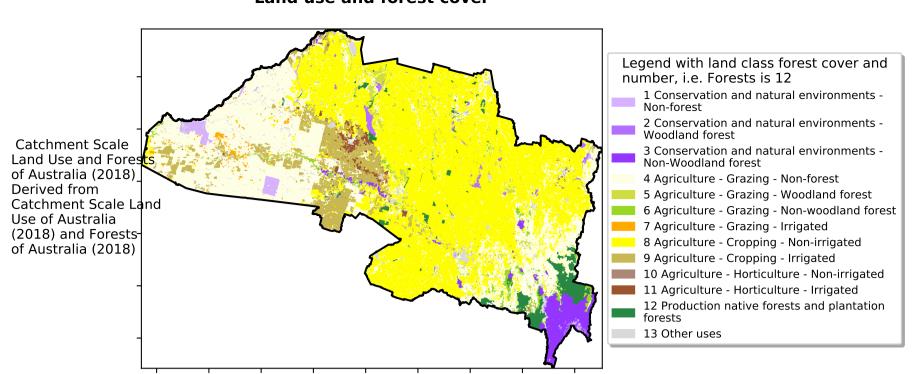




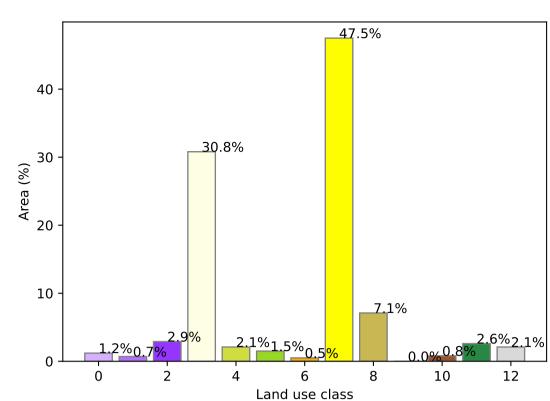


Vegetation Cover Dec 2022

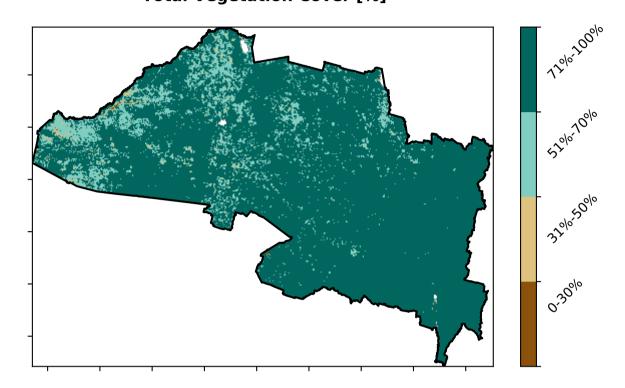
Land use and forest cover



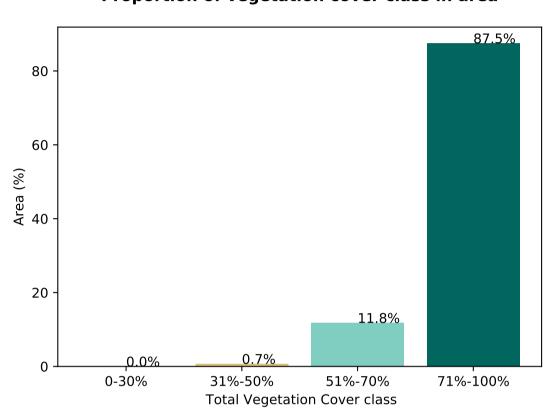
Proportion of each land class in area

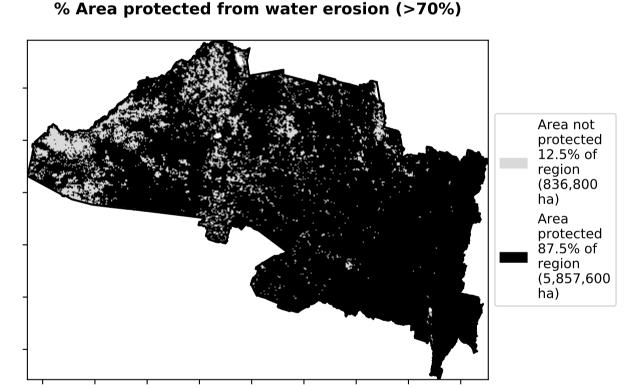


Total Vegetation Cover [%]



Proportion of vegetation cover class in area

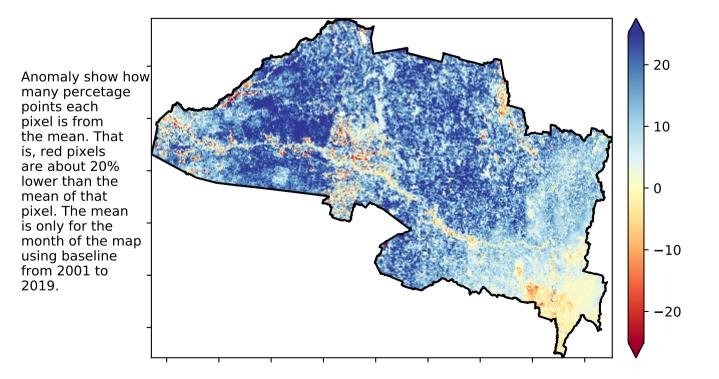




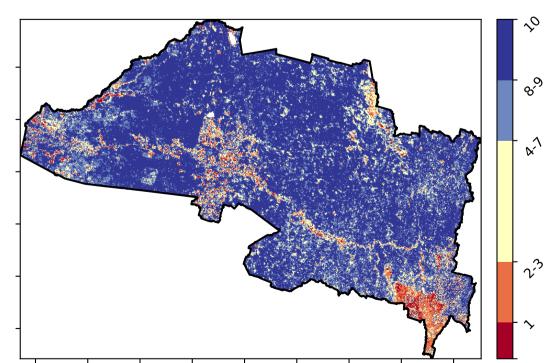
% Area protected from wind erosion (>50%)



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.

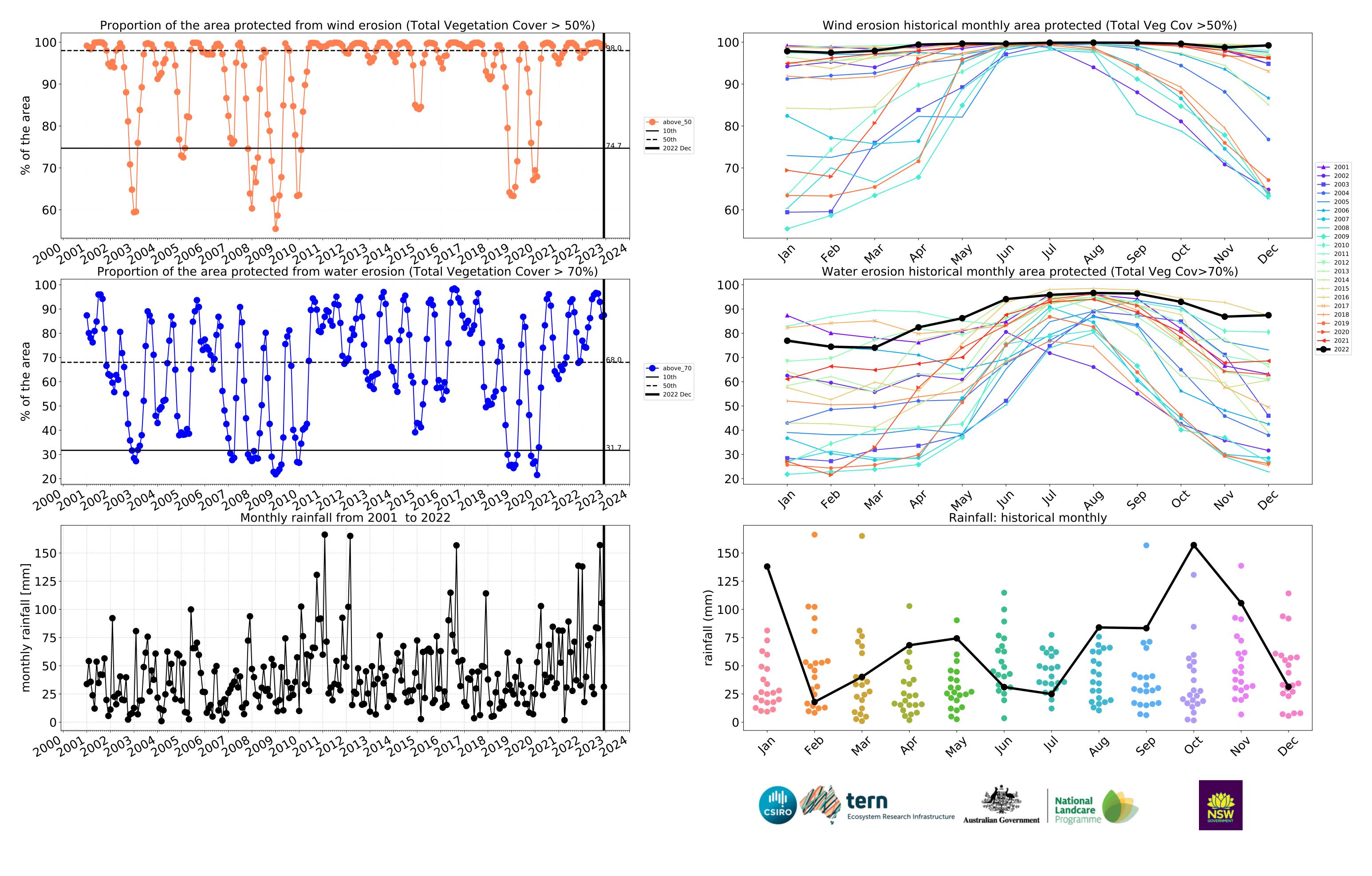




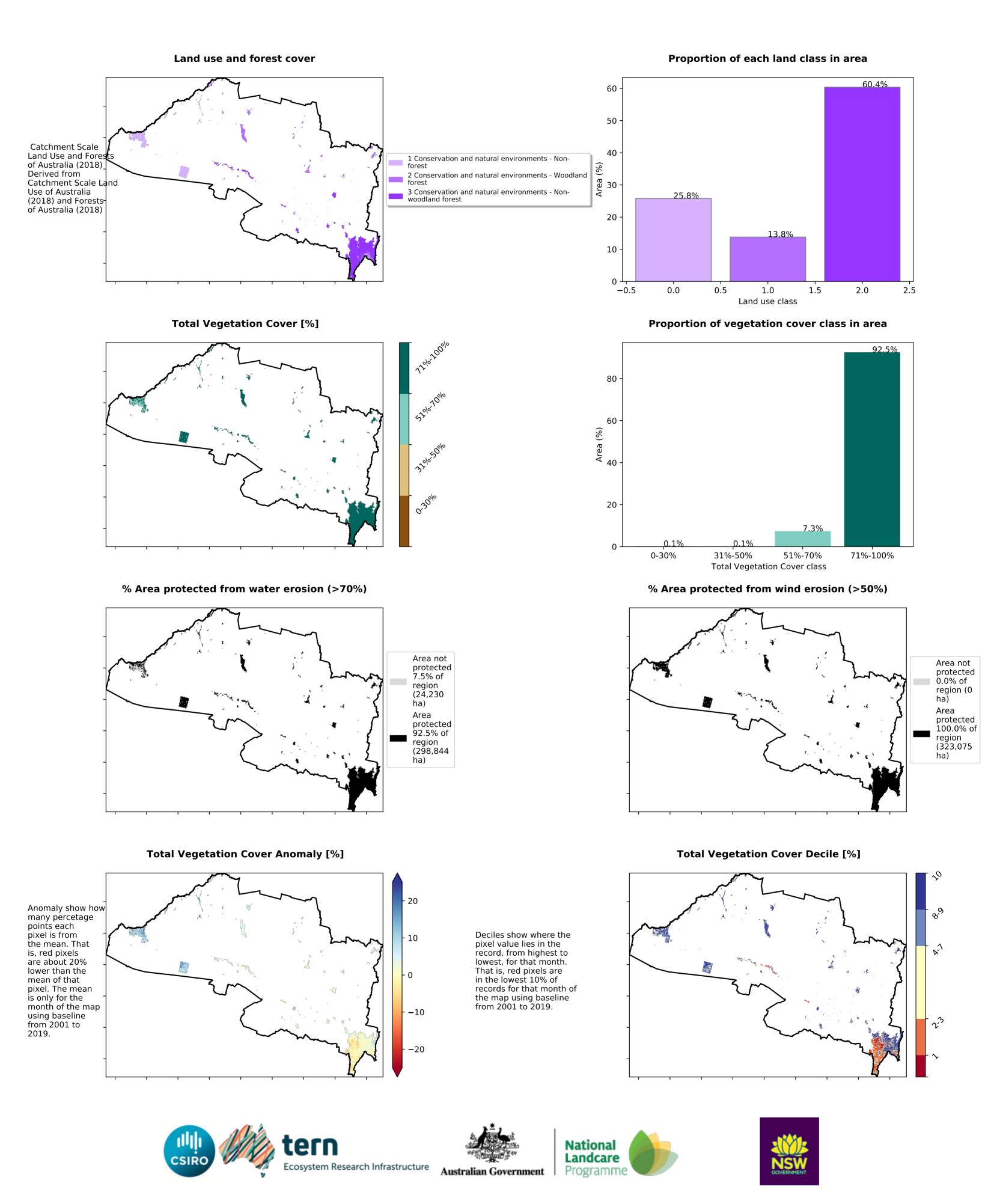




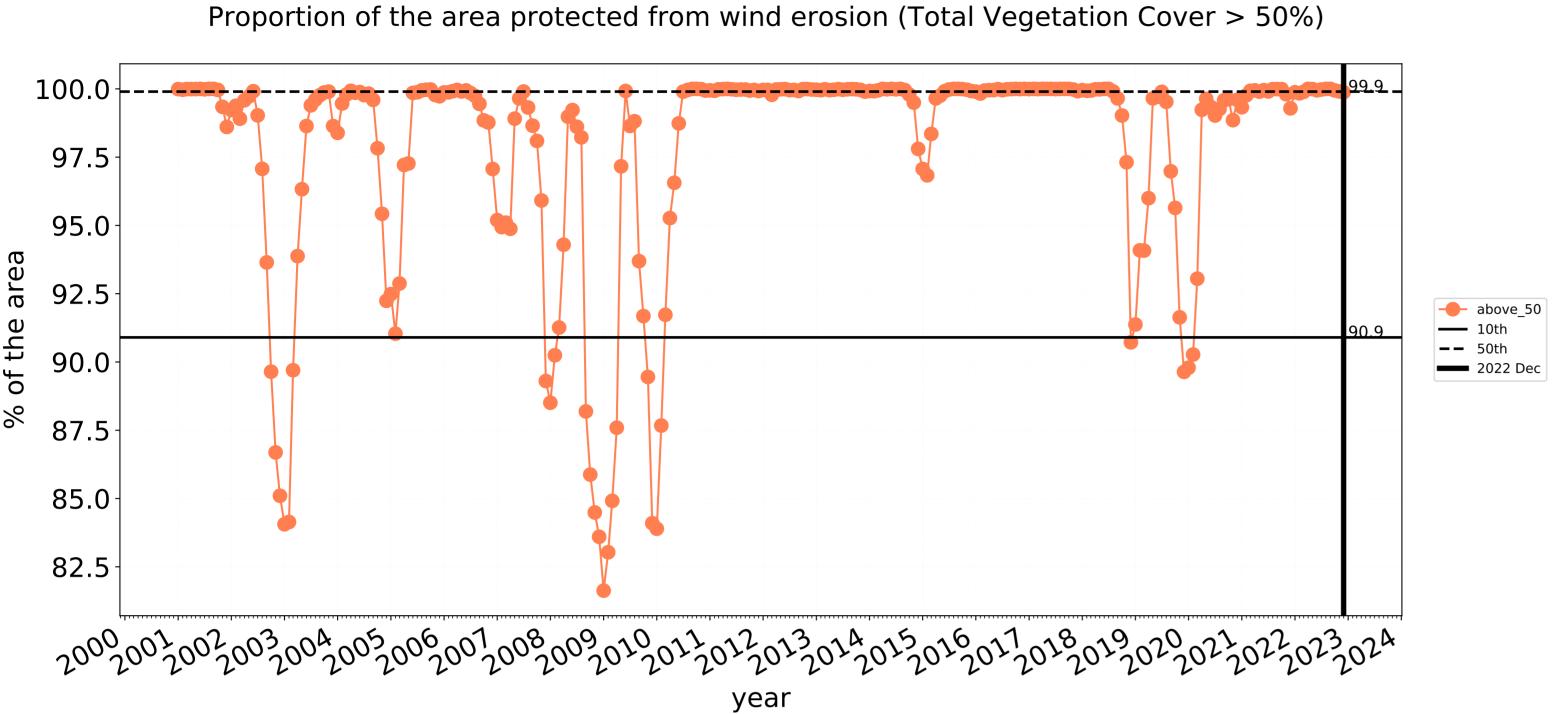


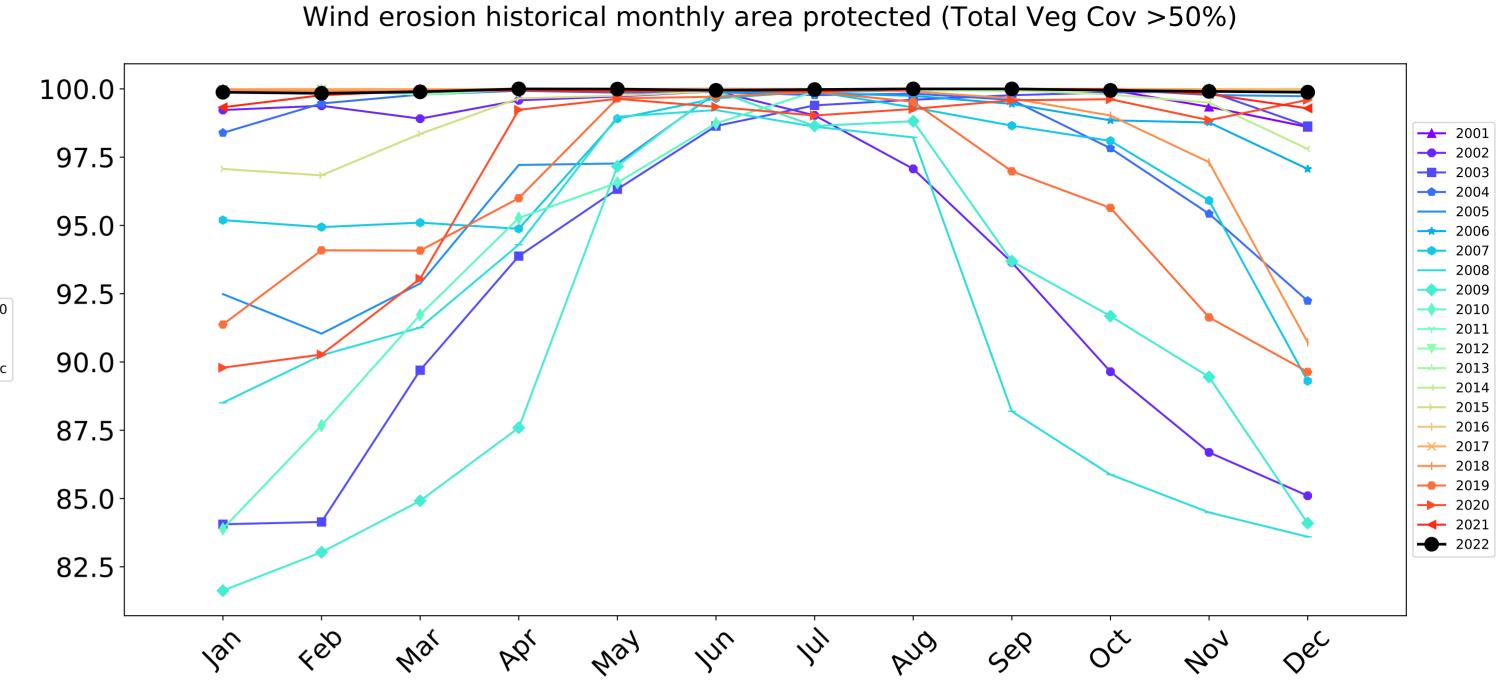


Conservation and natural environments

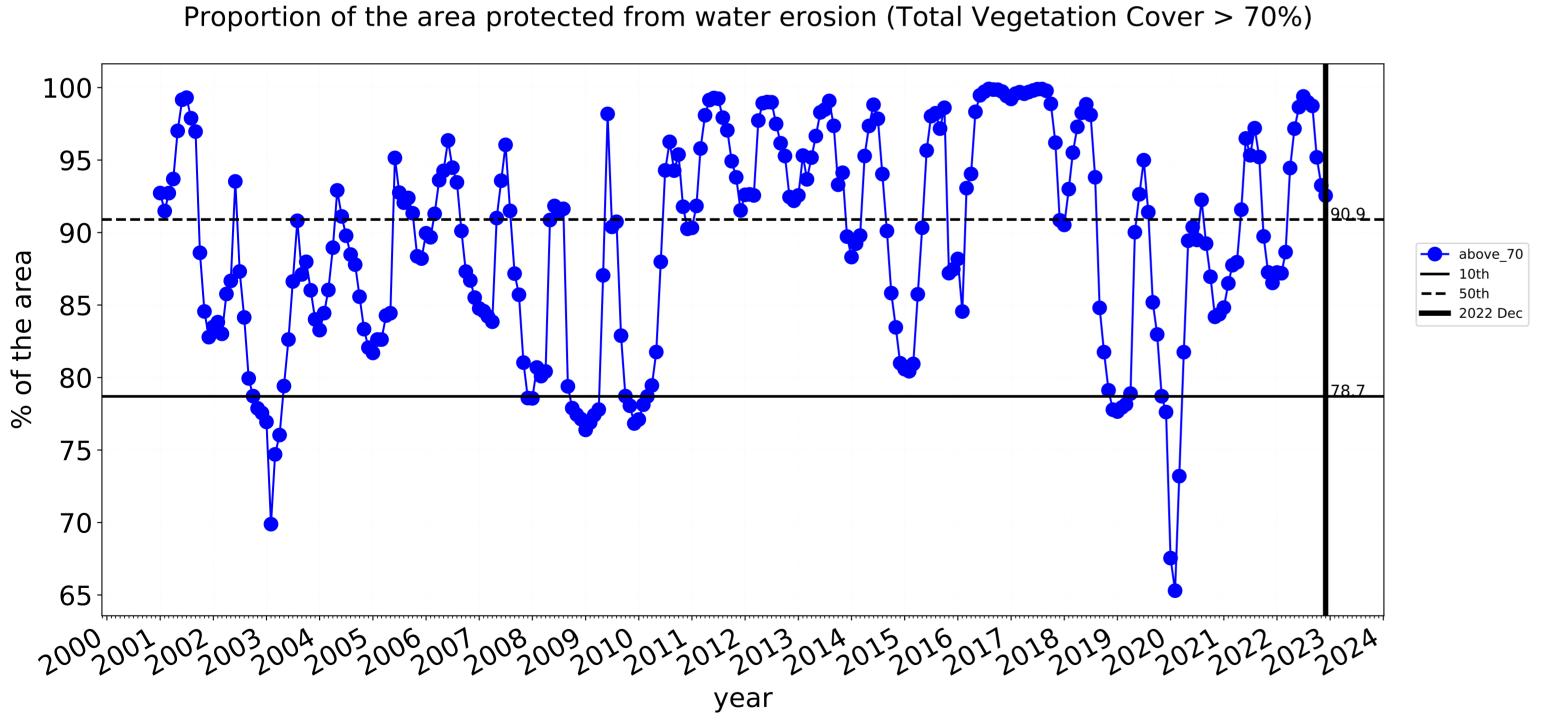


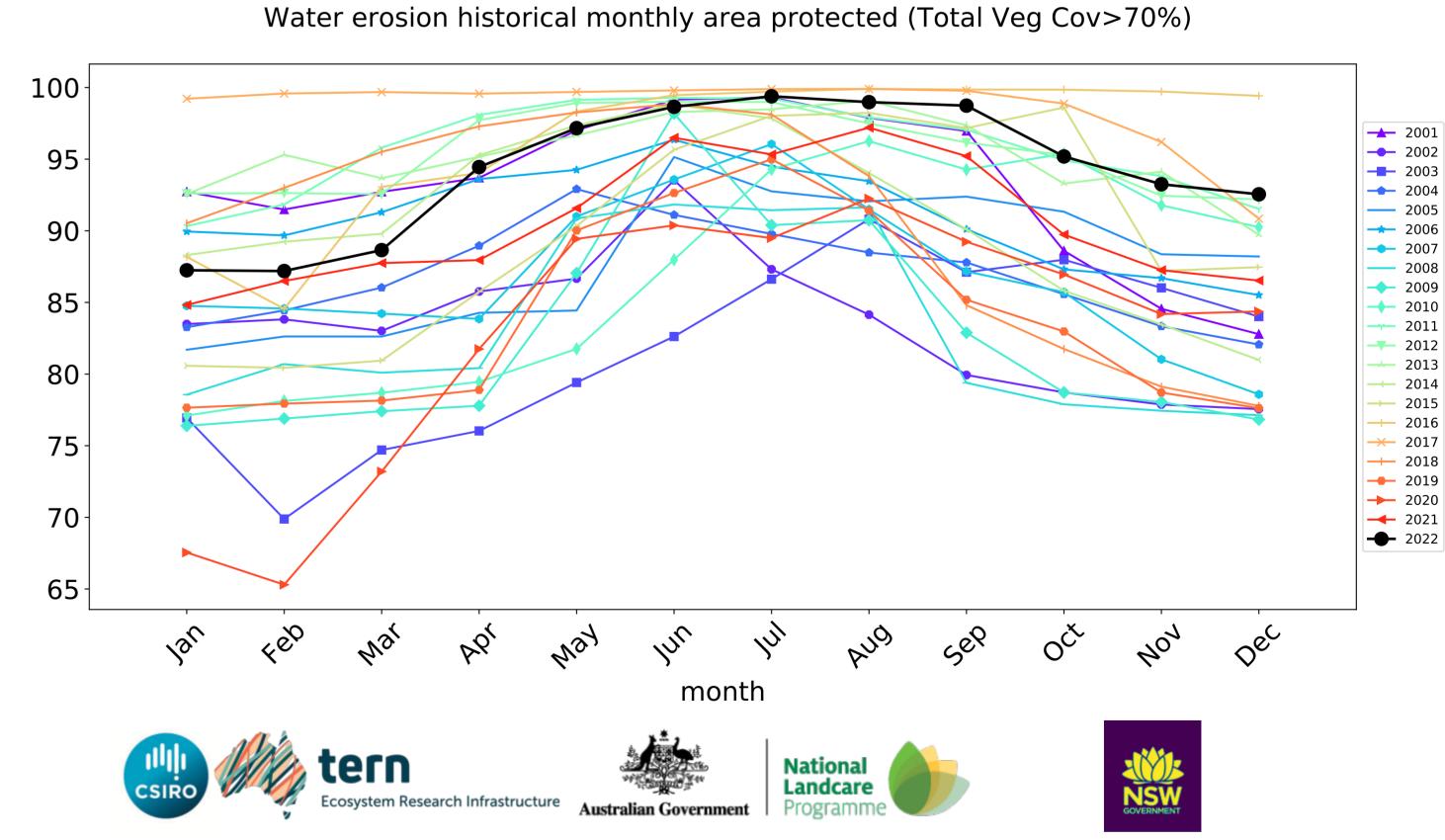
Conservation and natural environments timeseries





month





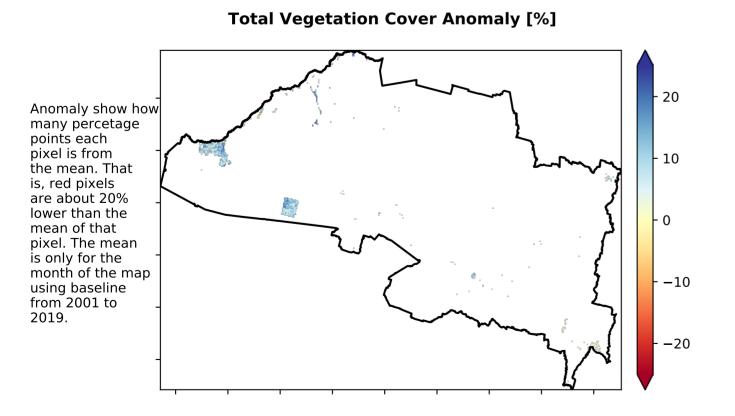
Conservation and natural environments non forest

Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments - Non-Catchment Scale Land Use of Australia (2018) and Forestsof Australia (2018)

Total Vegetation Cover [%]

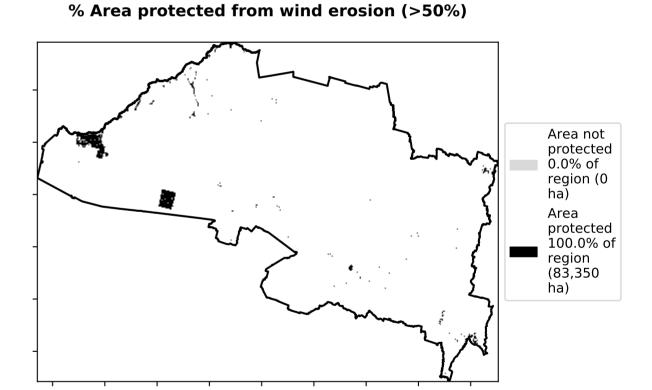
% Area protected from water erosion (>70%)

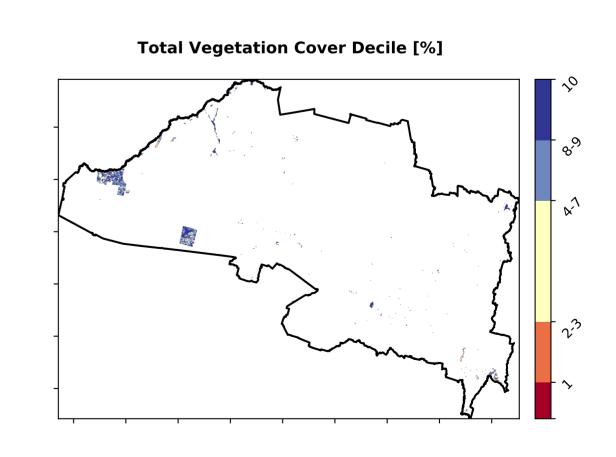
Area not protected 28.5% of region (23,754 ha) Area protected 71.5% of region (59,595 ha)



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 71.5% 70 60 50 Area (%) 28.0% 20 10 51%-70% 0-30% 31%-50% 71%-100% **Total Vegetation Cover class**





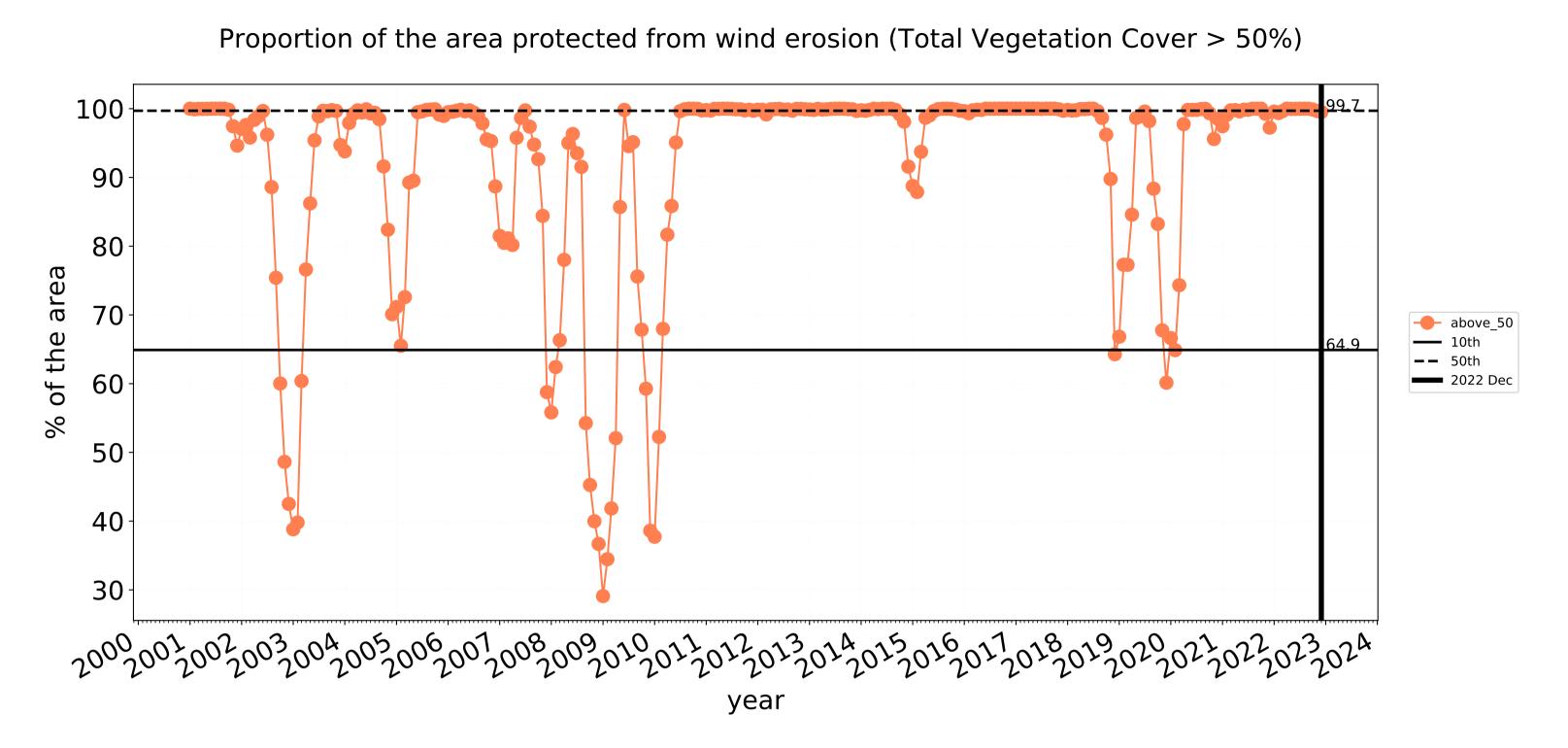


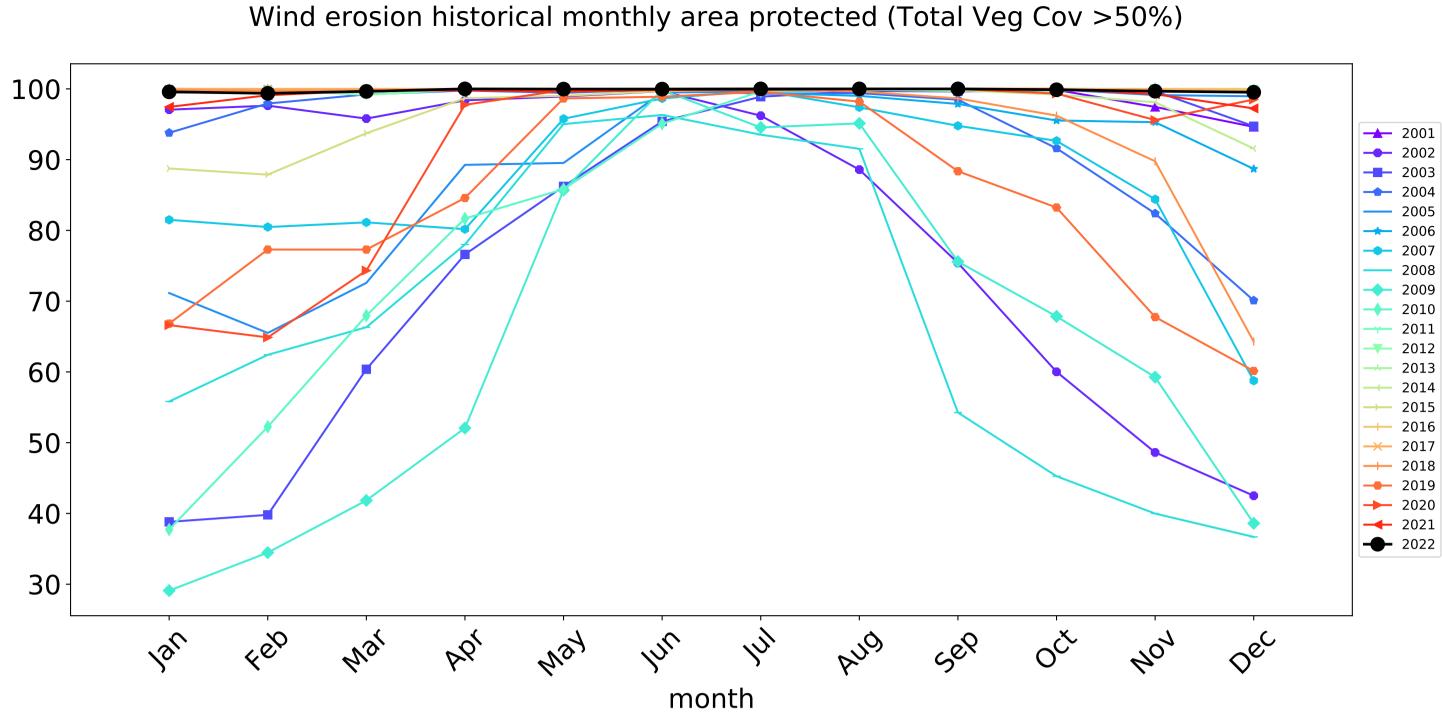


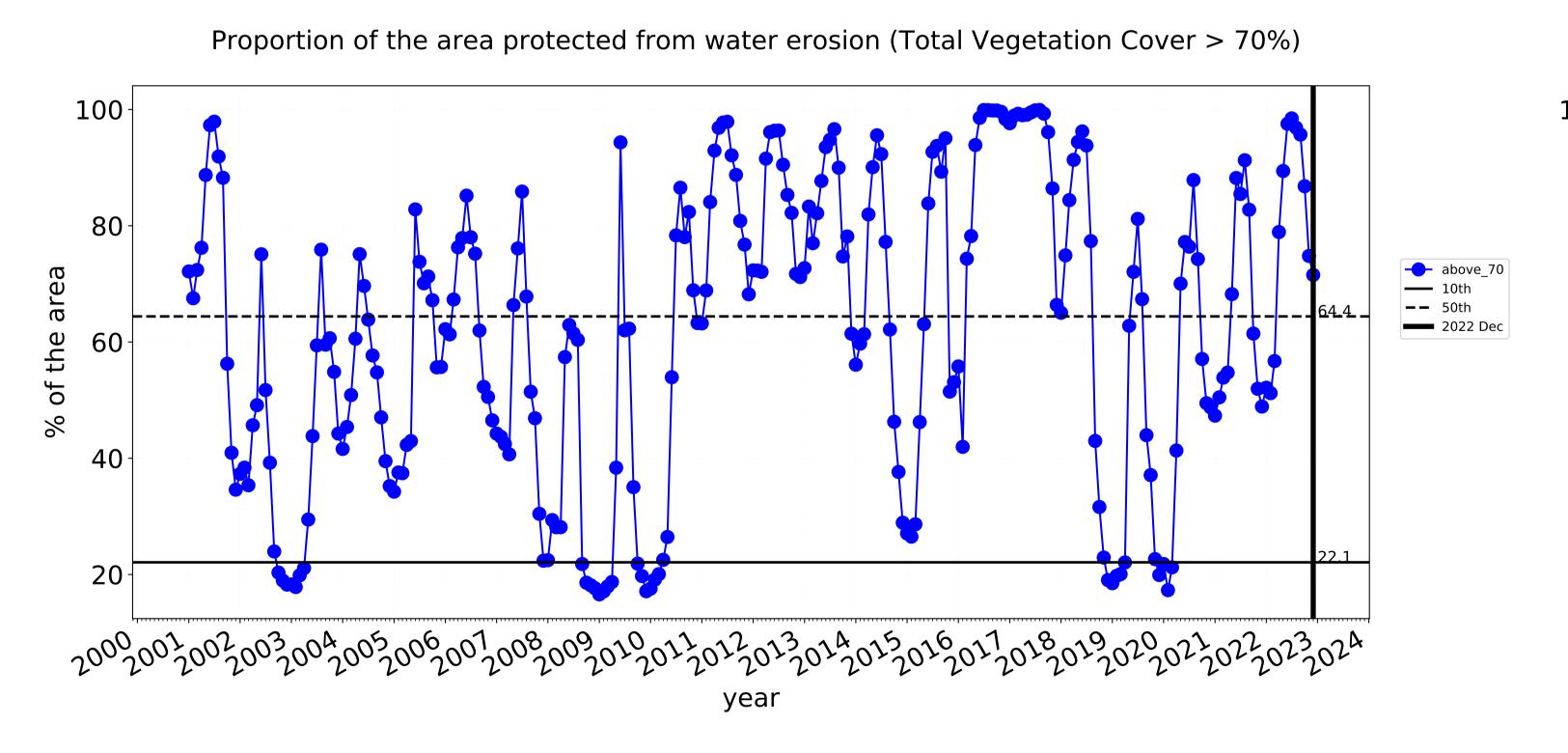


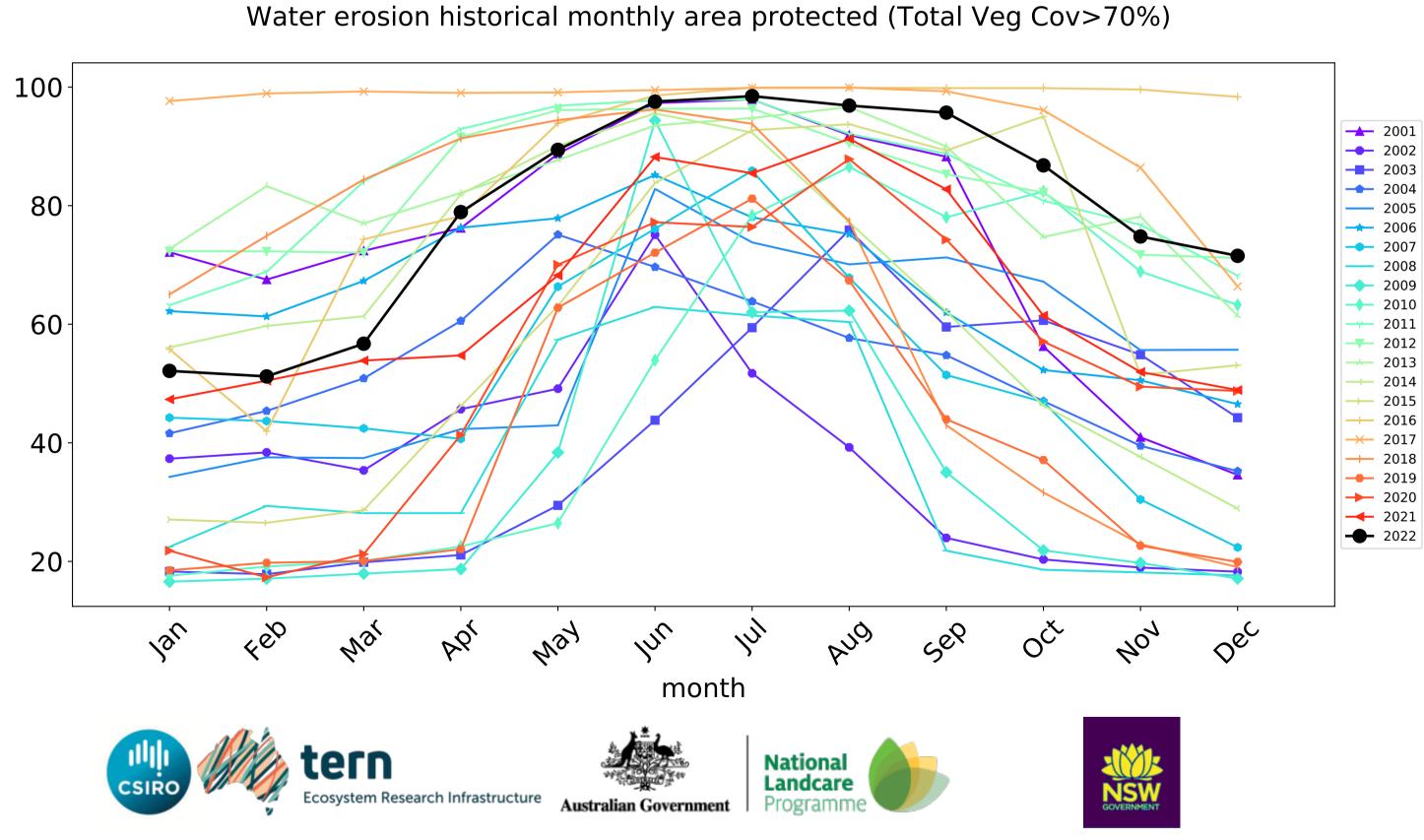


Conservation and natural environments non forest timeseries

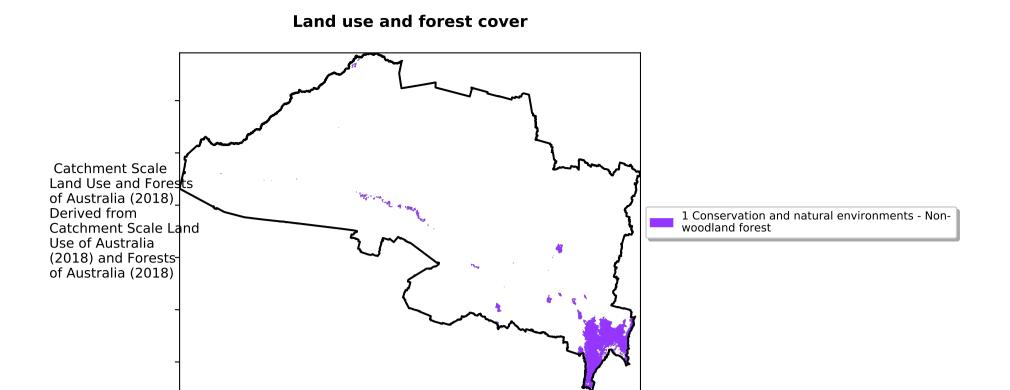




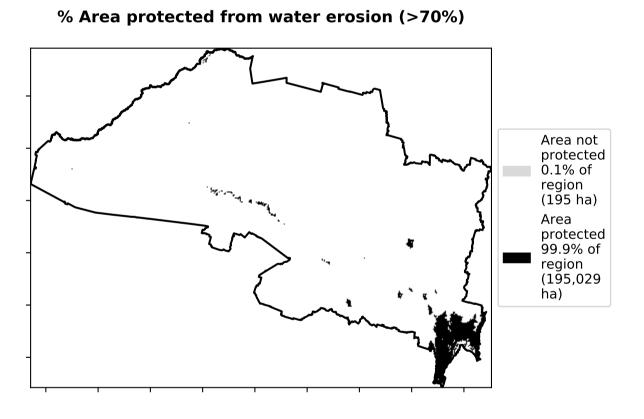


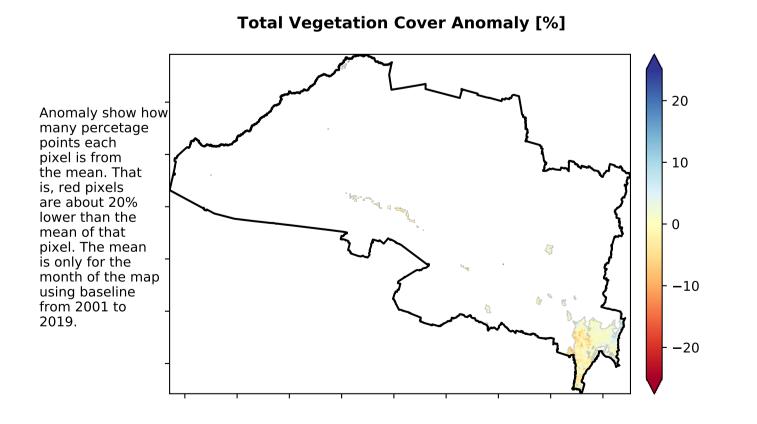


Conservation and natural environments Forest (non woodland)

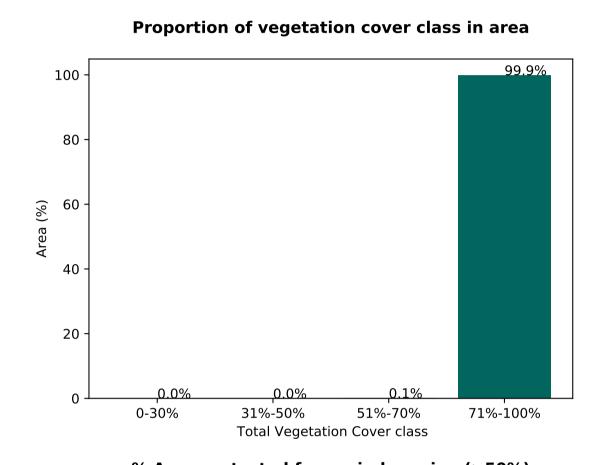


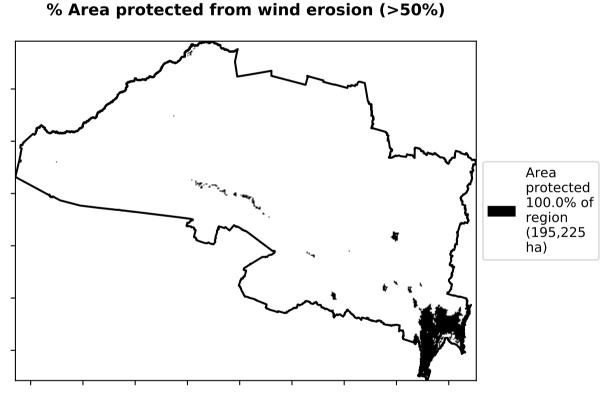
Total Vegetation Cover [%]

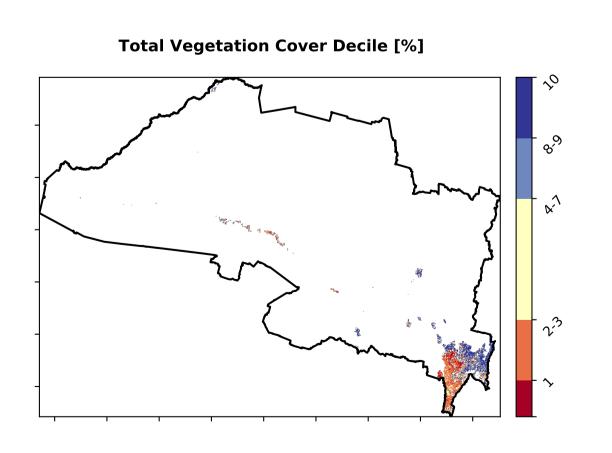




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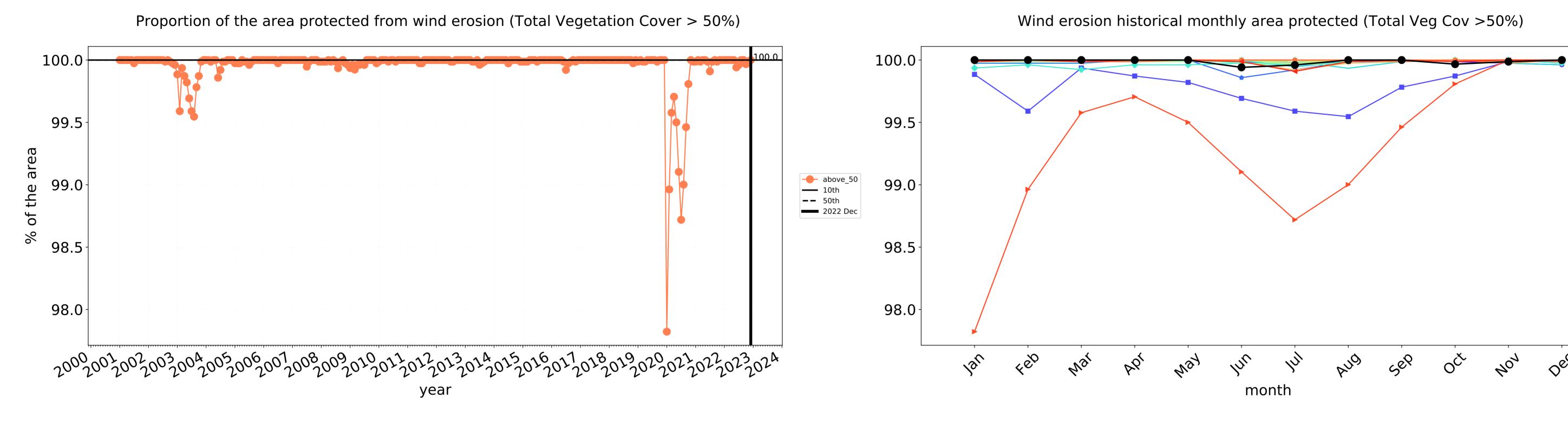


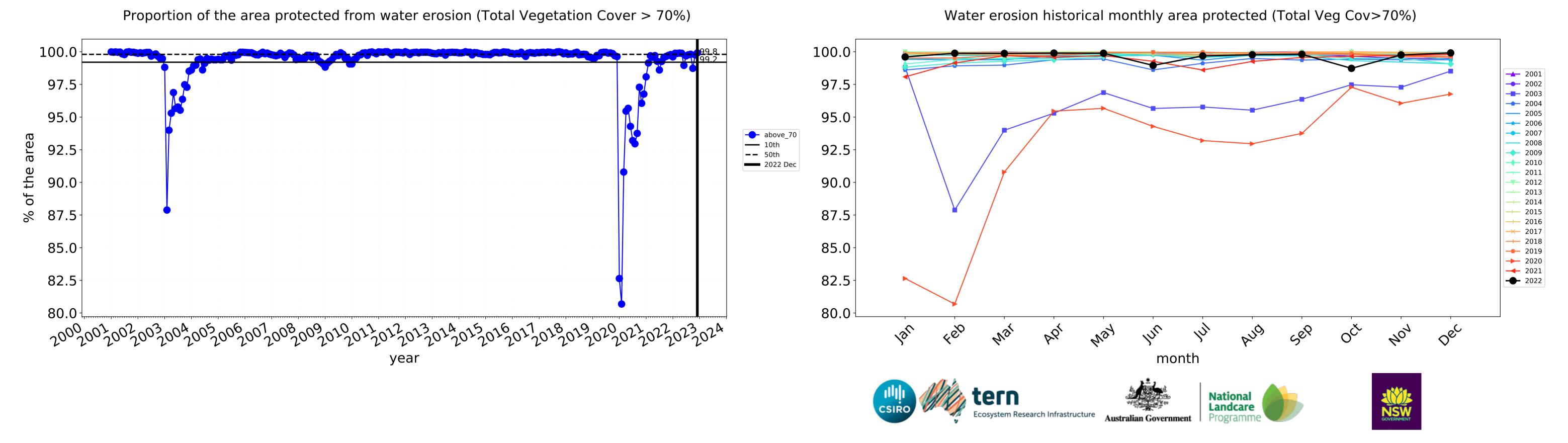






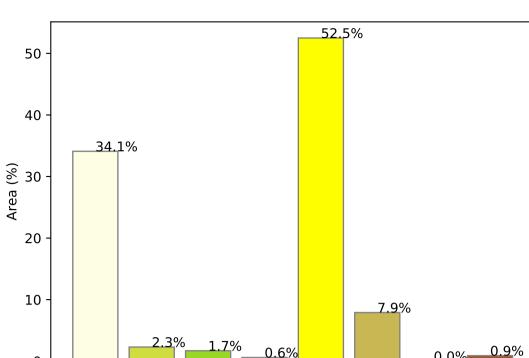






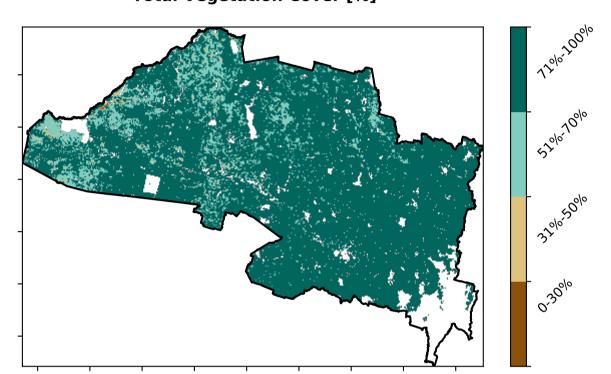
Agriculture

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



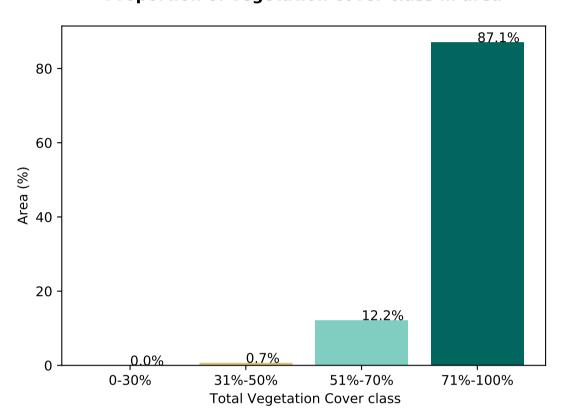
Proportion of each land class in area

Total Vegetation Cover [%]

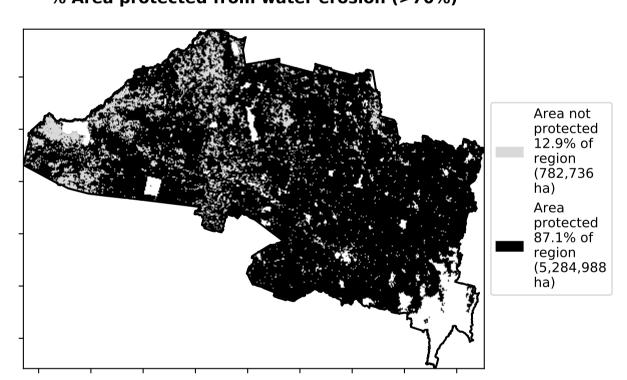


Proportion of vegetation cover class in area

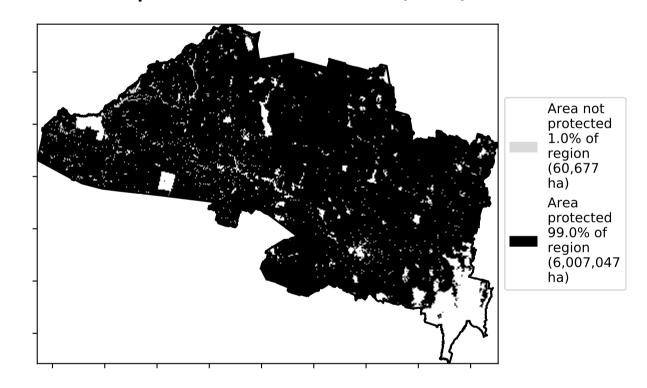
Land use class



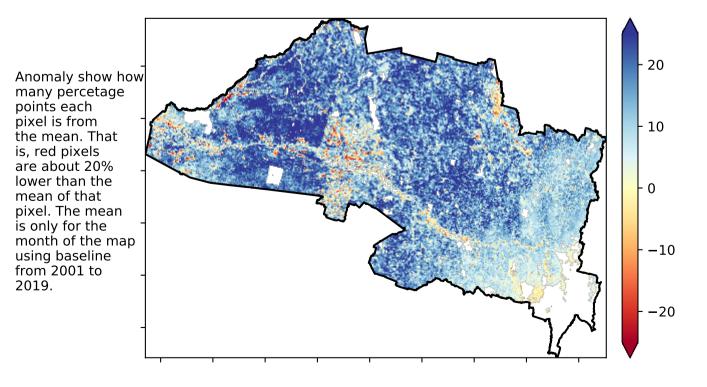
% Area protected from water erosion (>70%)



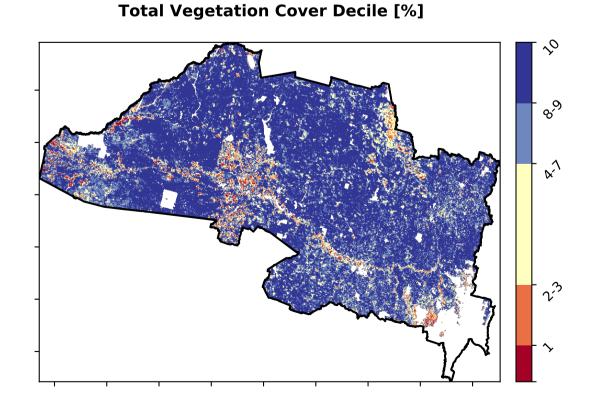
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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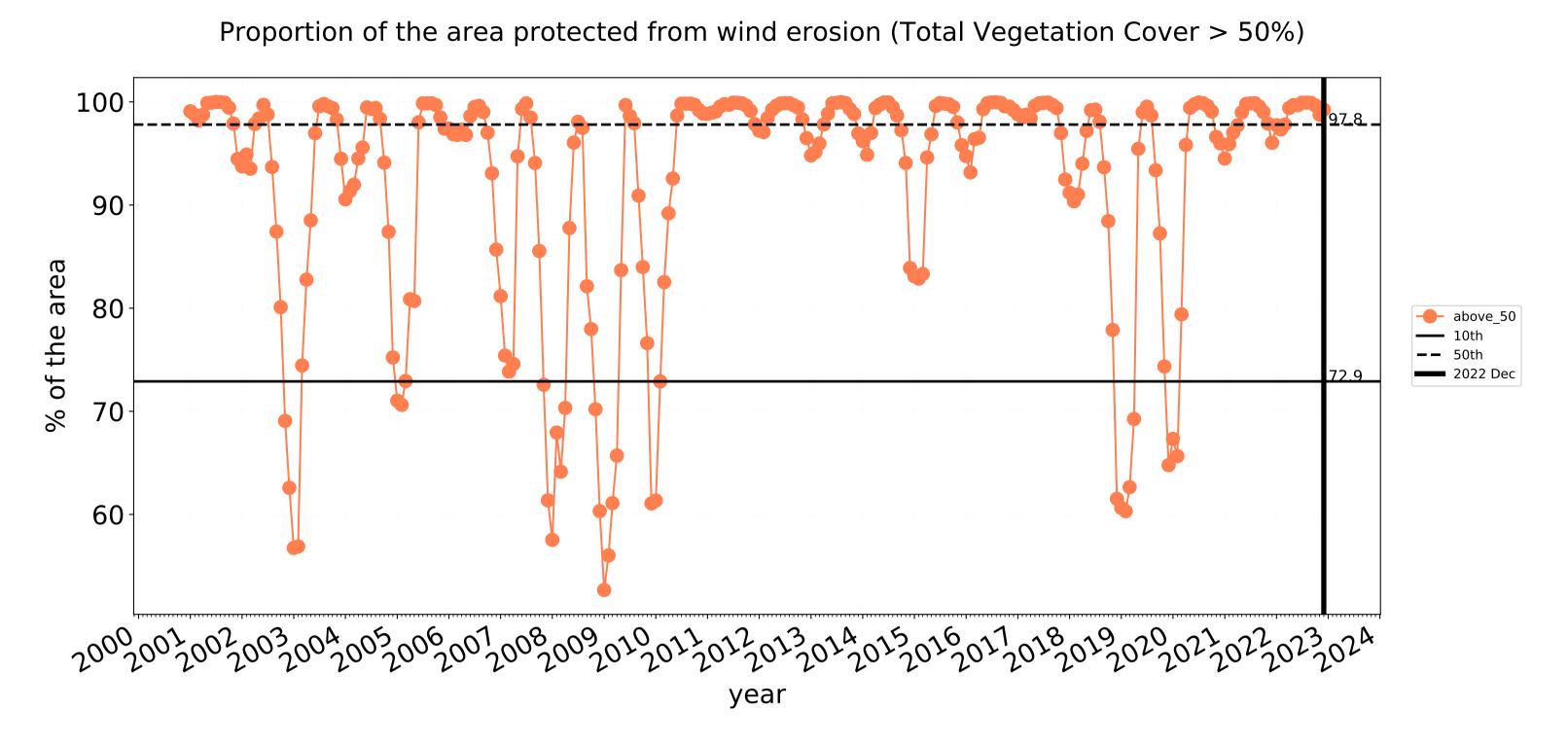


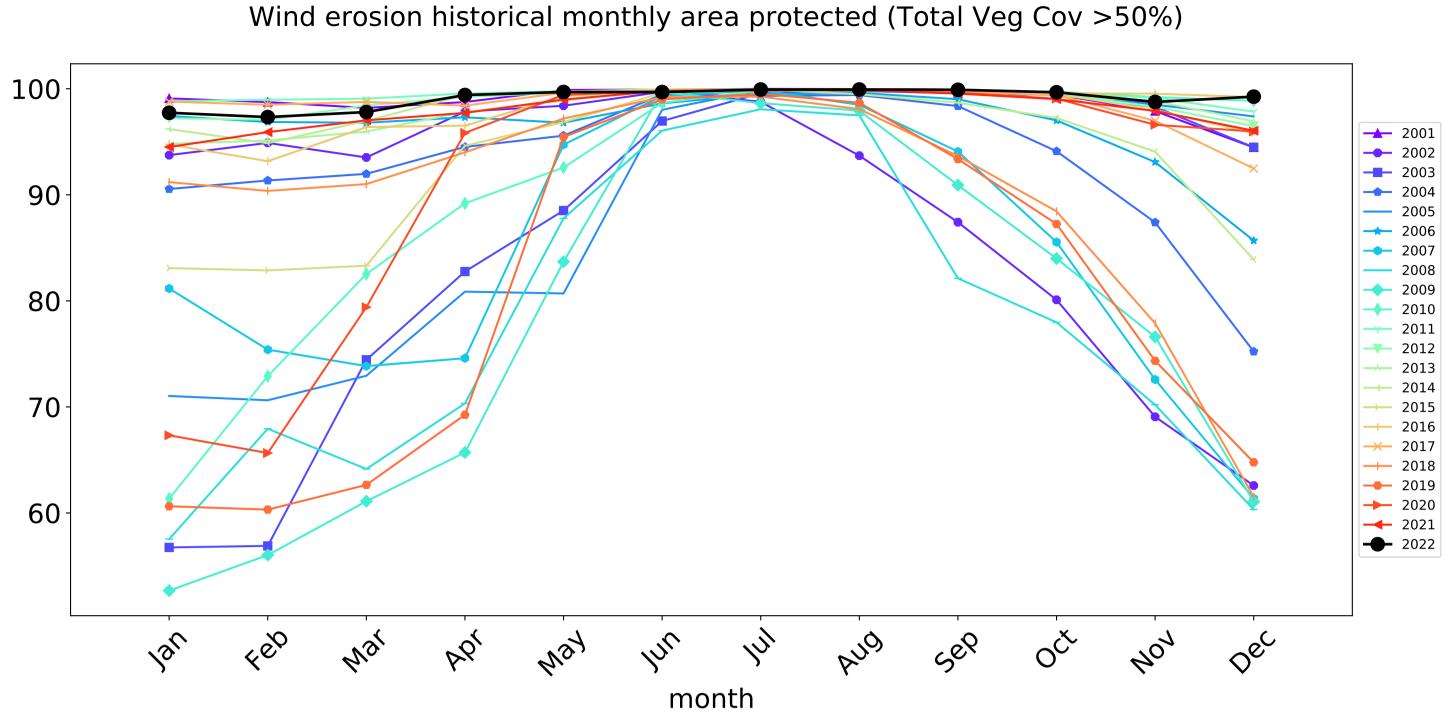


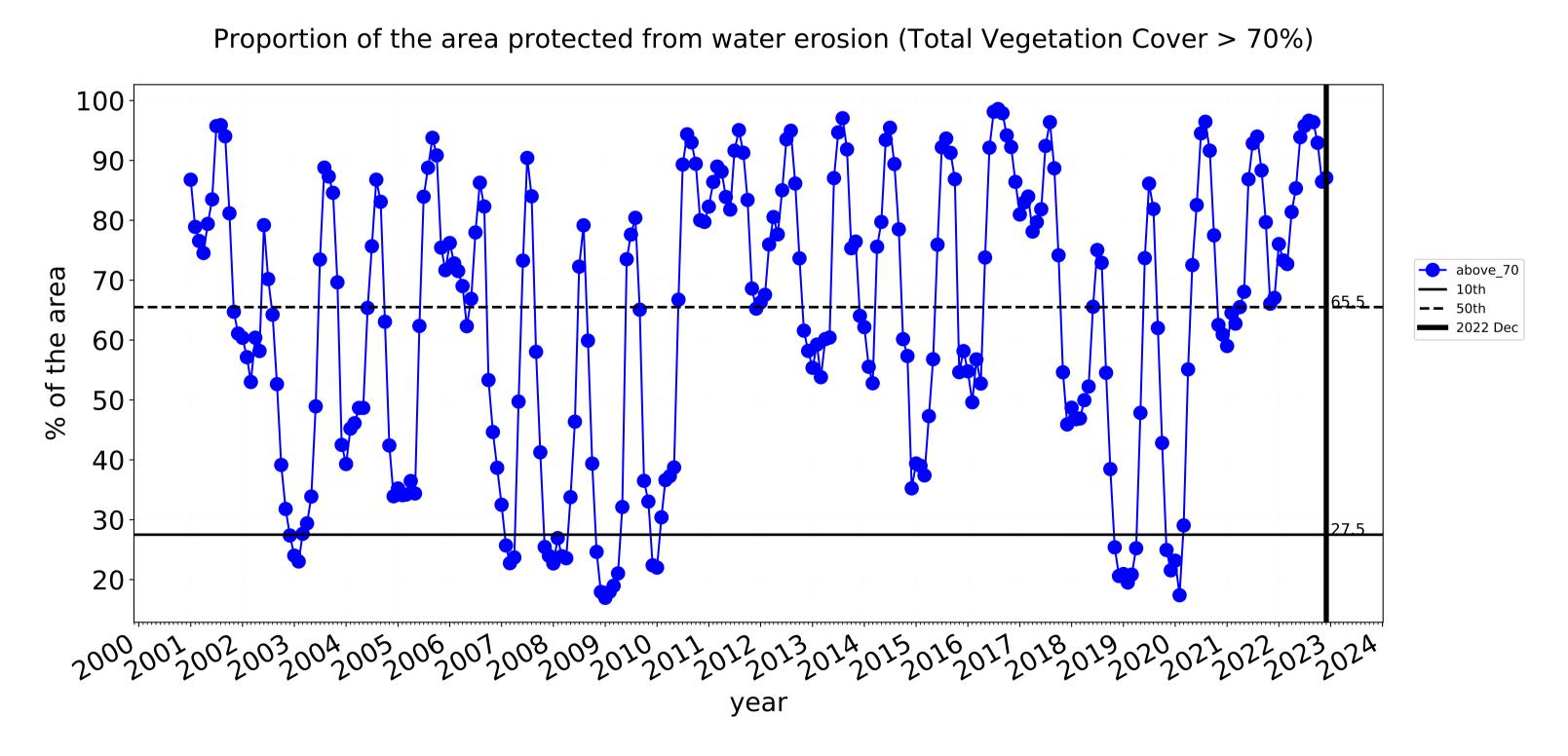


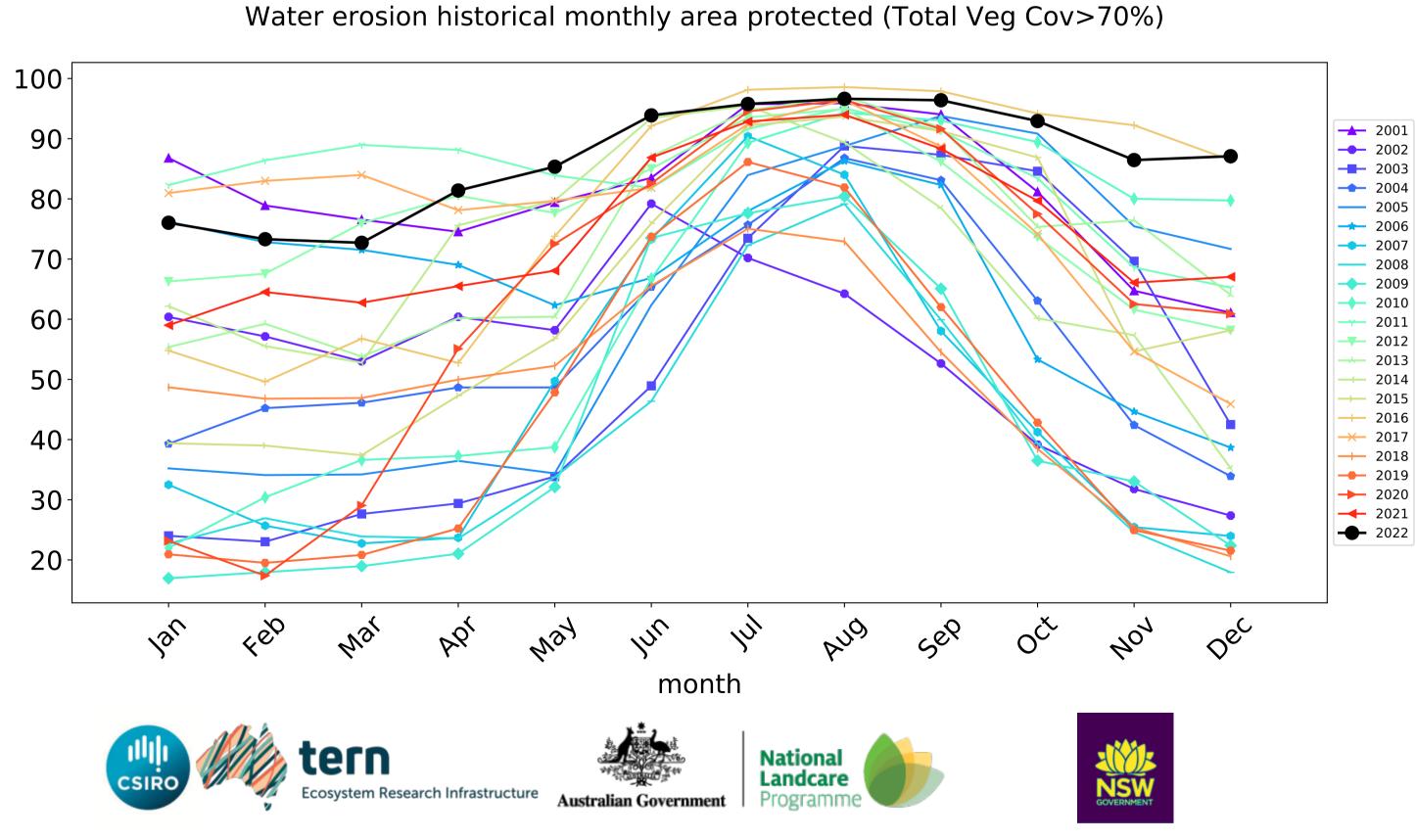


Agriculture timeseries





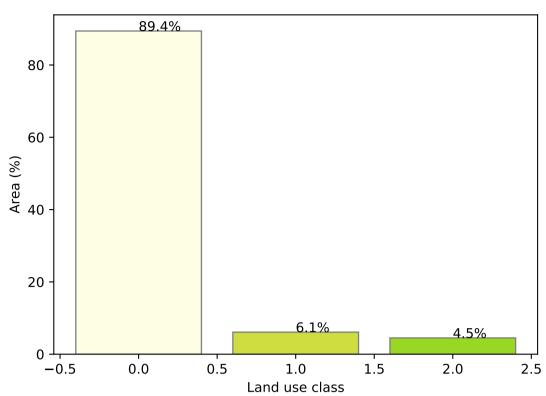




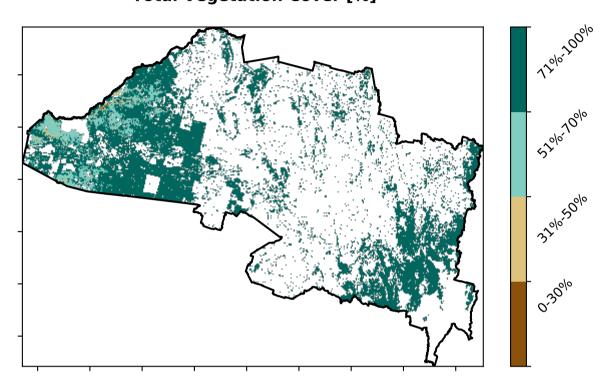
Grazing

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest of Australia (2018)

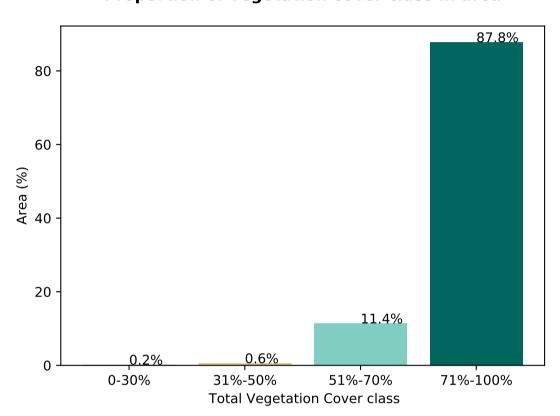
Proportion of each land class in area



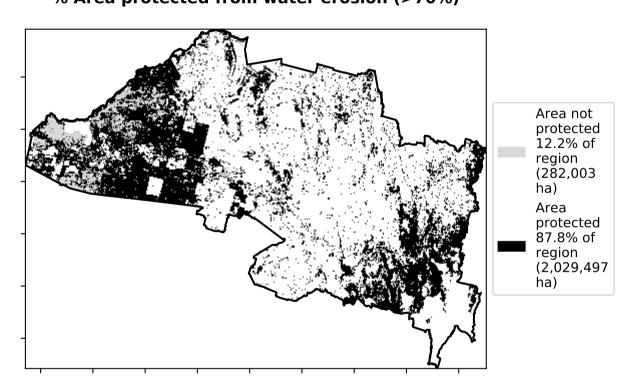
Total Vegetation Cover [%]



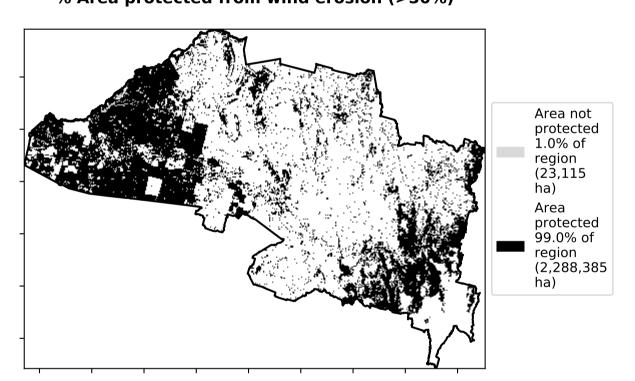
Proportion of vegetation cover class in area



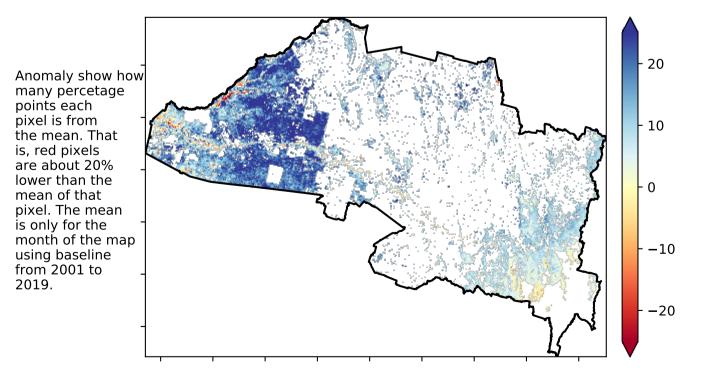
% Area protected from water erosion (>70%)



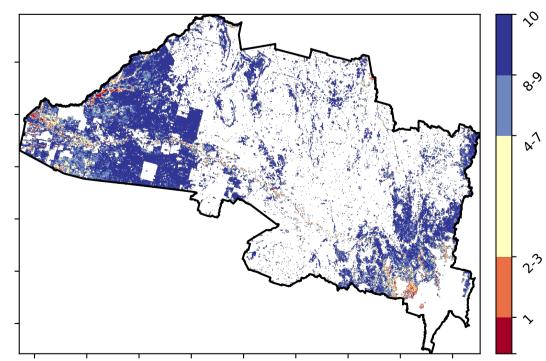
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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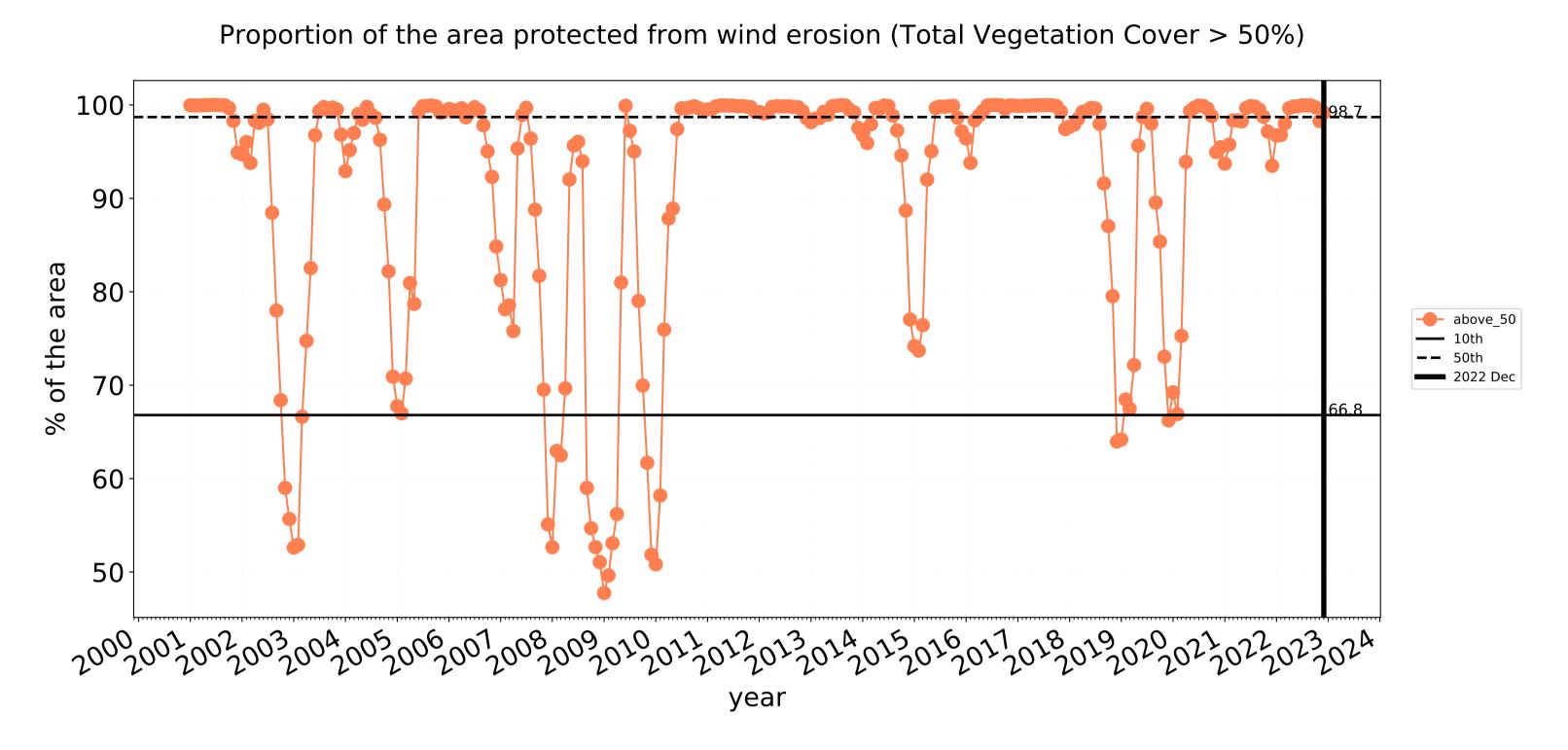


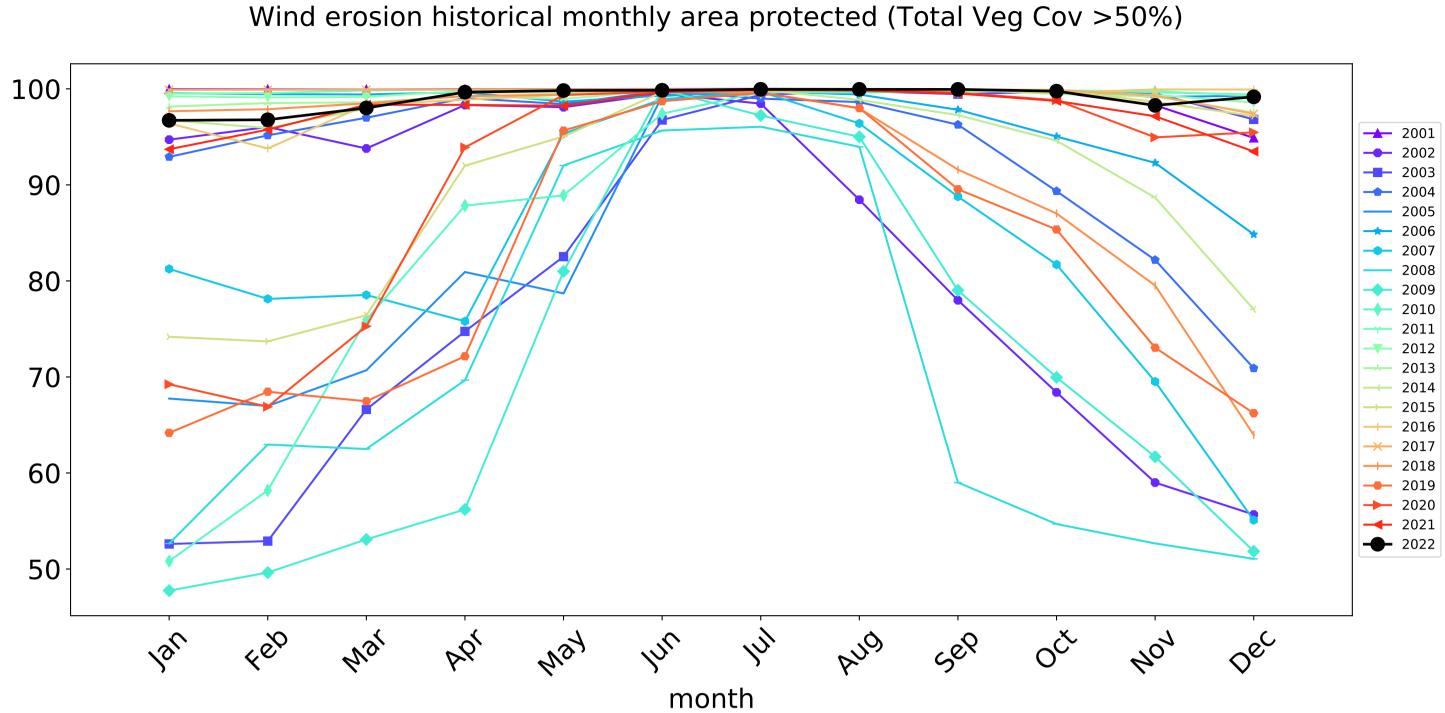


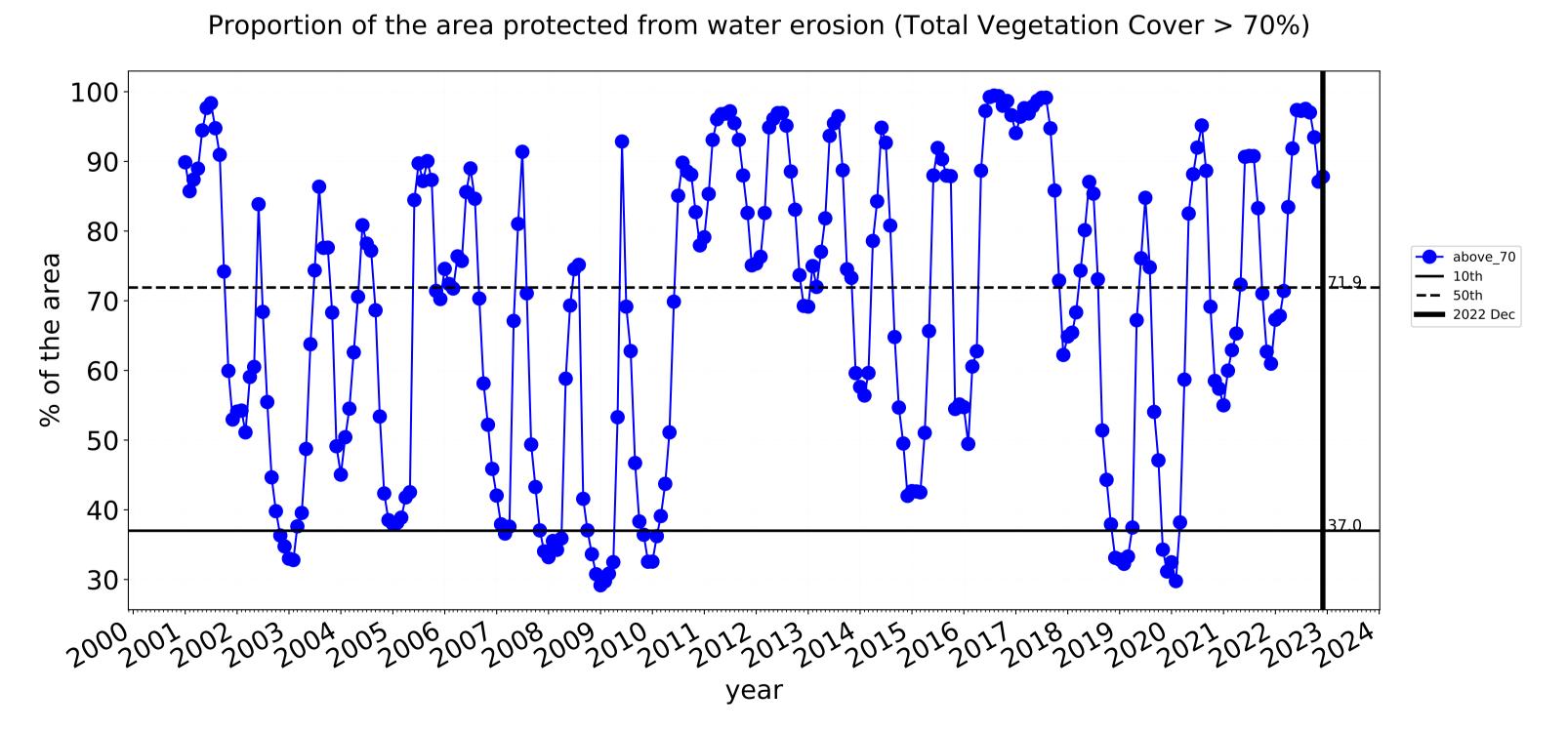


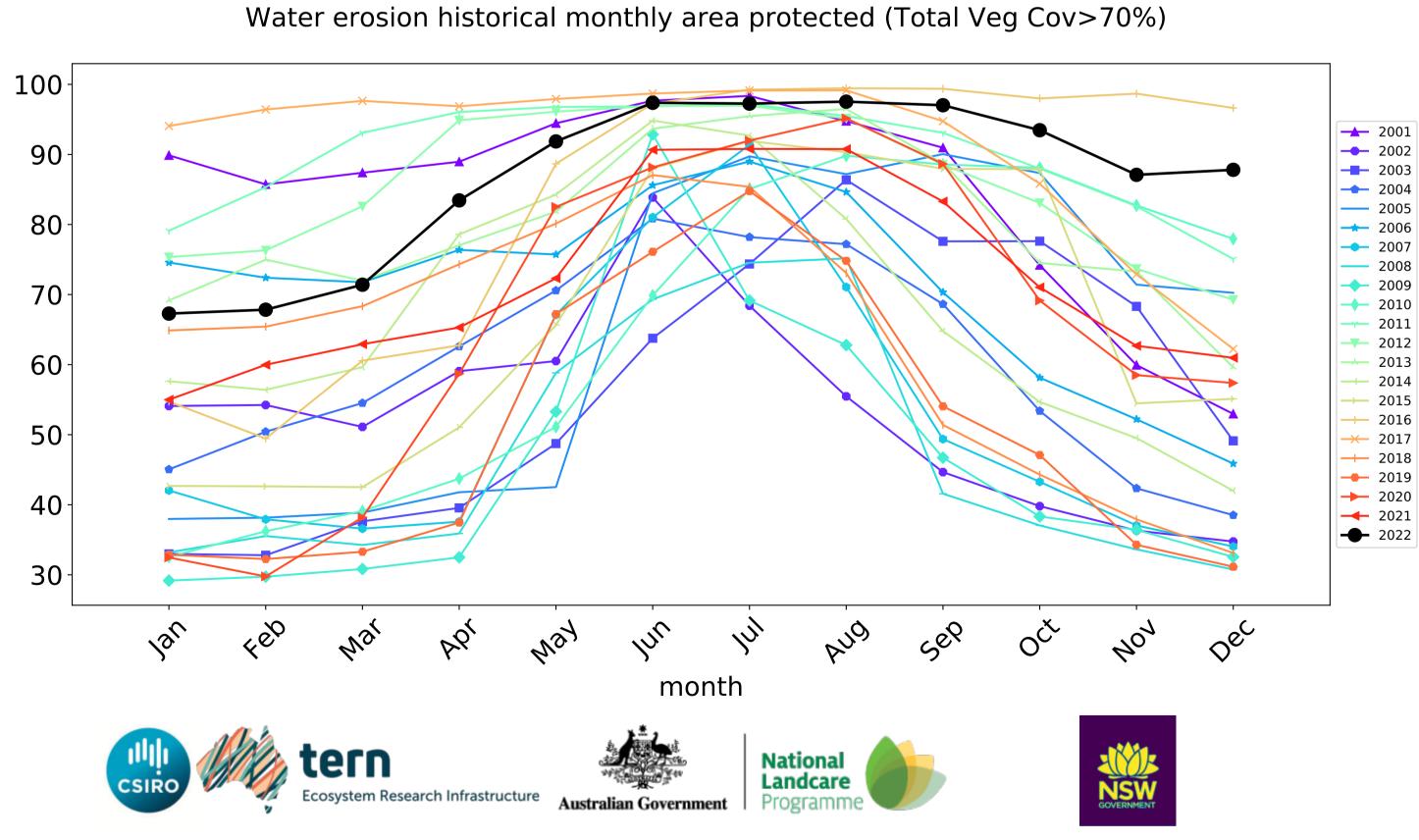


Grazing timeseries



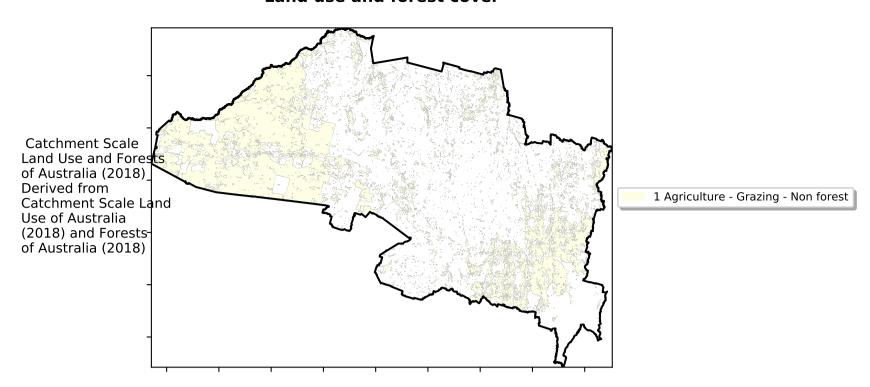




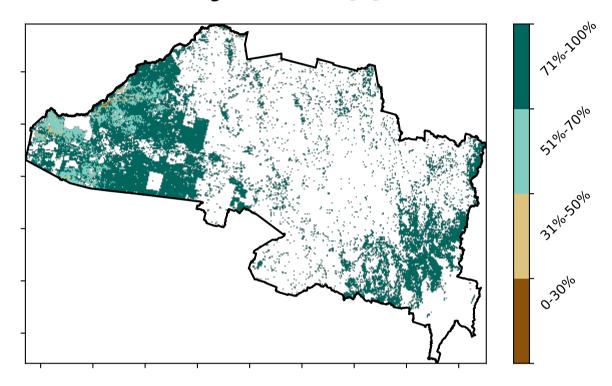


Grazing non forest

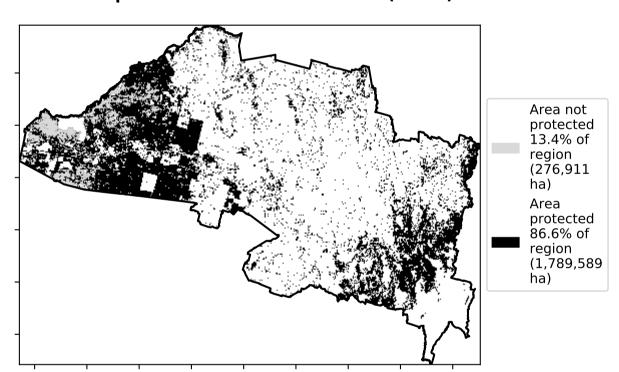
Land use and forest cover



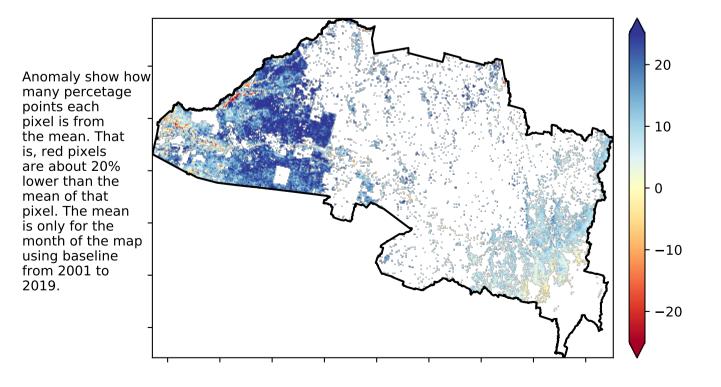
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

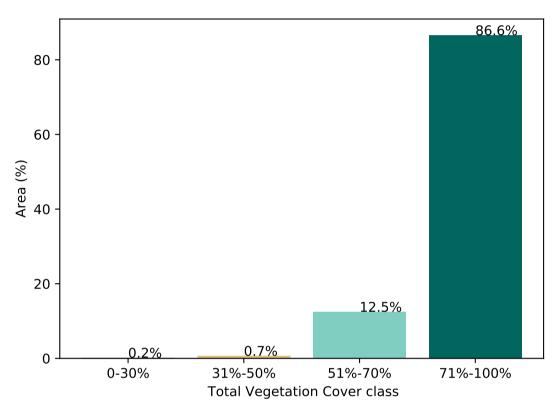


Total Vegetation Cover Anomaly [%]

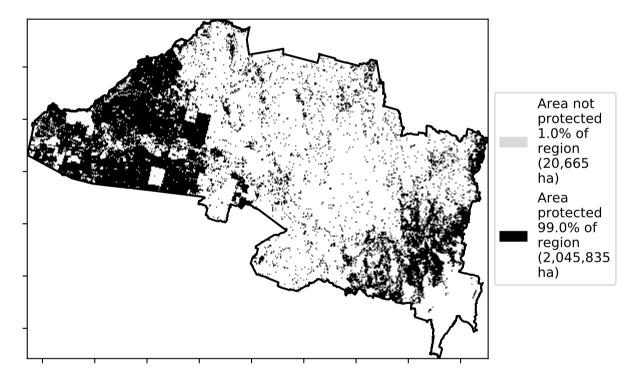


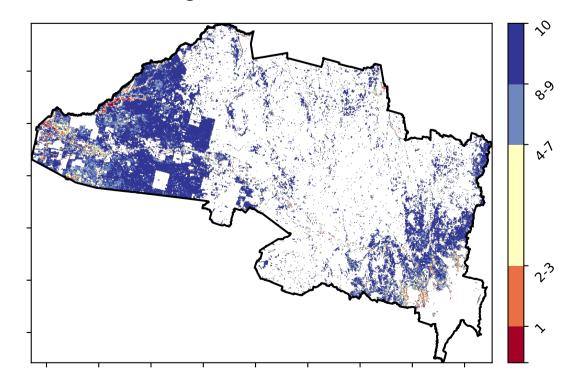
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Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





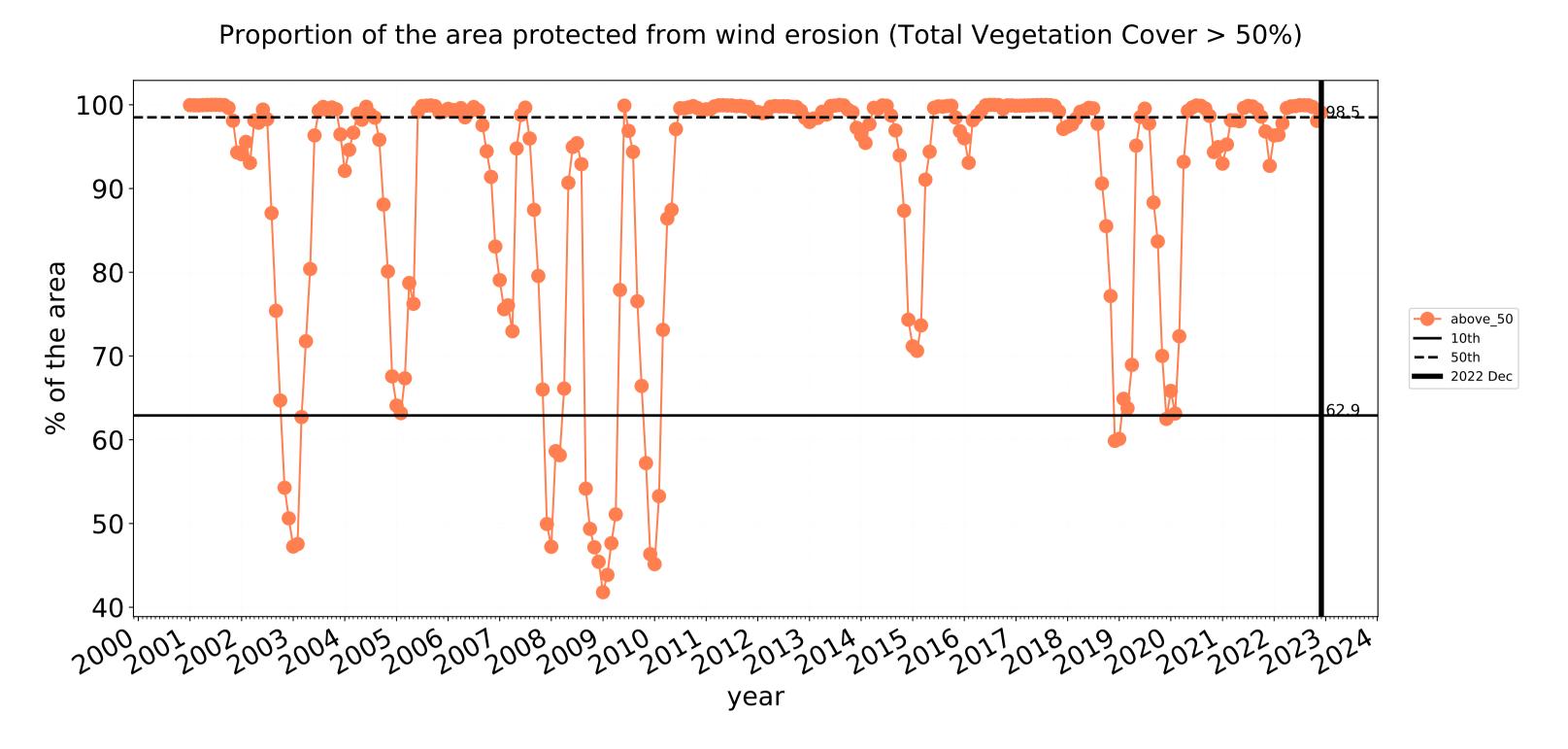


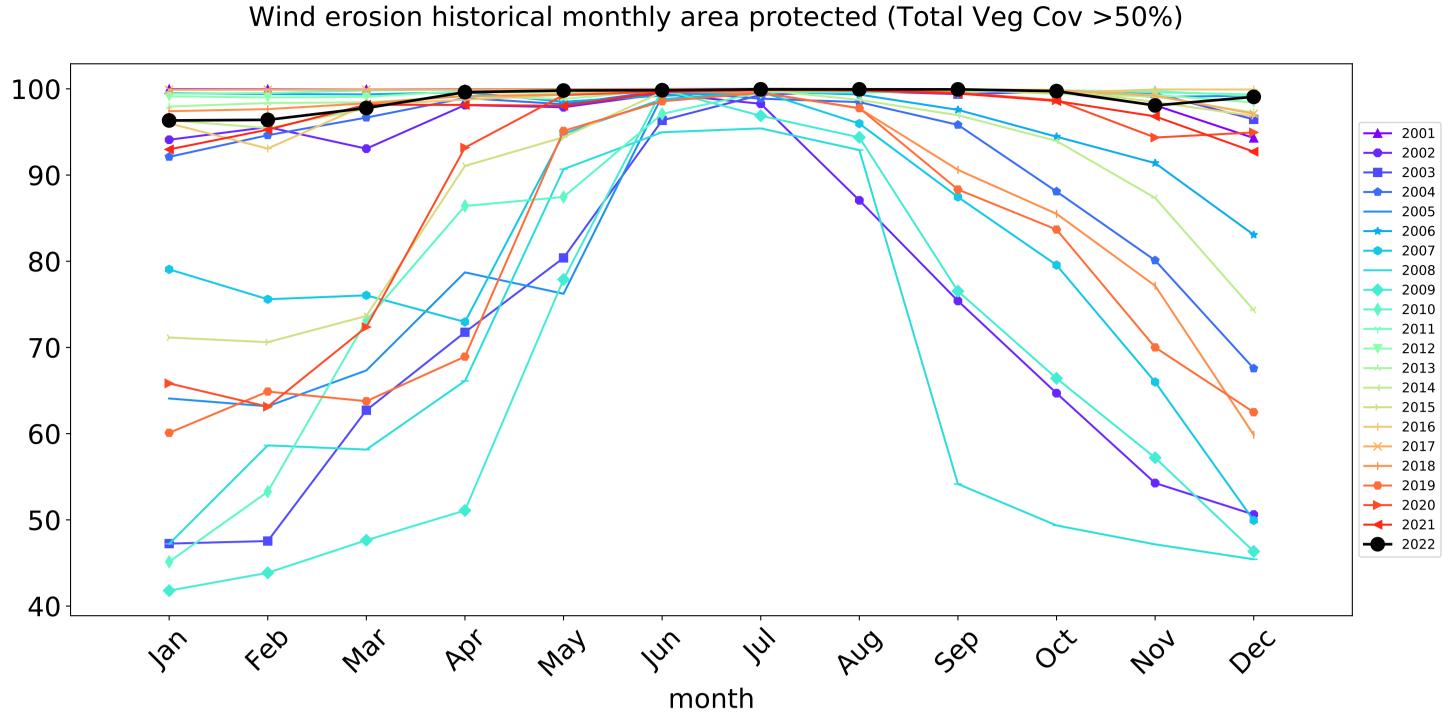


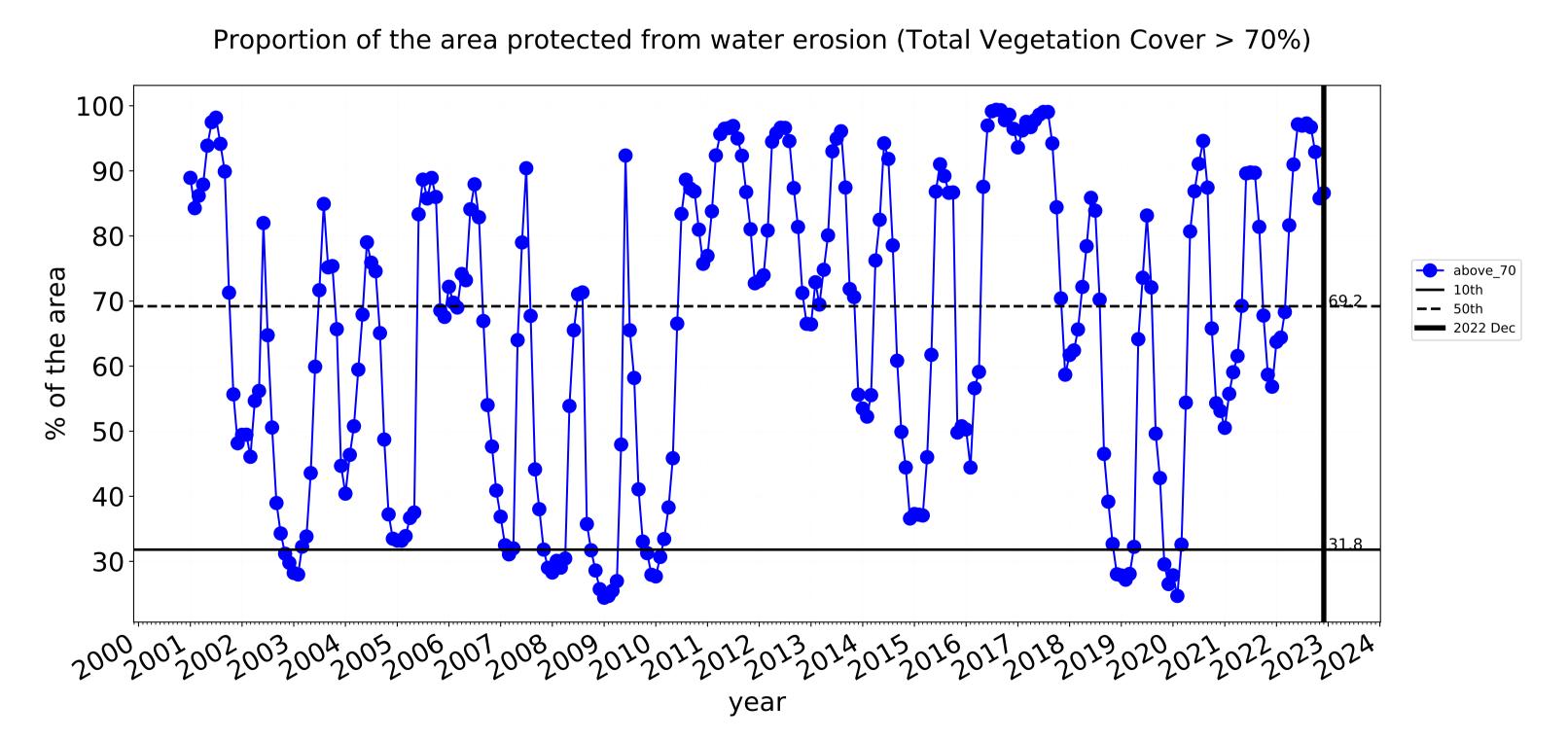


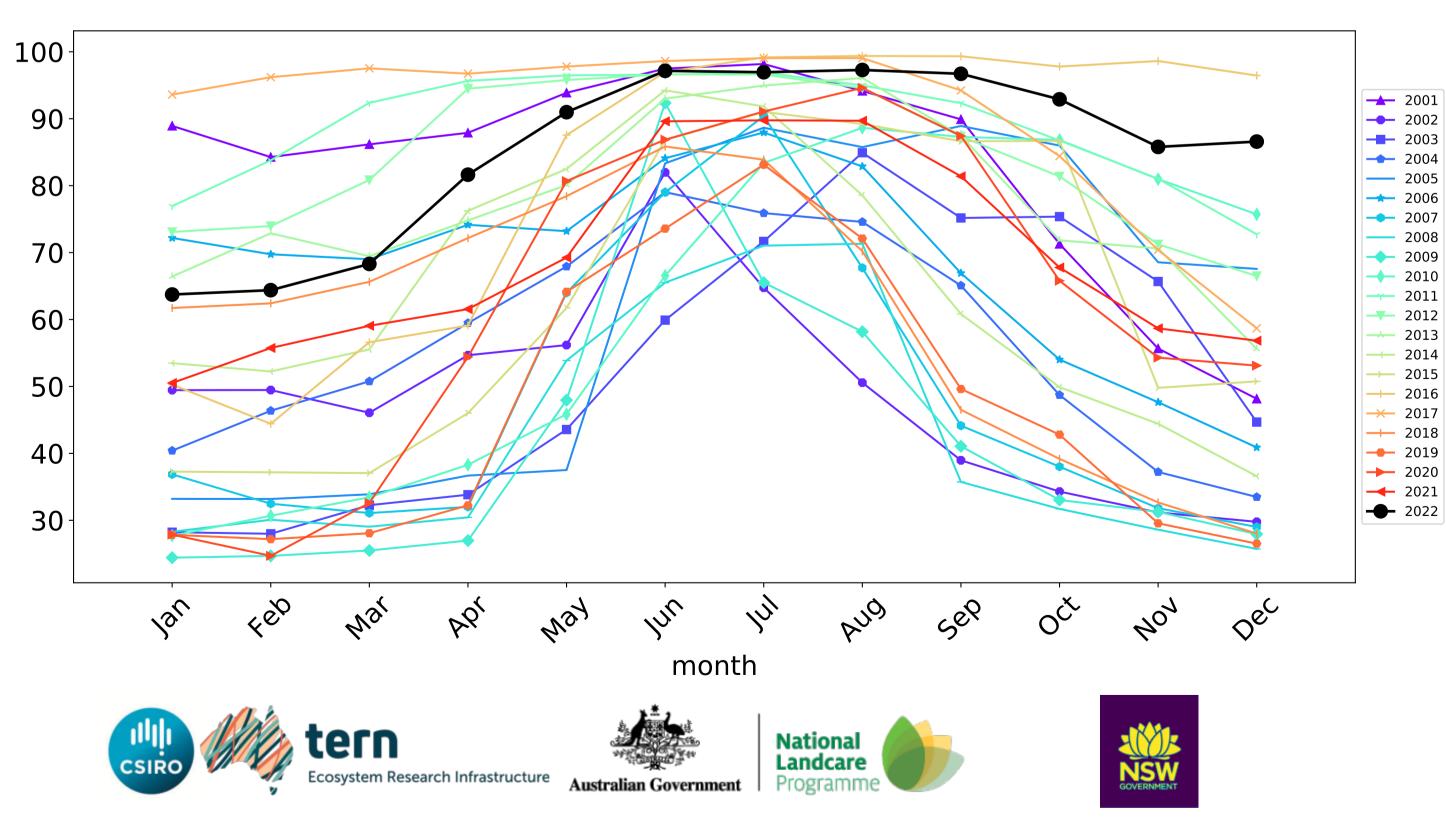


Grazing non forest timeseries





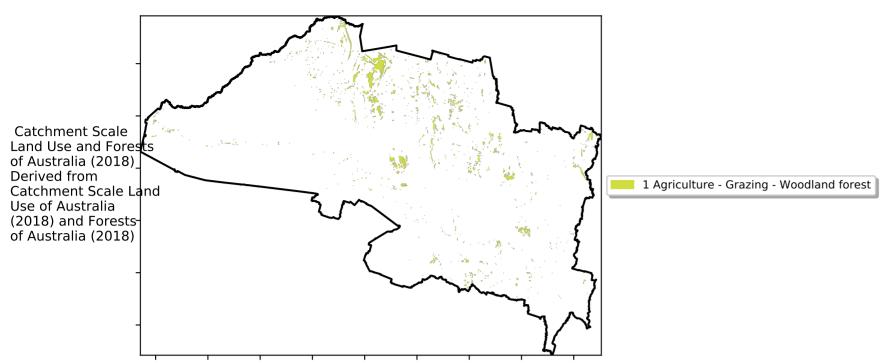




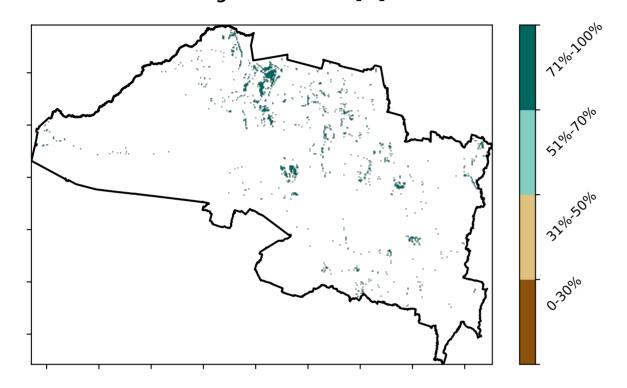
Water erosion historical monthly area protected (Total Veg Cov>70%)

Grazing Woodland forest

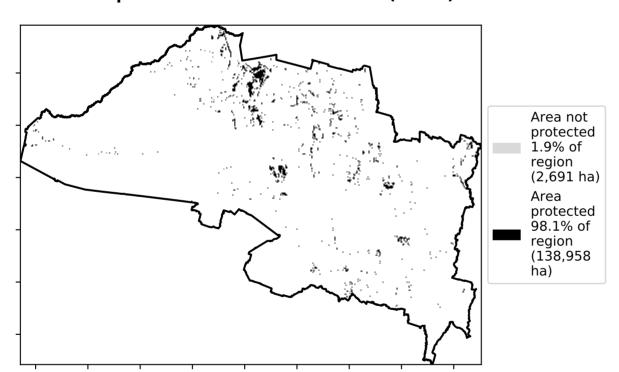
Land use and forest cover



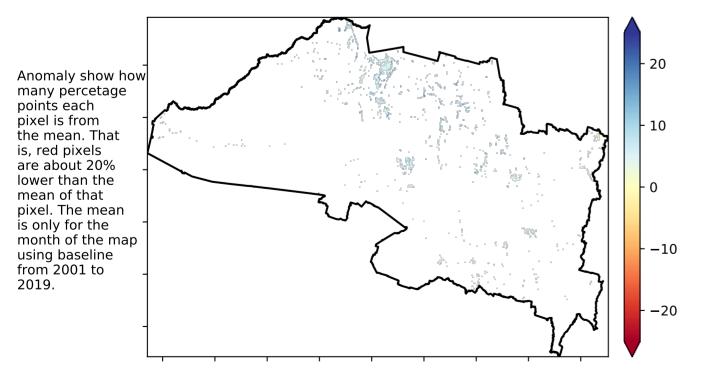
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

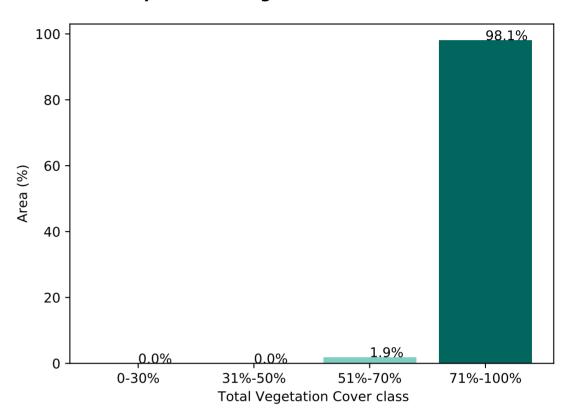


Total Vegetation Cover Anomaly [%]

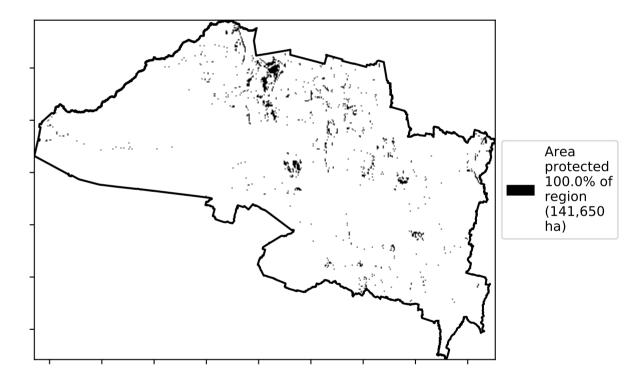


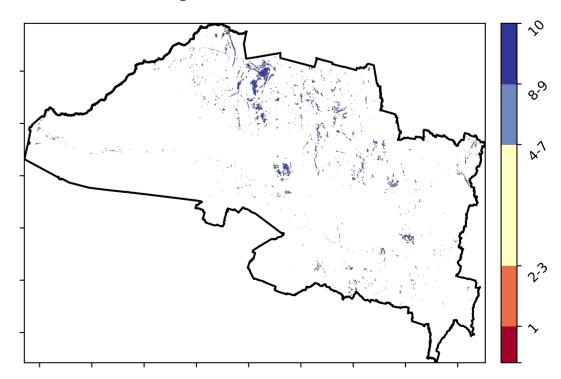
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Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





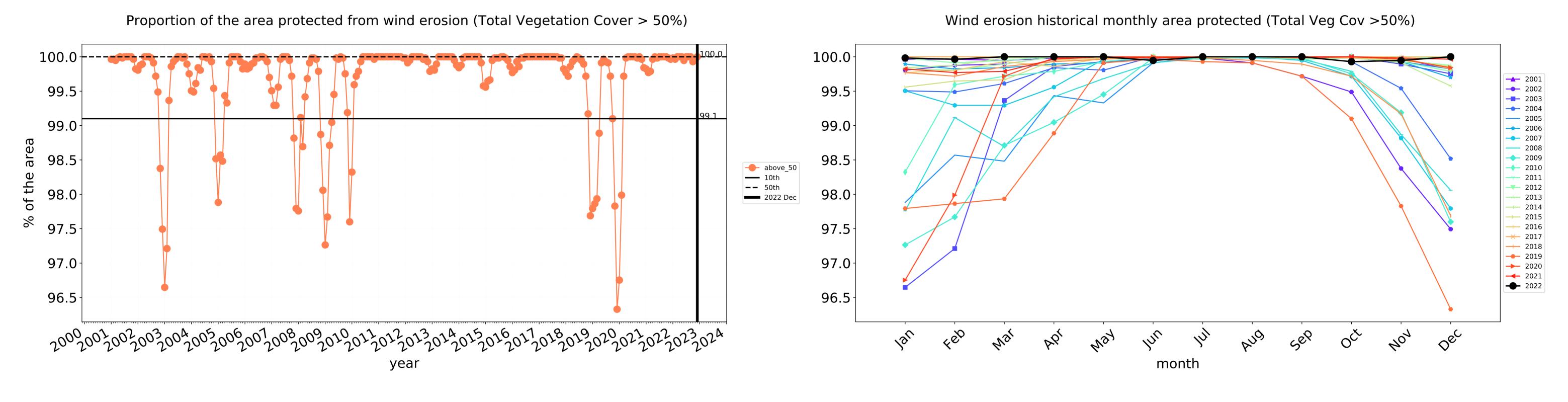


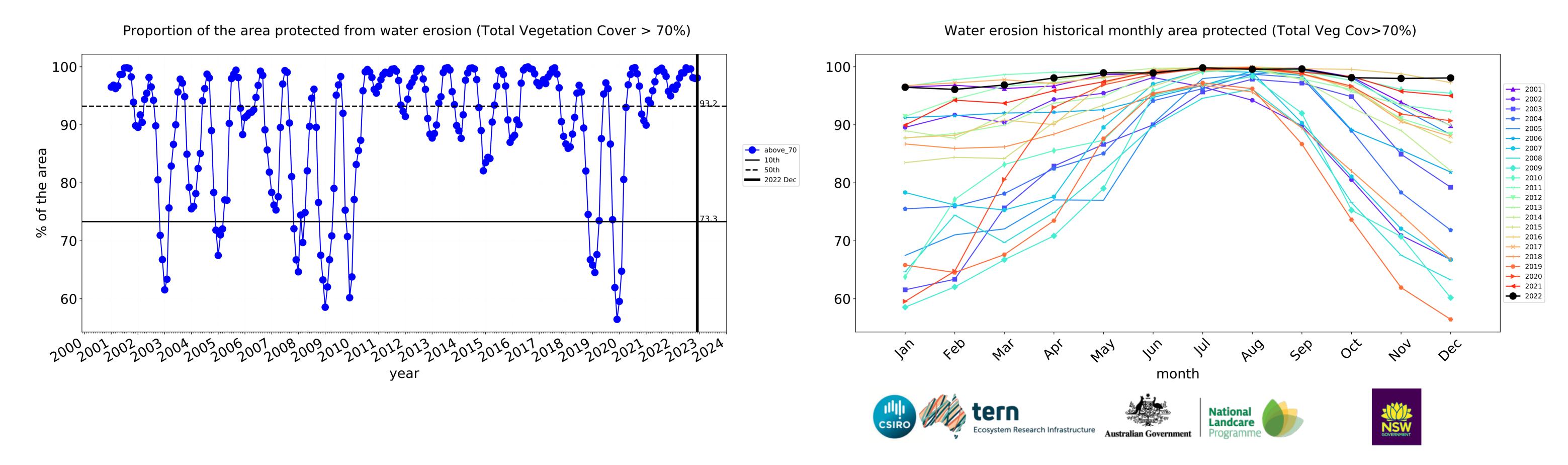






Grazing Woodland forest timeseries



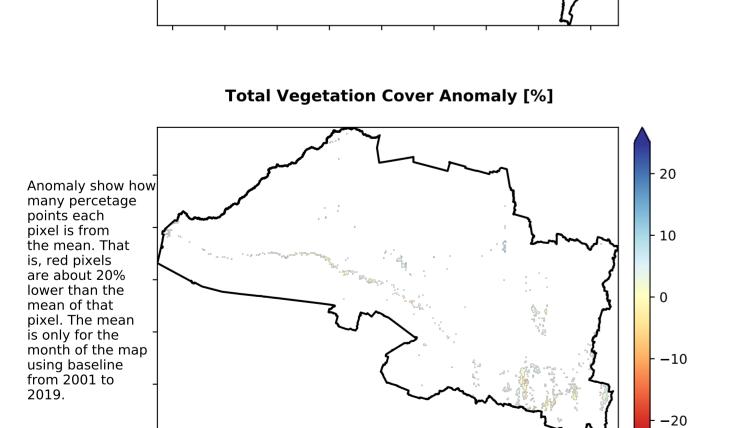


Grazing - Forest (non woodland)

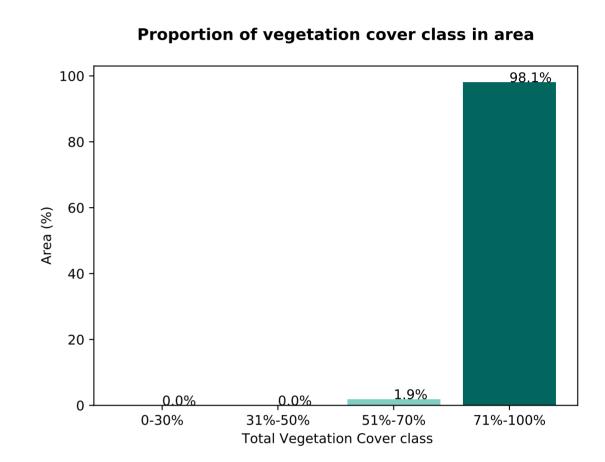
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) 1 Agriculture - Grazing - Non-woodland forest of Australia (2018)

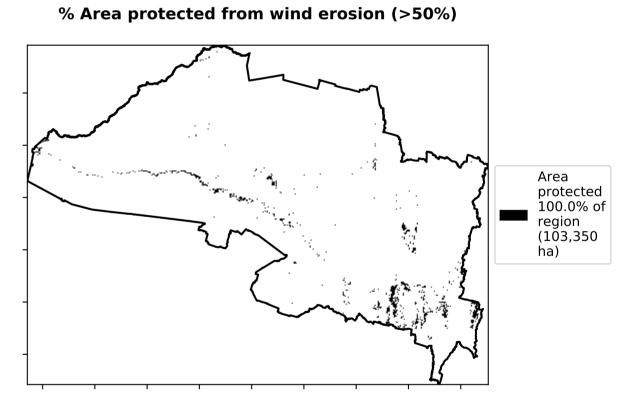
Total Vegetation Cover [%]

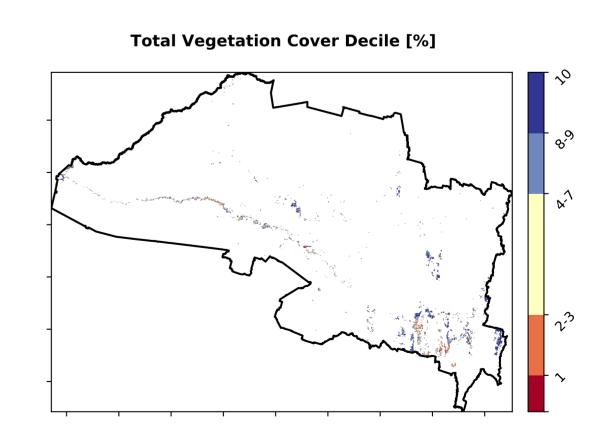
% Area protected from water erosion (>70%) Area not protected 1.9% of region (1,963 ha) Area protected 98.1% of region (101,386 ha)



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





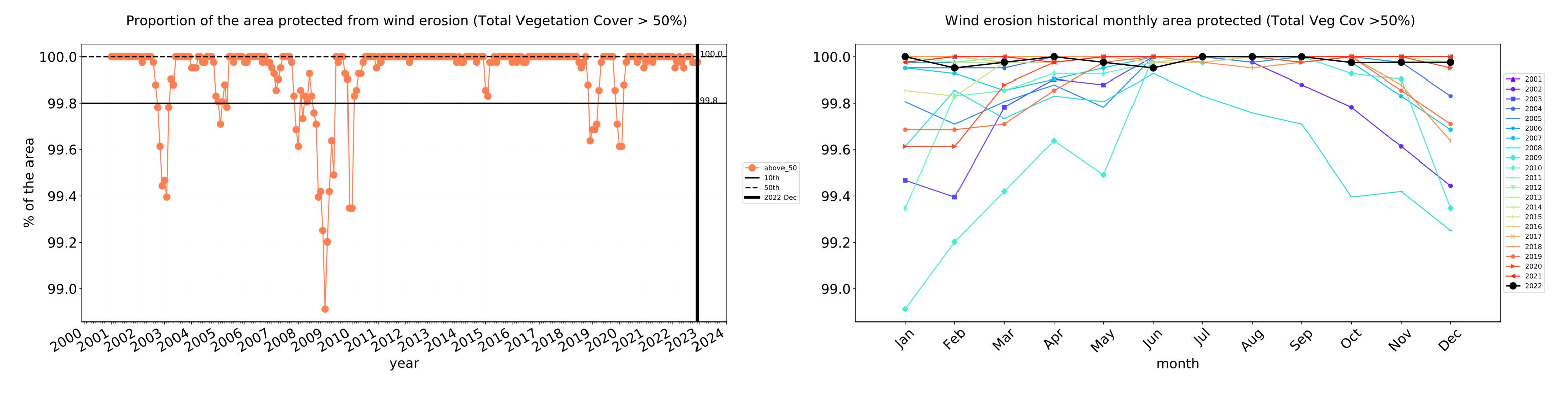


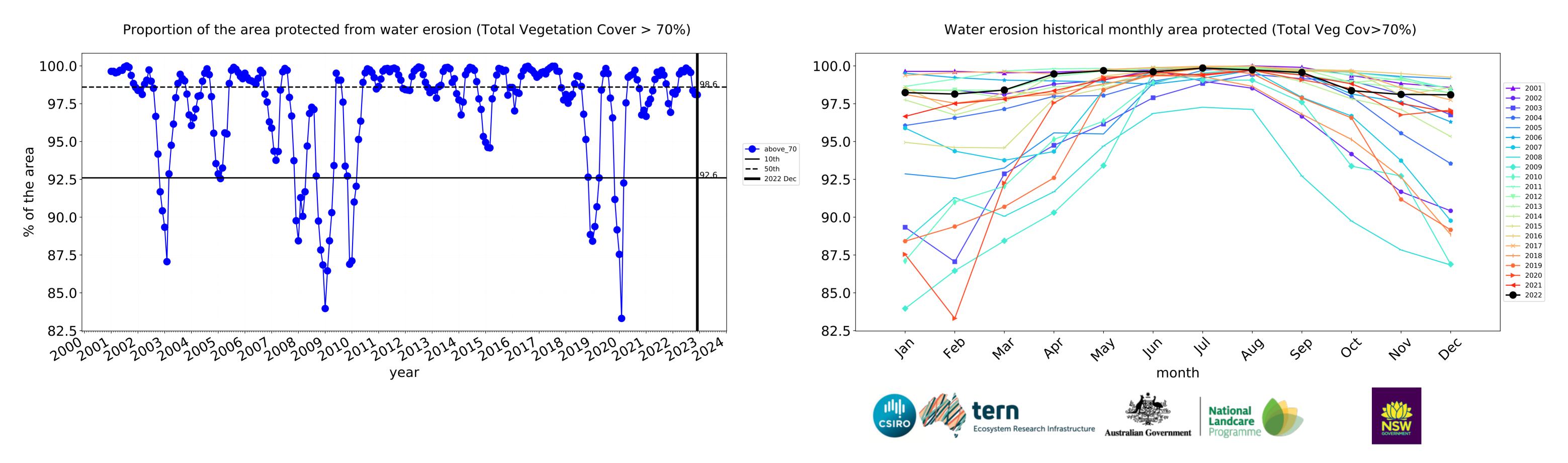






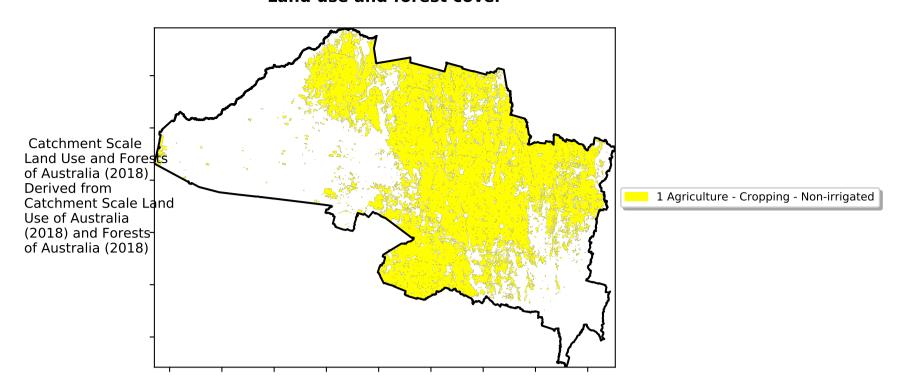




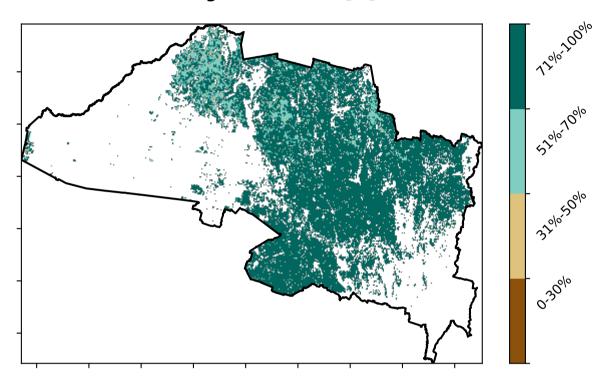


Cropping

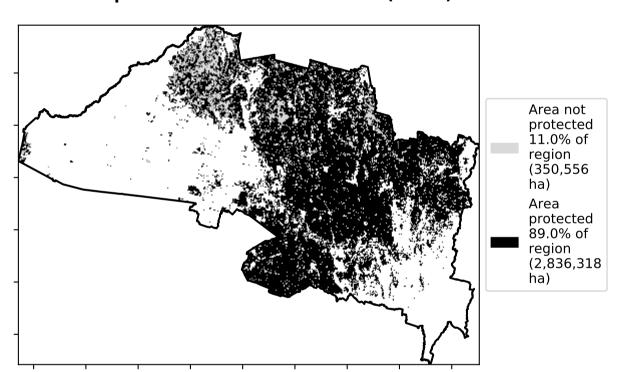
Land use and forest cover



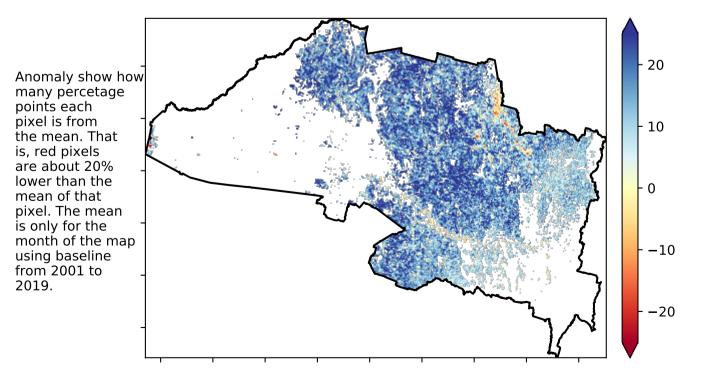
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

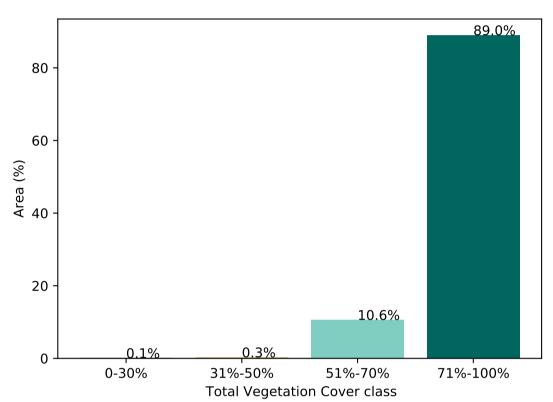


Total Vegetation Cover Anomaly [%]

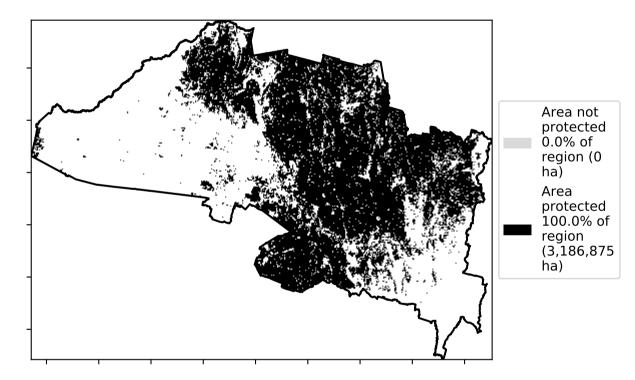


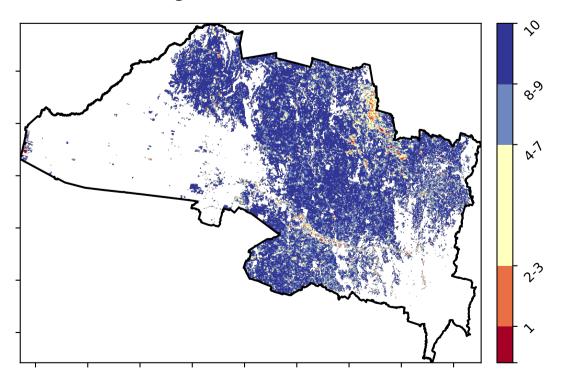
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





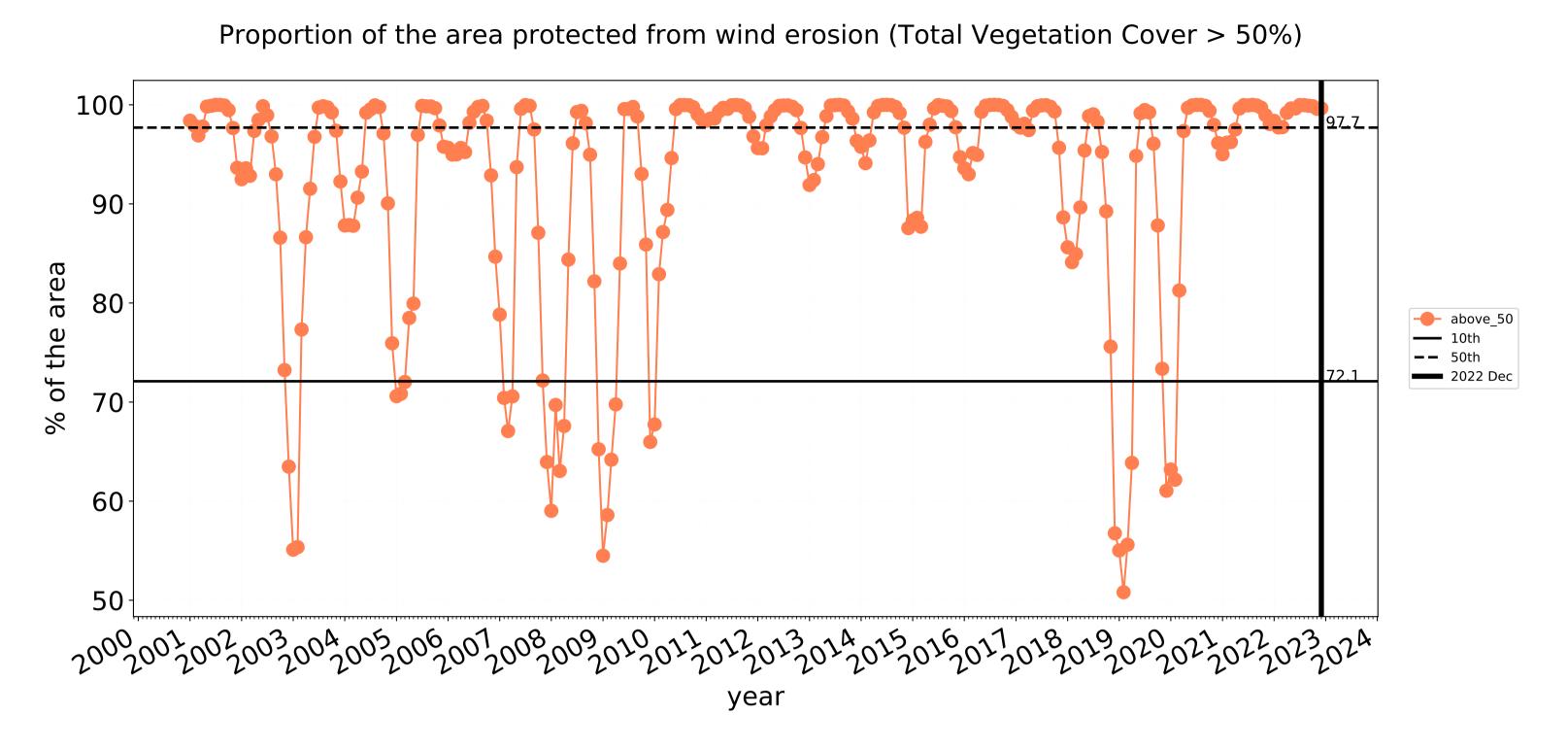


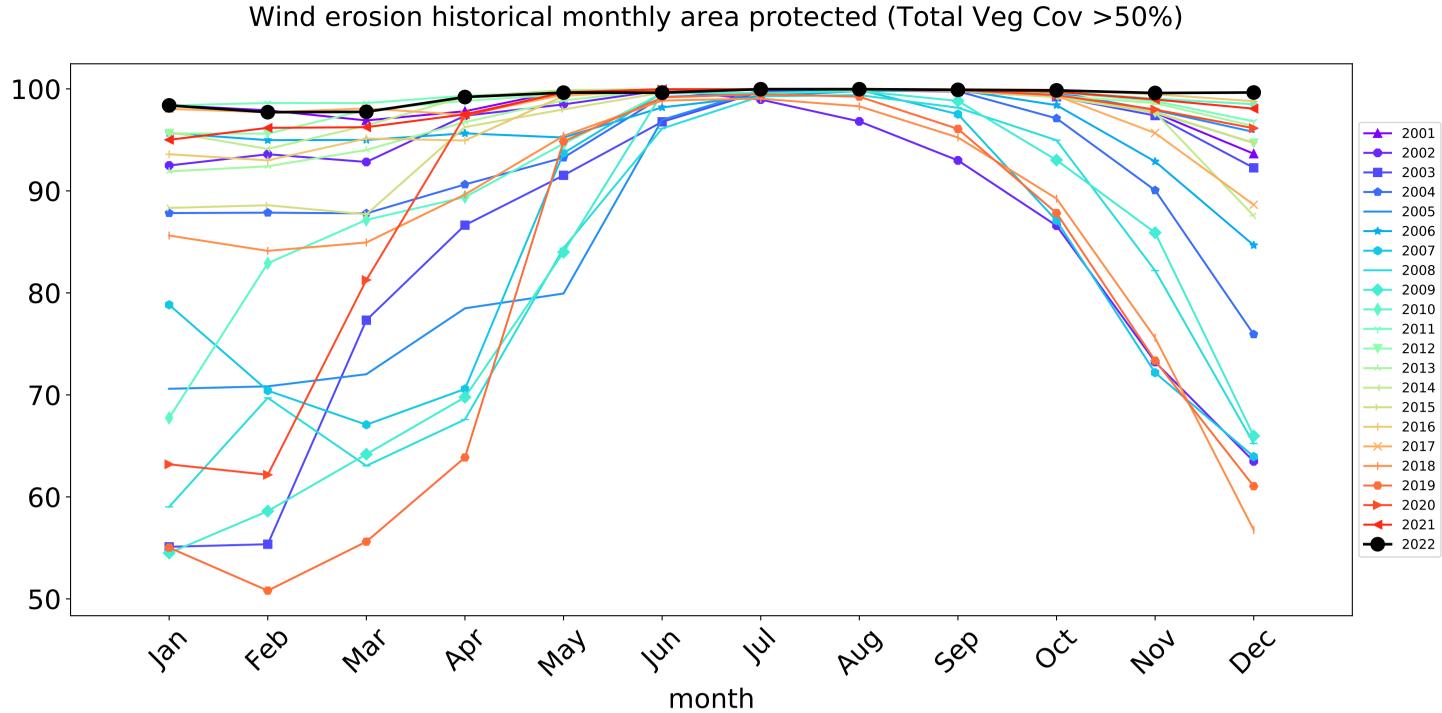


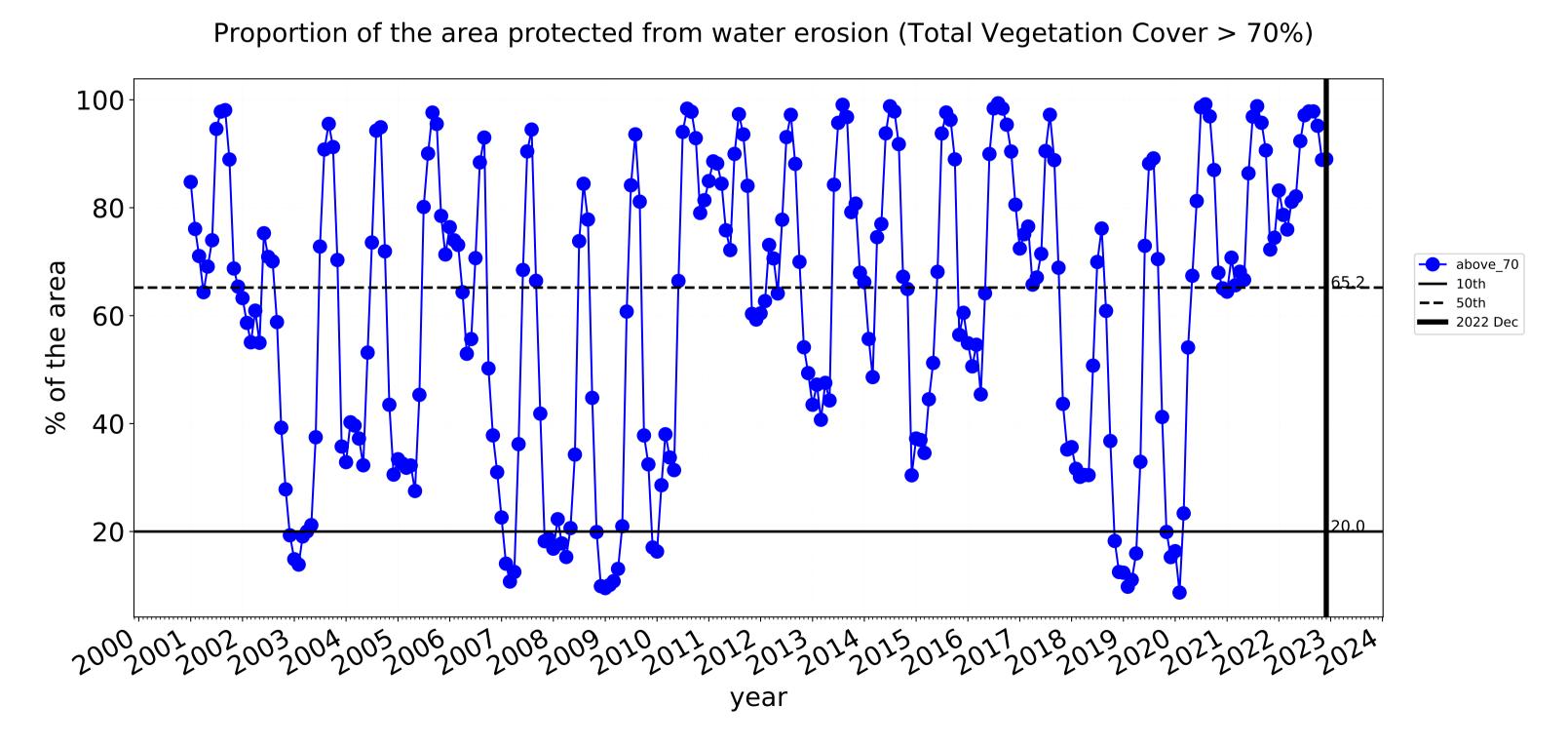


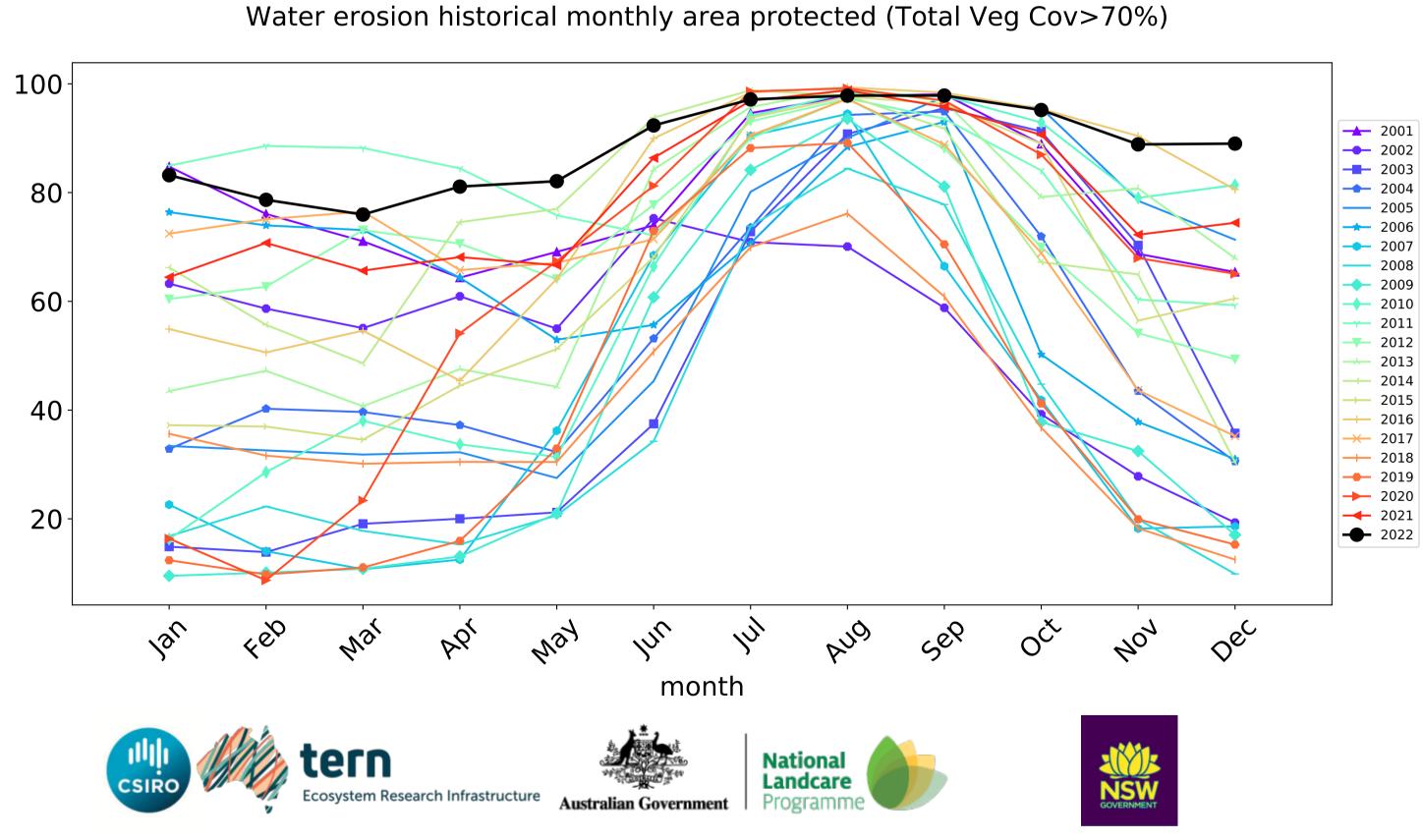


Cropping timeseries

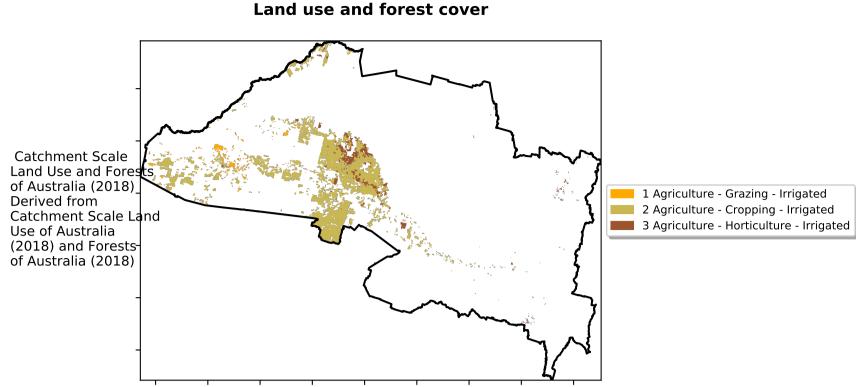






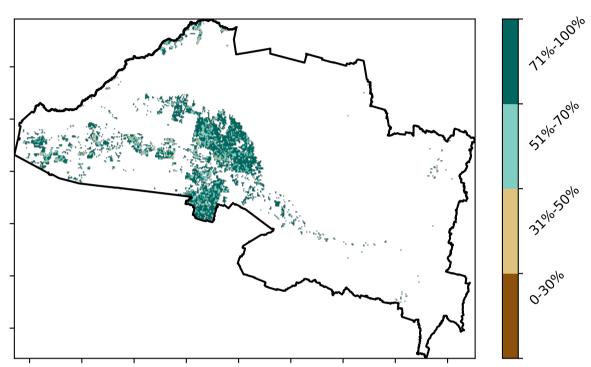


Irrigation

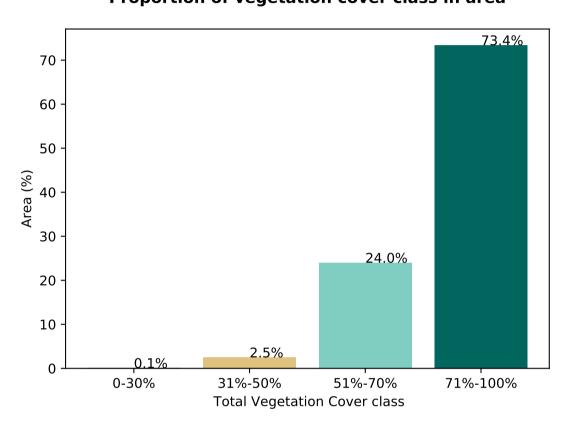


Proportion of each land class in area 83.9% 80 70 60 Area (%) 30 20 -9.7% 10 1.0 2.0 0.0 0.5 1.5 -0.52.5

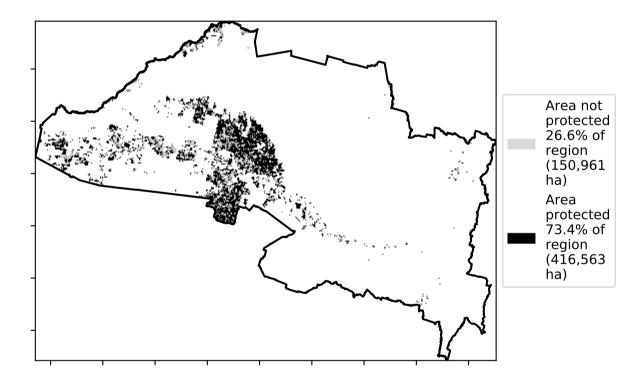




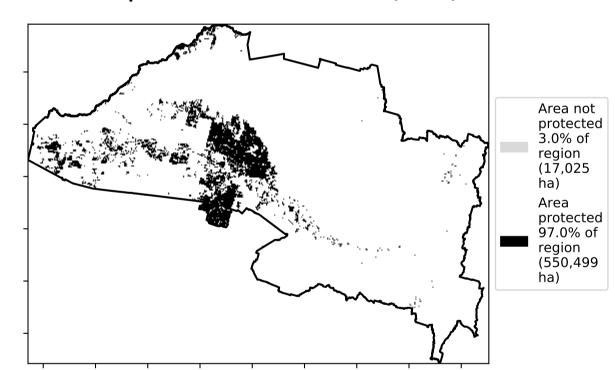
Land use class Proportion of vegetation cover class in area



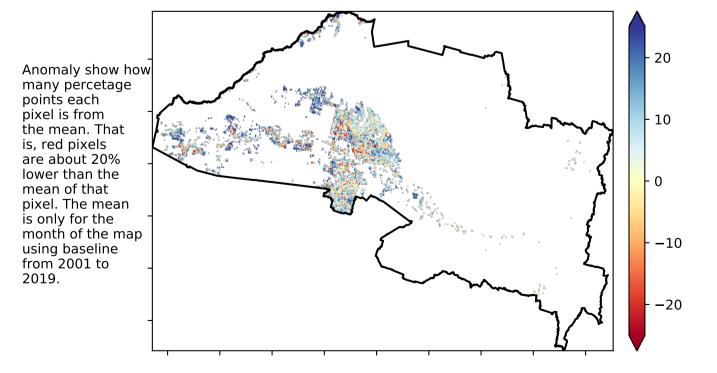
% Area protected from water erosion (>70%)



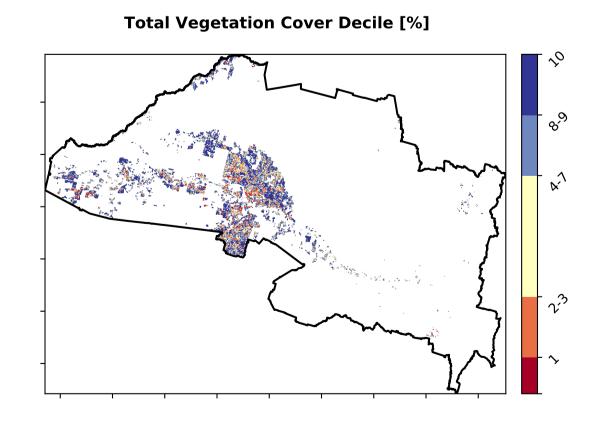
% Area protected from wind erosion (>50%)



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 man using baseling. the map using baseline from 2001 to 2019.

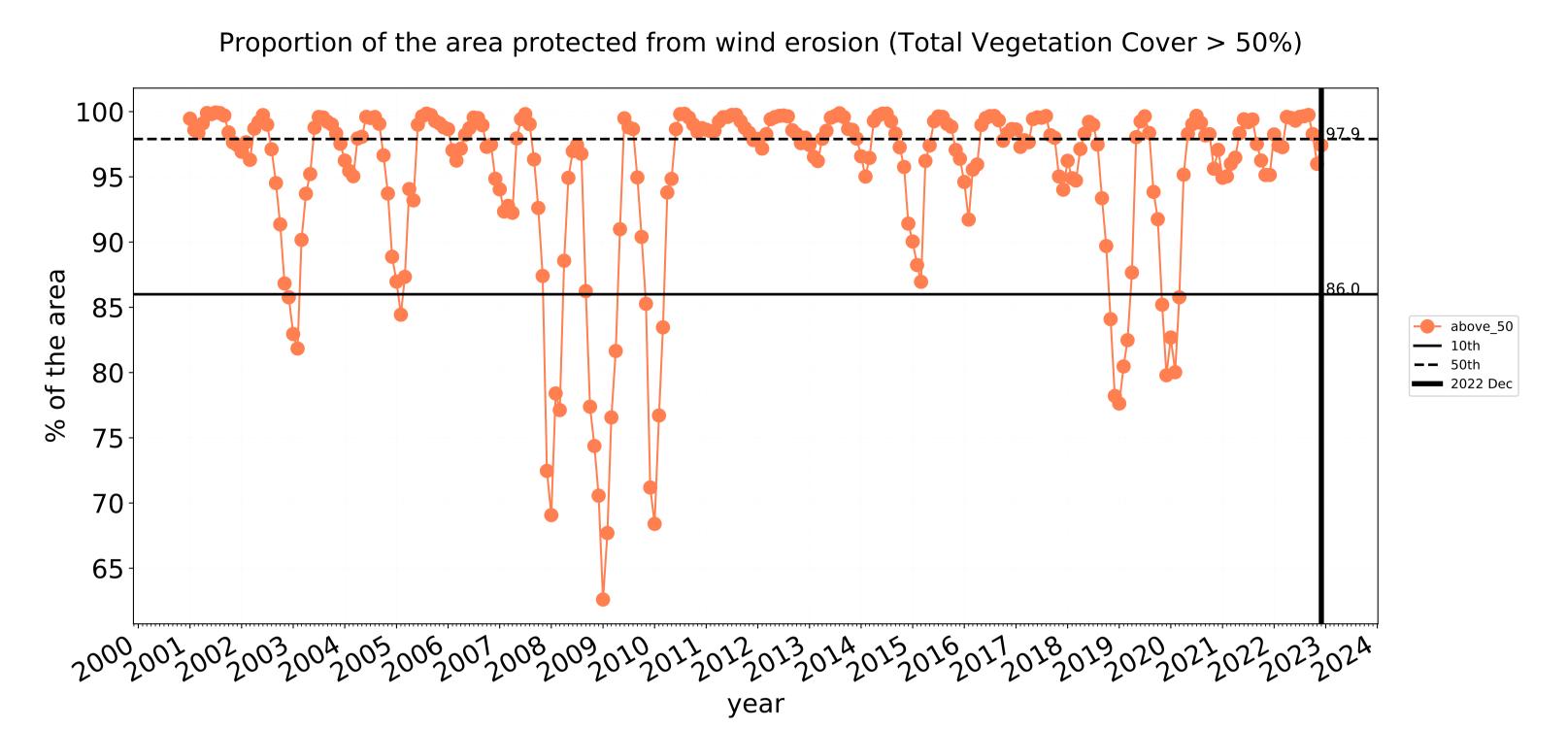


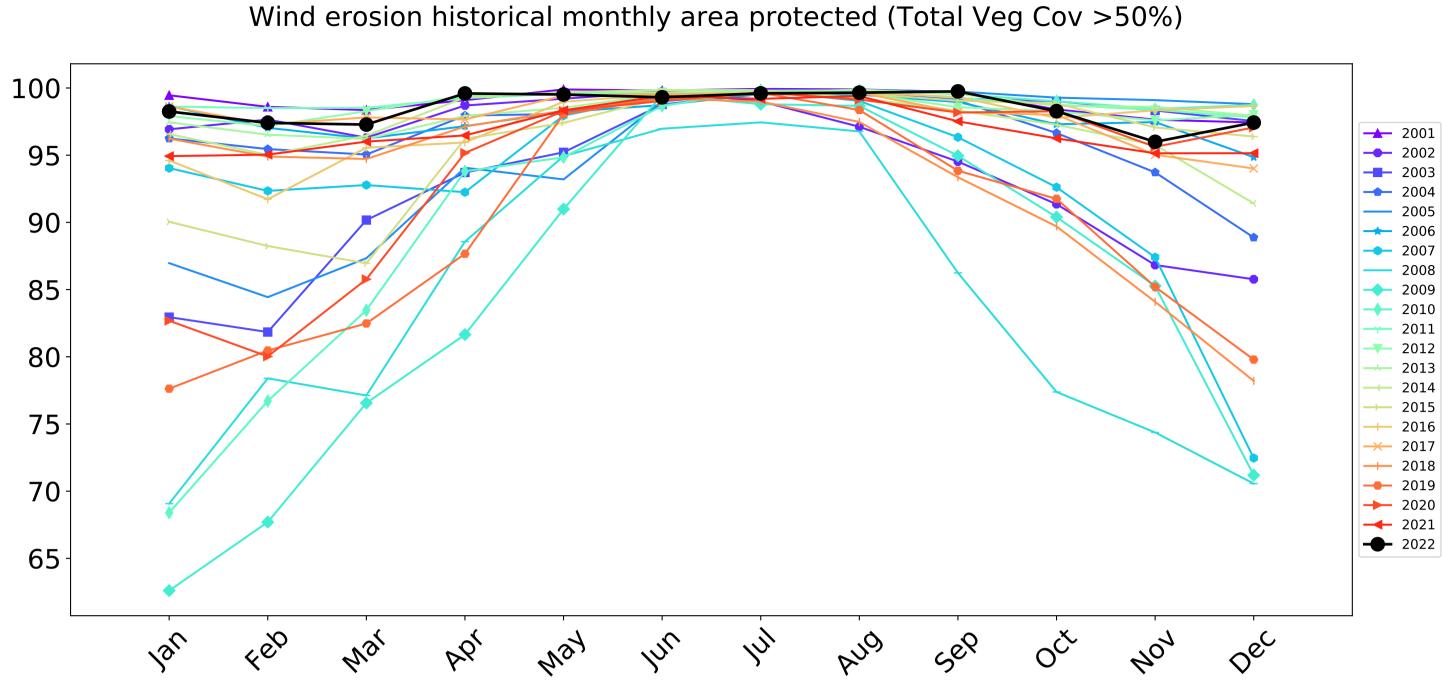






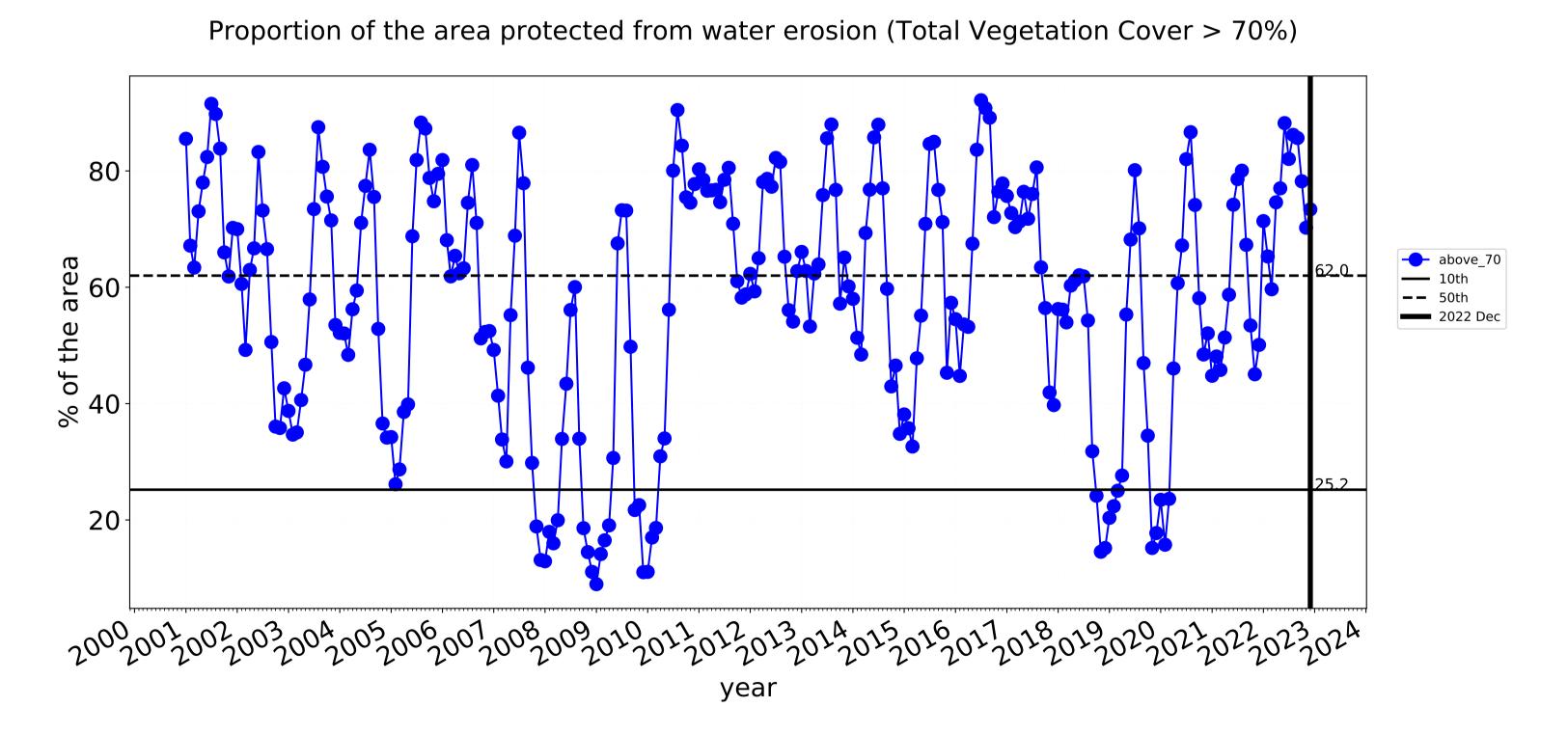


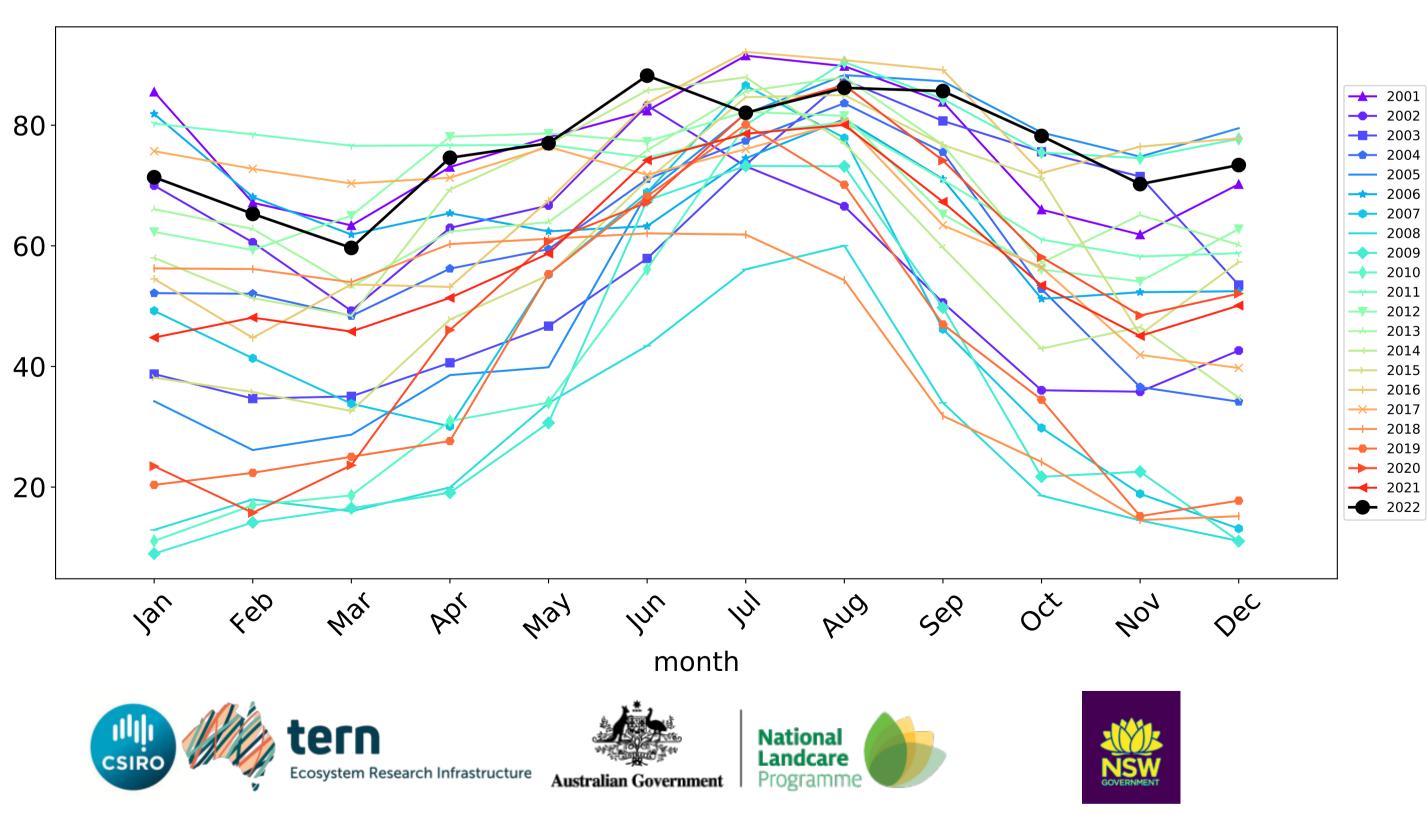




month

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

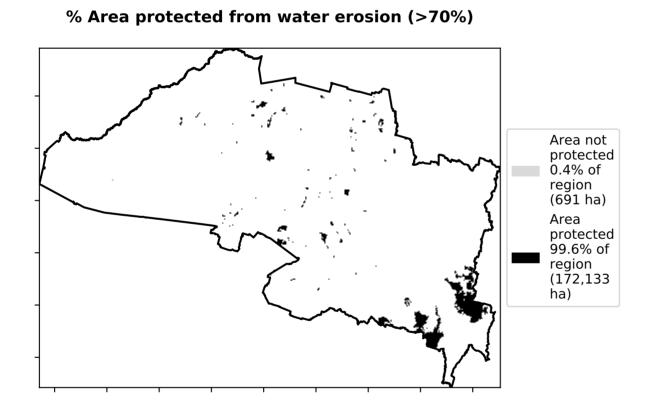


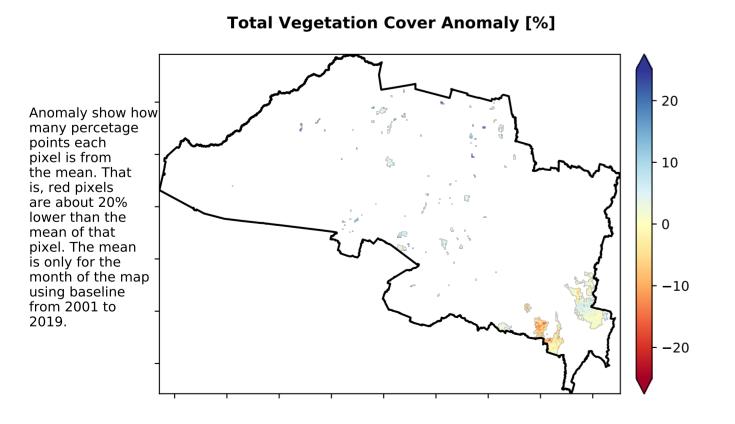


Production native forests and plantation forests

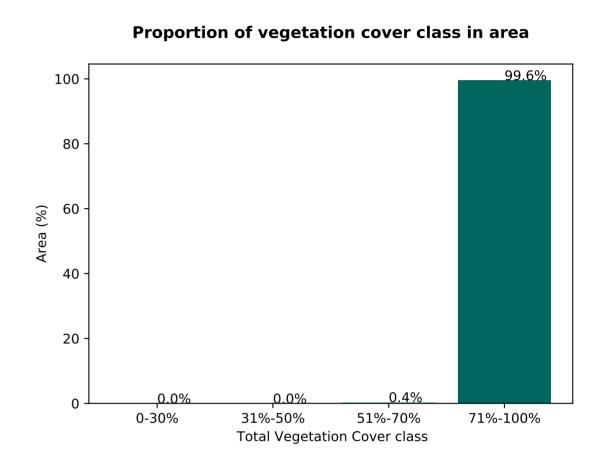
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Production native forests and plantation forests Catchment Scale Land Use of Australia (2018) and Forests-of Australia (2018)

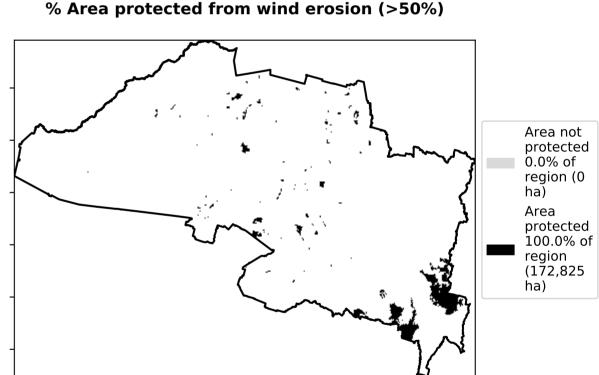
Total Vegetation Cover [%]

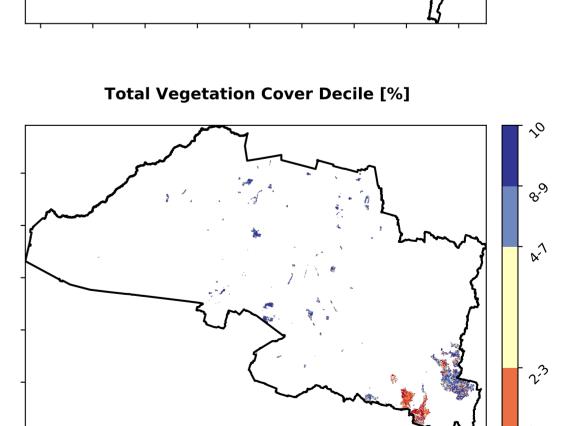




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseling. the map using baseline from 2001 to 2019.







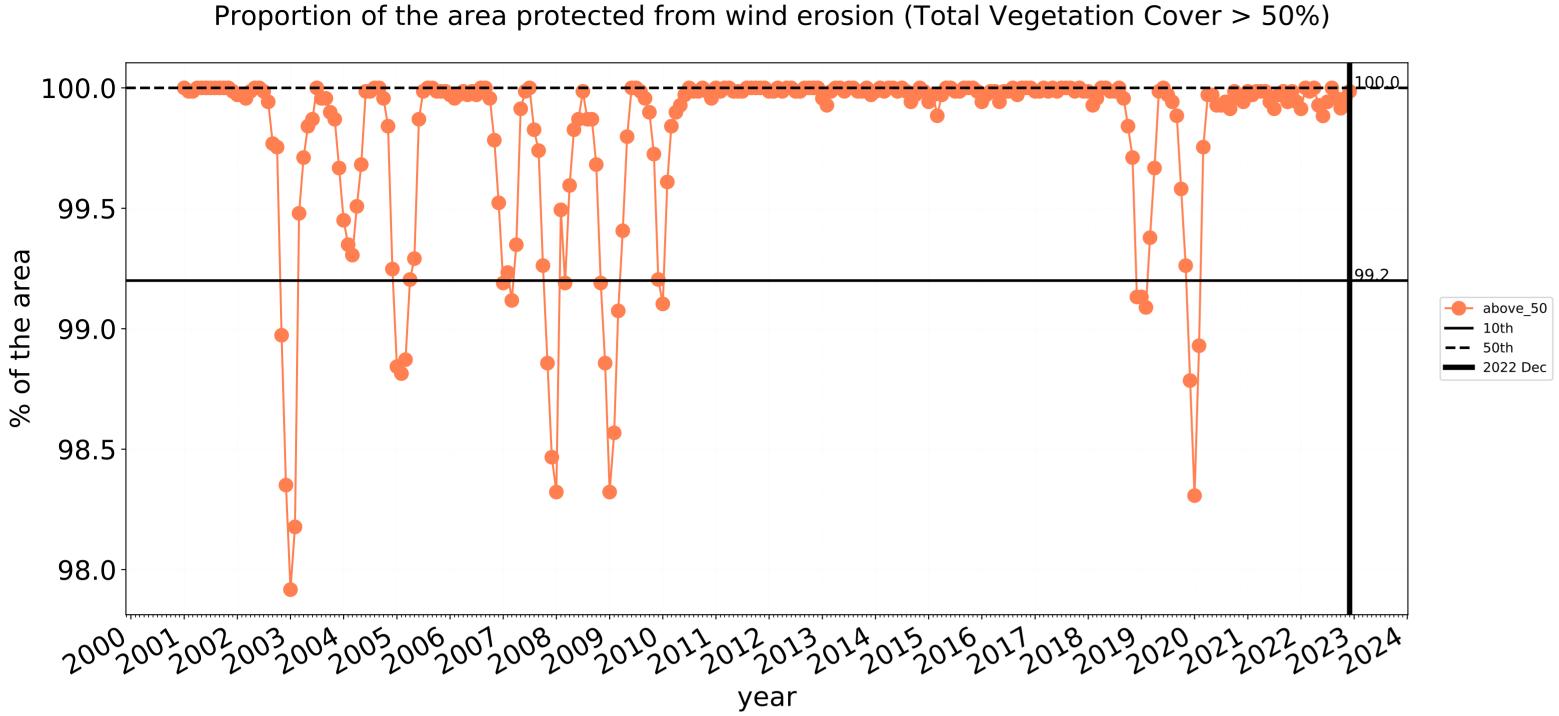


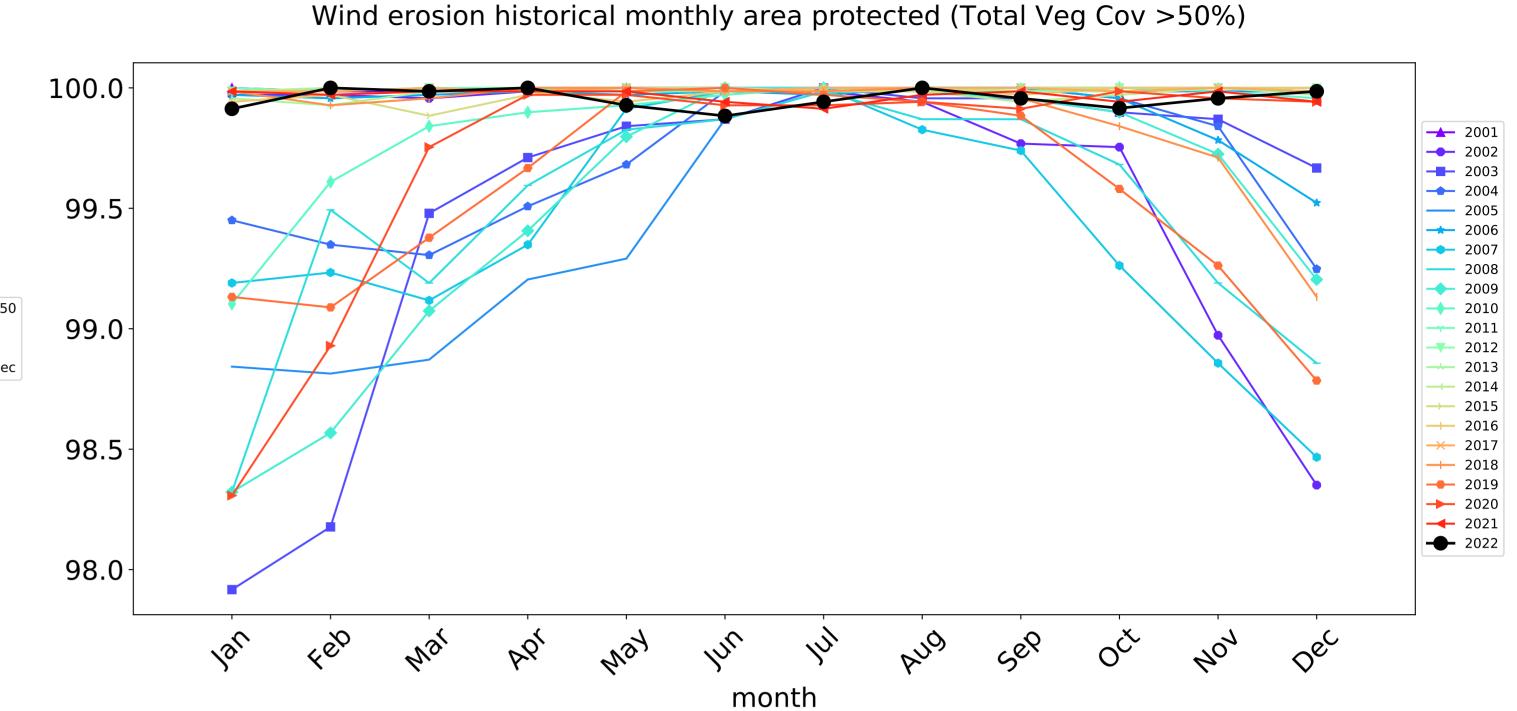


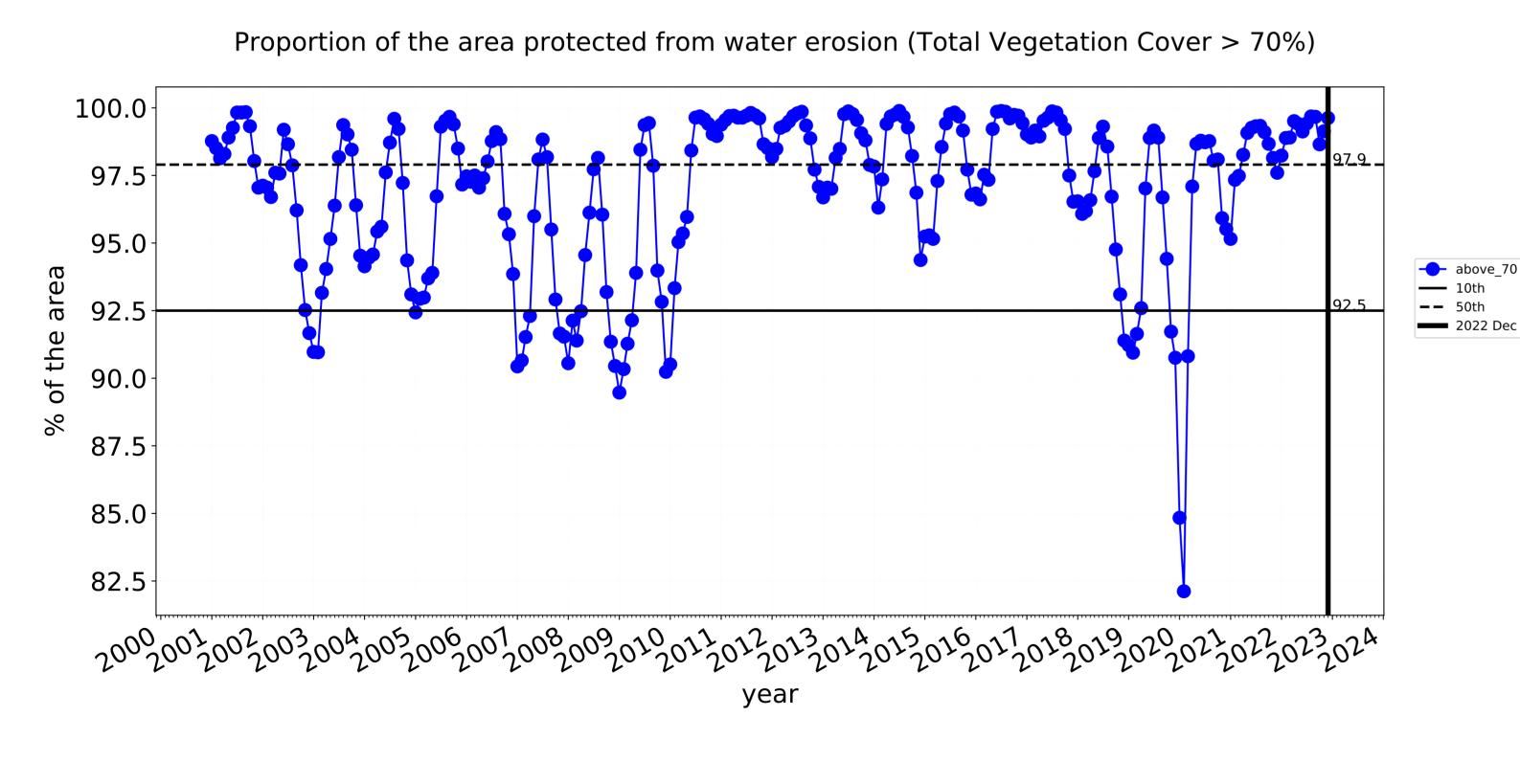


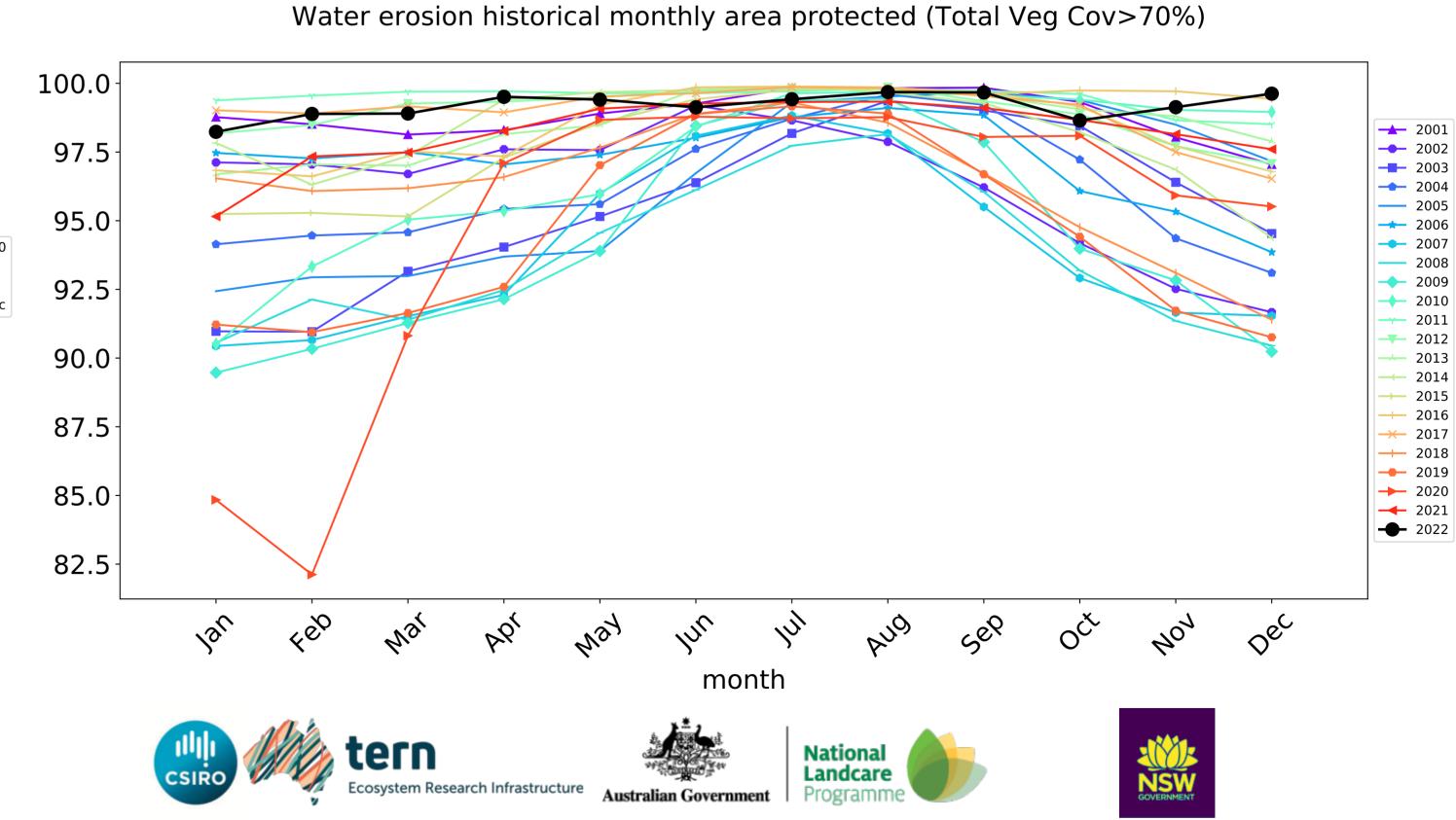


Production native forests and plantation forests timeseries









Riverina (6,694,400 ha and no data 13,935 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	6,694,400	99.9% 6,687,450	99.2% 6,643,600	87.5% 5,854,550	64.9% 4,344,400	29.2% 1,954,925	14.2% 948,950
Conservation and natural environments	323,075	100.0% 323,075	99.9% 322,675	92.5% 299,000	83.5% 269,725	56.1% 181,200	27.7% 89,500
Conservation and natural environments non forest	83,350	100.0% 83,350	99.5% 82,950	71.5% 59,625	40.6% 33,800	15.3% 12,750	9.8% 8,175
Conservation and natural environments Forest (non woodland)	195,225	100.0% 195,225	100.0% 195,225	99.9% 195,050	98.9% 193,075	75.5% 147,325	39.5% 77,175
Agriculture	6,067,725	99.9% 6,063,000	99.3% 6,022,600	87.1% 5,284,250	63.4% 3,844,775	27.1% 1,646,500	13.1% 793,700
Grazing	2,311,500	99.8% 2,307,300	99.2% 2,292,300	87.8% 2,029,575	66.3% 1,532,225	30.8% 711,025	18.0% 416,375
Grazing non forest	2,066,500	99.8% 2,062,300	99.1% 2,047,325	86.6% 1,789,275	63.8% 1,318,175	29.4% 608,475	18.4% 379,975
Grazing Woodland forest	141,650	100.0% 141,650	100.0% 141,650	98.1% 138,925	87.2% 123,500	31.6% 44,725	7.6% 10,825
Grazing - Forest (non woodland)	103,350	100.0% 103,350	100.0% 103,325	98.1% 101,375	87.6% 90,550	56.0% 57,825	24.7% 25,575
Cropping	3,186,875	100.0% 3,186,525	99.6% 3,175,550	89.0% 2,836,375	65.0% 2,070,500	27.7% 881,525	11.4% 362,200
Irrigation	567,525	100.0% 567,350	97.4% 552,925	73.4% 416,500	42.4% 240,800	9.5% 53,825	2.7% 15,125
Production native forests and plantation forests	172,825	100.0% 172,825	100.0% 172,800	99.6% 172,175	95.1% 164,300	62.4% 107,800	34.1% 58,975







