Total vegetation cover soil protection Region:LGA Whitsunday (R) QLD

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:

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









Date: December 2023

Vegetation Cover Dec 2023

Land use and forest cover

Catchment Scale

of Australia (2018)

(2018) and Forests

of Australia (2018)

Derived from

pixel is from

mean of that pixel. The mean is only for the

using baseline from 2001 to

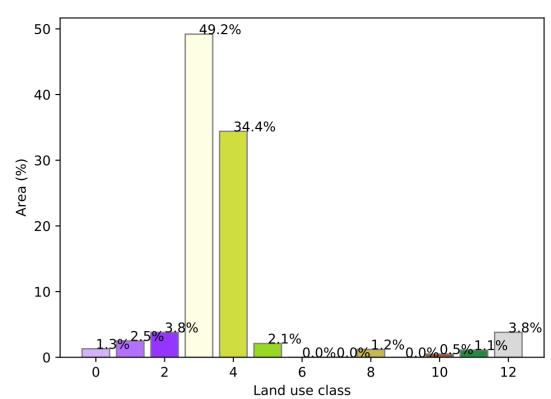
2019.

the mean. That is, red pixels are about 20% lower than the

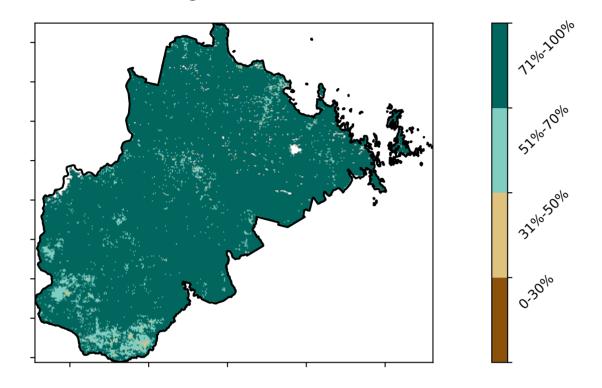
Use of Australia

Legend with land class forest cover and number, i.e. Forests is 12 1 Conservation and natural environments - Non-forest 2 Conservation and natural environments - Woodland forest 3 Conservation and natural environments - Non-Woodland forest Land Use and Forests 4 Agriculture - Grazing - Non-forest 5 Agriculture - Grazing - Woodland forest Catchment Scale Land 6 Agriculture - Grazing - Non-woodland forest 7 Agriculture - Grazing - Irrigated 8 Agriculture - Cropping - Non-irrigated 9 Agriculture - Cropping - Irrigated 10 Agriculture - Horticulture - Non-irrigated 11 Agriculture - Horticulture - Irrigated 12 Production native forests and plantation forests 13 Other uses

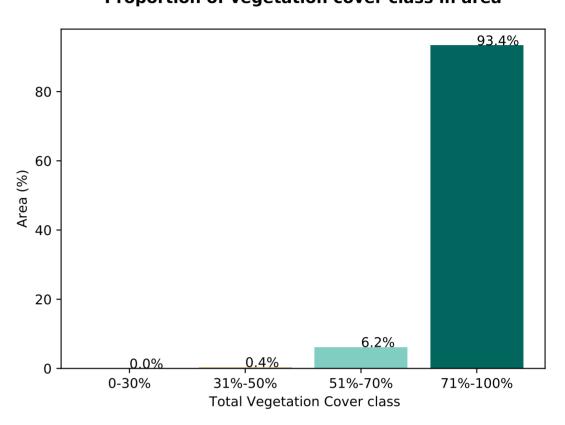
Proportion of each land class in area

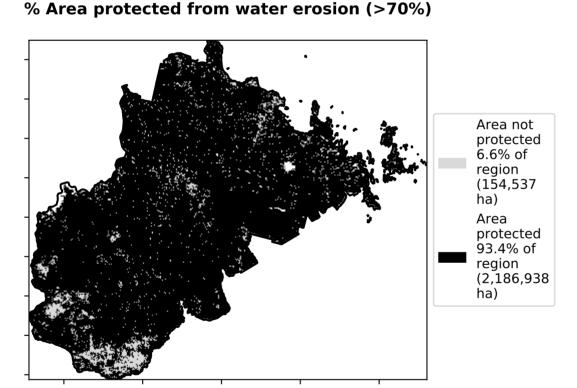


Total Vegetation Cover [%]

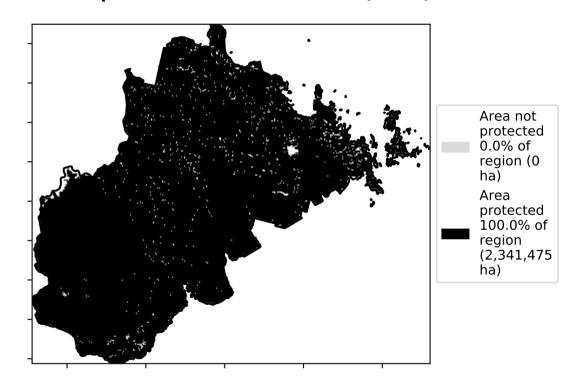


Proportion of vegetation cover class in area

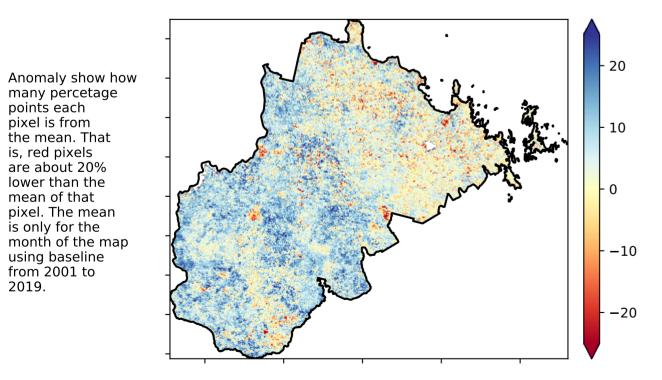




% Area protected from wind erosion (>50%)



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.

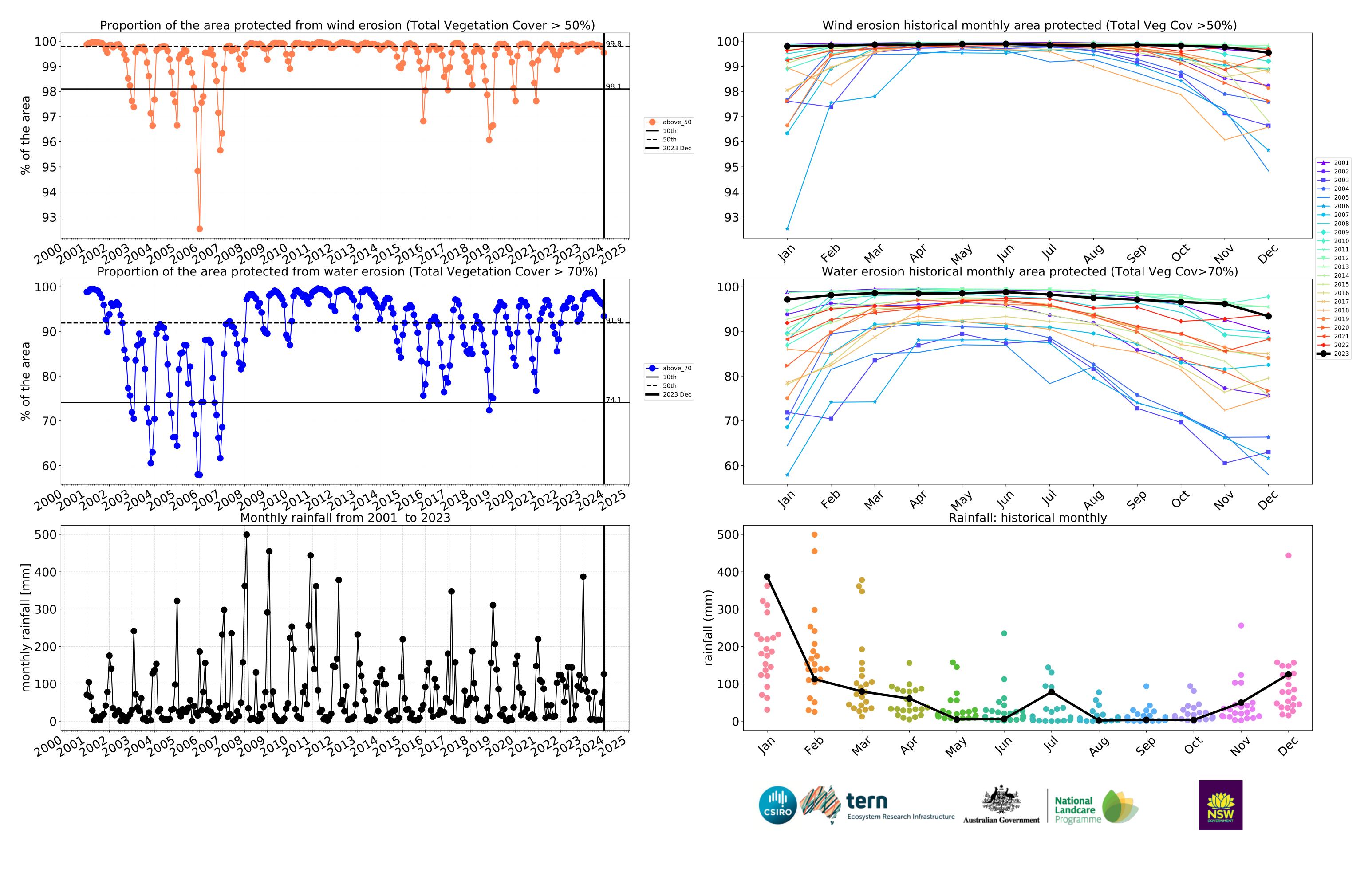
Total Vegetation Cover Decile [%]

Ecosystem Research Infrastructure





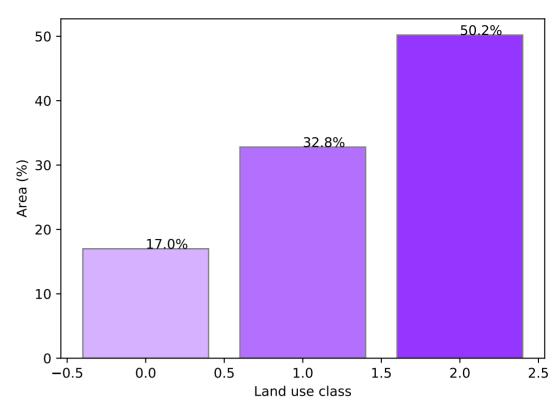




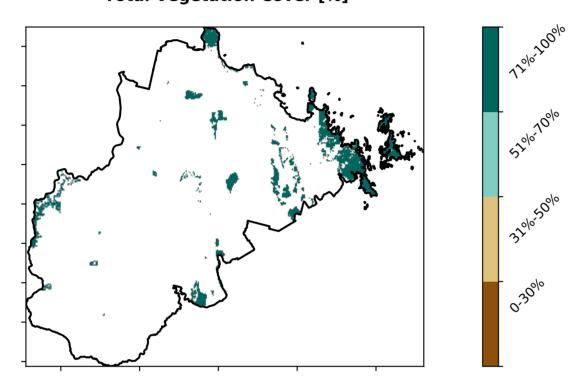
Conservation and natural environments

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) Tonservation and natural environments - Nonforest a Conservation and natural environments - Woodland forest a Conservation and natural environments - Nonwoodland forest Tonservation and natural environments - Nonwoodland forest

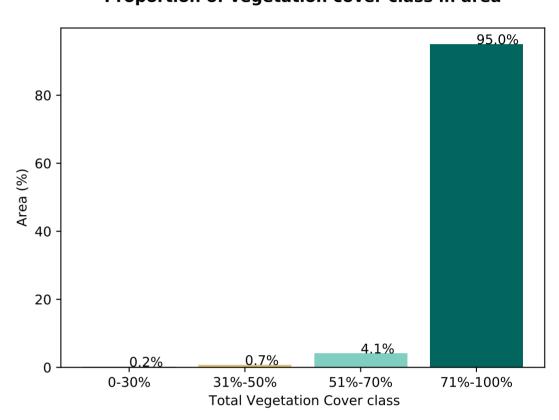
Proportion of each land class in area



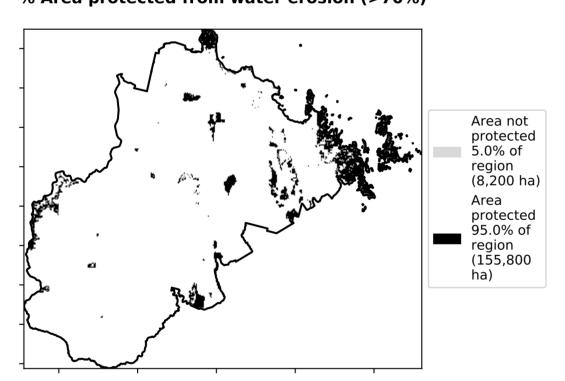
Total Vegetation Cover [%]



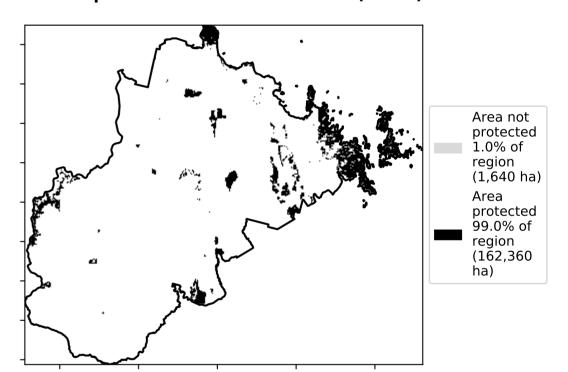
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

Anomaly show how many percetage points each pixel is from

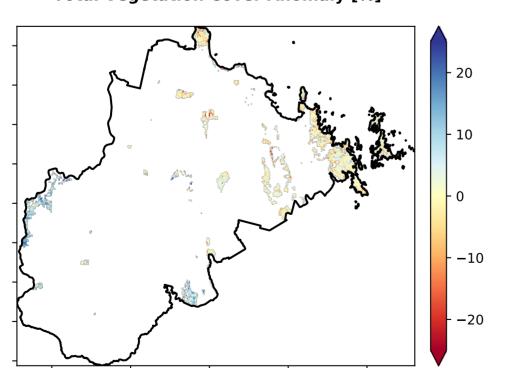
the mean. That

pixel. The mean

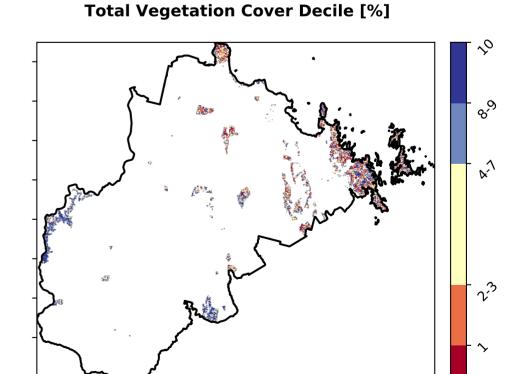
using baseline from 2001 to 2019.

is only for the month of the map

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



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.



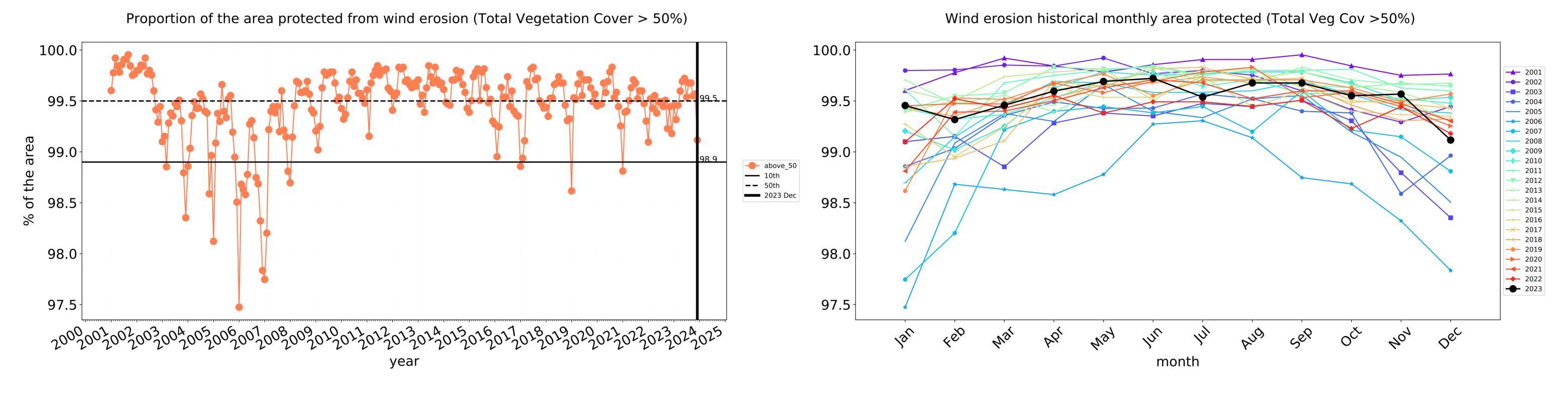


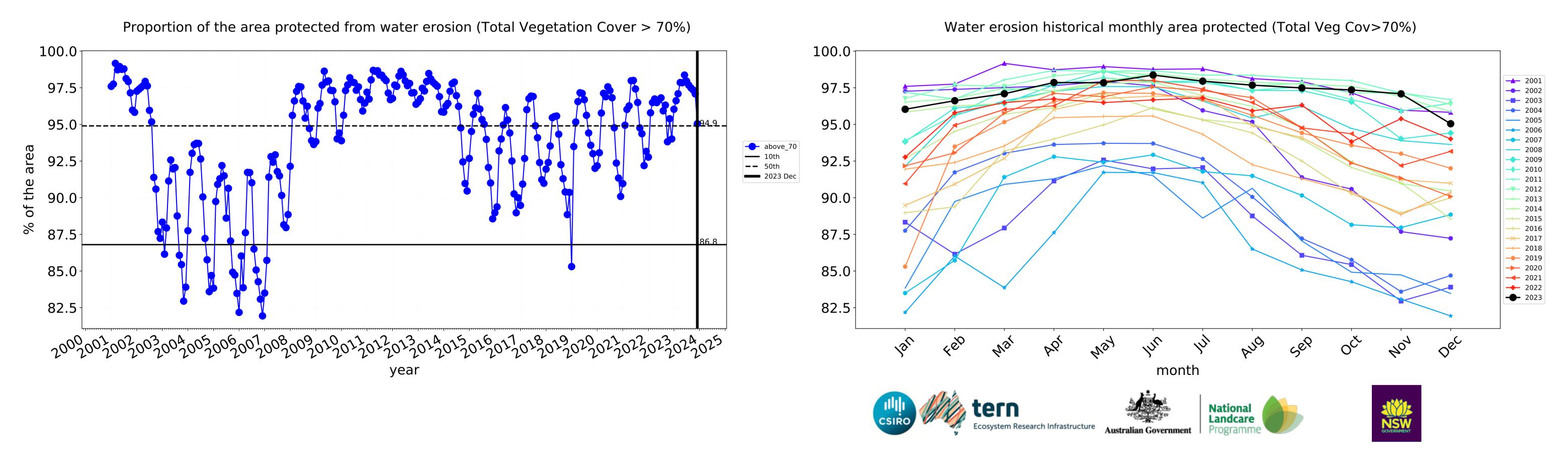






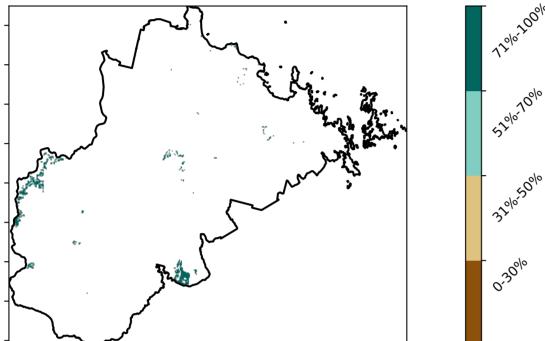
Conservation and natural environments timeseries





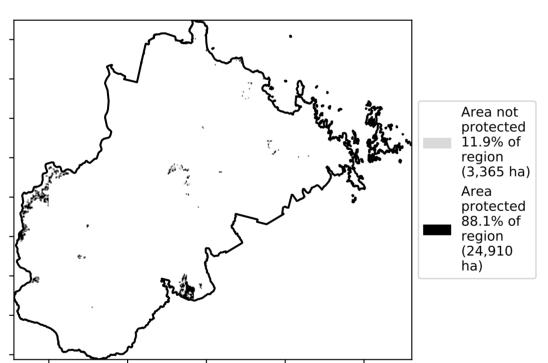
Conservation and natural environments non forest

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 Conservation and natural environments - Non-



% Area protected from water erosion (>70%)

Total Vegetation Cover [%]



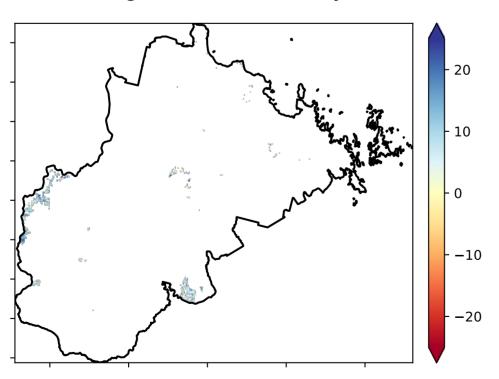
Total Vegetation Cover Anomaly [%]

Anomaly show how many percetage points each pixel is from

the mean. That

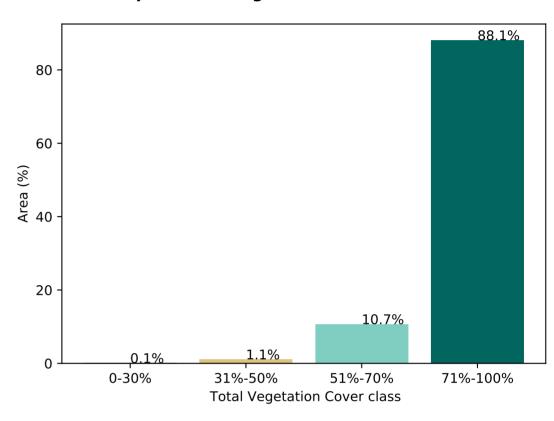
is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map

using baseline from 2001 to 2019.

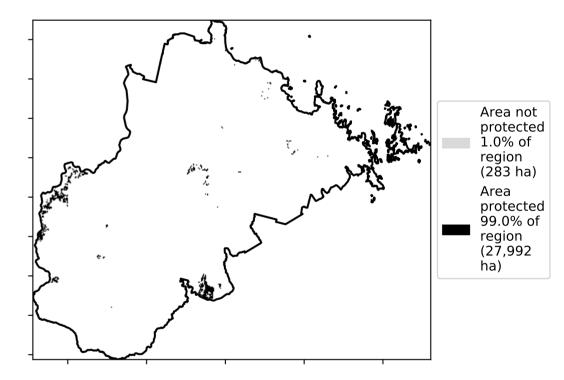


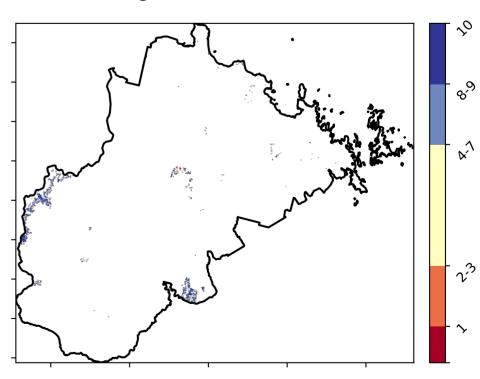
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





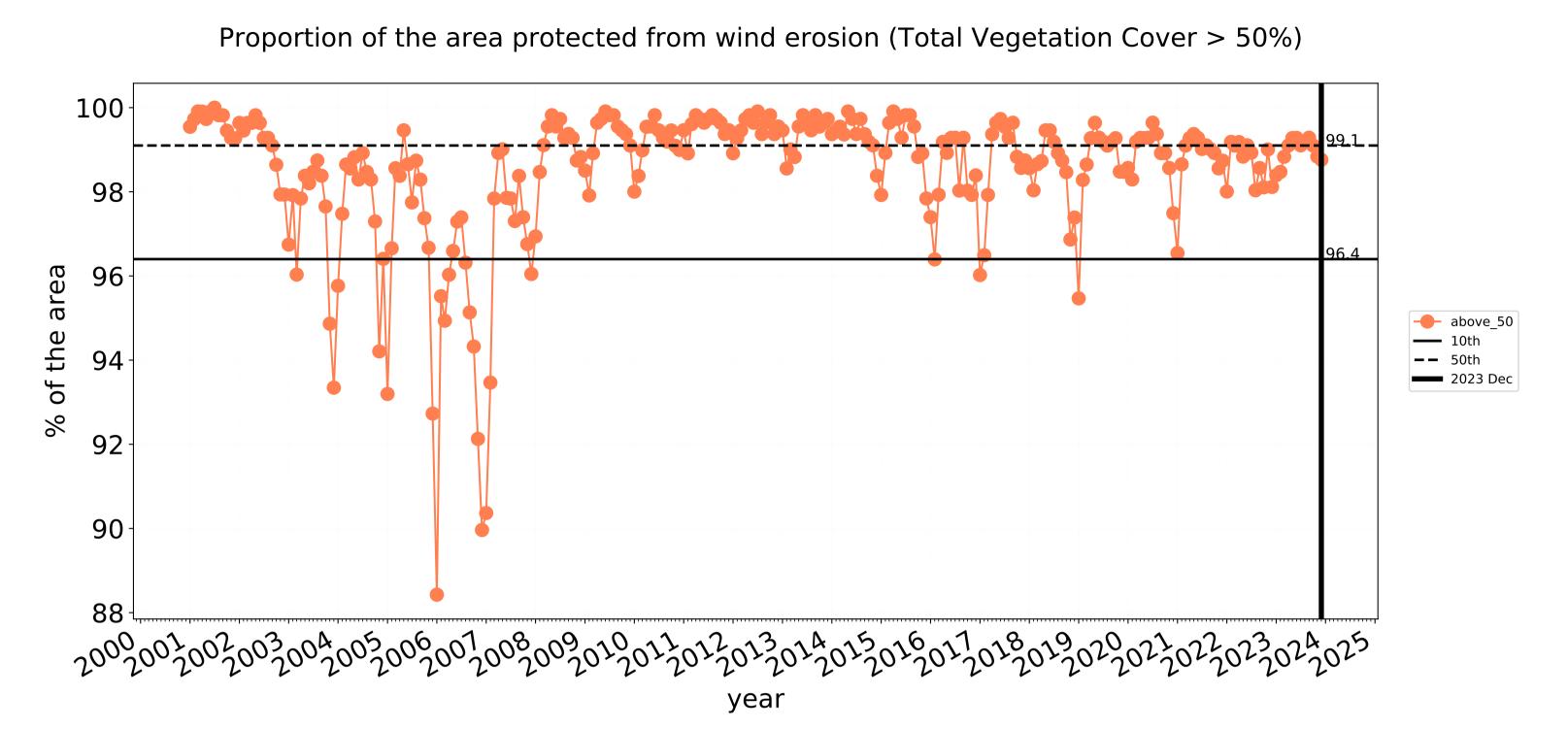


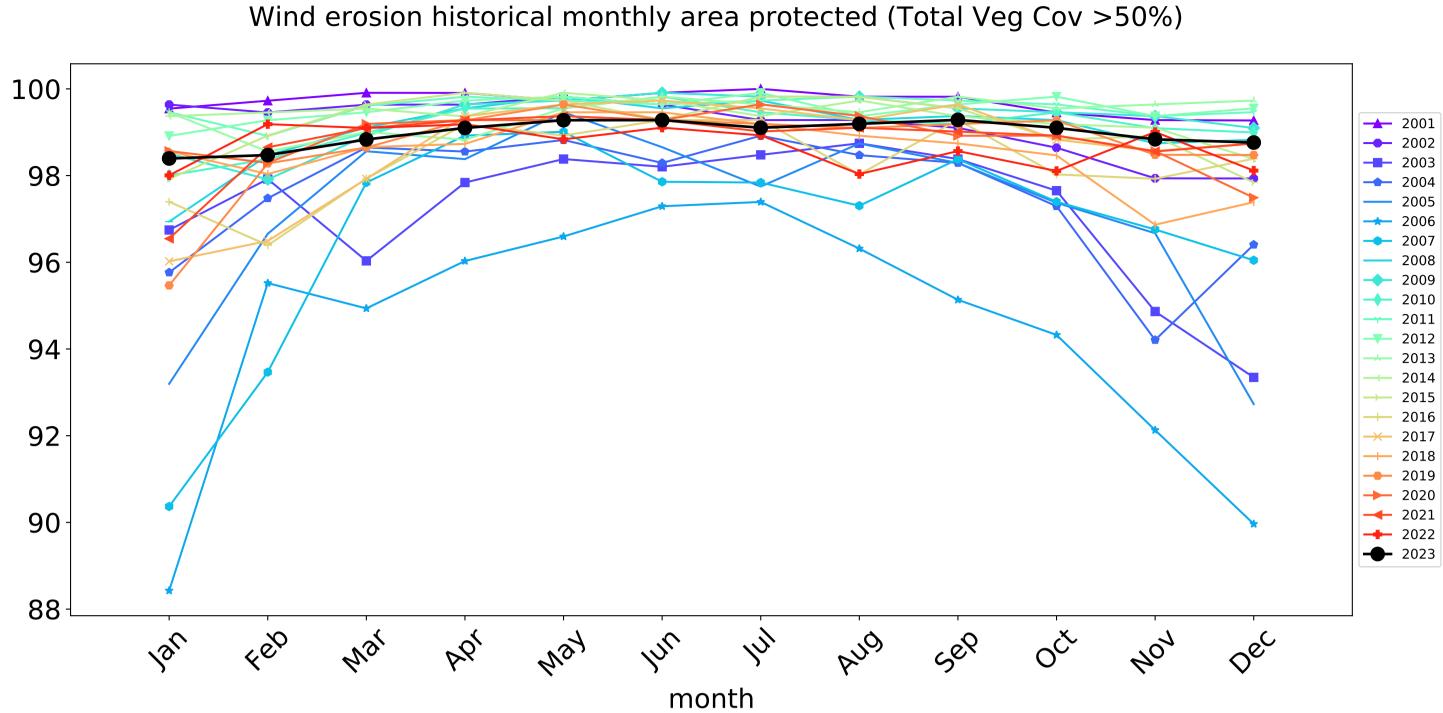


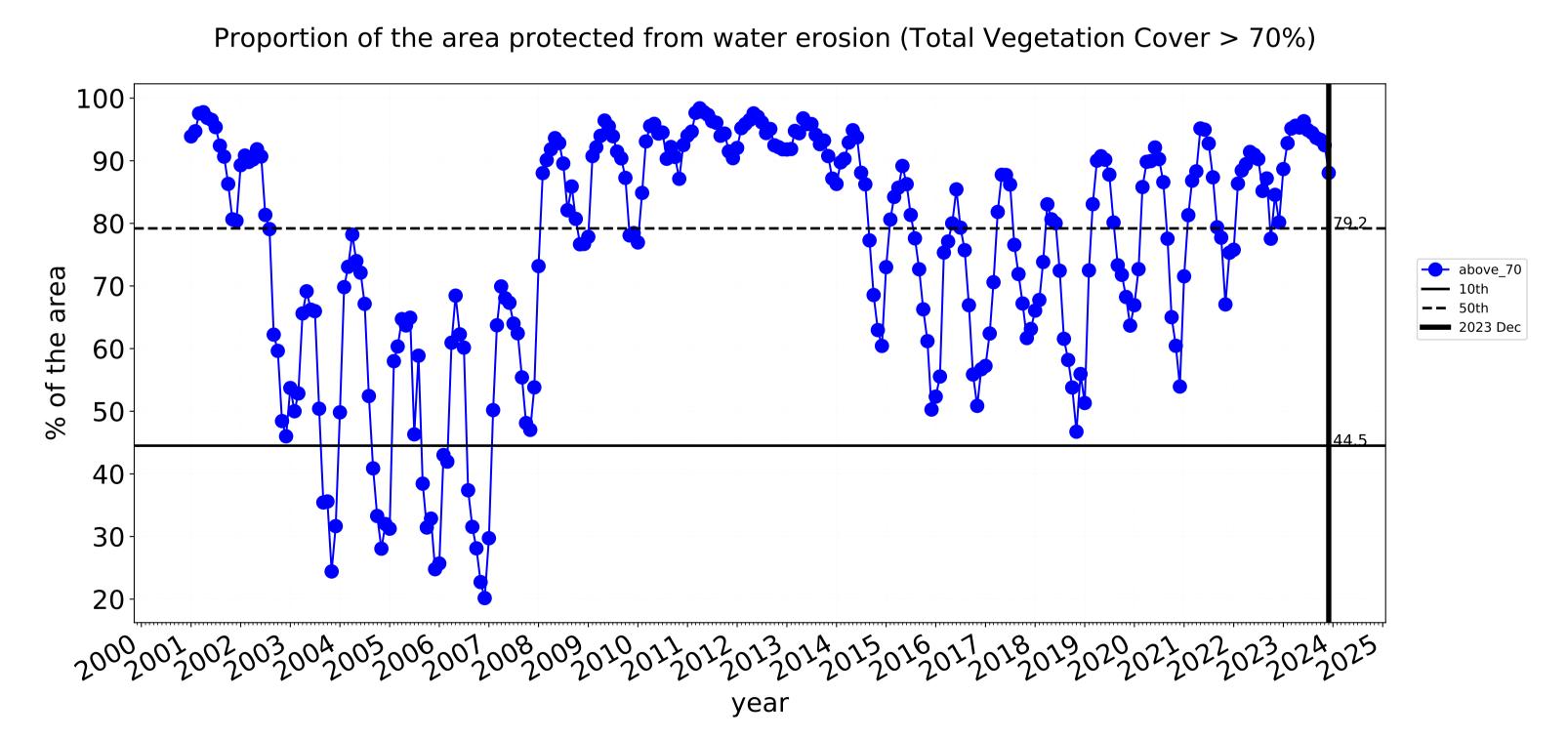


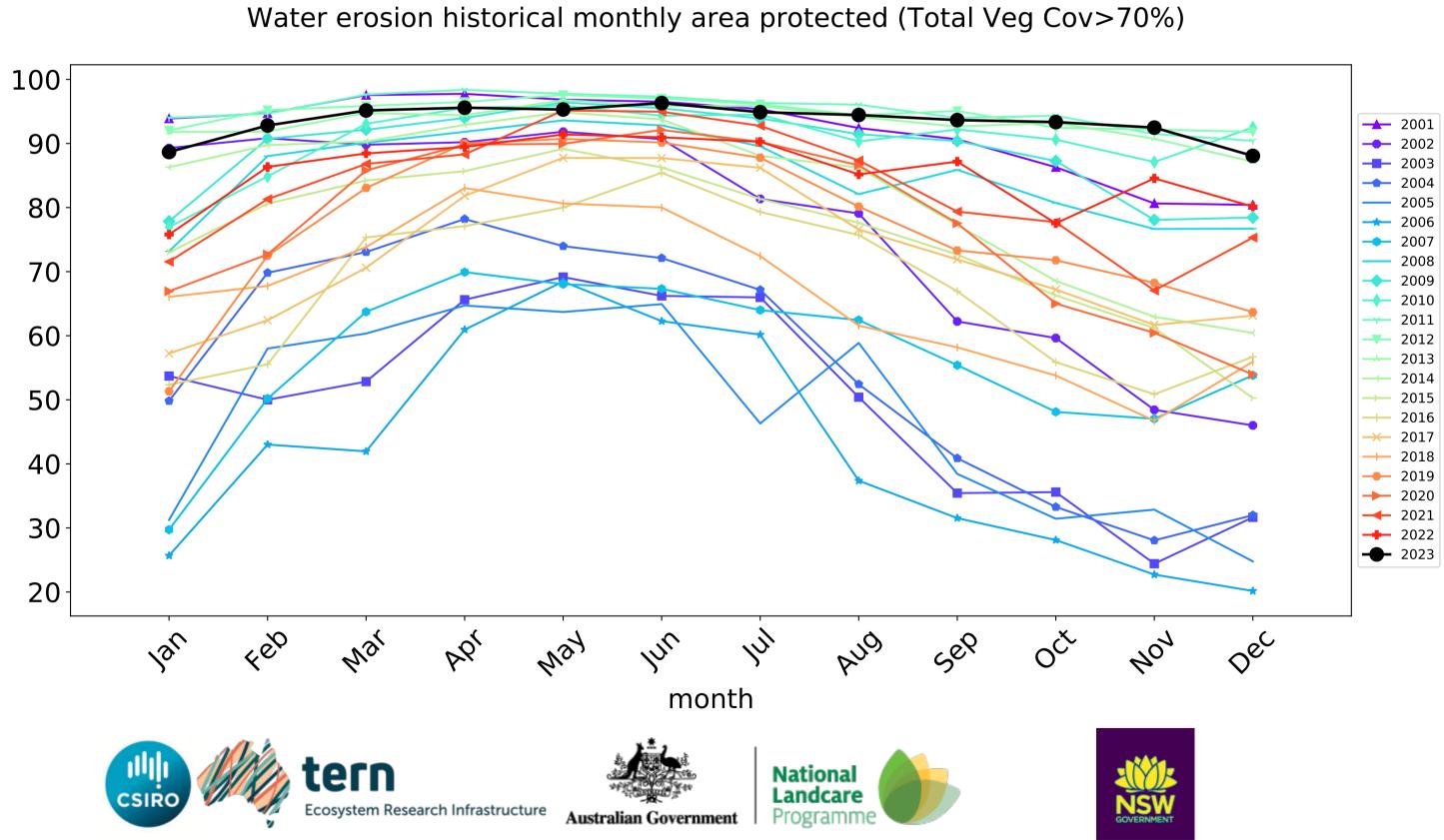


Conservation and natural environments non forest timeseries









Conservation and natural environments Woodland forest

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)

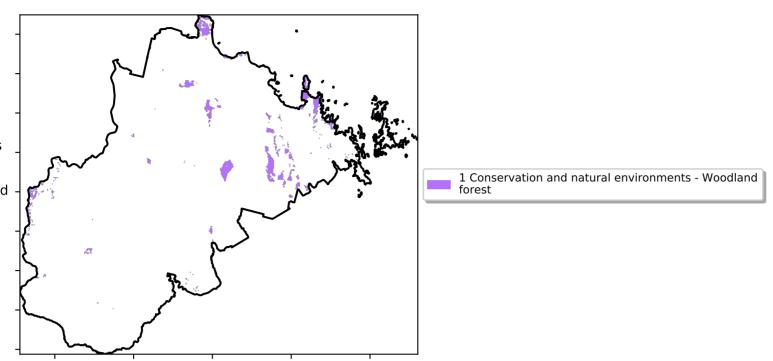
Anomaly show how many percetage points each pixel is from

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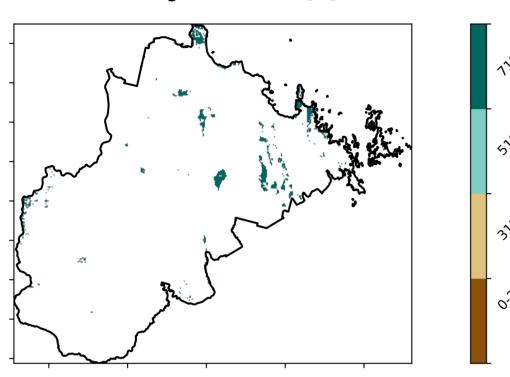
is only for the month of the map

using baseline from 2001 to 2019.

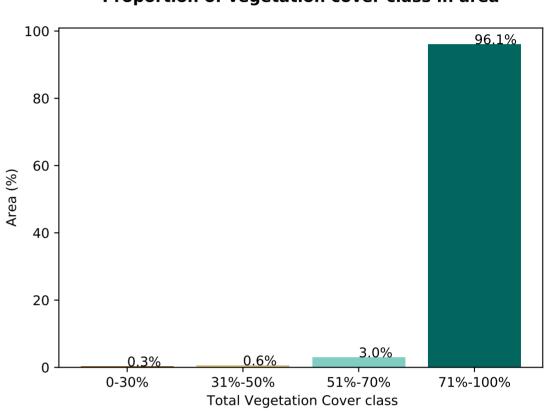
is, red pixels are about 20% lower than the mean of that pixel. The mean



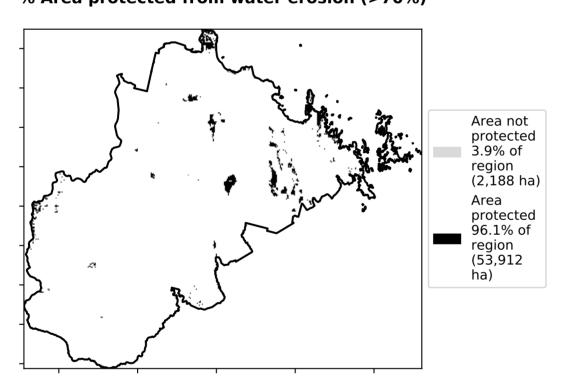
Total Vegetation Cover [%]



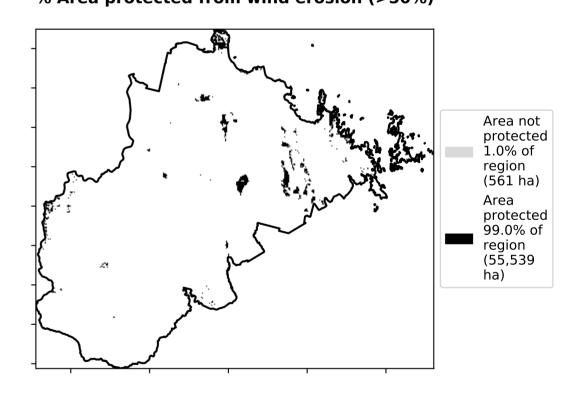
Proportion of vegetation cover class in area



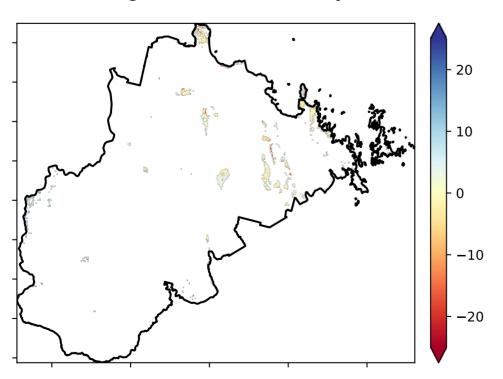
% Area protected from water erosion (>70%)



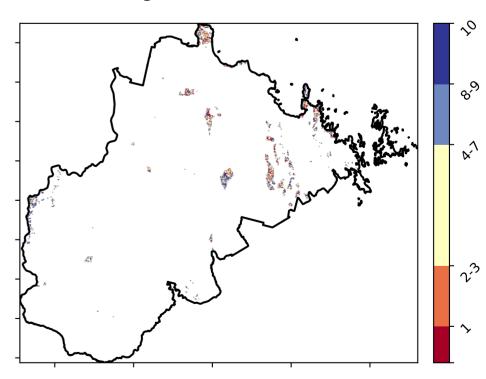
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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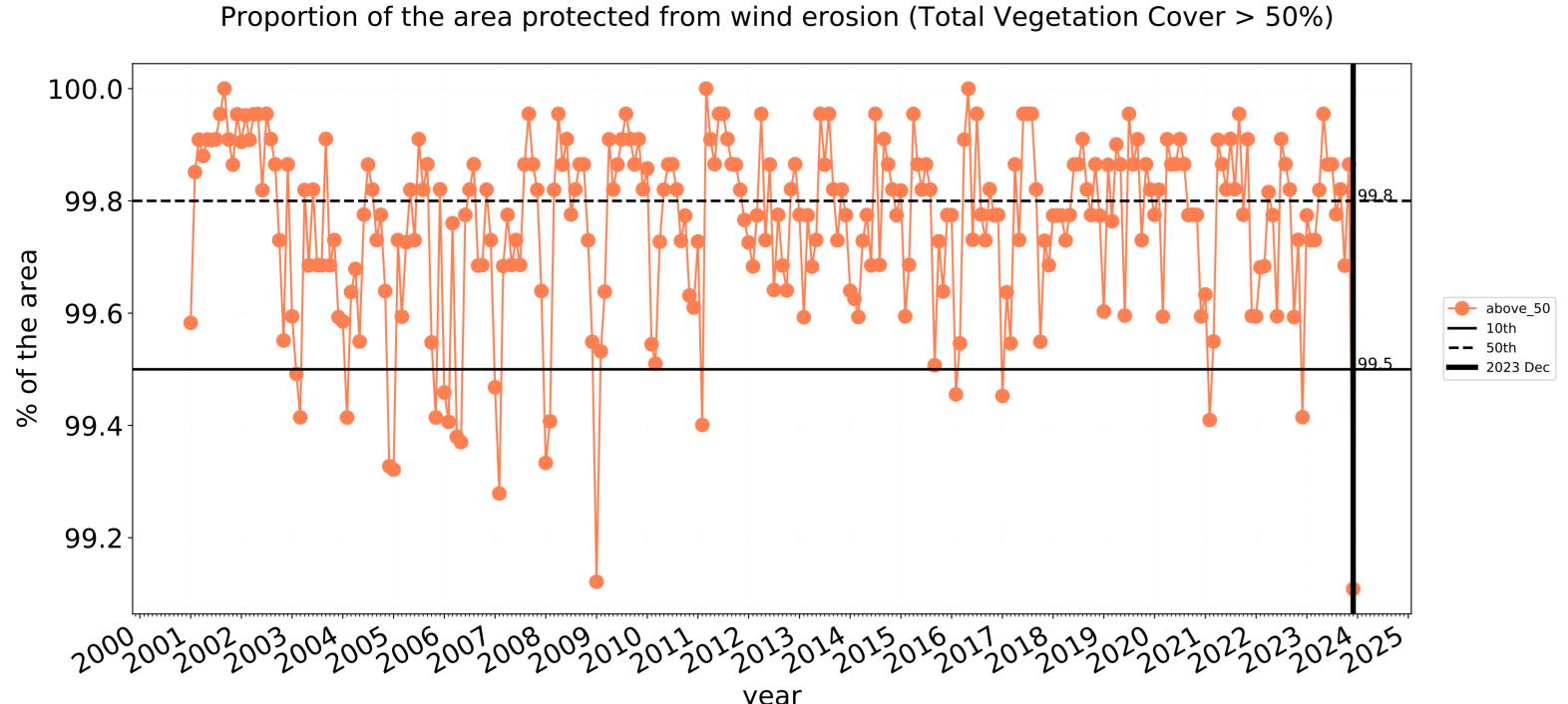


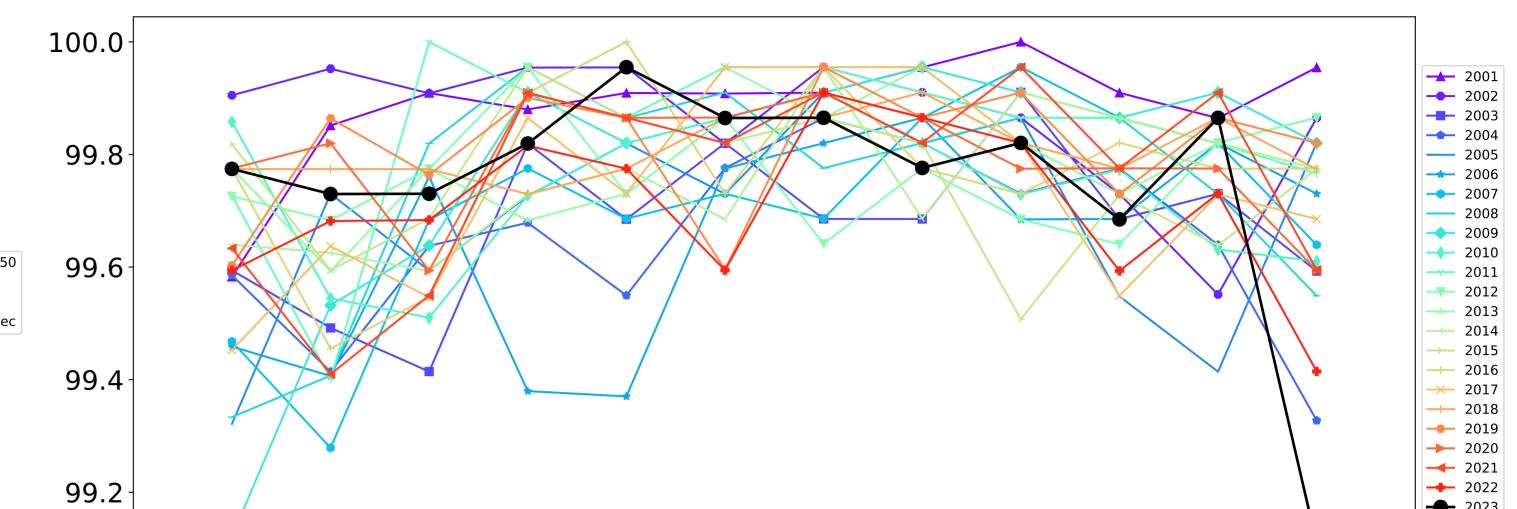






Conservation and natural environments Woodland forest timeseries

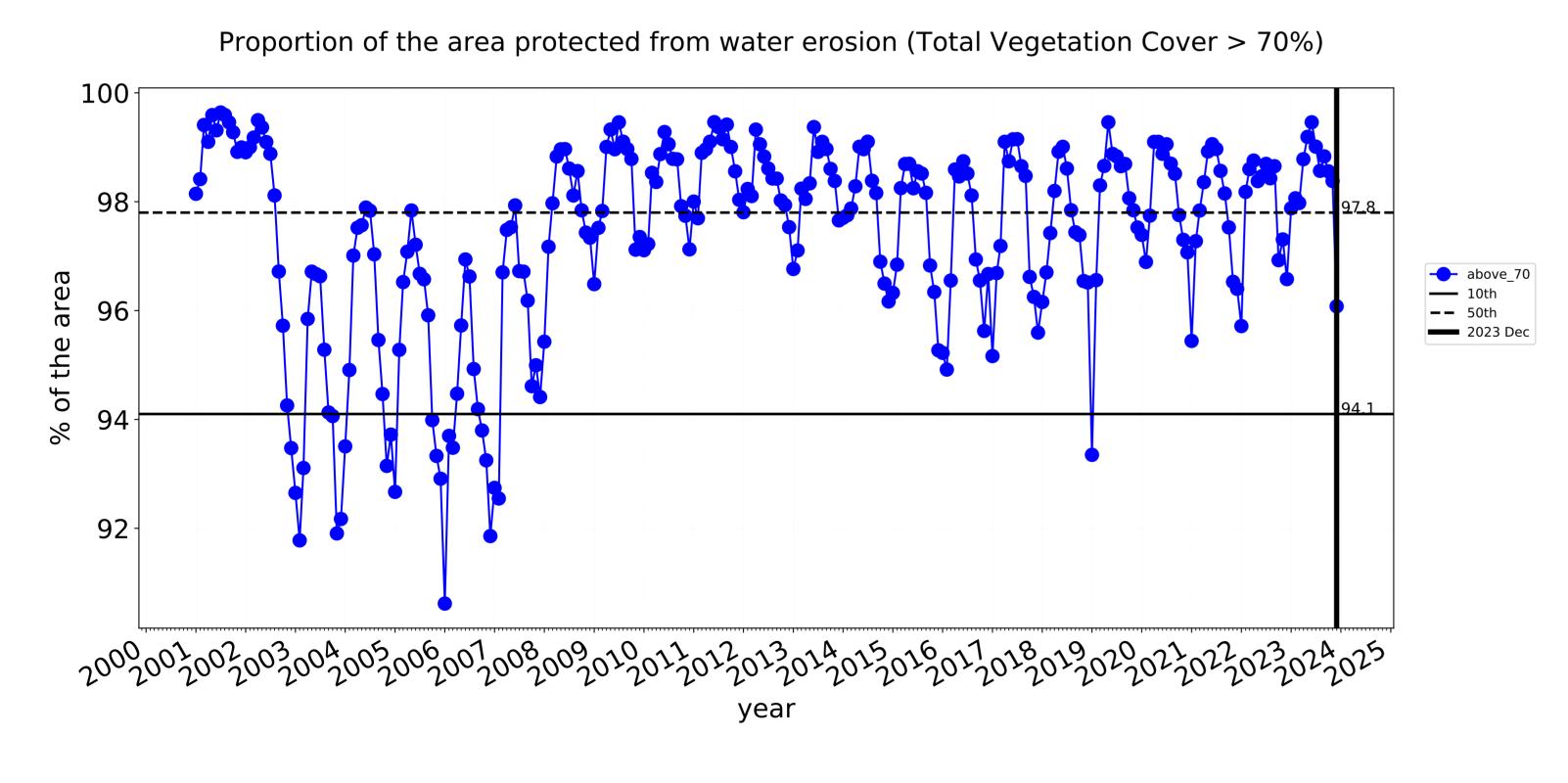


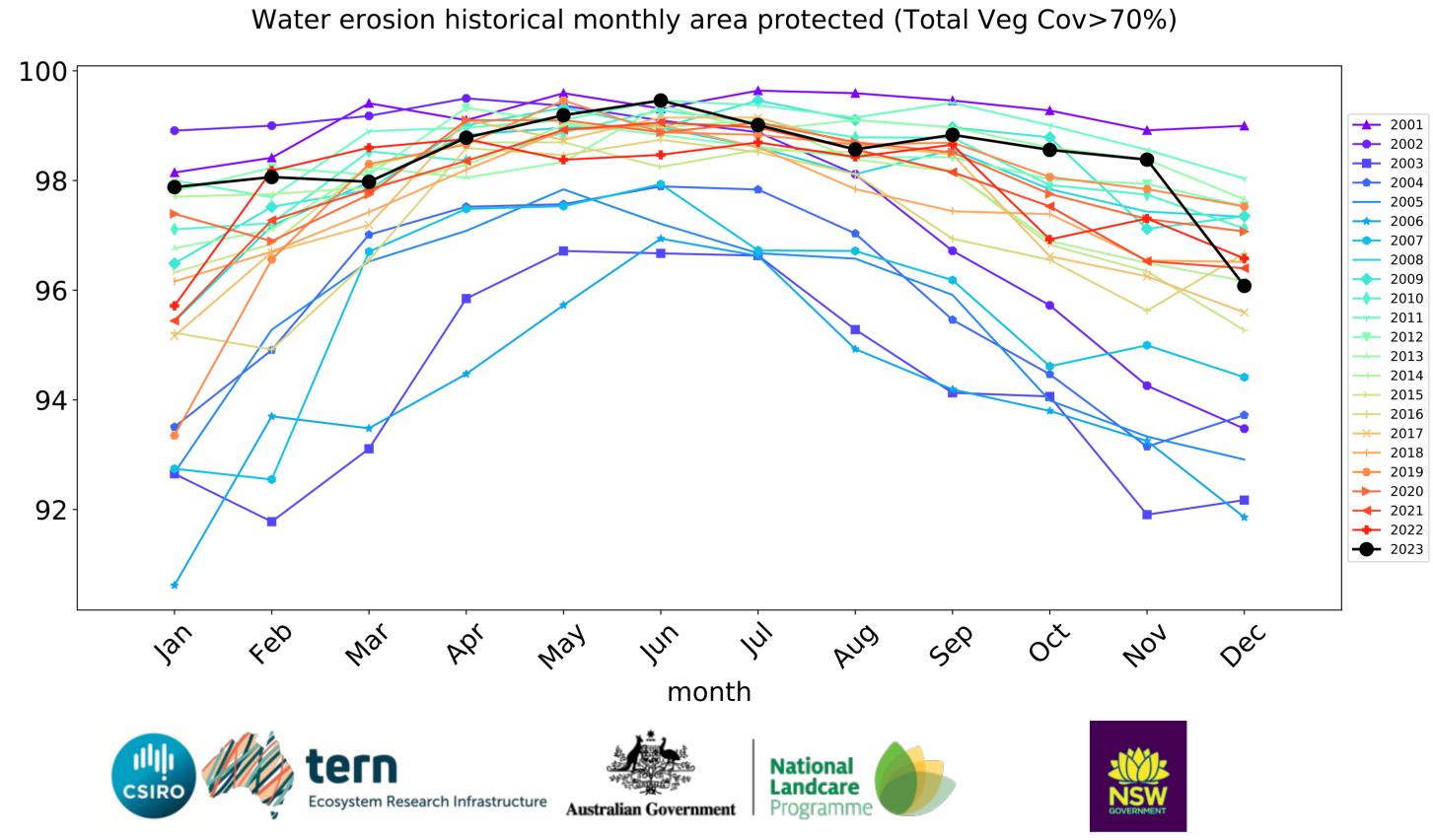


month

--- 2023

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

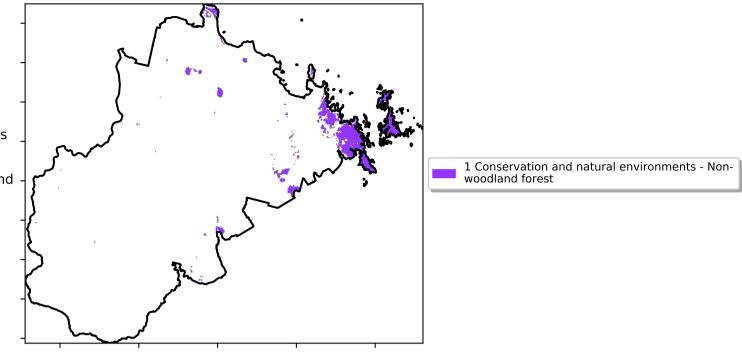




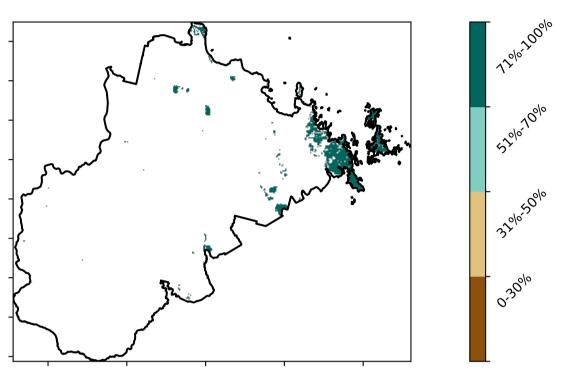
Conservation and natural environments Forest (non woodland)

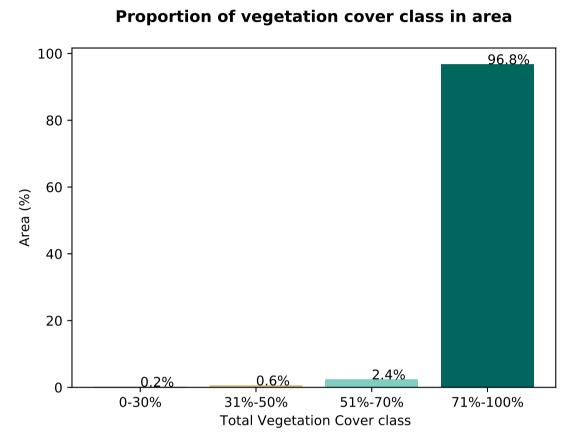
Land use and forest cover

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

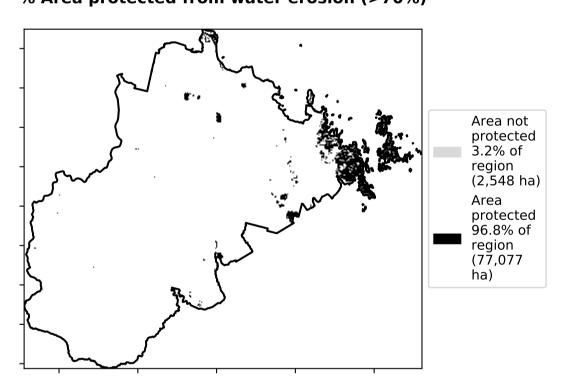


Total Vegetation Cover [%]

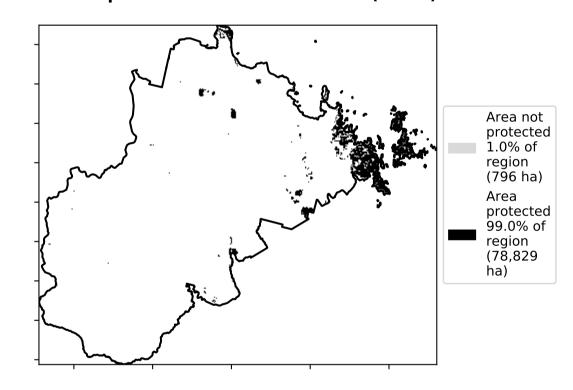




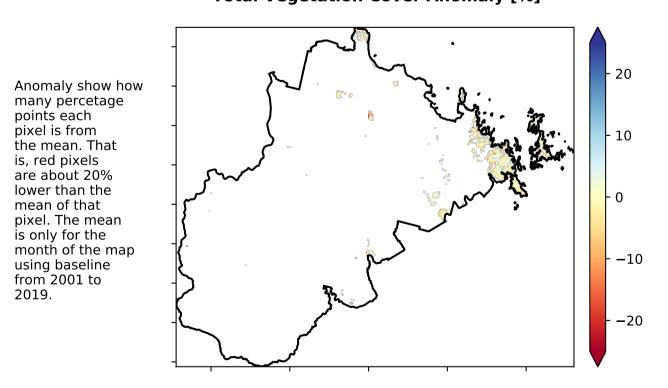
% Area protected from water erosion (>70%)



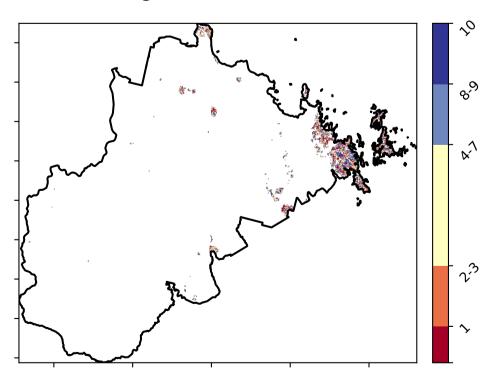
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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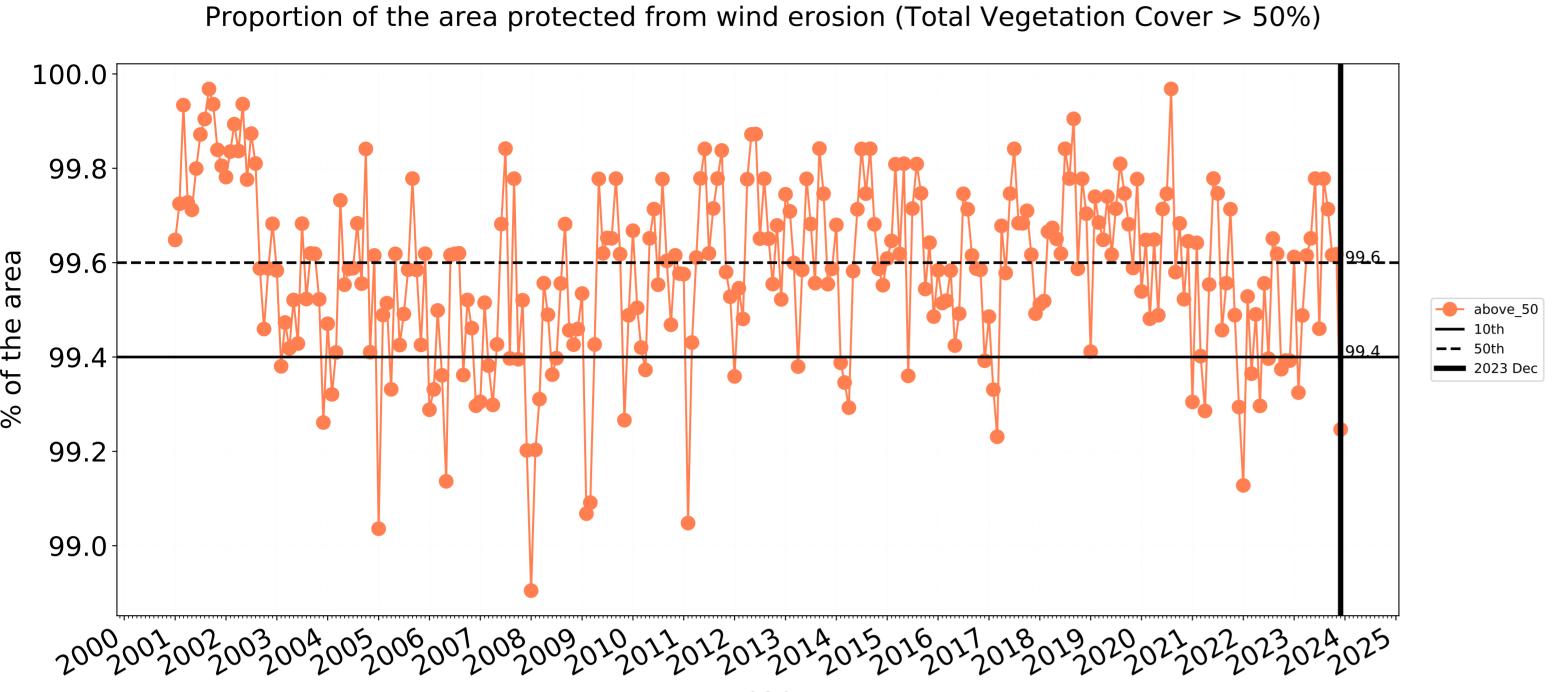


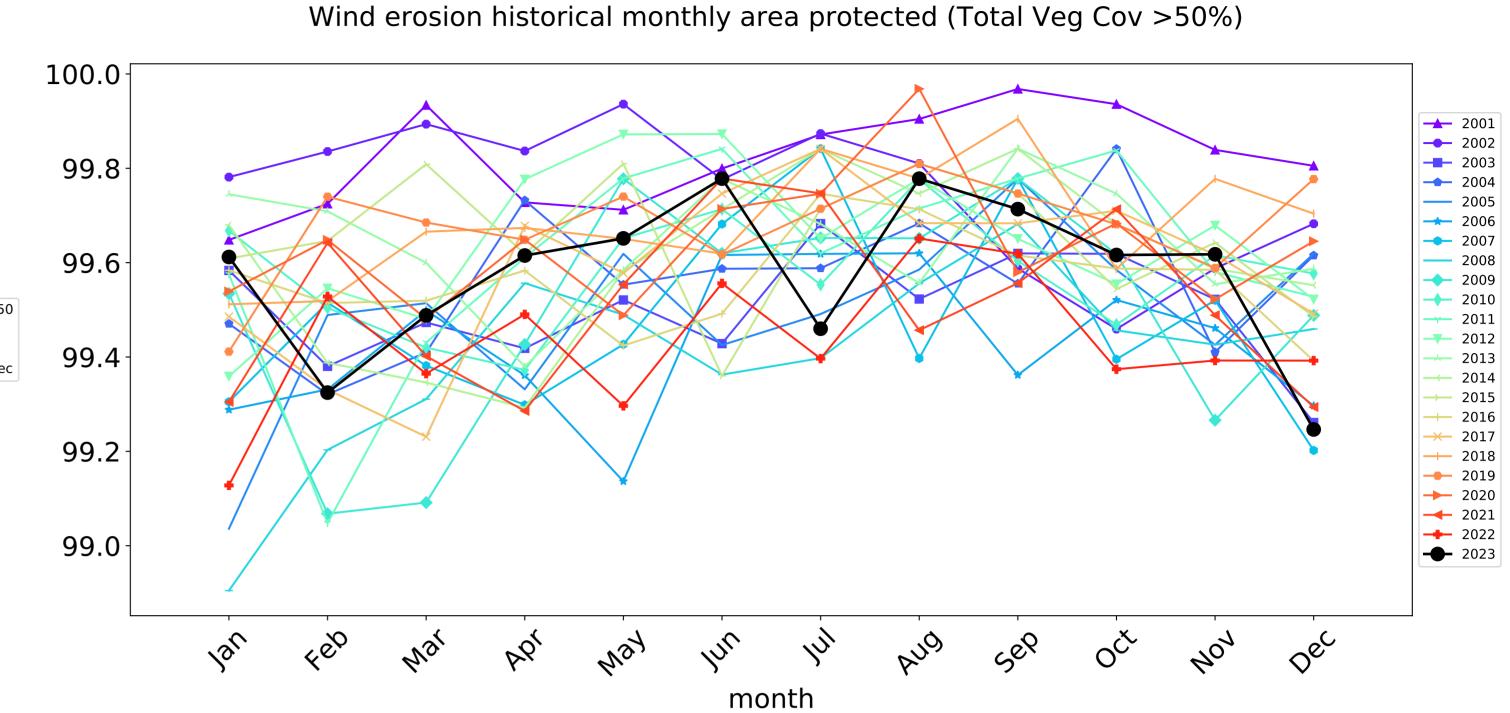


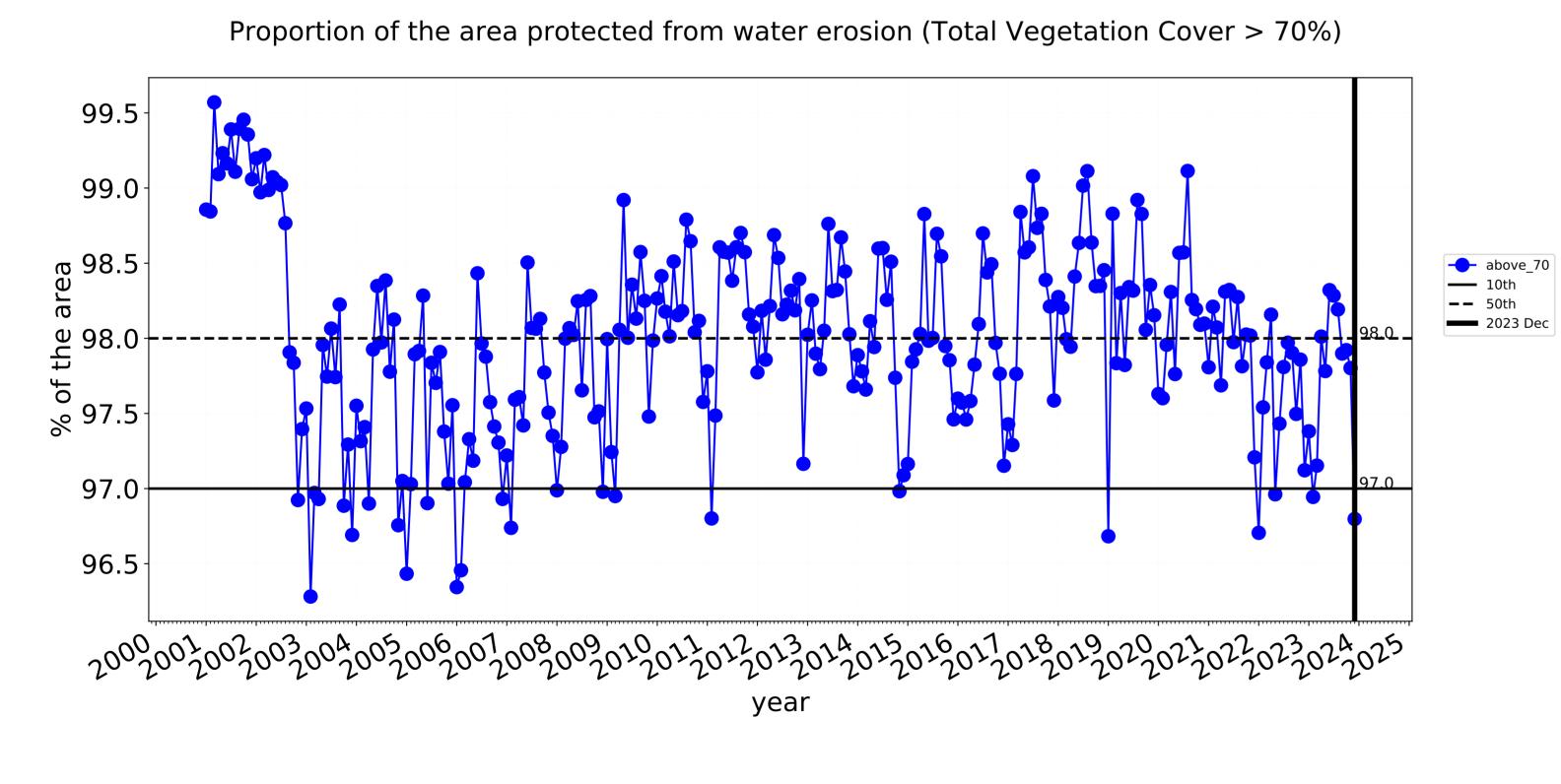


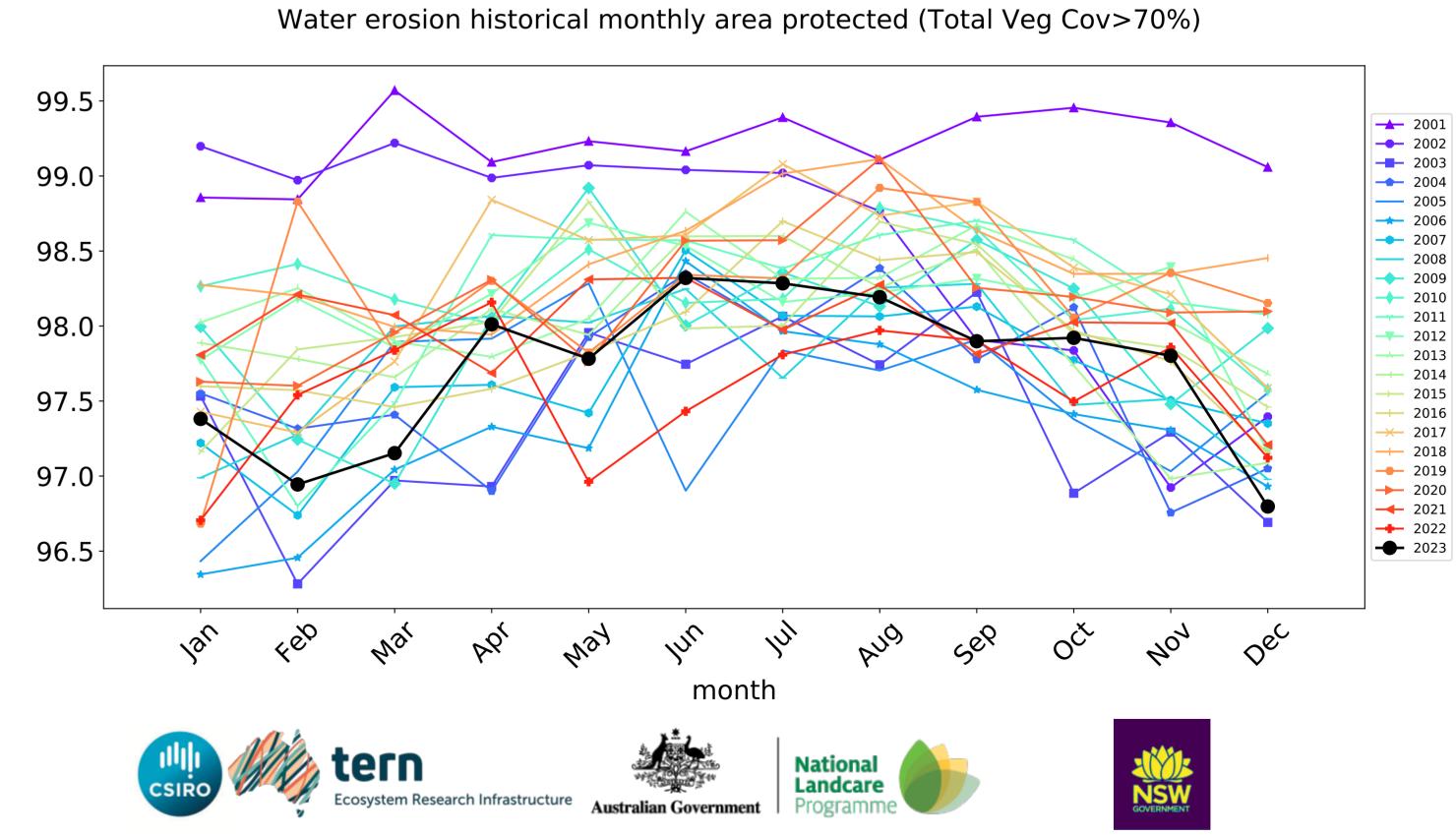












Agriculture

Land use and forest cover 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest 4 Agriculture - Grazing - Irrigated 5 Agriculture - Cropping - Non-irrigated 6 Agriculture - Cropping - Irrigated 7 Agriculture - Horticulture - Non-irrigated 8 Agriculture - Horticulture - Irrigated

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

Derived from

Use of Australia

(2018) and Forests of Australia (2018)

Anomaly show how many percetage points each pixel is from the mean. That

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

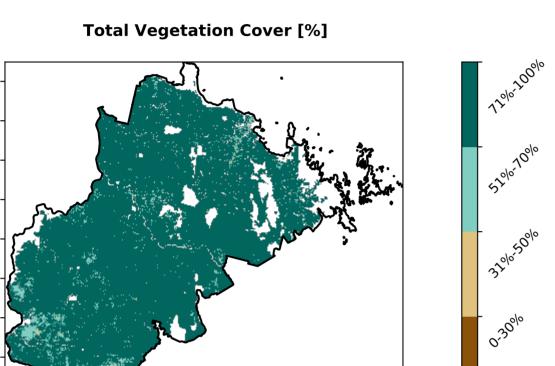
pixel. The mean

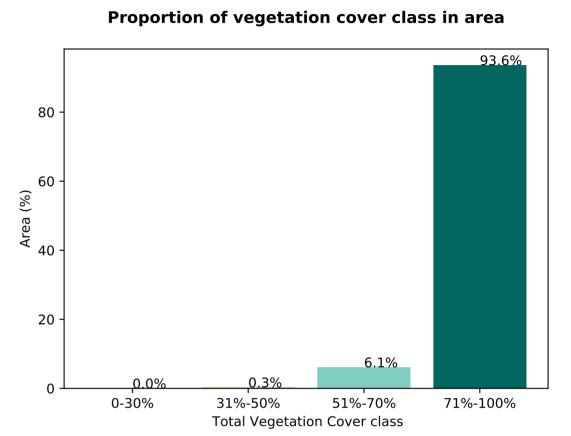
using baseline from 2001 to 2019.

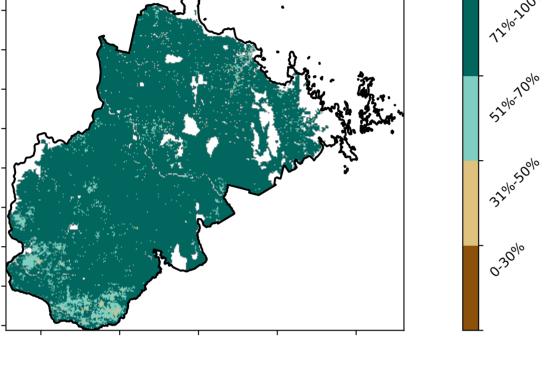
is only for the month of the map

56.2% 50 39.3% 40 Area (%) 20 -10 Land use class

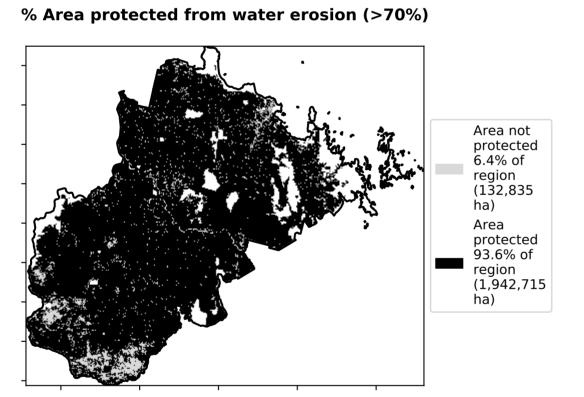
Proportion of each land class in area

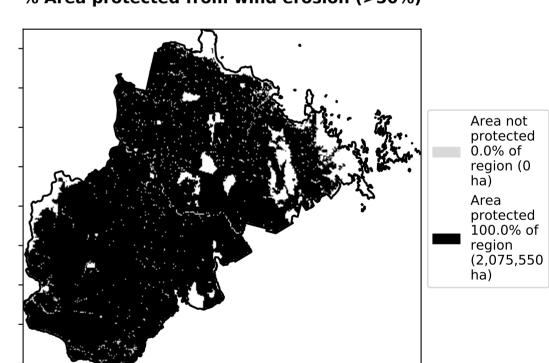






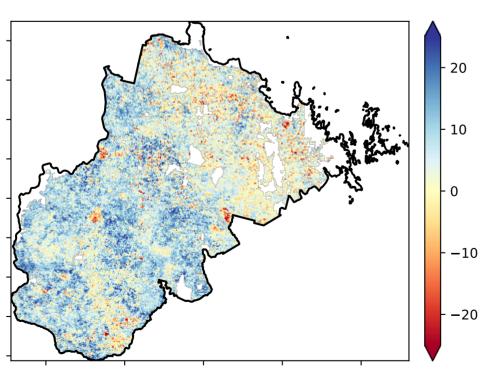
% Area protected from wind erosion (>50%)

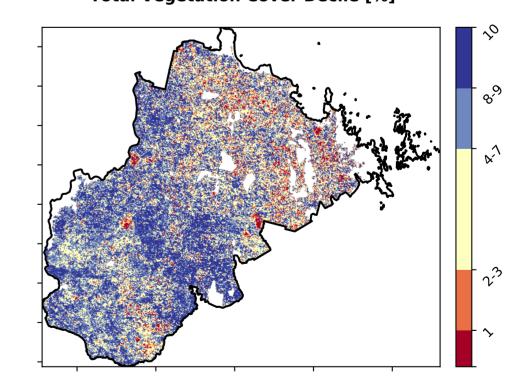






Total Vegetation Cover Decile [%]





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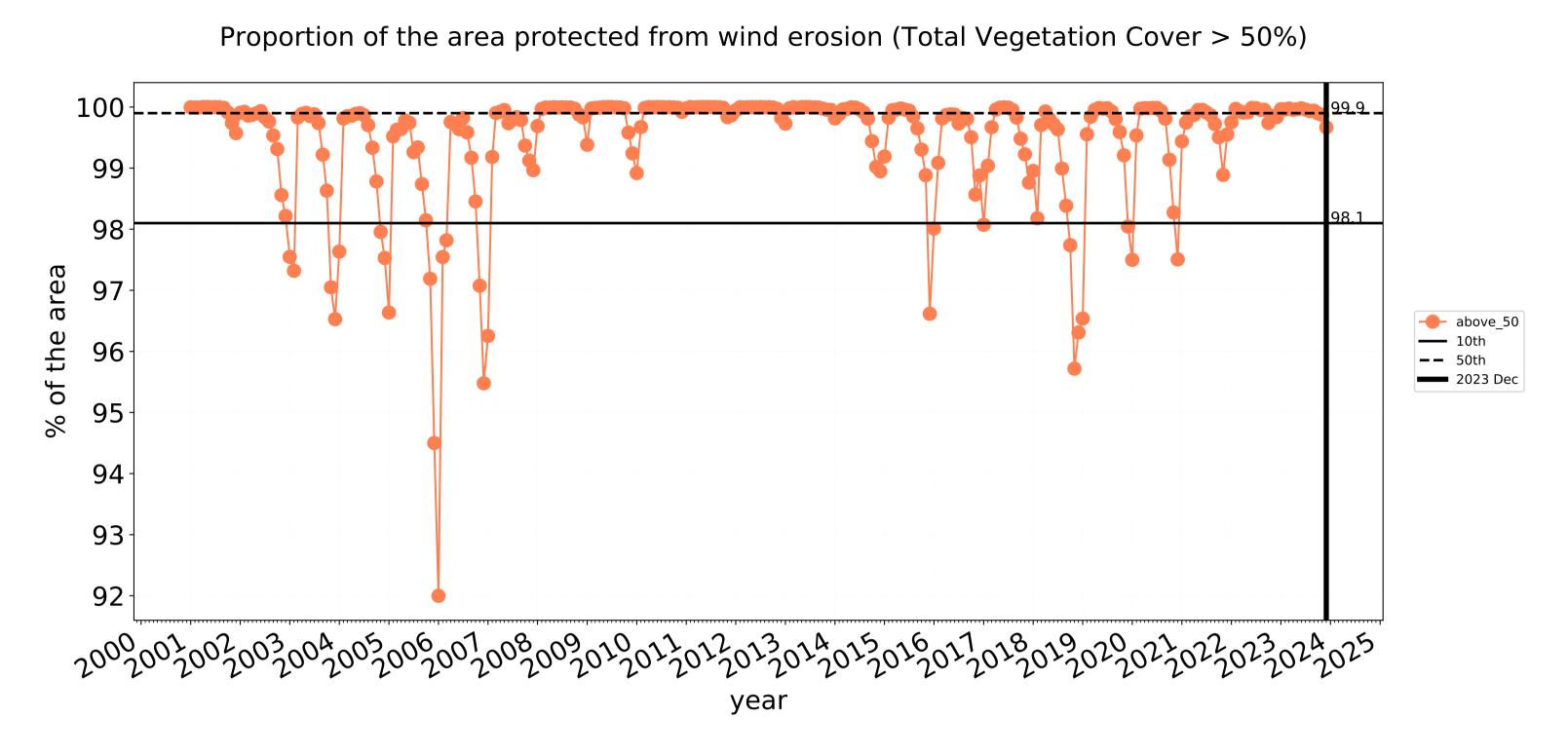


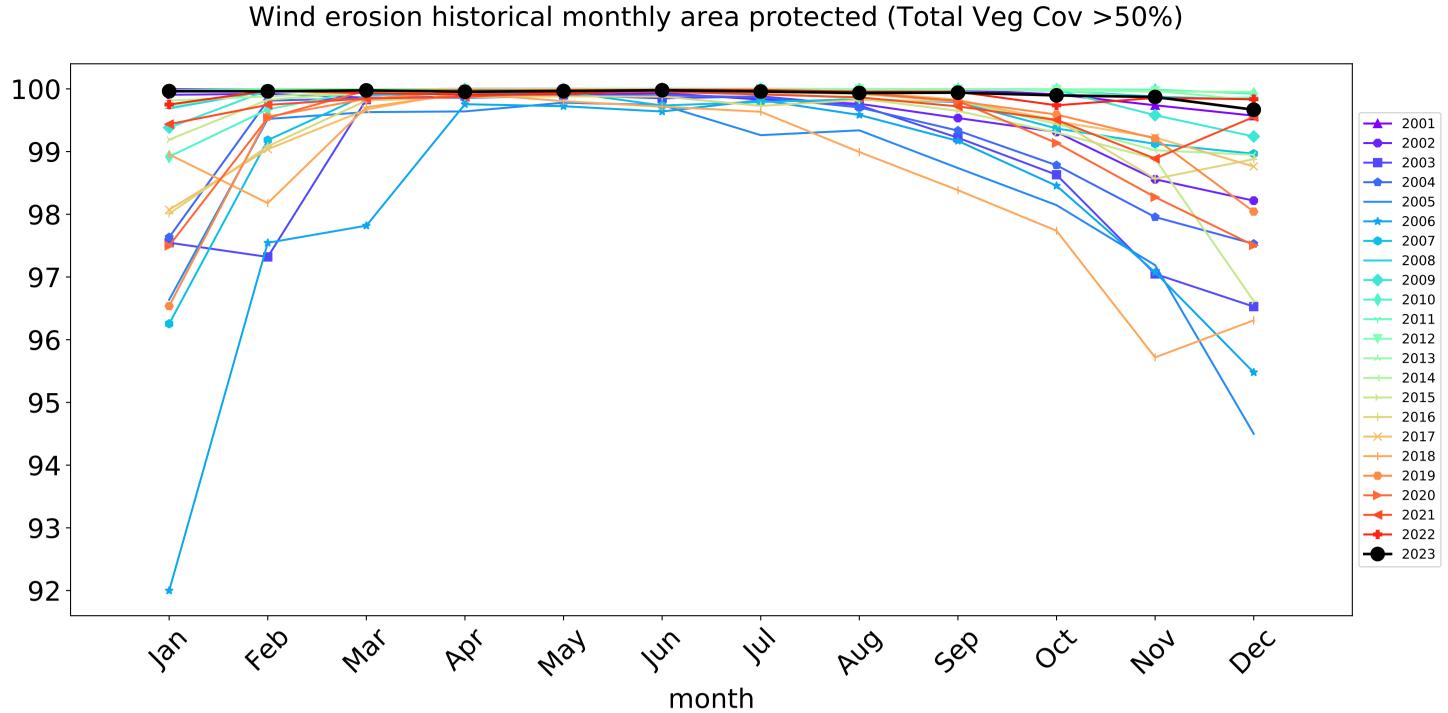


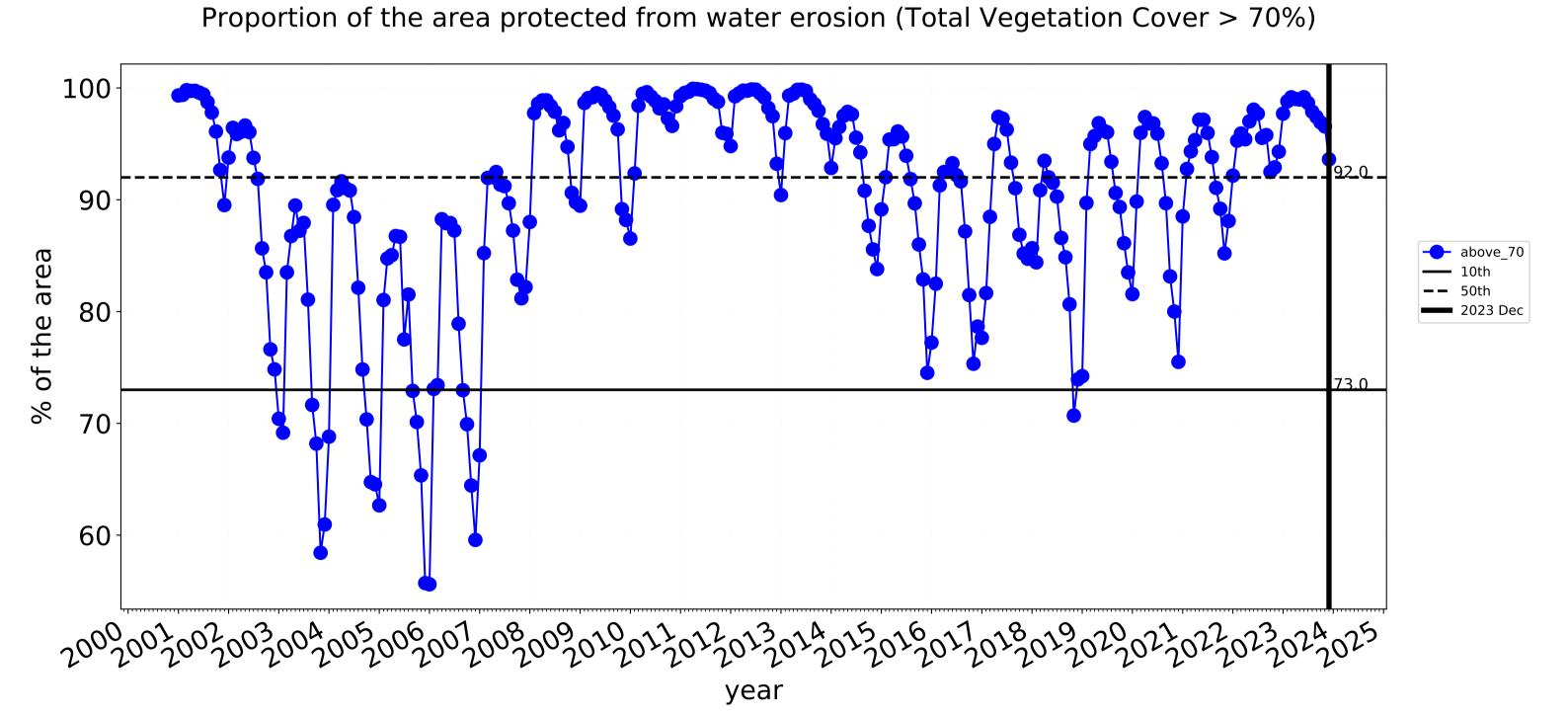


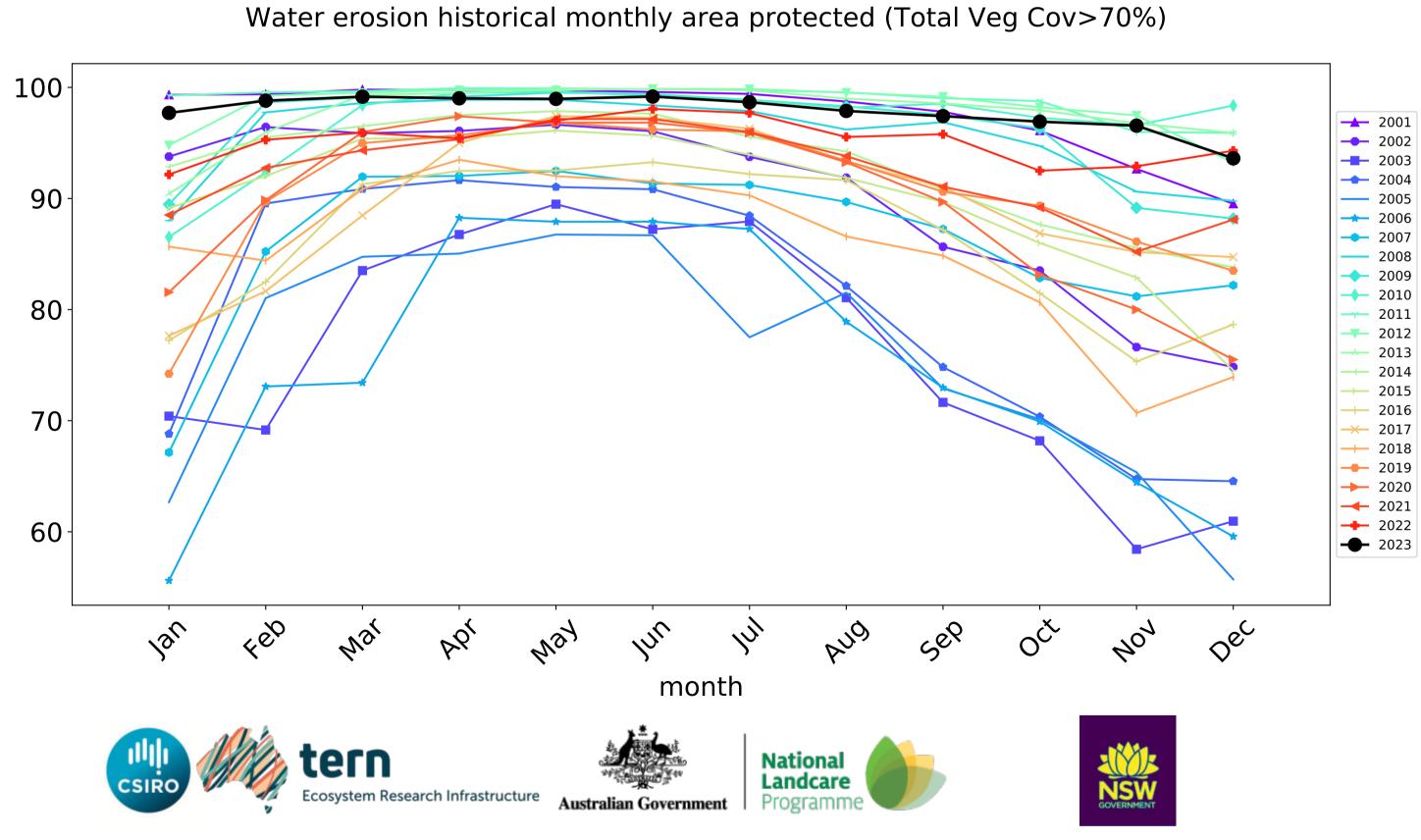


Agriculture timeseries



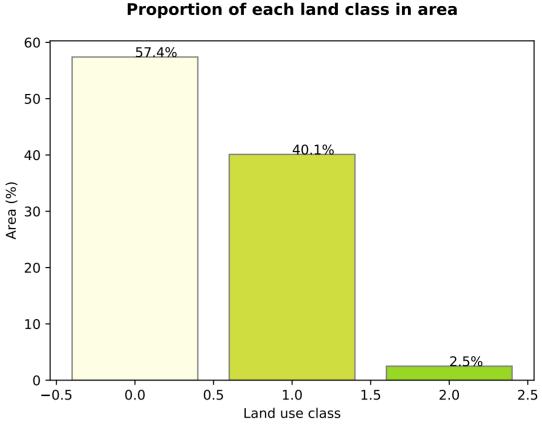






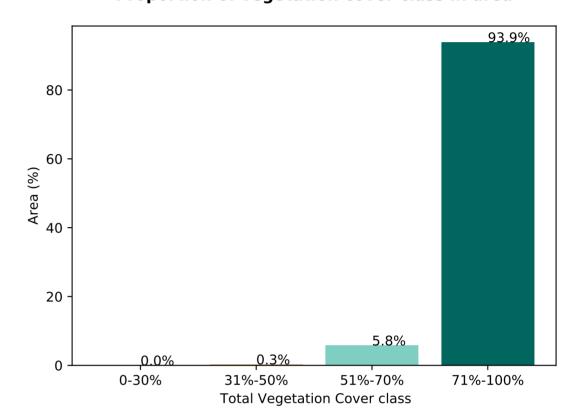
Grazing

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

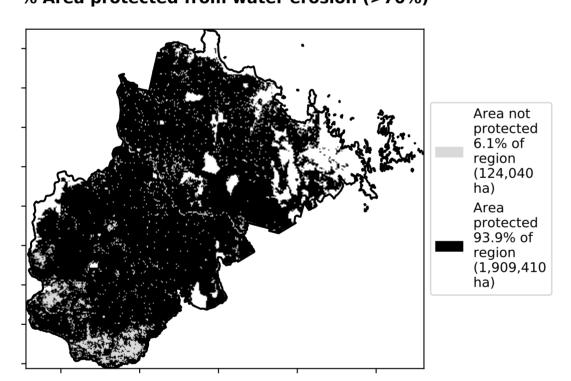


Total Vegetation Cover [%]

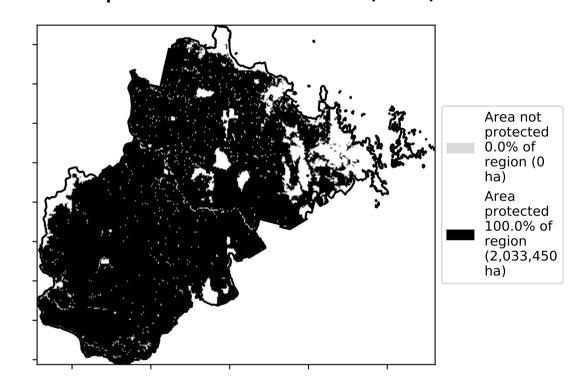
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



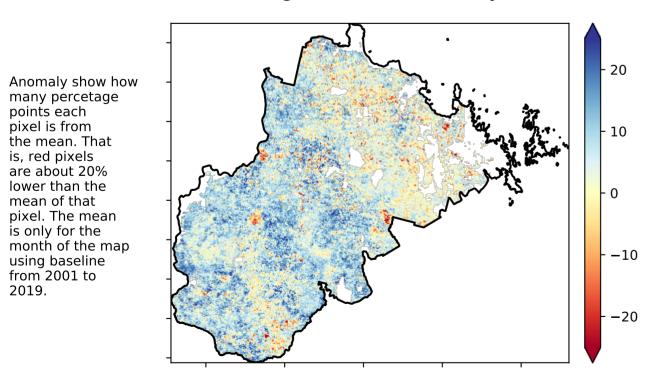
Total Vegetation Cover Anomaly [%]

are about 20%

lower than the mean of that pixel. The mean

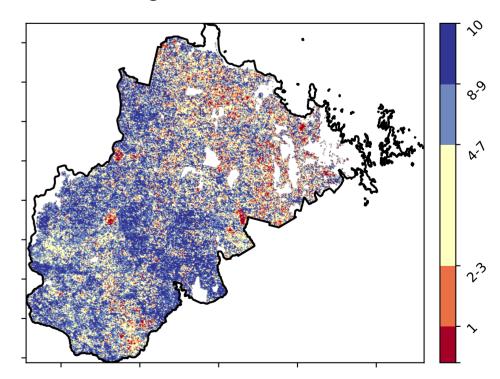
using baseline from 2001 to 2019.

is only for the month of the map



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 [%]



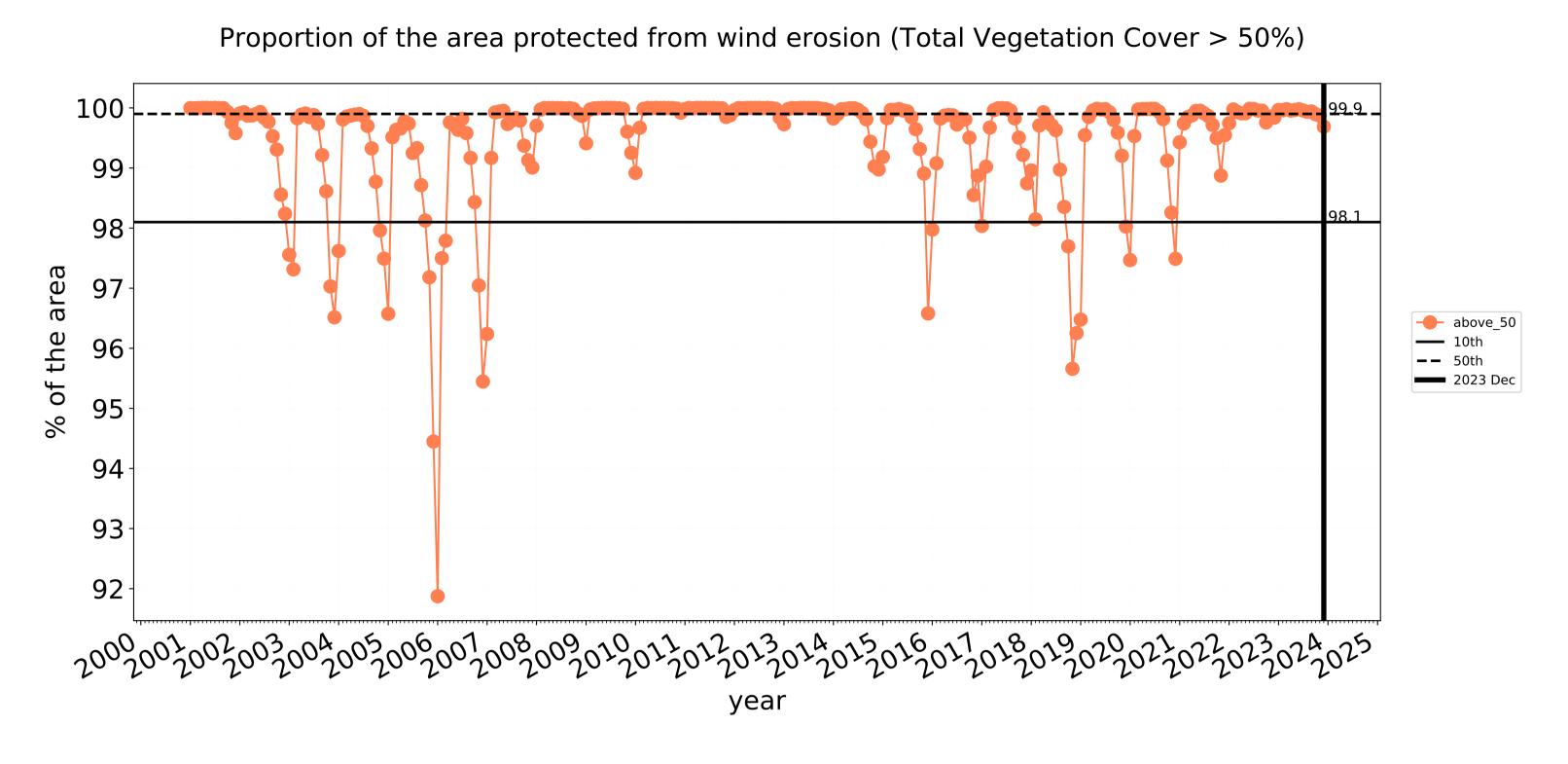


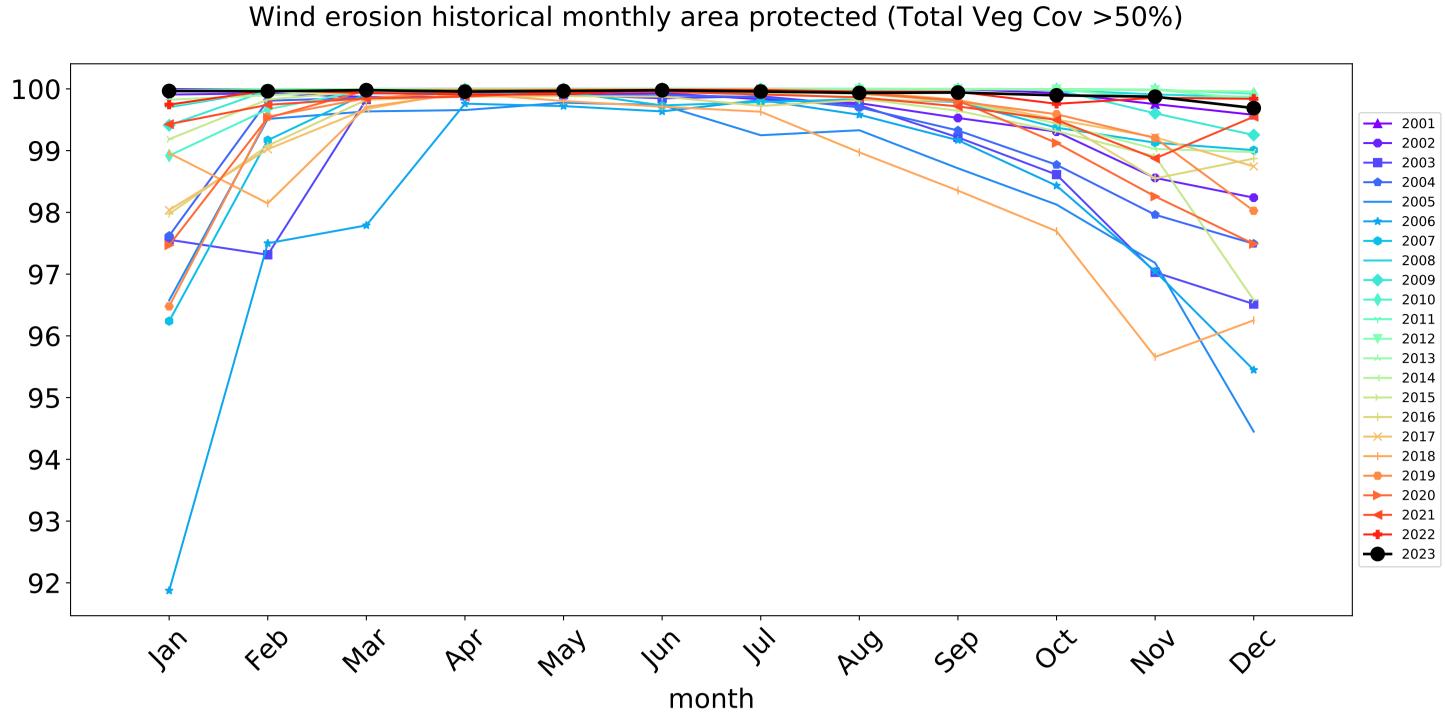


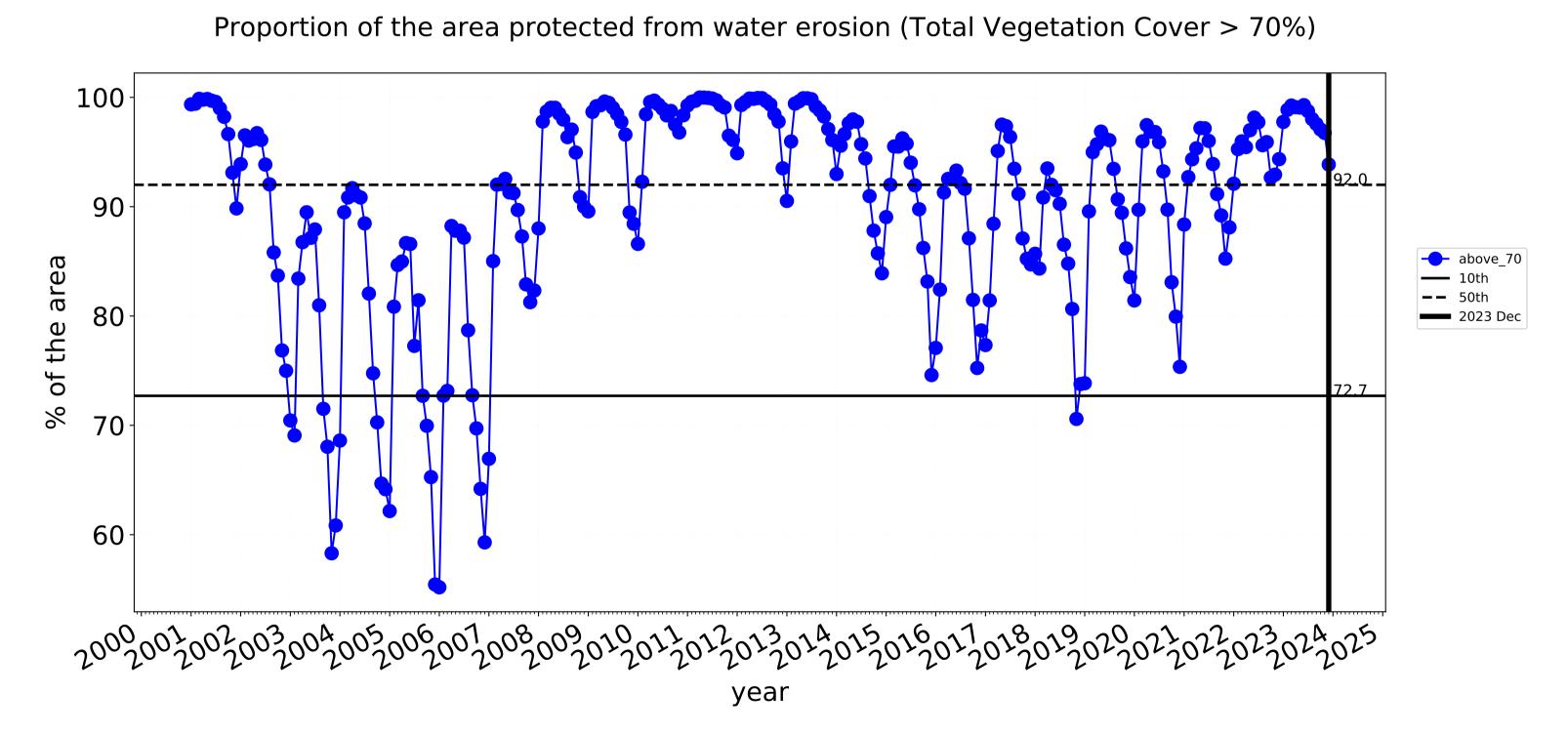


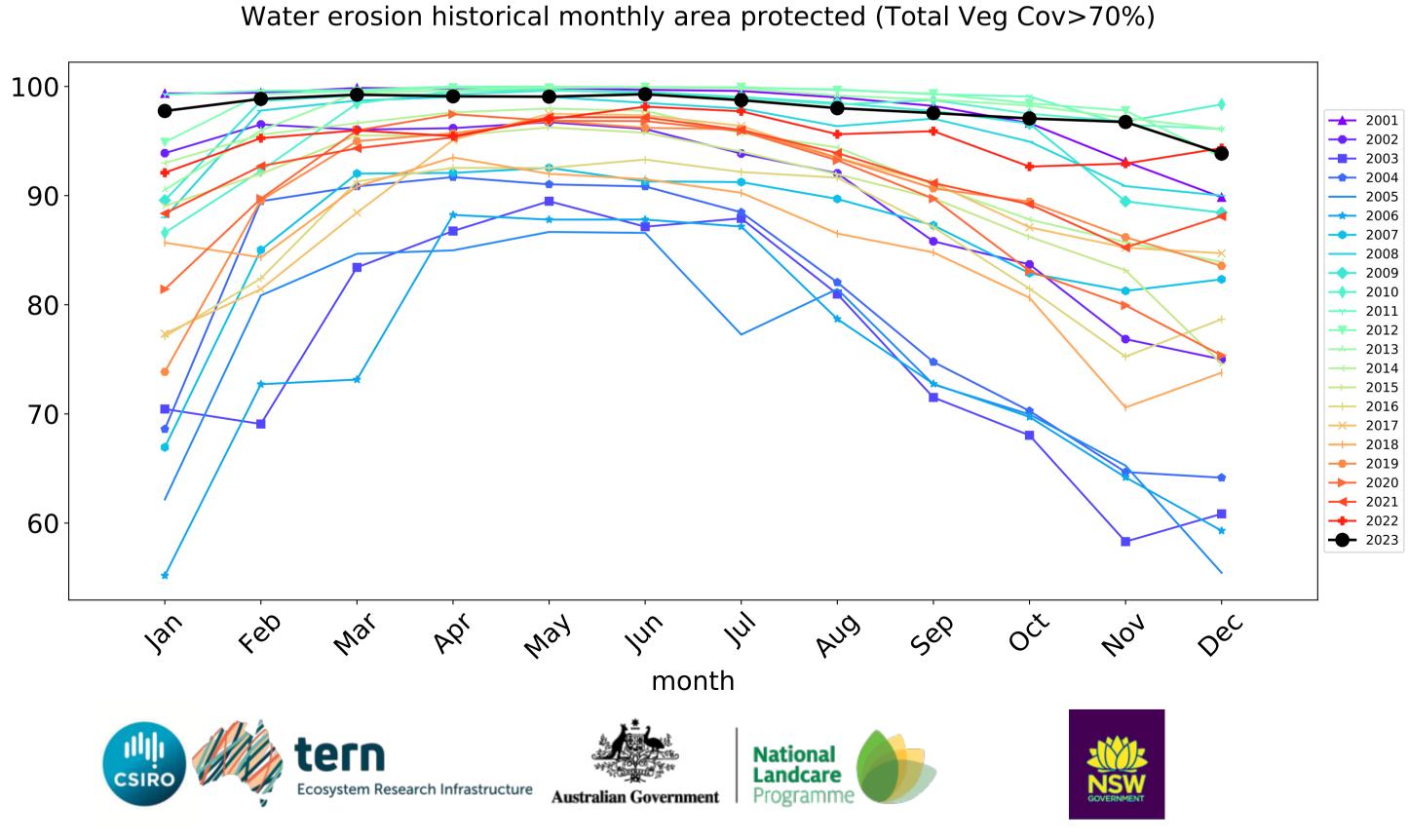


Grazing timeseries







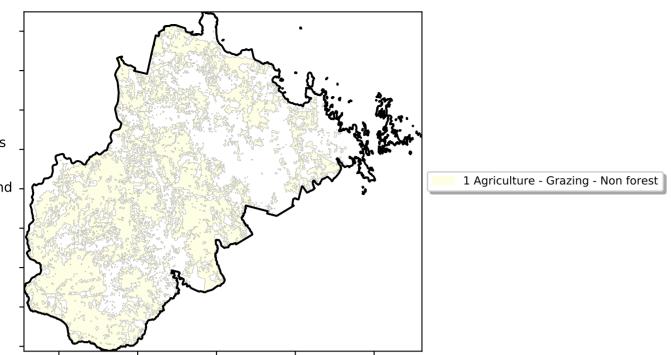


Grazing non forest

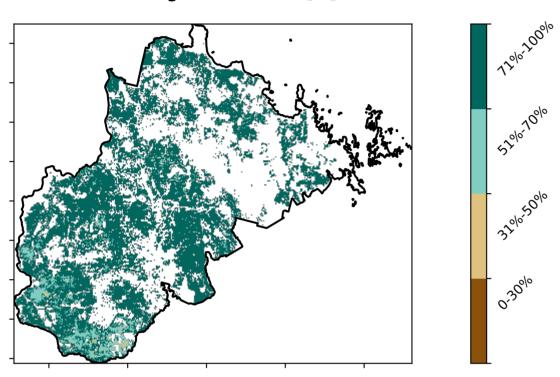
Land use and forest cover

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

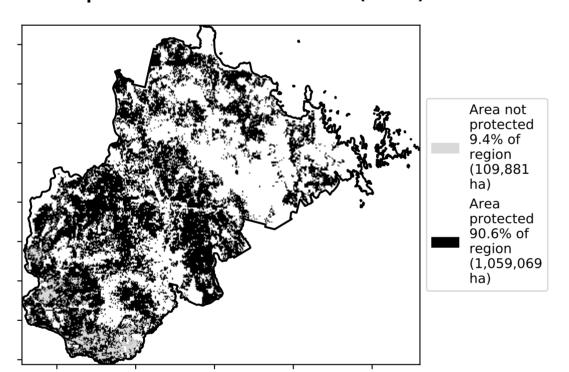
using baseline from 2001 to 2019.



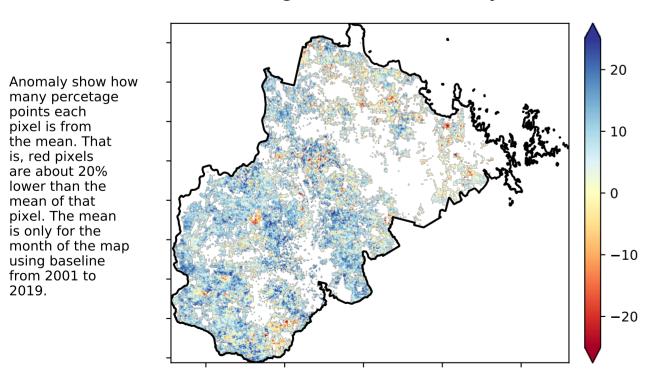
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

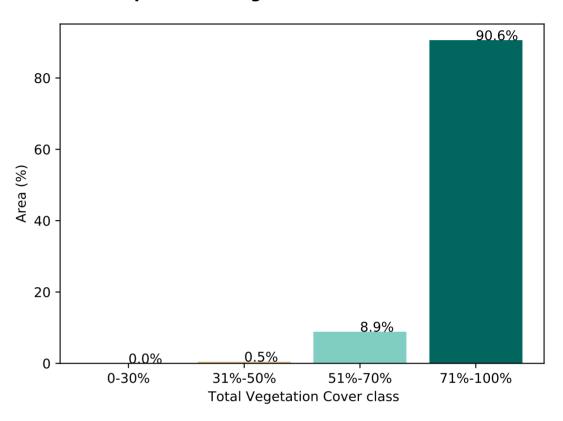


Total Vegetation Cover Anomaly [%]

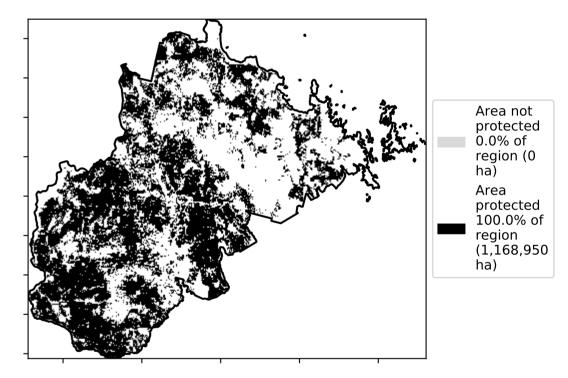


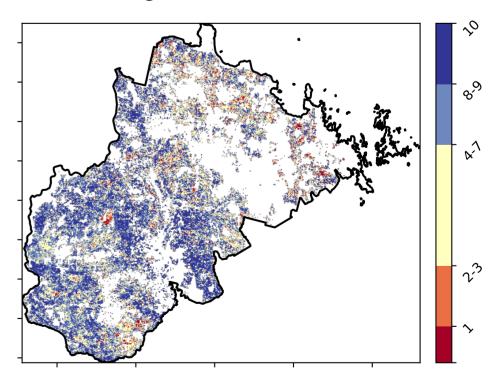
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





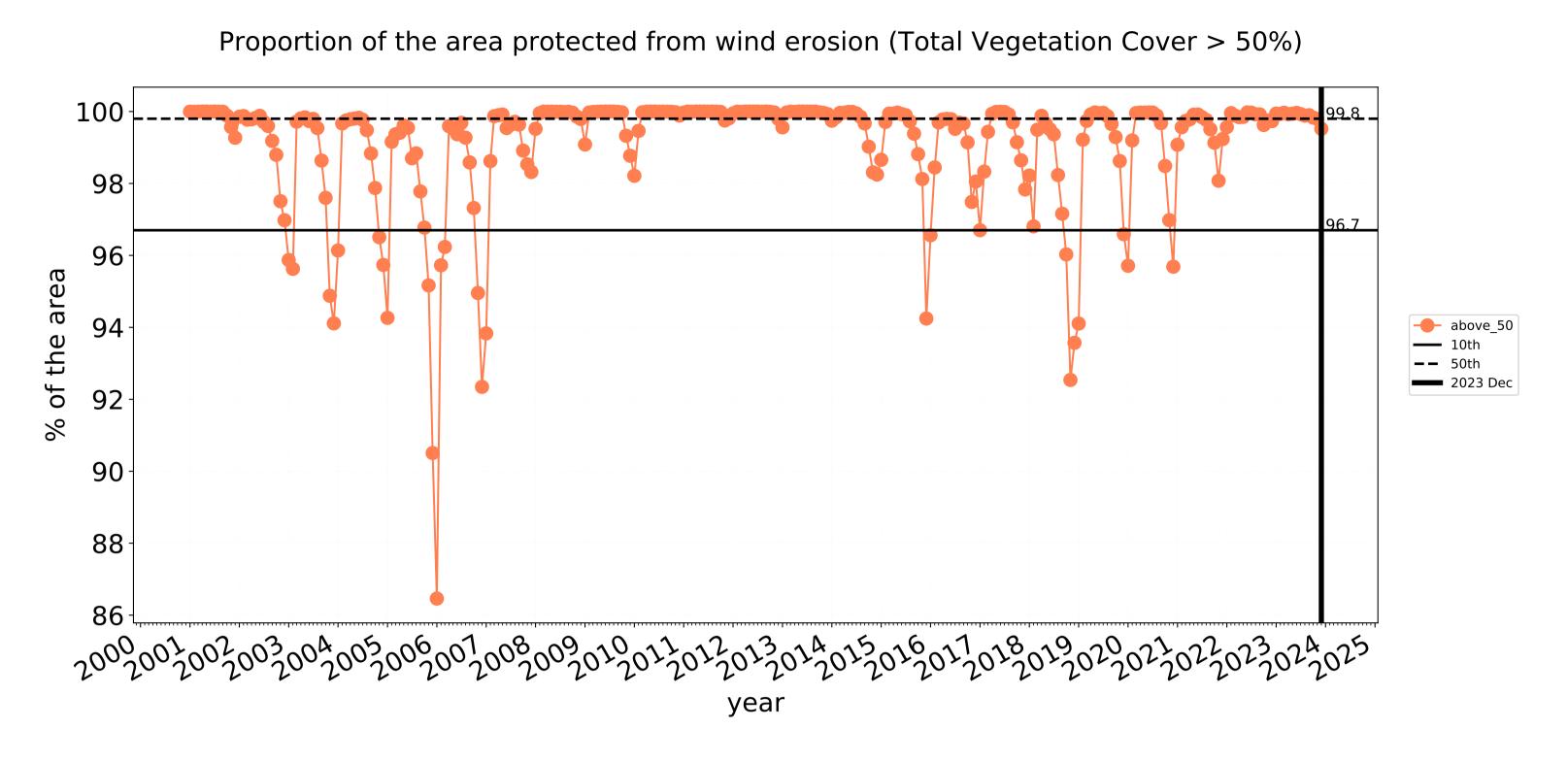


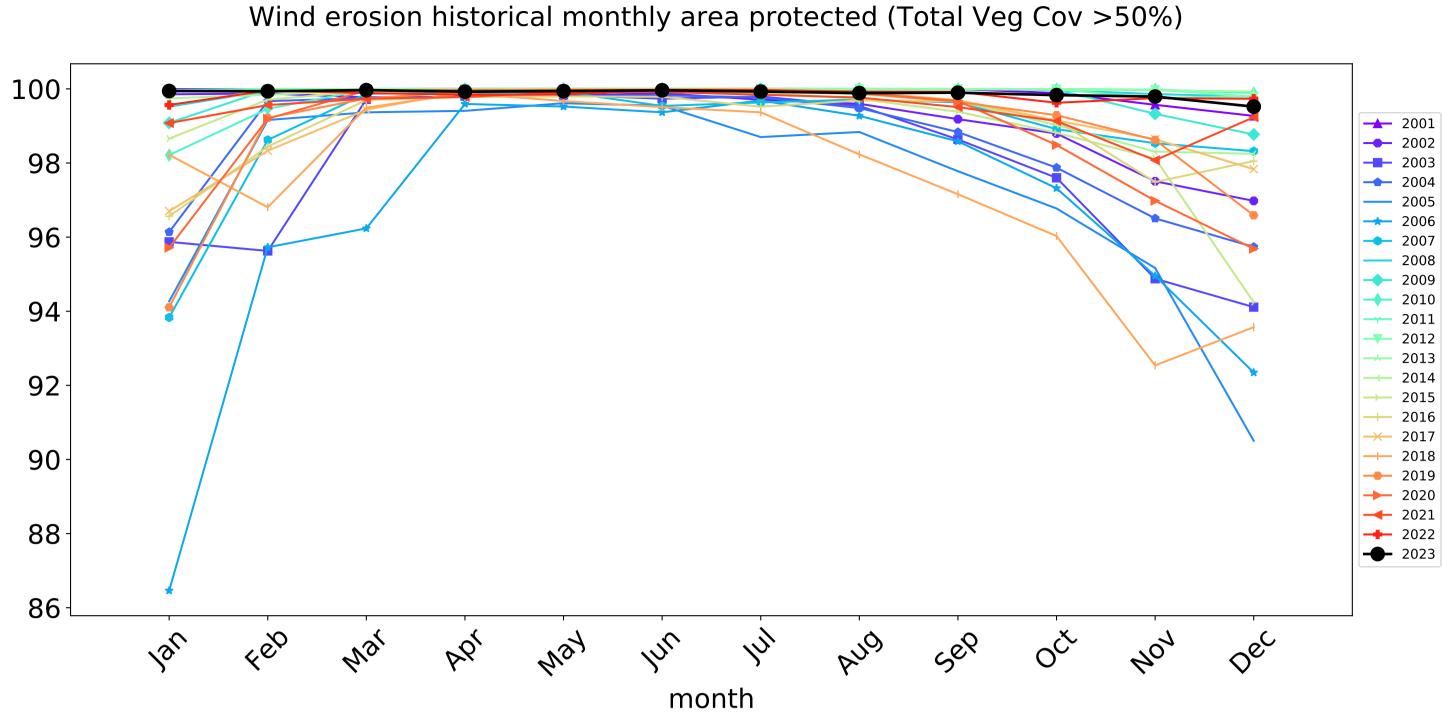


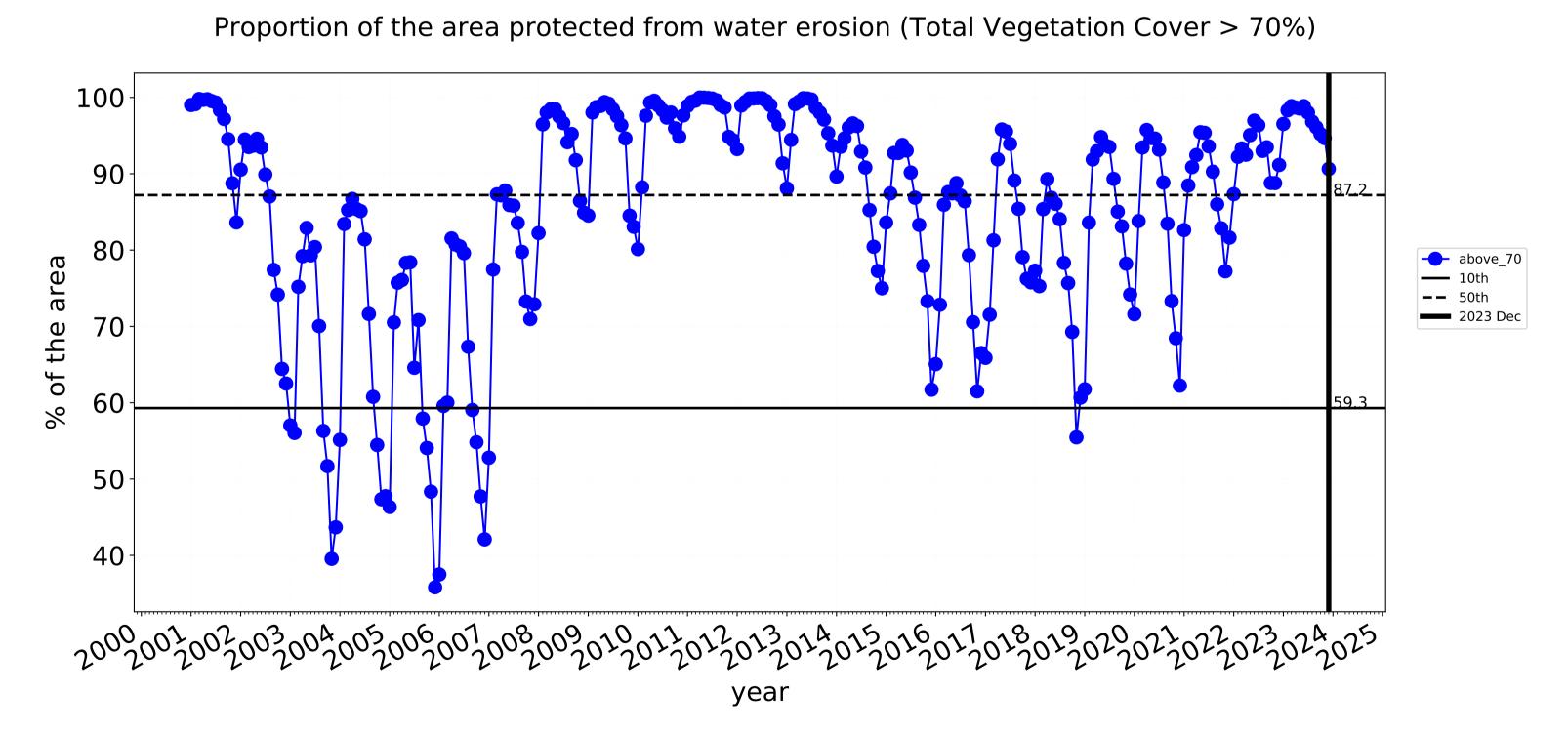


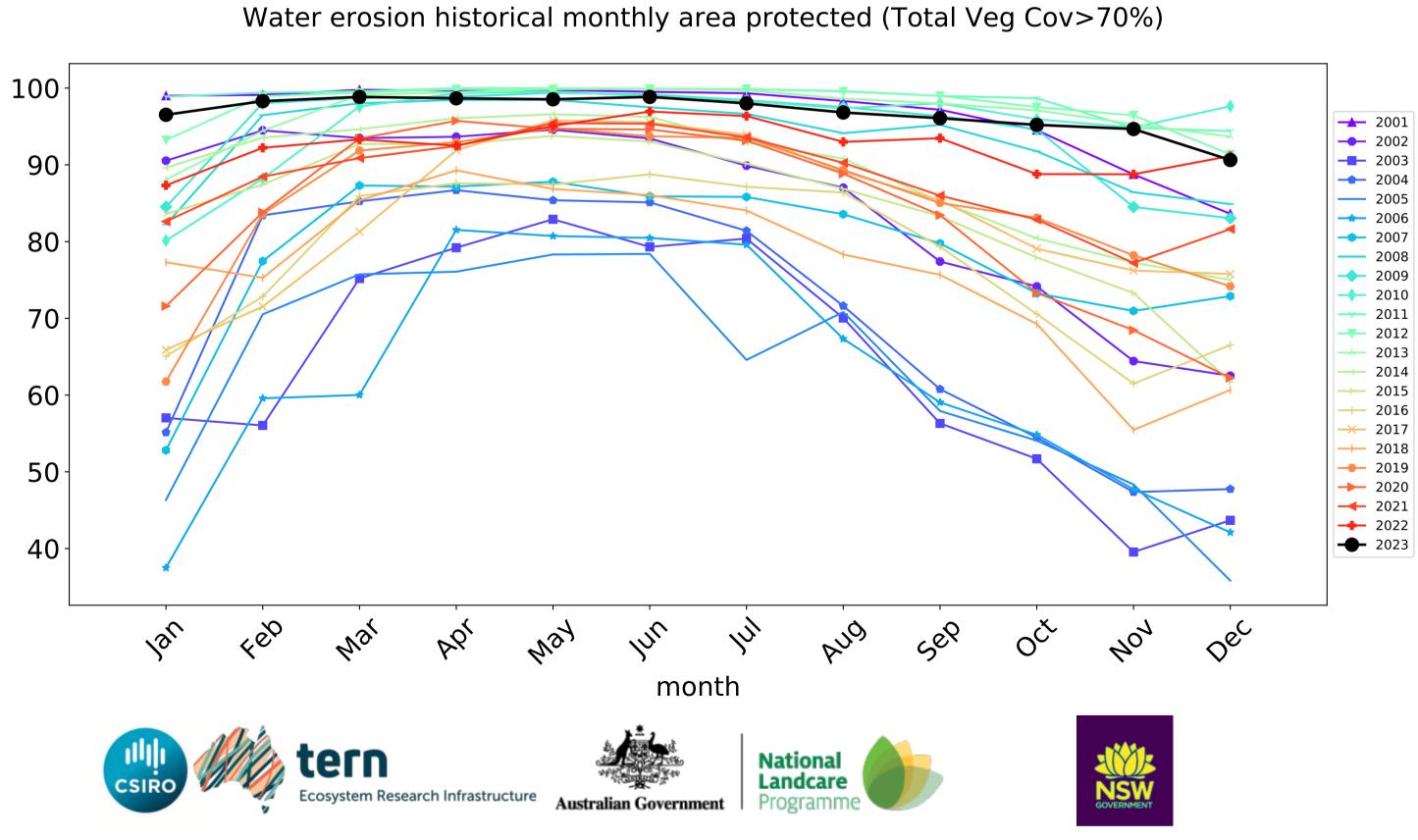


Grazing non forest timeseries







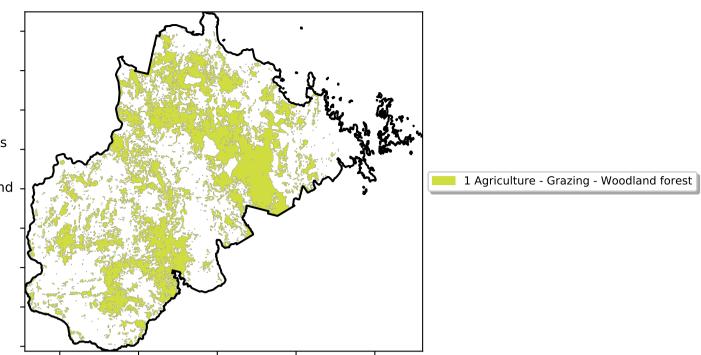


Grazing Woodland forest

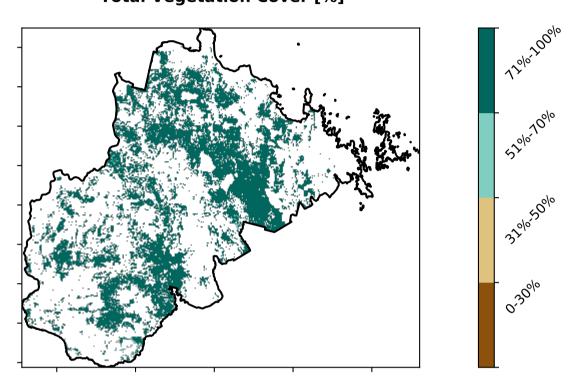
Land use and forest cover



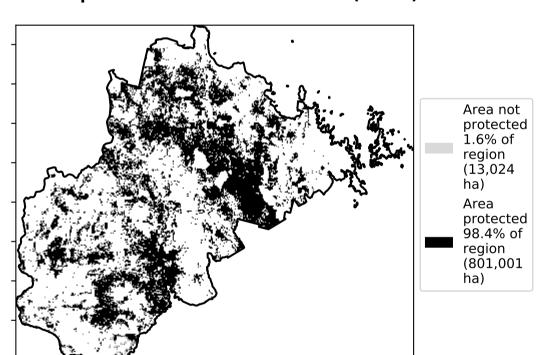
using baseline from 2001 to 2019.



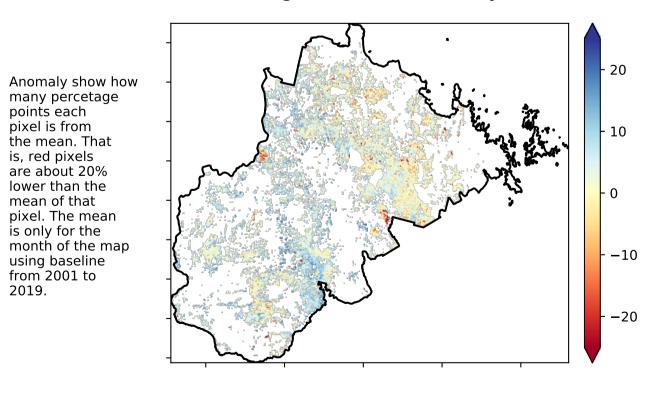
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

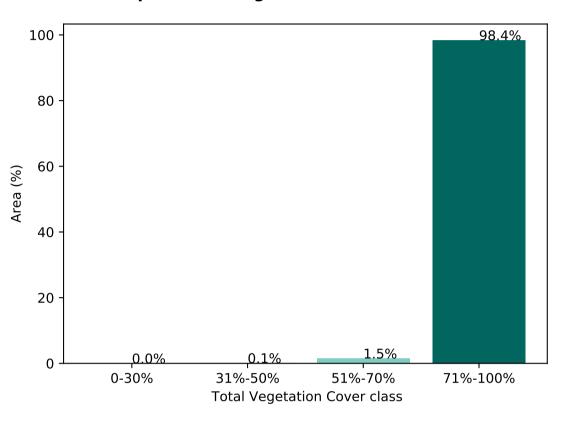


Total Vegetation Cover Anomaly [%]

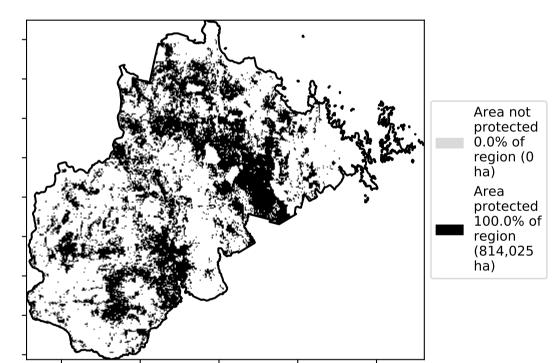


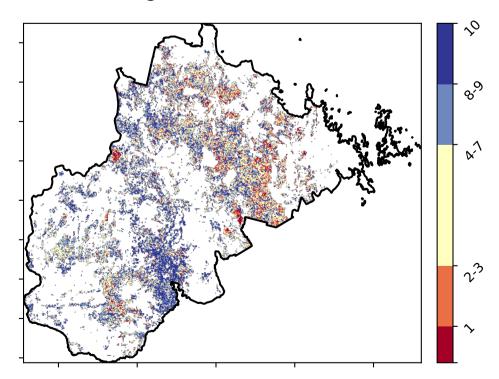
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)







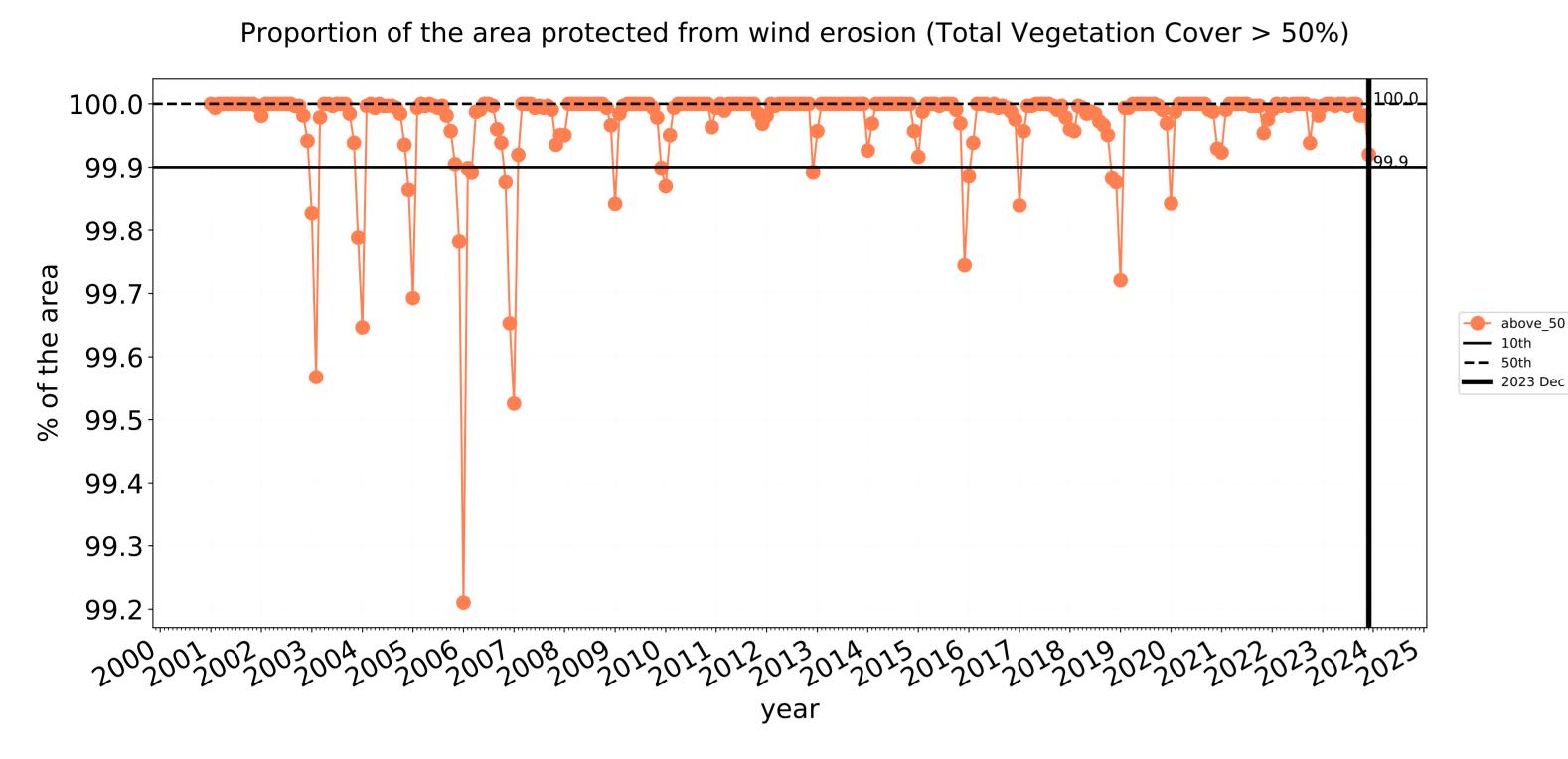


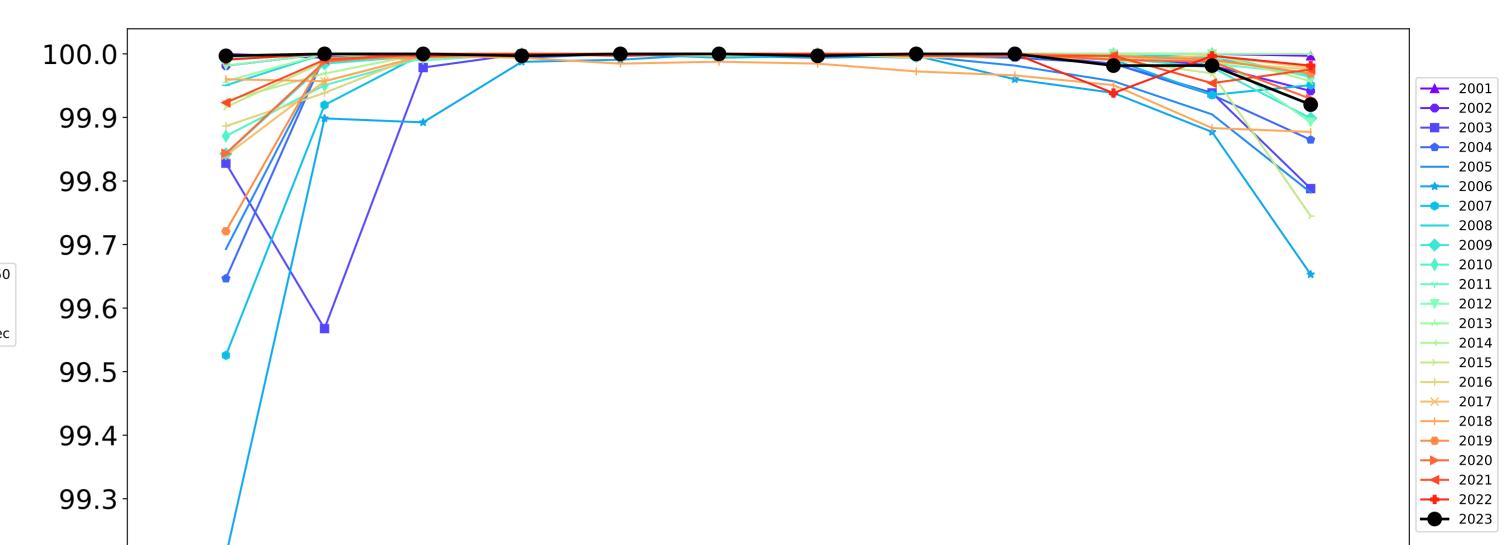




Grazing Woodland forest timeseries

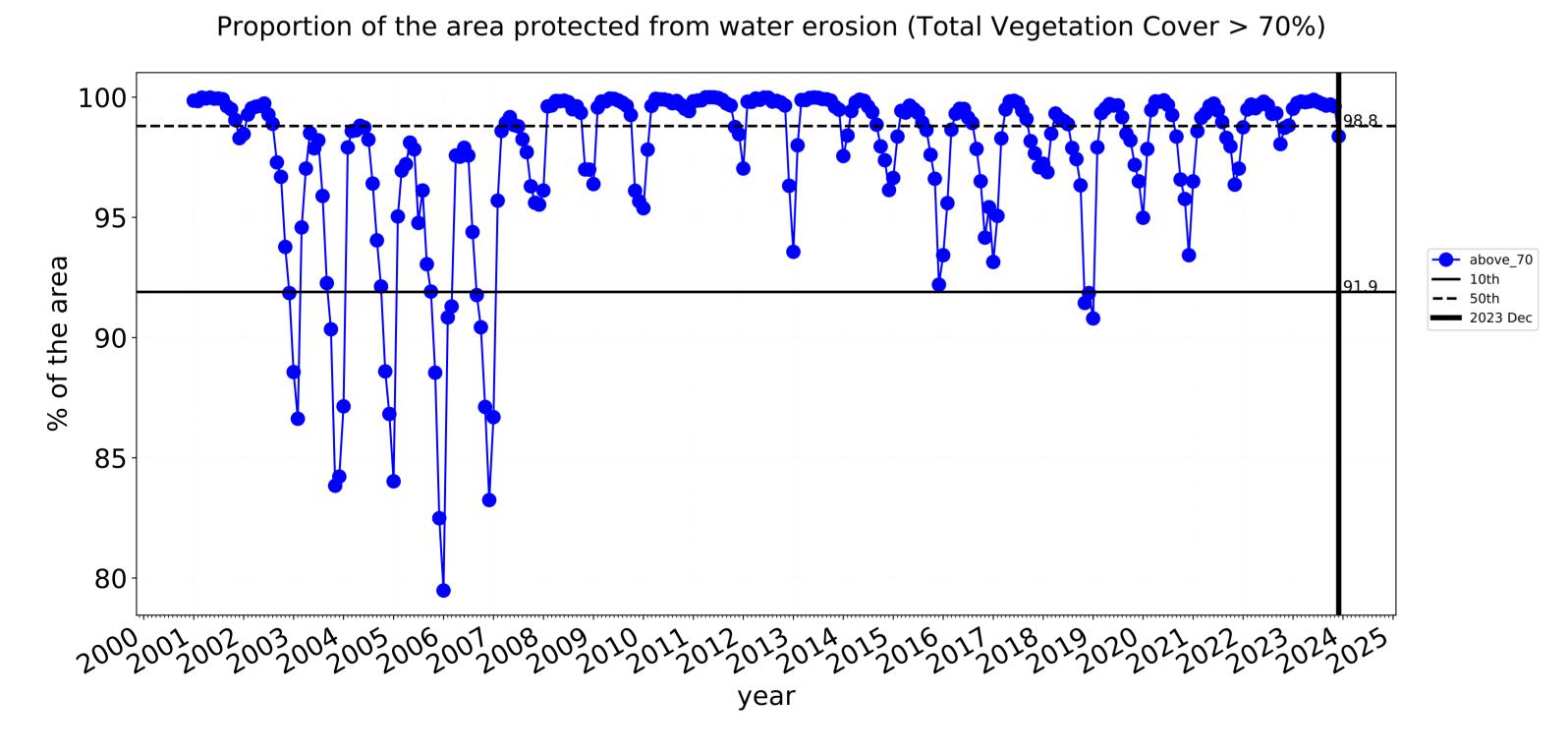
99.2

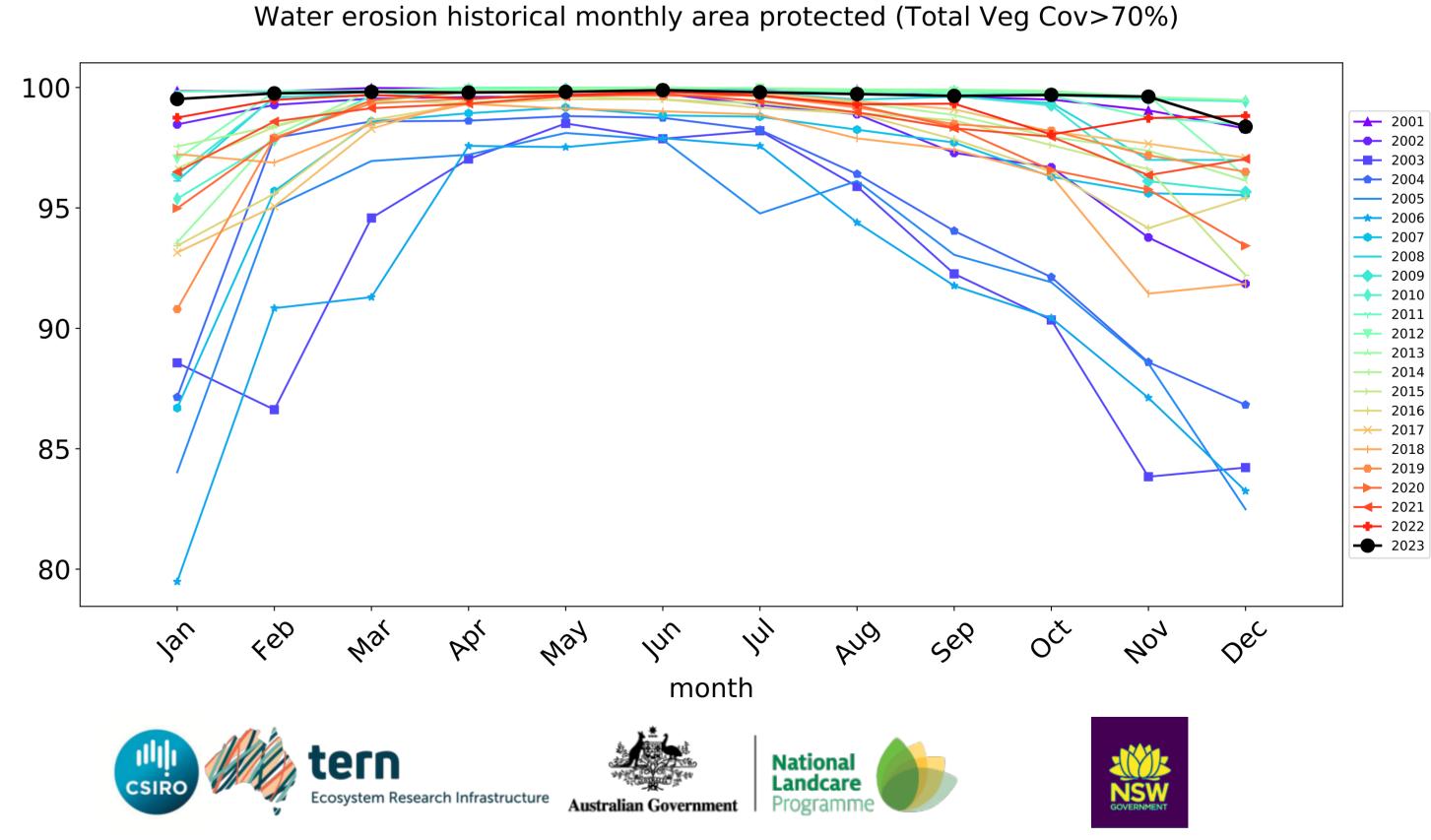




month

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



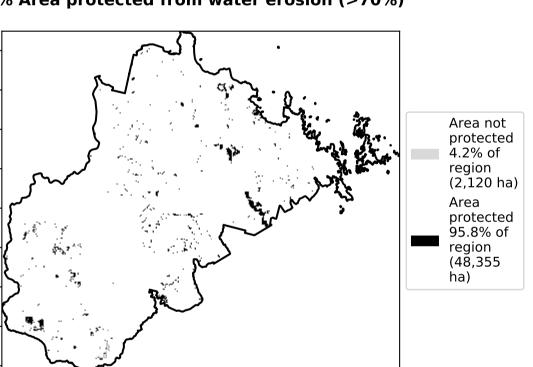


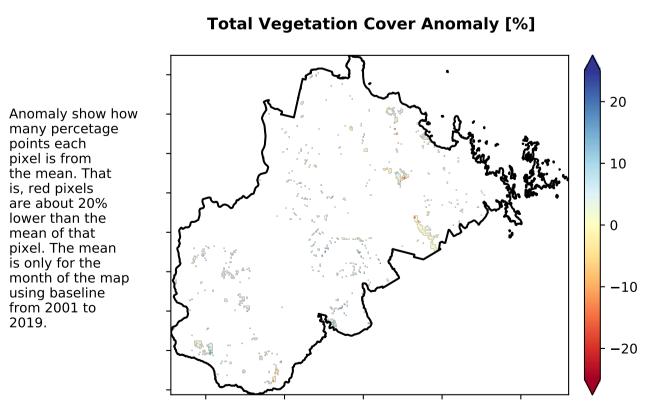
Grazing - Forest (non woodland)

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

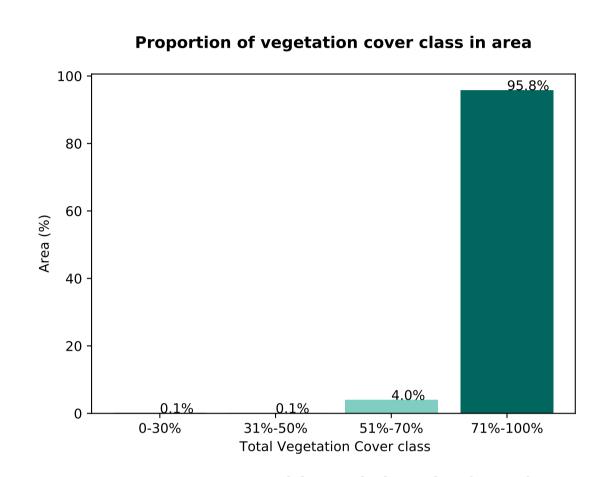
Total Vegetation Cover [%]

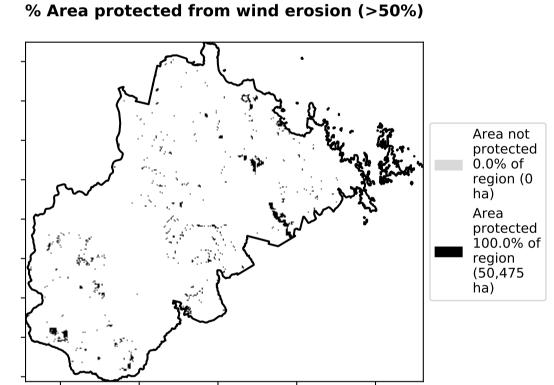
% Area protected from water erosion (>70%)

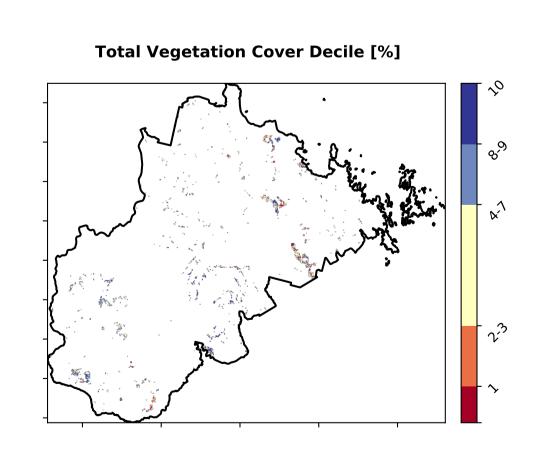




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of records for that month of the map using baseline from 2001 to 2019.





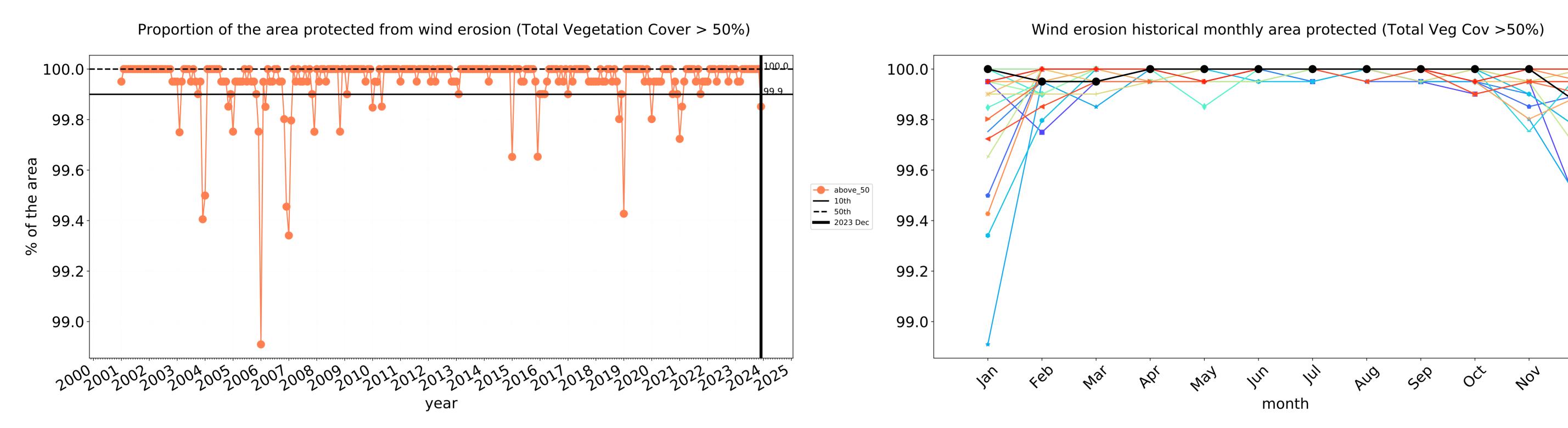


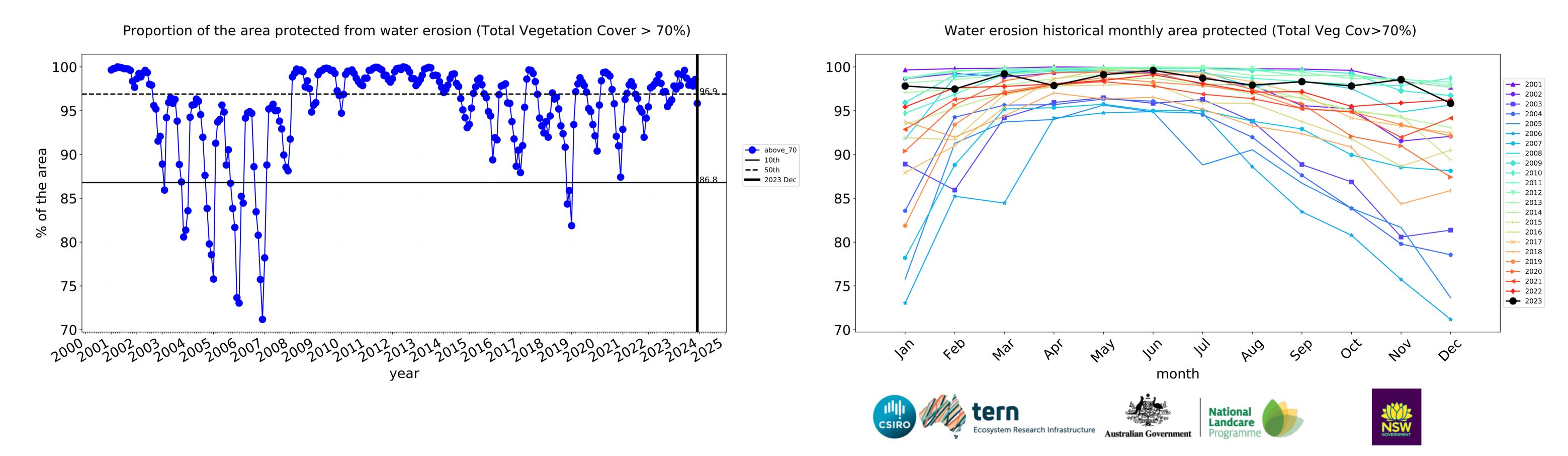






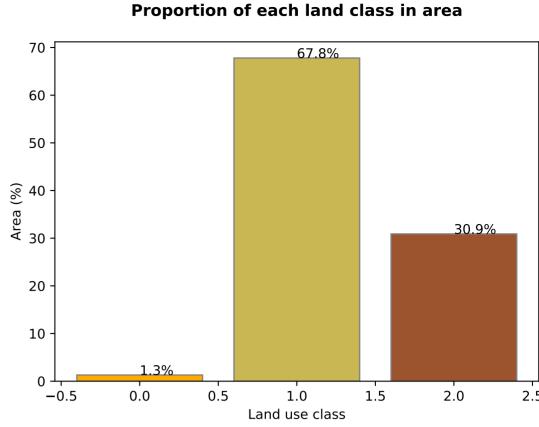


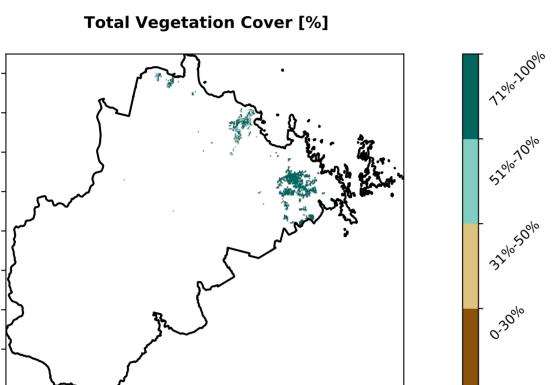


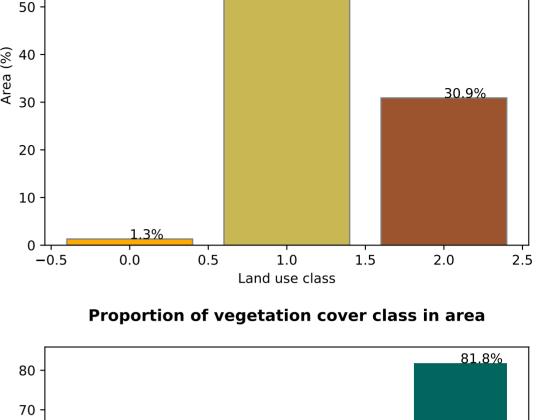


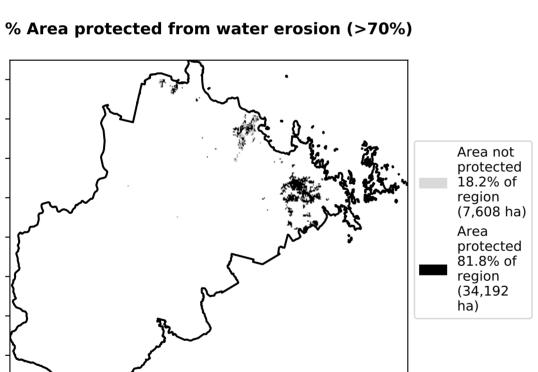
Irrigation

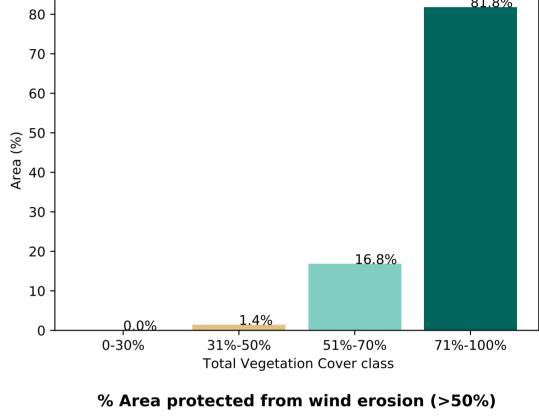
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 1 Agriculture - Grazing - Irrigated 2 Agriculture - Cropping - Irrigated 3 Agriculture - Horticulture - Irrigated

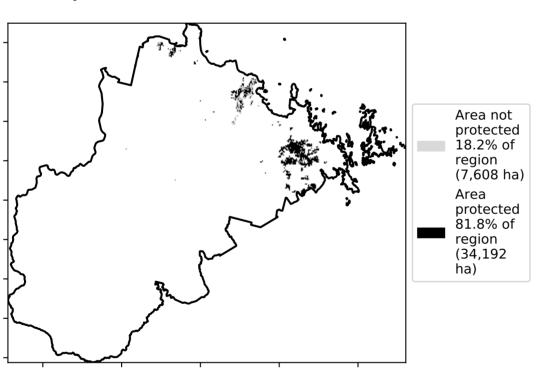


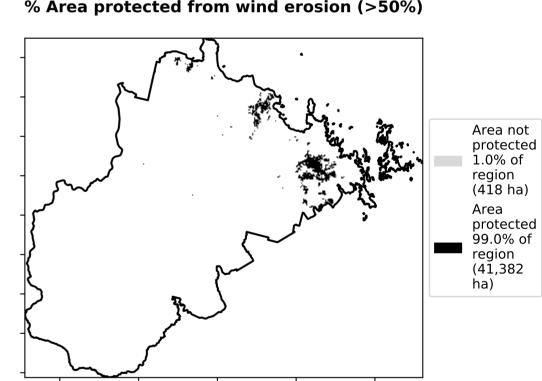


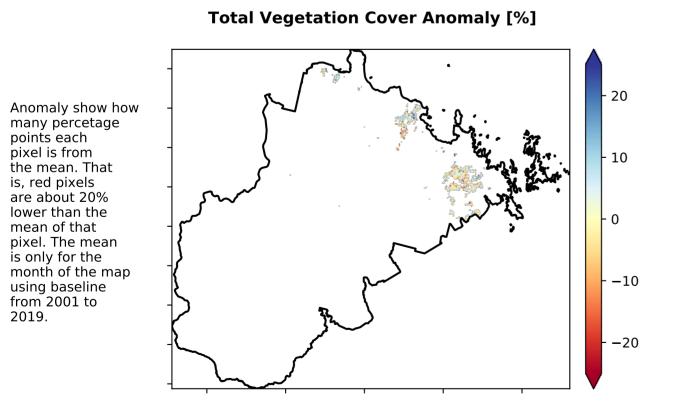




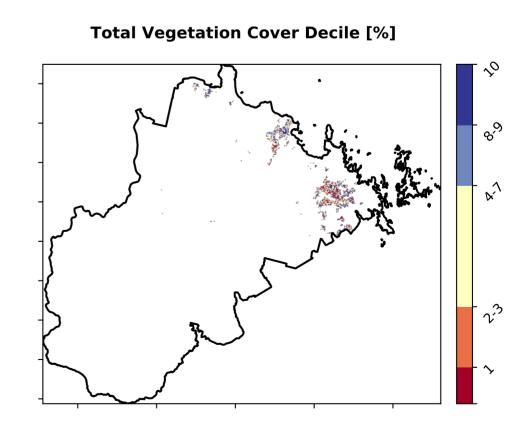








Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



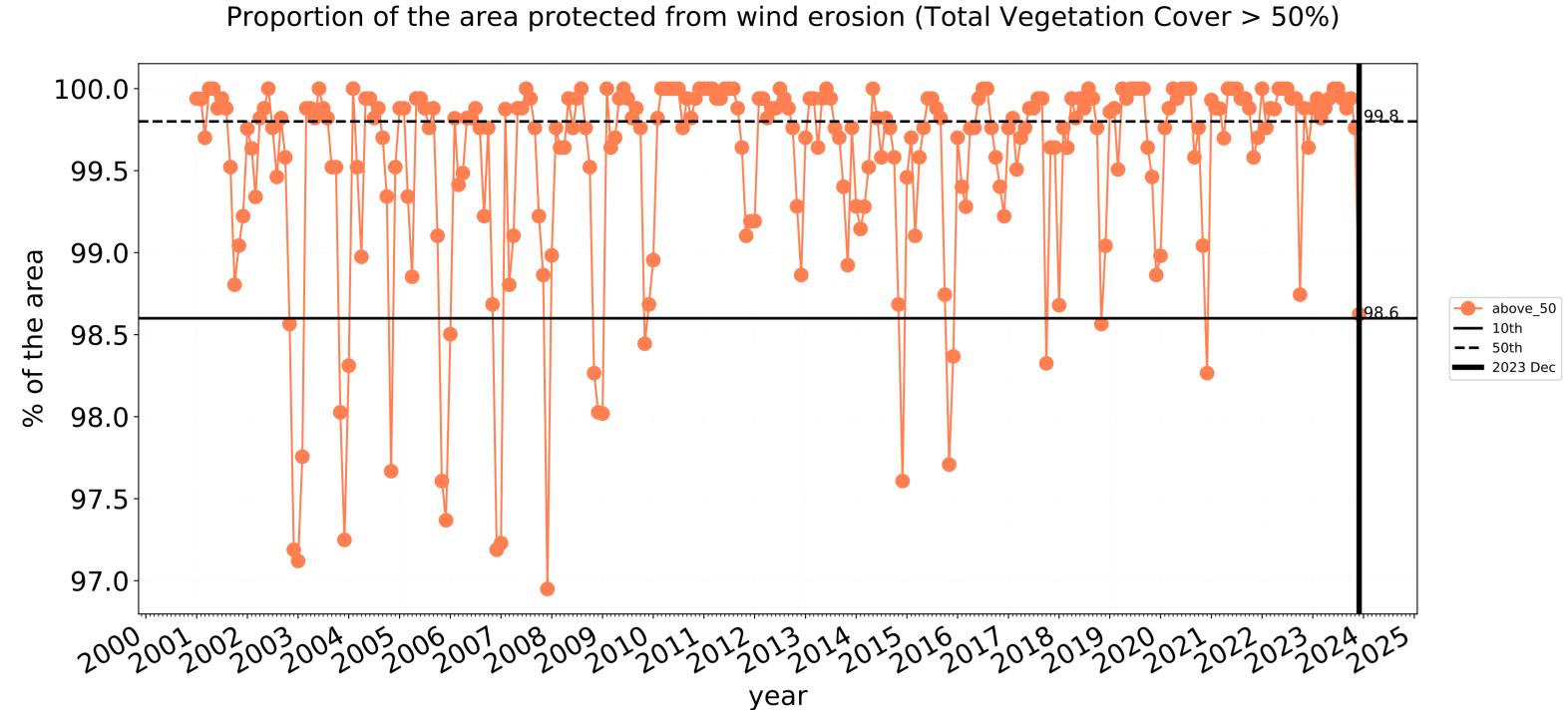


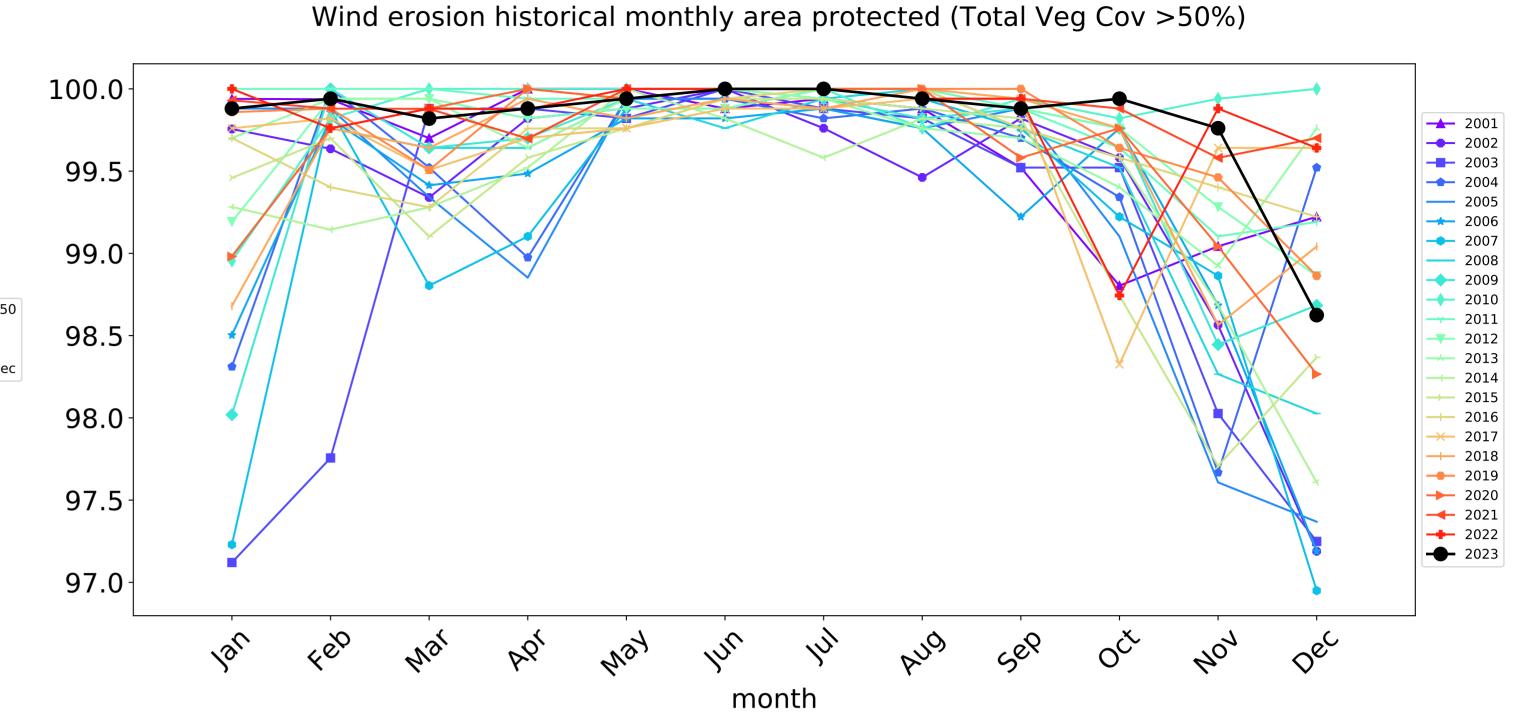


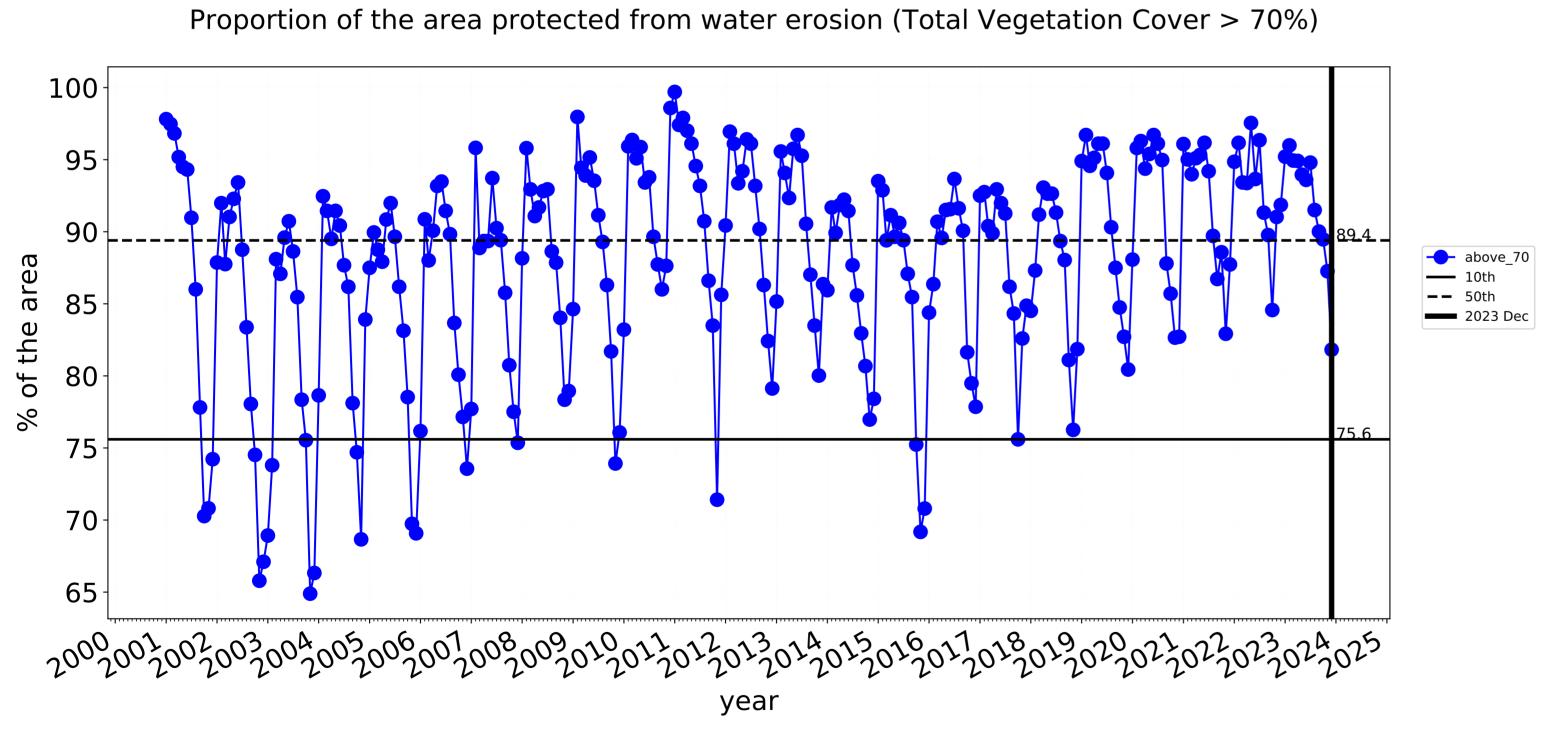


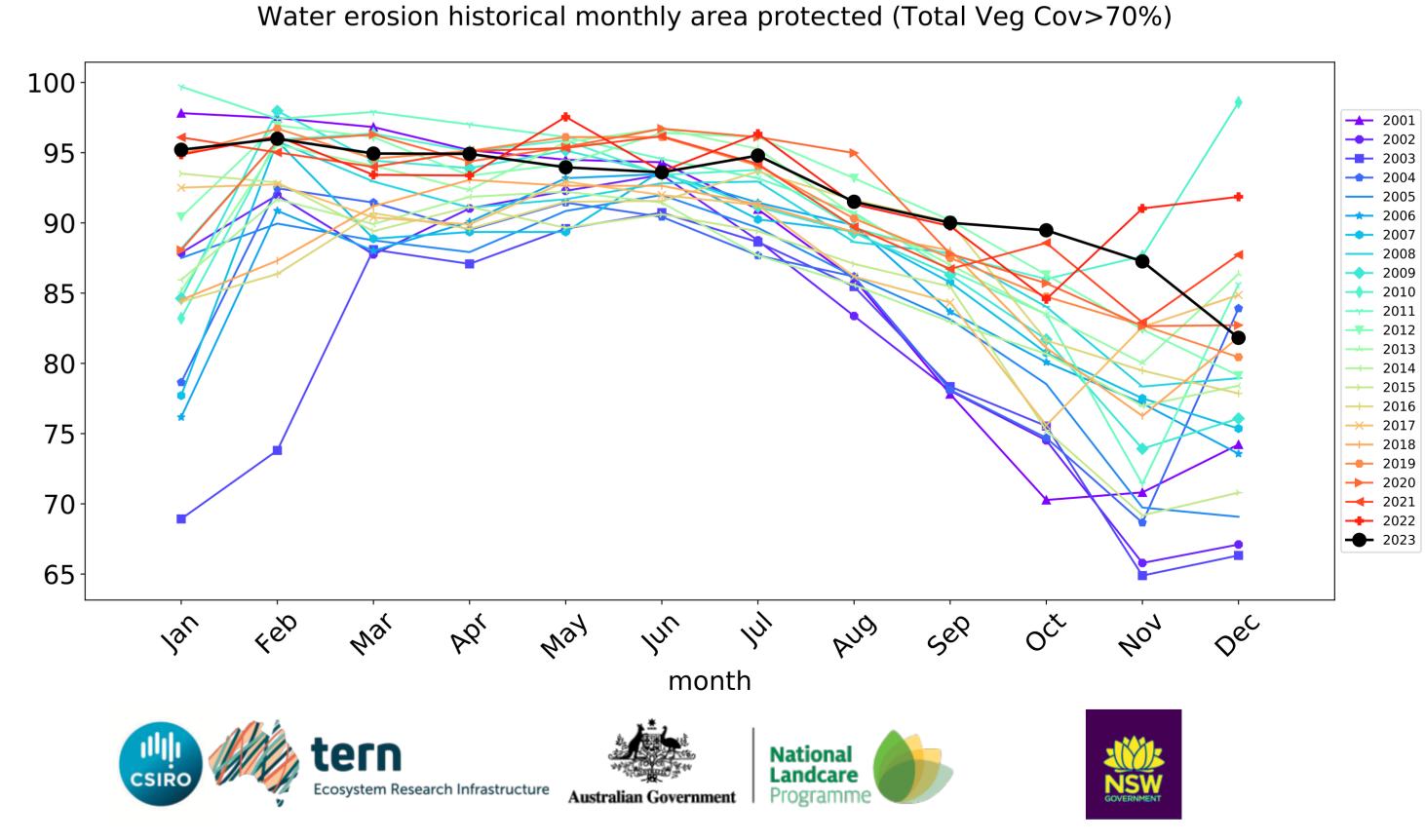


Irrigation timeseries







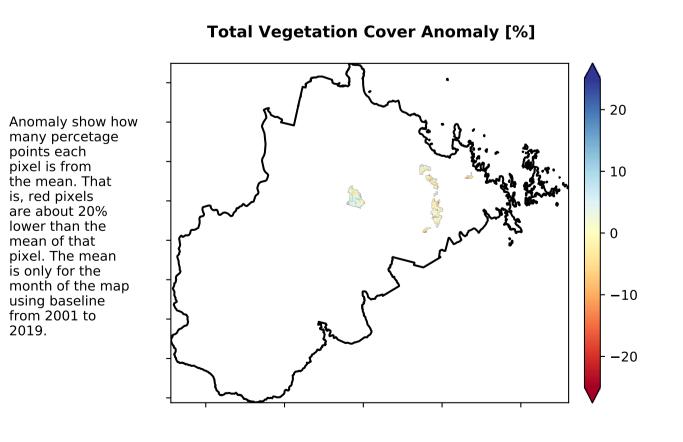


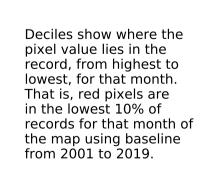
Production native forests and plantation forests

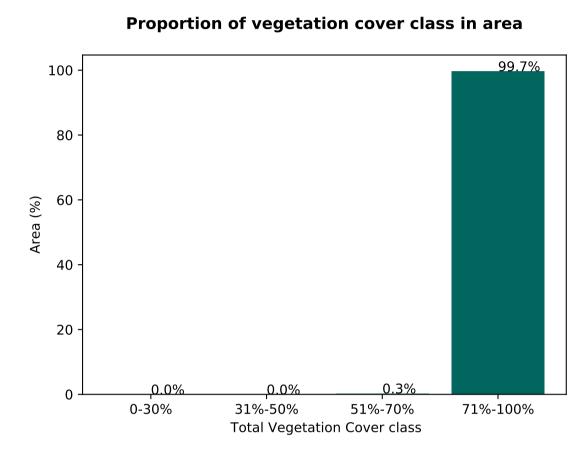
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) Australia (2018) 1 Production native forests and plantation forests of Australia (2018)

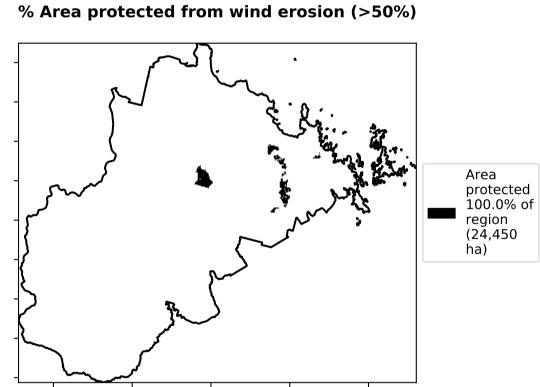
Total Vegetation Cover [%]

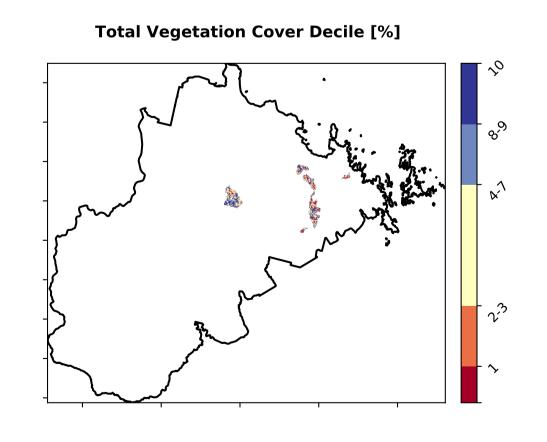
Area not protected 0.3% of region (73 ha) Area protected 99.7% of region (24,377 ha)











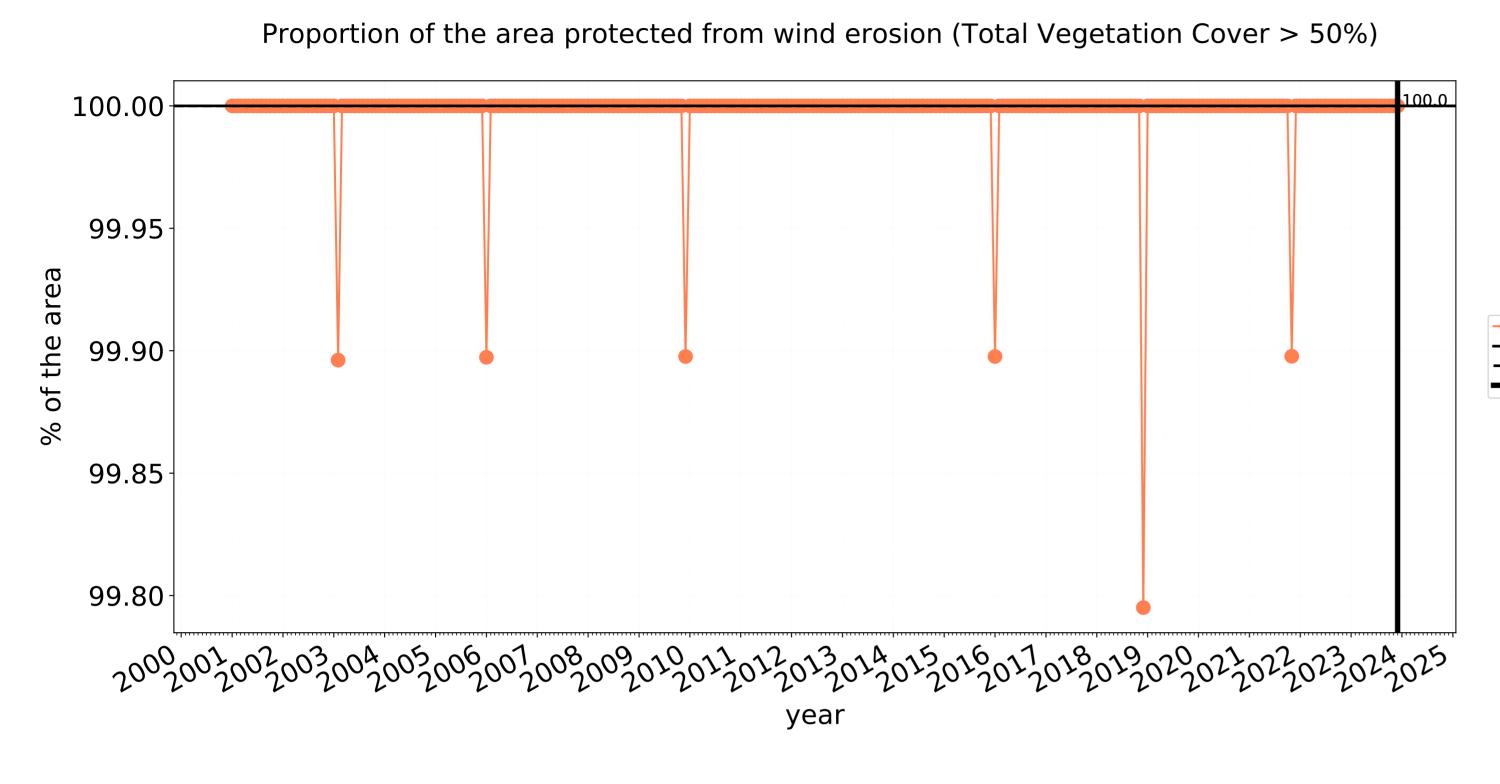


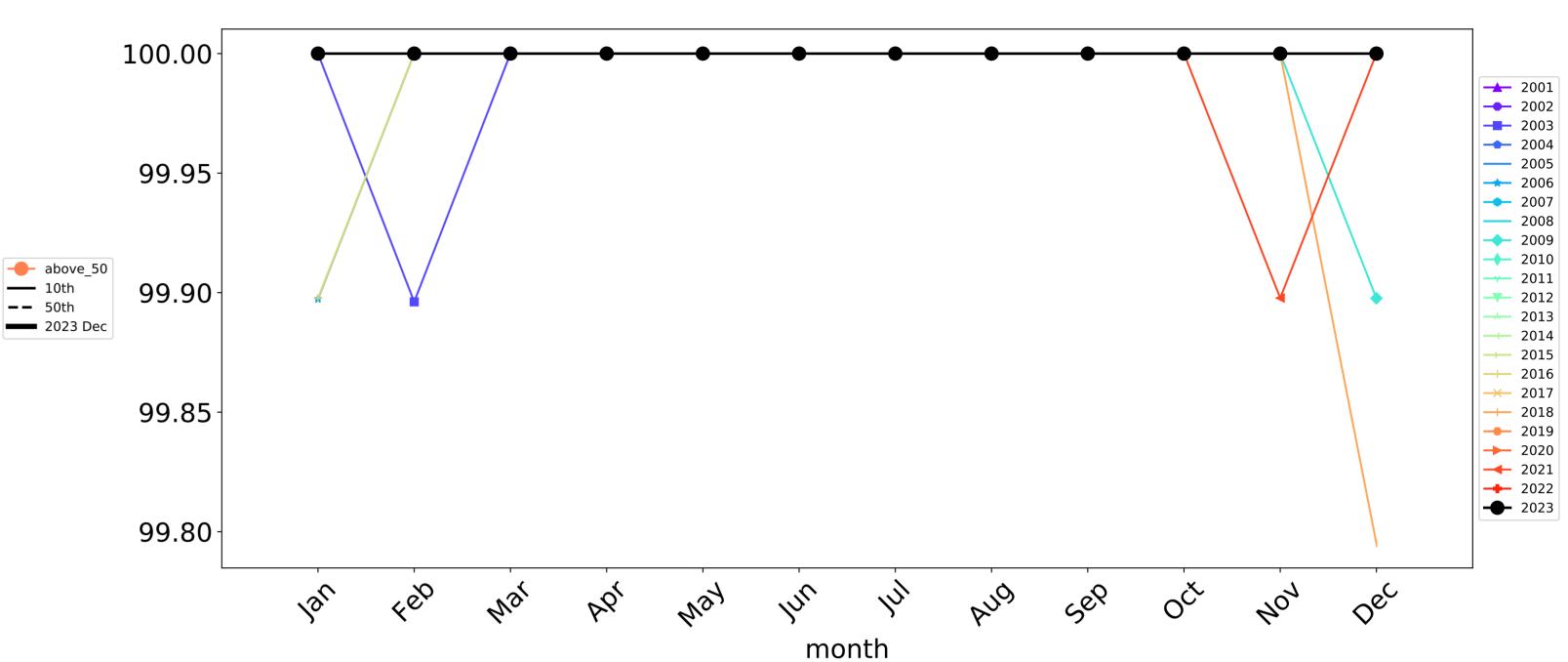




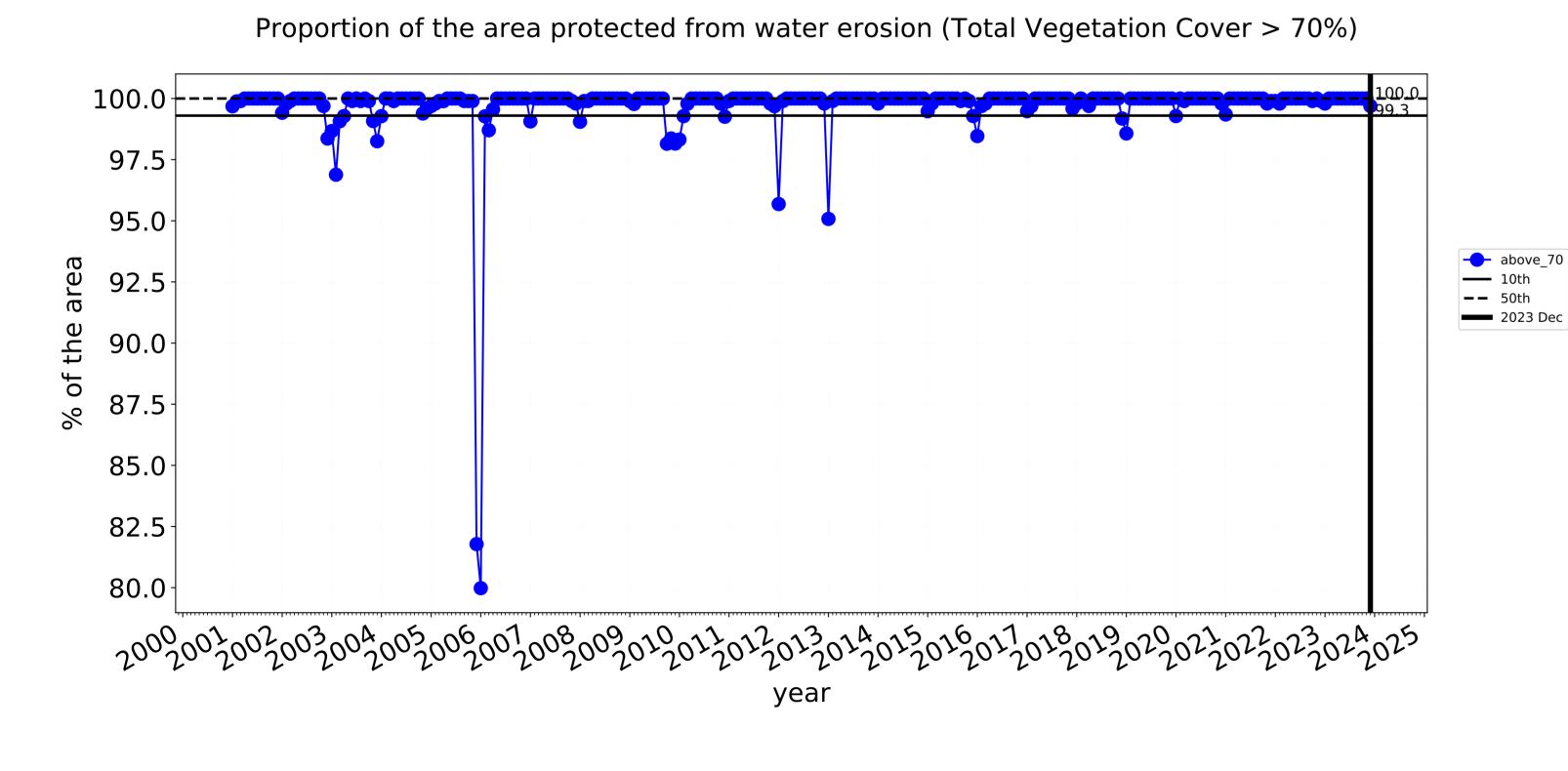


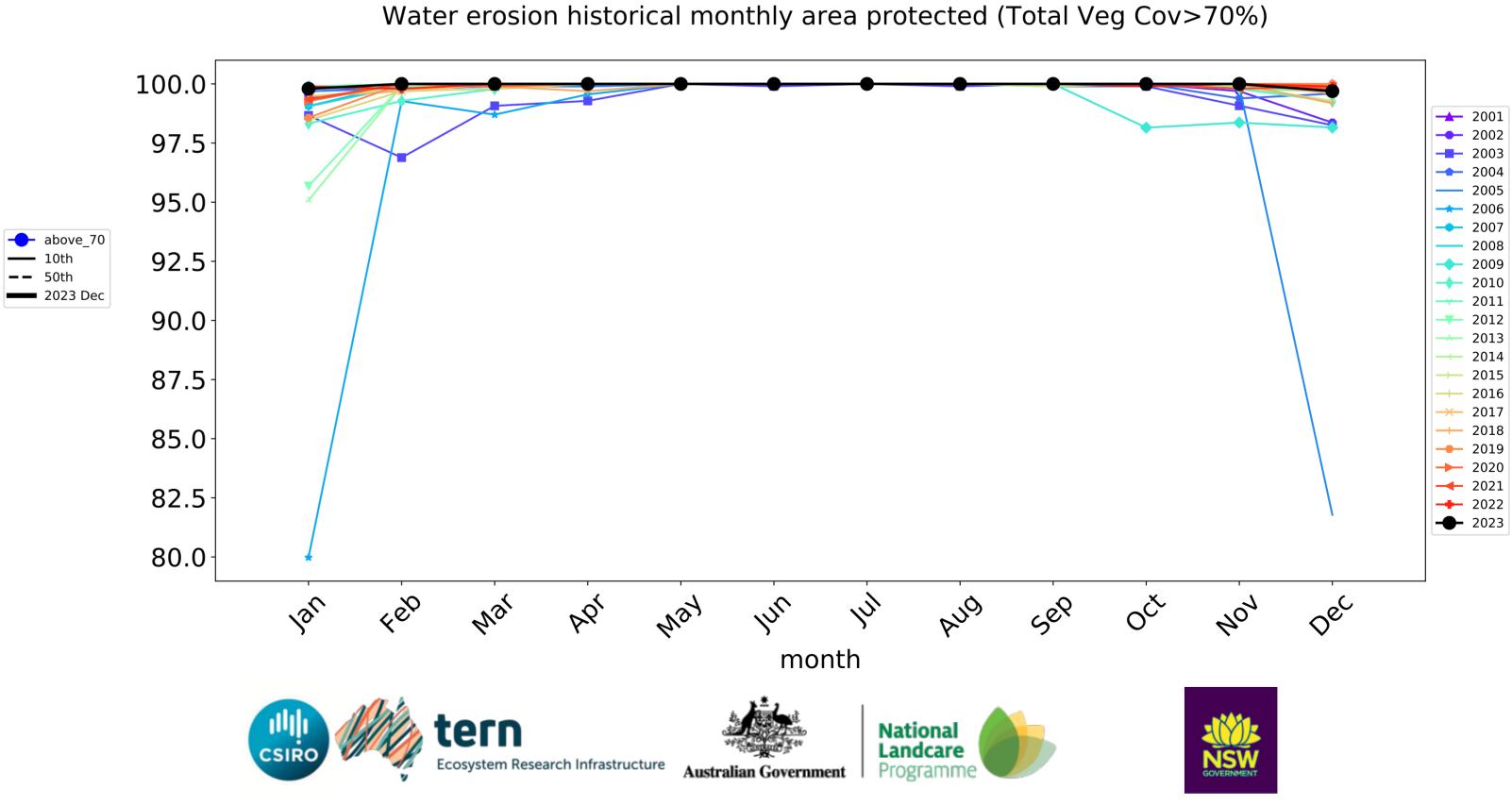
Production native forests and plantation forests timeseries





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





Whitsunday_(R) (2,341,475 ha and no data 40,401 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	2,341,475	100.0% 2,340,350	99.5% 2,330,800	93.4% 2,186,575	79.2% 1,853,925	44.5% 1,040,975	22.3% 521,875
Conservation and natural environments	164,000	99.8% 163,675	99.1% 162,550	95.0% 155,875	85.0% 139,375	55.3% 90,675	30.0% 49,175
Conservation and natural environments non forest	28,275	99.8% 28,225	98.8% 27,925	88.1% 24,900	63.3% 17,900	21.1% 5,975	7.5% 2,125
Conservation and natural environments Woodland forest	56,100	99.7% 55,950	99.1% 55,600	96.1% 53,900	88.1% 49,400	57.9% 32,475	30.1% 16,875
Conservation and natural environments Forest (non woodland)	79,625	99.8% 79,500	99.2% 79,025	96.8% 77,075	90.5% 72,075	65.6% 52,225	37.9% 30,175
Agriculture	2,075,550	100.0% 2,075,450	99.7% 2,068,650	93.6% 1,943,000	79.3% 1,646,200	44.0% 913,175	21.8% 452,275
Grazing	2,033,450	100.0% 2,033,350	99.7% 2,027,125	93.9% 1,908,575	79.8% 1,622,725	44.5% 905,275	22.1% 449,000
Grazing non forest	1,168,950	100.0% 1,168,900	99.5% 1,163,350	90.6% 1,059,425	71.6% 836,400	34.6% 405,025	16.5% 193,450
Grazing Woodland forest	814,025	100.0% 813,975	99.9% 813,375	98.4% 800,775	91.3% 743,575	58.5% 476,375	29.9% 243,600
Grazing - Forest (non woodland)	50,475	100.0% 50,475	99.9% 50,400	95.8% 48,375	84.7% 42,750	47.3% 23,875	23.7% 11,950
Irrigation	41,800	100.0% 41,800	98.6% 41,225	81.8% 34,200	55.9% 23,350	18.8% 7,875	7.8% 3,275
Production native forests and plantation forests	24,450	100.0% 24,450	100.0% 24,450	99.7% 24,375	96.3% 23,550	69.2% 16,925	39.3% 9,600







