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:

Date: April 2023

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 Apr 2023

Land use and forest cover

Catchment Scale

of Australia (2018)

Derived from

Use of Australia

(2018) and Forests

of Australia (2018)

Anomaly show how many percetage points each

pixel is from

mean of that pixel. The mean is only for the

month of the map

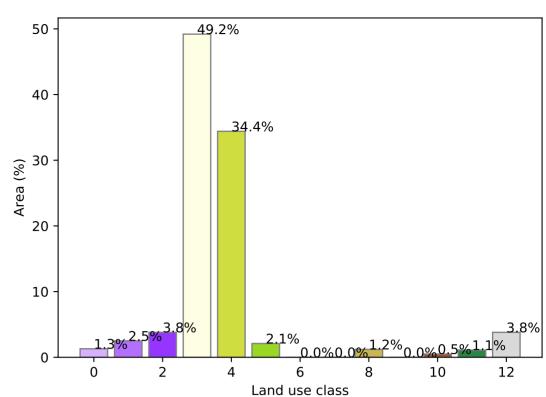
using baseline from 2001 to

2019.

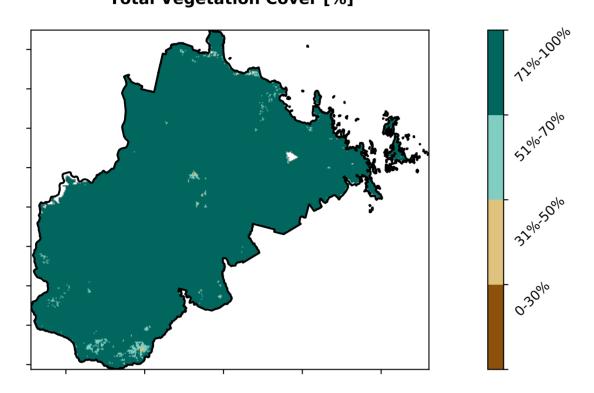
the mean. That is, red pixels are about 20% lower than the

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 -Land Use and Forests Non-Woodland forest 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

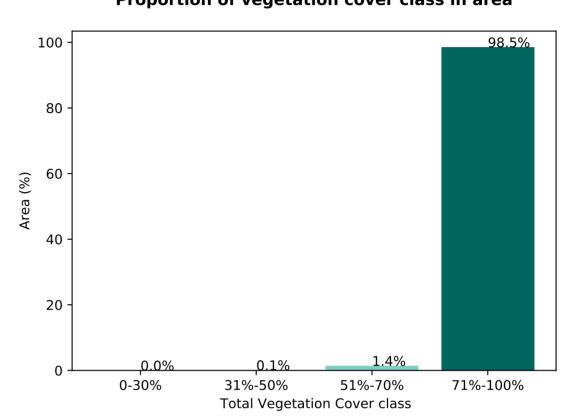
Proportion of each land class in area

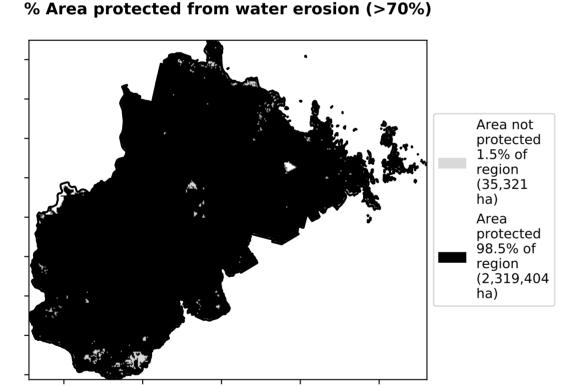


Total Vegetation Cover [%]

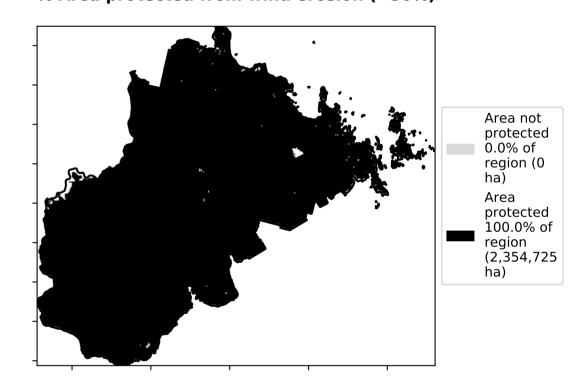


Proportion of vegetation cover class in area

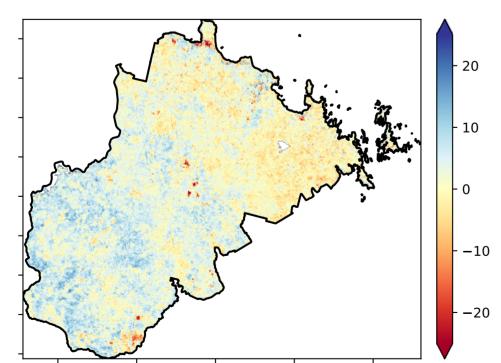




% Area protected from wind erosion (>50%)



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.

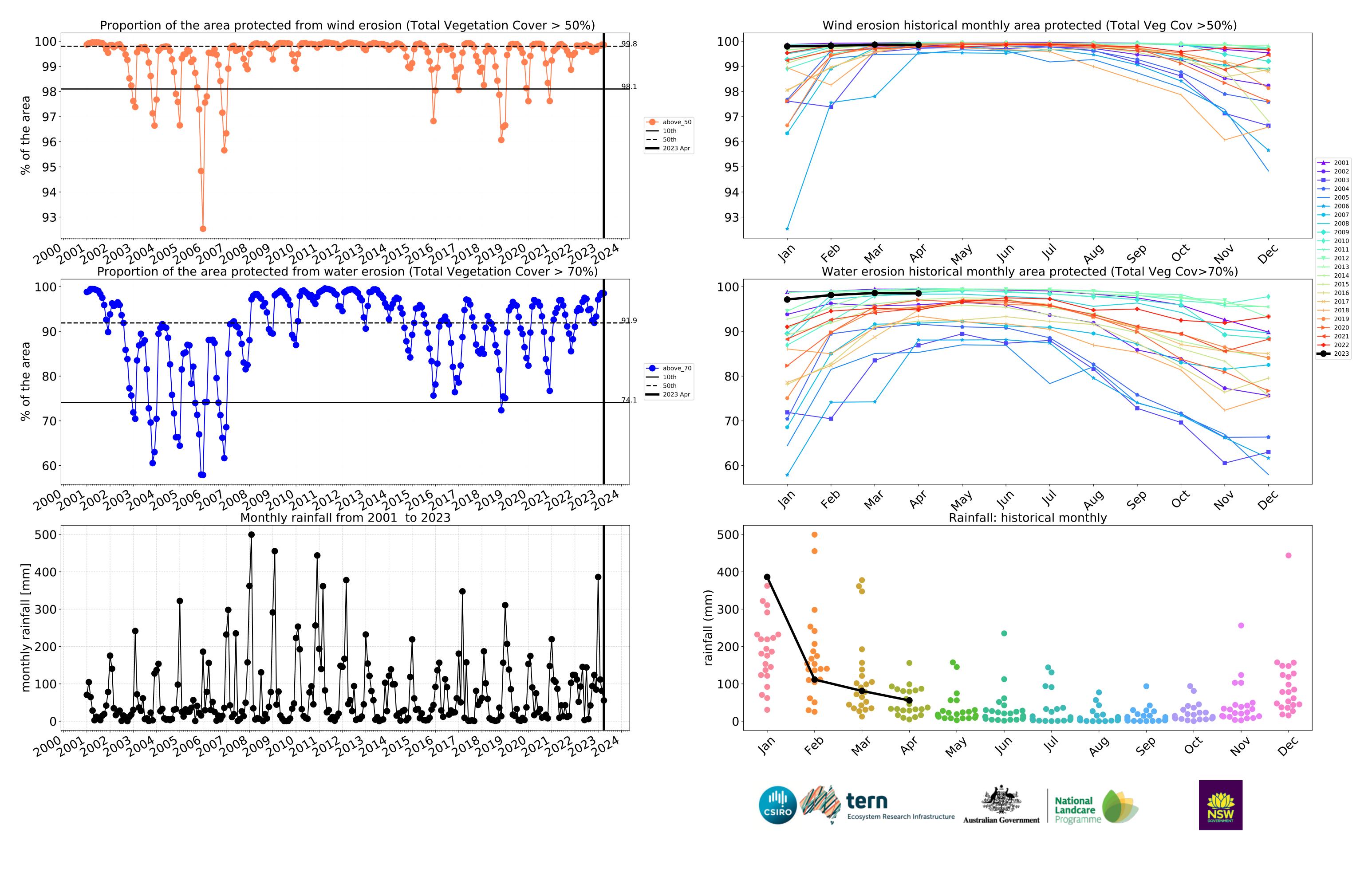
Total Vegetation Cover Decile [%]

Ecosystem Research Infrastructure









Conservation and natural environments

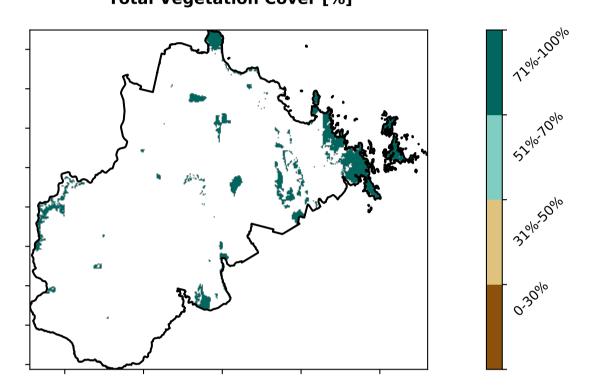
Land use and forest cover Catchment Scale Land Use and Forests ${\bf 1}$ Conservation and natural environments - Nonforest of Australia (2018) Derived from 2 Conservation and natural environments - Woodland Catchment Scale Land Use of Australia 3 Conservation and natural environments - Non-(2018) and Forests of Australia (2018)

50.2% 32.8%

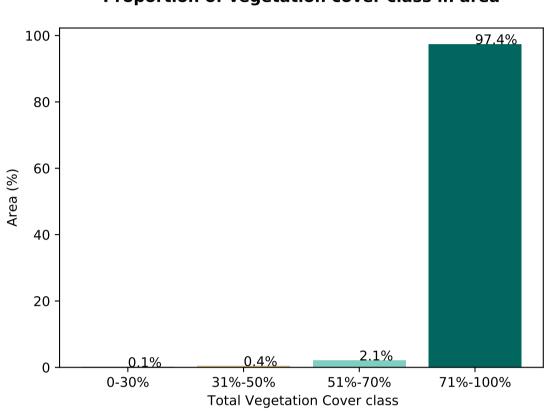
Proportion of each land class in area

50 40 Area (%) 0 20 17.0% 10 0.5 1.0 1.5 2.0 2.5 -0.50.0 Land use class

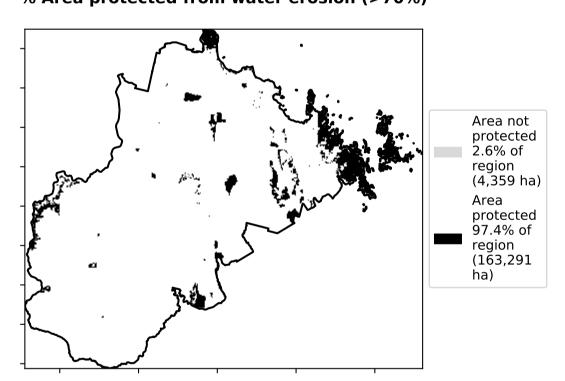
Total Vegetation Cover [%]



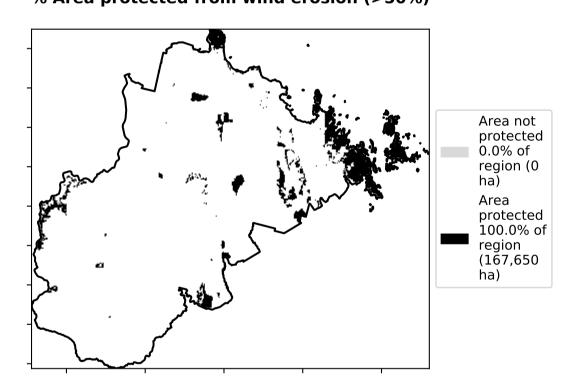
Proportion of vegetation cover class in area



% 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

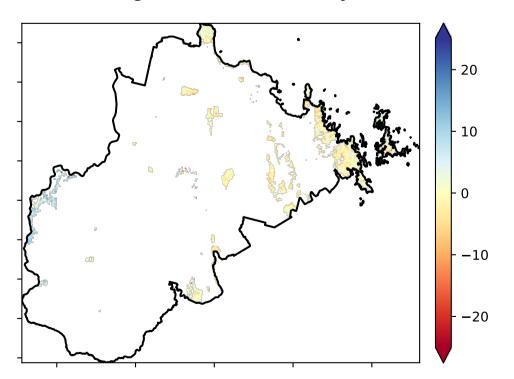
the mean. That is, red pixels

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



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.

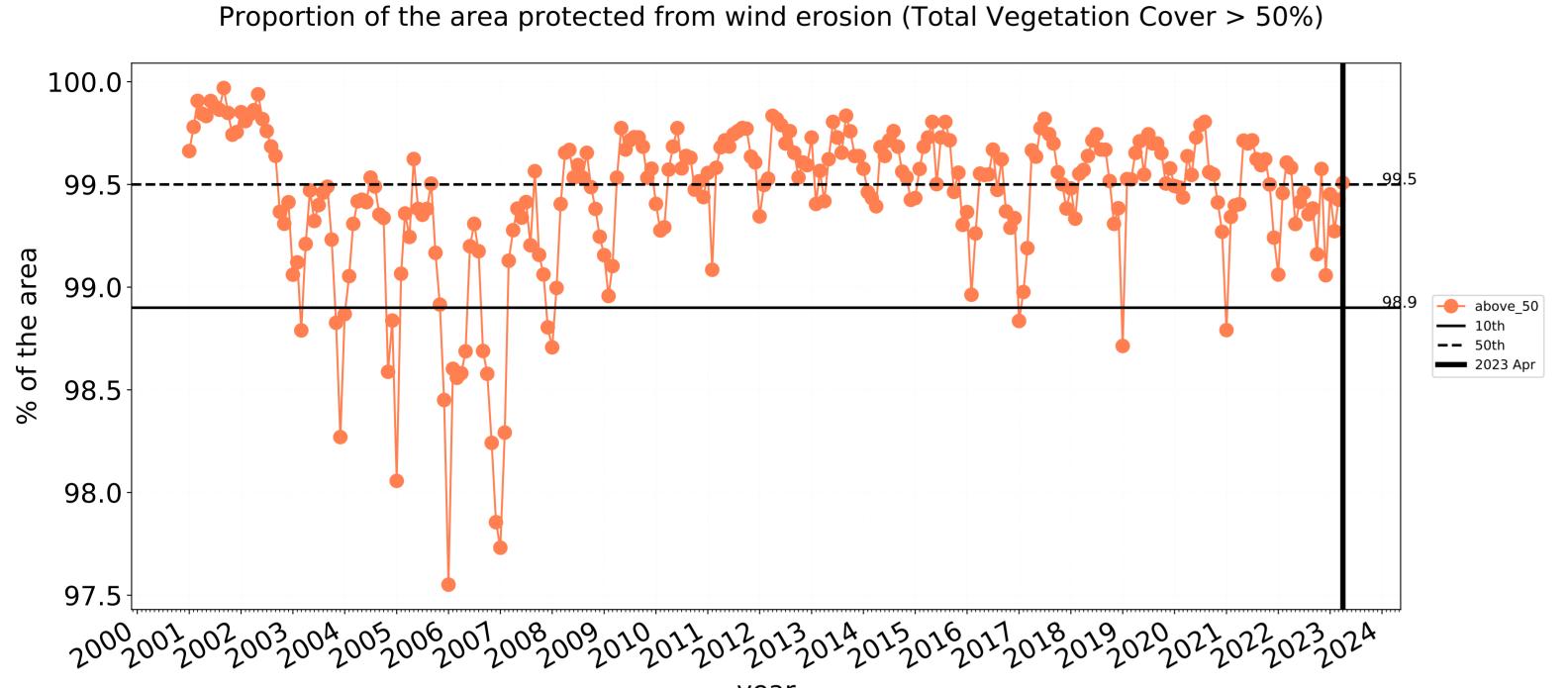




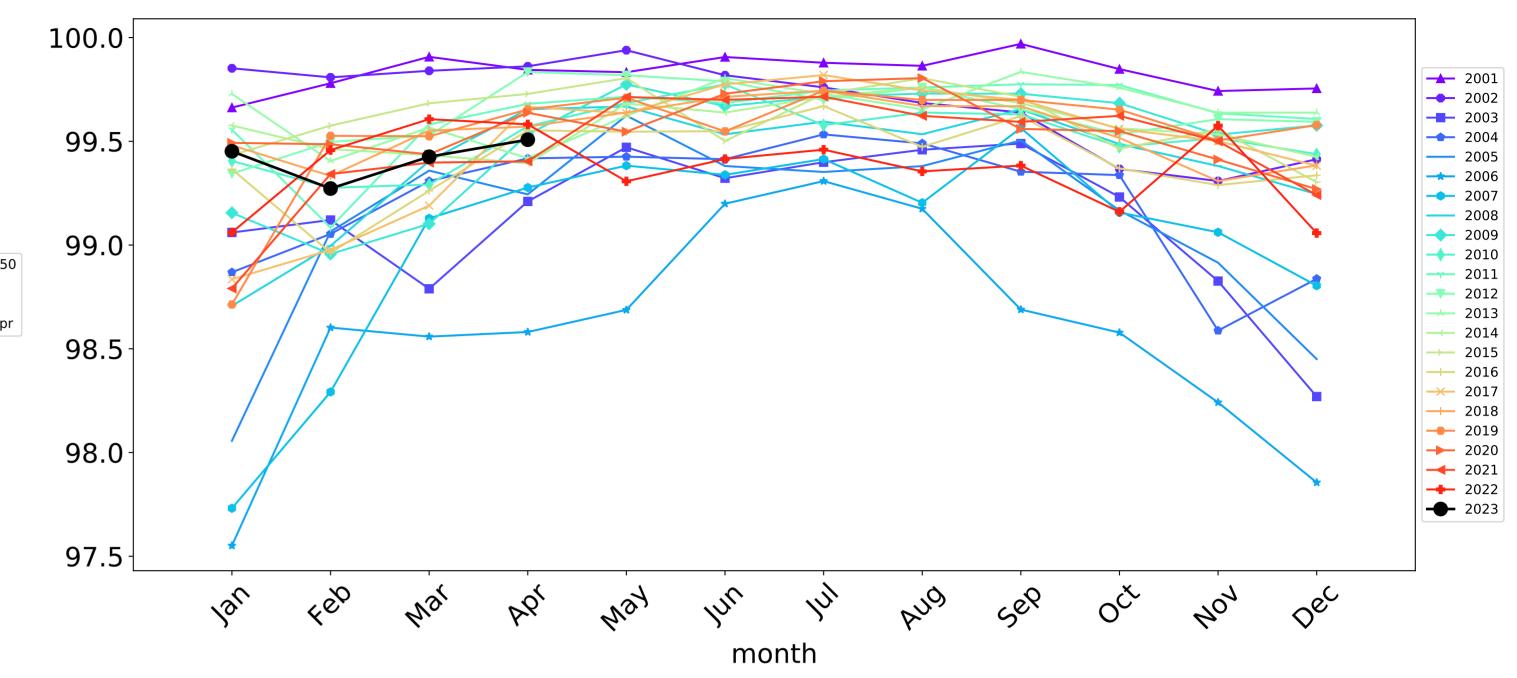


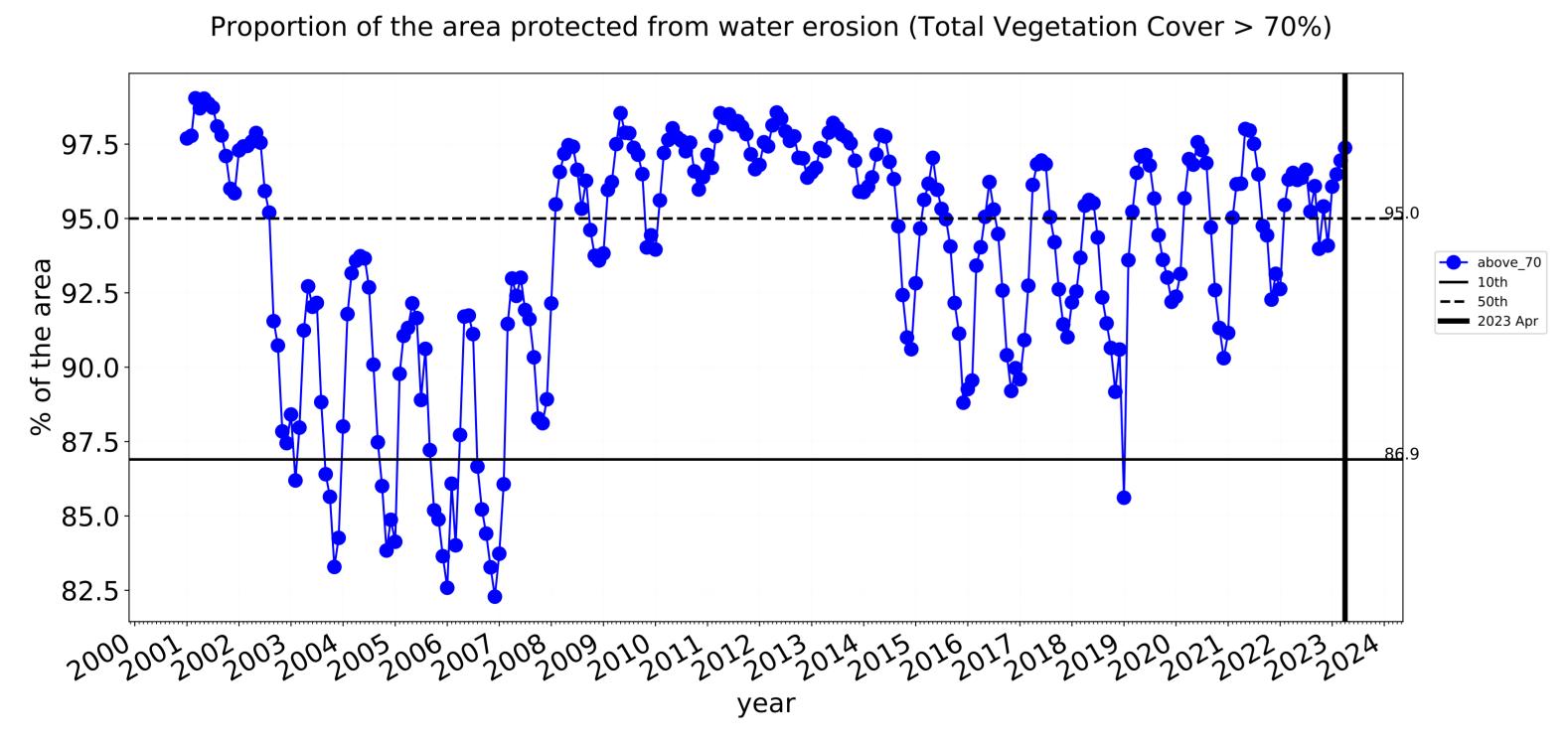


Conservation and natural environments timeseries

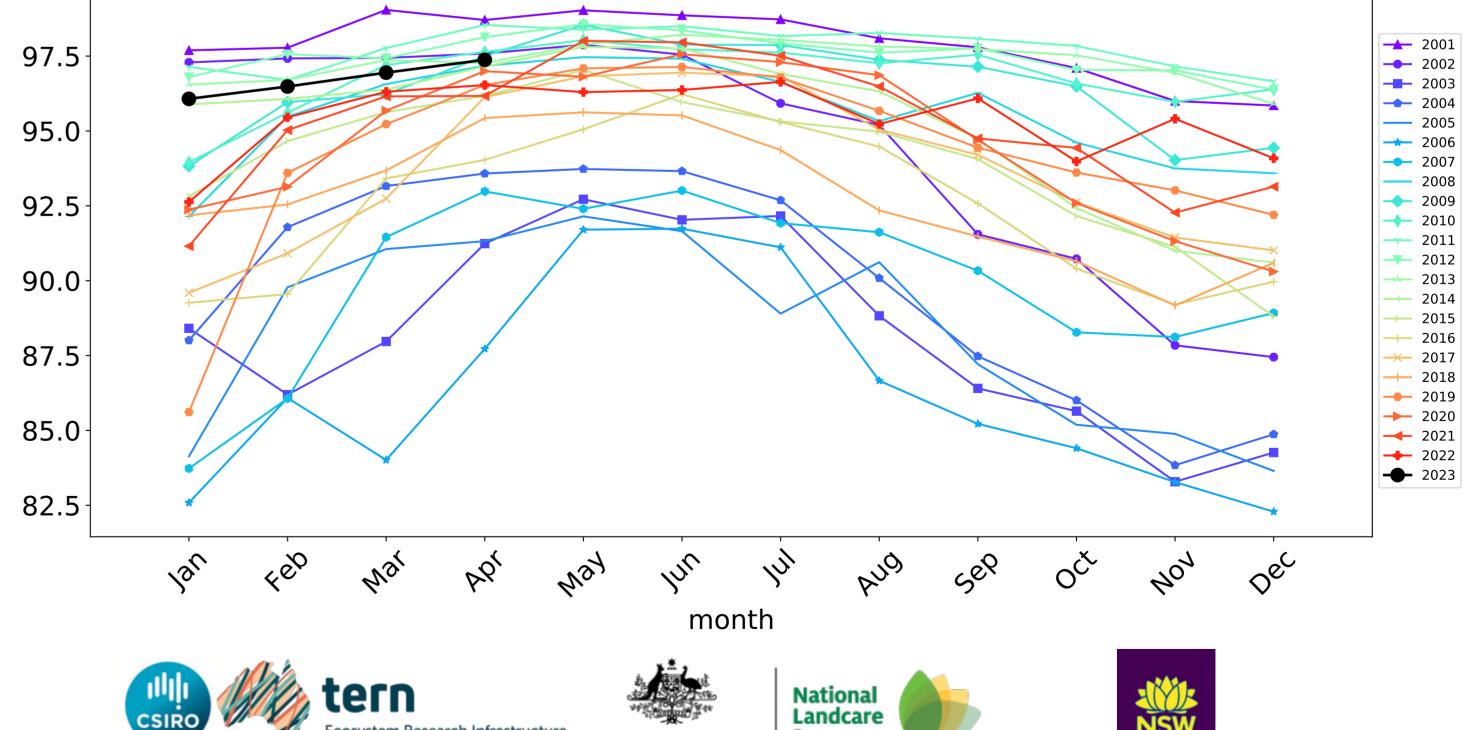


Wind erosion historical monthly area protected (Total Veg Cov >50%)





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









Conservation and natural environments non forest

Land use and forest cover

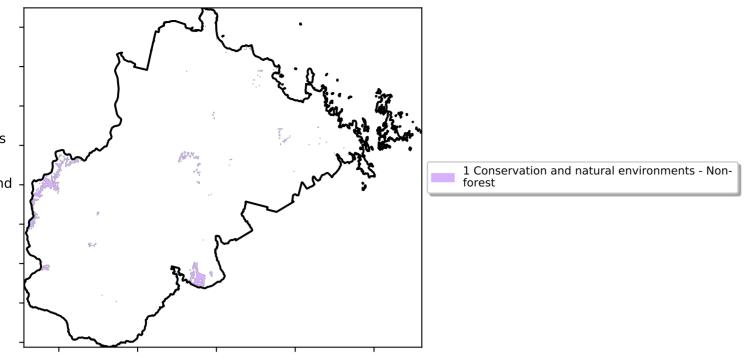


Anomaly show how many percetage points each pixel is from

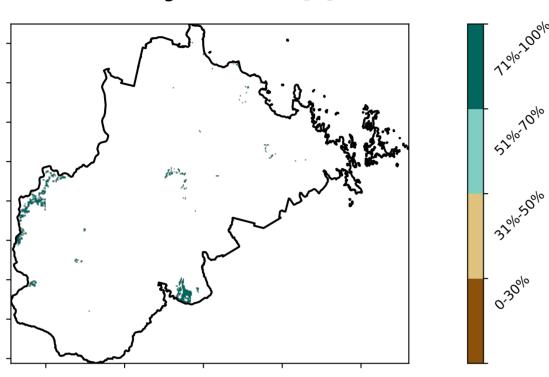
the mean. That

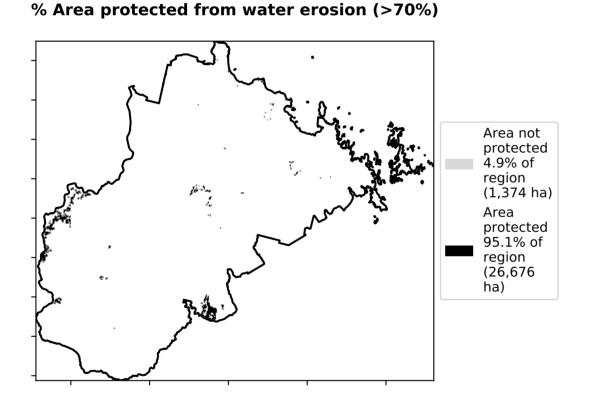
is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map

using baseline from 2001 to 2019.

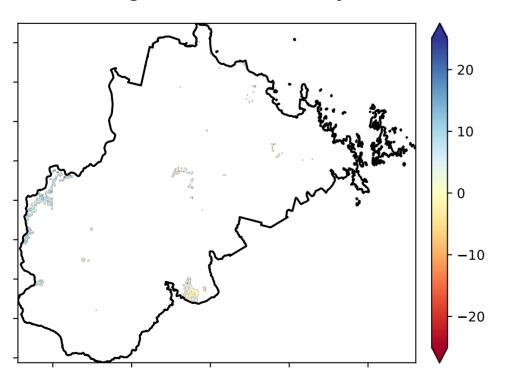


Total Vegetation Cover [%]



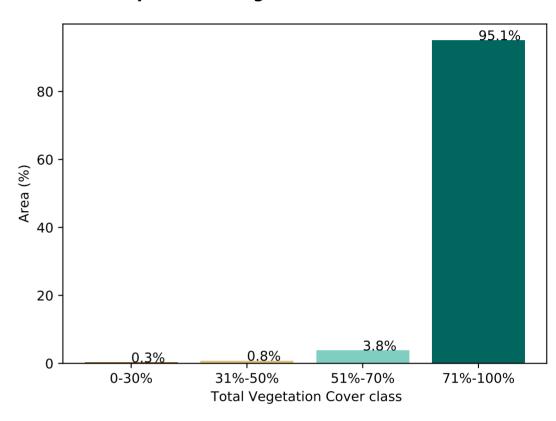


Total Vegetation Cover Anomaly [%]

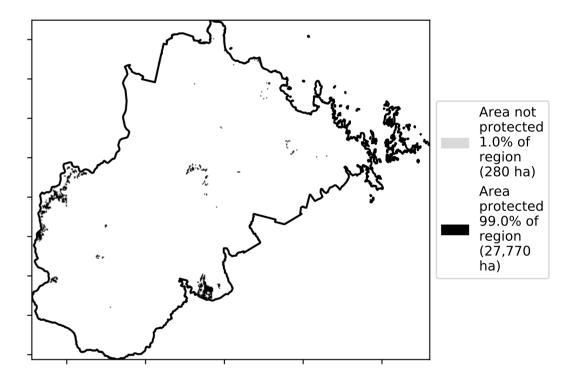


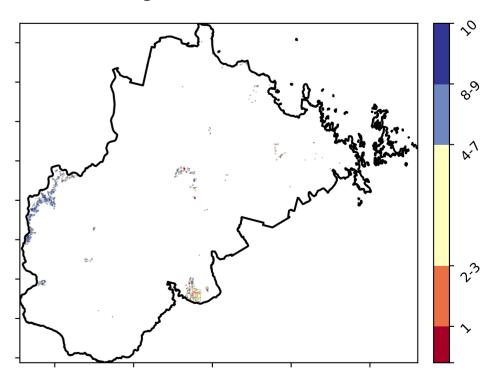
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





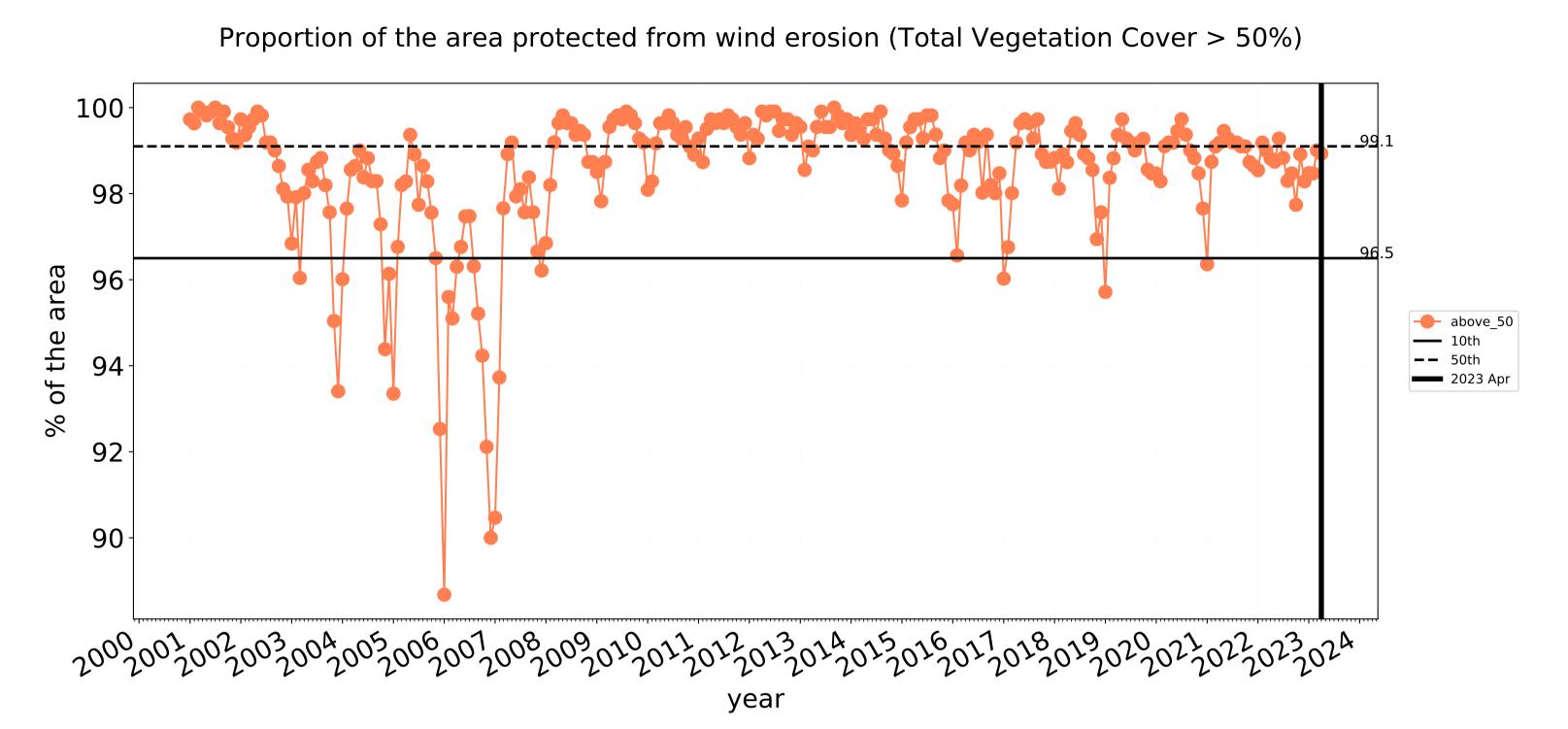


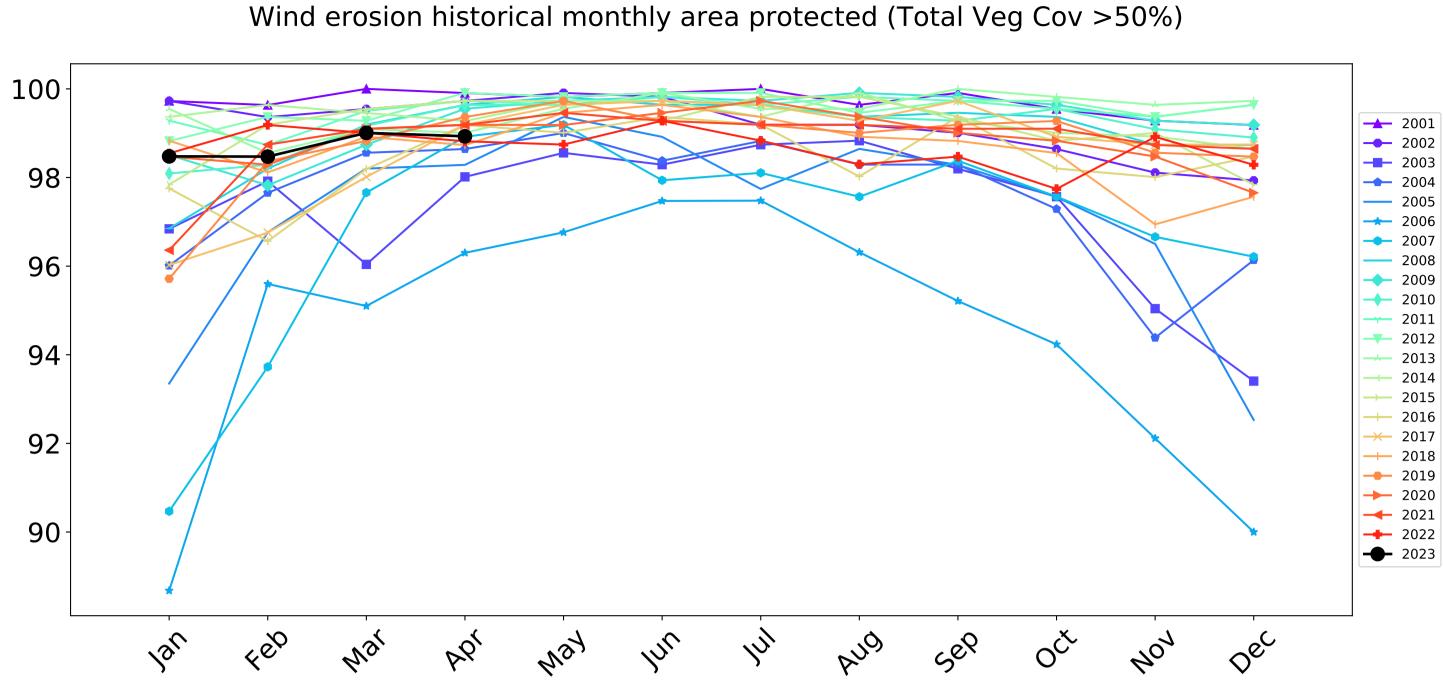




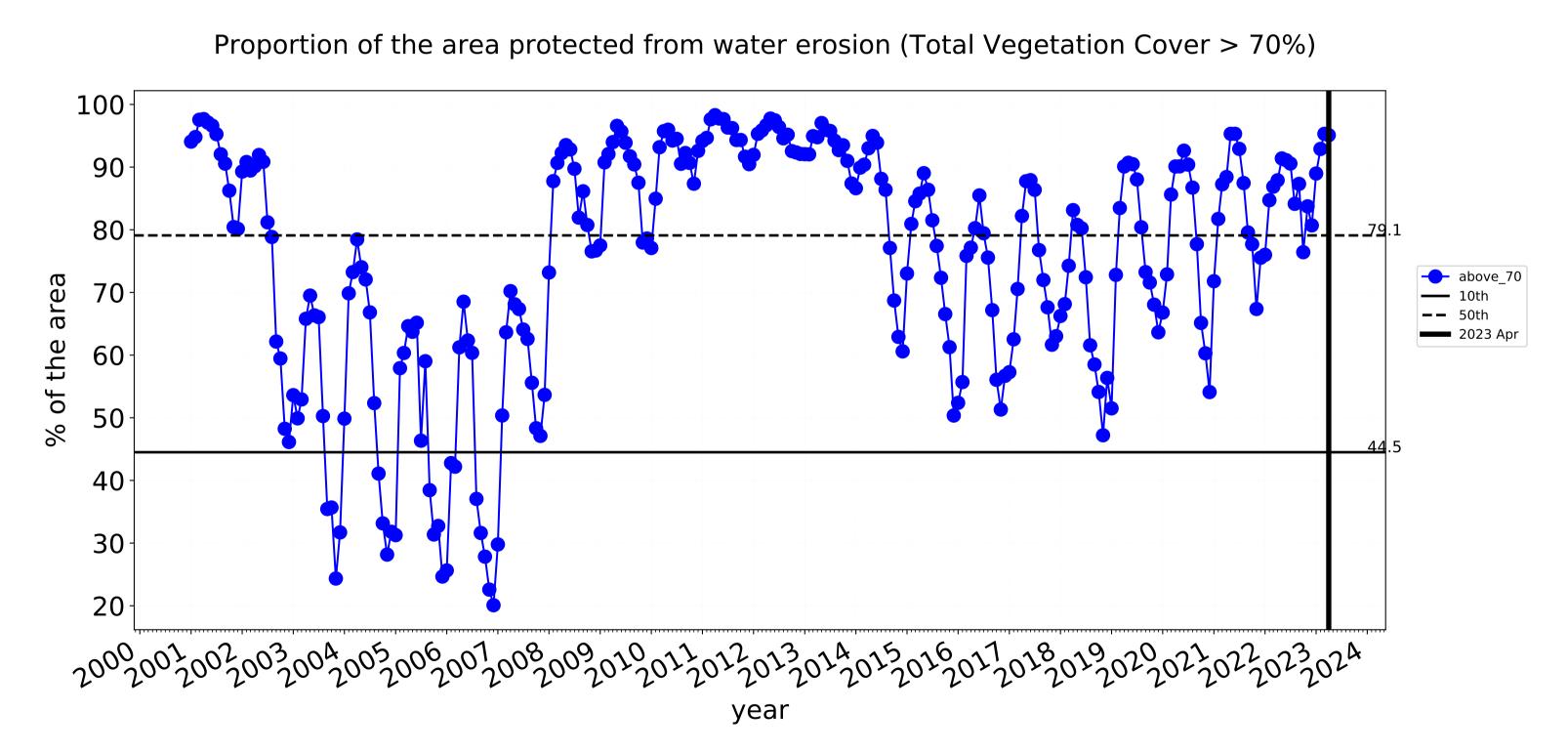


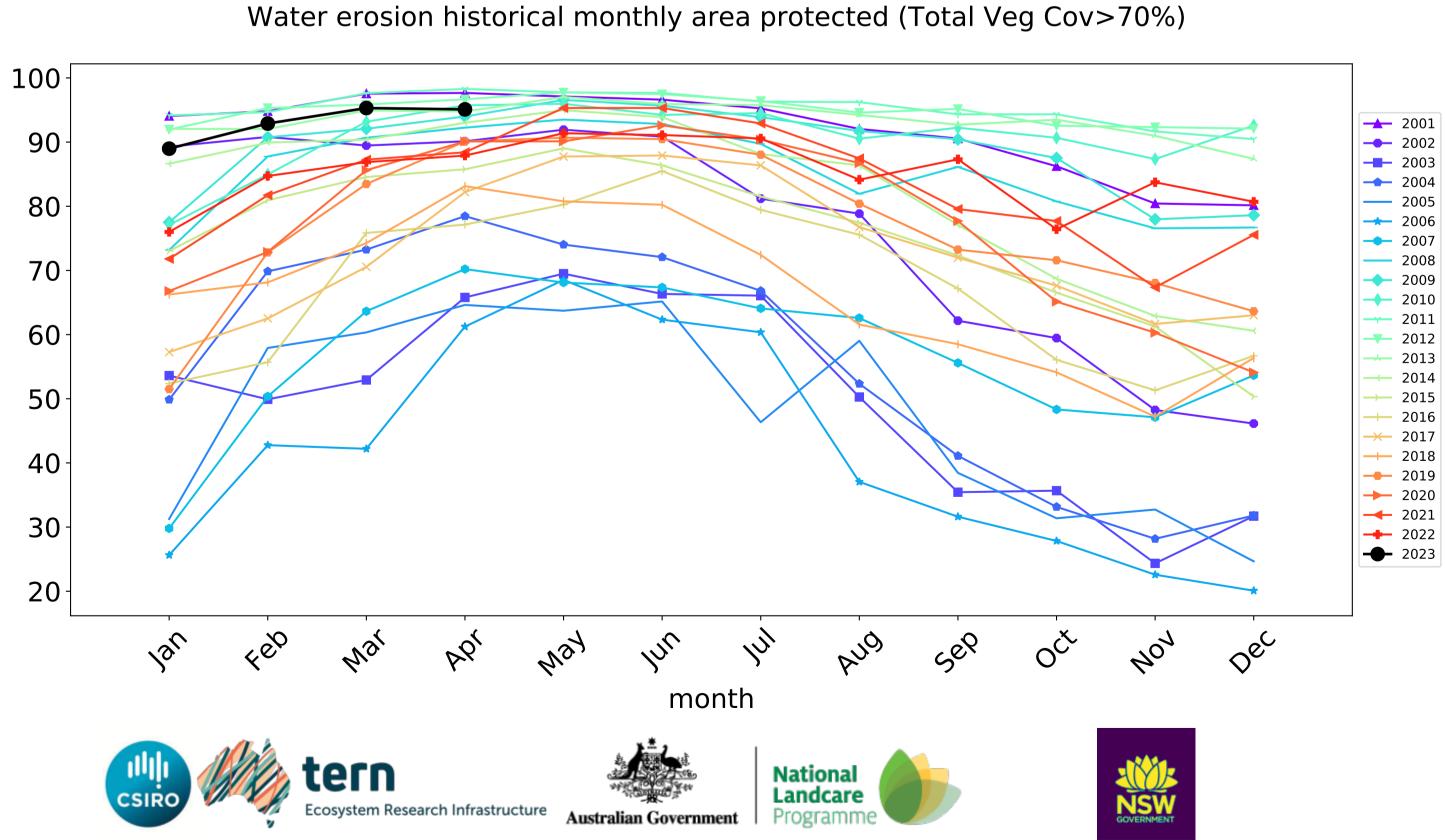
Conservation and natural environments non forest timeseries





month

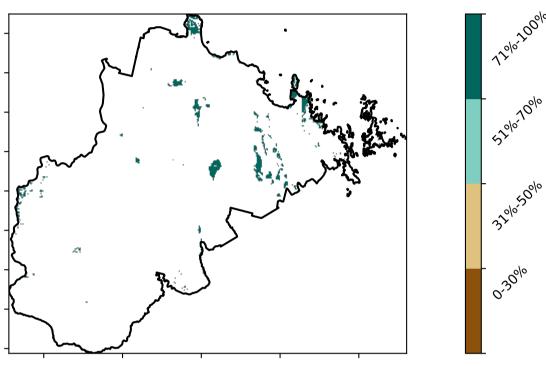




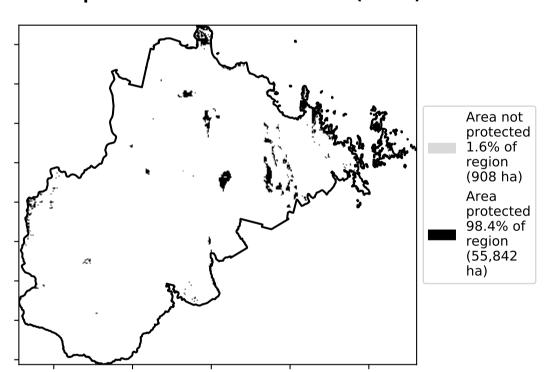
Conservation and natural environments Woodland forest

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

Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



Total Vegetation Cover Anomaly [%]

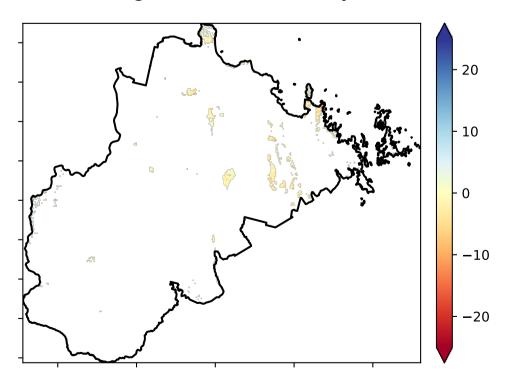
Anomaly show how many percetage points each pixel is from the mean. That

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

pixel. The mean

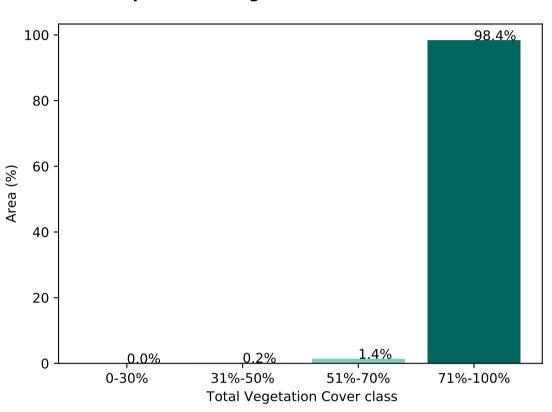
using baseline from 2001 to 2019.

is only for the month of the map

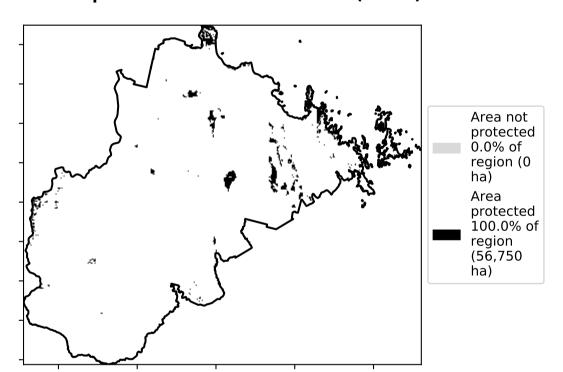


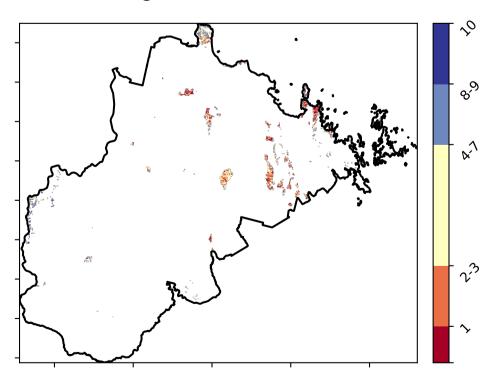
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





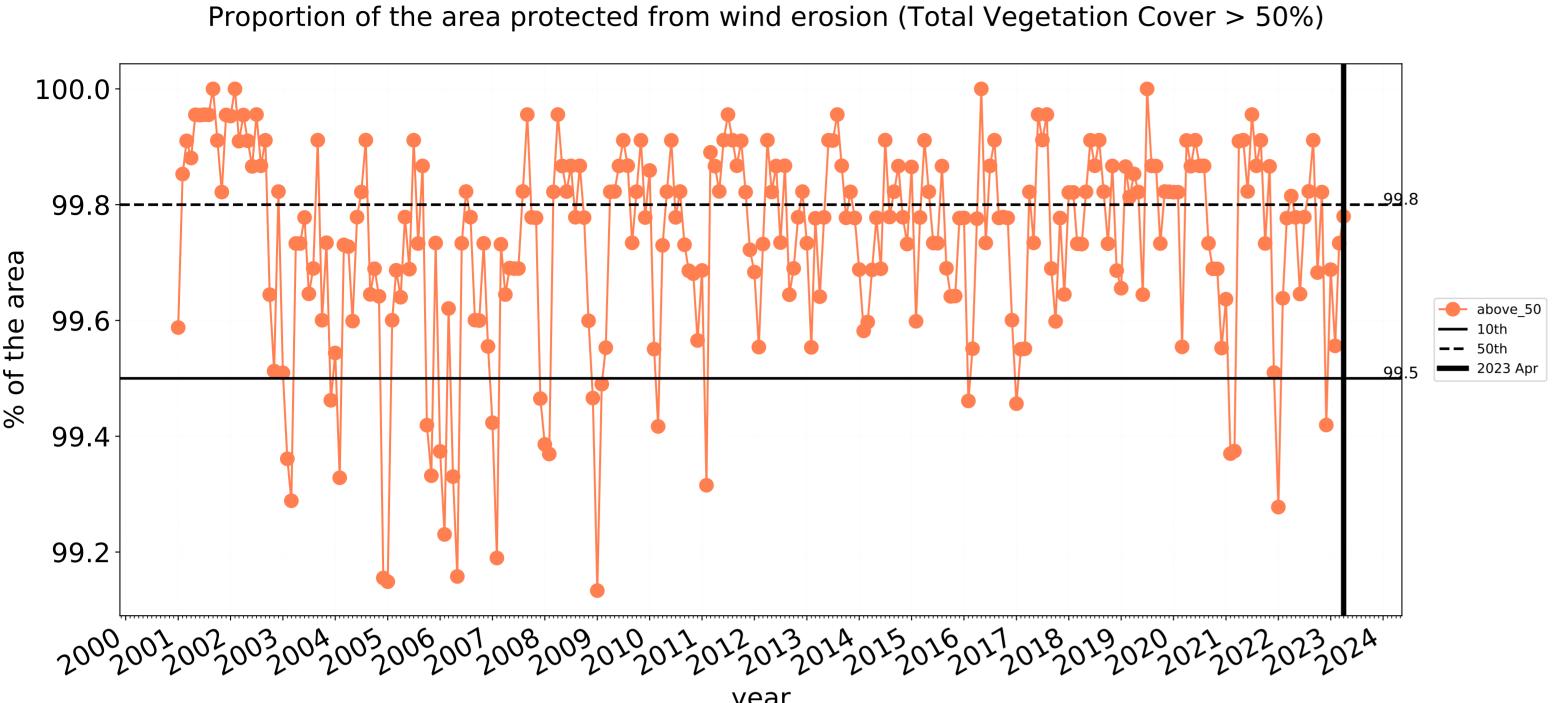


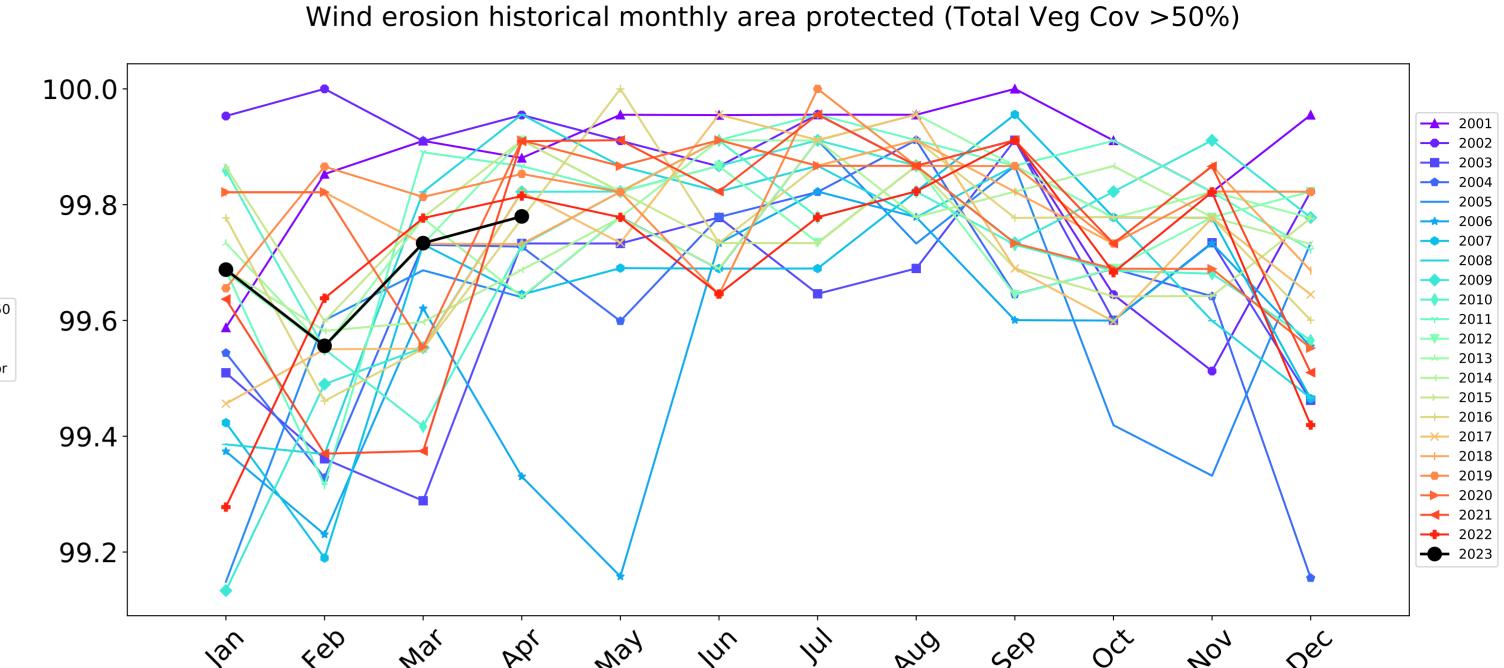




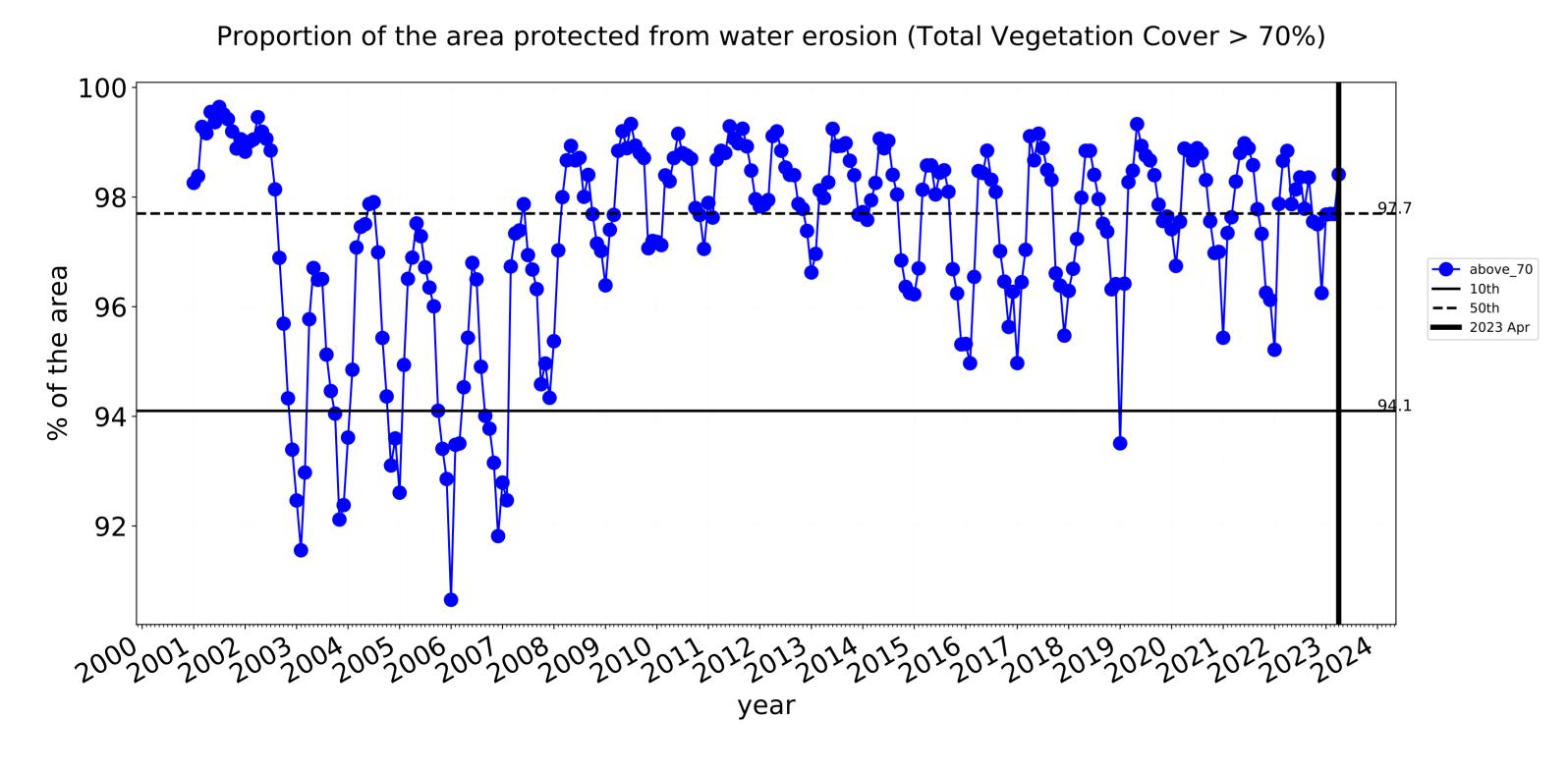


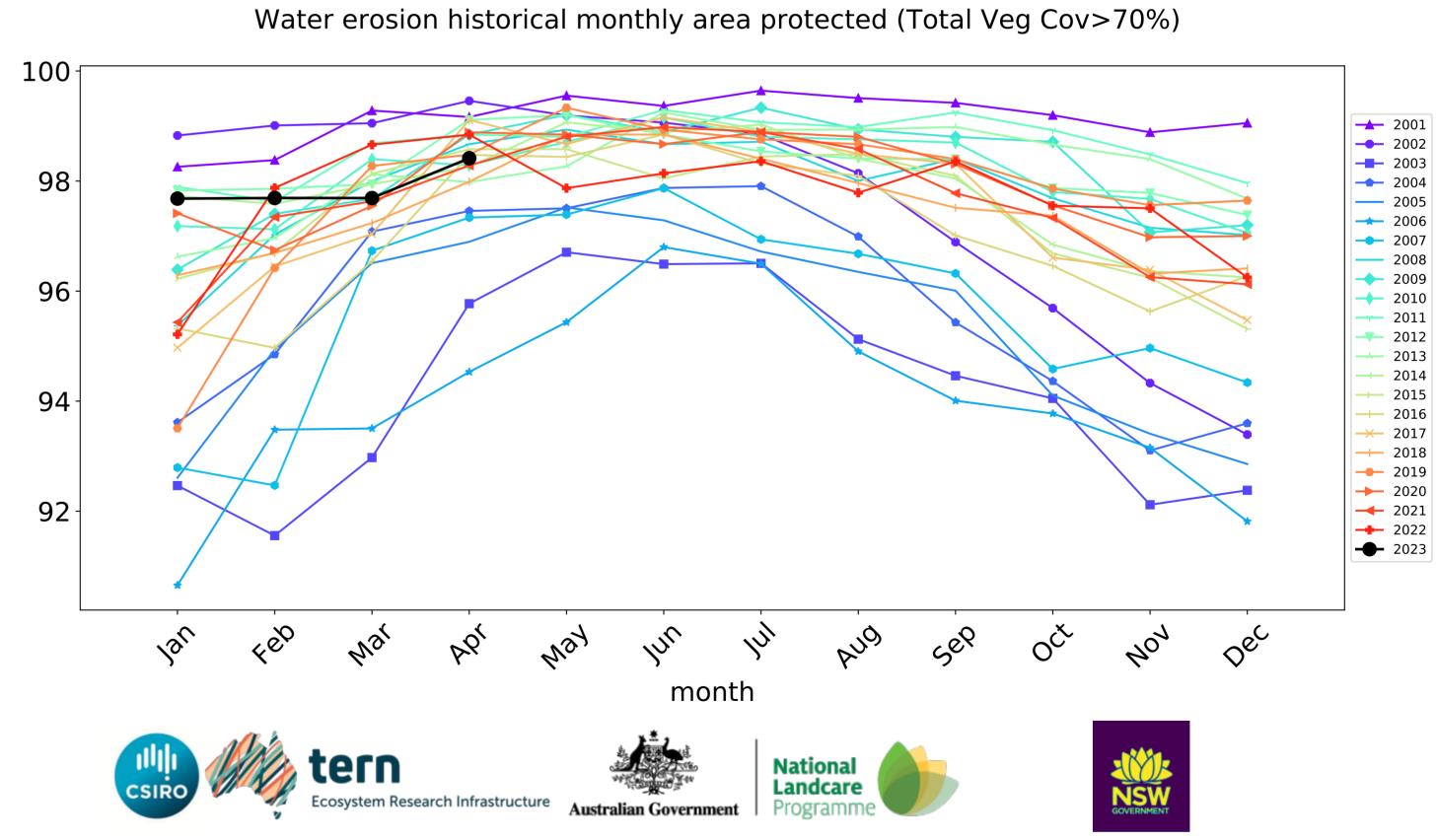
Conservation and natural environments Woodland forest timeseries





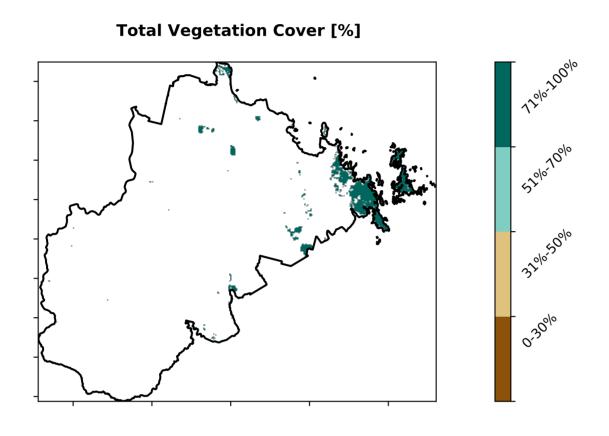
month

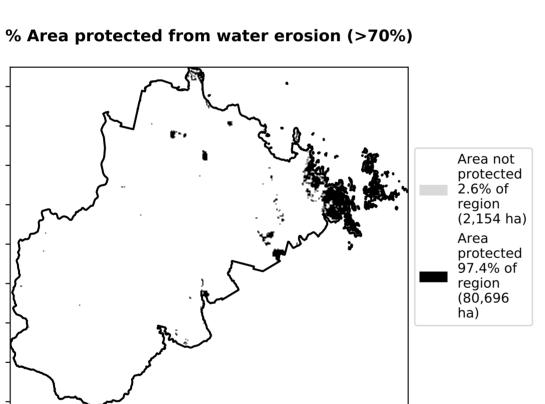


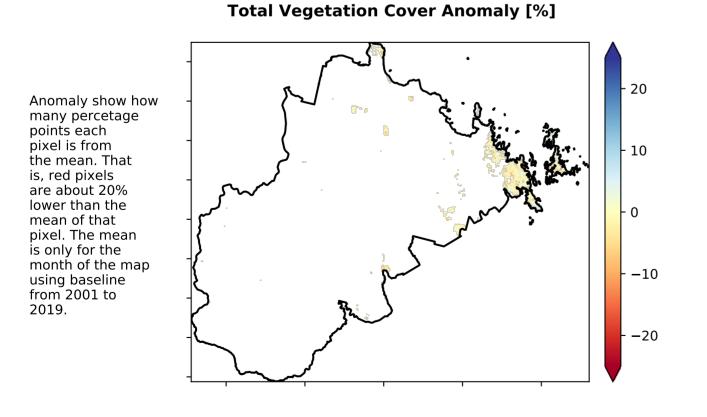


Conservation and natural environments Forest (non woodland)

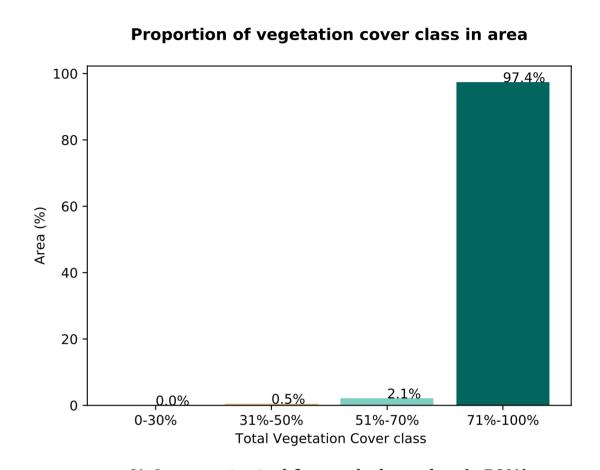
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

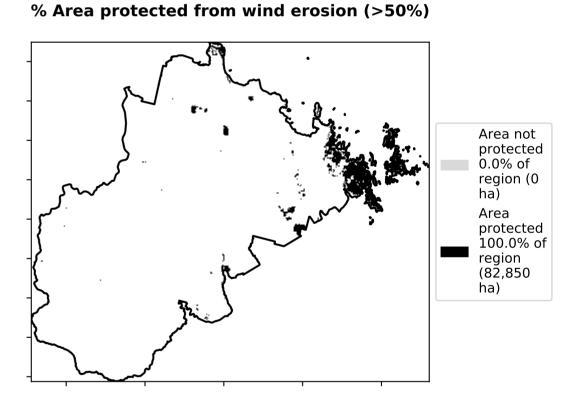


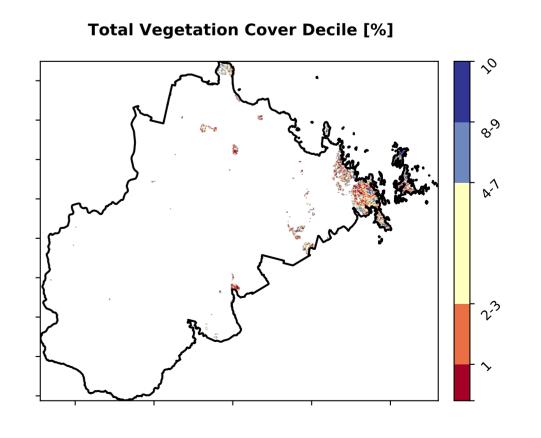




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.





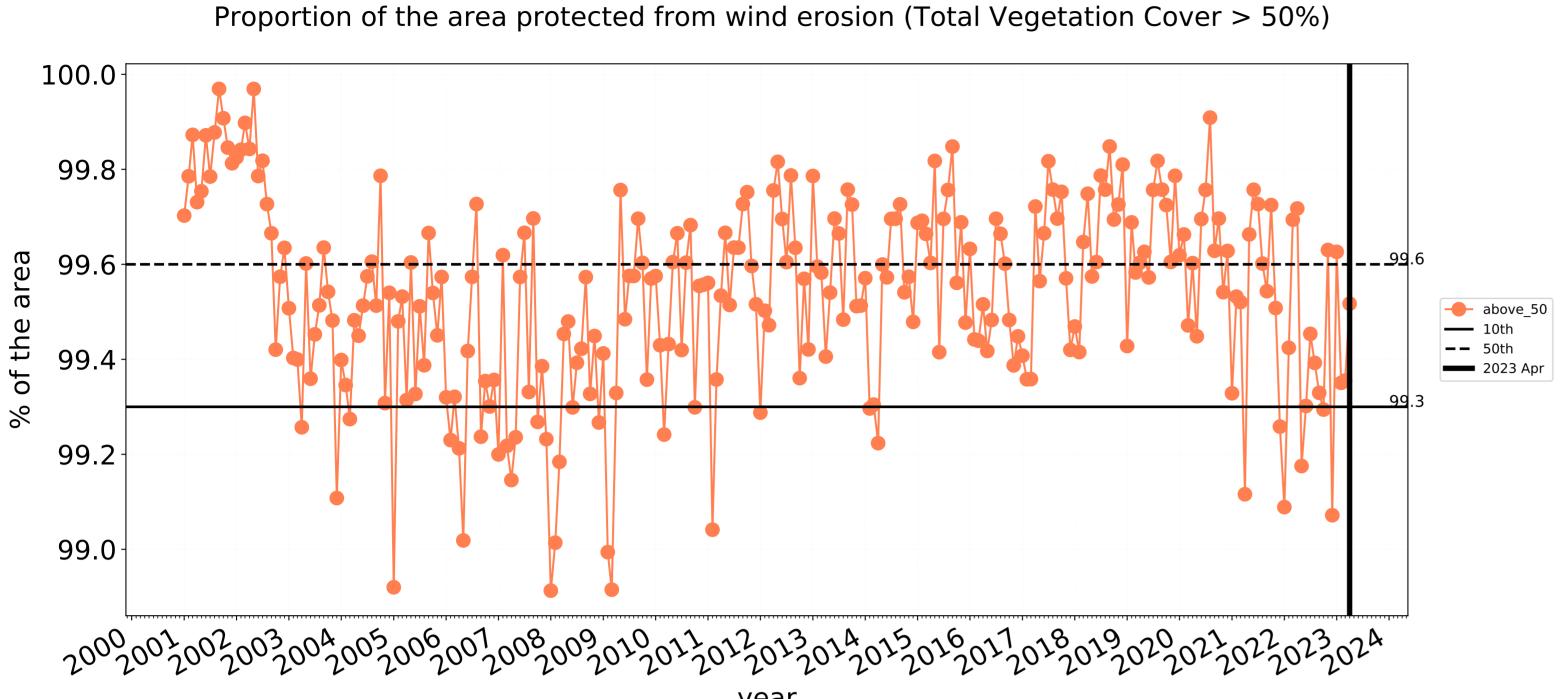


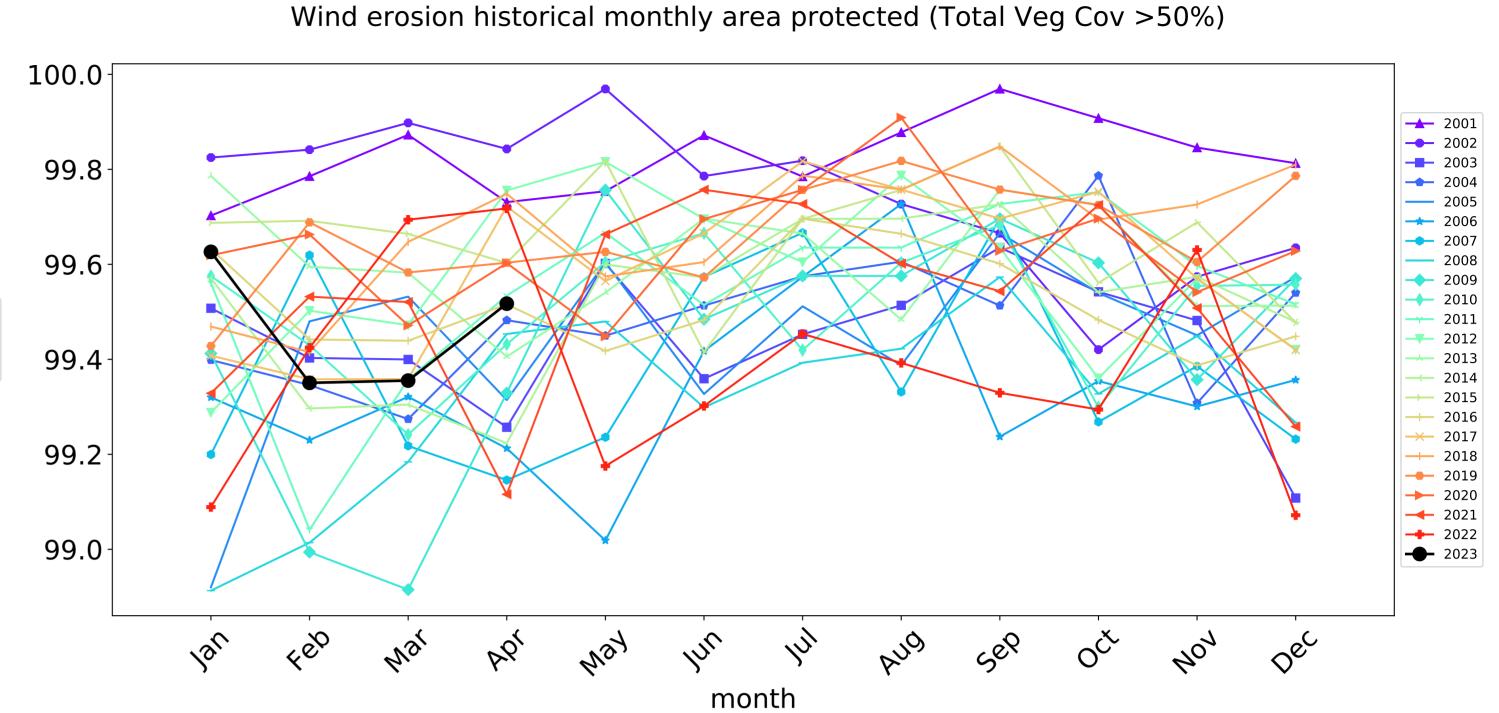


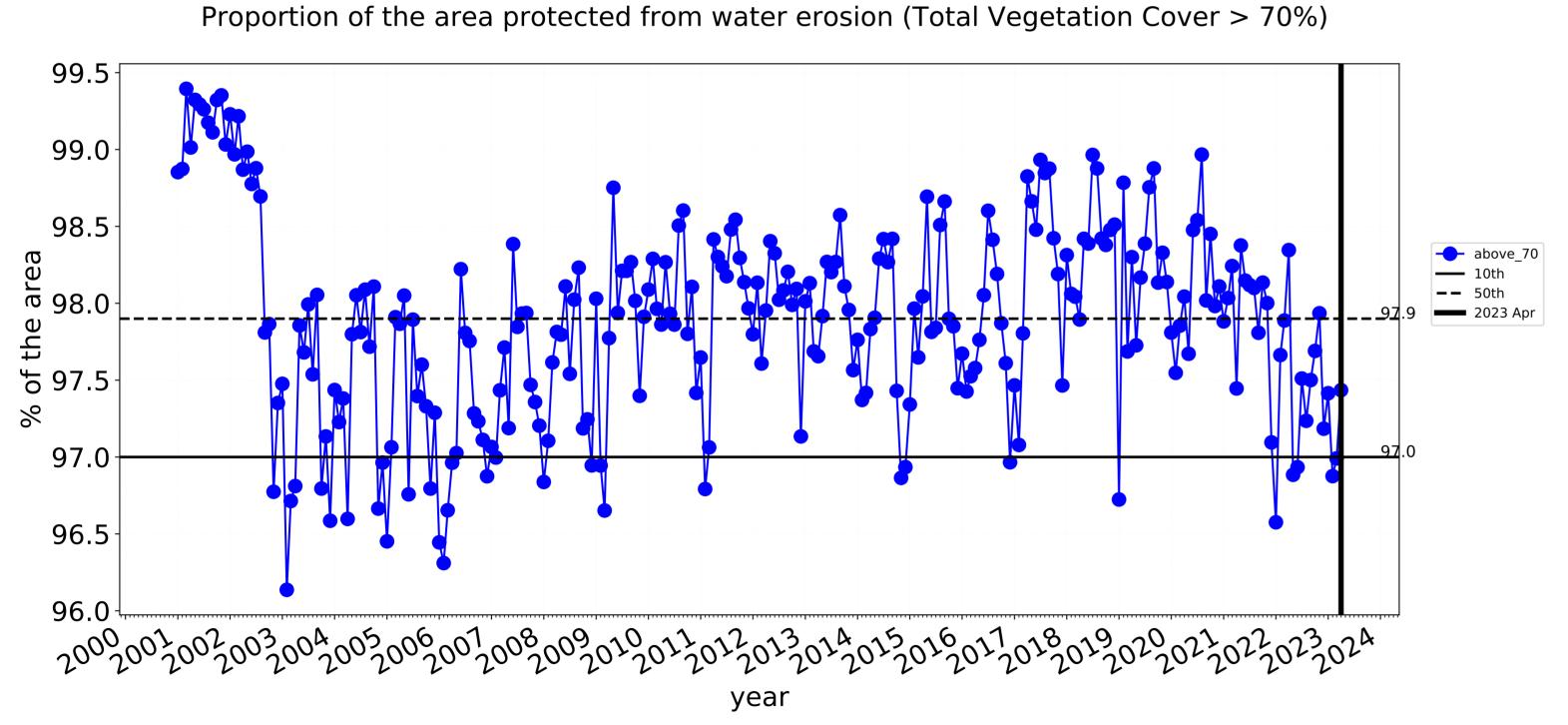


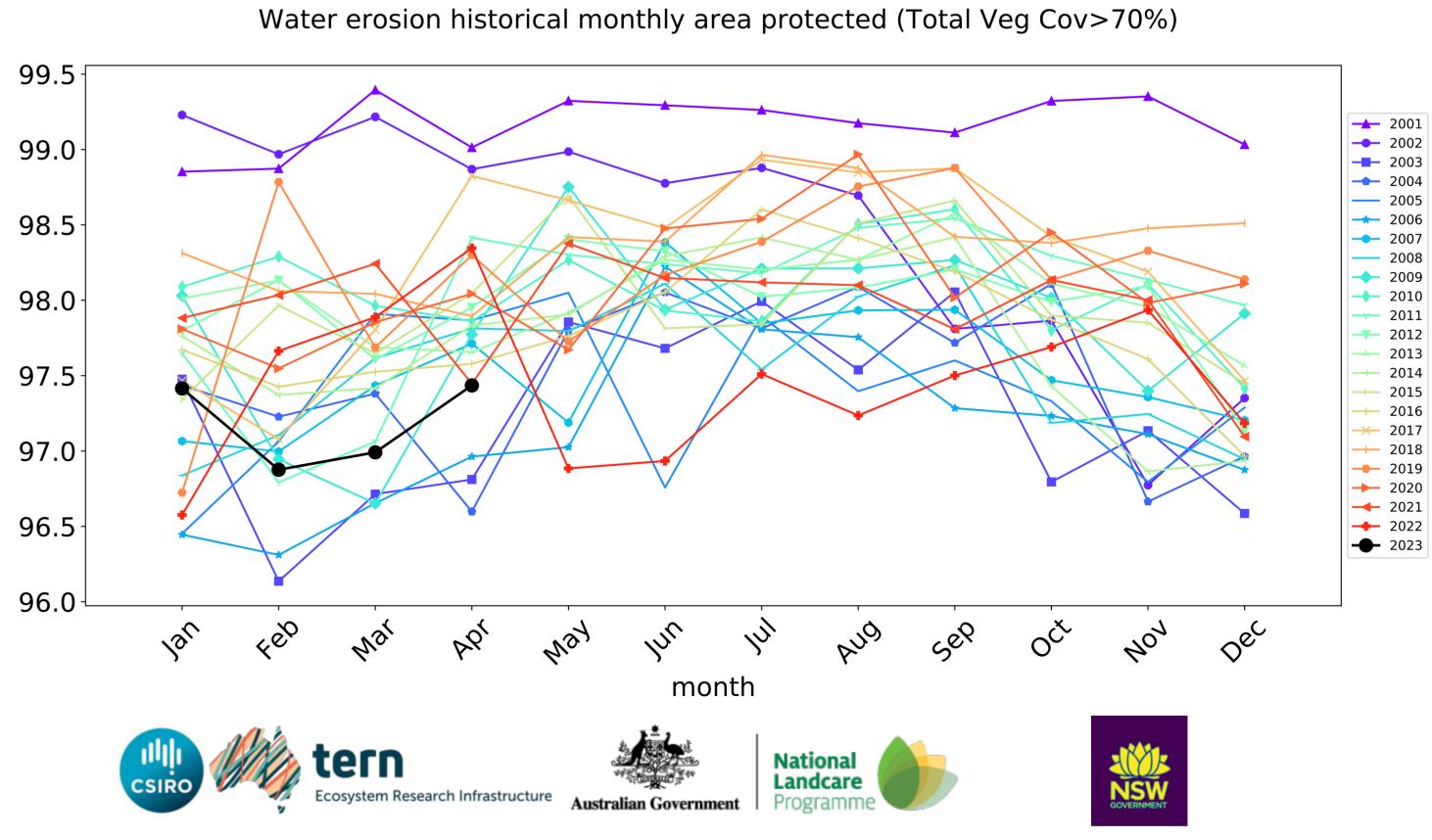










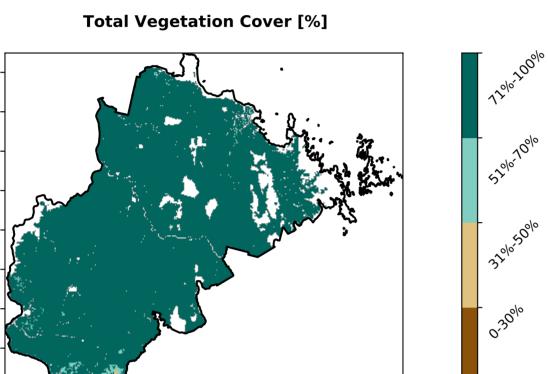


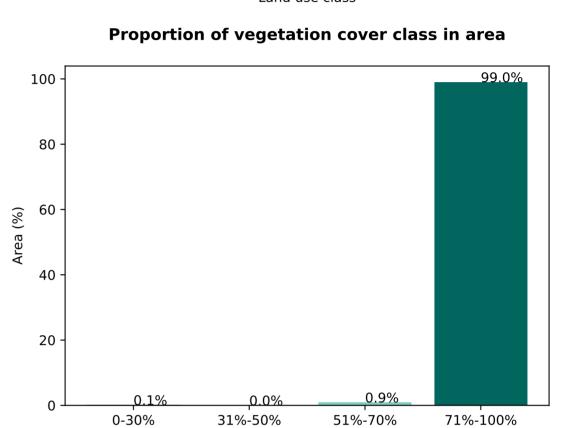
Agriculture

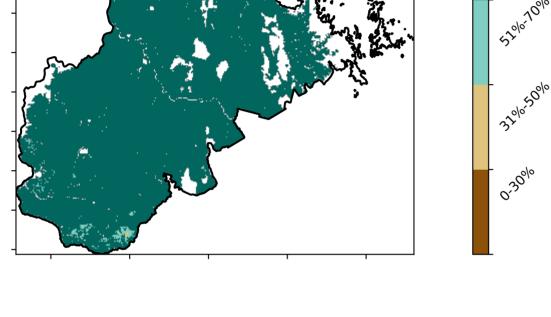
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest Derived from 4 Agriculture - Grazing - Irrigated Catchment Scale Land 5 Agriculture - Cropping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

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

Proportion of each land class in area

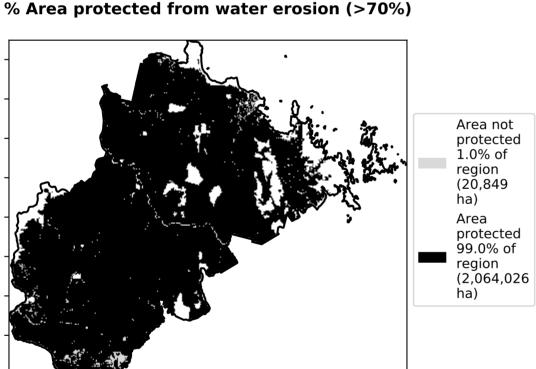


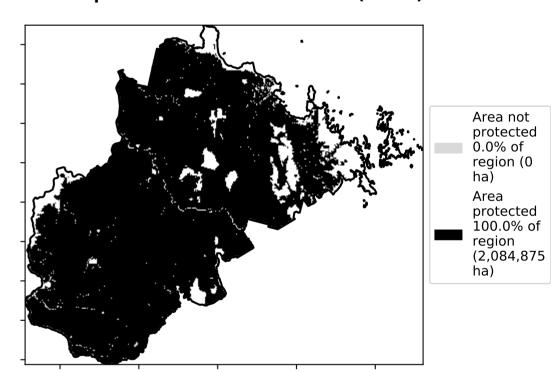




% Area protected from wind erosion (>50%)

Total Vegetation Cover class







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

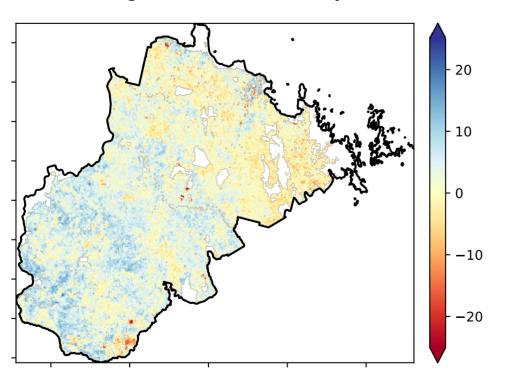
is, red pixels are about 20% lower than the mean of that

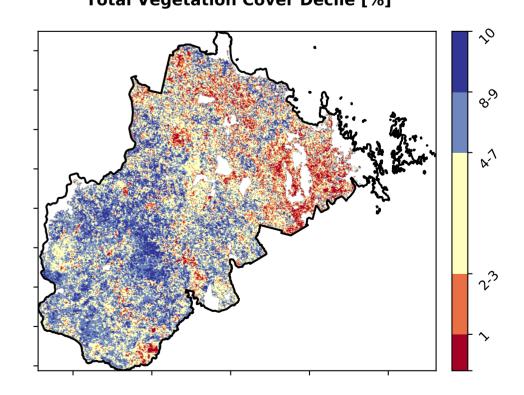
pixel. The mean

using baseline from 2001 to 2019.

is only for the month of the map

Total Vegetation Cover Decile [%]





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.

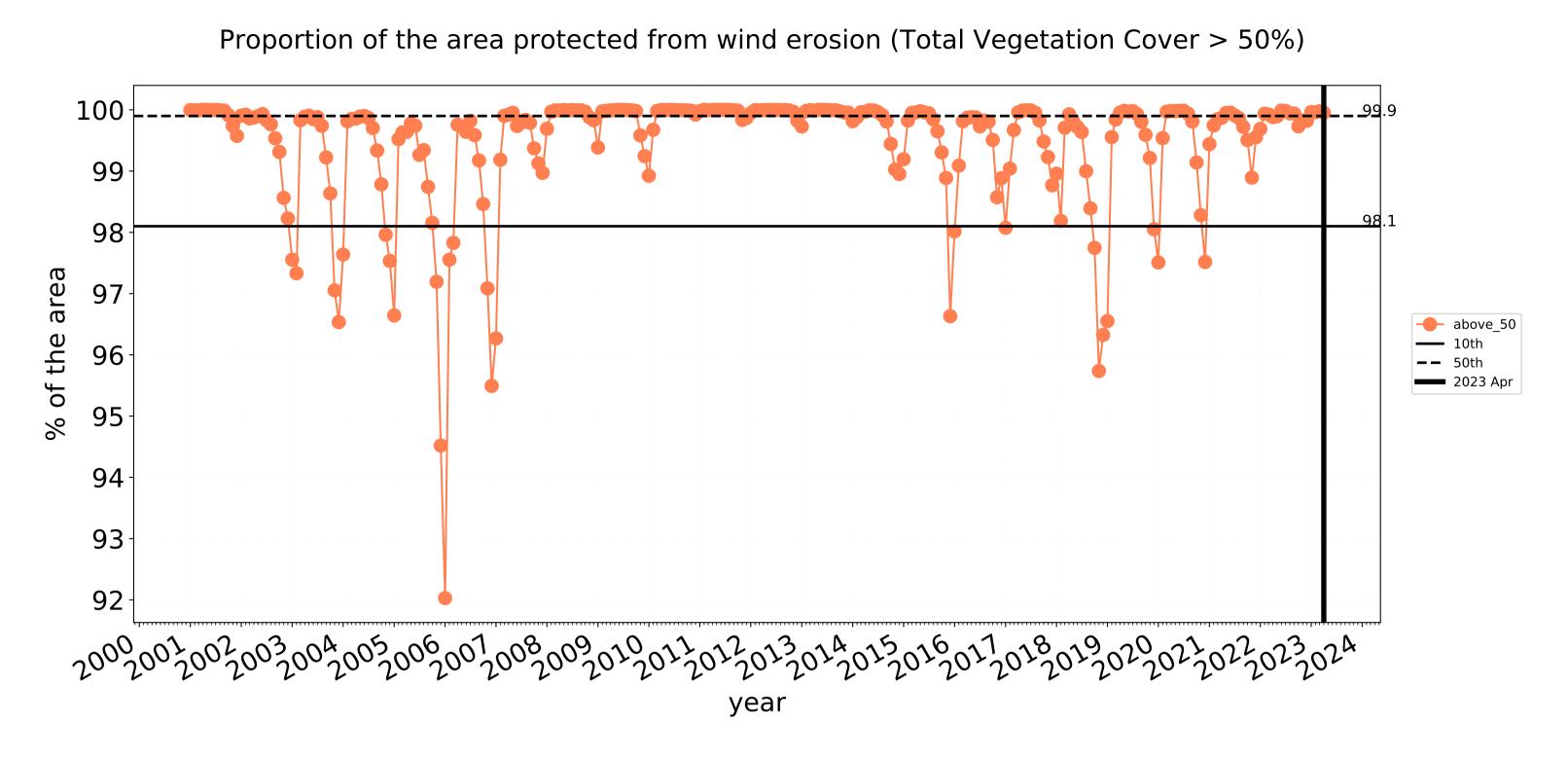


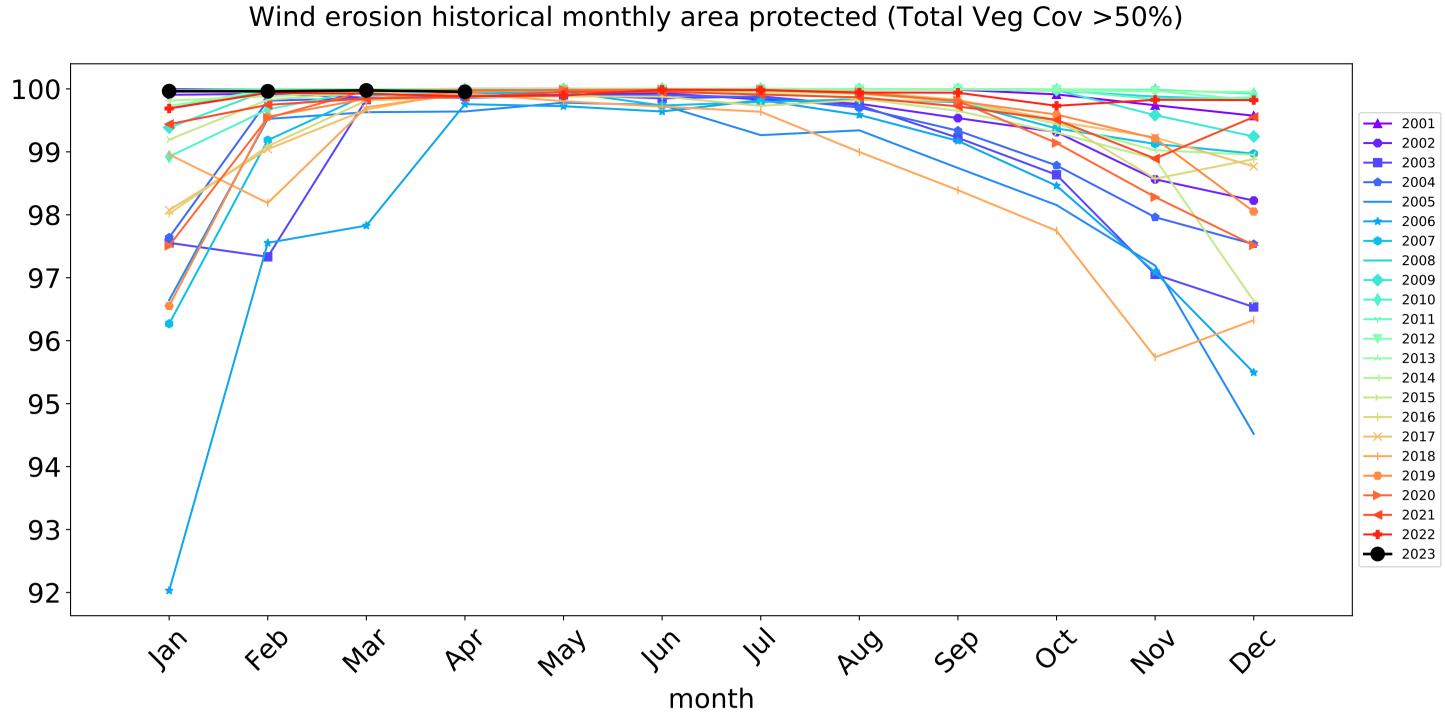


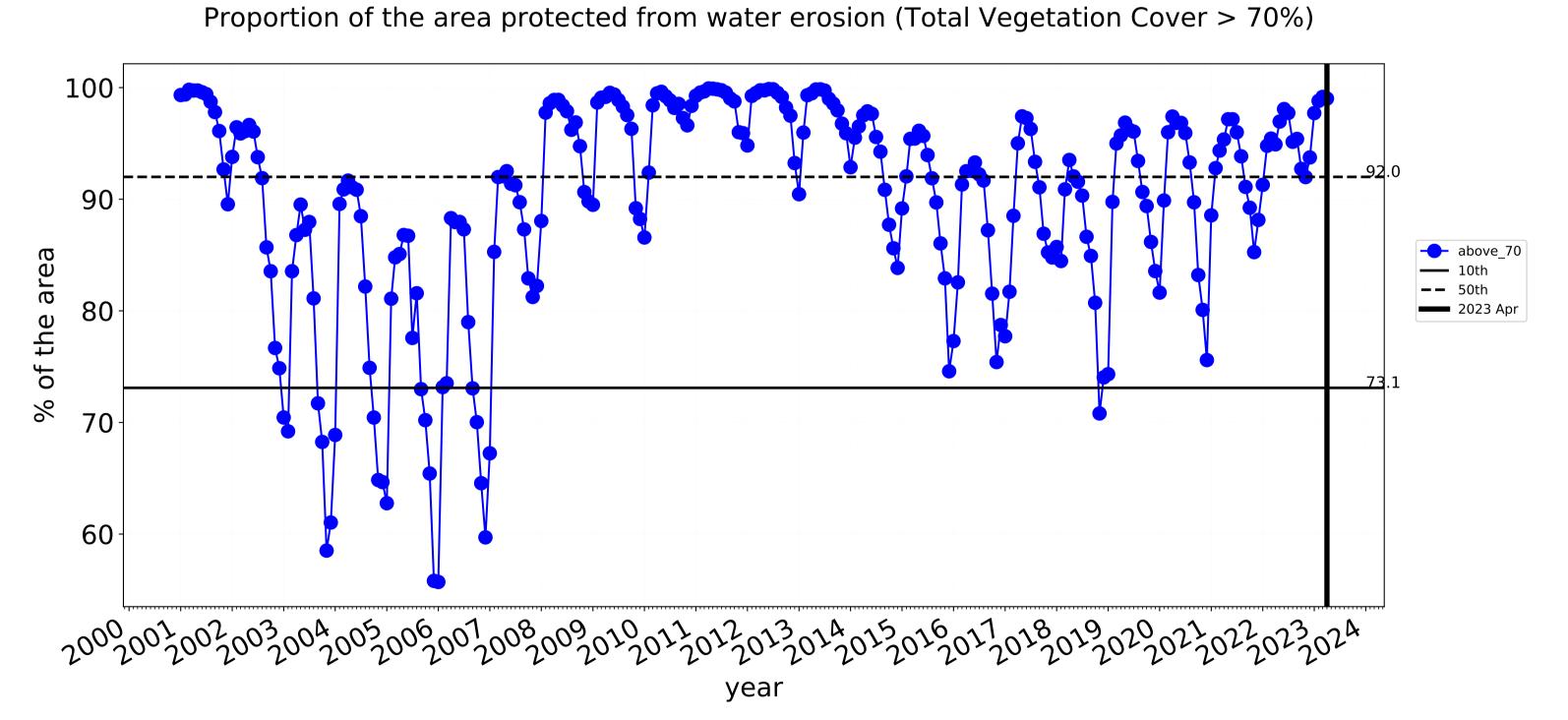


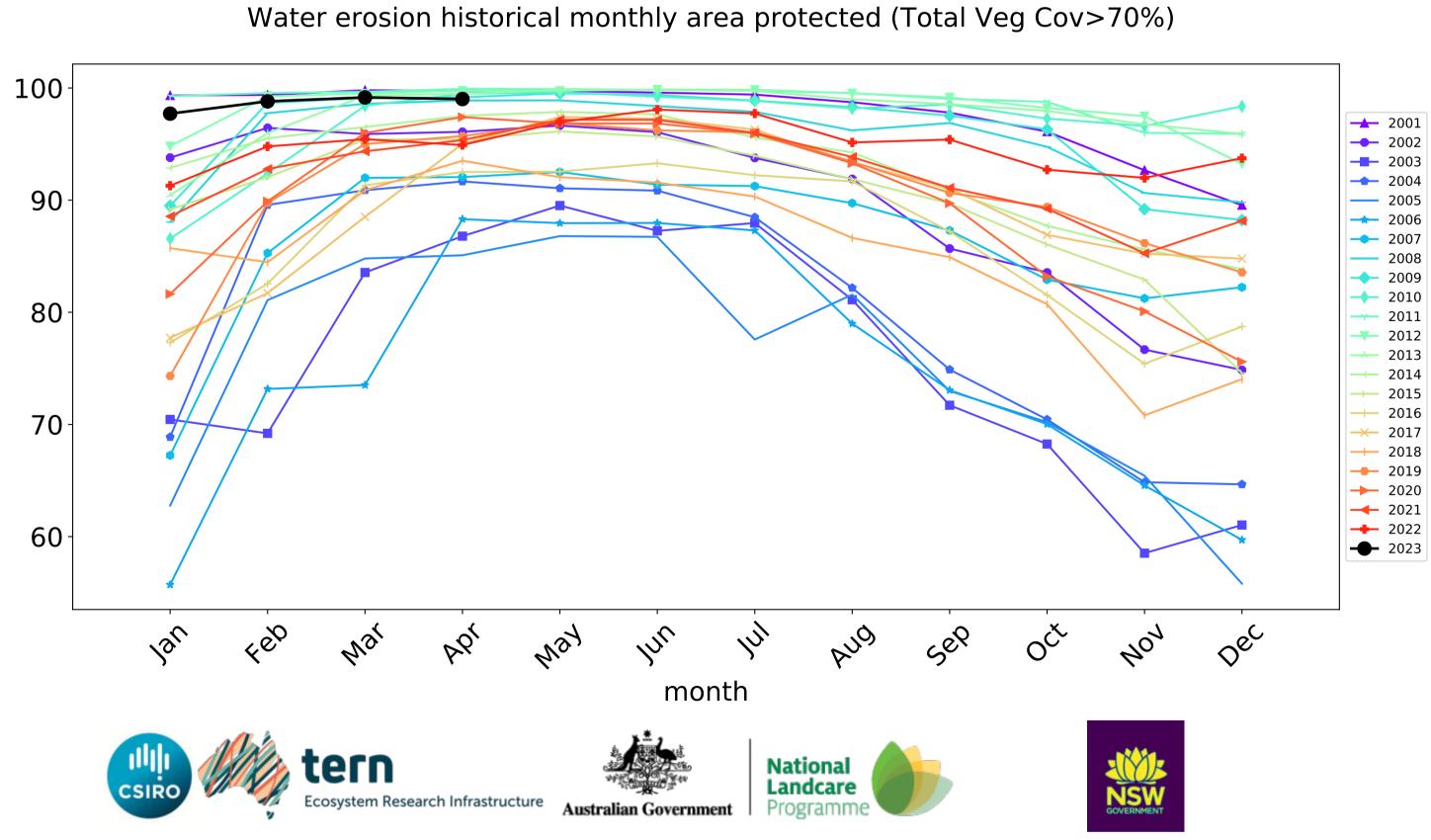


Agriculture timeseries









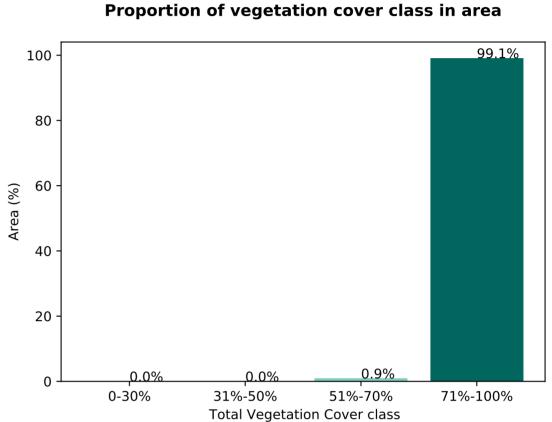
Grazing

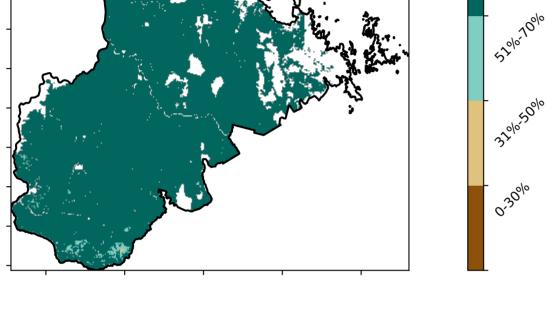
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest Use of Australia (2018) and Forests of Australia (2018)

60 -57.4% 50 40.1% 40 Area (%) 20 10 0.5 1.0 -0.5 1.5 0.0 2.0 2.5 Land use class

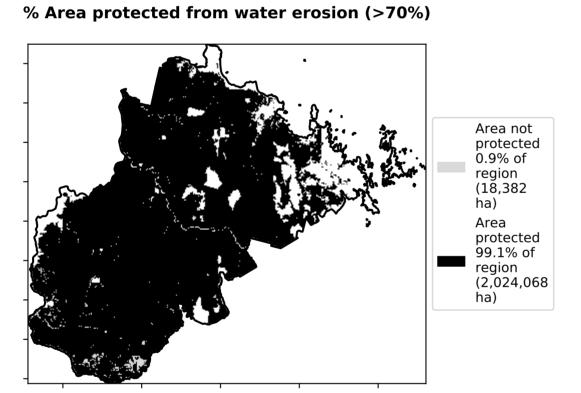
Proportion of each land class in area

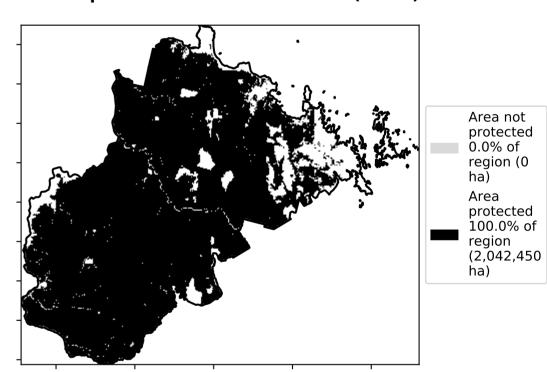
Total Vegetation Cover [%]





% Area protected from wind erosion (>50%)





Total Vegetation Cover Anomaly [%]

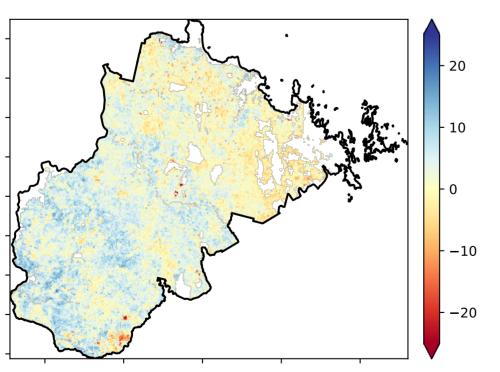
Anomaly show how many percetage points each pixel is from the mean. That

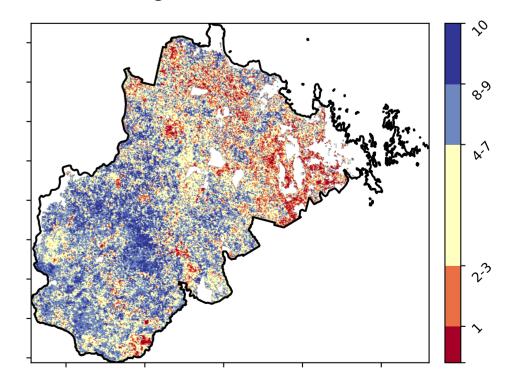
is only for the month of the map

using baseline from 2001 to 2019.

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

Total Vegetation Cover Decile [%]





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

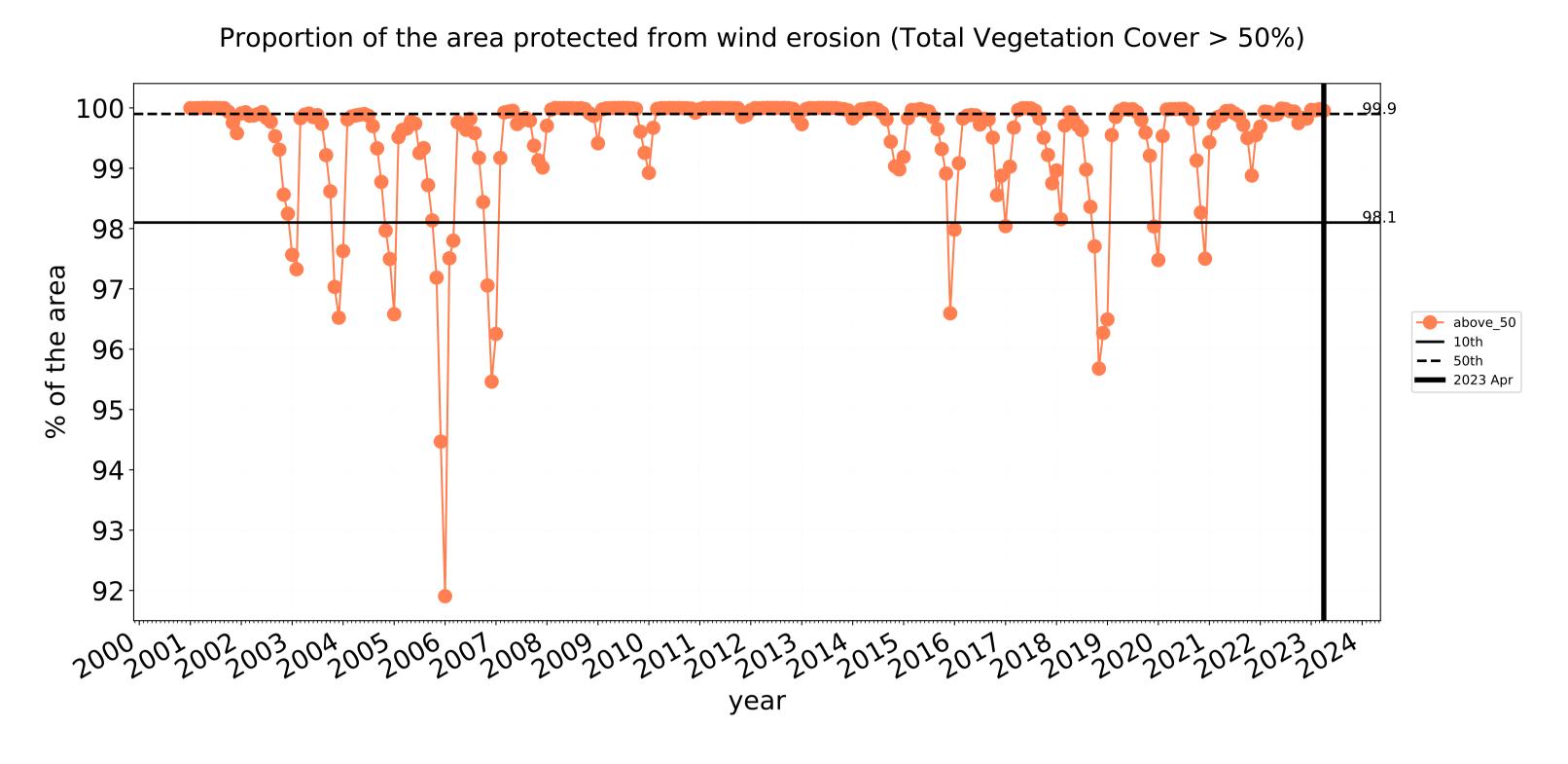


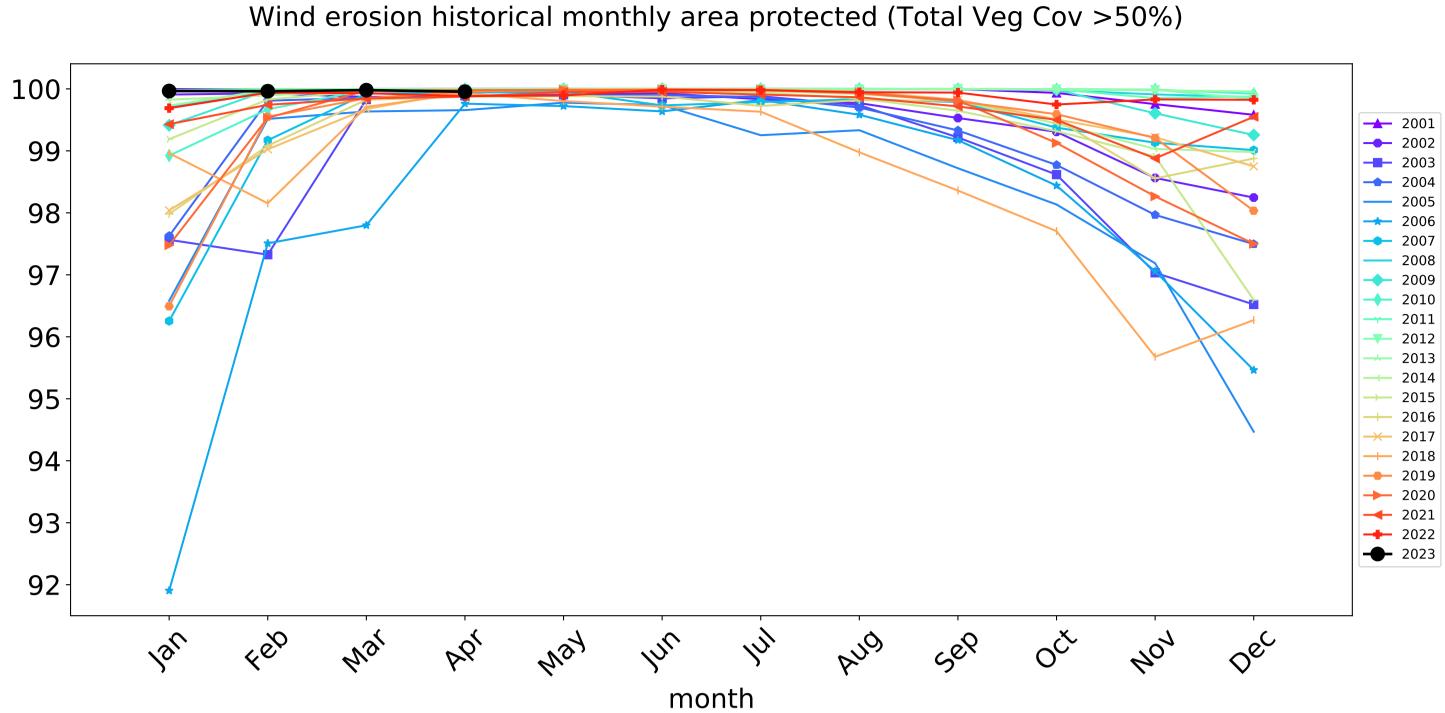


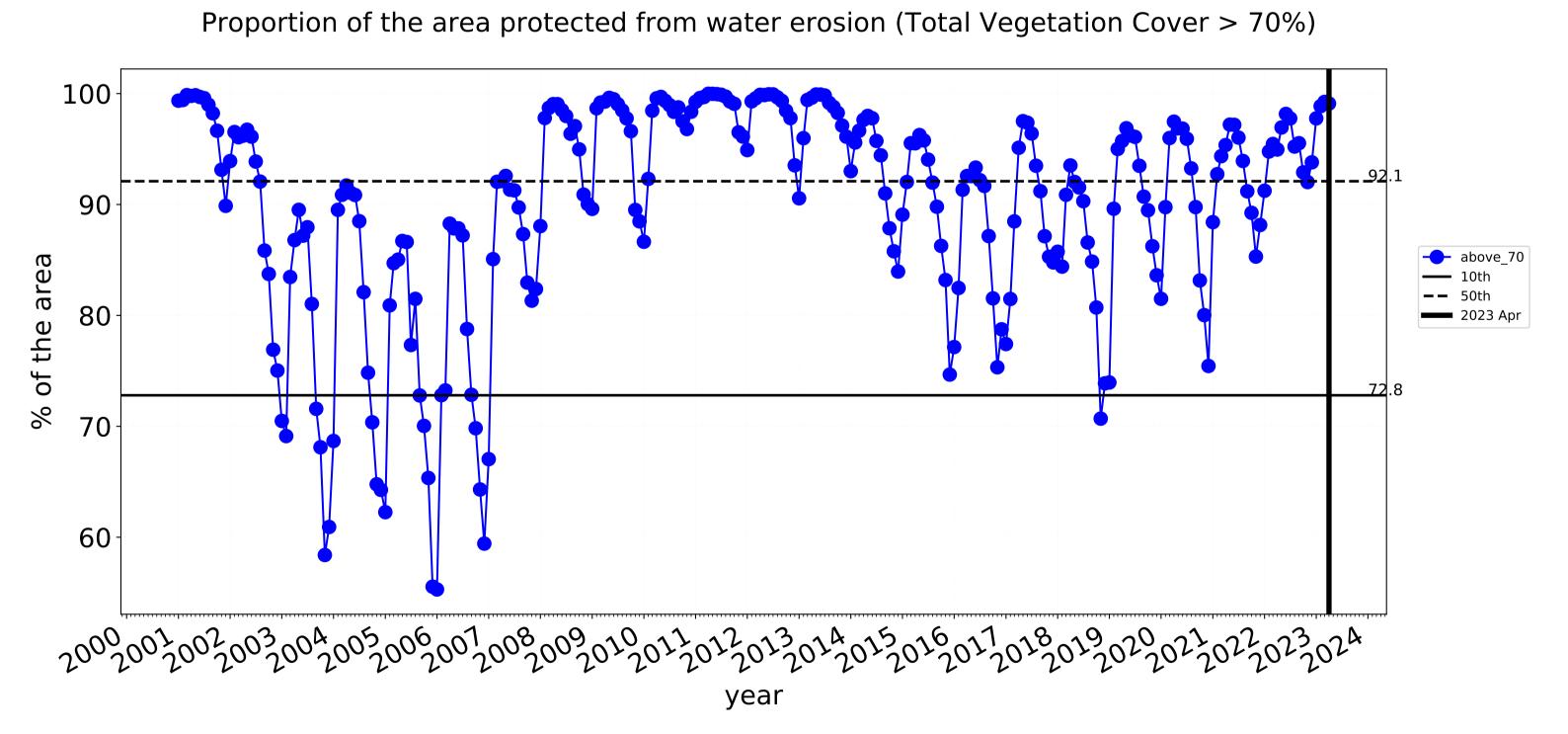


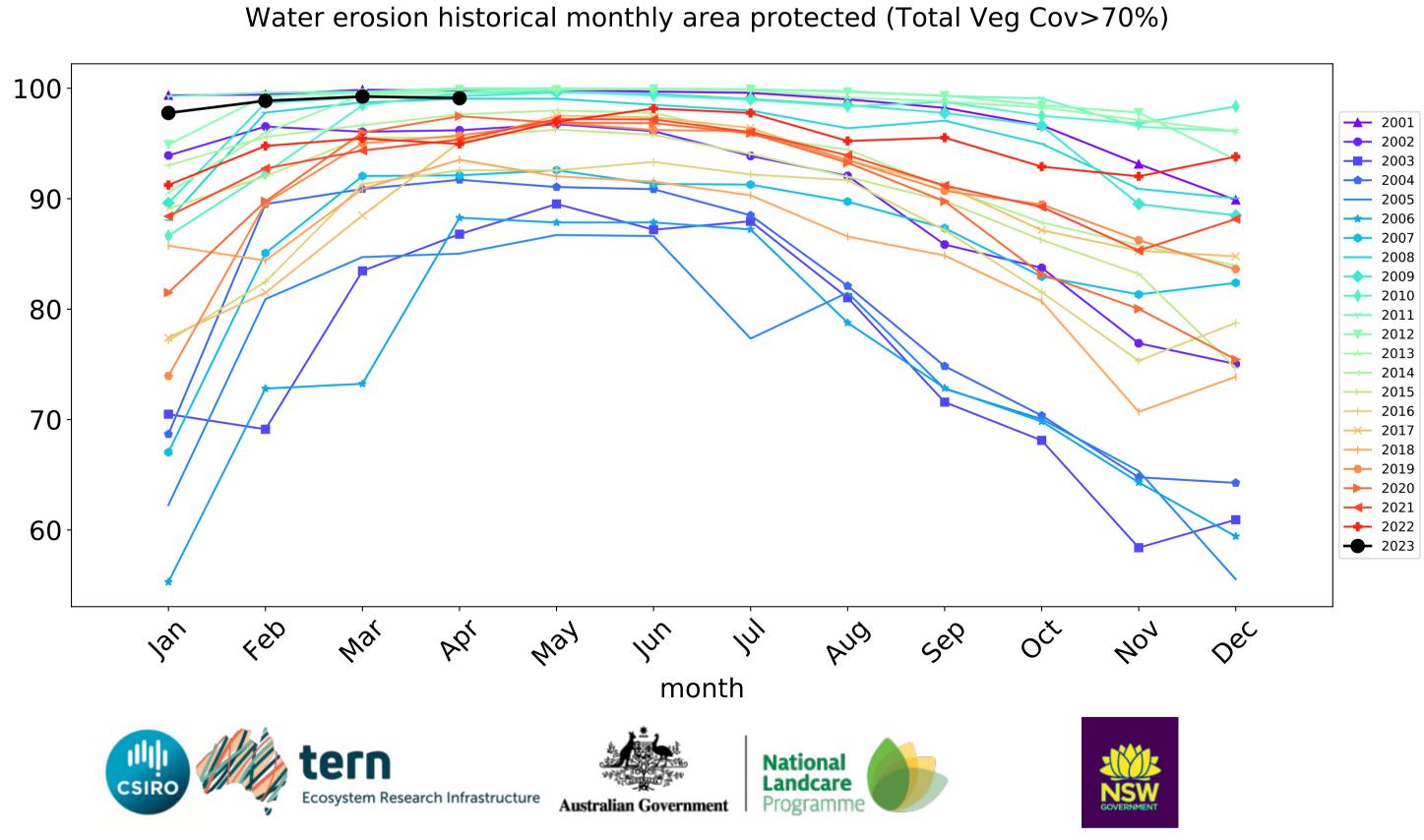


Grazing timeseries





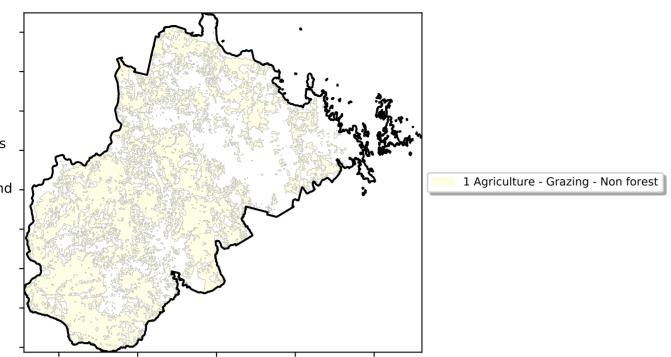




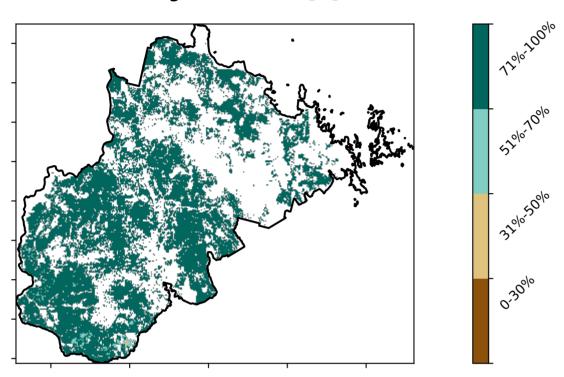
Grazing non forest

Land use and forest cover

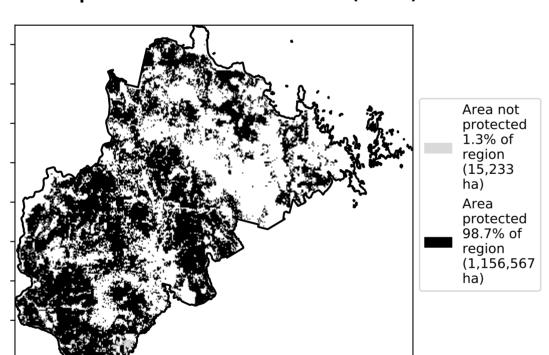
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



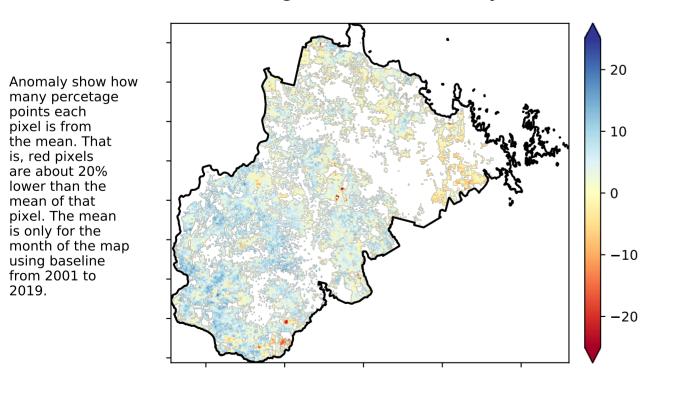
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

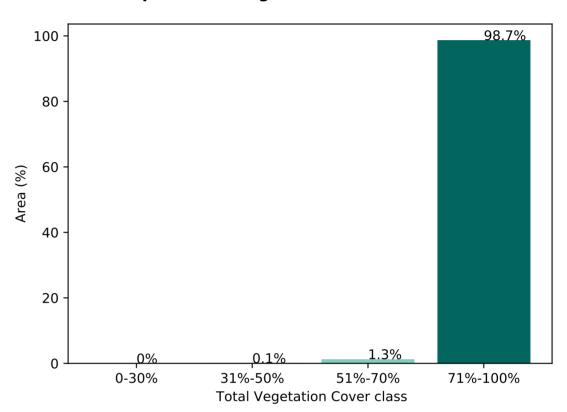


Total Vegetation Cover Anomaly [%]

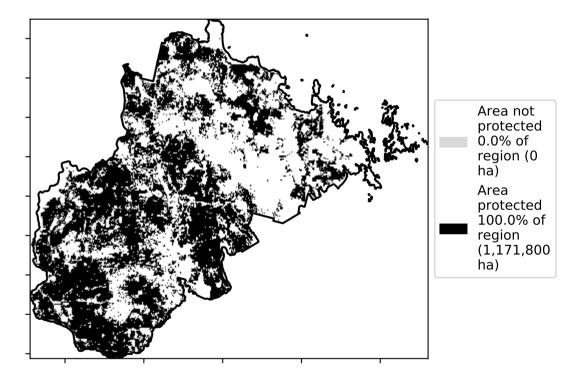


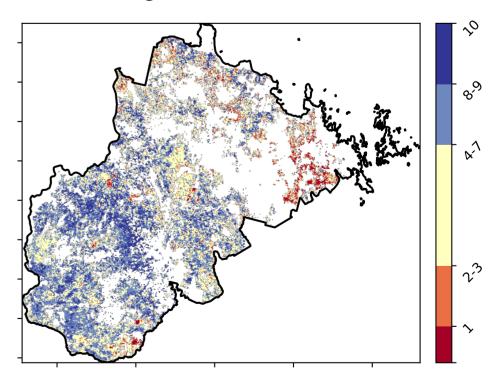
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





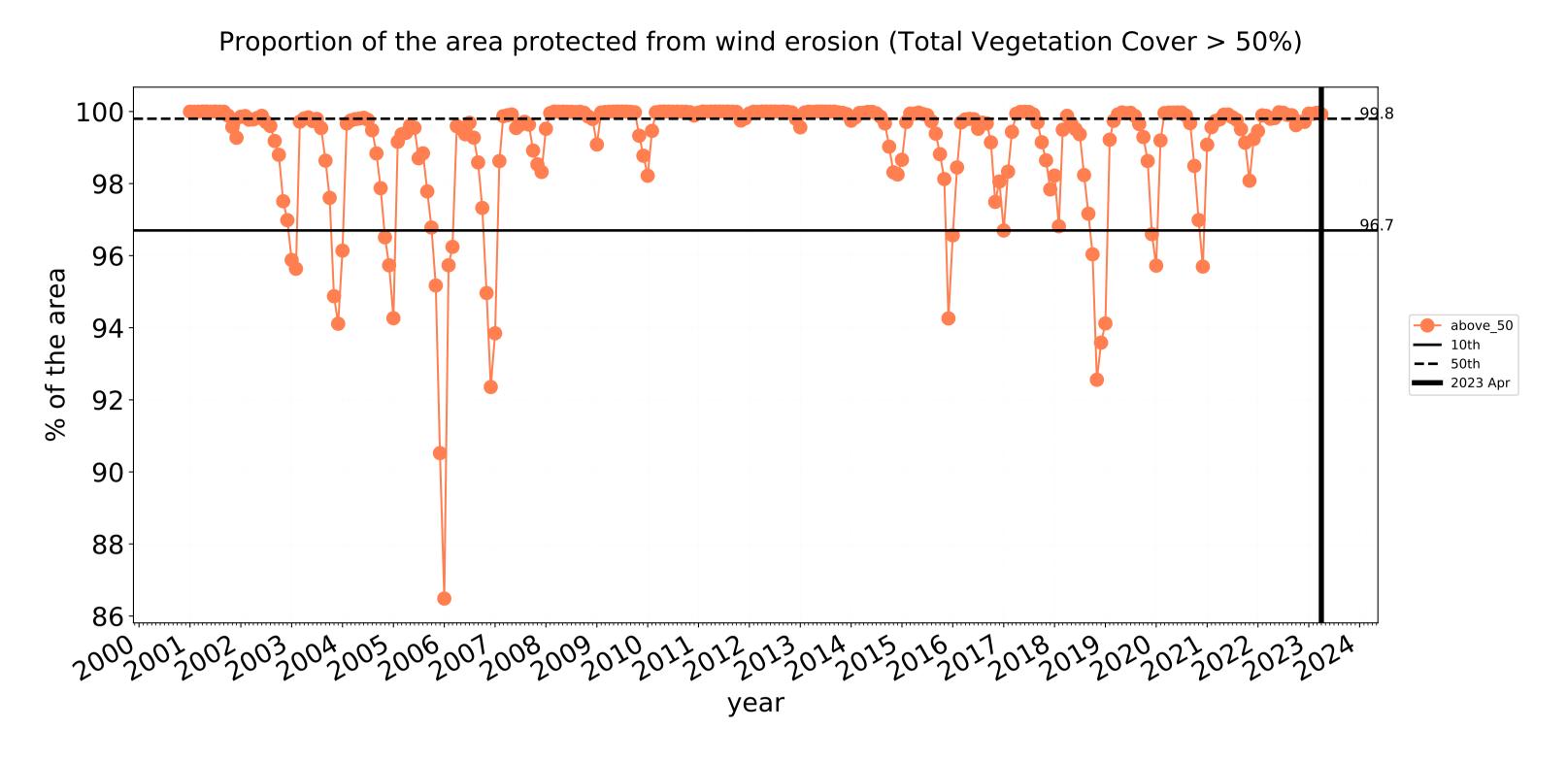


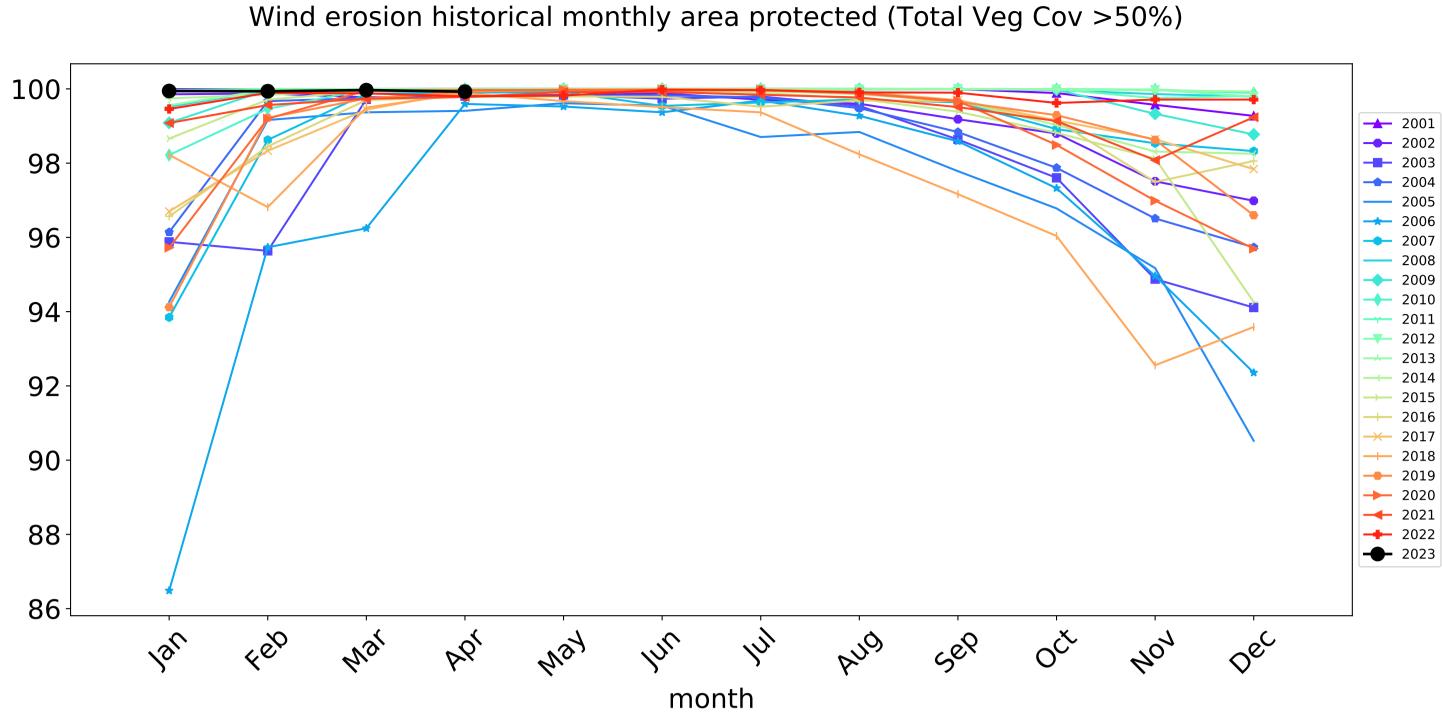


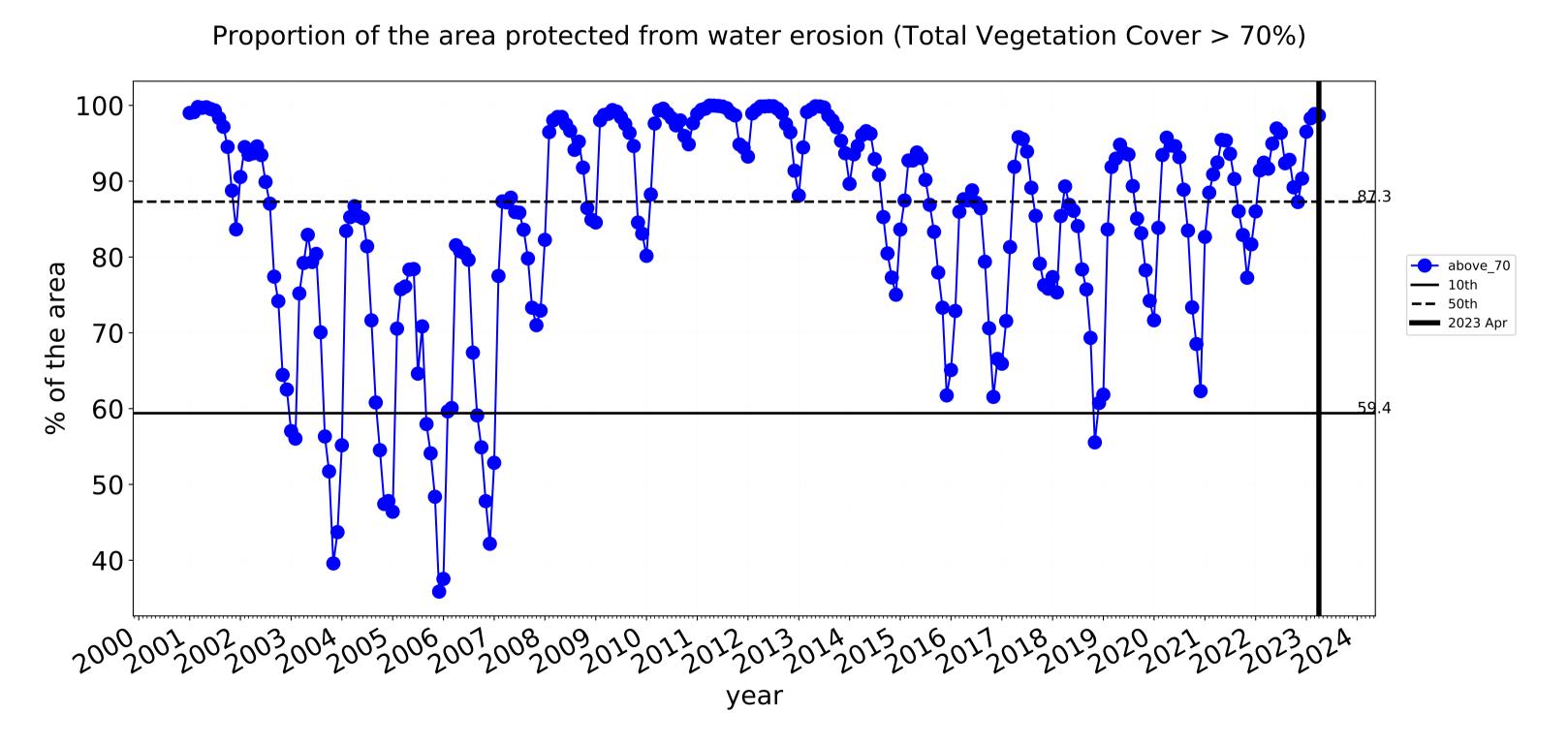


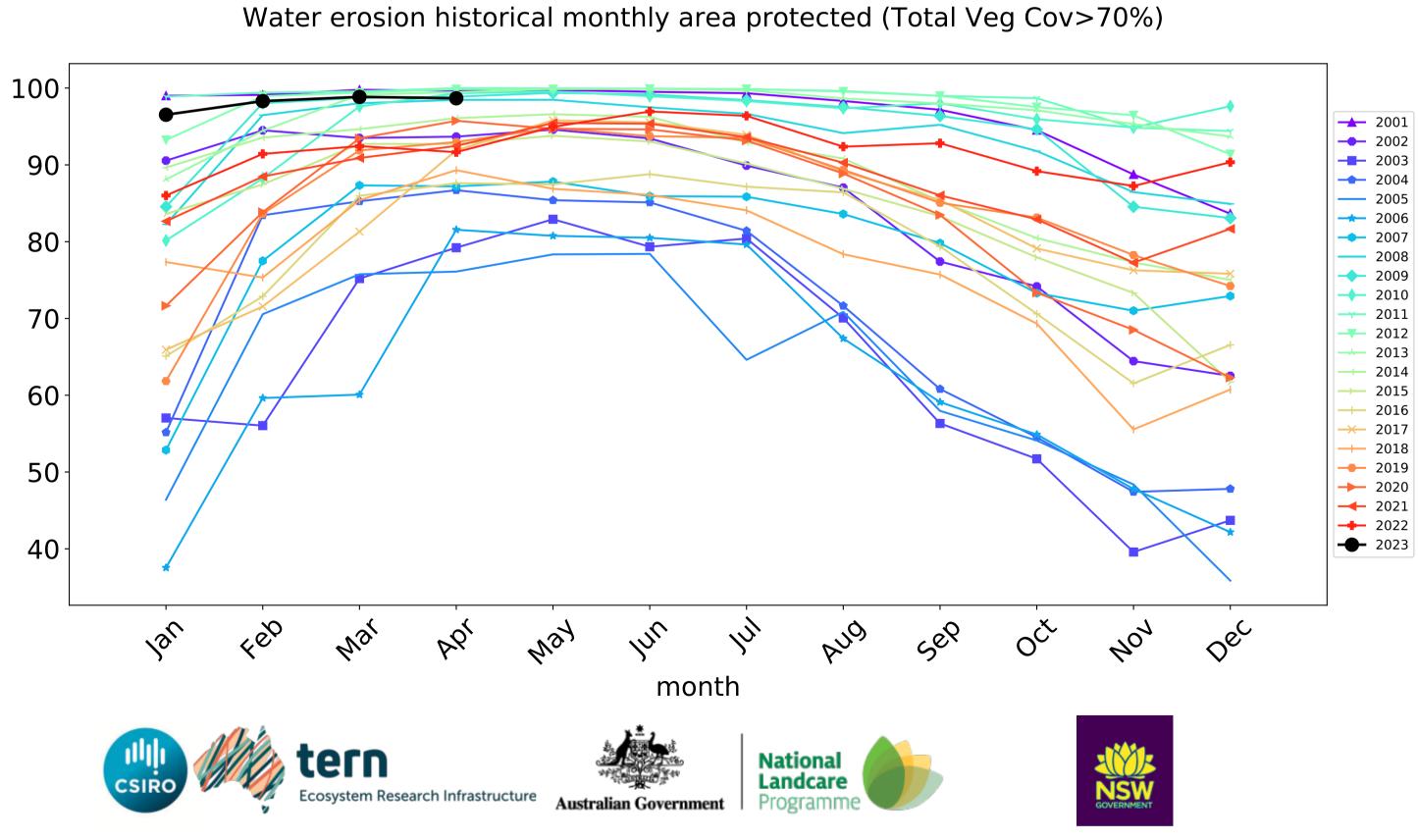


Grazing non forest timeseries







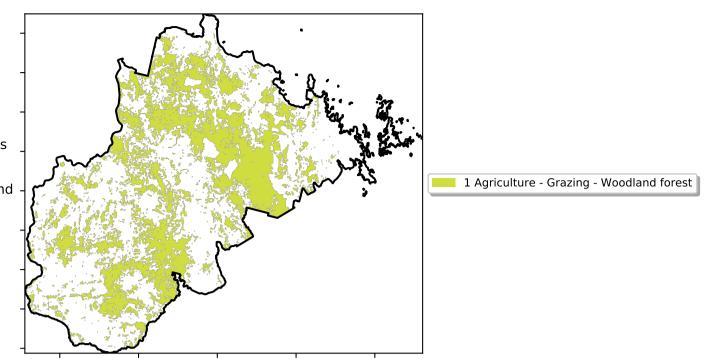


Grazing Woodland forest

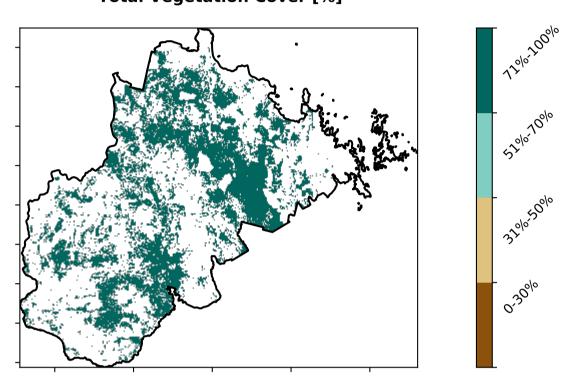
Land use and forest cover



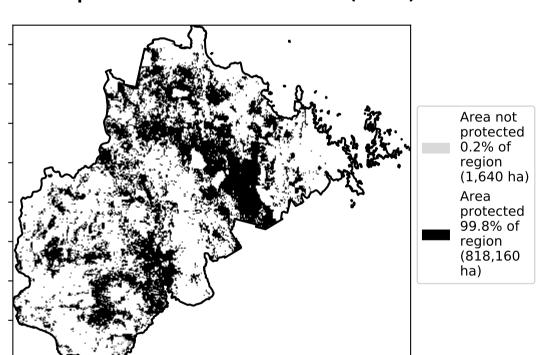
using baseline from 2001 to 2019.



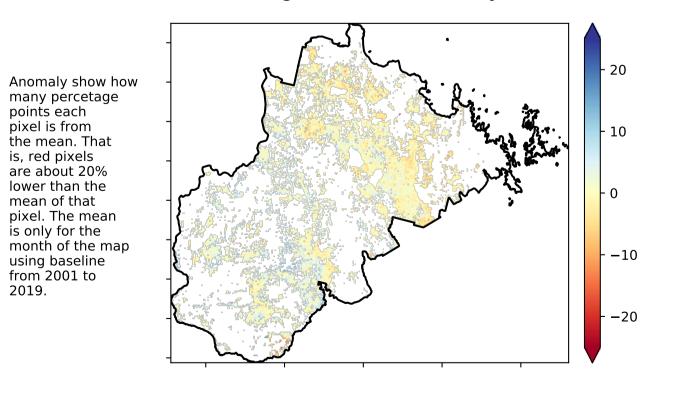
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

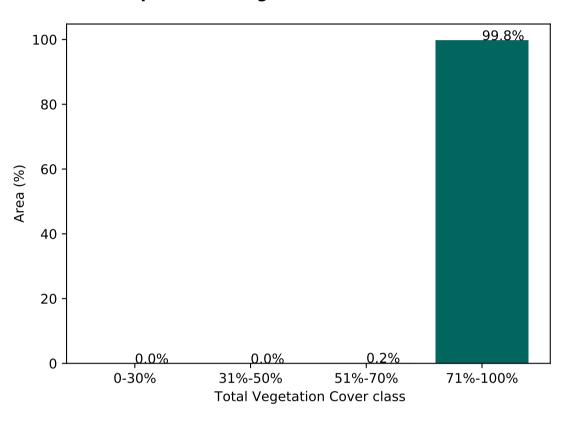


Total Vegetation Cover Anomaly [%]

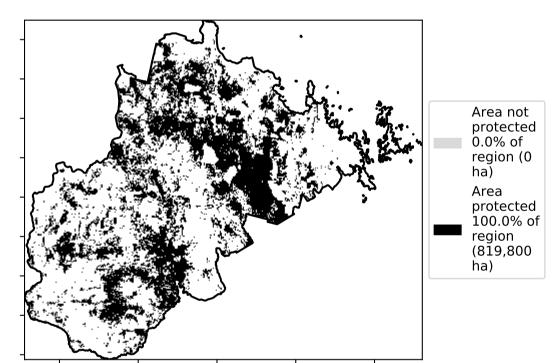


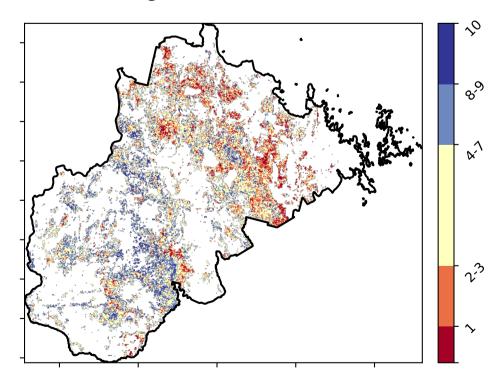
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





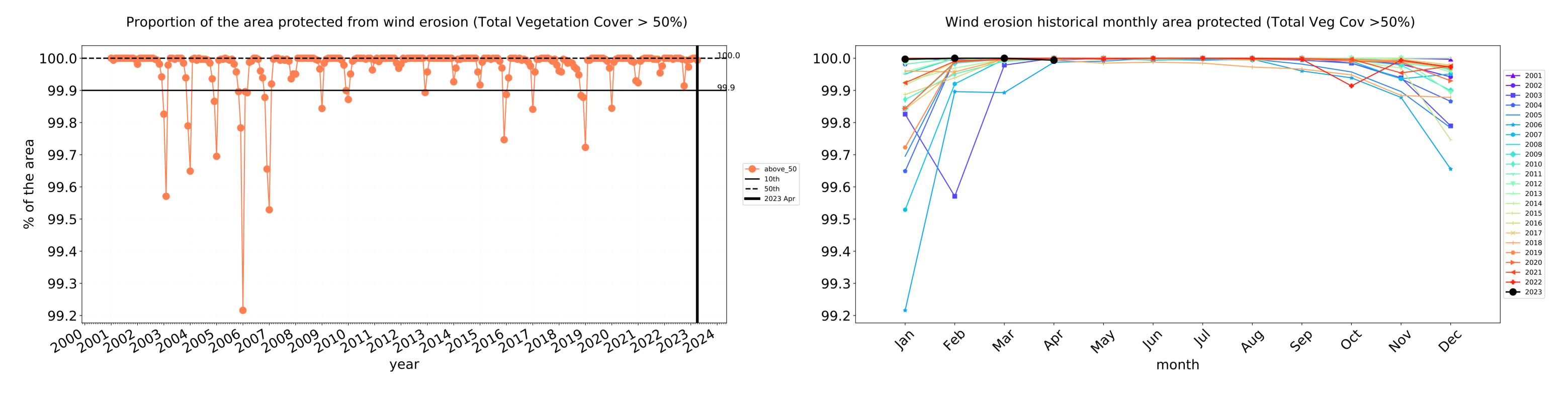


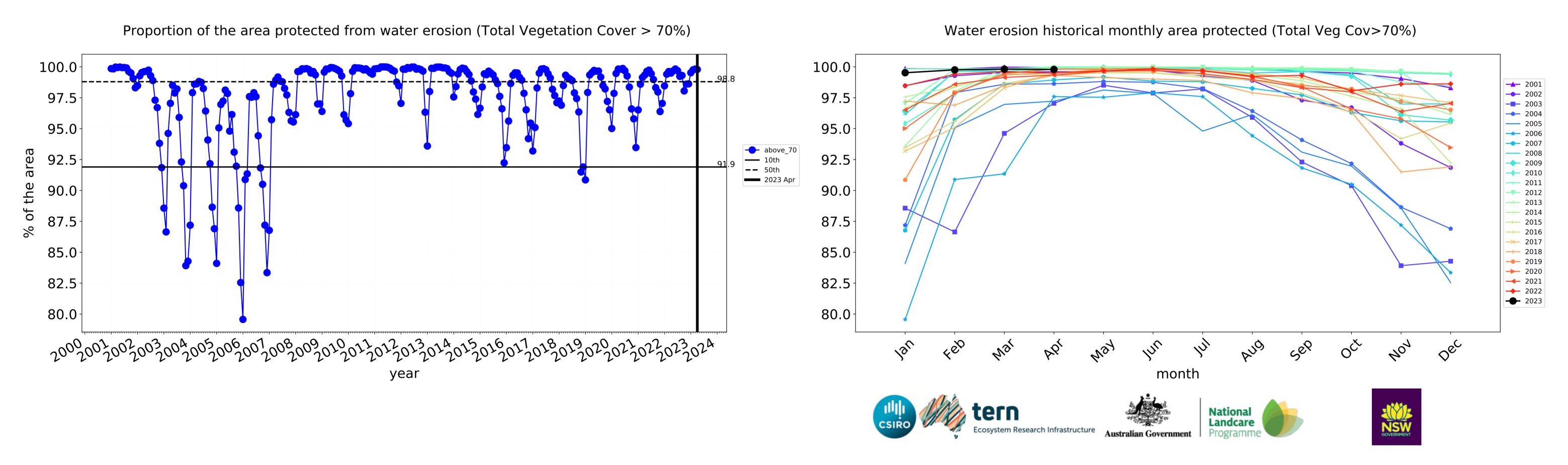






Grazing Woodland forest timeseries





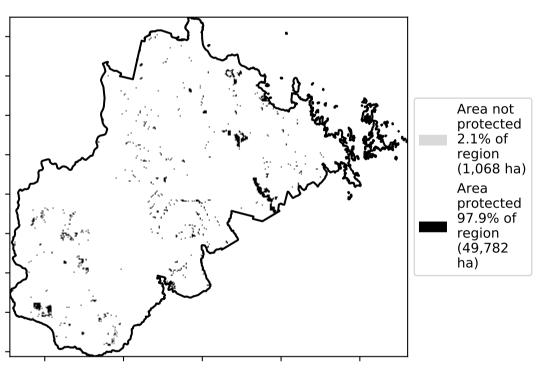
Grazing - Forest (non woodland)

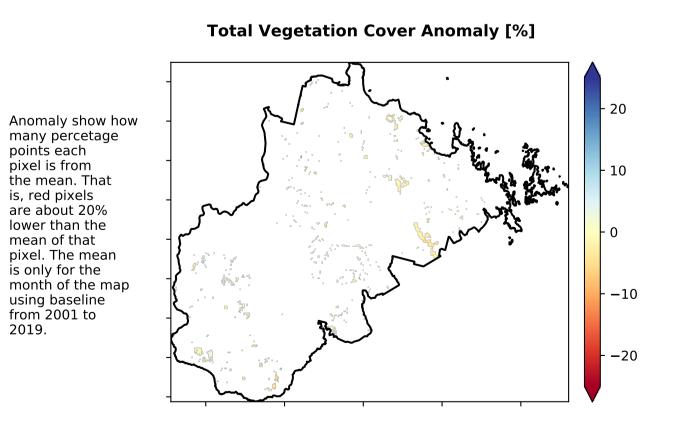
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 1 Agriculture - Grazing - Non-woodland forest

Total Vegetation Cover [%]

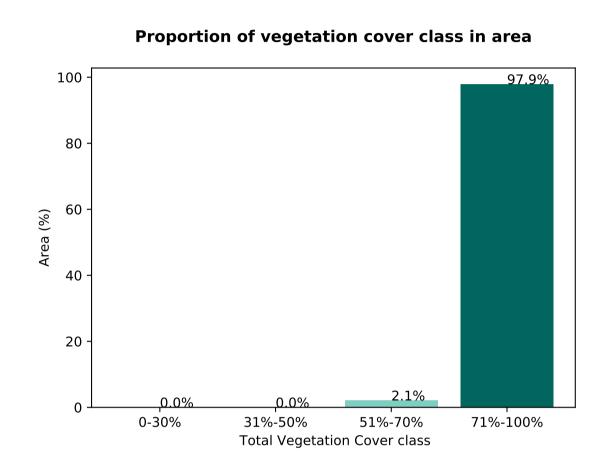
% Area protected from water erosion (>70%)

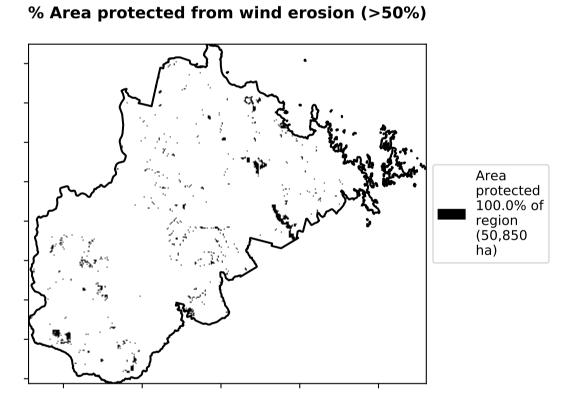
Area not protected 2.1% of region (1,068 ha) Area protected 97.9% of region (49,782 ha)

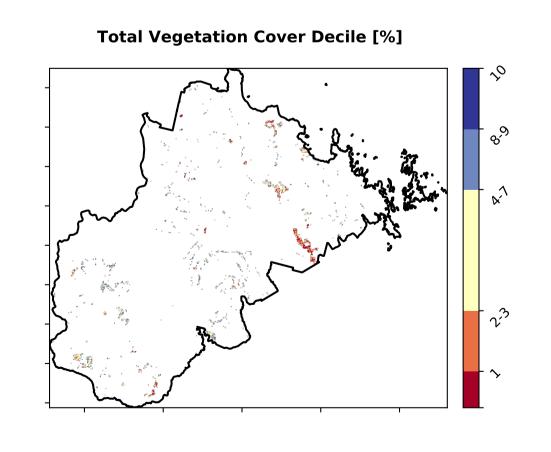




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of records for that month of the map using baseline from 2001 to 2019.





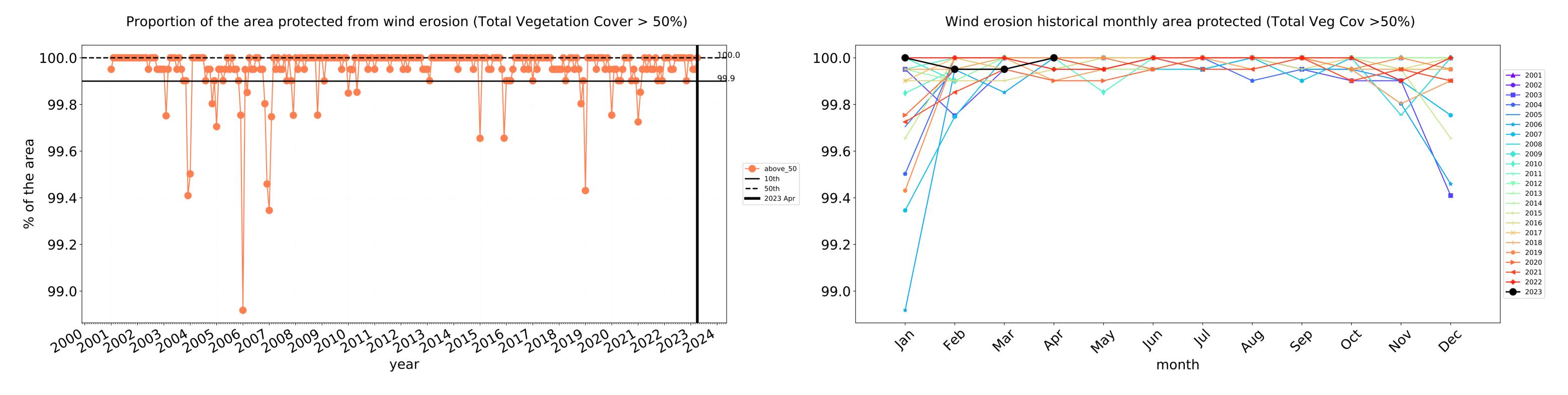


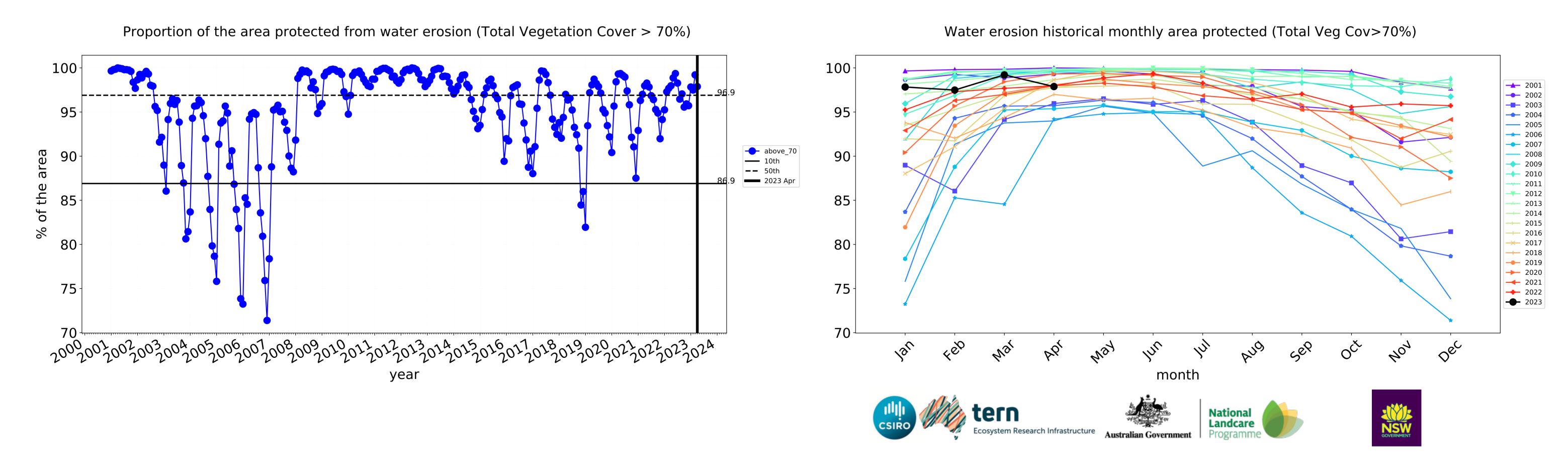






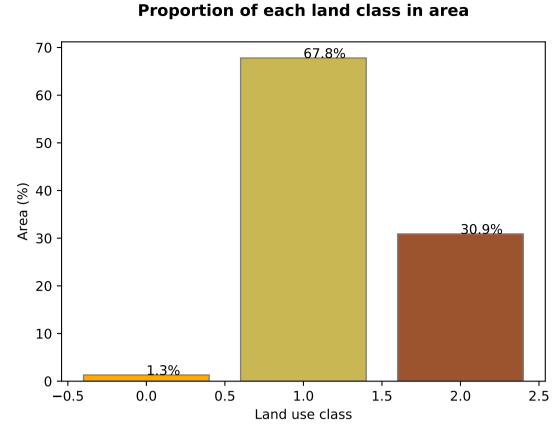




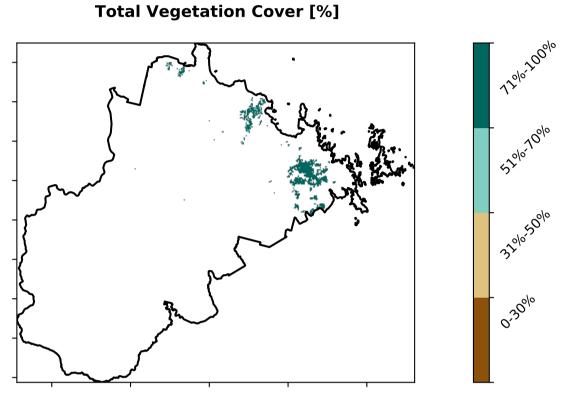


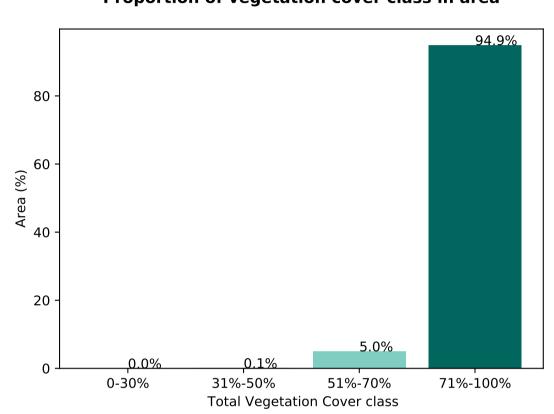
Irrigation

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

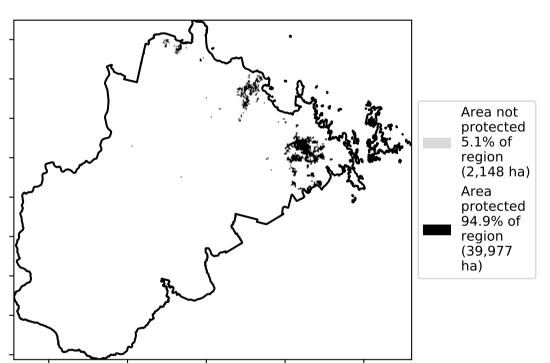




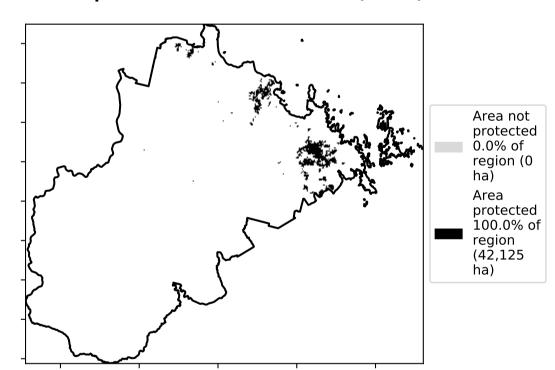




% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

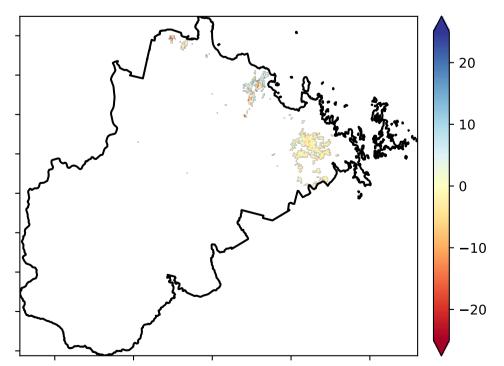
Anomaly show how many percetage points each pixel is from the mean. That

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

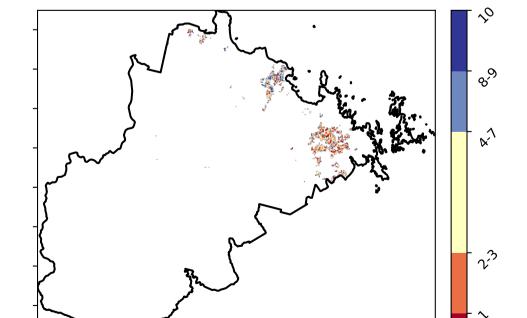
pixel. The mean

using baseline from 2001 to 2019.

is only for the month of the map



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.



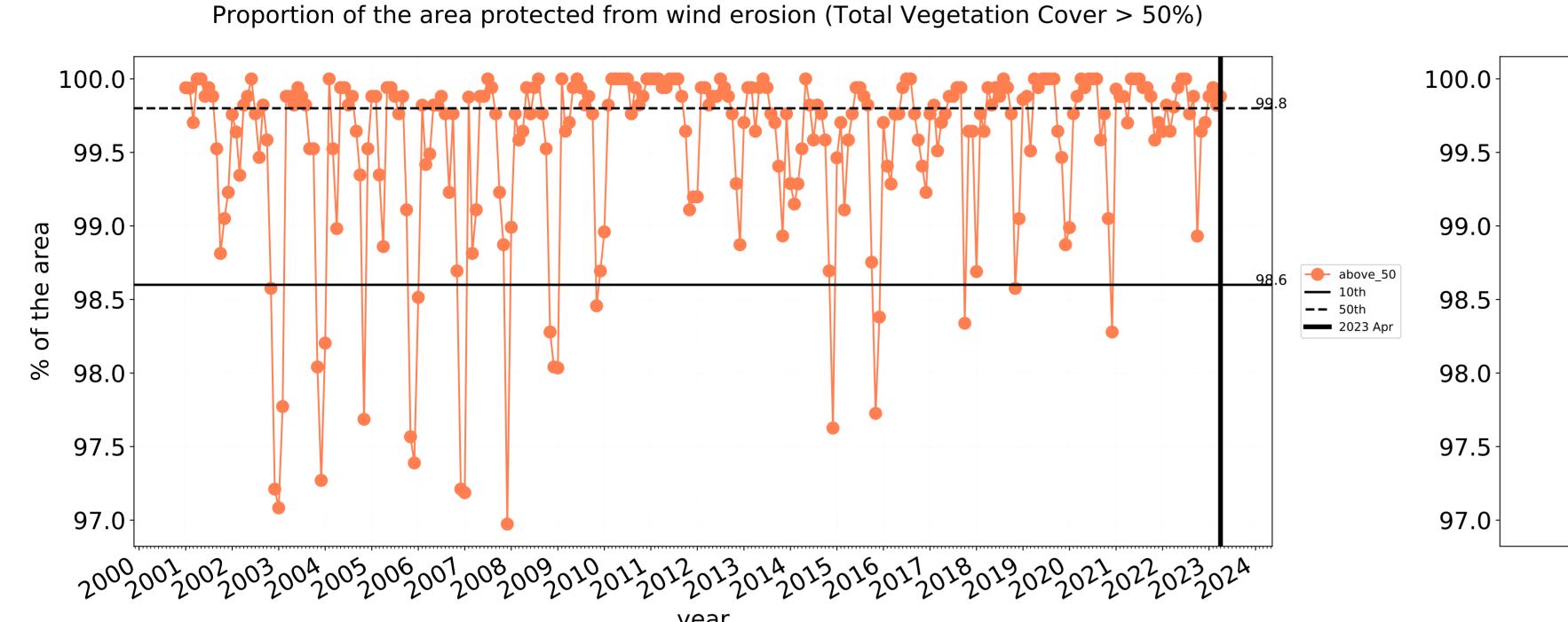


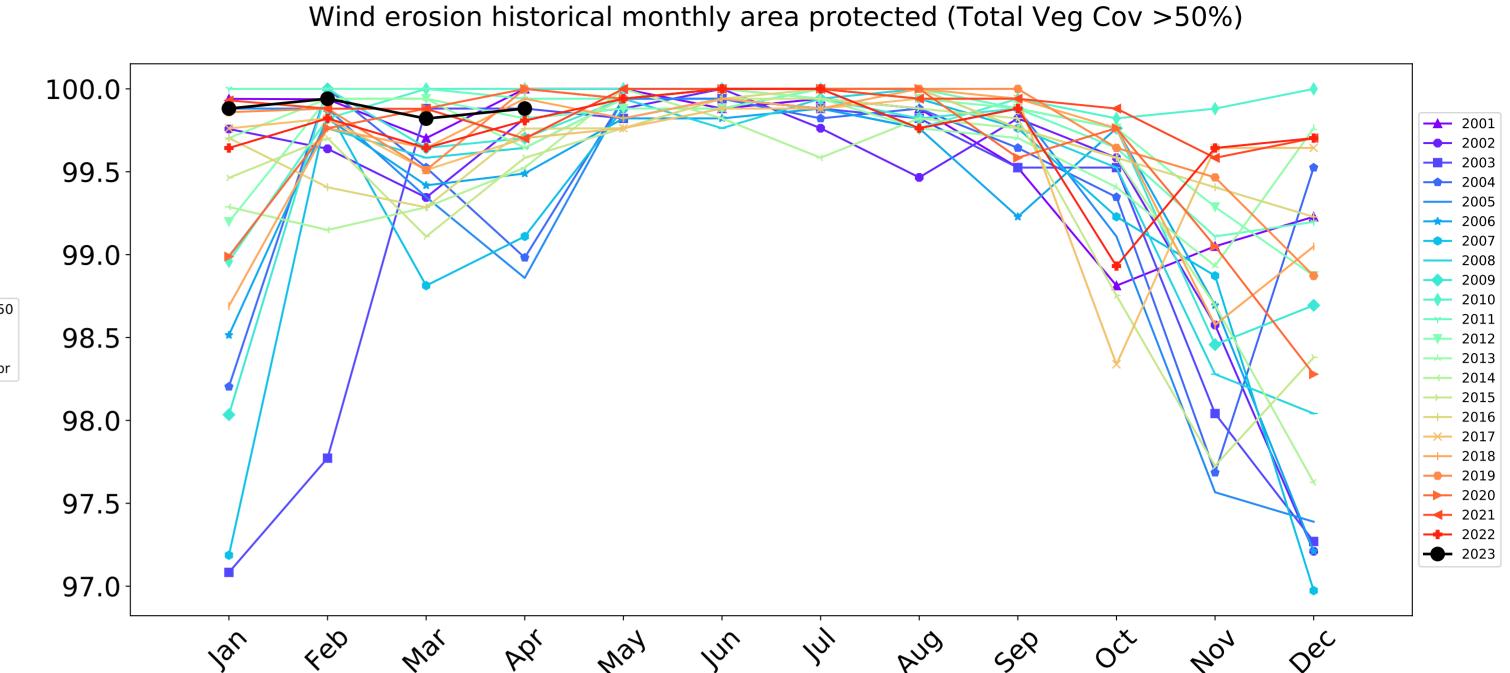




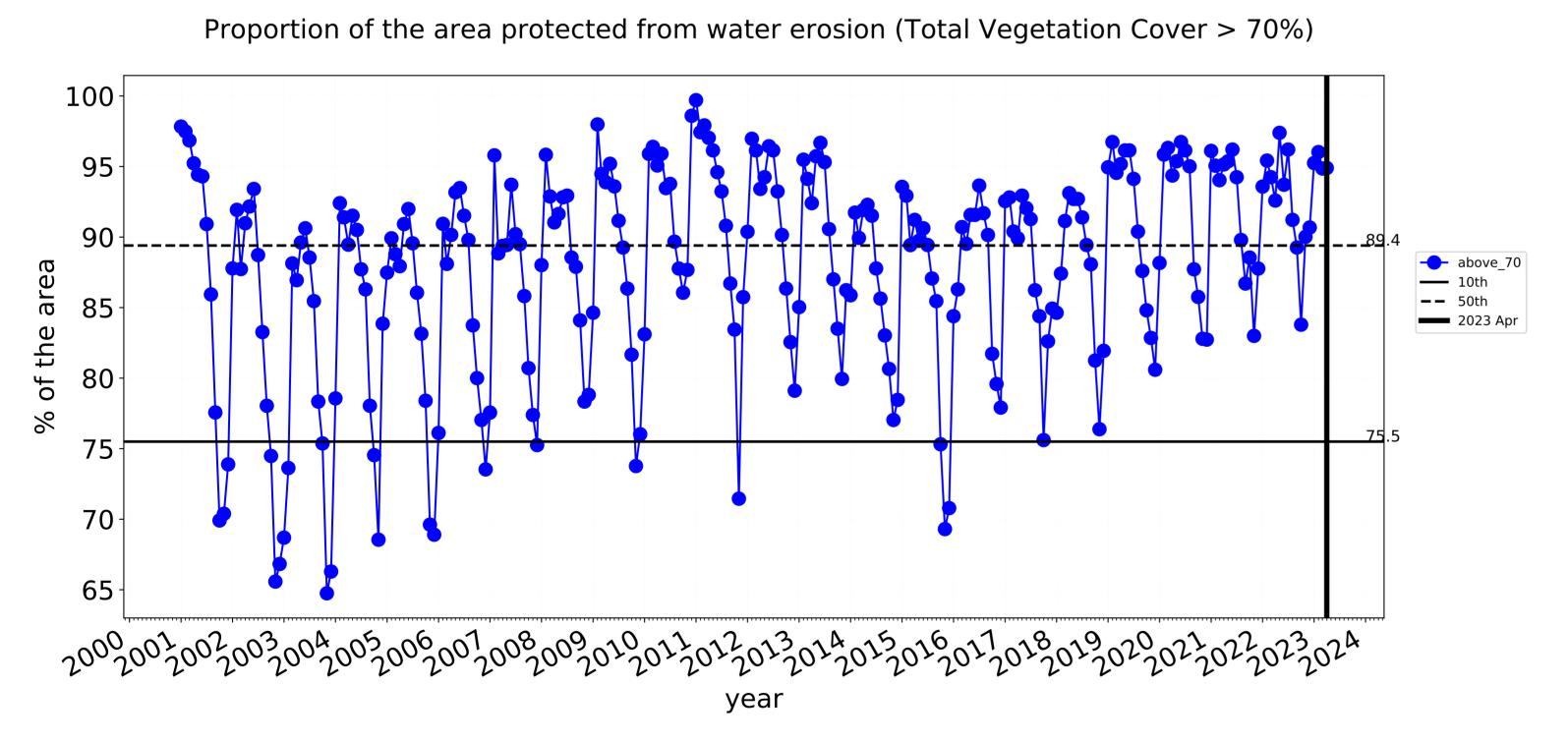


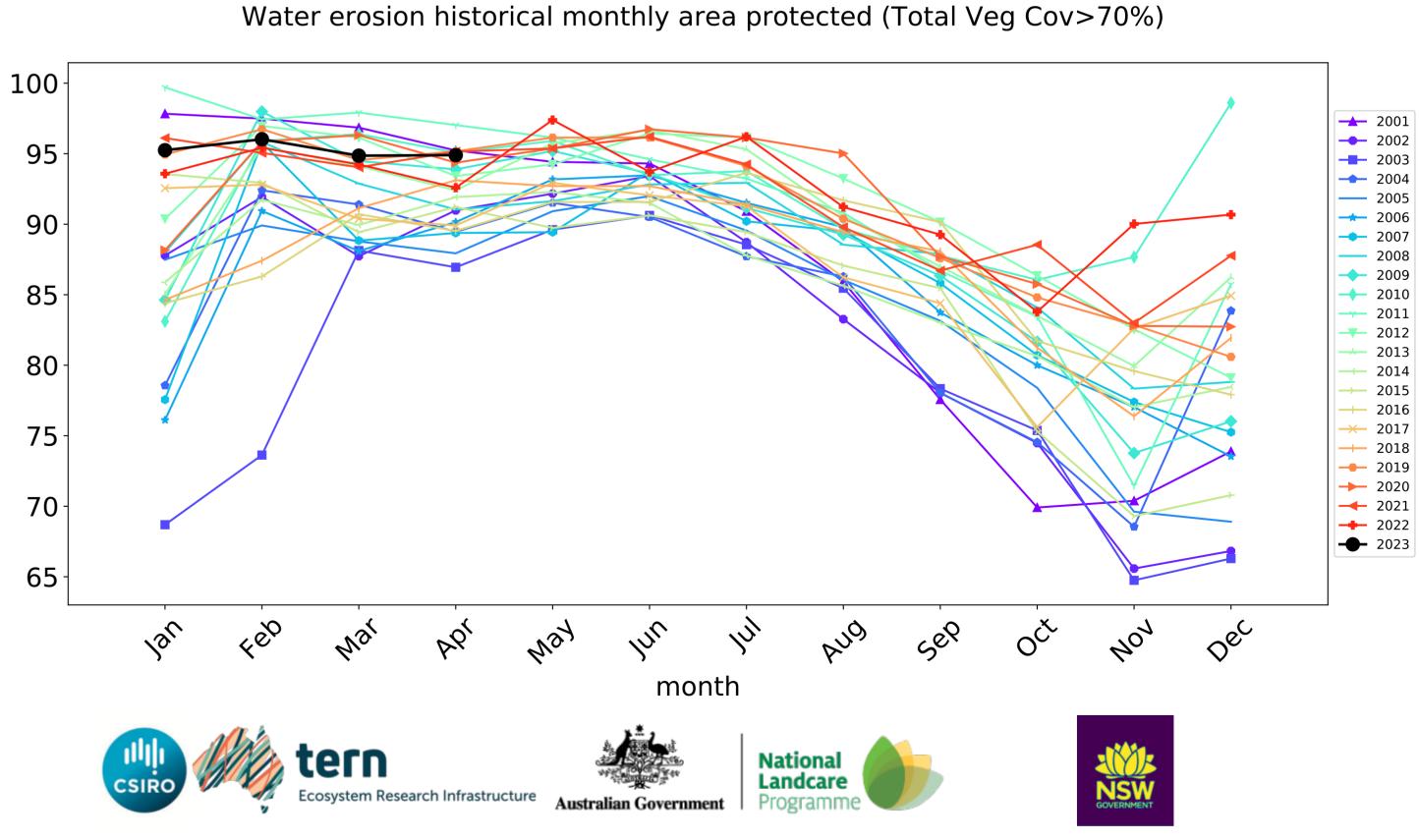
Irrigation timeseries





month



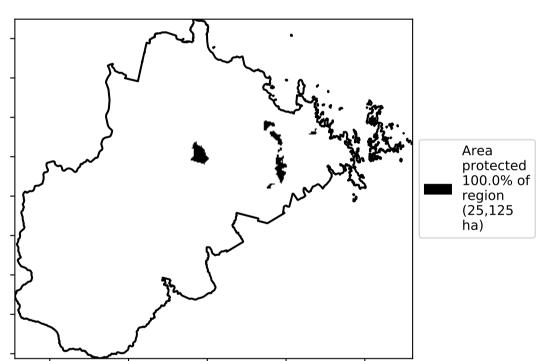


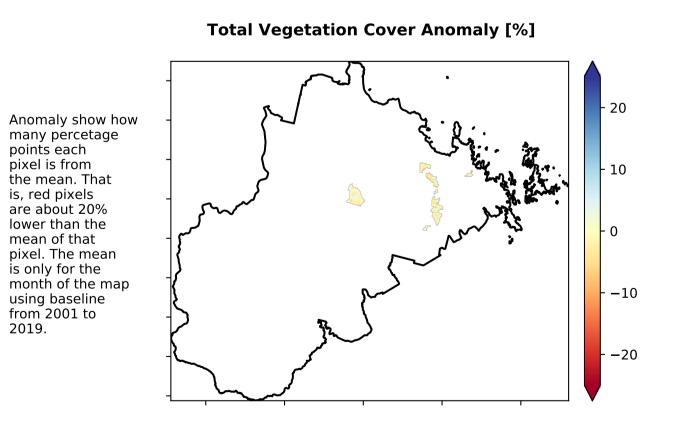
Production native forests and plantation forests

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 [%]

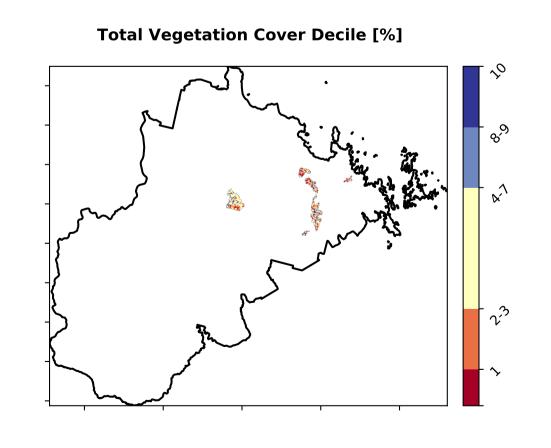
% Area protected from water erosion (>70%)





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

Area protected from wind erosion (>50%) Area protected 100.0% of region (25,125 ha)



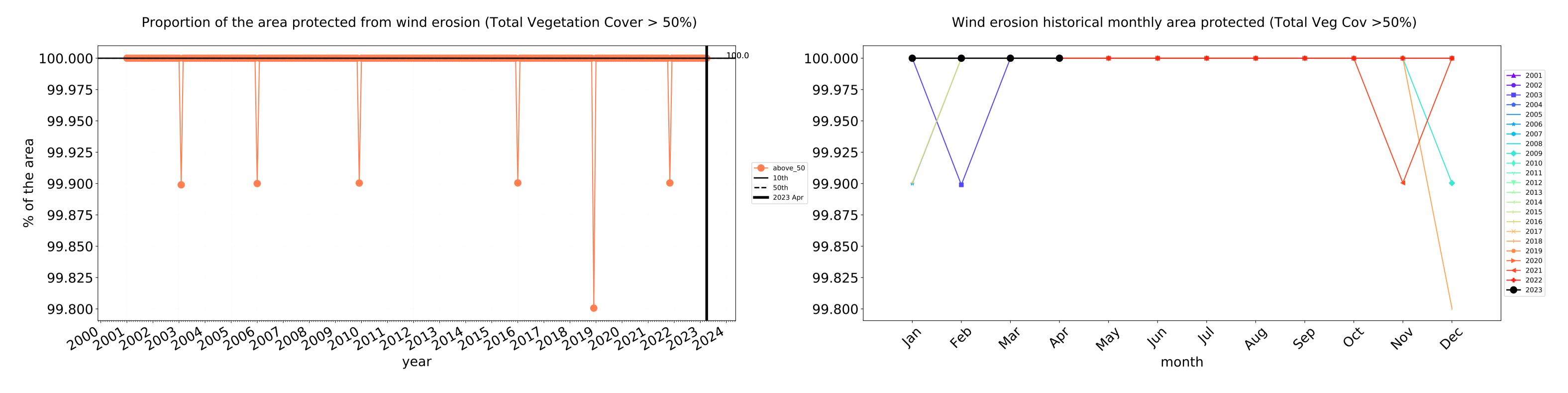


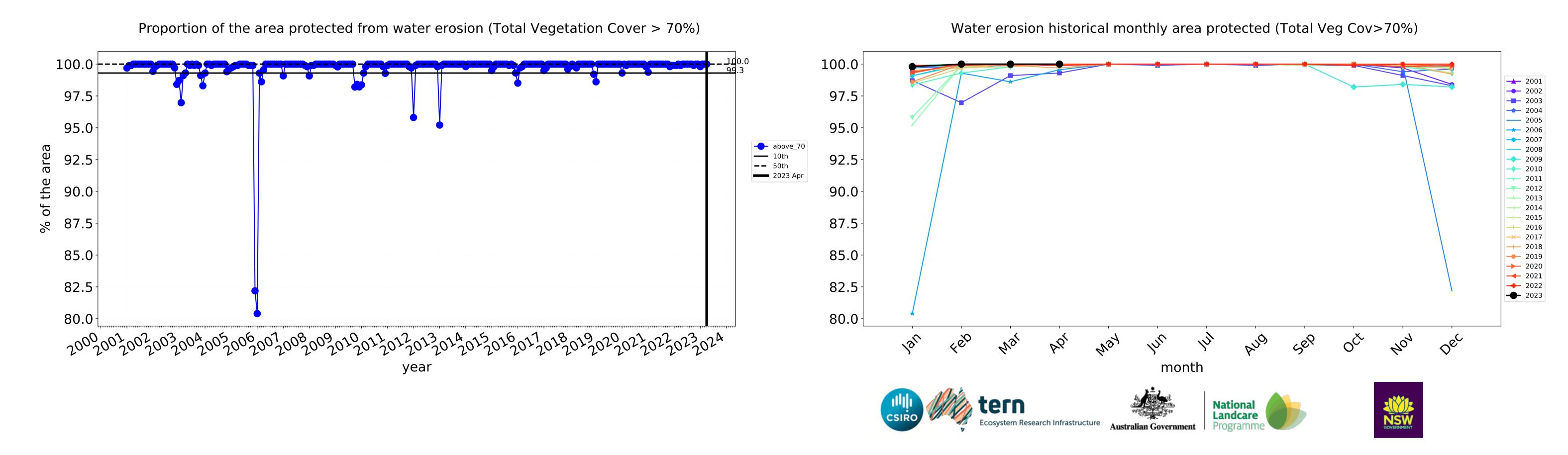






Production native forests and plantation forests timeseries





Whitsunday_(R) (2,354,725 ha and no data 27,151 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	2,354,725	100.0% 2,354,500	99.9% 2,351,325	98.5% 2,319,450	93.1% 2,192,400	55.8% 1,313,375	14.1% 331,450
Conservation and natural environments	167,650	99.9% 167,550	99.5% 166,825	97.4% 163,250	92.2% 154,550	52.2% 87,500	17.1% 28,700
Conservation and natural environments non forest	28,050	99.7% 27,975	98.9% 27,750	95.1% 26,675	80.3% 22,525	20.6% 5,775	2.2% 625
Conservation and natural environments Woodland forest	56,750	100.0% 56,750	99.8% 56,625	98.4% 55,850	95.2% 54,050	52.9% 30,000	9.3% 5,250
Conservation and natural environments Forest (non woodland)	82,850	100.0% 82,825	99.5% 82,450	97.4% 80,725	94.1% 77,975	62.4% 51,725	27.5% 22,825
Agriculture	2,084,875	100.0% 2,084,875	100.0% 2,083,900	99.0% 2,064,400	94.1% 1,962,825	57.3% 1,194,600	14.2% 295,375
Grazing	2,042,450	100.0% 2,042,450	100.0% 2,041,525	99.1% 2,024,125	94.5% 1,931,075	58.3% 1,190,275	14.4% 294,425
Grazing non forest	1,171,800	100.0% 1,171,800	99.9% 1,170,925	98.7% 1,156,275	91.9% 1,076,800	53.6% 628,200	14.8% 173,700
Grazing Woodland forest	819,800	100.0% 819,800	100.0% 819,750	99.8% 818,075	98.4% 806,425	65.9% 540,625	14.4% 118,050
Grazing - Forest (non woodland)	50,850	100.0% 50,850	100.0% 50,850	97.9% 49,775	94.1% 47,850	42.2% 21,450	5.3% 2,675
Irrigation	42,125	100.0% 42,125	99.9% 42,075	94.9% 39,975	74.7% 31,450	9.8% 4,125	2.3% 950
Production native forests and plantation forests	25,125	100.0% 25,125	100.0% 25,125	100.0% 25,125	99.8% 25,075	68.7% 17,250	17.2% 4,325







