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.

Date: March 2024

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









Vegetation Cover Mar 2024

Land use and forest cover

Catchment Scale

of Australia (2018)

Derived from

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

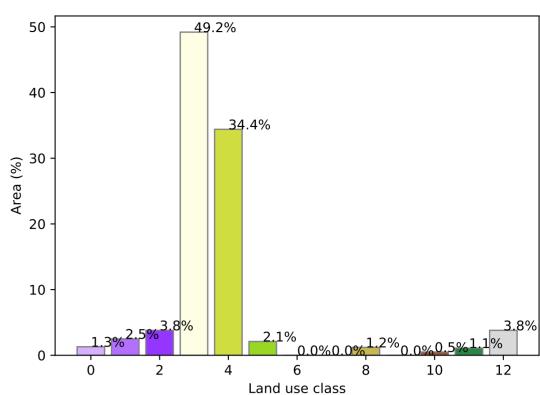
Use of Australia

(2018) and Forests

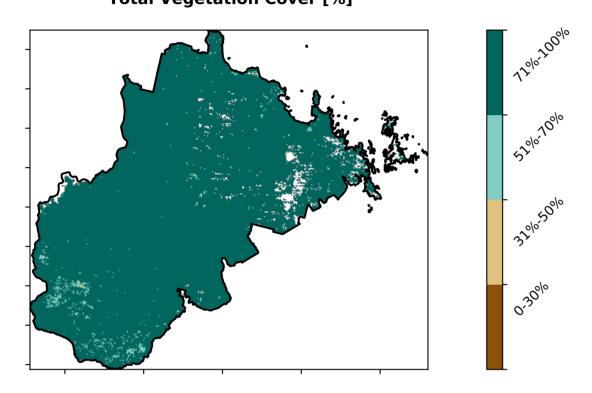
of Australia (2018)

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

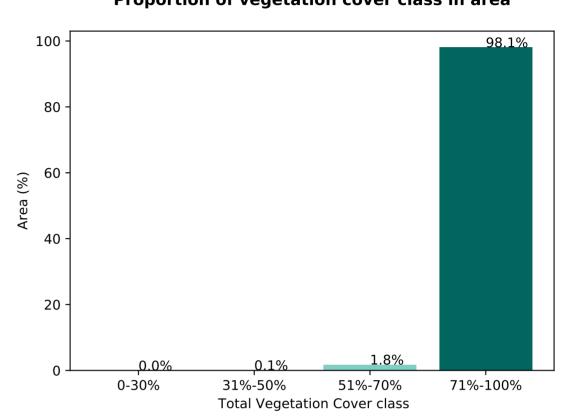
Proportion of each land class in area

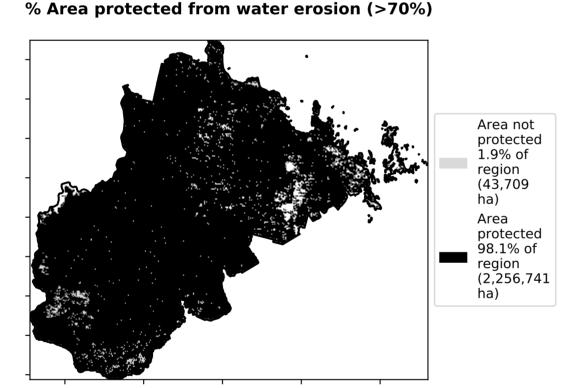


Total Vegetation Cover [%]

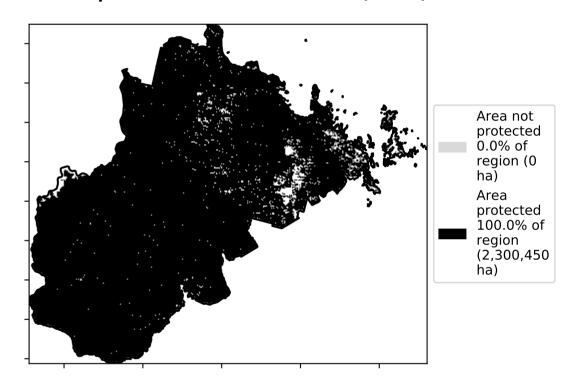


Proportion of vegetation cover class in area

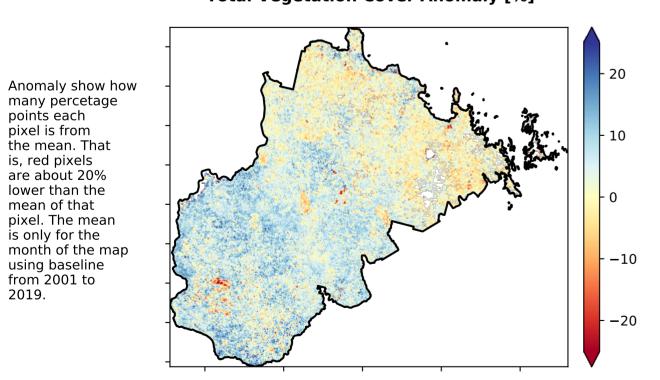




% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



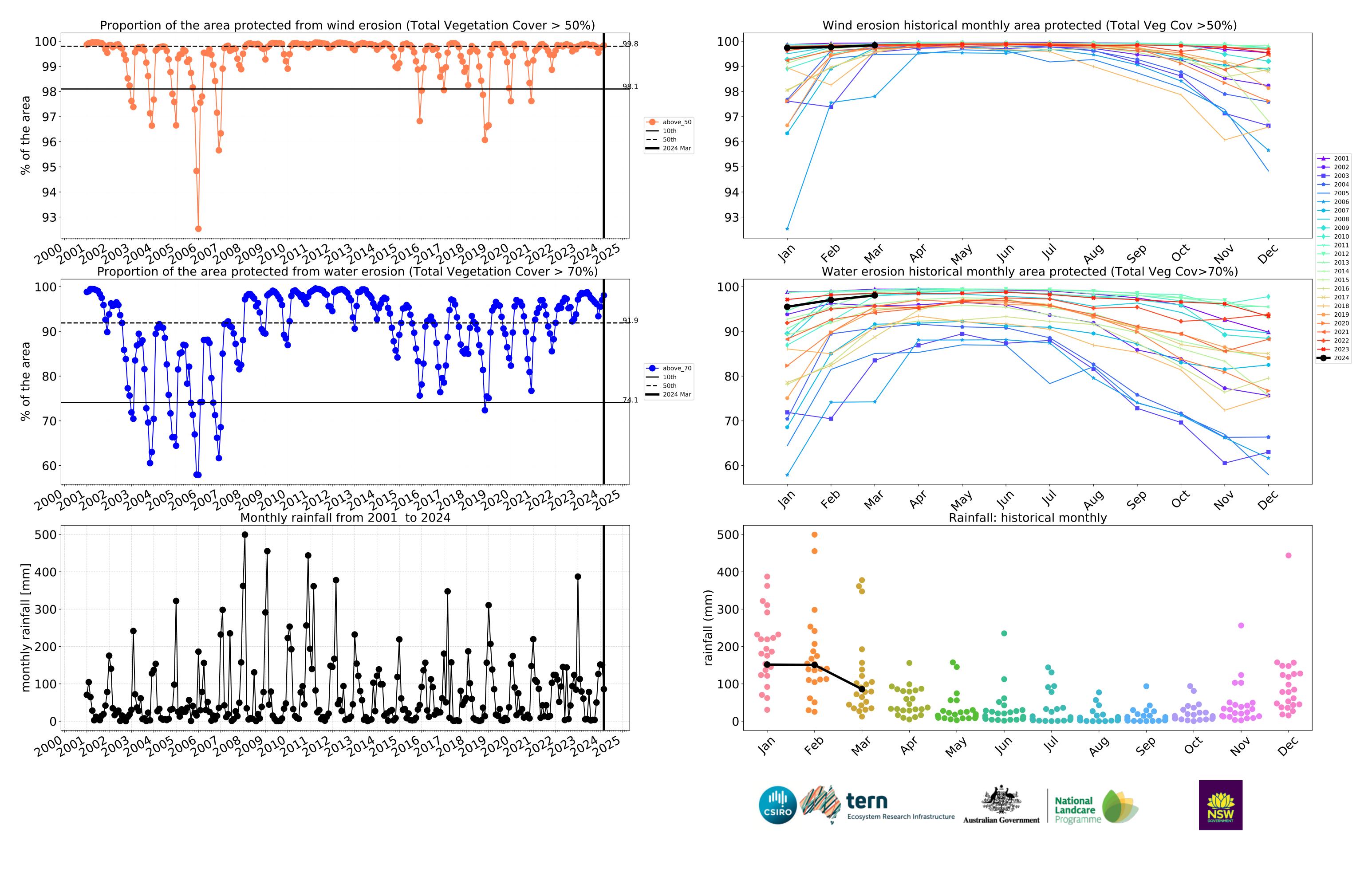
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.







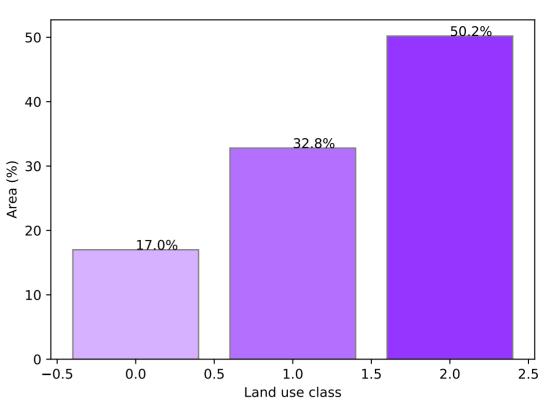




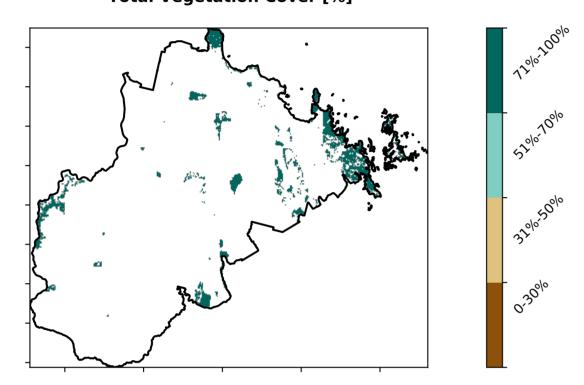
Conservation and natural environments

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 2 Conservation and natural environments - Woodland forest 3 Conservation and natural environments - Nonwoodland forest Tonservation and natural environments - Nonwoodland forest

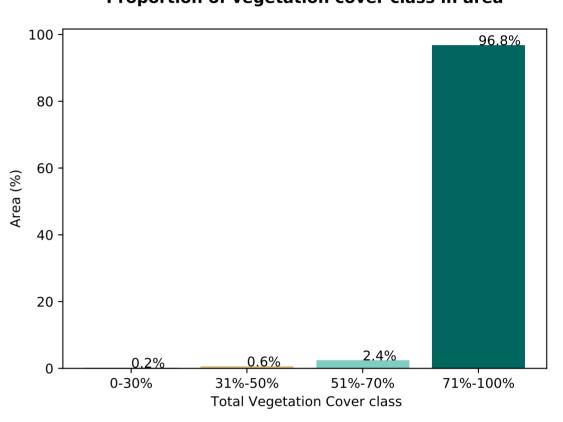
Proportion of each land class in area



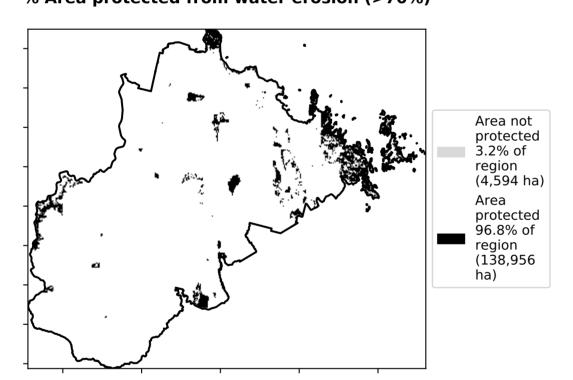
Total Vegetation Cover [%]



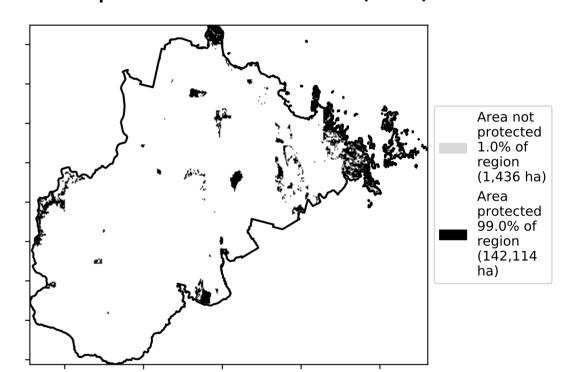
Proportion of vegetation cover class in area



% 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

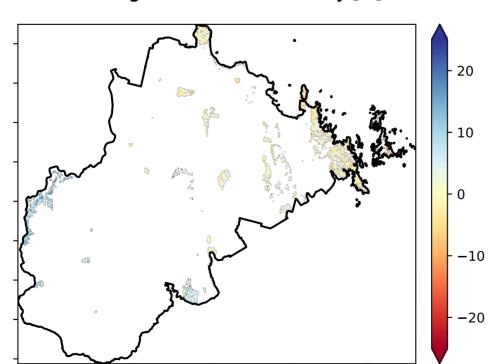
the mean. That

pixel. The mean

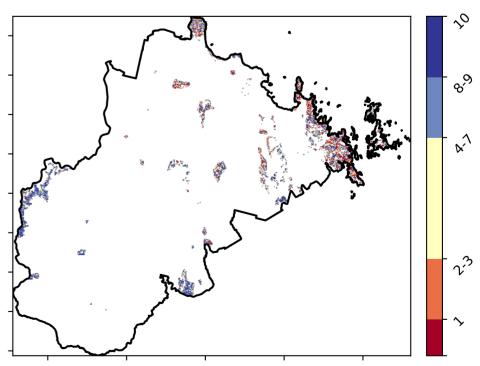
using baseline from 2001 to 2019.

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.



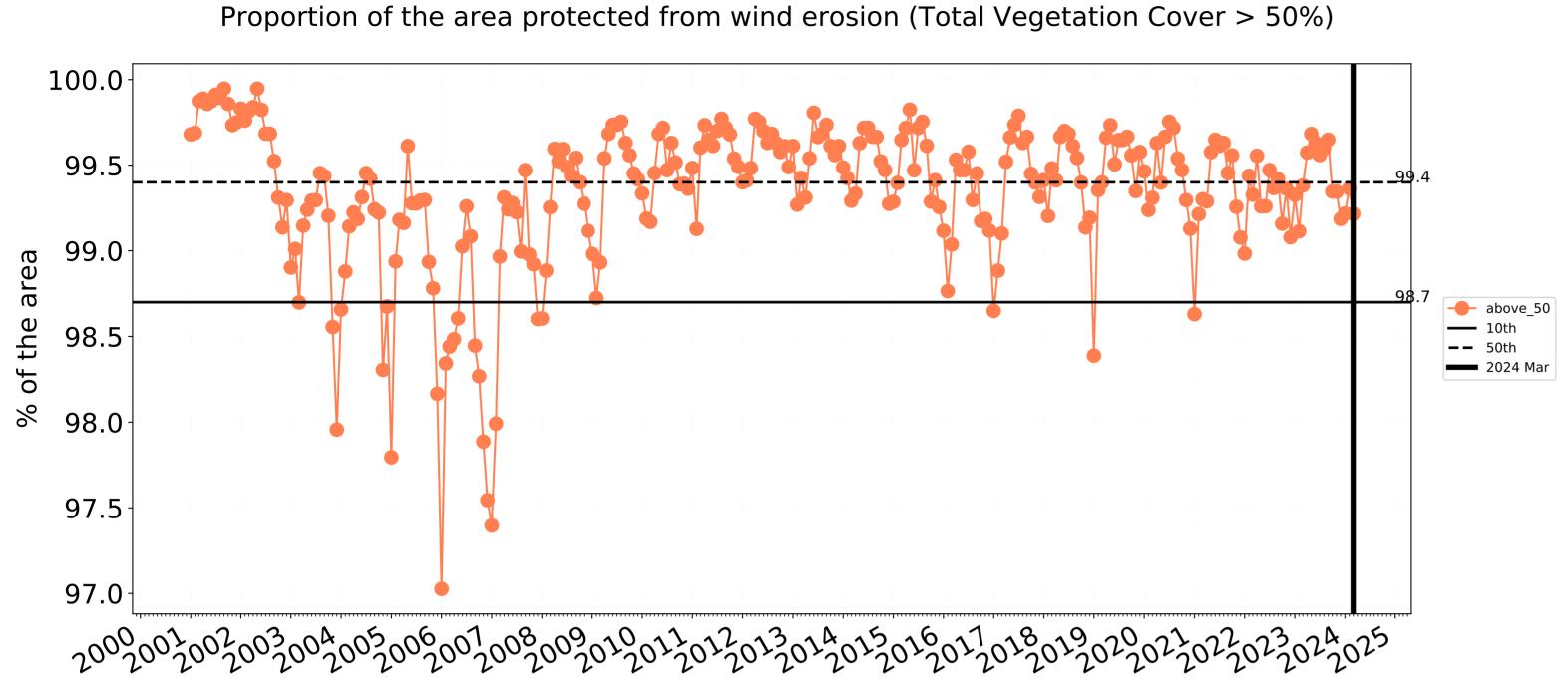


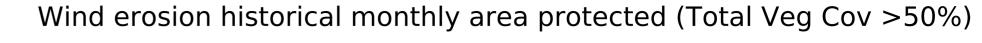


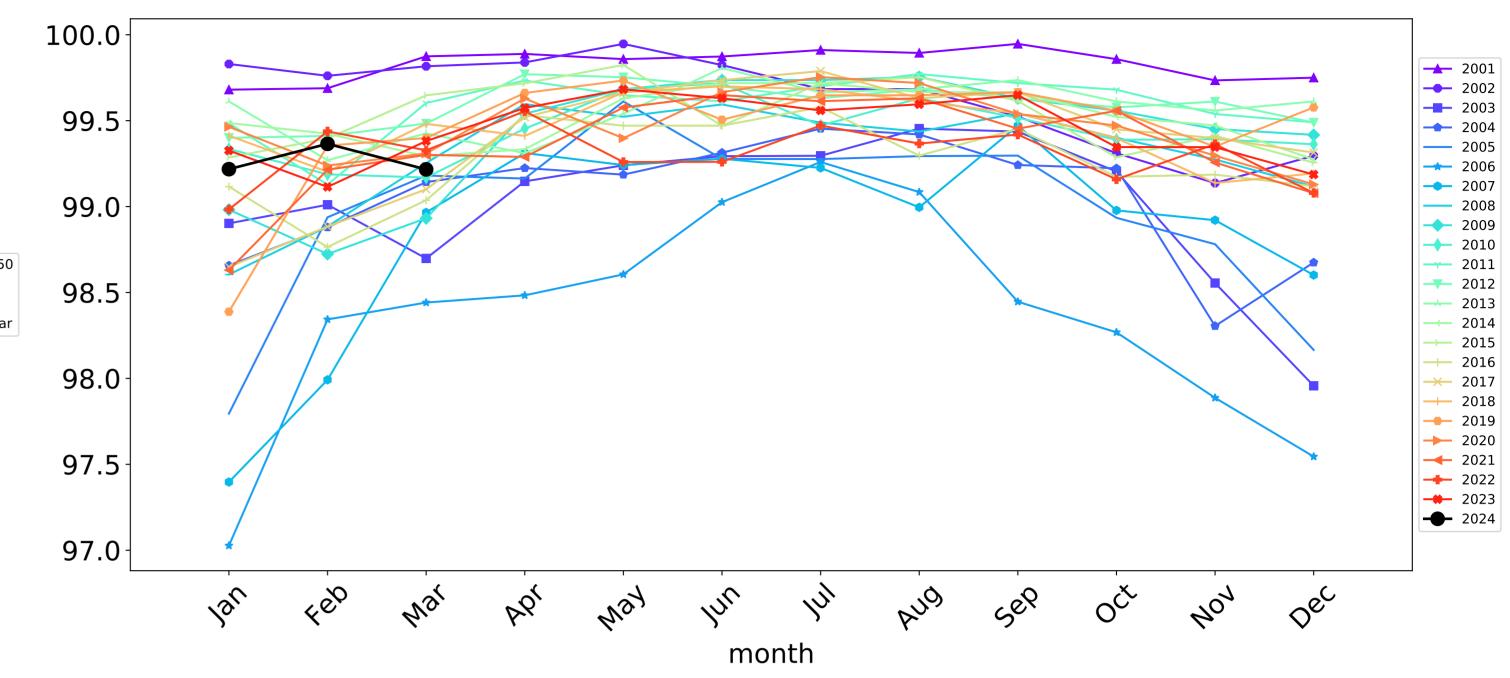


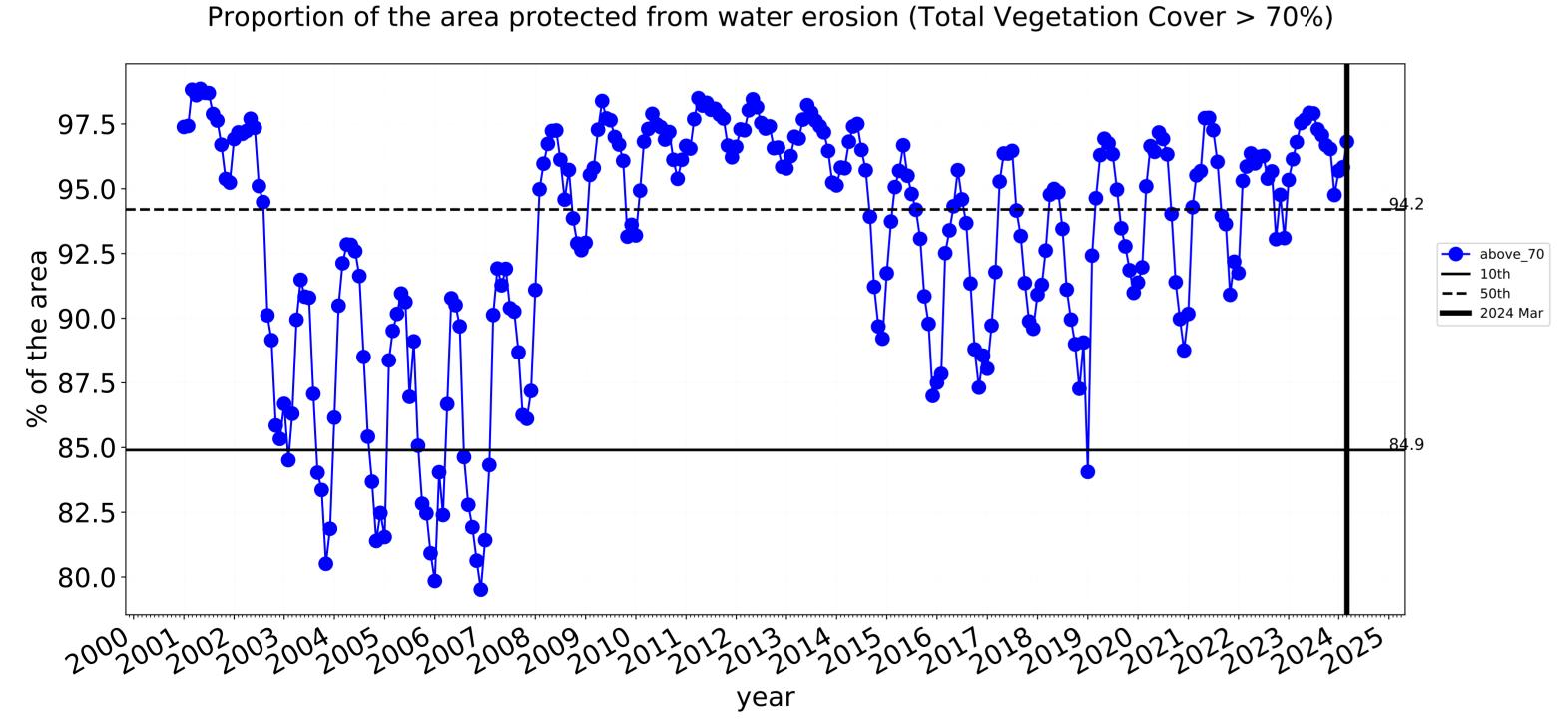


Conservation and natural environments timeseries

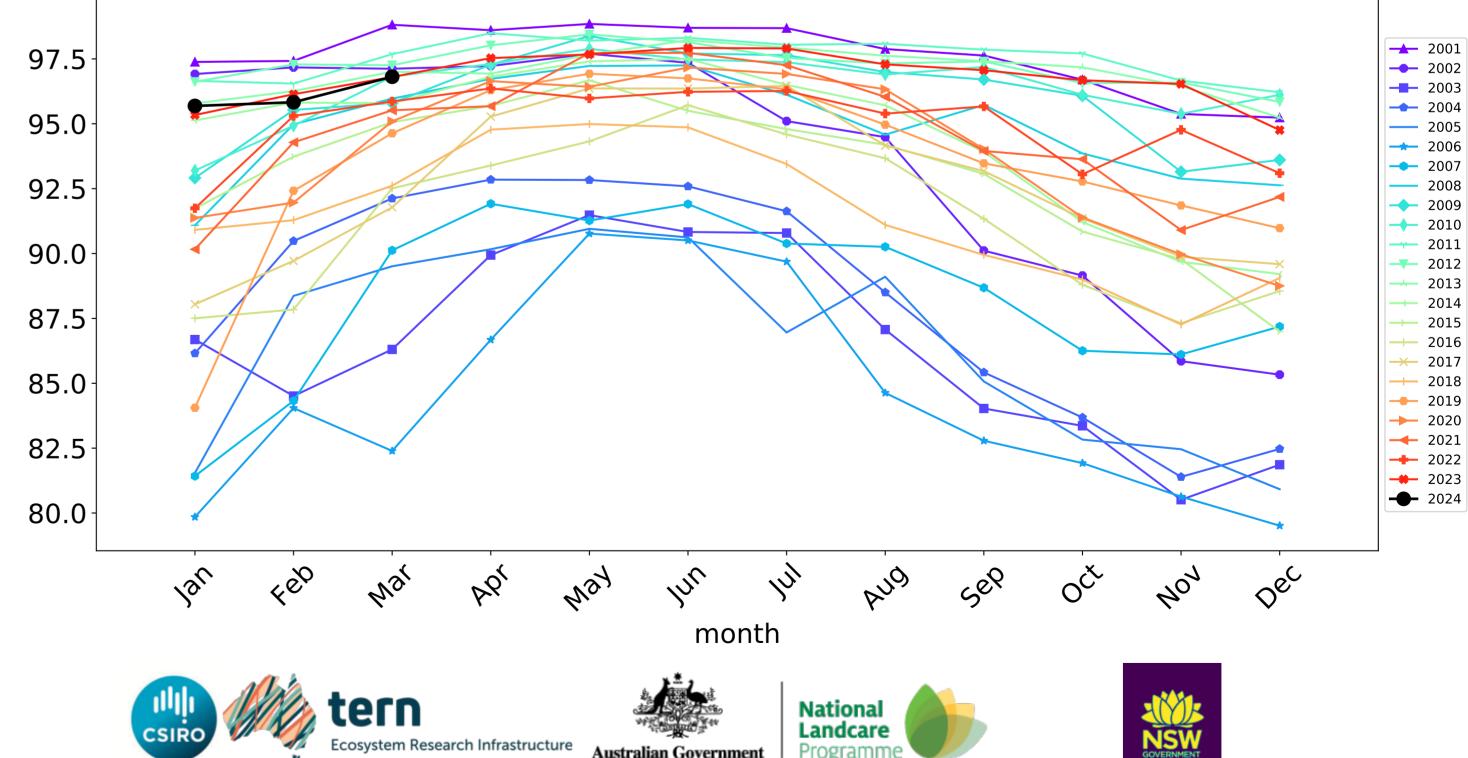






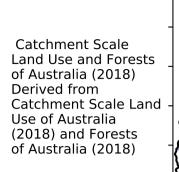


Water erosion historical monthly area protected (Total Veg Cov>70%)



Conservation and natural environments non forest

Land use and forest cover

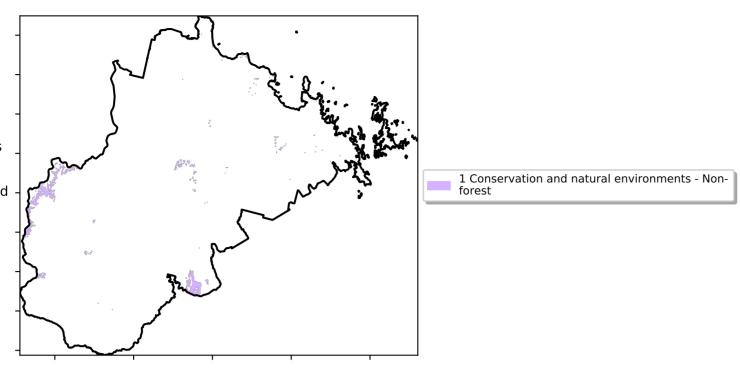


Anomaly show how many percetage points each pixel is from

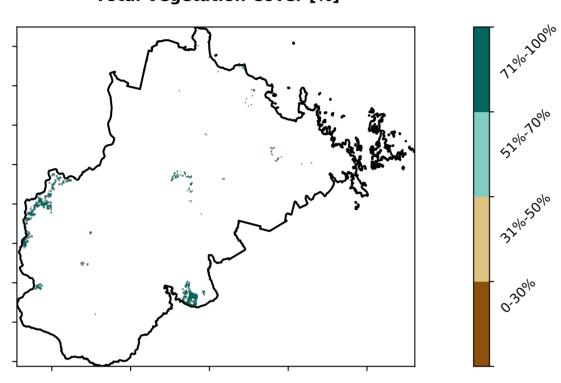
the mean. That

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

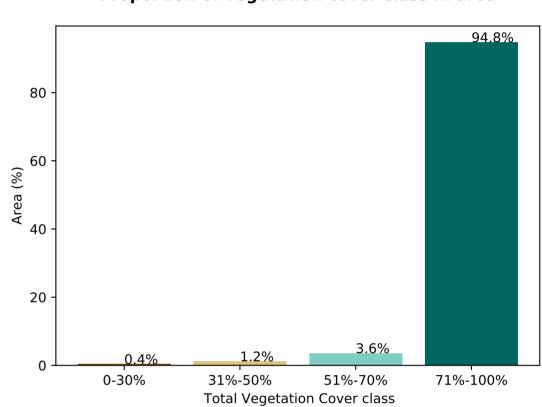
using baseline from 2001 to 2019.



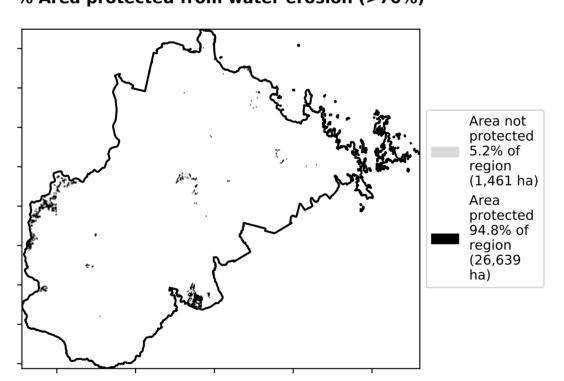
Total Vegetation Cover [%]



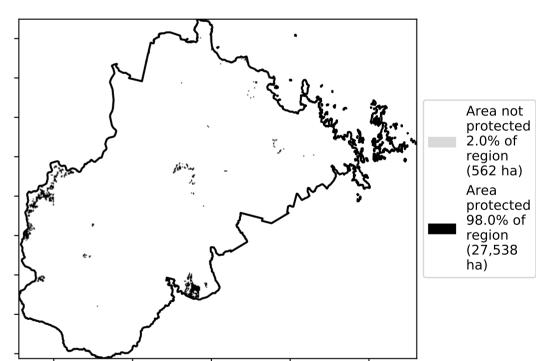
Proportion of vegetation cover class in area



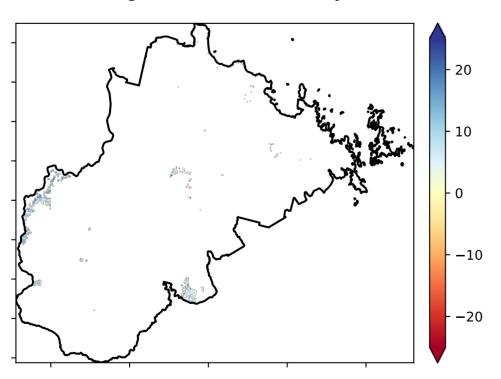
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

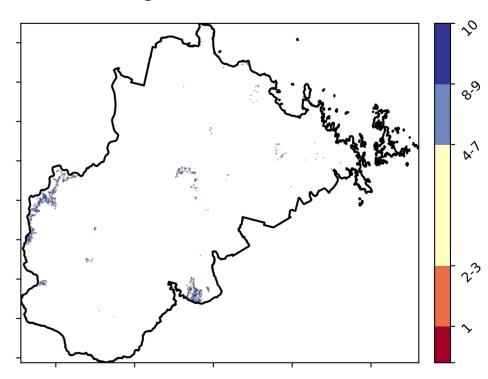


Total Vegetation Cover Anomaly [%]



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

Total Vegetation Cover Decile [%]







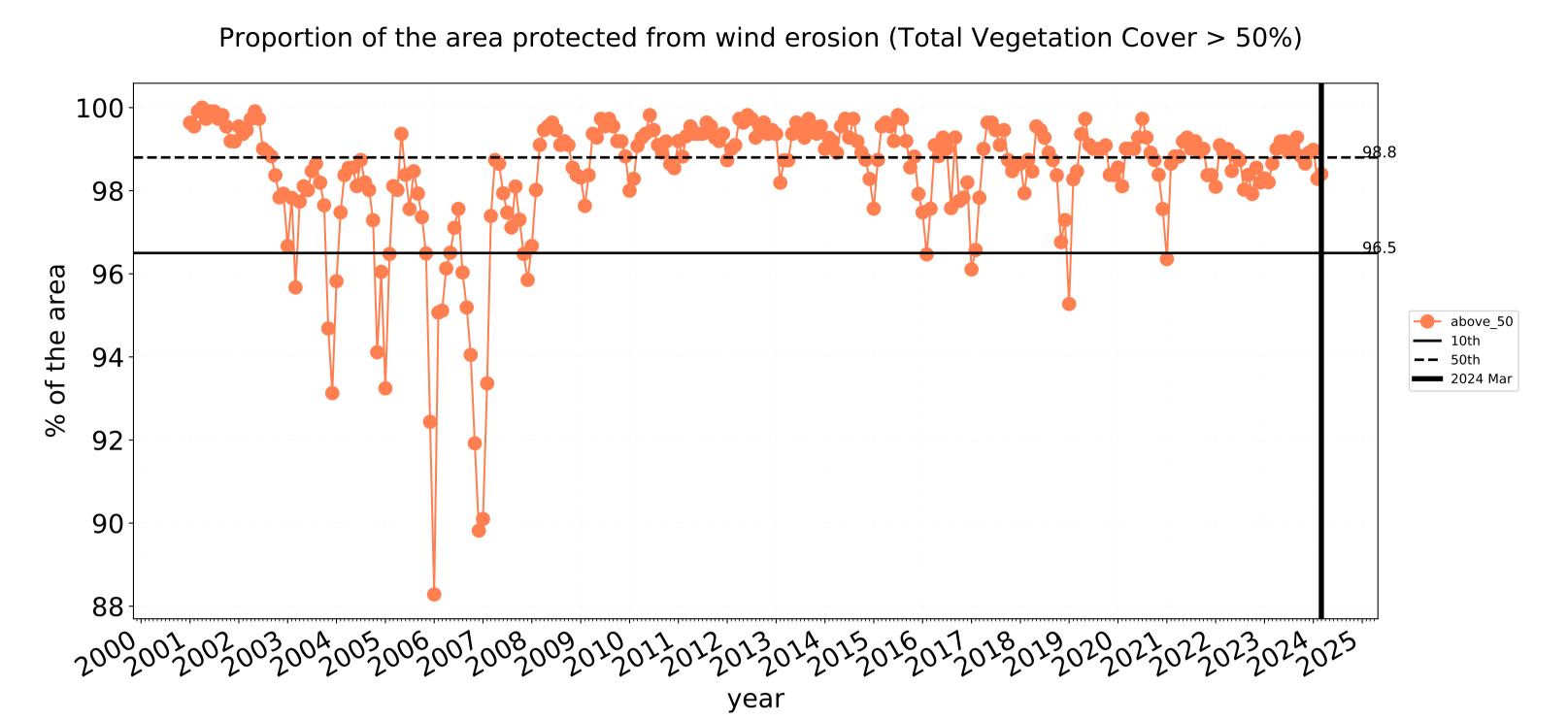


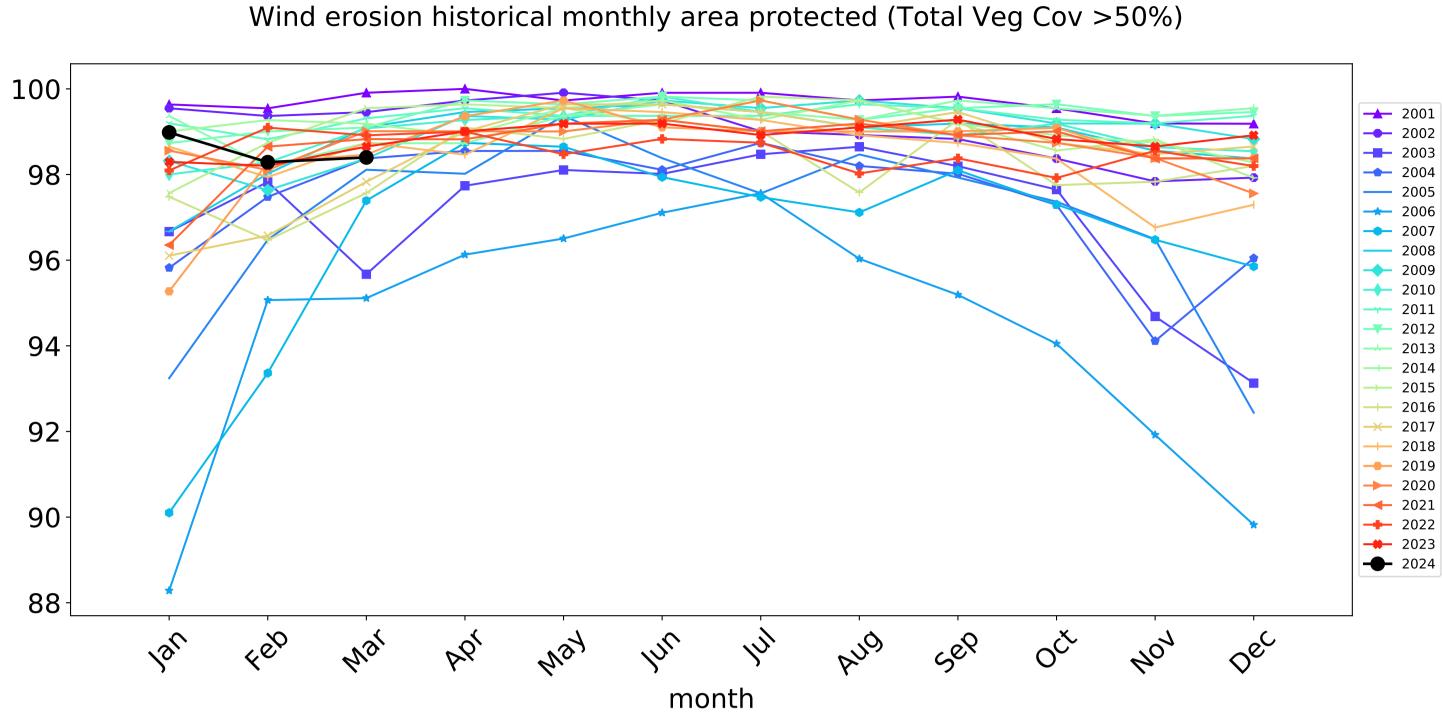


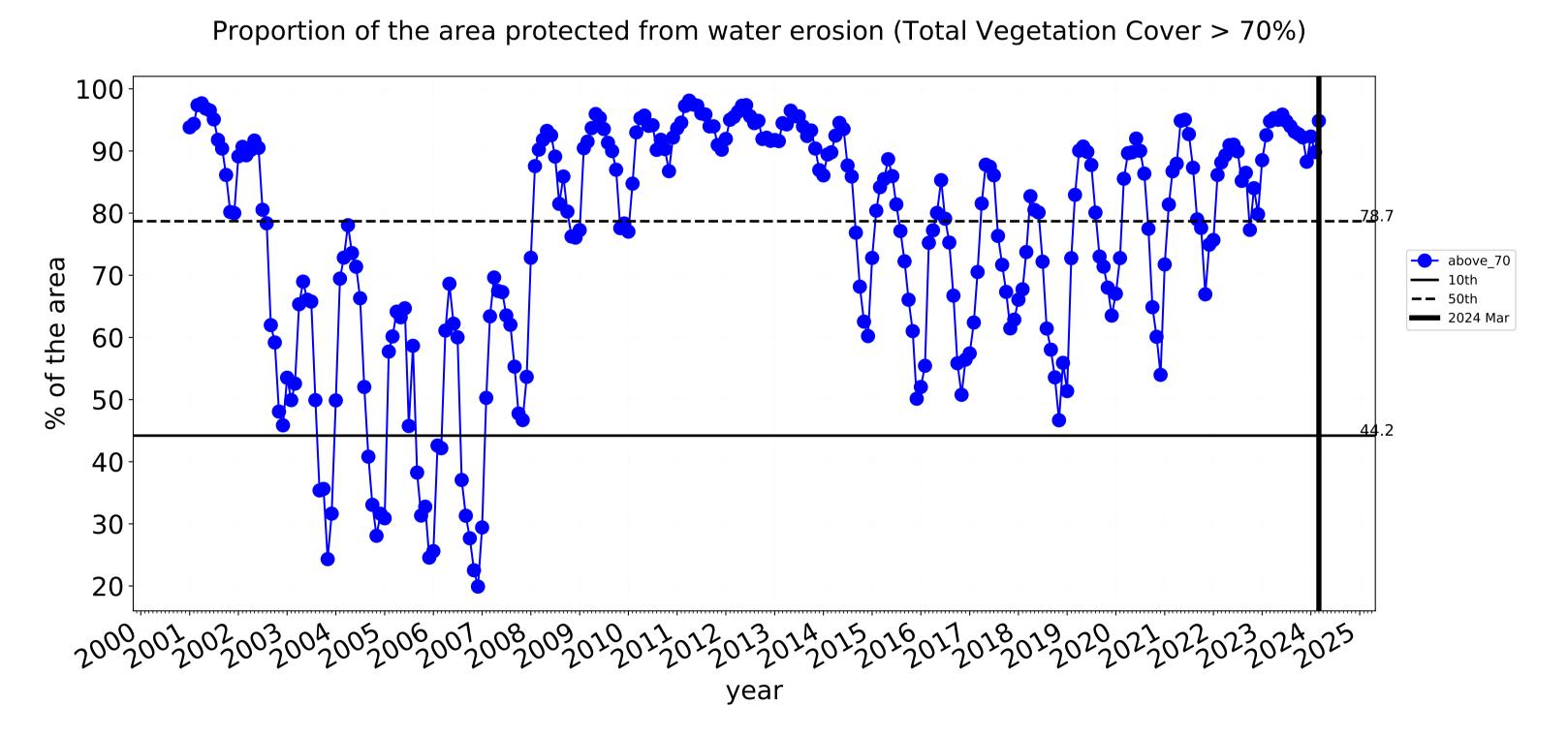


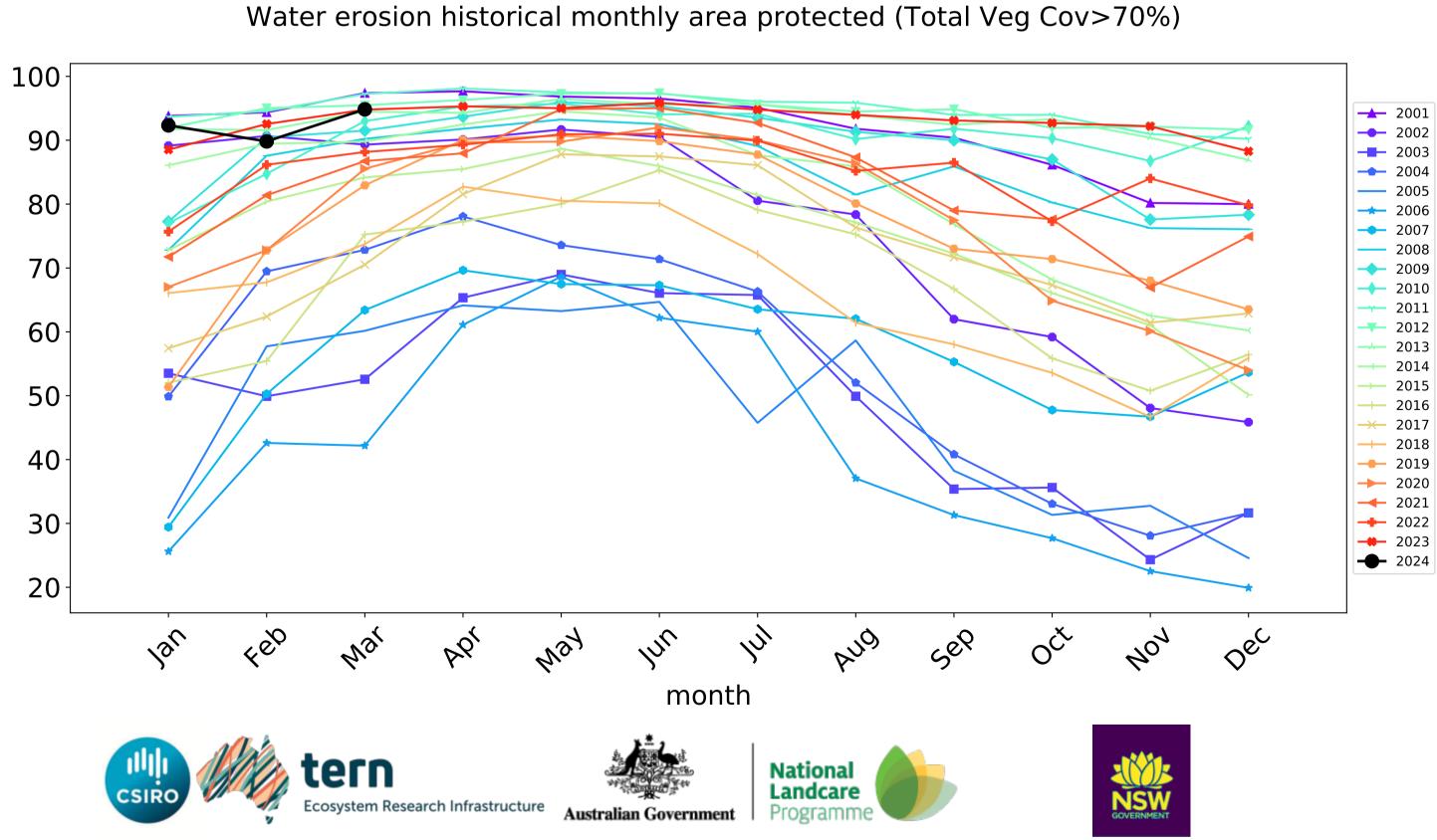


Conservation and natural environments non forest timeseries





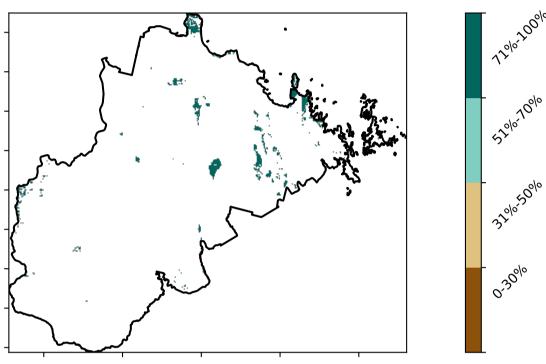




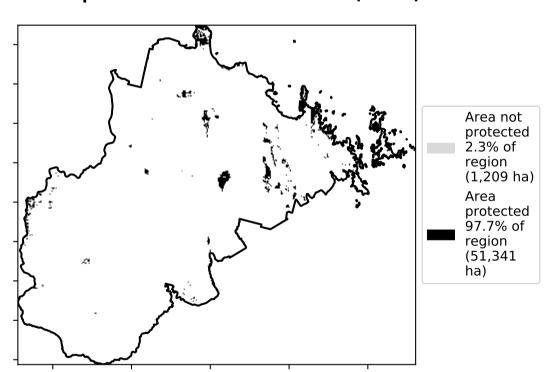
Conservation and natural environments Woodland forest

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 [%]

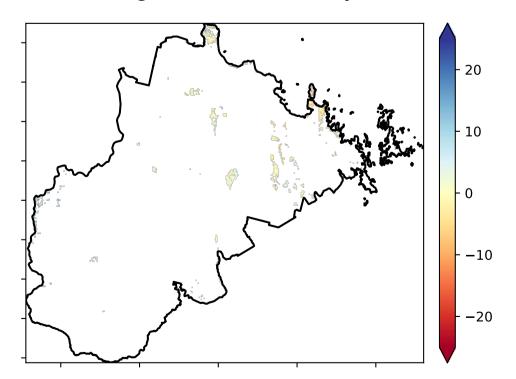
Anomaly show how many percetage points each pixel is from the mean. That

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pixel. The mean

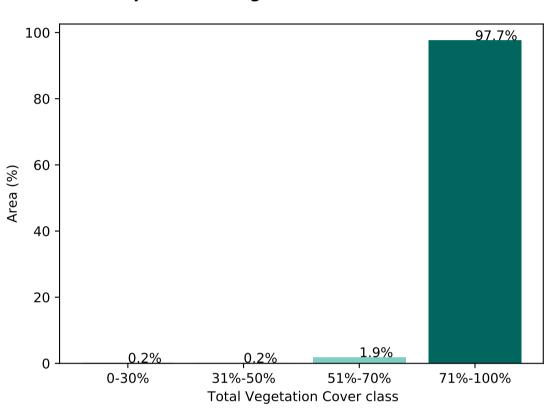
using baseline from 2001 to 2019.

is only for the month of the map

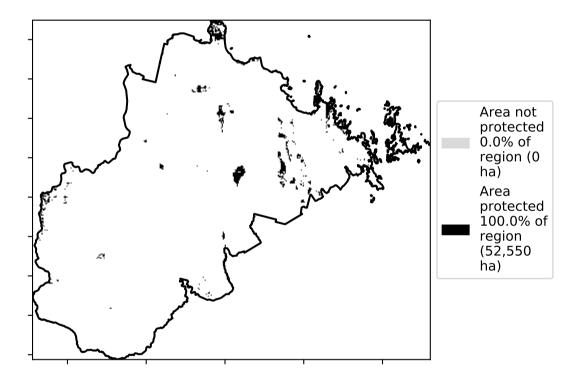


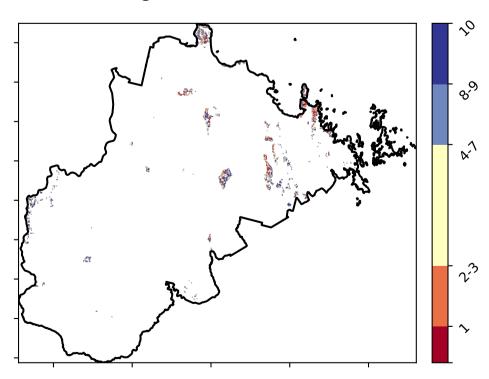
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





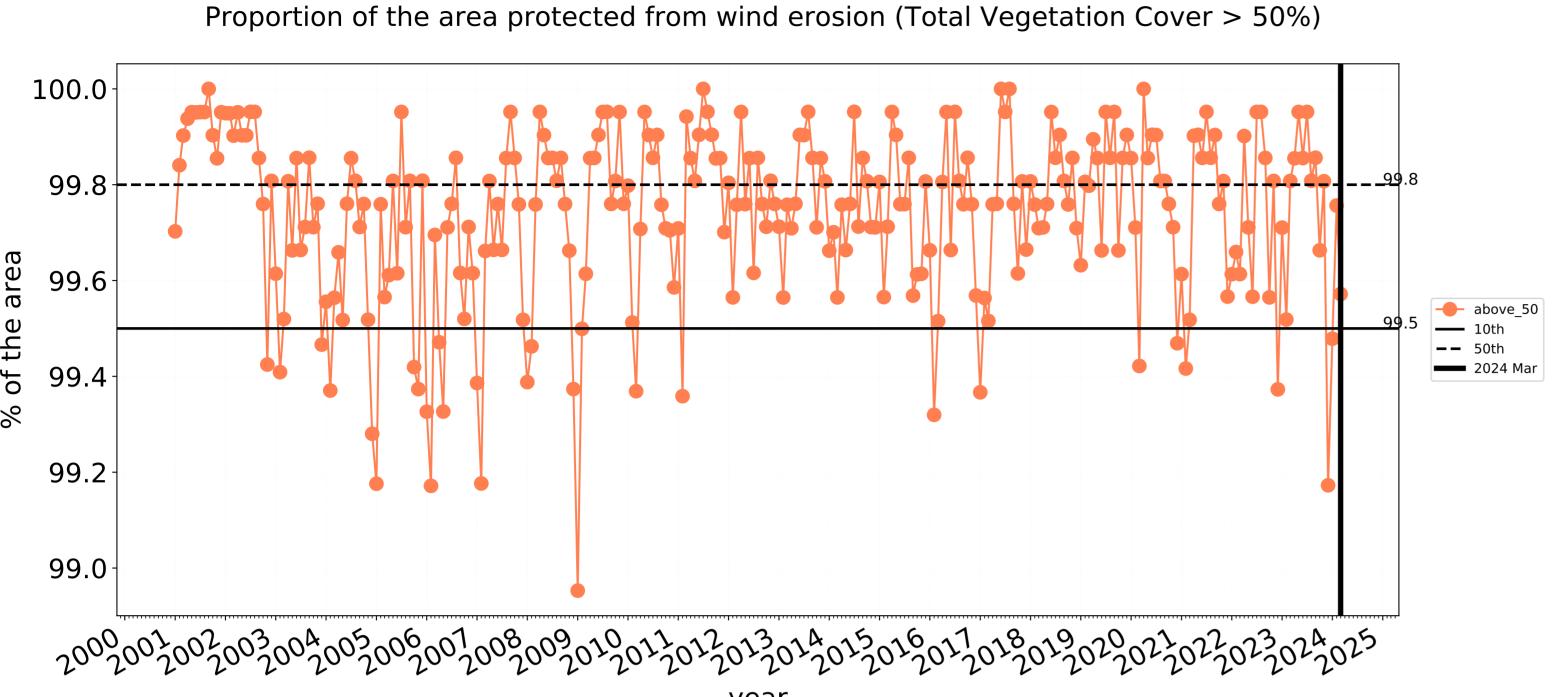


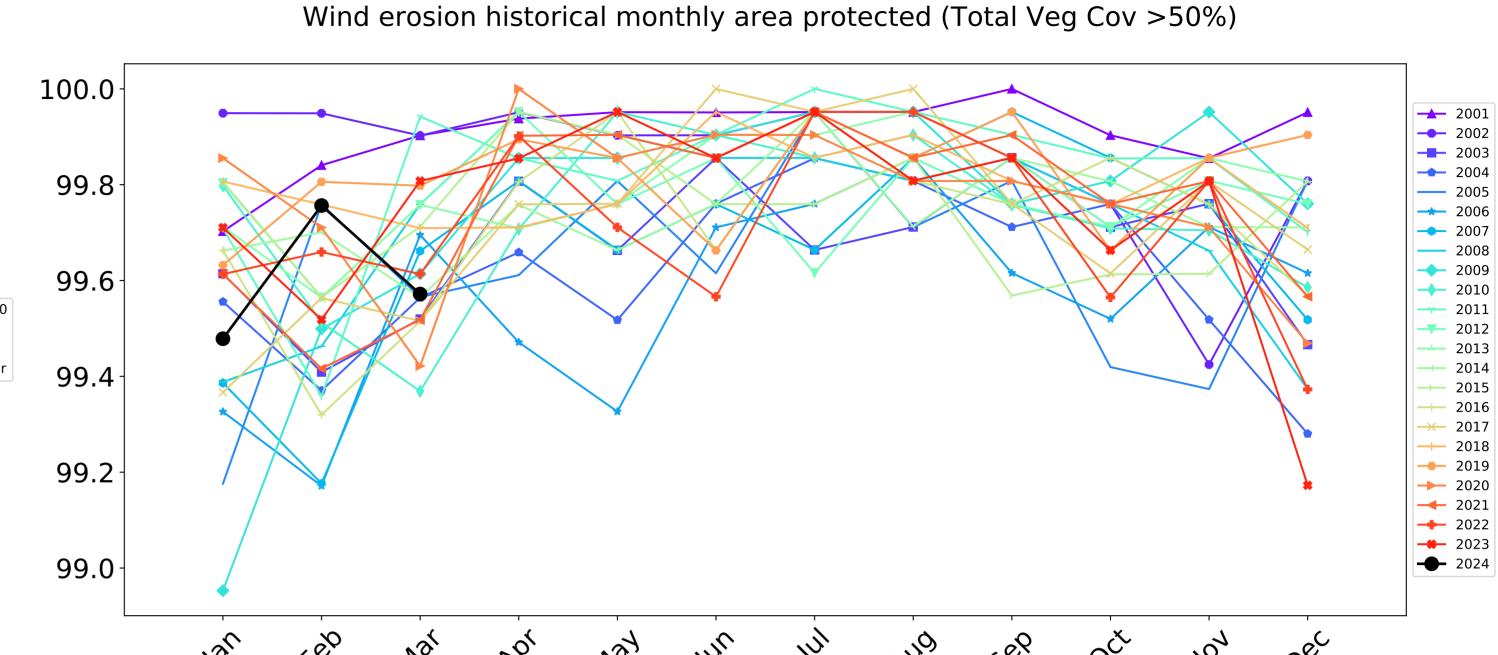




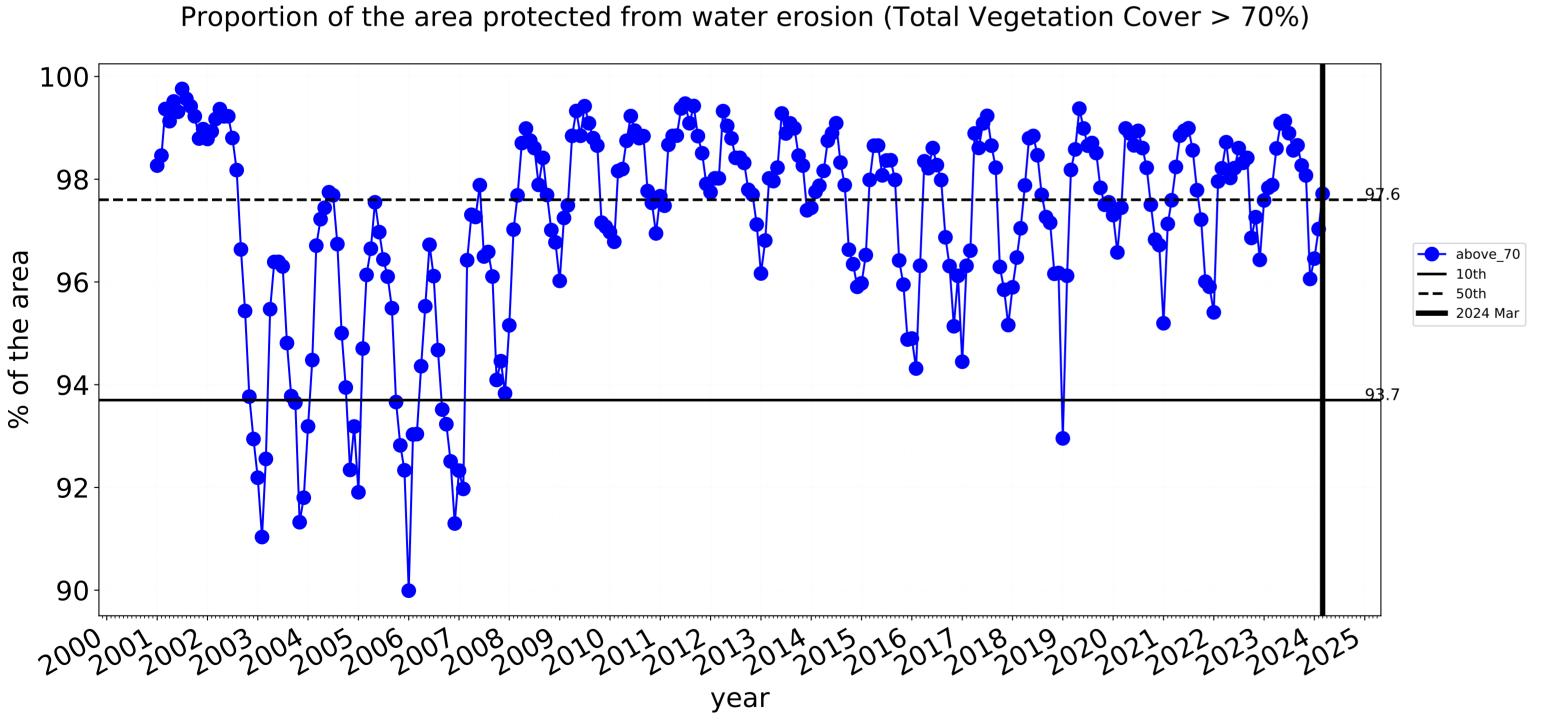


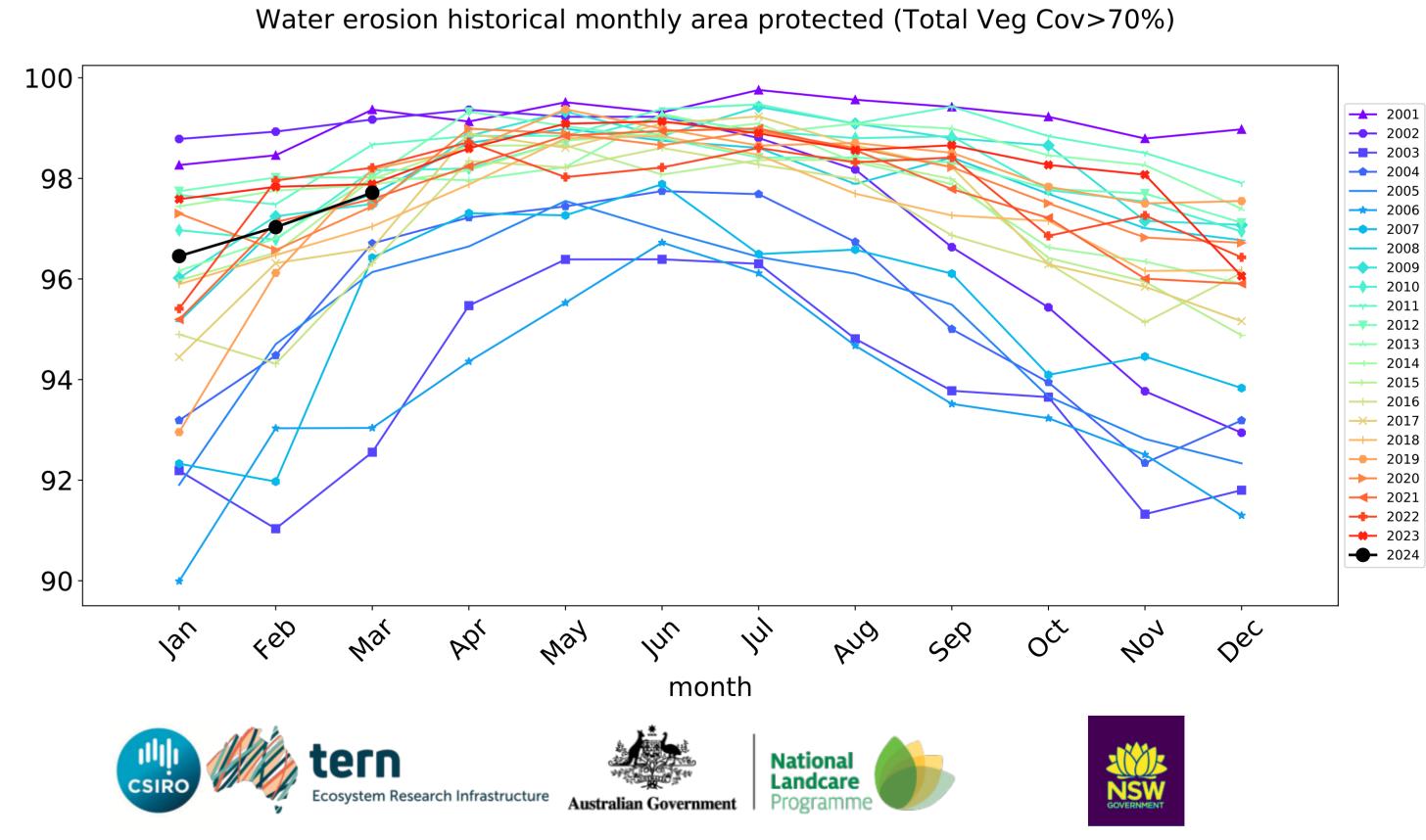
Conservation and natural environments Woodland forest timeseries





month

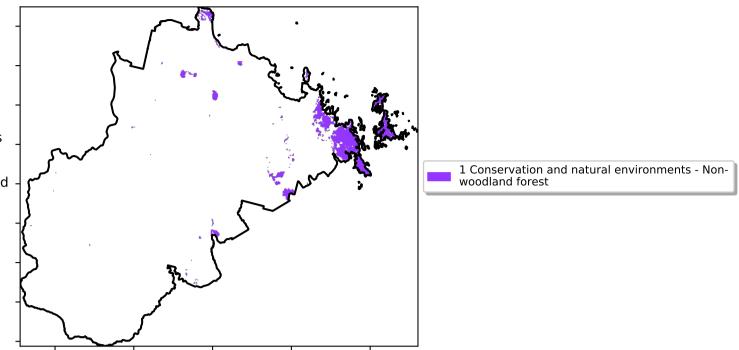




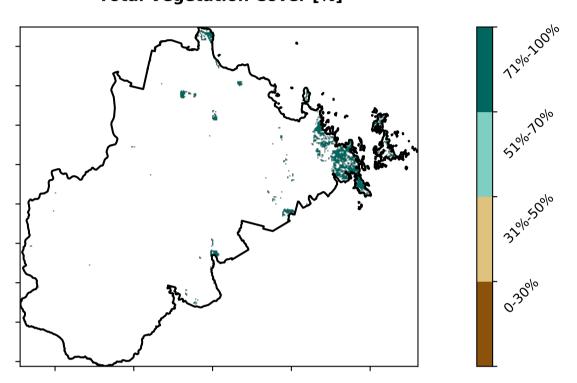
Conservation and natural environments Forest (non woodland)

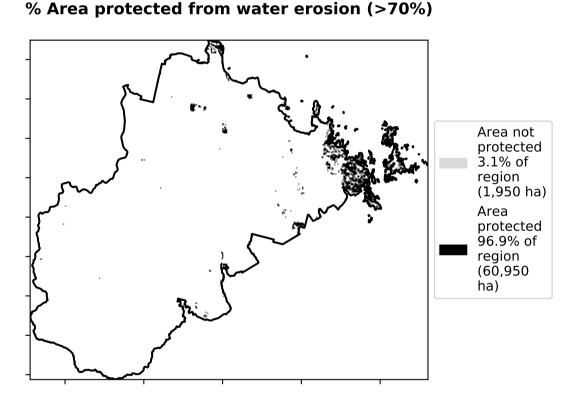
Land use and forest cover

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

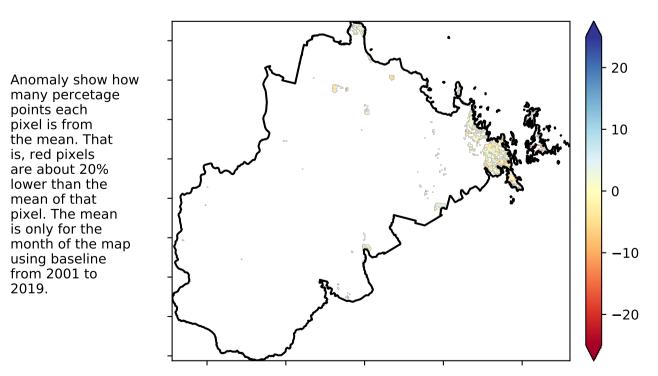


Total Vegetation Cover [%]



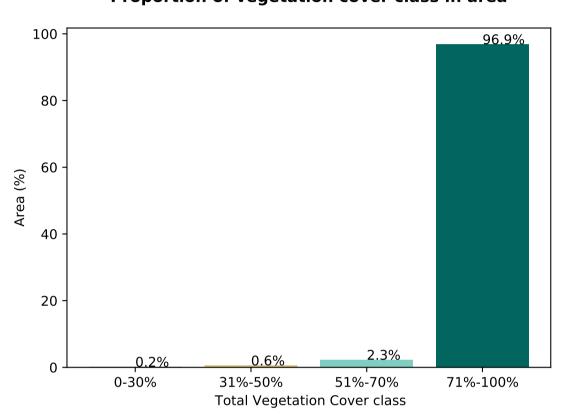


Total Vegetation Cover Anomaly [%]

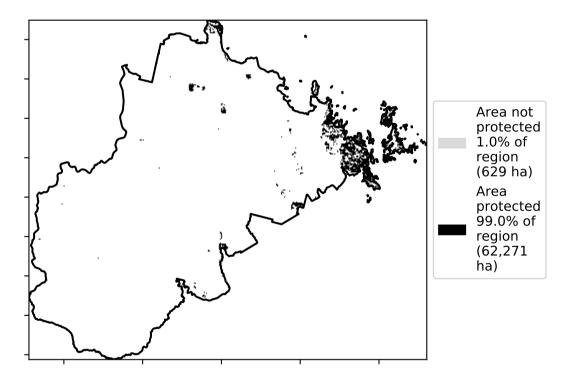


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

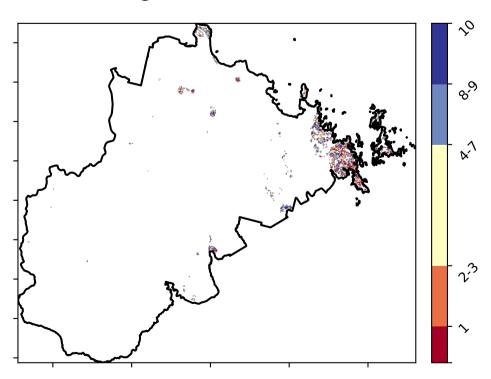
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]



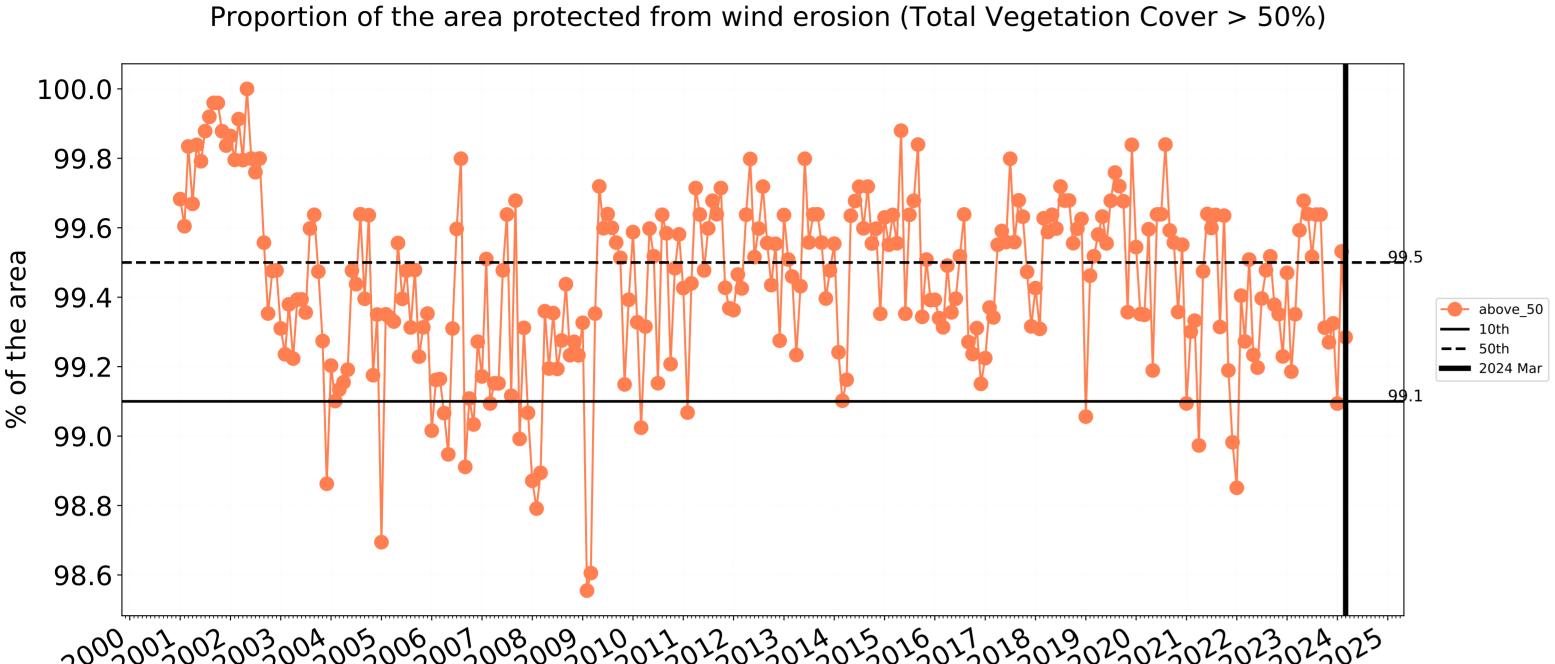




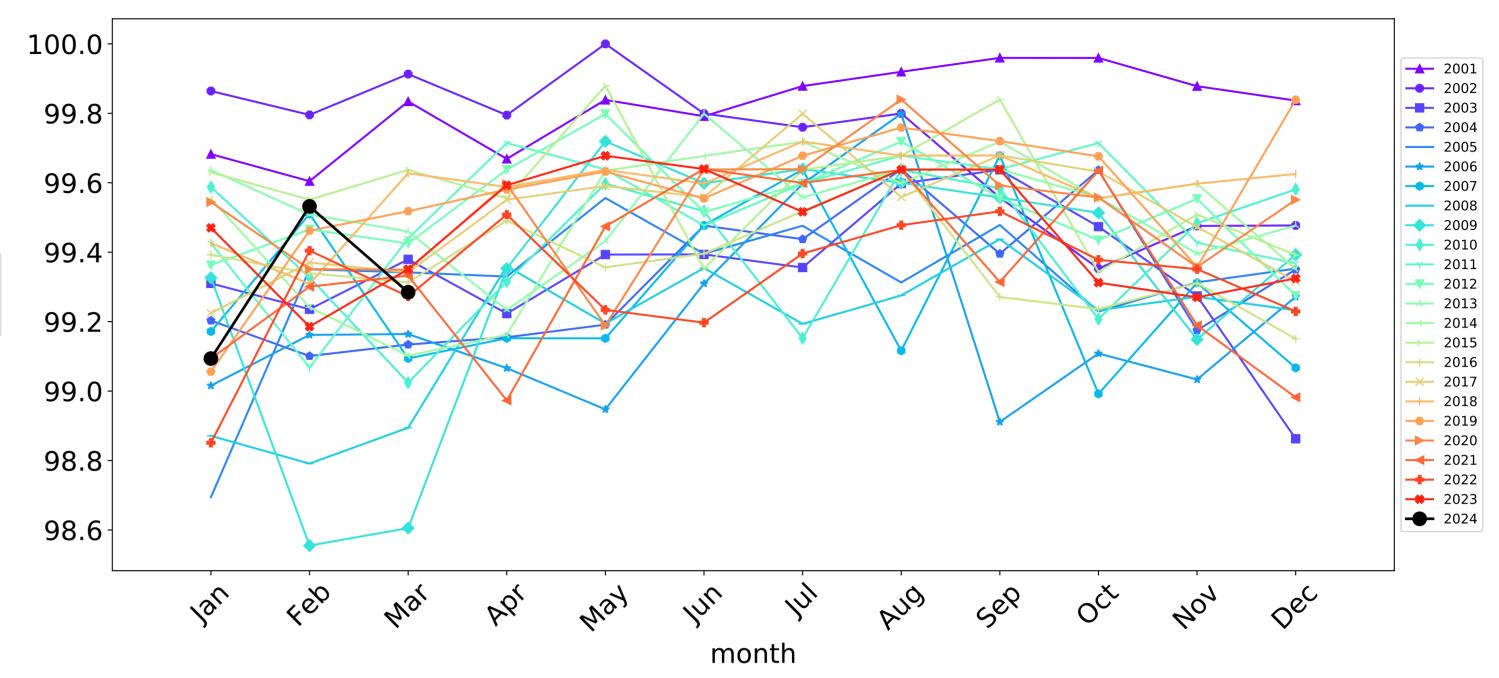


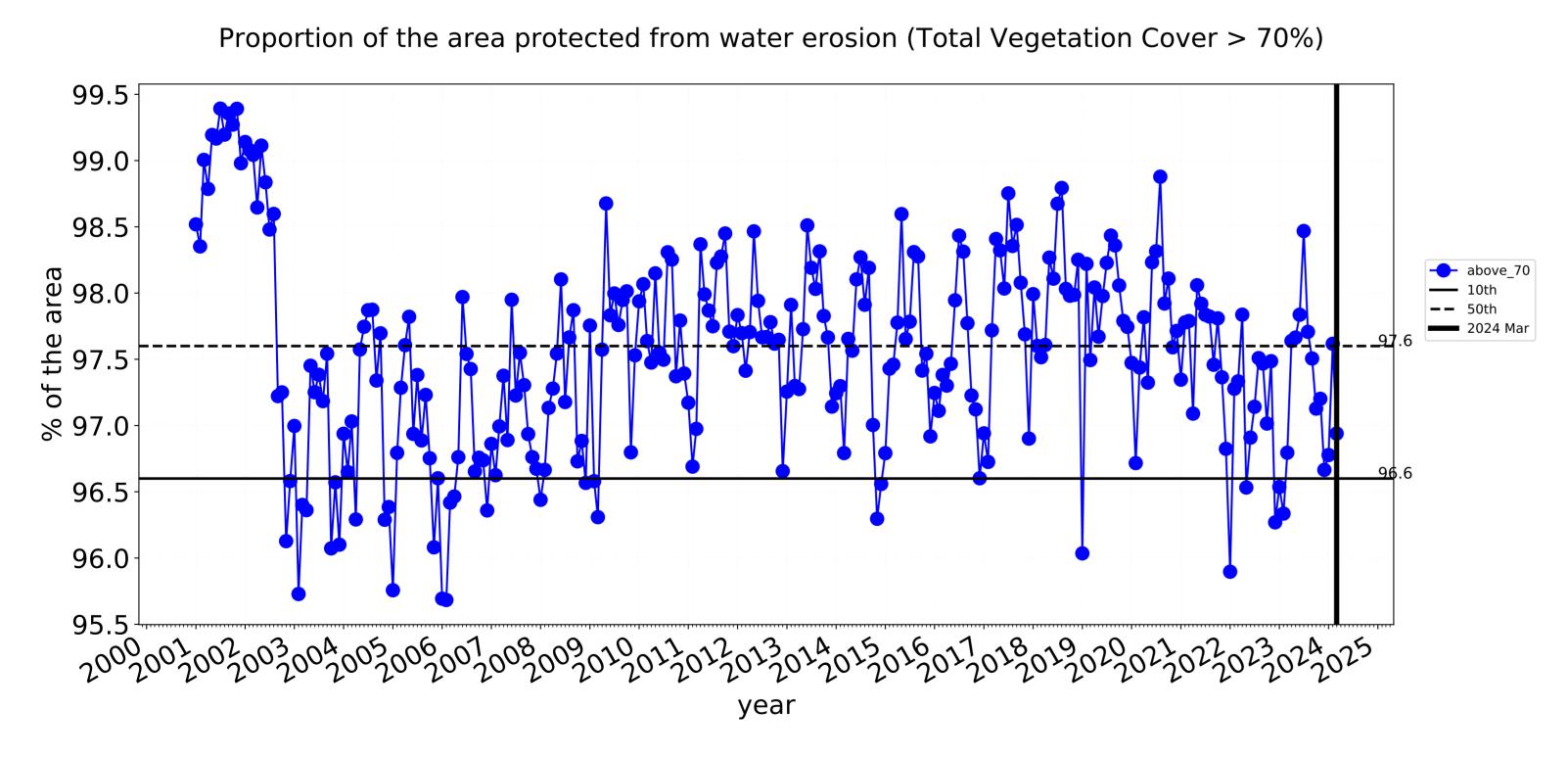


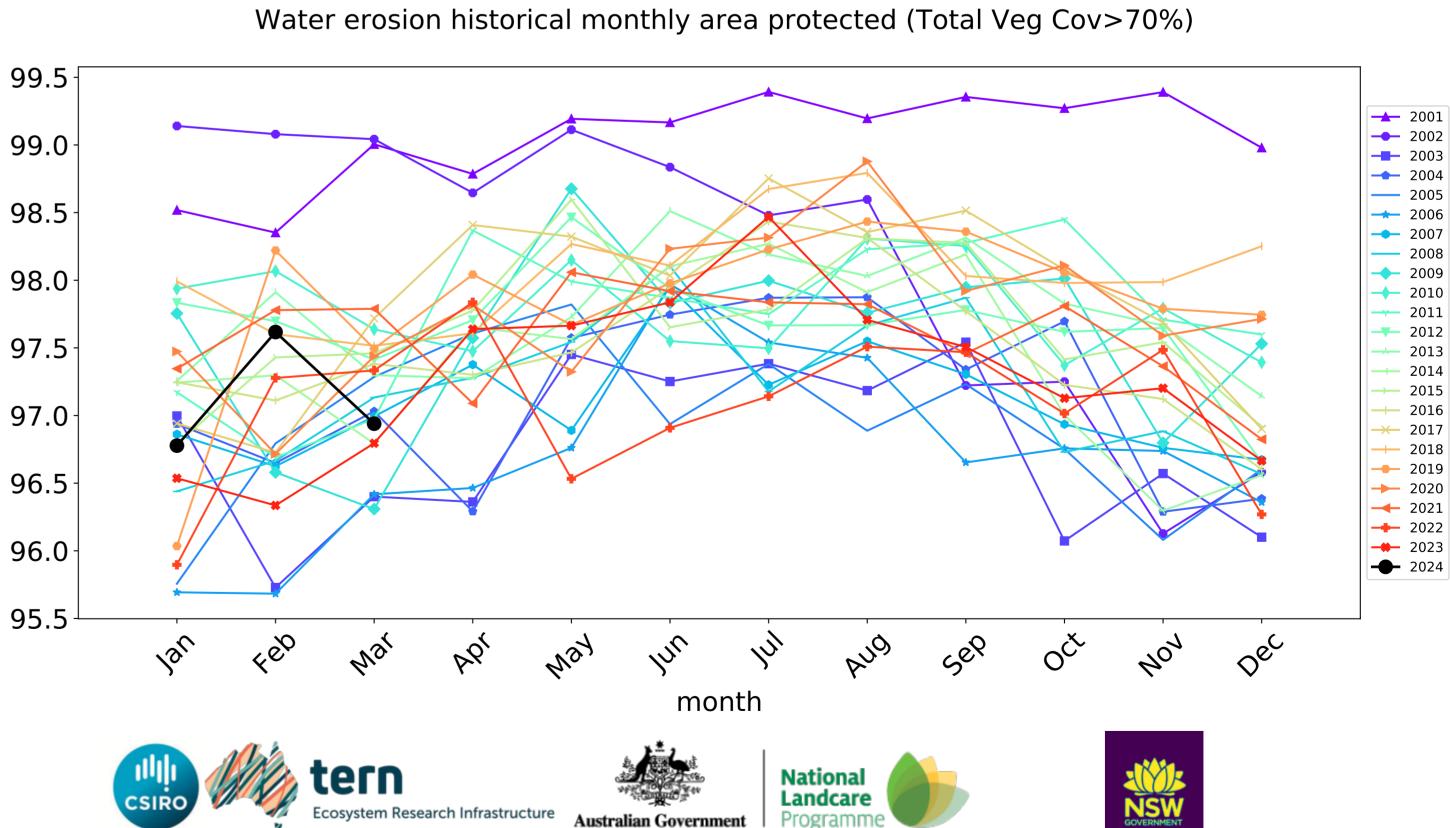




Wind erosion historical monthly area protected (Total Veg Cov >50%)



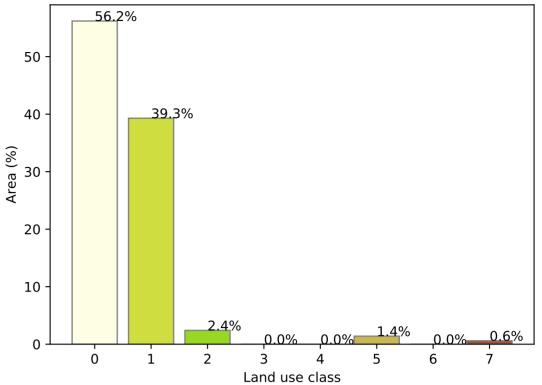




Agriculture

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

Proportion of each land class in area



Total Vegetation Cover [%]

Catchment Scale Land Use and Forests of Australia (2018)

Catchment Scale Land

Derived from

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

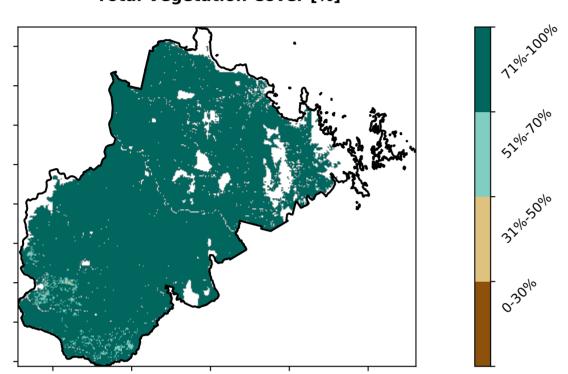
pixel. The mean

using baseline from 2001 to 2019.

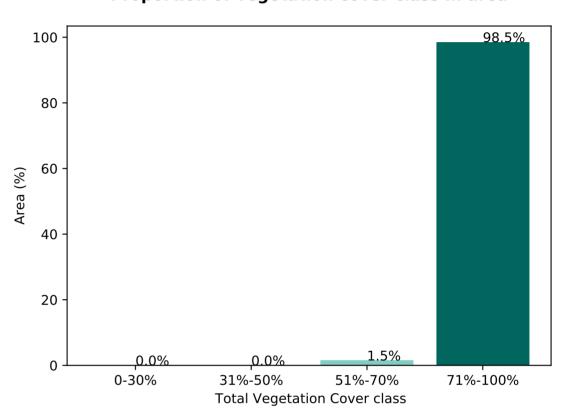
is only for the month of the map

Use of Australia

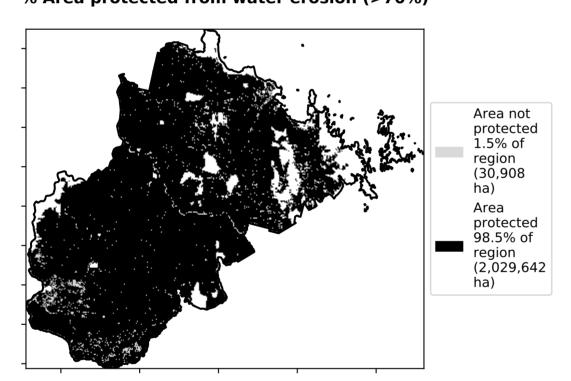
(2018) and Forests of Australia (2018)



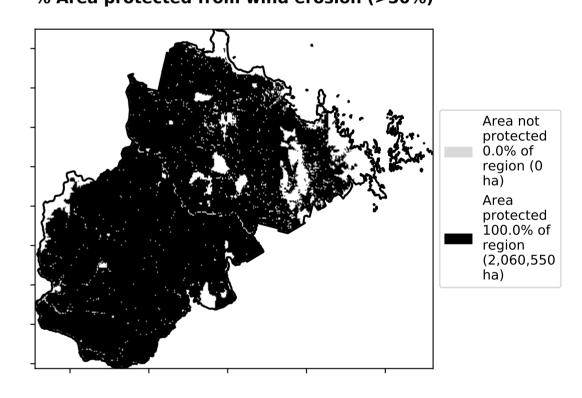
Proportion of vegetation cover class in area



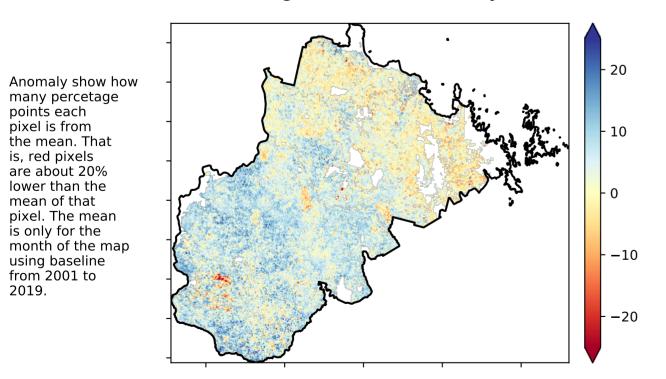
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

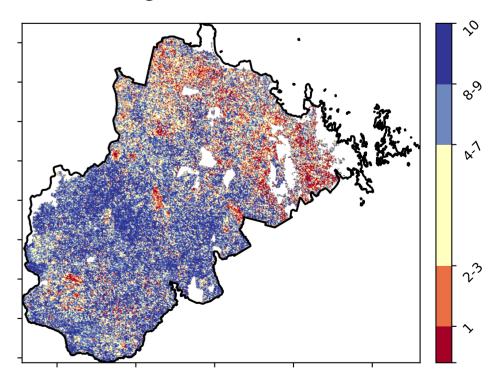


Total Vegetation Cover Anomaly [%]



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

Total Vegetation Cover Decile [%]



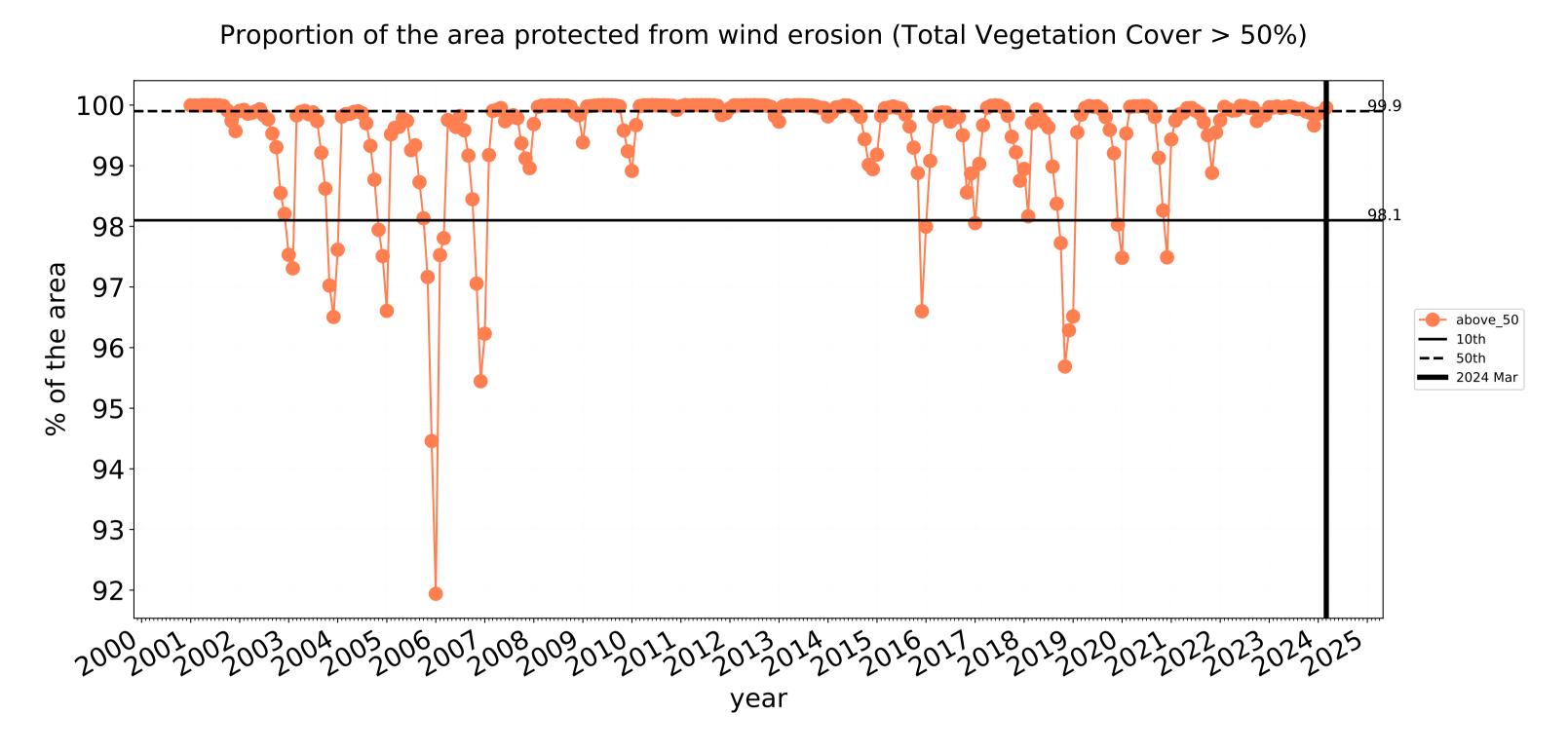


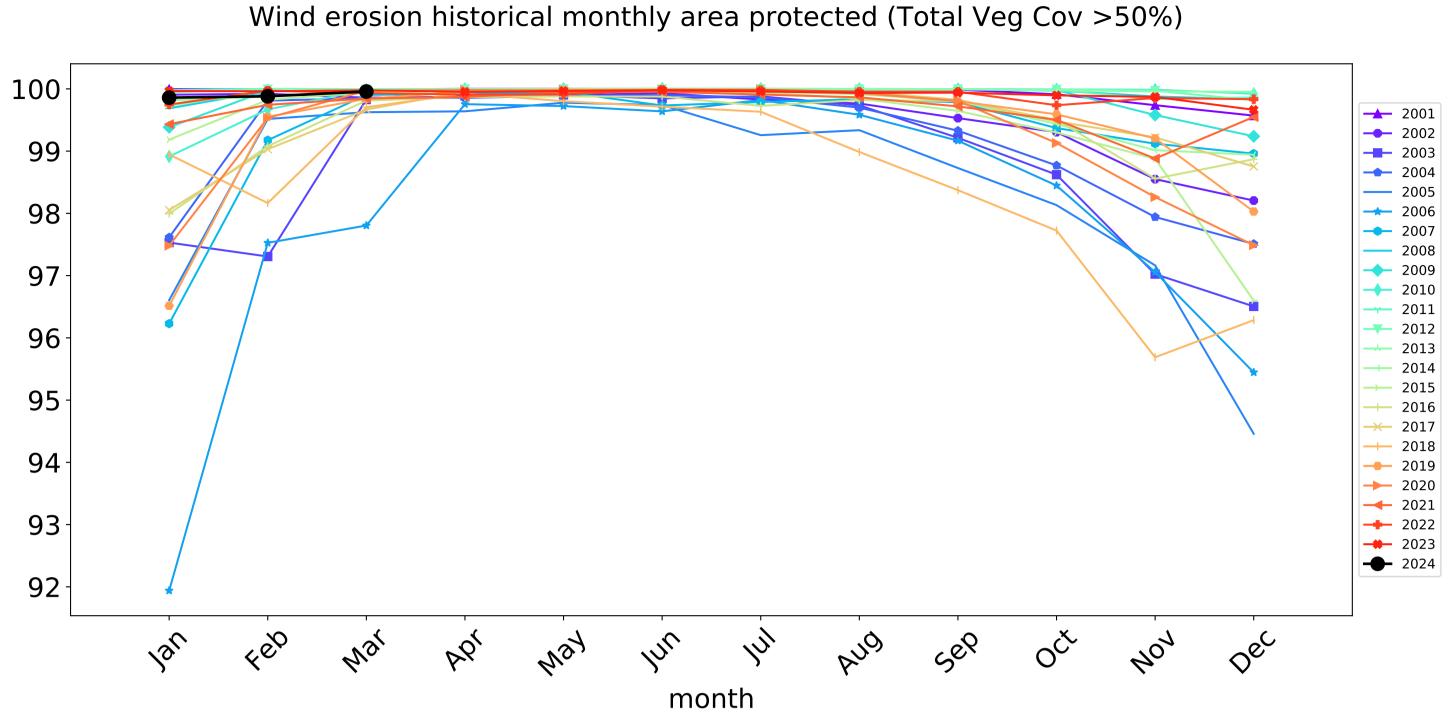


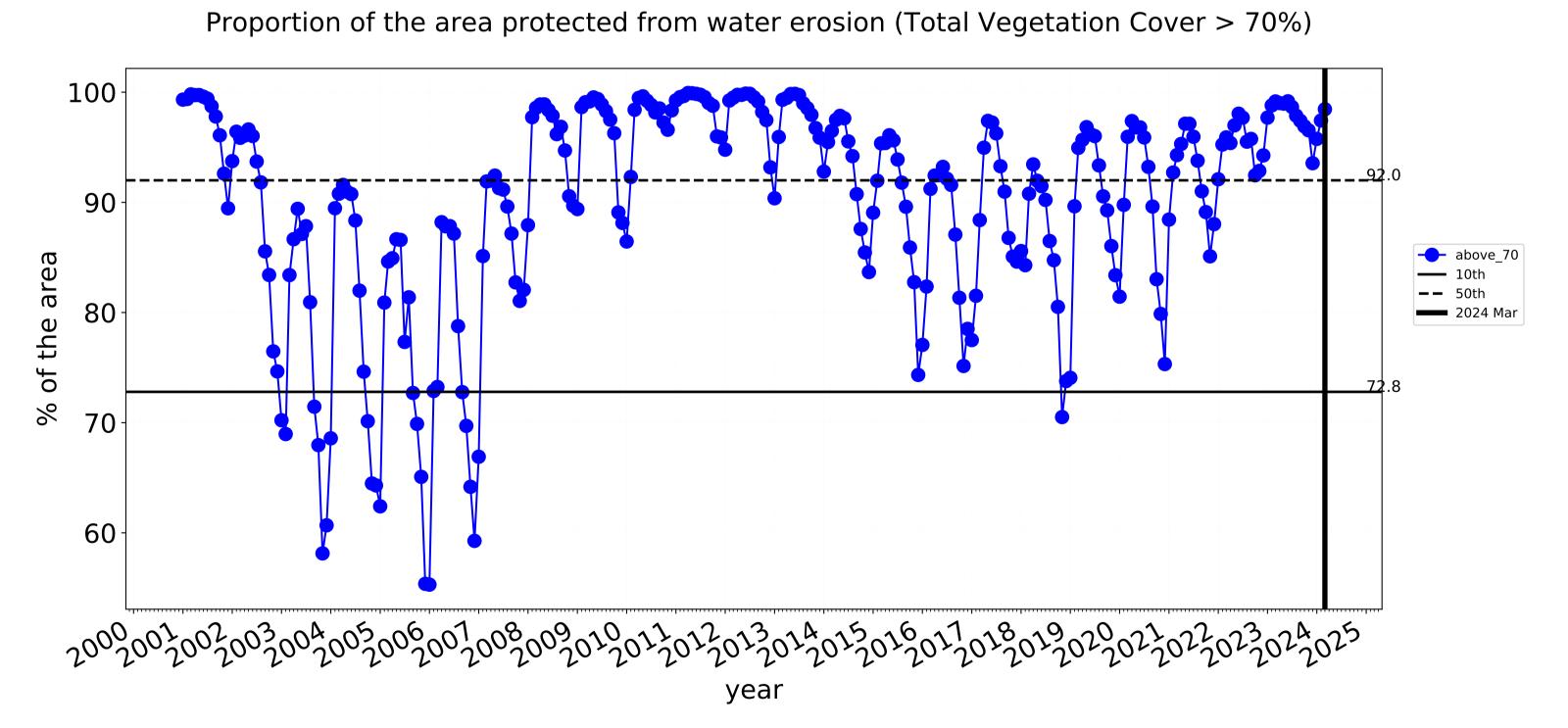


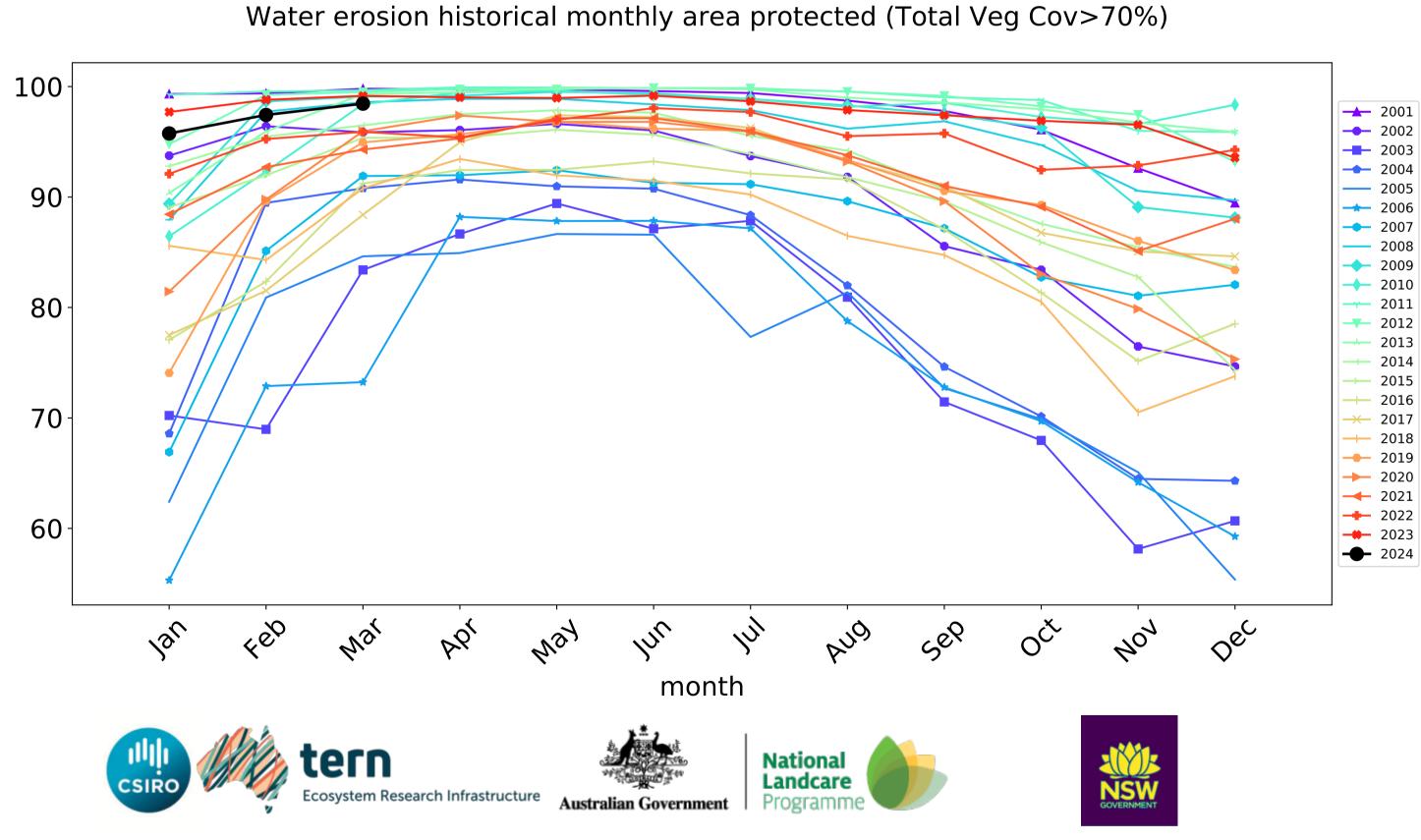


Agriculture timeseries







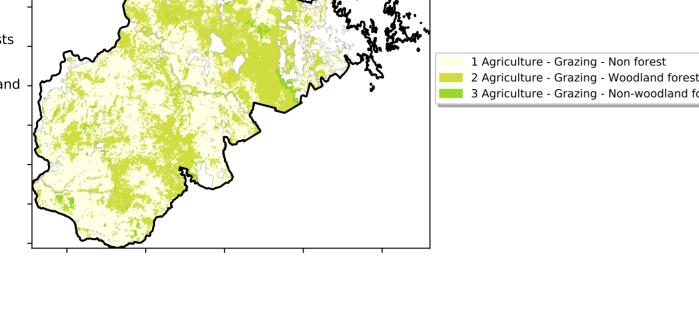


Grazing

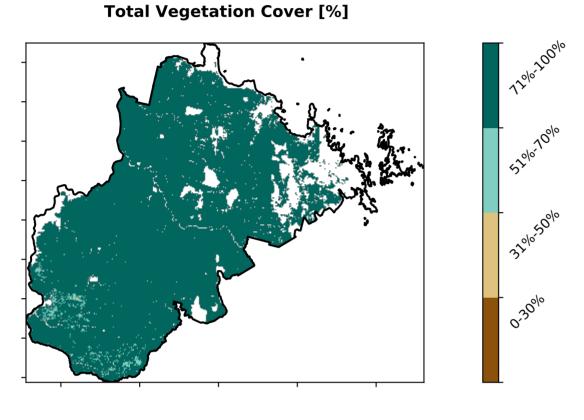
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest Use of Australia (2018) and Forests of Australia (2018)

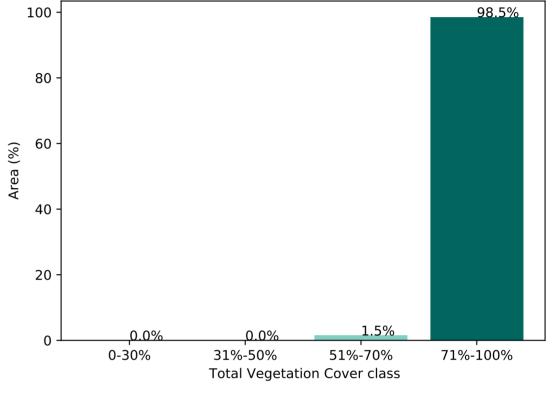
60 -57.4% 50 40.1% 40 Area (%) 20 10 0.5 1.0 -0.5 1.5 0.0 2.0 2.5 Land use class Proportion of vegetation cover class in area

Proportion of each land class in area



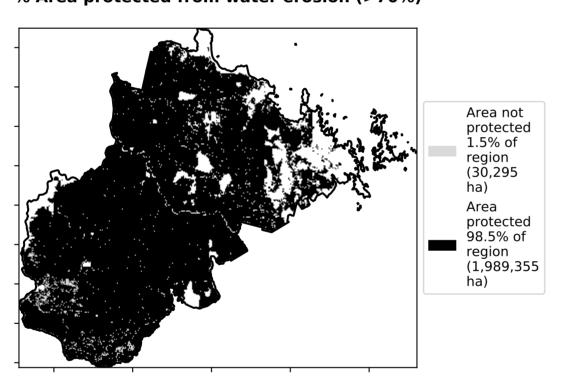
98.5% 100 80 60 40

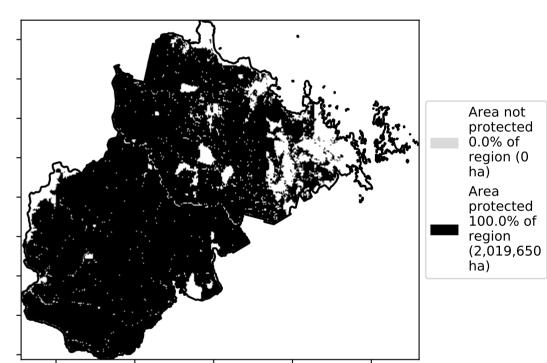




% Area protected from water erosion (>70%)

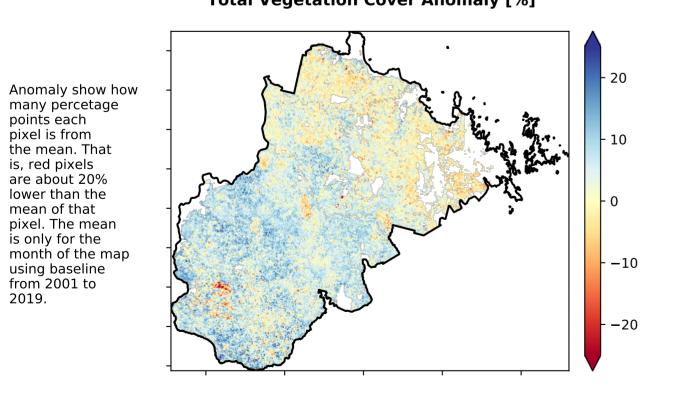
% Area protected from wind erosion (>50%)

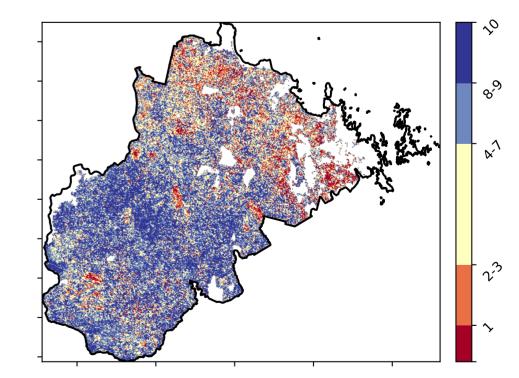




Total Vegetation Cover Anomaly [%]

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.



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.



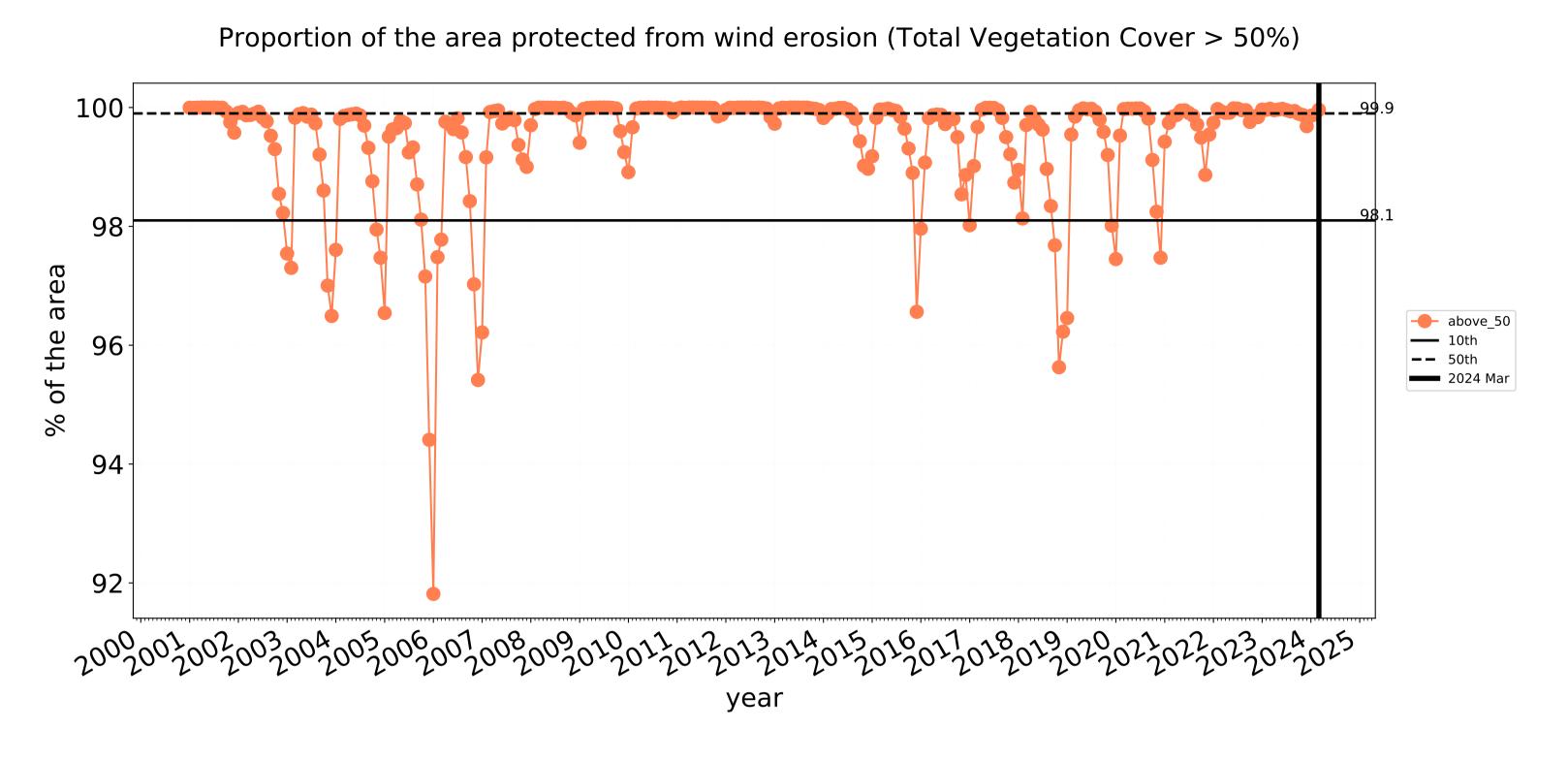


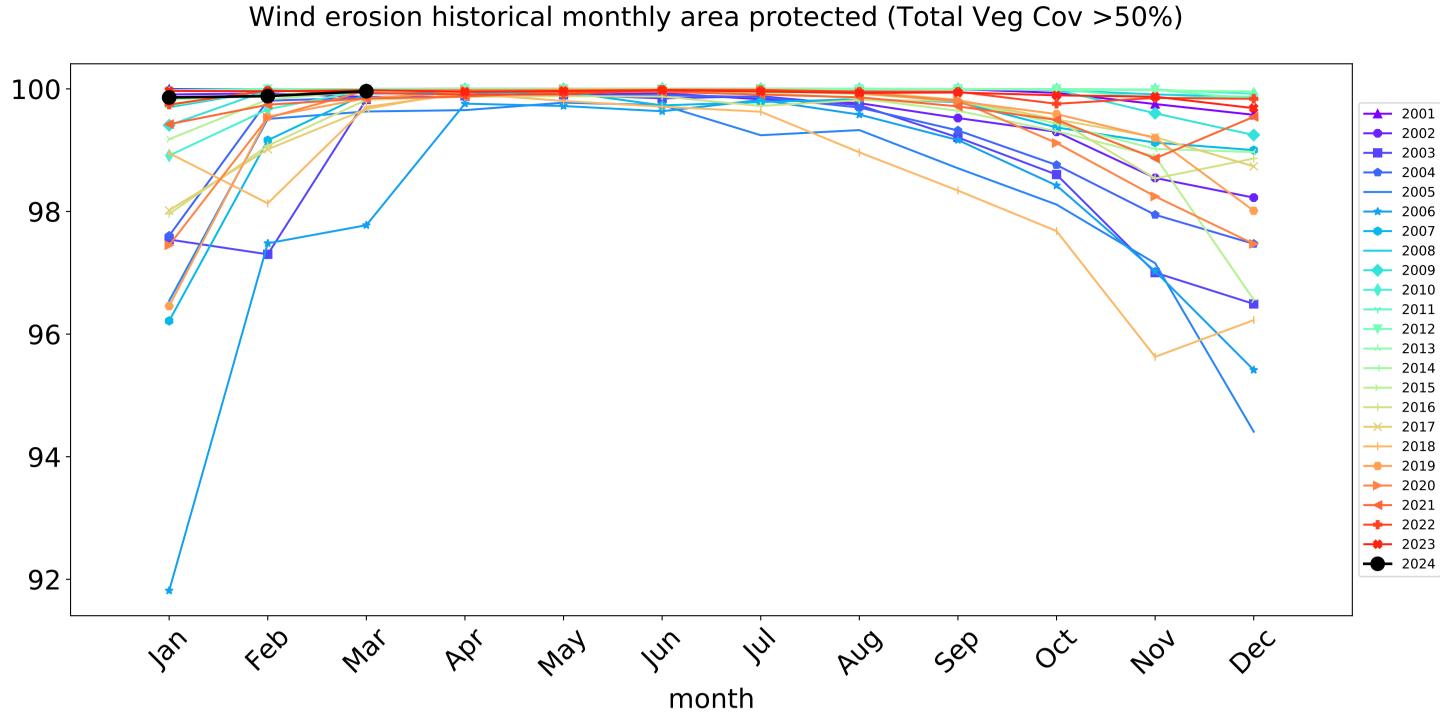


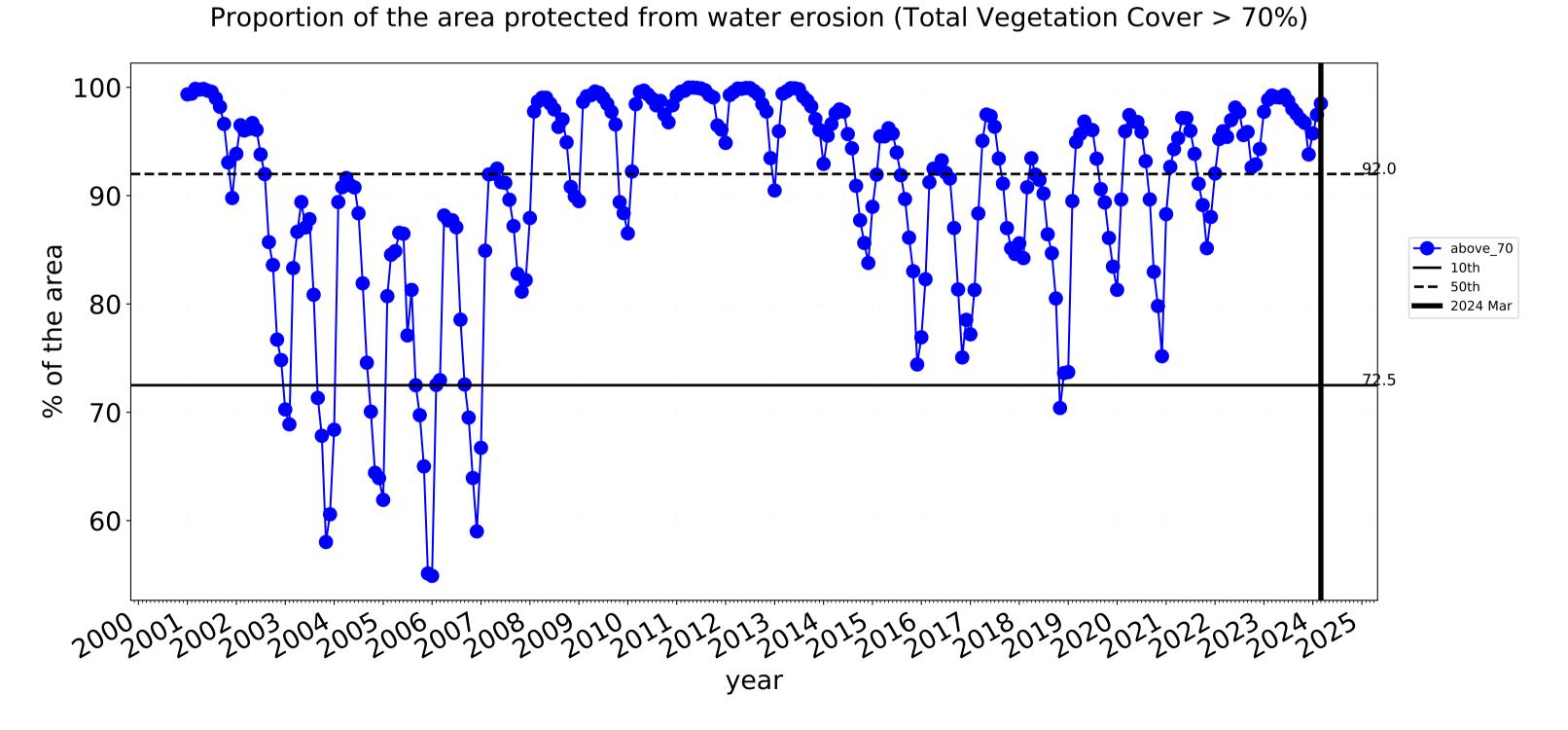


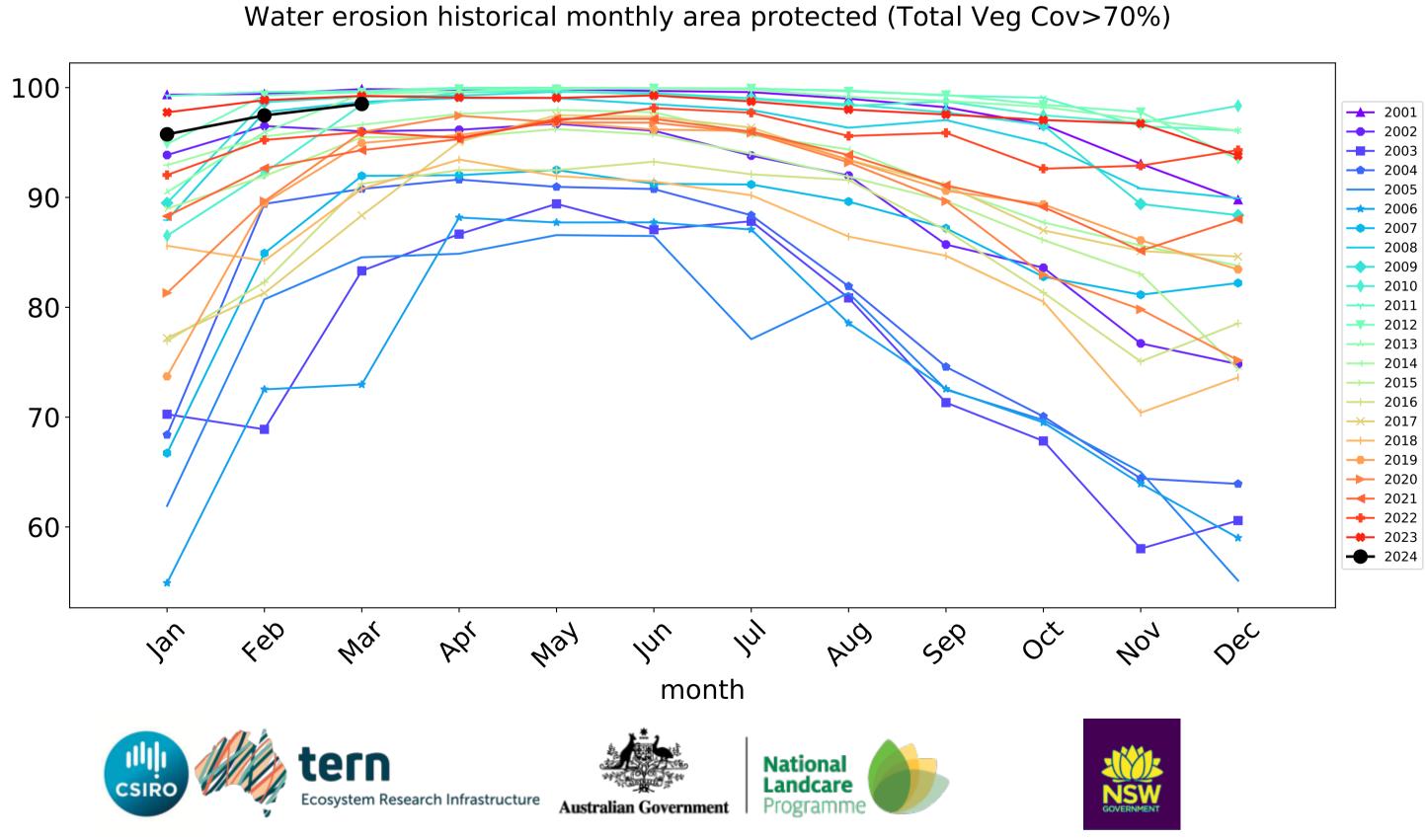


Grazing timeseries





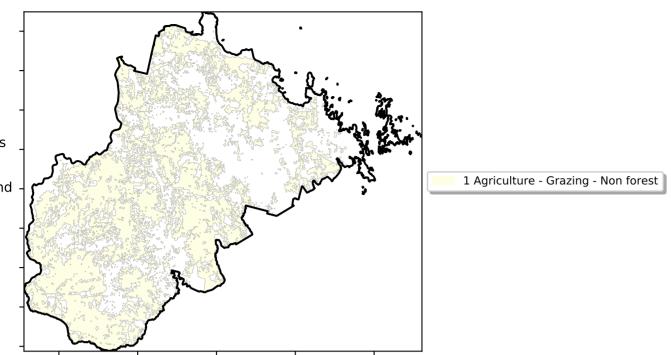




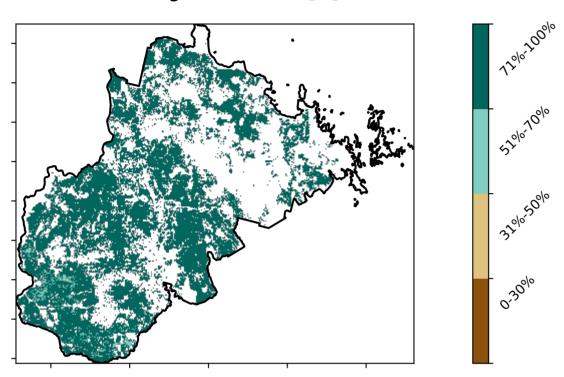
Grazing non forest

Land use and forest cover

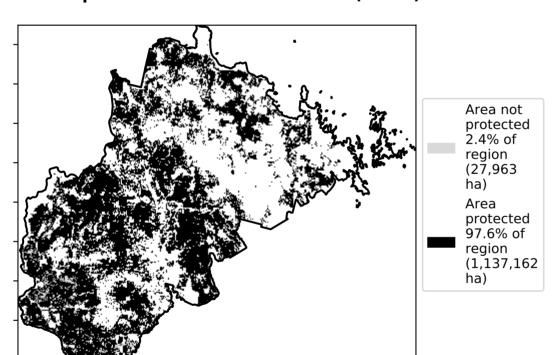
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



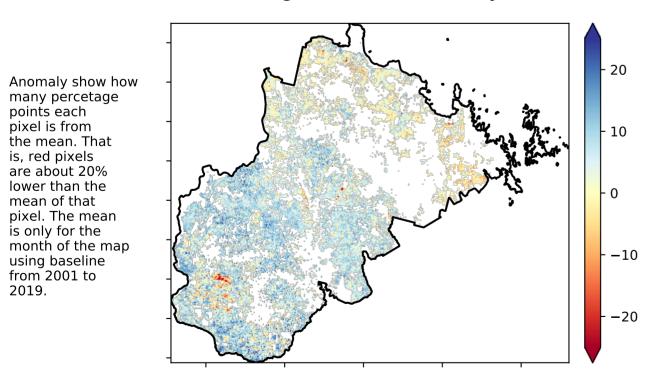
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

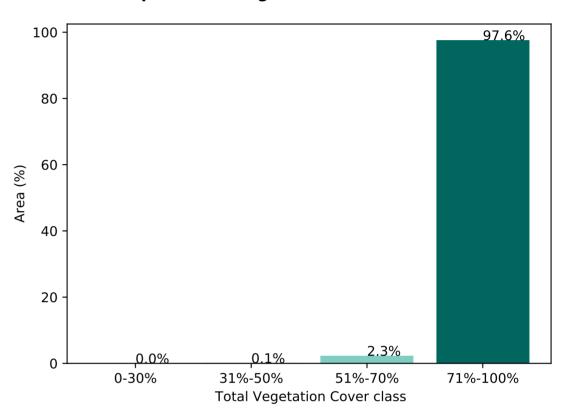


Total Vegetation Cover Anomaly [%]

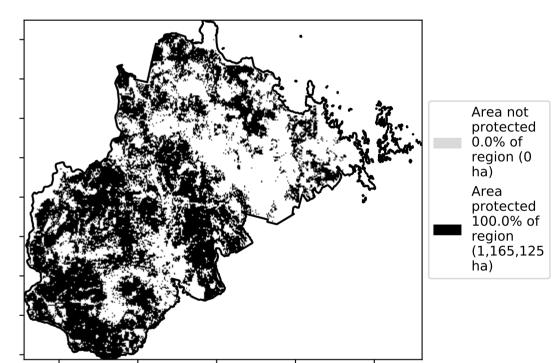


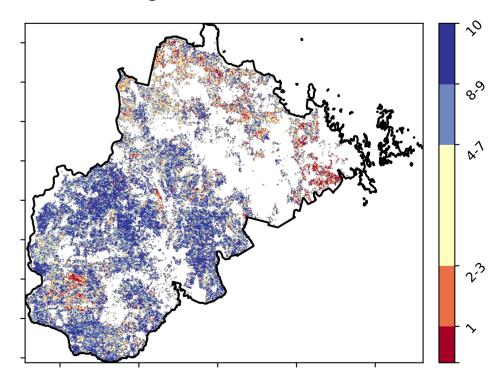
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





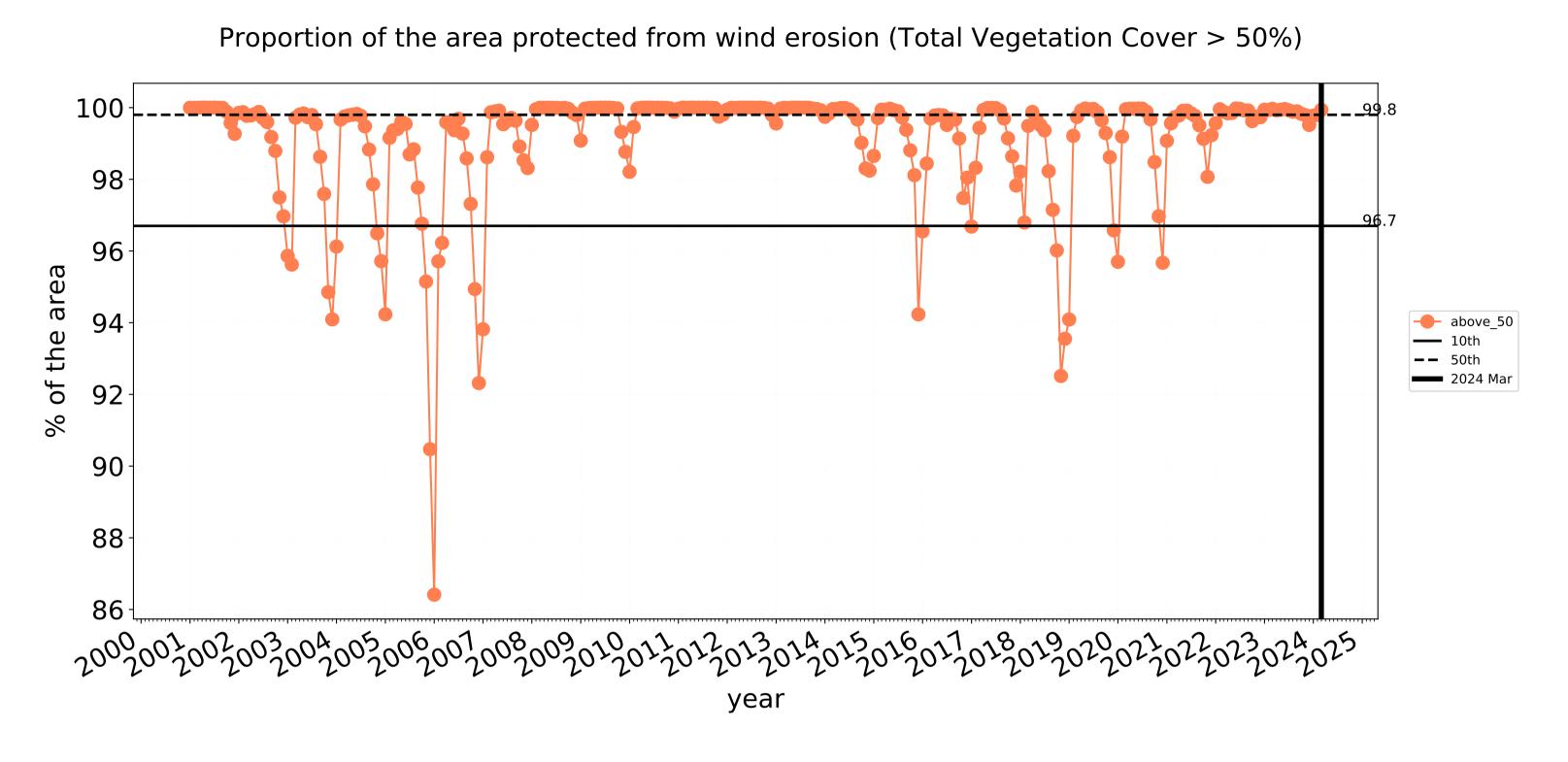


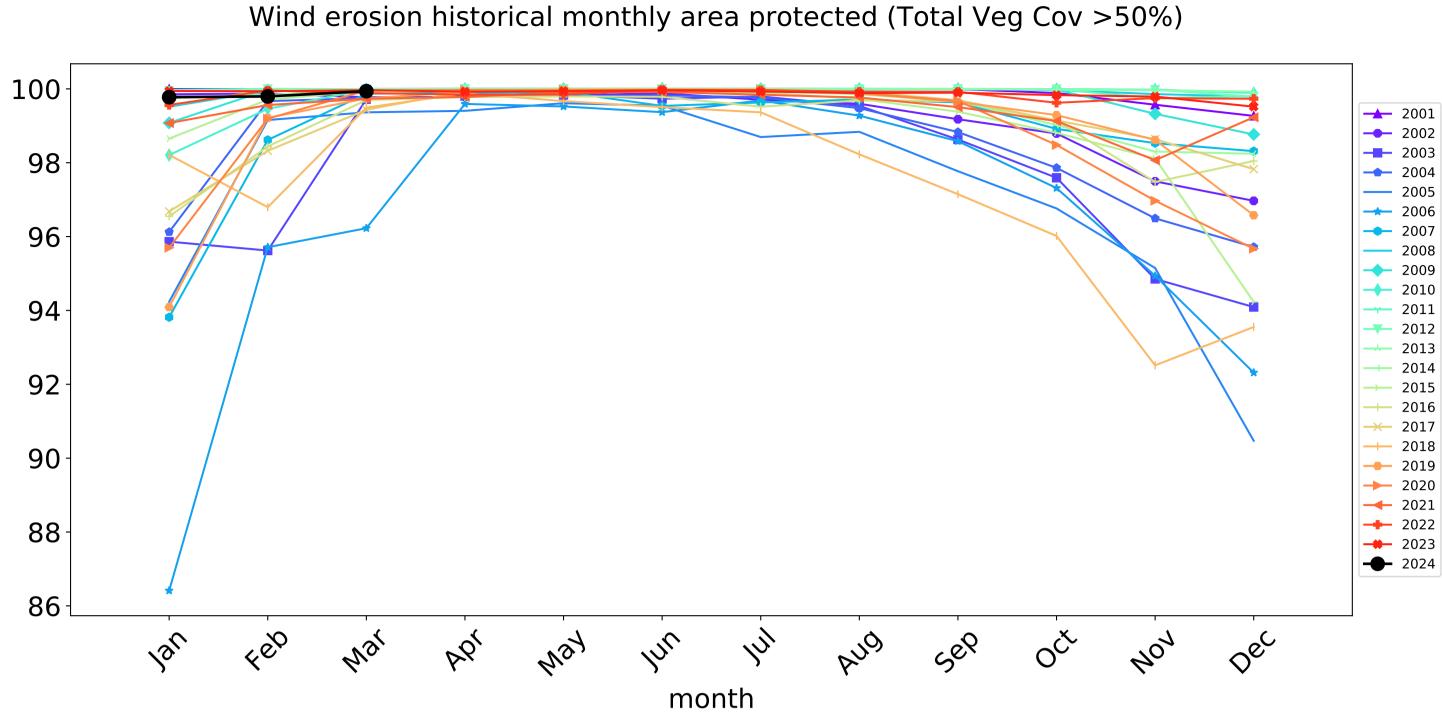


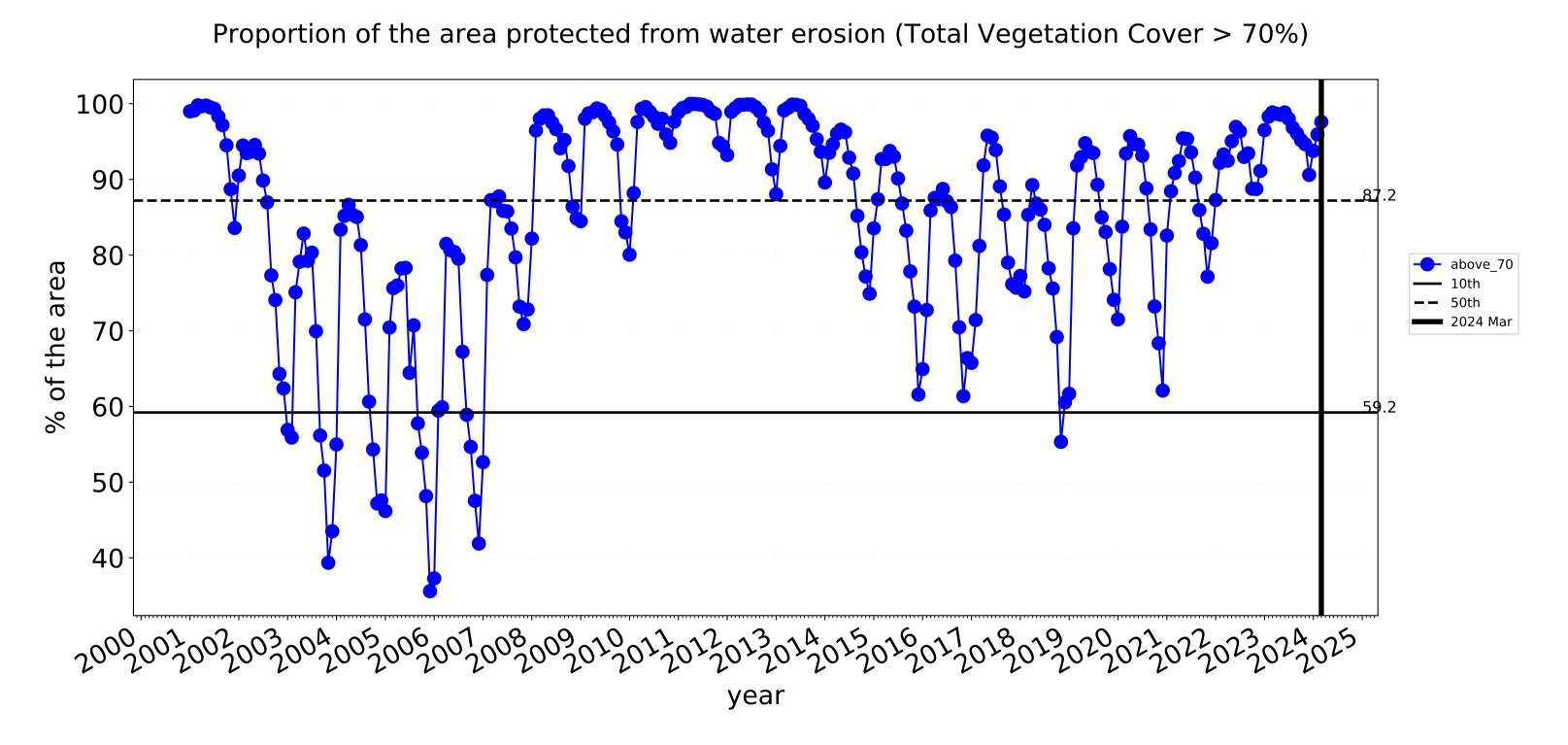


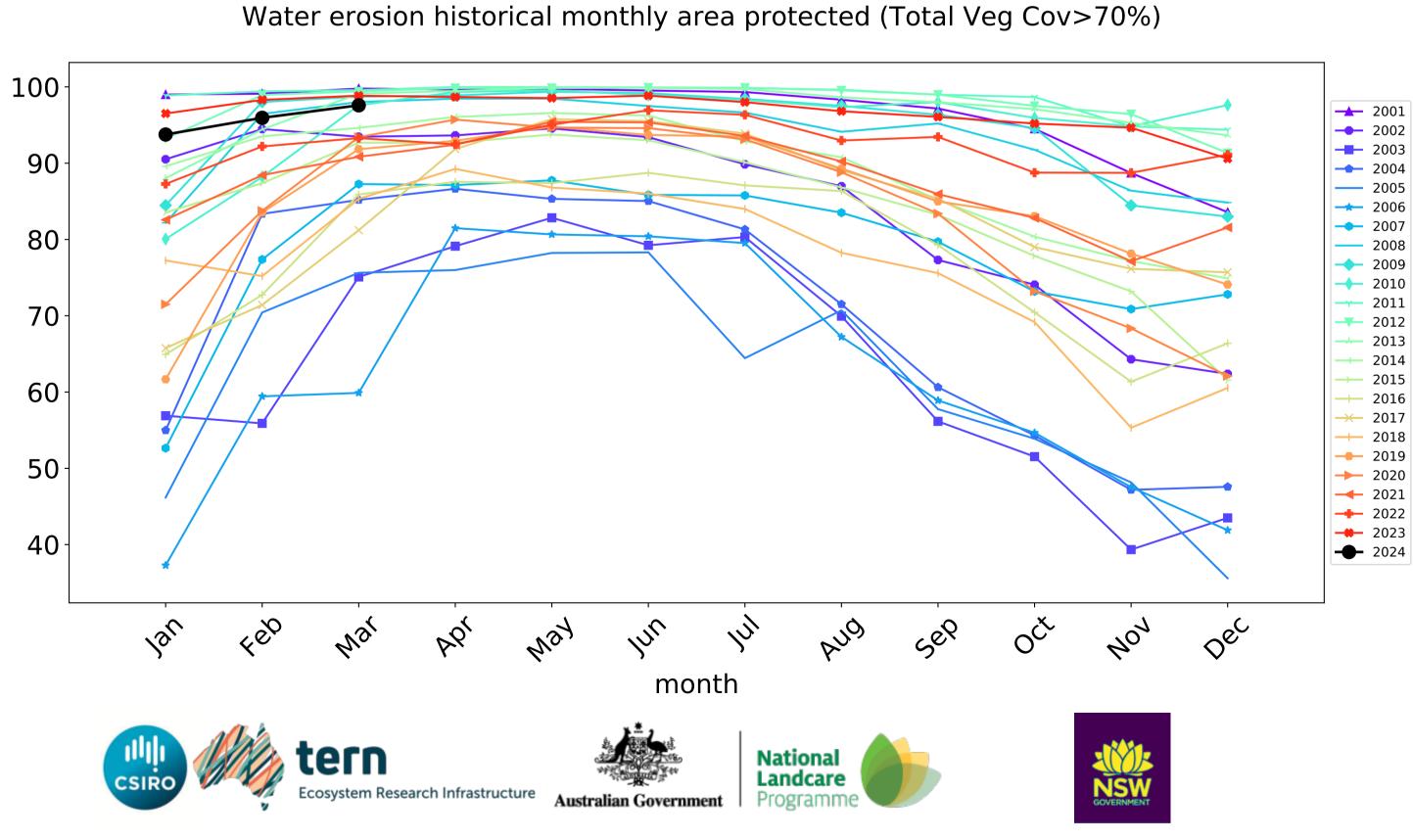


Grazing non forest timeseries









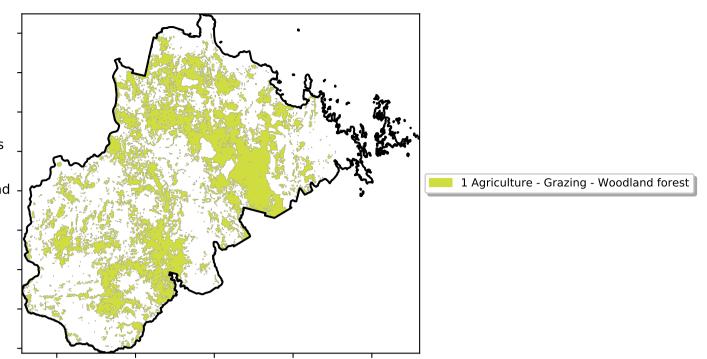
Grazing Woodland forest

Land use and forest cover

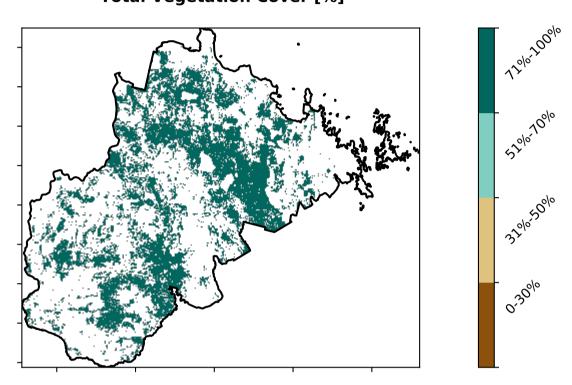


pixel. The mean is only for the month of the map

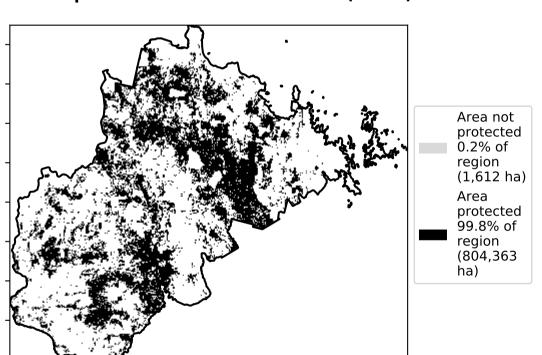
using baseline from 2001 to 2019.



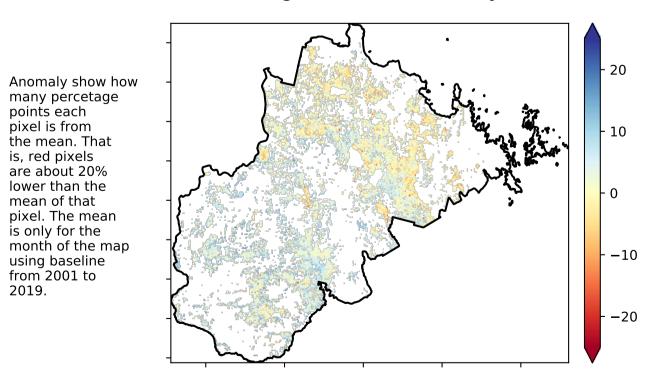
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

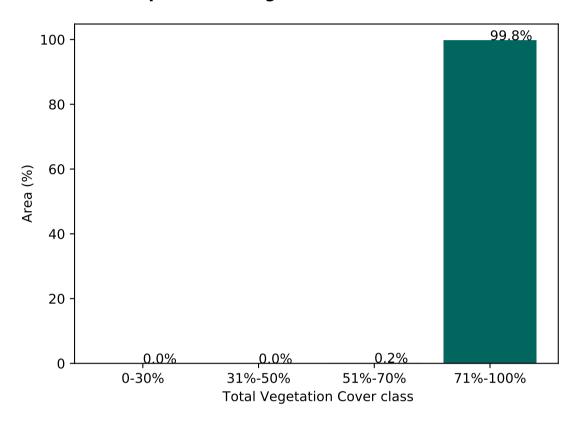


Total Vegetation Cover Anomaly [%]

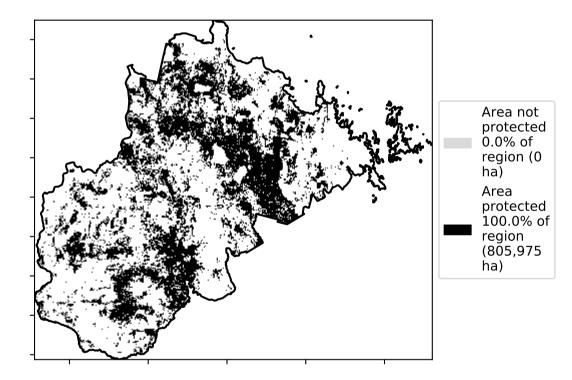


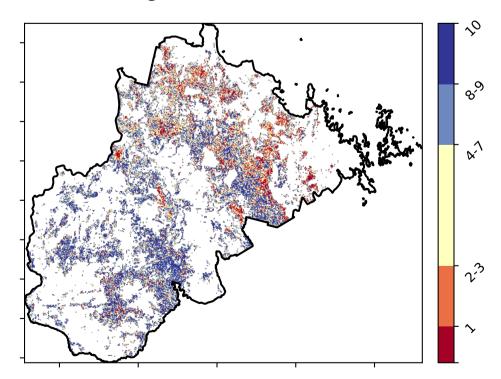
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





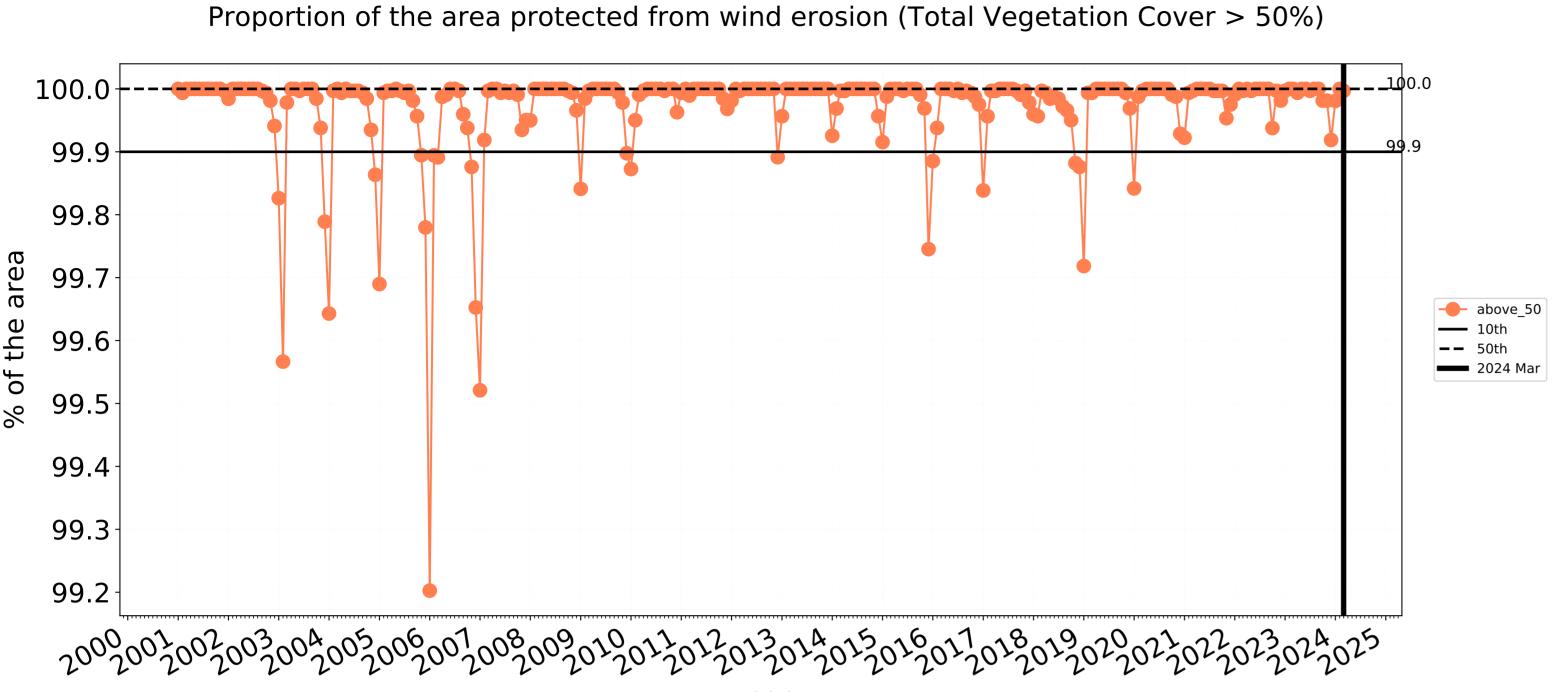


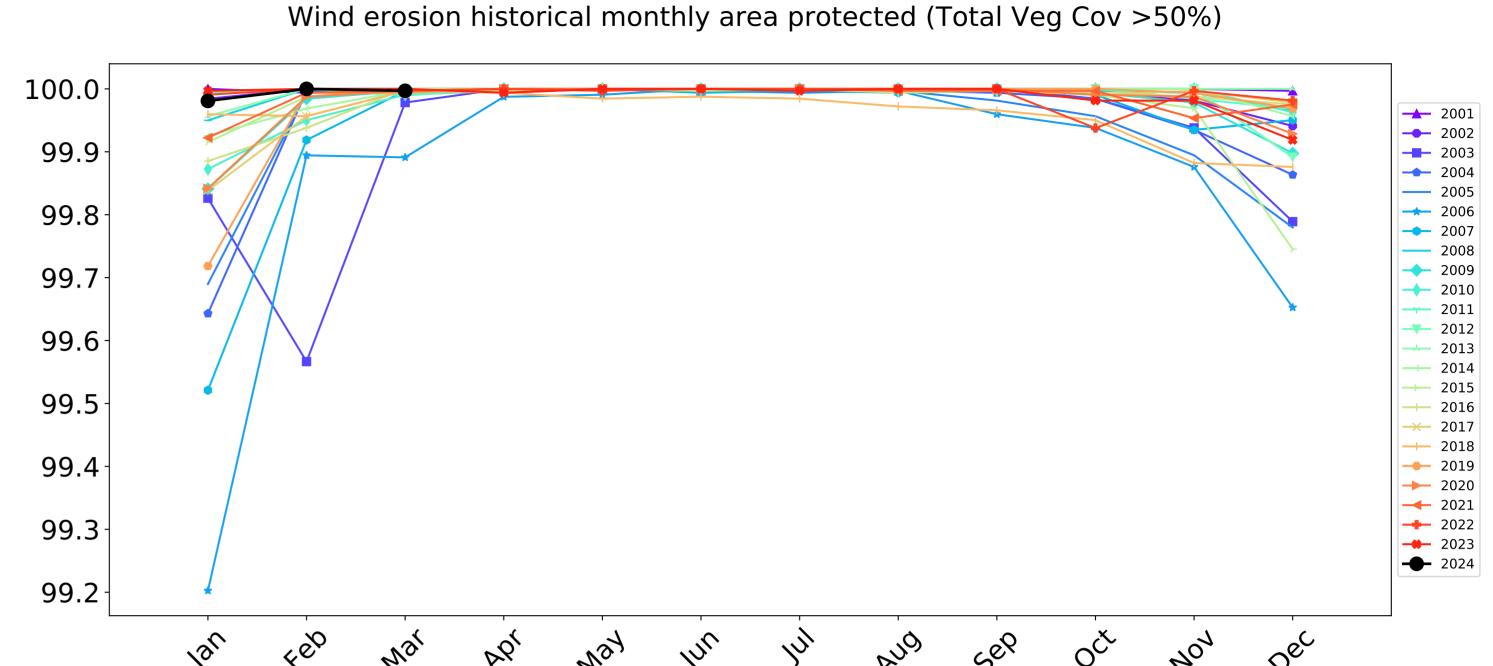




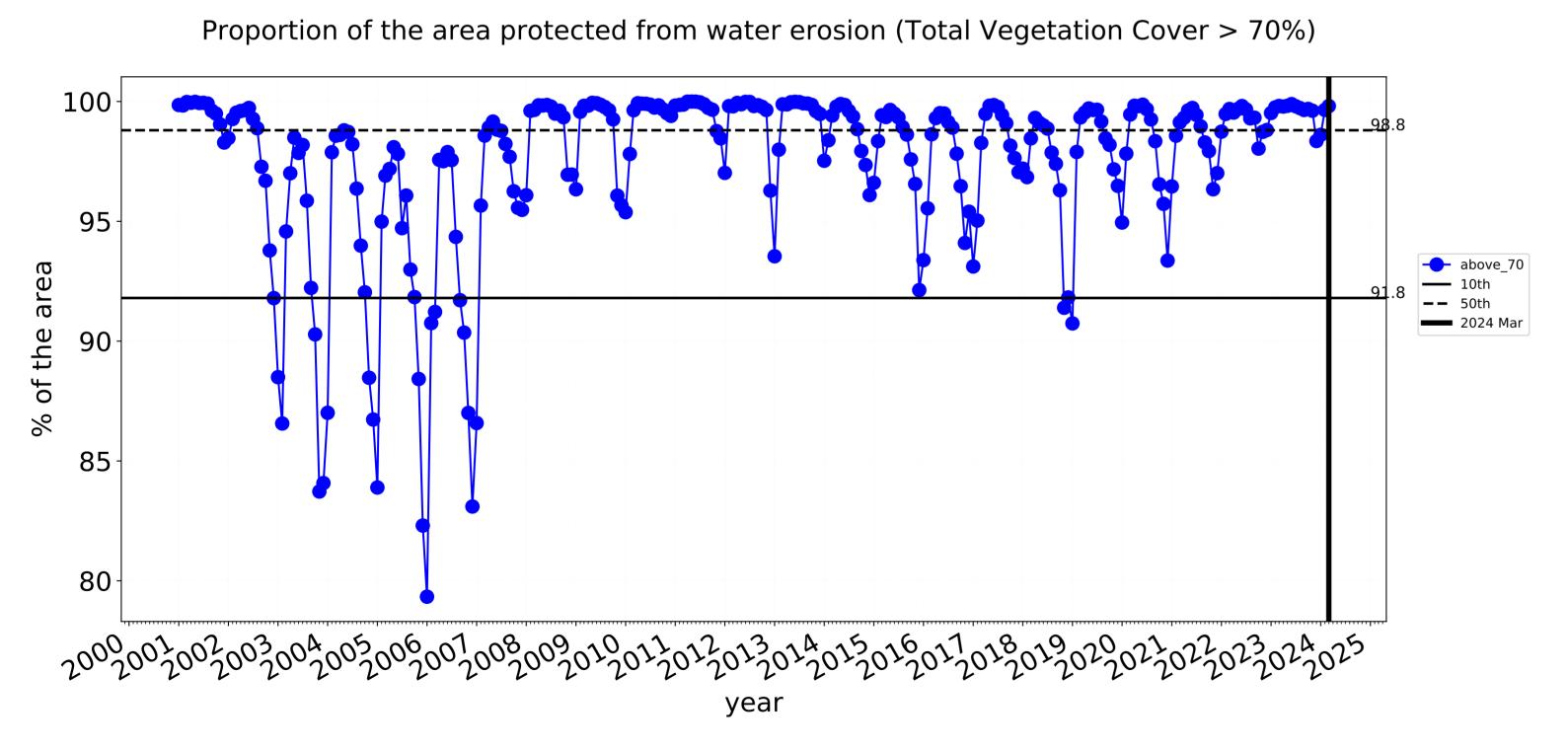


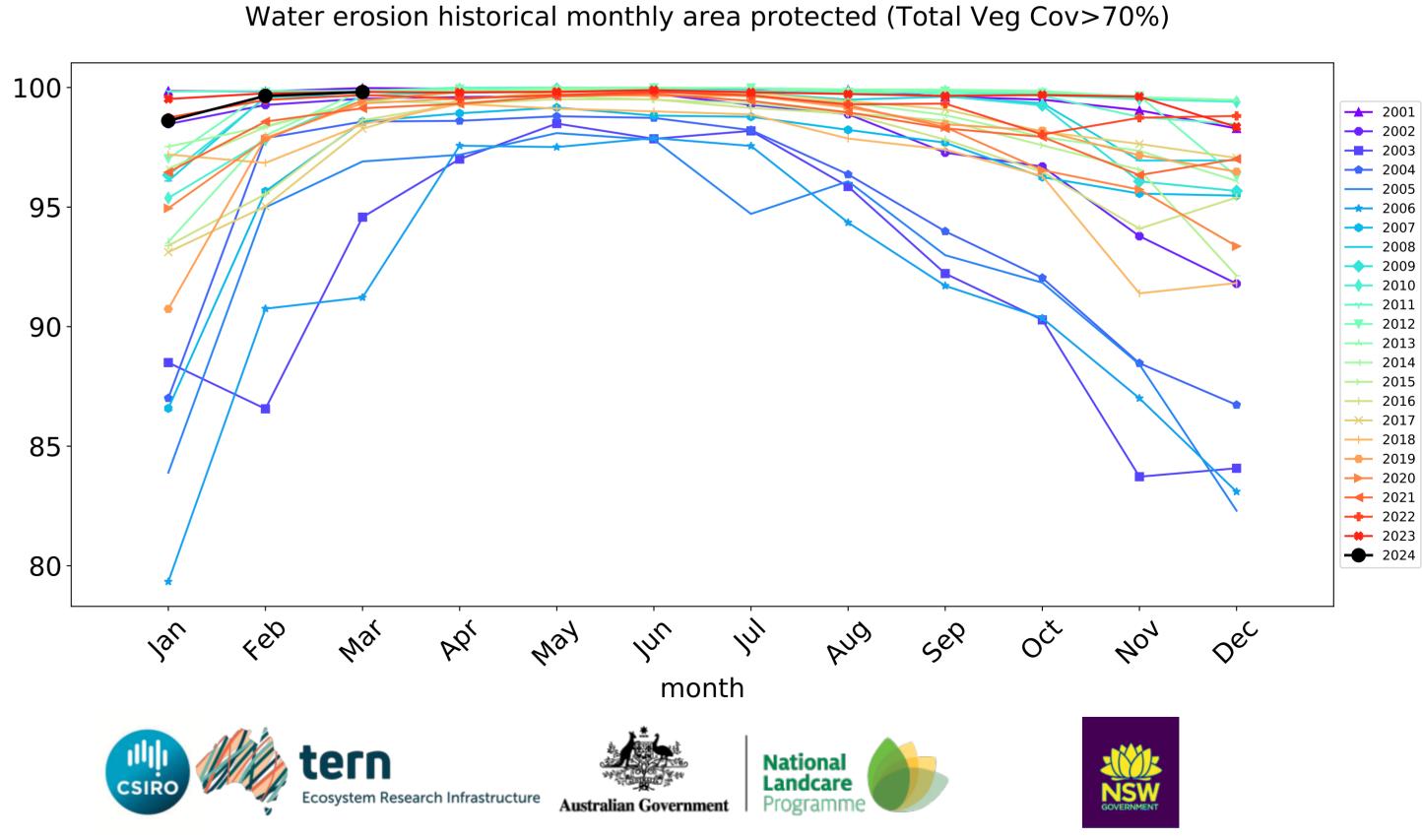
Grazing Woodland forest timeseries





month



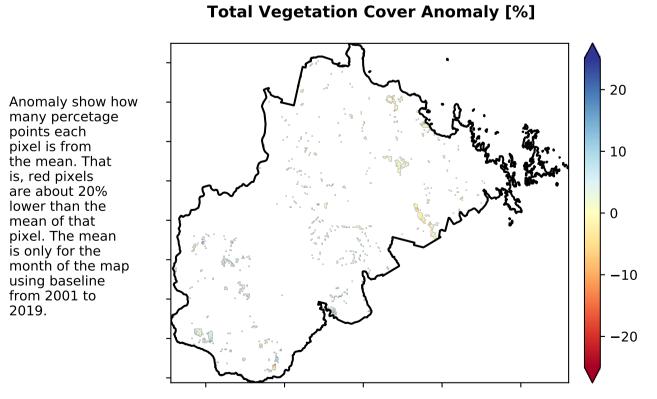


Grazing - Forest (non woodland)

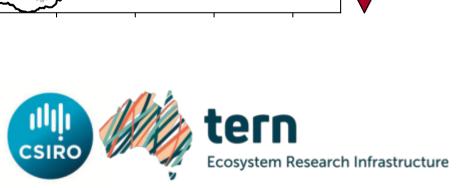
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Agriculture - Grazing - Non-woodland forest Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]

% Area protected from water erosion (>70%) Area not protected 1.1% of region (534 ha) Area protected 98.9% of region (48,016 ha)



Proportion of vegetation cover class in area 98.9% 100 80 60 Area (%) 20 0.1% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class** % Area protected from wind erosion (>50%) Area not protected 0.0% of region (0 ha) Area protected 100.0% of region (48,550 ha) **Total Vegetation Cover Decile [%]**





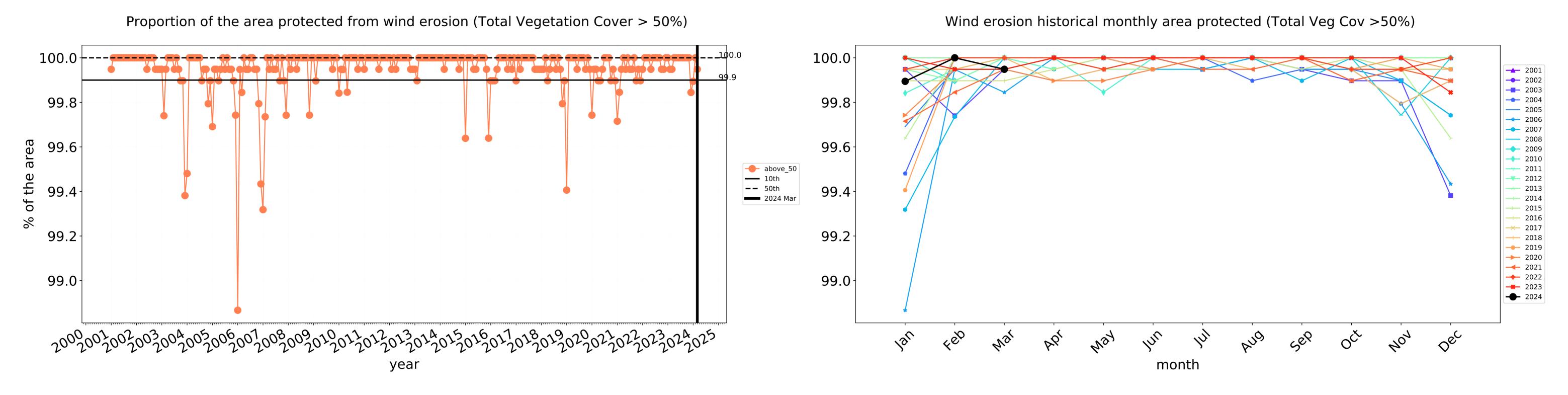
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of

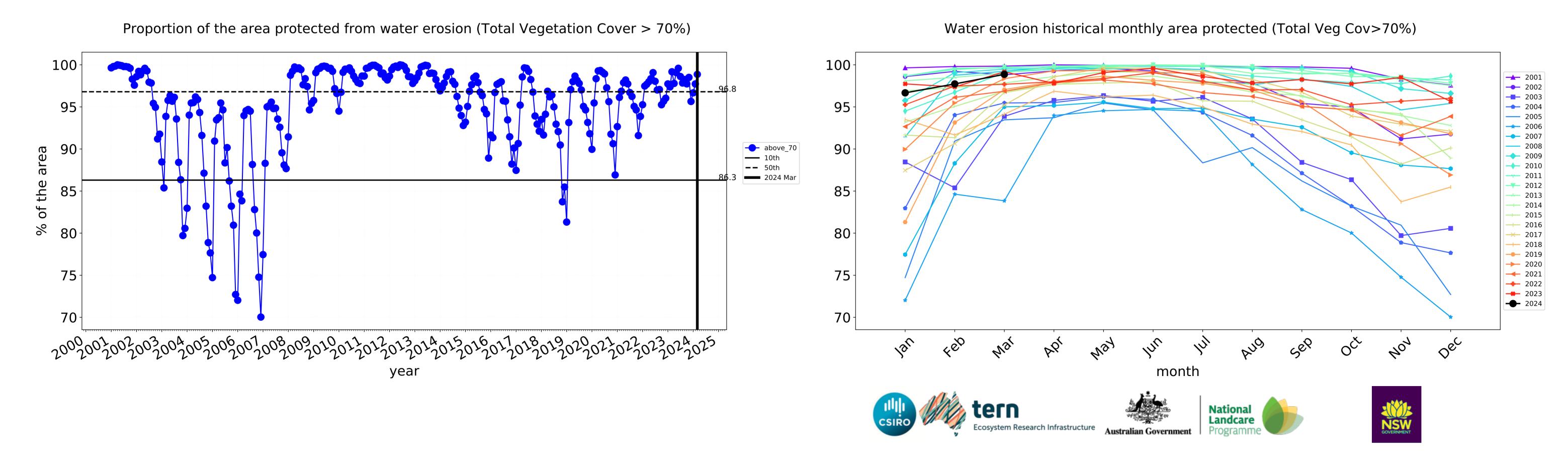
records for that month of

the map using baseline from 2001 to 2019.



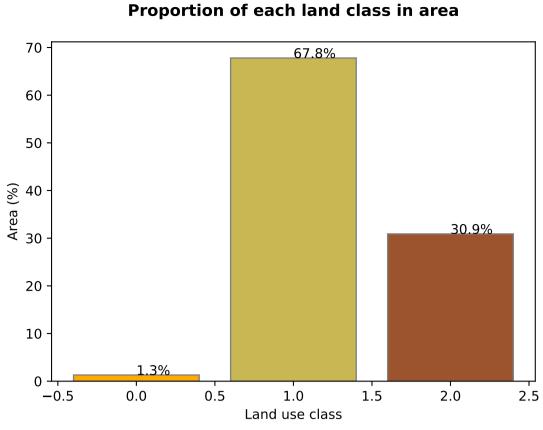


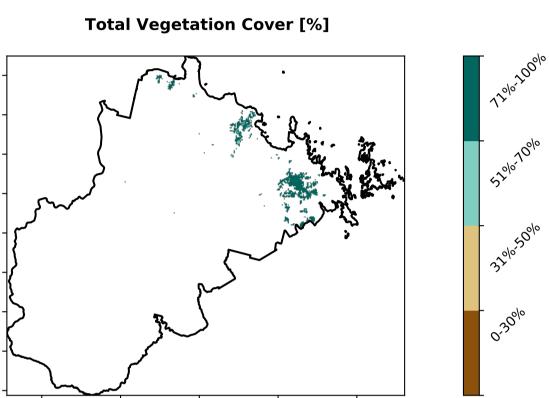


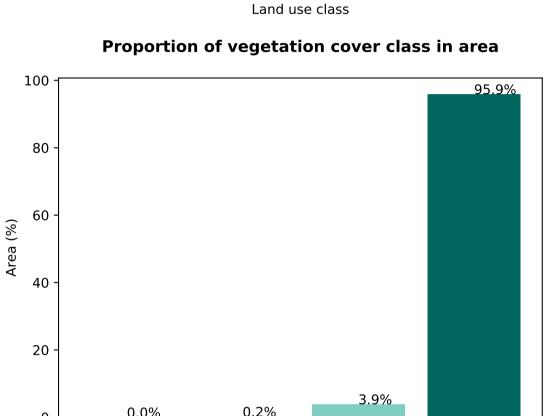


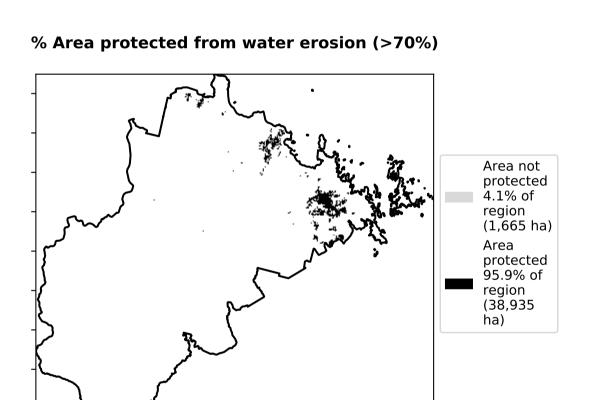
Irrigation

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







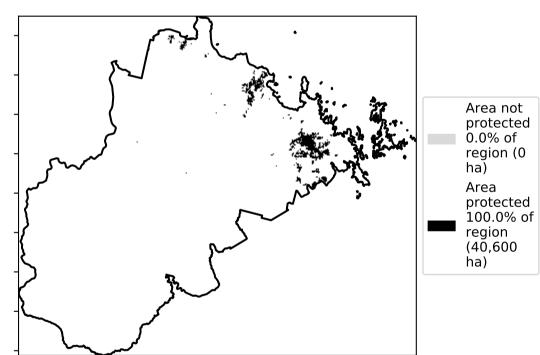


% Area protected from wind erosion (>50%)

Total Vegetation Cover class

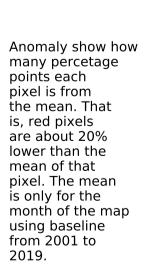
31%-50%

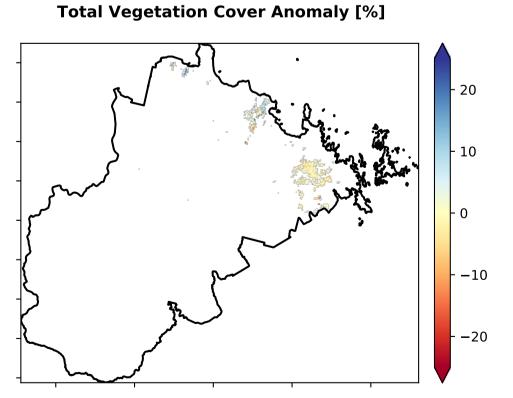
0-30%



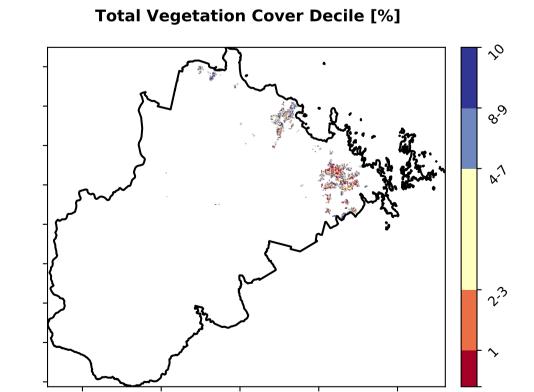
51%-70%

71%-100%





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.



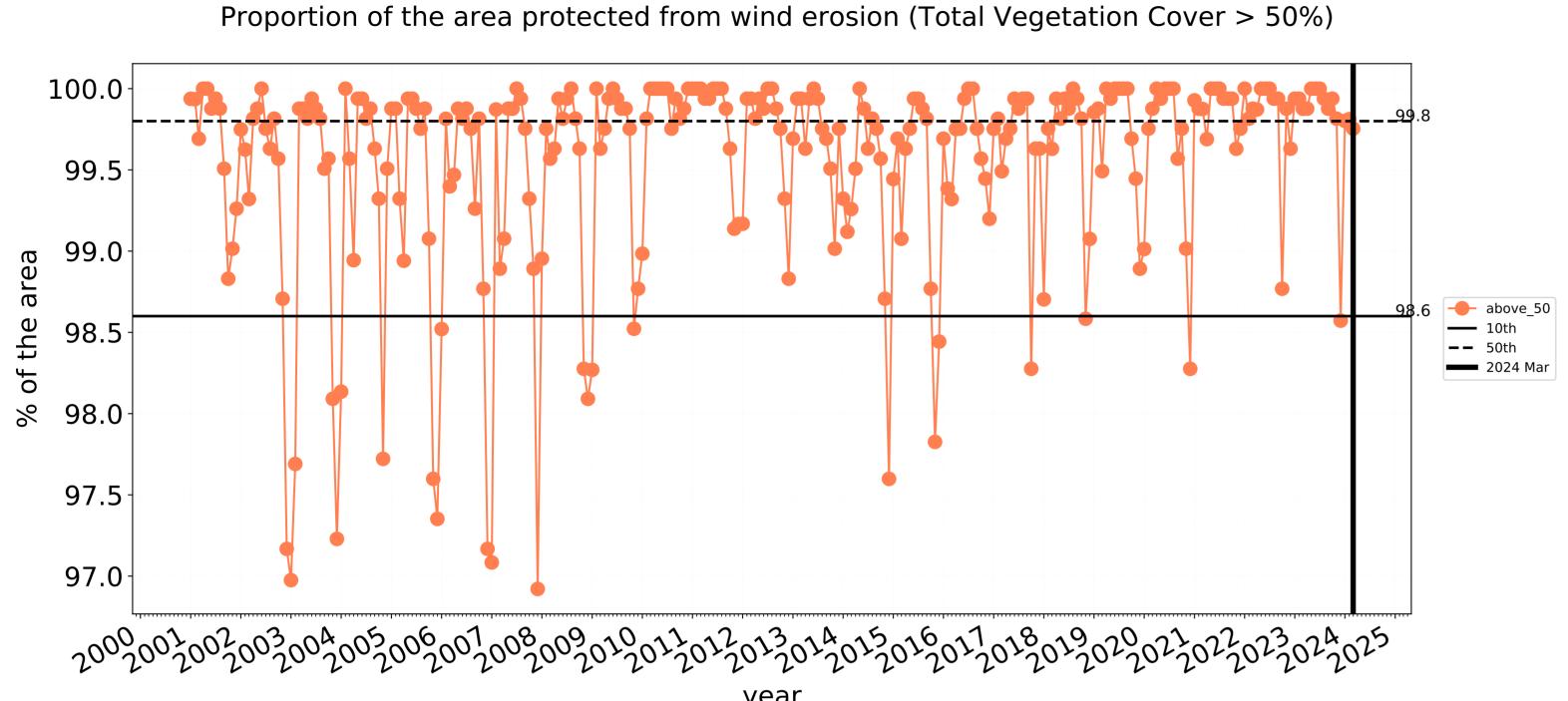


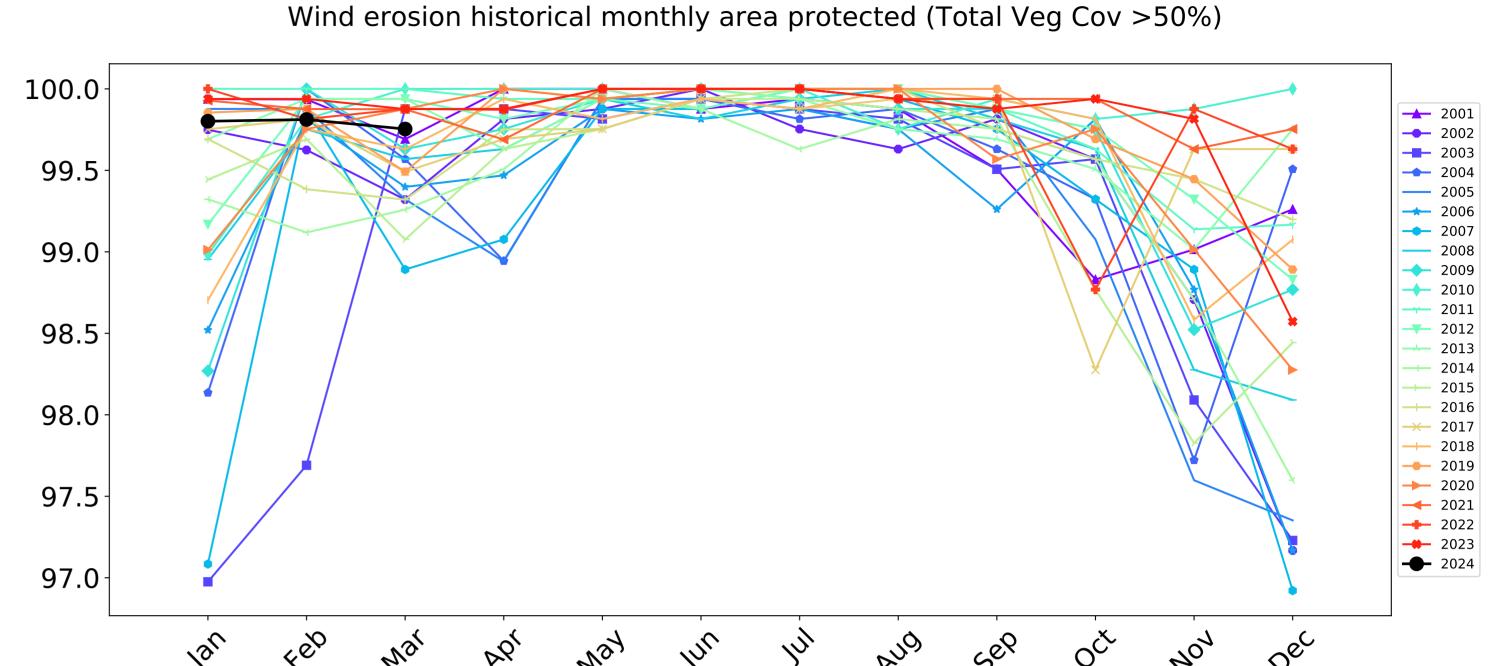




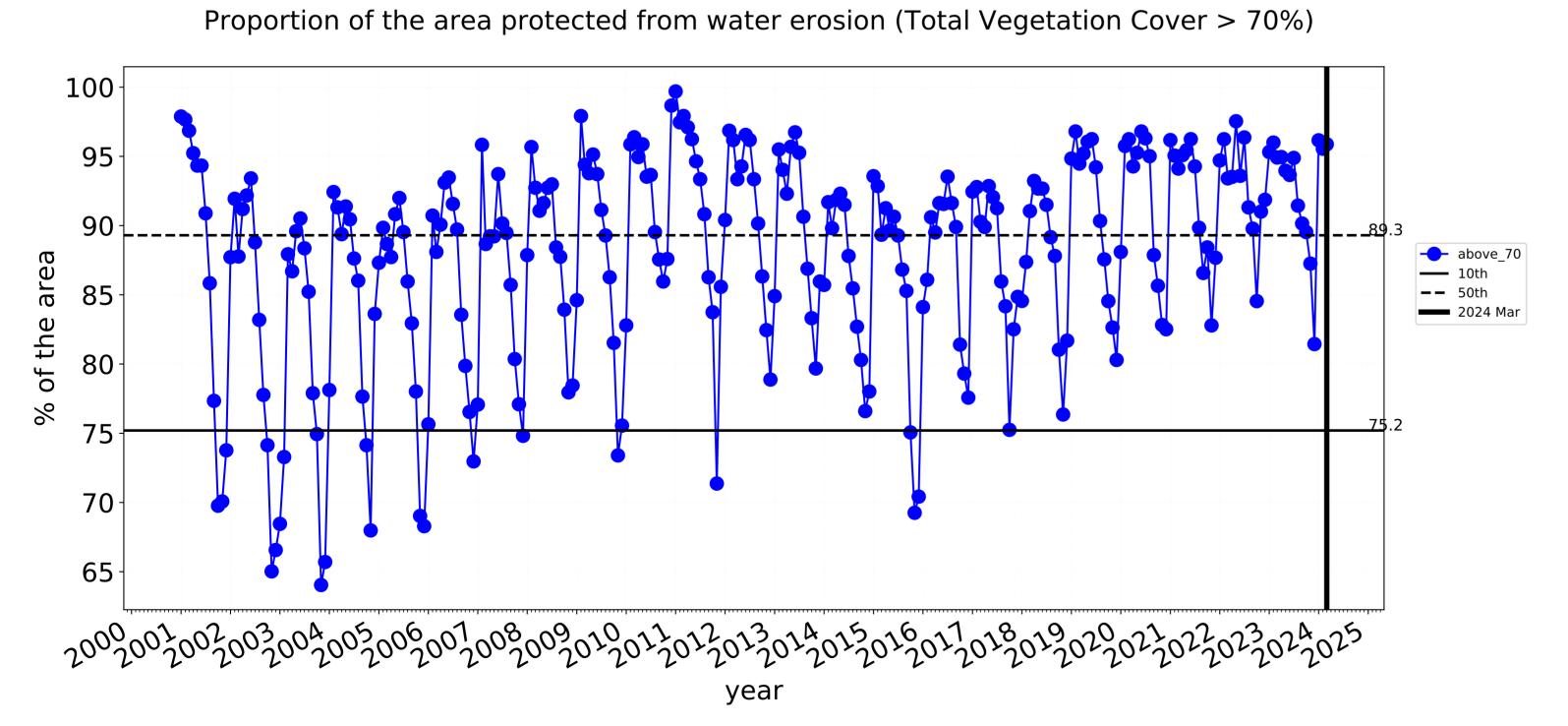


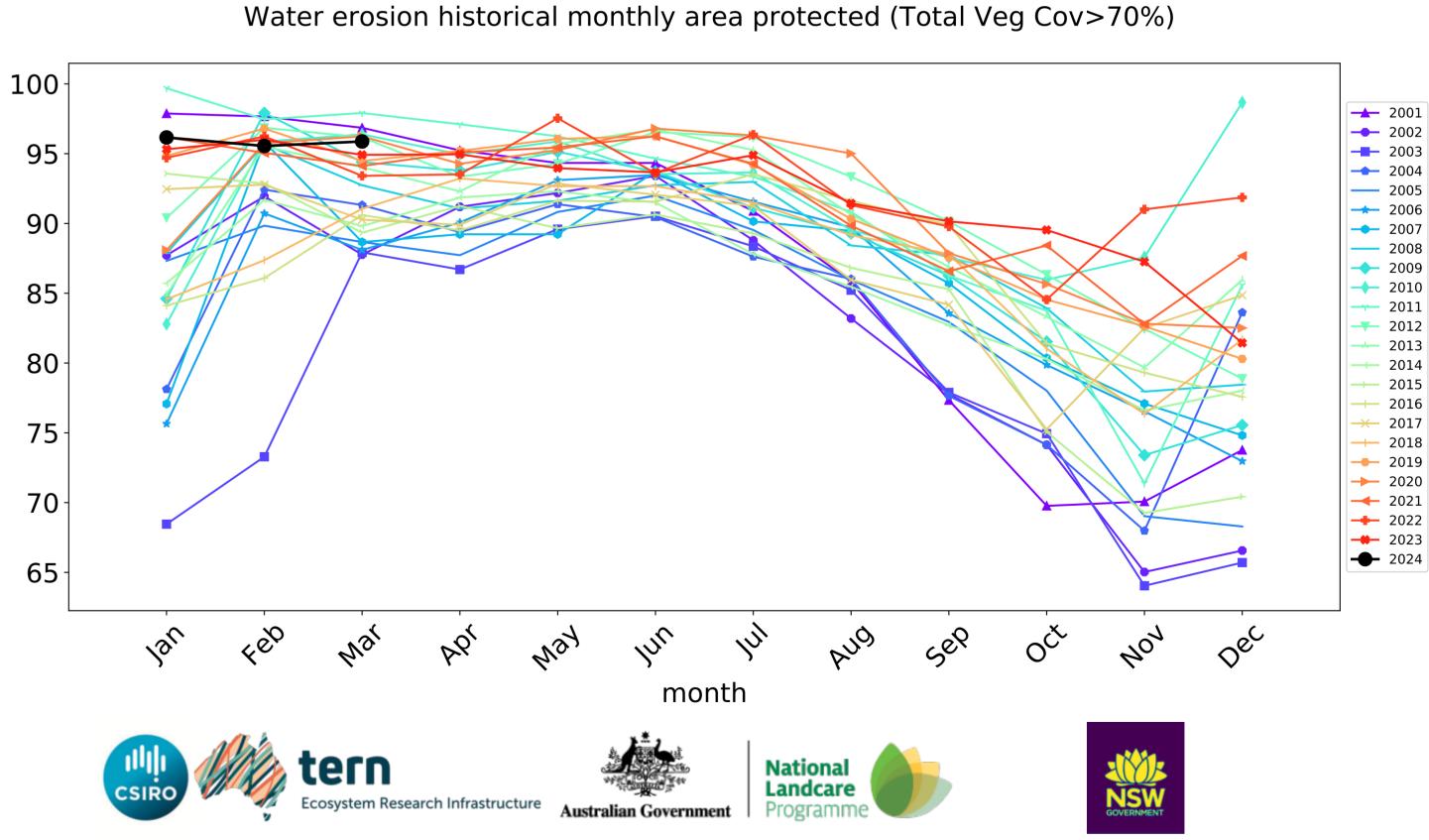
Irrigation timeseries





month



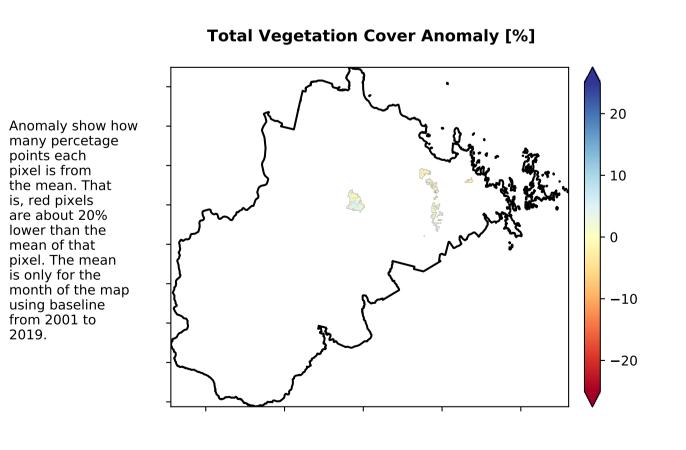


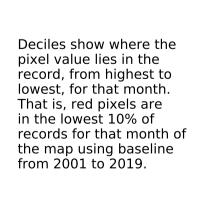
Production native forests and plantation forests

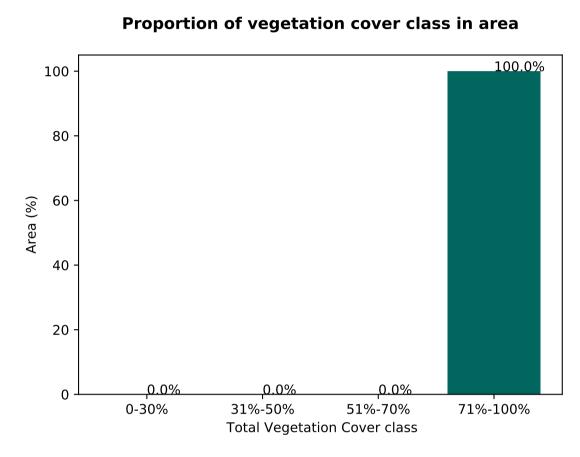
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) (2018) and Forests of Australia (2018)

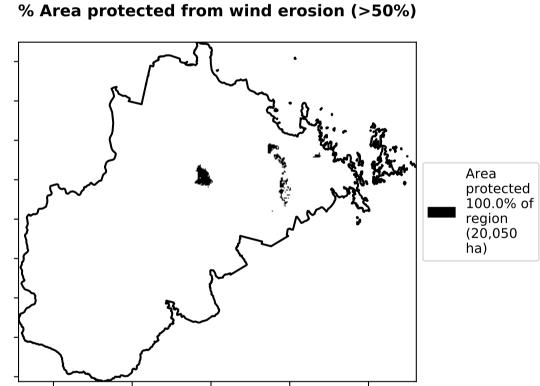
Total Vegetation Cover [%]

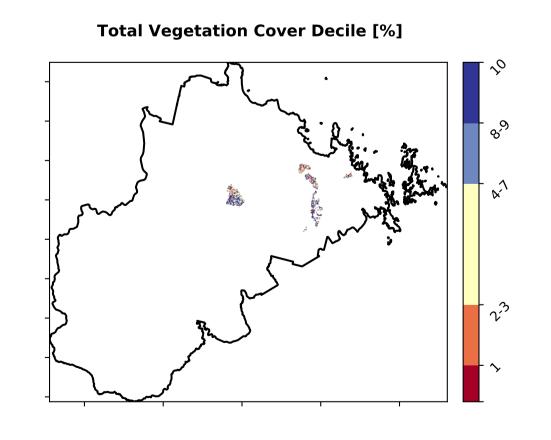
Area protected from water erosion (>70%) Area protected 100.0% of region (20,050 ha)











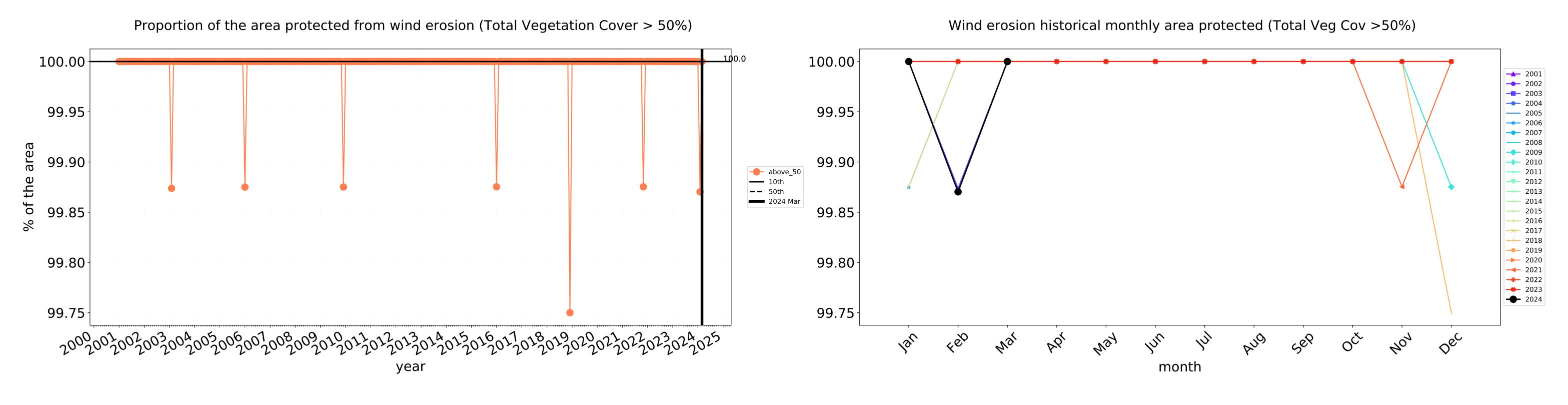


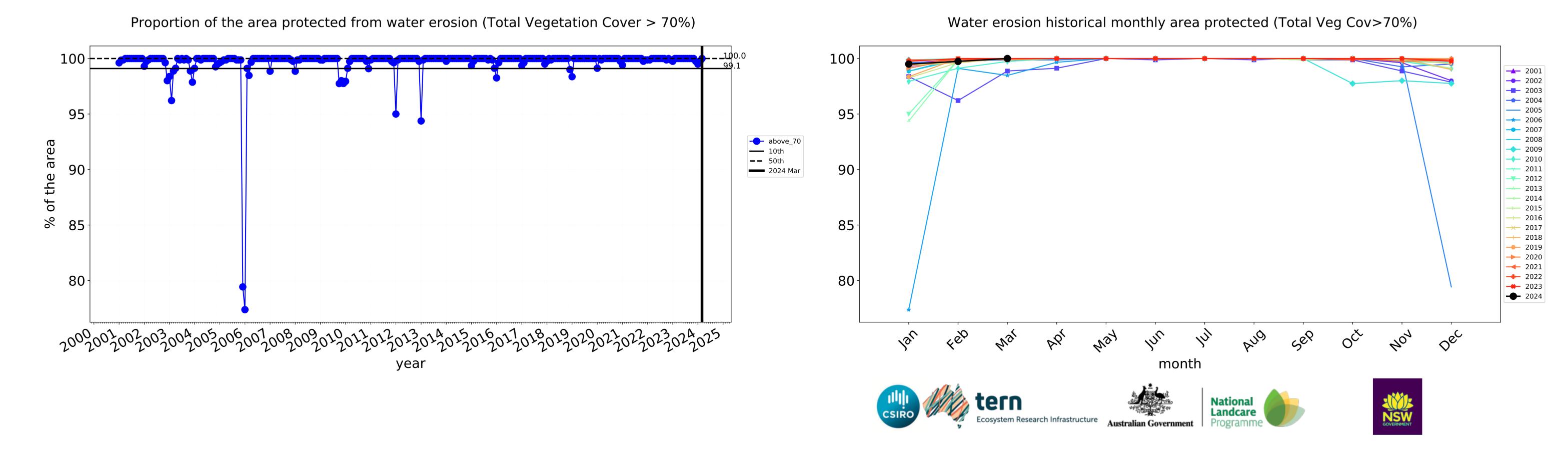






Production native forests and plantation forests timeseries





Whitsunday_(R) (2,300,450 ha and no data 81,426 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	2,300,450	100.0% 2,299,700	99.8% 2,296,725	98.1% 2,255,700	91.6% 2,106,450	57.3% 1,318,525	24.5% 564,650
Conservation and natural environments	143,550	99.8% 143,275	99.2% 142,425	96.8% 138,975	90.0% 129,225	57.8% 82,975	26.9% 38,550
Conservation and natural environments non forest	28,100	99.6% 27,975	98.4% 27,650	94.8% 26,650	82.7% 23,250	40.0% 11,250	14.2% 4,000
Conservation and natural environments Woodland forest	52,550	99.8% 52,450	99.6% 52,325	97.7% 51,350	92.3% 48,500	58.4% 30,700	24.0% 12,600
Conservation and natural environments Forest (non woodland)	62,900	99.9% 62,850	99.3% 62,450	96.9% 60,975	91.4% 57,475	65.2% 41,025	34.9% 21,950
Agriculture	2,060,550	100.0% 2,060,525	100.0% 2,059,675	98.5% 2,028,700	92.3% 1,902,075	58.0% 1,195,025	24.6% 507,550
Grazing	2,019,650	100.0% 2,019,625	100.0% 2,018,875	98.5% 1,989,475	92.5% 1,869,175	58.8% 1,187,075	25.0% 505,275
Grazing non forest	1,165,125	100.0% 1,165,100	99.9% 1,164,400	97.6% 1,137,025	89.1% 1,037,575	52.9% 616,650	22.5% 262,175
Grazing Woodland forest	805,975	100.0% 805,975	100.0% 805,950	99.8% 804,450	97.5% 785,900	67.4% 543,150	28.9% 232,750
Grazing - Forest (non woodland)	48,550	100.0% 48,550	99.9% 48,525	98.9% 48,000	94.1% 45,700	56.2% 27,275	21.3% 10,350
Irrigation	40,600	100.0% 40,600	99.8% 40,500	95.9% 38,925	80.3% 32,600	19.2% 7,775	5.4% 2,175
Production native forests and plantation forests	20,050	100.0% 20,050	100.0% 20,050	100.0% 20,050	99.1% 19,875	74.7% 14,975	35.3% 7,075







