Total vegetation cover soil protection Region:LGA Hinchinbrook (S) 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: January 2023

Vegetation Cover Jan 2023

Land use and forest cover

Catchment Scale

Derived from

Use of Australia

(2018) and Forests

of Australia (2018)

Anomaly show how many percetage points each pixel is from

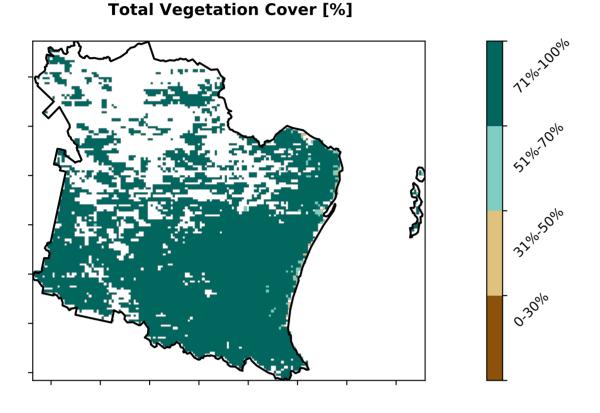
the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map

using baseline from 2001 to

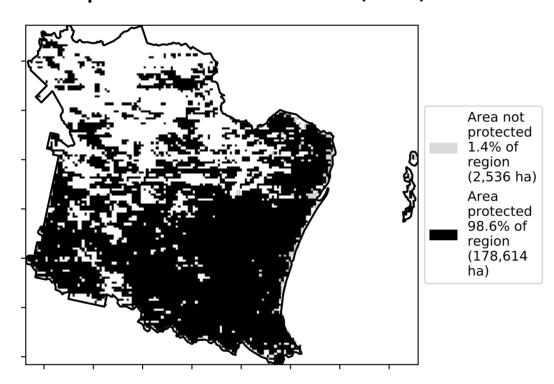
2019.

Land Use and Forests of Australia (2018)

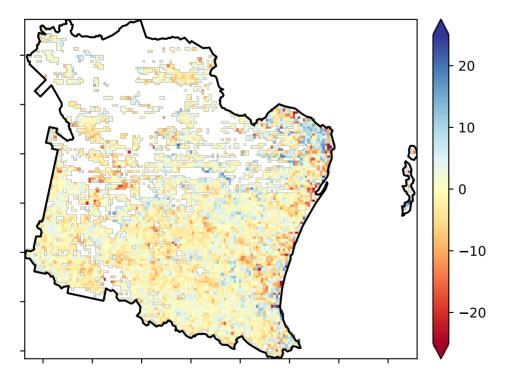
Legend with land class forest cover and number, i.e. Forests is 12 1 Conservation and natural environments - Non-forest 2 Conservation and natural environments - Woodland forest 3 Conservation and natural environments - Non-Woodland forest 4 Agriculture - Grazing - Non-forest 5 Agriculture - Grazing - 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



% Area protected from water erosion (>70%)

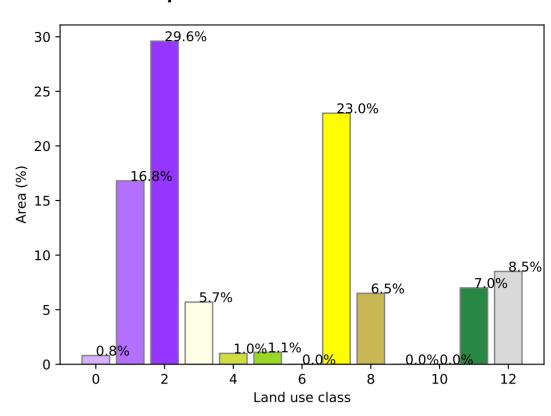


Total Vegetation Cover Anomaly [%]

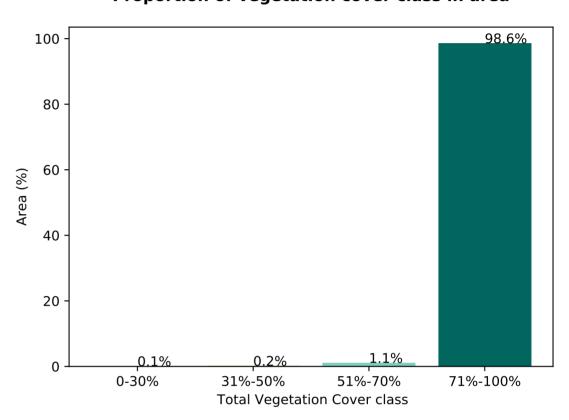


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

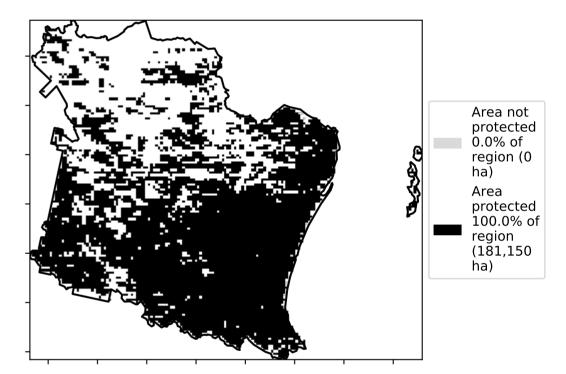
Proportion of each land class in area

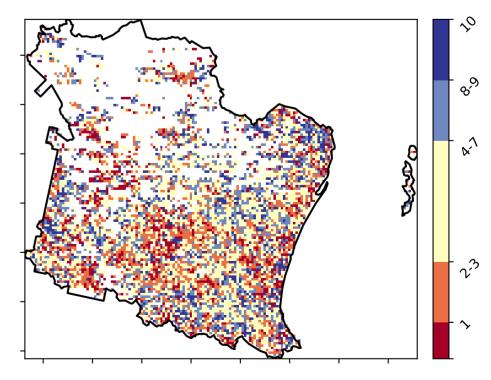


Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



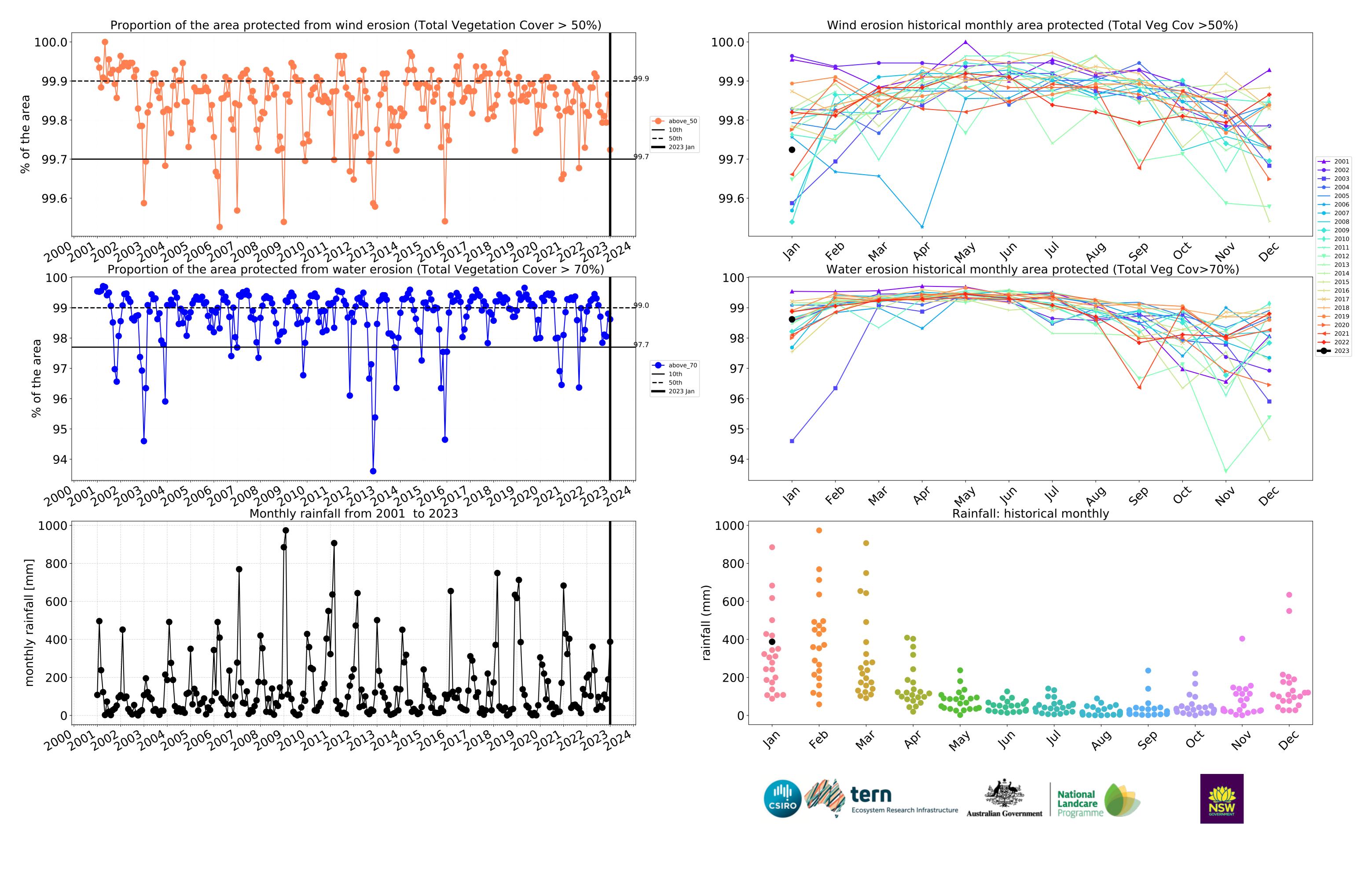


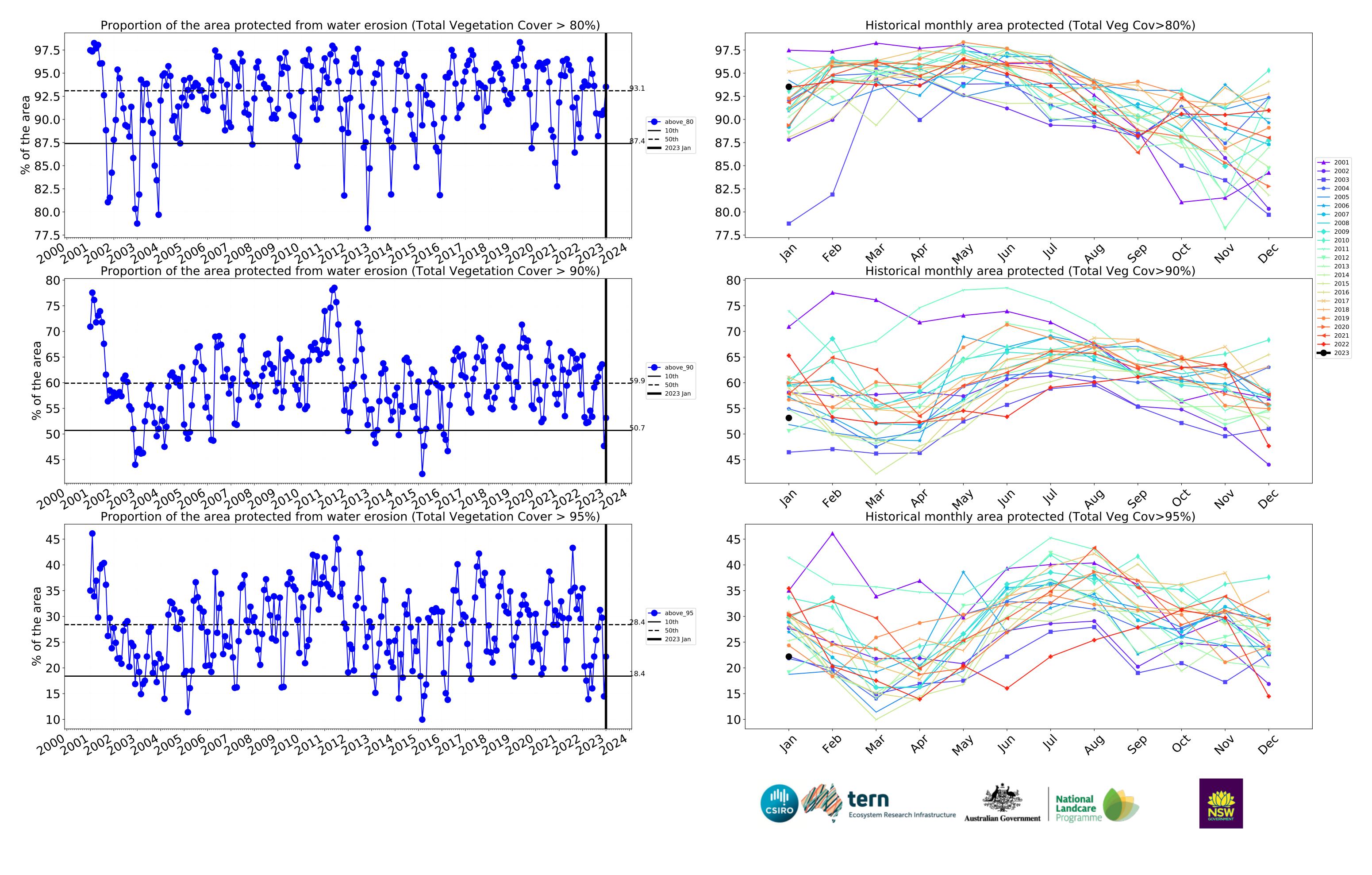










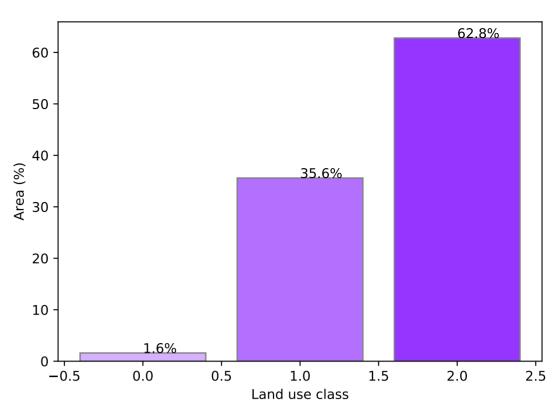


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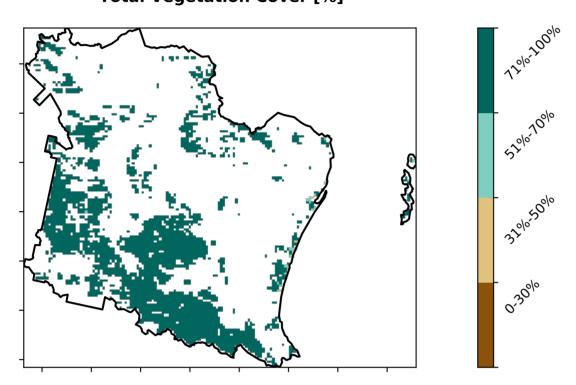
Conservation and natural environments

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) Australia (2018) Tonservation and natural environments - Nonforest 2 Conservation and natural environments - Woodland forest 3 Conservation and natural environments - Nonwoodland forest

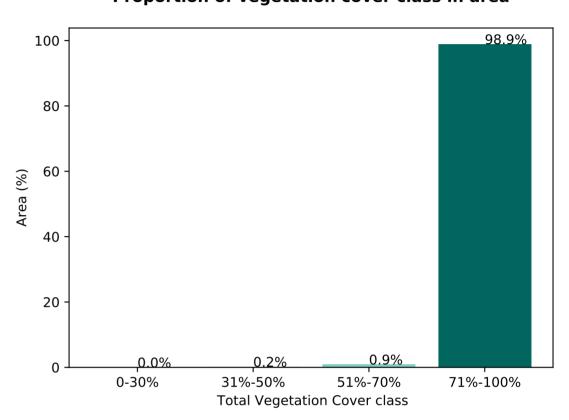
Proportion of each land class in area



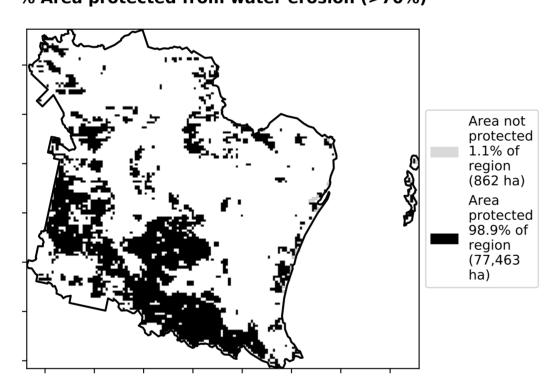
Total Vegetation Cover [%]



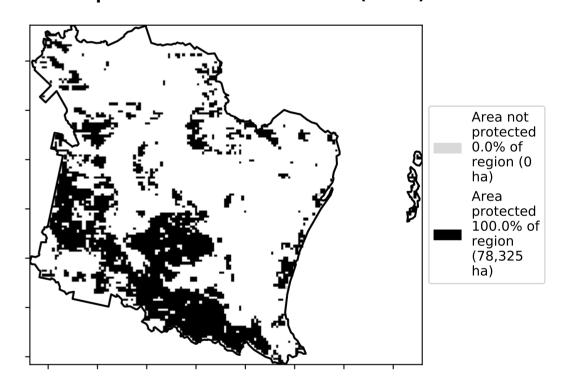
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

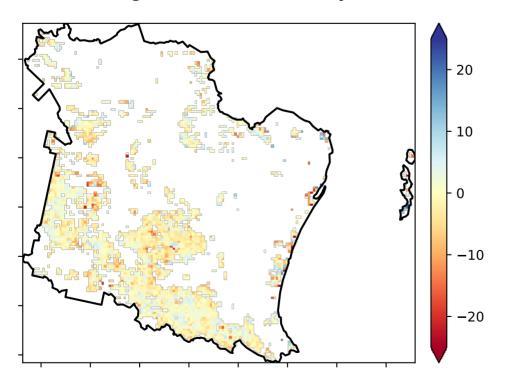
Anomaly show how many percetage points each pixel is from

the mean. That is, red pixels

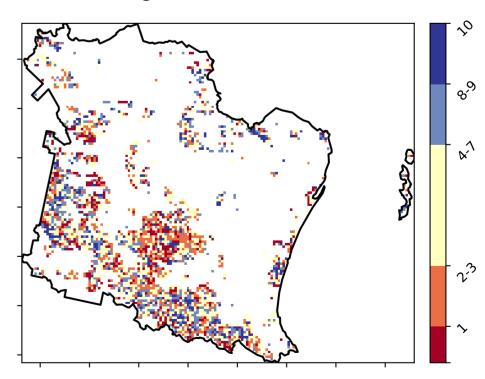
are about 20% lower than the

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 map using baseline from 2001 to 2019.



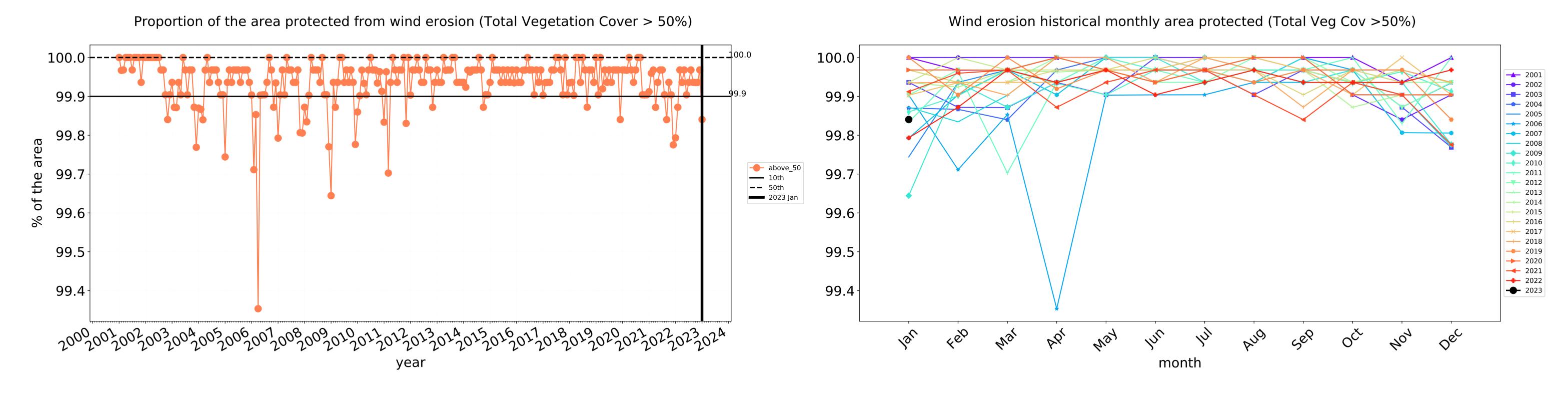


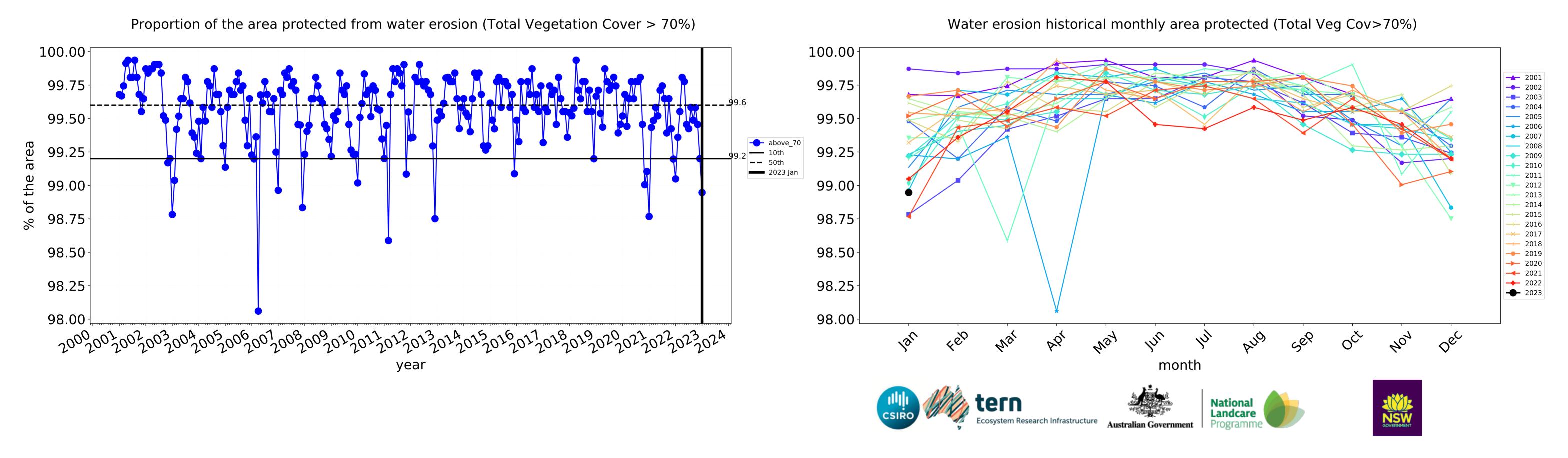


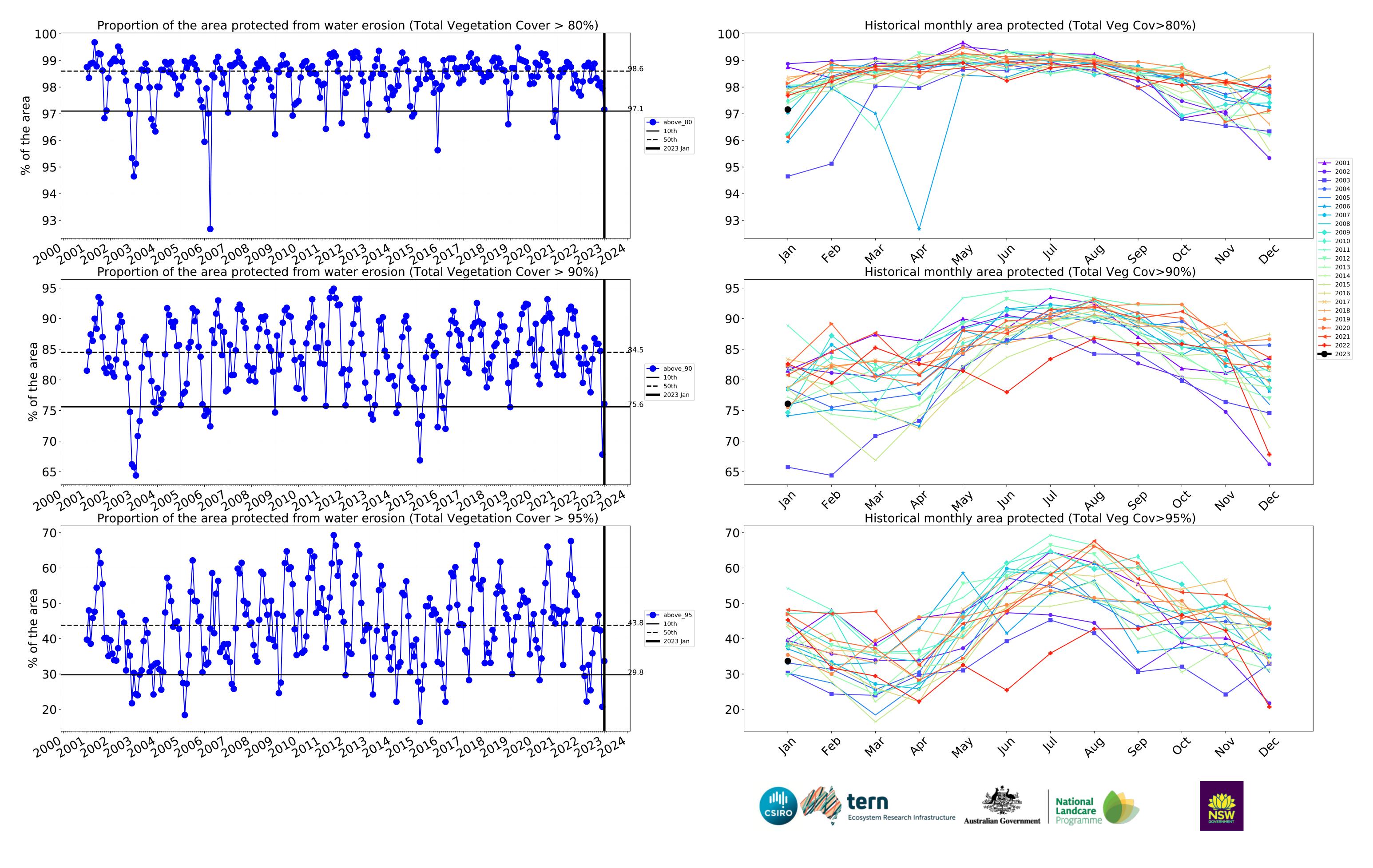




Conservation and natural environments timeseries







Conservation and natural environments Woodland forest

Land use and forest cover



Anomaly show how many percetage points each pixel is from

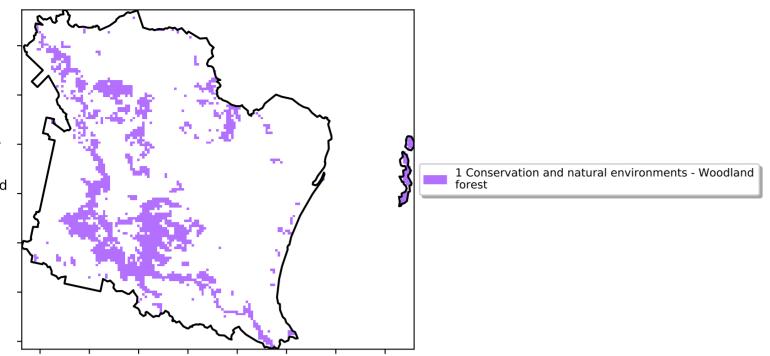
the mean. That

is, red pixels

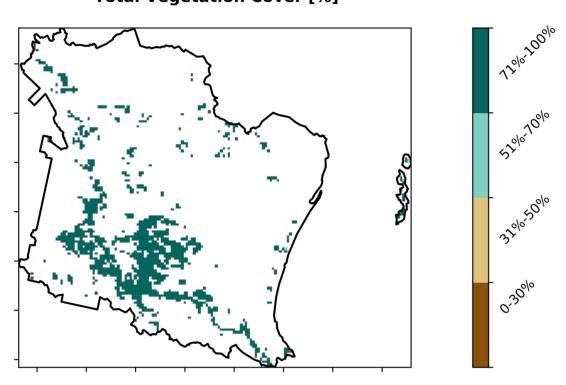
are about 20% lower than the

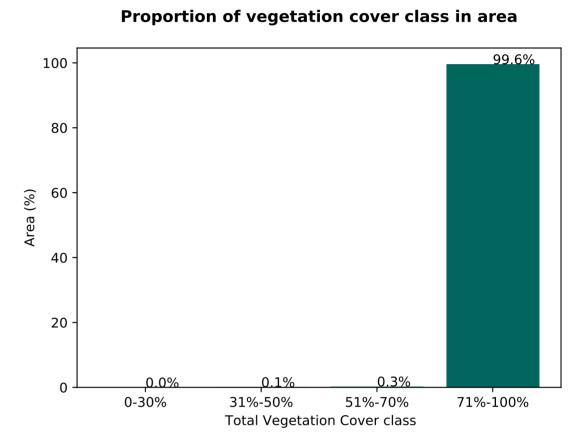
mean of that pixel. The mean is only for the month of the map

using baseline from 2001 to 2019.

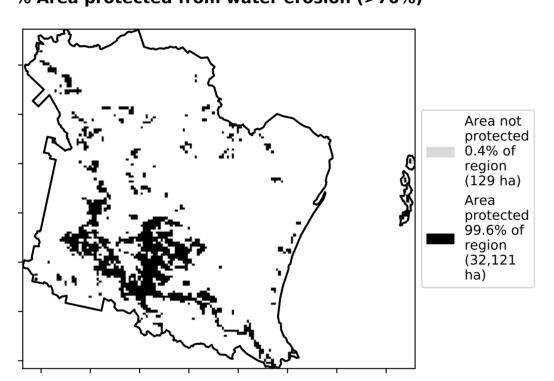


Total Vegetation Cover [%]

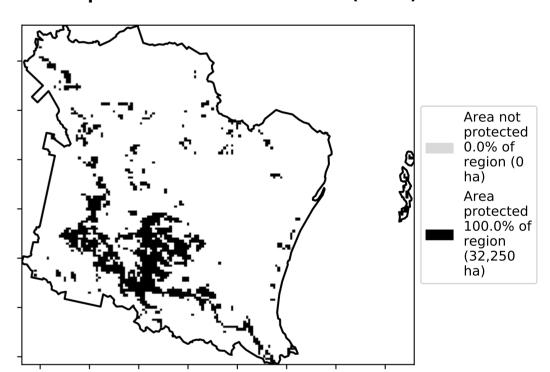




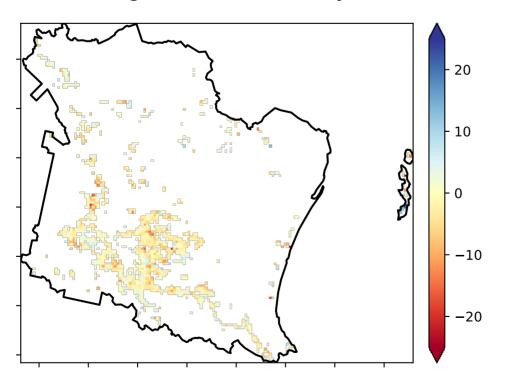
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

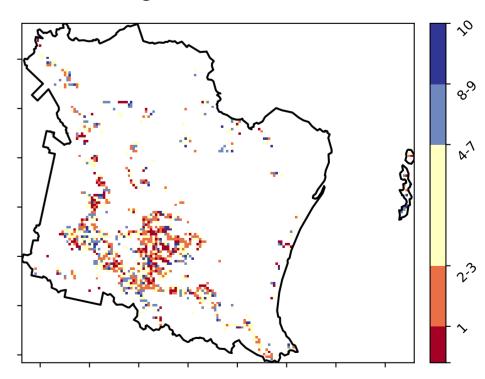


Total Vegetation Cover Anomaly [%]



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 [%]







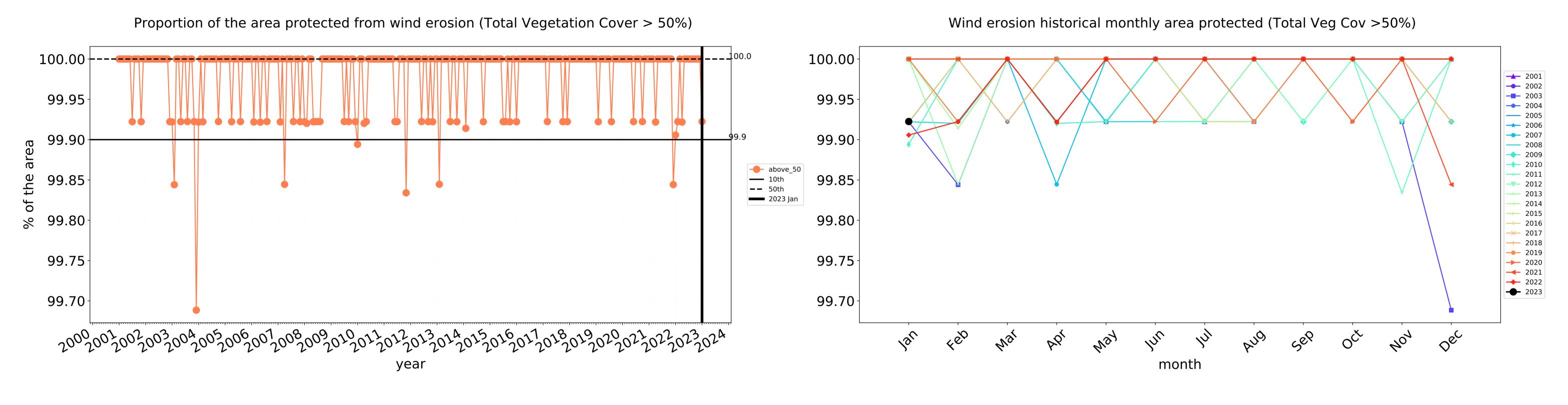


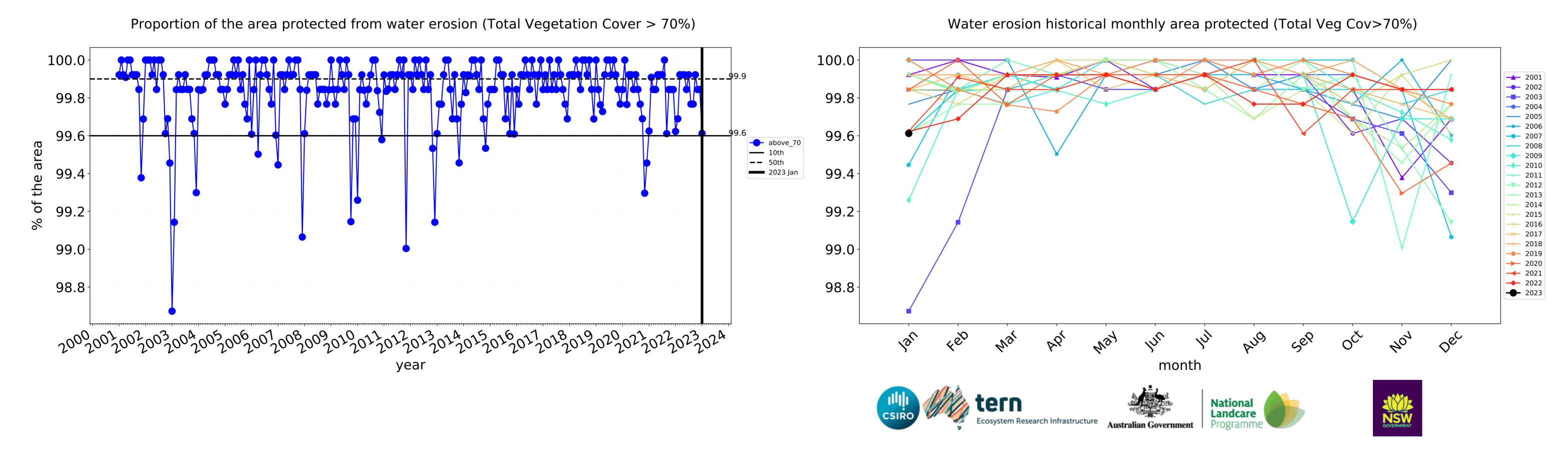


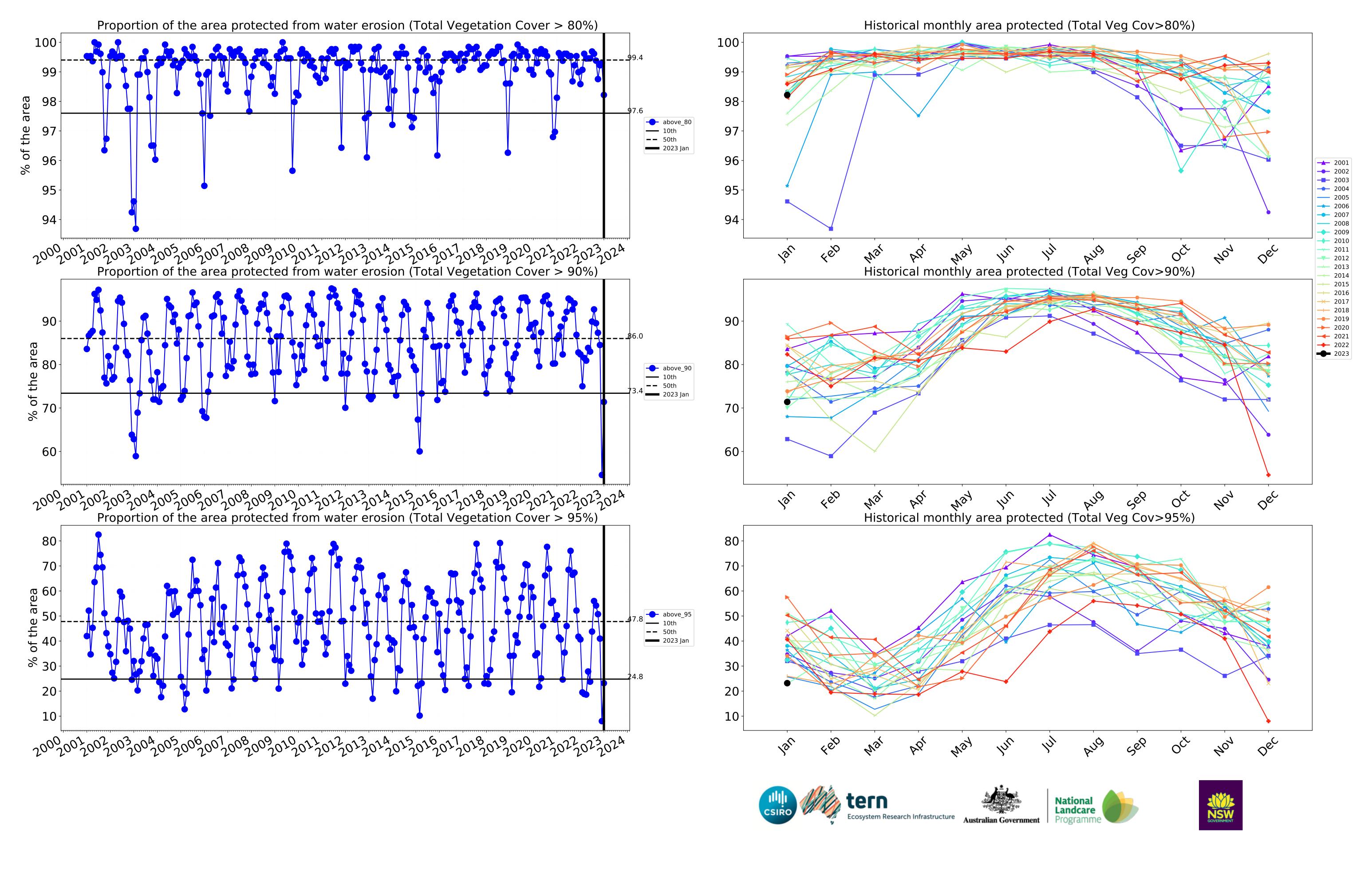




Conservation and natural environments Woodland forest timeseries

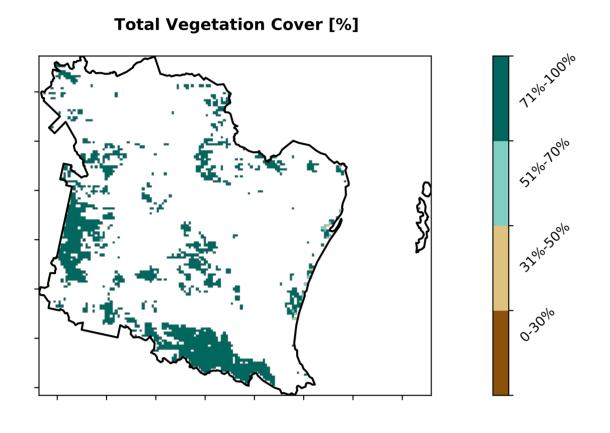






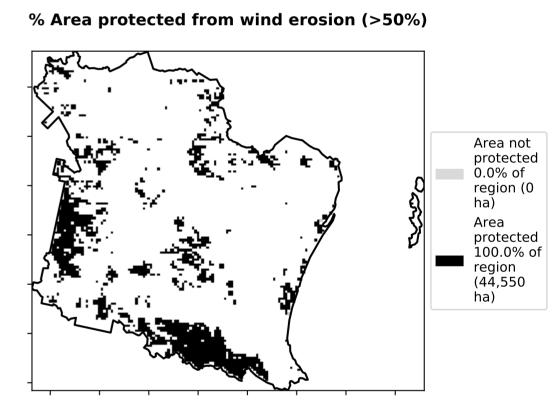
Conservation and natural environments Forest (non woodland)

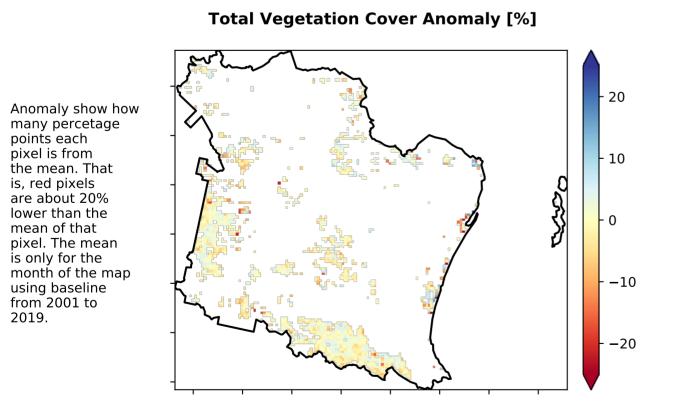
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments - Non-Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



Proportion of vegetation cover class in area 98.7% 100 80 60 20 31%-50% 0-30% 51%-70% 71%-100% **Total Vegetation Cover class**

% Area protected from water erosion (>70%) Area not protected 1.3% of region (579 ha) Area protected 98.7% of region (43,971 ha)



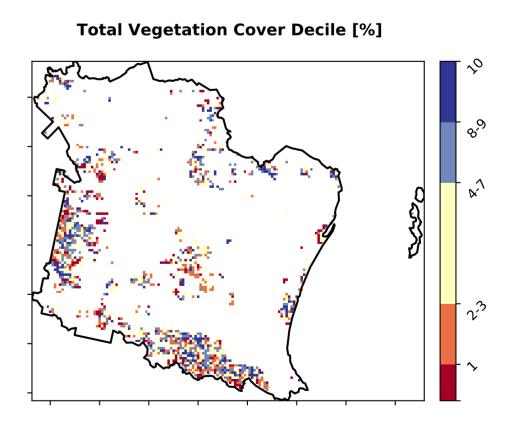


is, red pixels

are about 20% lower than the mean of that

pixel. The mean

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.

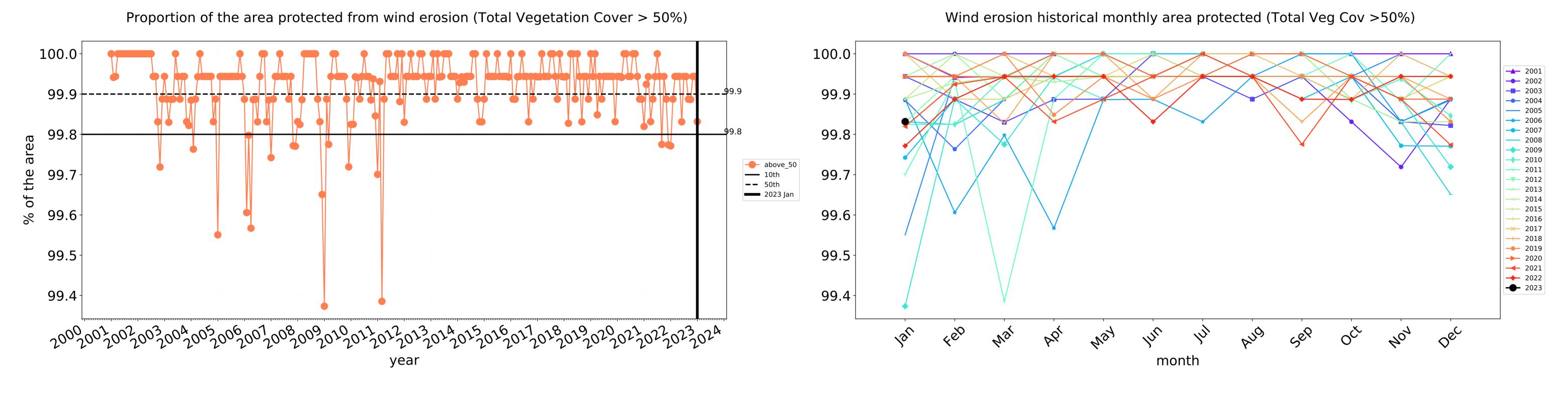


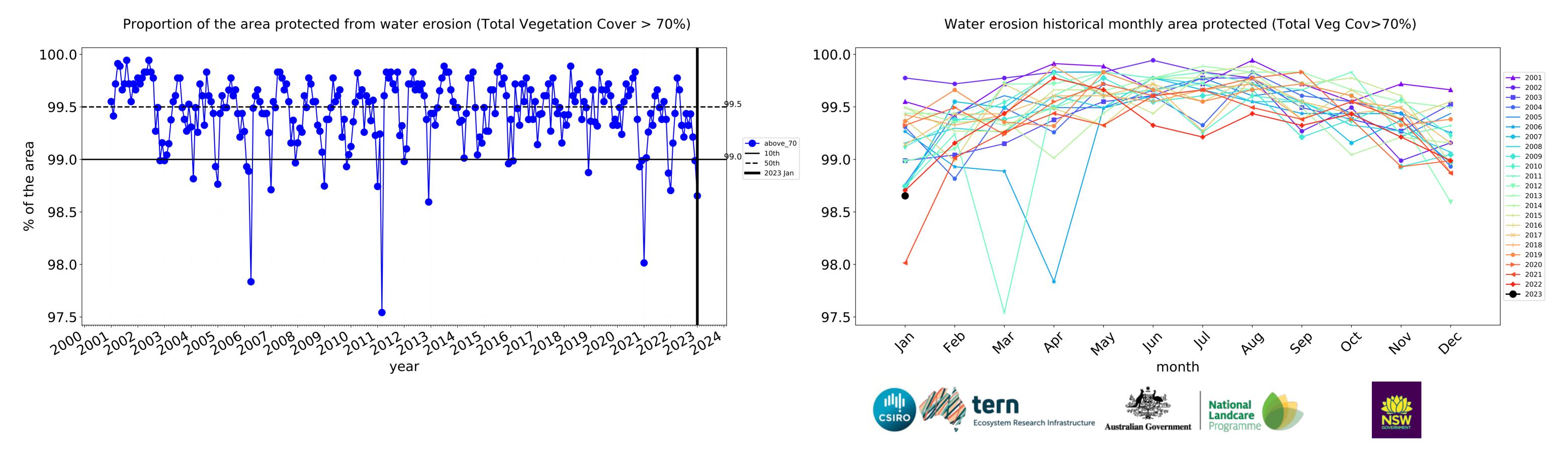


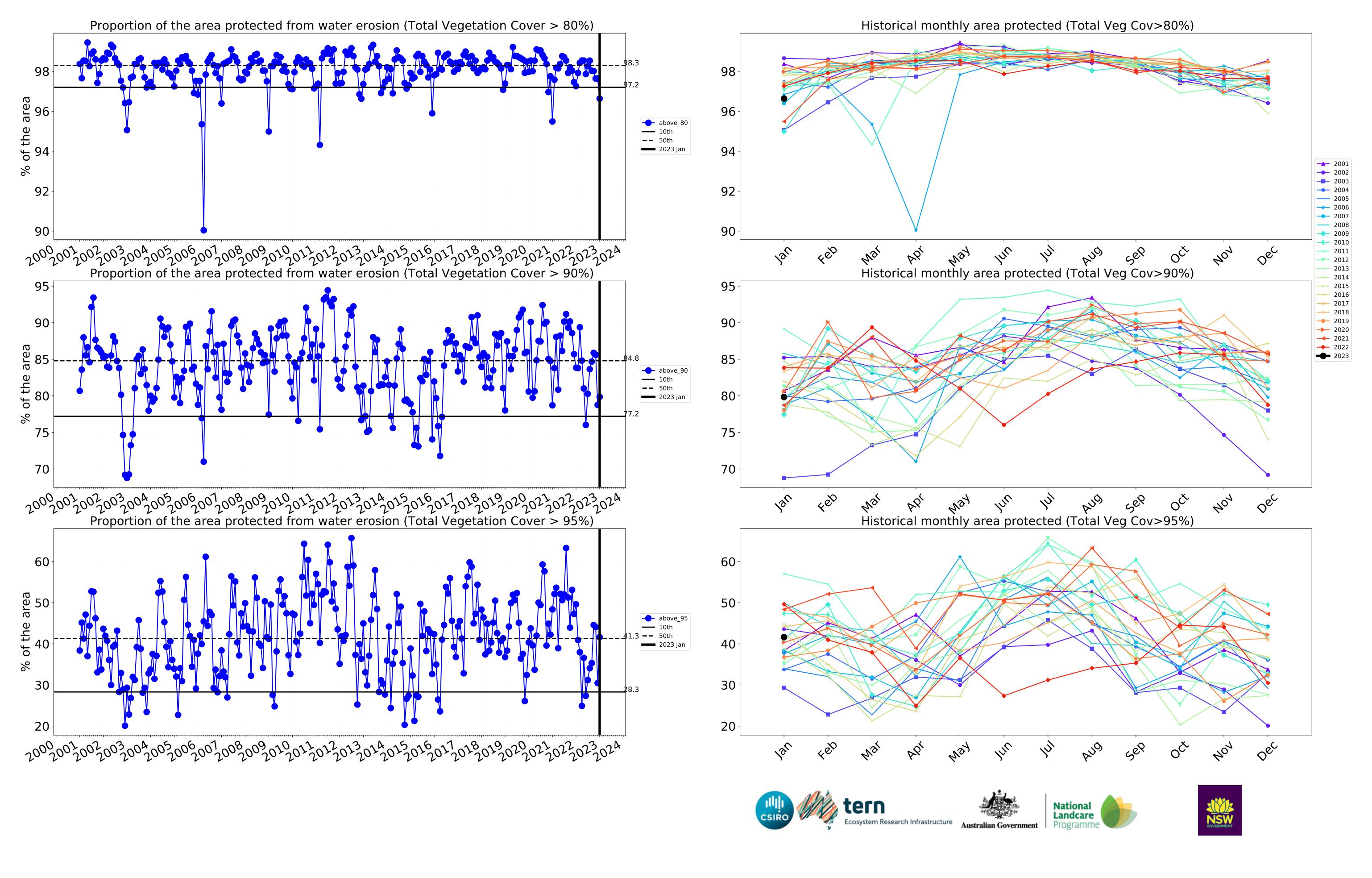










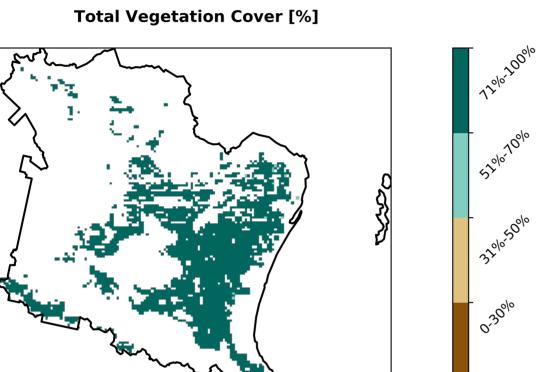


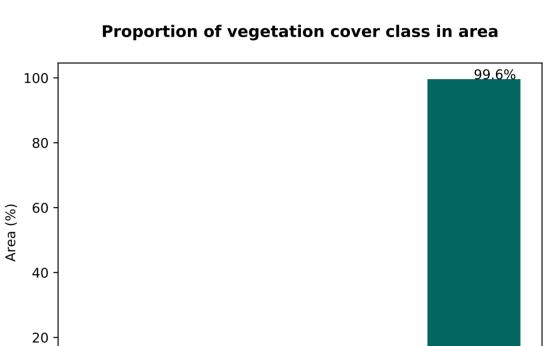
Agriculture

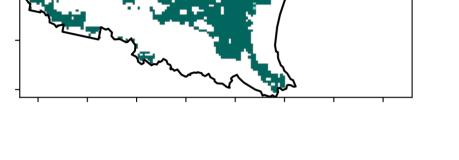
Catchment Scale Land Use and Forests of Australia (2018) 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest Derived from Catchment Scale Land 4 Agriculture - Cropping - Non-irrigated Use of Australia 5 Agriculture - Cropping - Irrigated (2018) and Forests 6 Agriculture - Horticulture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

Land use and forest cover 3 Agriculture - Grazing - Non-woodland forest

Proportion of each land class in area 61.7% 60 50 40 Area (%) 0 20 17.3% <u>15.4</u>% 10 3 Land use class





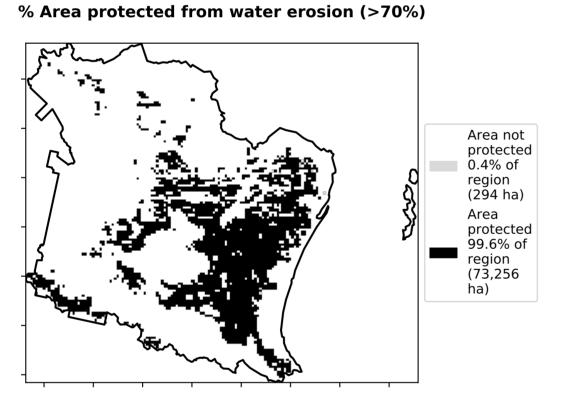


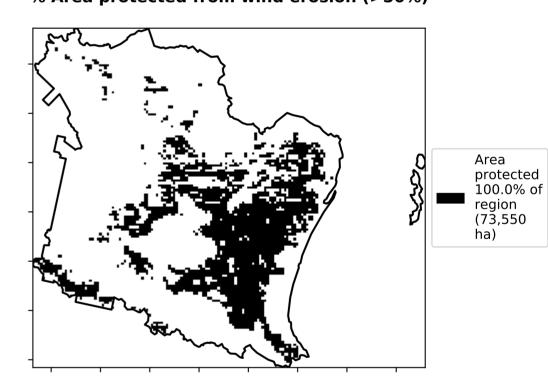
% Area protected from wind erosion (>50%)

Total Vegetation Cover class

0.0%

31%-50%





51%-70%

71%-100%

Total Vegetation Cover Anomaly [%]

Anomaly show how many percetage points each pixel is from

the mean. That is, red pixels

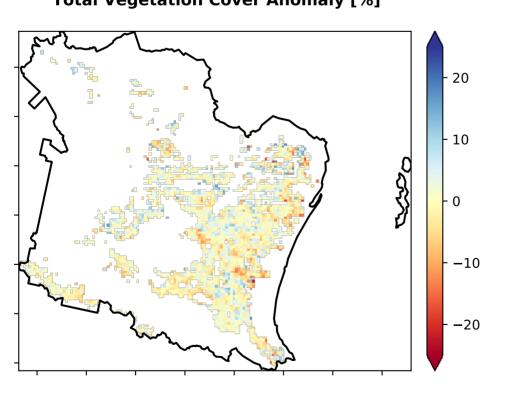
are about 20% lower than the mean of that

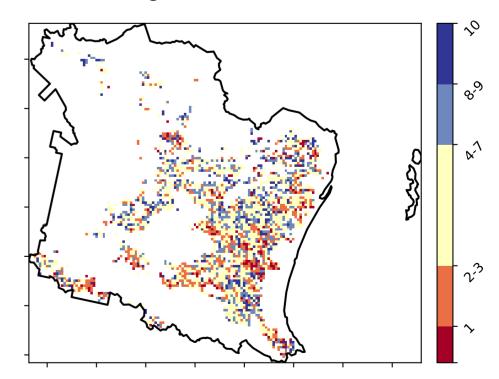
pixel. The mean

using baseline from 2001 to 2019.

is only for the month of the map

Total Vegetation Cover Decile [%]





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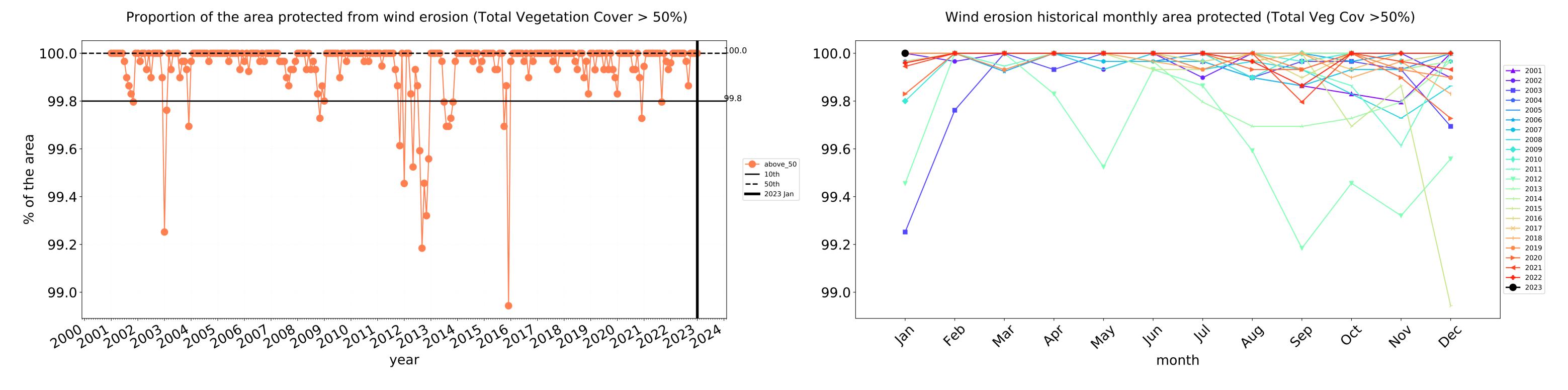


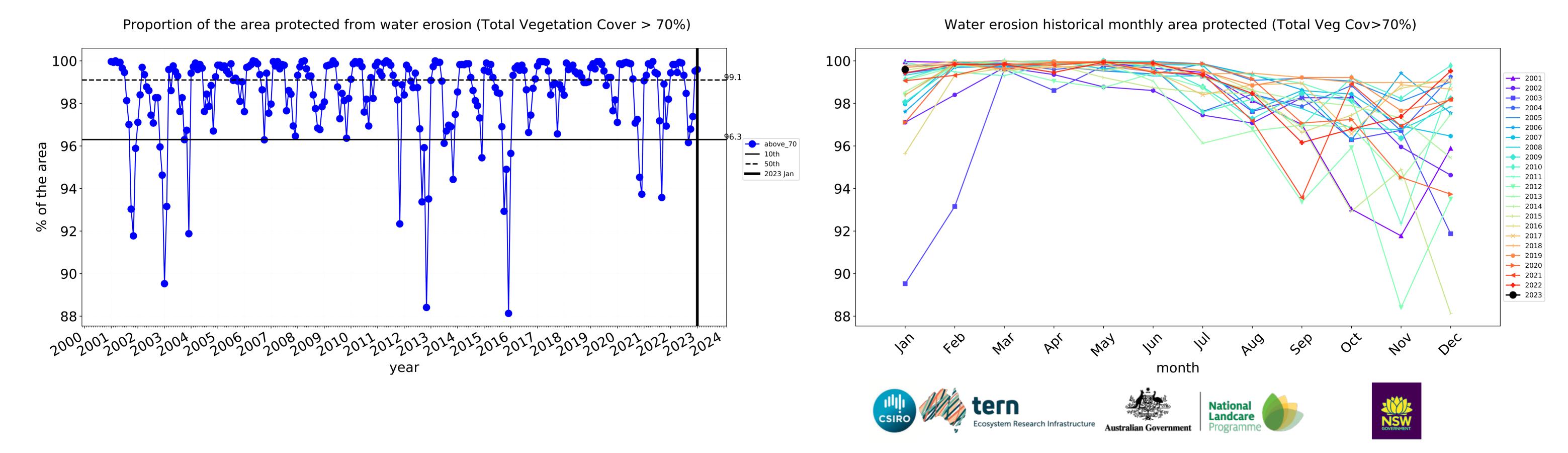
0

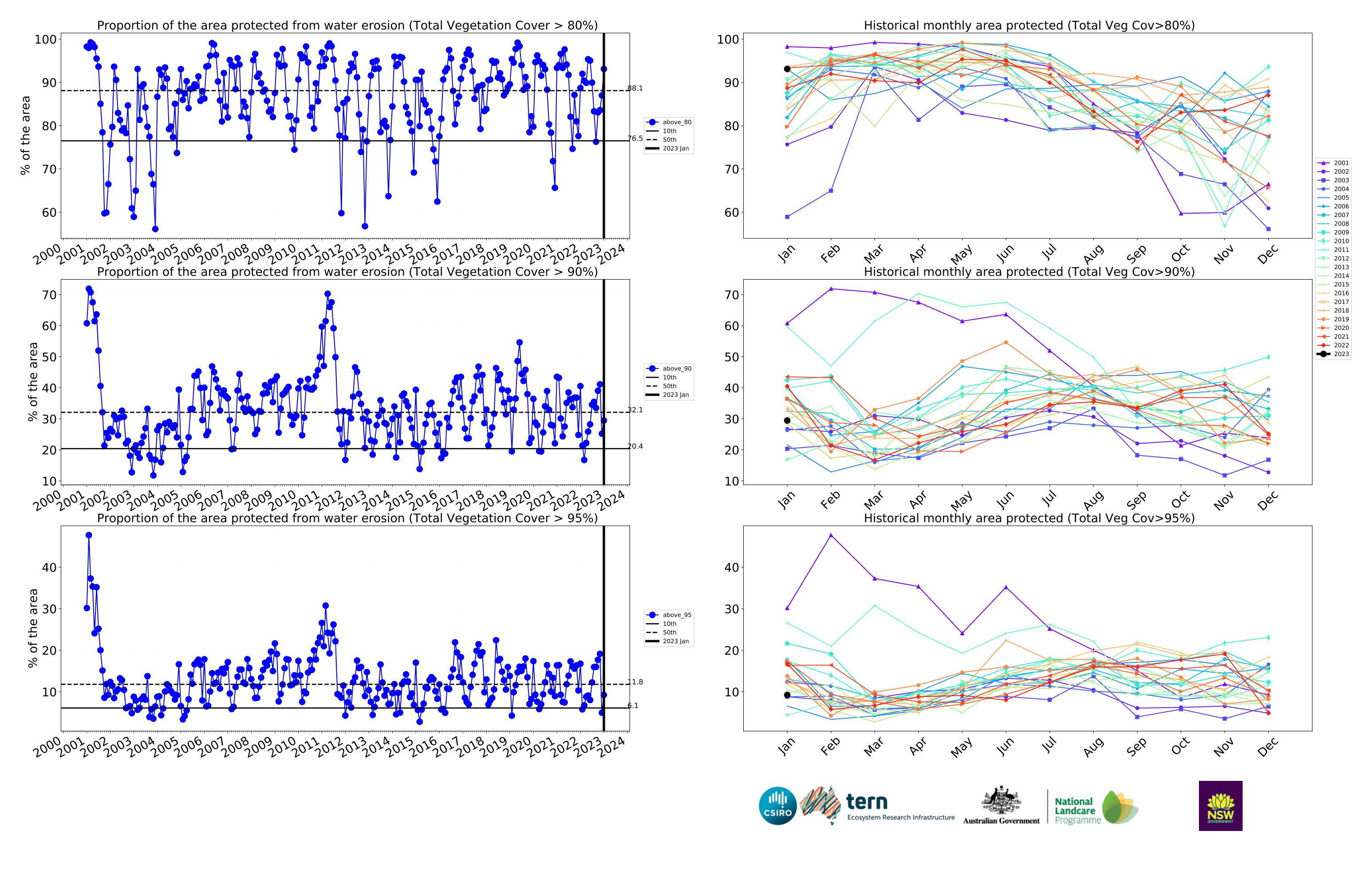
0-30%



Agriculture timeseries



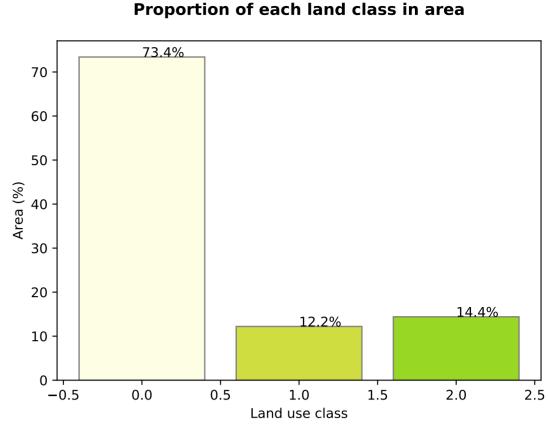


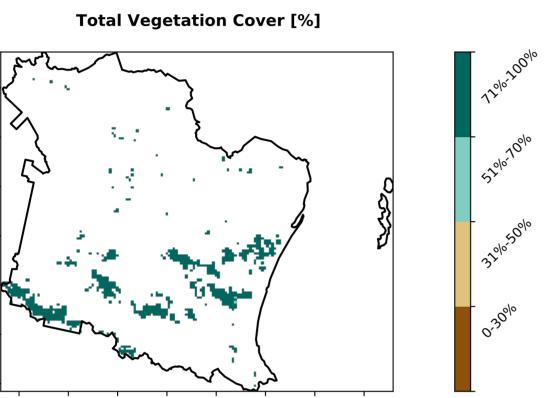


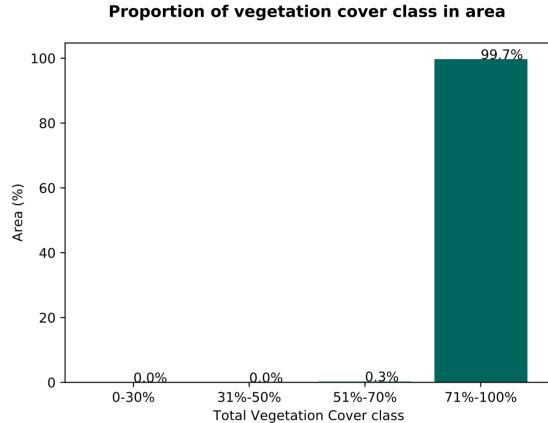
Grazing

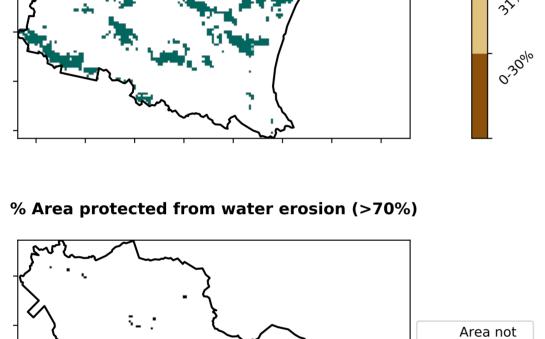
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Land use and forest cover 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest

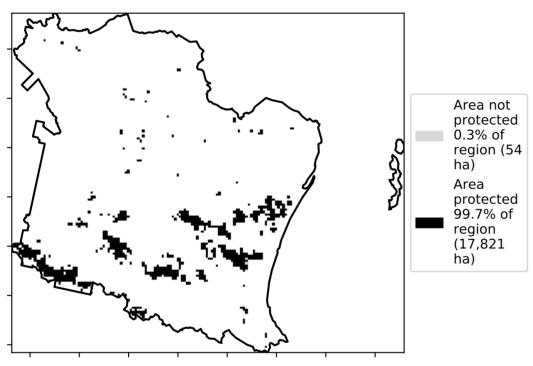


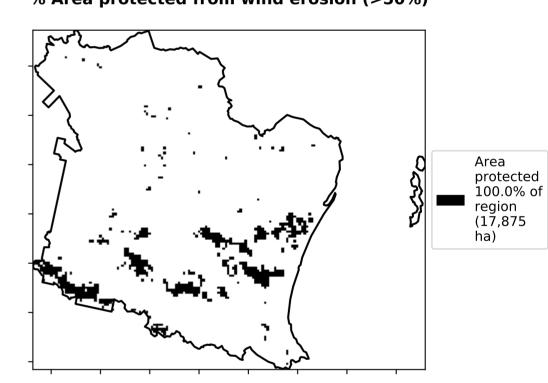






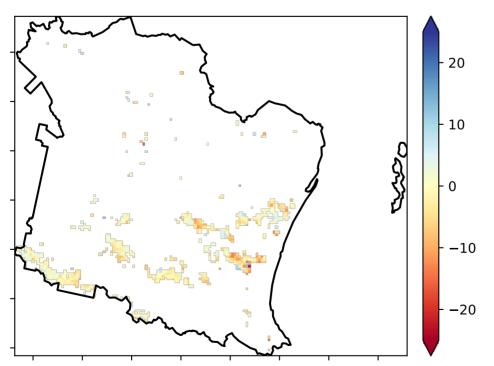




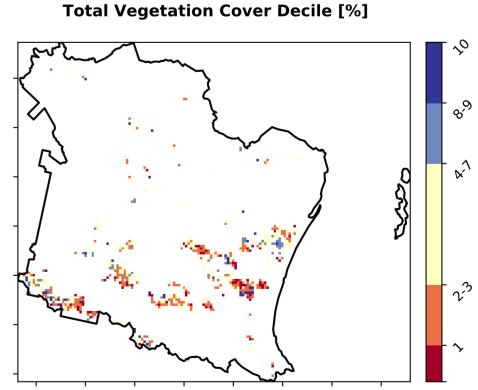


Total Vegetation Cover Anomaly [%]

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.



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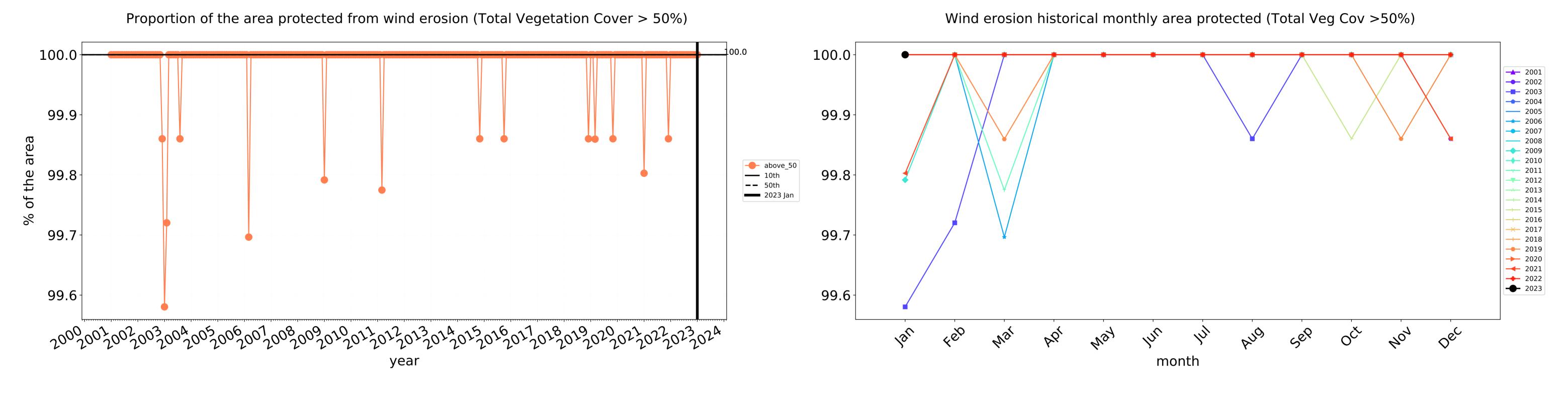


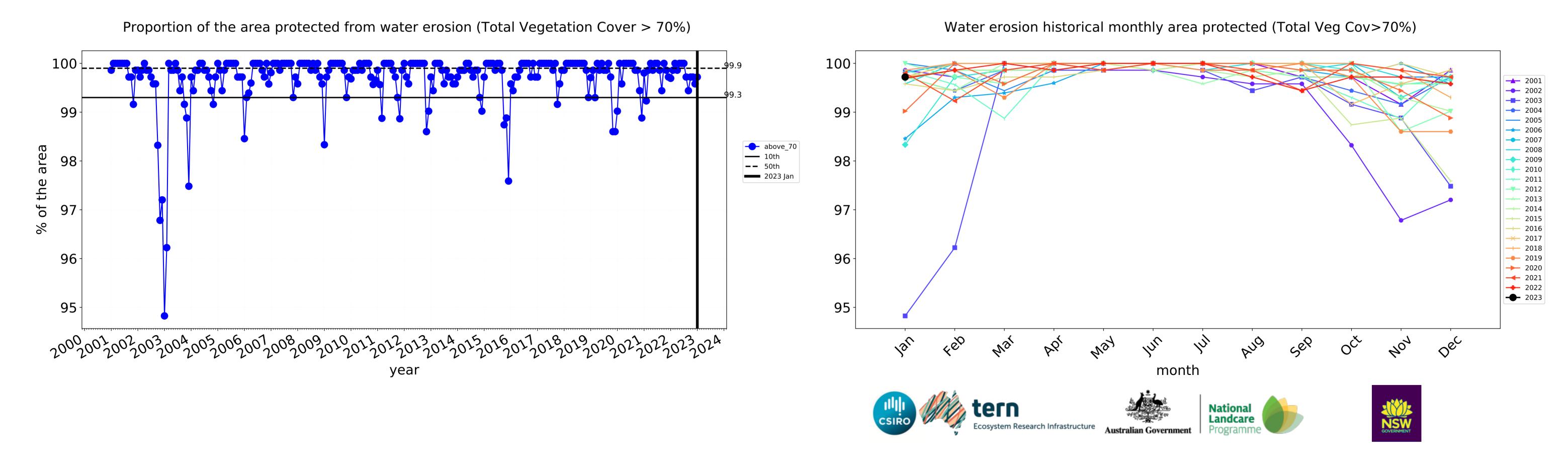


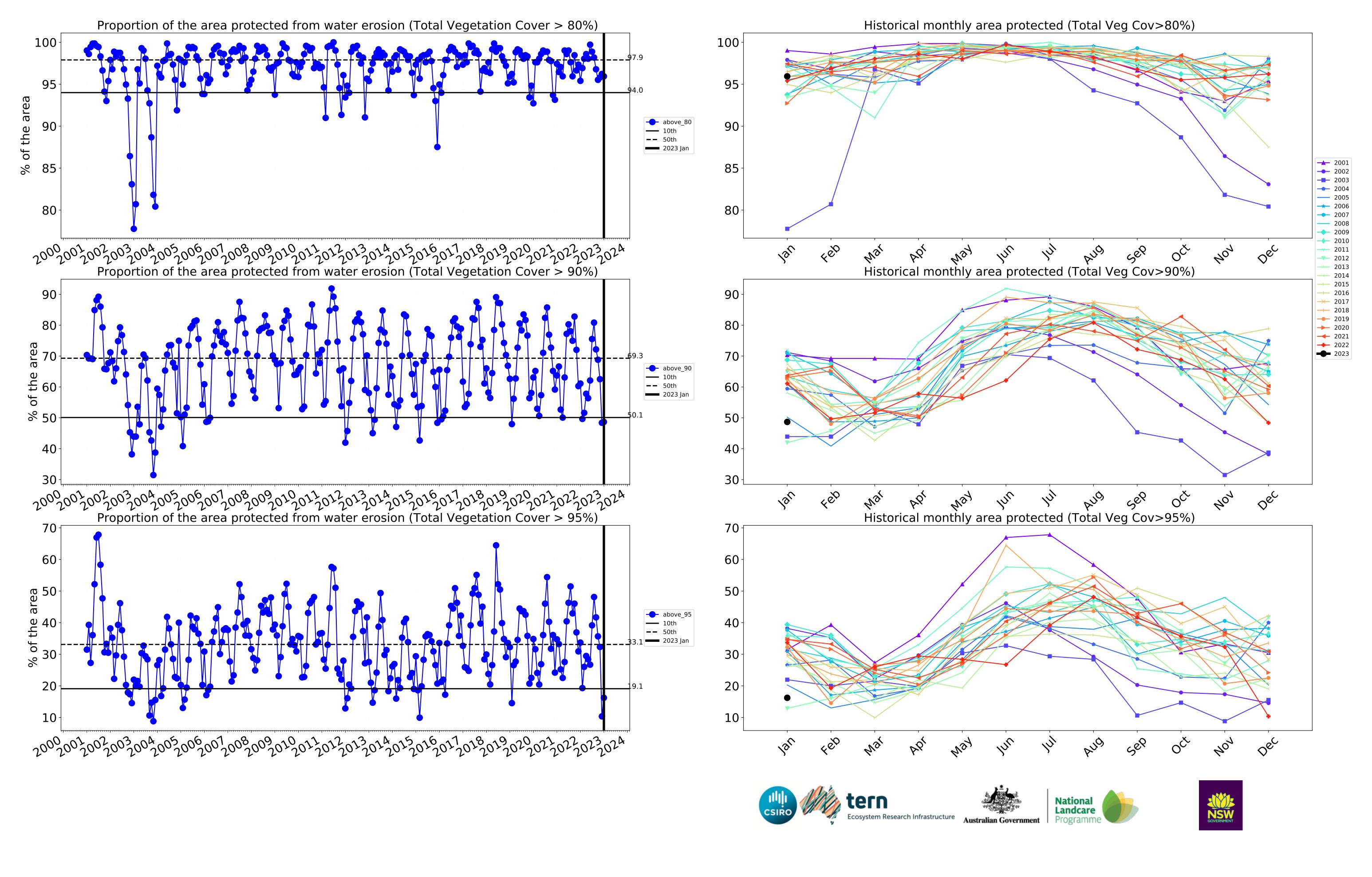




Grazing timeseries







Grazing non forest

Land use and forest cover

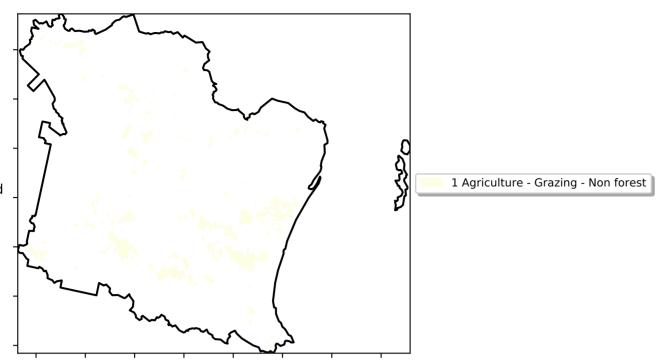


the mean. That

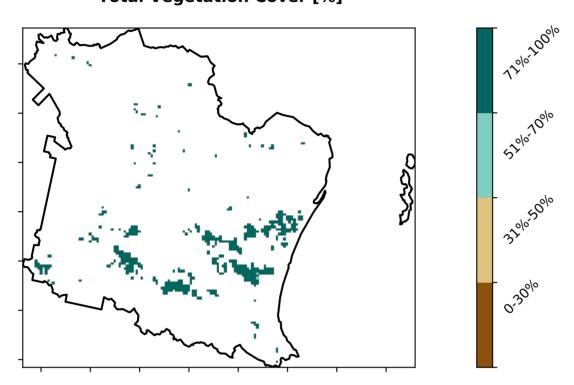
is, red pixels are about 20% lower than the

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

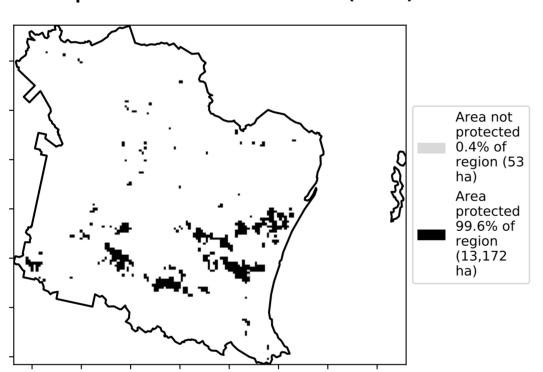
using baseline from 2001 to 2019.



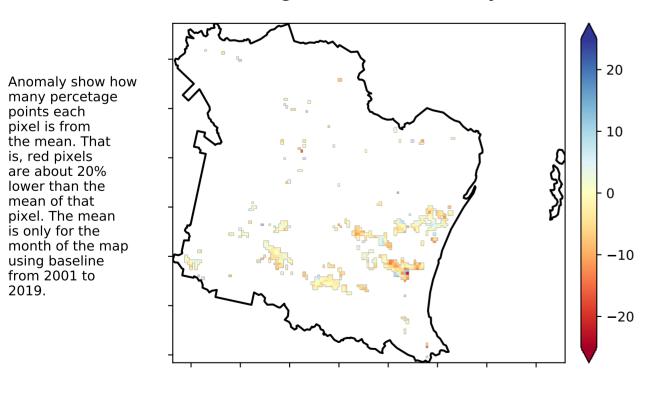
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

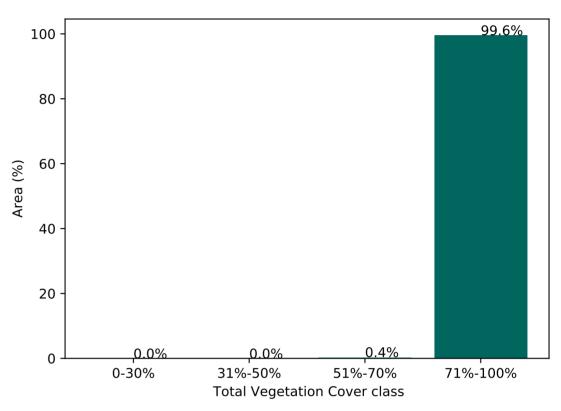


Total Vegetation Cover Anomaly [%]

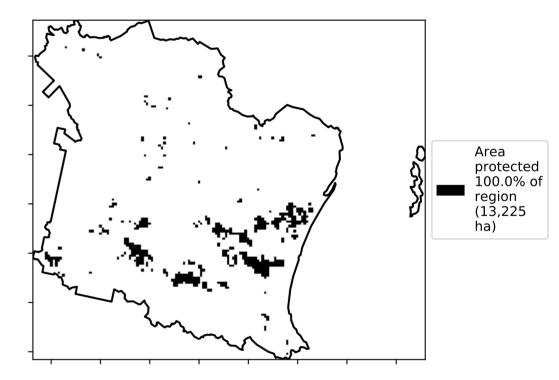


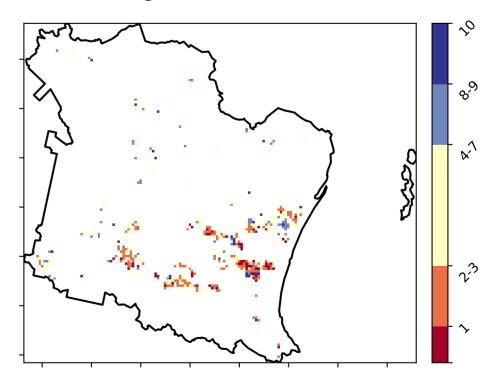
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





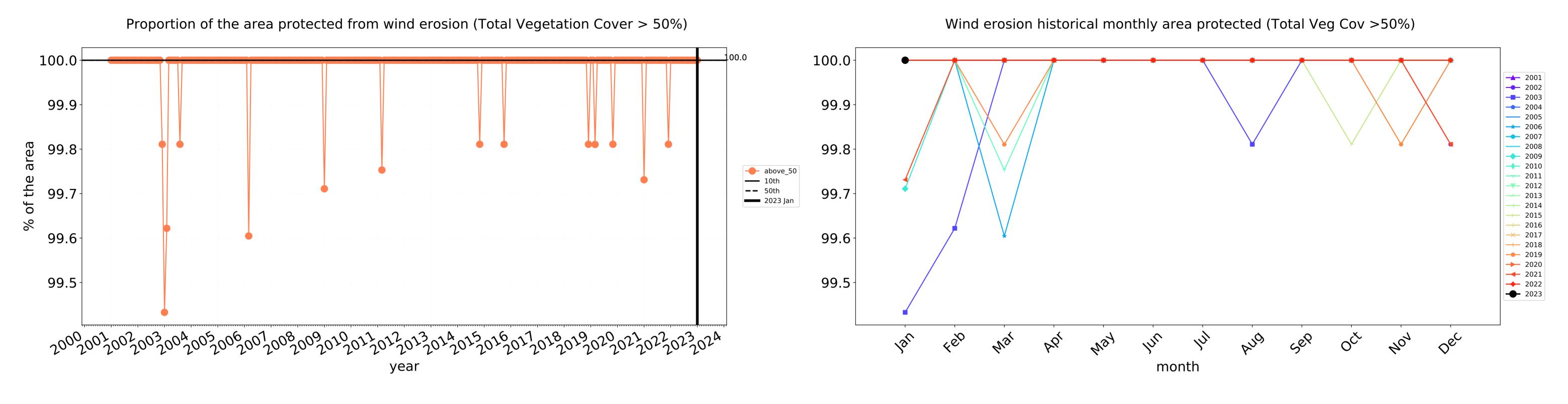


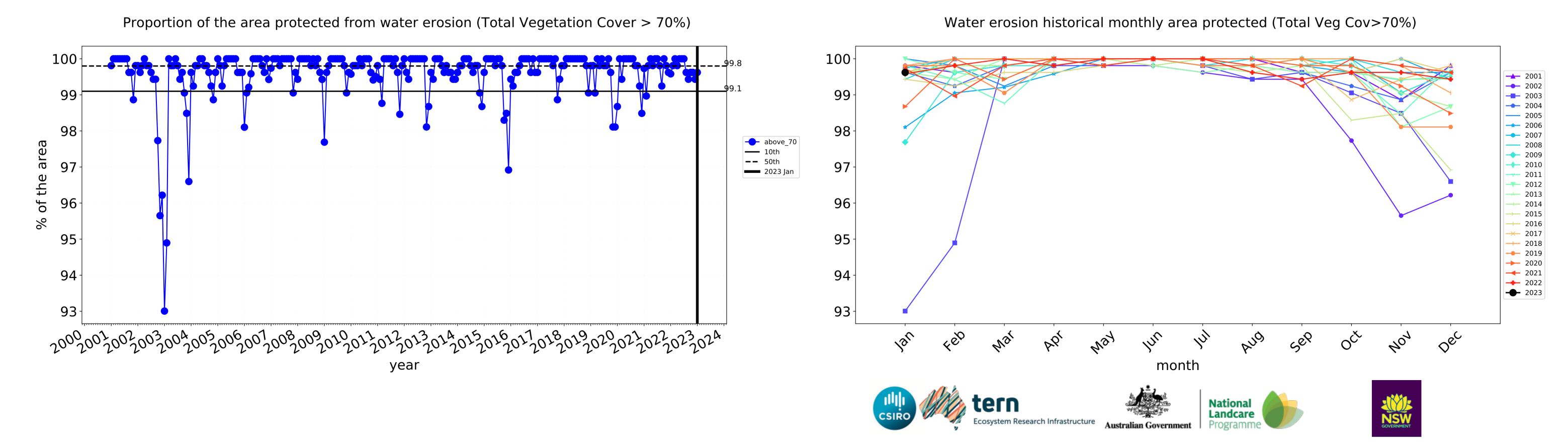


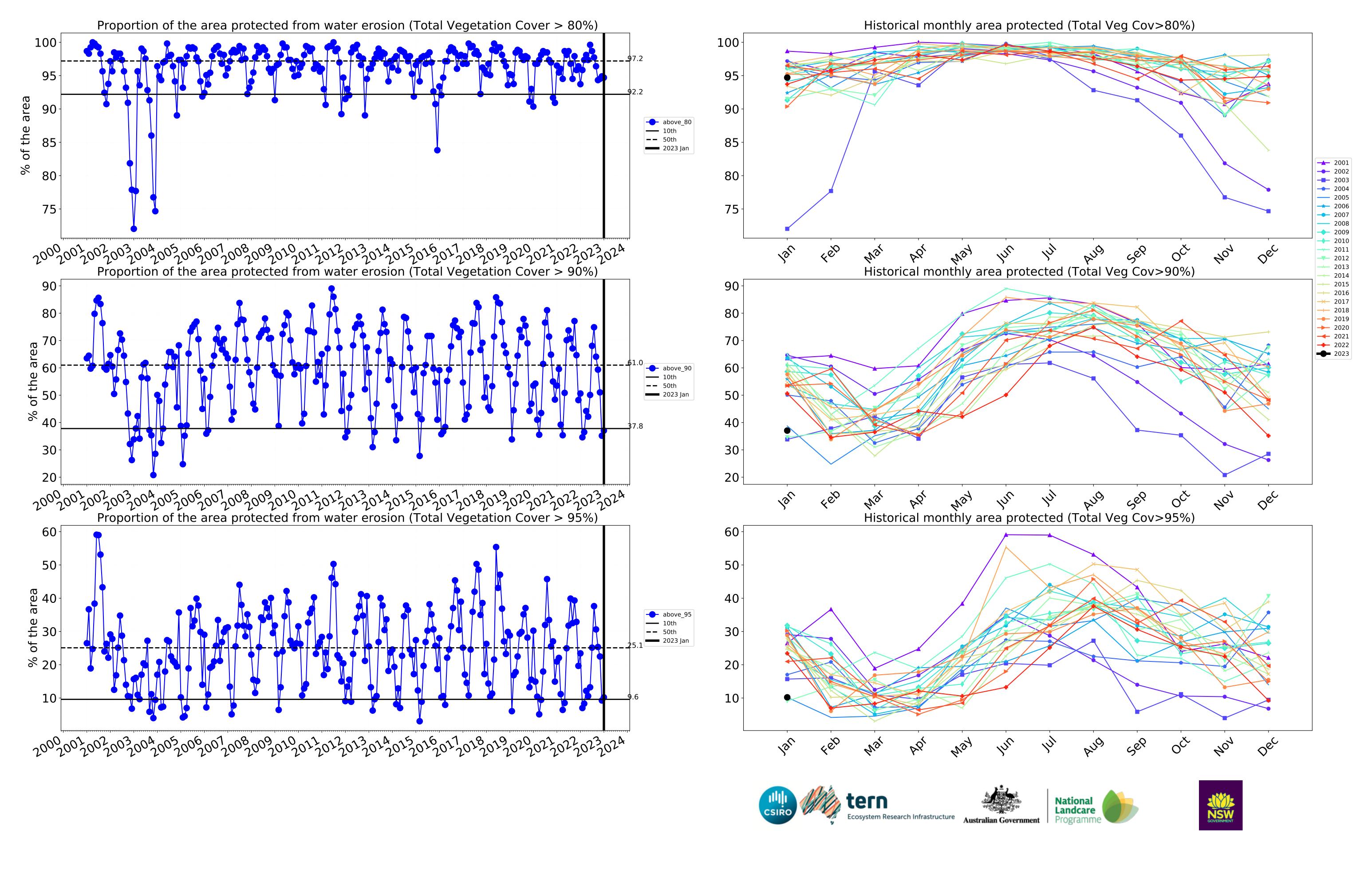




Grazing non forest timeseries







Grazing Woodland forest

Land use and forest cover

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

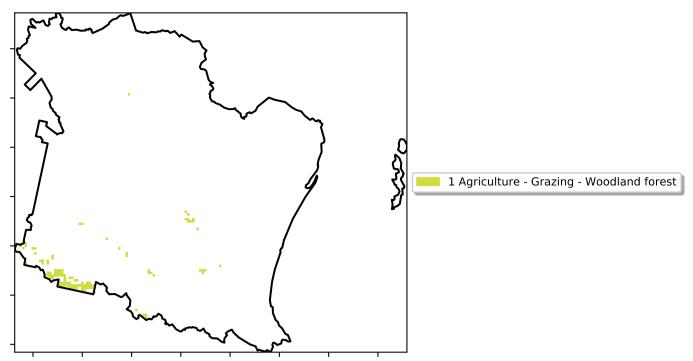
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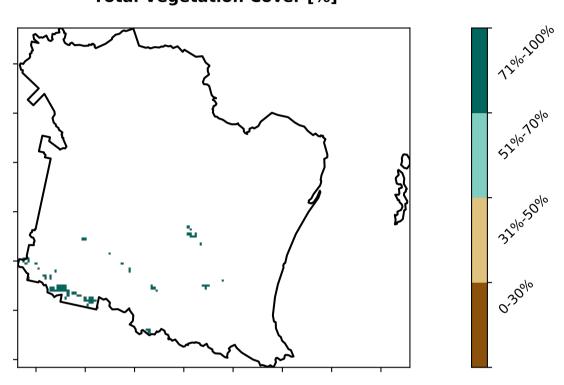
pixel. The mean

using baseline from 2001 to 2019.

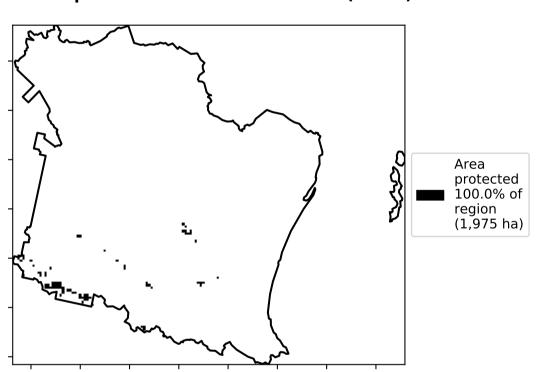
is only for the month of the map



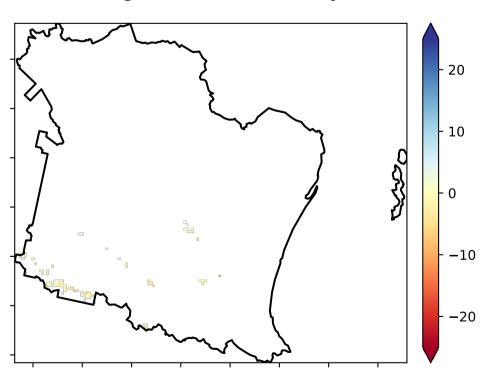
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

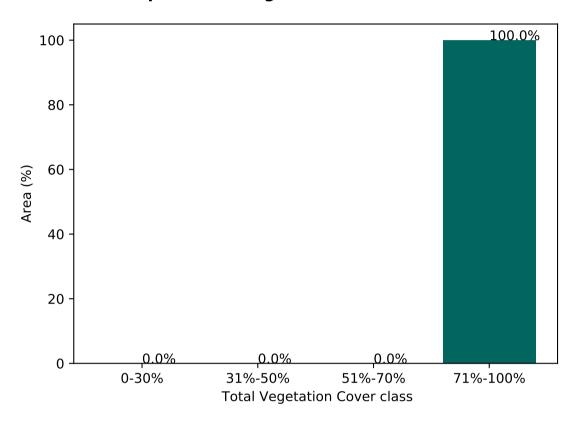


Total Vegetation Cover Anomaly [%]

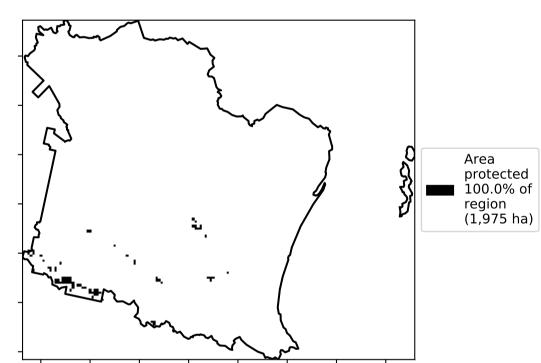


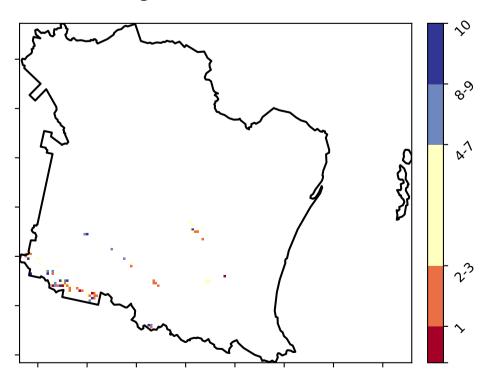
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





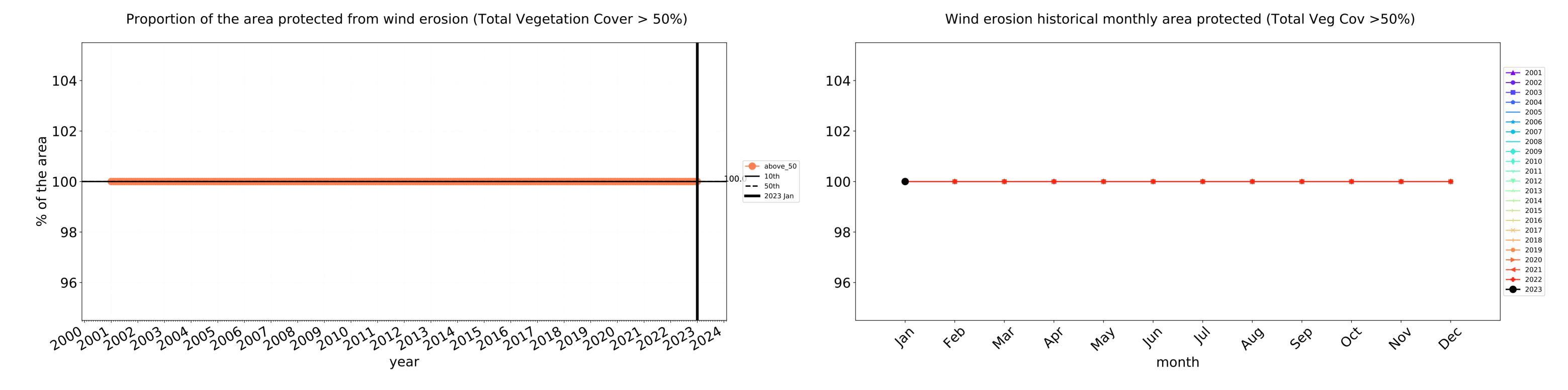


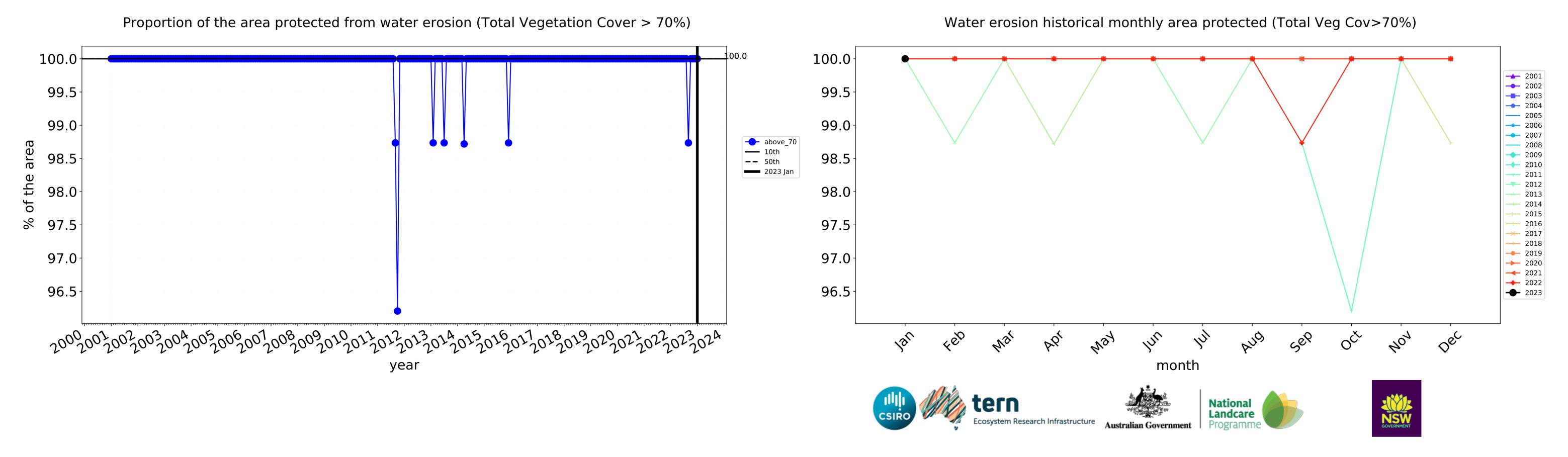


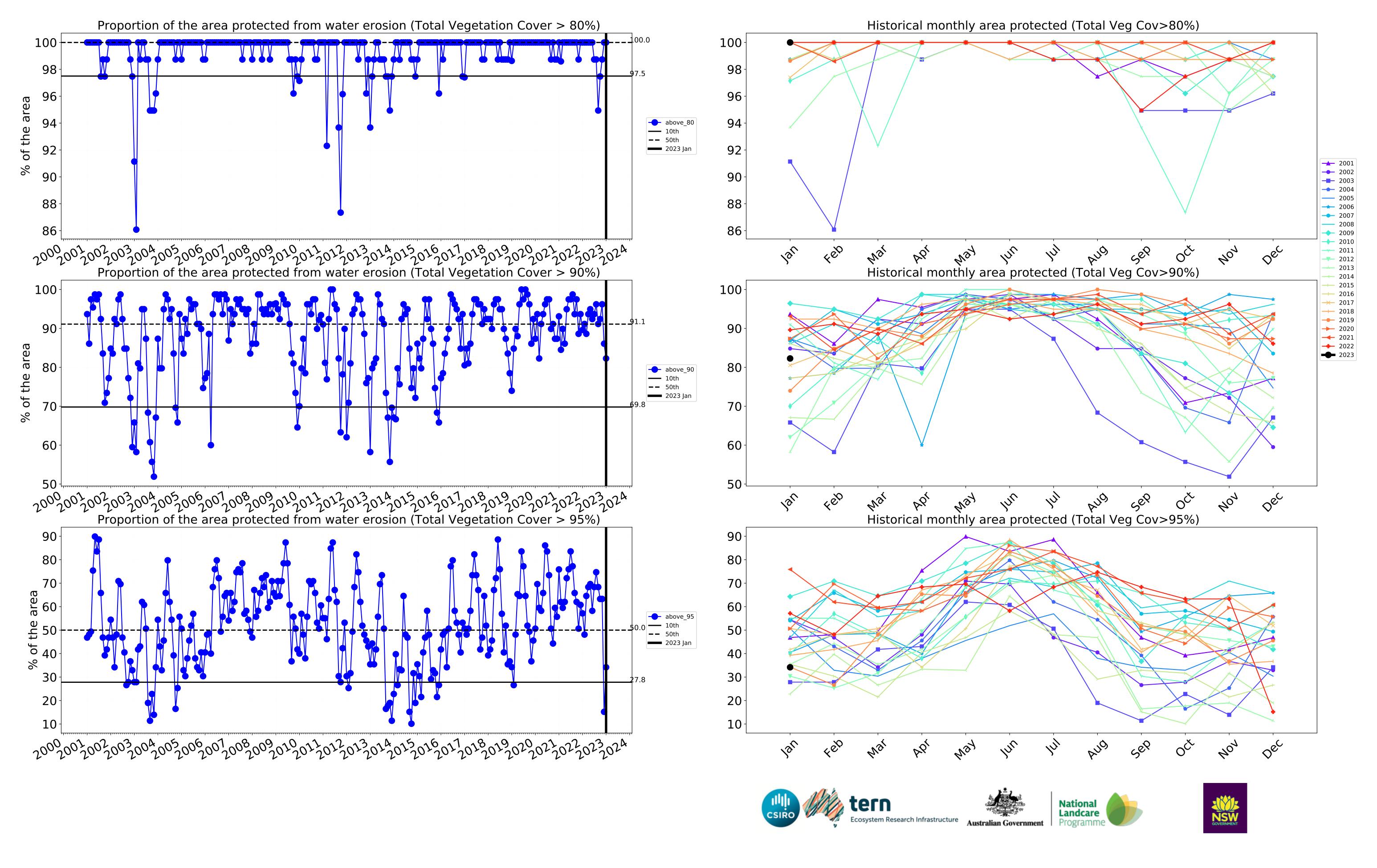




Grazing Woodland forest timeseries







Grazing - Forest (non woodland)

Land use and forest cover

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

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

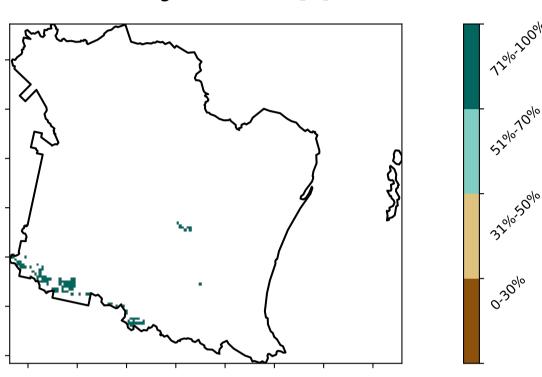
pixel. The mean

using baseline from 2001 to 2019.

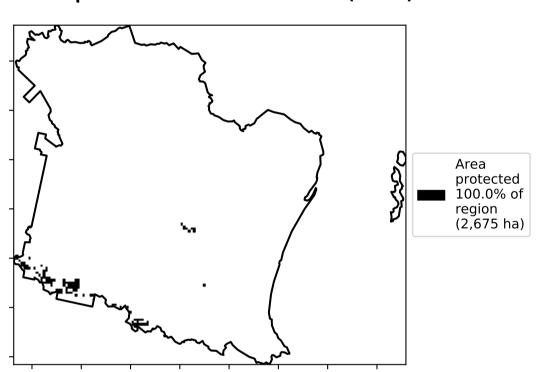
is only for the month of the map



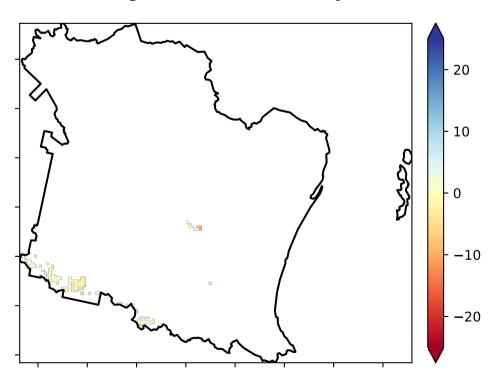
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

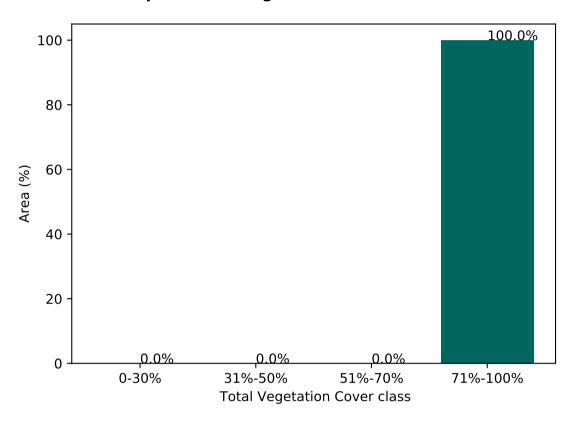


Total Vegetation Cover Anomaly [%]

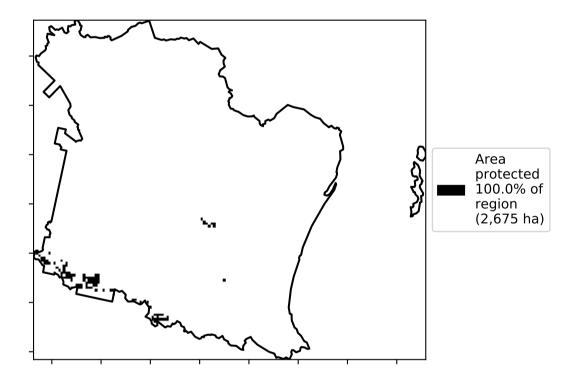


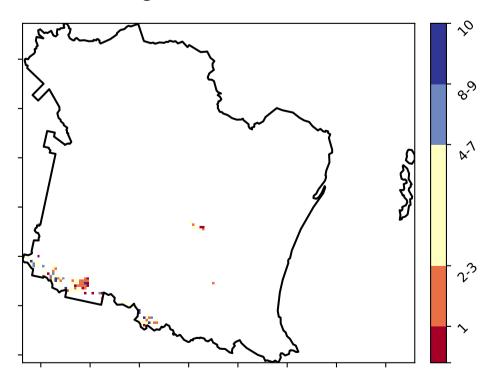
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



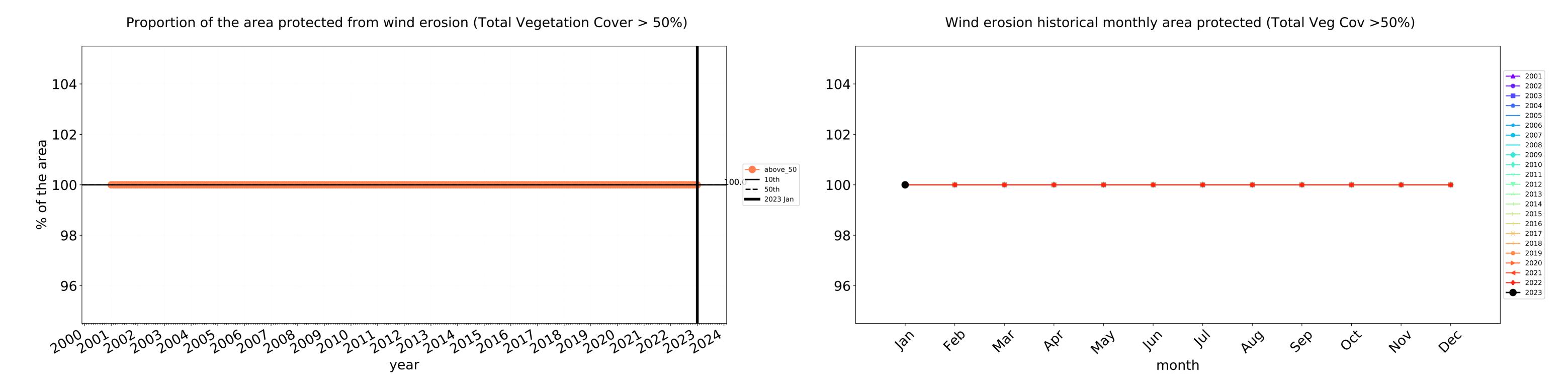


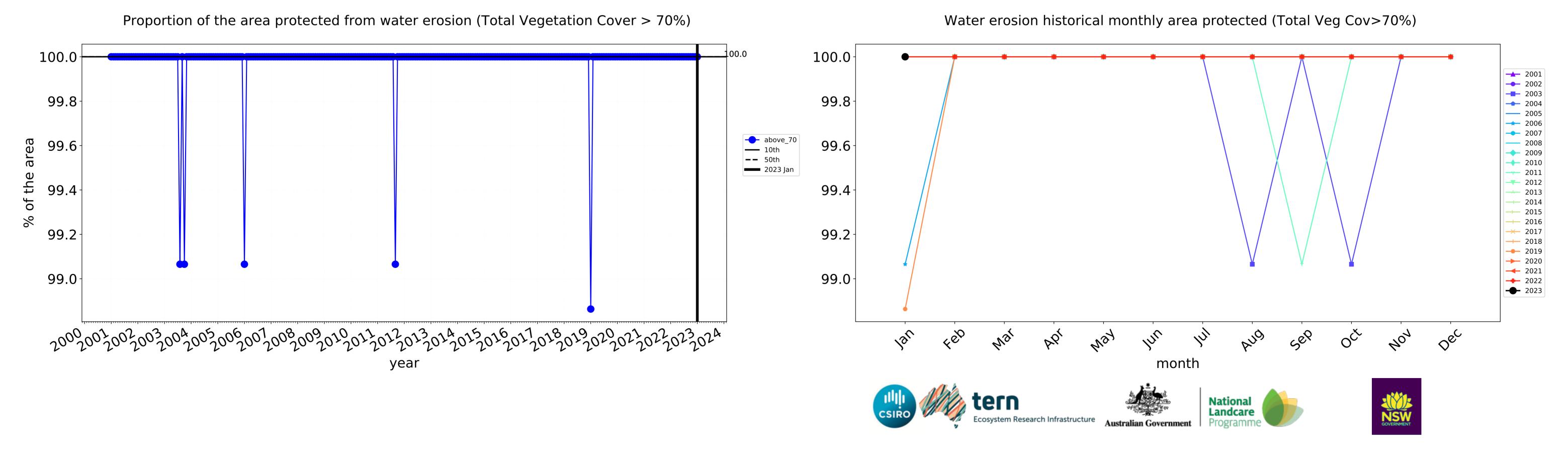


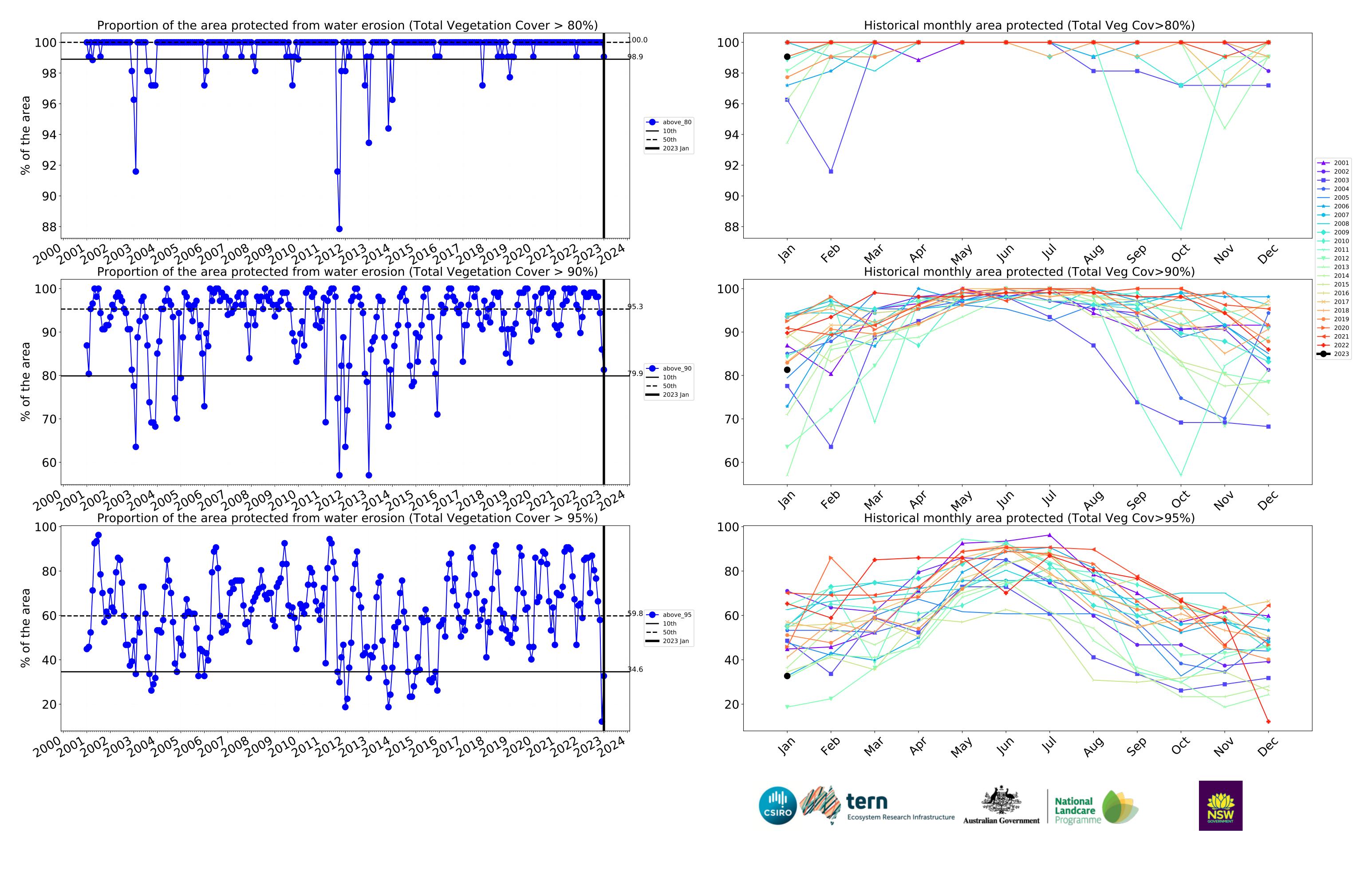






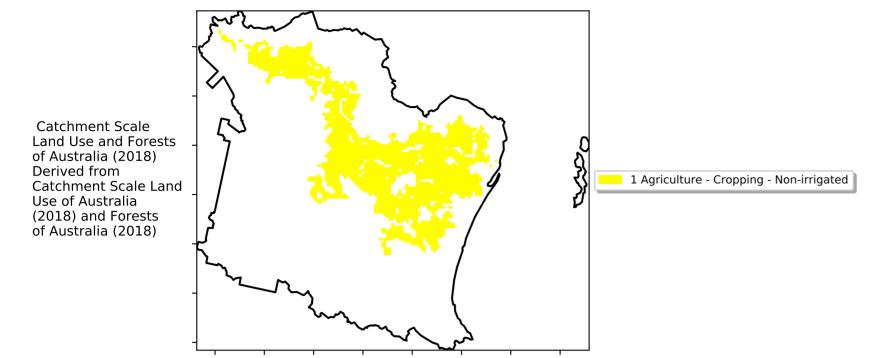




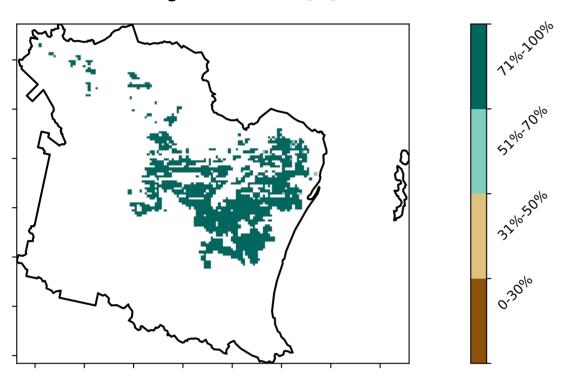


Cropping

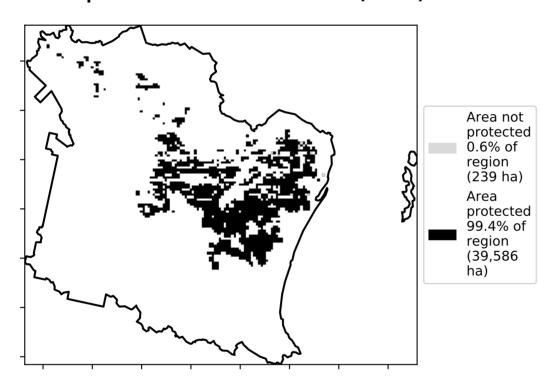
Land use and forest cover



Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



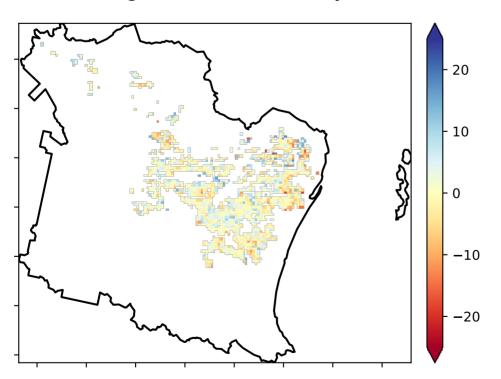
Total Vegetation Cover Anomaly [%]

Anomaly show how many percetage points each pixel is from

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

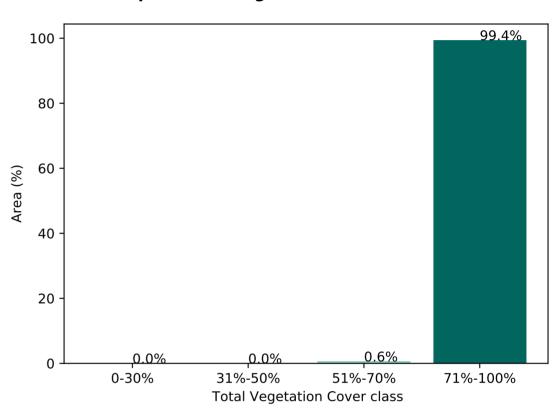
lower than the mean of that pixel. The mean

is only for the month of the map using baseline from 2001 to 2019.

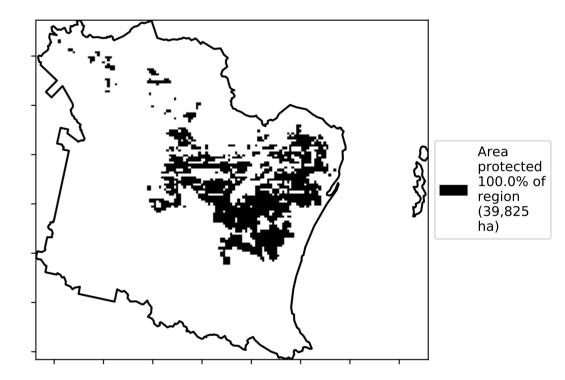


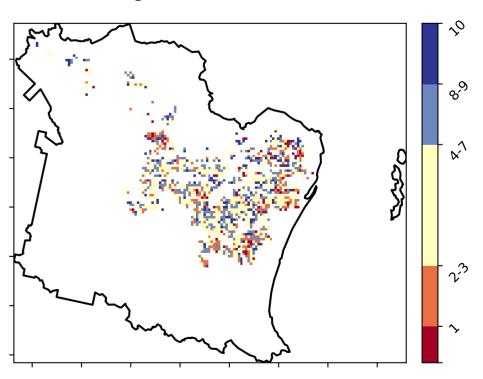
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





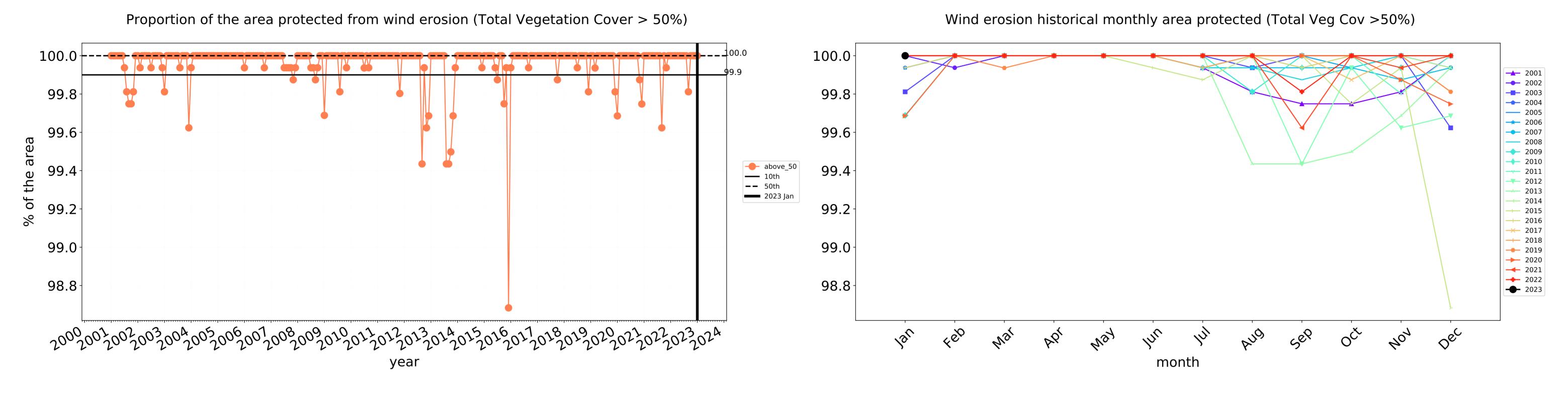


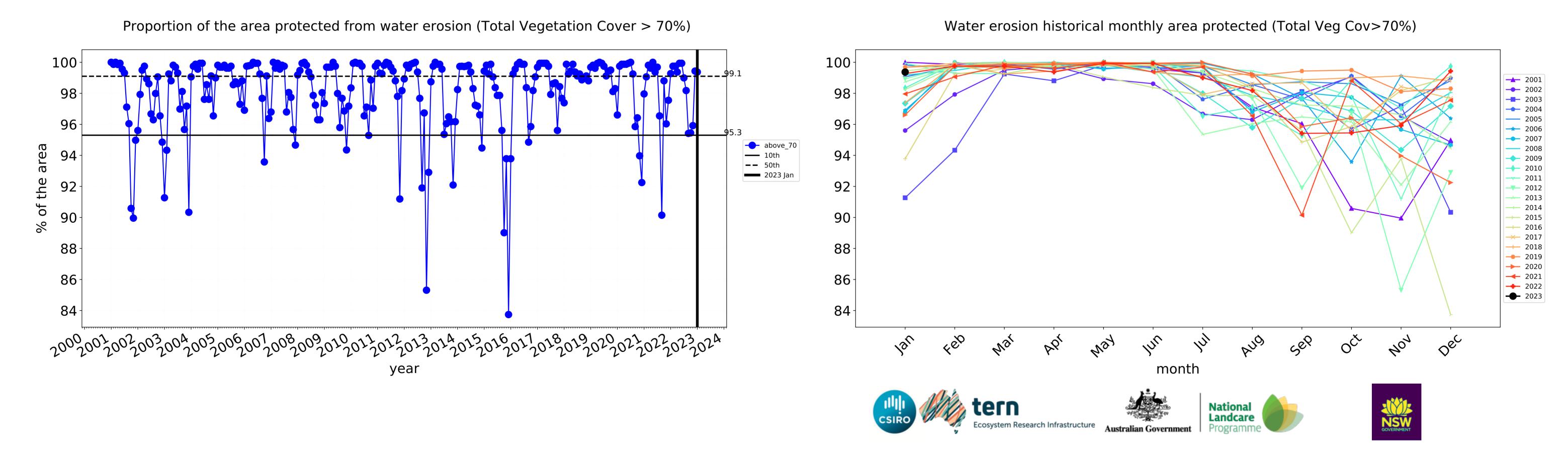


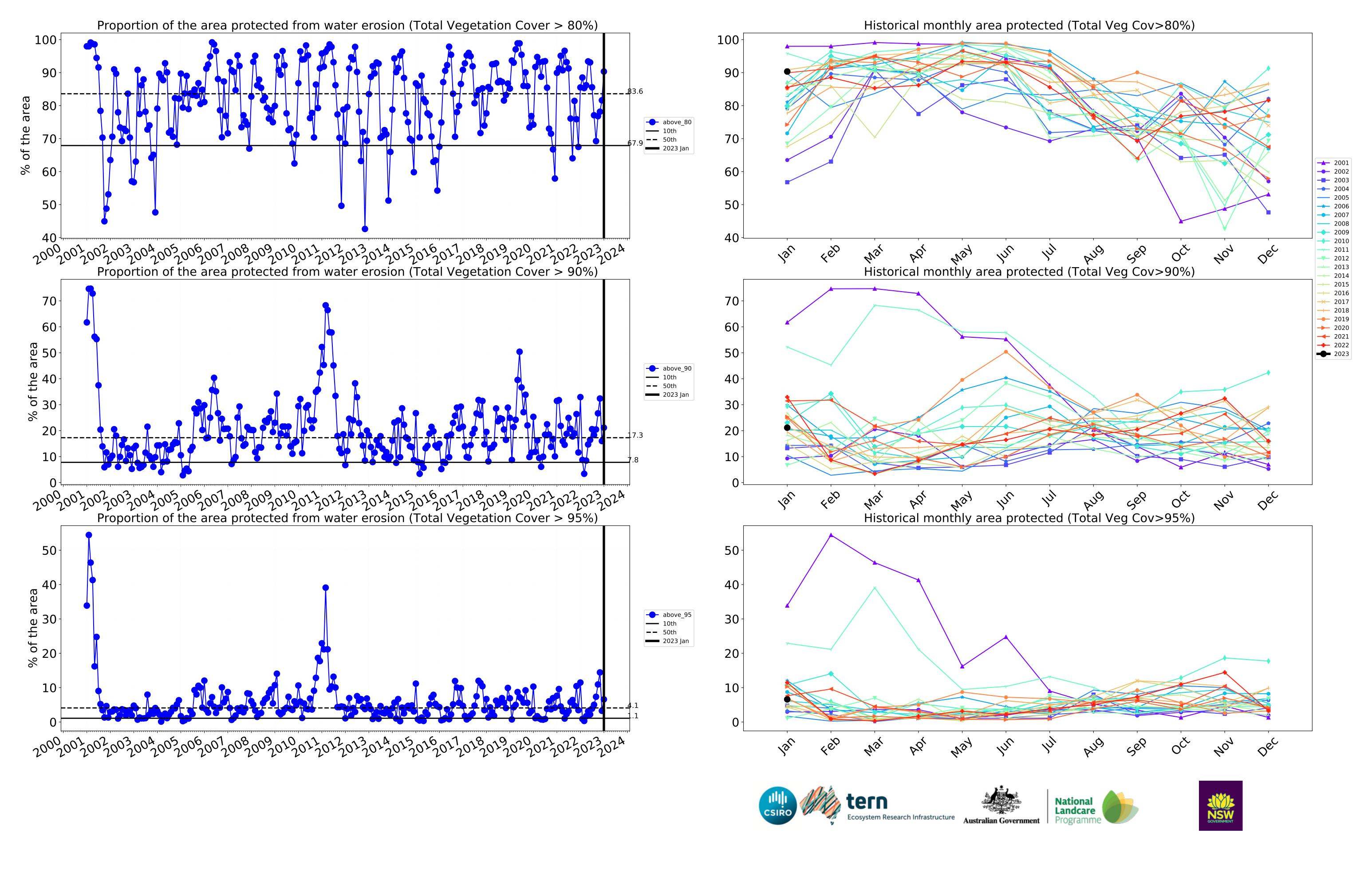




Cropping timeseries





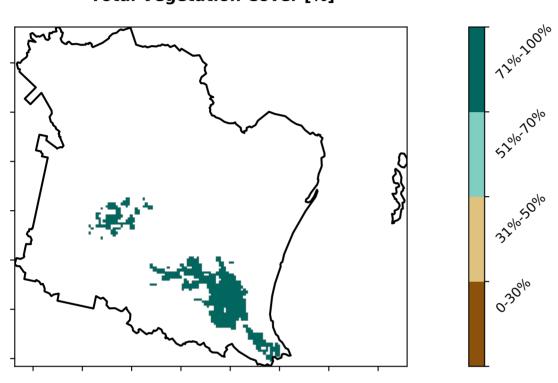


Irrigation

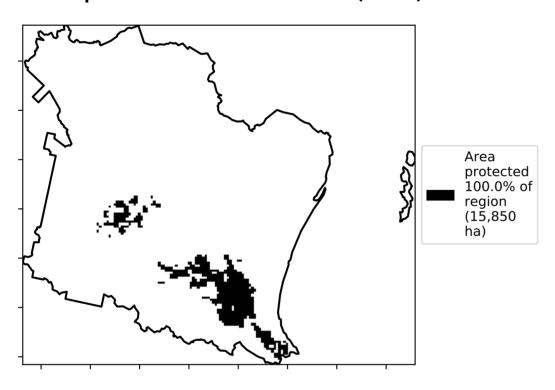
Land use and forest cover

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) 1 Agriculture - Cropping - Irrigated

Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



Total Vegetation Cover Anomaly [%]

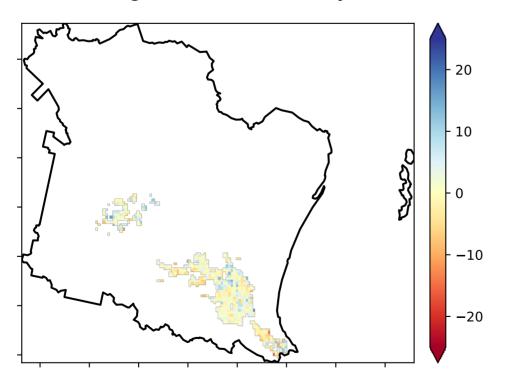
Anomaly show how many percetage points each pixel is from

the mean. That is, red pixels

are about 20% lower than the

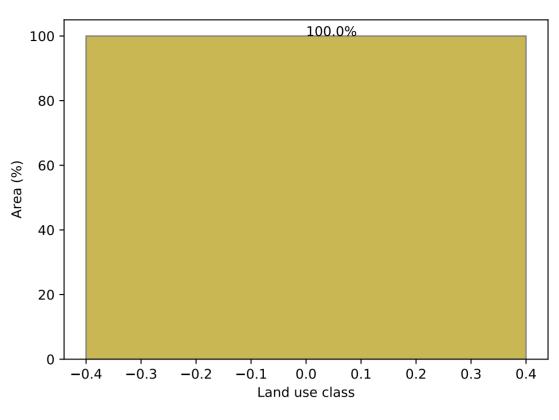
mean of that pixel. The mean is only for the month of the map

using baseline from 2001 to 2019.

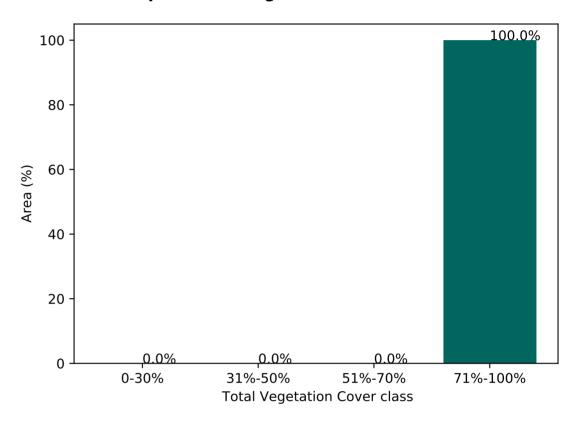


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

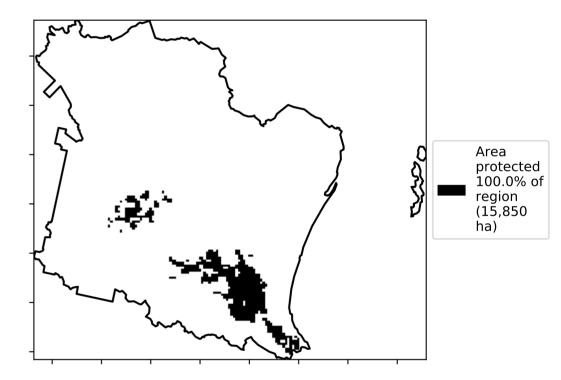
Proportion of each land class in area

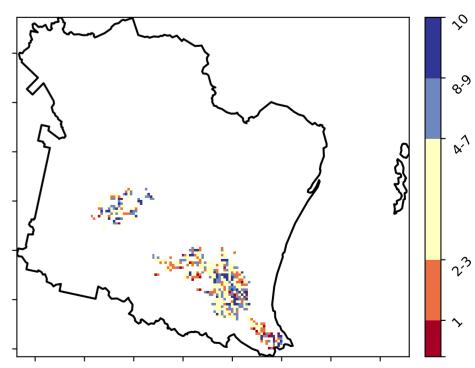


Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





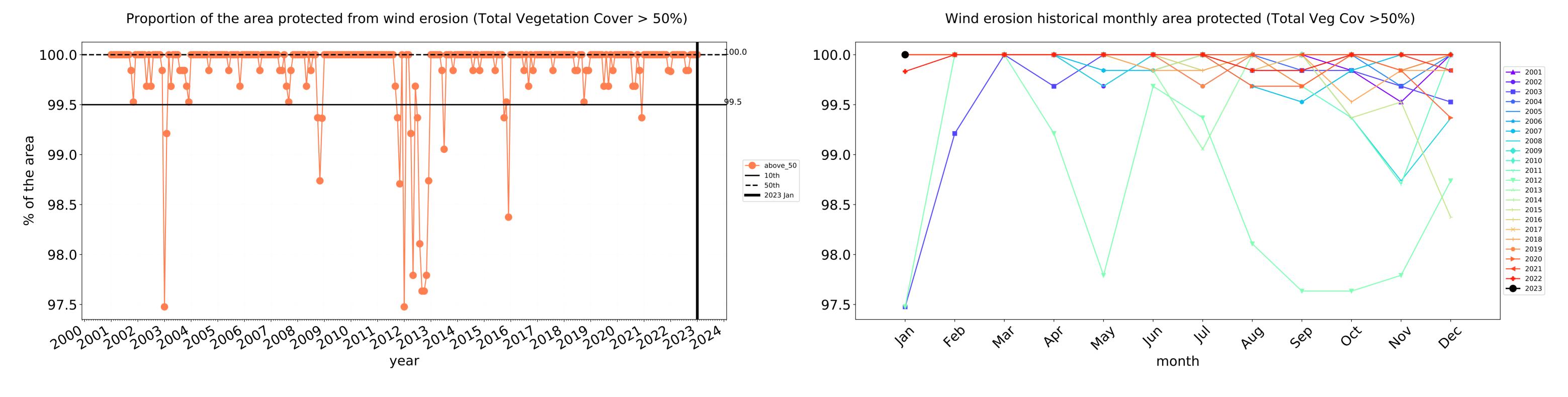


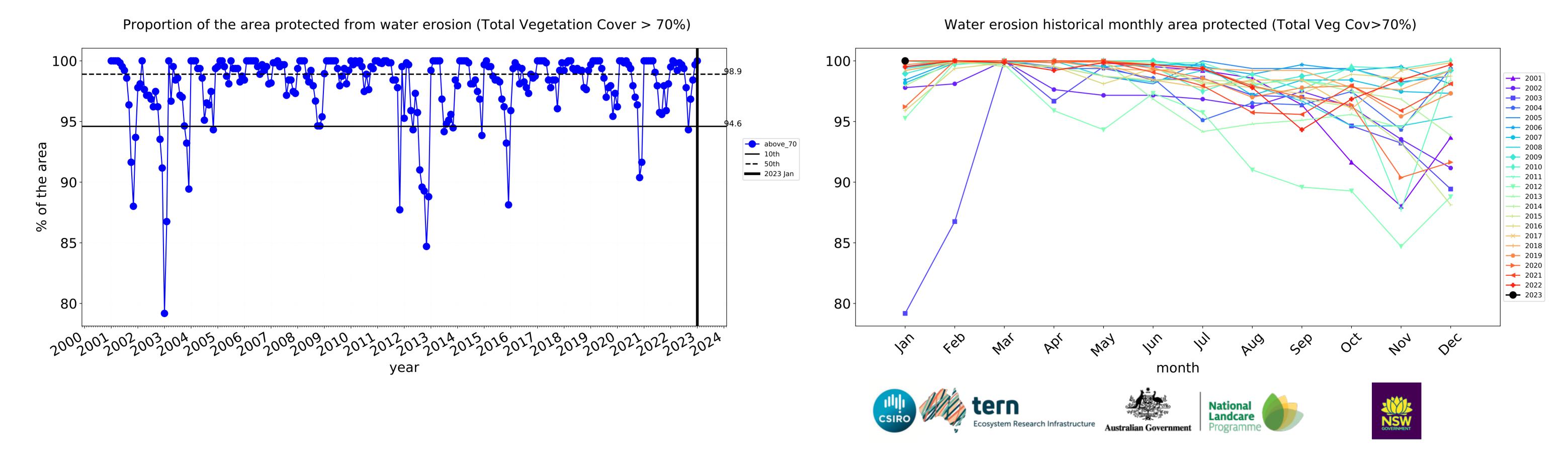


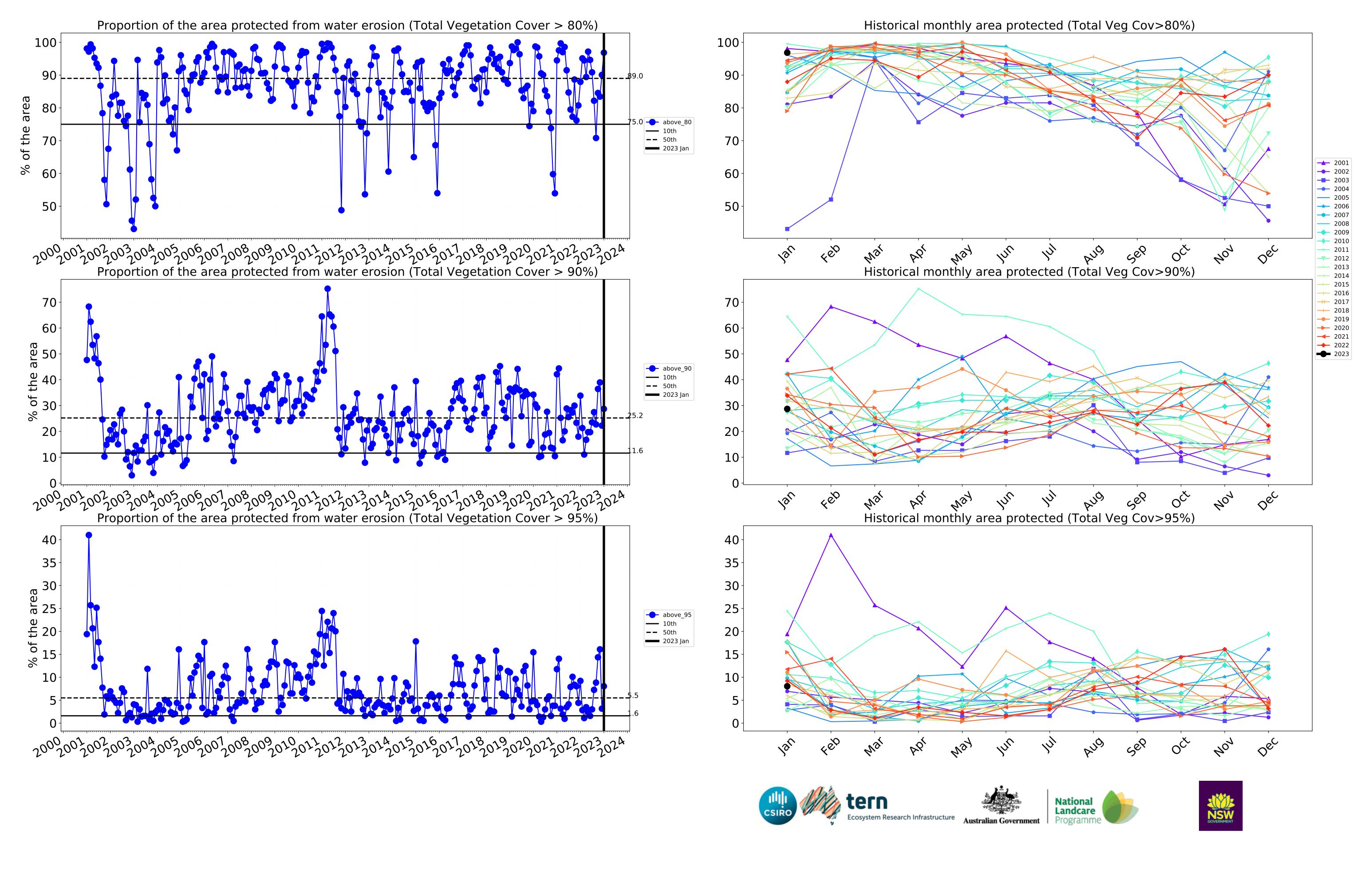




Irrigation timeseries





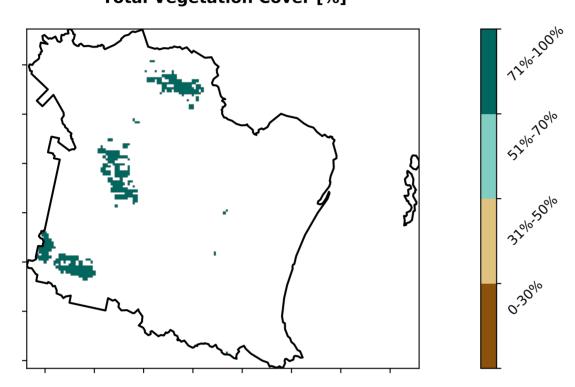


Production native forests and plantation forests

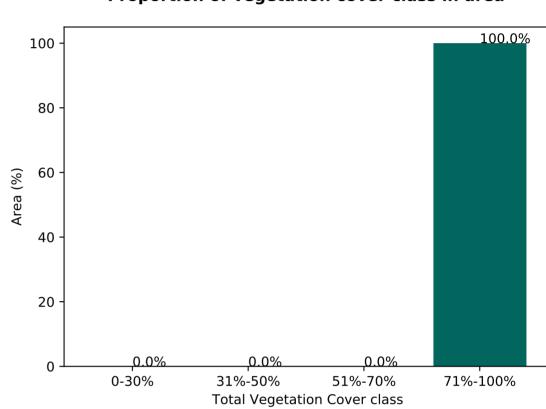
Land use and forest cover

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

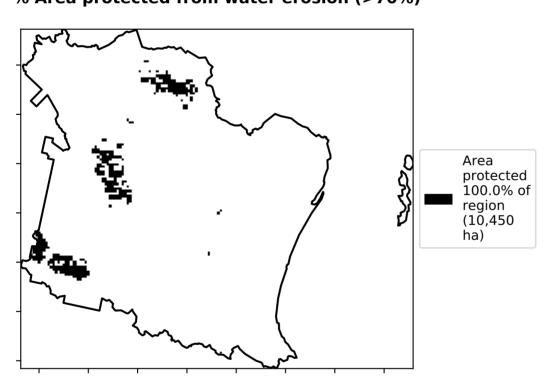
Total Vegetation Cover [%]



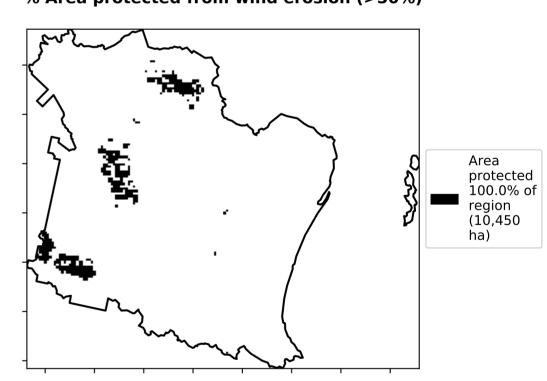
Proportion of vegetation cover class in area



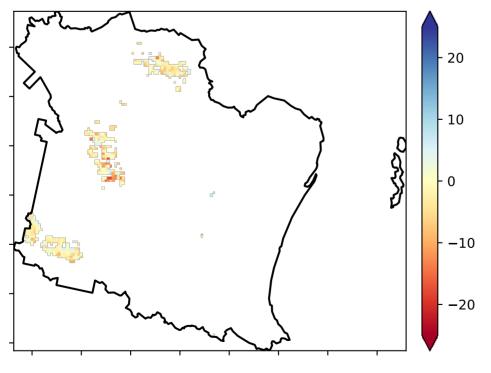
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

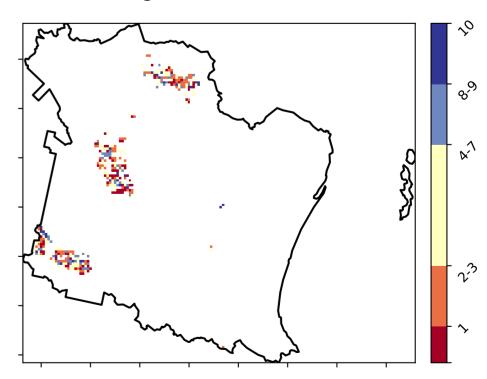


Total Vegetation Cover Anomaly [%]

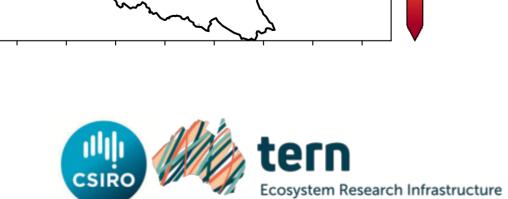


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]



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.

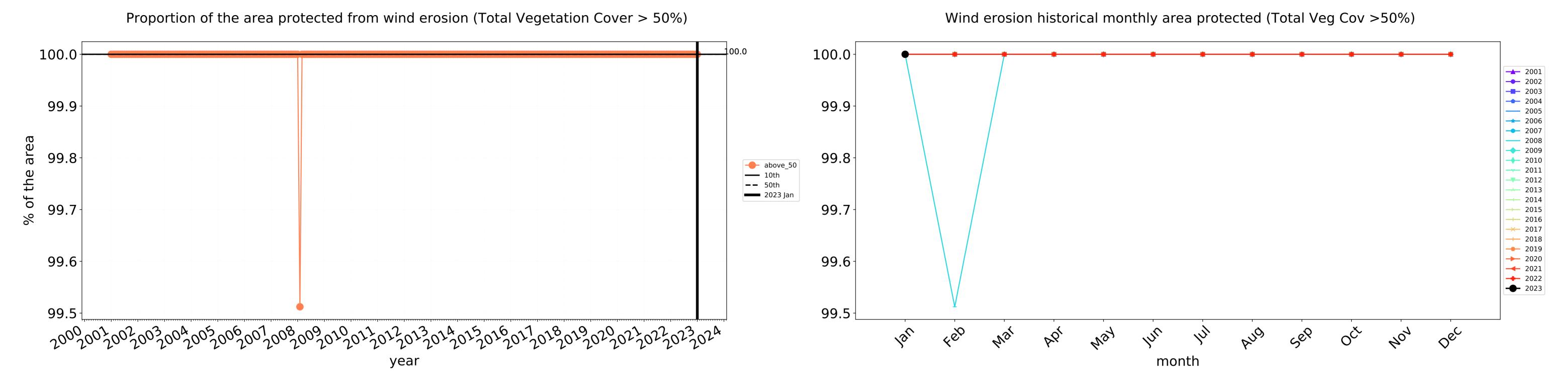


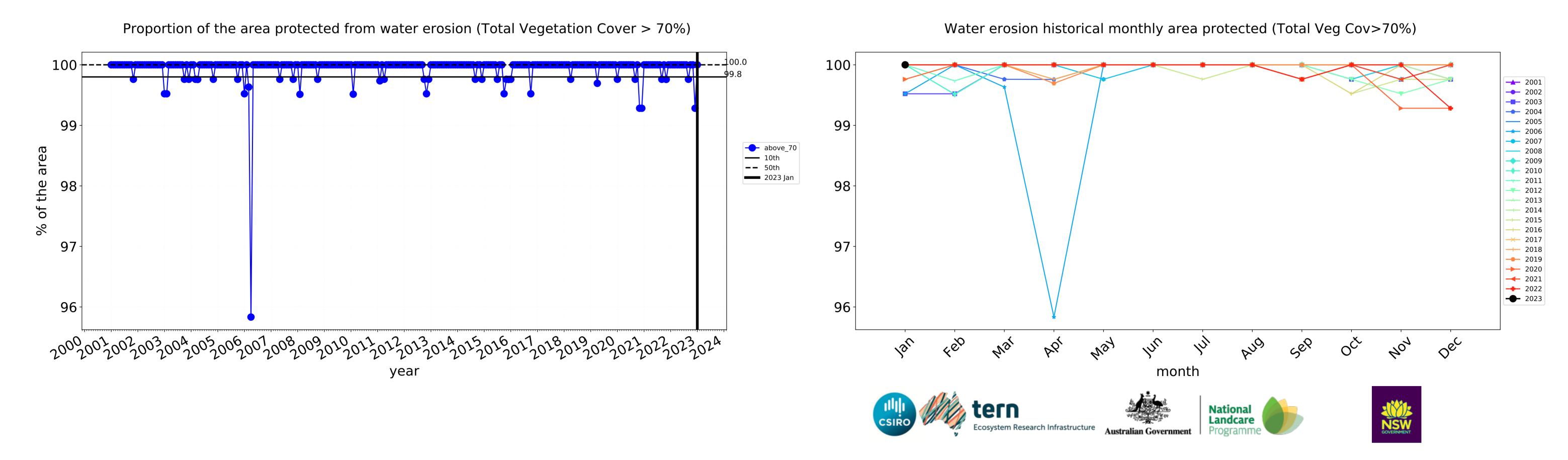


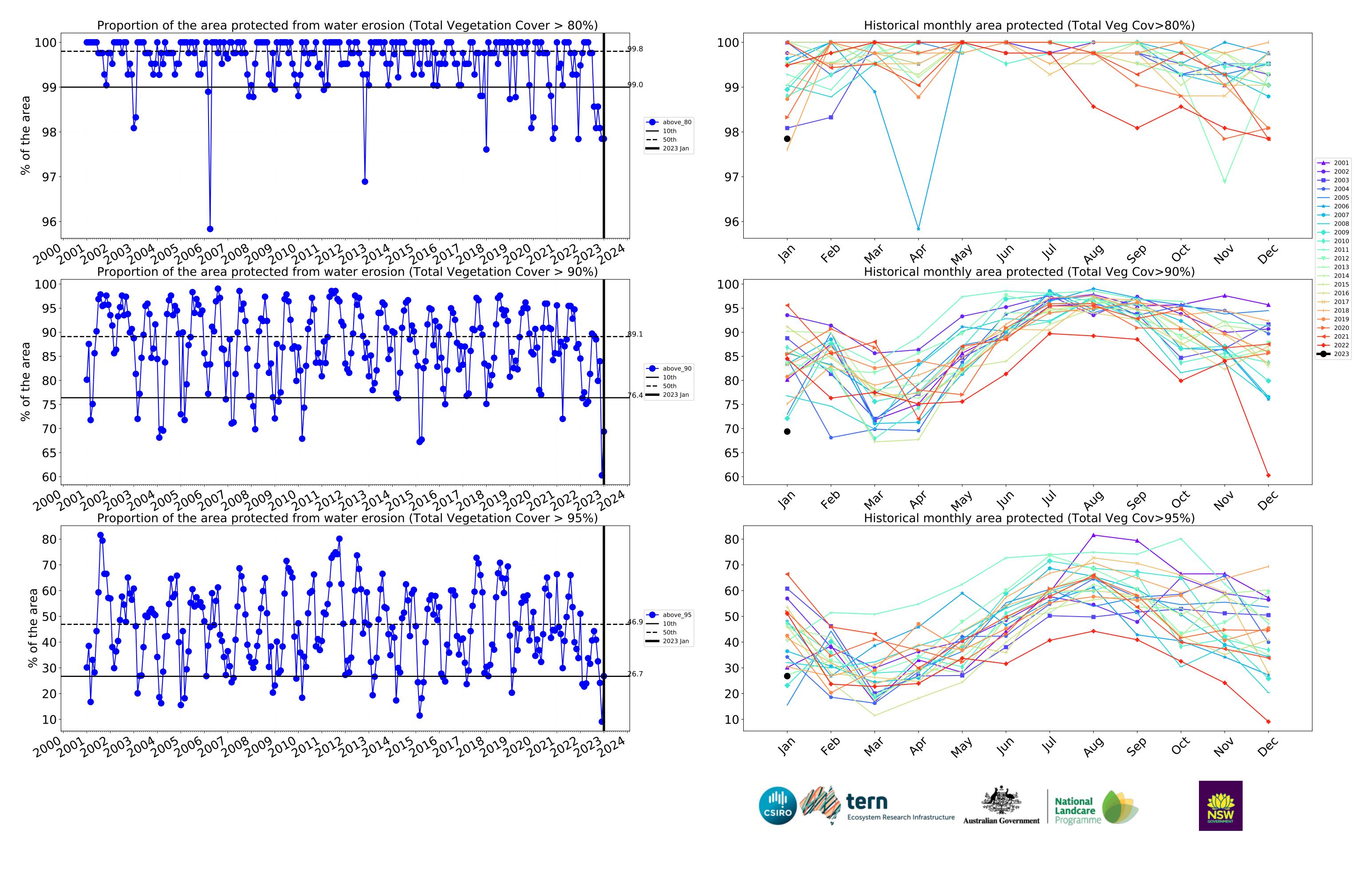




Production native forests and plantation forests timeseries







Hinchinbrook_(S) (181,150 ha and no data 99,512 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	181,150	99.9% 181,025	99.7% 180,650	98.6% 178,650	93.5% 169,425	53.1% 96,250	22.2% 40,200
Conservation and natural environments	78,325	100.0% 78,325	99.8% 78,200	98.9% 77,500	97.2% 76,100	76.1% 59,600	33.7% 26,375
Conservation and natural environments Woodland forest	32,250	100.0% 32,250	99.9% 32,225	99.6% 32,125	98.2% 31,675	71.4% 23,025	23.2% 7,475
Conservation and natural environments Forest (non woodland)	44,550	100.0% 44,550	99.8% 44,475	98.7% 43,950	96.6% 43,050	79.9% 35,575	41.6% 18,550
Agriculture	73,550	100.0% 73,550	100.0% 73,550	99.6% 73,250	93.1% 68,475	29.5% 21,675	9.2% 6,800
Grazing	17,875	100.0% 17,875	100.0% 17,875	99.7% 17,825	95.9% 17,150	48.7% 8,700	16.2% 2,900
Grazing non forest	13,225	100.0% 13,225	100.0% 13,225	99.6% 13,175	94.7% 12,525	37.1% 4,900	10.2% 1,350
Grazing Woodland forest	1,975	100.0% 1,975	100.0% 1,975	100.0% 1,975	100.0% 1,975	82.3% 1,625	34.2% 675
Grazing - Forest (non woodland)	2,675	100.0% 2,675	100.0% 2,675	100.0% 2,675	99.1% 2,650	81.3% 2,175	32.7% 875
Cropping	39,825	100.0% 39,825	100.0% 39,825	99.4% 39,575	90.3% 35,975	21.2% 8,425	6.6% 2,625
Irrigation	15,850	100.0% 15,850	100.0% 15,850	100.0% 15,850	96.8% 15,350	28.7% 4,550	8.0% 1,275
Production native forests and plantation forests	10,450	100.0% 10,450	100.0% 10,450	100.0% 10,450	97.8% 10,225	69.4% 7,250	26.8% 2,800







