Total vegetation cover soil protection Region:LGA Livingstone (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.

Date: May 2021

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







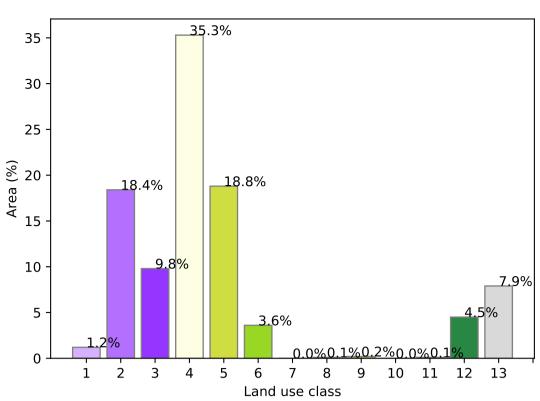


Vegetation Cover May 2021

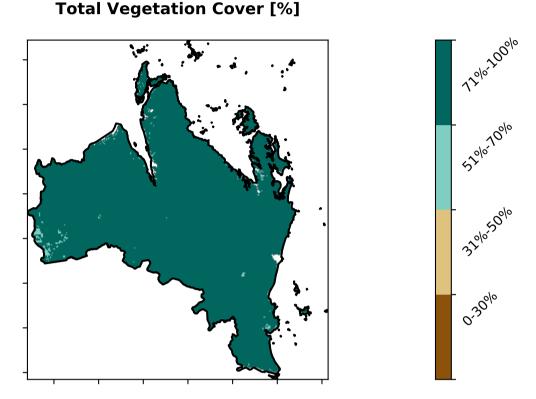
Land use and forest cover

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 - Non-woodland forest 6 Agriculture - Grazing - Irrigated 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

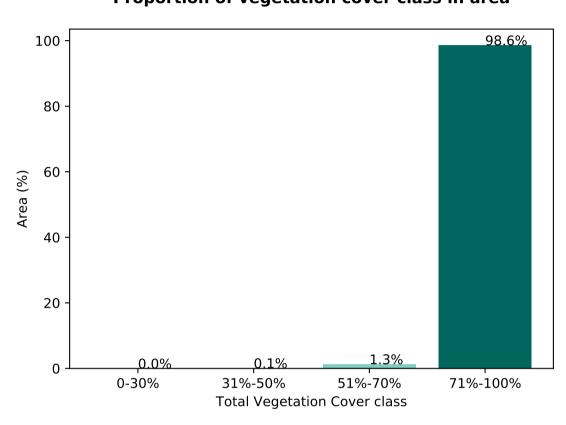
Proportion of each land class in area



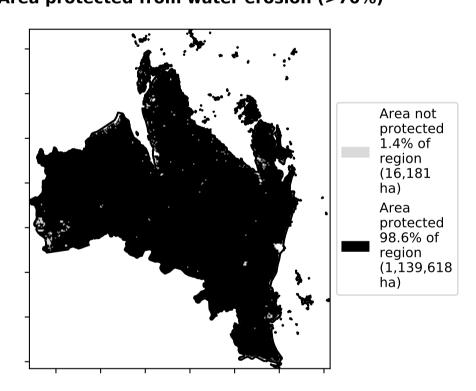
Tatal Manatation Course [0/]



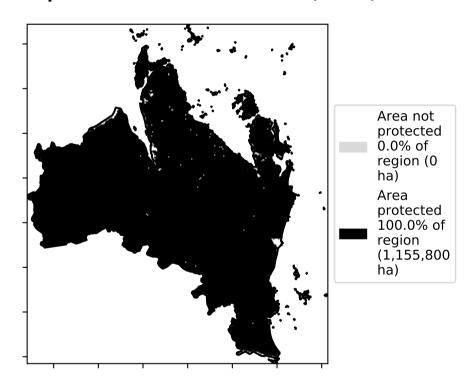
Proportion of vegetation cover class in area



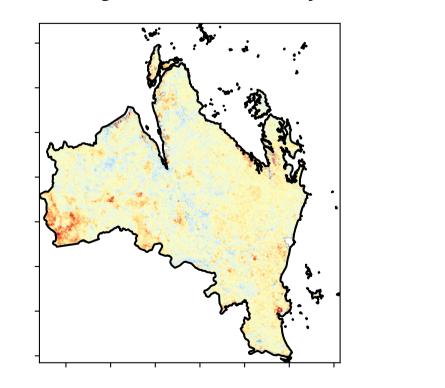
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

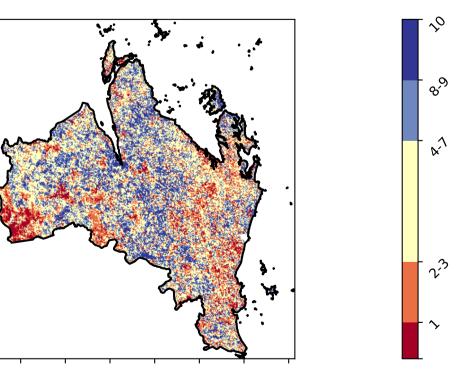


Total Vegetation Cover Anomaly [%]



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.

Catchment Scale

Derived from

Use of Australia

(2018) and Forests

of Australia (2018)

Land Use and Forests of Australia (2018)

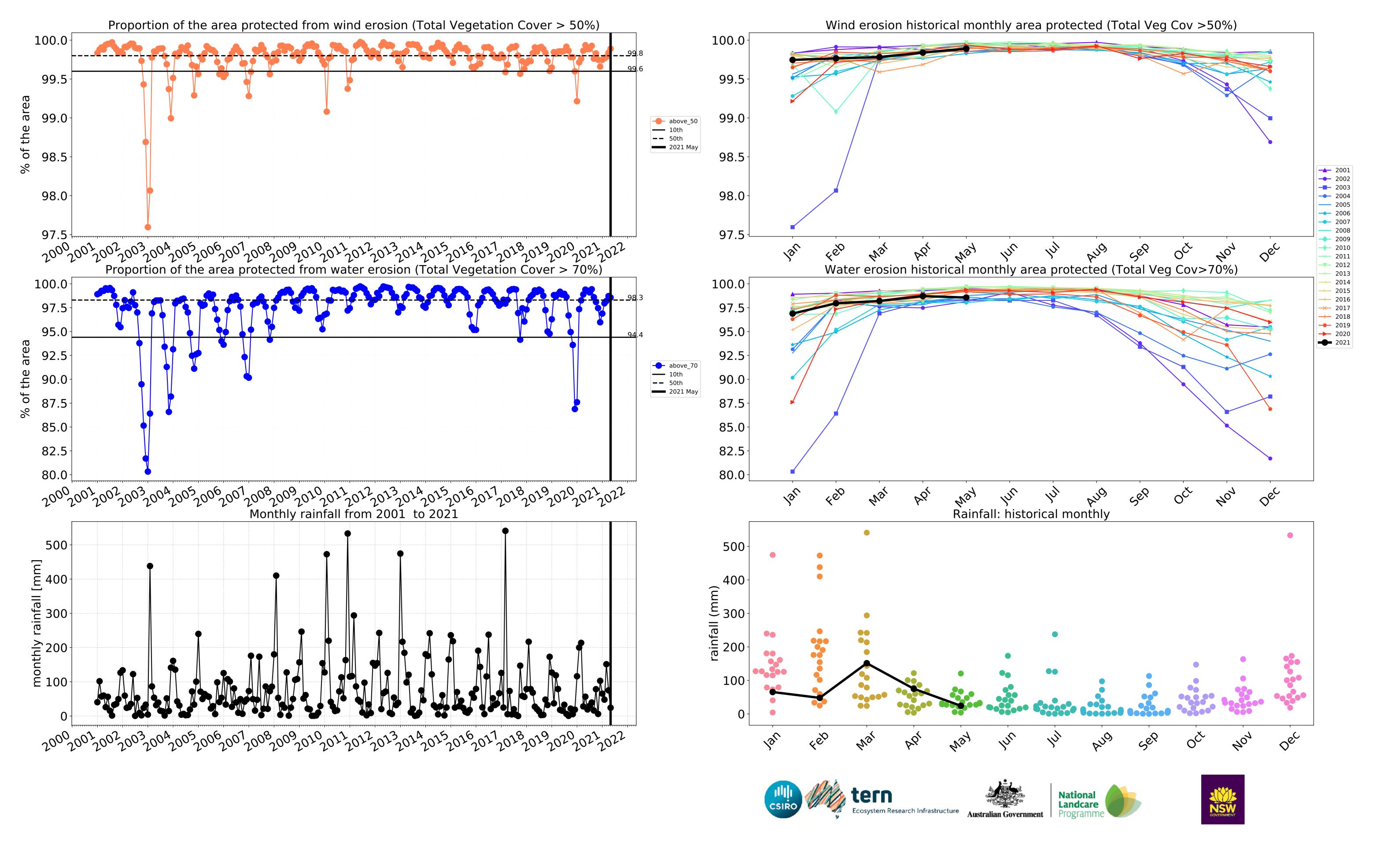
Catchment Scale Land

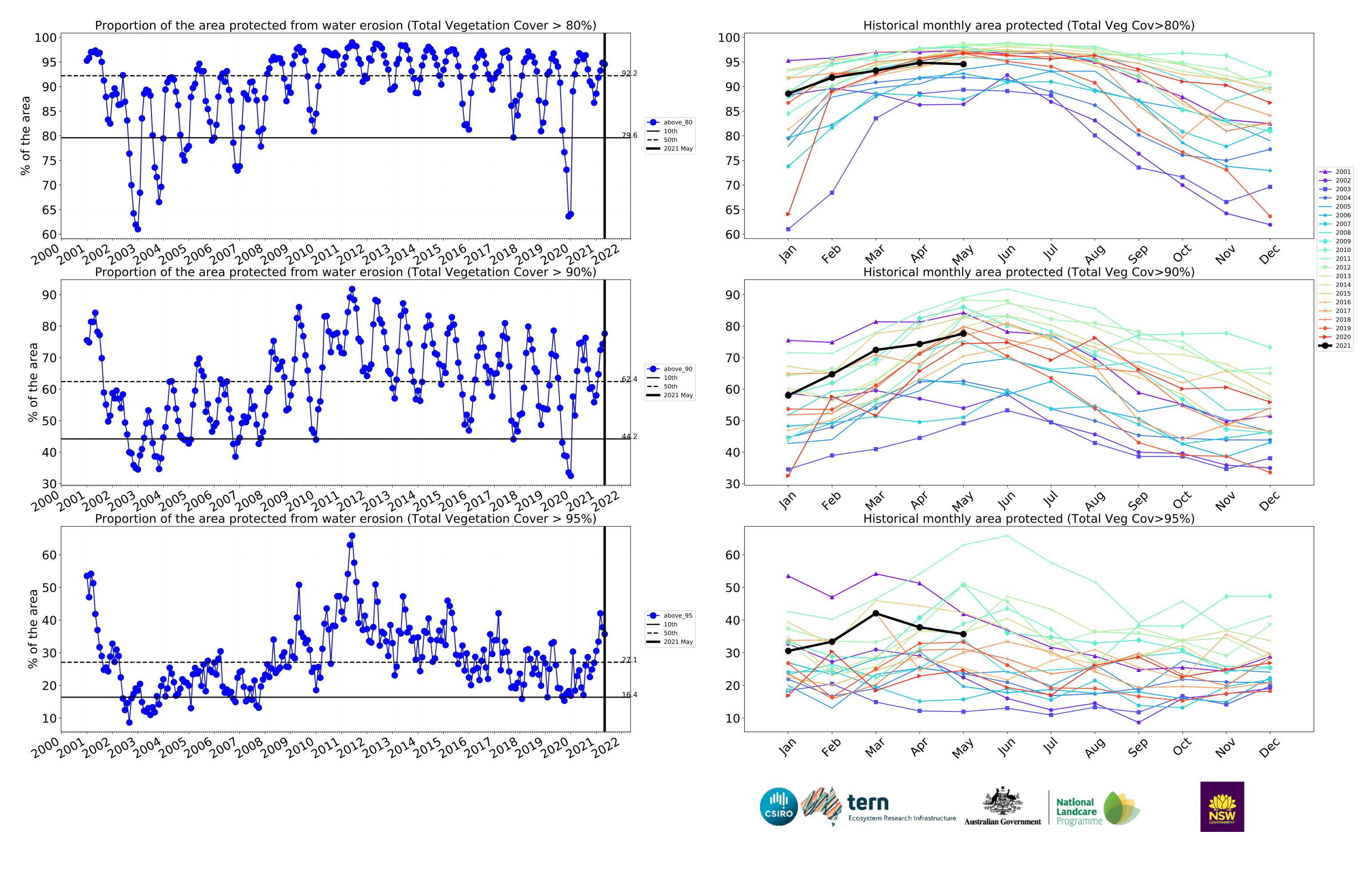
- 20

10

-10

-20

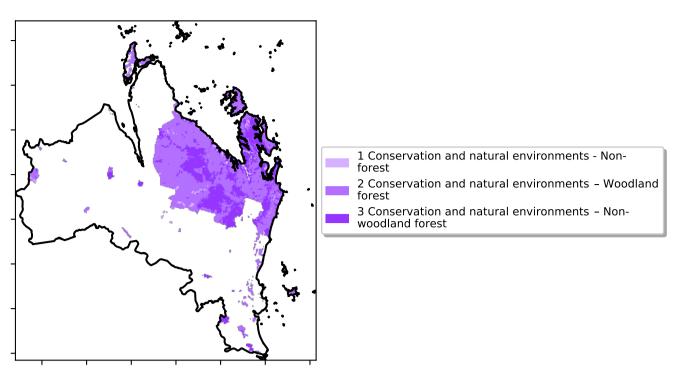




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Conservation and natural environments

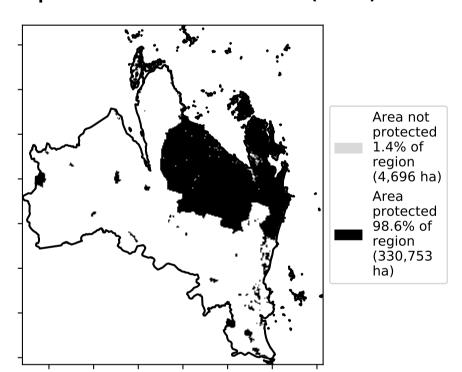
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



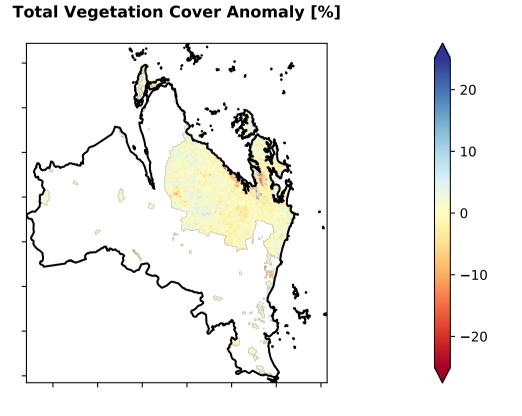
Total Vegetation Cover [%]

% Area protected from water erosion (>70%)

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.



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62.5% 60 50 40 Area (%) 33.3% 20

10

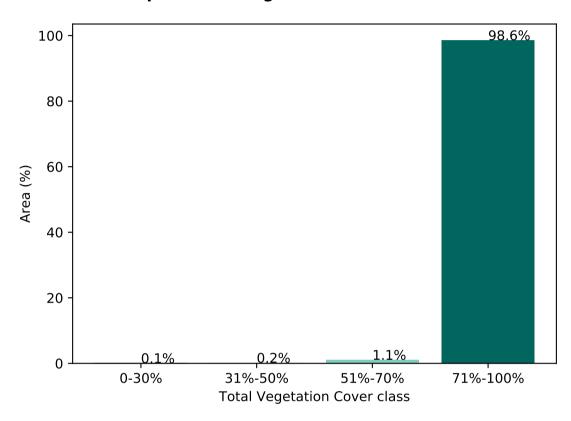
Proportion of each land class in area

Proportion of vegetation cover class in area

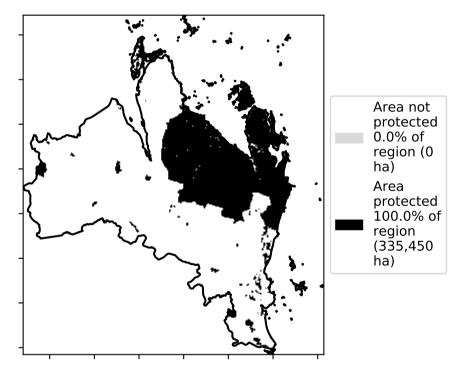
Land use class

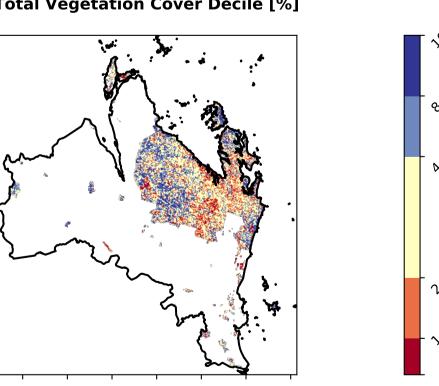
3

2



% Area protected from wind erosion (>50%)





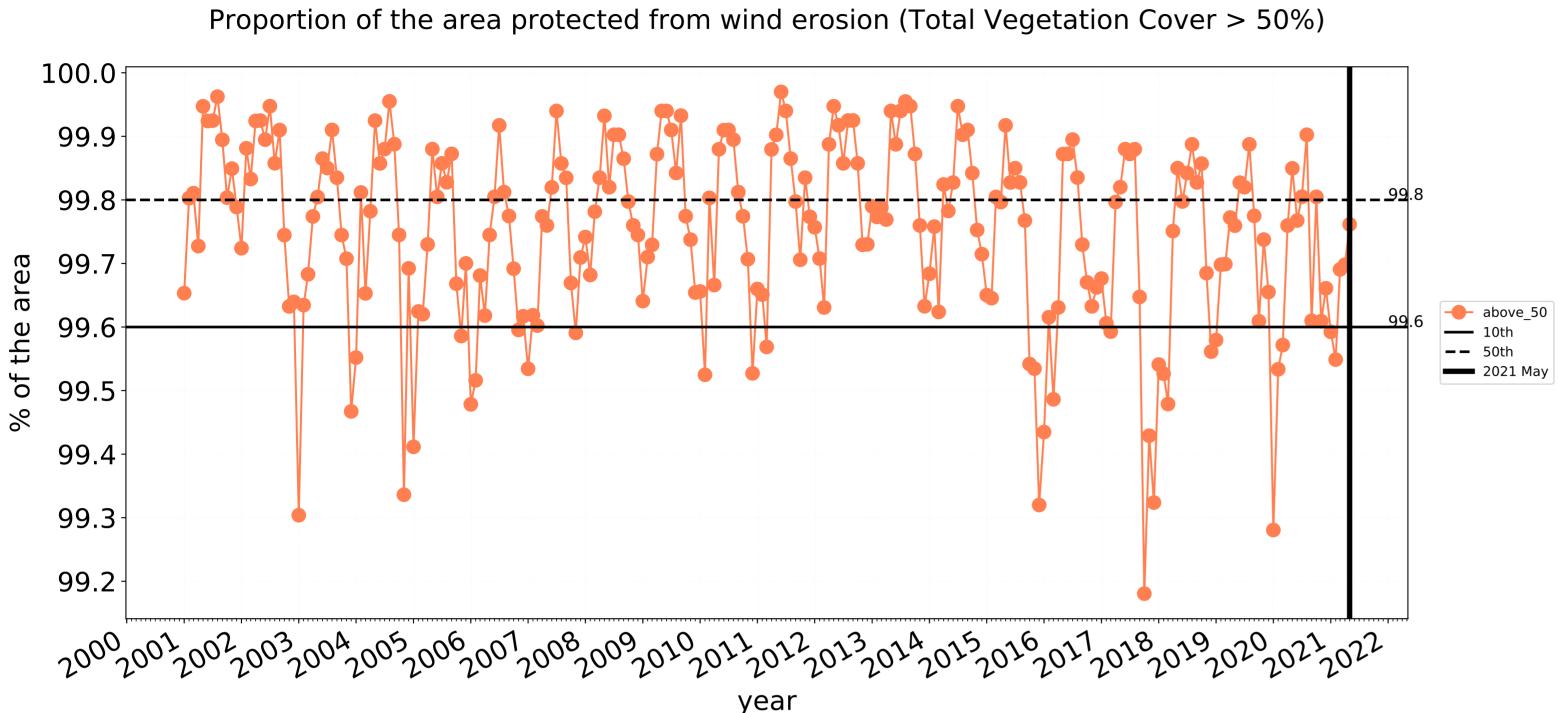


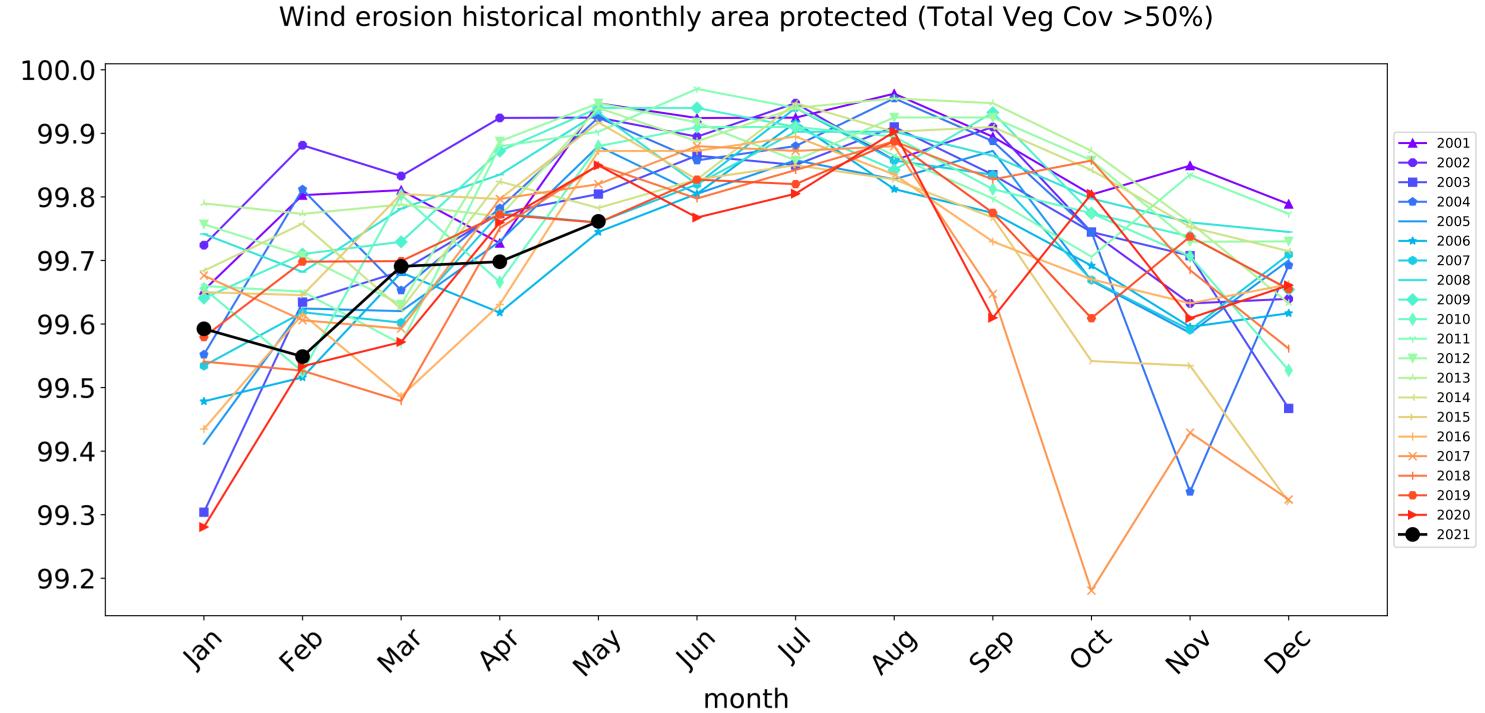


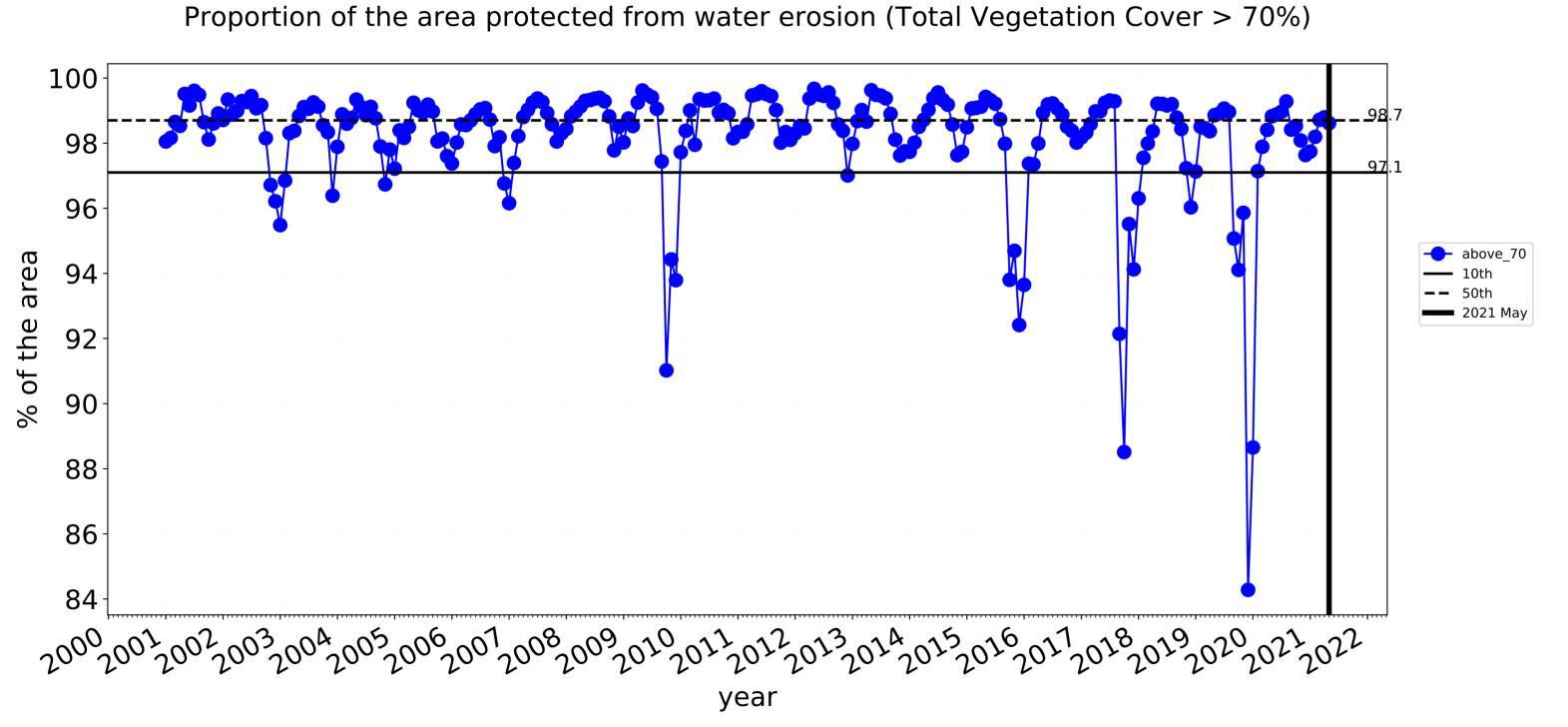


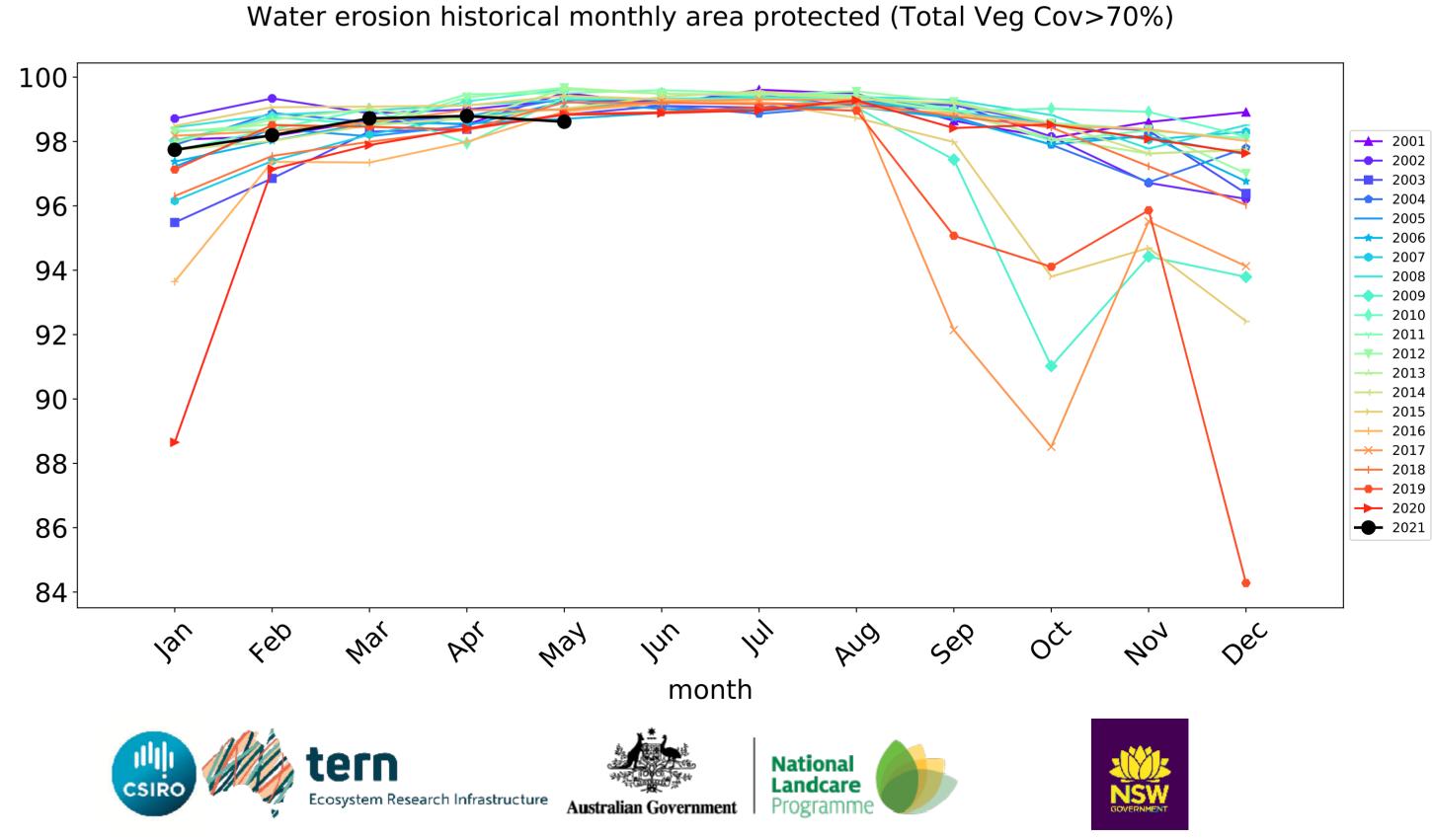


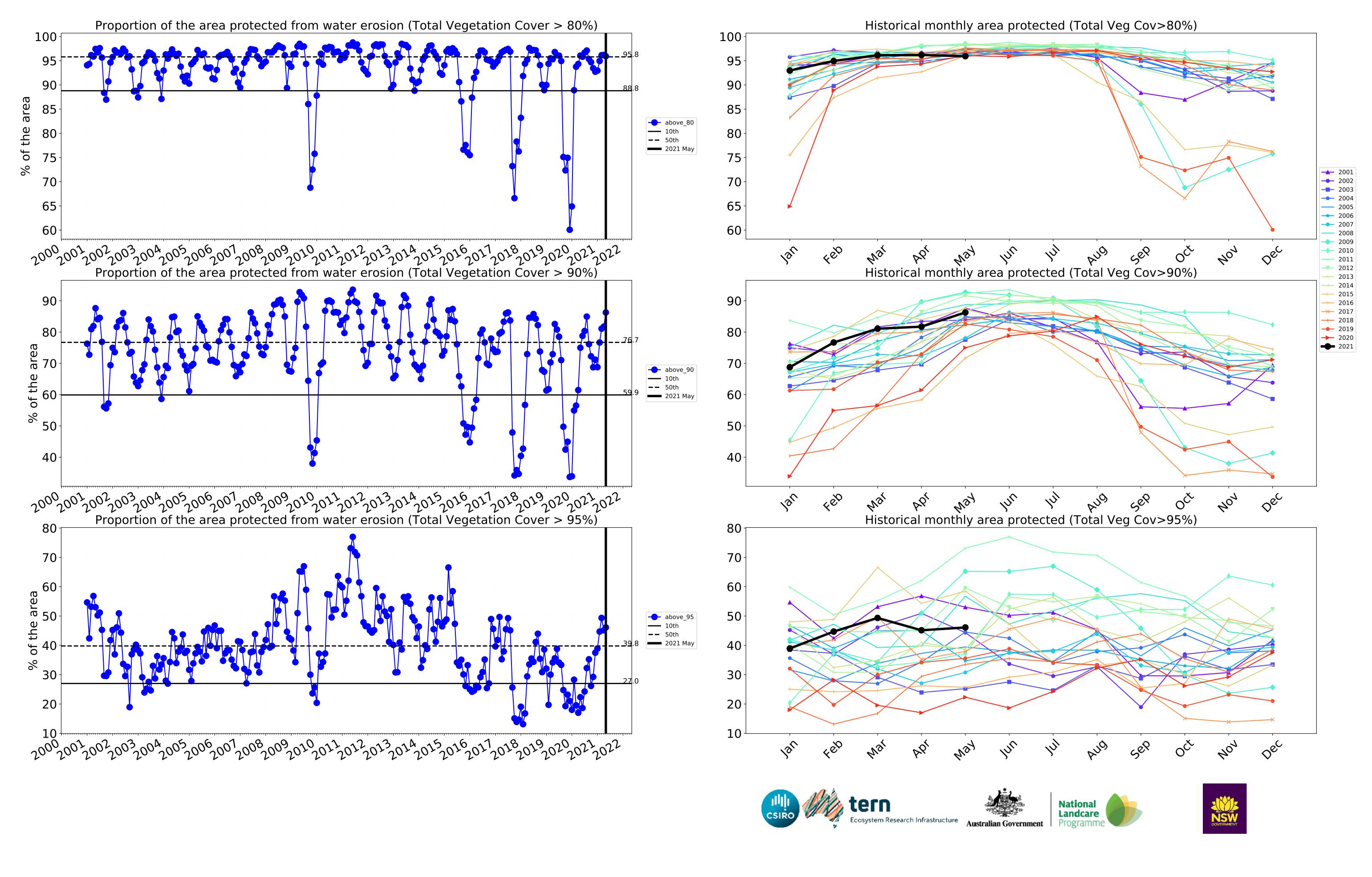
Conservation and natural environments timeseries











Conservation and natural environments non forest

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

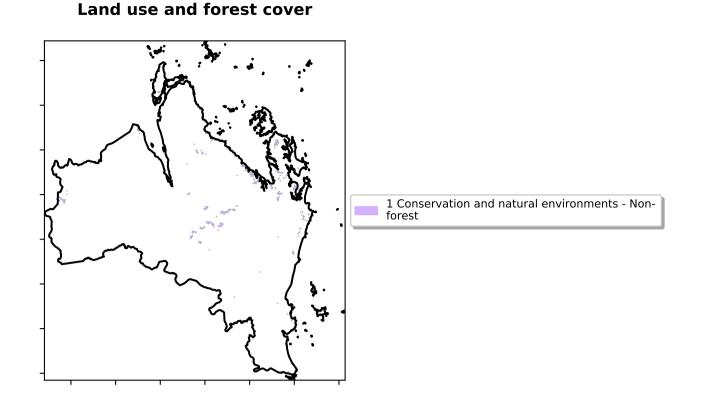
of Australia (2018)

Anomaly show how many percetage points each

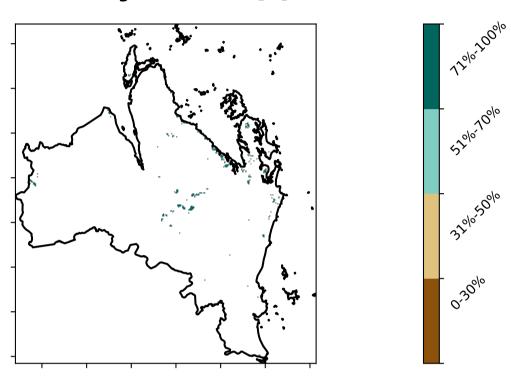
pixel is from the mean. That

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

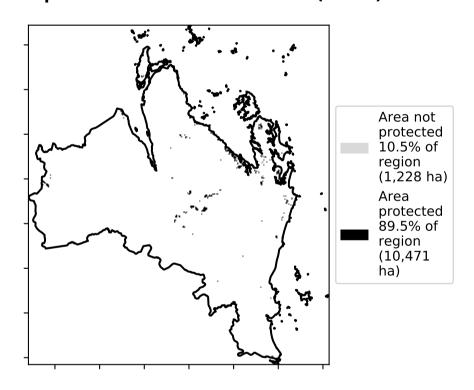
is, red pixels are about 20% lower than the mean of that



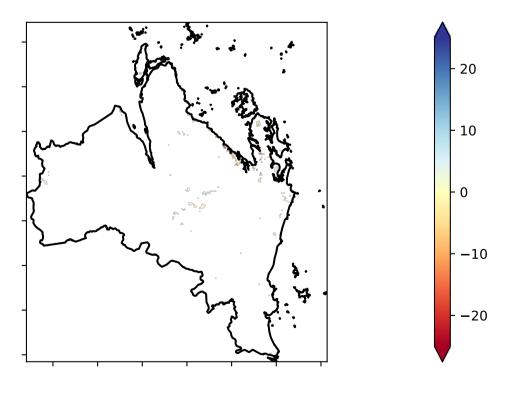
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

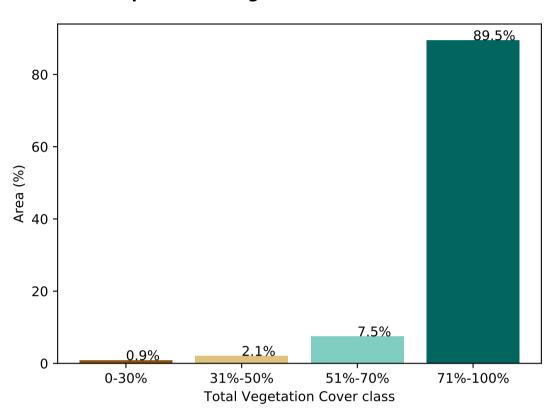


Total Vegetation Cover Anomaly [%]

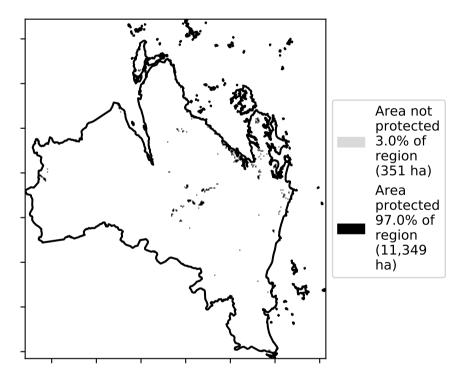


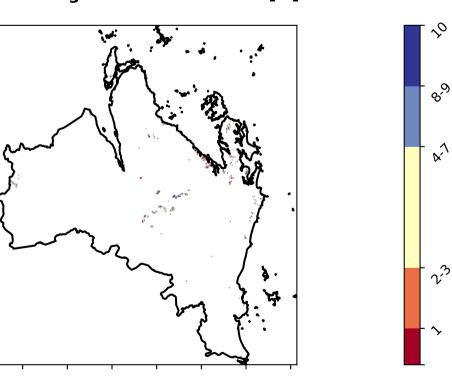
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









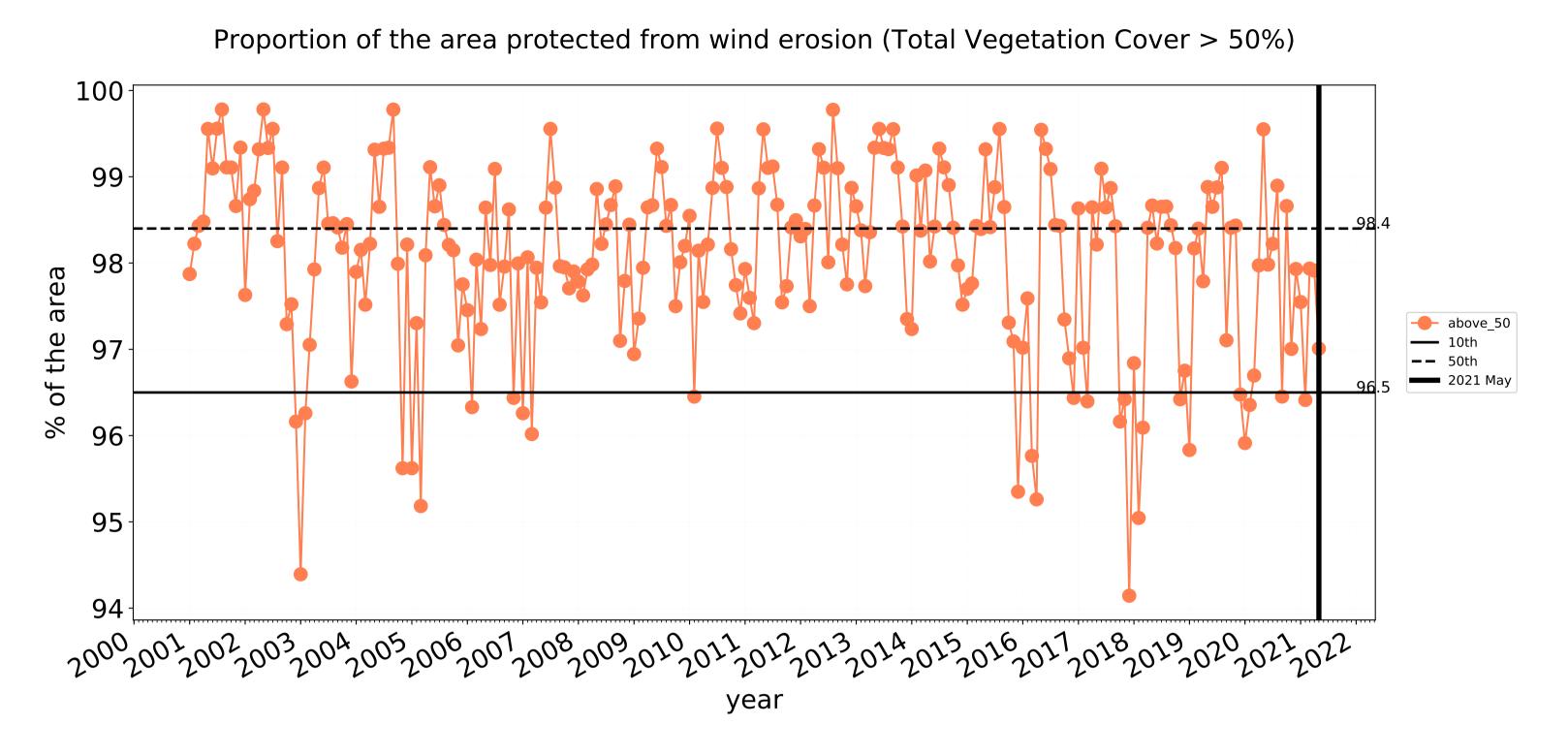


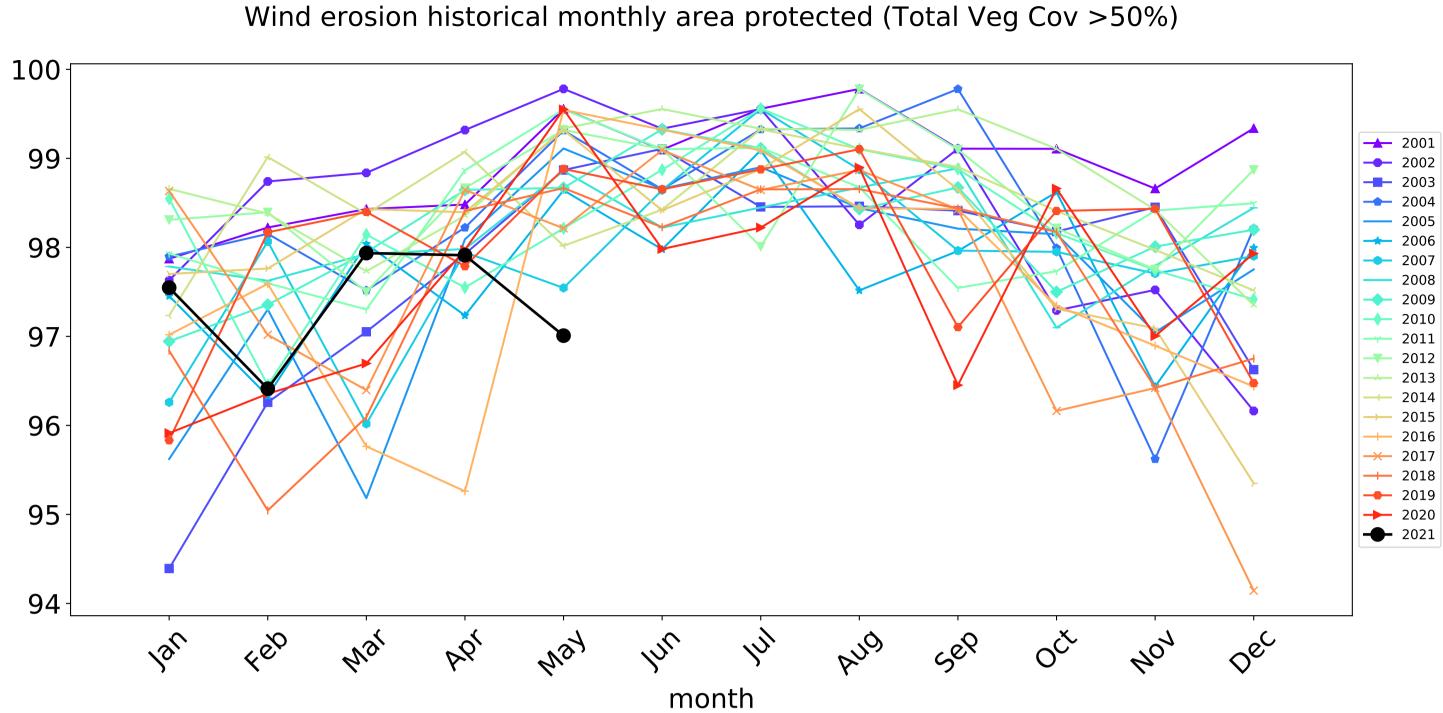


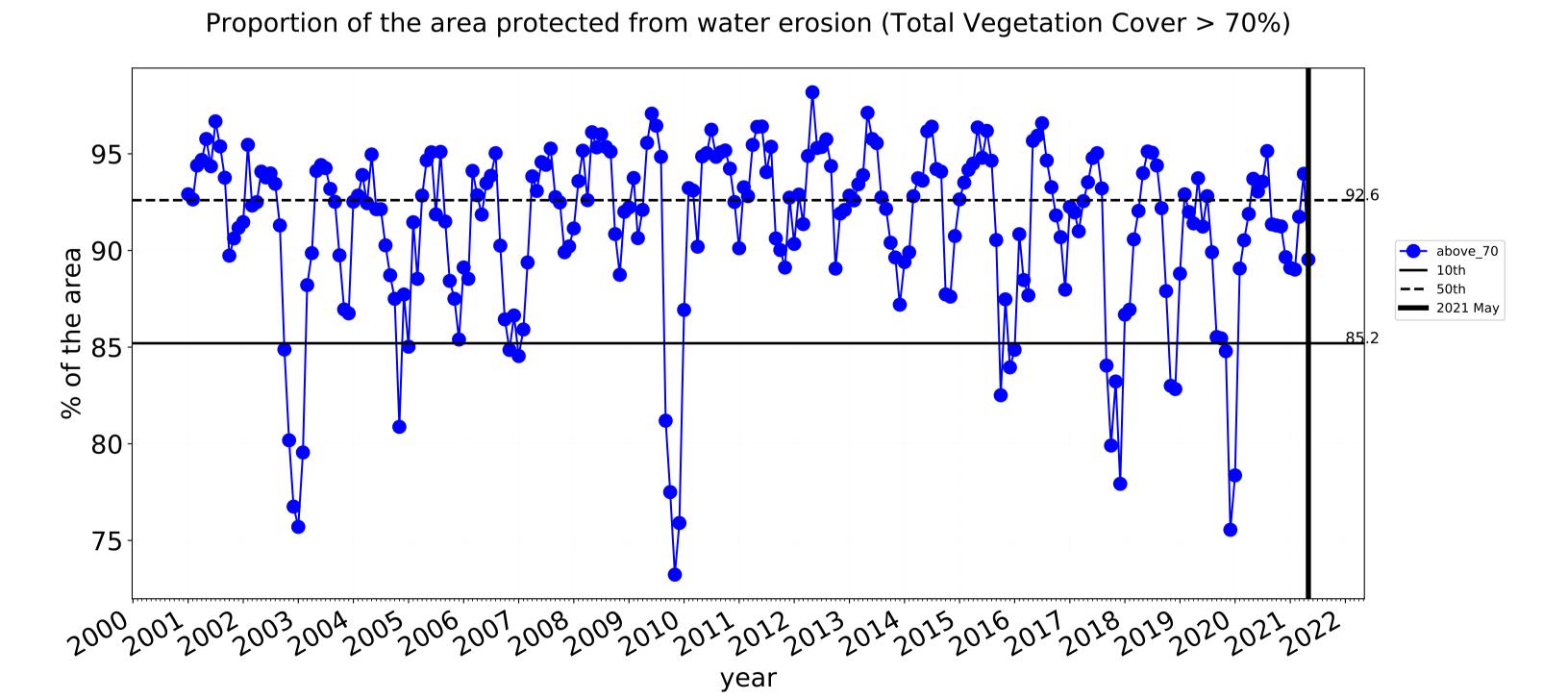


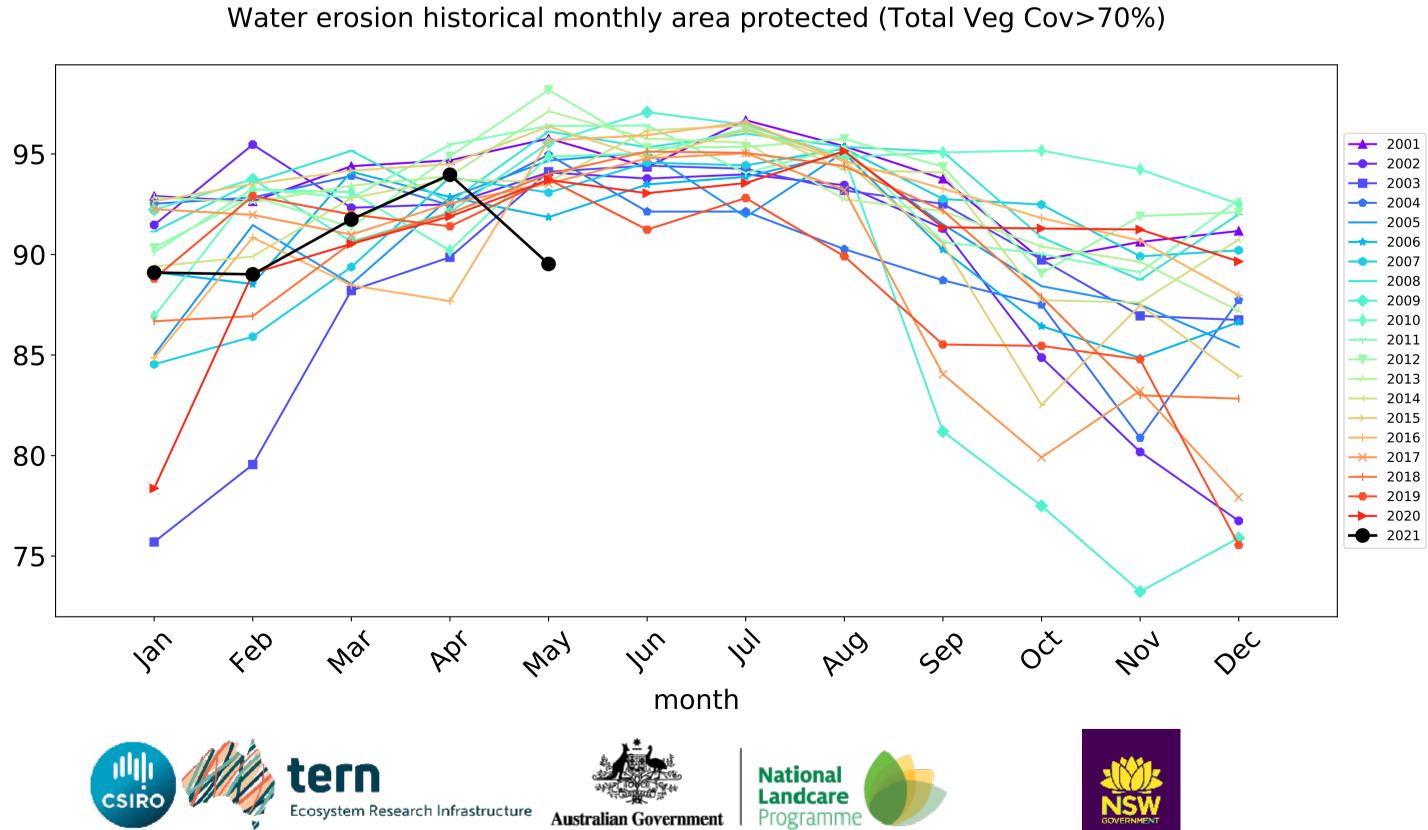


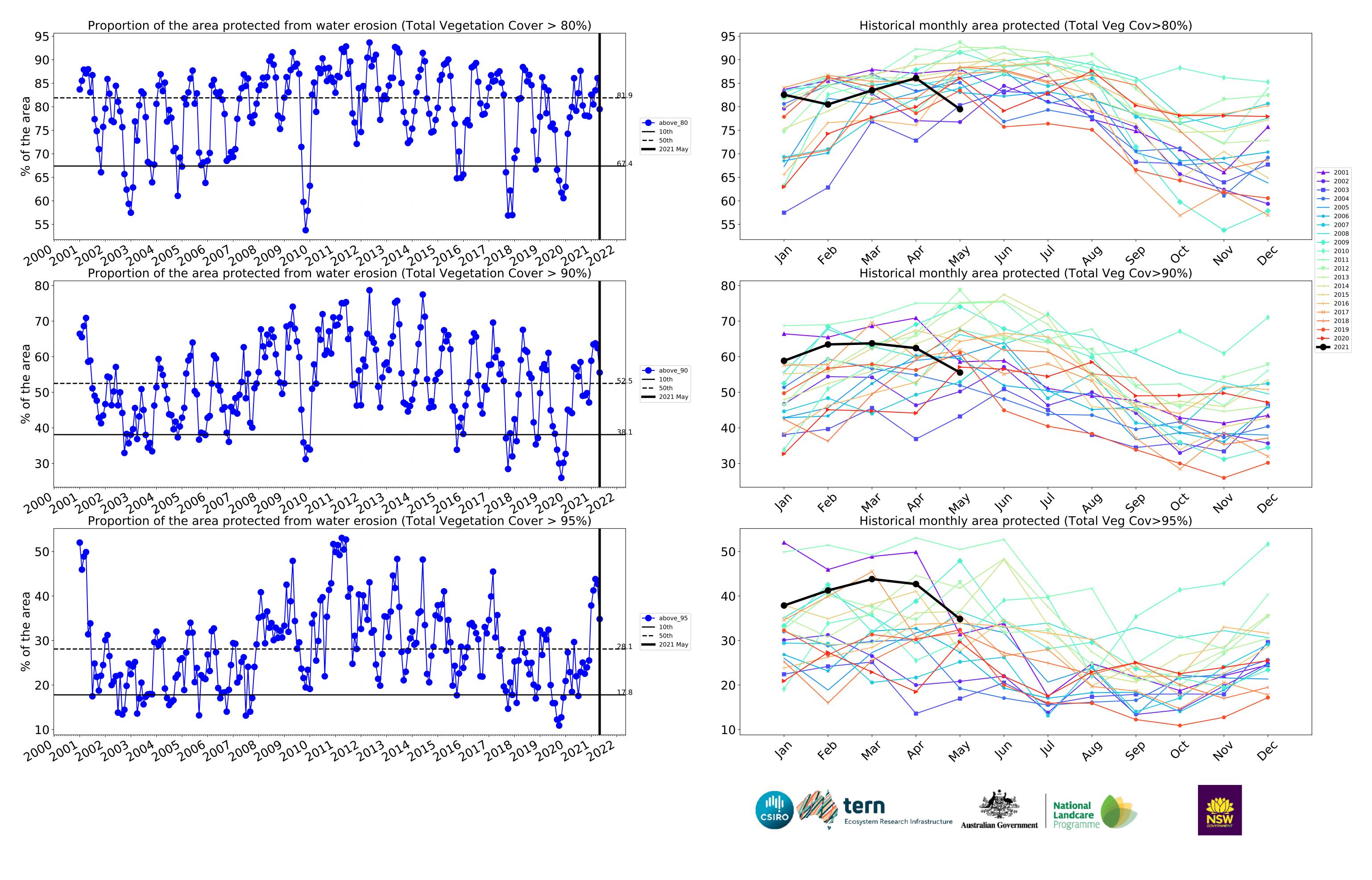
Conservation and natural environments non forest timeseries











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)

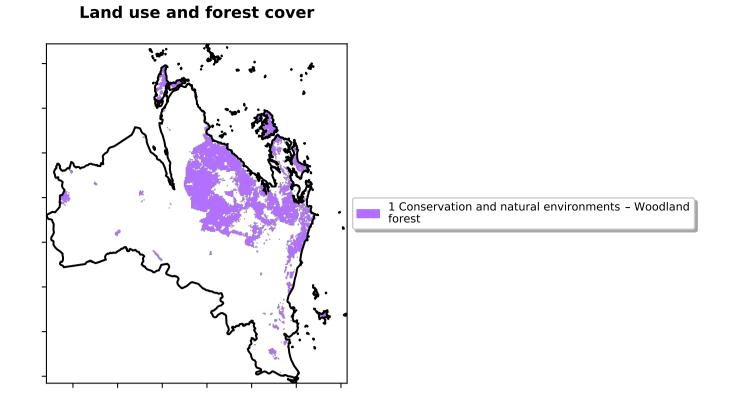
Anomaly show how many percetage points each

pixel is from the mean. That

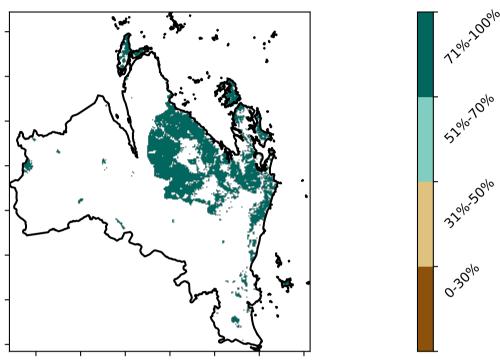
is, red pixels are about 20% lower than the

mean of that

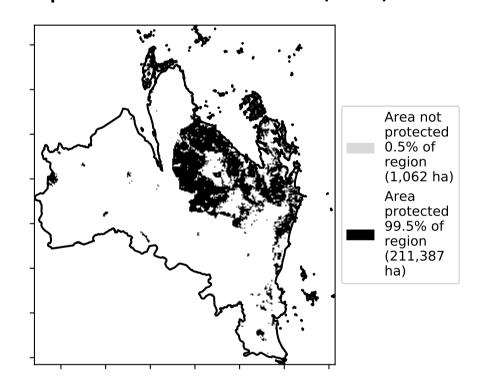
pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



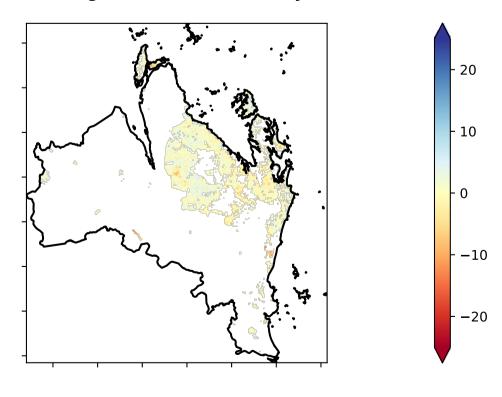
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

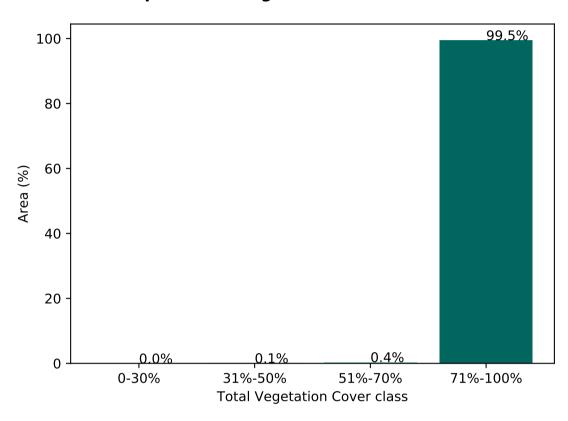


Total Vegetation Cover Anomaly [%]

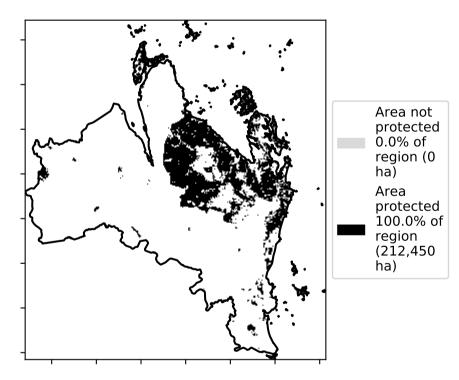


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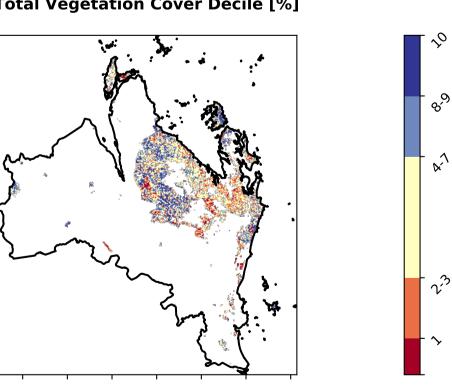
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







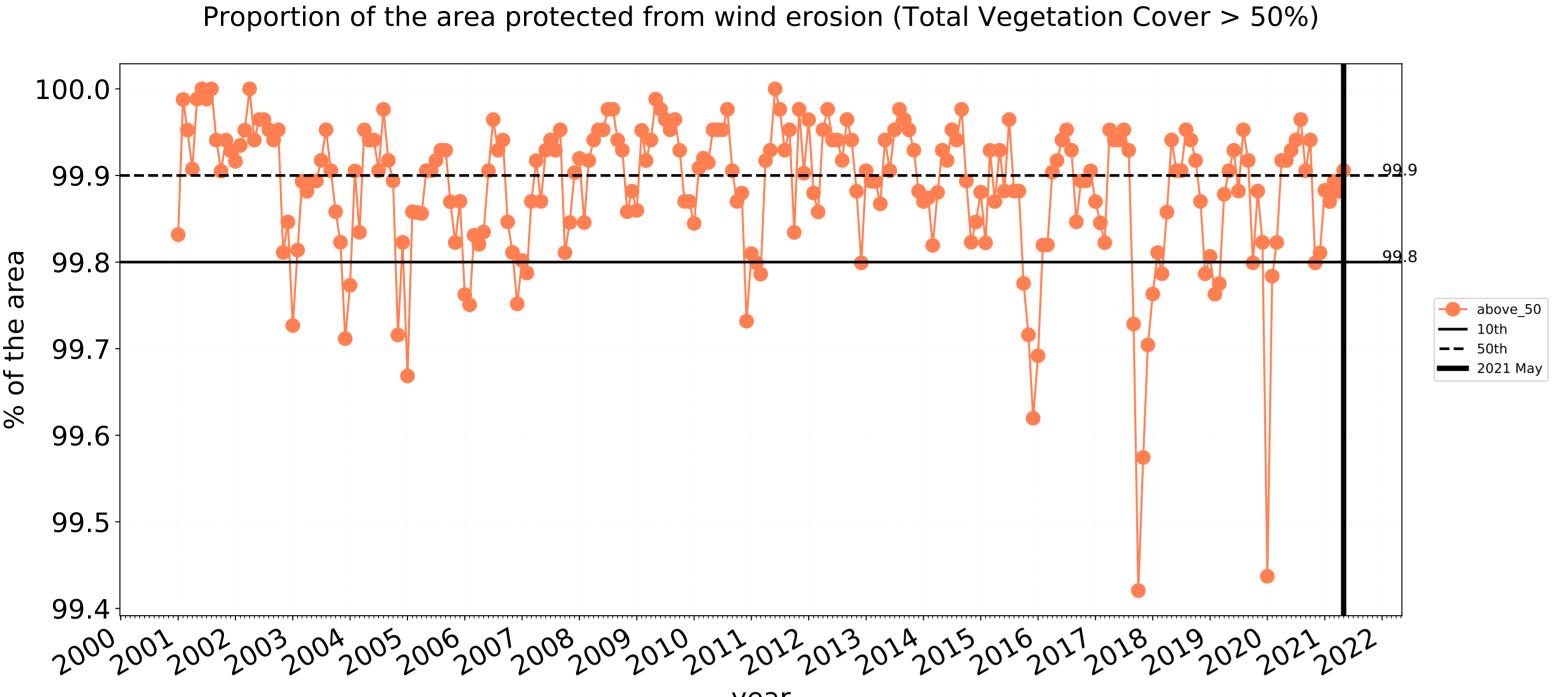


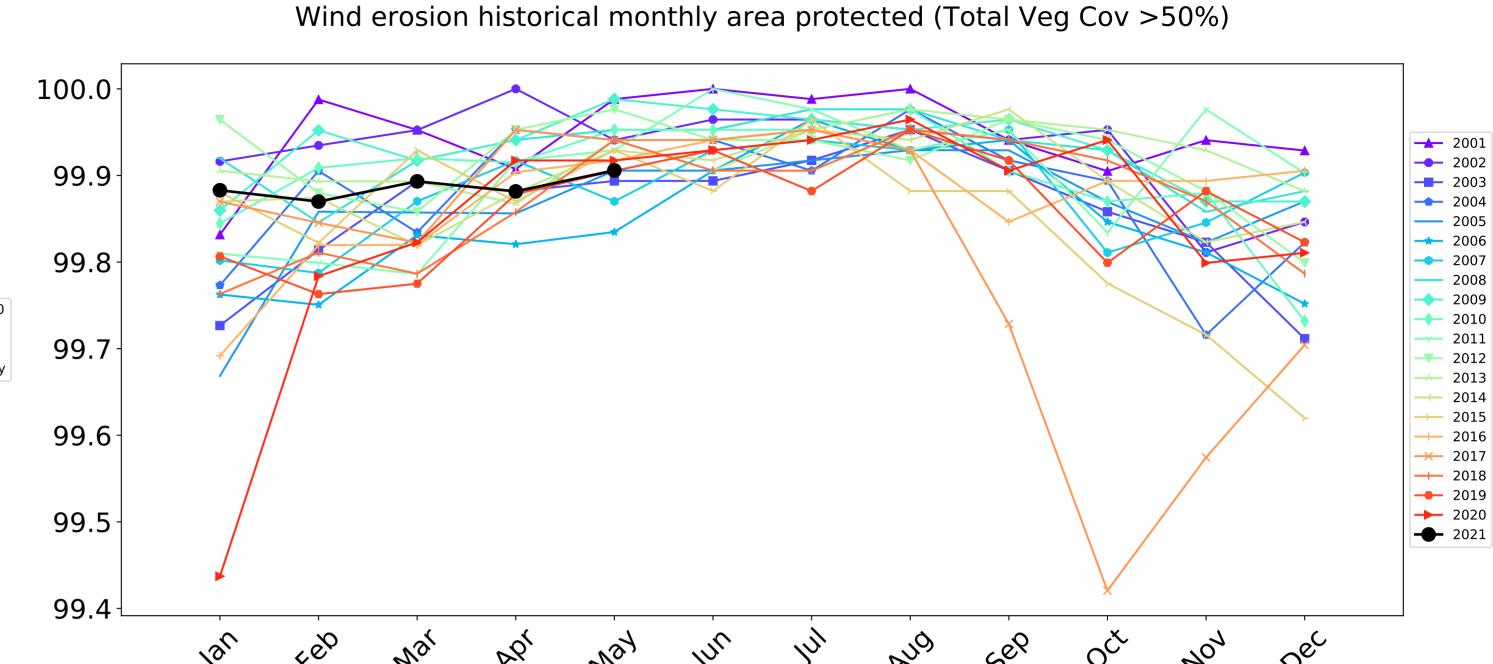




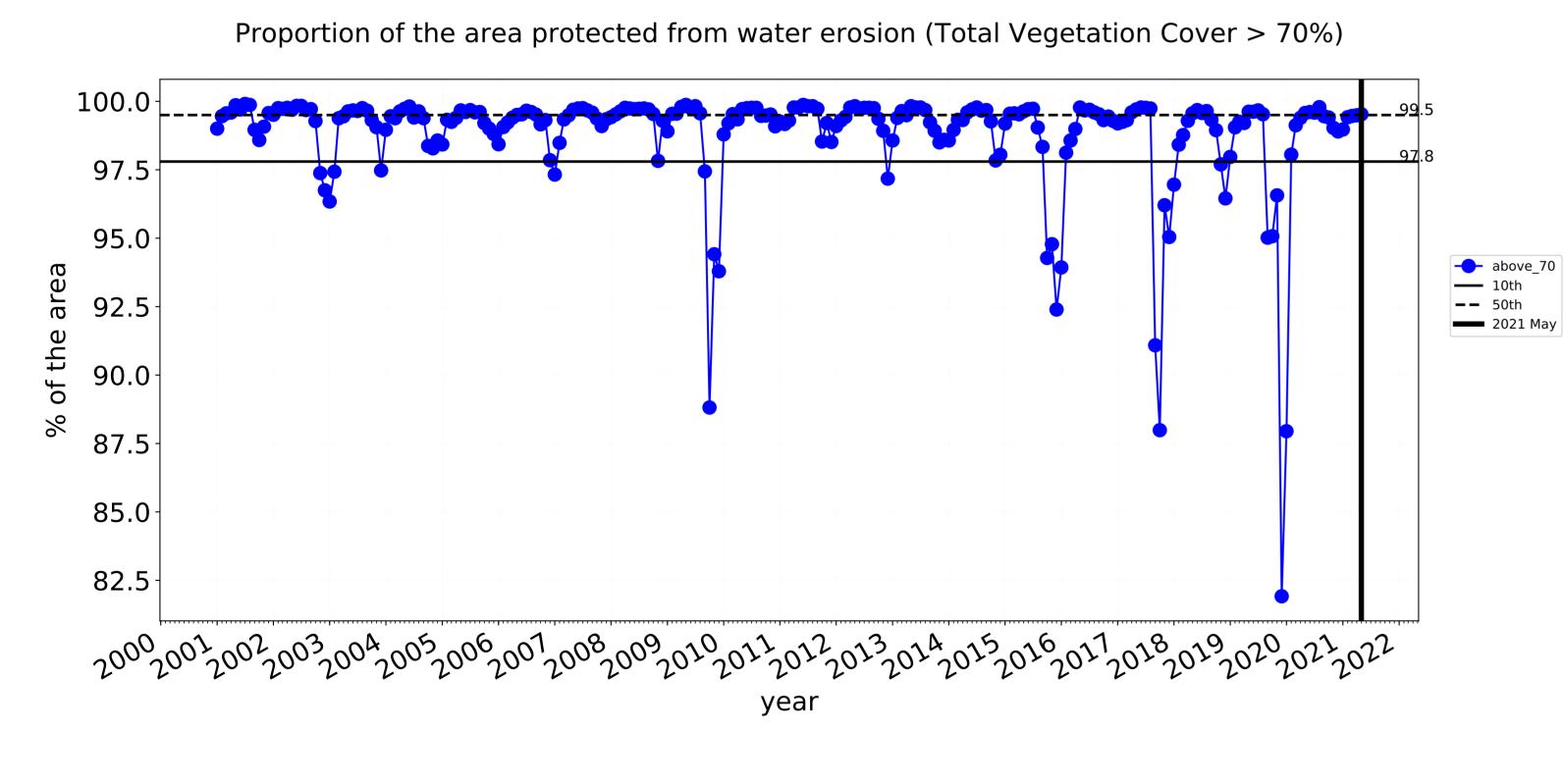


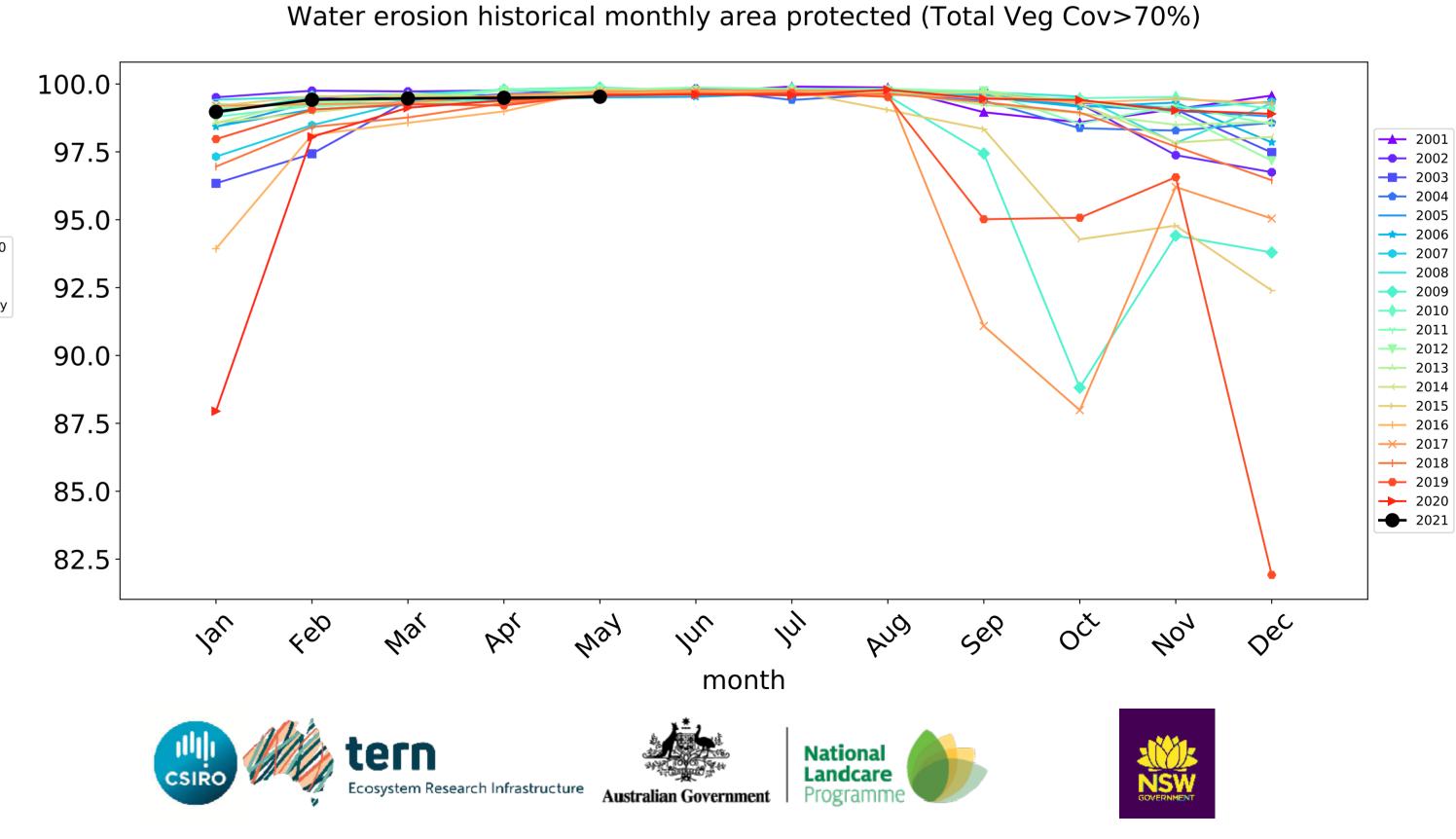
Conservation and natural environments Woodland forest timeseries

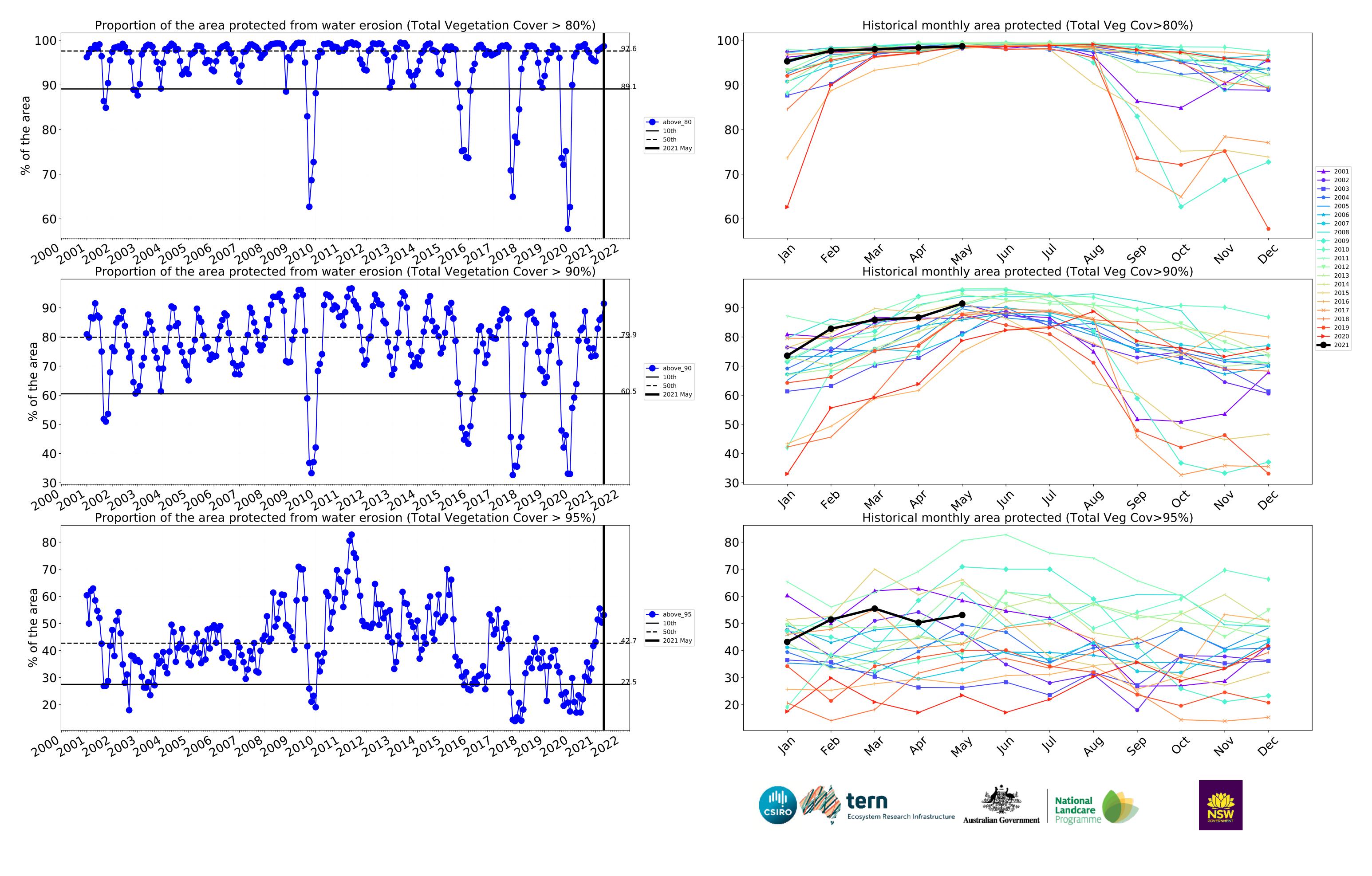




month



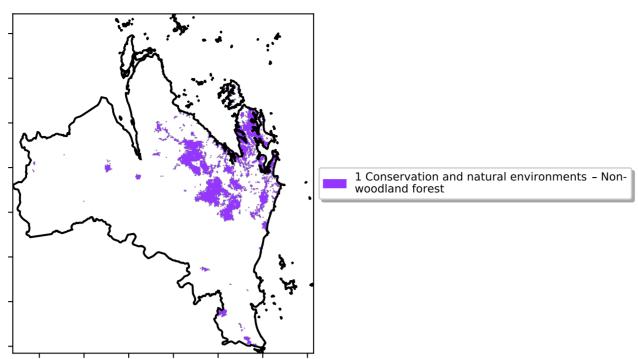




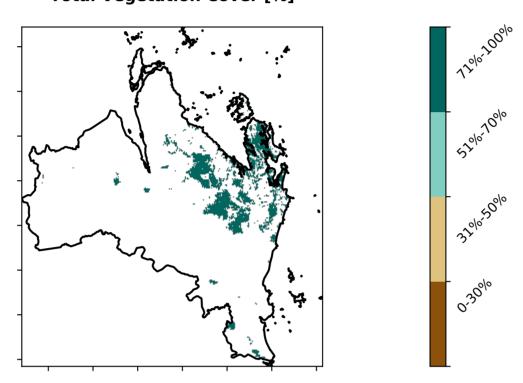
Conservation and natural environments Forest (non woodland)

Land use and forest cover

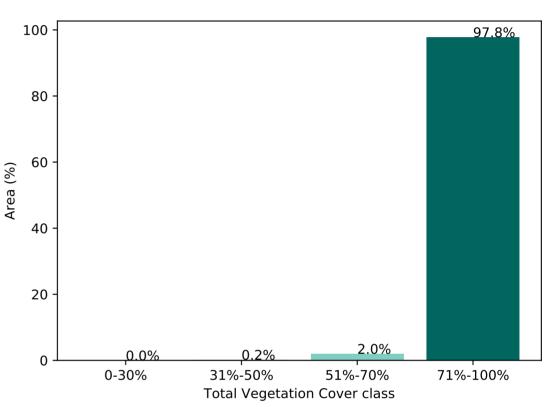
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



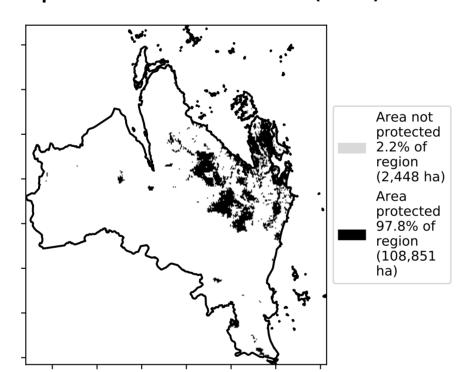
Total Vegetation Cover [%]



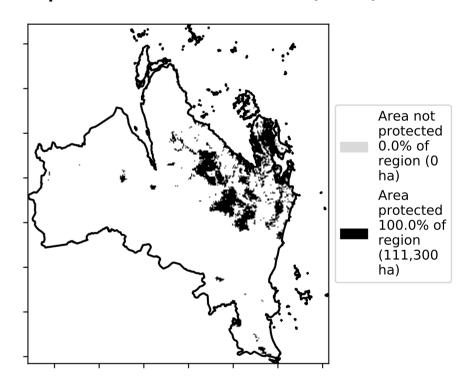
Proportion of vegetation cover class in area



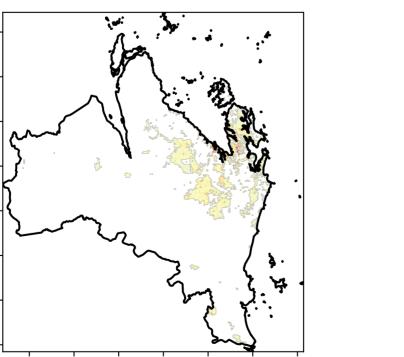
% Area protected from water erosion (>70%)



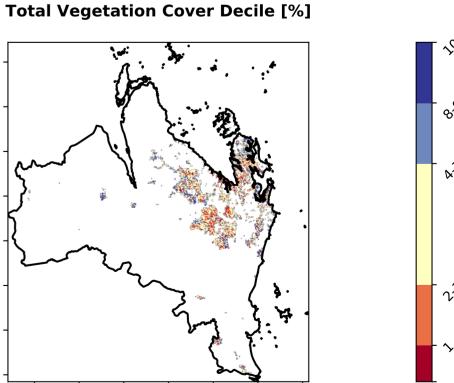
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



- 20 10 -10**-**20



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

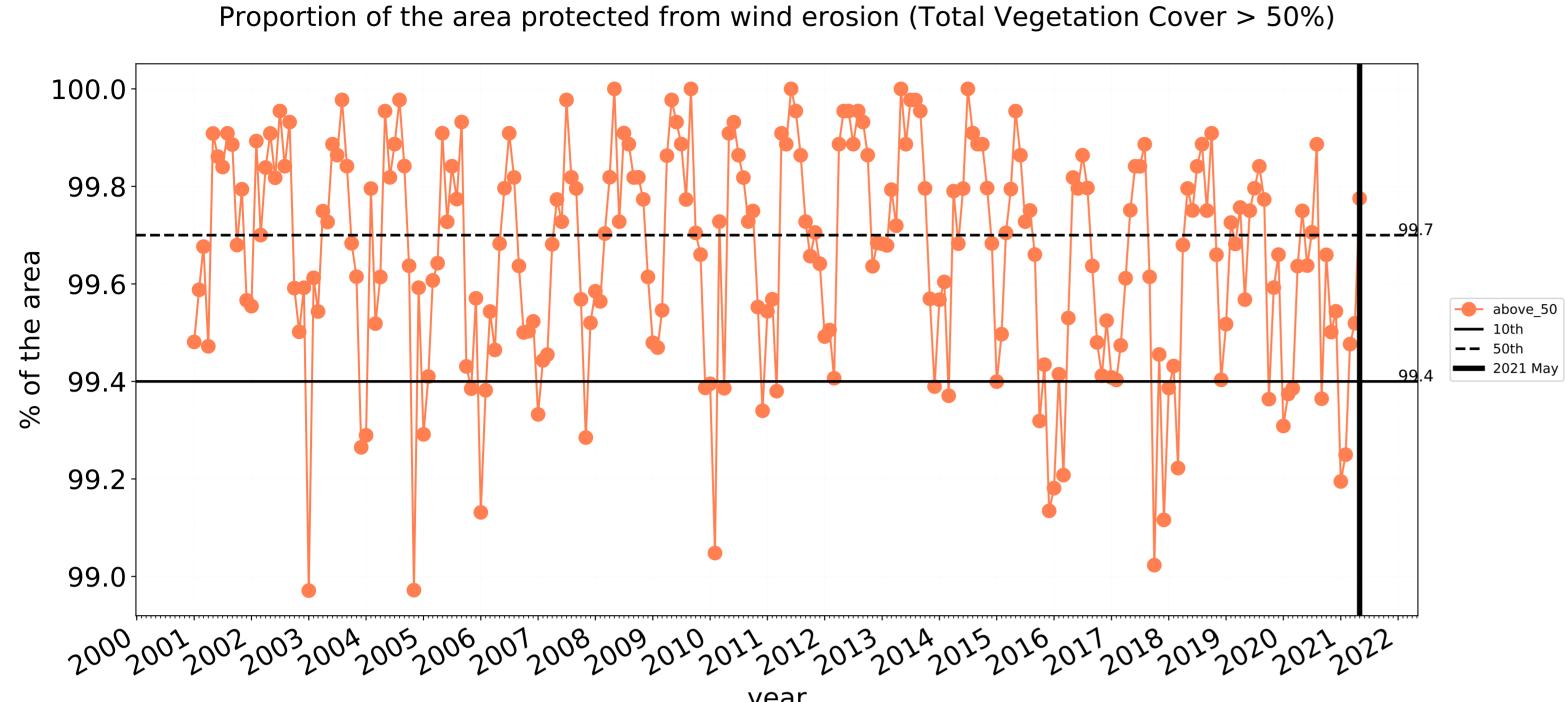
records for that month of

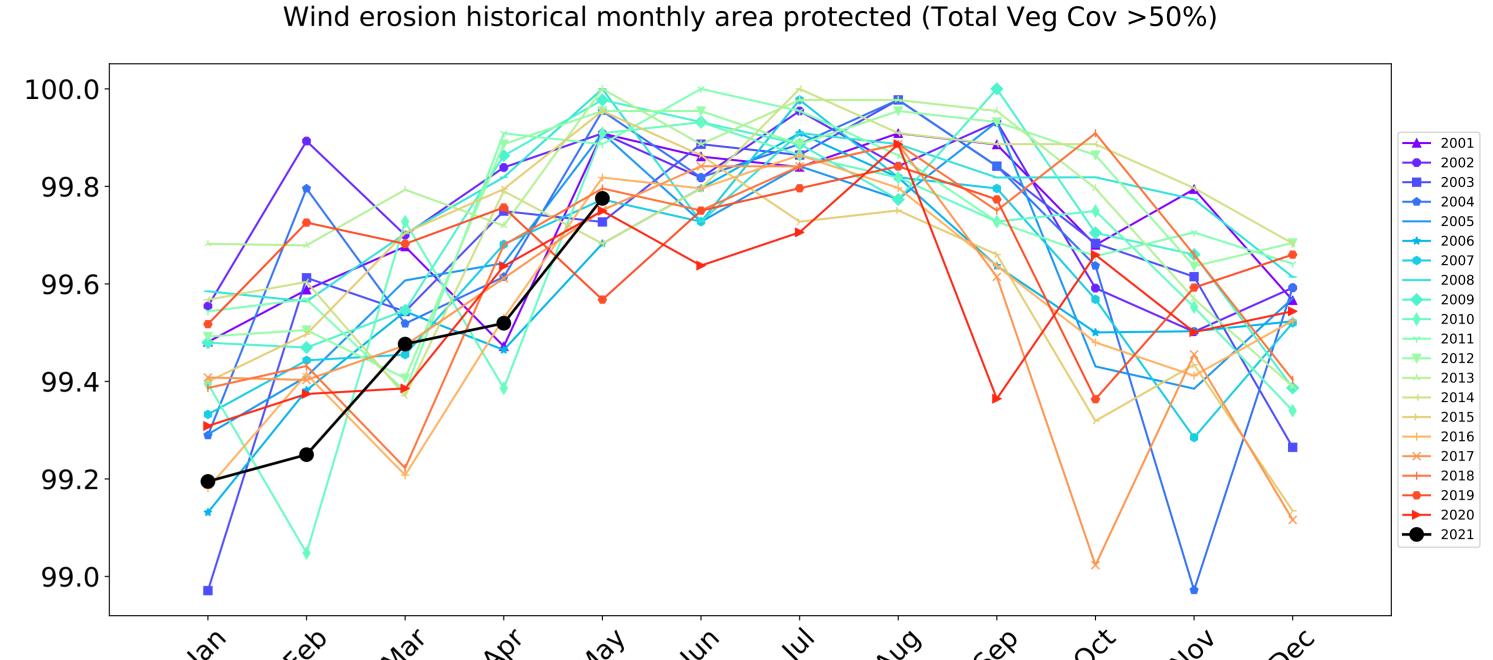
the map using baseline from 2001 to 2019.

in the lowest 10% of

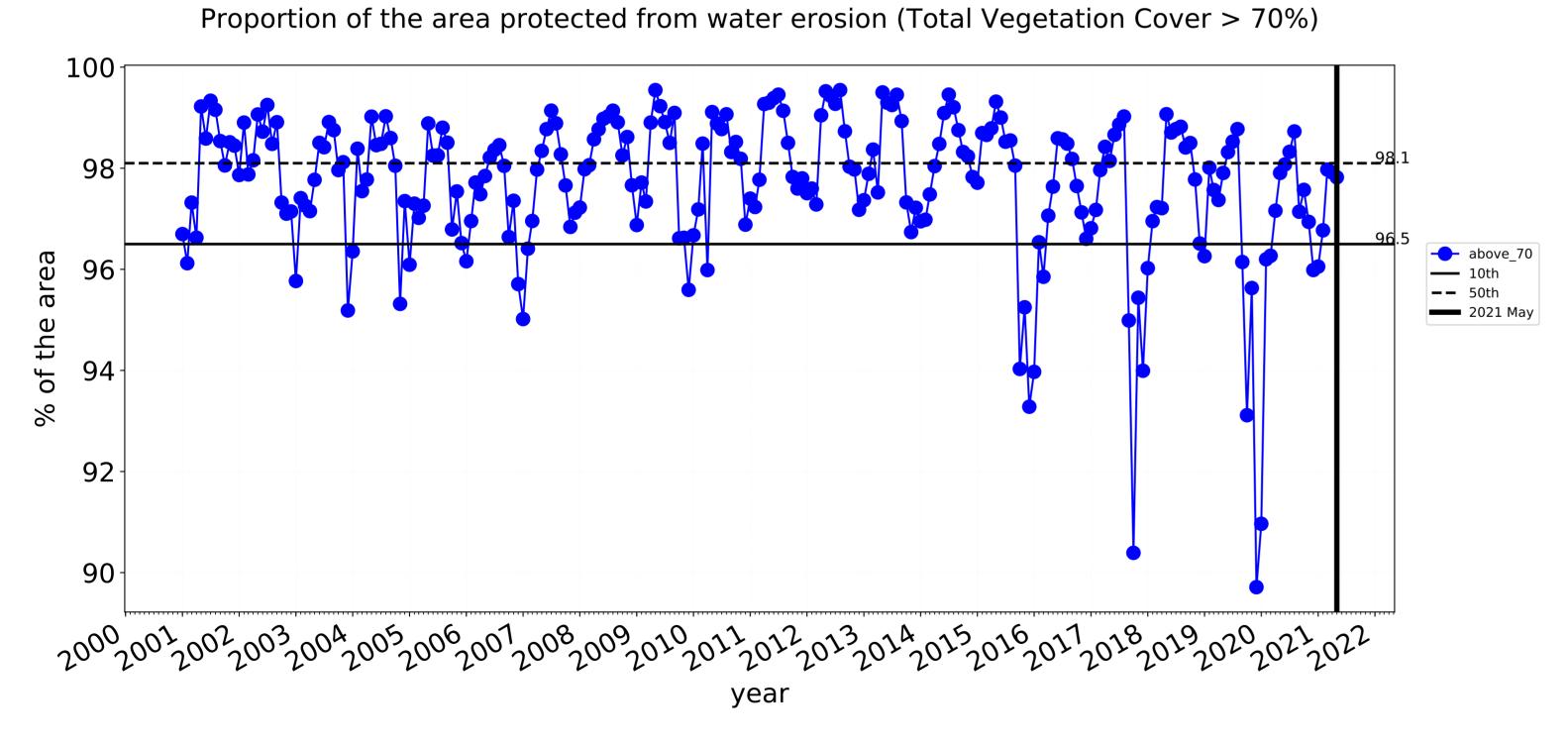


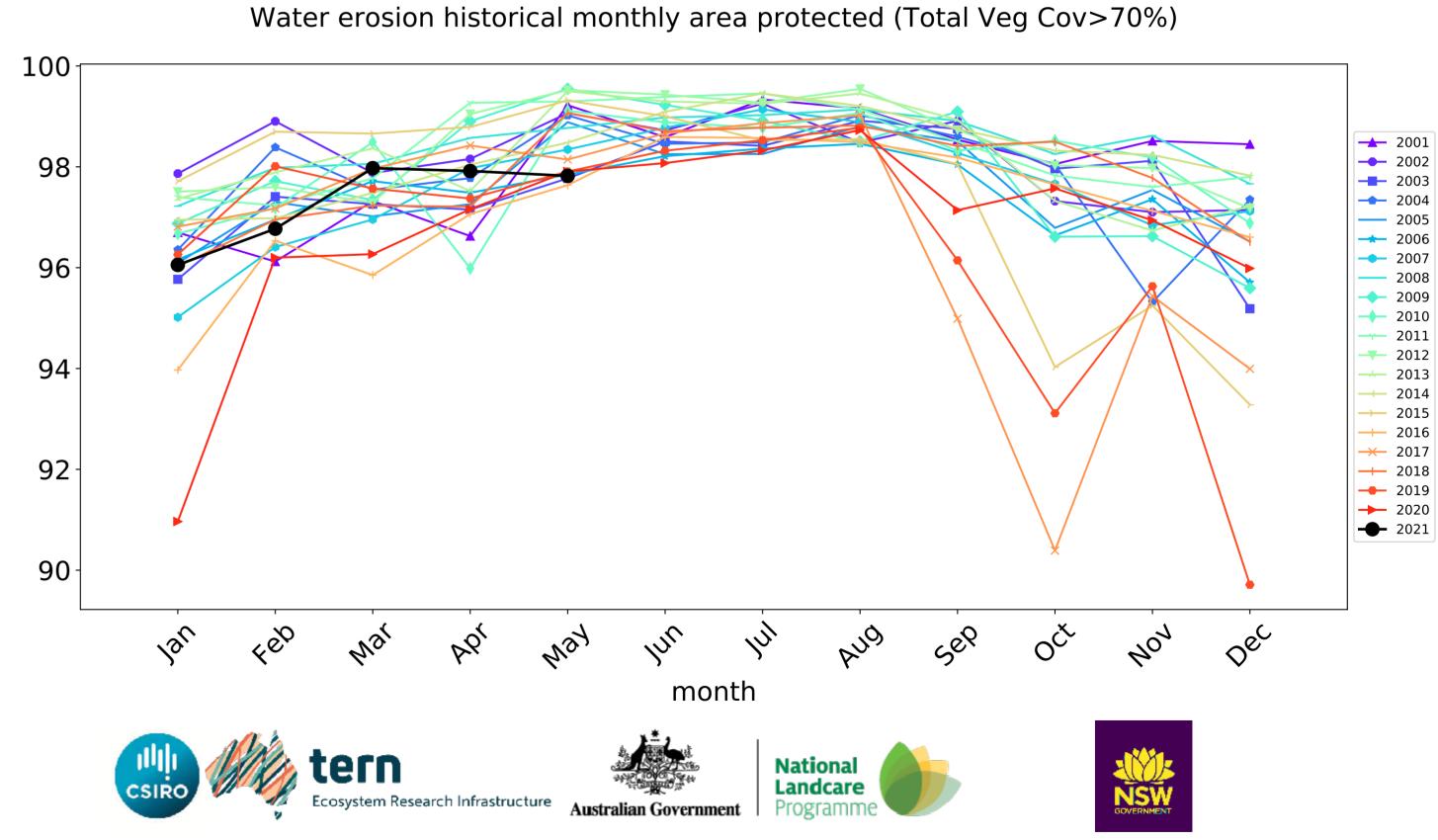


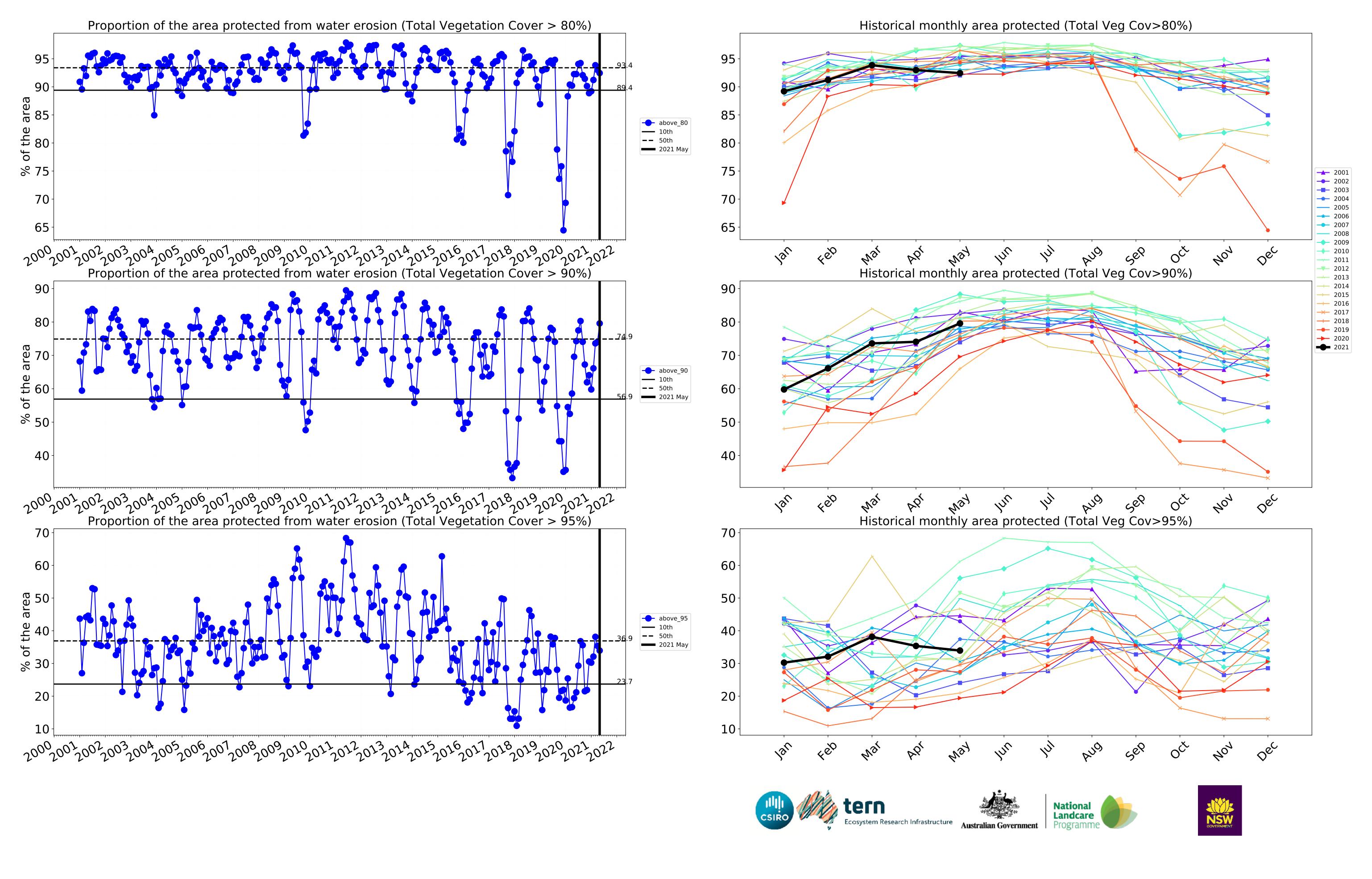




month







Agriculture

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

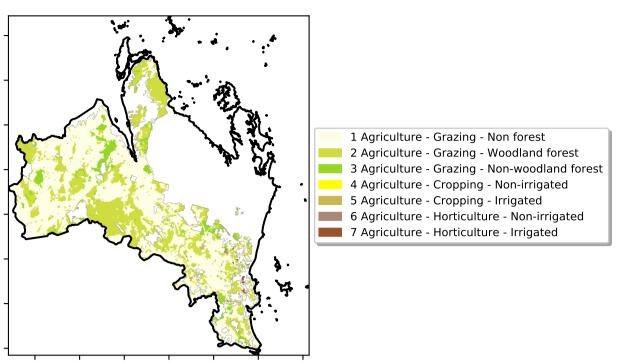
Anomaly show how many percetage points each

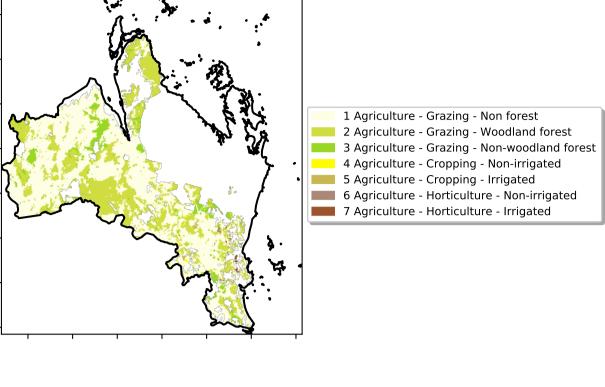
pixel is from the mean. That

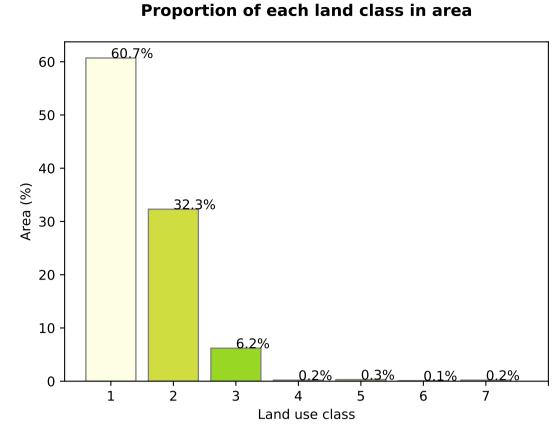
pixel. The mean is only for the month of the map

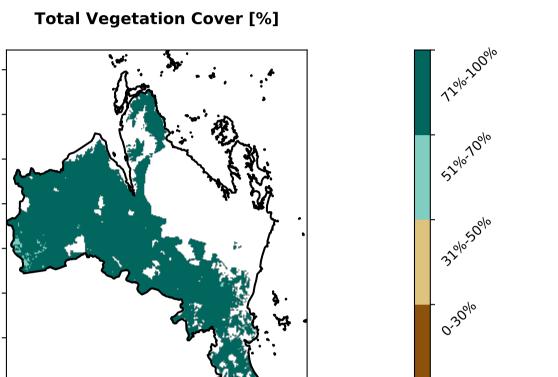
using baseline from 2001 to 2019.

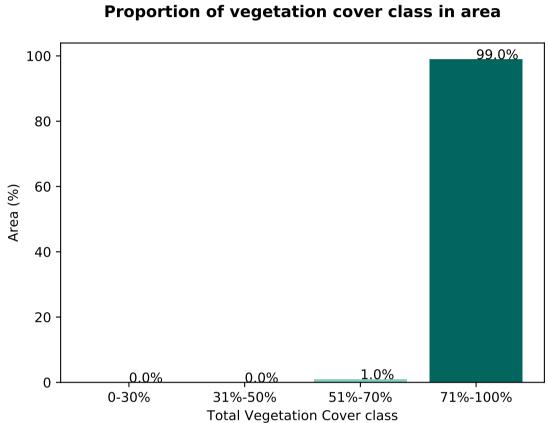
is, red pixels are about 20% lower than the mean of that





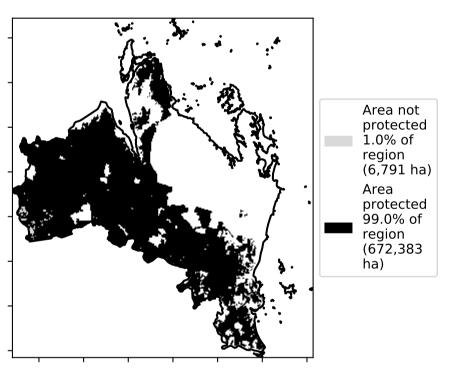




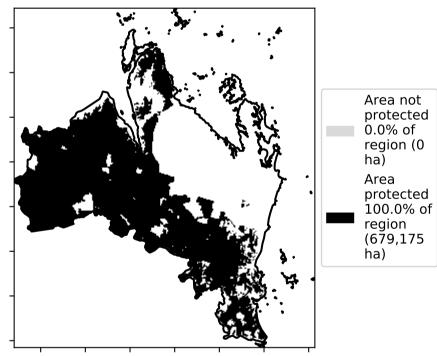




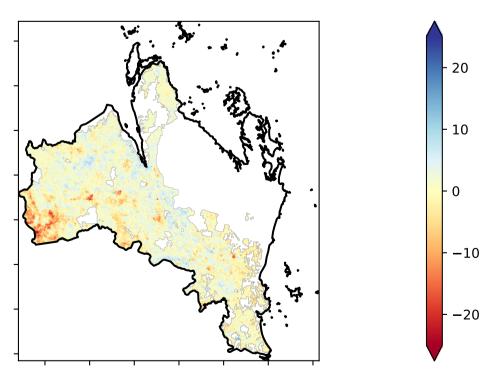
Land use and forest cover



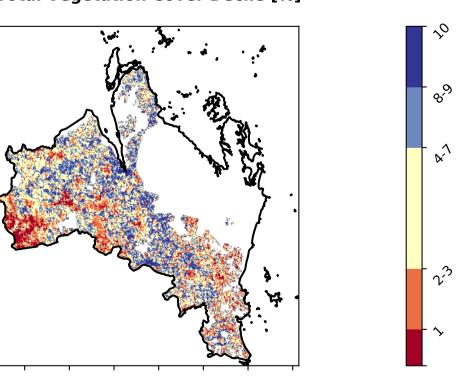
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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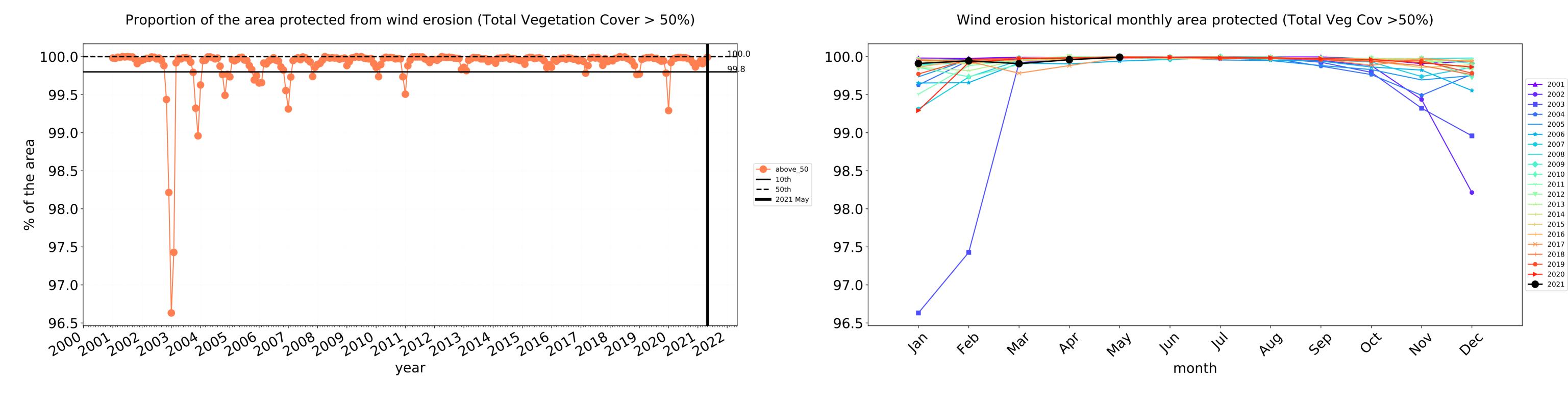


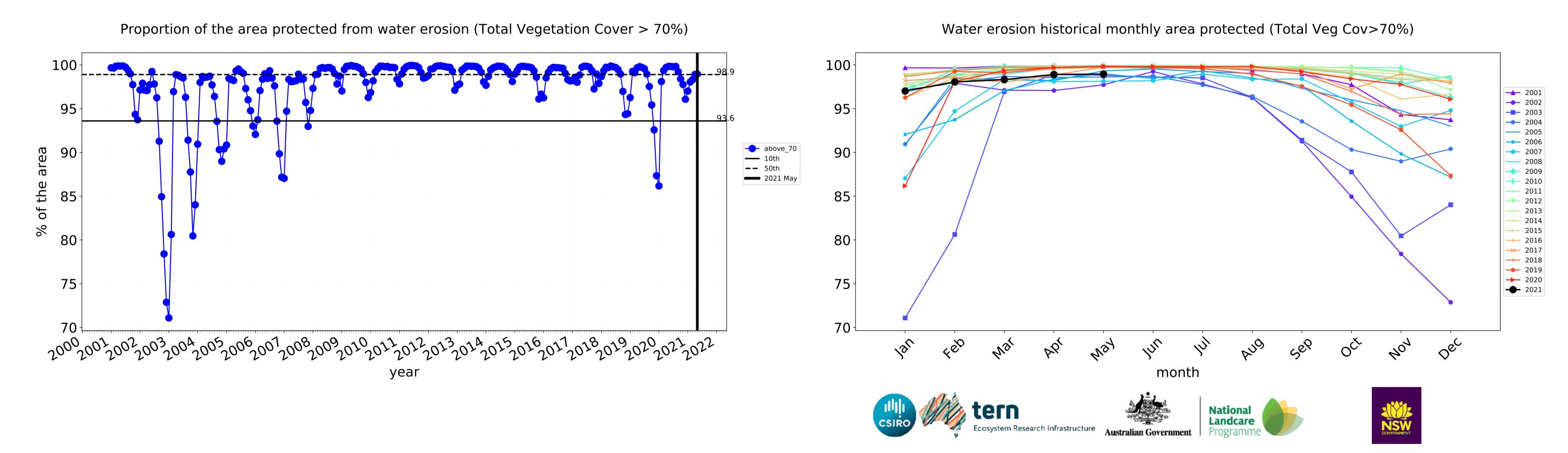


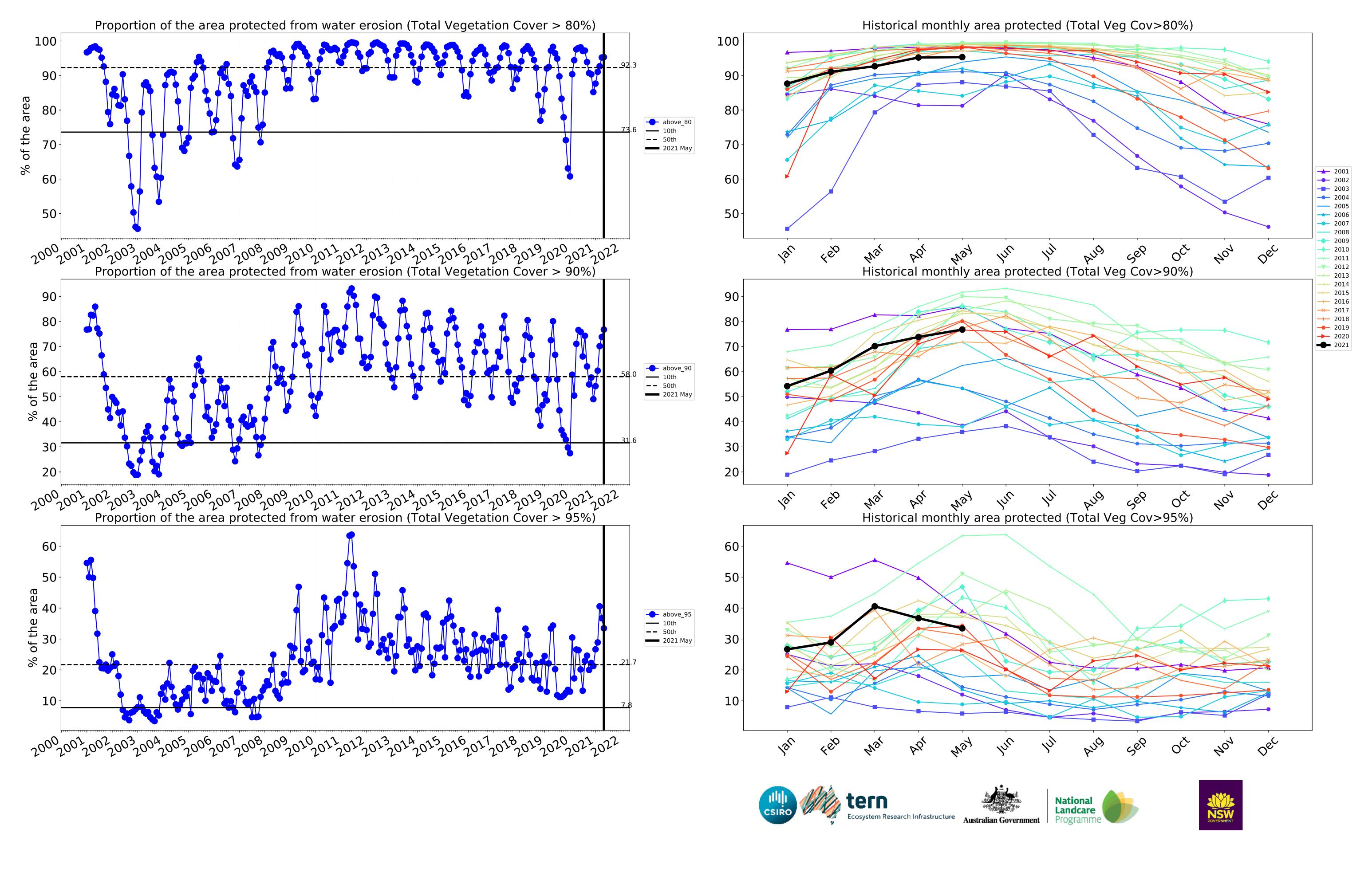




Agriculture timeseries

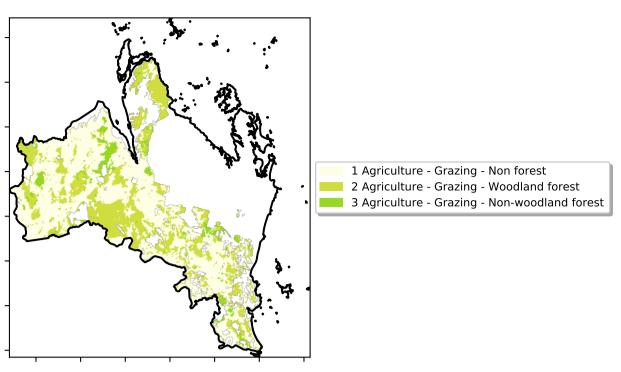


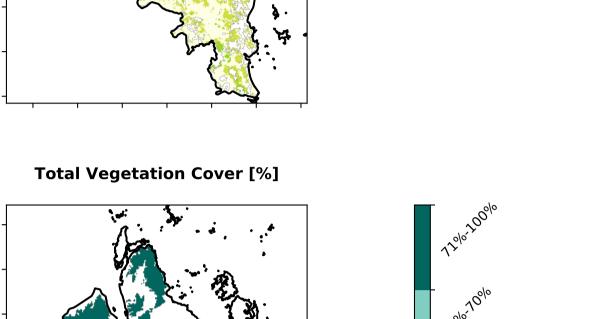


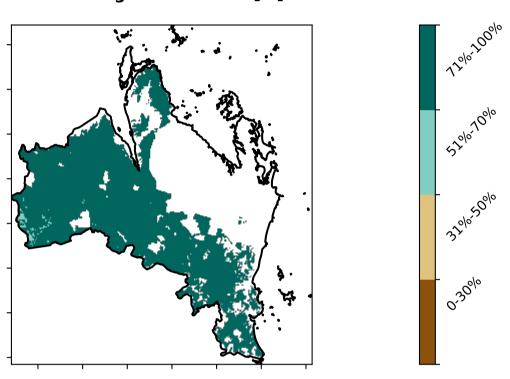


Grazing

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



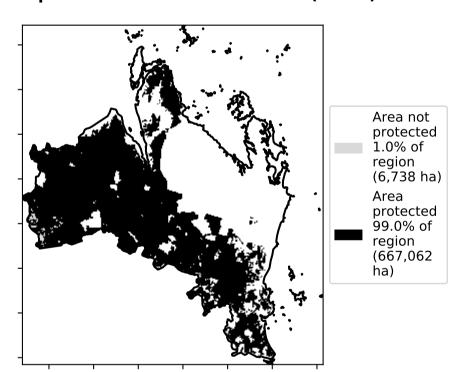




% Area protected from water erosion (>70%)

Total Vegetation Cover Anomaly [%]

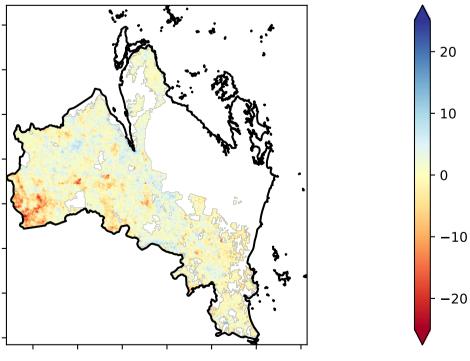
Land use and forest cover



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60 - 61.2% 50 - 40 - 32.5% 20 - 10 - 6.2%

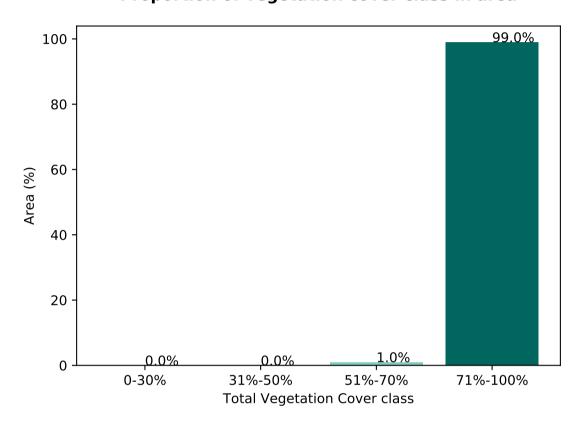
Proportion of each land class in area

Proportion of vegetation cover class in area

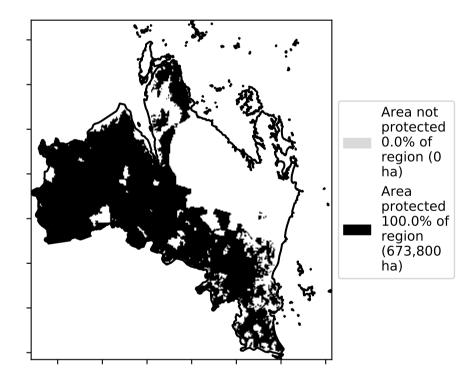
Land use class

3

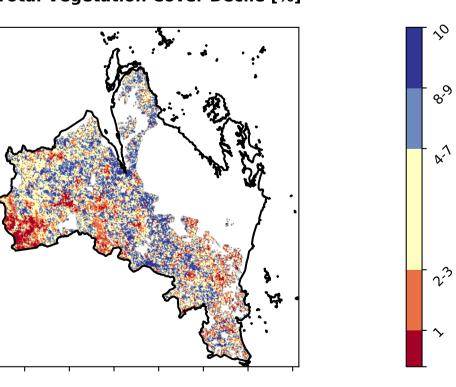
2



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]



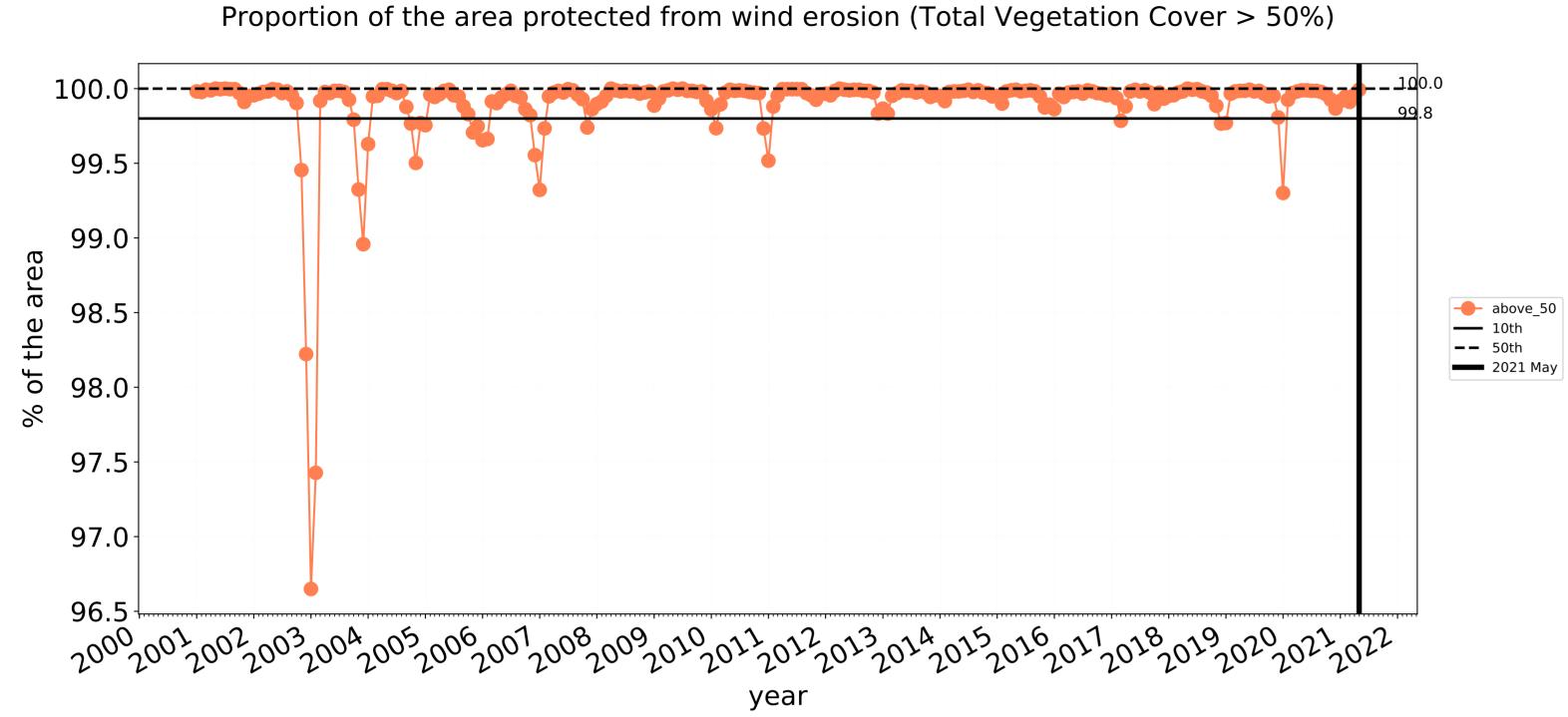


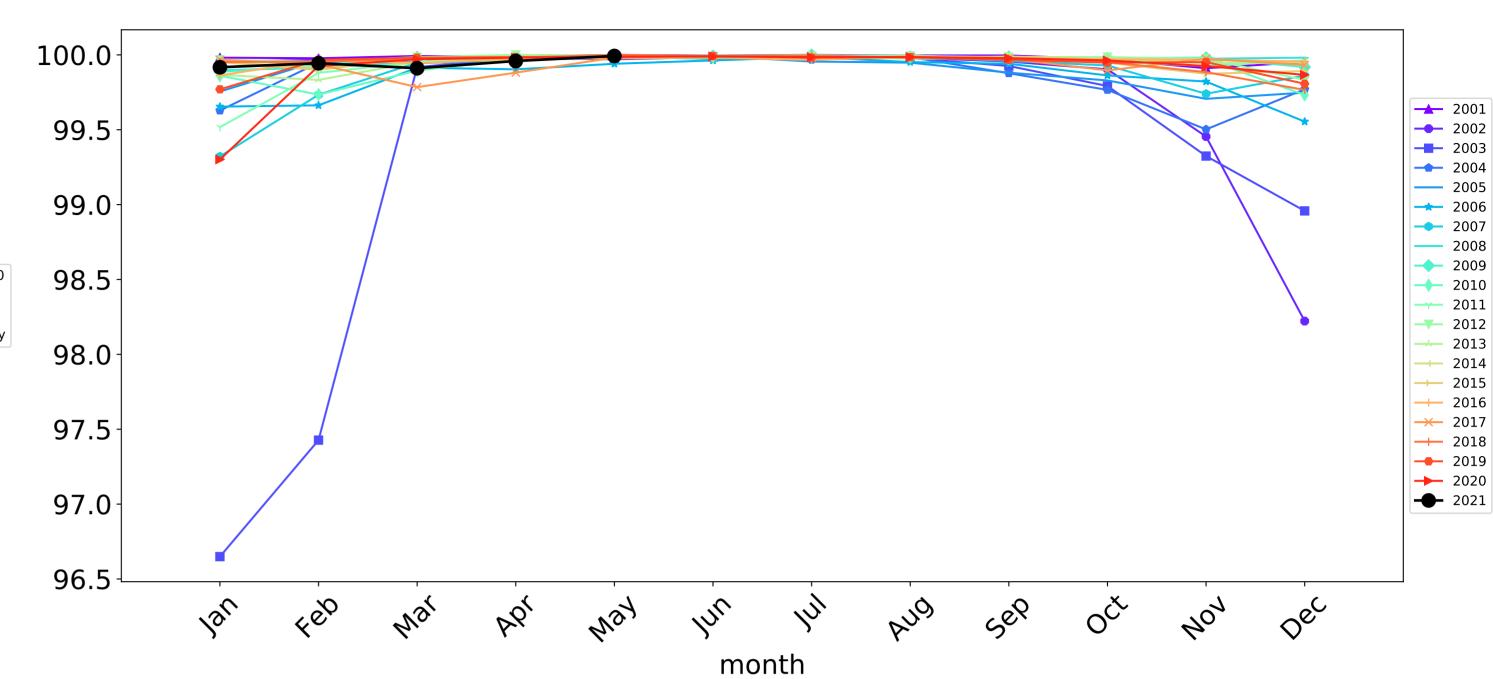




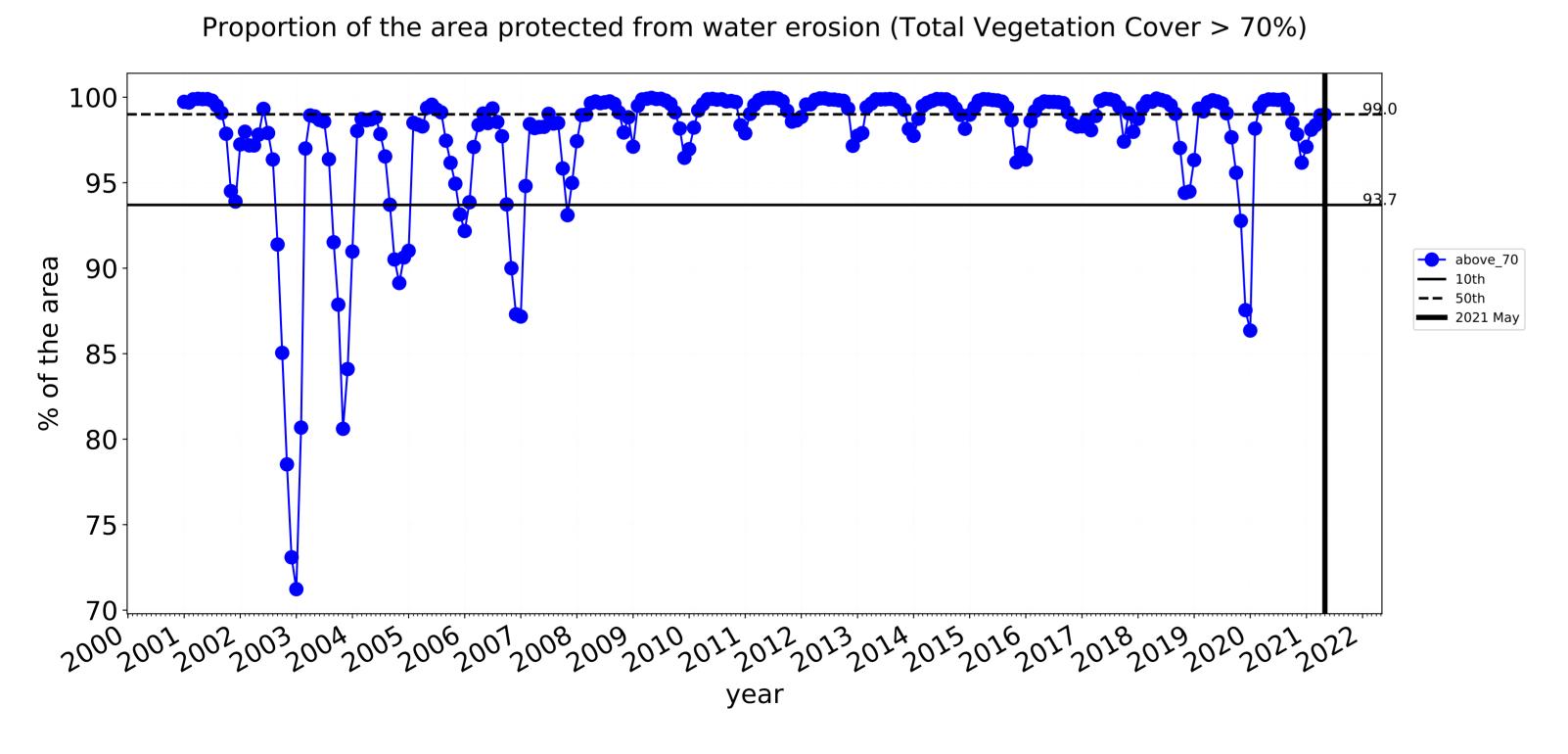


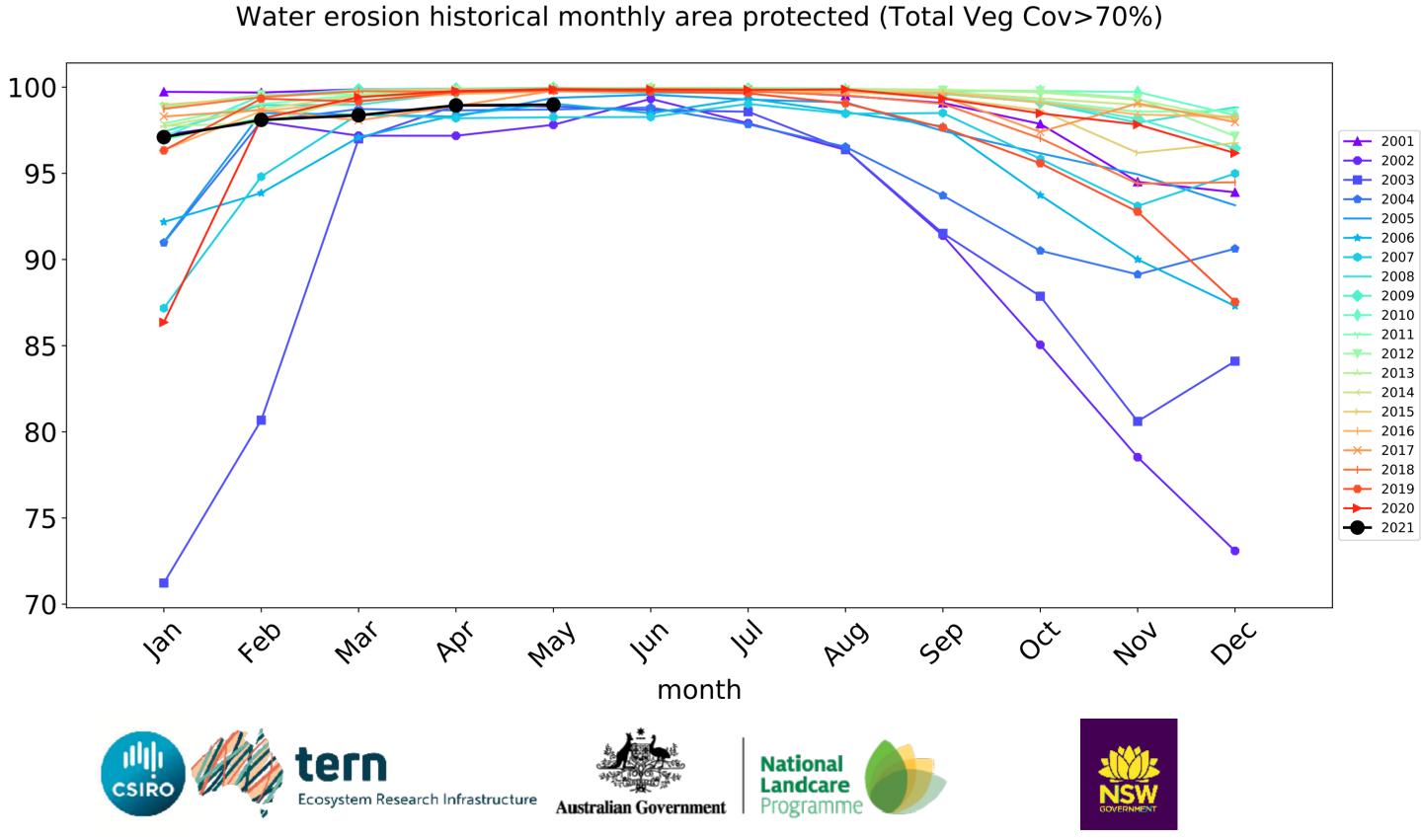
Grazing timeseries

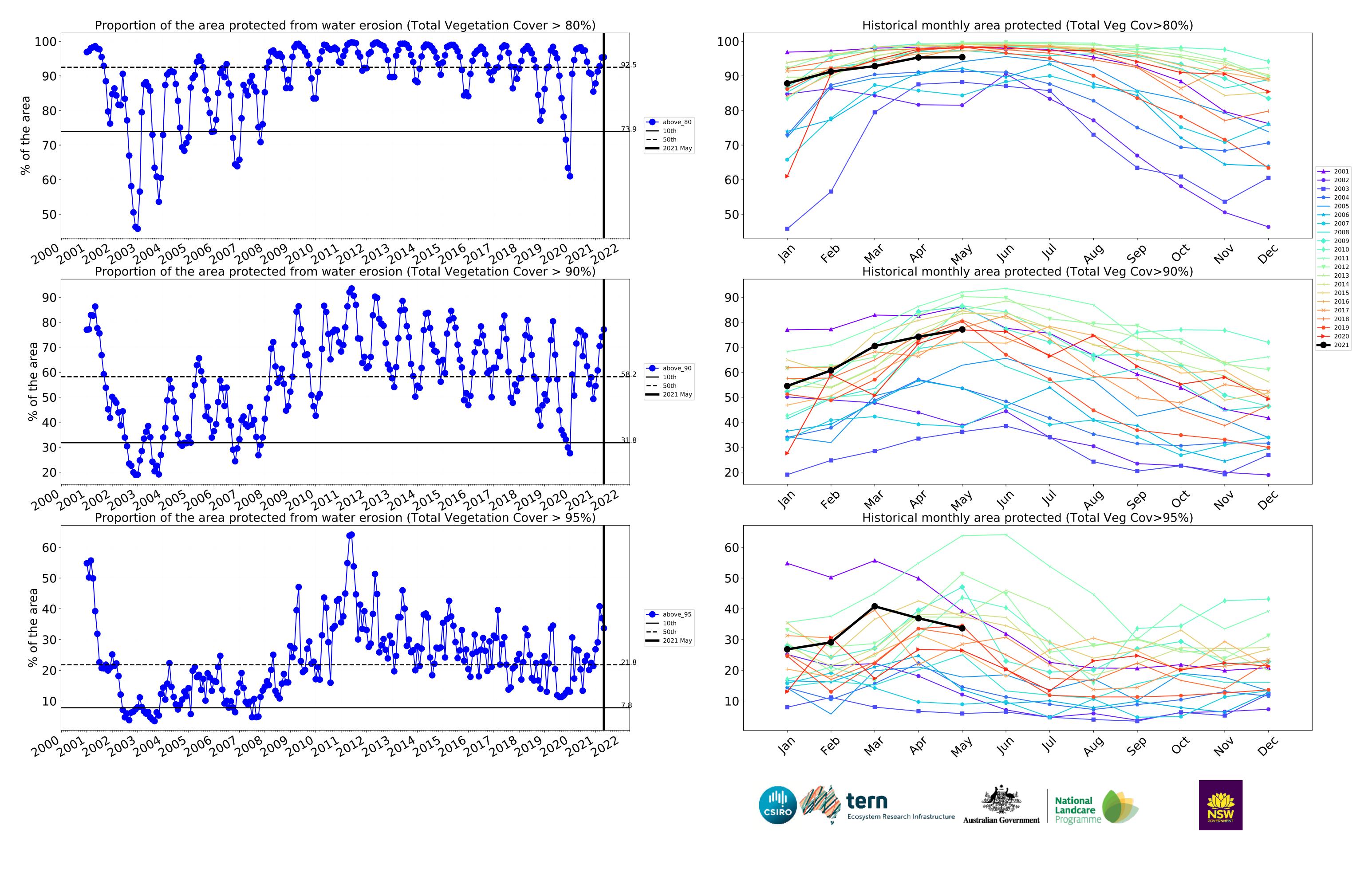




Wind erosion historical monthly area protected (Total Veg Cov >50%)







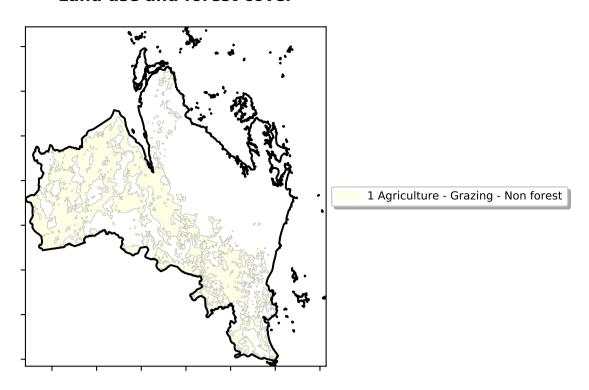
Grazing non forest

Land use and forest cover

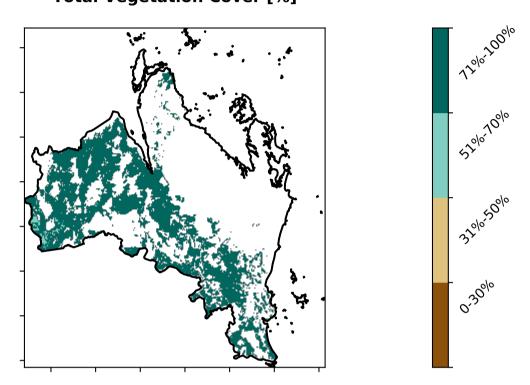
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Anomaly show how many percetage points each

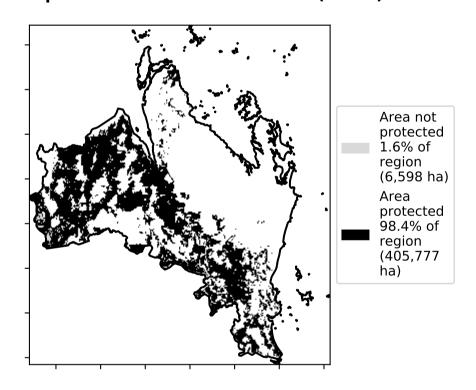
points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



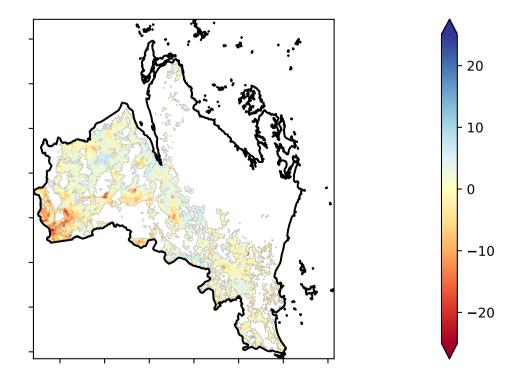
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

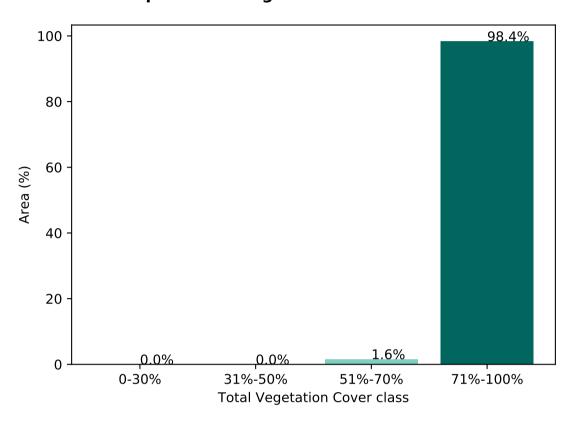


Total Vegetation Cover Anomaly [%]

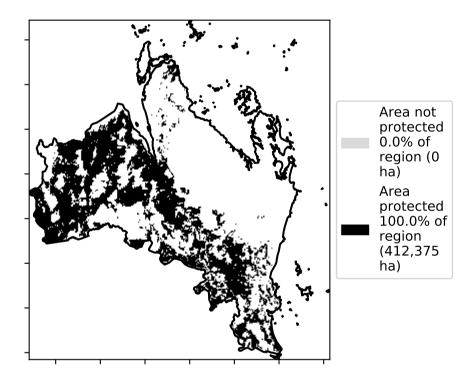


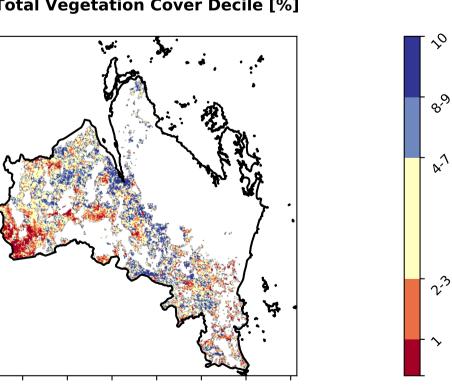
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









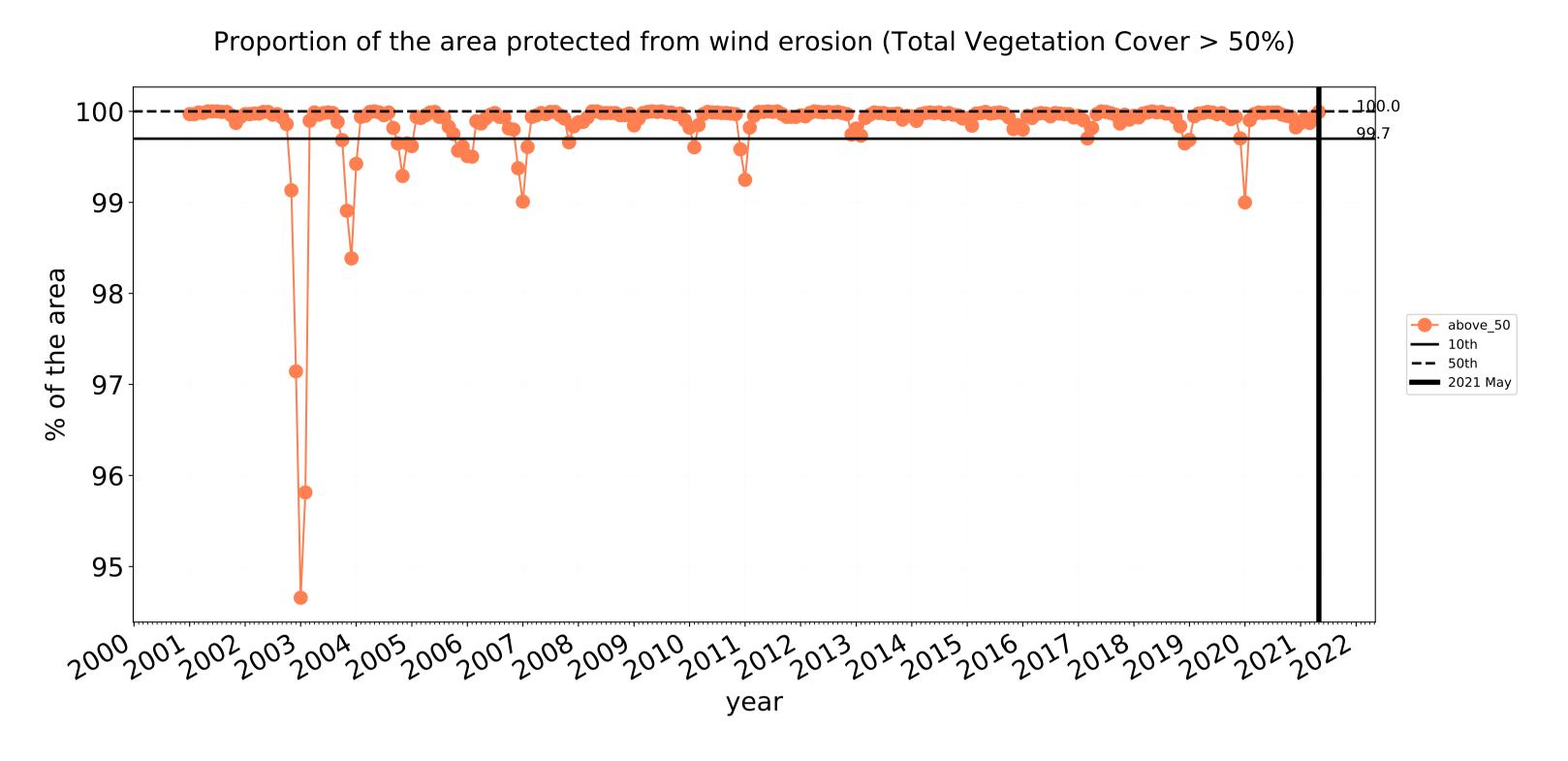


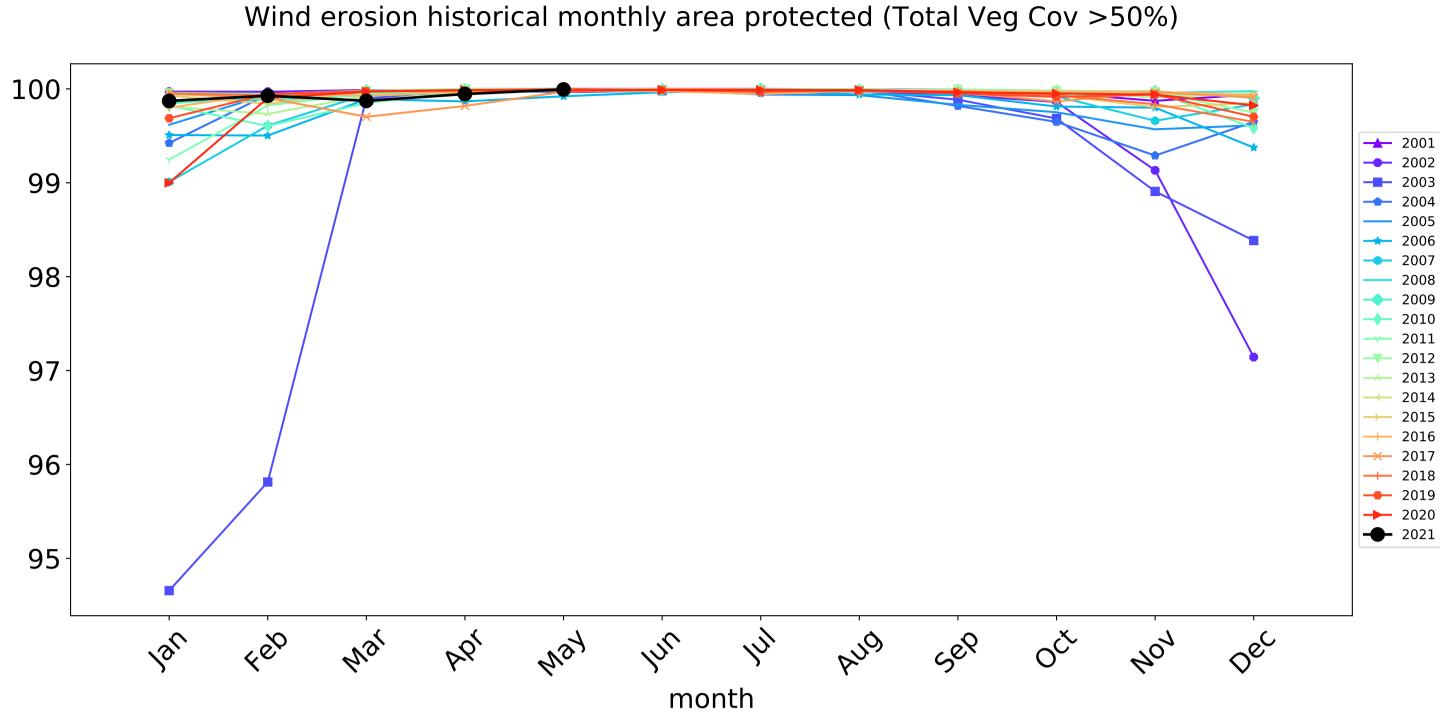


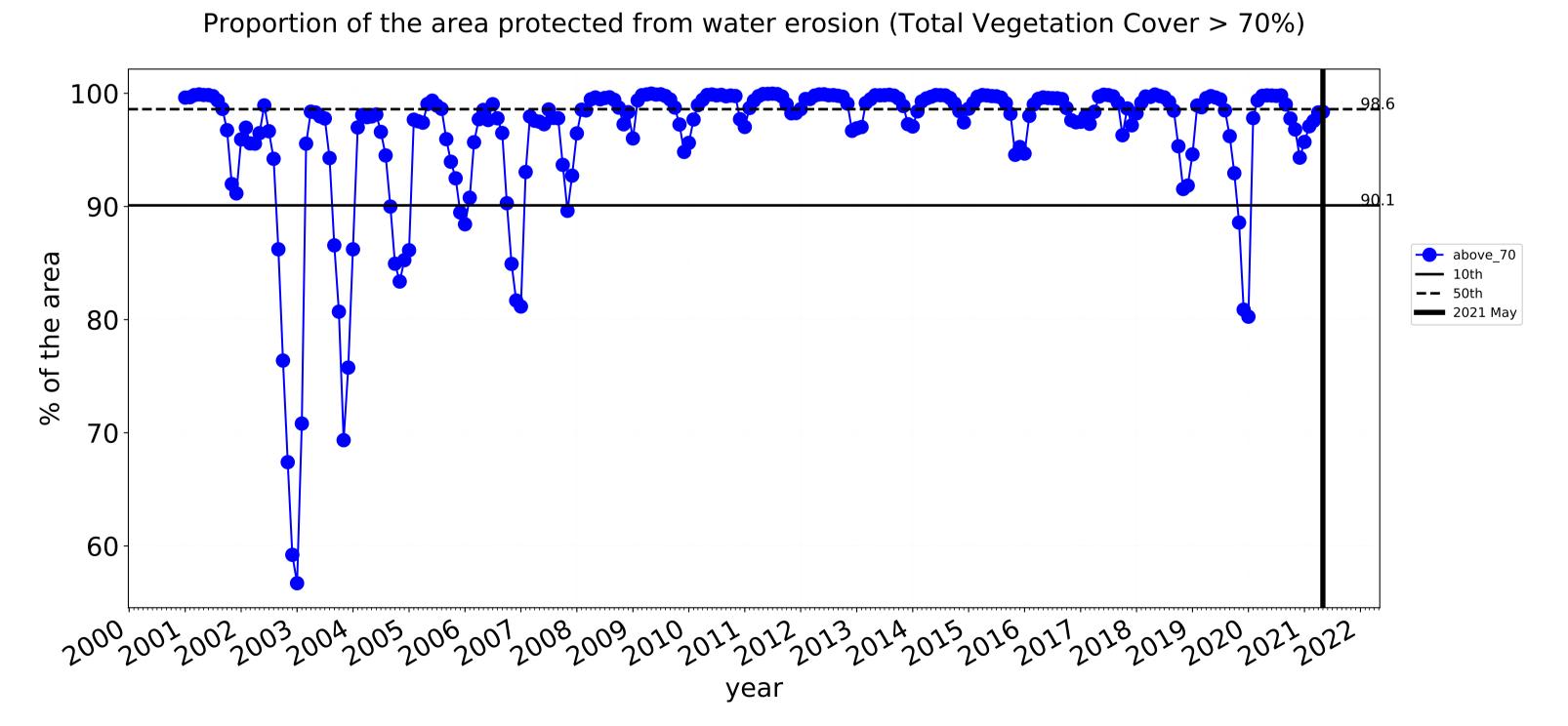


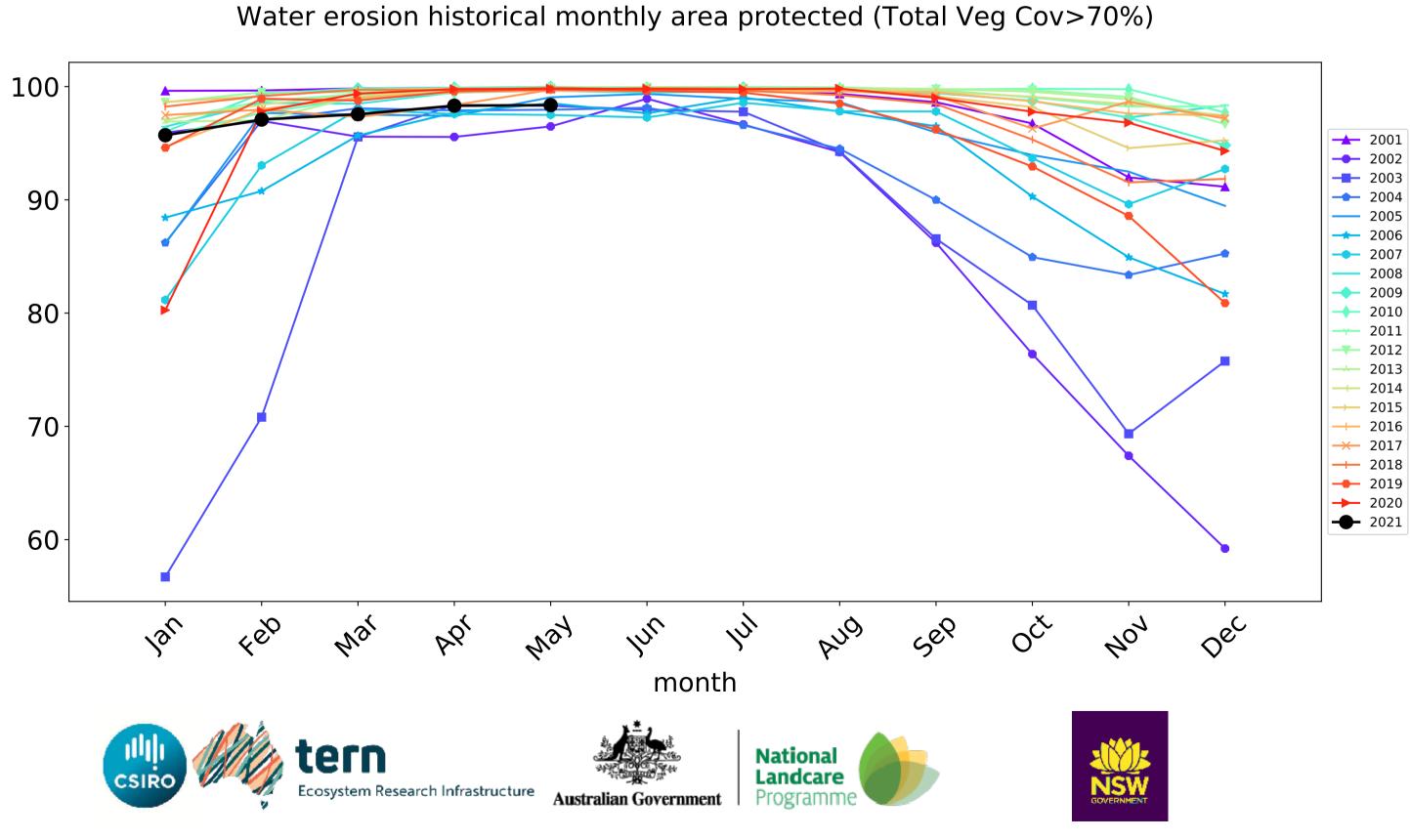


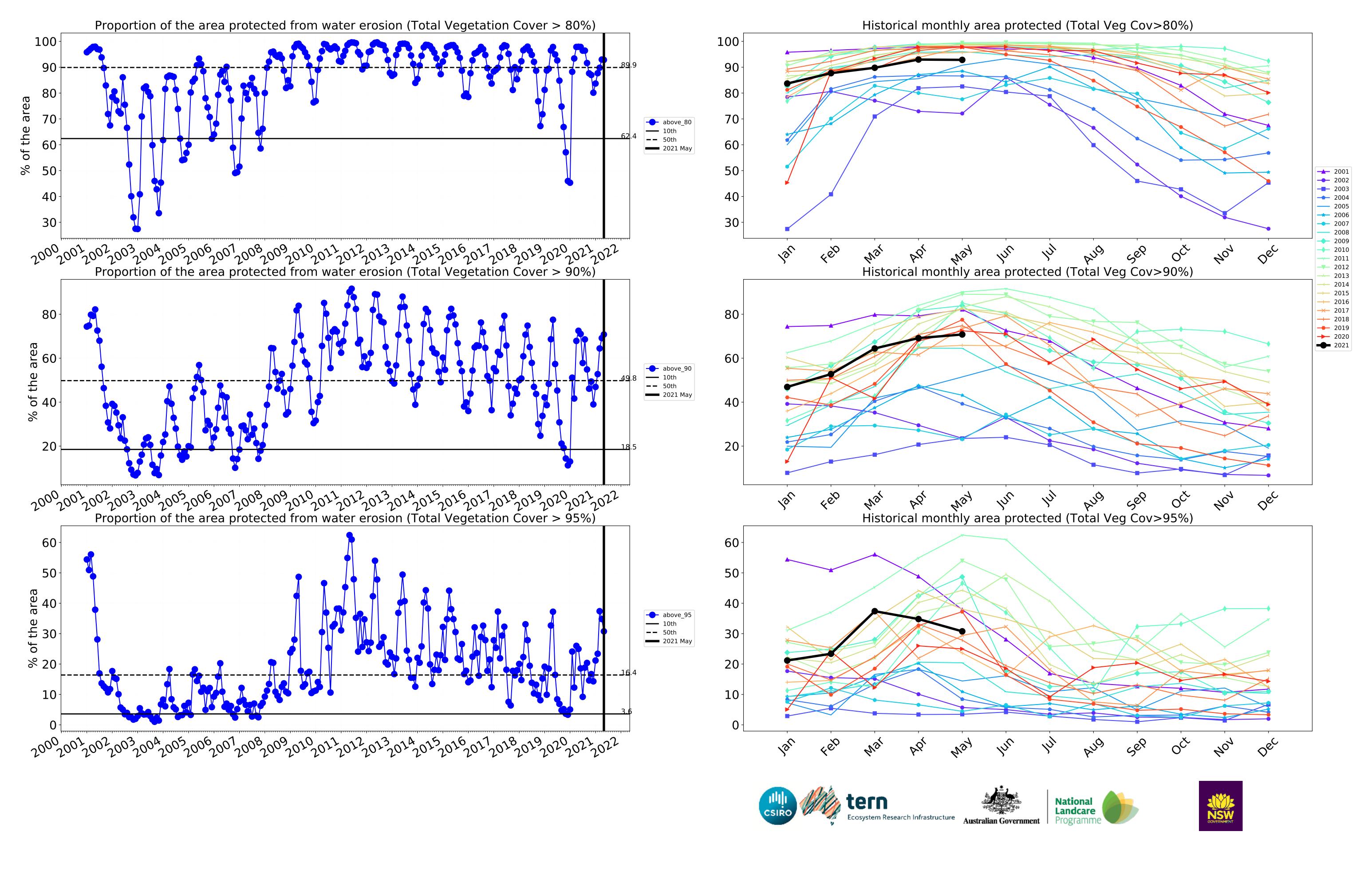
Grazing non forest timeseries











Grazing Woodland forest

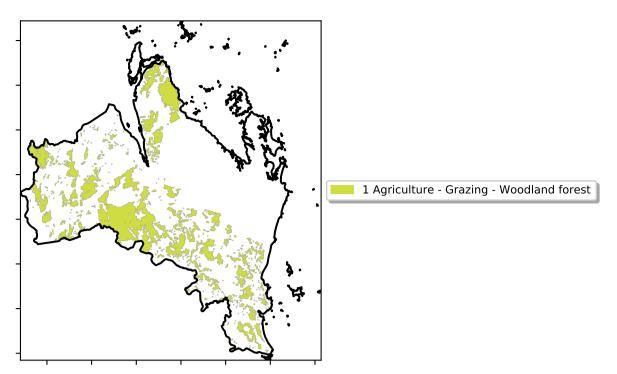
Land use and forest cover

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

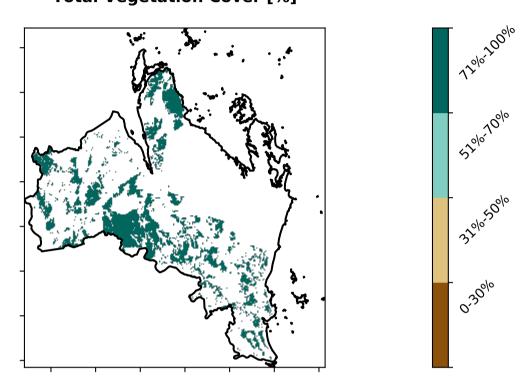
Anomaly show how many percetage points each

pinel is from the mean. That is, red pixels are about 20% lower than the mean of that

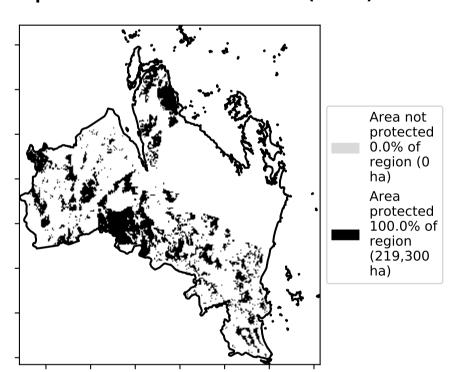
pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



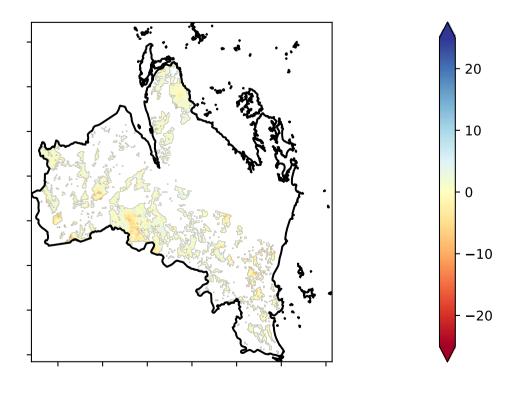
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

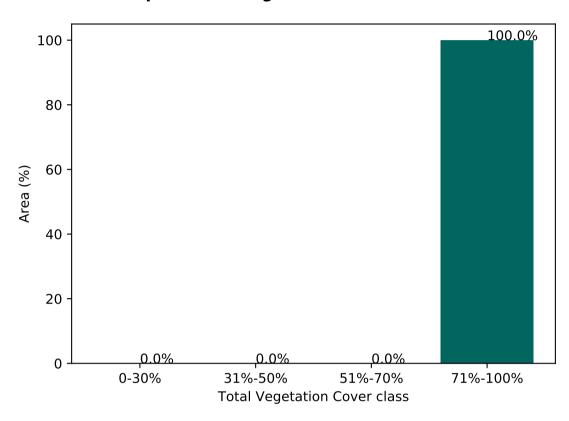


Total Vegetation Cover Anomaly [%]

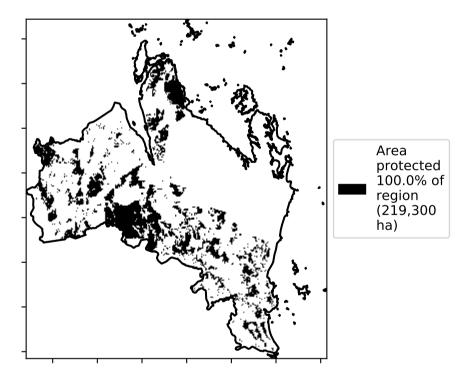


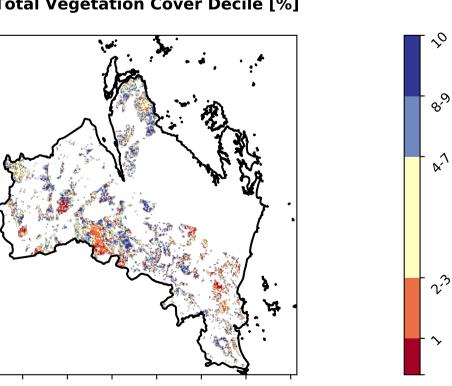
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









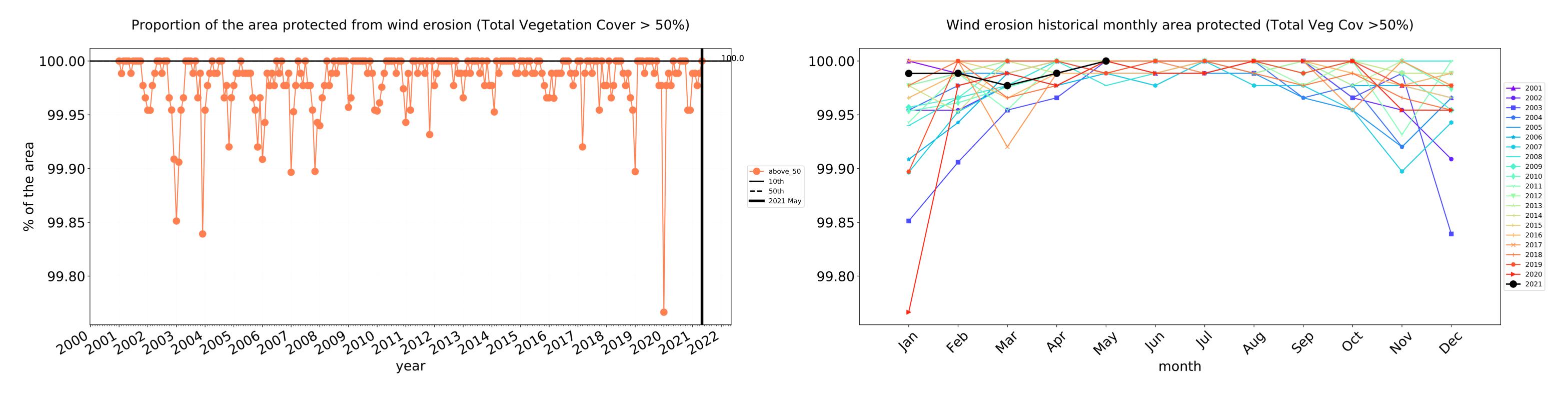


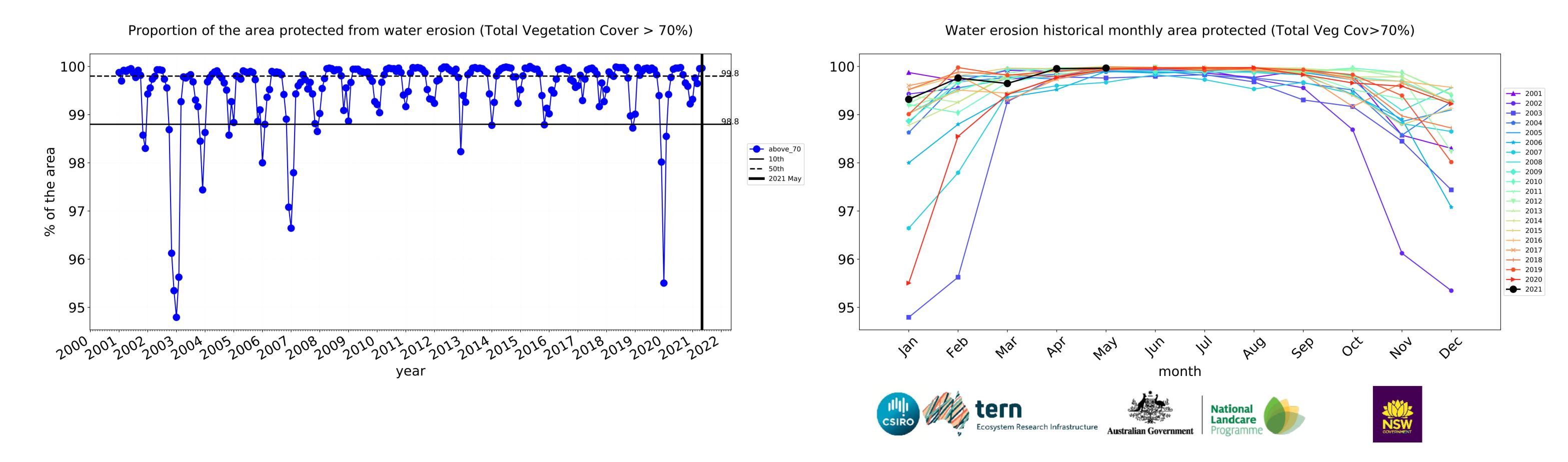


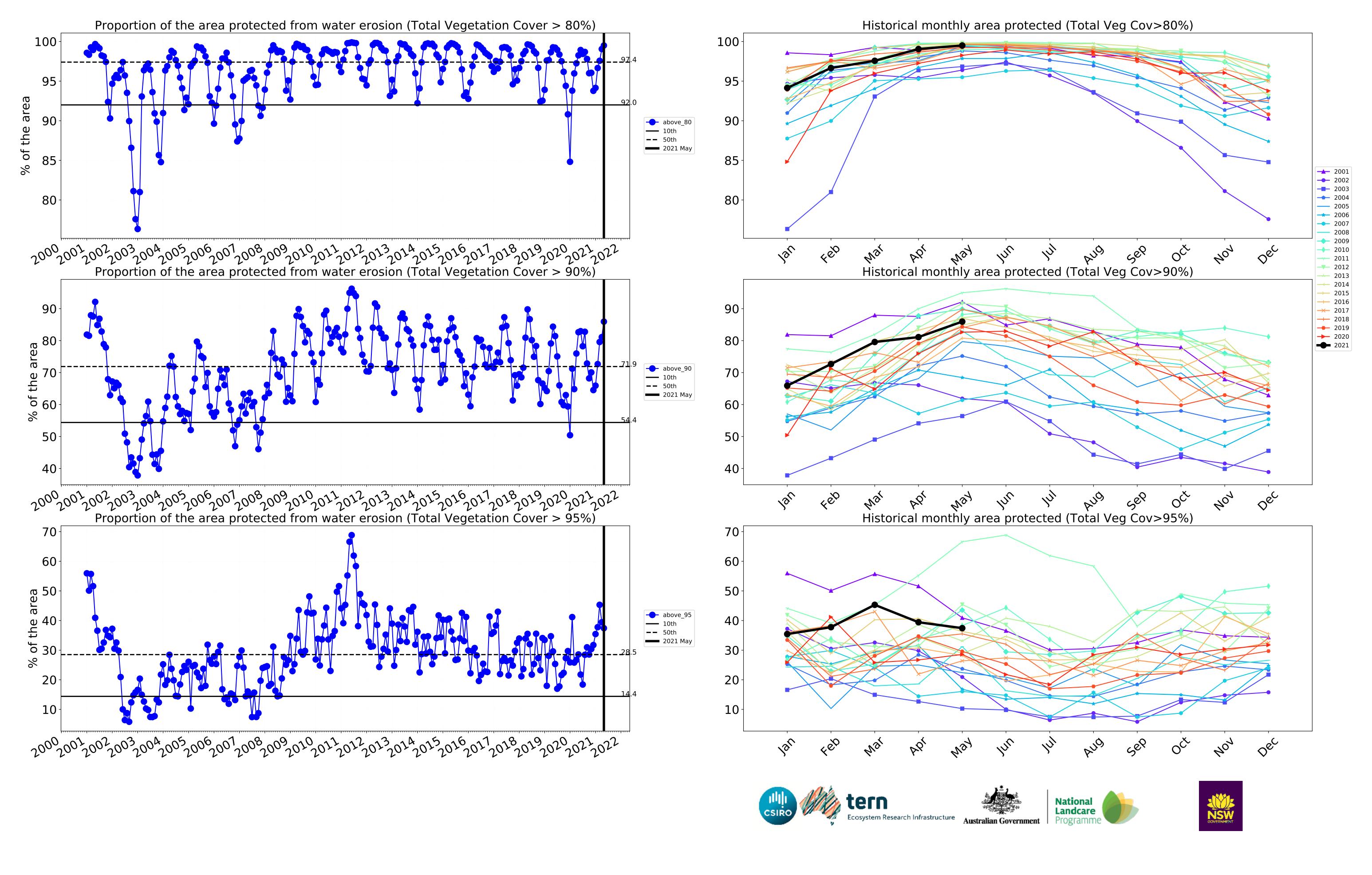




Grazing Woodland forest timeseries







Grazing - Forest (non woodland)

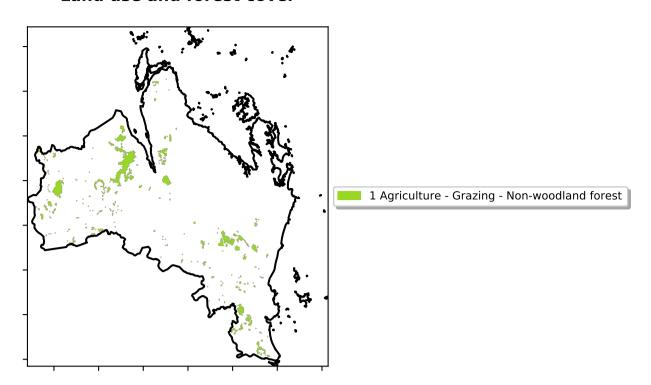
Land use and forest cover

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

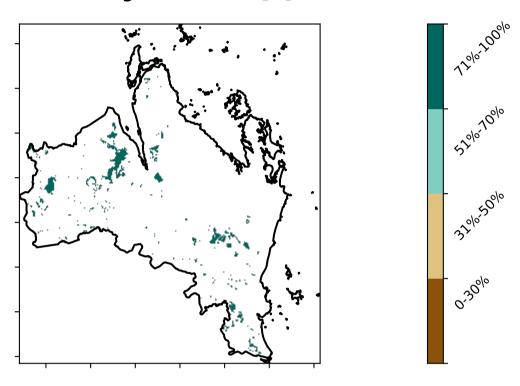
Anomaly show how many percetage points each

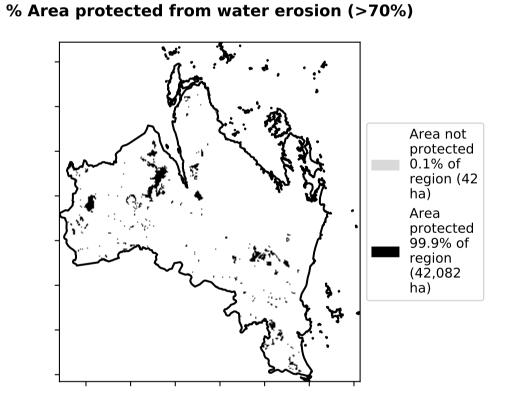
pinel is from the mean. That is, red pixels are about 20% lower than the mean of that

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

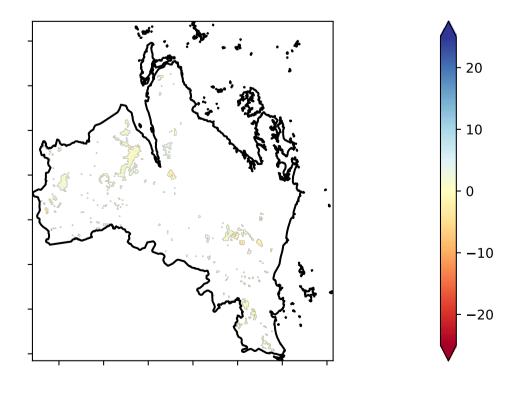


Total Vegetation Cover [%]



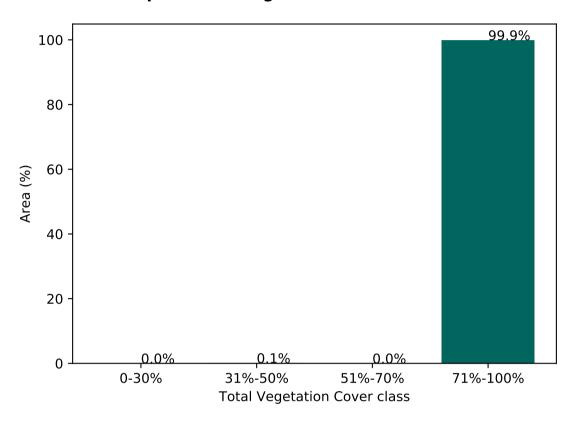


Total Vegetation Cover Anomaly [%]

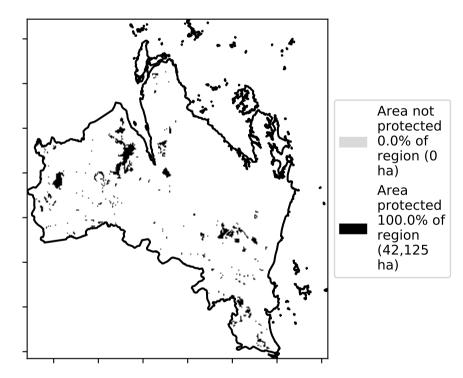


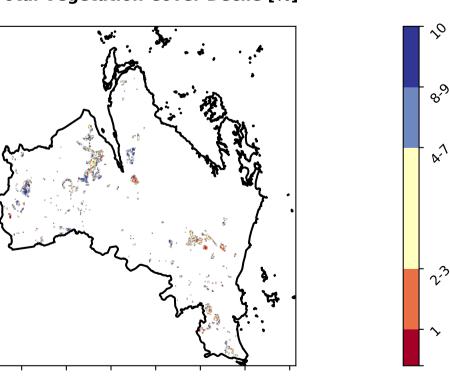
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)







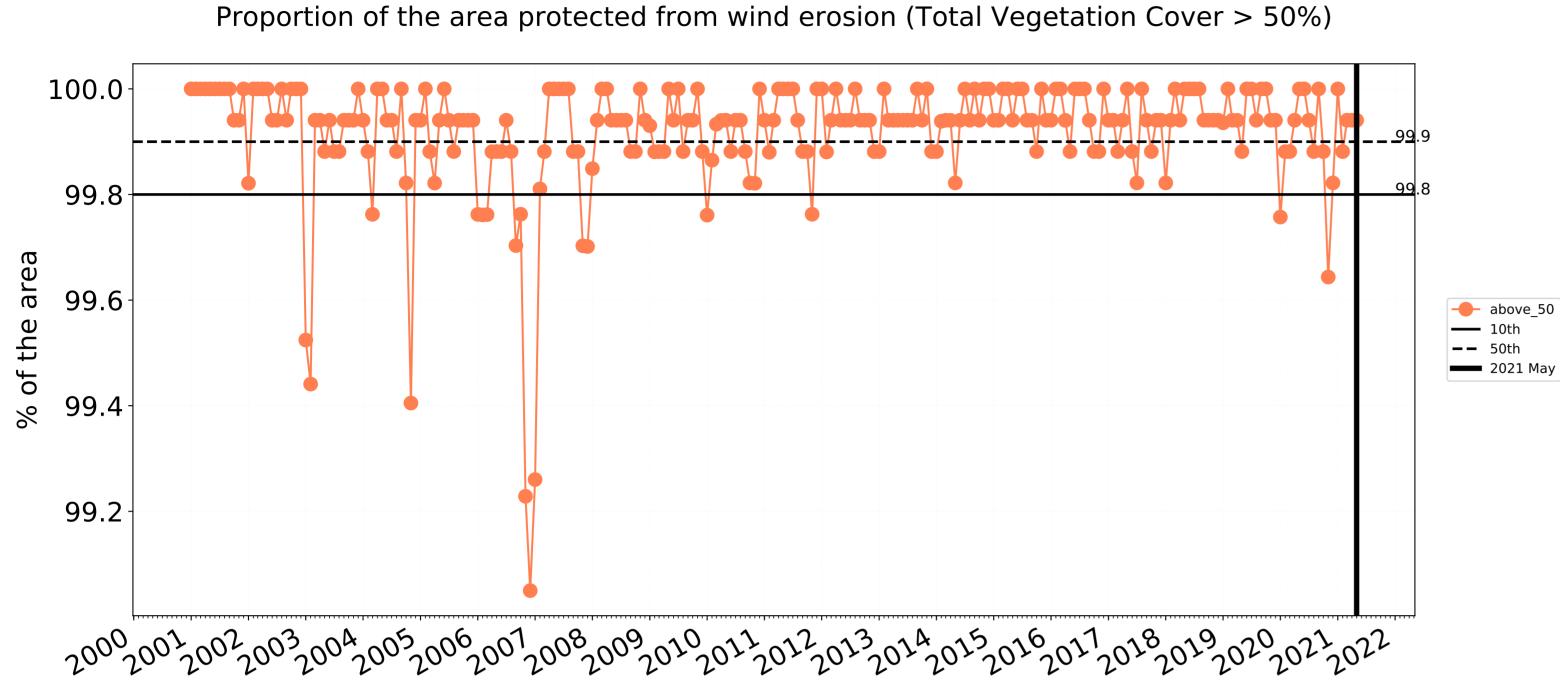


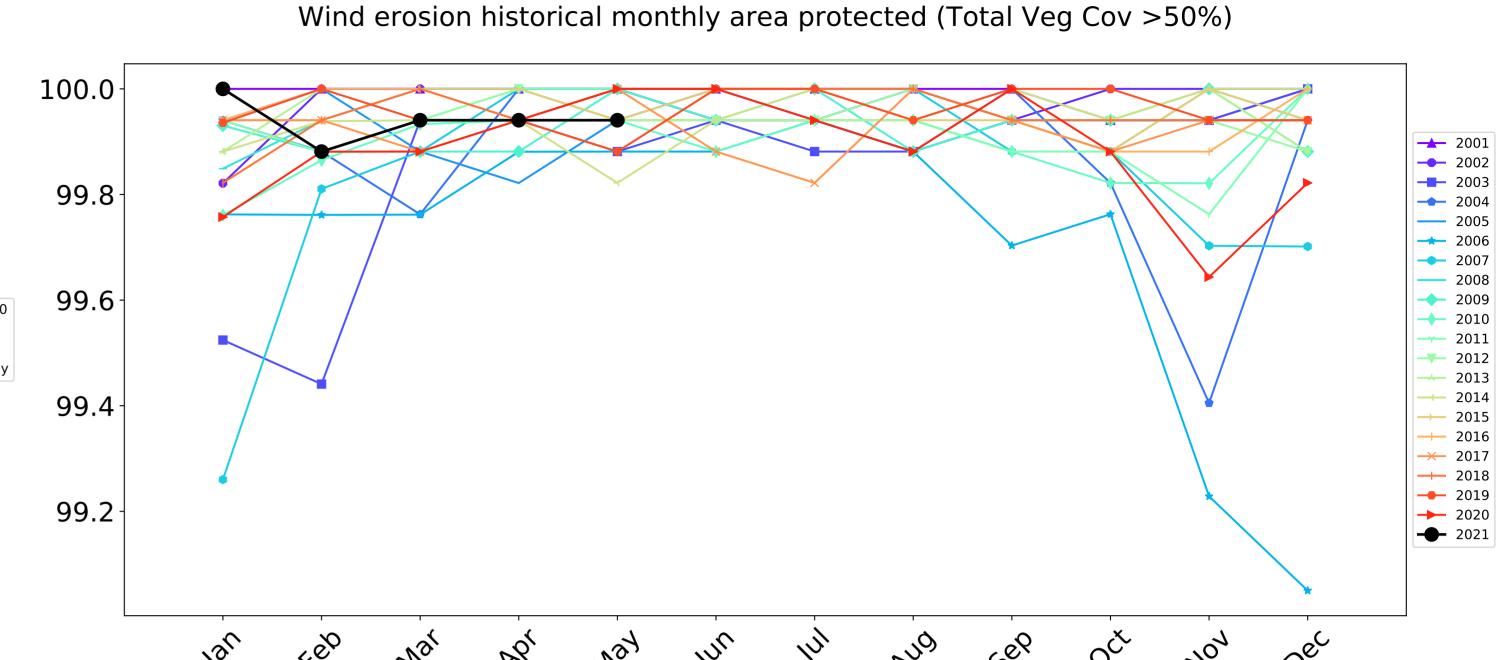




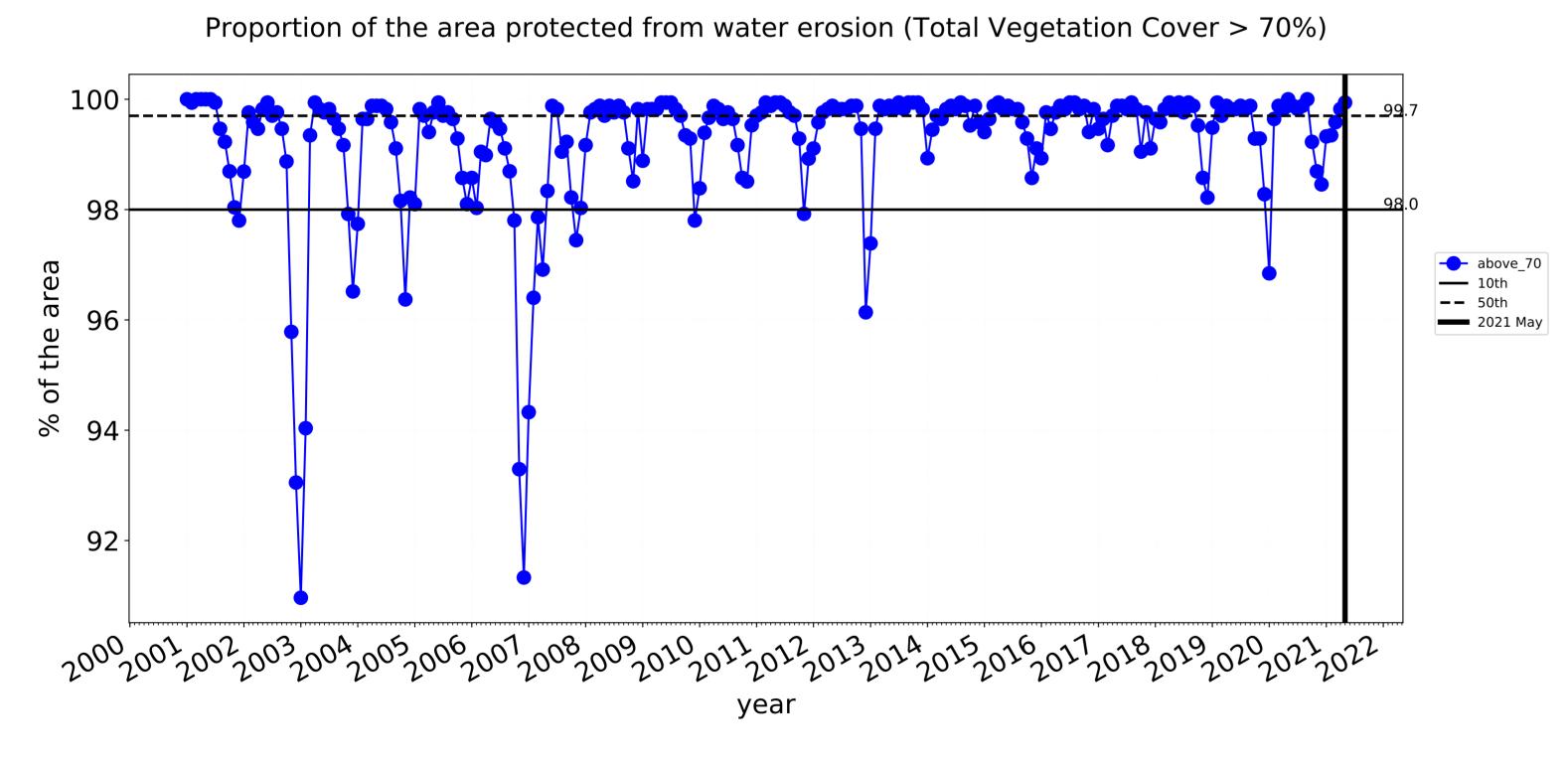


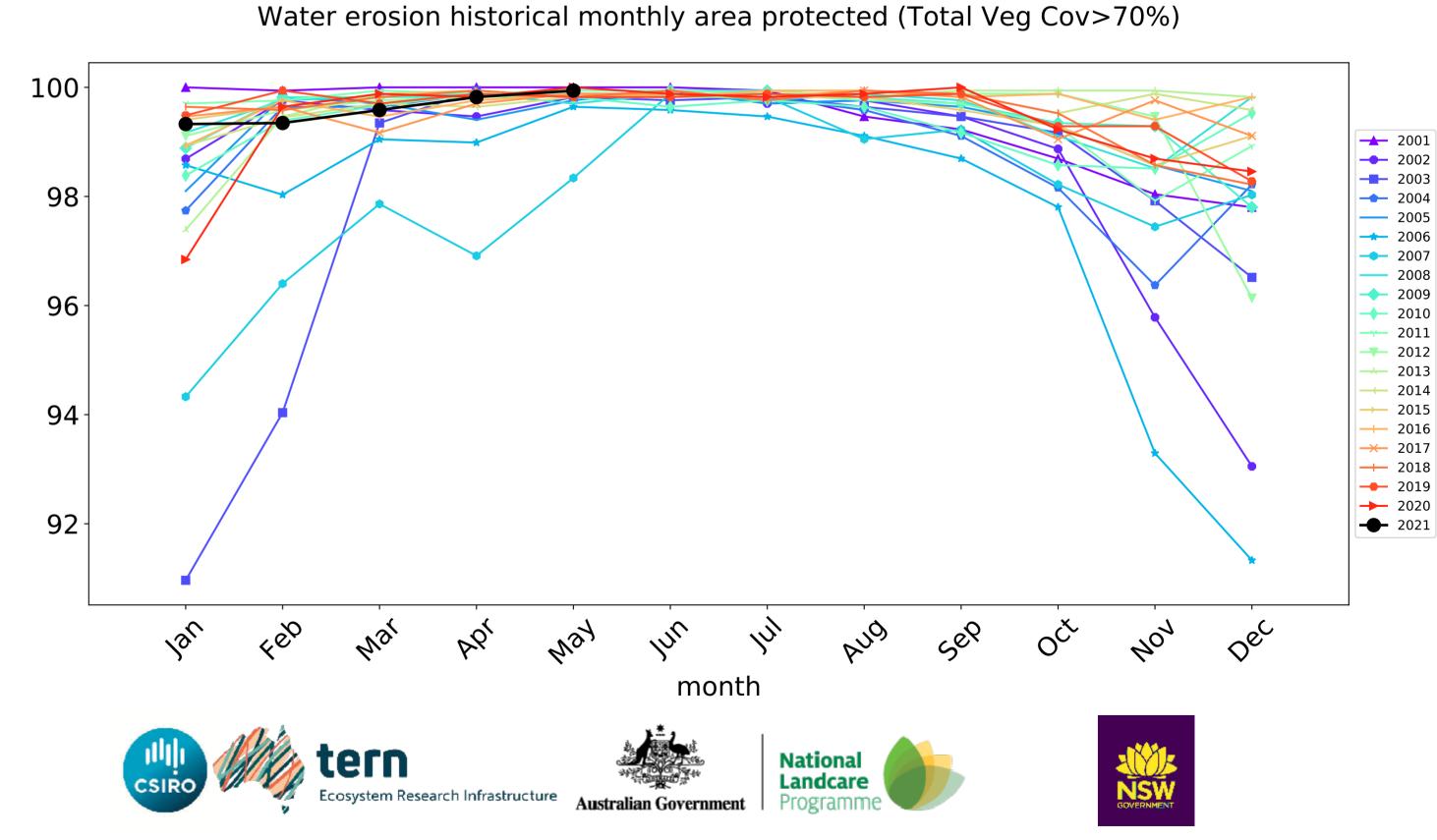


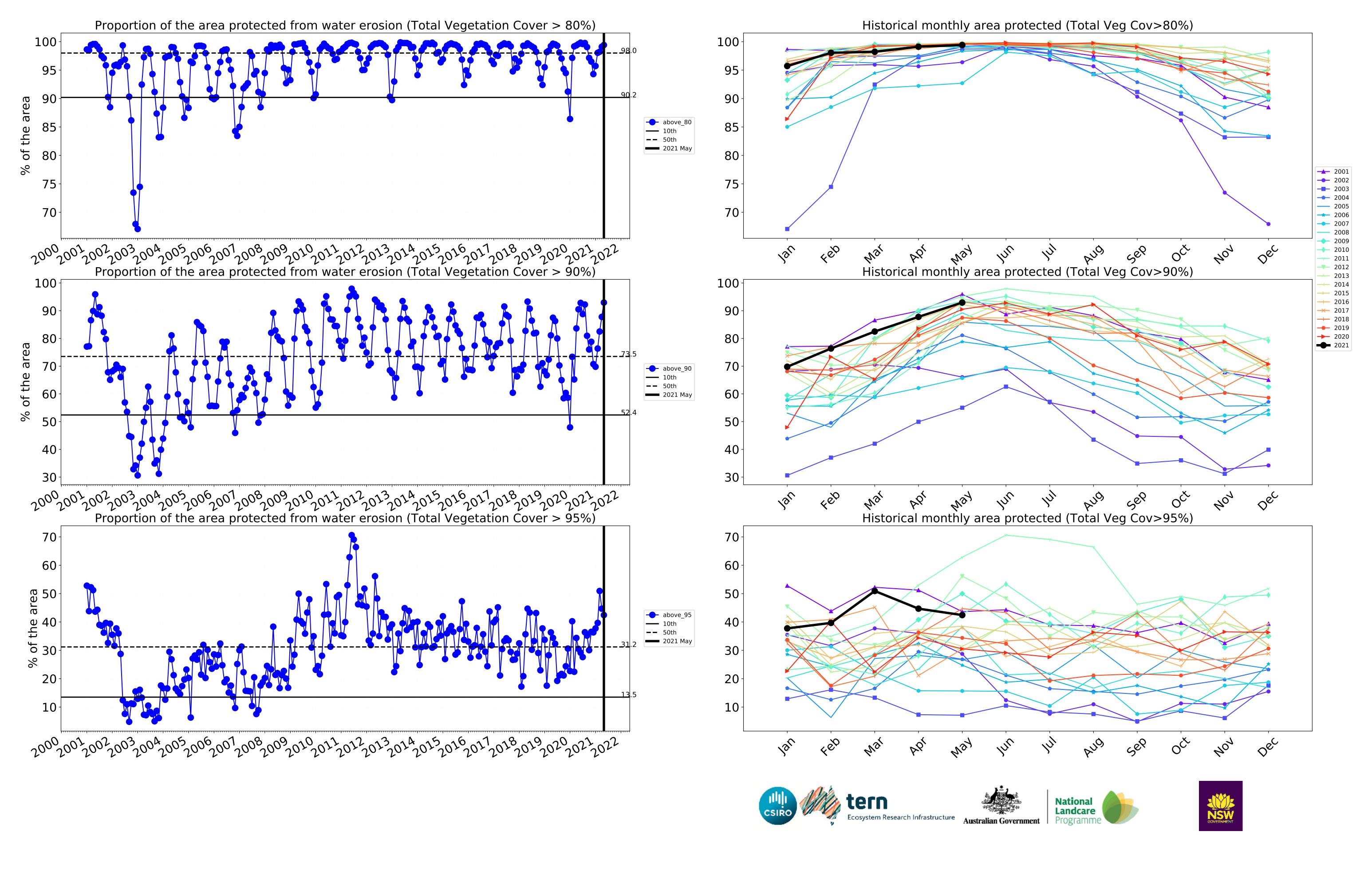




month







Production native forests and plantation forests

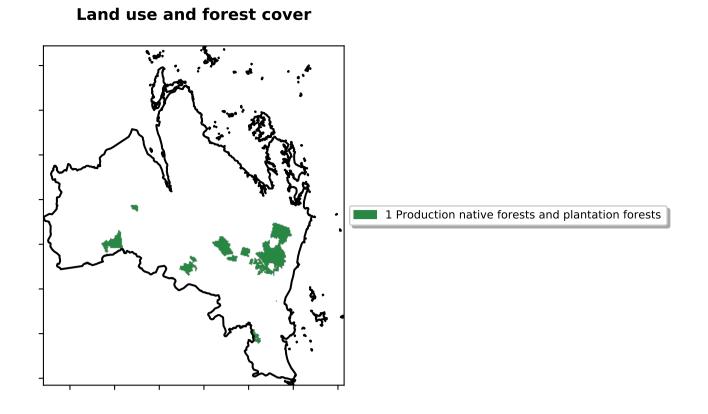
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Anomaly show how many percetage points each

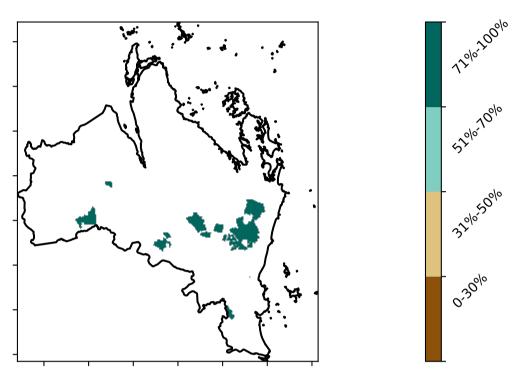
pixel is from the mean. That

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

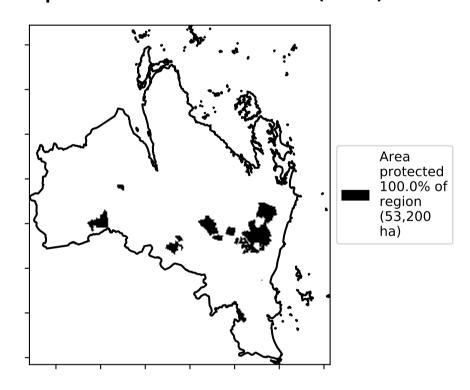
is, red pixels are about 20% lower than the mean of that



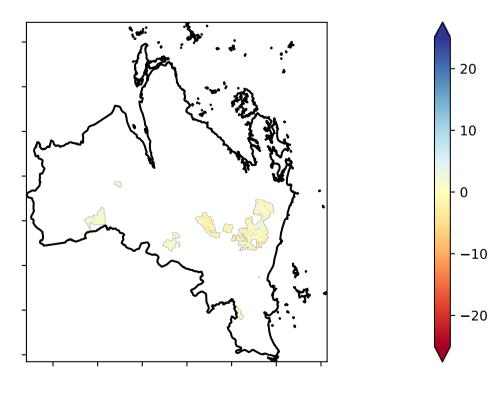
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

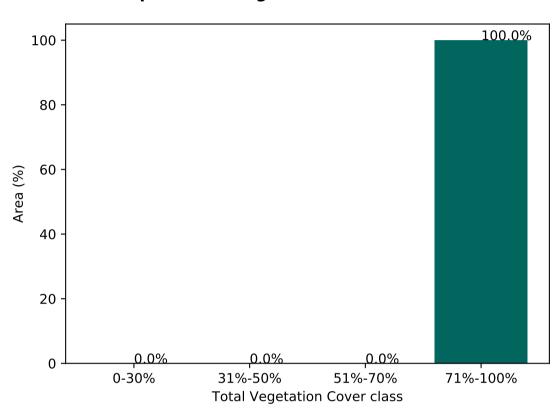


Total Vegetation Cover Anomaly [%]

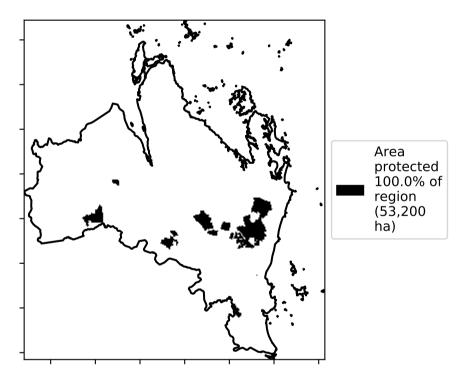


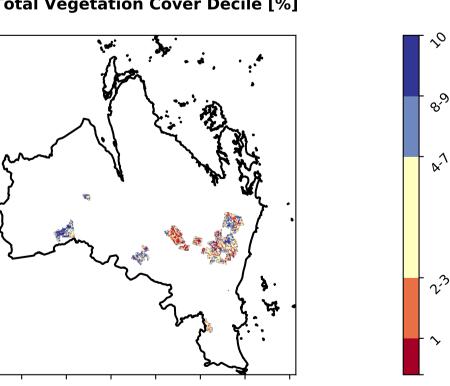
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





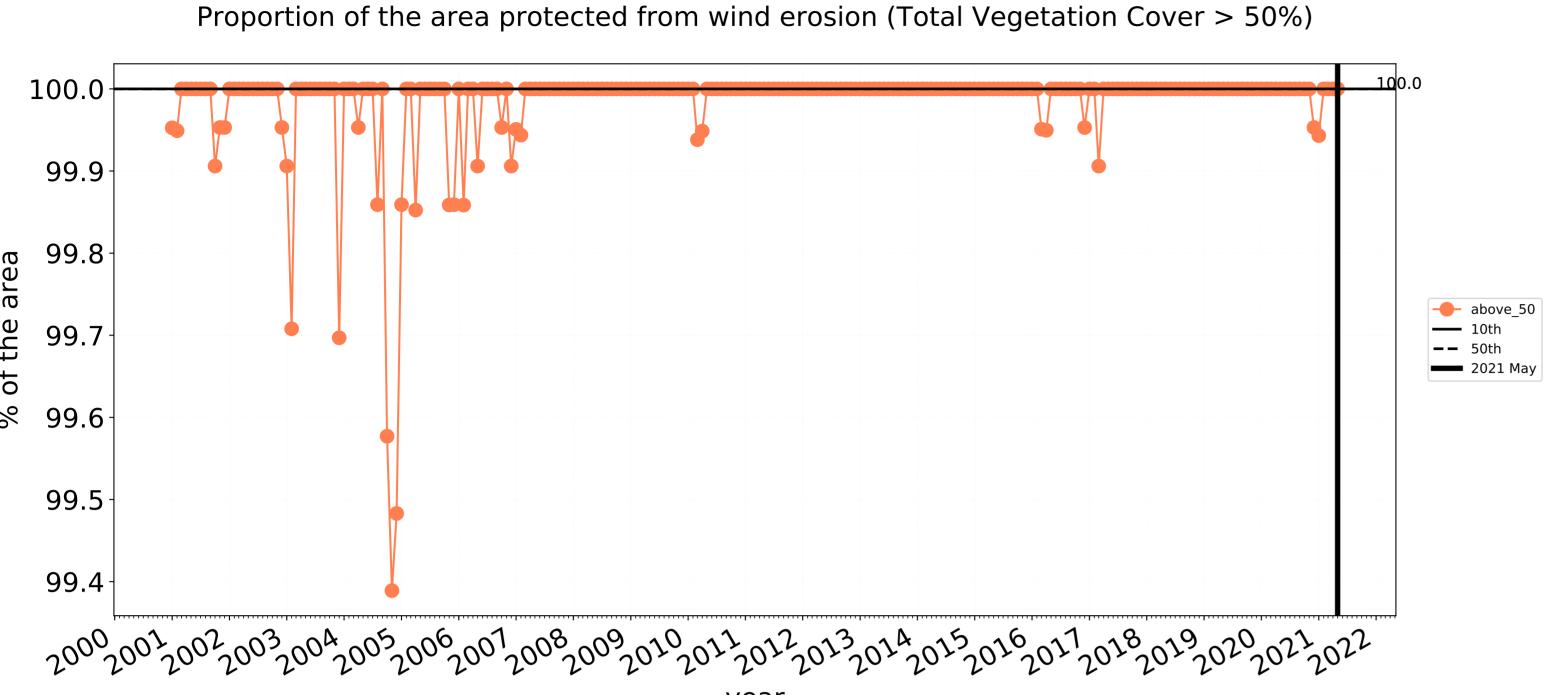


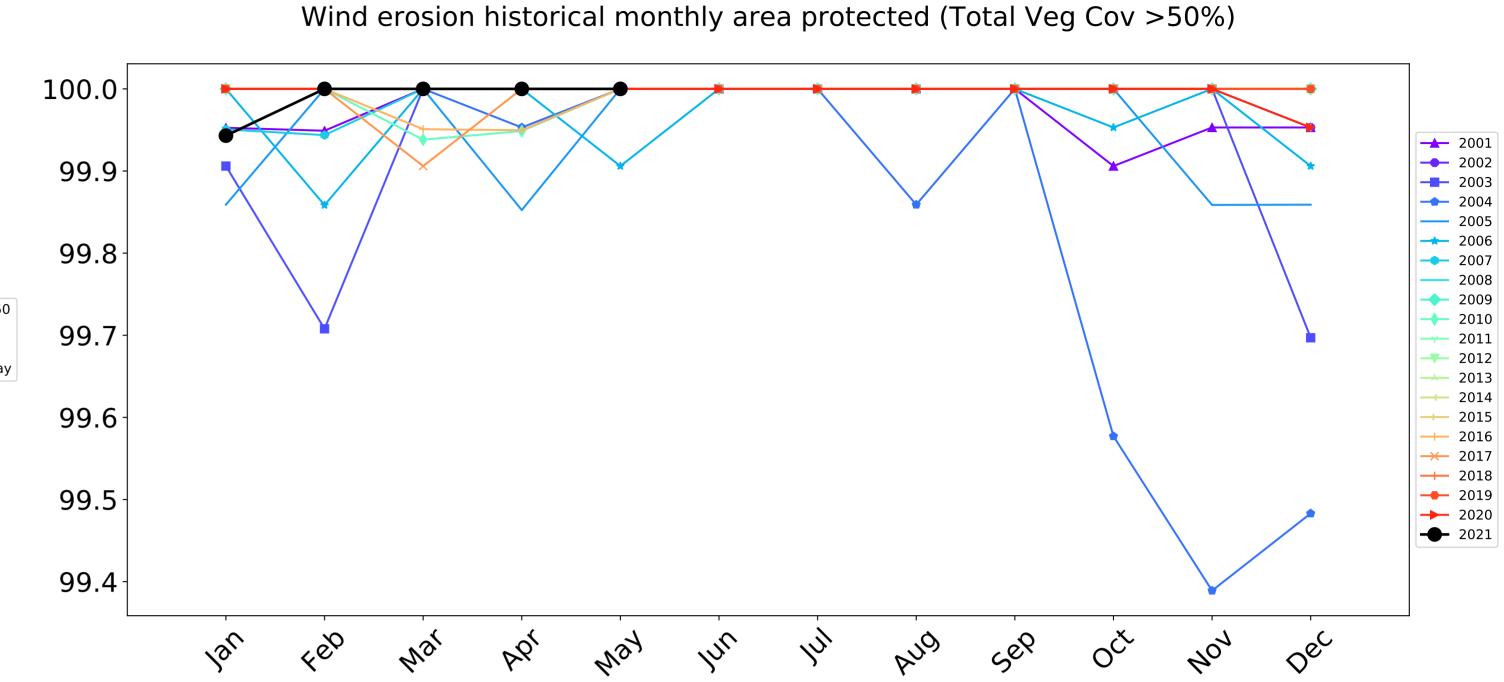




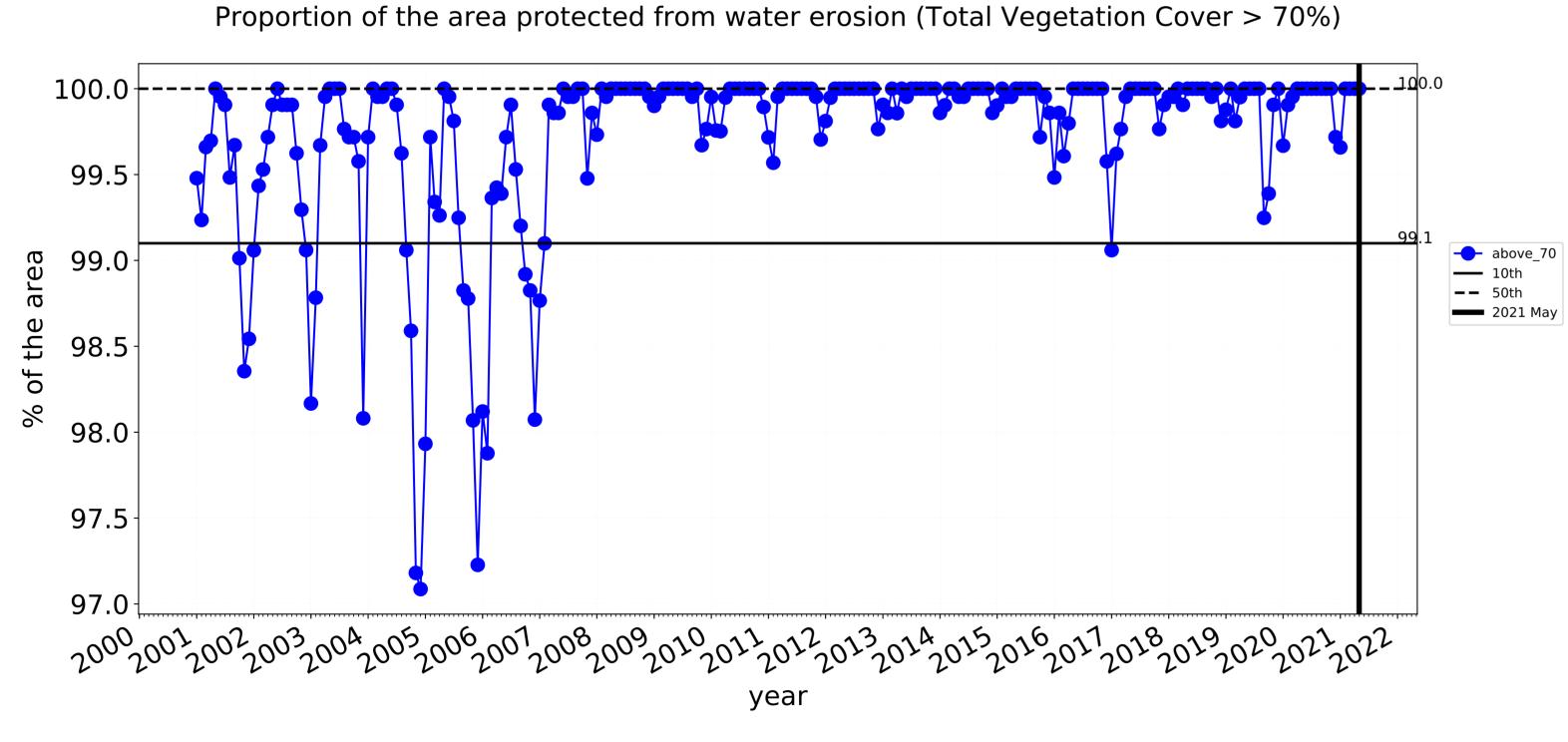


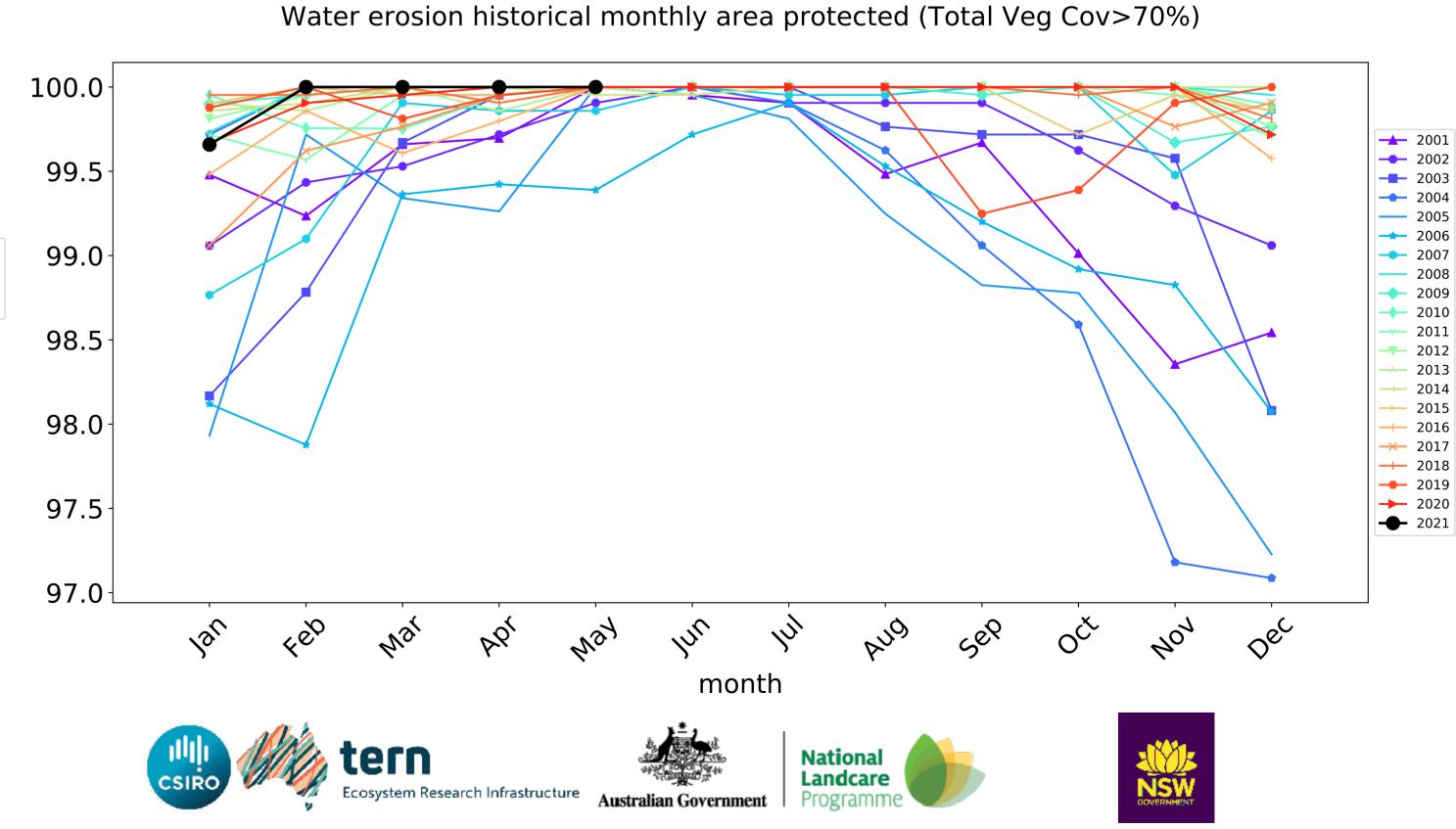
Production native forests and plantation forests timeseries

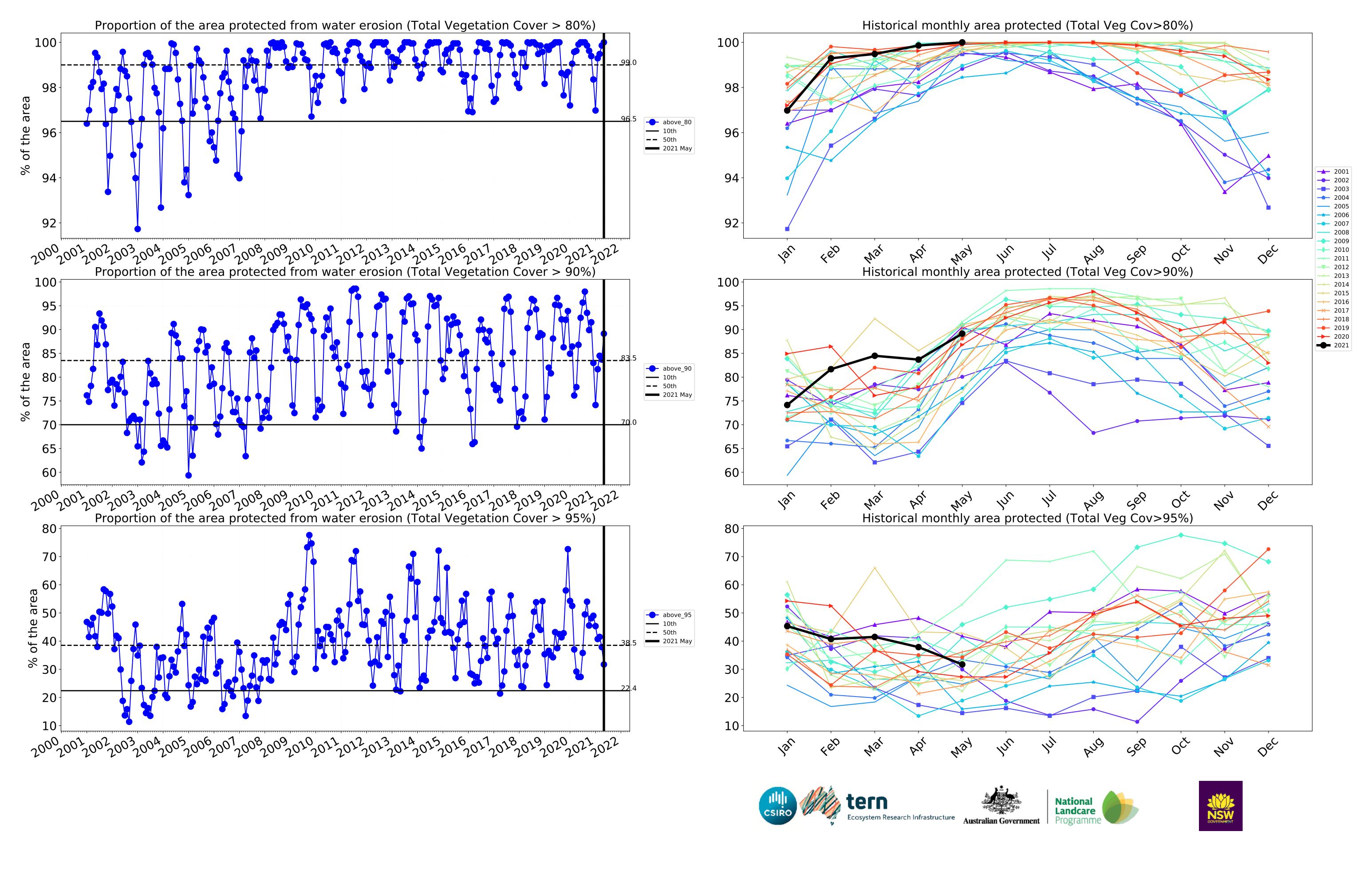




month







Livingstone_(S) (1,155,800 ha and no data 19,660 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	1,155,800	100.0% 1,155,425	99.9% 1,154,525	98.6% 1,139,200	94.6% 1,092,825	77.6% 897,275	35.7% 412,800
Conservation and natural environments	335,450	99.9% 335,250	99.8% 334,650	98.6% 330,800	95.9% 321,825	86.3% 289,375	46.1% 154,675
Conservation and natural environments non forest	11,700	99.1% 11,600	97.0% 11,350	89.5% 10,475	79.5% 9,300	55.6% 6,500	34.8% 4,075
Conservation and natural environments Woodland forest	212,450	100.0% 212,375	99.9% 212,250	99.5% 211,450	98.7% 209,625	91.5% 194,300	53.1% 112,825
Conservation and natural environments Forest (non woodland)	111,300	100.0% 111,275	99.8% 111,050	97.8% 108,875	92.5% 102,900	79.6% 88,575	33.9% 37,775
Agriculture	679,175	100.0% 679,150	100.0% 679,125	99.0% 672,050	95.3% 647,500	76.8% 521,450	33.5% 227,200
Grazing	673,800	100.0% 673,775	100.0% 673,750	99.0% 666,950	95.4% 642,925	77.1% 519,600	33.7% 226,825
Grazing non forest	412,375	100.0% 412,350	100.0% 412,350	98.4% 405,625	92.8% 382,850	70.8% 291,950	30.8% 126,875
Grazing Woodland forest	219,300	100.0% 219,300	100.0% 219,300	100.0% 219,225	99.5% 218,200	86.0% 188,500	37.4% 82,075
Grazing - Forest (non woodland)	42,125	100.0% 42,125	99.9% 42,100	99.9% 42,100	99.4% 41,875	92.9% 39,150	42.4% 17,875
Production native forests and plantation forests	53,200	100.0% 53,200	100.0% 53,200	100.0% 53,200	100.0% 53,200	89.1% 47,425	31.7% 16,875







