Total vegetation cover soil protection Region:LGA Serpentine-Jarrahdale_(S) WA

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: May 2022

Vegetation Cover May 2022

Land use and forest cover

Catchment Scale

of Australia (2018)

(2018) and Forests

of Australia (2018)

Derived from

pixel is from

is, red pixels

the mean. That

are about 20%

lower than the

mean of that

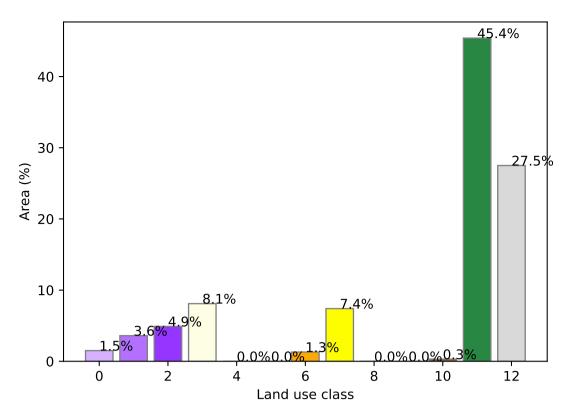
using baseline from 2001 to

2019.

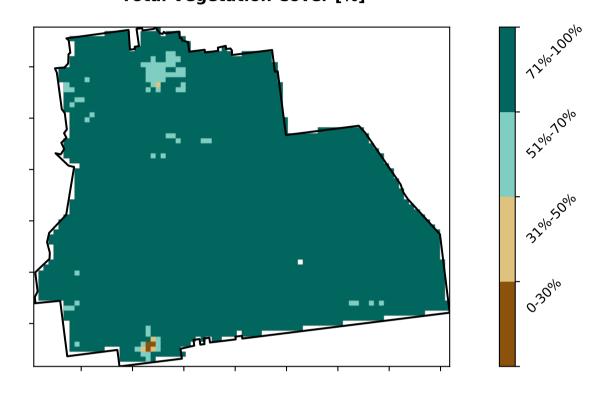
Use of Australia

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

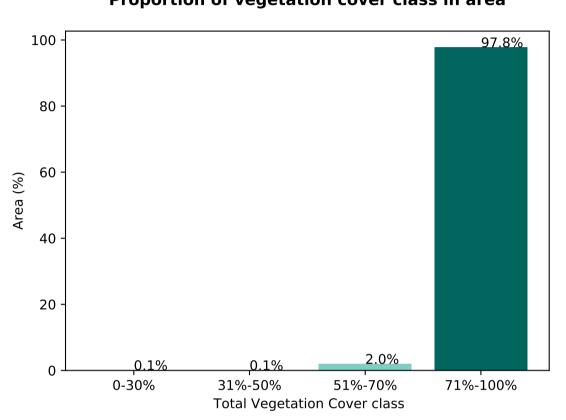
Proportion of each land class in area

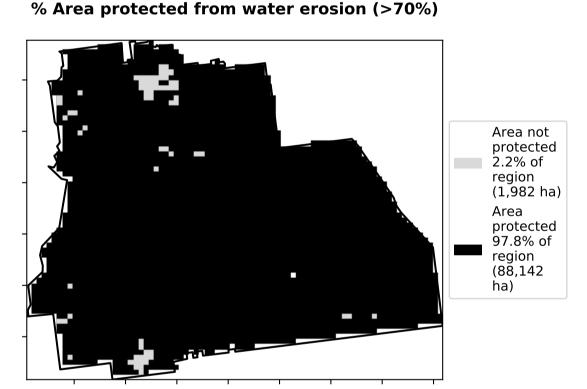


Total Vegetation Cover [%]

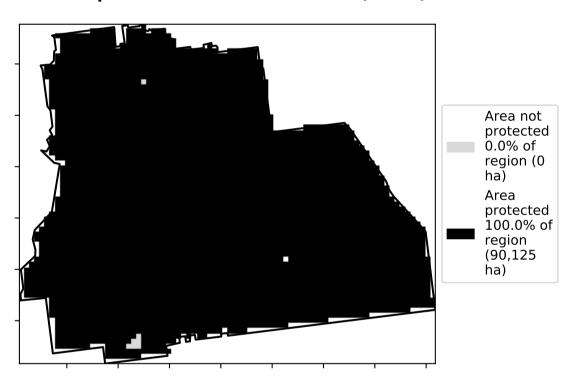


Proportion of vegetation cover class in area

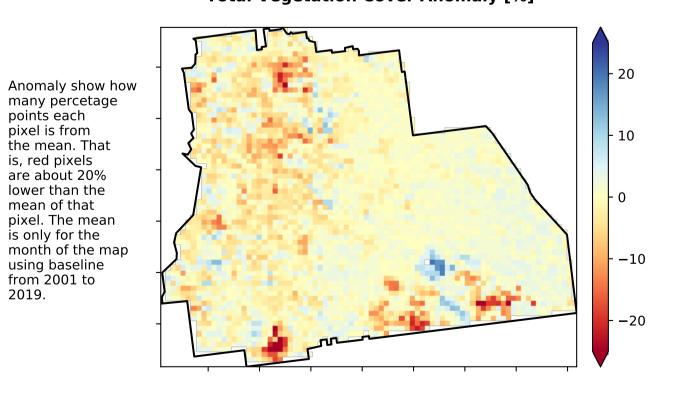




% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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

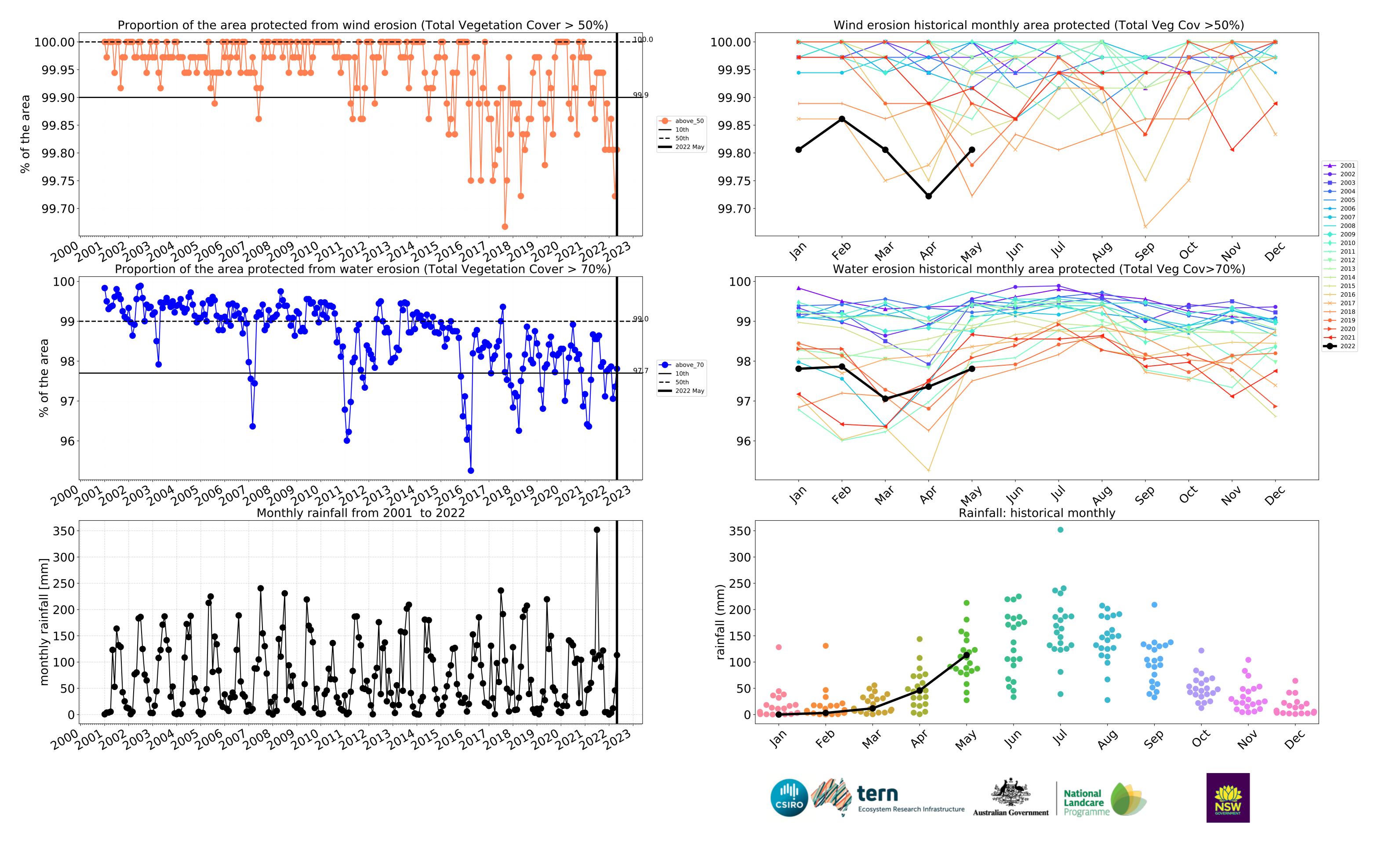
Total Vegetation Cover Decile [%]

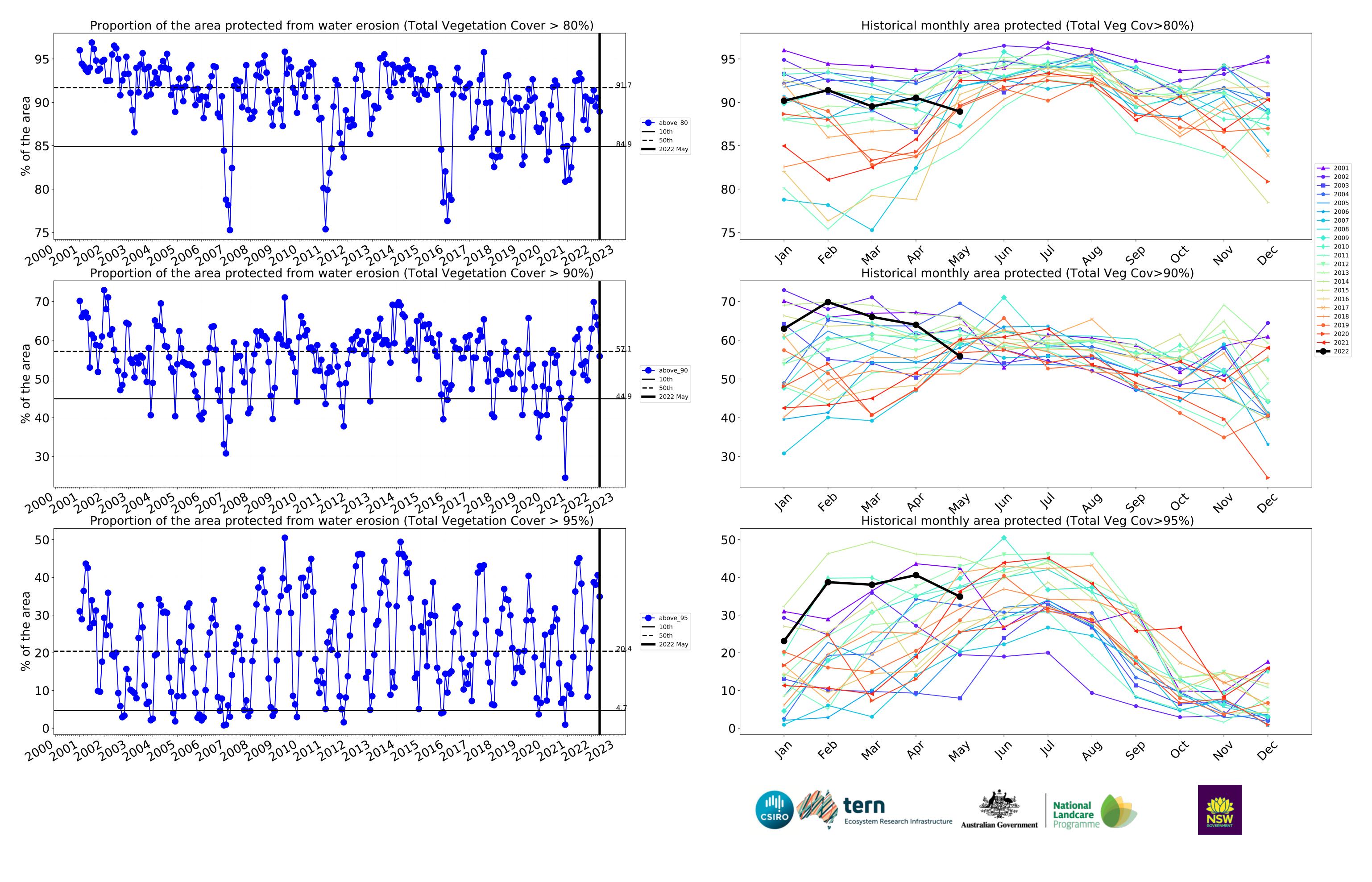
Ecosystem Research Infrastructure







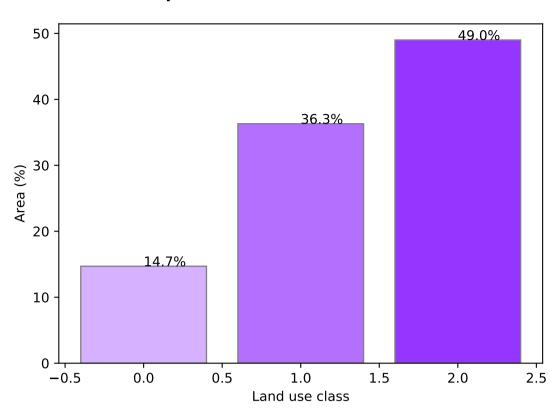




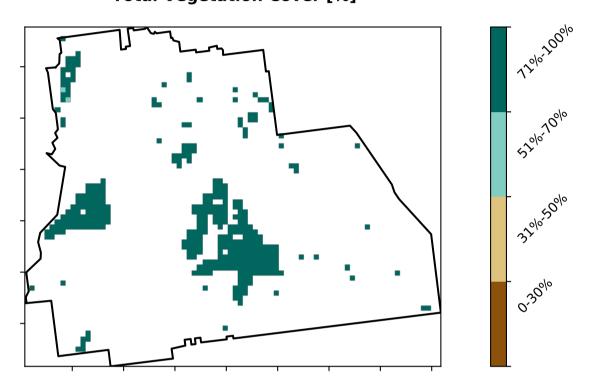
Conservation and natural environments

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

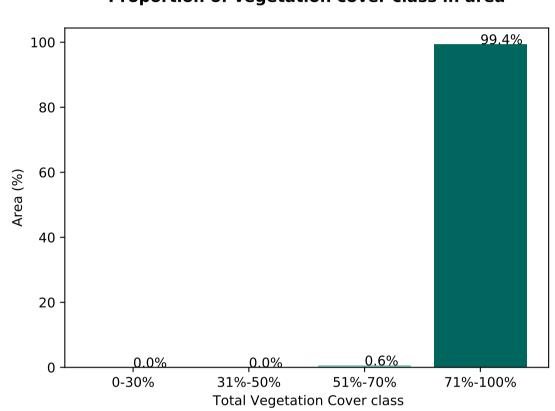
Proportion of each land class in area



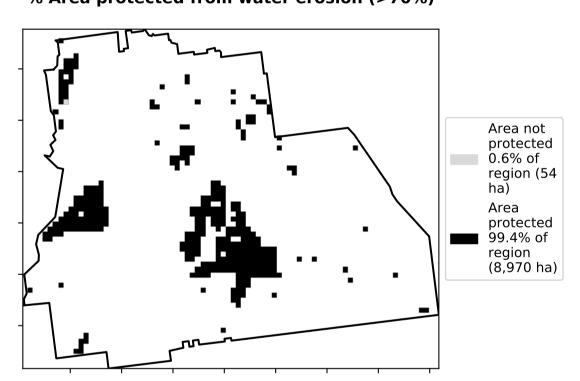
Total Vegetation Cover [%]



Proportion of vegetation cover class in area



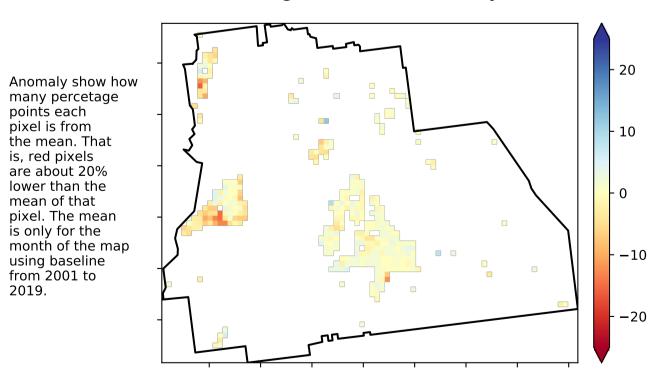
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

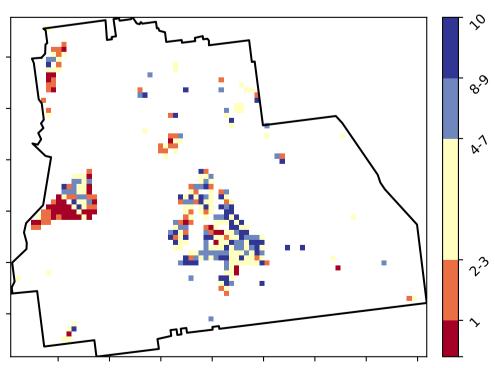


Total Vegetation Cover Anomaly [%]



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 [%]





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.



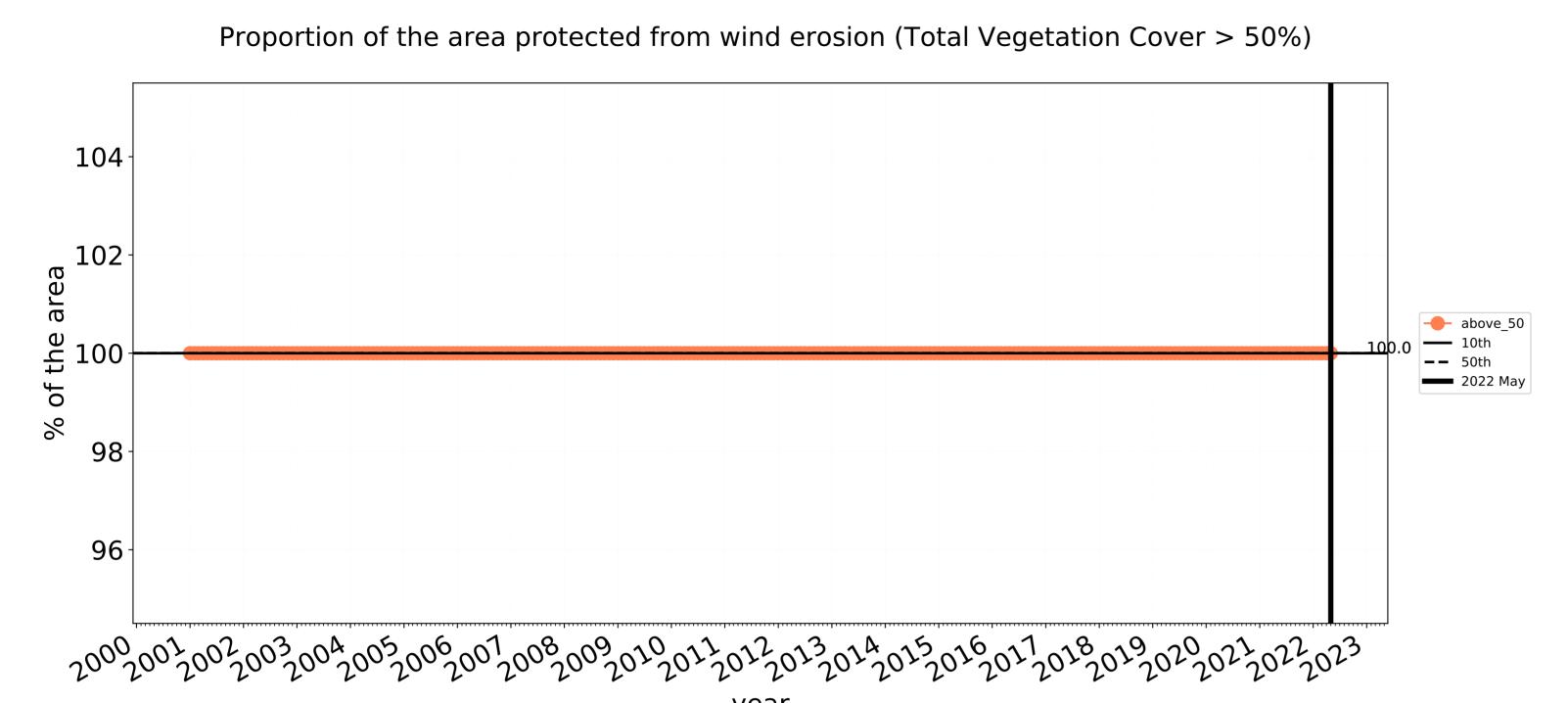




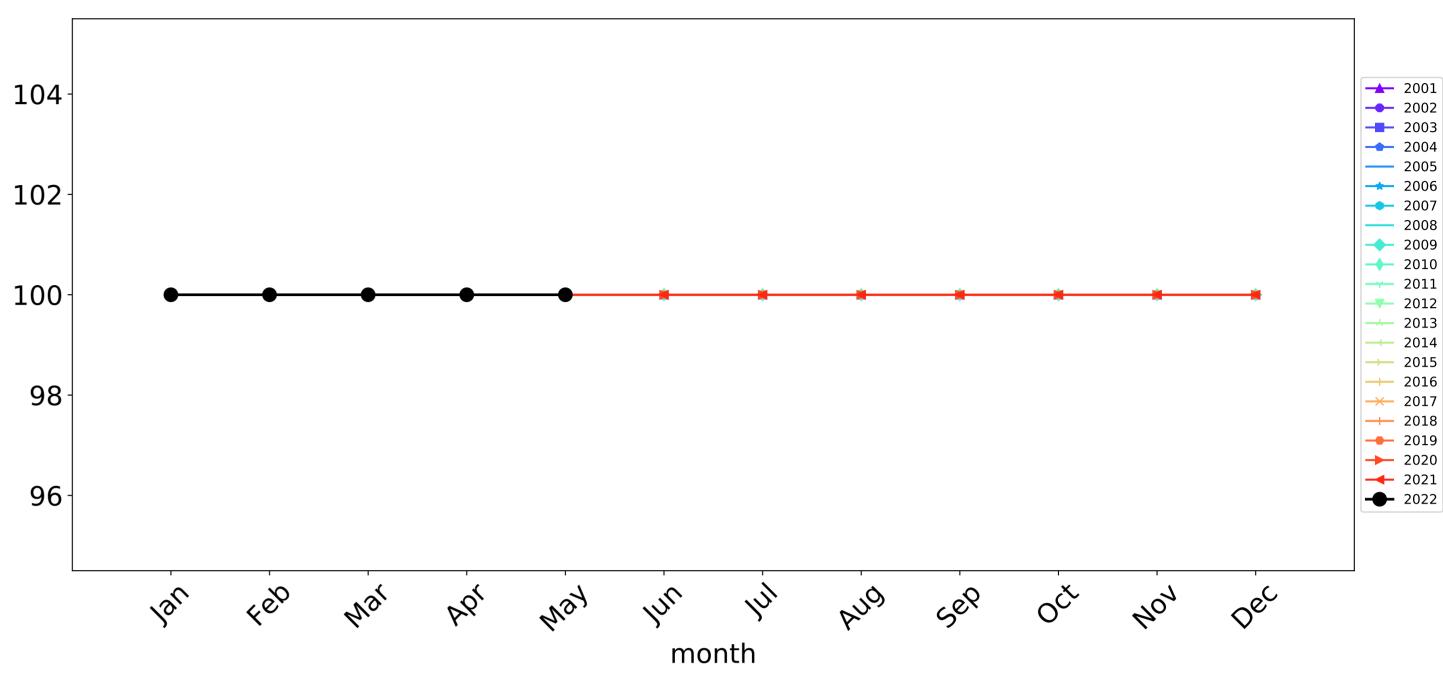


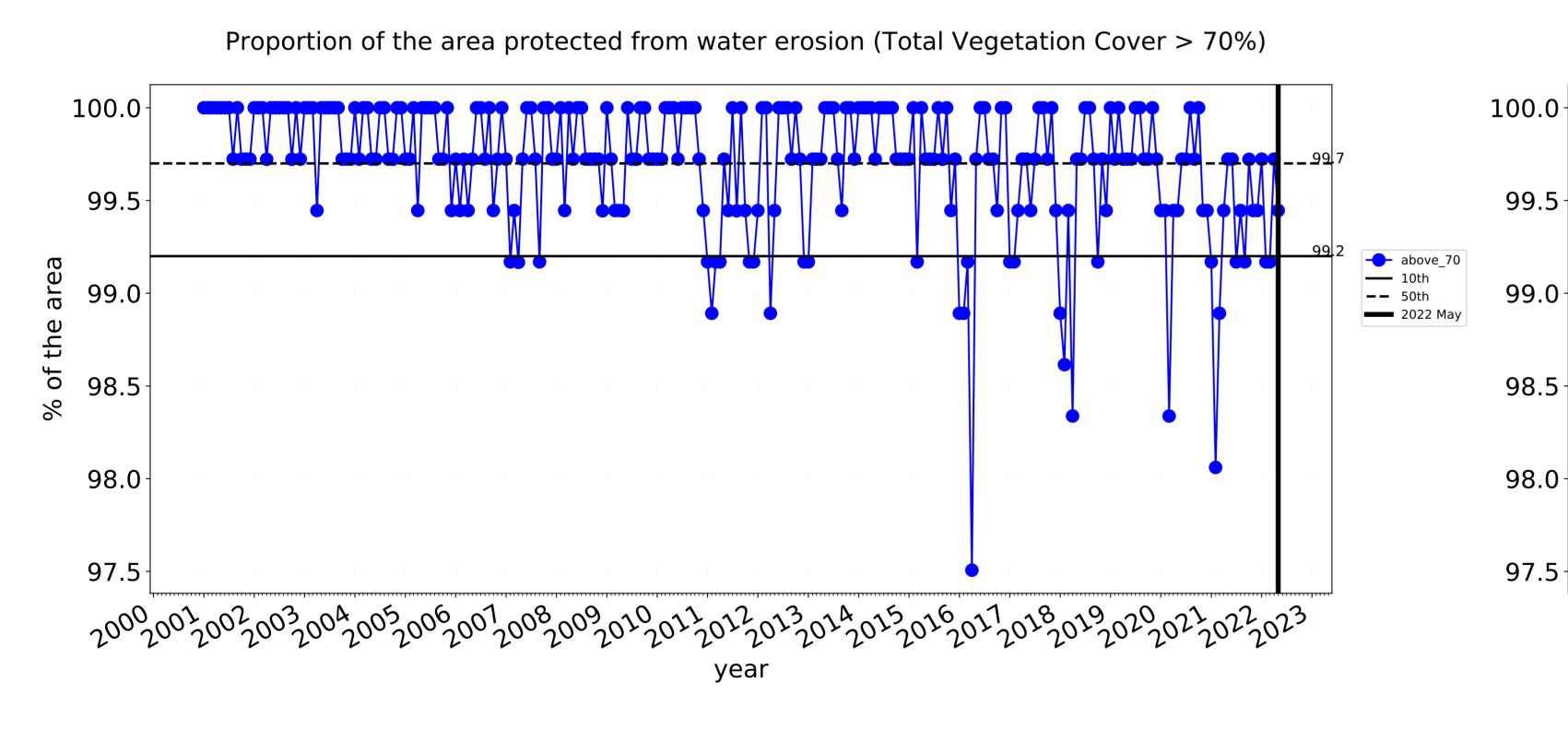


Conservation and natural environments timeseries



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



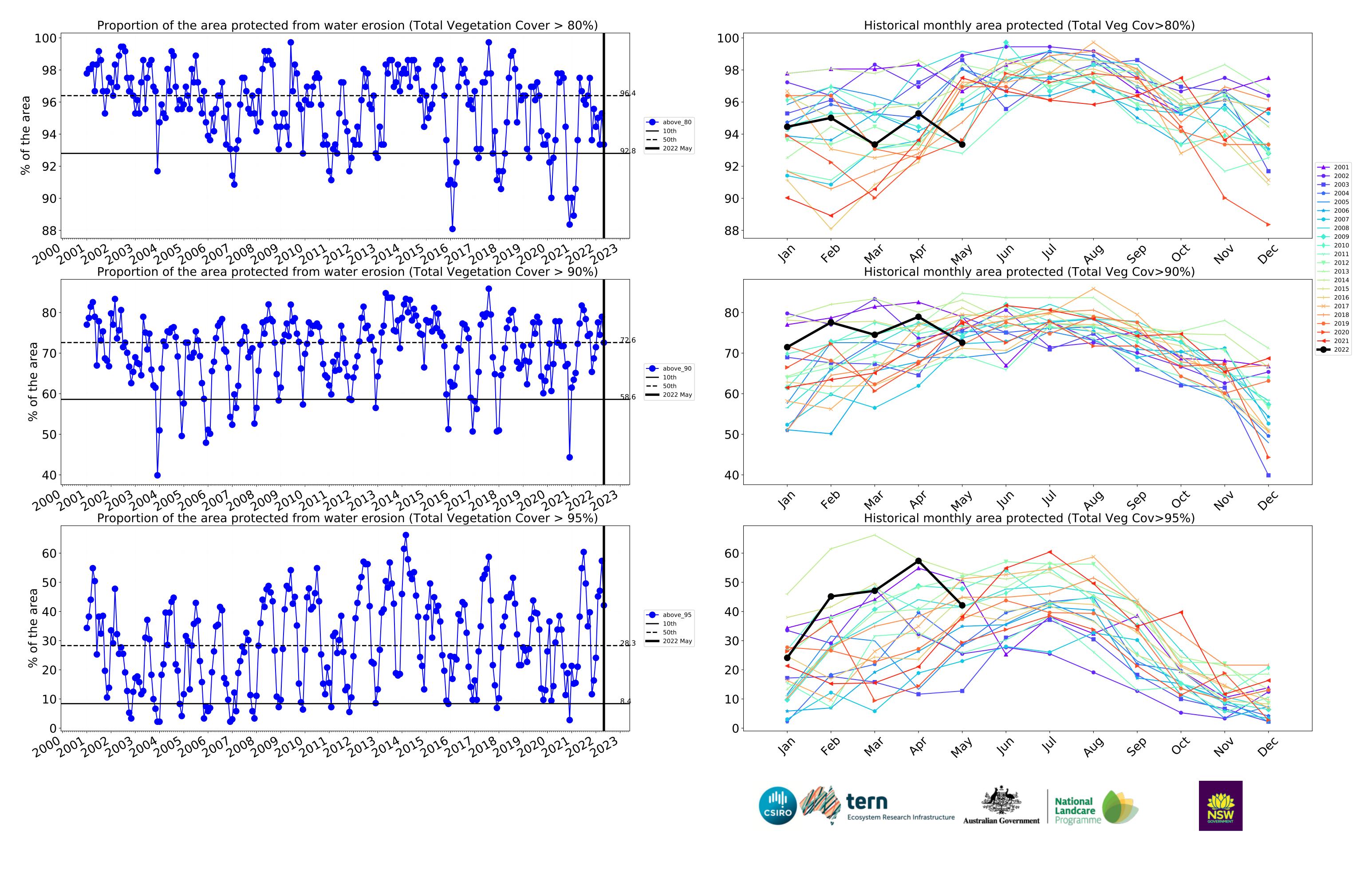


____ 2001 2003 ____ 2005 → 2006 2007 2008 2009 → 2010 --- 2011 2013 **─** 2014 **→** 2015 × 2017 **─** 2018 2019 → 2020 **2021 ---** 2022

month

National Landcare

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

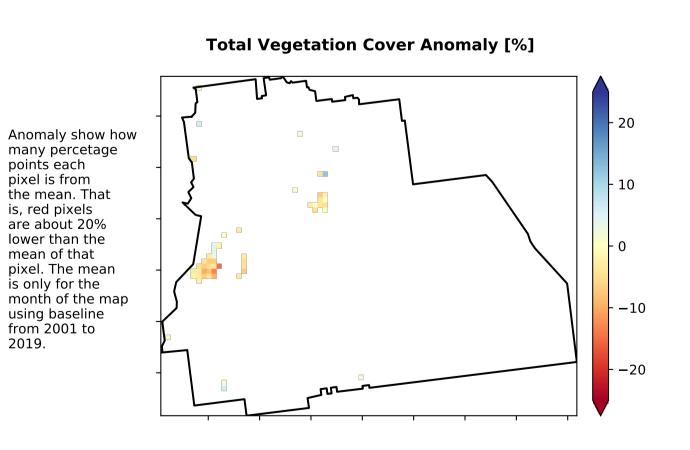


Conservation and natural environments non forest

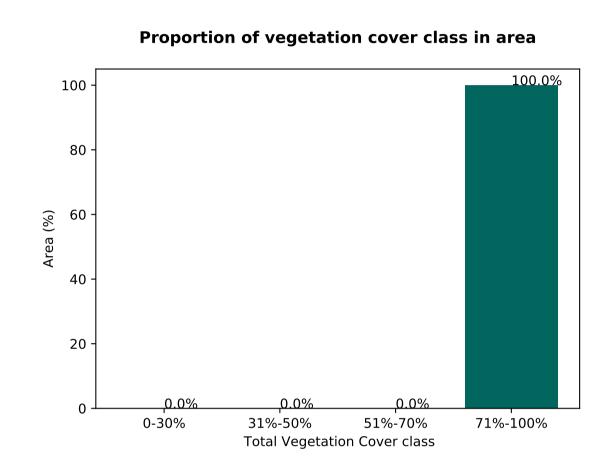
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments - Non-Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

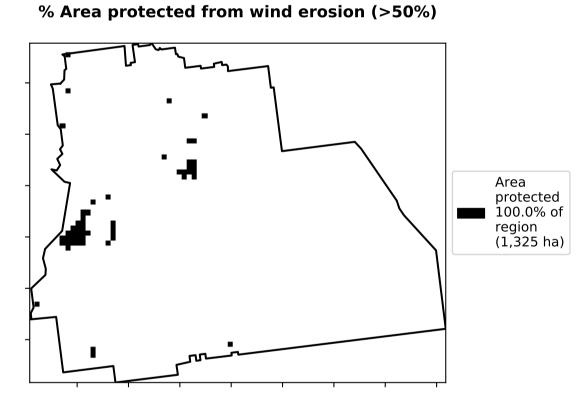
Total Vegetation Cover [%]

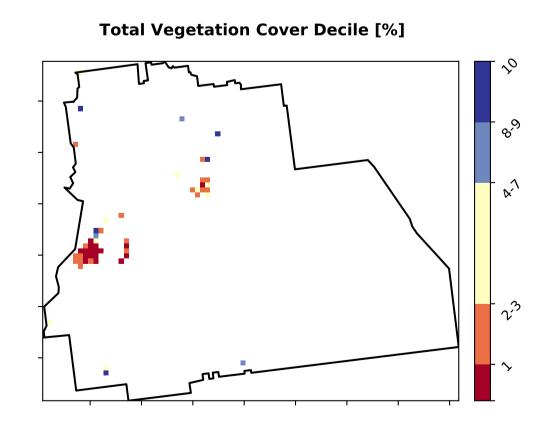
% Area protected from water erosion (>70%) Area protected 100.0% of region (1,325 ha)



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







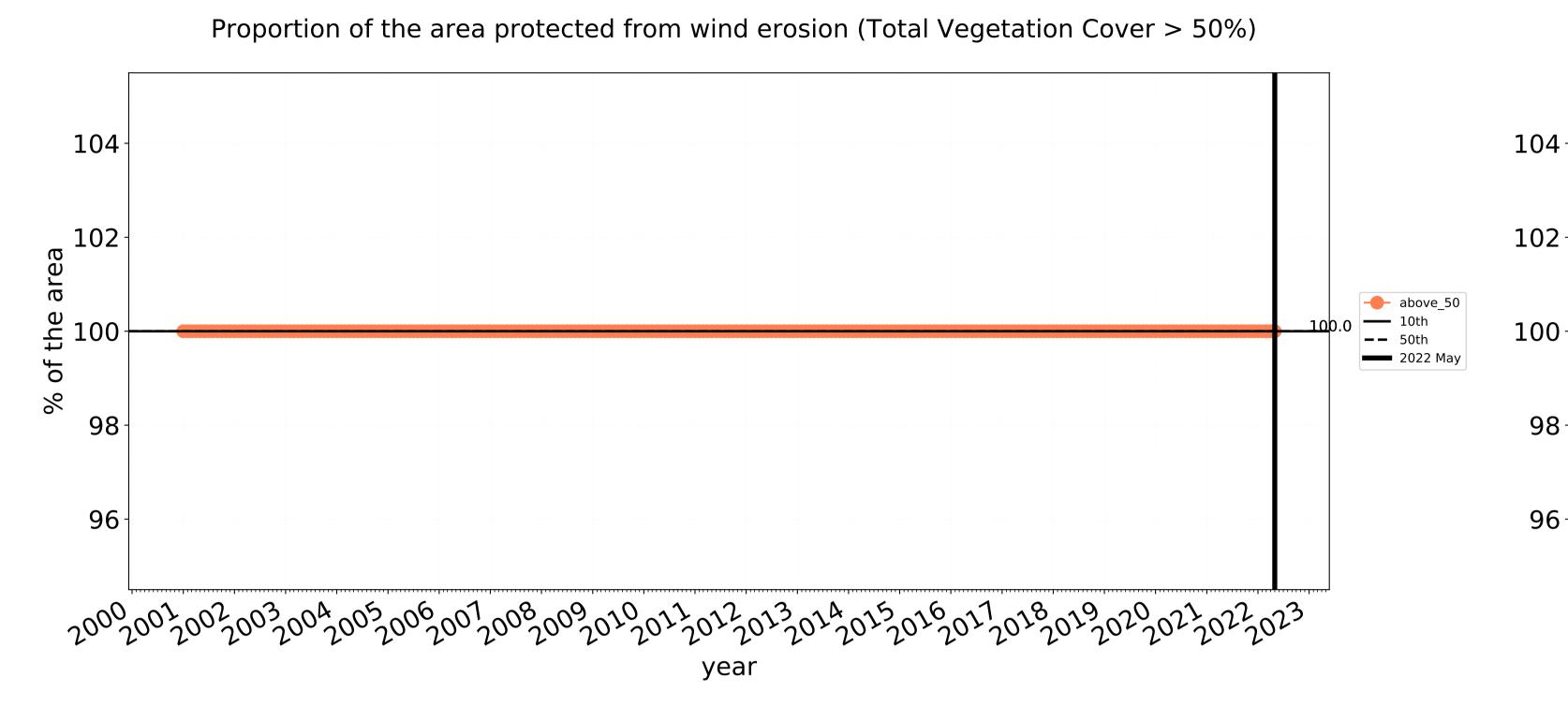


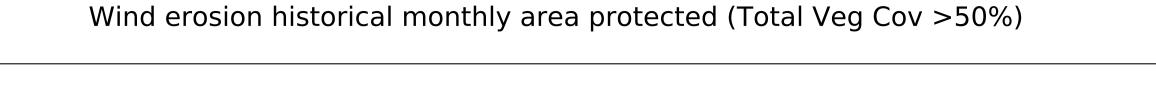






Conservation and natural environments non forest timeseries





month

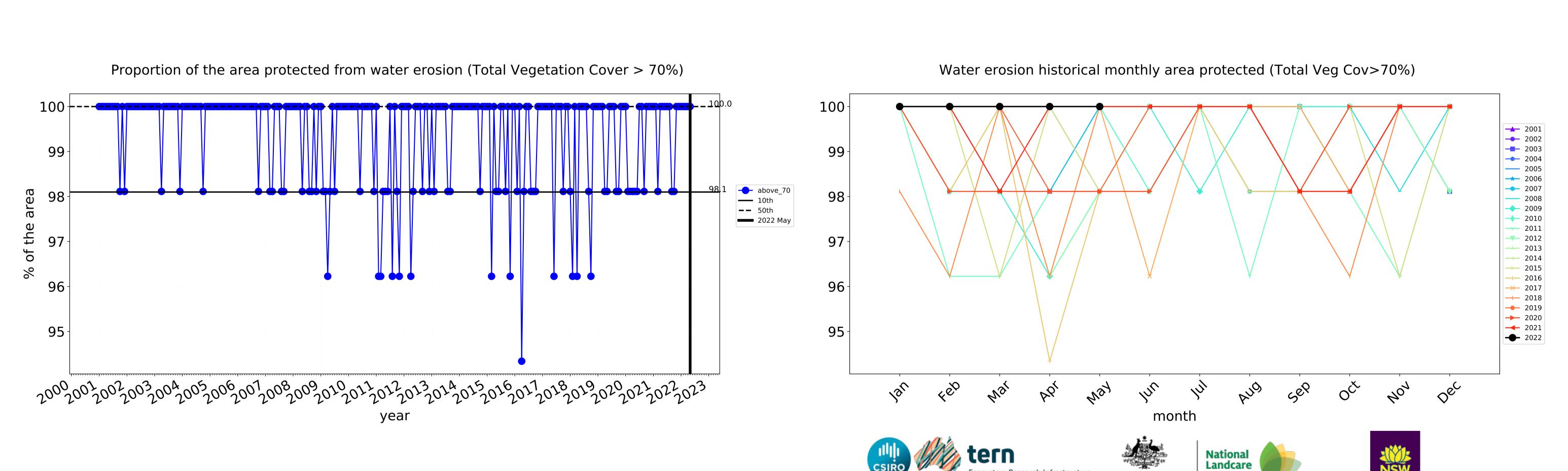
2003 2004

2007 2008 2009 2010

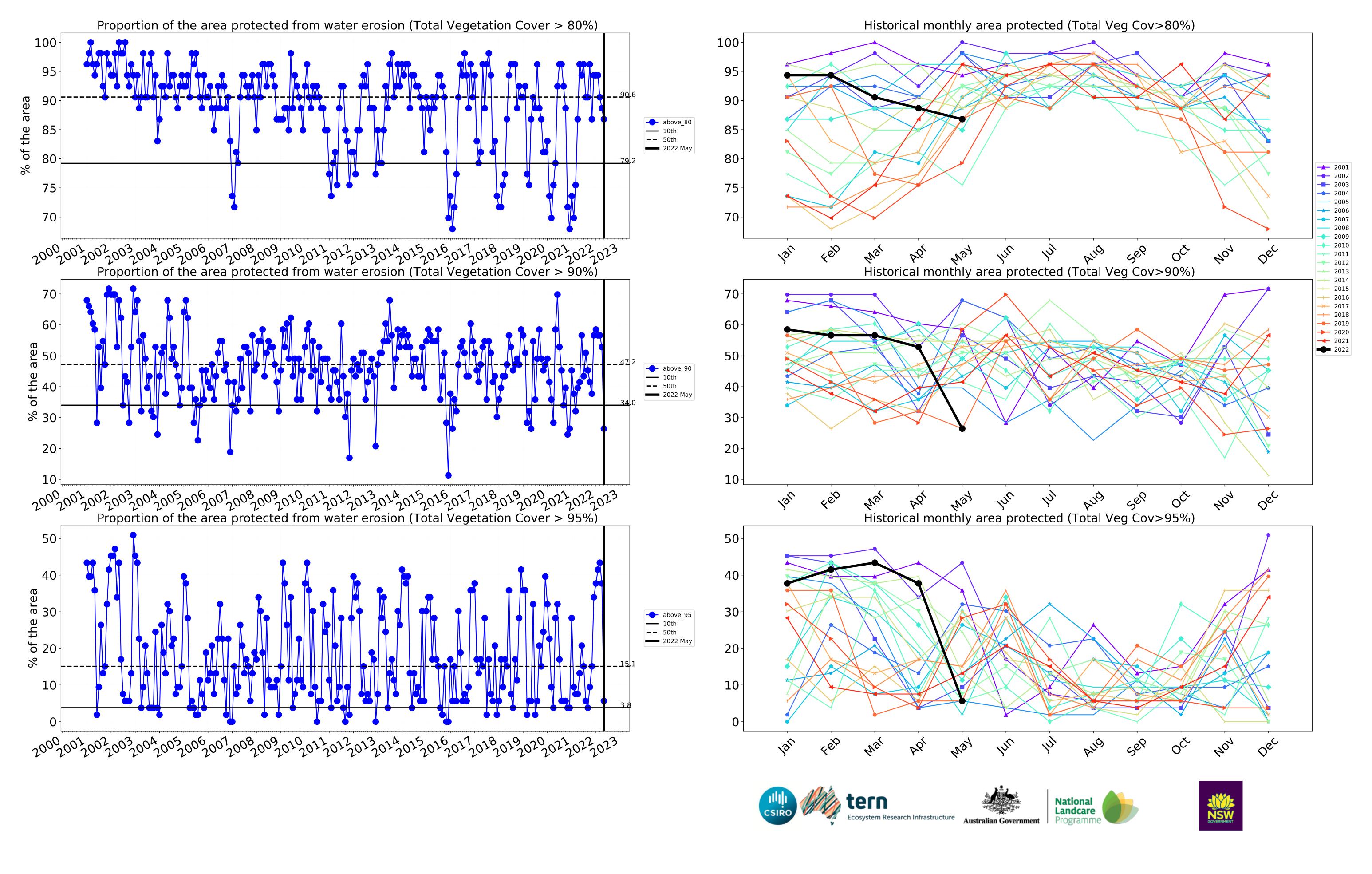
~ 2011

2022

401



hay

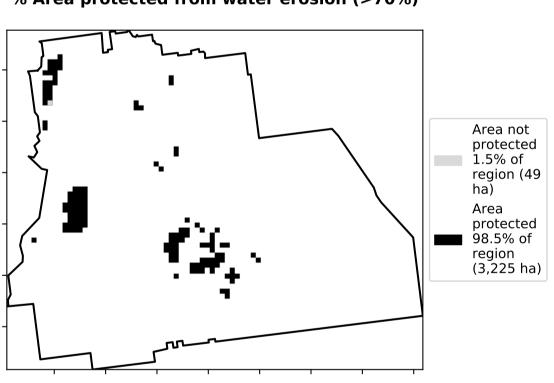


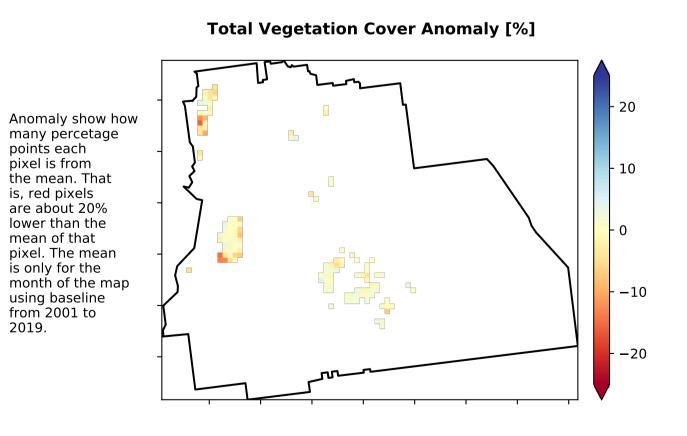
Conservation and natural environments Woodland forest

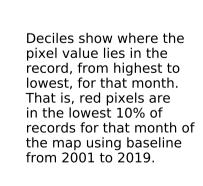
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments - Woodland Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

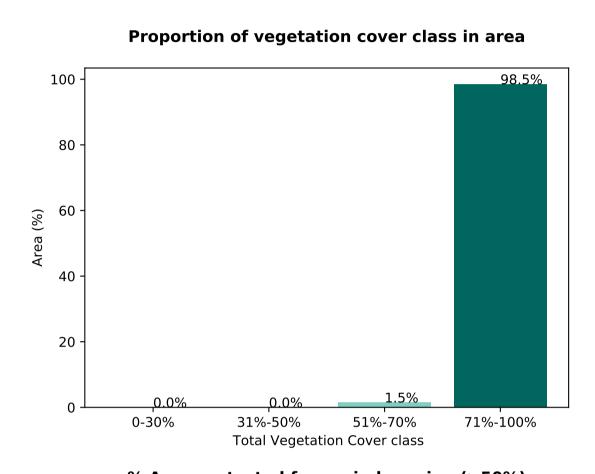
Total Vegetation Cover [%]

% Area protected from water erosion (>70%)

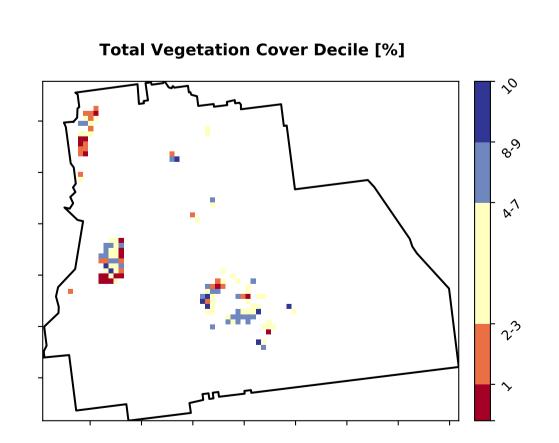








% Area protected from wind erosion (>50%) Area protected 100.0% of region (3,275 ha)



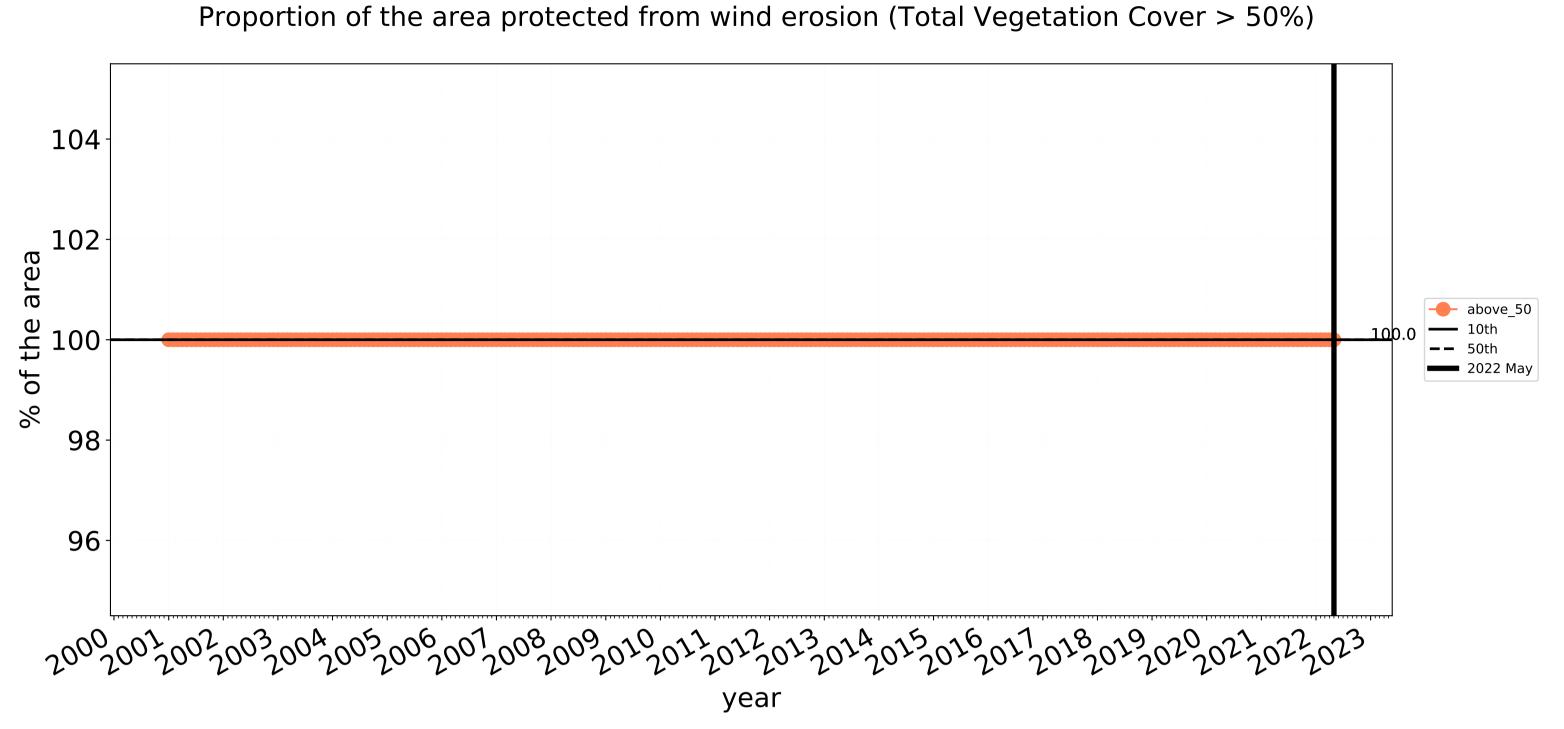




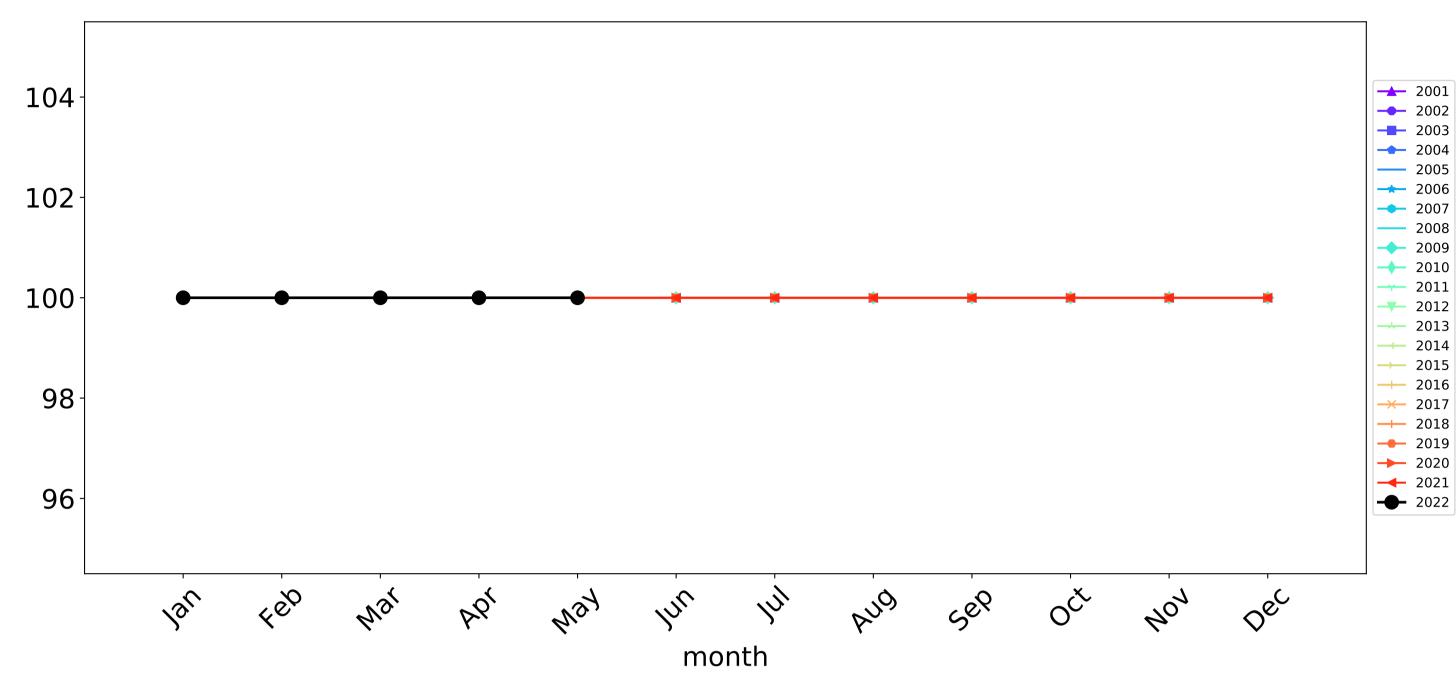


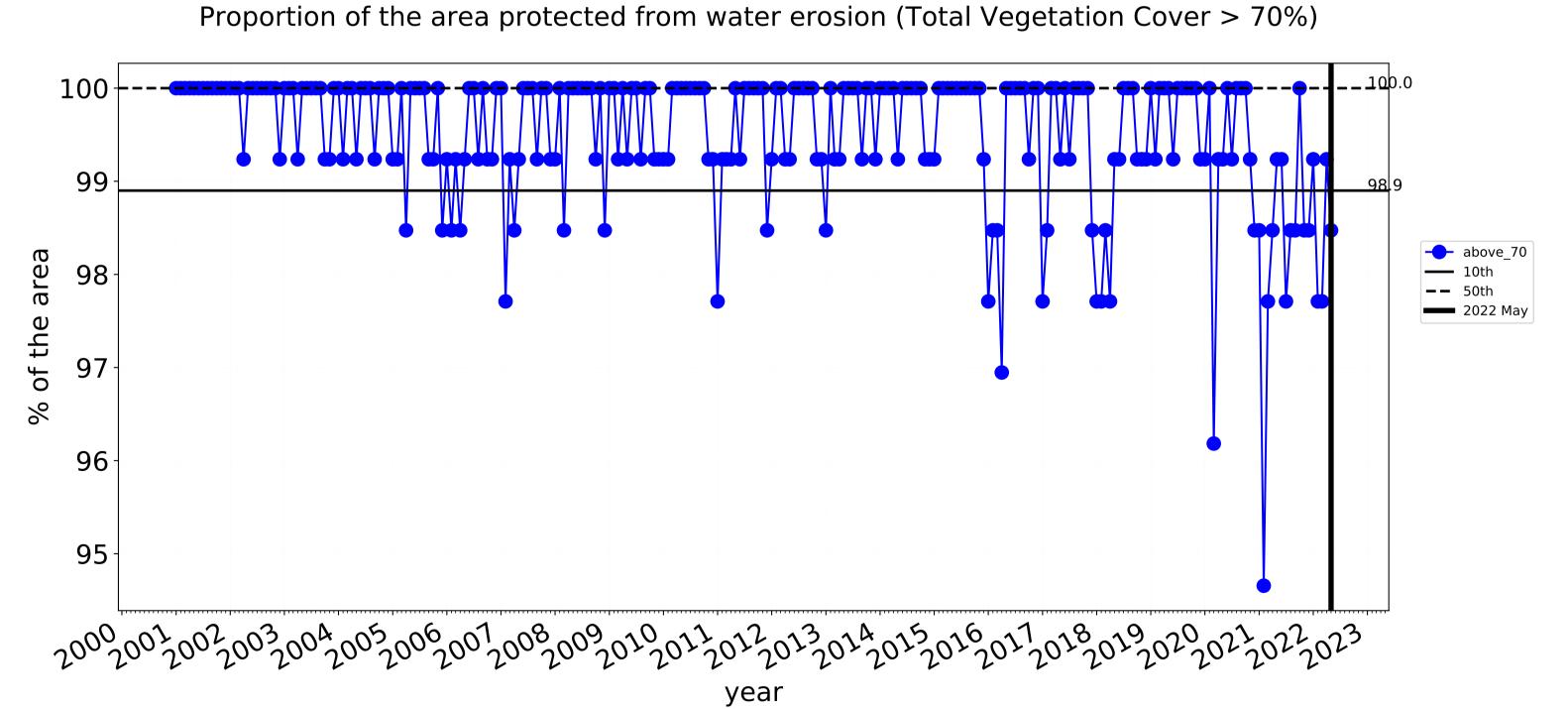


Conservation and natural environments Woodland forest timeseries

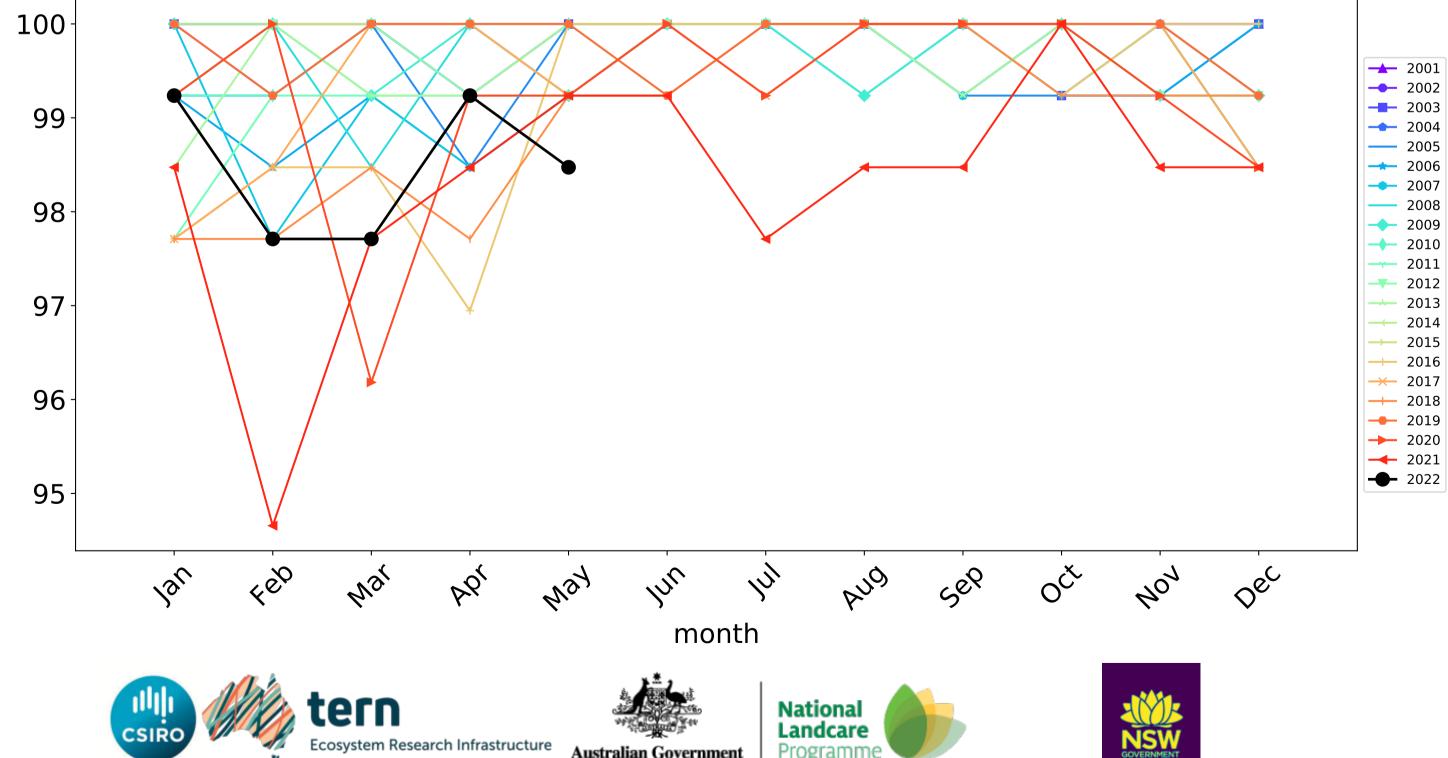


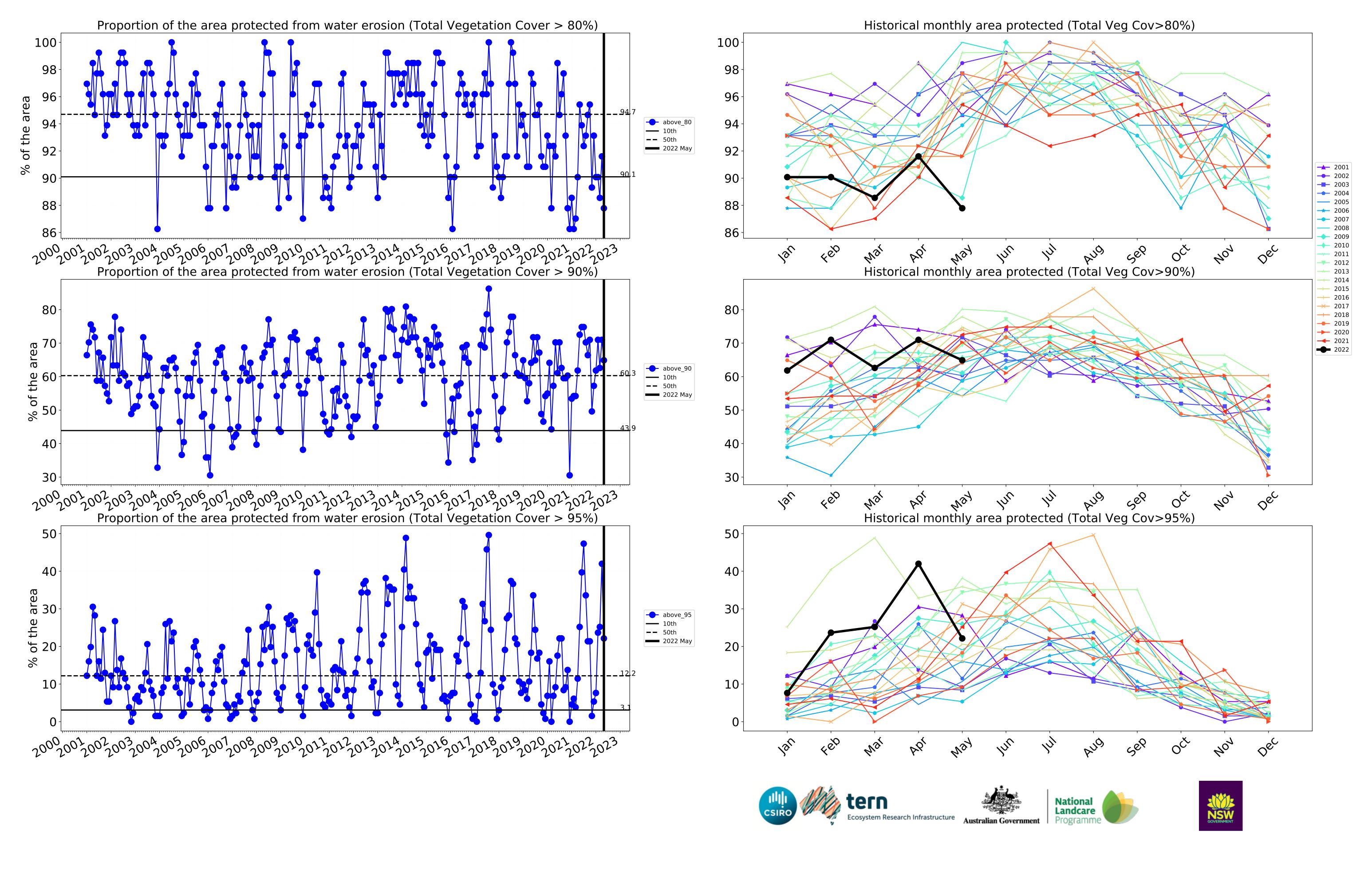
Wind erosion historical monthly area protected (Total Veg Cov >50%)





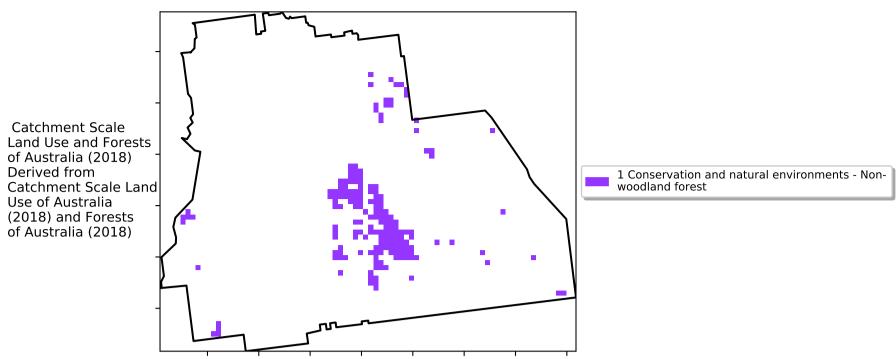
Water erosion historical monthly area protected (Total Veg Cov>70%)



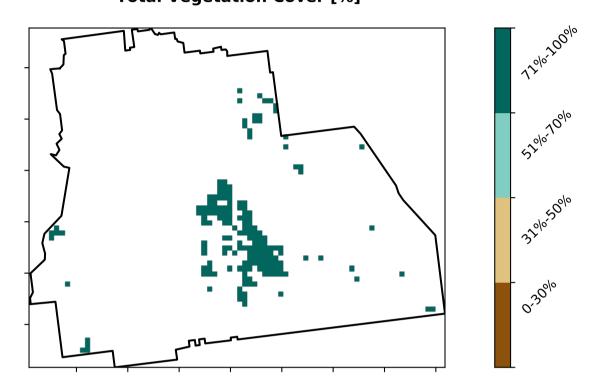


Conservation and natural environments Forest (non woodland)

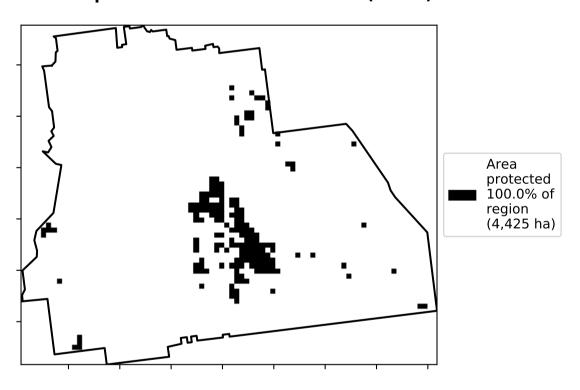
Land use and forest cover



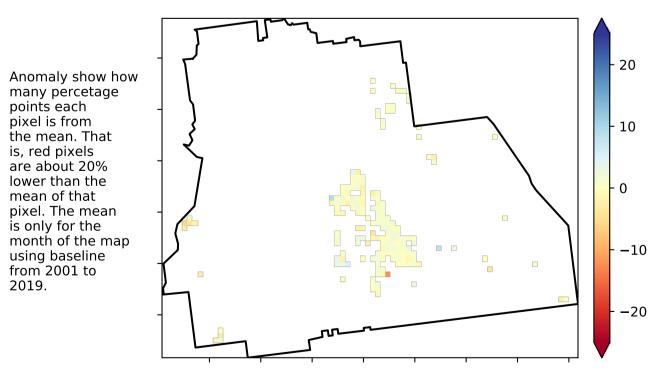
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

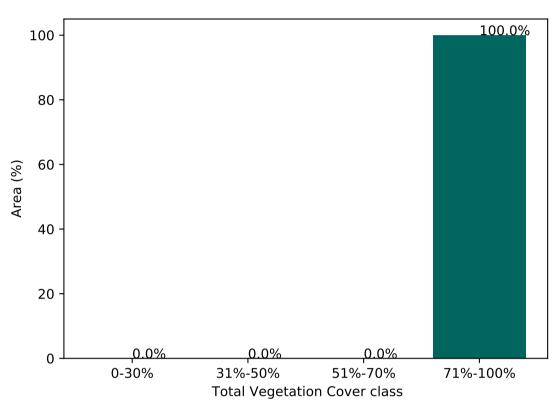


Total Vegetation Cover Anomaly [%]

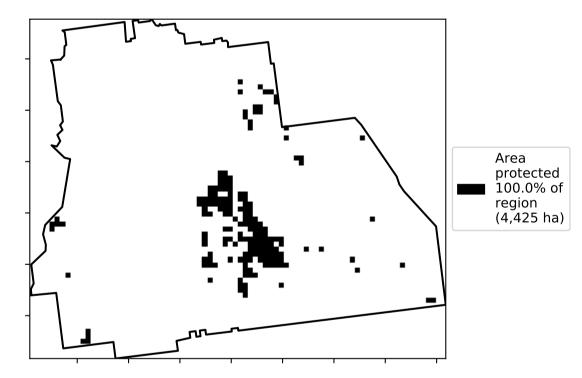


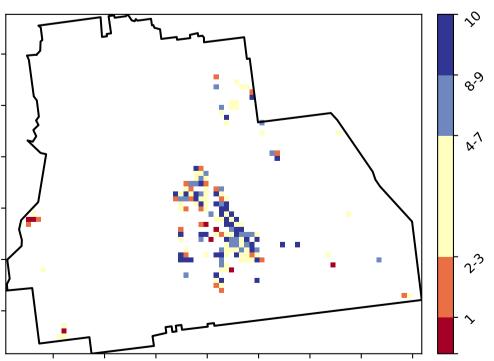
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



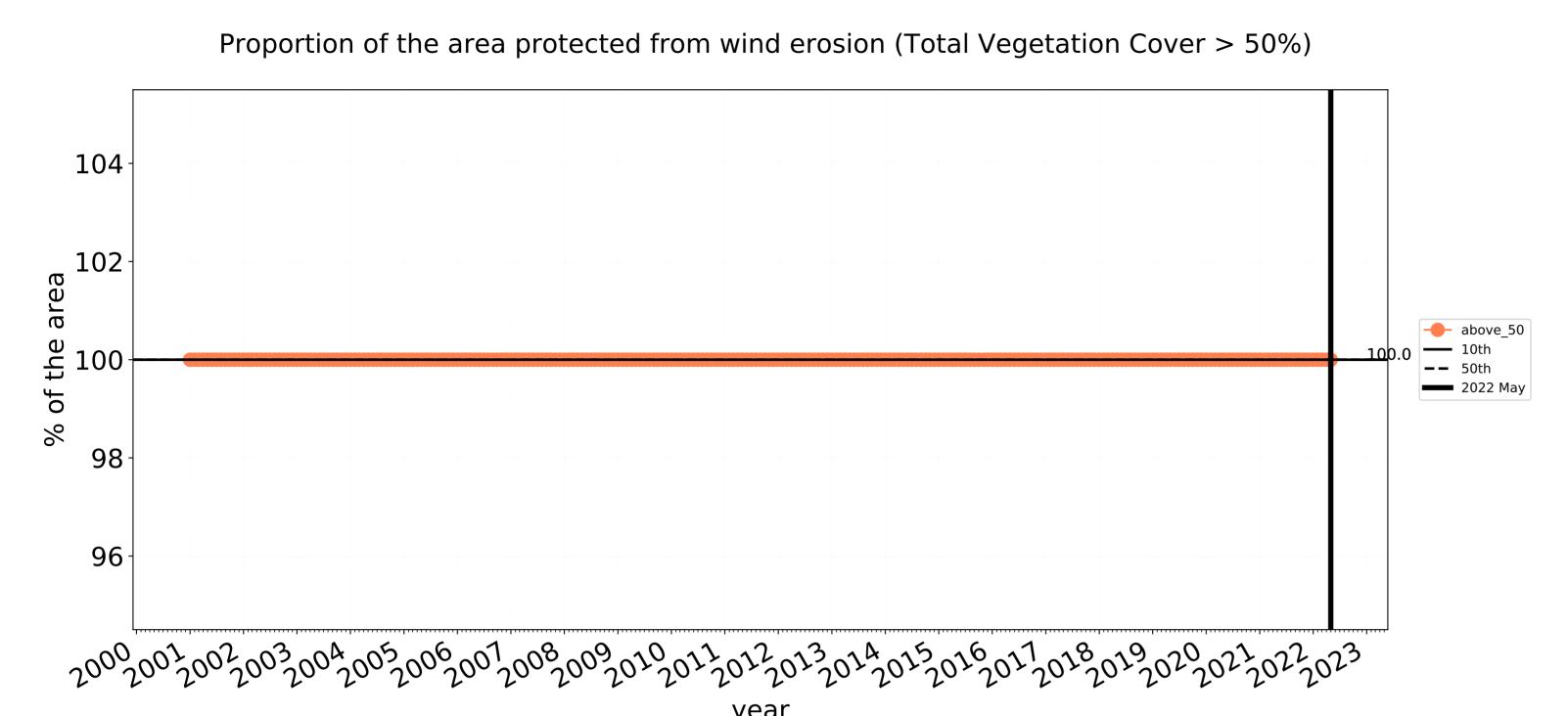




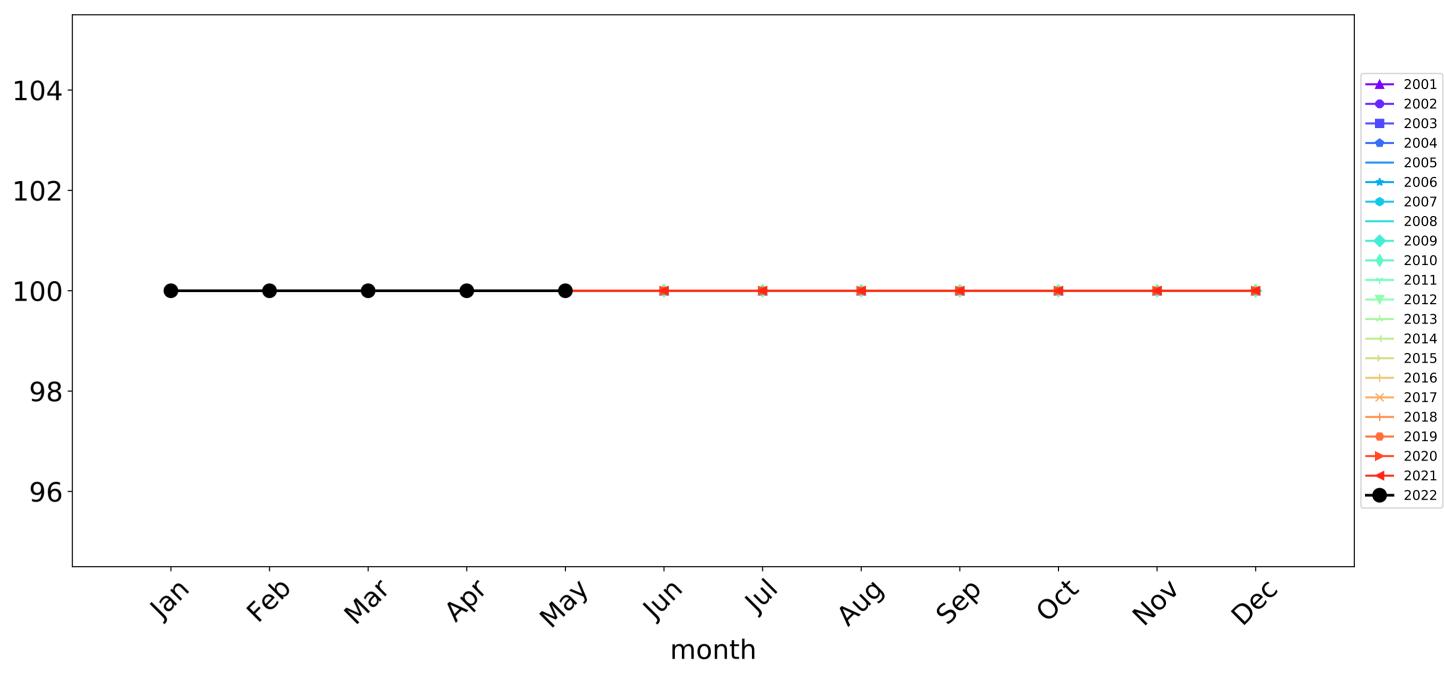


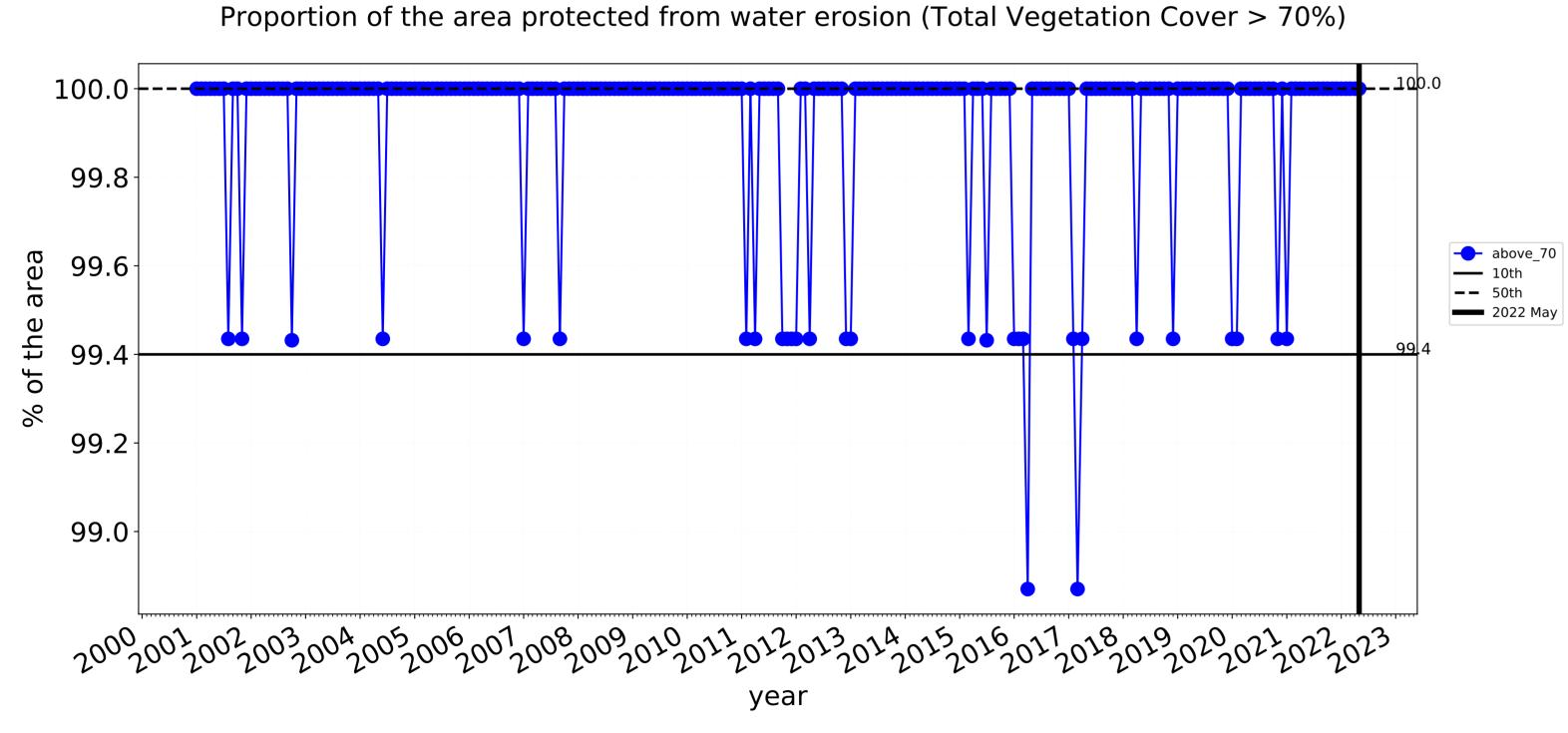


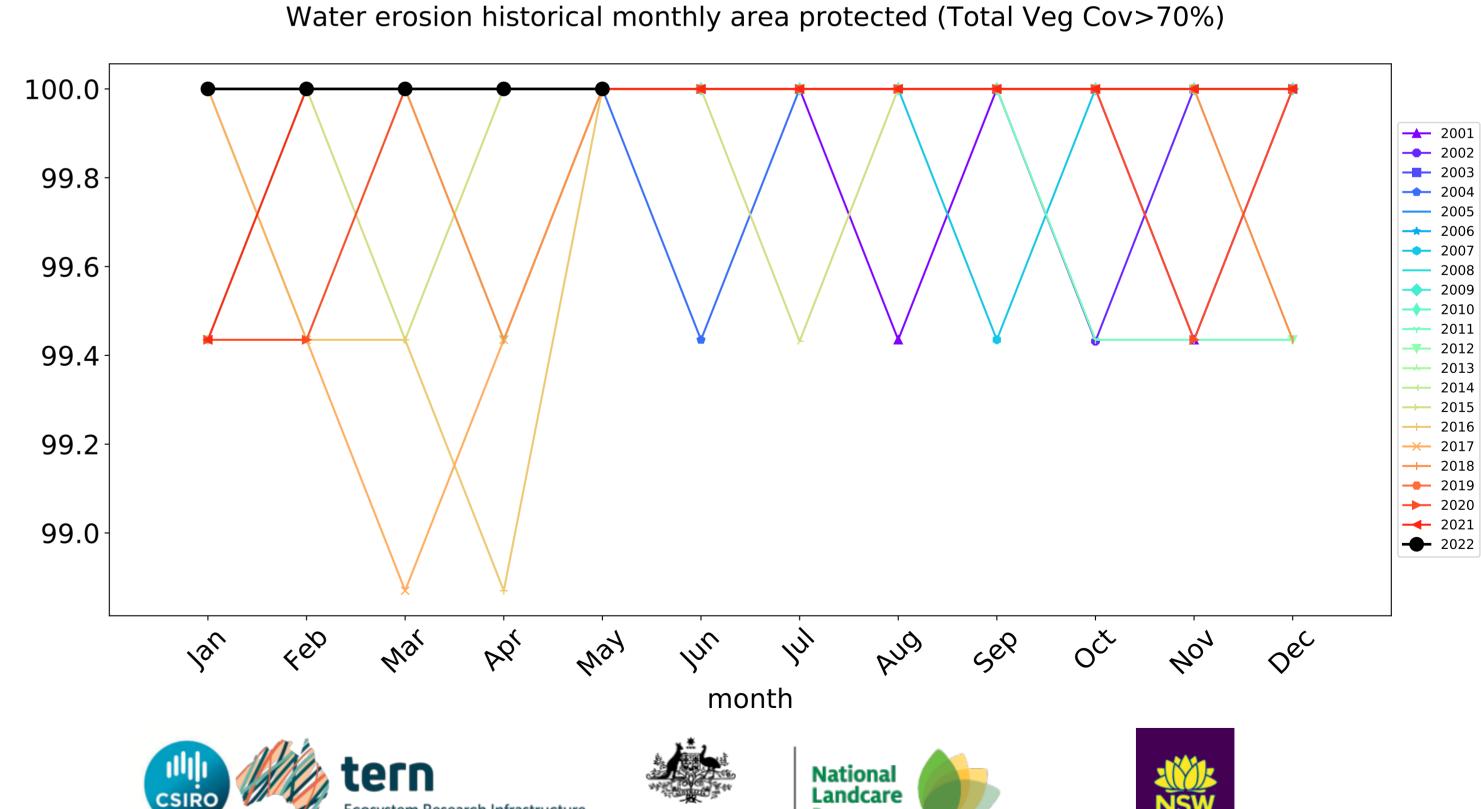


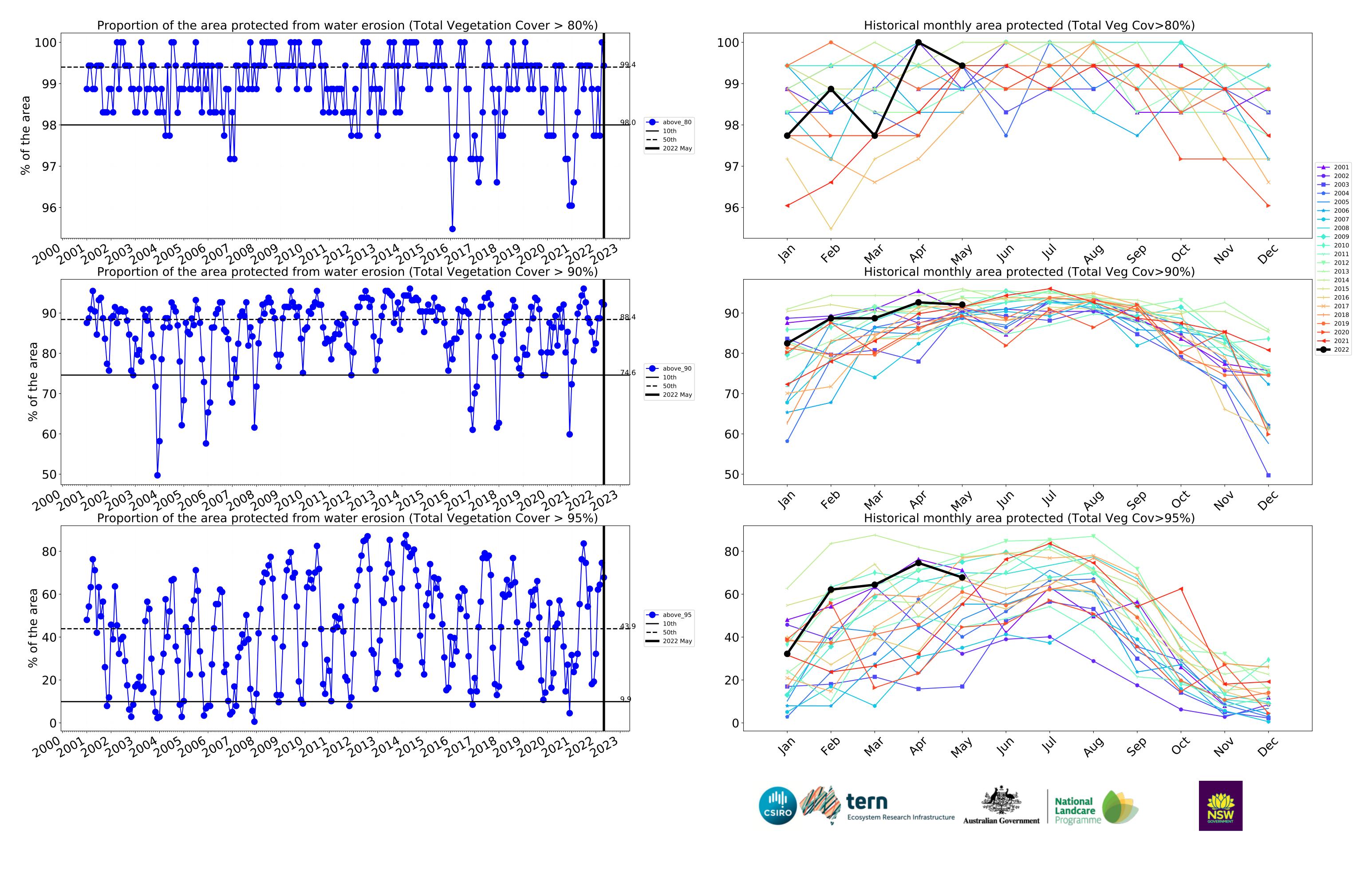


Wind erosion historical monthly area protected (Total Veg Cov >50%)



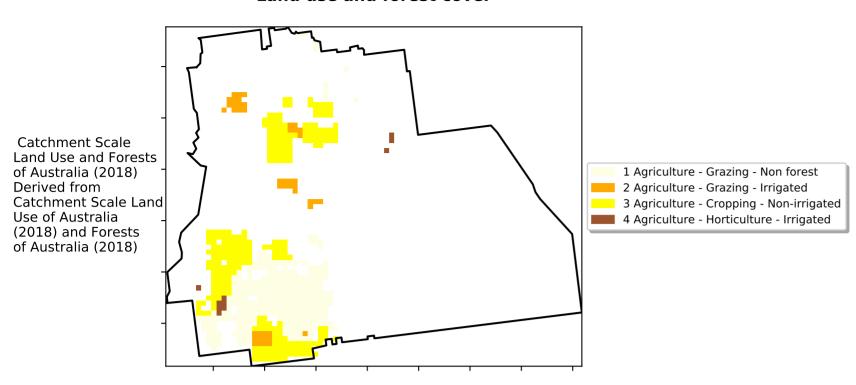




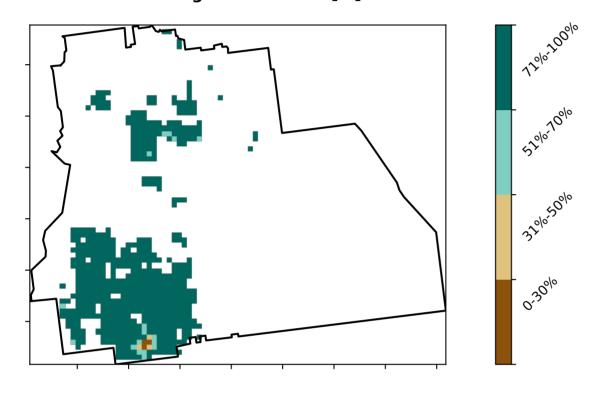


Agriculture

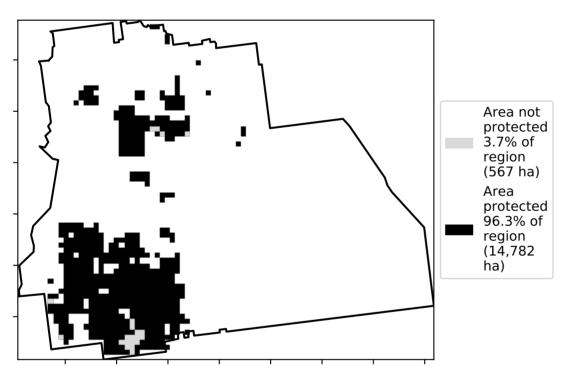
Land use and forest cover



Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



Total Vegetation Cover Anomaly [%]

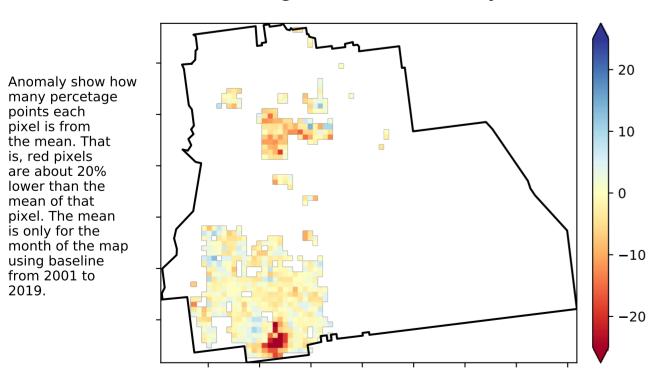
the mean. That is, red pixels

are about 20% lower than the mean of that

pixel. The mean

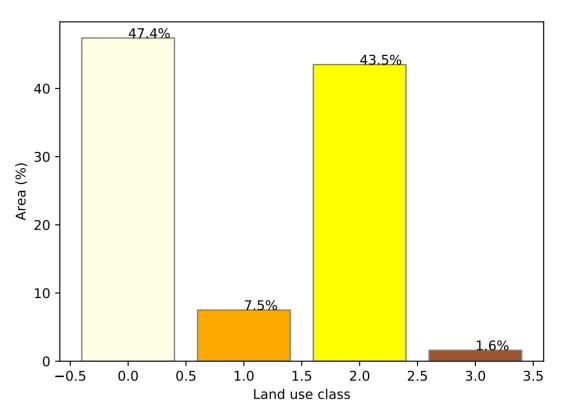
using baseline from 2001 to 2019.

is only for the month of the map

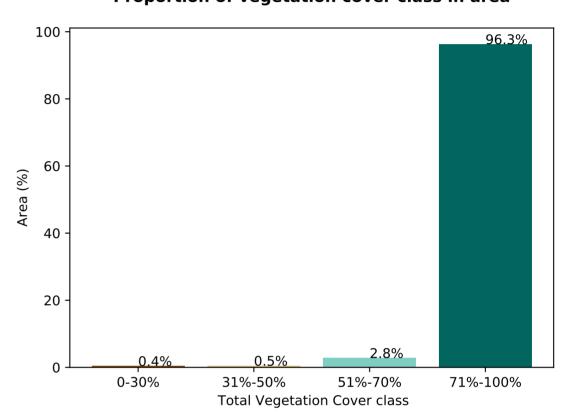


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

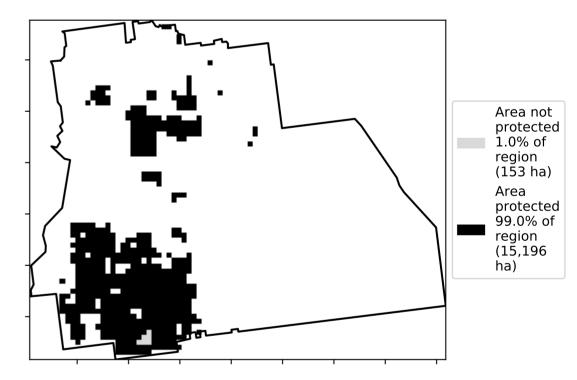
Proportion of each land class in area

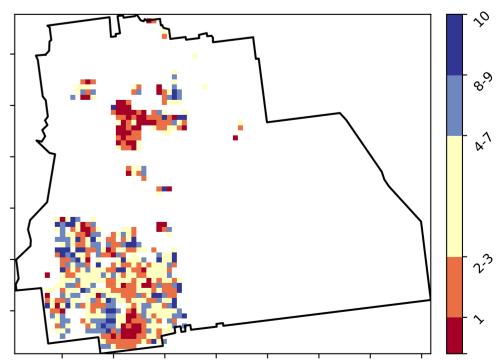


Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





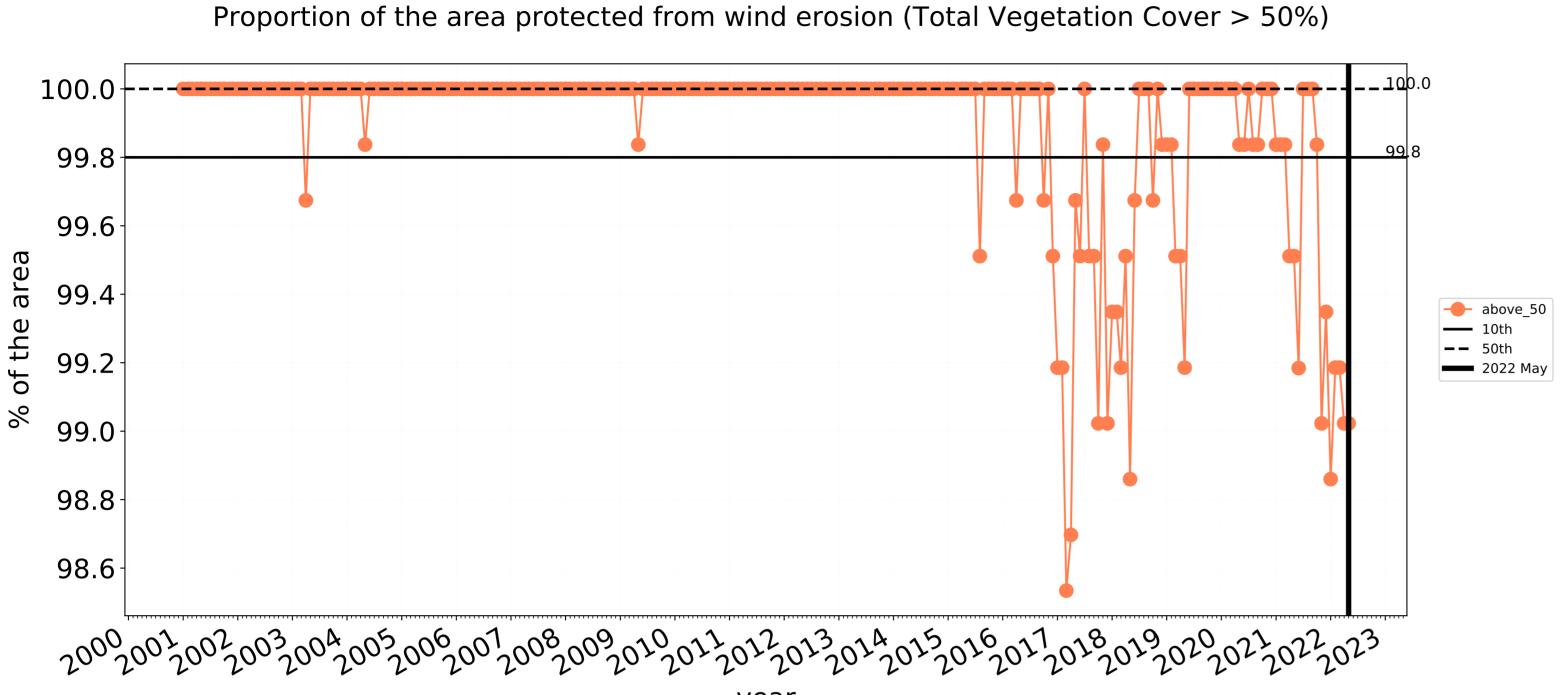


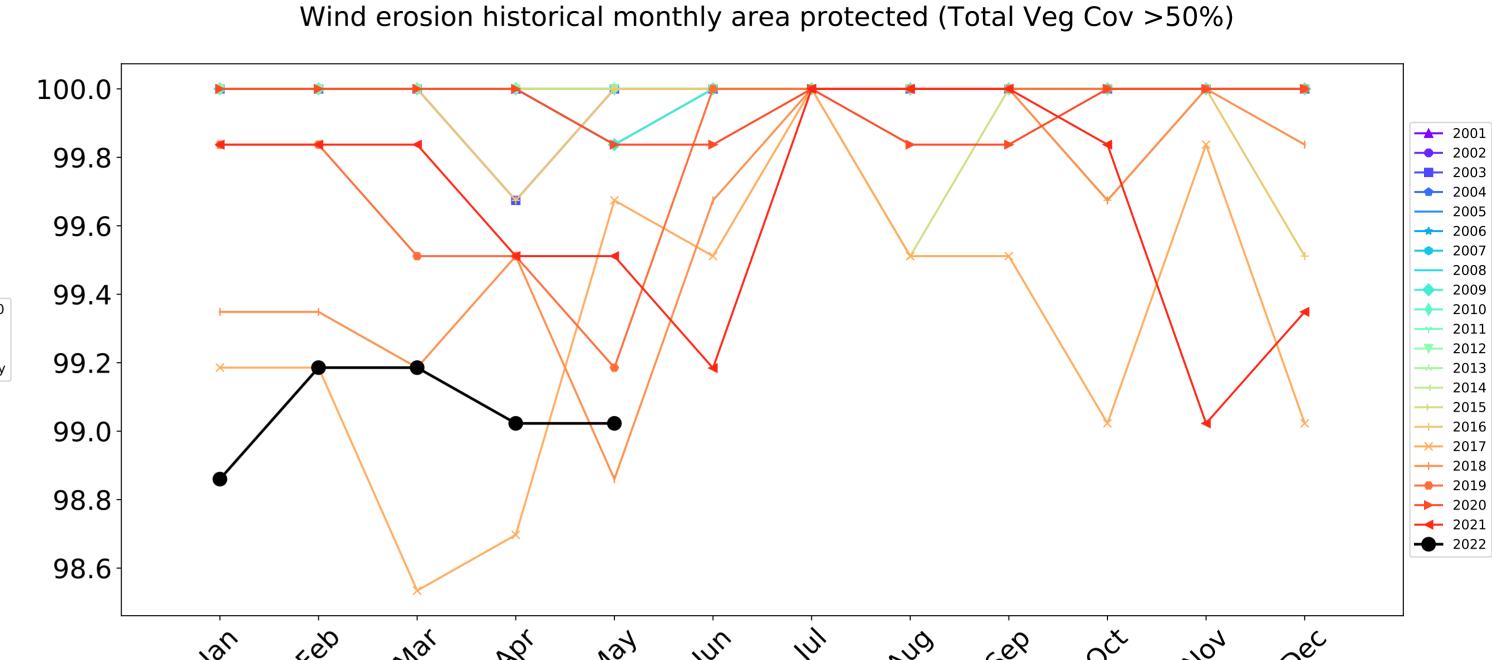




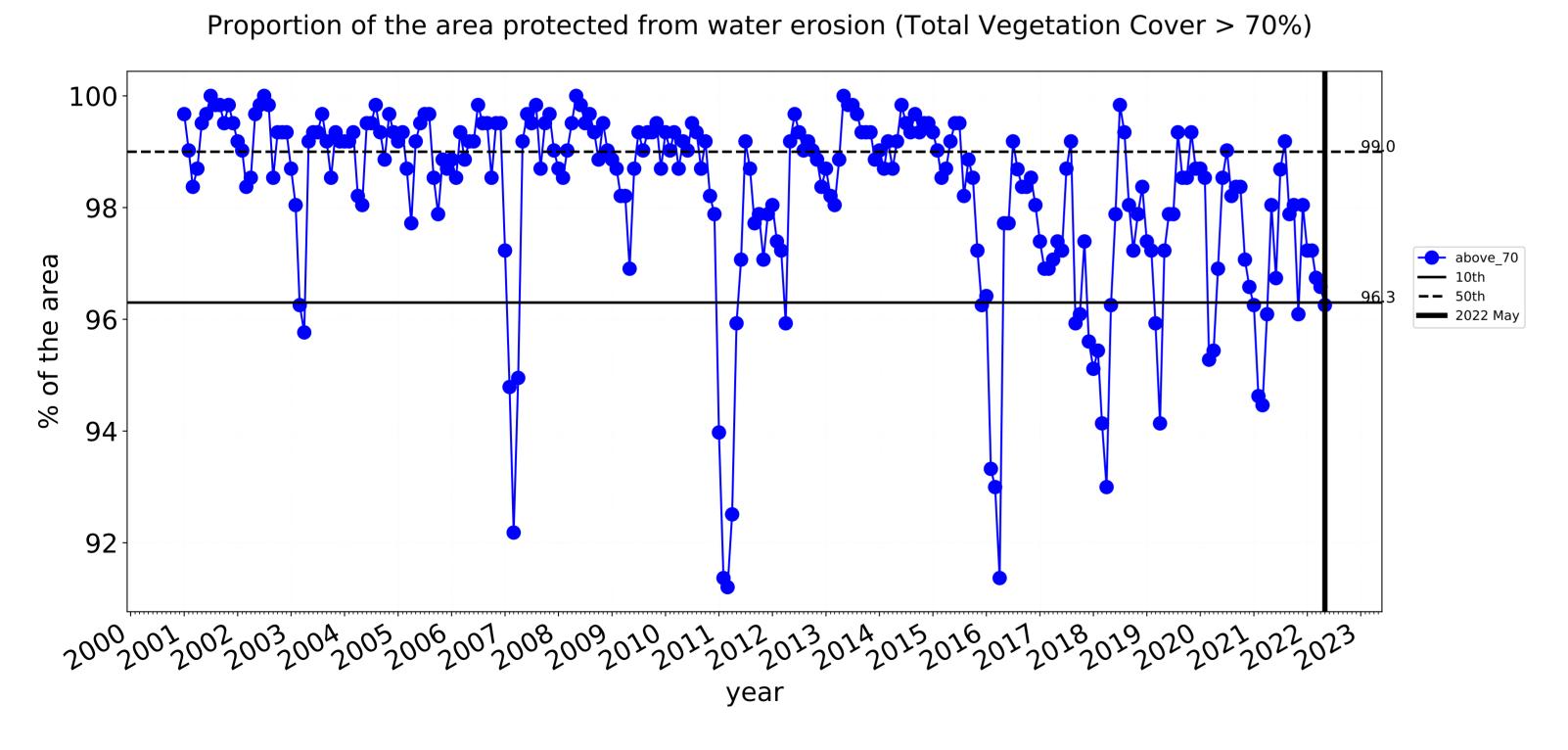


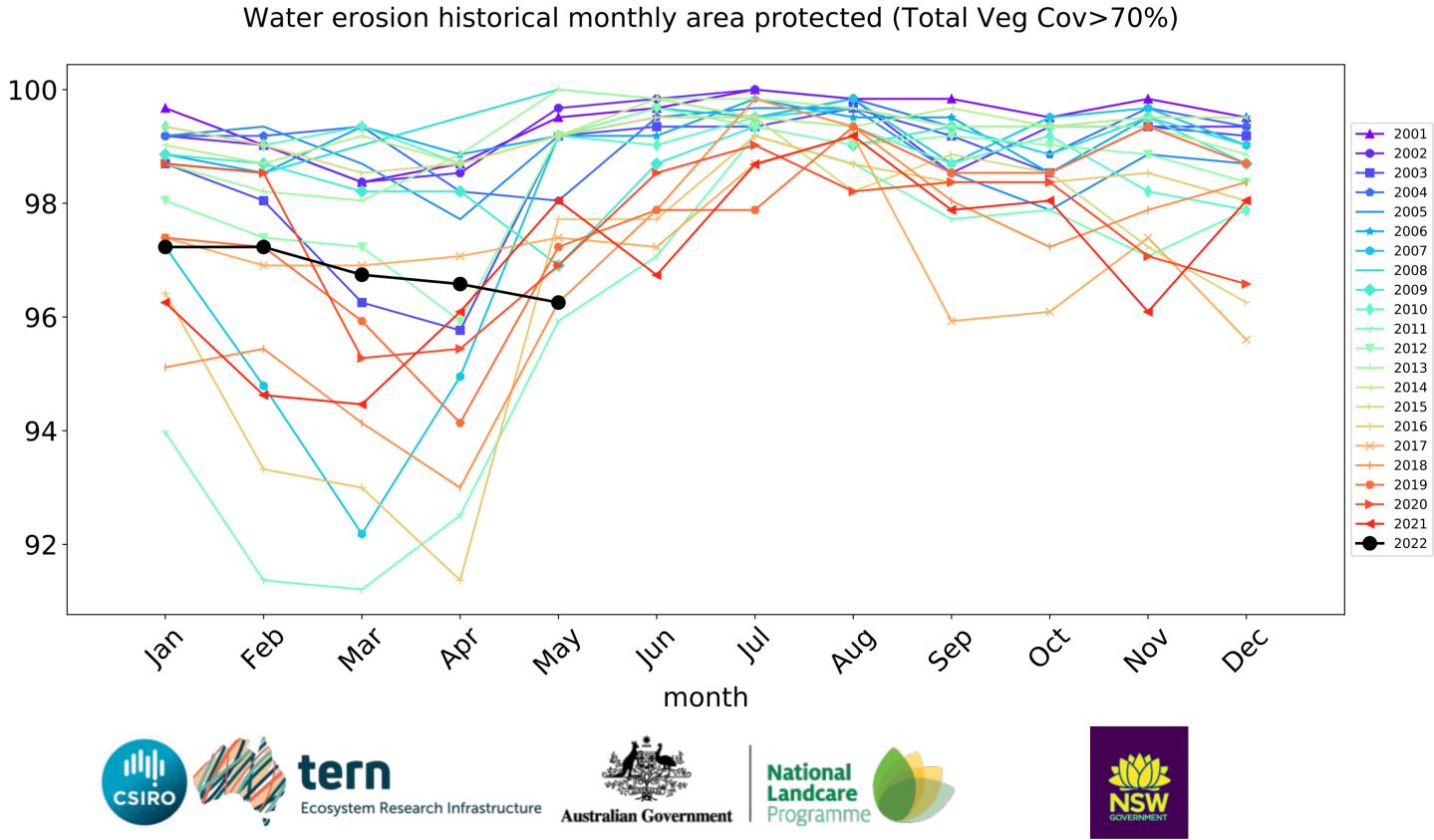
Agriculture timeseries

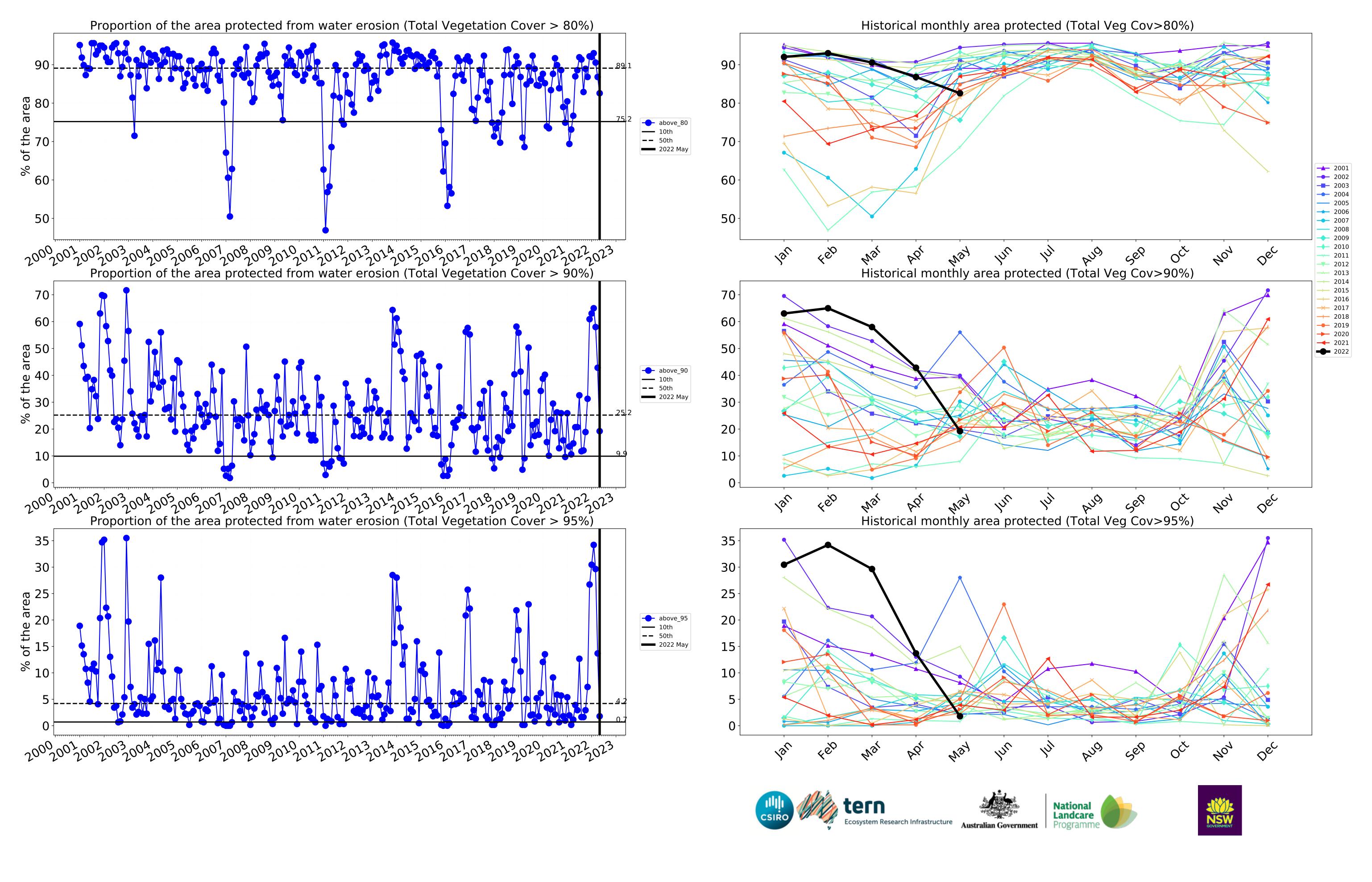




month

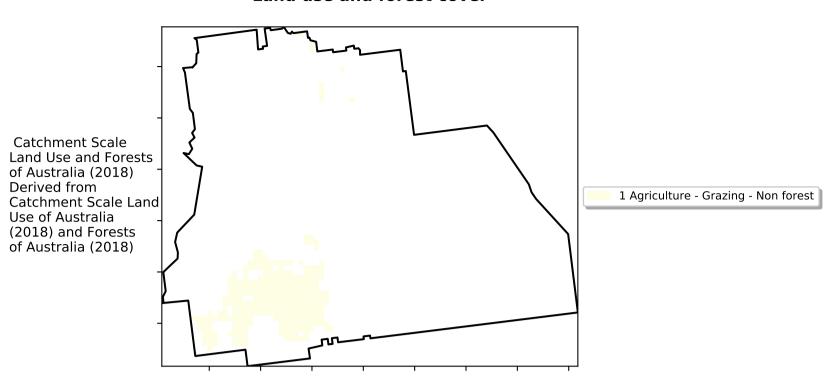




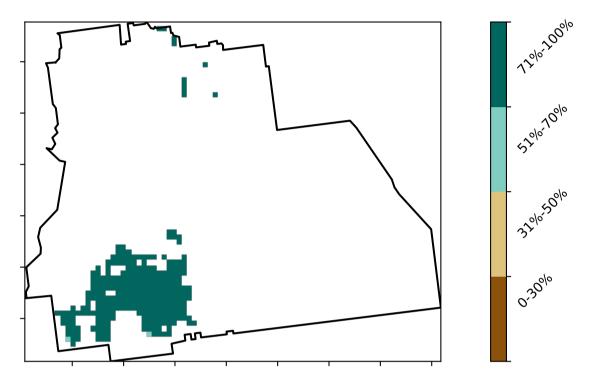


Grazing

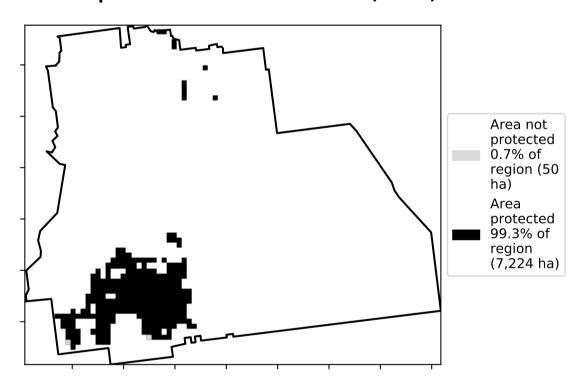
Land use and forest cover



Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

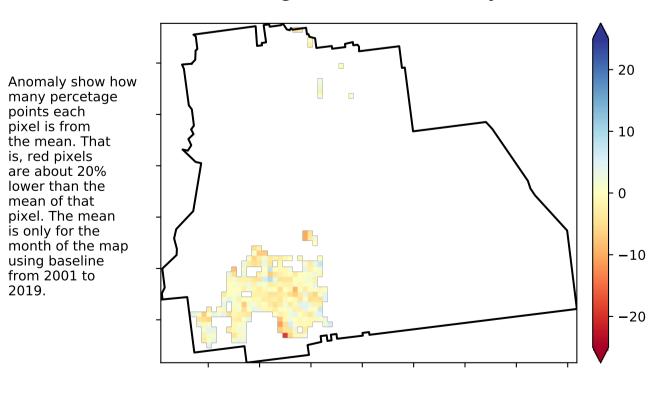


Total Vegetation Cover Anomaly [%]

the mean. That

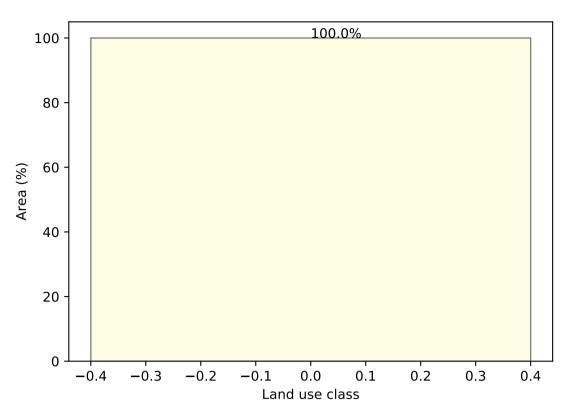
is, red pixels are about 20% lower than the mean of that pixel. The mean

using baseline from 2001 to 2019.

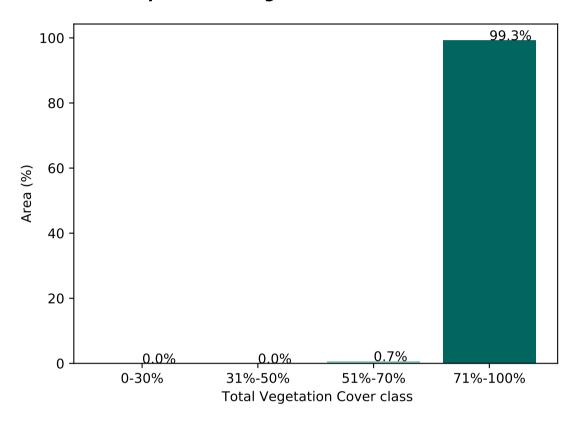


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

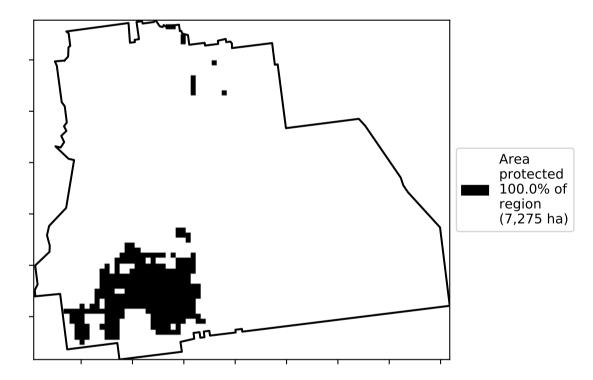
Proportion of each land class in area

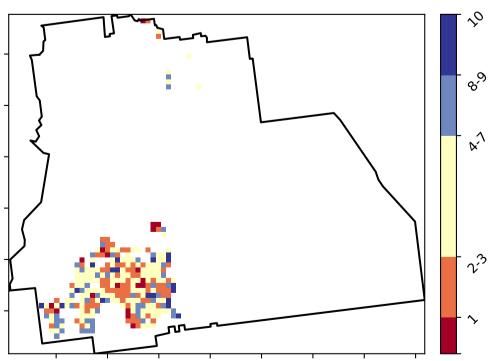


Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





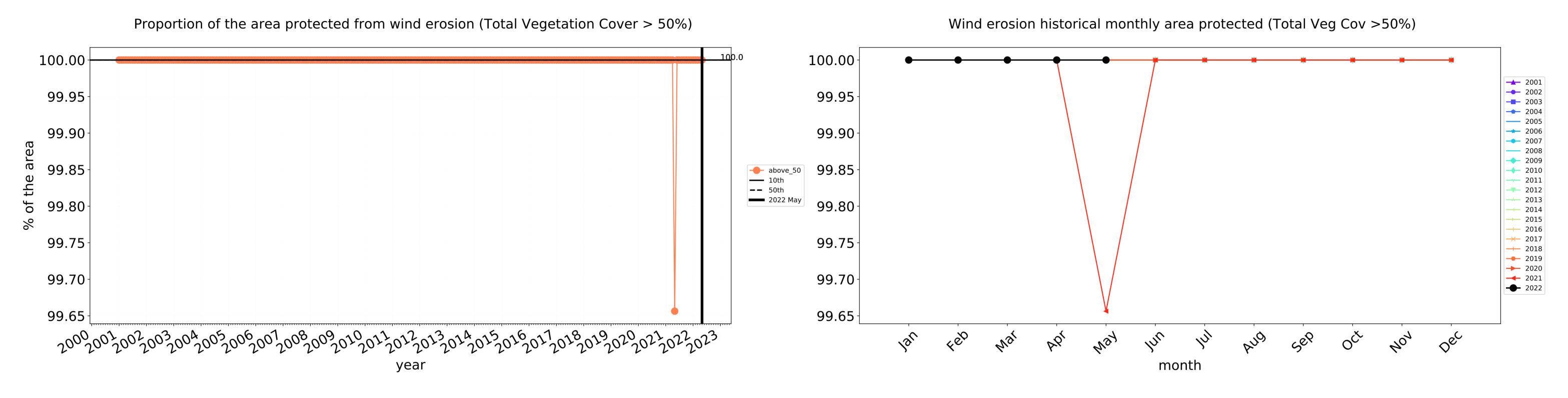


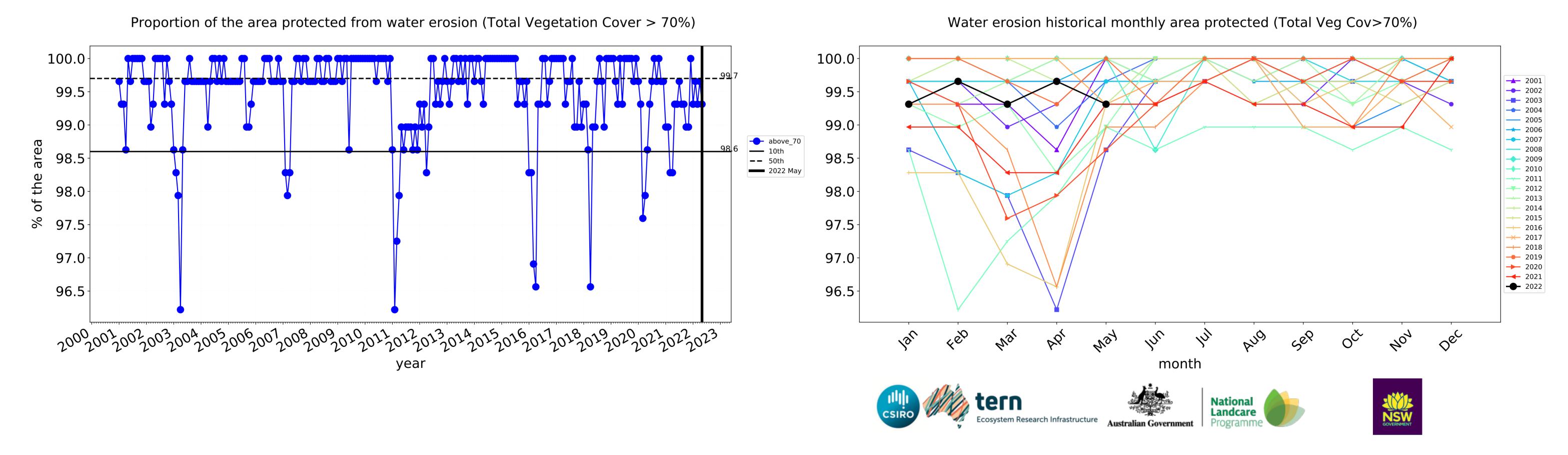


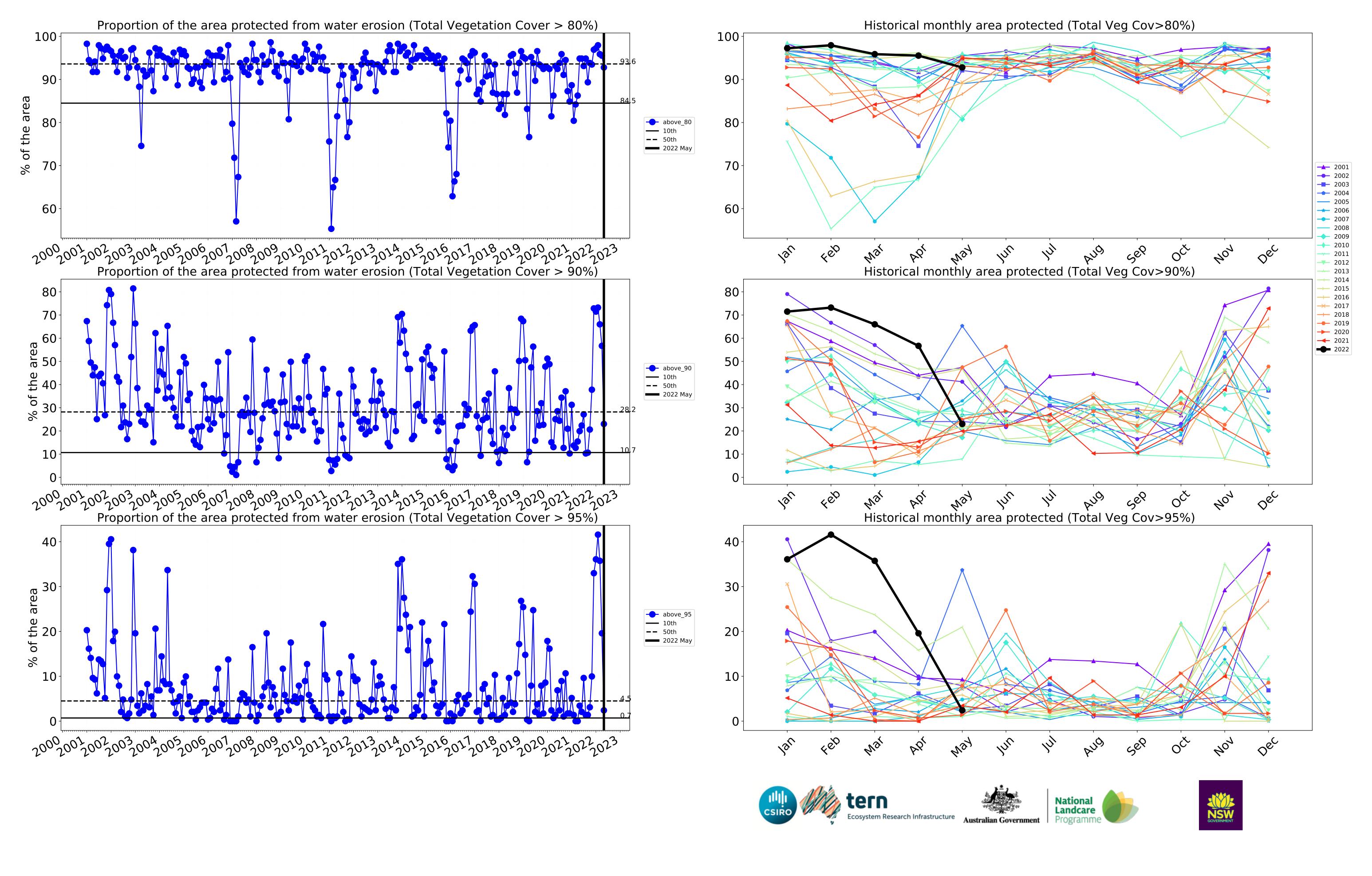




Grazing timeseries

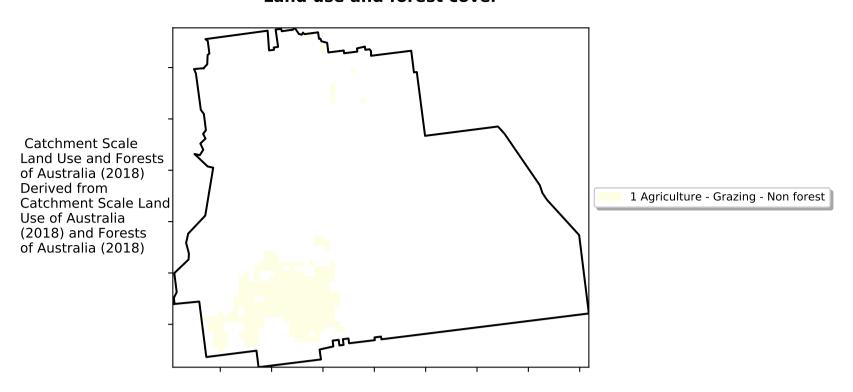




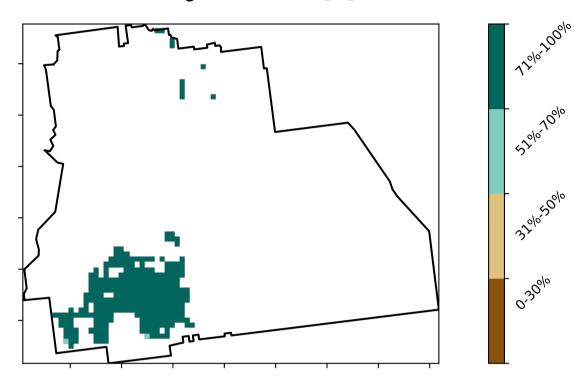


Grazing non forest

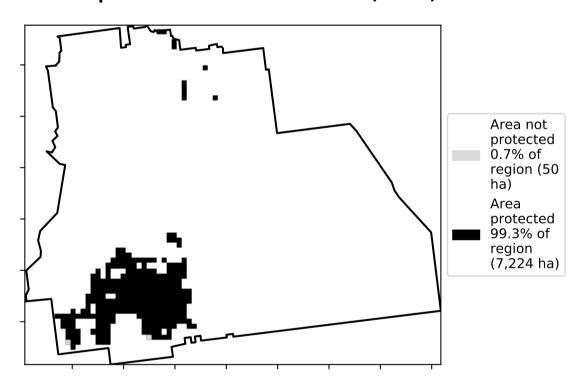
Land use and forest cover



Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

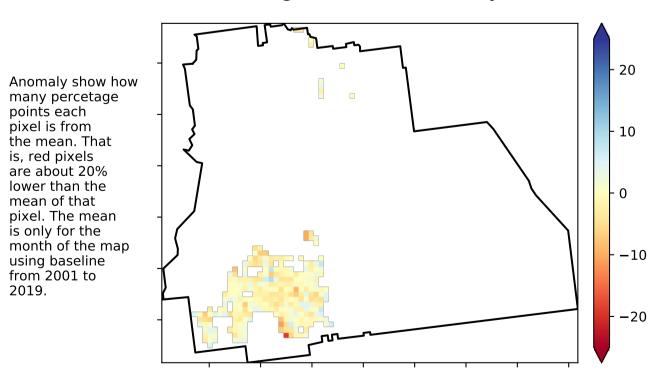


Total Vegetation Cover Anomaly [%]

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

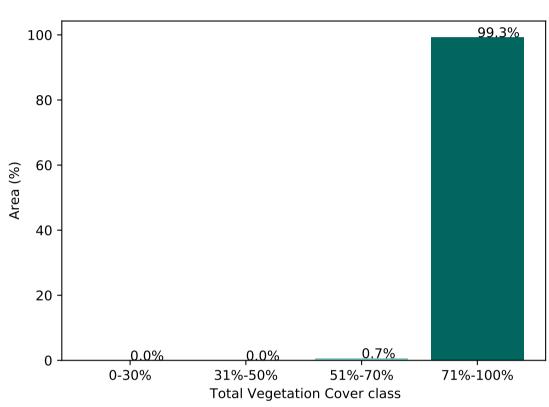
is only for the month of the map

using baseline from 2001 to 2019.

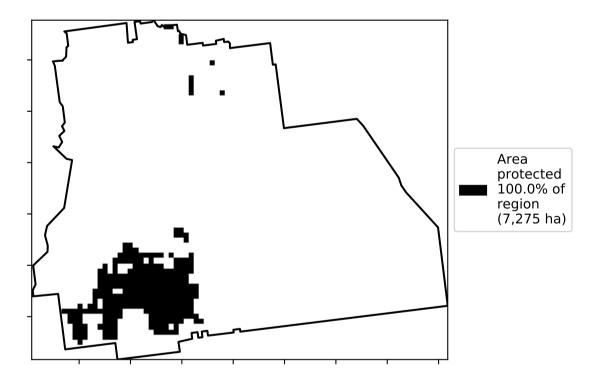


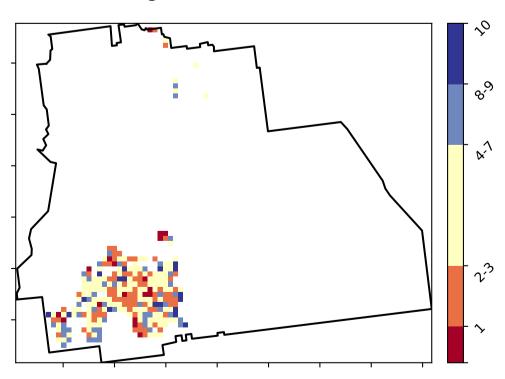
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





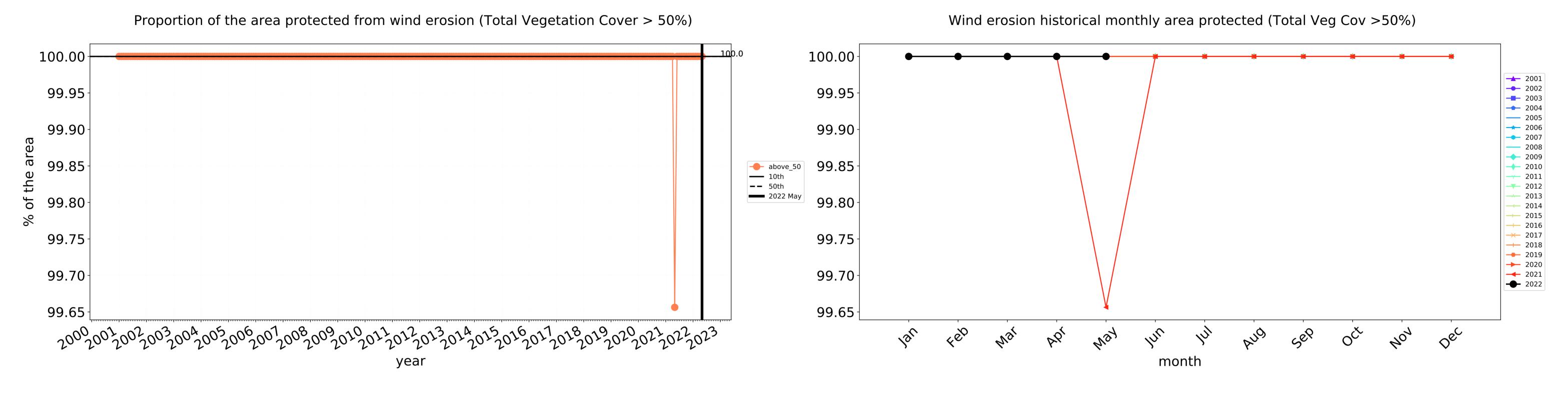


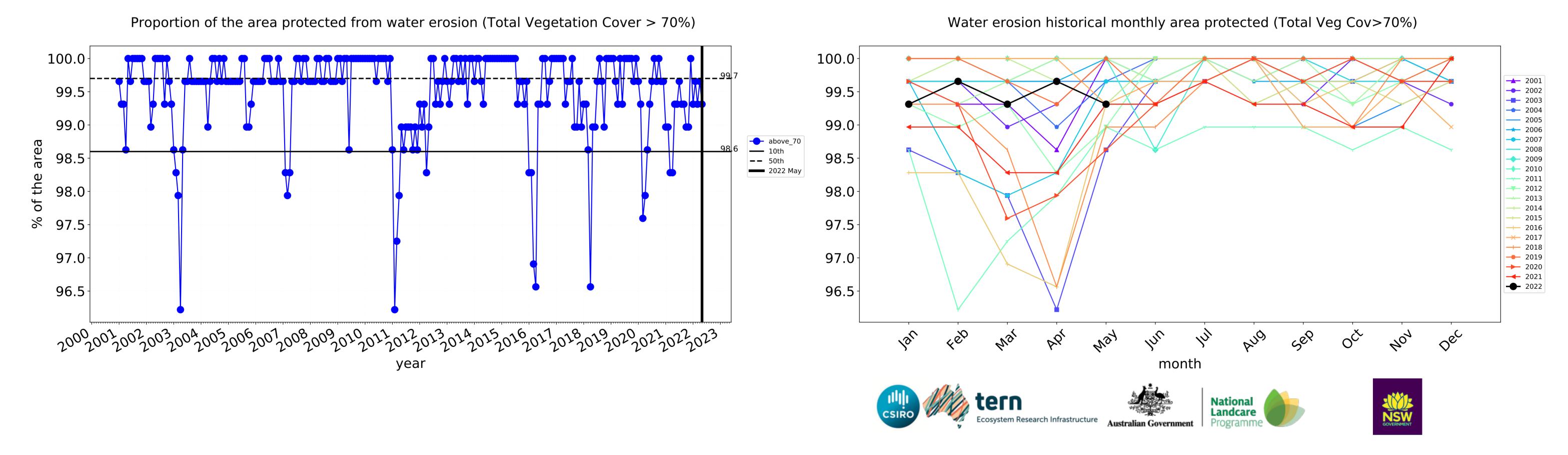


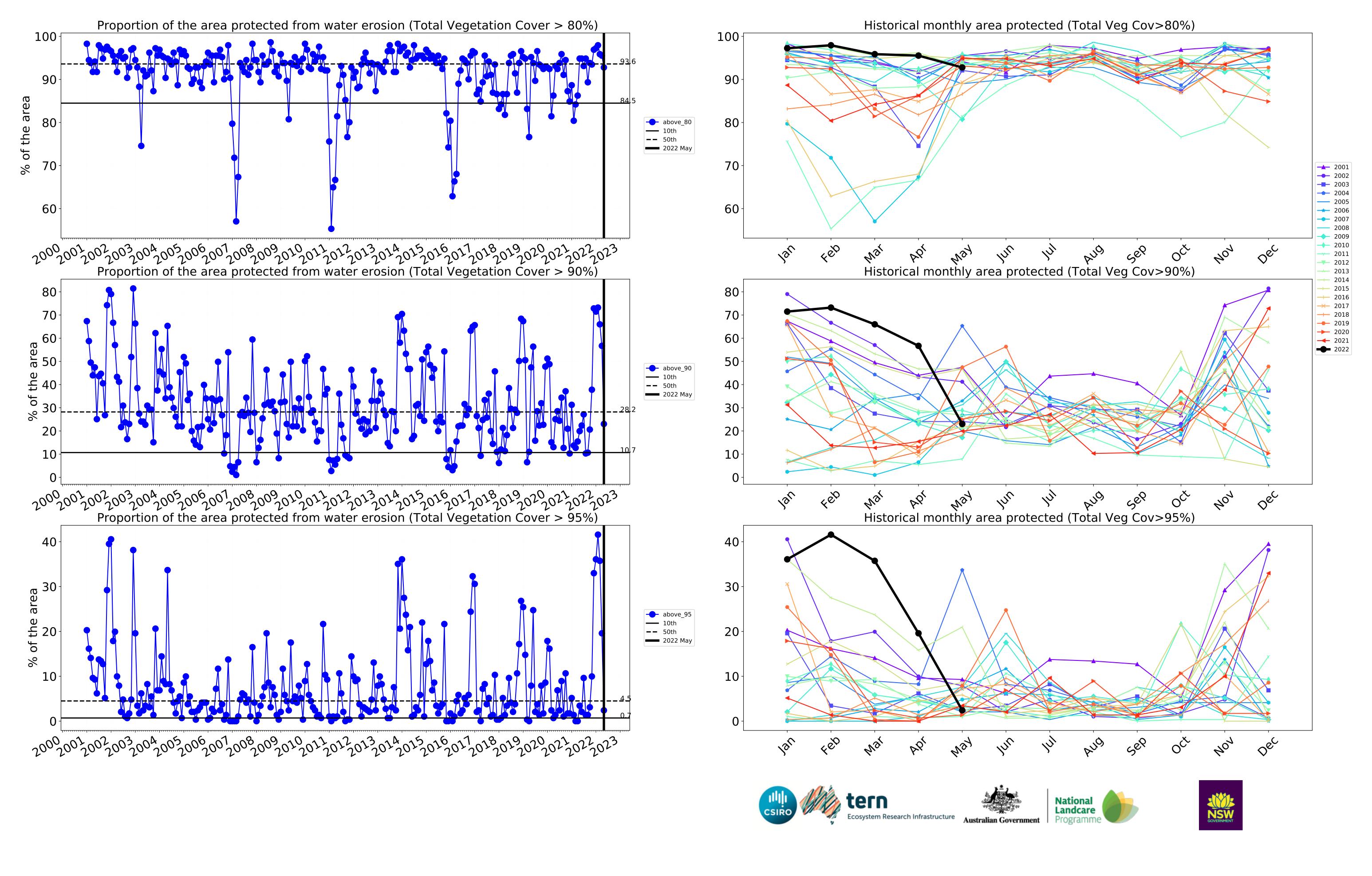




Grazing non forest timeseries

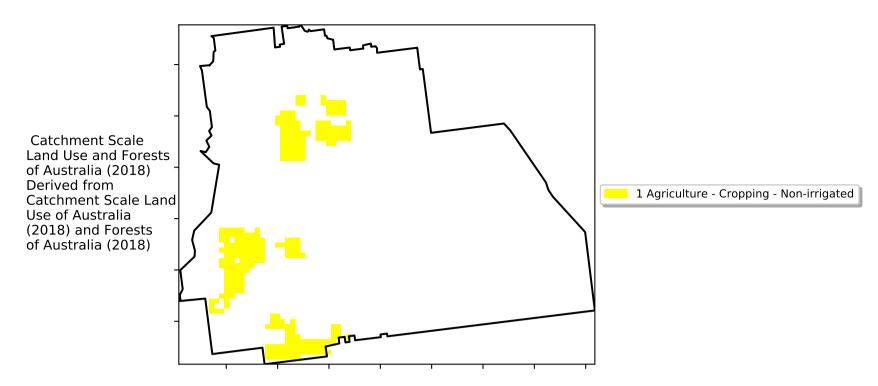




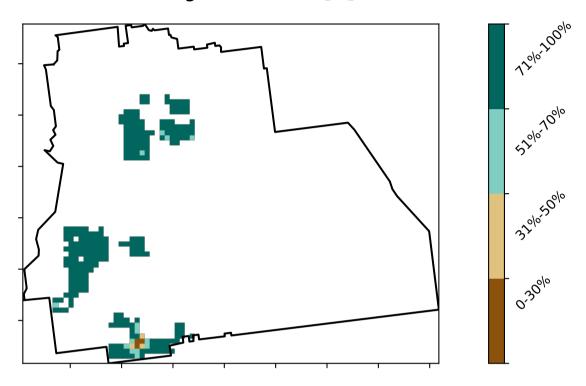


Cropping

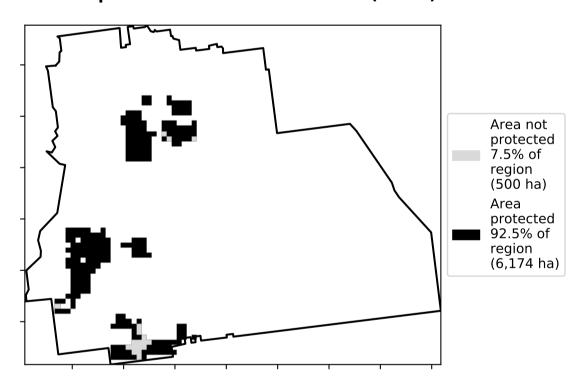
Land use and forest cover



Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

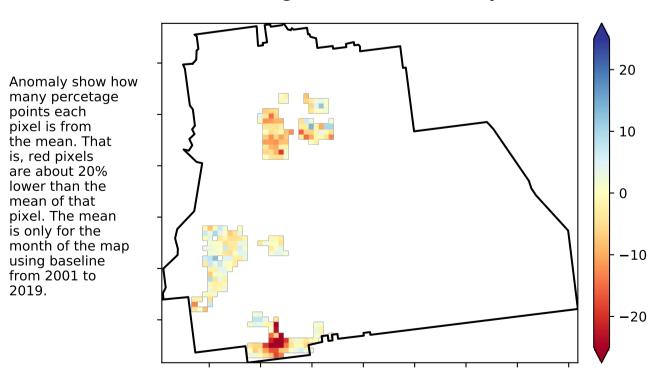


Total Vegetation Cover Anomaly [%]

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

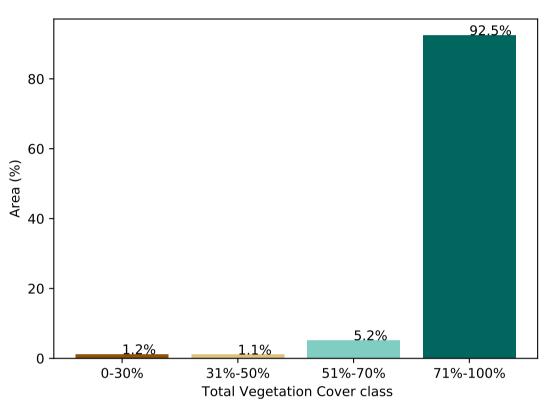
is only for the month of the map

using baseline from 2001 to 2019.

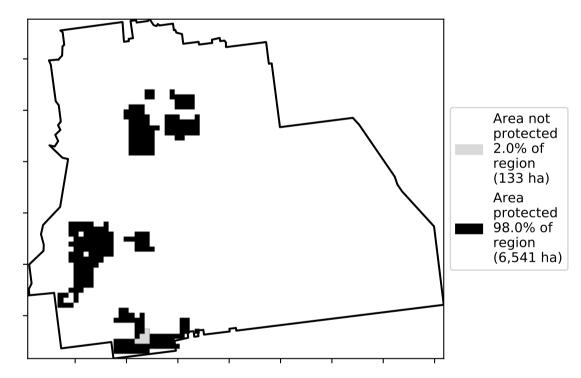


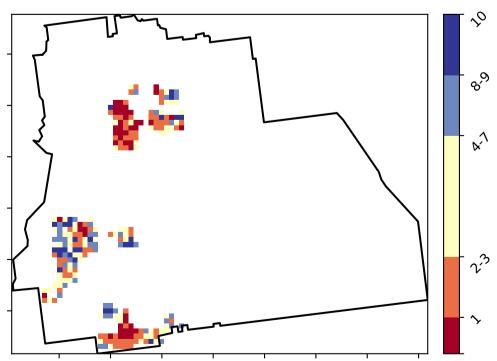
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





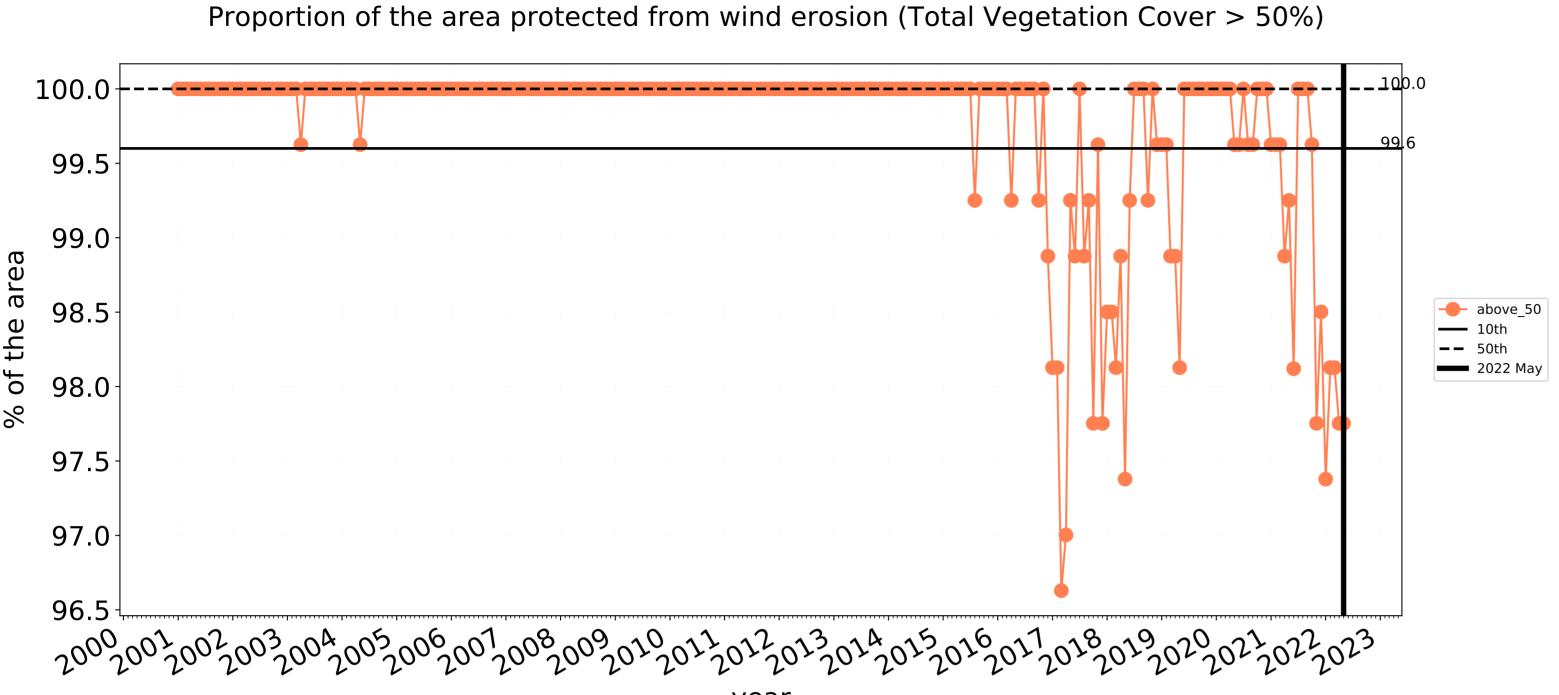


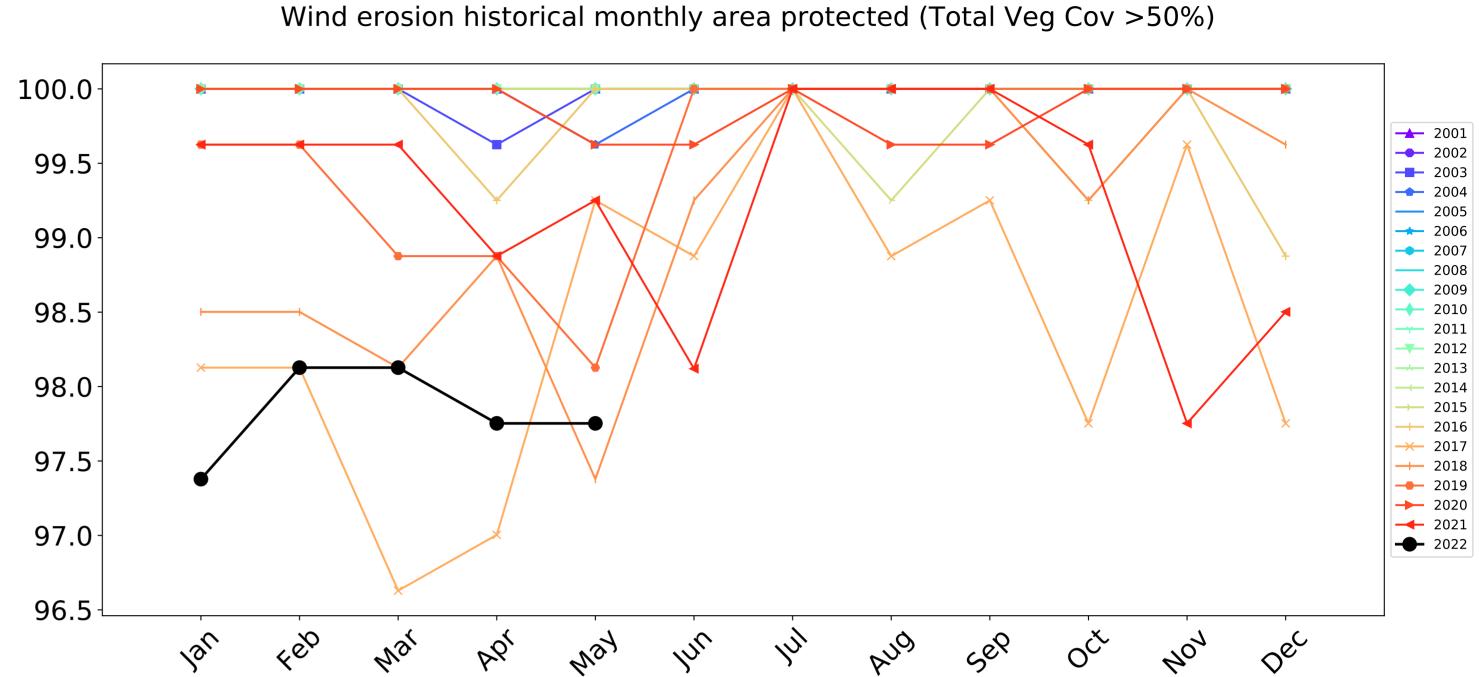




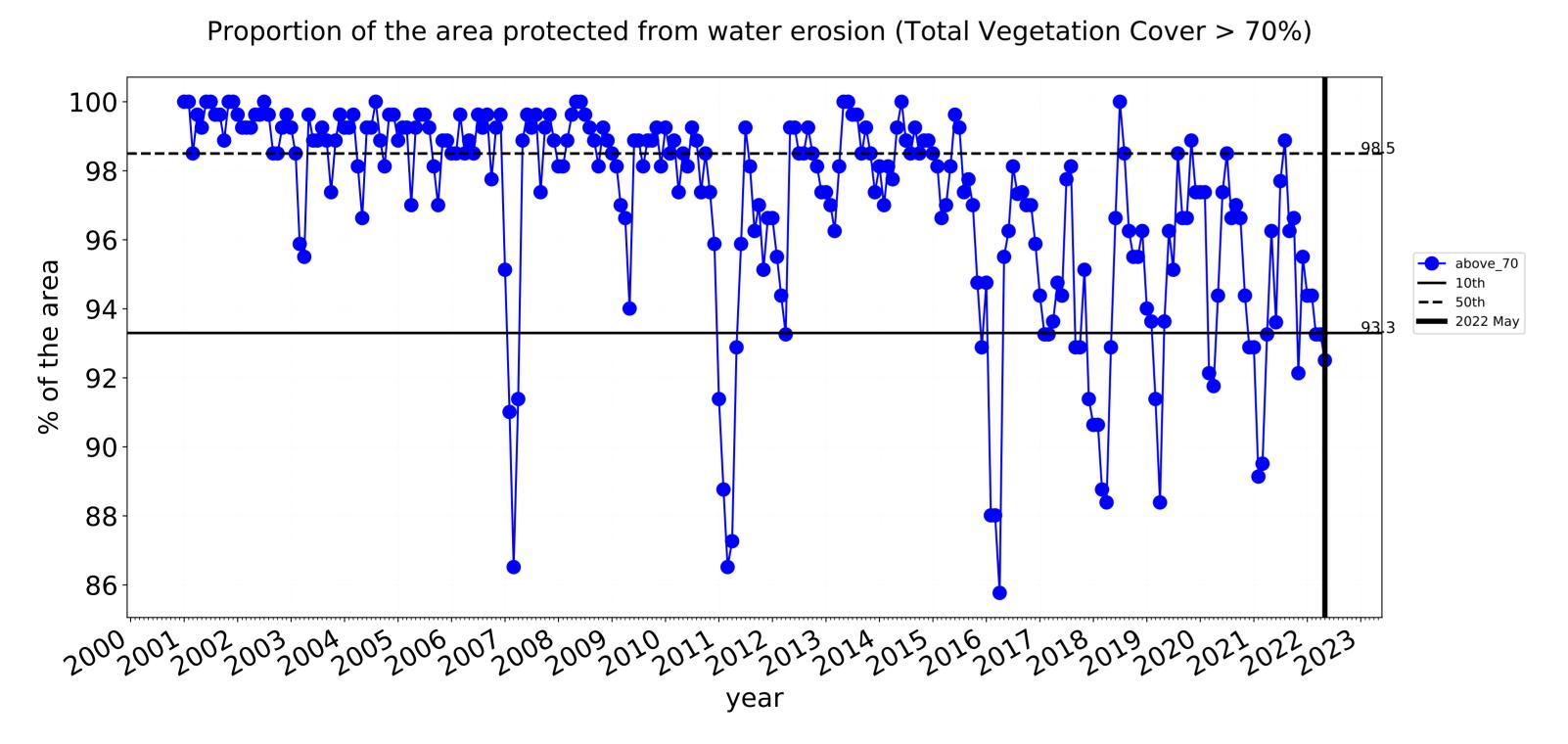


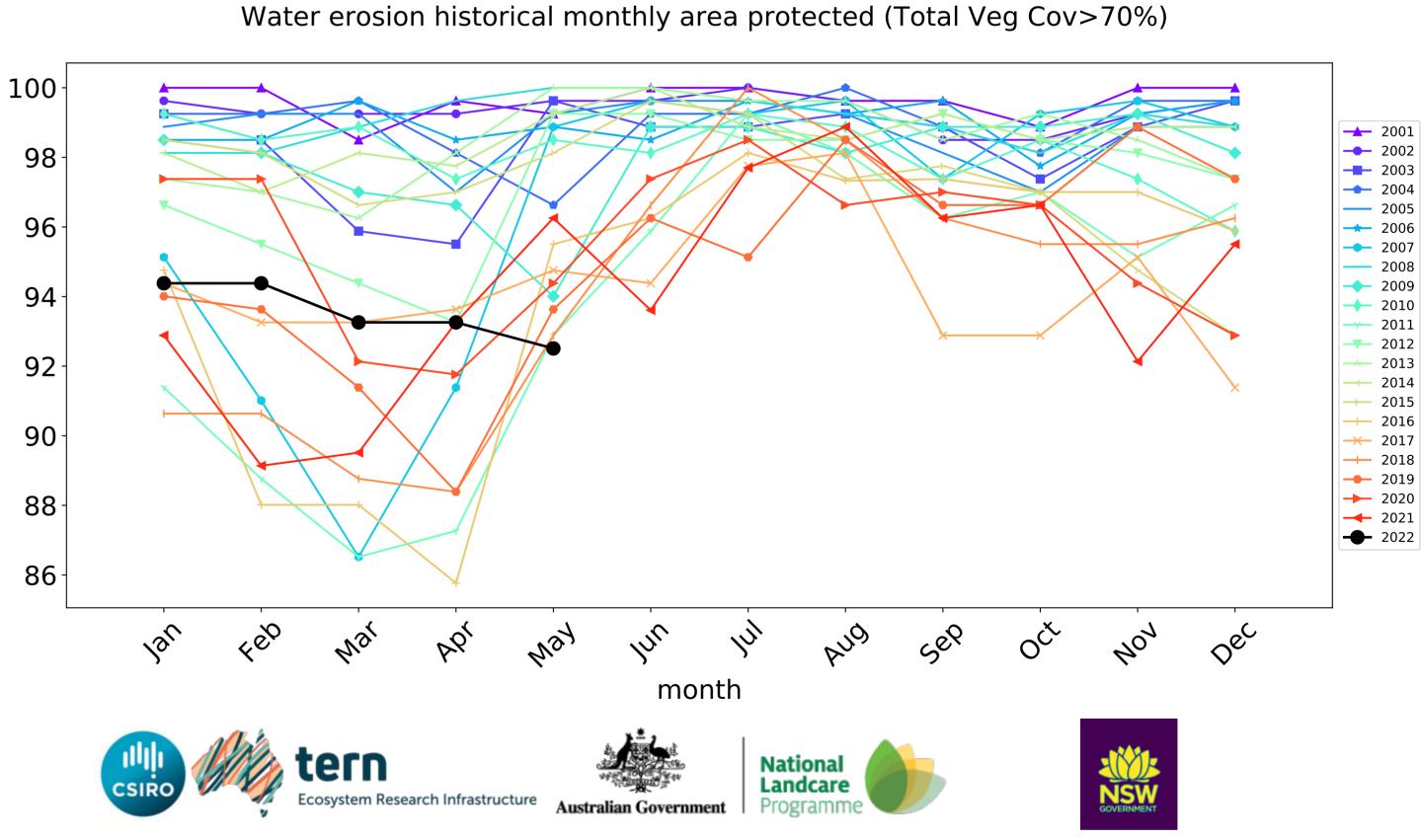
Cropping timeseries

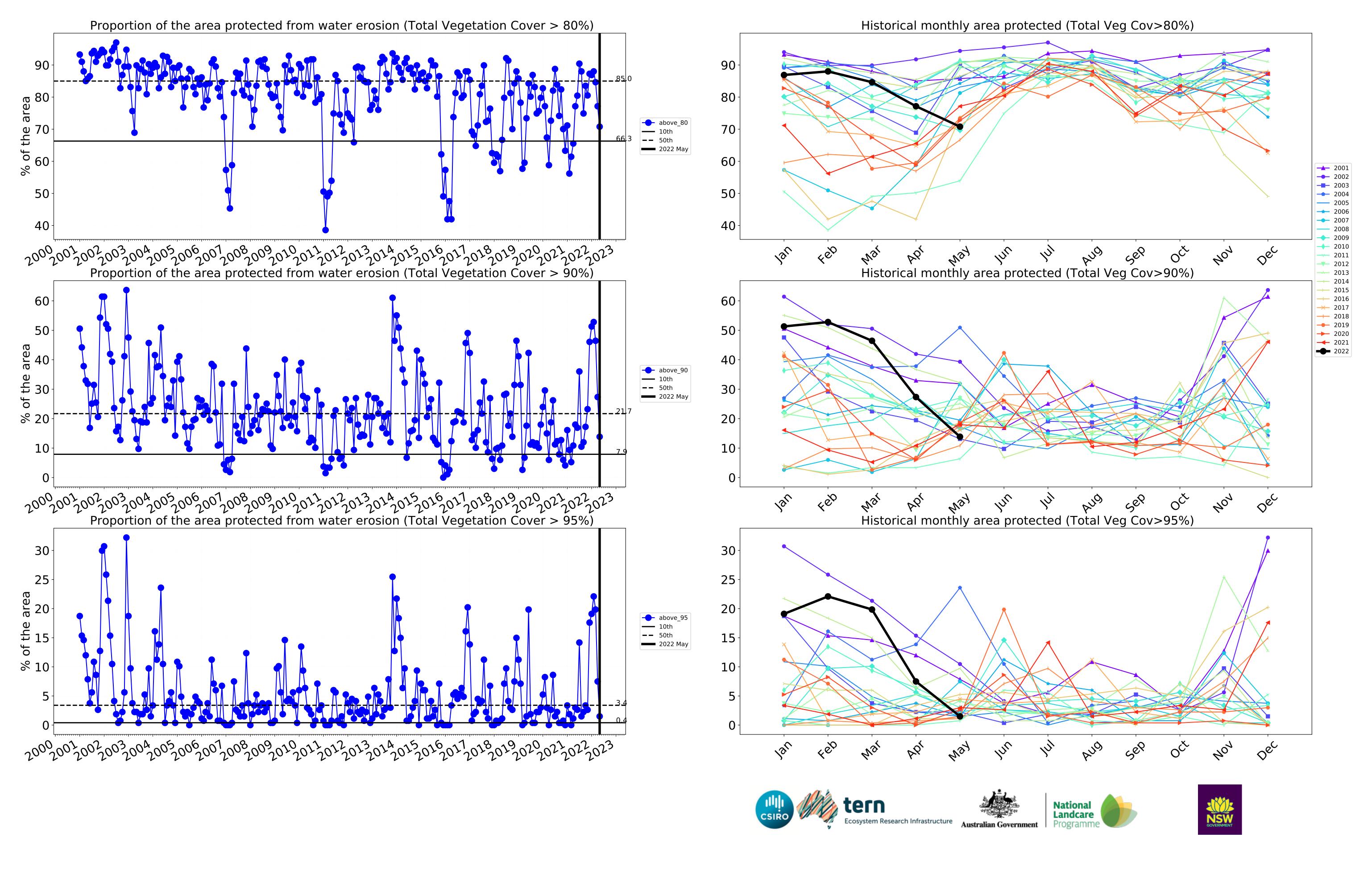




month







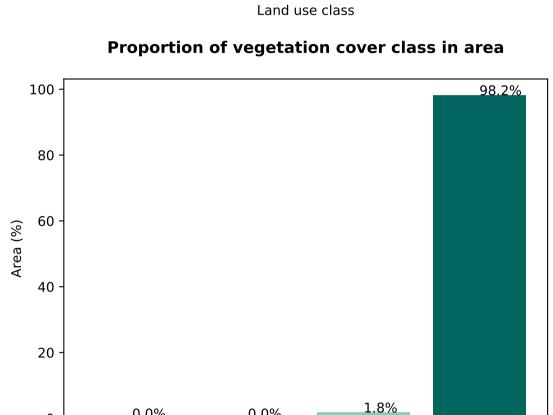
Irrigation

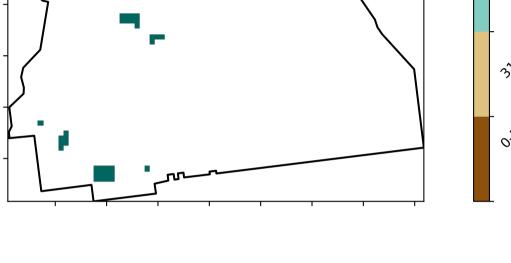
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Agriculture - Grazing - Irrigated Catchment Scale Land 2 Agriculture - Horticulture - Irrigated Use of Australia (2018) and Forests of Australia (2018)

82.1% 80 70 · 60 Area (%) 30 20 17.9% 10 -0.00 0.25 0.50 0.75 1.00 1.25 -0.25

Proportion of each land class in area

Total Vegetation Cover [%]





% Area protected from wind erosion (>50%)

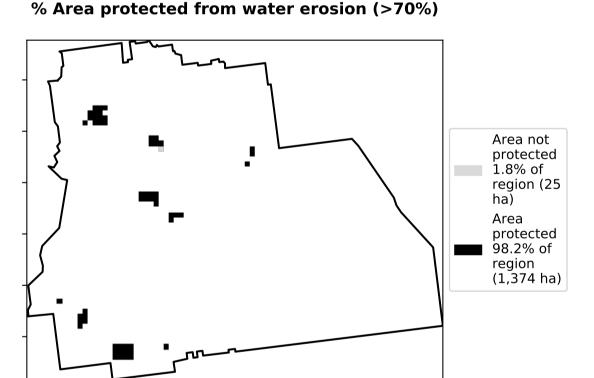
Total Vegetation Cover class

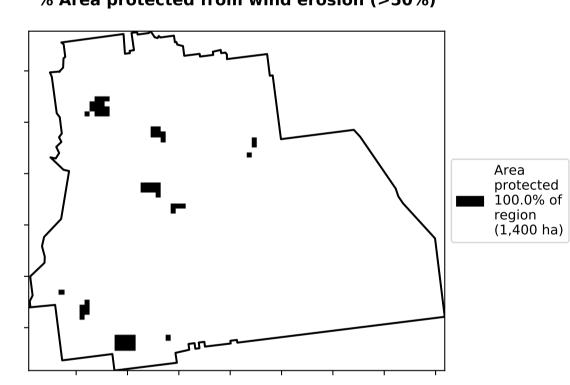
0.0%

31%-50%

0.0%

0-30%





51%-70%

71%-100%



the mean. That is, red pixels

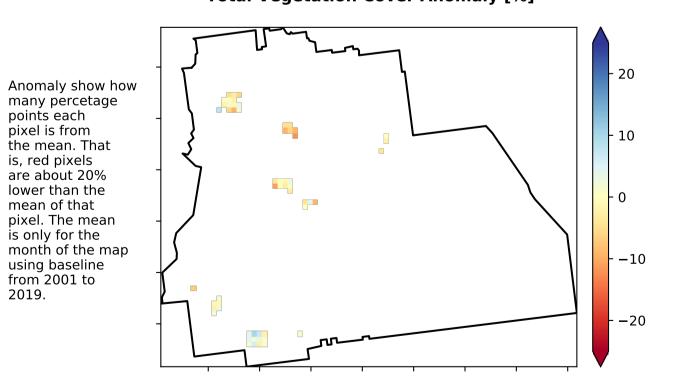
are about 20% lower than the mean of that

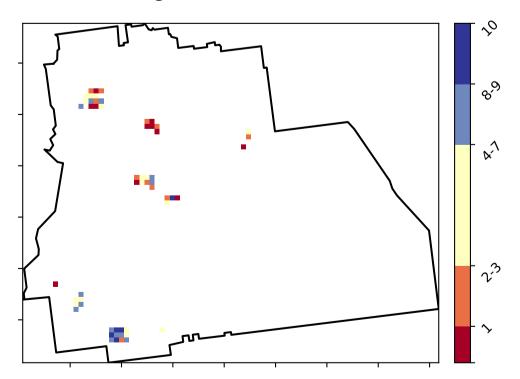
pixel. The mean

using baseline from 2001 to 2019.

is only for the month of the map

Total Vegetation Cover Decile [%]





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

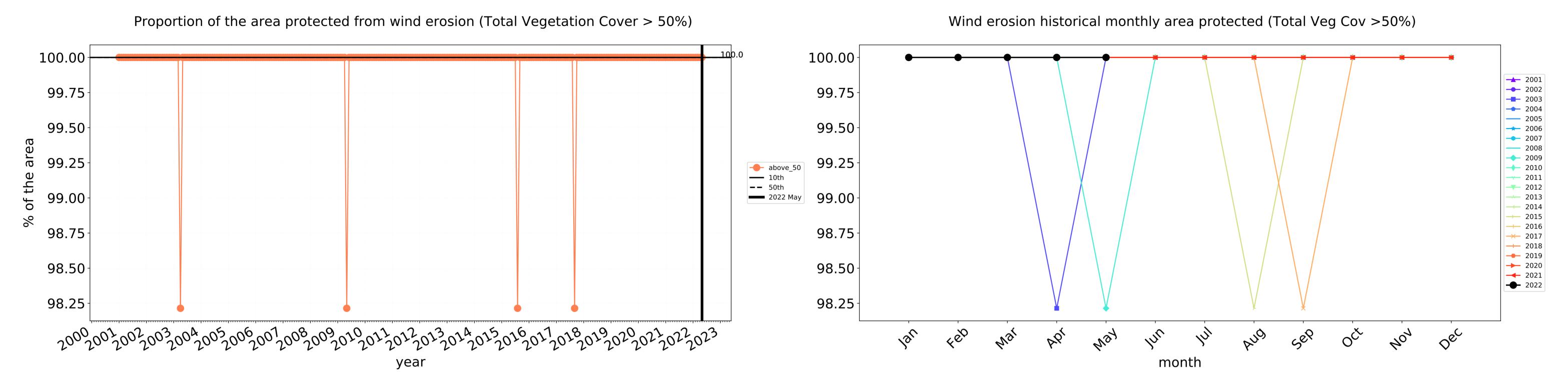


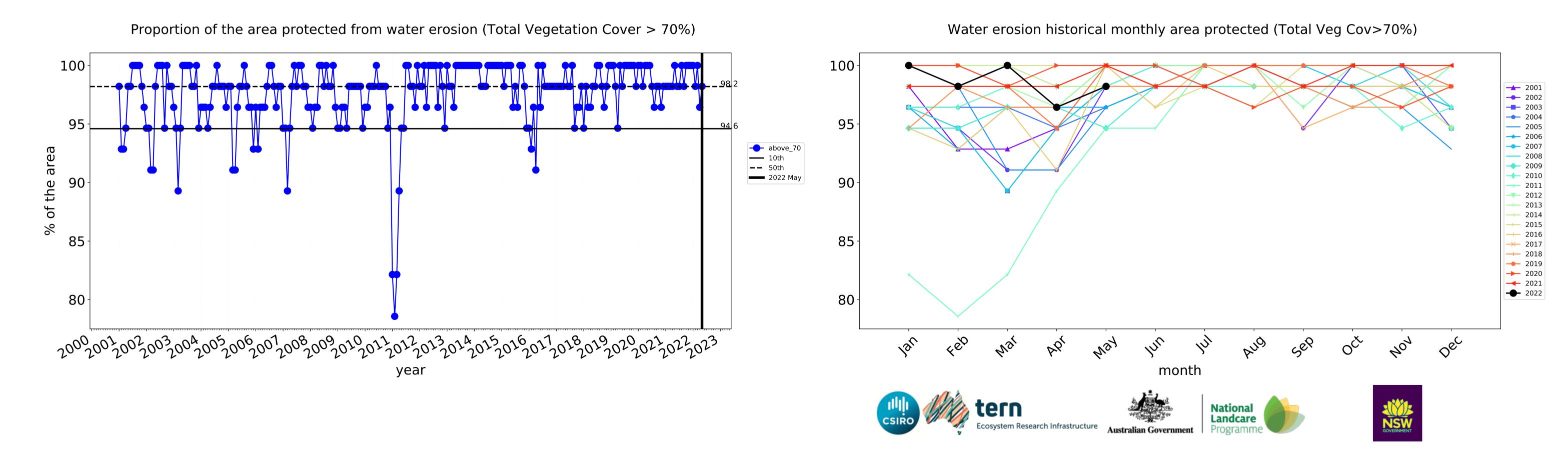


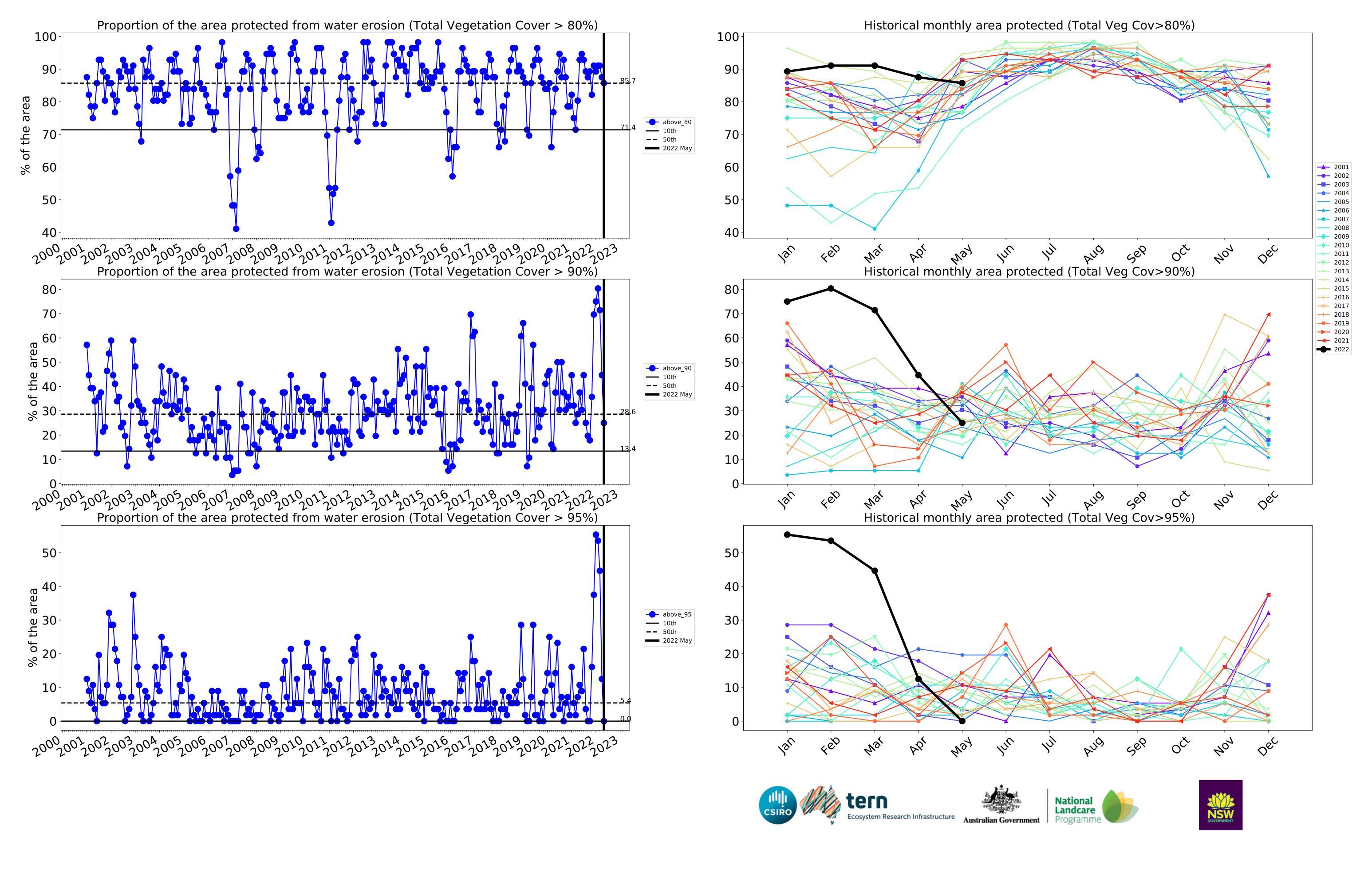




Irrigation timeseries







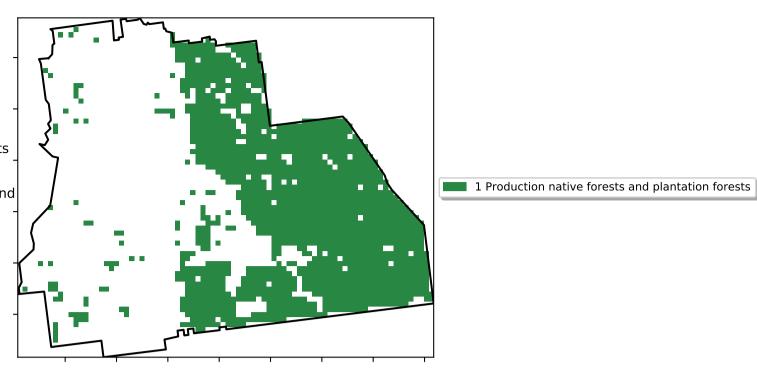
Production native forests and plantation forests

Land use and forest cover

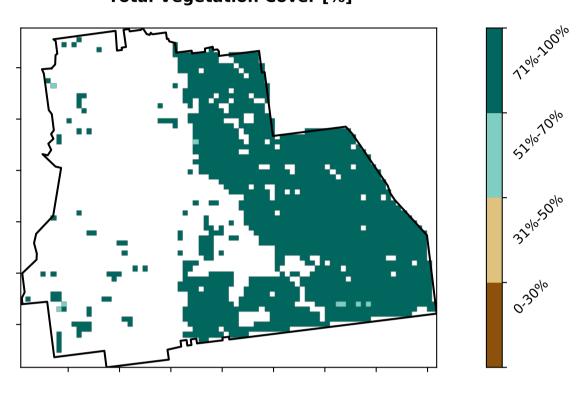
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

are about 20% lower than the mean of that

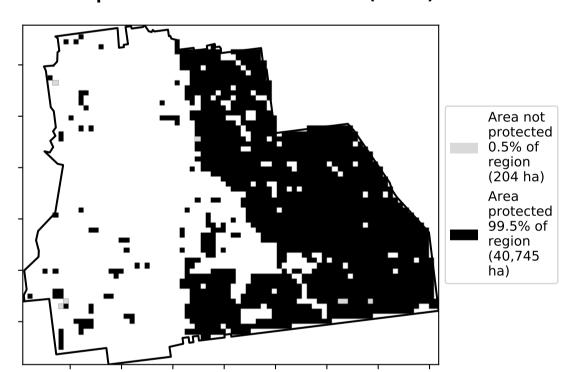
pixel. The mean



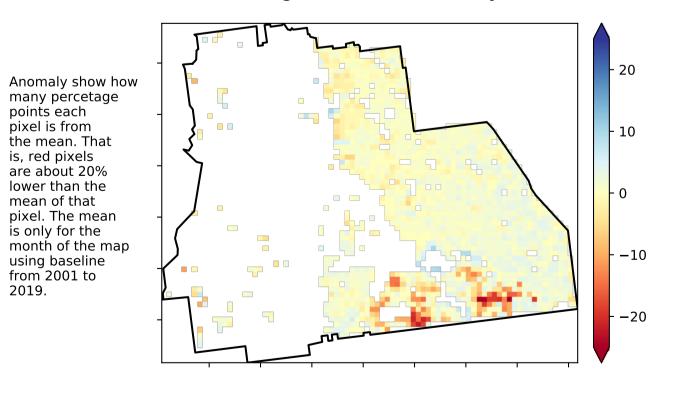
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

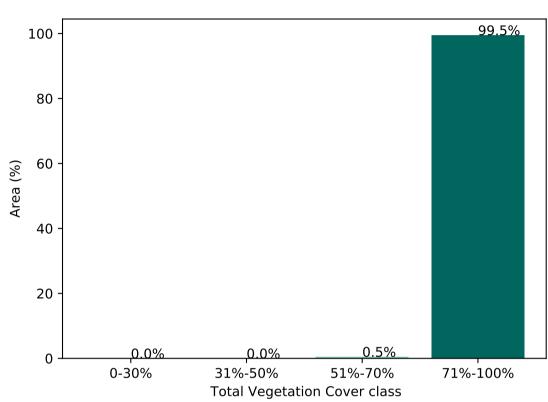


Total Vegetation Cover Anomaly [%]

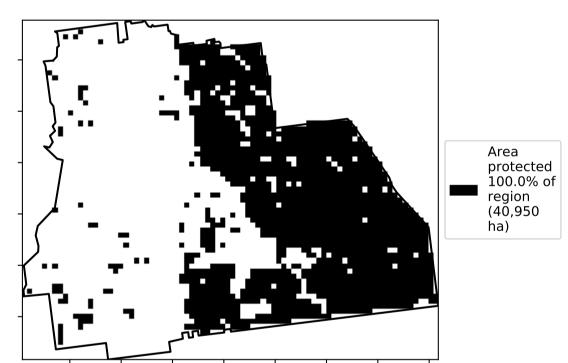


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

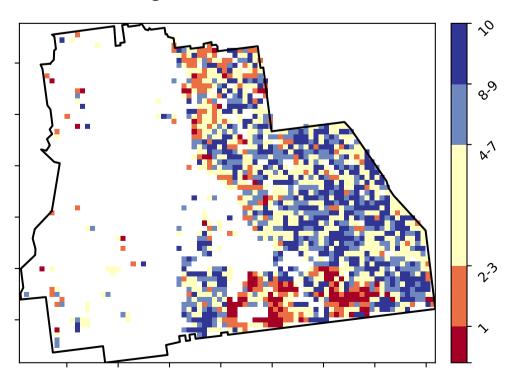
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]



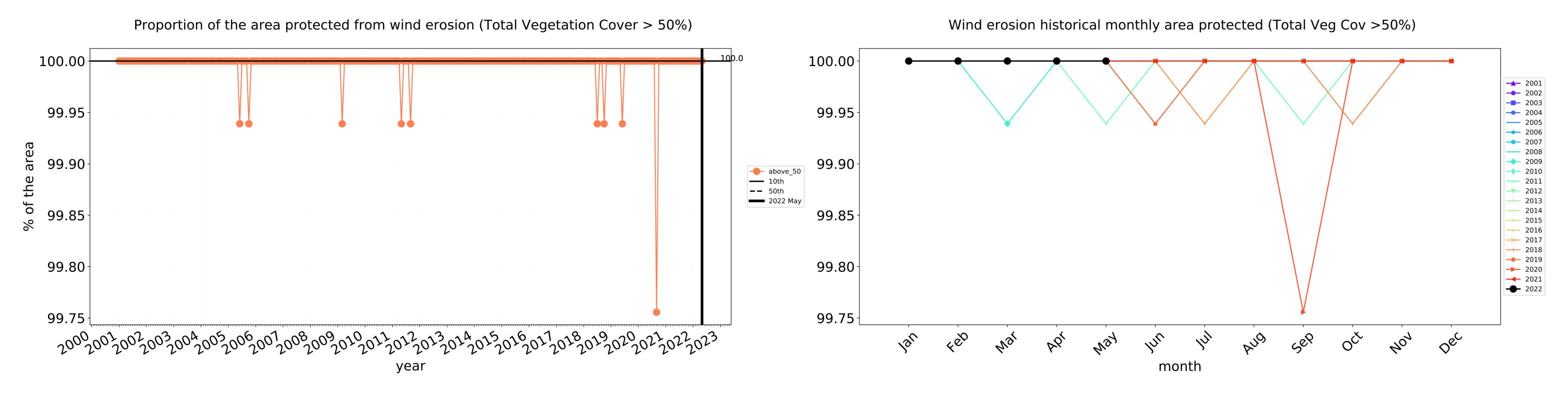


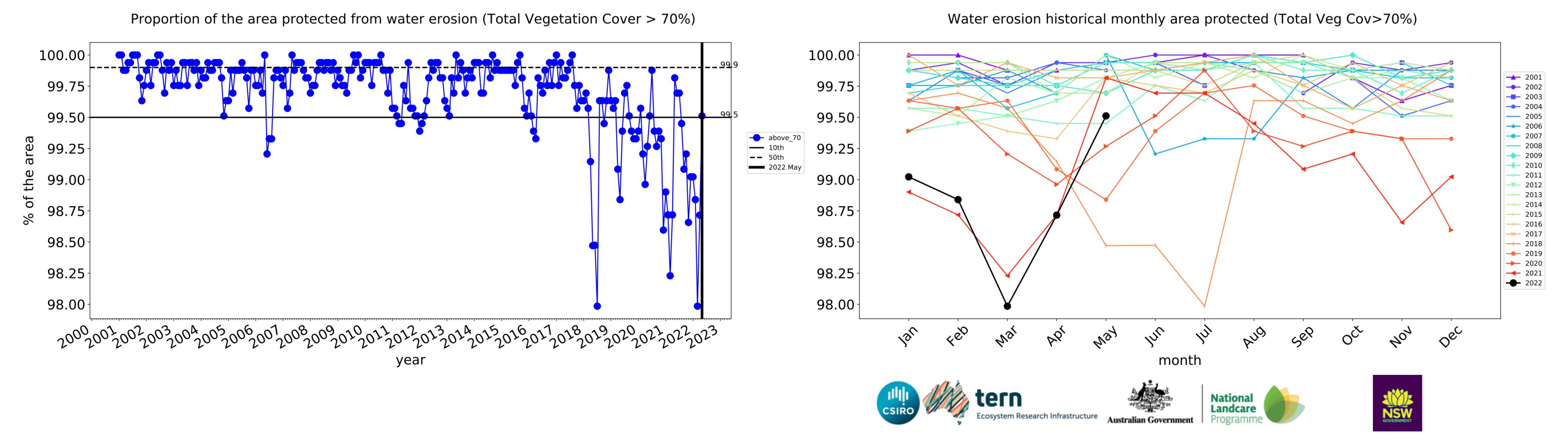


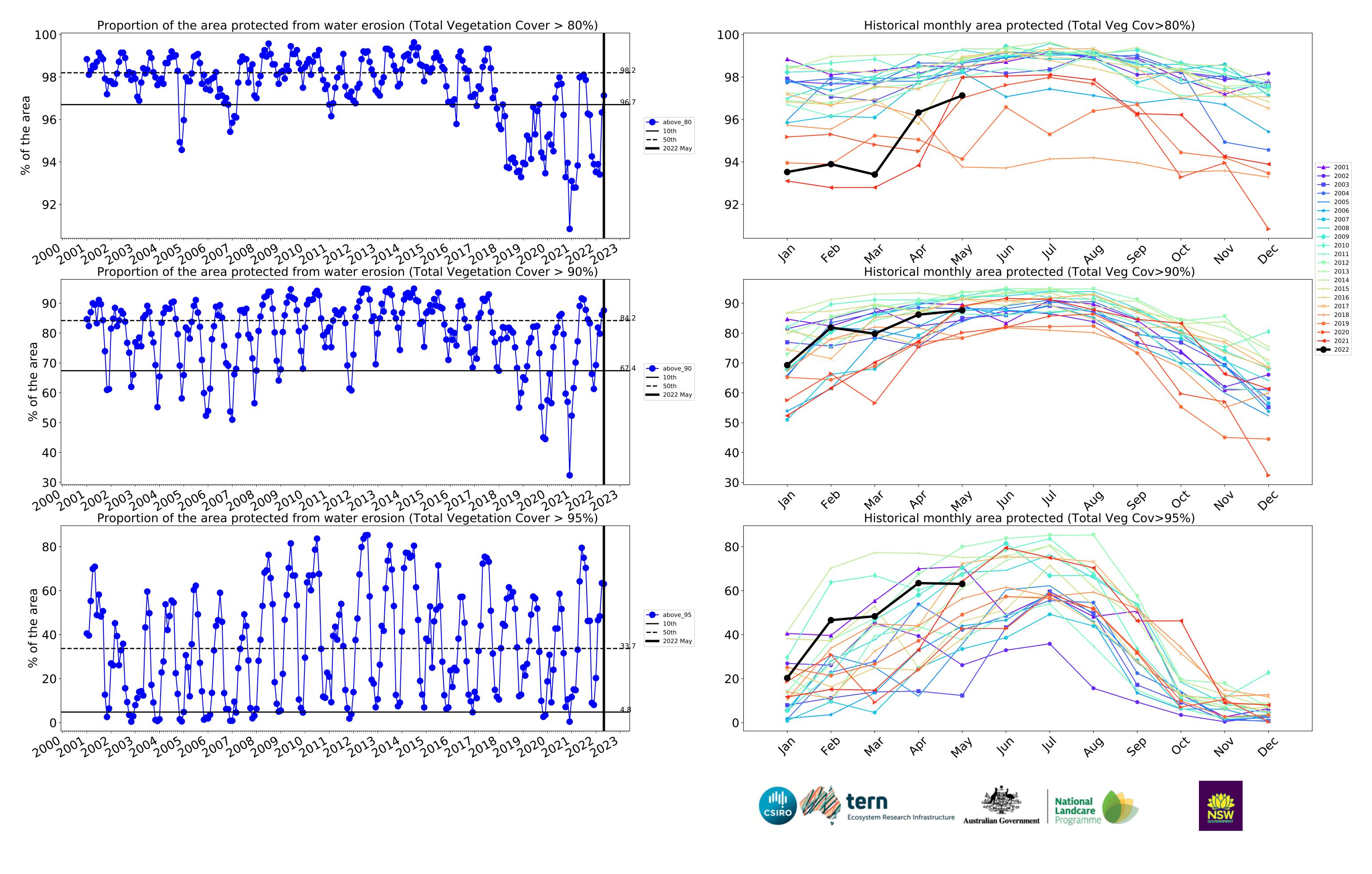




Production native forests and plantation forests timeseries







Serpentine-Jarrahdale_(S) (90,125 ha and no data 9 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	90,125	99.9% 90,050	99.8% 89,950	97.8% 88,150	88.9% 80,150	55.9% 50,350	34.9% 31,450
Conservation and natural environments	9,025	100.0% 9,025	100.0% 9,025	99.4% 8,975	93.4% 8,425	72.6% 6,550	42.1% 3,800
Conservation and natural environments non forest	1,325	100.0% 1,325	100.0% 1,325	100.0% 1,325	86.8% 1,150	26.4% 350	5.7% 75
Conservation and natural environments Woodland forest	3,275	100.0% 3,275	100.0% 3,275	98.5% 3,225	87.8% 2,875	64.9% 2,125	22.1% 725
Conservation and natural environments Forest (non woodland)	4,425	100.0% 4,425	100.0% 4,425	100.0% 4,425	99.4% 4,400	92.1% 4,075	67.8% 3,000
Agriculture	15,350	99.5% 15,275	99.0% 15,200	96.3% 14,775	82.6% 12,675	19.2% 2,950	1.8% 275
Grazing	7,275	100.0% 7,275	100.0% 7,275	99.3% 7,225	92.8% 6,750	23.0% 1,675	2.4% 175
Grazing non forest	7,275	100.0% 7,275	100.0% 7,275	99.3% 7,225	92.8% 6,750	23.0% 1,675	2.4% 175
Cropping	6,675	98.9% 6,600	97.8% 6,525	92.5% 6,175	70.8% 4,725	13.9% 925	1.5% 100
Irrigation	1,400	100.0% 1,400	100.0% 1,400	98.2% 1,375	85.7% 1,200	25.0% 350	0.0%
Production native forests and plantation forests	40,950	100.0% 40,950	100.0% 40,950	99.5% 40,750	97.1% 39,775	87.6% 35,875	63.1% 25,825







