# Total vegetation cover soil protection Region:LGA Indigo\_(S) VIC

This report describes vegetation protecting the soil surface from erosion during a chosen month compared to previous years. This report has been generated using MODIS fractional vegetation cover information available in Rangelands and Pasture Productivity (RAPP) map tool https://map.geo-rapp.org/#australia. The report is based on 500 metre pixel data on monthly time steps.

Land use forest cover:

Date: June 2022

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



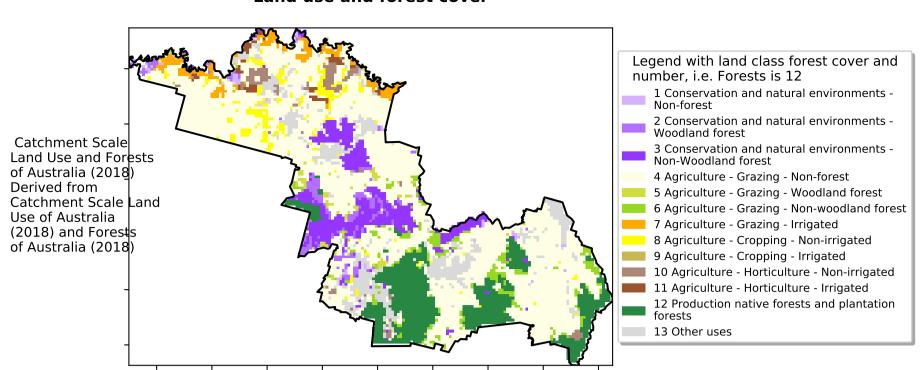




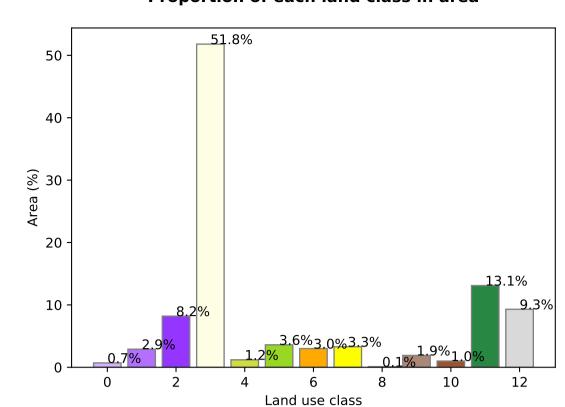


#### **Vegetation Cover Jun 2022**

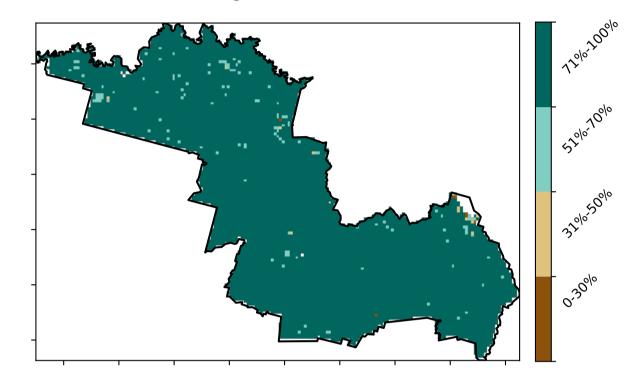
#### Land use and forest cover



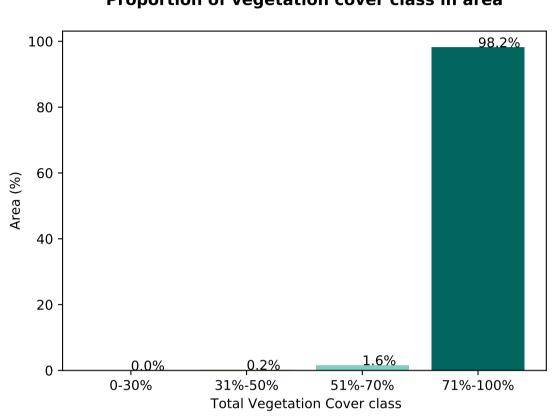
#### Proportion of each land class in area

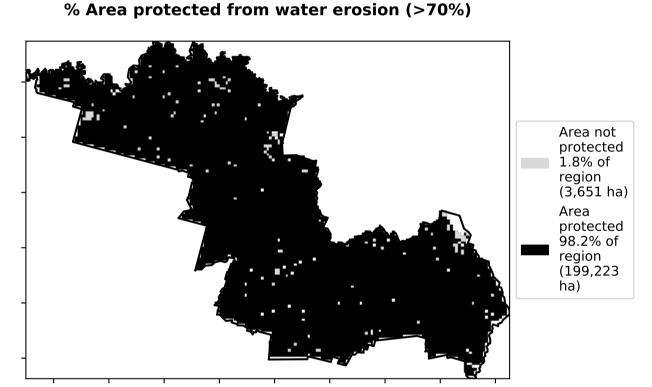


#### **Total Vegetation Cover [%]**

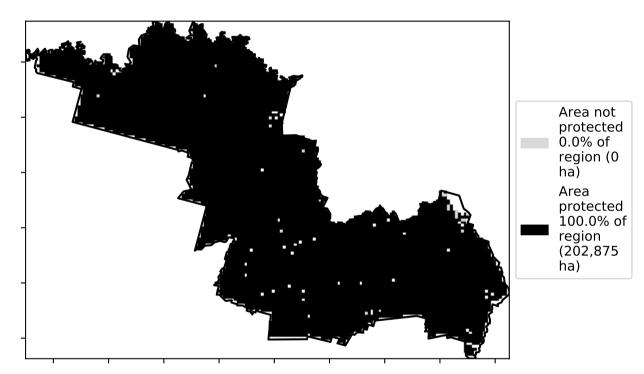


**Proportion of vegetation cover class in area** 

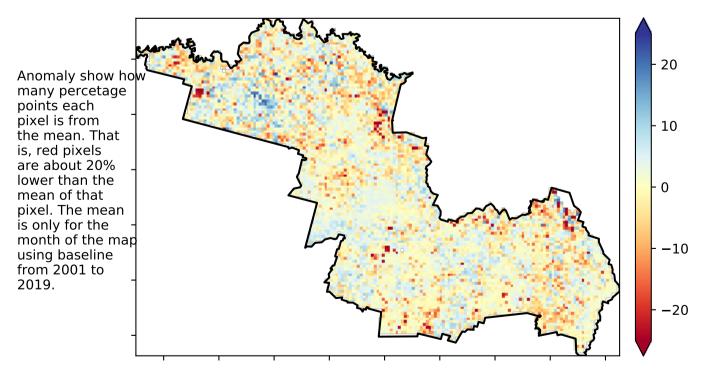




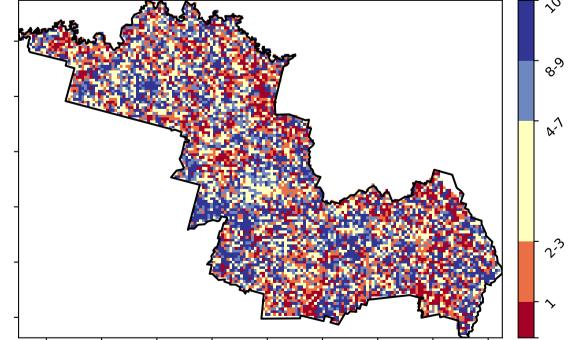
% Area protected from wind erosion (>50%)



#### **Total Vegetation Cover Anomaly [%]**



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

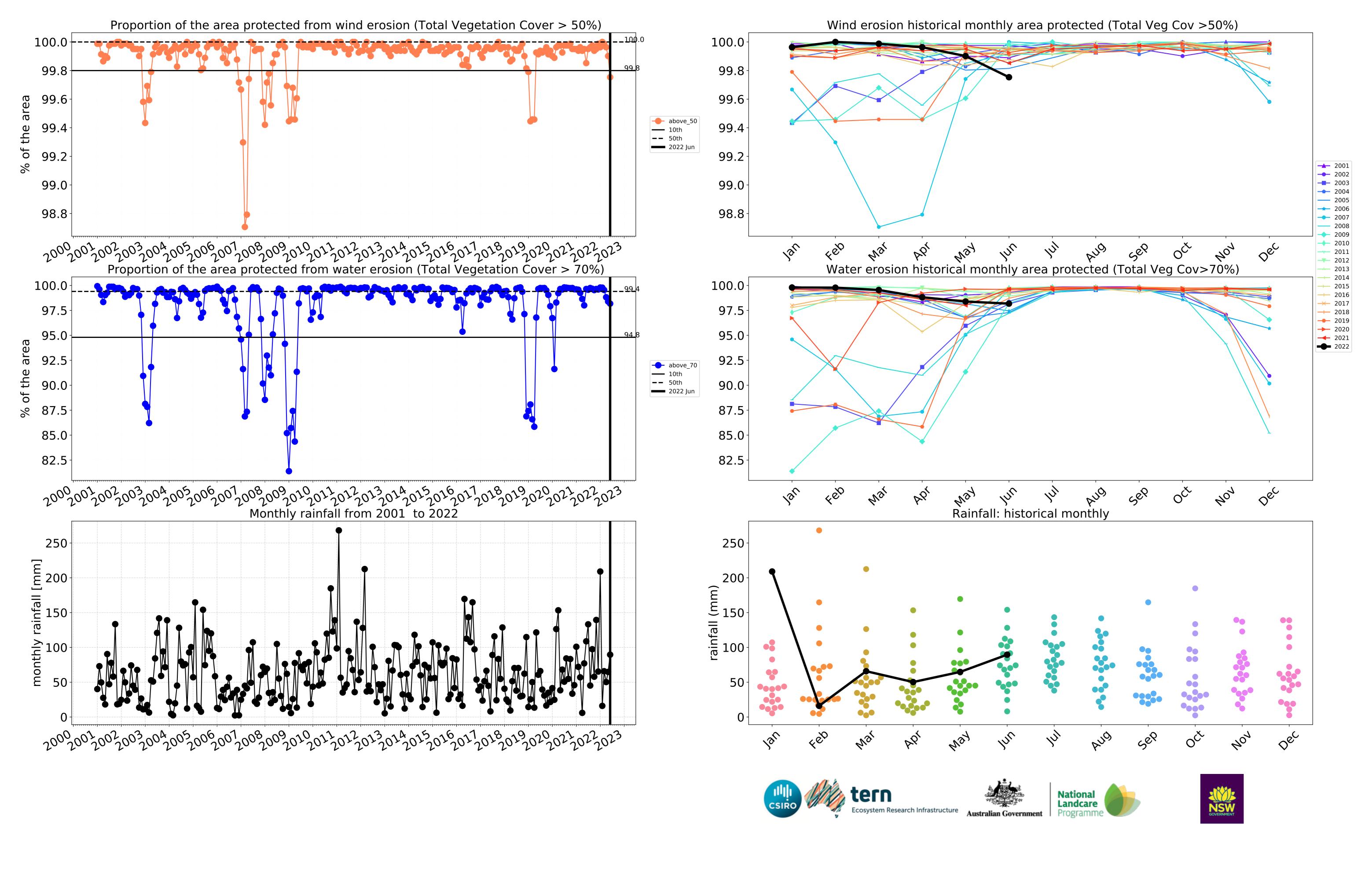


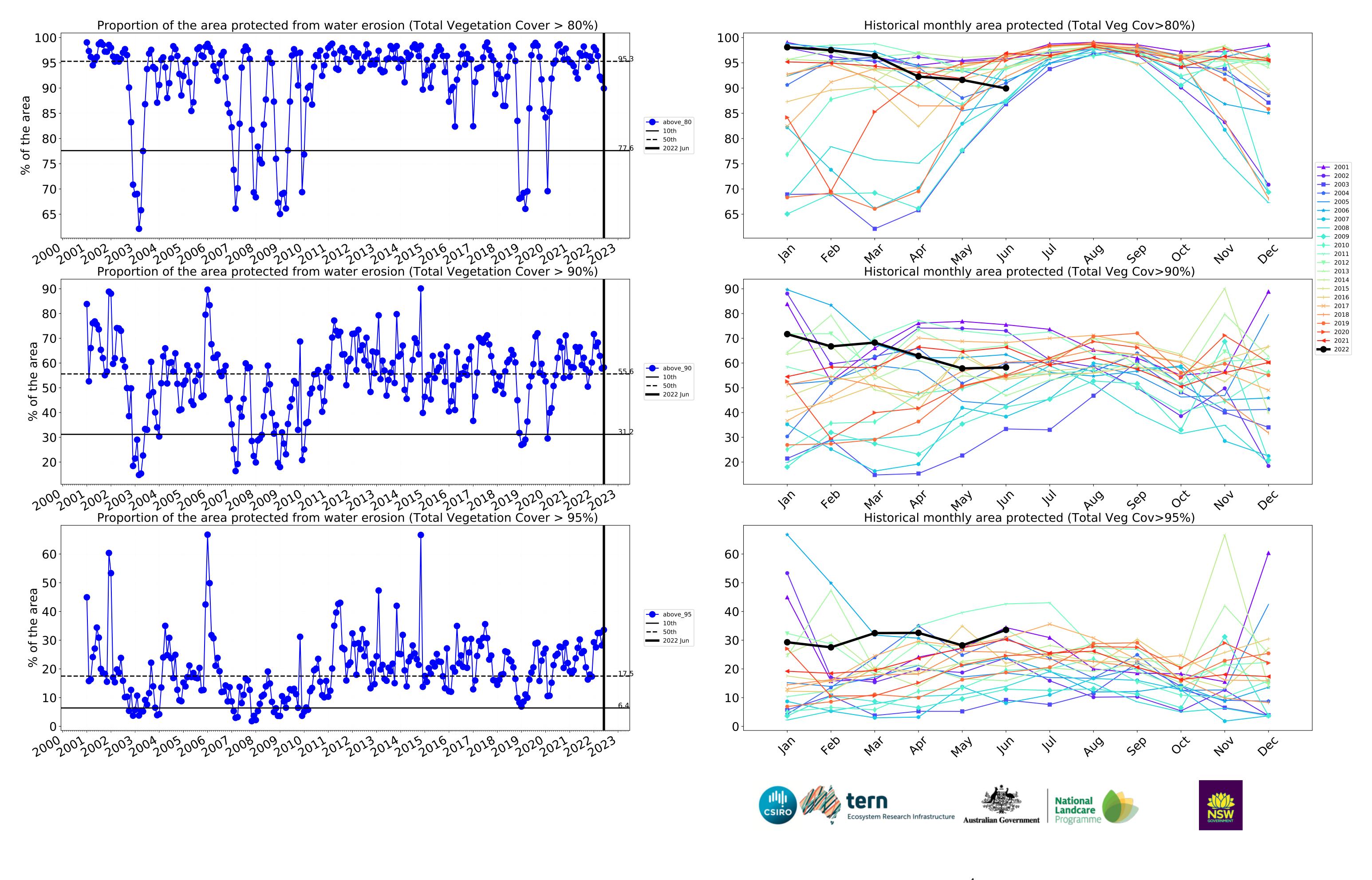












#### **Conservation and natural environments**

#### Land use and forest cover **Proportion of each land class in area** 69.3% 70 60 · Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments - Nonforest 2 Conservation and natural environments - Woodland Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 3 Conservation and natural environments - Non-woodland forest 30 24.5% 20 · 10 6.1% 1.5 -0.50.0 0.5 1.0 2.0 Land use class **Proportion of vegetation cover class in area Total Vegetation Cover [%]** 99.4% 100 80 Area (%) 20 -0.0%51%-70% 0-30% 31%-50% 71%-100% **Total Vegetation Cover class** % Area protected from water erosion (>70%) % Area protected from wind erosion (>50%) Area not protected 0.6% of Area region (144 ha) protected 100.0% of Area region (24,050 protected 99.4% of ha) region (23,905 ha) **Total Vegetation Cover Decile [%] Total Vegetation Cover Anomaly [%]** - 20 Anomaly show how many percetage points each pixel is from <sup>م</sup>ری Deciles show where the pixel value lies in the - 10 the mean. That record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of is, red pixels are about 20% lower than the - 0 mean of that pixel. The mean records for that month of is only for the -month of the map the map using baseline from 2001 to 2019. using baseline from 2001 to 2019. -10**-**20



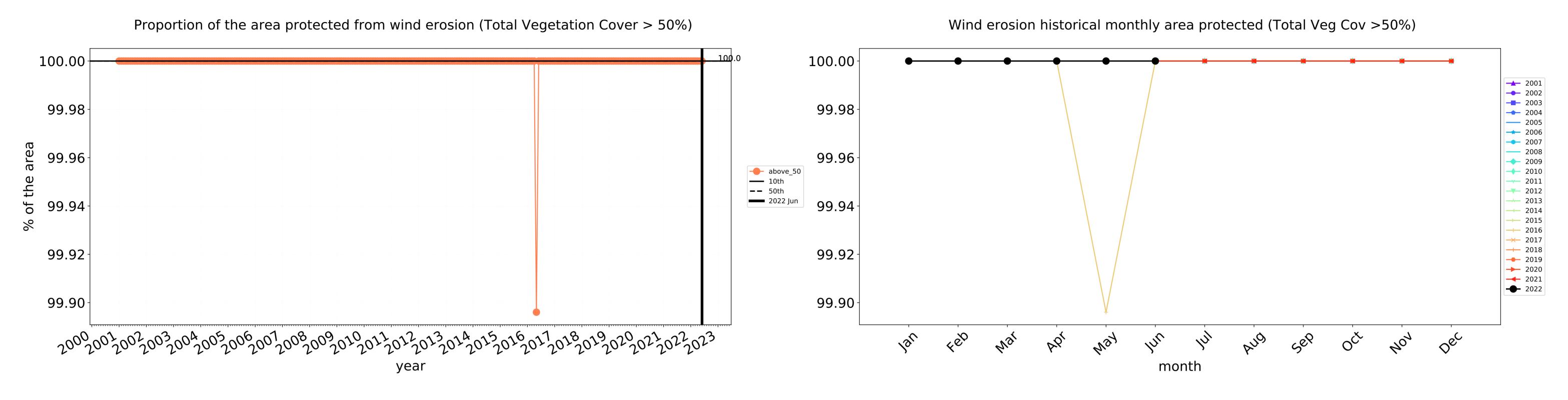
Australian Government

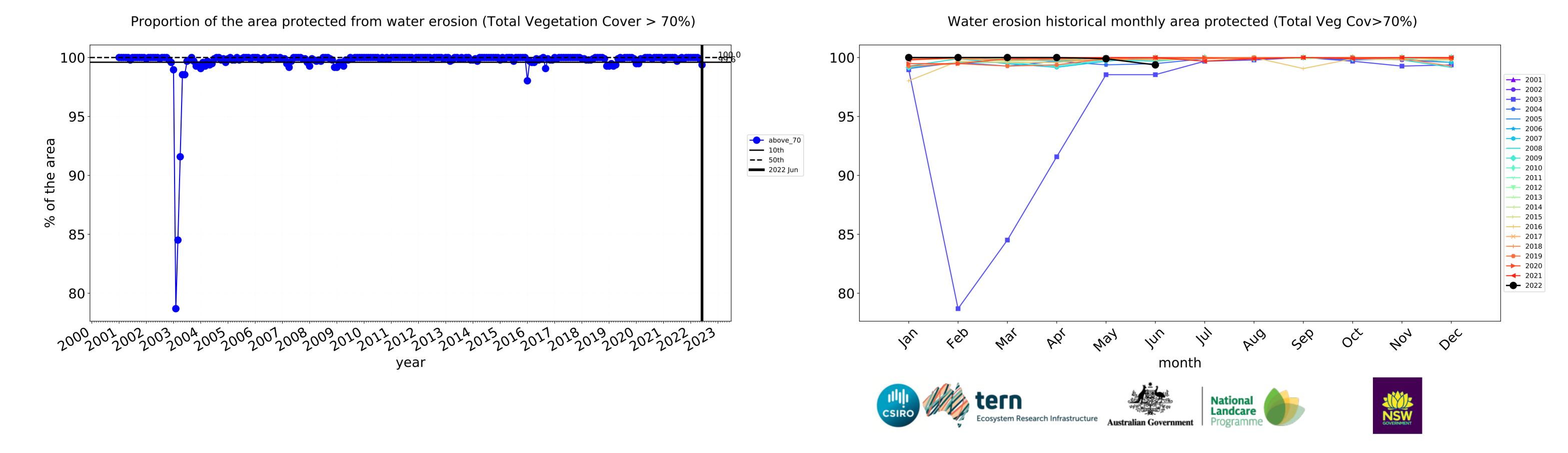
**Ecosystem Research Infrastructure** 

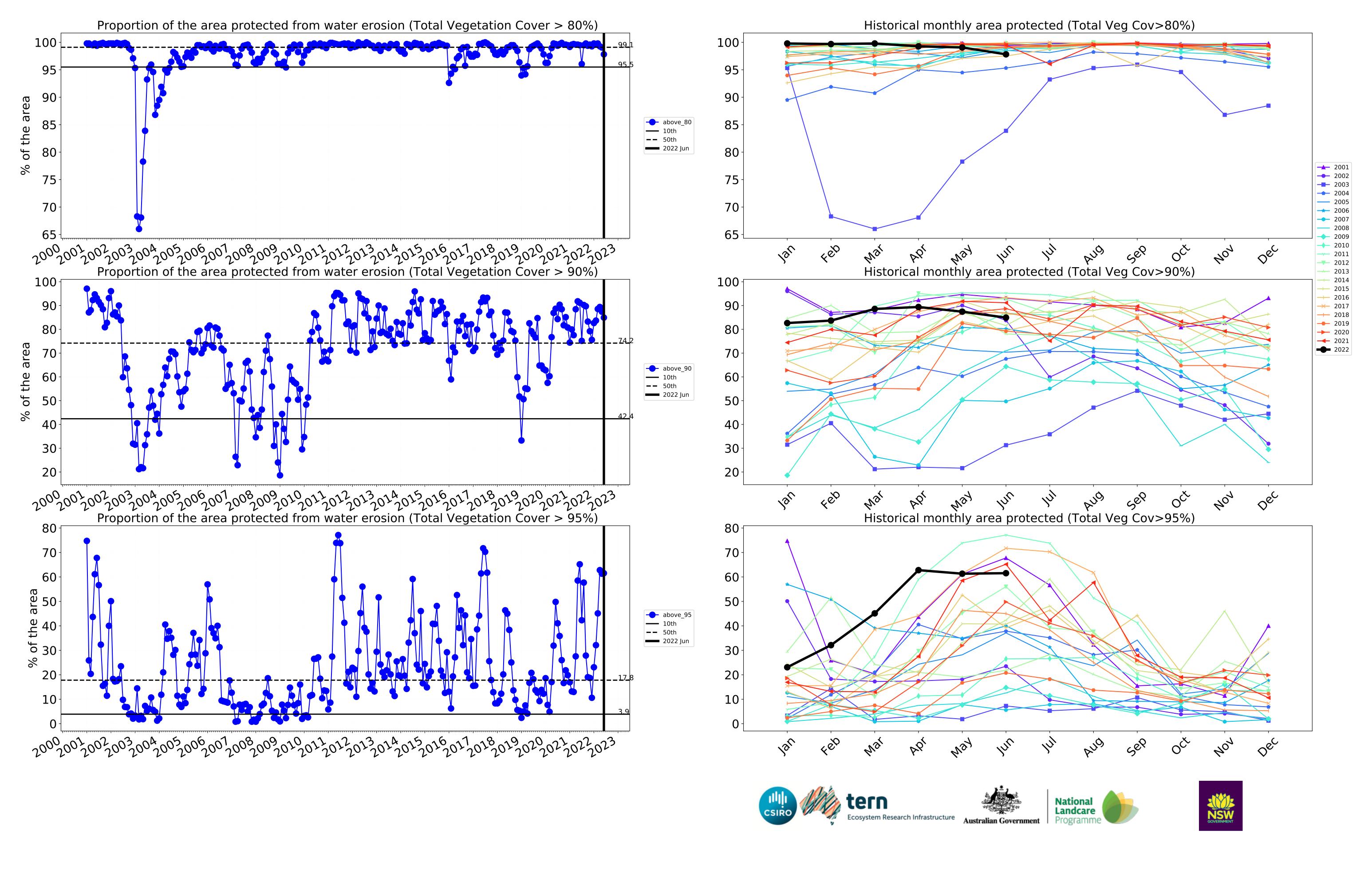
National Landcare

Programme

#### **Conservation and natural environments timeseries**

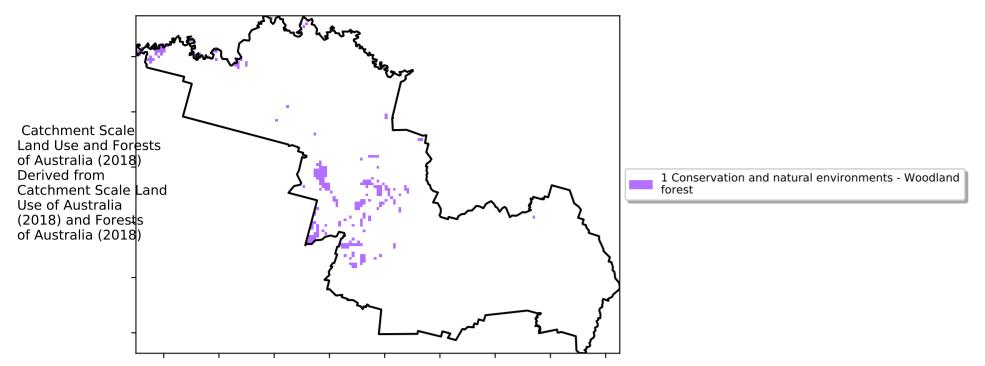




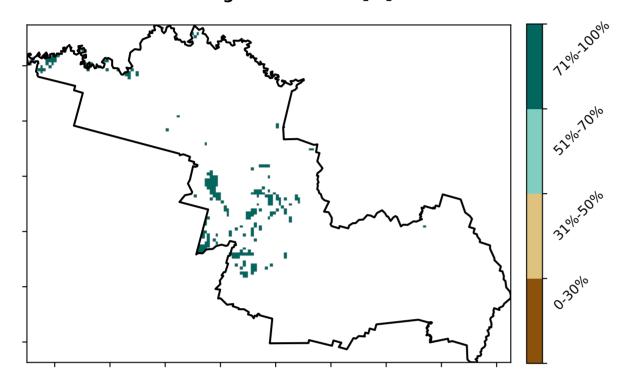


#### **Conservation and natural environments Woodland forest**

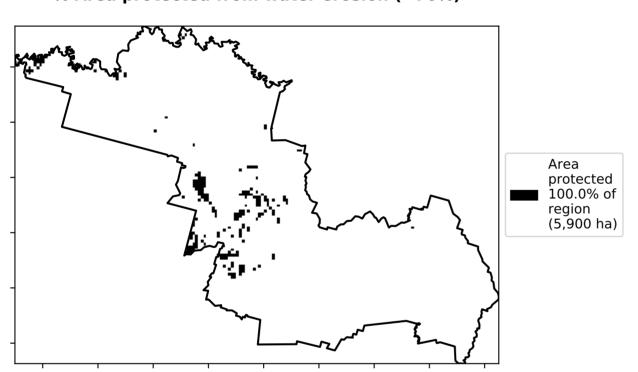
#### Land use and forest cover



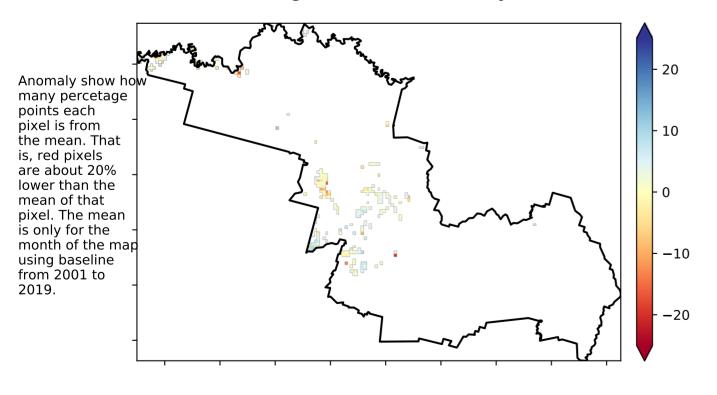
#### Total Vegetation Cover [%]



#### % Area protected from water erosion (>70%)

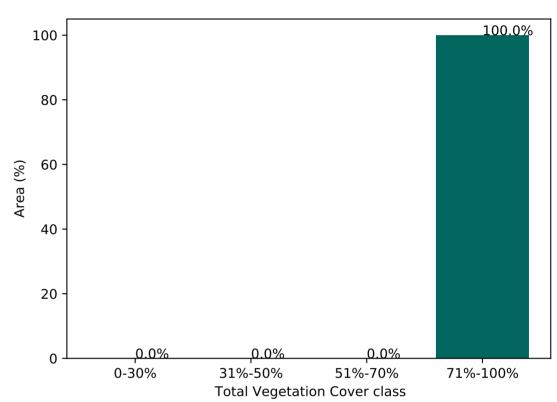


#### Total Vegetation Cover Anomaly [%]

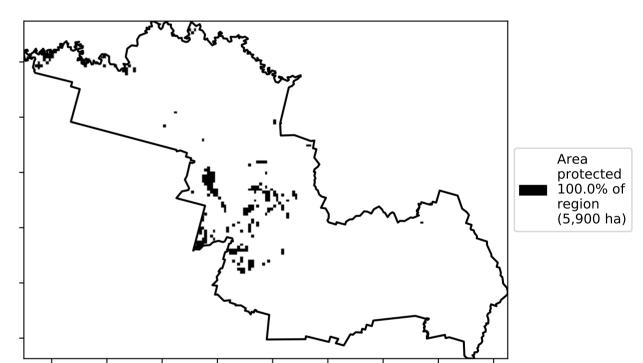


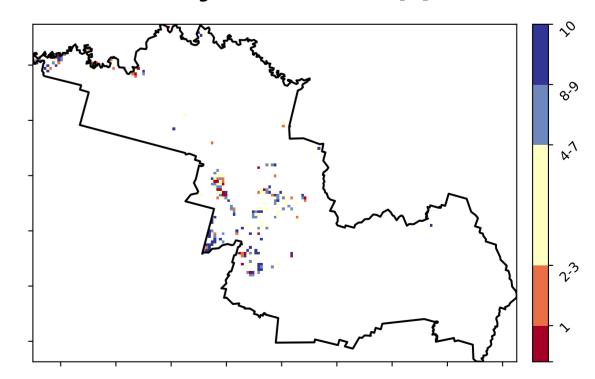
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



#### % Area protected from wind erosion (>50%)



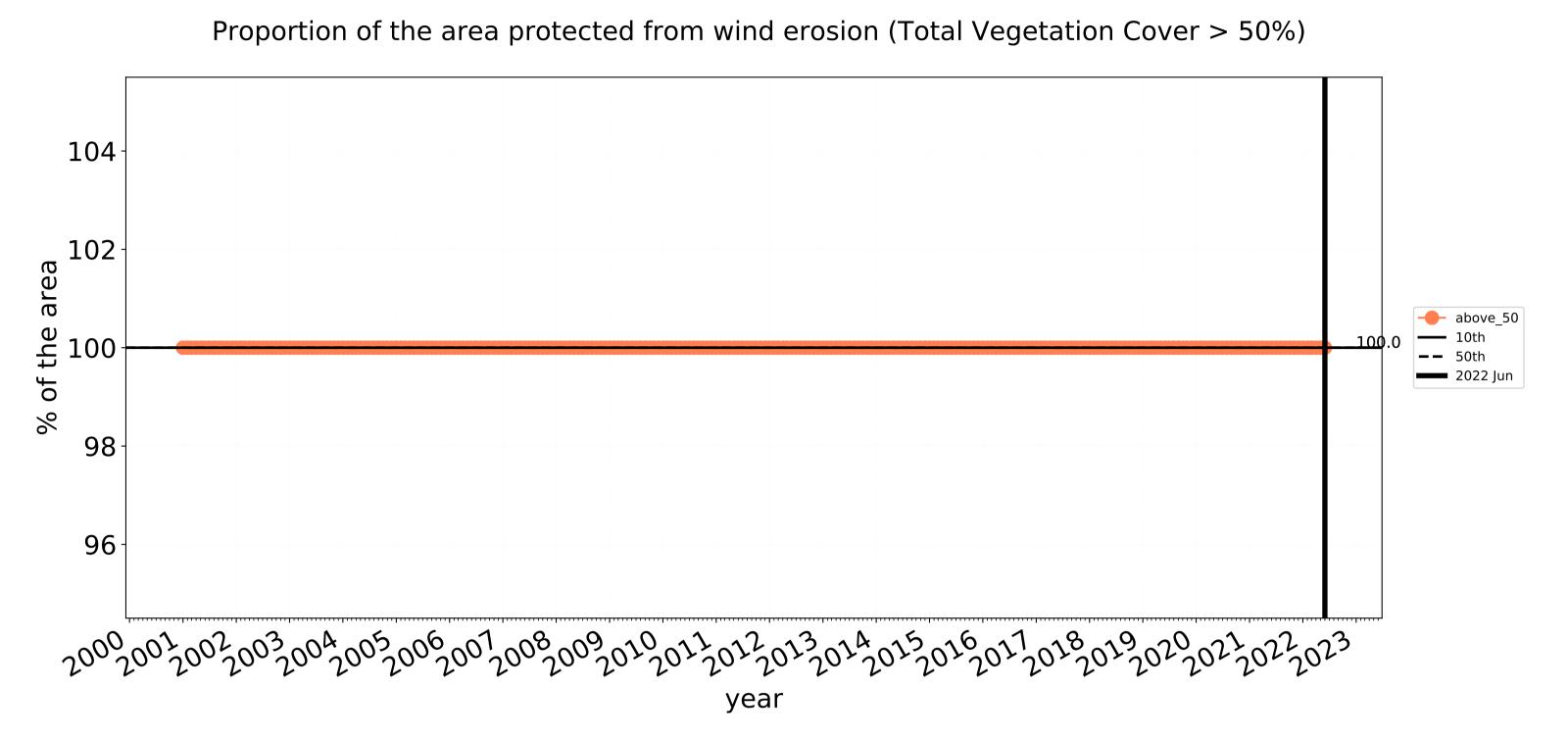




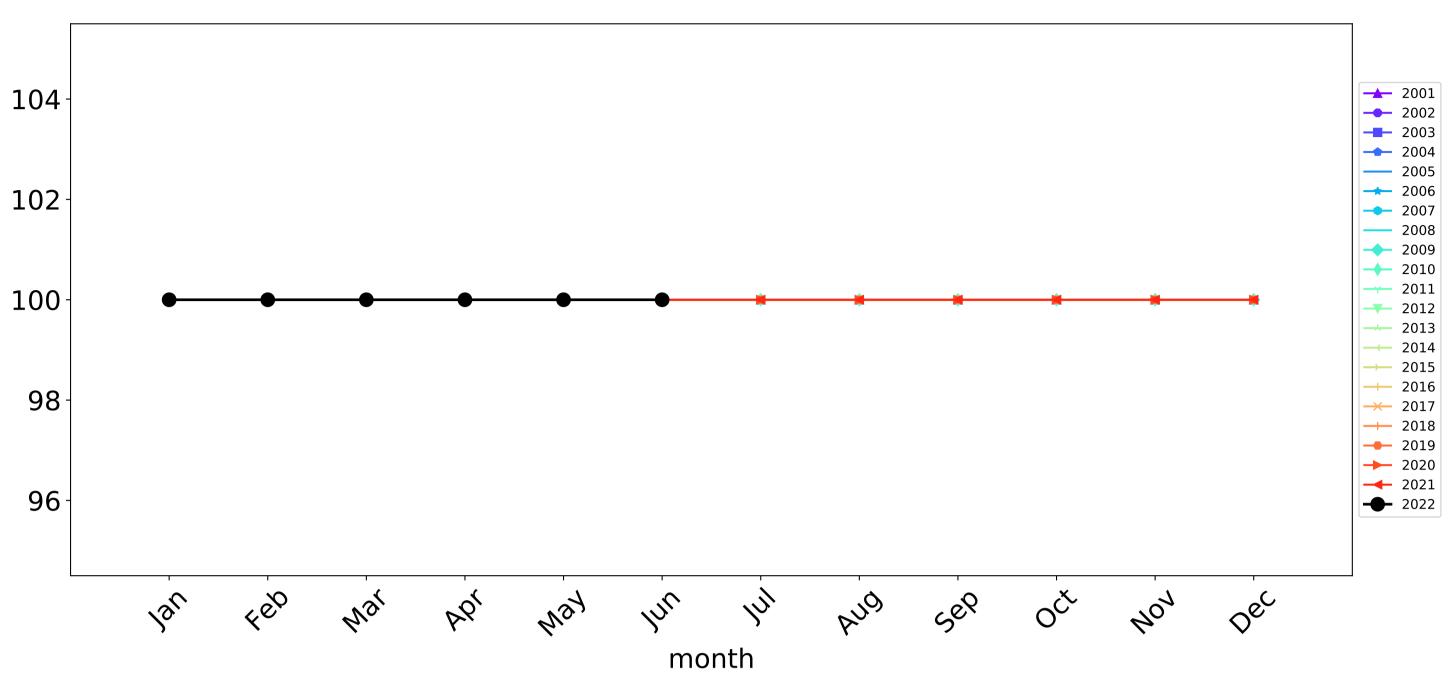


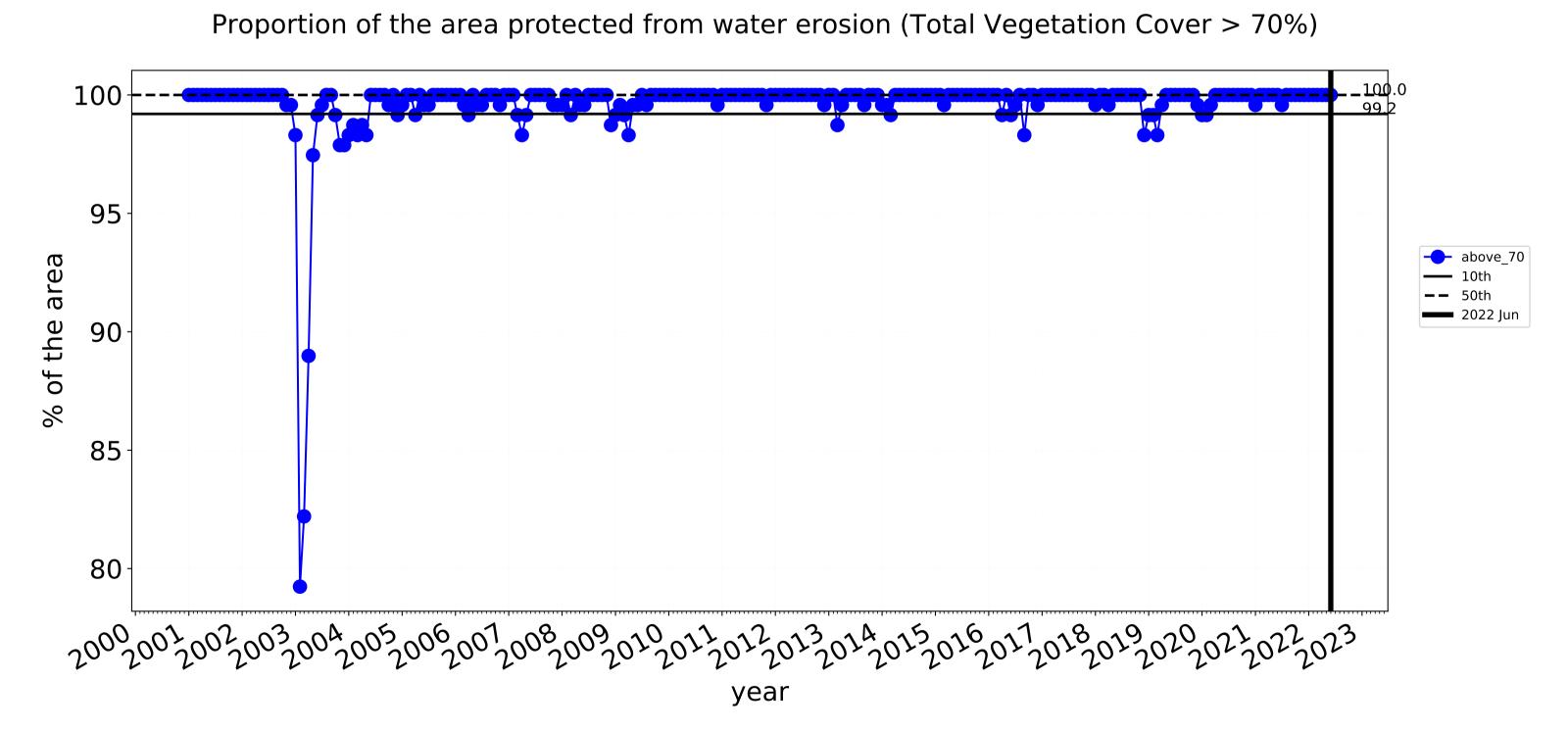




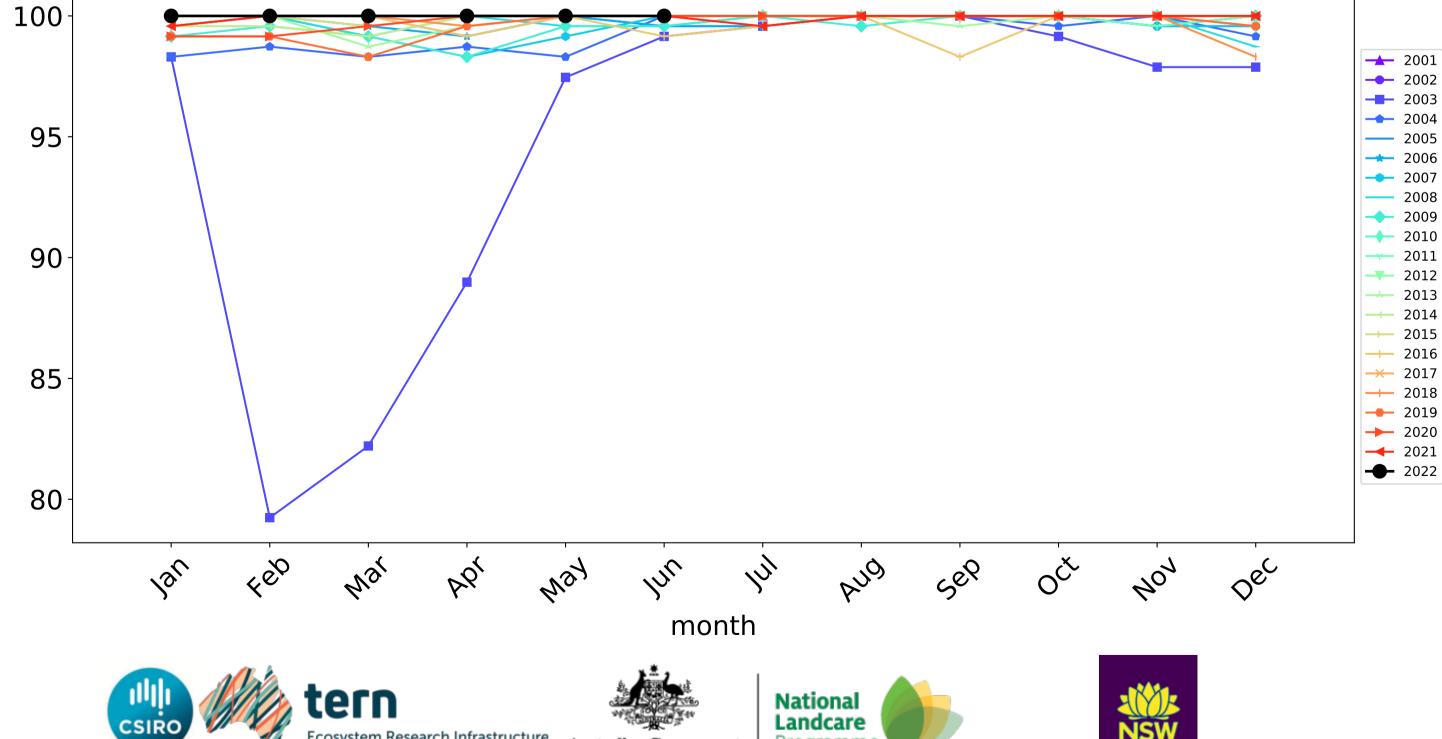








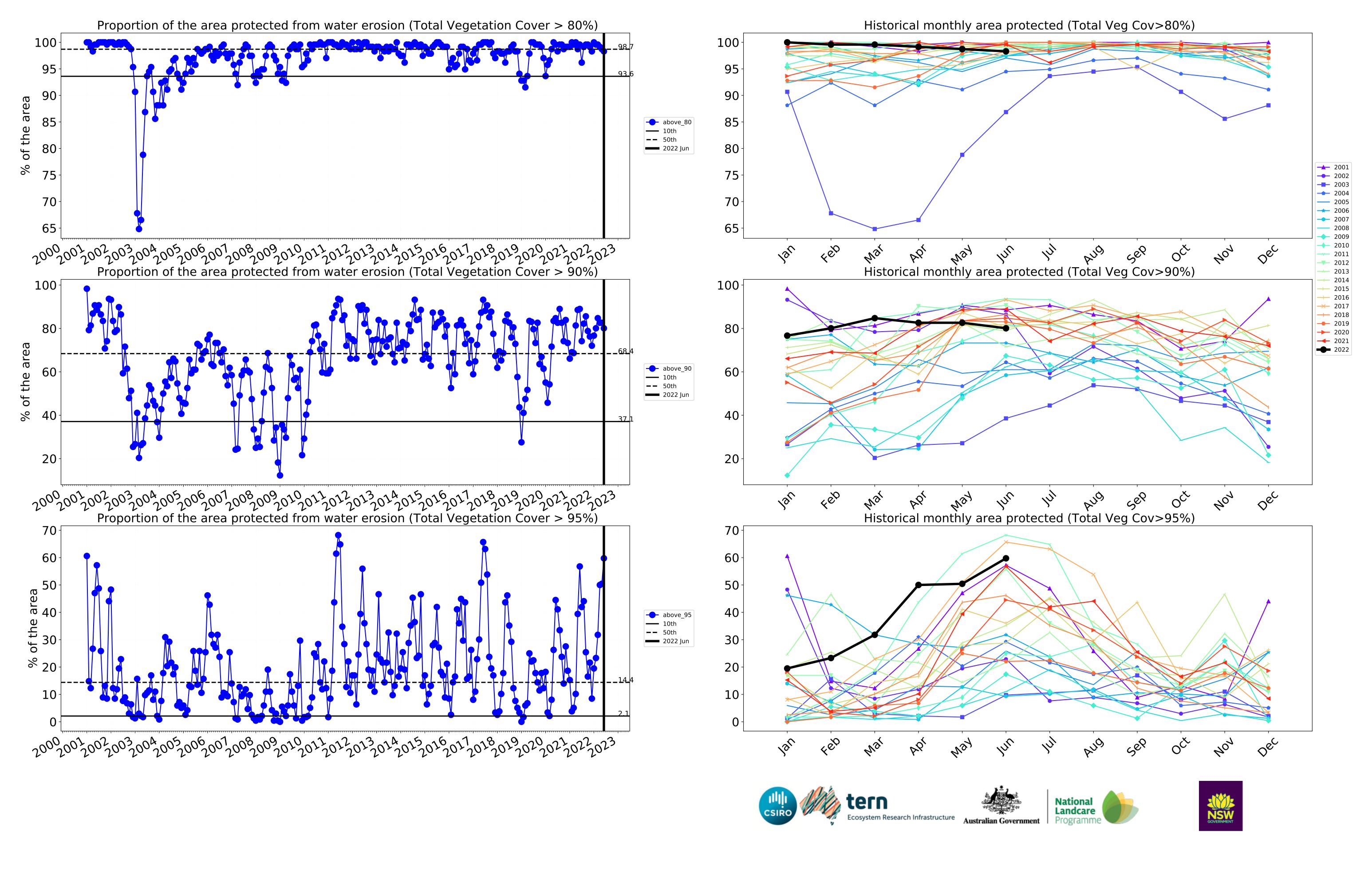
### Water erosion historical monthly area protected (Total Veg Cov>70%)



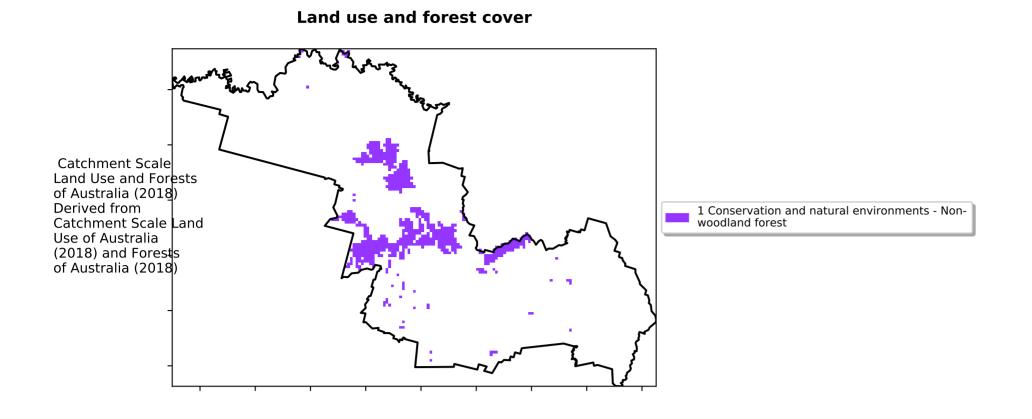




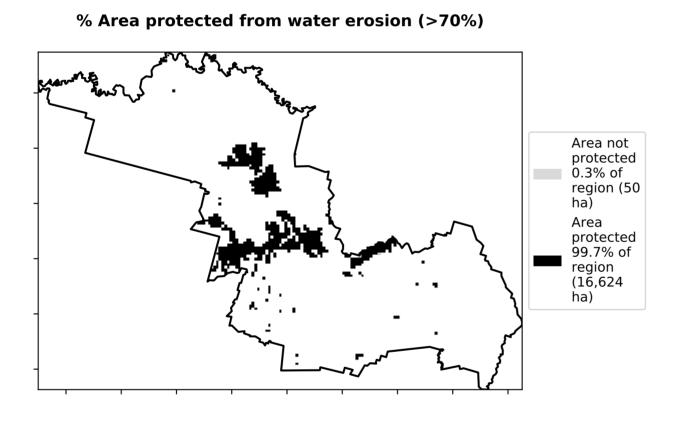


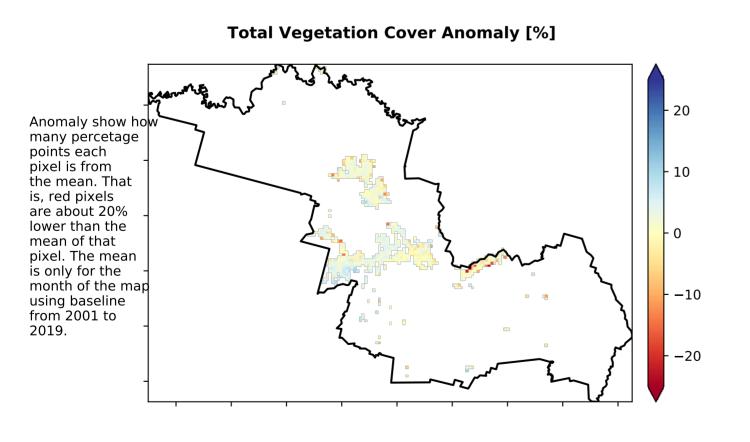


#### **Conservation and natural environments Forest (non woodland)**

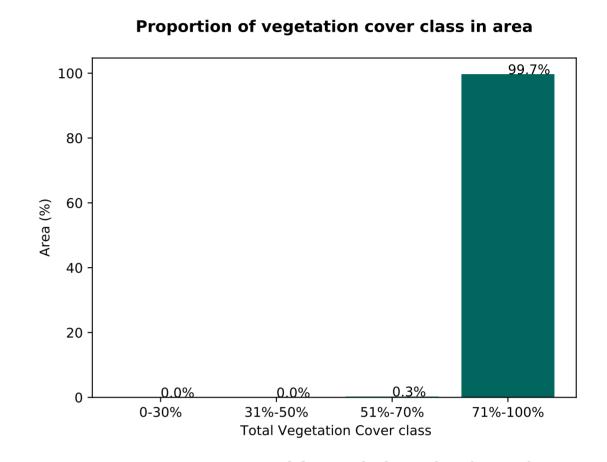


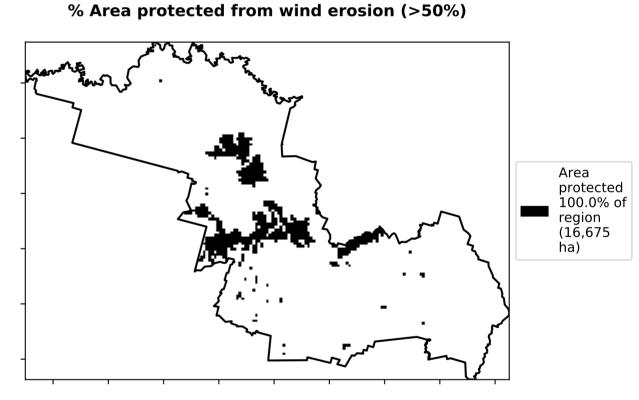
# Total Vegetation Cover [%]

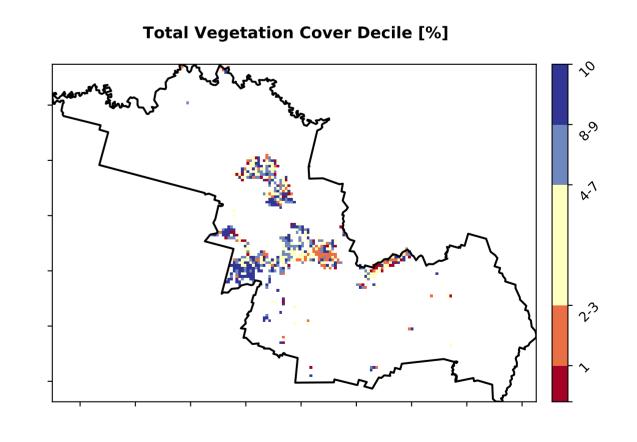




# Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.





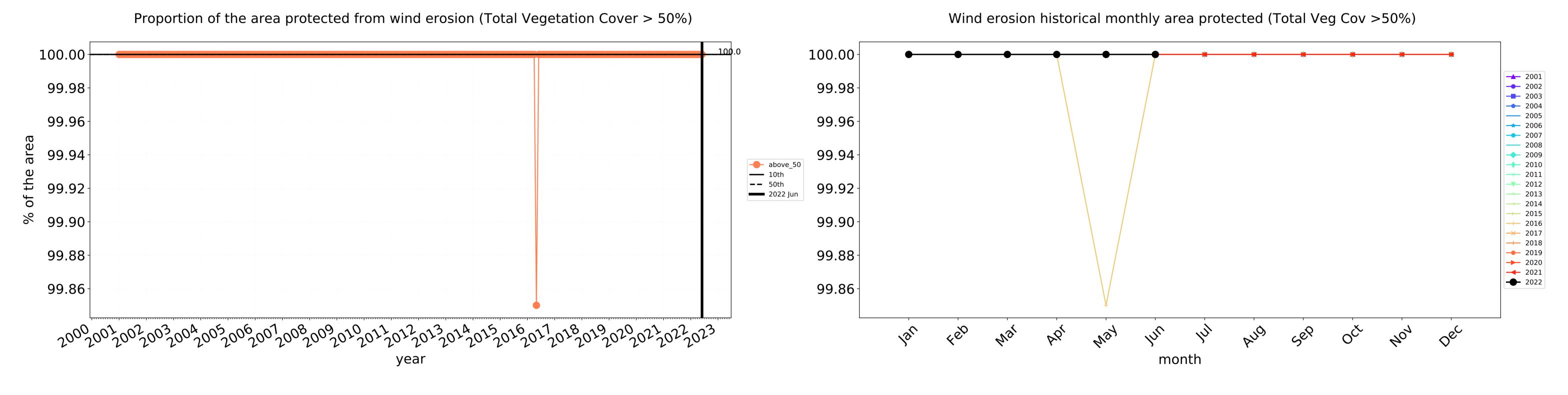


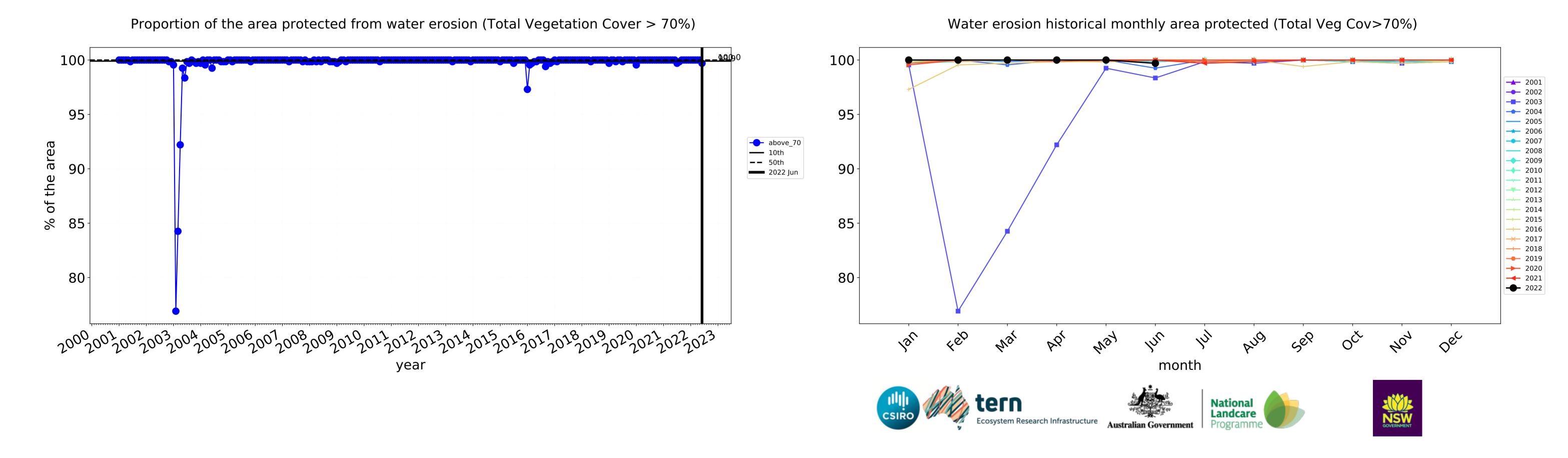


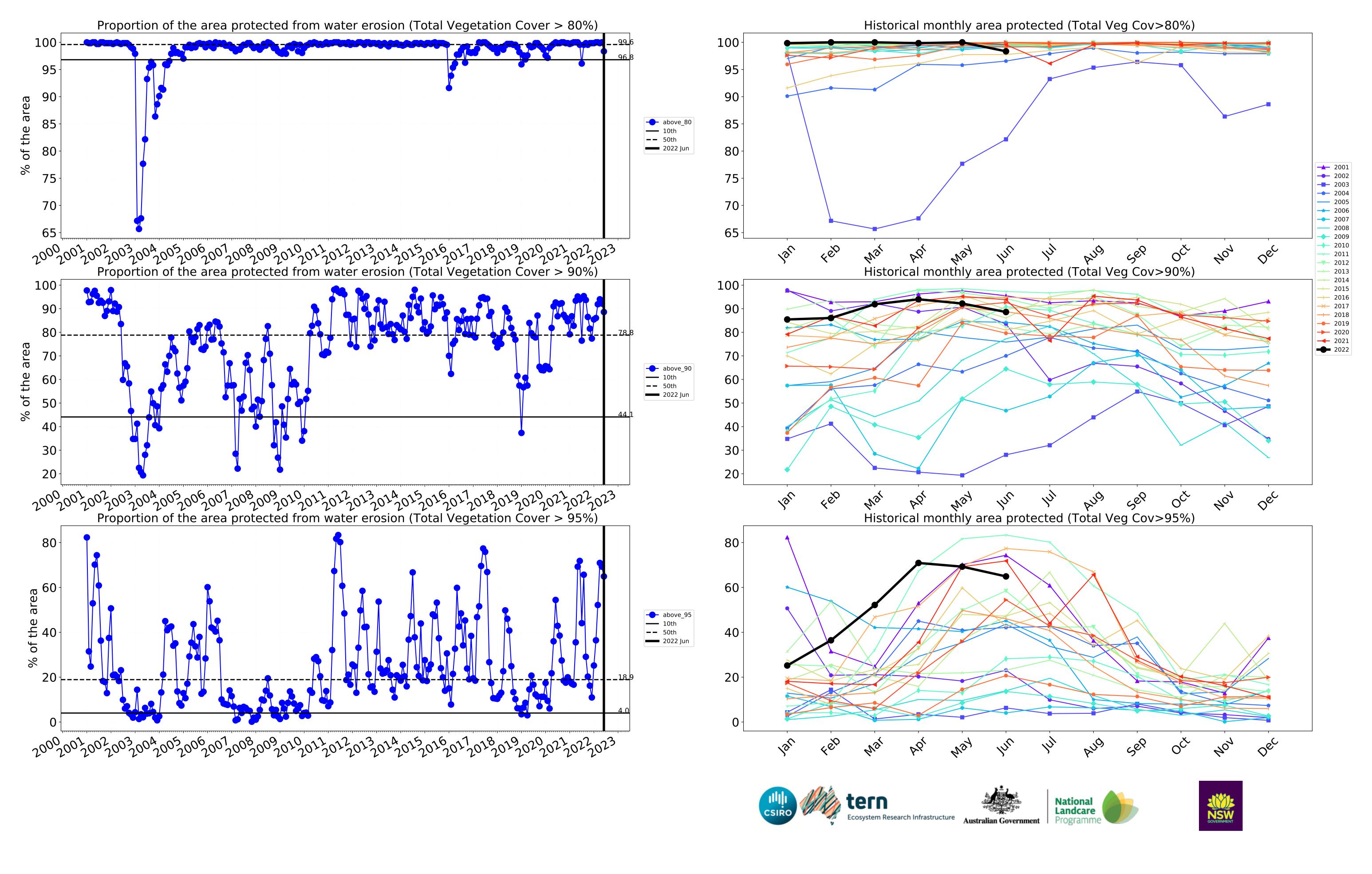






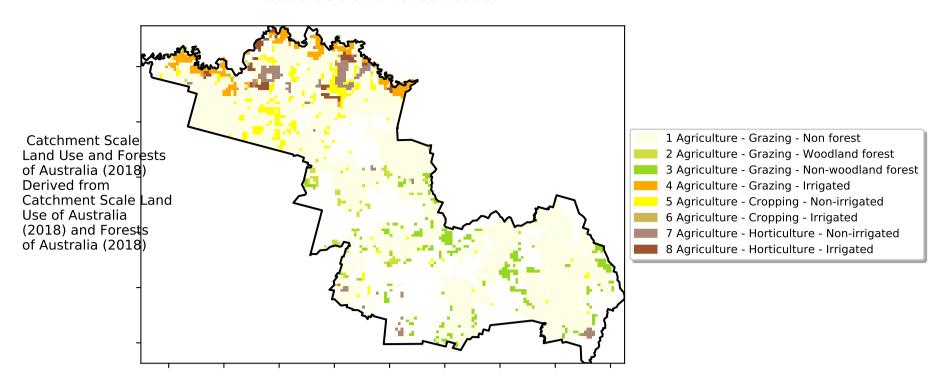




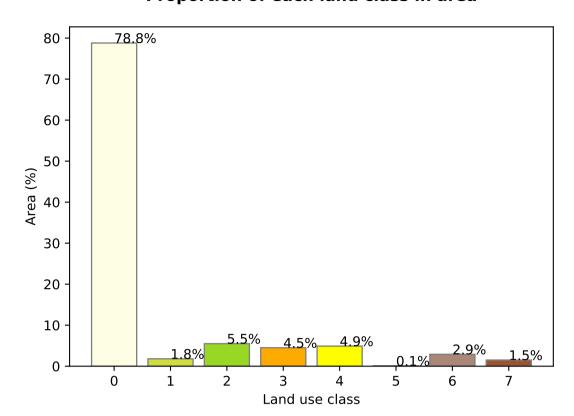


#### **Agriculture**

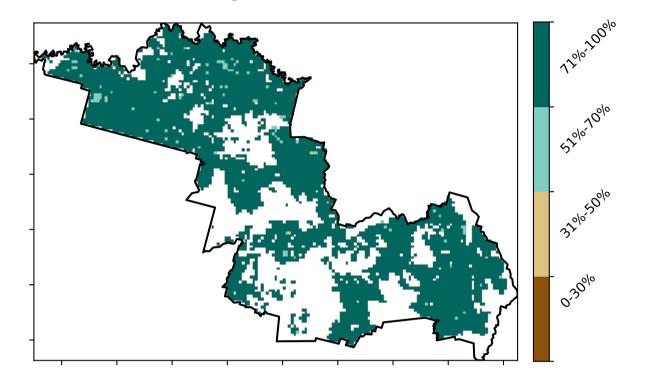
#### Land use and forest cover



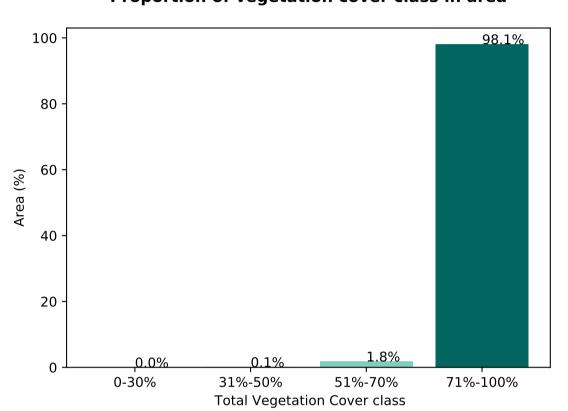
#### Proportion of each land class in area



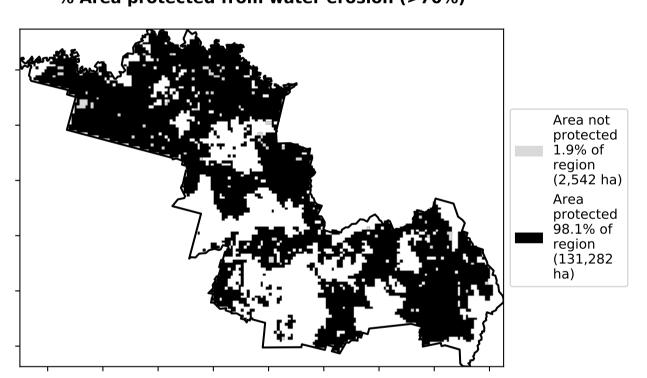
#### **Total Vegetation Cover [%]**



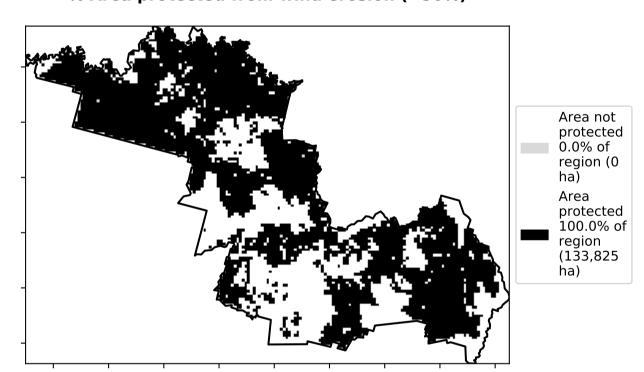
Proportion of vegetation cover class in area



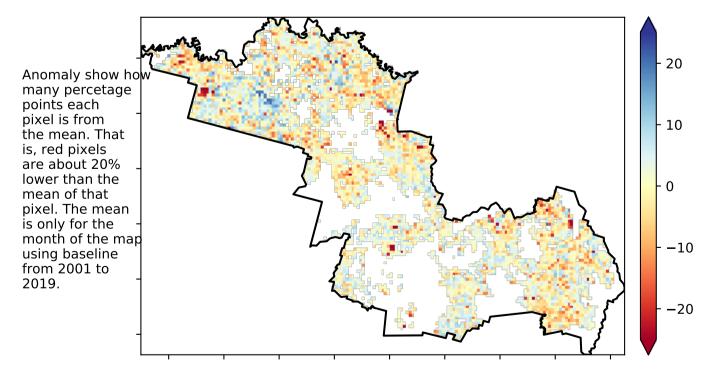
#### % Area protected from water erosion (>70%)



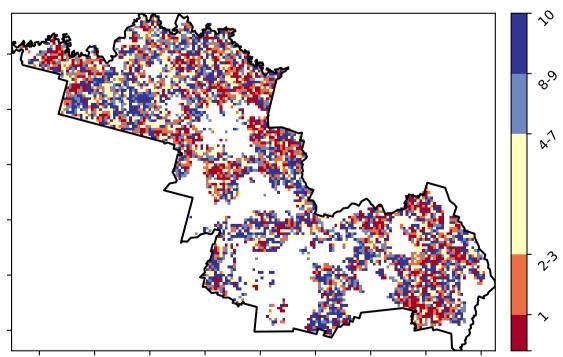
% Area protected from wind erosion (>50%)



#### **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.



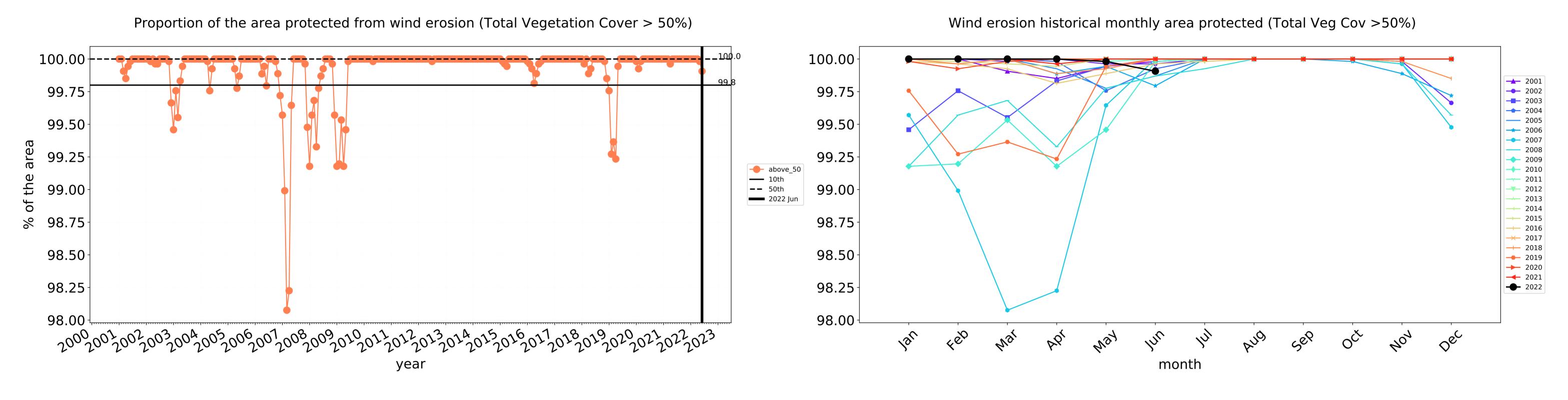


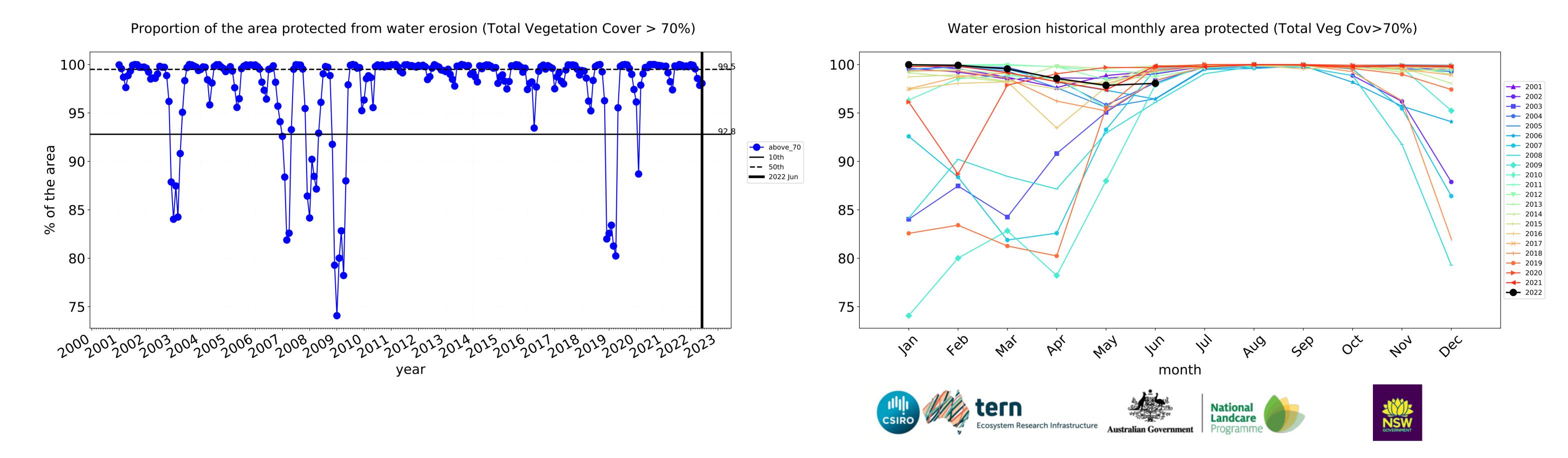


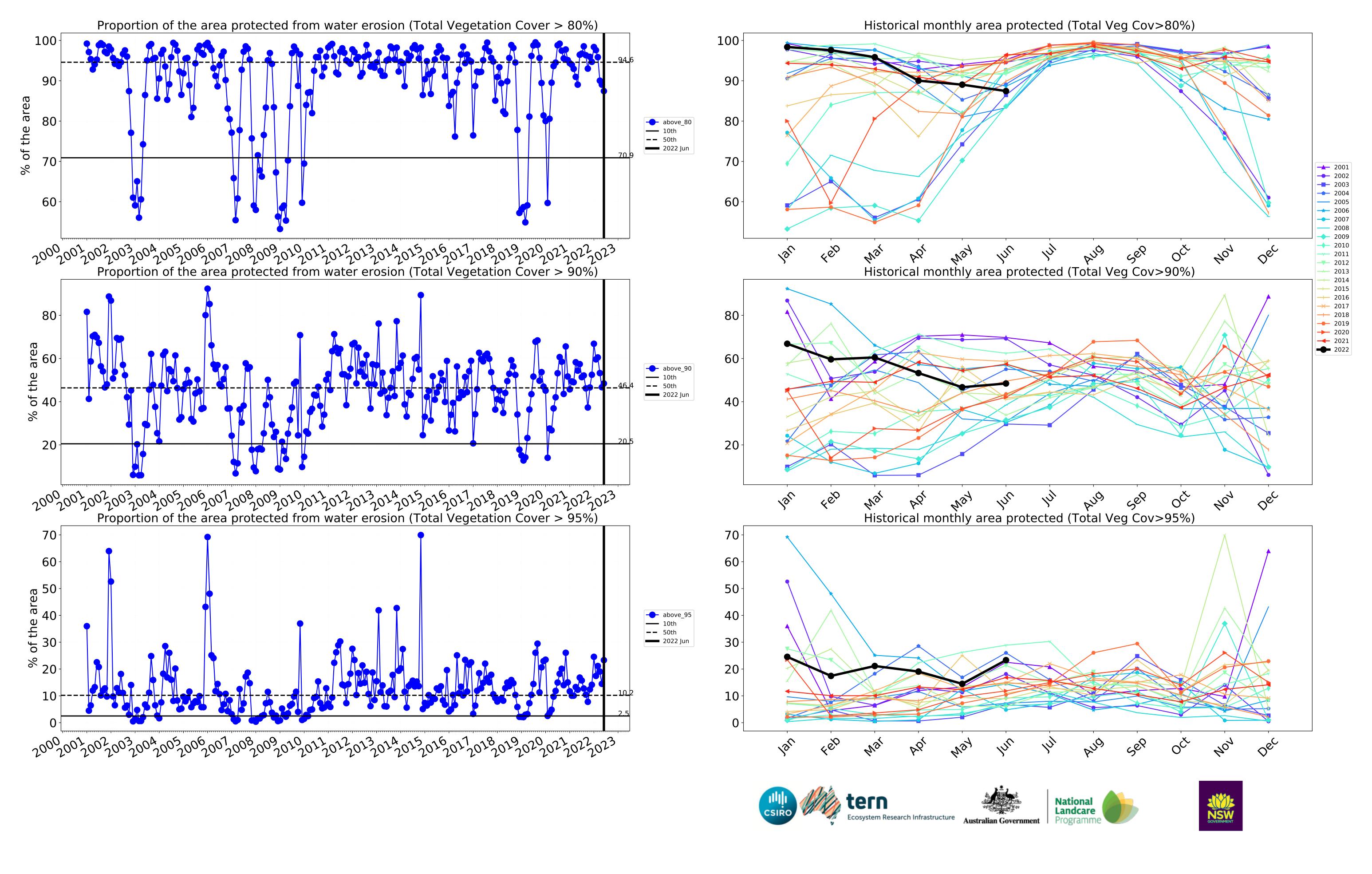




#### **Agriculture timeseries**



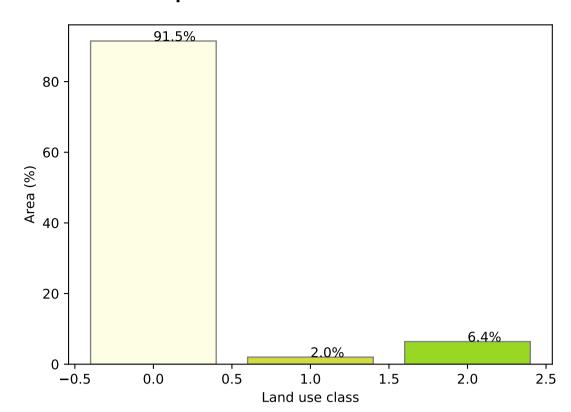




#### **Grazing**

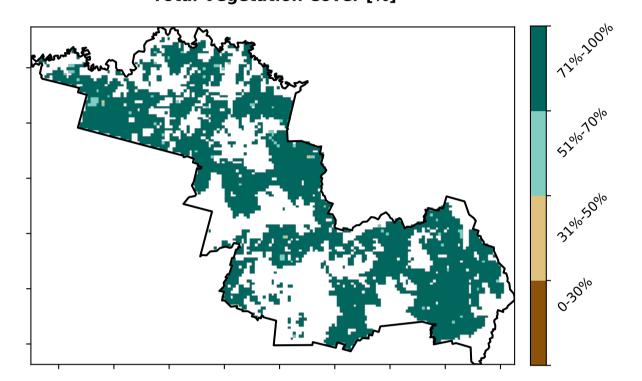
## Land use and forest cover 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 3 Agriculture - Grazing - Non-woodland forest

#### **Proportion of each land class in area**

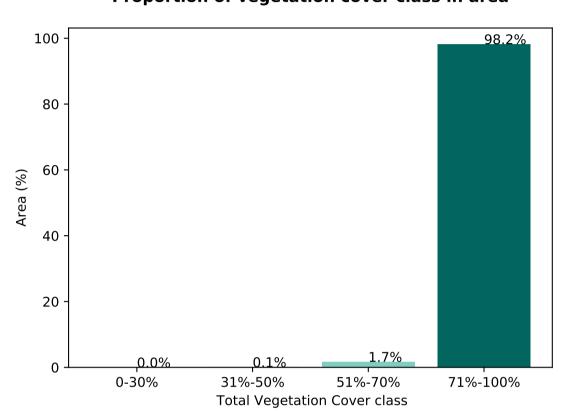


**Total Vegetation Cover [%]** 

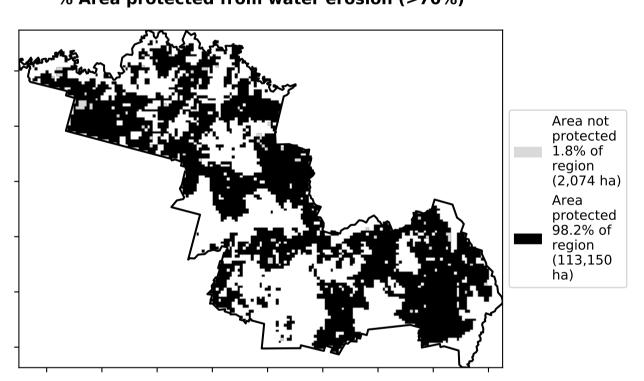
Catchment Scale Land Use and Forests of Australia (2018) Derived from



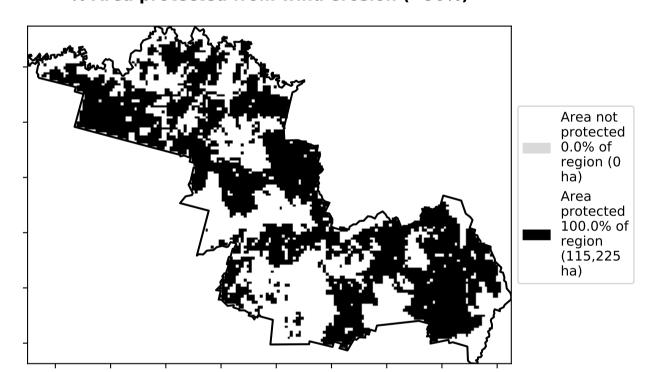
**Proportion of vegetation cover class in area** 



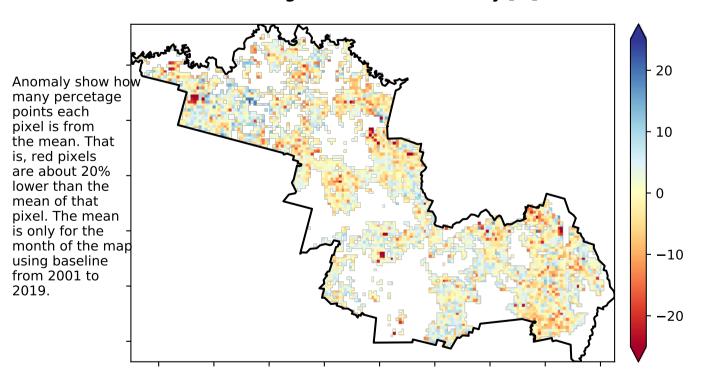
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

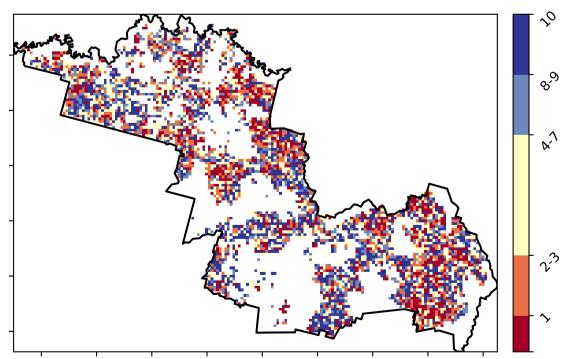


**Total Vegetation Cover Anomaly [%]** 



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 [%]** 



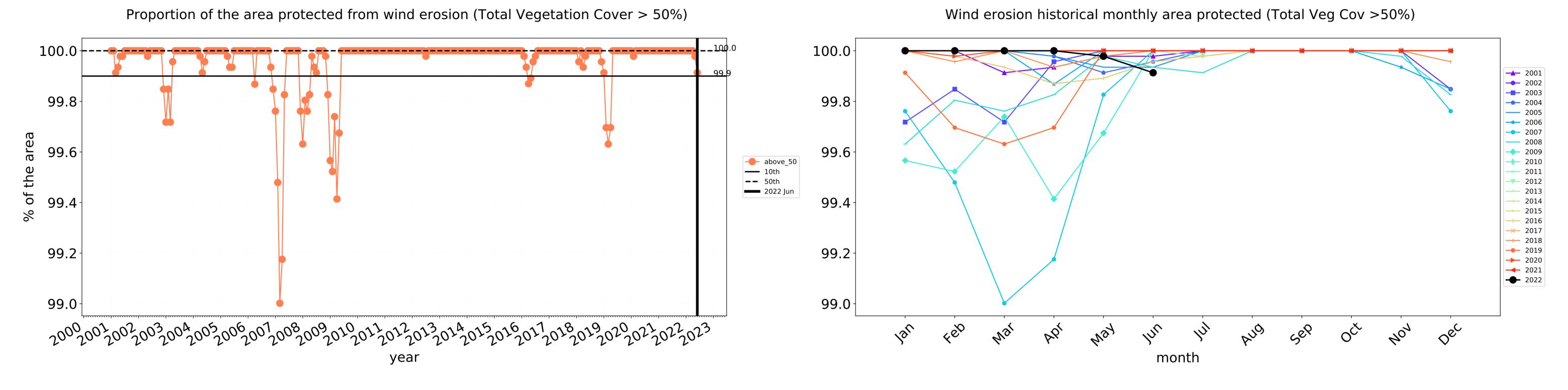


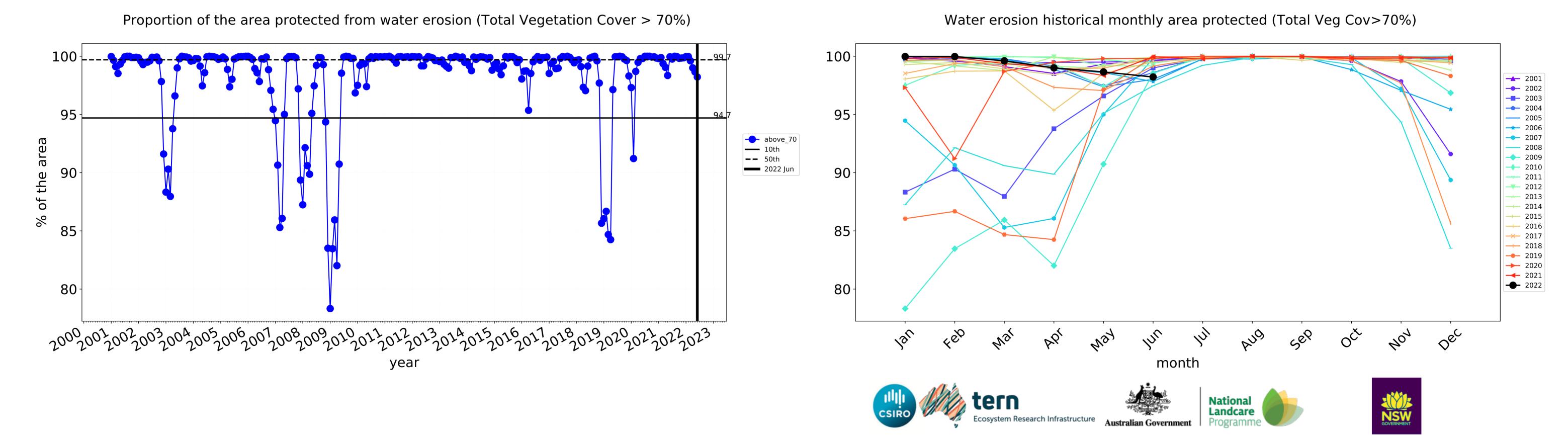


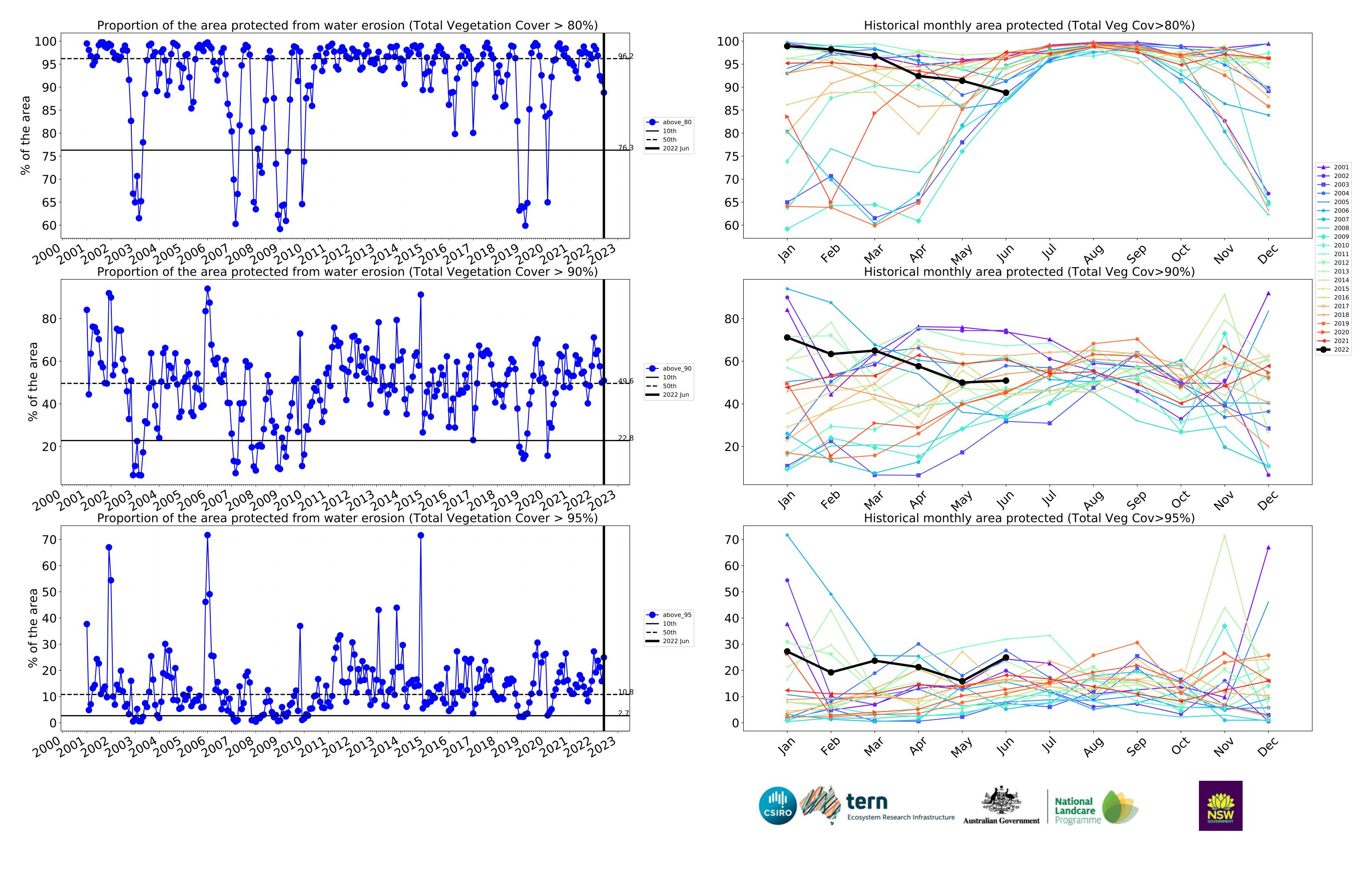




#### **Grazing timeseries**

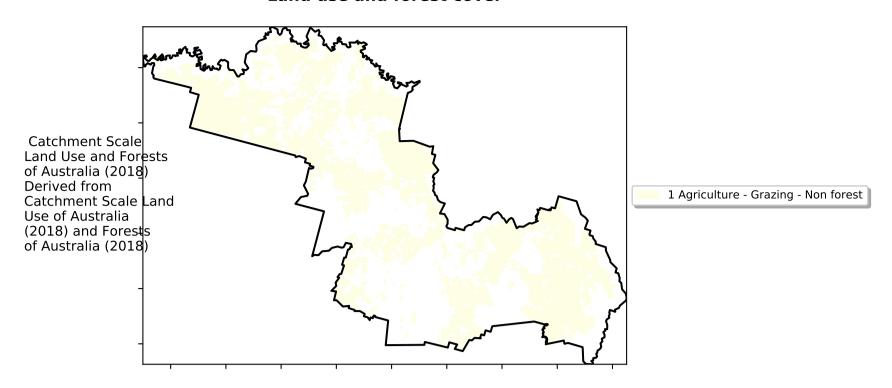




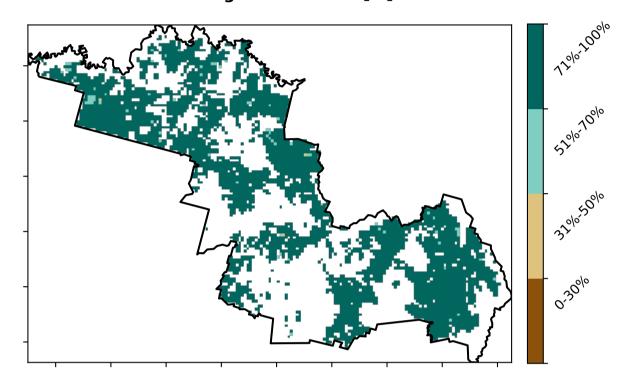


#### **Grazing non forest**

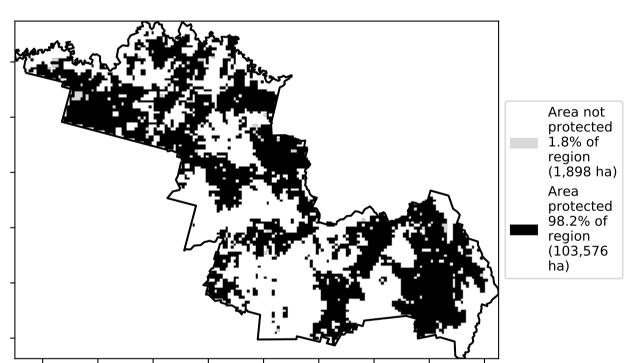
#### Land use and forest cover



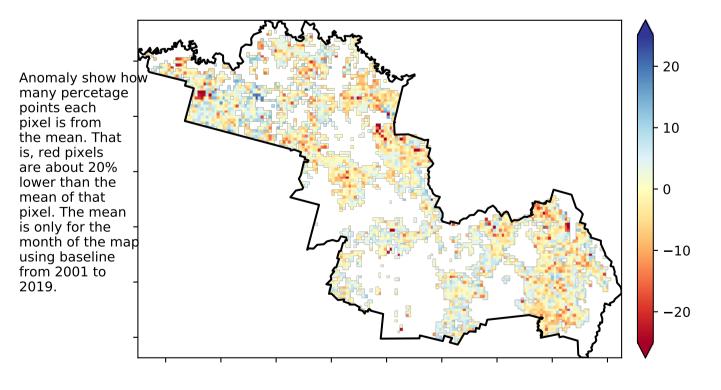
#### **Total Vegetation Cover [%]**



#### % Area protected from water erosion (>70%)

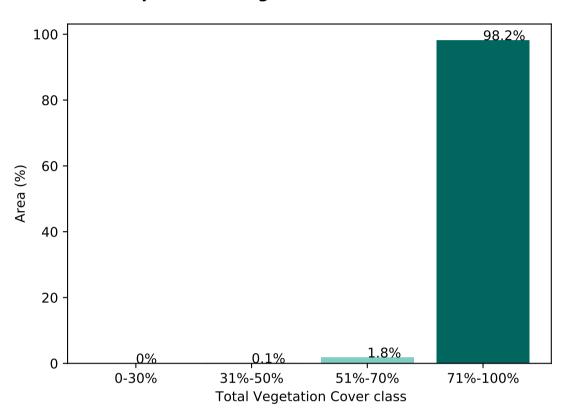


#### Total Vegetation Cover Anomaly [%]

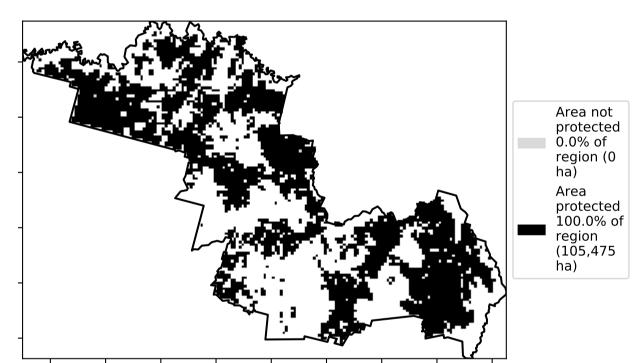


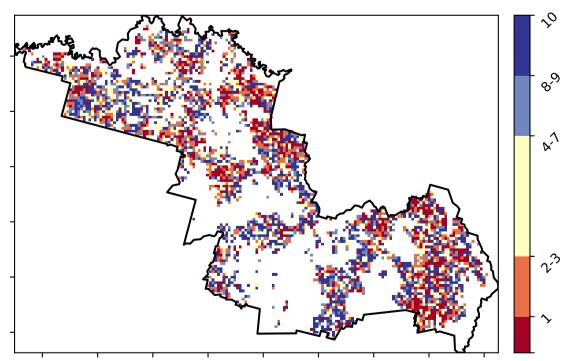
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



#### % Area protected from wind erosion (>50%)





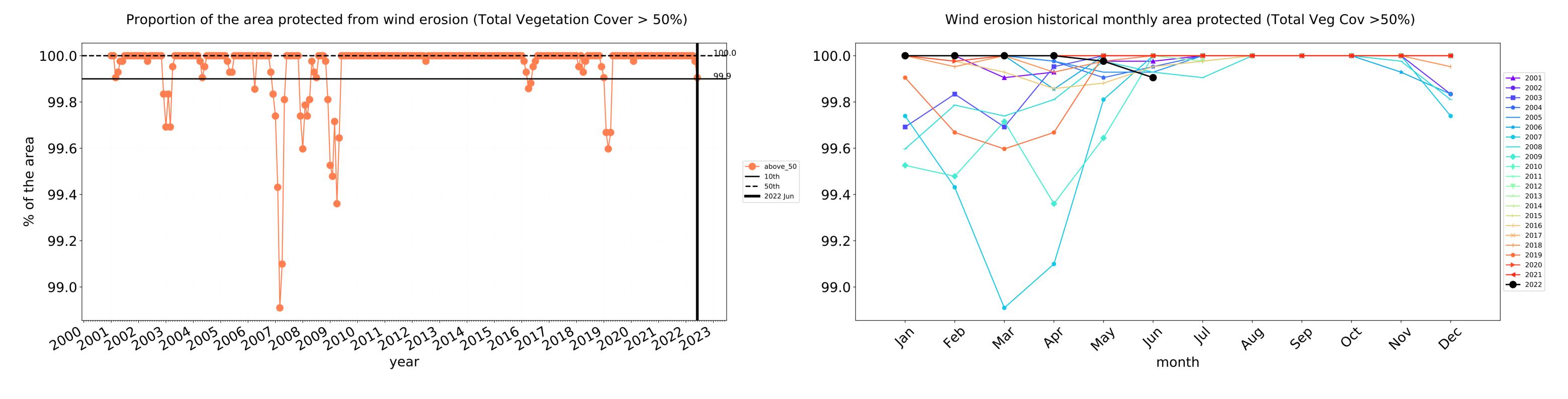


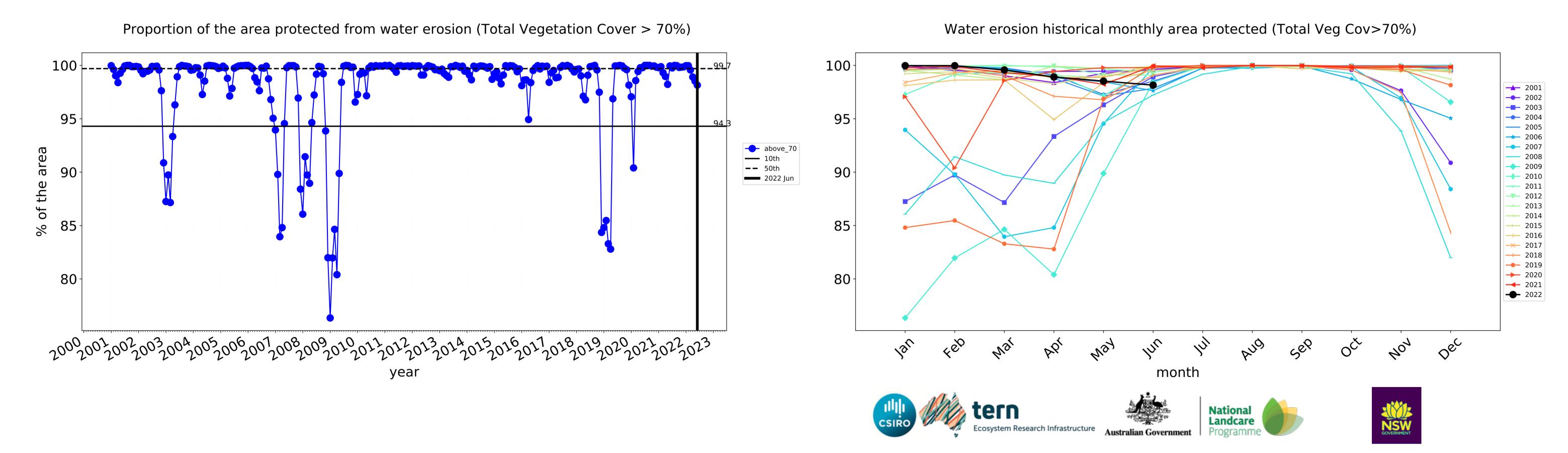


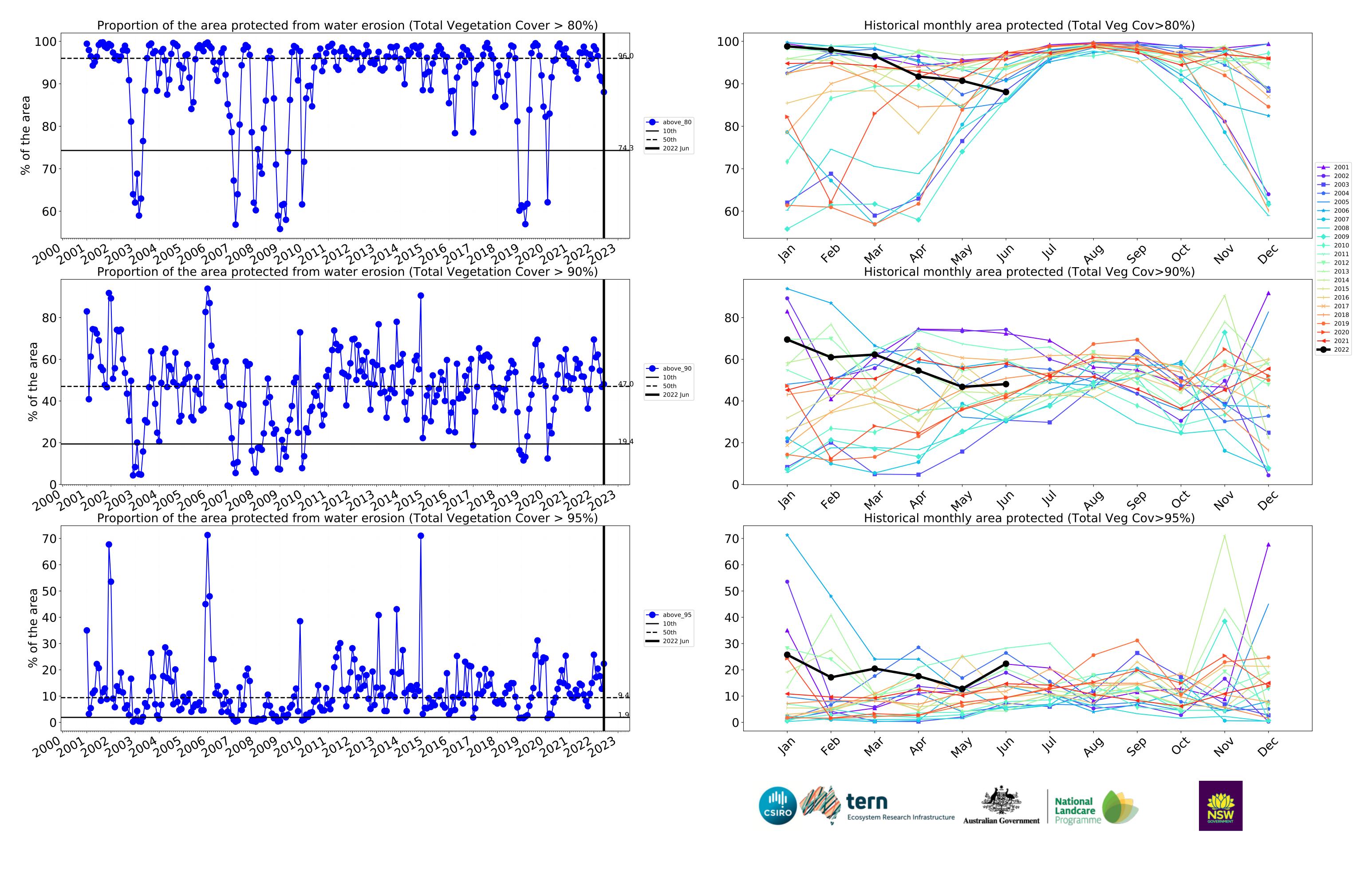




#### **Grazing non forest timeseries**

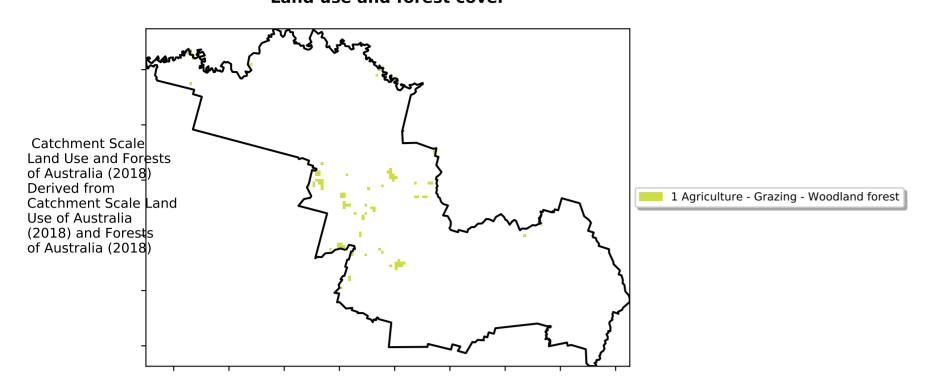




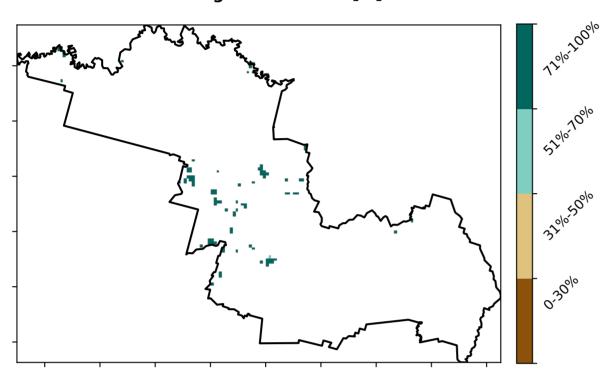


#### **Grazing Woodland forest**

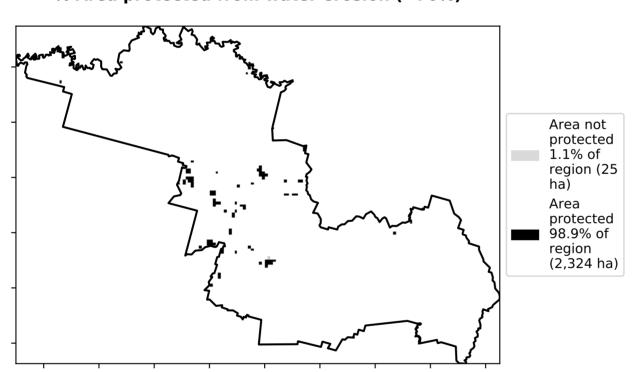
#### Land use and forest cover



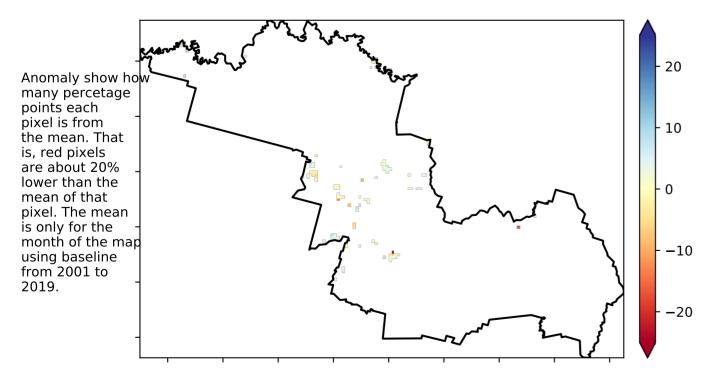
#### **Total Vegetation Cover [%]**



#### % Area protected from water erosion (>70%)

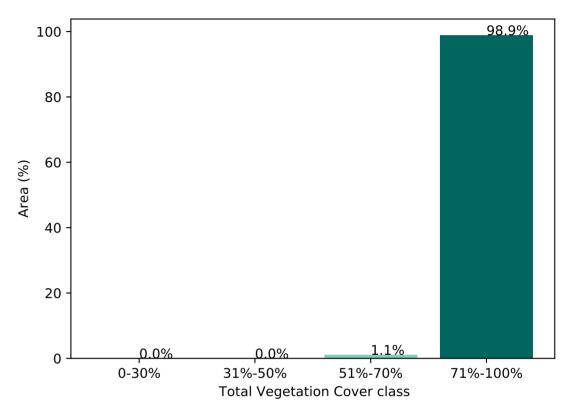


#### **Total Vegetation Cover Anomaly [%]**

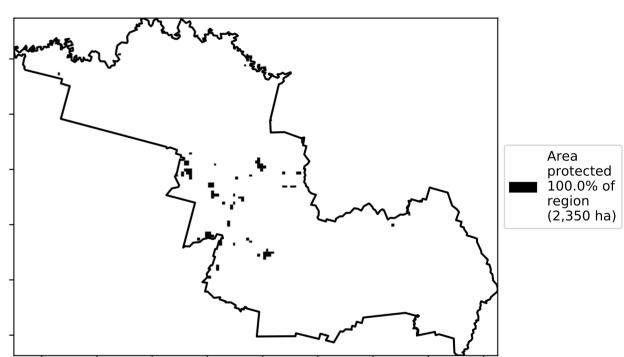


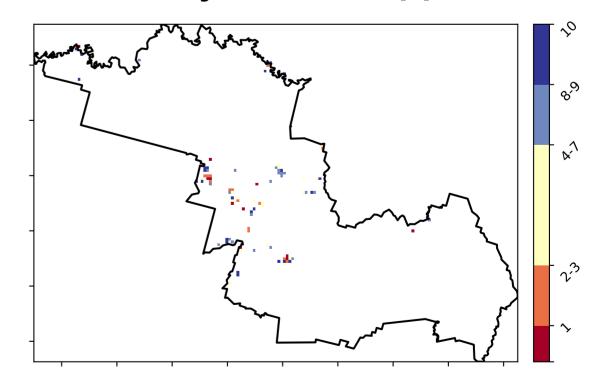
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



#### % Area protected from wind erosion (>50%)





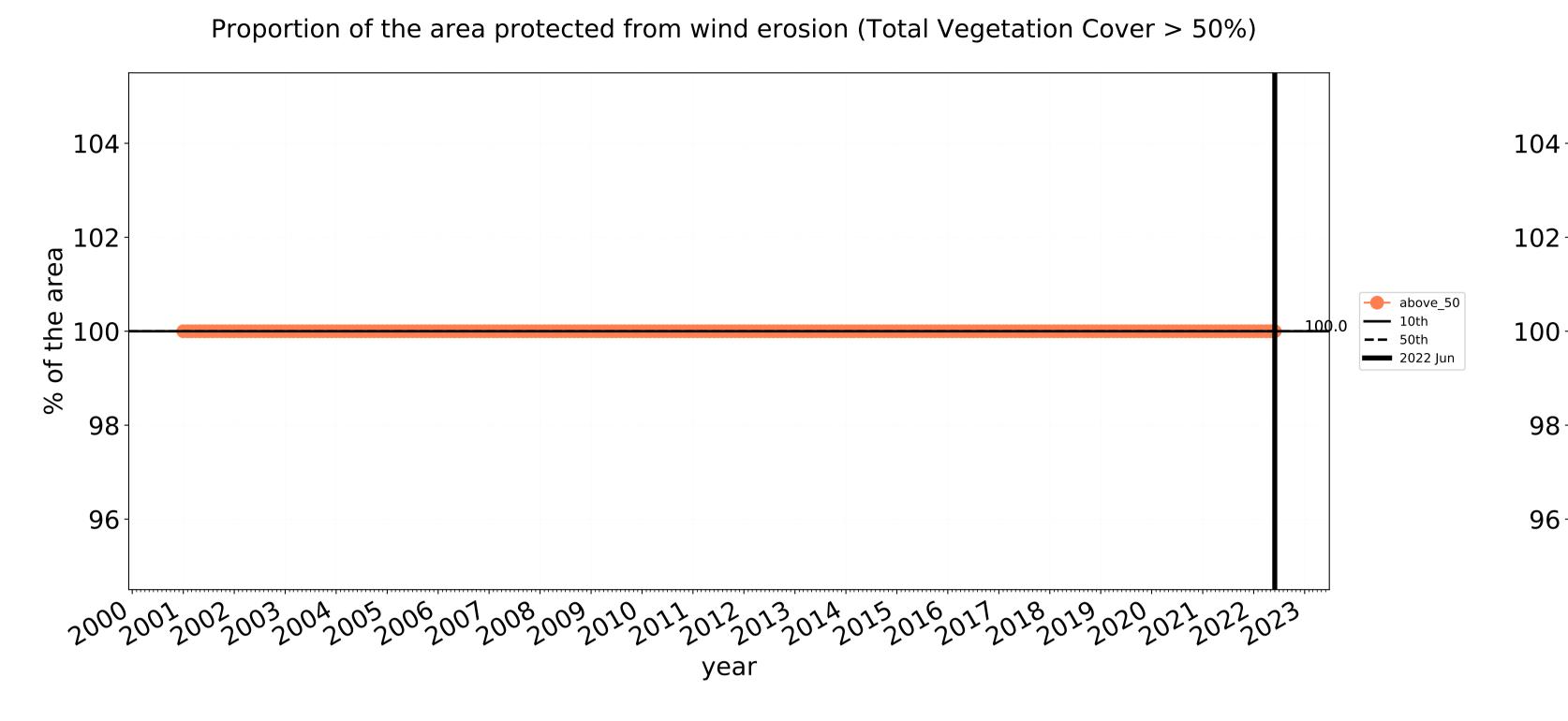


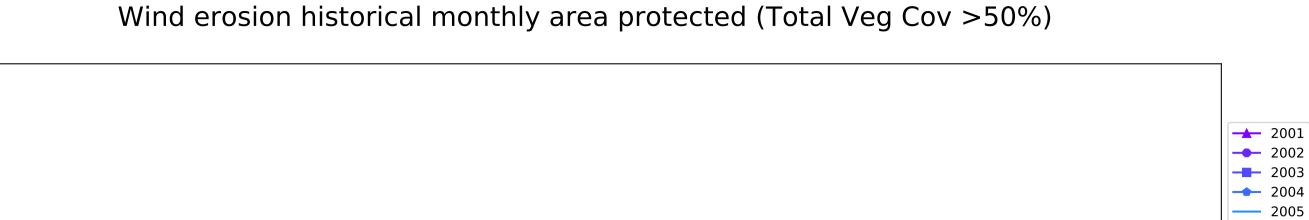






#### **Grazing Woodland forest timeseries**



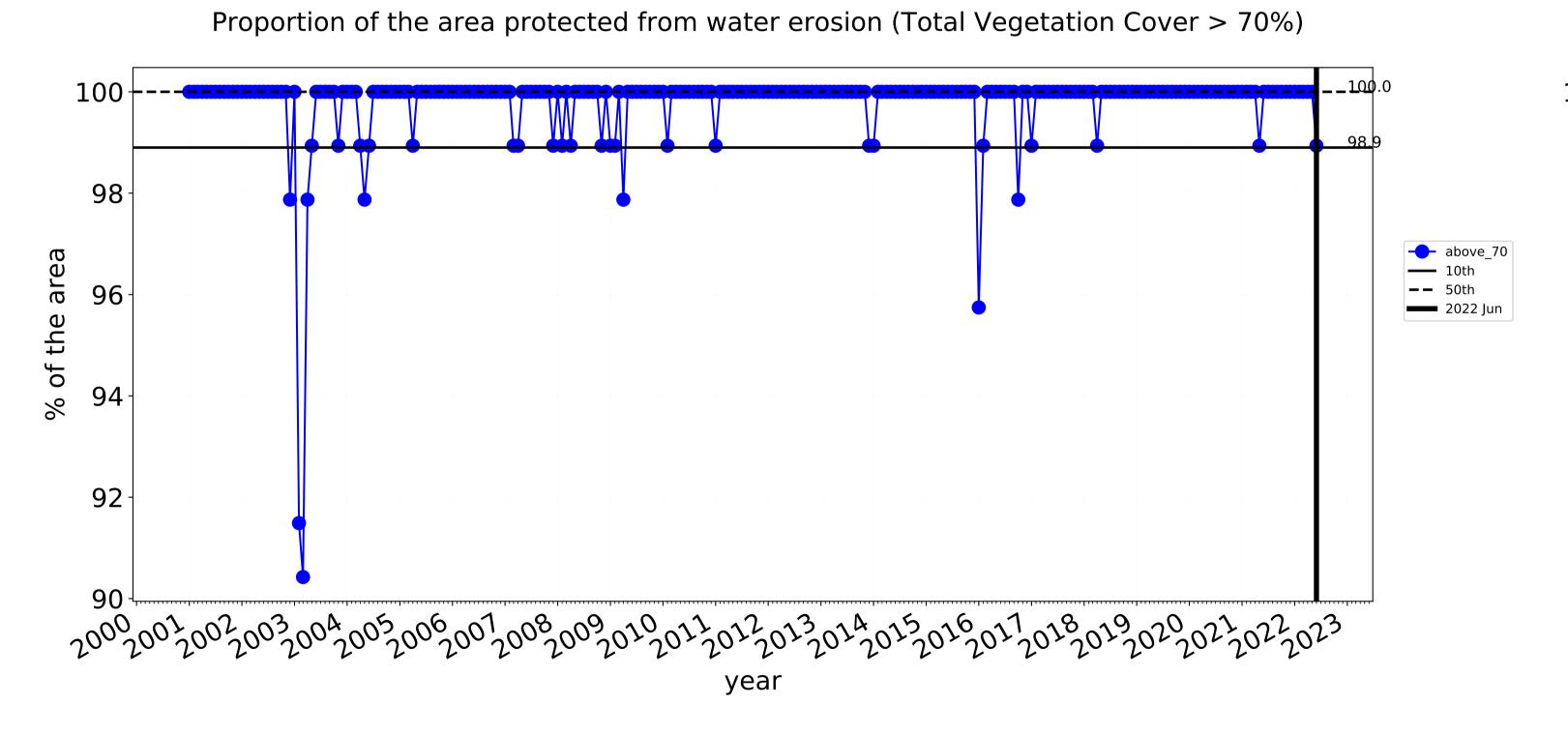


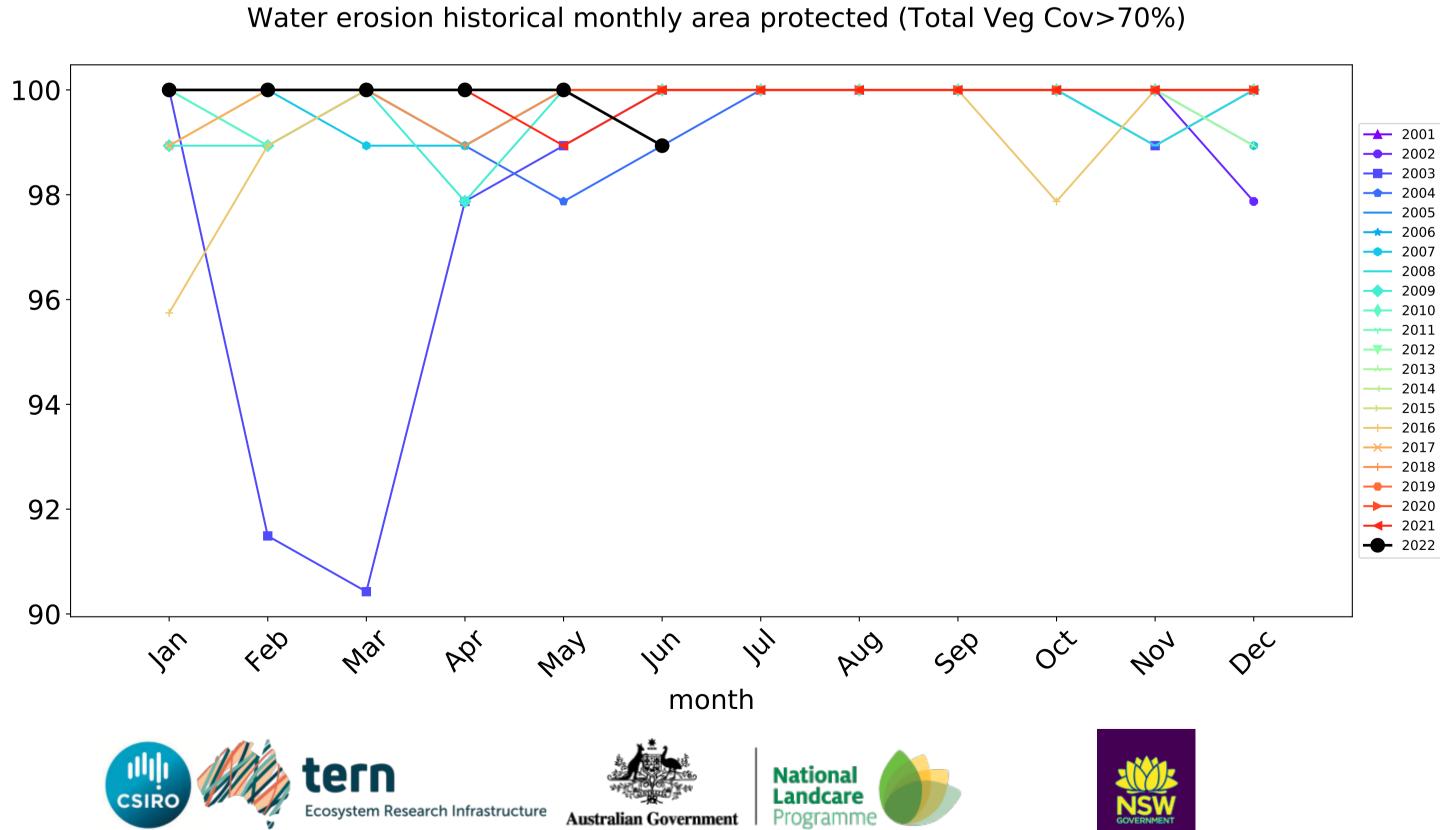
2007 2008 2009 2010

<del>~</del> 2011

2022

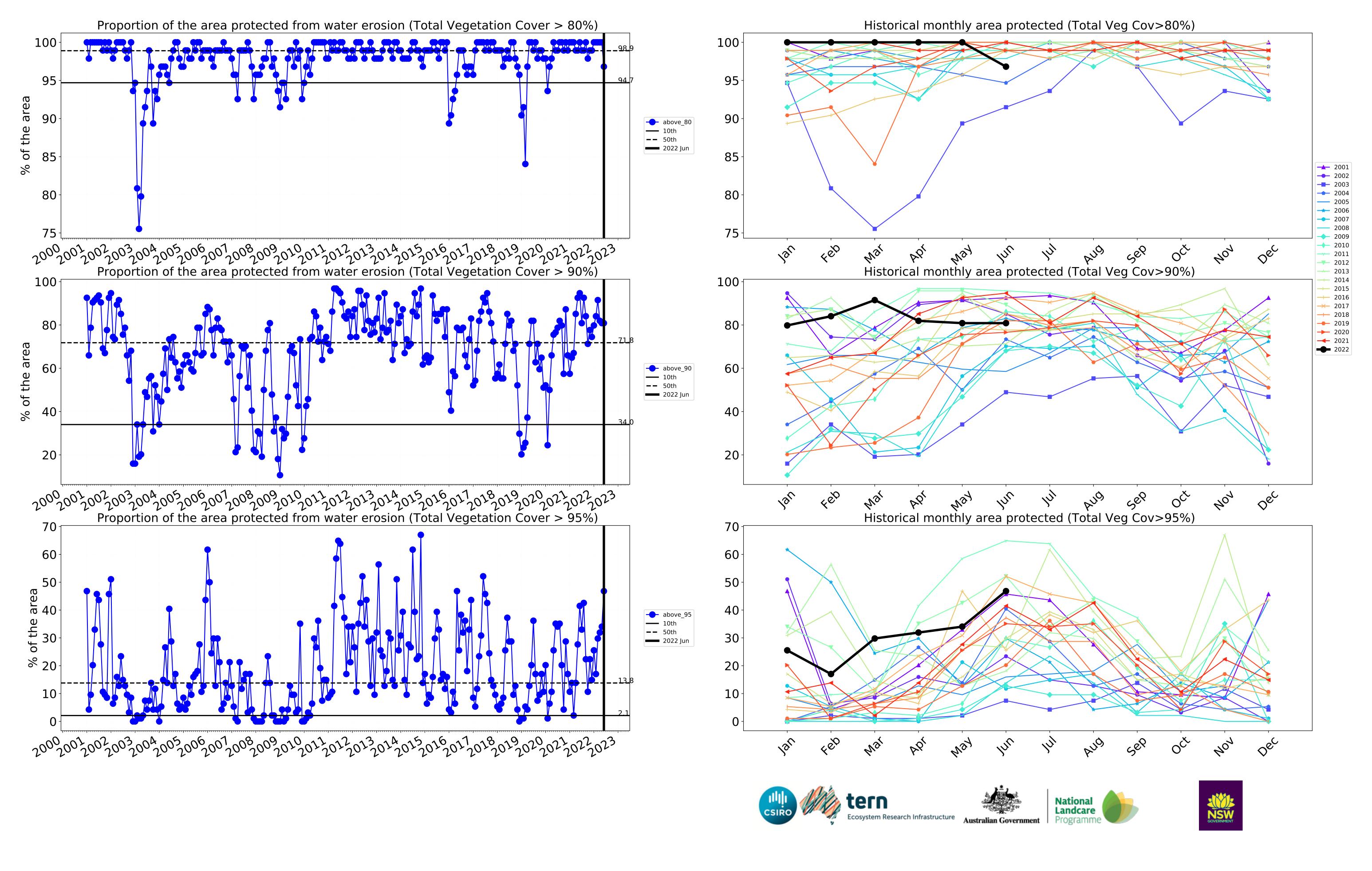
404





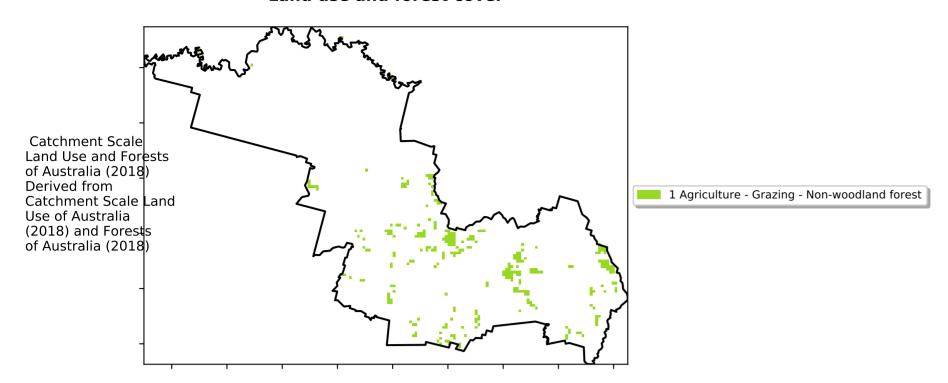
month

May

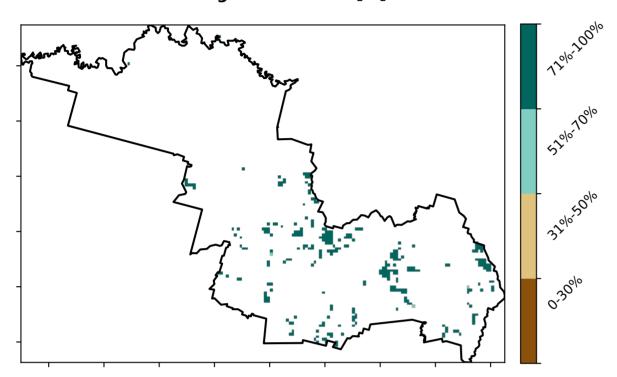


#### **Grazing - Forest (non woodland)**

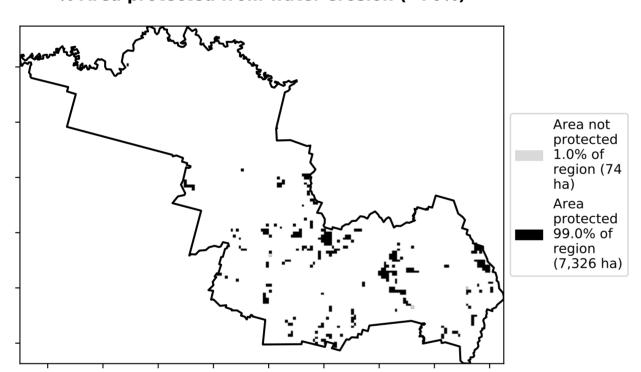
#### Land use and forest cover



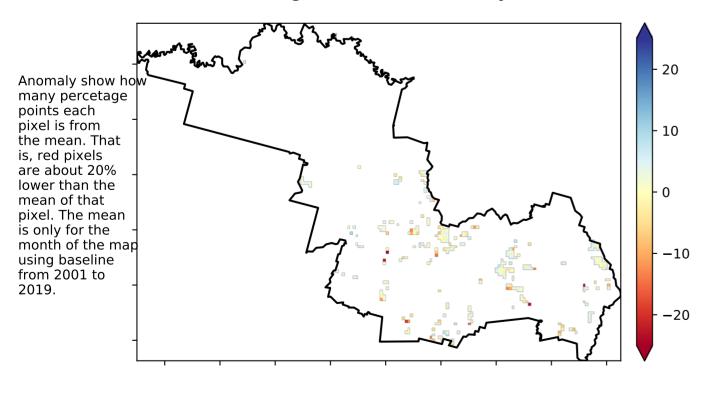
#### Total Vegetation Cover [%]



#### % Area protected from water erosion (>70%)

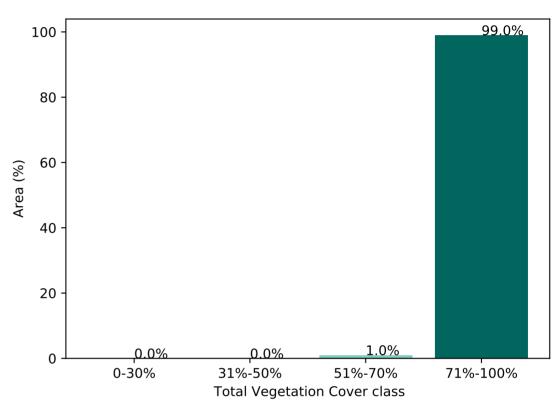


#### Total Vegetation Cover Anomaly [%]

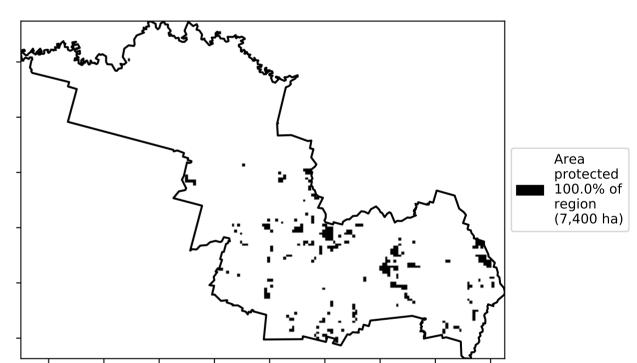


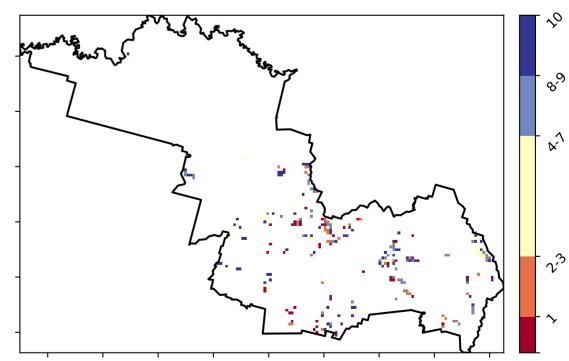
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



#### % Area protected from wind erosion (>50%)





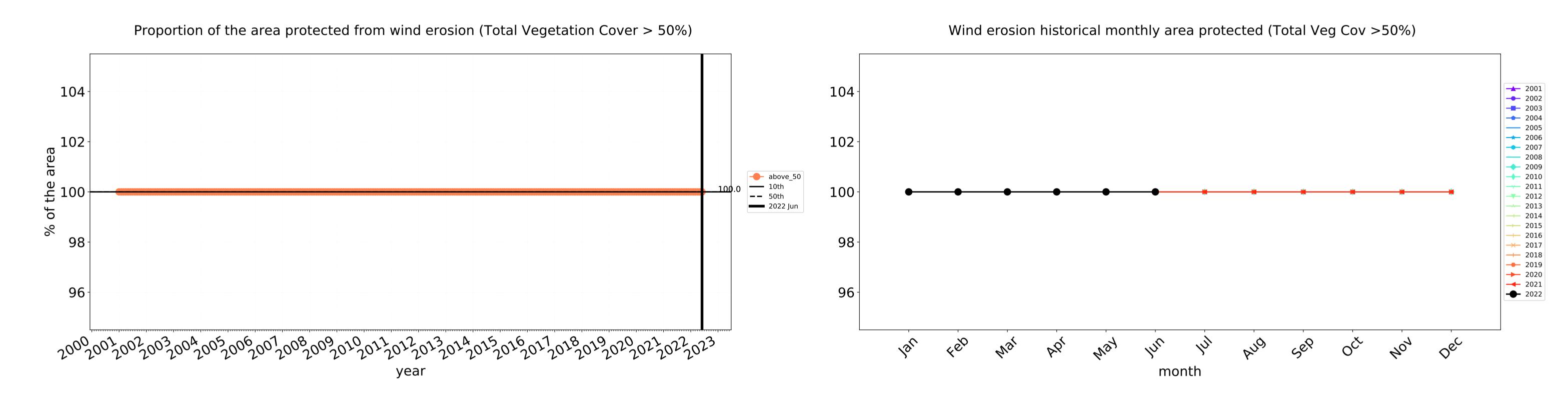


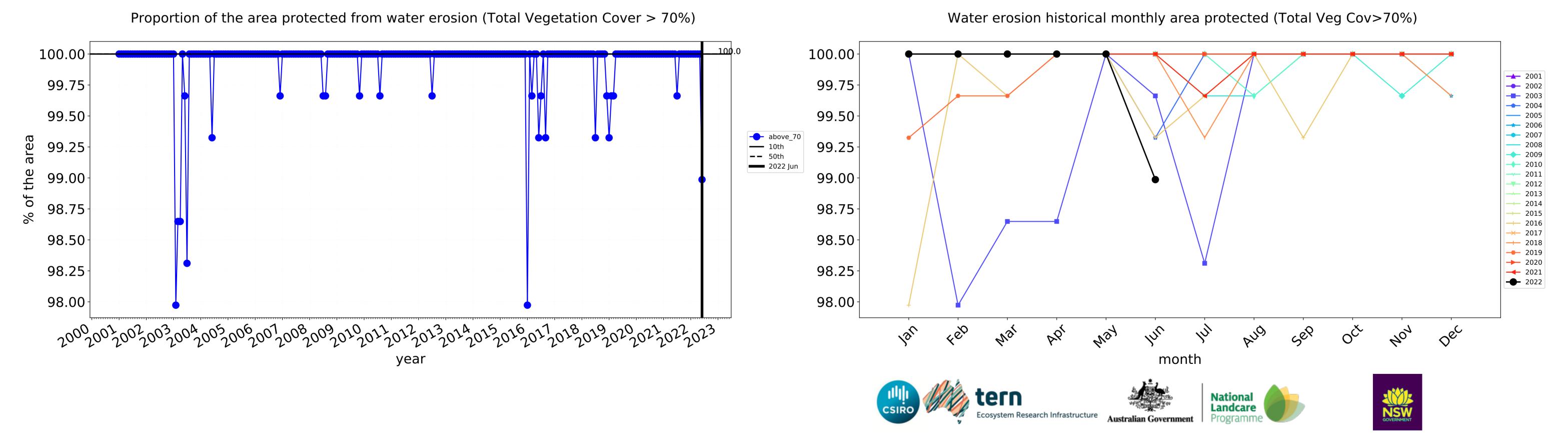


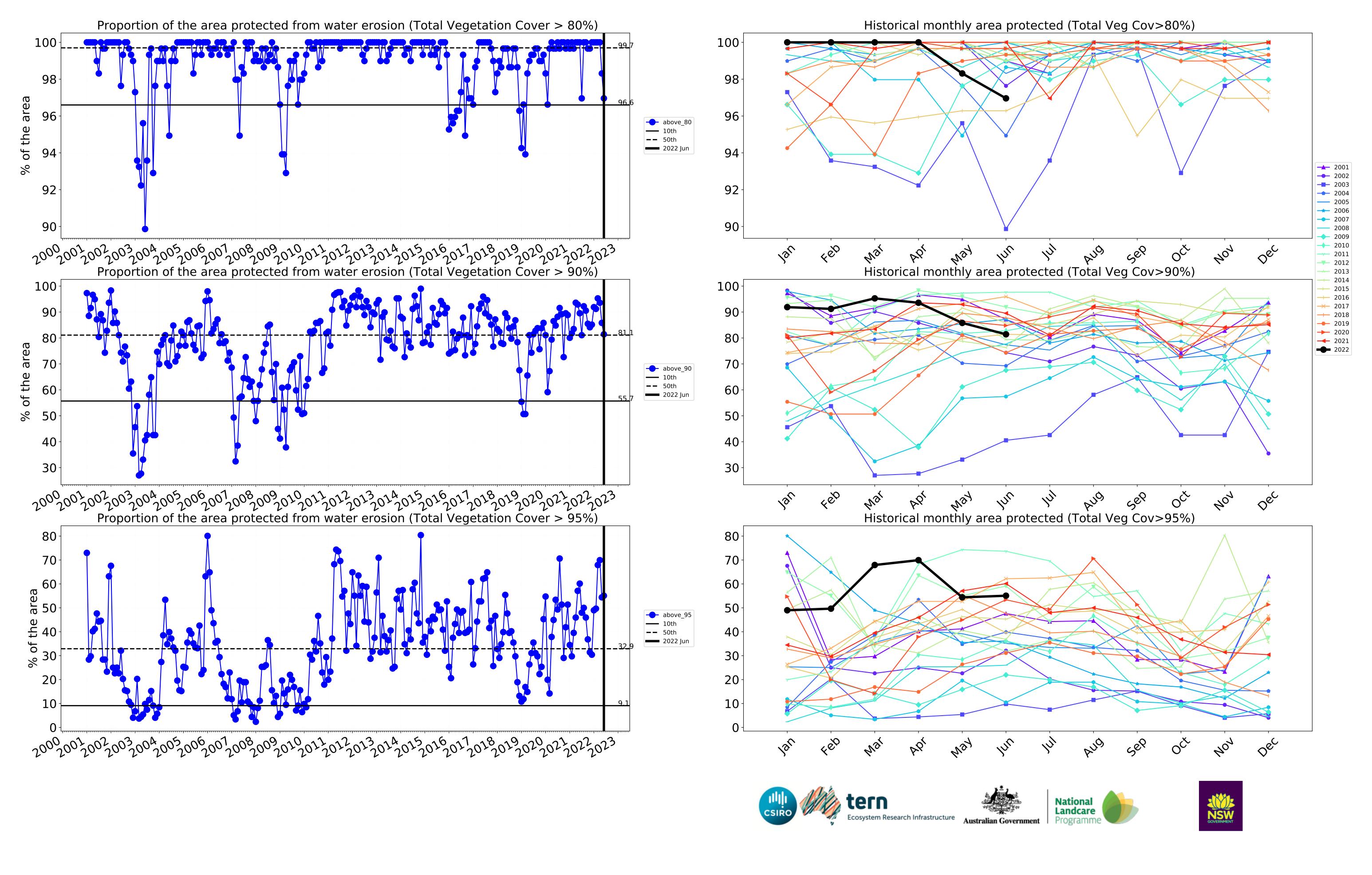






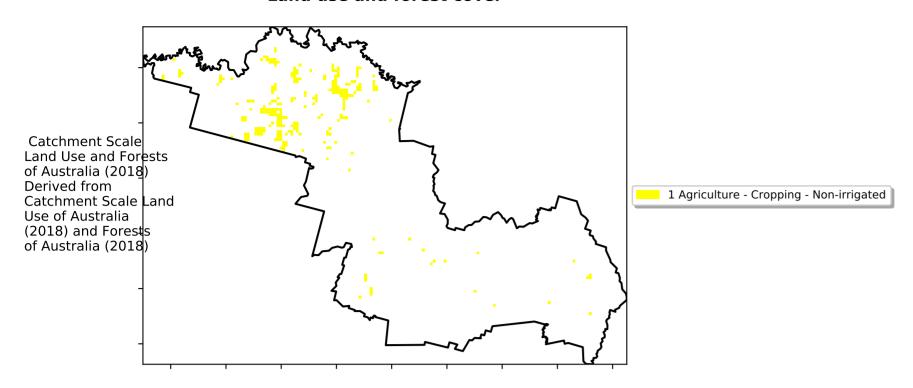




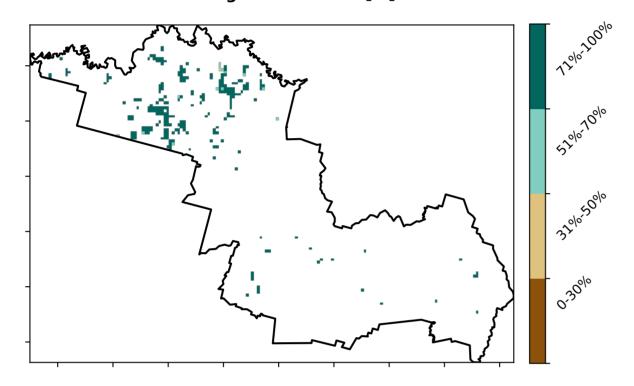


#### **Cropping**

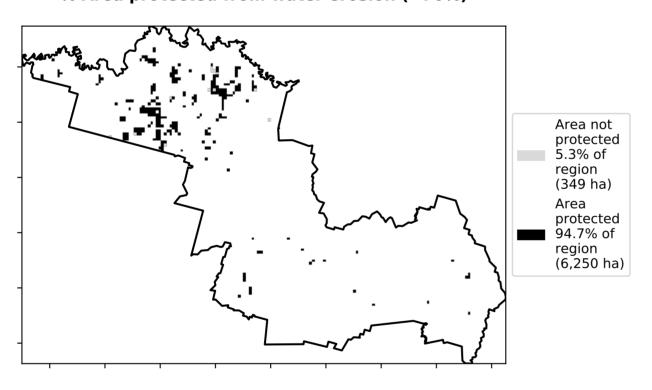
#### Land use and forest cover



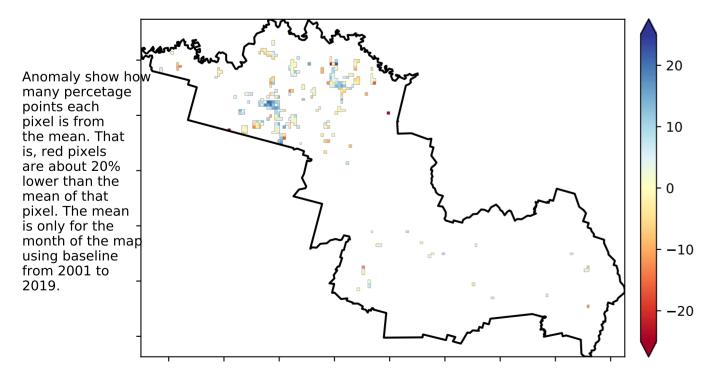
#### Total Vegetation Cover [%]



#### % Area protected from water erosion (>70%)

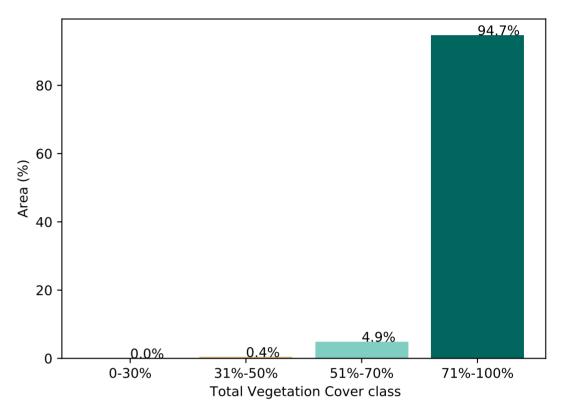


#### **Total Vegetation Cover Anomaly [%]**

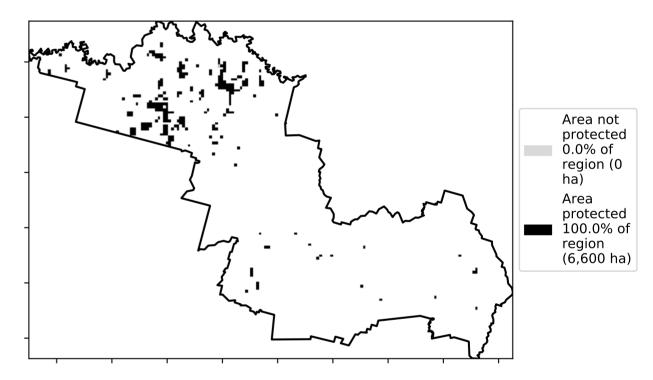


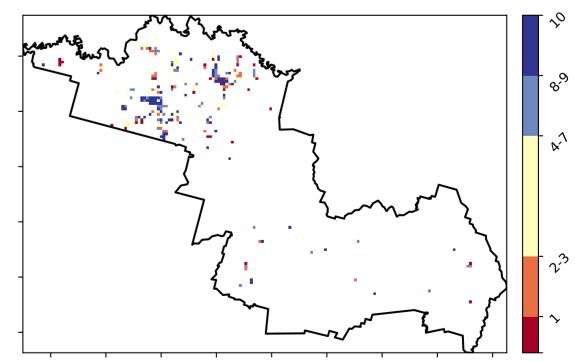
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



#### % Area protected from wind erosion (>50%)





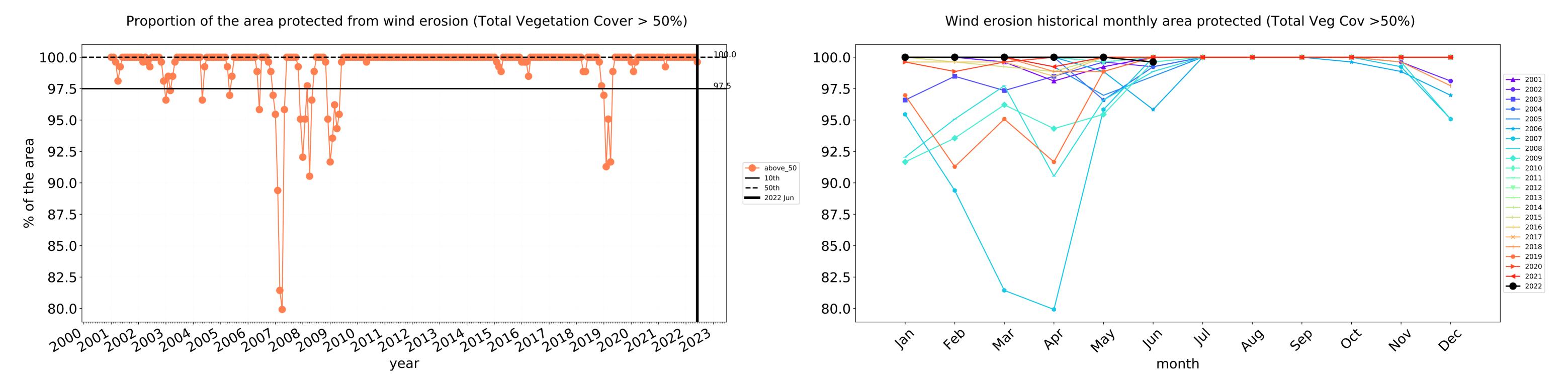


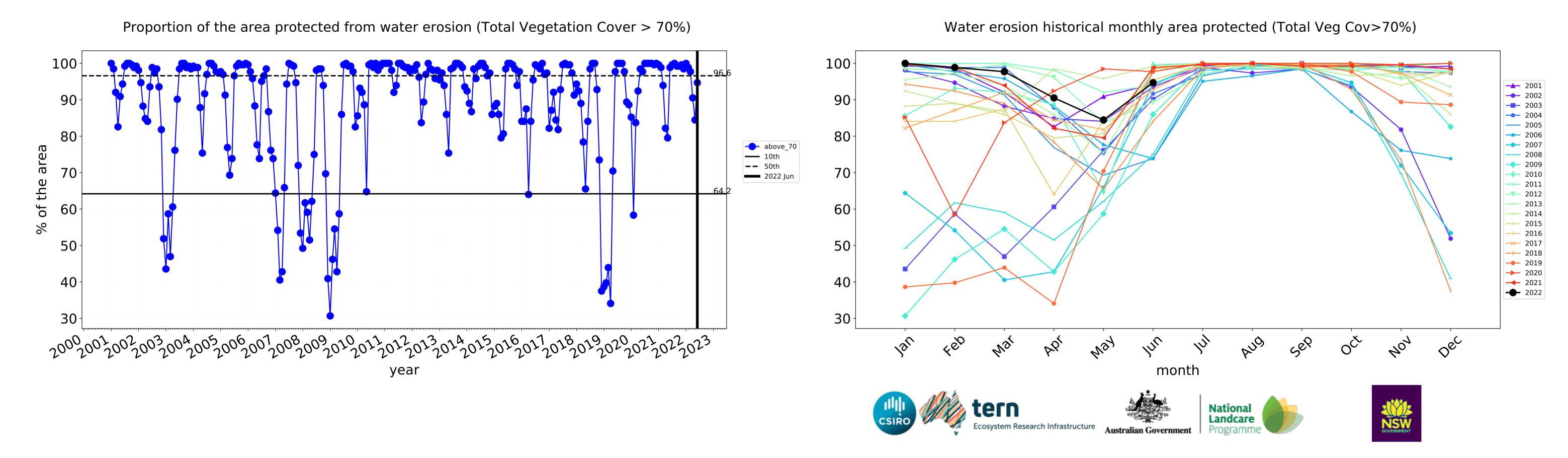


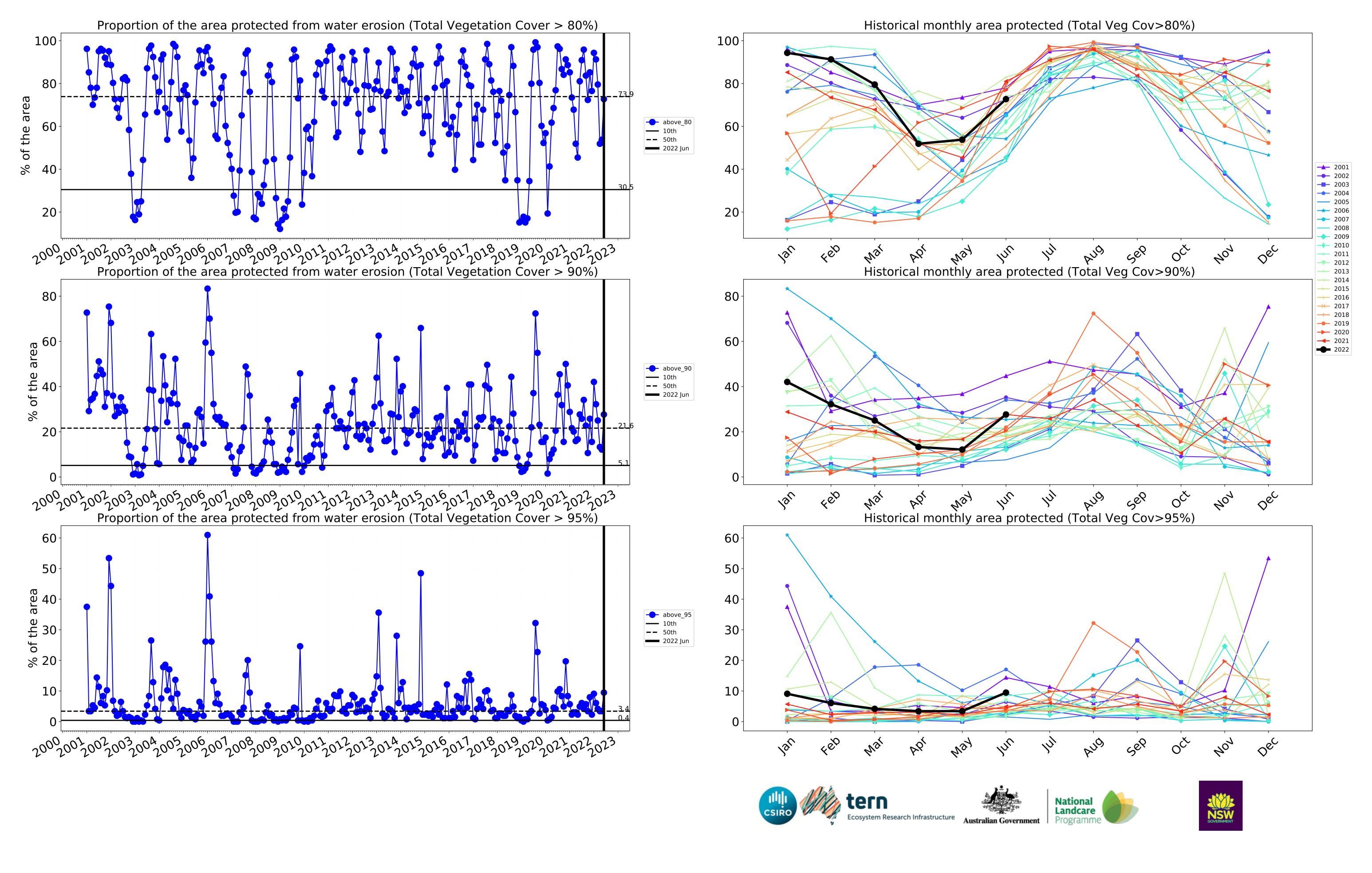




#### **Cropping timeseries**

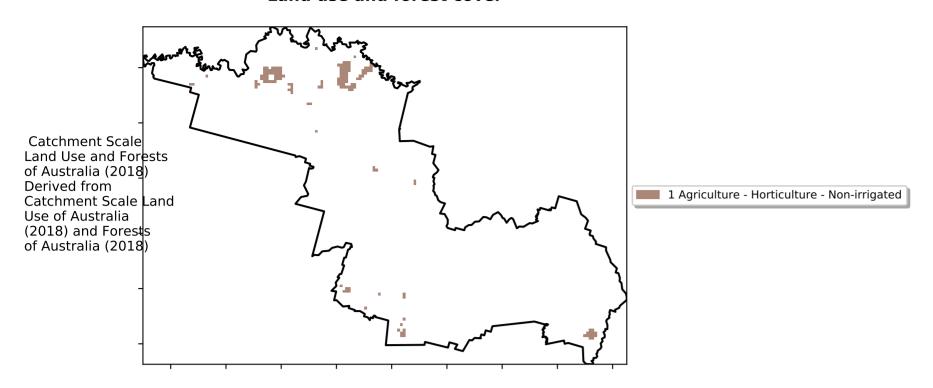




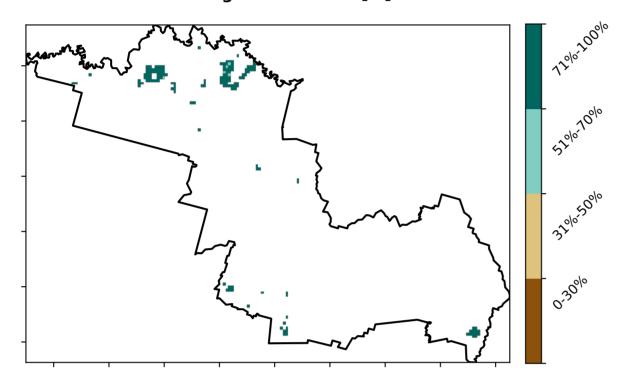


#### **Horticulture**

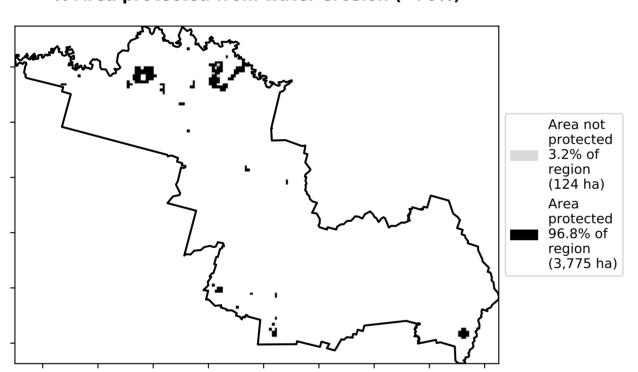
#### Land use and forest cover



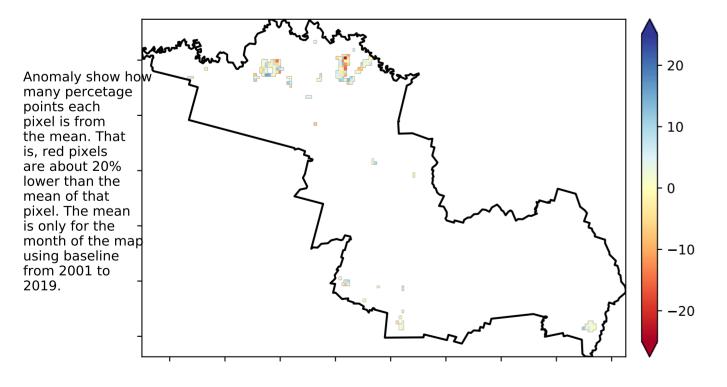
#### **Total Vegetation Cover [%]**



#### % Area protected from water erosion (>70%)

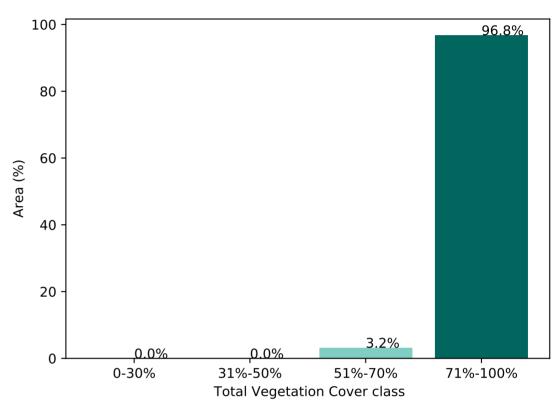


#### **Total Vegetation Cover Anomaly [%]**

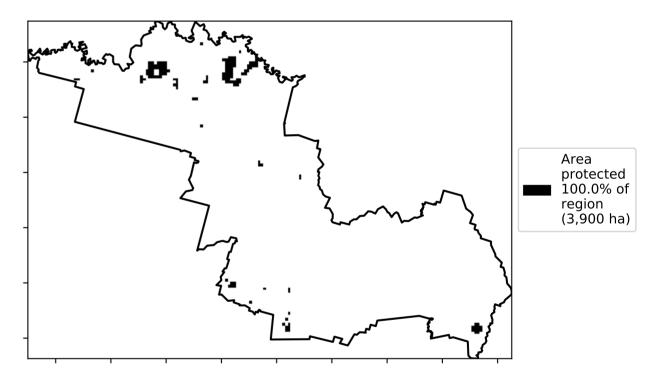


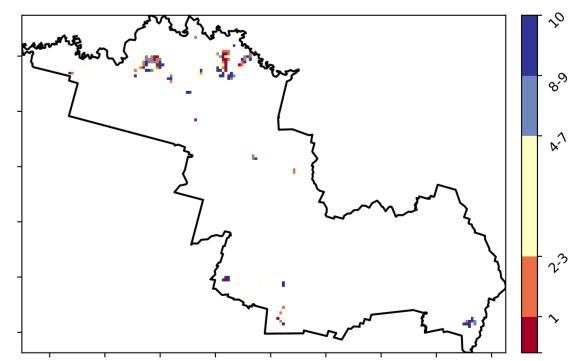
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



#### % Area protected from wind erosion (>50%)





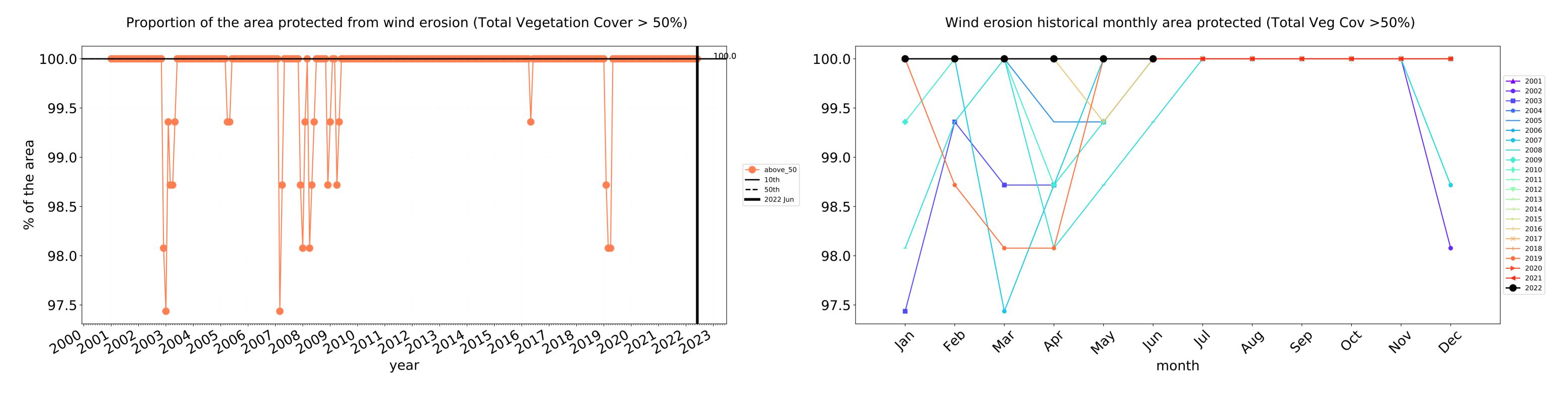


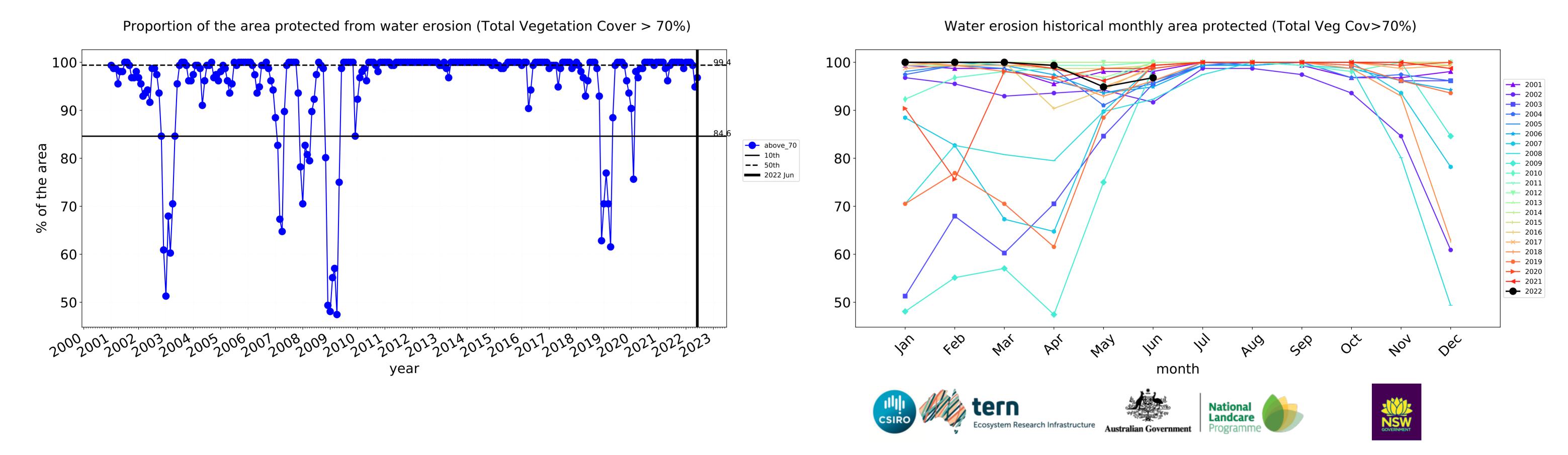


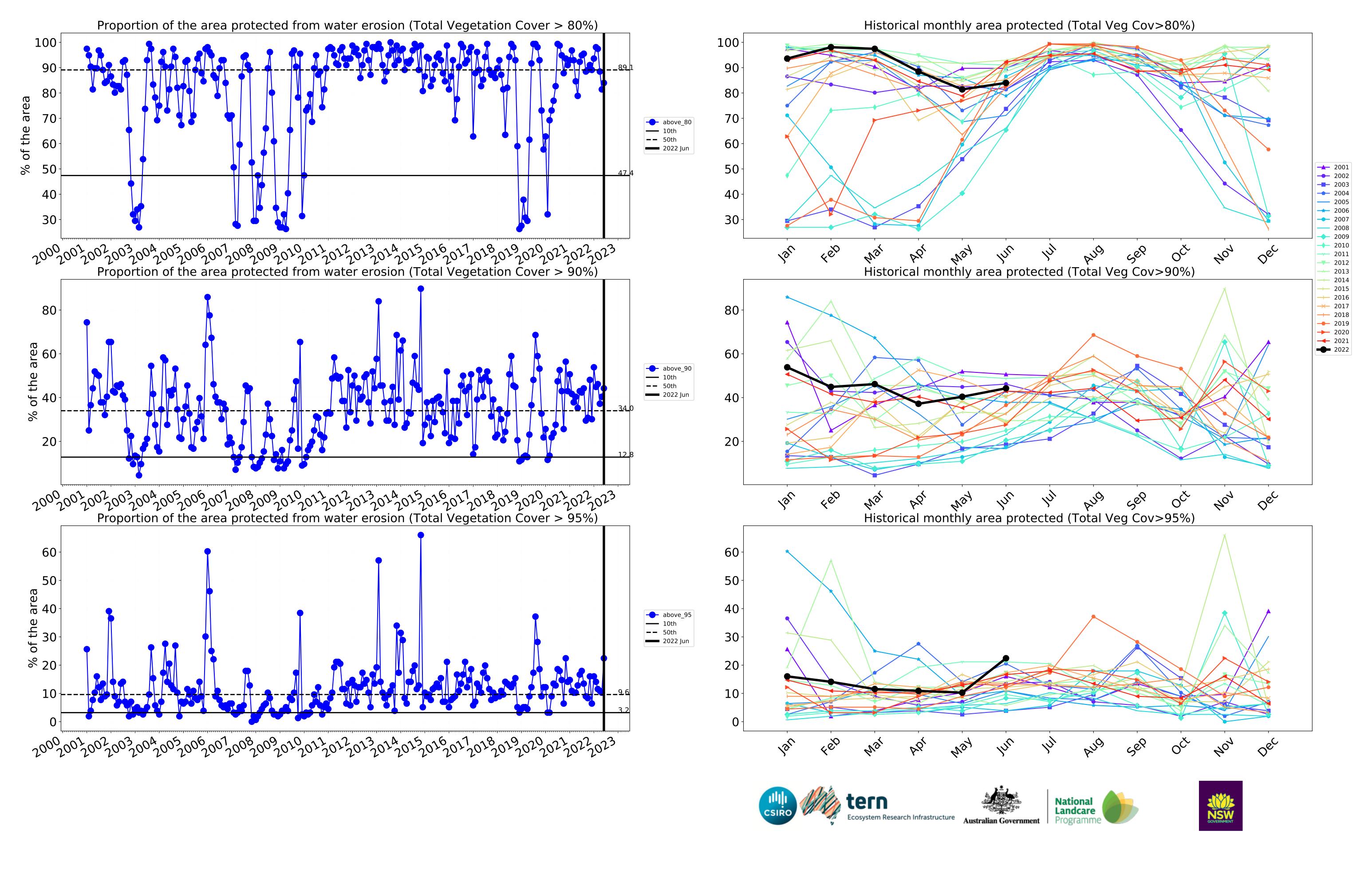




#### **Horticulture timeseries**

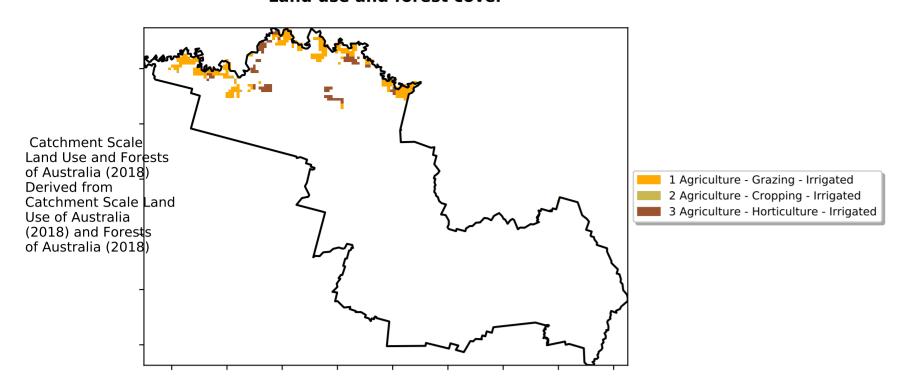




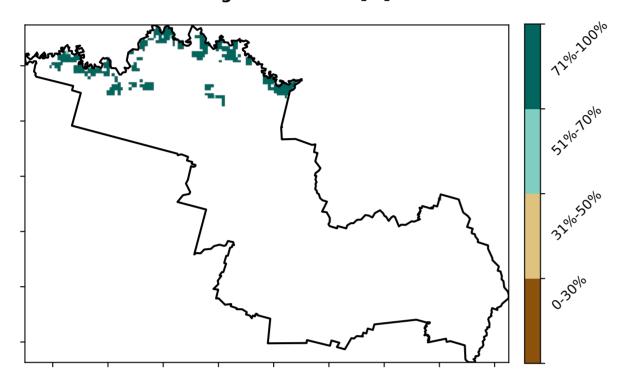


#### Irrigation

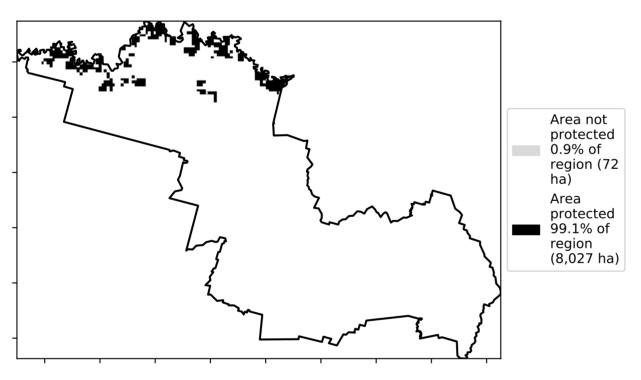
#### Land use and forest cover



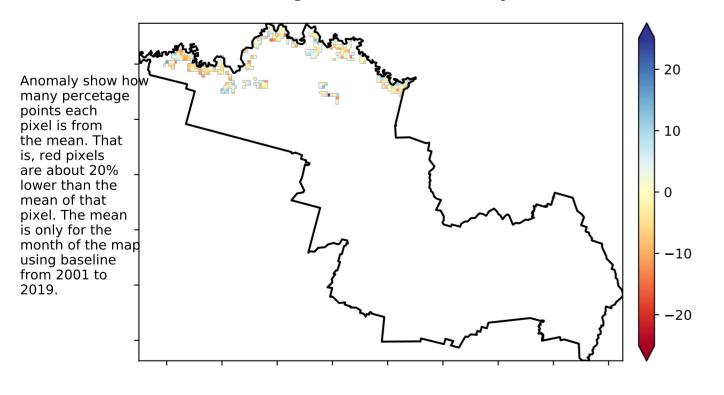
#### **Total Vegetation Cover [%]**



% Area protected from water erosion (>70%)

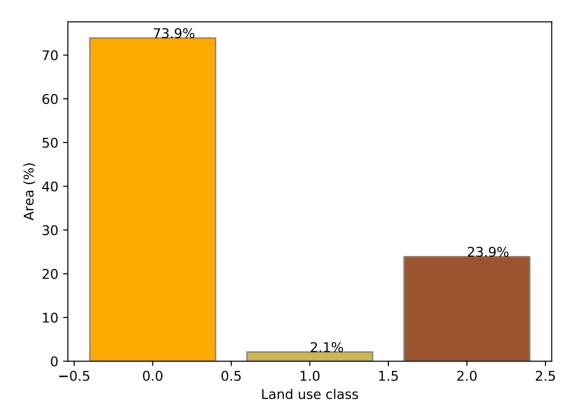


Total Vegetation Cover Anomaly [%]

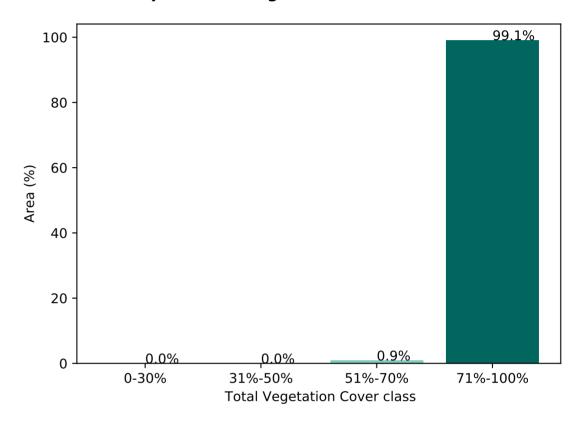


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

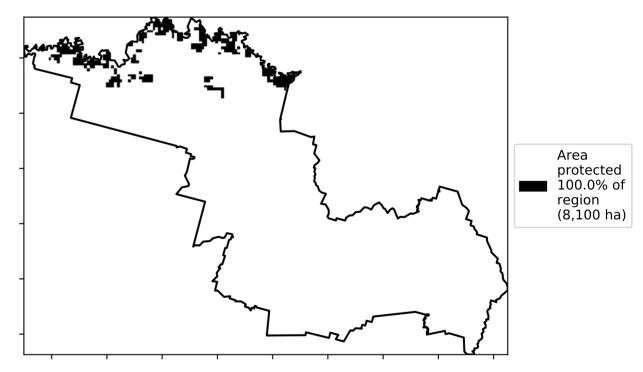
#### Proportion of each land class in area



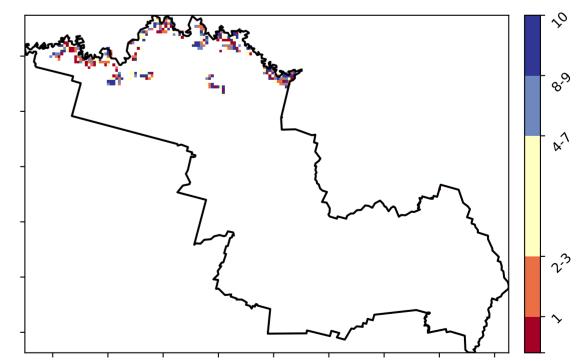
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]





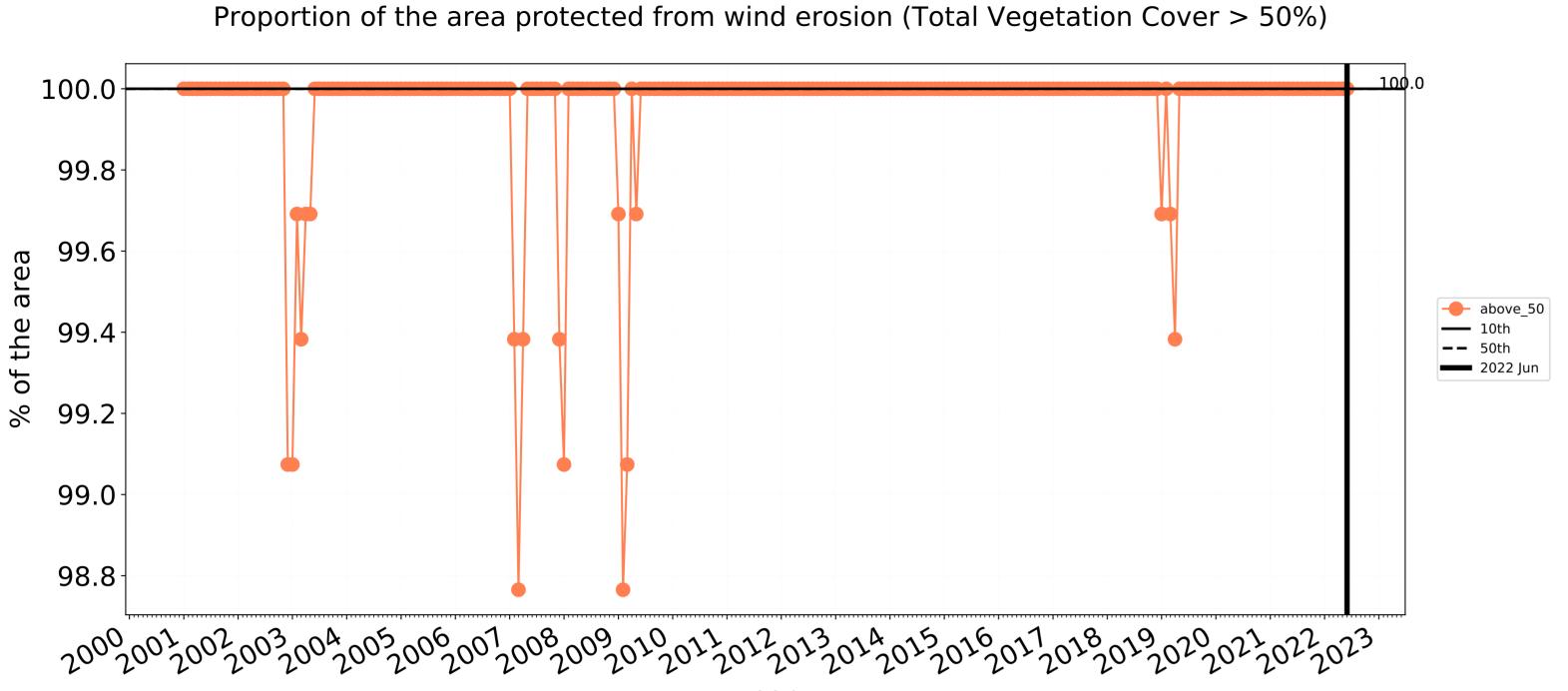


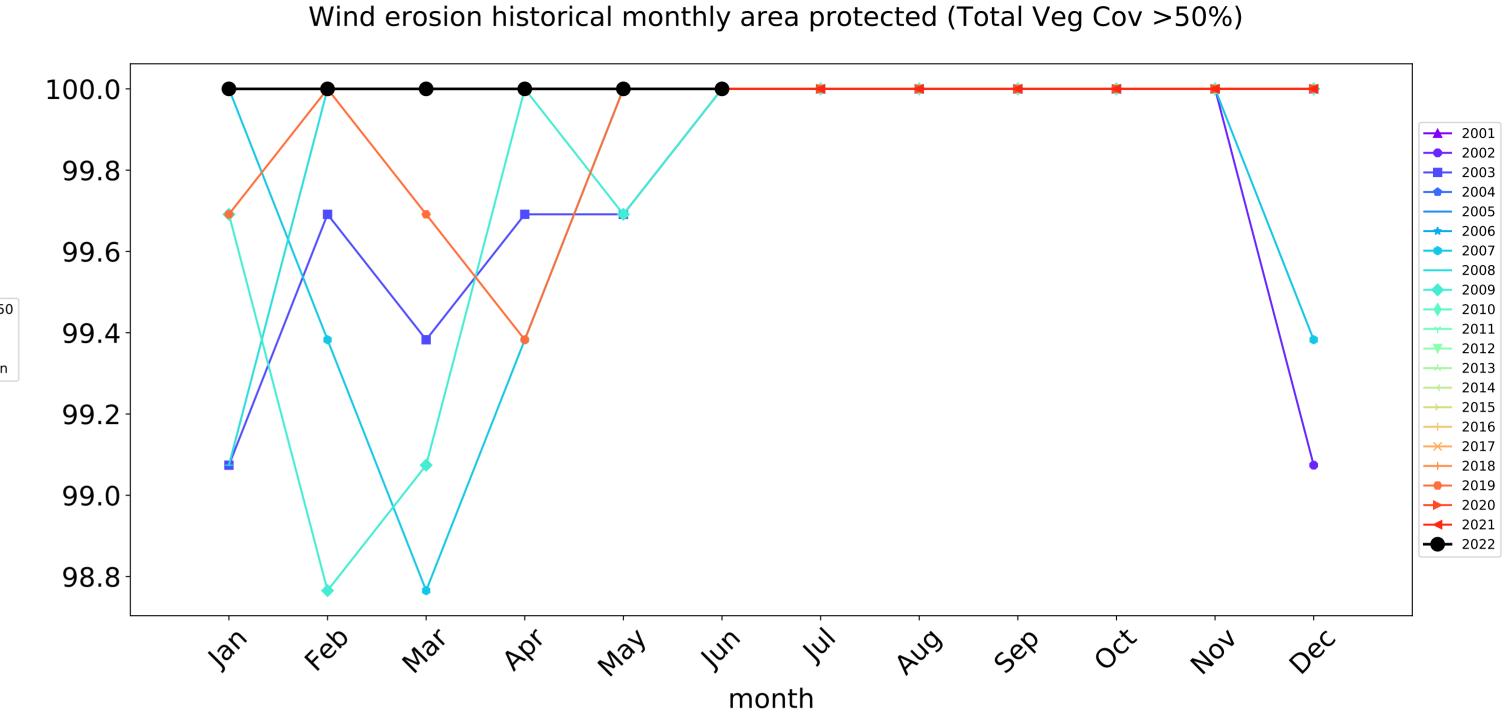


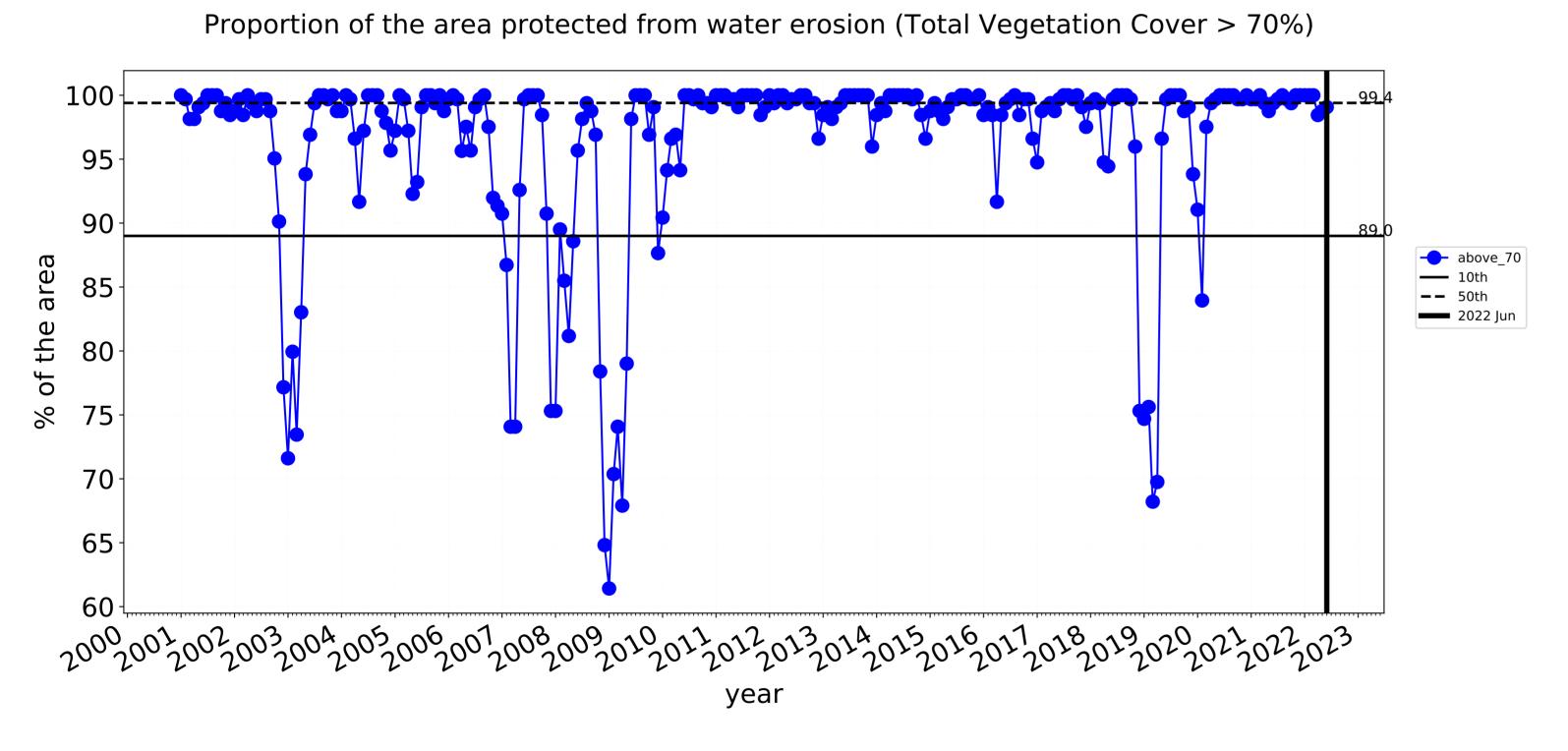


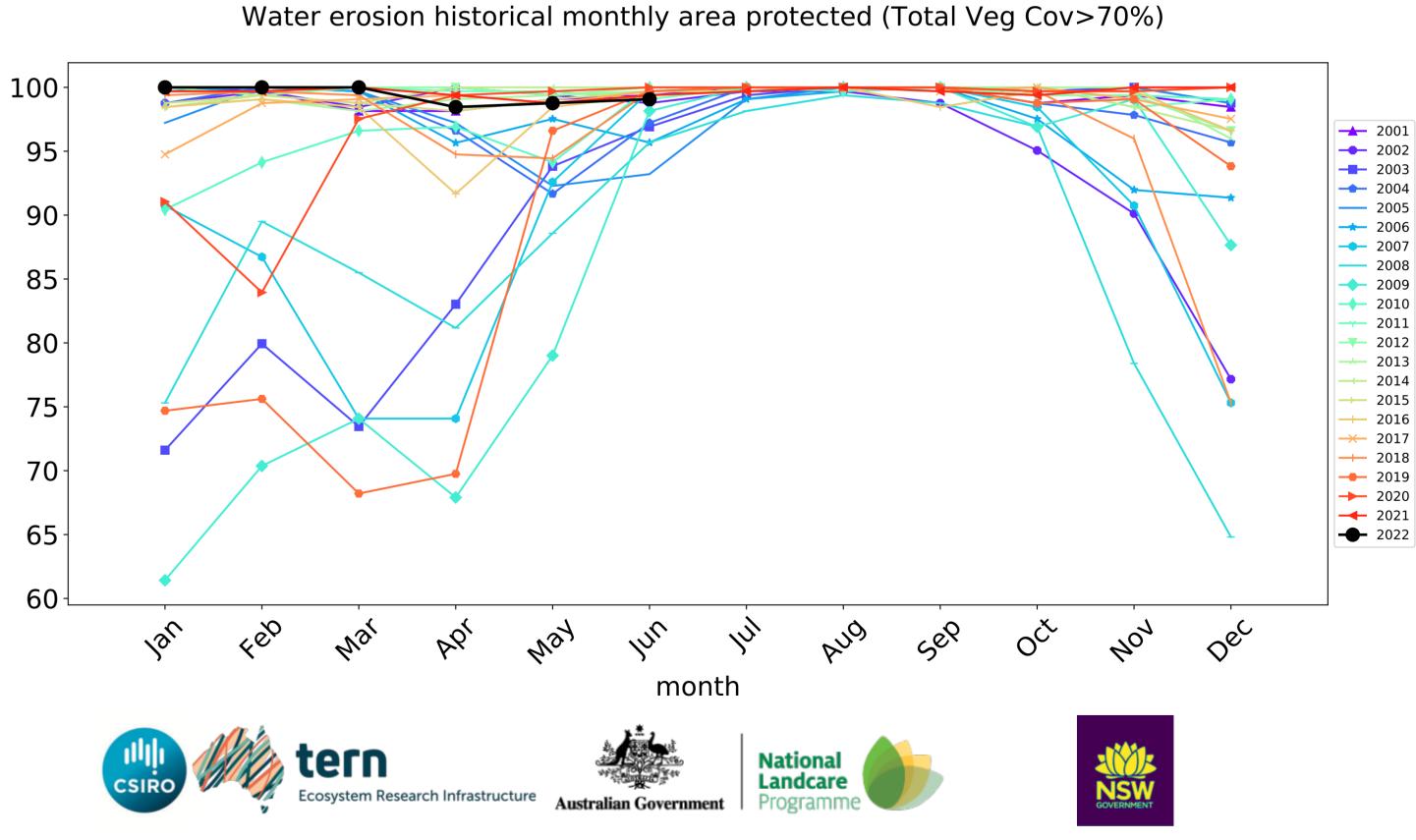


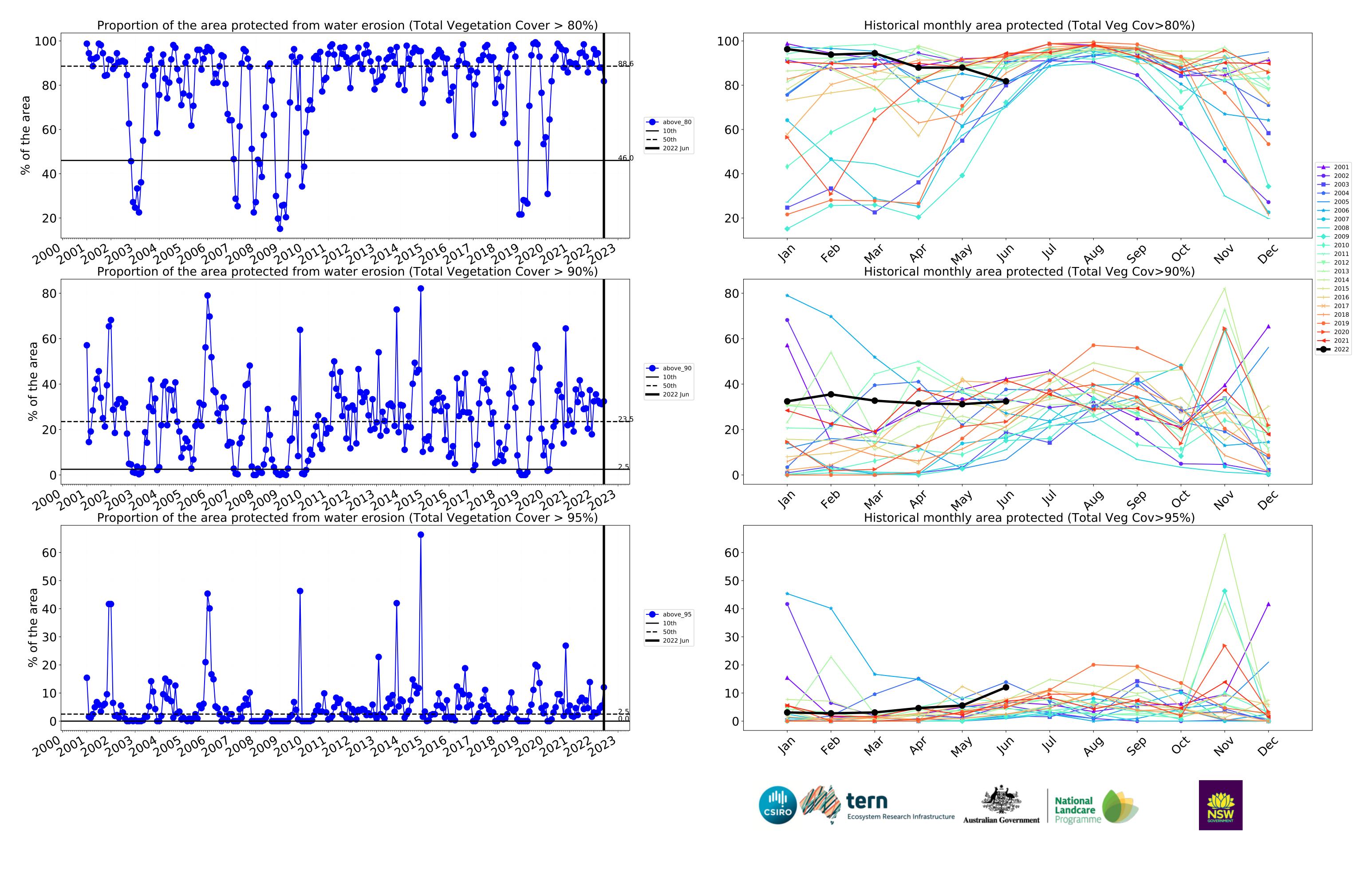
#### Irrigation timeseries





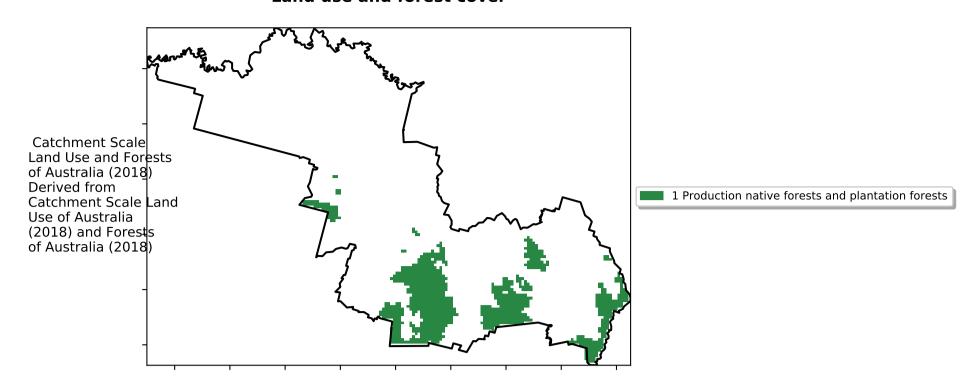




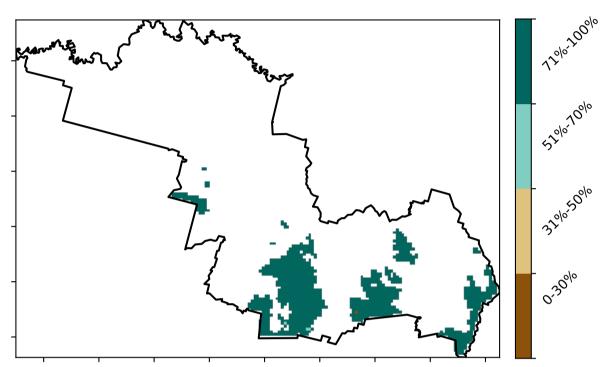


#### **Production native forests and plantation forests**

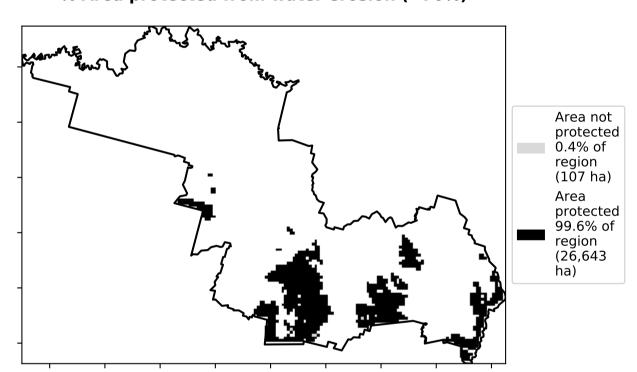
#### Land use and forest cover



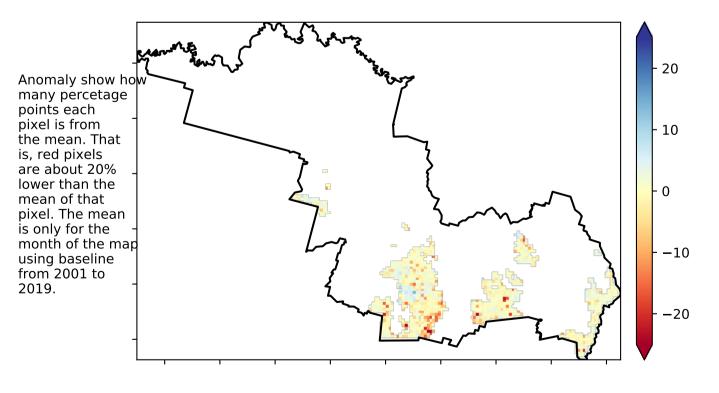
#### Total Vegetation Cover [%]



#### % Area protected from water erosion (>70%)

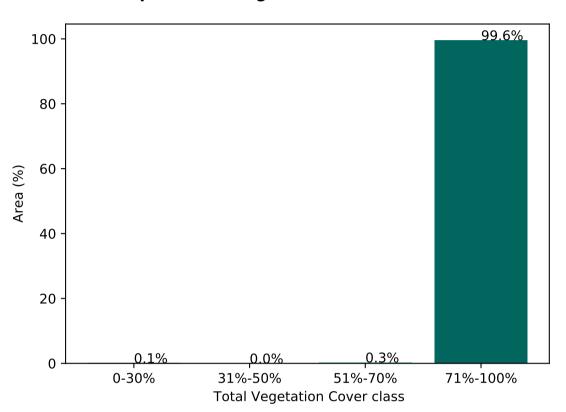


#### Total Vegetation Cover Anomaly [%]

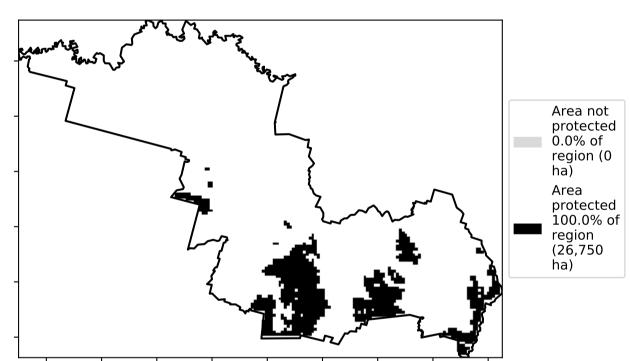


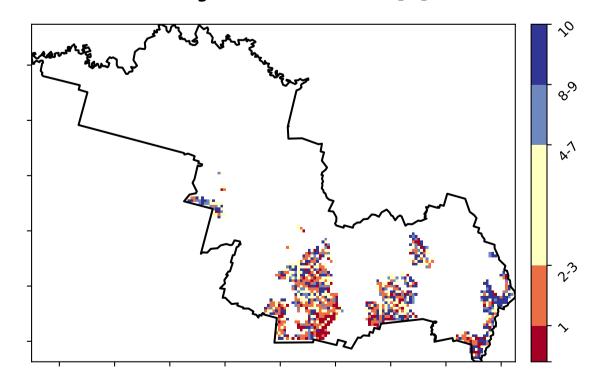
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### **Proportion of vegetation cover class in area**



#### % Area protected from wind erosion (>50%)





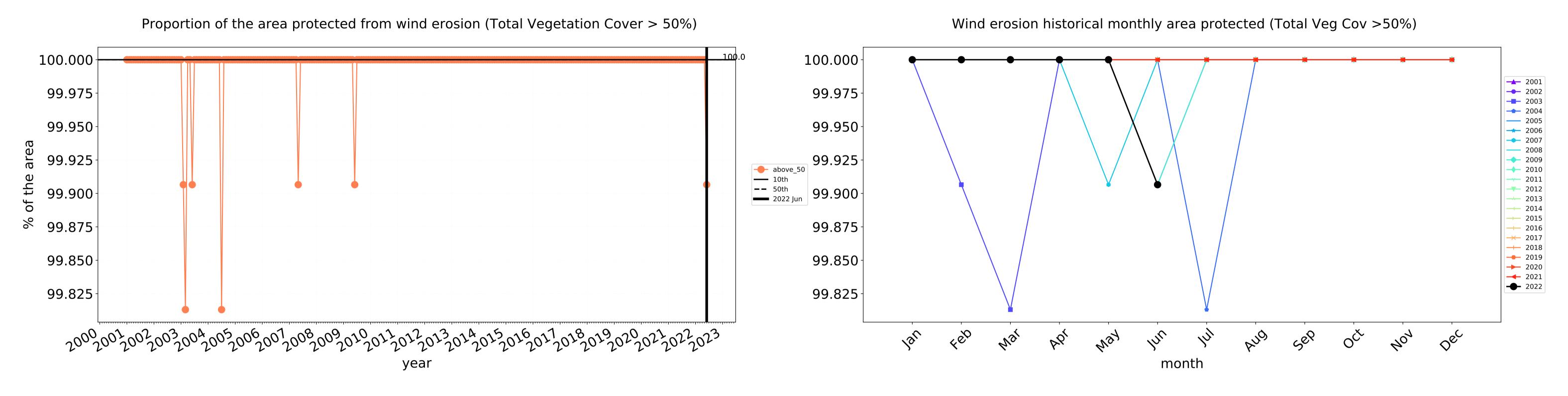


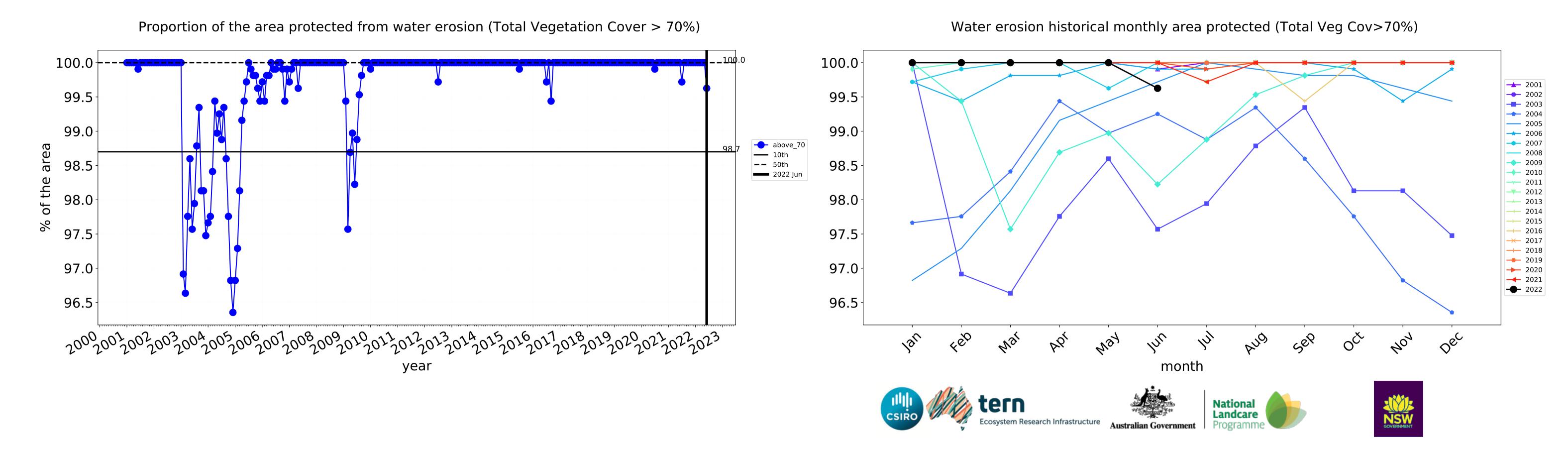


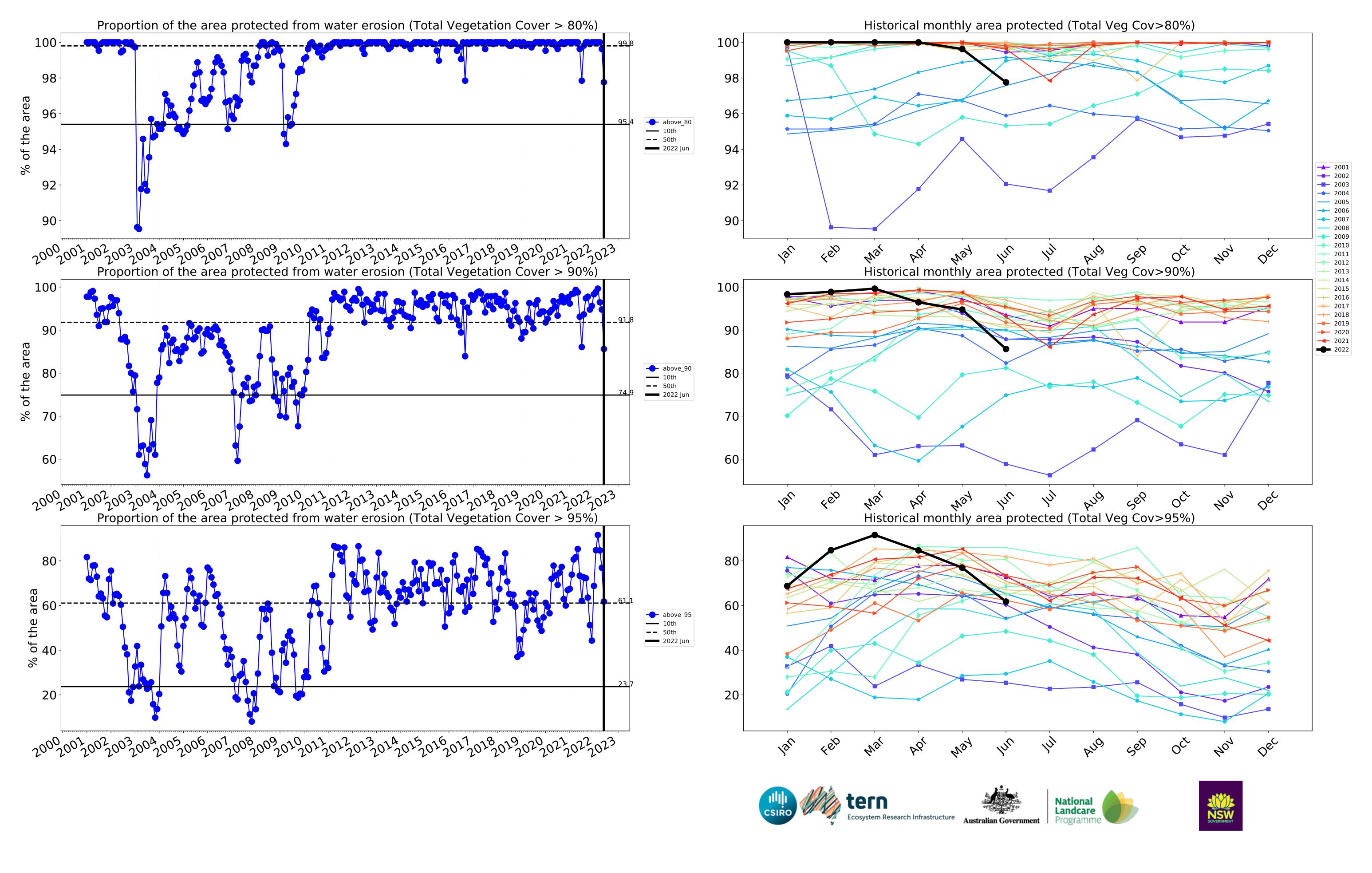




#### **Production native forests and plantation forests timeseries**







# Indigo\_(S) (202,875 ha and no data 1,001 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	202,875	99.9% 202,700	99.8% 202,375	98.2% 199,175	89.9% 182,450	58.2% 118,125	33.6% 68,125
Conservation and natural environments	24,050	100.0% 24,050	100.0% 24,050	99.4% 23,900	97.8% 23,525	84.9% 20,425	61.5% 14,800
Conservation and natural environments Woodland forest	5,900	100.0% 5,900	100.0% 5,900	100.0% 5,900	98.3% 5,800	80.1% 4,725	59.7% 3,525
Conservation and natural environments Forest (non woodland)	16,675	100.0% 16,675	100.0% 16,675	99.7% 16,625	98.4% 16,400	88.6% 14,775	64.9% 10,825
Agriculture	133,825	100.0% 133,825	99.9% 133,700	98.1% 131,225	87.4% 117,025	48.4% 64,825	23.3% 31,200
Grazing	115,225	100.0% 115,225	99.9% 115,125	98.2% 113,175	88.8% 102,325	50.9% 58,650	24.9% 28,725
Grazing non forest	105,475	100.0% 105,475	99.9% 105,375	98.2% 103,525	88.1% 92,875	48.1% 50,725	22.3% 23,550
Grazing Woodland forest	2,350	100.0% 2,350	100.0% 2,350	98.9% 2,325	96.8% 2,275	80.9% 1,900	46.8% 1,100
Grazing - Forest (non woodland)	7,400	100.0% 7,400	100.0% 7,400	99.0% 7,325	97.0% 7,175	81.4% 6,025	55.1% 4,075
Cropping	6,600	100.0% 6,600	99.6% 6,575	94.7% 6,250	72.7% 4,800	27.7% 1,825	9.5% 625
Horticulture	3,900	100.0% 3,900	100.0% 3,900	96.8% 3,775	84.0% 3,275	44.2% 1,725	22.4% 875
Irrigation	8,100	100.0% 8,100	100.0% 8,100	99.1% 8,025	81.8% 6,625	32.4% 2,625	12.0% 975
Production native forests and plantation forests	26,750	99.9% 26,725	99.9% 26,725	99.6% 26,650	97.8% 26,150	85.6% 22,900	61.8% 16,525







