## 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: October 2024** 

#### **Vegetation Cover Oct 2024**

#### **Land use and forest cover**

Catchment Scale

of Australia (2018)

(2018) and Forests

of Australia (2018)

Anomaly show how many percetage points each

pixel is from

is, red pixels

the mean. That

are about 20%

lower than the

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

mean of that

using baseline from 2001 to

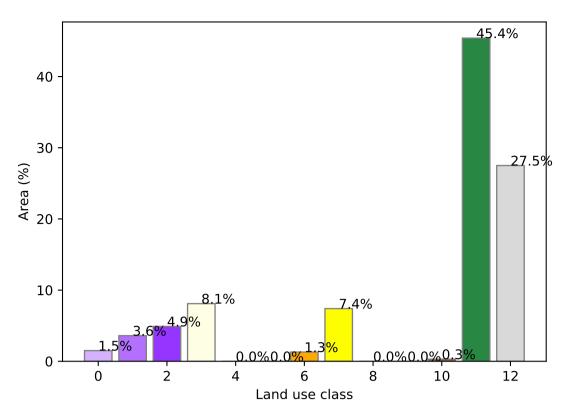
2019.

Derived from

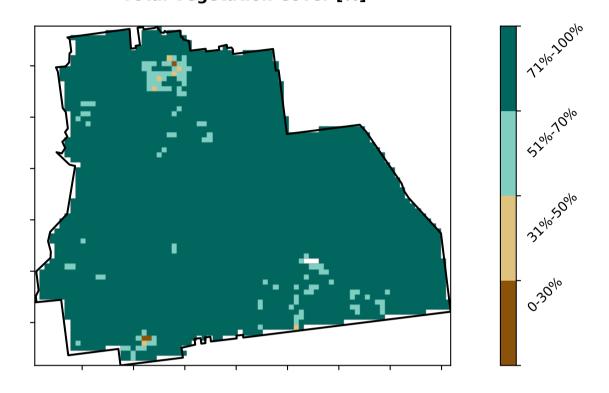
Use of Australia

#### 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

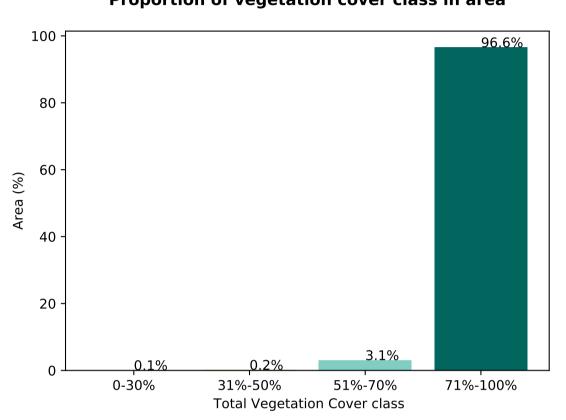
#### **Proportion of each land class in area**

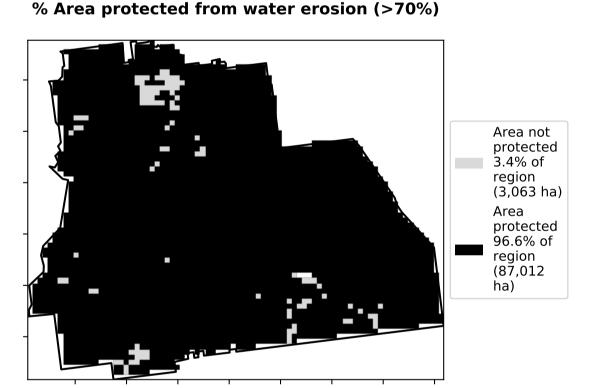


#### **Total Vegetation Cover [%]**

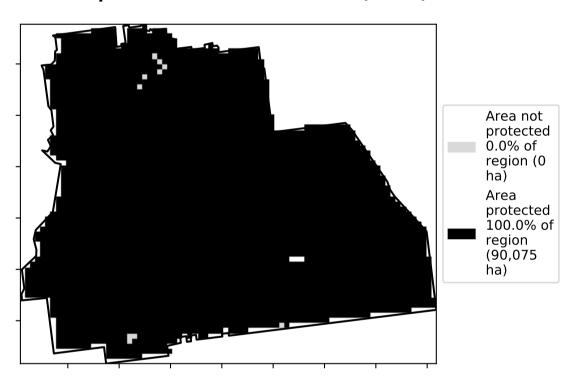


**Proportion of vegetation cover class in area** 

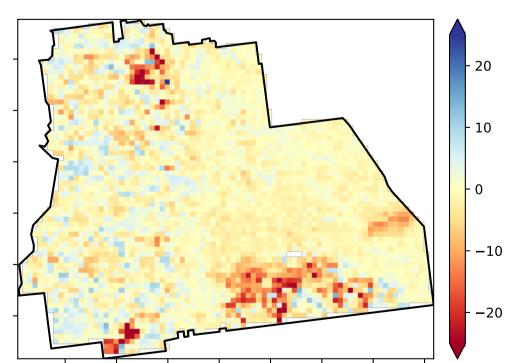




% Area protected from wind erosion (>50%)

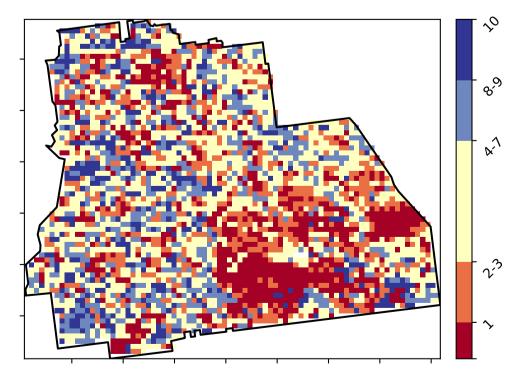


#### **Total Vegetation Cover Anomaly [%]**



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 [%]** 

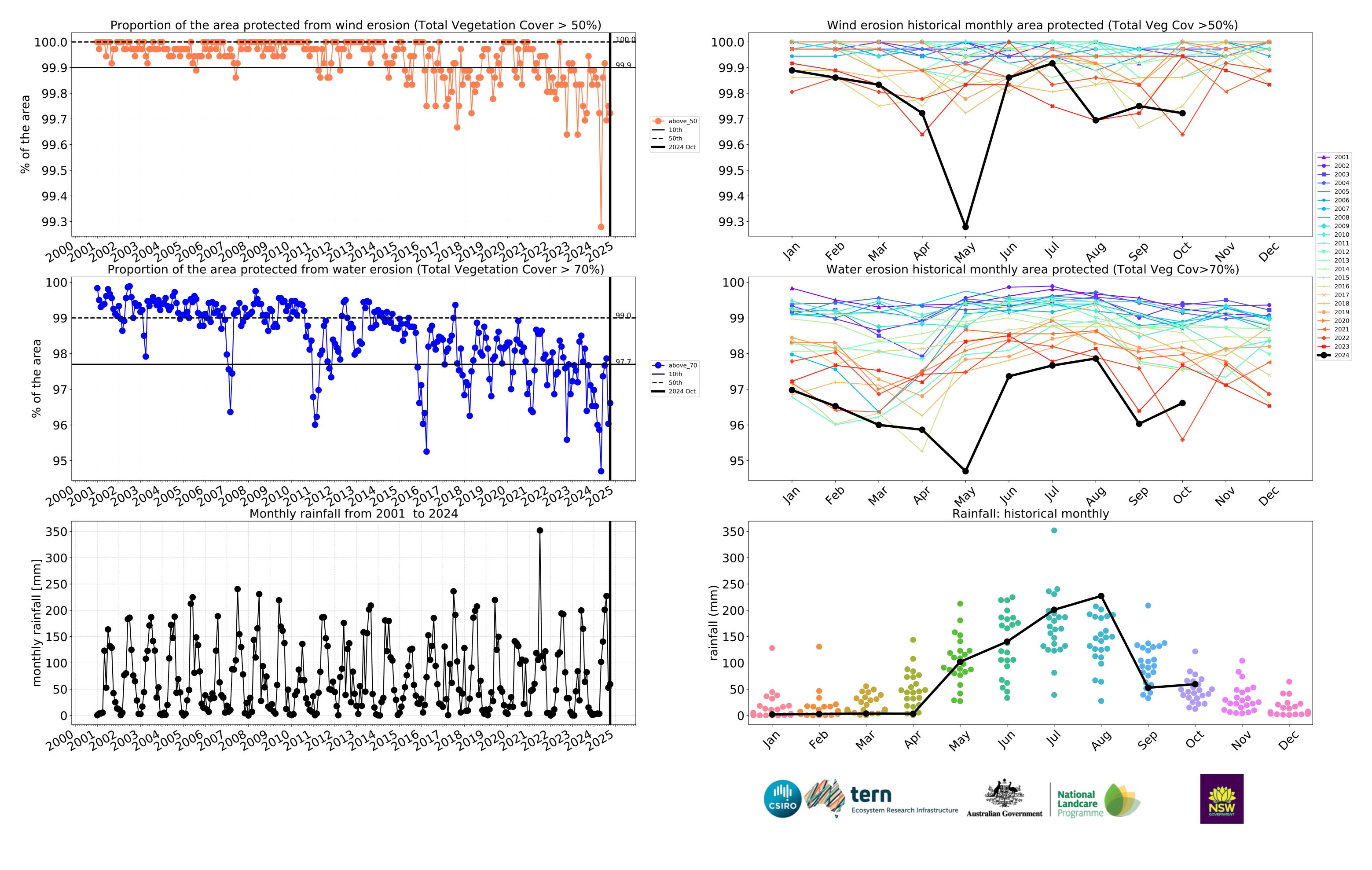


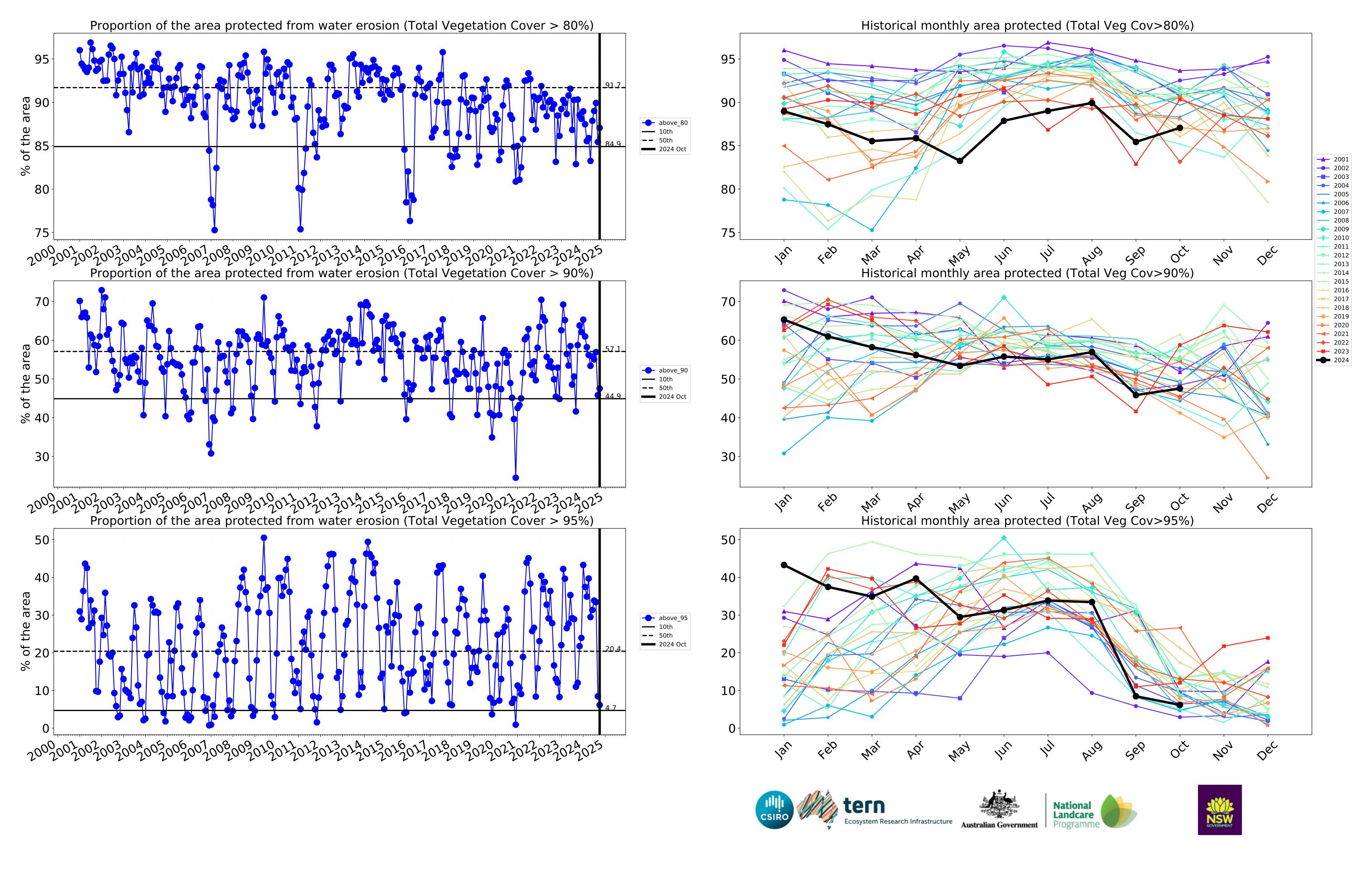








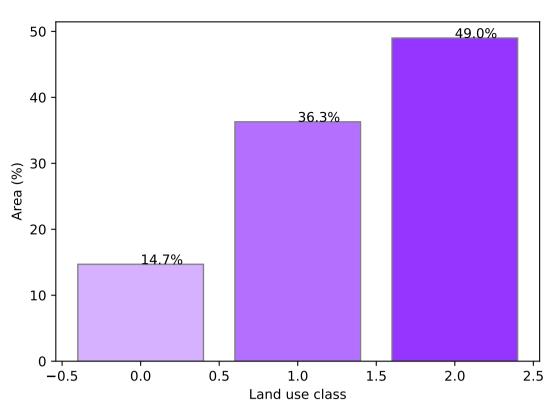




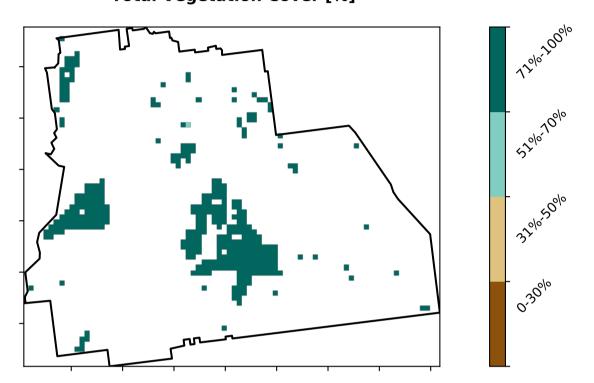
#### **Conservation and natural environments**

#### 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)

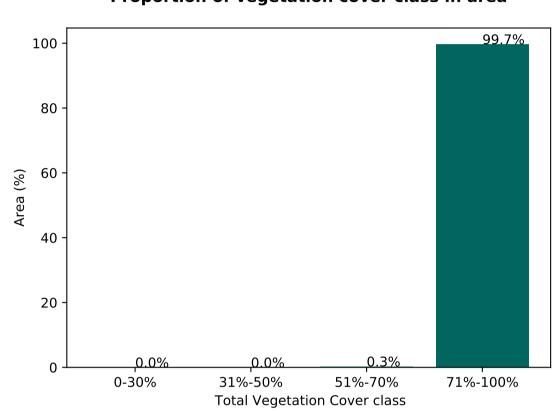
#### **Proportion of each land class in area**



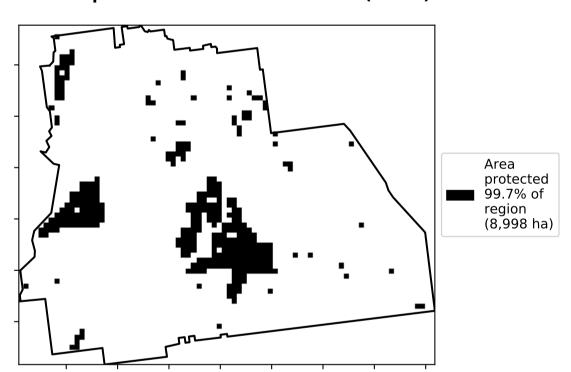
**Total Vegetation Cover [%]** 



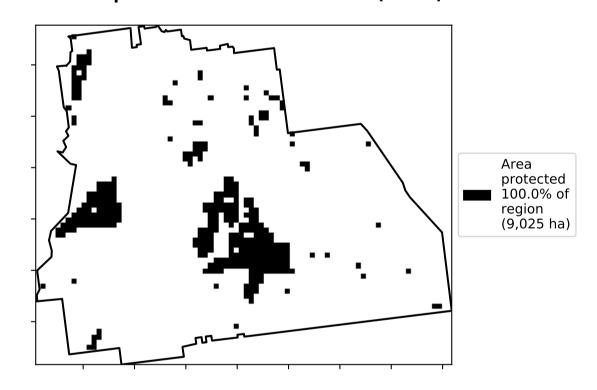
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)



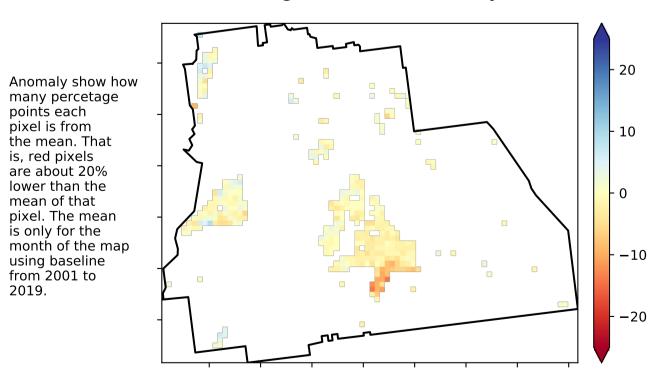
% Area protected from wind erosion (>50%)



**Total Vegetation Cover Anomaly [%]** 

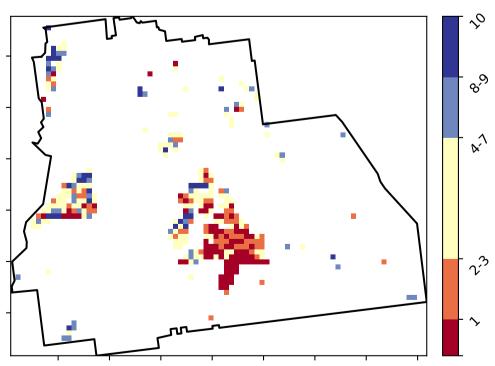
is, red pixels are about 20% lower than the mean of that pixel. The mean

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.

**Total Vegetation Cover Decile [%]** 



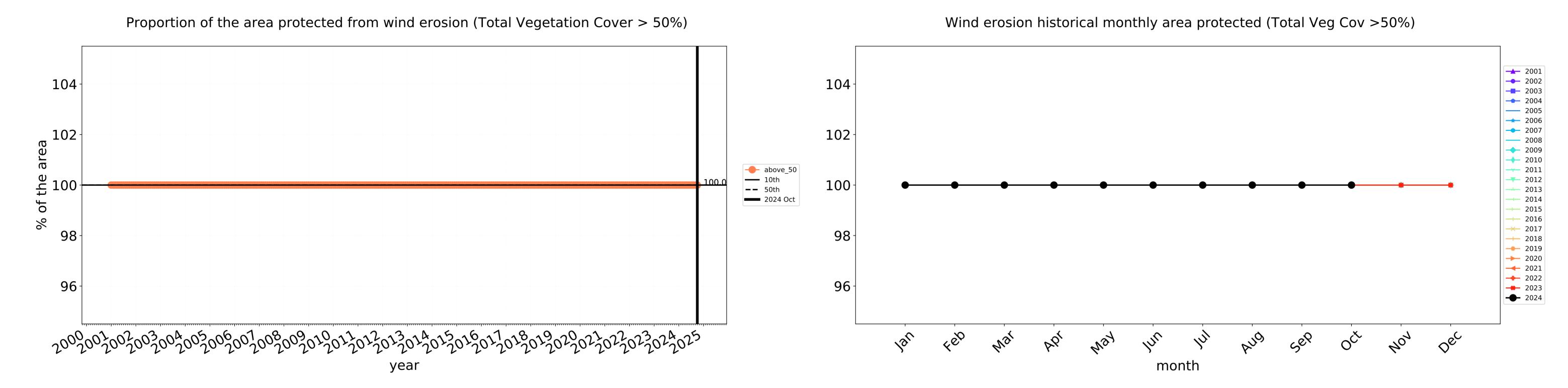


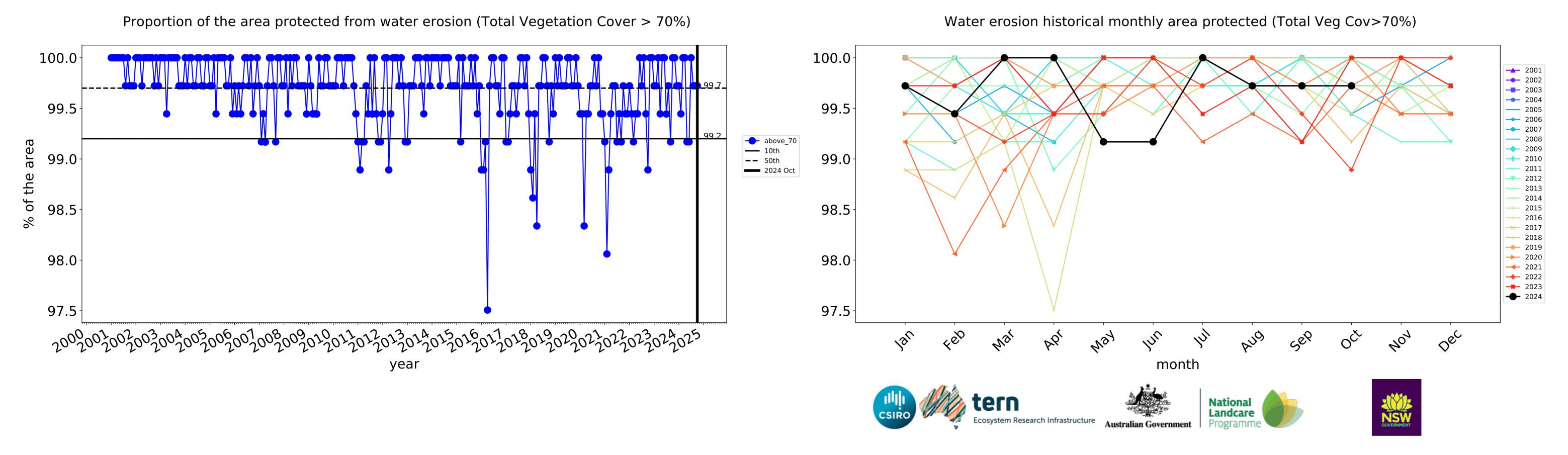


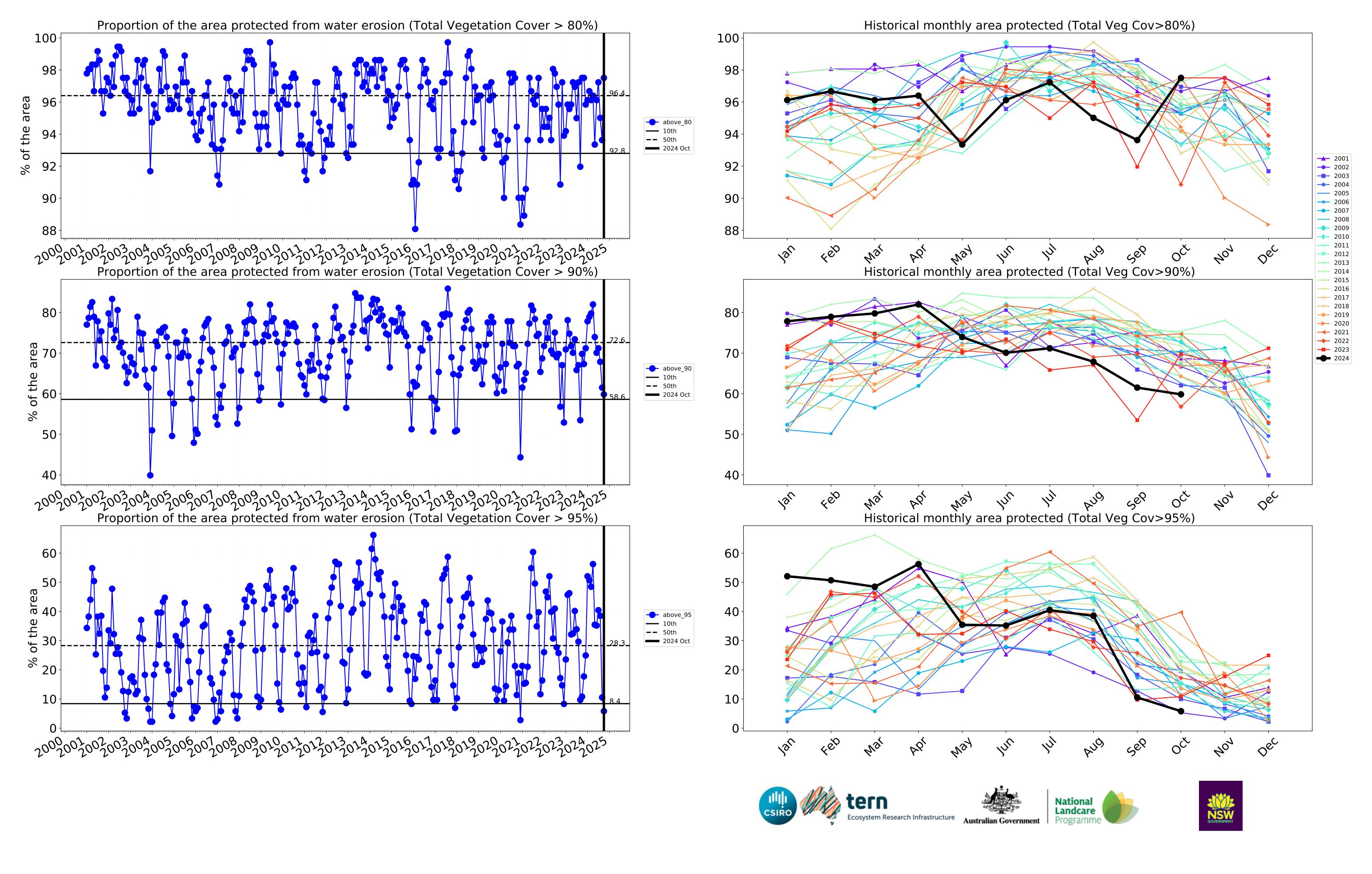




#### **Conservation and natural environments timeseries**



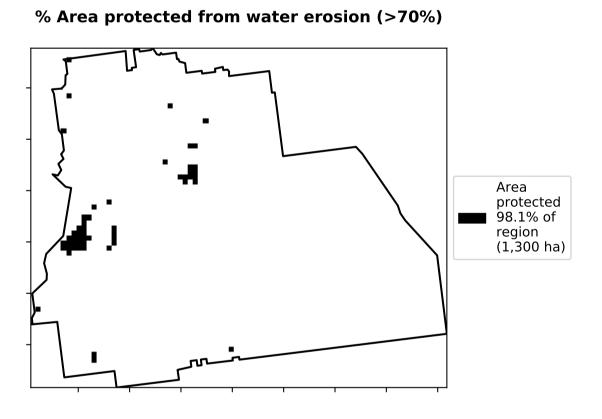


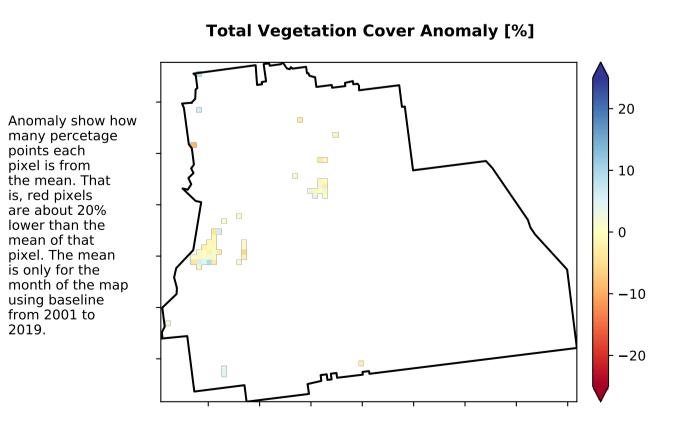


#### **Conservation and natural environments non forest**

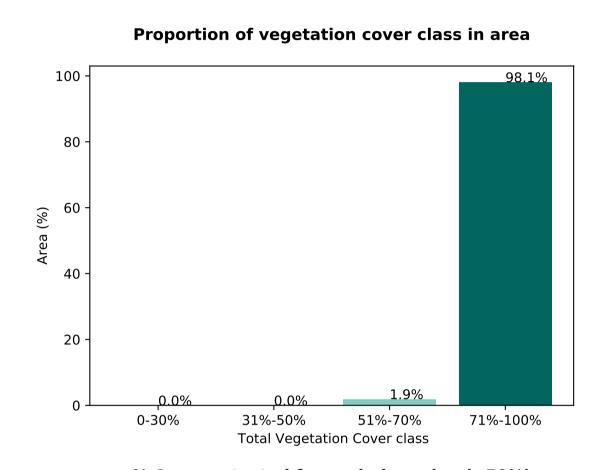
### Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments - Non-Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

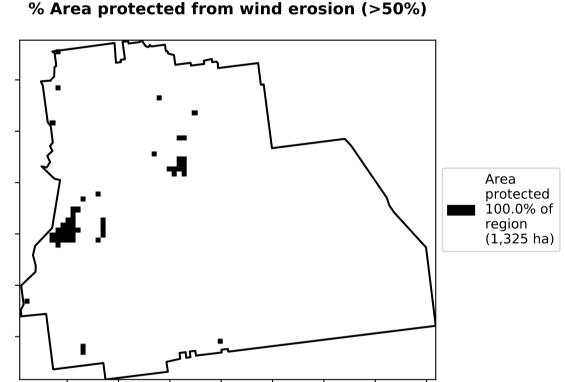
# **Total Vegetation Cover [%]**

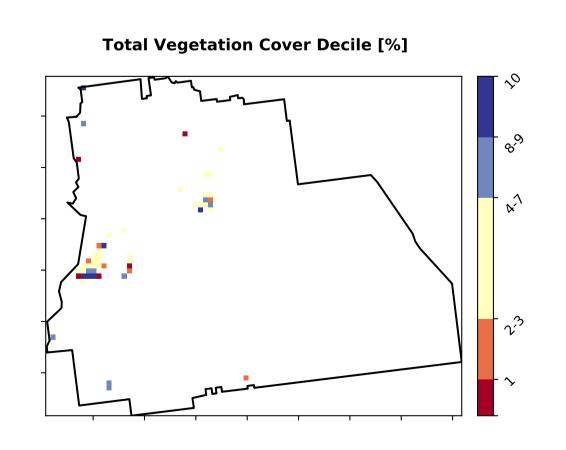




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.







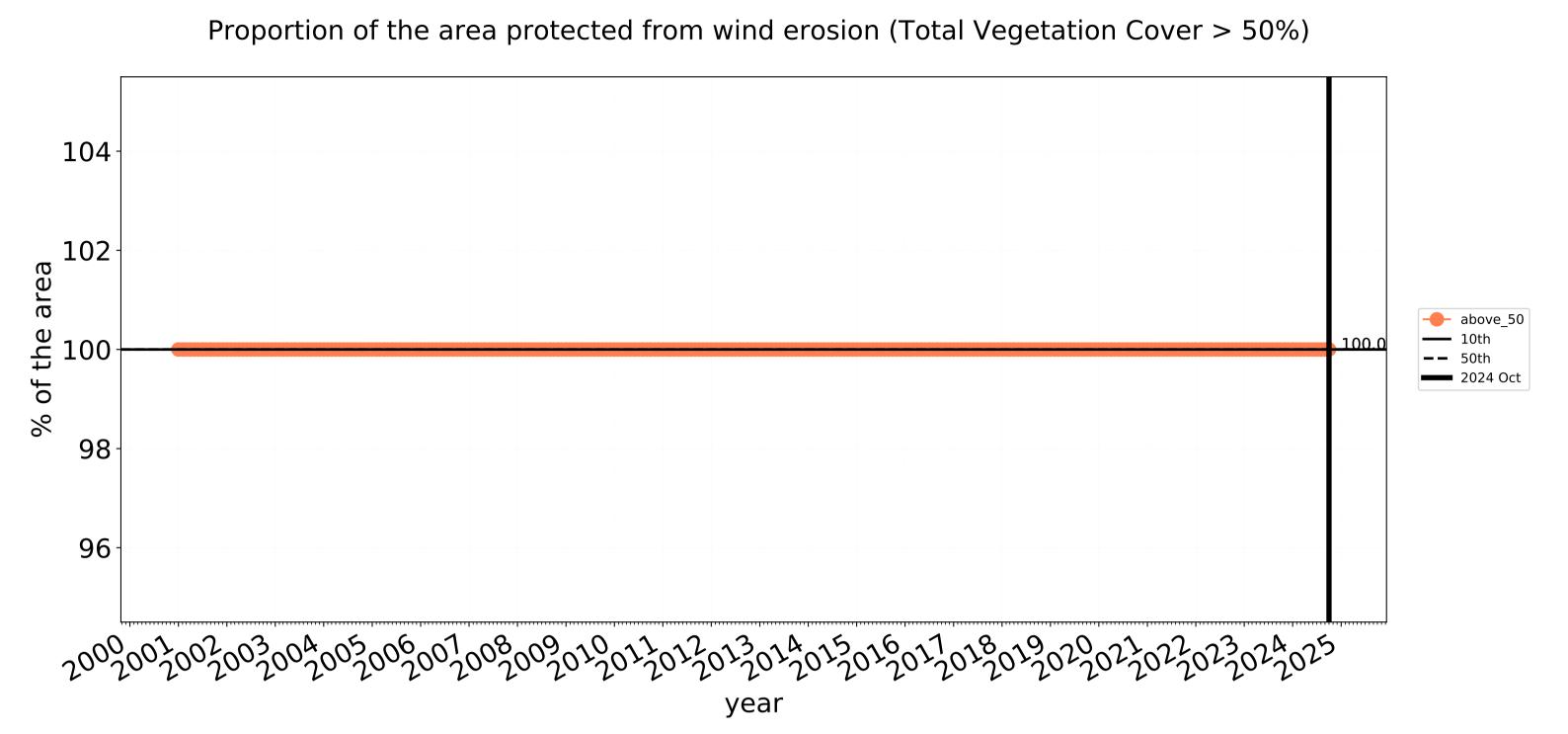




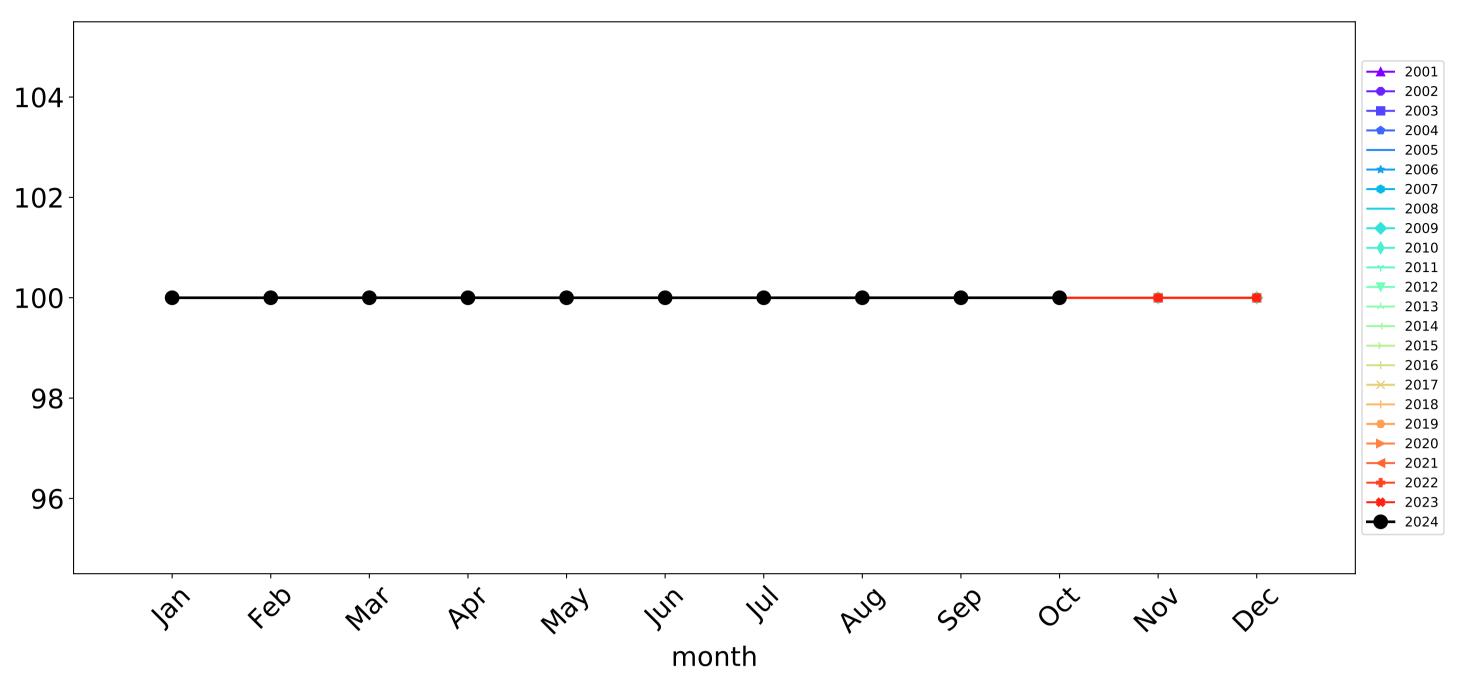


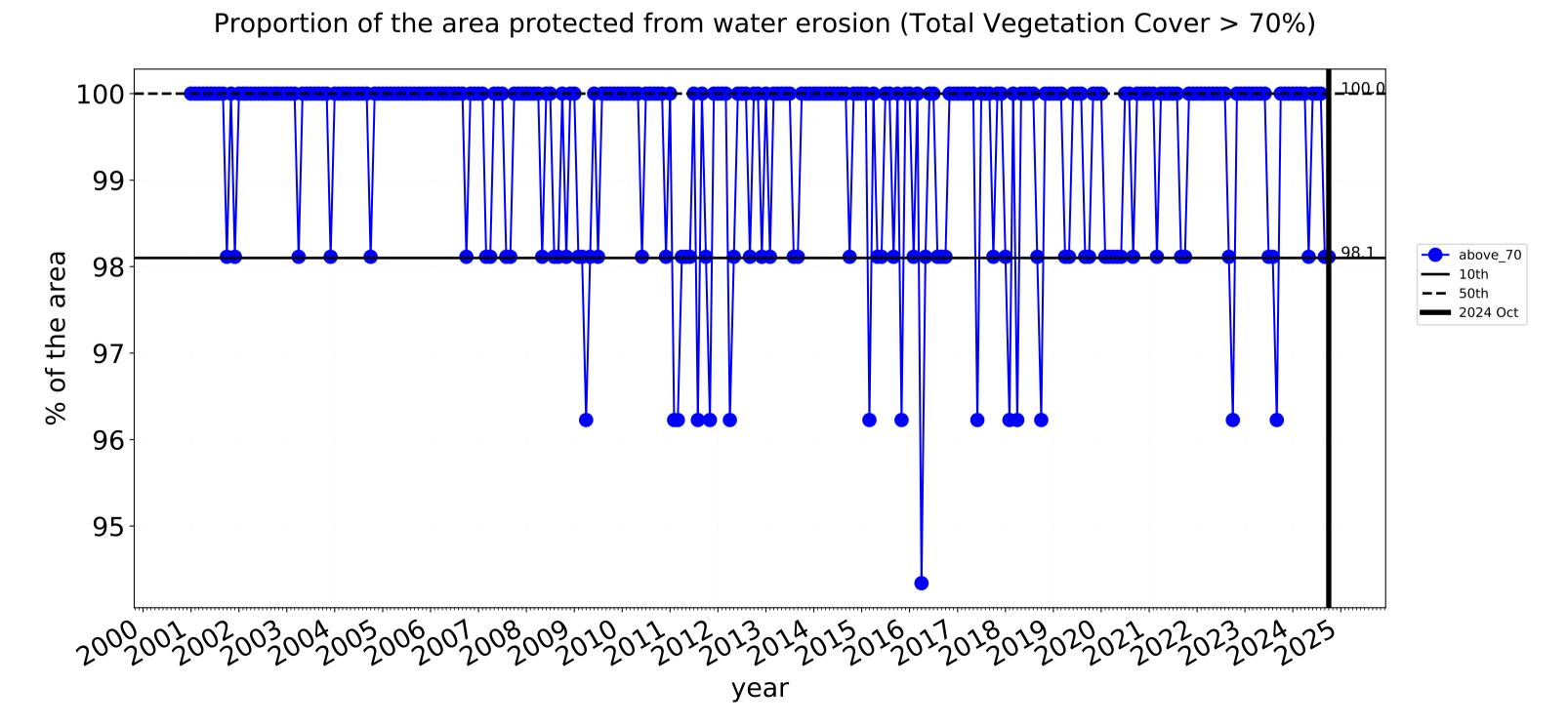


#### **Conservation and natural environments non forest timeseries**

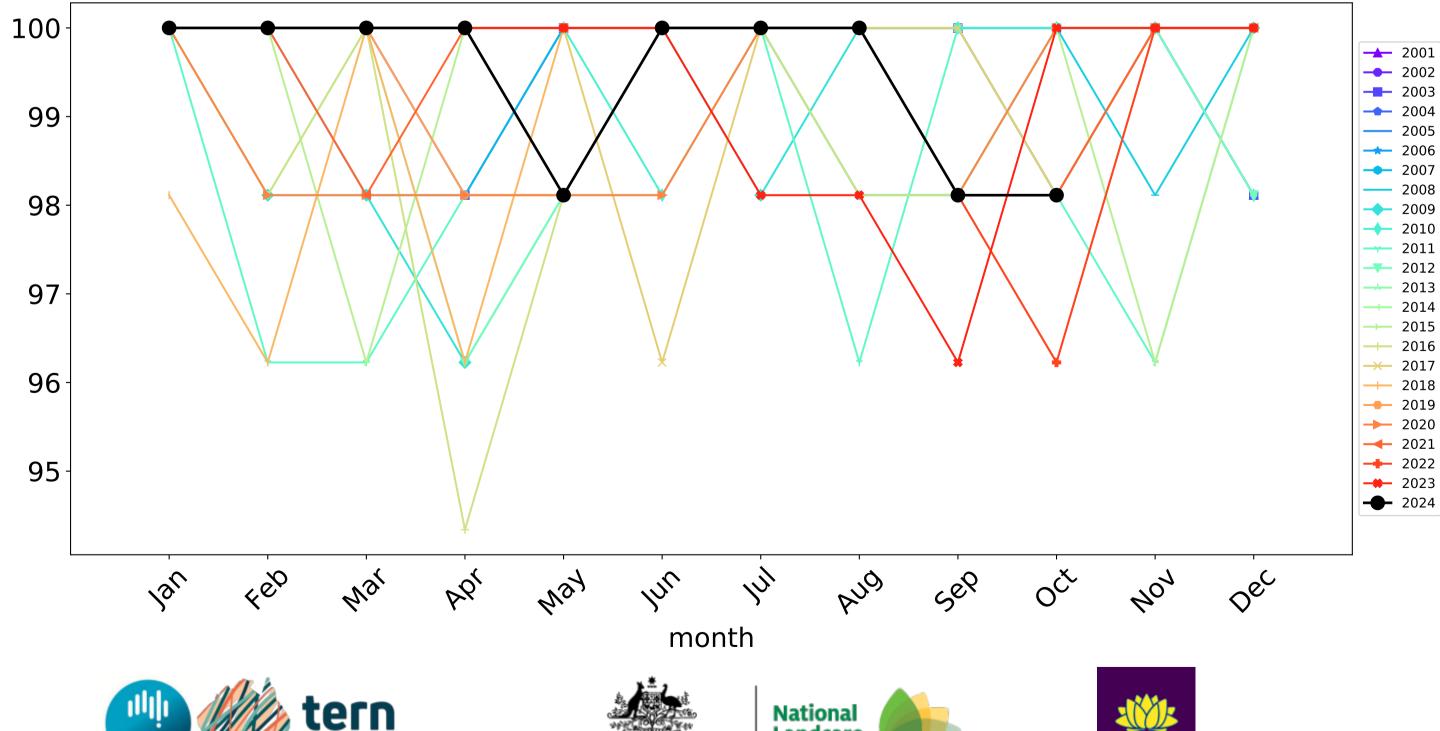








## Water erosion historical monthly area protected (Total Veg Cov>70%)

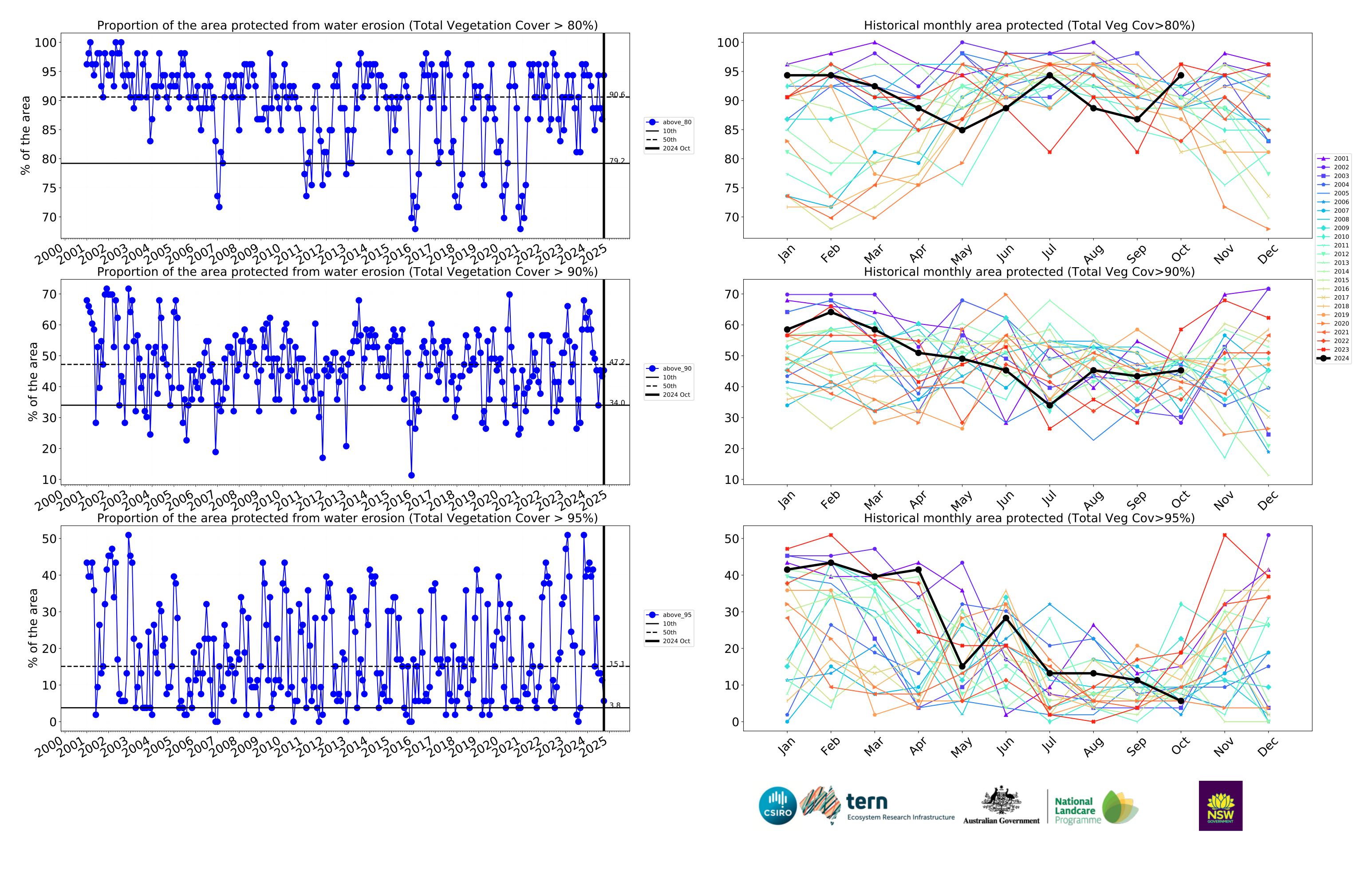










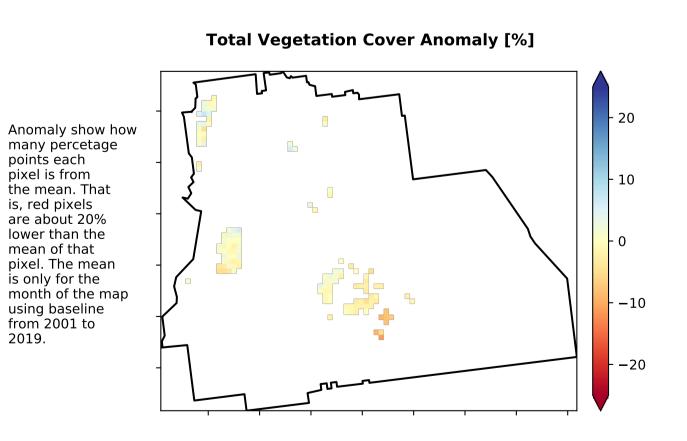


#### **Conservation and natural environments Woodland forest**

### 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)

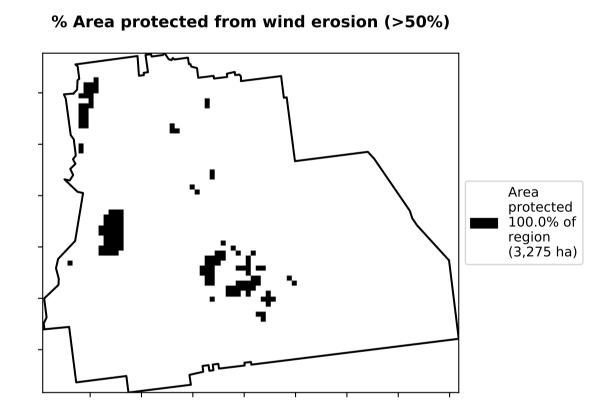
# **Total Vegetation Cover [%]**

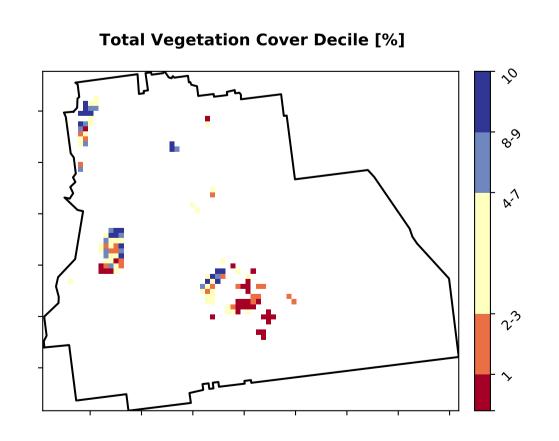
# % Area protected from water erosion (>70%) Area protected 100.0% of region (3,275 ha)



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.

#### Proportion of vegetation cover class in area 100.0% 100 80 -60 -40 -20 -0.0% 0.0% 0.0% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**





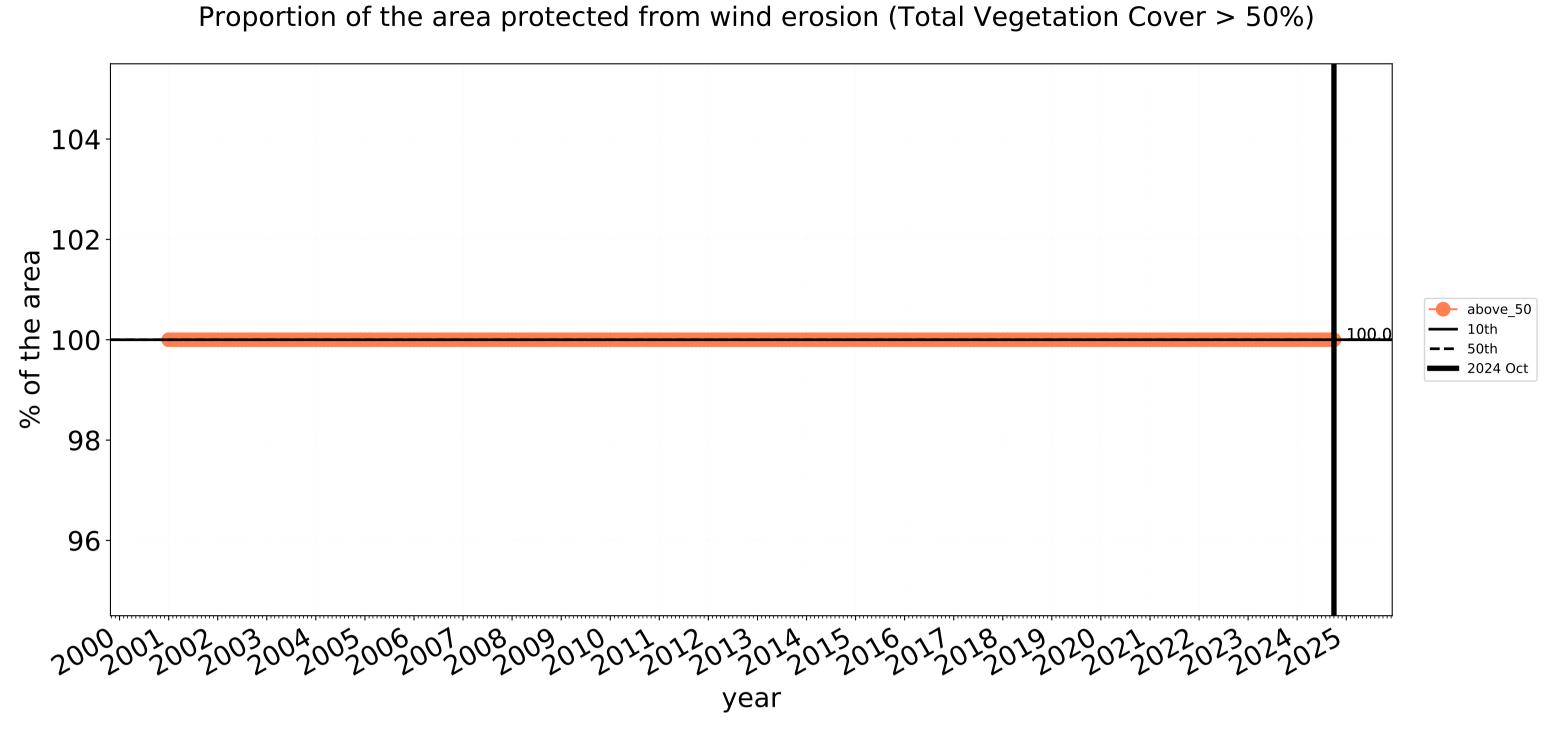




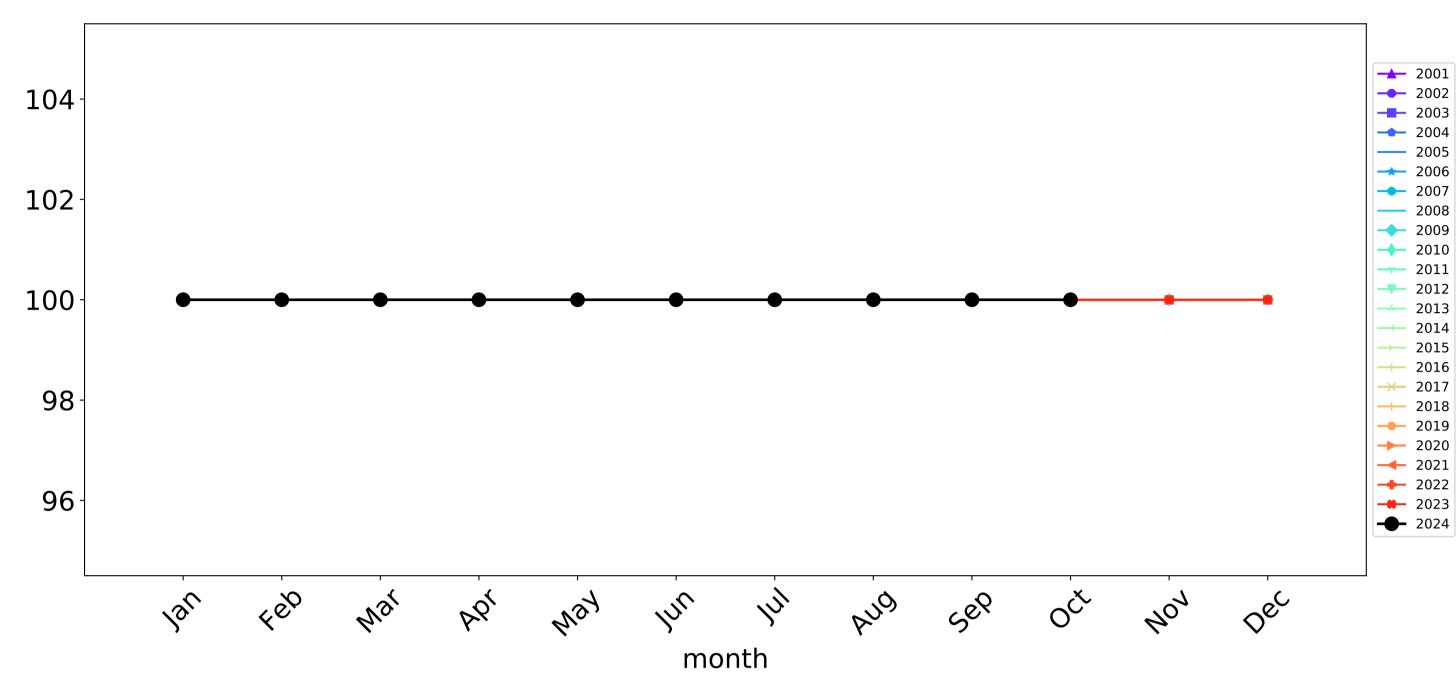


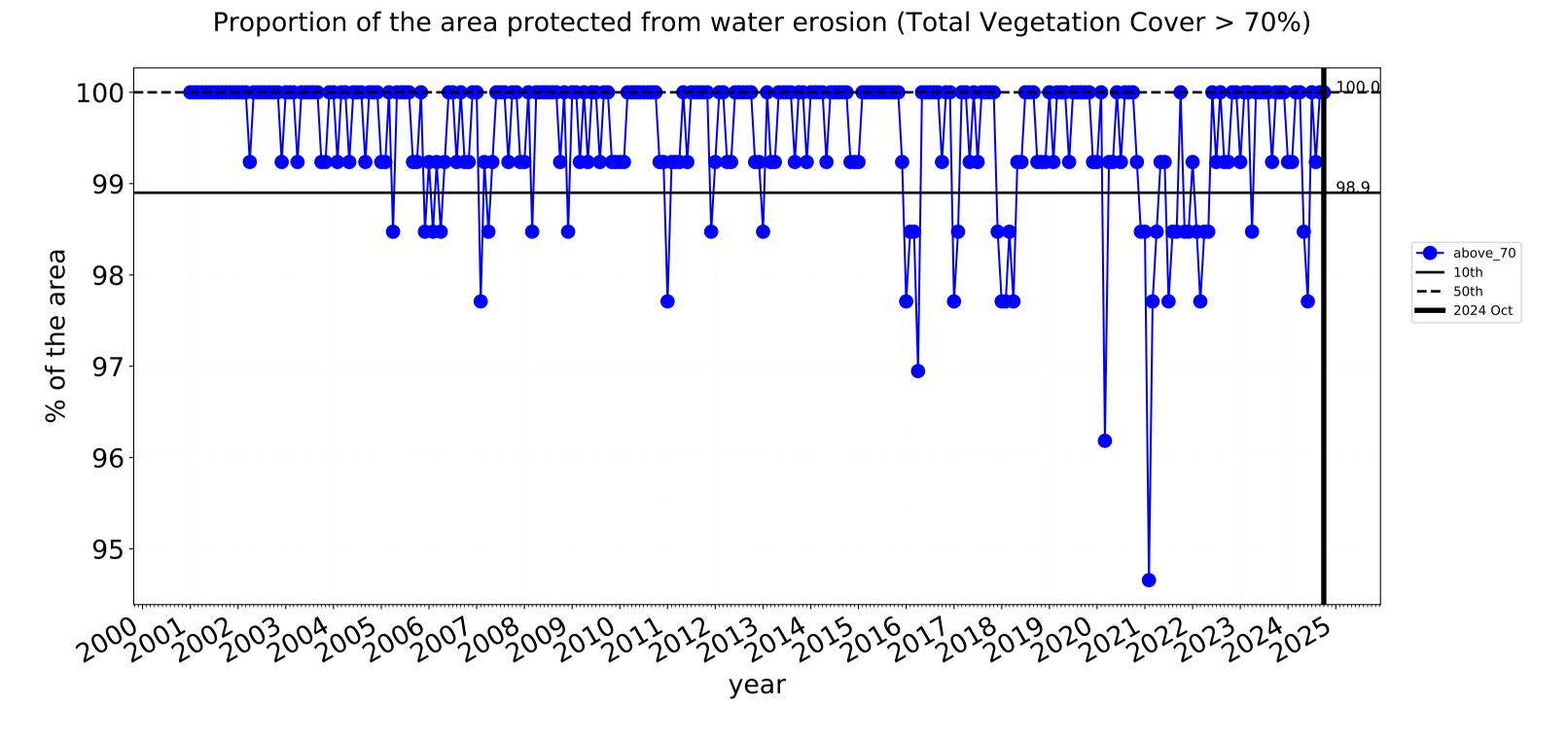


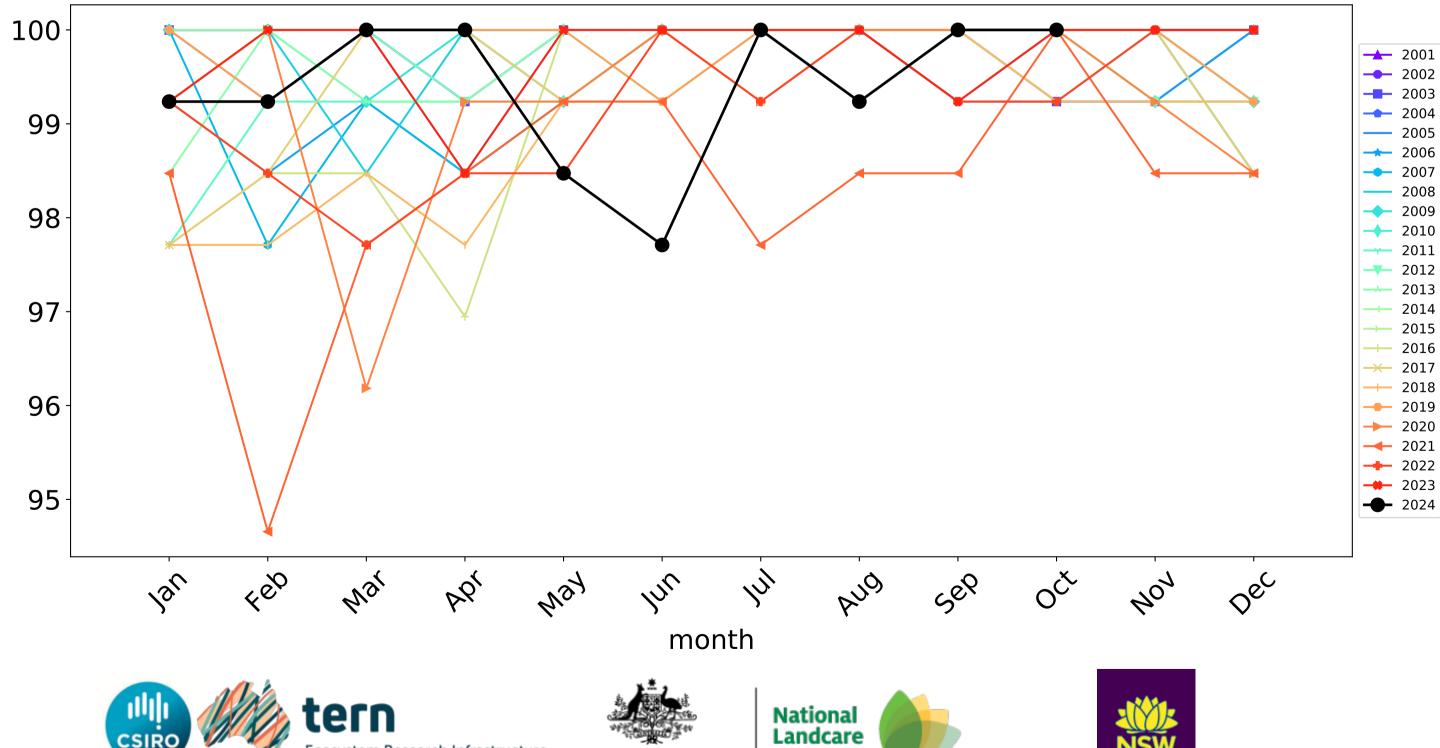
#### **Conservation and natural environments Woodland forest timeseries**



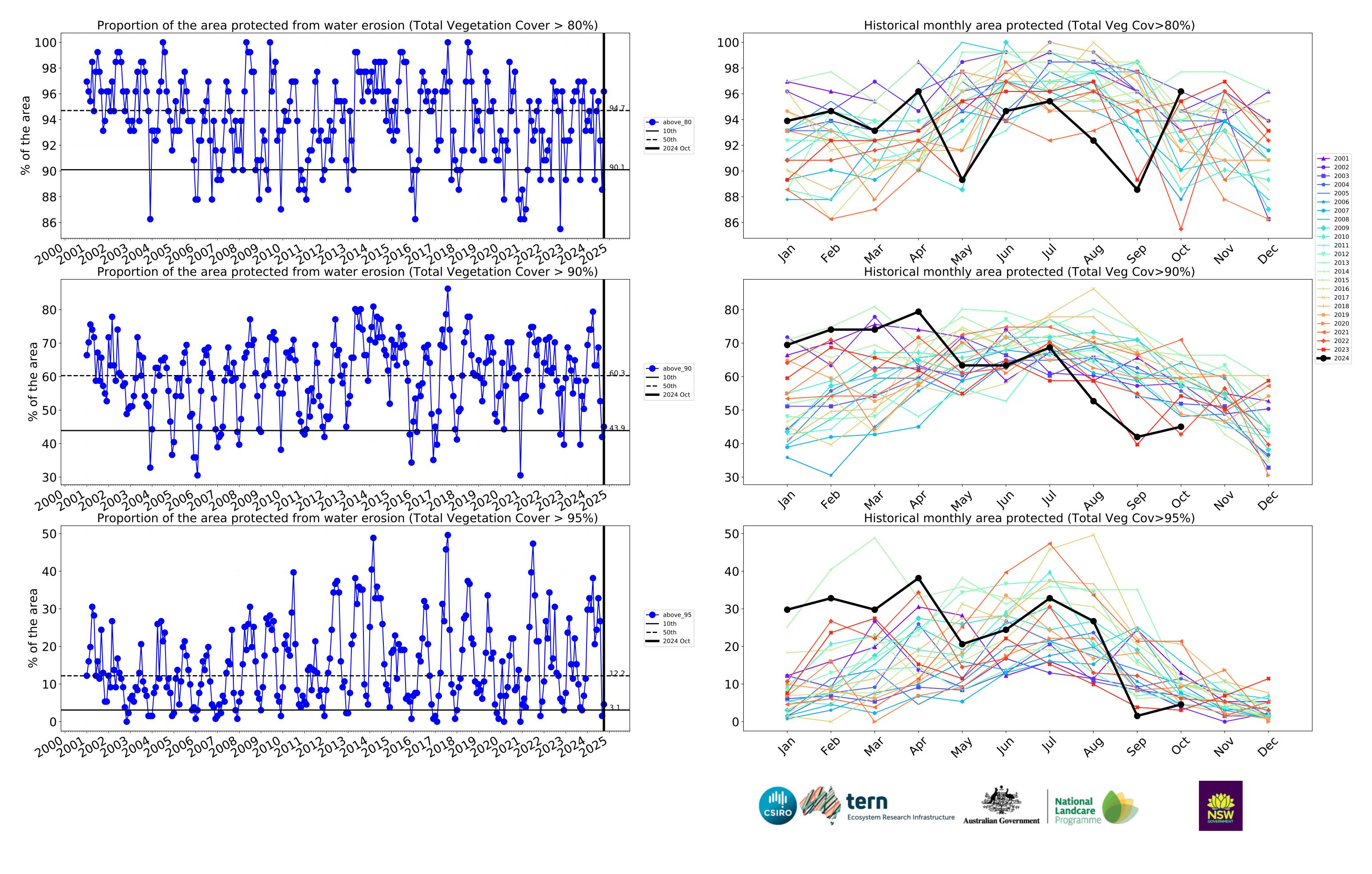
#### Wind erosion historical monthly area protected (Total Veg Cov >50%)





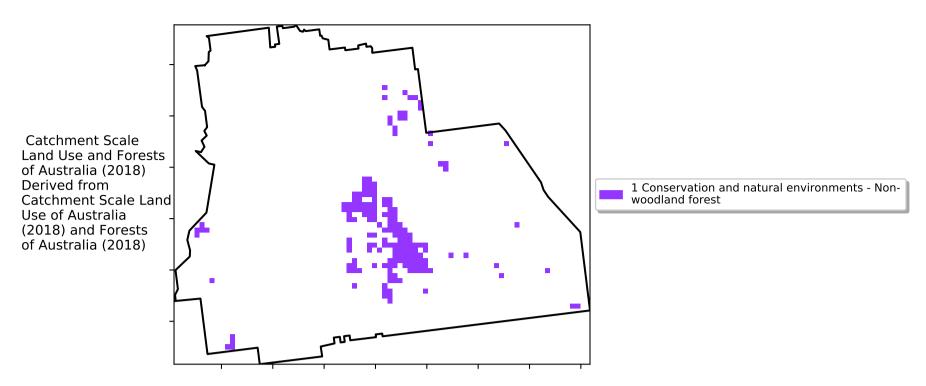


Water erosion historical monthly area protected (Total Veg Cov>70%)

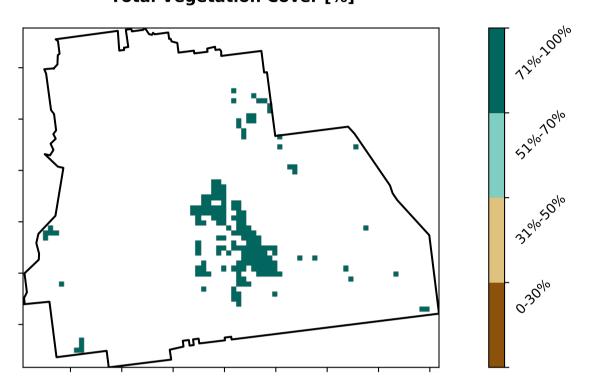


#### **Conservation and natural environments Forest (non woodland)**

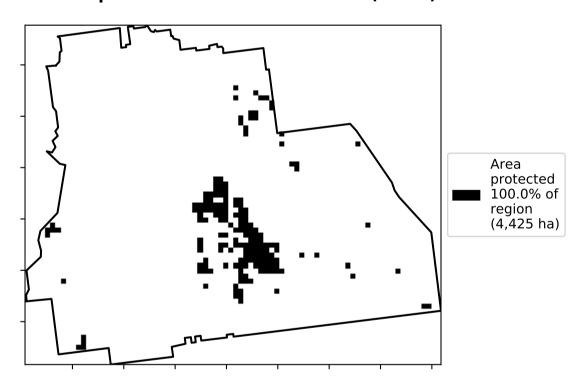
#### Land use and forest cover



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



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

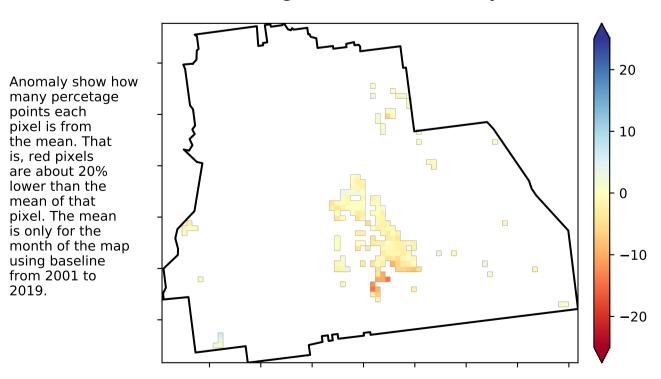


#### **Total Vegetation Cover Anomaly [%]**

pixel is from the mean. That

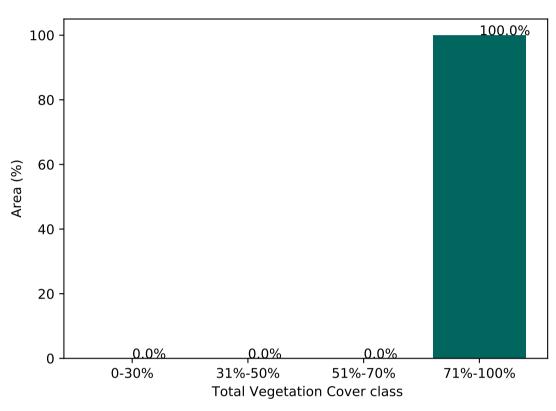
is, red pixels are about 20%

lower than the mean of that

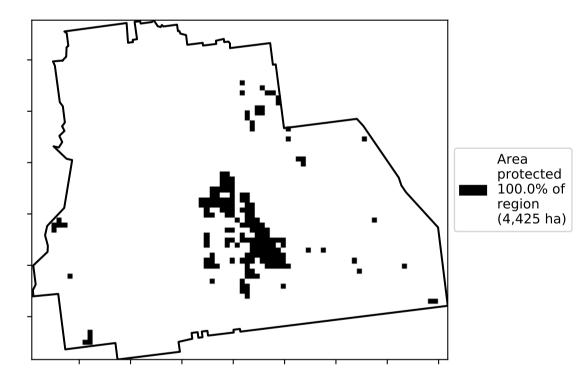


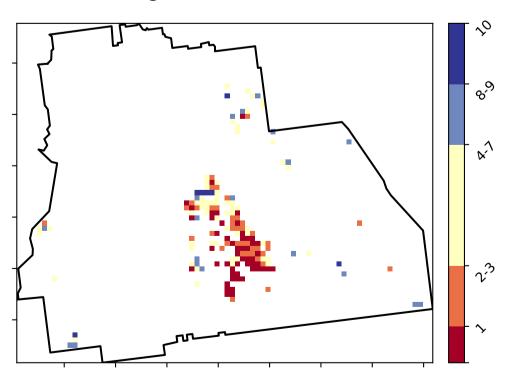
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseling. the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



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





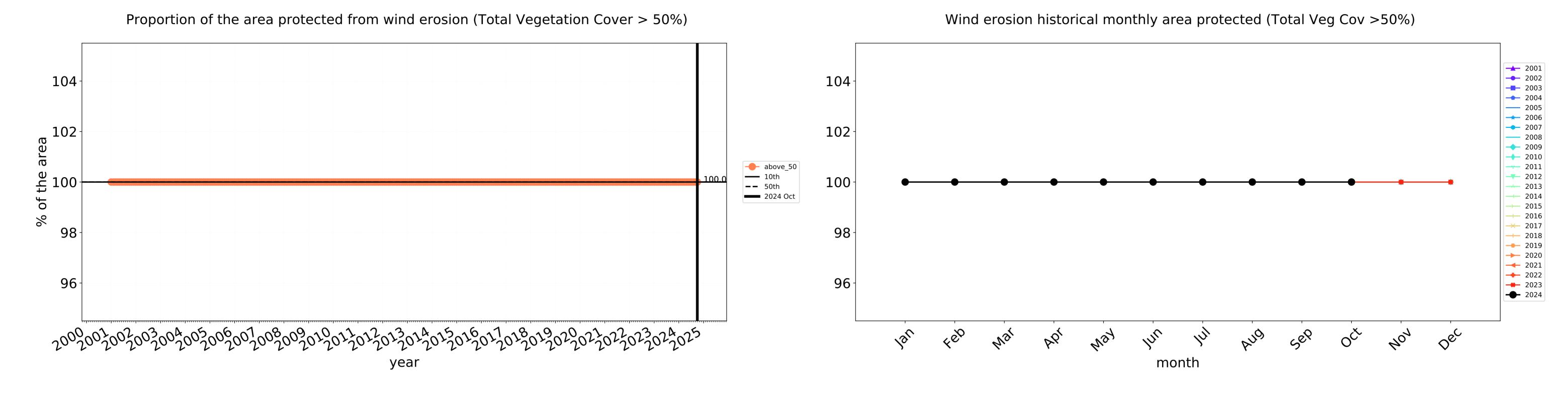


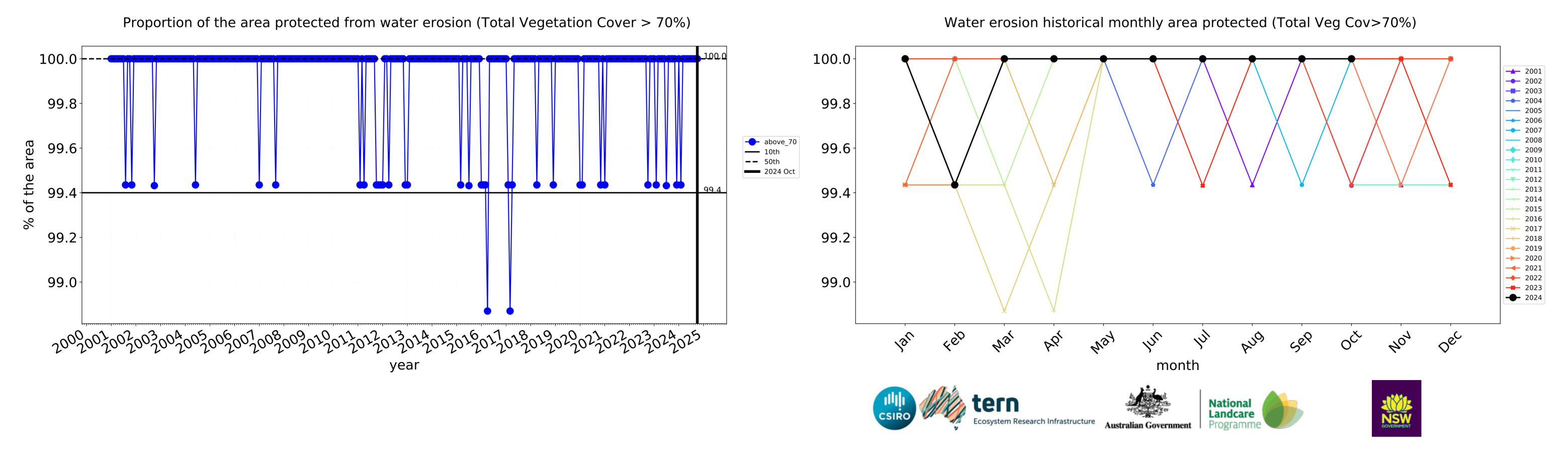


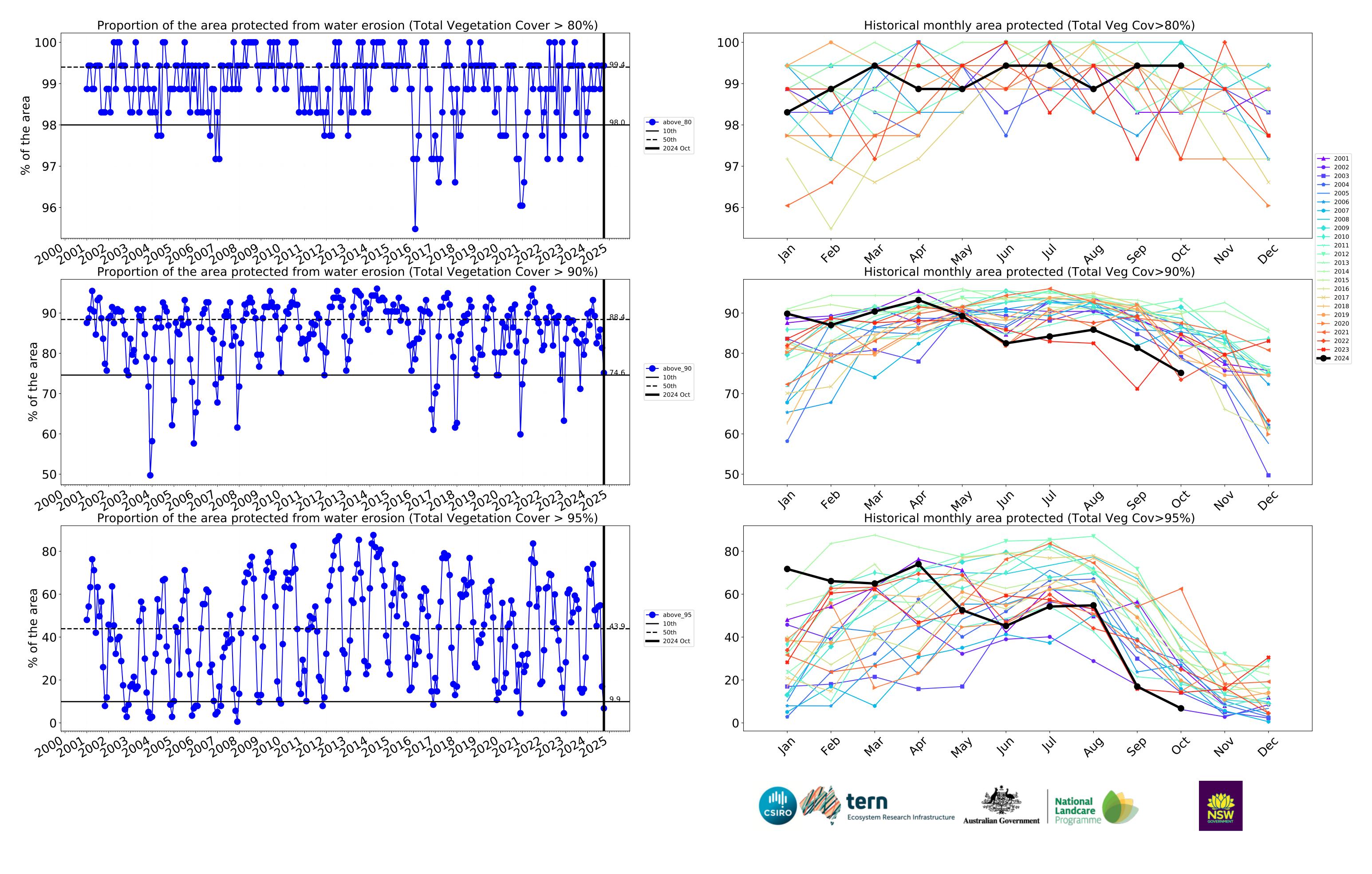




#### Conservation and natural environments Forest (non woodland) timeseries

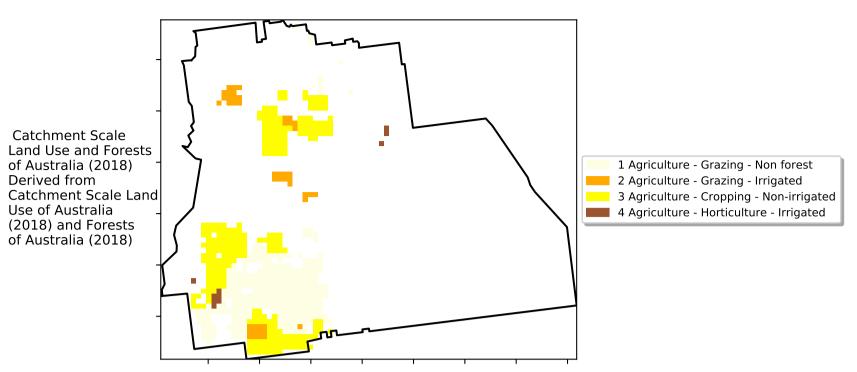




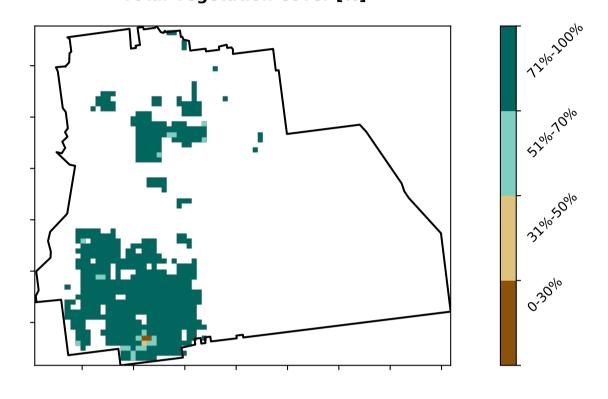


#### **Agriculture**

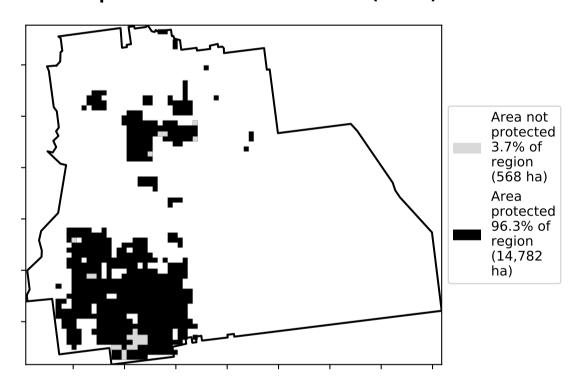
#### Land use and forest cover



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



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



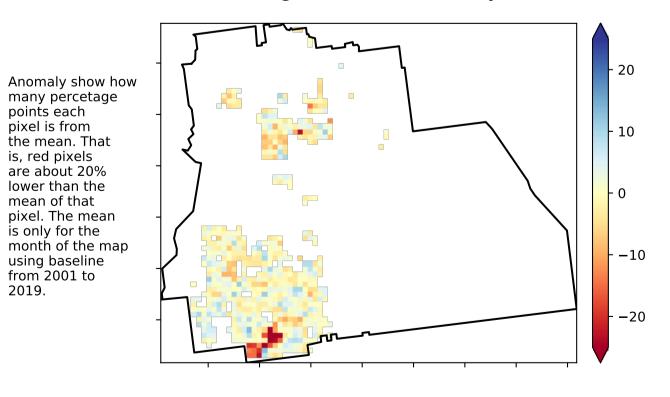
#### **Total Vegetation Cover Anomaly [%]**

the mean. That is, red pixels

are about 20% lower than the mean of that

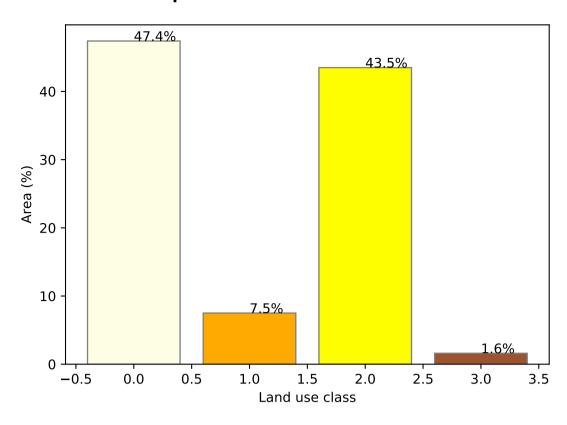
pixel. The mean

using baseline from 2001 to 2019.

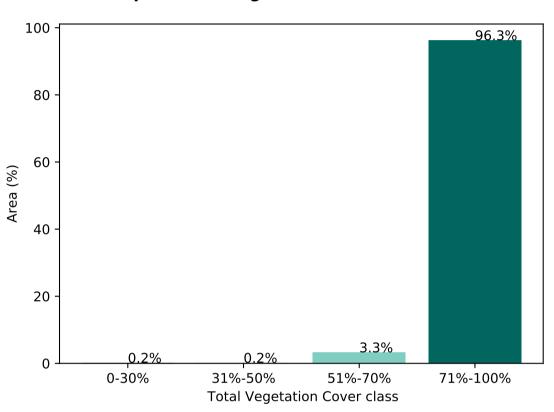


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

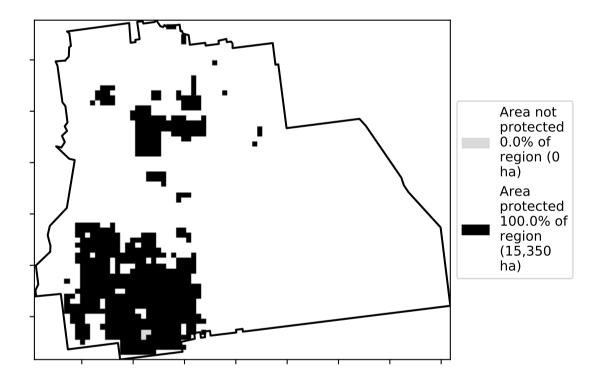
#### Proportion of each land class in area

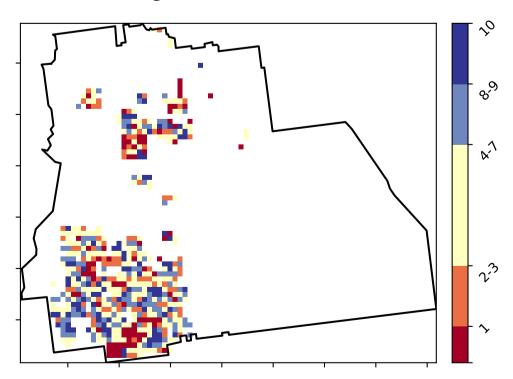


#### Proportion of vegetation cover class in area



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





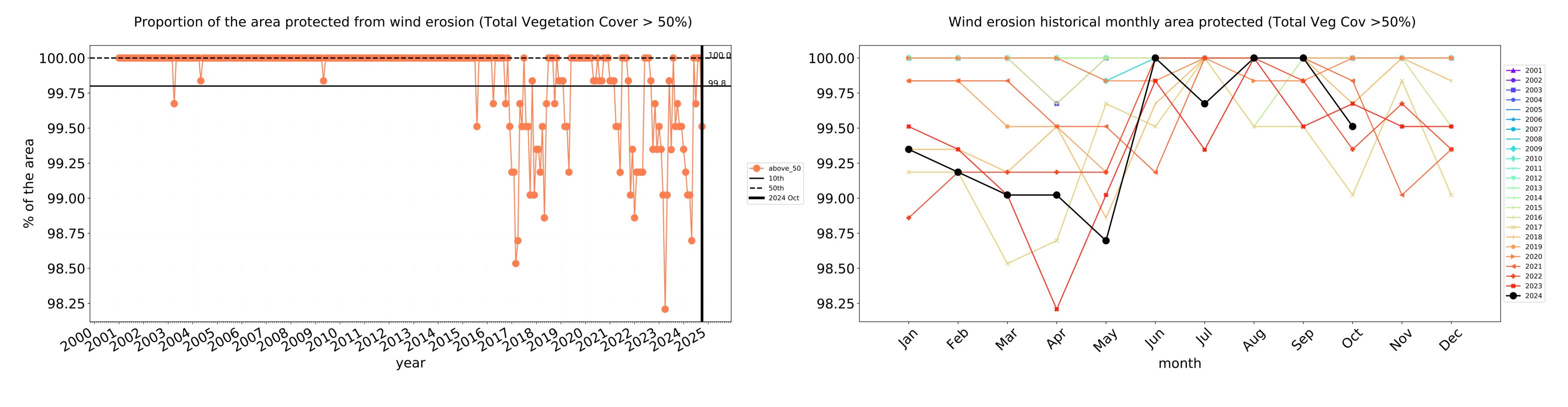


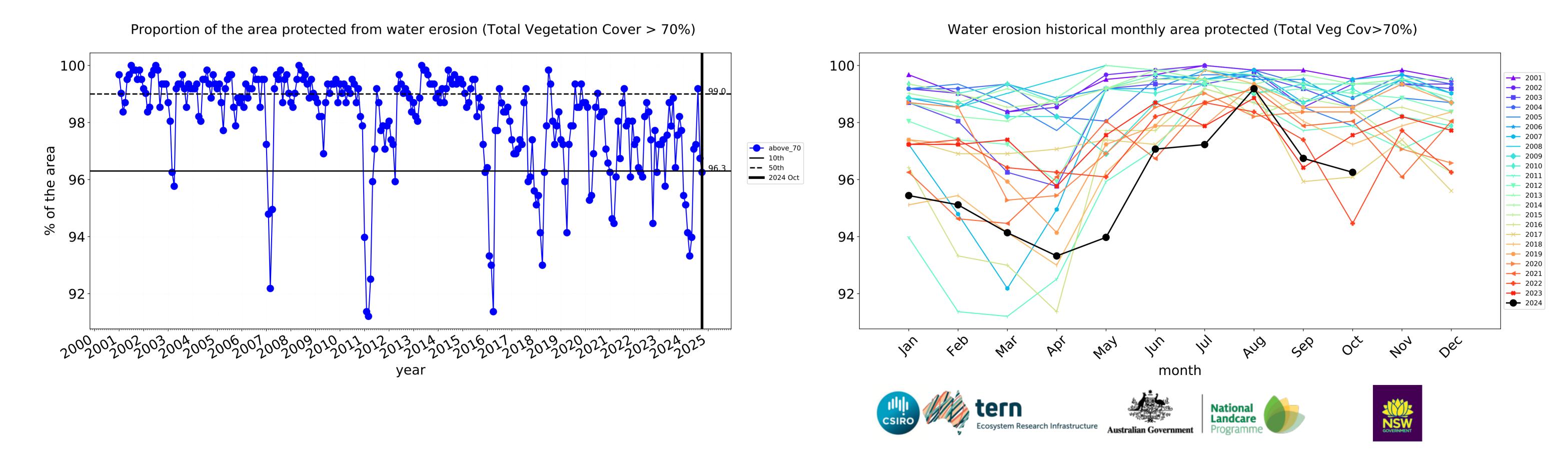


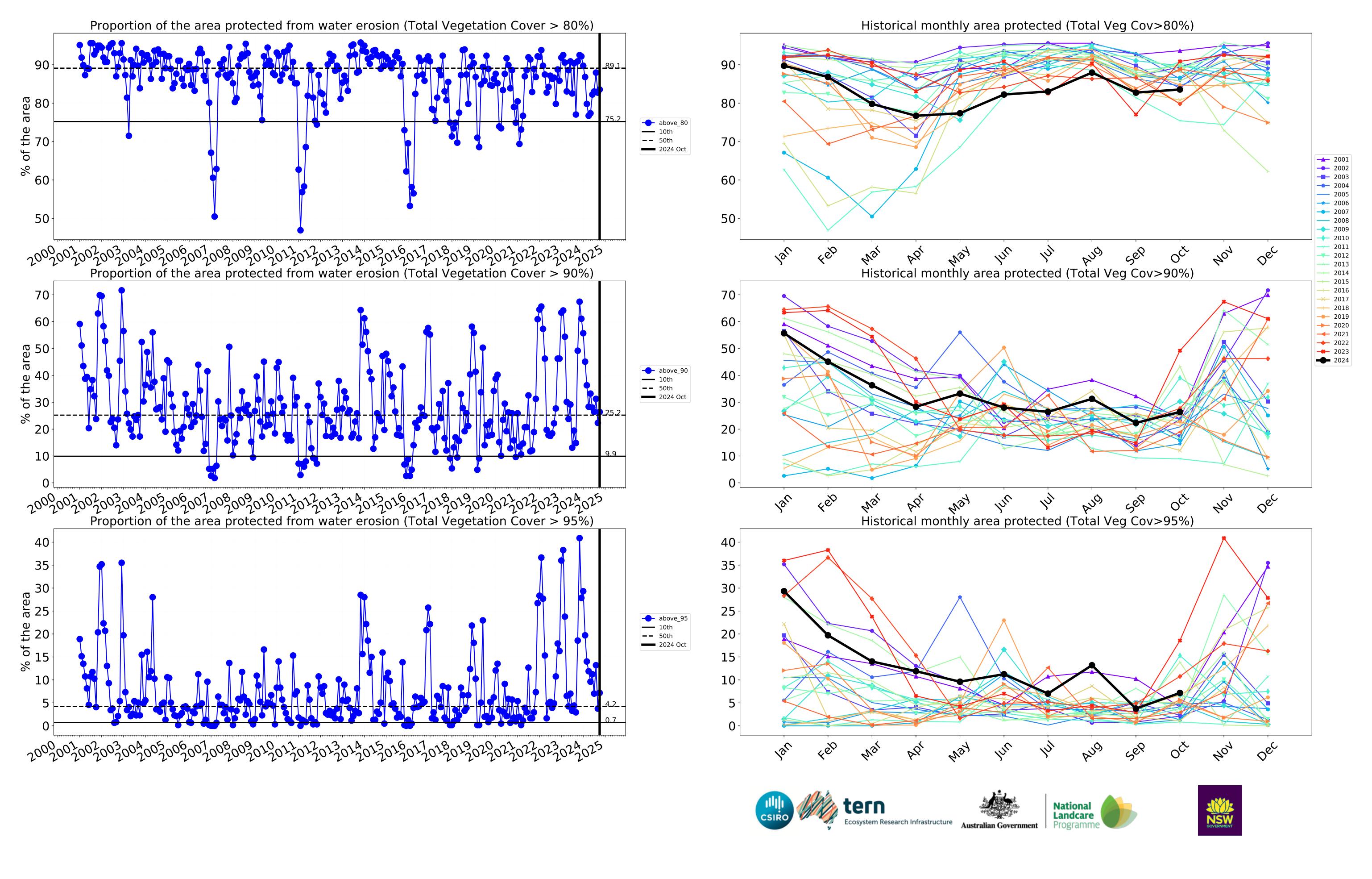




#### **Agriculture timeseries**

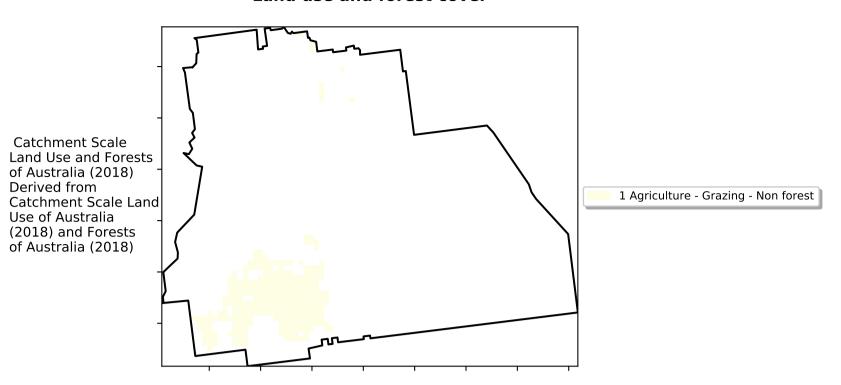




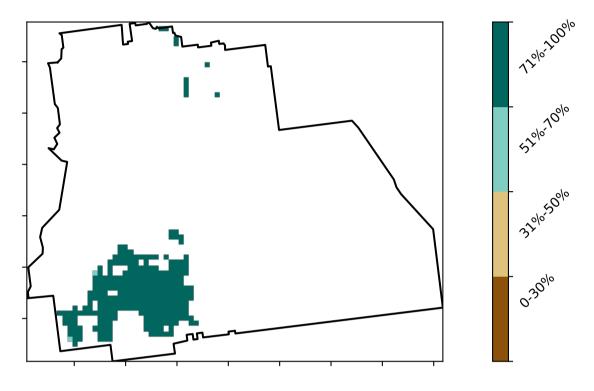


#### Grazing

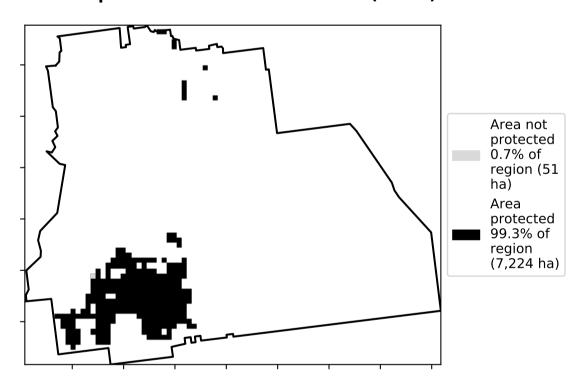
#### Land use and forest cover



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



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

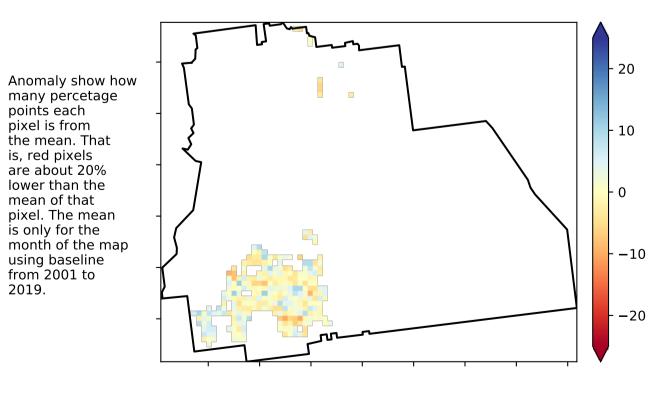


#### **Total Vegetation Cover Anomaly [%]**

the mean. That

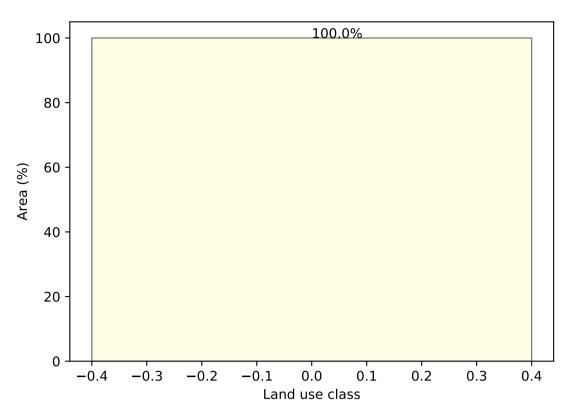
is, red pixels are about 20% lower than the mean of that pixel. The mean

using baseline from 2001 to 2019.

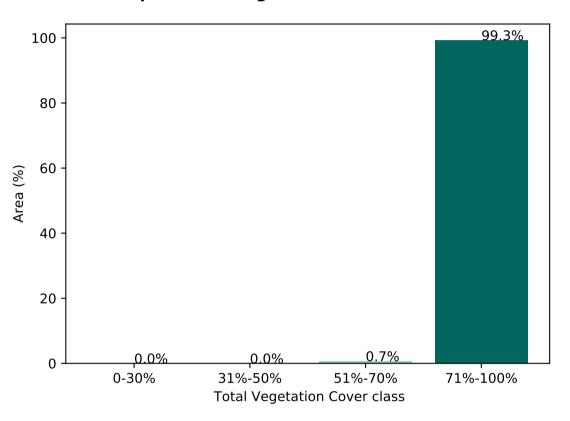


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

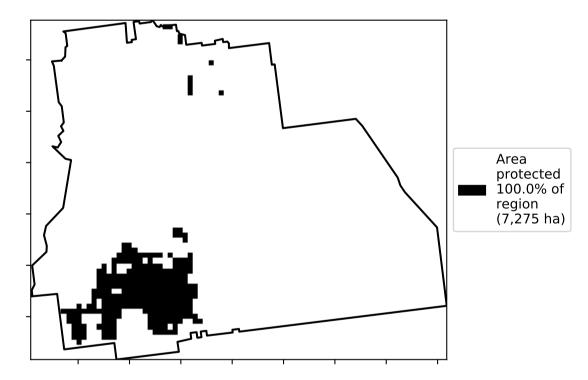
#### Proportion of each land class in area

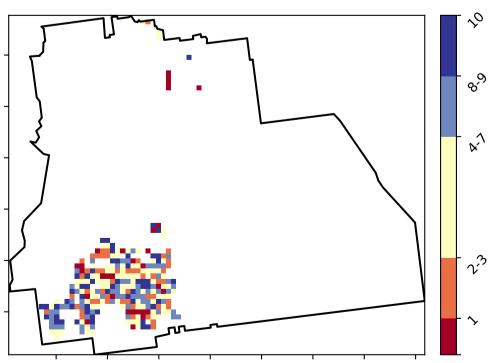


#### Proportion of vegetation cover class in area



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





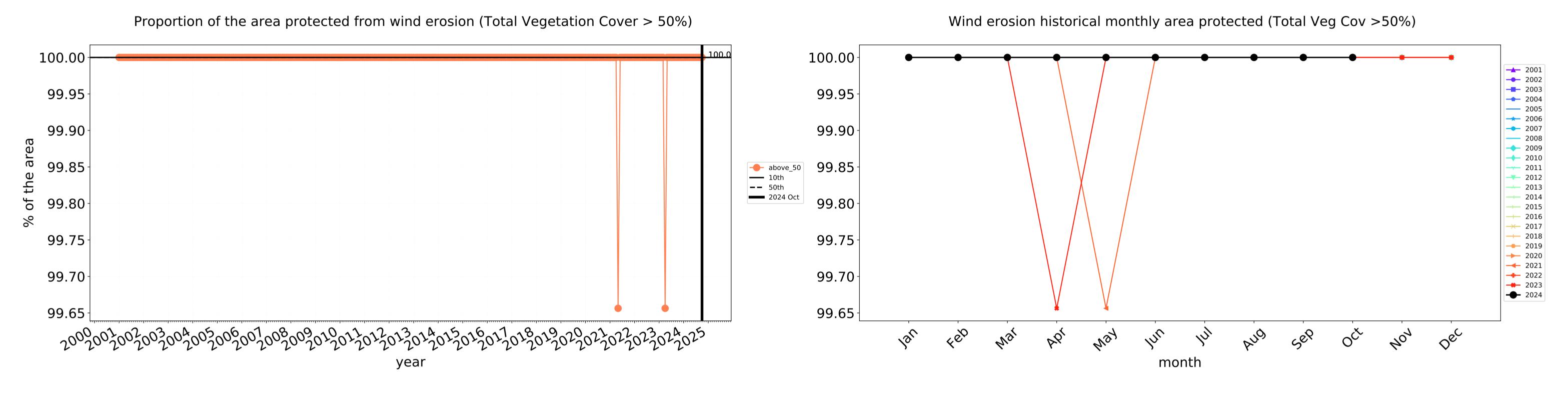


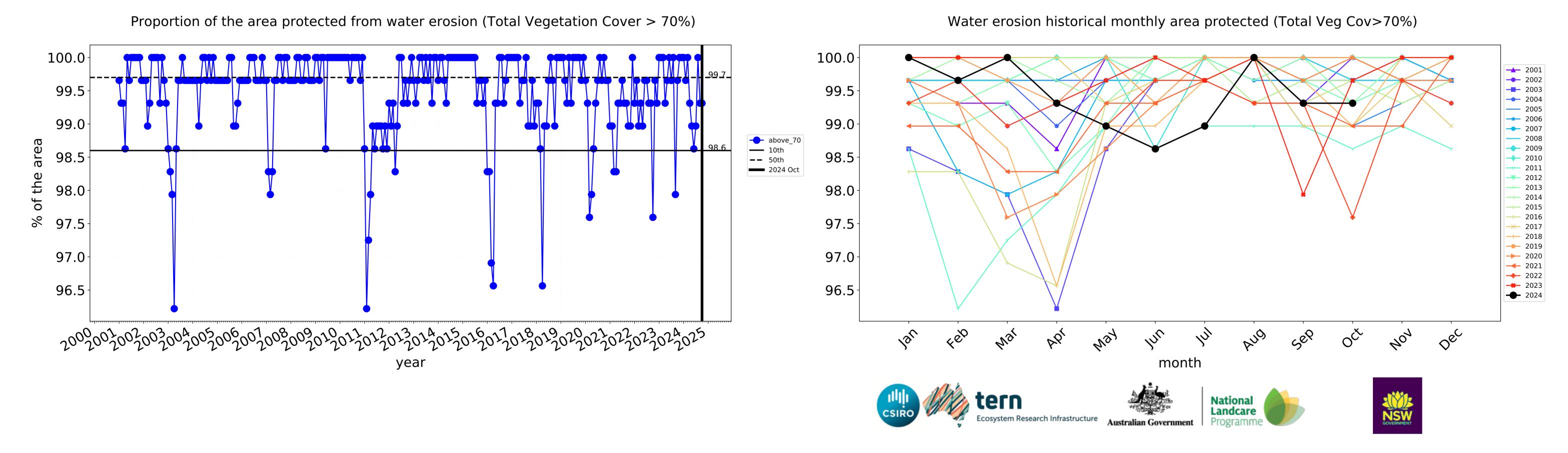


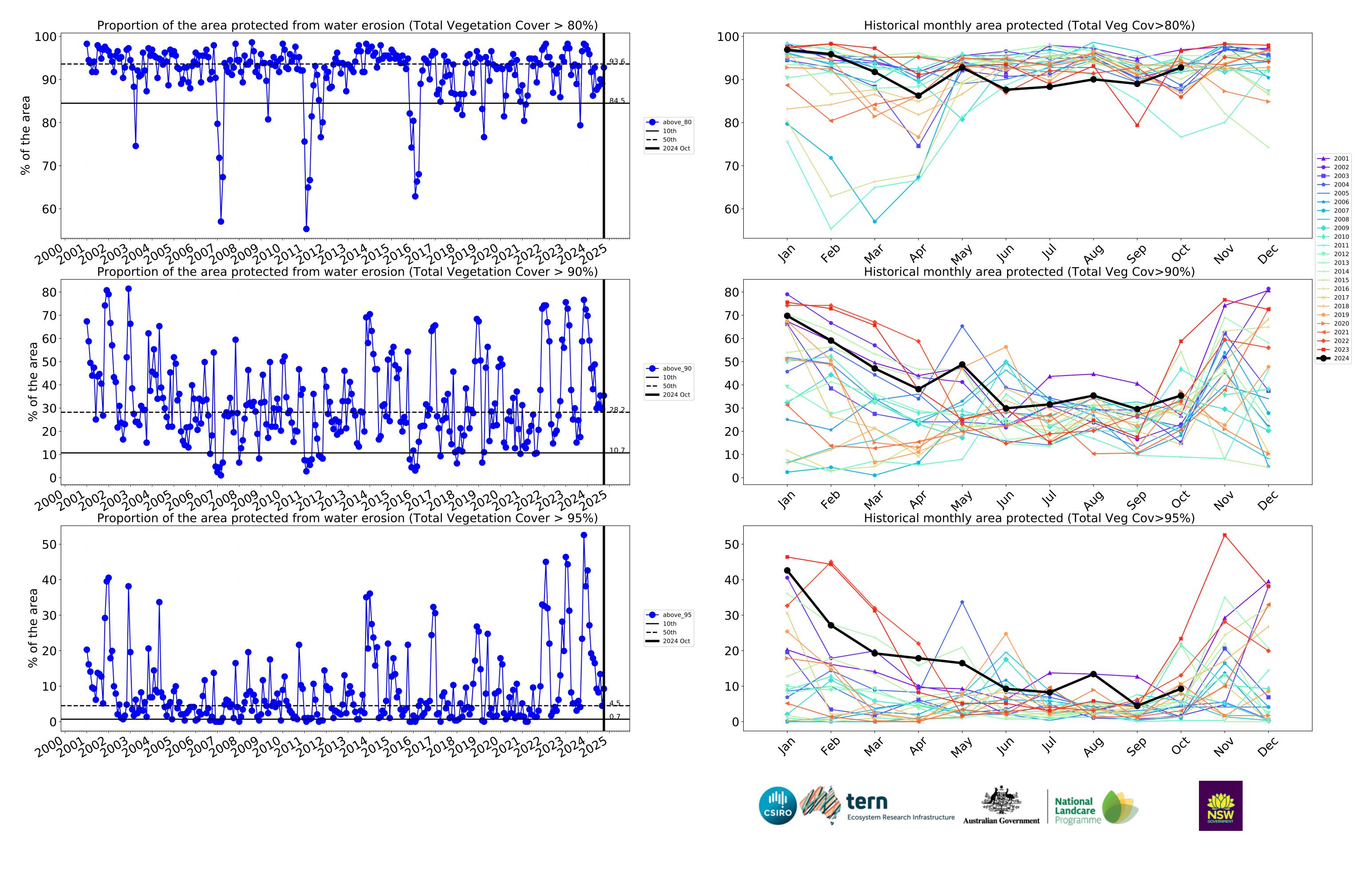




#### **Grazing timeseries**

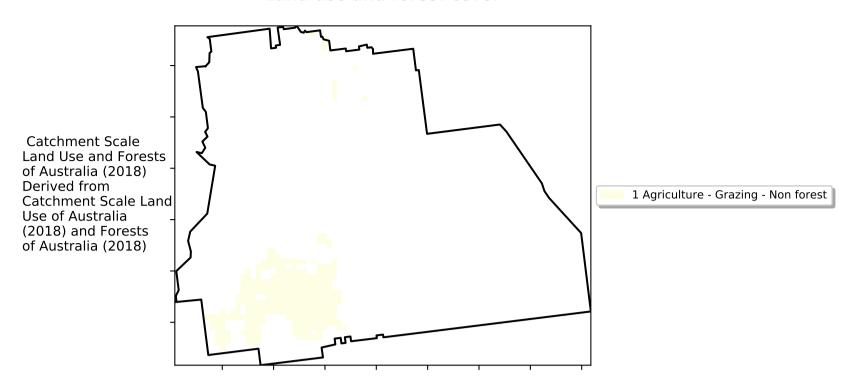




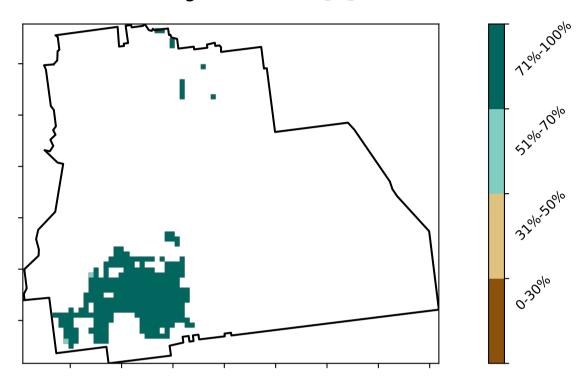


#### **Grazing non forest**

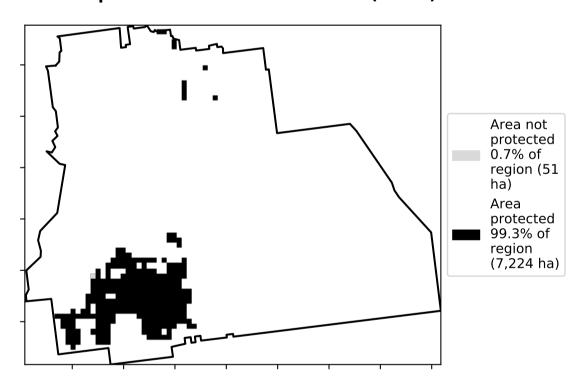
#### Land use and forest cover



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



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

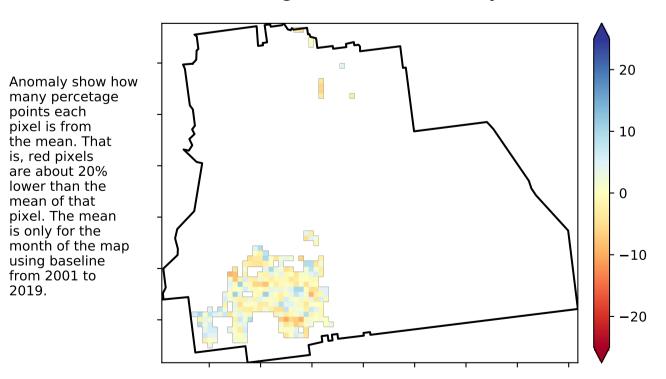


#### **Total Vegetation Cover Anomaly [%]**

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

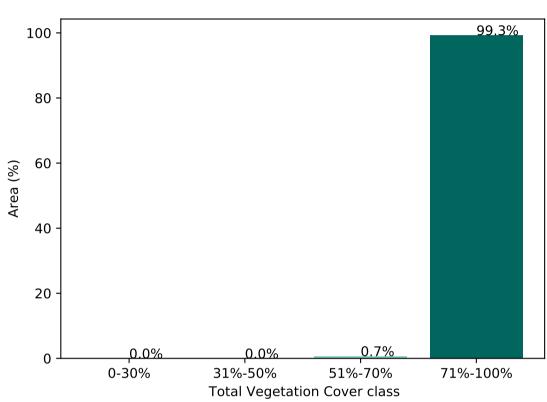
is only for the month of the map

using baseline from 2001 to 2019.

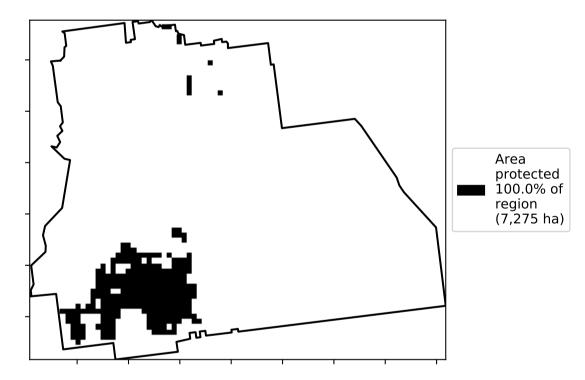


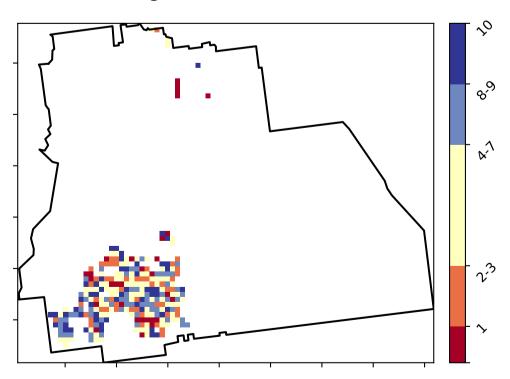
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



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





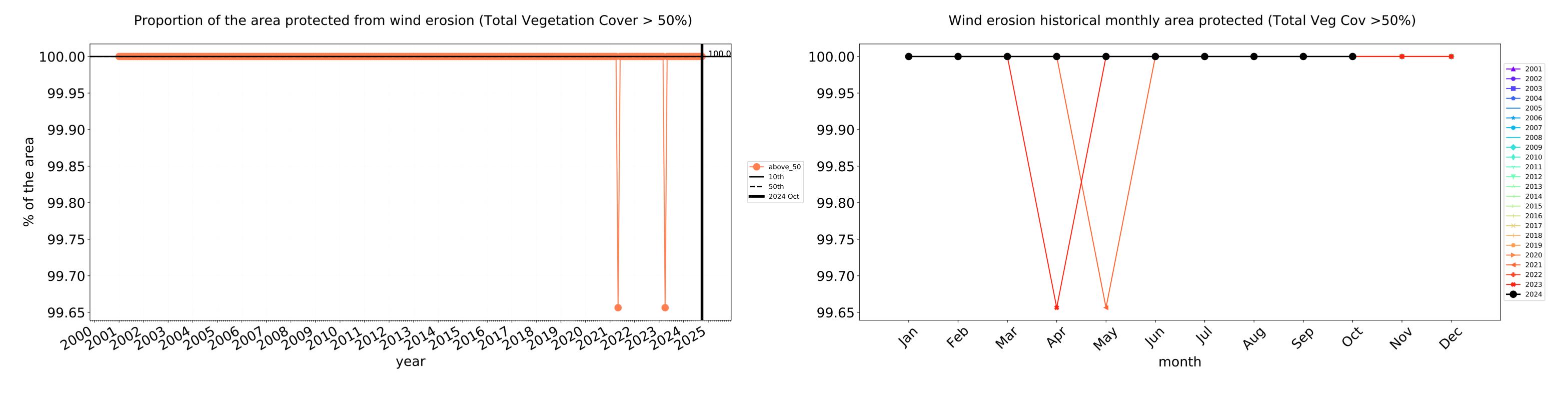


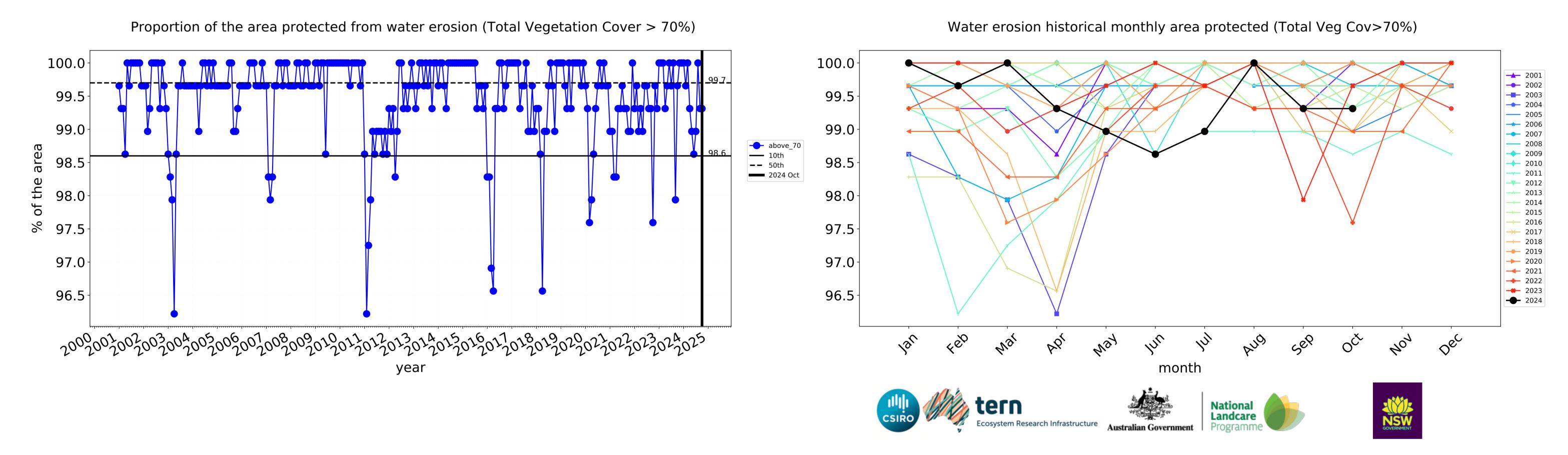


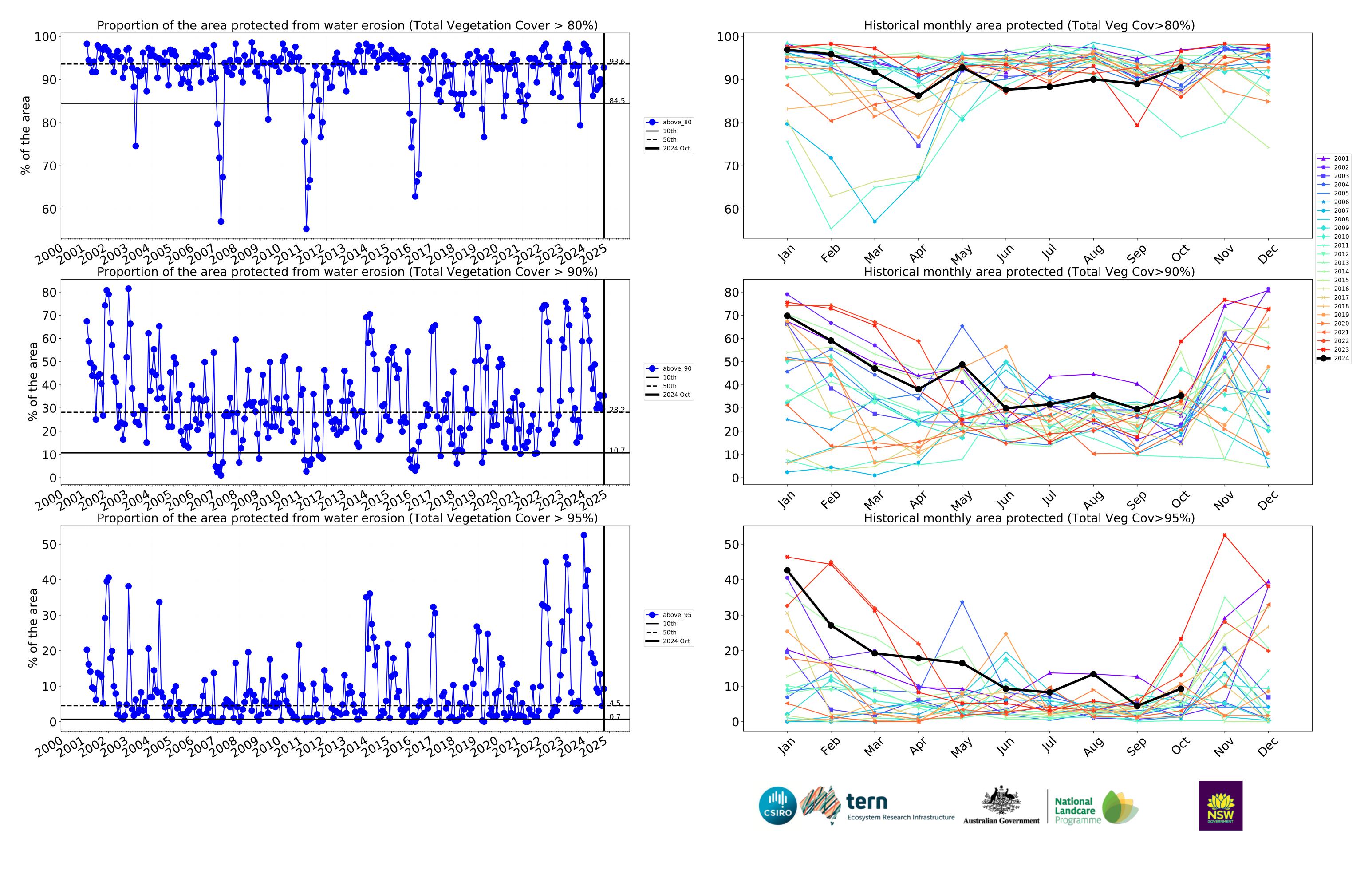




#### **Grazing non forest timeseries**

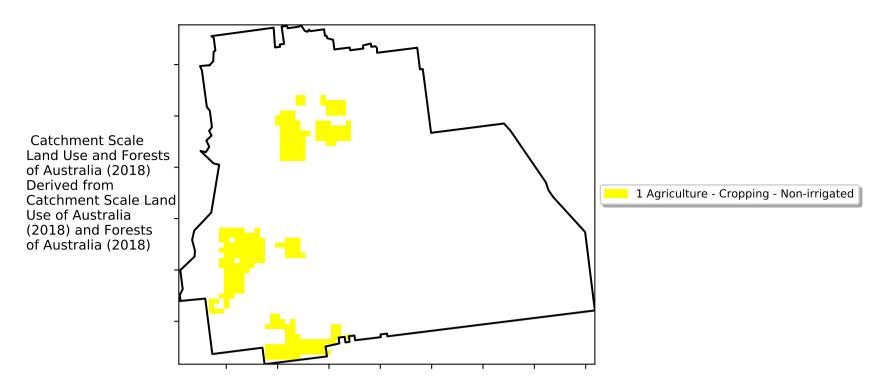




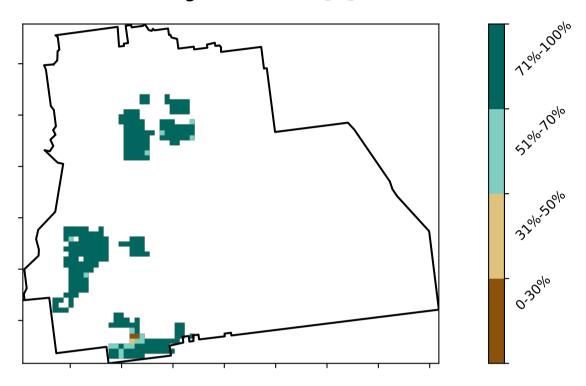


#### **Cropping**

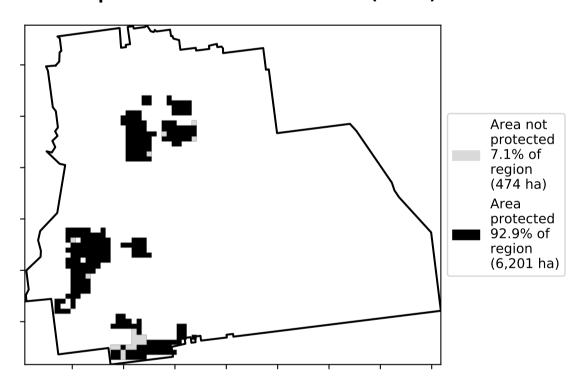
#### Land use and forest cover



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



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

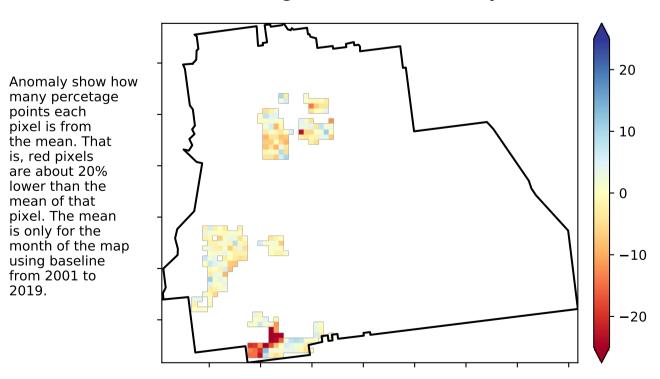


#### **Total Vegetation Cover Anomaly [%]**

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

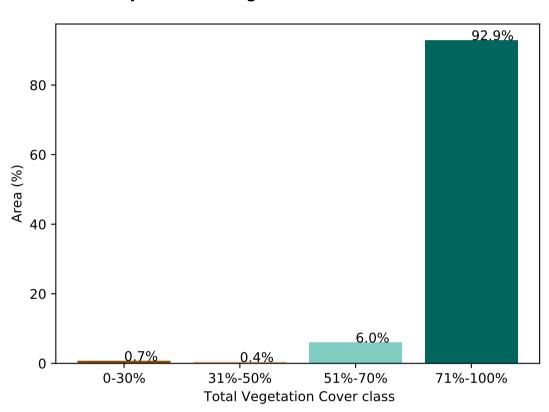
is only for the month of the map

using baseline from 2001 to 2019.

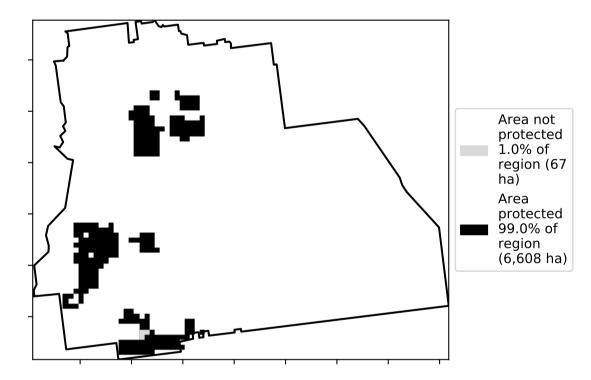


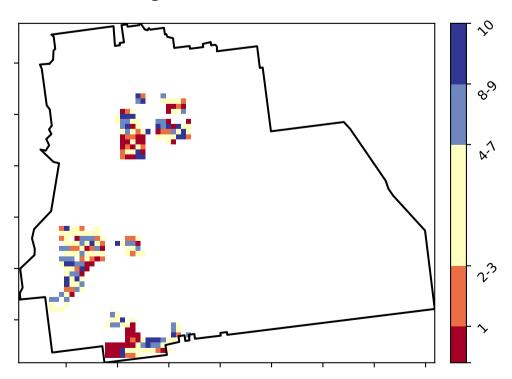
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



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





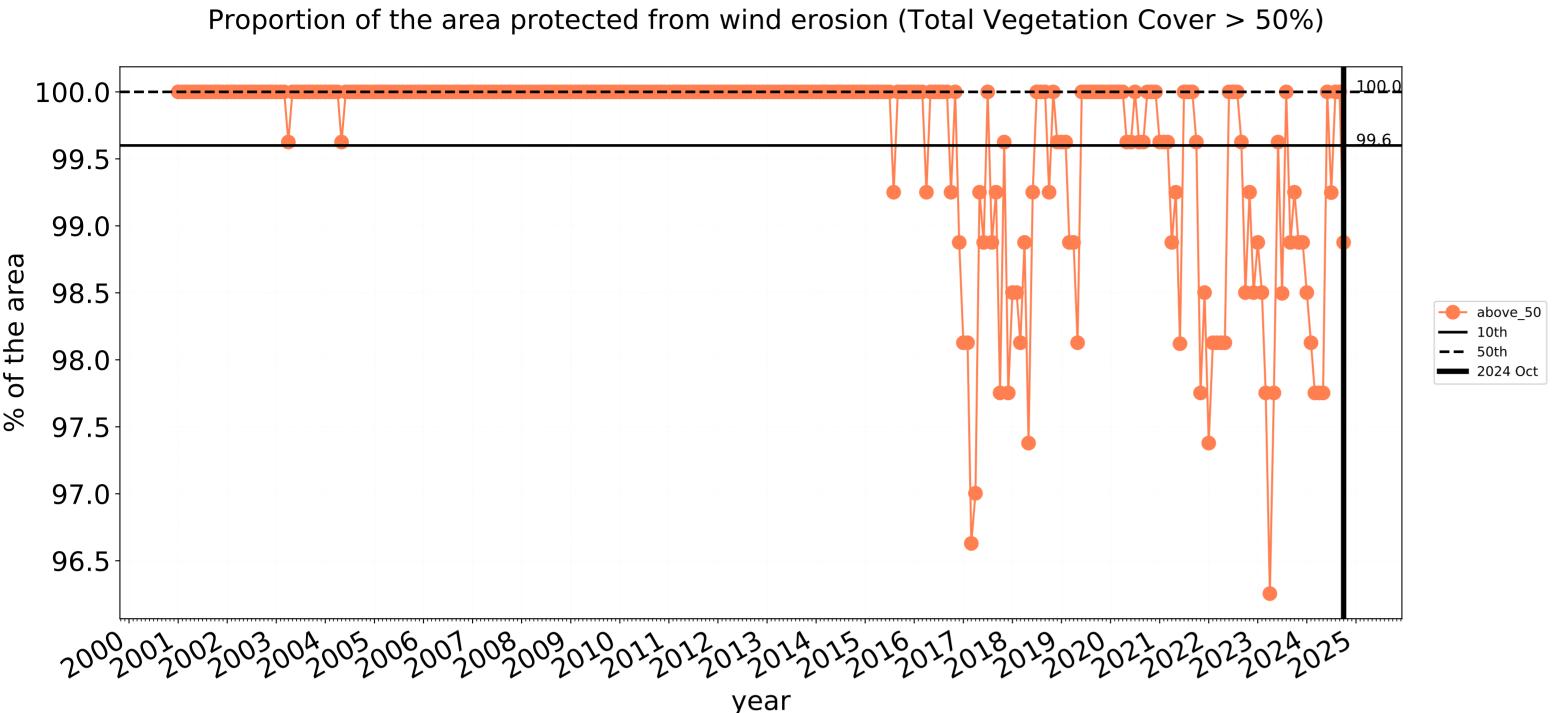


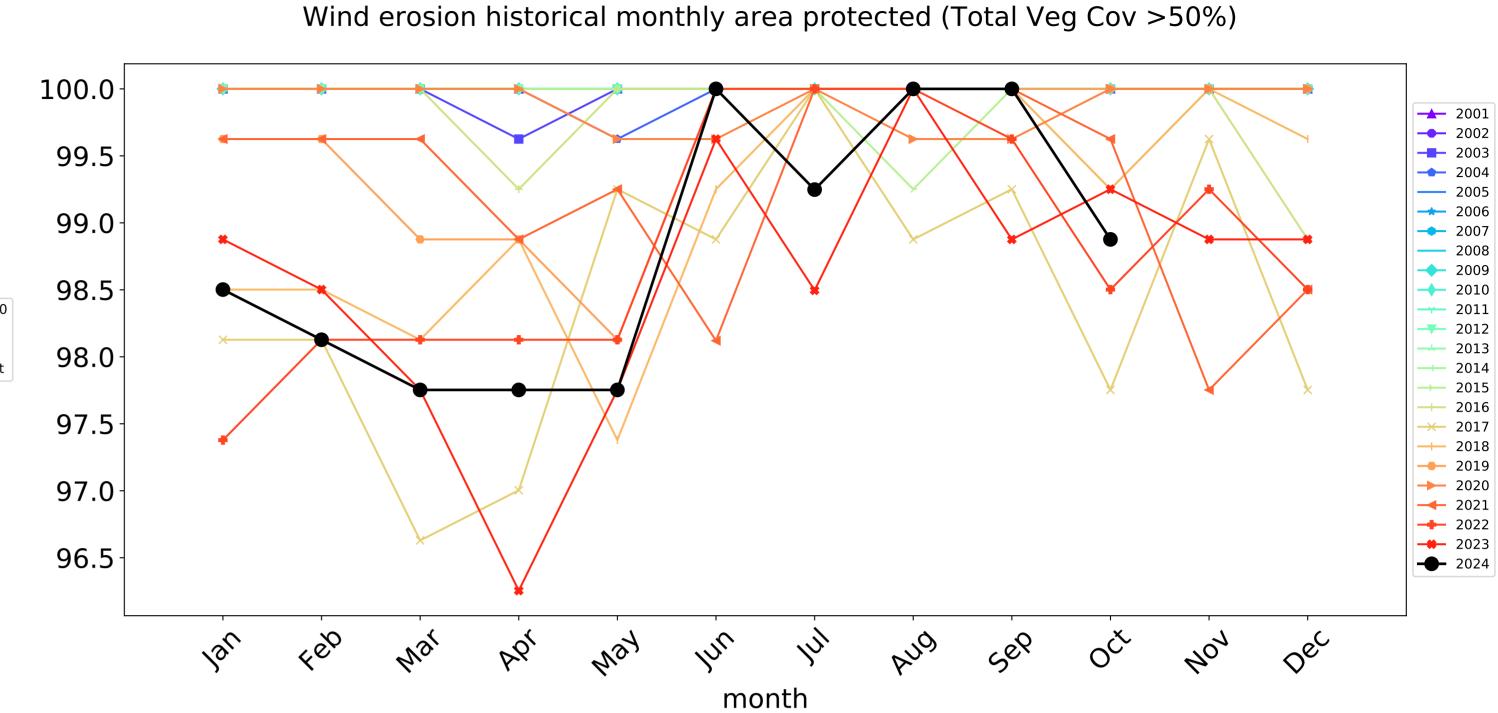


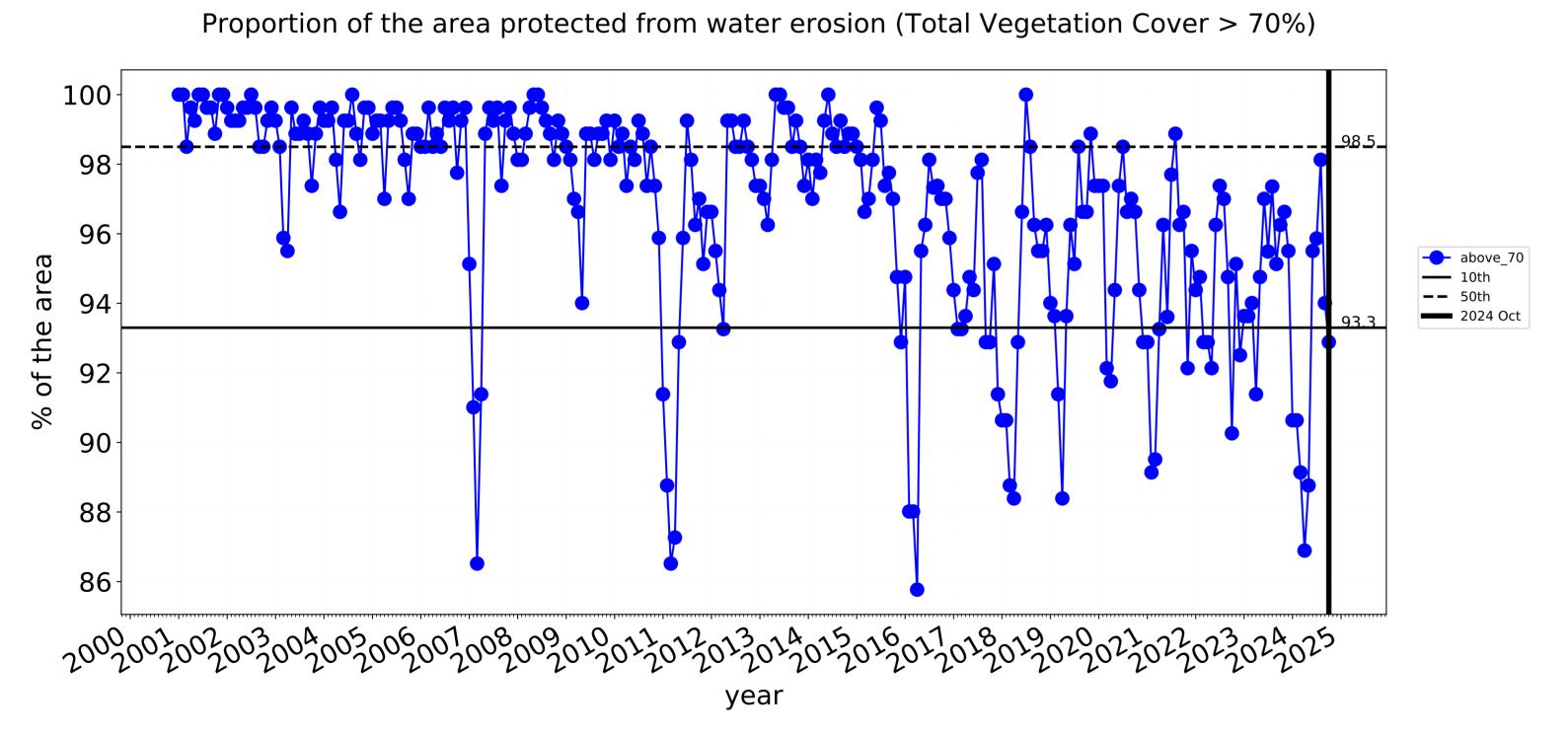


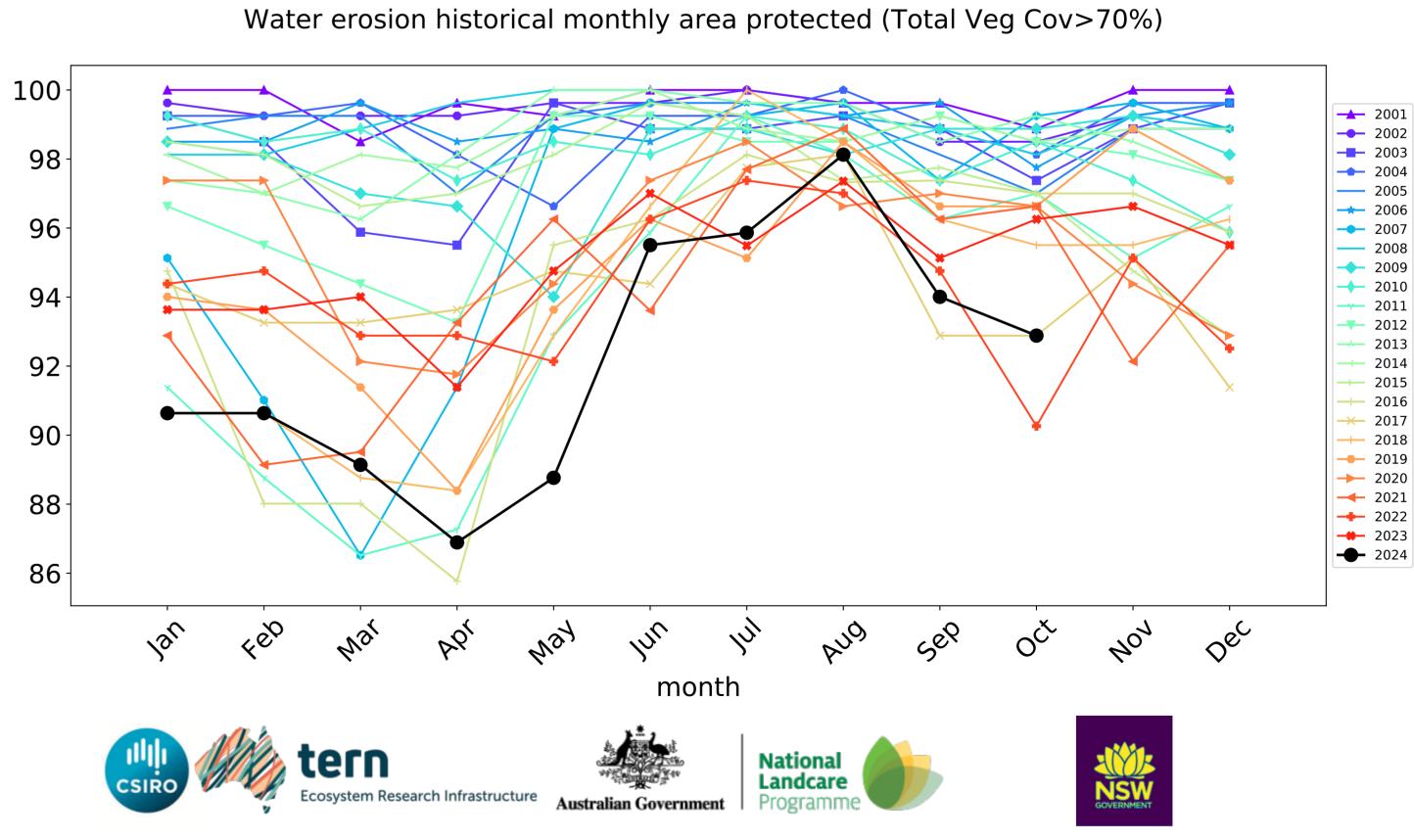


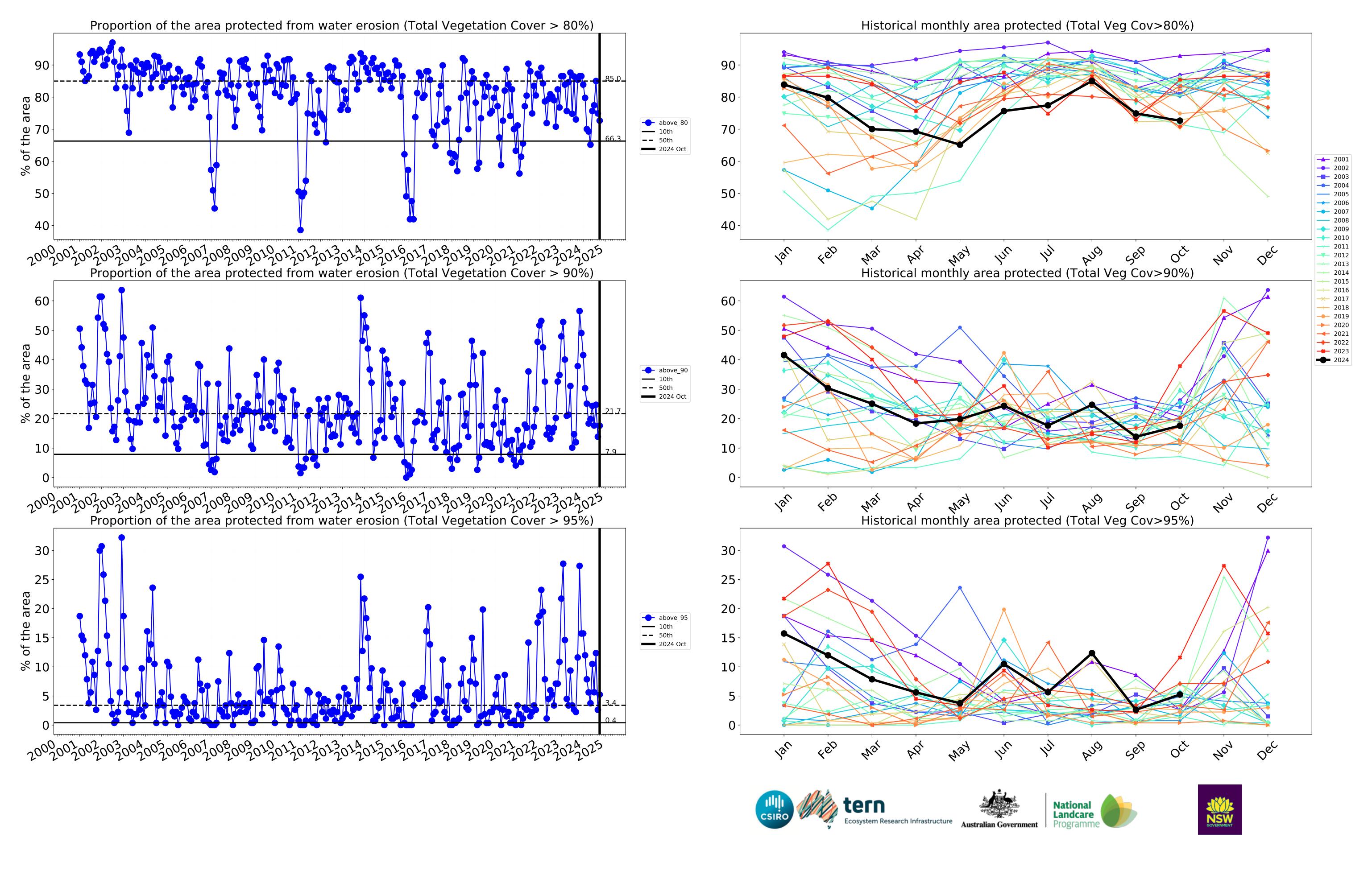
#### **Cropping timeseries**







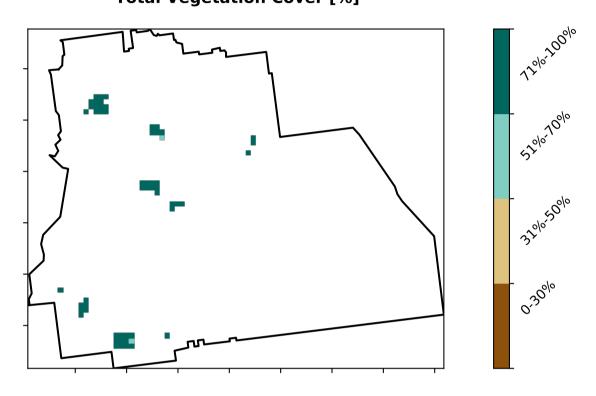




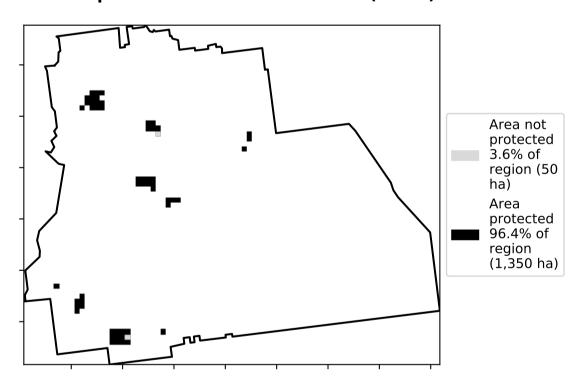
#### **Irrigation**

## 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)

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



% Area protected from water erosion (>70%)



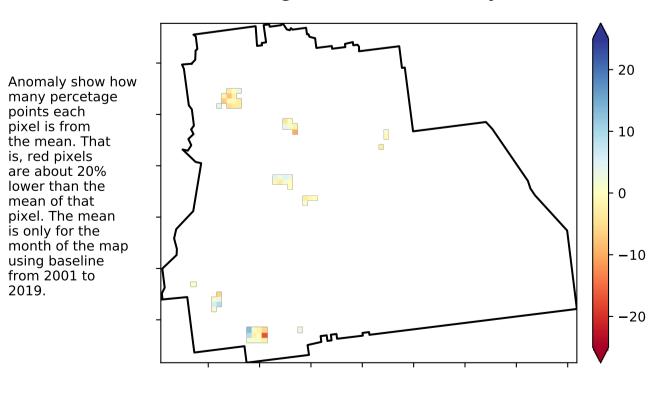
**Total Vegetation Cover Anomaly [%]** 

the mean. That is, red pixels

are about 20% lower than the mean of that

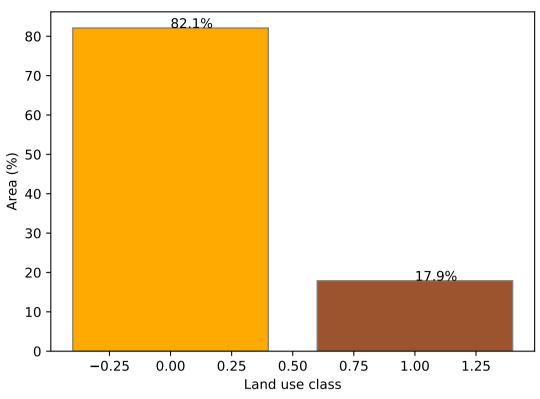
pixel. The mean

using baseline from 2001 to 2019.

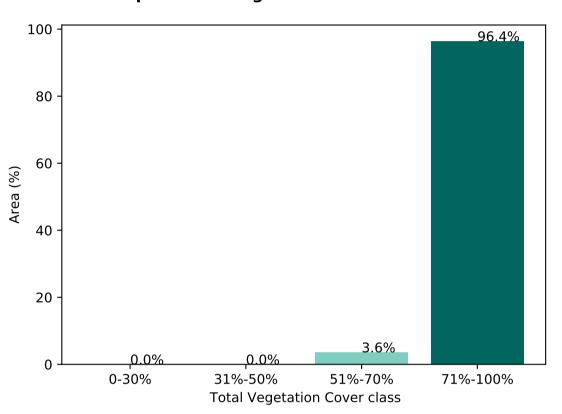


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

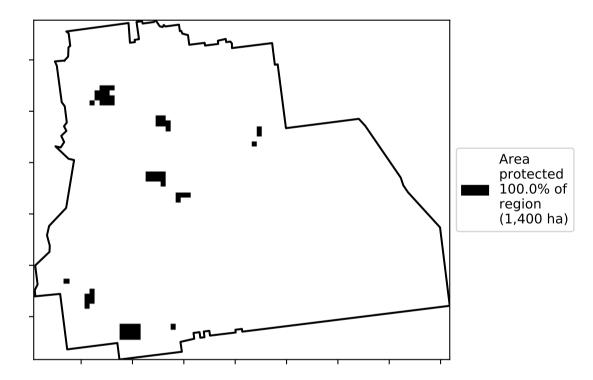
#### Proportion of each land class in area



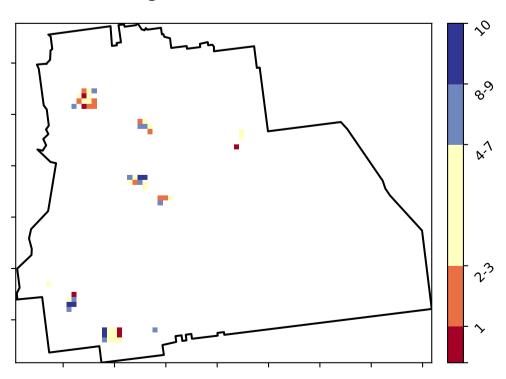
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



**Total Vegetation Cover Decile [%]** 



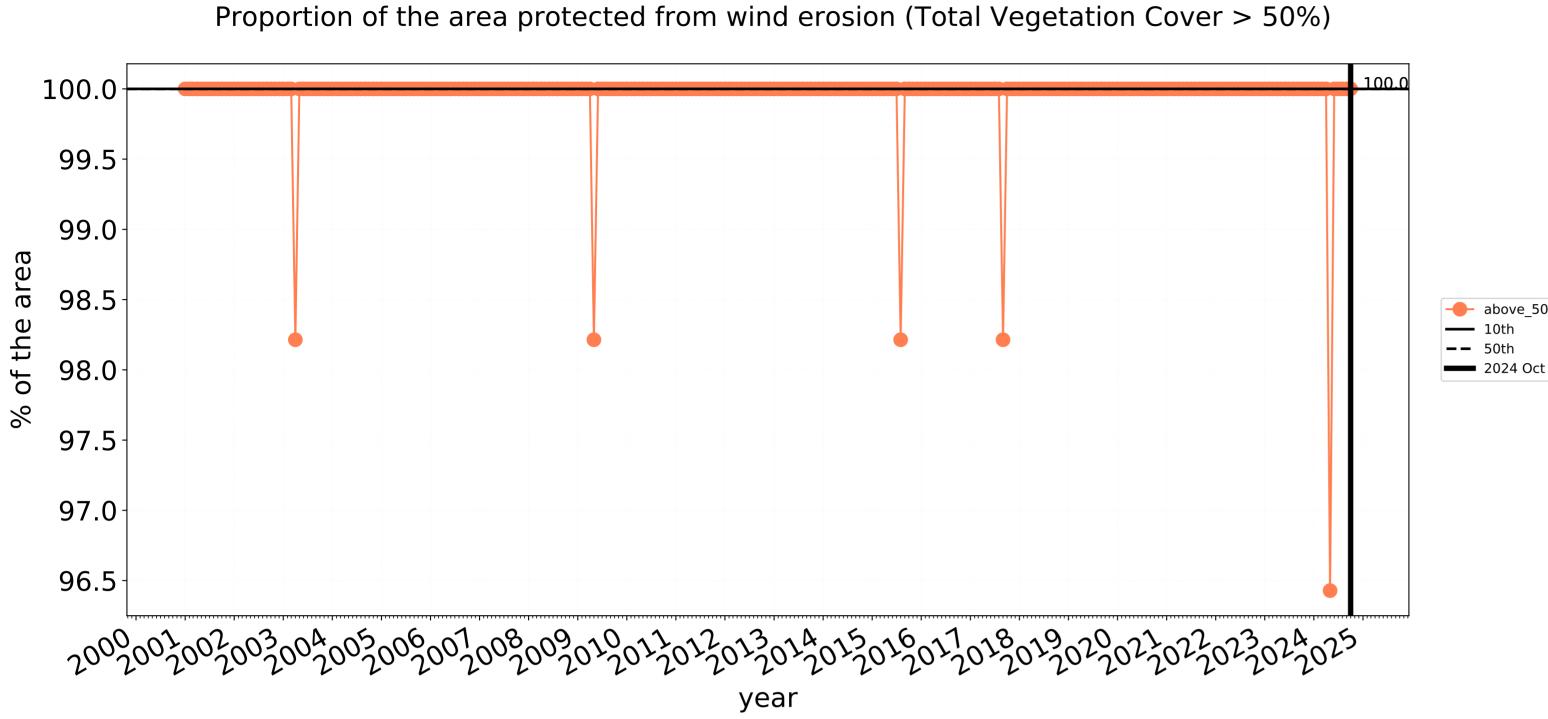


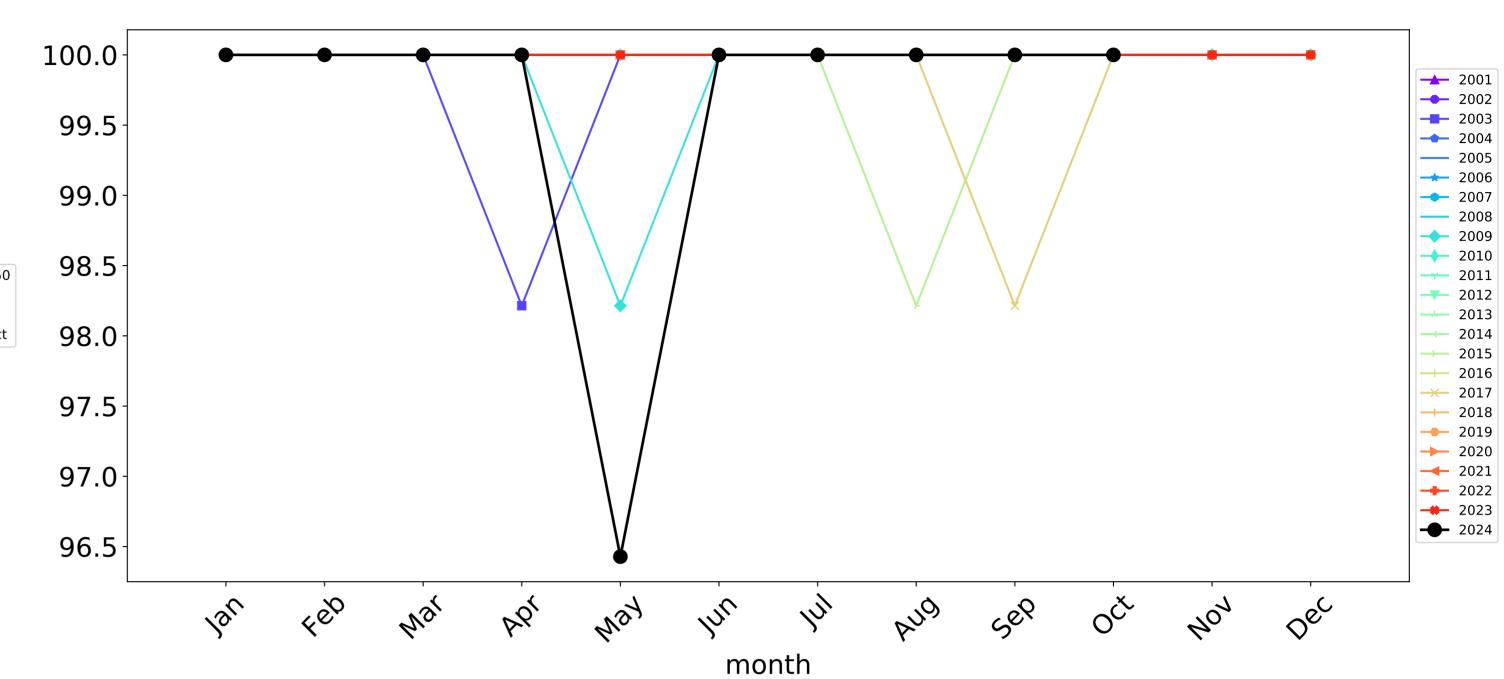




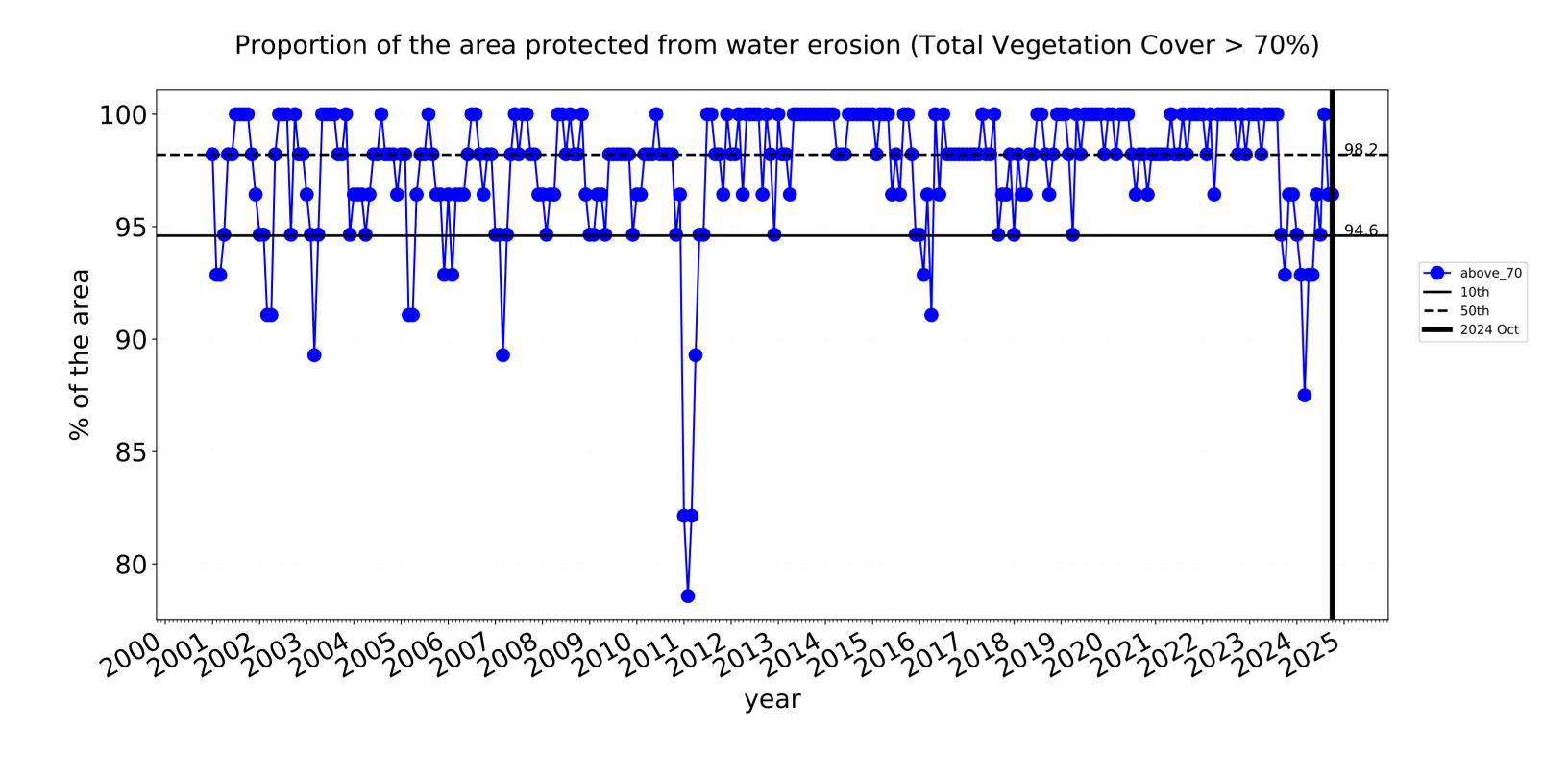


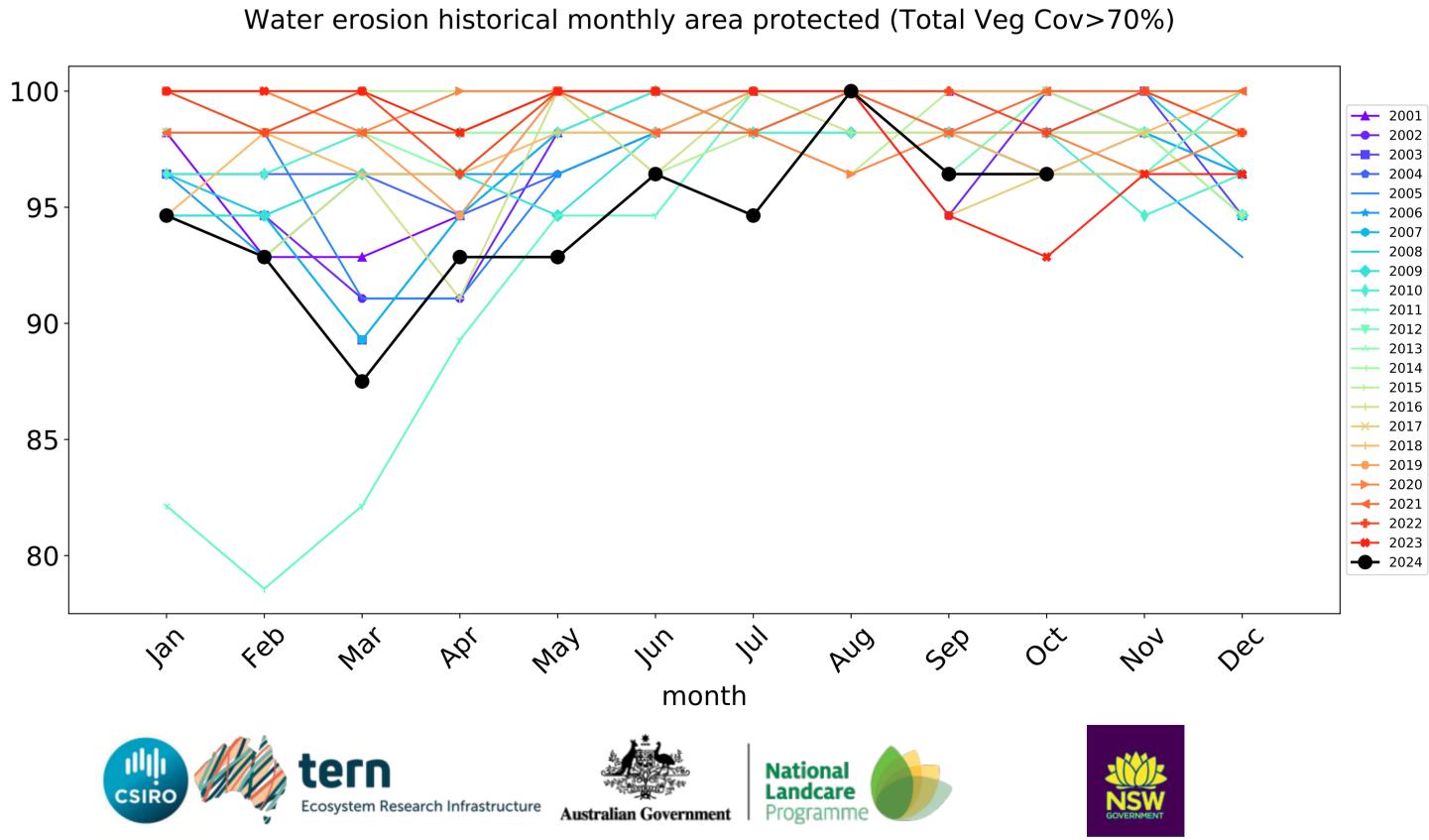
#### Irrigation timeseries

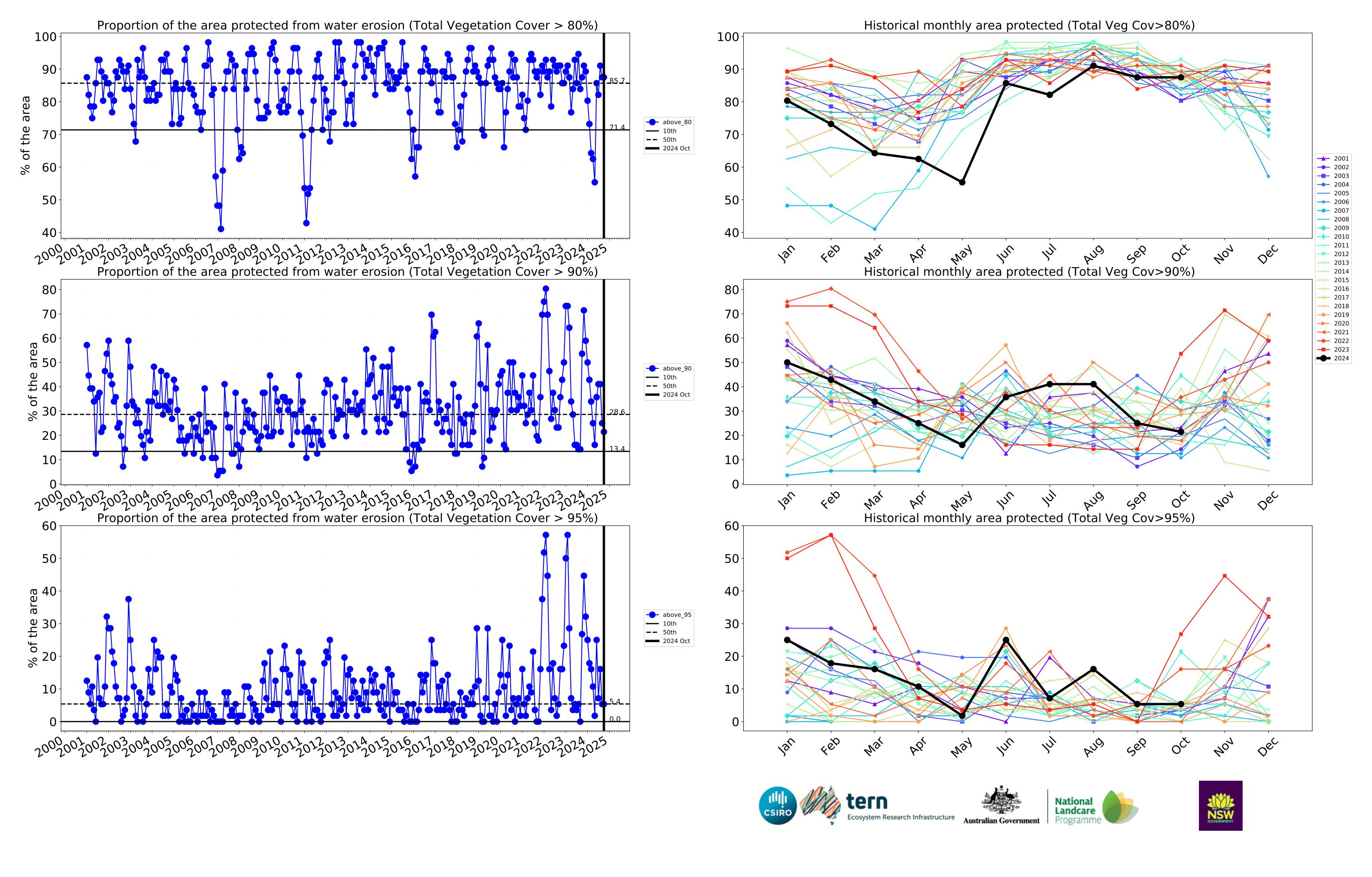




Wind erosion historical monthly area protected (Total Veg Cov >50%)







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

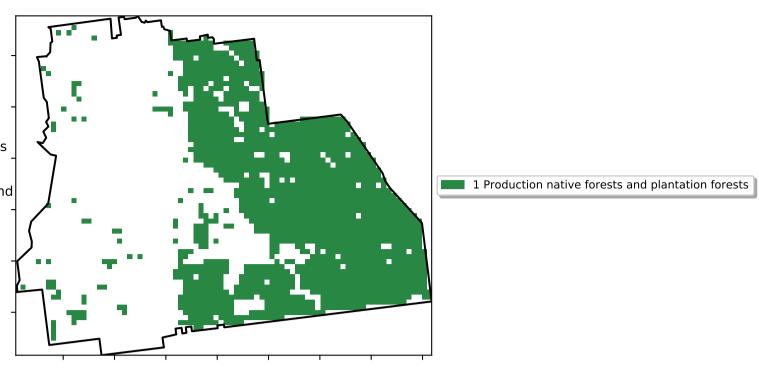
#### Land use and forest cover

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

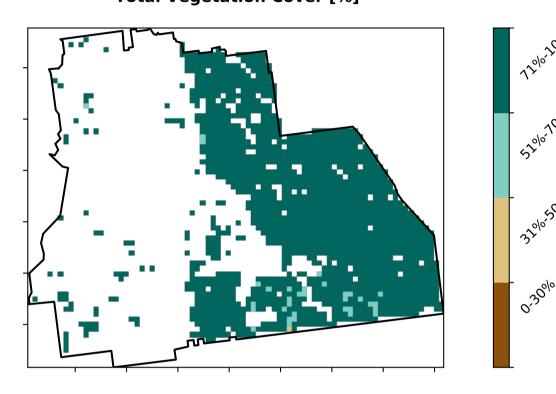
are about 20% lower than the

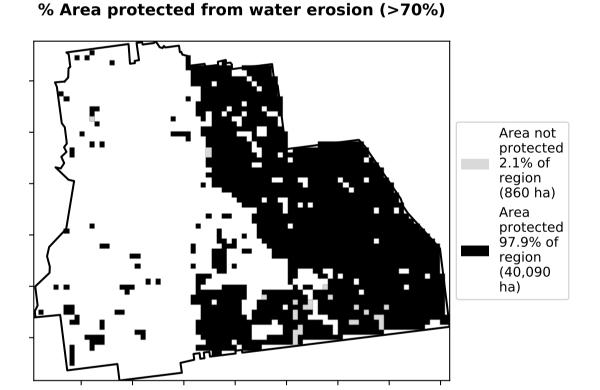
mean of that pixel. The mean

using baseline from 2001 to 2019.

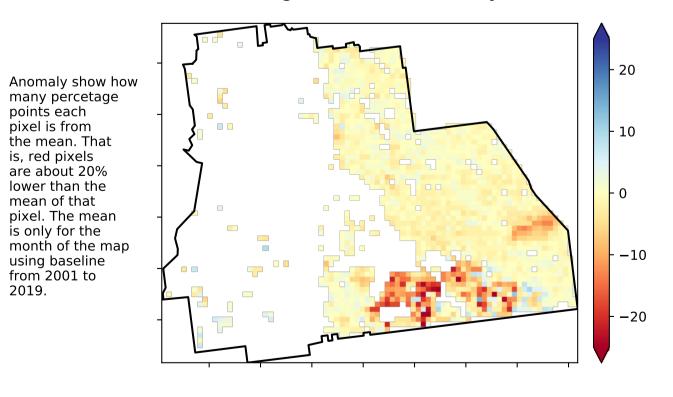


#### **Total Vegetation Cover [%]**



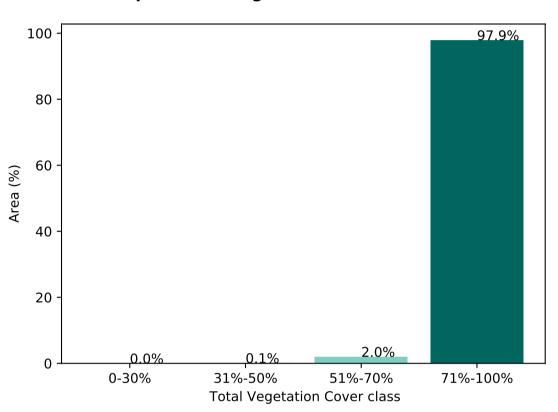


**Total Vegetation Cover Anomaly [%]** 

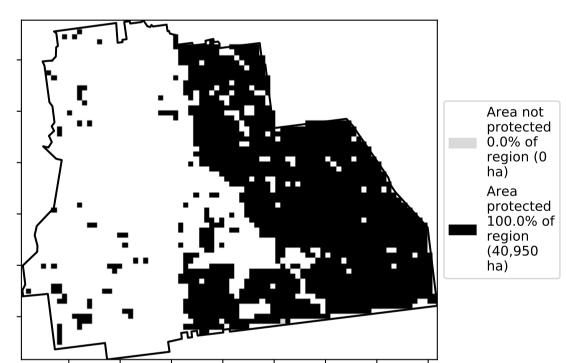


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

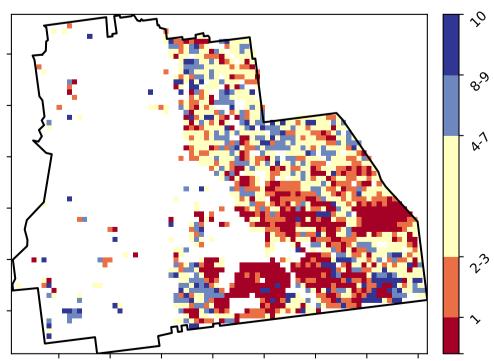
#### Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



**Total Vegetation Cover Decile [%]** 





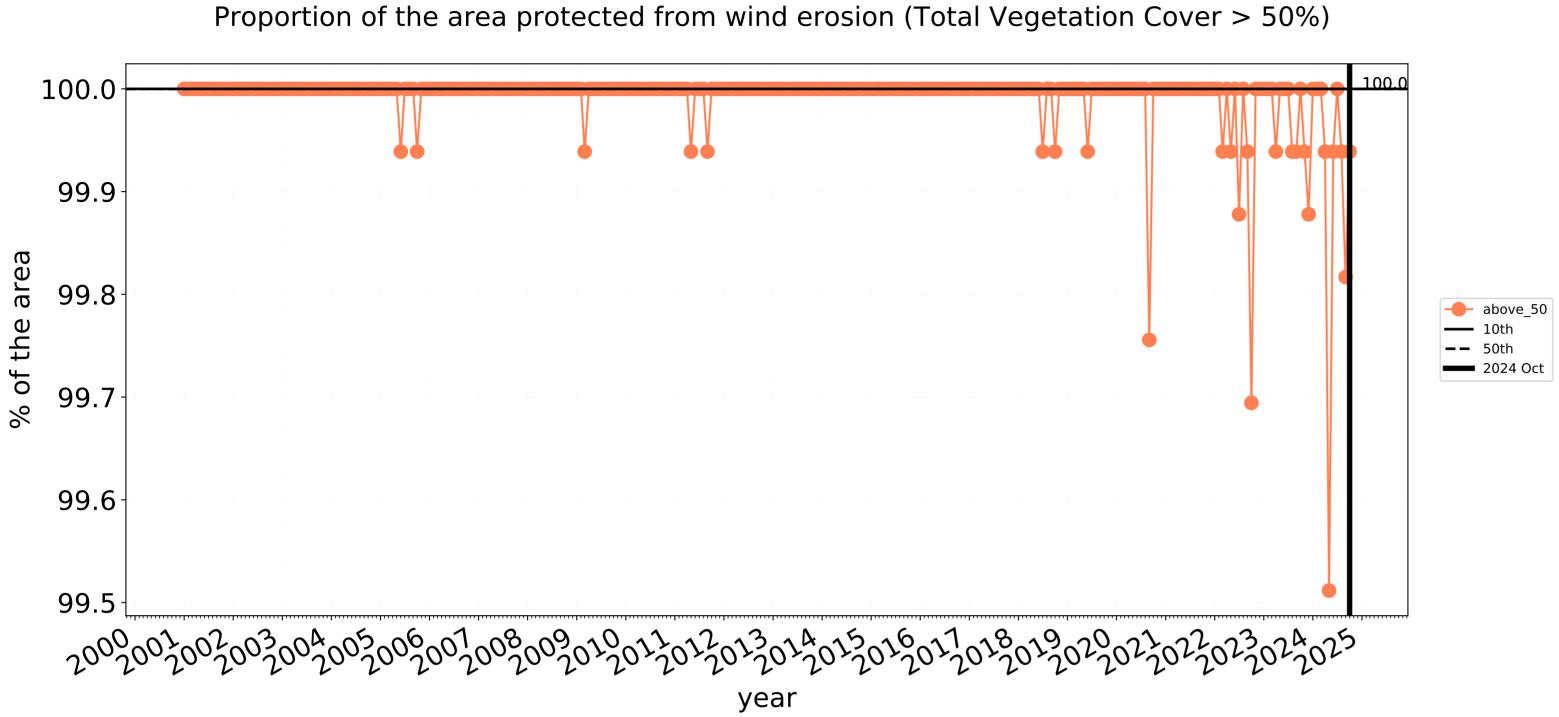


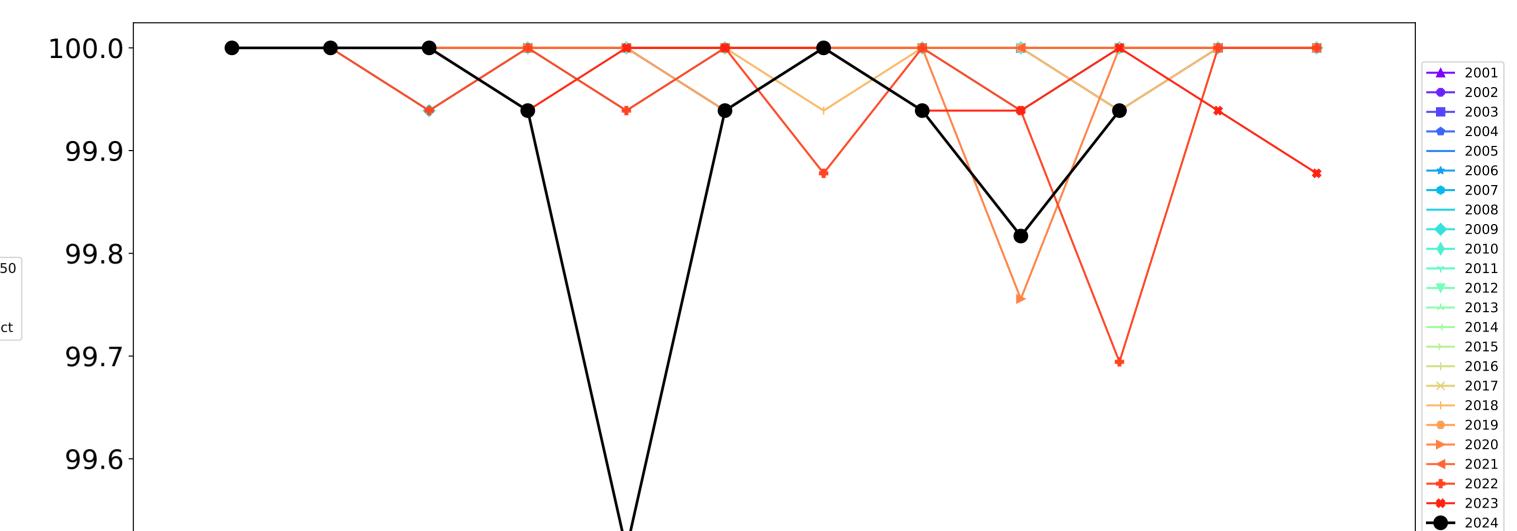




#### **Production native forests and plantation forests timeseries**

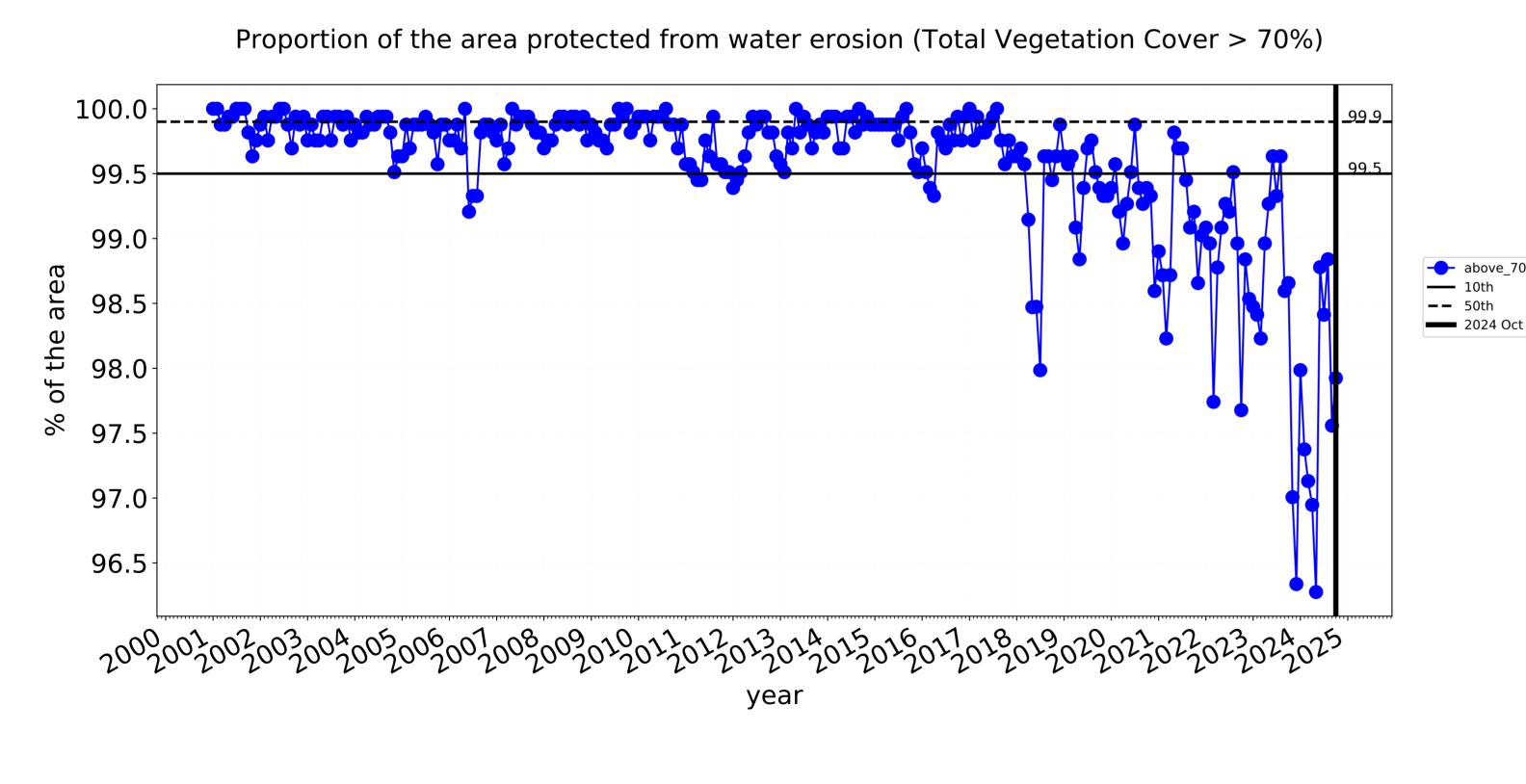
99.5

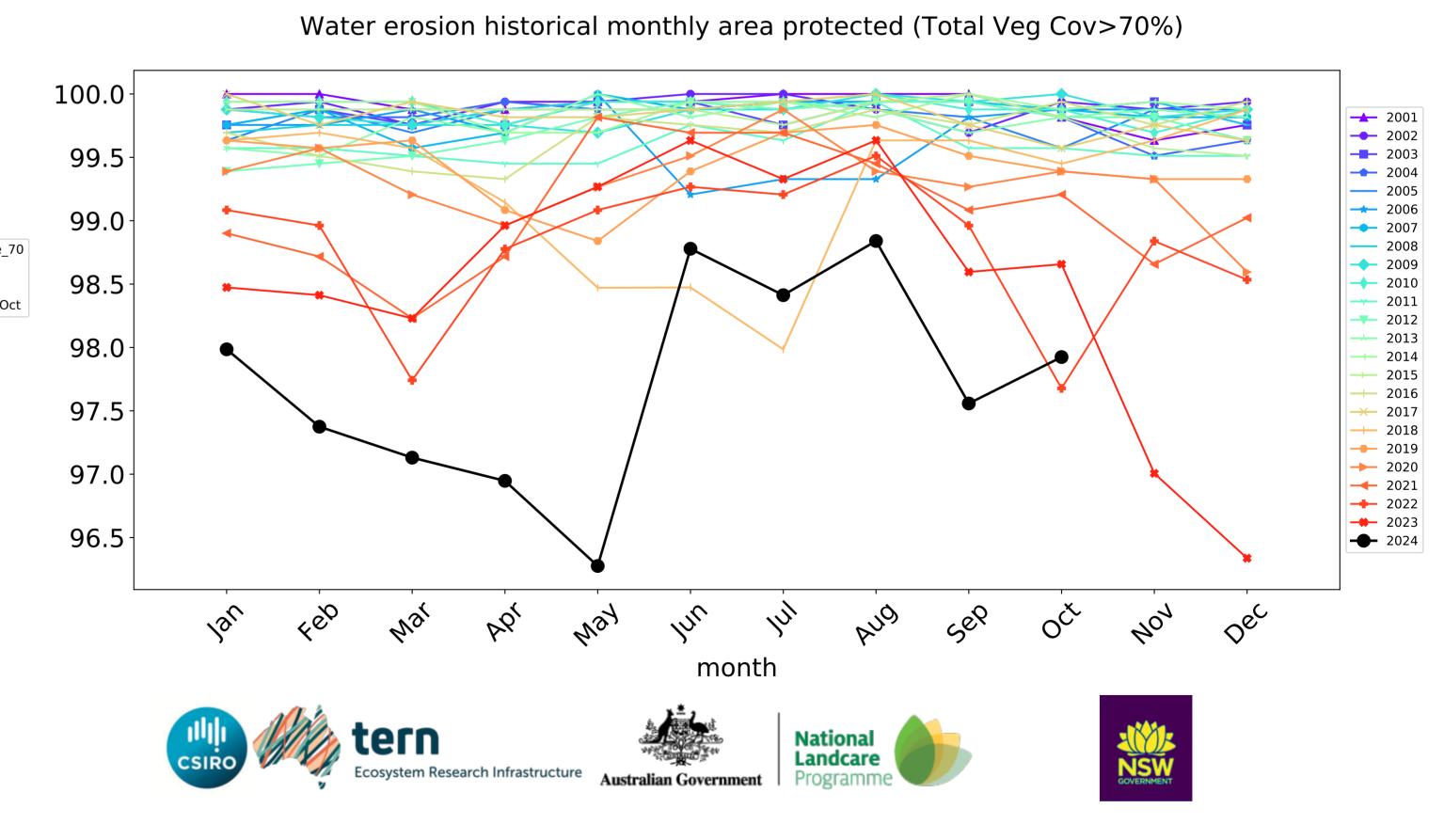


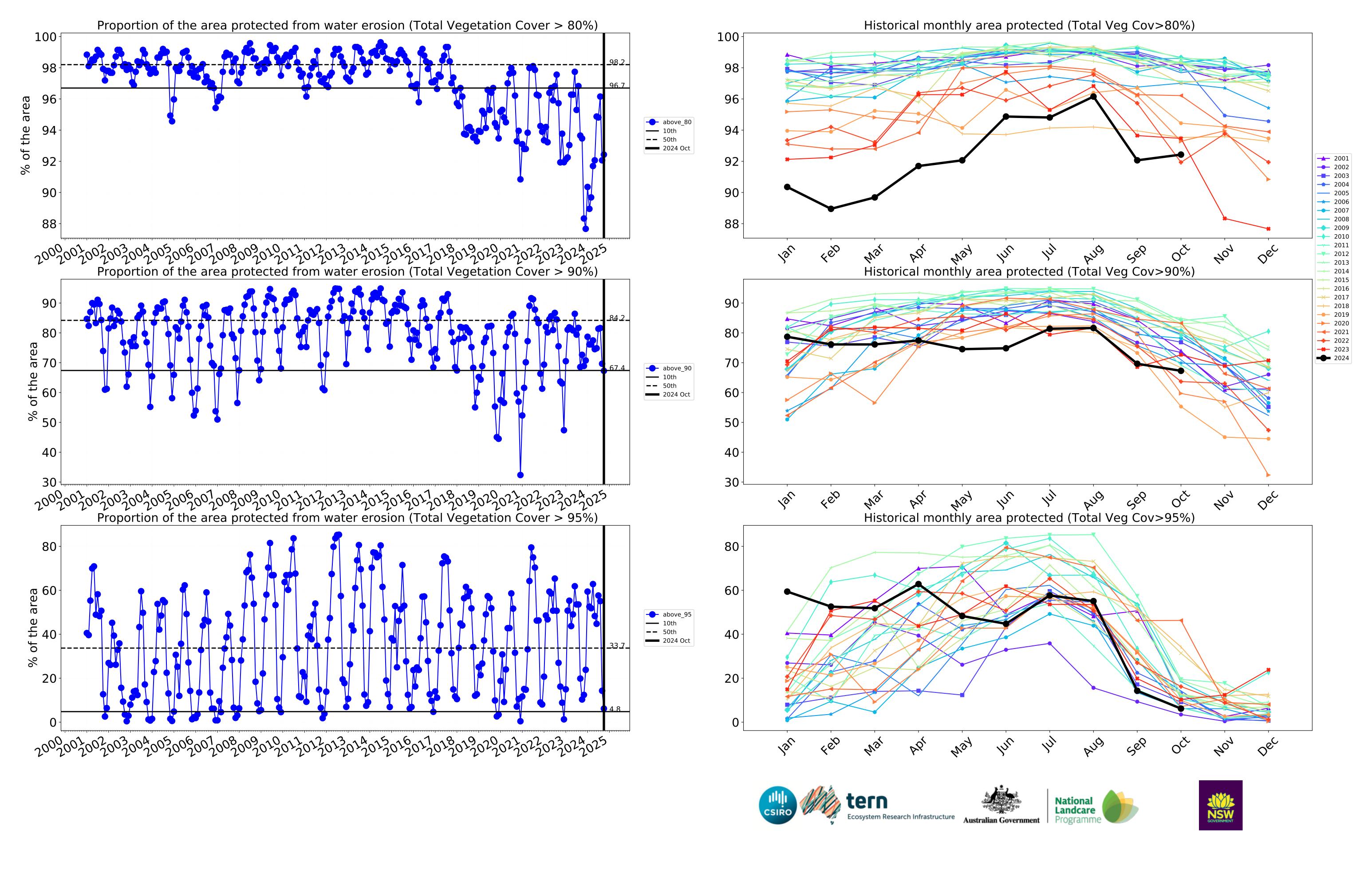


month

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







## Serpentine-Jarrahdale\_(S) (90,075 ha and no data 59 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	90,075	99.9% 90,000	99.7% 89,825	96.6% 87,025	87.1% 78,425	47.5% 42,825	6.2% 5,550
Conservation and natural environments	9,025	100.0% 9,025	100.0% 9,025	99.7% 9,000	97.5% 8,800	59.8% 5,400	5.8% 525
Conservation and natural environments non forest	1,325	100.0% 1,325	100.0% 1,325	98.1% 1,300	94.3% 1,250	45.3% 600	5.7% 75
Conservation and natural environments Woodland forest	3,275	100.0% 3,275	100.0% 3,275	100.0% 3,275	96.2% 3,150	45.0% 1,475	4.6% 150
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	75.1% 3,325	6.8% 300
Agriculture	15,350	99.7% 15,300	99.5% 15,275	96.3% 14,775	83.6% 12,825	26.4% 4,050	7.2% 1,100
Grazing	7,275	100.0% 7,275	100.0% 7,275	99.3% 7,225	92.8% 6,750	35.4% 2,575	9.3% 675
Grazing non forest	7,275	100.0% 7,275	100.0% 7,275	99.3% 7,225	92.8% 6,750	35.4% 2,575	9.3% 675
Cropping	6,675	99.3% 6,625	98.9% 6,600	92.9% 6,200	72.7% 4,850	17.6% 1,175	5.2% 350
Irrigation	1,400	100.0% 1,400	100.0% 1,400	96.4% 1,350	87.5% 1,225	21.4% 300	5.4% 75
Production native forests and plantation forests	40,950	100.0% 40,950	99.9% 40,925	97.9% 40,100	92.4% 37,850	67.3% 27,550	6.2% 2,525







