# Total vegetation cover soil protection Region:LGA Gladstone (R) QLD

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

Land use forest cover:

Date: April 2024

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 Apr 2024**

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

of Australia (2018)

Derived from

pixel is from

is, red pixels are about 20% lower than the

mean of that pixel. The mean is only for the

using baseline from 2001 to

2019.

the mean. That

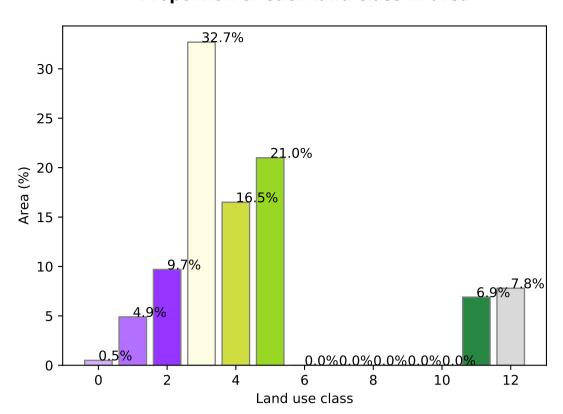
Use of Australia

(2018) and Forests

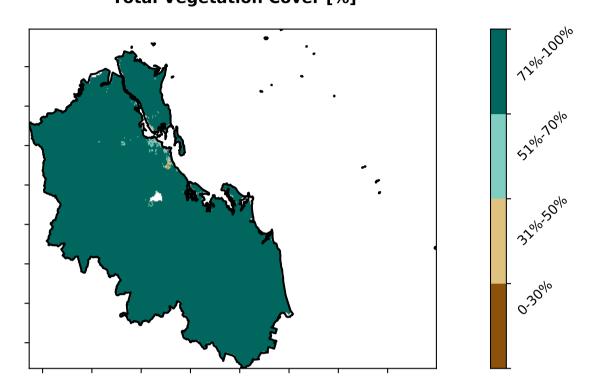
of Australia (2018)

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

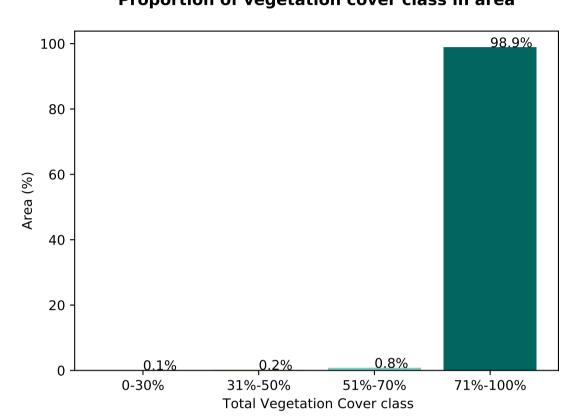
### **Proportion of each land class in area**

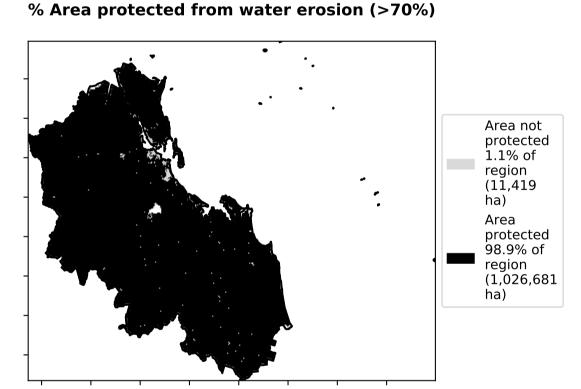


# **Total Vegetation Cover [%]**

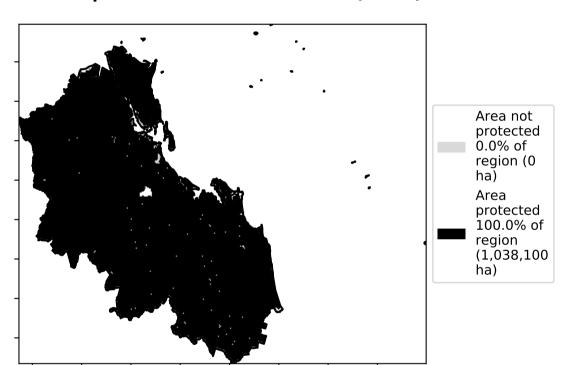


**Proportion of vegetation cover class in area** 

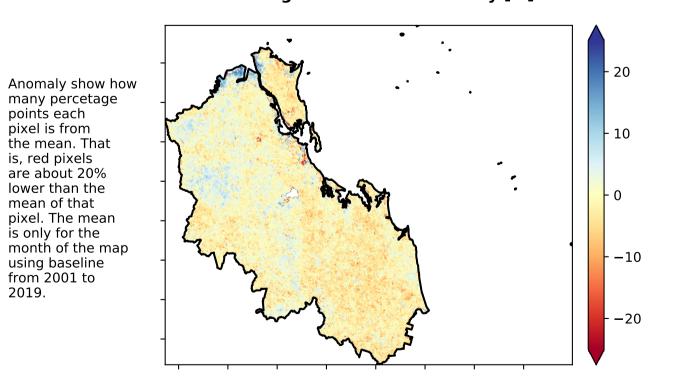




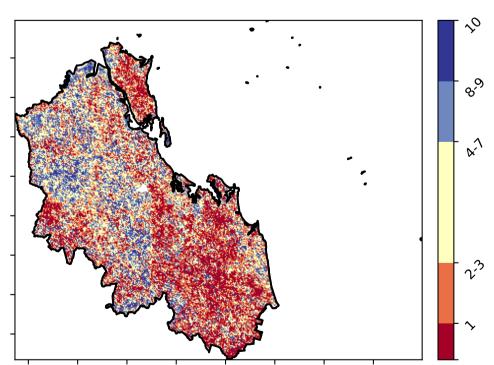
% Area protected from wind erosion (>50%)



# **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.

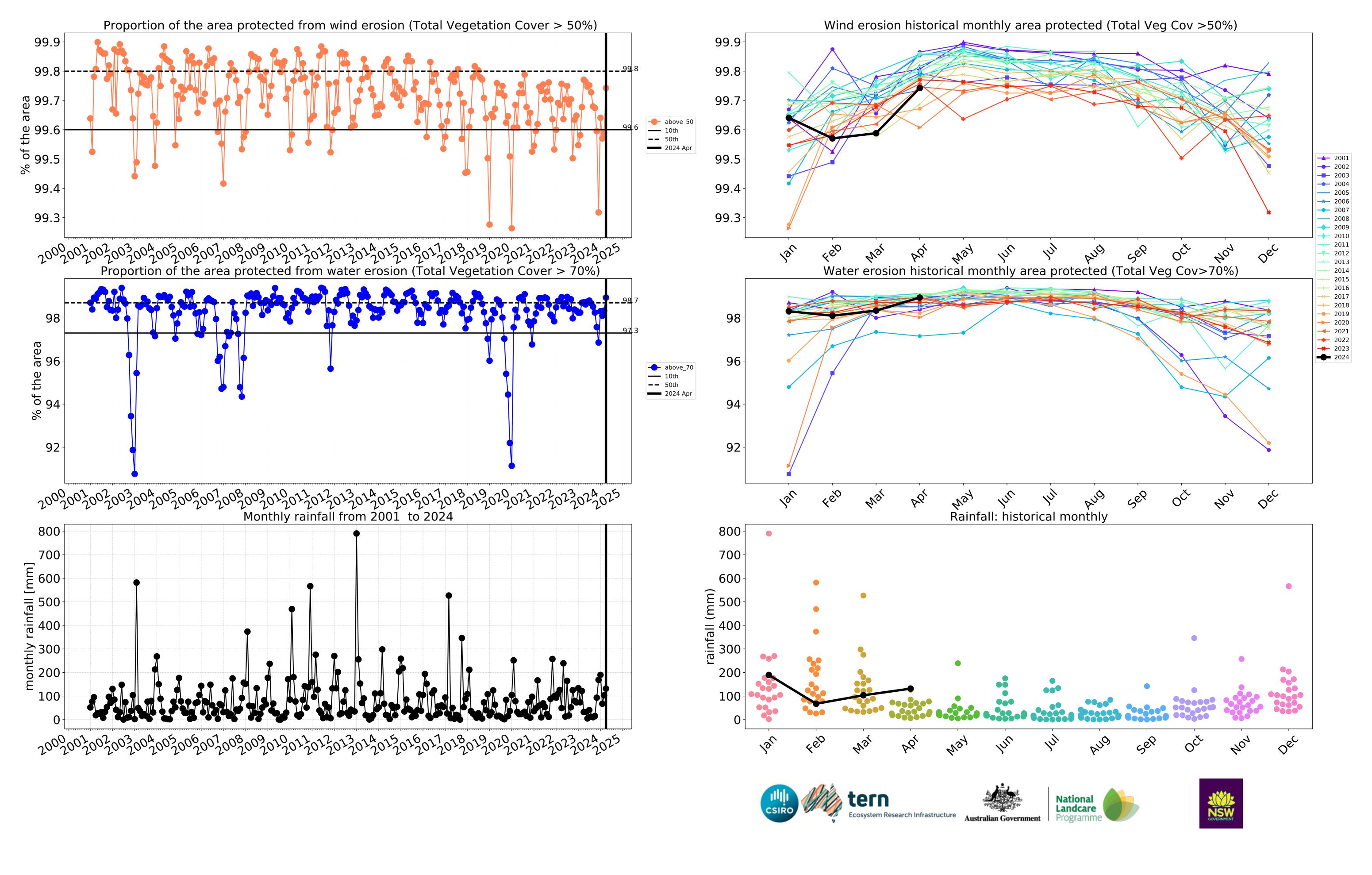




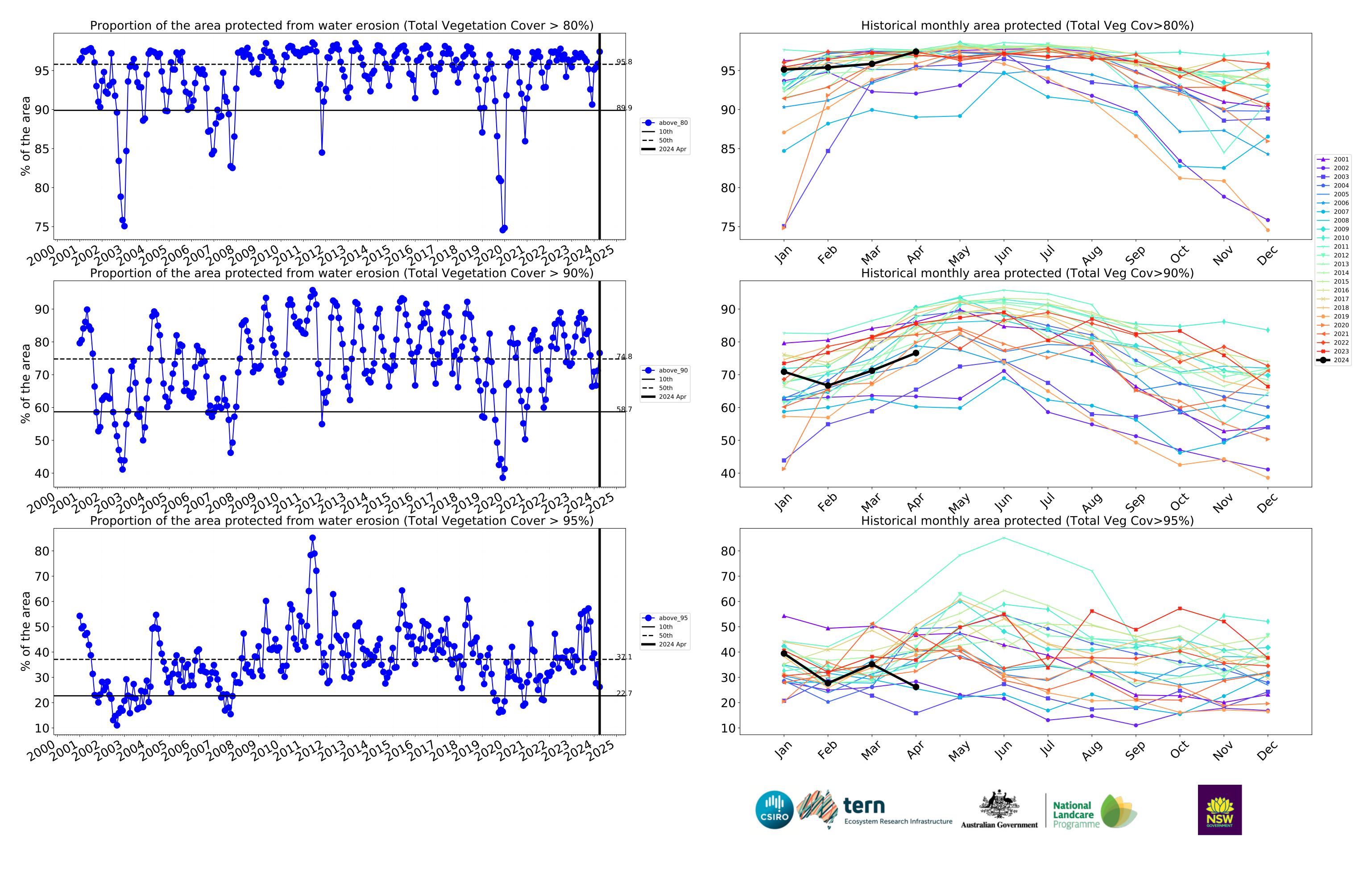








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# **Conservation and natural environments**

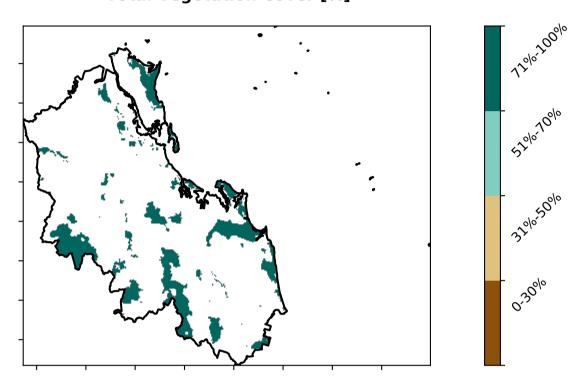
# **Land use and forest cover** Catchment Scale Land Use and Forests of Australia (2018) 1 Conservation and natural environments - Nonforest Derived from 2 Conservation and natural environments - Woodland Catchment Scale Land Use of Australia 3 Conservation and natural environments - Non-woodland forest (2018) and Forests of Australia (2018)

# 64.3%

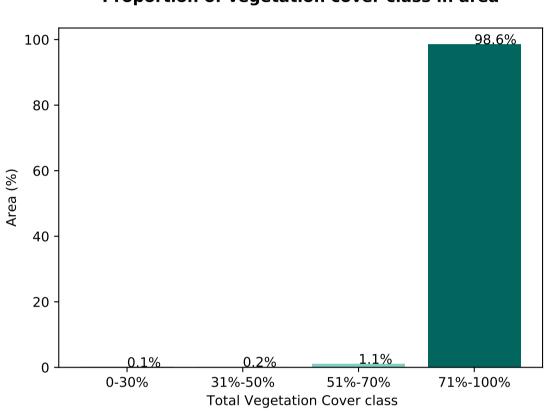
Proportion of each land class in area

# 60 50 Area (%) 32.3% 20 10 3.3% 0.5 1.0 1.5 2.0 2.5 -0.50.0 Land use class

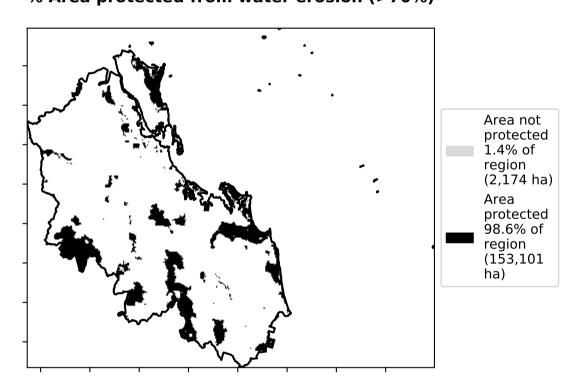




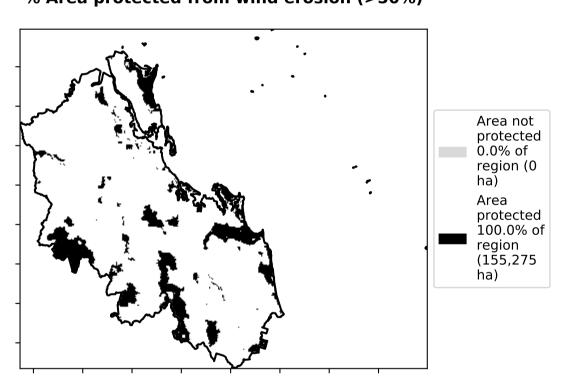
Proportion of vegetation cover class in area



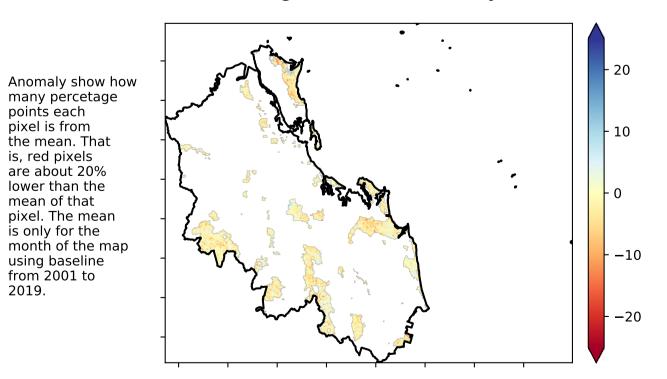
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

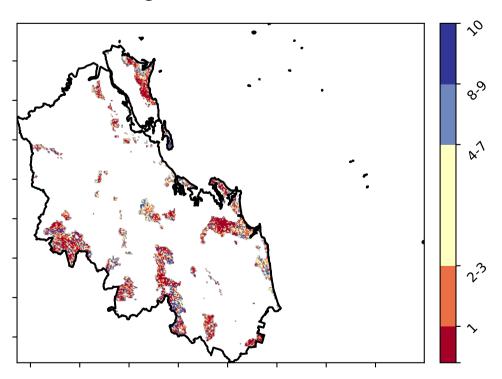


**Total Vegetation Cover Anomaly [%]** 



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 [%]**





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

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using baseline from 2001 to 2019.



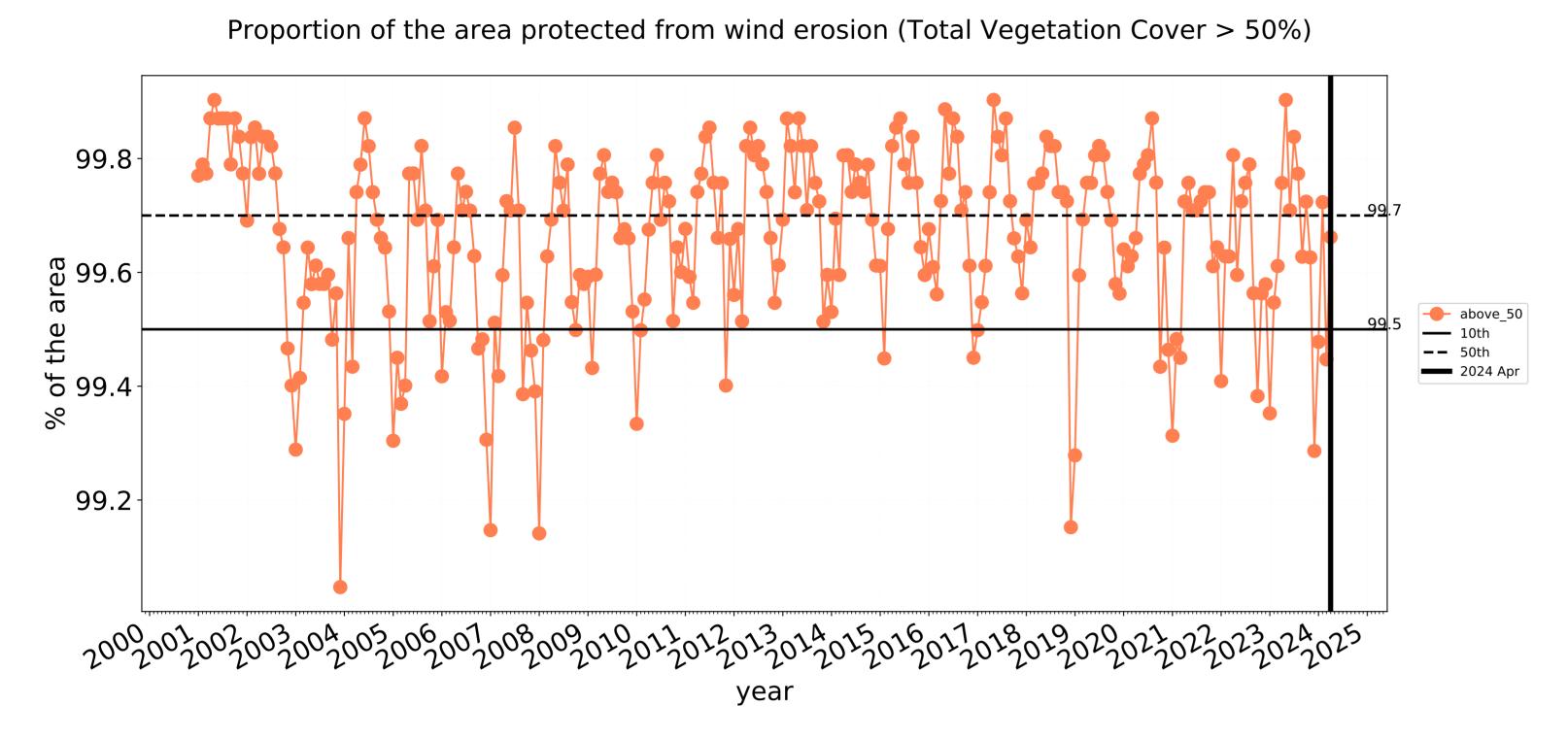


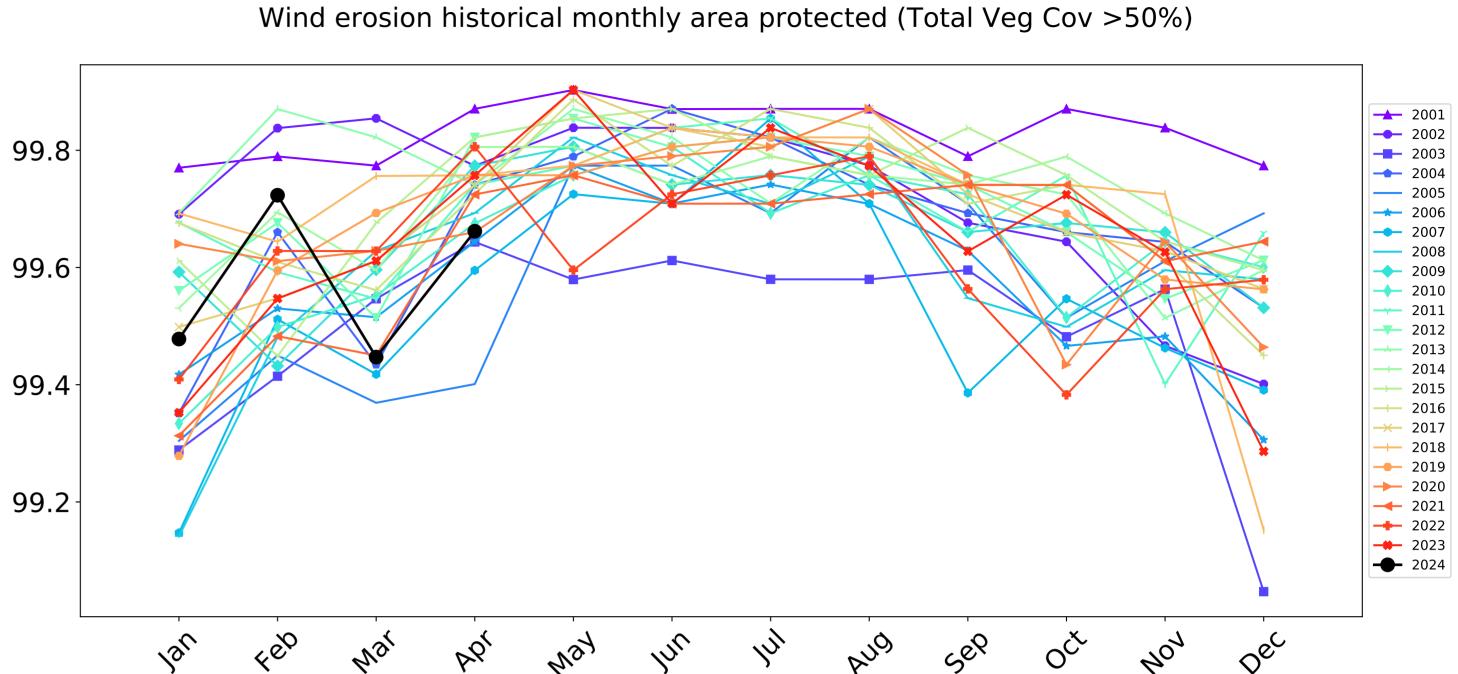




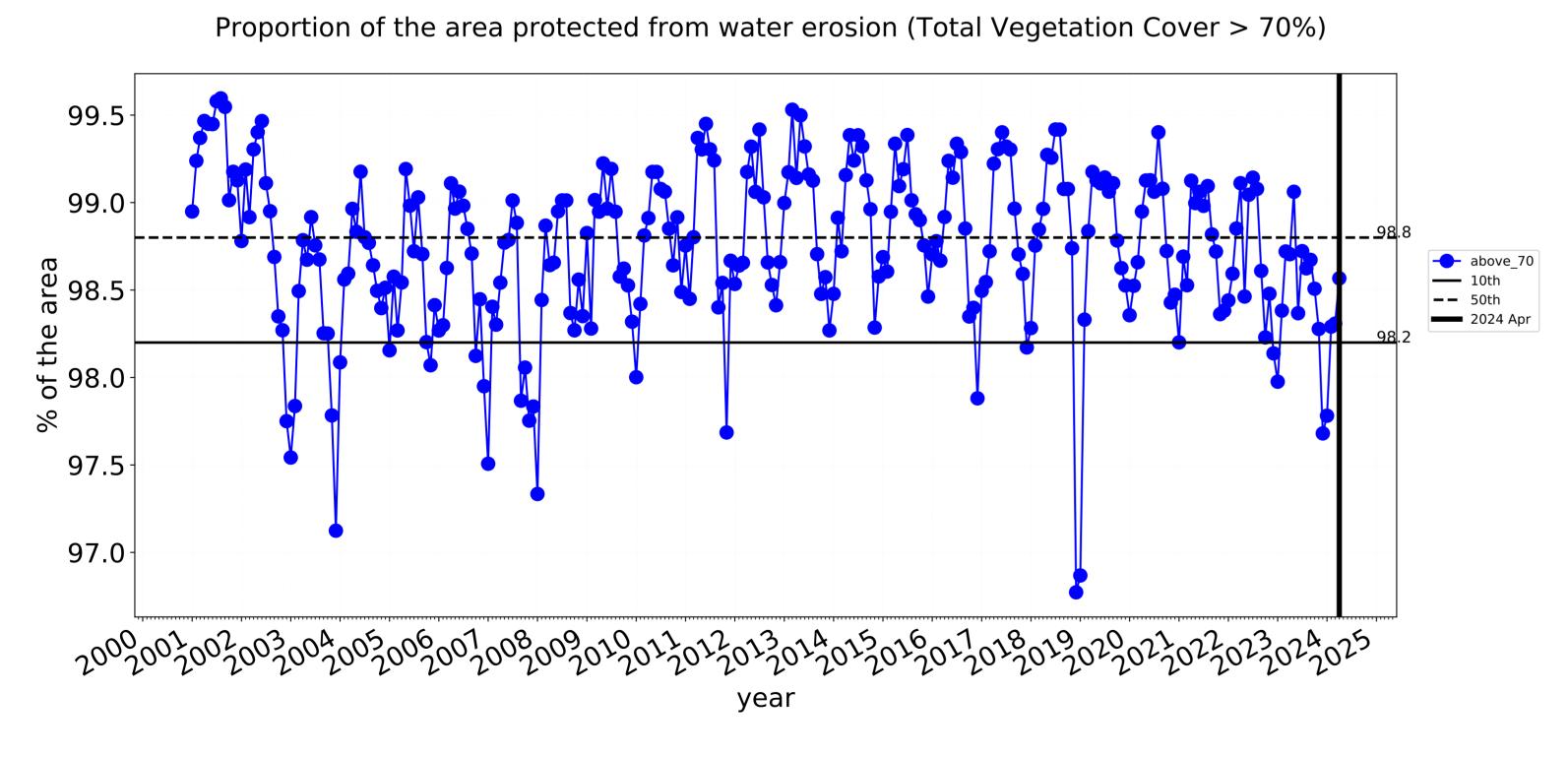


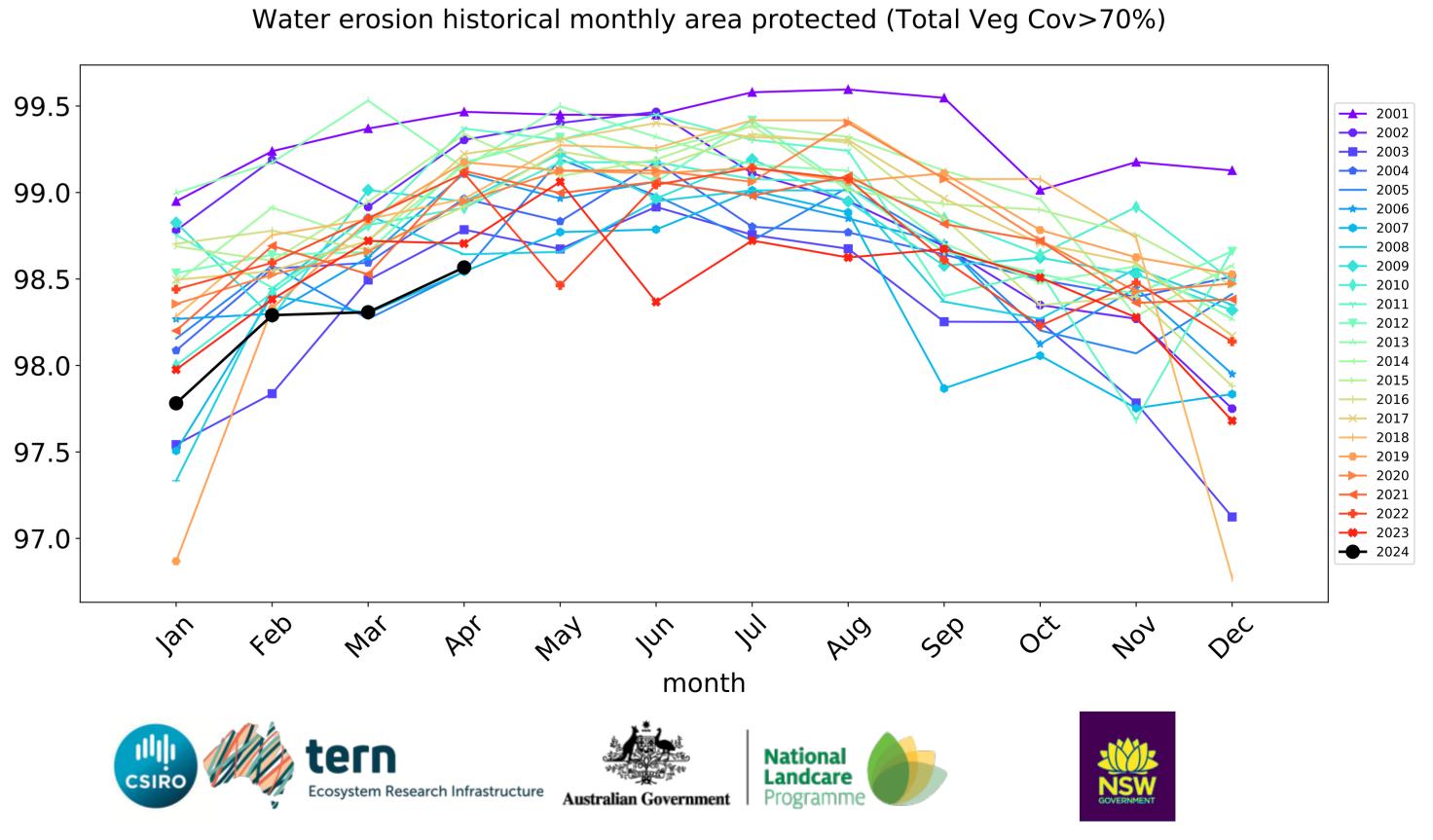
# **Conservation and natural environments timeseries**

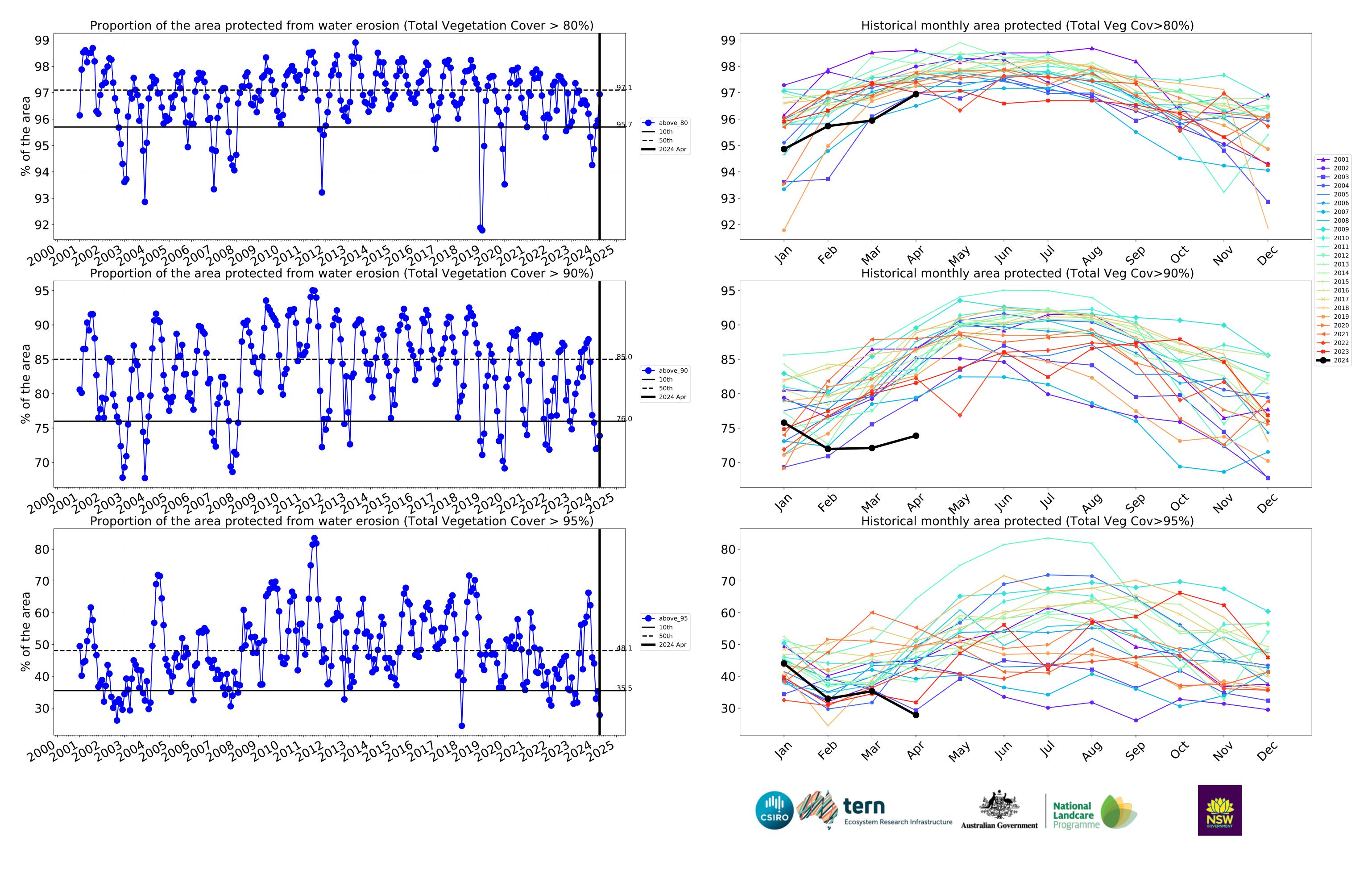




month

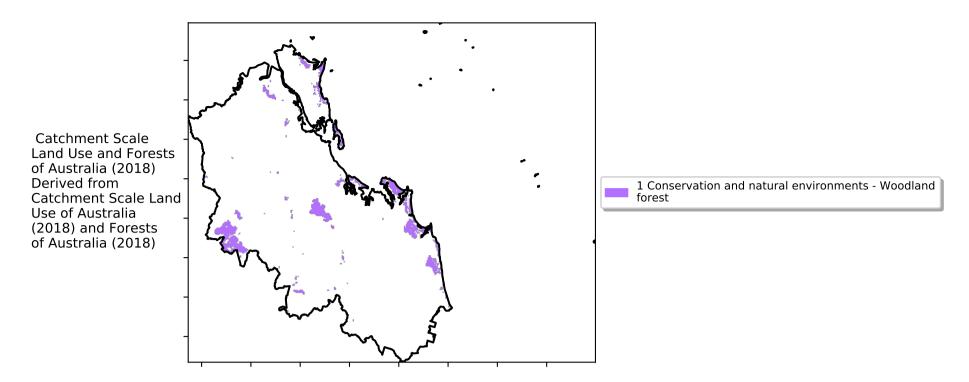




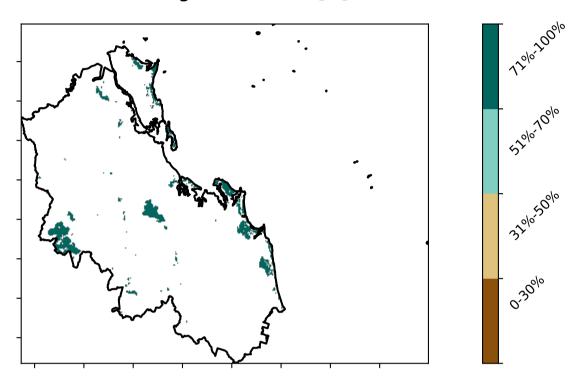


# **Conservation and natural environments Woodland forest**

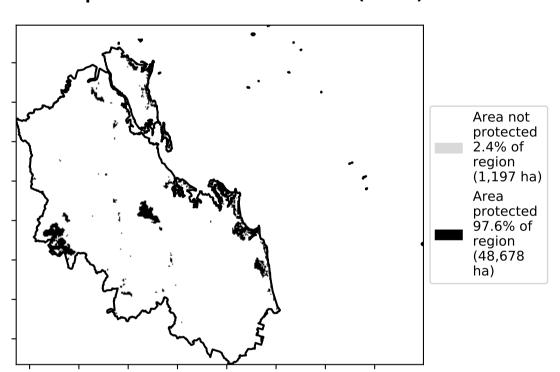
### **Land use and forest cover**



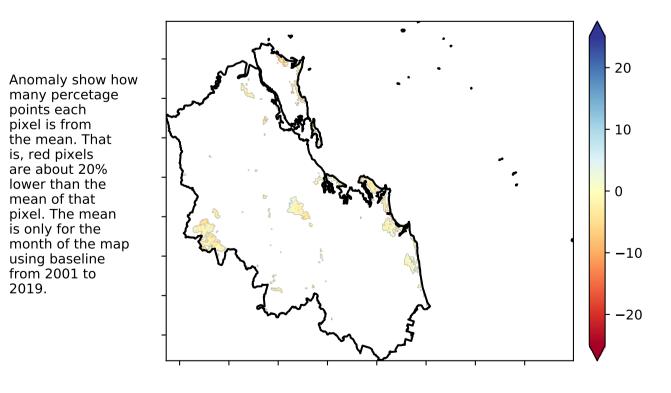
### **Total Vegetation Cover [%]**



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

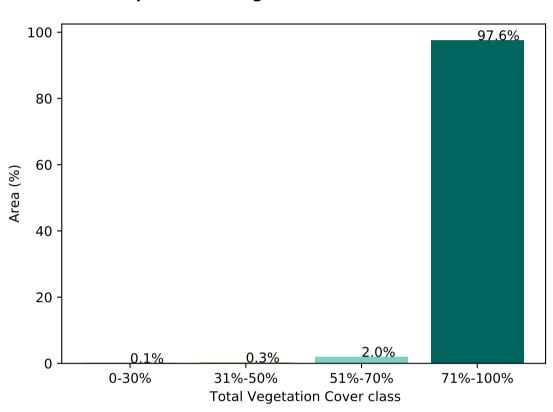


# **Total Vegetation Cover Anomaly [%]**

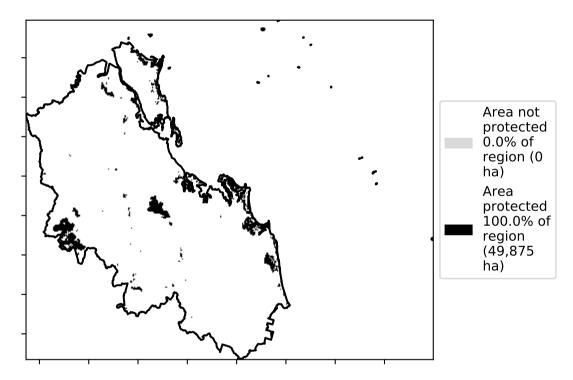


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

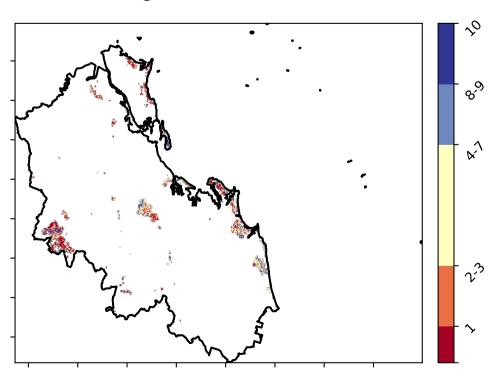
### Proportion of vegetation cover class in area



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



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





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

pixel. The mean

using baseline from 2001 to 2019.



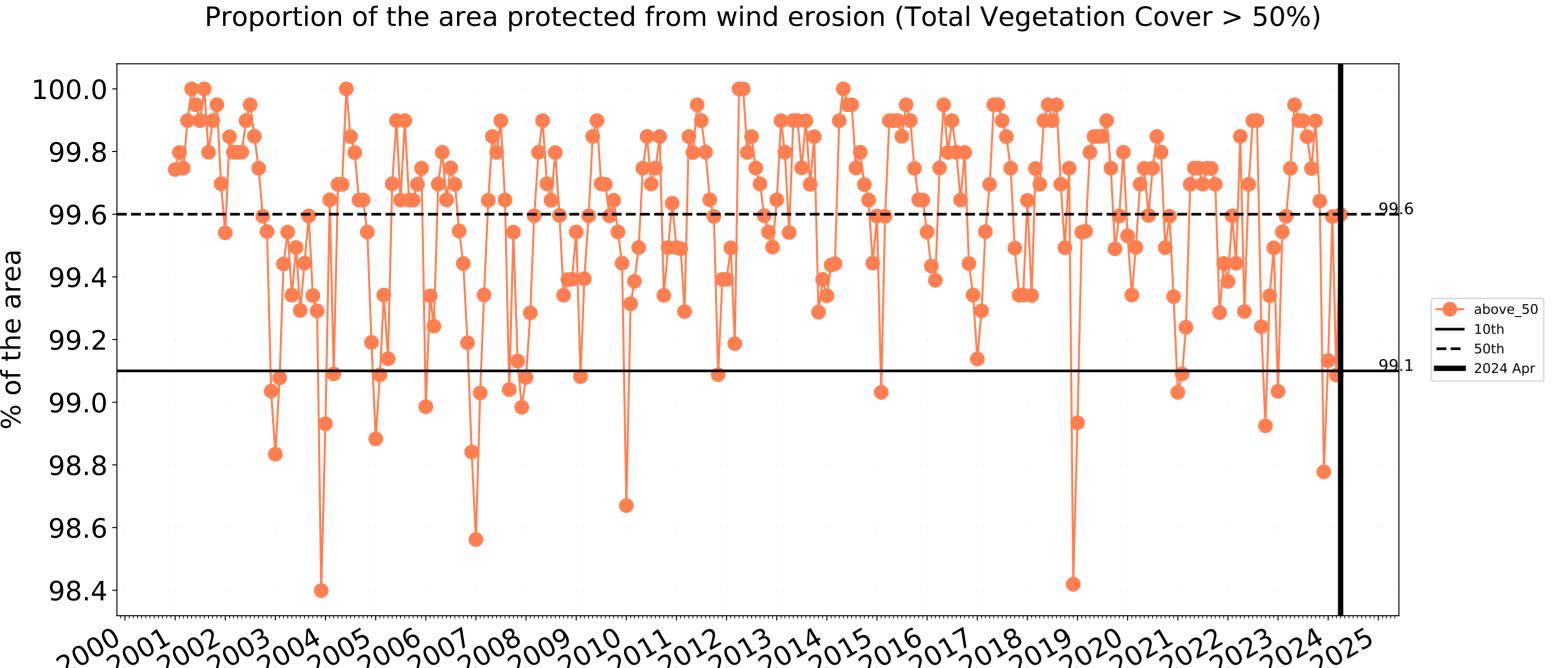




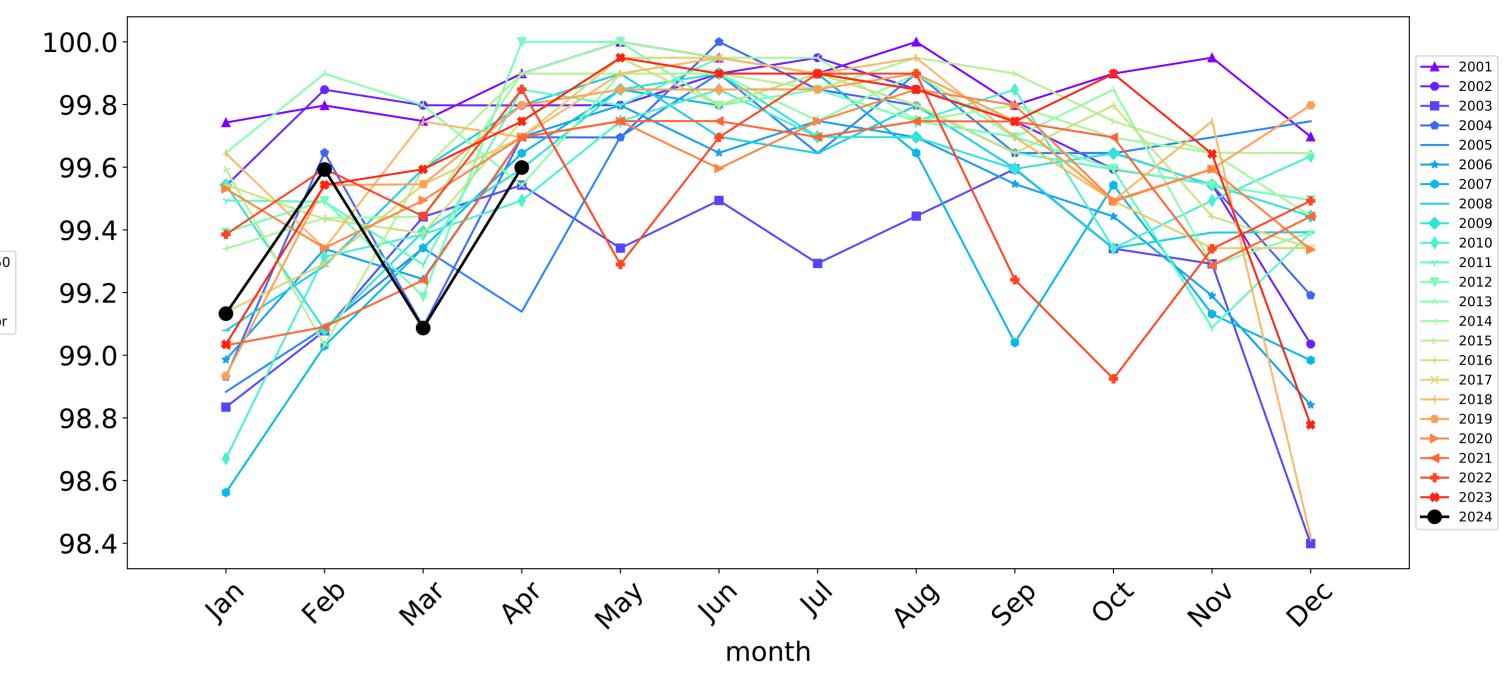


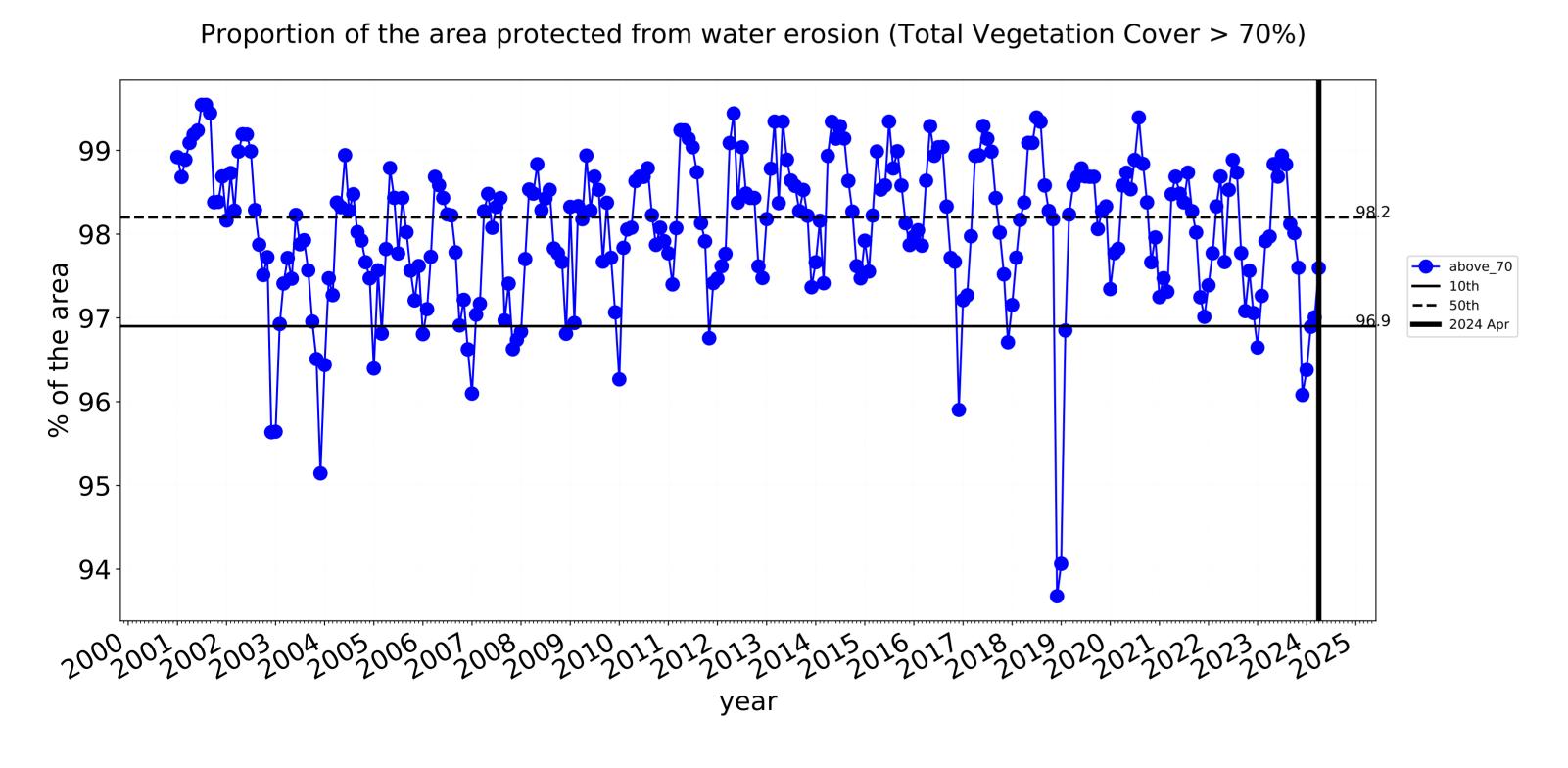


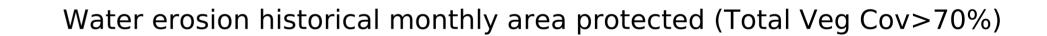
# **Conservation and natural environments Woodland forest timeseries**

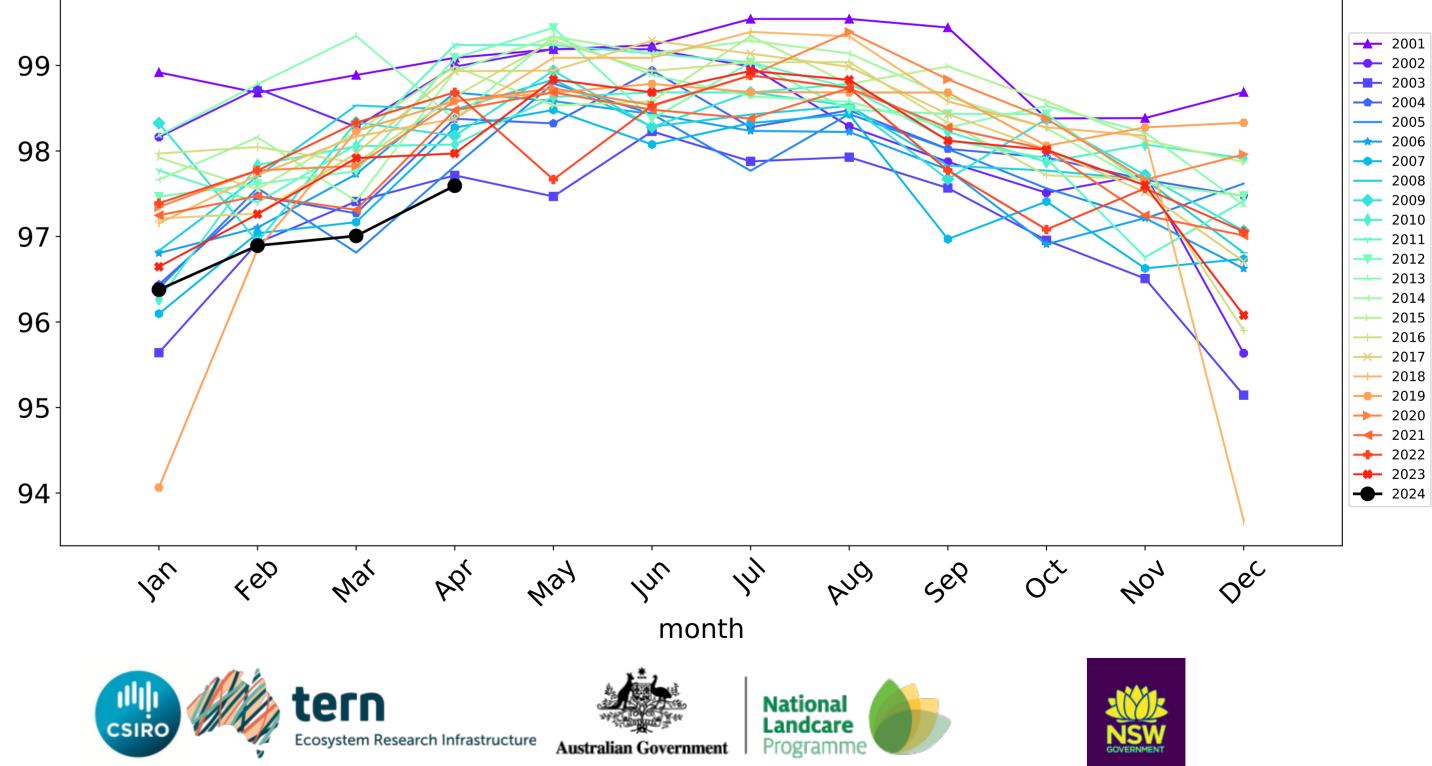


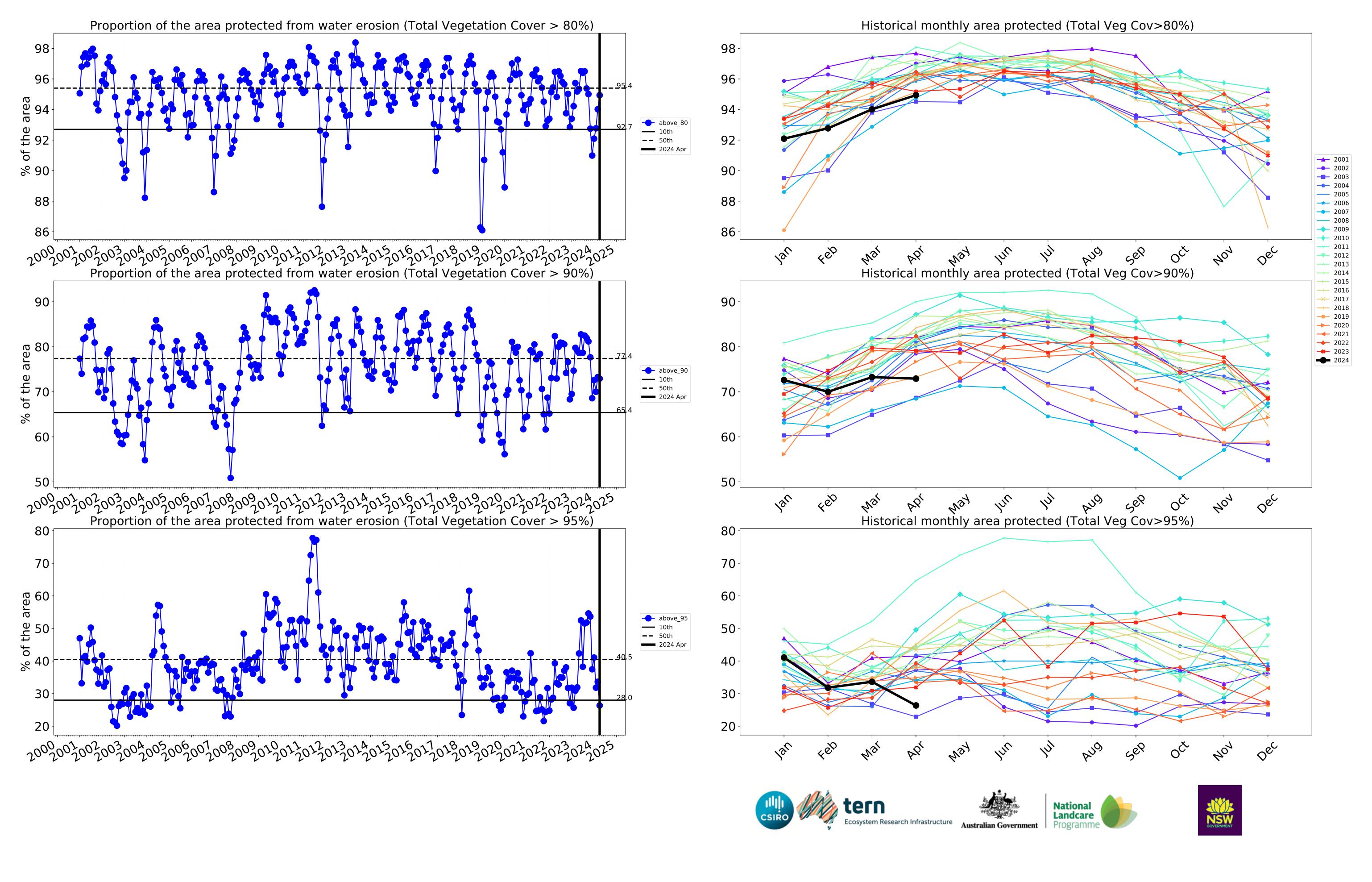
# Wind erosion historical monthly area protected (Total Veg Cov >50%)





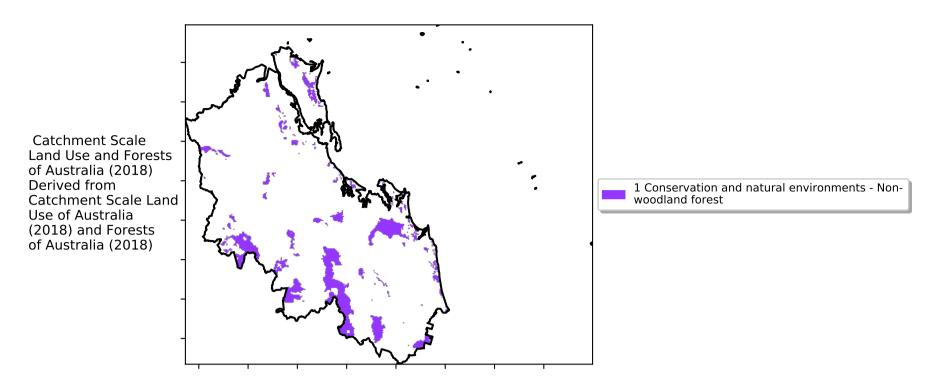




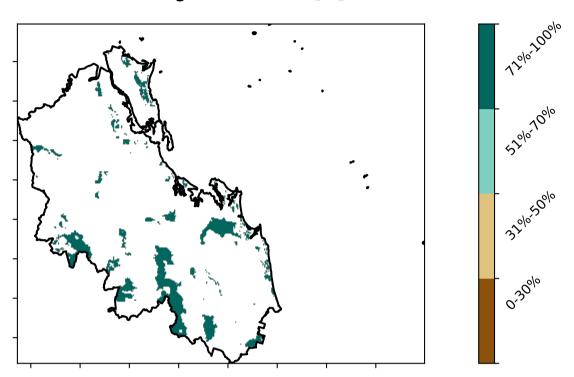


# **Conservation and natural environments Forest (non woodland)**

### Land use and forest cover

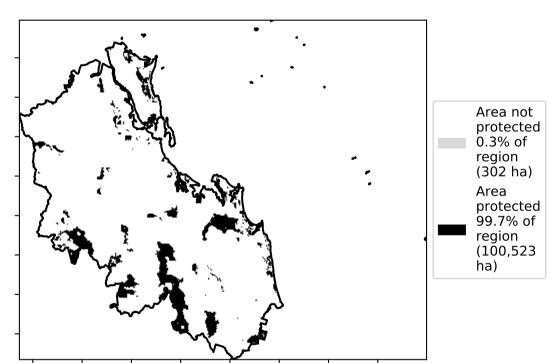


### **Total Vegetation Cover [%]**



# Proportion of vegetation cover class in area 99.7% 100 80 Area (%) 60 40 20

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

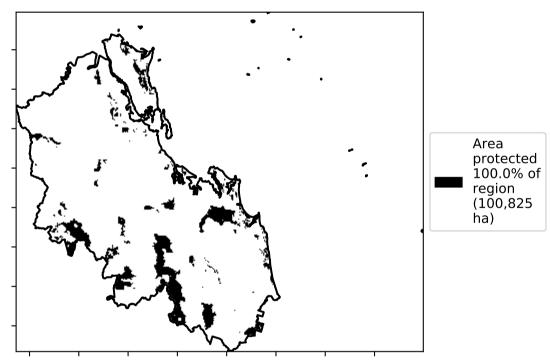


% Area protected from wind erosion (>50%)

**Total Vegetation Cover class** 

31%-50%

0-30%

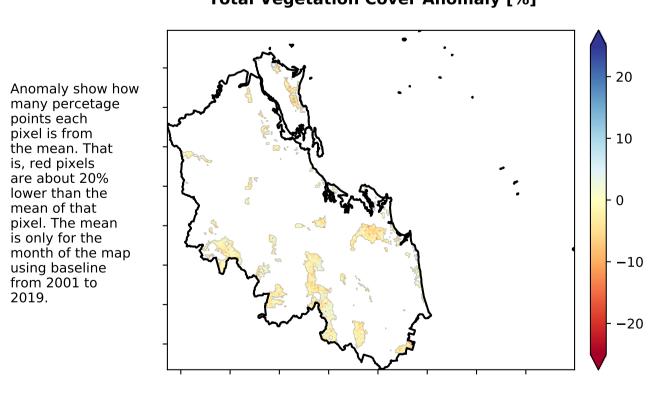


0.3%

71%-100%

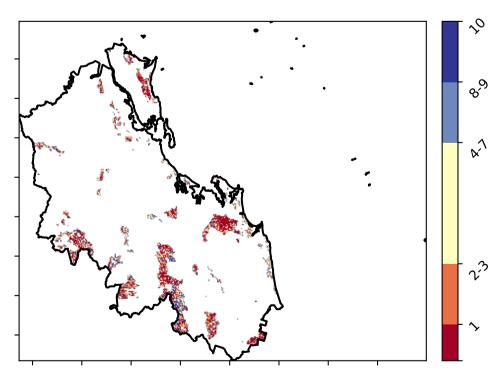
51%-70%

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



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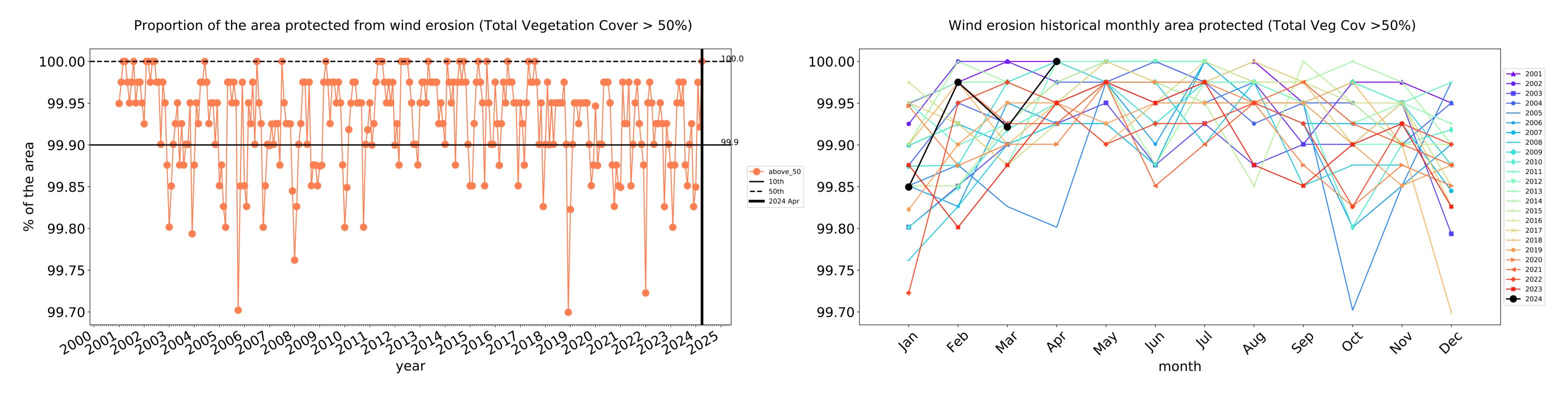


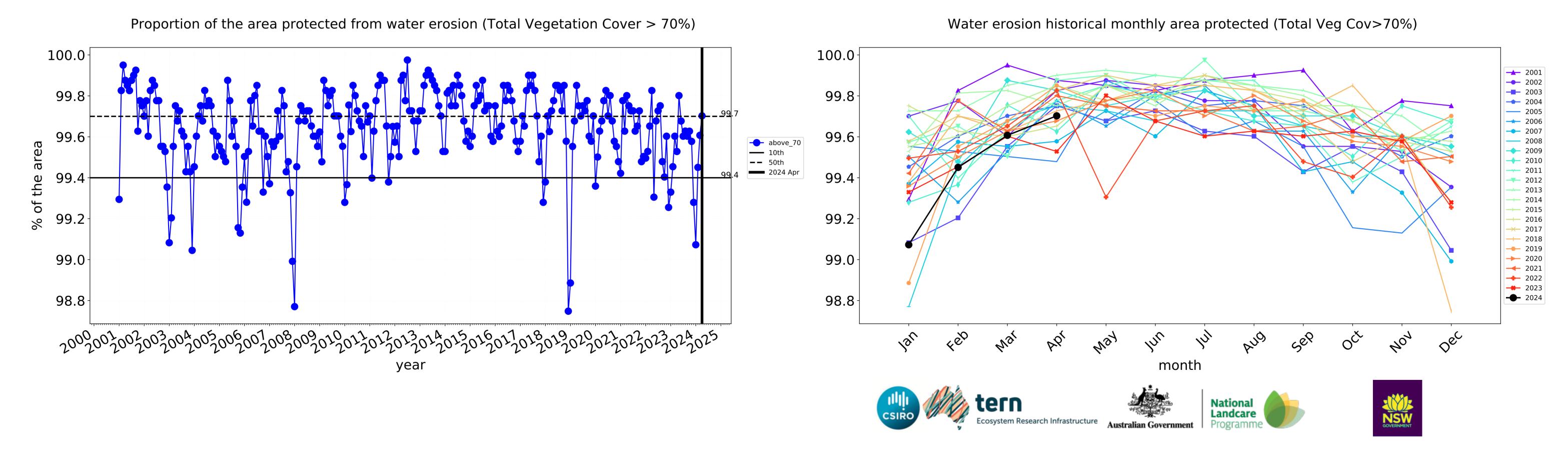


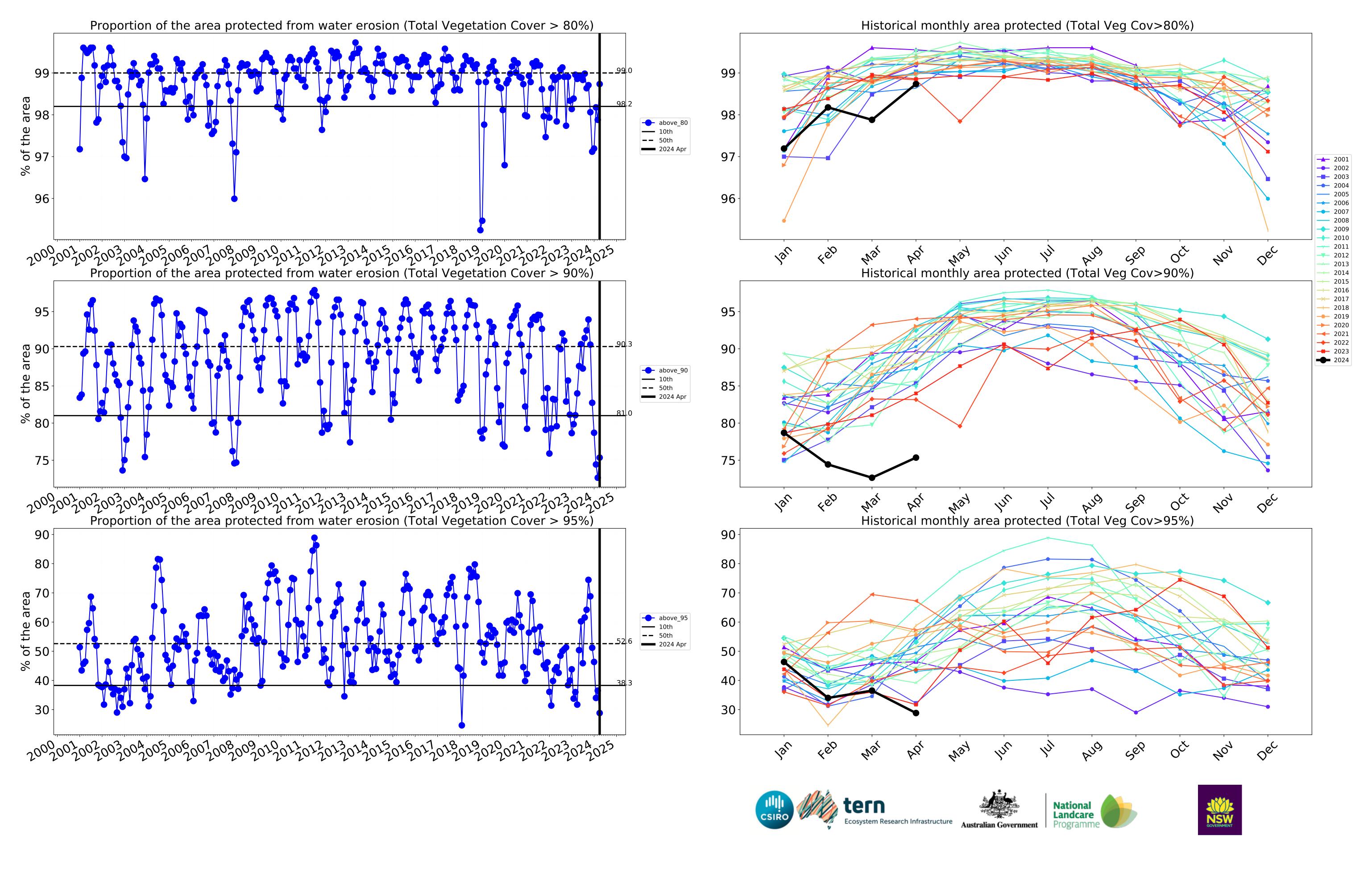




# Conservation and natural environments Forest (non woodland) timeseries

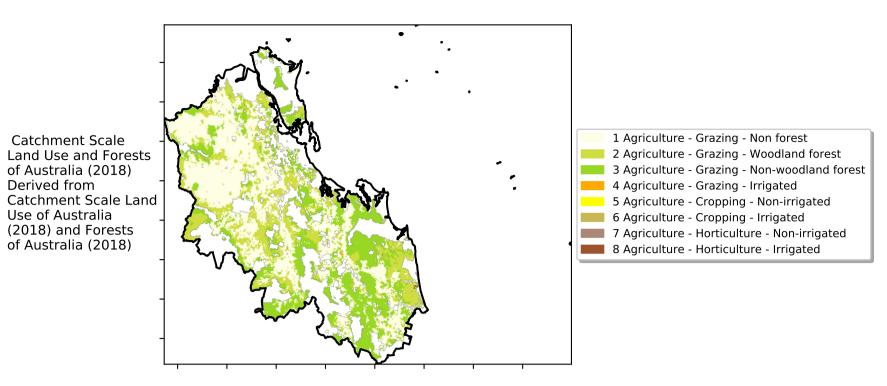




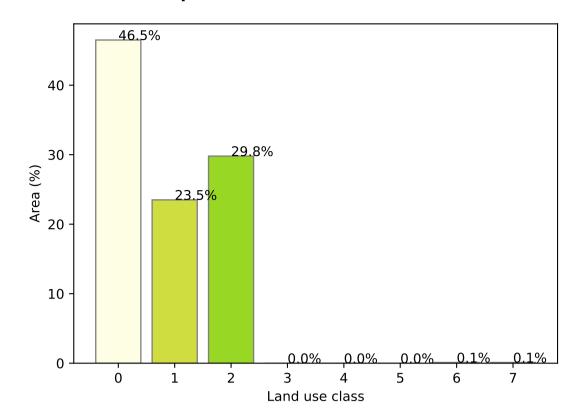


# **Agriculture**

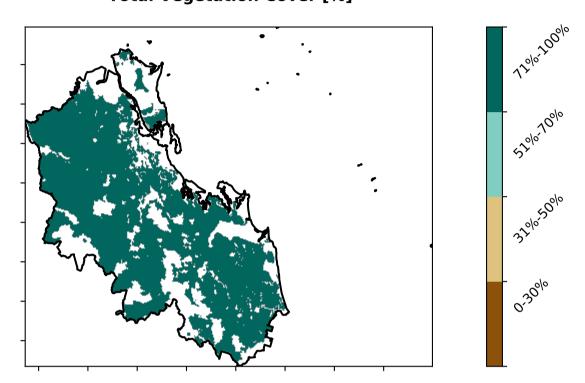
### **Land use and forest cover**



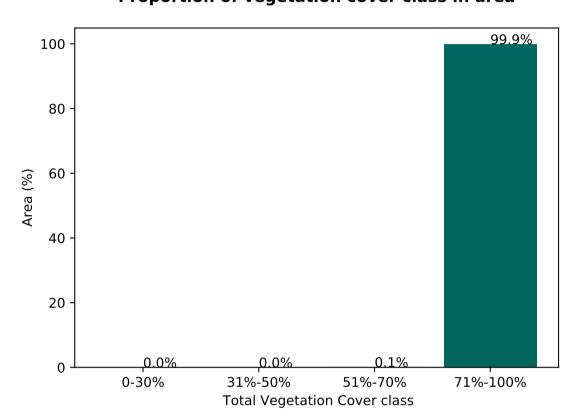
### **Proportion of each land class in area**



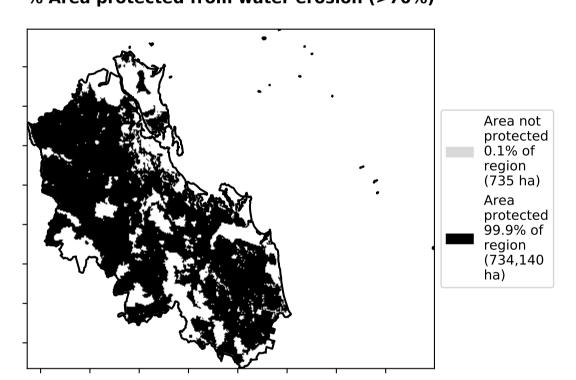
# **Total Vegetation Cover [%]**



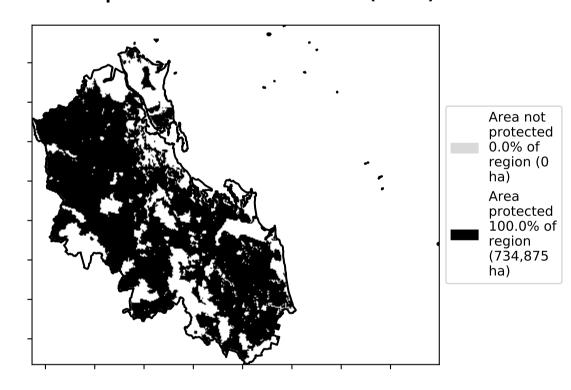
Proportion of vegetation cover class in area



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



% Area protected from wind erosion (>50%)

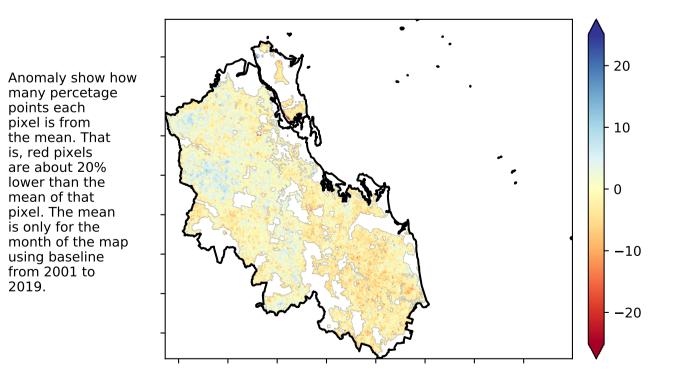


# **Total Vegetation Cover Anomaly [%]**

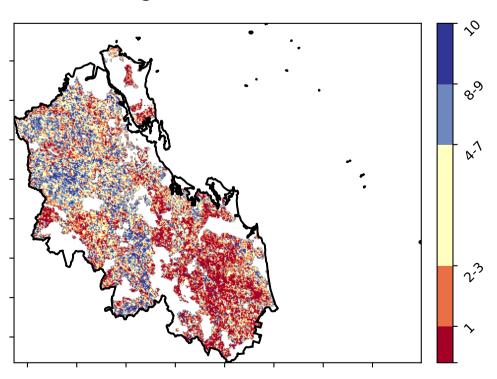
the mean. That is, red pixels are about 20% lower than the mean of that

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using baseline from 2001 to 2019.



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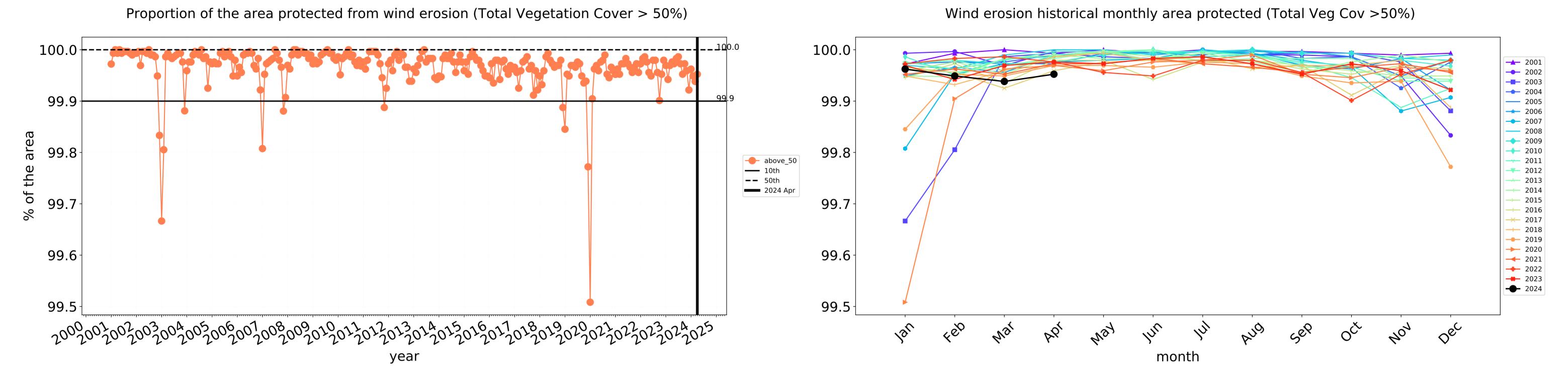


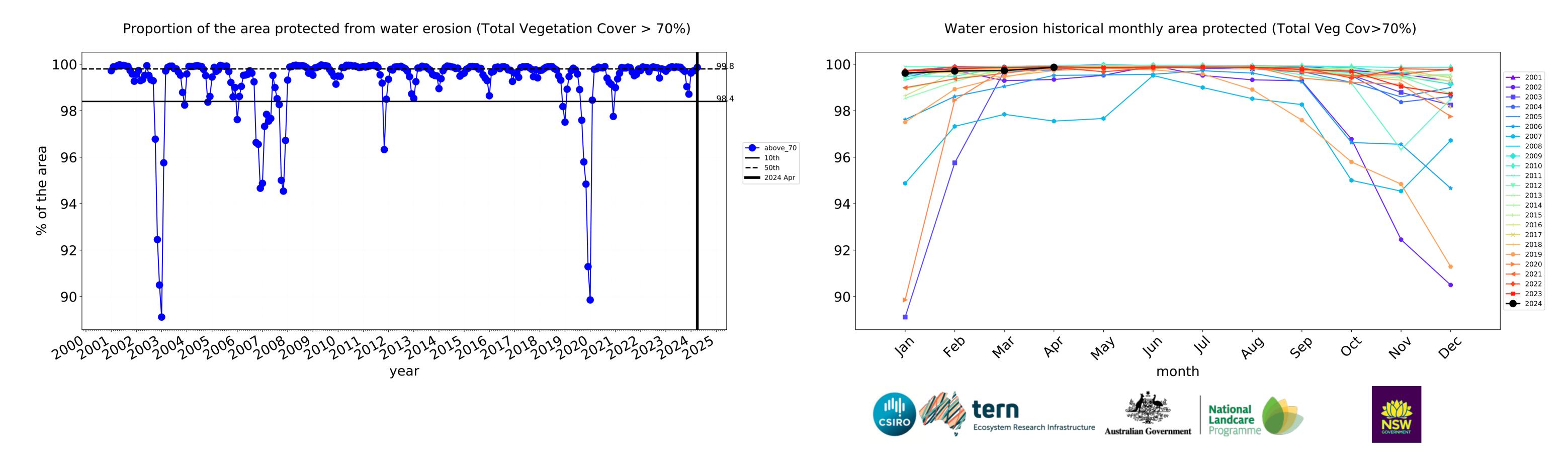


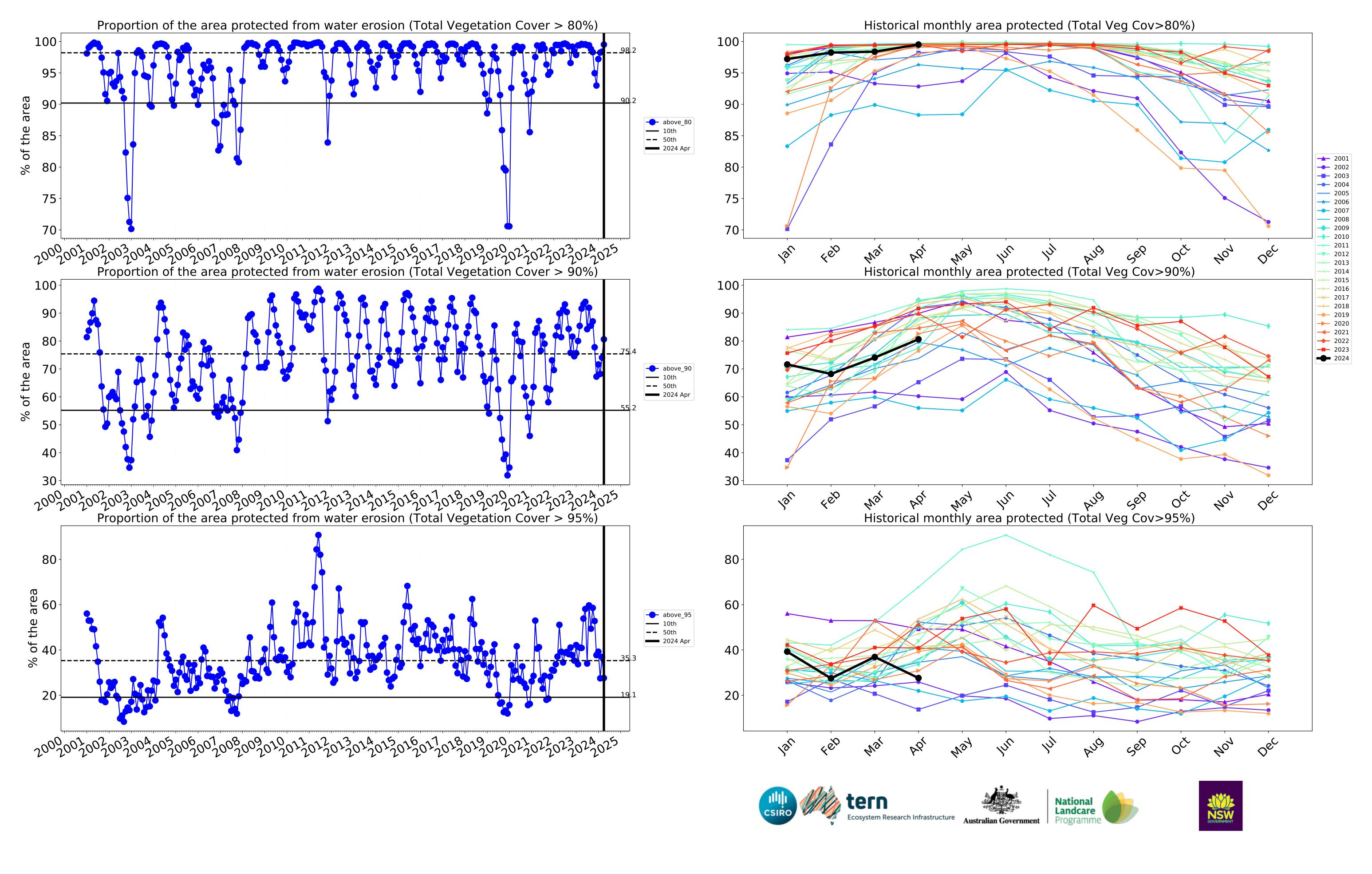




# **Agriculture timeseries**

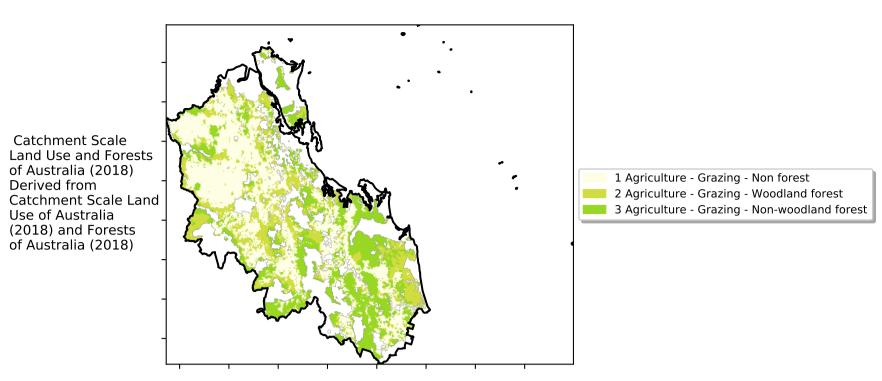




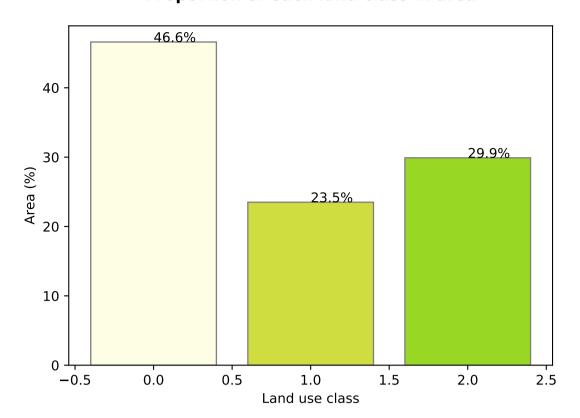


# Grazing

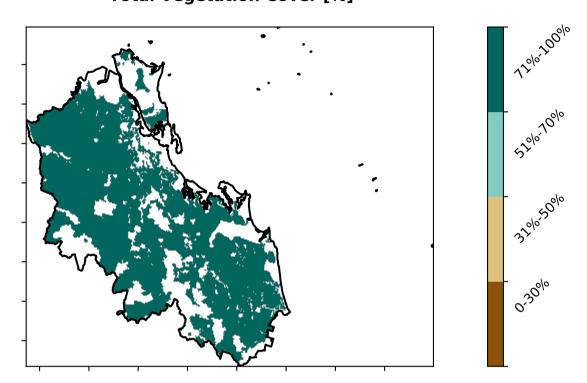
### Land use and forest cover



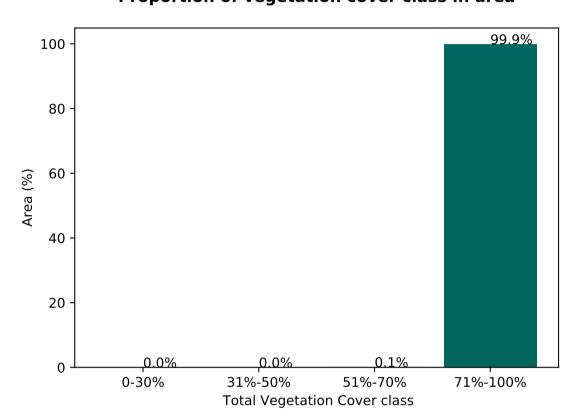
### **Proportion of each land class in area**



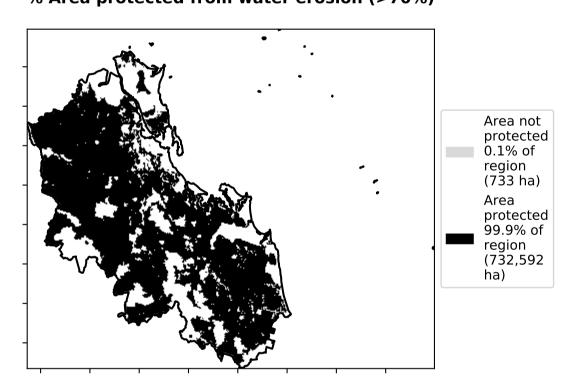
# **Total Vegetation Cover [%]**



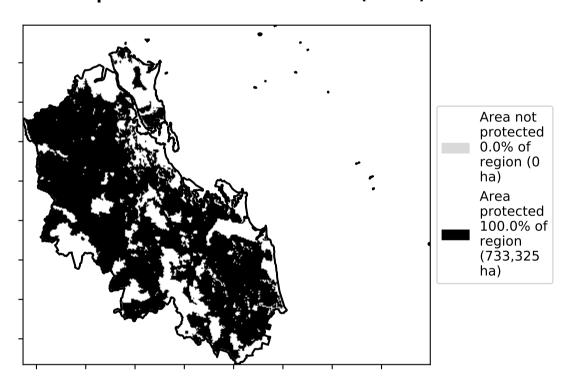
Proportion of vegetation cover class in area



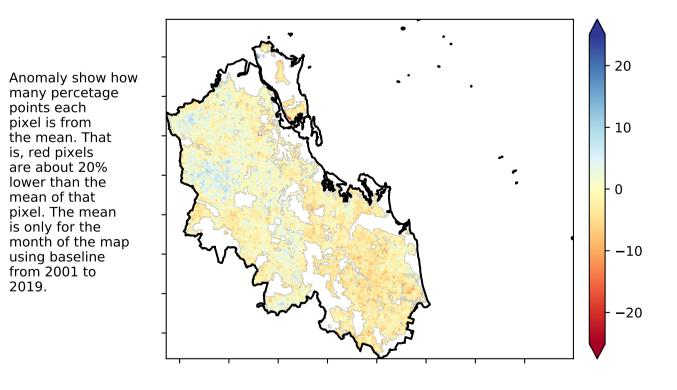
# % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

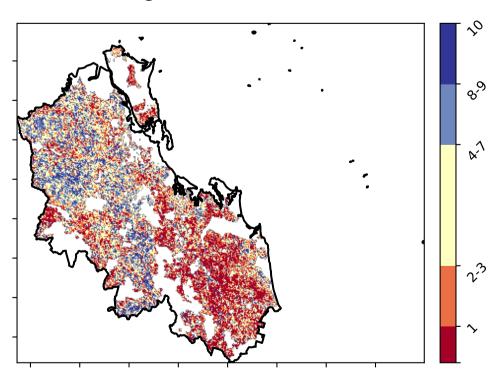


# **Total Vegetation Cover Anomaly [%]**



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.

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





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pixel. The mean



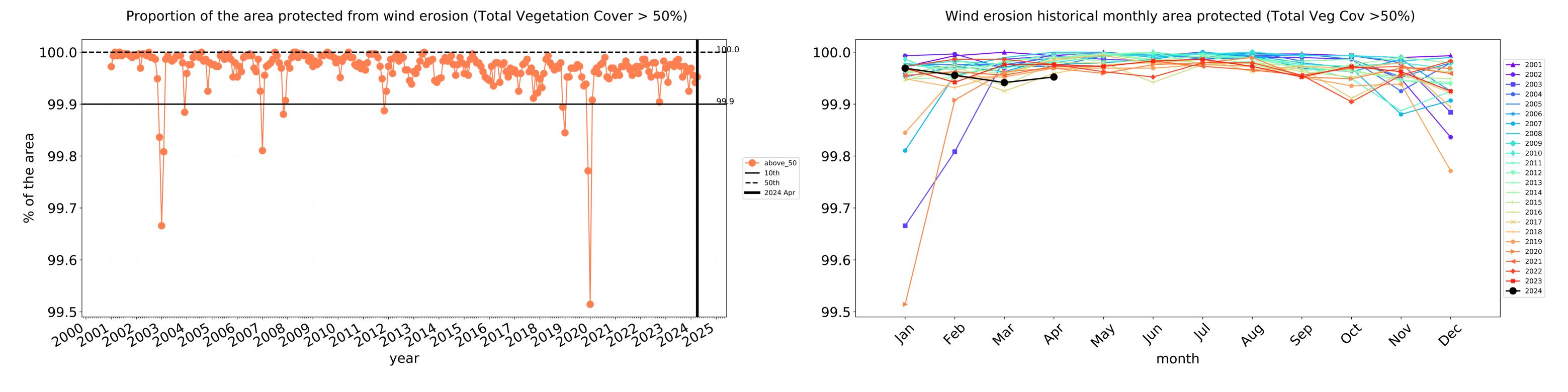


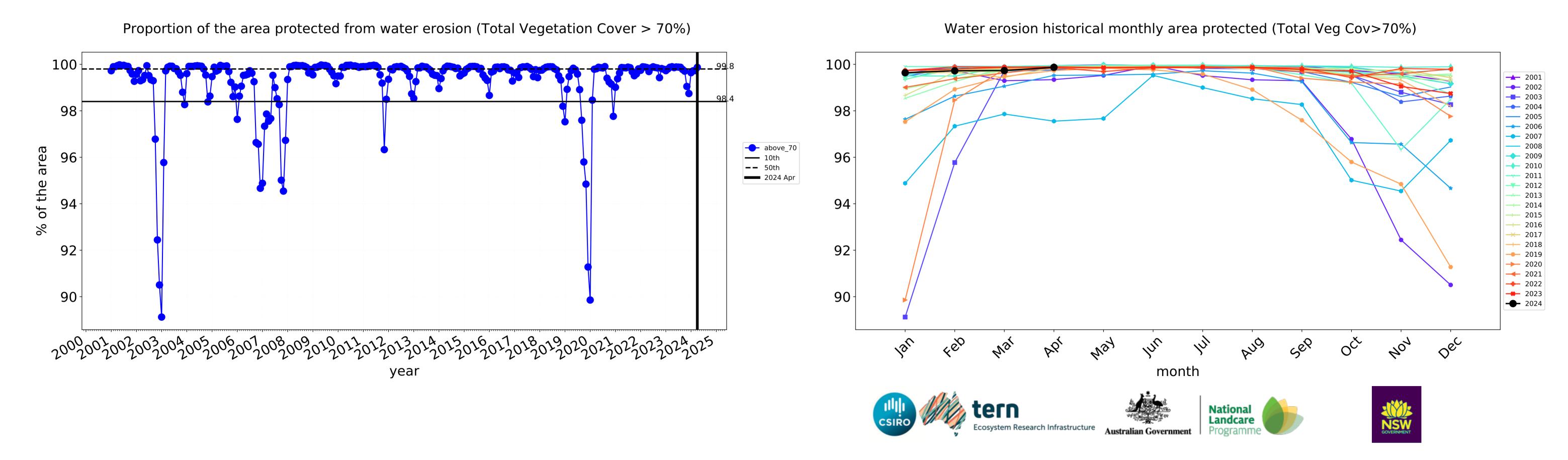


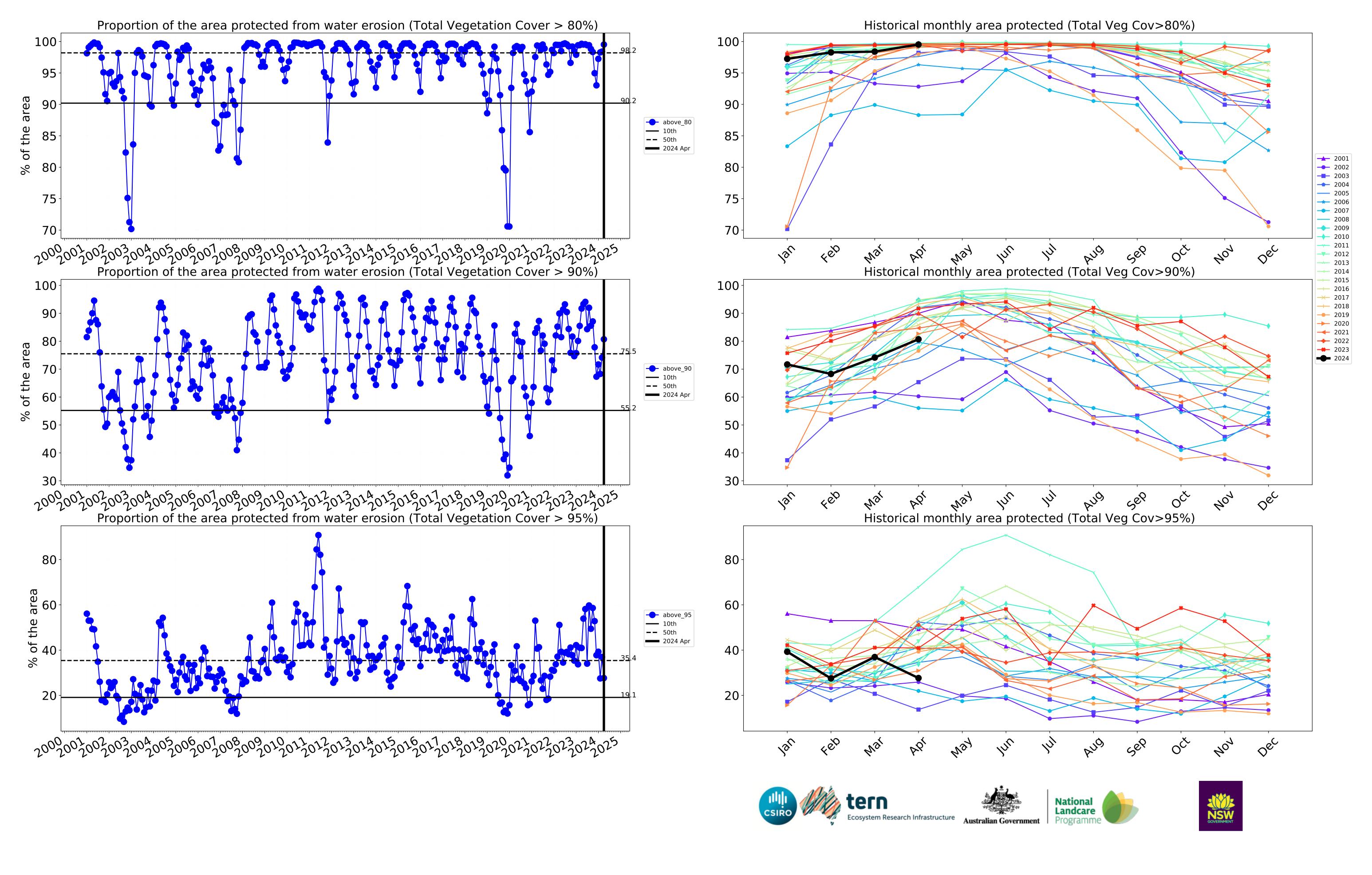




# **Grazing timeseries**

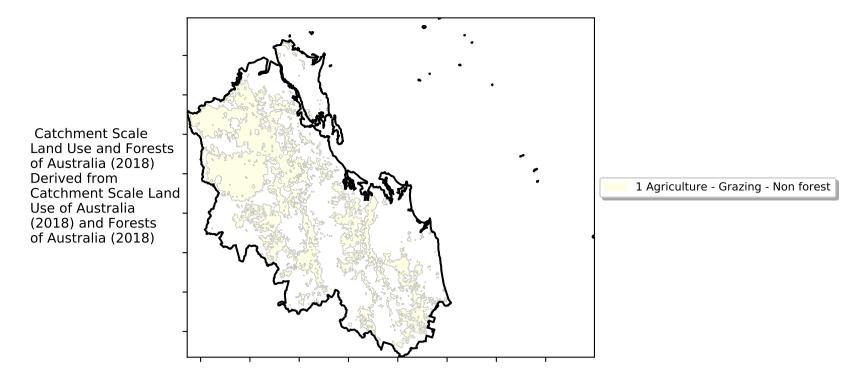




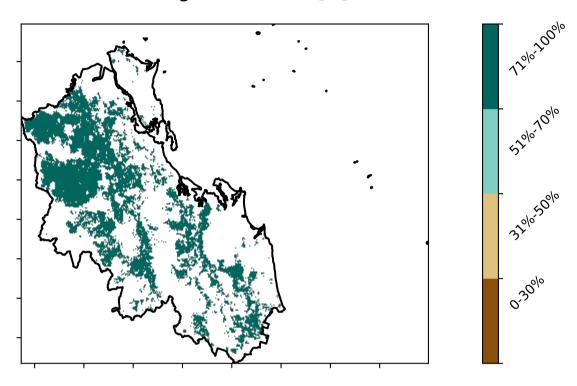


# **Grazing non forest**

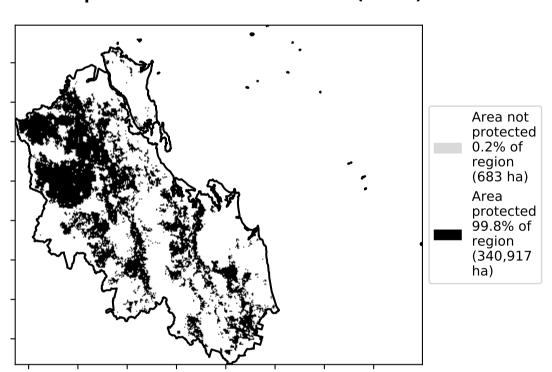
### Land use and forest cover



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

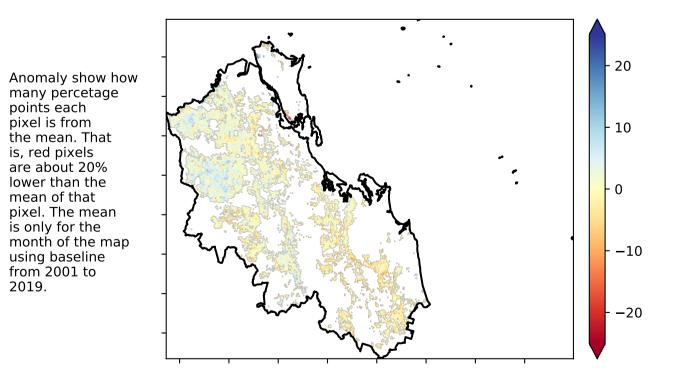


# % Area protected from water erosion (>70%)



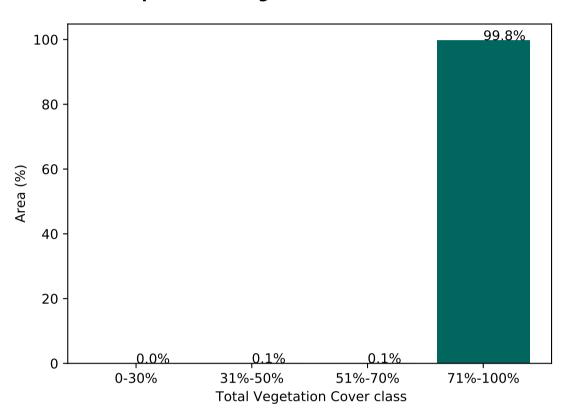
# **Total Vegetation Cover Anomaly [%]**

lower than the

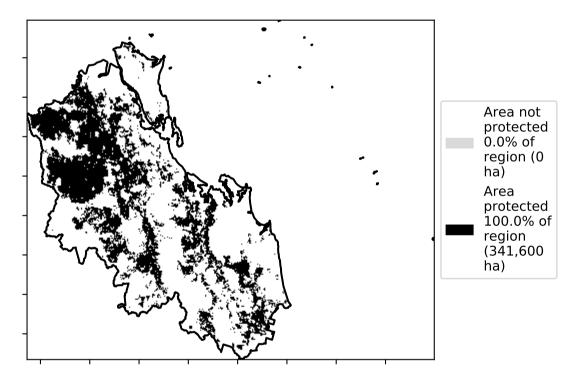


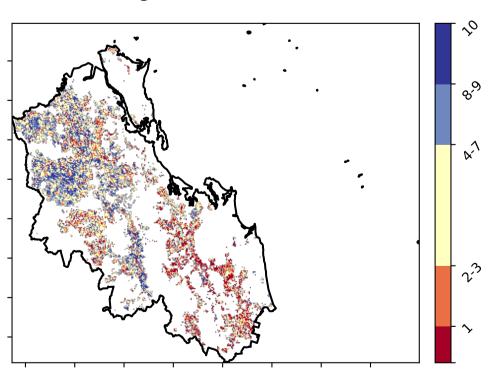
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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





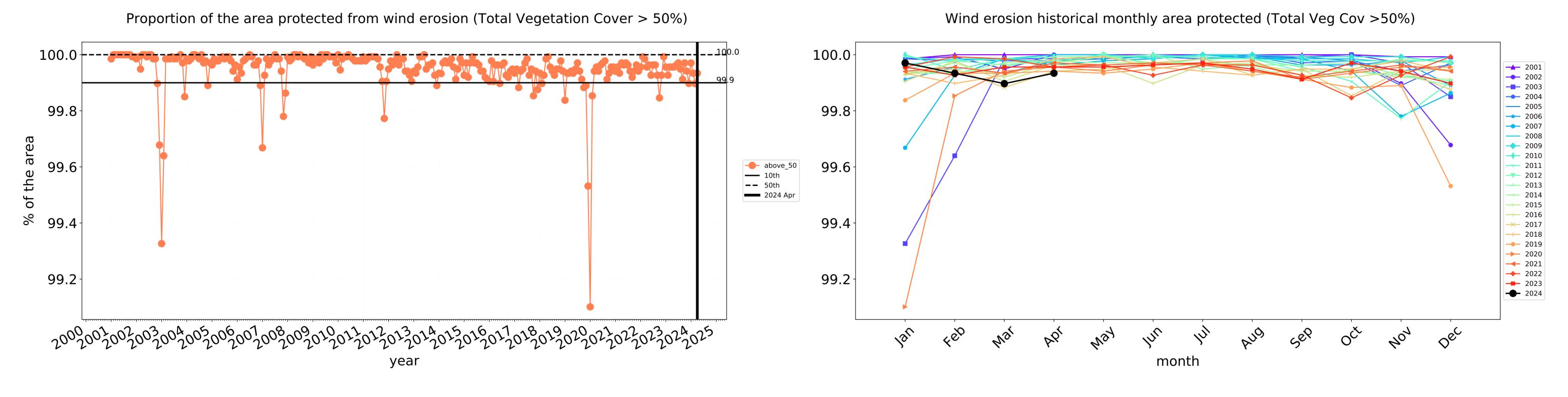


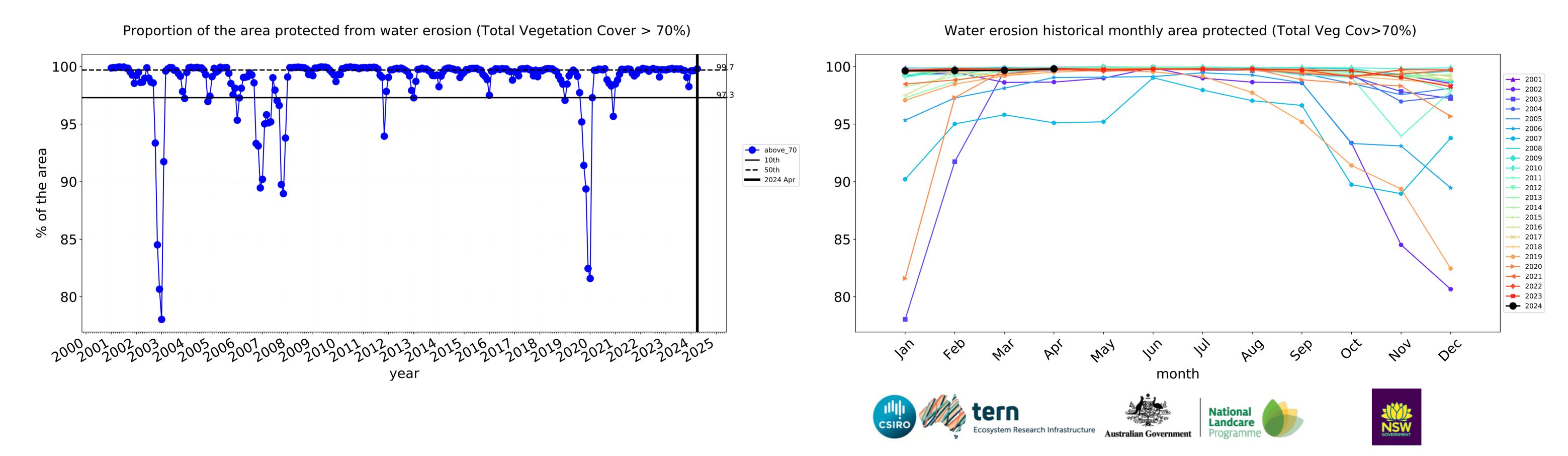


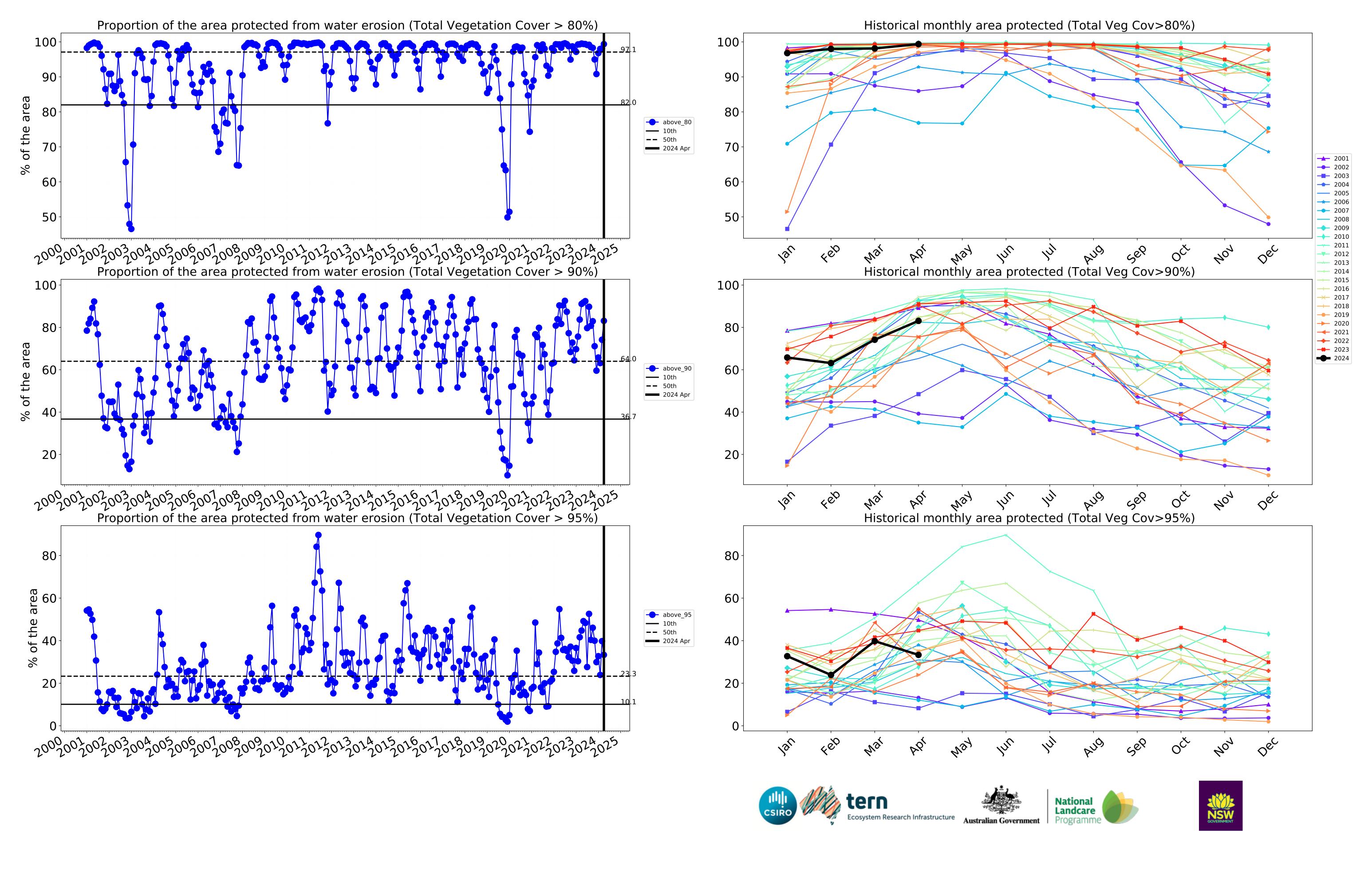




# **Grazing non forest timeseries**

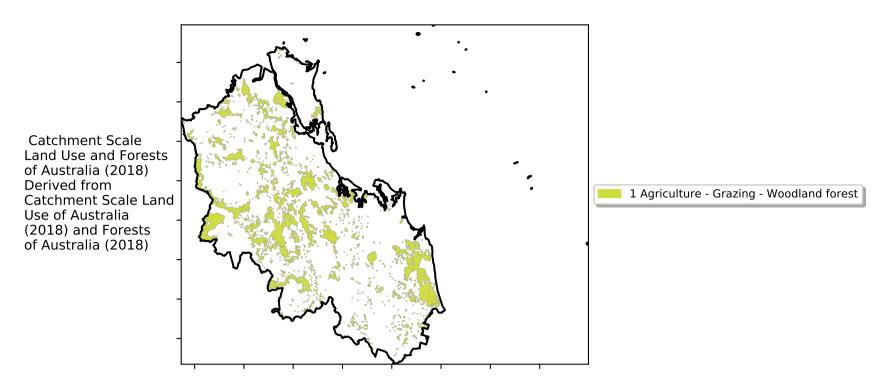




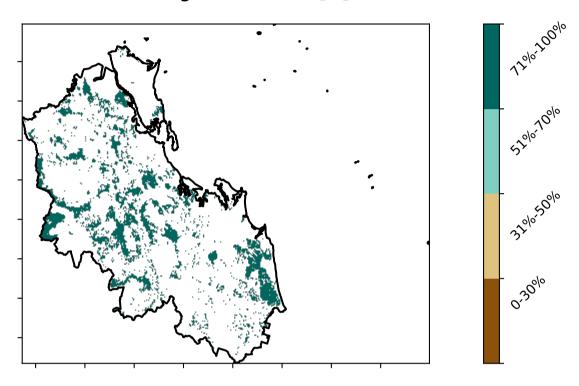


# **Grazing Woodland forest**

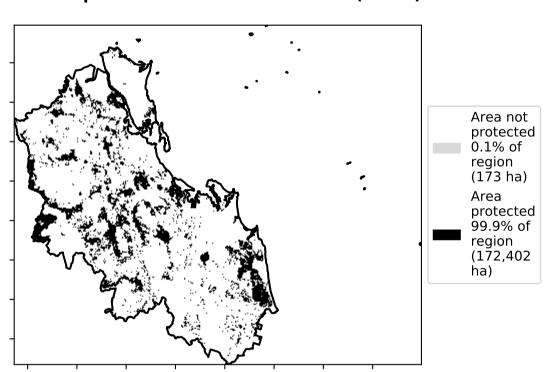
### **Land use and forest cover**



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

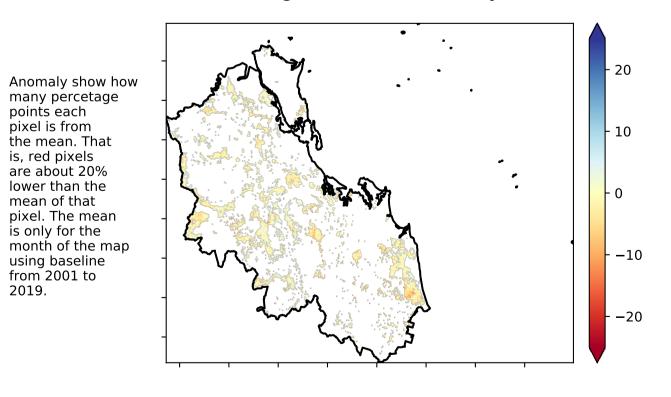


# % Area protected from water erosion (>70%)



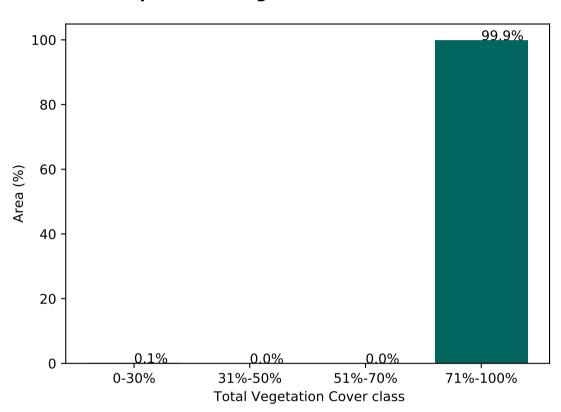
# **Total Vegetation Cover Anomaly [%]**

lower than the

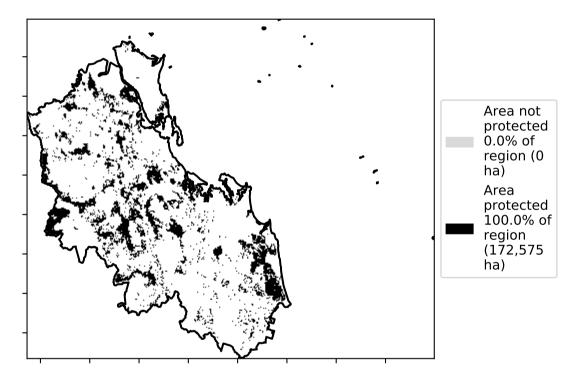


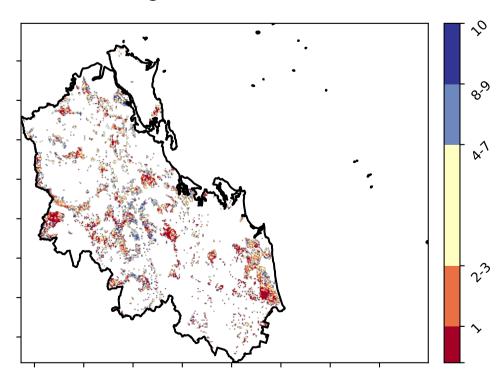
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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





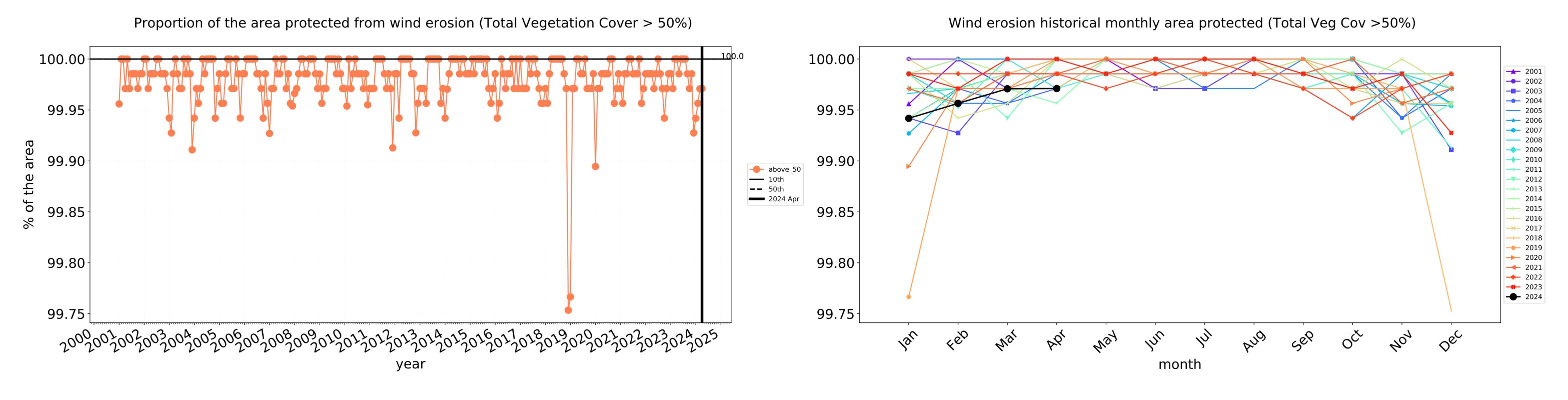


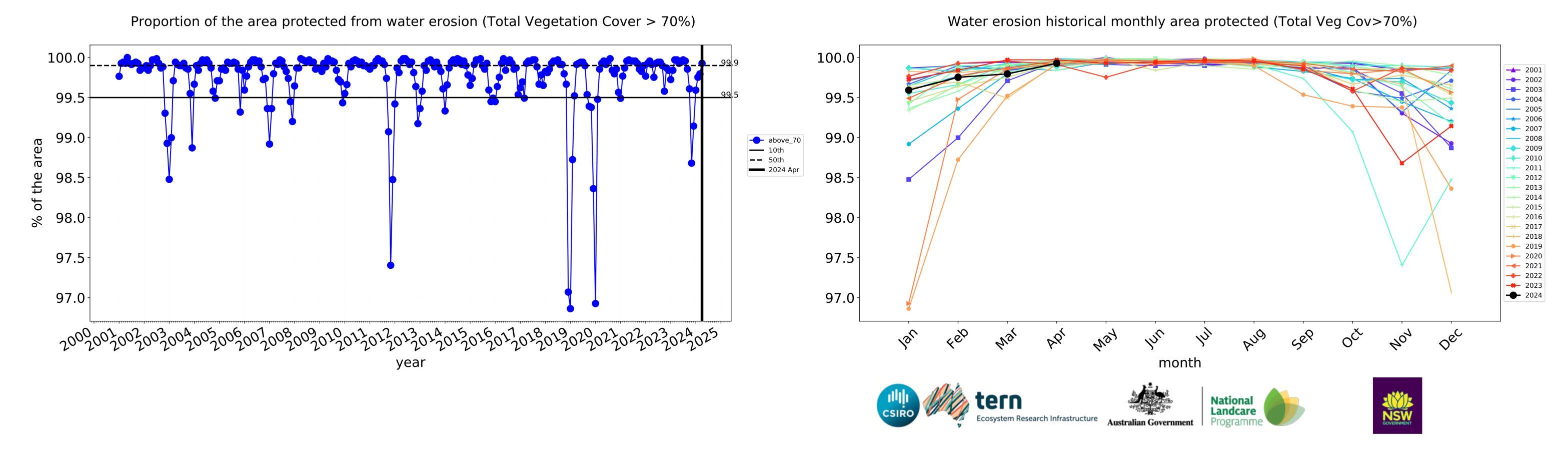


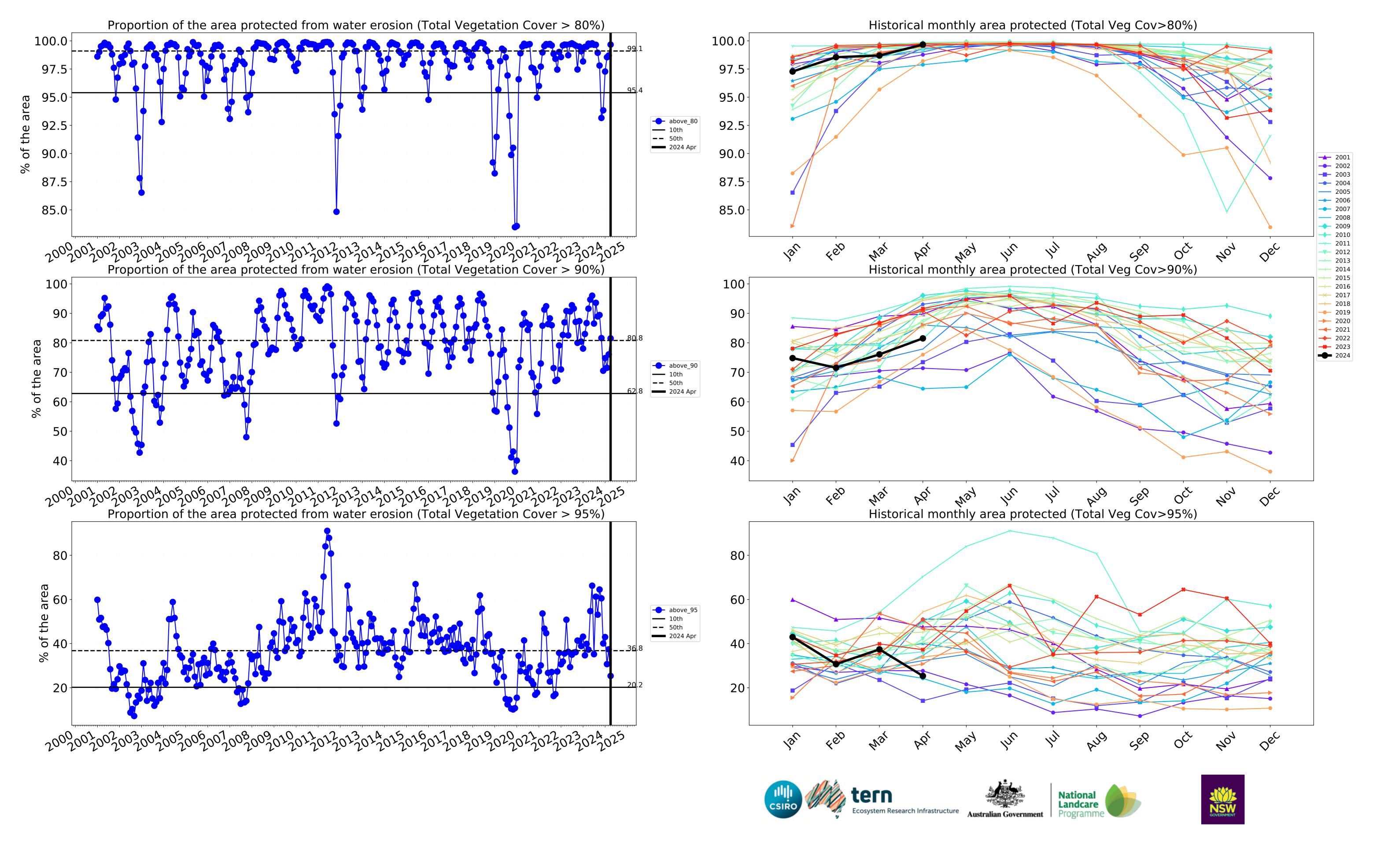




# **Grazing Woodland forest timeseries**

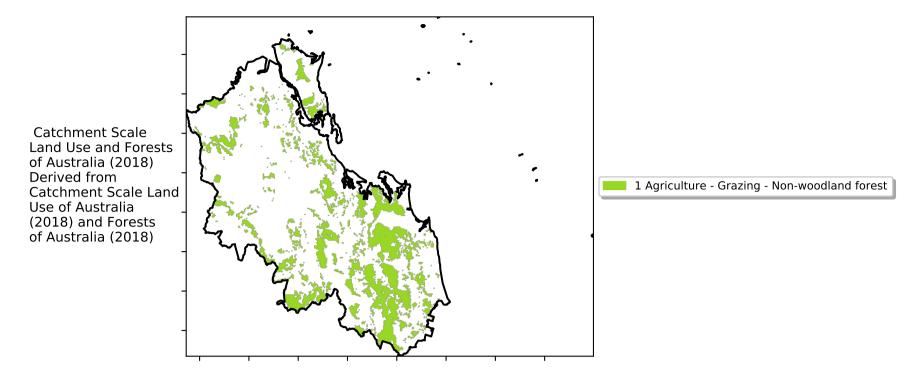




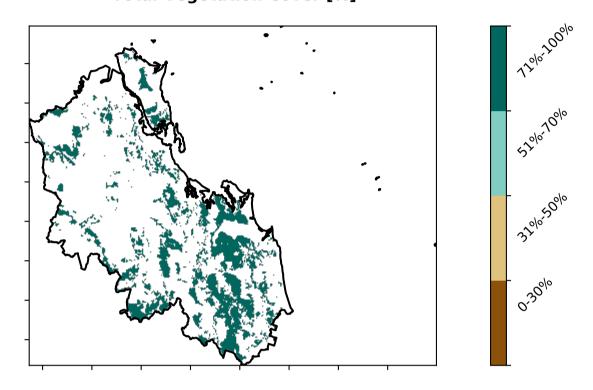


# **Grazing - Forest (non woodland)**

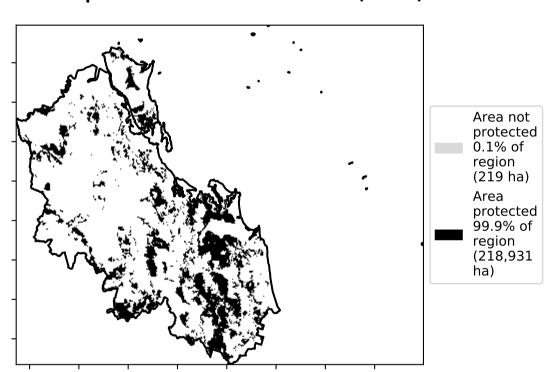
### **Land use and forest cover**



# **Total Vegetation Cover [%]**



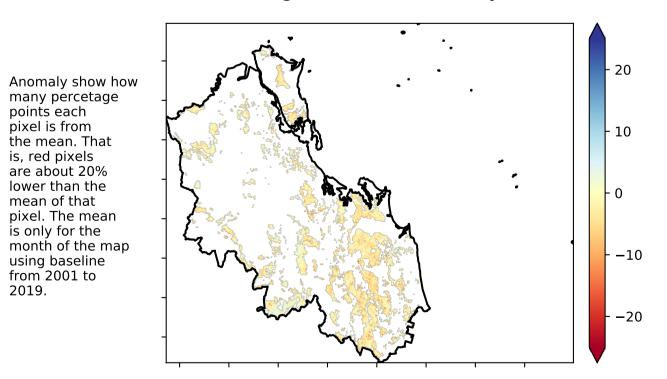
# % Area protected from water erosion (>70%)



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

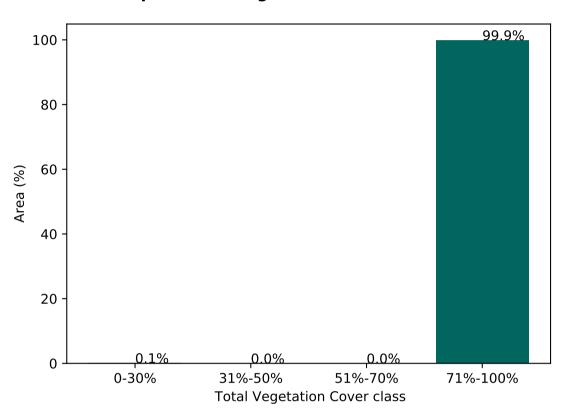
lower than the

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

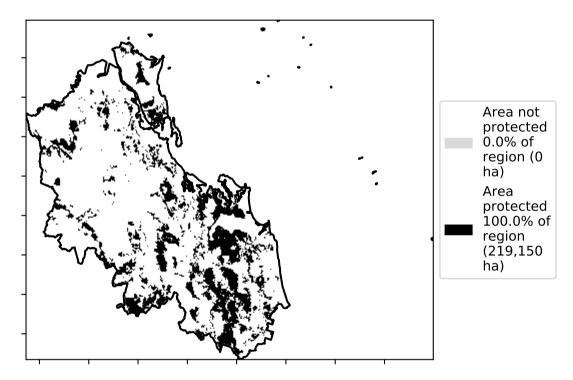


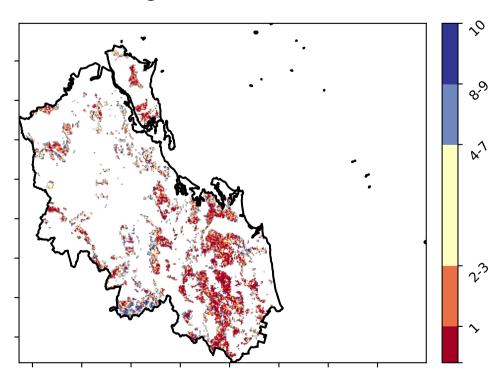
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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



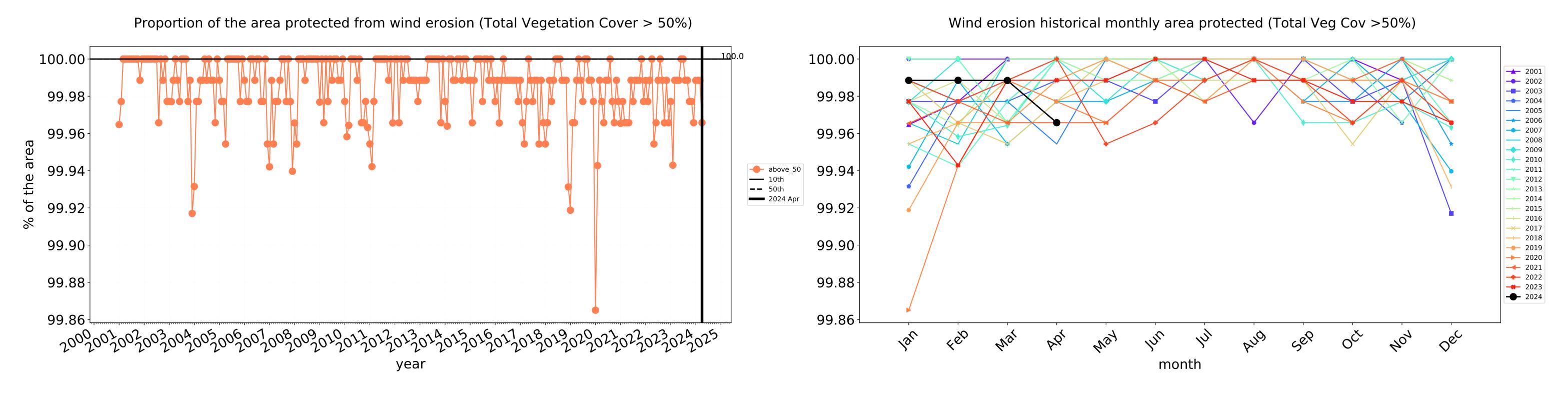


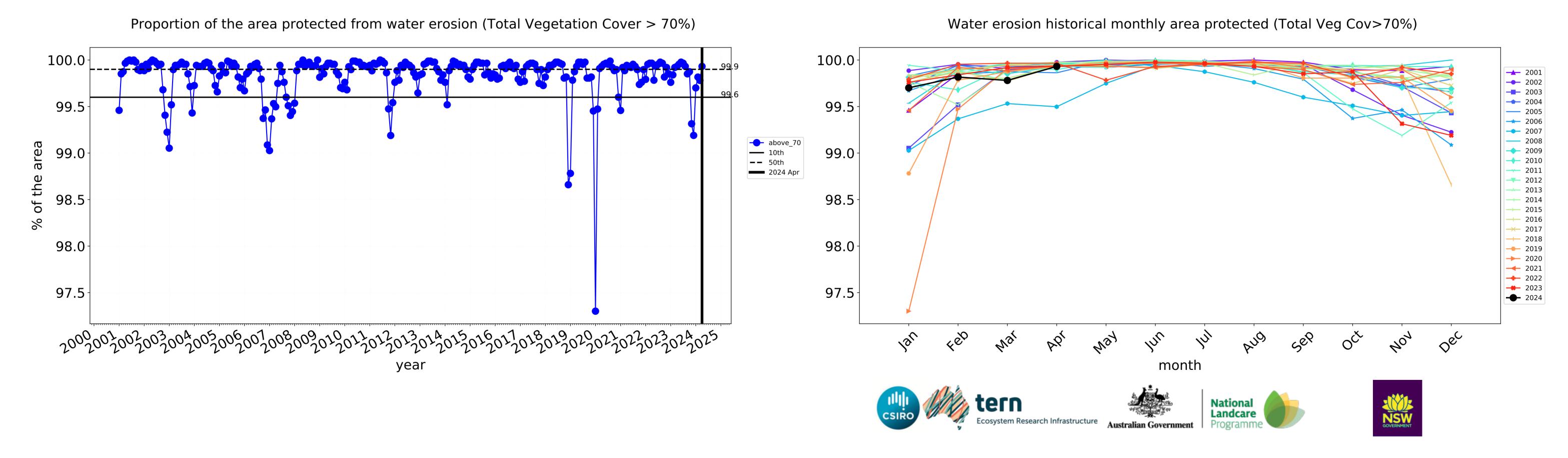


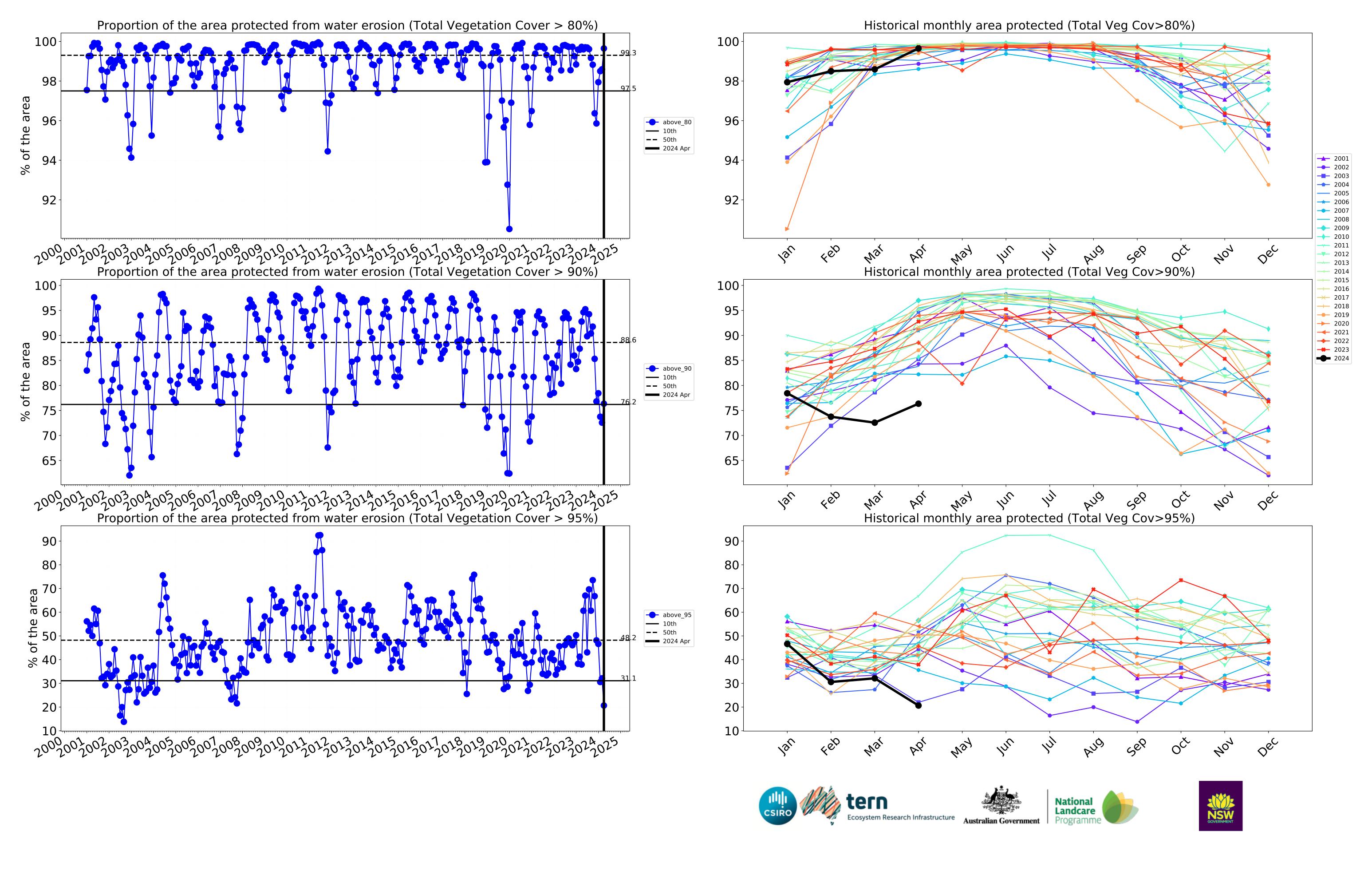






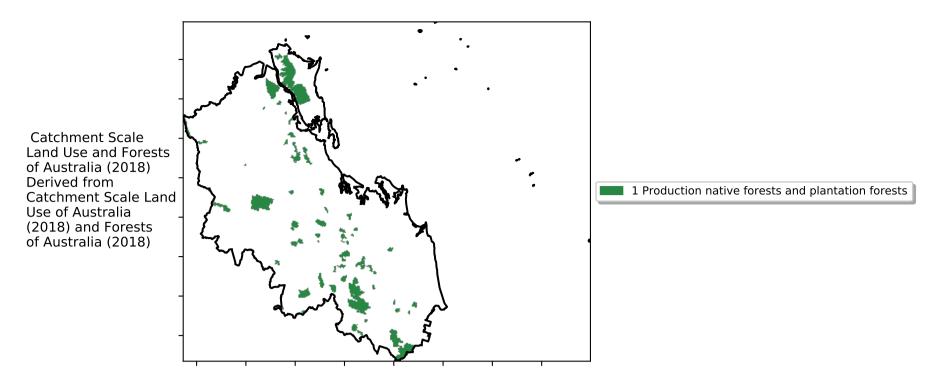




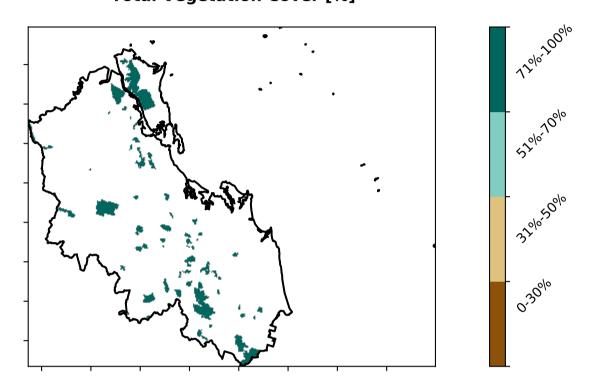


# **Production native forests and plantation forests**

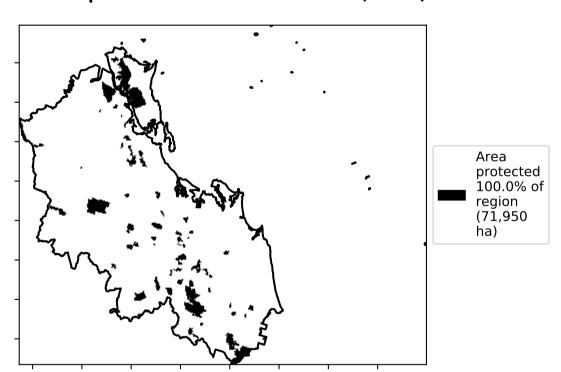
### **Land use and forest cover**



# **Total Vegetation Cover [%]**



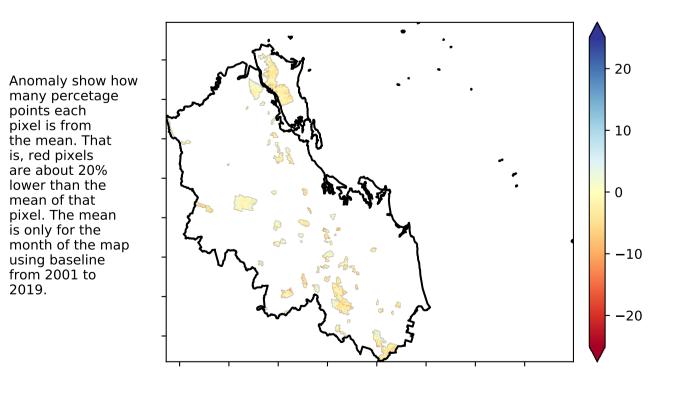
# % Area protected from water erosion (>70%)



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

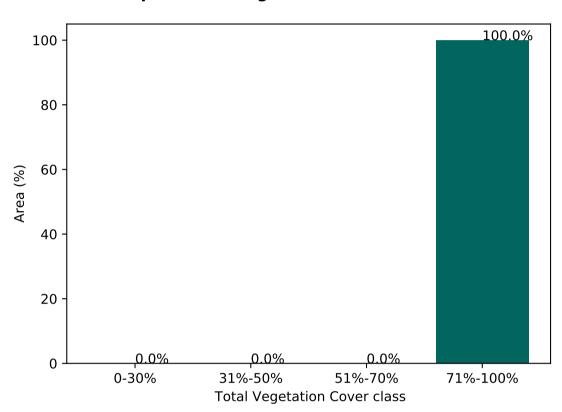
are about 20% lower than the mean of that

pixel. The mean

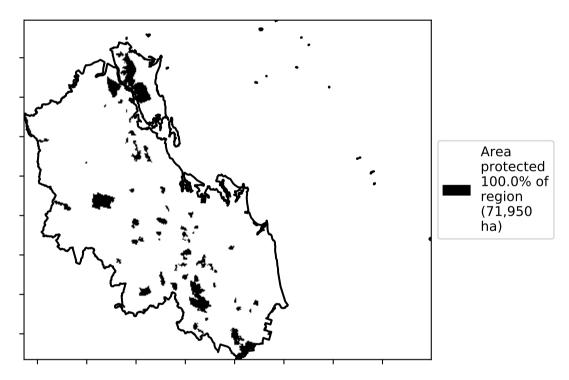


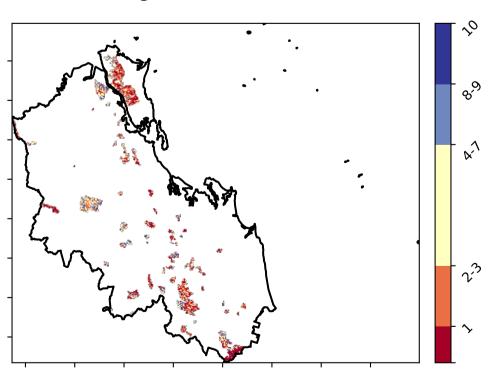
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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





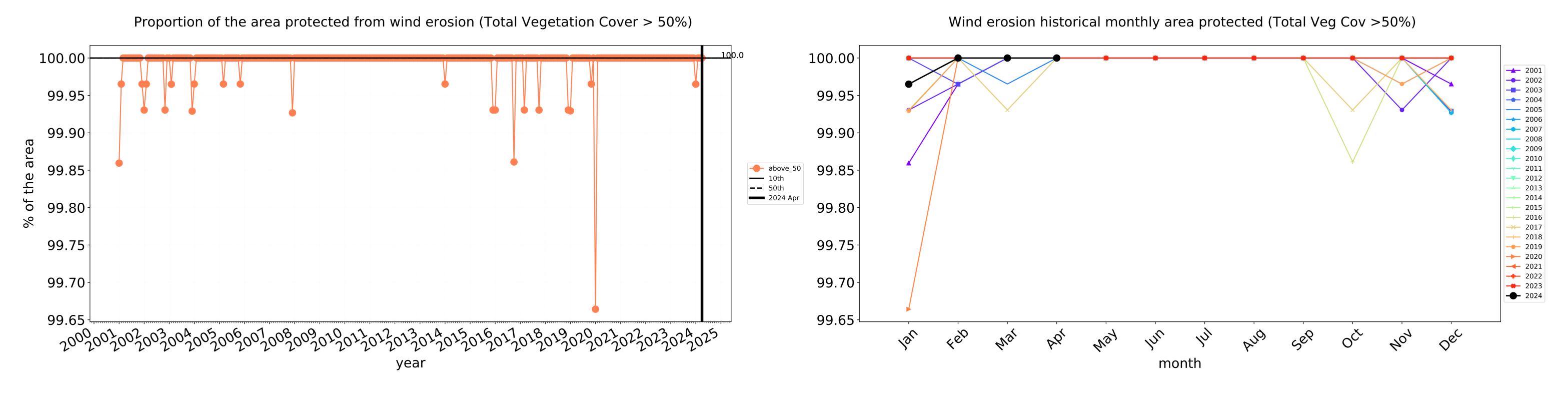


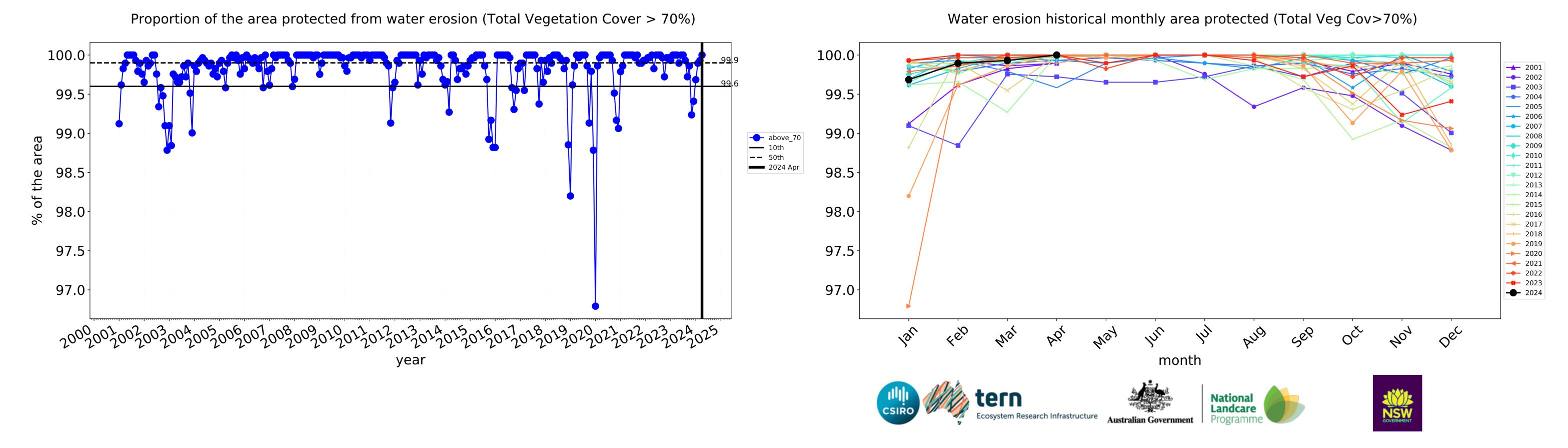


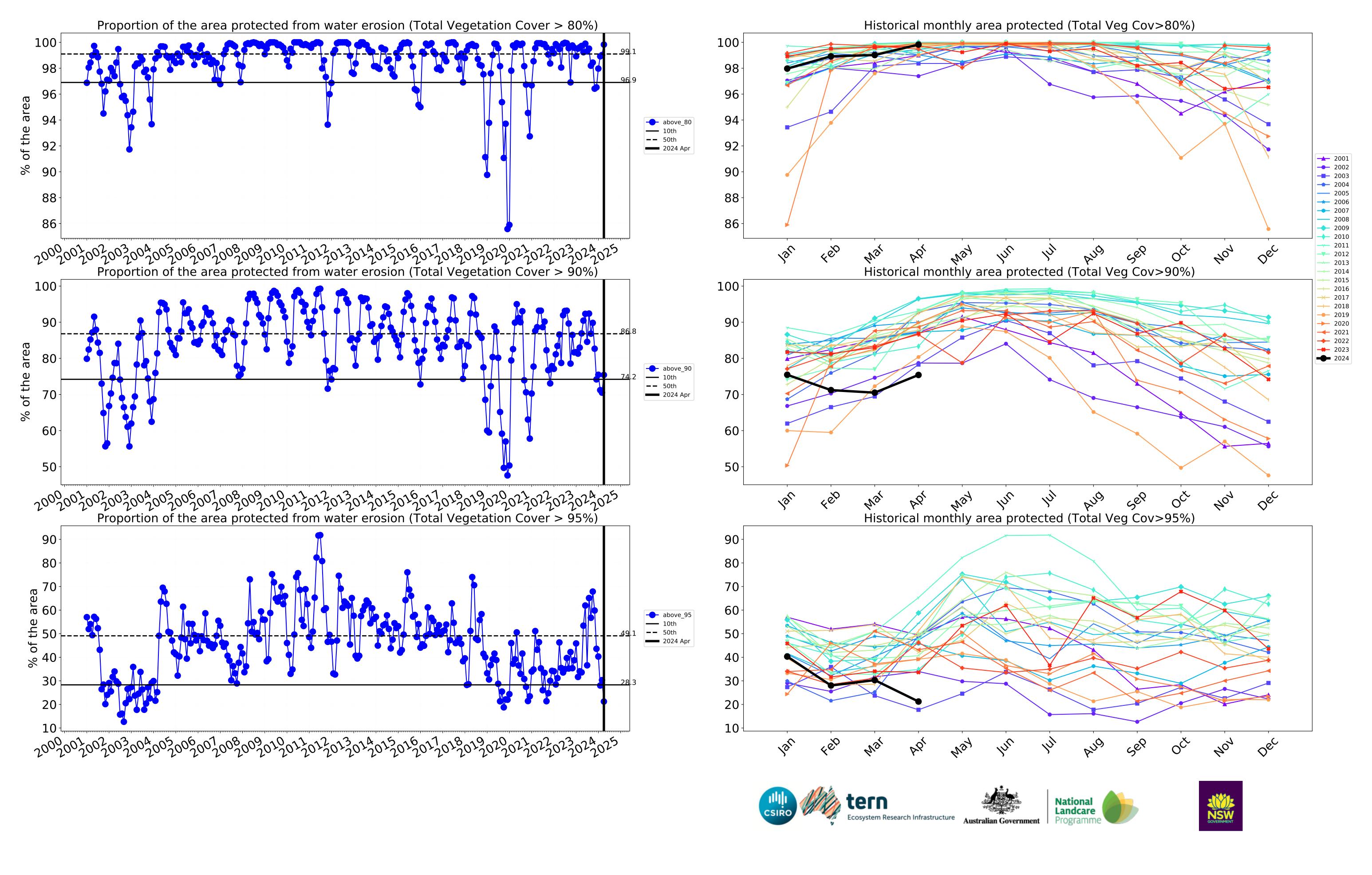




# **Production native forests and plantation forests timeseries**







# Gladstone\_(R) (1,038,100 ha and no data 10,154 ha) Percentage area and hectares protected with TVC threshold 30,50,70,80,90 and 95%

Land use and forest cover Class	area(ha)	above_30	above_50	above_70	above_80	above_90	above_95
Entire region	1,038,100	99.9% 1,037,475	99.7% 1,035,425	98.9% 1,027,150	97.4% 1,011,275	76.6% 795,475	26.2% 272,225
Conservation and natural environments	155,275	99.9% 155,100	99.7% 154,750	98.6% 153,050	96.9% 150,525	73.9% 114,725	27.8% 43,200
Conservation and natural environments Woodland forest	49,875	99.8% 49,800	99.6% 49,675	97.6% 48,675	94.9% 47,350	72.9% 36,375	26.4% 13,150
Conservation and natural environments Forest (non woodland)	100,825	100.0% 100,825	100.0% 100,825	99.7% 100,525	98.7% 99,550	75.4% 75,975	28.8% 29,075
Agriculture	734,875	100.0% 734,850	100.0% 734,525	99.9% 733,900	99.5% 731,275	80.6% 592,550	27.6% 202,950
Grazing	733,325	100.0% 733,300	100.0% 732,975	99.9% 732,375	99.5% 729,825	80.7% 591,850	27.7% 202,825
Grazing non forest	341,600	100.0% 341,575	99.9% 341,375	99.8% 340,925	99.4% 339,450	83.1% 283,850	33.3% 113,825
Grazing Woodland forest	172,575	100.0% 172,575	100.0% 172,525	99.9% 172,450	99.7% 172,000	81.5% 140,675	25.4% 43,750
Grazing - Forest (non woodland)	219,150	100.0% 219,150	100.0% 219,075	99.9% 219,000	99.6% 218,375	76.4% 167,325	20.6% 45,250
Production native forests and plantation forests	71,950	100.0% 71,950	100.0% 71,950	100.0% 71,950	99.8% 71,825	75.4% 54,250	21.2% 15,275







