### Total vegetation cover soil protection Region:LGA Byron\_(A) NSW

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: February 2025** 

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 Feb 2025**

### Land use and forest cover

### Legend with land class forest cover and number, i.e. Forests is 12 1 Conservation and natural environments - Non-forest 2 Conservation and natural environments - Woodland forest 3 Conservation and natural environments - Non-Woodland forest 4 Agriculture - Grazing - Non-forest 5 Agriculture - Grazing - Woodland forest 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 13 Other uses

Catchment Scale

Derived from

Use of Australia

(2018) and Forests

of Australia (2018)

Anomaly show how many percetage points each

pixel is from

is, red pixels are about 20%

the mean. That

lower than the mean of that

pixel. The mean is only for the

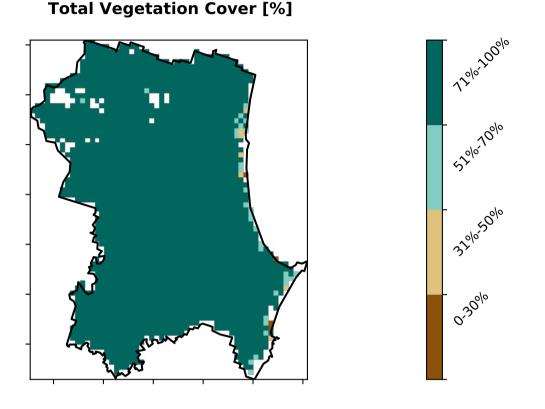
using baseline from 2001 to

2019.

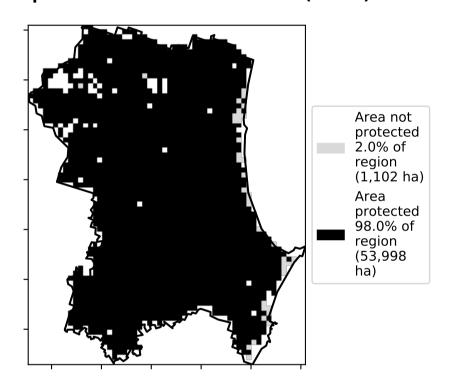
month of the map

Land Use and Forests of Australia (2018)

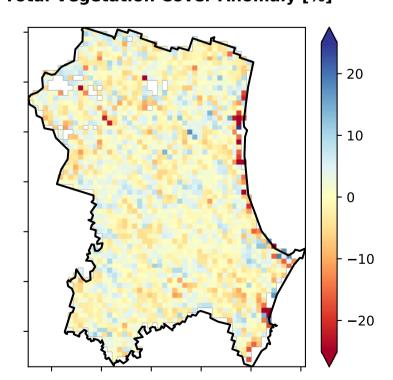
Catchment Scale Land



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

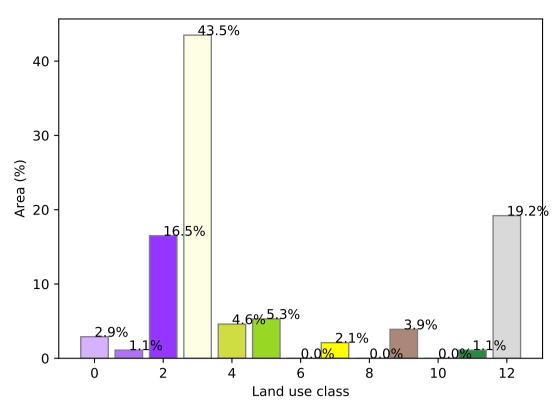


### **Total Vegetation Cover Anomaly [%]**

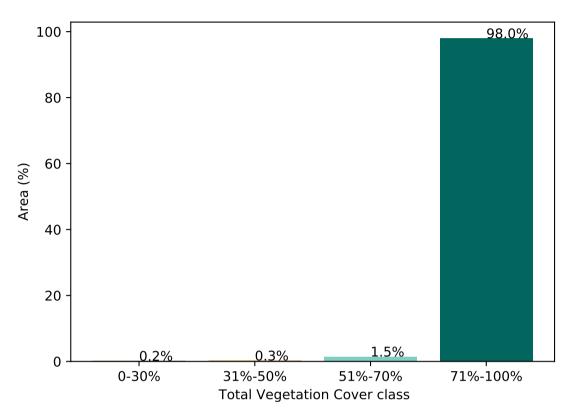


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

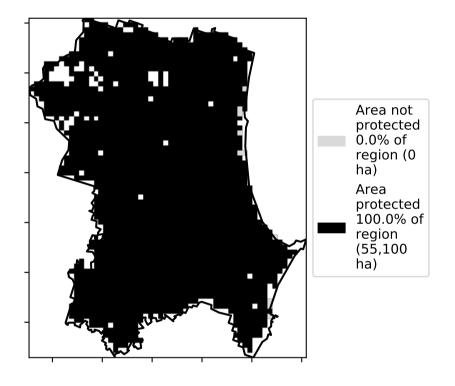
### Proportion of each land class in area

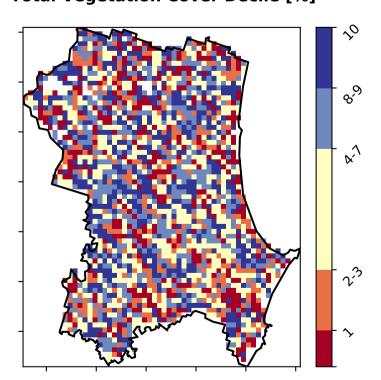


### Proportion of vegetation cover class in area



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



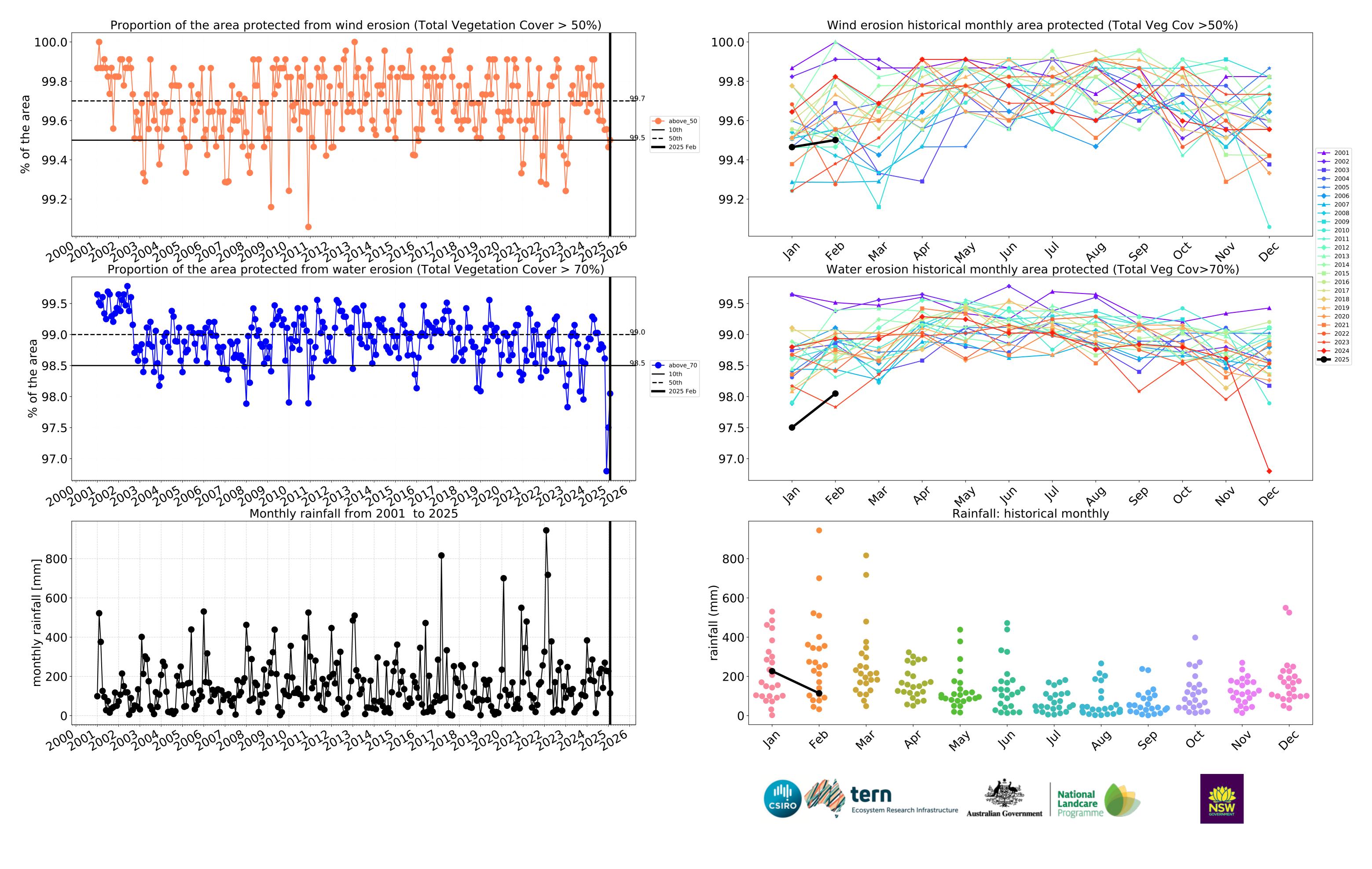


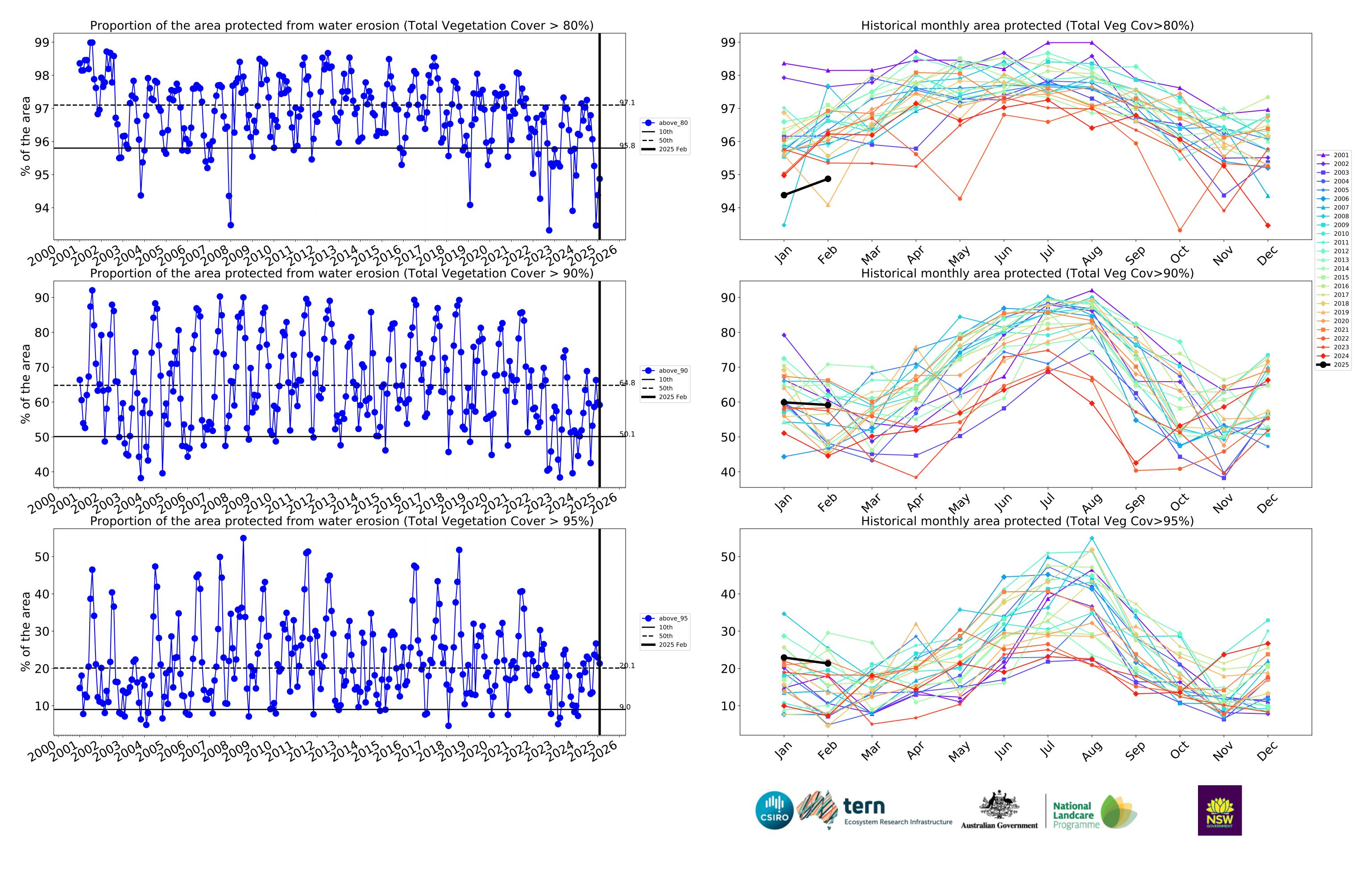












### **Conservation and natural environments**

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

Use of Australia

(2018) and Forests of Australia (2018)

Anomaly show how many percetage points each

pixel is from

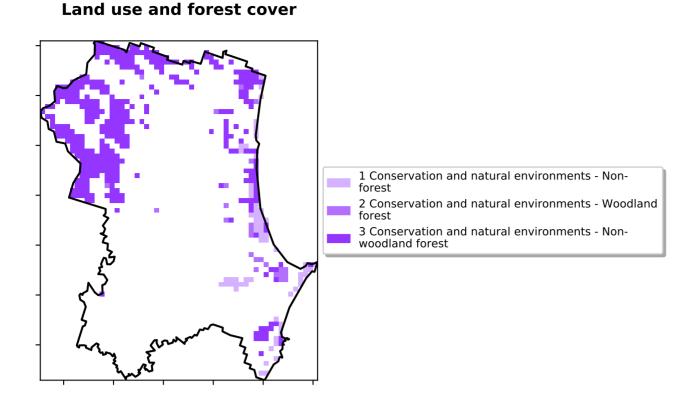
the mean. That is, red pixels

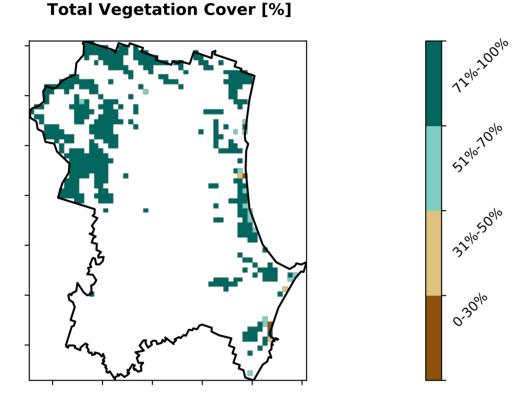
are about 20% lower than the mean of that

pixel. The mean

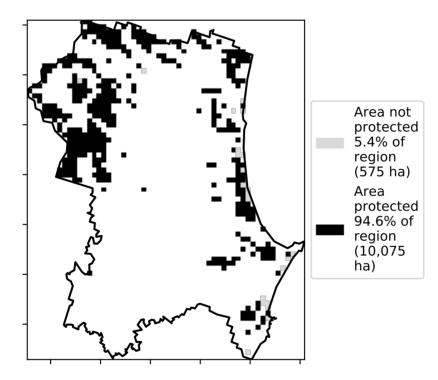
using baseline from 2001 to 2019.

is only for the month of the map

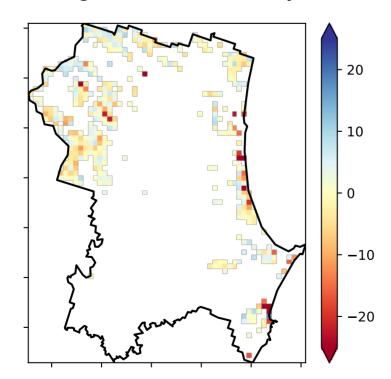




### % Area protected from water erosion (>70%)

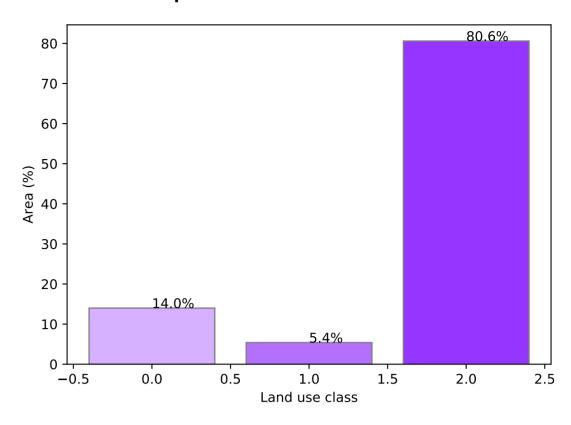


### **Total Vegetation Cover Anomaly [%]**

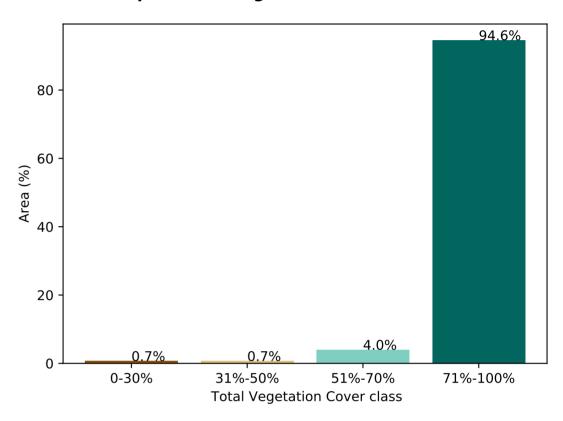


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

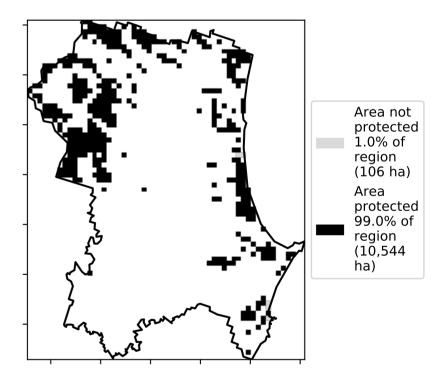
### Proportion of each land class in area

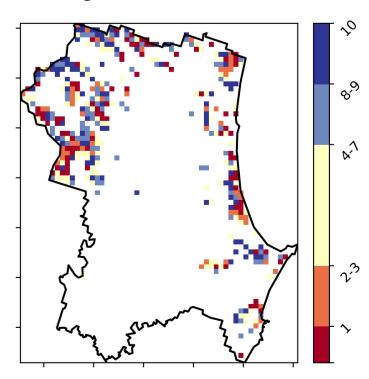


### **Proportion of vegetation cover class in area**



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





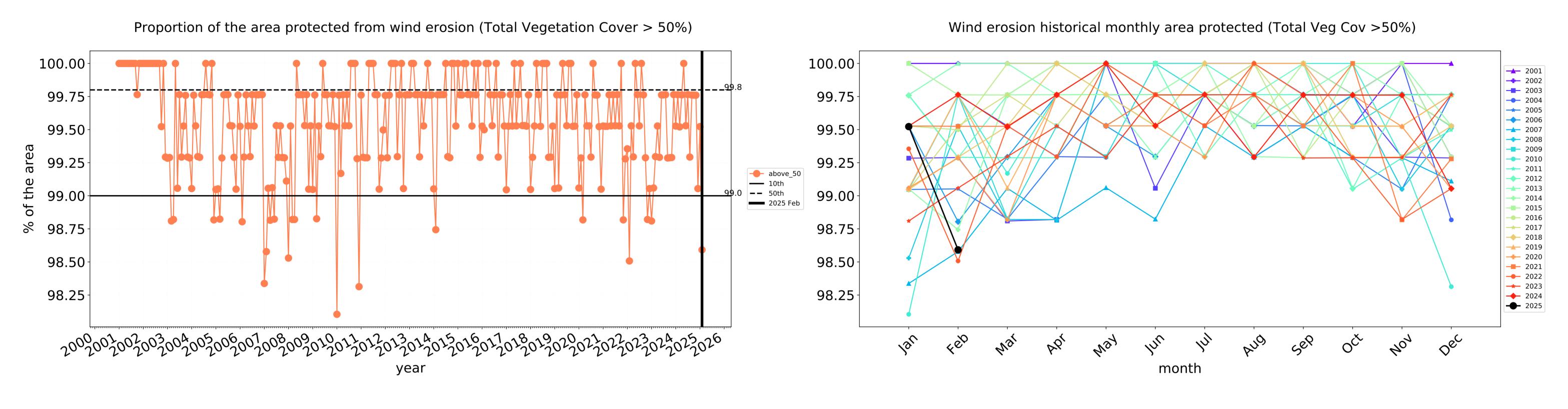


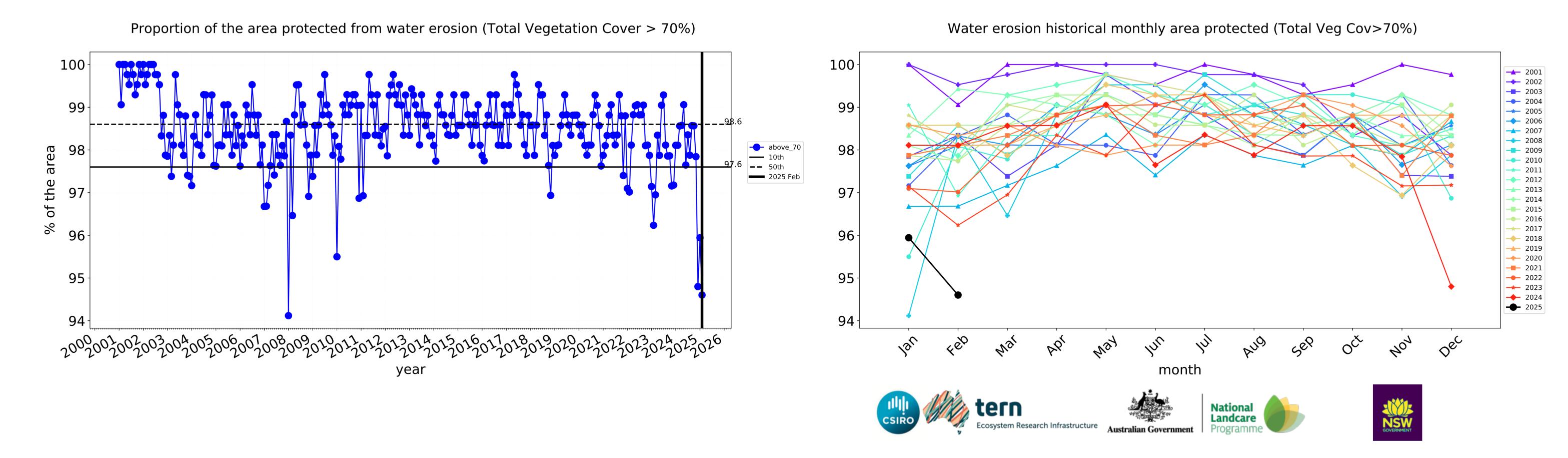


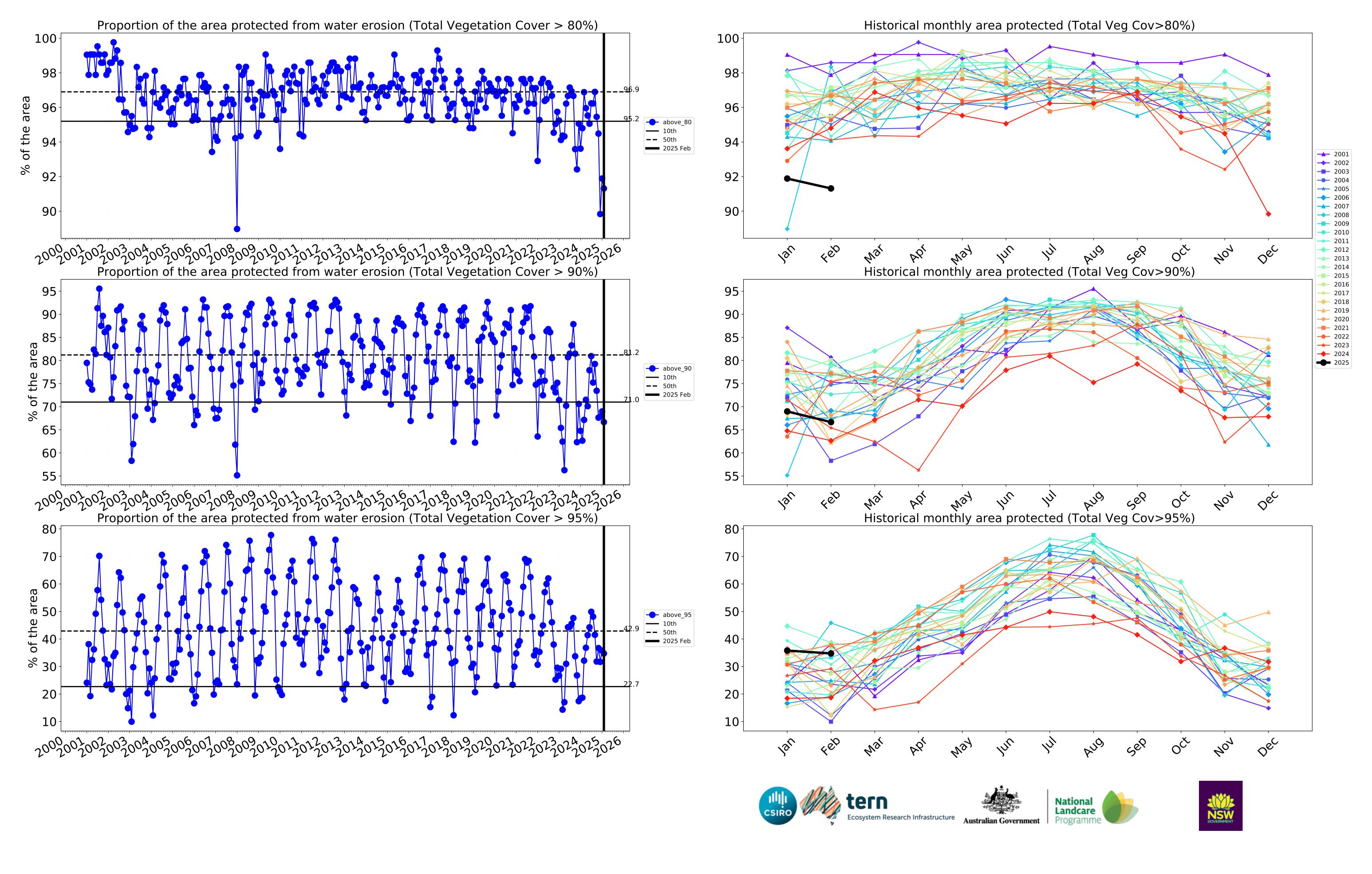




### **Conservation and natural environments timeseries**



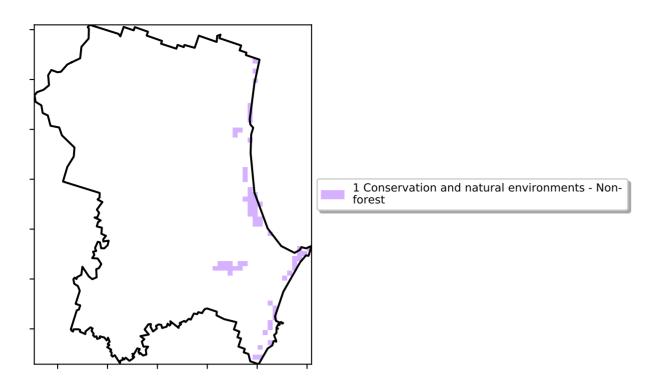




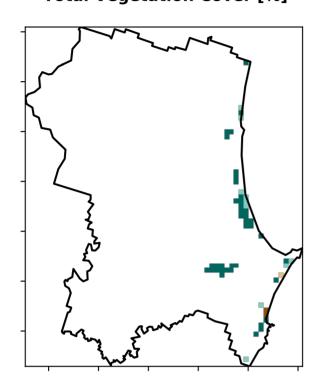
### **Conservation and natural environments non forest**

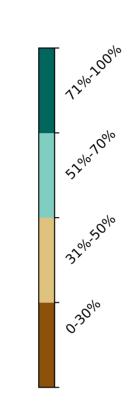
### Land use and forest cover

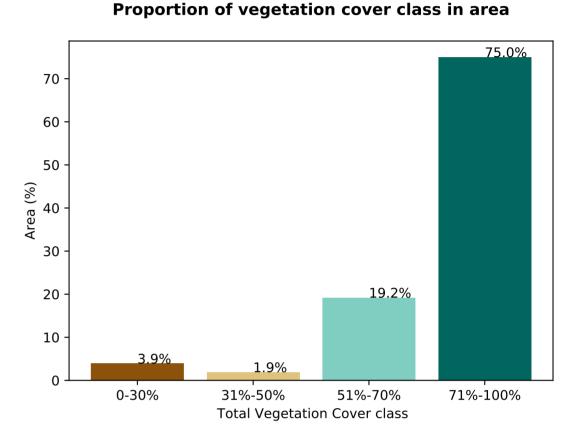
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



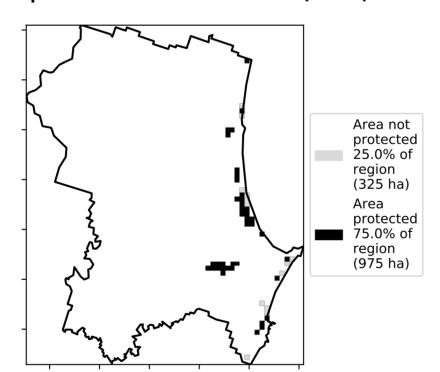
### **Total Vegetation Cover [%]**



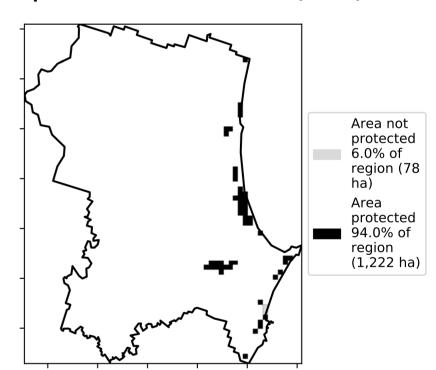




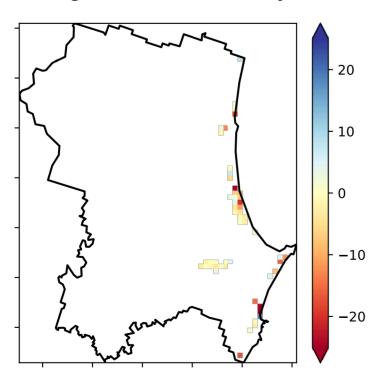
### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

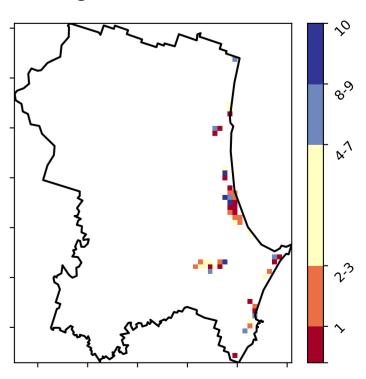


### **Total Vegetation Cover Anomaly [%]**



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

Total Vegetation Cover Decile [%]



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

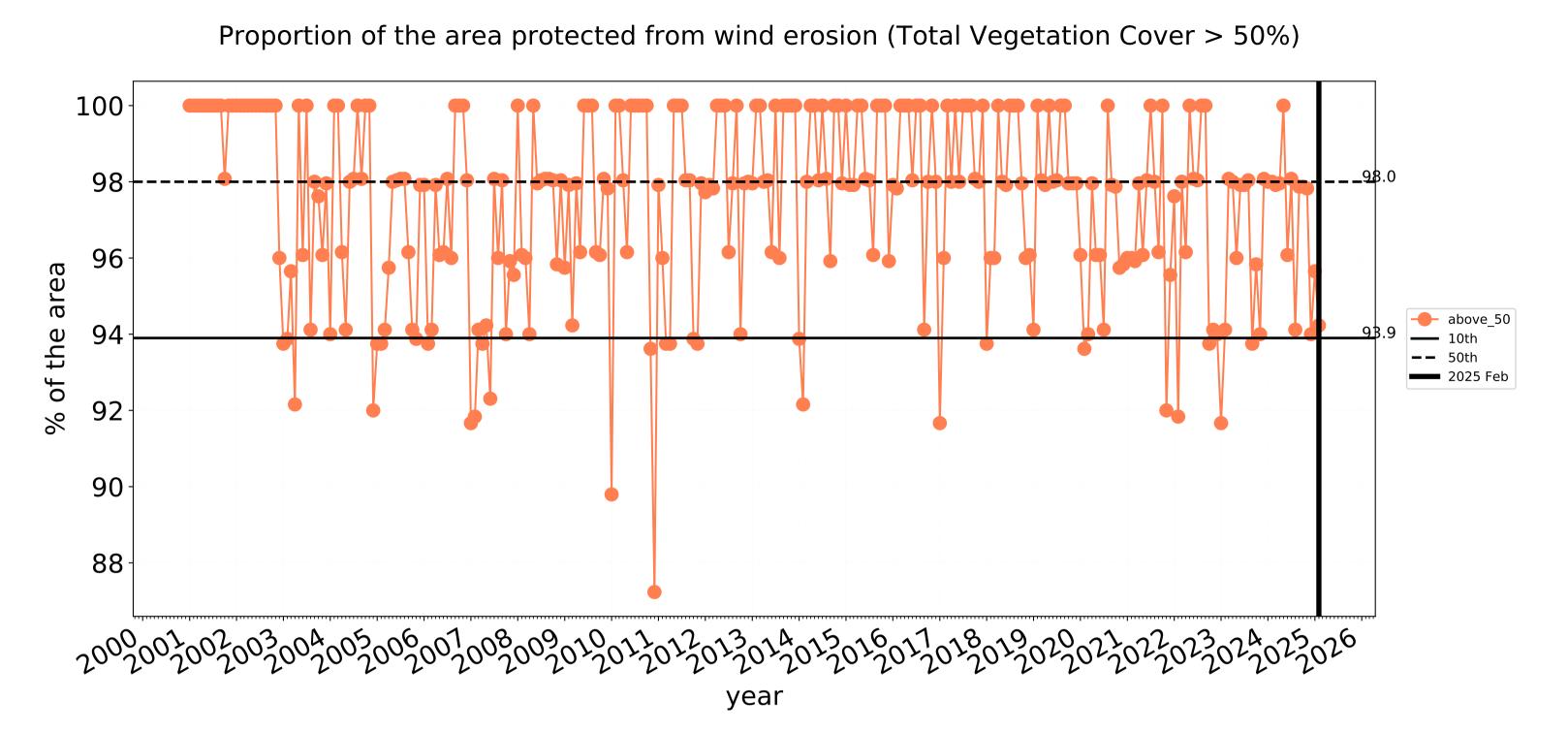


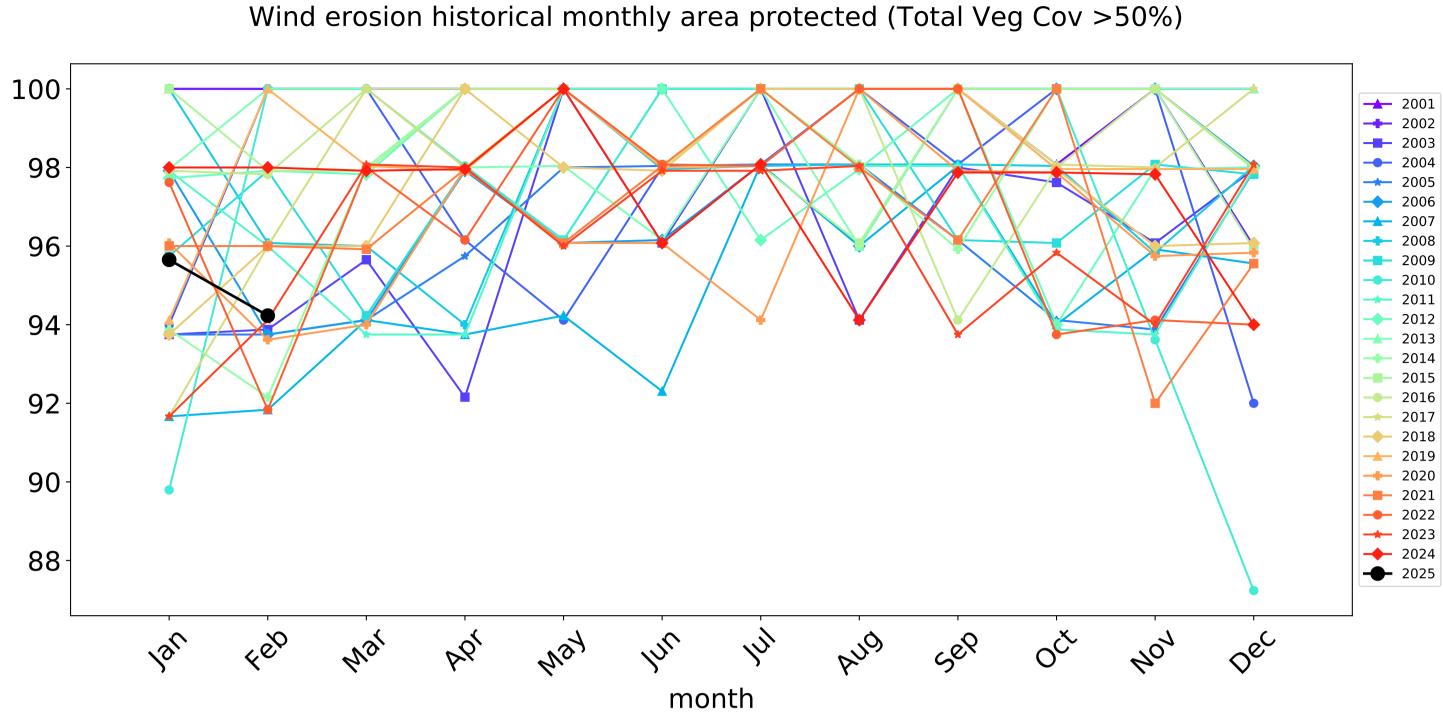


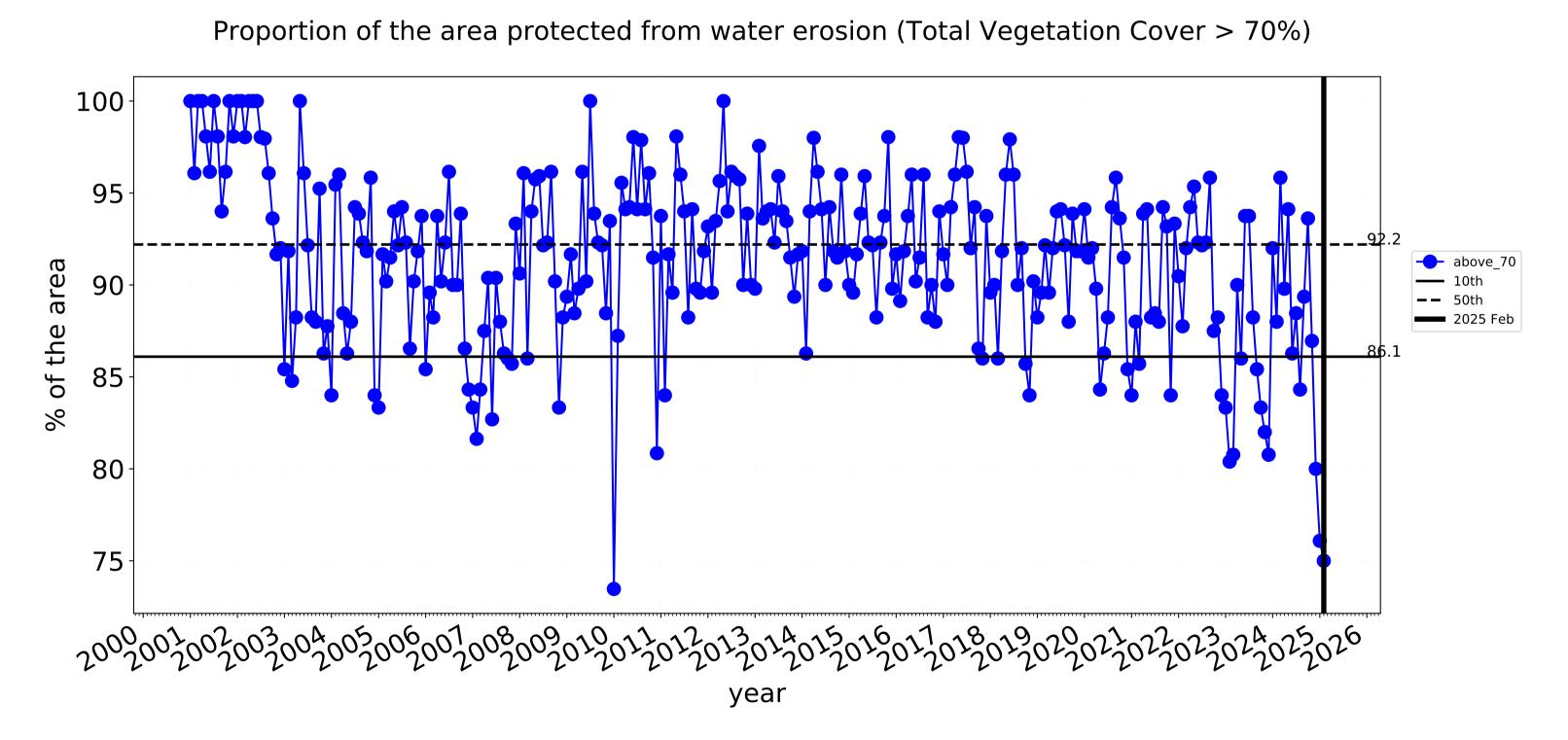


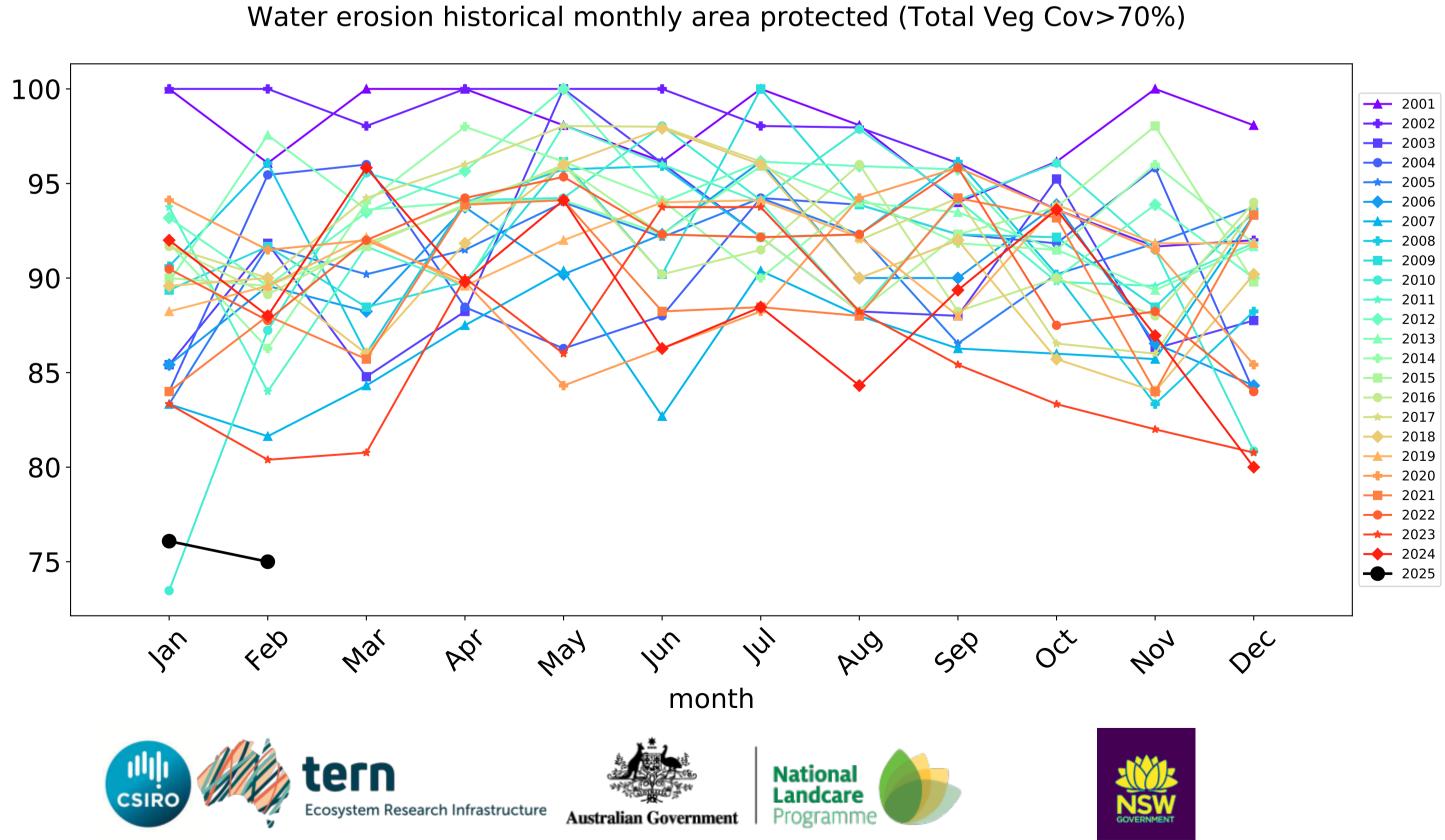


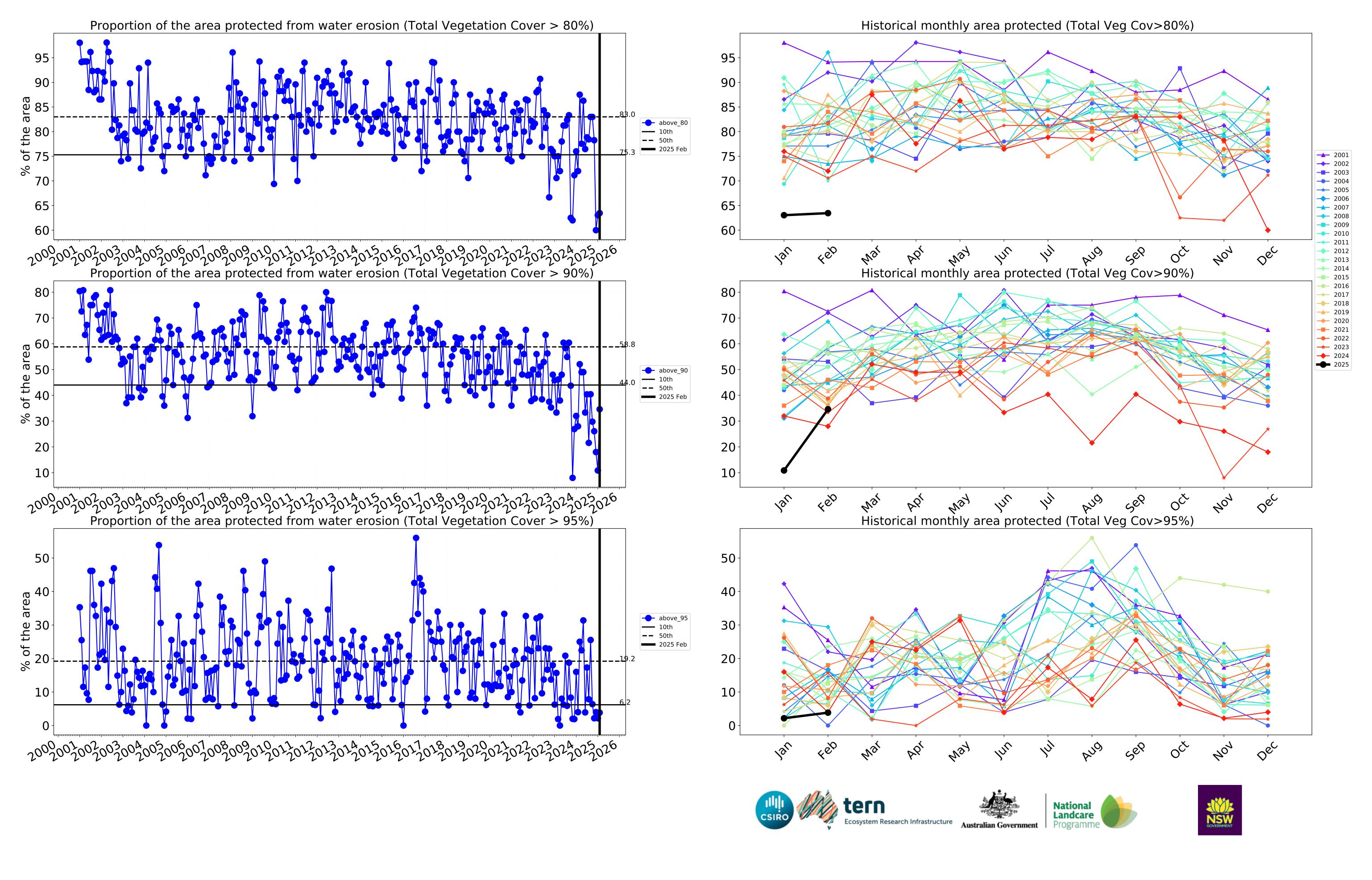
### **Conservation and natural environments non forest timeseries**







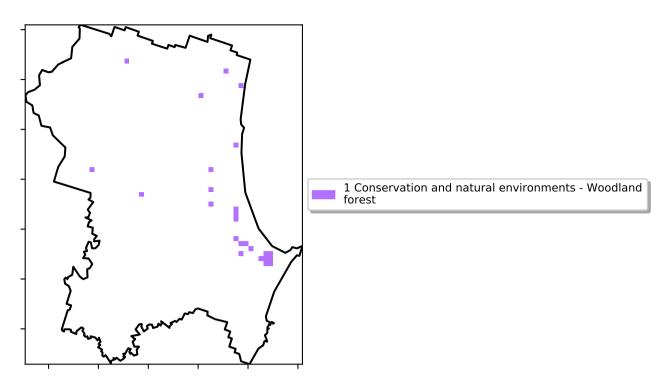




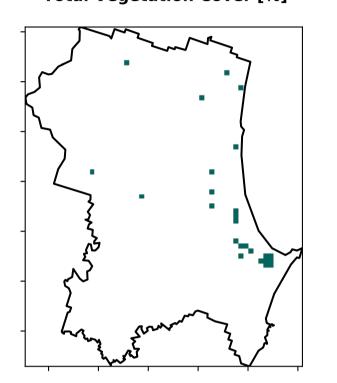
### **Conservation and natural environments Woodland forest**

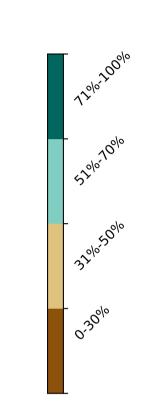
### **Land use and forest cover**

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

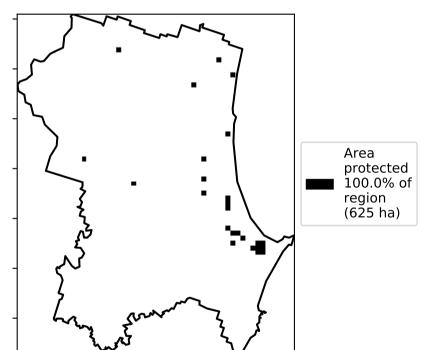


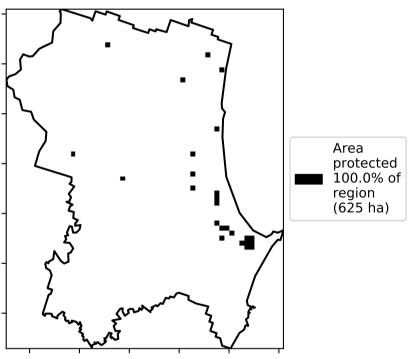
### **Total Vegetation Cover [%]**



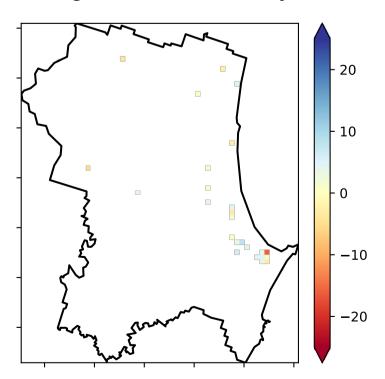


### % Area protected from water erosion (>70%)



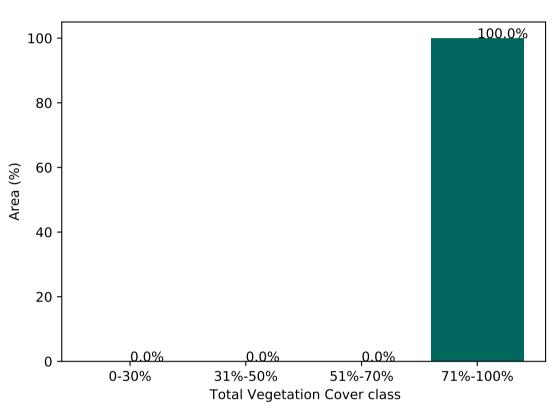


### **Total Vegetation Cover Anomaly [%]**

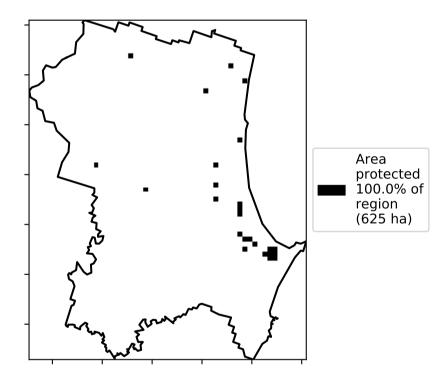


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

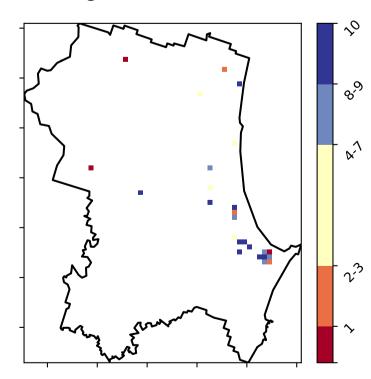
### Proportion of vegetation cover class in area



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



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





Anomaly show how many percetage points each

pixel is from

the mean. That is, red pixels

are about 20%

lower than the mean of that

pixel. The mean

using baseline

is only for the month of the map



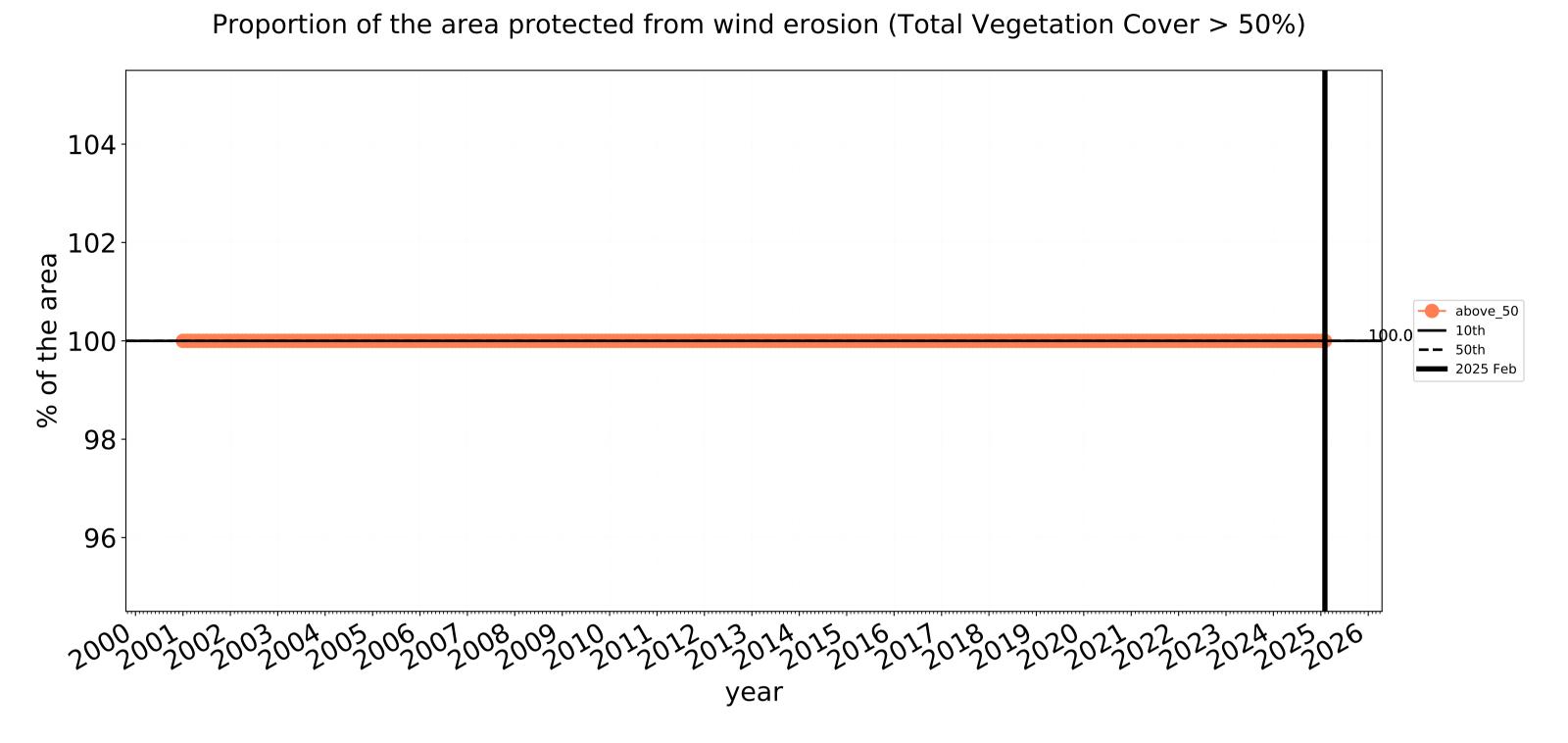




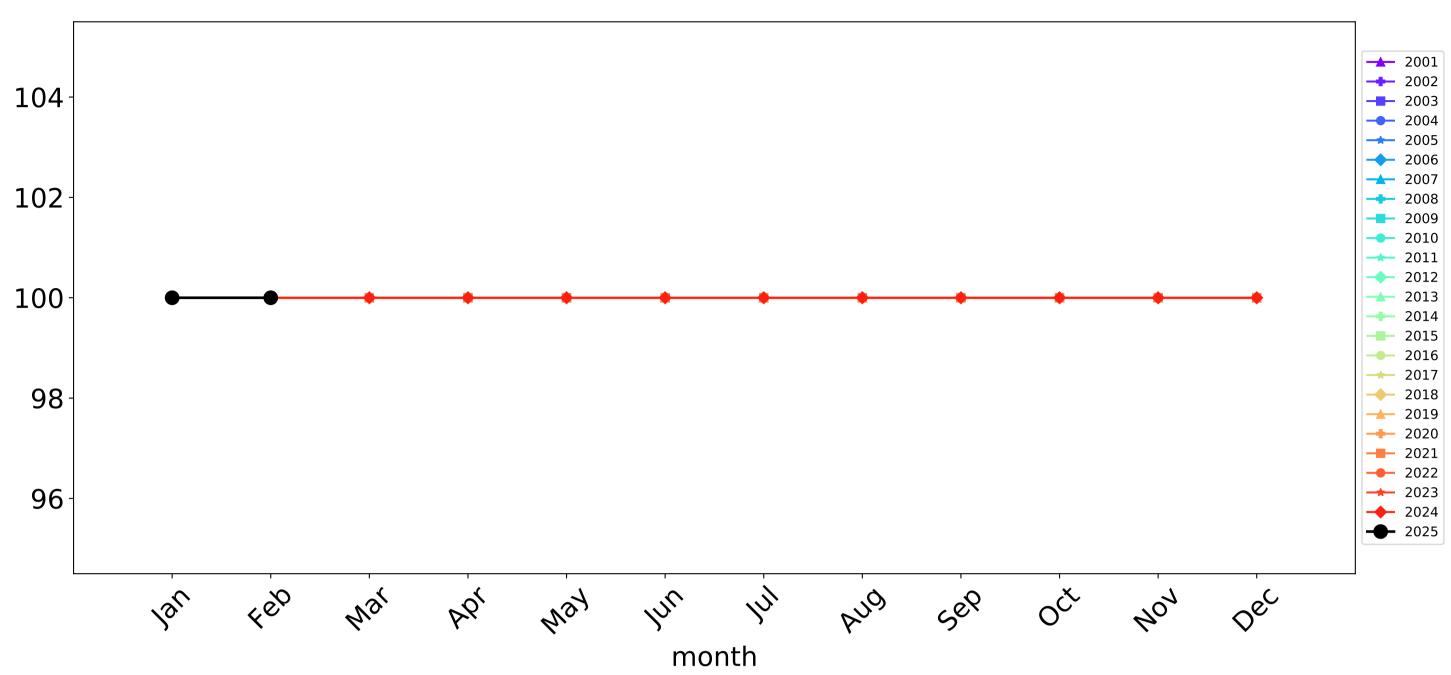


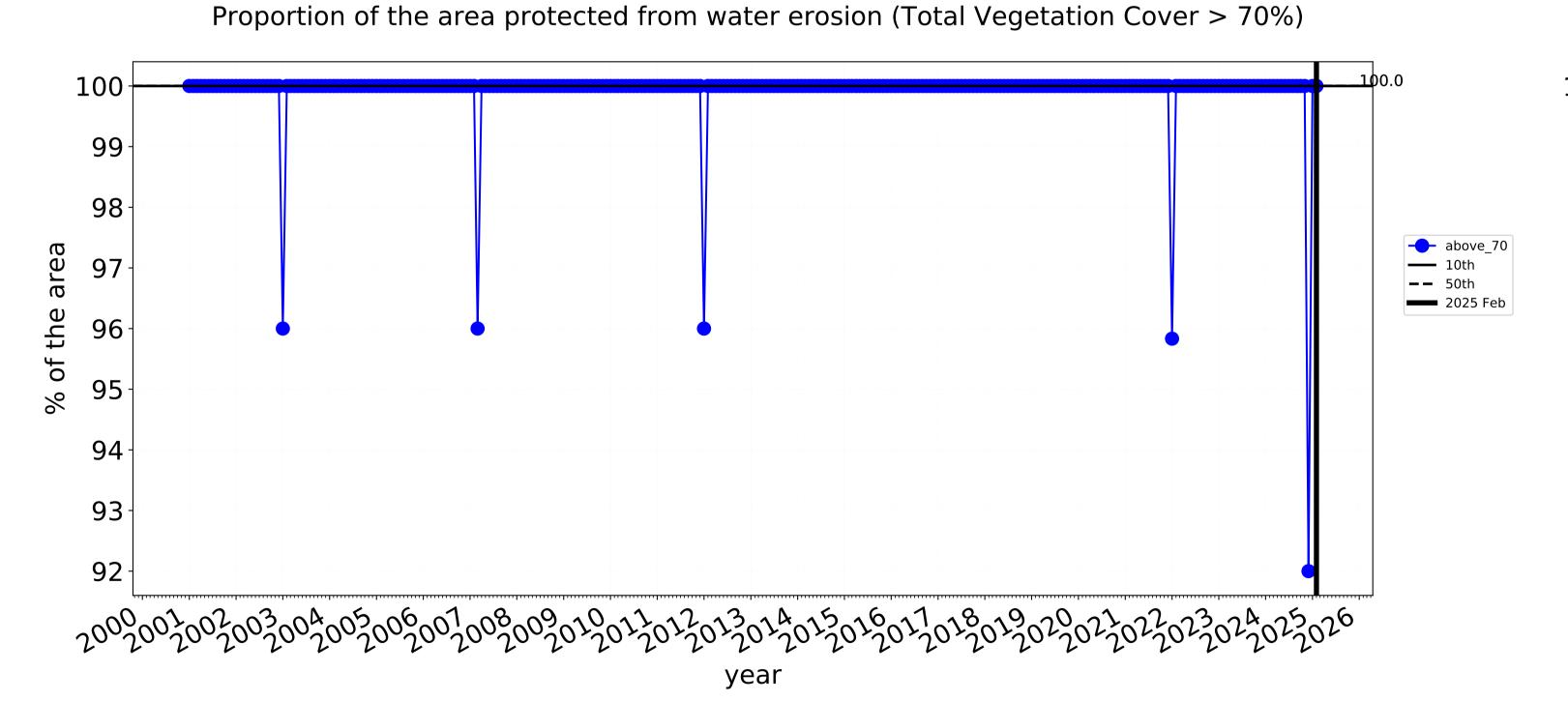


### **Conservation and natural environments Woodland forest timeseries**



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





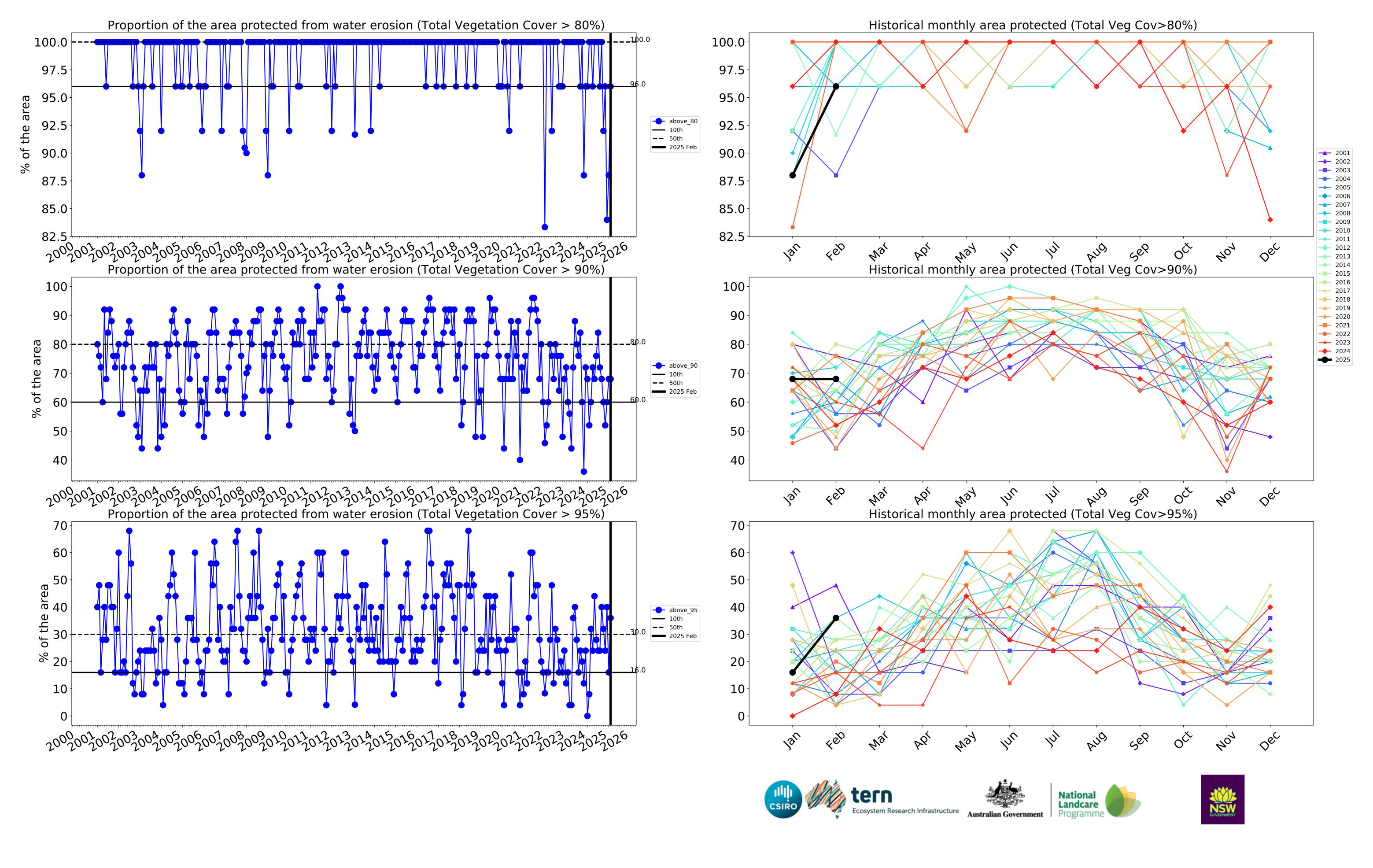
### 100 → 2001 **---** 2002 2003 99 2004 → 2005 98 <del>→</del> 2007 2009 96 → 2013 2015 95 <del>----</del> 2016 2021 <del>----</del> 2022 93 <del>→</del> 2023 **----** 2024 **---** 2025 92 404 month **National**

Landcare

Programm

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

**Ecosystem Research Infrastructure** 



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

### Land use and forest cover

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

Anomaly show how many percetage points each

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the mean. That is, red pixels

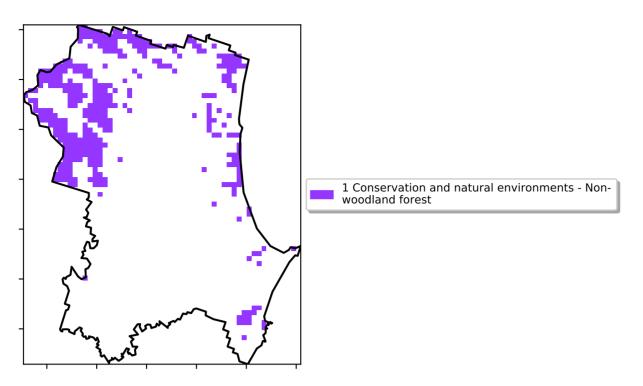
are about 20% lower than the mean of that

pixel. The mean

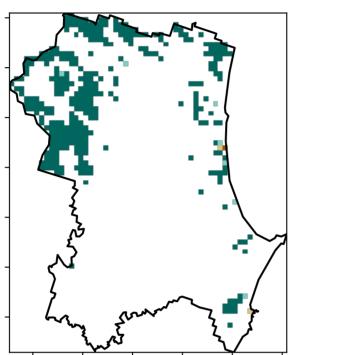
is only for the month of the map

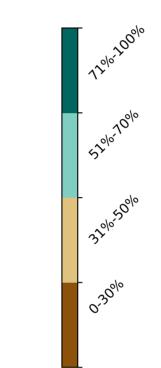
using baseline from 2001 to

2019.

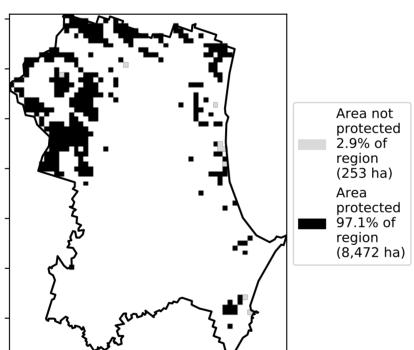


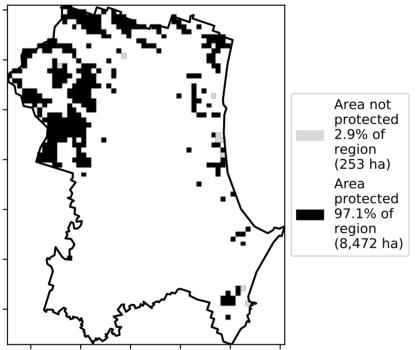
### **Total Vegetation Cover [%]**



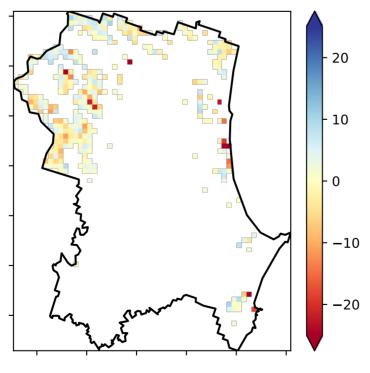


### % Area protected from water erosion (>70%)



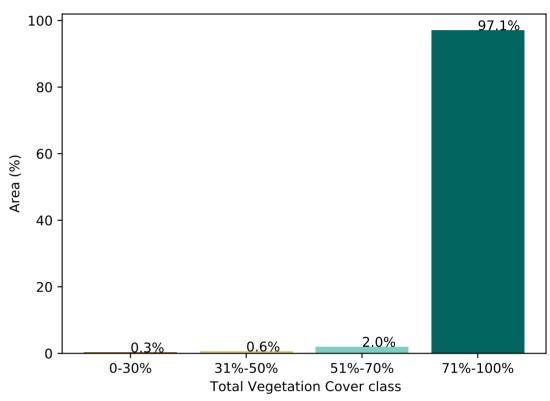


### **Total Vegetation Cover Anomaly [%]**

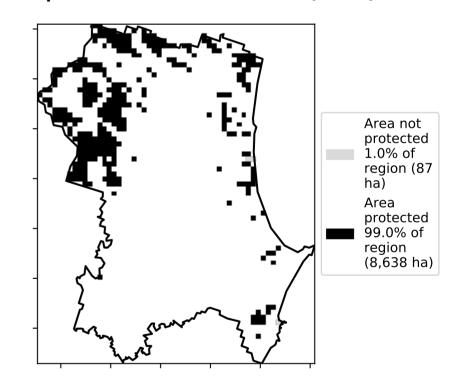


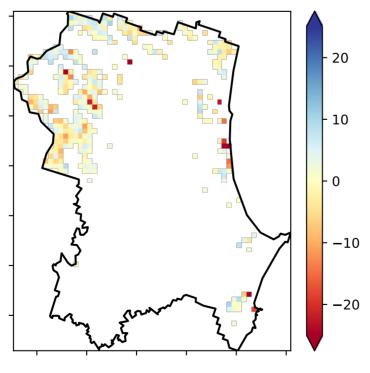
record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area

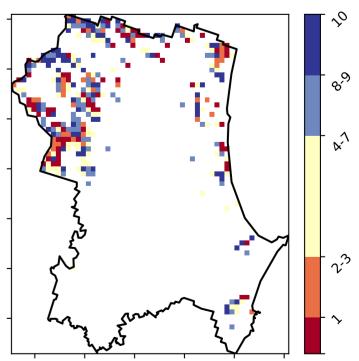


### % Area protected from wind erosion (>50%)





Deciles show where the pixel value lies in the records for that month of





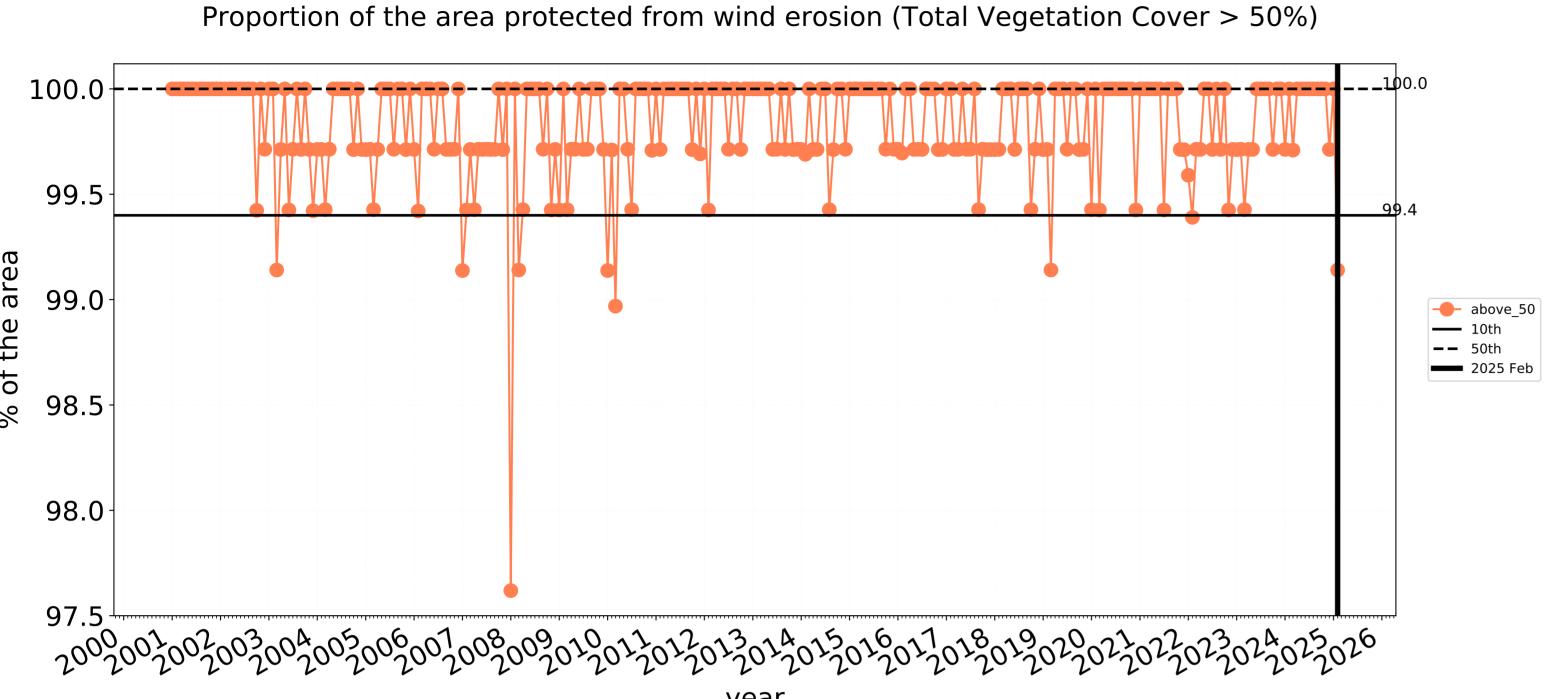


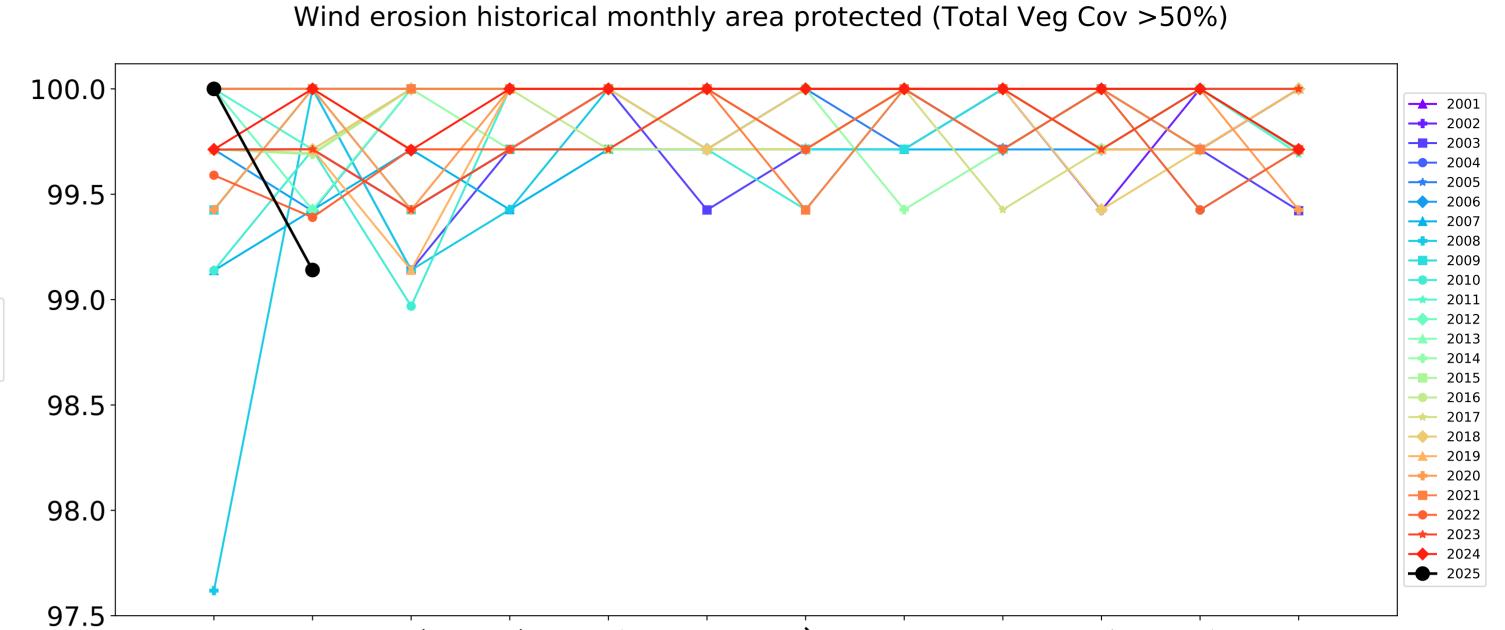




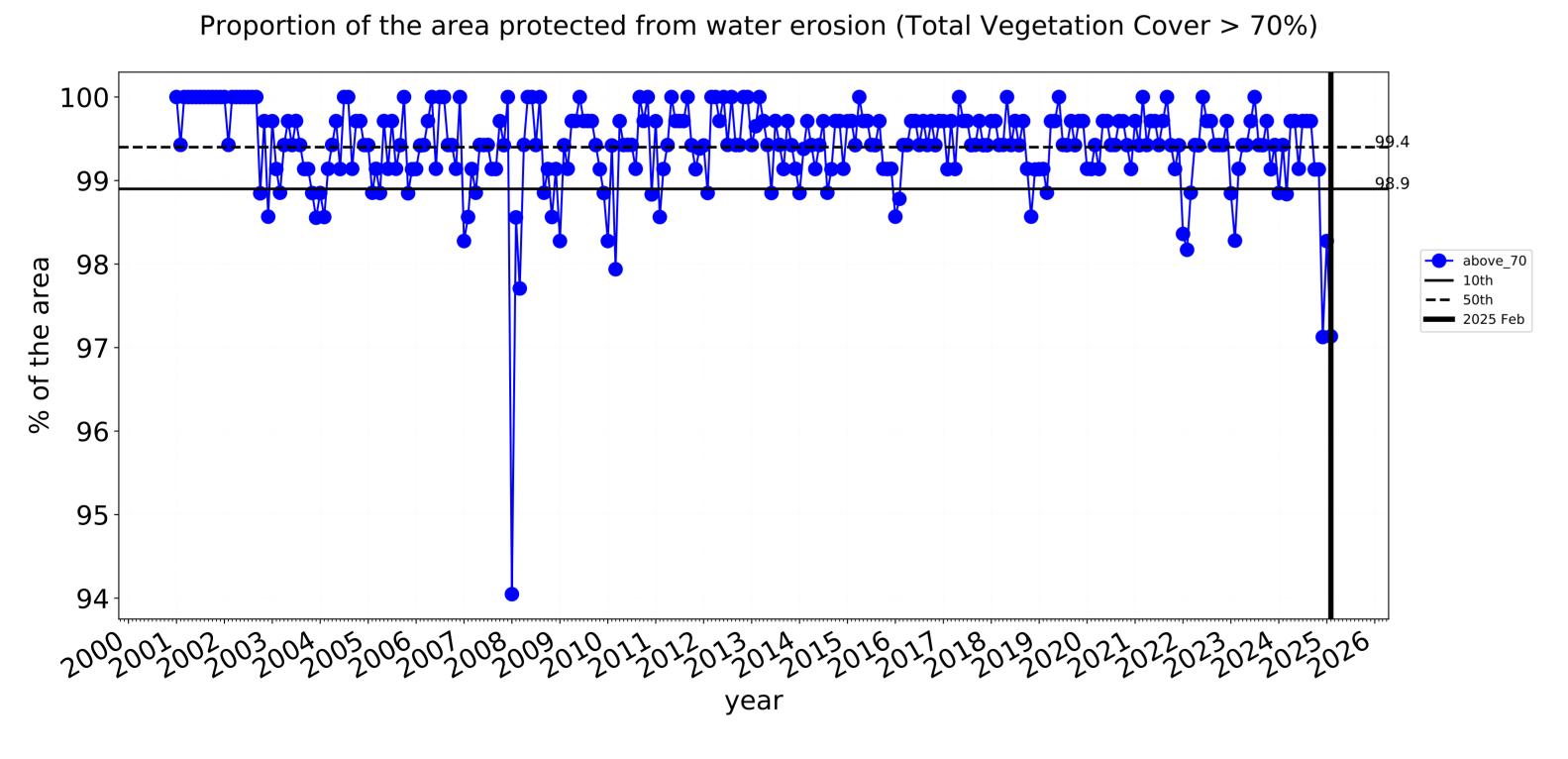


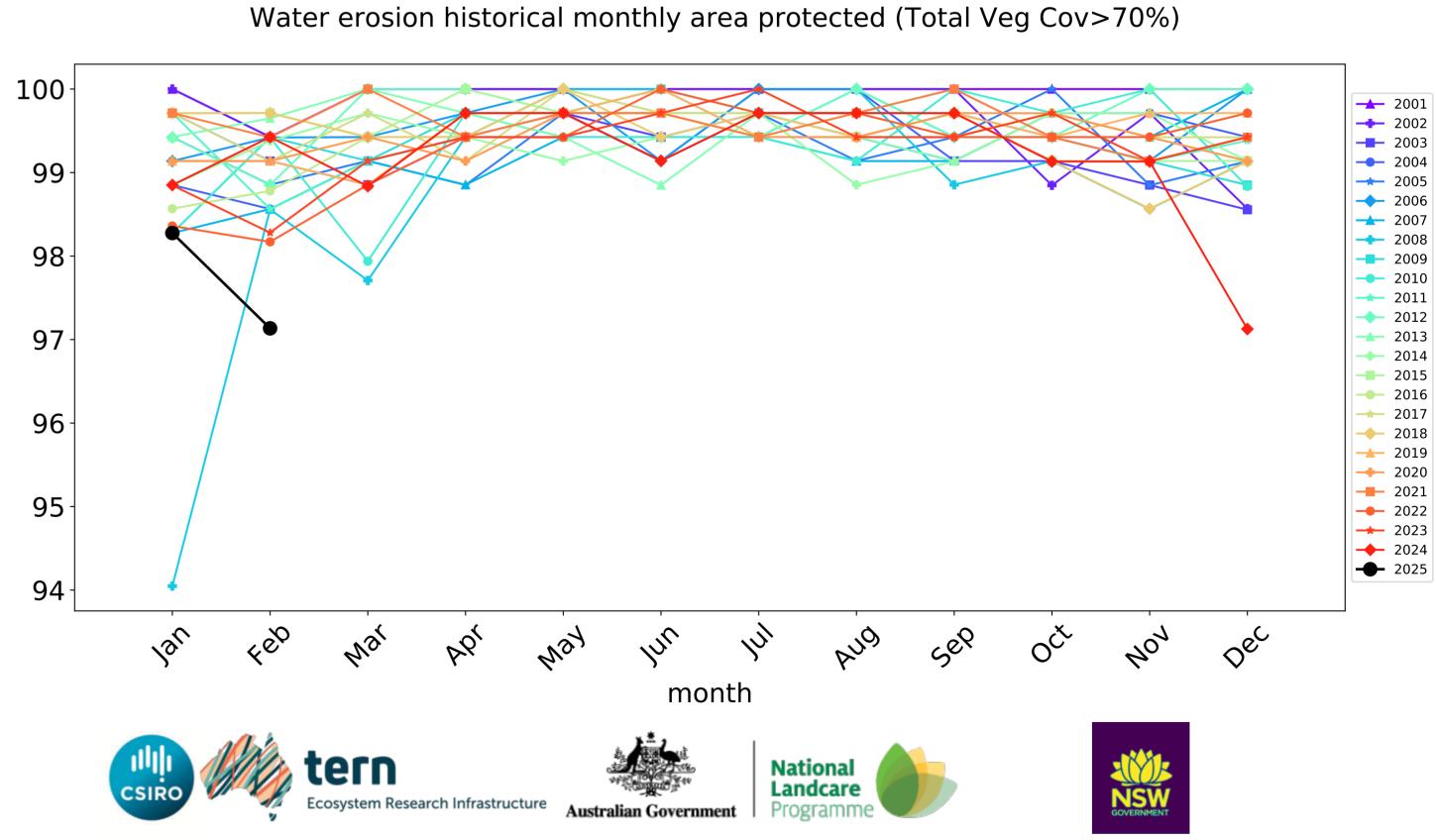


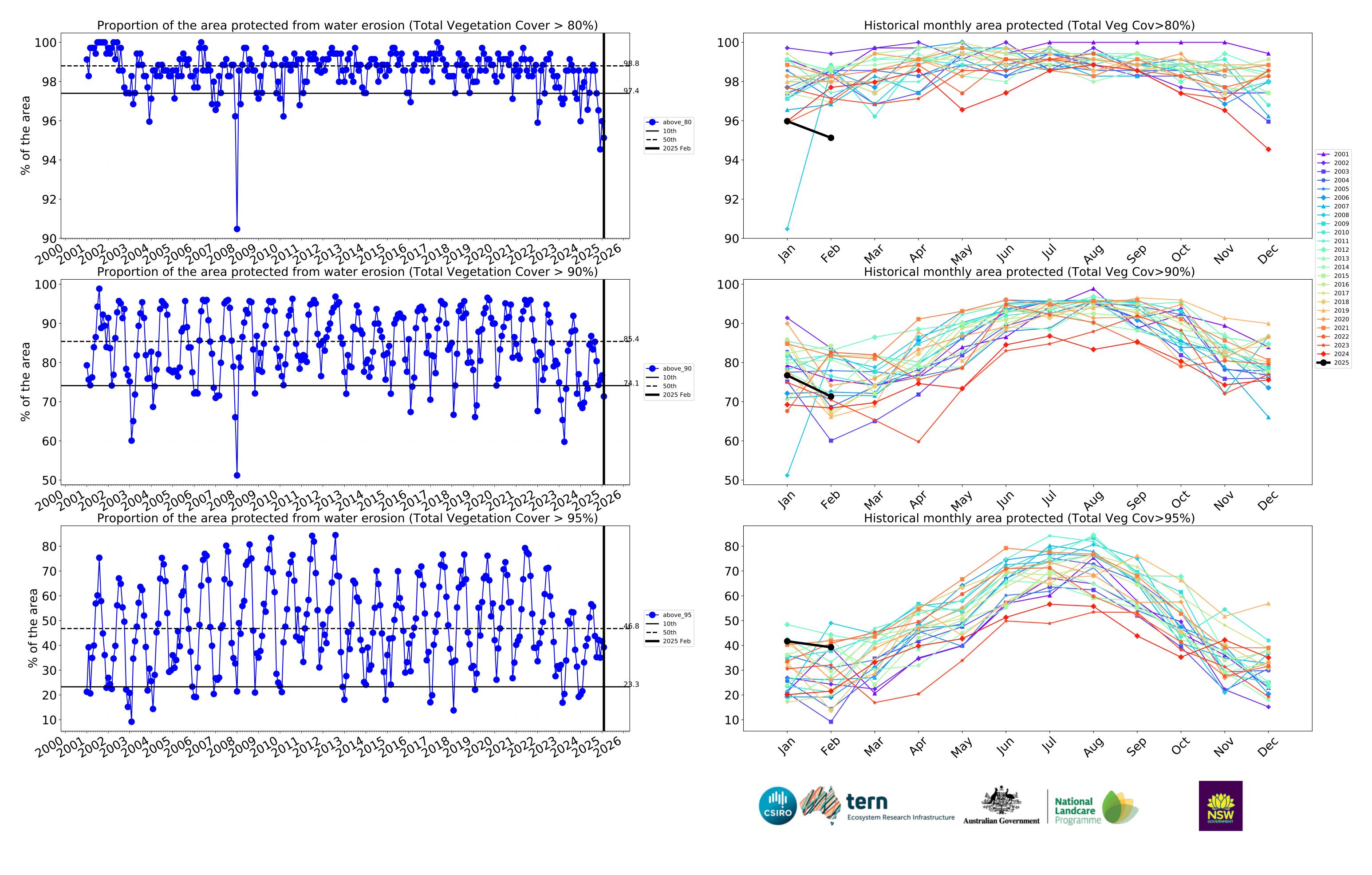




month





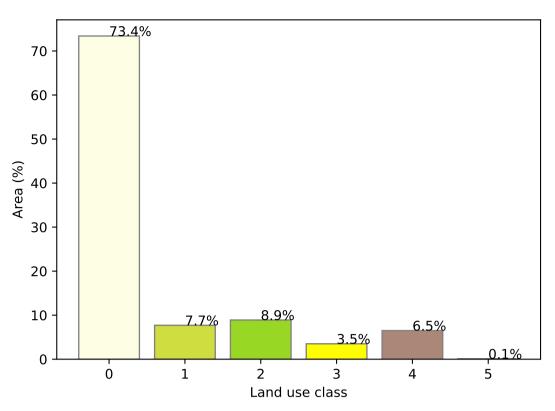


### **Agriculture**

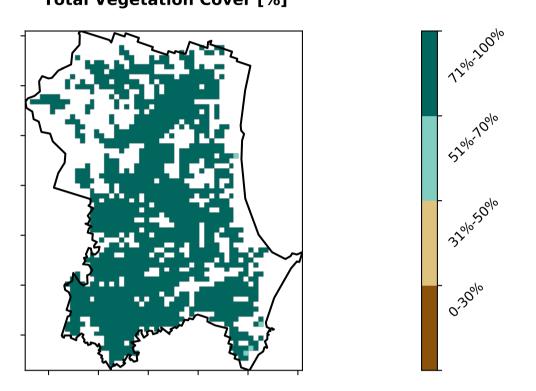
### Land use and forest cover

# 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest 4 Agriculture - Cropping - Non-irrigated 5 Agriculture - Horticulture - Non-irrigated 6 Agriculture - Horticulture - Irrigated

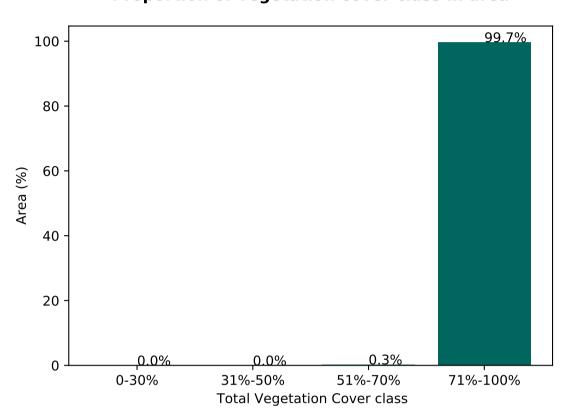
### Proportion of each land class in area

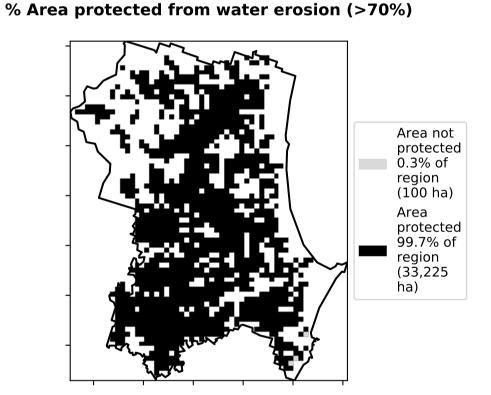


### Total Vegetation Cover [%]

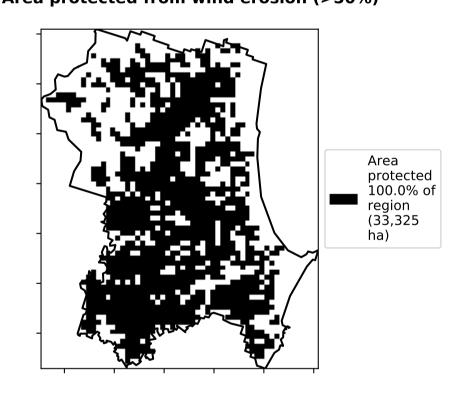


Proportion of vegetation cover class in area

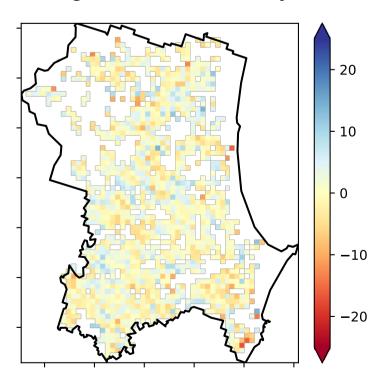




% Area protected from wind erosion (>50%)

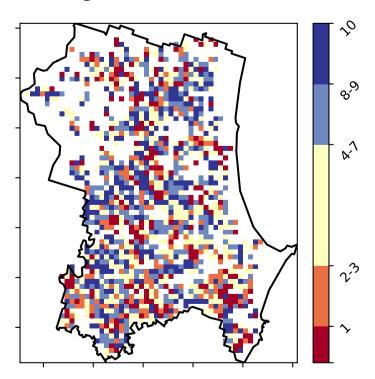


### **Total Vegetation Cover Anomaly [%]**



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 [%]**



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

Anomaly show how many percetage points each

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Catchment Scale

Derived from

Use of Australia

(2018) and Forests

of Australia (2018)

Land Use and Forests of Australia (2018)

Catchment Scale Land

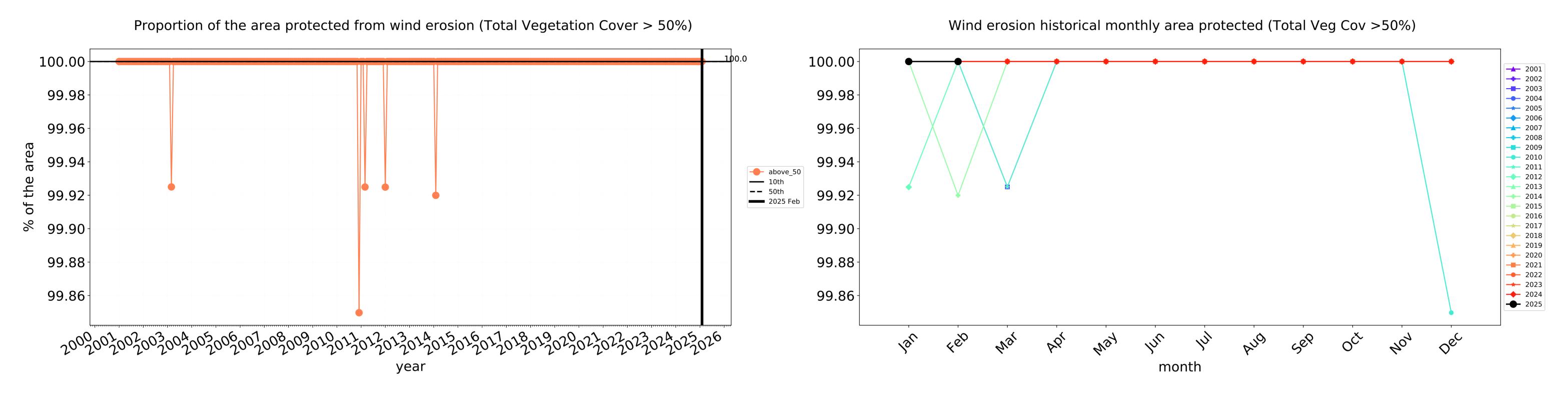


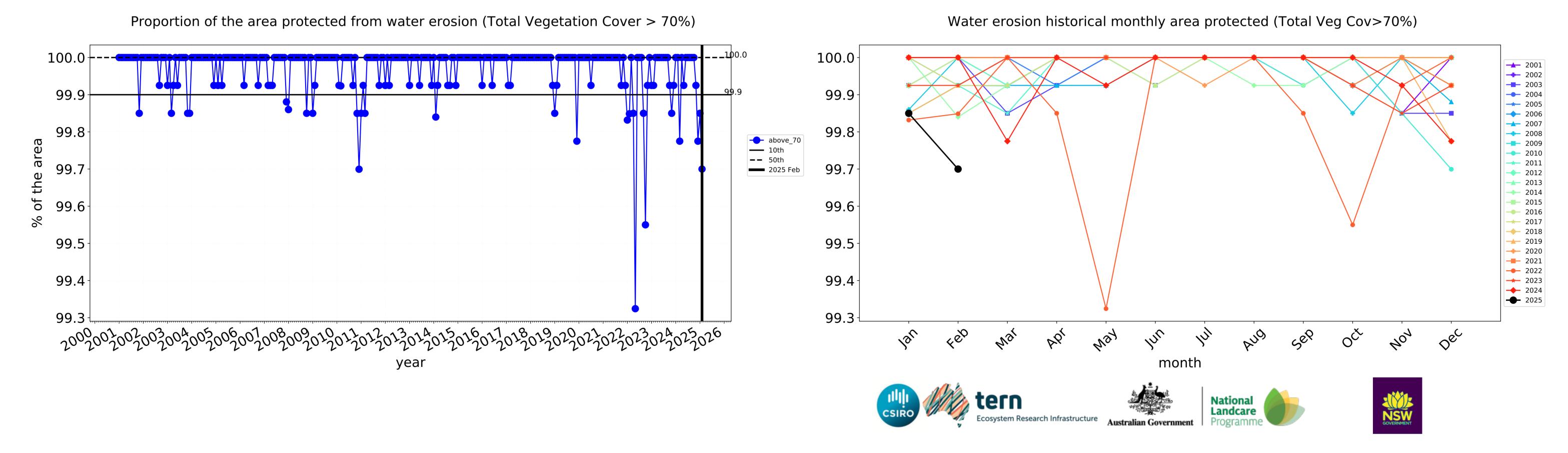


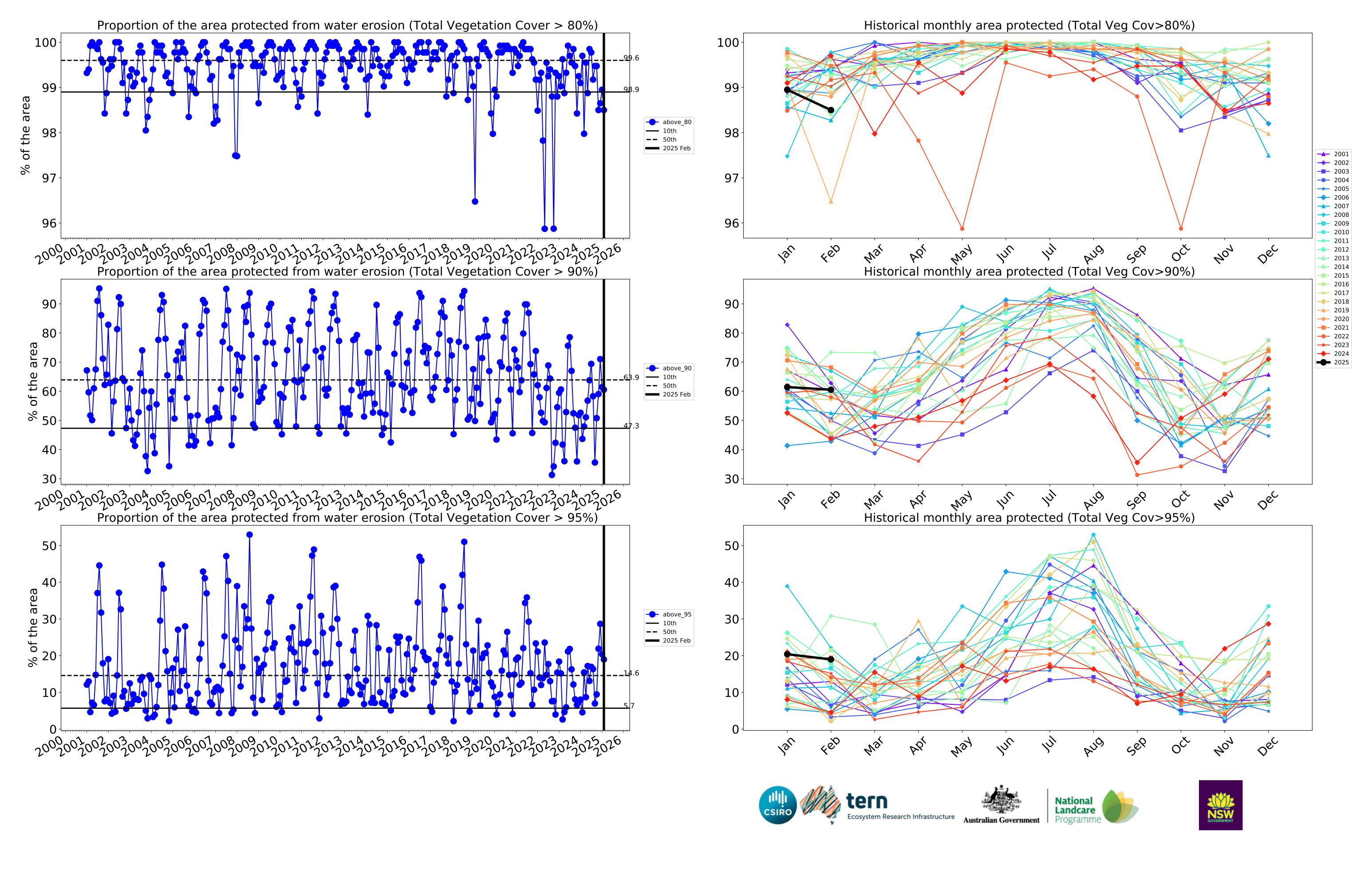




### **Agriculture timeseries**



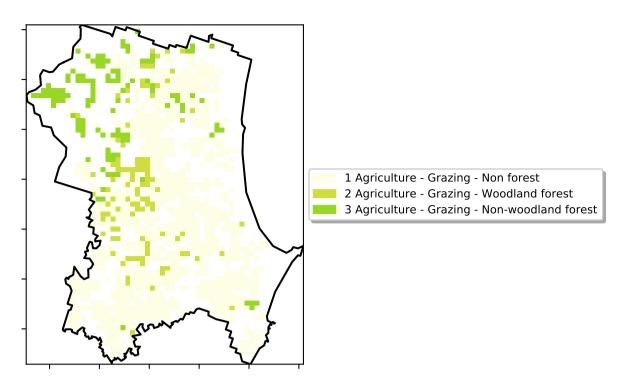




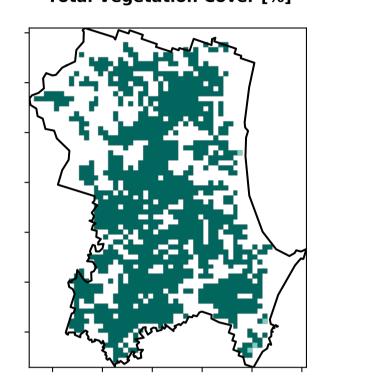
### **Grazing**

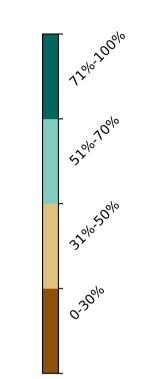
### Land use and forest cover

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

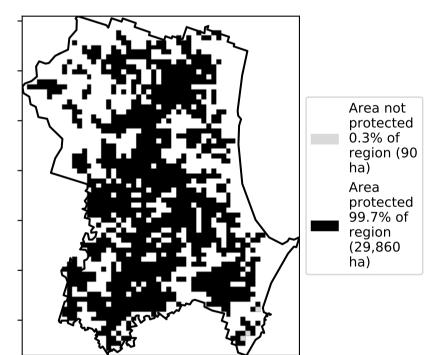


### **Total Vegetation Cover [%]**



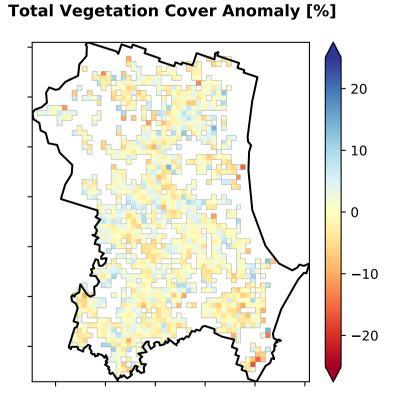


### % Area protected from water erosion (>70%)



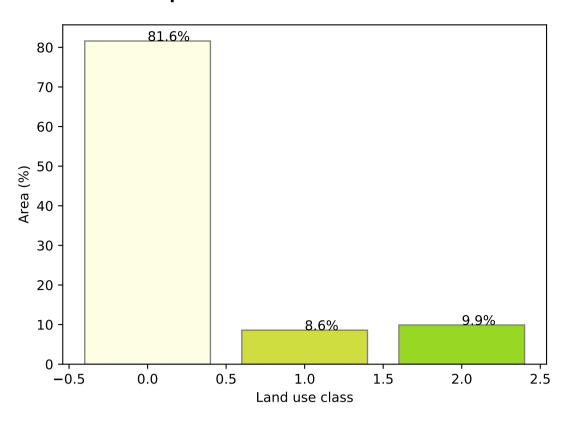
# Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline

from 2001 to 2019.

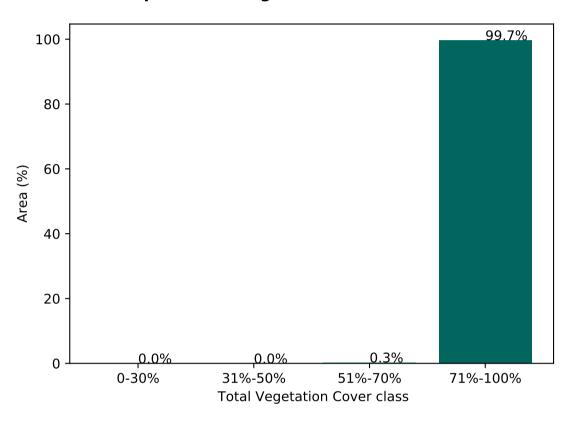


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

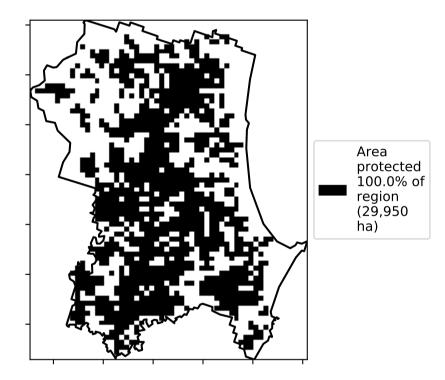
### Proportion of each land class in area

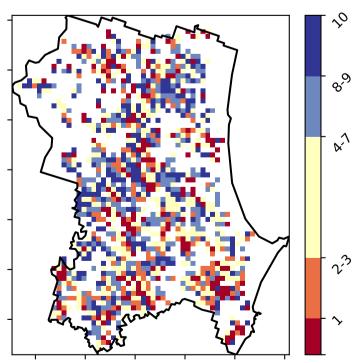


### **Proportion of vegetation cover class in area**



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





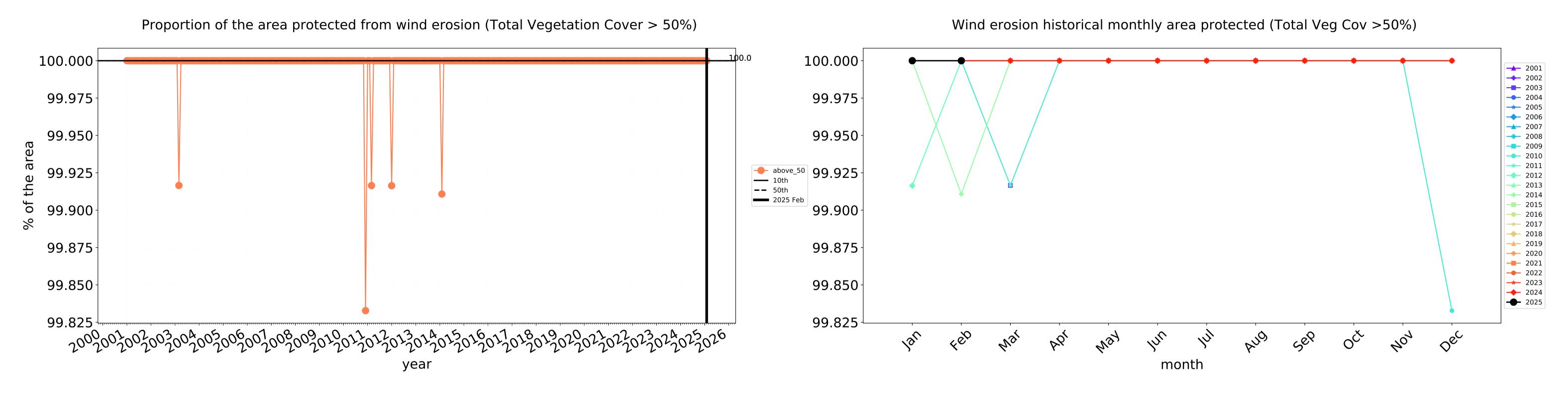


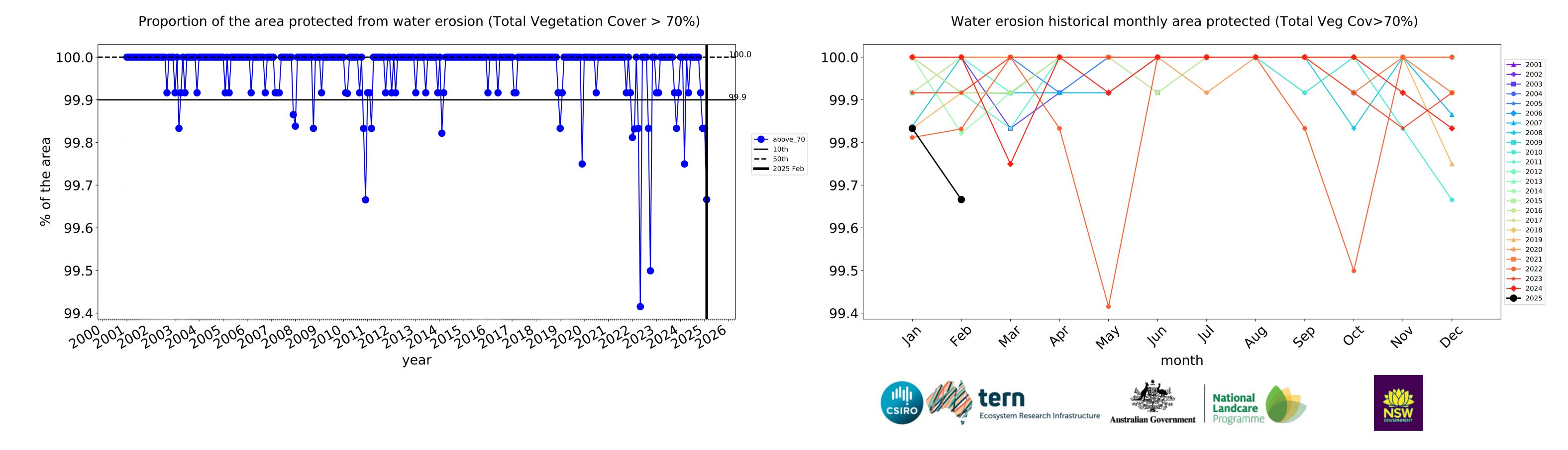


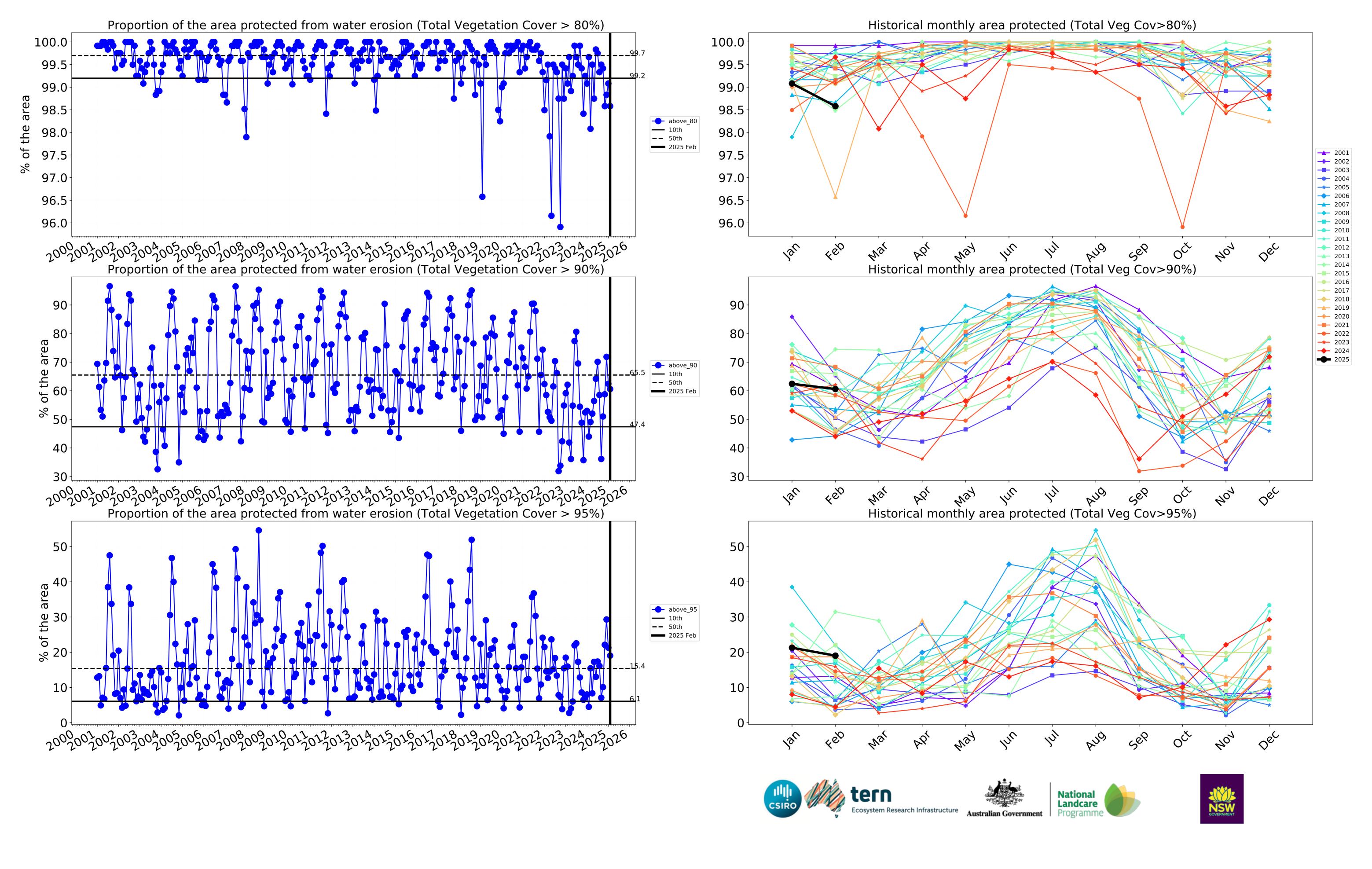




### **Grazing timeseries**







### **Grazing non forest**

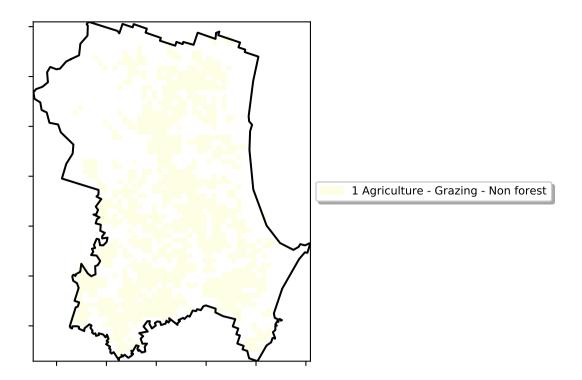
### Land use and forest cover

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

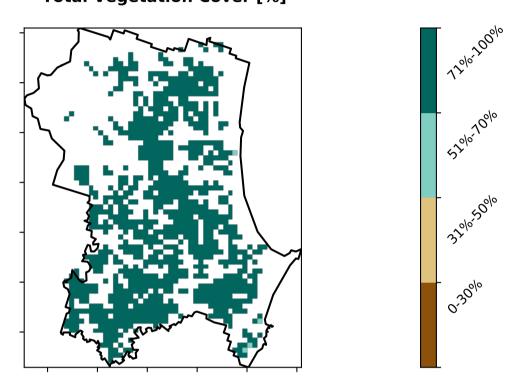
Anomaly show how many percetage points each pixel is from the mean. That

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

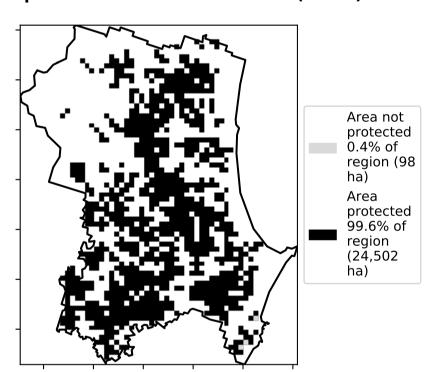
pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



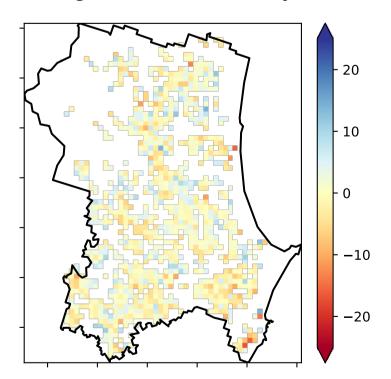
### **Total Vegetation Cover [%]**



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

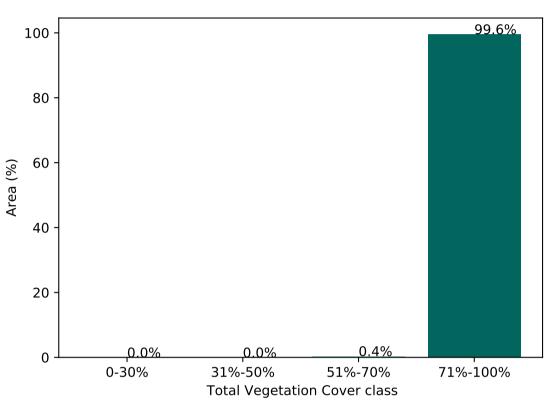


### **Total Vegetation Cover Anomaly [%]**

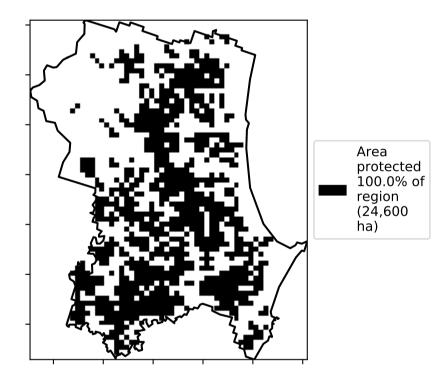


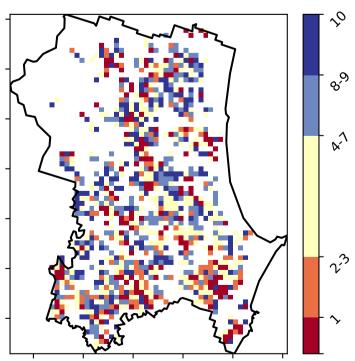
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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





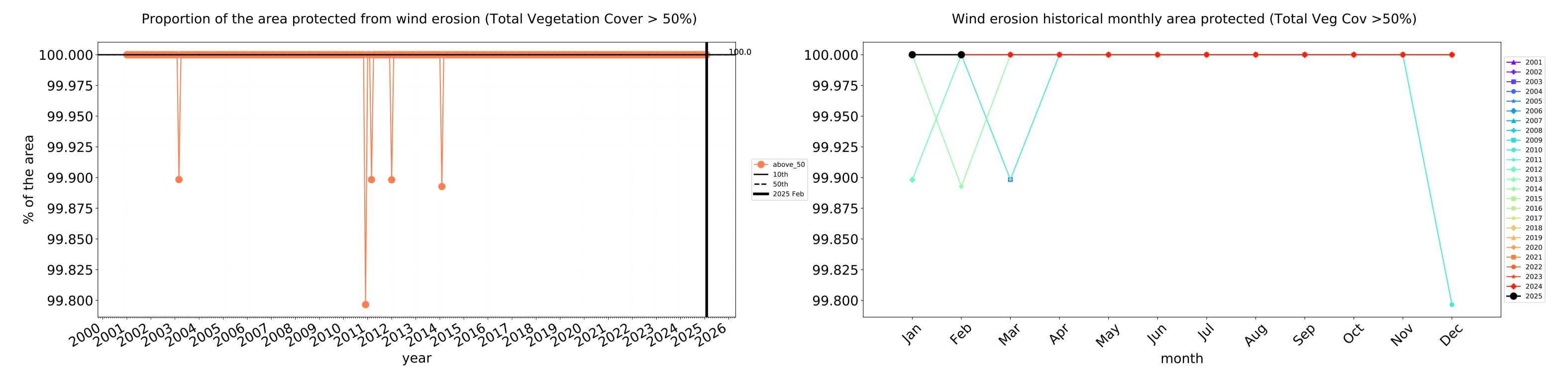


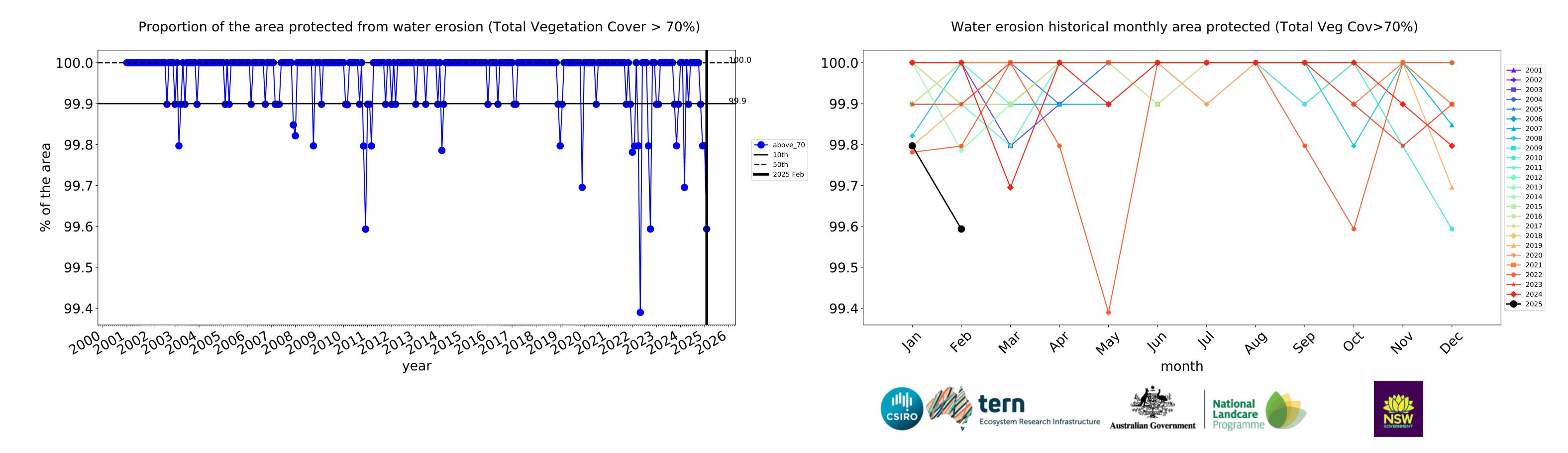


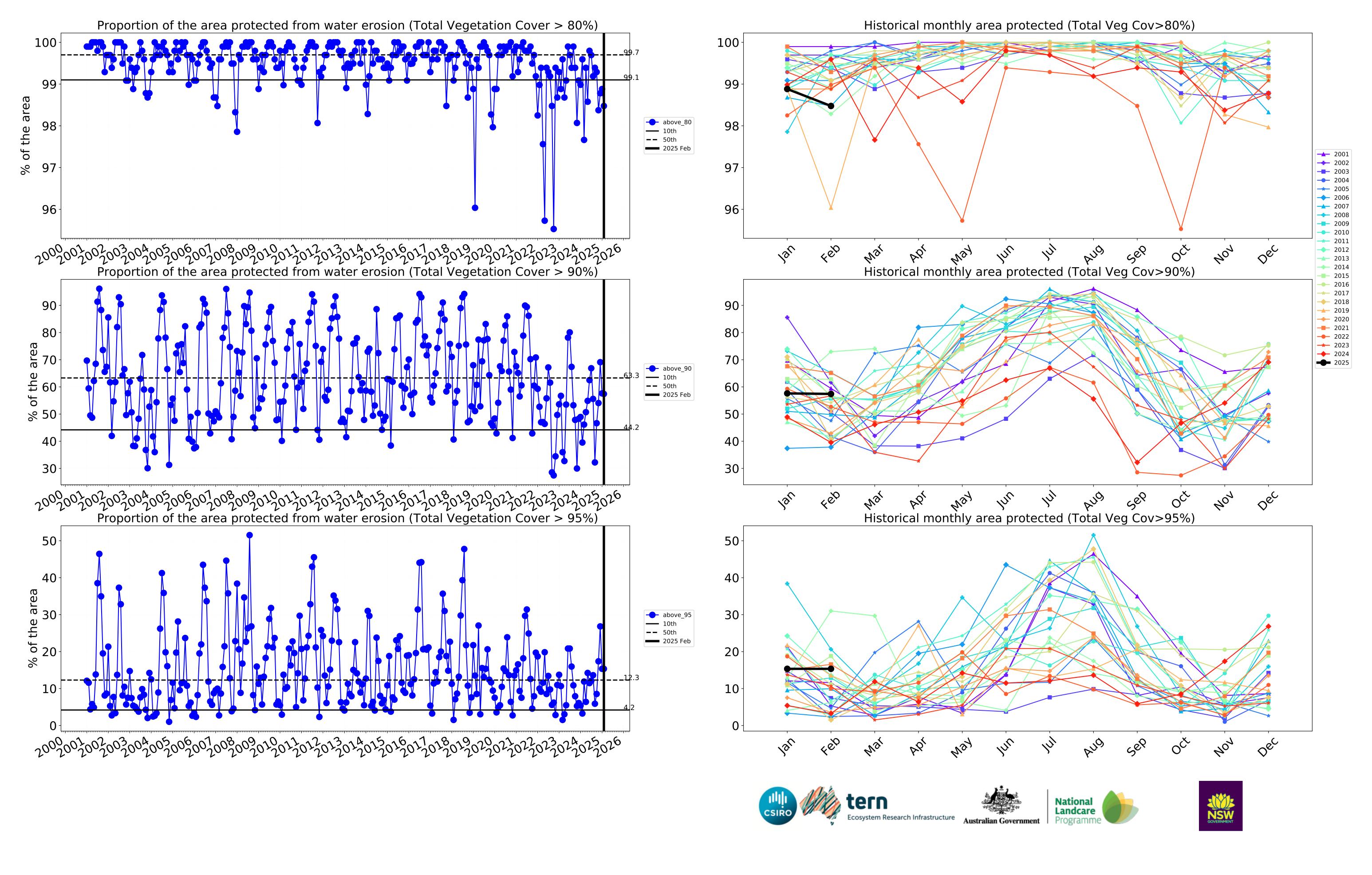




### **Grazing non forest timeseries**







### **Grazing Woodland forest**

### Land use and forest cover

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

Anomaly show how many percetage points each

pixel is from

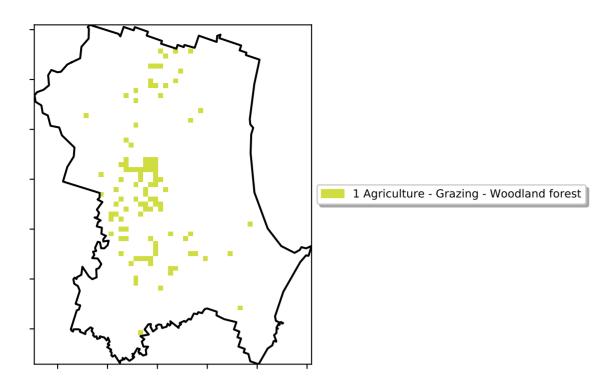
the mean. That is, red pixels

are about 20% lower than the mean of that

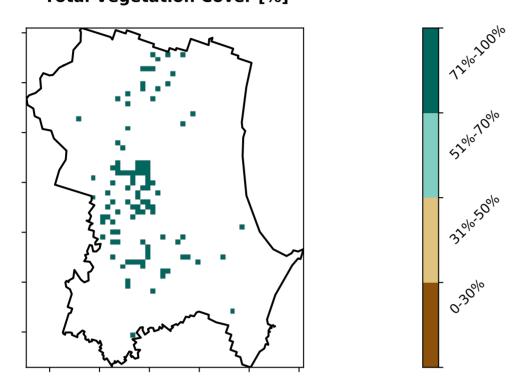
pixel. The mean

using baseline from 2001 to 2019.

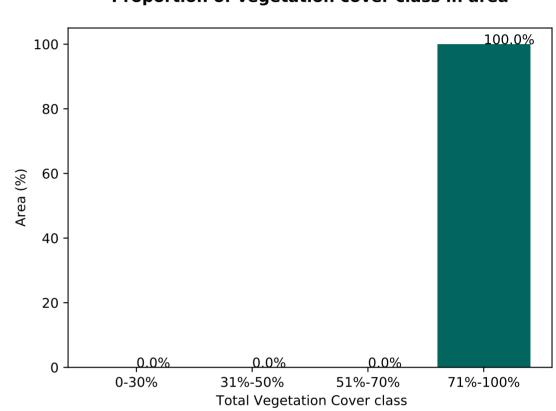
is only for the month of the map



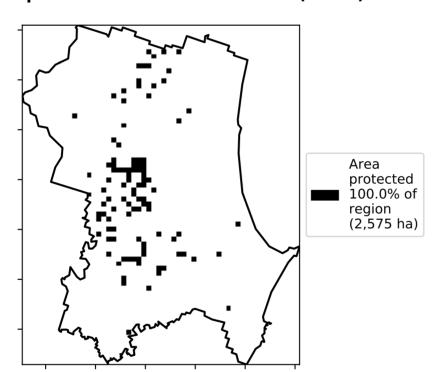
### **Total Vegetation Cover [%]**



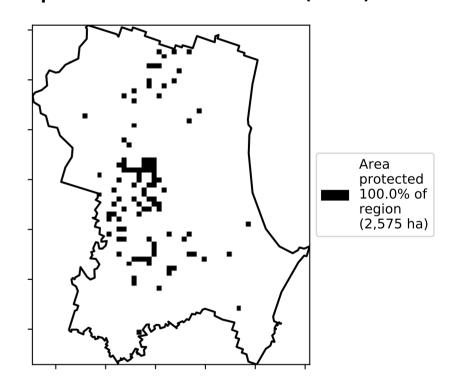
### Proportion of vegetation cover class in area



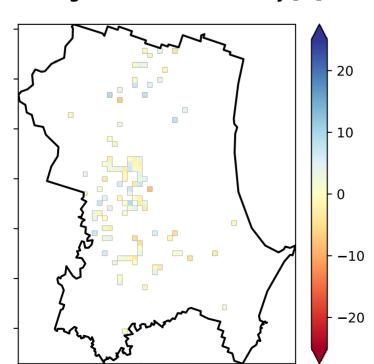
### % Area protected from water erosion (>70%)



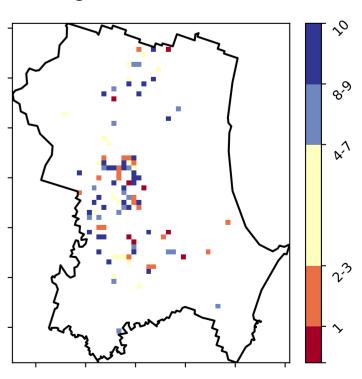
% Area protected from wind erosion (>50%)



### **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.



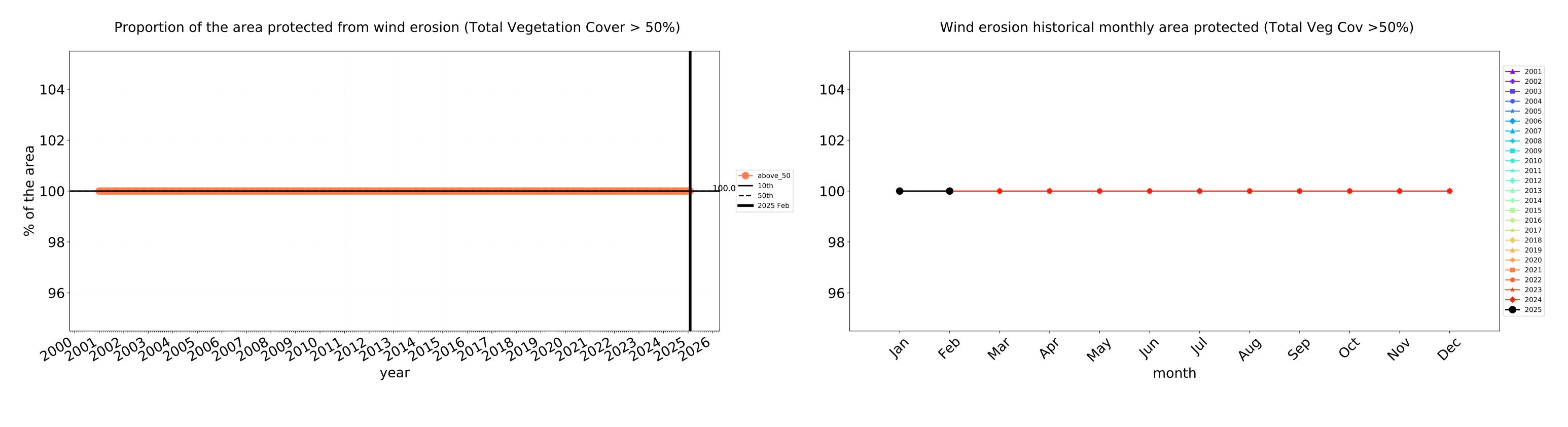


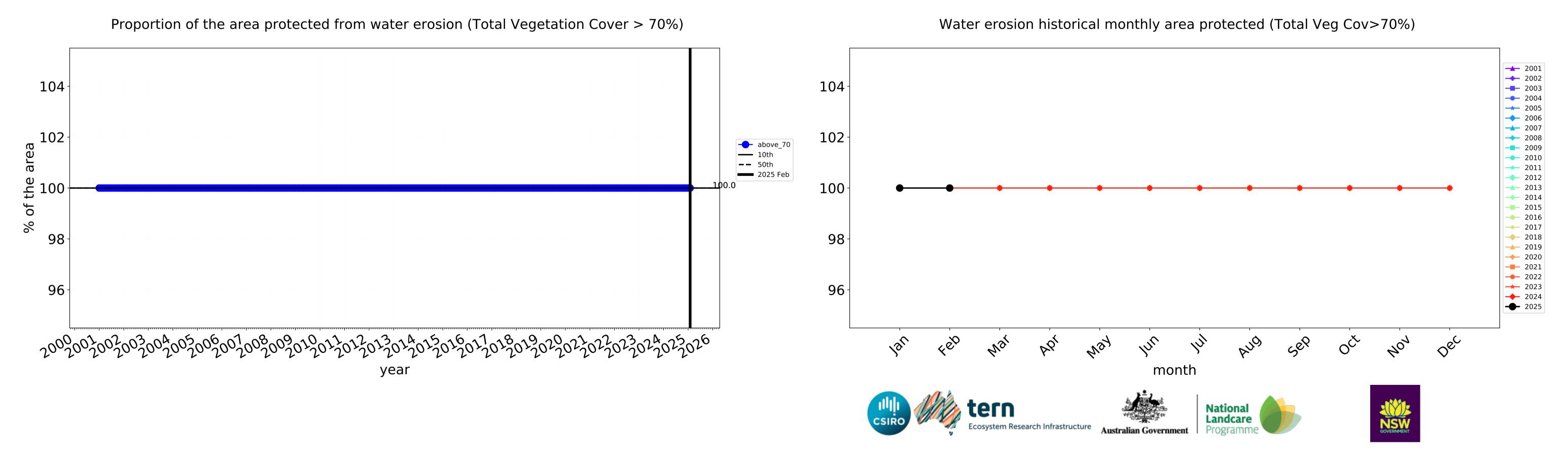


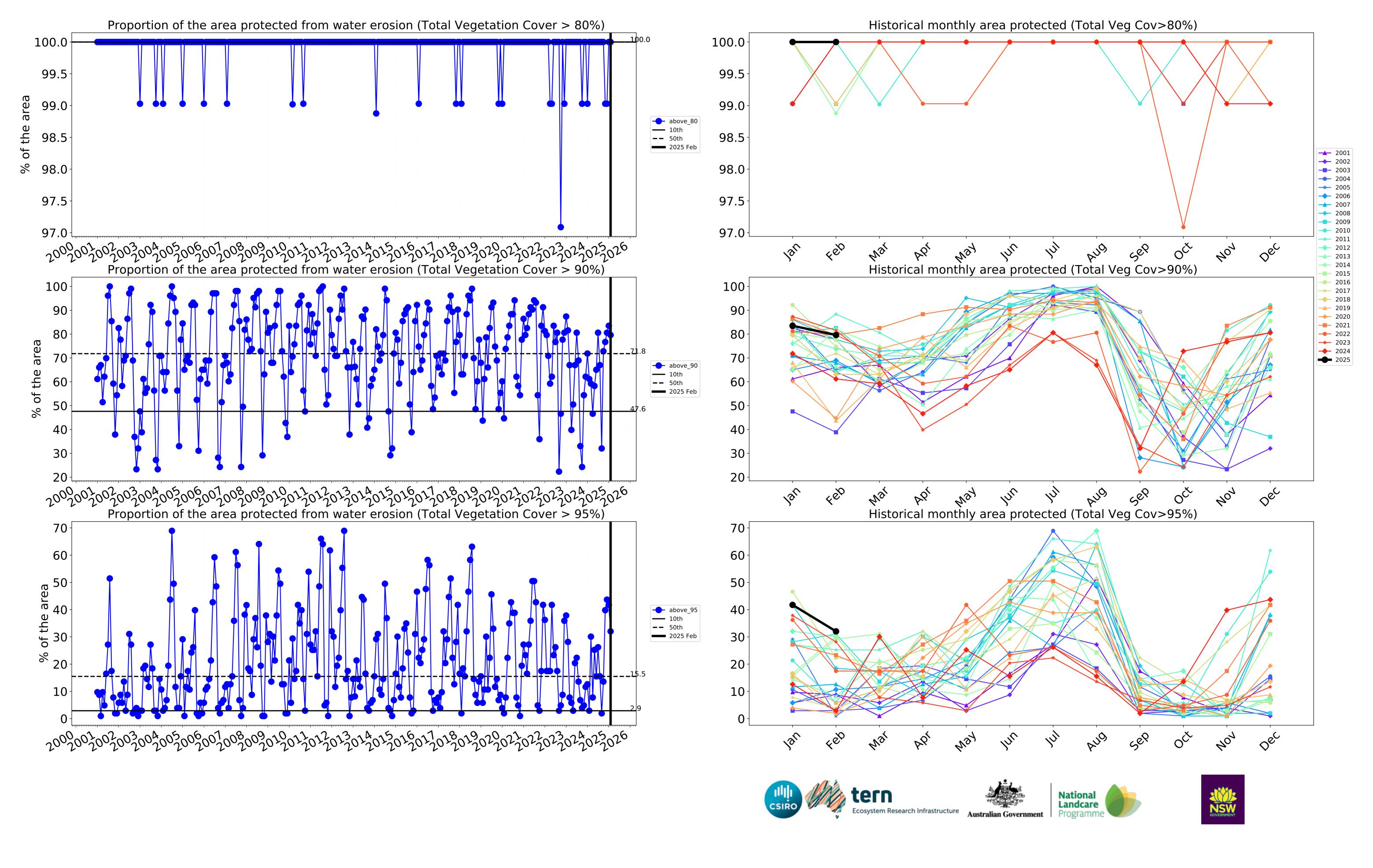




### **Grazing Woodland forest timeseries**







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

### Land use and forest cover

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

Anomaly show how many percetage points each

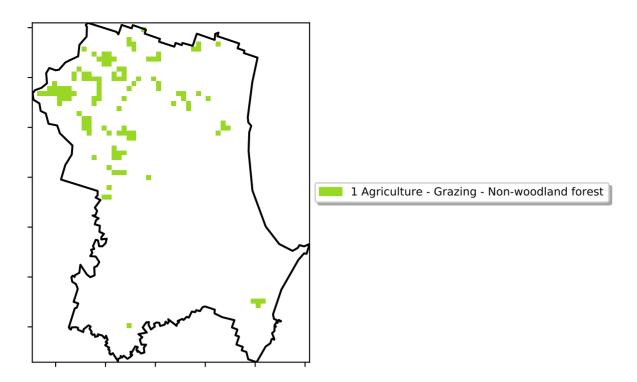
pixel is from

the mean. That is, red pixels

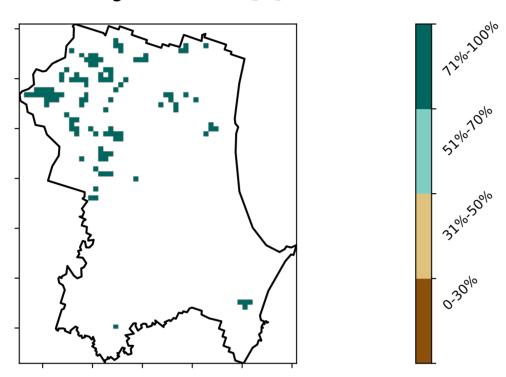
are about 20% lower than the mean of that

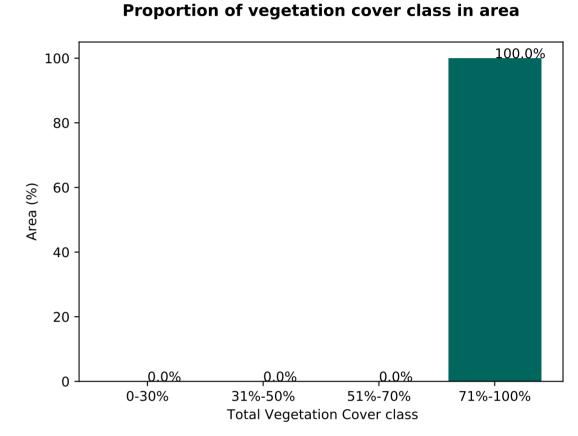
pixel. The mean is only for the month of the map

using baseline from 2001 to 2019.

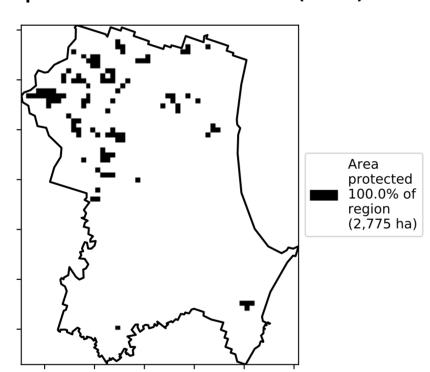


### **Total Vegetation Cover [%]**

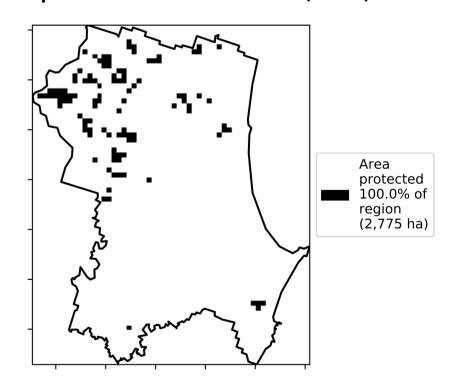




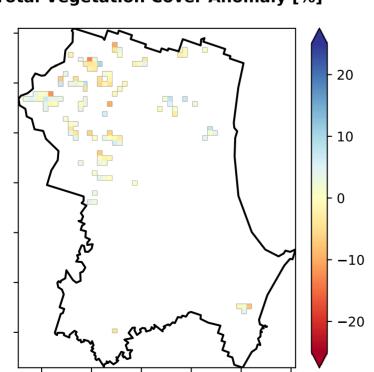
### % Area protected from water erosion (>70%)



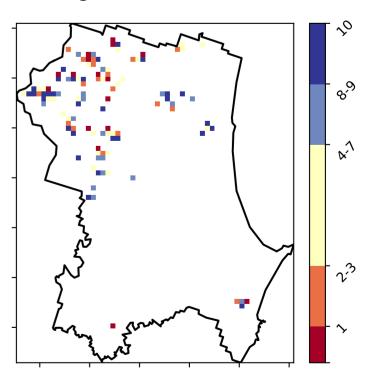
% Area protected from wind erosion (>50%)



### **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.

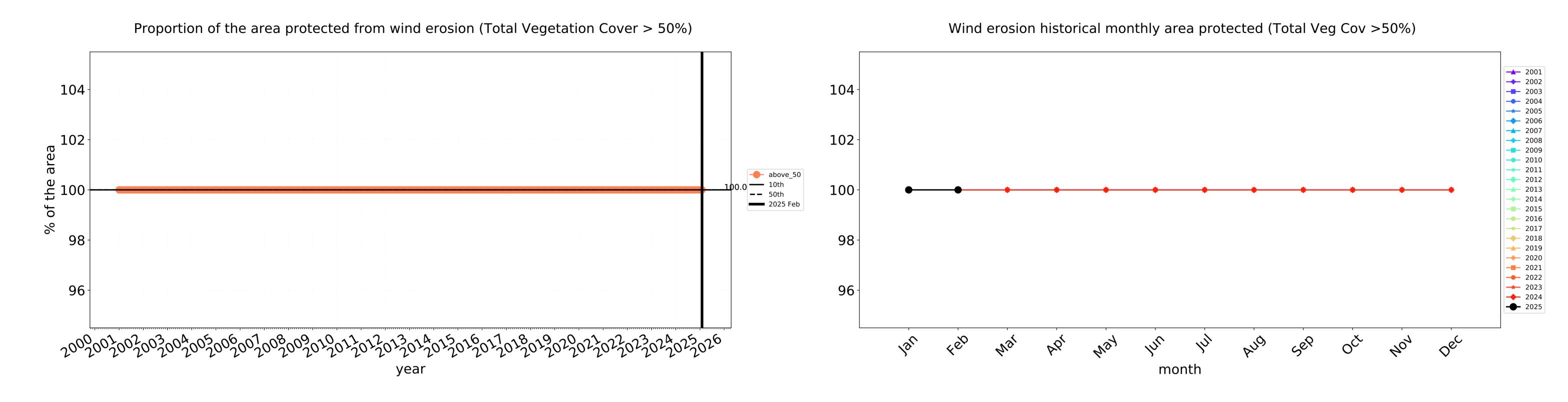


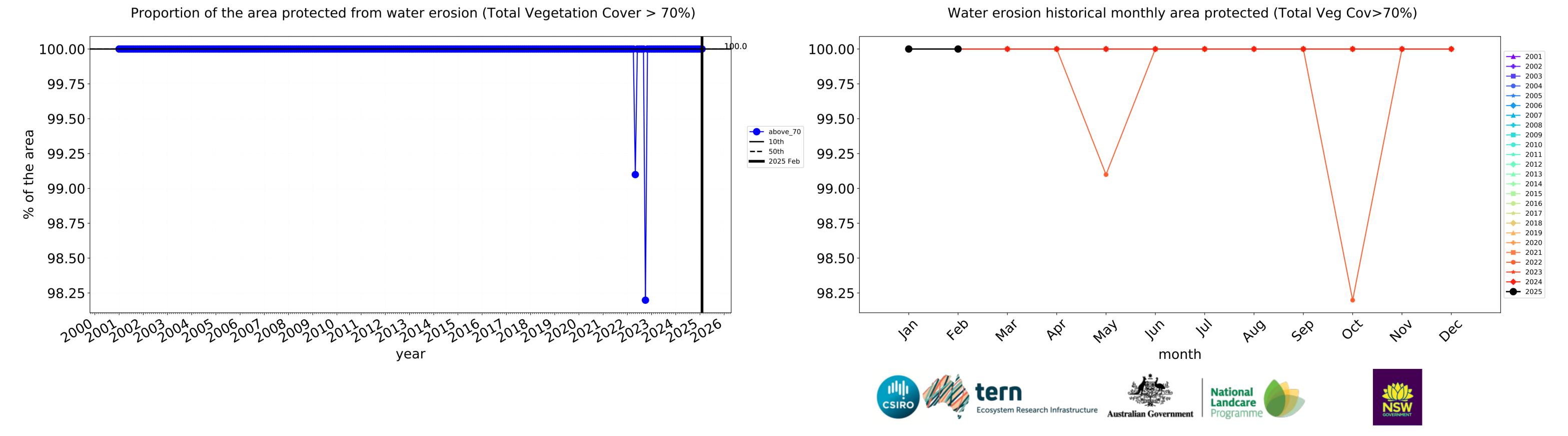


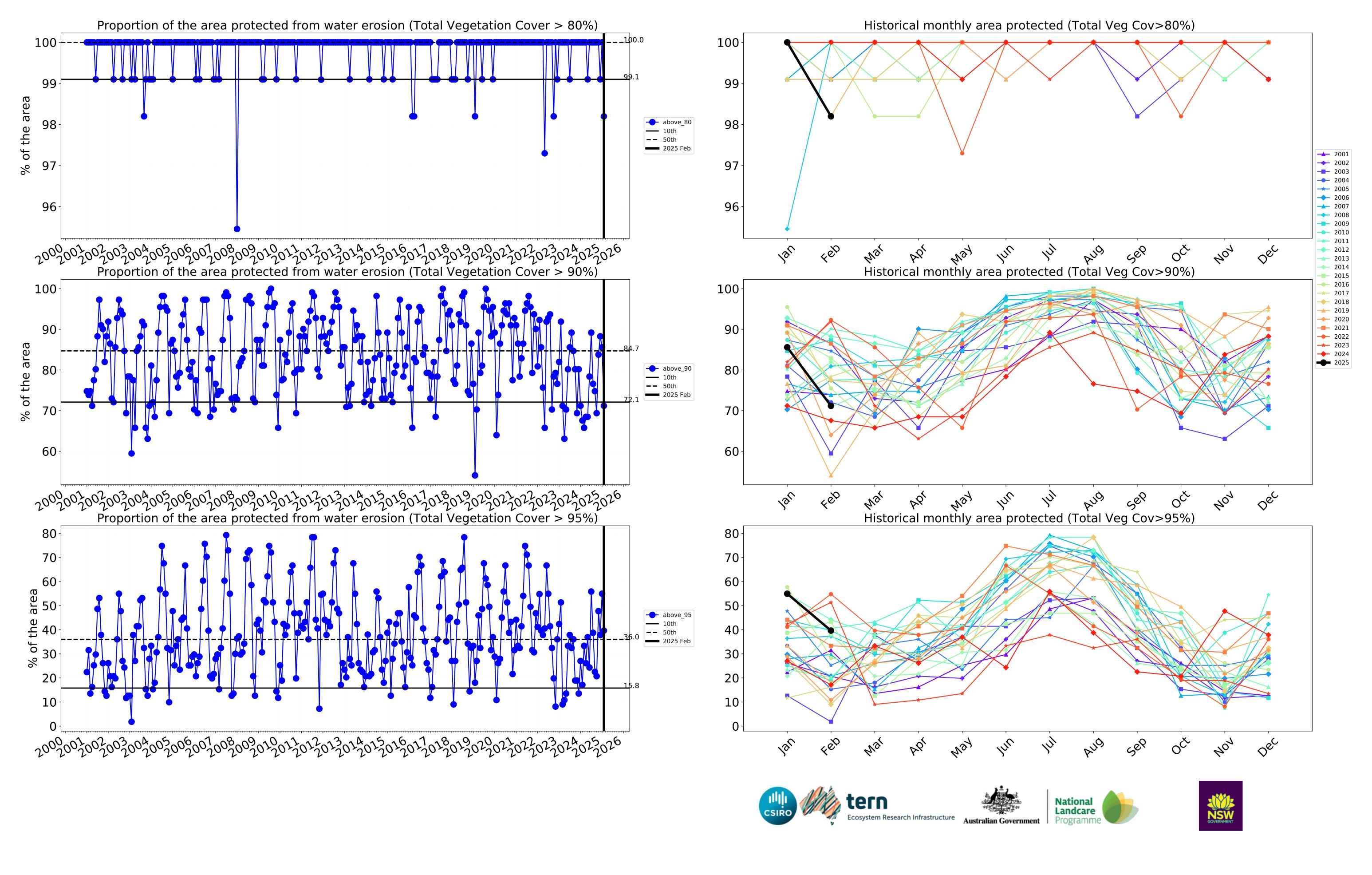












### **Cropping**

### Land use and forest cover

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

Anomaly show how many percetage points each

pixel is from

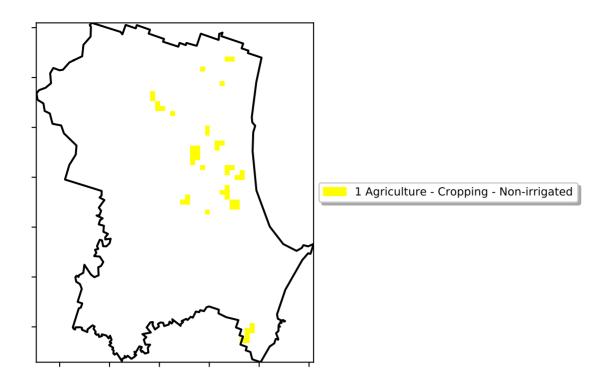
the mean. That is, red pixels

are about 20% lower than the

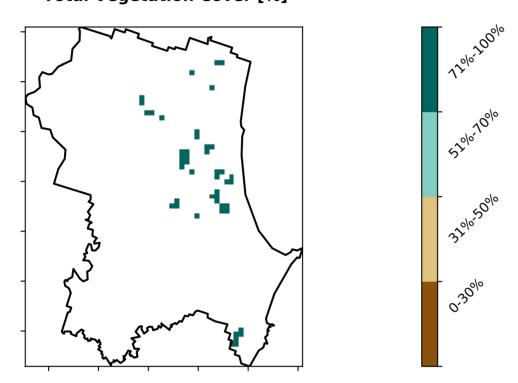
mean of that pixel. The mean

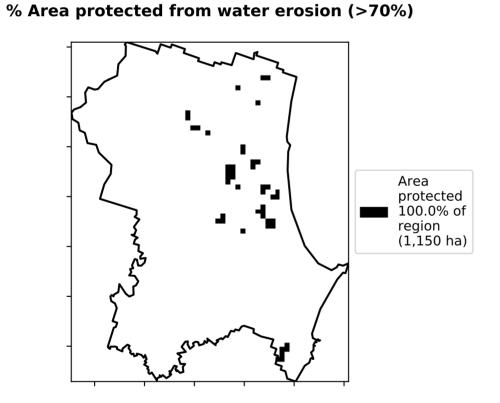
is only for the month of the map

using baseline from 2001 to 2019.

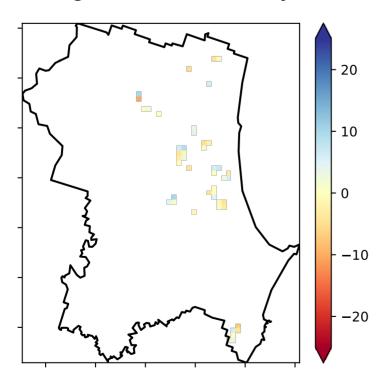


### **Total Vegetation Cover [%]**



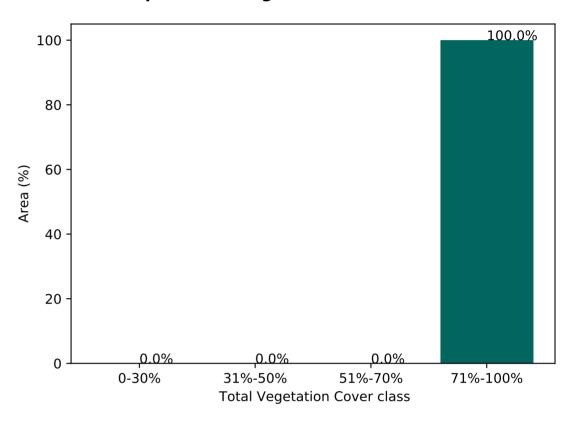


### **Total Vegetation Cover Anomaly [%]**

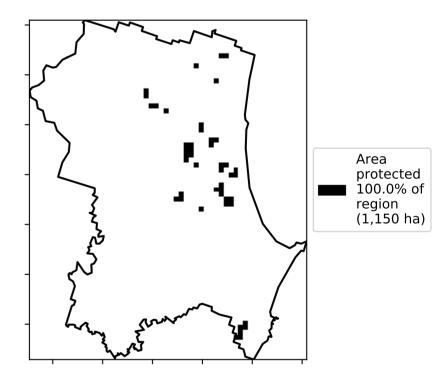


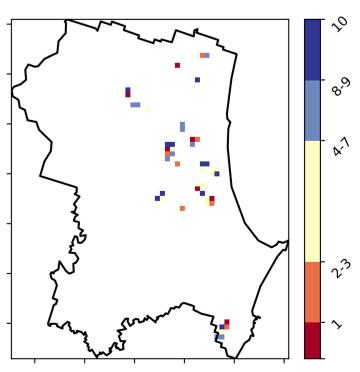
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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





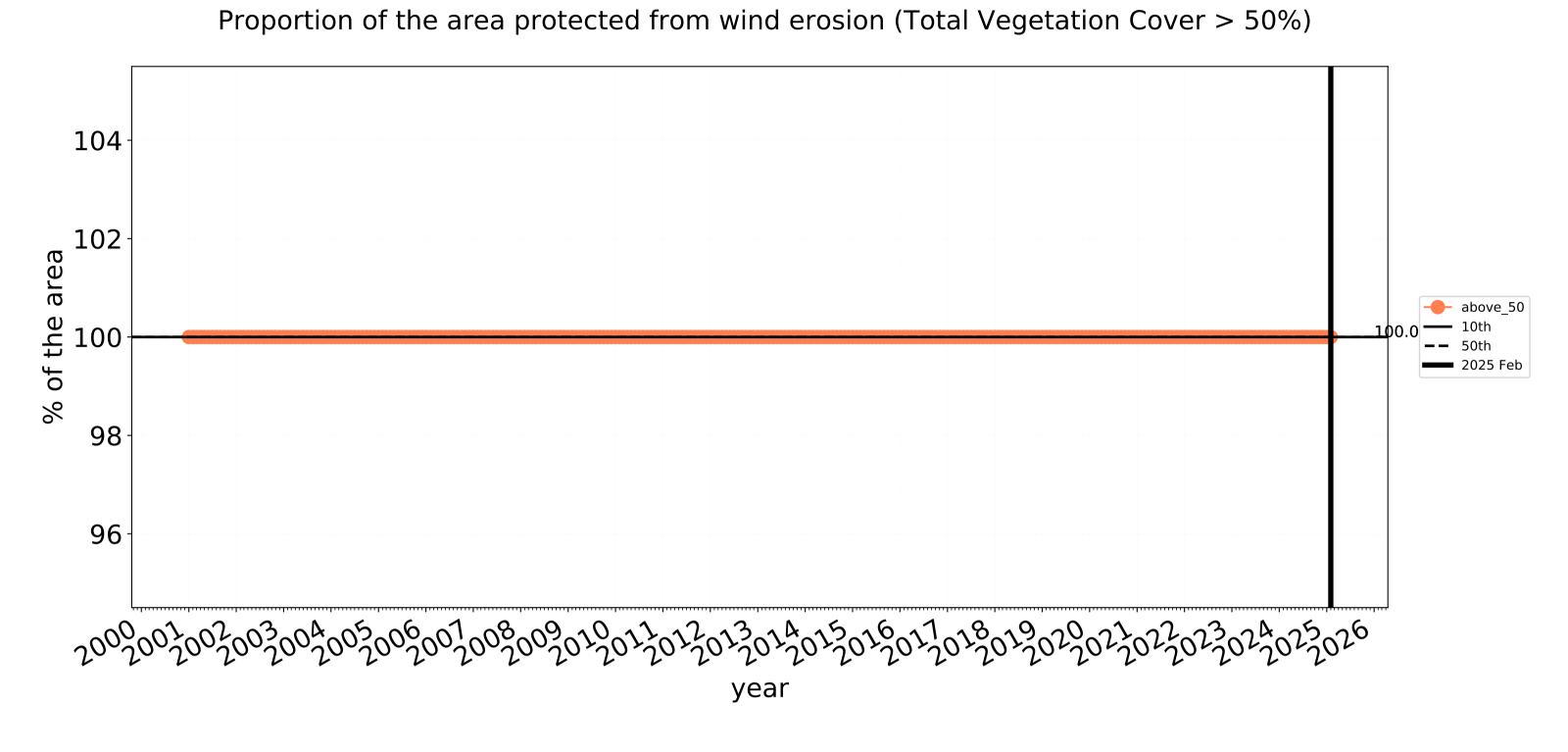




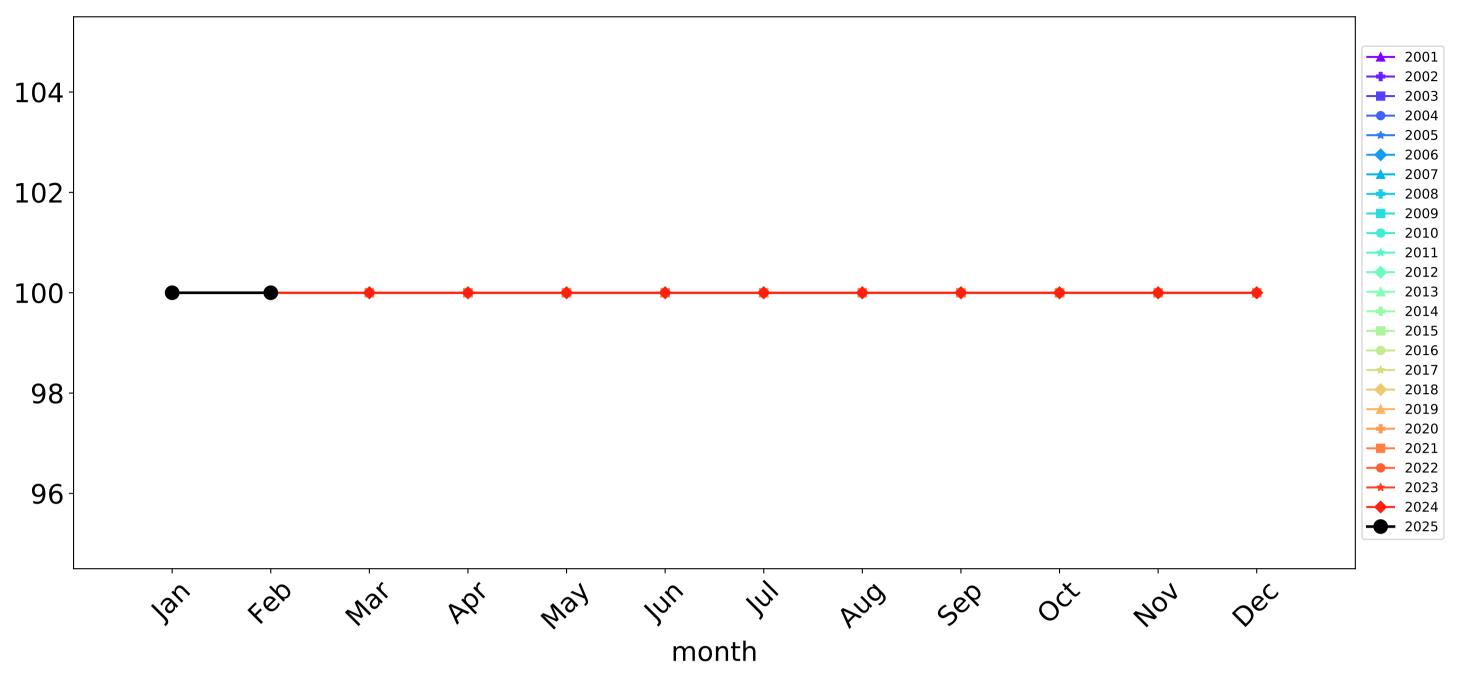


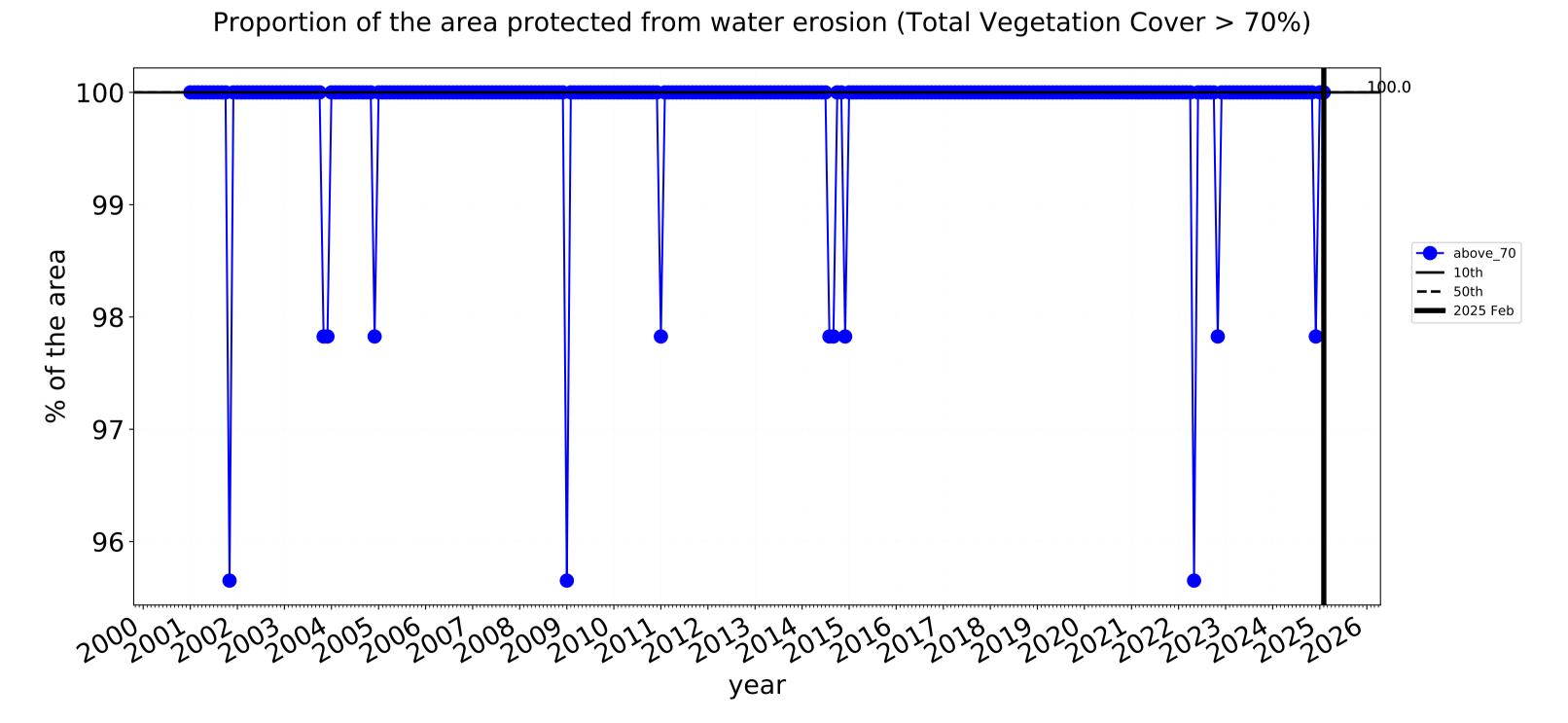


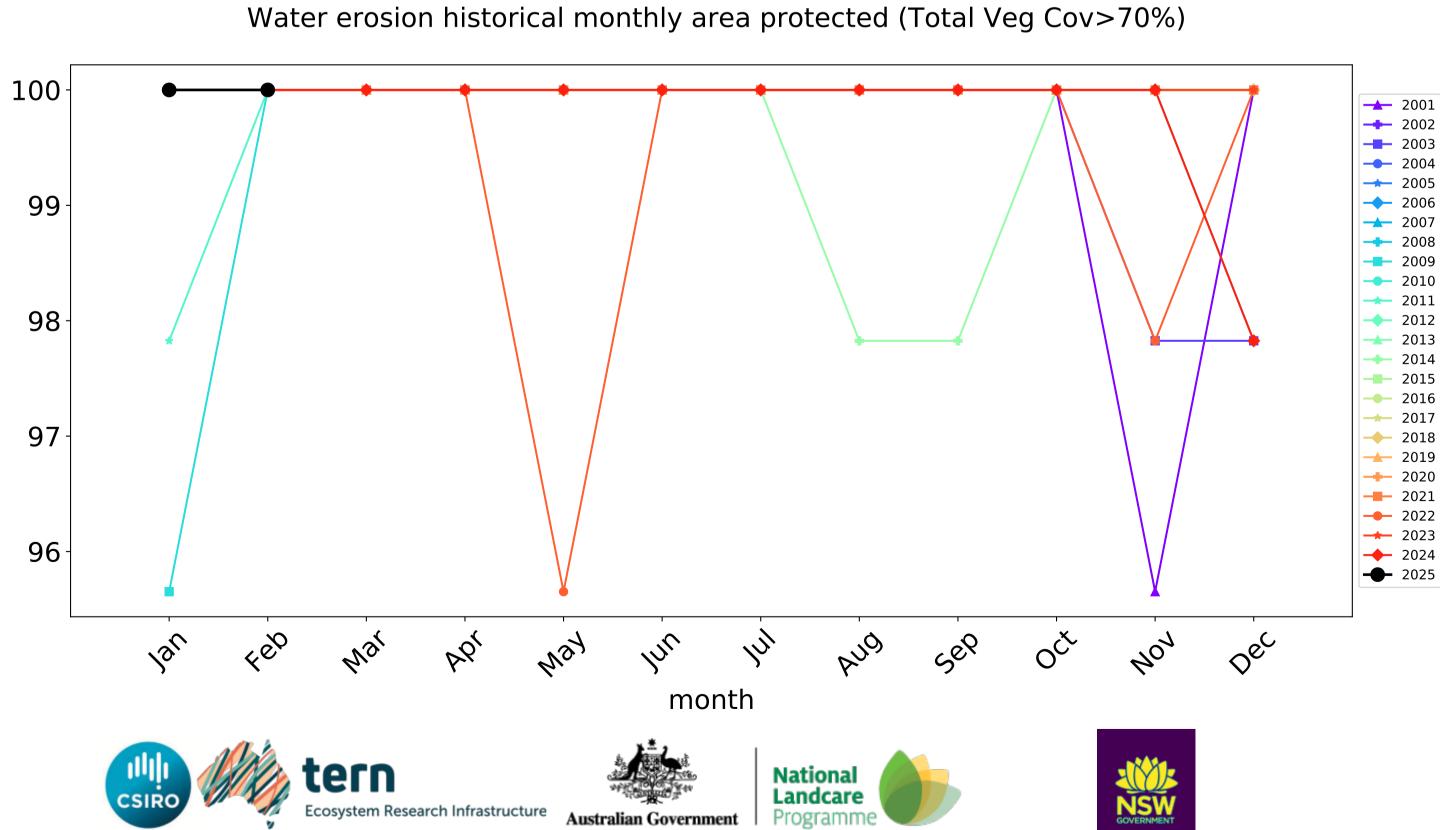
### **Cropping timeseries**

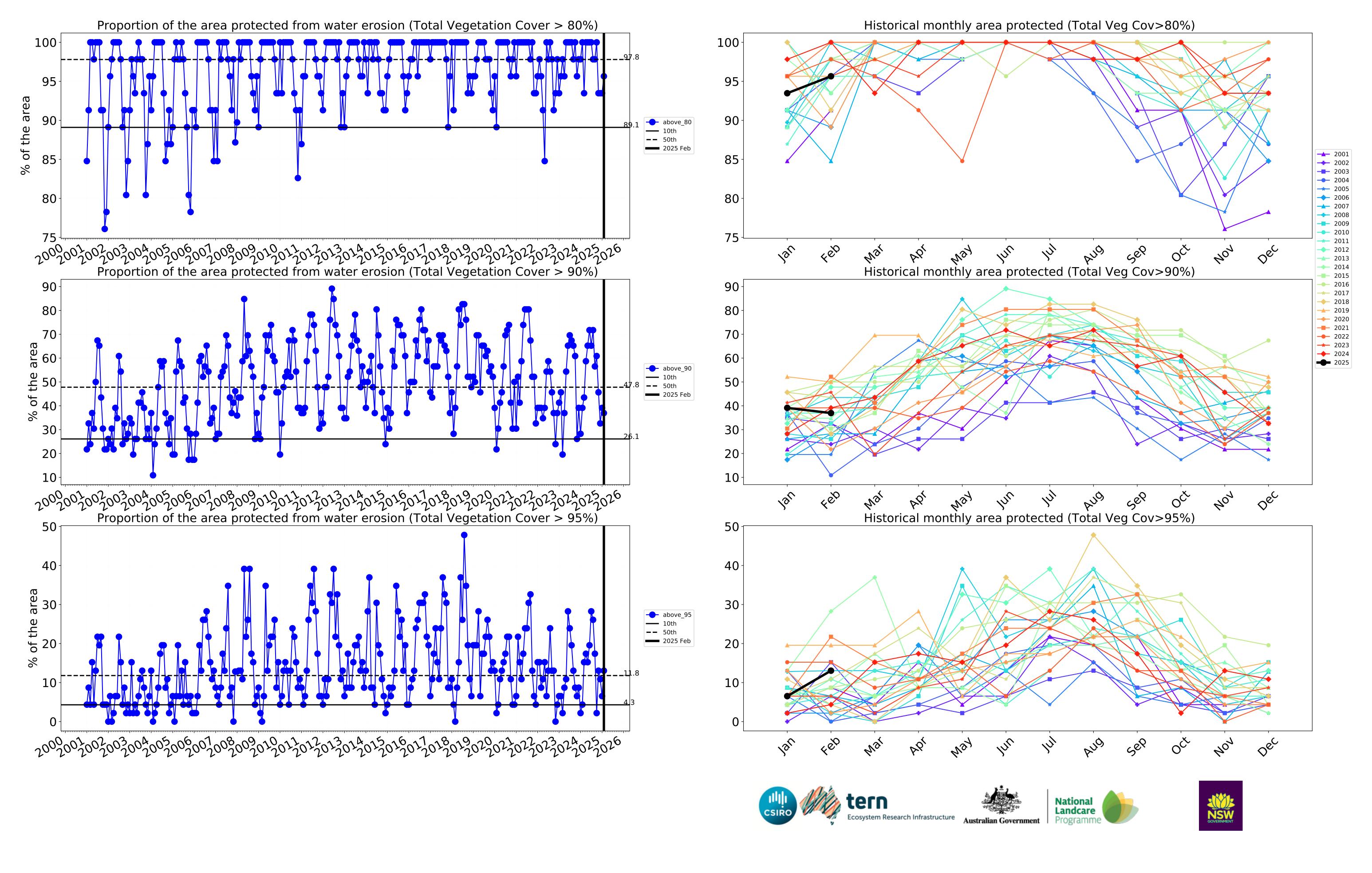












### **Horticulture**

### Land use and forest cover

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

Anomaly show how many percetage points each

pixel is from

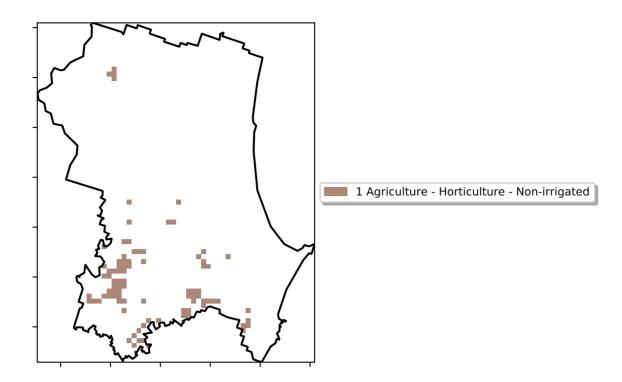
the mean. That is, red pixels

are about 20% lower than the

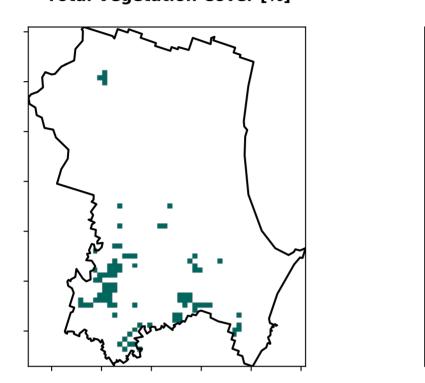
mean of that pixel. The mean

is only for the month of the map

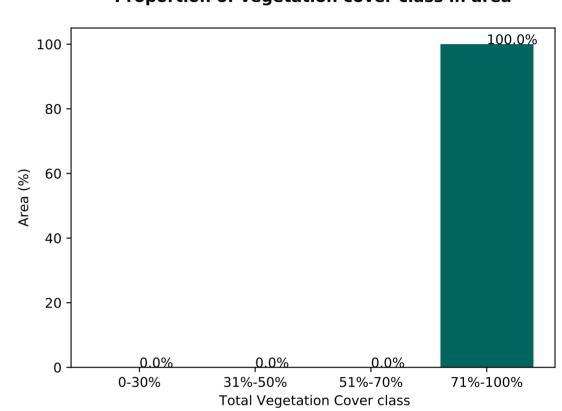
using baseline from 2001 to 2019.



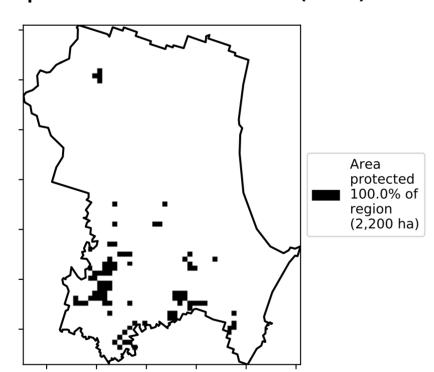
### Total Vegetation Cover [%]



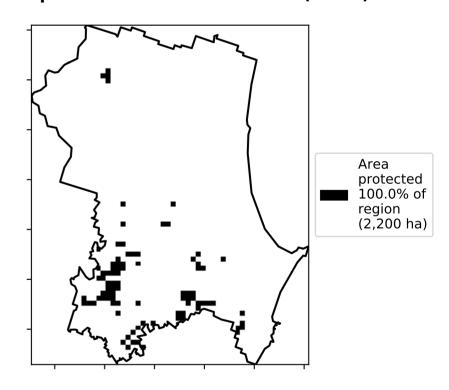
### Proportion of vegetation cover class in area



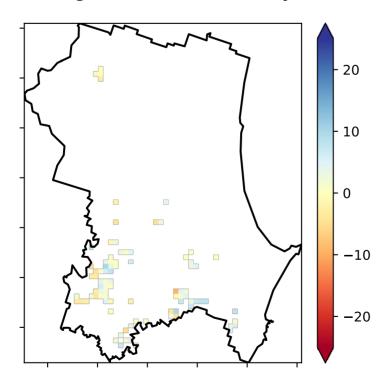
### % Area protected from water erosion (>70%)



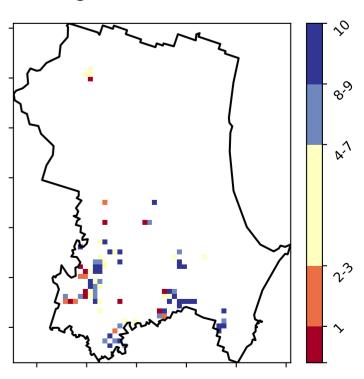
% Area protected from wind erosion (>50%)



### **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.



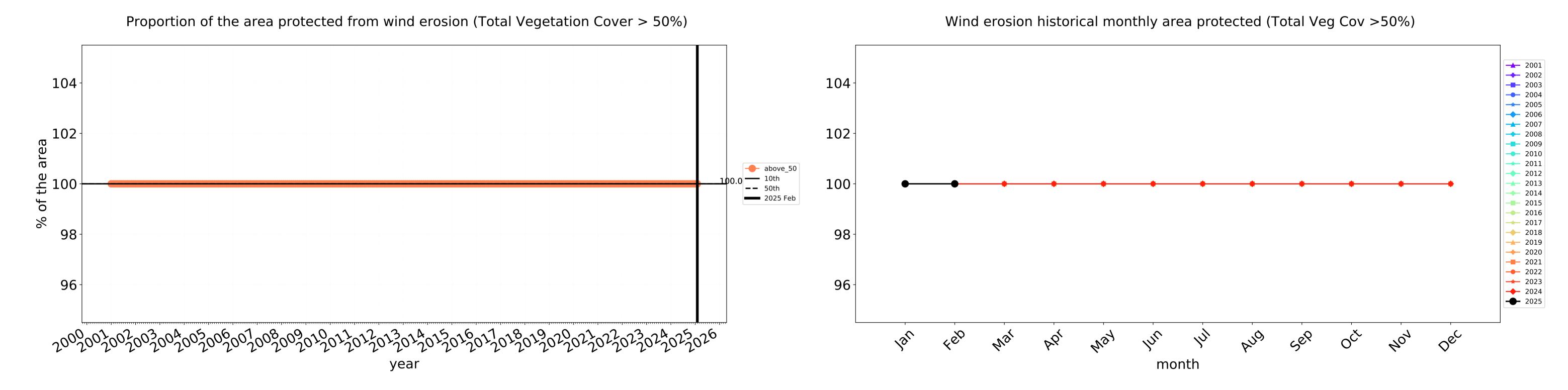


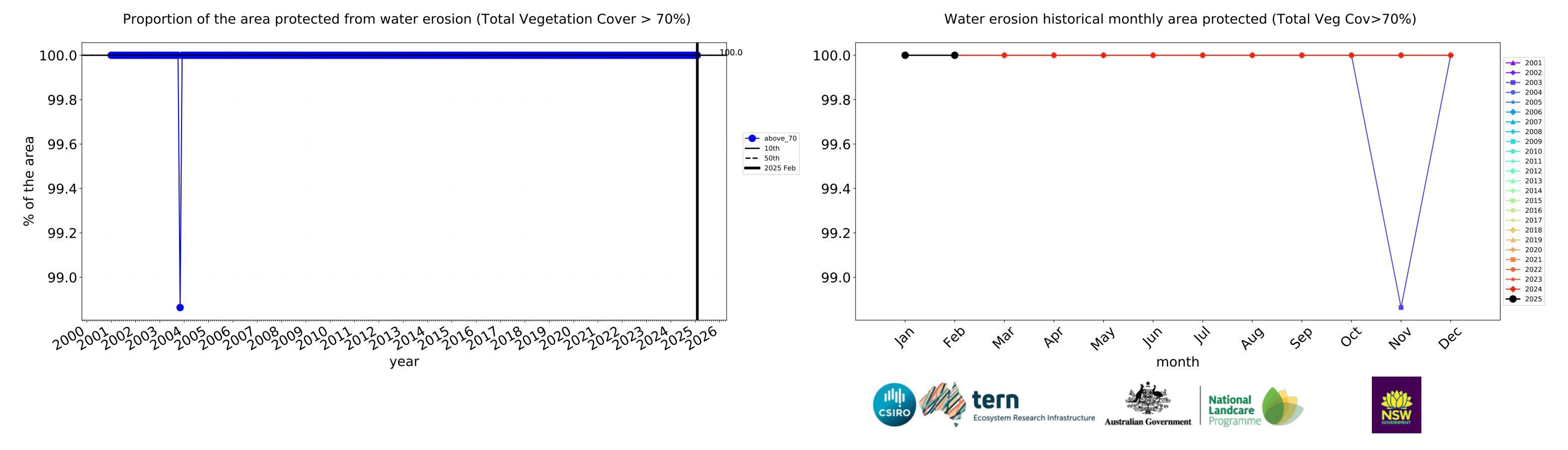


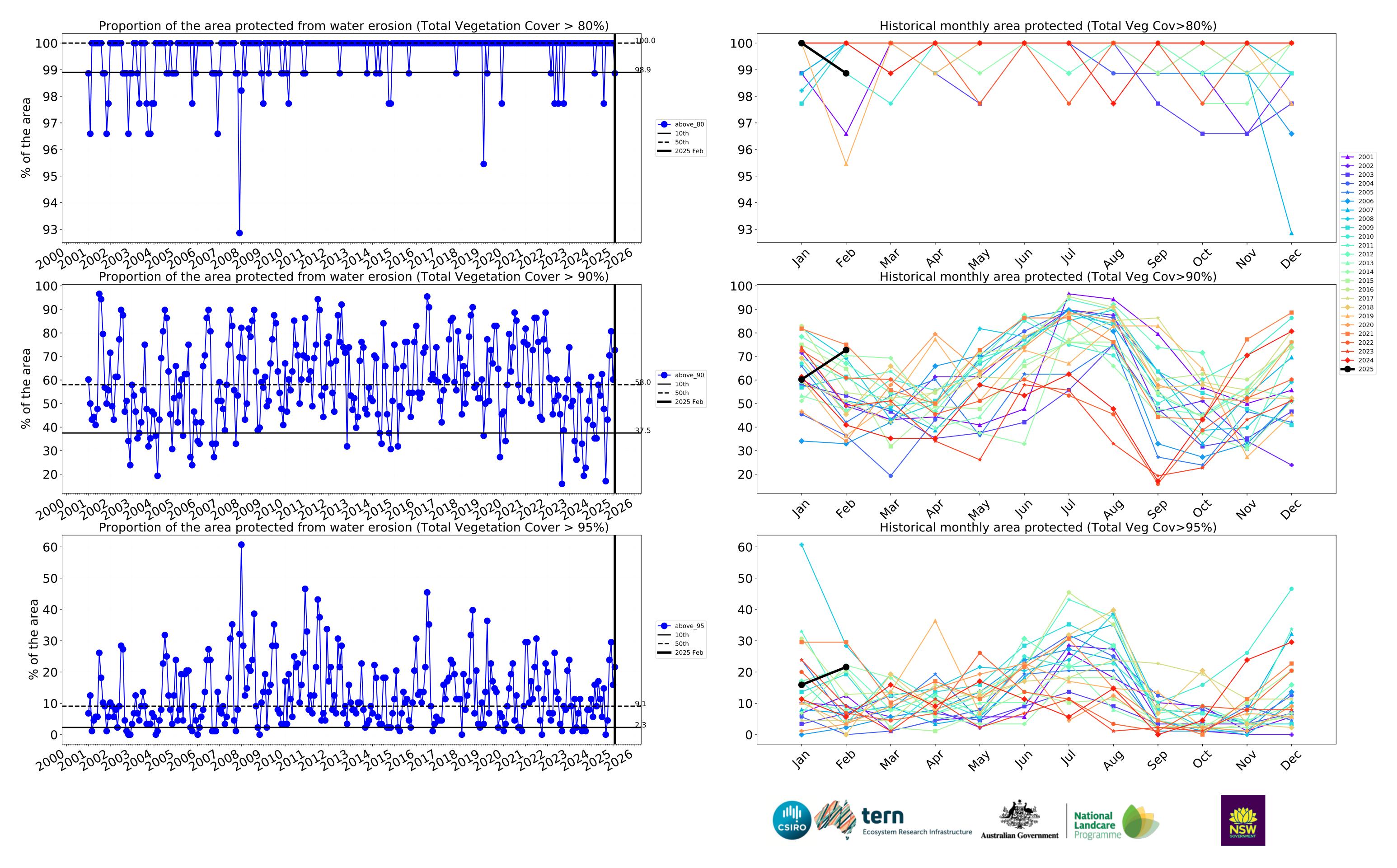




### **Horticulture timeseries**



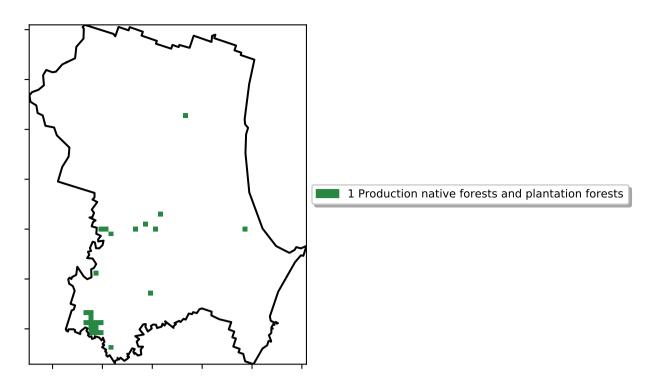




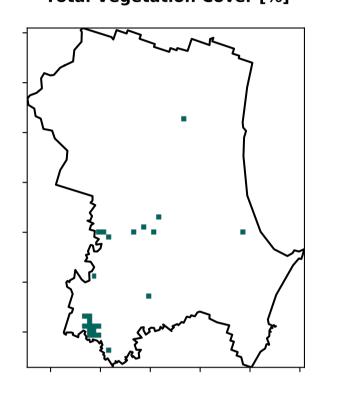
### **Production native forests and plantation forests**

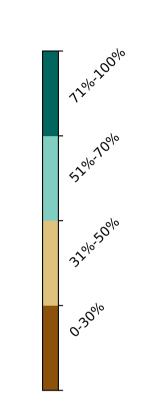
### Land use and forest cover

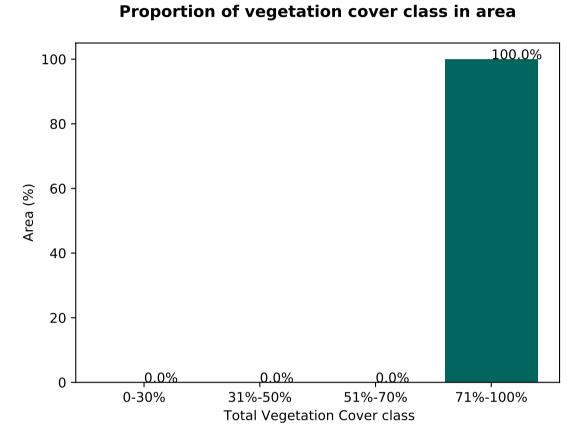
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



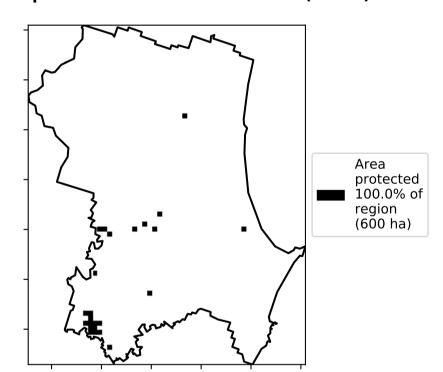
### **Total Vegetation Cover [%]**



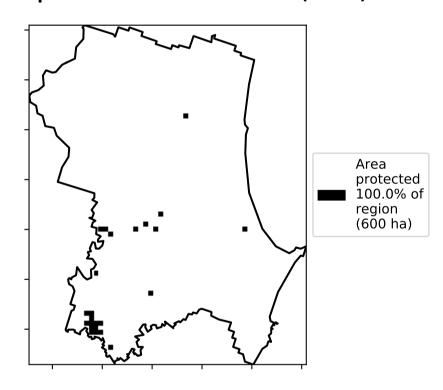




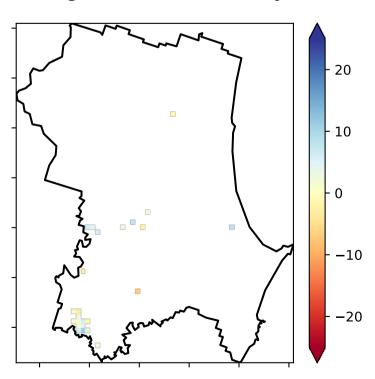
### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

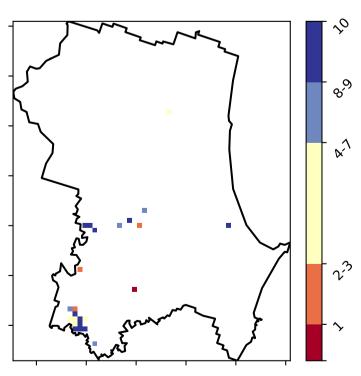


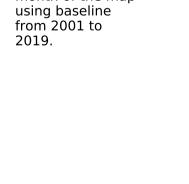
### **Total Vegetation Cover Anomaly [%]**



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

### Total Vegetation Cover Decile [%]





Anomaly show how many percetage points each

pixel is from

the mean. That is, red pixels

are about 20% lower than the mean of that

pixel. The mean

is only for the month of the map

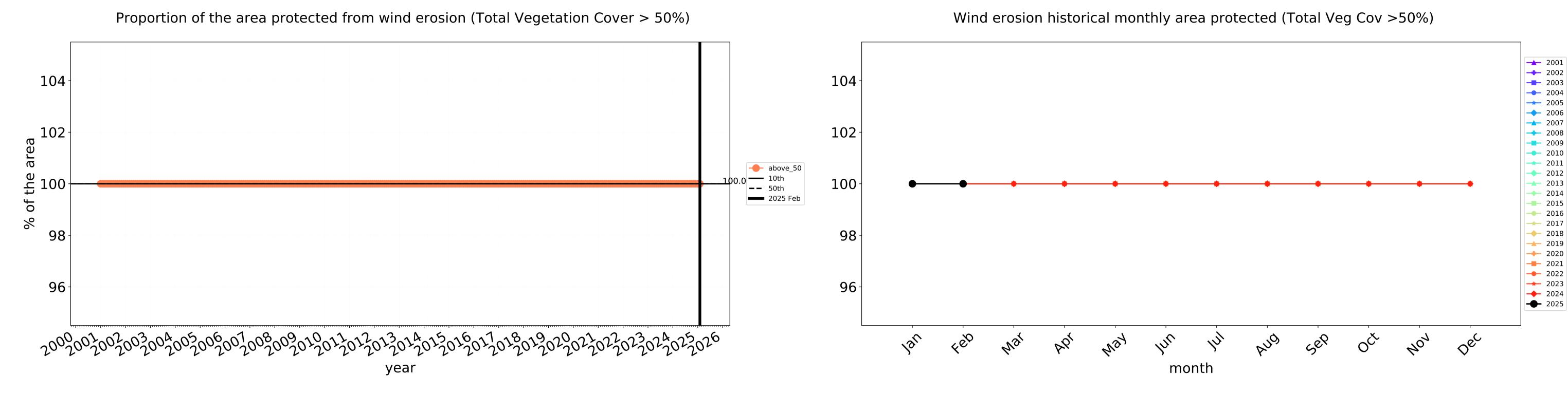


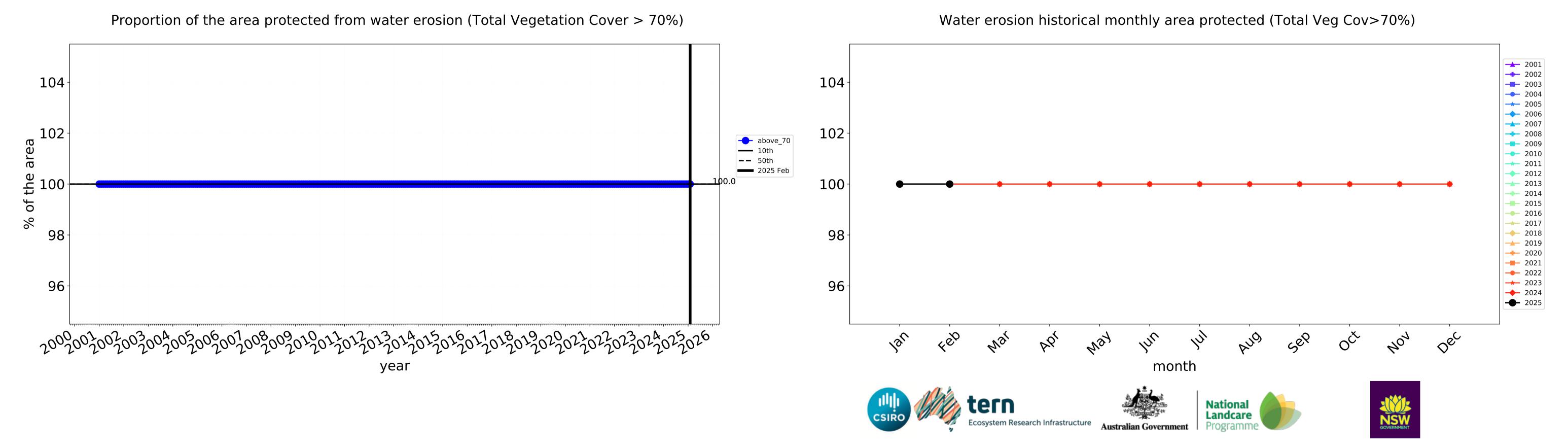


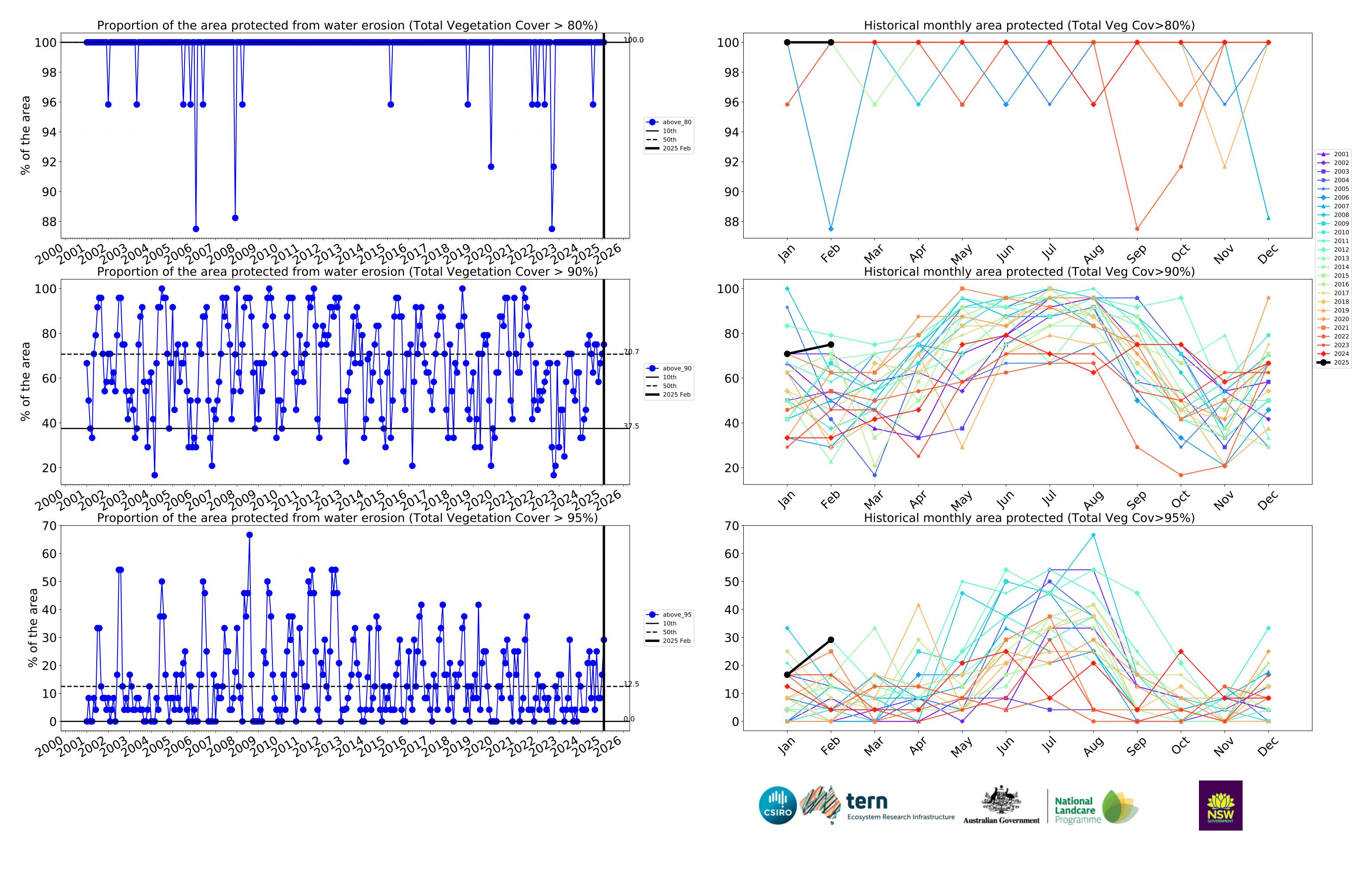




### **Production native forests and plantation forests timeseries**







## Byron\_(A) (55,100 ha and no data 1,595 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	55,100	99.8% 55,000	99.5% 54,825	98.0% 54,025	94.9% 52,275	59.2% 32,600	21.3% 11,750
Conservation and natural environments	10,650	99.3% 10,575	98.6% 10,500	94.6% 10,075	91.3% 9,725	66.7% 7,100	34.7% 3,700
Conservation and natural environments non forest	1,300	96.2% 1,250	94.2% 1,225	75.0% 975	63.5% 825	34.6% 450	3.8% 50
Conservation and natural environments Woodland forest	625	100.0% 625	100.0% 625	100.0% 625	96.0% 600	68.0% 425	36.0% 225
Conservation and natural environments Forest (non woodland)	8,725	99.7% 8,700	99.1% 8,650	97.1% 8,475	95.1% 8,300	71.3% 6,225	39.3% 3,425
Agriculture	33,325	100.0% 33,325	100.0% 33,325	99.7% 33,225	98.5% 32,825	60.5% 20,175	19.0% 6,325
Grazing	29,950	100.0% 29,950	100.0% 29,950	99.7% 29,850	98.6% 29,525	60.6% 18,150	19.0% 5,700
Grazing non forest	24,600	100.0% 24,600	100.0% 24,600	99.6% 24,500	98.5% 24,225	57.4% 14,125	15.3% 3,775
Grazing Woodland forest	2,575	100.0% 2,575	100.0% 2,575	100.0% 2,575	100.0% 2,575	79.6% 2,050	32.0% 825
Grazing - Forest (non woodland)	2,775	100.0% 2,775	100.0% 2,775	100.0% 2,775	98.2% 2,725	71.2% 1,975	39.6% 1,100
Cropping	1,150	100.0% 1,150	100.0% 1,150	100.0% 1,150	95.7% 1,100	37.0% 425	13.0% 150
Horticulture	2,200	100.0% 2,200	100.0% 2,200	100.0% 2,200	98.9% 2,175	72.7% 1,600	21.6% 475
Production native forests and plantation forests	600	100.0% 600	100.0% 600	100.0% 600	100.0% 600	75.0% 450	29.2% 175







