### Total vegetation cover soil protection Region:LGA Hinchinbrook\_(S) QLD

## **Date: February 2025**

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 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:

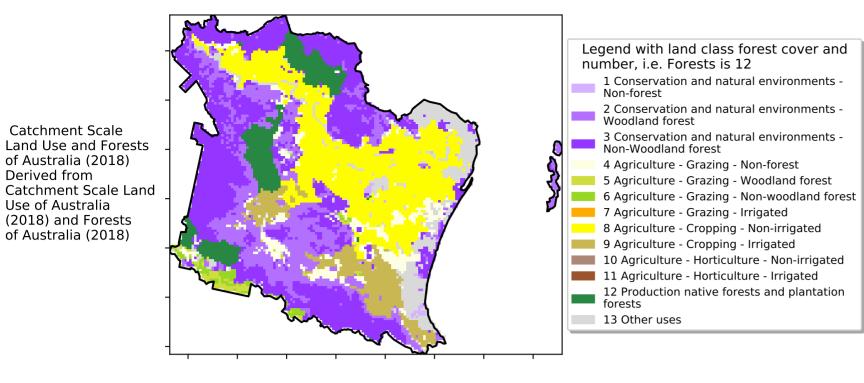
https://doi.org/10.4225/08/5848a3f19a7b3



### **Vegetation Cover Feb 2025**

#### Land use and forest cover

Proportion of each land class in area



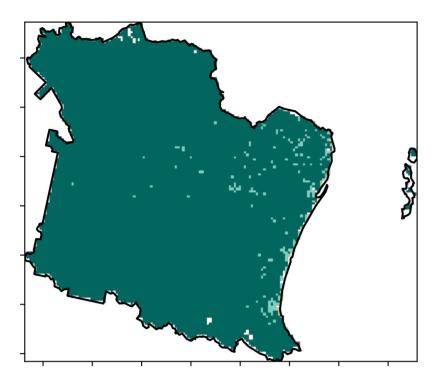
12%-100%

· 52°1070010

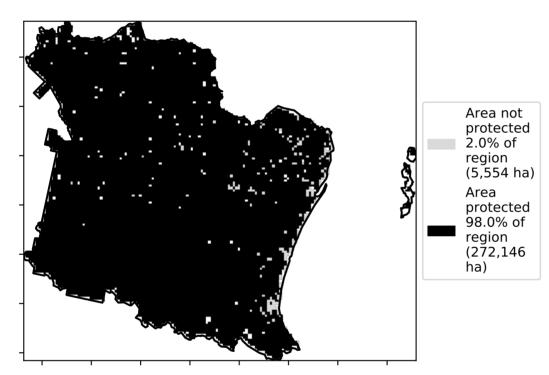
32%50%

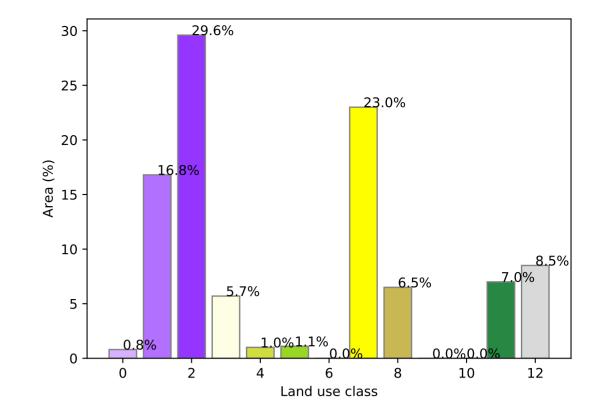
0.30%

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

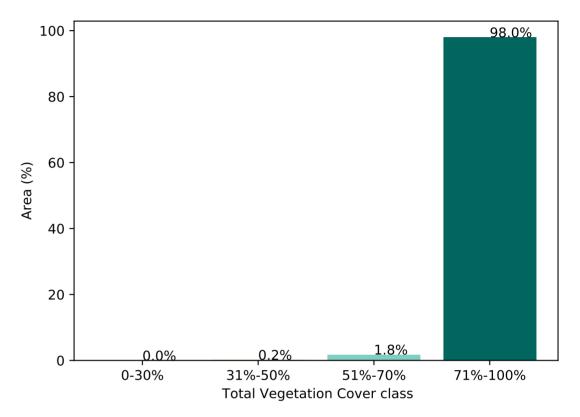


#### % Area protected from water erosion (>70%)

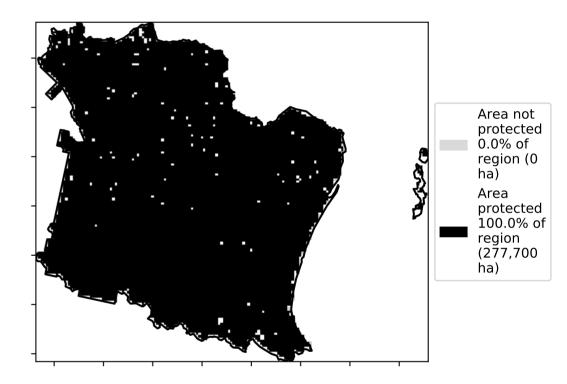




#### Proportion of vegetation cover class in area

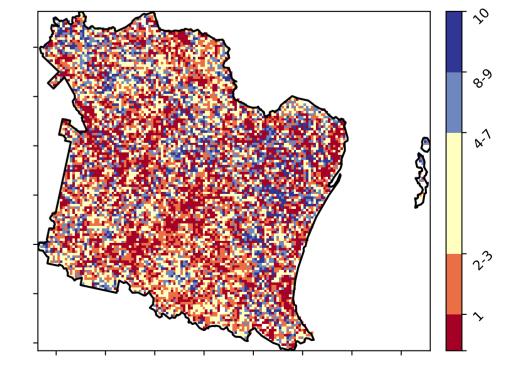


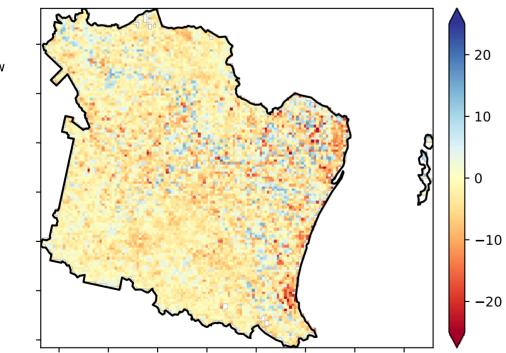
#### % Area protected from wind erosion (>50%)



**Total Vegetation Cover Anomaly [%]** 

**Total Vegetation Cover Decile [%]** 





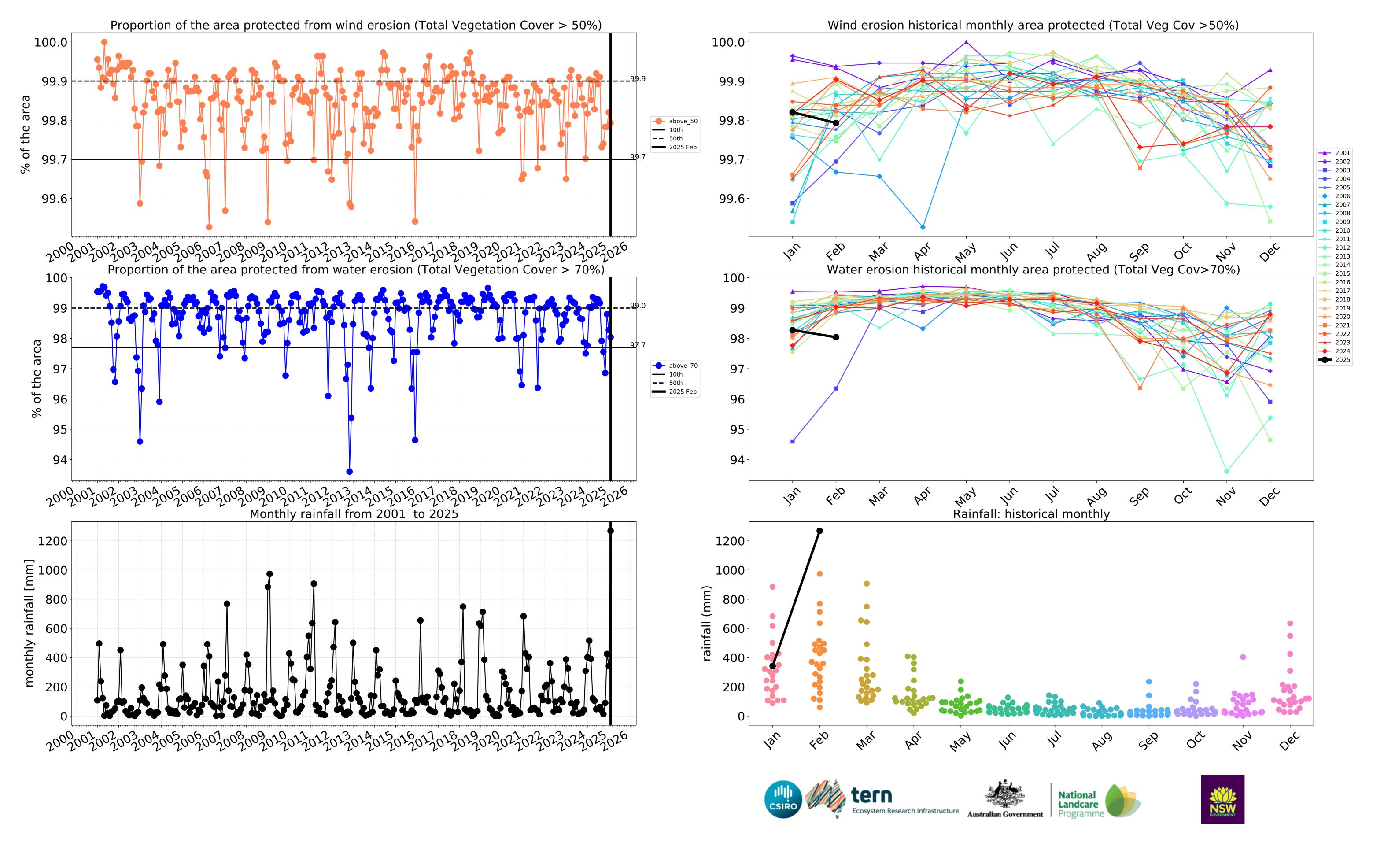
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

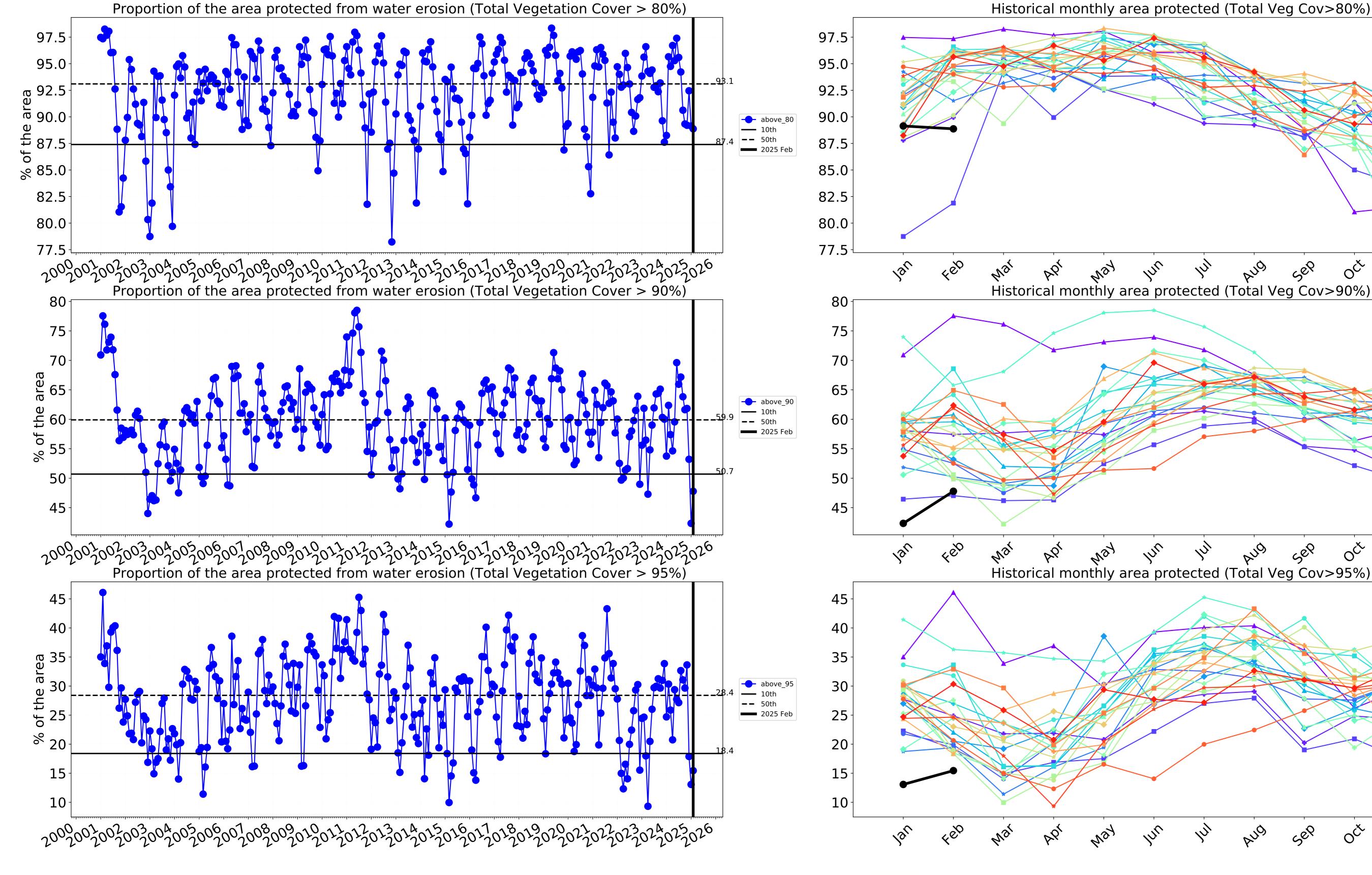


Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

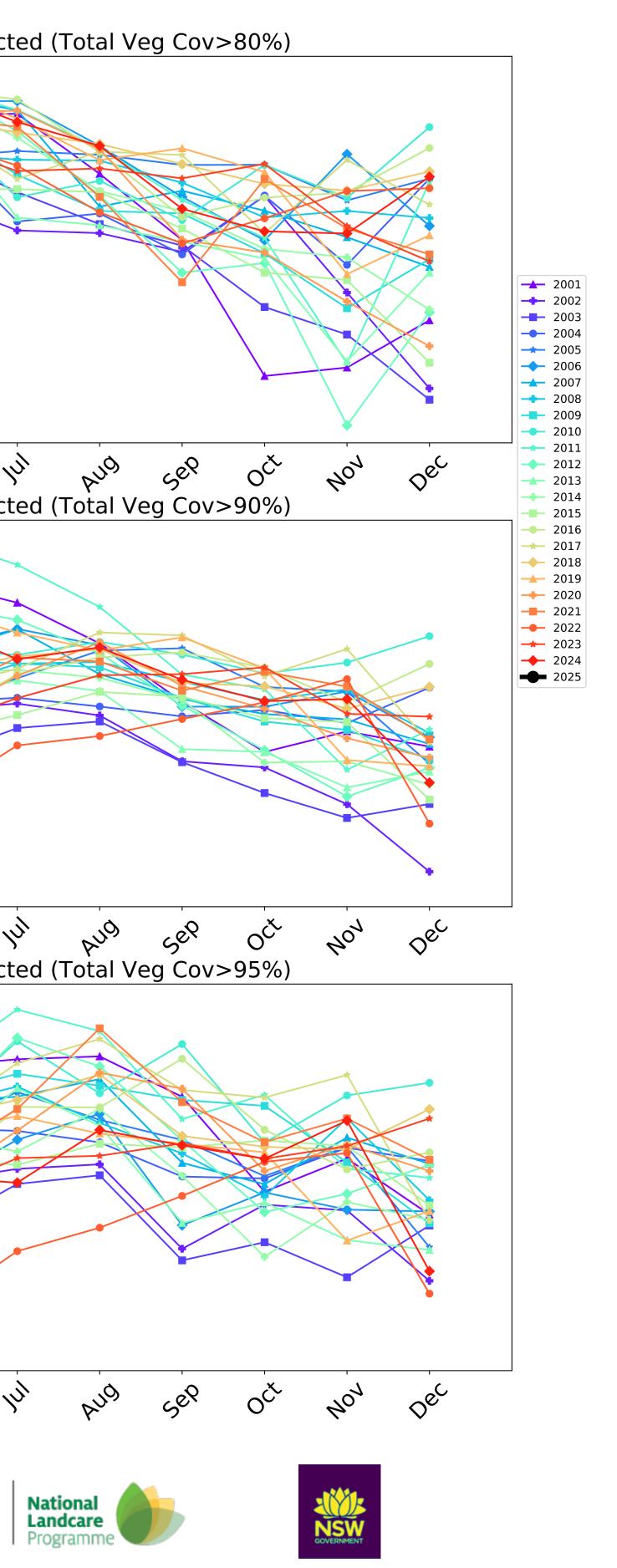
Derived from

Use of Australia









### **Conservation and natural environments**

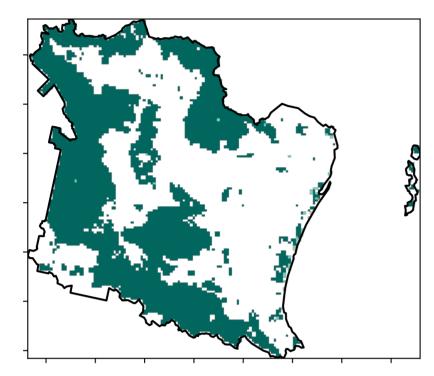
Ś

forest

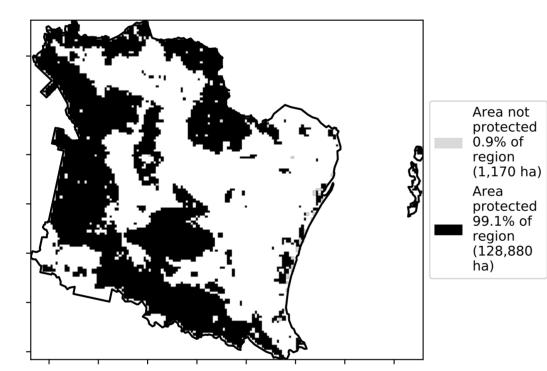
woodland forest

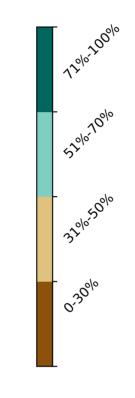
Land use and forest cover

**Total Vegetation Cover [%]** 



% Area protected from water erosion (>70%)



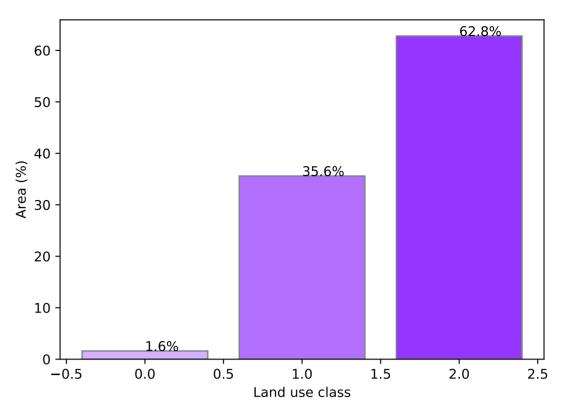


1 Conservation and natural environments - Non-forest

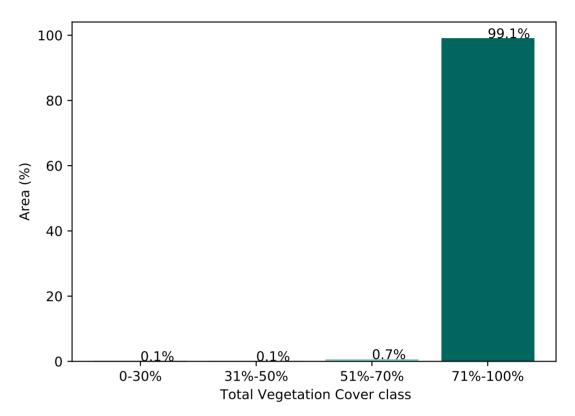
3 Conservation and natural environments - Non-

2 Conservation and natural environments - Woodland

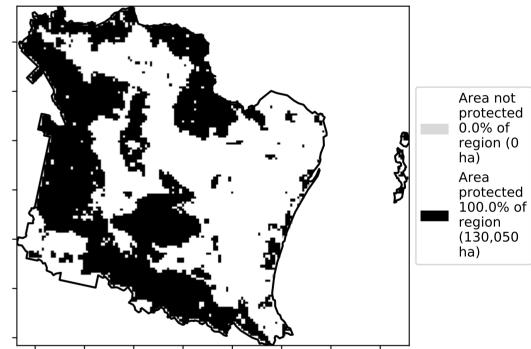
Proportion of each land class in area



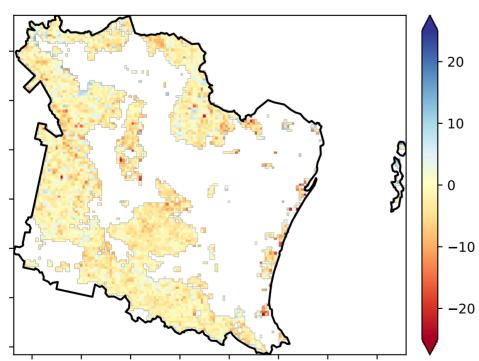
#### Proportion of vegetation cover class in area



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

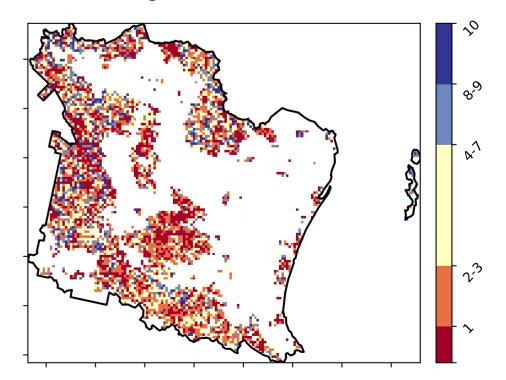


**Total Vegetation Cover Anomaly [%]** 



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 [%]** 





Anomaly show how many percetage points each pixel is from the mean That 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 from 2001 to 2019.

Catchment Scale Land Use and Forests of Australia (2018)

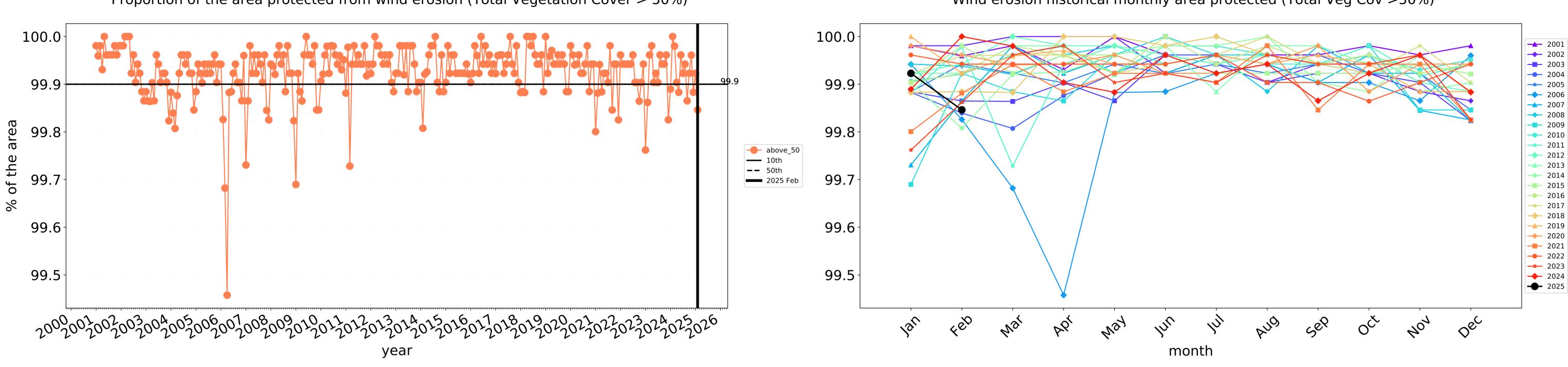
Catchment Scale Land

Derived from

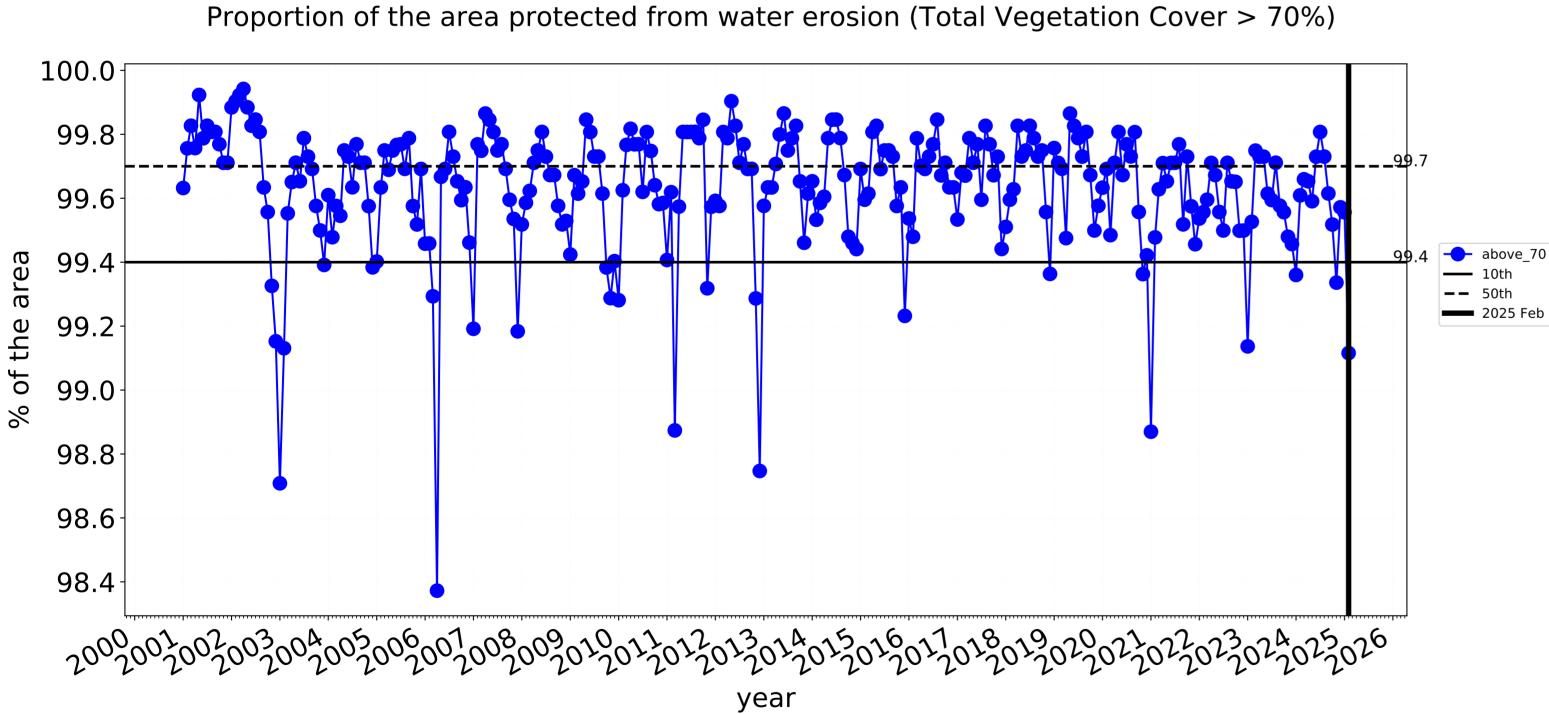
Use of Australia

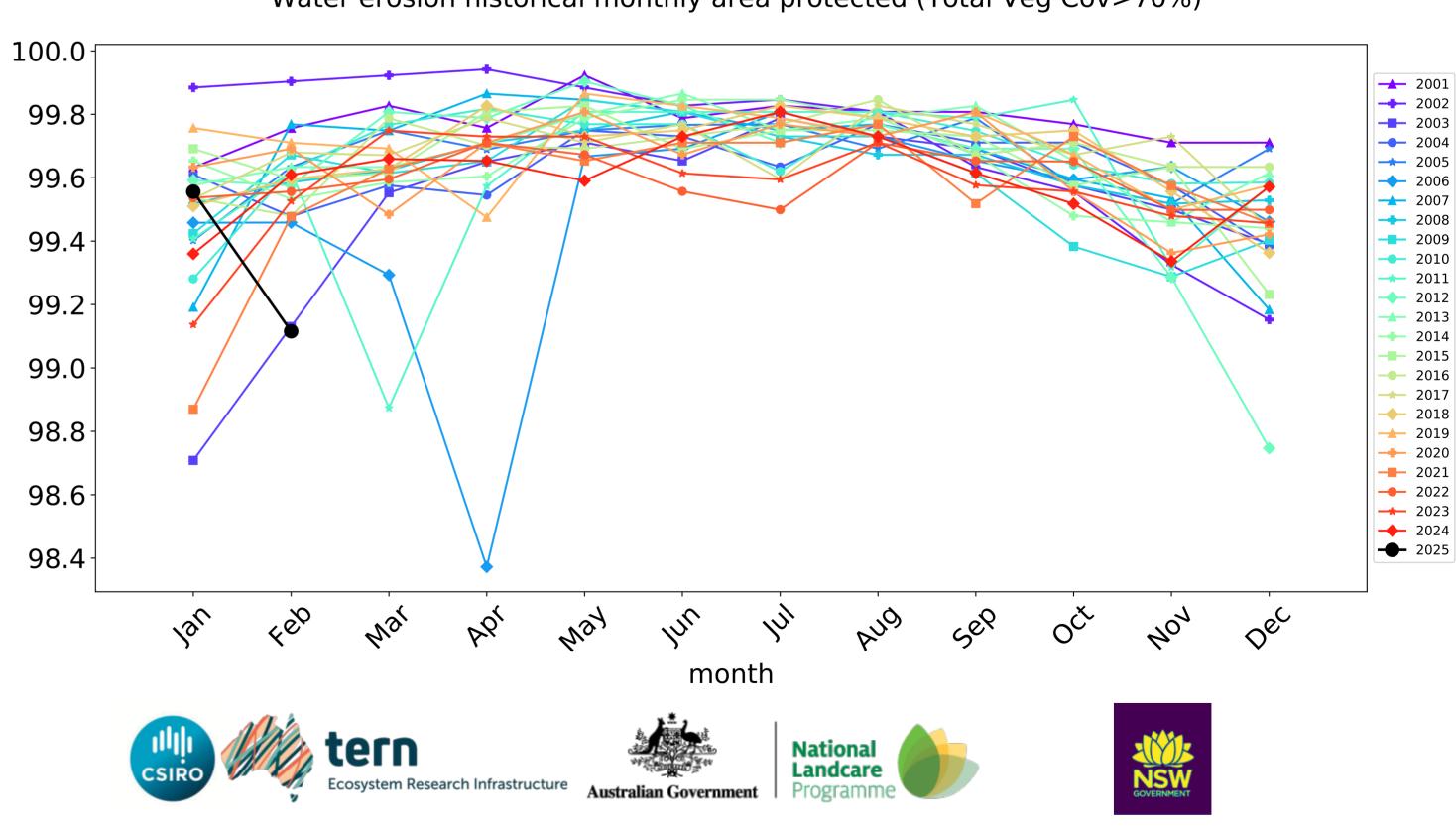
(2018) and Forests

of Australia (2018)



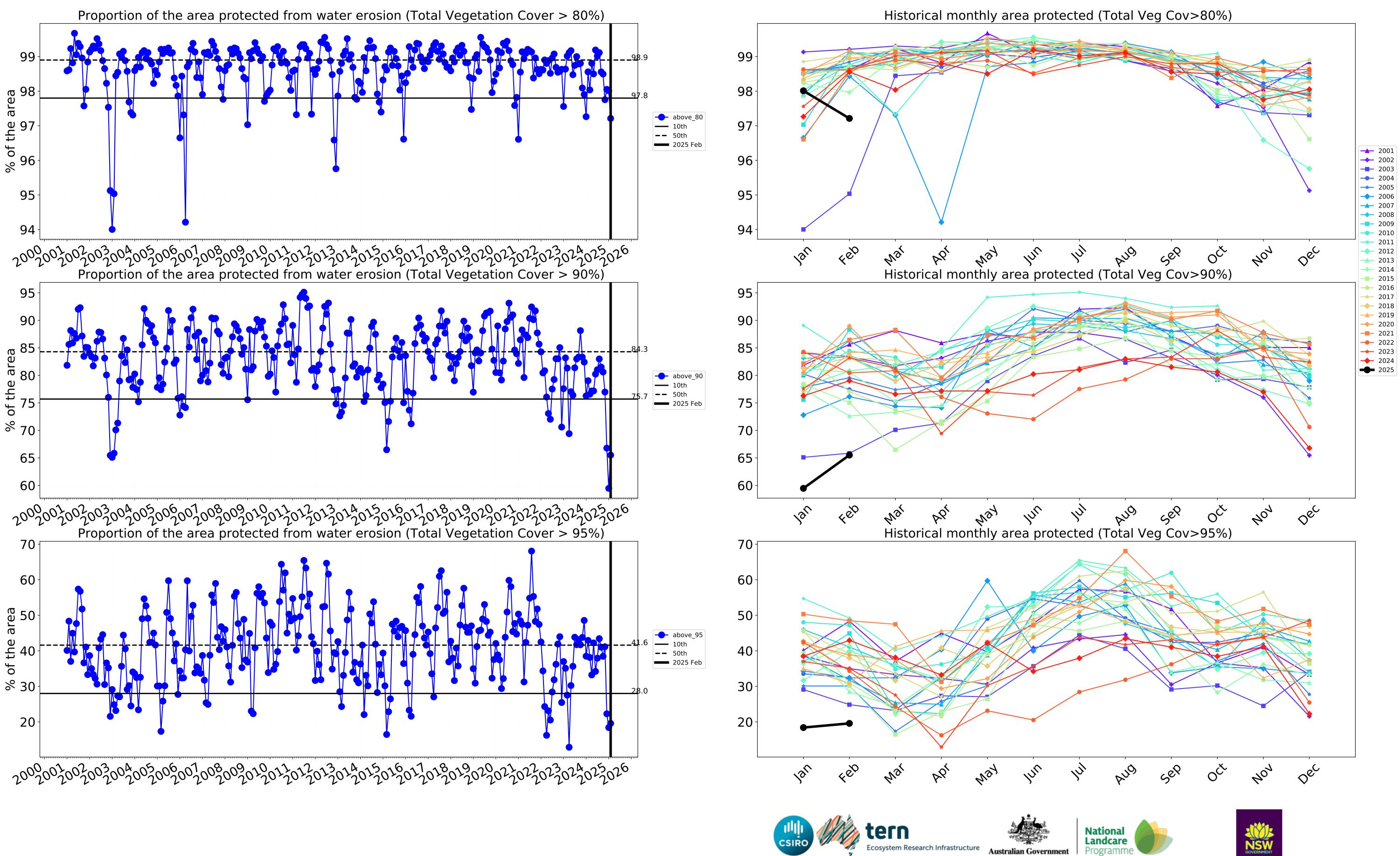
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)





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

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





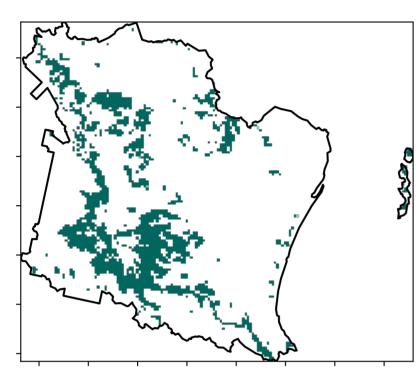
### **Conservation and natural environments Woodland forest**

Ş 1 Conservation and natural environments - Woodland forest

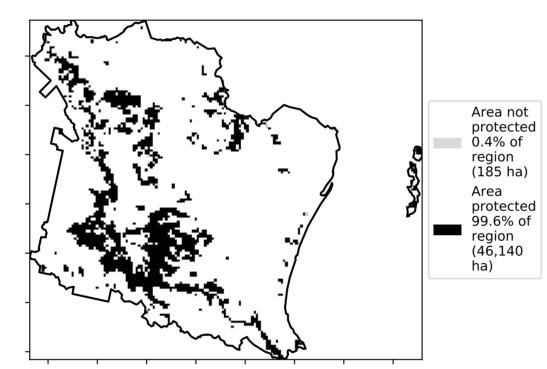
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

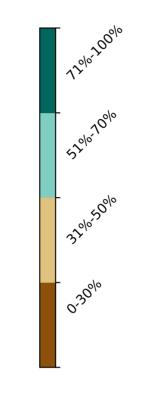
**Total Vegetation Cover [%]** 

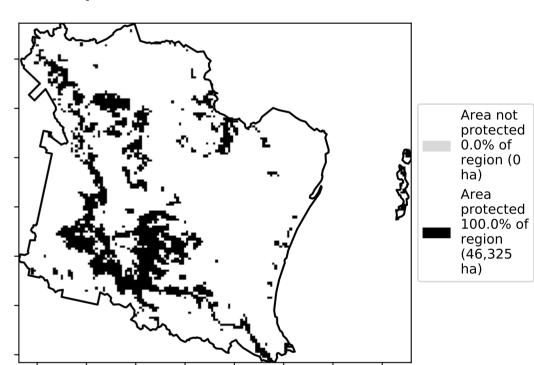
Land use and forest cover



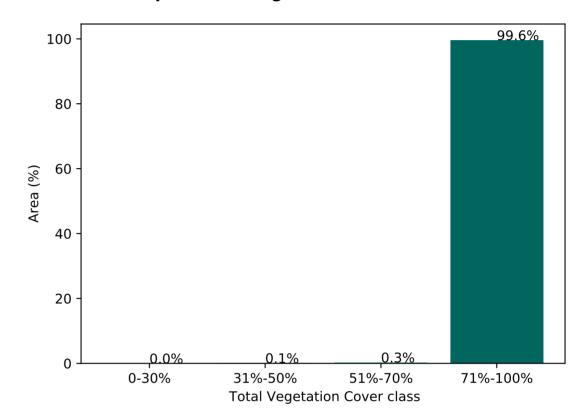
% Area protected from water erosion (>70%)





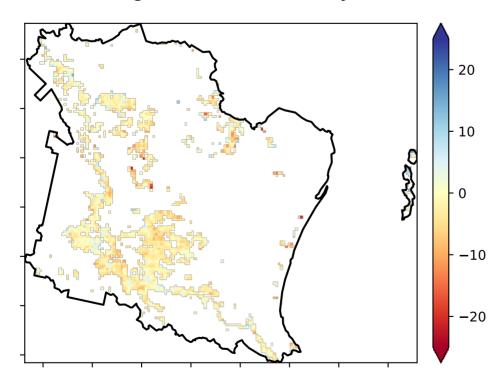


#### Proportion of vegetation cover class in area



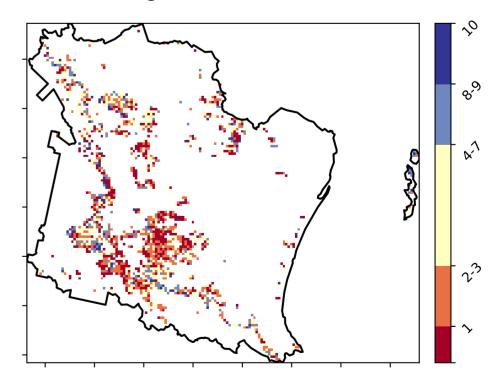
#### % Area protected from wind erosion (>50%)

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.

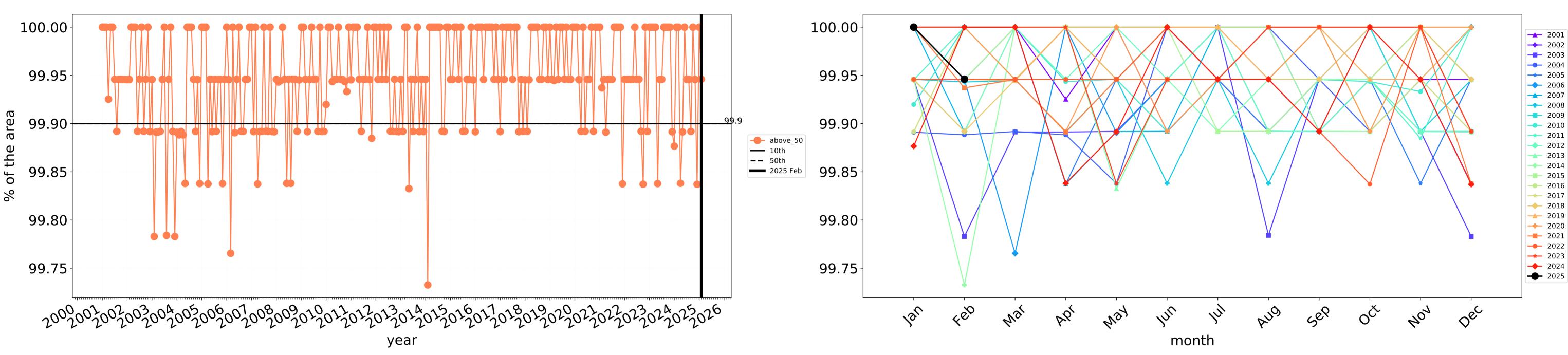
**Total Vegetation Cover Decile [%]** 

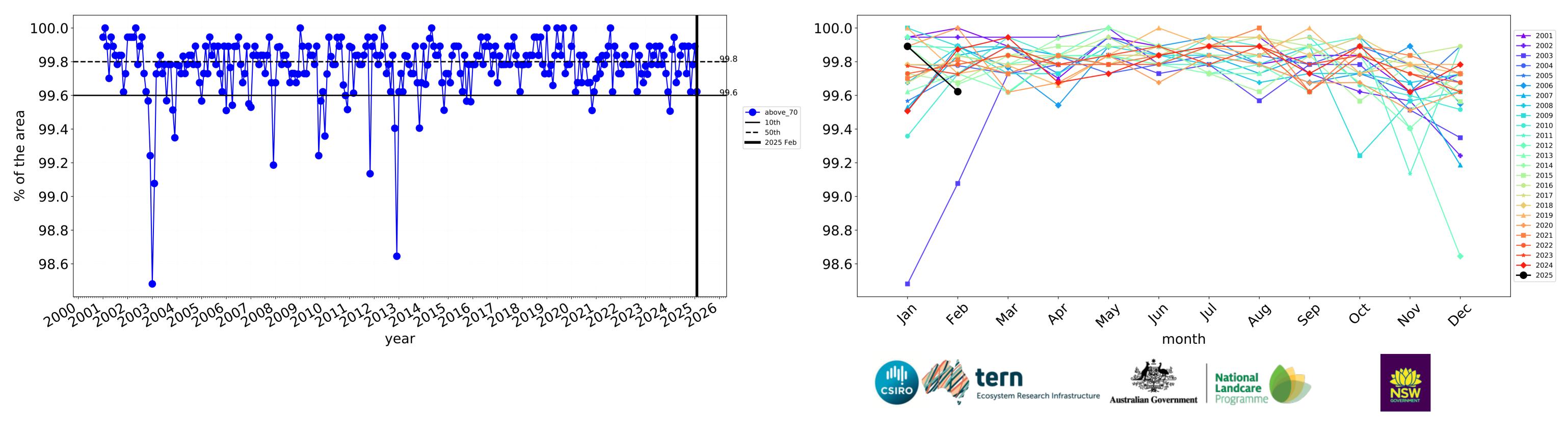




Anomaly show how many percetage points each pixel is from the mean That the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map from 2001 to 2019.

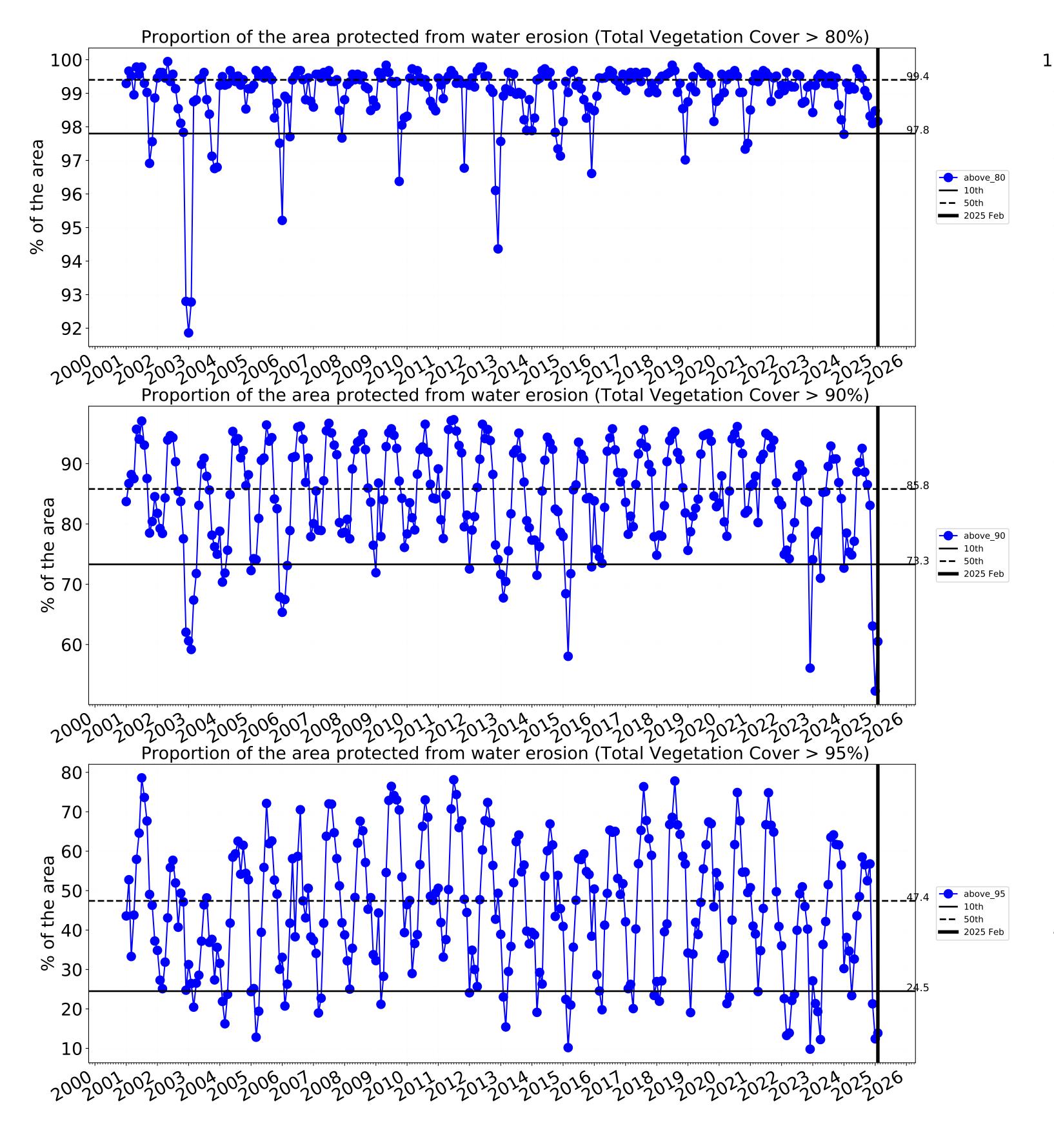


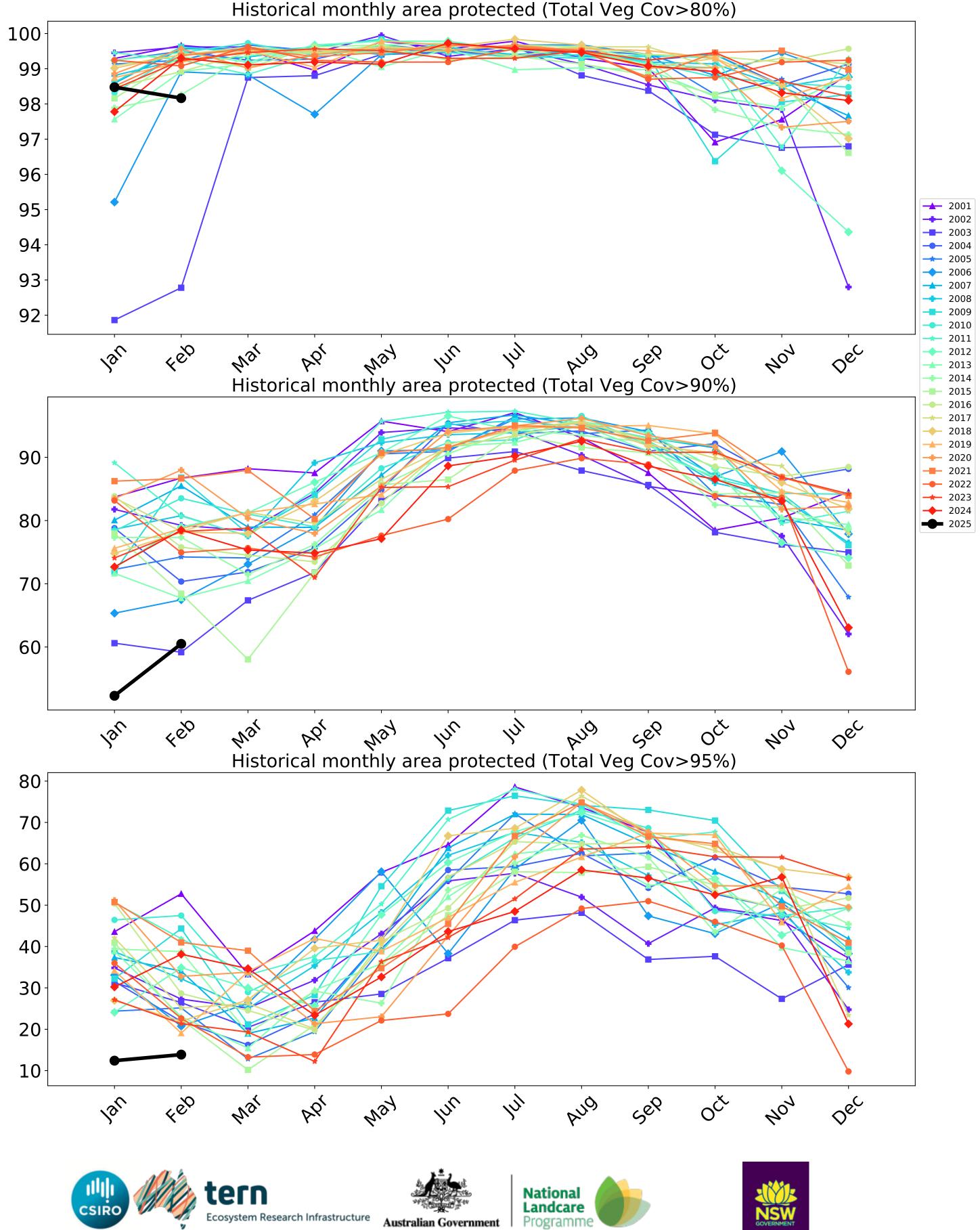




Wind erosion historical monthly area protected (Total Veg Cov >50%)

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





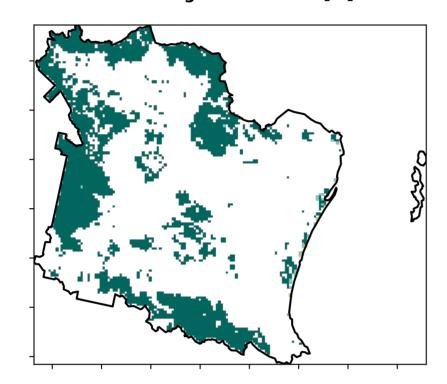


### **Conservation and natural environments Forest (non woodland)**

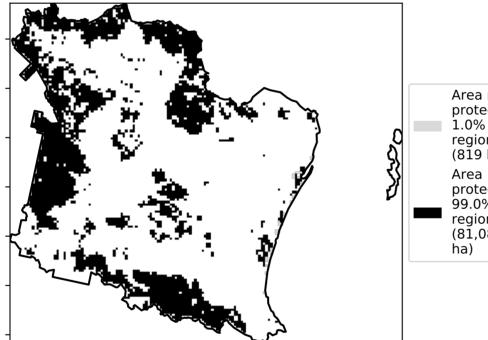
Land use and forest cover

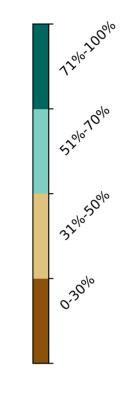
Ş 1 Conservation and natural environments - Nonwoodland forest ٢

**Total Vegetation Cover [%]** 



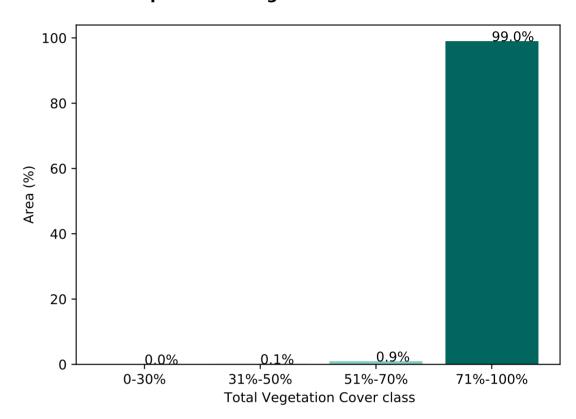
% Area protected from water erosion (>70%)



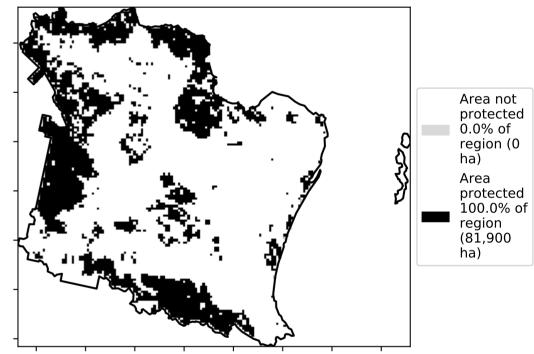




### Proportion of vegetation cover class in area



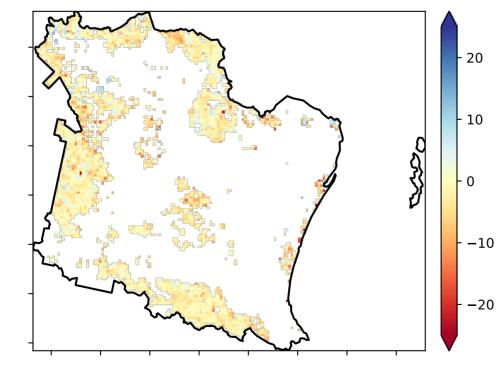
#### % Area protected from wind erosion (>50%)



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

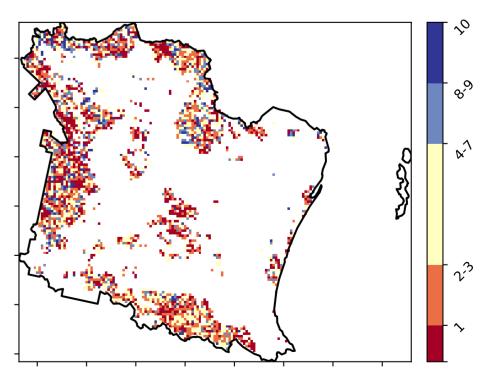
Total Vegetation Cover Anomaly [%]

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.

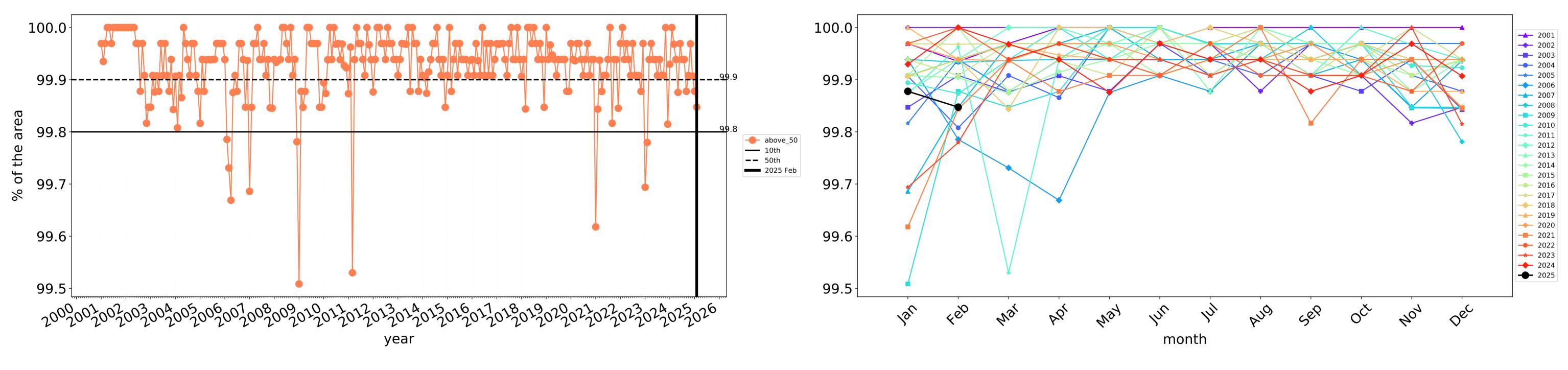


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

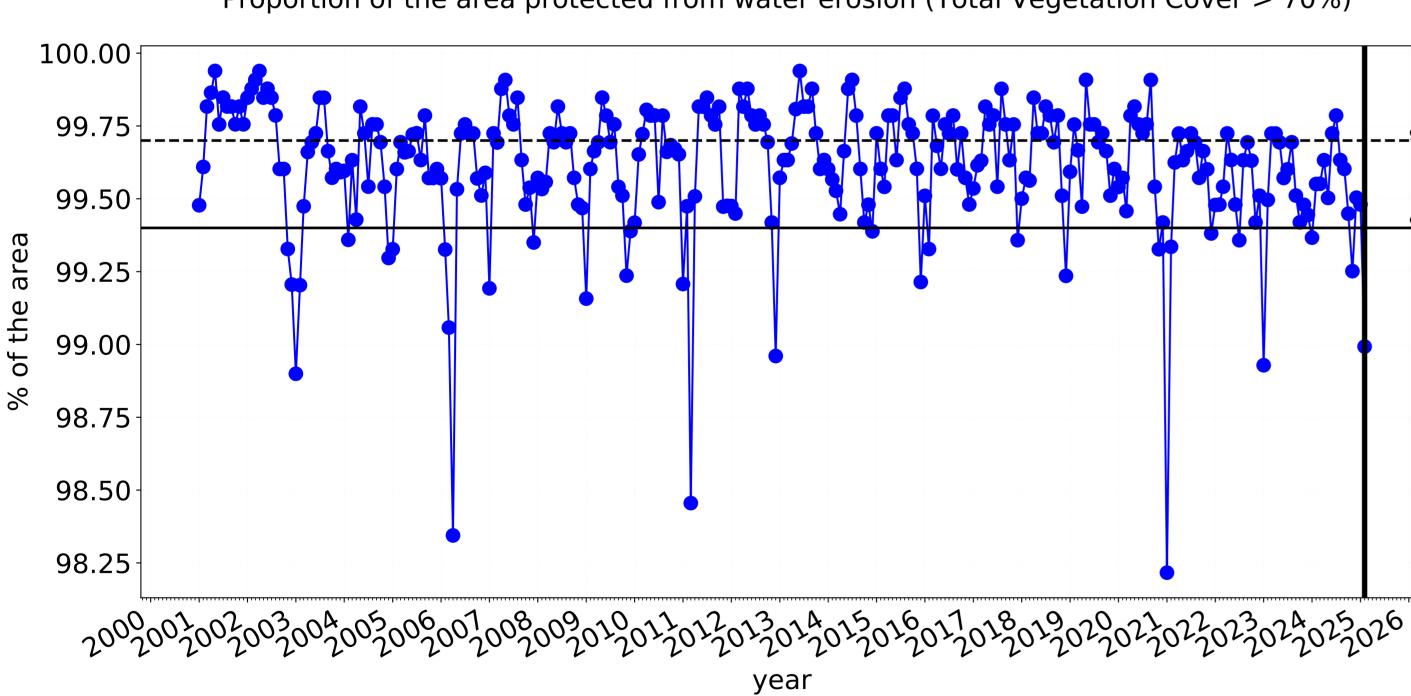
Total Vegetation Cover Decile [%]







Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

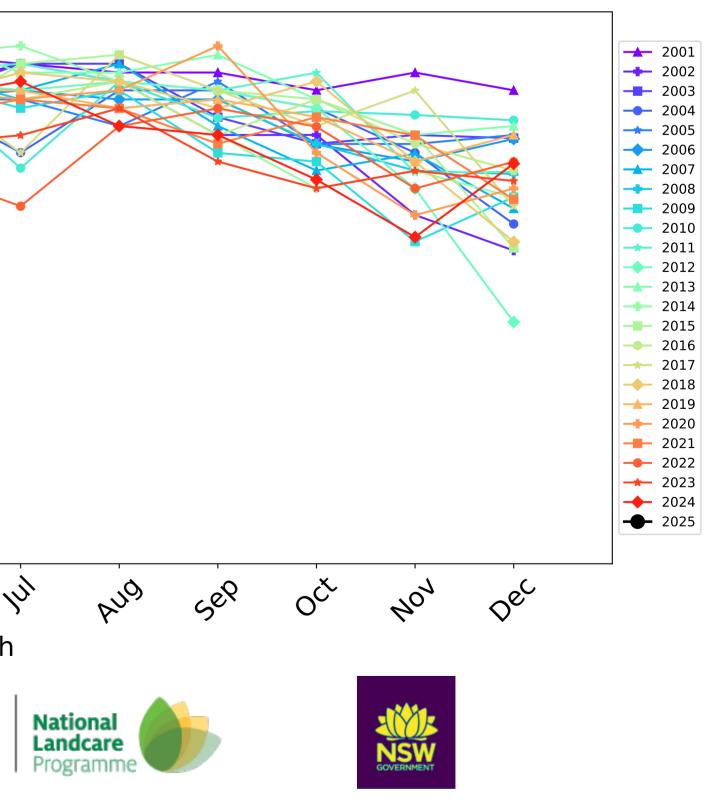


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

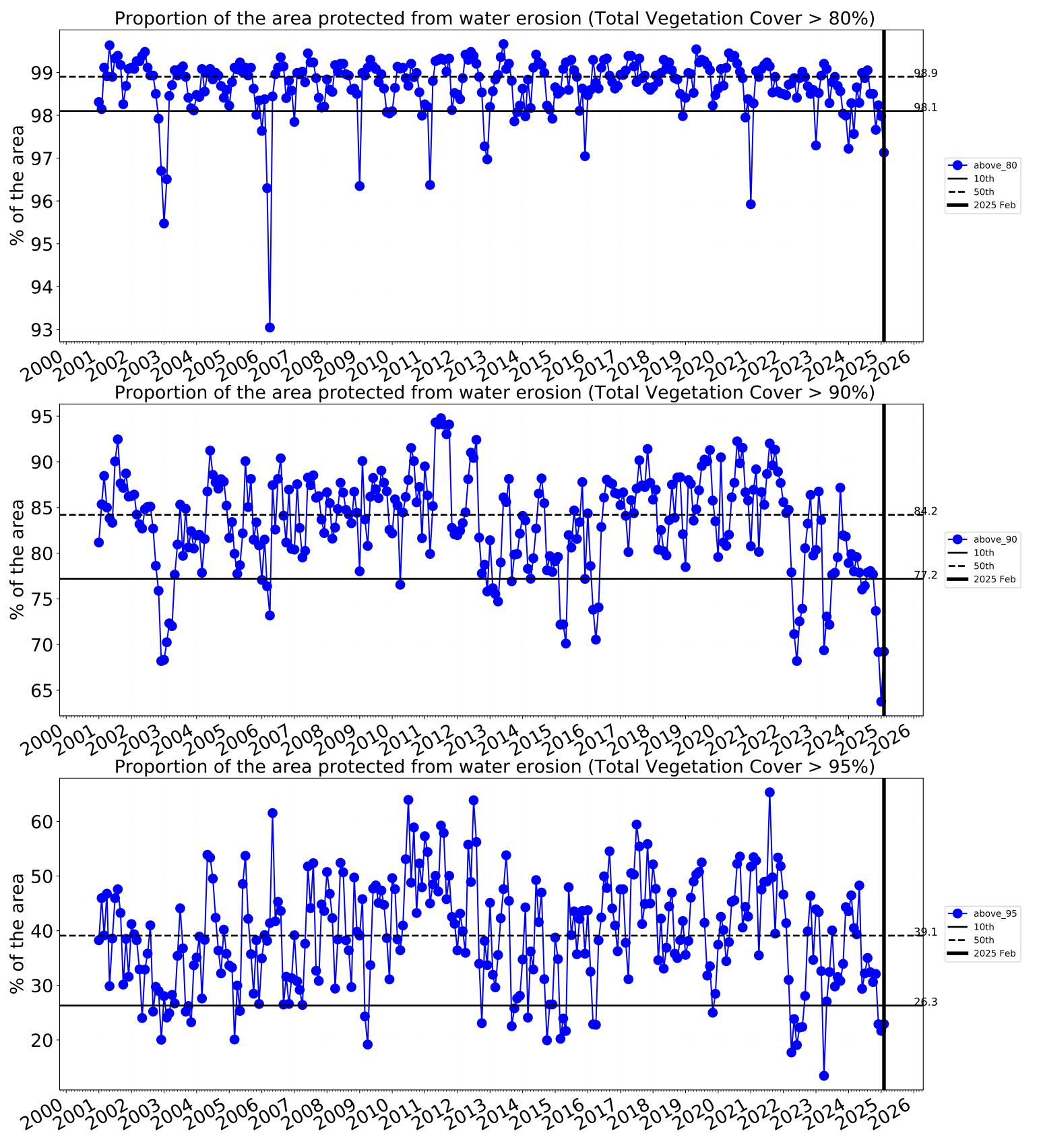
Wind erosion historical monthly area protected (Total Veg Cov >50%)

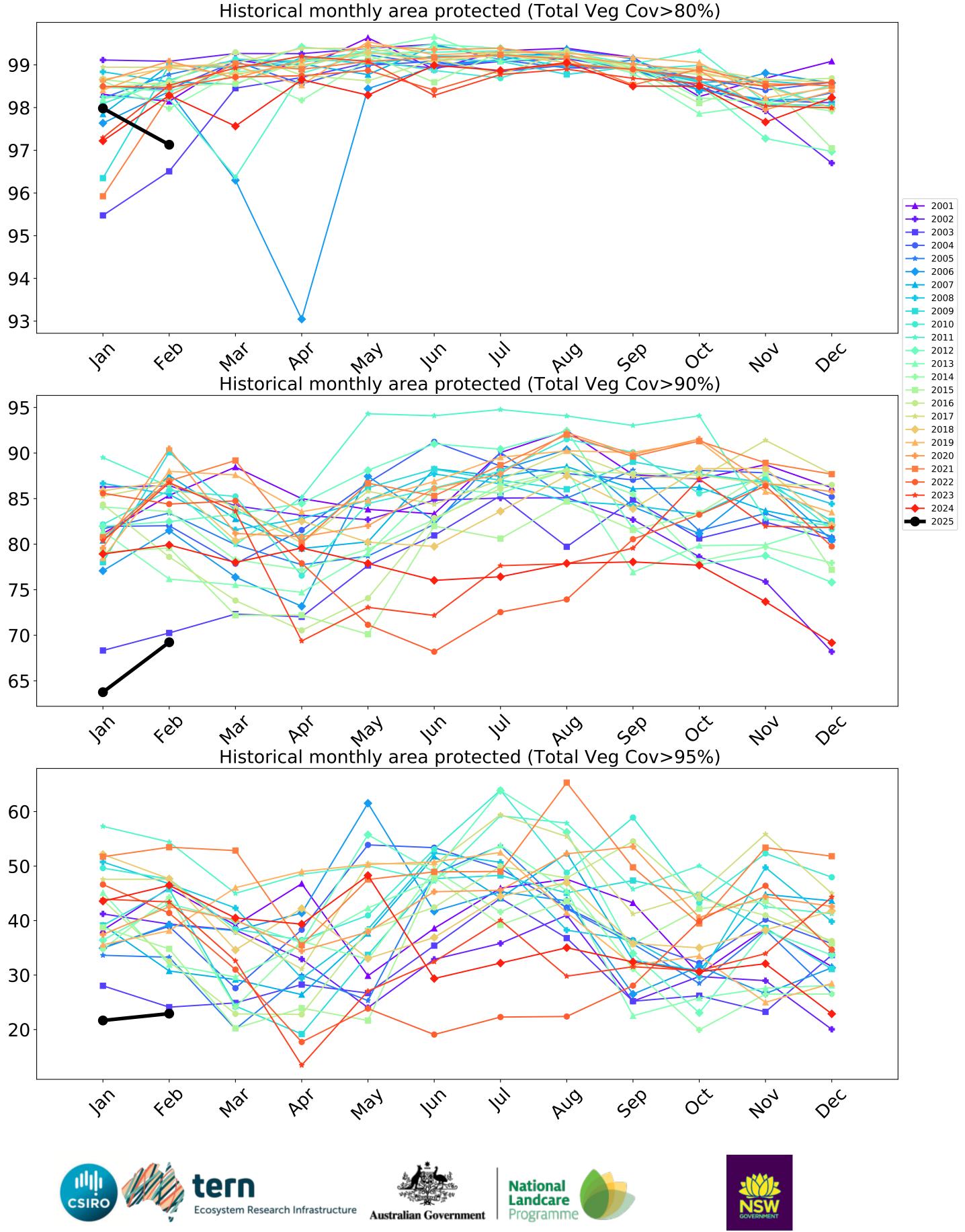
100.00 99.75 99.50 ---- above\_70 **—** 10th 99.25 **——** 50th 2025 Feb 99.00 98.75 98.50 98.25 feb ar May In PQ' Wa1 month tern Ecosystem Research Infrastructure Australian Government

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







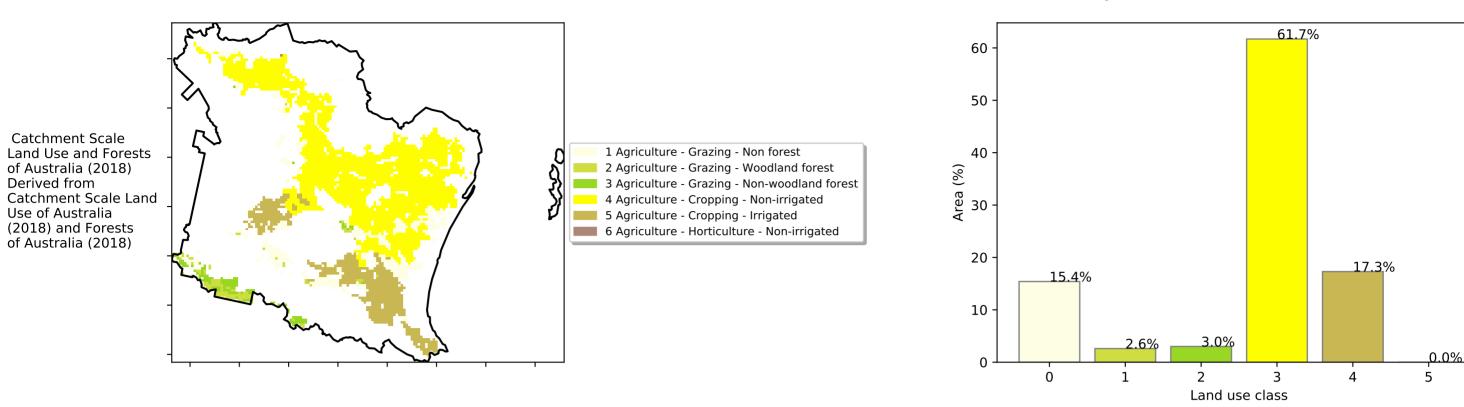




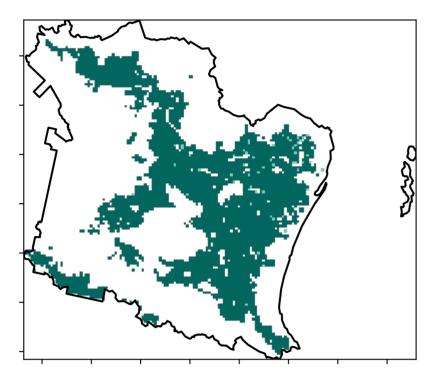
### Agriculture

Land use and forest cover

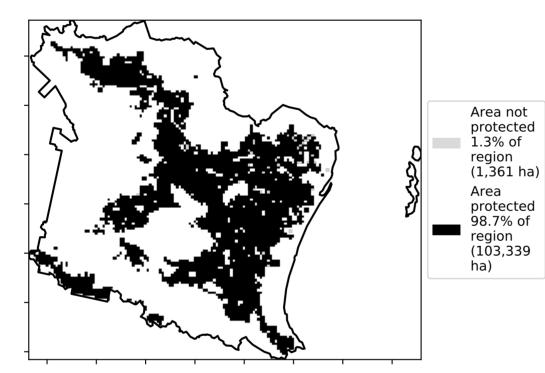
Proportion of each land class in area

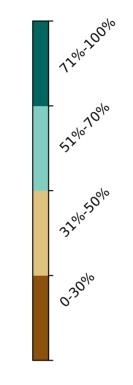


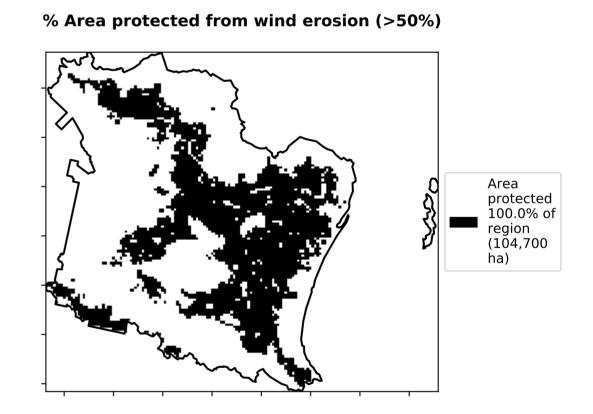
**Total Vegetation Cover [%]** 



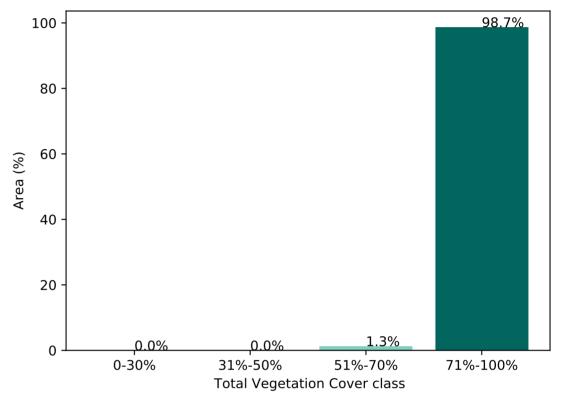
% Area protected from water erosion (>70%)



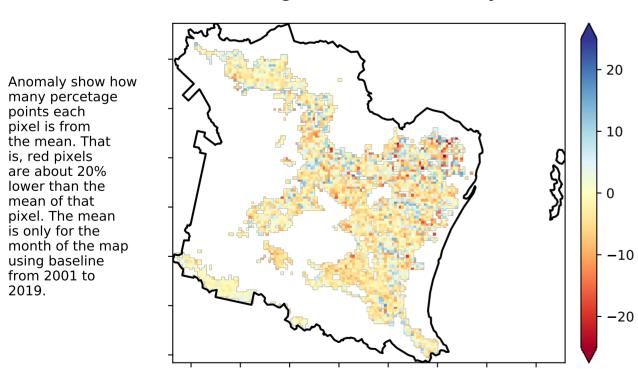




Proportion of vegetation cover class in area



**Total Vegetation Cover Anomaly [%]** 



the mean. That

is, red pixels

are about 20% lower than the

mean of that

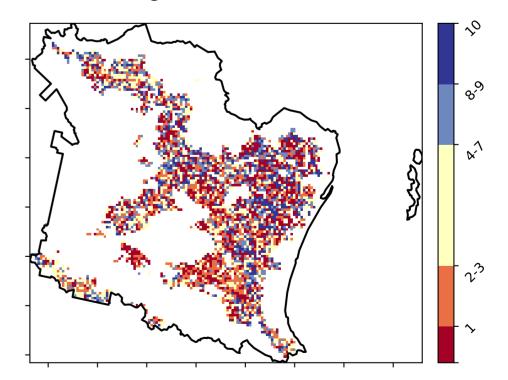
pixel. The mean

from 2001 to 2019.

is only for the month of the map

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

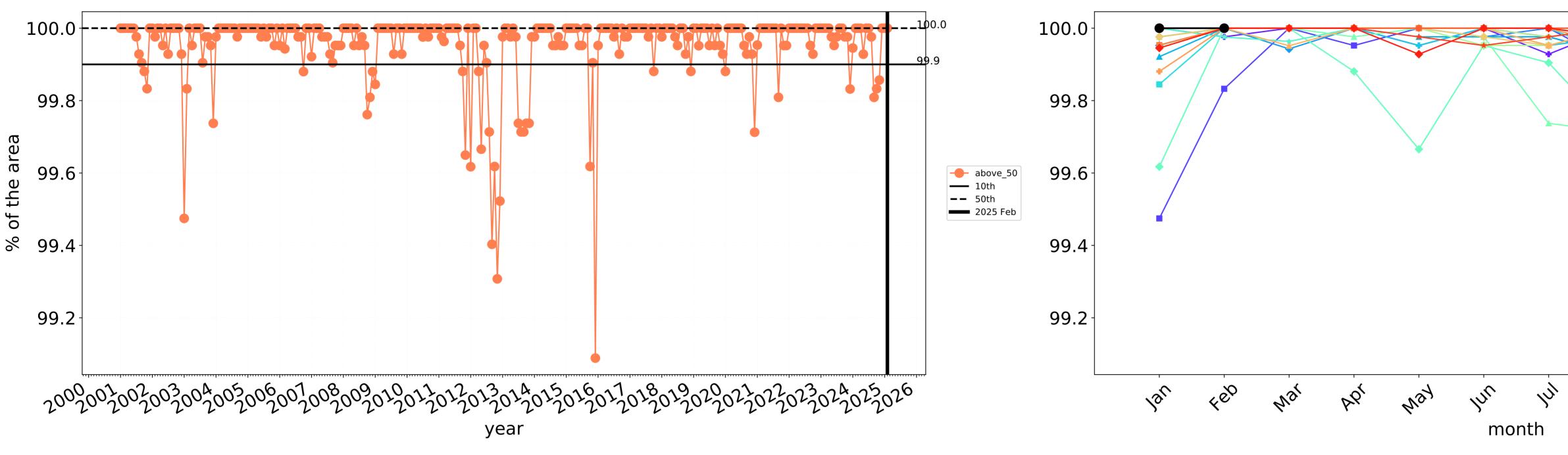
**Total Vegetation Cover Decile [%]** 



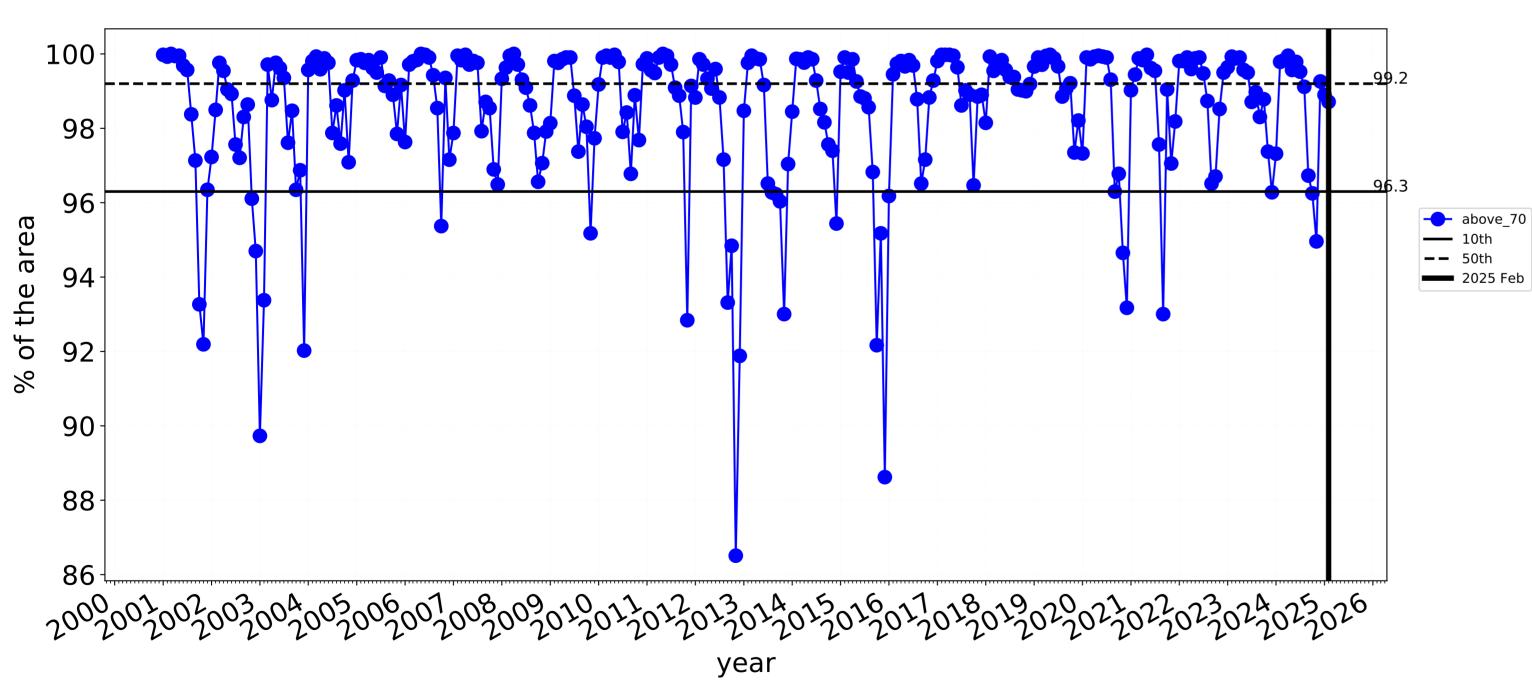


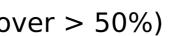
12





Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



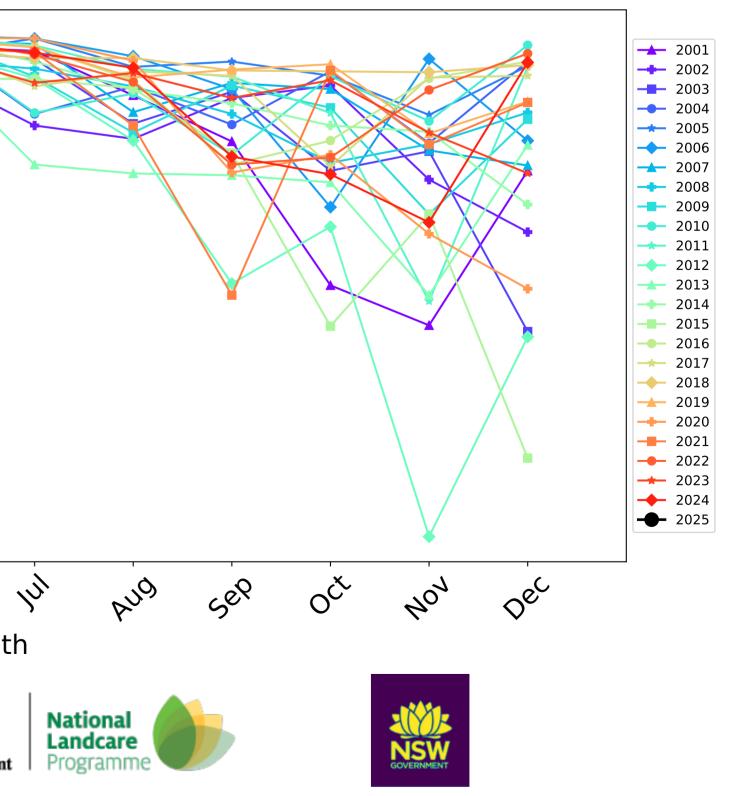


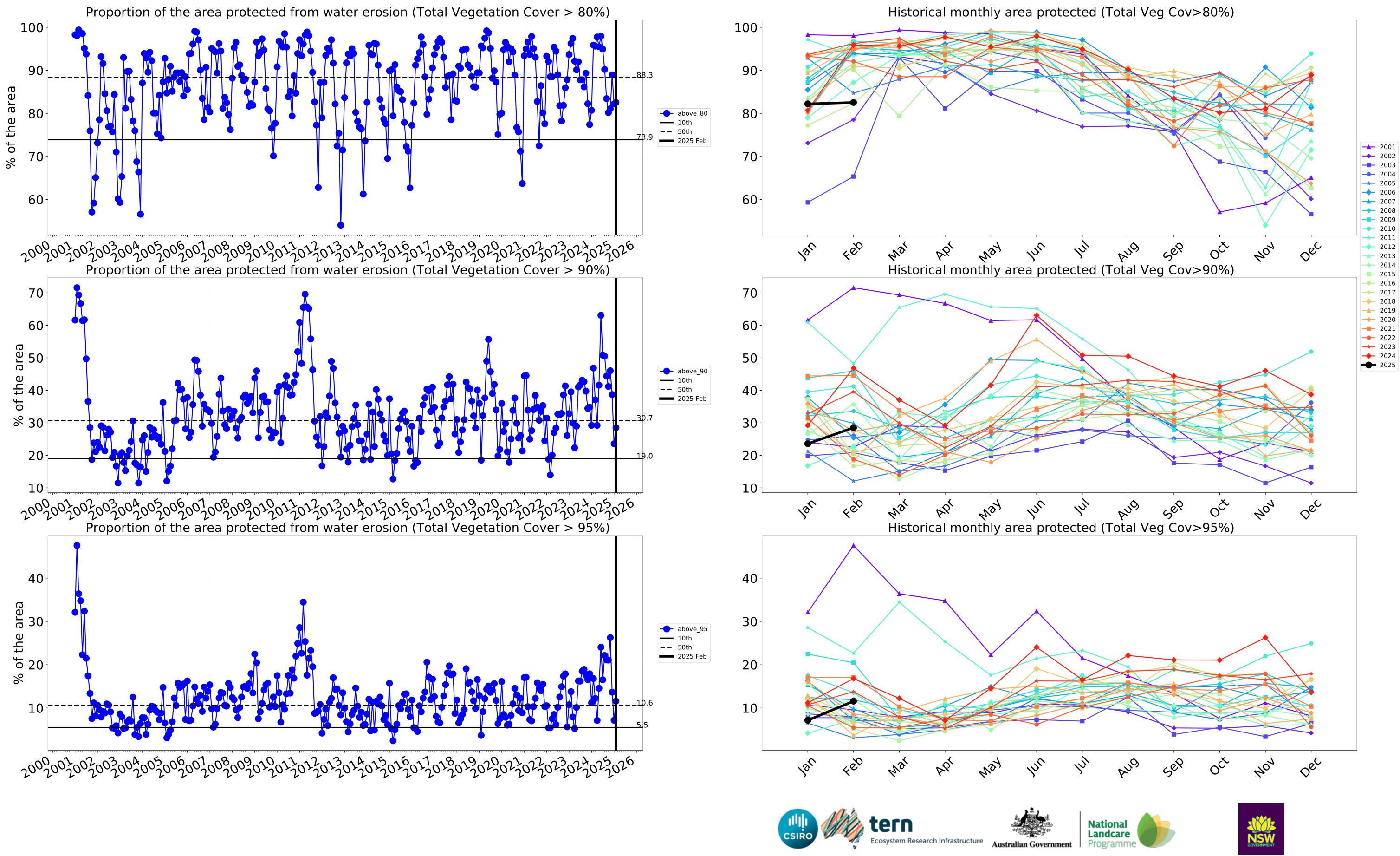
Wind erosion historical monthly area protected (Total Veg Cov >50%)

100 98 96 94 92 90 88 86 4eb lar In Mai May Þ6, month tern Ecosystem Research Infrastructure Australian Government

**---** 2001 **---** 2002 ---- 2003 **—** 2004 **----** 2005 **---** 2006 **\_\_\_** 2007 ---- 2008 ---- 2009 --- 2010 --- 2011 **—** 2013 ---- 2014 ---- 2015 ---- 2016 ---- 2017 ---- 2018 **—** 2019 → 2020
→ 2021 --- 2022 **----** 2023 **---** 2024 ---- 2025 401 OČ Dec AUG Sep

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





### Grazing

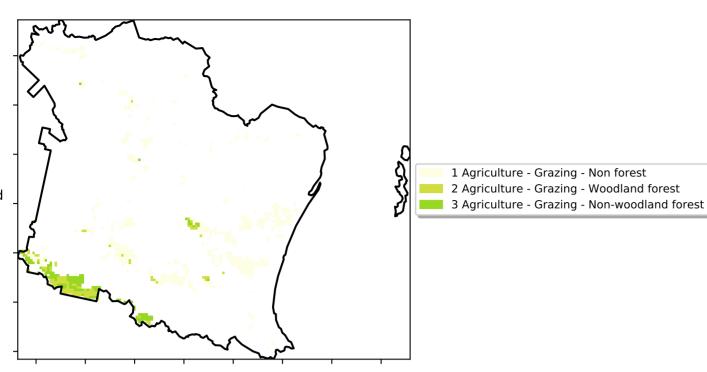
12%200%

52°1070°10

32%50%

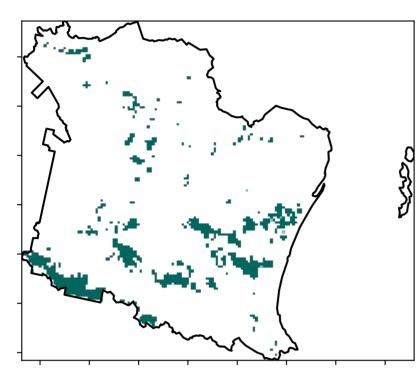
0.30%

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

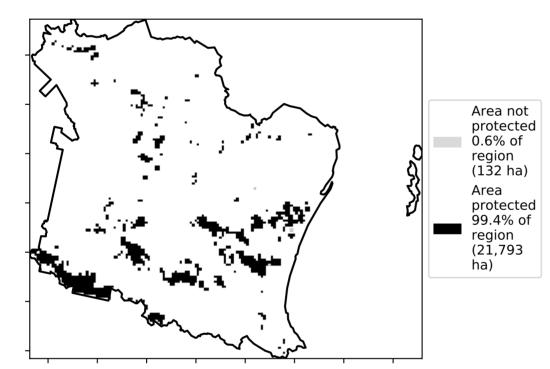


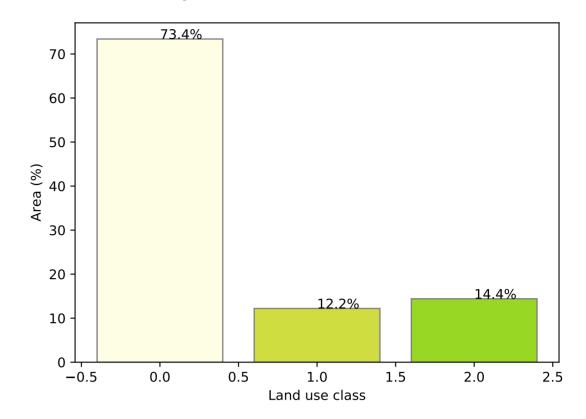
Land use and forest cover

Total Vegetation Cover [%]



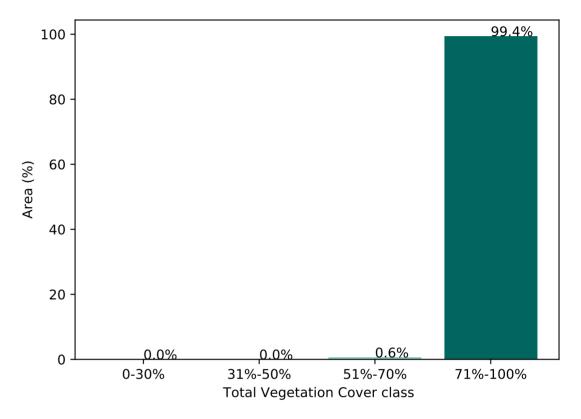
% Area protected from water erosion (>70%)



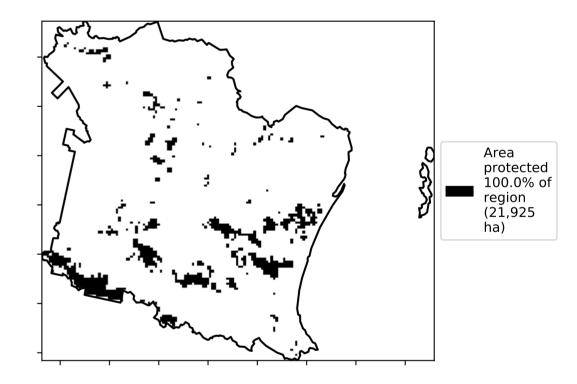


Proportion of each land class in area

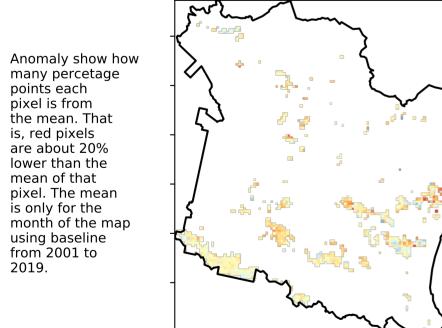
Proportion of vegetation cover class in area

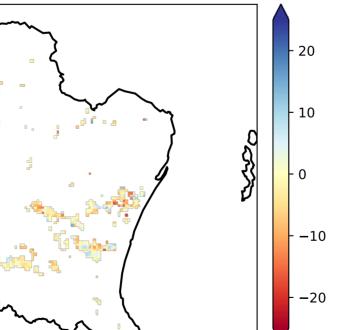


% Area protected from wind erosion (>50%)

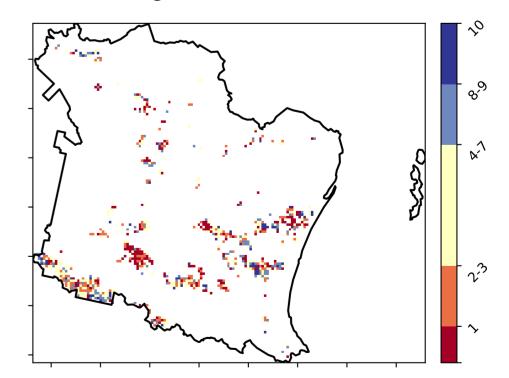


Total Vegetation Cover Anomaly [%]

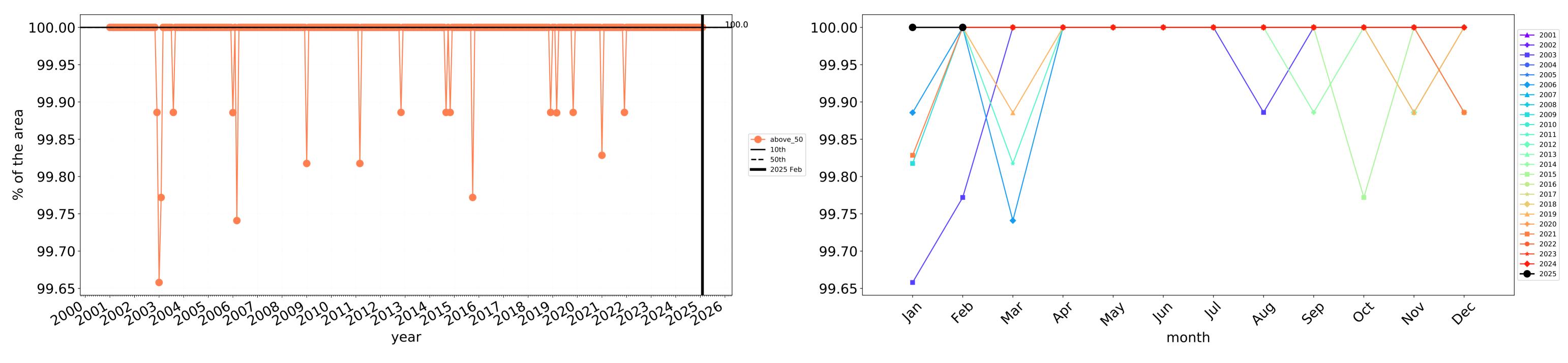




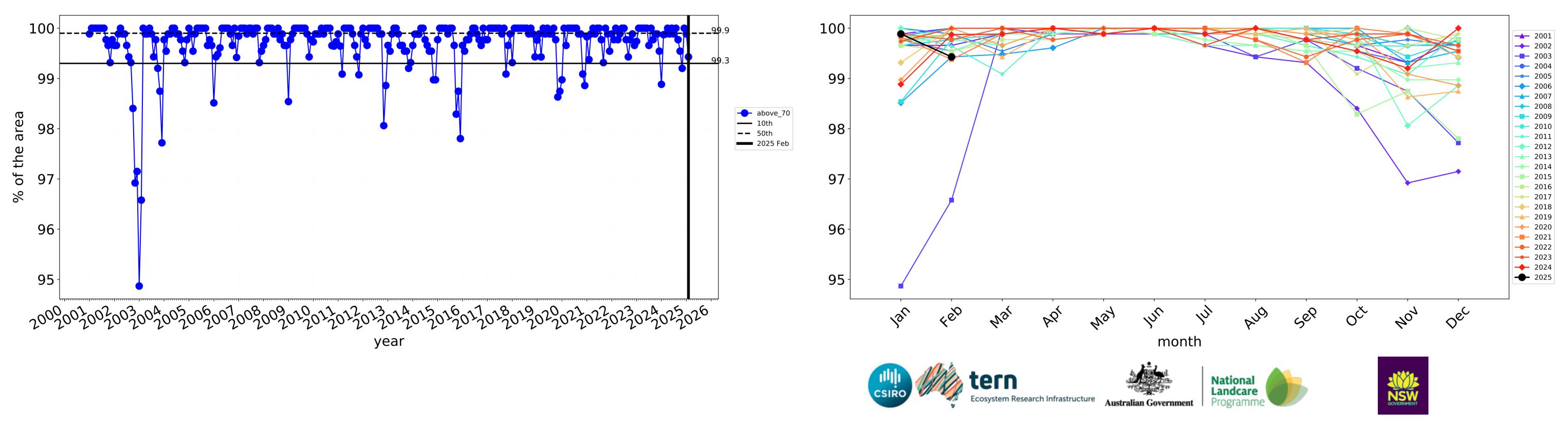
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. Total Vegetation Cover Decile [%]







Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

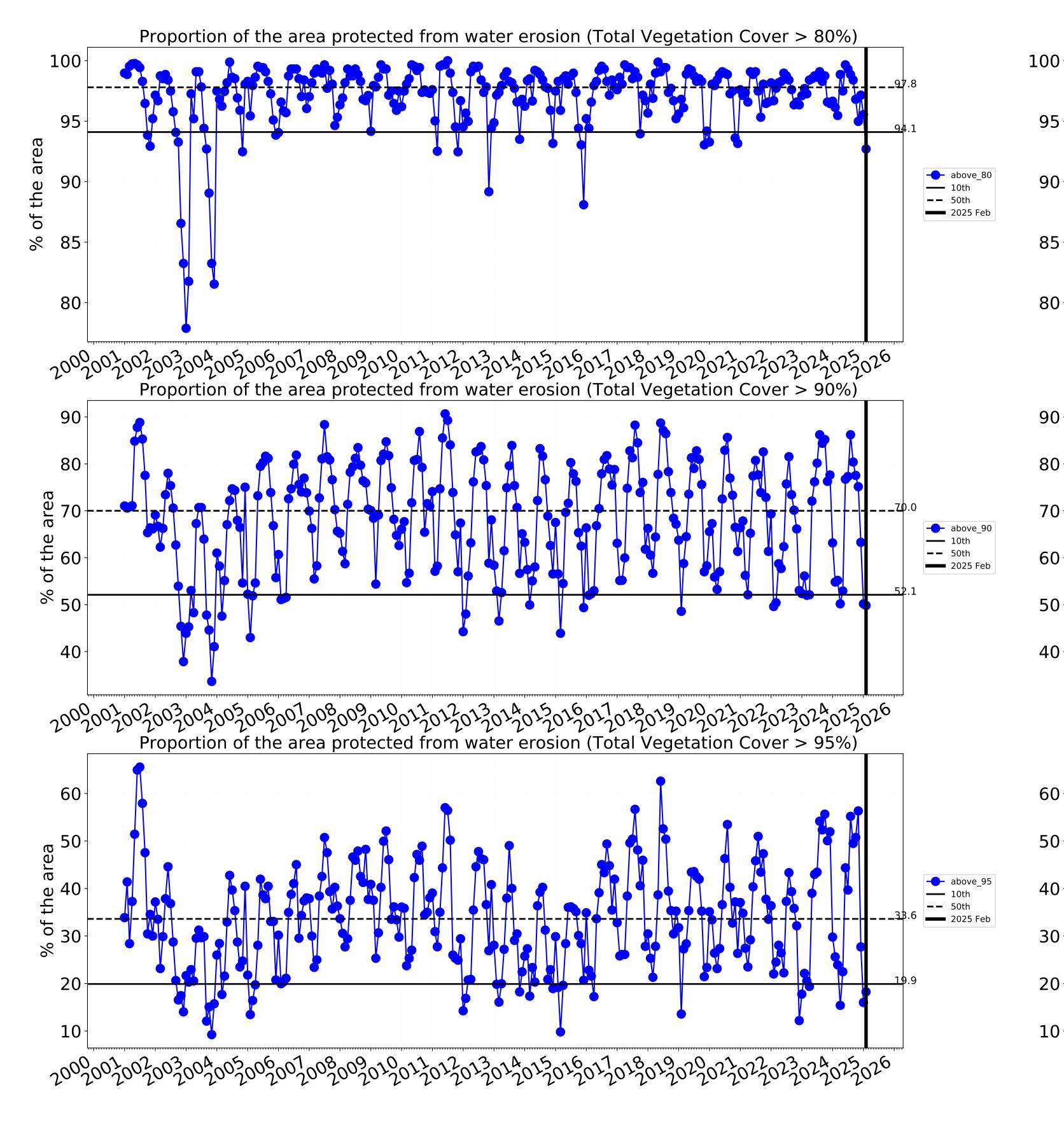


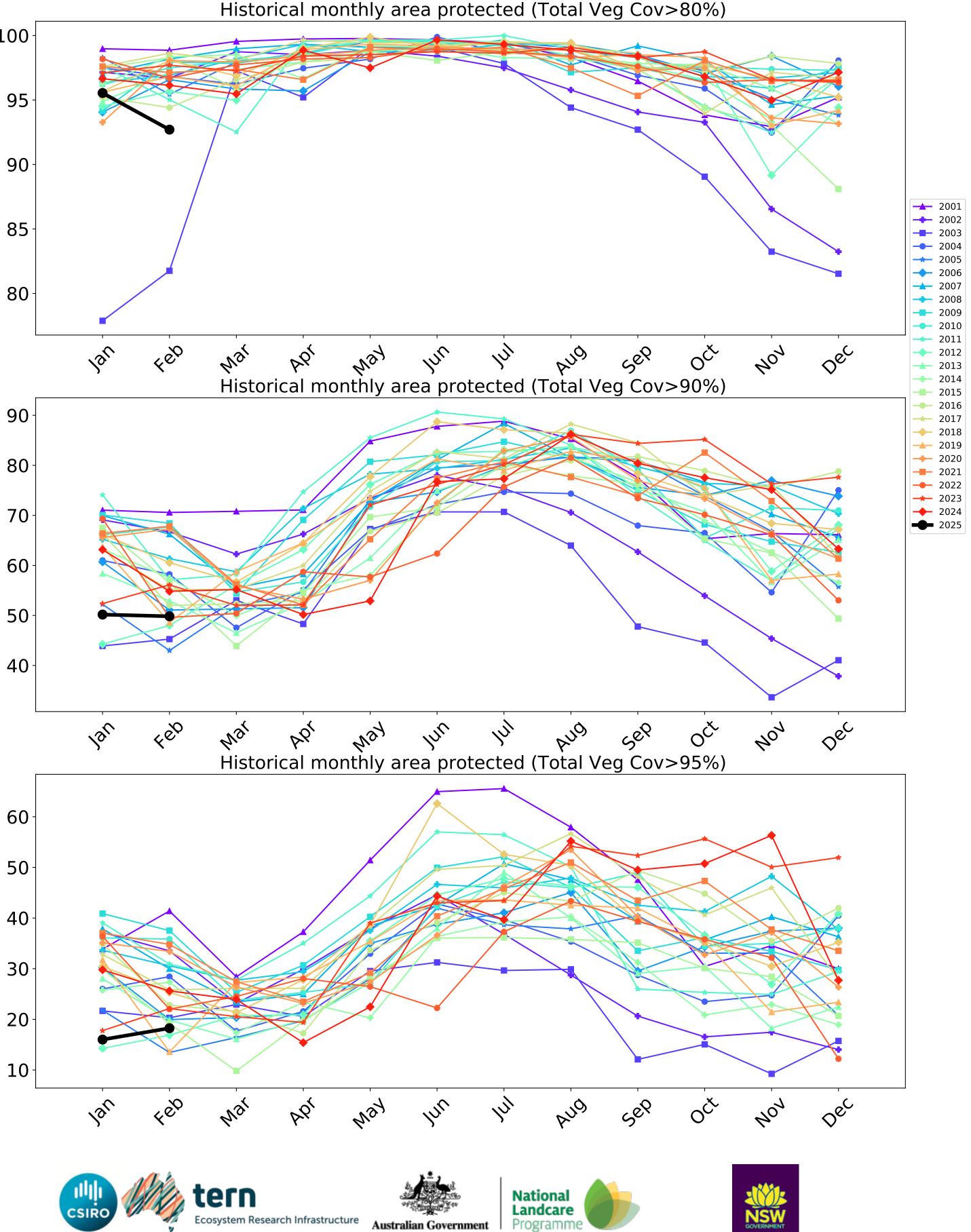
### Grazing timeseries



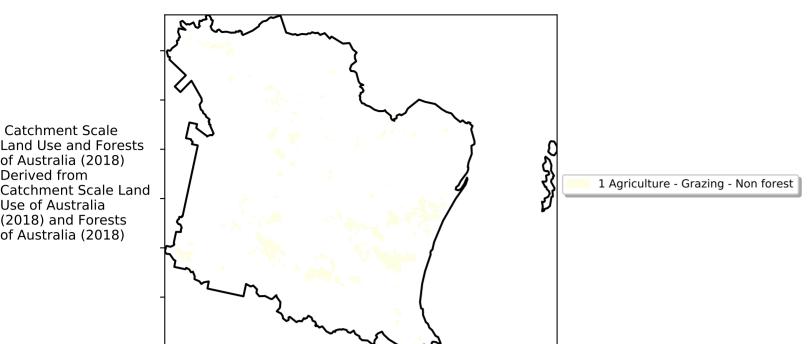
Wind erosion historical monthly area protected (Total Veg Cov >50%)







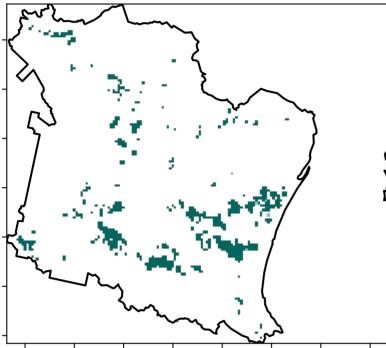
### **Grazing non forest**



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

**Total Vegetation Cover [%]** 

Land use and forest cover



52°1070°10 0 32%50% 0.30%

- 20

· 10

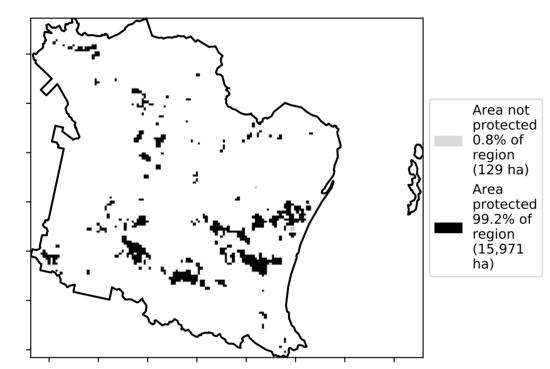
0

-10

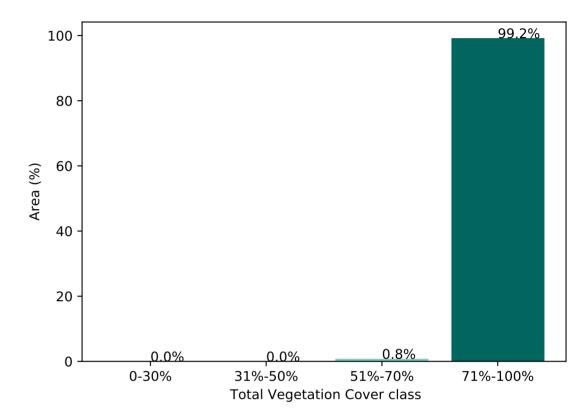
-20

12%200%

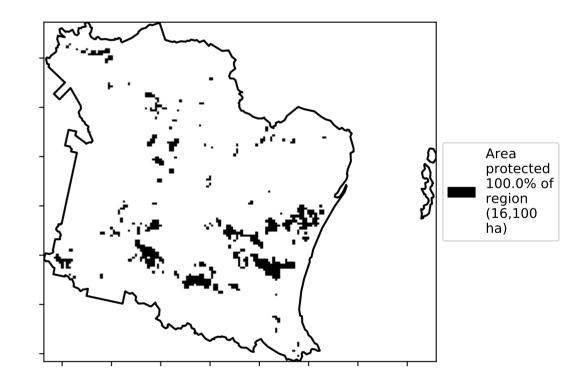
% Area protected from water erosion (>70%)



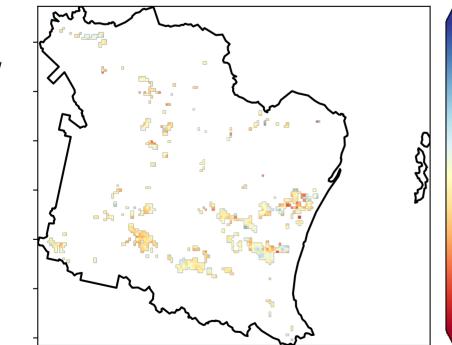
Proportion of vegetation cover class in area



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

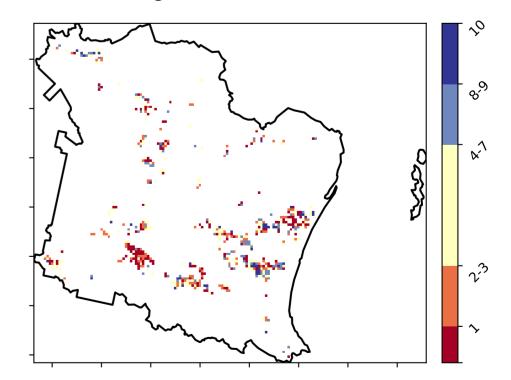


Total Vegetation Cover Anomaly [%]



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.

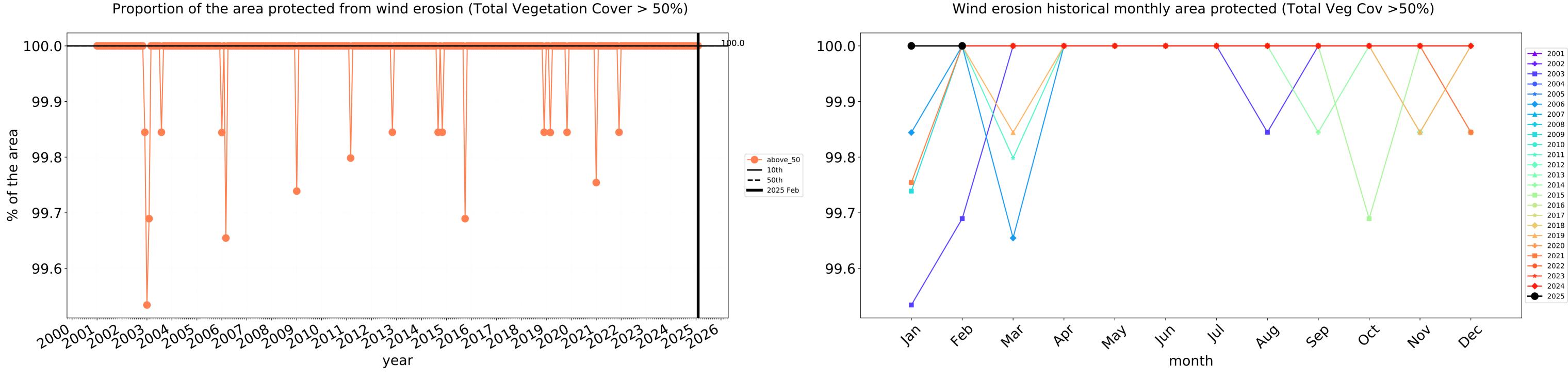
Total Vegetation Cover Decile [%]

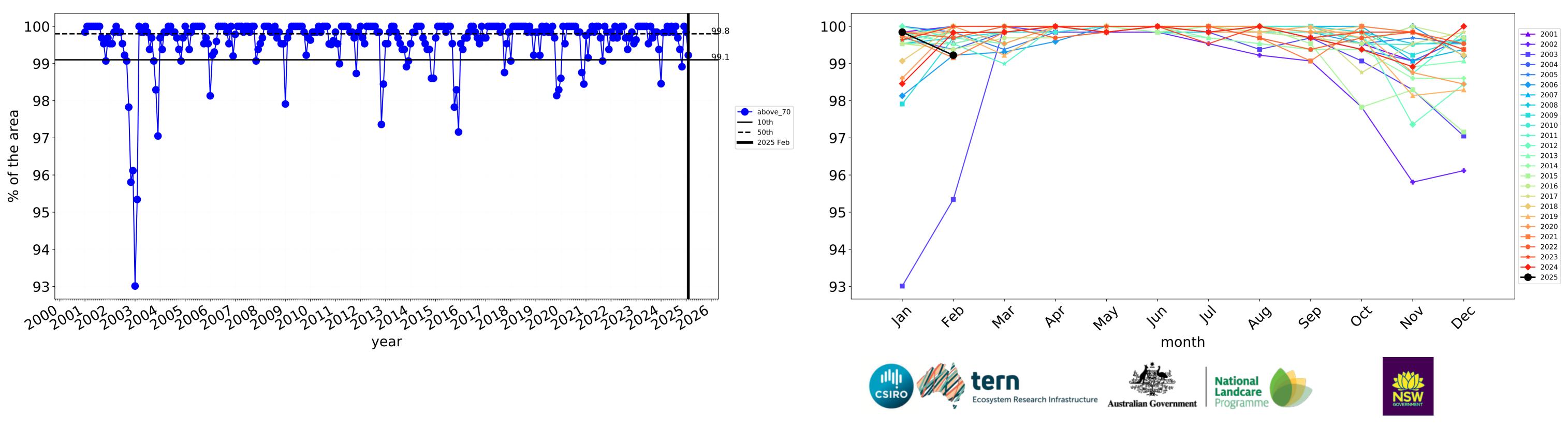




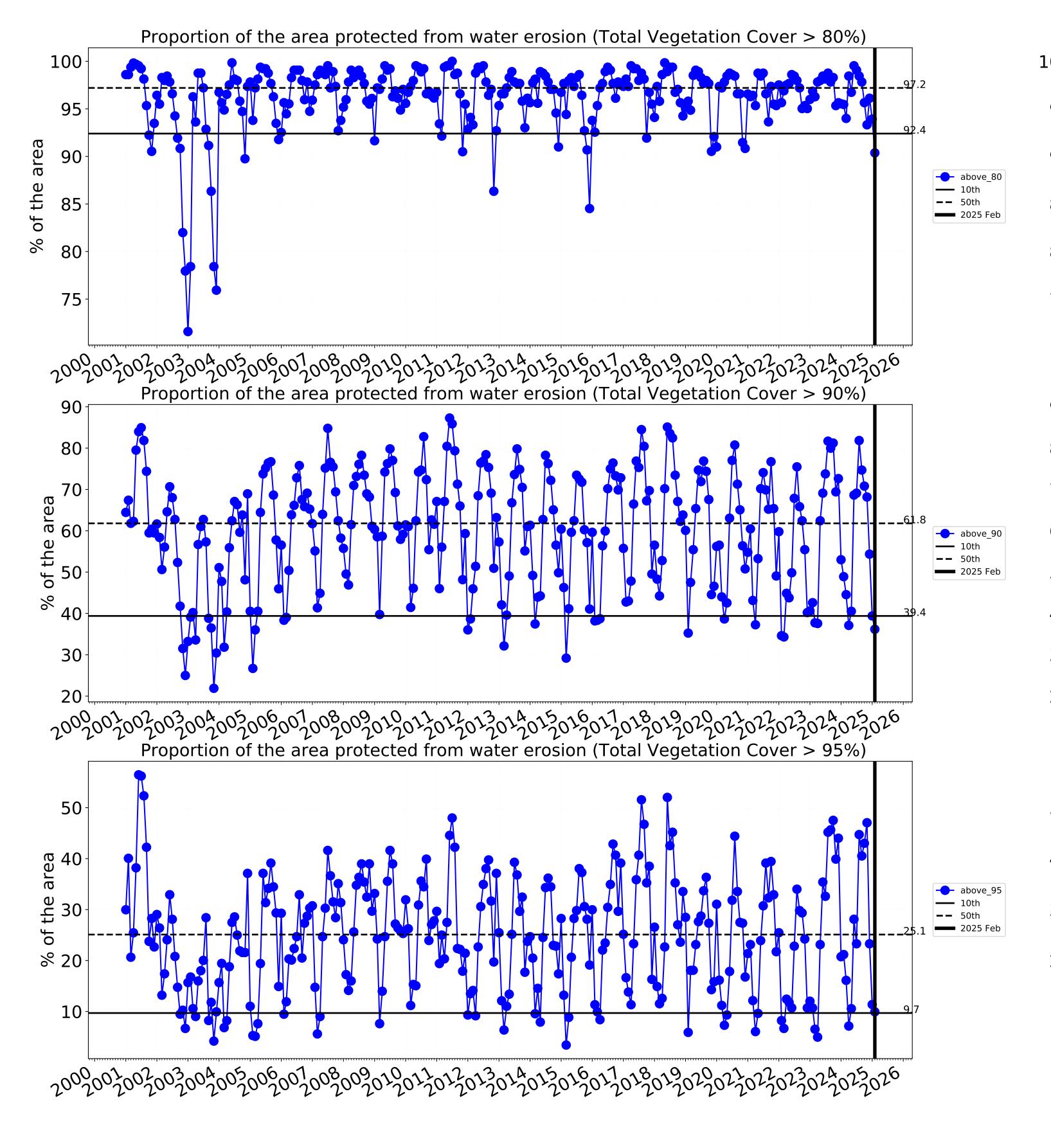
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

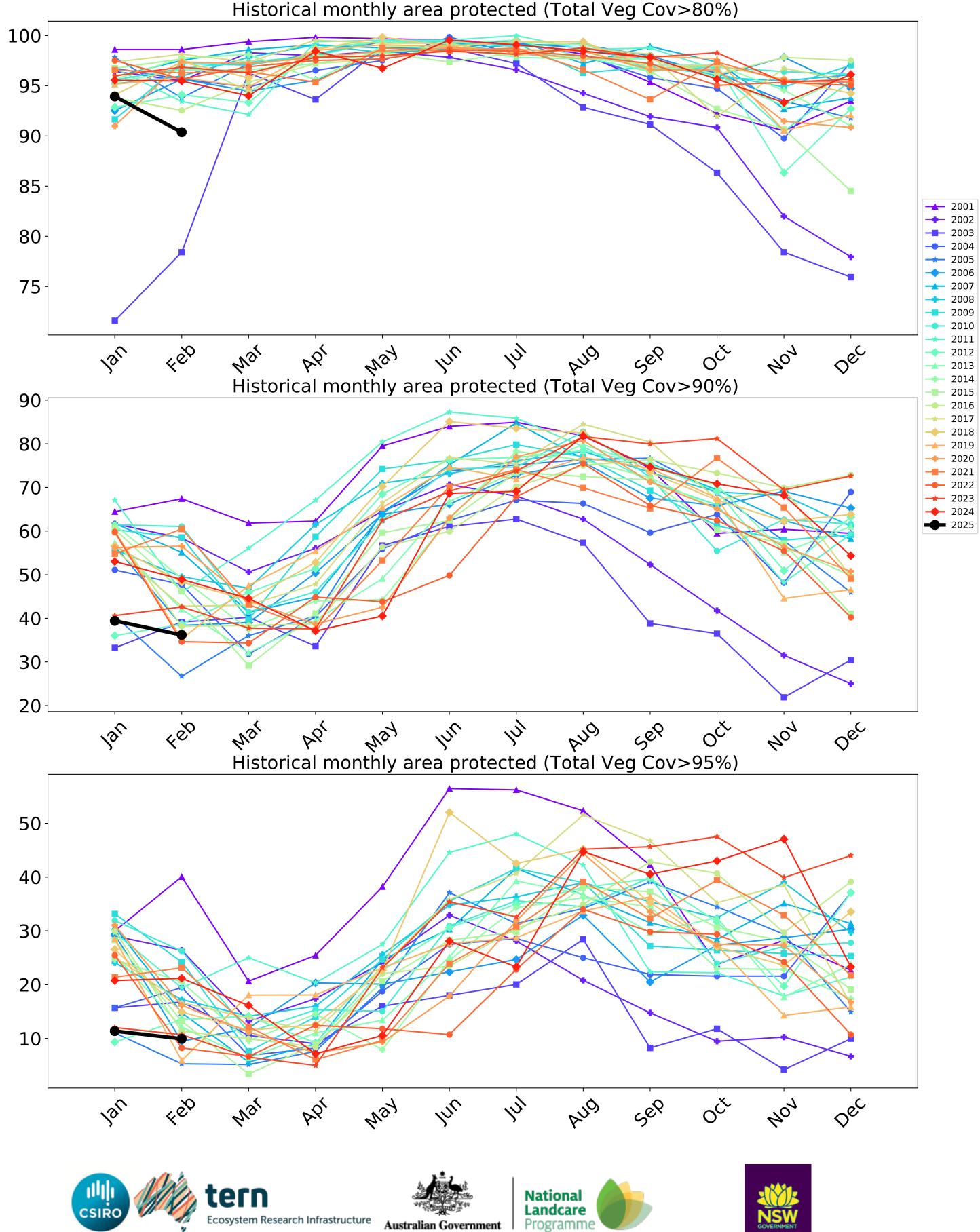






Water erosion historical monthly area protected (Total Veg Cov>70%)







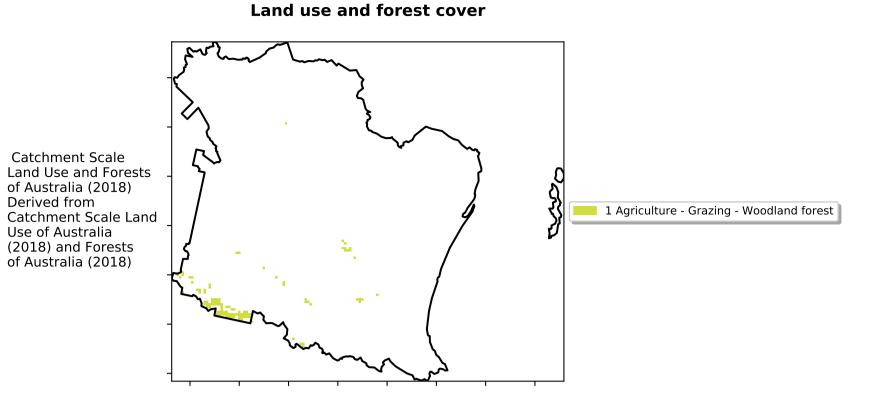
### **Grazing Woodland forest**

1200-2000

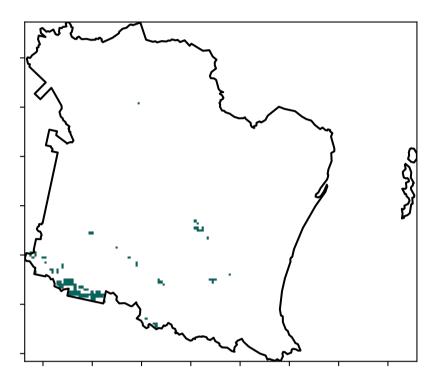
52°10-70°10

320050010

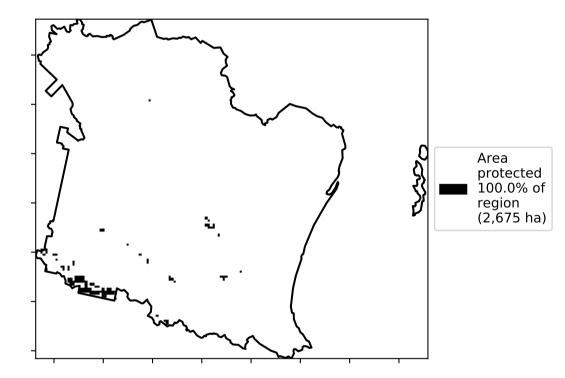
· 0.30%



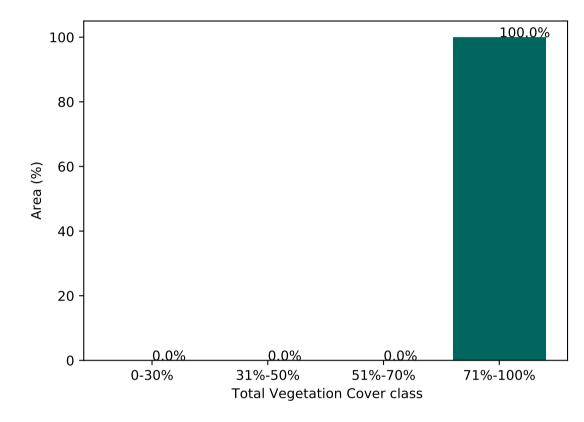
**Total Vegetation Cover [%]** 



% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area

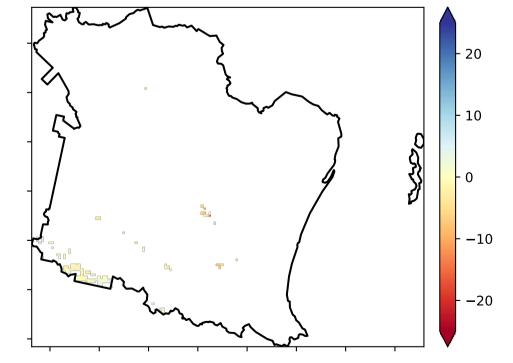


% Area protected from wind erosion (>50%)

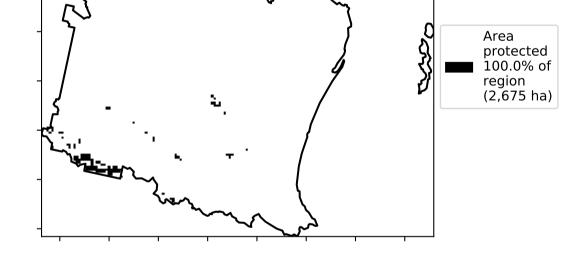


**Total Vegetation Cover Anomaly [%]** 

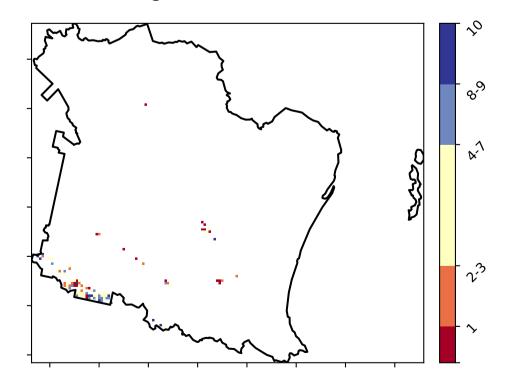
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



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.



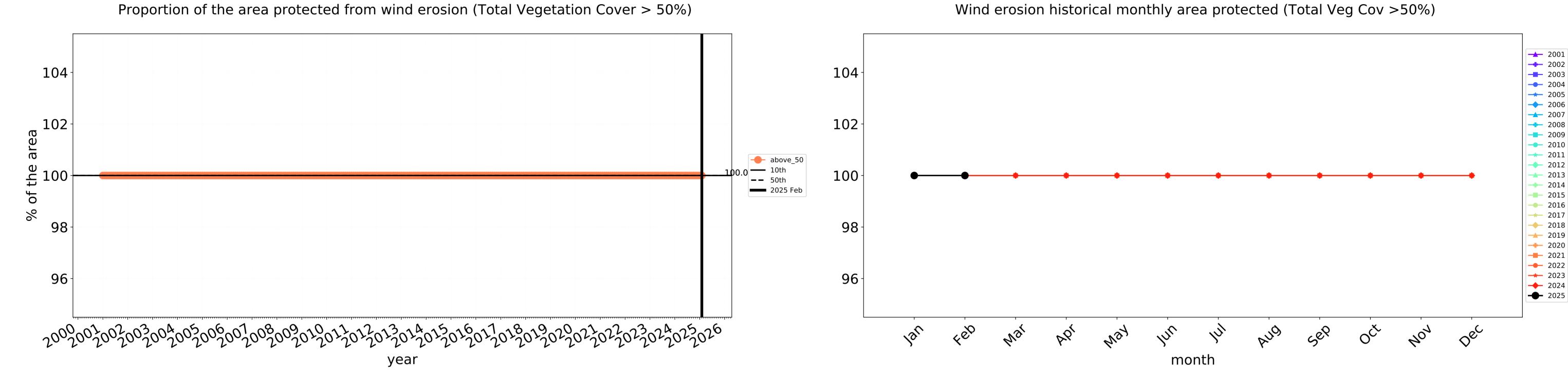
**Total Vegetation Cover Decile [%]** 

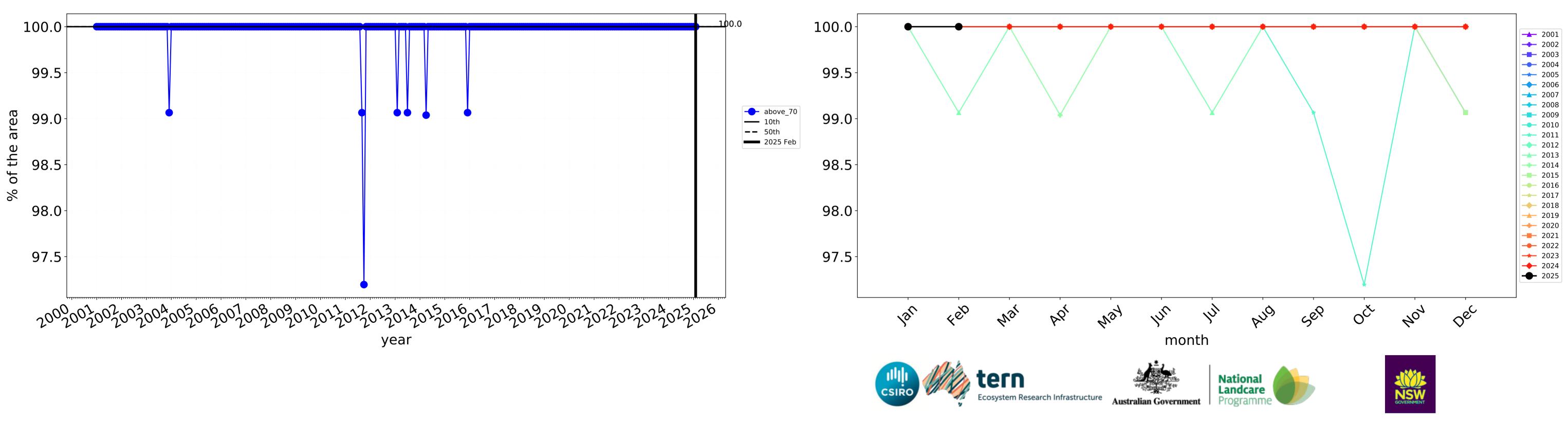




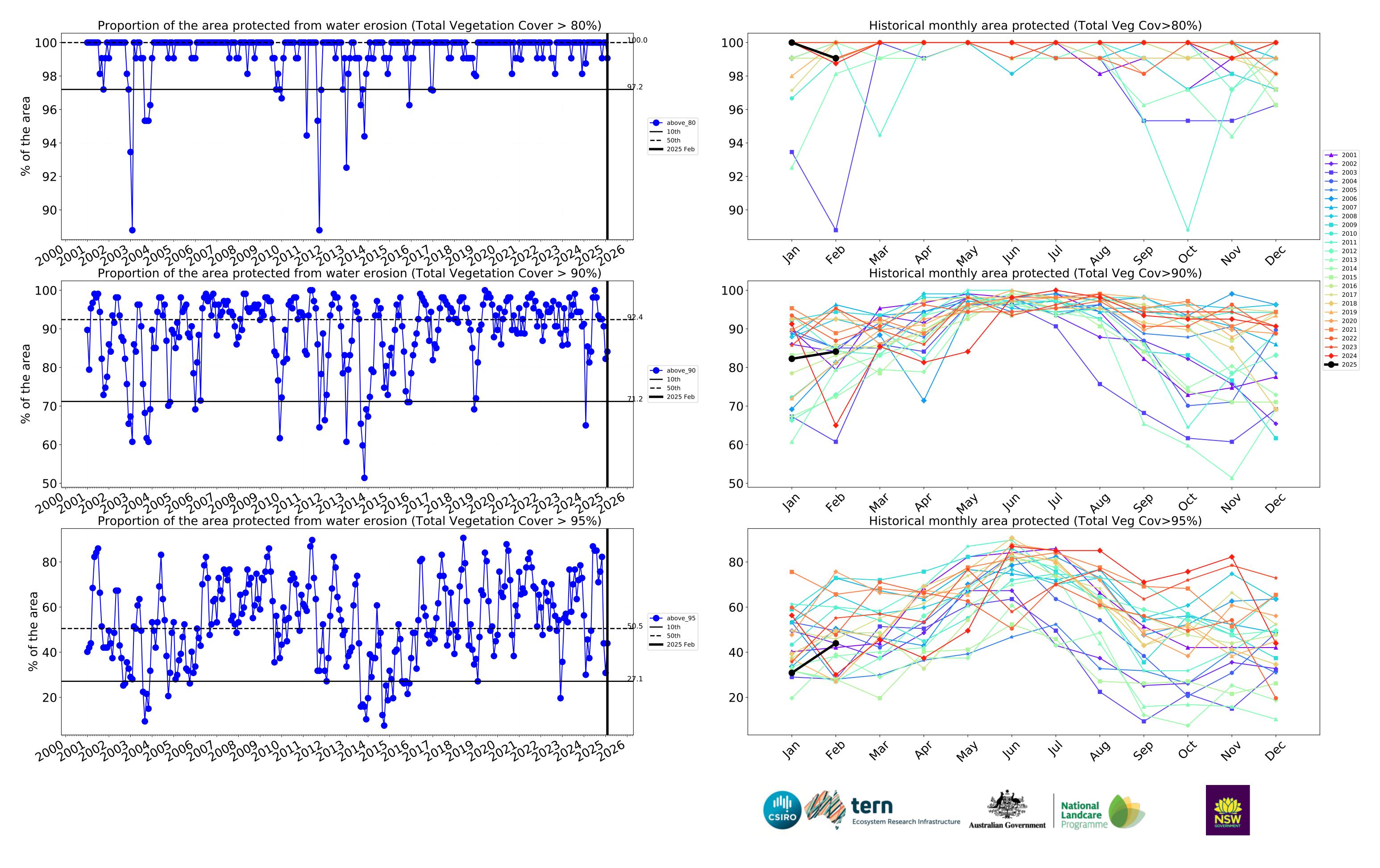
23

### Grazing Woodland forest timeseries





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



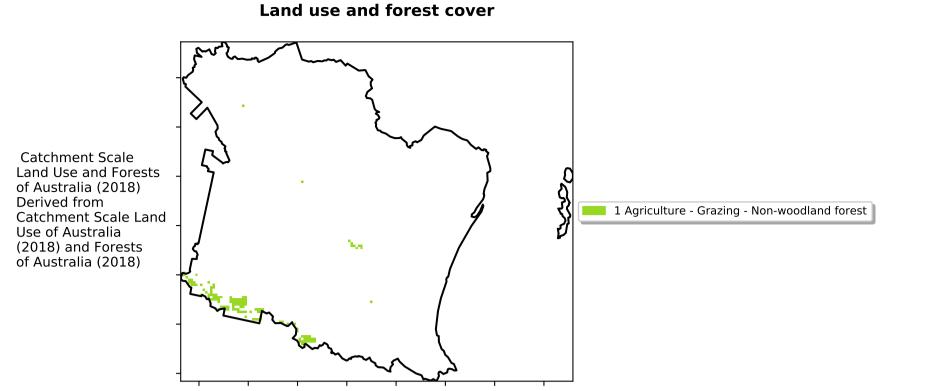
### Grazing - Forest (non woodland)

1200-2000

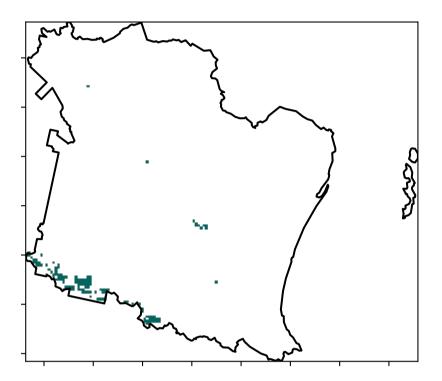
52°10010010

320050010

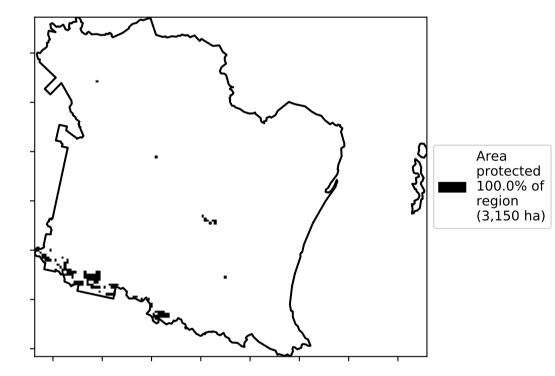
· 0.30%



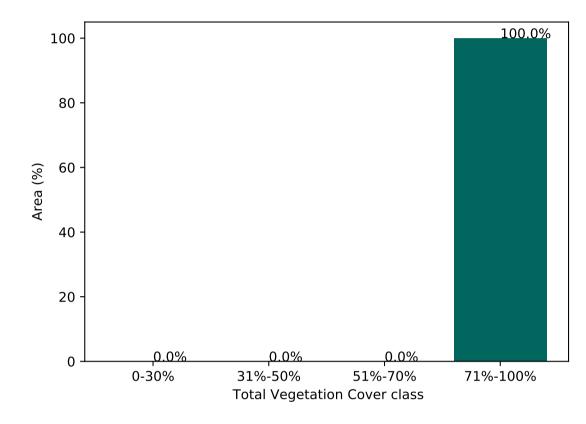
**Total Vegetation Cover [%]** 



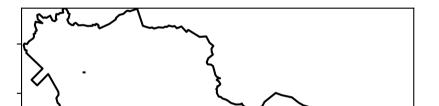
% Area protected from water erosion (>70%)



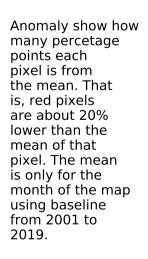
Proportion of vegetation cover class in area

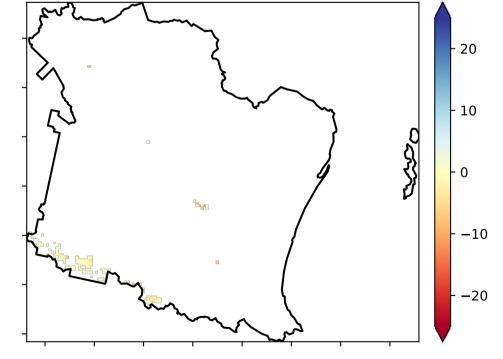


% Area protected from wind erosion (>50%)

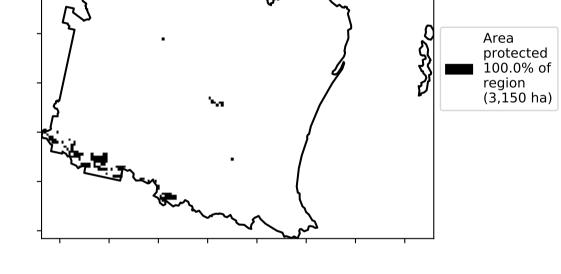


**Total Vegetation Cover Anomaly [%]** 

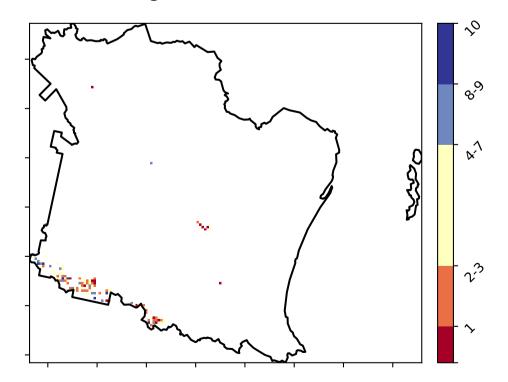




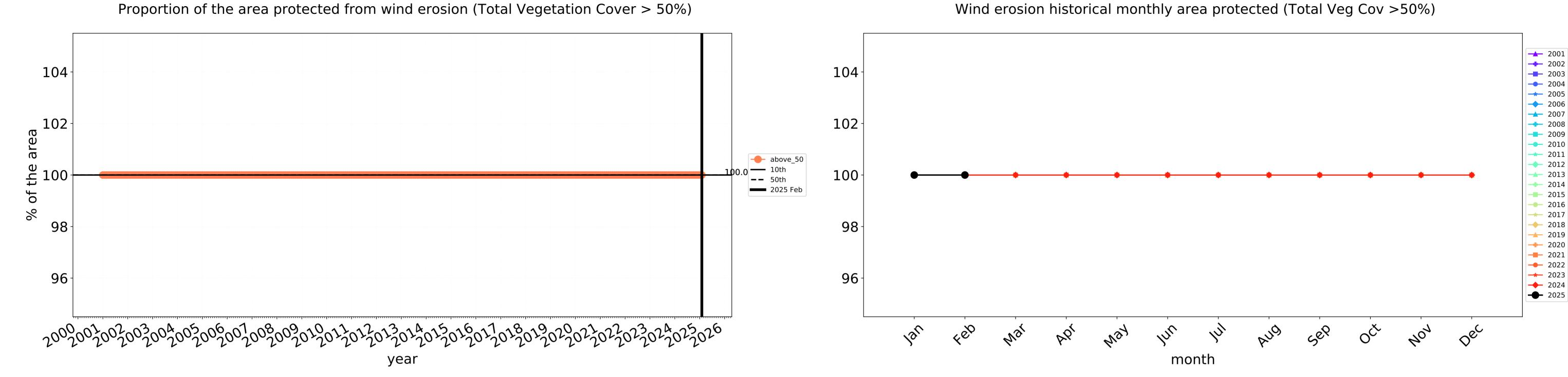
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

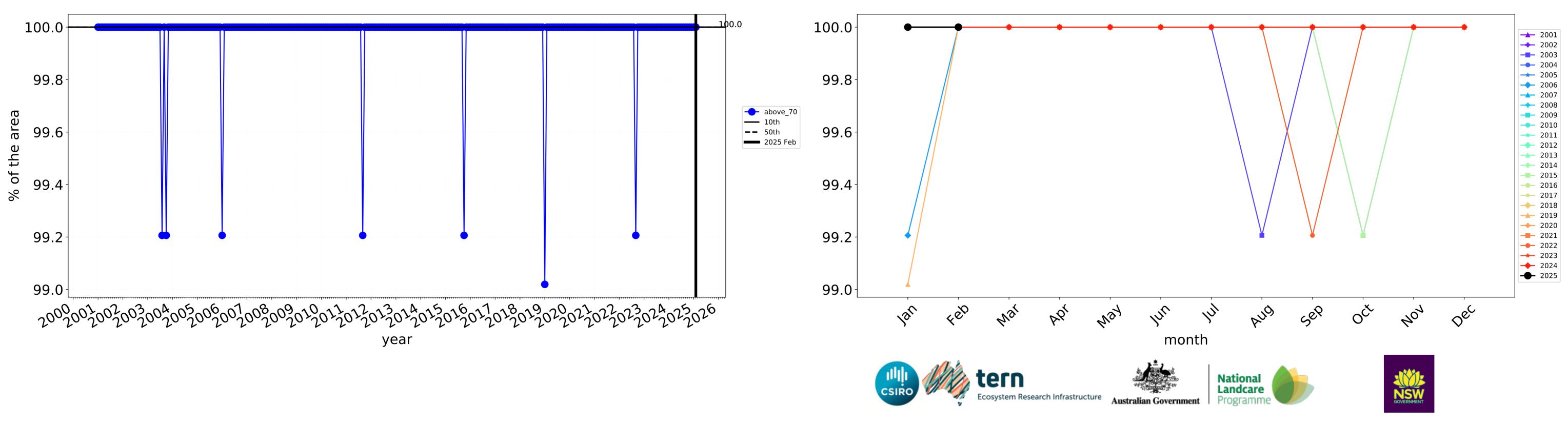


**Total Vegetation Cover Decile [%]** 

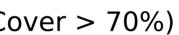




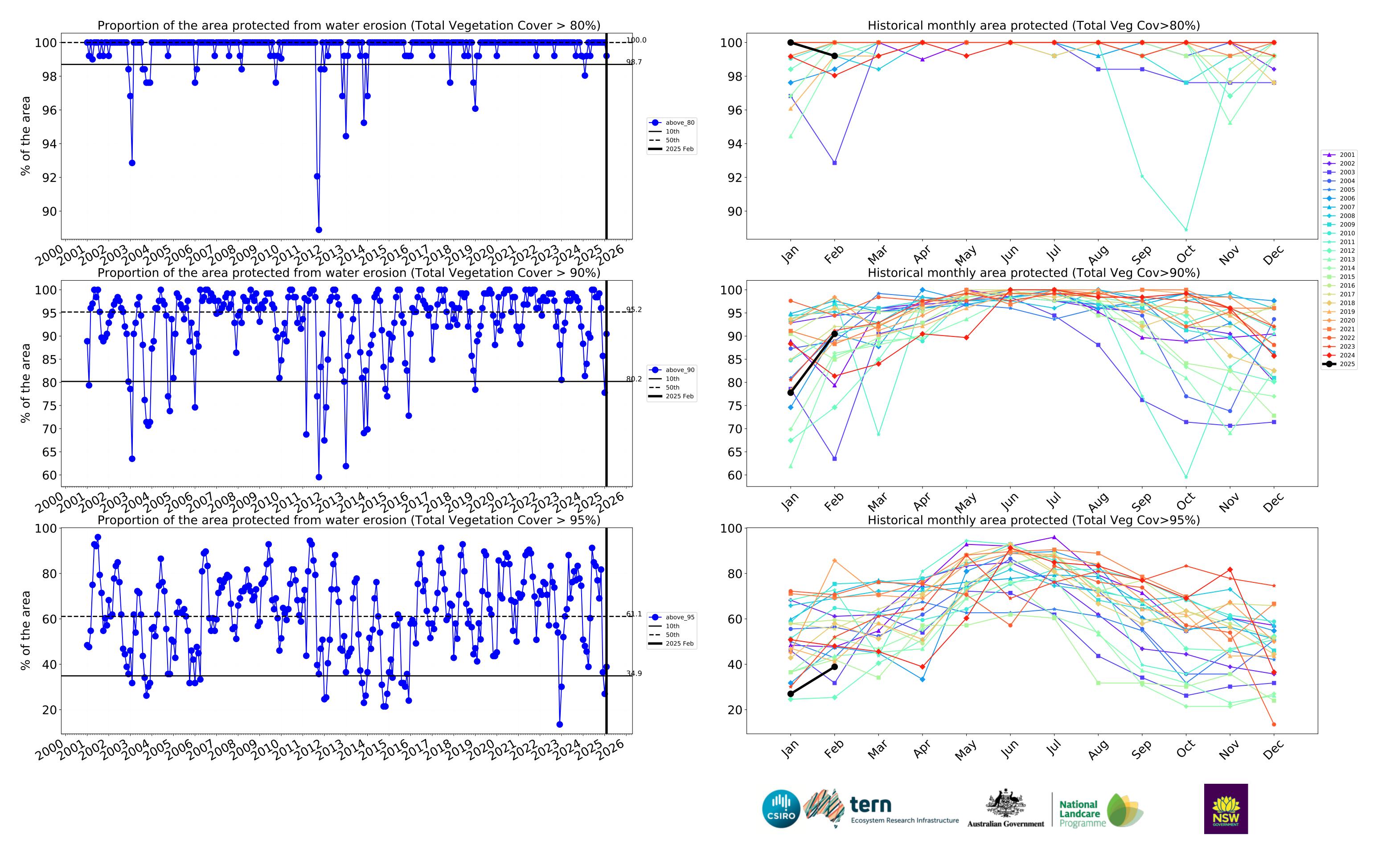




### Grazing - Forest (non woodland) timeseries



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



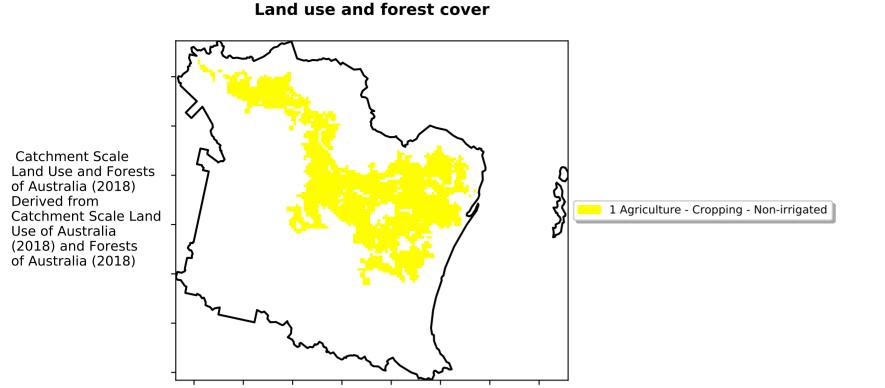
### Cropping

12%200%

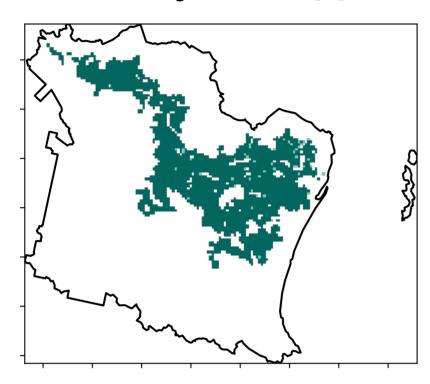
5200-TOOL

32905001

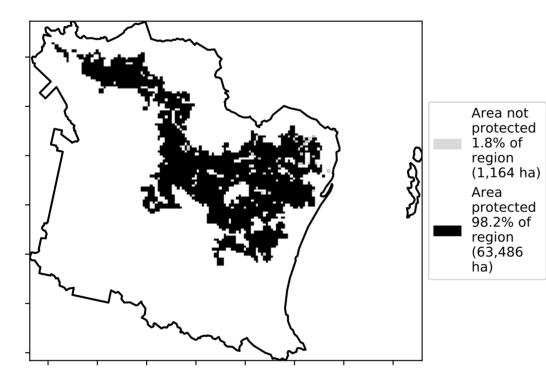
0.30%



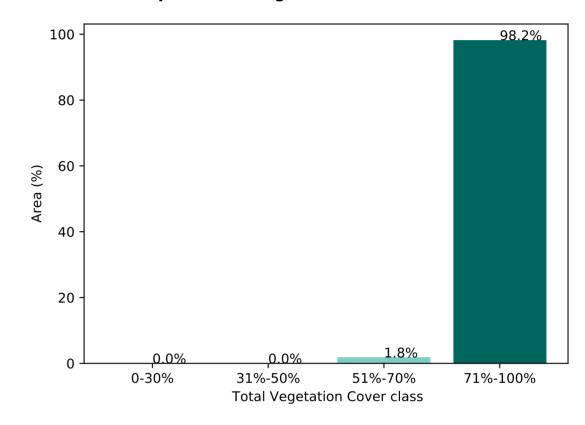
**Total Vegetation Cover [%]** 



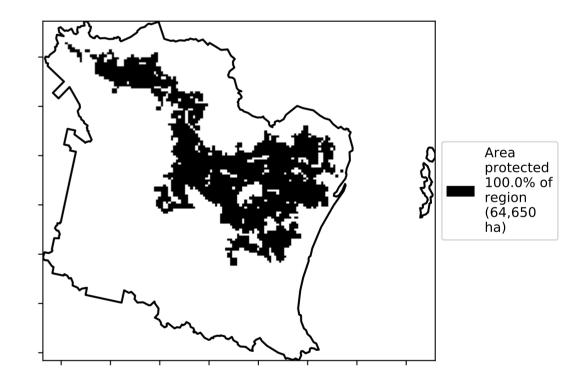
% Area protected from water erosion (>70%)



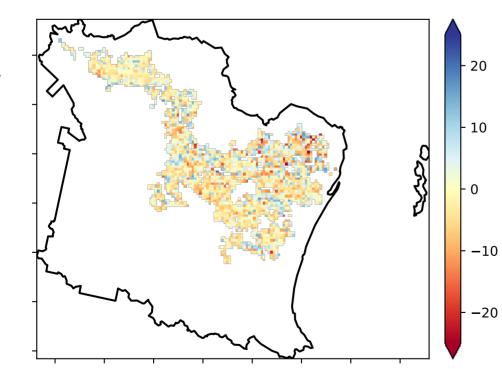
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

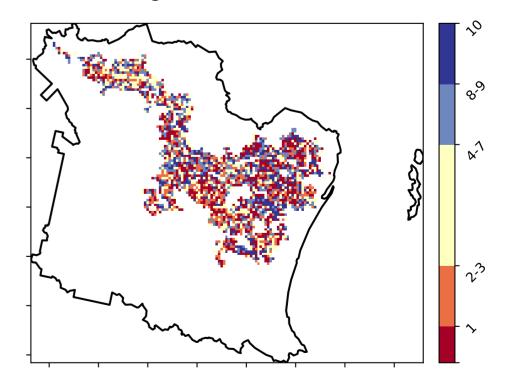


Total Vegetation Cover Anomaly [%]



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.

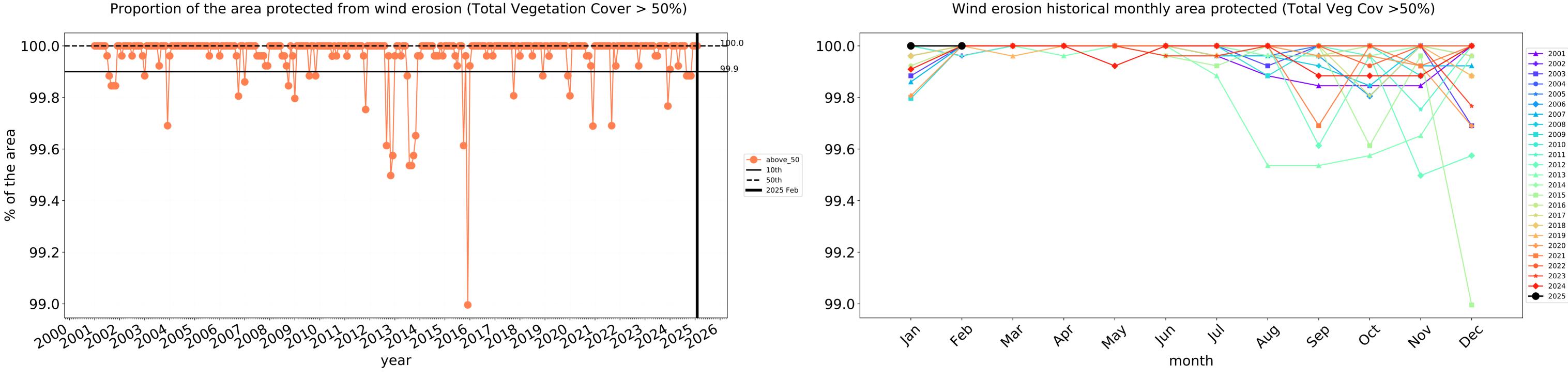
Total Vegetation Cover Decile [%]



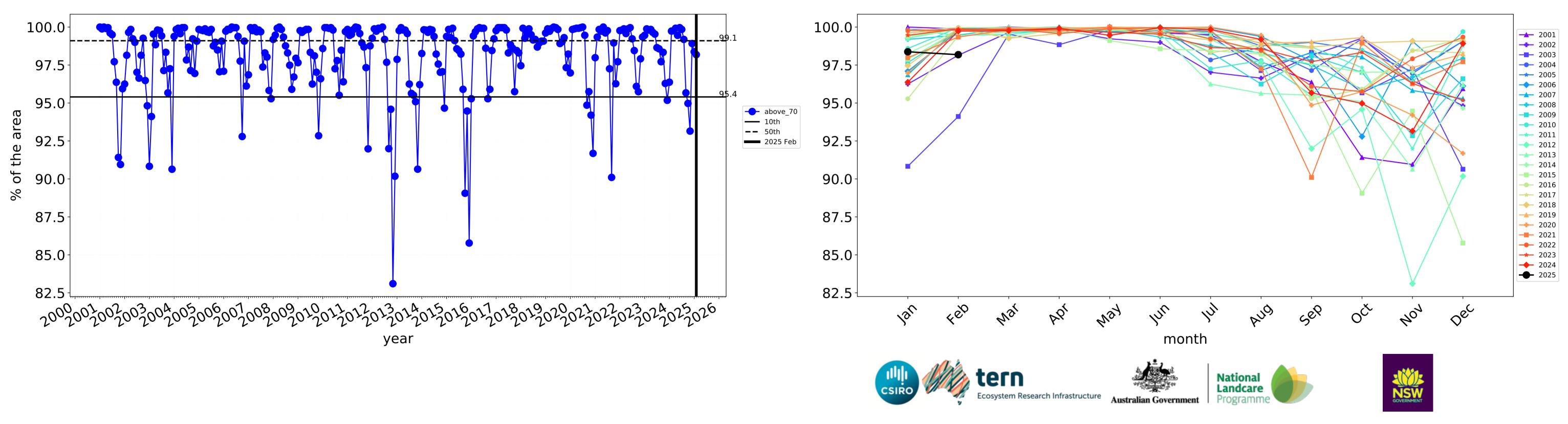


Anomaly show how many percetage points each pixel is from the mean That the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

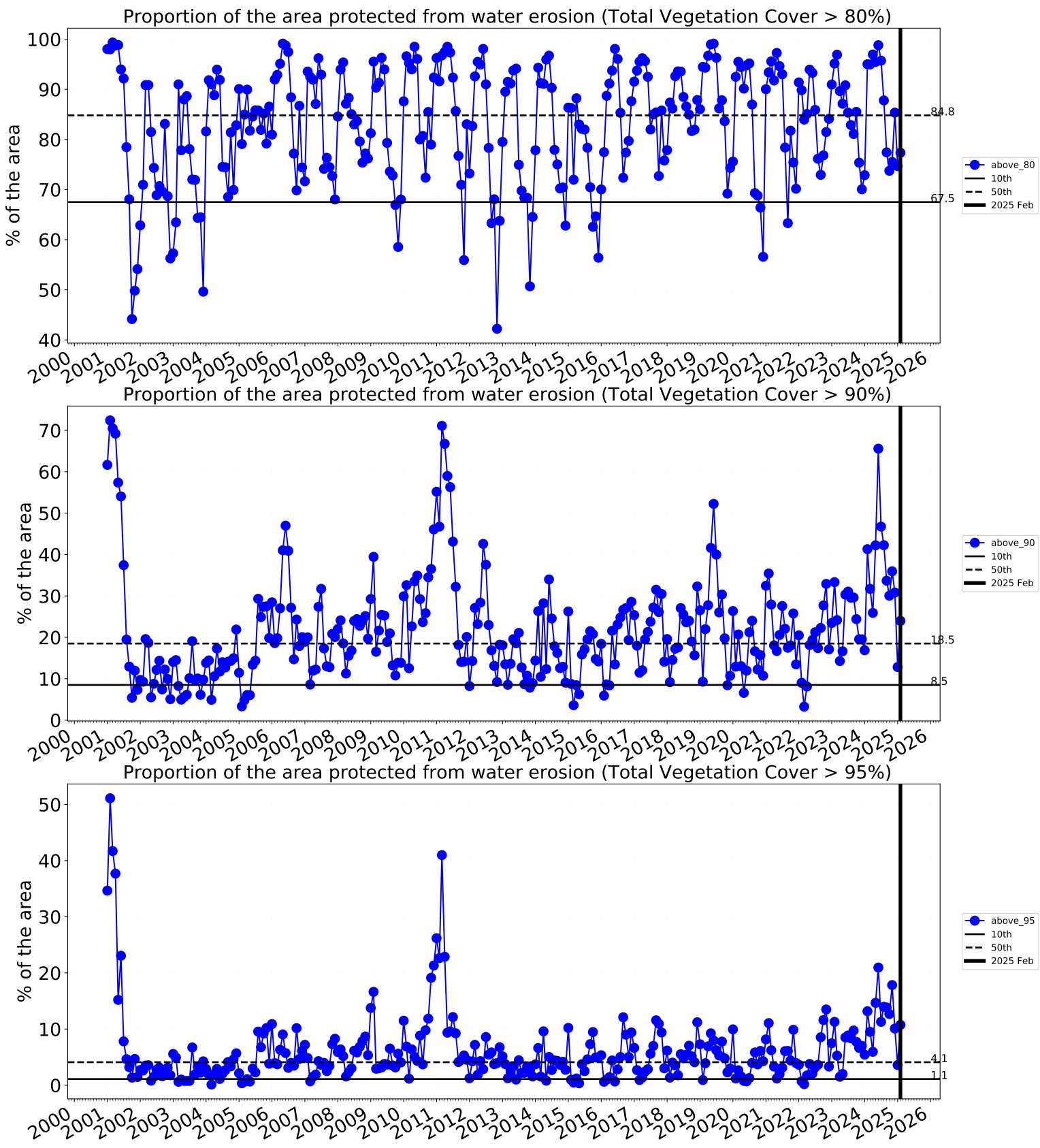


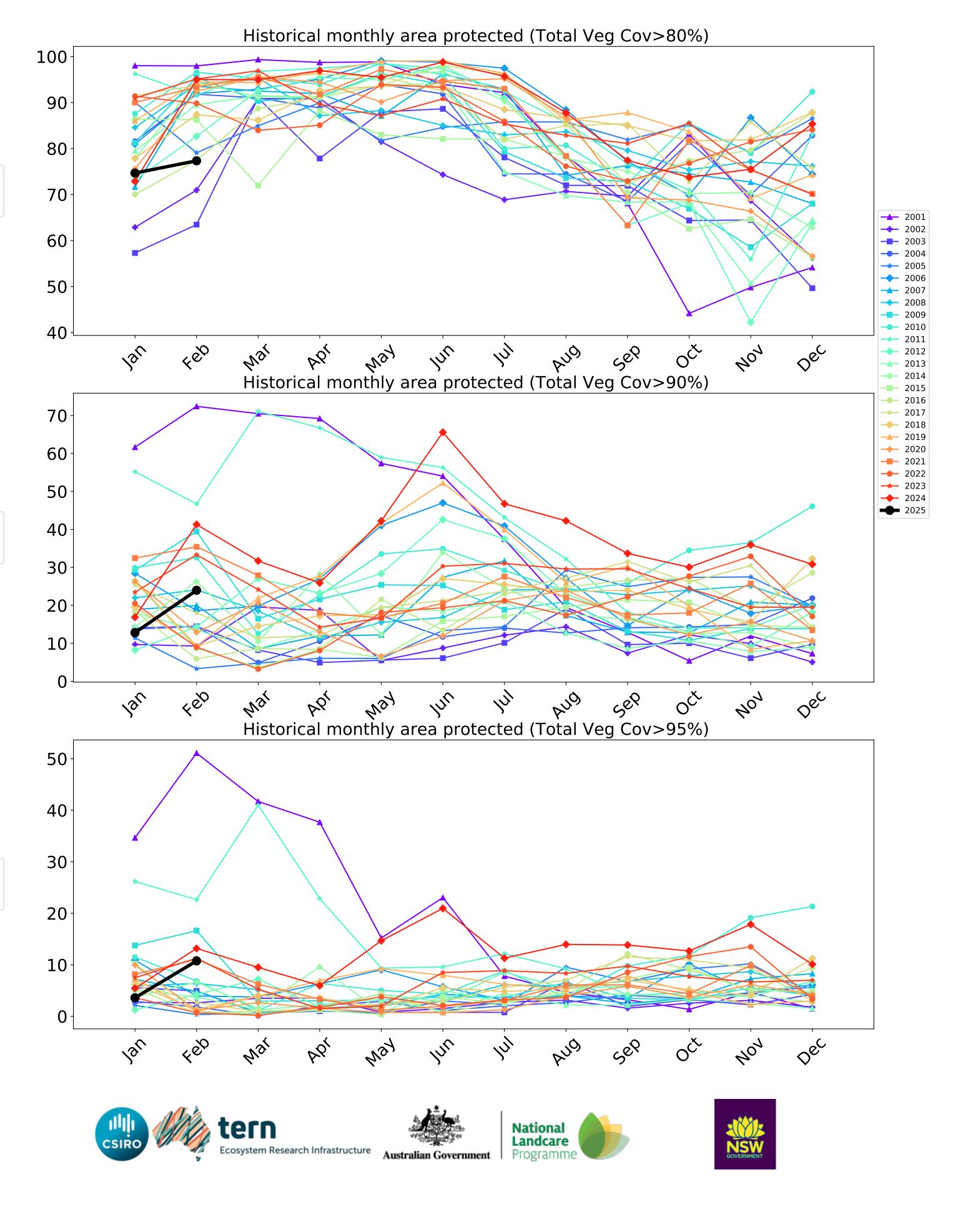


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



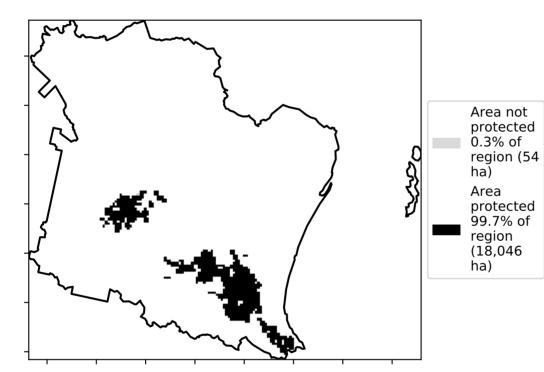
Water erosion historical monthly area protected (Total Veg Cov>70%)

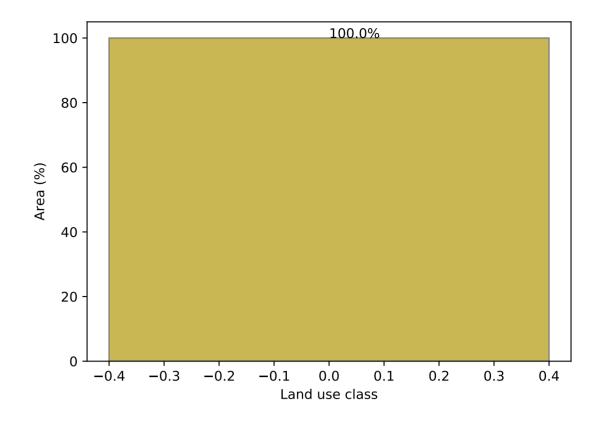




### Irrigation

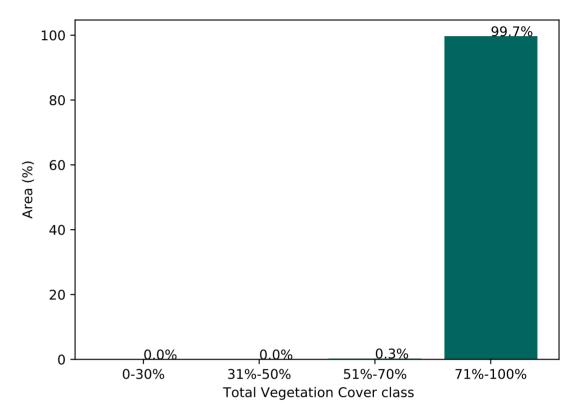
% Area protected from water erosion (>70%)



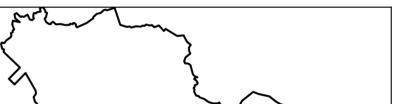


#### Proportion of each land class in area

Proportion of vegetation cover class in area

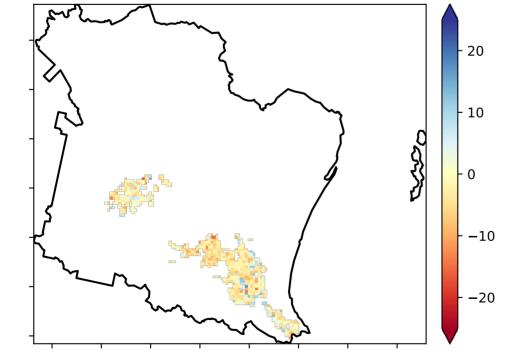


% Area protected from wind erosion (>50%)

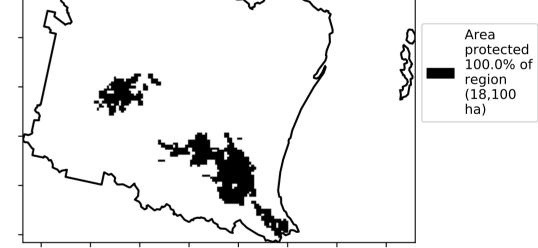


Total Vegetation Cover Anomaly [%]

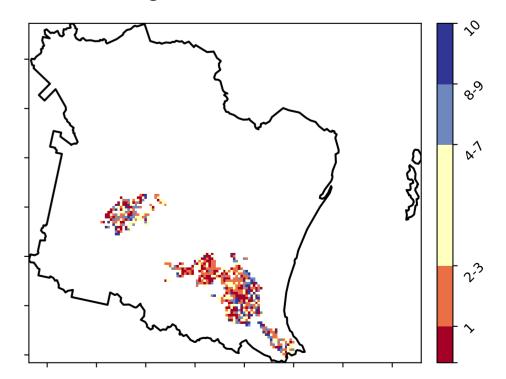
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



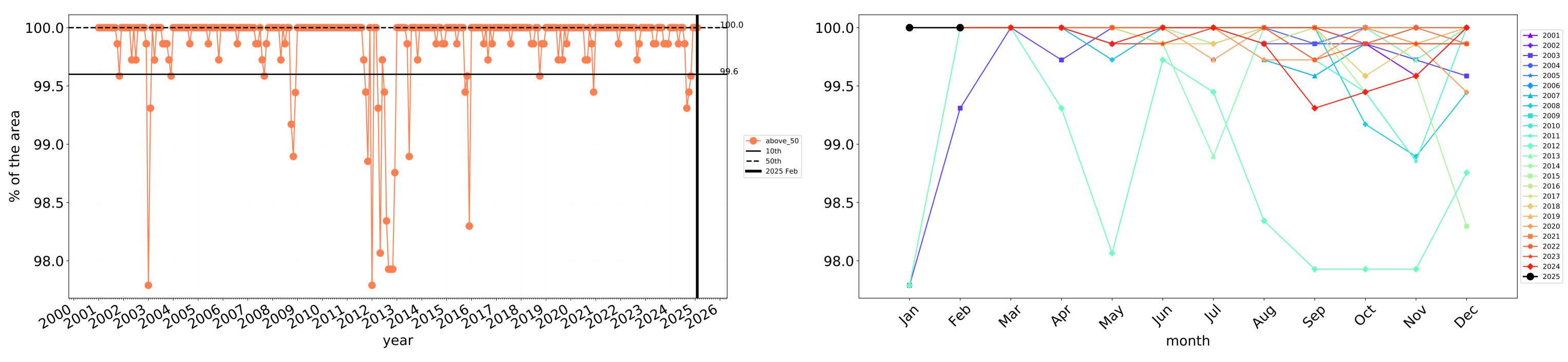
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



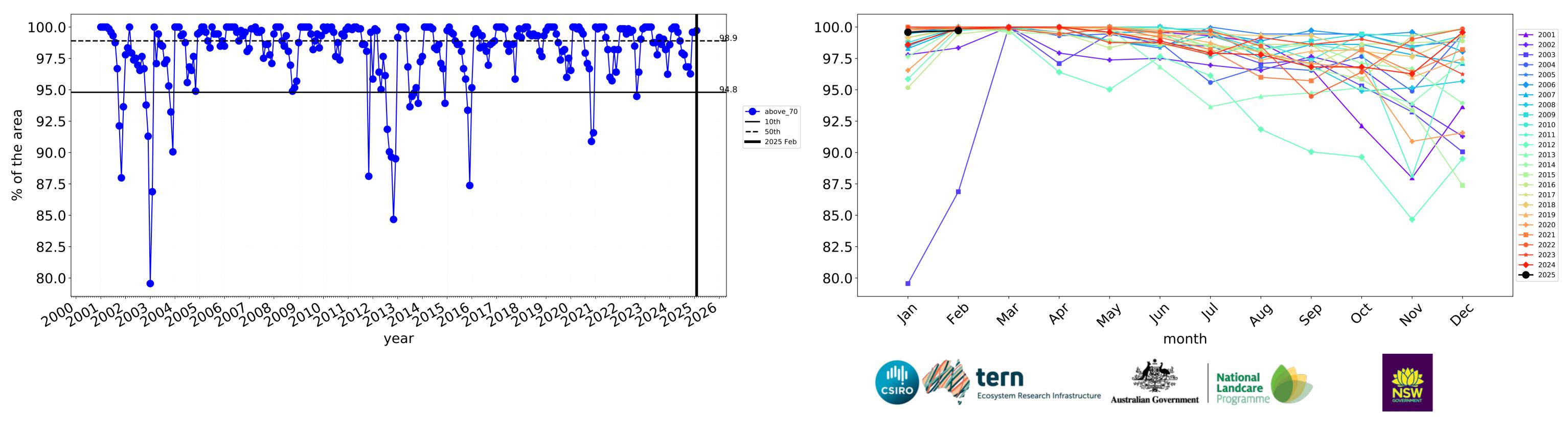
Total Vegetation Cover Decile [%]

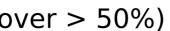






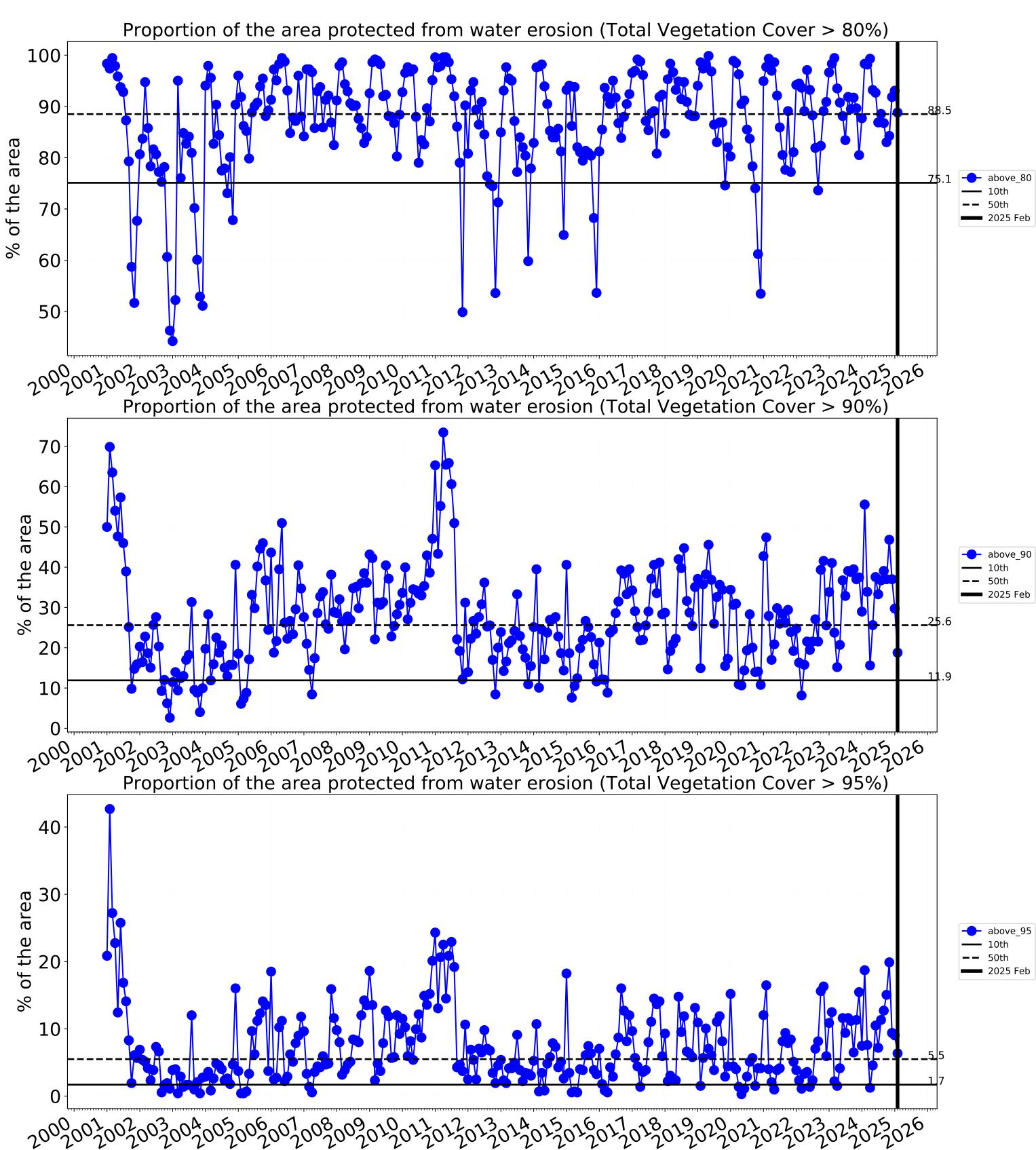
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

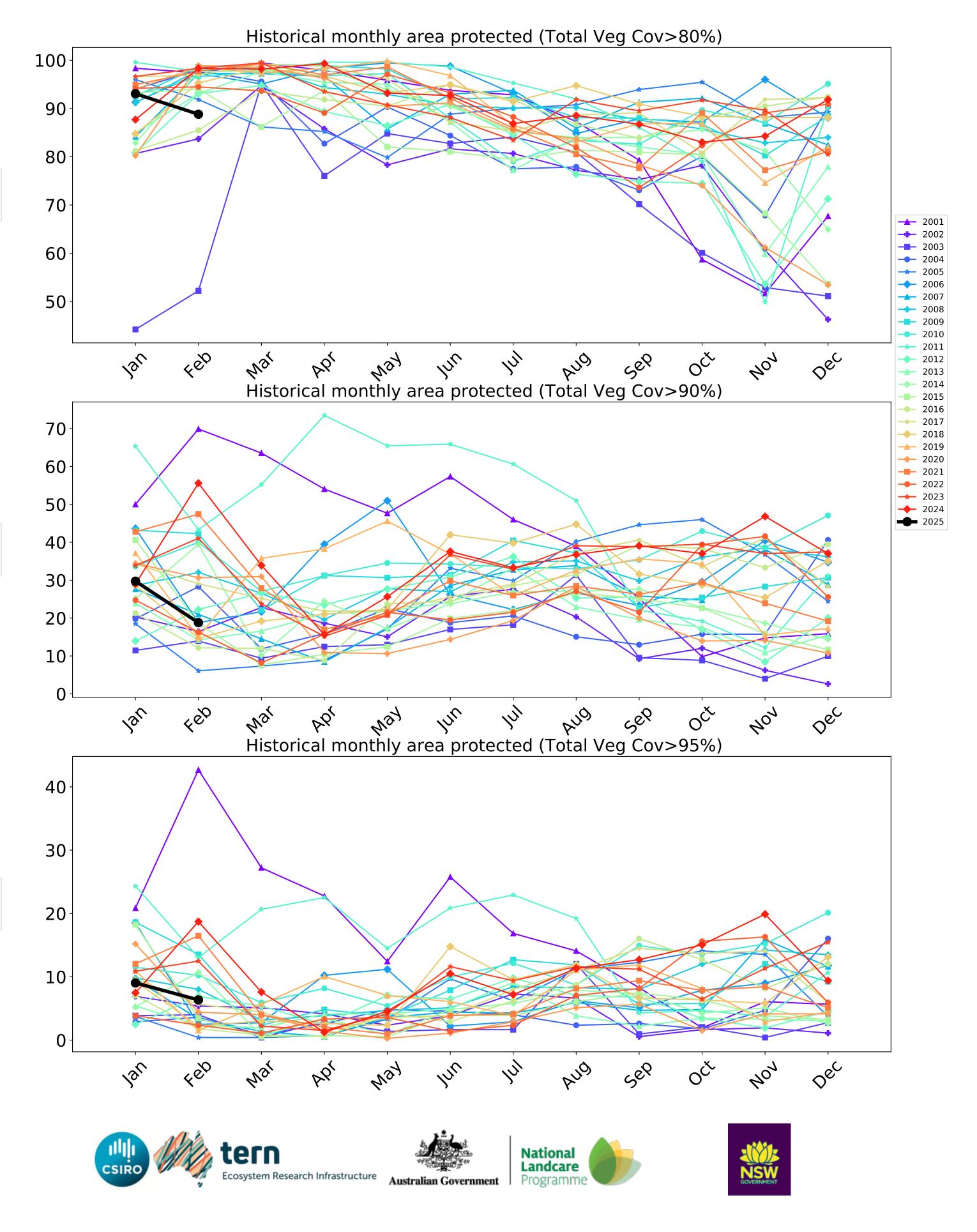




Wind erosion historical monthly area protected (Total Veg Cov >50%)

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





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

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

12º10-100'

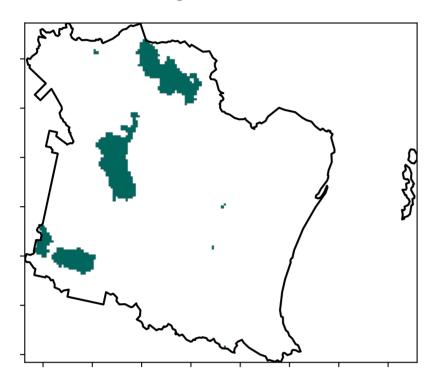
52°1070°1

32905001

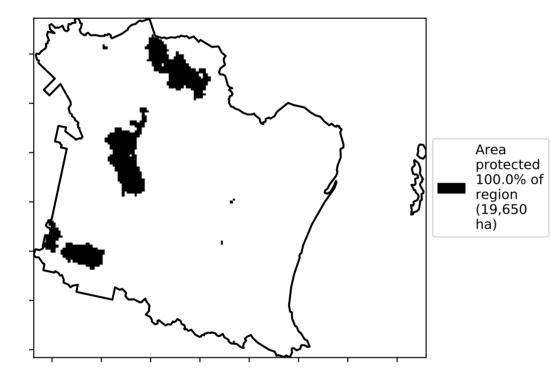
0.30%

Total Vegetation Cover [%]

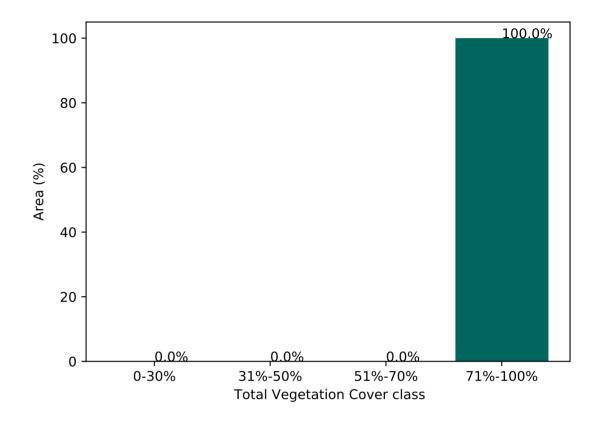
Land use and forest cover



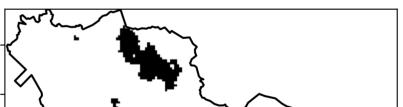
% Area protected from water erosion (>70%)



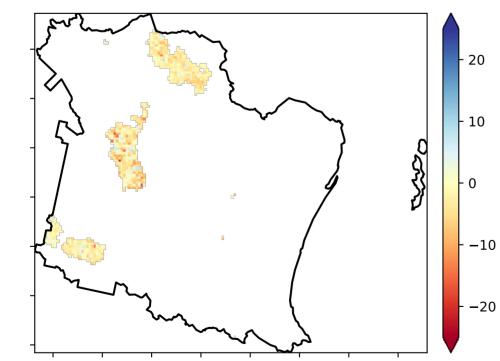
Proportion of vegetation cover class in area



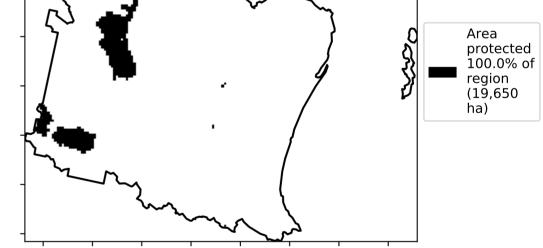
% Area protected from wind erosion (>50%)



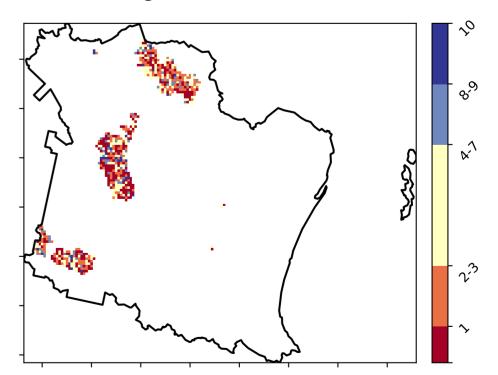
Total Vegetation Cover Anomaly [%]



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.



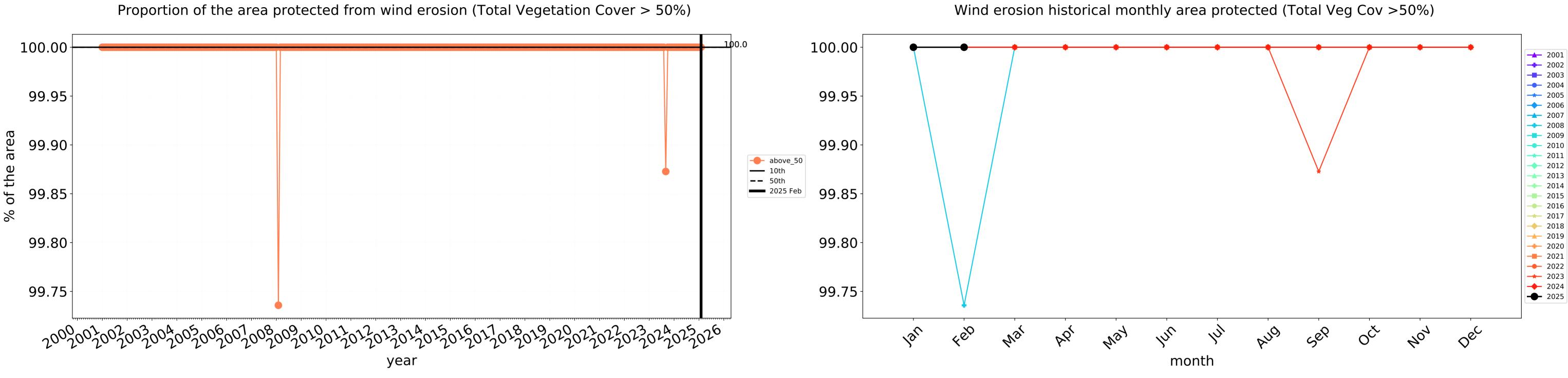
Total Vegetation Cover Decile [%]

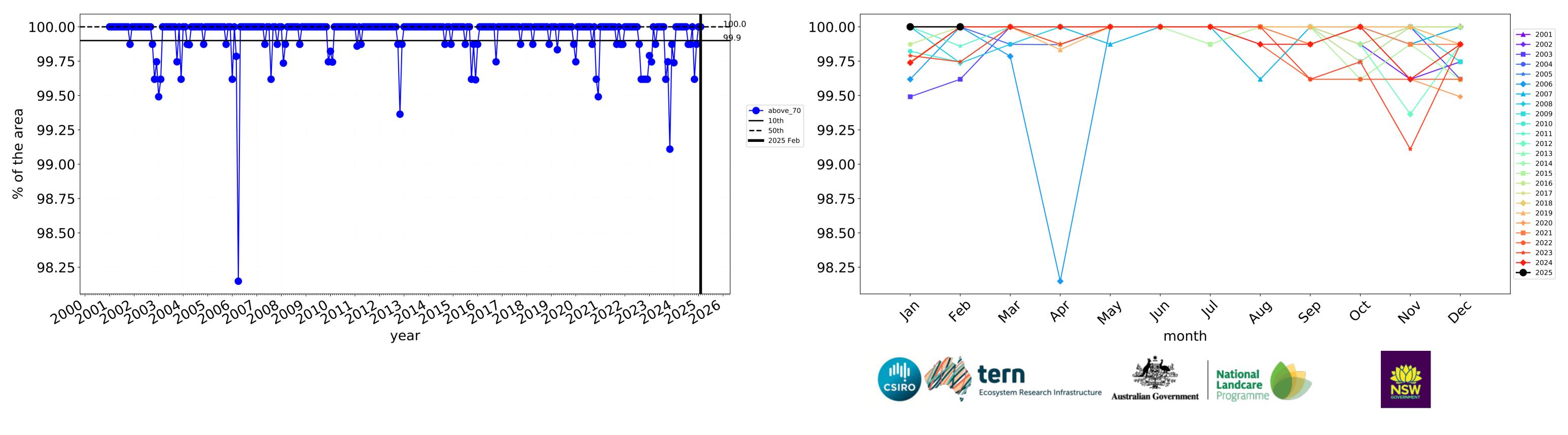




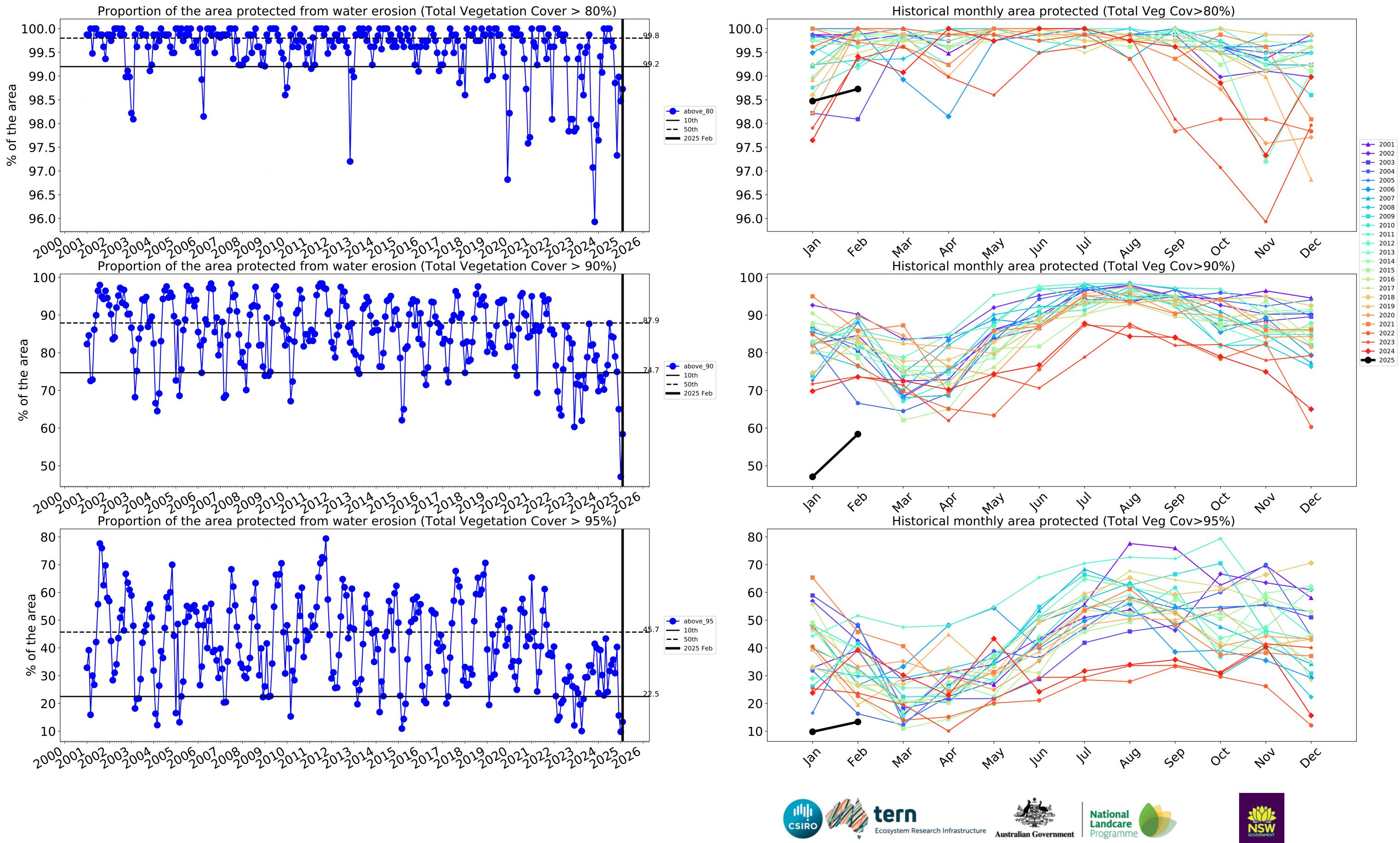
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.







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



Australian Government

# Hinchinbrook\_(S) (277,700 ha and no data 2,962 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	277,700	100.0% 277,625	99.8% 277,125	98.0% 272,250	88.9% 246,800	47.8% 132,700	15.4% 42,900
Conservation and natural environments	130,050	100.0% 130,025	99.8% 129,850	99.1% 128,900	97.2% 126,425	65.5% 85,200	19.6% 25,475
Conservation and natural environments Woodland forest	46,325	100.0% 46,325	99.9% 46,300	99.6% 46,150	98.2% 45,475	60.5% 28,025	13.9% 6,425
Conservation and natural environments Forest (non woodland)	81,900	100.0% 81,875	99.8% 81,775	99.0% 81,075	97.1% 79,550	69.2% 56,700	22.9% 18,775
Agriculture	104,700	100.0% 104,700	100.0% 104,700	98.7% 103,350	82.5% 86,425	28.5% 29,850	11.6% 12,125
Grazing	21,925	100.0% 21,925	100.0% 21,925	99.4% 21,800	92.7% 20,325	49.8% 10,925	18.2% 4,000
Grazing non forest	16,100	100.0% 16,100	100.0% 16,100	99.2% 15,975	90.4% 14,550	36.2% 5,825	9.9% 1,600
Grazing Woodland forest	2,675	100.0% 2,675	100.0% 2,675	100.0% 2,675	99.1% 2,650	84.1% 2,250	43.9% 1,175
Grazing - Forest (non woodland)	3,150	100.0% 3,150	100.0% 3,150	100.0% 3,150	99.2% 3,125	90.5% 2,850	38.9% 1,225
Cropping	64,650	100.0% 64,650	100.0% 64,650	98.2% 63,475	77.3% 50,000	24.0% 15,500	10.8% 6,950
Irrigation	18,100	100.0% 18,100	100.0% 18,100	99.7% 18,050	88.8% 16,075	18.8% 3,400	6.4% 1,150
Production native forests and plantation forests	19,650	100.0% 19,650	100.0% 19,650	100.0% 19,650	98.7% 19,400	58.4% 11,475	13.4% 2,625

