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

## Date: June 2022

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:

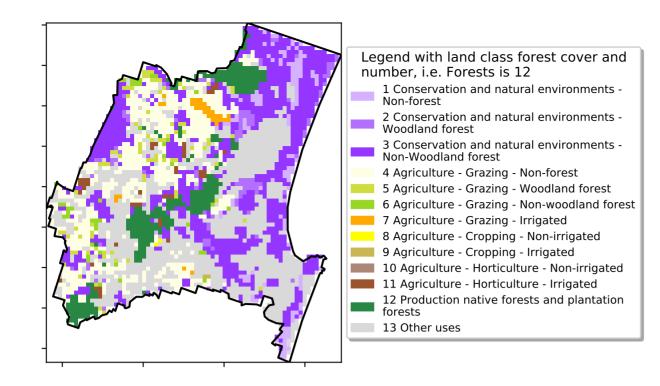
https://doi.org/10.4225/08/5848a3f19a7b3



## **Vegetation Cover Jun 2022**

#### Land use and forest cover

#### Proportion of each land class in area



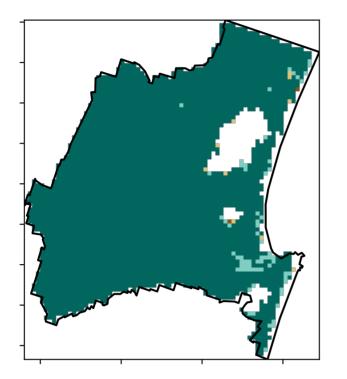
120/07/00

52%70

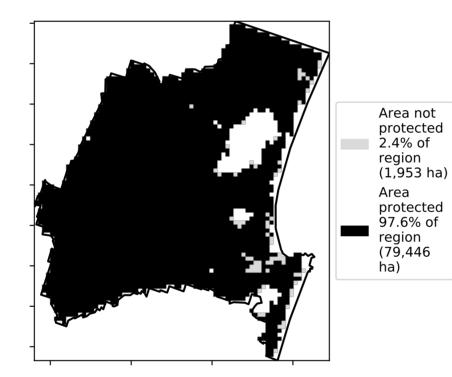
32%50%

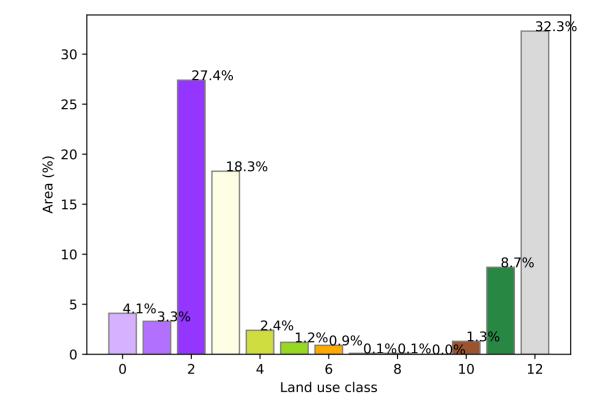
0-30%

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

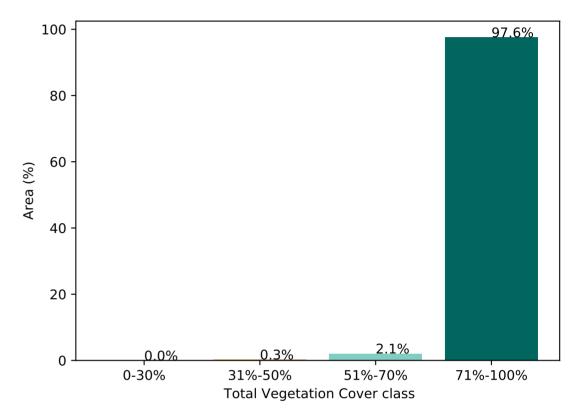


#### % Area protected from water erosion (>70%)

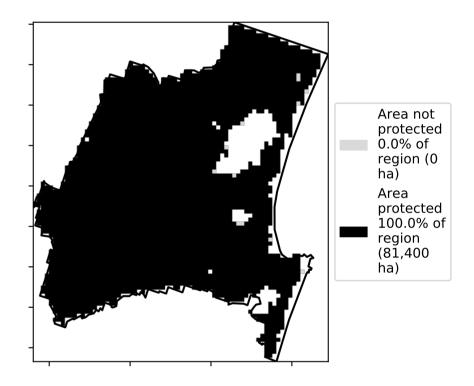




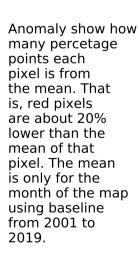
#### Proportion of vegetation cover class in area



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



**Total Vegetation Cover Anomaly [%]** 



Catchment Scale

of Australia (2018)

Derived from

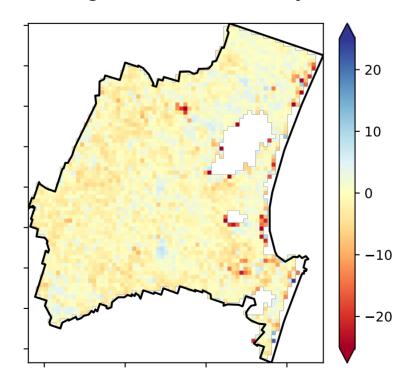
Use of Australia

(2018) and Forests

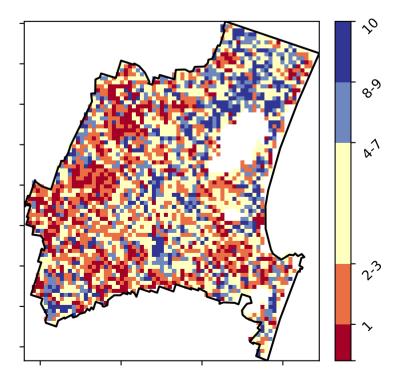
of Australia (2018)

Land Use and Forests

Catchment Scale Land



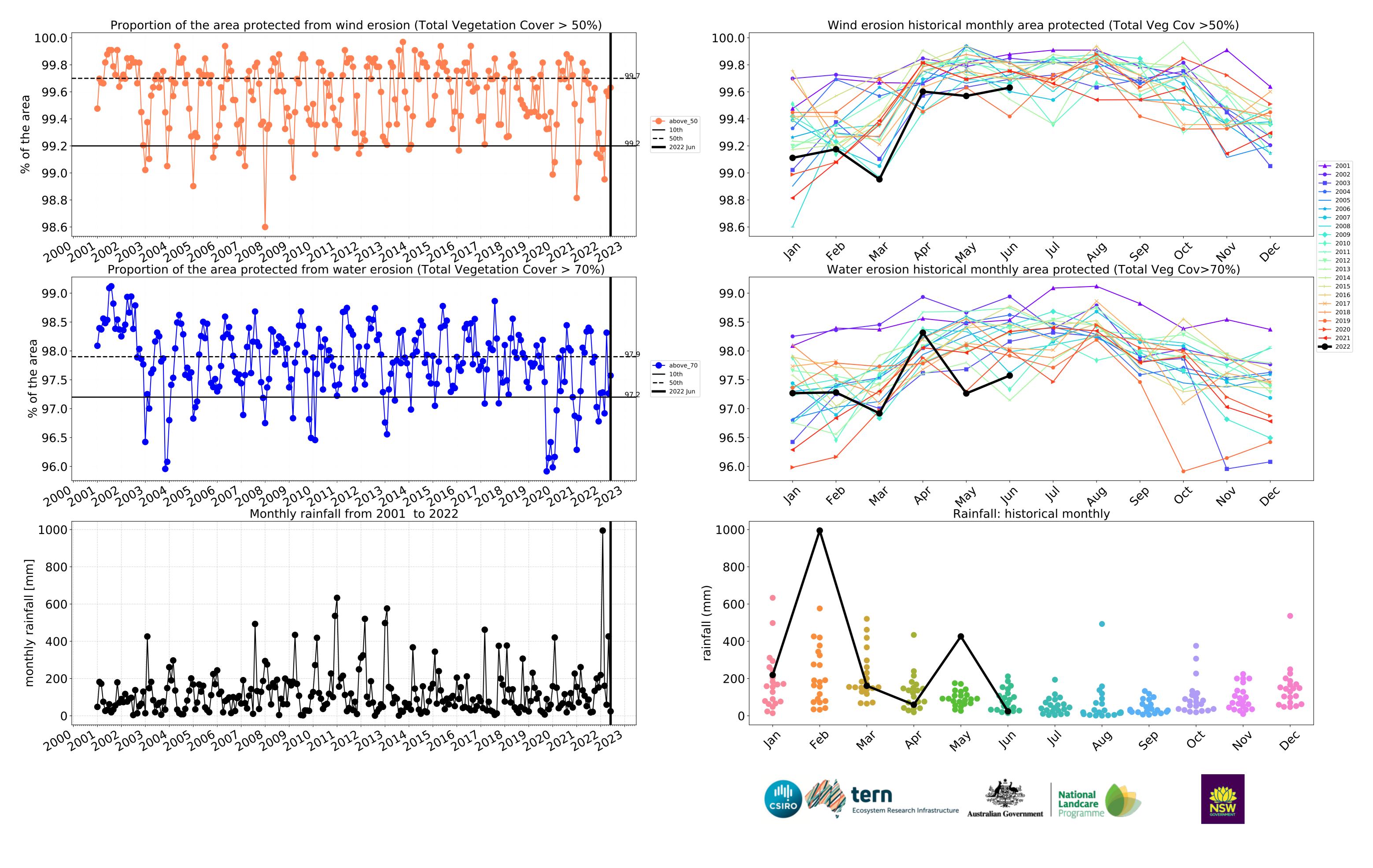
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]** 

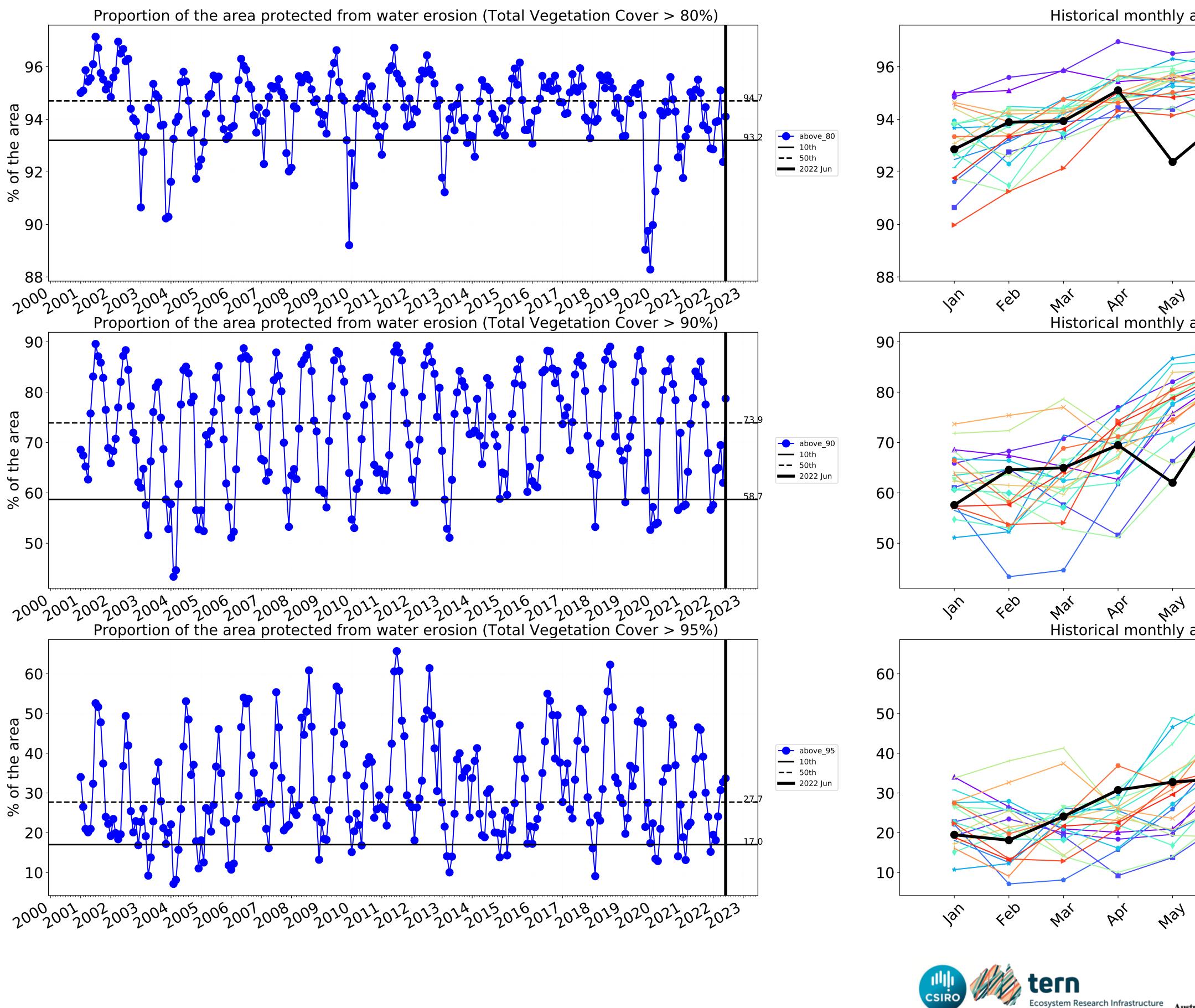




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Australian Government

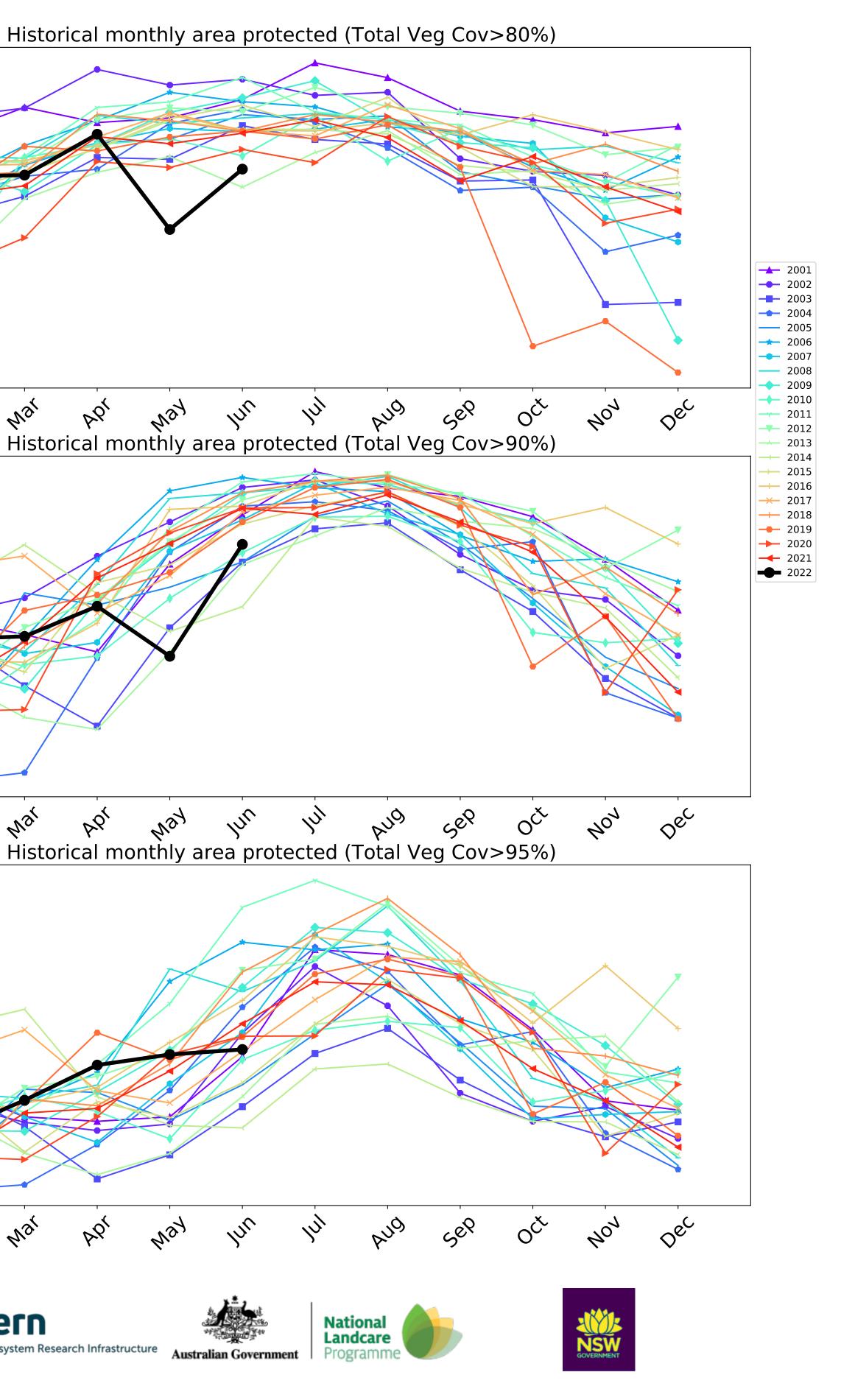
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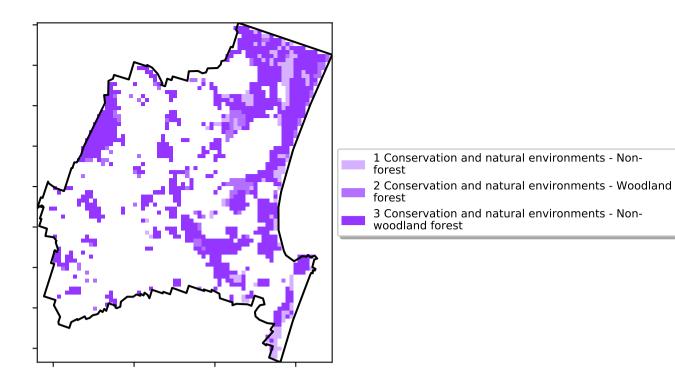
 $\sqrt{\gamma}$ 

Ecosystem Research Infrastructure



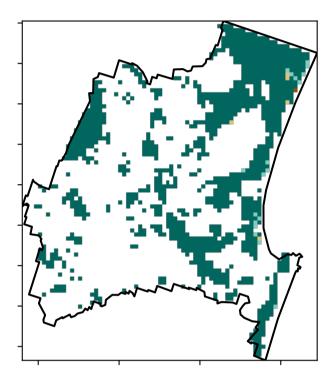
### **Conservation and natural environments**

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

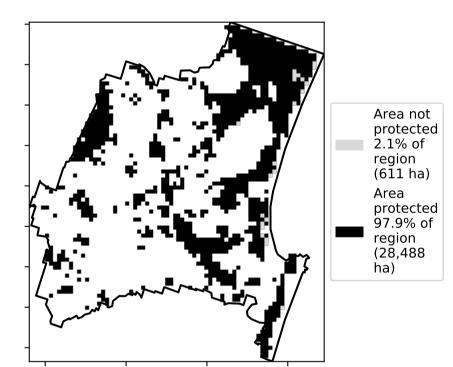


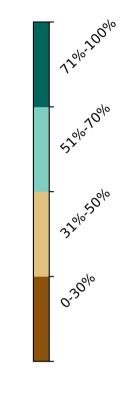
Land use and forest cover

**Total Vegetation Cover [%]** 

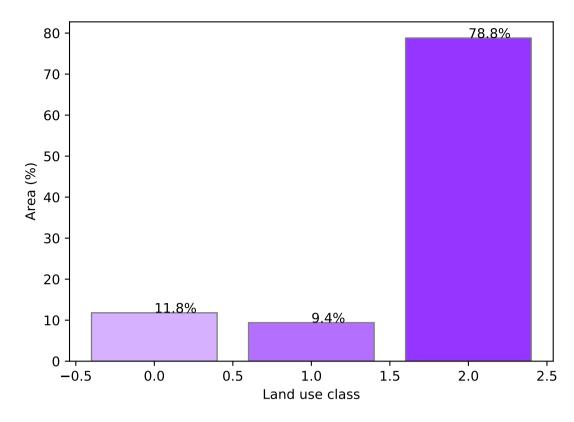


% Area protected from water erosion (>70%)

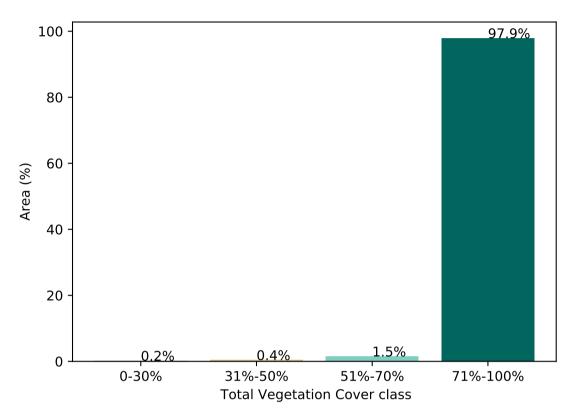




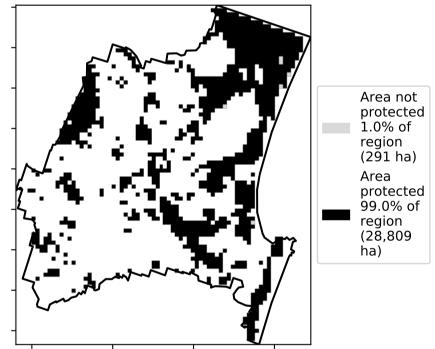
#### Proportion of each land class in area



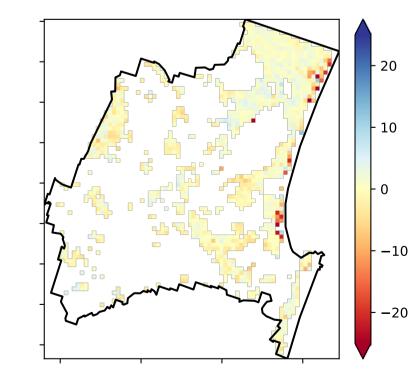
#### Proportion of vegetation cover class in area



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

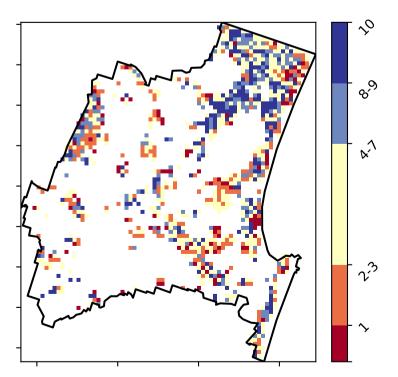


**Total Vegetation Cover Anomaly [%]** 

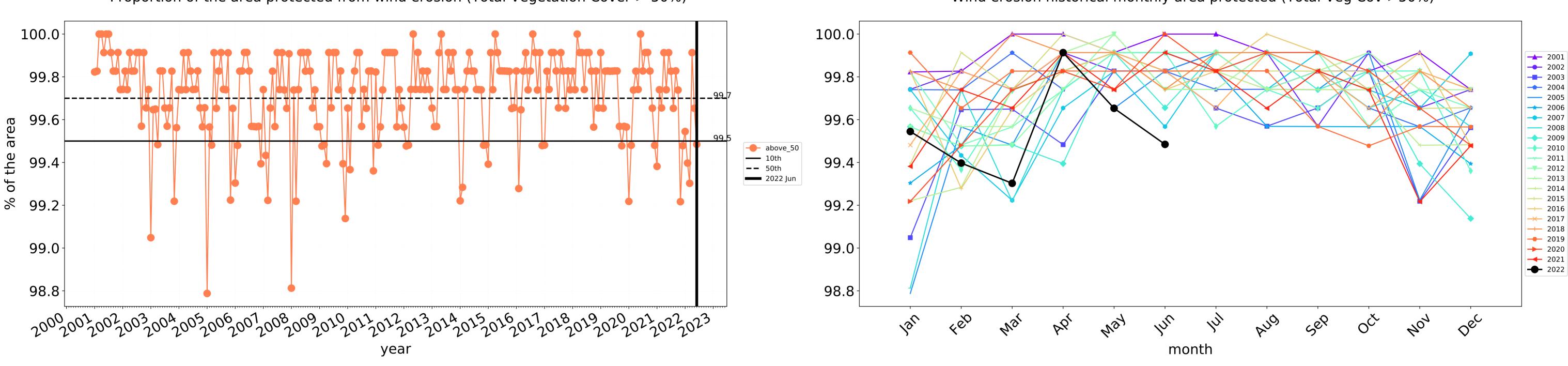


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

**Total Vegetation Cover Decile [%]** 

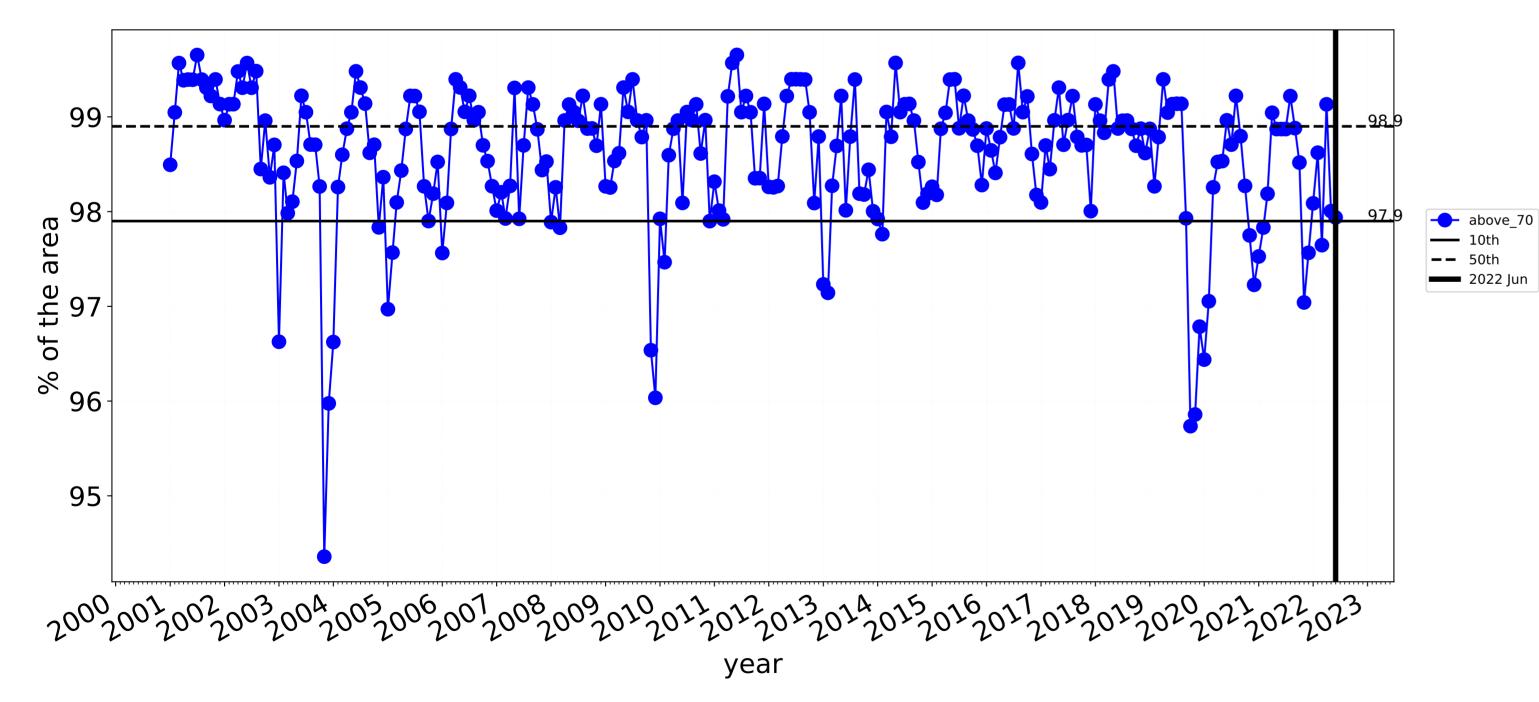






Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

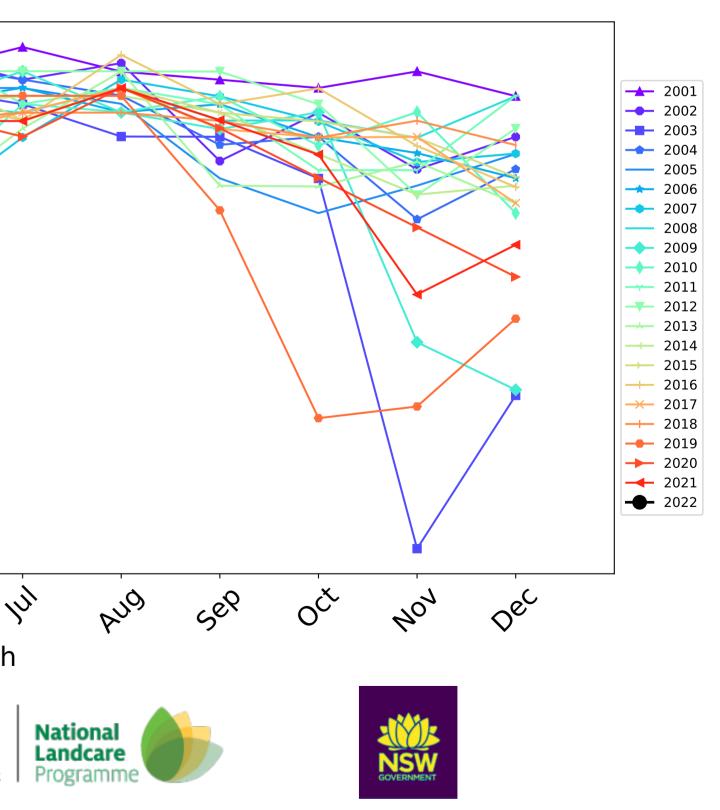
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



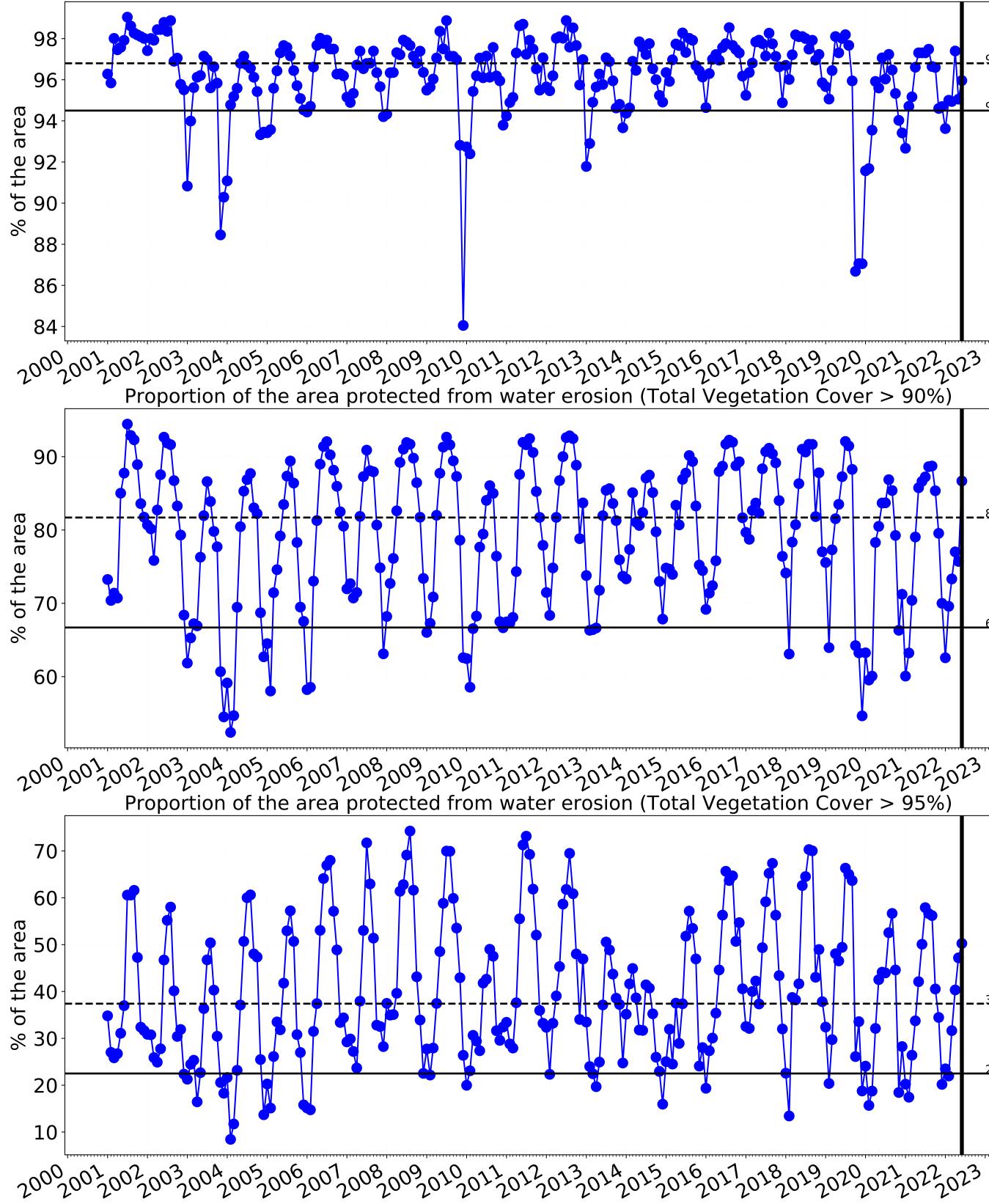
99 98 97 96 95 lar 4eb way In Mai PQ1 month tern Ecosystem Research Infrastructure Australian Government

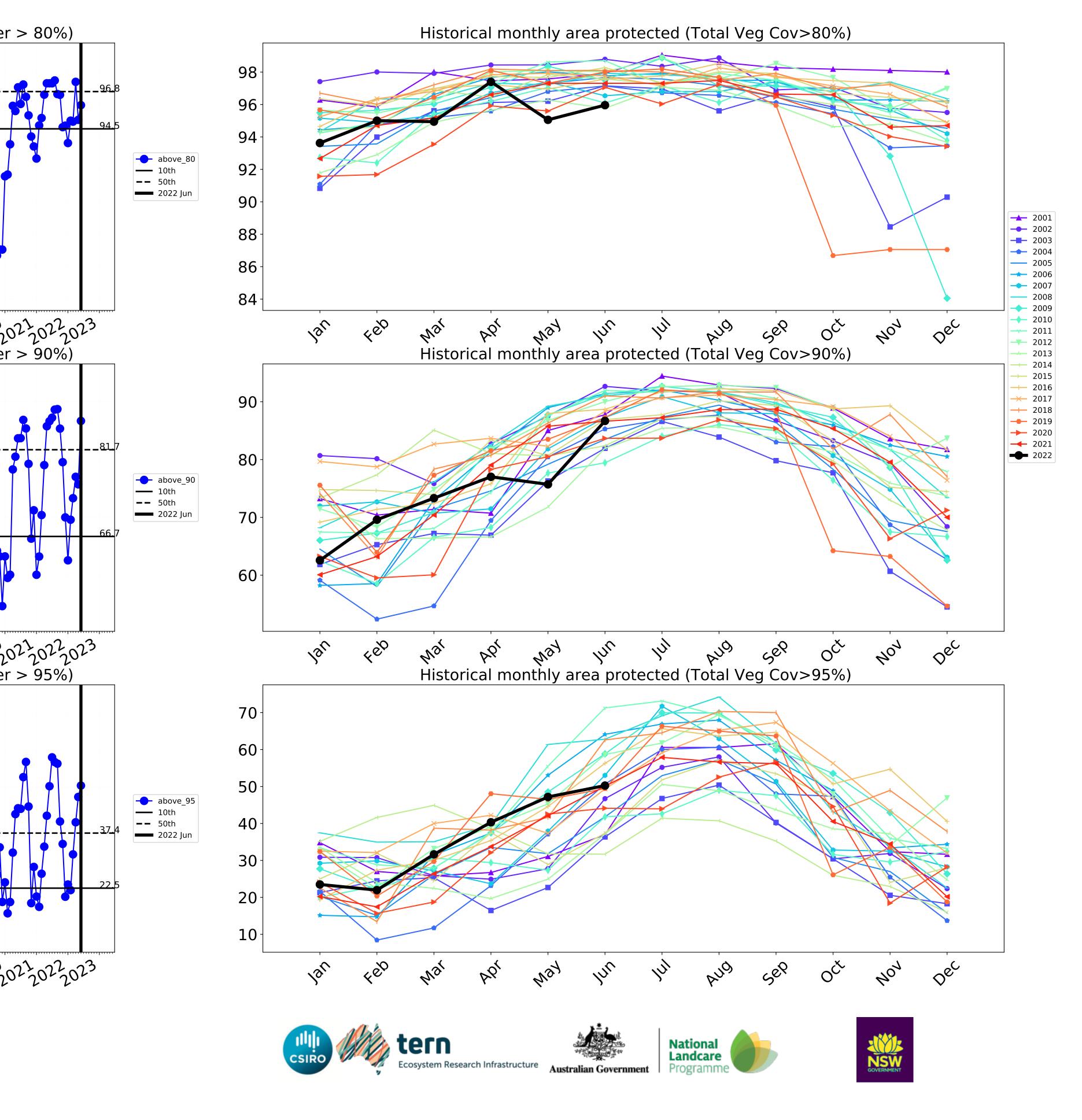
Water erosion historical monthly area protected (Total Veg Cov>70%)

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



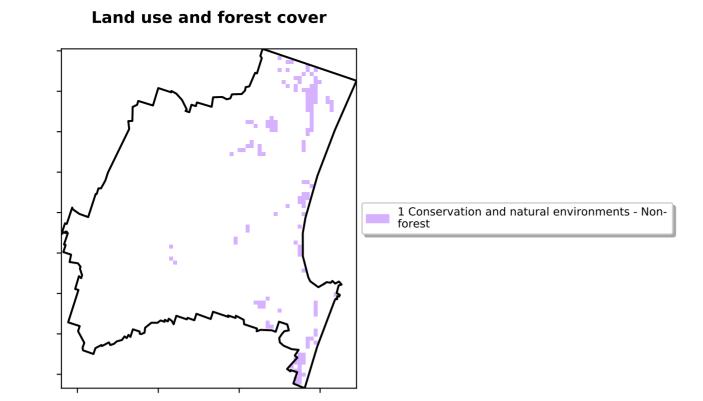
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)





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

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



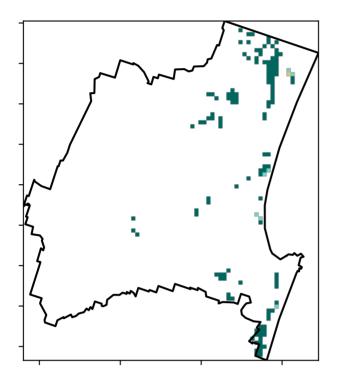
12010-2001

52%70%

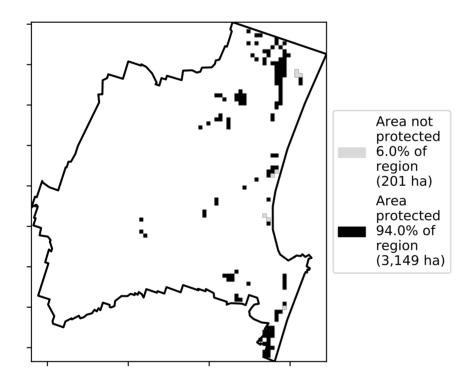
32%50

0.30%

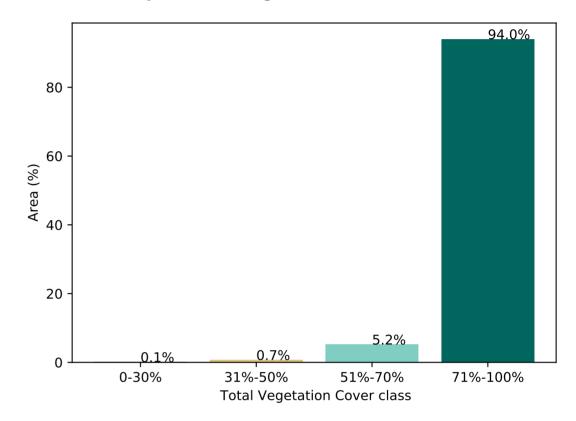
**Total Vegetation Cover [%]** 



% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area

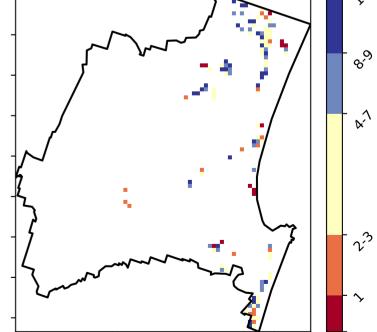


% Area protected from wind erosion (>50%)



**Total Vegetation Cover Anomaly [%]** 

Area not protected 1.0% of region (33 ha) Area protected . 99.0% of region (3,316 ha) **Total Vegetation Cover Decile [%]**  $\hat{\mathcal{S}}$ °, A-1





Deciles show where the pixel value lies in the

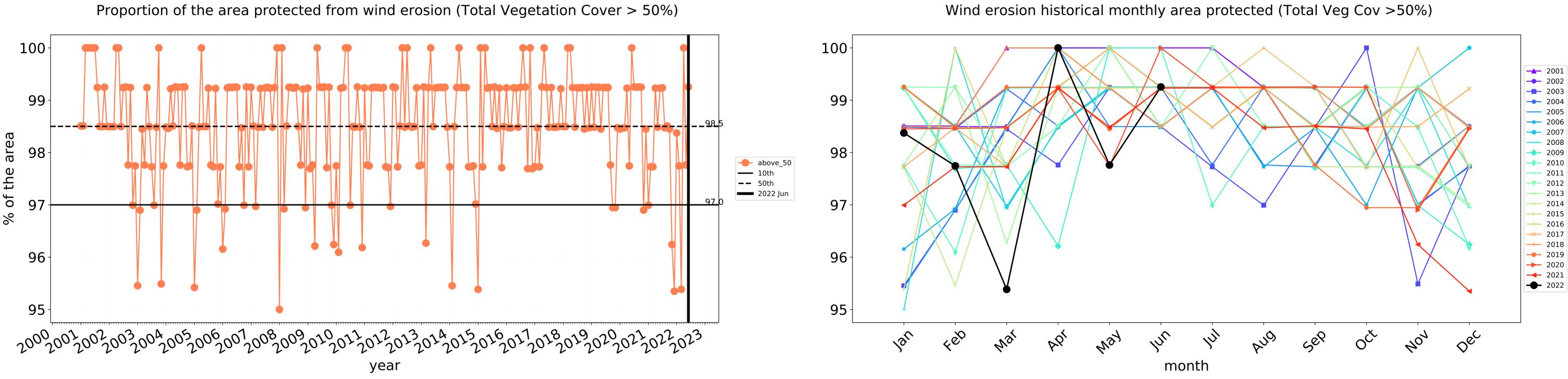
record, from highest to

lowest, for that month. That is, red pixels are in the lowest 10% of

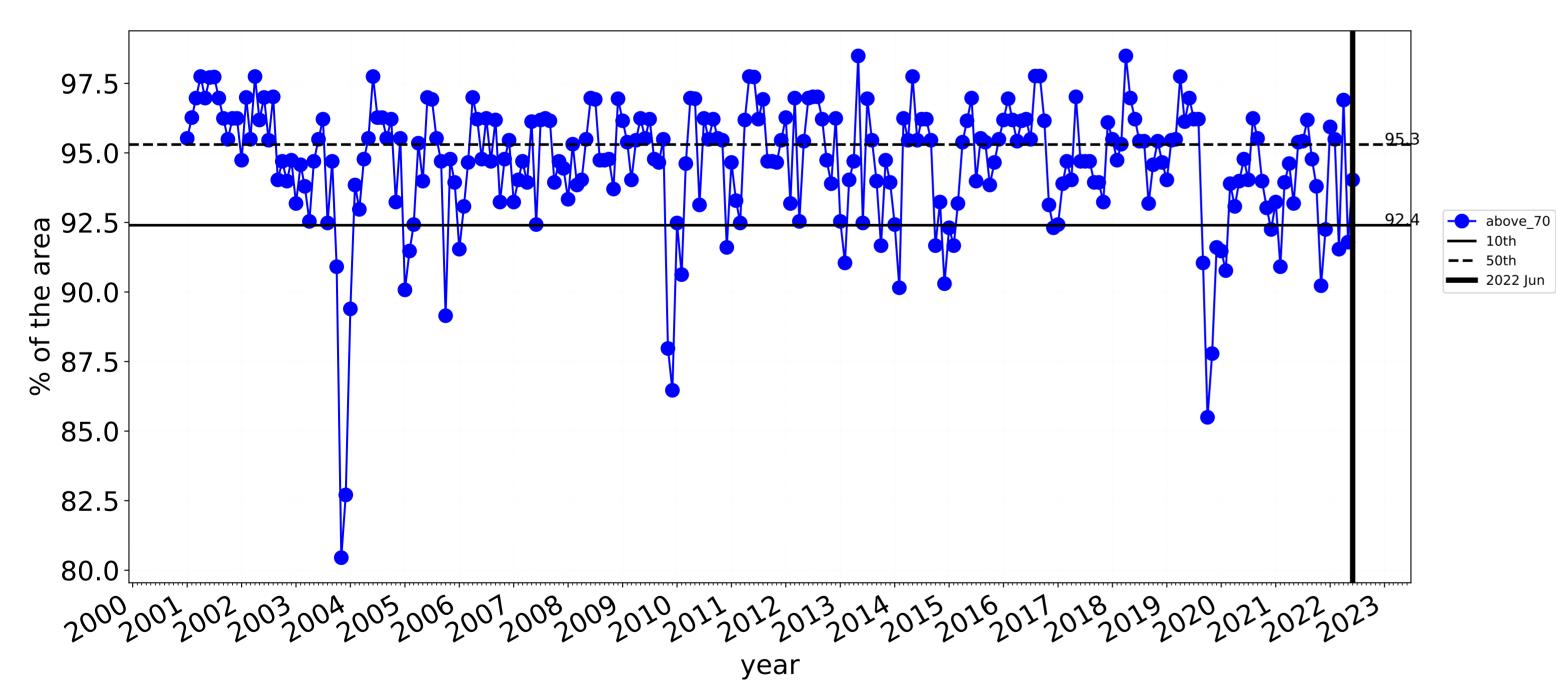
records for that month of

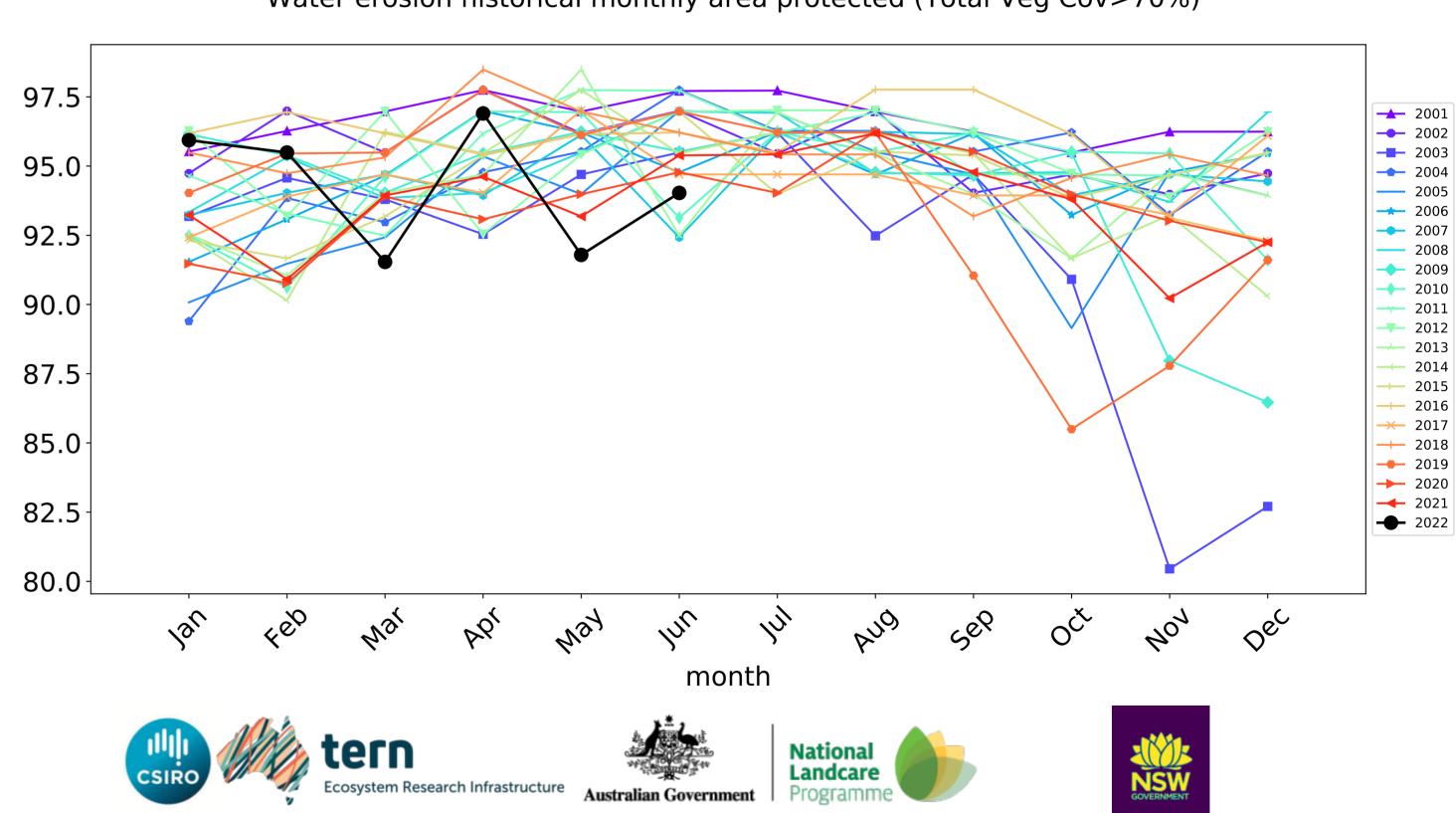
the map using baseline from 2001 to 2019.





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

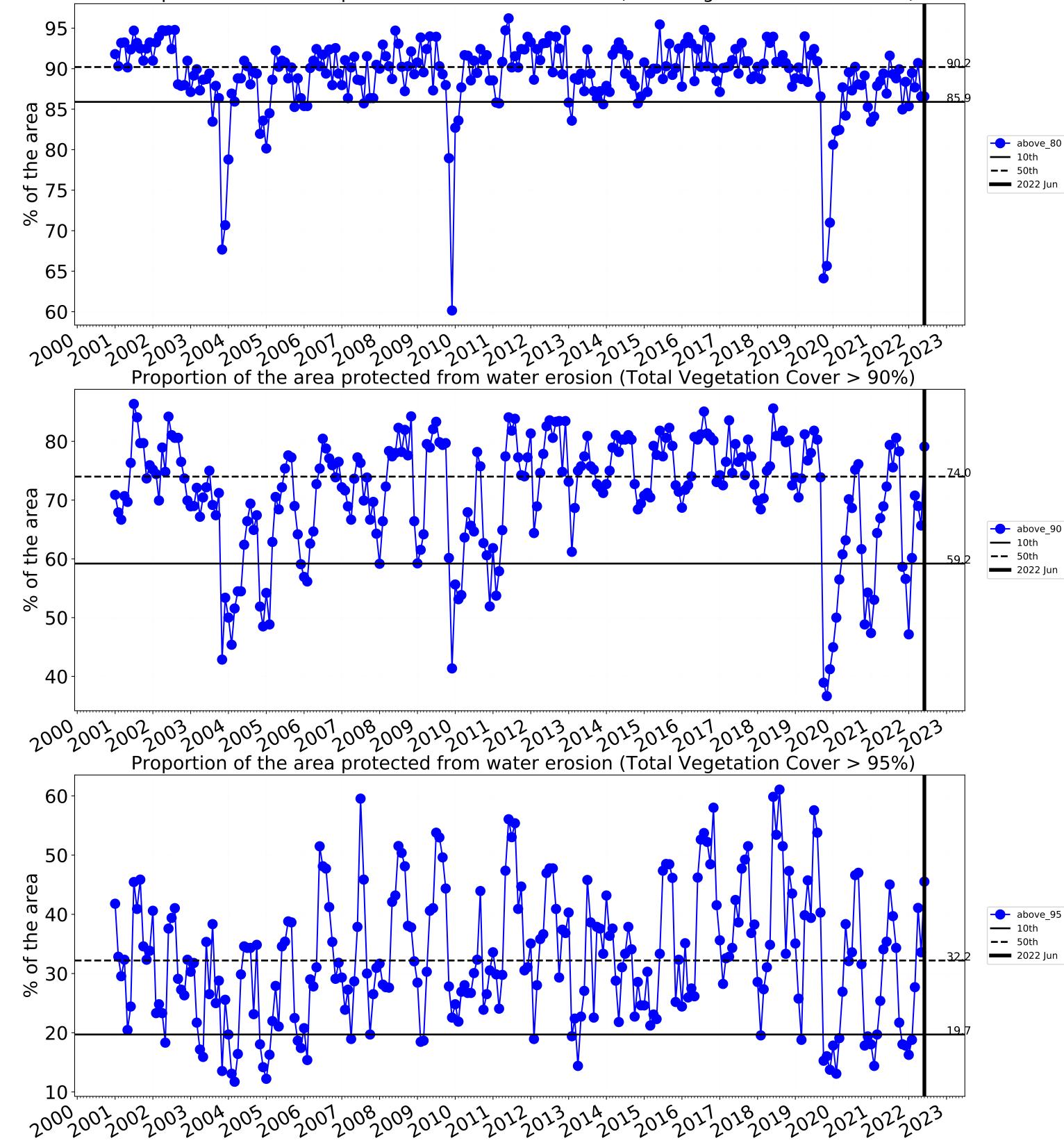


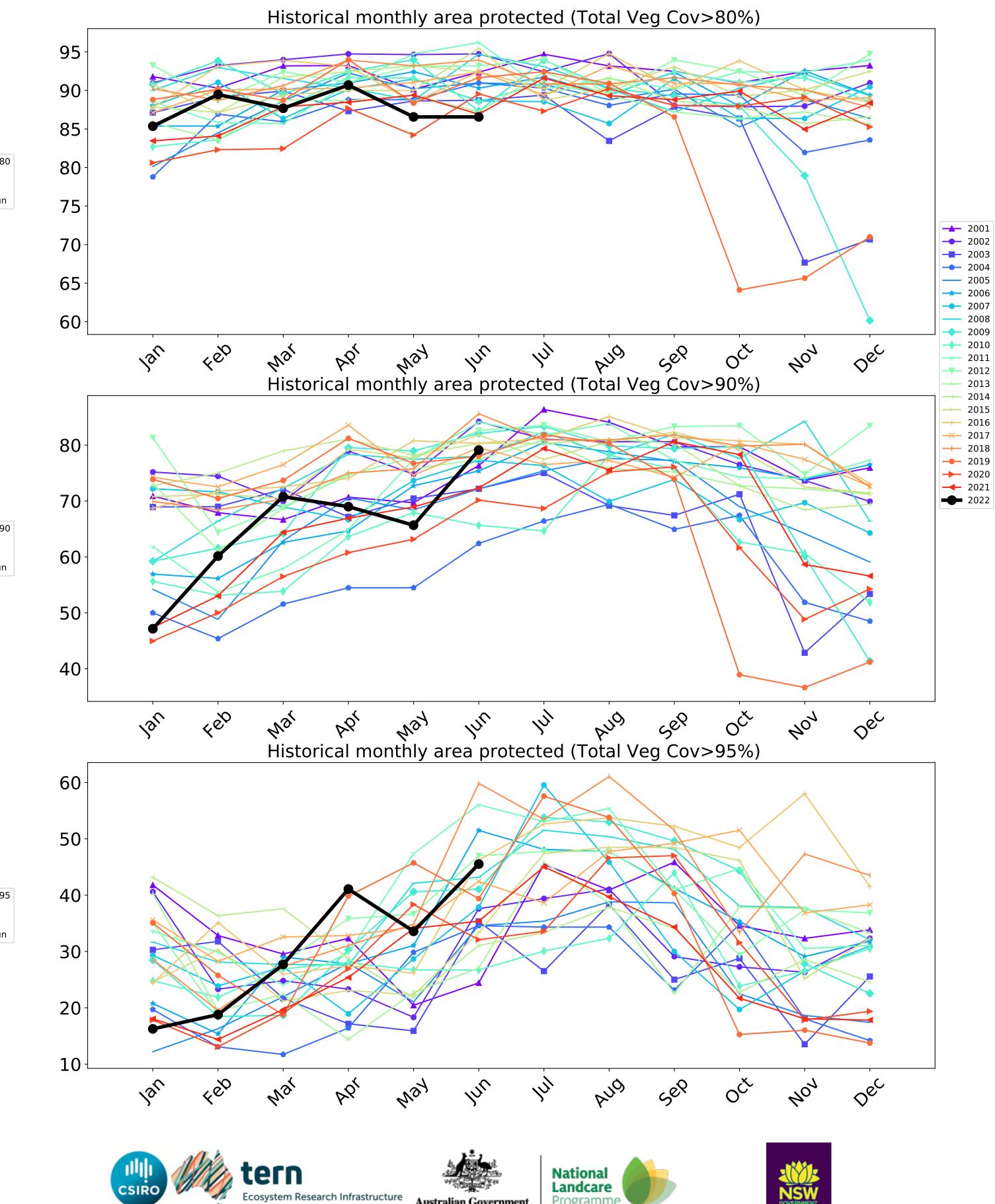


9

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

Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)





10

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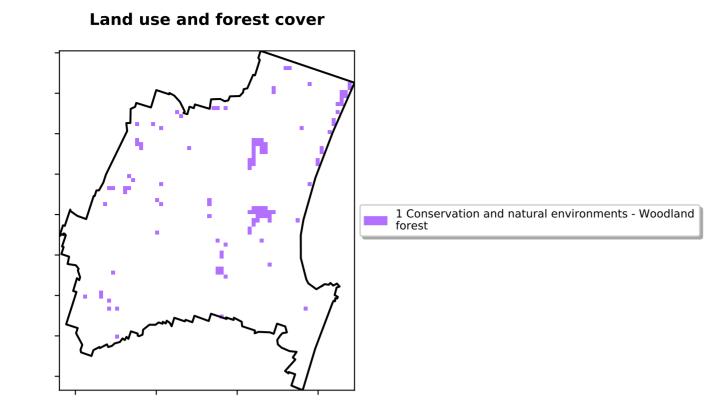
Programme

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NSW

### **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)



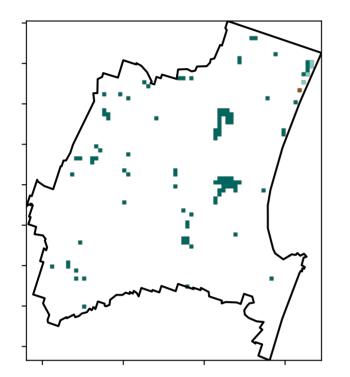
12010-2001

52%70%

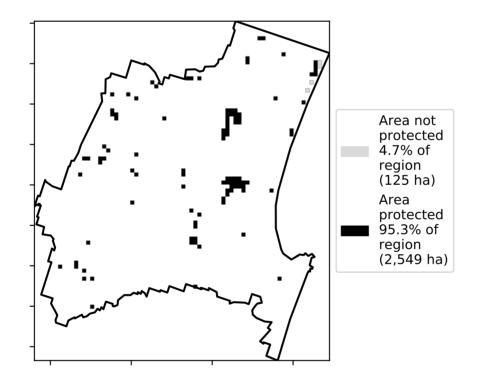
3290500

0.30%

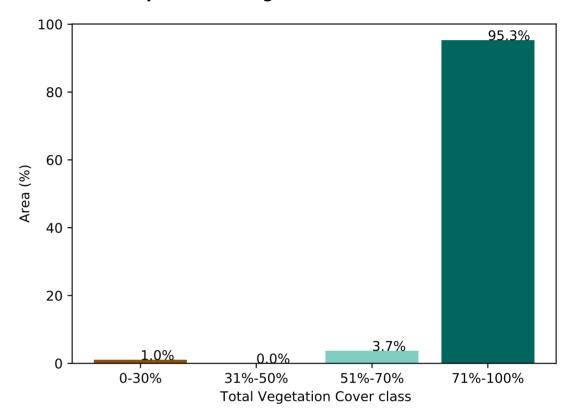
Total Vegetation Cover [%]



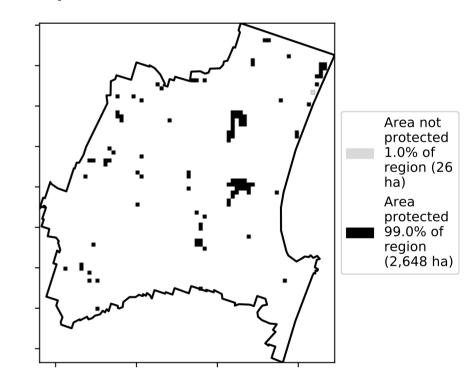
% Area protected from water erosion (>70%)



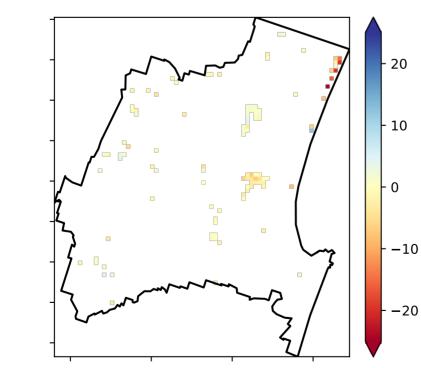
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

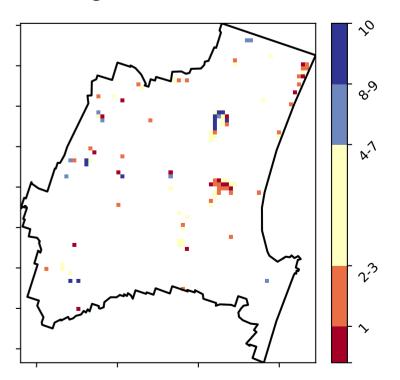


**Total Vegetation Cover Anomaly [%]** 

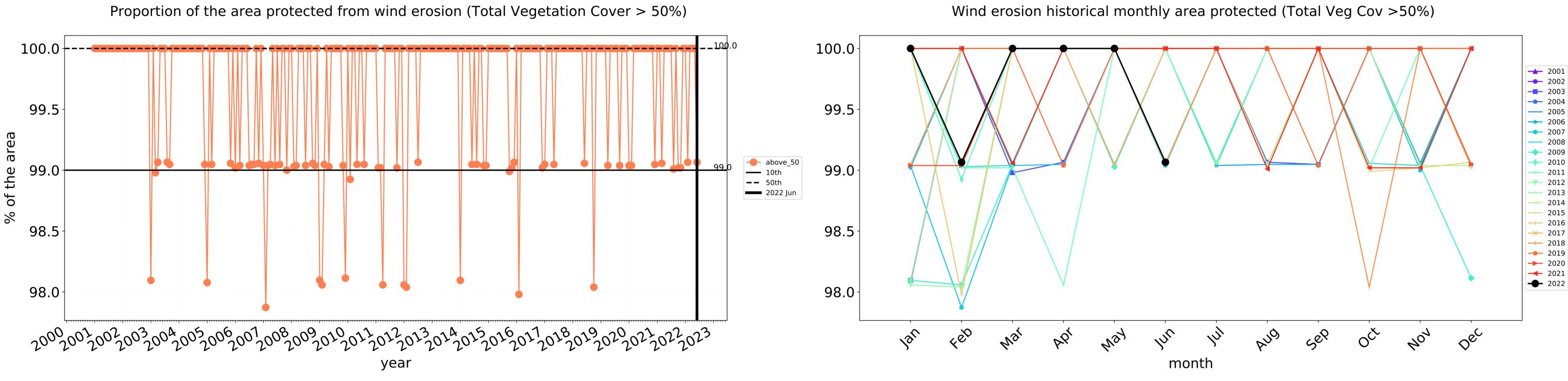


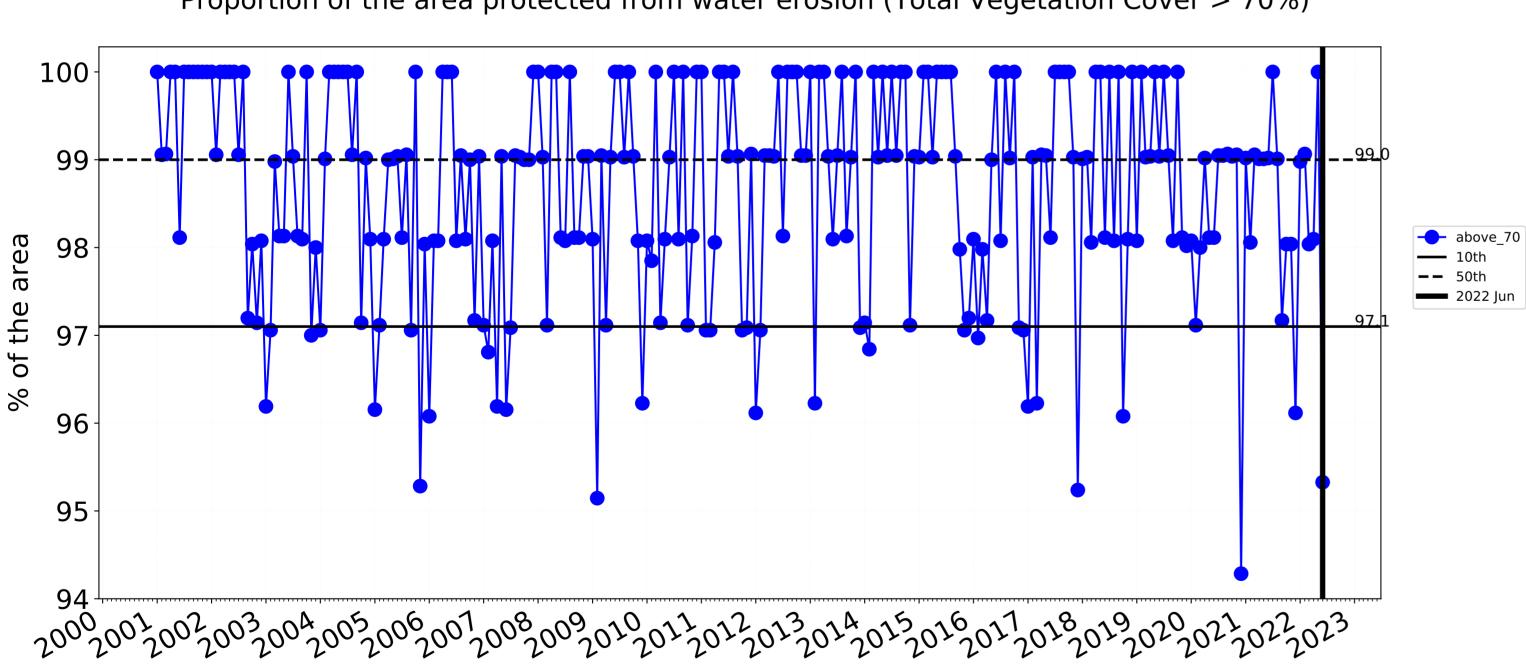
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

**Total Vegetation Cover Decile [%]** 







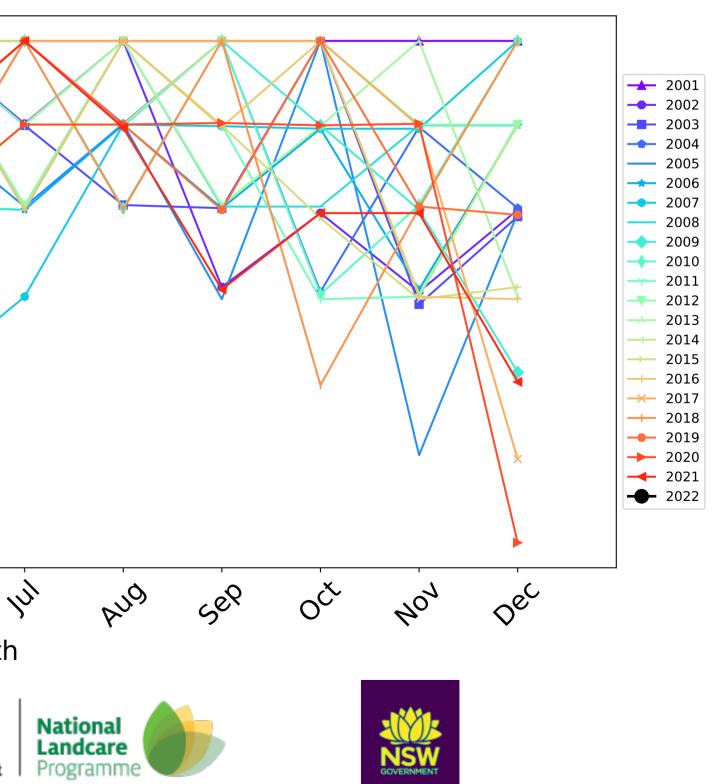


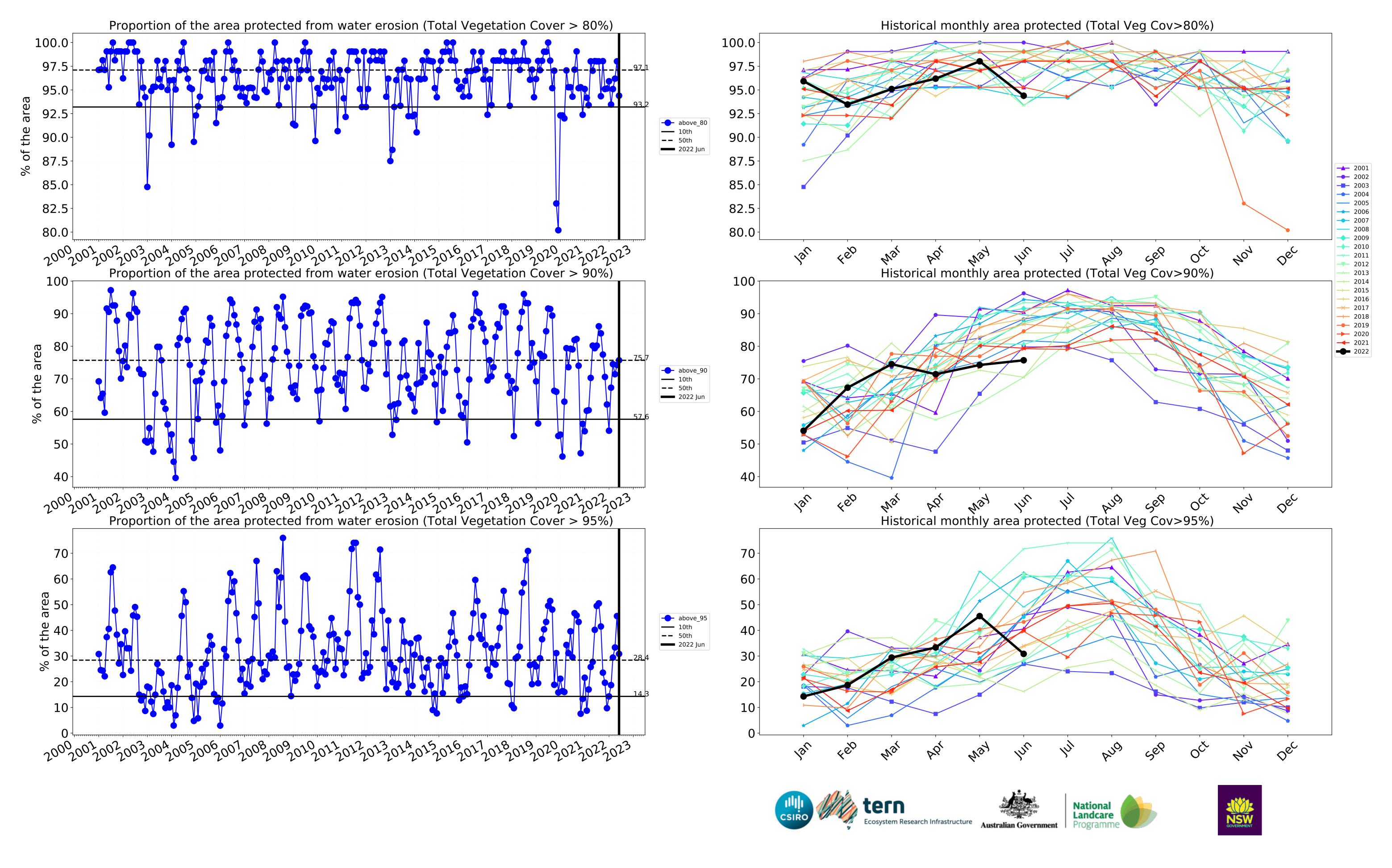
year

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

100 99-98 97 96 95<sup>-</sup> 94 4eb Jan In May Mai Þb, month tern Ecosystem Research Infrastructure Australian Government

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

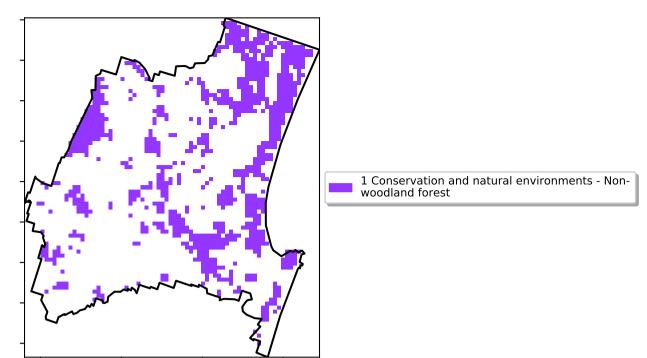




## **Conservation and natural environments Forest (non woodland)**

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)



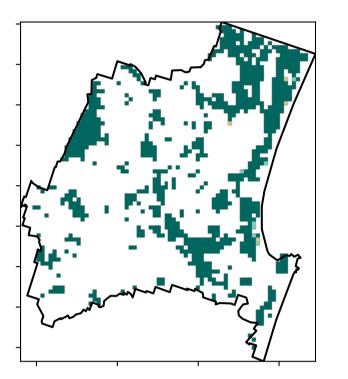
12/0/0

52%70

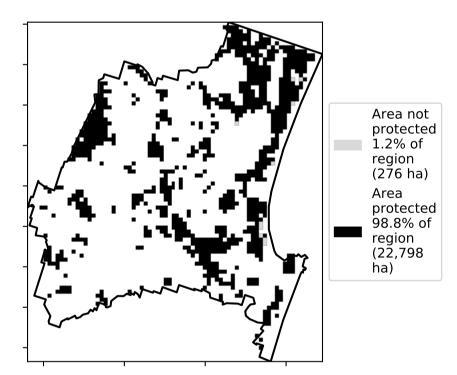
3210

· 0.30%

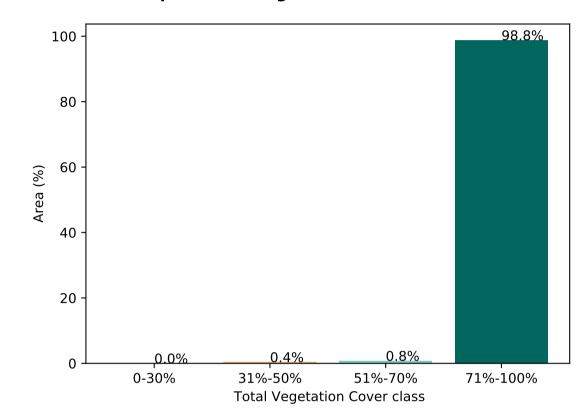
**Total Vegetation Cover [%]** 



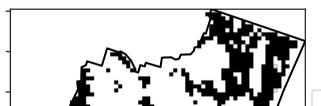
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area

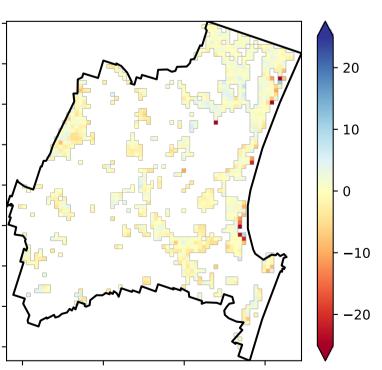


% Area protected from wind erosion (>50%)



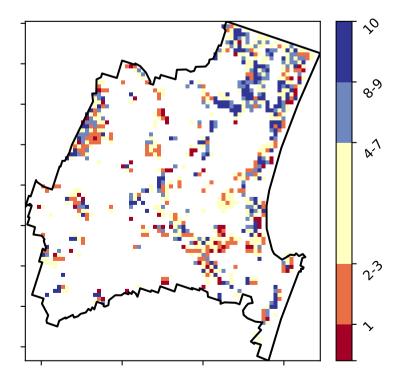
Total Vegetation Cover Anomaly [%]

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.



Area not protected 0.0% of region (0 ha) Area protected 100.0% of region (23,075 ha)

**Total Vegetation Cover Decile [%]** 





Deciles show where the

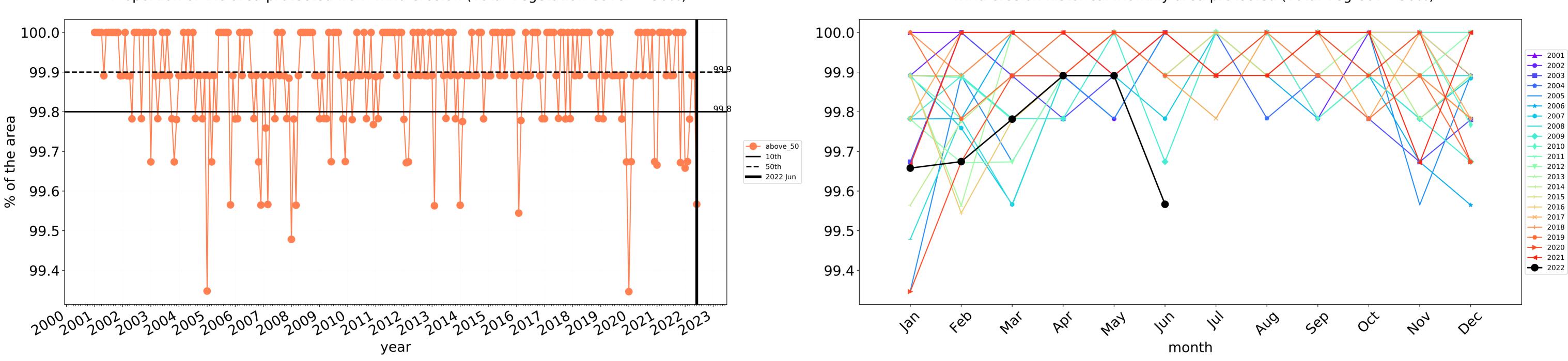
pixel value lies in the

record, from highest to lowest, for that month. That is, red pixels are

records for that month of the map using baseline from 2001 to 2019.

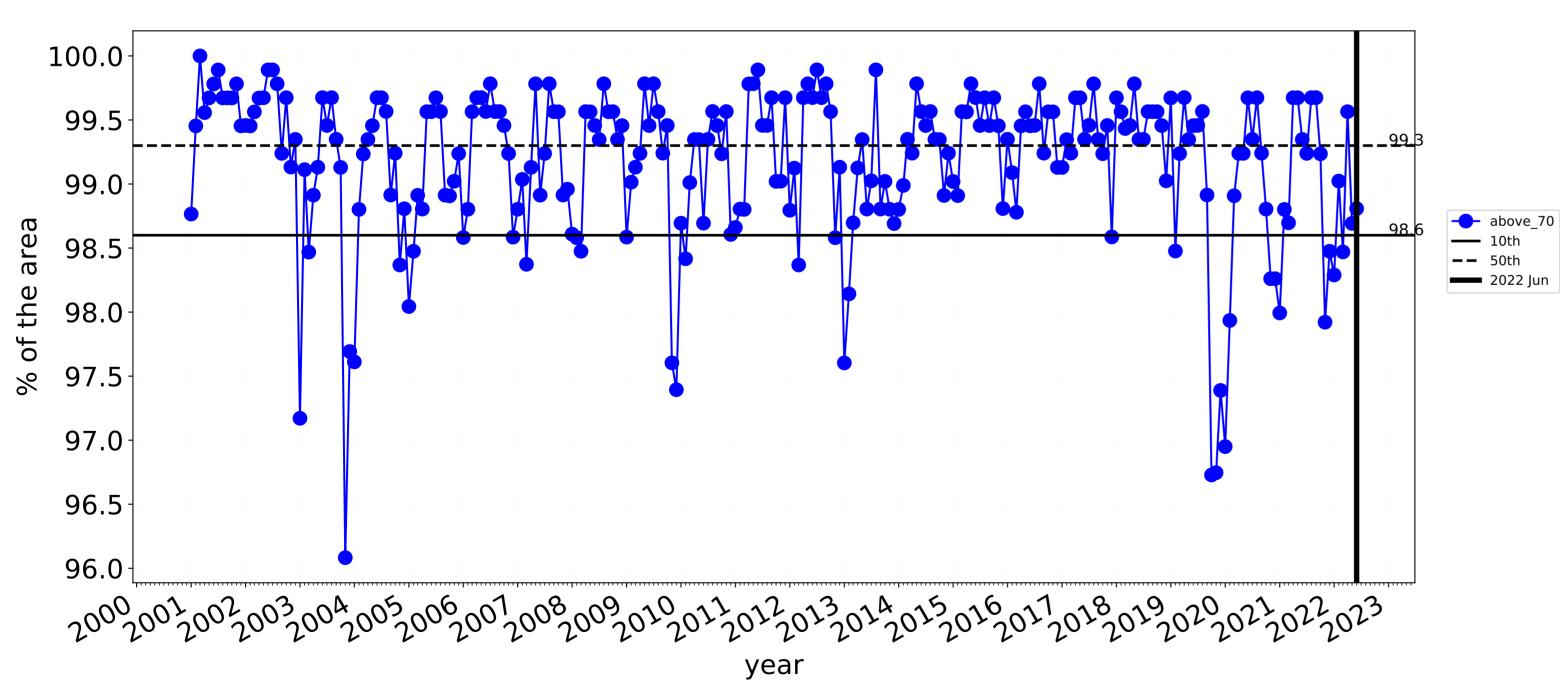
in the lowest 10% of

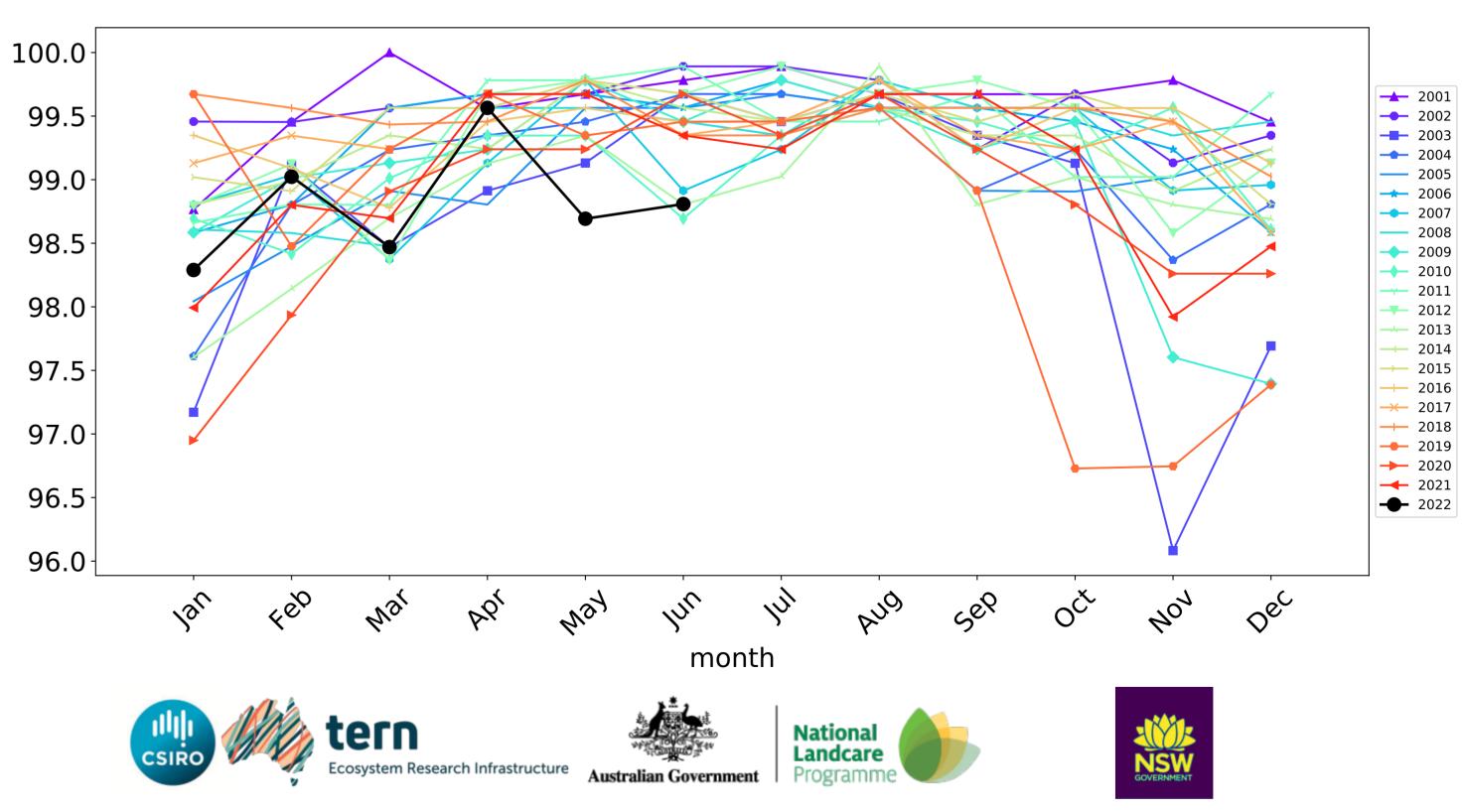
## **Conservation and natural environments Forest (non woodland) timeseries**



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

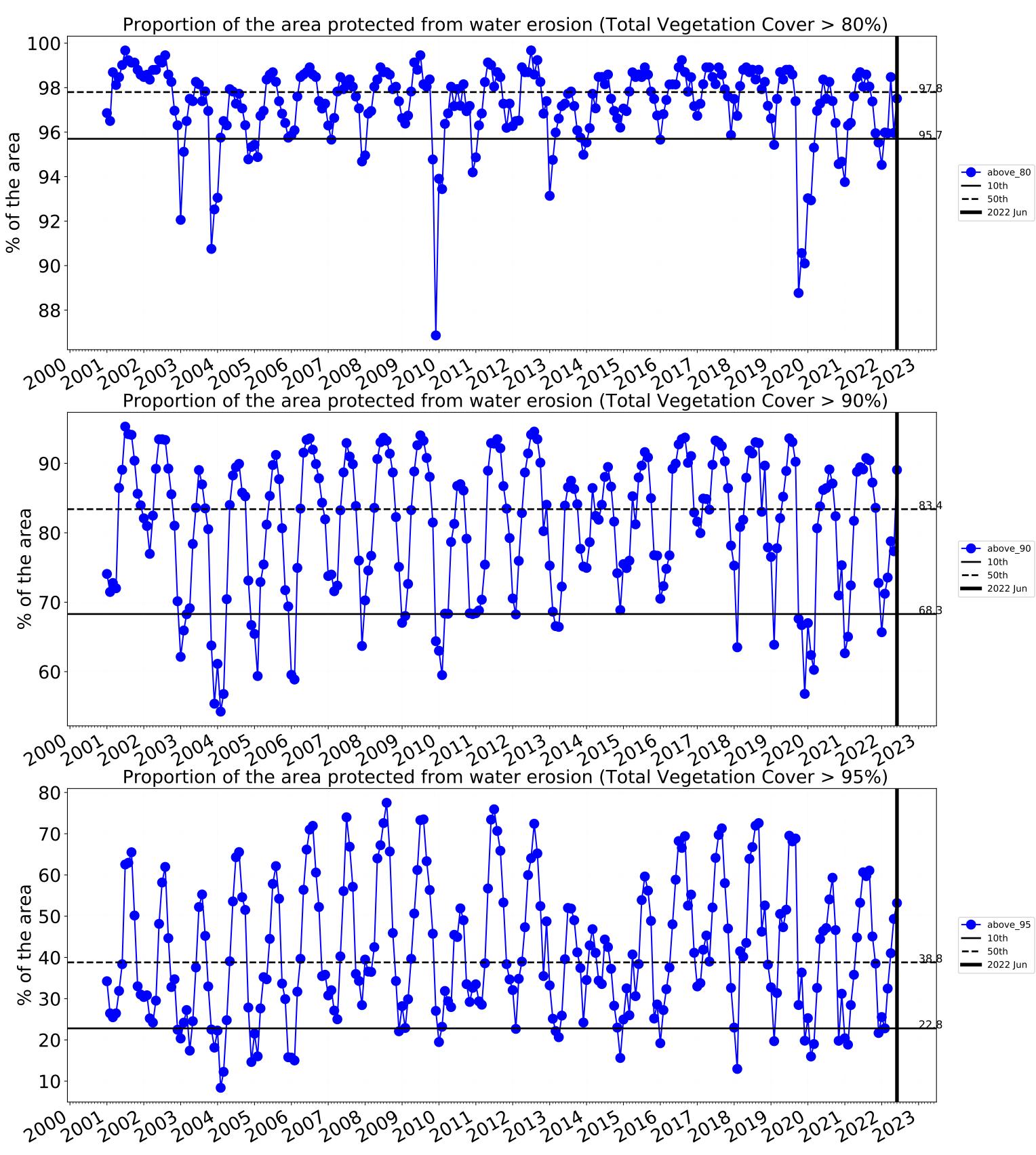
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

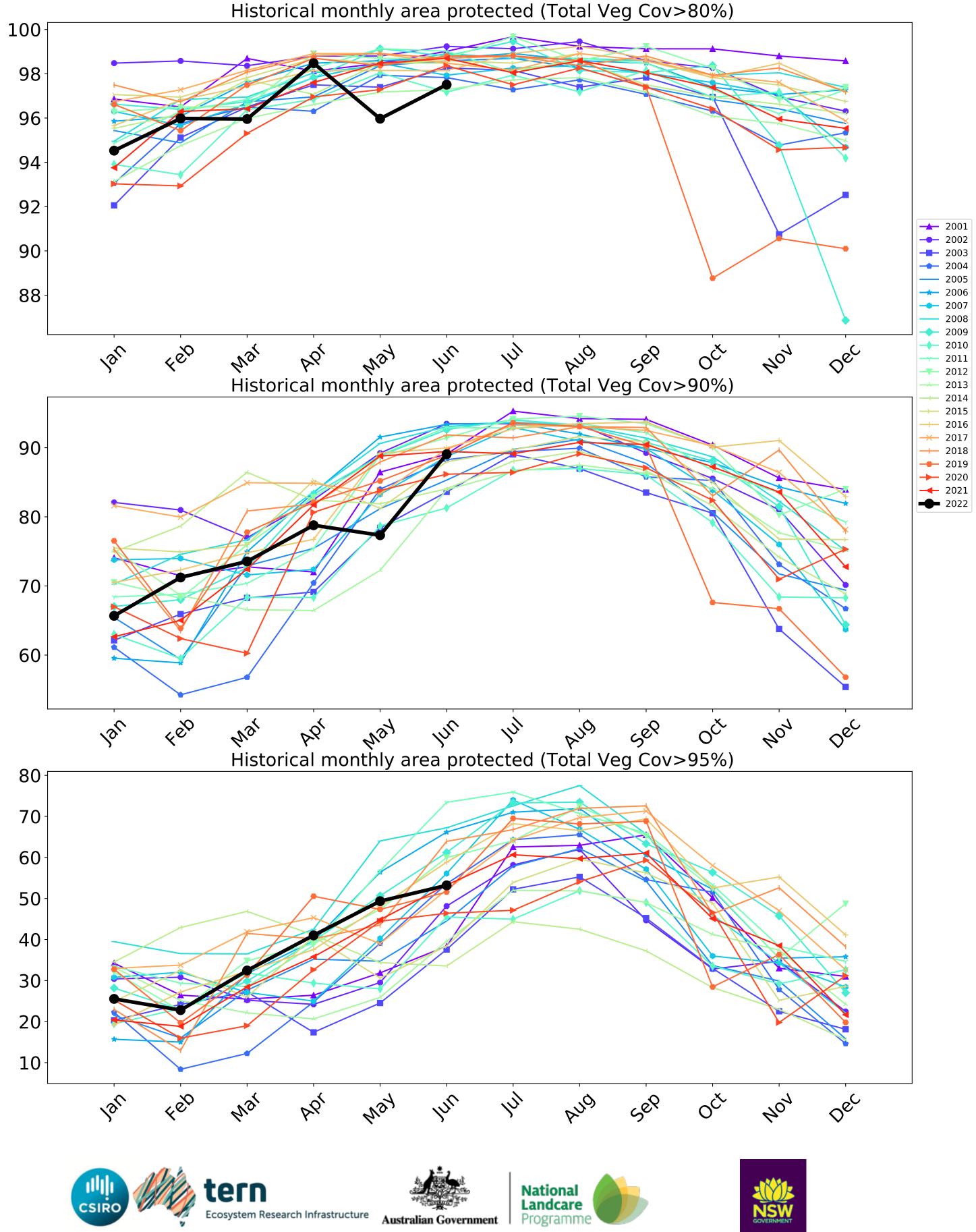




Water erosion historical monthly area protected (Total Veg Cov>70%)

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







#### Agriculture

12%-100

· 52% 70%

320050

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)

Anomaly show how many percetage points each

pixel is from

is, red pixels

mean of that

pixel. The mean

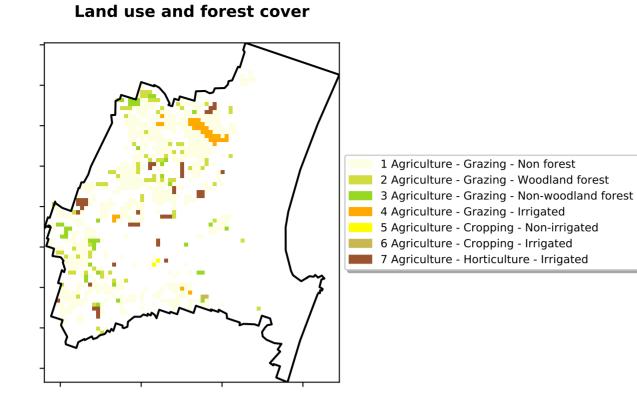
using baseline

from 2001 to 2019.

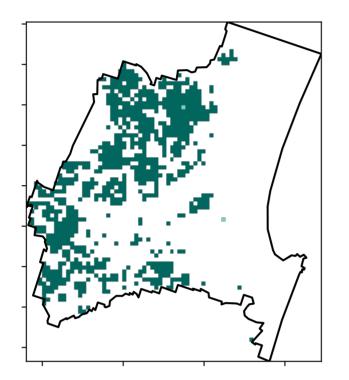
is only for the month of the map

the mean. That

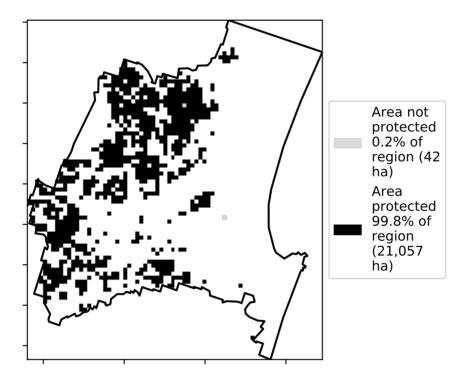
are about 20% lower than the

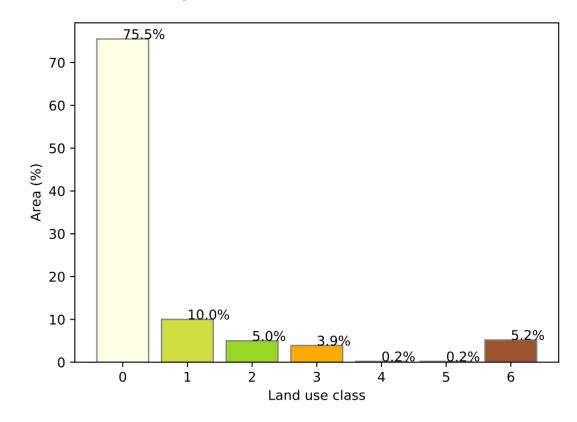


**Total Vegetation Cover [%]** 



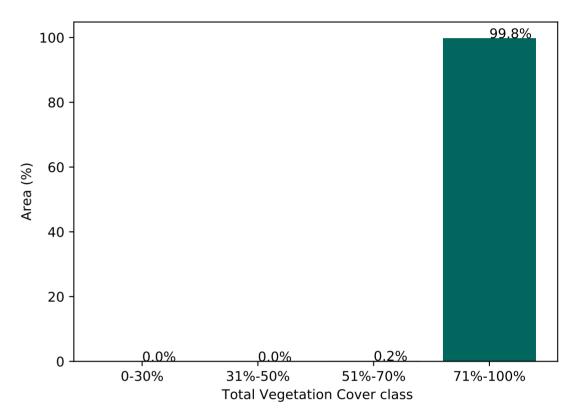




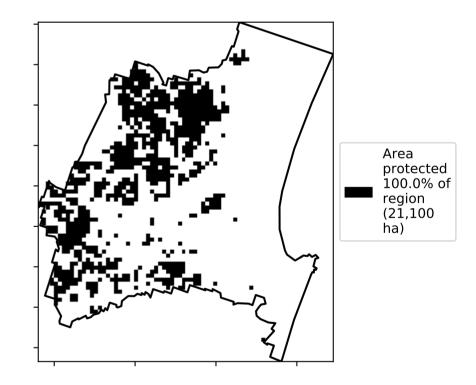


#### Proportion of each land class in area

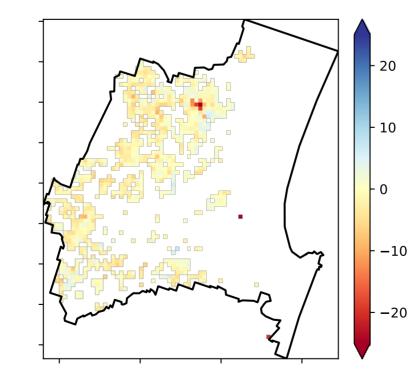
Proportion of vegetation cover class in area



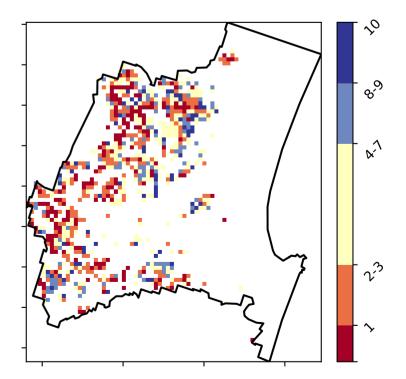
% Area protected from wind erosion (>50%)



**Total Vegetation Cover Anomaly [%]** 

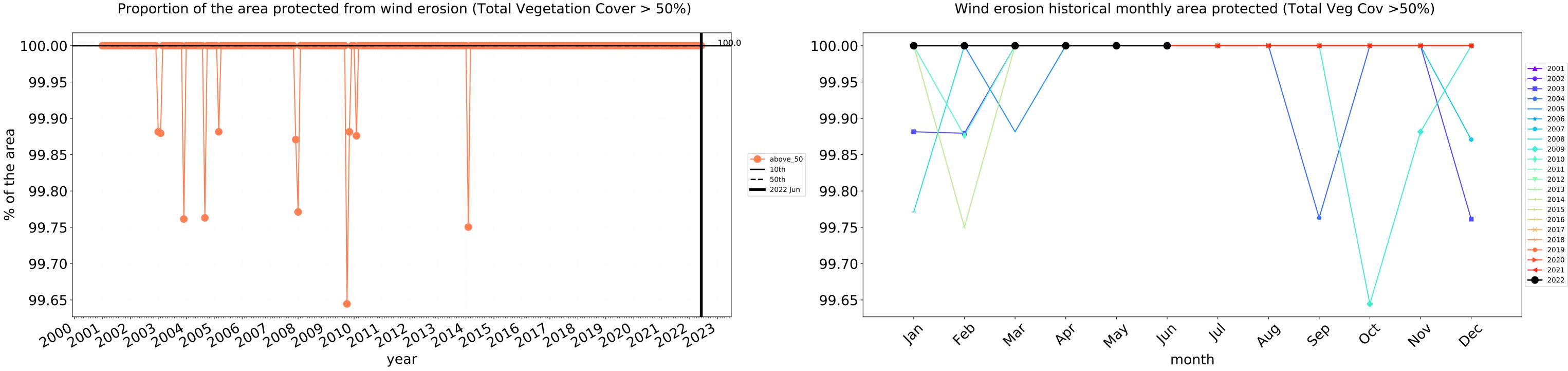


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]** 



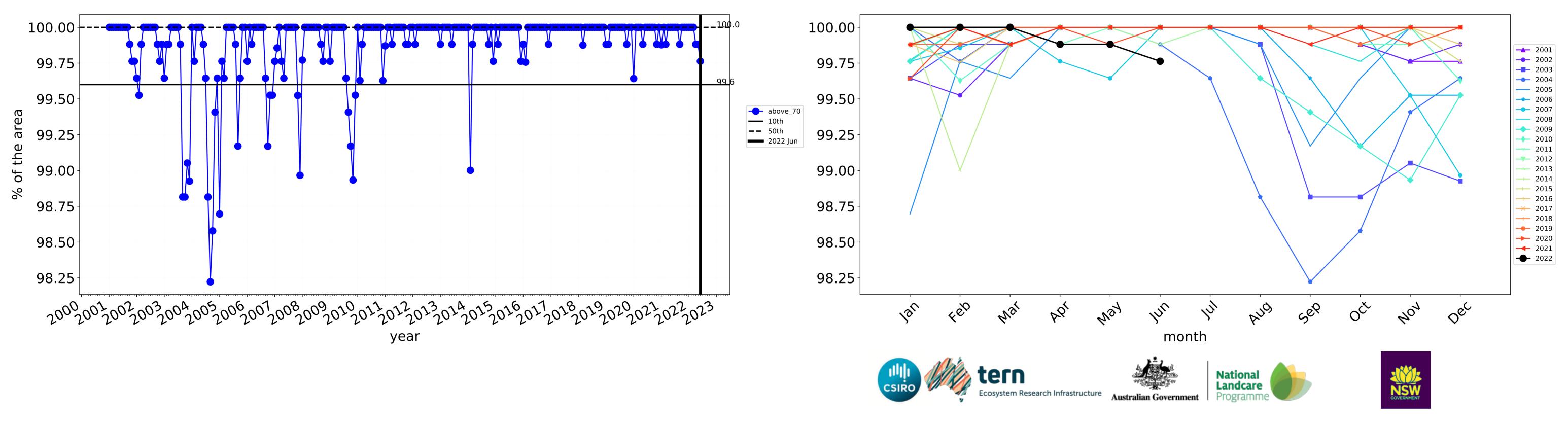


from 2001 to 2019



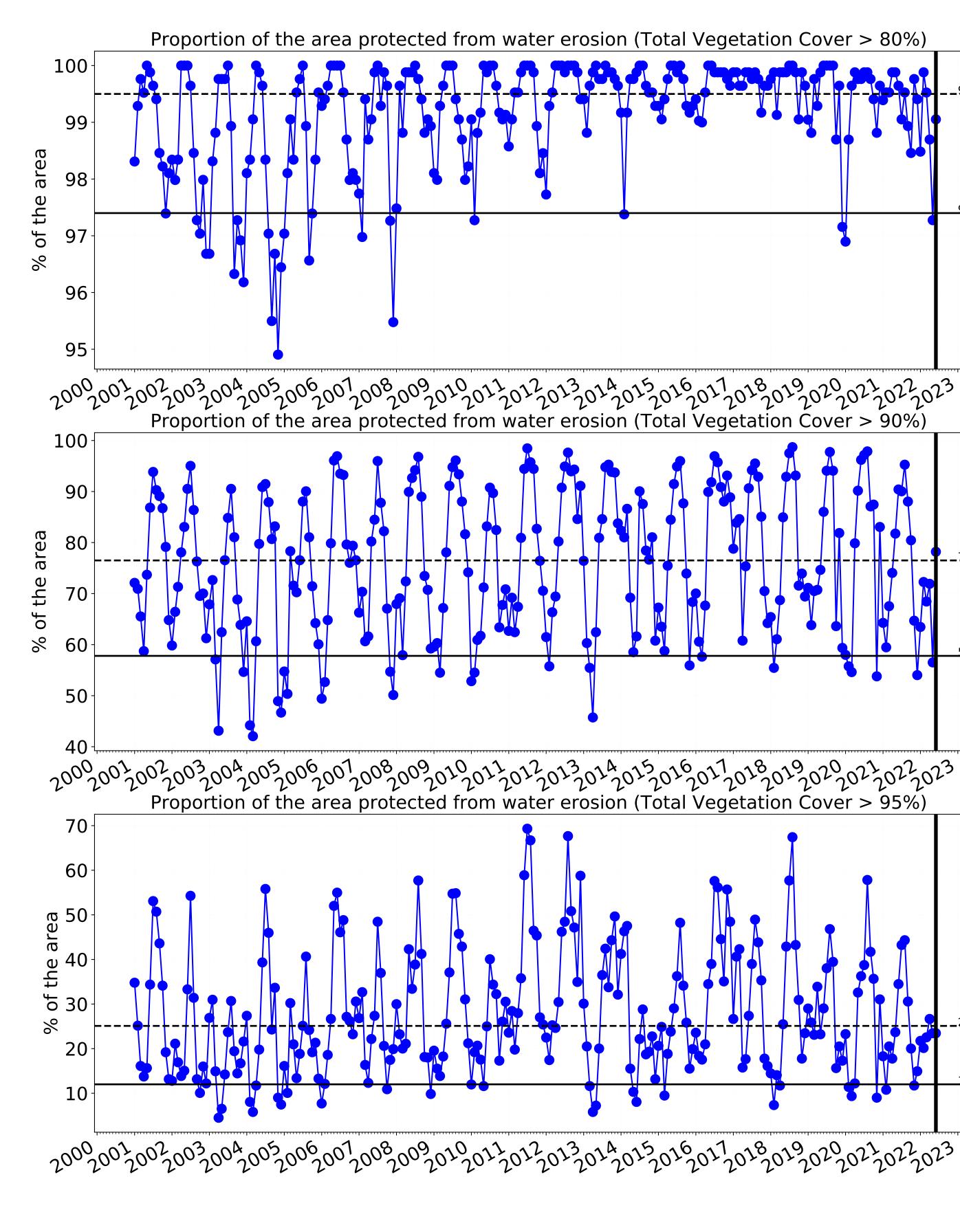
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

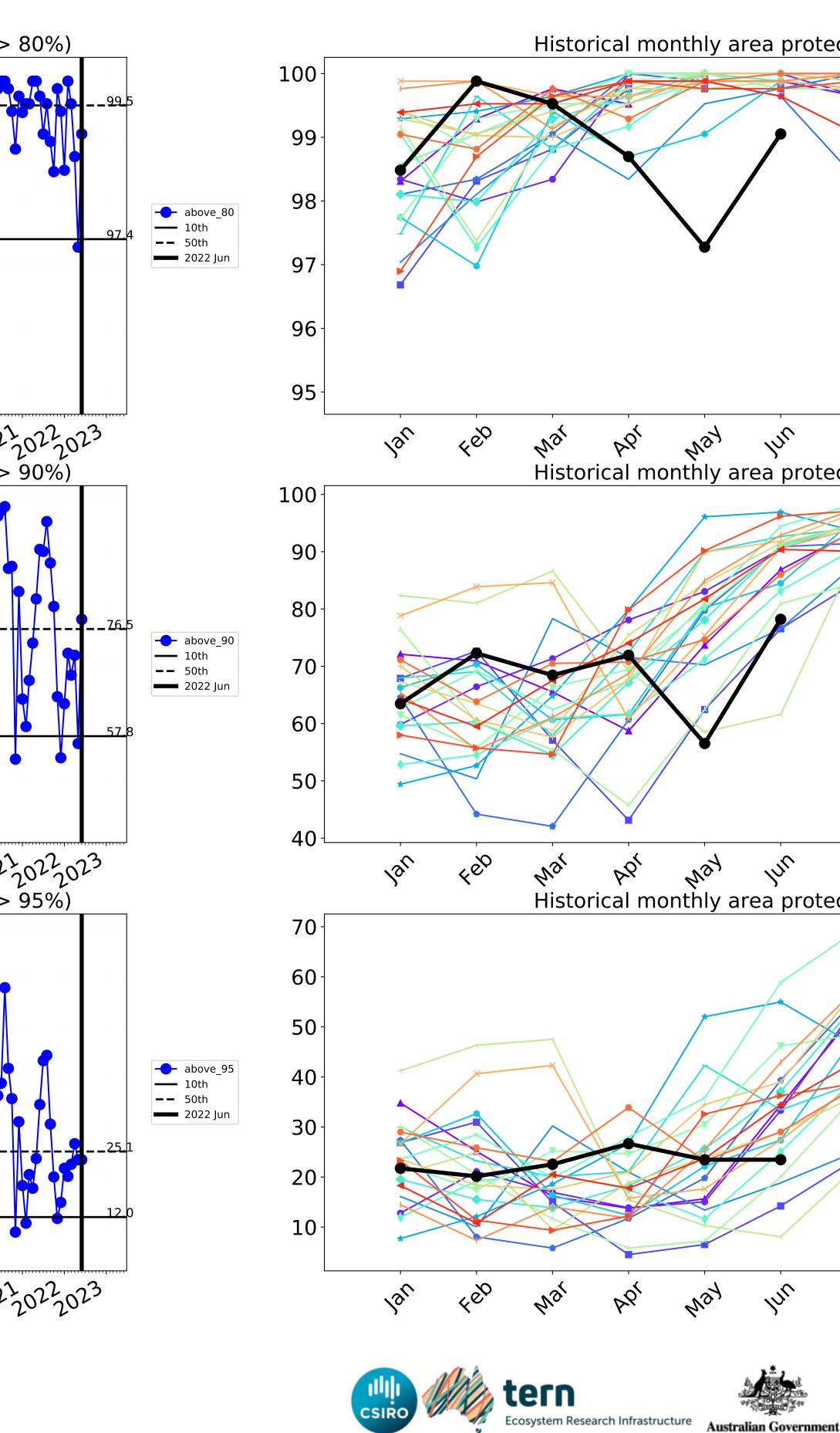
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

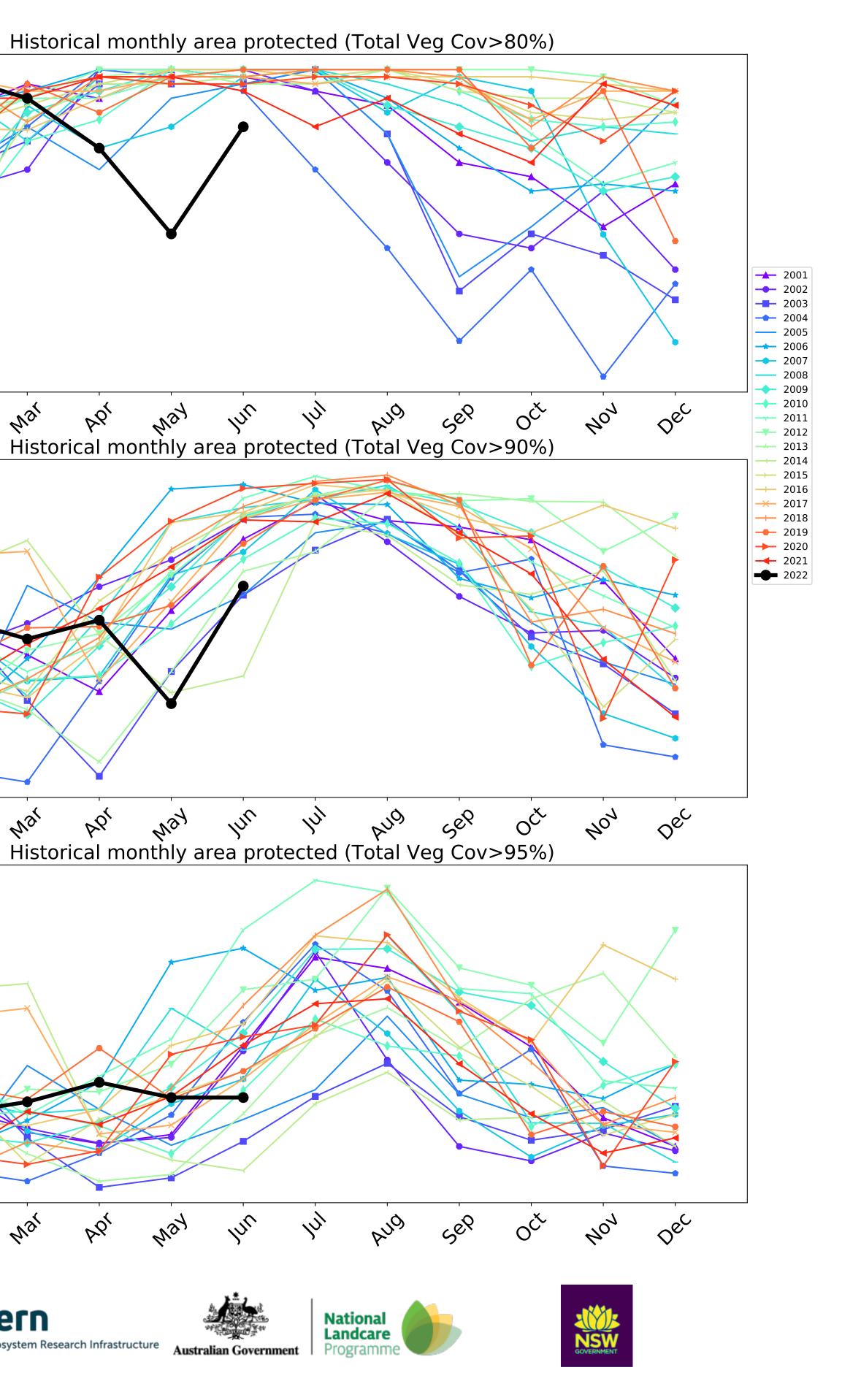


## Agriculture timeseries

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

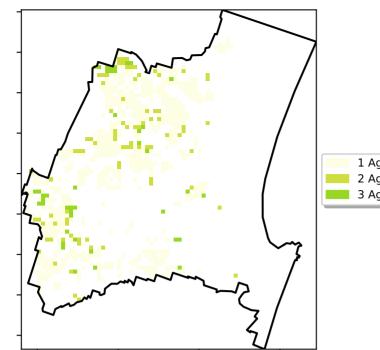






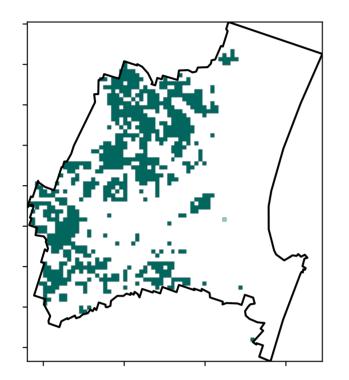
#### Grazing

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

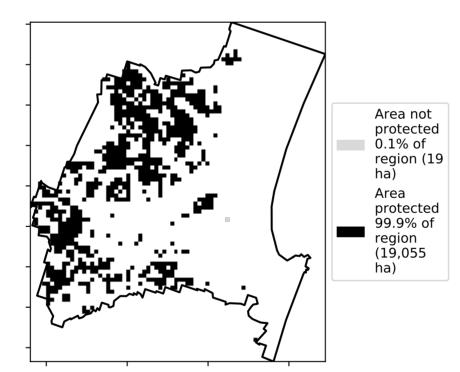


Land use and forest cover

**Total Vegetation Cover [%]** 



% Area protected from water erosion (>70%)



Agriculture - Grazing - Non forest
Agriculture - Grazing - Woodland forest
Agriculture - Grazing - Non-woodland forest

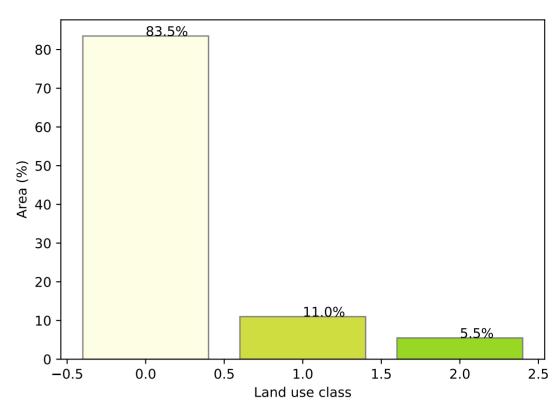
12º10-200°1

· 52% 70%

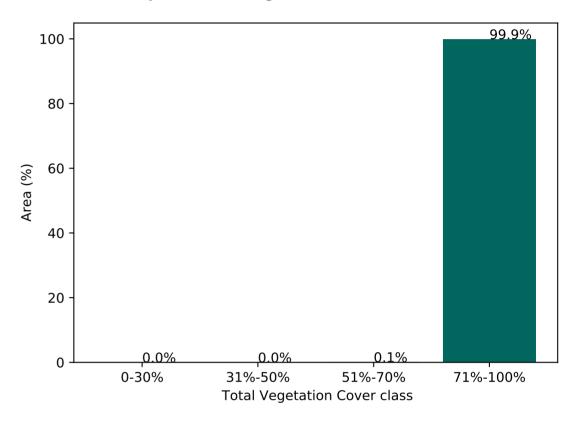
320050

0.30%

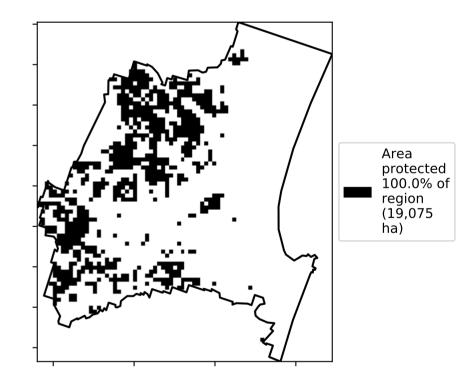




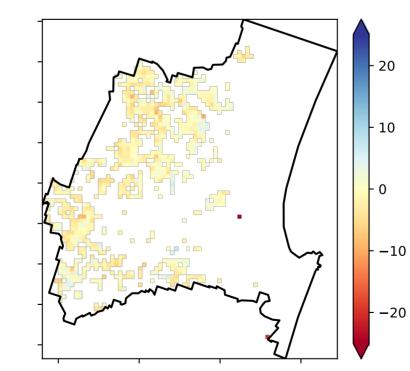
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

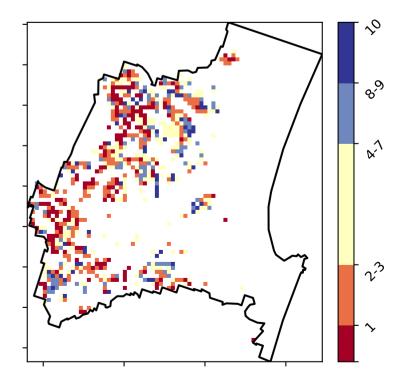


**Total Vegetation Cover Anomaly [%]** 



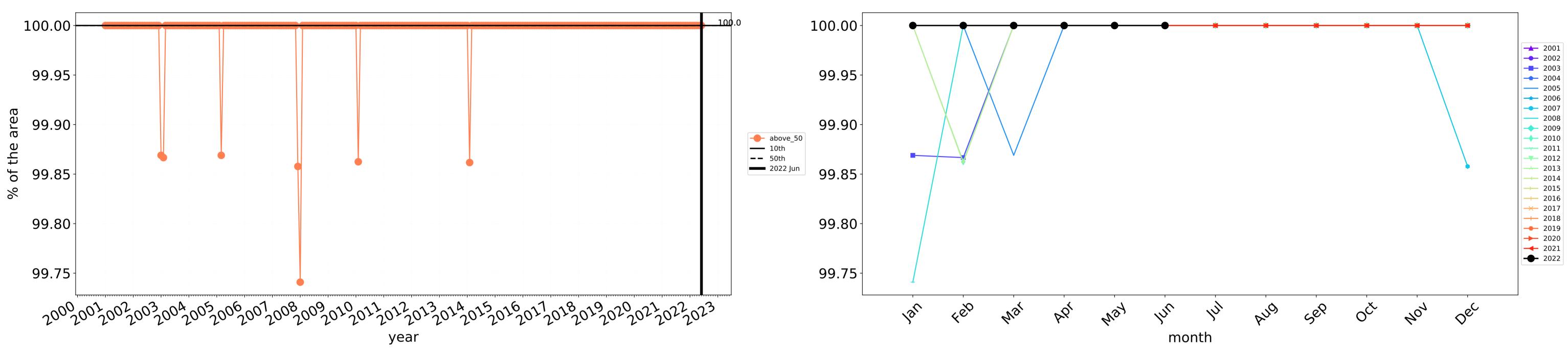
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

**Total Vegetation Cover Decile [%]** 



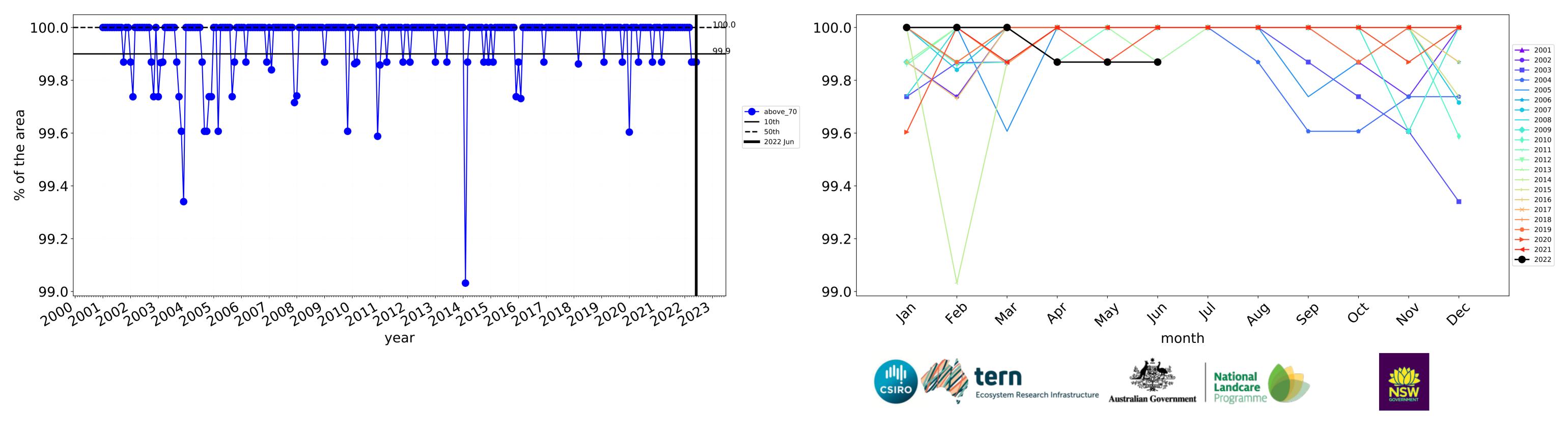


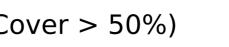




Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

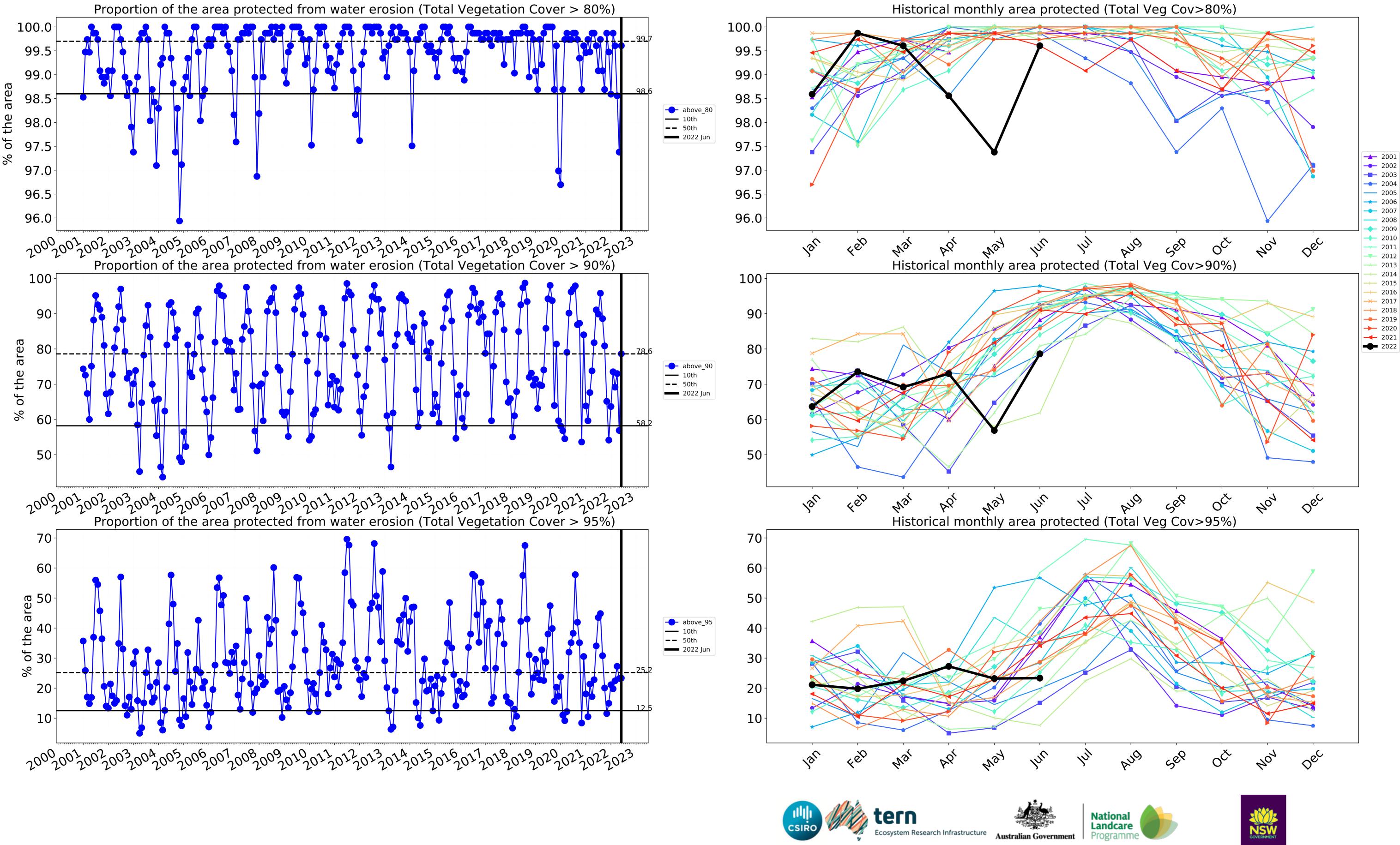
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)





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

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



## **Grazing non forest**

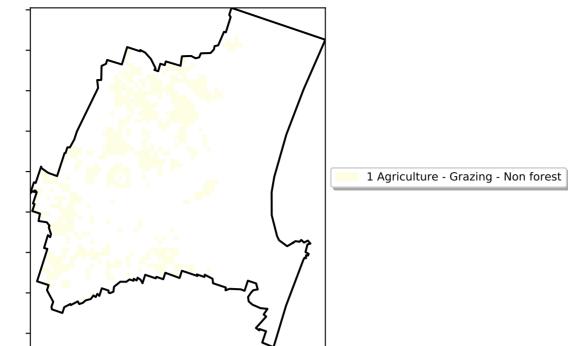
12%-100

52% 70%

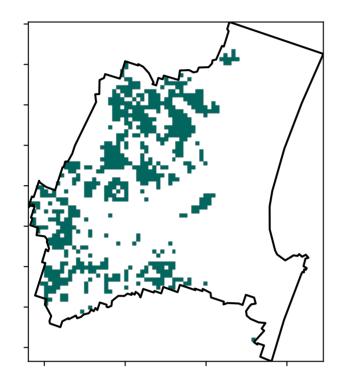
32%50

0.30%

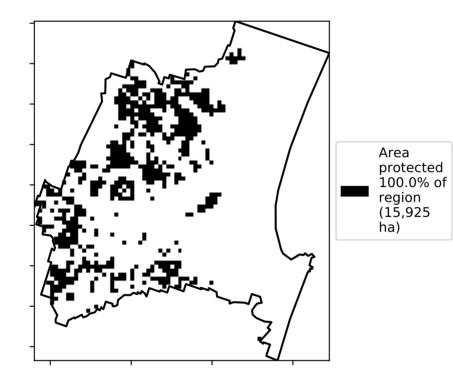
Land use and forest cover



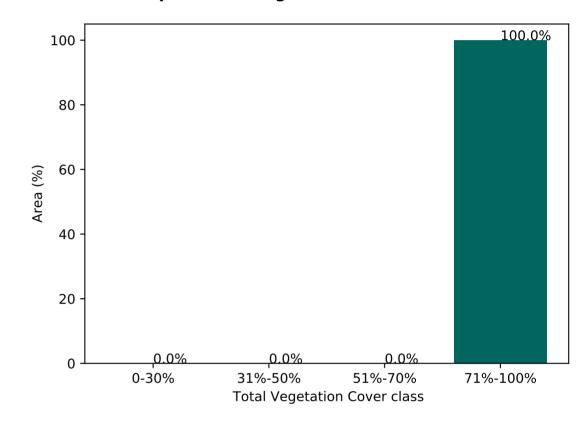
**Total Vegetation Cover [%]** 







Proportion of vegetation cover class in area

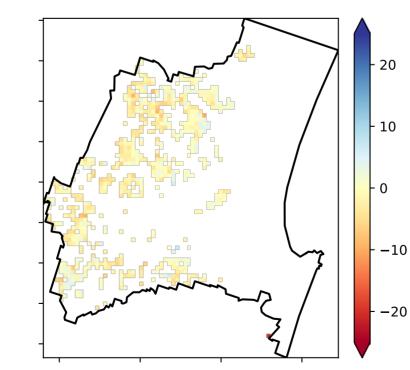


% Area protected from wind erosion (>50%)

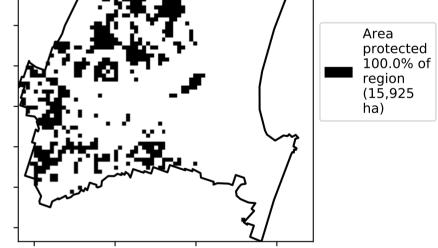


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

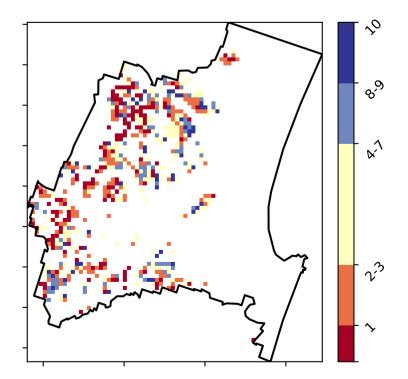
Total Vegetation Cover Anomaly [%]



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.



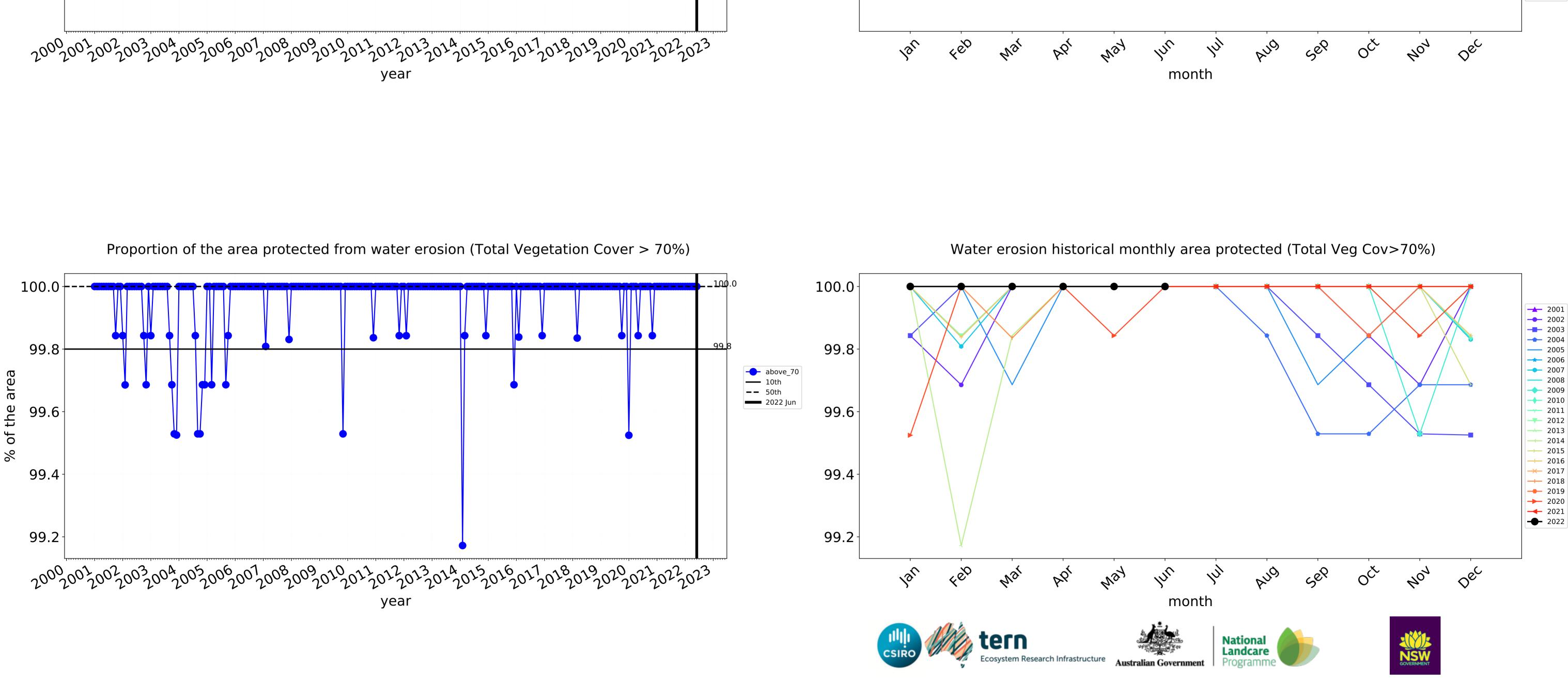
Total Vegetation Cover Decile [%]





23





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

104

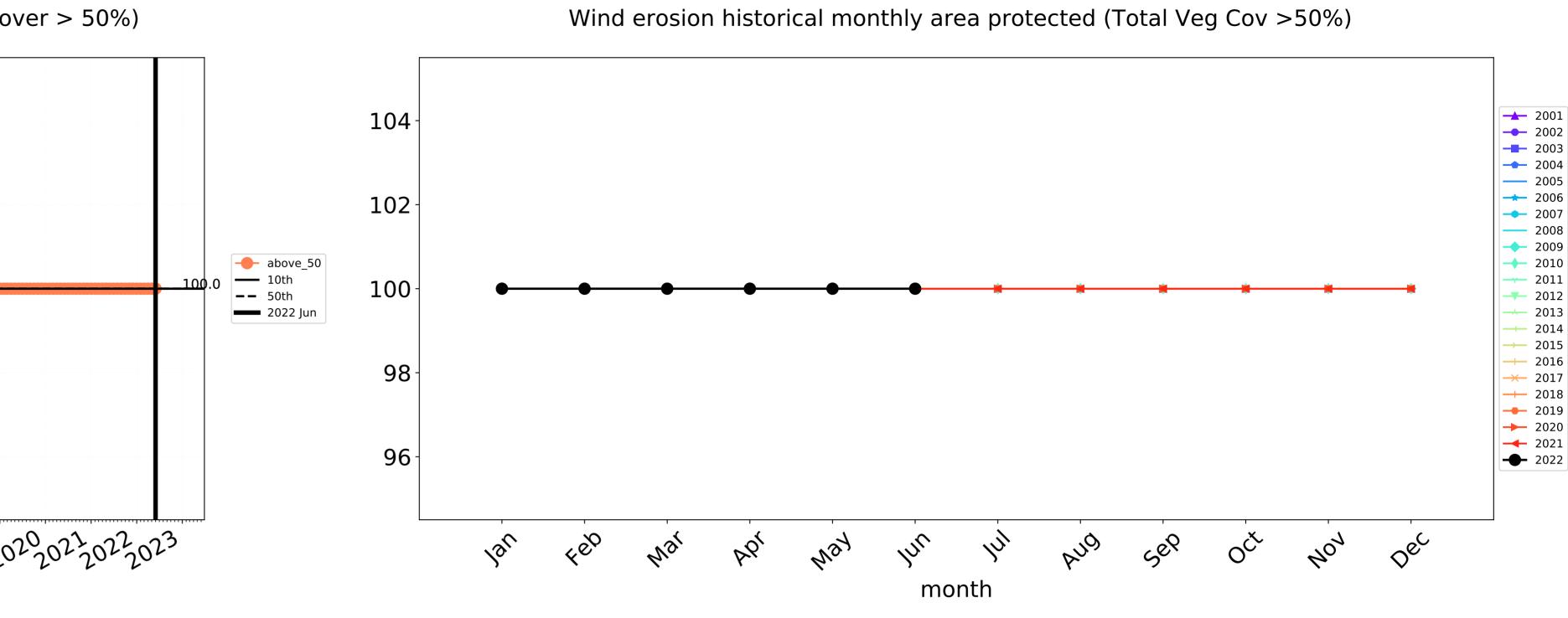
' 201 alea

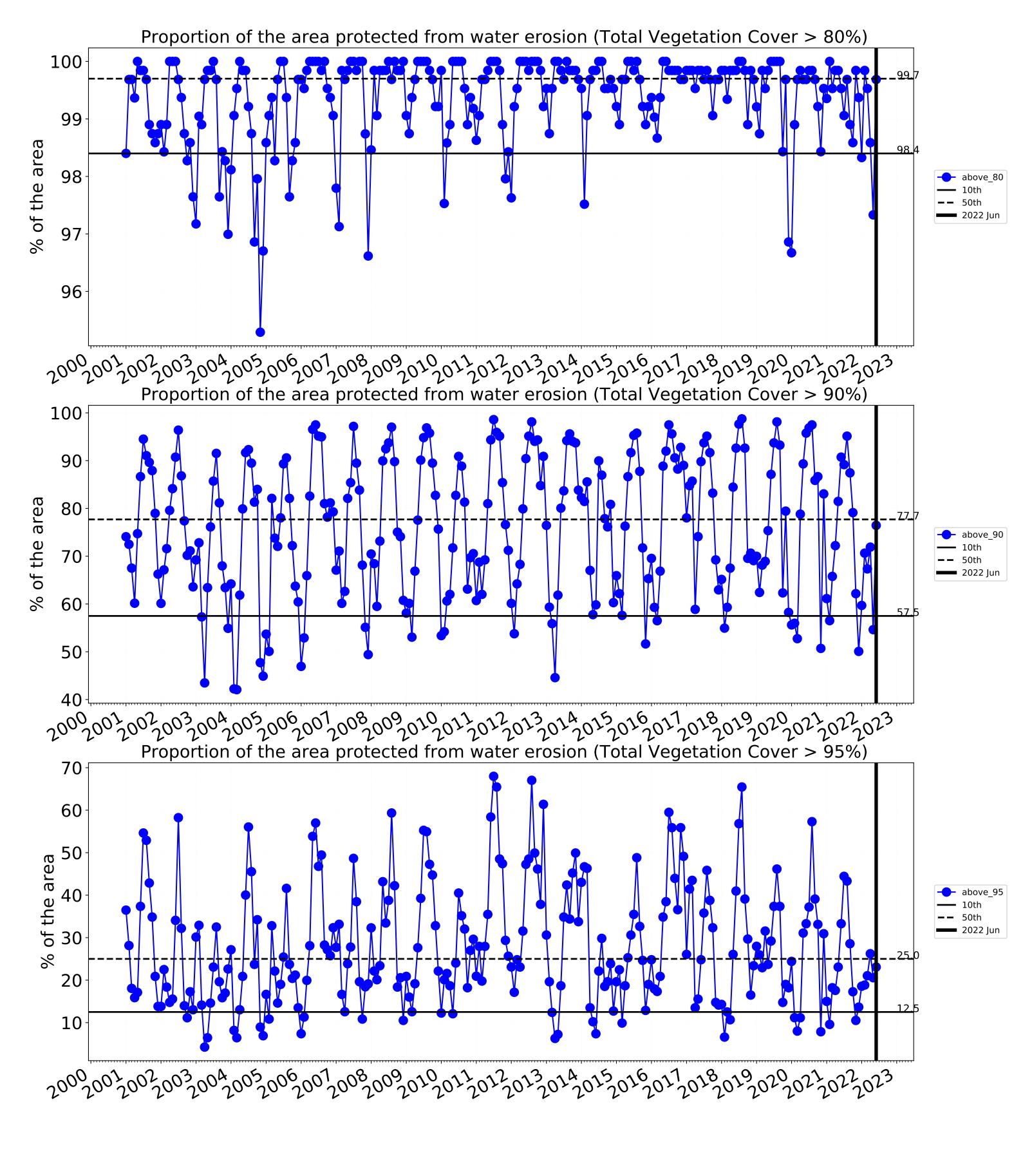
% of the %

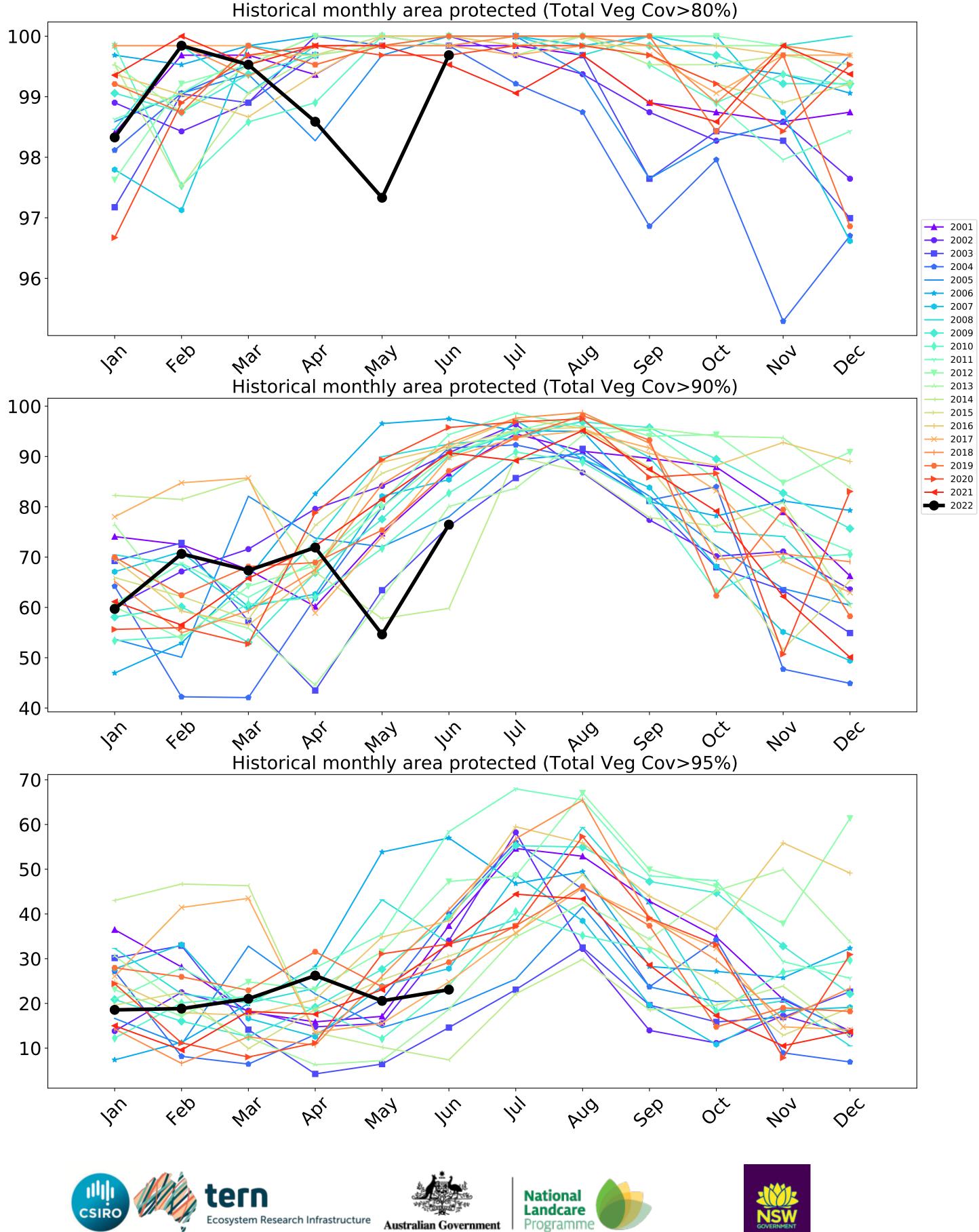
98

96-

## Grazing non forest timeseries



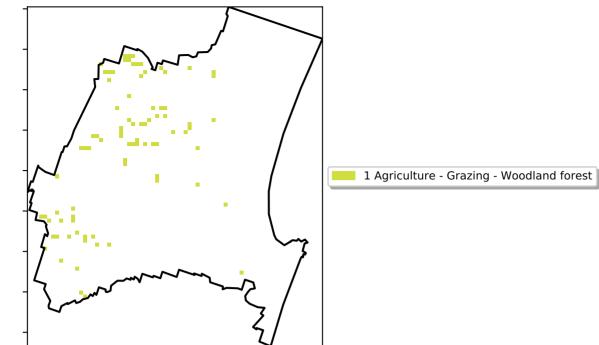




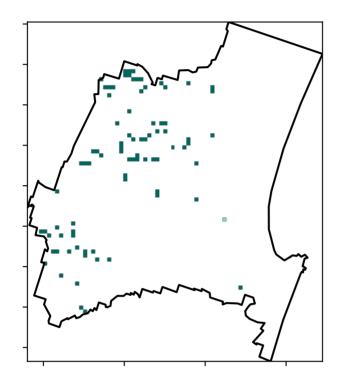


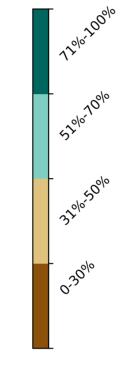
### **Grazing Woodland forest**

Land use and forest cover

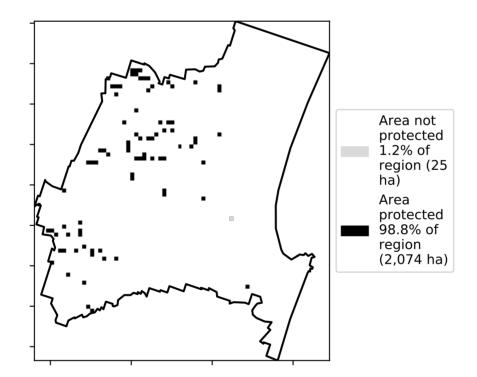


**Total Vegetation Cover [%]** 

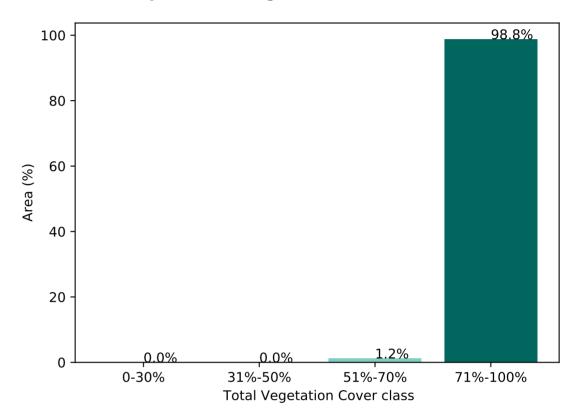




% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



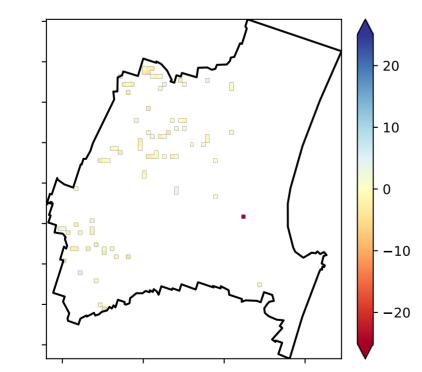


Catchment Scale

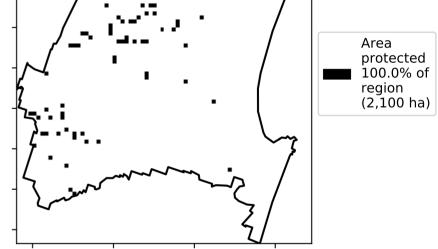
Use of Australia (2018) and Forests of Australia (2018)

Derived from

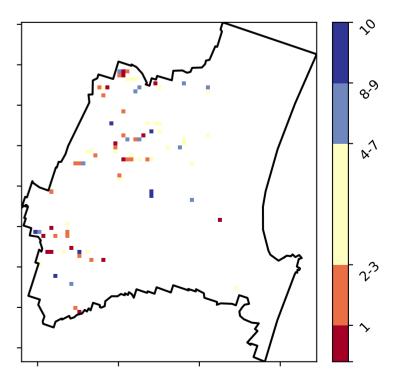
Total Vegetation Cover Anomaly [%]



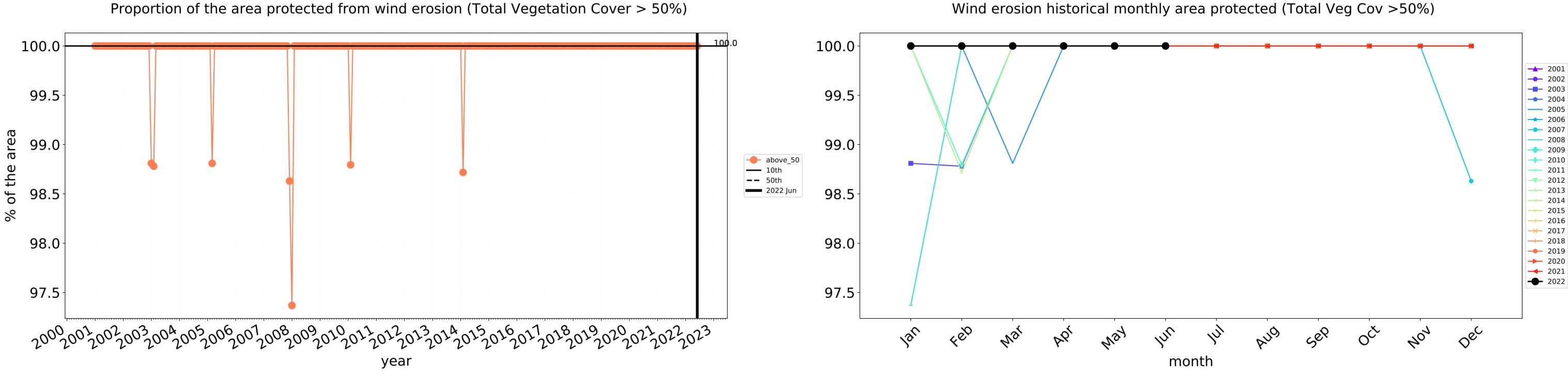
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



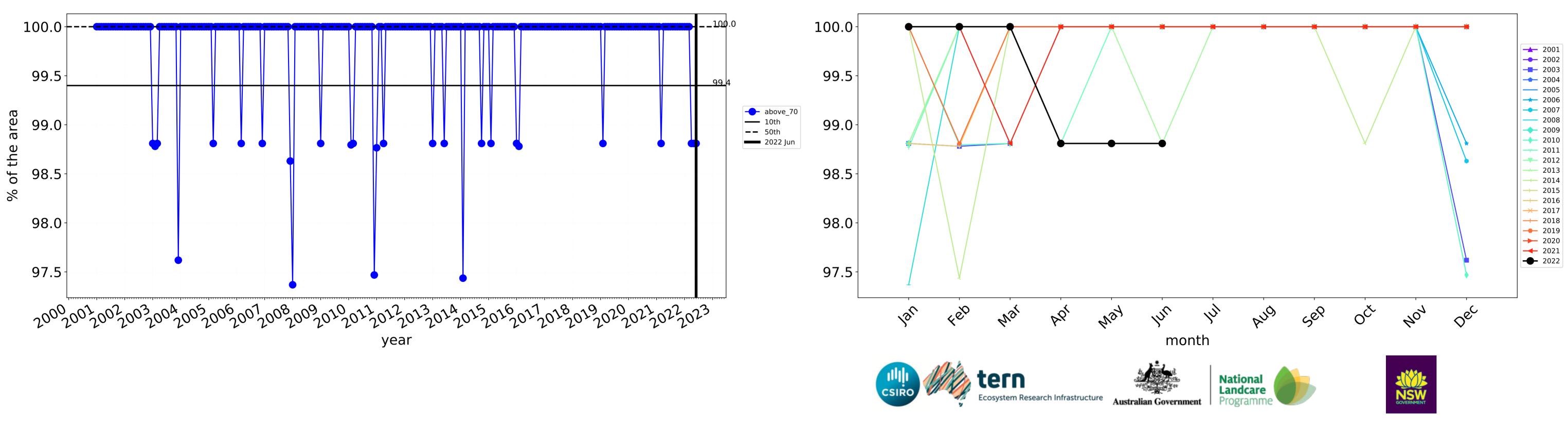
Total Vegetation Cover Decile [%]



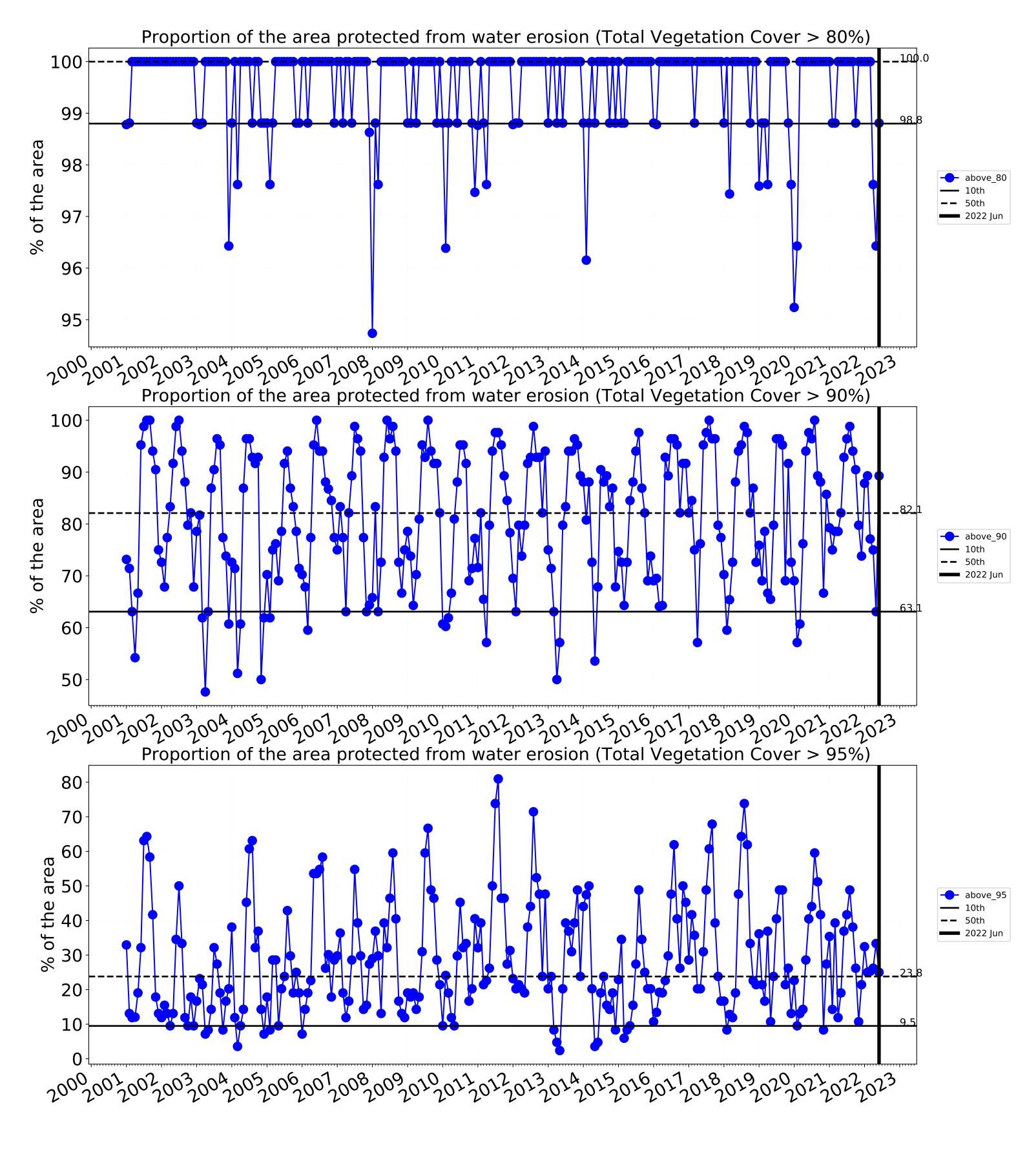


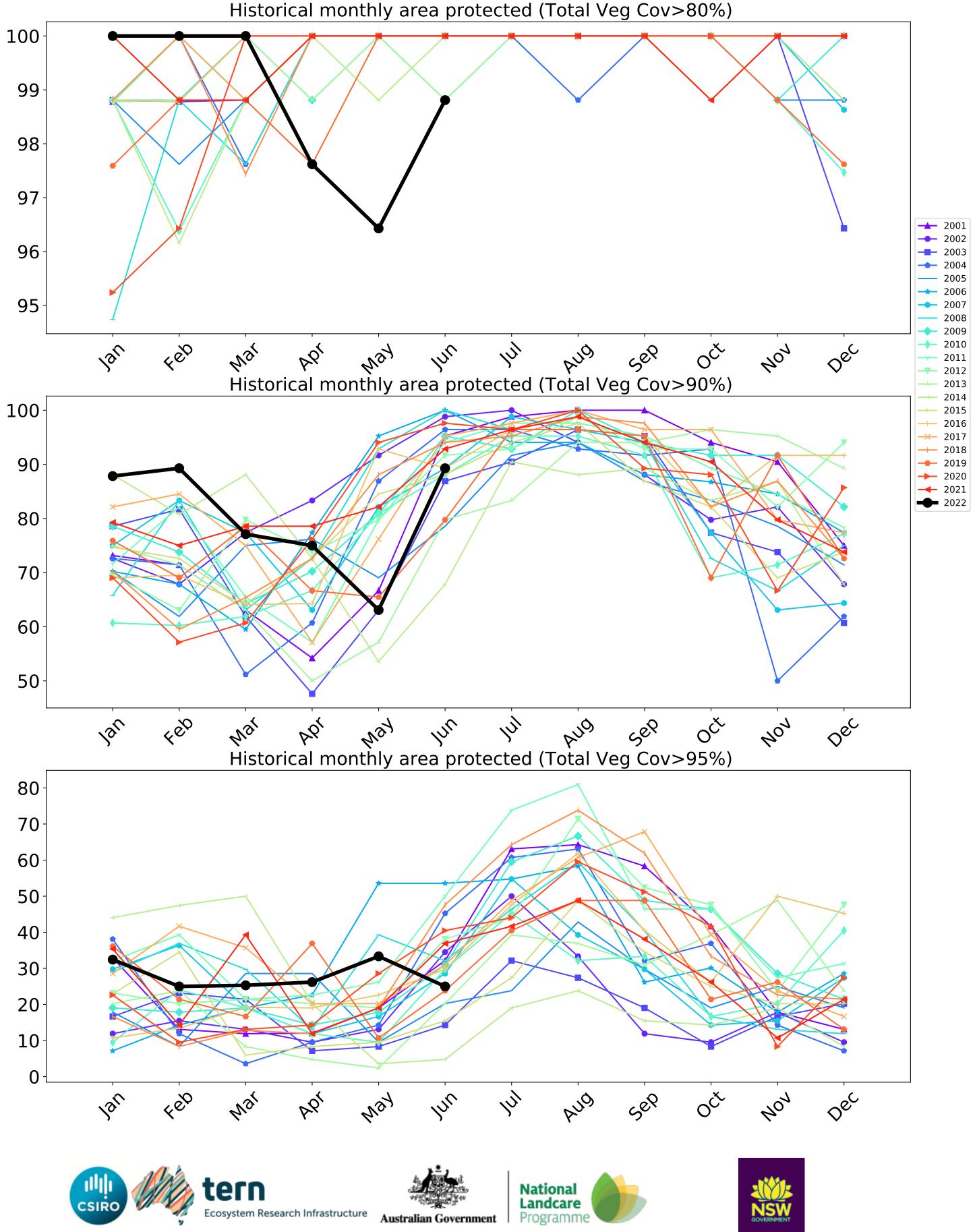


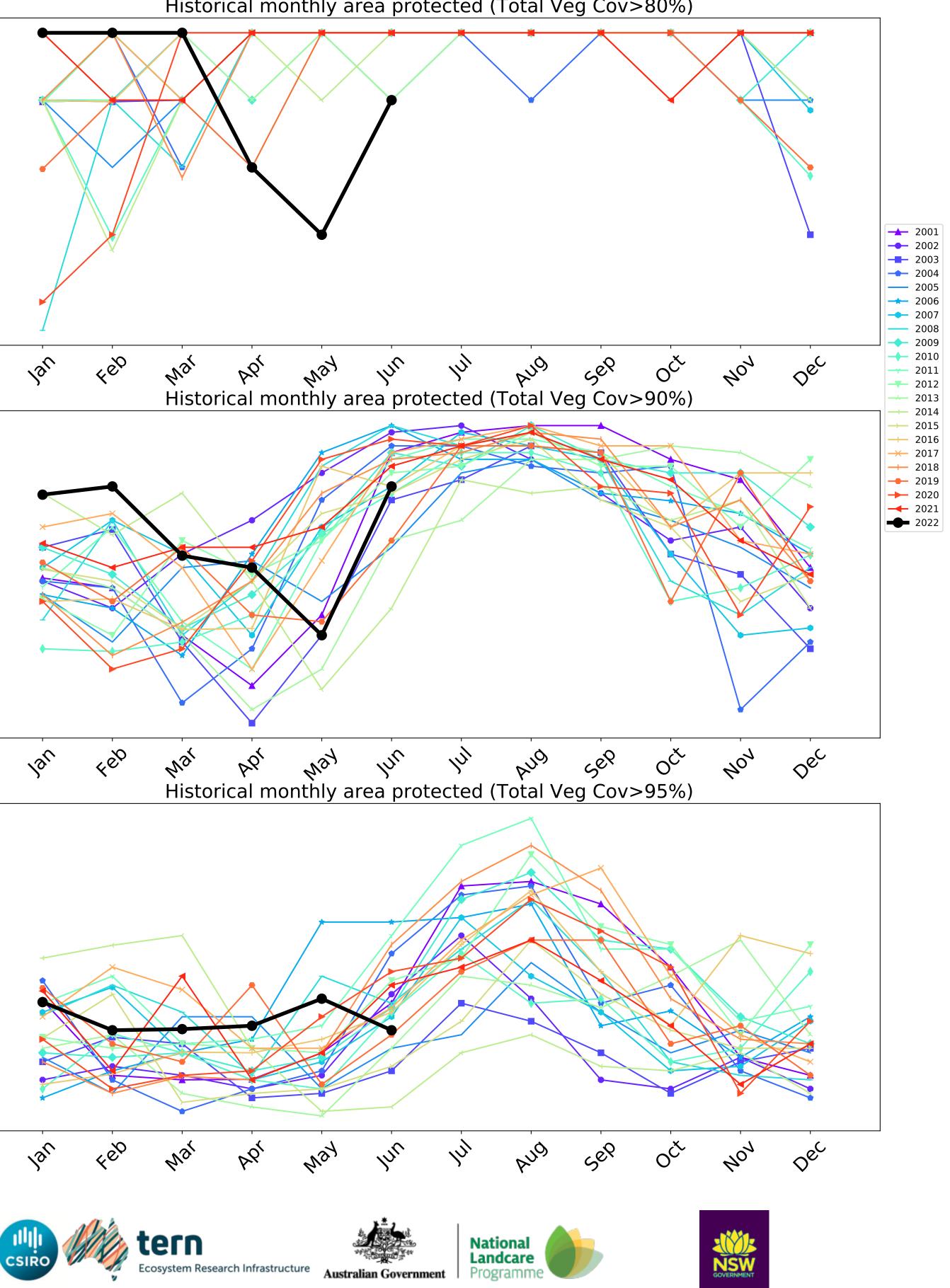




Water erosion historical monthly area protected (Total Veg Cov>70%)







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

12%-100

52%70%

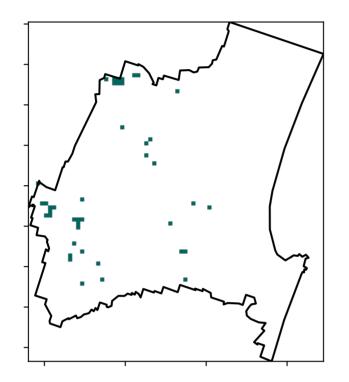
329050

0.30%

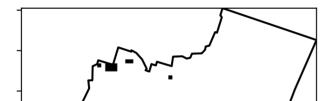
A spice of the spi

**Total Vegetation Cover [%]** 

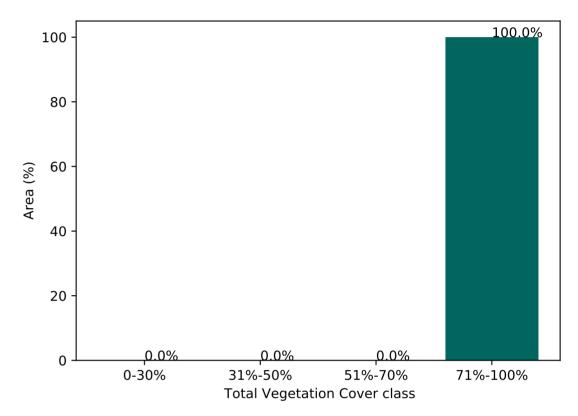
Land use and forest cover



% Area protected from water erosion (>70%)







% Area protected from wind erosion (>50%)

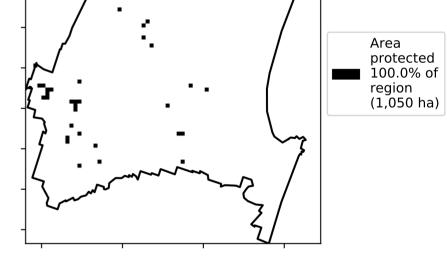


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

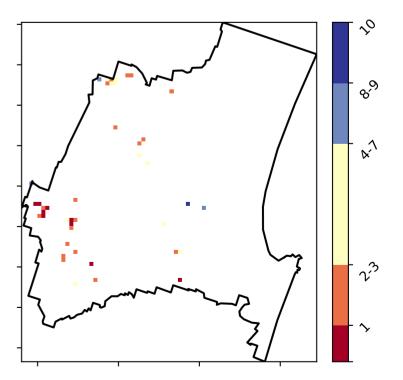


Total Vegetation Cover Anomaly [%]

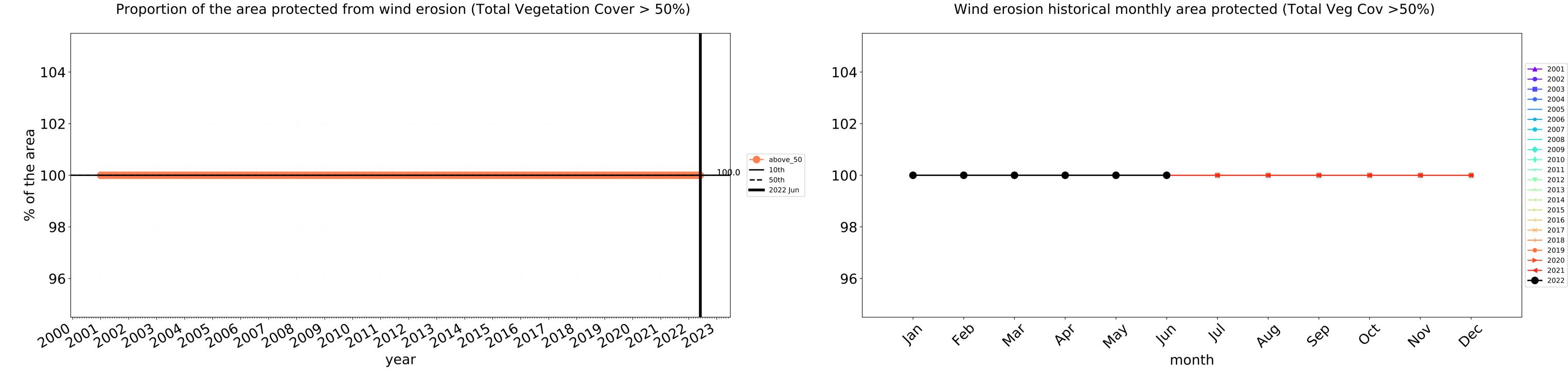
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



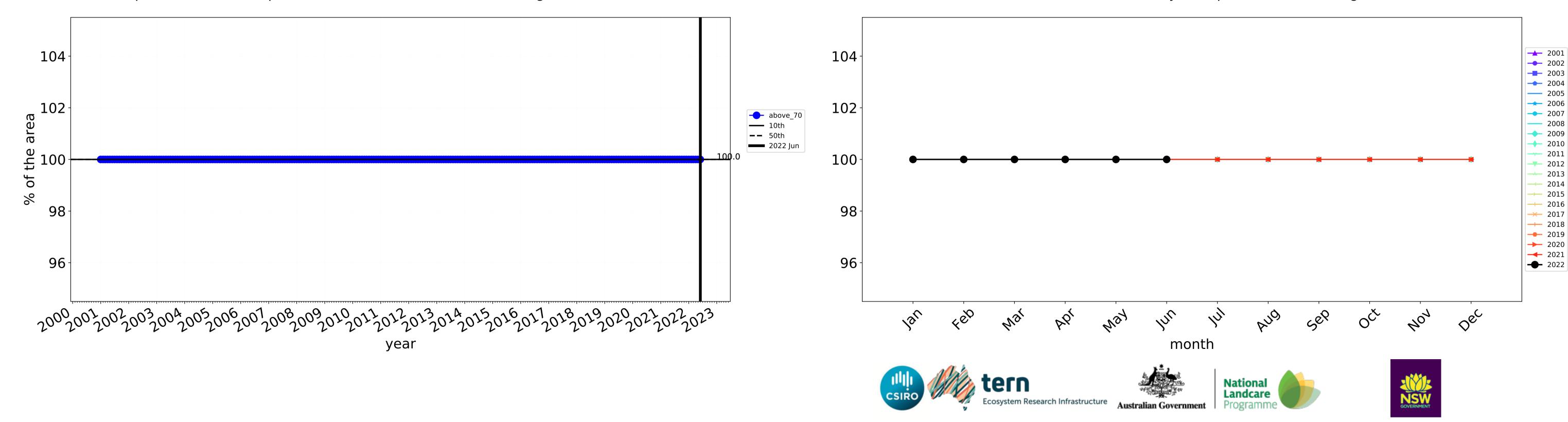
Total Vegetation Cover Decile [%]





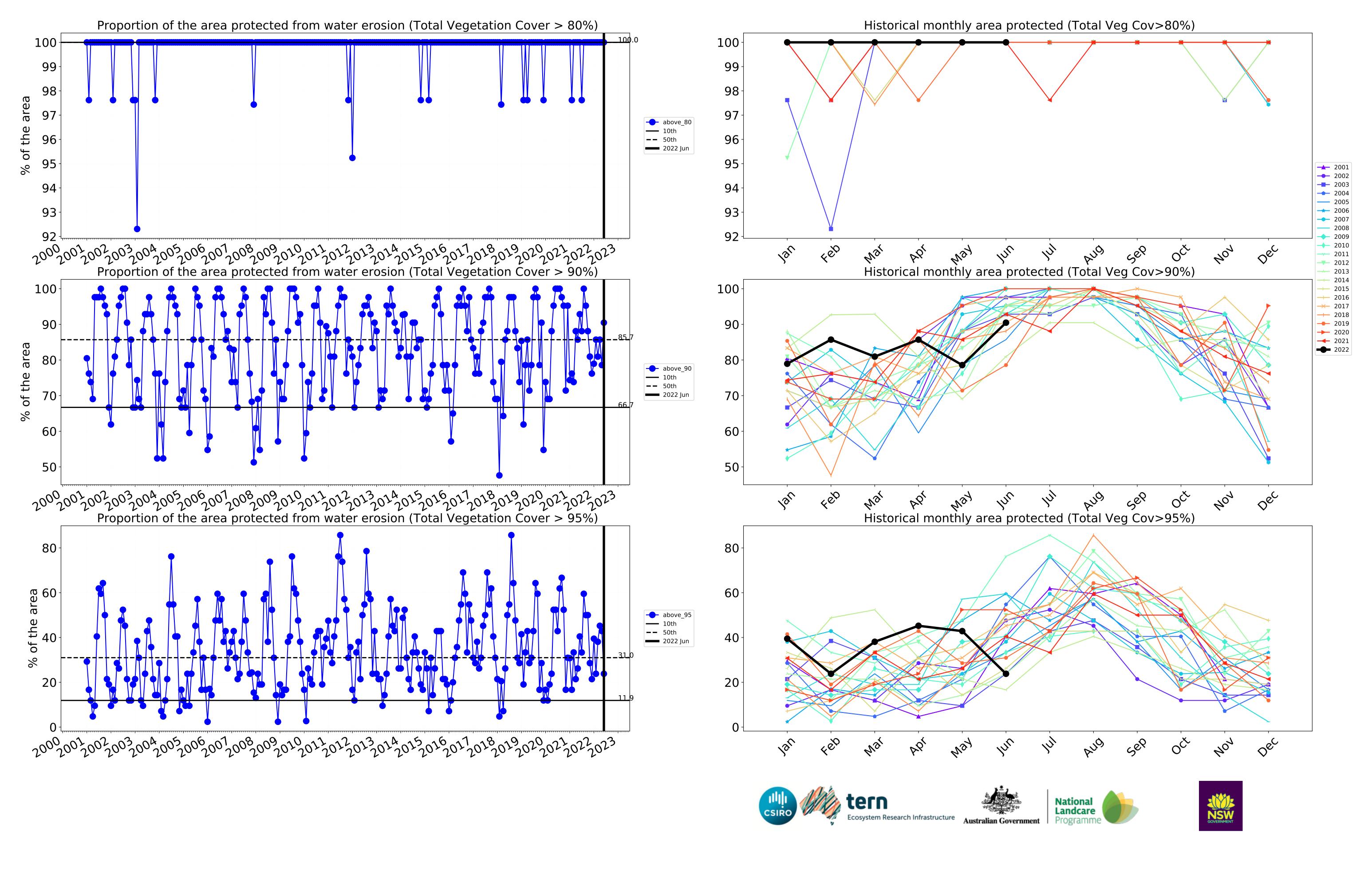


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



## Grazing - Forest (non woodland) timeseries

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



### Irrigation

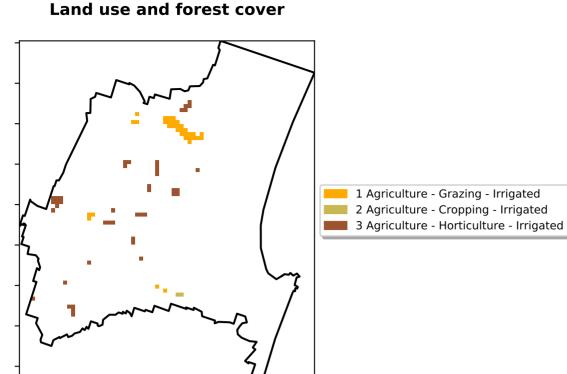
12%2000

52%70%

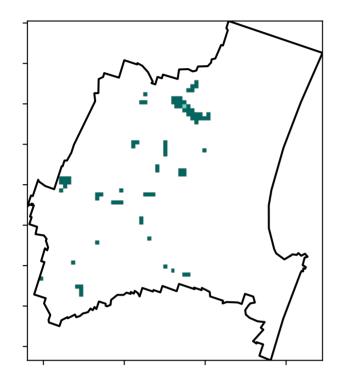
32%50

0.30%

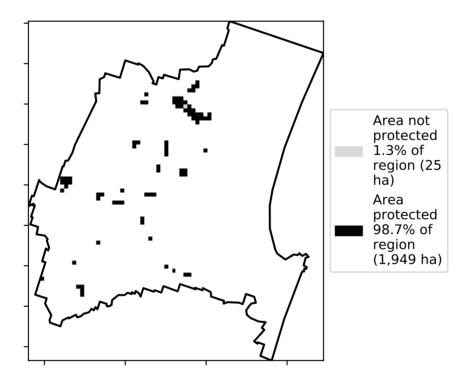
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

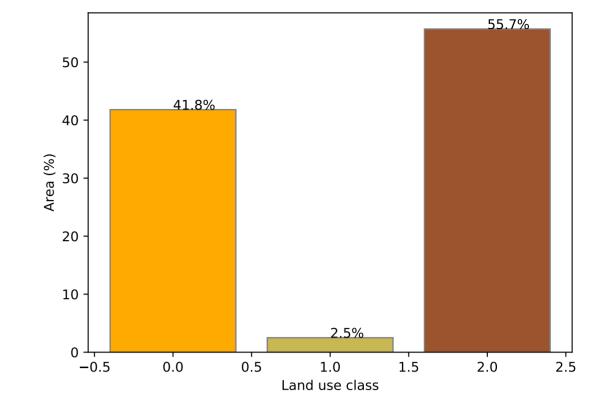


**Total Vegetation Cover [%]** 



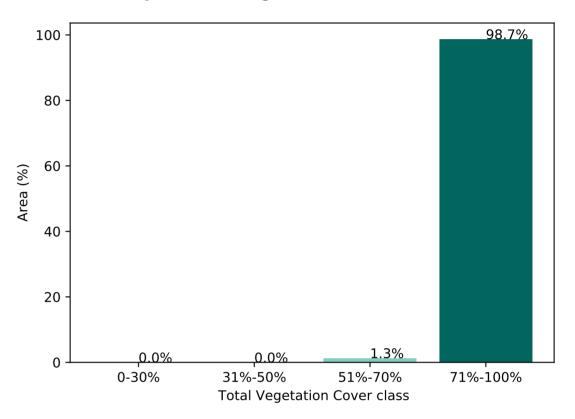






Proportion of each land class in area

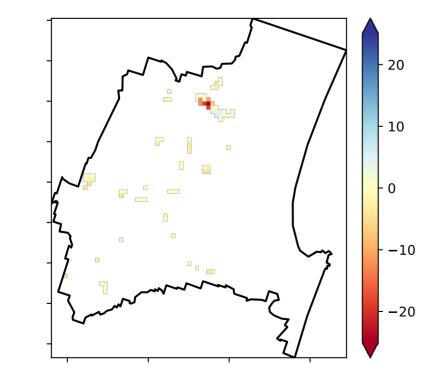
Proportion of vegetation cover class in area



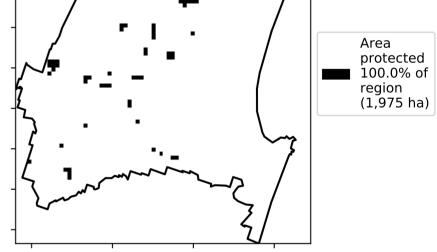
% Area protected from wind erosion (>50%)



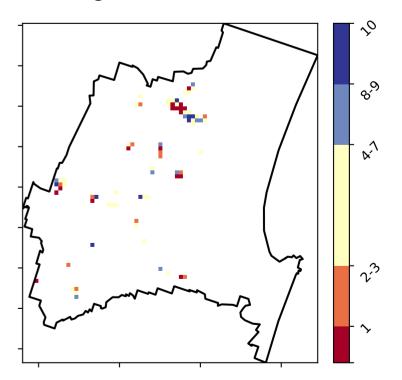
**Total Vegetation Cover Anomaly [%]** 



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.

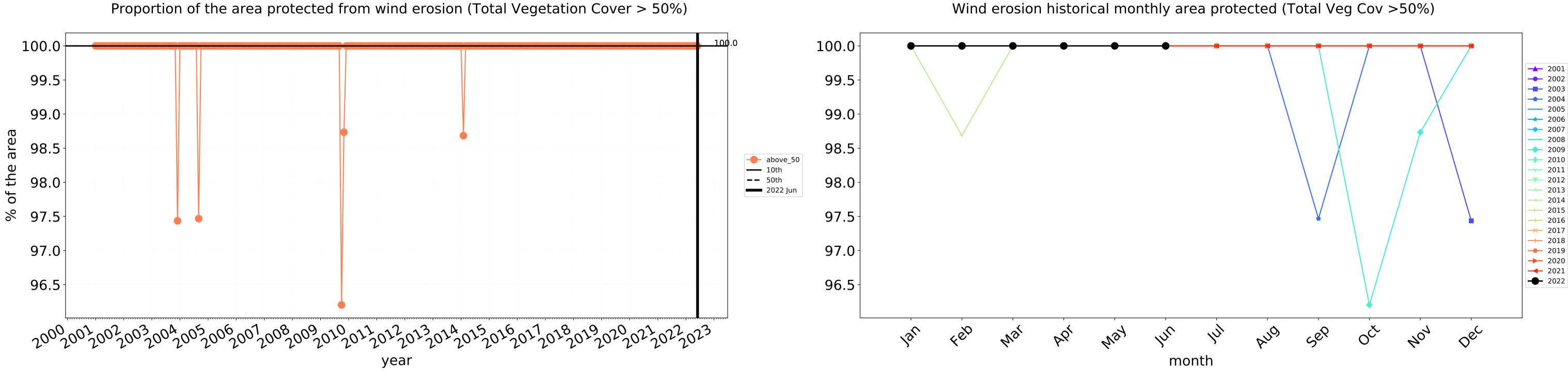


**Total Vegetation Cover Decile [%]** 

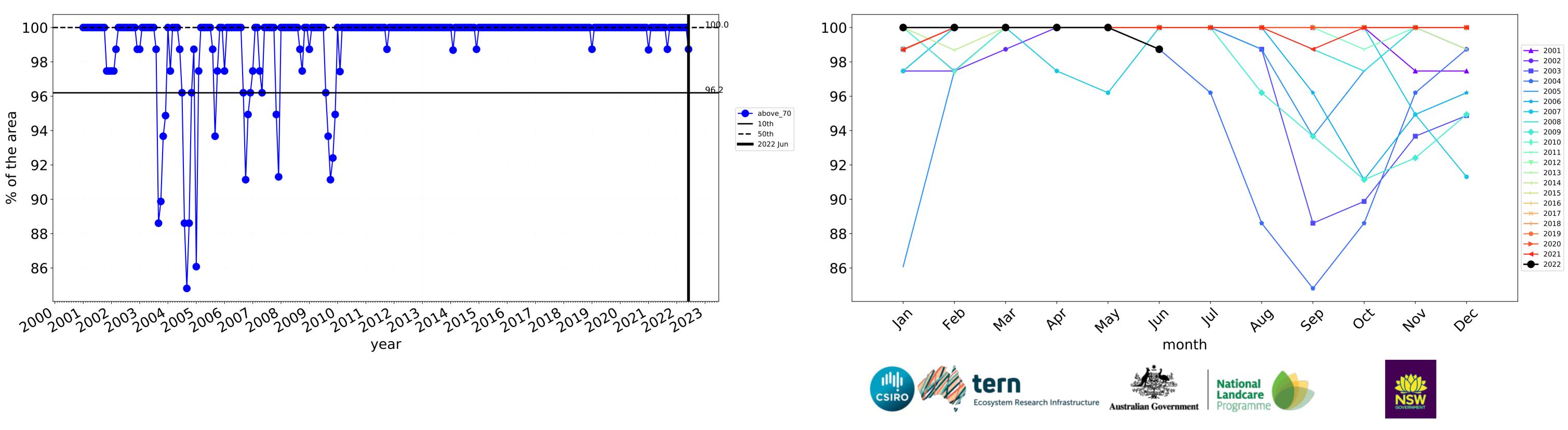




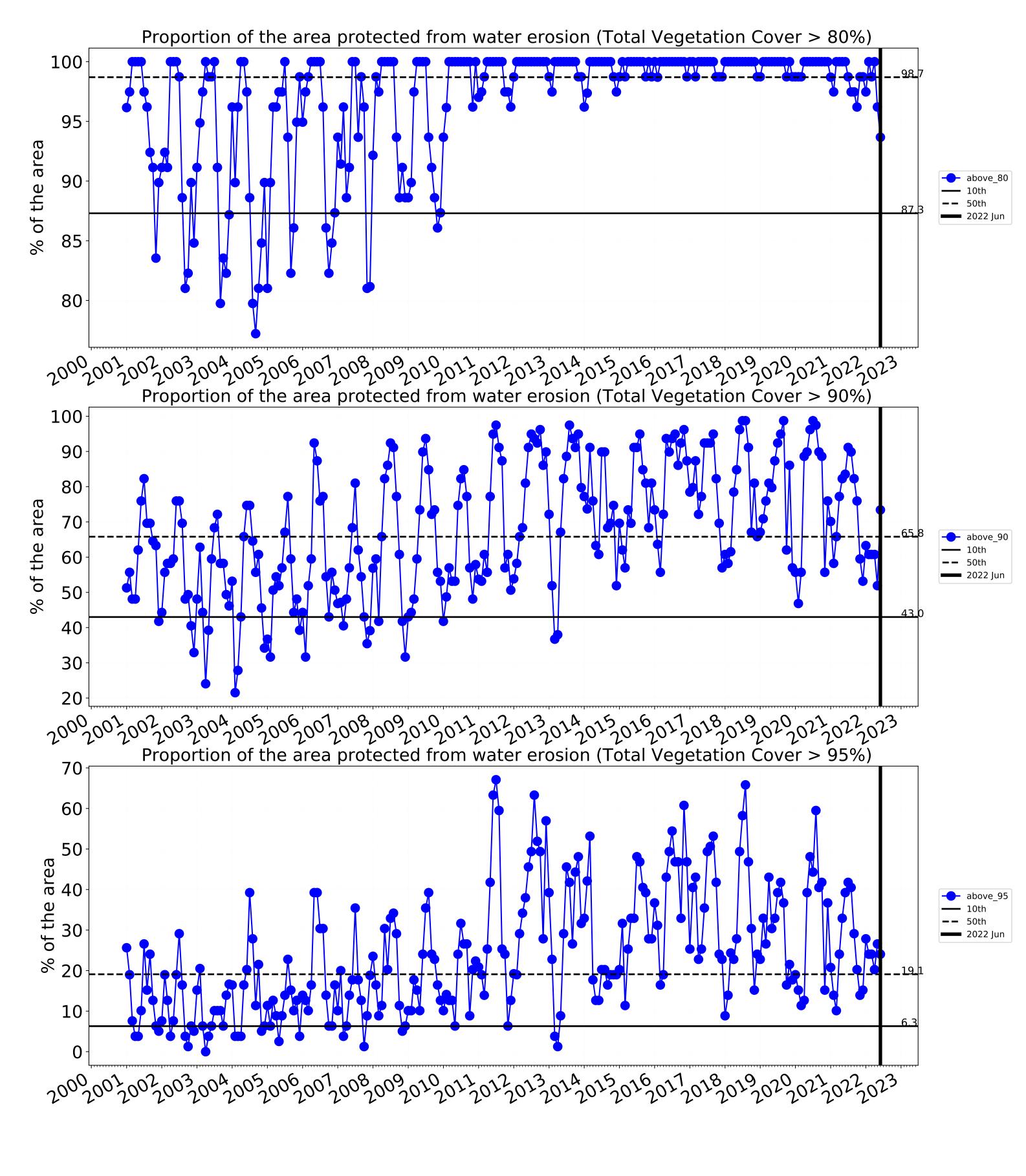


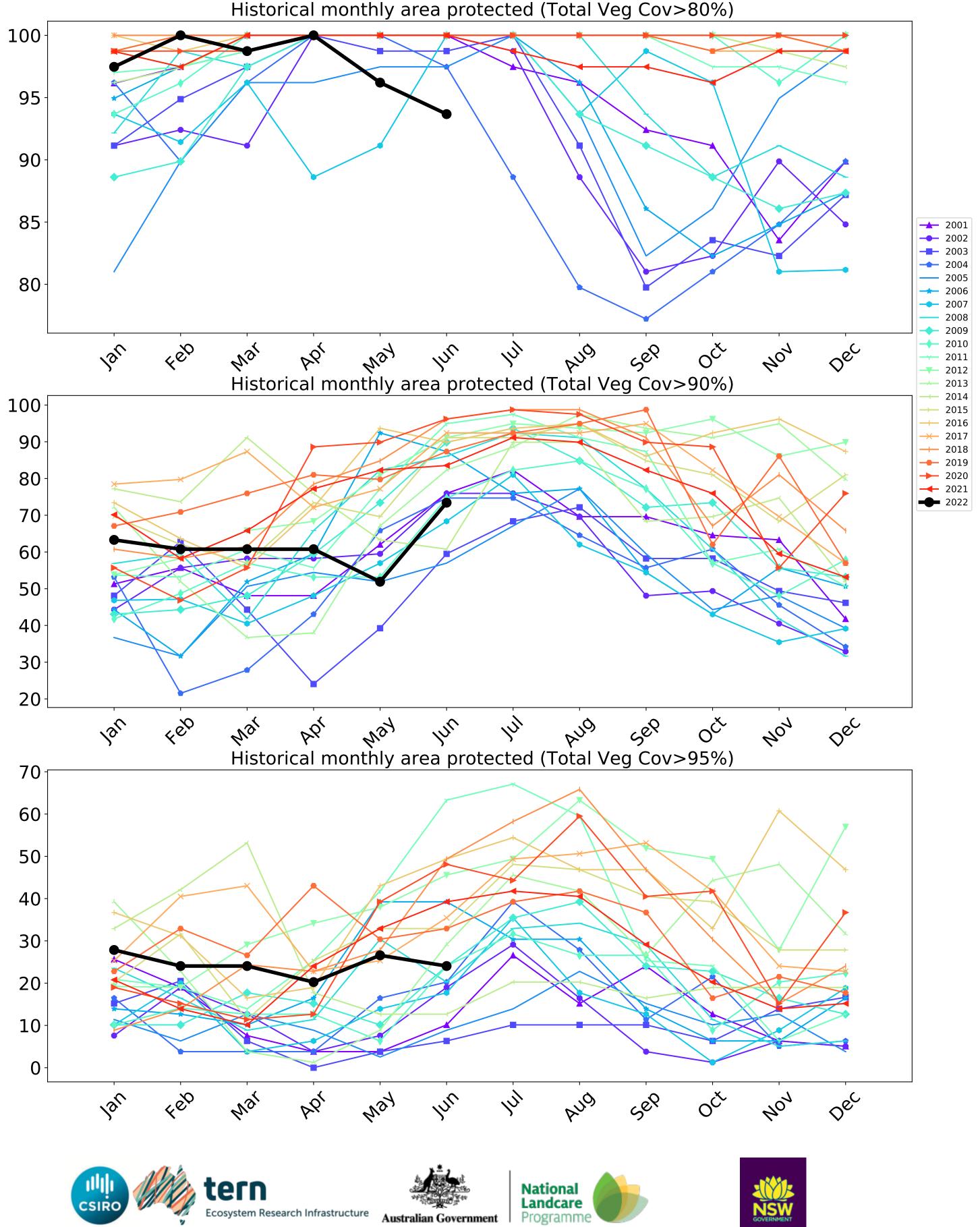


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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





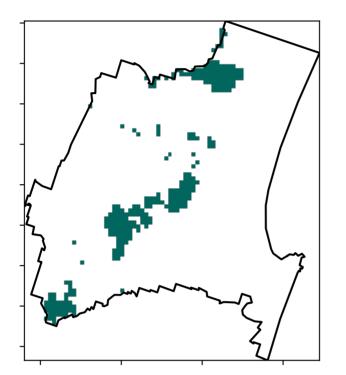


## **Production native forests and plantation forests**

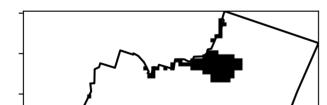
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) I Production native forests and plantation forests

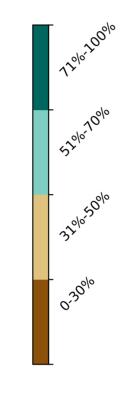
**Total Vegetation Cover [%]** 

Land use and forest cover

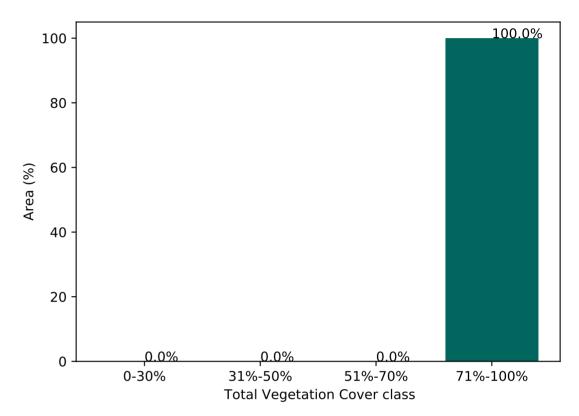




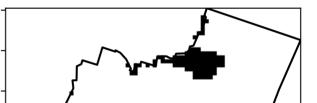




Proportion of vegetation cover class in area

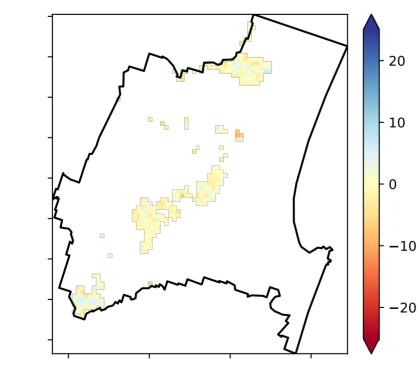


% Area protected from wind erosion (>50%)

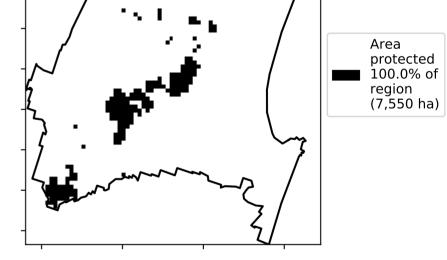




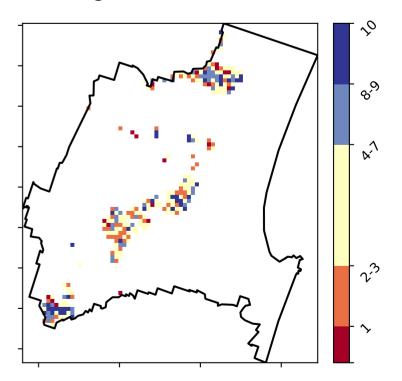
Total Vegetation Cover Anomaly [%]



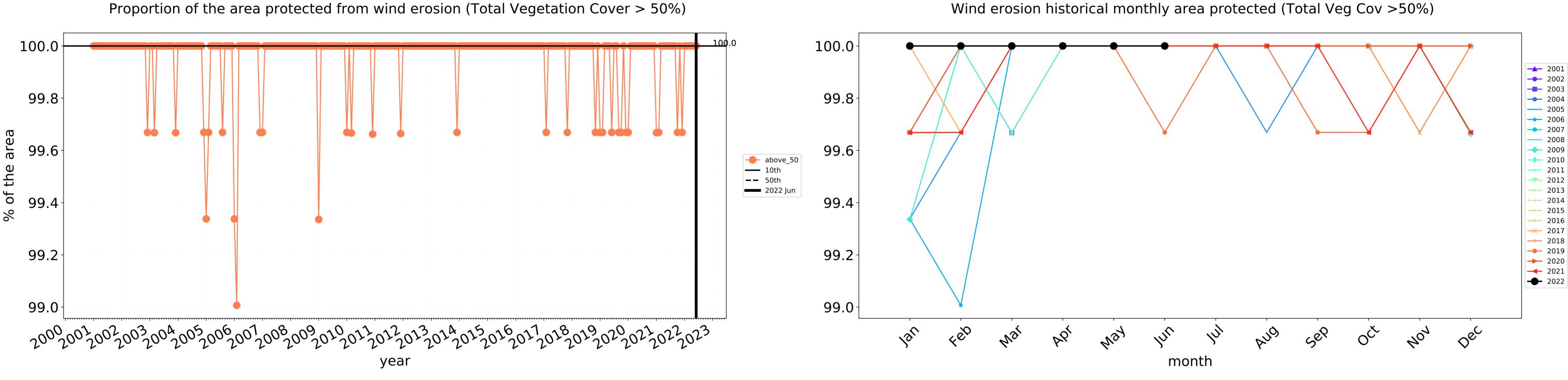
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



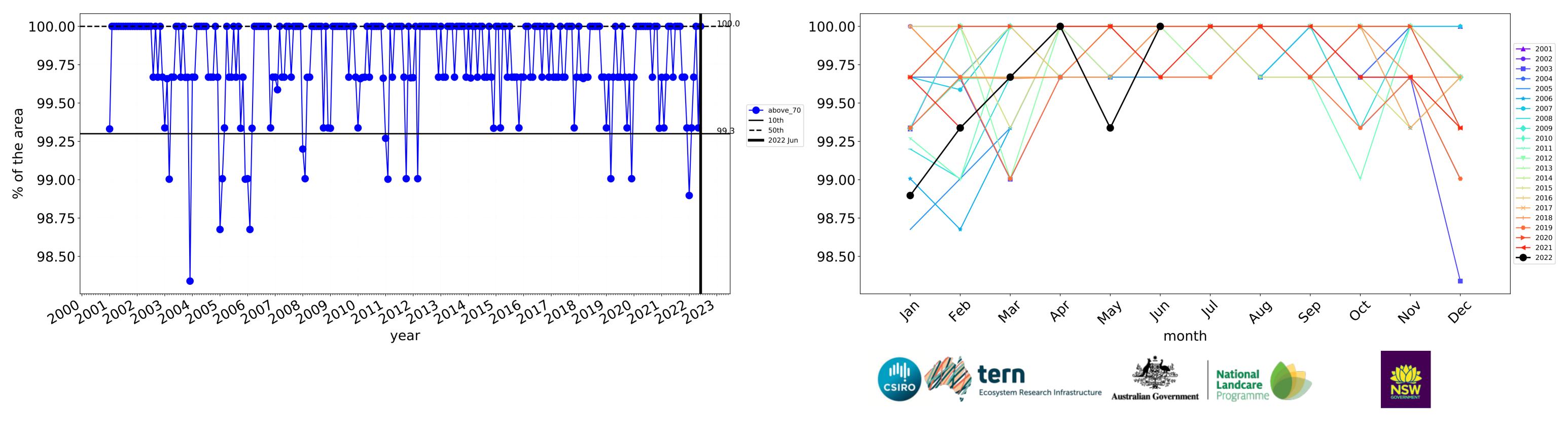
**Total Vegetation Cover Decile [%]** 



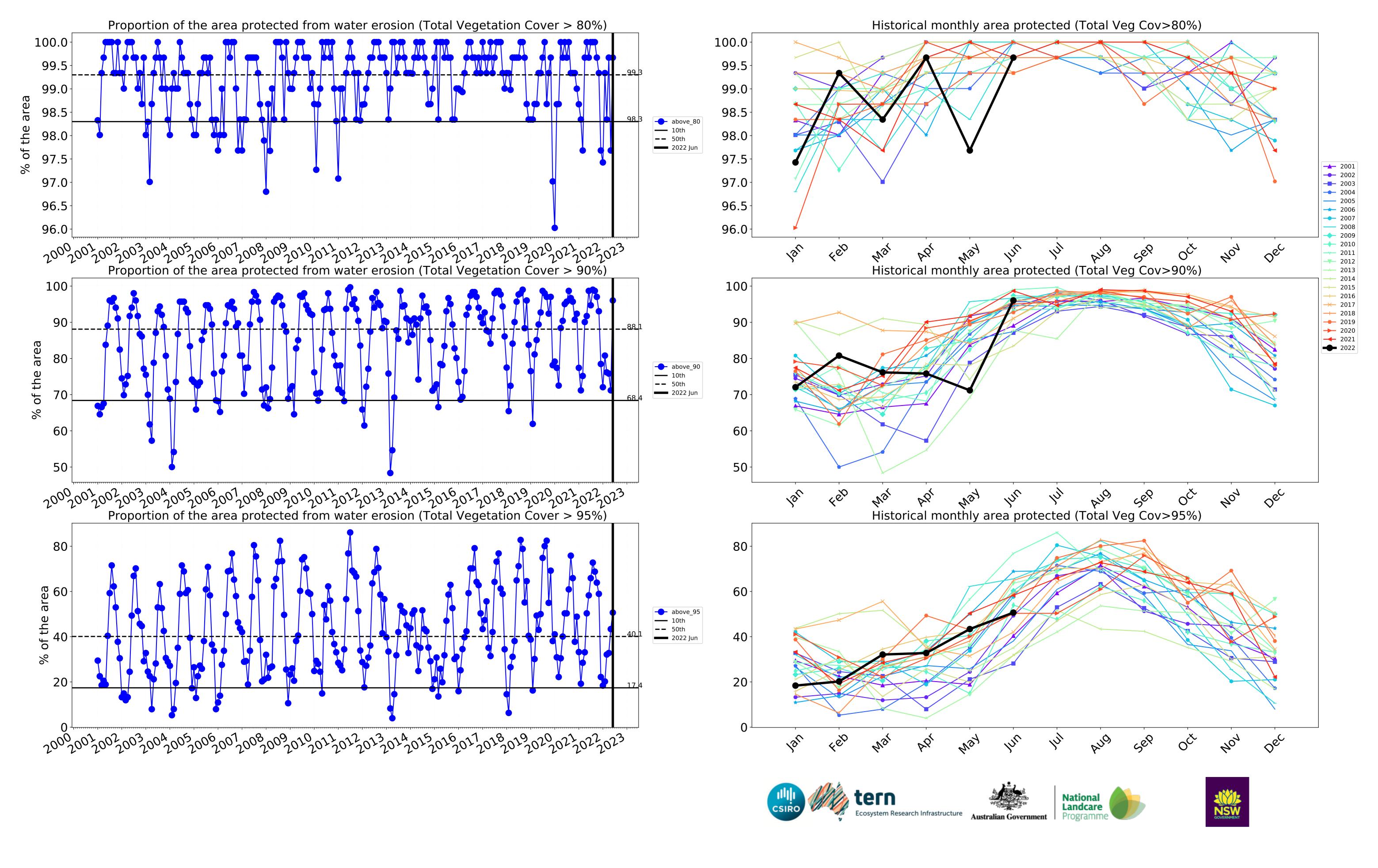








Water erosion historical monthly area protected (Total Veg Cov>70%)



# Noosa\_(S) (81,400 ha and no data 5,602 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	81,400	99.9% 81,350	99.6% 81,100	97.6% 79,425	94.1% 76,600	78.7% 64,075	33.7% 27,425
Conservation and natural environments	29,100	99.9% 29,075	99.5% 28,950	97.9% 28,500	96.0% 27,925	86.7% 25,225	50.3% 14,625
Conservation and natural environments non forest	3,350	100.0% 3,350	99.3% 3,325	94.0% 3,150	86.6% 2,900	79.1% 2,650	45.5% 1,525
Conservation and natural environments Woodland forest	2,675	99.1% 2,650	99.1% 2,650	95.3% 2,550	94.4% 2,525	75.7% 2,025	30.8% 825
Conservation and natural environments Forest (non woodland)	23,075	100.0% 23,075	99.6% 22,975	98.8% 22,800	97.5% 22,500	89.1% 20,550	53.2% 12,275
Agriculture	21,100	100.0% 21,100	100.0% 21,100	99.8% 21,050	99.1% 20,900	78.2% 16,500	23.5% 4,950
Grazing	19,075	100.0% 19,075	100.0% 19,075	99.9% 19,050	99.6% 19,000	78.6% 15,000	23.3% 4,450
Grazing non forest	15,925	100.0% 15,925	100.0% 15,925	100.0% 15,925	99.7% 15,875	76.5% 12,175	23.1% 3,675
Grazing Woodland forest	2,100	100.0% 2,100	100.0% 2,100	98.8% 2,075	98.8% 2,075	89.3% 1,875	25.0% 525
Grazing - Forest (non woodland)	1,050	100.0% 1,050	100.0% 1,050	100.0% 1,050	100.0% 1,050	90.5% 950	23.8% 250
Irrigation	1,975	100.0% 1,975	100.0% 1,975	98.7% 1,950	93.7% 1,850	73.4% 1,450	24.1% 475
Production native forests and plantation forests	7,550	100.0% 7,550	100.0% 7,550	100.0% 7,550	99.7% 7,525	96.0% 7,250	50.7% 3,825

