### LGA Indigo\_(S) (VIC) - Vegetation cover soil protection report Aug 2019

This report provides information about vegetation covering the soil surface for a region during a single month with comparison to previous years. Vegetation cover indicates where soil is likely to be protected from wind and or water (hillslope) erosion. Results are shown for the whole region (polygon) and also separated by land use and tree cover. Different land uses are likely to have different cover patterns and targets. Reporting is most reliable with less than 20% tree cover.

Indigo\_(S)

• Context

o Map: Land use and forest cover

- o Chart: Land use and forest cover area
- Total vegetation cover for this month

   Map: vegetation cover classified into 4 classes
   Chart: vegetation cover area classified into 4 classes
- Areas protected from erosion for the month

o Map: wind erosion protection (>50% cover)

- o Map: water erosion protection (>70% cover)
- Comparison with previous years
  - o Map: anomaly compare this month to the average cover from the same month in previous years
  - o Map: deciles rank this month against the same month in previous years
- Time series
  - o Wind erosion protection time series: percentage of the area of the region with greater than 50% cover for each month in the archive (orange lines)
  - o Water erosion protection time series: percentage of the area of the region with greater than 70% cover for each month of the archive (blue lines).
  - o Rainfall: millimetres rainfall each month (black lines)
- Time series stacked by year
  - o Wind erosion protection time series: percentage of the area of the region with greater than 50% cover for each month in the archive (orange lines) in case of 5th percentile is less than 80i
  - o Water erosion protection time series: percentage of the area of the region with greater than 70% cover for each month of the archive (blue lines). in case of 5th percentile is less than 80
- Water erosion protection on higher slopes. As slope increases, more cover is required to control water erosion. The thresholds reported are:
  - o the percentage area with pixels greater than 80% total clover
  - o the percentage area with pixels greater than 90% total clover
  - o the percentage area with pixels greater than 95% total clover

The following pages repeat the above sequence for each land use and forest cover class. For example

- All agricultural lands, that is grazing, cropping plus Horticulture (depending on what land use is present)
- Grazing lands by forest classes if present
- Cropping lands
- Irrigation lands
- - Protected areas by forest classes if present
  - Explanatory notes:

This report has been generated using MODIS fractional vegetation cover information available in Rangelands and Pasture Productivity (RAPP) map tool. The report is based on an analysis of 500 metre pixels. Pixels with greater than or equal to 50% vegetation cover are generally considered to be protected from or have reduced soil loss by wind erosion, and pixels with greater than or equal to 70% vegetation cover are generally considered to also be protected from or have reduced soil loss from water (hillslope) erosion. Report used baseline from 2001 to 2019 for each month to generate anomalies and deciles. And it used threshold of 1% to create land use forest cover reports. Higher cover thresholds may be required for erosion protection in some regions. This report will be less applicable in areas with sparse forest (20-50% tree cover) or dense forest (> 50% tree cover). Therefore land use classes are divided by tree cover: 1) No forest is when there is less than 20% tree cover 2) Sparse forest, is when there is less than 20 to 50 % tree cover 3) Dense forest is greater than 50% tree 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:

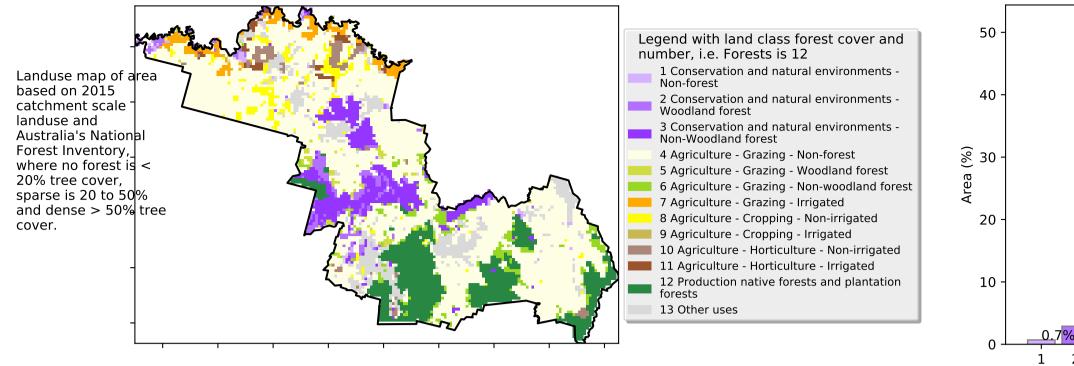
https://doi.org/10.4225/08/5848a3f19a7b3



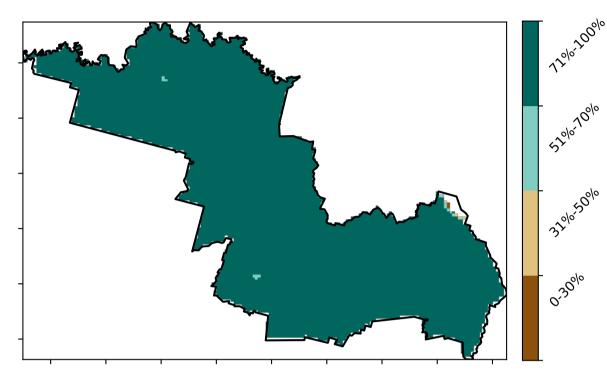
## **Vegetation Cover Aug 2019**

#### Land use and forest cover

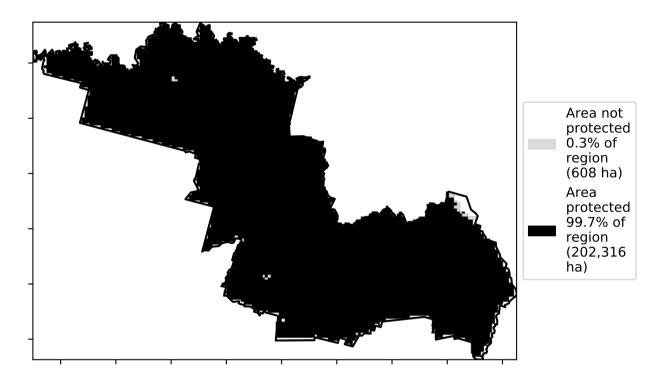
#### Proportion of each land class in area

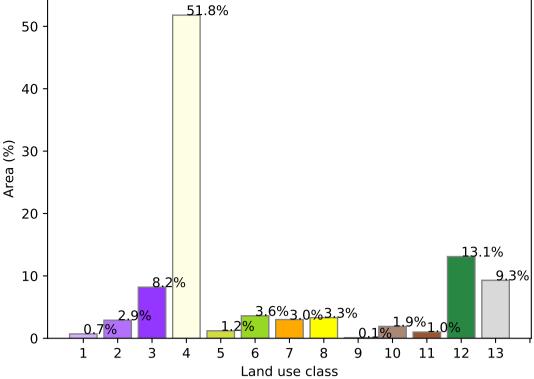


**Total Vegetation Cover [%]** 

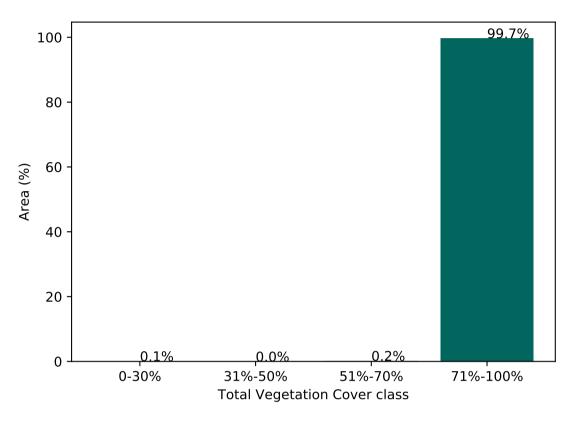


% Area protected from water erosion (>70%)

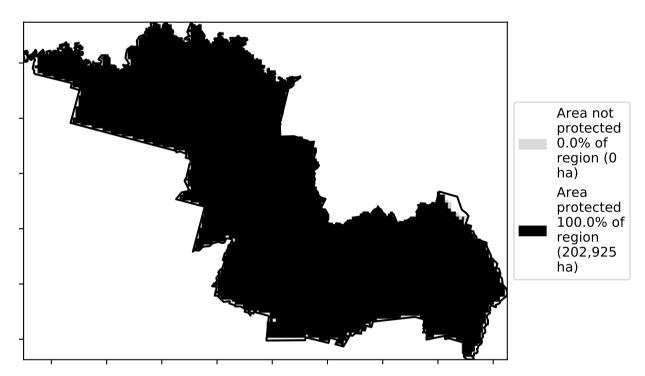




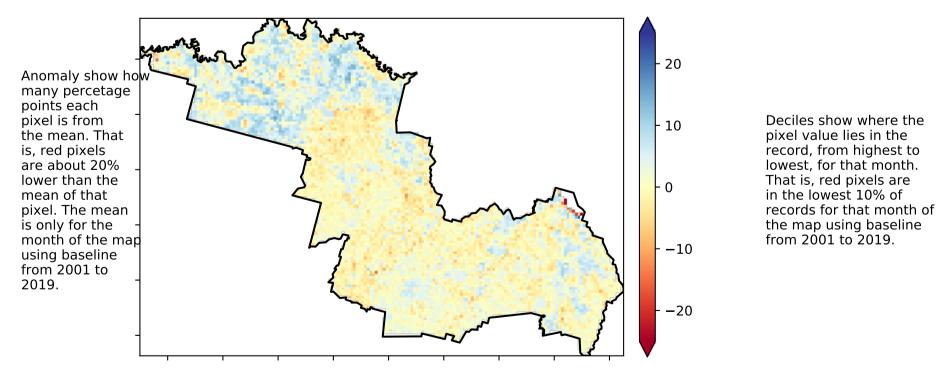
#### Proportion of vegetation cover class in area



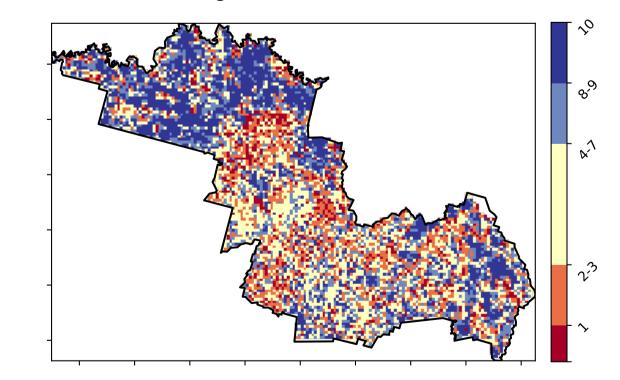
#### % Area protected from wind erosion (>50%)



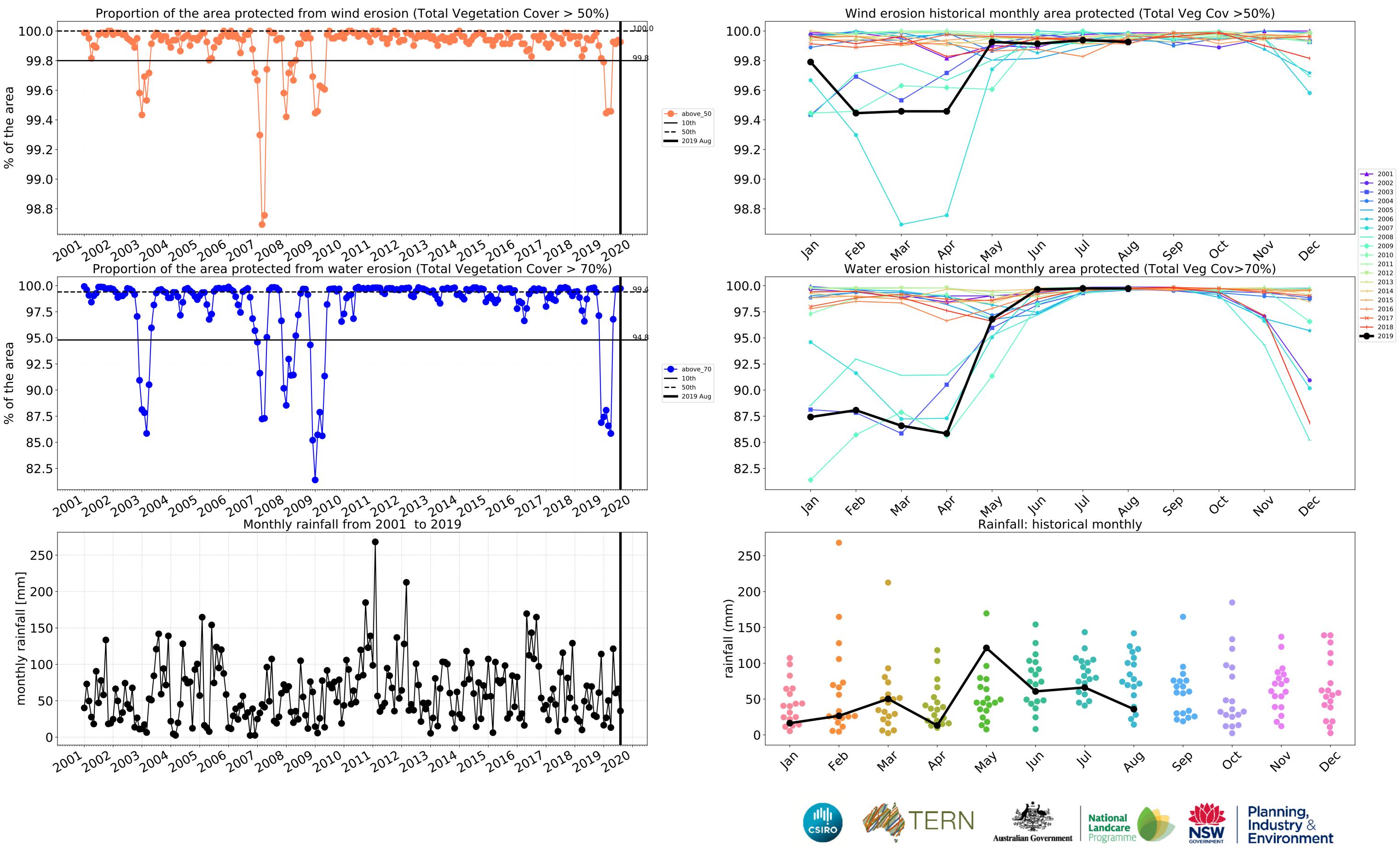
**Total Vegetation Cover Anomaly [%]** 

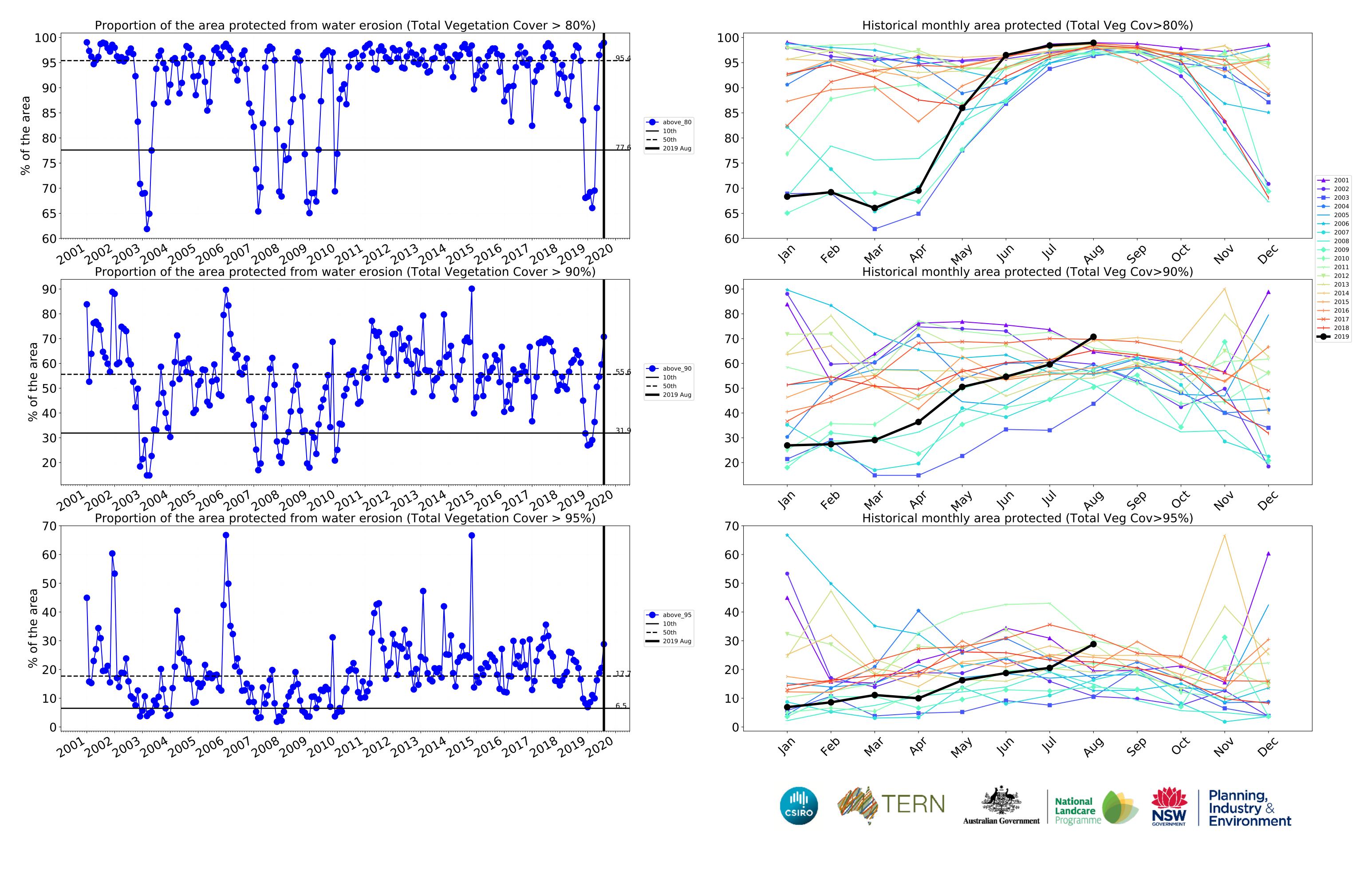


**Total Vegetation Cover Decile [%]** 

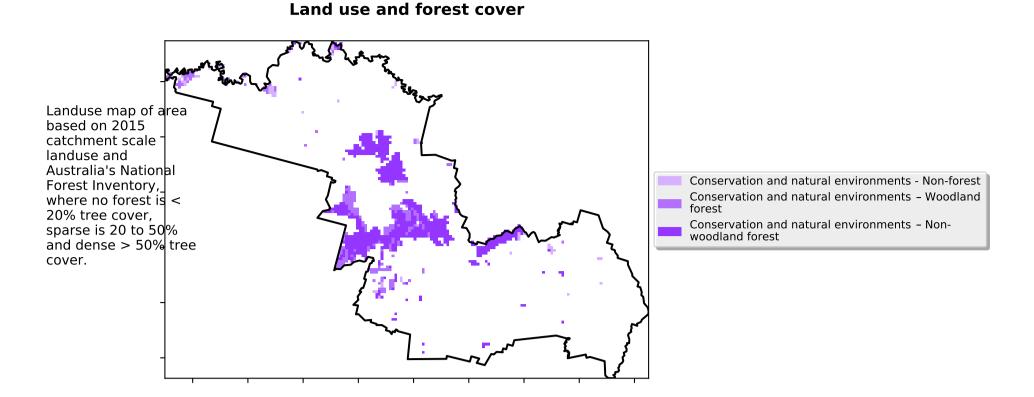




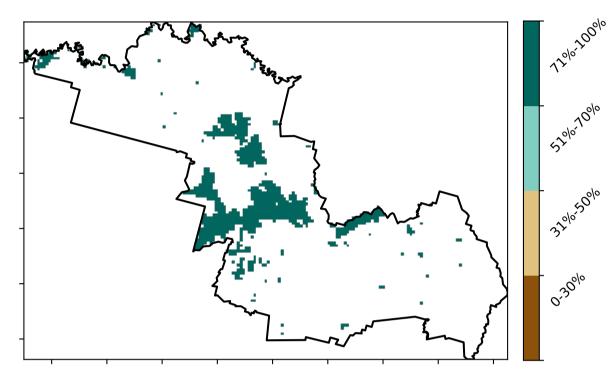




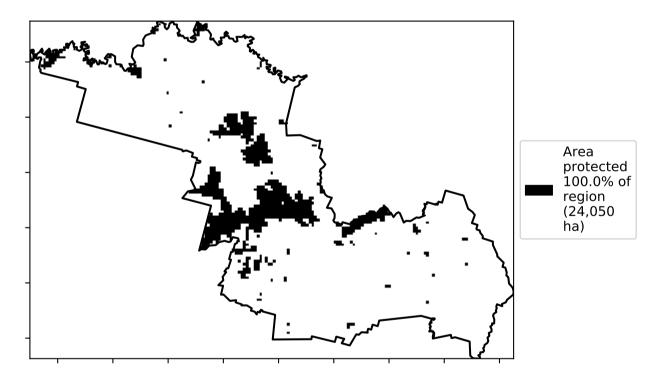
### **Conservation and natural environments**



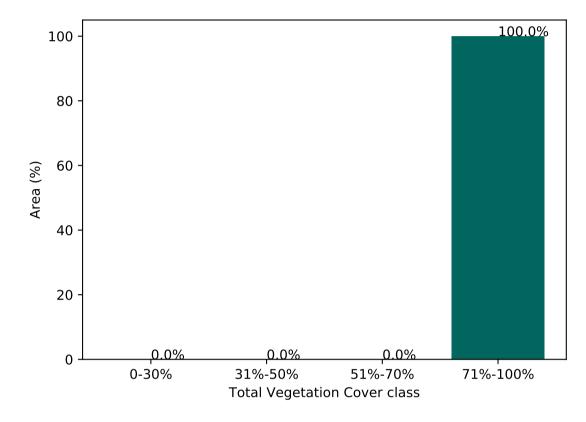
**Total Vegetation Cover [%]** 



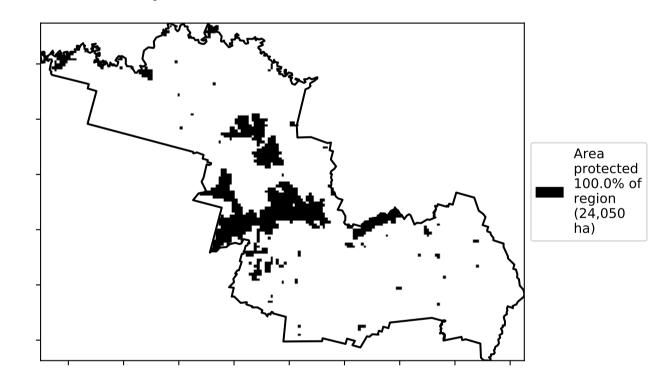
% Area protected from water erosion (>70%)



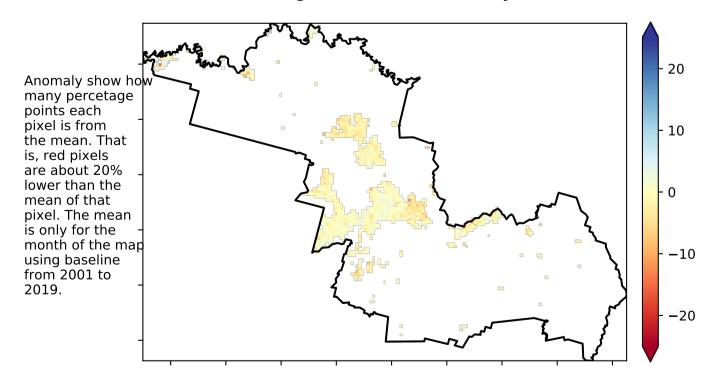
Proportion of vegetation cover class in area



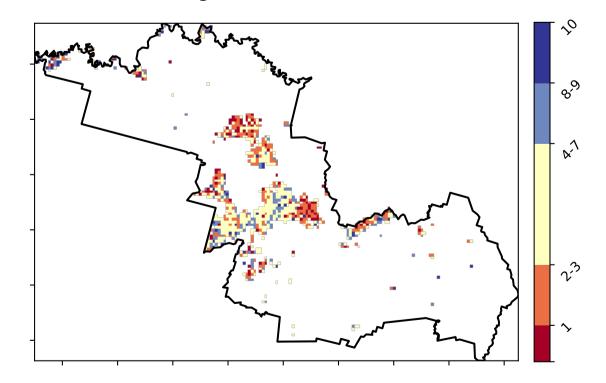
#### % Area protected from wind erosion (>50%)



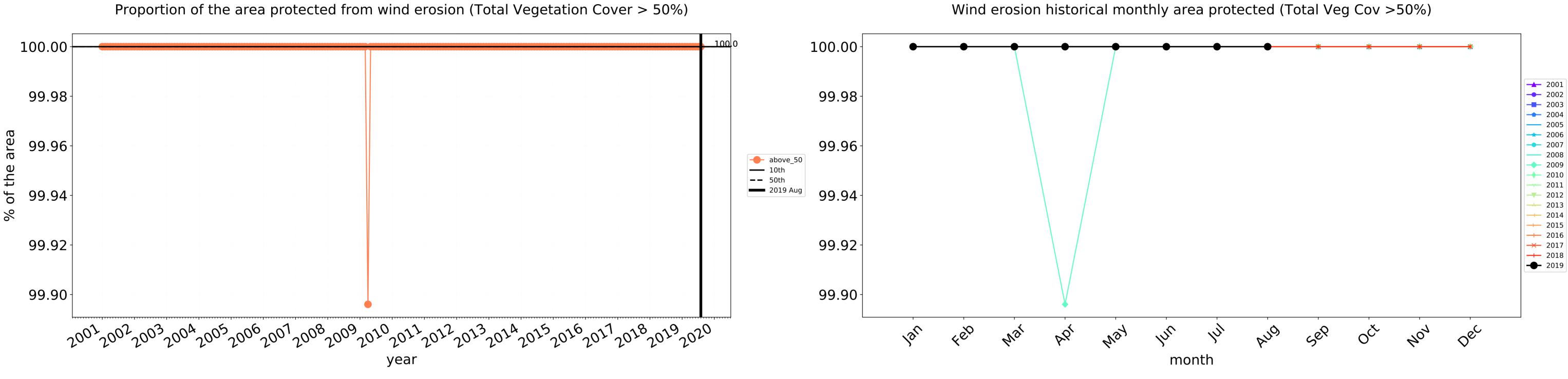
Total Vegetation Cover Anomaly [%]

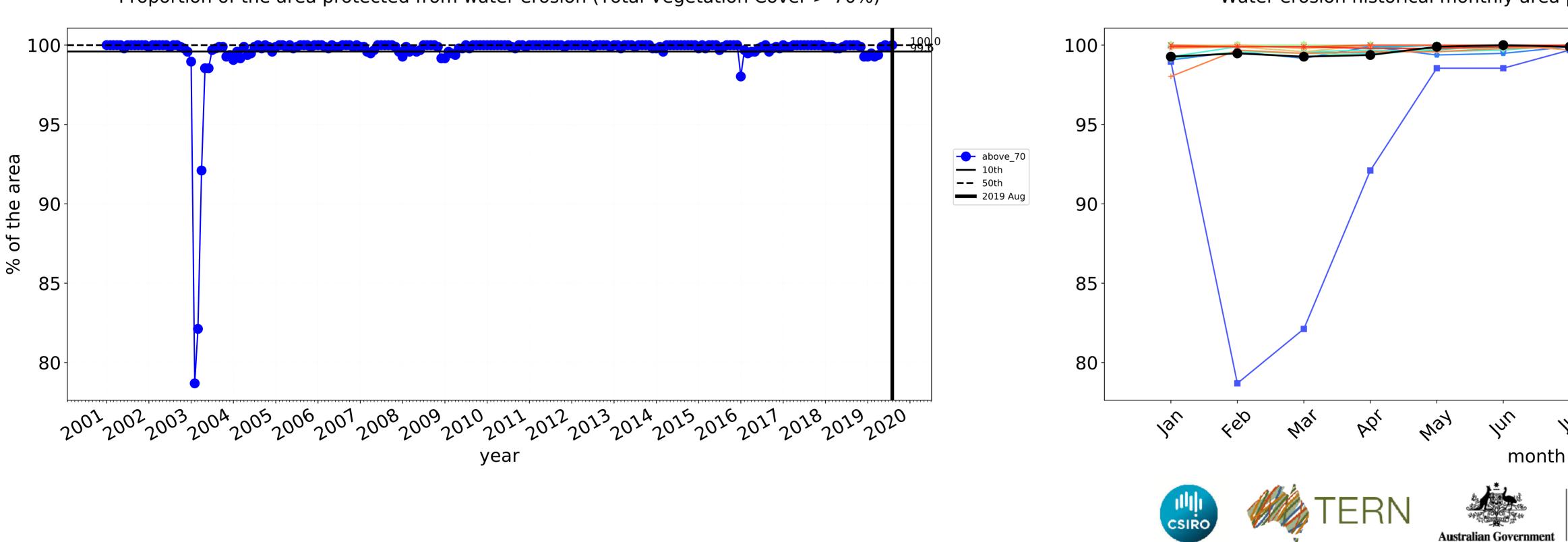


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

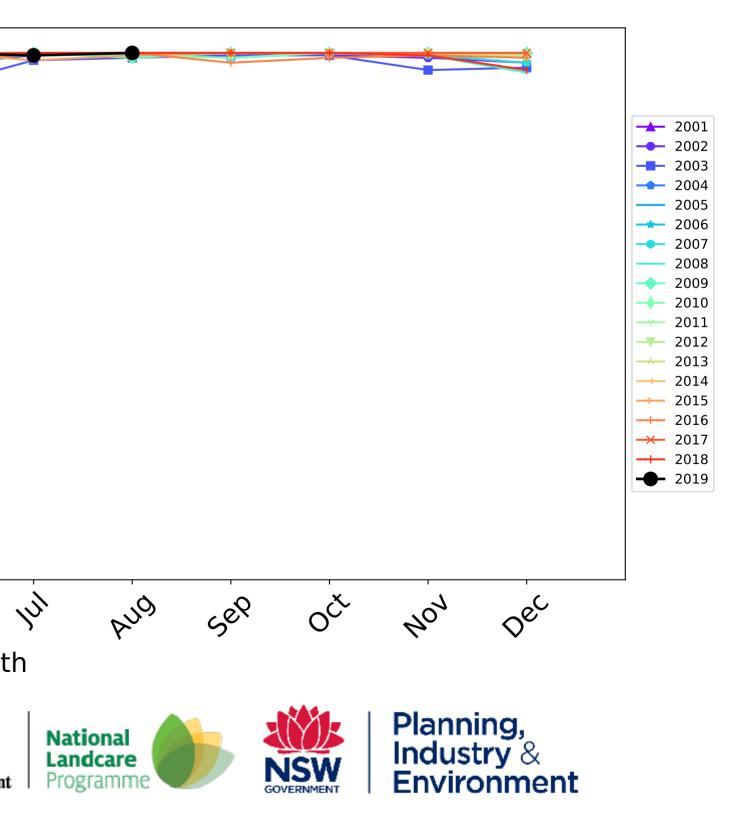


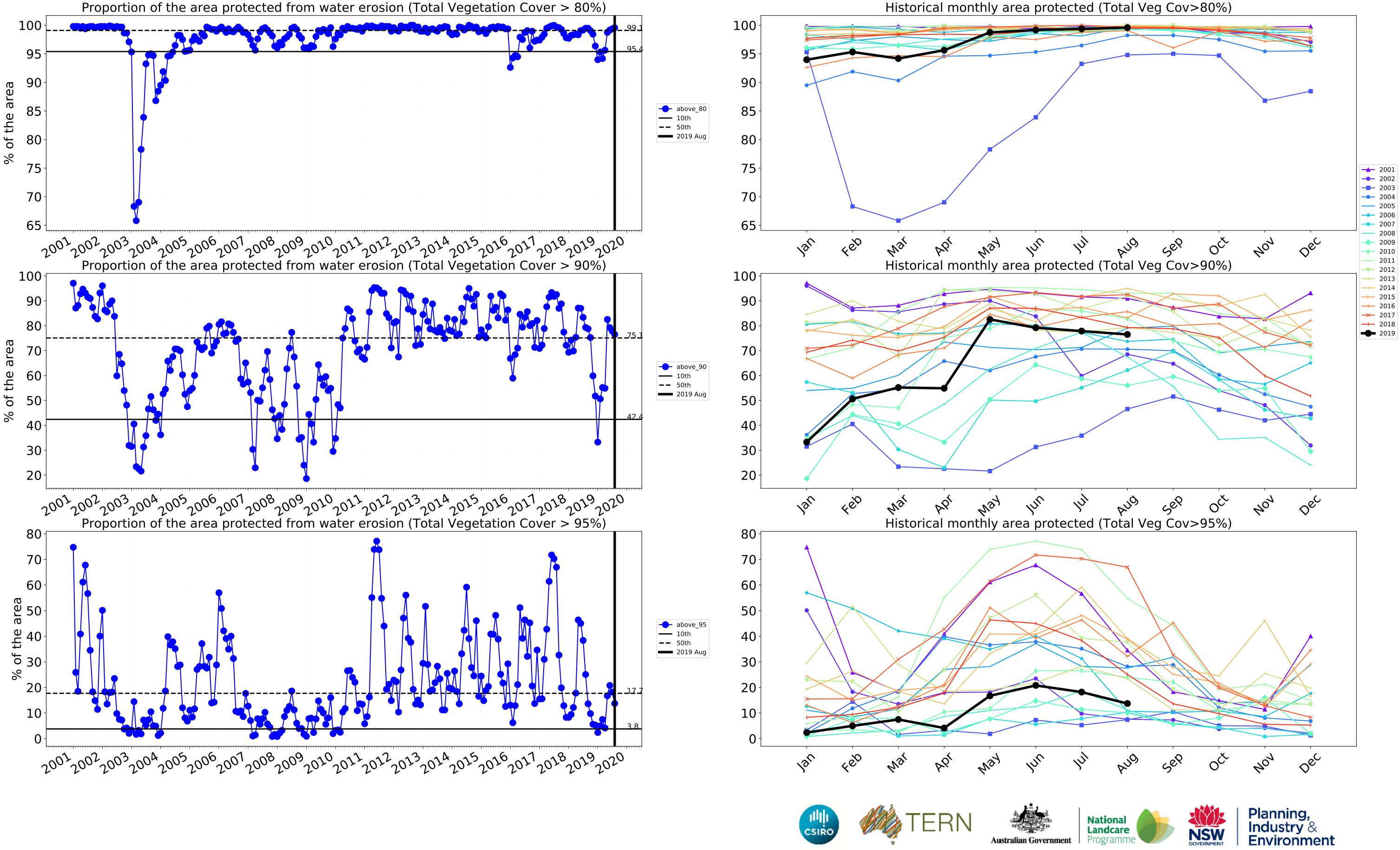




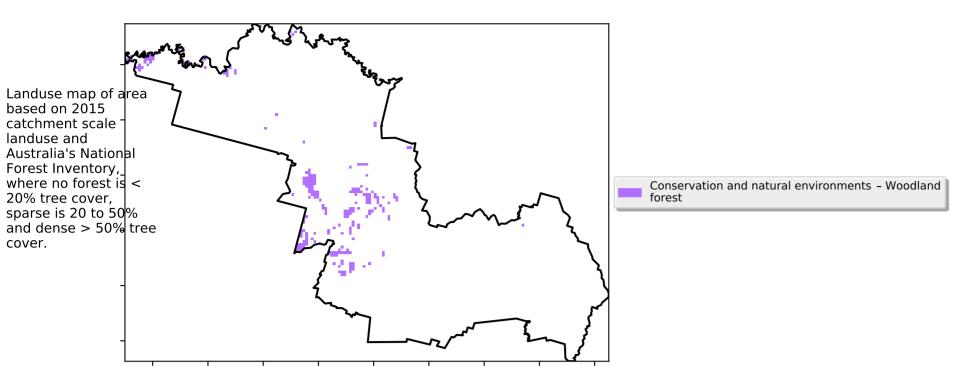


Water erosion historical monthly area protected (Total Veg Cov>70%)



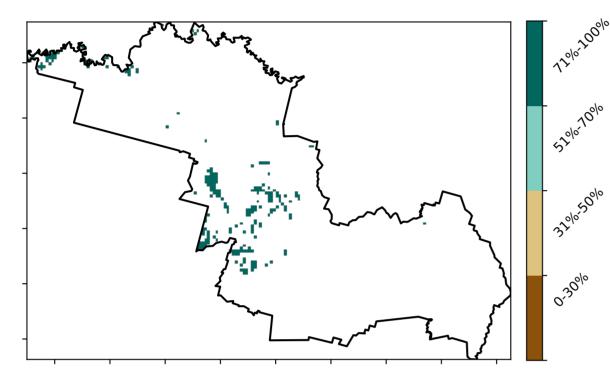


### **Conservation and natural environments Woodland forest**

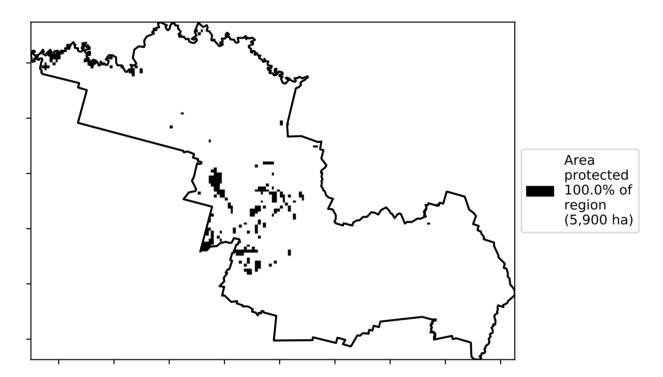


Land use and forest cover

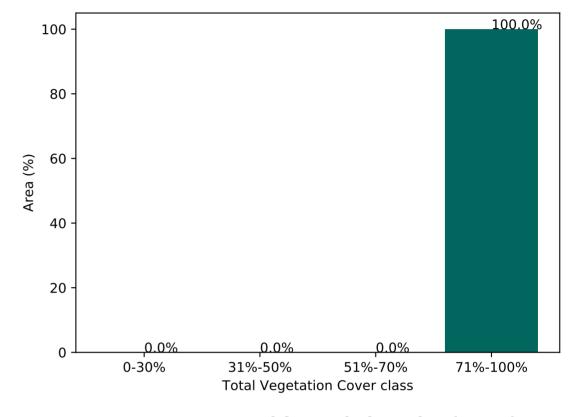
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



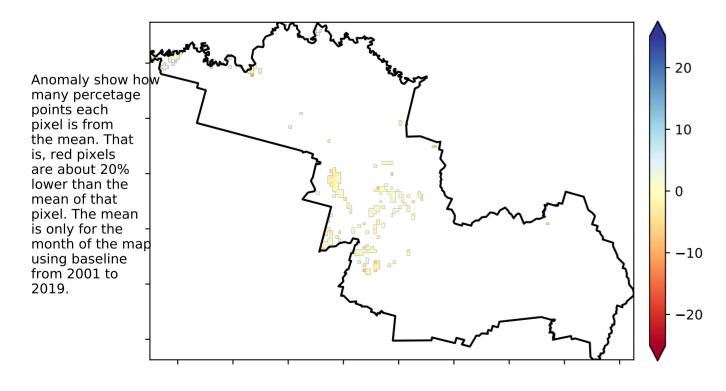
Proportion of vegetation cover class in area



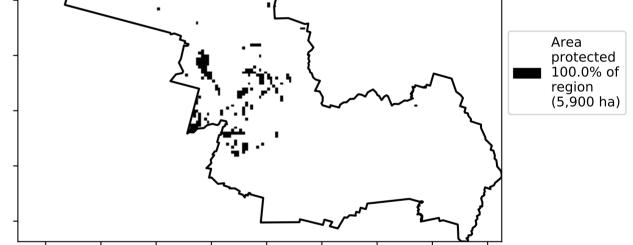
% Area protected from wind erosion (>50%)

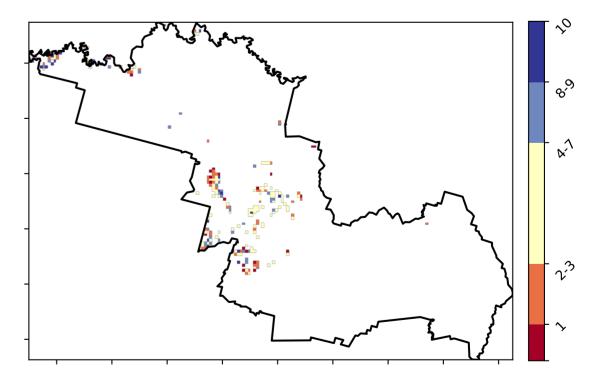


Total Vegetation Cover Anomaly [%]



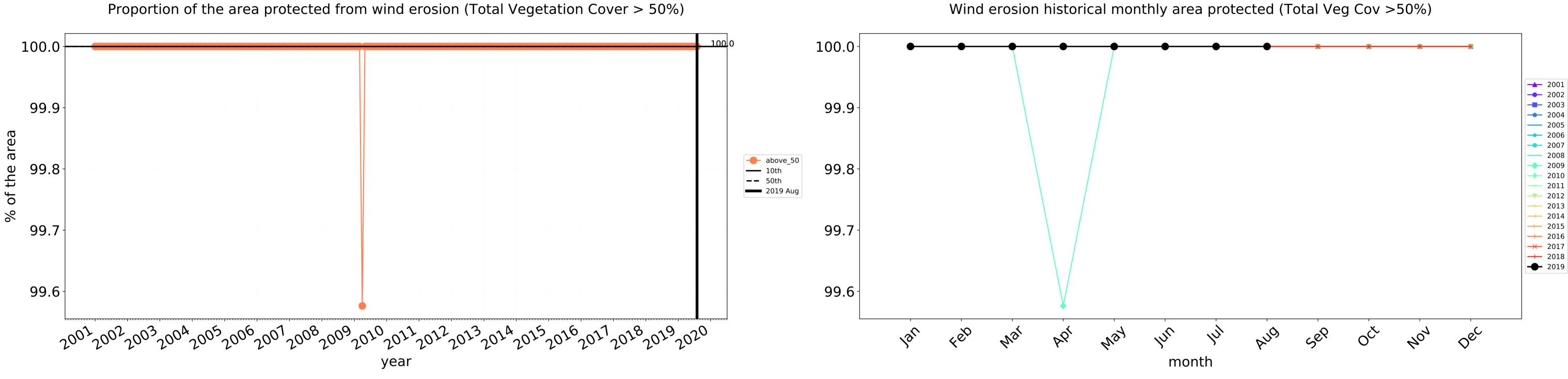
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



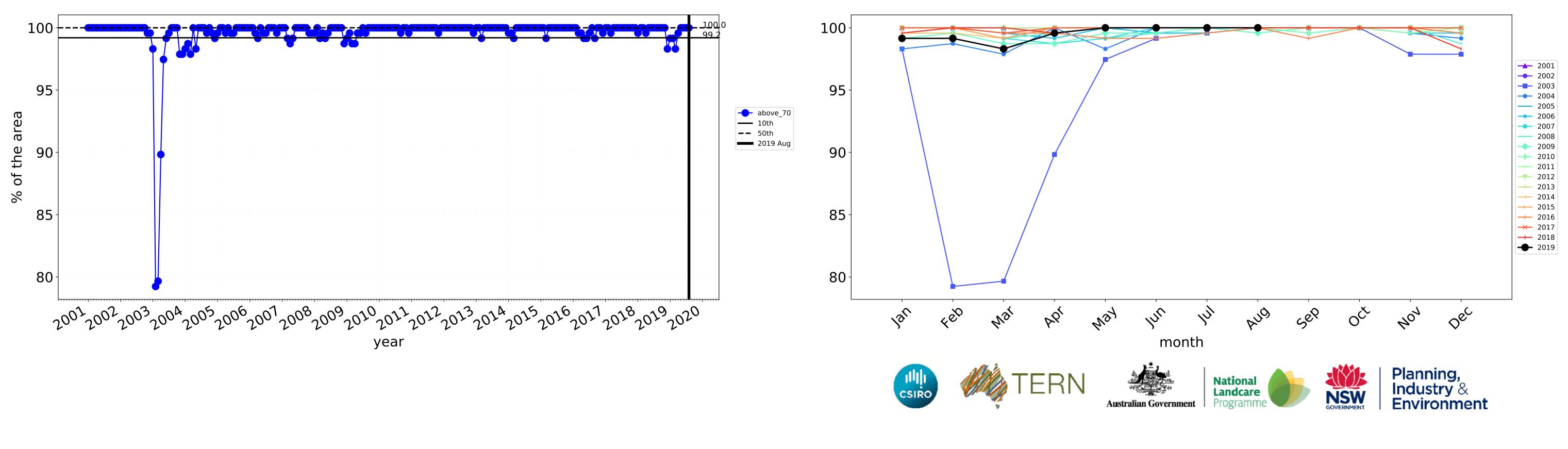




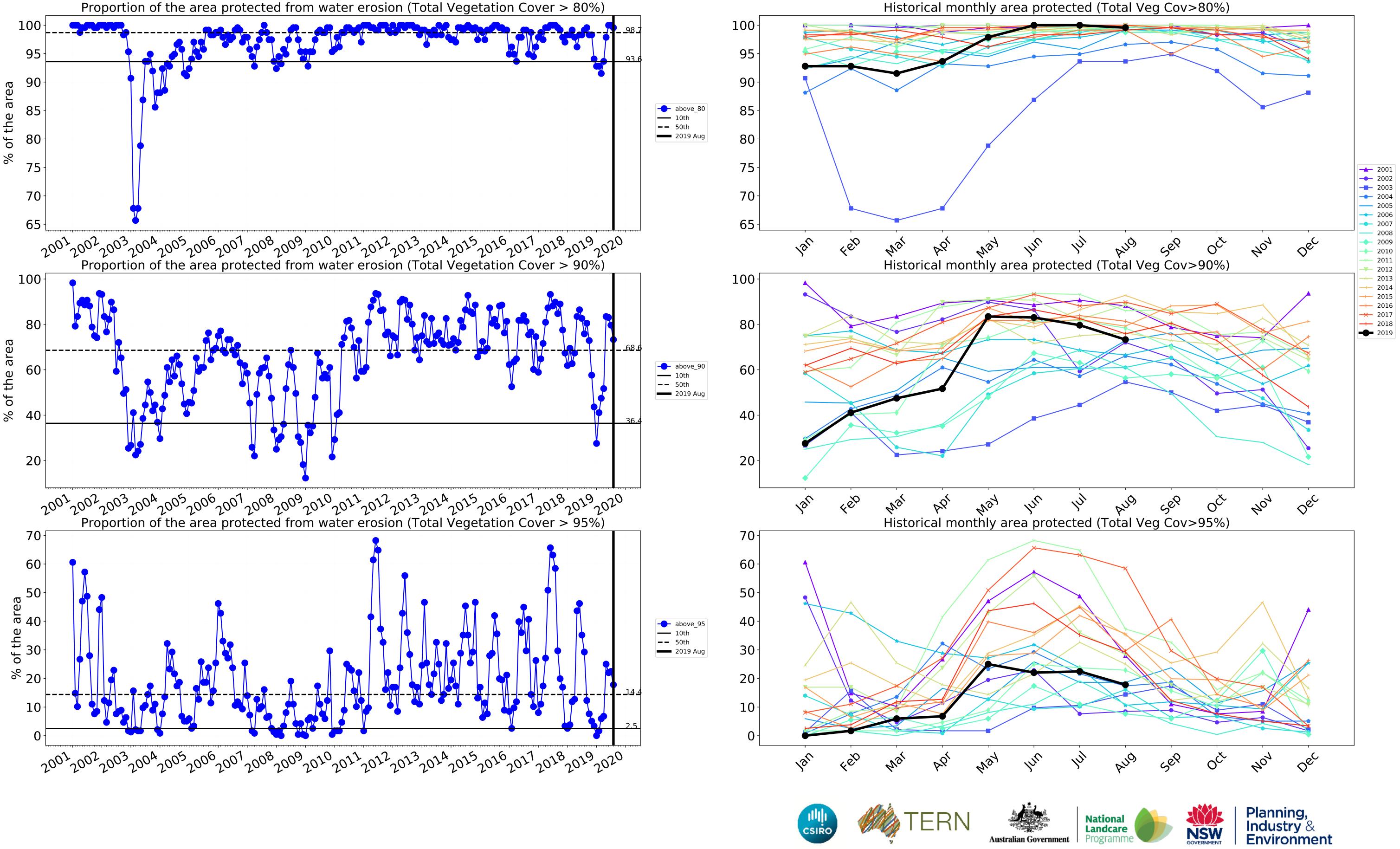
### **Conservation and natural environments Woodland forest timeseries**



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



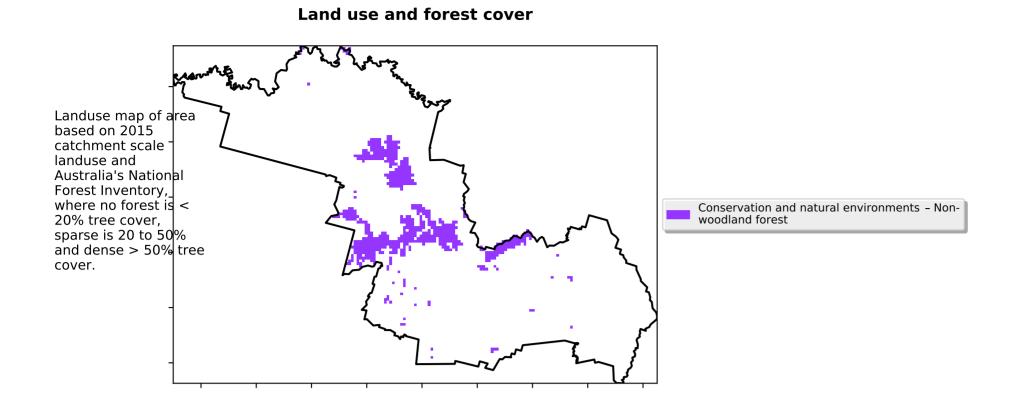
Water erosion historical monthly area protected (Total Veg Cov>70%)



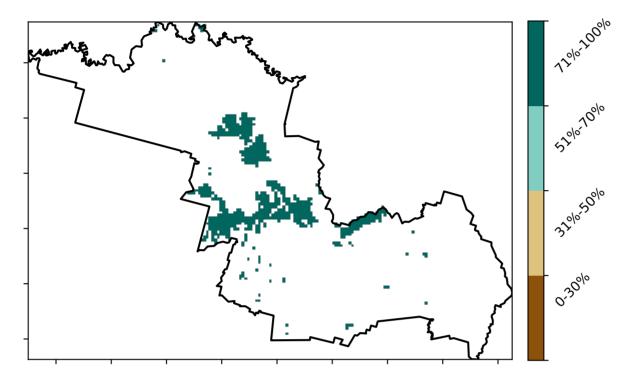
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



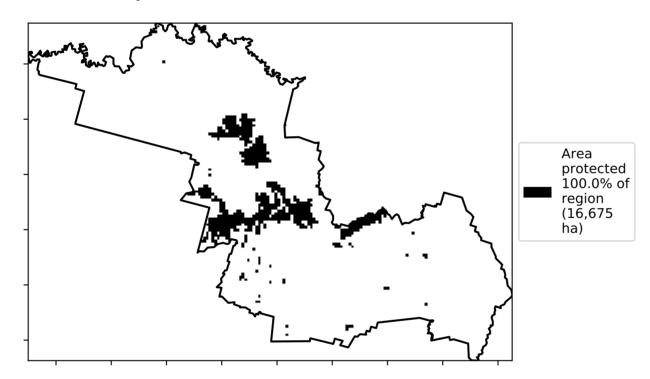
### **Conservation and natural environments Forest (non woodland)**



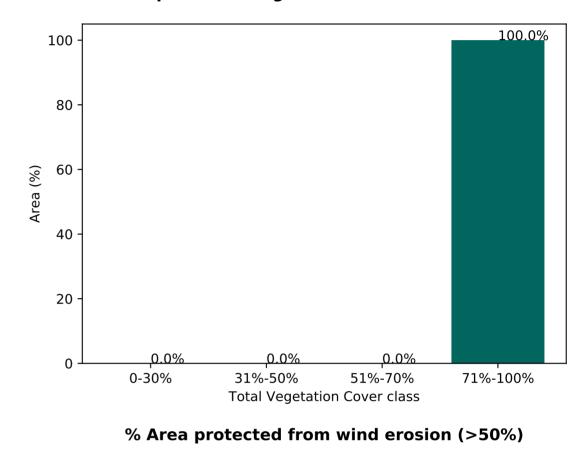
**Total Vegetation Cover [%]** 

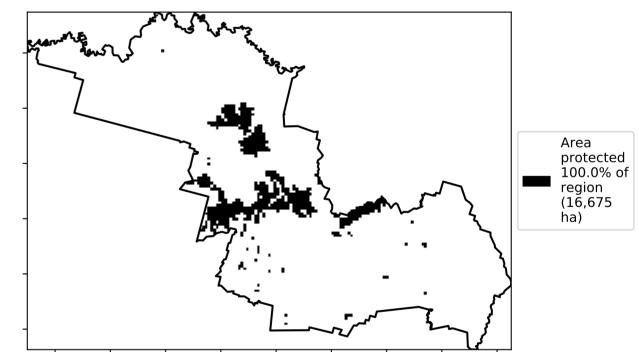


% Area protected from water erosion (>70%)

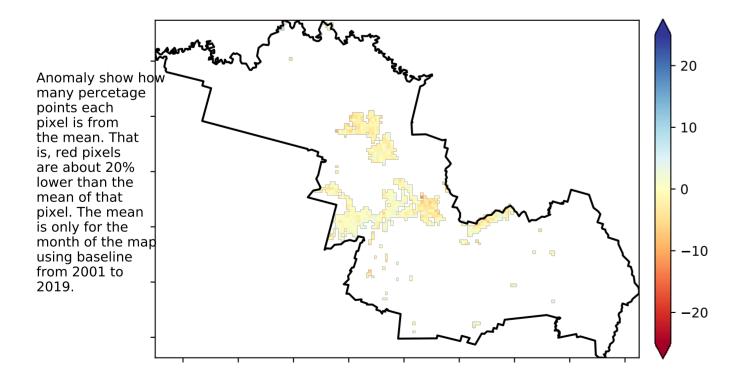


Proportion of vegetation cover class in area

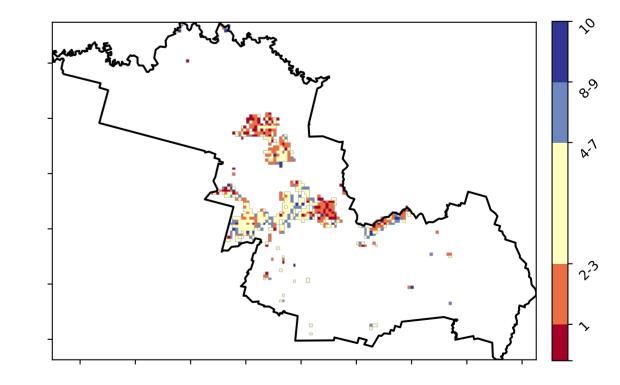




**Total Vegetation Cover Anomaly [%]** 



**Total Vegetation Cover Decile [%]** 

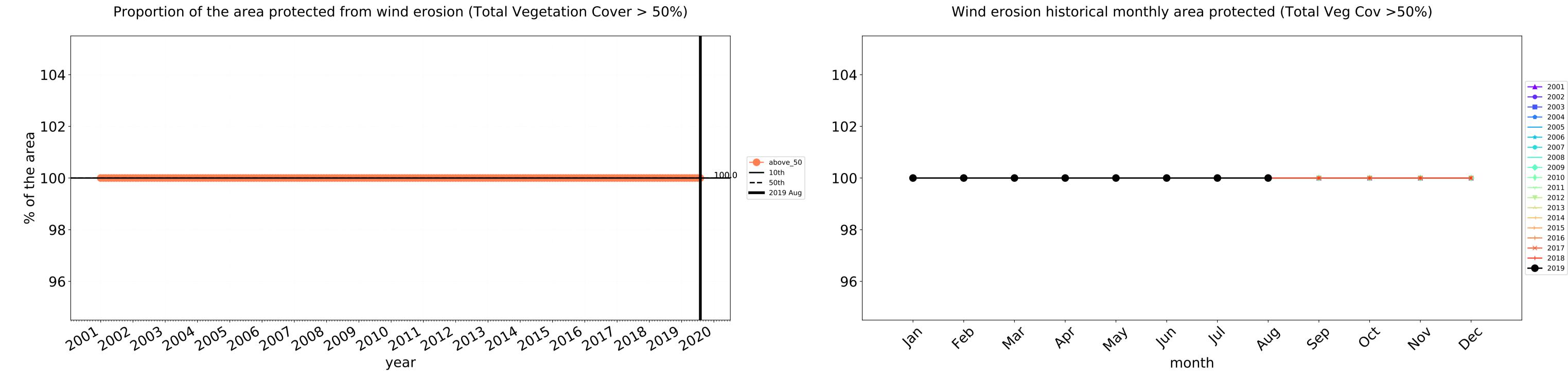




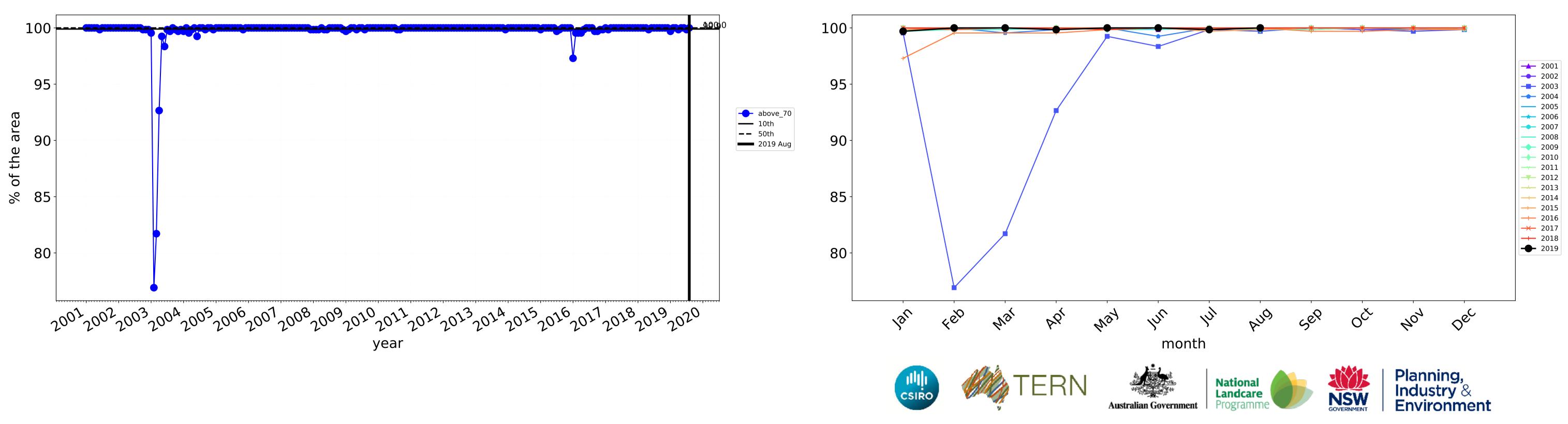
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline

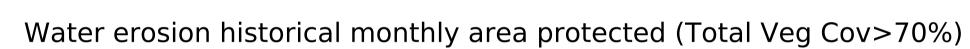
the map using baseline from 2001 to 2019.

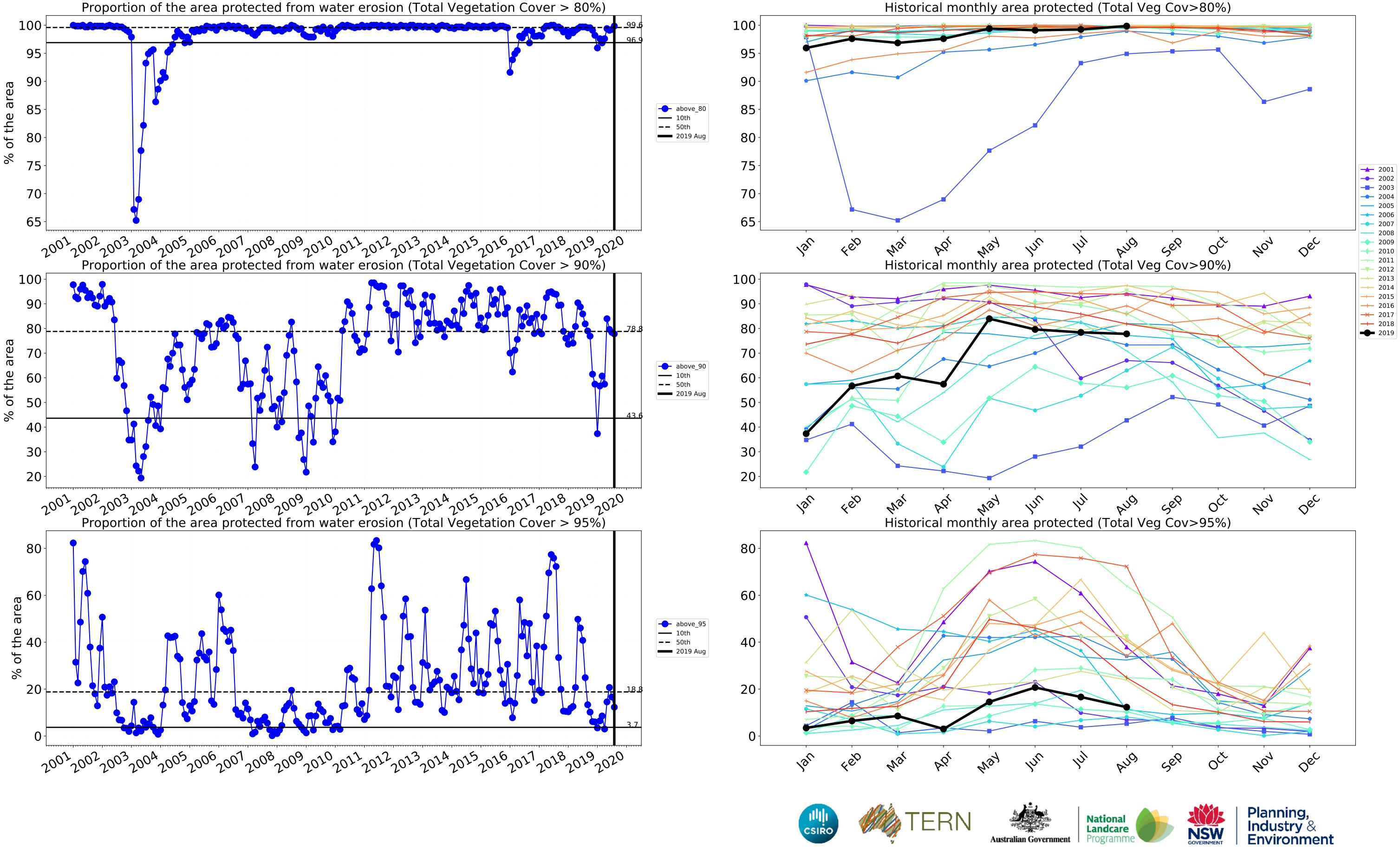
### **Conservation and natural environments Forest (non woodland) timeseries**



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

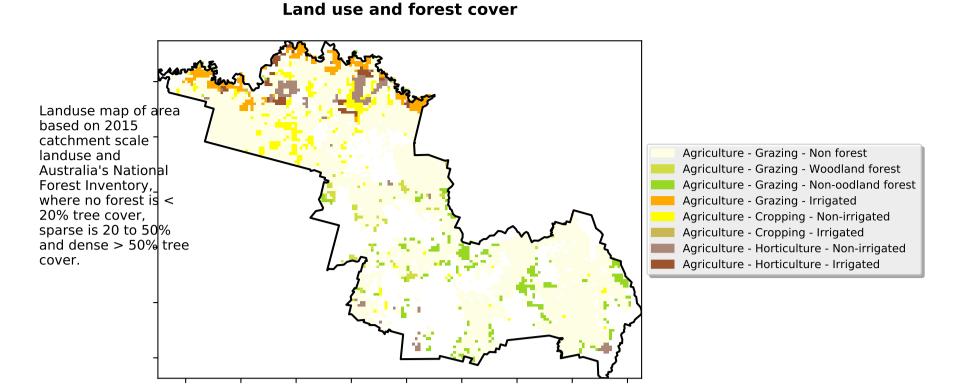




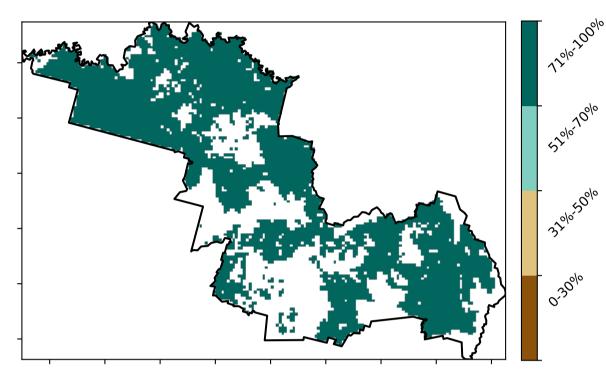


**3** 

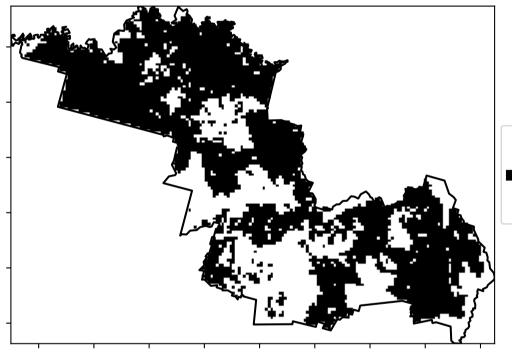
### Agriculture



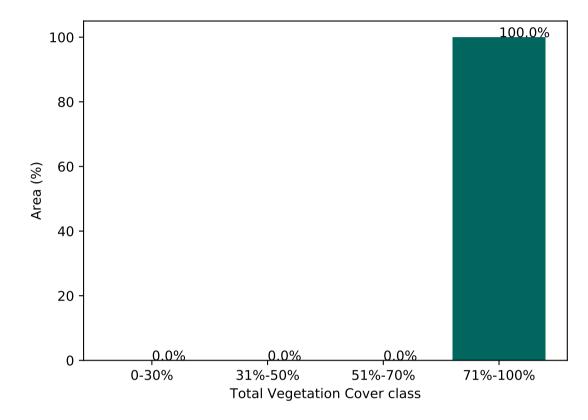
**Total Vegetation Cover [%]** 



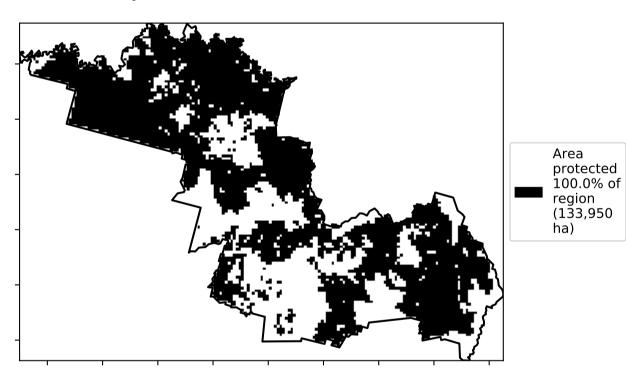
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area

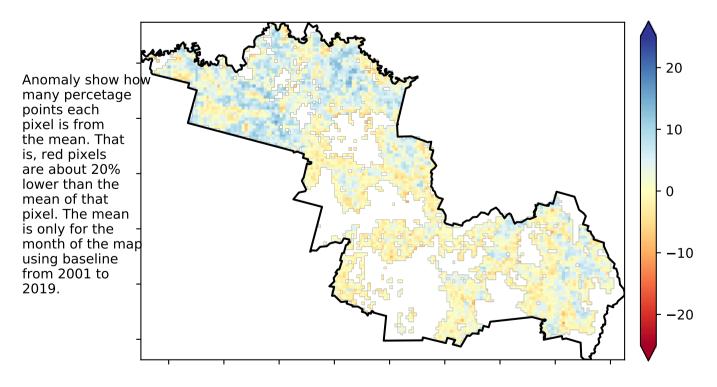


### % Area protected from wind erosion (>50%)



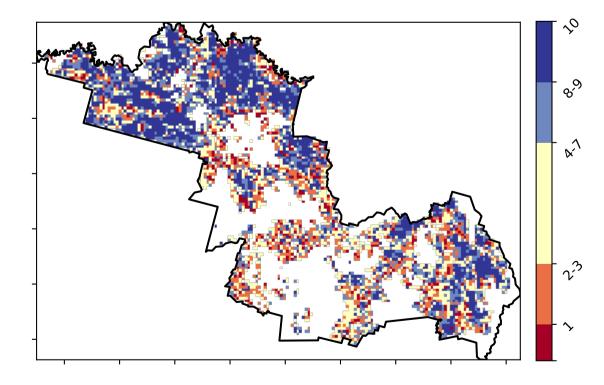
Area protected 100.0% of region (133,950 ha)

Total Vegetation Cover Anomaly [%]

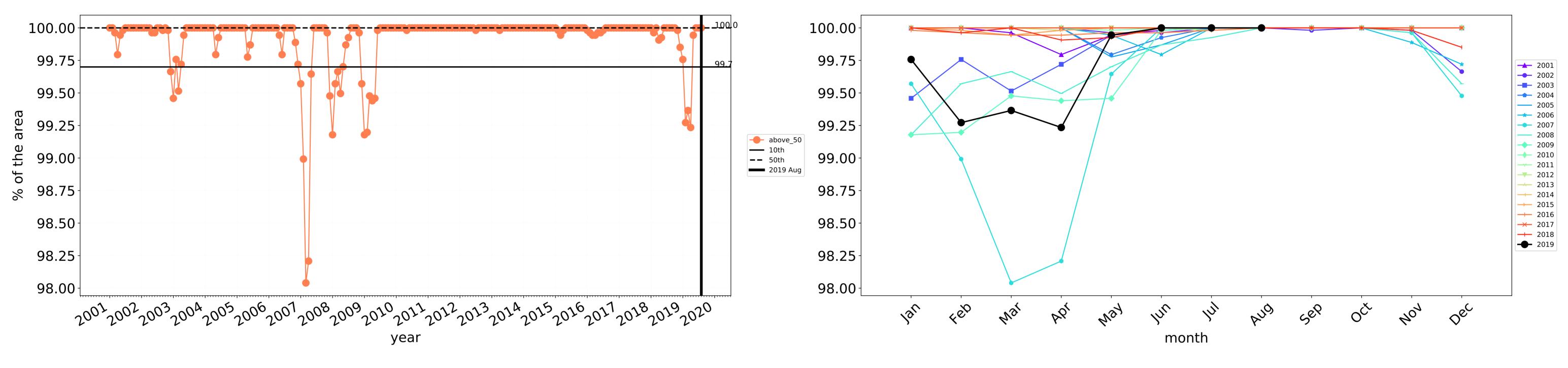


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

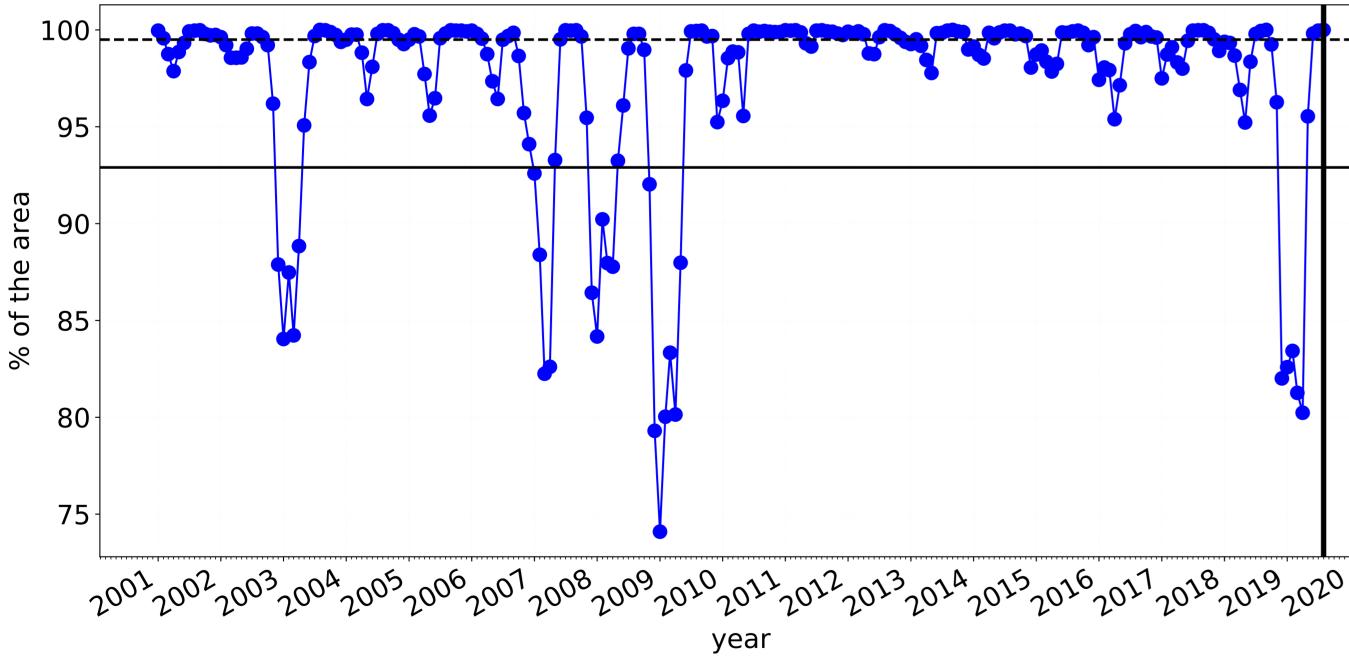
Total Vegetation Cover Decile [%]

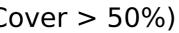






Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

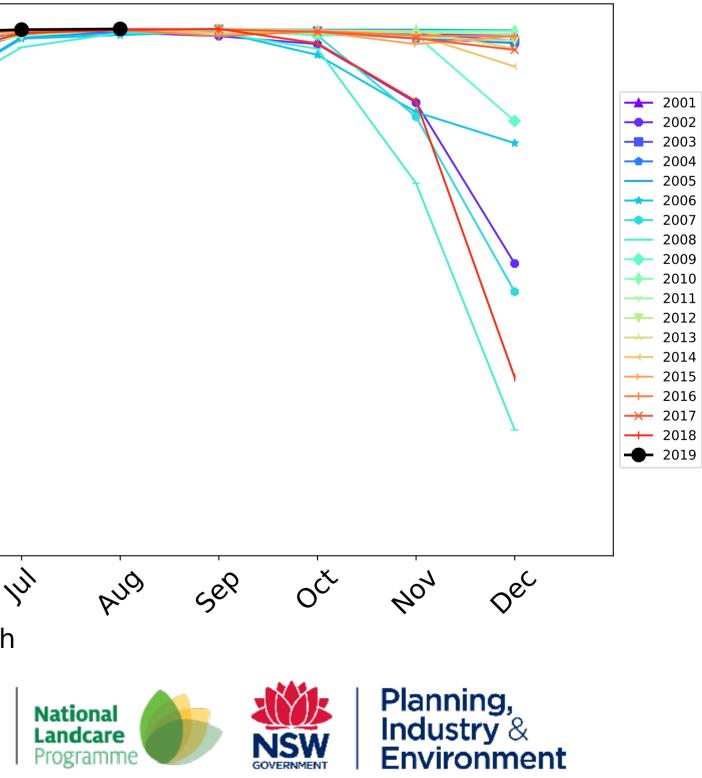


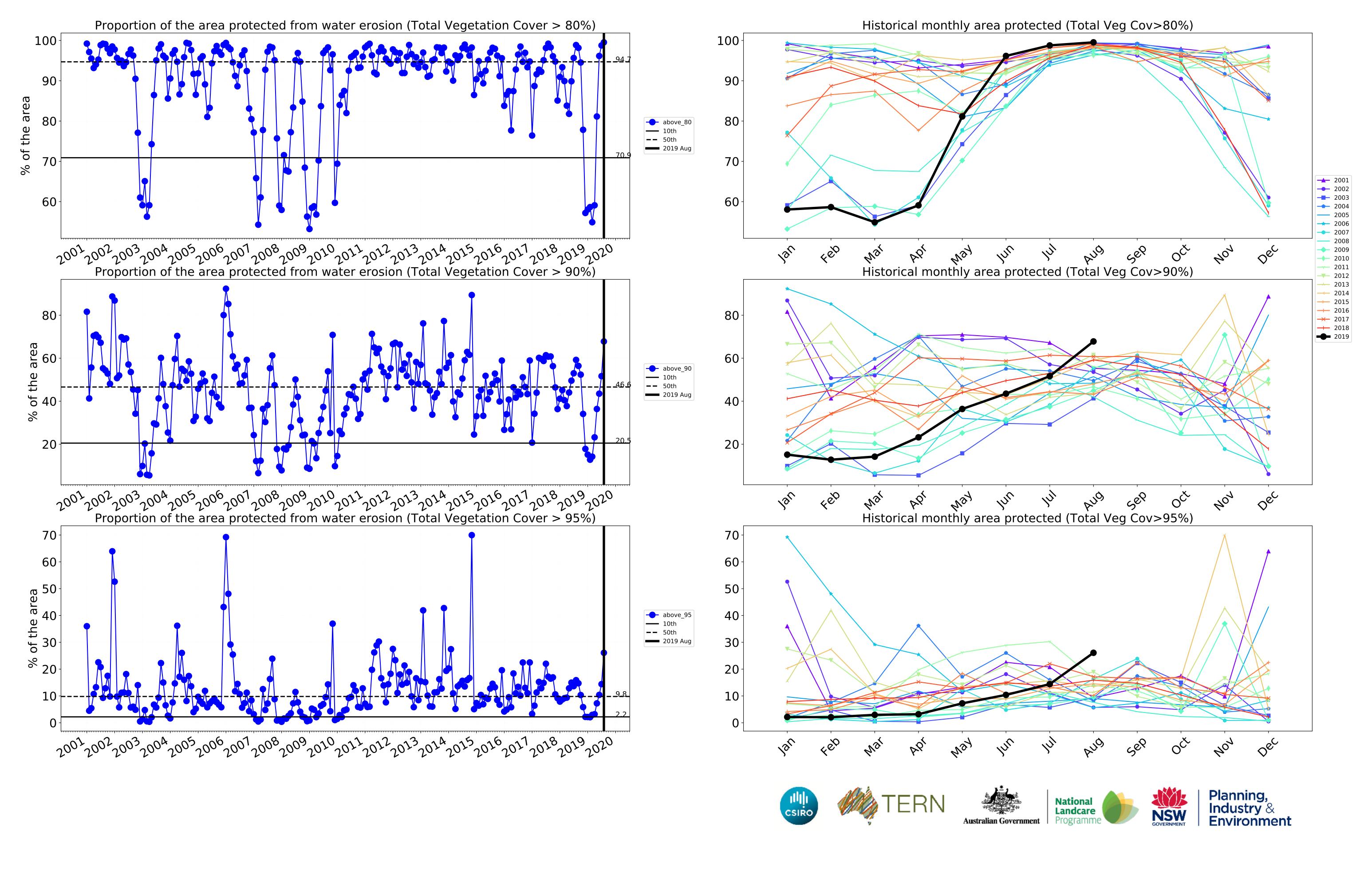


Wind erosion historical monthly area protected (Total Veg Cov >50%)

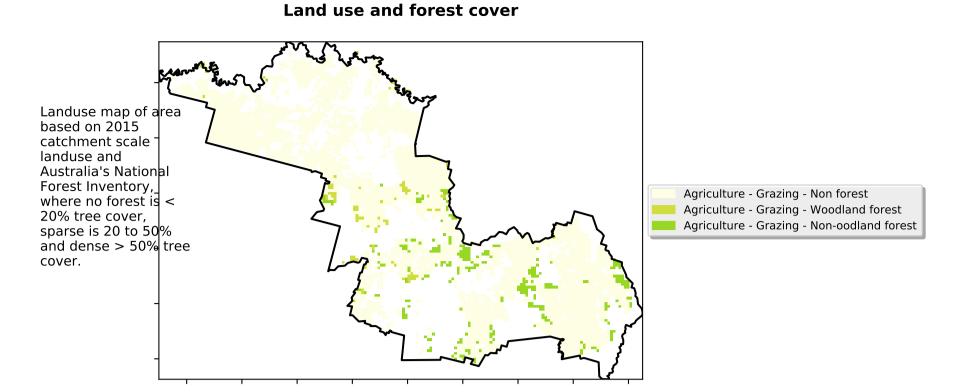
100 99 95 ---- above\_70 **—** 10th 90 **——** 50th 2019 Aug 85 80 75 feb Jan May Inu PQ Way month ΓERN CSIRO Australian Government

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

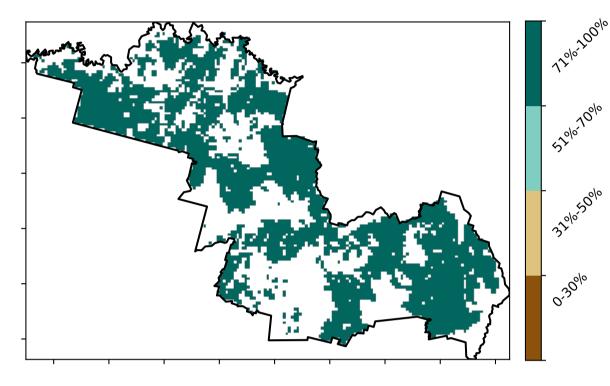




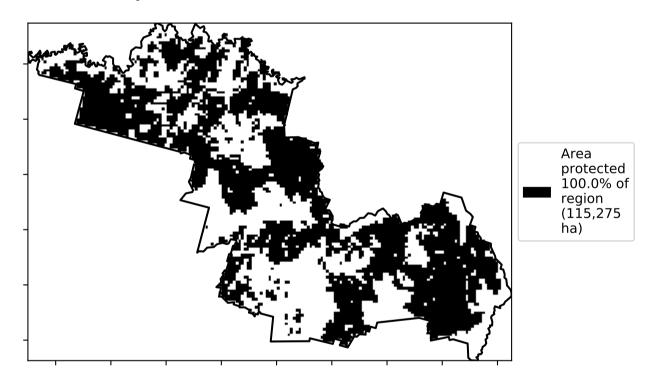
### Grazing



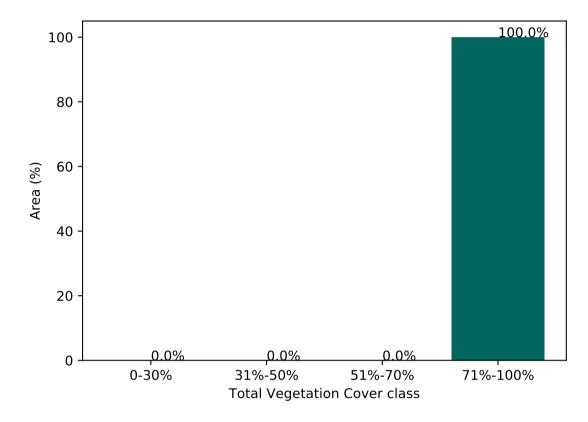
**Total Vegetation Cover [%]** 



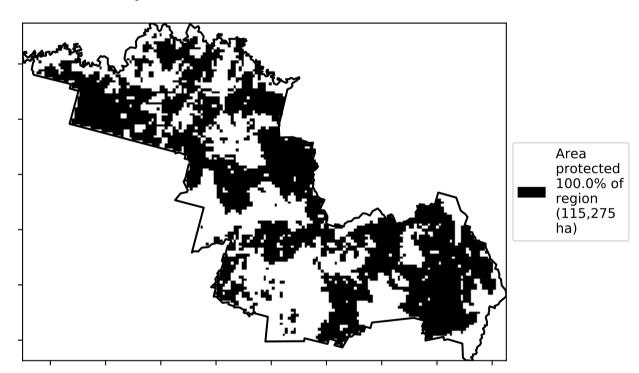
% Area protected from water erosion (>70%)



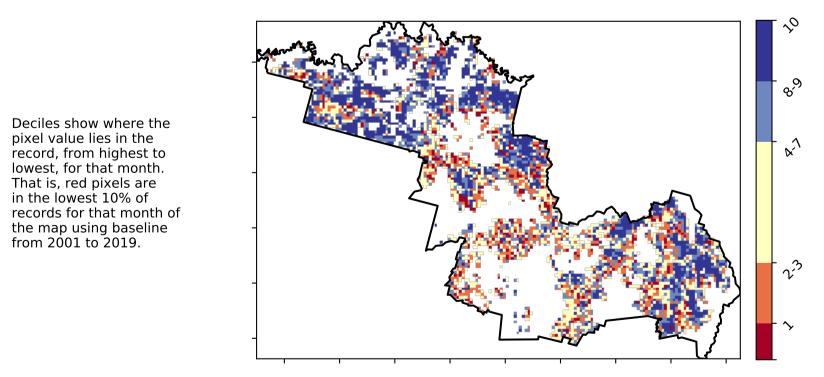
Proportion of vegetation cover class in area



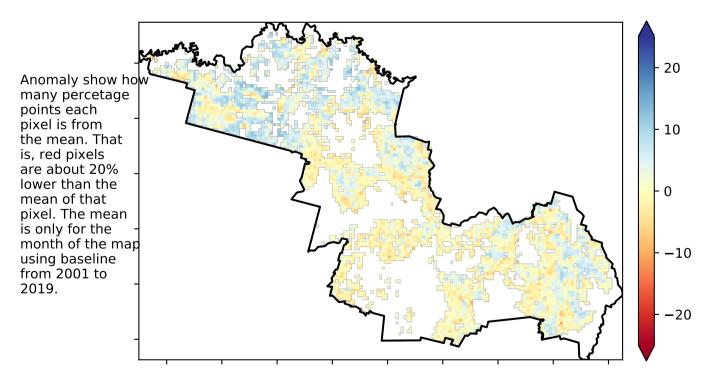
### % Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]

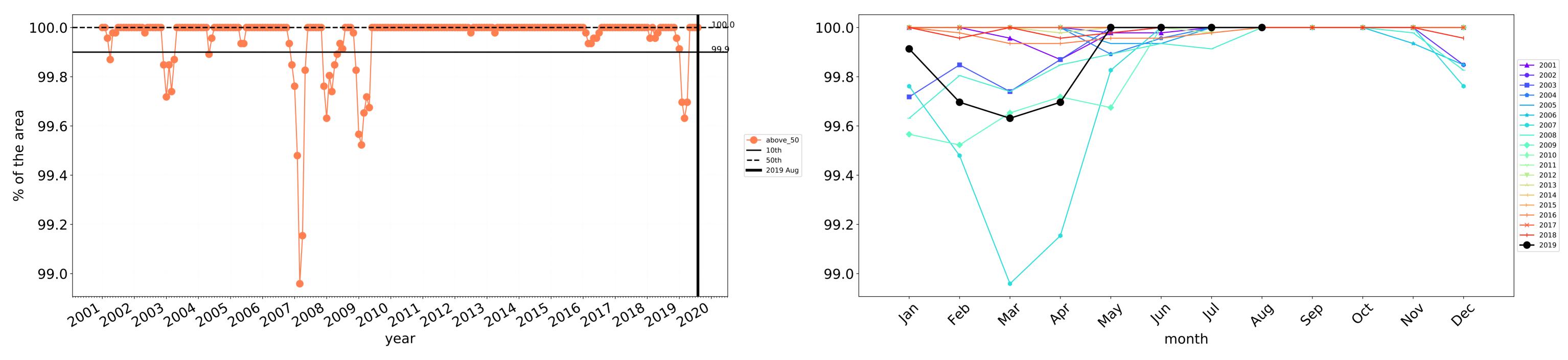


**Total Vegetation Cover Anomaly [%]** 



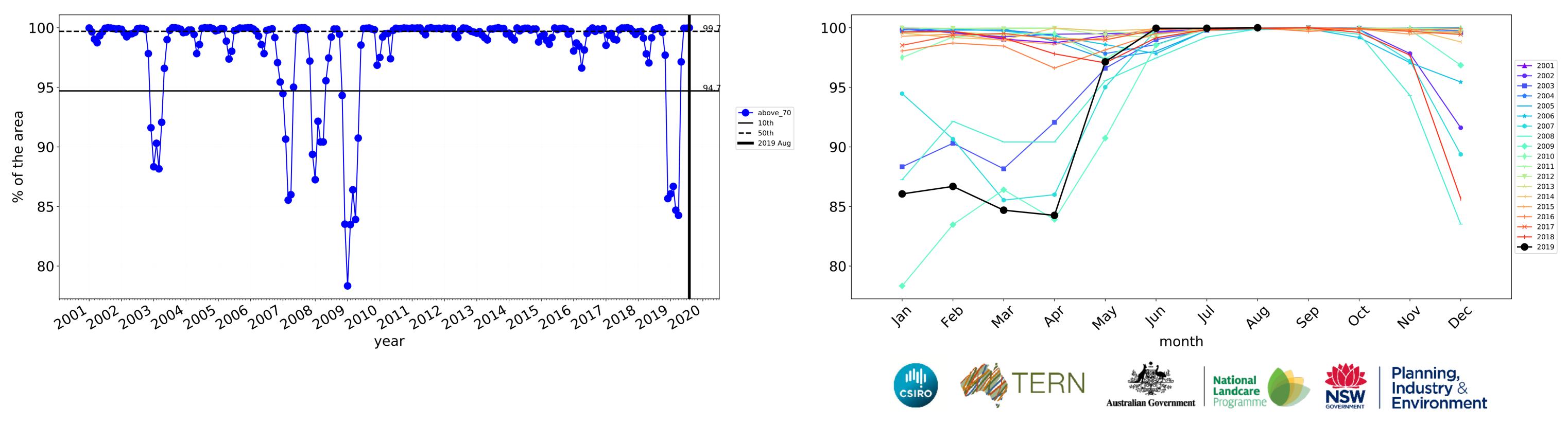


the map using baseline from 2001 to 2019.



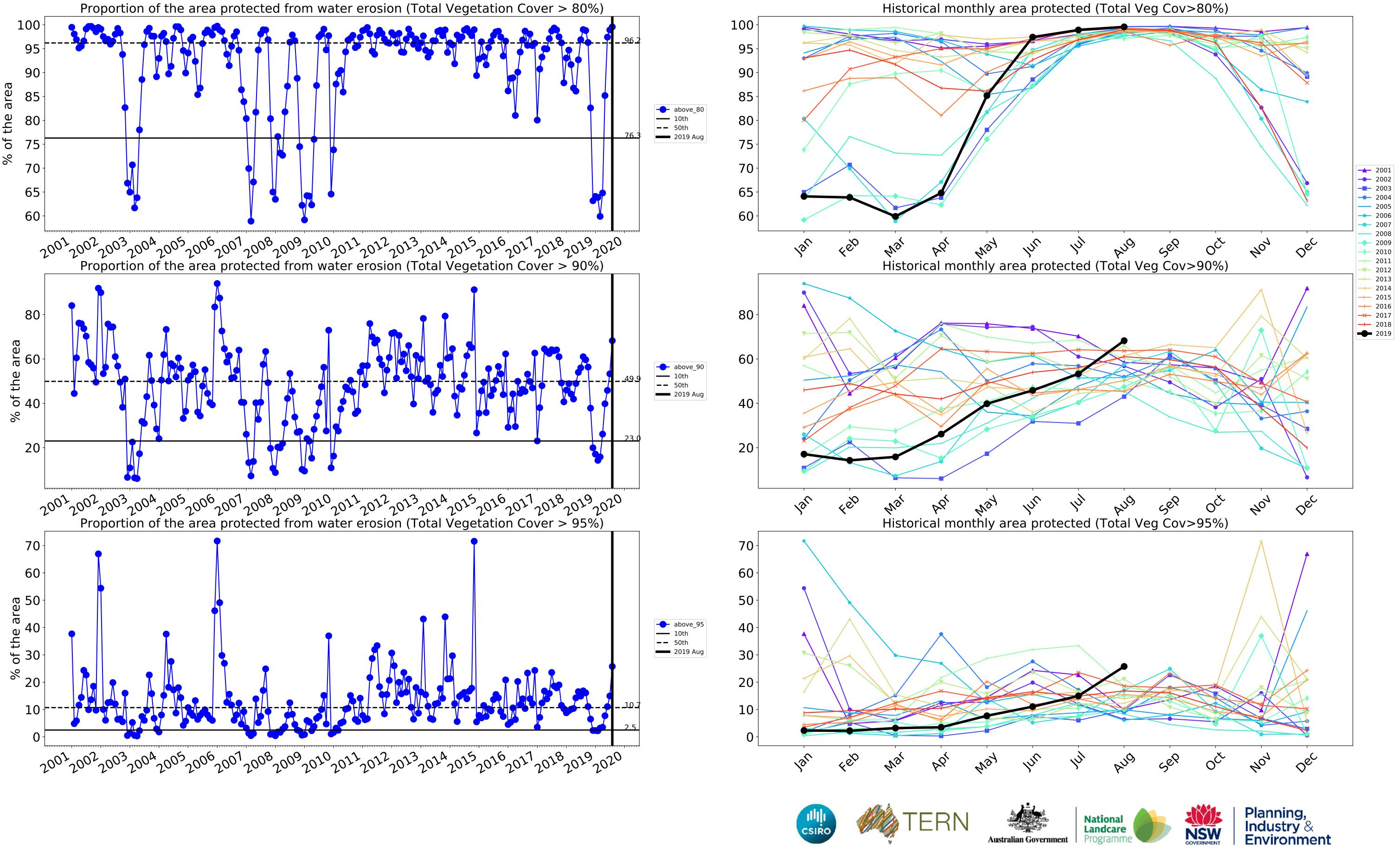
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

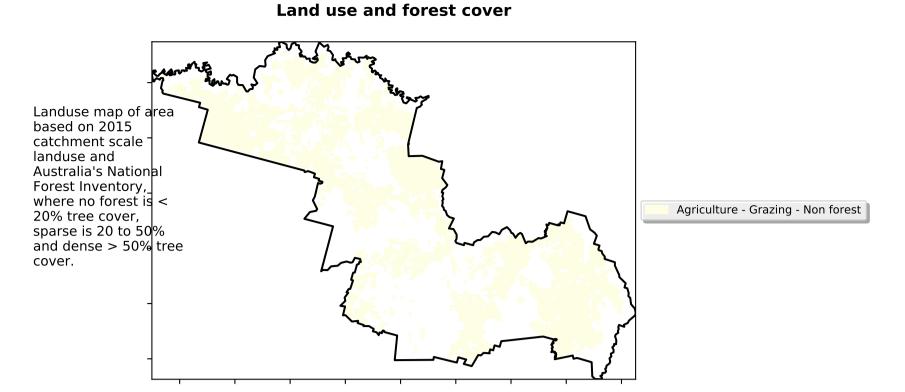




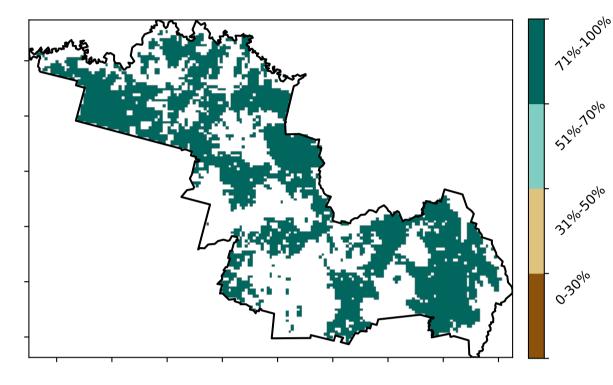
Water erosion historical monthly area protected (Total Veg Cov>70%)



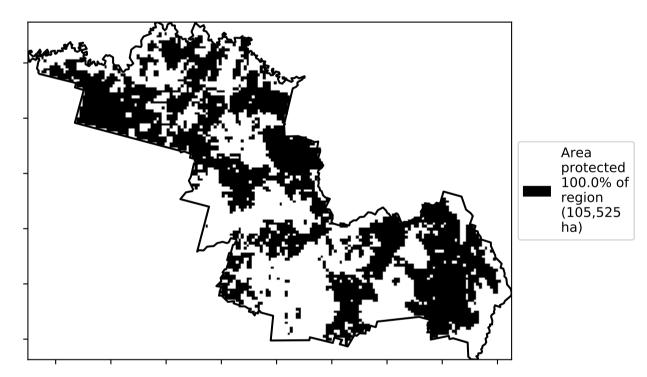
### **Grazing non forest**



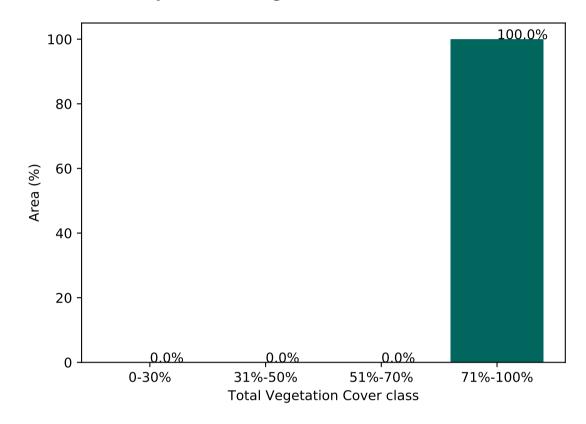
Total Vegetation Cover [%]



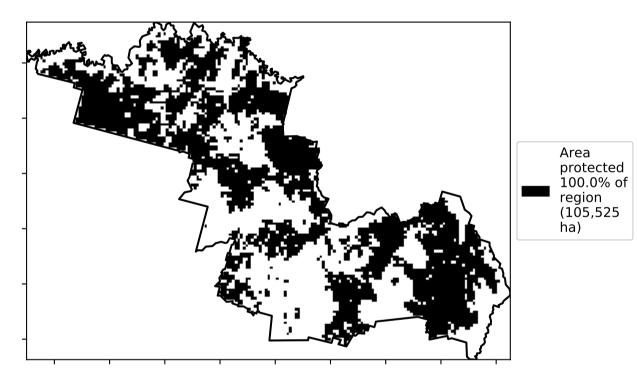
% Area protected from water erosion (>70%)



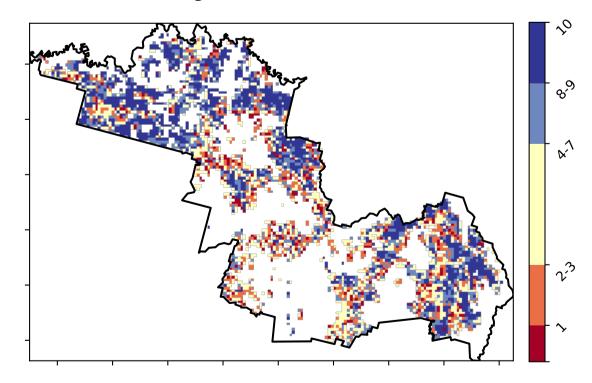
Proportion of vegetation cover class in area



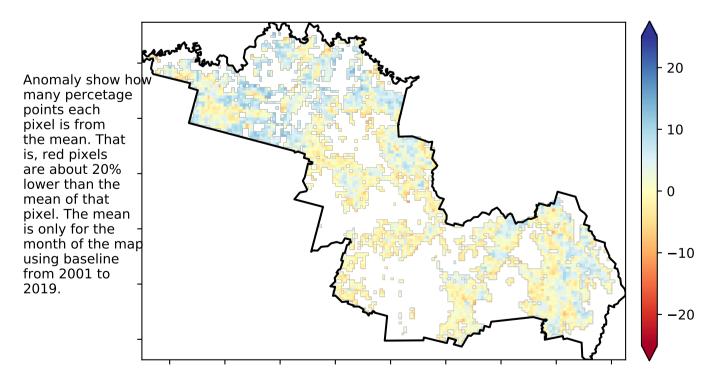
### % Area protected from wind erosion (>50%)







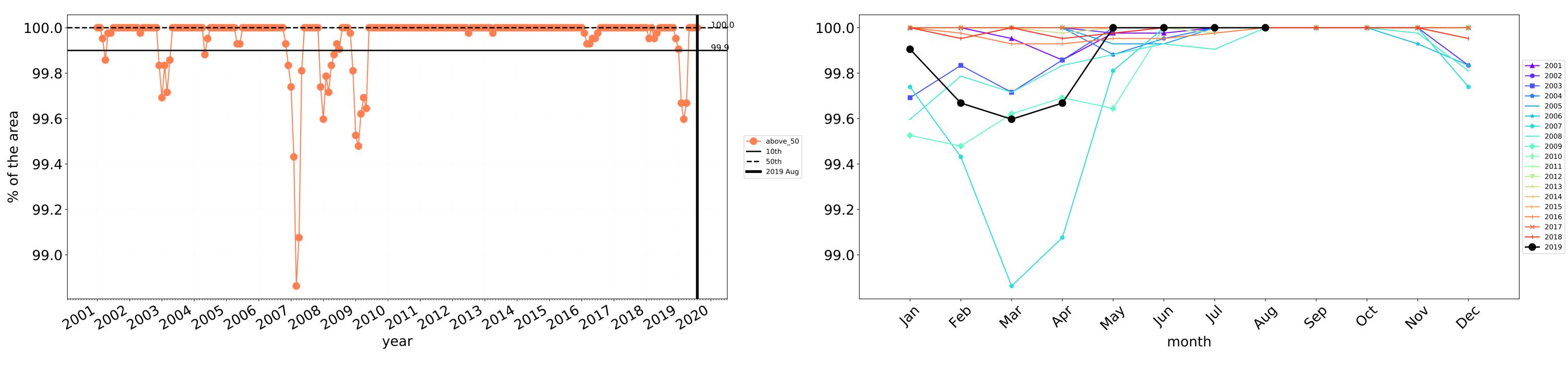
**Total Vegetation Cover Anomaly [%]** 



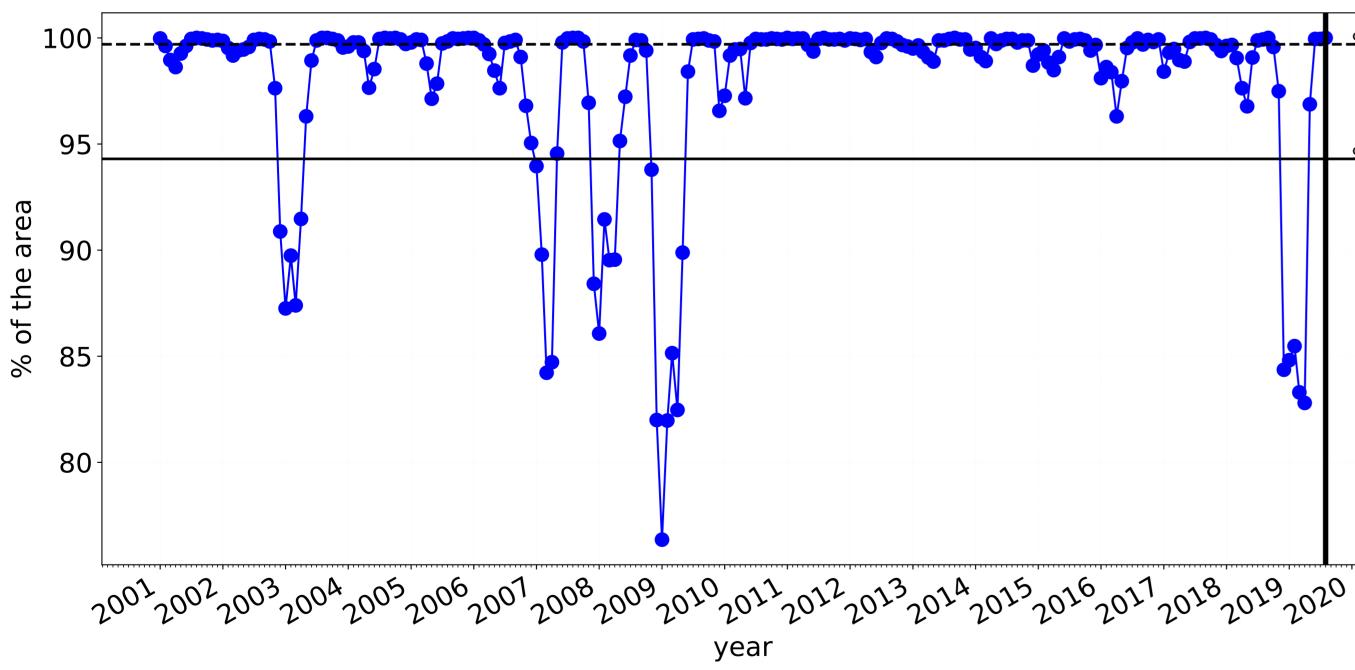
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



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

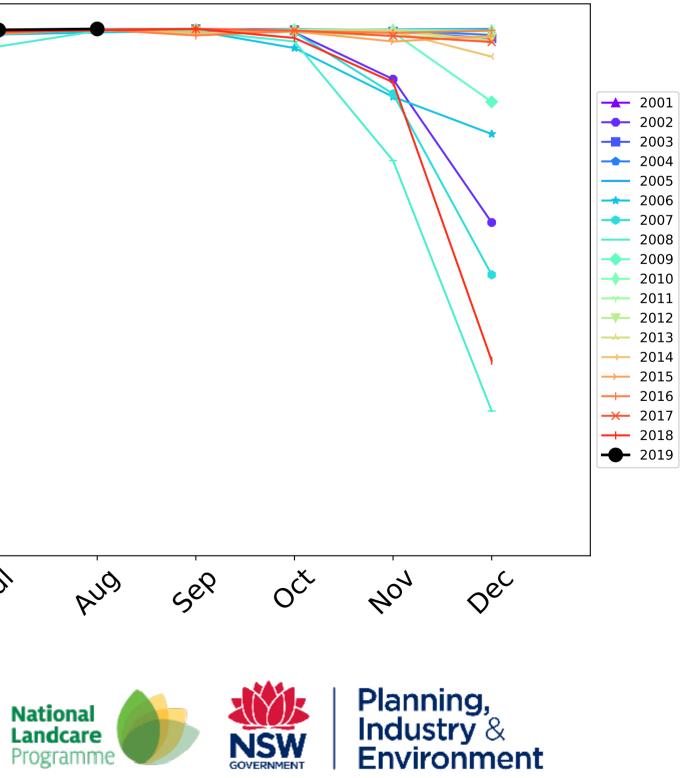


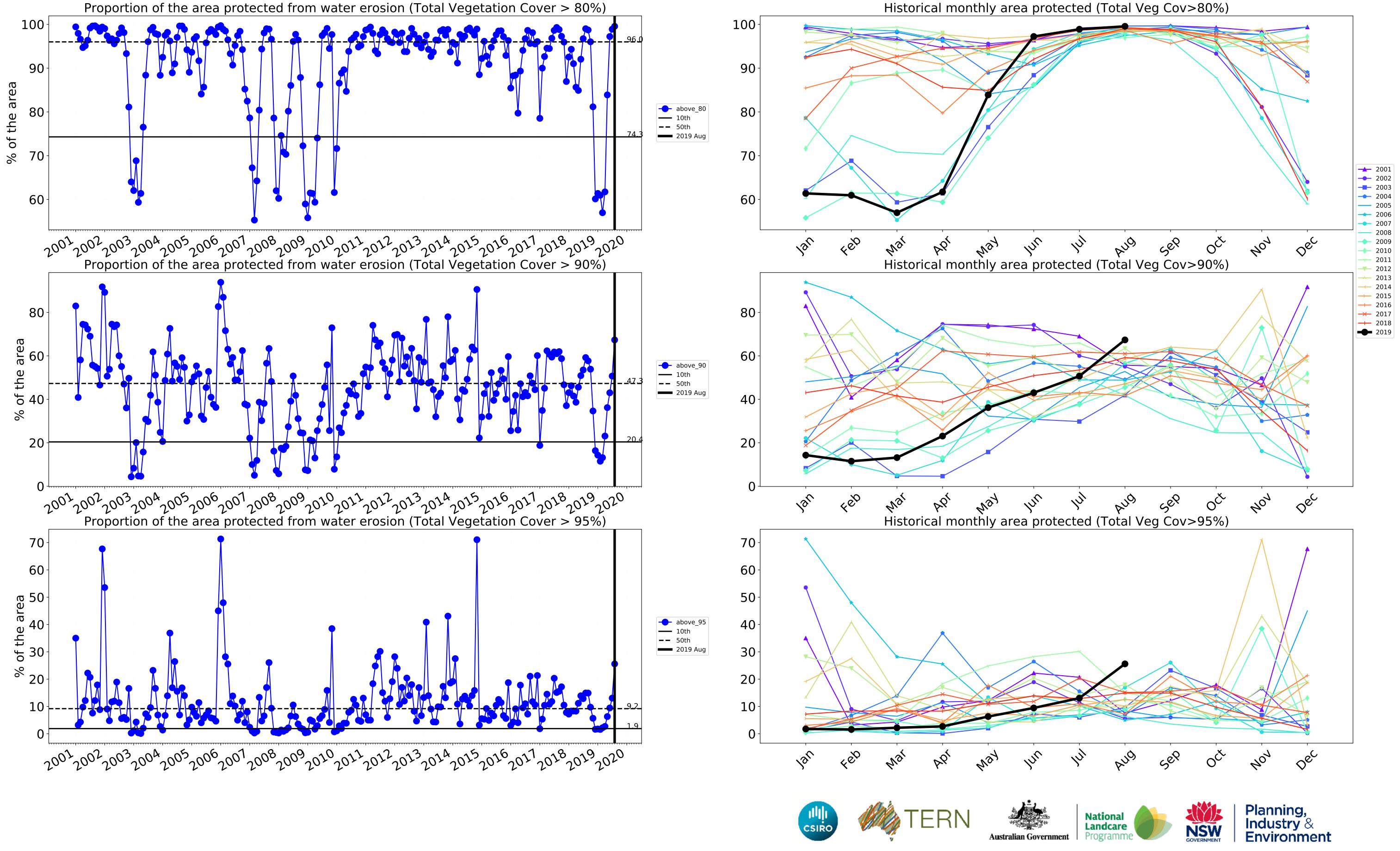
### Grazing non forest timeseries

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

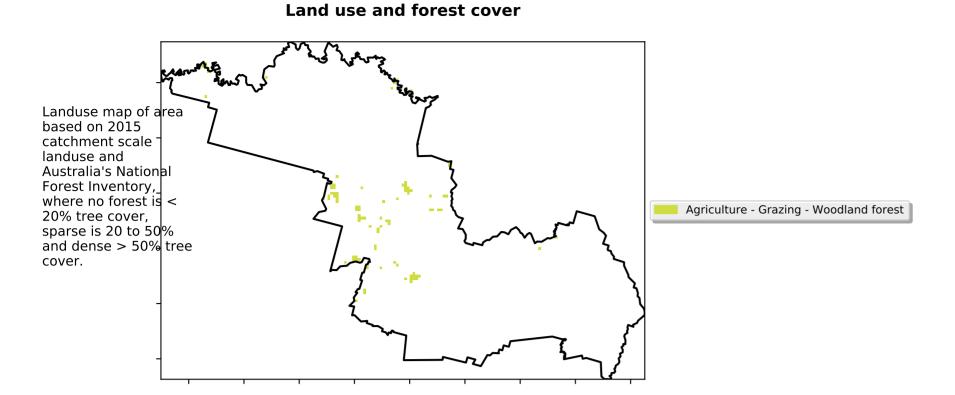
100 95 Q1 ---- above\_70 **——** 10th **——** 50th 90 **—** 2019 Aug 85 80 Jan feb May PP In Mar 1st month FERN CSIRC Australian Government

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

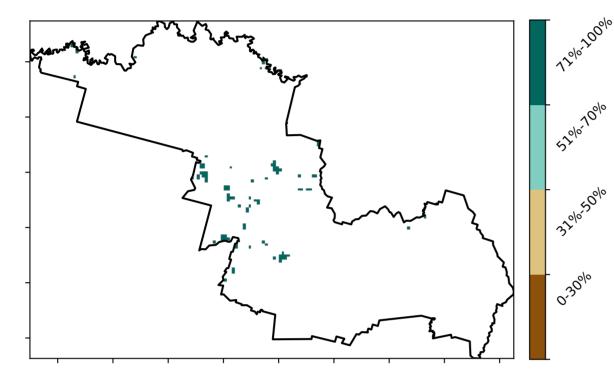




### **Grazing Woodland forest**



**Total Vegetation Cover [%]** 

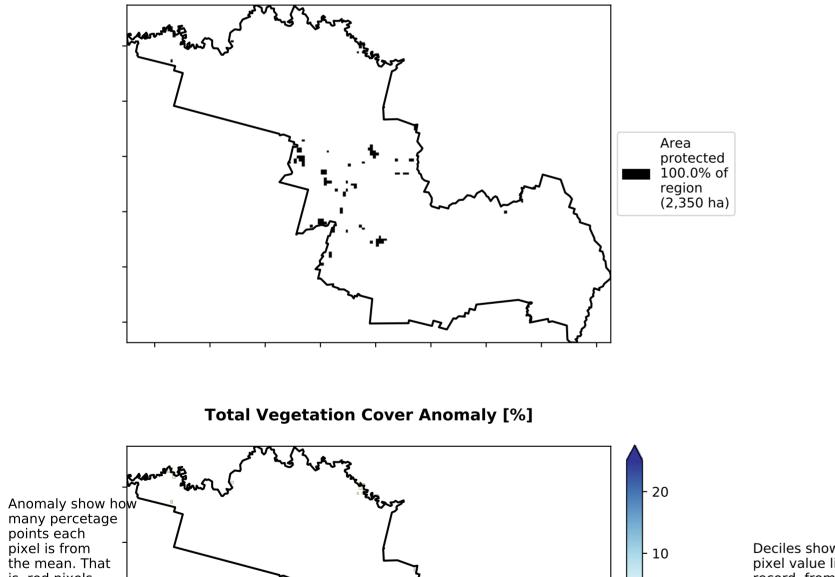


% Area protected from water erosion (>70%)

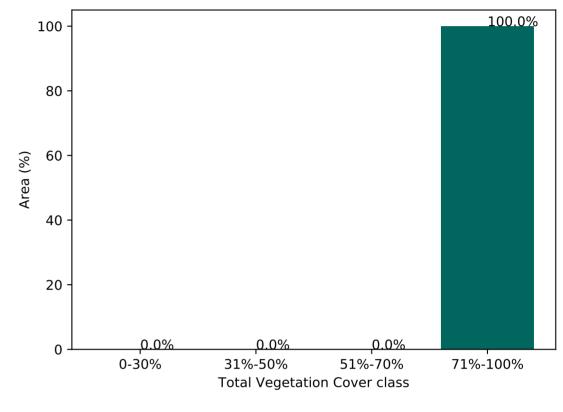
is, red pixels are about 20% lower than the

mean of that

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



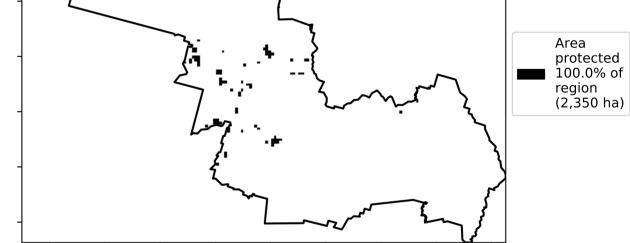
Proportion of vegetation cover class in area



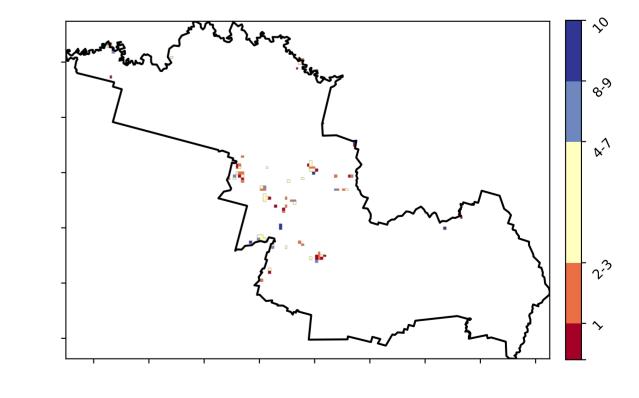
% Area protected from wind erosion (>50%)



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 [%]** 

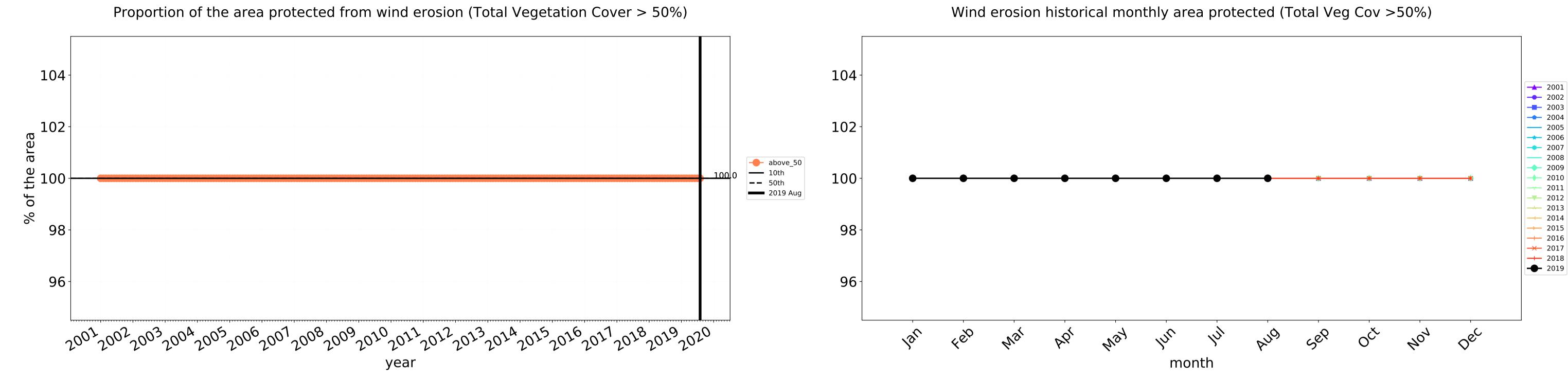


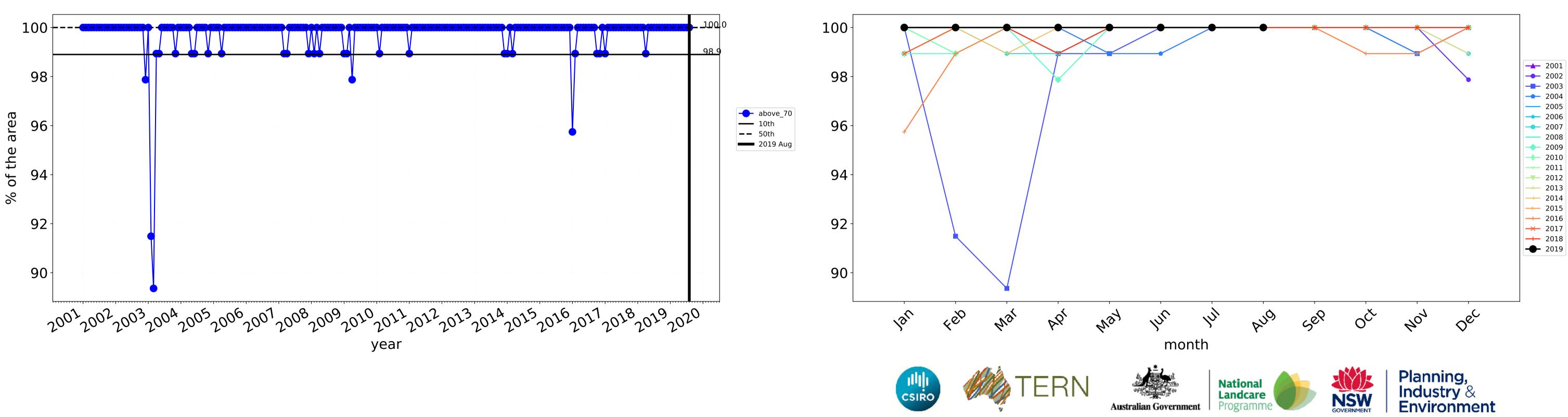


0

-10

-20

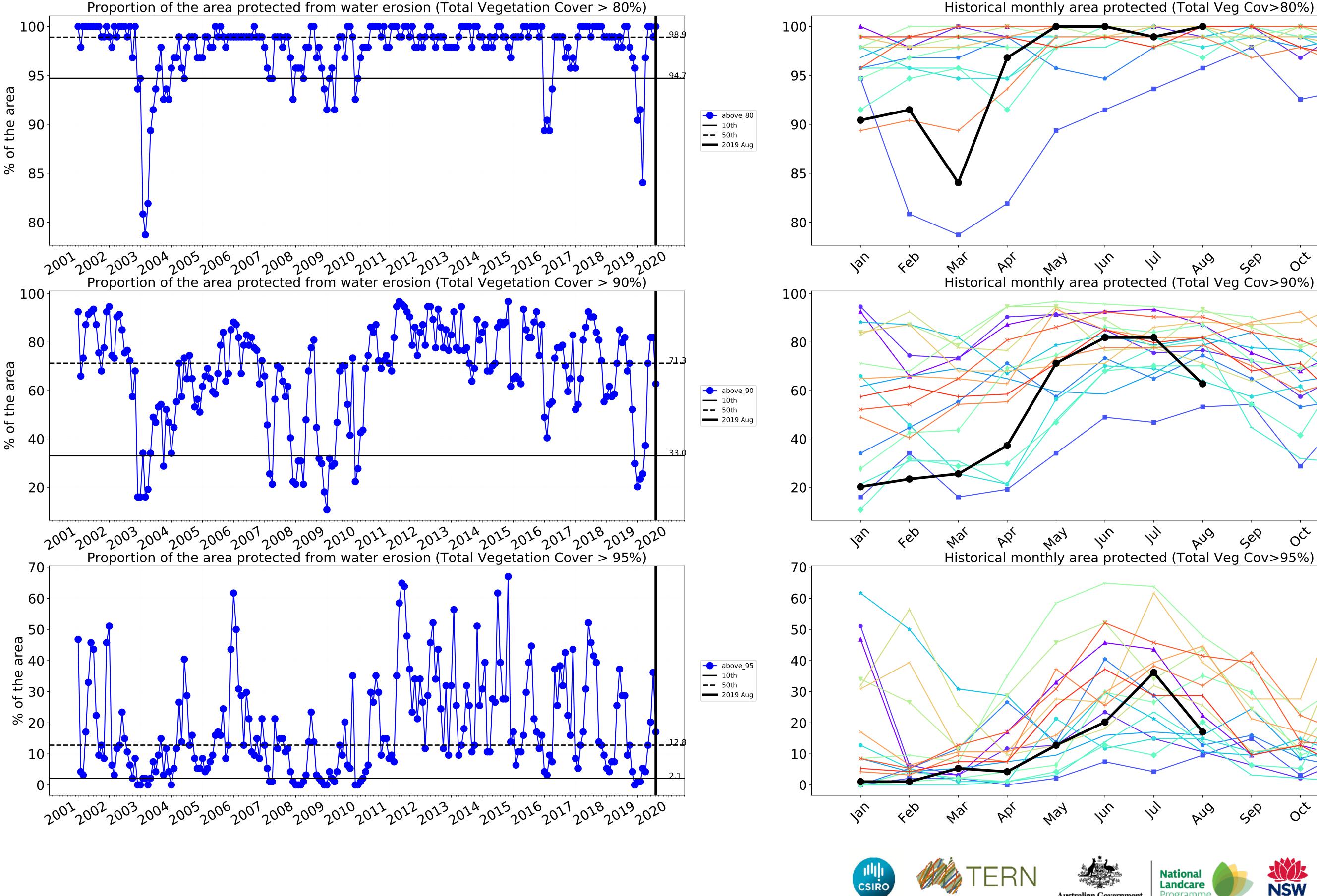




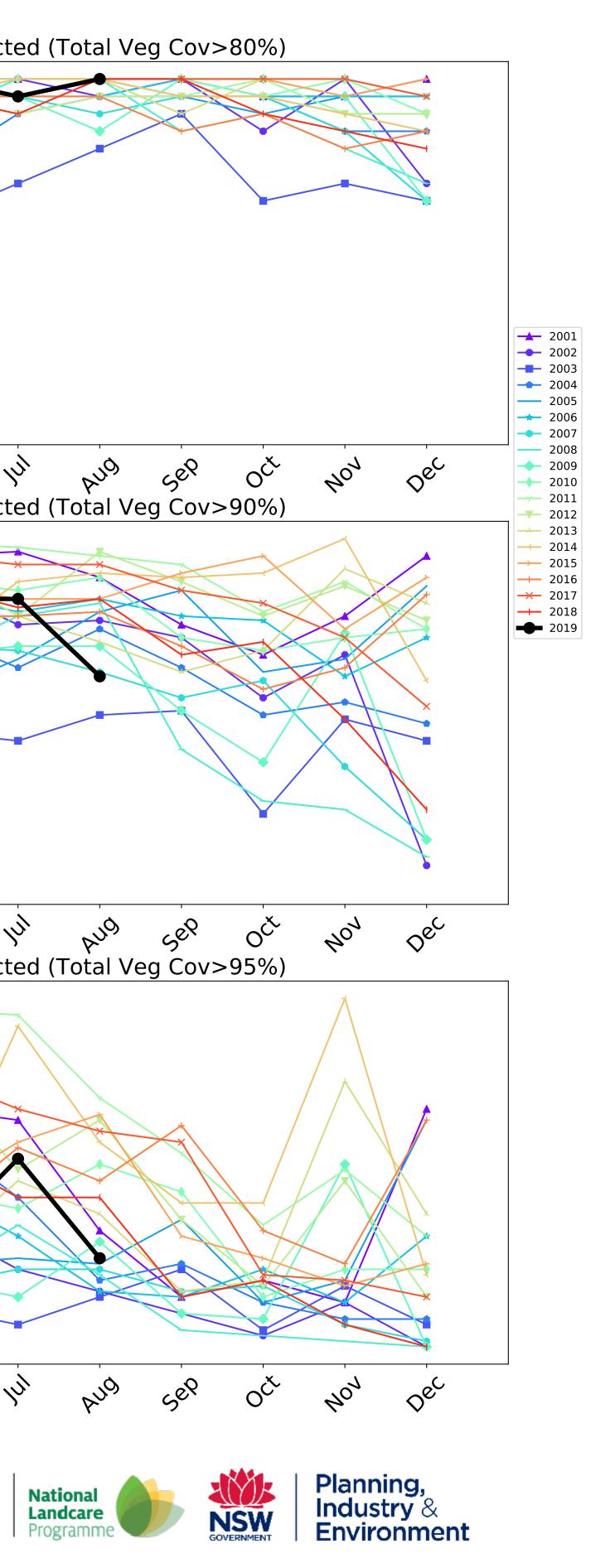
## **Grazing Woodland forest timeseries**

2**3** 

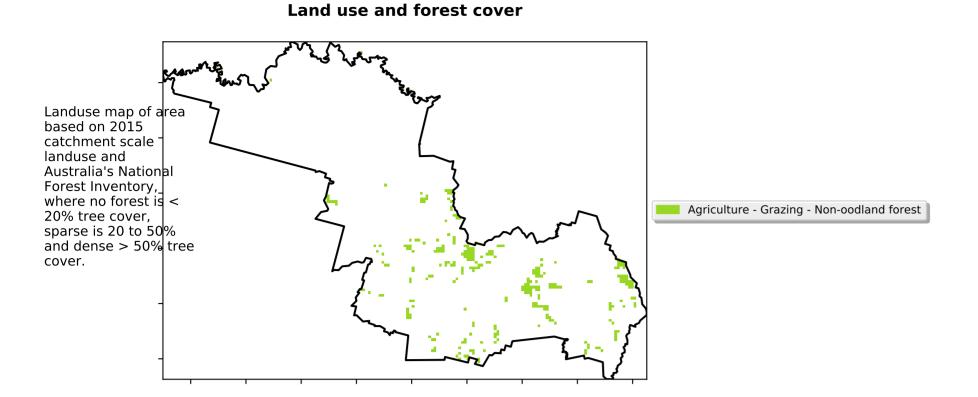
## Water erosion historical monthly area protected (Total Veg Cov>70%)



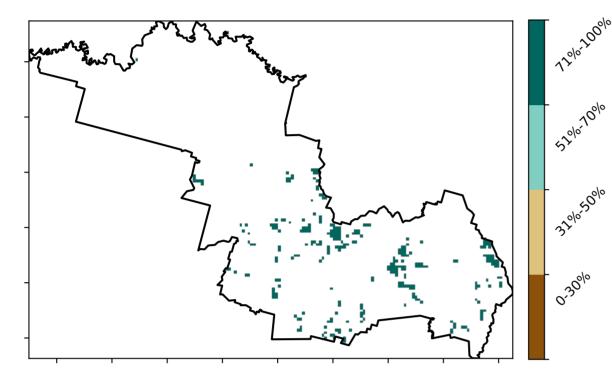
Australian Government



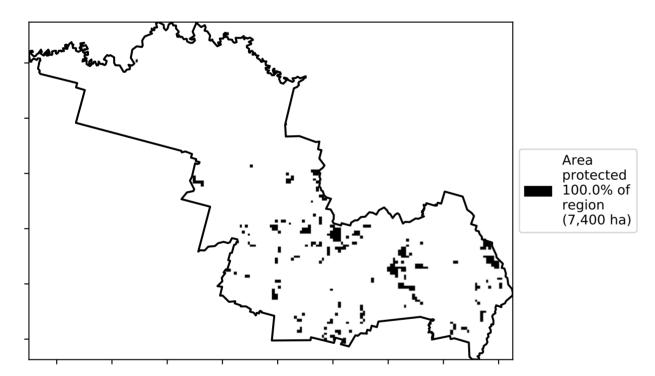
### Grazing - Forest (non woodland)



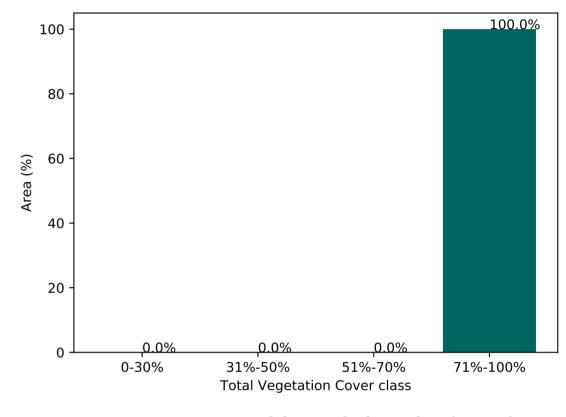
Total Vegetation Cover [%]



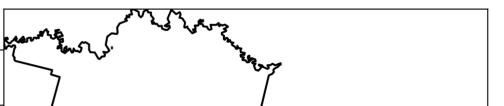
% Area protected from water erosion (>70%)



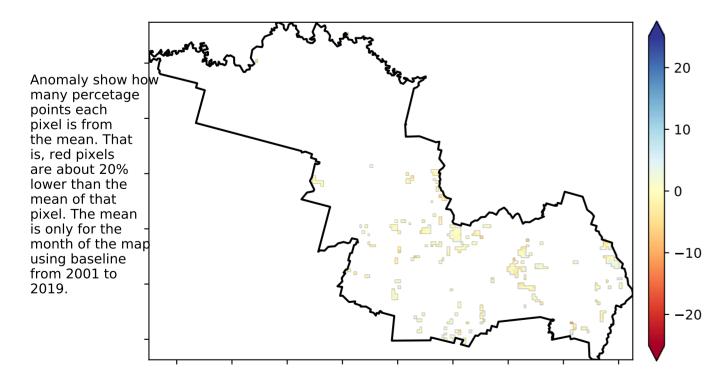
Proportion of vegetation cover class in area



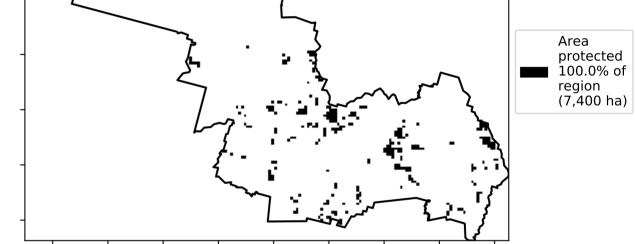
% Area protected from wind erosion (>50%)

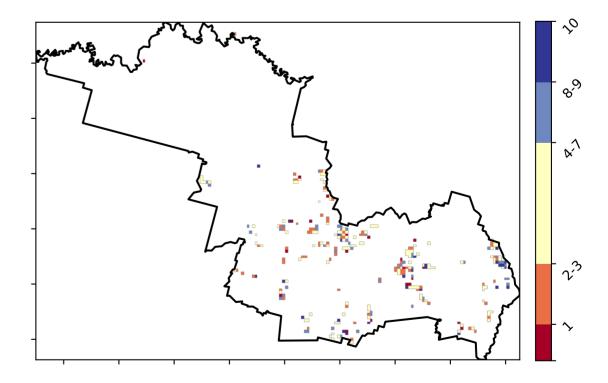


Total Vegetation Cover Anomaly [%]

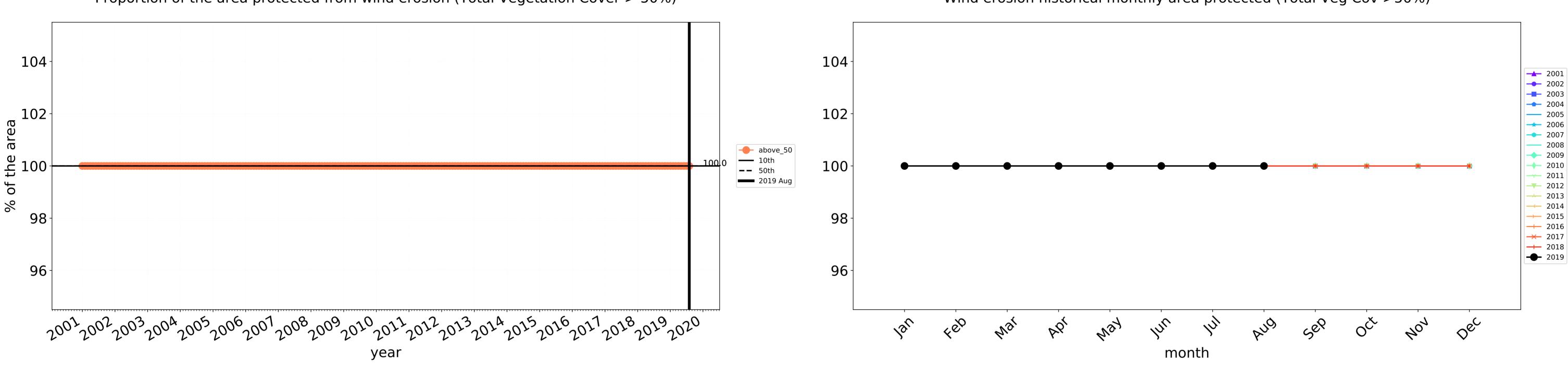


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

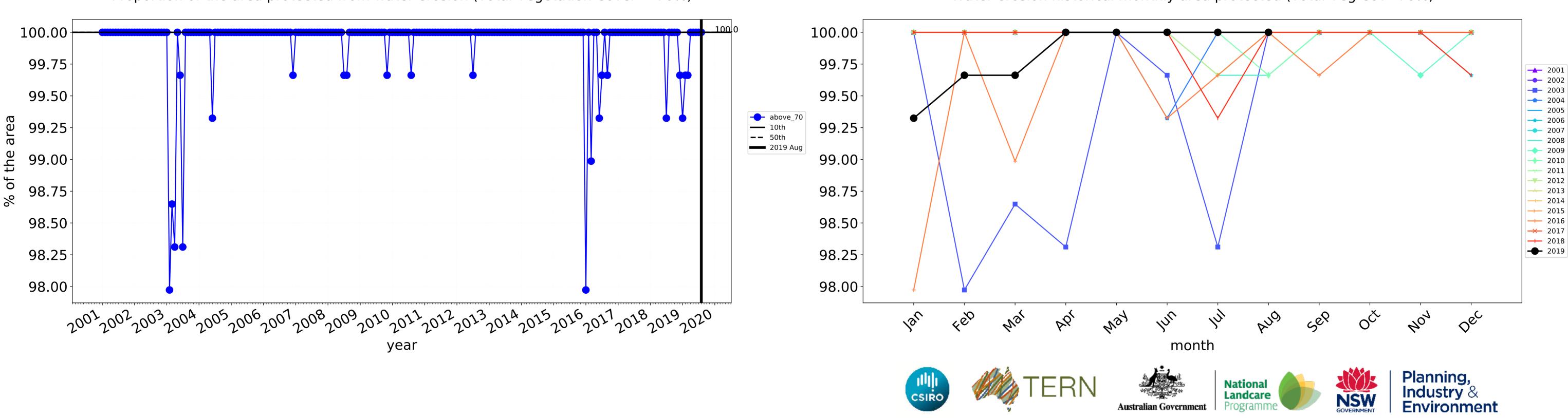








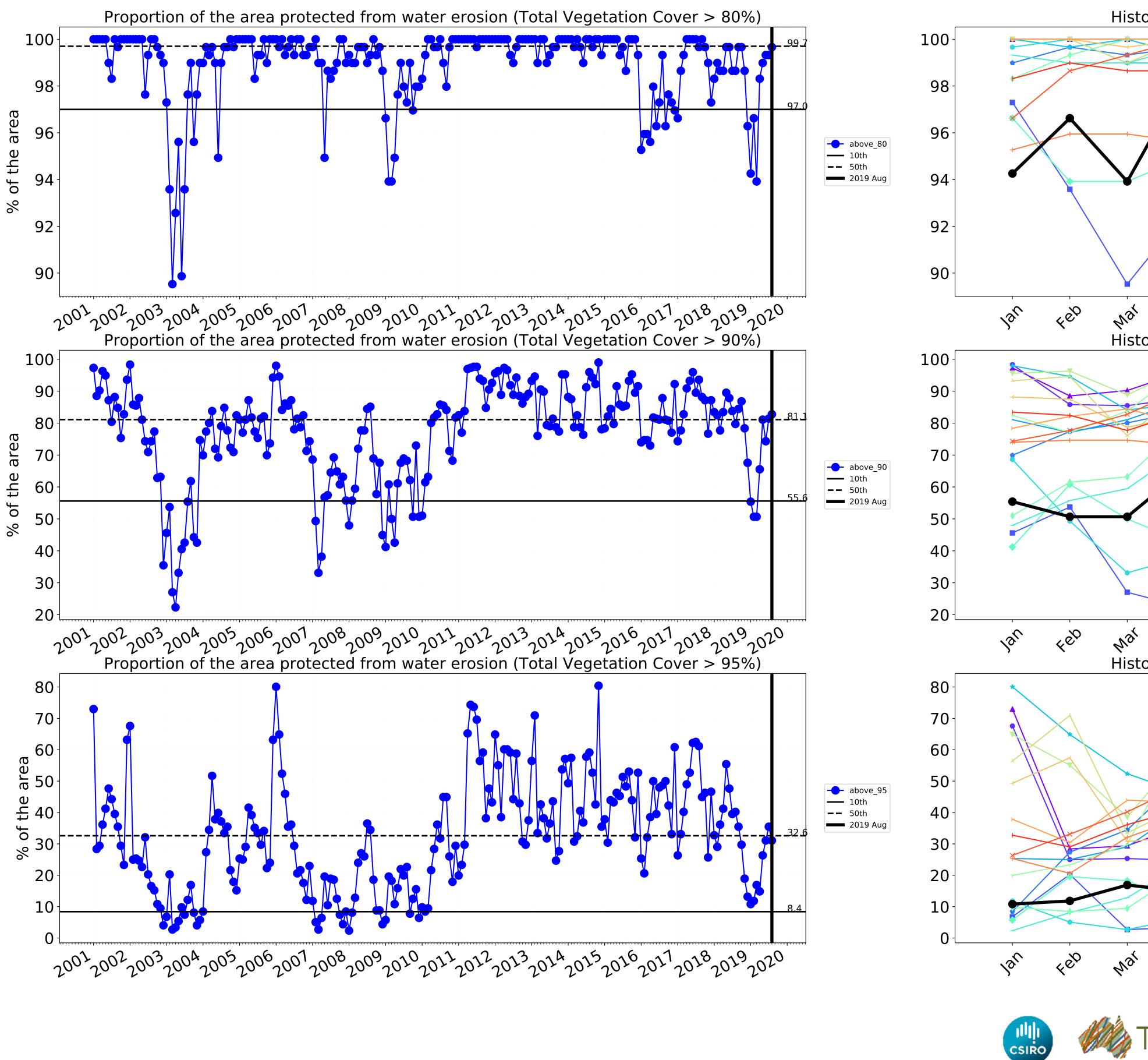
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



### Grazing - Forest (non woodland) timeseries

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

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



Historical monthly area protected (Total Veg Cov>80%)

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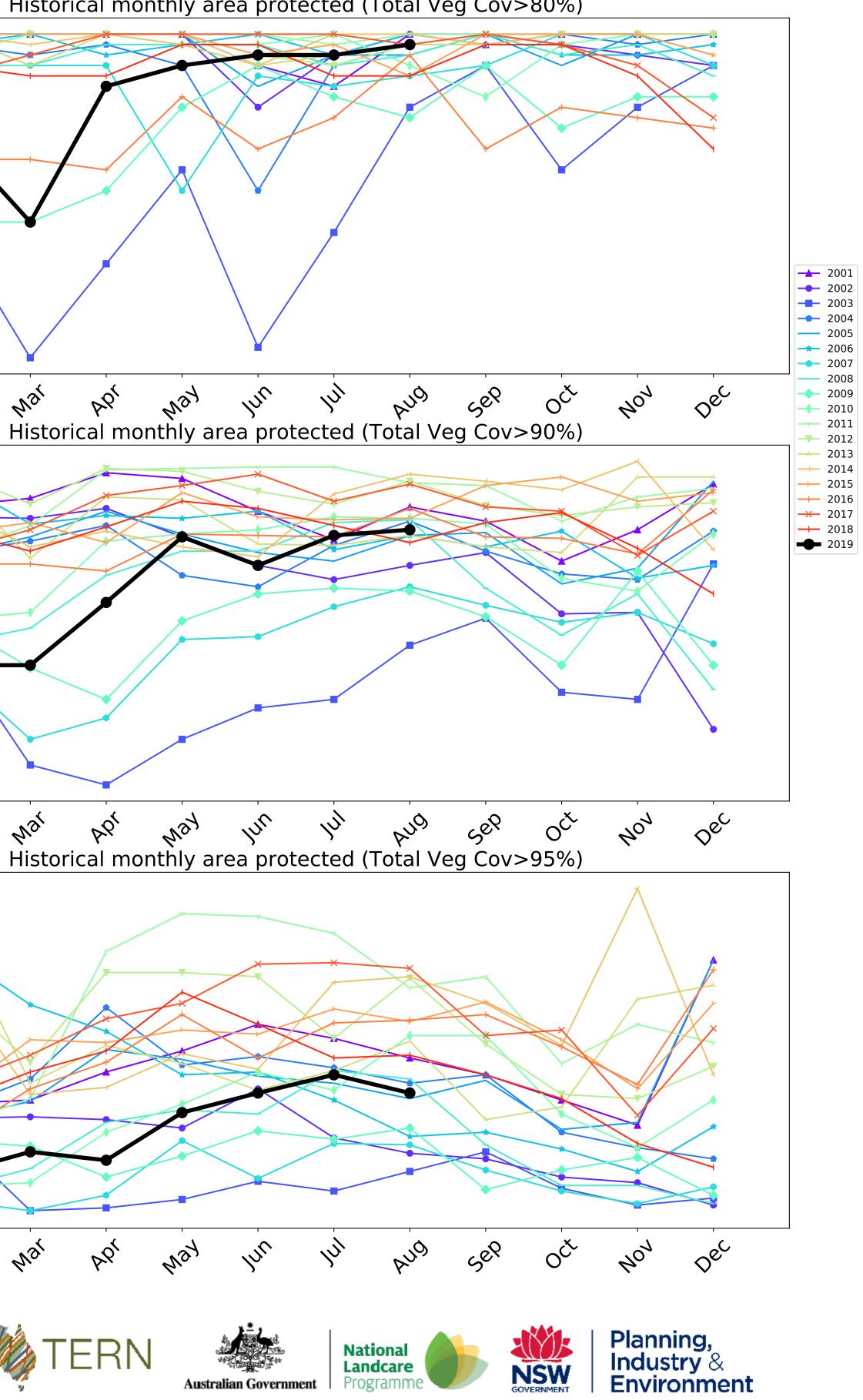
Jur 1

1/2/

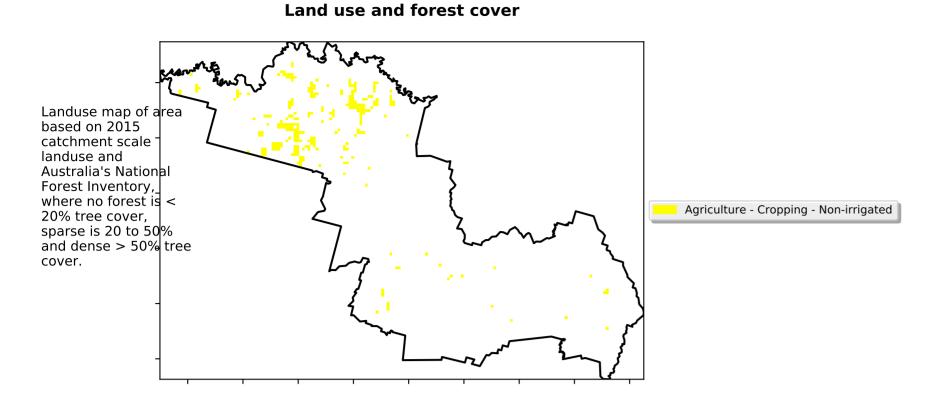
way

P.G.

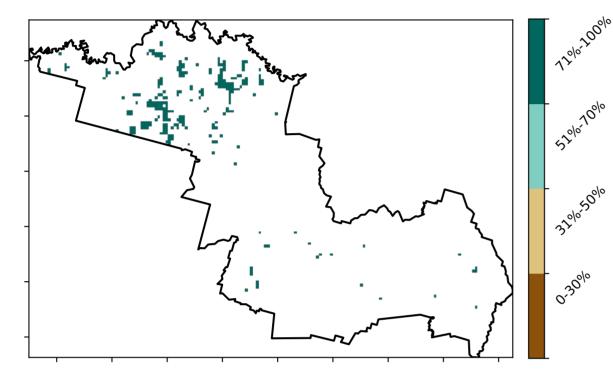
TERN



### Cropping



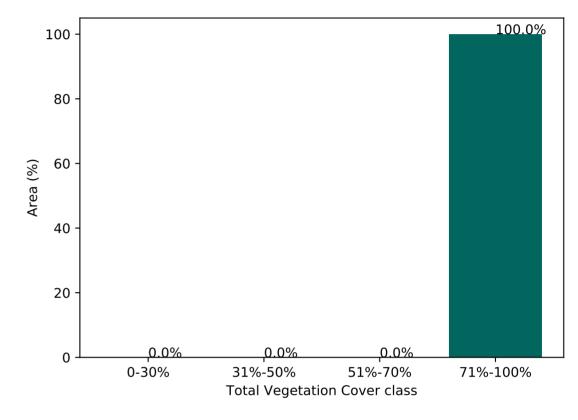
Total Vegetation Cover [%]



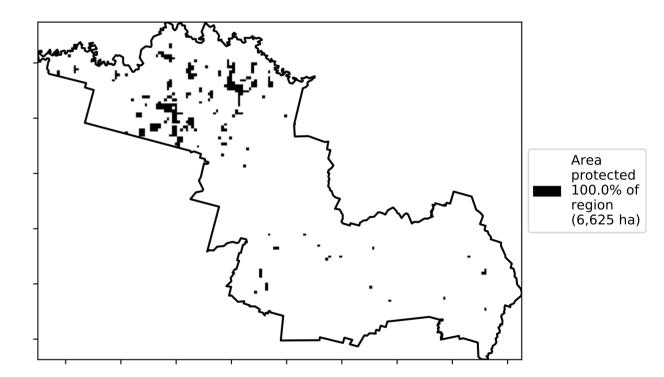
% Area protected from water erosion (>70%)

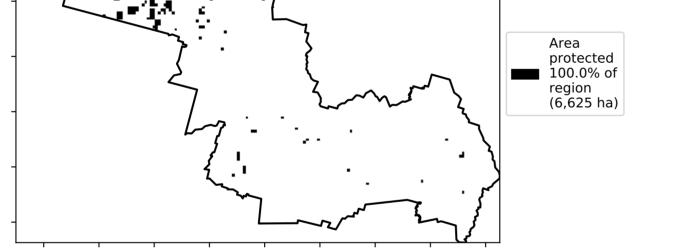


Proportion of vegetation cover class in area

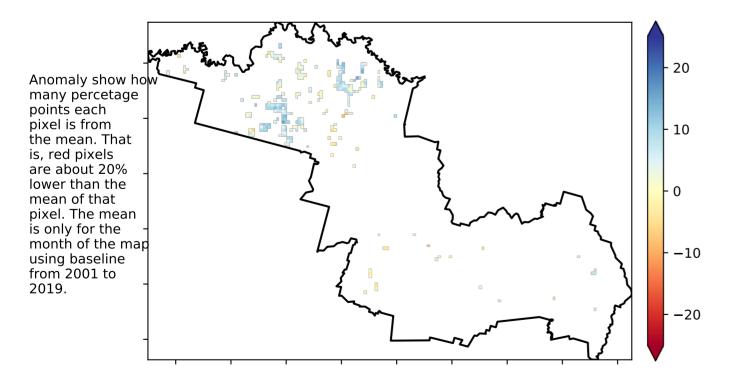


% Area protected from wind erosion (>50%)

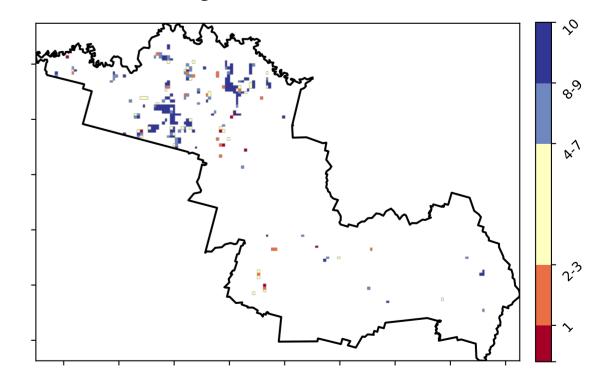




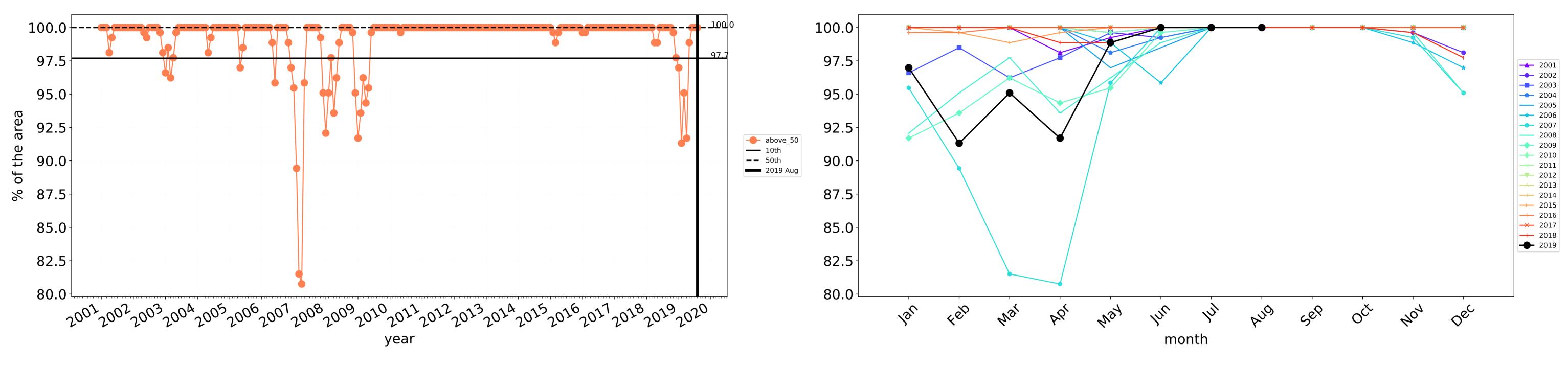
Total Vegetation Cover Anomaly [%]



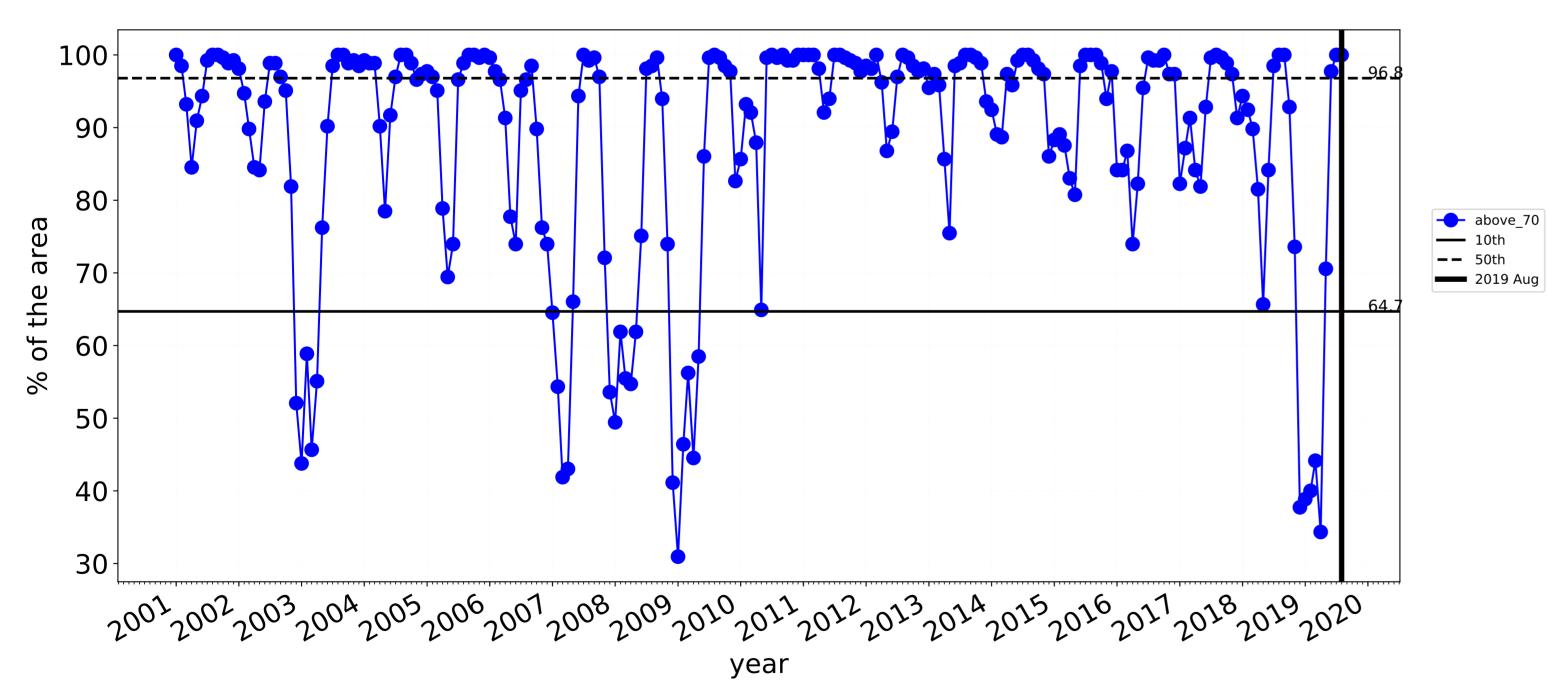
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

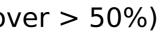






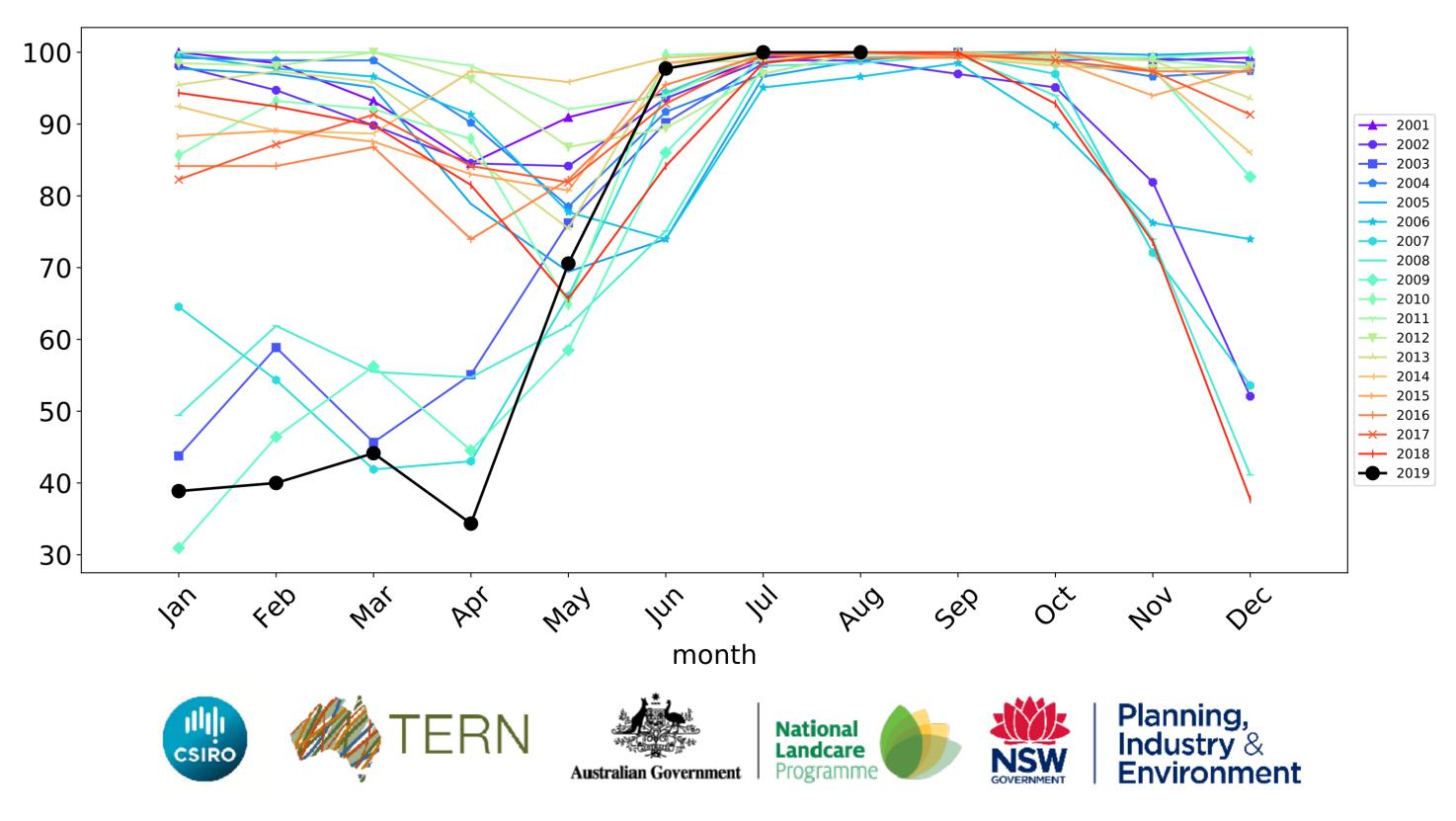
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

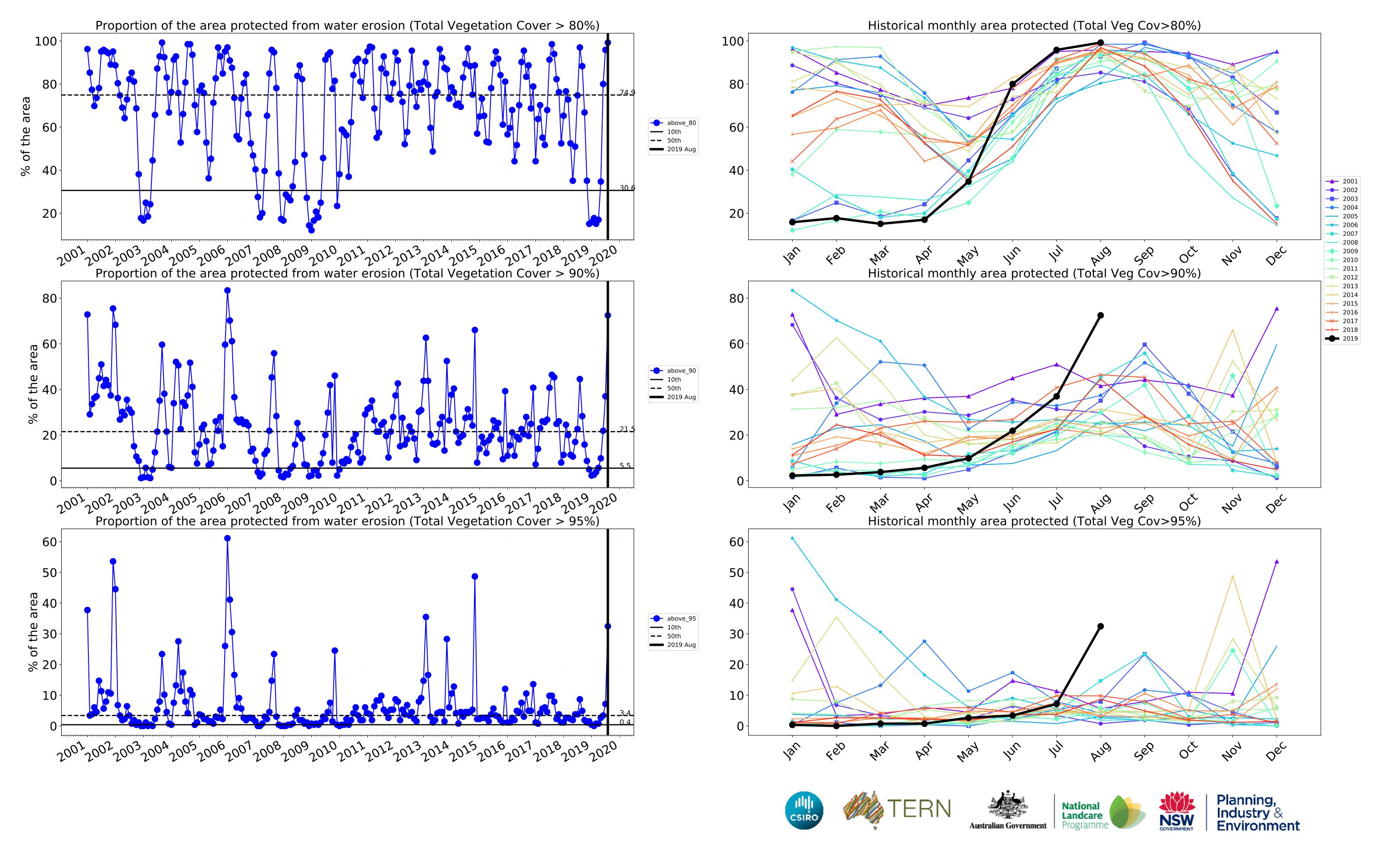




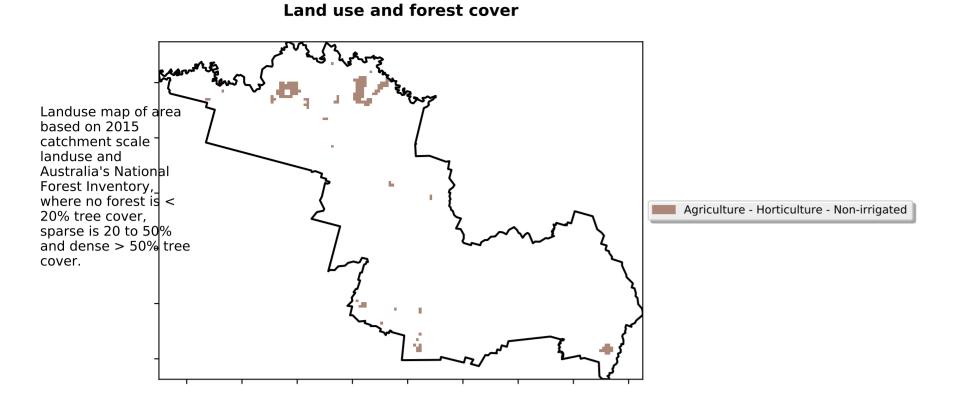
Wind erosion historical monthly area protected (Total Veg Cov >50%)

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

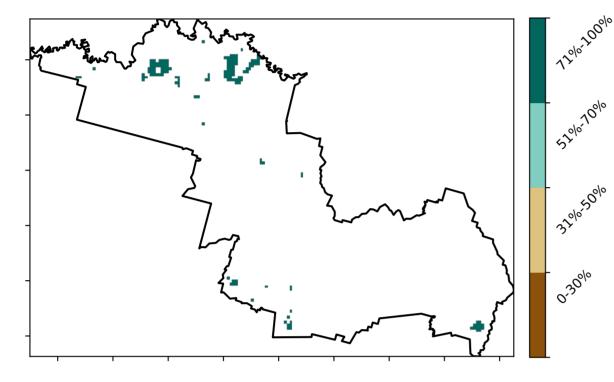




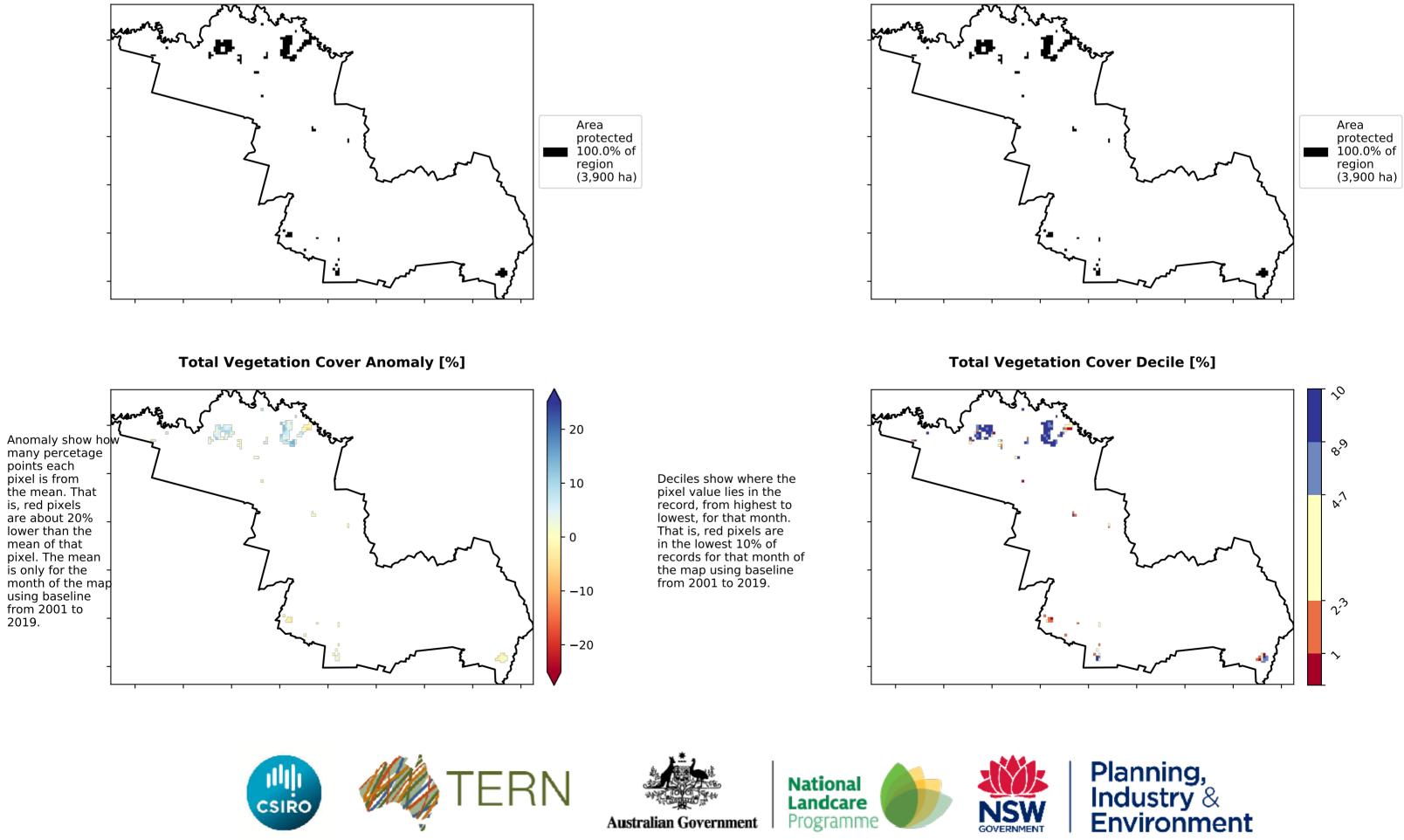
### Horticulture



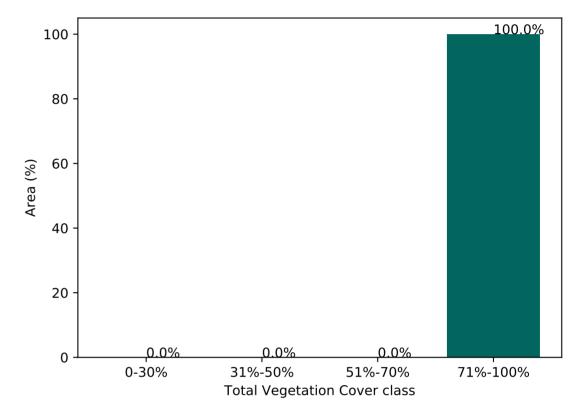
**Total Vegetation Cover [%]** 



% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area

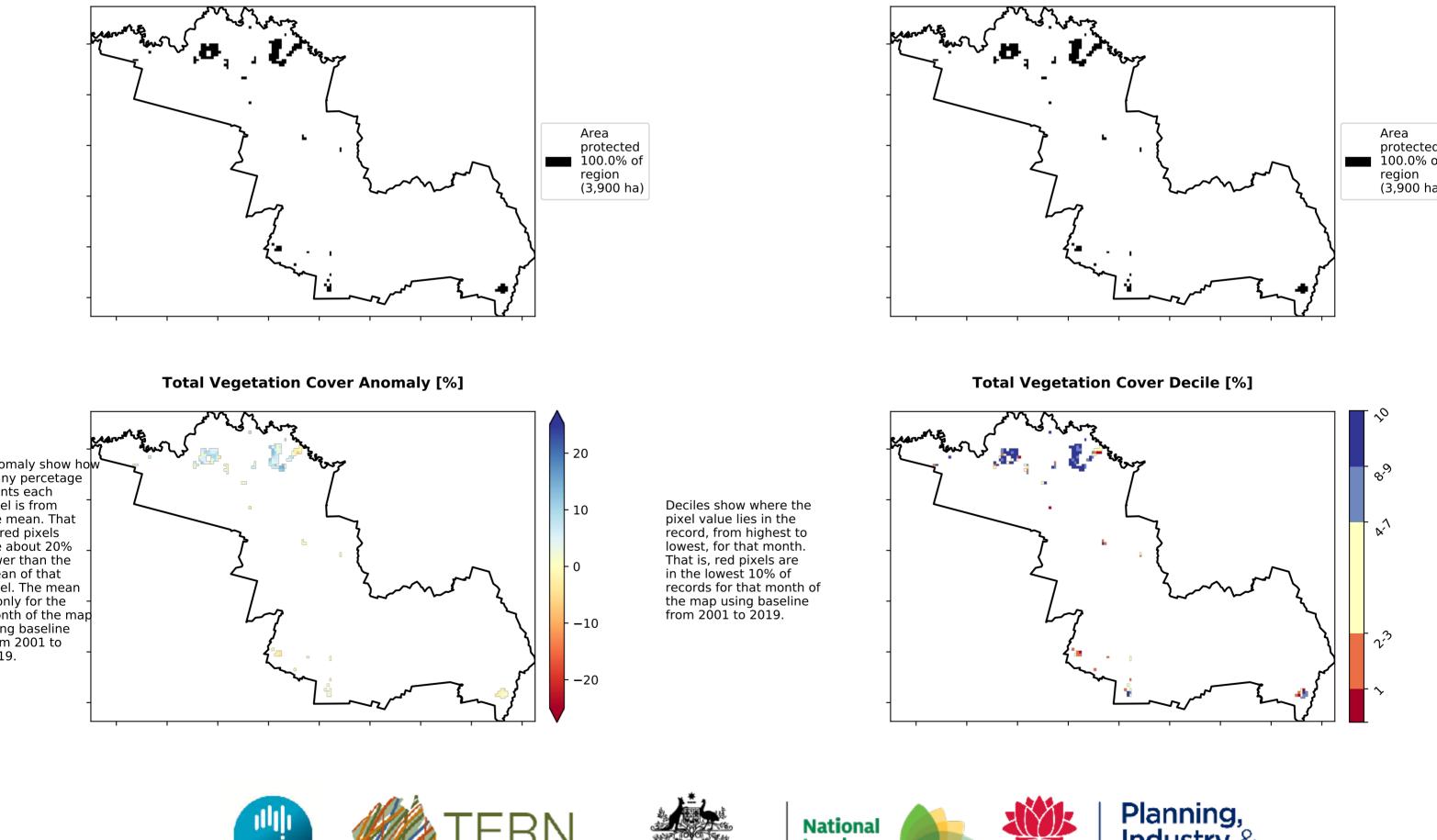


% Area protected from wind erosion (>50%)

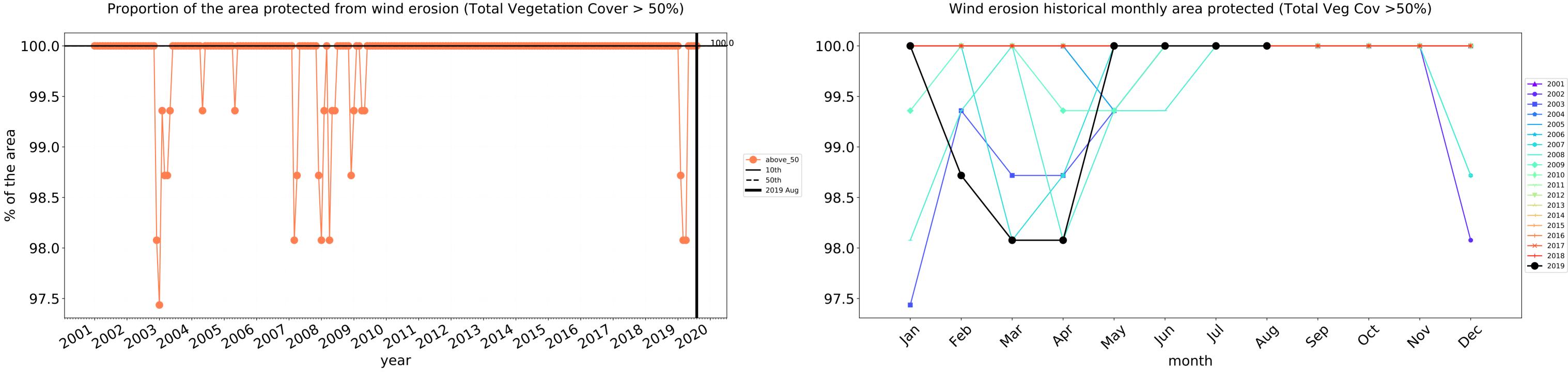
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Programme

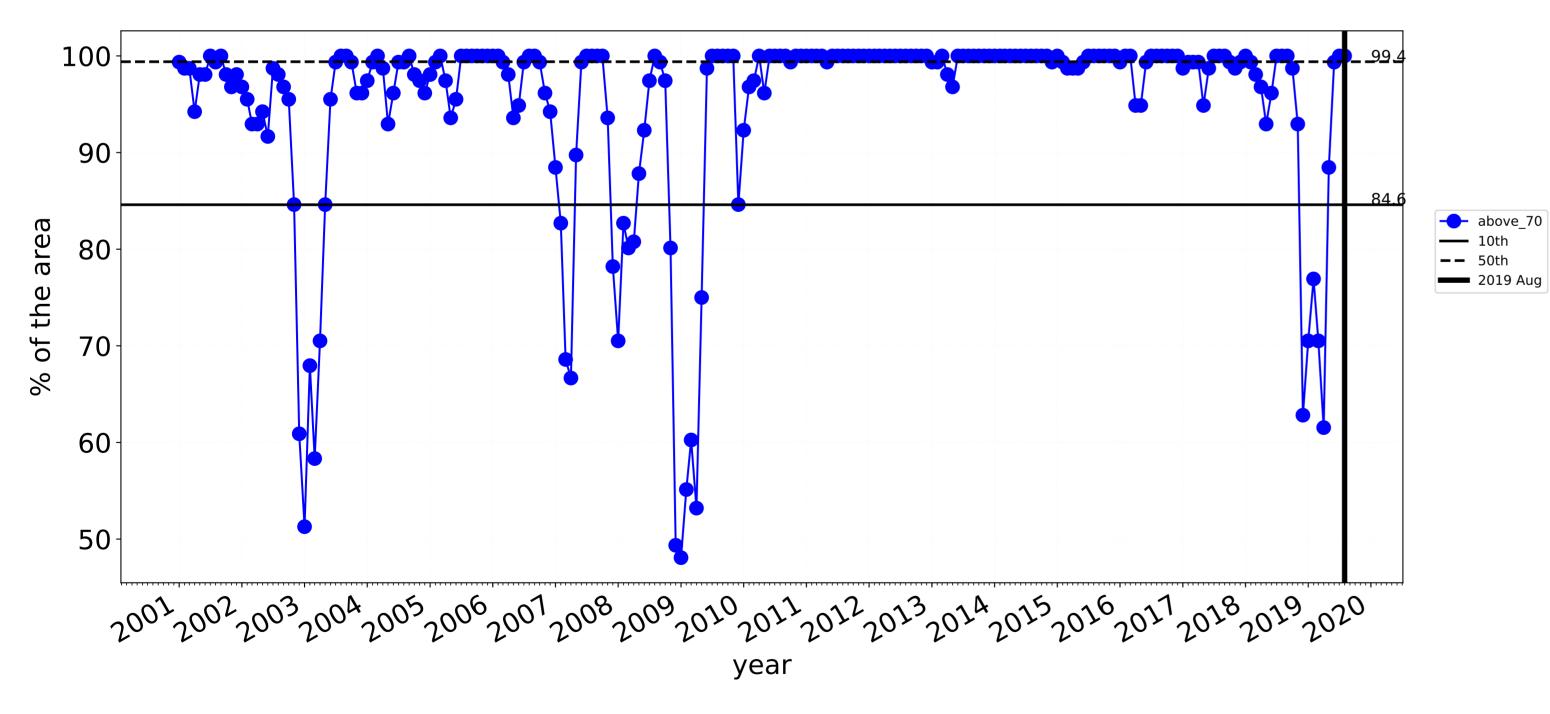


Australian Government



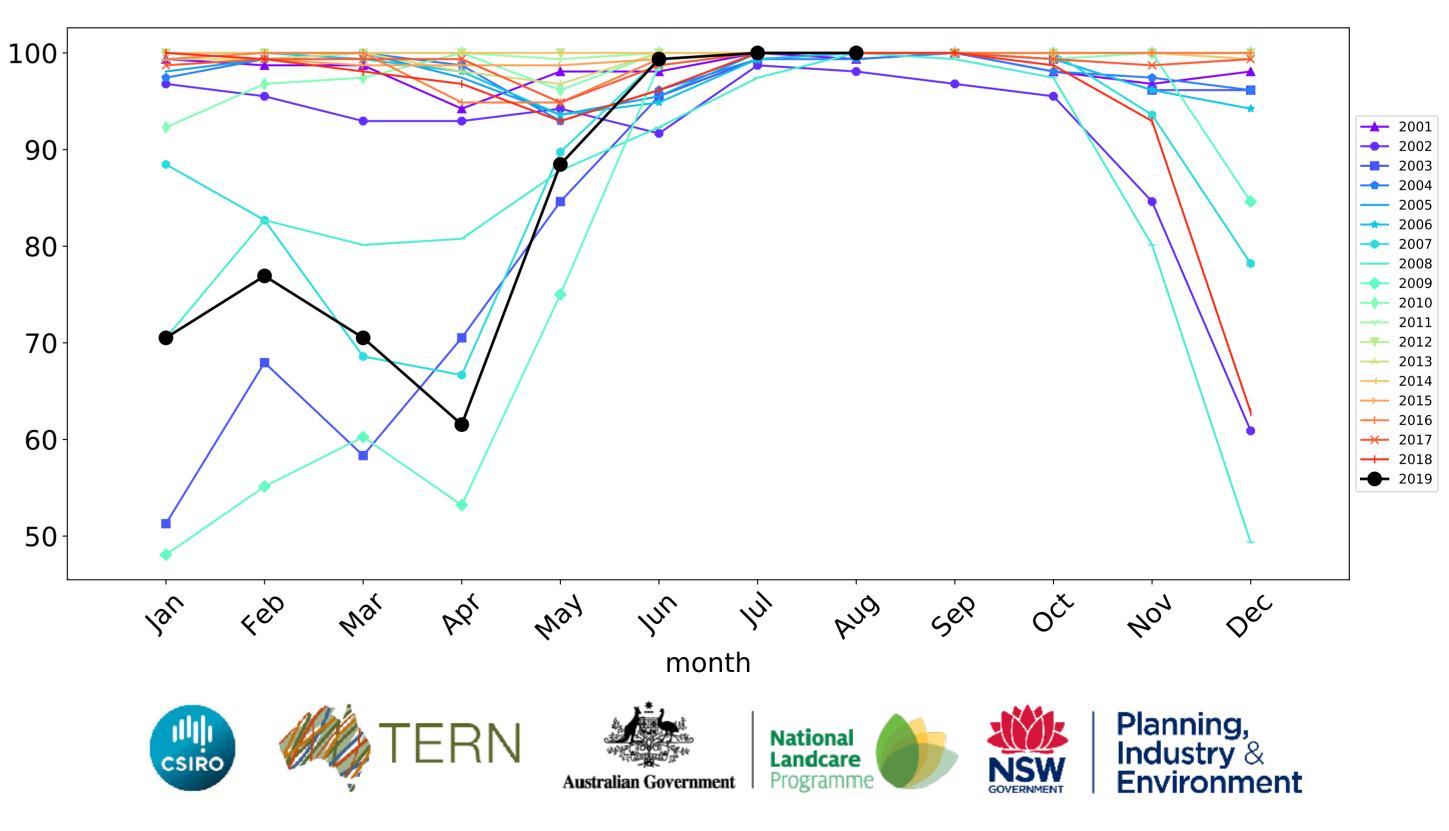
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

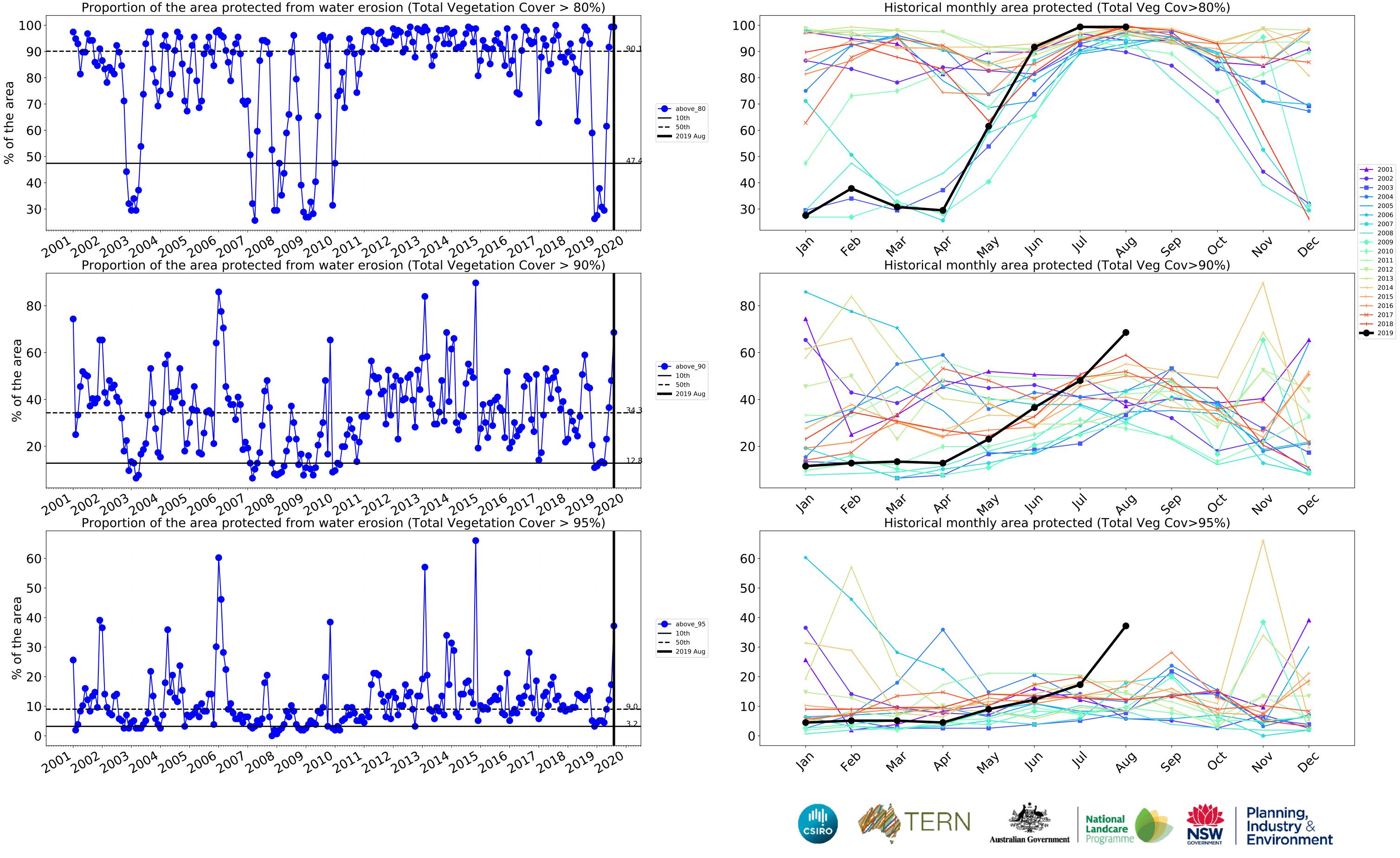
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



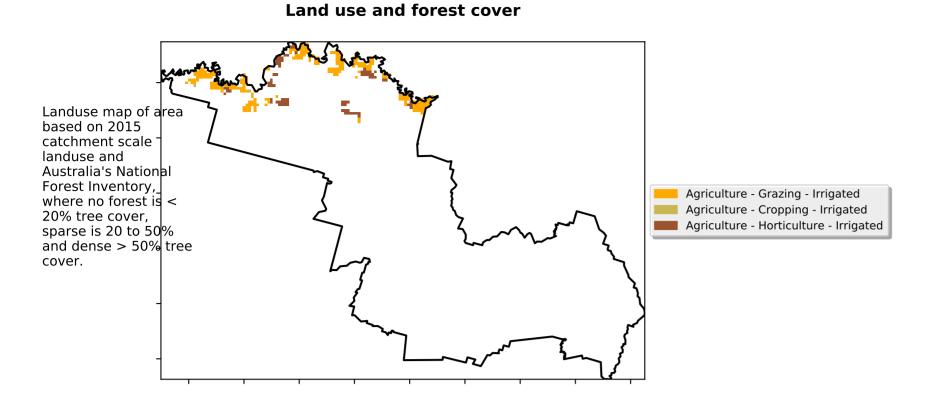
### Horticulture timeseries

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

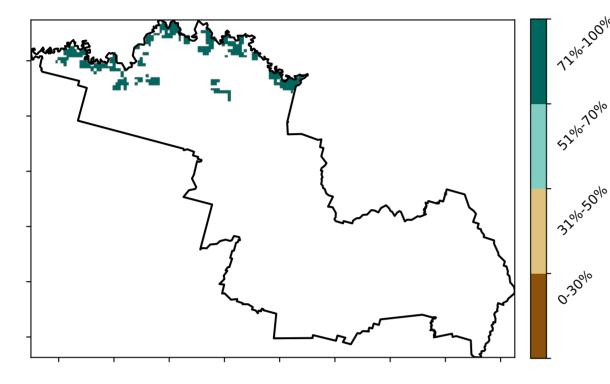




### Irrigation



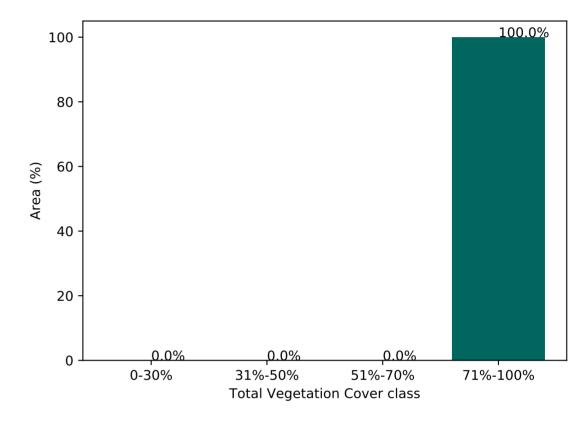
**Total Vegetation Cover [%]** 



% Area protected from water erosion (>70%)

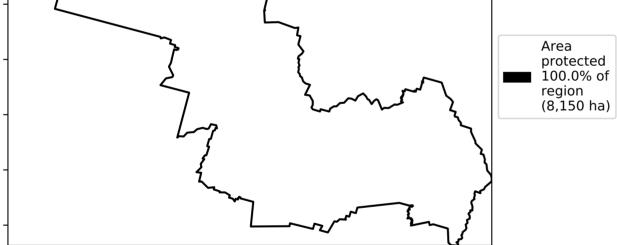


Proportion of vegetation cover class in area

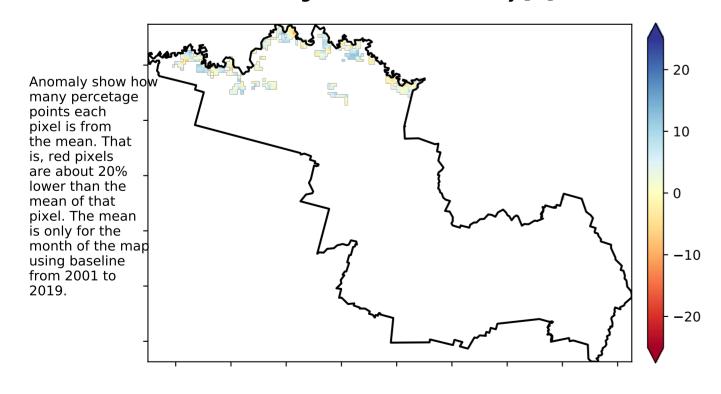


### % Area protected from wind erosion (>50%)

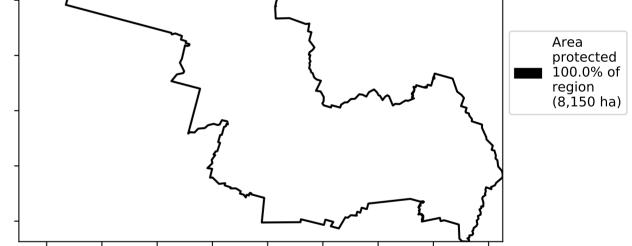


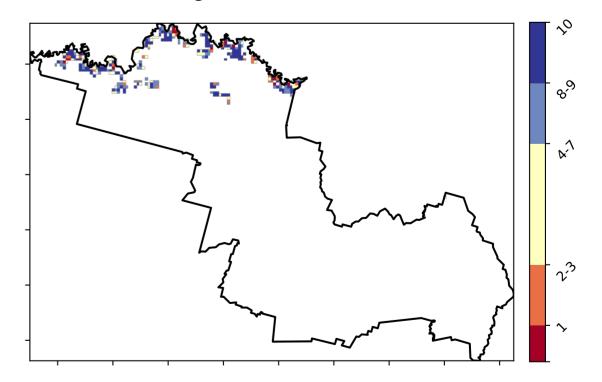


Total Vegetation Cover Anomaly [%]

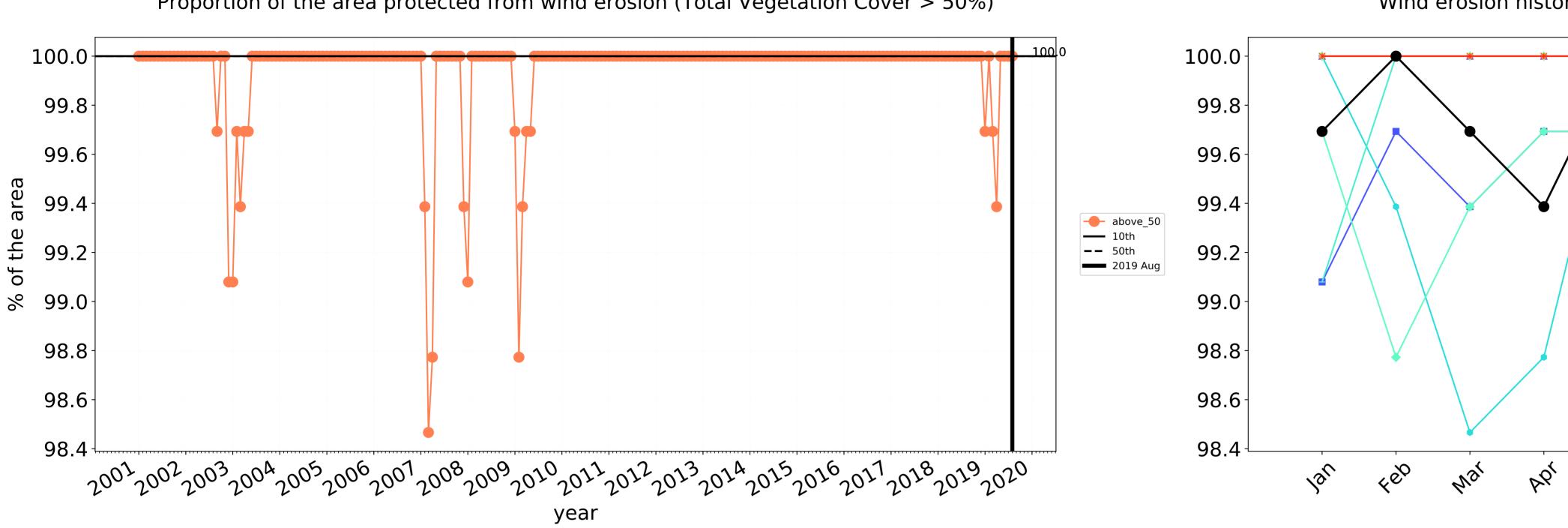


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



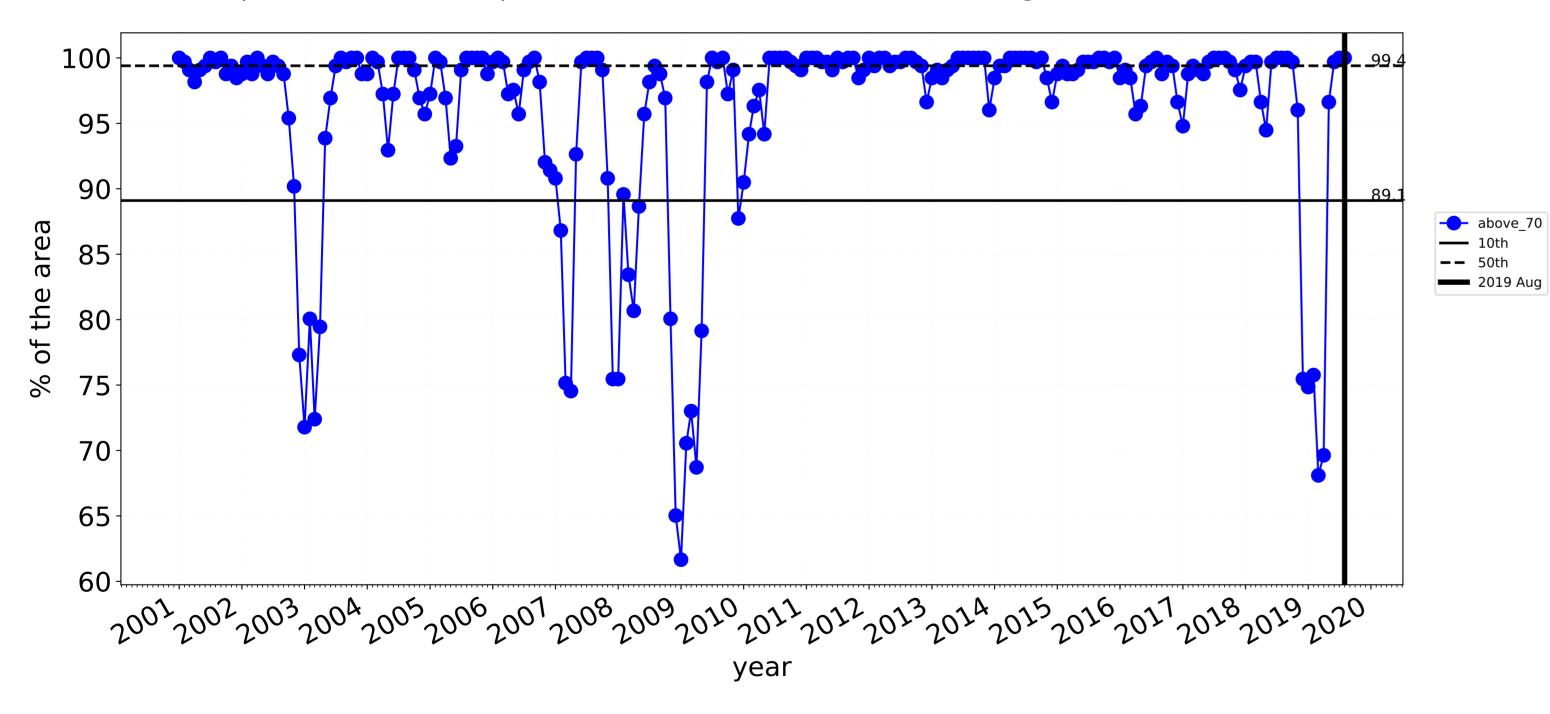






Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

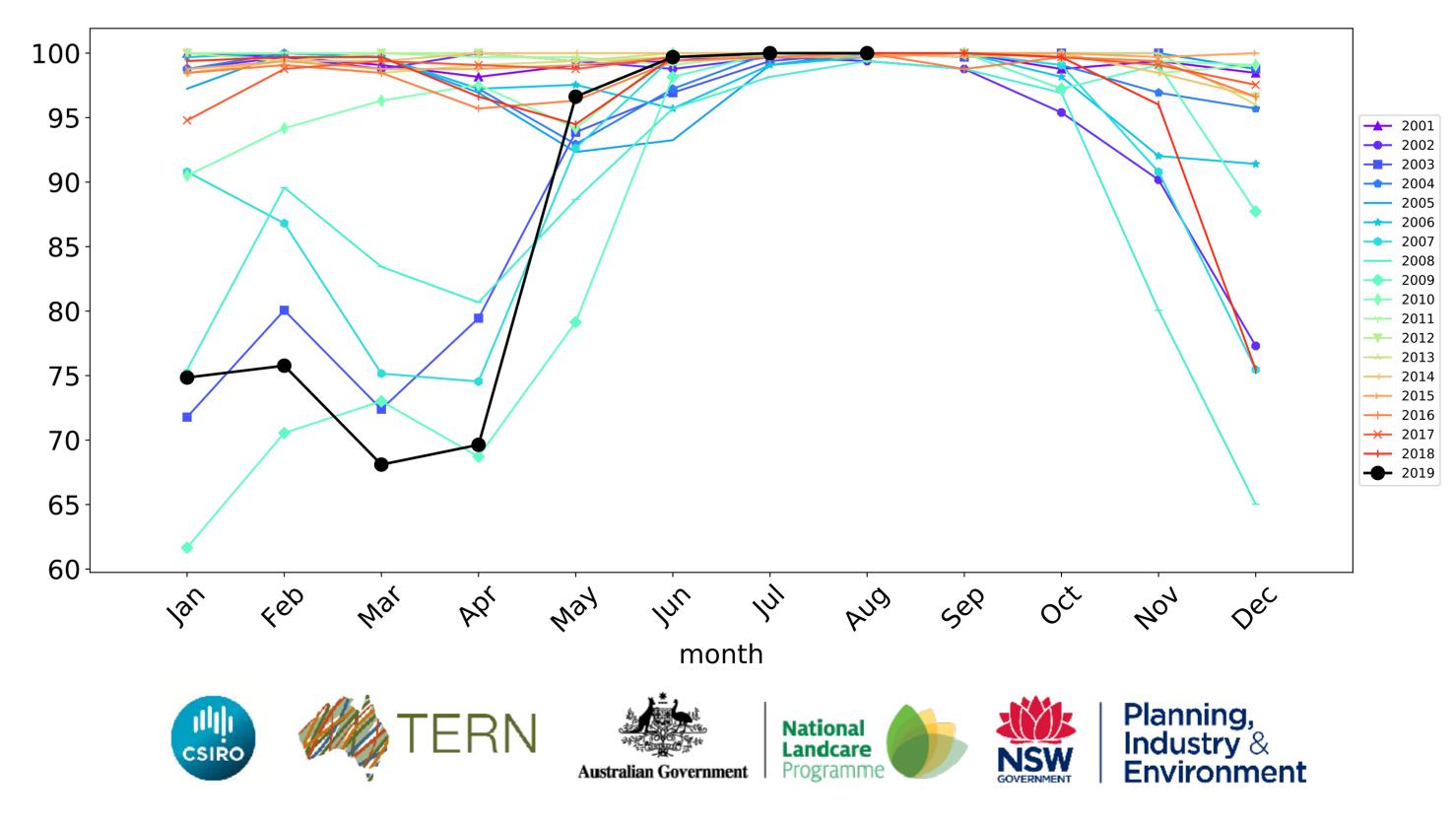


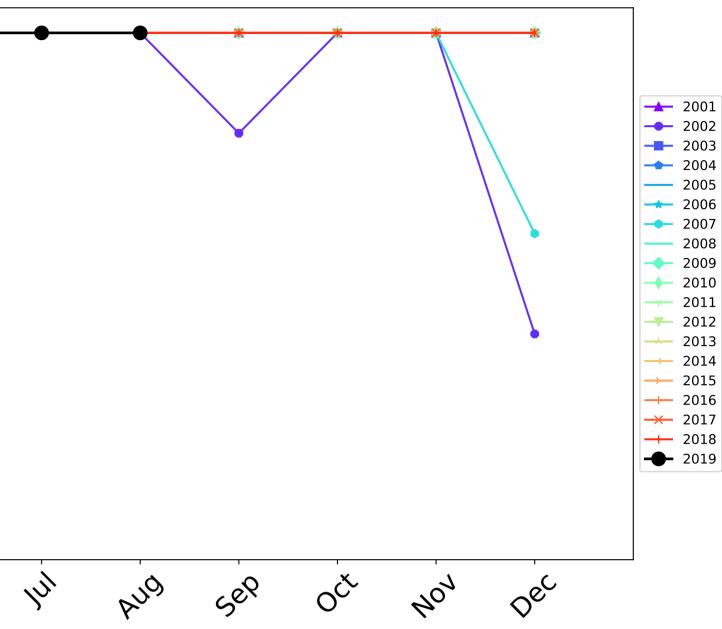
## Wind erosion historical monthly area protected (Total Veg Cov >50%)

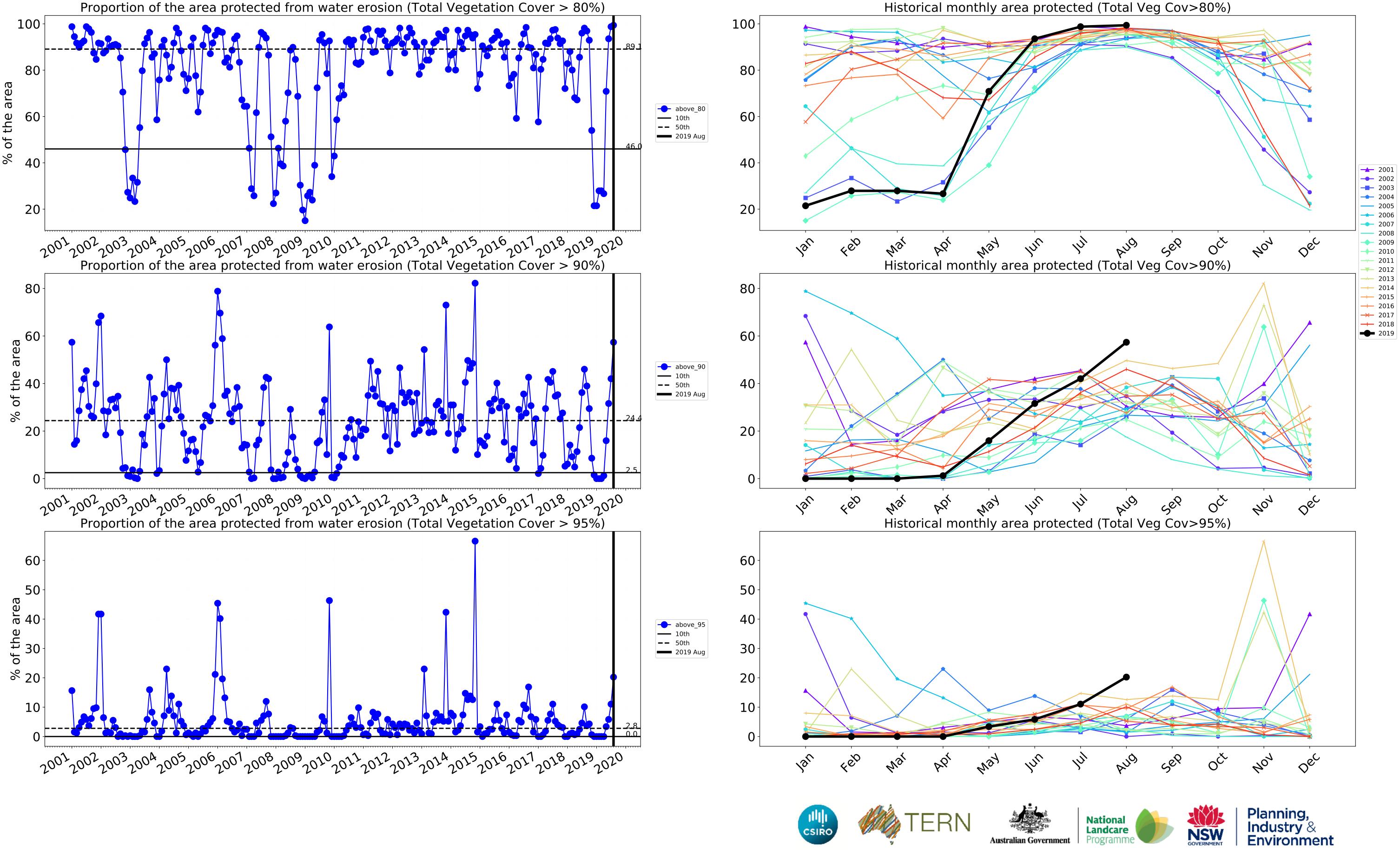


Water erosion historical monthly area protected (Total Veg Cov>70%)

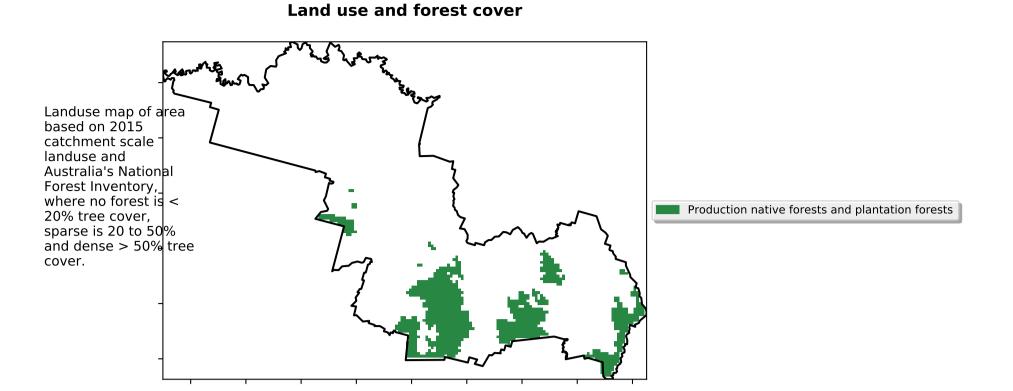
May



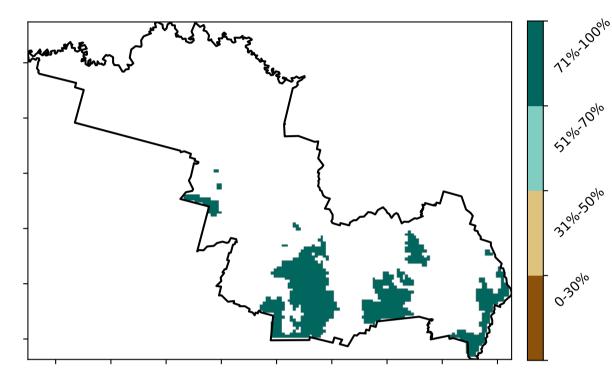




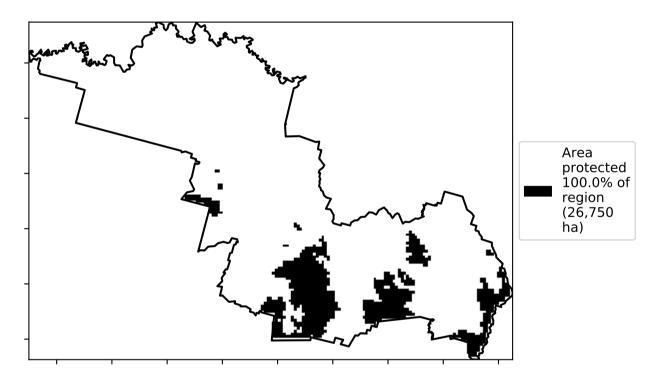
### **Production native forests and plantation forests**



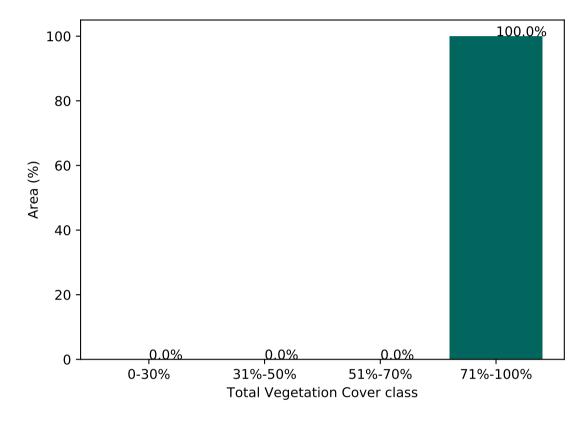
Total Vegetation Cover [%]



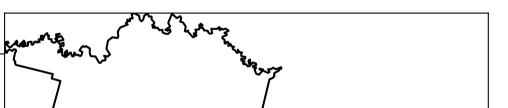
% Area protected from water erosion (>70%)



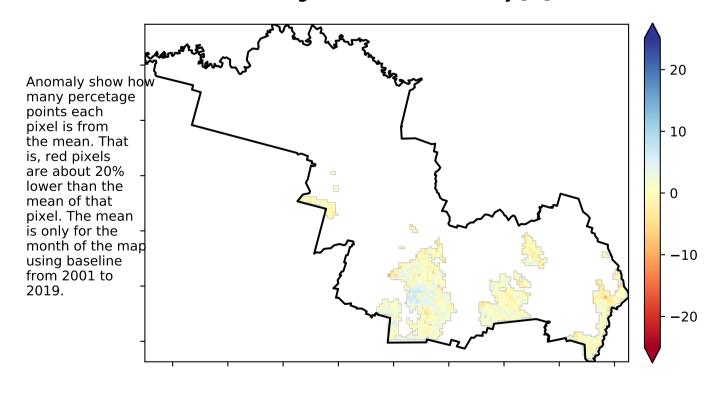
Proportion of vegetation cover class in area



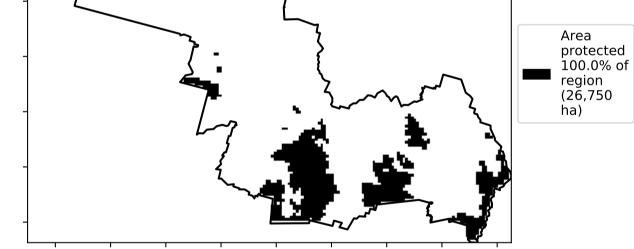
#### % Area protected from wind erosion (>50%)

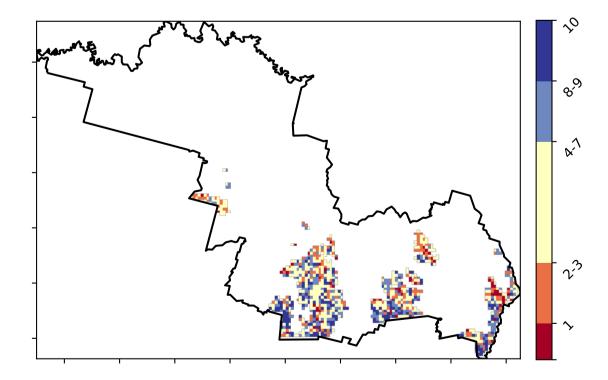


Total Vegetation Cover Anomaly [%]

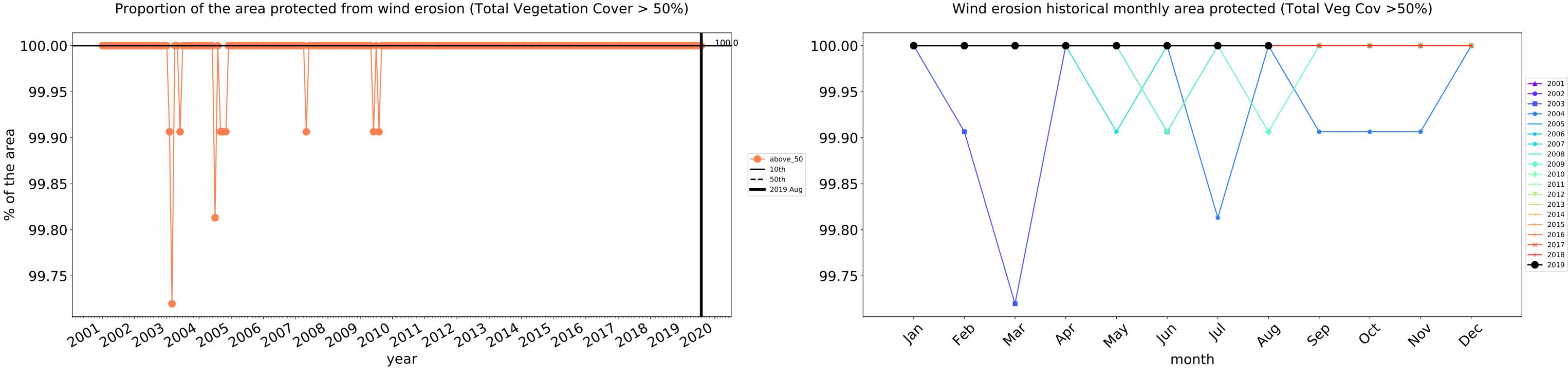


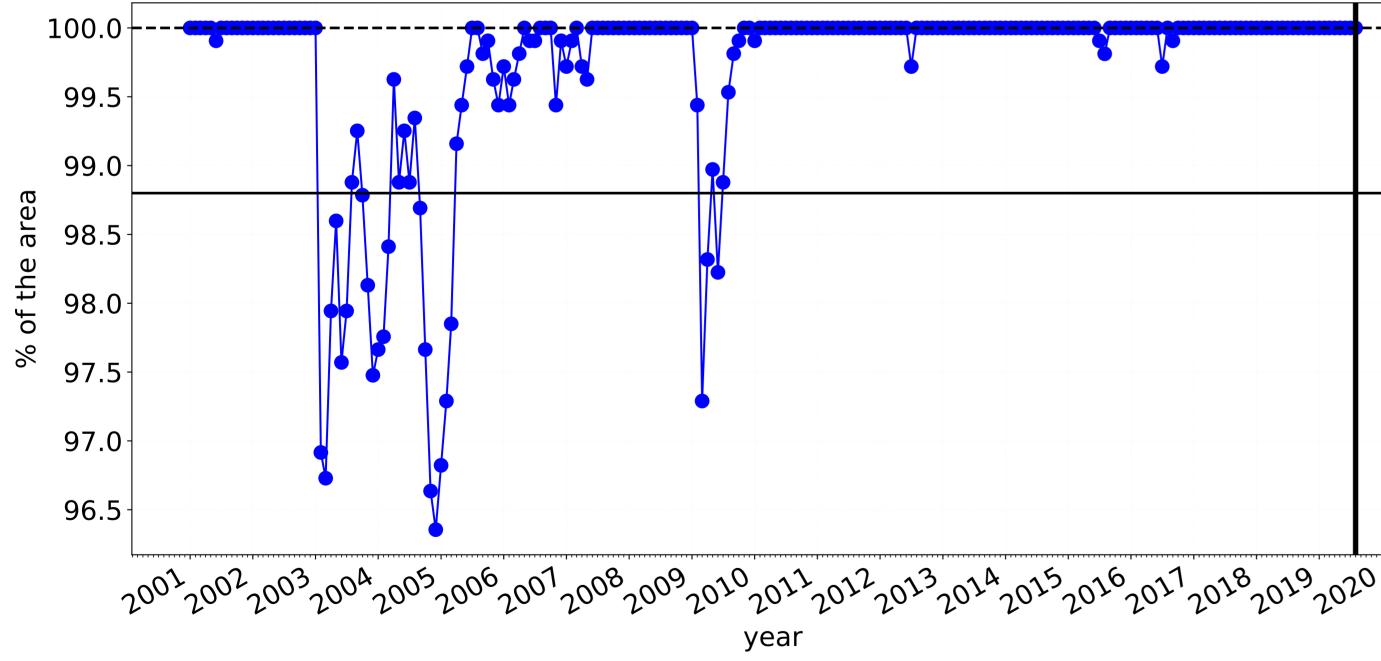
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.





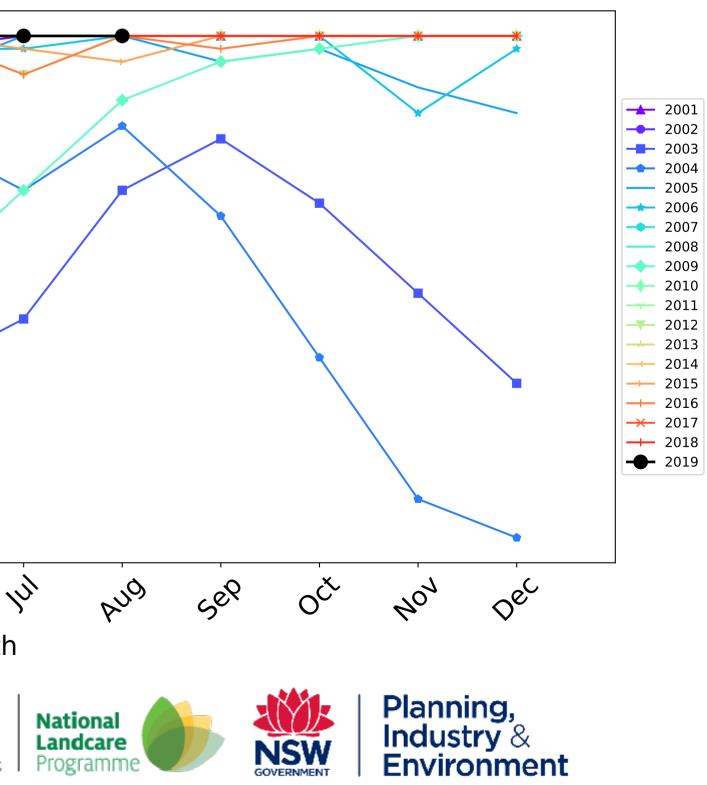


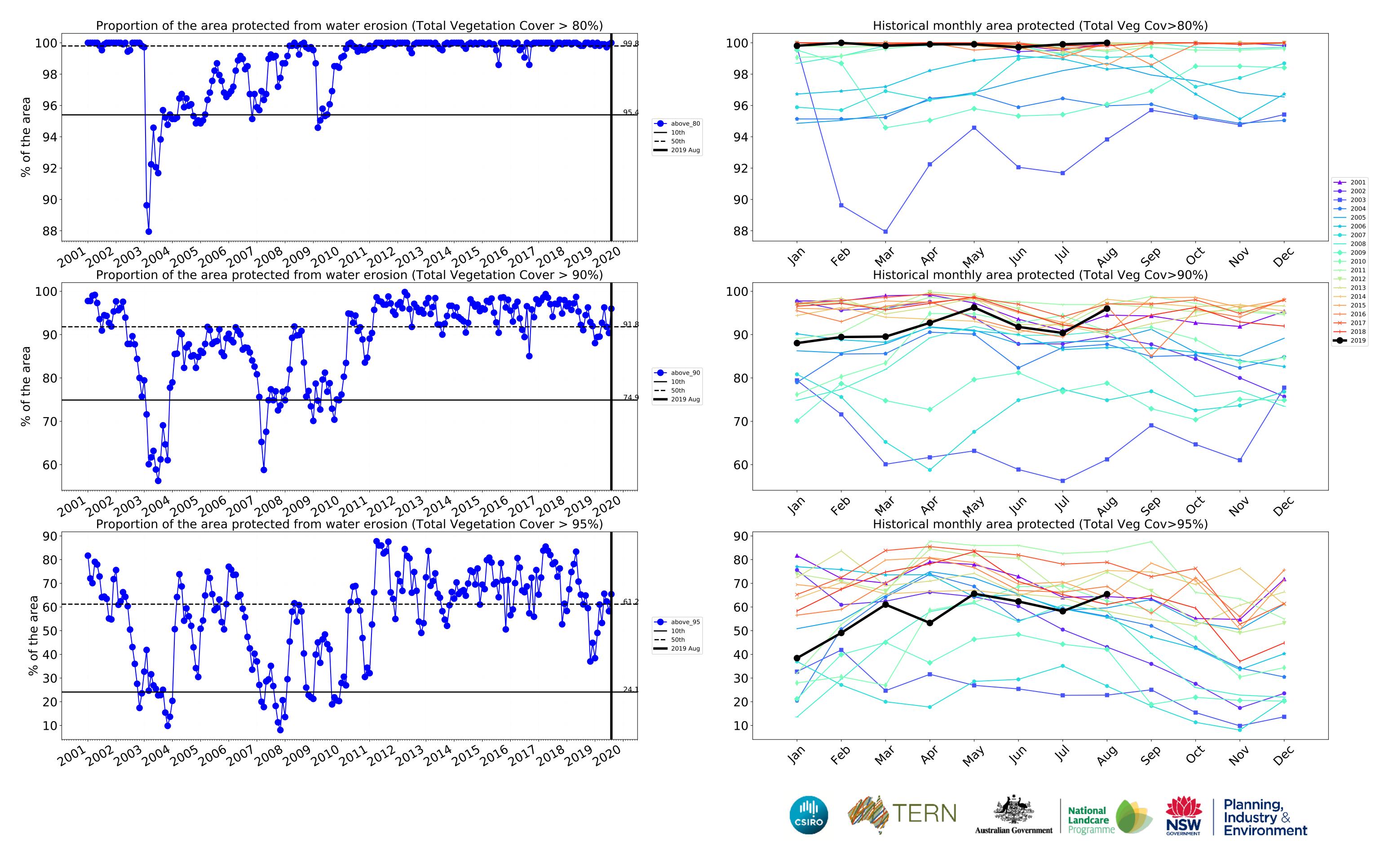




1000 100.0 99.5 99.0 98 ---- above\_70 **—** 10th 98.5 **--** 50th 2019 Aug 98.0 97.5 97.0 96.5 fer lar May PQ War m month ERN Australian Government

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





# Indigo\_(S) (202,925 ha and no data 951 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	202,925	100.0% 202,875	99.9% 202,775	99.7% 202,375	99.0% 200,800	70.7% 143,550	28.8% 58,475
Conservation and natural environments	23,945	100.0% 23,945	100.0% 23,945	100.0% 23,945	99.6% 23,845	76.5% 18,319	13.7% 3,285
Conservation and natural environments Woodland forest	5,884	100.0% 5,884	100.0% 5,884	100.0% 5,884	99.6% 5,859	73.3% 4,313	17.8% 1,047
Conservation and natural environments Forest (non woodland)	16,639	100.0% 16,639	100.0% 16,639	100.0% 16,639	99.9% 16,614	77.8% 12,947	12.3% 2,045
Agriculture	135,756	100.0% 135,756	100.0% 135,756	100.0% 135,756	99.5% 135,123	67.8% 92,050	26.1% 35,421
Grazing	114,855	100.0% 114,855	100.0% 114,855	100.0% 114,855	99.6% 114,357	68.2% 78,388	25.8% 29,591
Grazing non forest	105,115	100.0% 105,115	100.0% 105,115	100.0% 105,115	99.5% 104,641	67.4% 70,798	25.6% 26,895
Grazing Woodland forest	2,435	100.0% 2,435	100.0% 2,435	100.0% 2,435	100.0% 2,435	62.8% 1,528	$\begin{array}{c} 17.0\%\\ 414\end{array}$
Grazing - Forest (non woodland)	7,305	100.0% 7,305	100.0% 7,305	100.0% 7,305	99.7% 7,280	82.8% 6,046	31.1% 2,270
Cropping	6,696	100.0% 6,696	100.0% 6,696	100.0% 6,696	99.2% 6,645	72.5% 4,851	32.5% 2,173
Horticulture	3,855	100.0% 3,855	100.0% 3,855	100.0% 3,855	99.4% 3,830	68.6% 2,644	37.2% 1,433
Irrigation	8,319	100.0% 8,319	100.0% 8,319	100.0% 8,319	99.4% 8,268	57.4% 4,772	20.2% 1,684
Production native forests and plantation forests	26,583	100.0% 26,583	100.0% 26,583	100.0% 26,583	100.0% 26,583	96.0% 25,514	65.4% 17,390

