### LGA Serpentine-Jarrahdale\_(S) (WA) - 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.

Serpentine-Jarrahdale\_(S)

- Context
  - o Map: Land use and forest cover
  - o Chart: Land use and forest cover area
- Total vegetation cover for this month
  - o Map: vegetation cover classified into 4 classes
  - o 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

### Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.

Anomaly show how many percetage points each

pixel is from

is, red pixels

mean of that pixel. The mean is only for the

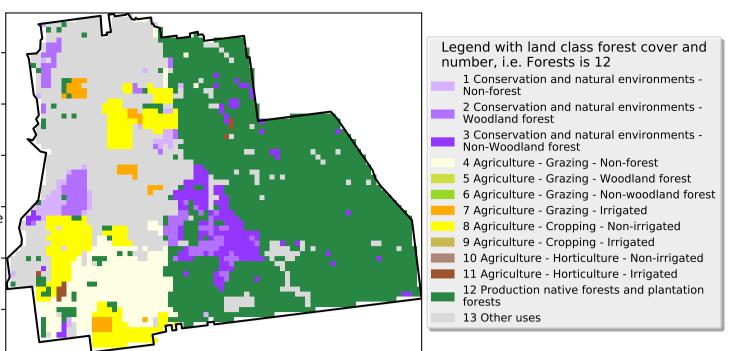
month of the map

using baseline from 2001 to

2019.

the mean. That

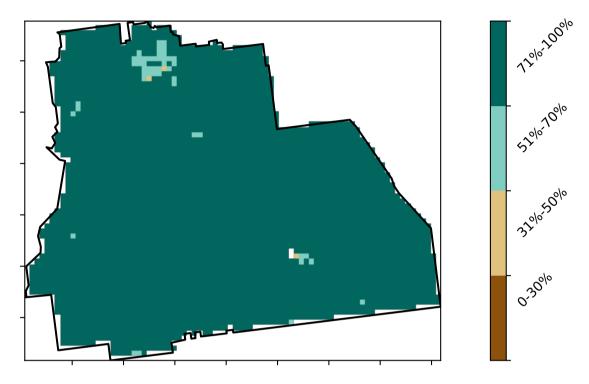
are about 20% lower than the



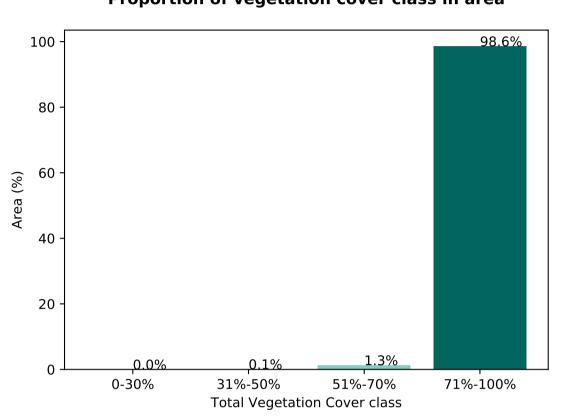
## 40 - 30 - 27.5% 20 - 10 - 3.6% 4.9% 7.4% 1 2 3 4 5 6 7 8 9 10 11 12 13 Land use class

**Proportion of each land class in area** 

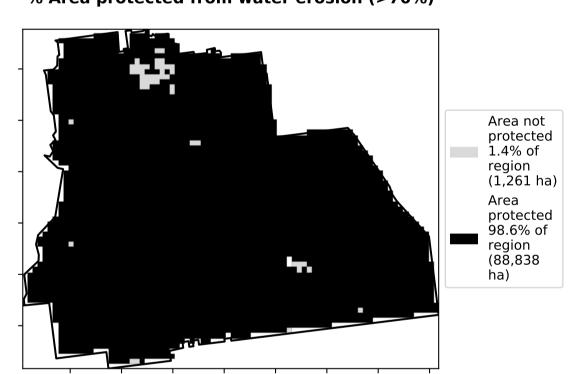
### **Total Vegetation Cover [%]**



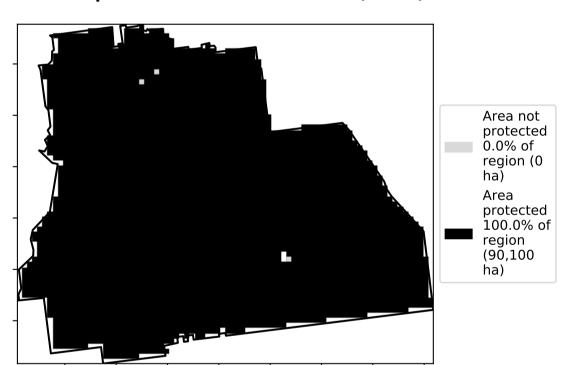
Proportion of vegetation cover class in area



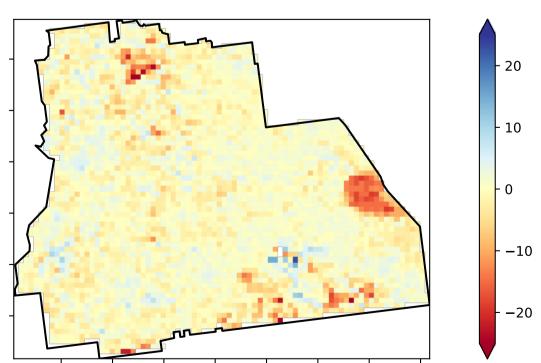
### % Area protected from water erosion (>70%)



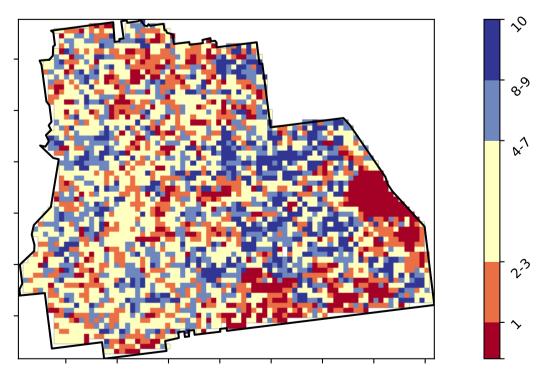
% Area protected from wind erosion (>50%)



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



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





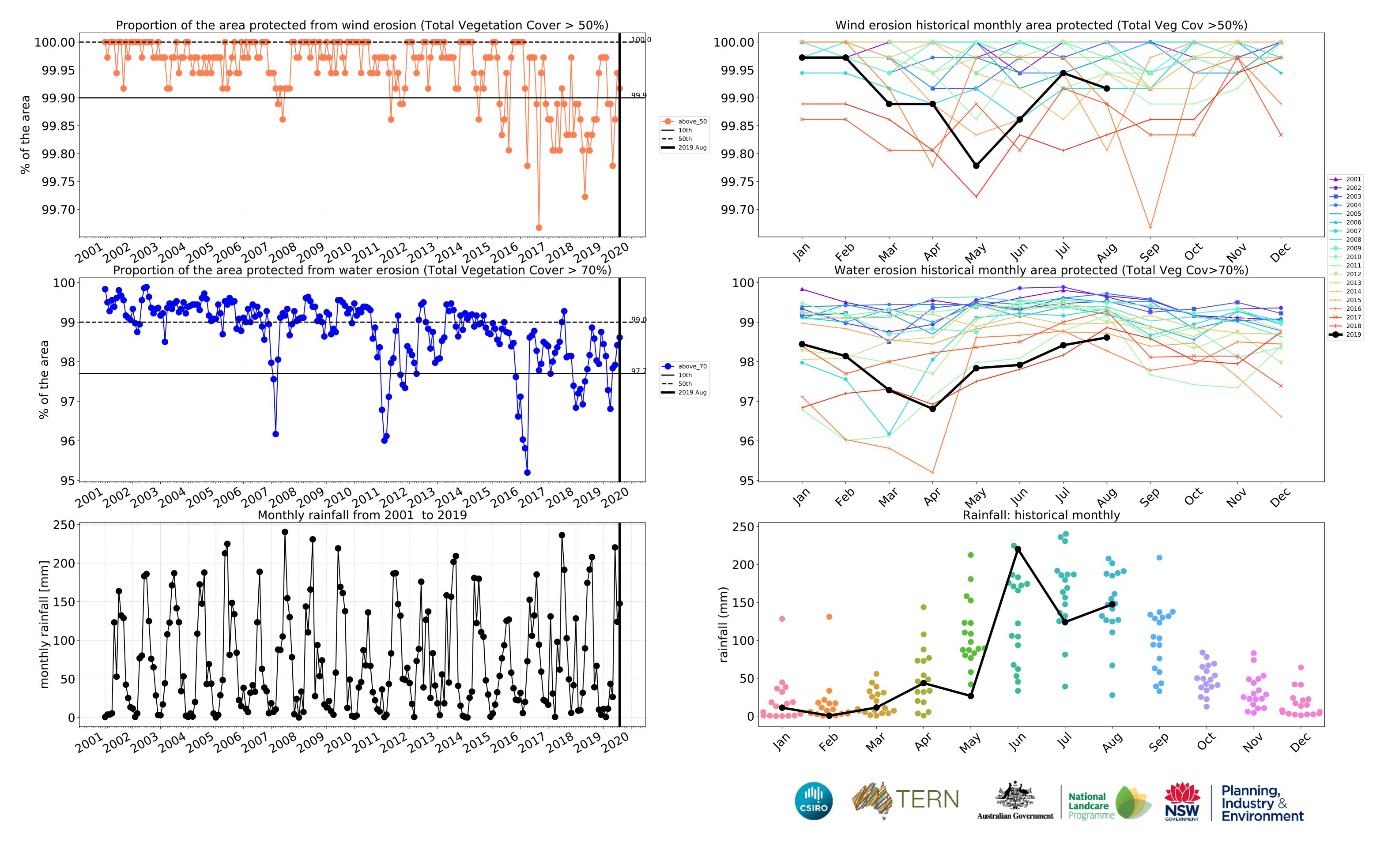


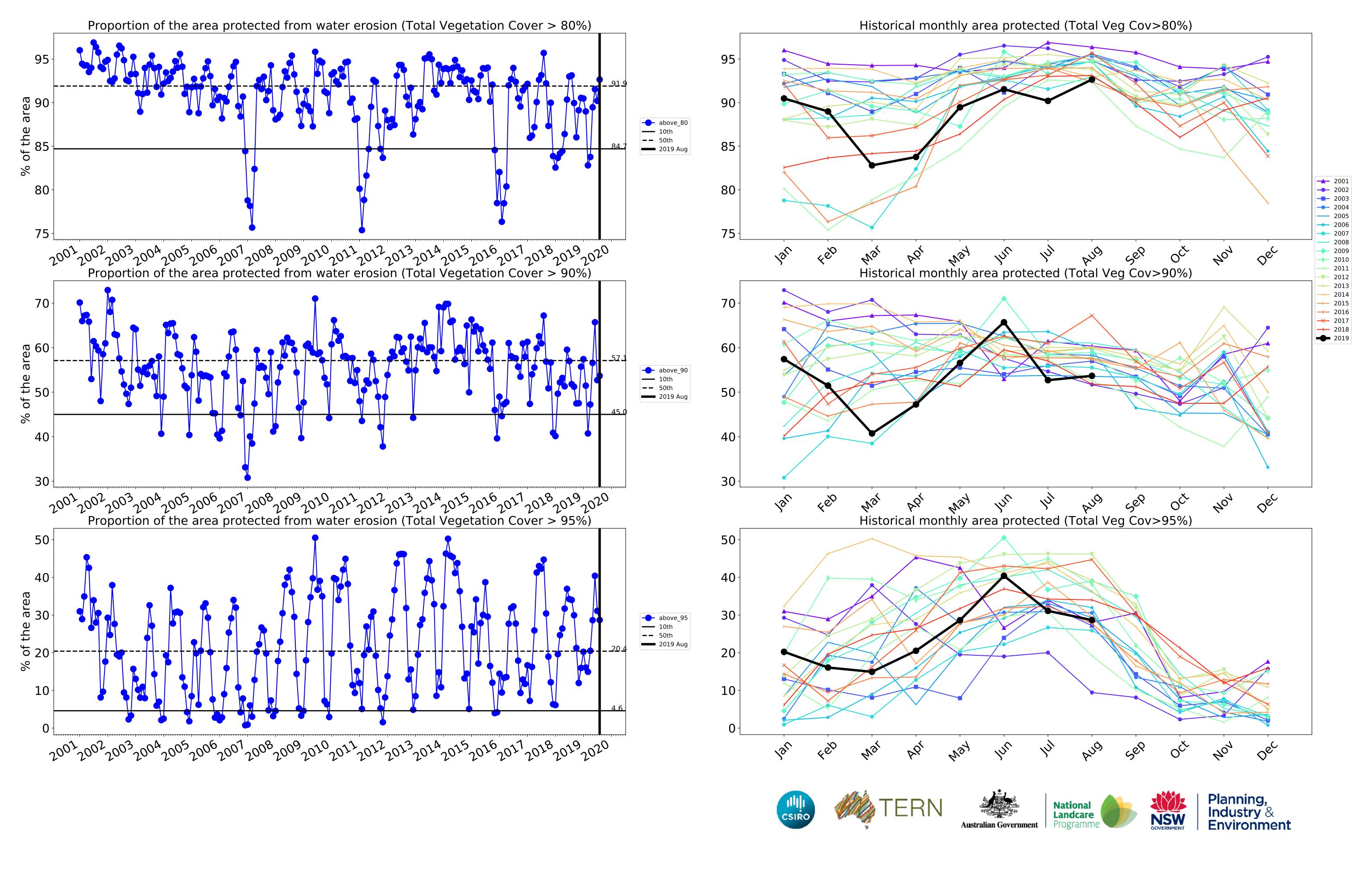








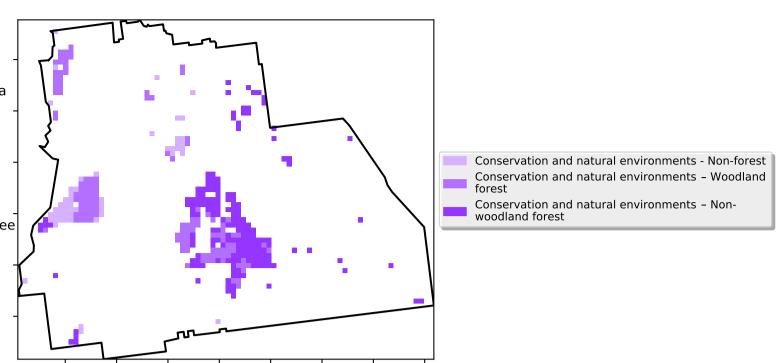




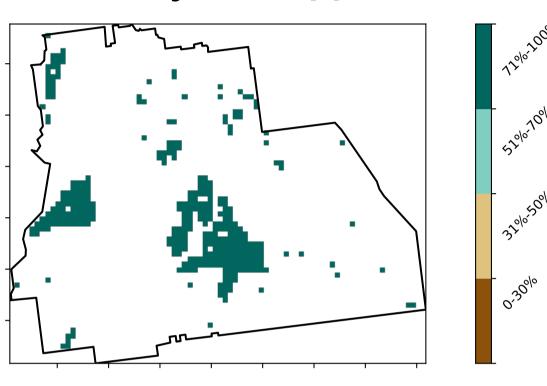
### **Conservation and natural environments**

### Land use and forest cover

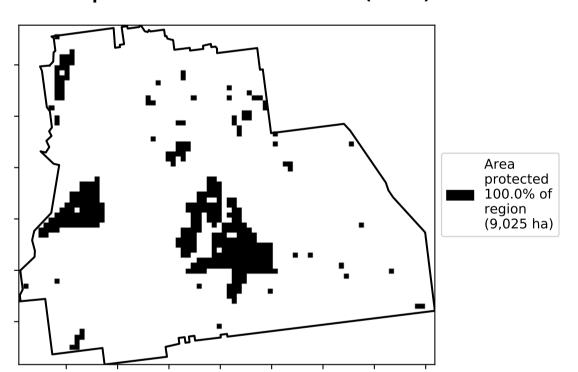
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.



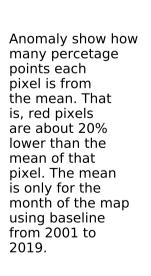
### **Total Vegetation Cover [%]**

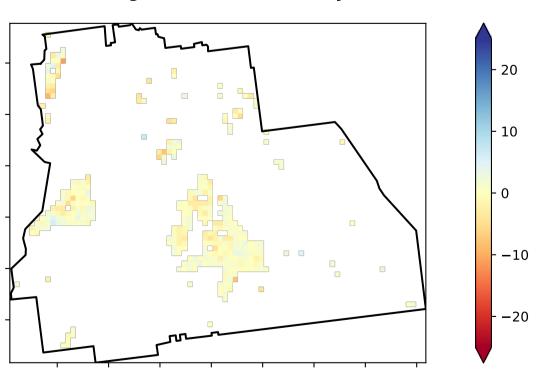


% Area protected from water erosion (>70%)



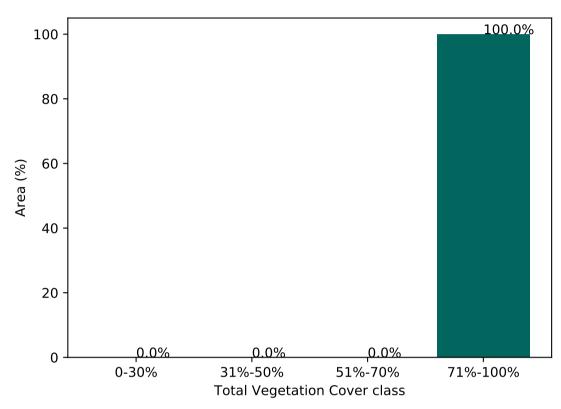
**Total Vegetation Cover Anomaly [%]** 





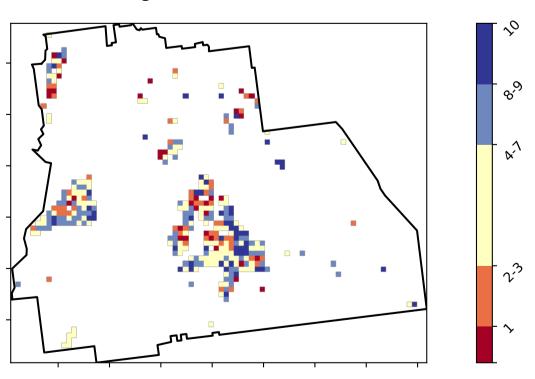
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









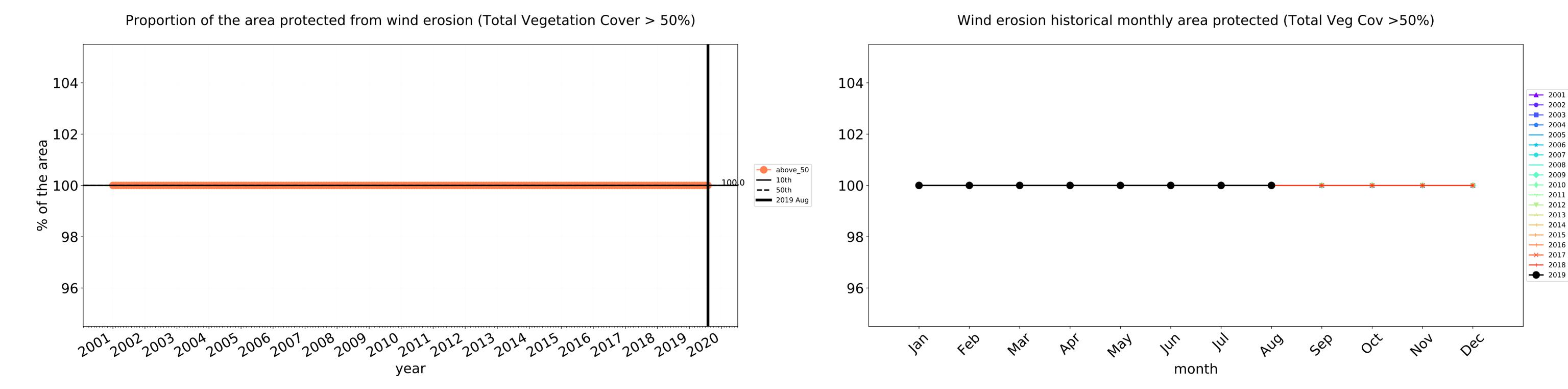


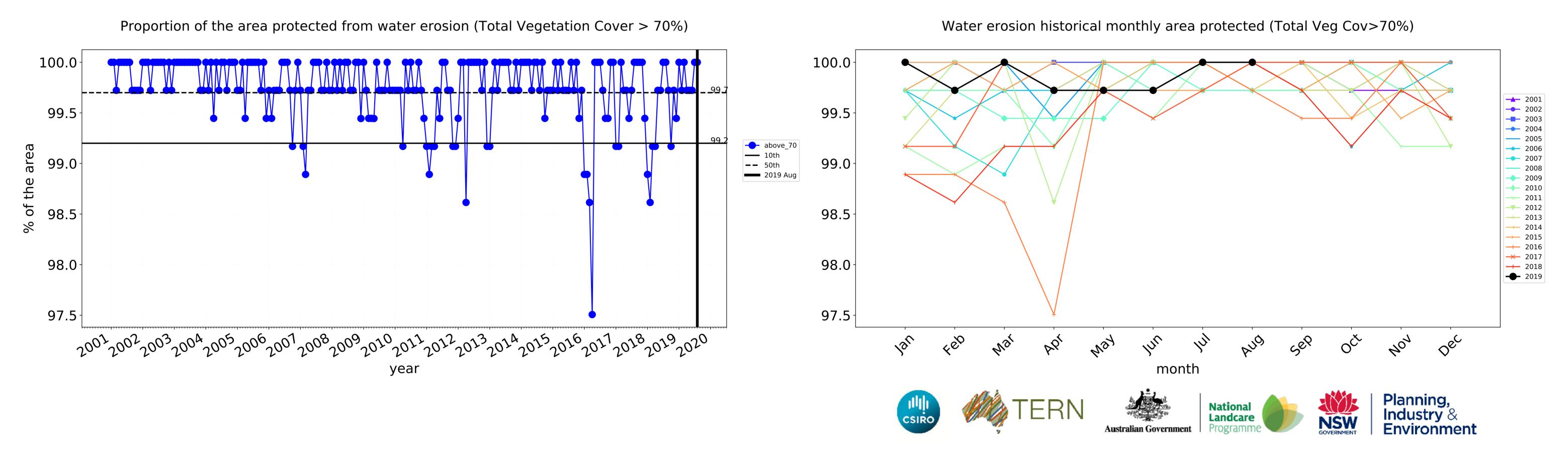


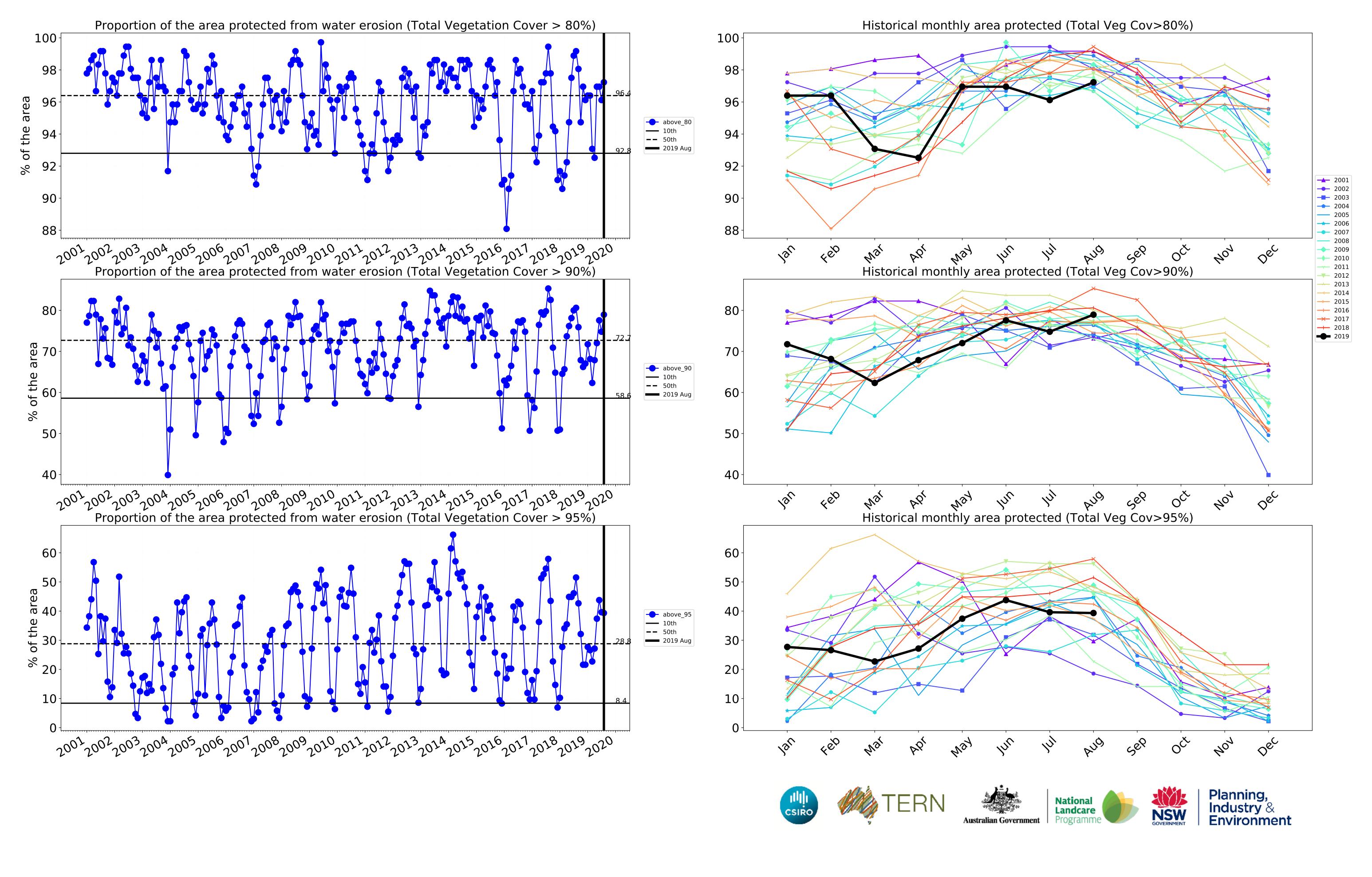




### **Conservation and natural environments timeseries**



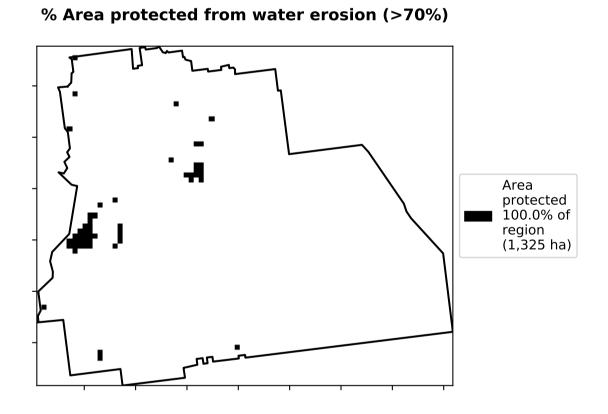


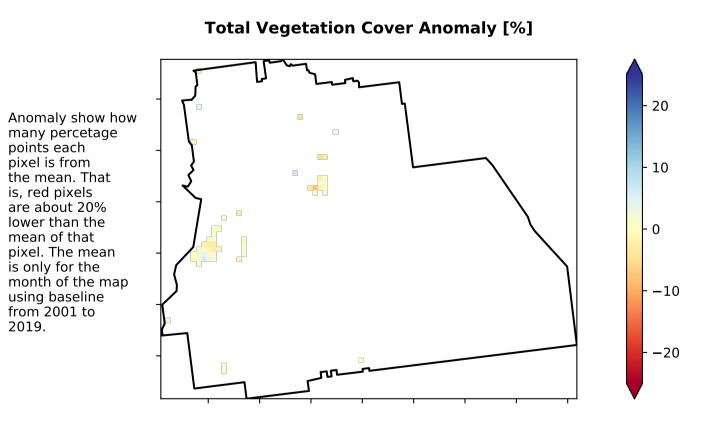


### **Conservation and natural environments non forest**

### Land use and forest cover Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < Conservation and natural environments - Non-forest 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.

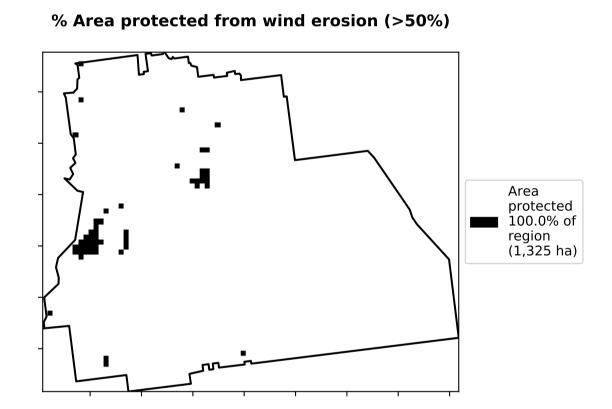
## **Total Vegetation Cover [%]**

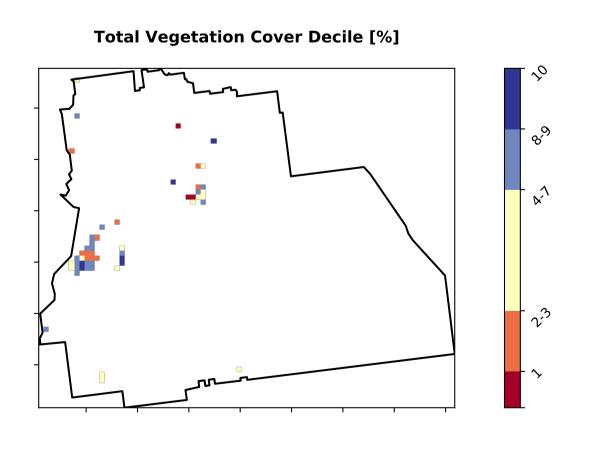




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area 100.0% 100 80 -60 · 40 -20 -0.0% 0.0% 0.0% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**









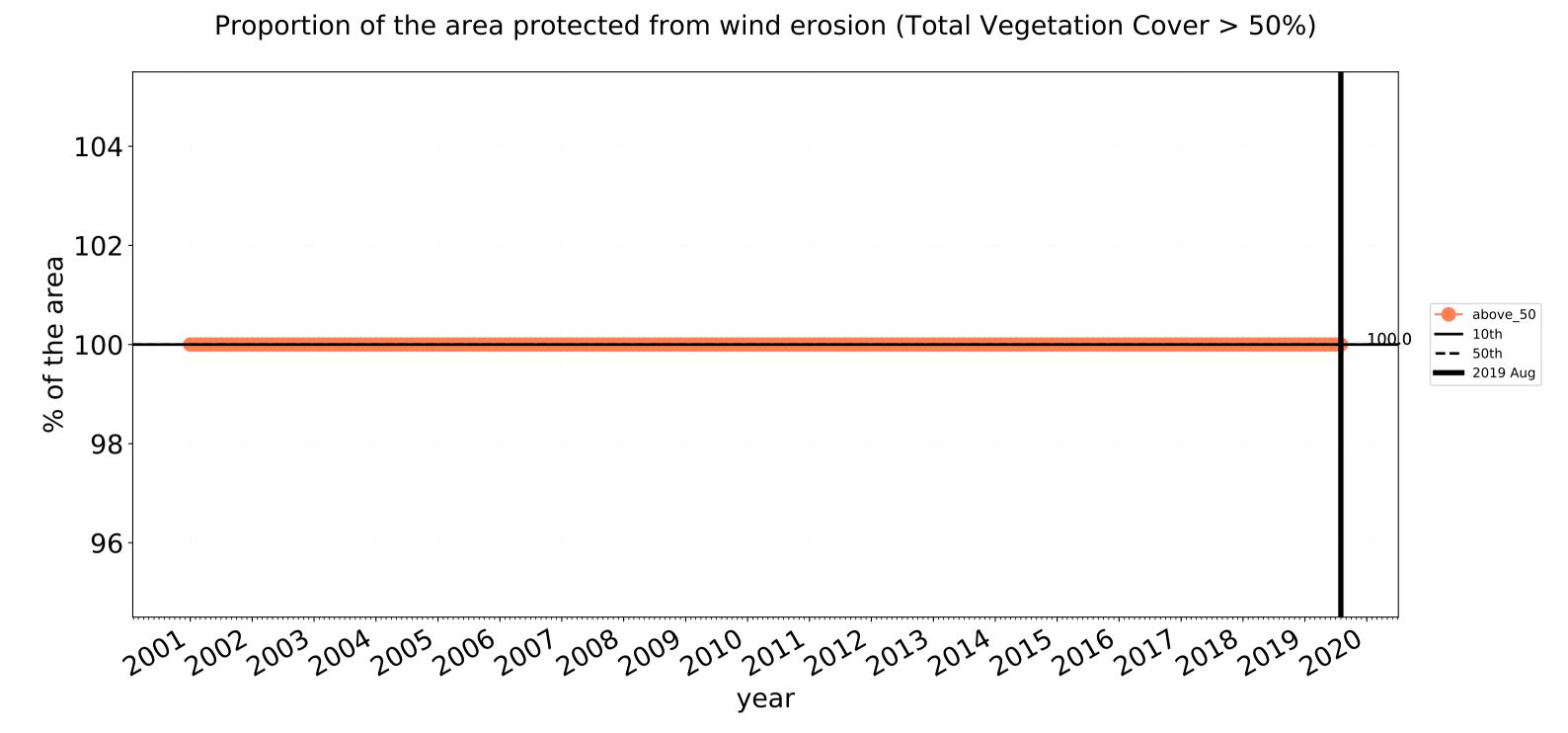


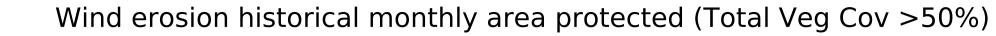


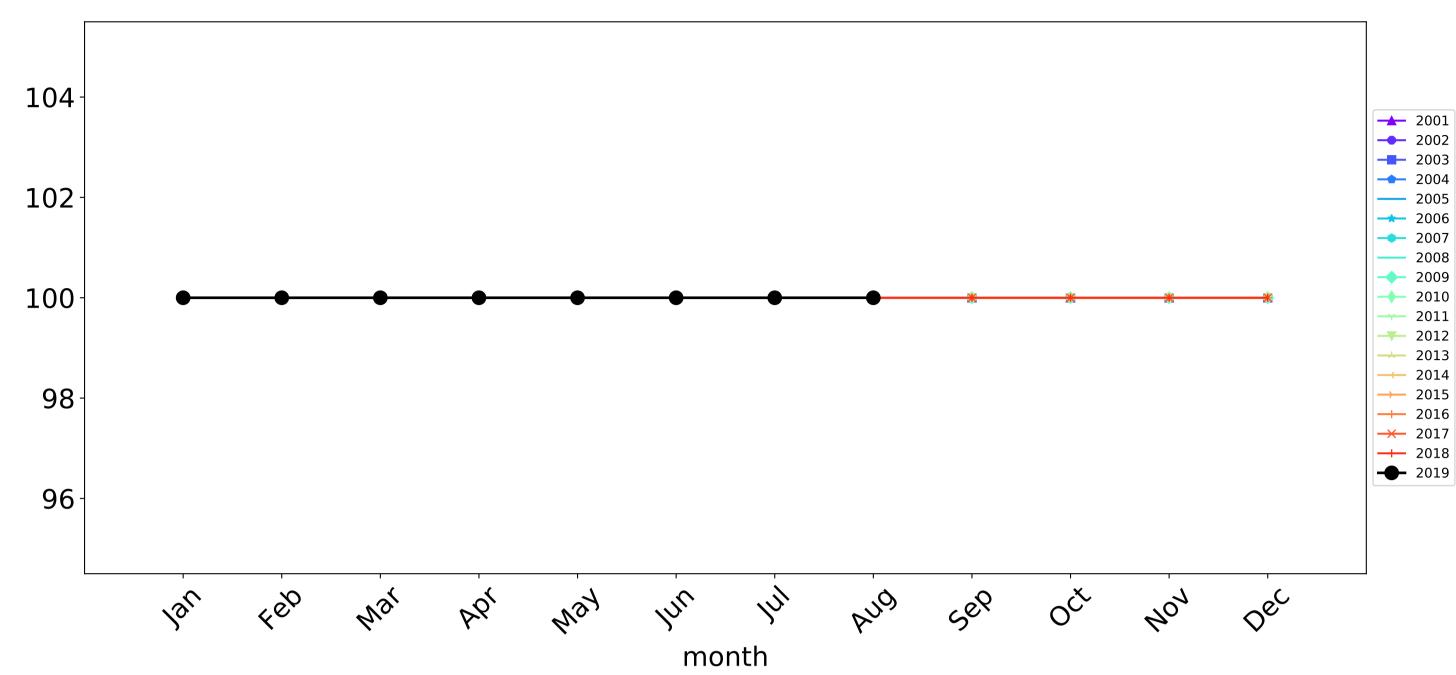


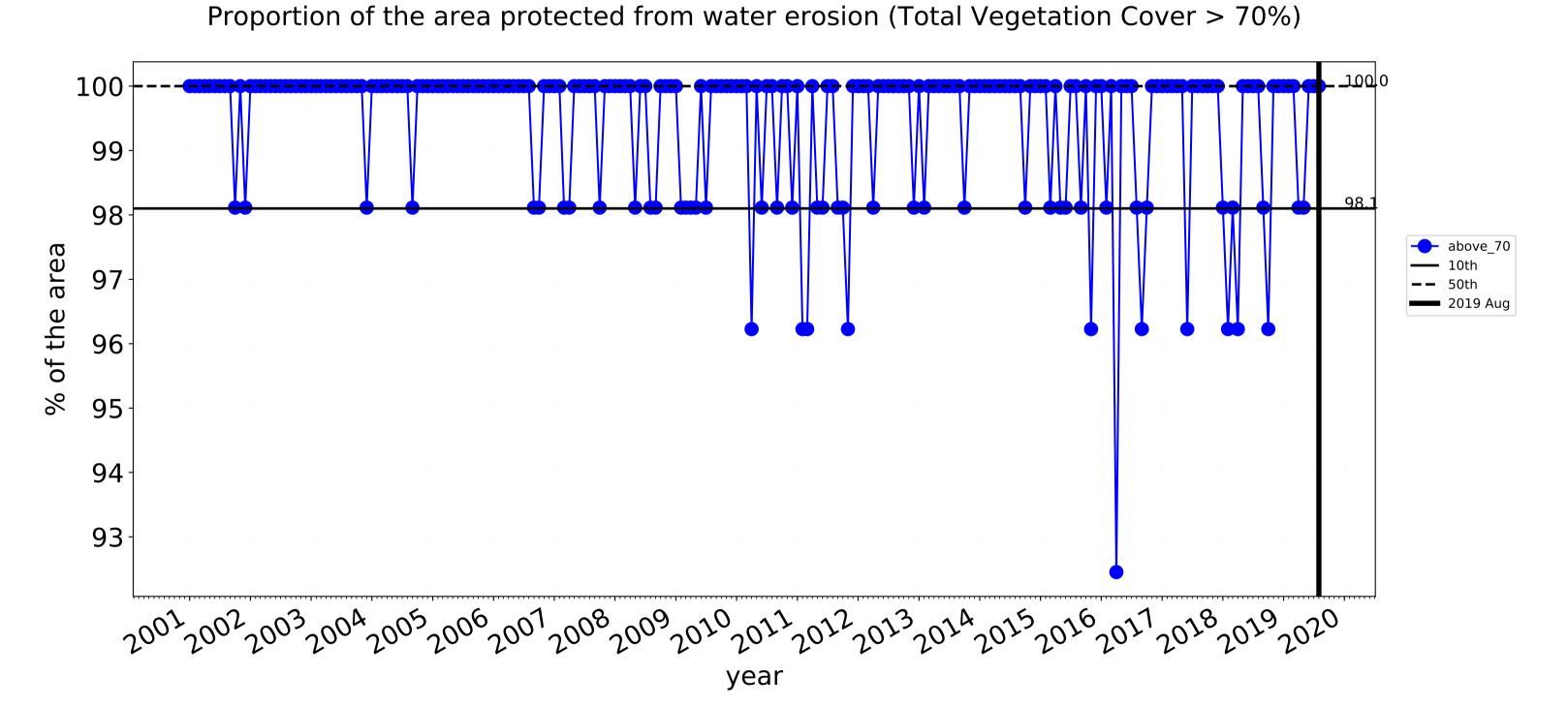


### **Conservation and natural environments non forest timeseries**

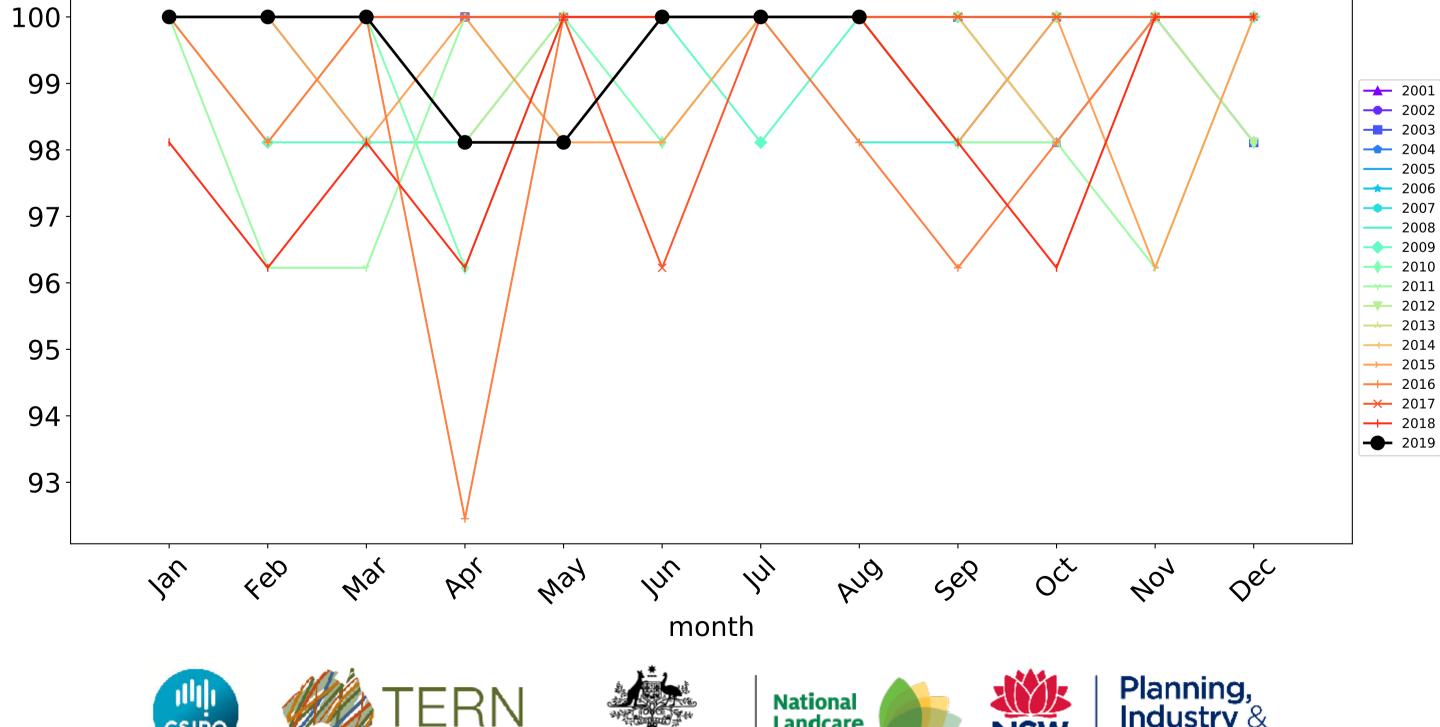








### Water erosion historical monthly area protected (Total Veg Cov>70%)



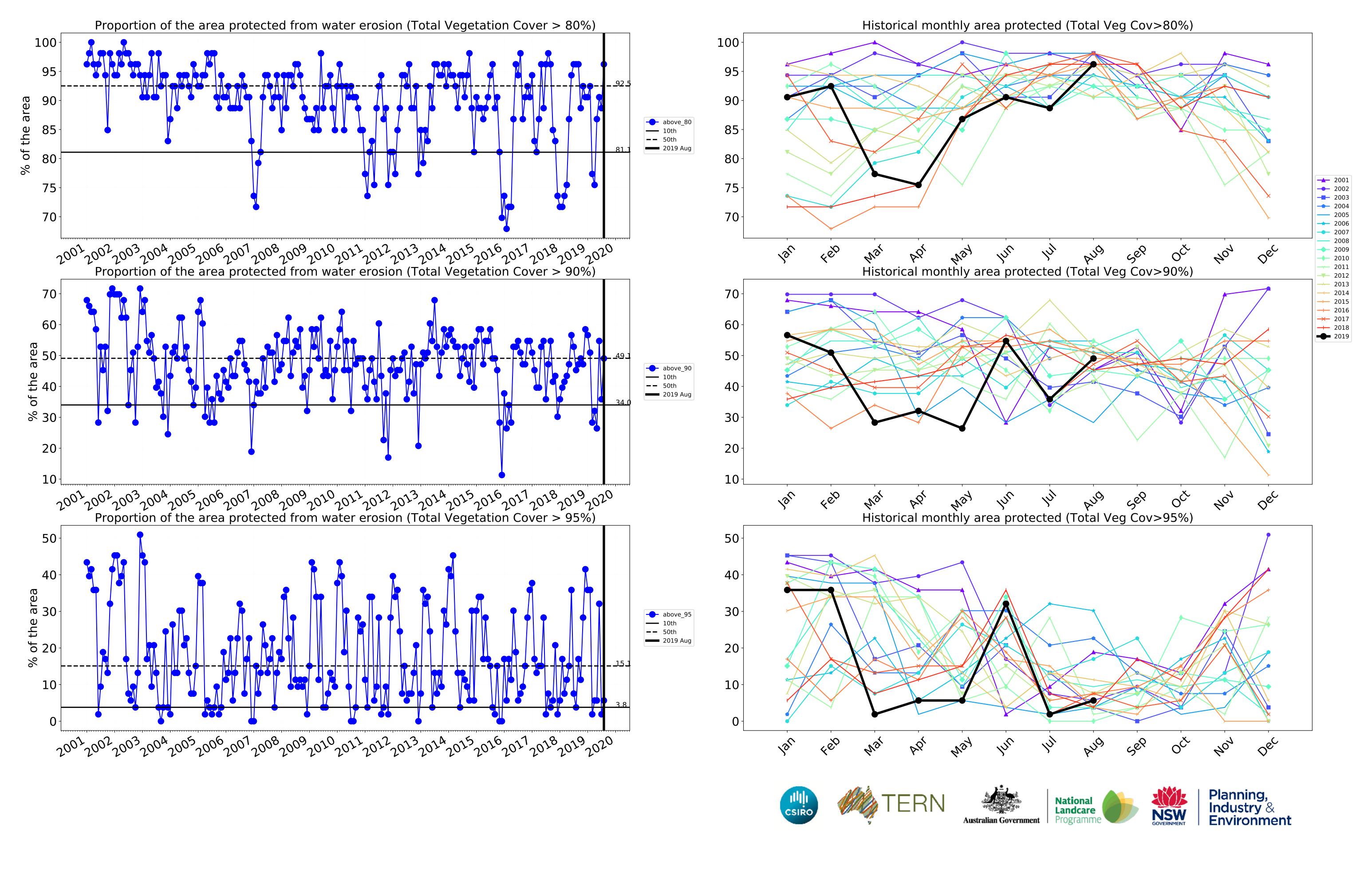








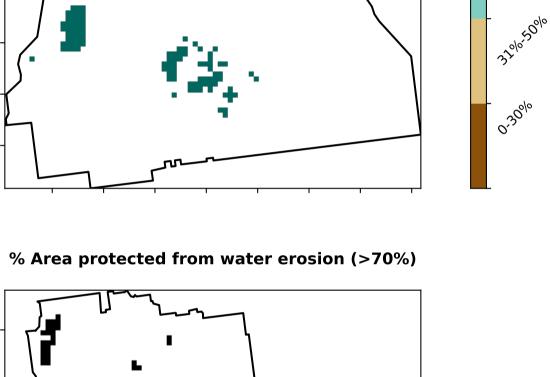


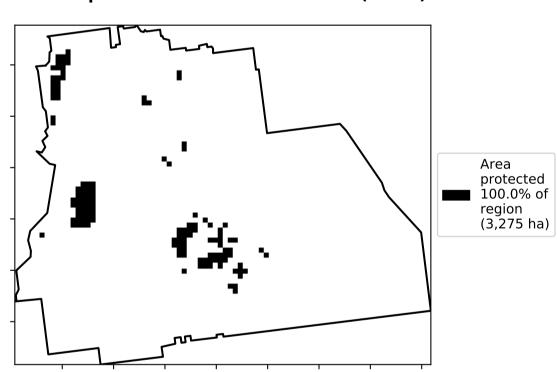


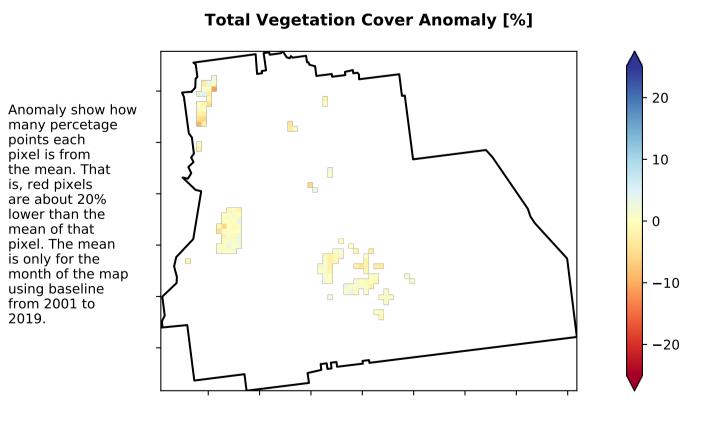
### **Conservation and natural environments Woodland forest**

### Land use and forest cover Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < Conservation and natural environments - Woodland 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.

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

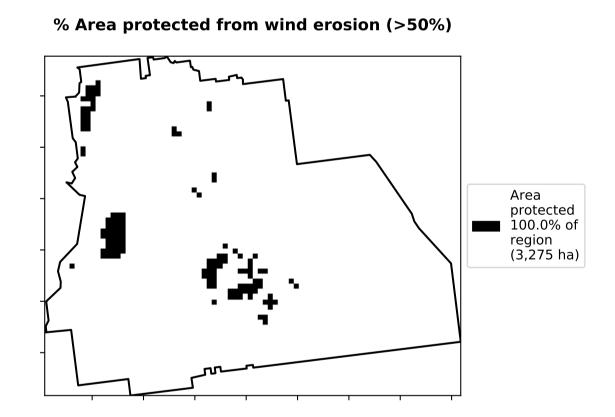


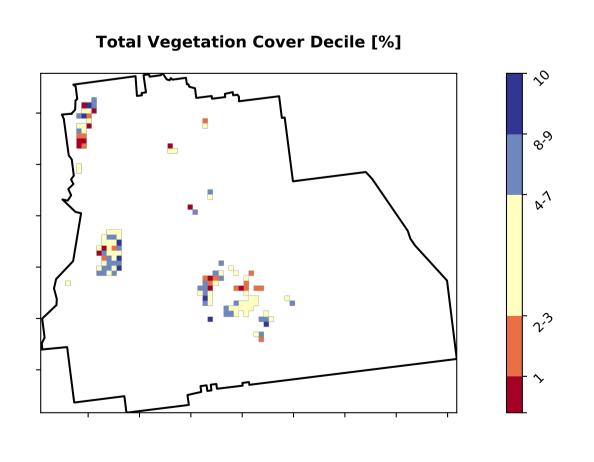




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### Proportion of vegetation cover class in area 100.0% 100 80 -60 · 40 -20 -0.0% 0.0% 0.0% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**







is, red pixels

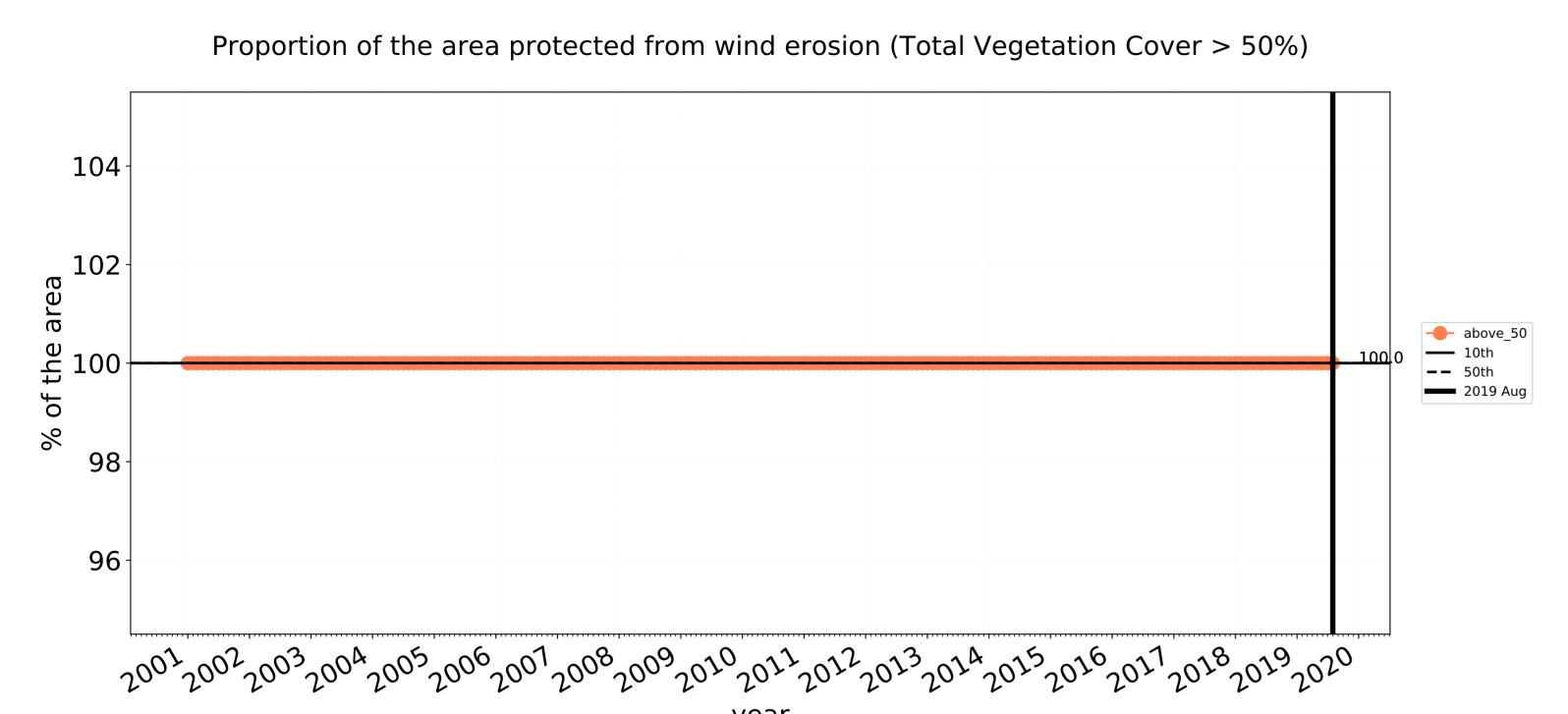




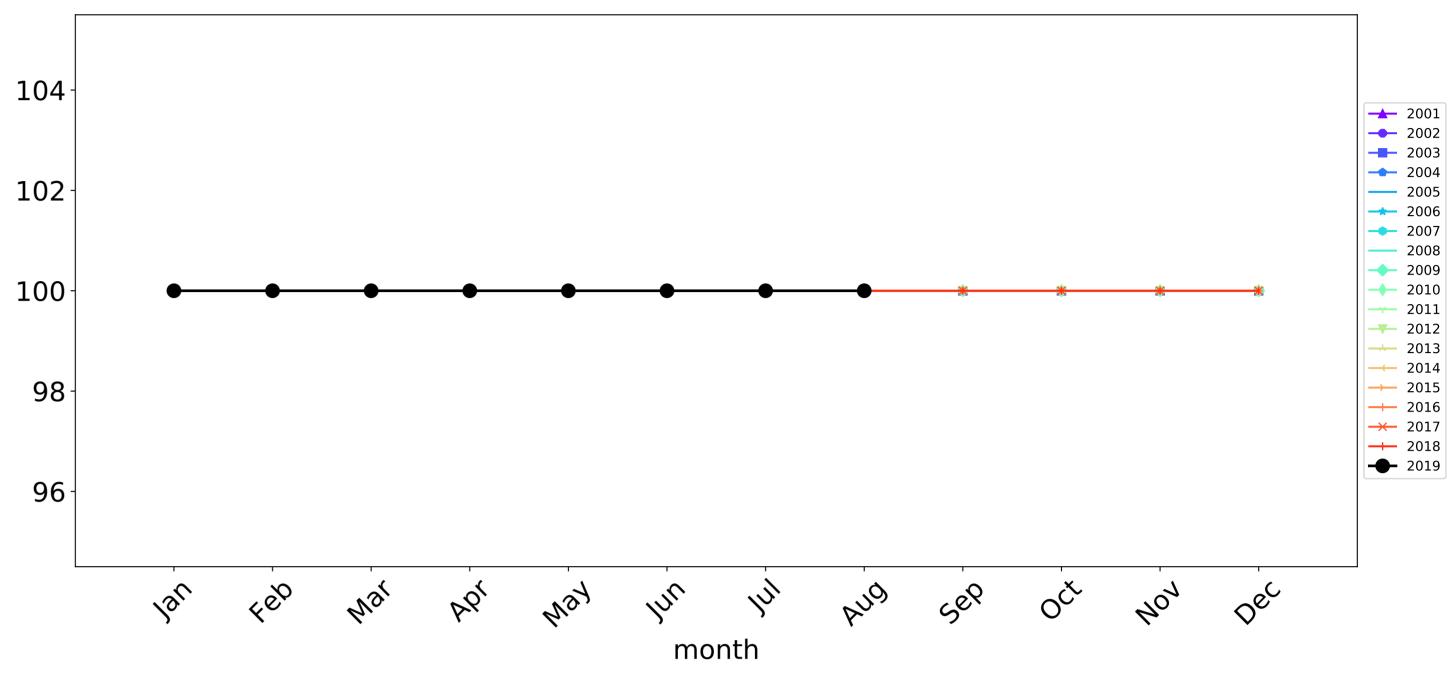


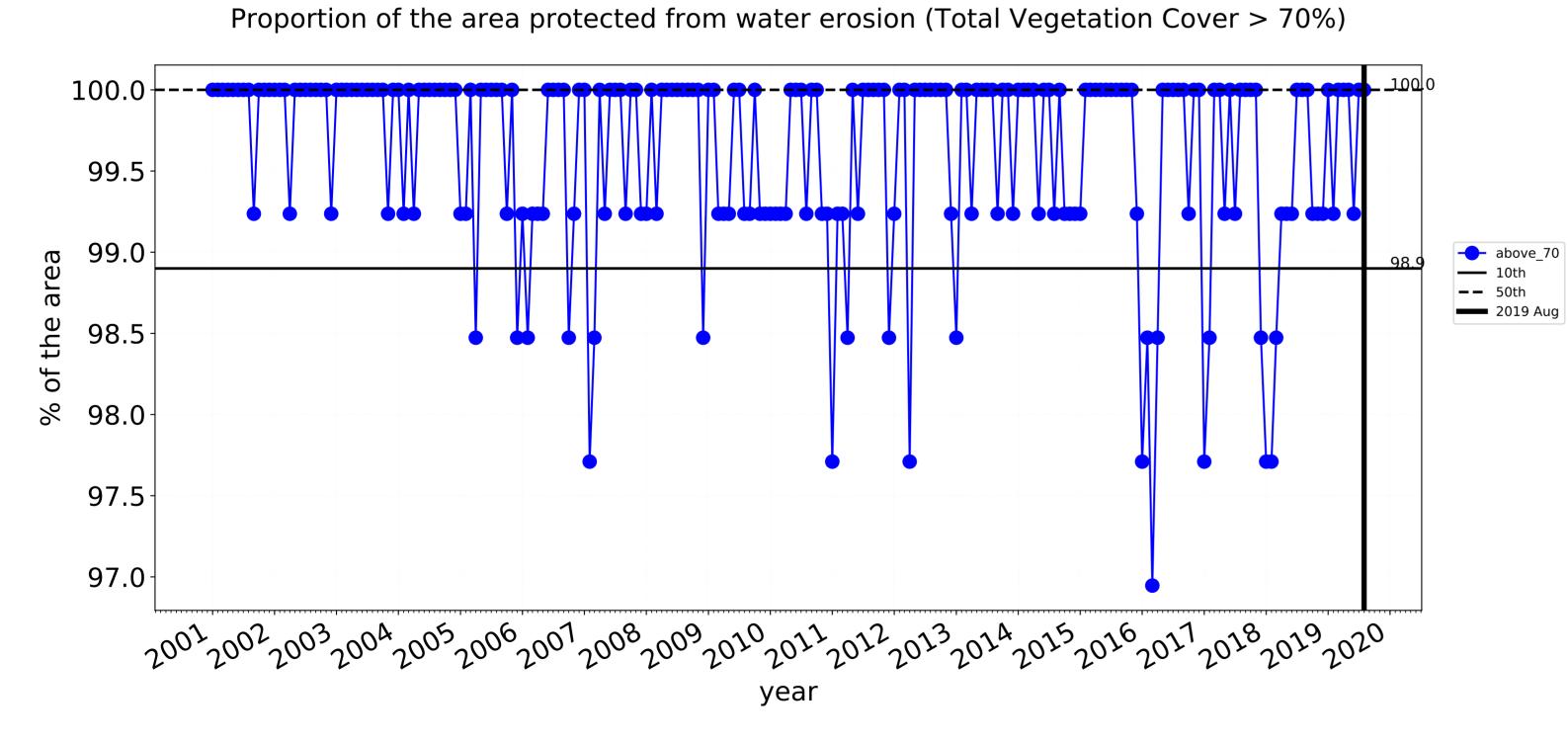


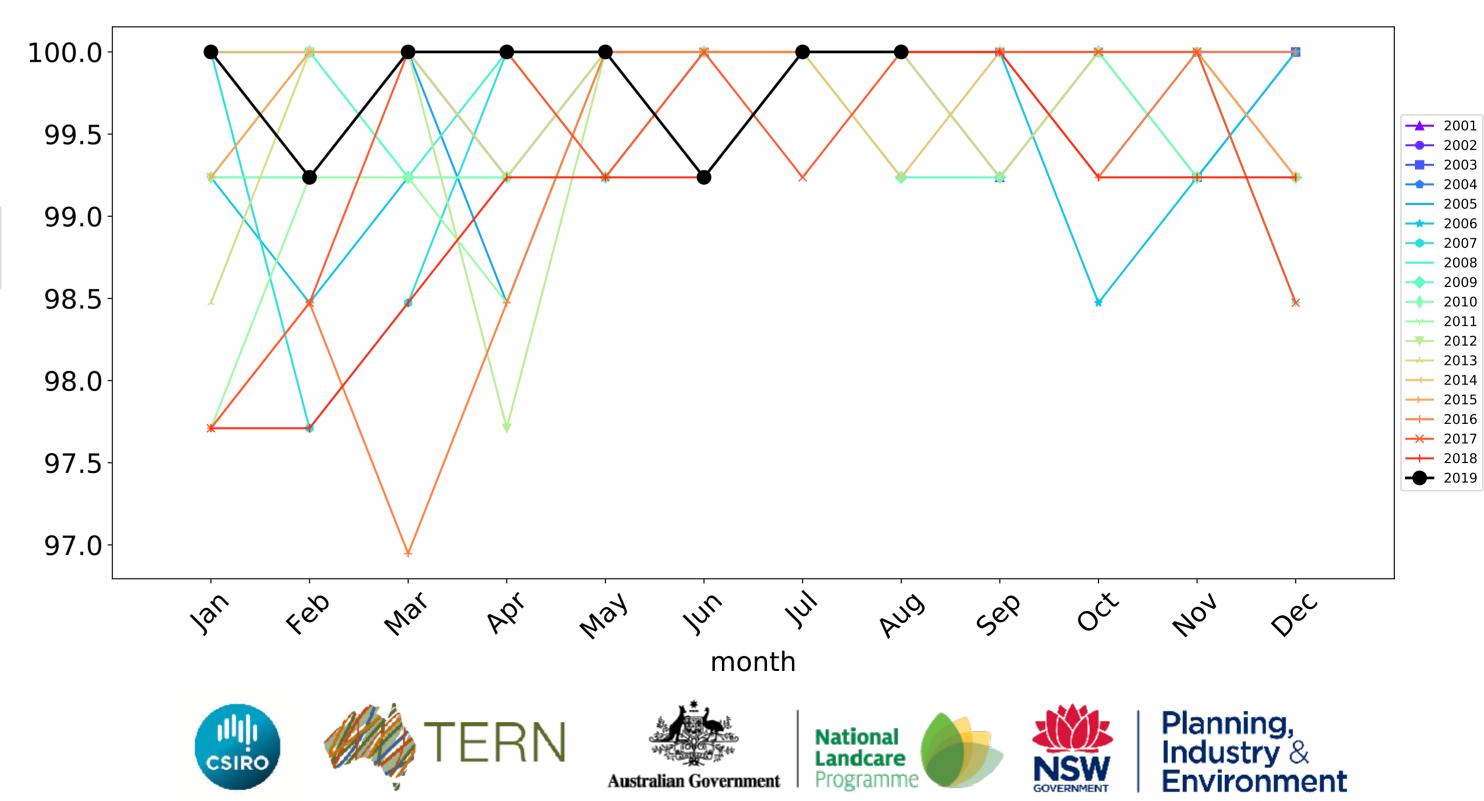




### Wind erosion historical monthly area protected (Total Veg Cov >50%)



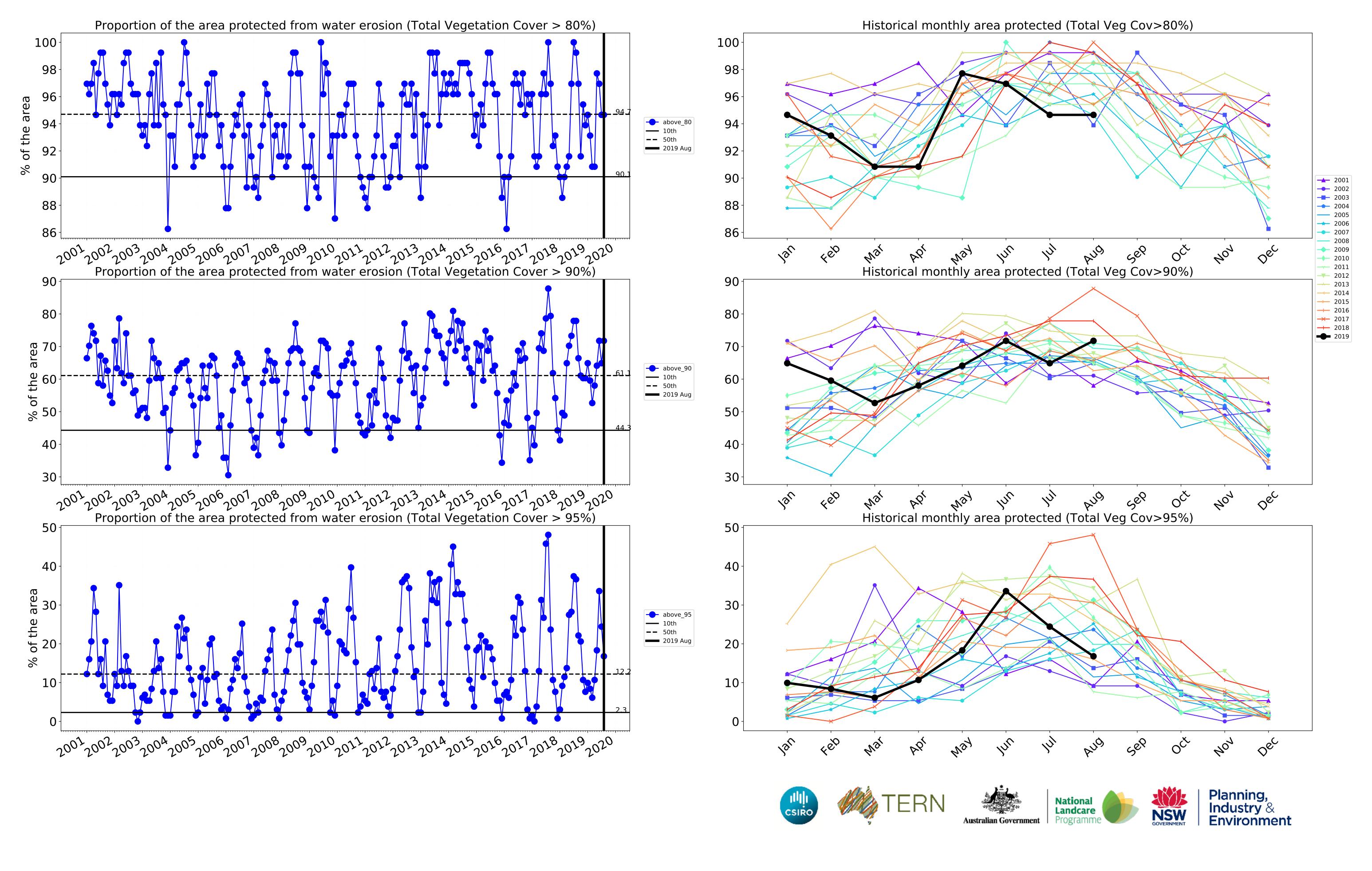




Landcare

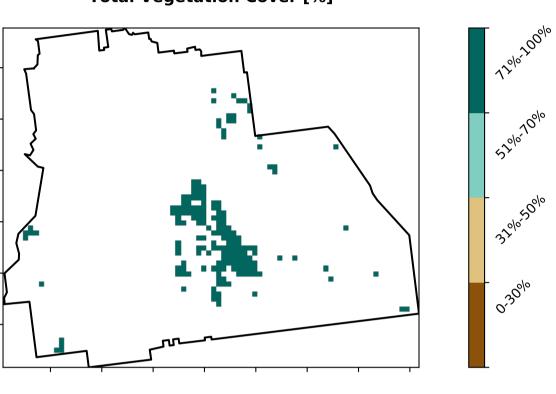
NSW GOVERNMENT

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



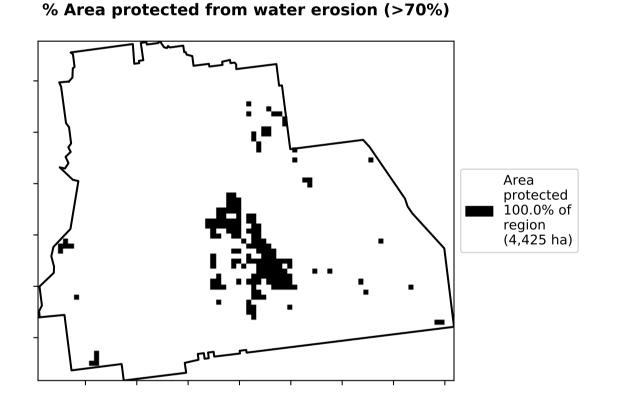
### **Conservation and natural environments Forest (non woodland)**

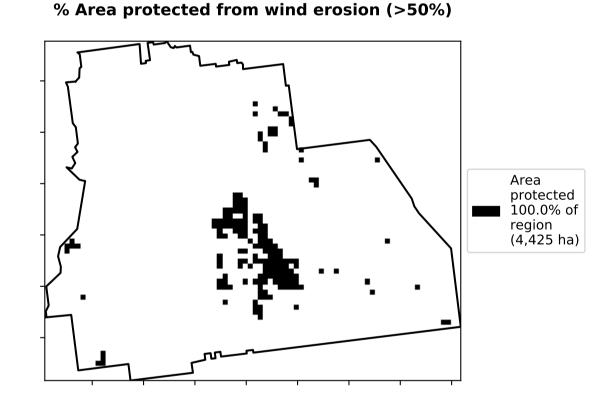
# Land use and forest cover Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover. Total Vegetation Cover [%]

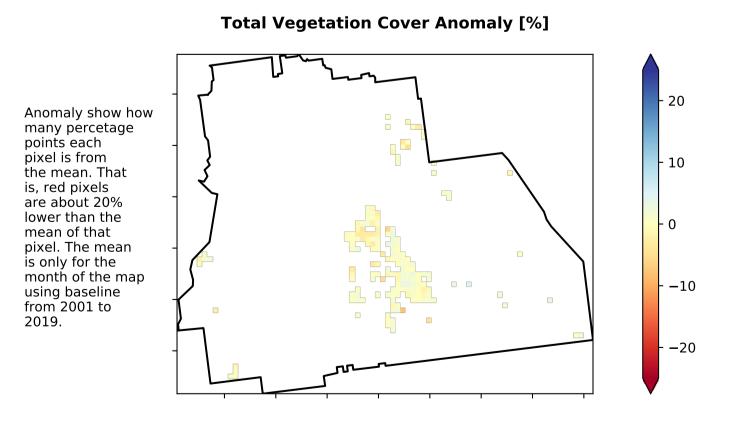


## 100 - 100.0% 80 - 20 - 0.0% 0.0% 0.0% O-30% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class

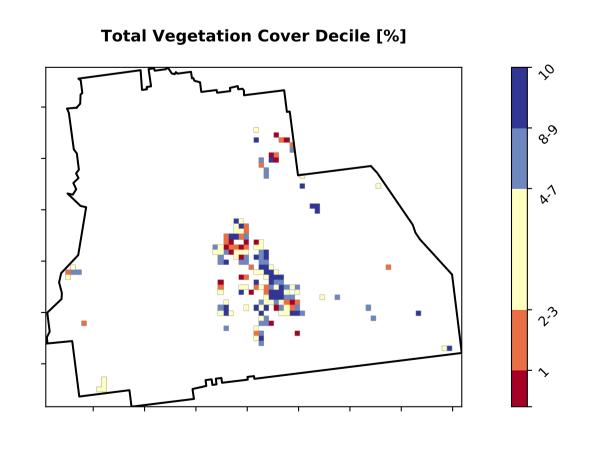
Proportion of vegetation cover class in area







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.





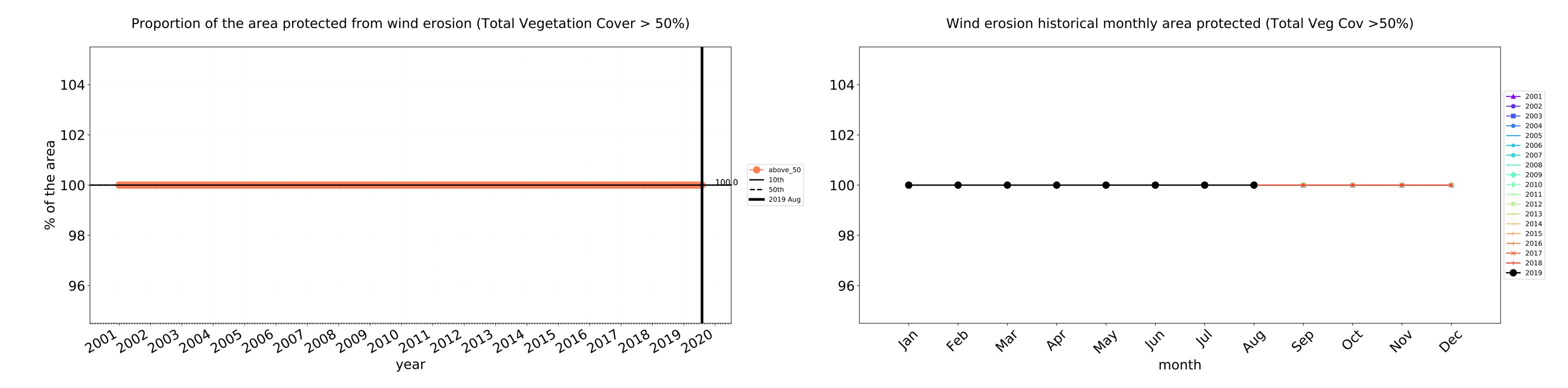


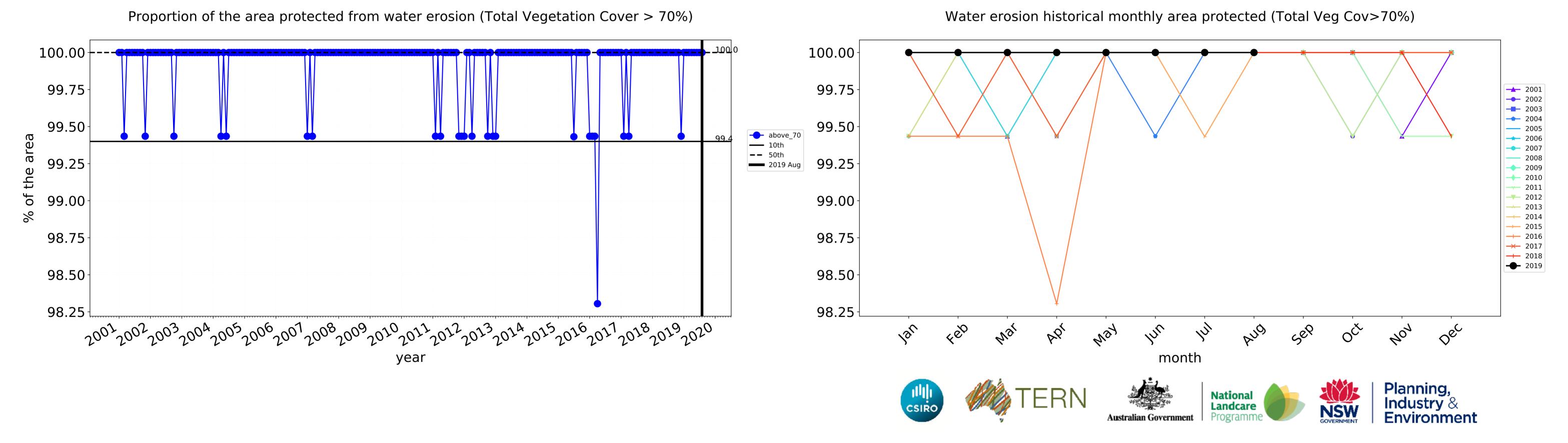


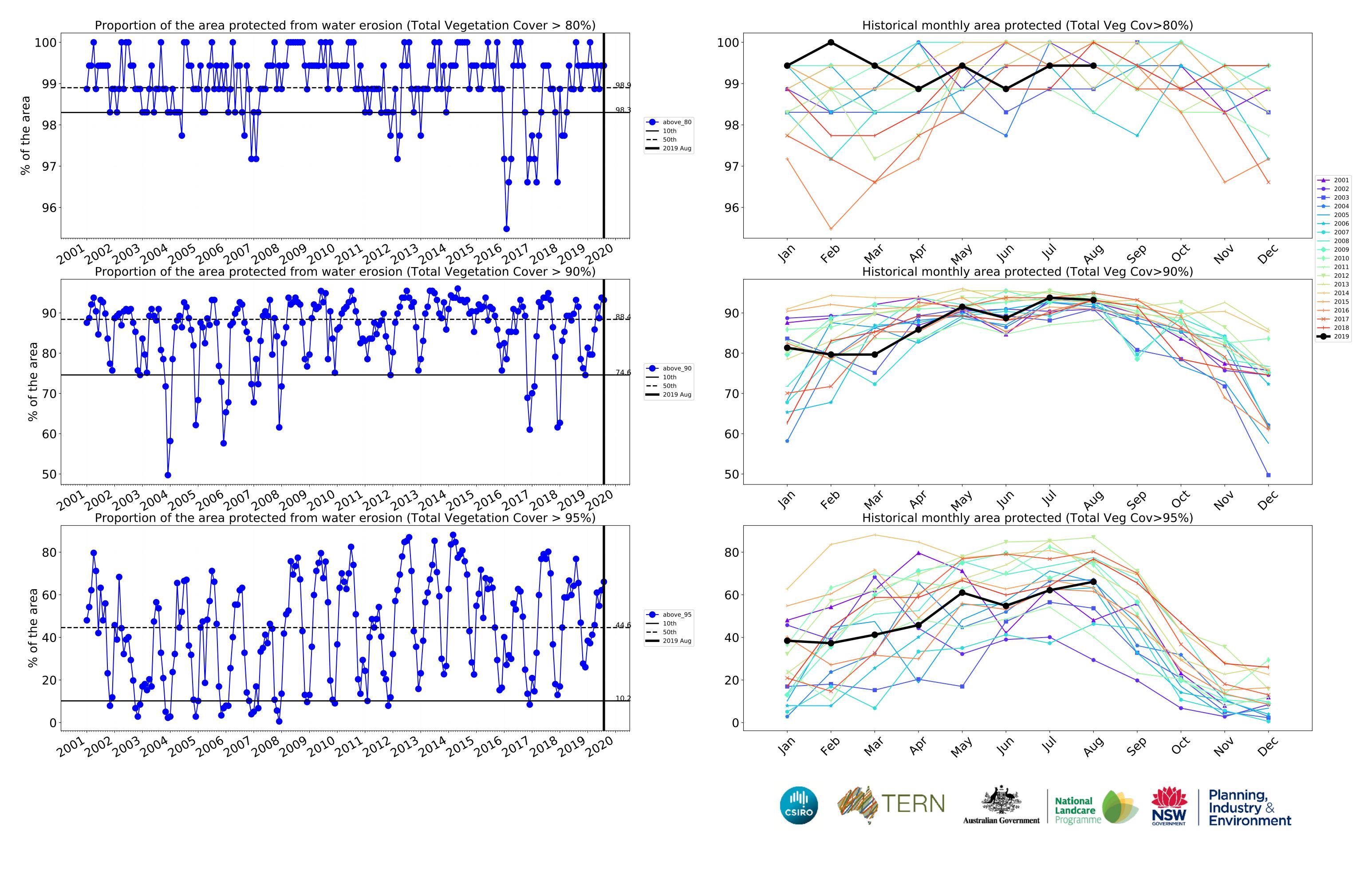












### **Agriculture**

### Land use and forest cover

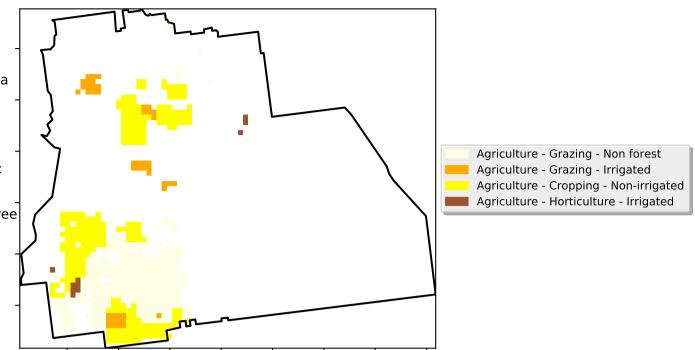
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.

the mean. That

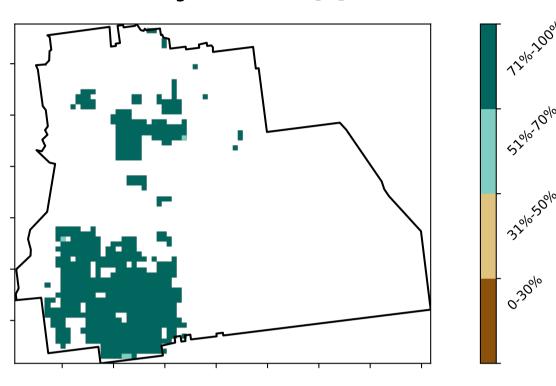
pixel. The mean

using baseline from 2001 to 2019.

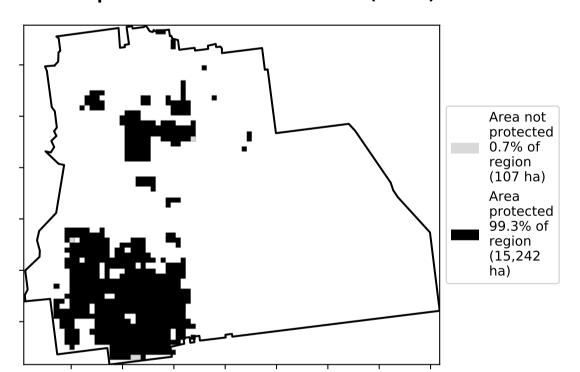
is, red pixels are about 20% lower than the mean of that



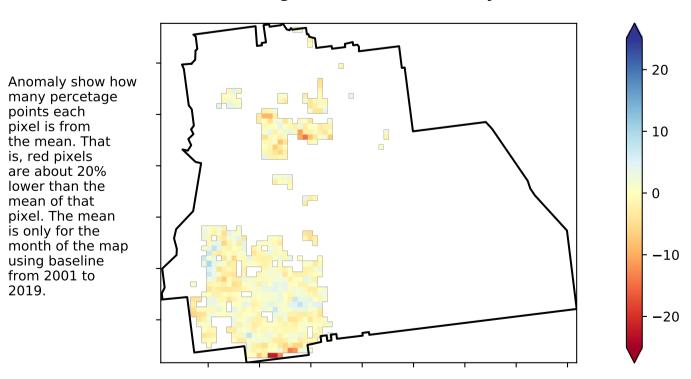
### **Total Vegetation Cover [%]**



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

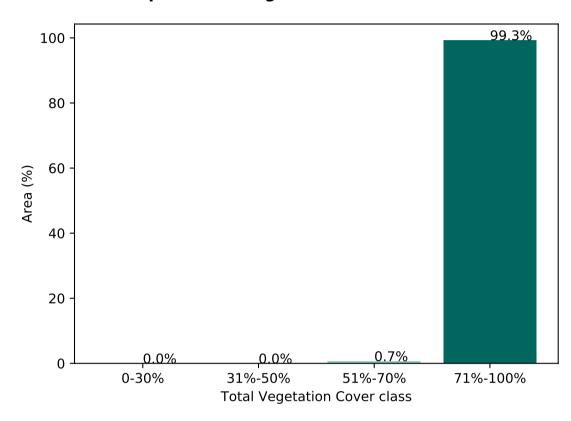


### **Total Vegetation Cover Anomaly [%]**

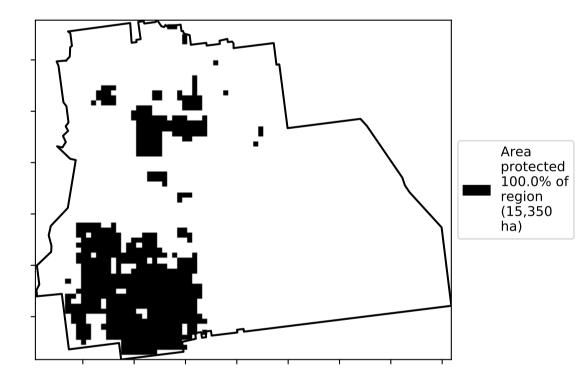


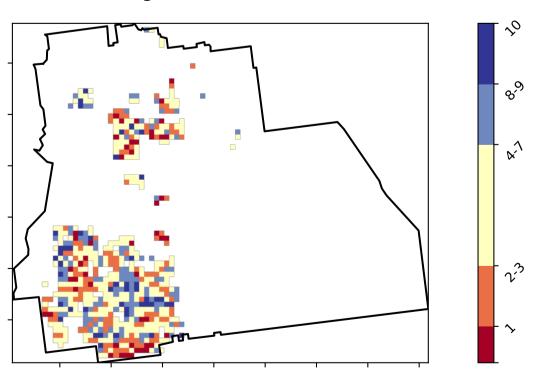
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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











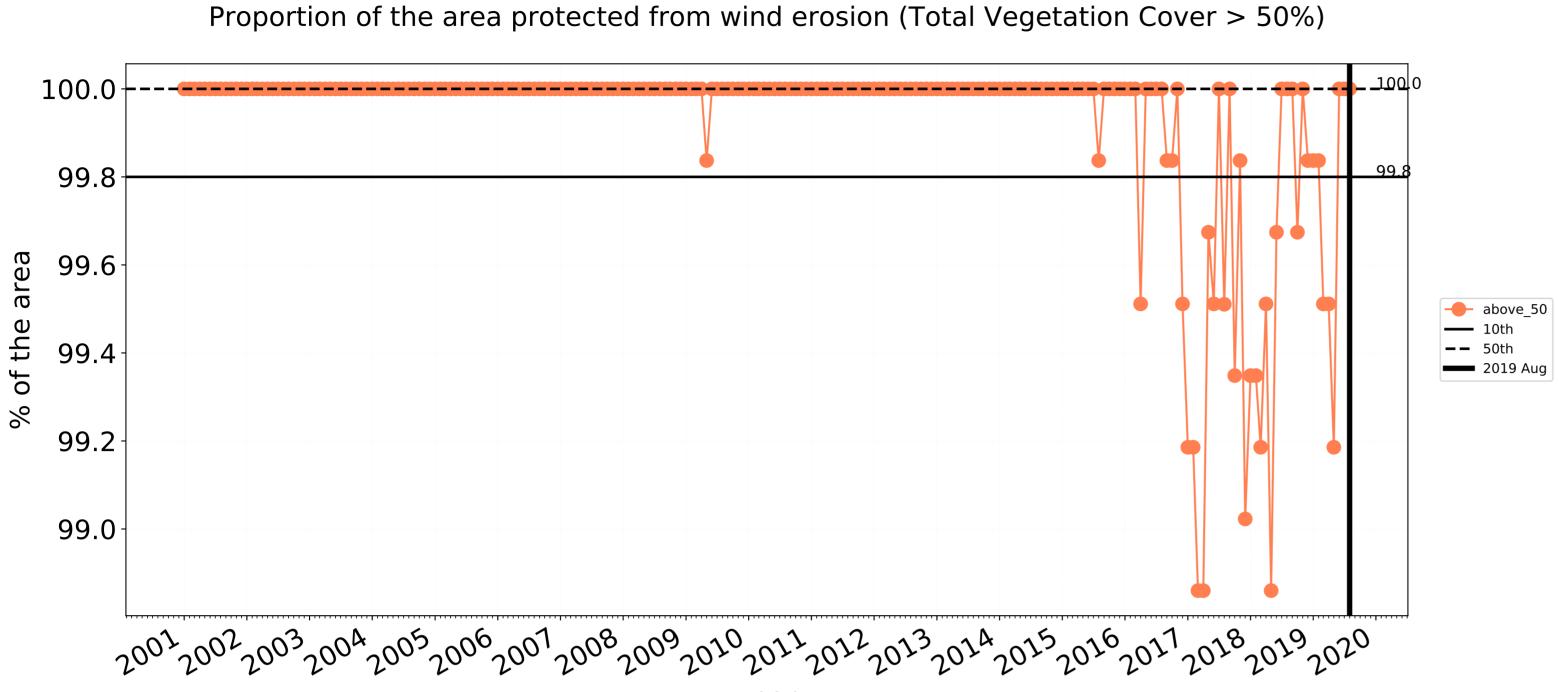


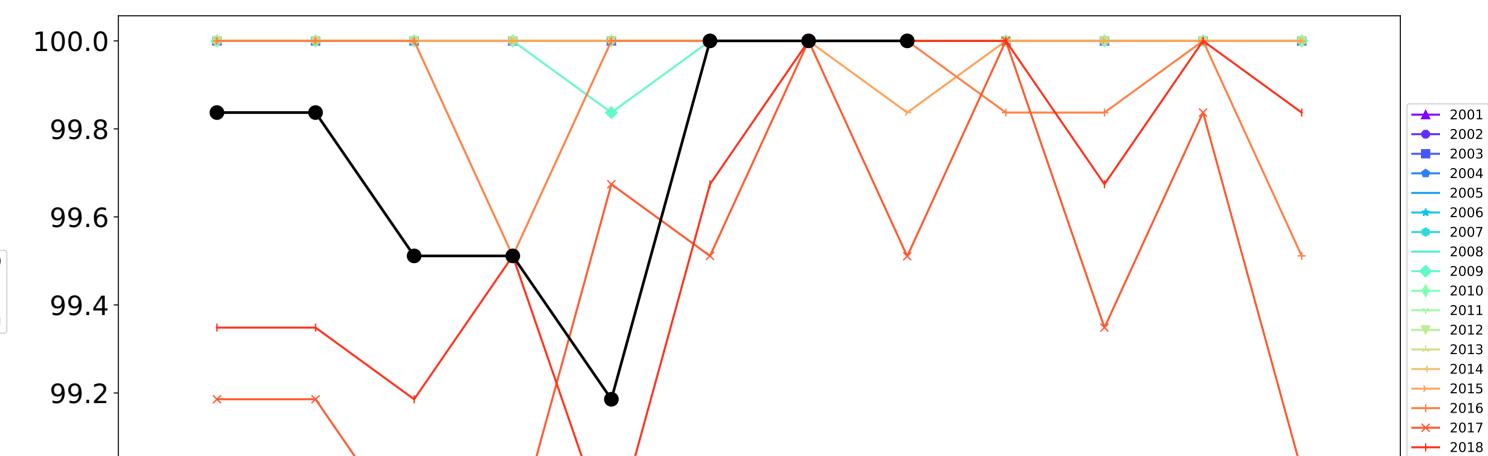




### **Agriculture timeseries**

99.0

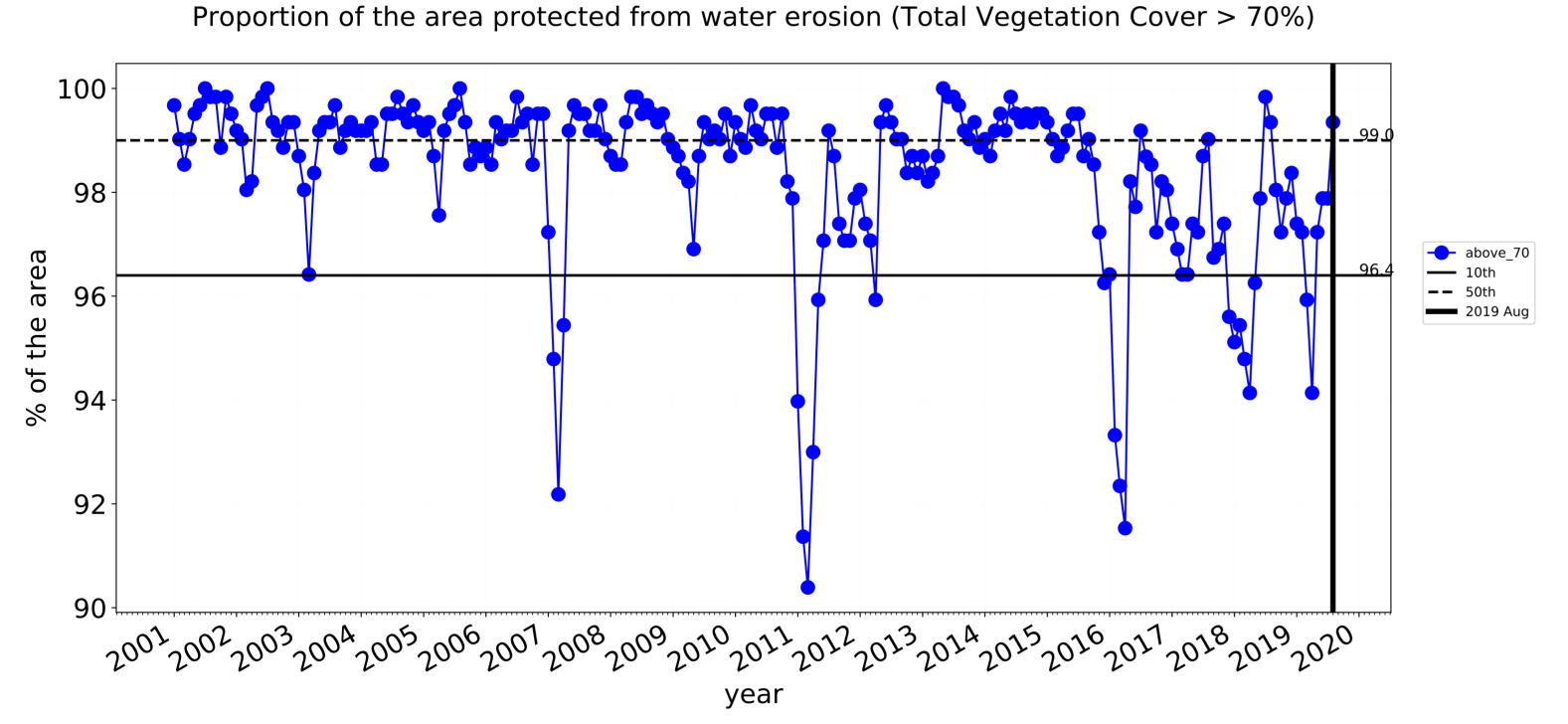


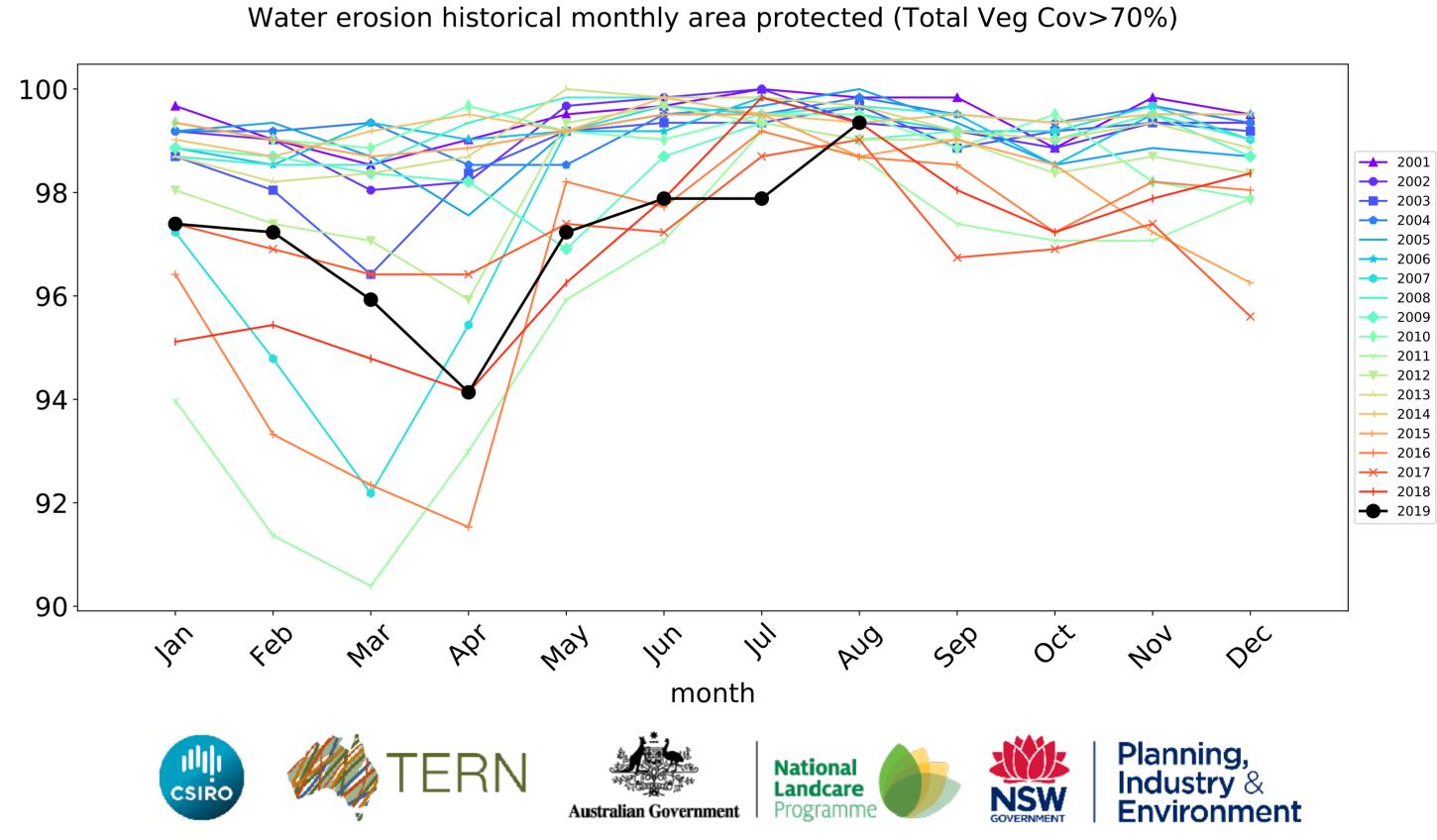


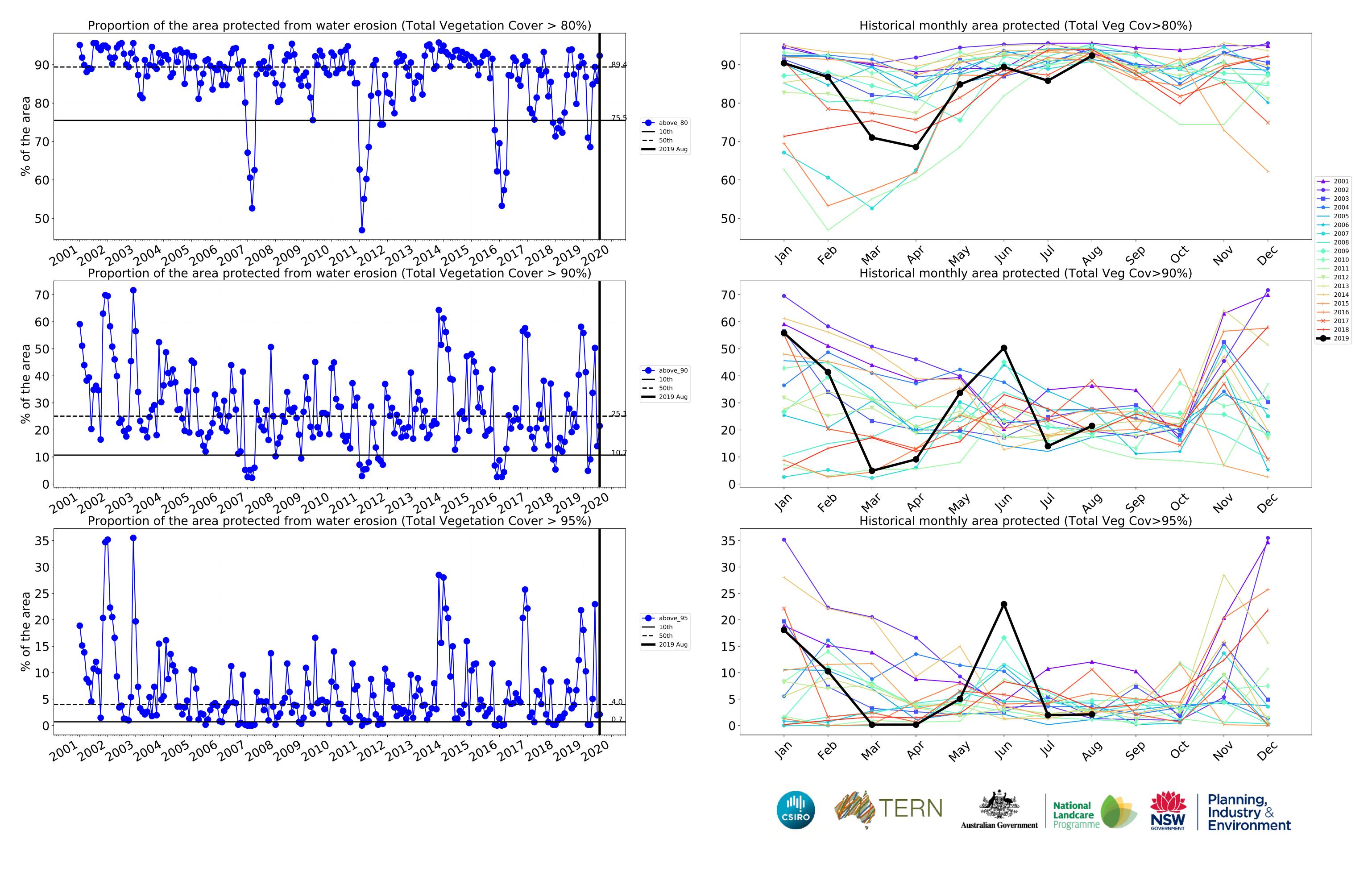
month

**—** 2019

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







### Grazing

### Land use and forest cover

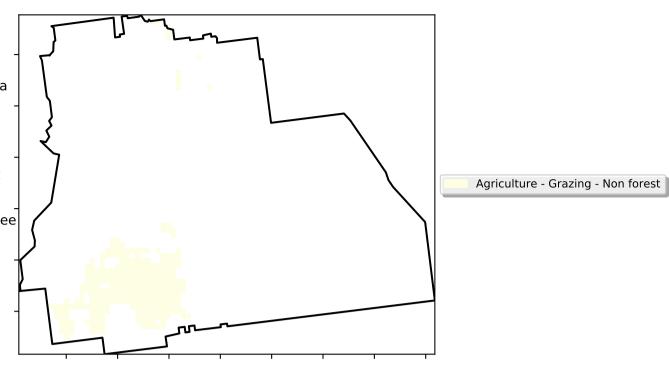
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.

the mean. That

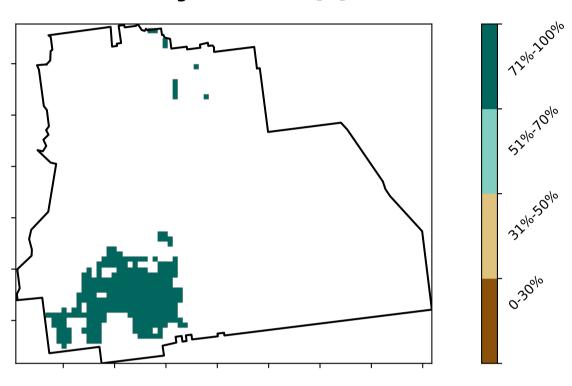
is only for the month of the map

using baseline from 2001 to 2019.

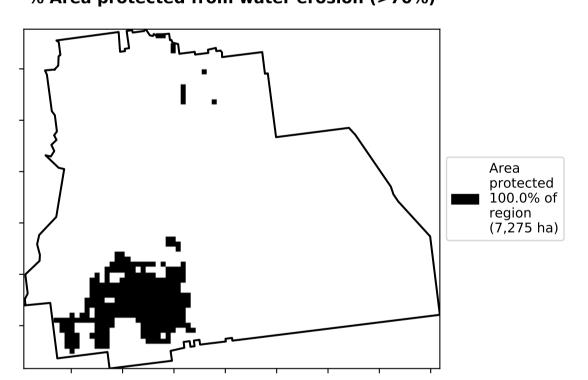
is, red pixels are about 20% lower than the mean of that pixel. The mean



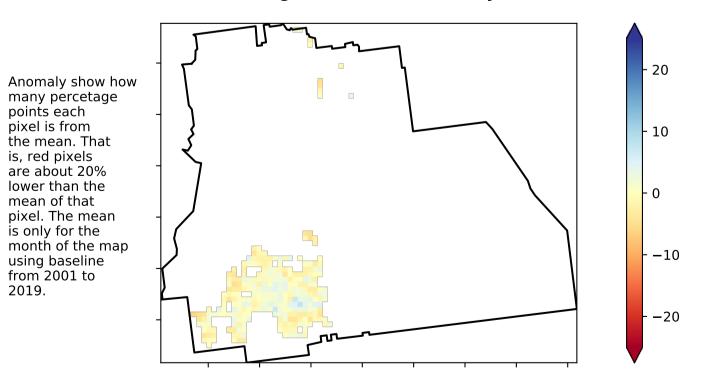
### **Total Vegetation Cover [%]**



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

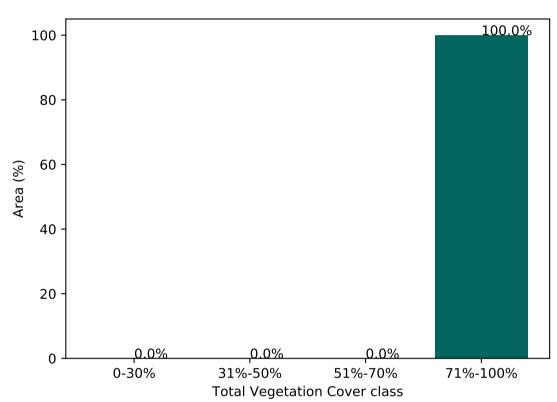


### **Total Vegetation Cover Anomaly [%]**

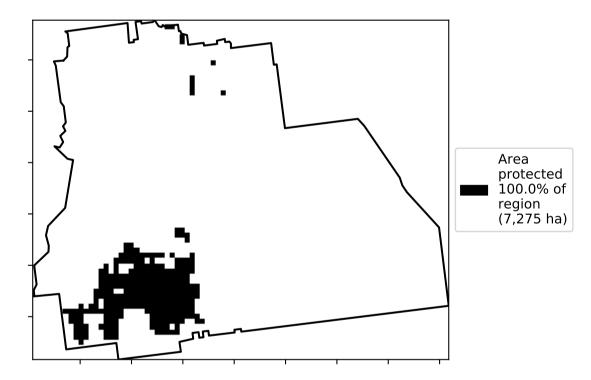


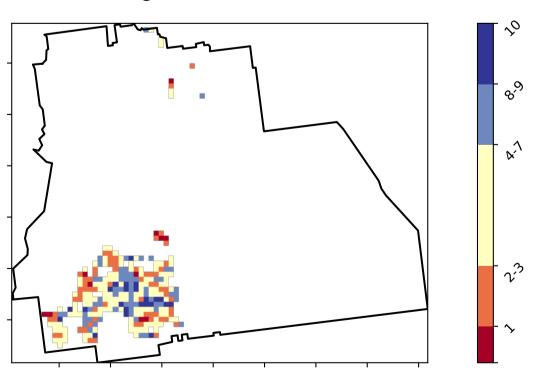
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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









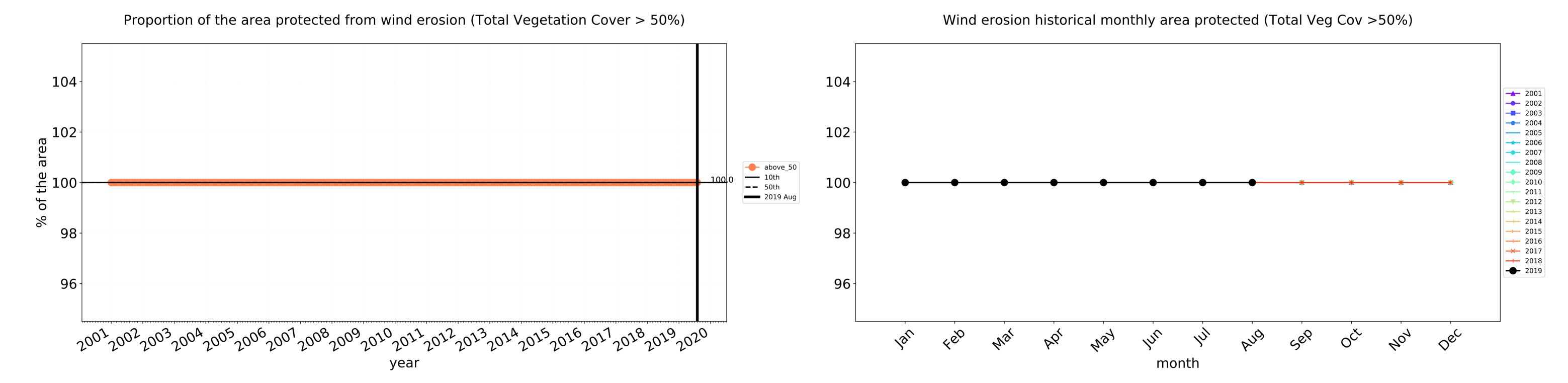


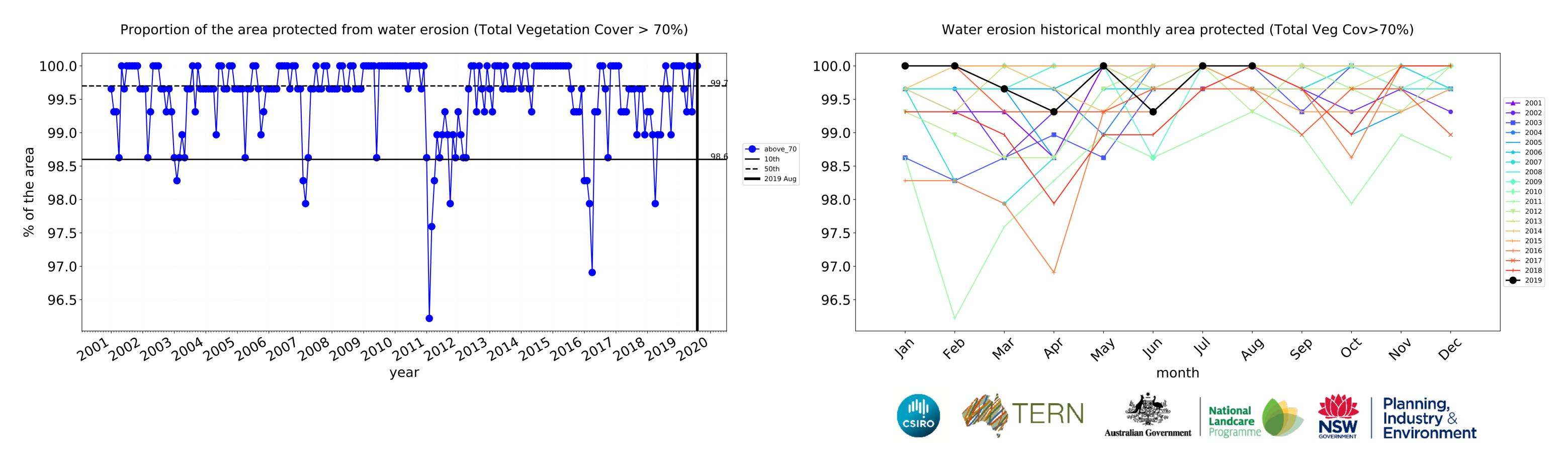


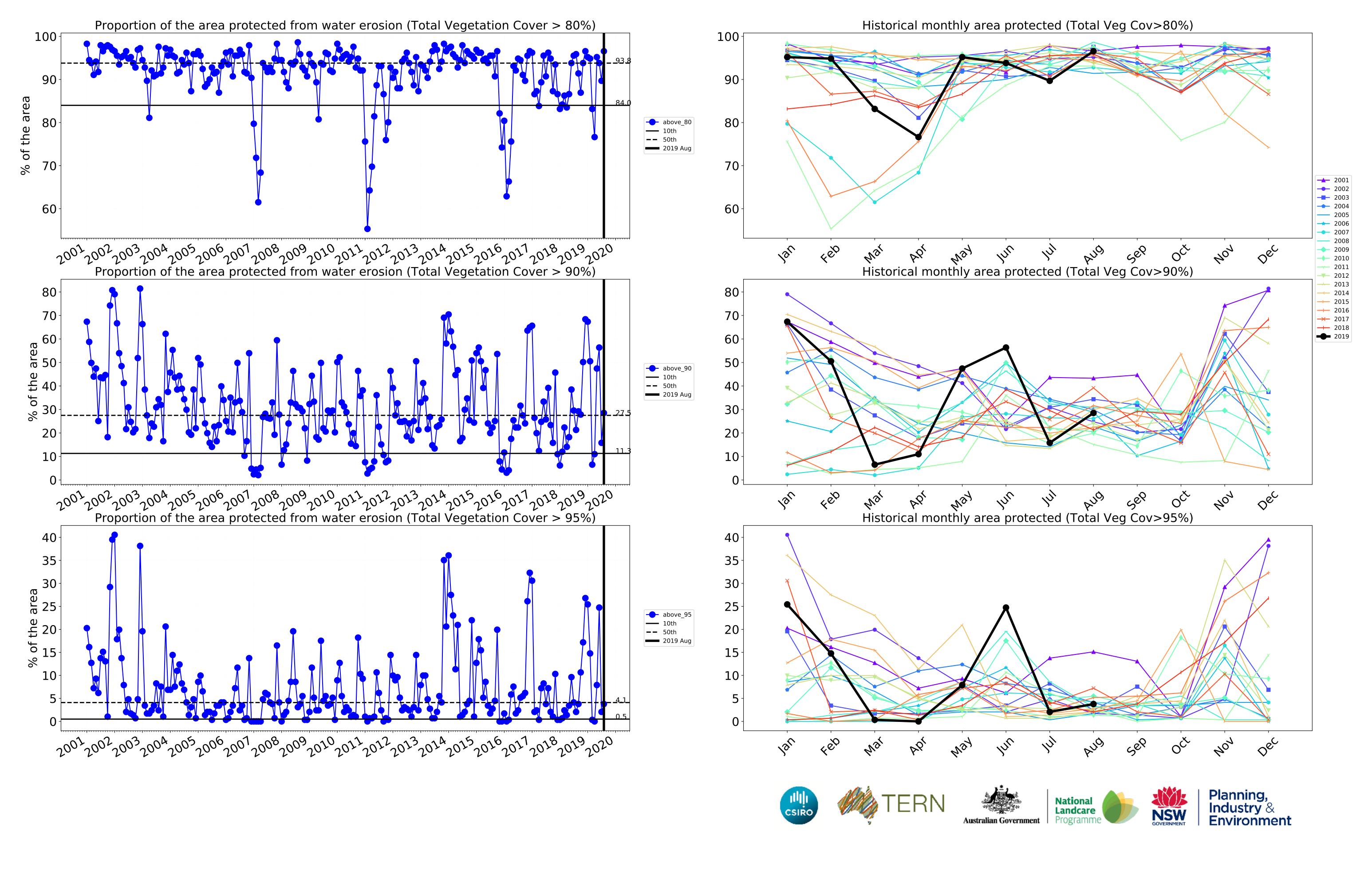




### **Grazing timeseries**







### **Grazing non forest**

### Land use and forest cover

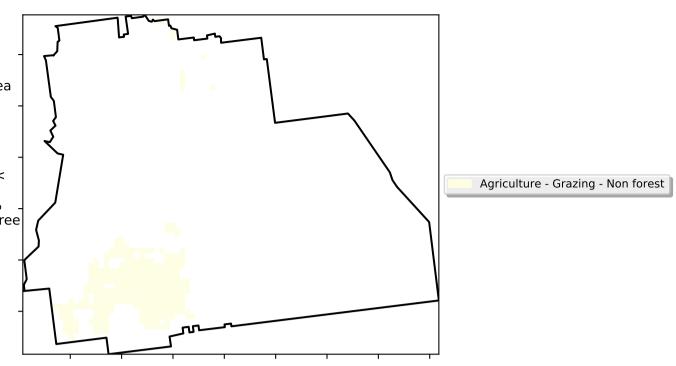
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.

the mean. That

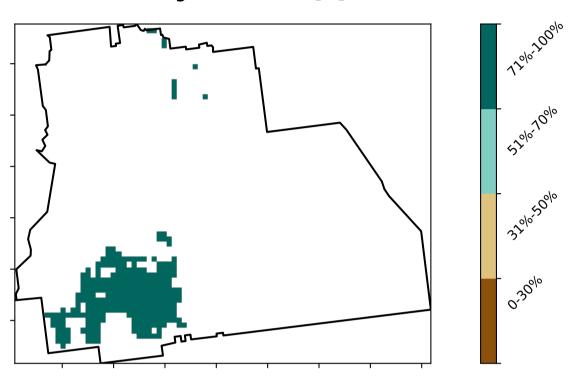
is only for the month of the map

using baseline from 2001 to 2019.

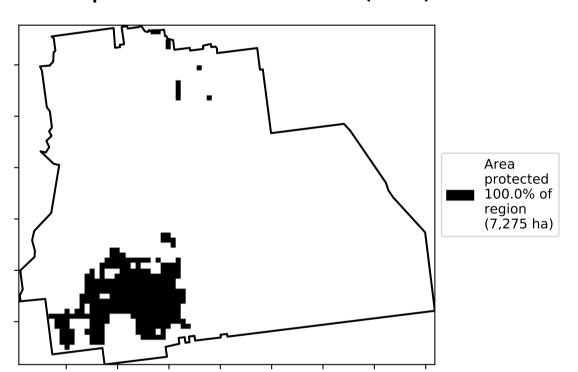
is, red pixels are about 20% lower than the mean of that pixel. The mean



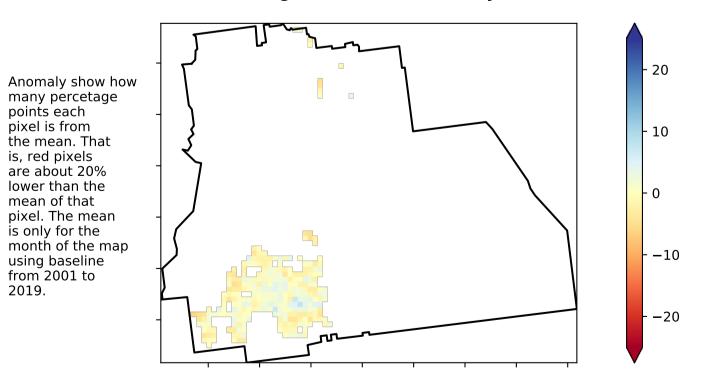
### **Total Vegetation Cover [%]**



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

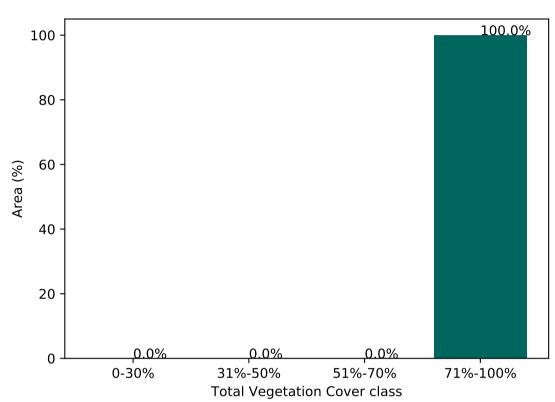


### **Total Vegetation Cover Anomaly [%]**

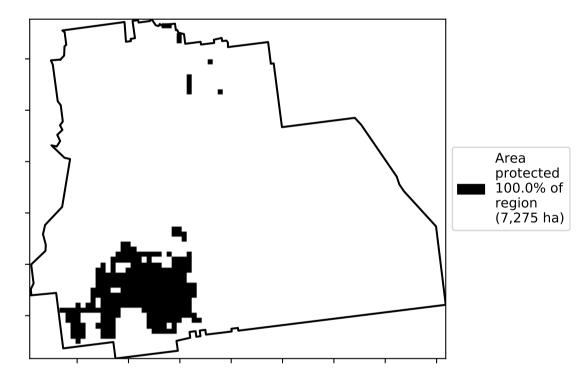


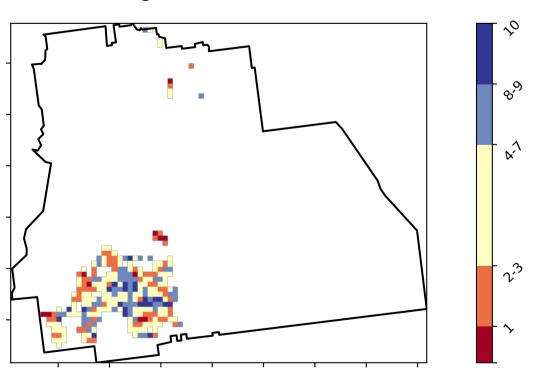
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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









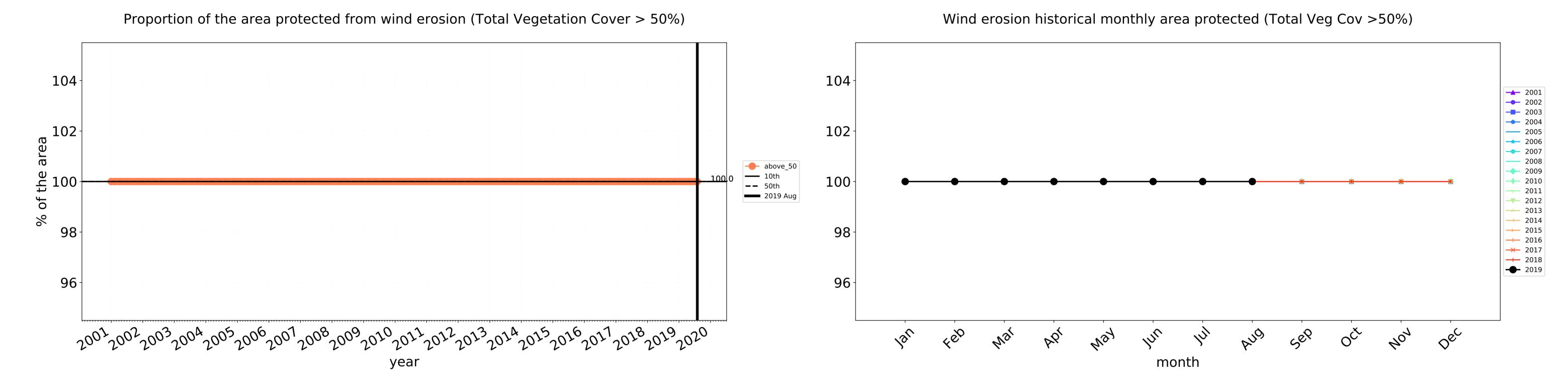


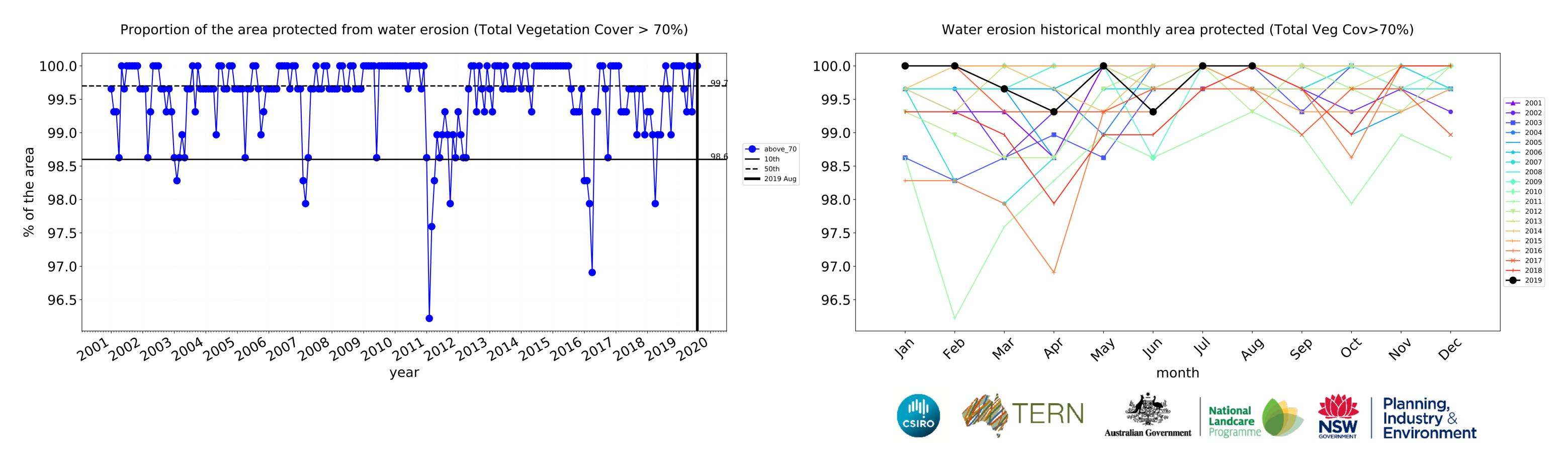


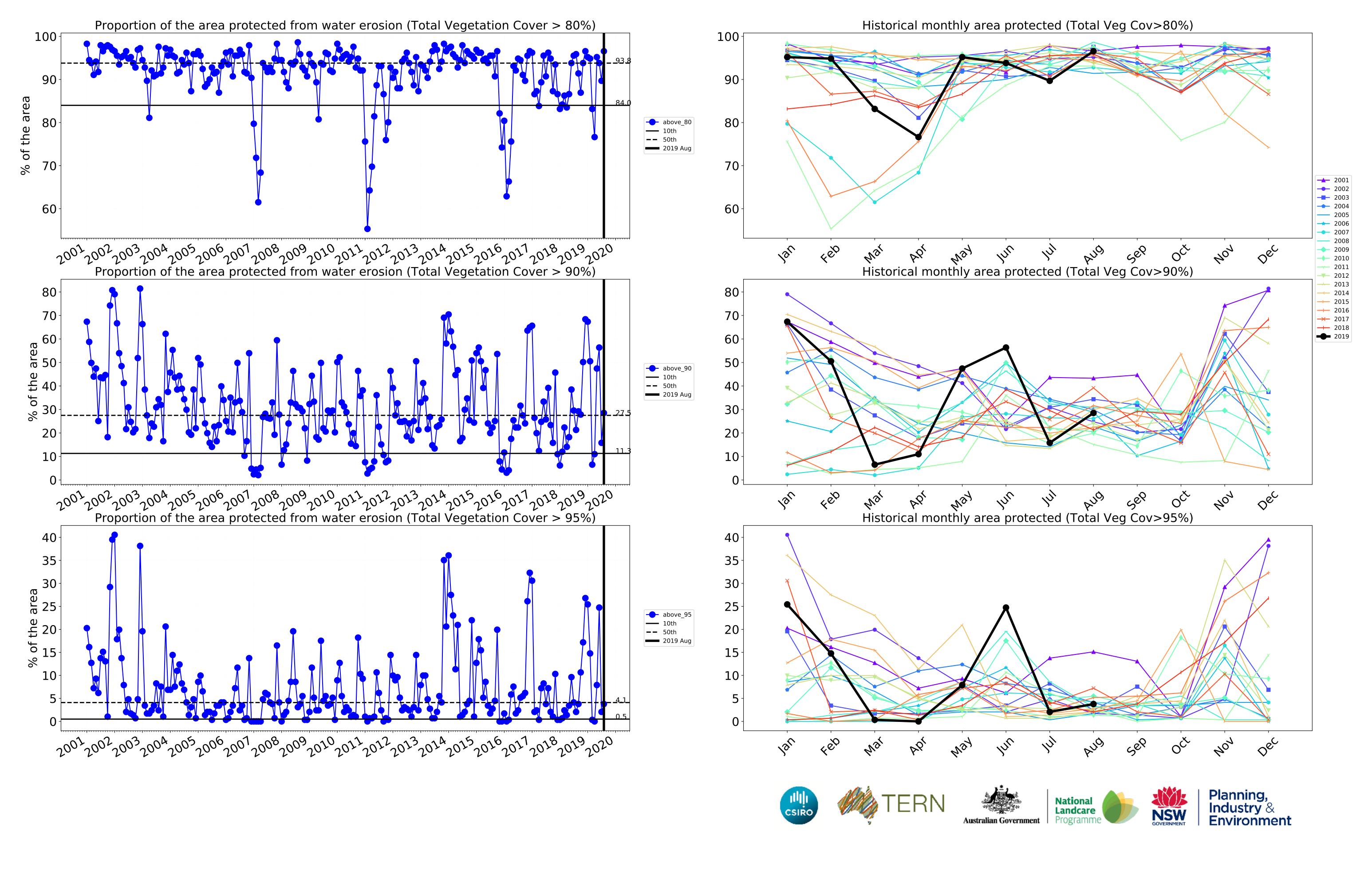




### **Grazing non forest timeseries**







### **Cropping**

### Land use and forest cover

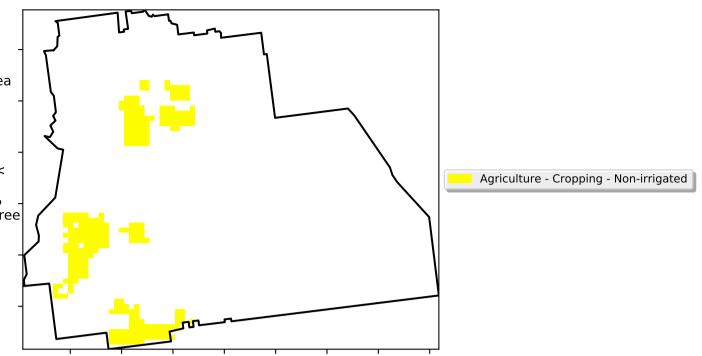
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.

the mean. That

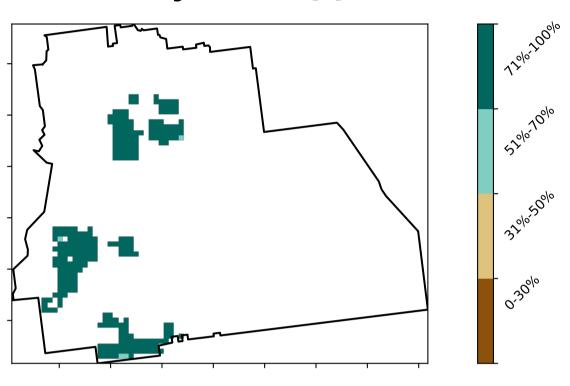
is only for the month of the map

using baseline from 2001 to 2019.

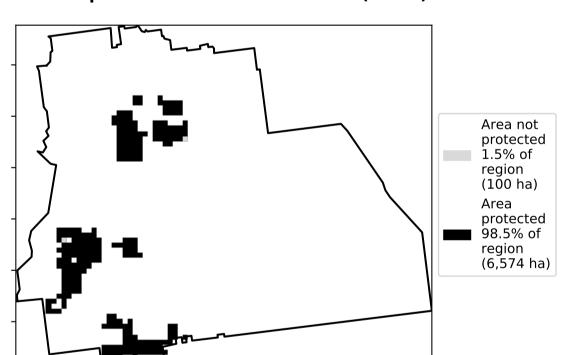
is, red pixels are about 20% lower than the mean of that pixel. The mean



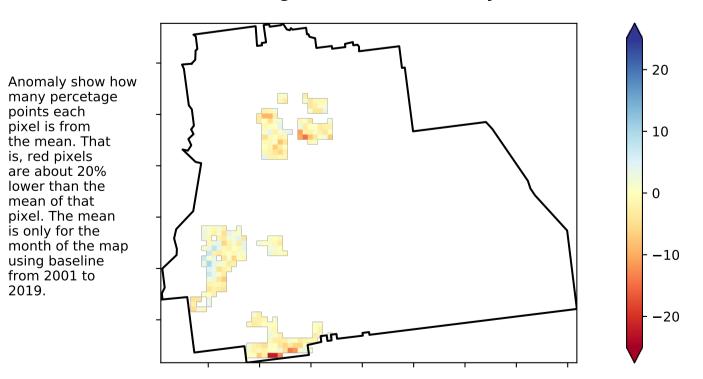
### **Total Vegetation Cover [%]**



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

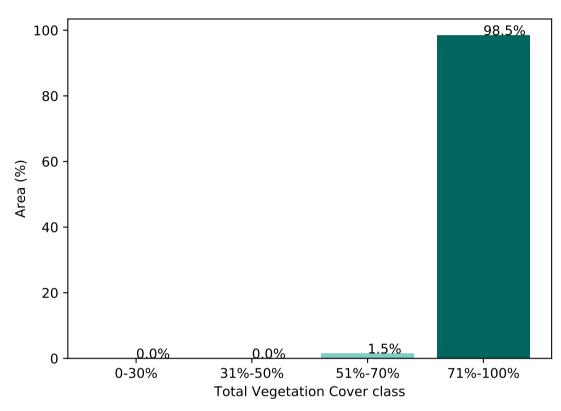


### **Total Vegetation Cover Anomaly [%]**

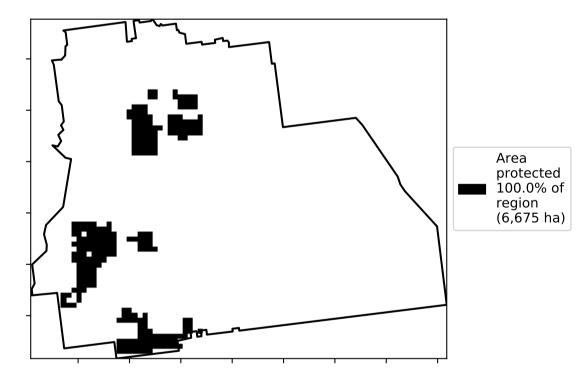


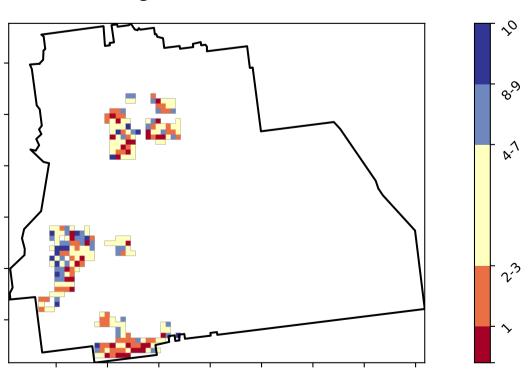
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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









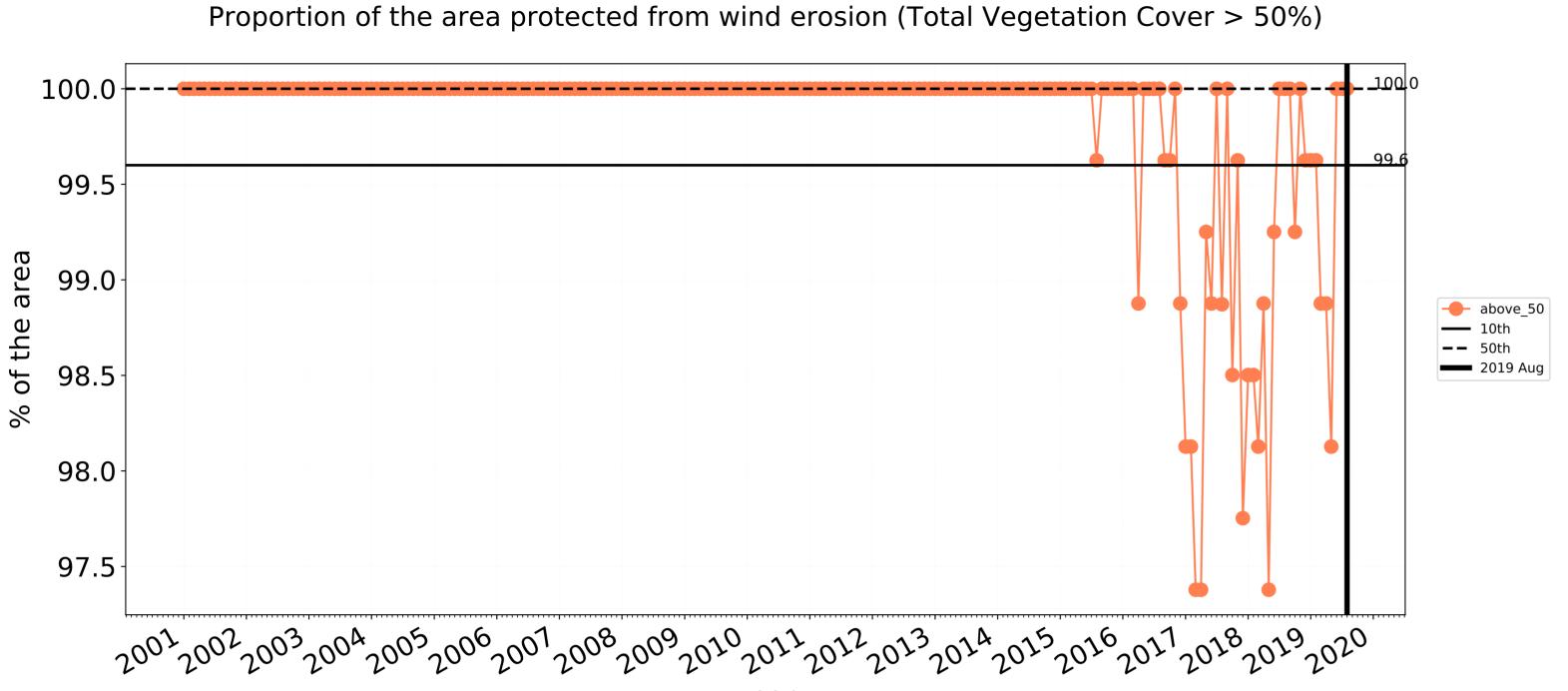


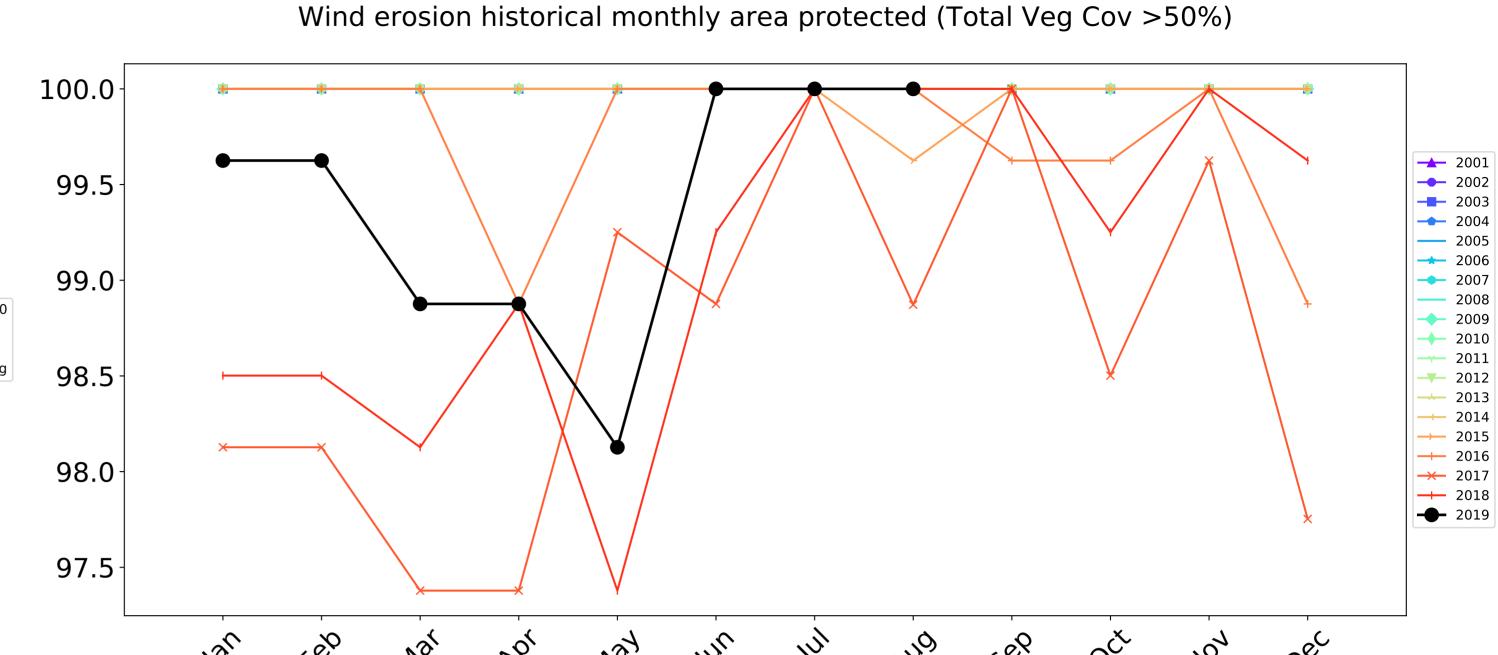




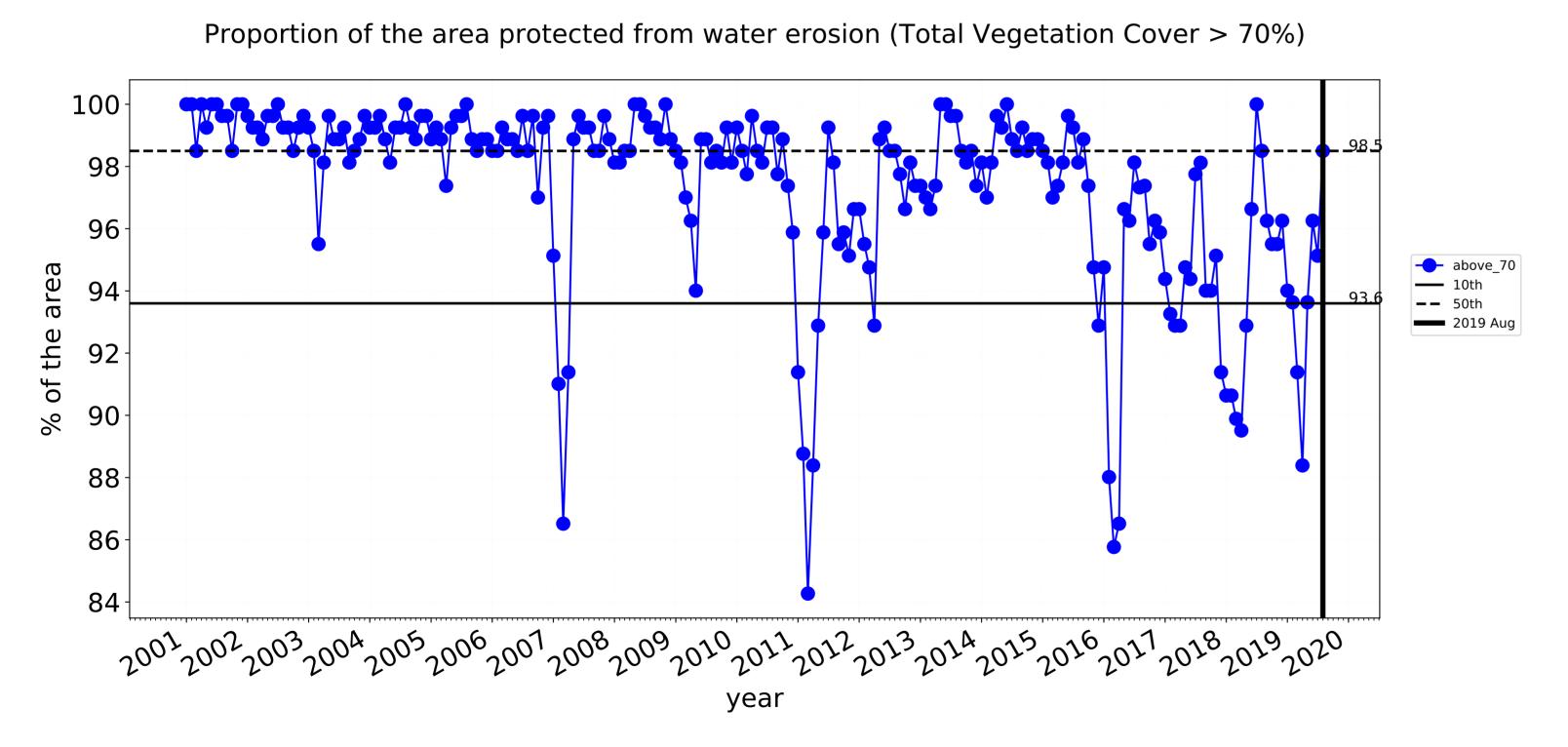


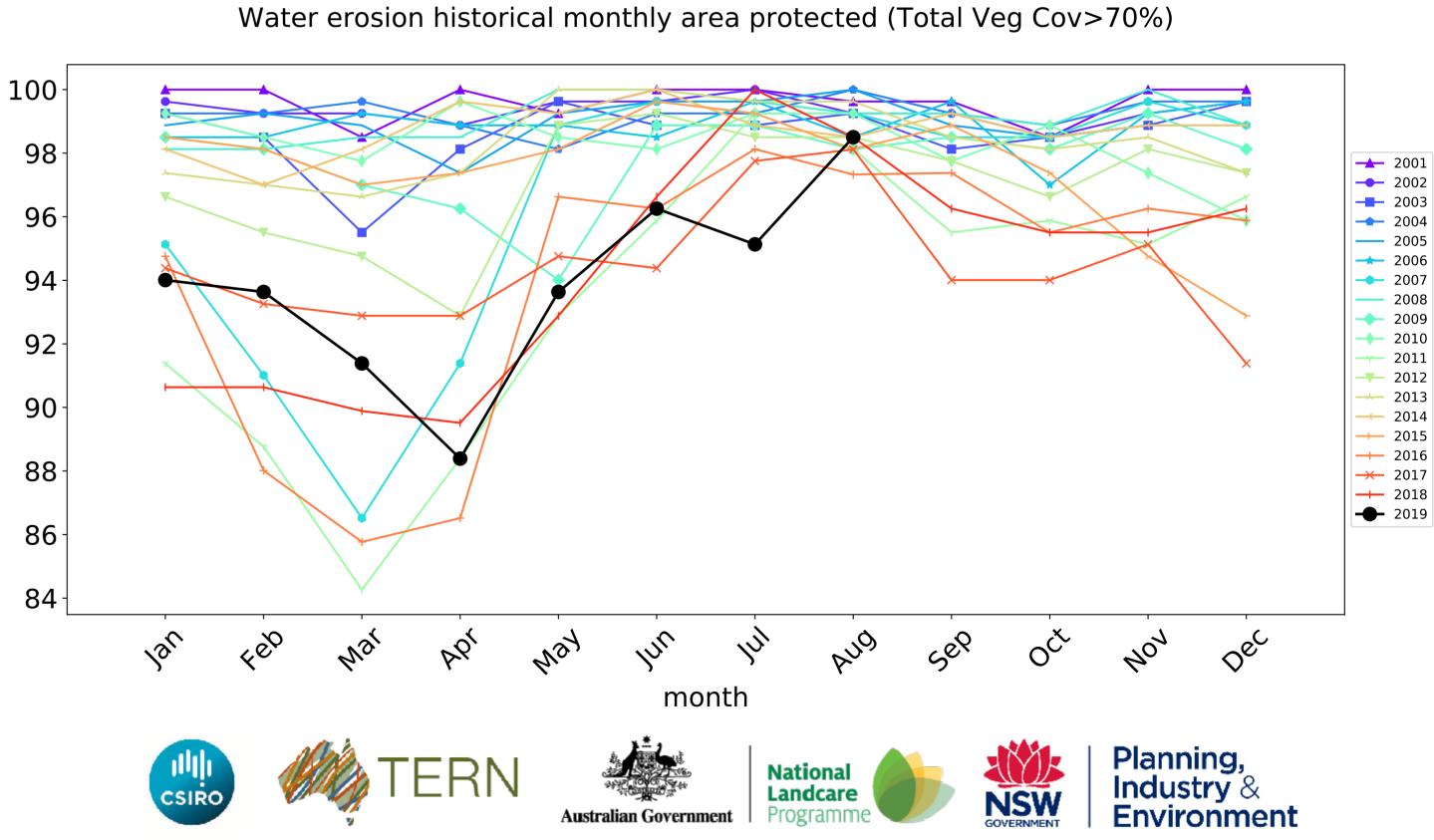
### **Cropping timeseries**

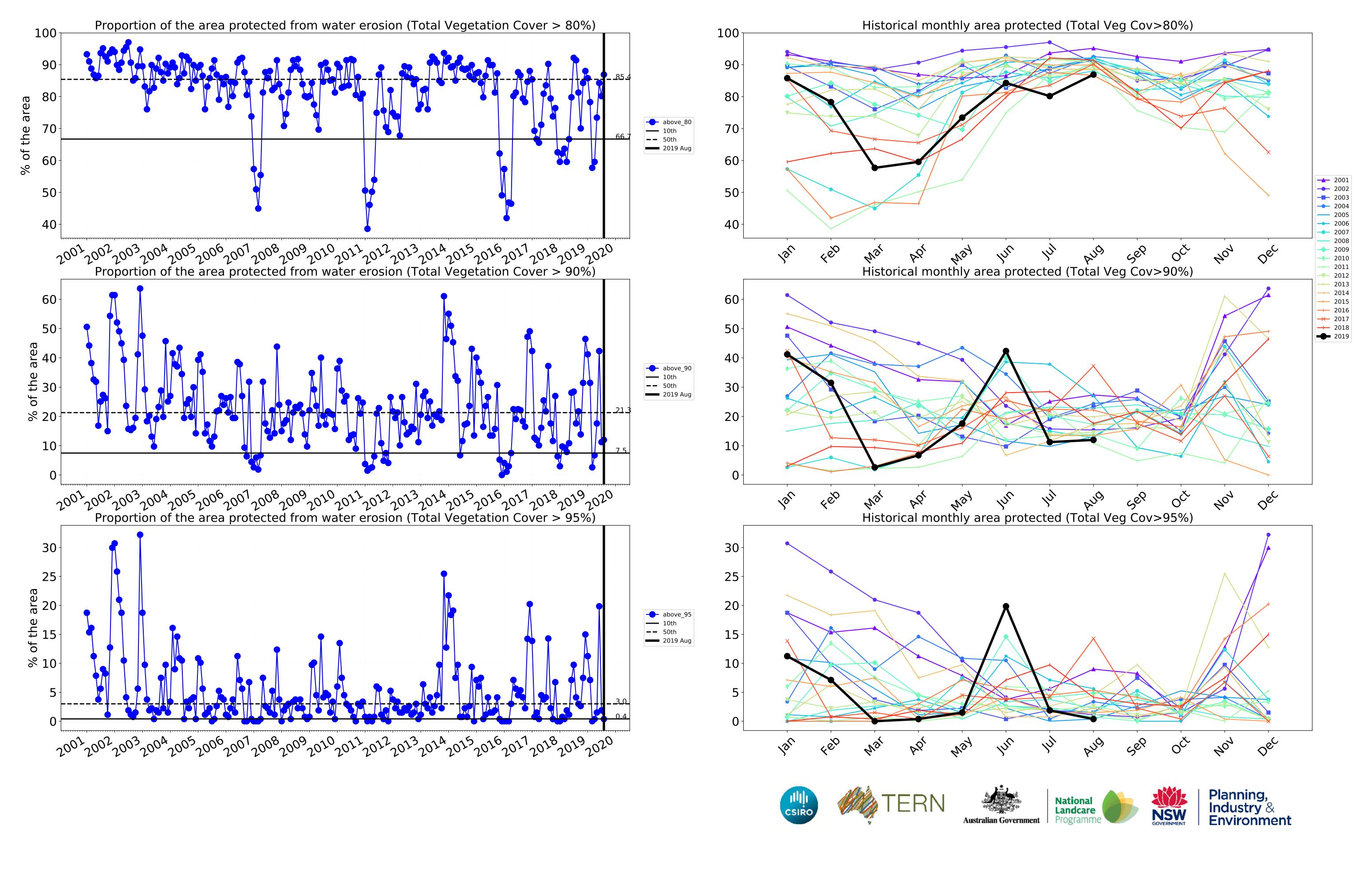




month

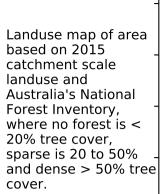






### Irrigation

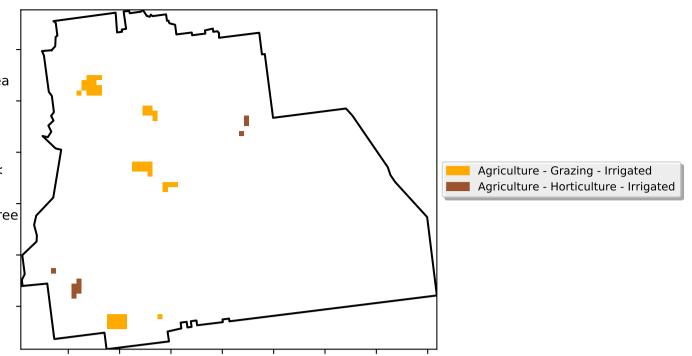
### Land use and forest cover



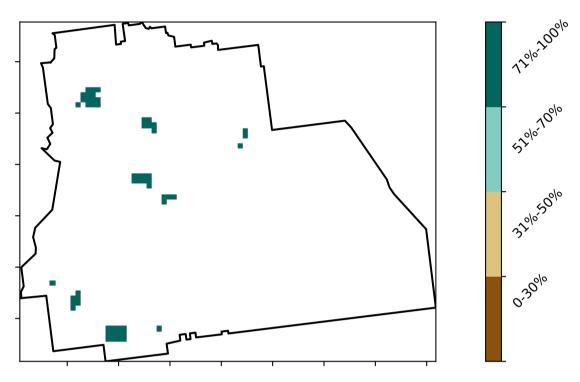
the mean. That

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

using baseline from 2001 to 2019.



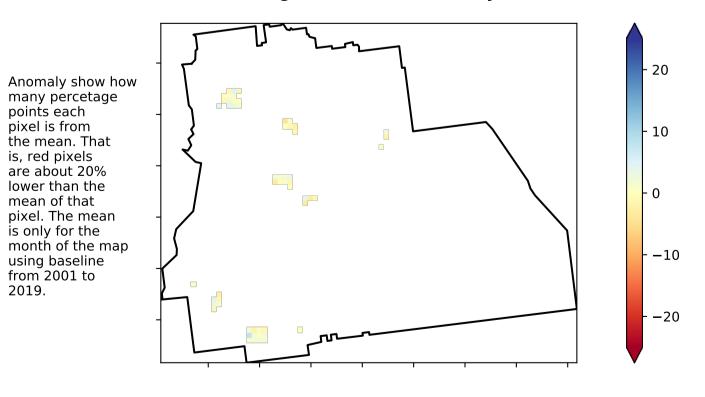
### **Total Vegetation Cover [%]**



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

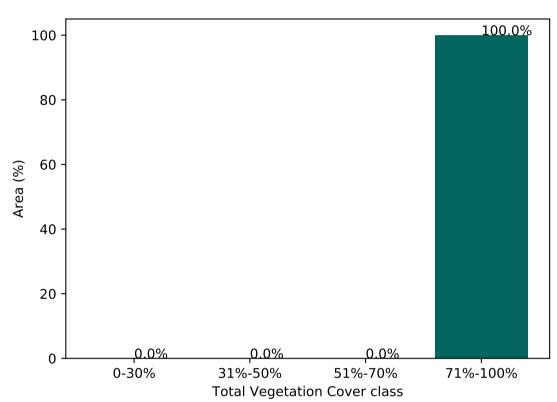


### **Total Vegetation Cover Anomaly [%]**

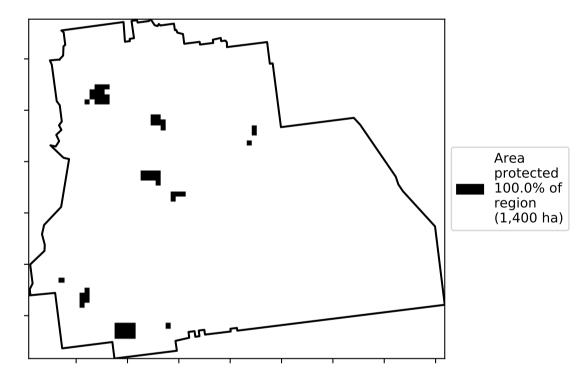


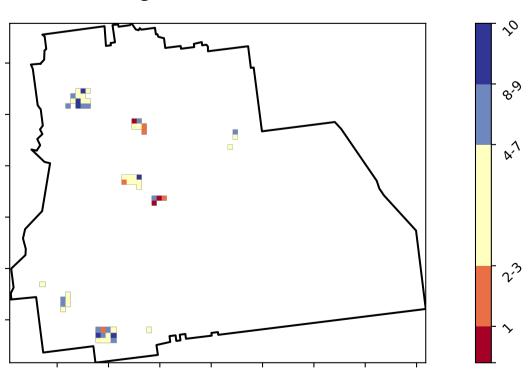
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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







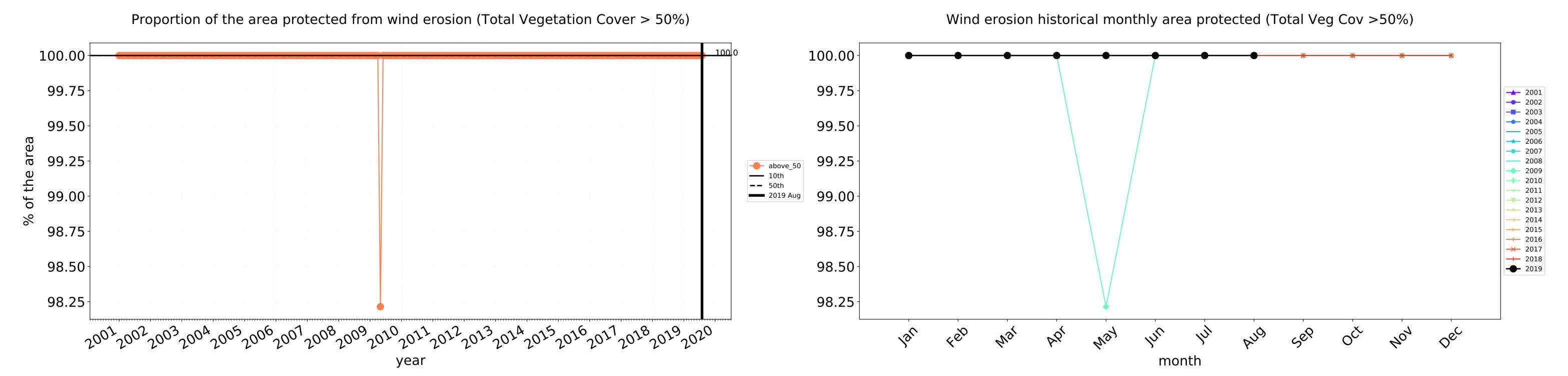


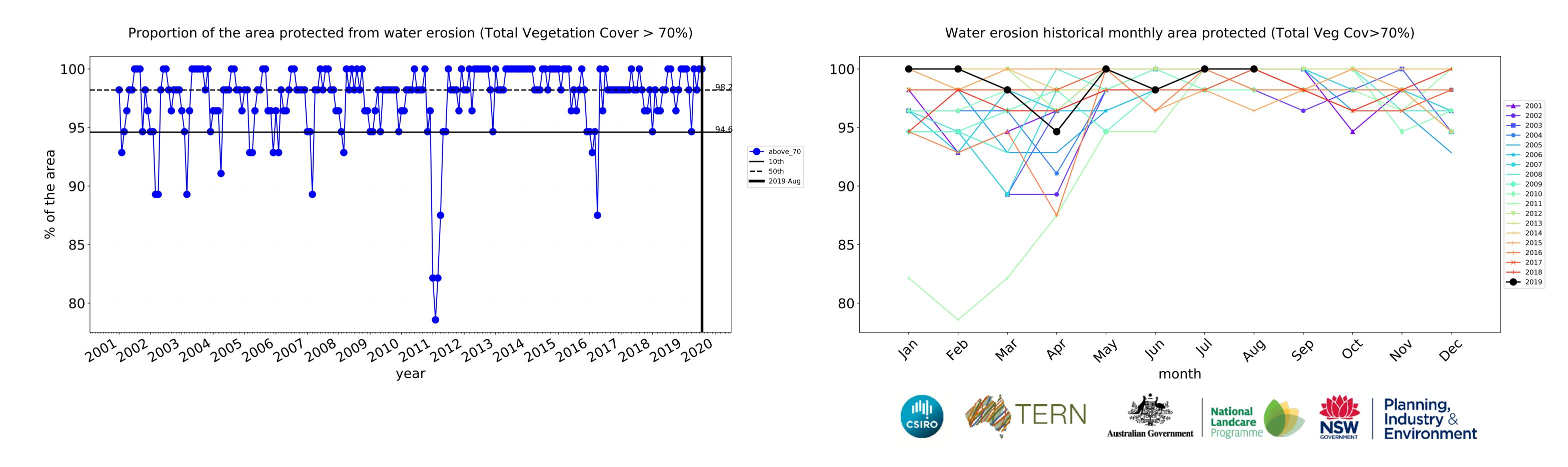


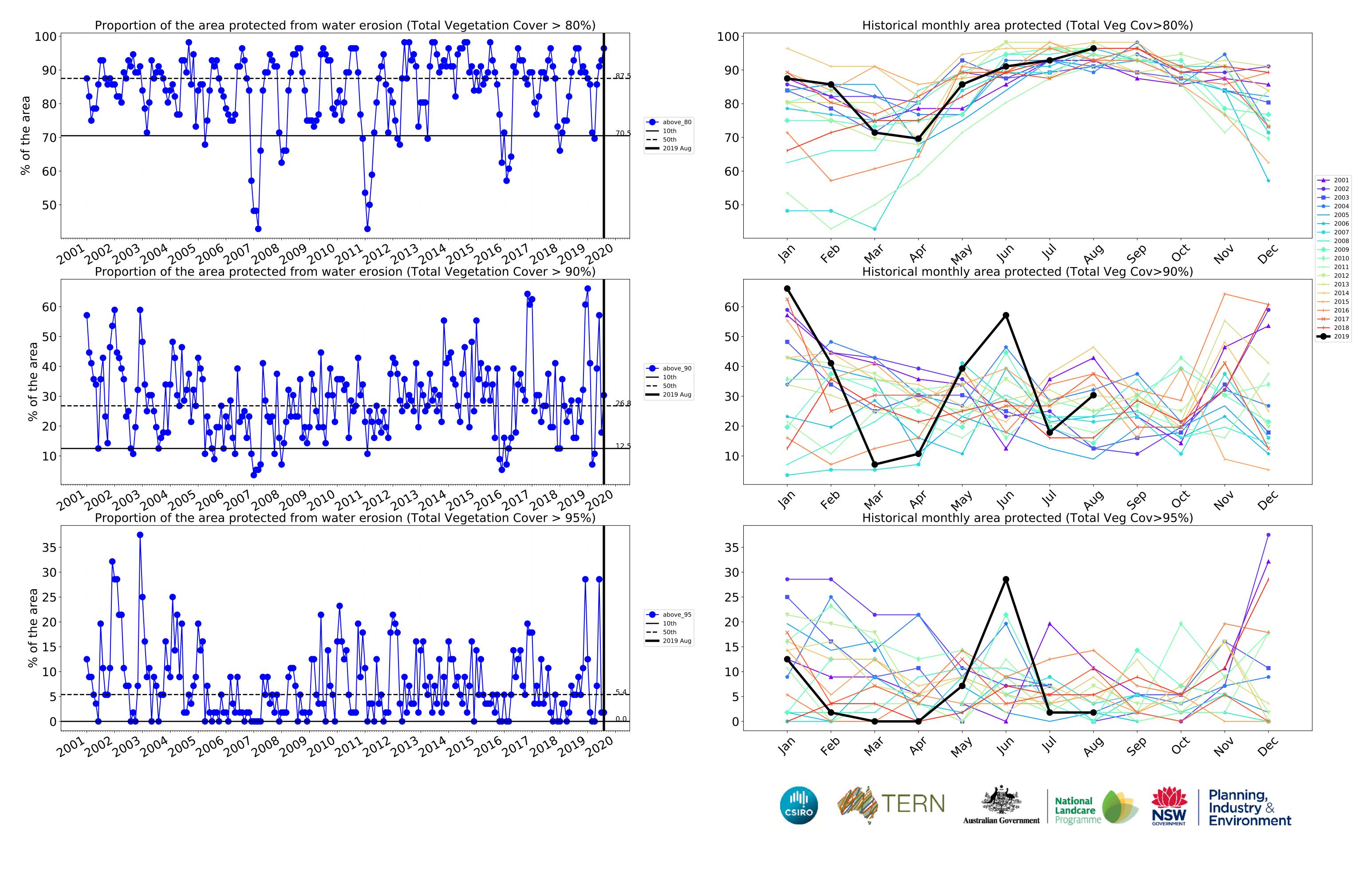












### **Production native forests and plantation forests**

### Land use and forest cover

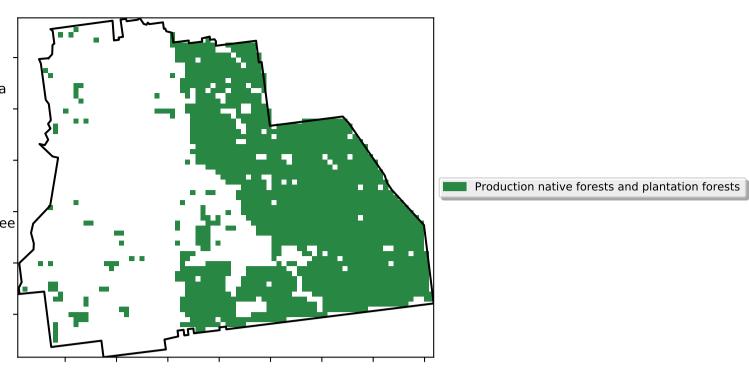
Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.

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

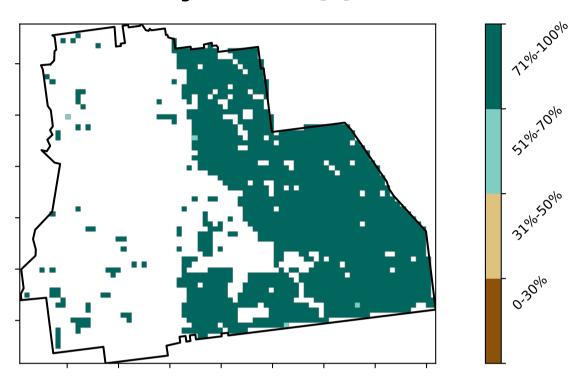
pixel. The mean

using baseline from 2001 to 2019.

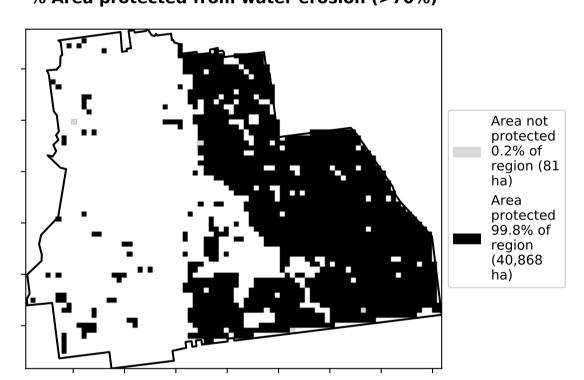
is only for the month of the map



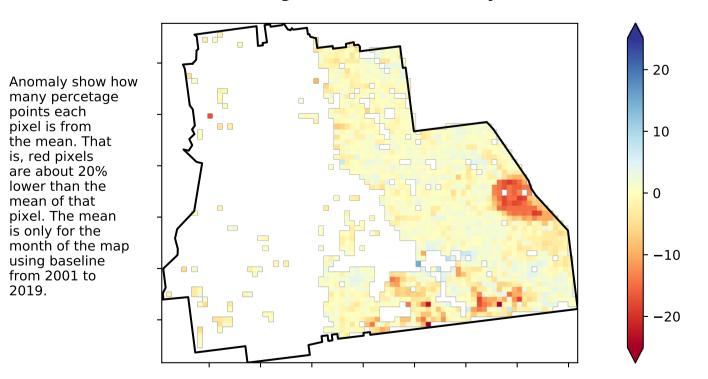
### **Total Vegetation Cover [%]**



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

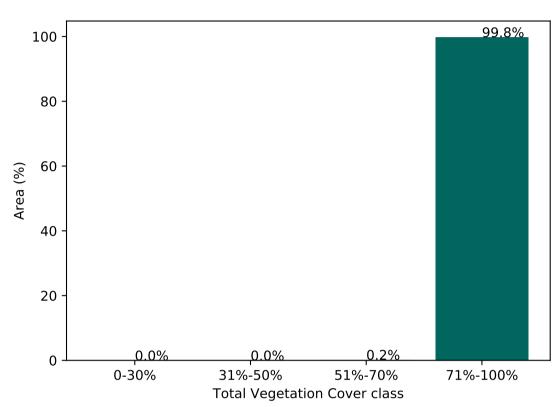


### **Total Vegetation Cover Anomaly [%]**



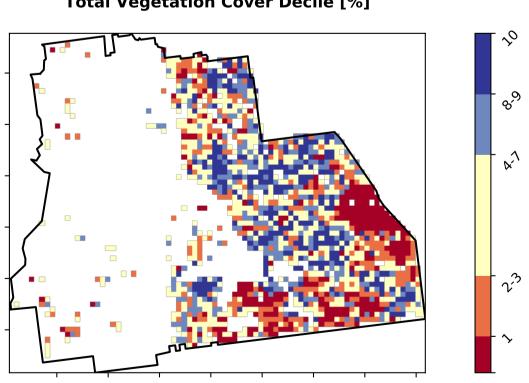
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

### Proportion of vegetation cover class in area



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









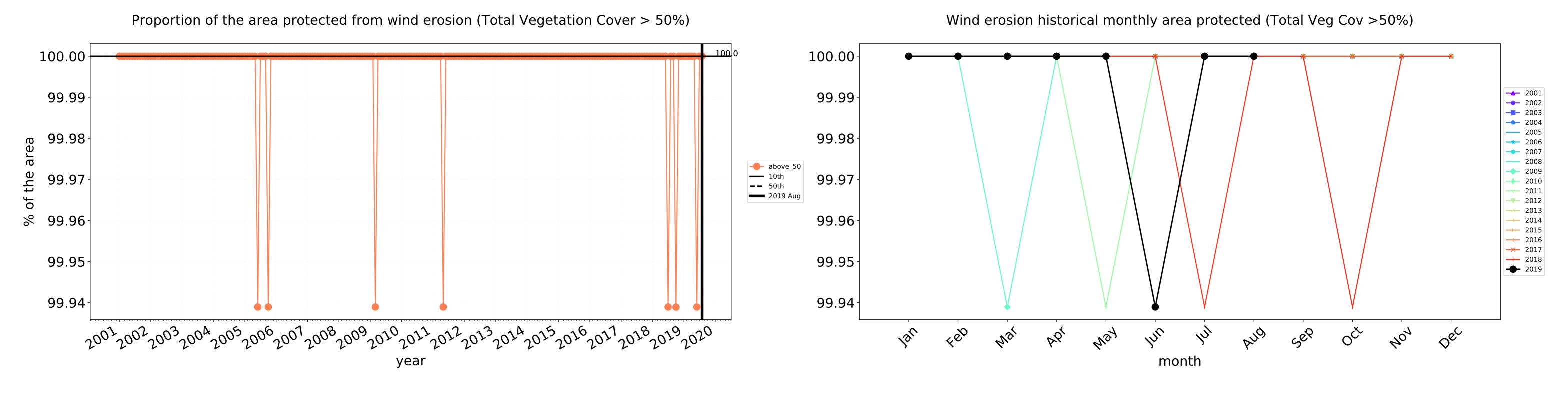


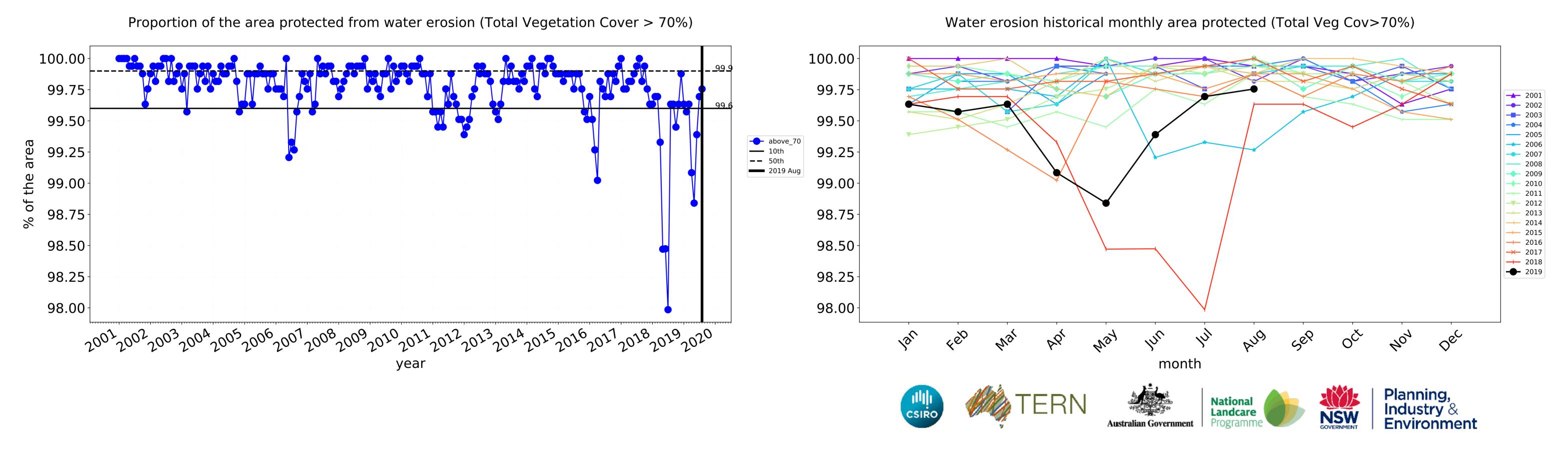


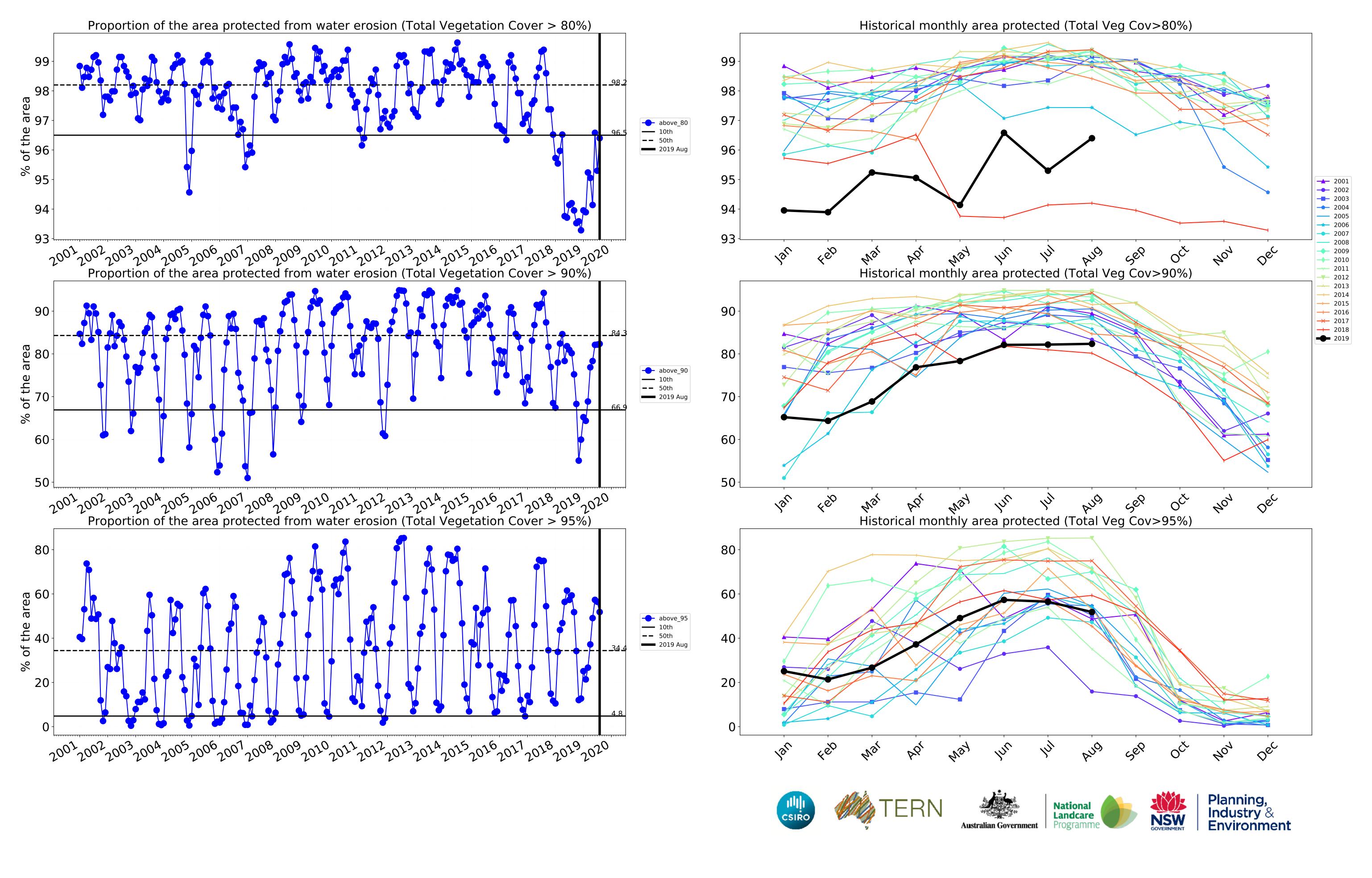




### **Production native forests and plantation forests timeseries**







### Serpentine-Jarrahdale\_(S) (90,100 ha and no data 34 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	90,100	100.0% 90,100	99.9% 90,025	98.6% 88,850	92.6% 83,475	53.7% 48,350	28.7% 25,825
Conservation and natural environments	9,010	100.0% 9,010	100.0% 9,010	100.0% 9,010	97.2% 8,760	78.9% 7,113	39.3% 3,544
Conservation and natural environments non forest	1,351	100.0% 1,351	100.0% 1,351	100.0% 1,351	96.2% 1,300	49.1% 663	5.7% 76
Conservation and natural environments Woodland forest	3,243	100.0% 3,243	100.0% 3,243	100.0% 3,243	94.7% 3,070	71.8% 2,327	16.8% 544
Conservation and natural environments Forest (non woodland)	4,414	100.0% 4,414	100.0% 4,414	100.0% 4,414	99.4% 4,389	93.2% 4,115	66.1% 2,918
Agriculture	15,677	100.0% 15,677	100.0% 15,677	99.3% 15,575	92.3% 14,477	21.5% 3,370	2.1% 331
Grazing	7,298	100.0% 7,298	100.0% 7,298	100.0% 7,298	96.6% 7,047	28.5% 2,081	3.8% 275
Grazing non forest	7,298	100.0% 7,298	100.0% 7,298	100.0% 7,298	96.6% 7,047	28.5% 2,081	3.8% 275
Cropping	6,667	100.0% 6,667	100.0% 6,667	98.5% 6,567	86.9% 5,793	12.0% 799	0.4% 24
Irrigation	1,441	100.0% 1,441	100.0% 1,441	100.0% 1,441	96.4% 1,390	30.4% 437	1.8% 25
Production native forests and plantation forests	40,905	100.0% 40,905	100.0% 40,905	99.8% 40,805	96.4% 39,432	82.4% 33,688	51.8% 21,201











