This report provides information about vegetation covering the soil surface for a region during a single month with comparison to previous years. The total vegetation cover indicates where soil is likely to be protected from wind (>=50% total vegetation cover) and water/hillslope (>=70% total vegetation cover) erosion. Results are shown for the whole region (polygon) and also separated by land use and forest cover class. This is because different land use / forest cover classes are likely to have different cover patterns and targets. [Walcha (A)]

The six maps and two graphs provide a report for the month with:

- Land use and forest cover information for the area:
  - o Map: Land use and forest cover
  - o Chart: Land use and forest cover area
- Total vegetation cover for this month:
  - o Map: total vegetation cover classified into 4 classes
  - o Chart: total vegetation cover percentage area classified into 4 classes
- Areas protected from erosion for the month:
  - o Map: water erosion protection (>70% cover) percentage area and hectares
  - o Map: wind erosion protection (>50% cover) percentage area and hectares
- 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 from January 2001 to current:
  - o Wind erosion protection time series: percentage of the area of the region with greater than 50% cover for each month since January 2001 (orange line): Horizontal lines are 10th (cover target) and 50th percentiles. Vertical line is month of report.
  - o Water erosion protection time series: percentage of the area of the region with greater than 70% cover for each month since January 2001 (blue line): Horizontal lines are 10th (cover target) and 50th percentiles. Vertical line is month of report.
  - o Rainfall: millimetres rainfall each month (black line). Vertical line is month of report.
- Time series for each month stacked by year
  - o Same data as time series from January 2001 to current month, grouped by month. Black line is current year of data.
- 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

The following pages repeat the above sequence for each land use and forest cover class if 1% or more of area makes up a land use and forest cover class. Four land uses are reported: Conservation and natural environments, Agriculture, production native forests and plantation forests, and other. Agriculture is further divided into grazing,

crops and horticulture are then divided into non-irrigated and irrigated. Land use is further divided by forest class if present: non-forest, woodland forest and non-woodland forest.

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 pixel data on monthly time steps. Report uses baseline from January 2001 to September 2019 for each month to generate anomalies and deciles. Post September 2019 all similar months are used to calculate anomalies and deciles.

#### **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 Sep 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

the mean. That

lower than the

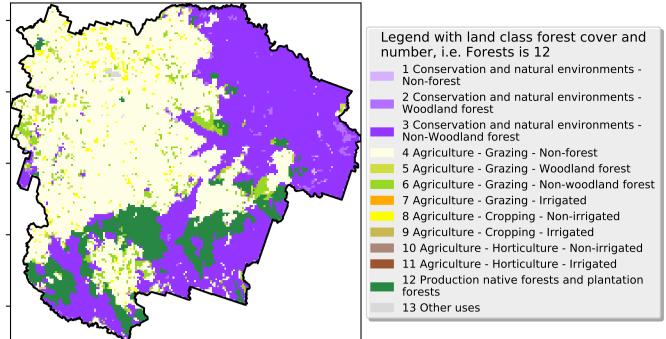
month of the map

mean of that pixel. The mean is only for the

using baseline from 2001 to

2019.

is, red pixels are about 20%



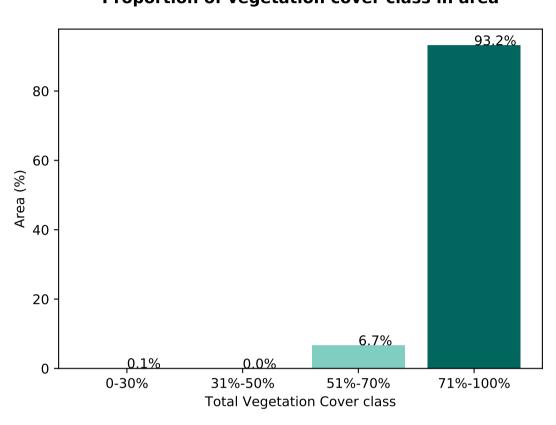
### \_46.0% 40 30 Area (%) 10.1% 10 10 11 12 13 Land use class

**Proportion of each land class in area** 

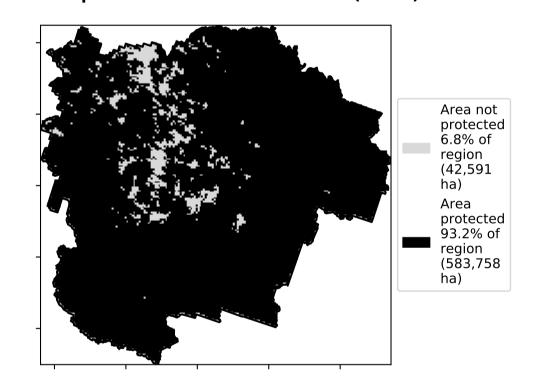
**Total Vegetation Cover [%]** 



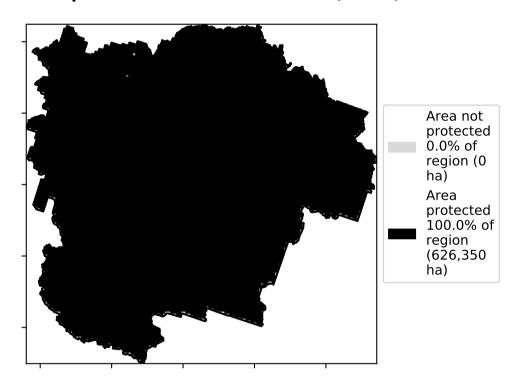
**Proportion of vegetation cover class in area** 



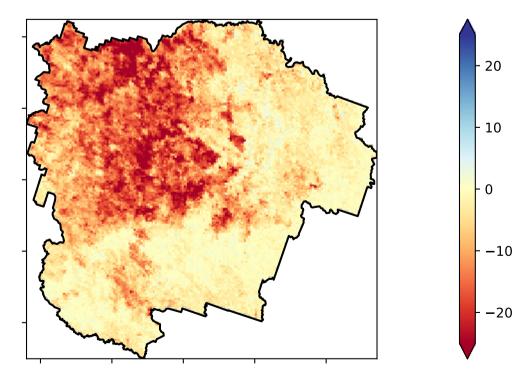
#### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

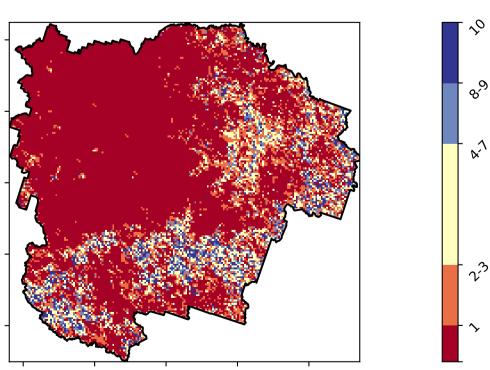


#### **Total Vegetation Cover Anomaly [%]**



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.

**Total Vegetation Cover Decile [%]** 





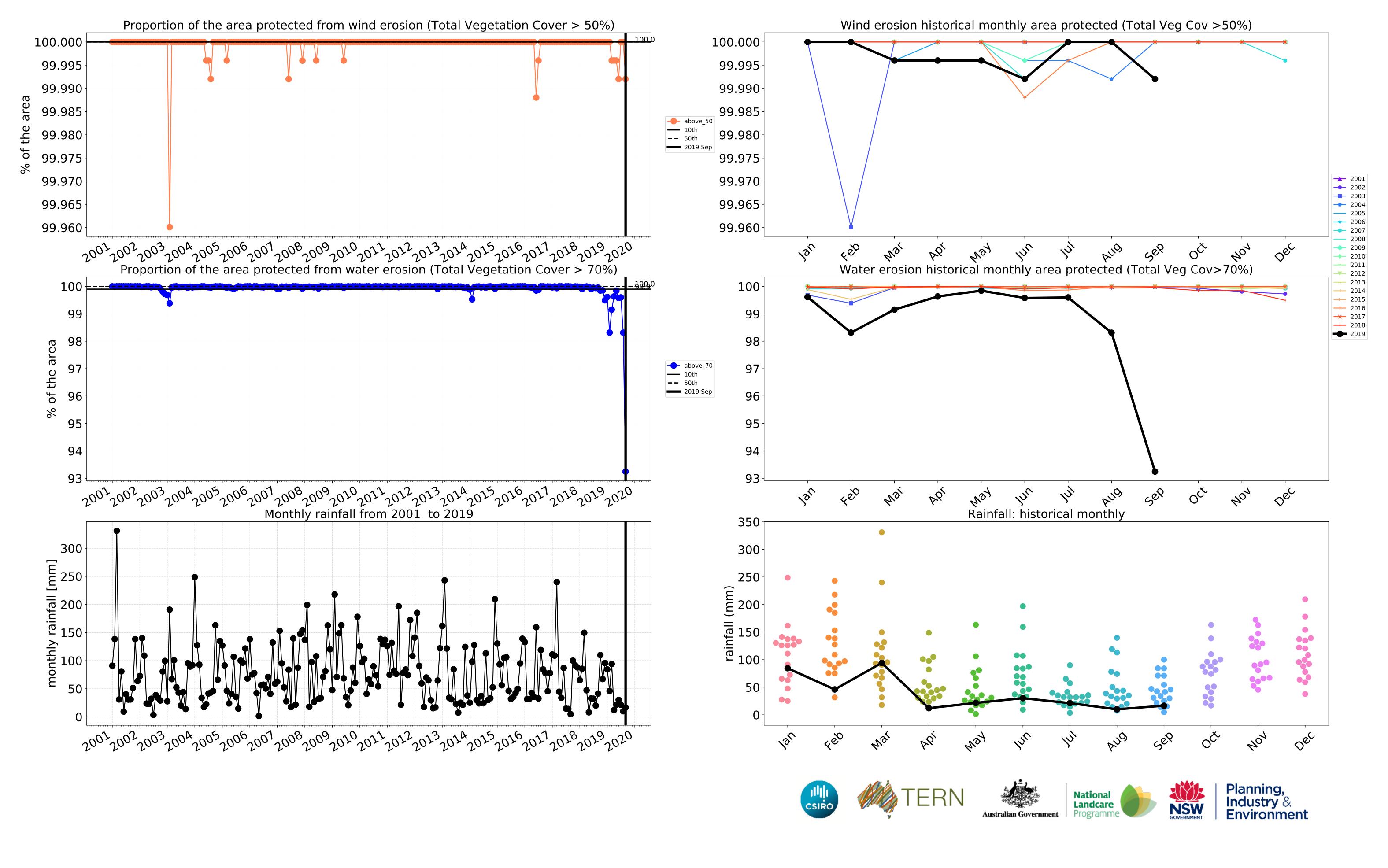


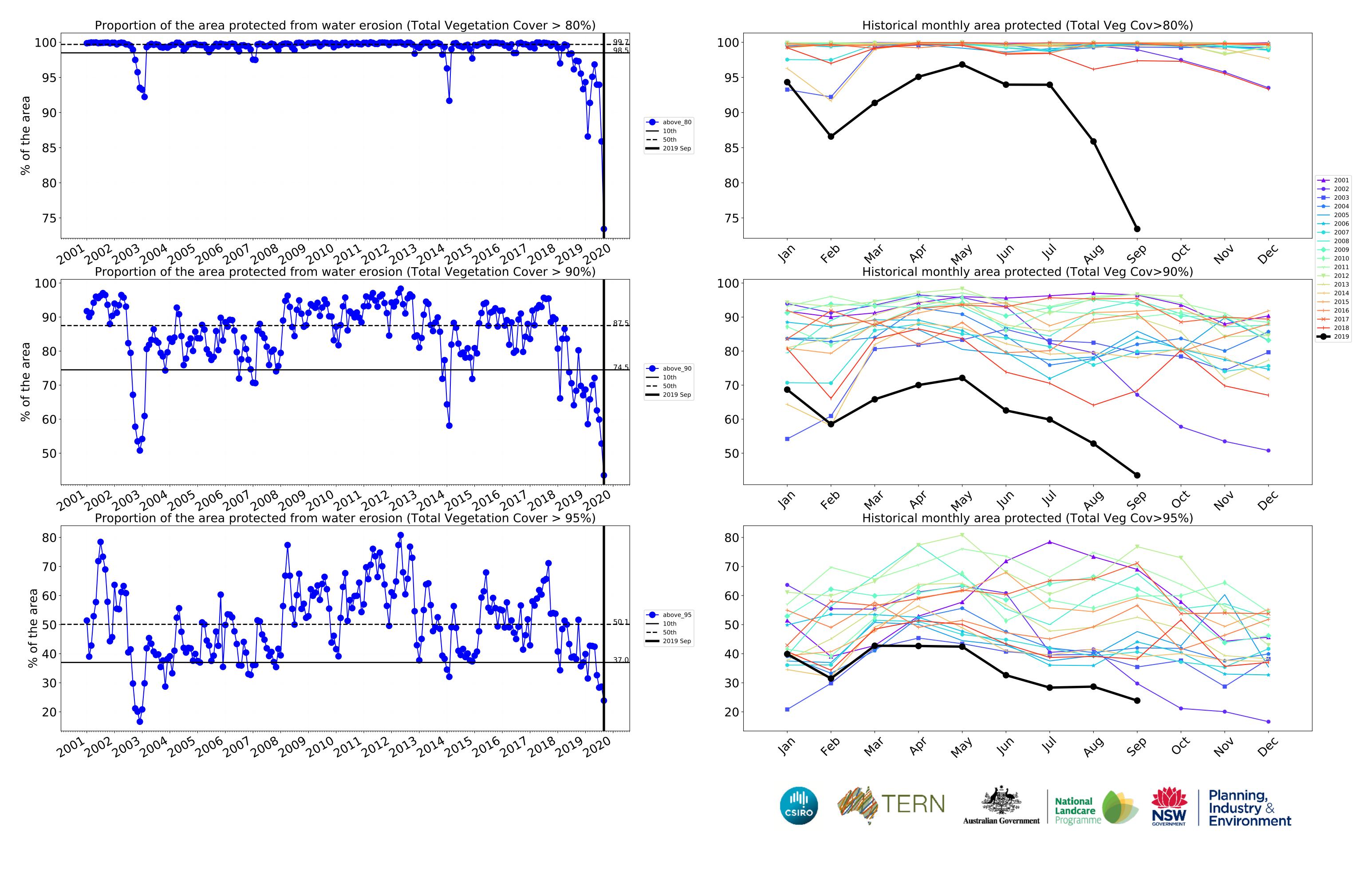












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#### **Conservation and natural environments**

#### 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.

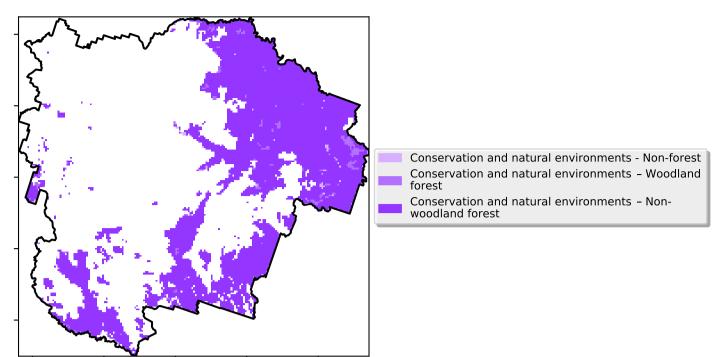
Anomaly show how many percetage points each

pixel is from

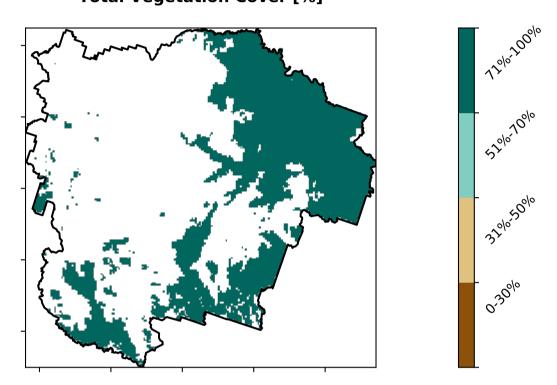
is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map

using baseline from 2001 to 2019.

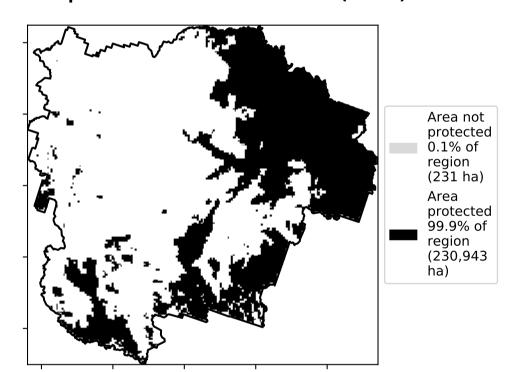
the mean. That



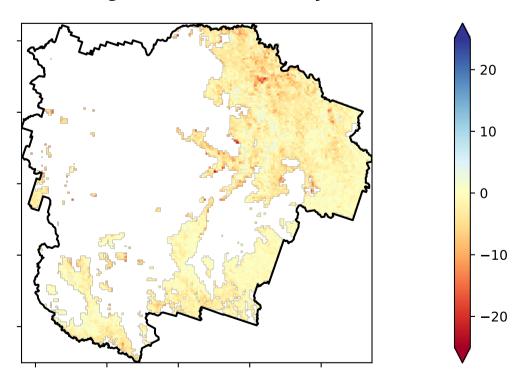
#### **Total Vegetation Cover [%]**



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

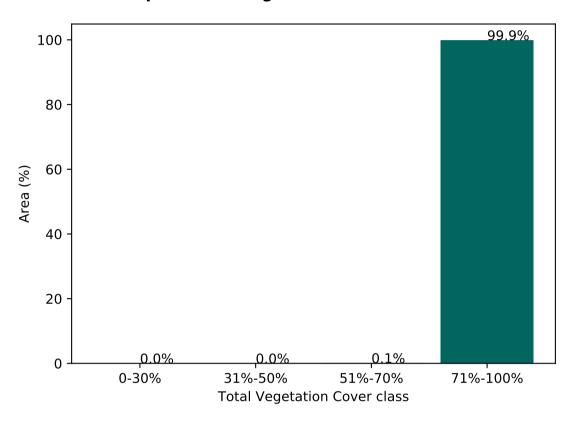


#### Total Vegetation Cover Anomaly [%]

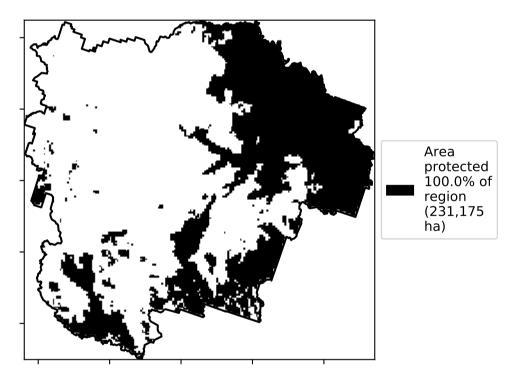


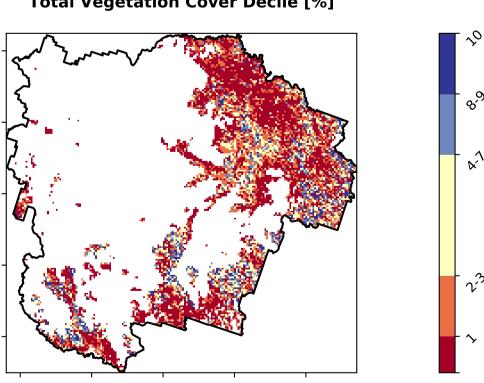
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



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









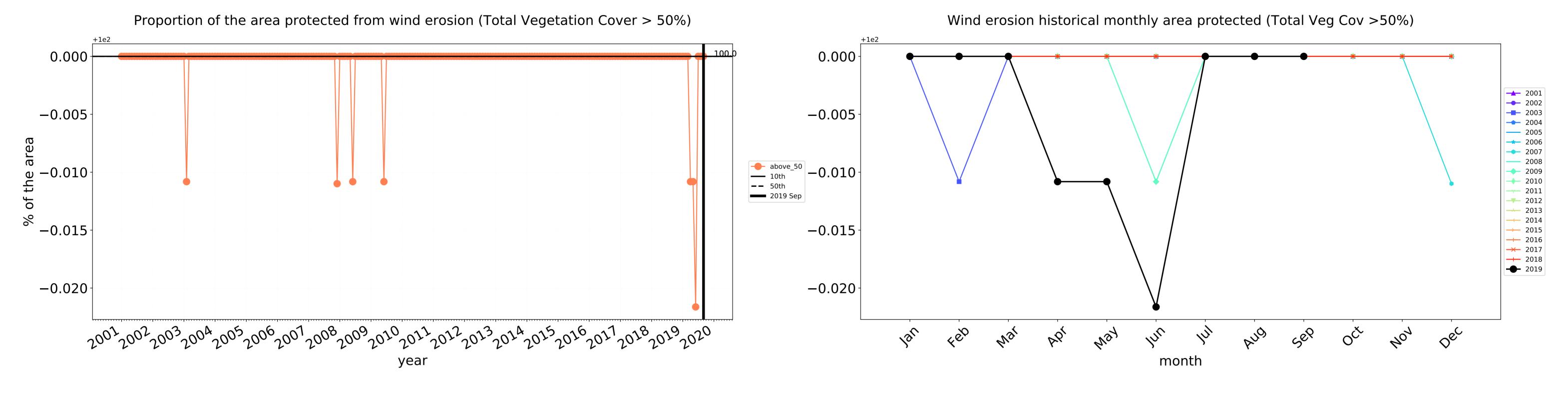


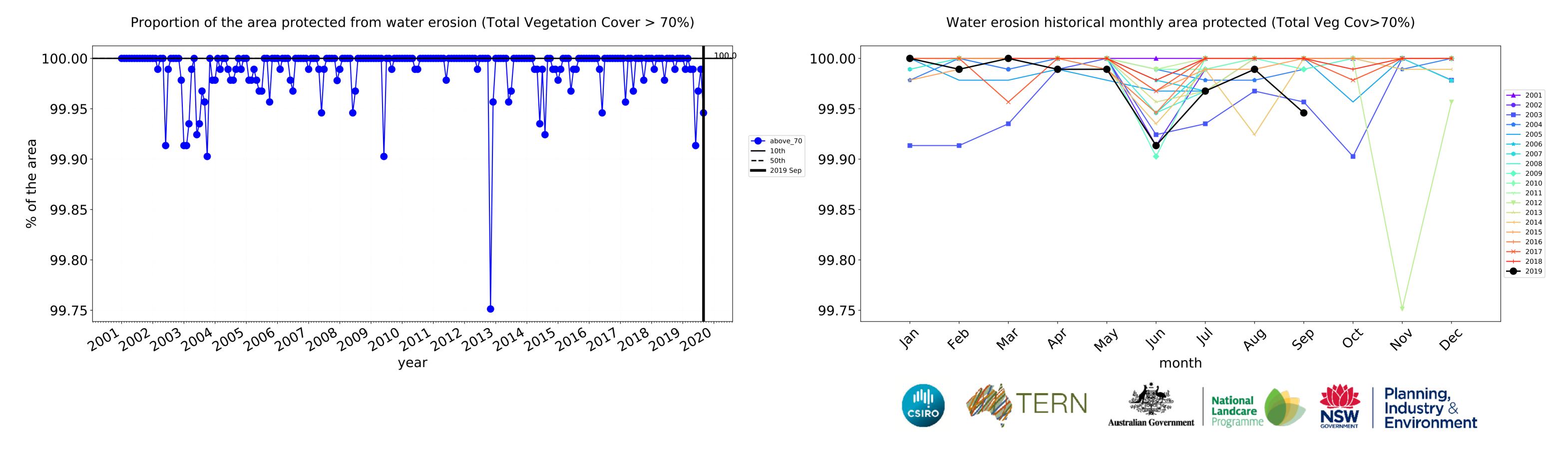


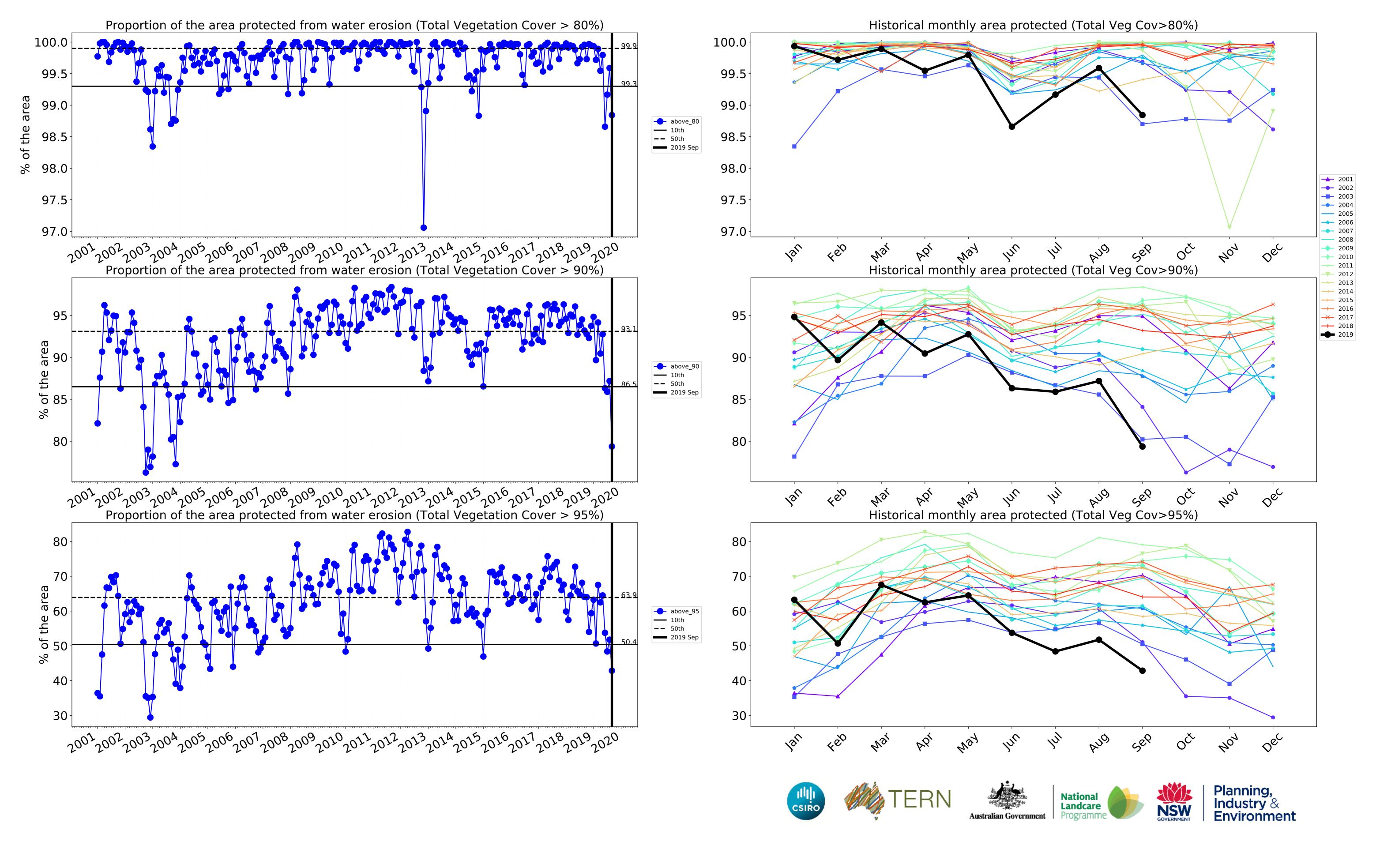




#### **Conservation and natural environments timeseries**

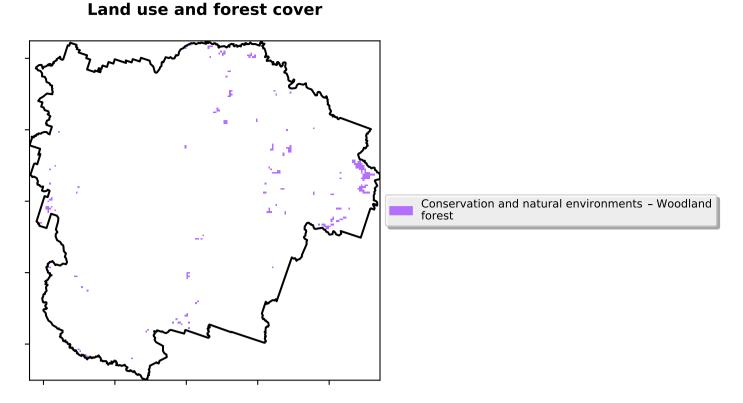






#### **Conservation and natural environments Woodland forest**

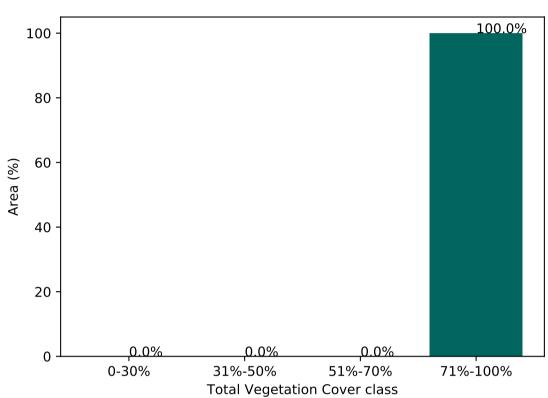
# Landuse map of area based on 2015 catchment scale landuse and Australia's National Forest Inventory, where no forest is < 20% tree cover, sparse is 20 to 50% and dense > 50% tree cover.



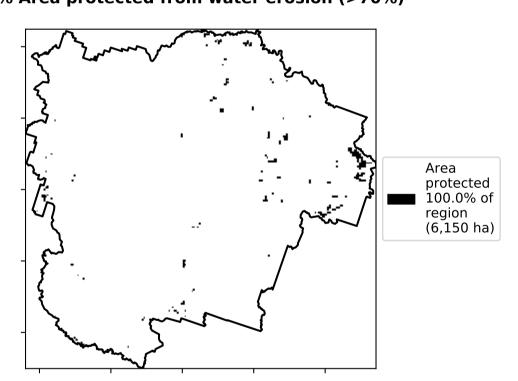
#### Total Vegetation Cover [%]



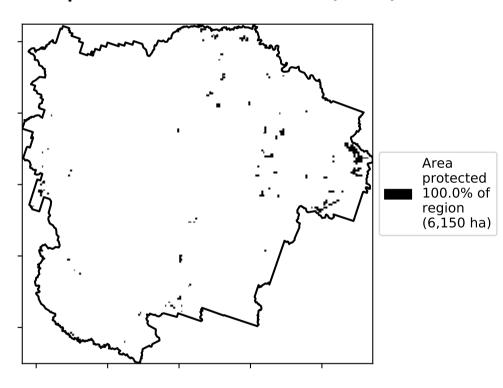
#### Proportion of vegetation cover class in area



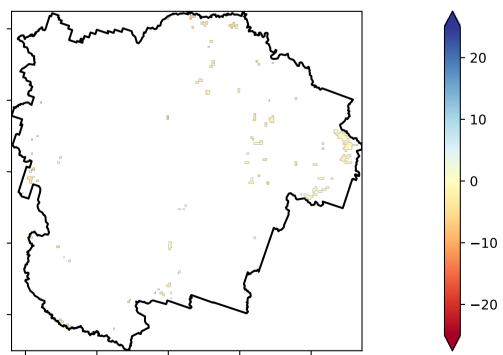
#### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

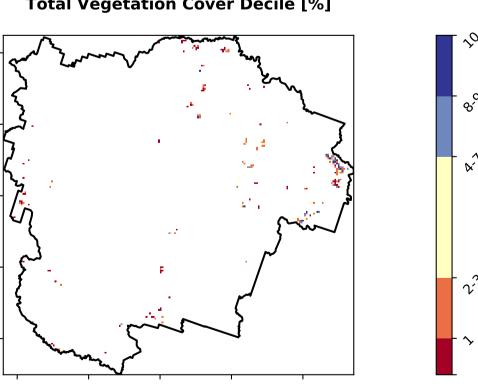


#### **Total Vegetation Cover Anomaly [%]**

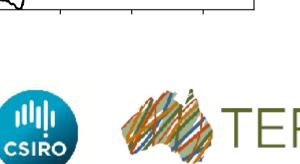


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Total Vegetation Cover Decile [%]



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

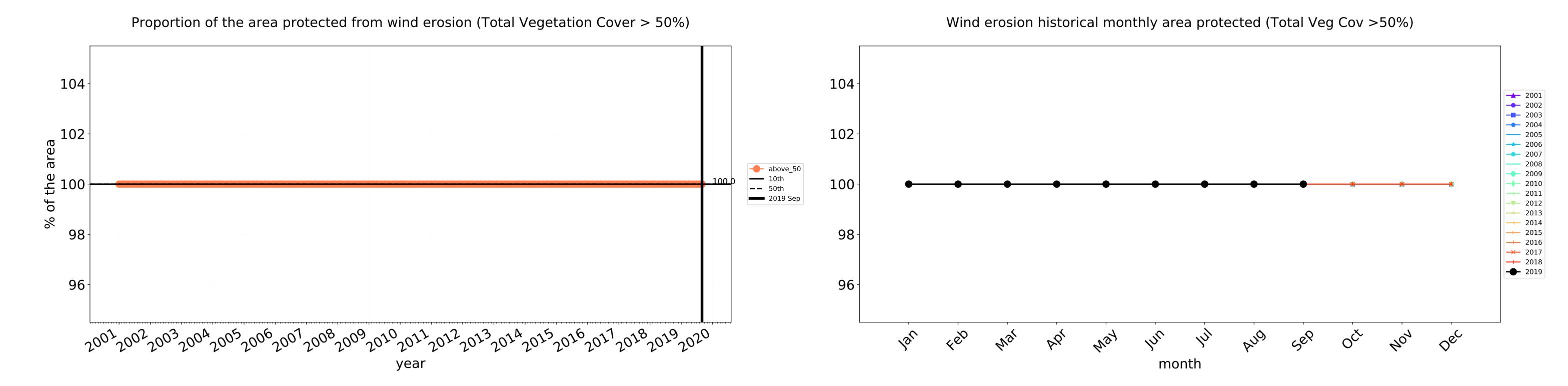


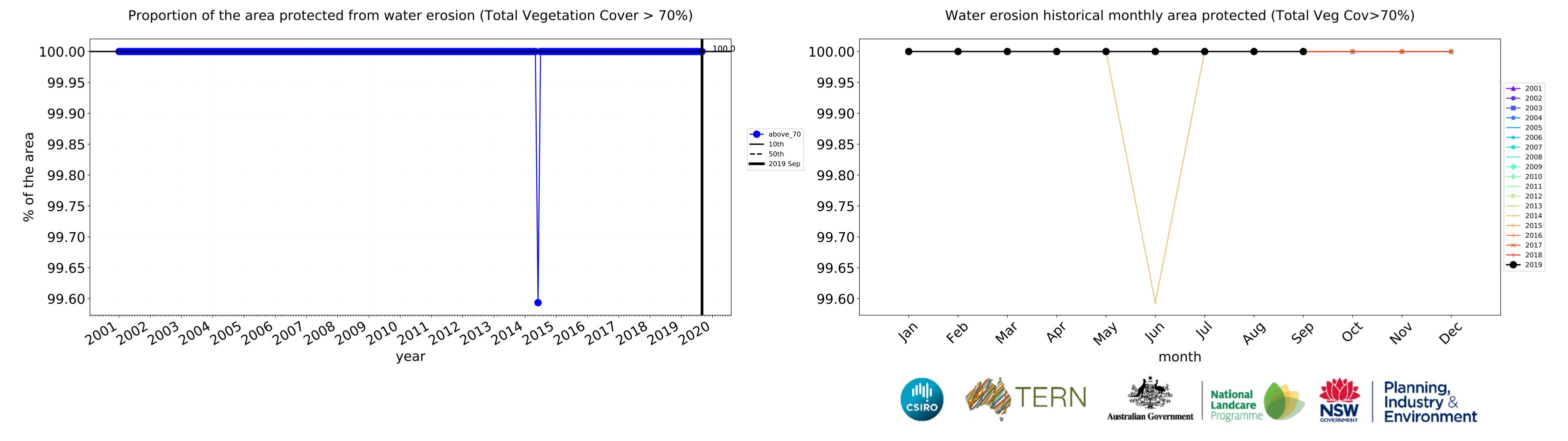


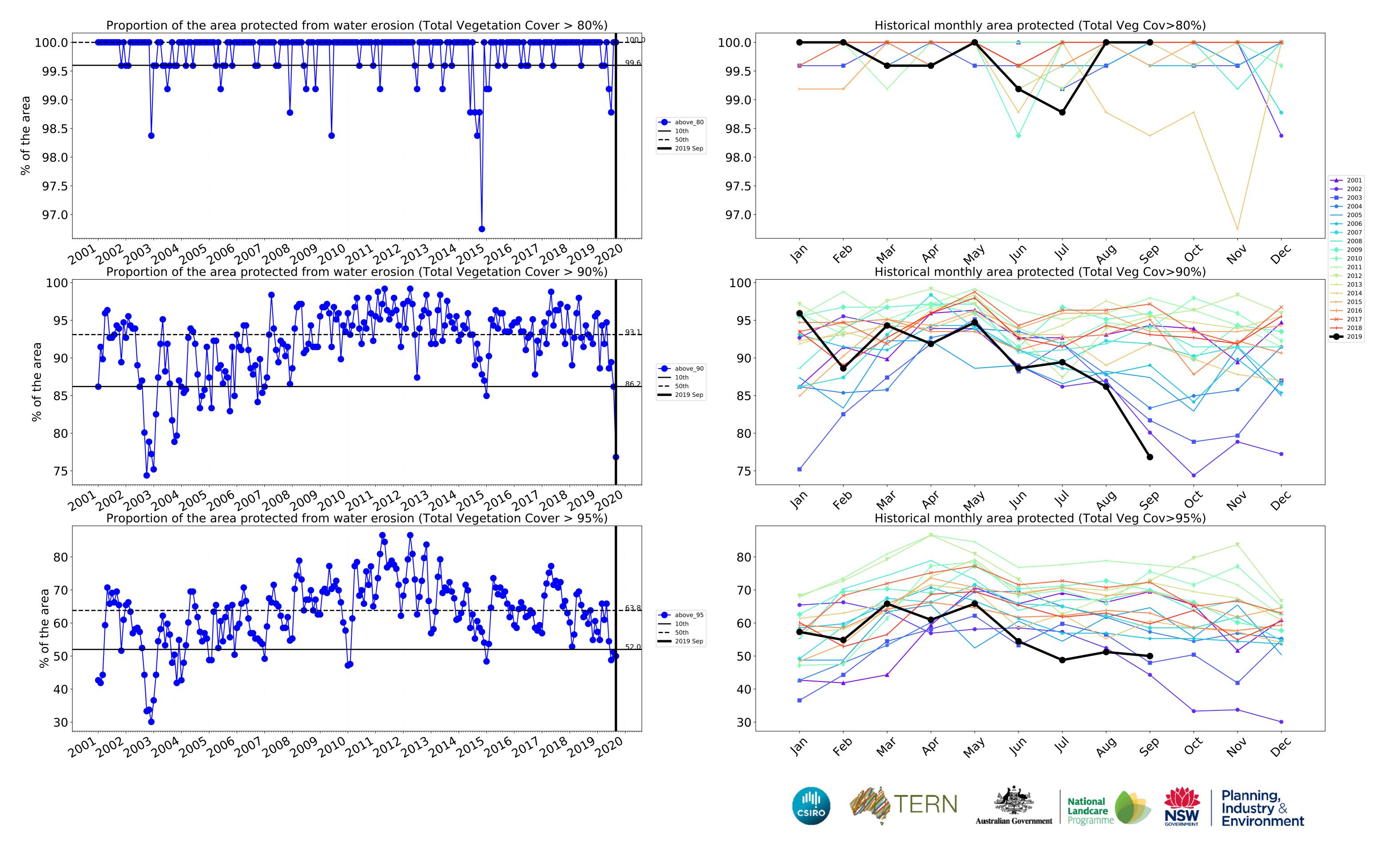






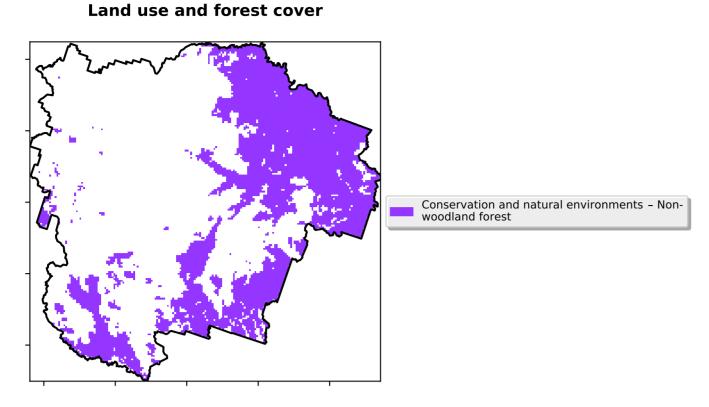






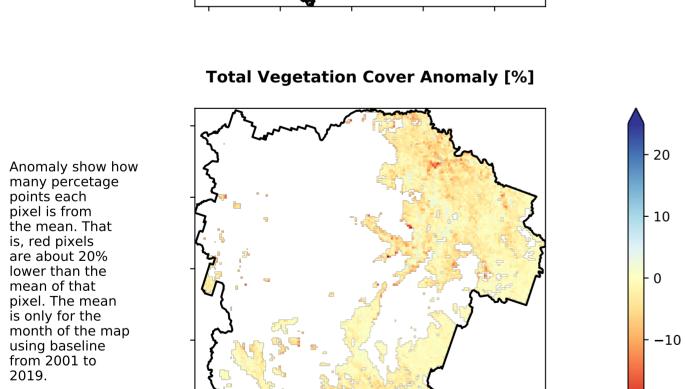
#### **Conservation and natural environments Forest (non woodland)**

#### 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.



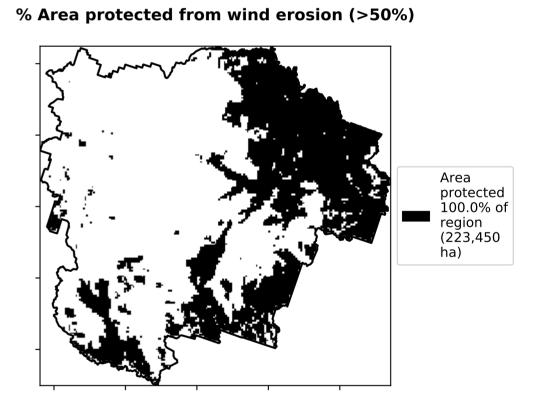
# **Total Vegetation Cover [%]**

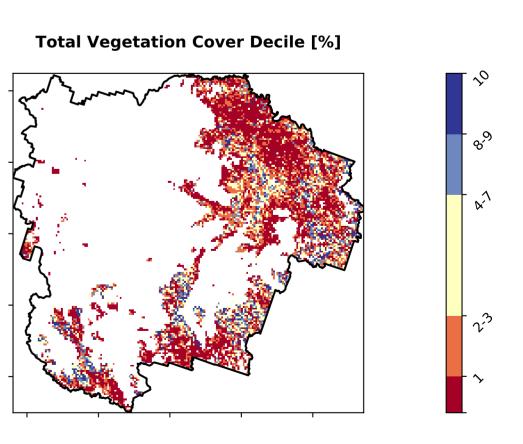
## % Area protected from water erosion (>70%) Area not protected 0.1% of region (223 ha) Area protected 99.9% of region (223,226 ha)



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 99.9% 100 80 60 Area (%) 40 · 20 0.0% 0.0% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**









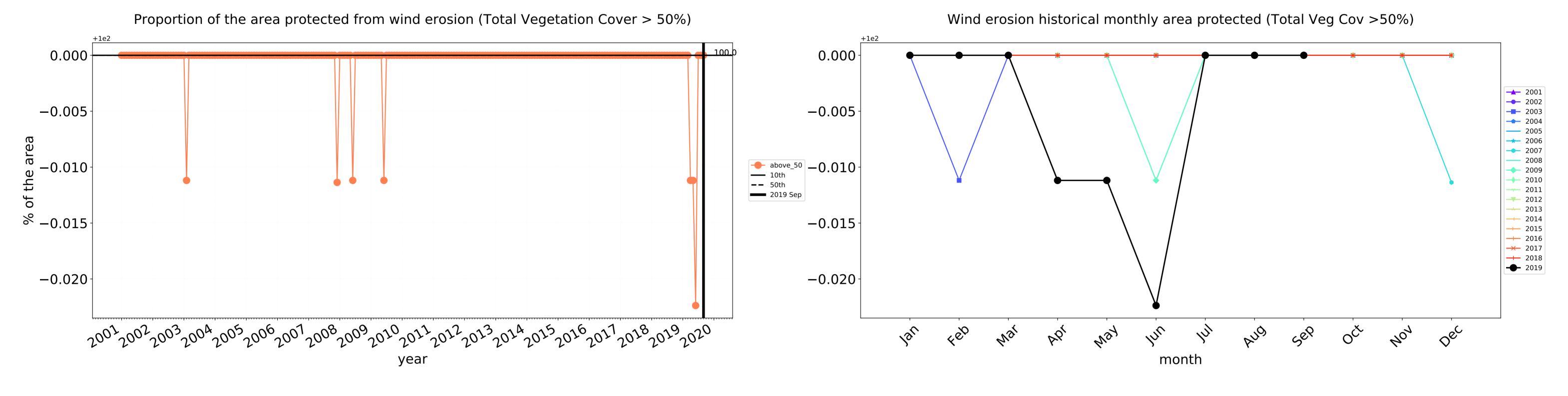


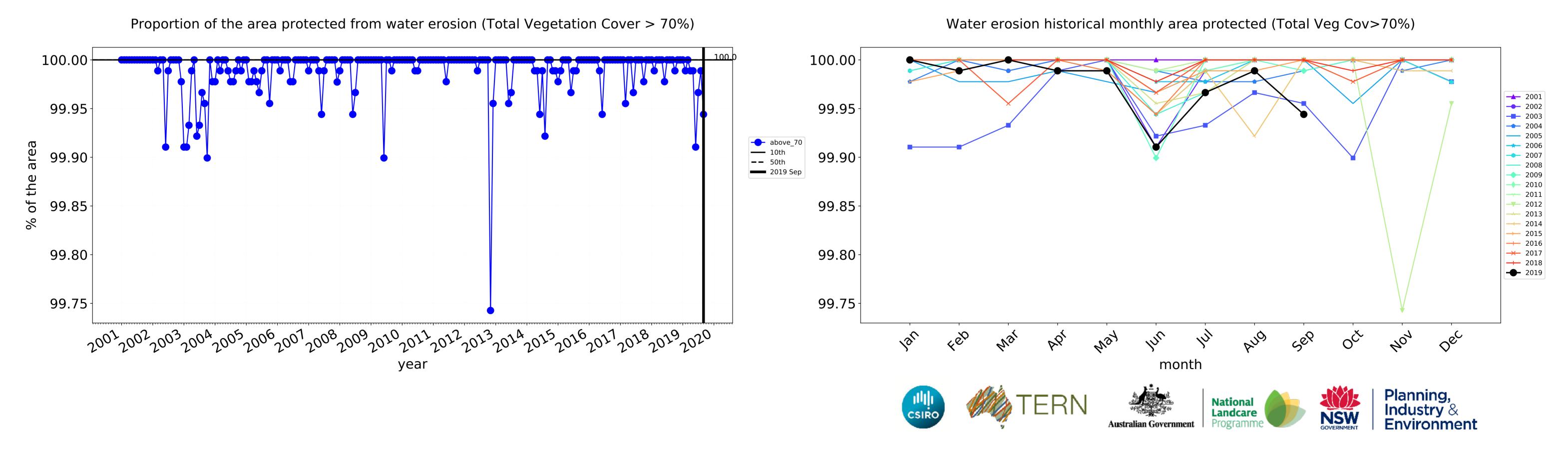


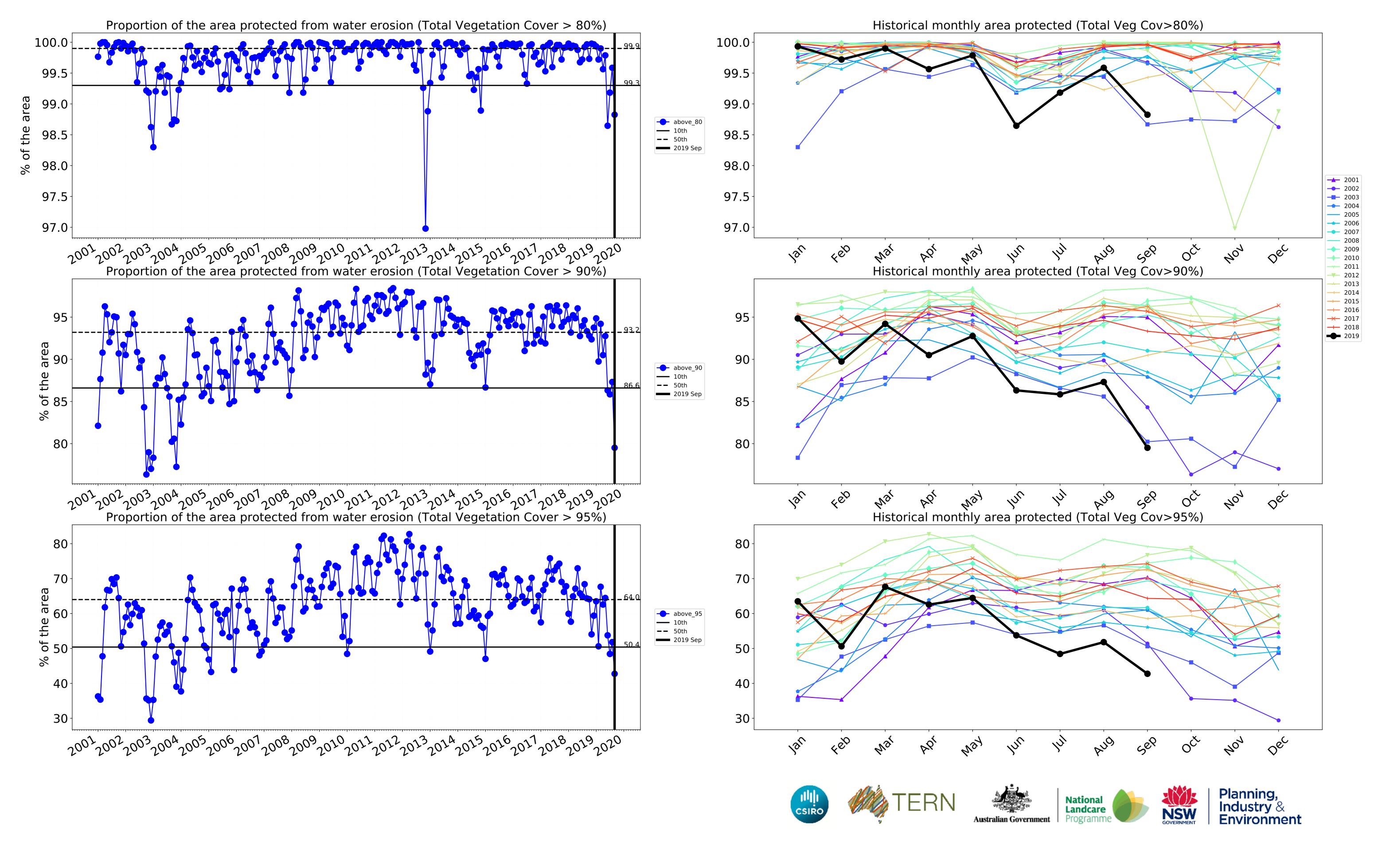




**-**20







#### **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.

Anomaly show how many percetage points each

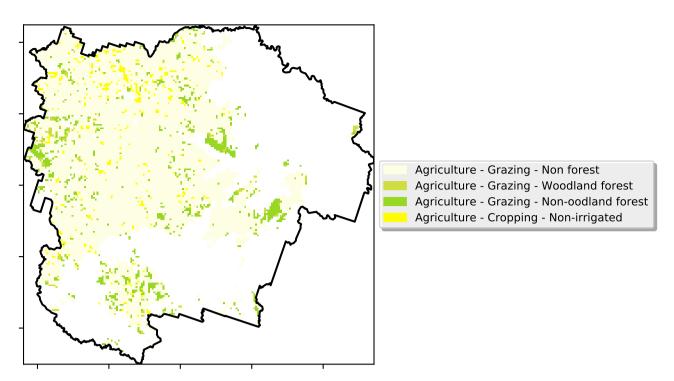
pixel is from

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

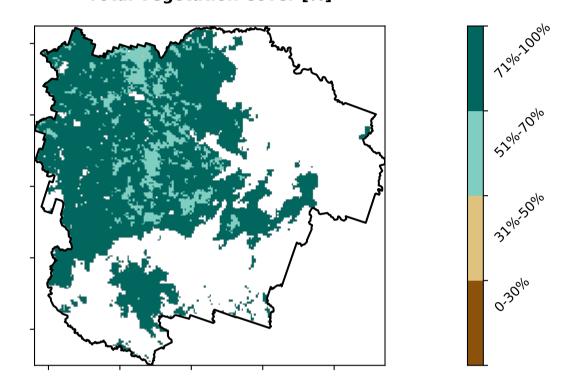
the mean. That

is only for the month of the map

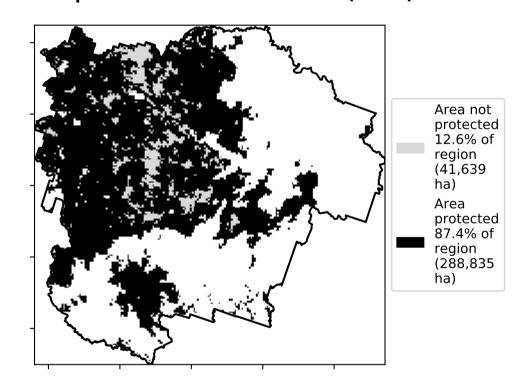
using baseline from 2001 to 2019.



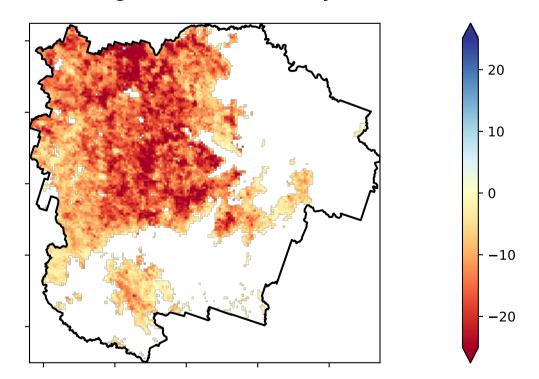
#### **Total Vegetation Cover [%]**



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

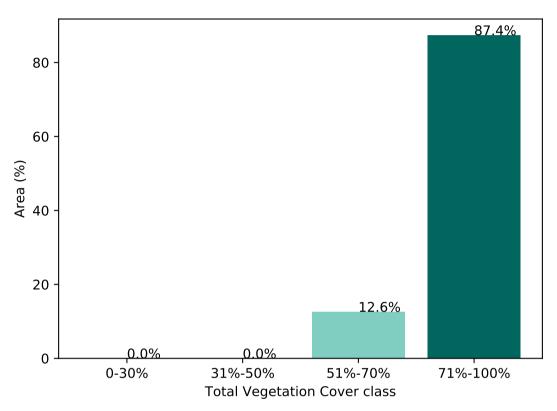


#### Total Vegetation Cover Anomaly [%]

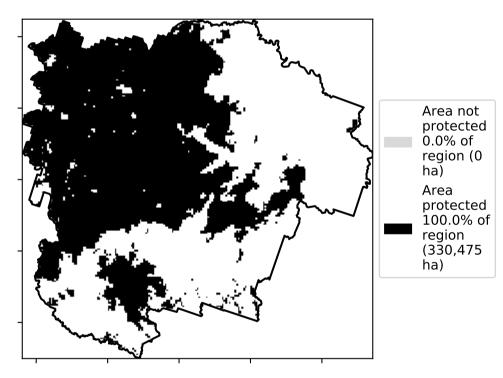


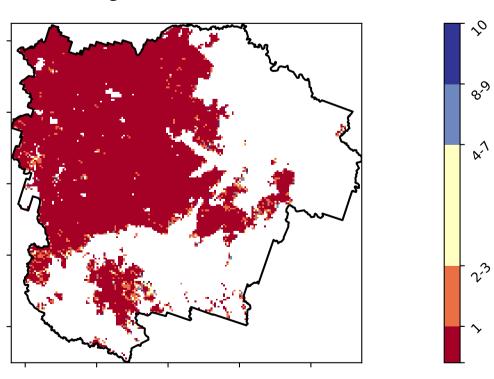
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

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



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









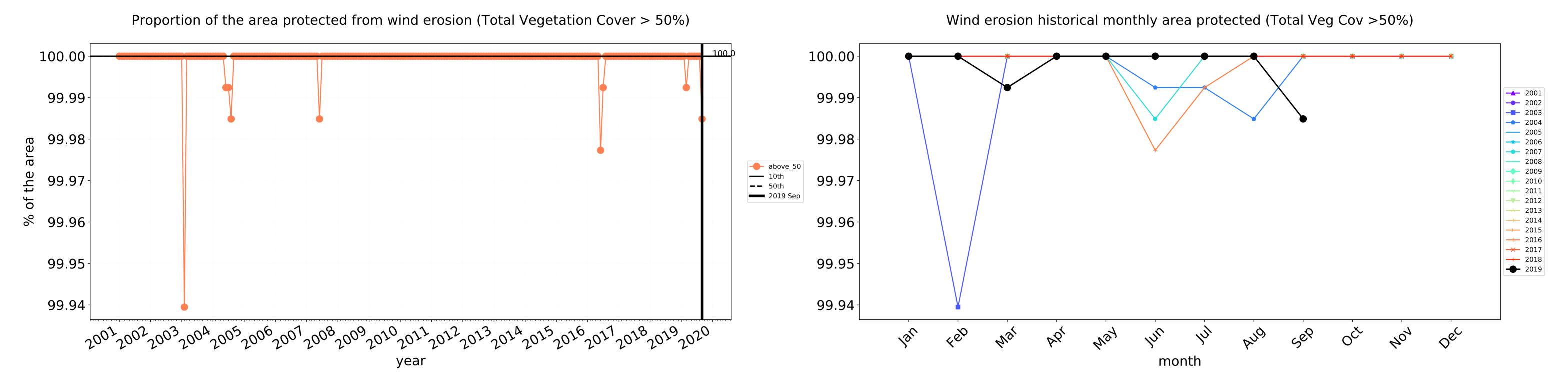


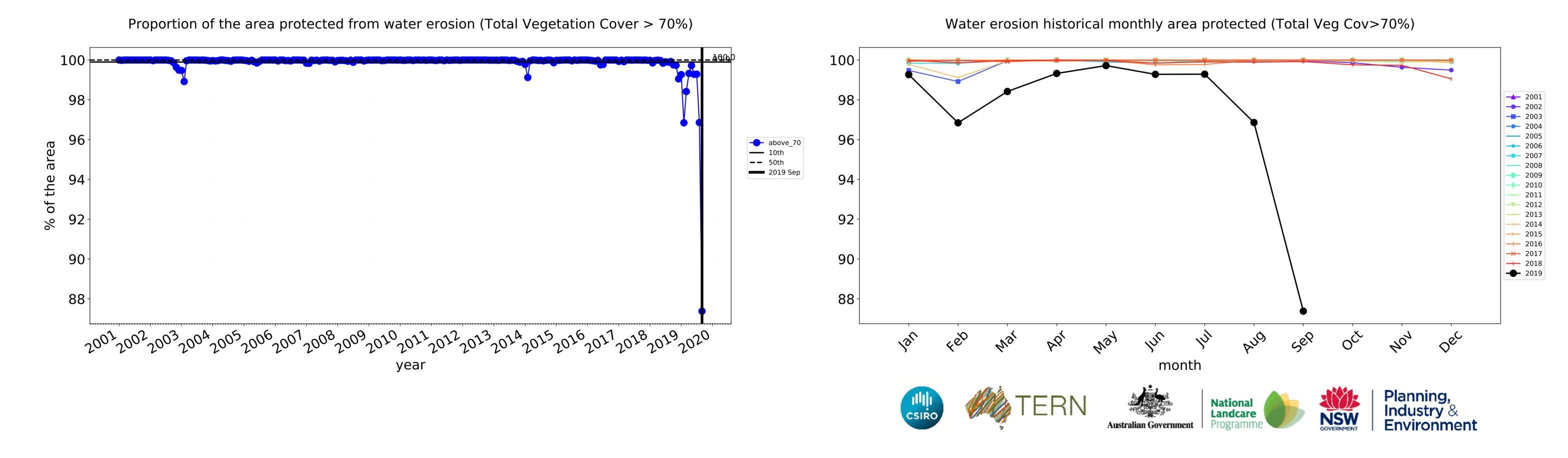


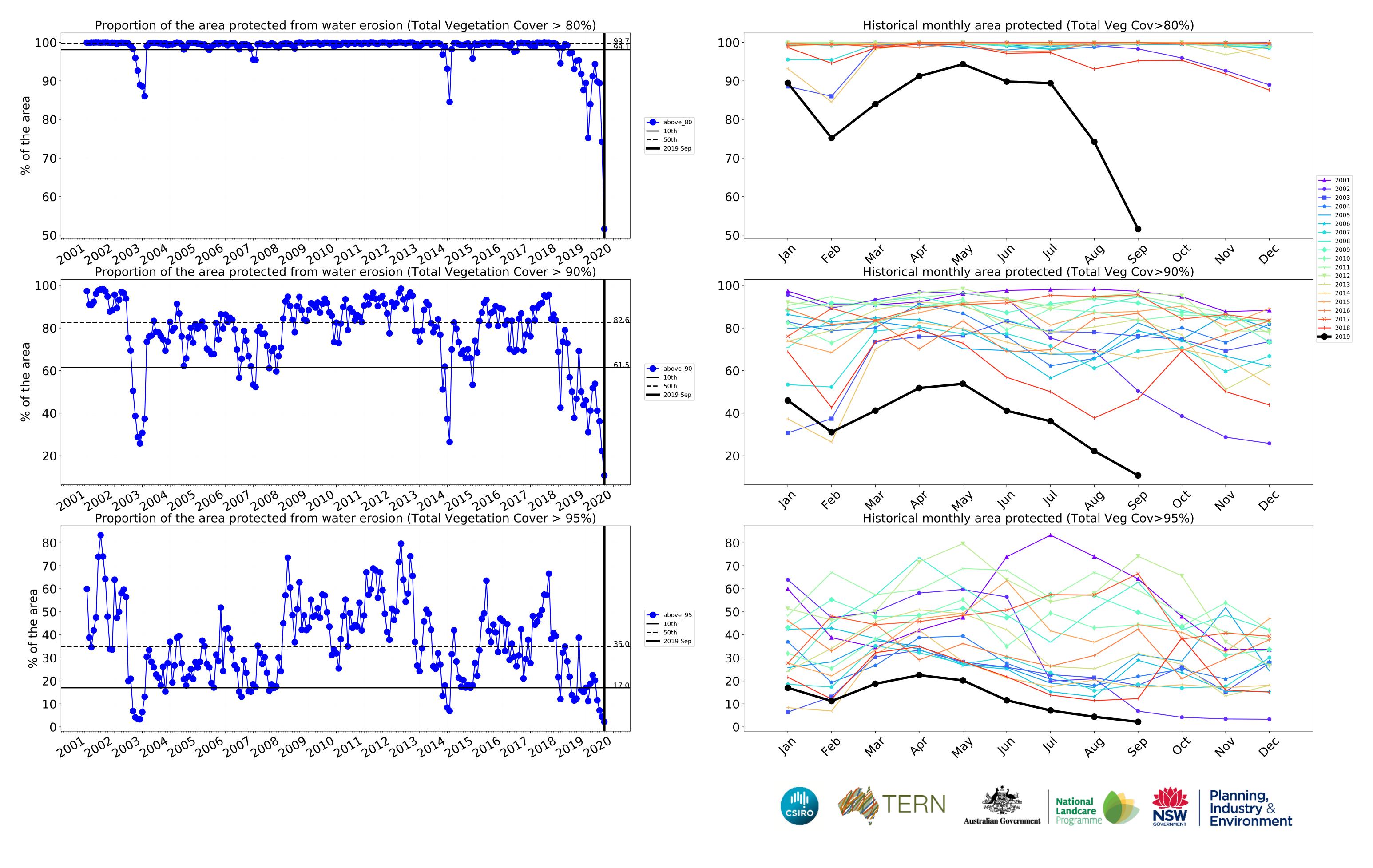




#### **Agriculture timeseries**







#### **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.

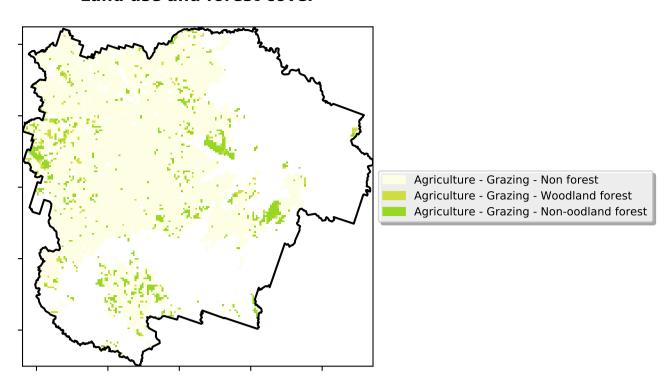
Anomaly show how many percetage points each

pixel is from the mean. That

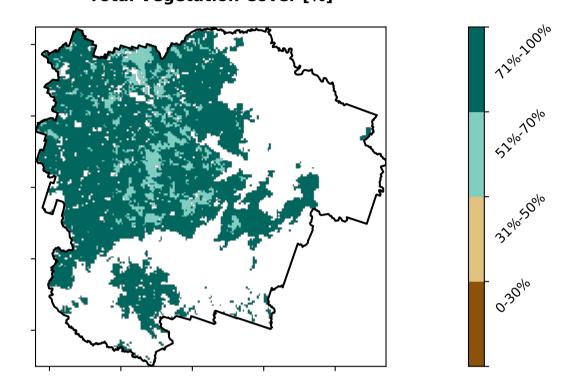
pixel. The mean is only for the month of the map

using baseline from 2001 to 2019.

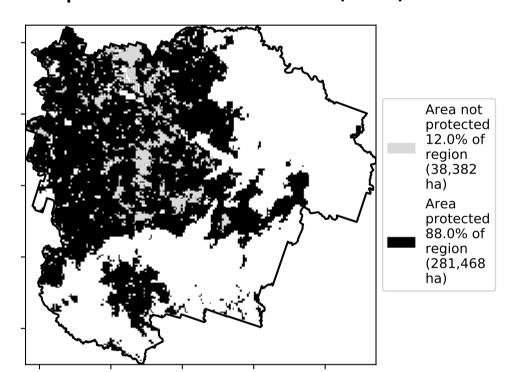
is, red pixels are about 20% lower than the mean of that



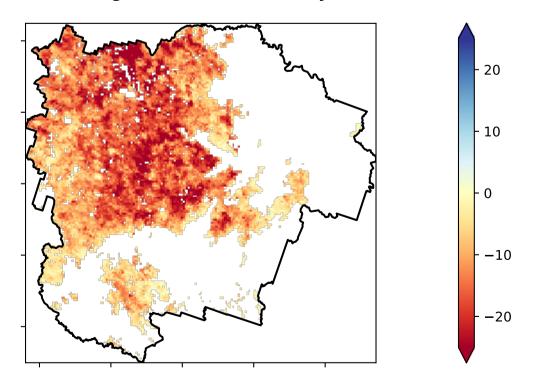
#### **Total Vegetation Cover [%]**



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

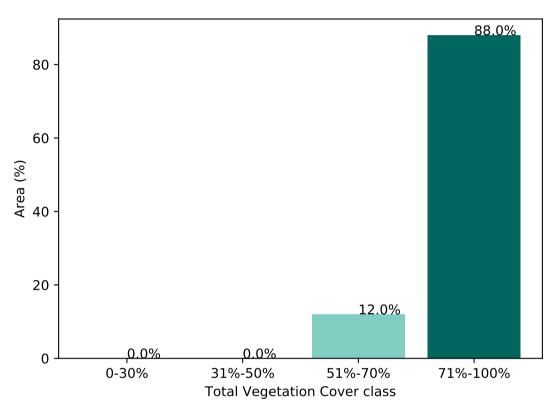


#### Total Vegetation Cover Anomaly [%]

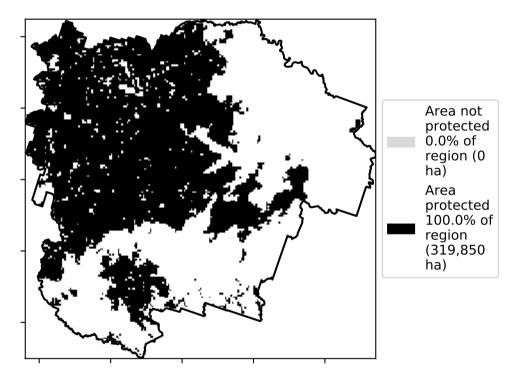


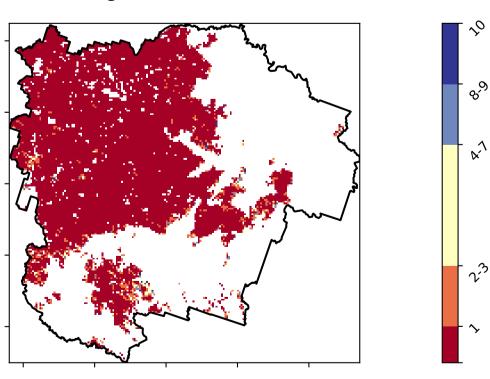
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

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



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









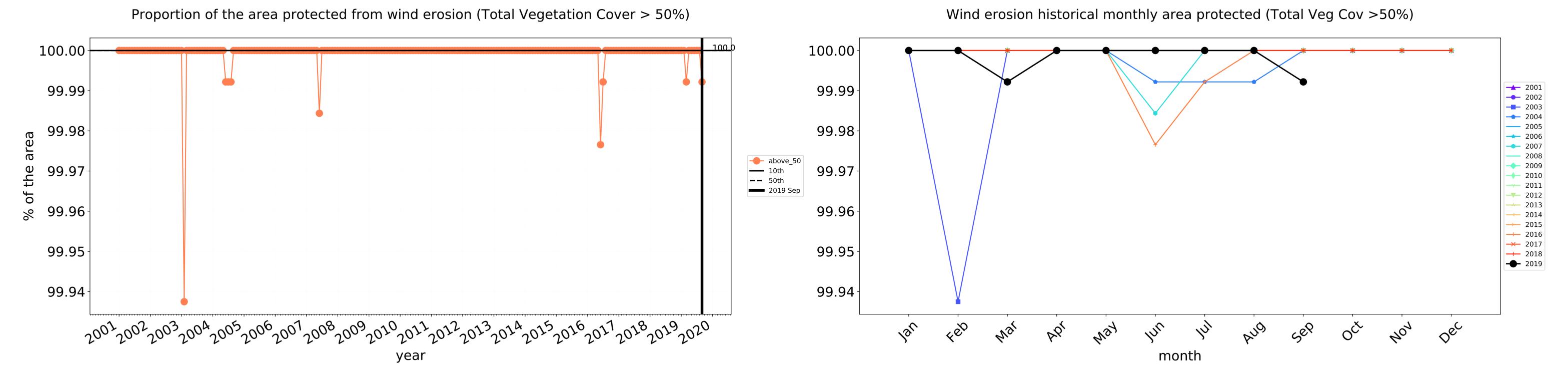


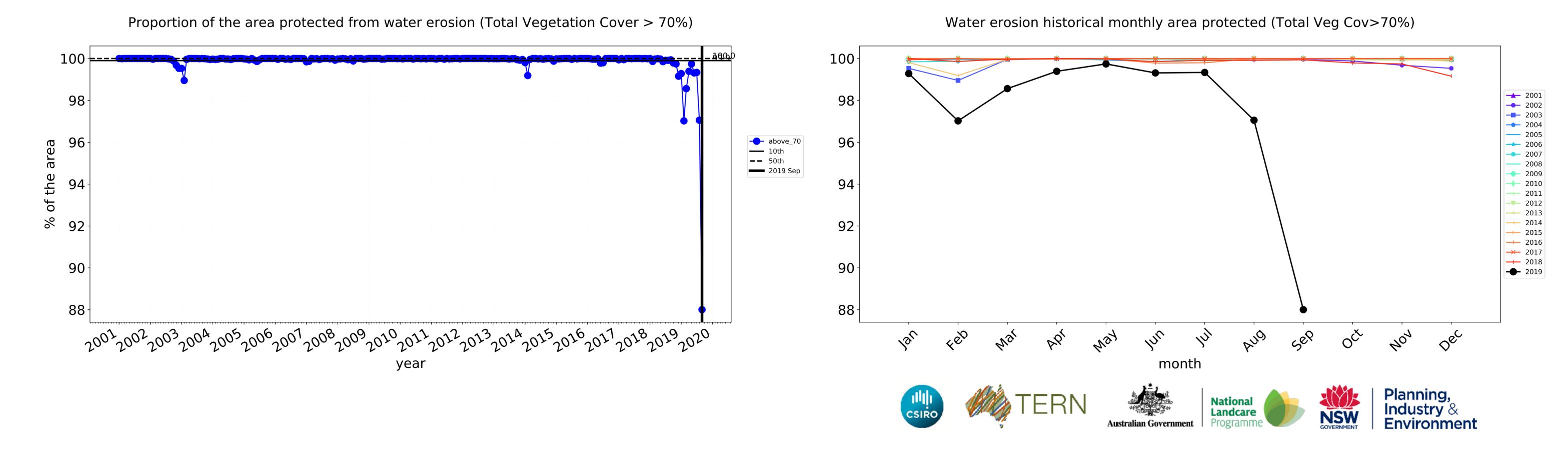


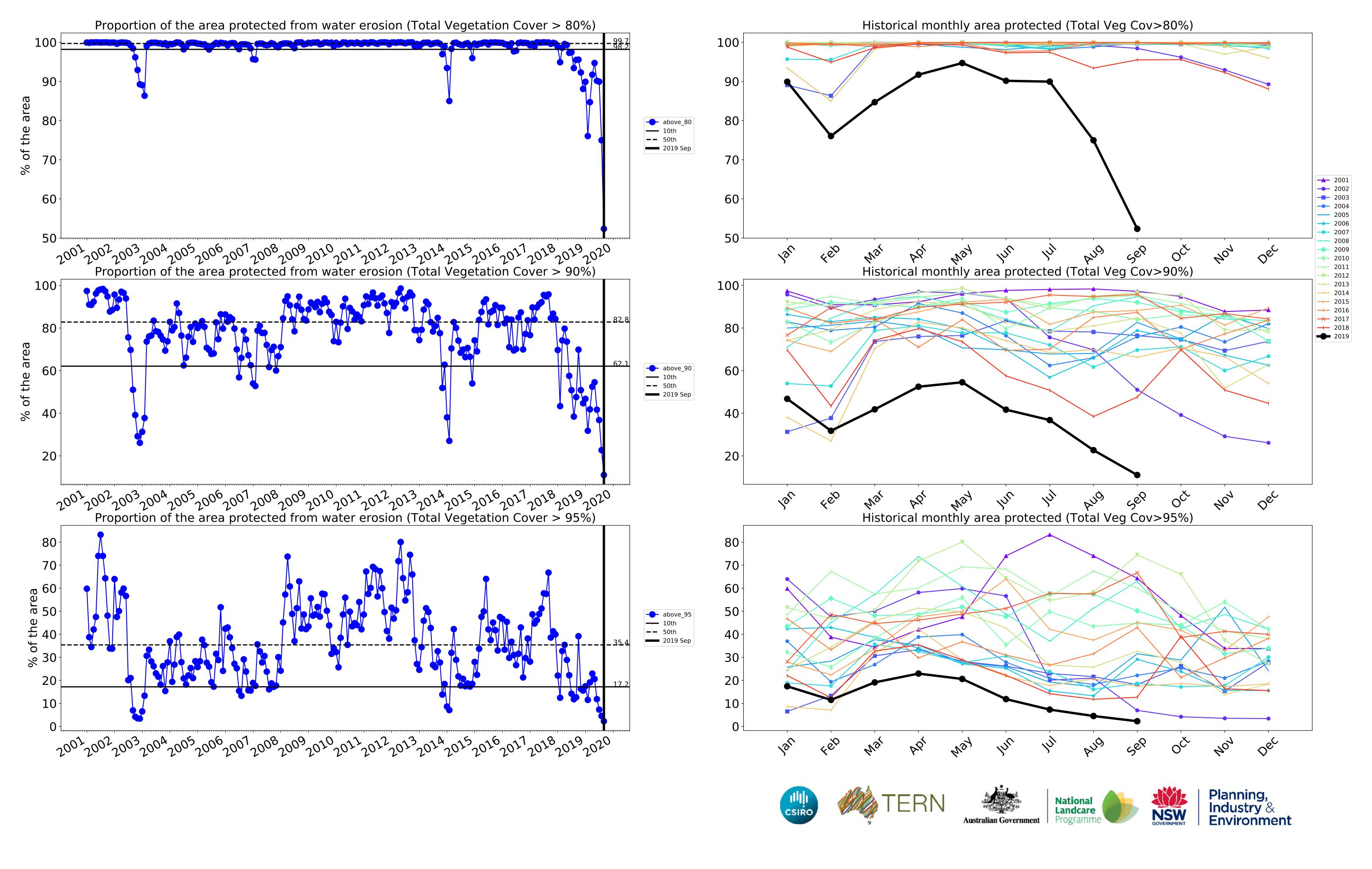




#### **Grazing timeseries**







#### **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.

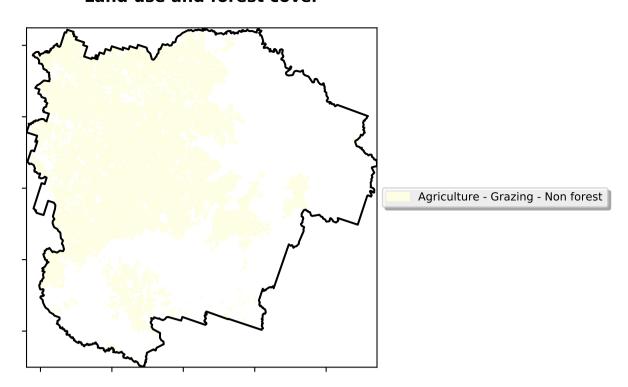
Anomaly show how many percetage points each

pixel is from the mean. That

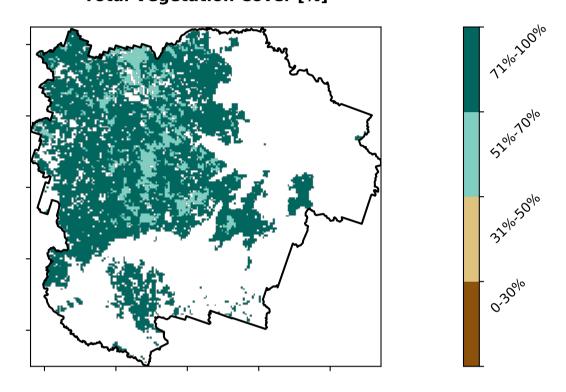
pixel. The mean is only for the month of the map

using baseline from 2001 to 2019.

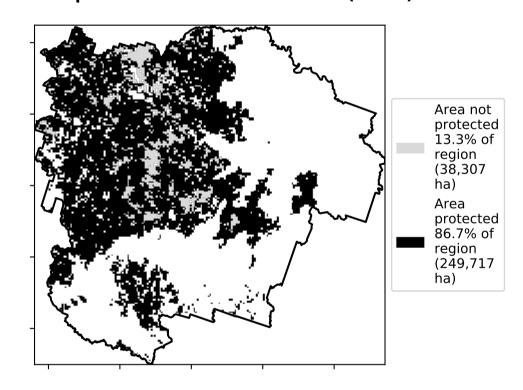
is, red pixels are about 20% lower than the mean of that



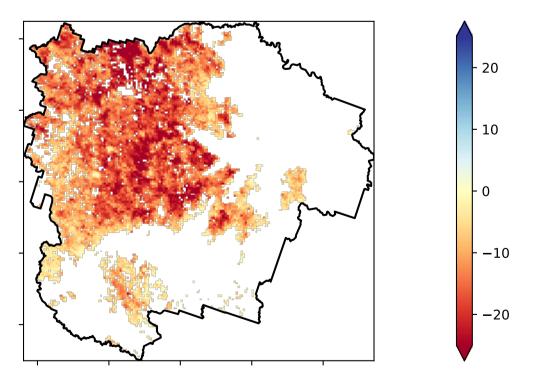
#### **Total Vegetation Cover [%]**



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

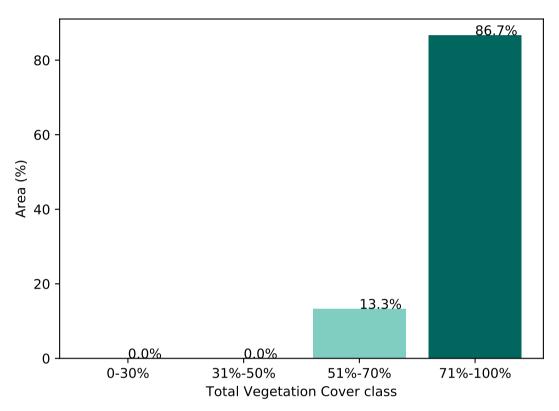


#### Total Vegetation Cover Anomaly [%]

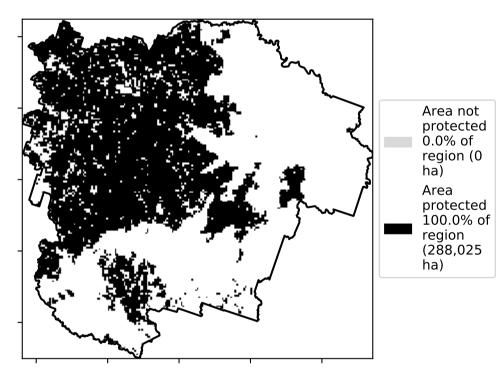


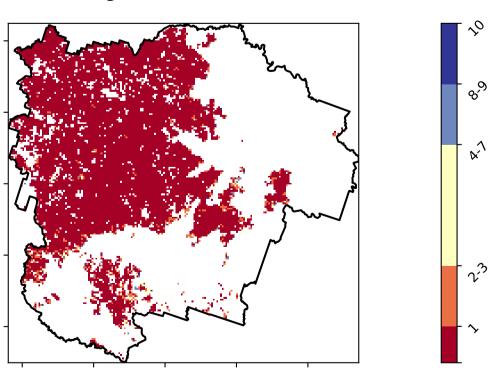
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

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



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









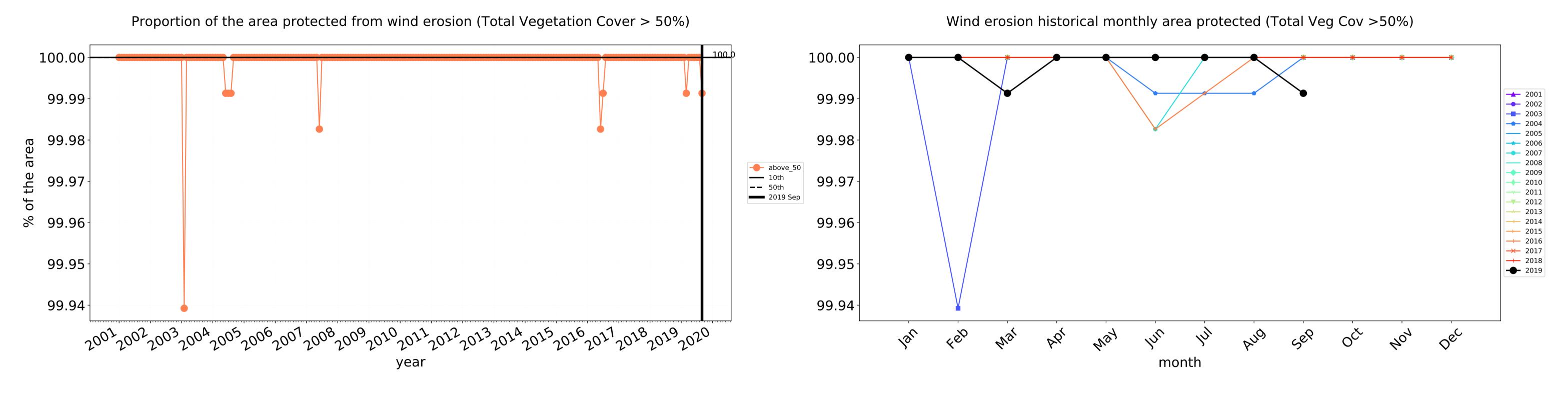


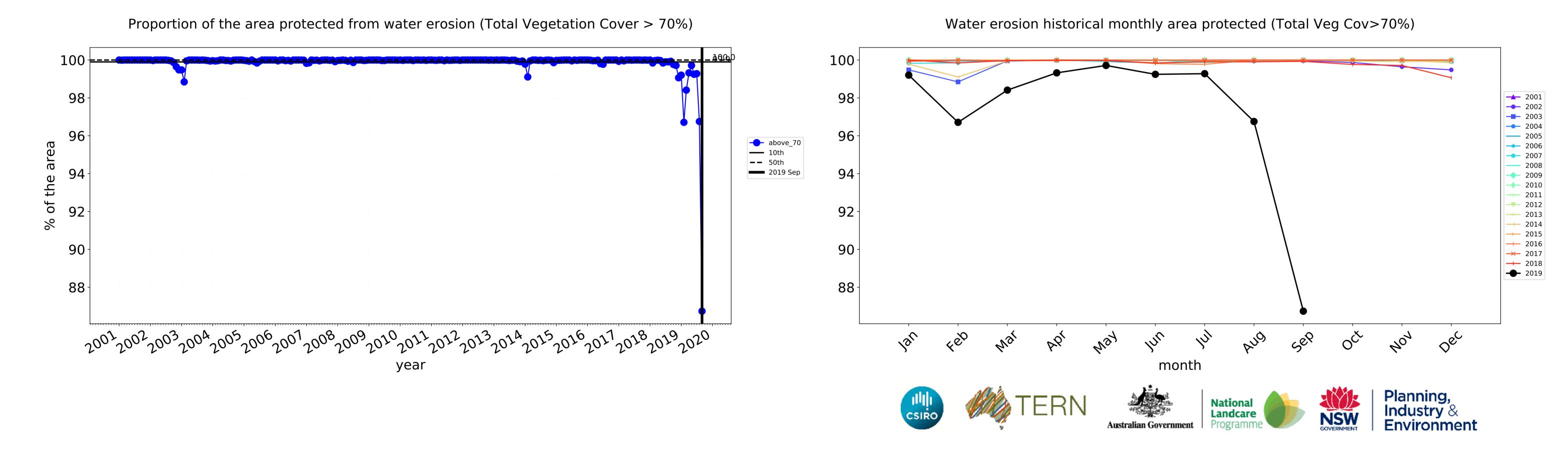


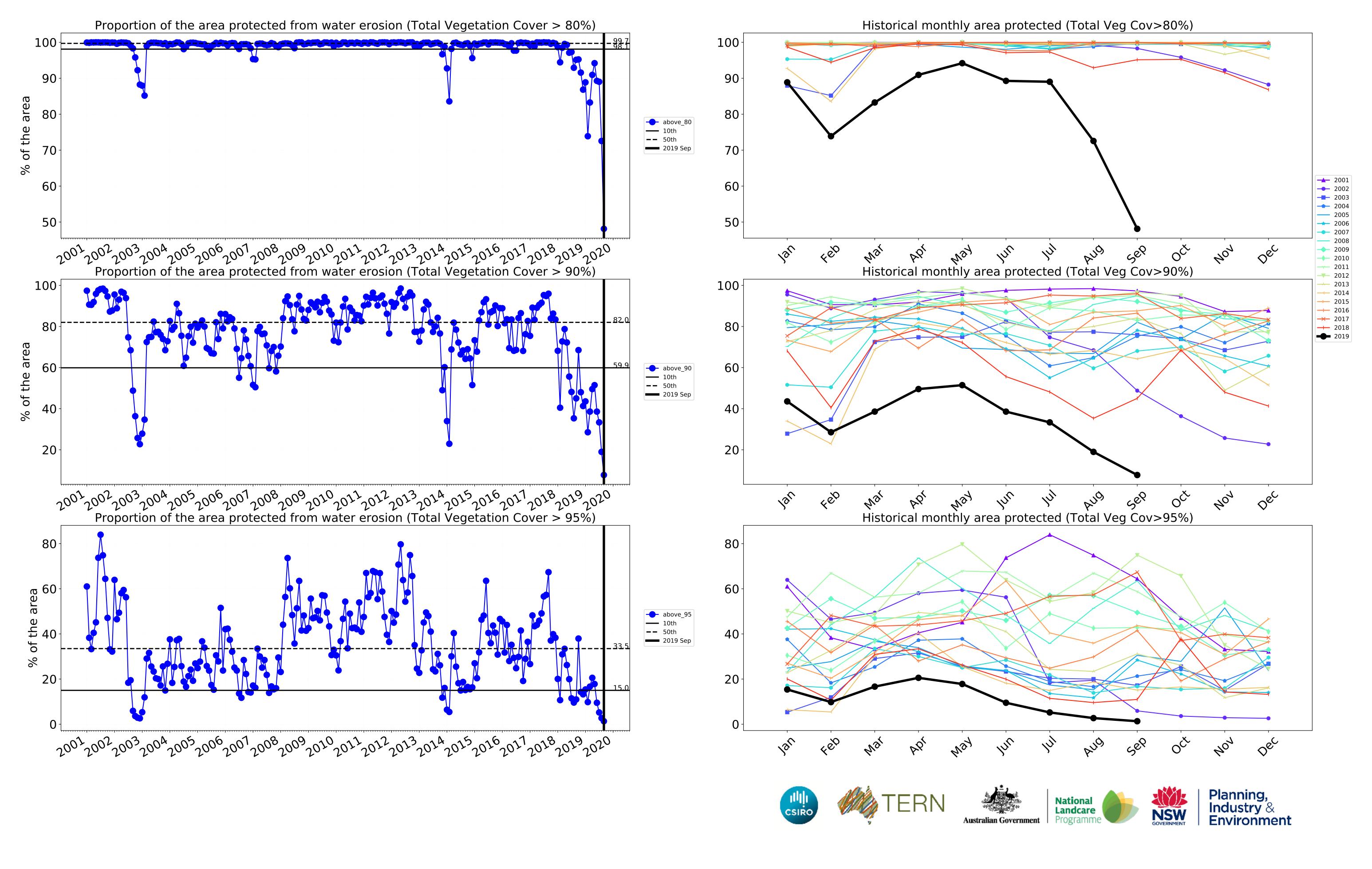




#### **Grazing non forest timeseries**







#### **Grazing Woodland forest**

# 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

Anomaly show how many percetage points each

pixel is from

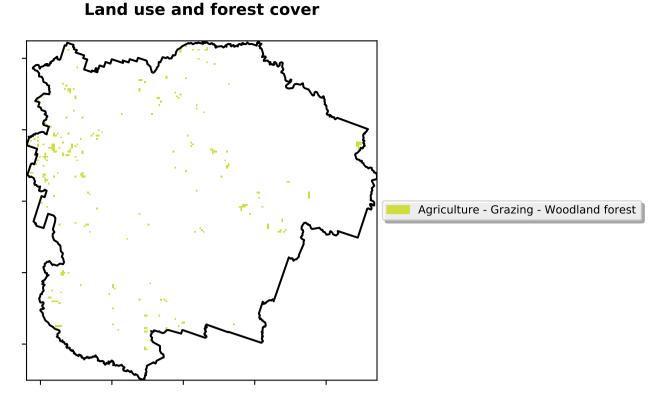
is, red pixels are about 20% lower than the mean of that pixel. The mean

the mean. That

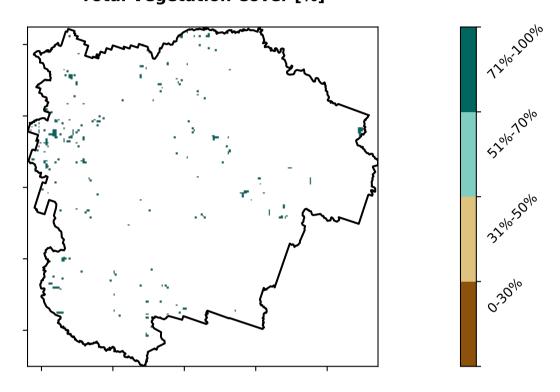
is only for the month of the map

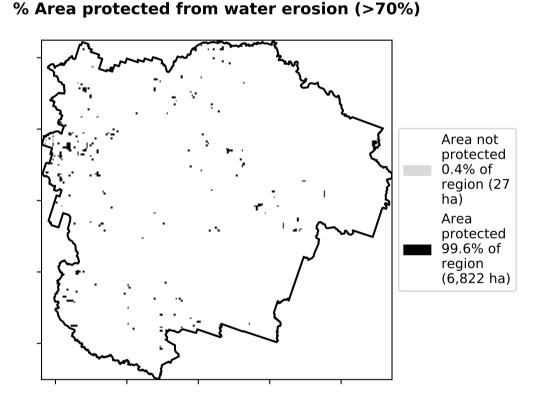
using baseline from 2001 to 2019.

cover.

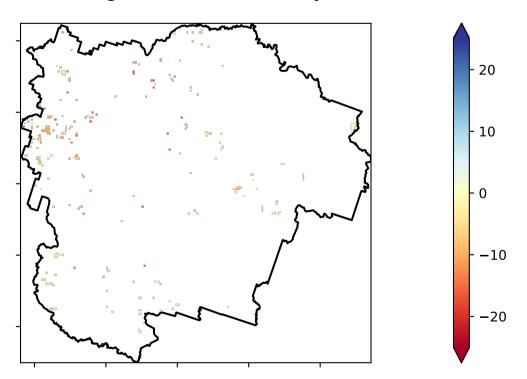


#### Total Vegetation Cover [%]



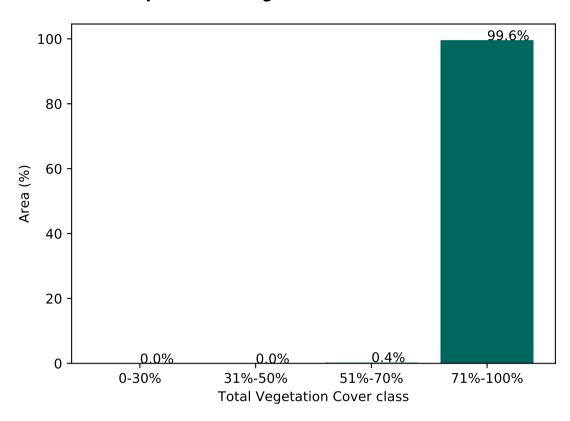


Total Vegetation Cover Anomaly [%]

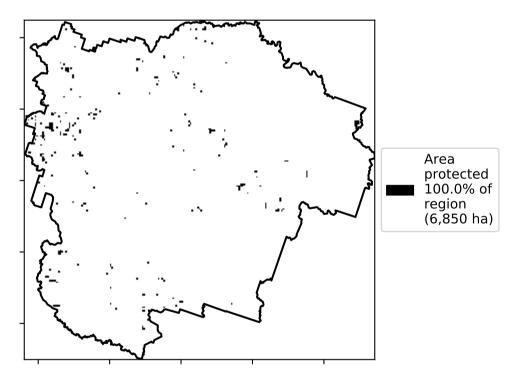


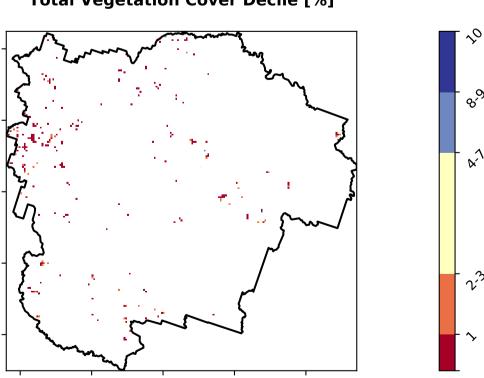
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



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









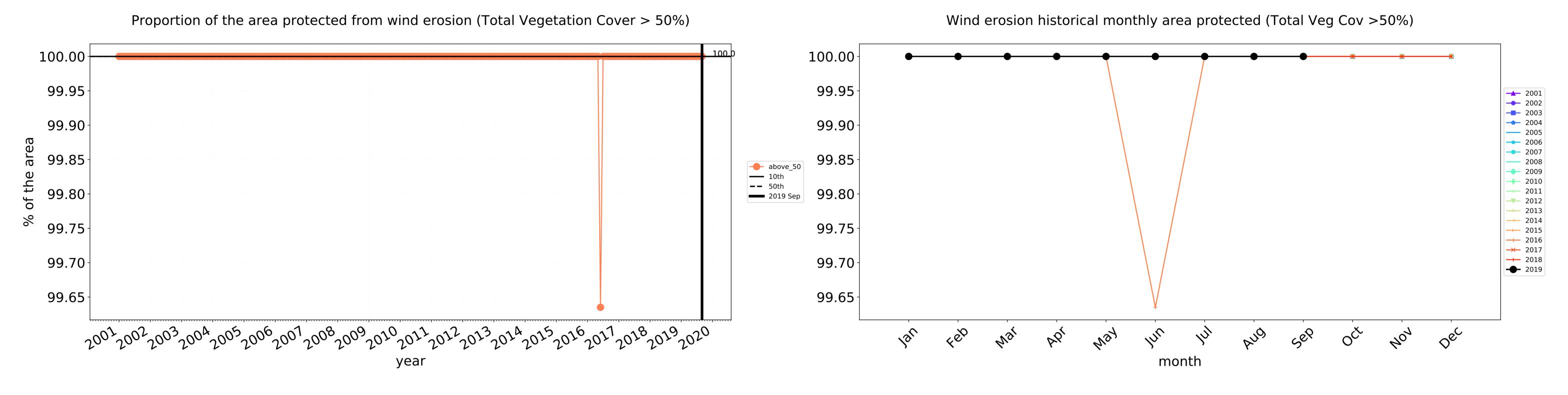


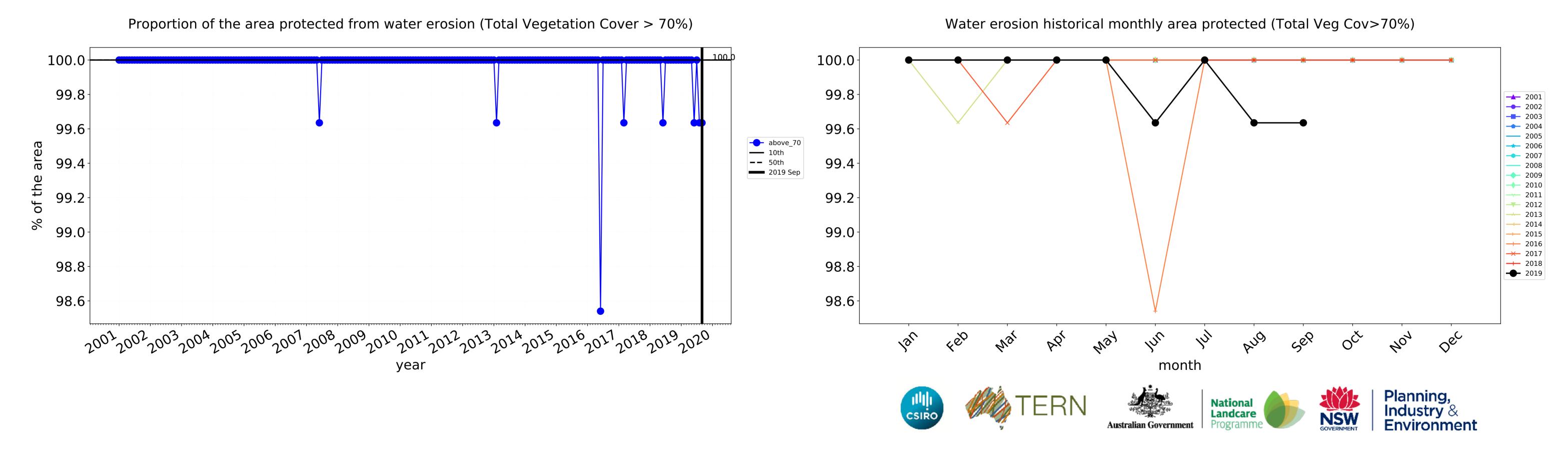


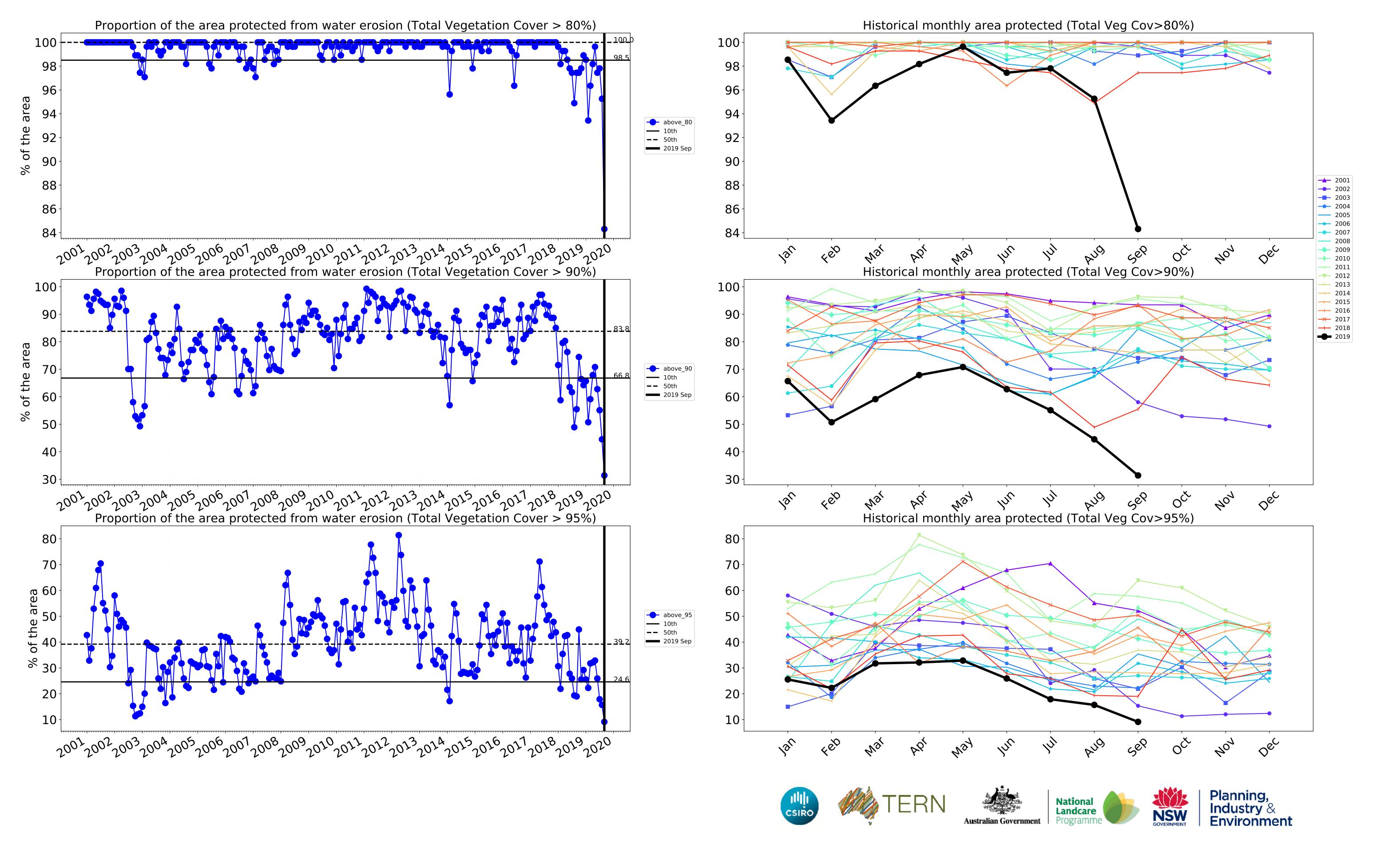




#### **Grazing Woodland forest timeseries**







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

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

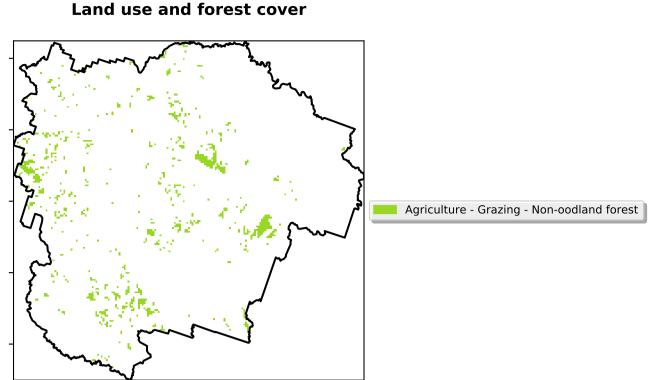
pixel is from

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

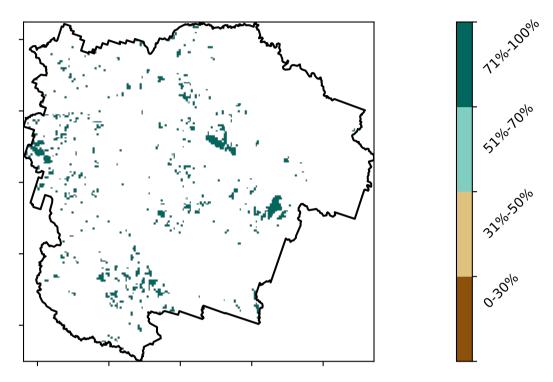
the mean. That

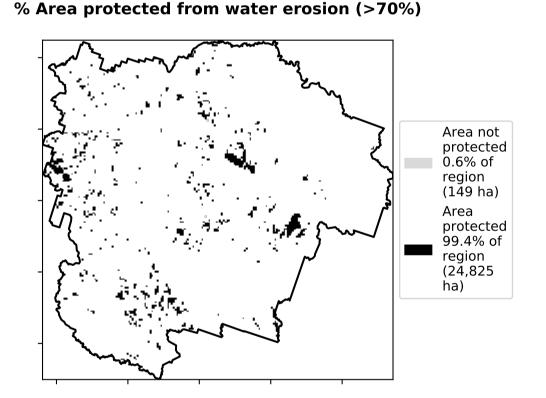
pixel. The mean is only for the month of the map

using baseline from 2001 to 2019.

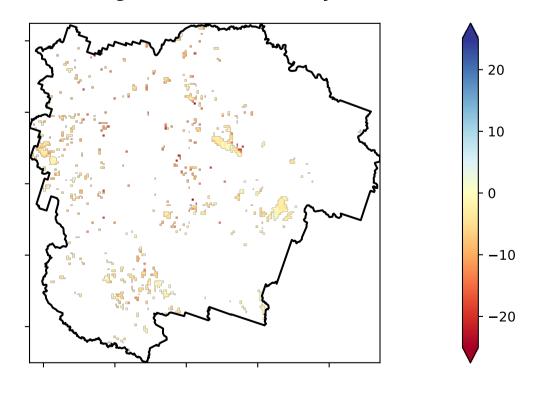


#### **Total Vegetation Cover [%]**



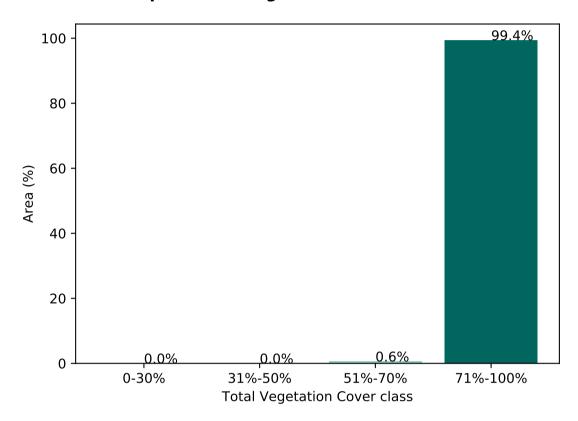


**Total Vegetation Cover Anomaly [%]** 

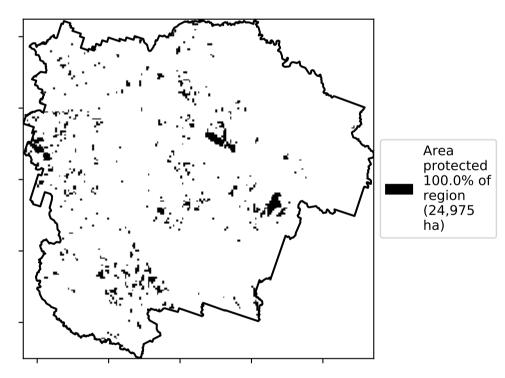


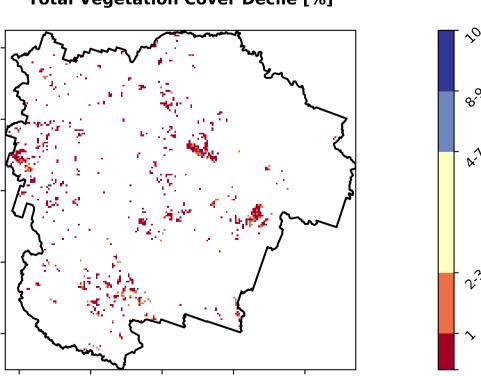
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseling. the map using baseline from 2001 to 2019.

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



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







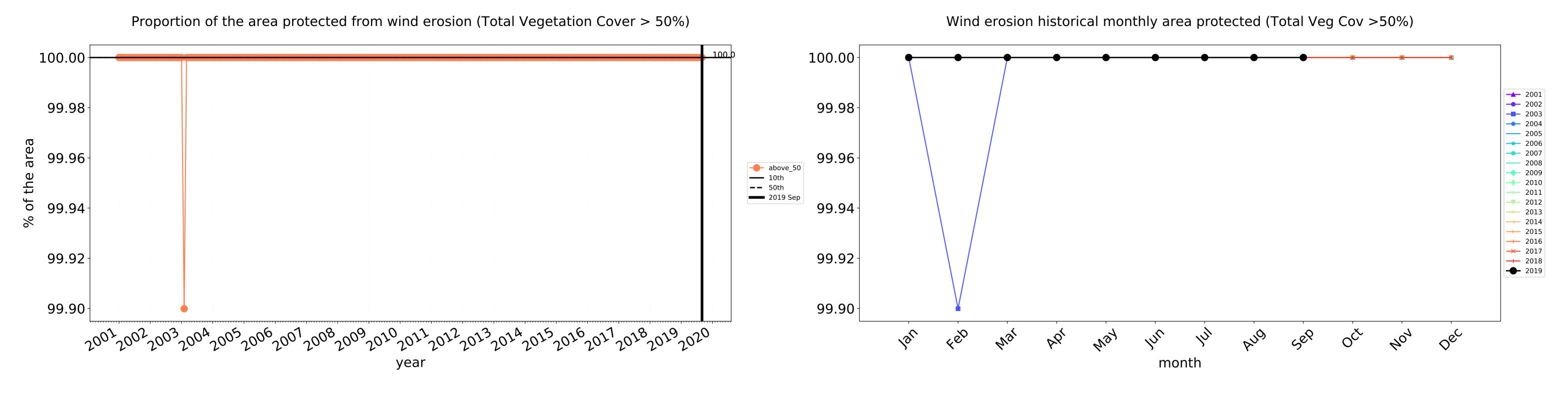


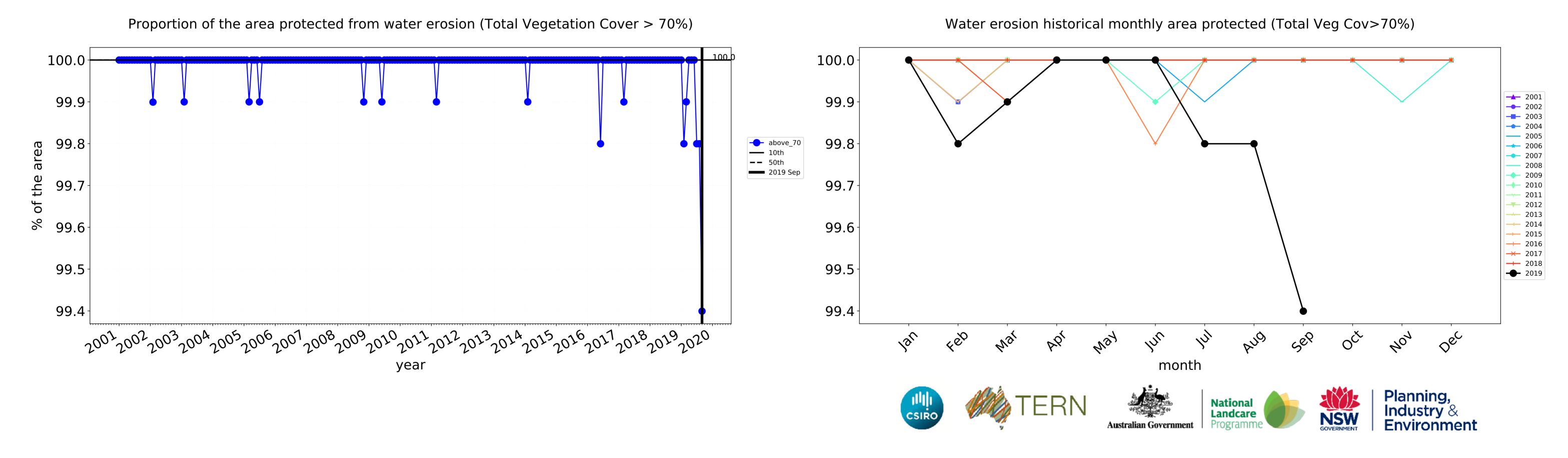


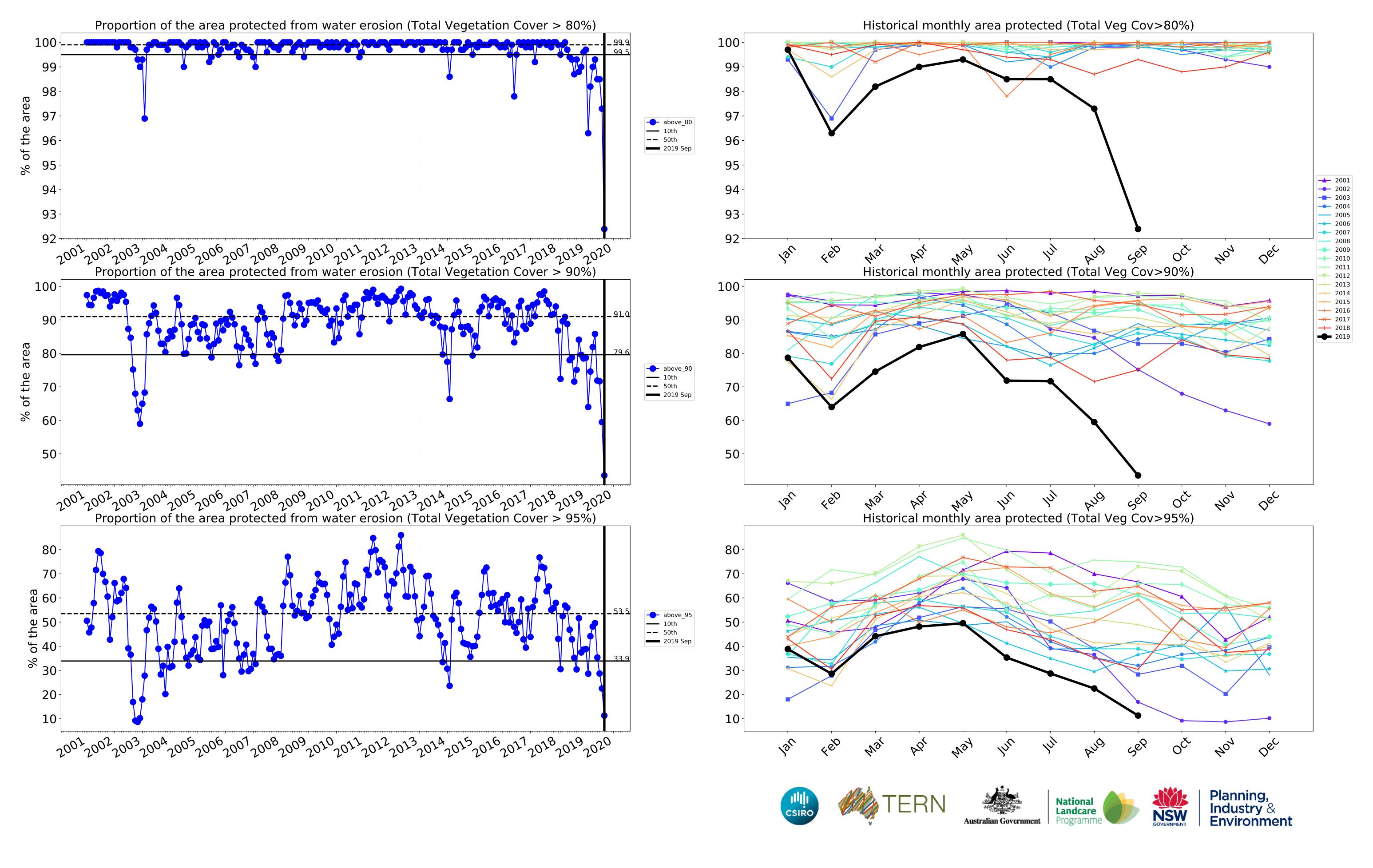












#### **Cropping**

#### 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.

Anomaly show how many percetage points each

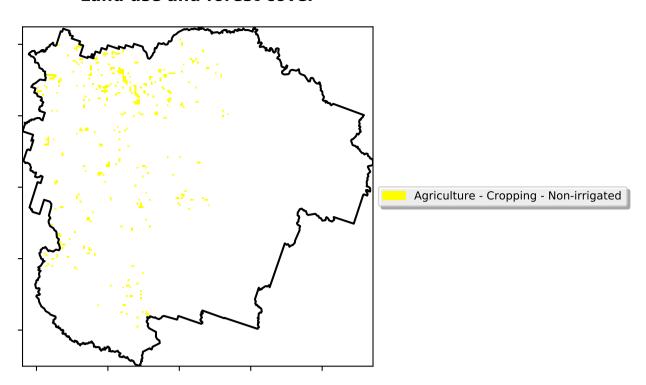
pixel is from

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

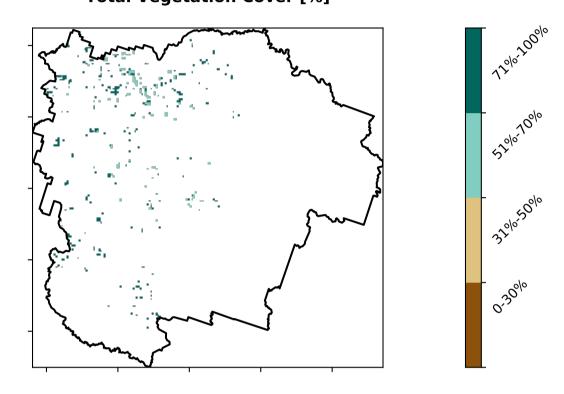
the mean. That

is only for the month of the map

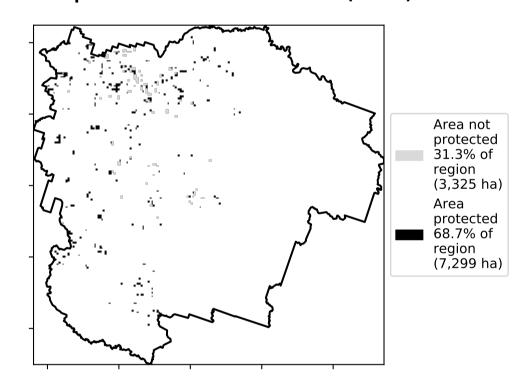
using baseline from 2001 to 2019.



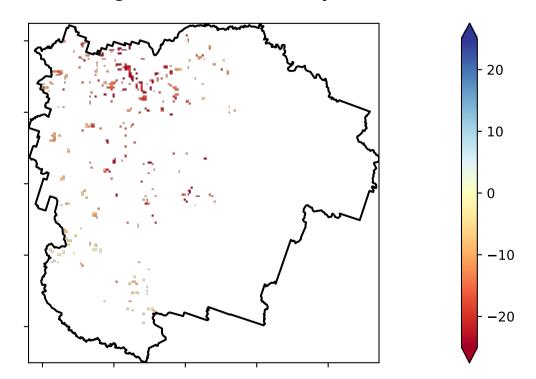
#### **Total Vegetation Cover [%]**



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

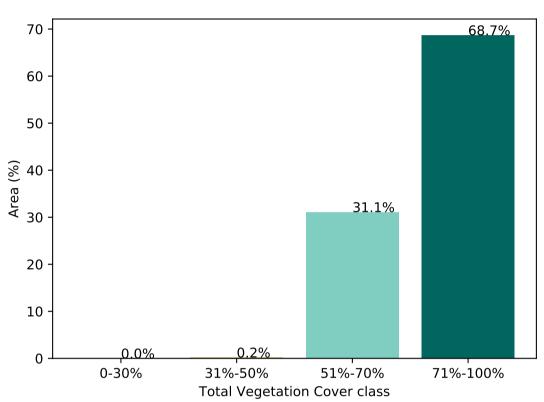


#### Total Vegetation Cover Anomaly [%]

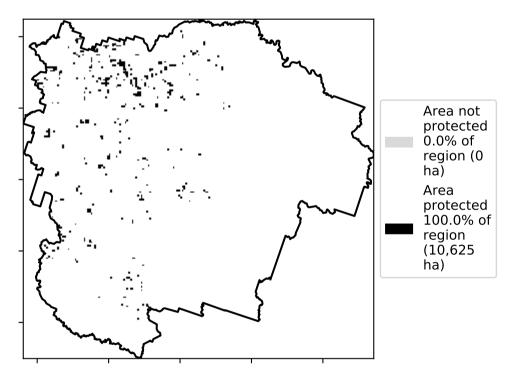


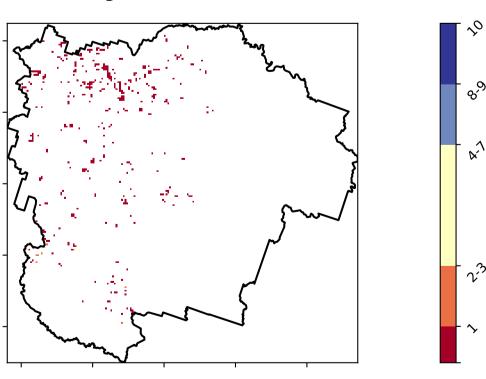
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

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



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









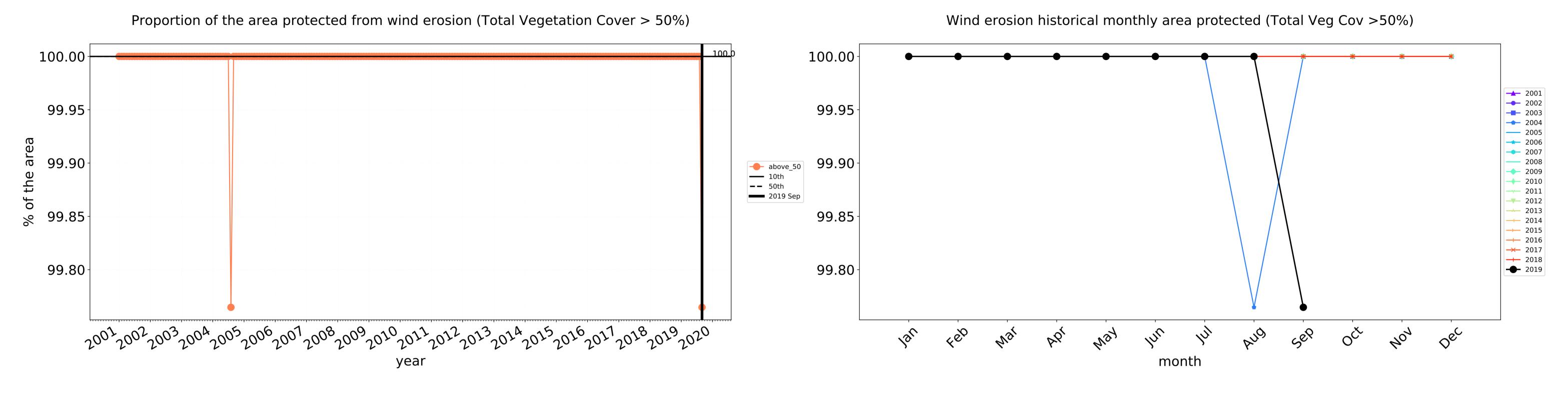


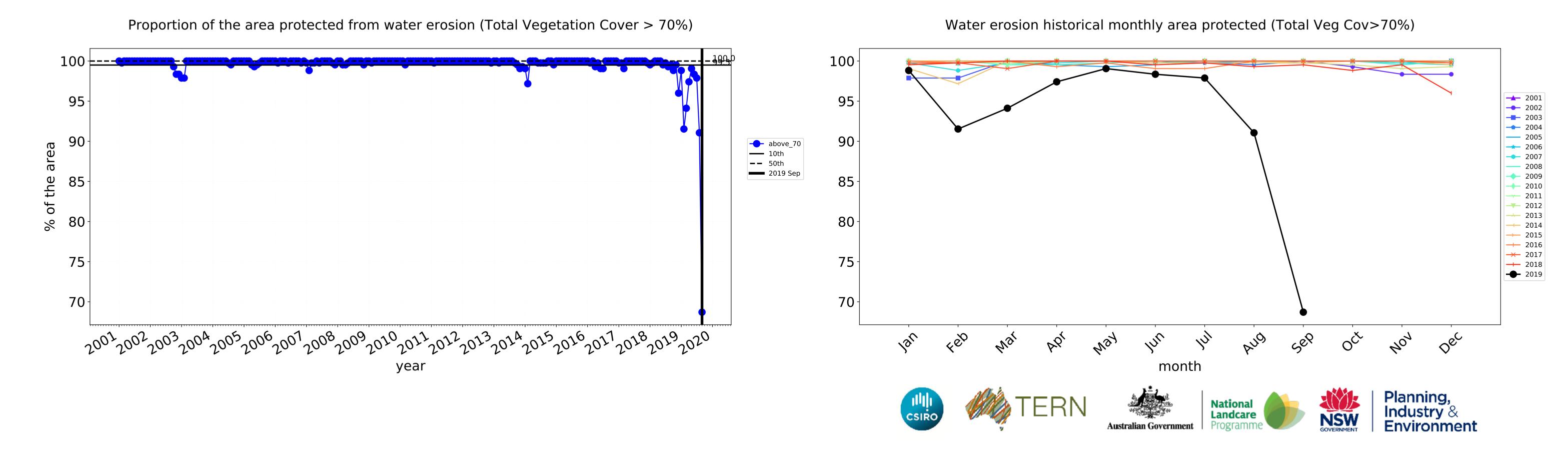


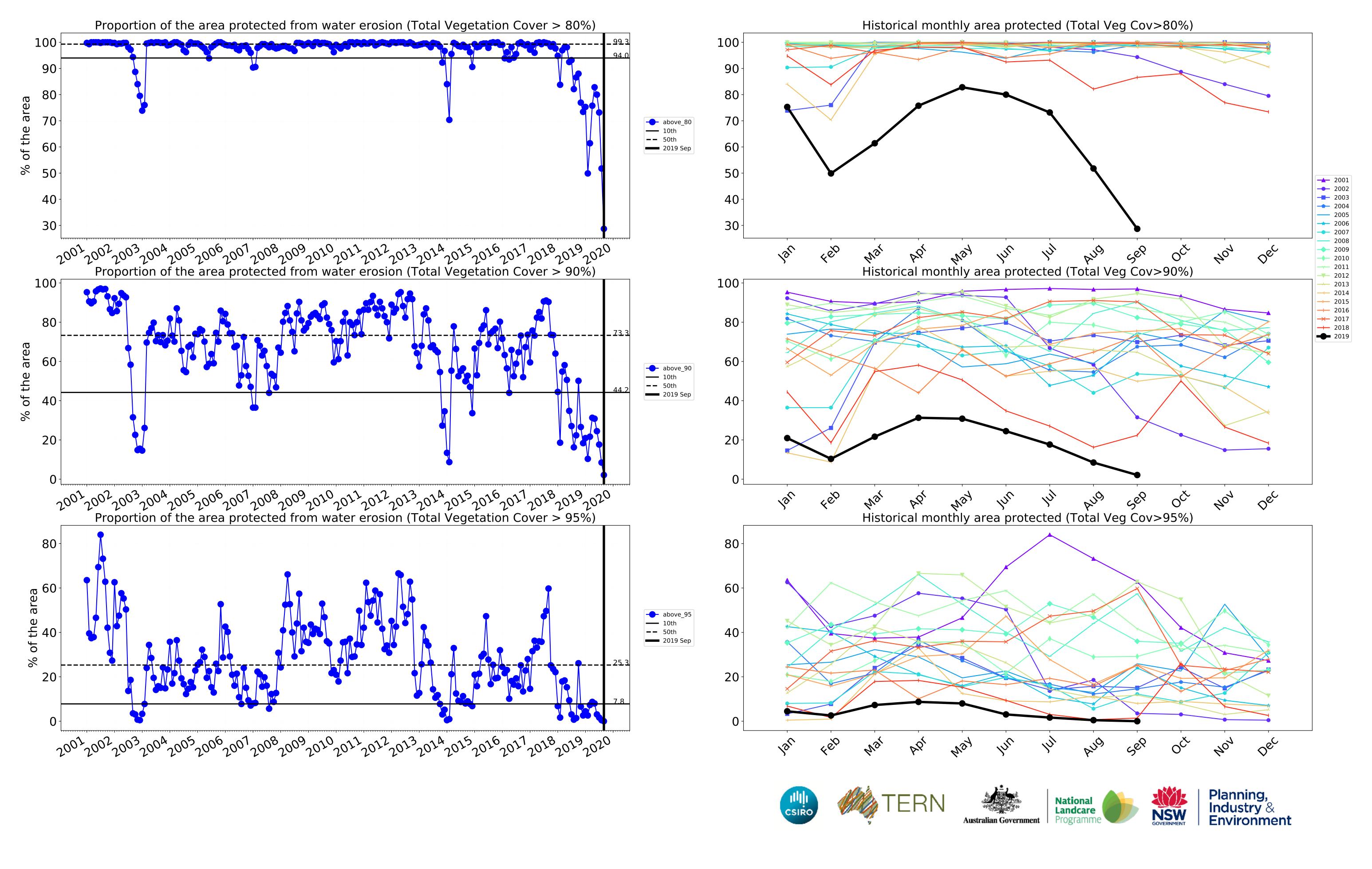




#### **Cropping timeseries**







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

#### 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

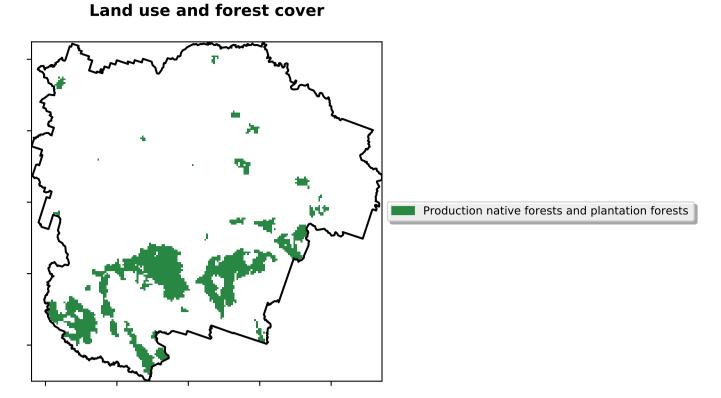
Anomaly show how many percetage points each

pixel is from the mean. That

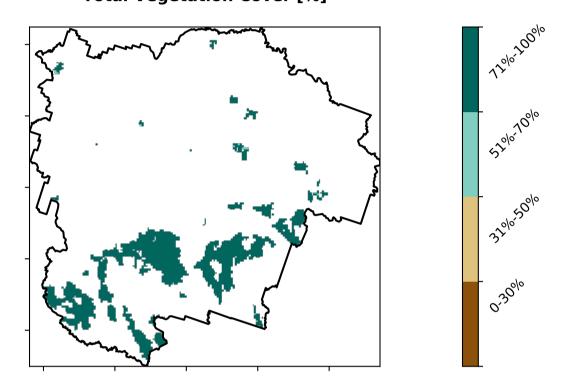
pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

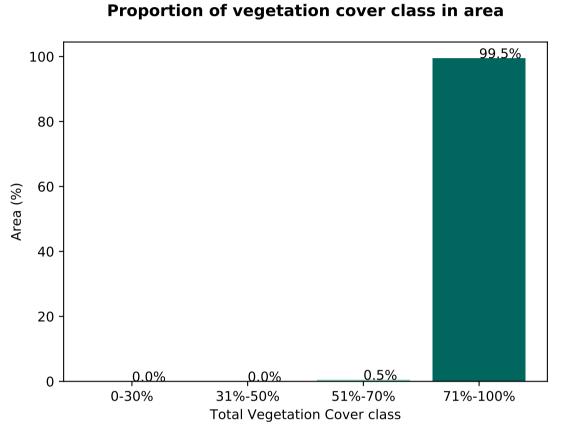
is, red pixels are about 20% lower than the mean of that

cover.

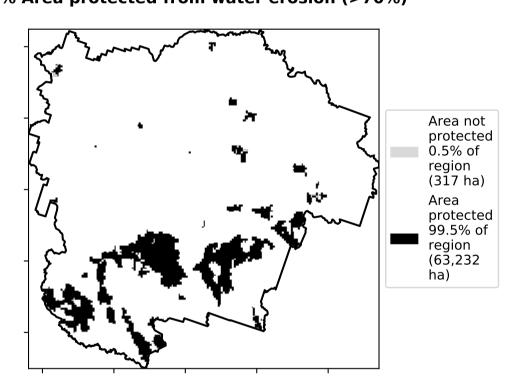


#### **Total Vegetation Cover [%]**

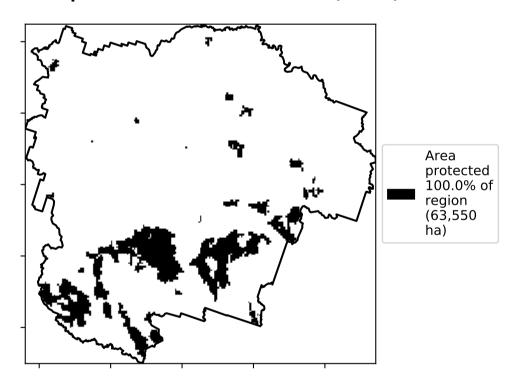




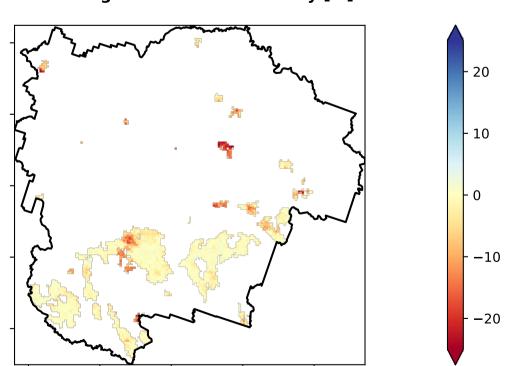
#### % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

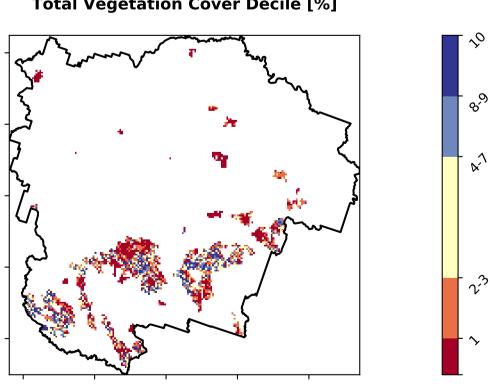


#### **Total Vegetation Cover Anomaly [%]**



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

**Total Vegetation Cover Decile [%]** 







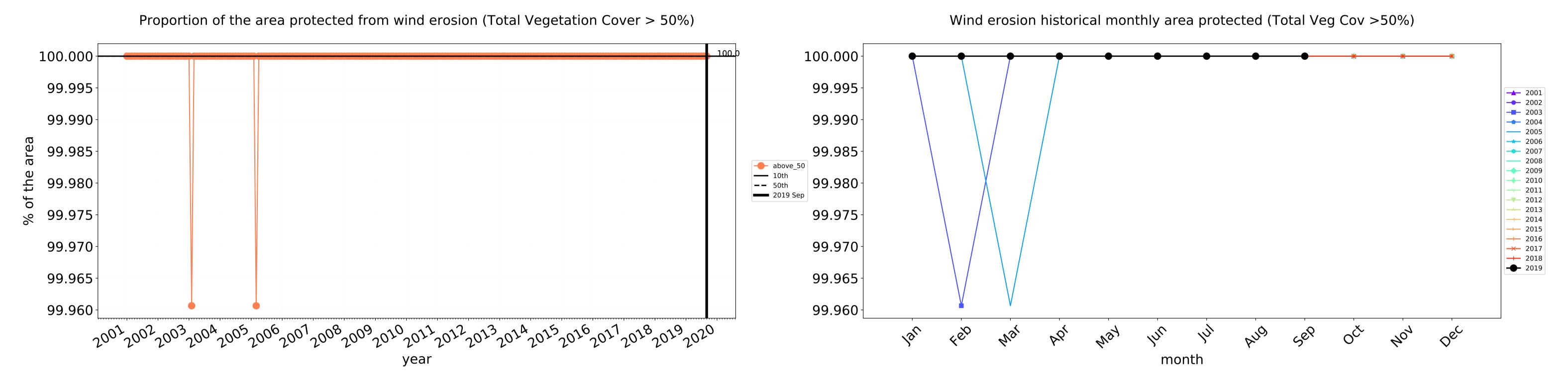


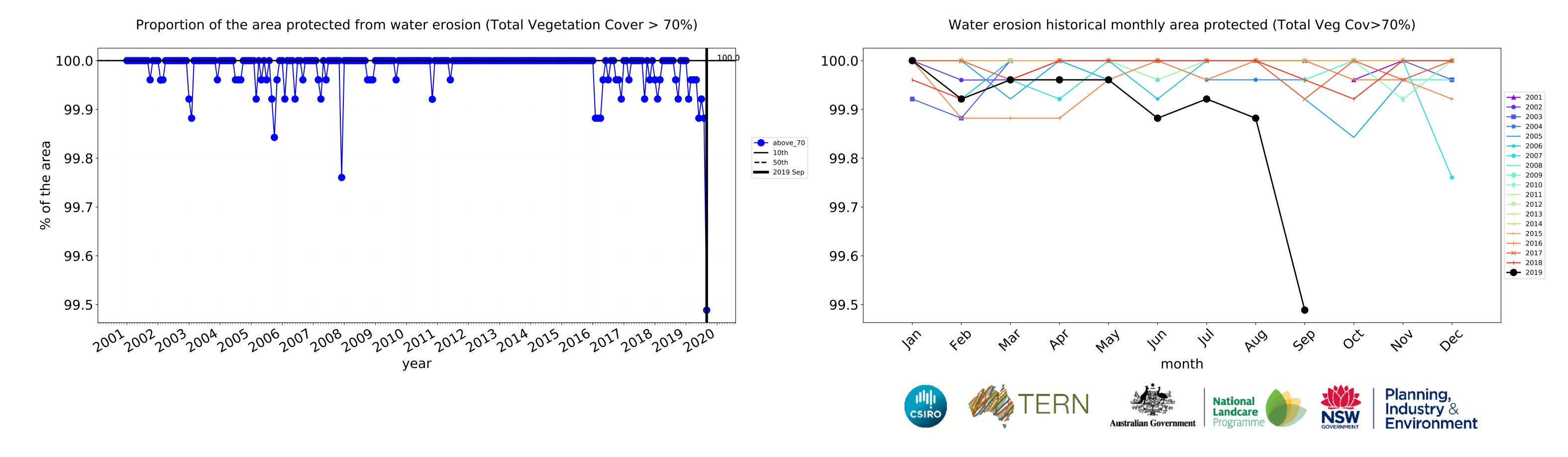


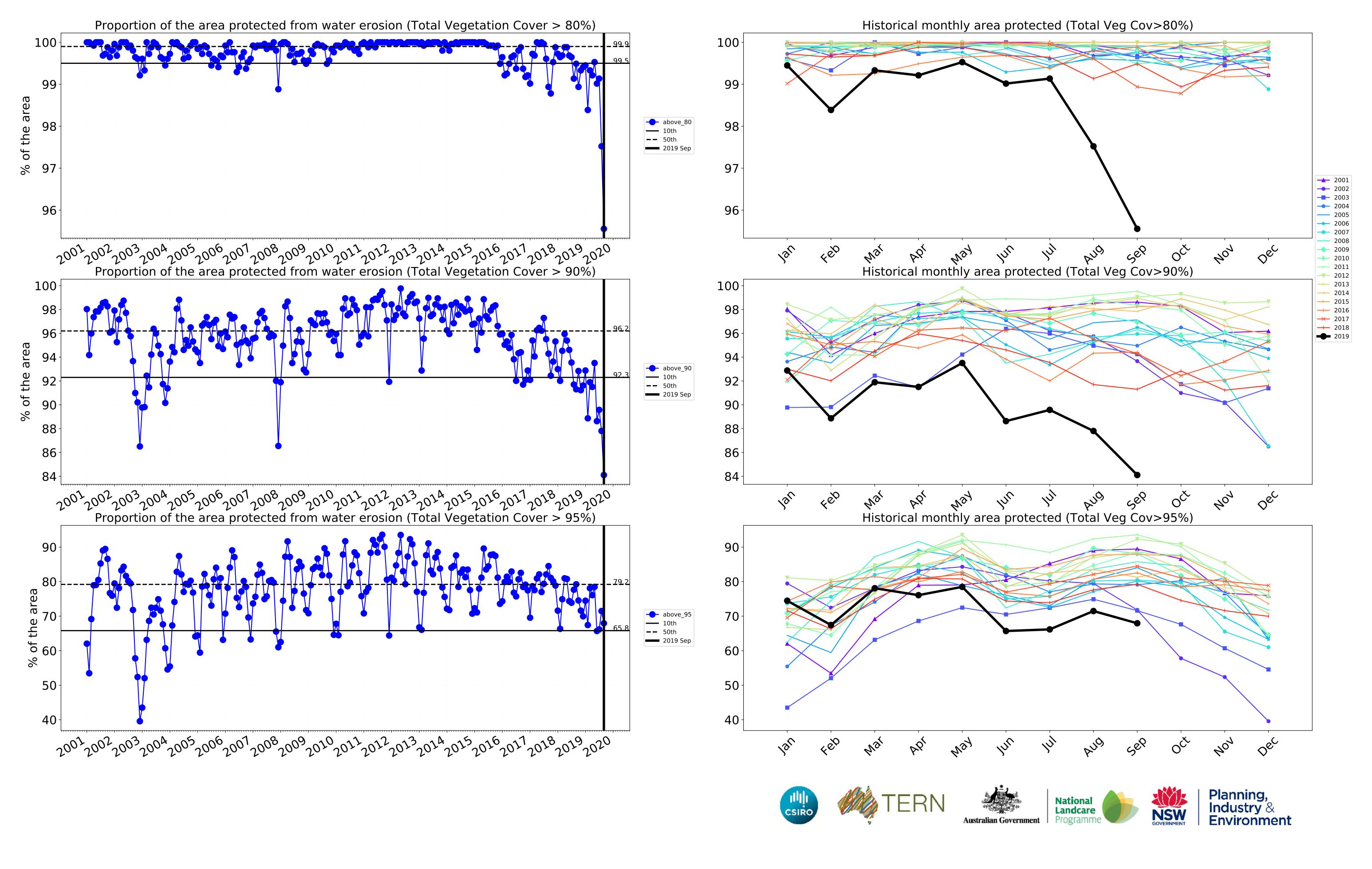




#### **Production native forests and plantation forests timeseries**







## Walcha\_(A) (total 626,350 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	626,350	100.0% 626,350	100.0% 626,300	93.2% 584,050	73.4% 459,900	43.5% 272,450	23.9% 149,500
Conservation and natural environments	231,749	100.0% 231,749	100.0% 231,749	99.9% 231,624	98.8% 229,067	79.4% 183,956	42.9% 99,321
Conservation and natural environments Woodland forest	6,263	100.0% 6,263	100.0% 6,263	100.0% 6,263	100.0% 6,263	76.8% 4,812	50.0% 3,131
Conservation and natural environments Forest (non woodland)	223,606	100.0% 223,606	100.0% 223,606	99.9% 223,481	98.8% 220,980	79.5% 177,799	42.8% 95,592
Agriculture	330,712	100.0% 330,712	100.0% 330,662	87.4% 288,982	51.6% 170,597	10.7% 35,525	2.2% 7,255
Grazing	320,064	100.0% 320,064	100.0% 320,039	88.0% 281,664	52.3% 167,537	11.0% 35,298	2.3% 7,254
Grazing non forest	288,121	100.0% 288,121	100.0% 288,095	86.7% 249,908	48.1% 138,621	7.7% 22,257	1.3% 3,801
Grazing Woodland forest	6,889	100.0% 6,889	100.0% 6,889	99.6% 6,864	84.3% 5,808	31.4% 2,162	9.1% 628
Grazing - Forest (non woodland)	25,054	100.0% 25,054	100.0% 25,054	99.4% 24,903	92.4% 23,147	43.5% 10,909	11.3% 2,833
Cropping	10,647	100.0% 10,647	99.8% 10,622	68.7% 7,315	28.7% 3,056	2.1% 225	0.0% 0
Production native forests and plantation forests	63,261	100.0% 63,261	100.0% 63,261	99.5% 62,937	95.6% 60,449	84.1% 53,207	67.9% 42,978











