# Total vegetation cover soil protection Region:NRM Fitzroy QLD

This report describes vegetation protecting the soil surface from erosion during a chosen month compared to previous years. This report has been generated using MODIS fractional vegetation cover information available in Rangelands and Pasture Productivity (RAPP) map tool https://map.geo-rapp.org/#australia. The report is based on 500 metre pixel data on monthly time steps.

Land use forest cover:

**Date: September 2011** 

Results can be shown for the whole region (polygon), and separated by land use and forest cover classes which are likely to show different cover patterns and targets. Land use is divided into four broad classes: Conservation and natural environments, Agriculture, production native forests and plantation forests (no report), and other (no report). Agriculture is divided into grazing, crops and horticulture which are sub-divided into non-irrigated and irrigated. If forest is present land use is further divided into: non-forest, woodland forest and non-woodland forest. The area of each land use and forest class are shown as a map and chart. The report content is repeated for each land use and forest cover class that covers at least 1% of the area of the chosen region. Total vegetation Cover:

The total vegetation cover indicates where soil is likely to be protected from wind and or water hillslope erosion. Total vegetation cover for this month is shown on a map and chart classified into 4 classes.

- 71-100% High cover protected from wind and usually water erosion (high rainfall, steep slopes, and erodible soils may need greater than 80, 90, 95 and up to 100% cover)
  - 51-70% Moderate cover protected from wind erosion
  - 31-50% Low cover not protected
  - 0-30% Very Low cover not protected

Erosion protection: Wind erosion 50% total vegetation cover

The vegetation cover threshold required to prevent soil erosion is usually 50% to reduce wind erosion, 70% or 80% to reduce water (hillslope) erosion depending on the steepness and rainfall. Areas protected from erosion for the month:

- Map: water erosion protection (>70% cover) percentage area and hectares.
- Map: wind erosion protection (>50% cover) percentage area and hectares.

Comparison with previous years:

- Map: anomaly comparing this month to the average cover from the same month in previous years.
- Map: deciles rank of month against the same month in previous years.

Anomalies and deciles until September 2019 are calculated comparing to the same months 2001 to 2019. Extra monthly data will be used to calculate anomalies and deciles post September 2019 as they become available. Time series monthly from January 2001 to current:

## **Erosion protection**

- Wind erosion protection time series: percentage of the area of the region with greater than 50% cover for each month (orange lines). Horizontal lines are 10th (cover target) and 50th percentiles.
- Water erosion protection time series: percentage of the area of the region with greater than 70% cover for each month (blue line). Horizontal lines are 10th (cover target) and 50th percentiles.

## Rainfall

• Millimetres rainfall each month (black line).

Each time series is also stacked by year. The black line shows the current year of data. Water erosion protection for higher rainfall and steeper slopes:

Water erosion protection on higher slopes. As slope increases, more cover is required to control water erosion. The thresholds reported are:

- the percentage area with pixels greater than 80% total cover.
- the percentage area with pixels greater than 90% total cover.
- the percentage area with pixels greater than 95% total cover.

## **Acknowledgment of data:**

- 1. http://www.agriculture.gov.au/abares/aclump/land-use/alum-classification
- 2. http://www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2018
- 3. https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/establishment-mgmt/production-management2/groundcover
- 4. MODIS Fractional cover algorithm:

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











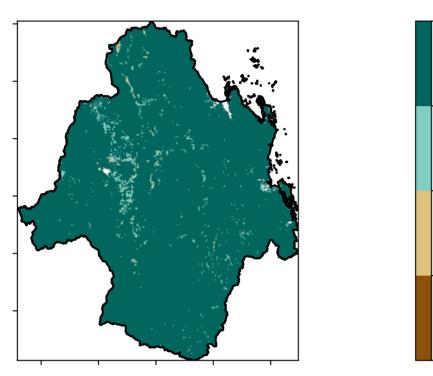
# **Vegetation Cover Sep 2011**

#### Land use and forest cover

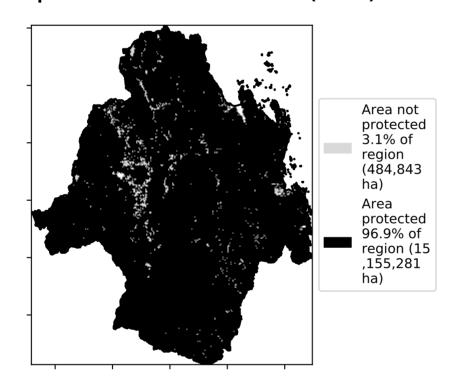
### Legend with land class forest cover and number, i.e. Forests is 12 1 Conservation and natural environments -2 Conservation and natural environments -3 Conservation and natural environments -Non-Woodland forest 4 Agriculture - Grazing - Non-forest 5 Agriculture - Grazing - Woodland forest 6 Agriculture - Grazing - Non-woodland forest 7 Agriculture - Grazing - Irrigated 8 Agriculture - Cropping - Non-irrigated 9 Agriculture - Cropping - Irrigated 10 Agriculture - Horticulture - Non-irrigated 11 Agriculture - Horticulture - Irrigated 12 Production native forests and plantation 13 Other uses

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

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



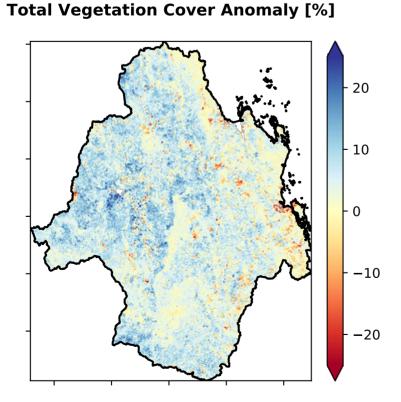
% Area protected from water erosion (>70%)



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

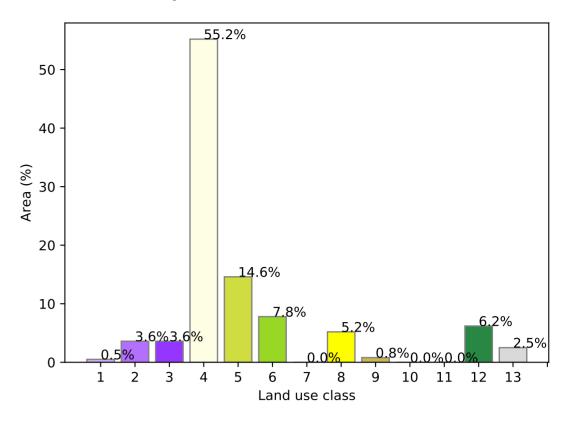
using baseline from 2001 to

2019.

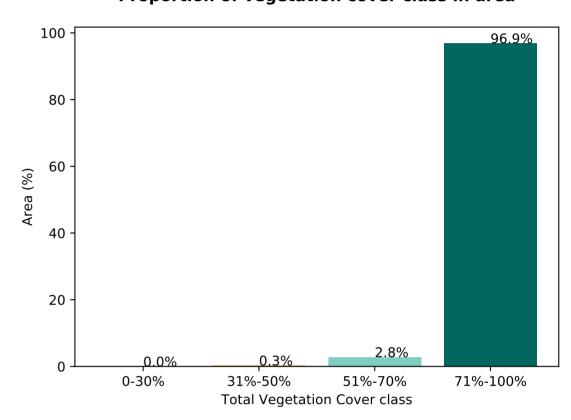


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

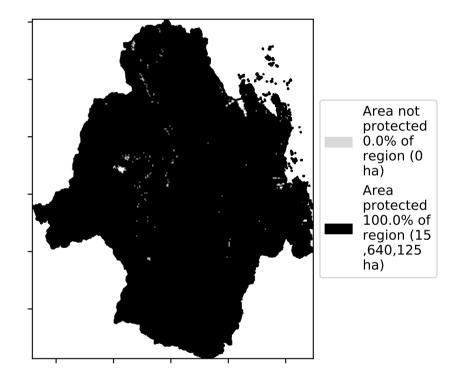
## Proportion of each land class in area

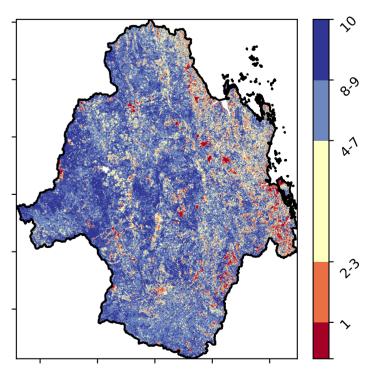


Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)







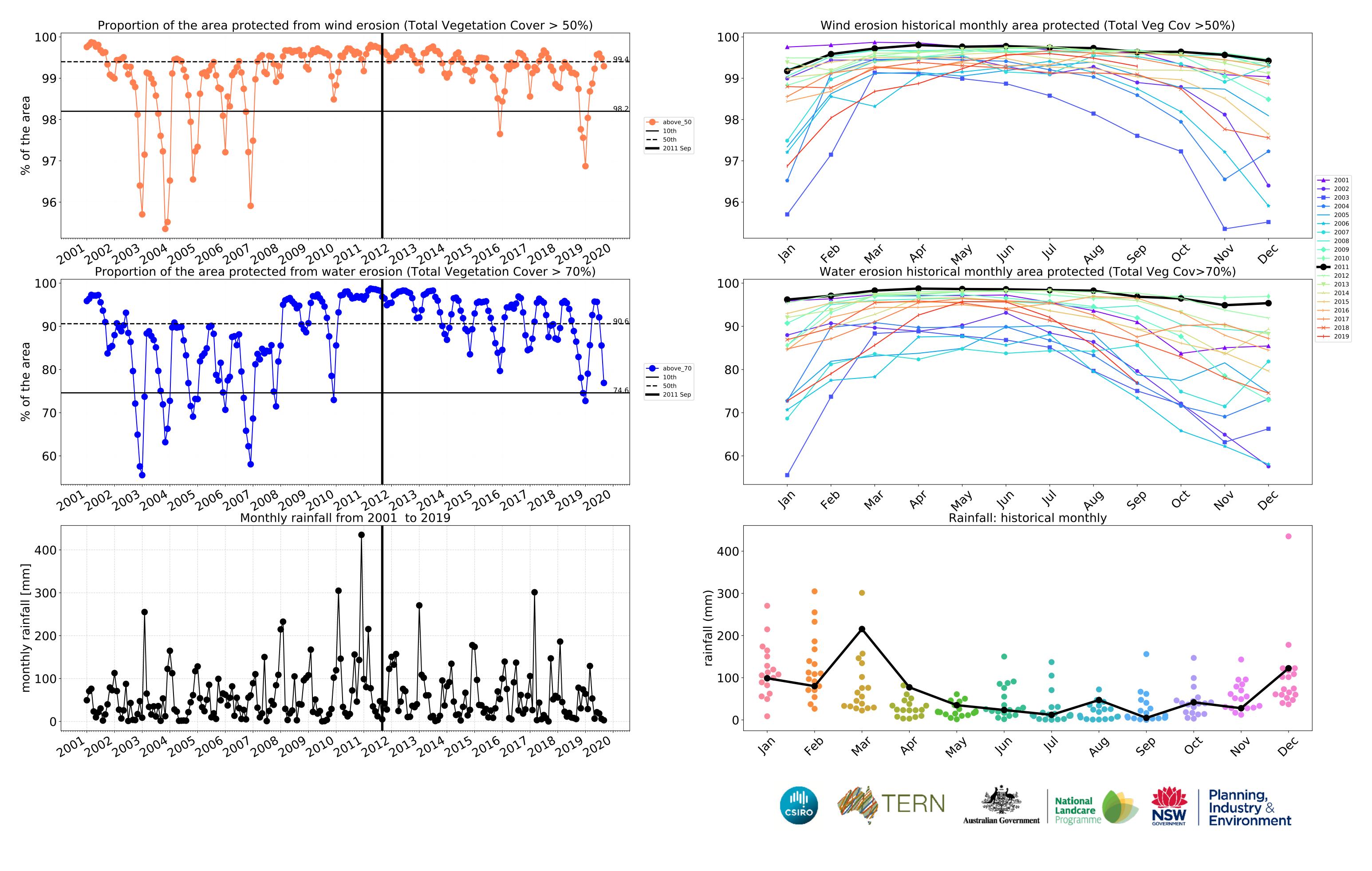








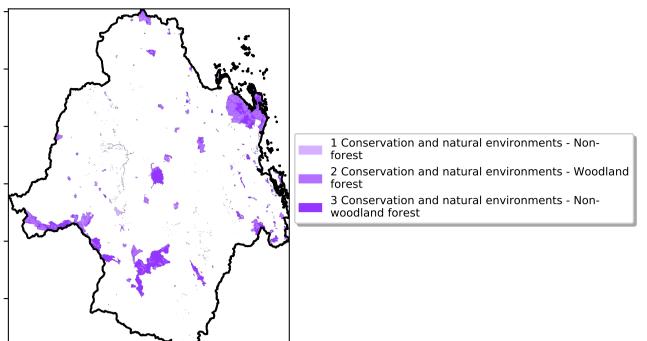




## **Conservation and natural environments**

#### Land use and forest cover

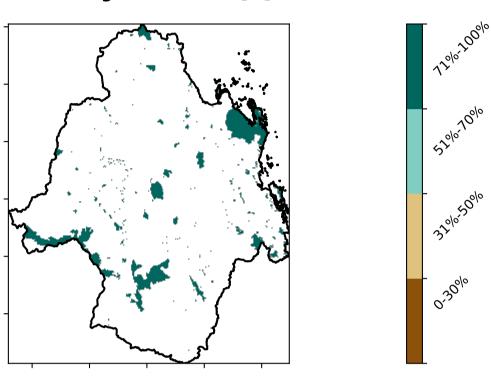
## Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



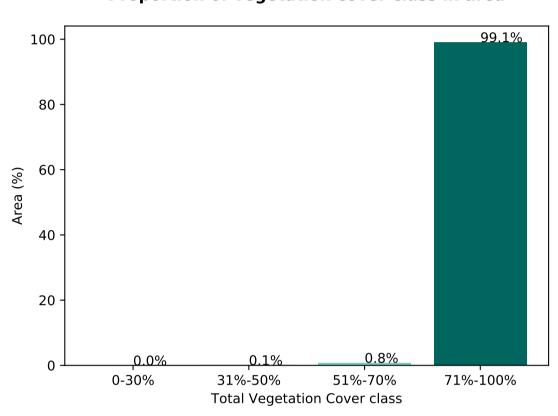
# 46.9% 46.4% 40 30 10 6.6% 3 2 Land use class

Proportion of each land class in area

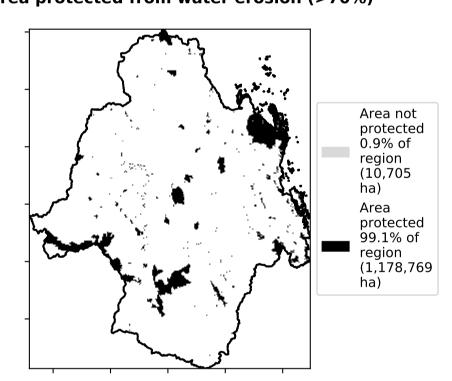




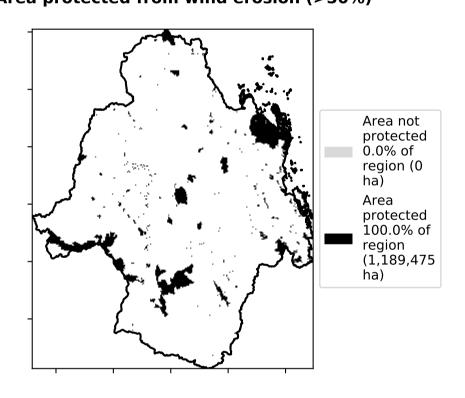
Proportion of vegetation cover class in area



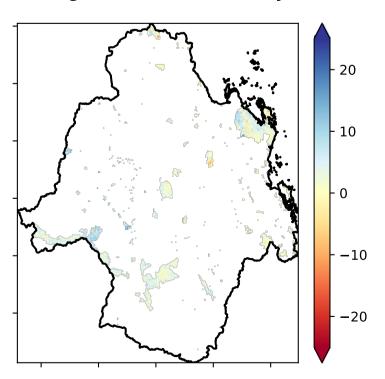
## % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

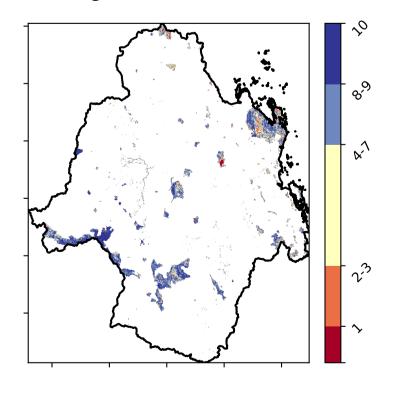


## **Total Vegetation Cover Anomaly [%]**



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 [%]**



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

Anomaly show how many percetage points each

pixel is from

the mean. That is, red pixels

are about 20%



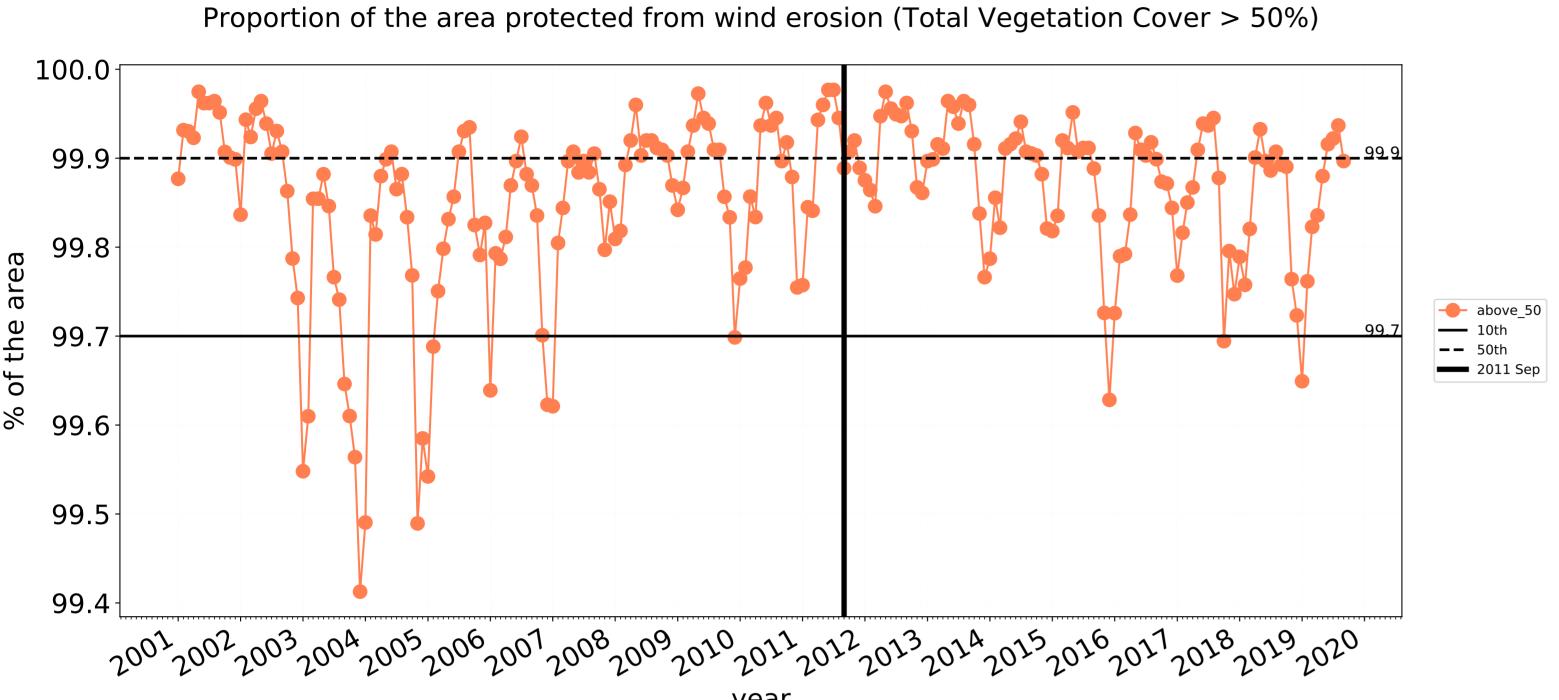


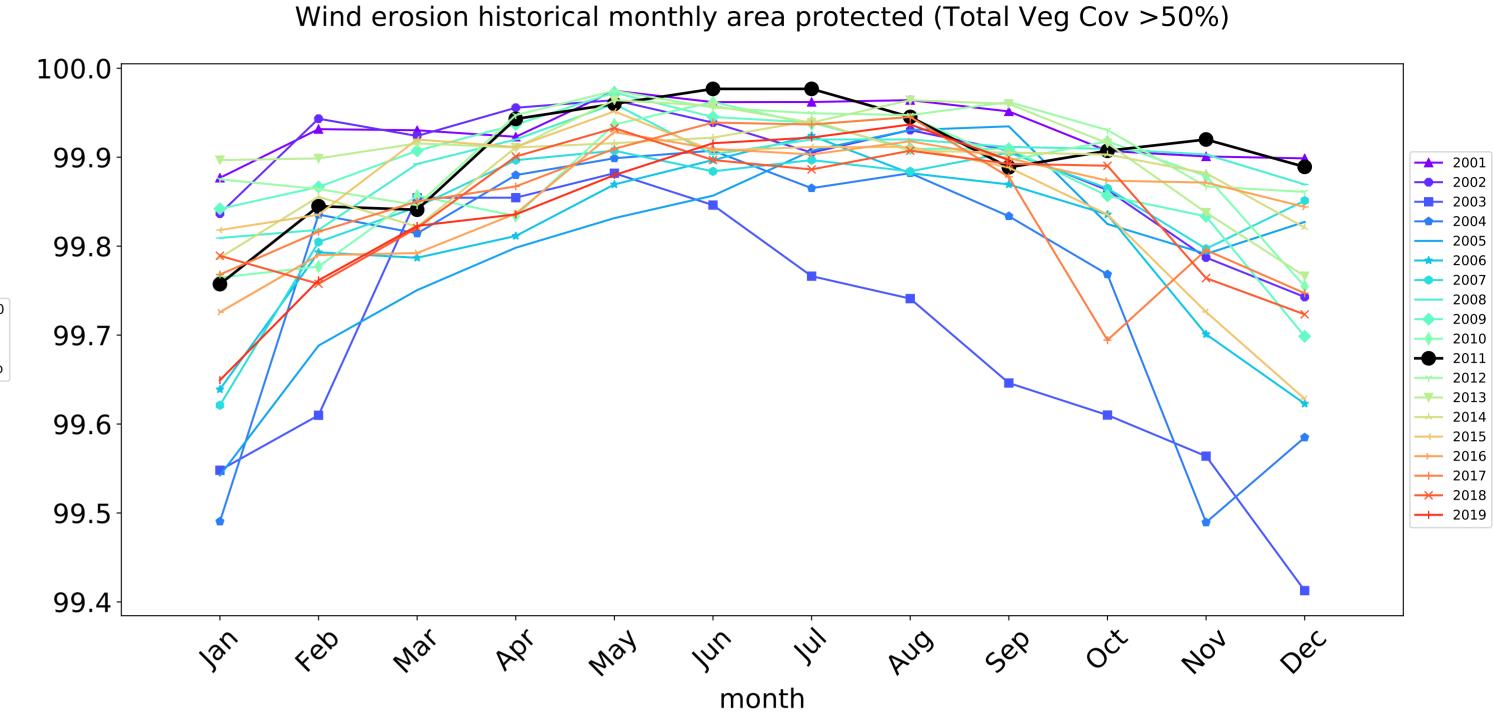


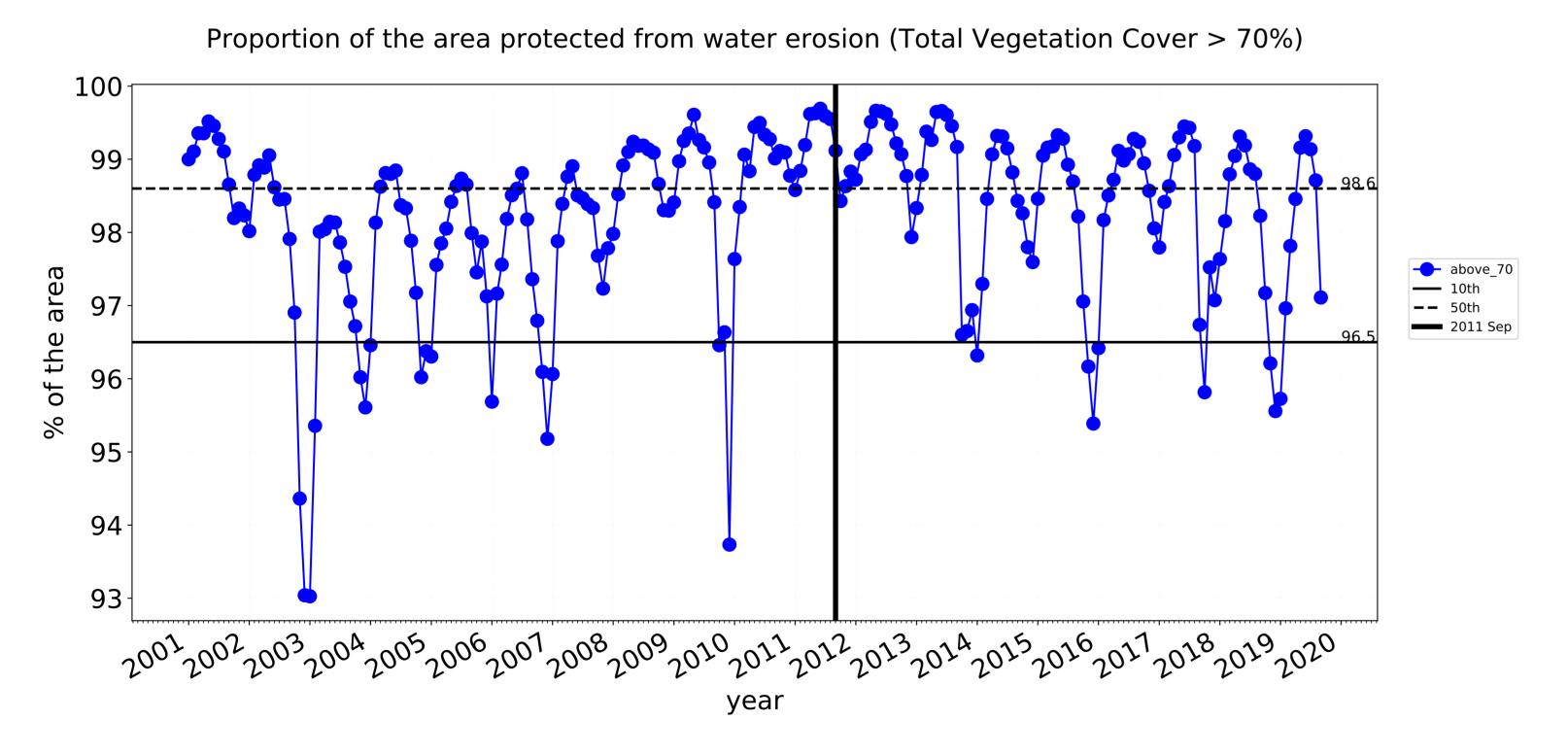


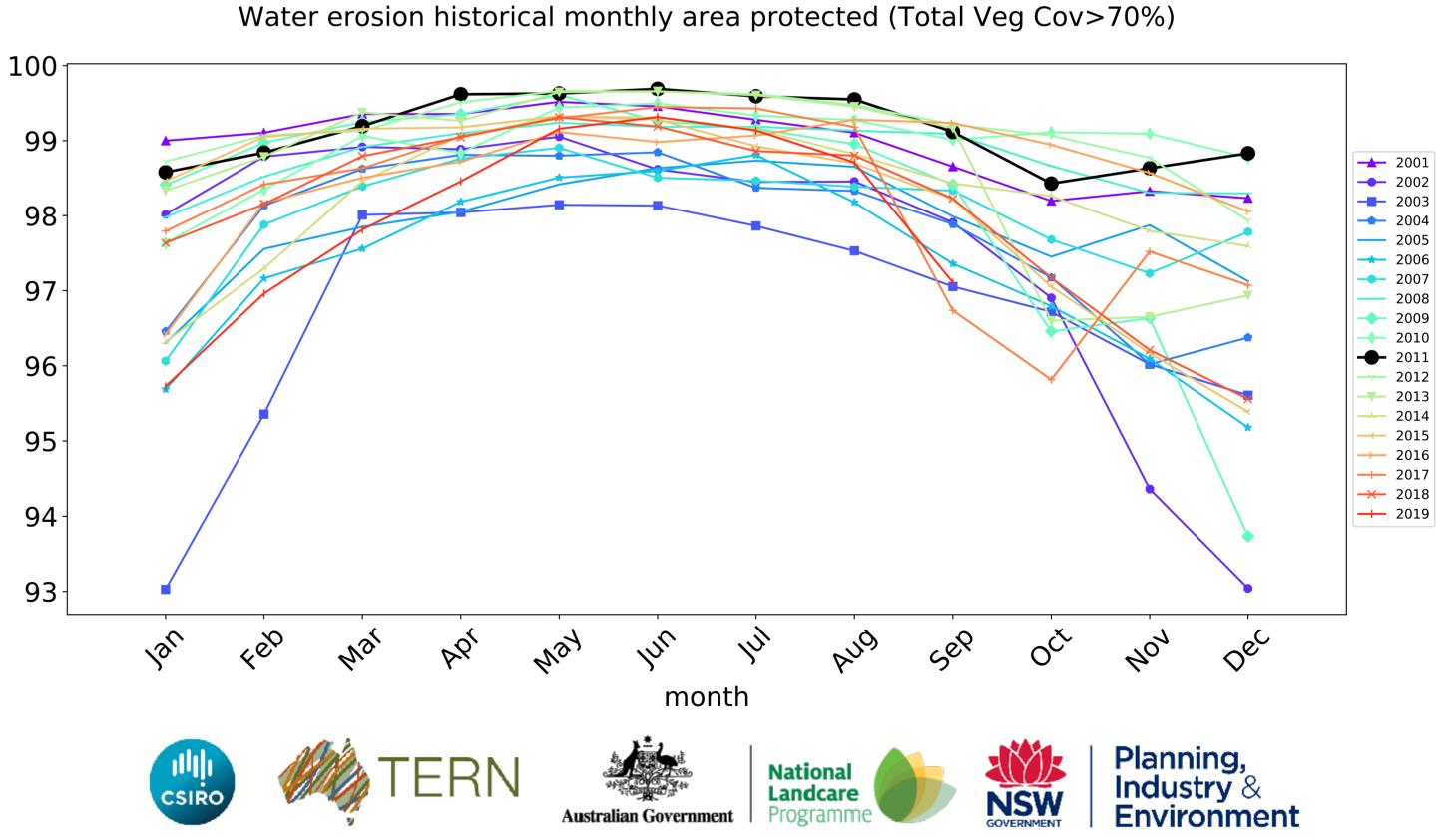


## **Conservation and natural environments timeseries**









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

## Land use and forest cover

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

Anomaly show how many percetage points each

pixel is from

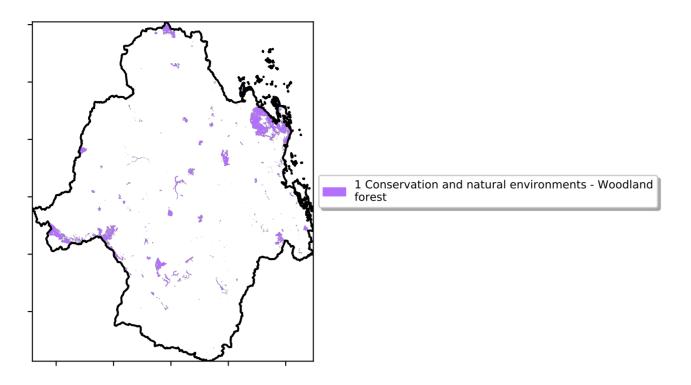
the mean. That is, red pixels

are about 20% lower than the

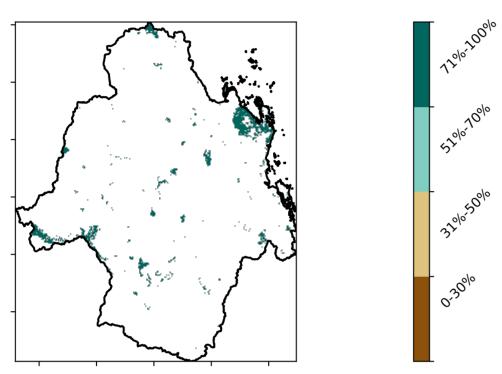
mean of that pixel. The mean

is only for the month of the map

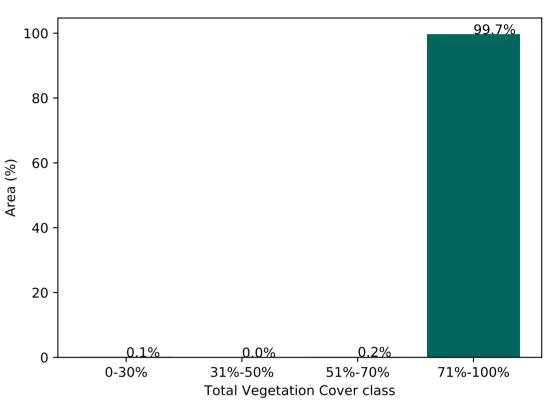
using baseline from 2001 to 2019.



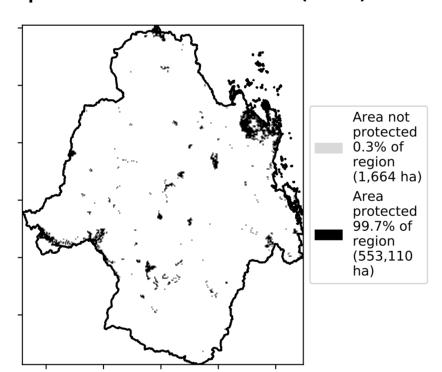
## **Total Vegetation Cover [%]**



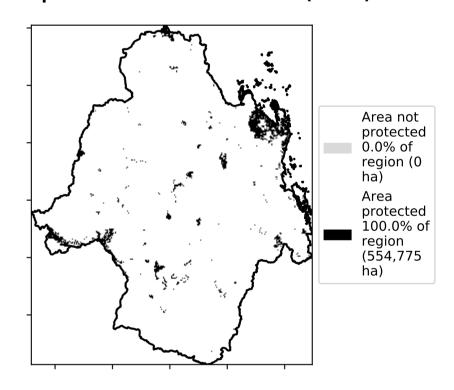
Proportion of vegetation cover class in area



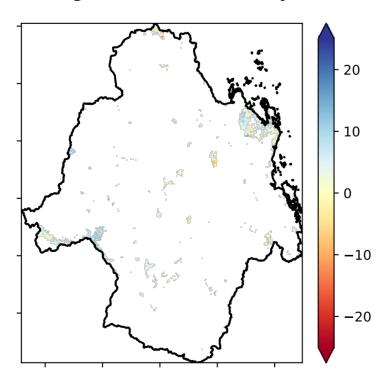
## % Area protected from water erosion (>70%)



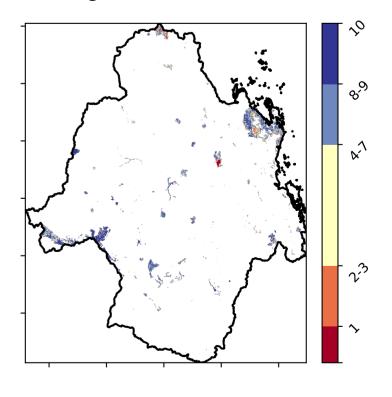
% Area protected from wind erosion (>50%)



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



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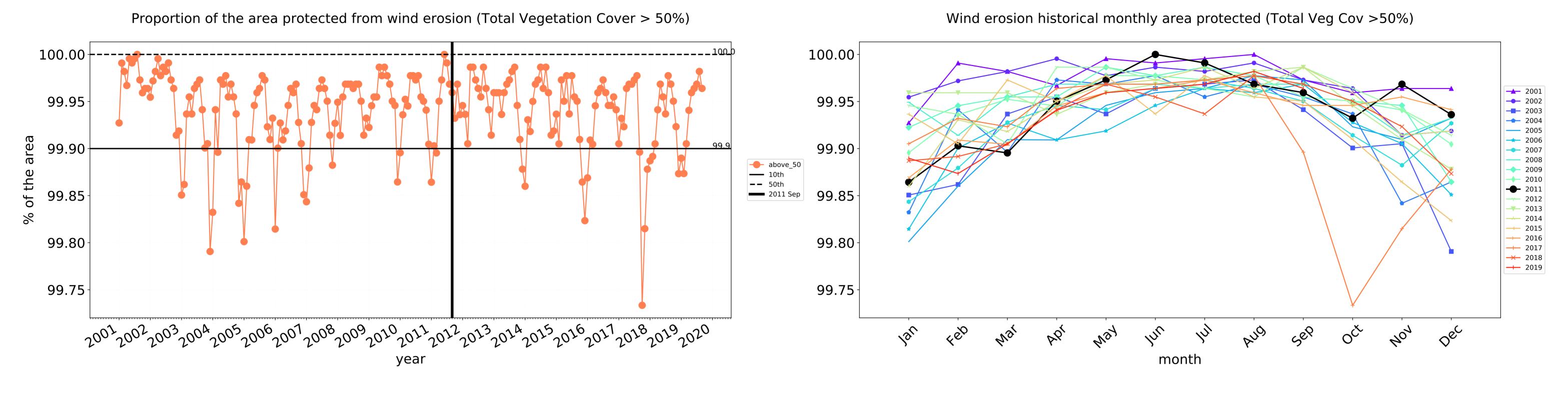


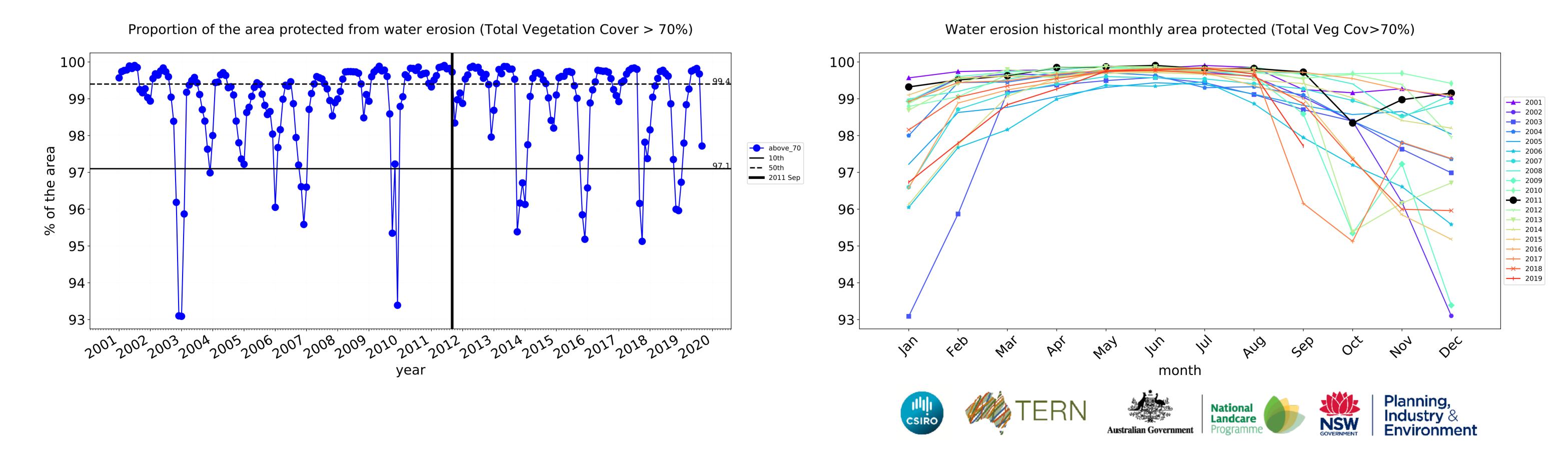






## Conservation and natural environments Woodland forest timeseries

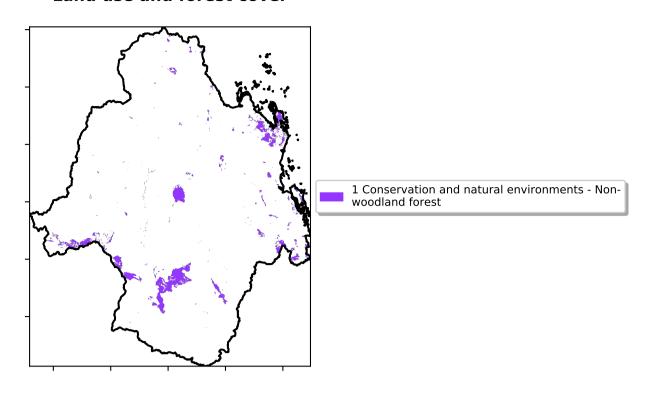




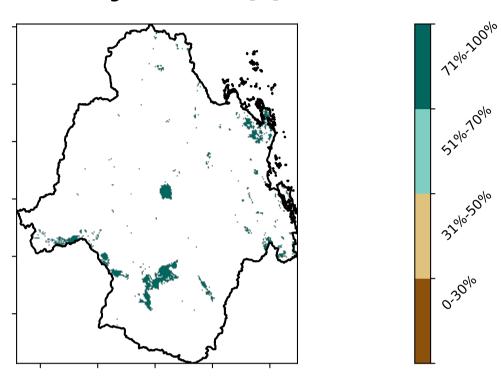
## **Conservation and natural environments Forest (non woodland)**

## Land use and forest cover

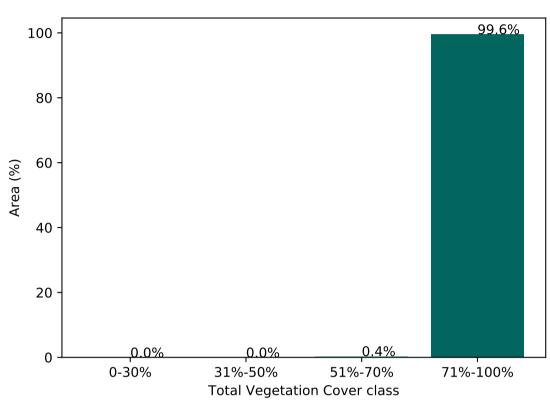
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



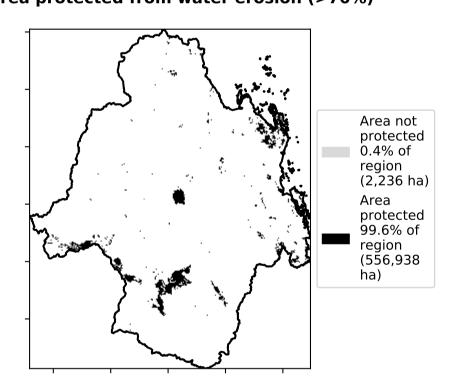
#### **Total Vegetation Cover [%]**



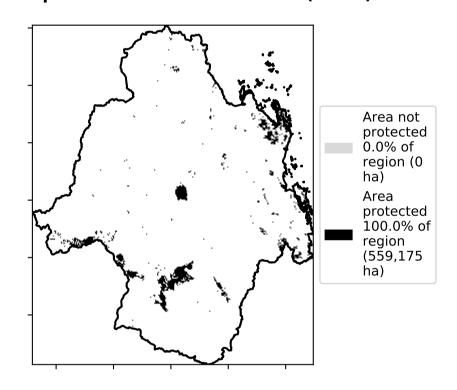
Proportion of vegetation cover class in area



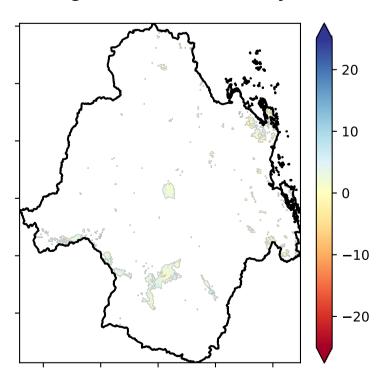
## % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

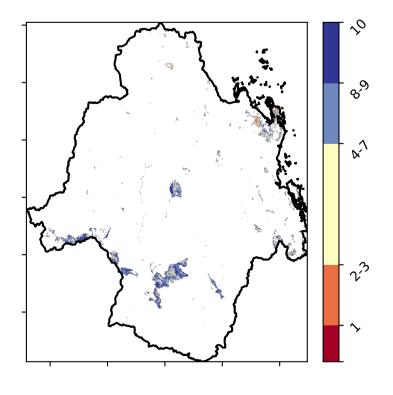


## **Total Vegetation Cover Anomaly [%]**



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



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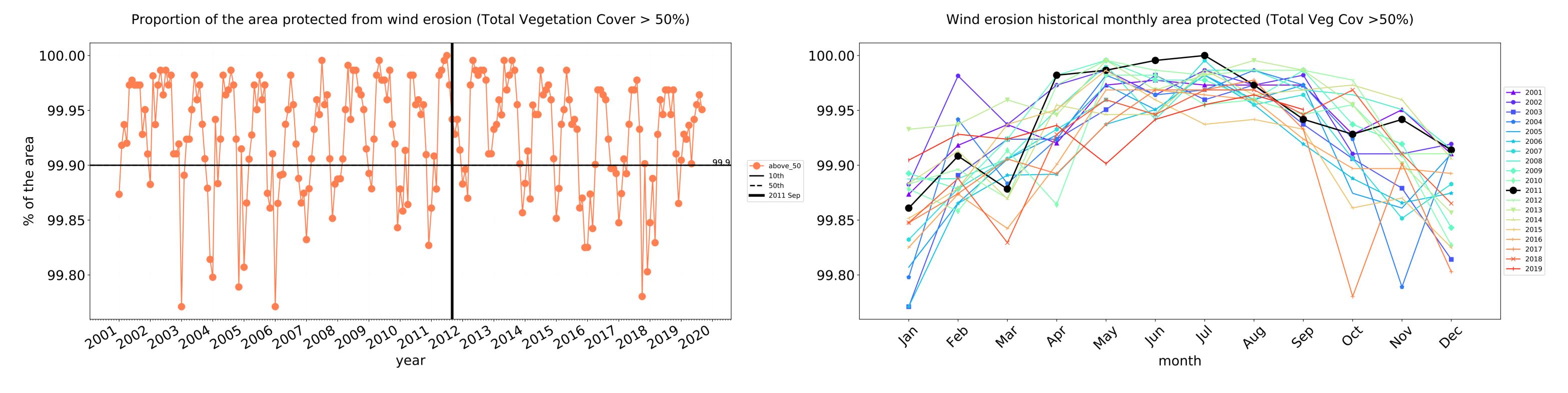


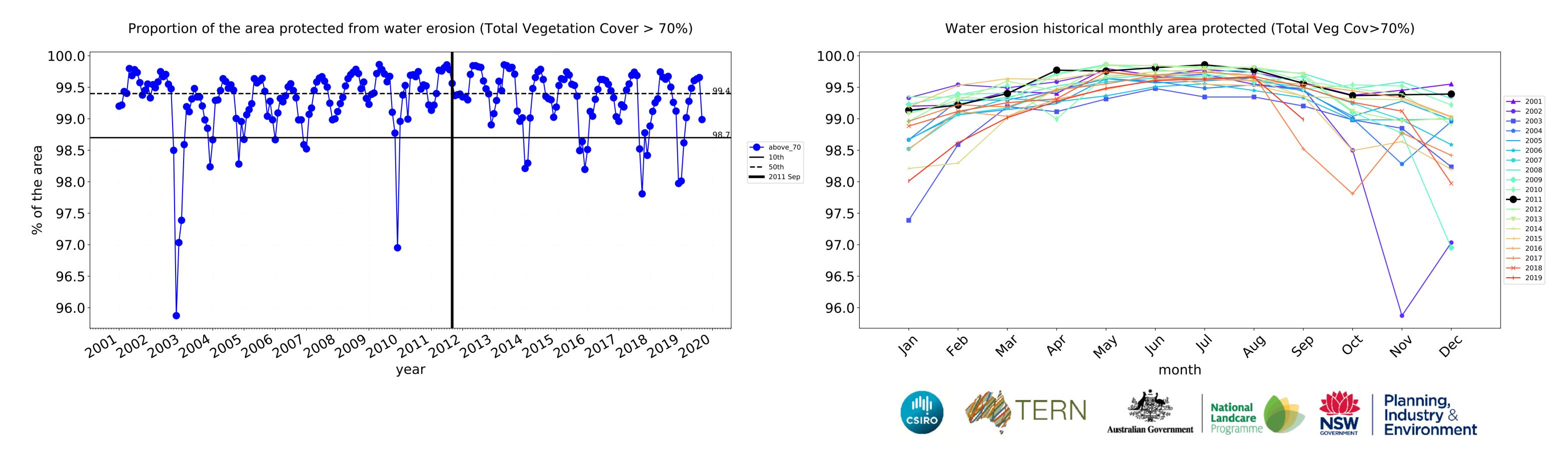








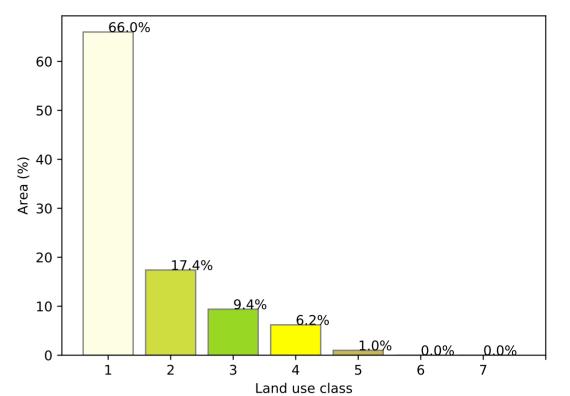




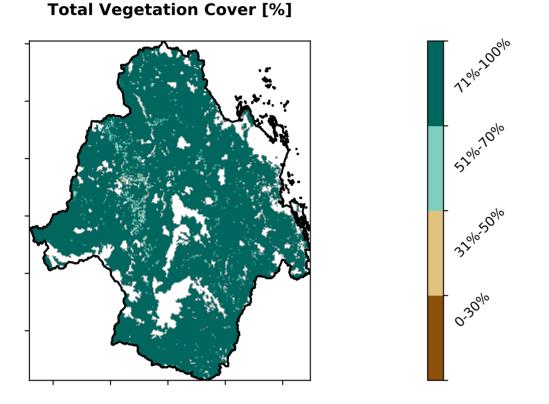
## **Agriculture**

#### Land use and forest cover

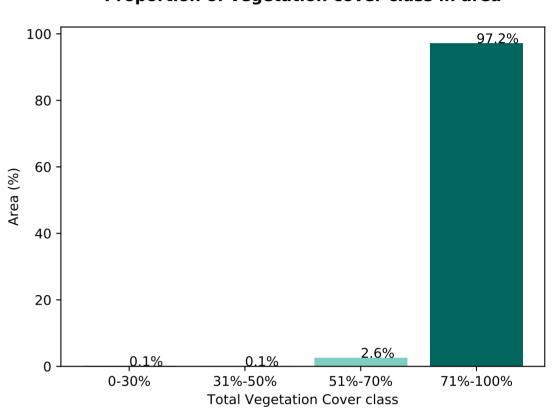
# 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest 4 Agriculture - Cropping - Non-irrigated 5 Agriculture - Cropping - Irrigated 6 Agriculture - Horticulture - Non-irrigated 7 Agriculture - Horticulture - Irrigated



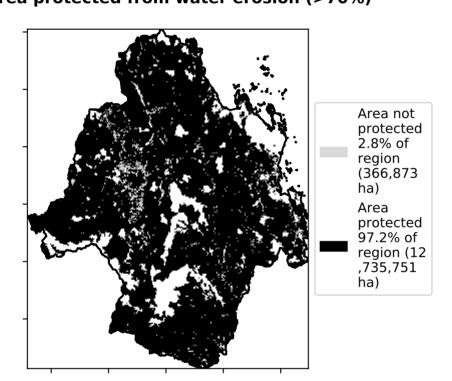
Proportion of each land class in area



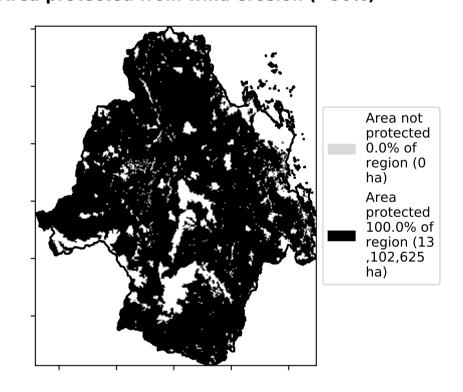
Proportion of vegetation cover class in area



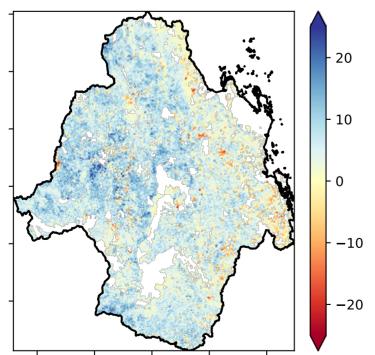
## % Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

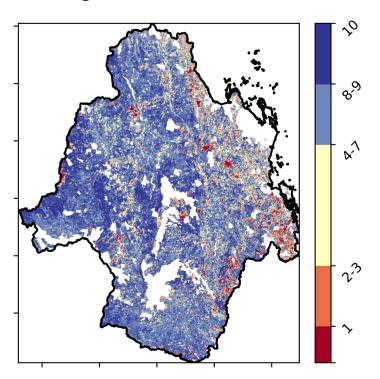


## **Total Vegetation Cover Anomaly [%]**



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## **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.

Catchment Scale

Derived from

Use of Australia

(2018) and Forests

of Australia (2018)

Land Use and Forests of Australia (2018)

Catchment Scale Land





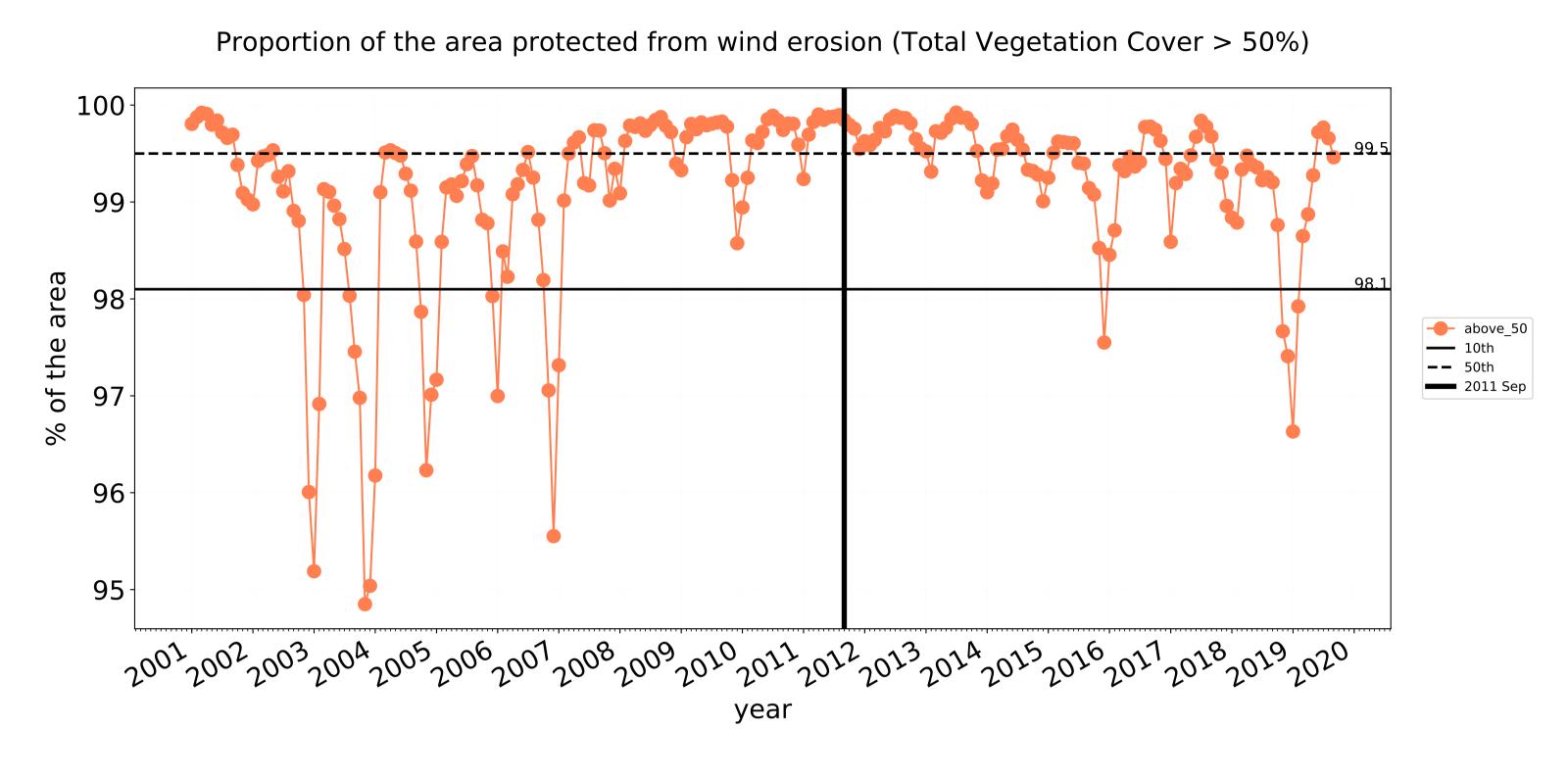


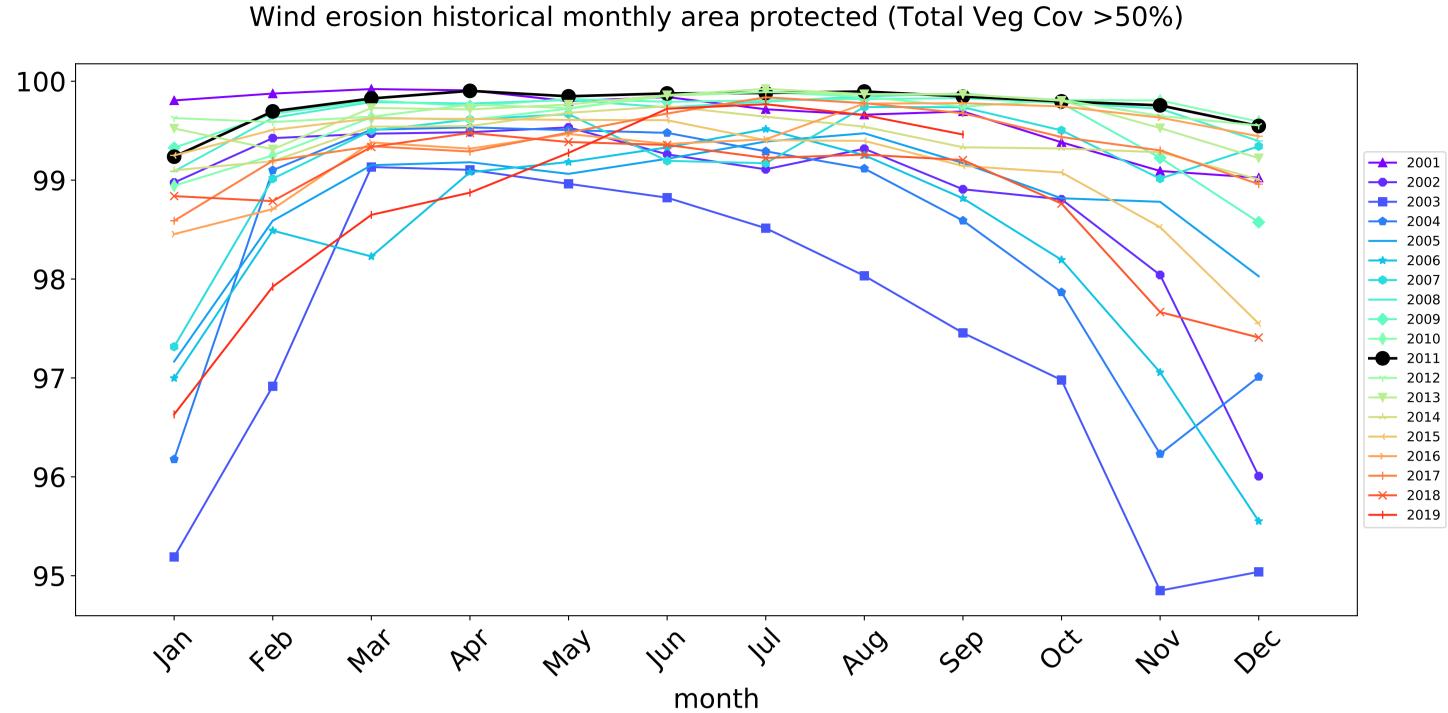


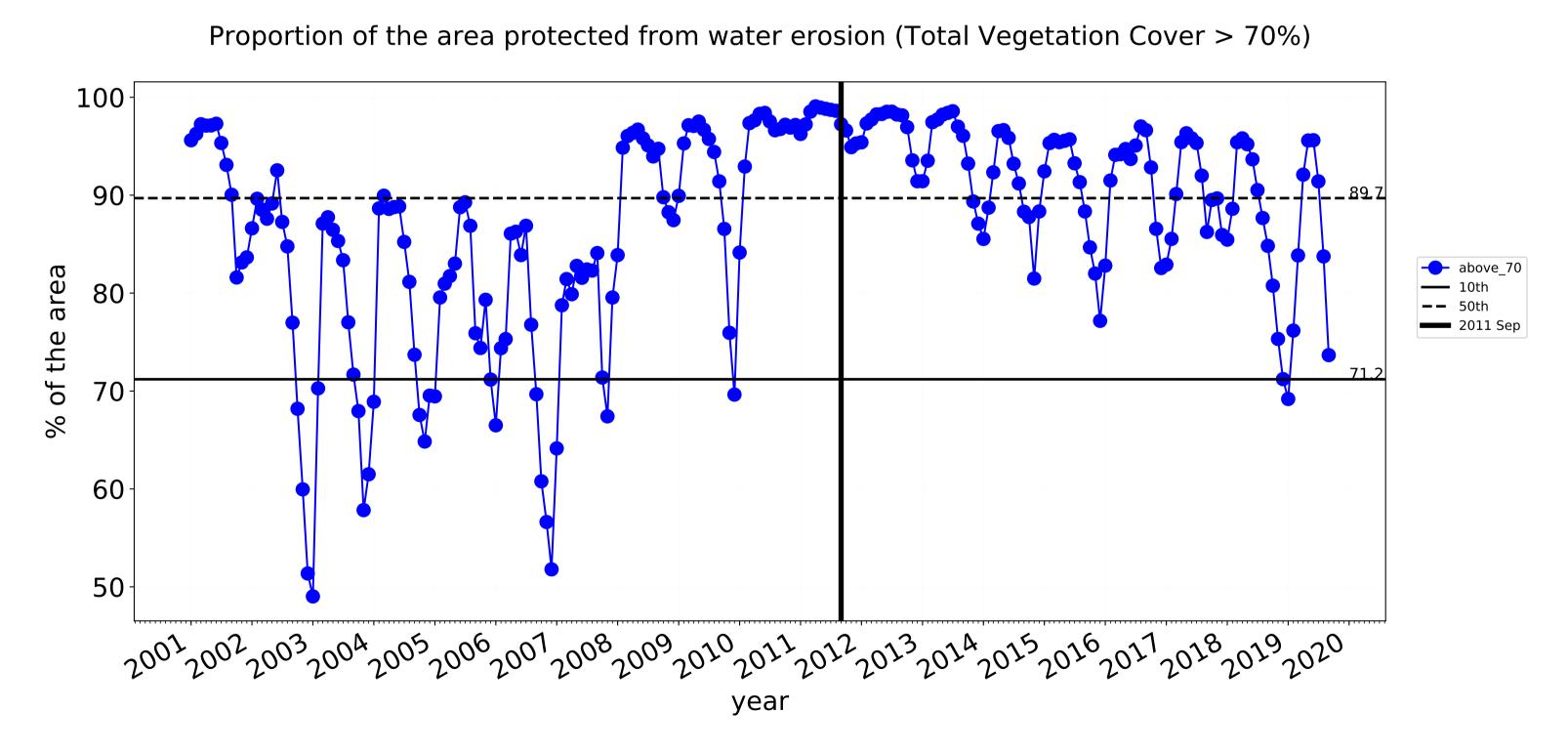


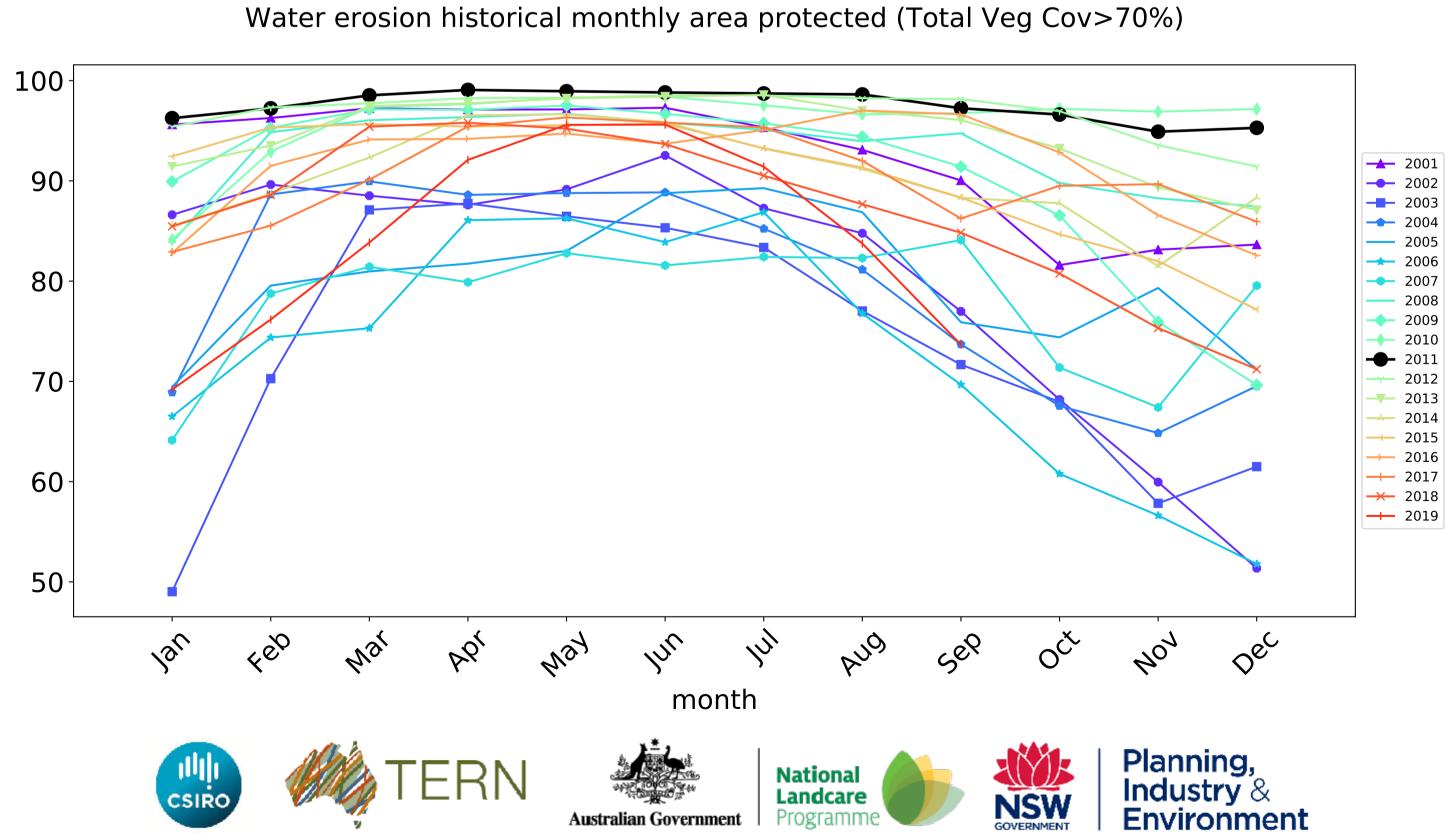


## **Agriculture timeseries**









## **Grazing**

#### Land use and forest cover

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

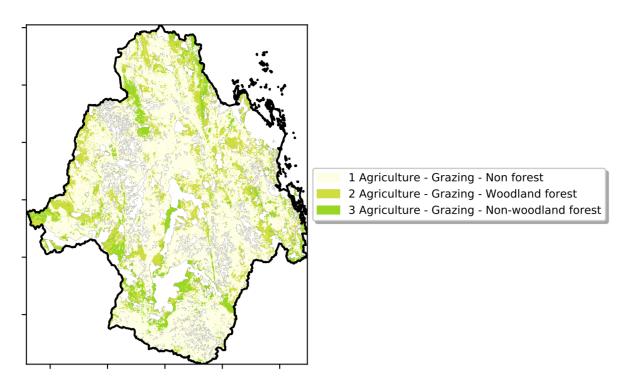
Anomaly show how many percetage points each

pixel is from

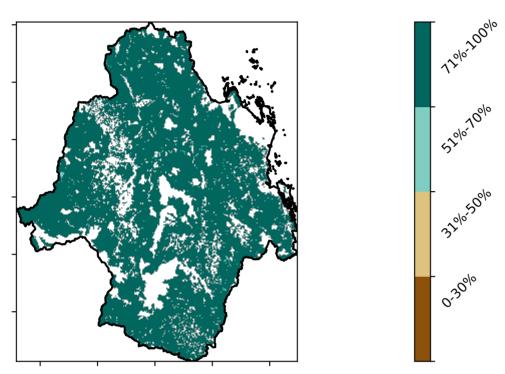
is, red pixels are about 20% lower than the mean of that

the mean. That

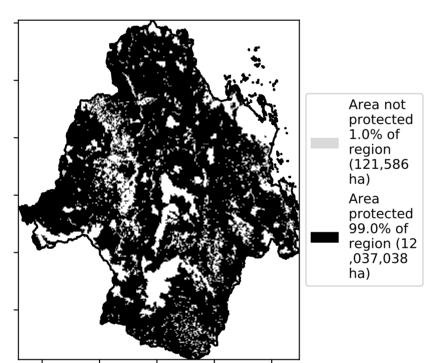
pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



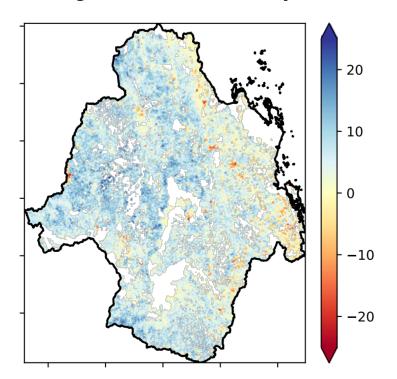
## **Total Vegetation Cover [%]**



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

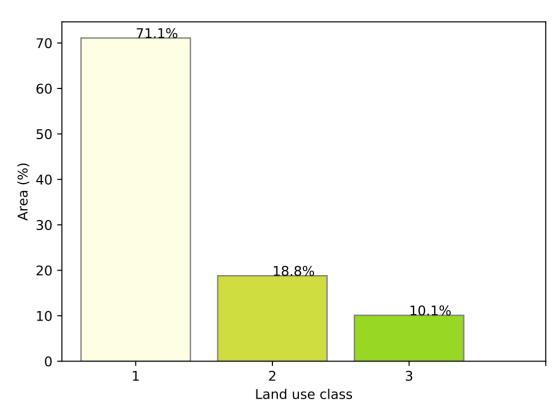


## **Total Vegetation Cover Anomaly [%]**

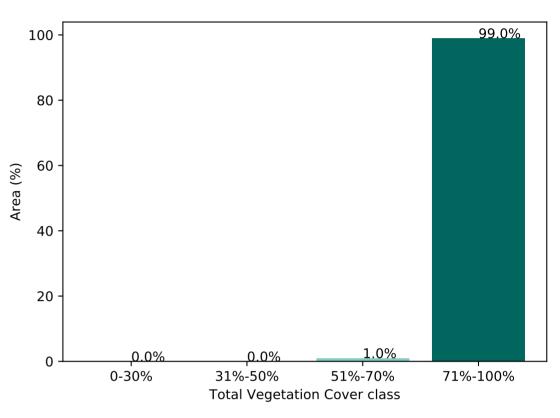


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

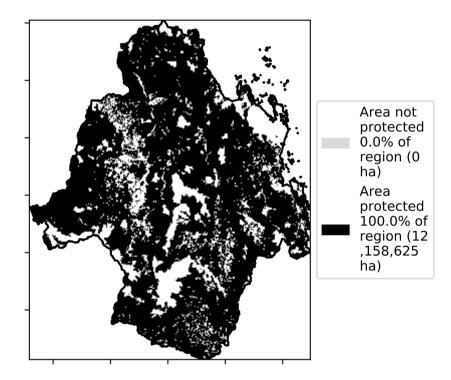
#### Proportion of each land class in area

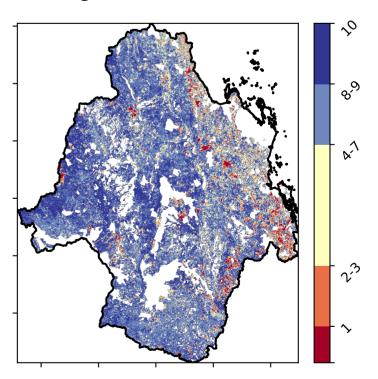


## Proportion of vegetation cover class in area



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









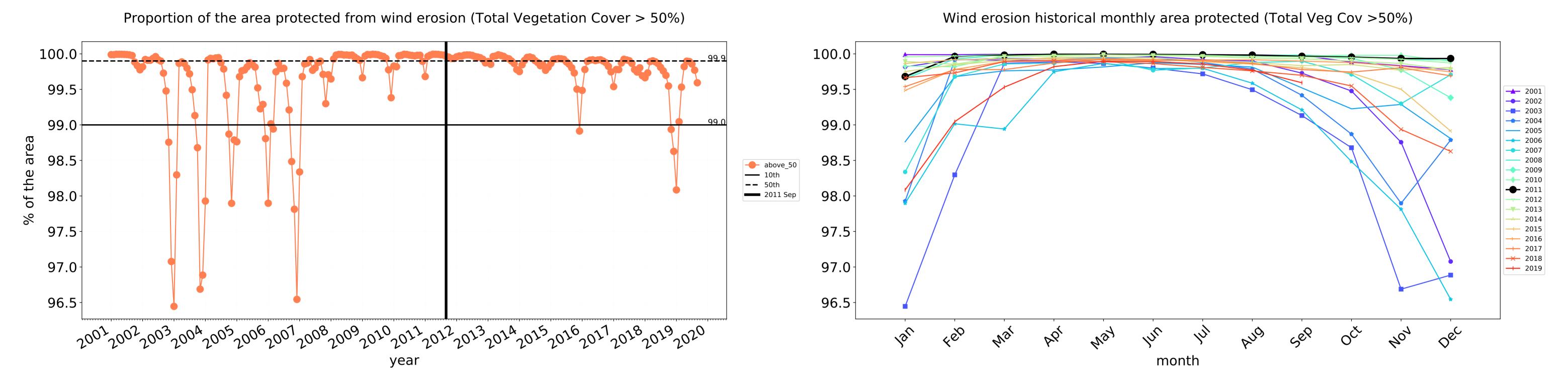


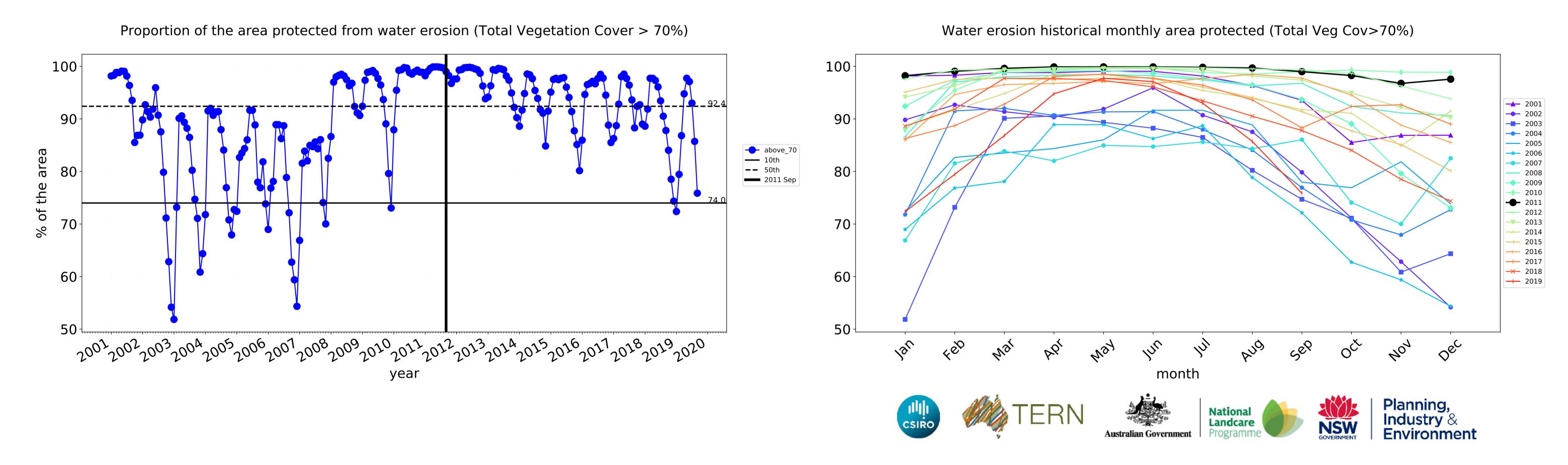






# **Grazing timeseries**





## **Grazing non forest**

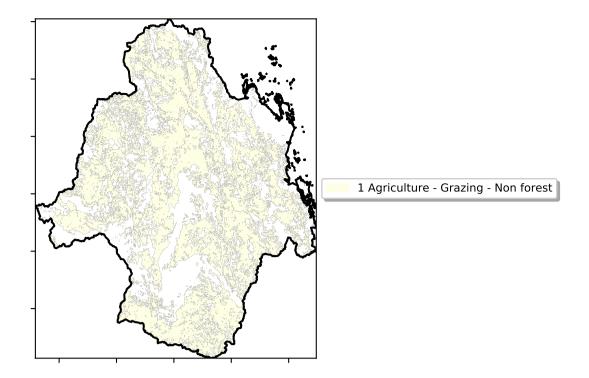
#### Land use and forest cover

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

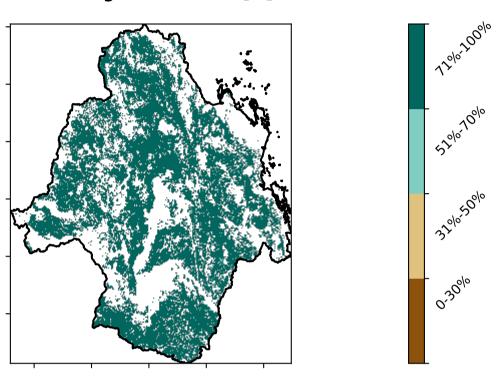
Anomaly show how many percetage points each pixel is from the mean. That

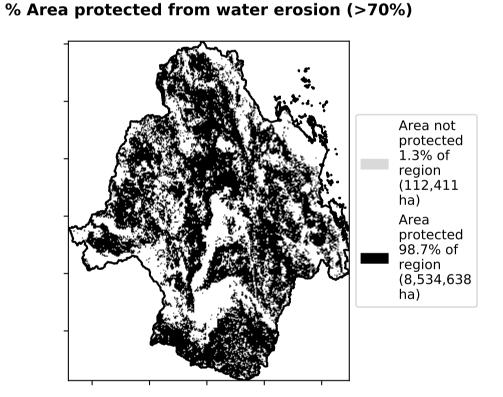
is, red pixels are about 20% lower than the mean of that

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

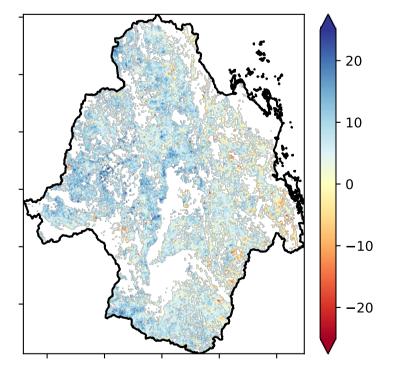


### **Total Vegetation Cover [%]**



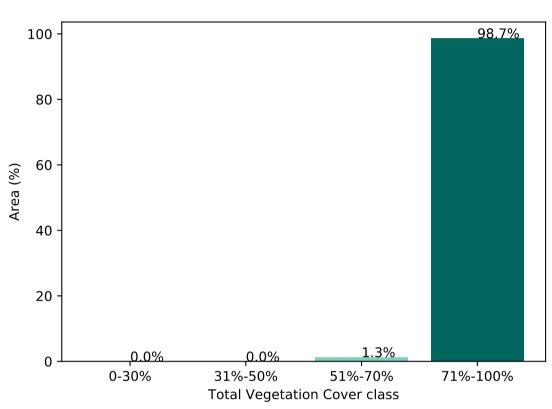


## **Total Vegetation Cover Anomaly [%]**

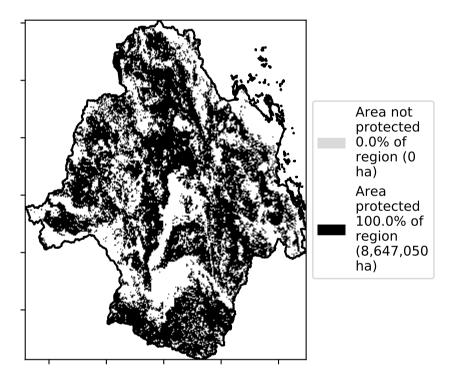


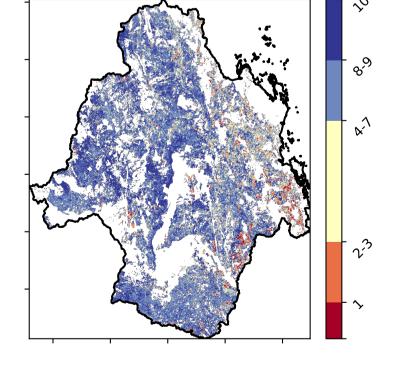
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

## Proportion of vegetation cover class in area



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









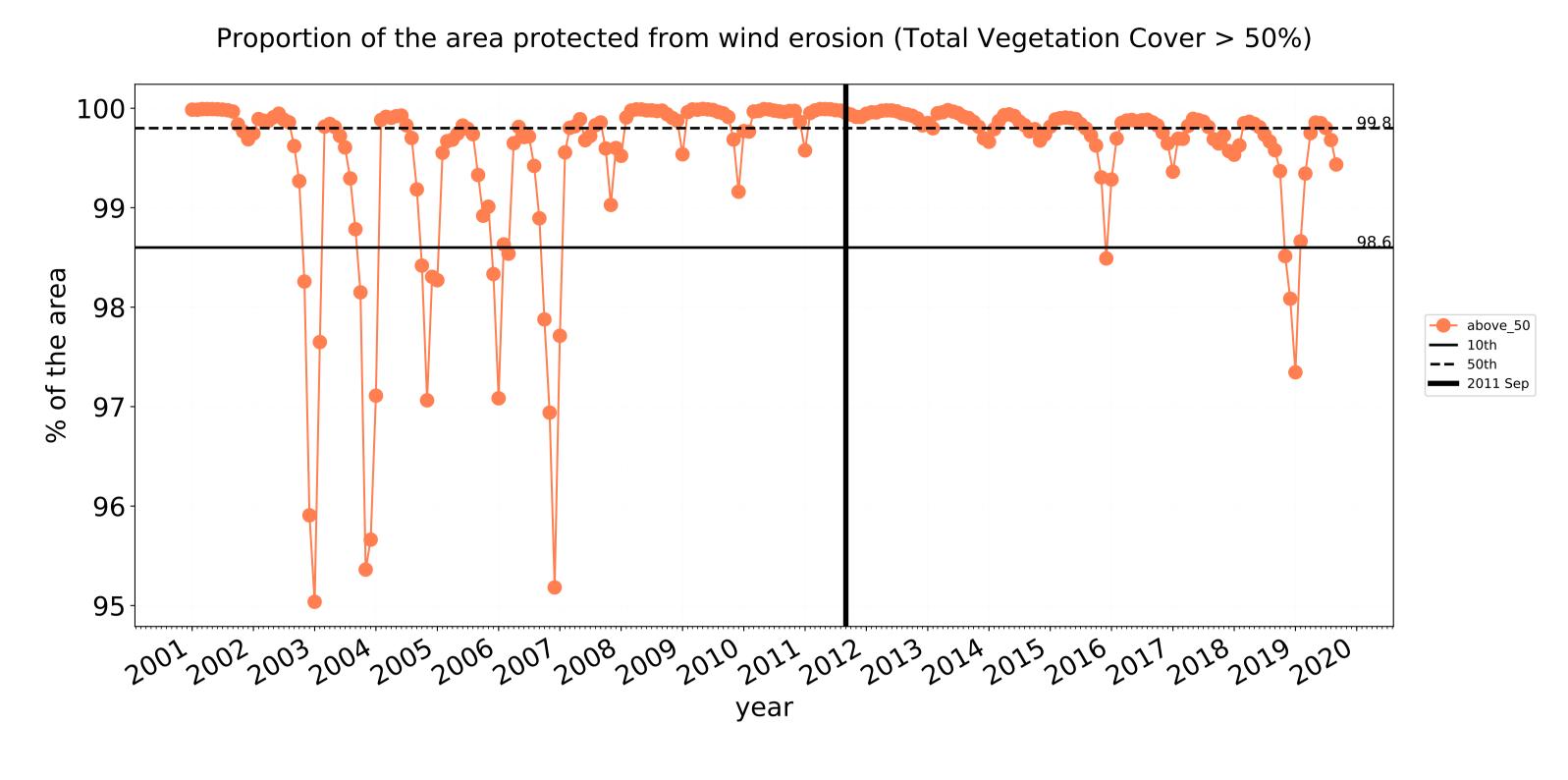


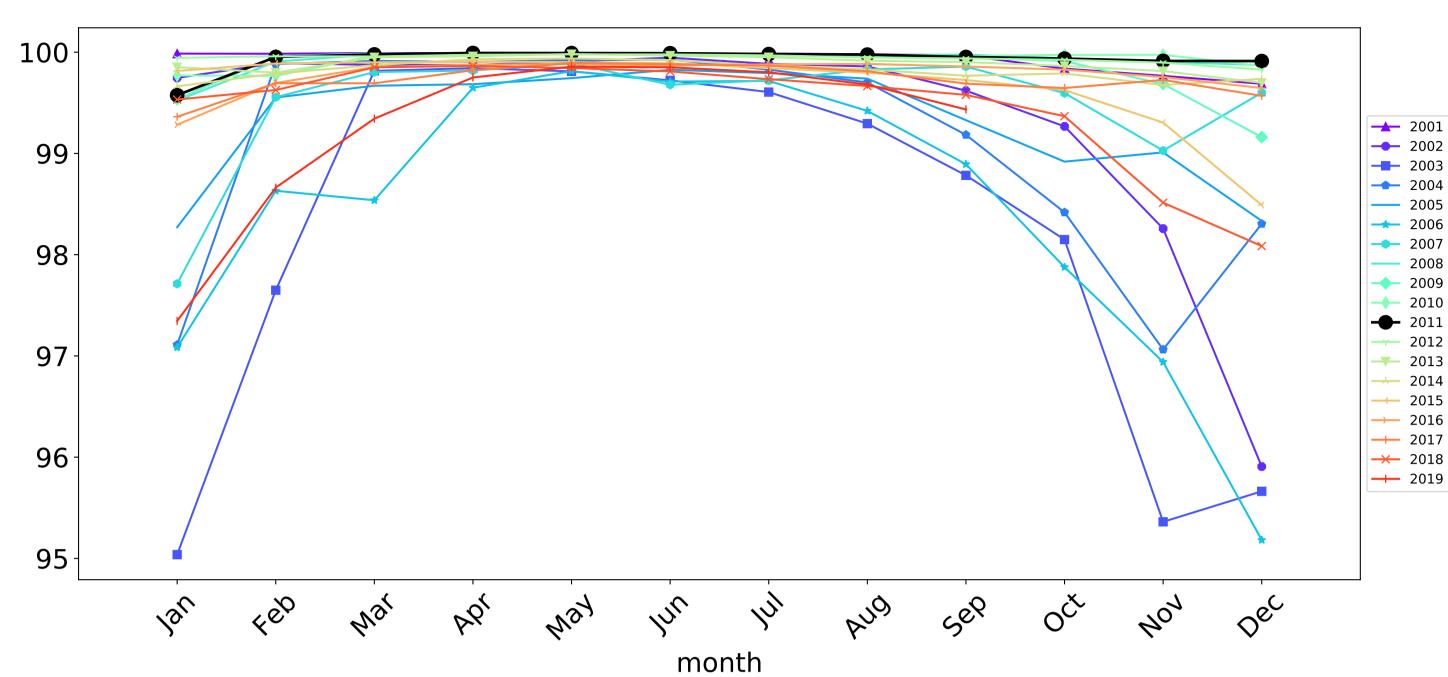




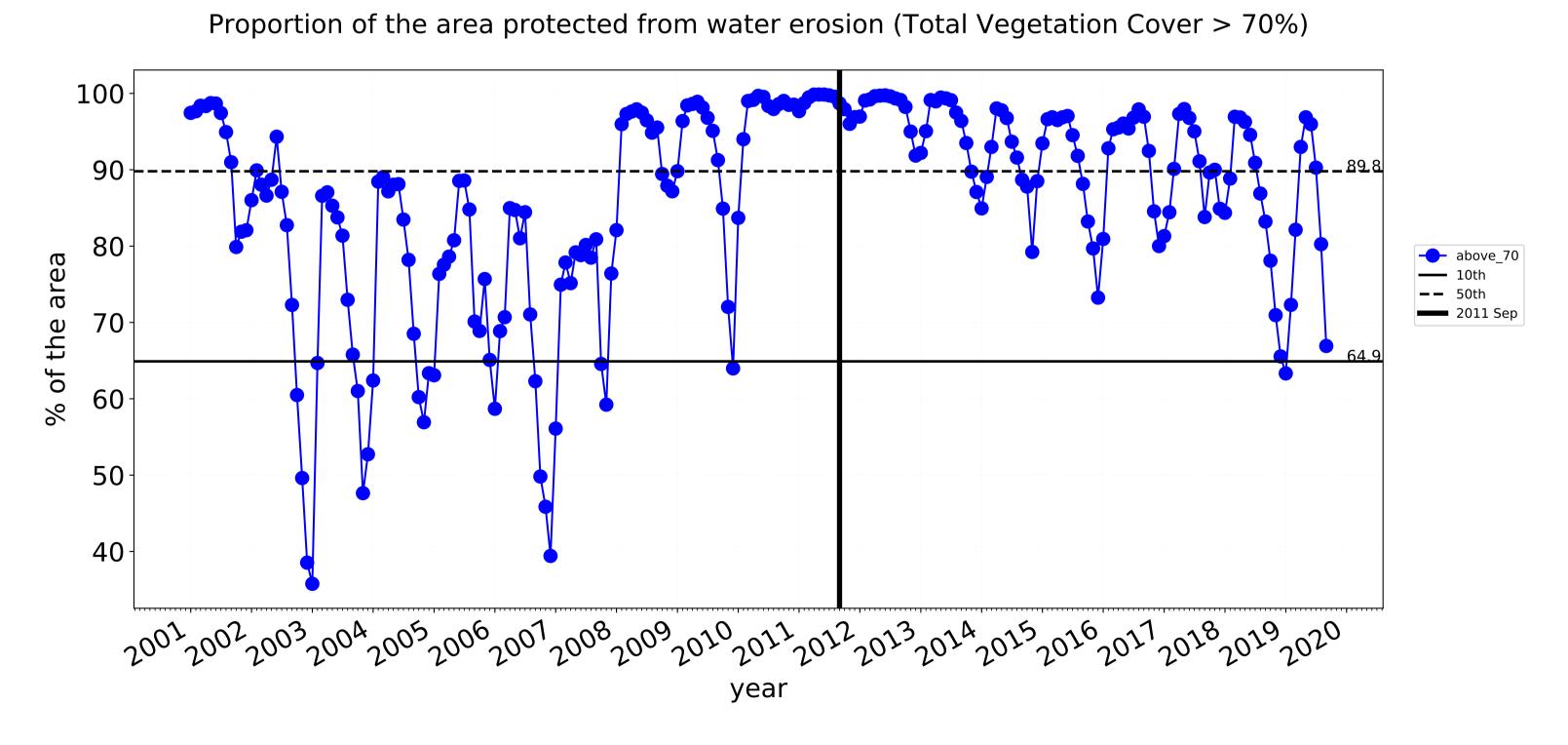


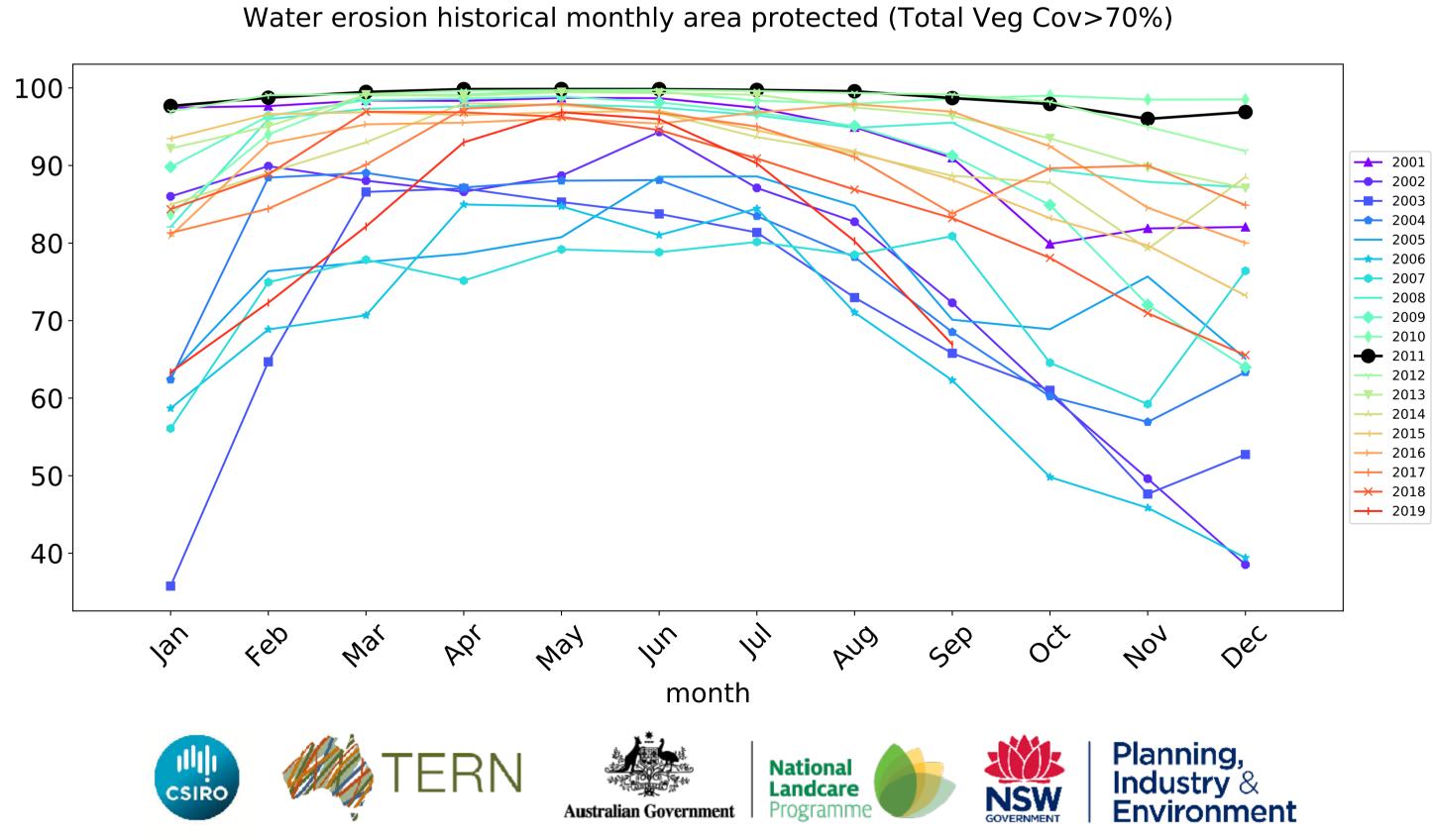
## **Grazing non forest timeseries**





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





## **Grazing Woodland forest**

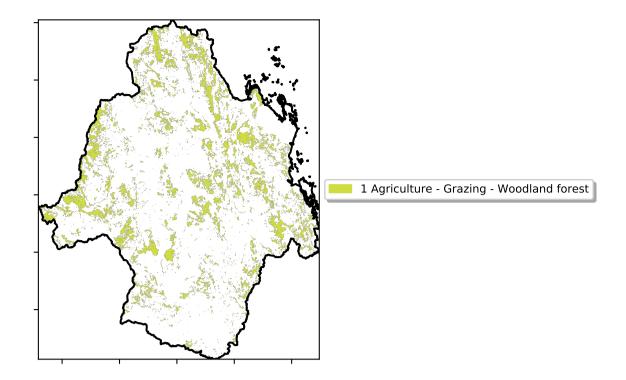
#### Land use and forest cover

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

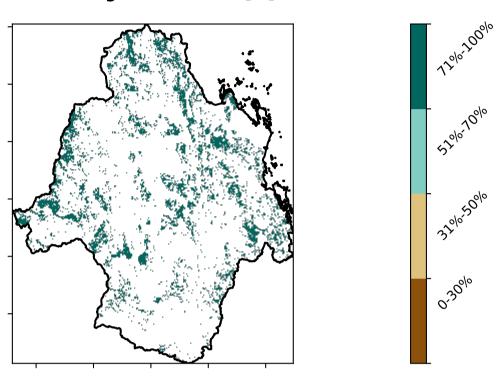
Anomaly show how many percetage points each pixel is from the mean. That

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

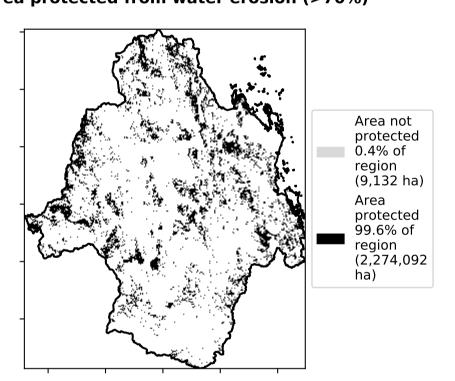
pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



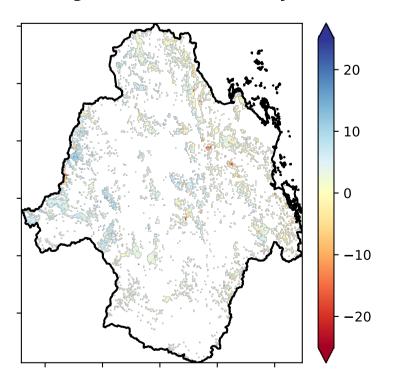
### **Total Vegetation Cover [%]**



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

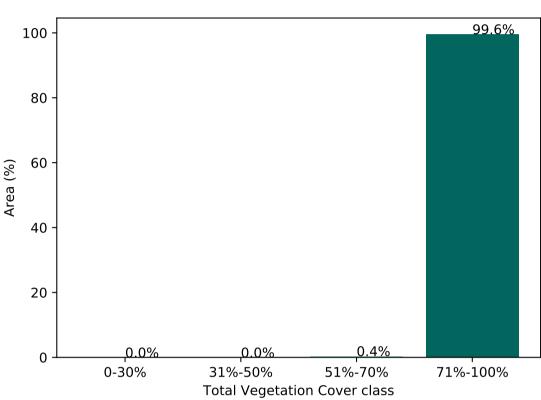


## **Total Vegetation Cover Anomaly [%]**

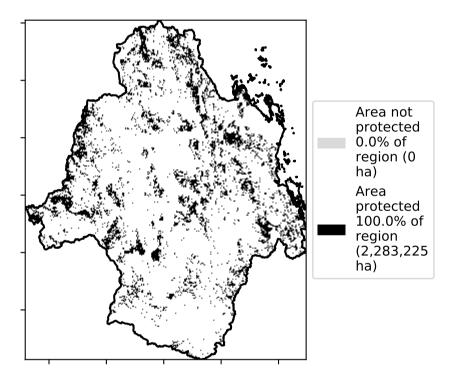


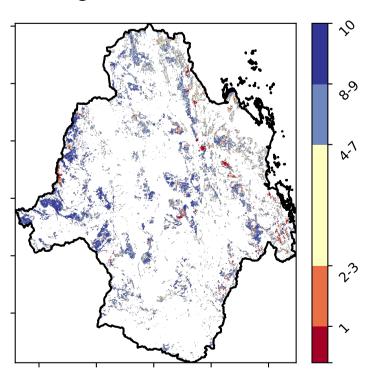
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

## Proportion of vegetation cover class in area



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









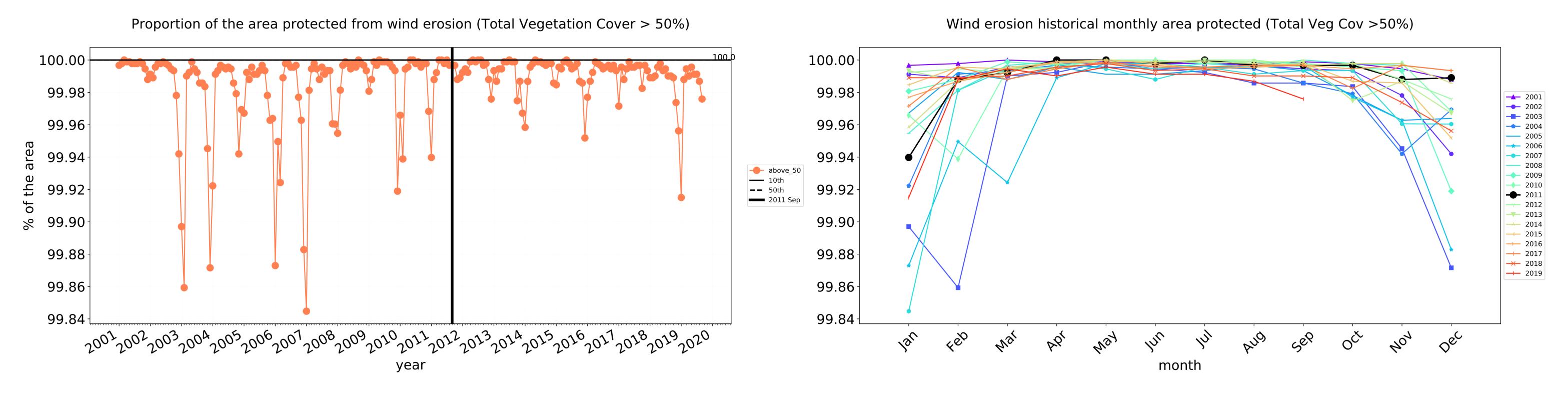


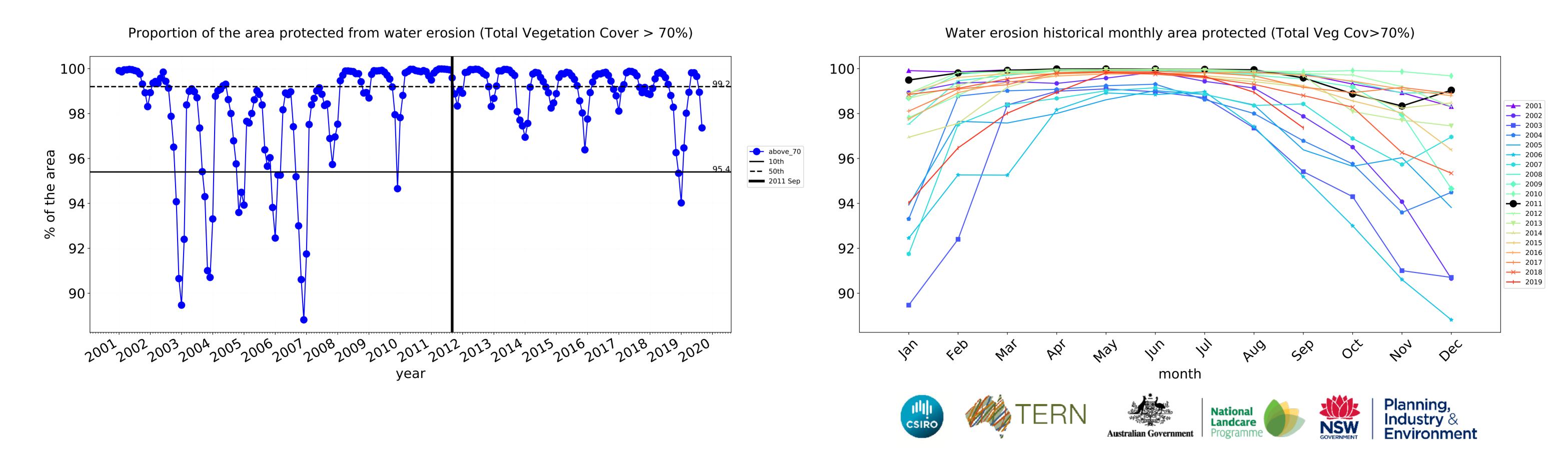






# **Grazing Woodland forest timeseries**





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

#### Land use and forest cover

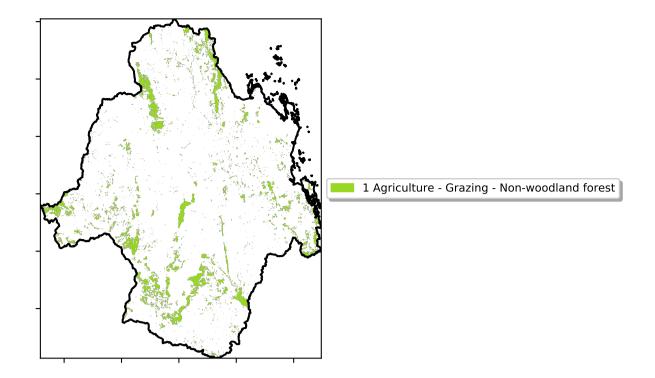
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

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

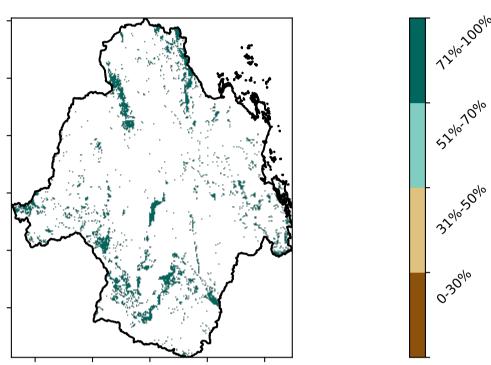
is, red pixels are about 20% lower than the mean of that

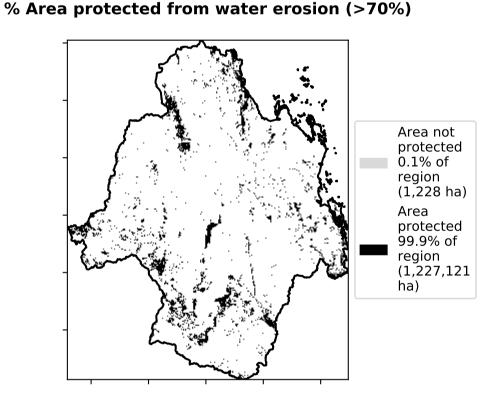
pixel. The mean is only for the month of the map

using baseline from 2001 to 2019.

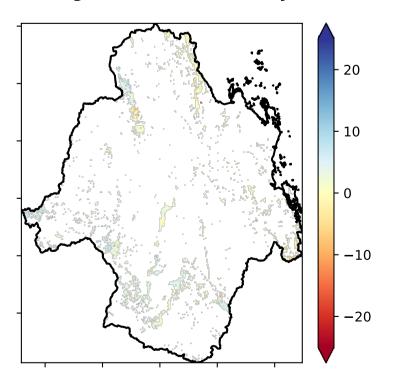


### **Total Vegetation Cover [%]**



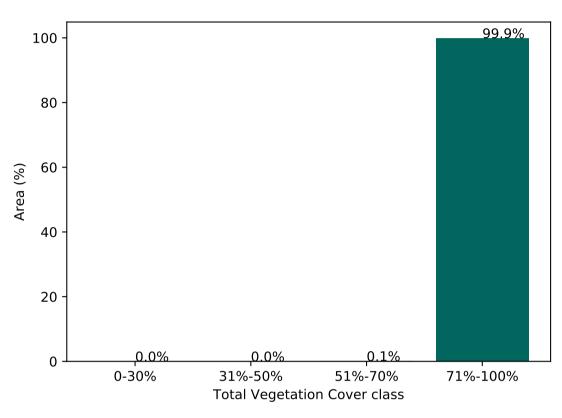


## **Total Vegetation Cover Anomaly [%]**

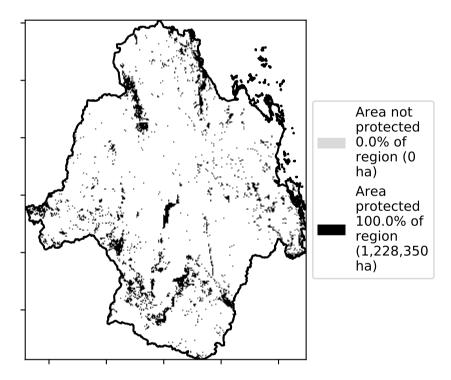


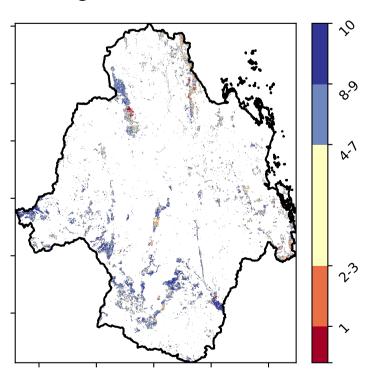
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

## Proportion of vegetation cover class in area



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







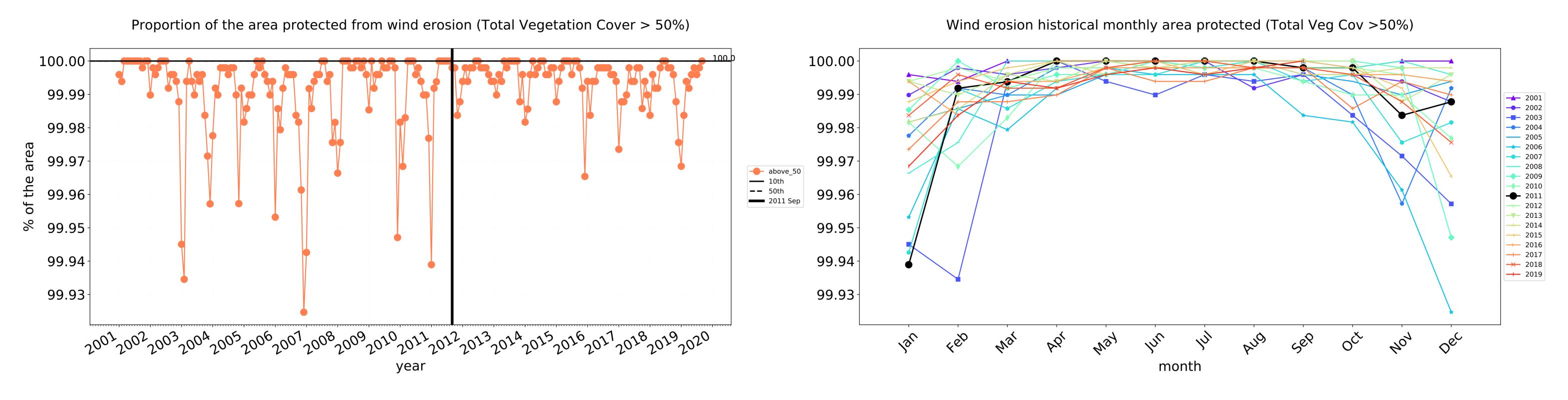


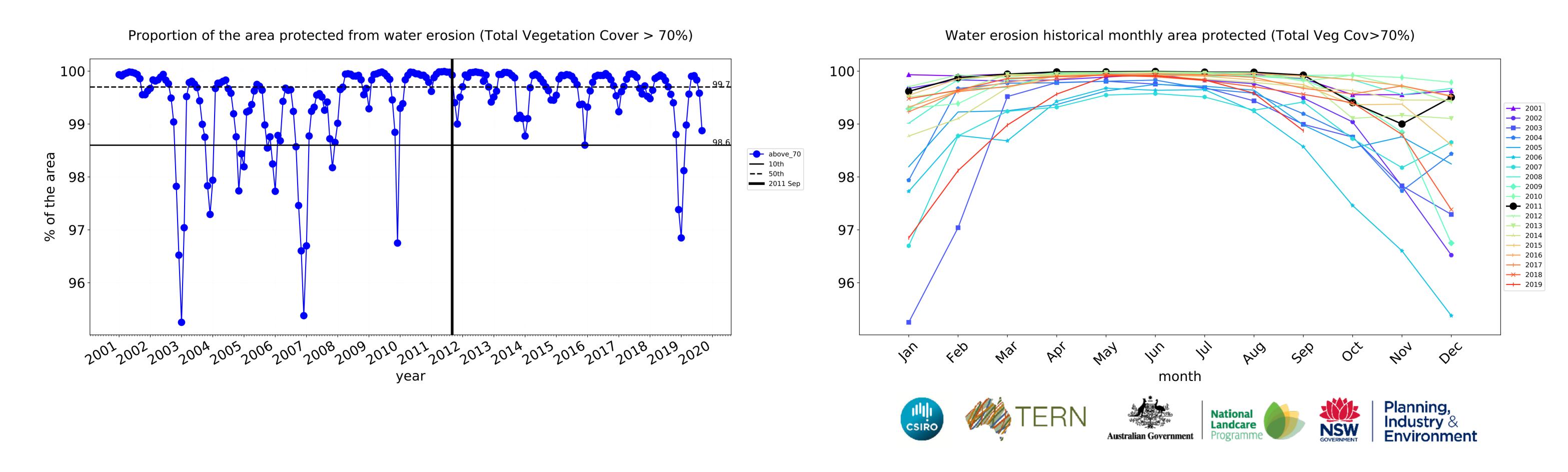












## **Cropping**

#### Land use and forest cover

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

Anomaly show how many percetage points each

pixel is from

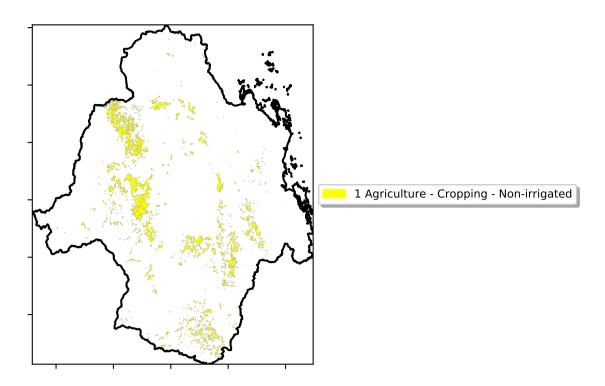
is, red pixels are about 20% lower than the

mean of that

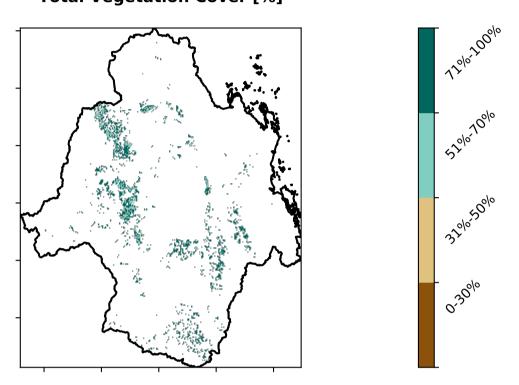
using baseline from 2001 to 2019.

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

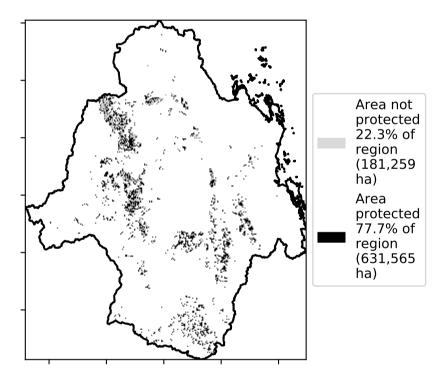
the mean. That



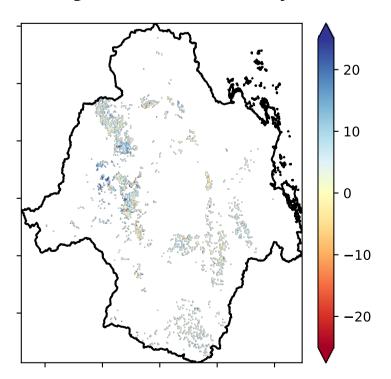
## **Total Vegetation Cover [%]**



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

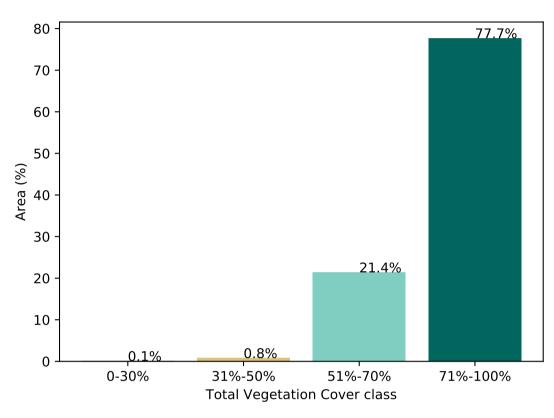


## **Total Vegetation Cover Anomaly [%]**

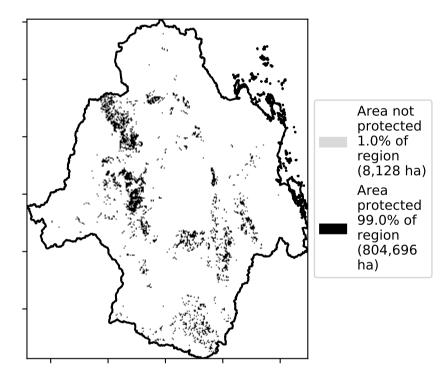


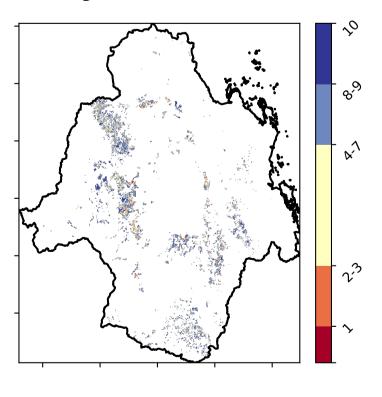
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

## Proportion of vegetation cover class in area



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









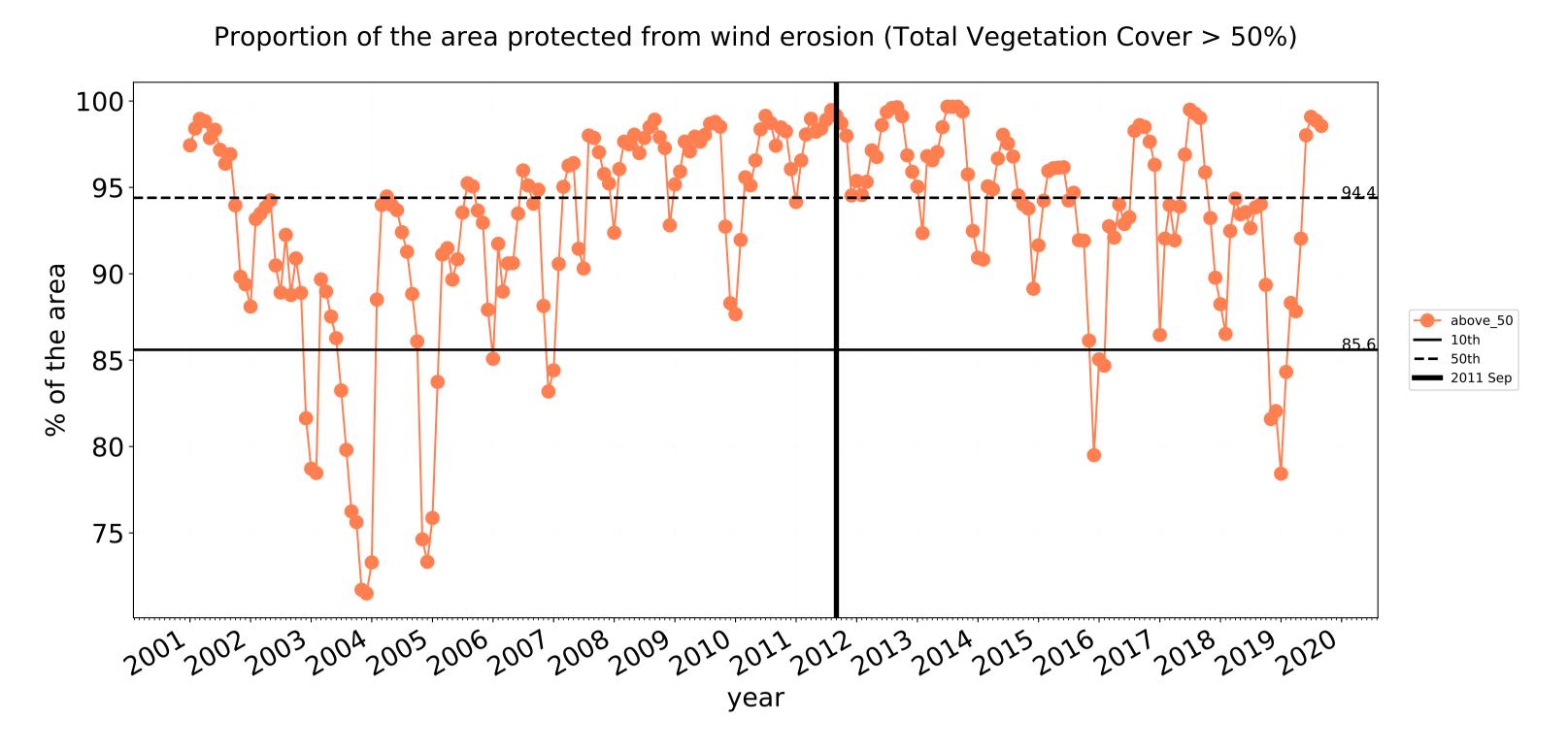


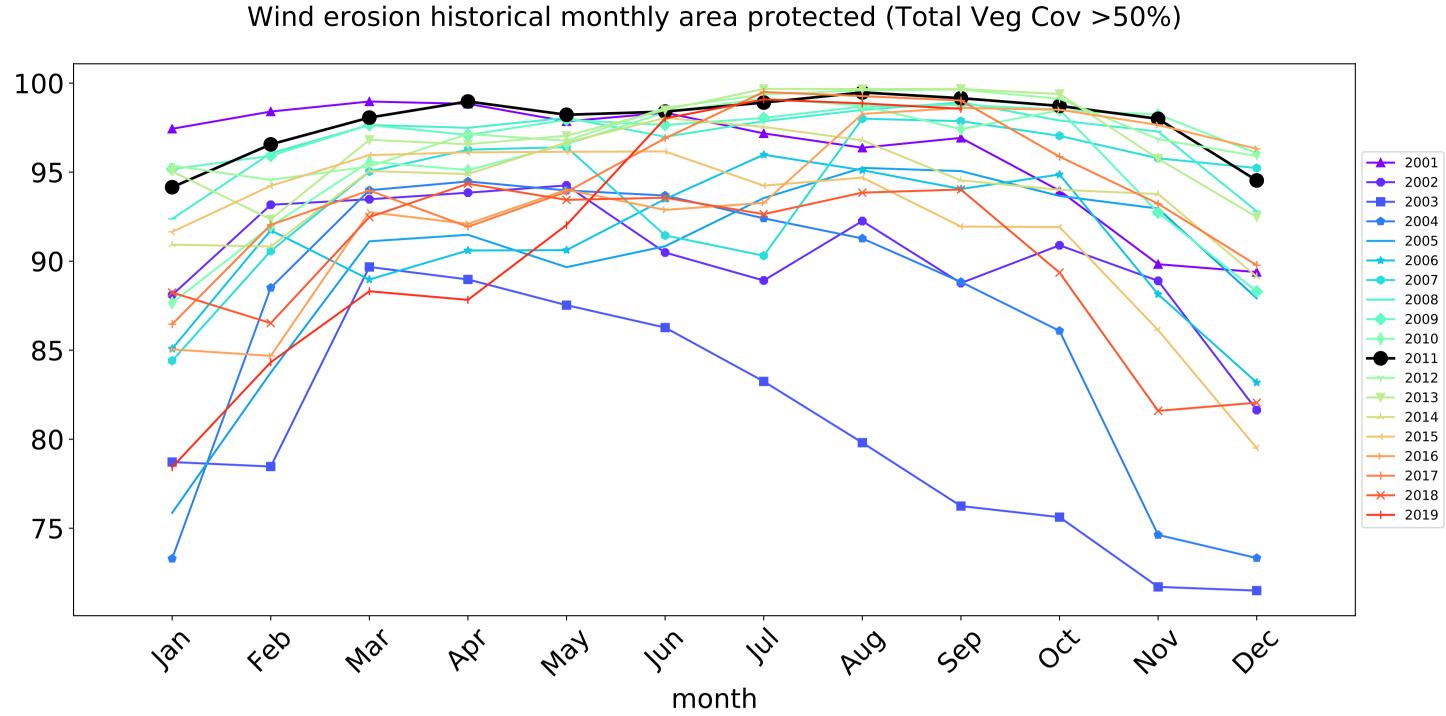


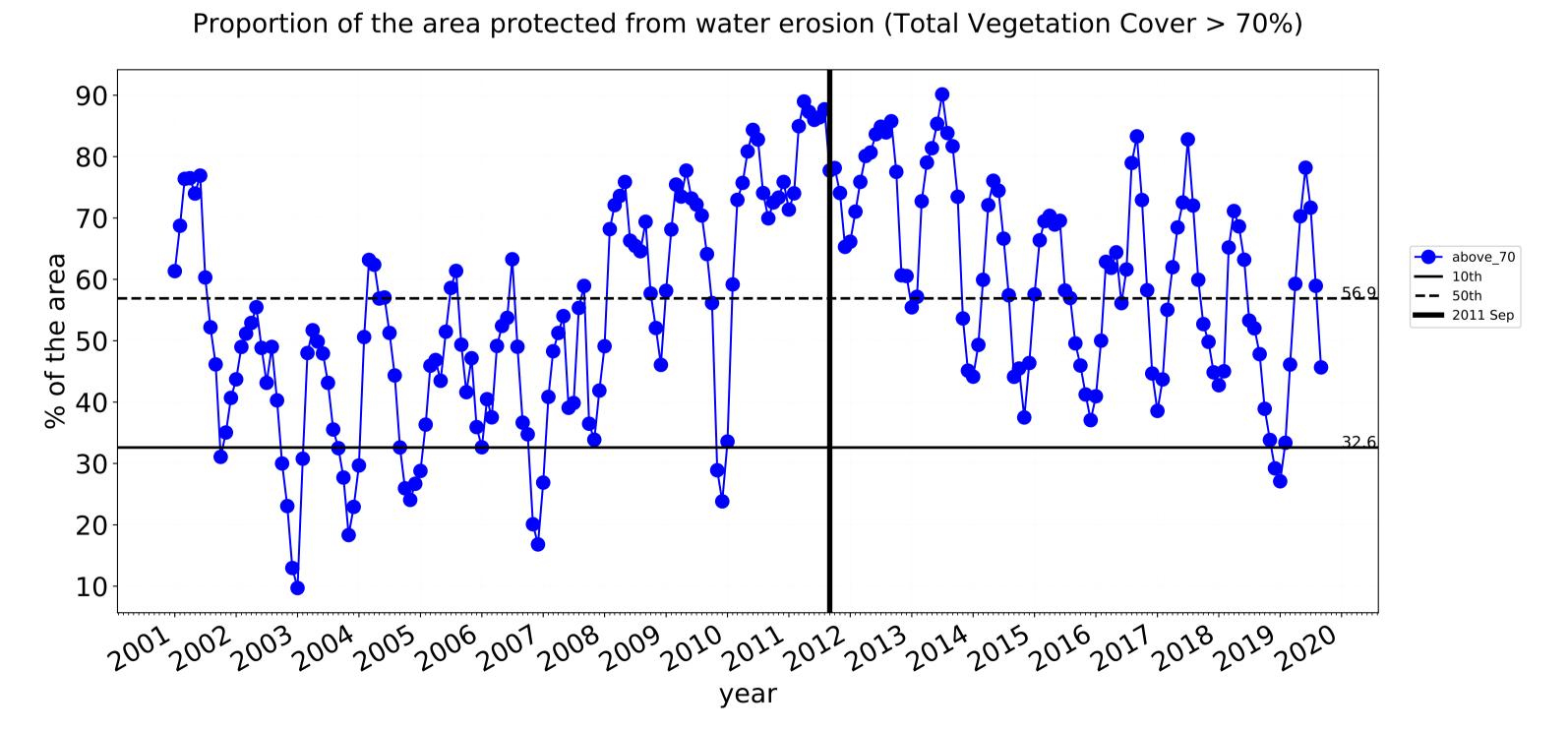


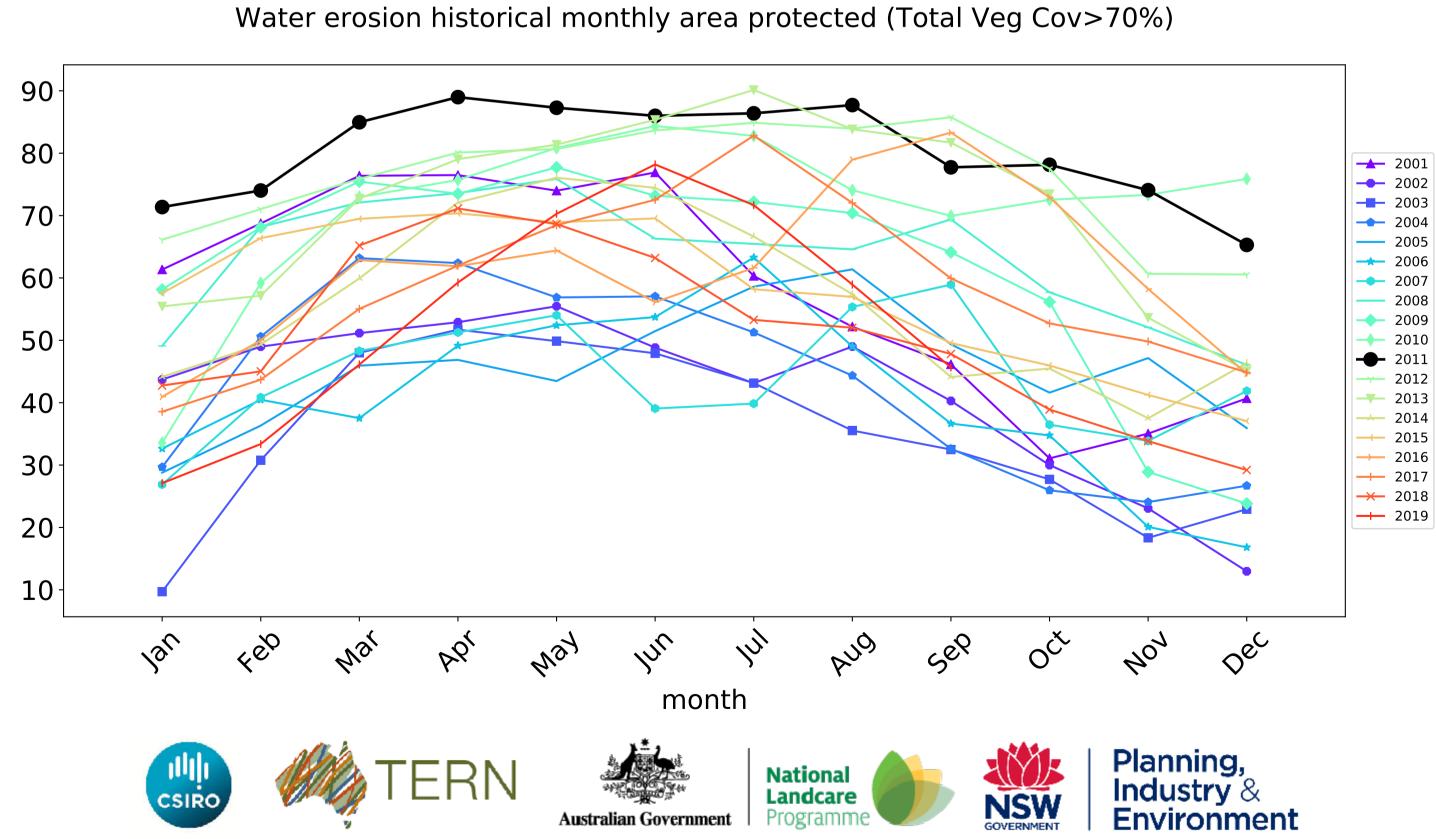


# **Cropping timeseries**









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

## Land use and forest cover

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

Anomaly show how many percetage points each

pixel is from

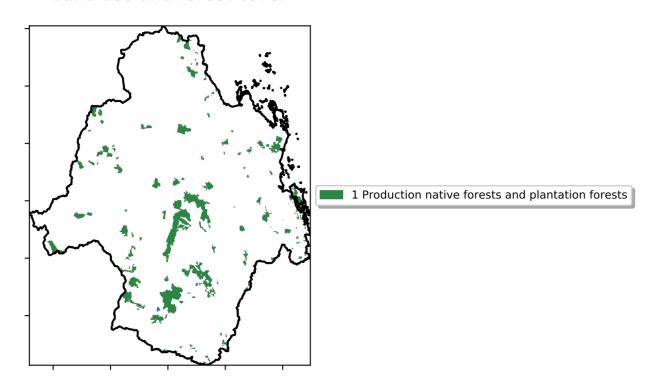
is, red pixels are about 20% lower than the

mean of that

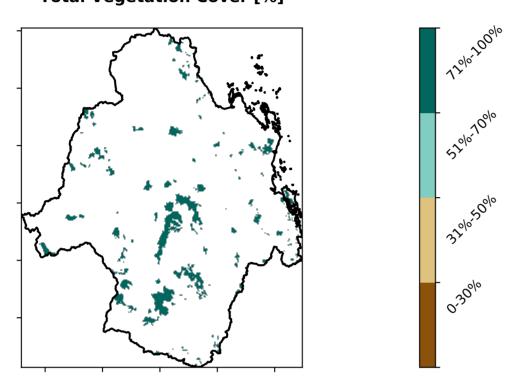
pixel. The mean is only for the month of the map

using baseline from 2001 to 2019.

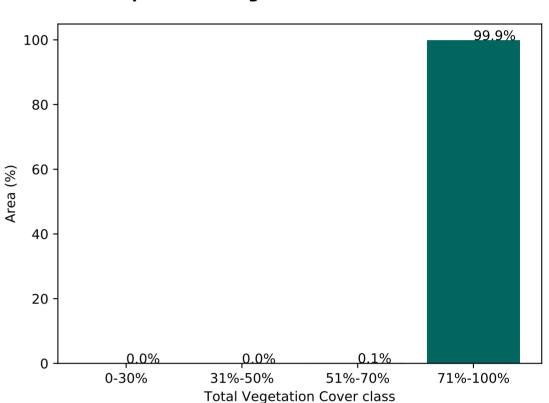
the mean. That



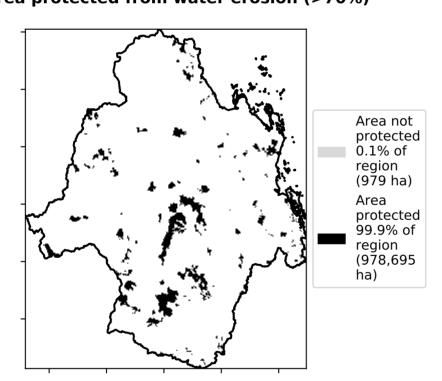
## **Total Vegetation Cover [%]**



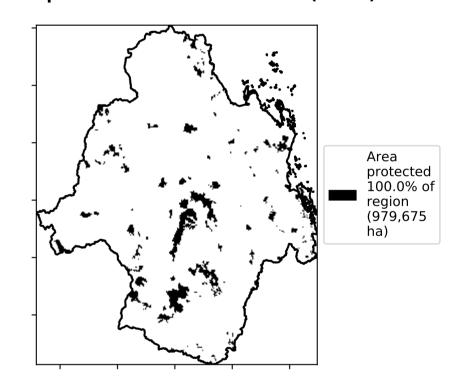
### Proportion of vegetation cover class in area



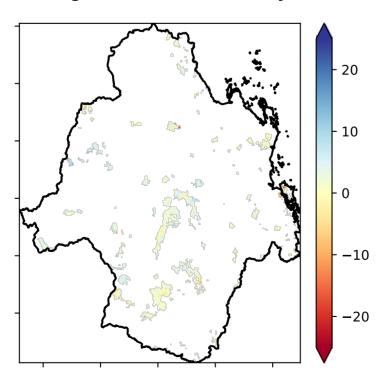
## % Area protected from water erosion (>70%)



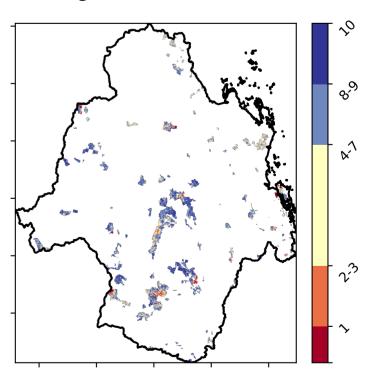
% Area protected from wind erosion (>50%)



## **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.







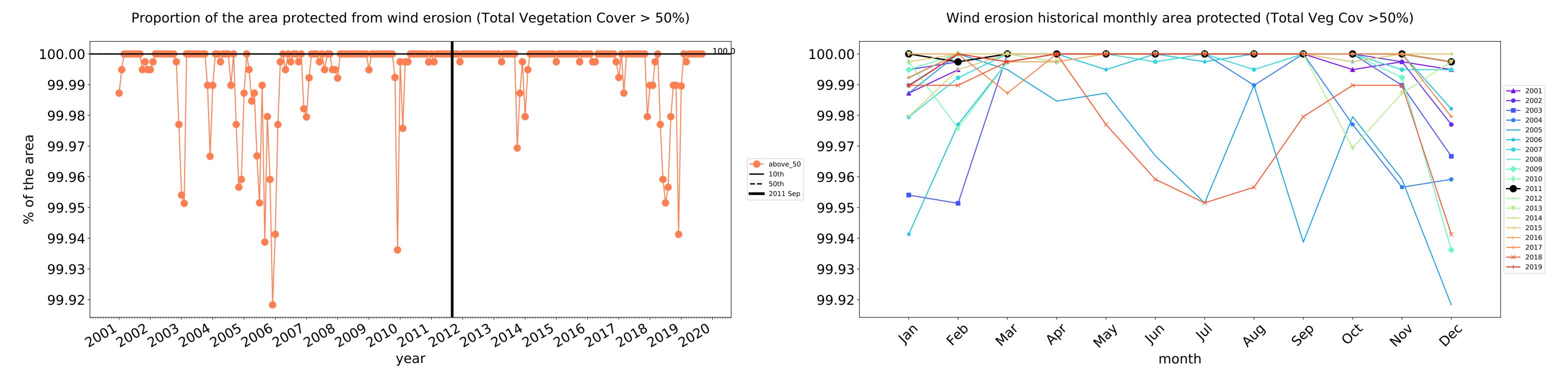


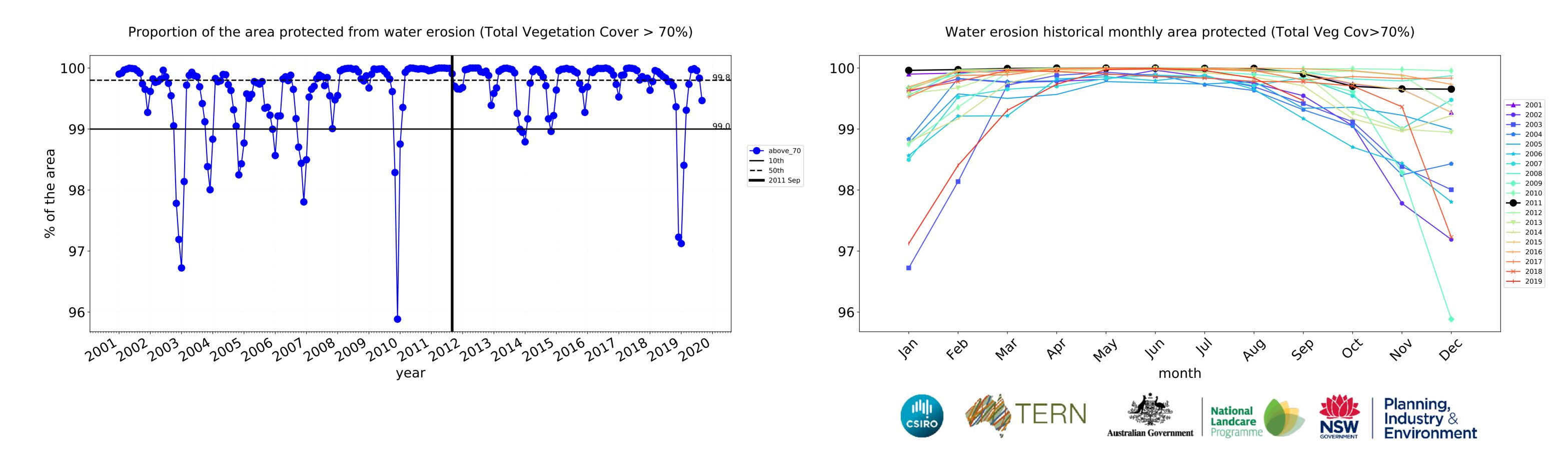






## **Production native forests and plantation forests timeseries**





# Fitzroy (15,640,125 ha and no data 71,089 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	15,640,125	100.0% 15,634,550	99.6% 15,583,276	96.9% 15,147,536	86.6% 13,541,775	40.2% 6,295,049	10.7% 1,668,984
Conservation and natural environments	1,189,475	100.0% 1,189,175	99.9% 1,188,150	99.1% 1,178,975	97.0% 1,153,275	81.6% 970,225	37.3% 443,750
Conservation and natural environments Woodland forest	554,775	100.0% 554,700	100.0% 554,550	99.7% 553,250	98.4% 545,975	79.5% 441,225	40.1% 222,525
Conservation and natural environments Forest (non woodland)	559,175	100.0% 559,125	99.9% 558,850	99.6% 556,725	98.5% 550,950	89.2% 498,650	37.2% 207,925
Agriculture	13,102,625	100.0% 13,102,100	99.8% 13,082,450	97.2% 12,741,325	85.8% 11,248,325	34.1% 4,465,150	7.5% 988,775
Grazing	12,158,625	100.0% 12,158,375	100.0% 12,154,450	99.0% 12,035,250	89.4% 10,866,375	36.4% 4,422,475	8.1% 983,075
Grazing non forest	8,647,050	100.0% 8,646,825	100.0% 8,642,975	98.7% 8,533,975	86.2% 7,451,525	23.9% 2,068,600	4.4% 376,900
Grazing Woodland forest	2,283,225	100.0% 2,283,200	100.0% 2,283,150	99.6% 2,273,850	96.5% 2,203,850	63.8% 1,457,500	16.0% 364,200
Grazing - Forest (non woodland)	1,228,350	100.0% 1,228,350	100.0% 1,228,325	99.9% 1,227,425	98.6% 1,211,000	73.0% 896,375	19.7% 241,975
Cropping	812,825	100.0% 812,575	99.2% 805,950	77.7% 631,850	42.9% 348,950	4.8% 39,100	0.6% 5,050
Production native forests and plantation forests	979,675	100.0% 979,675	100.0% 979,675	99.9% 978,750	99.2% 971,850	80.2% 785,975	21.6% 211,550











