### Total vegetation cover soil protection Region:LGA Whitsunday (R) 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.

Date: August 2022

Land use forest cover:

Results can be shown for the whole region (polygon), and separated by land use and forest cover classes which are likely to show different cover patterns and targets. Land use is divided into four broad classes: Conservation and natural environments, Agriculture, production native forests and plantation forests (no report), and other (no report). Agriculture is divided into grazing, crops and horticulture which are sub-divided into non-irrigated and irrigated. If forest is present land use is further divided into: non-forest, woodland forest and non-woodland forest. The area of each land use and forest class are shown as a map and chart. The report content is repeated for each land use and forest 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 Aug 2022**

#### Land use and forest cover

Catchment Scale

of Australia (2018)

(2018) and Forests

of Australia (2018)

Anomaly show how many percetage points each

pixel is from

mean of that pixel. The mean is only for the

month of the map

using baseline from 2001 to

2019.

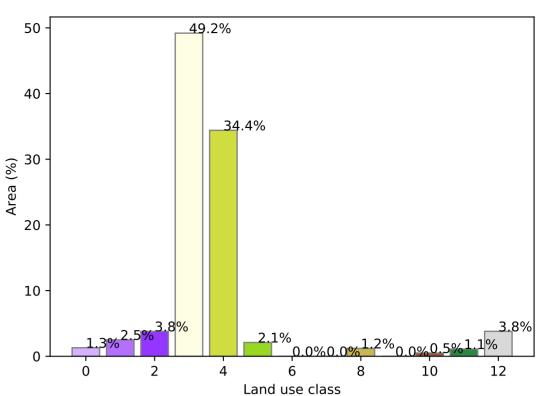
the mean. That is, red pixels are about 20% lower than the

Derived from

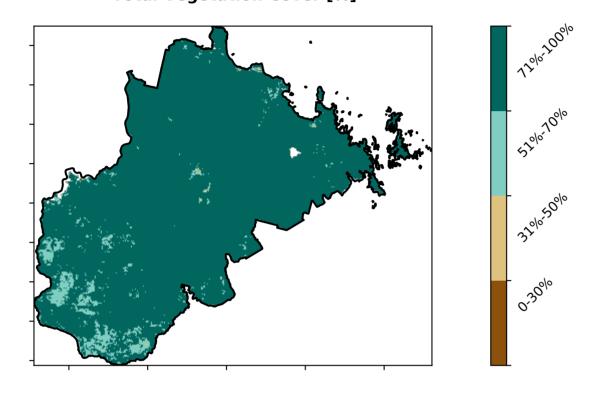
Use of Australia

#### Legend with land class forest cover and number, i.e. Forests is 12 1 Conservation and natural environments - Non-forest 2 Conservation and natural environments - Woodland forest 3 Conservation and natural environments - Non-Woodland forest Land Use and Forests 4 Agriculture - Grazing - Non-forest 5 Agriculture - Grazing - Woodland forest Catchment Scale Land 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 forests 13 Other uses

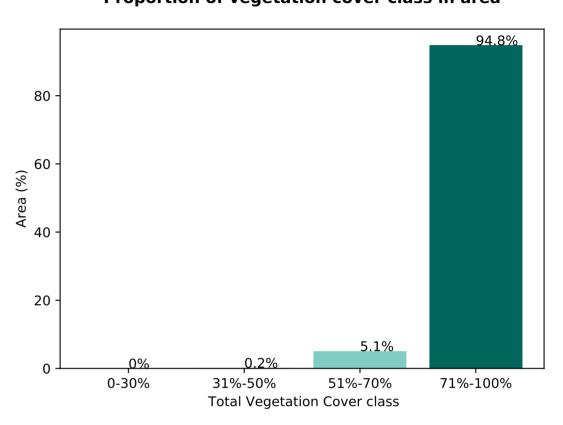
#### Proportion of each land class in area

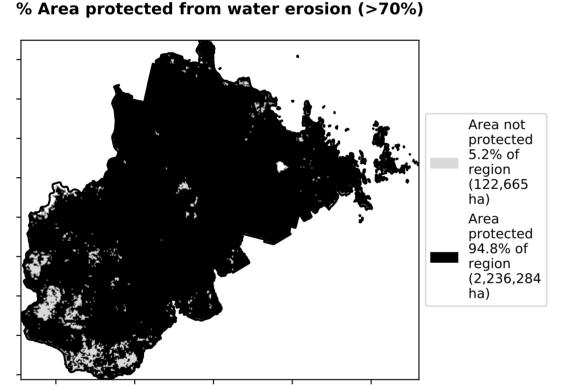


#### **Total Vegetation Cover [%]**

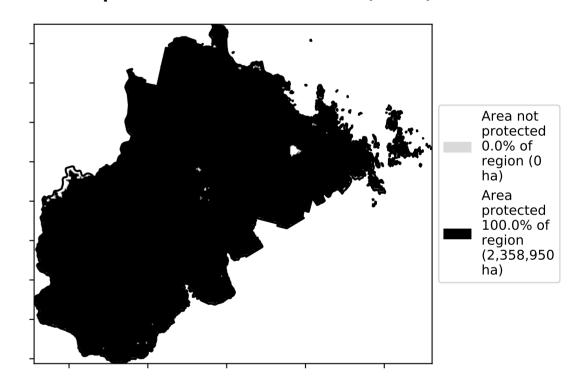


**Proportion of vegetation cover class in area** 

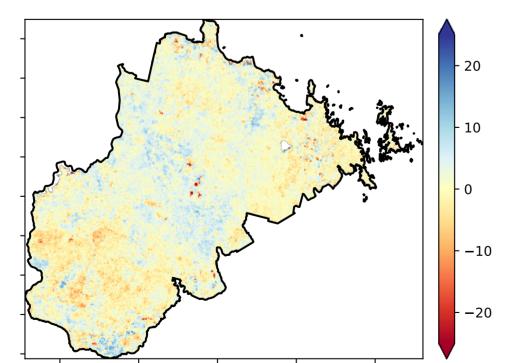




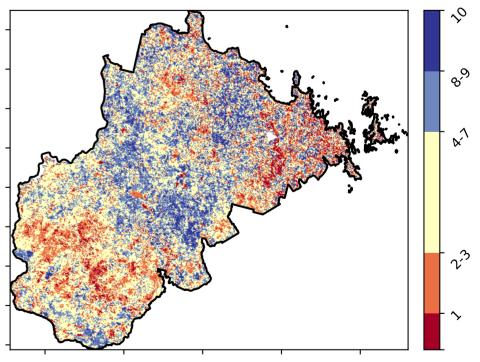
% Area protected from wind erosion (>50%)



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



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

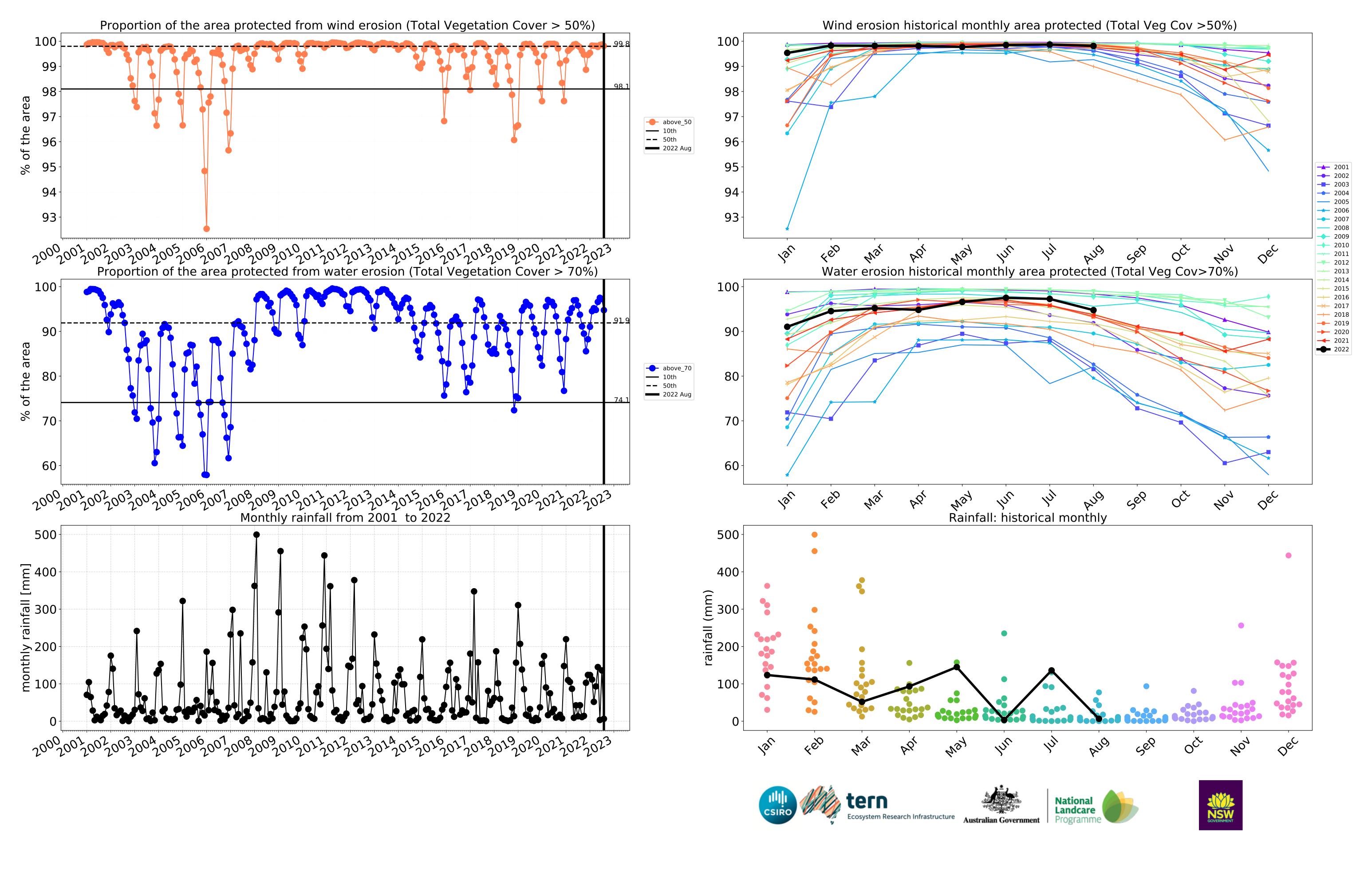








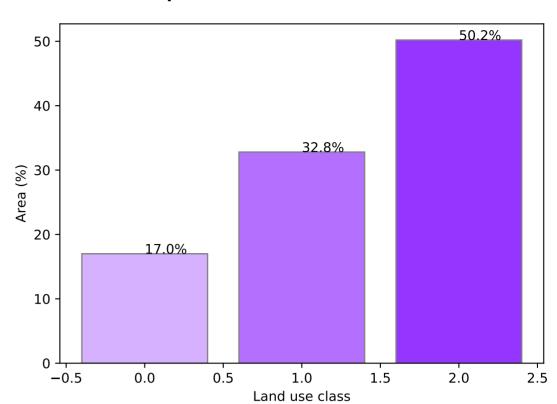




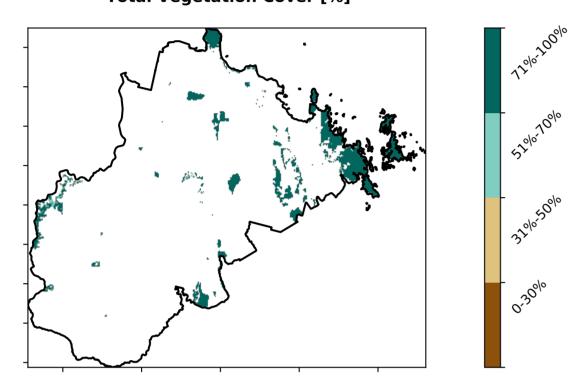
#### **Conservation and natural environments**

# Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) See of Australia (2018) Tonservation and natural environments - Nonforest Tonservation and natural environments - Nonwoodland forest Tonservation and natural environments - Nonwoodland forest

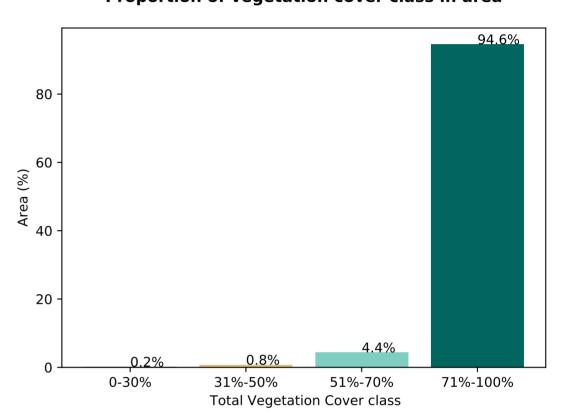
#### Proportion of each land class in area



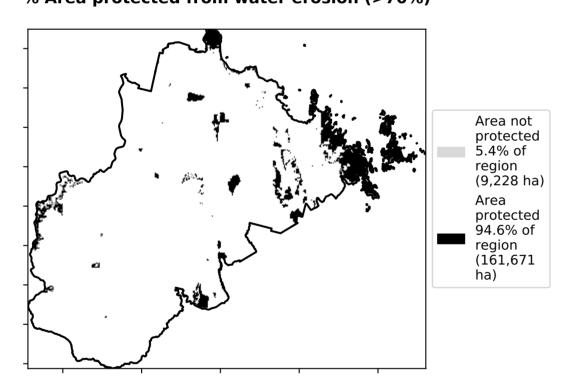
**Total Vegetation Cover [%]** 



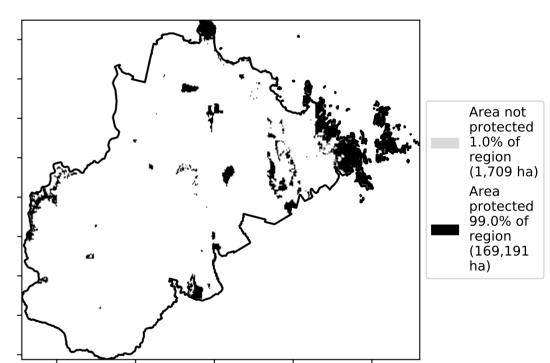
Proportion of vegetation cover class in area



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



% Area protected from wind erosion (>50%)



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

Anomaly show how many percetage points each pixel is from

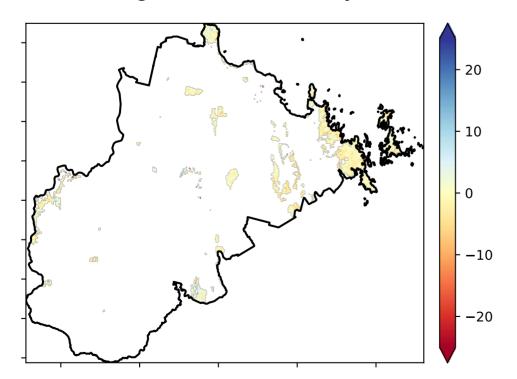
the mean. That

pixel. The mean

using baseline from 2001 to 2019.

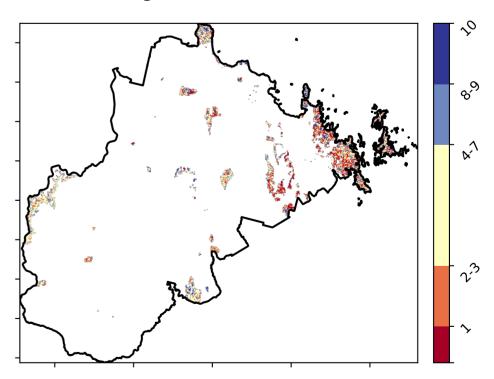
is only for the month of the map

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



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 [%]



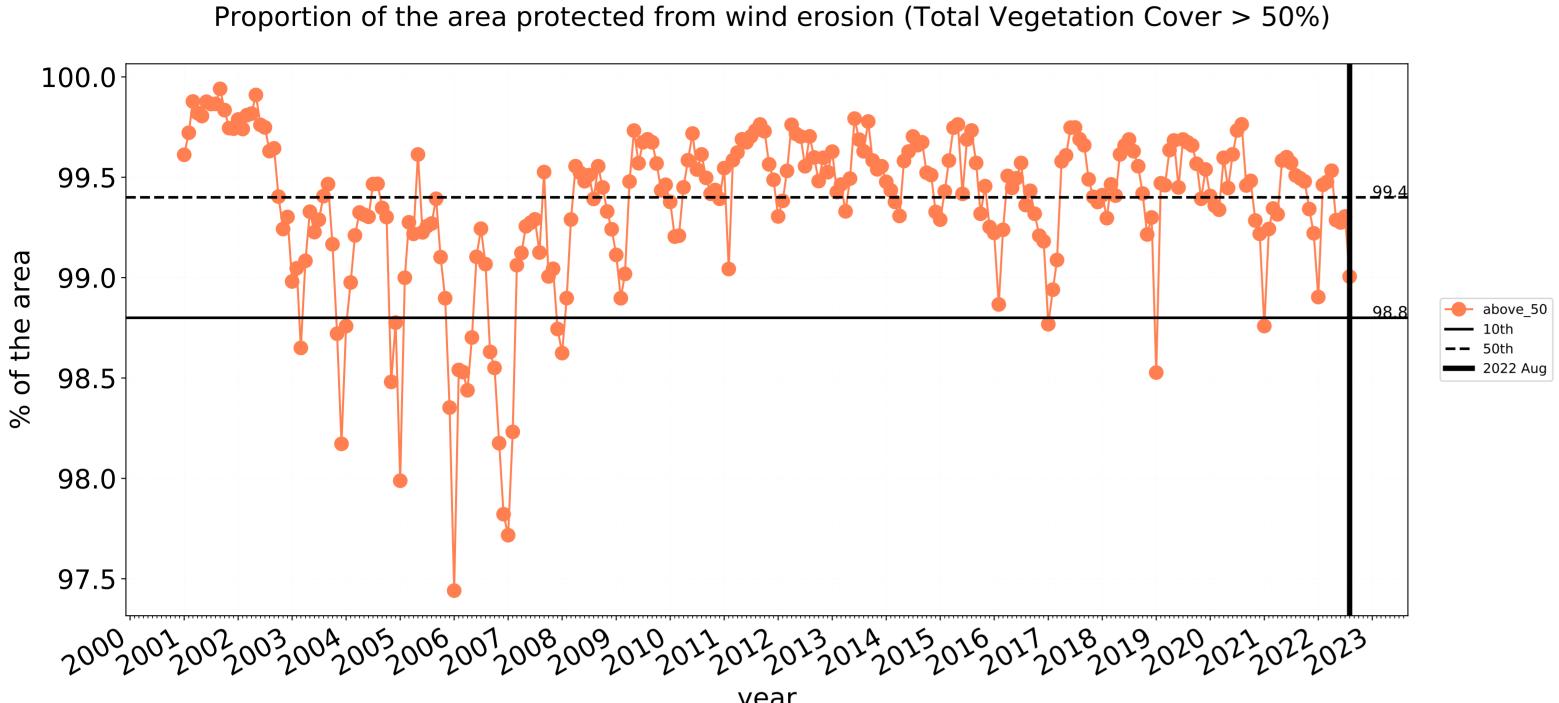


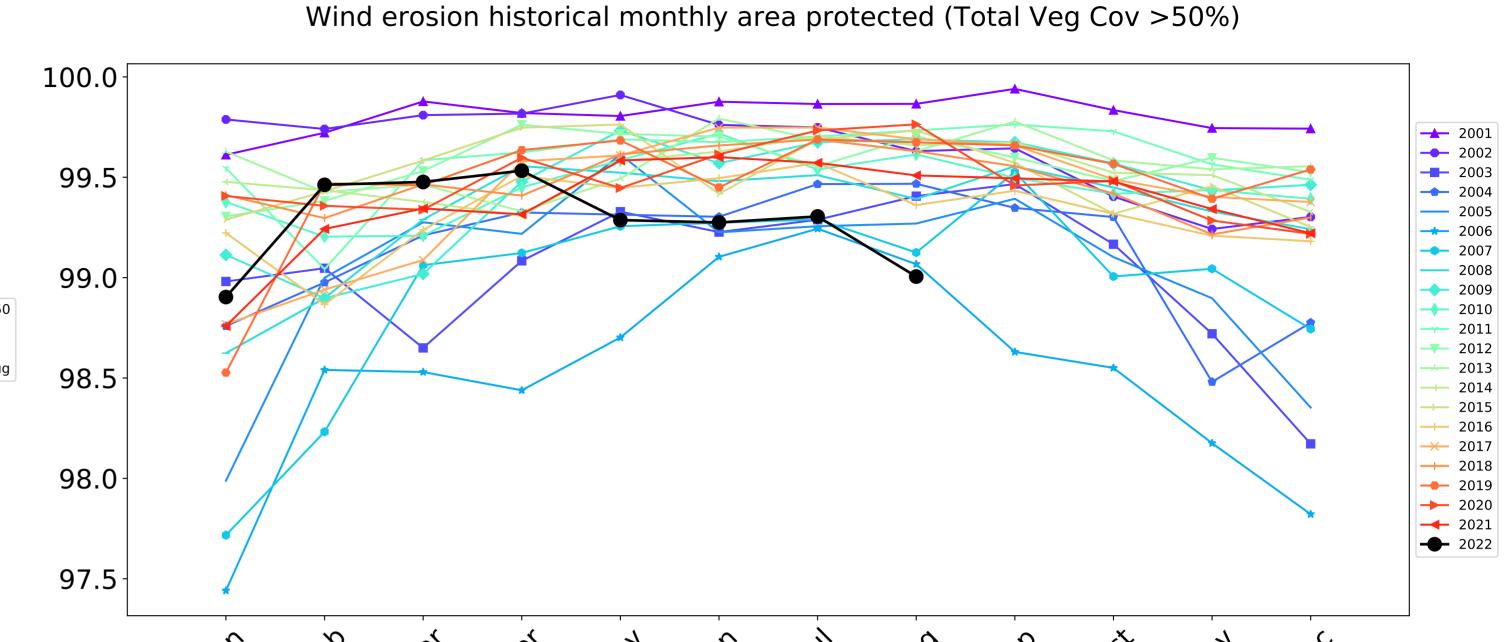




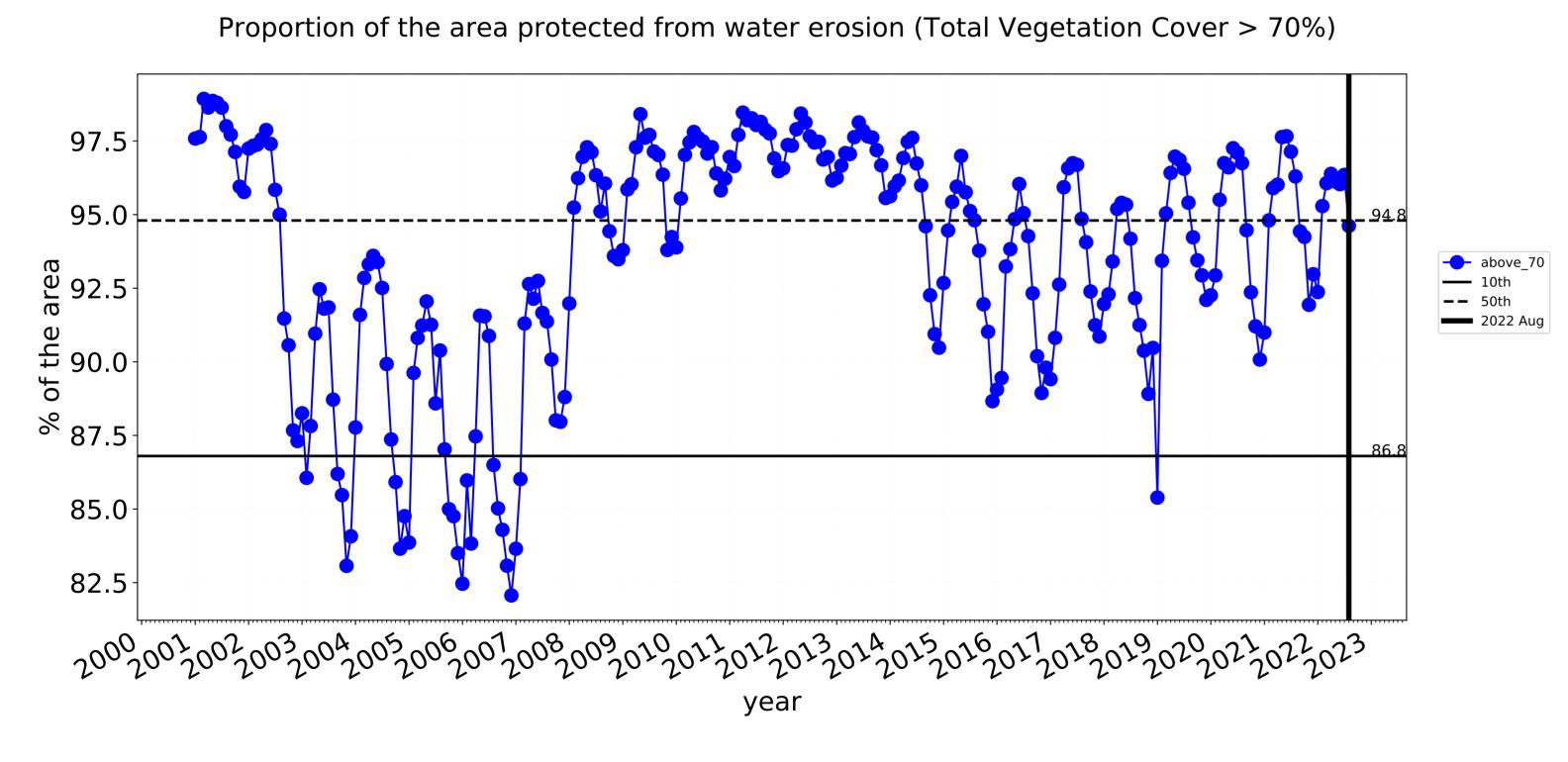


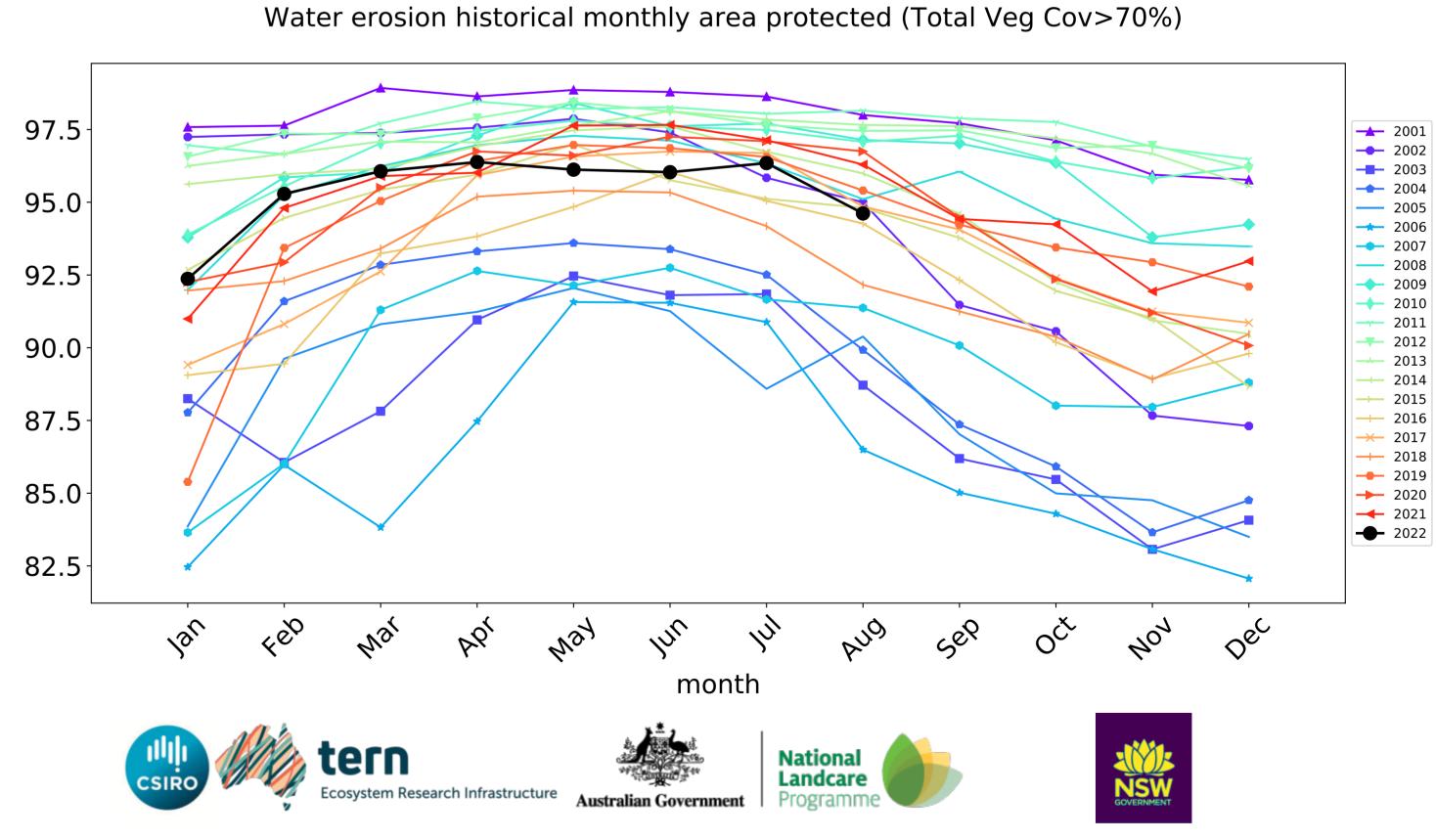
#### **Conservation and natural environments timeseries**





month





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

## Land use and forest cover 1 Conservation and natural environments - Nonforest

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

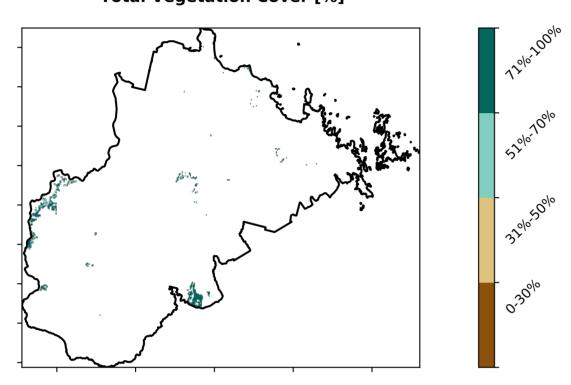
Anomaly show how many percetage points each pixel is from

the mean. That

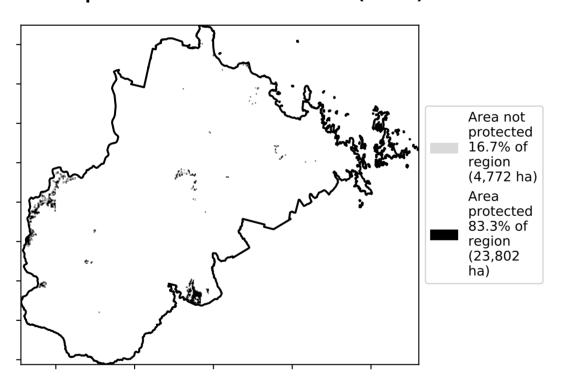
is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map

using baseline from 2001 to 2019.

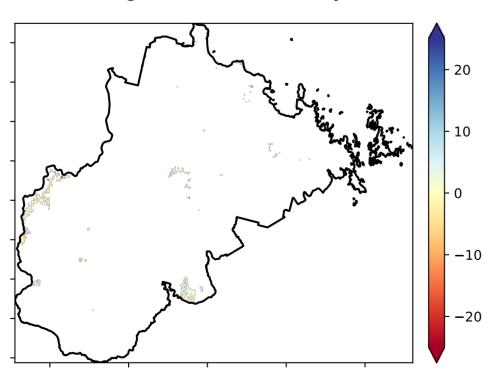
#### **Total Vegetation Cover [%]**



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

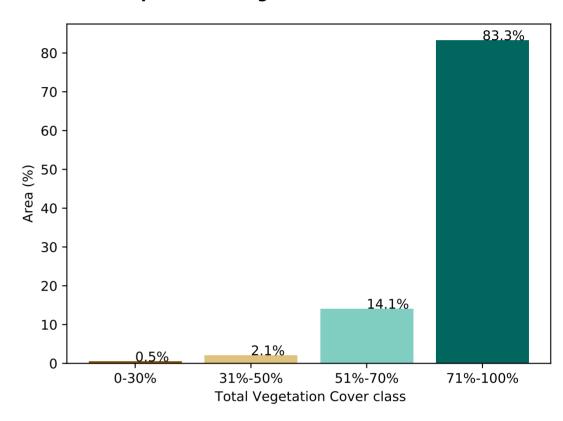


#### **Total Vegetation Cover Anomaly [%]**

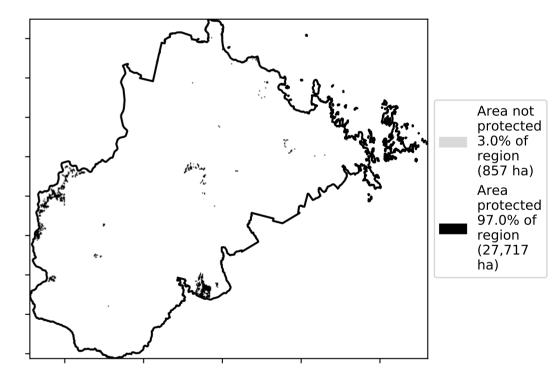


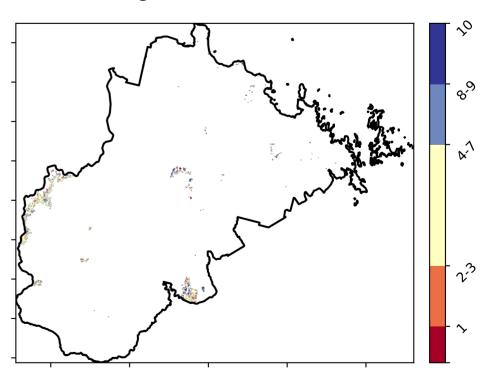
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



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









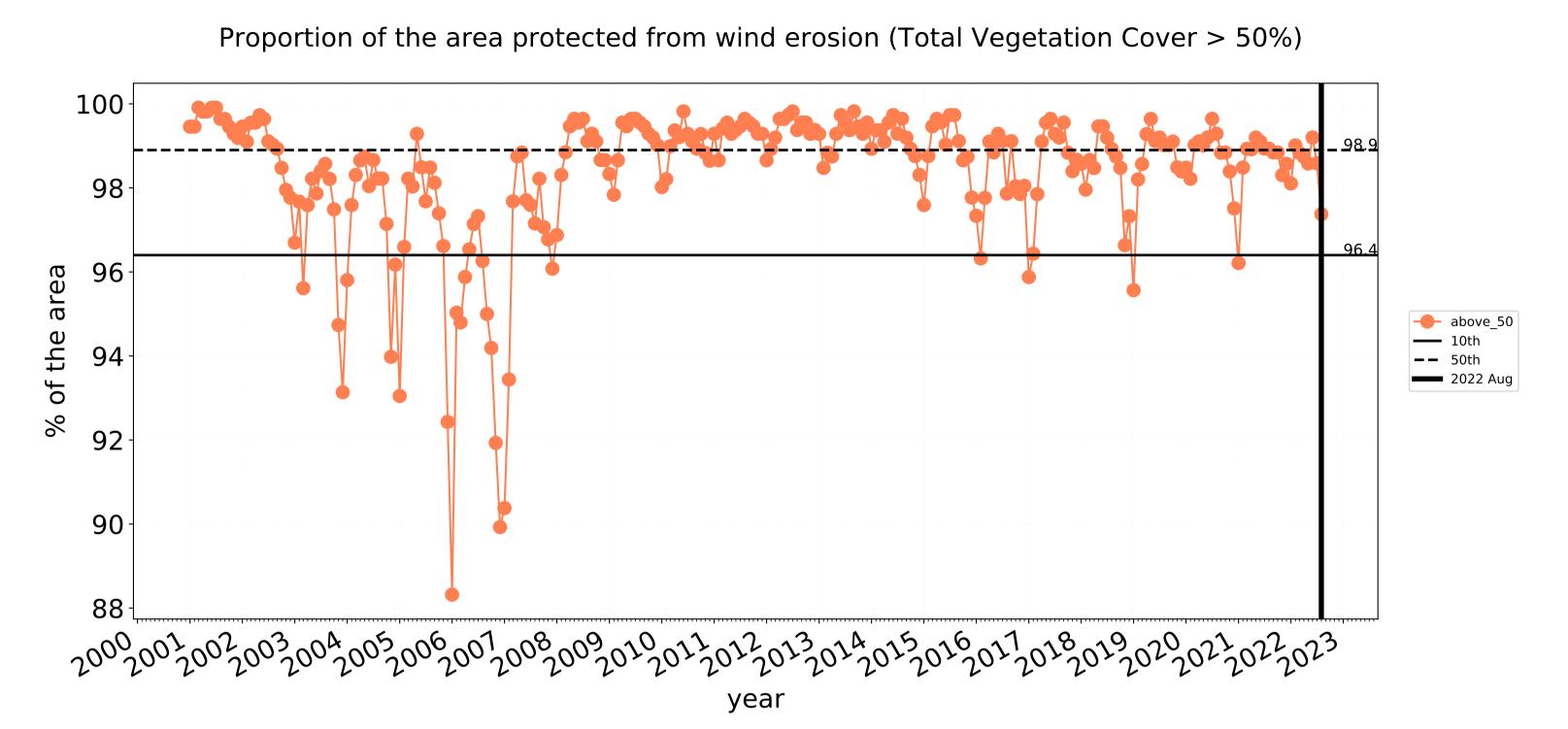


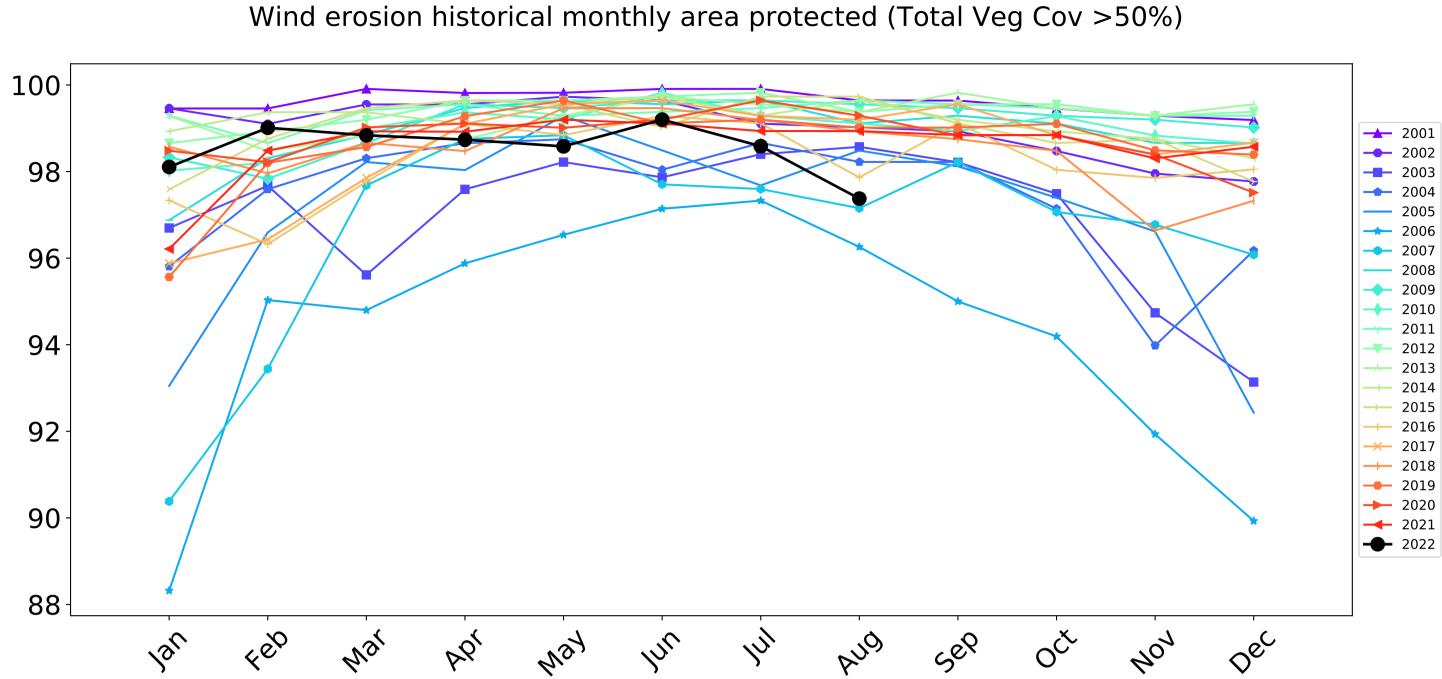




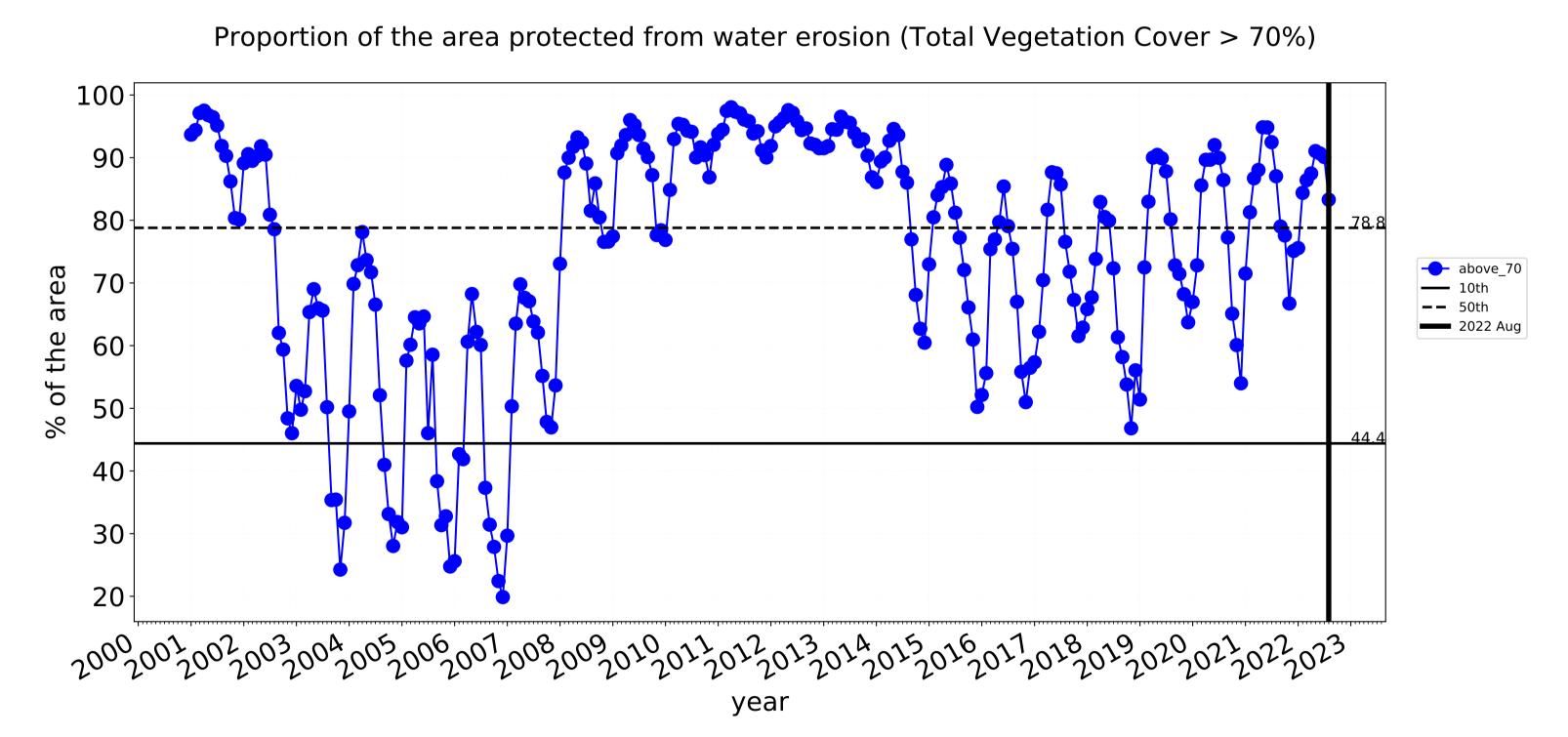


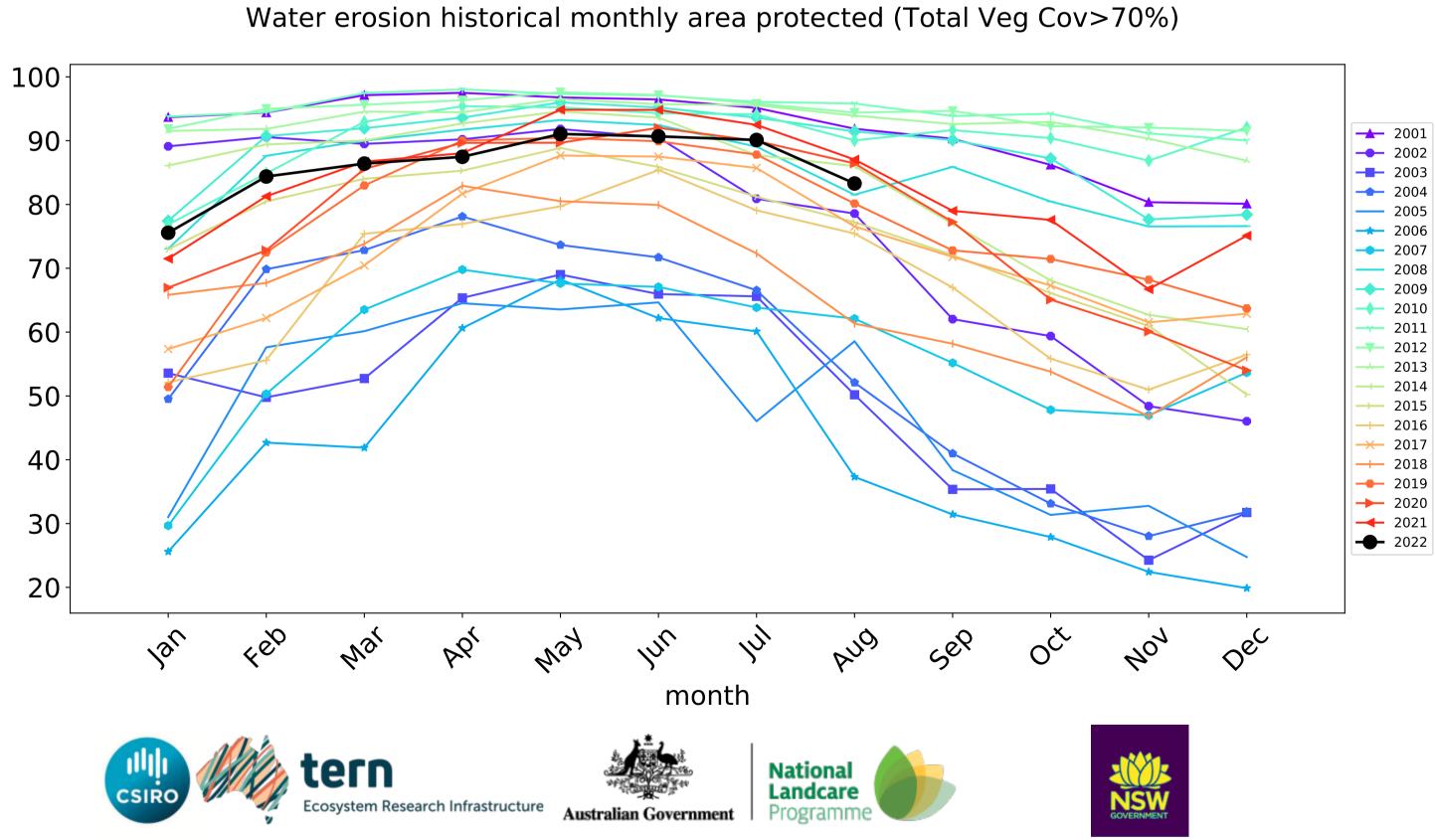
#### **Conservation and natural environments non forest timeseries**





month

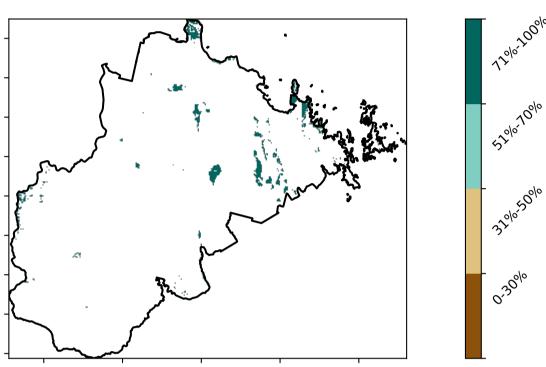




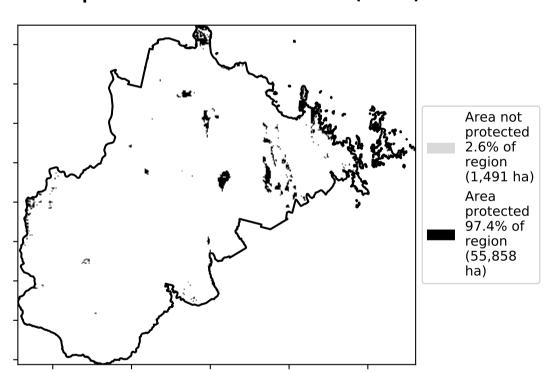
#### **Conservation and natural environments Woodland forest**

#### Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments - Woodland Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

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



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



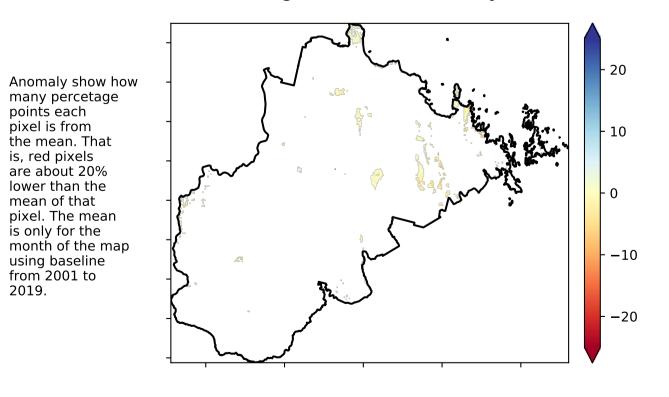
#### **Total Vegetation Cover Anomaly [%]**

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

pixel. The mean

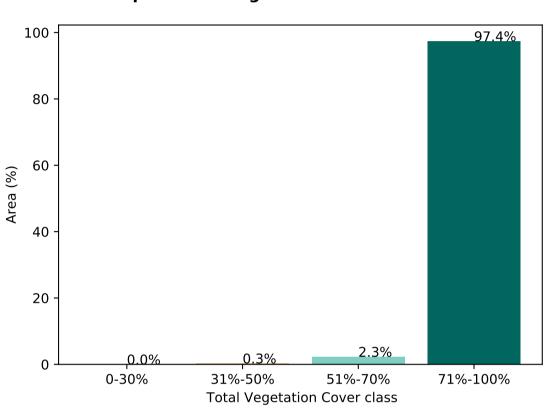
using baseline from 2001 to 2019.

is only for the month of the map

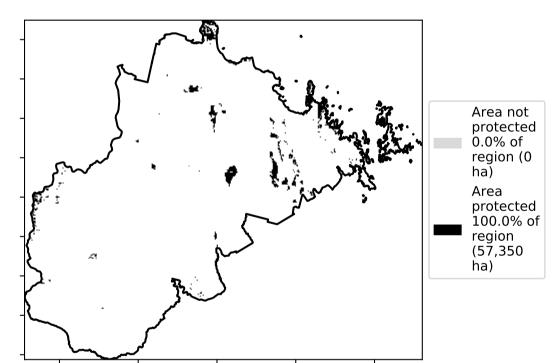


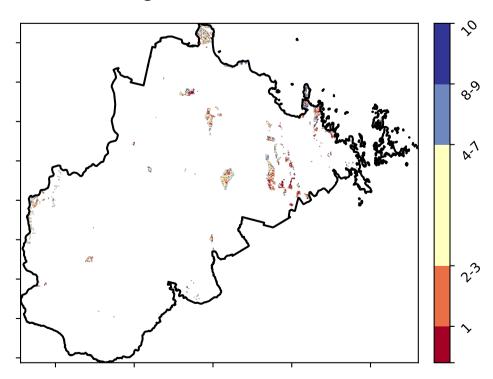
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



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





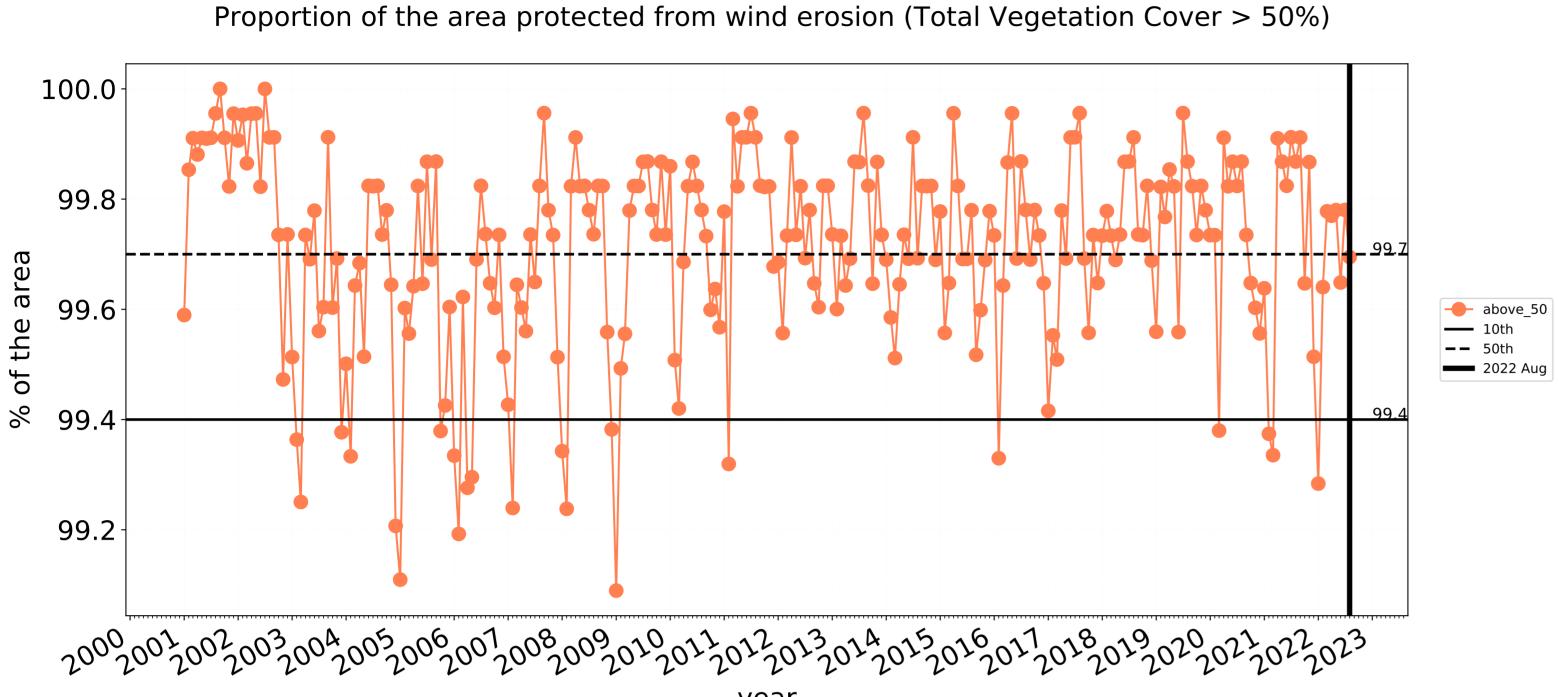


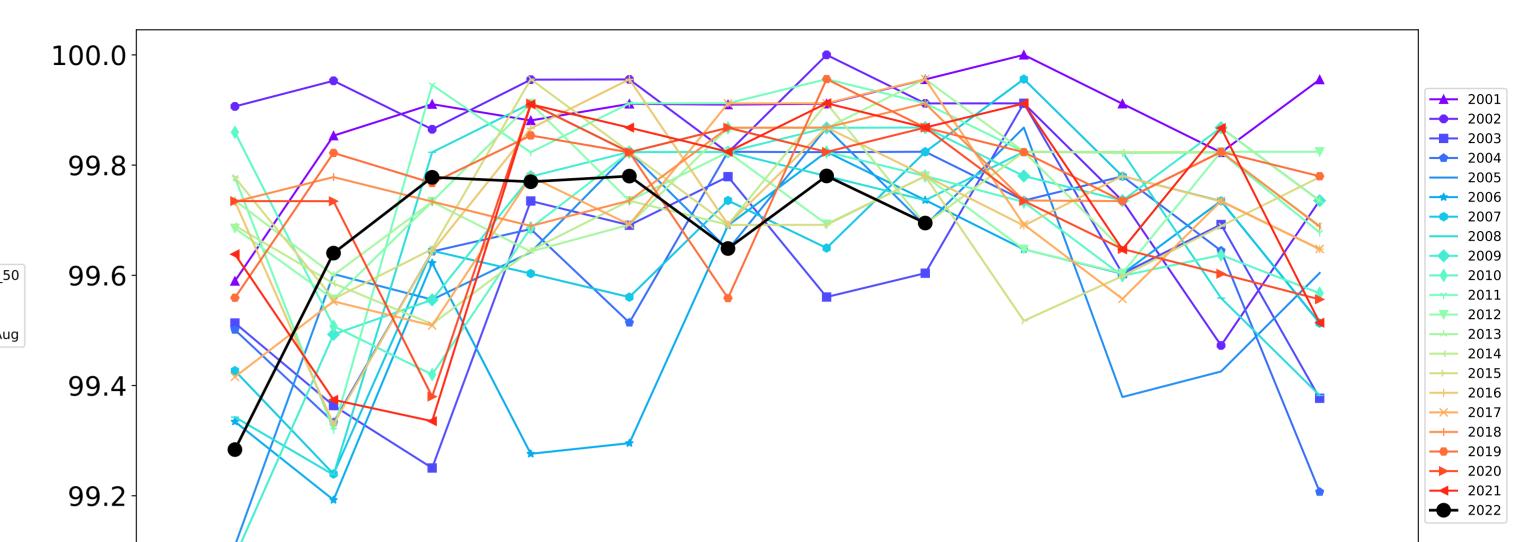






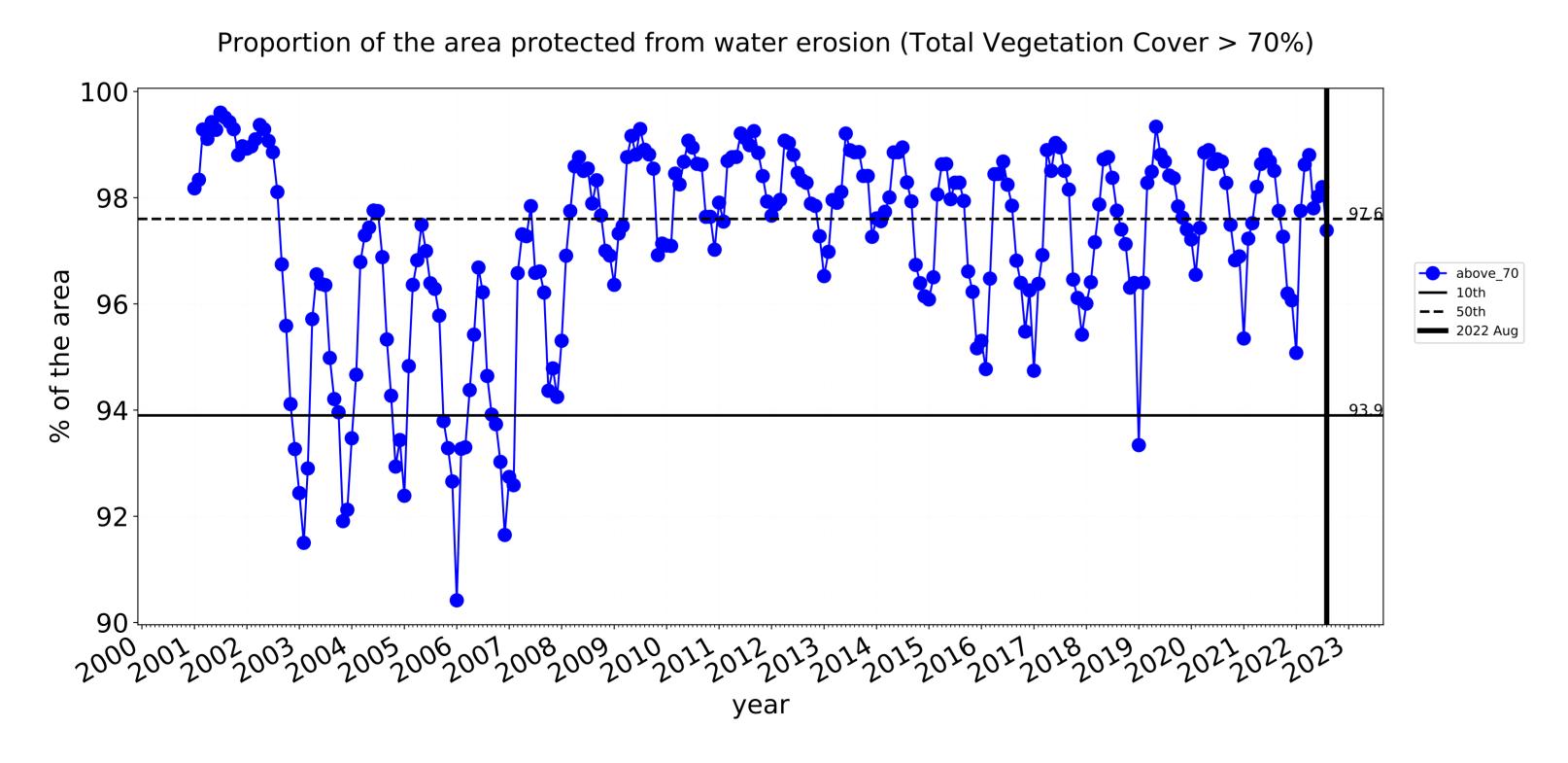
#### **Conservation and natural environments Woodland forest timeseries**

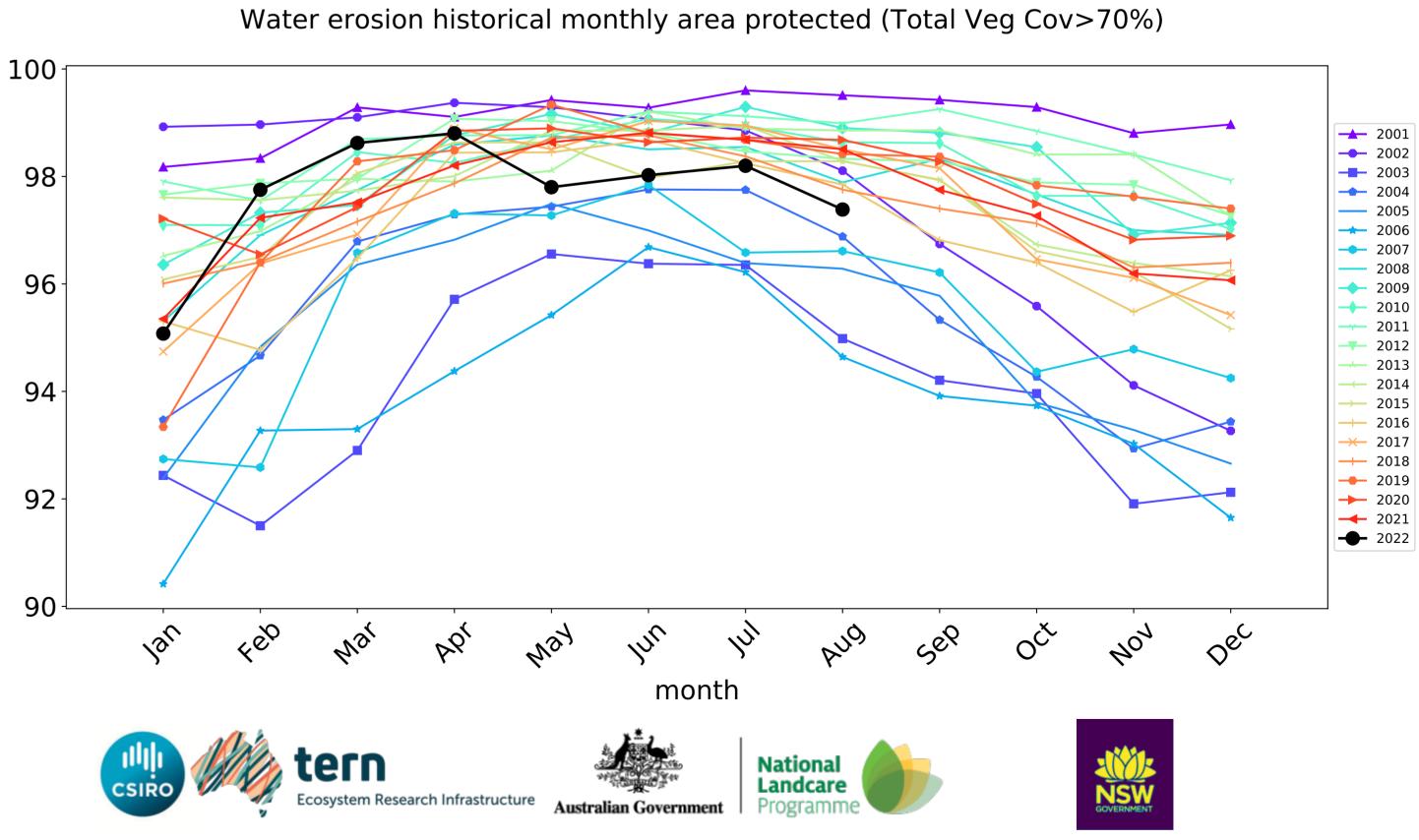




month

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



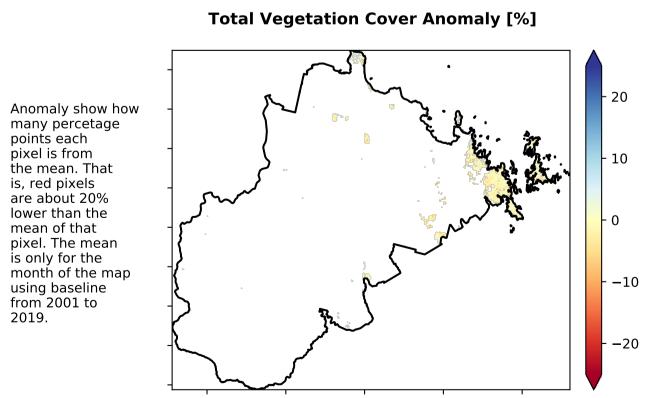


#### **Conservation and natural environments Forest (non woodland)**

### Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments - Non-Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

# **Total Vegetation Cover [%]**

### % Area protected from water erosion (>70%) Area not protected 3.4% of region (2,889 ha) Area



### Proportion of vegetation cover class in area 100 96.6% 80 40 20 2.5% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class** % Area protected from wind erosion (>50%) Area not protected 1.0% of region (849 ha) Area protected 99.0% of region (84,125 ha) **Total Vegetation Cover Decile [%]** 8,59 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.





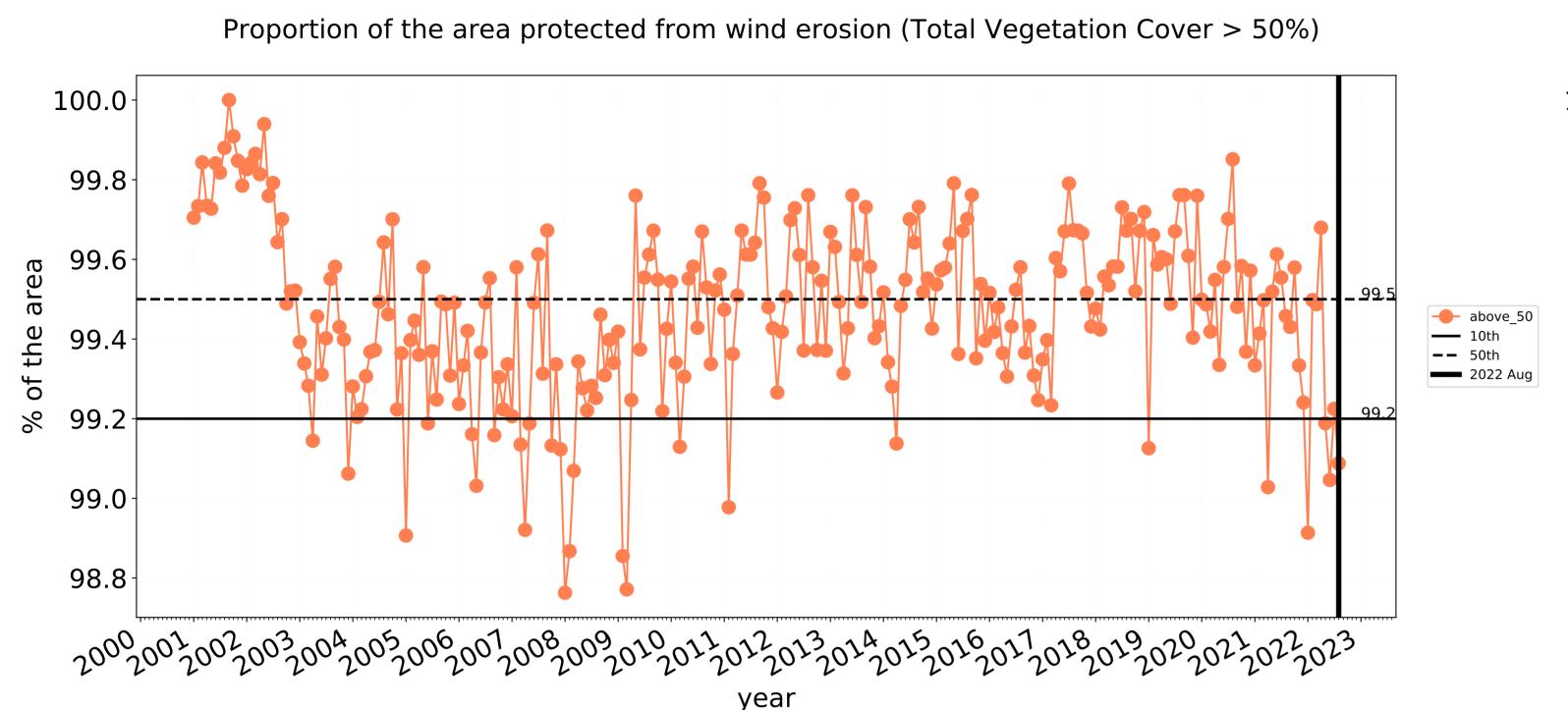
the map using baseline from 2001 to 2019.

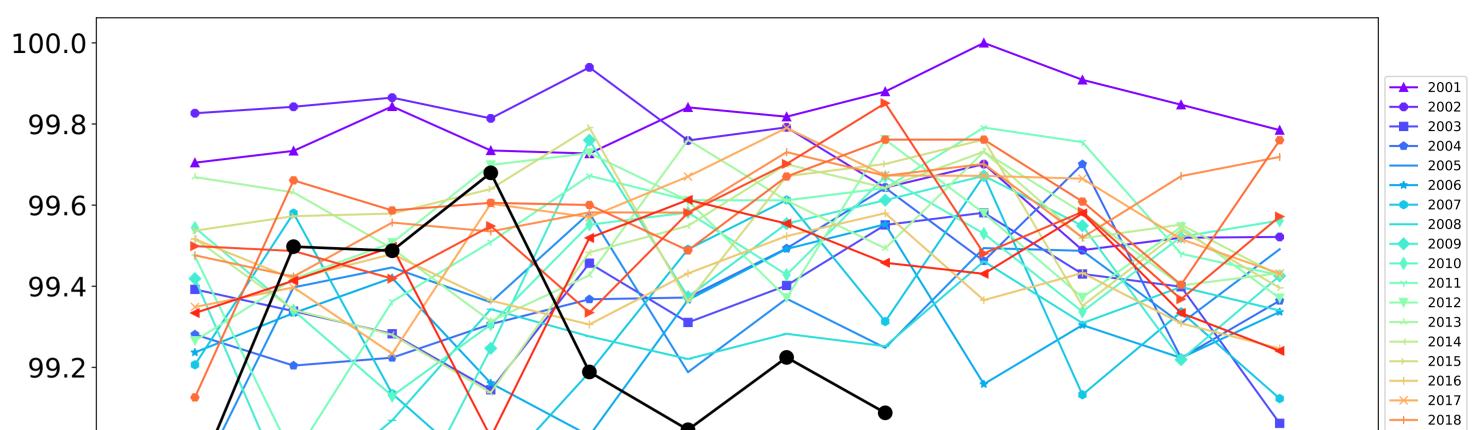




protected 96.6% of

region (82,085 ha)





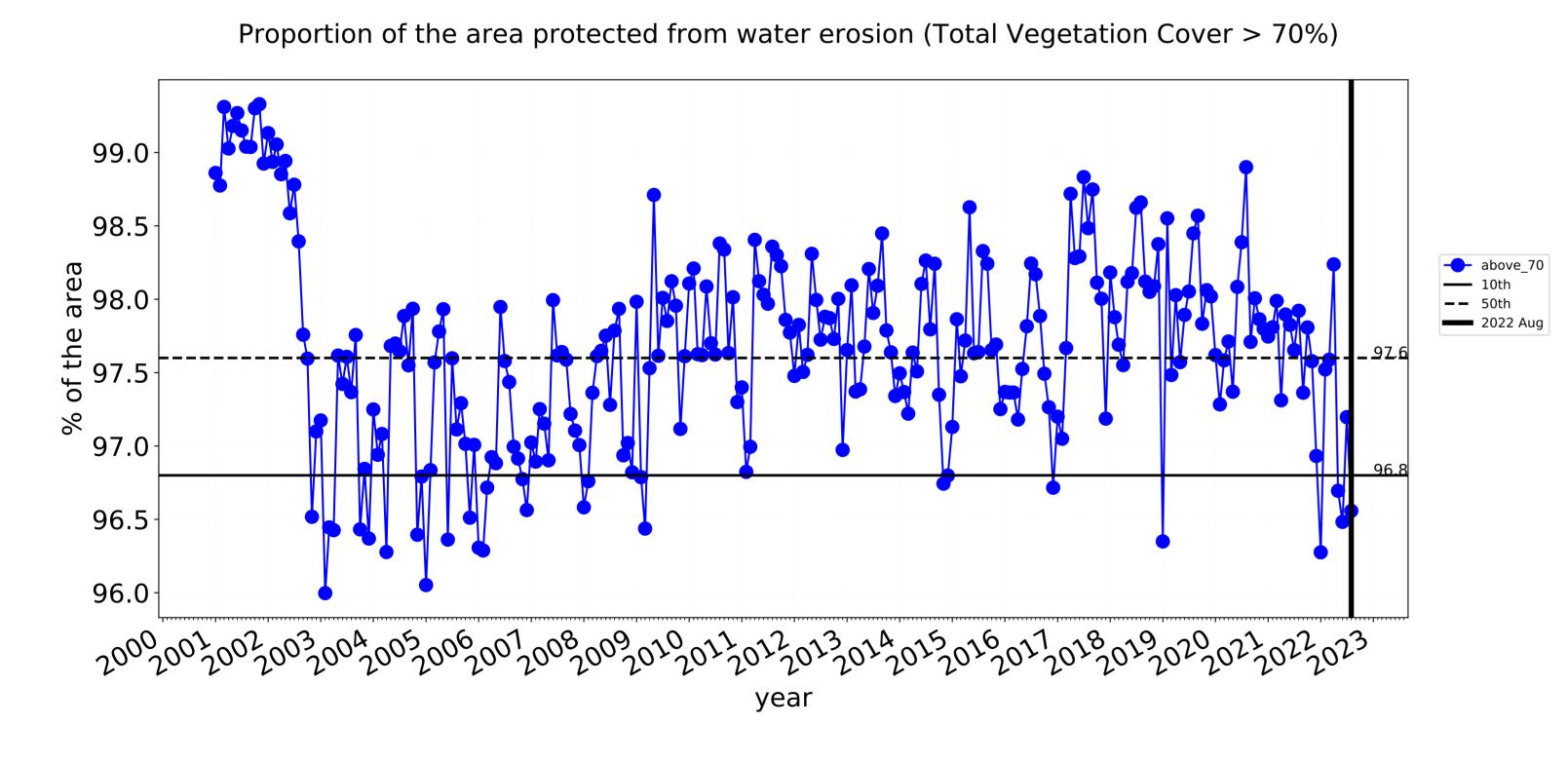
month

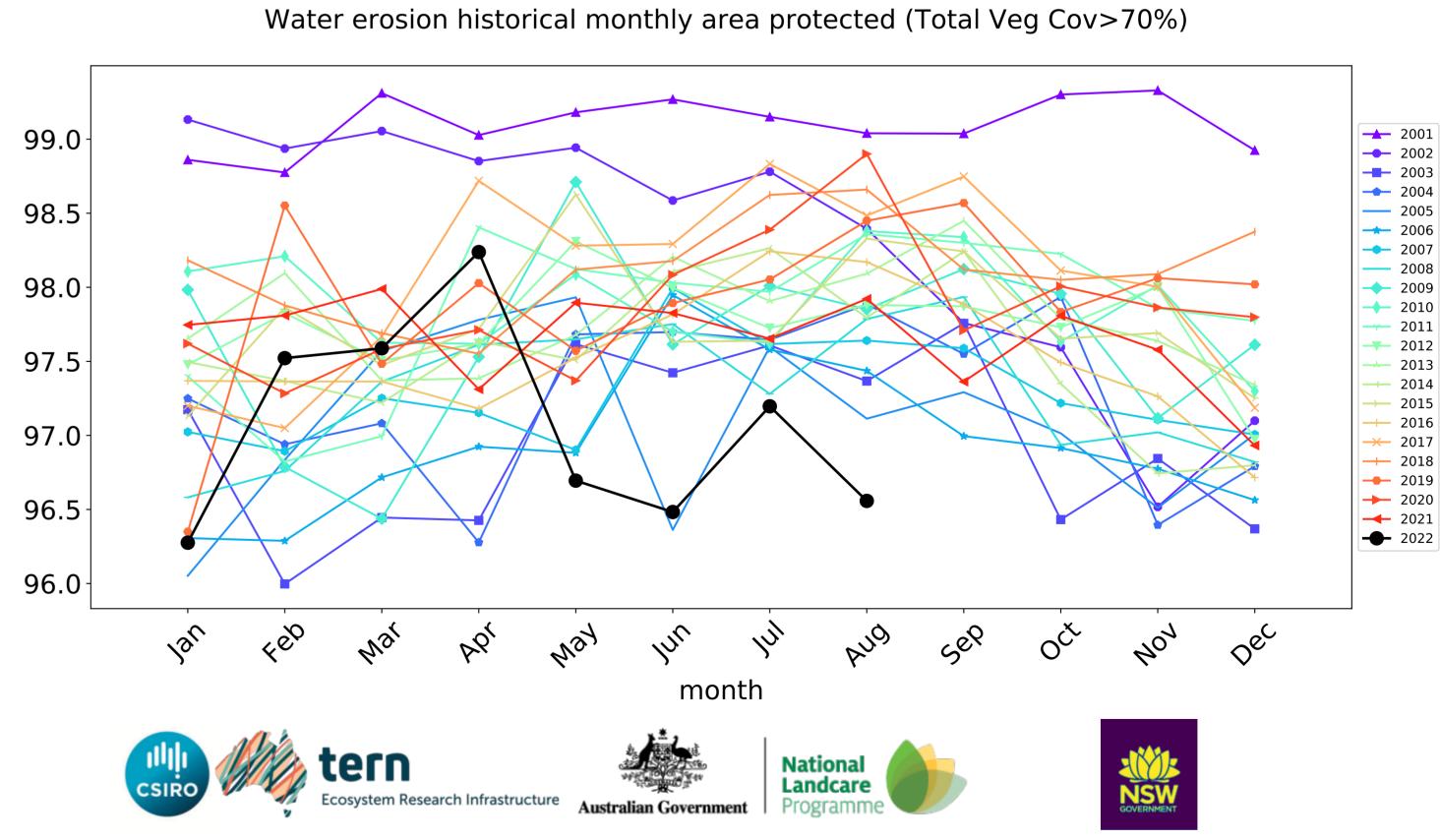
99.0

98.8

2020 2021 2022

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





#### **Agriculture**

#### Land use and forest cover

Derived from

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

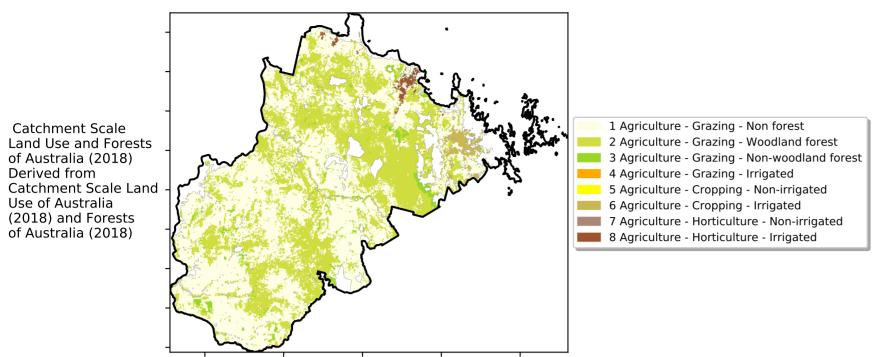
pixel. The mean

using baseline from 2001 to 2019.

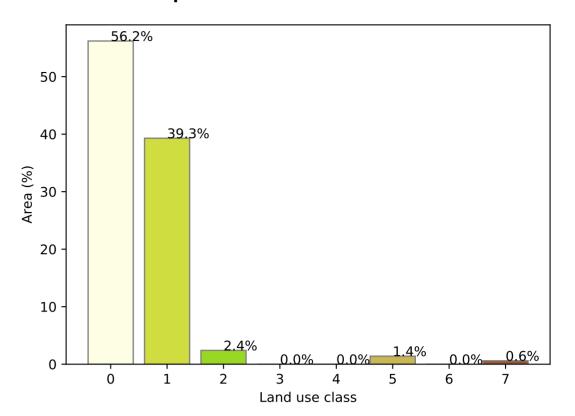
is only for the month of the map

Use of Australia

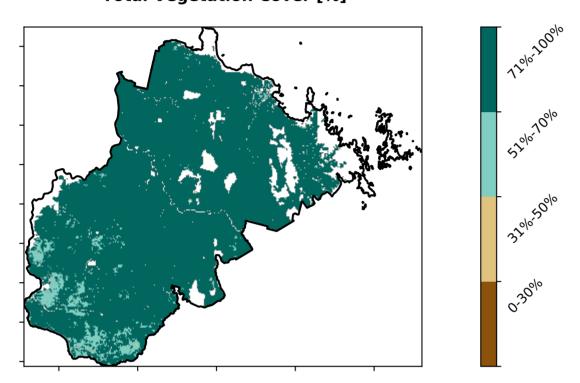
(2018) and Forests of Australia (2018)



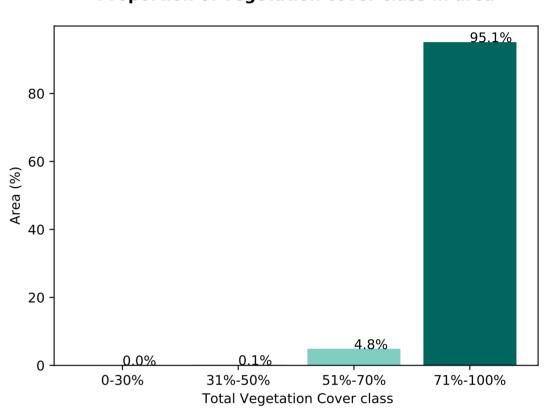
#### Proportion of each land class in area

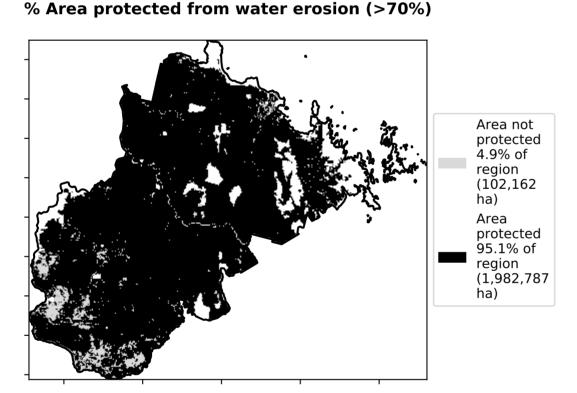


#### **Total Vegetation Cover [%]**

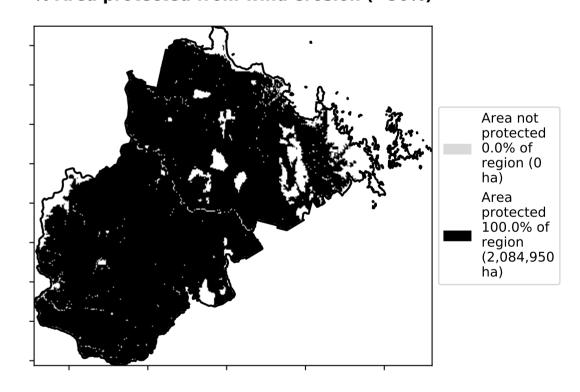


Proportion of vegetation cover class in area

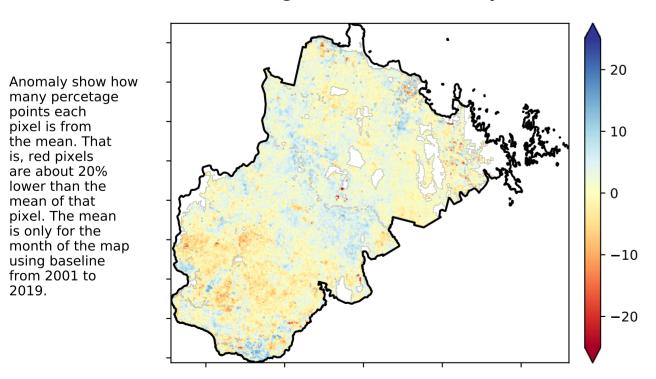




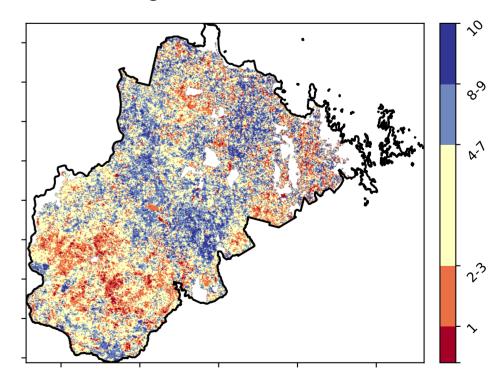
% Area protected from wind erosion (>50%)



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



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



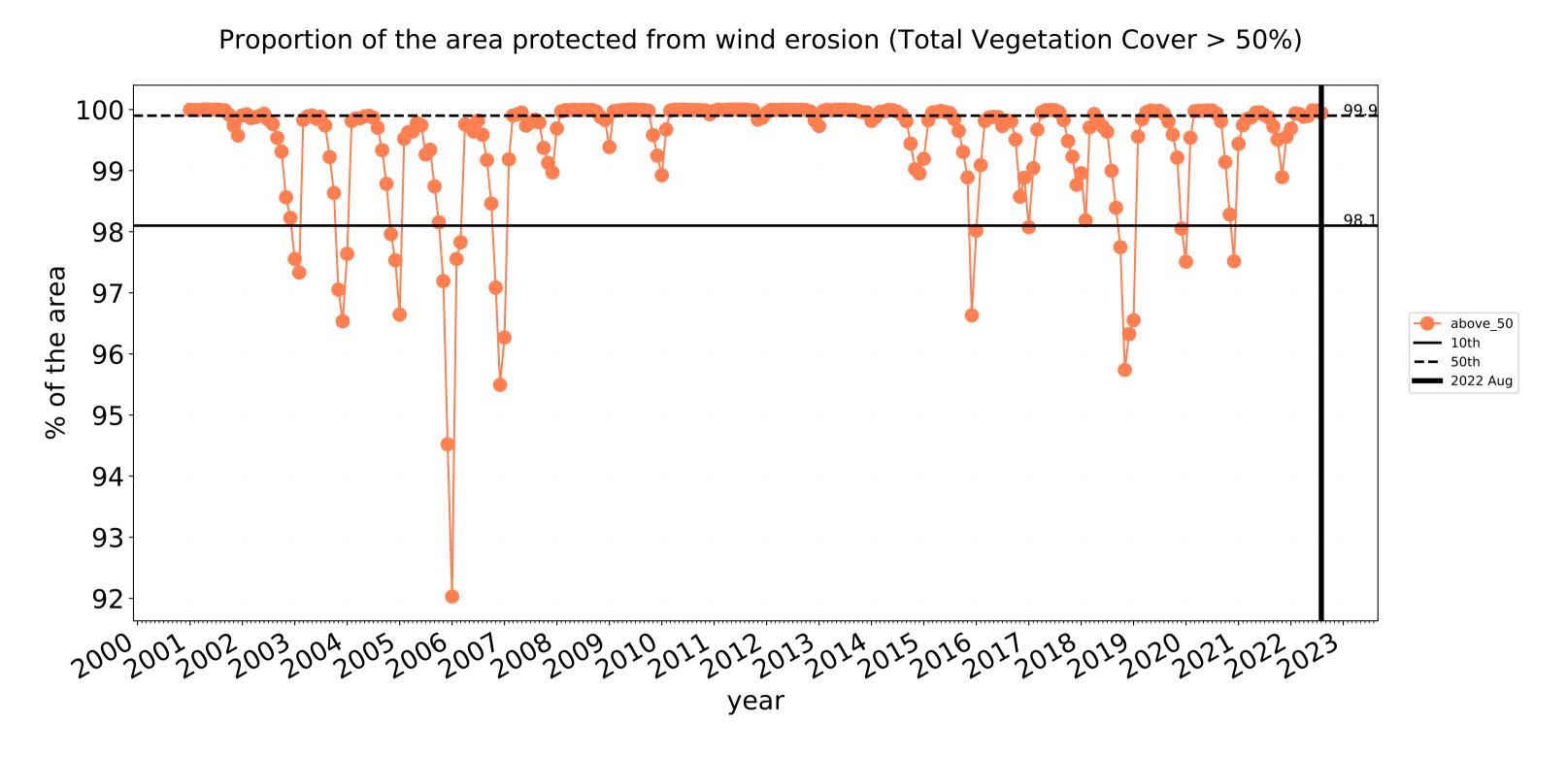


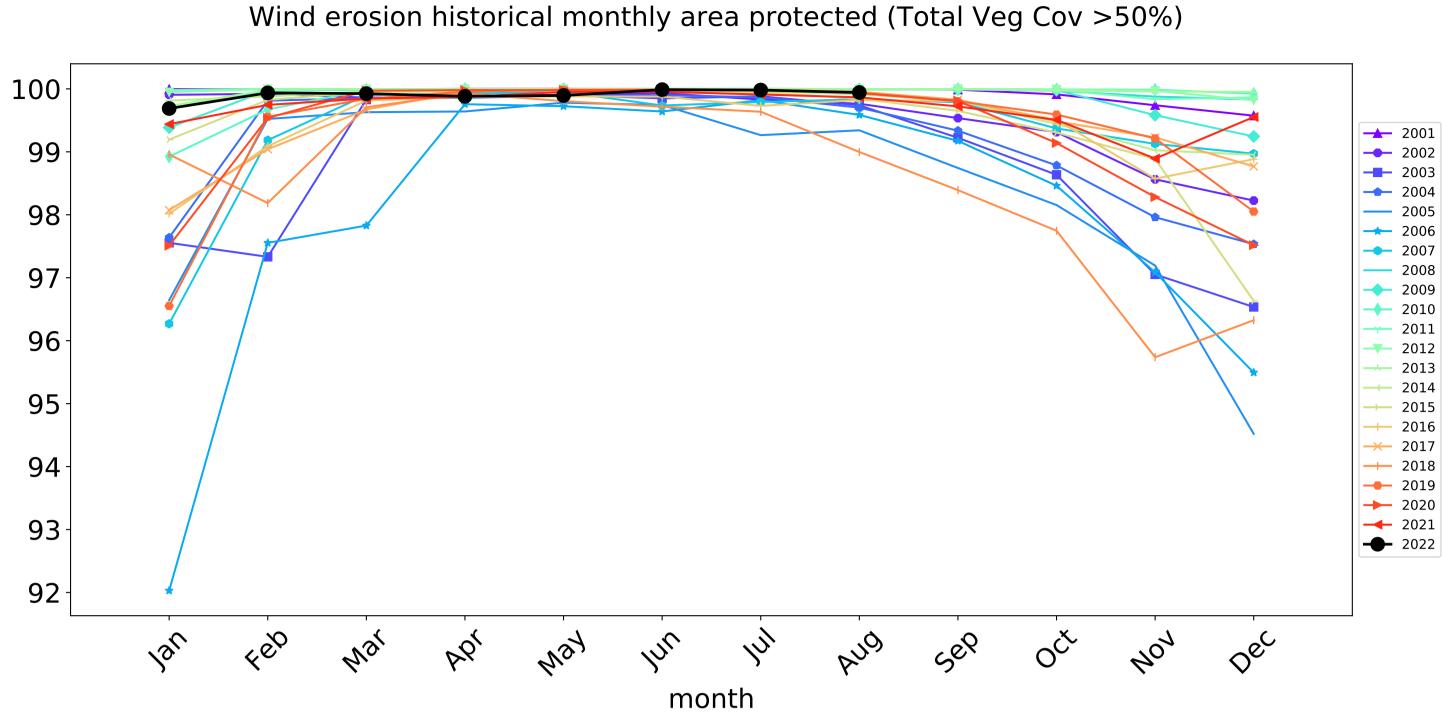


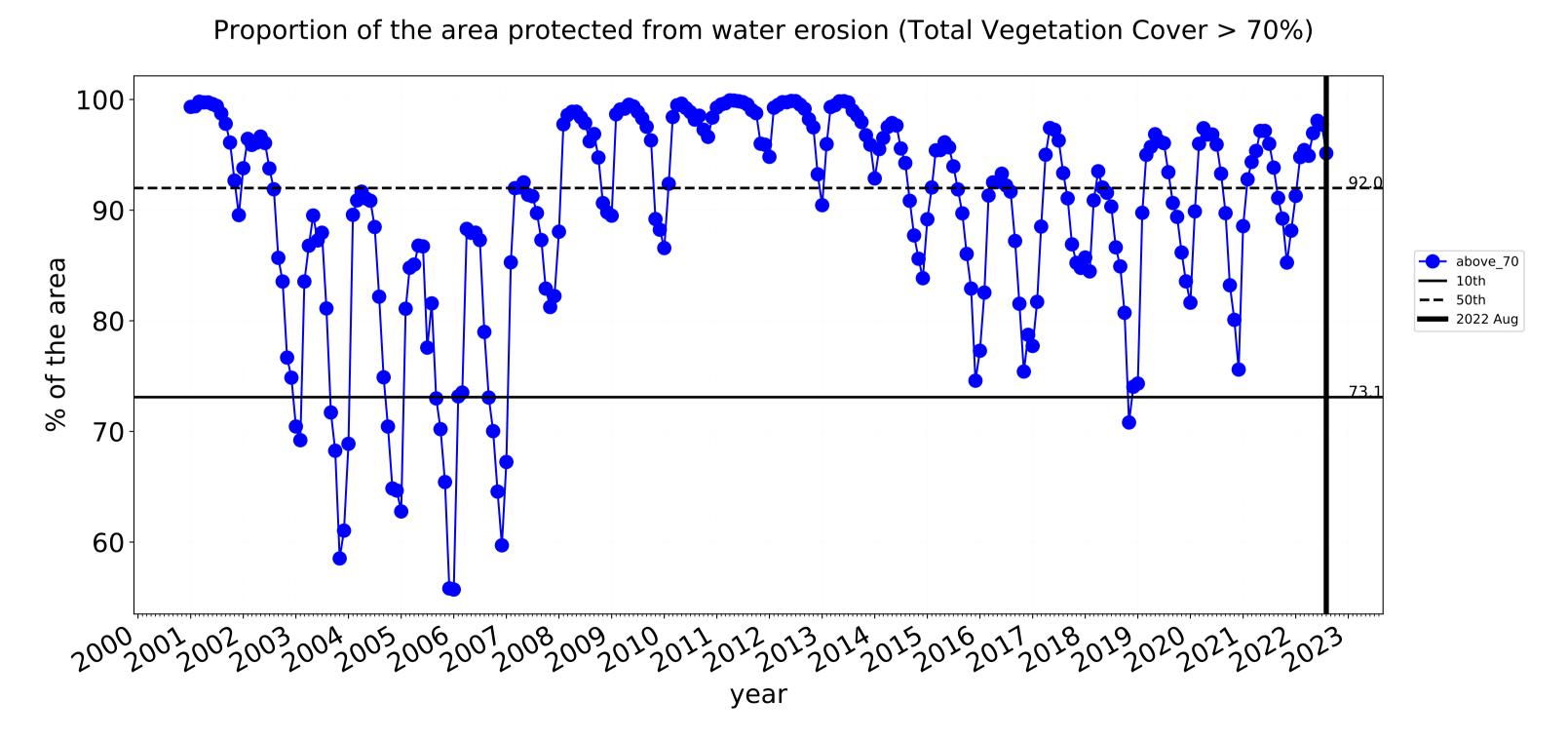


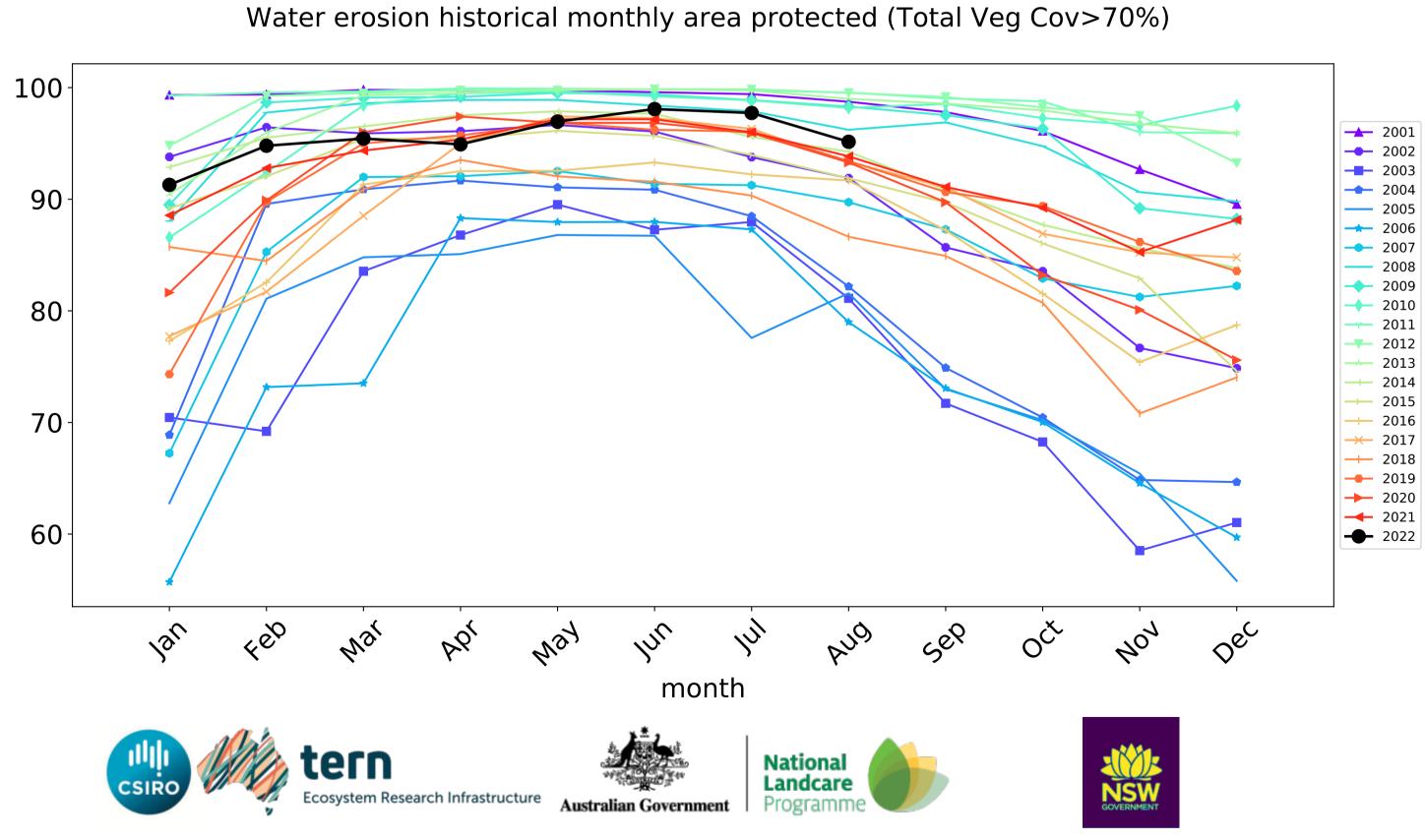


#### **Agriculture timeseries**







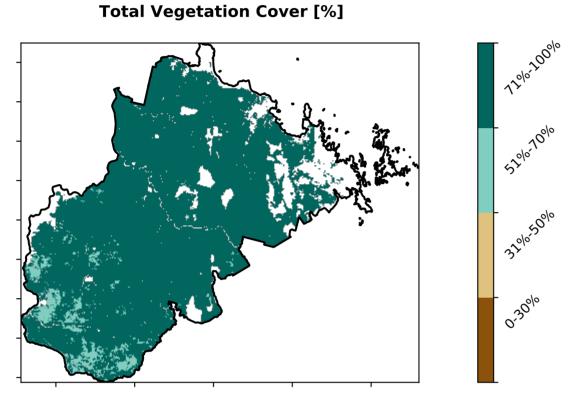


#### **Grazing**

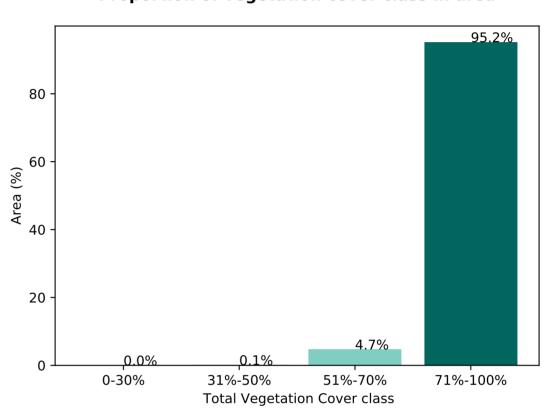
### Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest Use of Australia (2018) and Forests of Australia (2018)

#### 60 -57.4% 50 40.1% 40 Area (%) 20 10 0.5 1.0 -0.5 1.5 0.0 2.0 2.5 Land use class

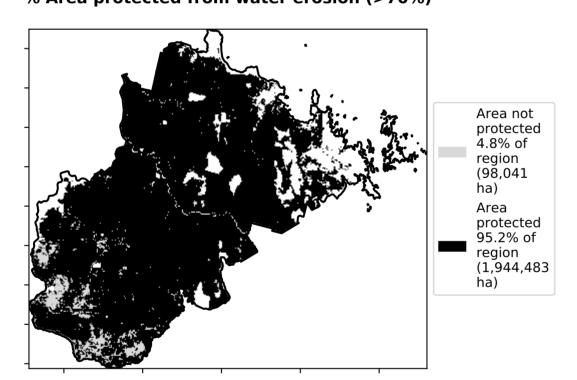
Proportion of each land class in area



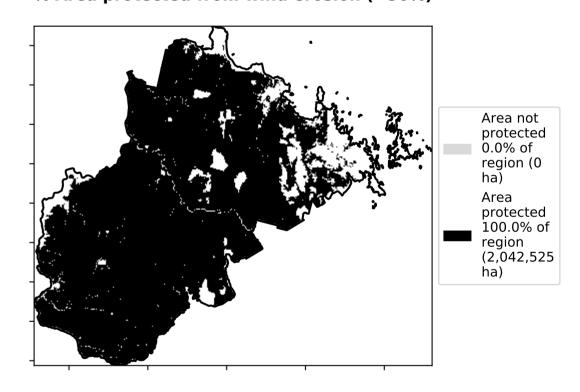
Proportion of vegetation cover class in area



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



% Area protected from wind erosion (>50%)

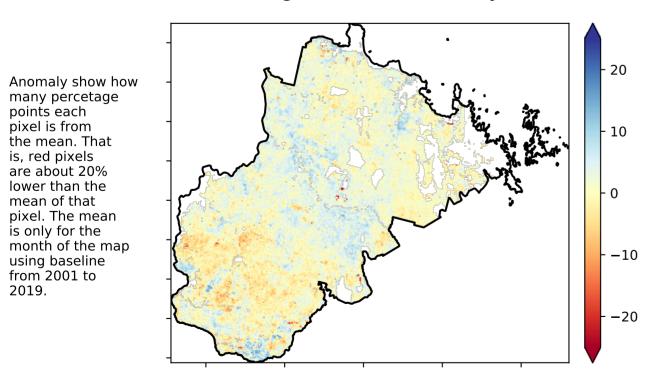


#### **Total Vegetation Cover Anomaly [%]**

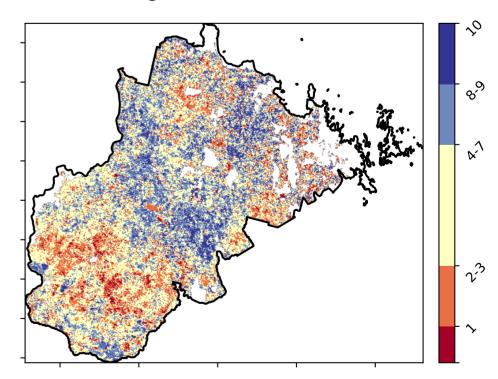
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is only for the month of the map

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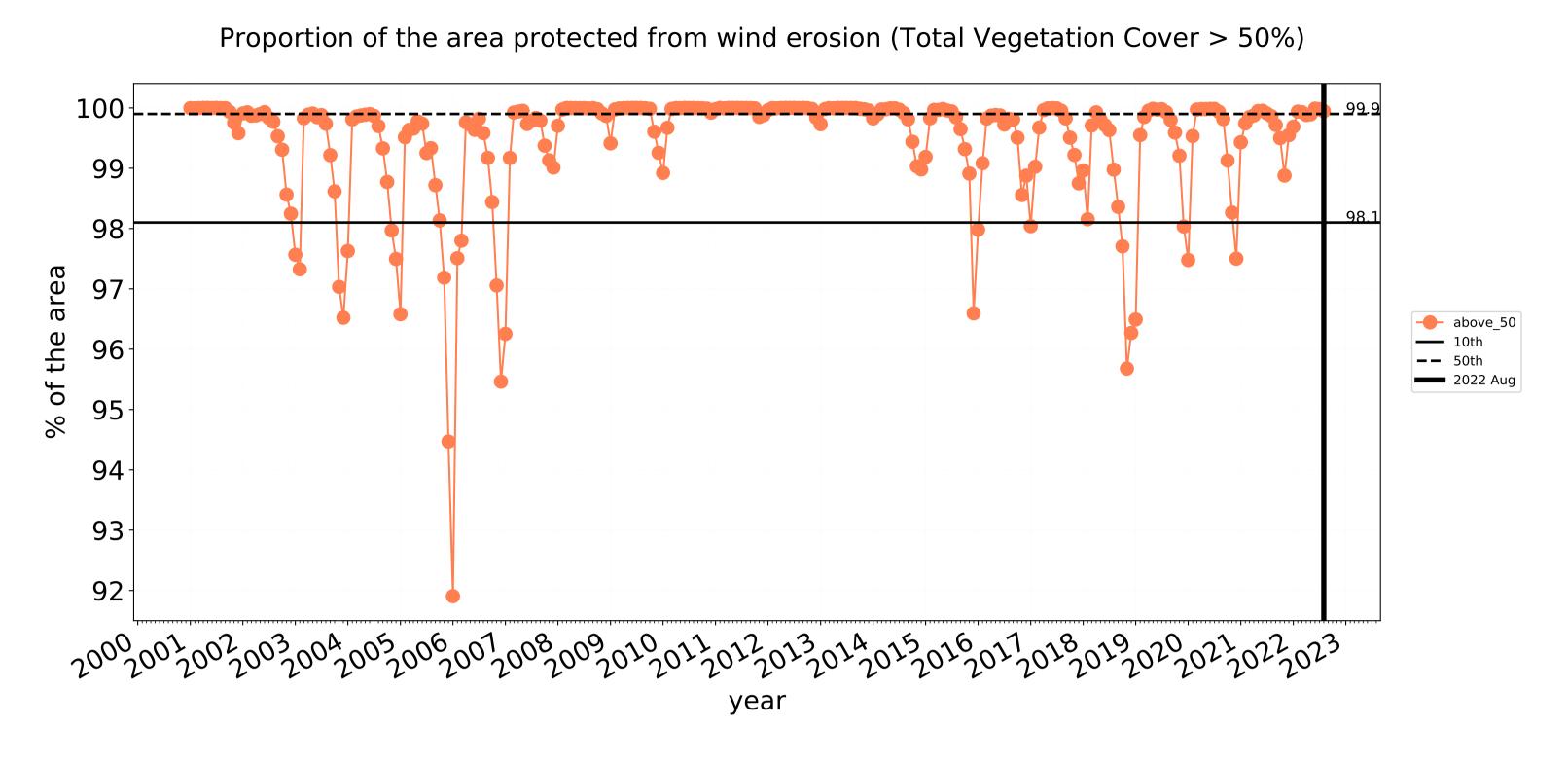


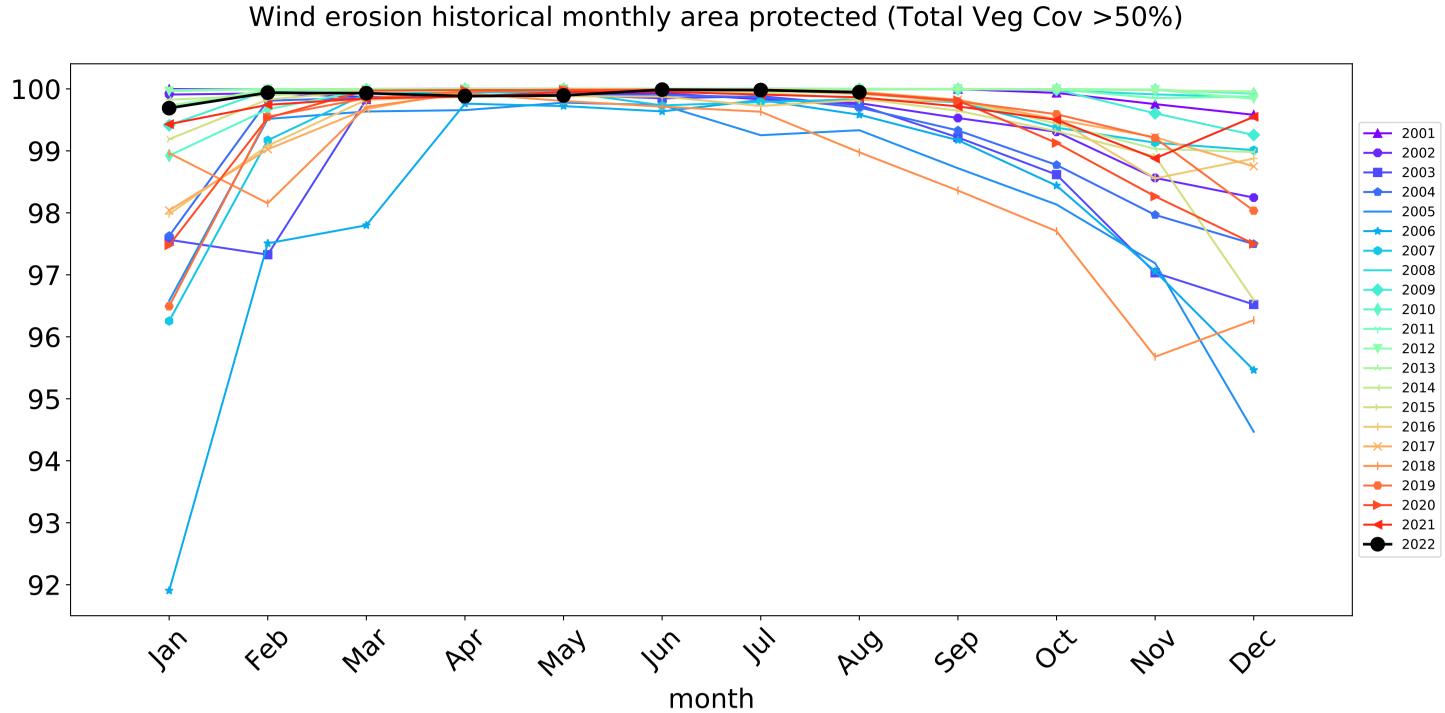


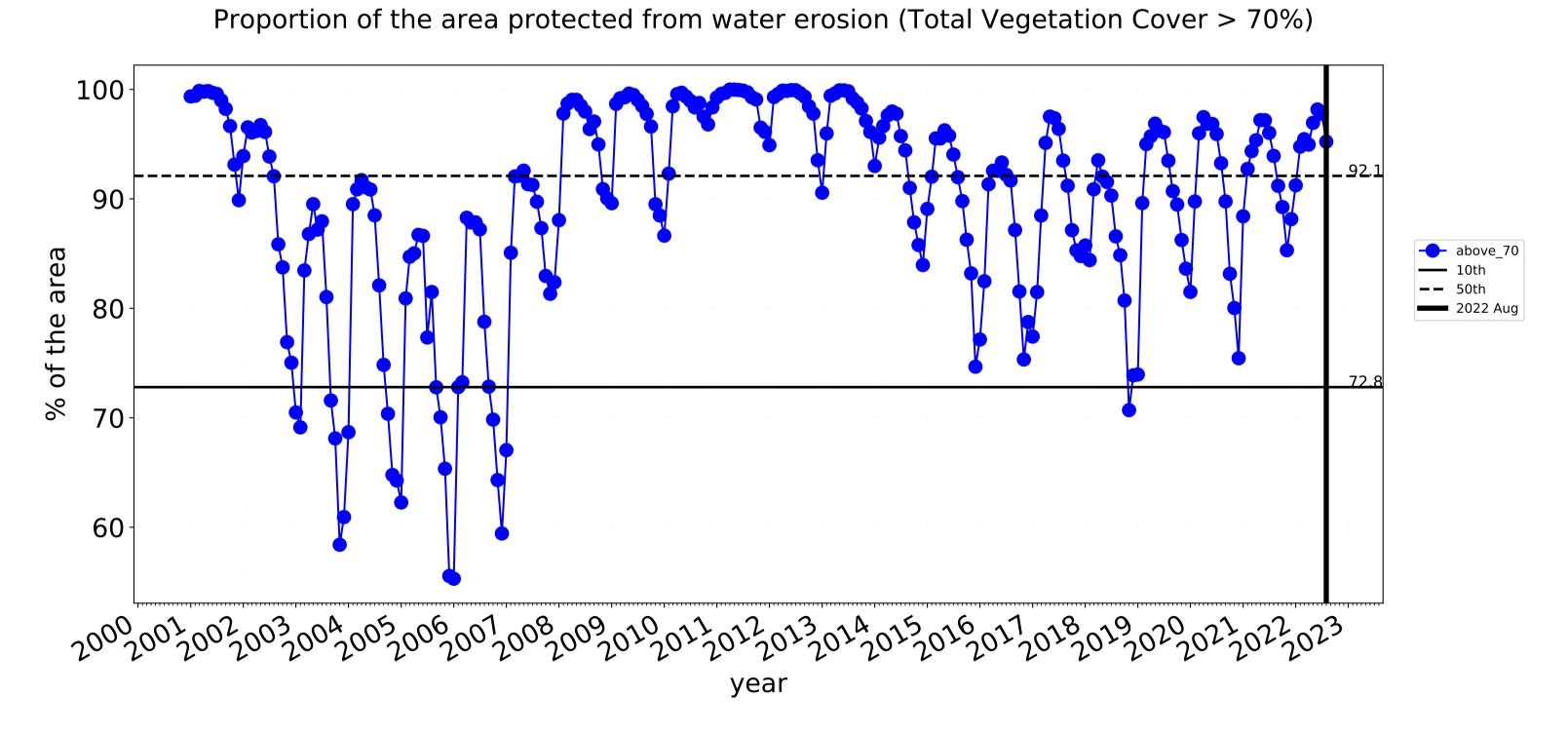


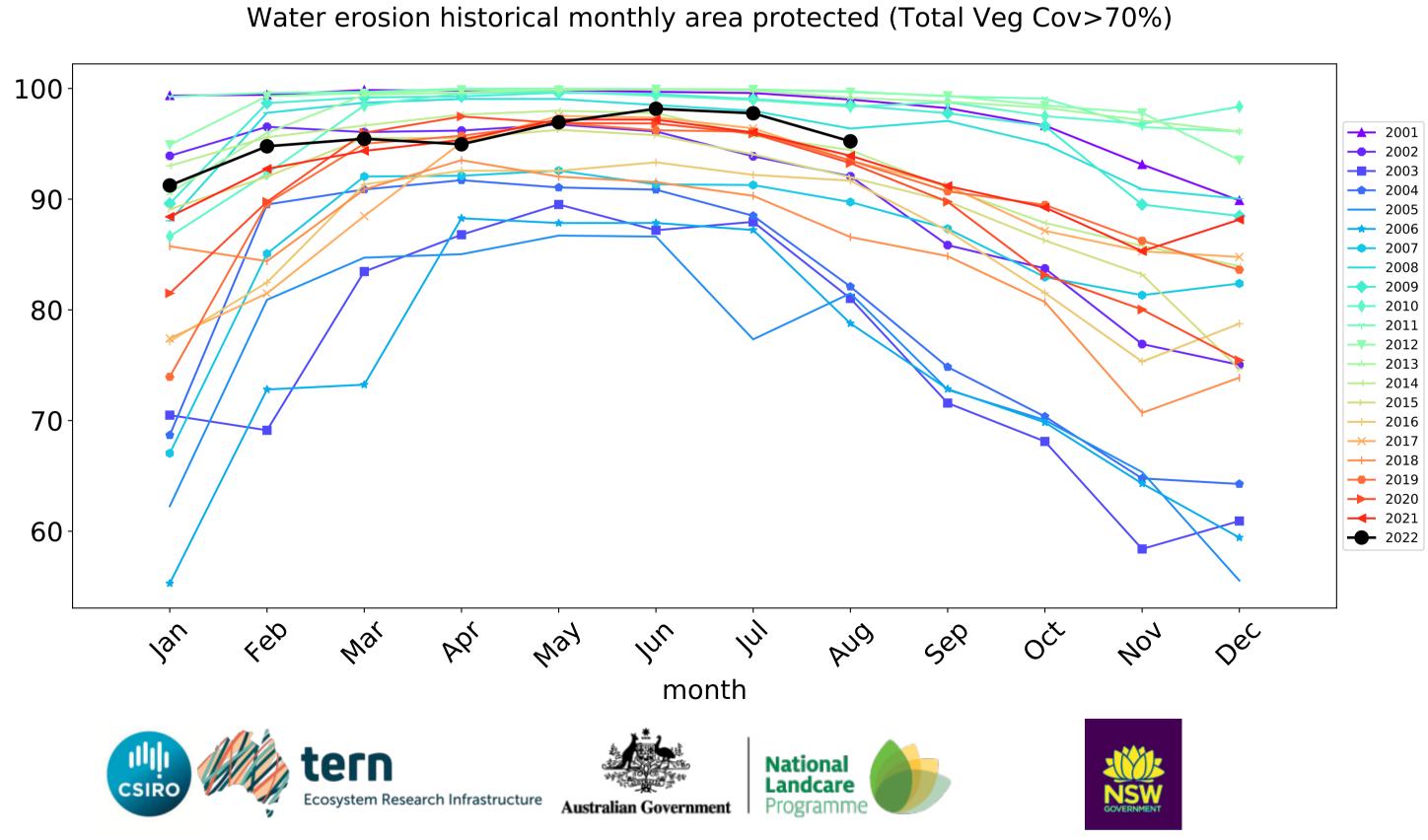


#### **Grazing timeseries**





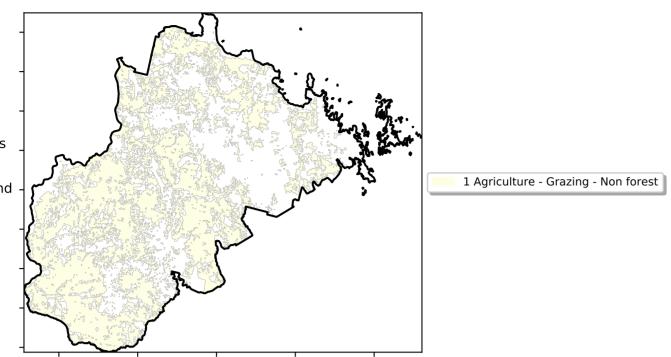




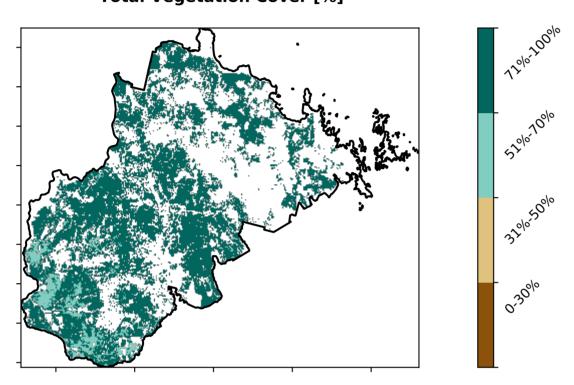
#### **Grazing non forest**

#### Land use and forest cover

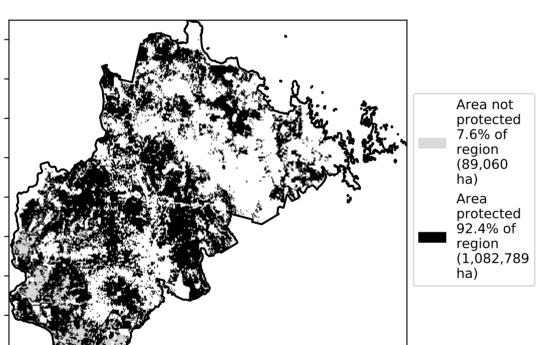
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



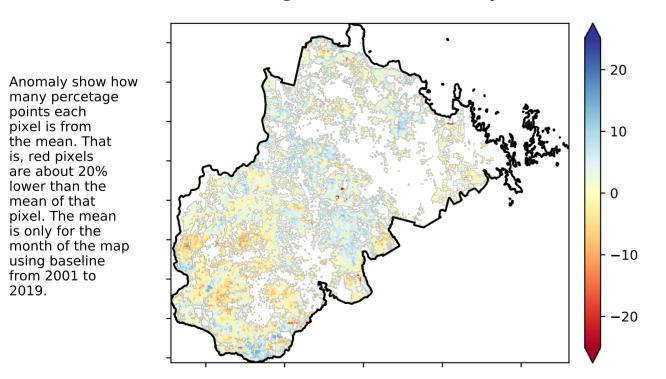
#### **Total Vegetation Cover [%]**



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

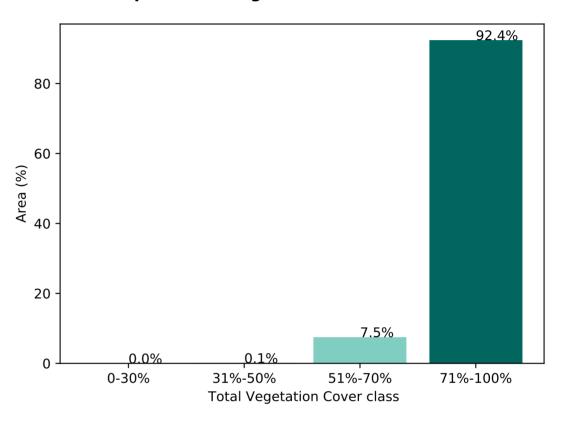


#### Total Vegetation Cover Anomaly [%]

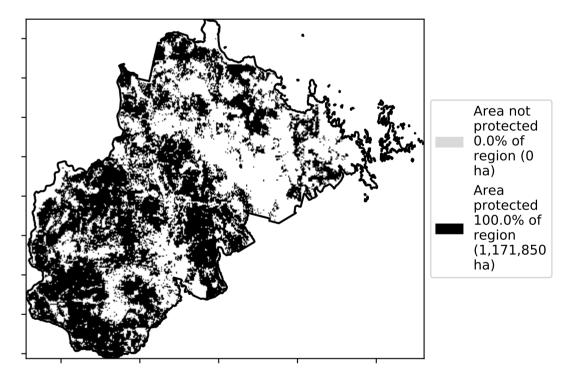


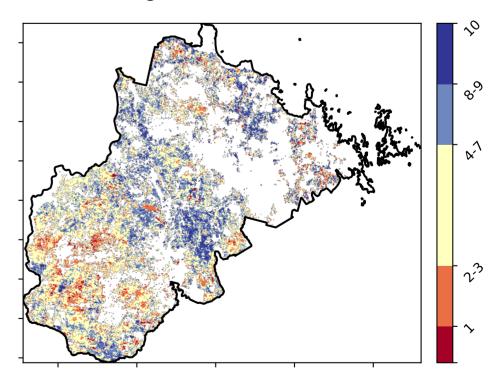
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



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





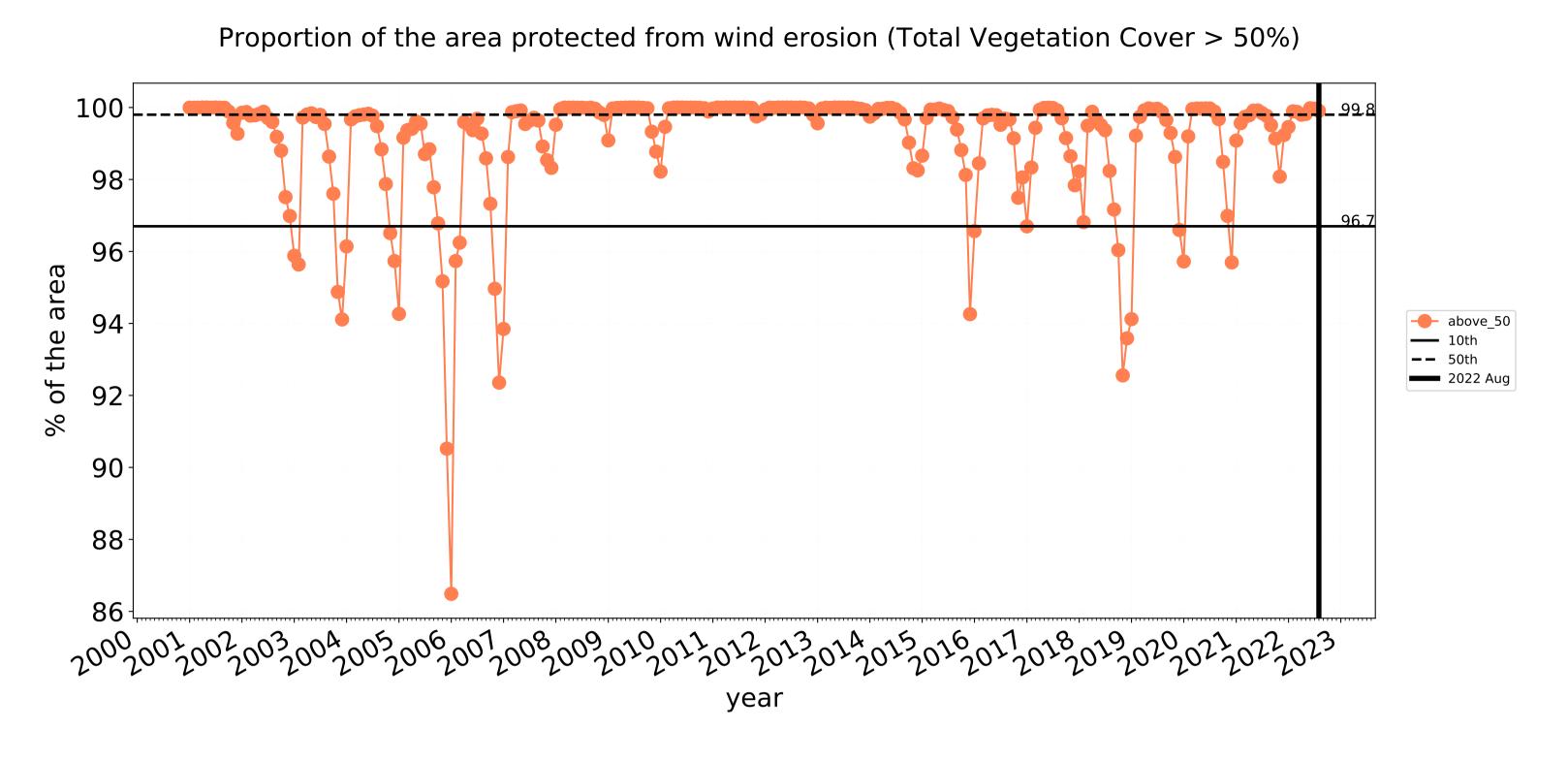


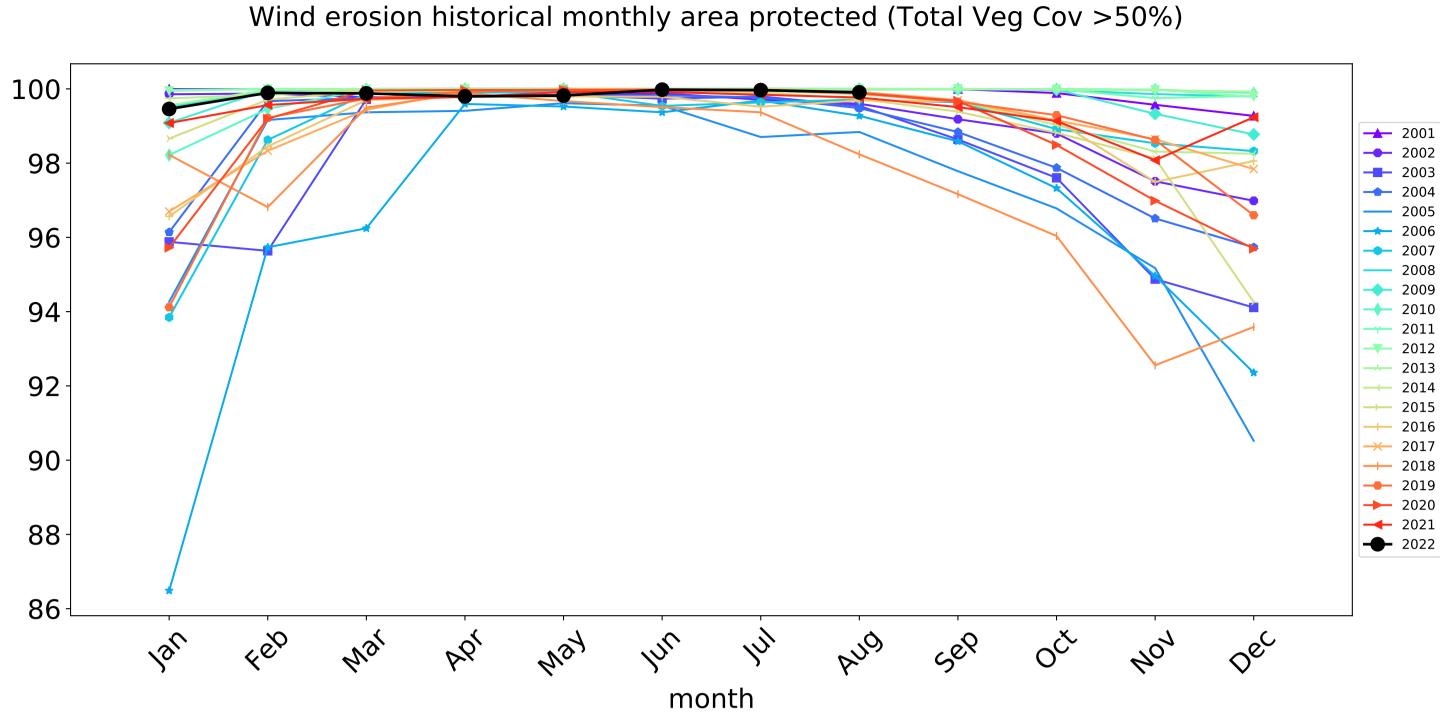


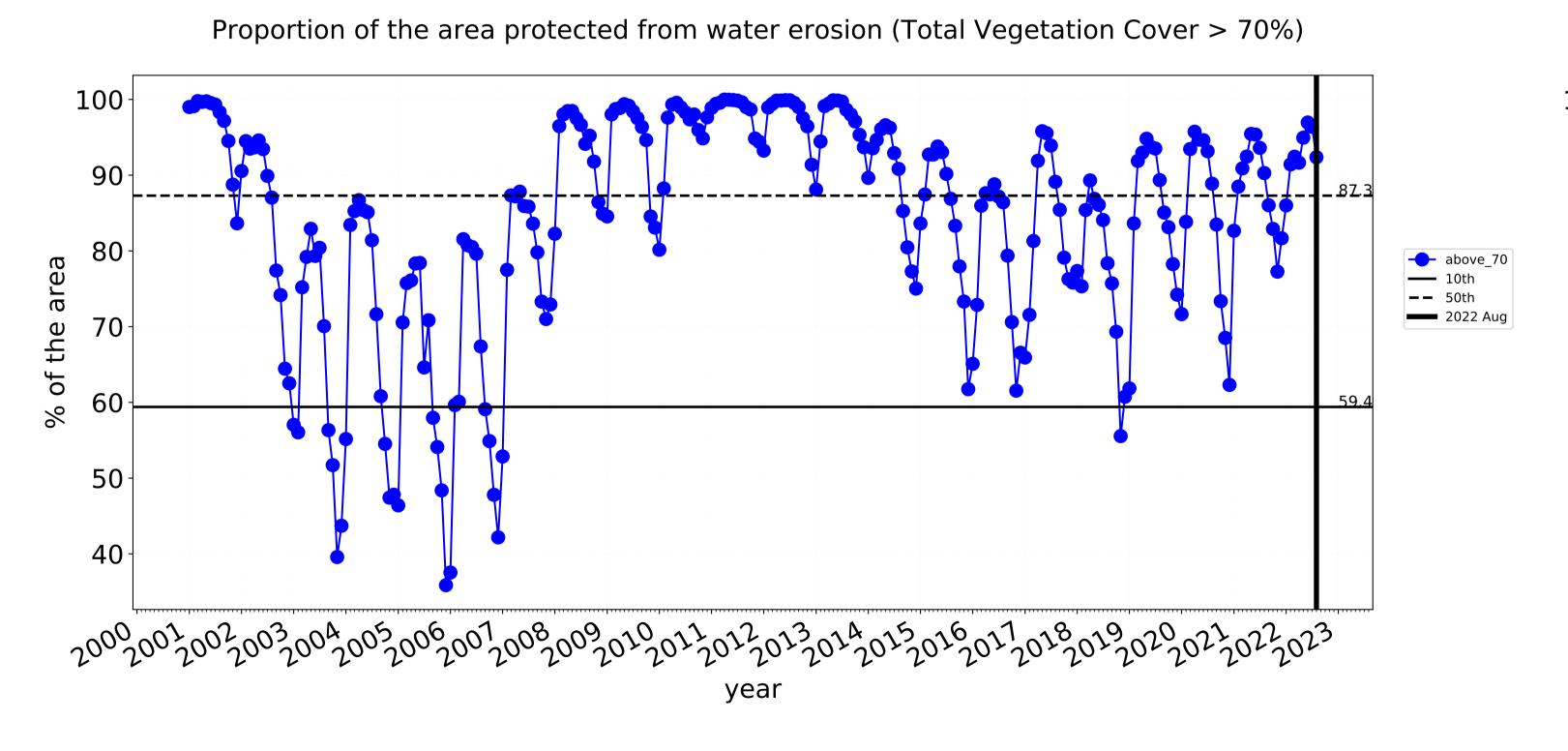


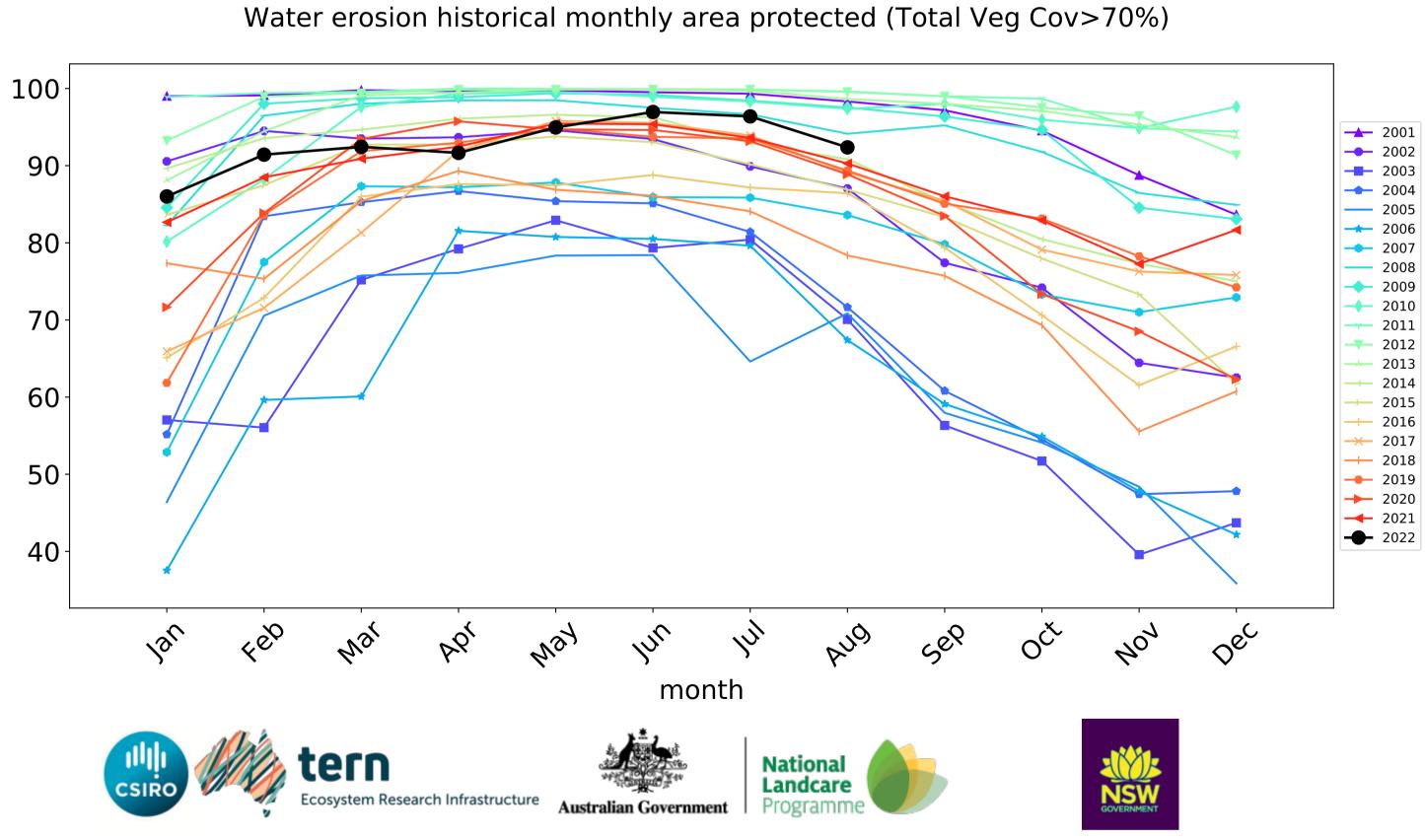


#### **Grazing non forest timeseries**





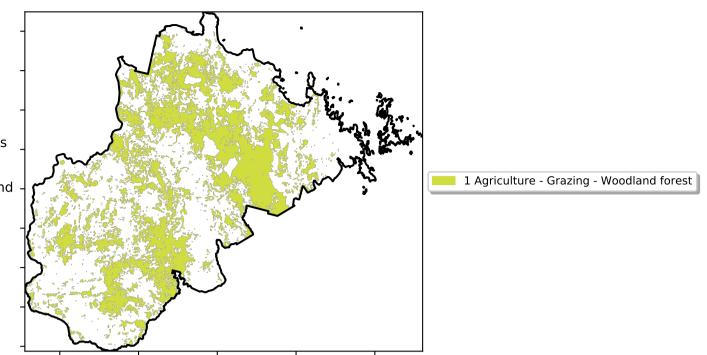




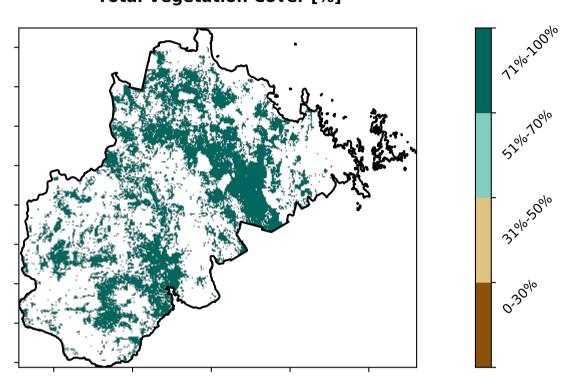
#### **Grazing Woodland forest**

#### Land use and forest cover

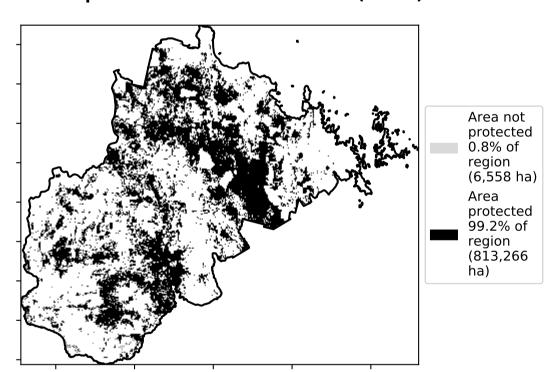




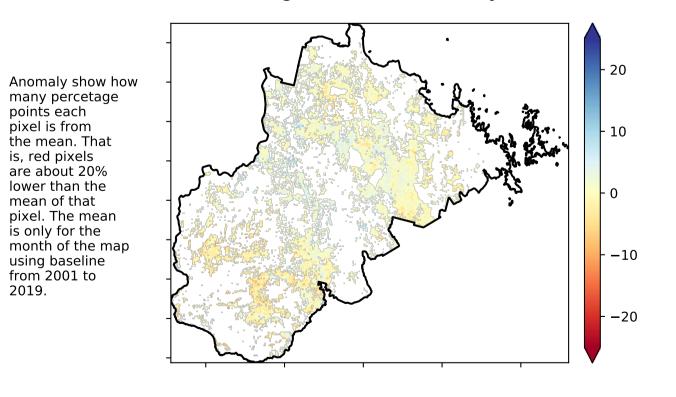
#### **Total Vegetation Cover [%]**



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

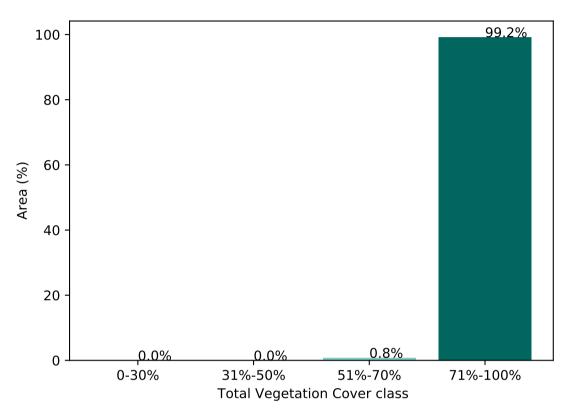


#### Total Vegetation Cover Anomaly [%]

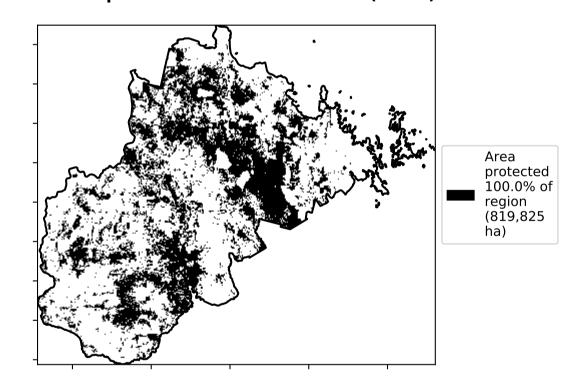


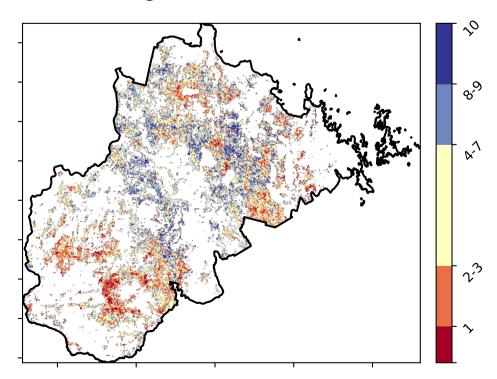
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



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





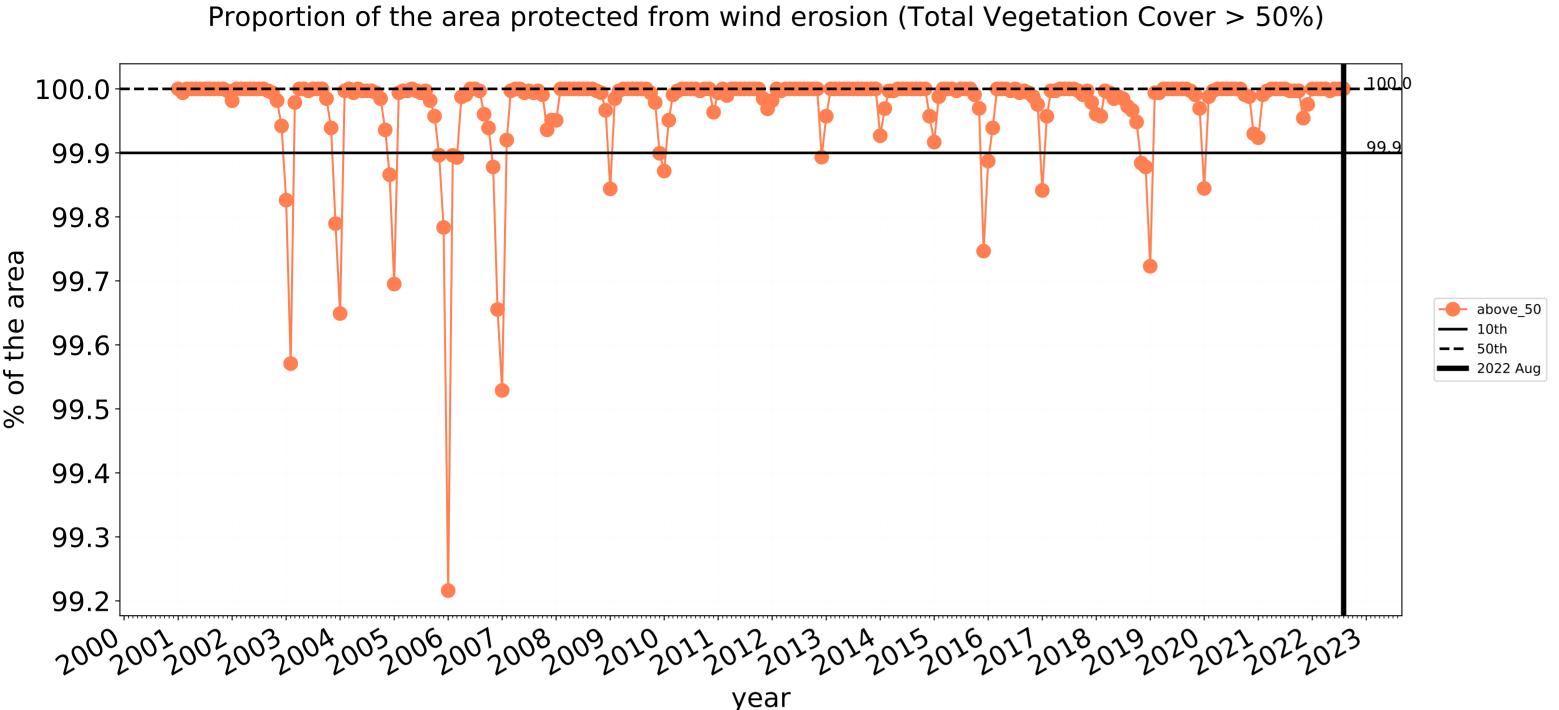


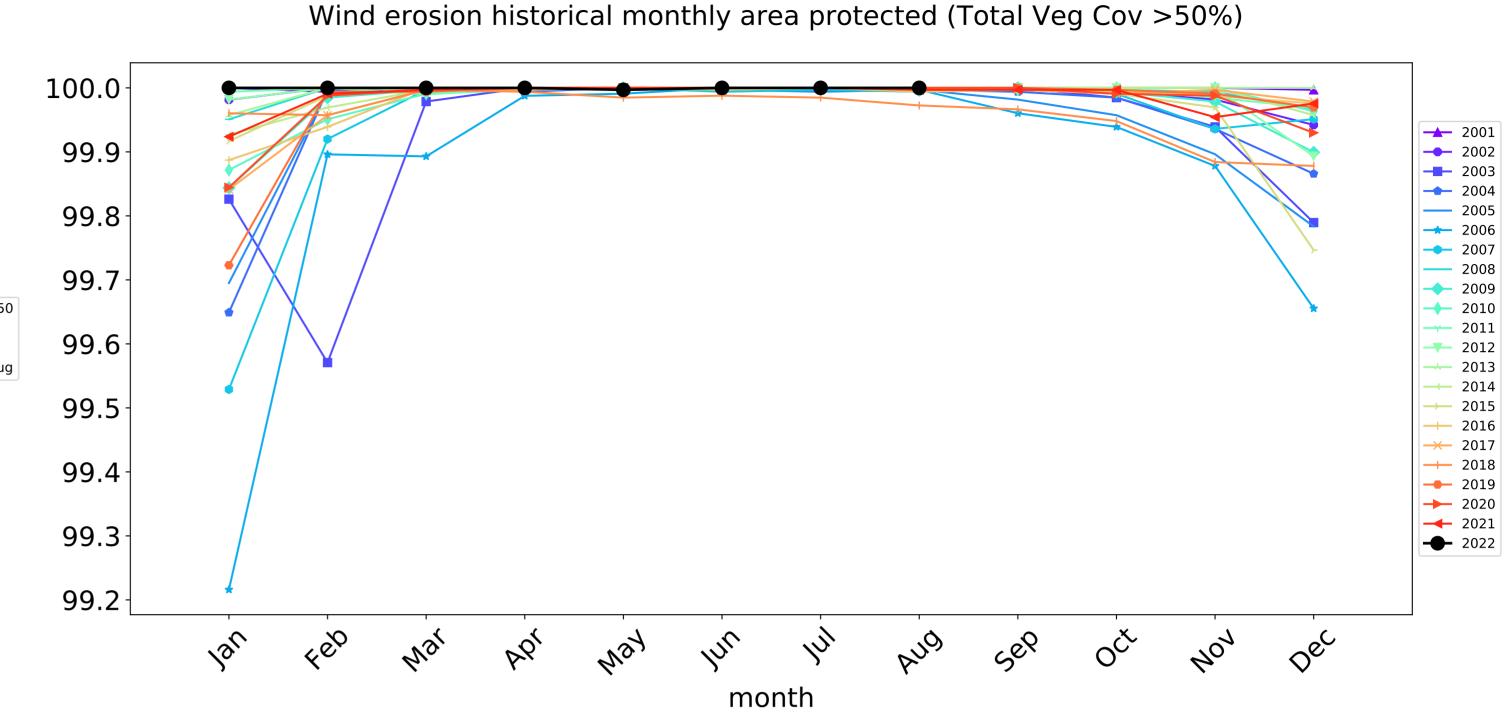


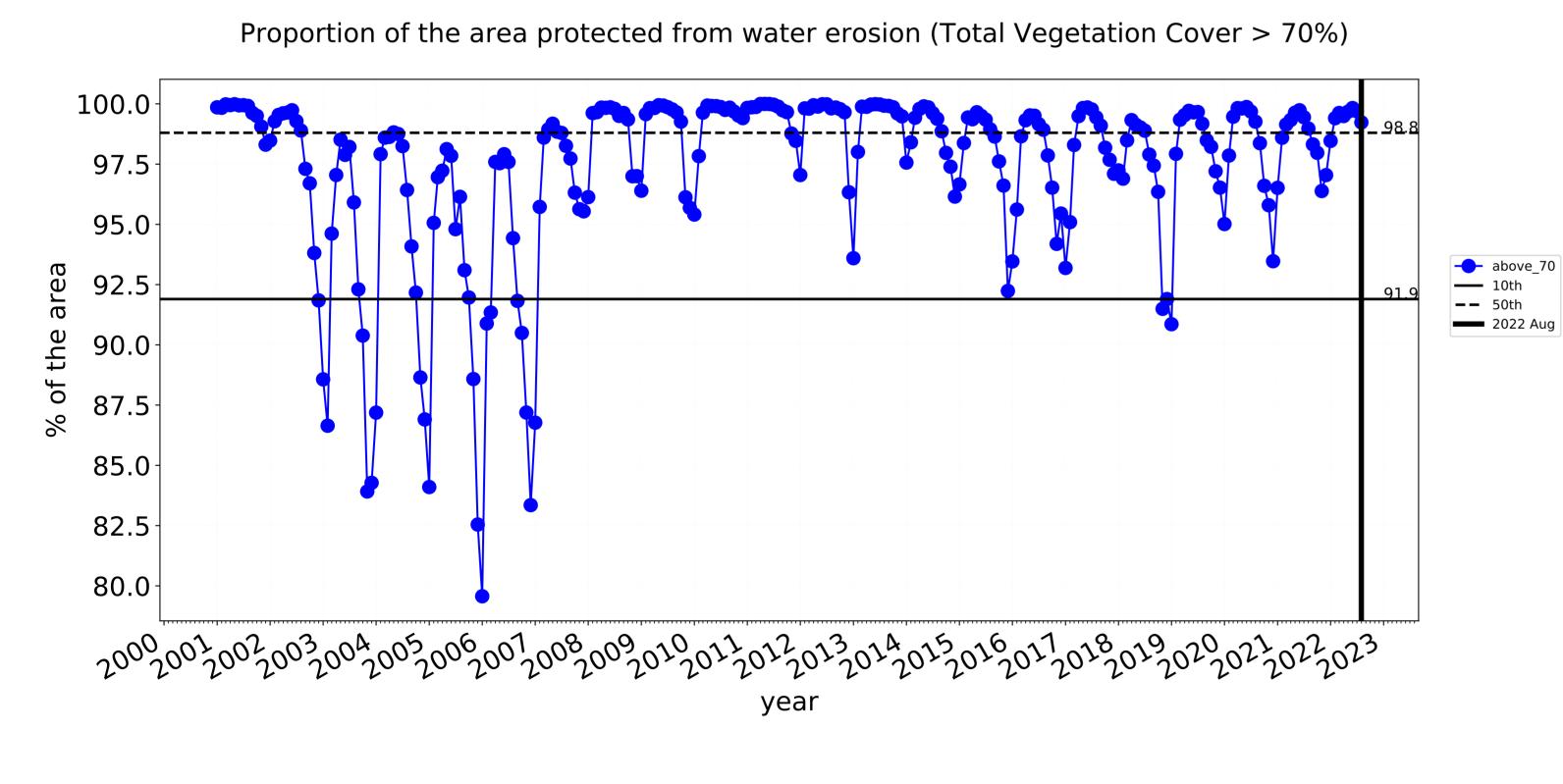


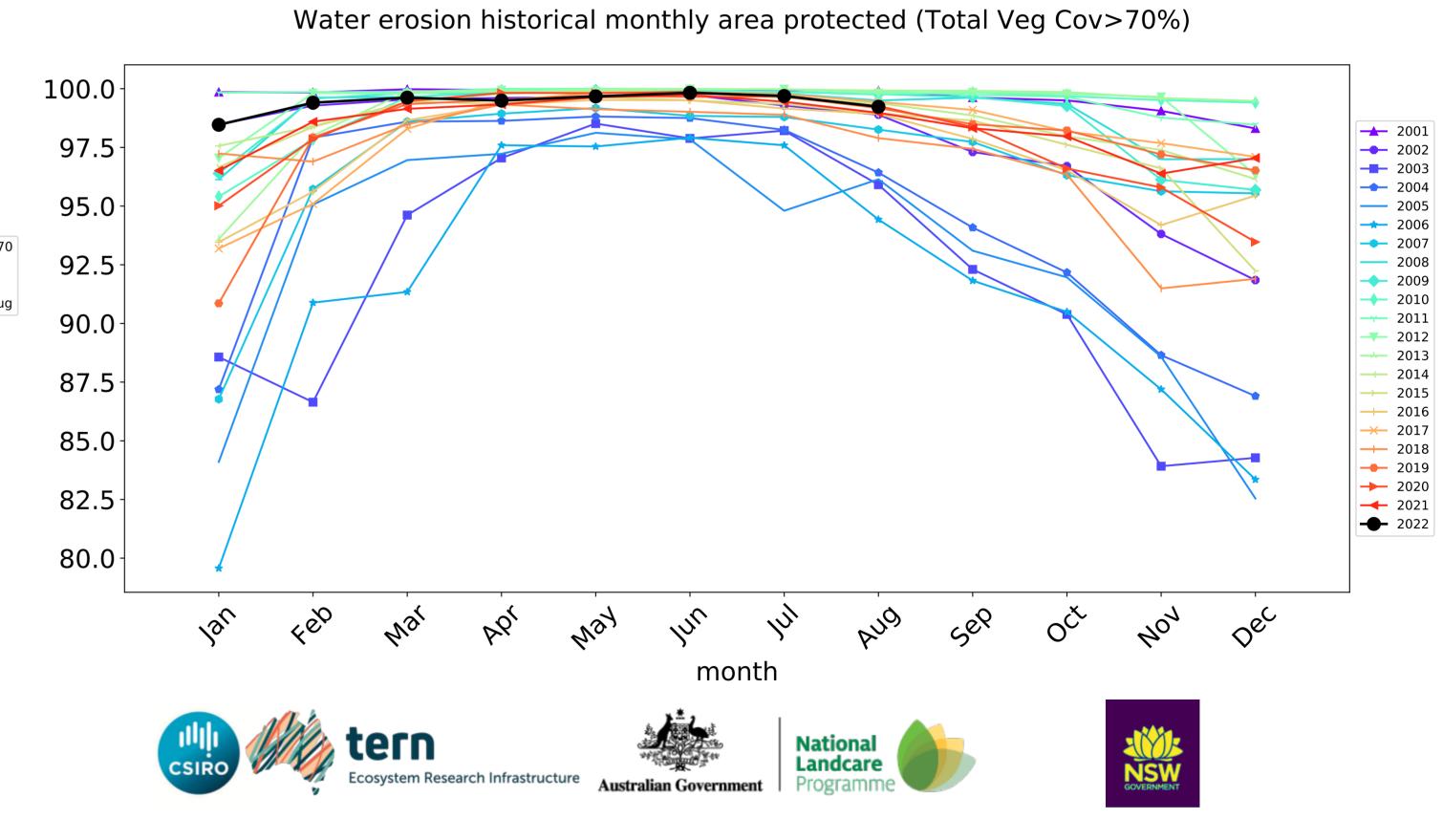


#### **Grazing Woodland forest timeseries**







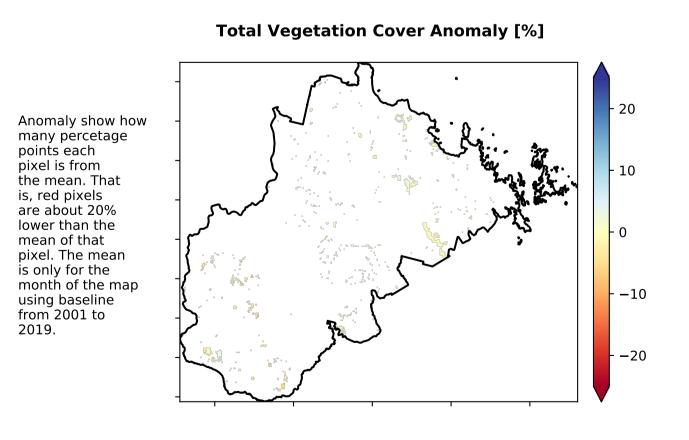


#### **Grazing - Forest (non woodland)**

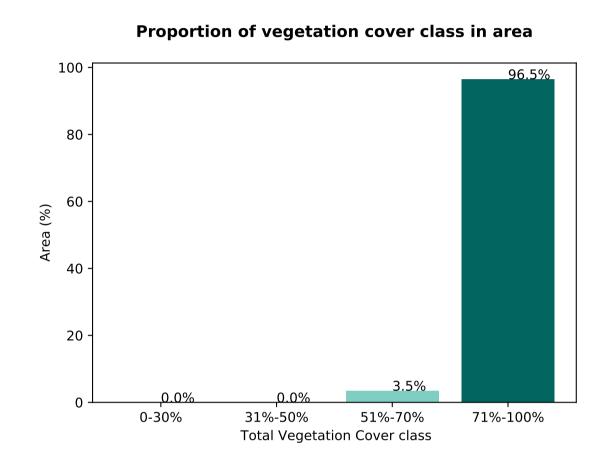
# Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

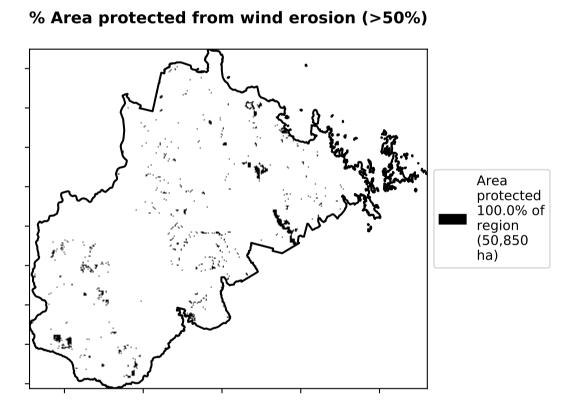
# Total Vegetation Cover [%]

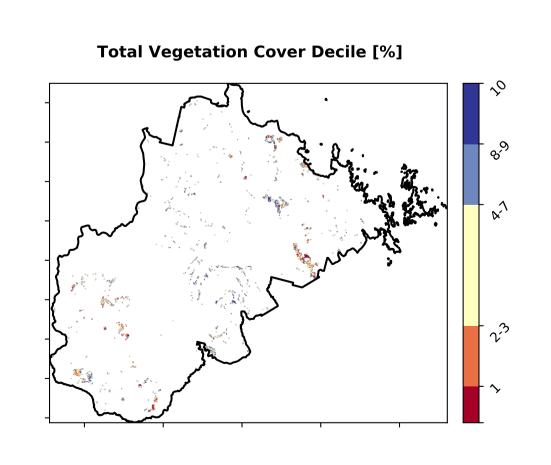
# Area not protected 3.5% of region (1,779 ha) Area protected 96.5% of region (49,070 ha)



### 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.





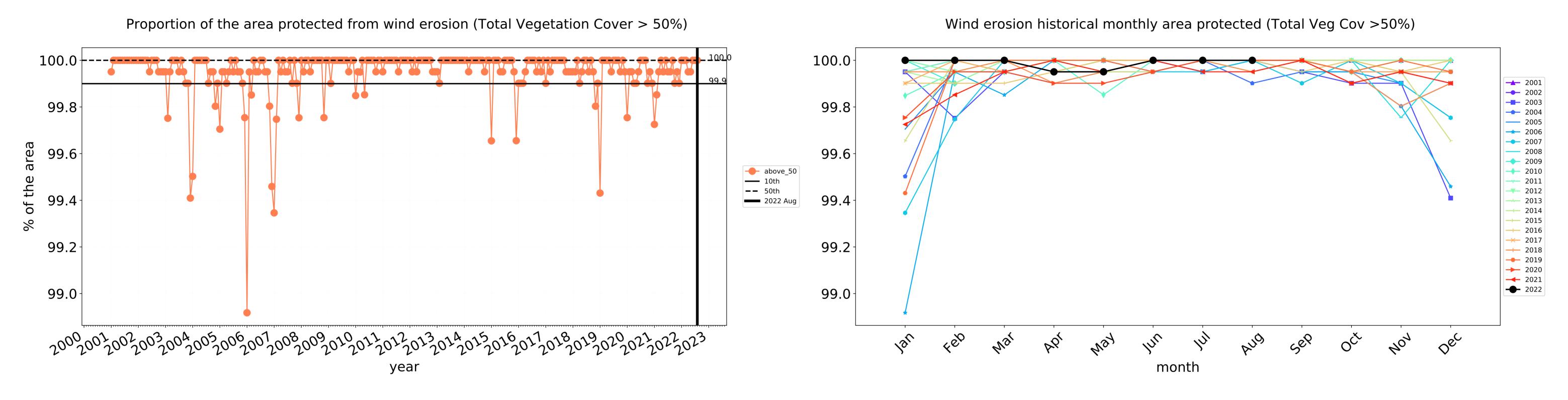


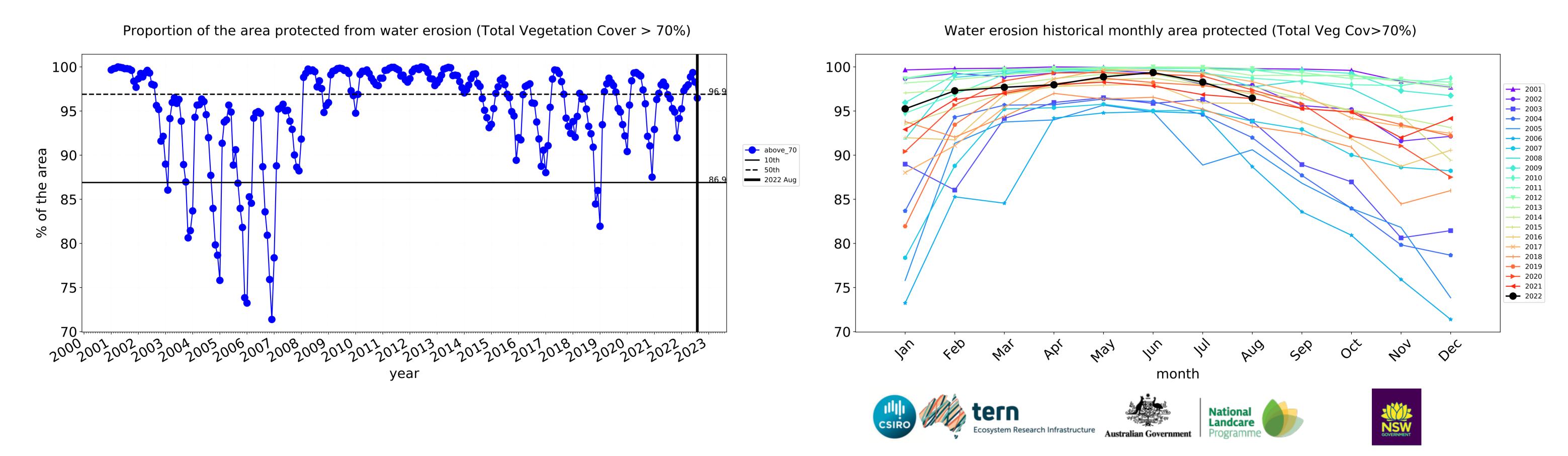






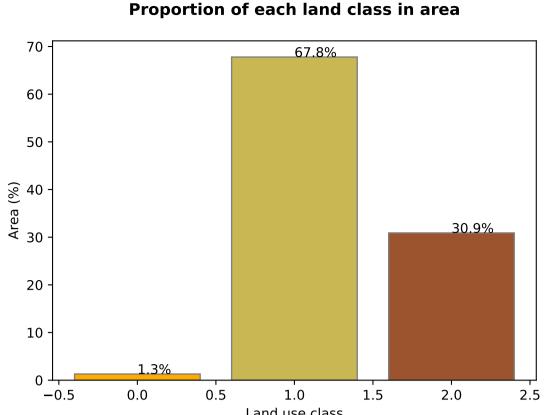


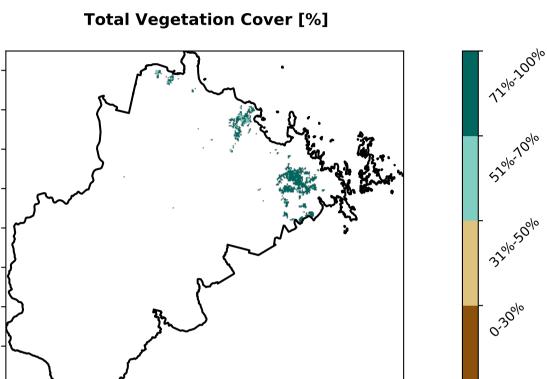


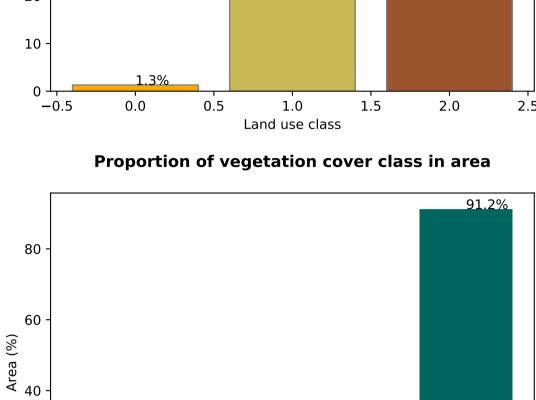


#### **Irrigation**

### 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) 1 Agriculture - Grazing - Irrigated 2 Agriculture - Cropping - Irrigated 3 Agriculture - Horticulture - Irrigated





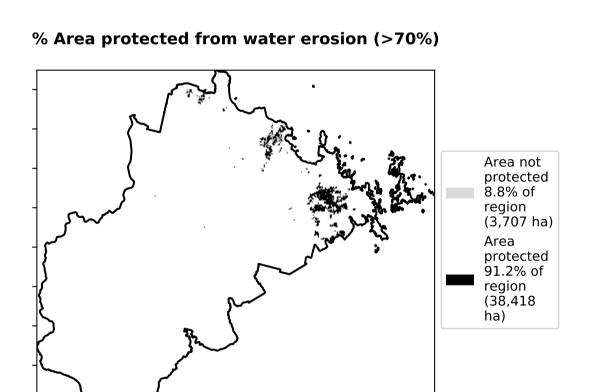


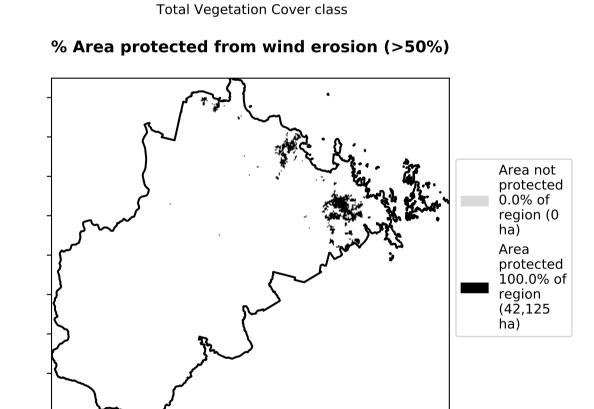
0.2%

31%-50%

20

0-30%

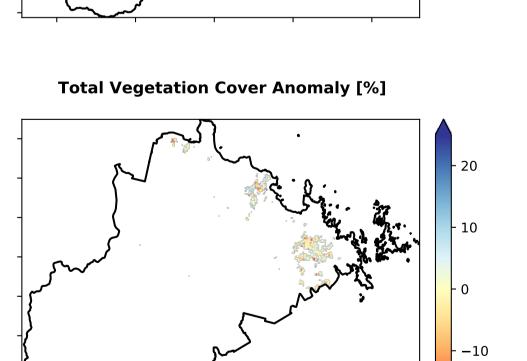




8.5%

71%-100%

51%-70%



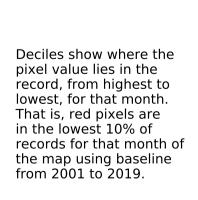
Anomaly show how many percetage points each pixel is from the mean. That

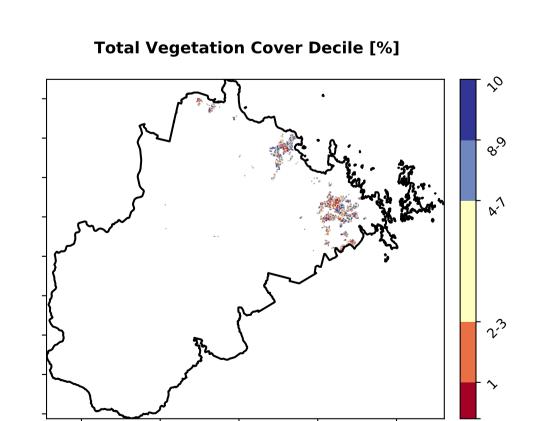
is, red pixels are about 20% lower than the mean of that

pixel. The mean

using baseline from 2001 to 2019.

is only for the month of the map





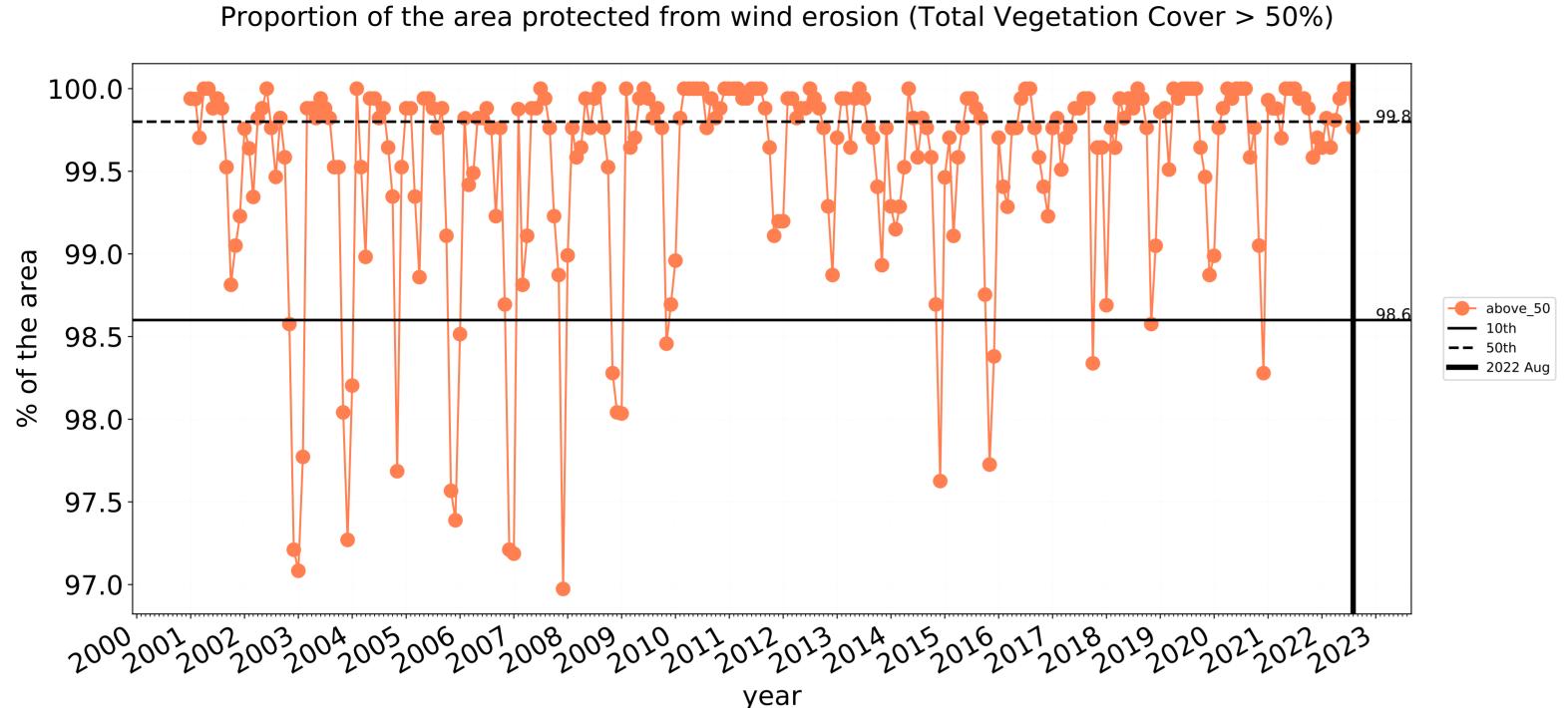


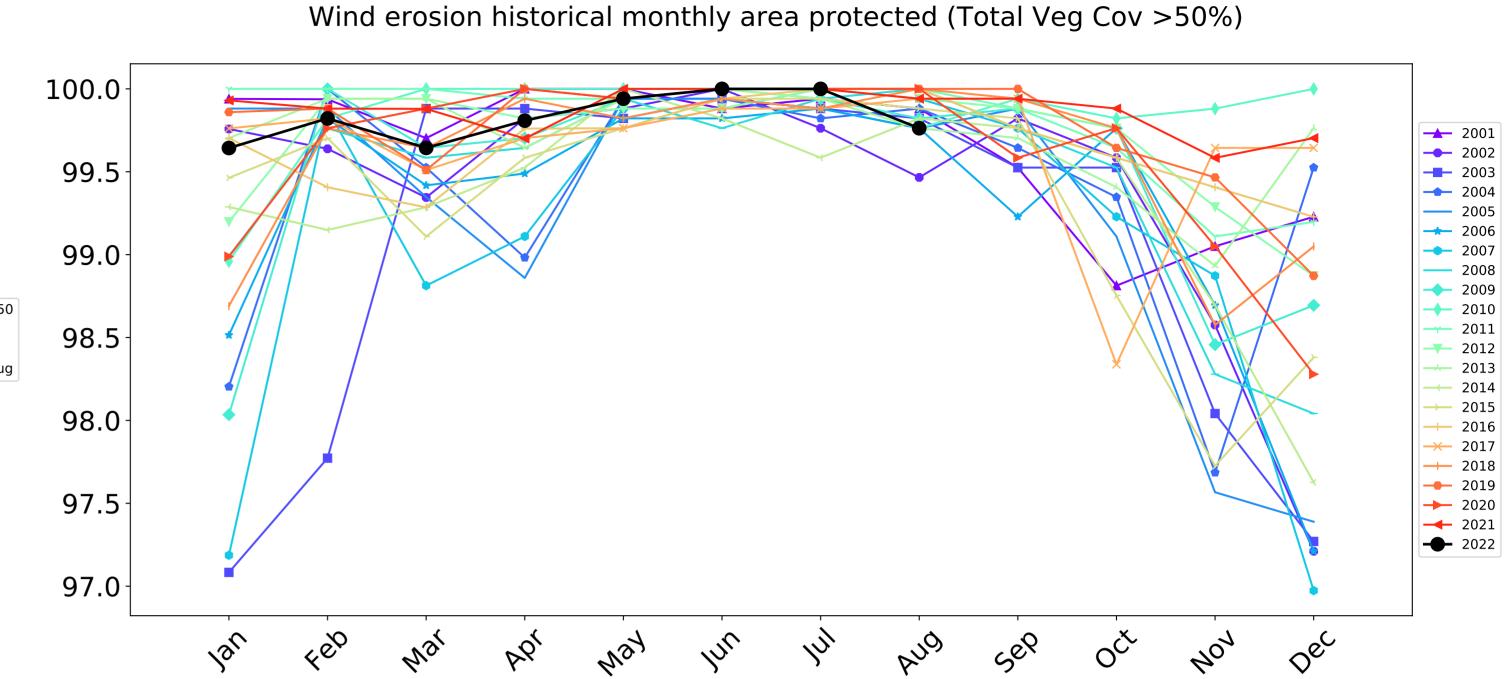




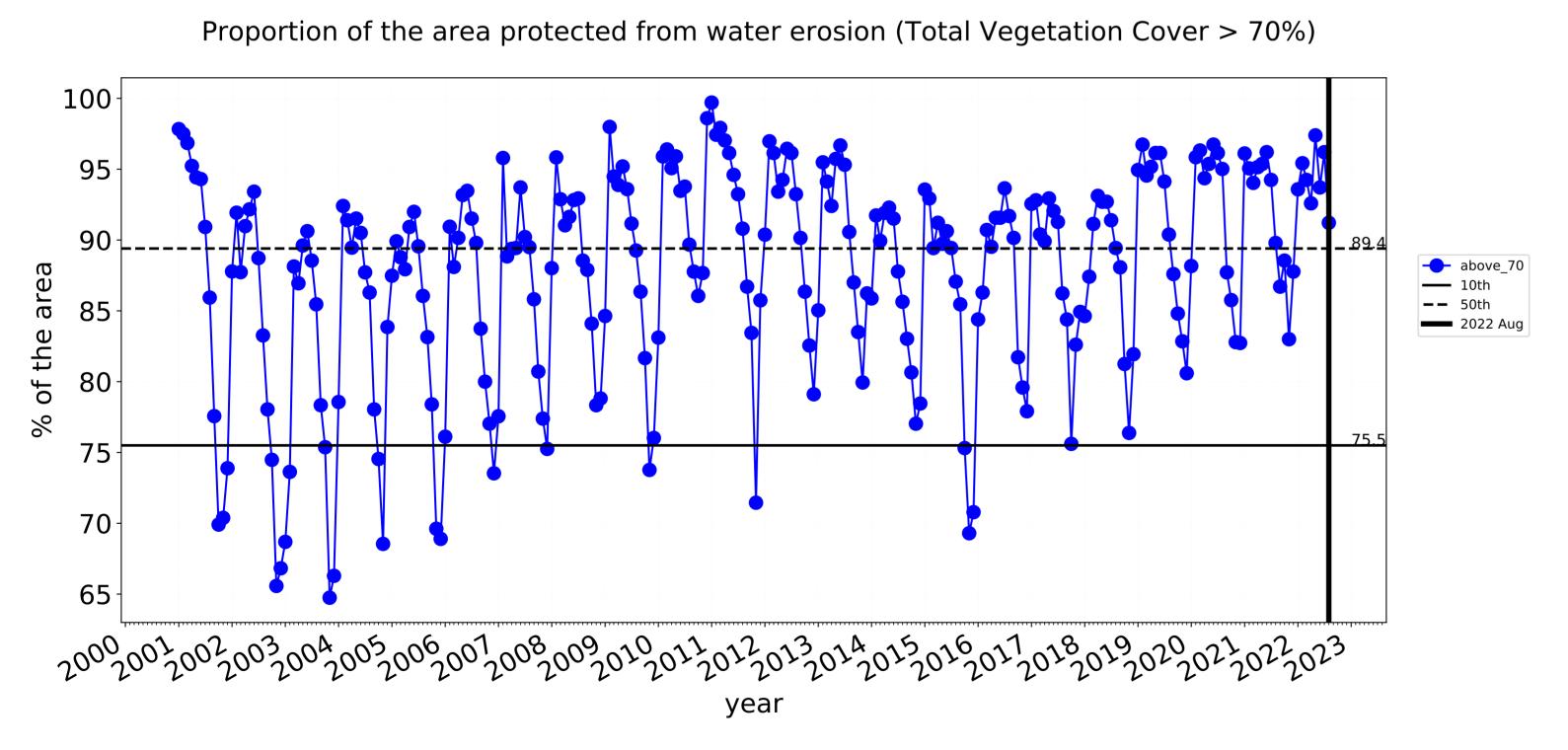
**-**20

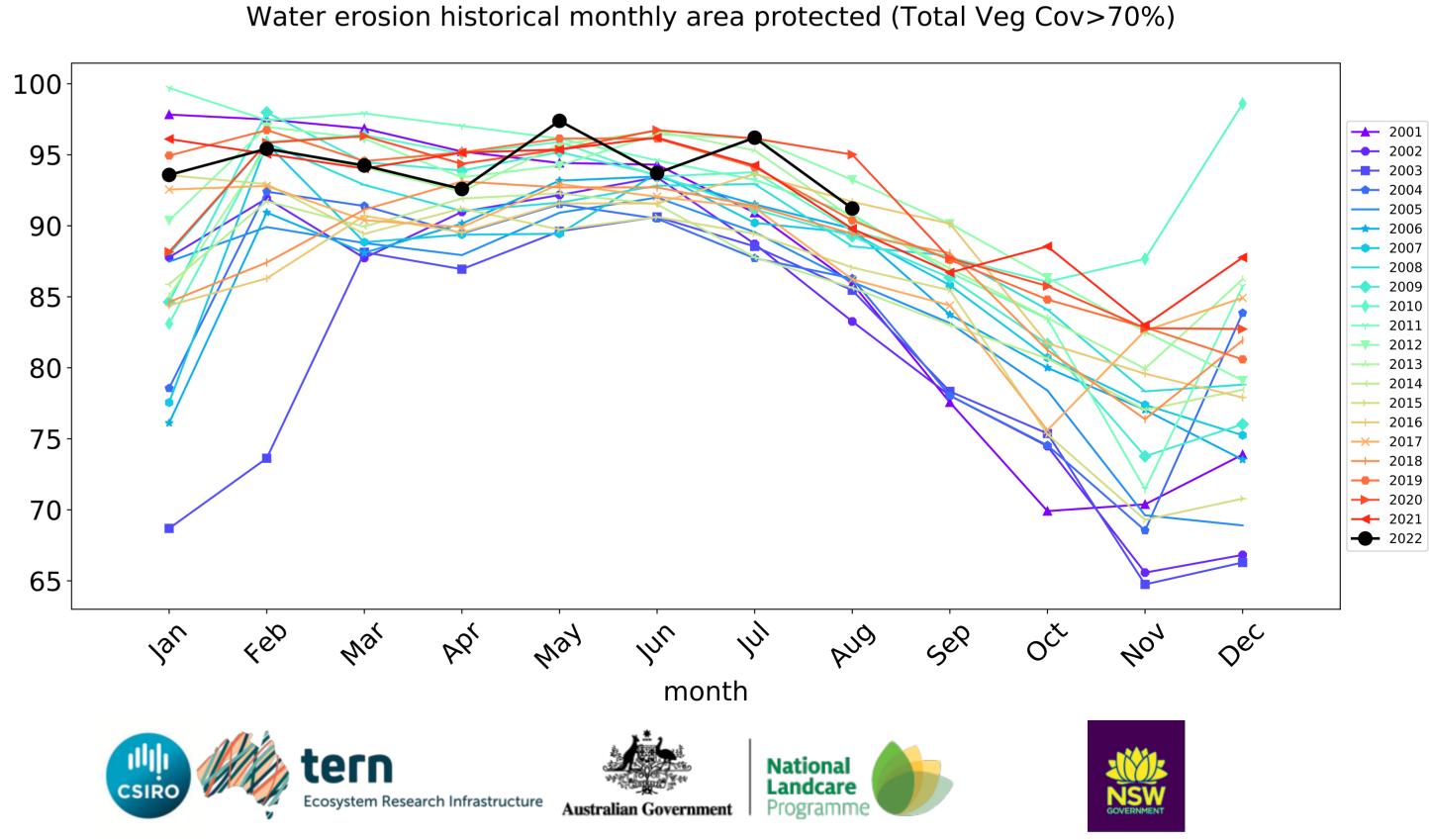
#### Irrigation timeseries





month



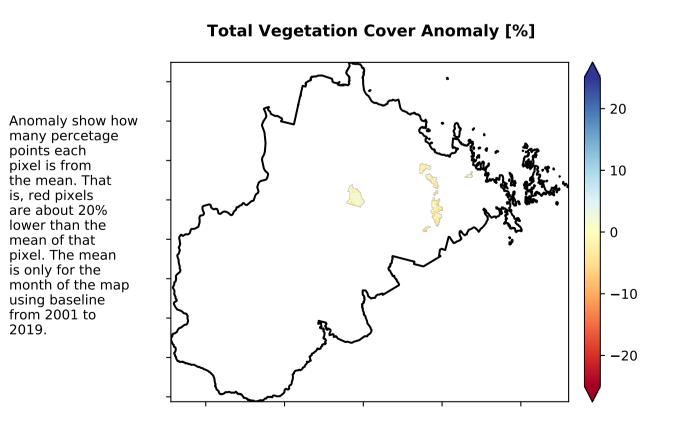


#### **Production native forests and plantation forests**

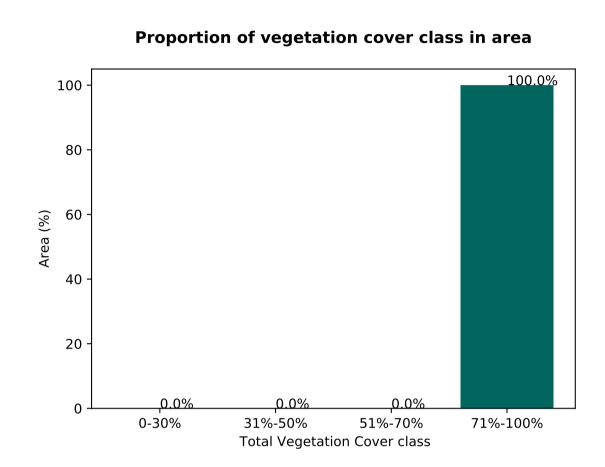
# Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) (2018) and Forests of Australia (2018)

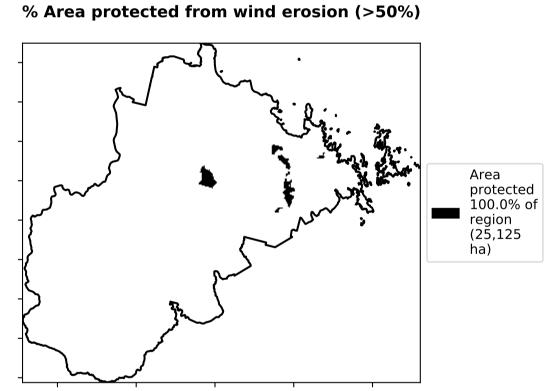
# Total Vegetation Cover [%] | Total Vegetatio

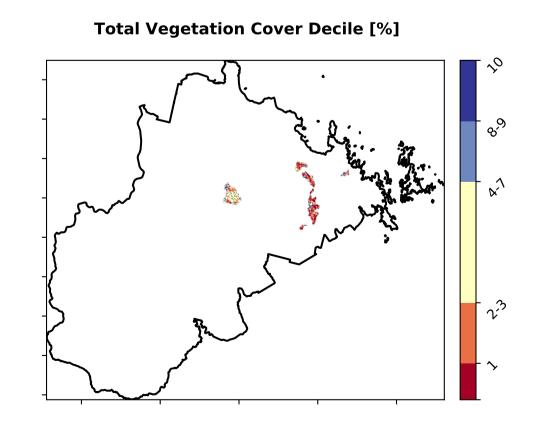
# Area protected from water erosion (>70%) Area protected protected 100.0% of region (25,125 ha)



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.







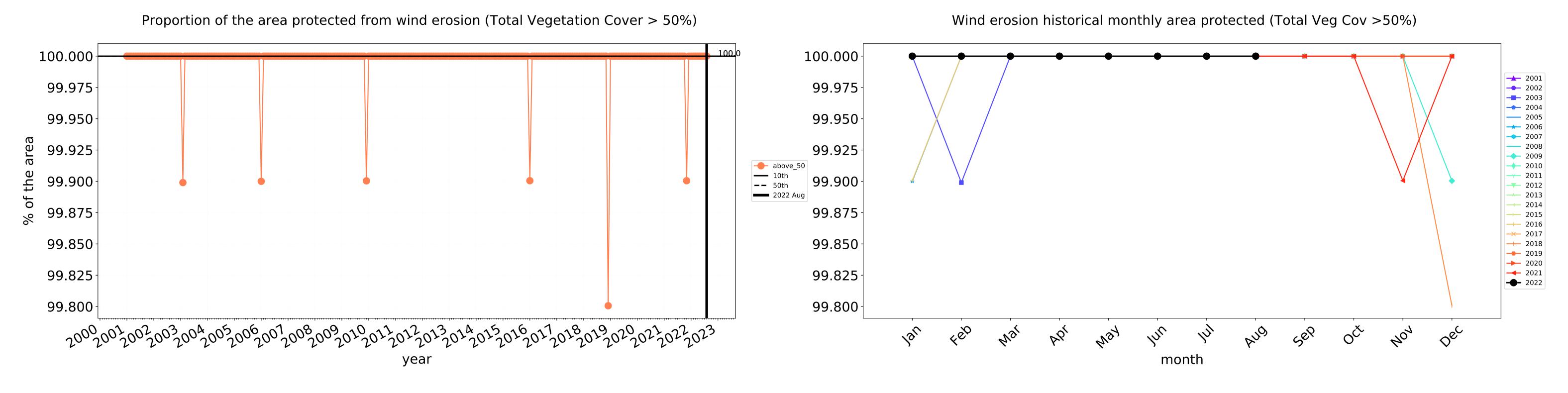


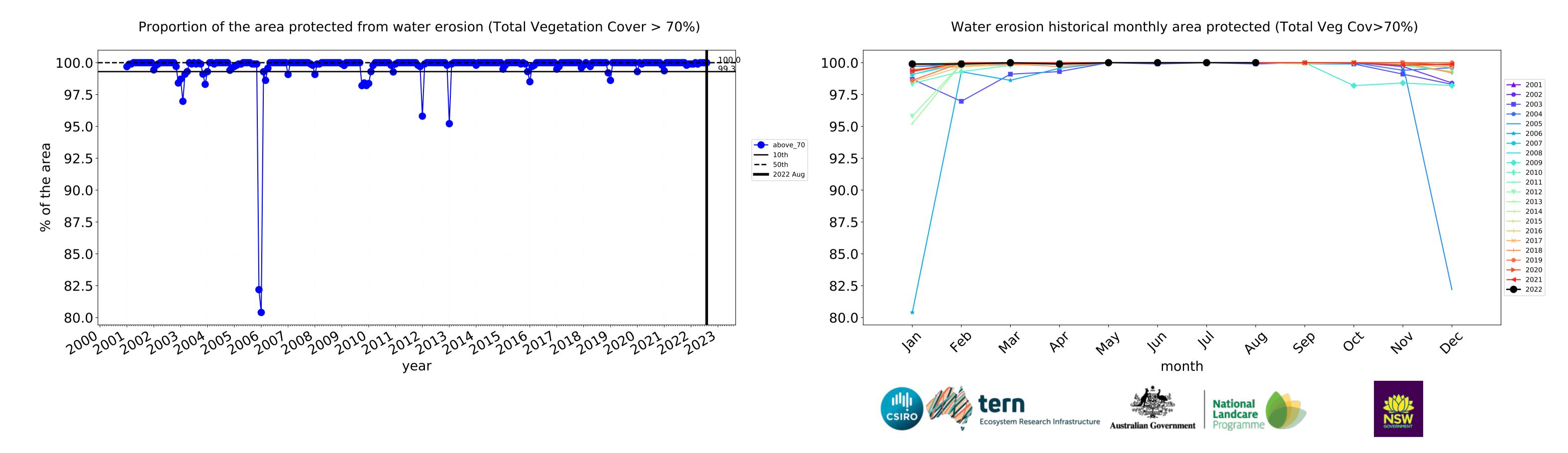






#### **Production native forests and plantation forests timeseries**





### Whitsunday\_(R) (2,358,950 ha and no data 22,926 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	2,358,950	100.0% 2,358,350	99.8% 2,354,550	94.8% 2,235,250	79.3% 1,871,350	37.1% 874,325	7.3% 172,300
Conservation and natural environments	170,900	99.8% 170,525	99.0% 169,200	94.6% 161,700	83.4% 142,575	53.2% 90,950	20.1% 34,325
Conservation and natural environments non forest	28,575	99.5% 28,425	97.4% 27,825	83.3% 23,800	41.2% 11,775	5.4% 1,550	1.4% 400
Conservation and natural environments Woodland forest	57,350	100.0% 57,325	99.7% 57,175	97.4% 55,850	90.5% 51,925	61.9% 35,500	19.4% 11,100
Conservation and natural environments Forest (non woodland)	84,975	99.8% 84,775	99.1% 84,200	96.6% 82,050	92.8% 78,875	63.4% 53,900	26.9% 22,825
Agriculture	2,084,950	100.0% 2,084,925	99.9% 2,083,750	95.1% 1,983,725	79.7% 1,661,700	36.1% 753,550	6.3% 130,975
Grazing	2,042,525	100.0% 2,042,500	99.9% 2,041,425	95.2% 1,945,000	80.0% 1,633,750	36.5% 745,500	6.3% 129,175
Grazing non forest	1,171,850	100.0% 1,171,825	99.9% 1,170,750	92.4% 1,082,425	71.1% 833,100	27.4% 320,950	4.5% 52,150
Grazing Woodland forest	819,825	100.0% 819,825	100.0% 819,825	99.2% 813,525	92.5% 758,025	49.2% 402,950	8.5% 69,500
Grazing - Forest (non woodland)	50,850	100.0% 50,850	100.0% 50,850	96.5% 49,050	83.8% 42,625	42.5% 21,600	14.8% 7,525
Irrigation	42,125	100.0% 42,125	99.8% 42,025	91.2% 38,425	65.6% 27,650	18.9% 7,975	4.3% 1,800
Production native forests and plantation forests	25,125	100.0% 25,125	100.0% 25,125	100.0% 25,125	99.7% 25,050	71.3% 17,925	16.0% 4,025







