### 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.

Land use forest cover:

**Date: May 2021** 

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 May 2021**

#### 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.

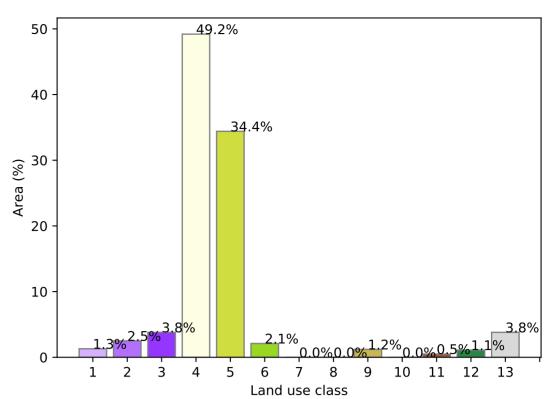
the mean. That is, red pixels are about 20% lower than the

Derived from

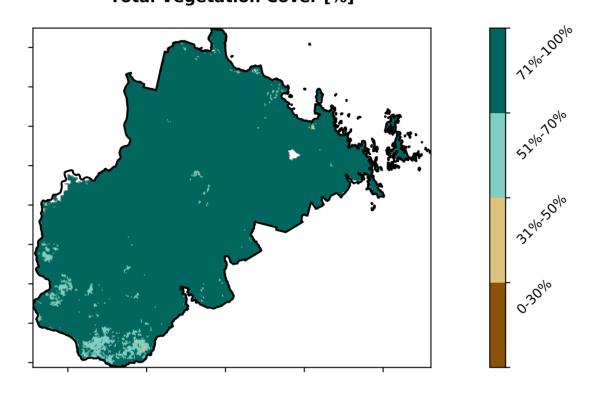
Use of Australia

#### 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 -Land Use and Forests Non-Woodland forest 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

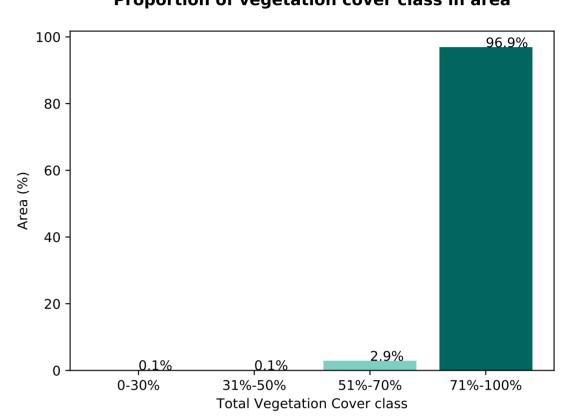
#### Proportion of each land class in area

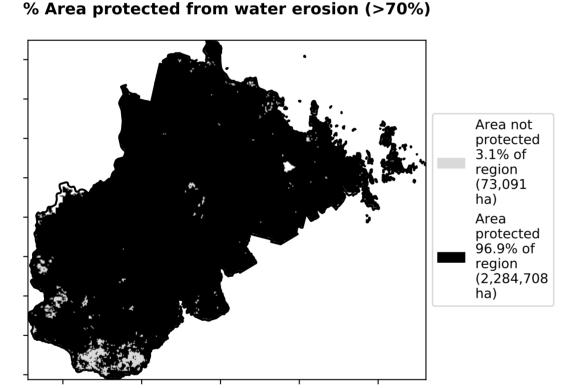


#### **Total Vegetation Cover [%]**

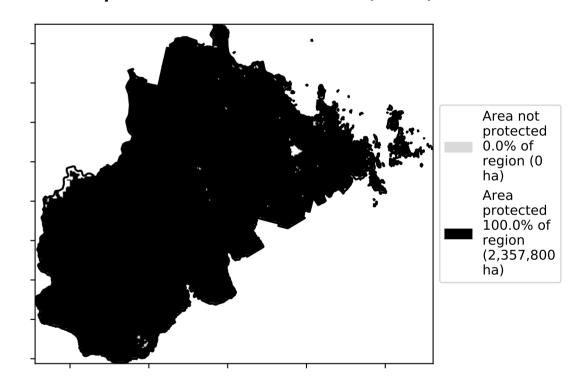


**Proportion of vegetation cover class in area** 

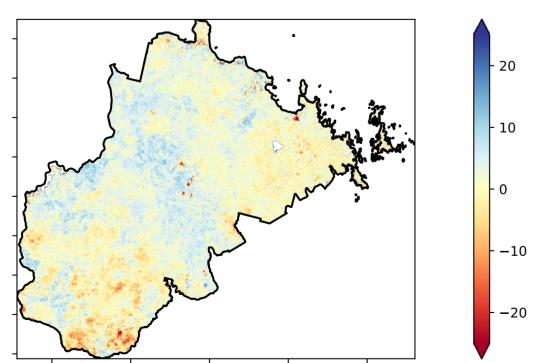




% Area protected from wind erosion (>50%)

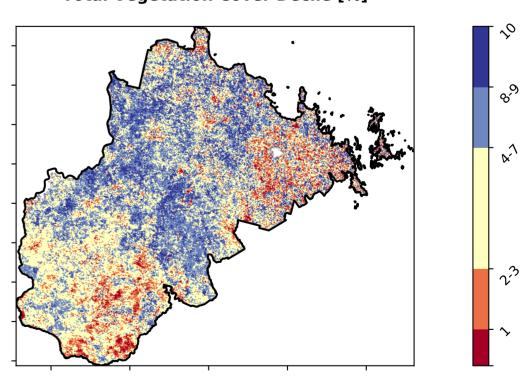


#### **Total Vegetation Cover Anomaly [%]**



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.

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

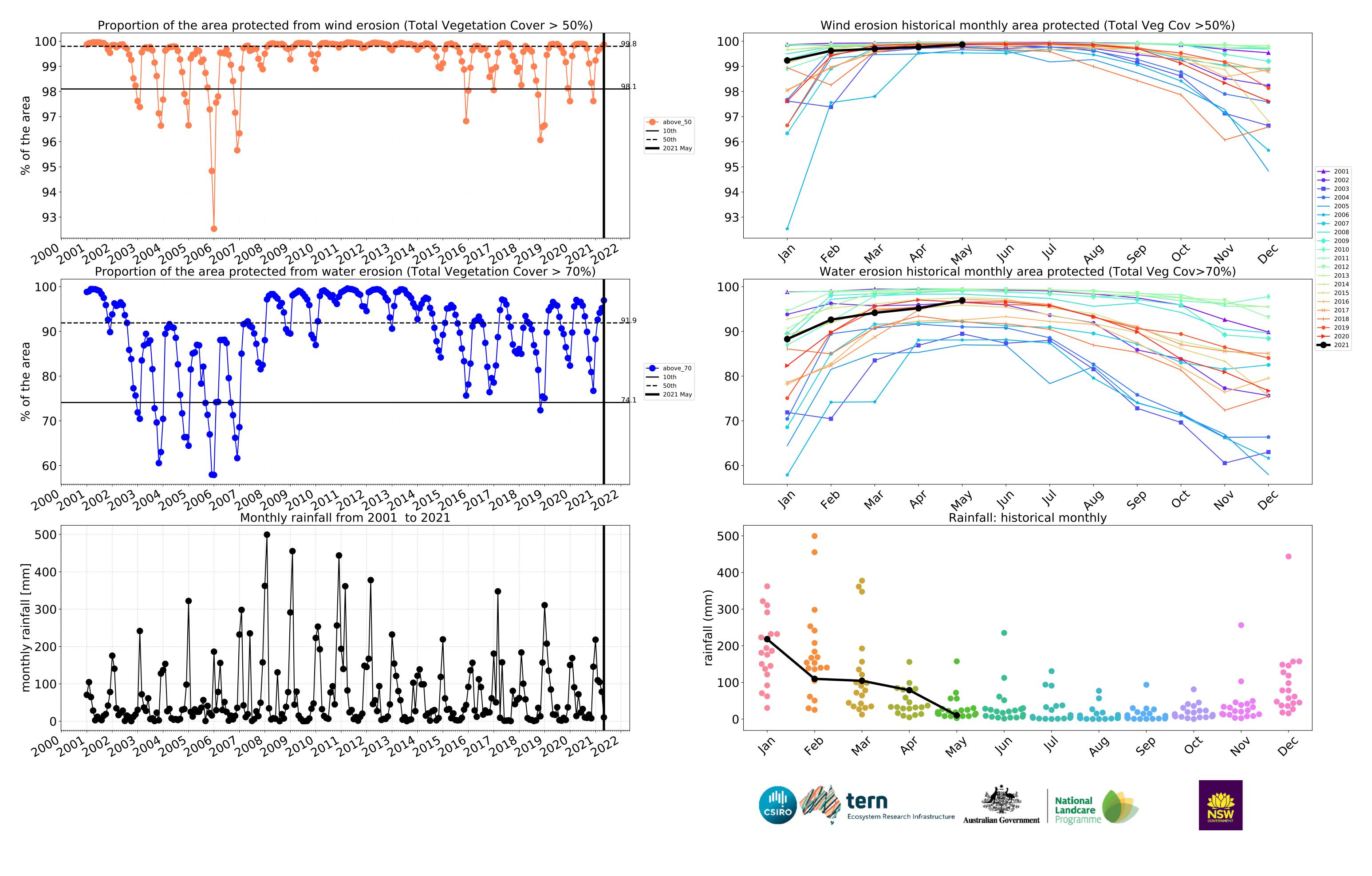




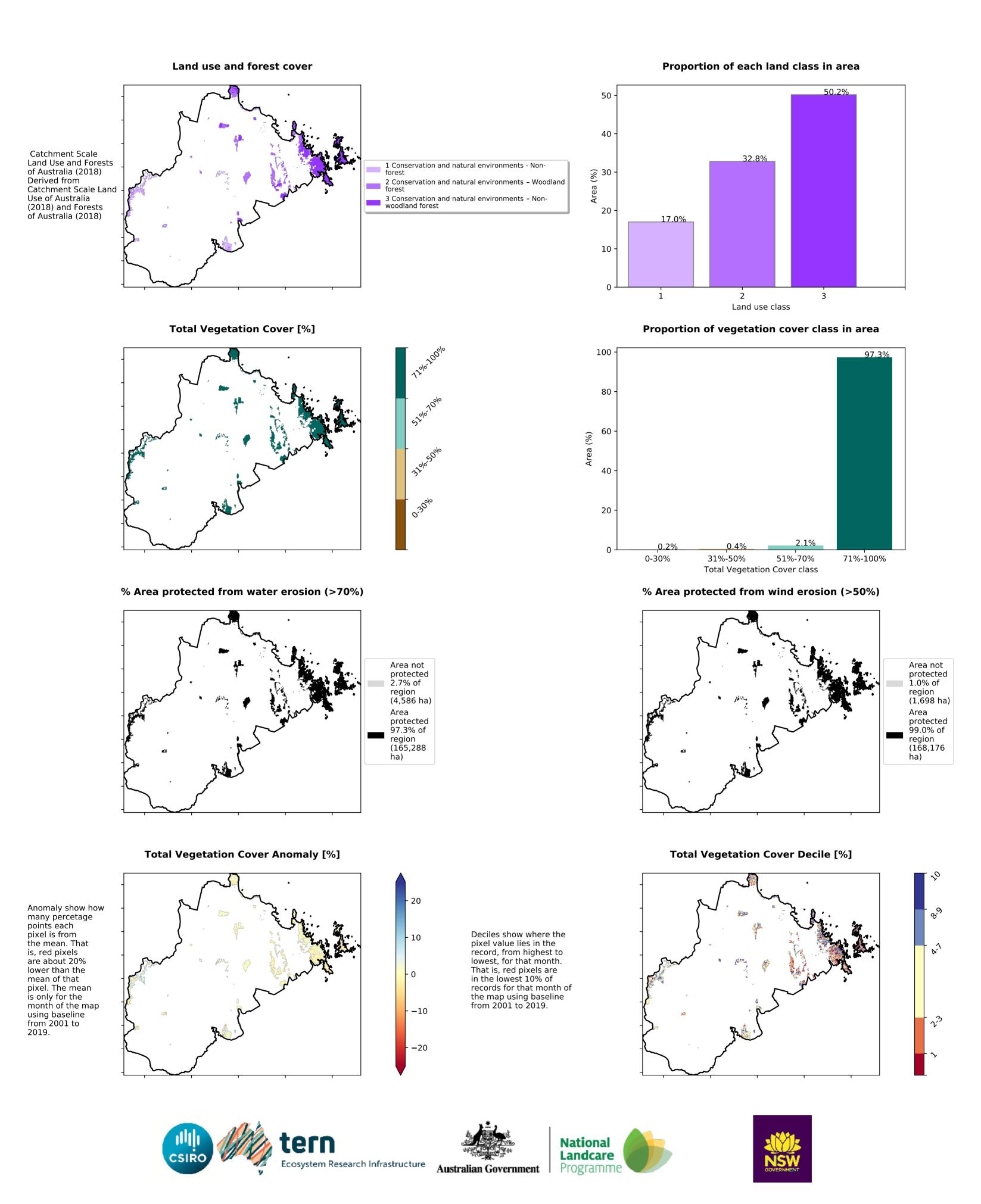






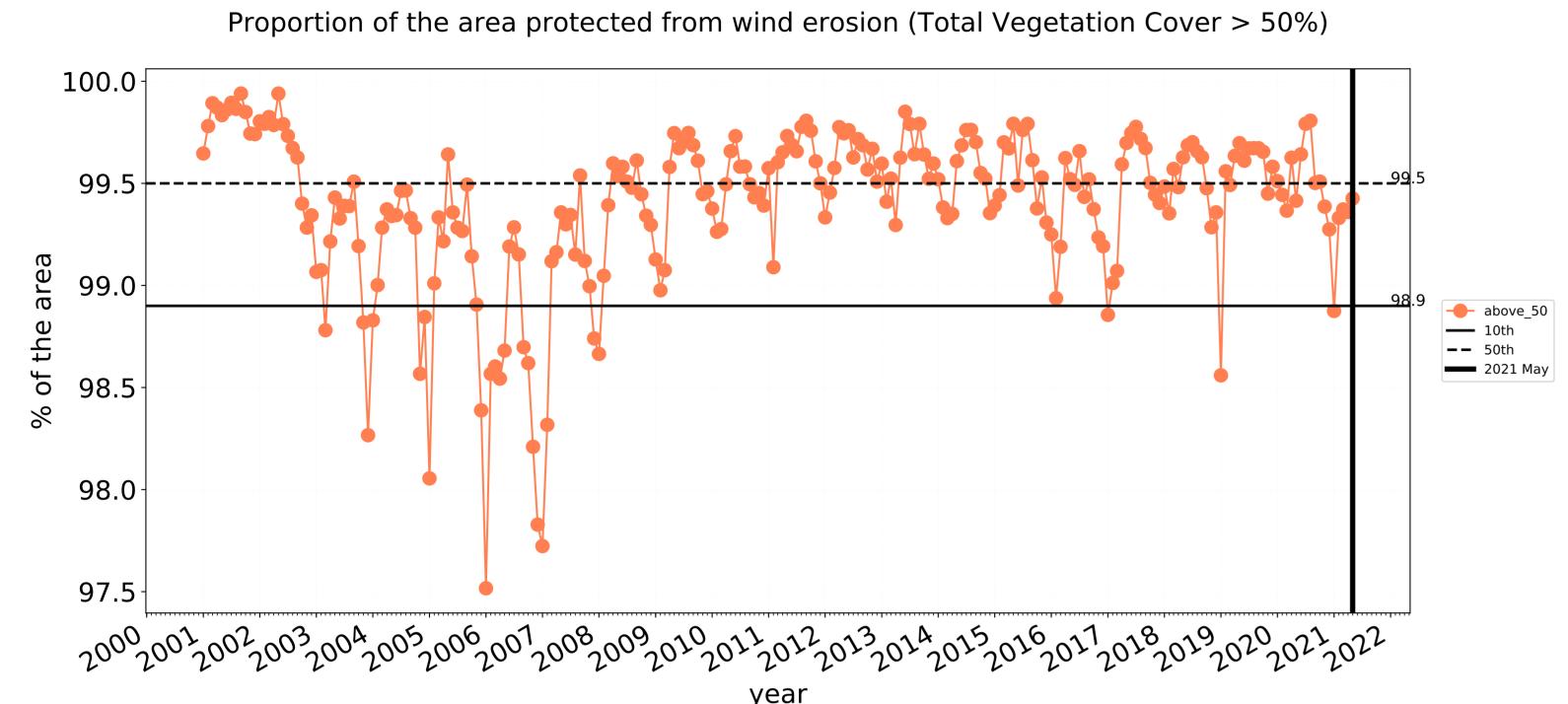


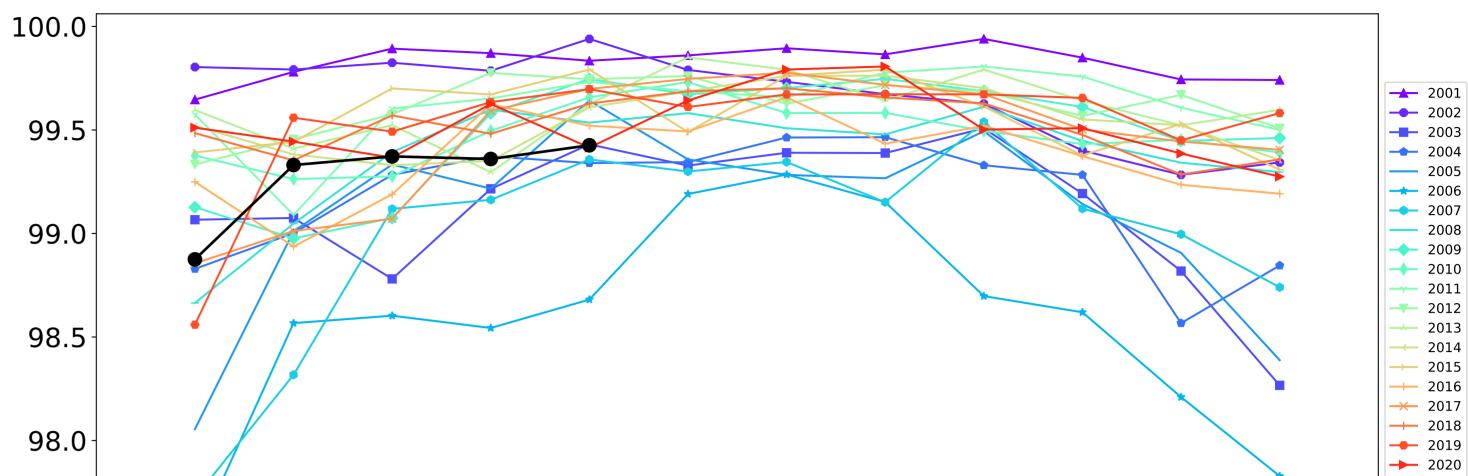
#### **Conservation and natural environments**



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

97.5

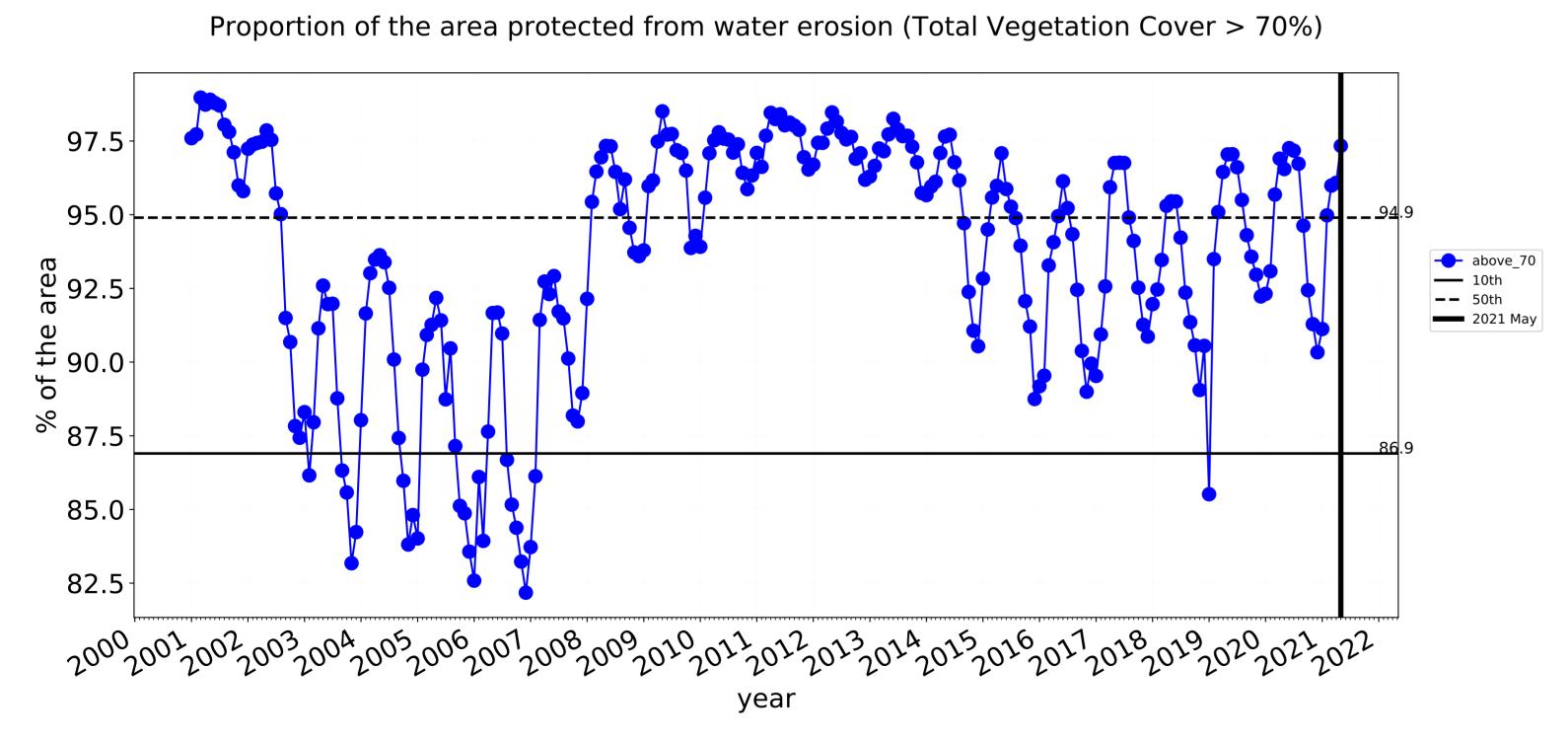


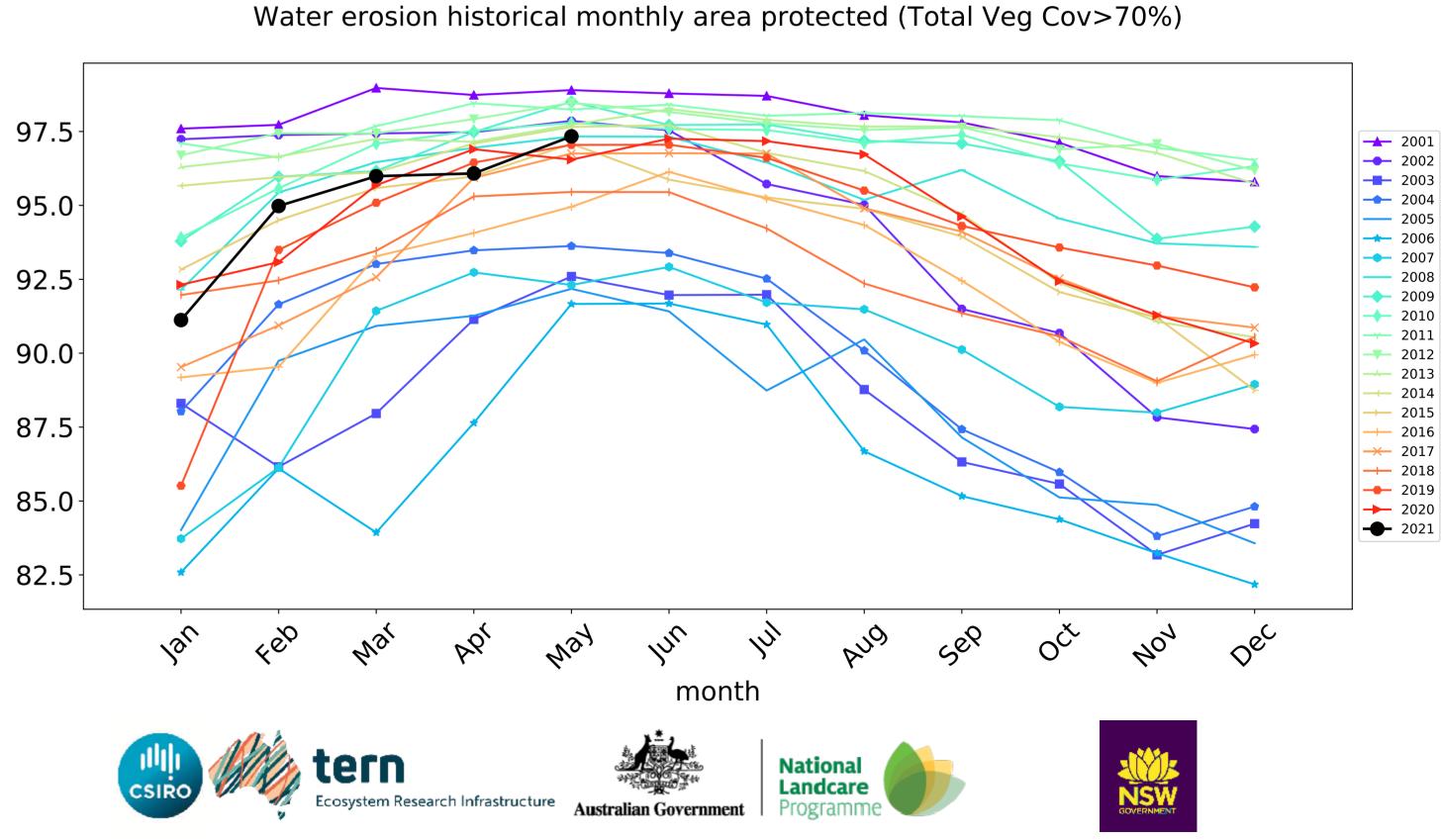


month

**---** 2021

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



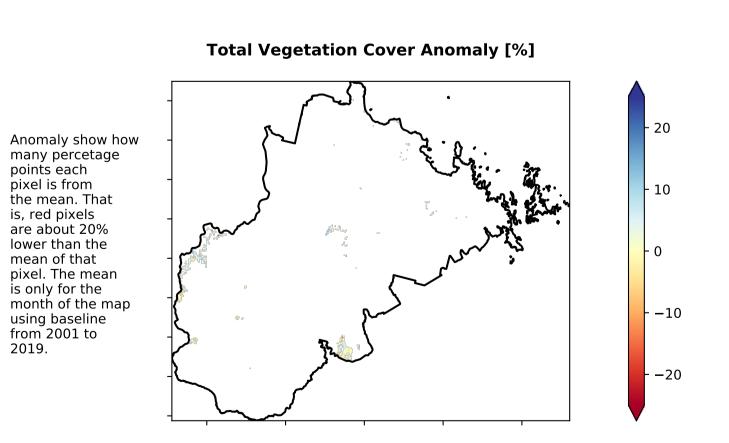


#### **Conservation and natural environments non forest**

## 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) 1 Conservation and natural environments - Non-

# **Total Vegetation Cover [%]**

#### % Area protected from water erosion (>70%) Area not protected 5.3% of region (1,499 ha) Area protected 94.7% of region (26,800 ha)



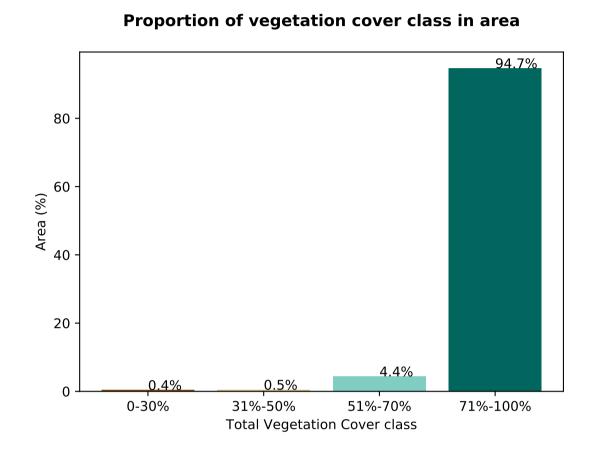
is, red pixels

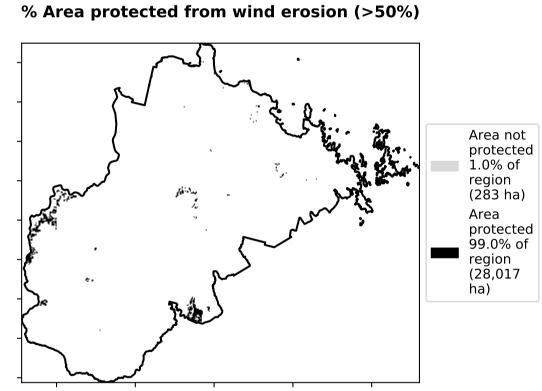
mean of that pixel. The mean

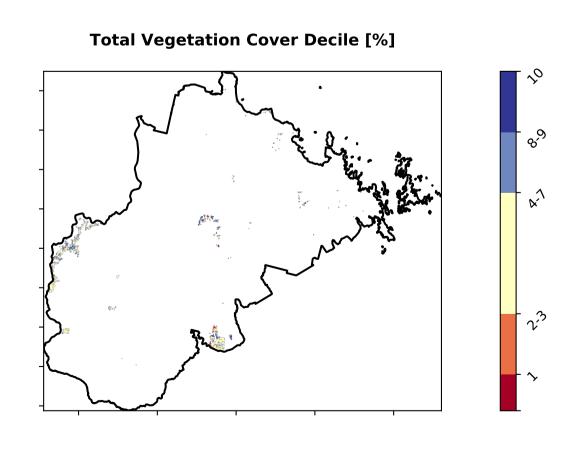
using baseline from 2001 to 2019.

are about 20% lower than the

### 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.







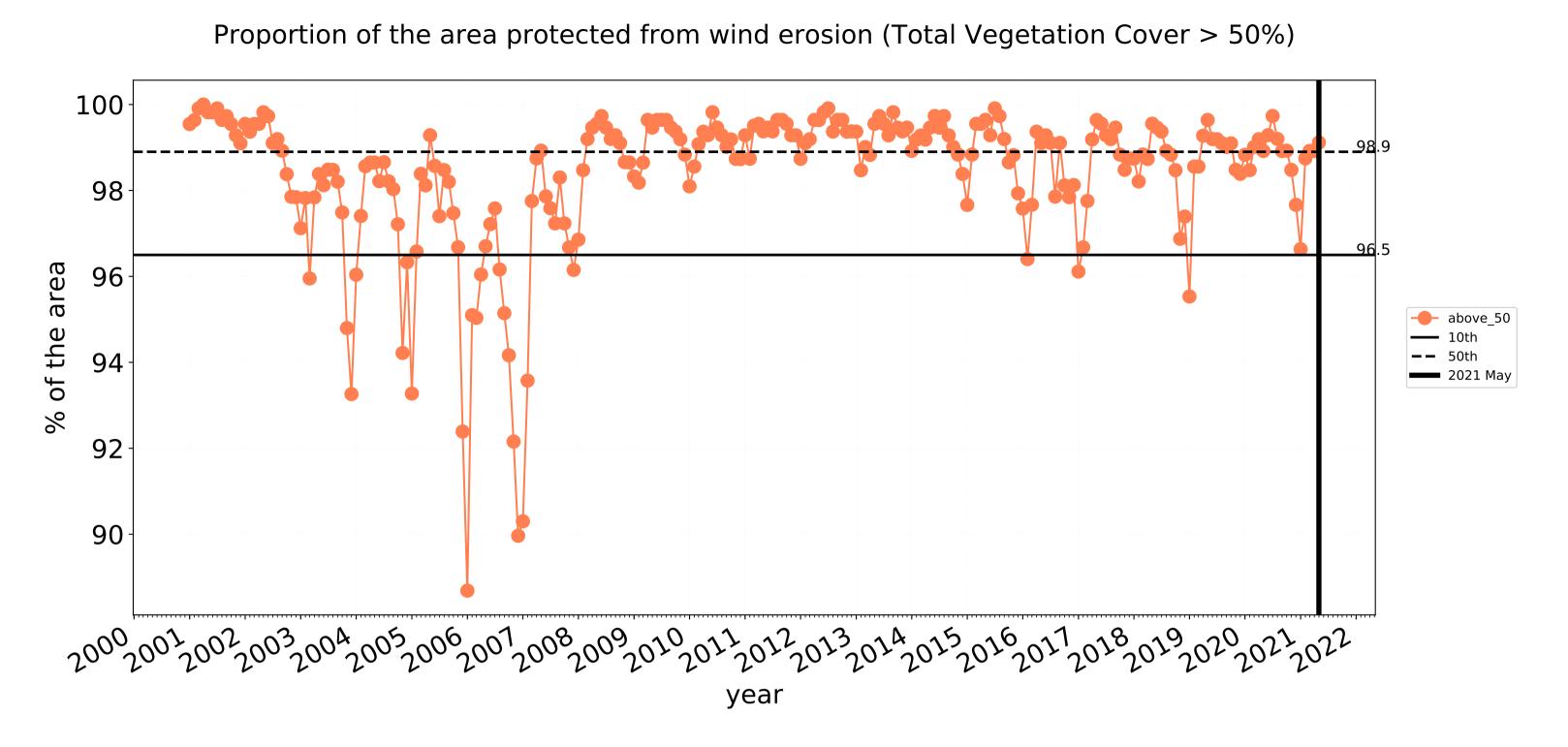


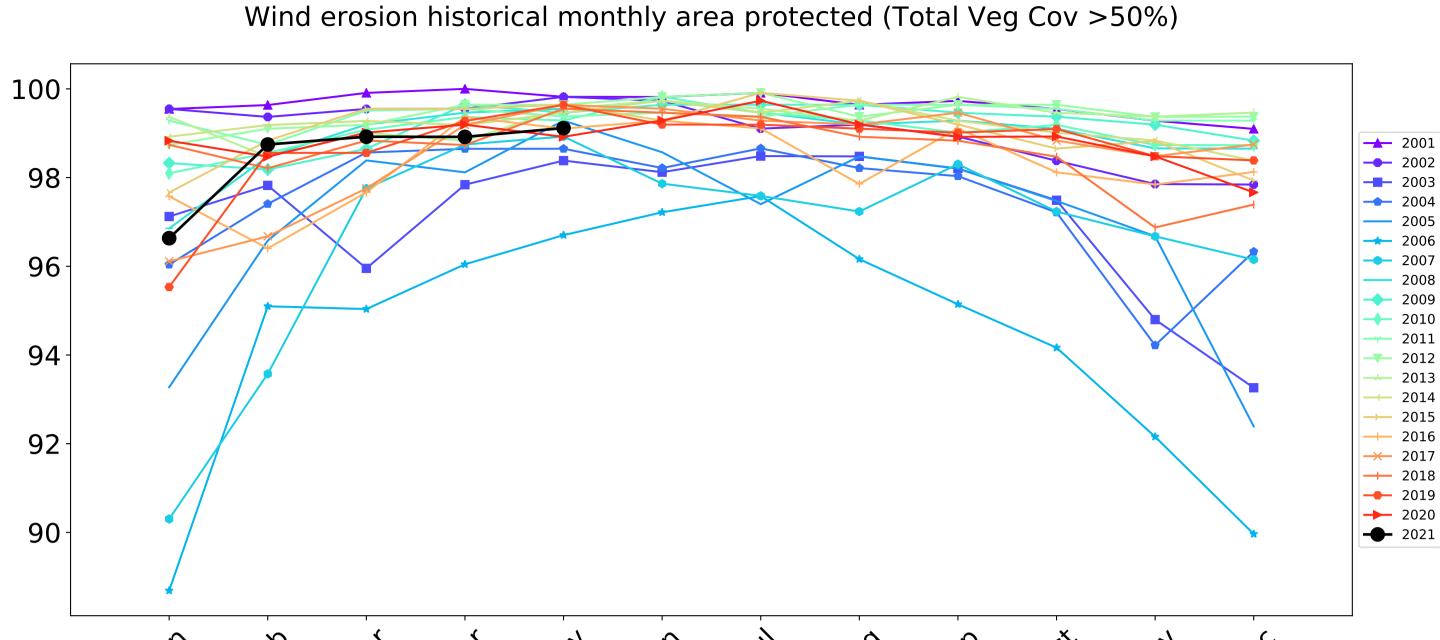


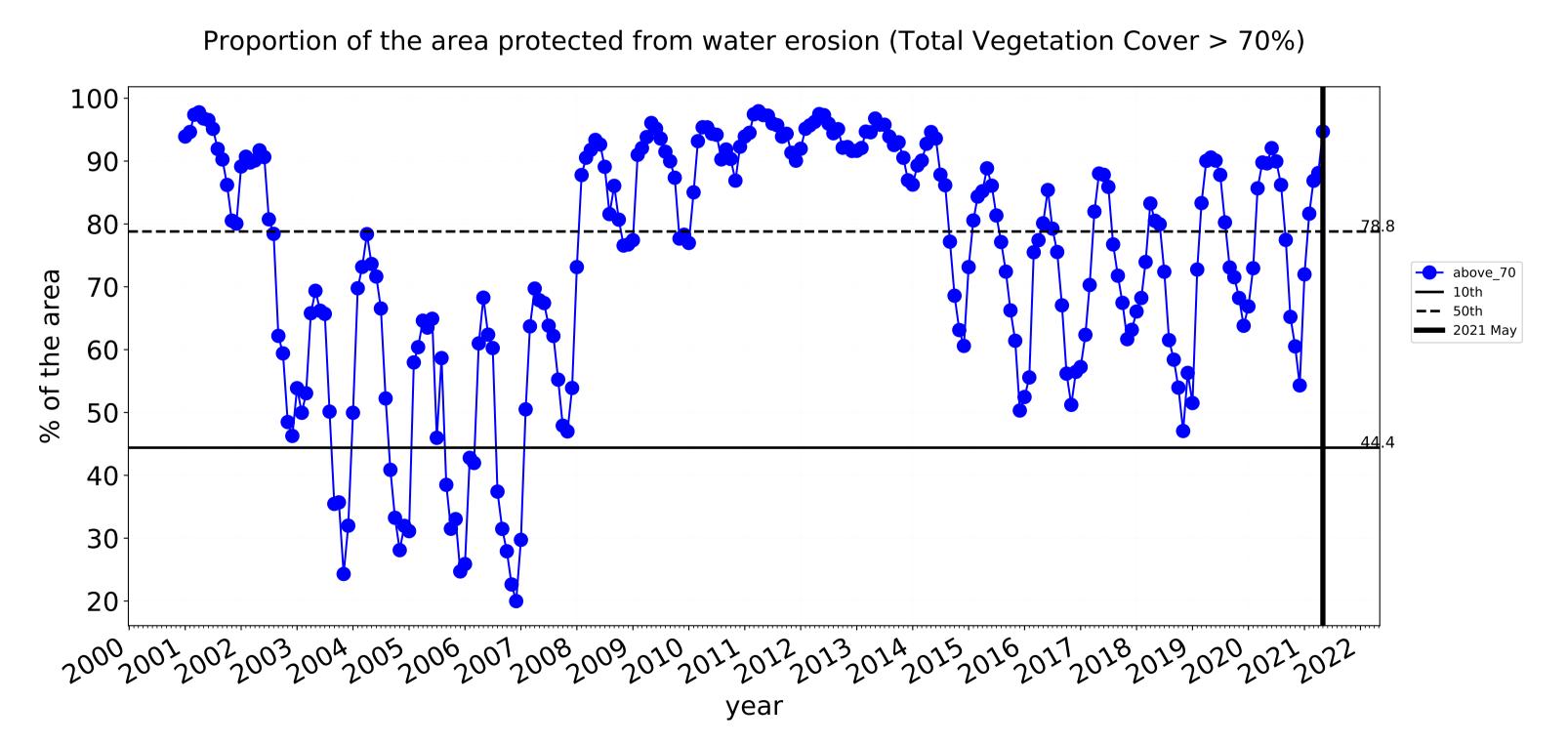


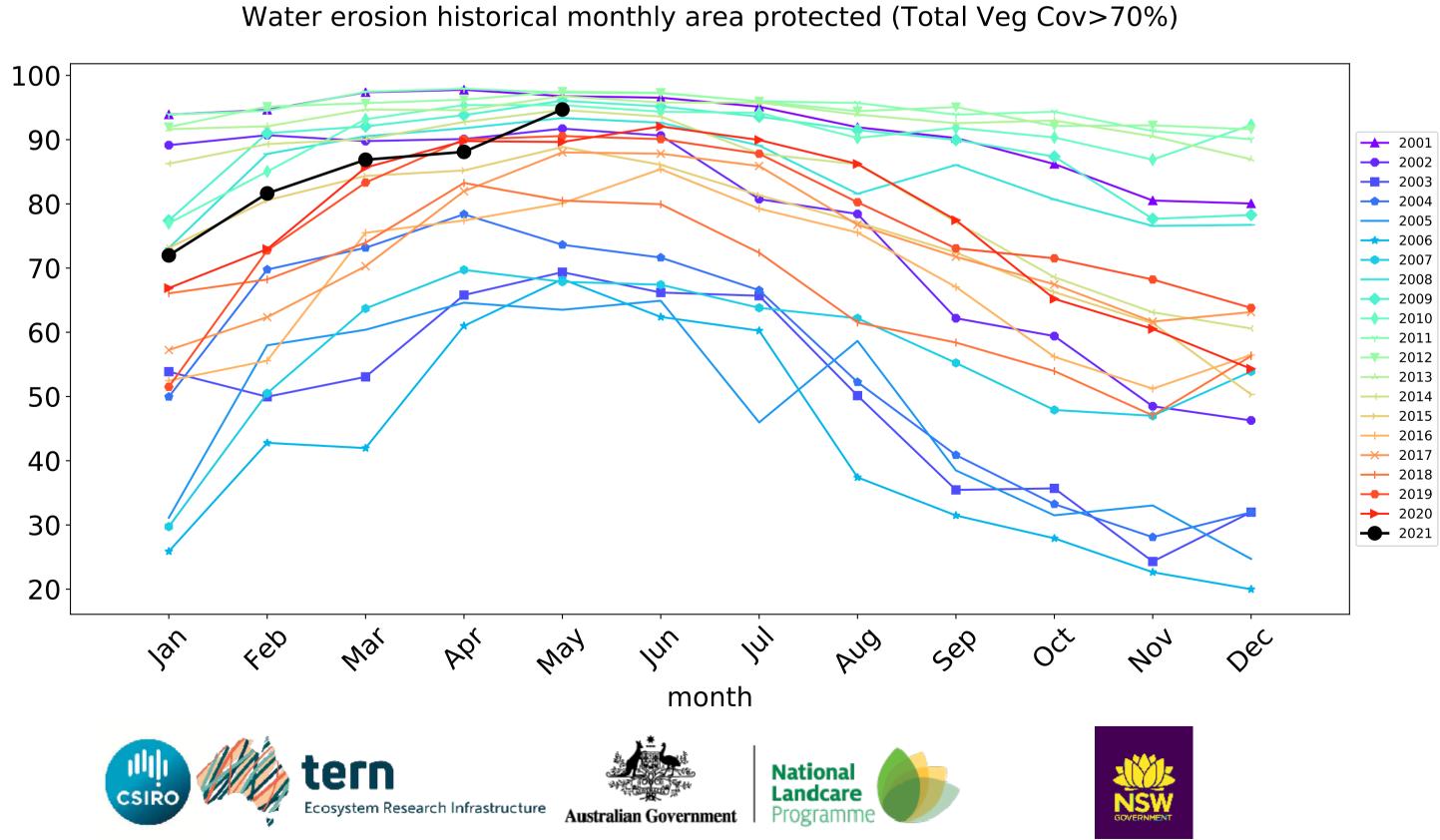


#### **Conservation and natural environments non forest timeseries**



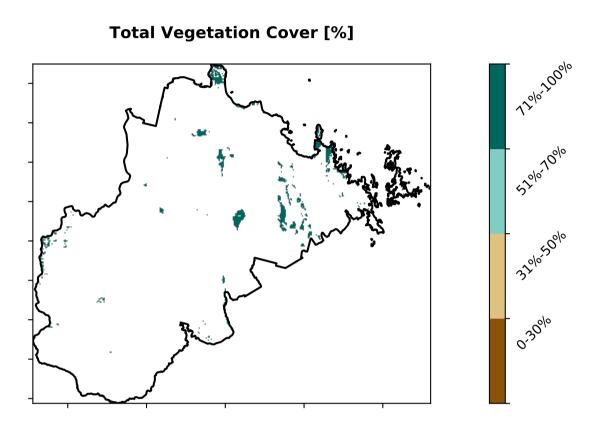




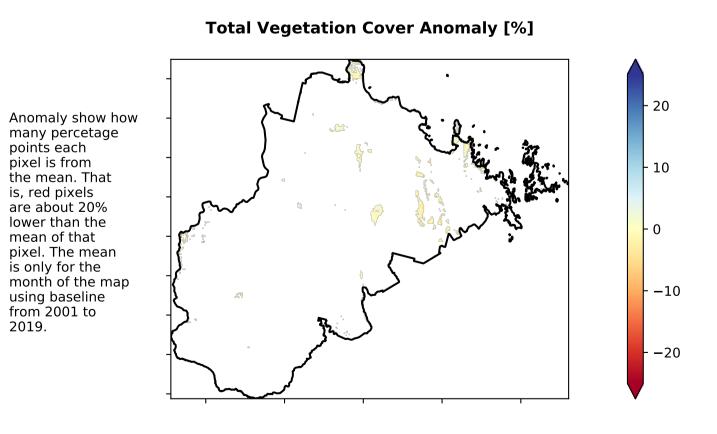


#### **Conservation and natural environments Woodland forest**

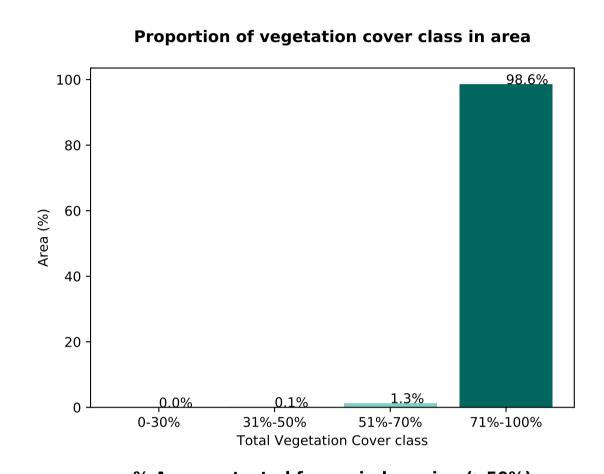
# Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

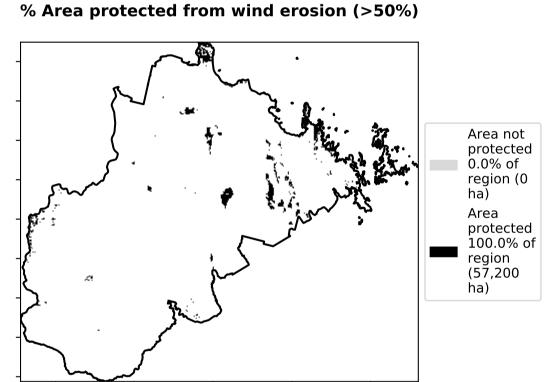


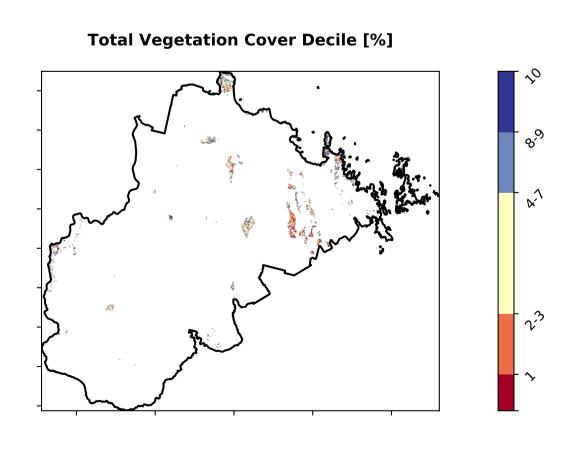
# Area not protected 1.4% of region (800 ha) Area protected 98.6% of region (56,399 ha)



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.





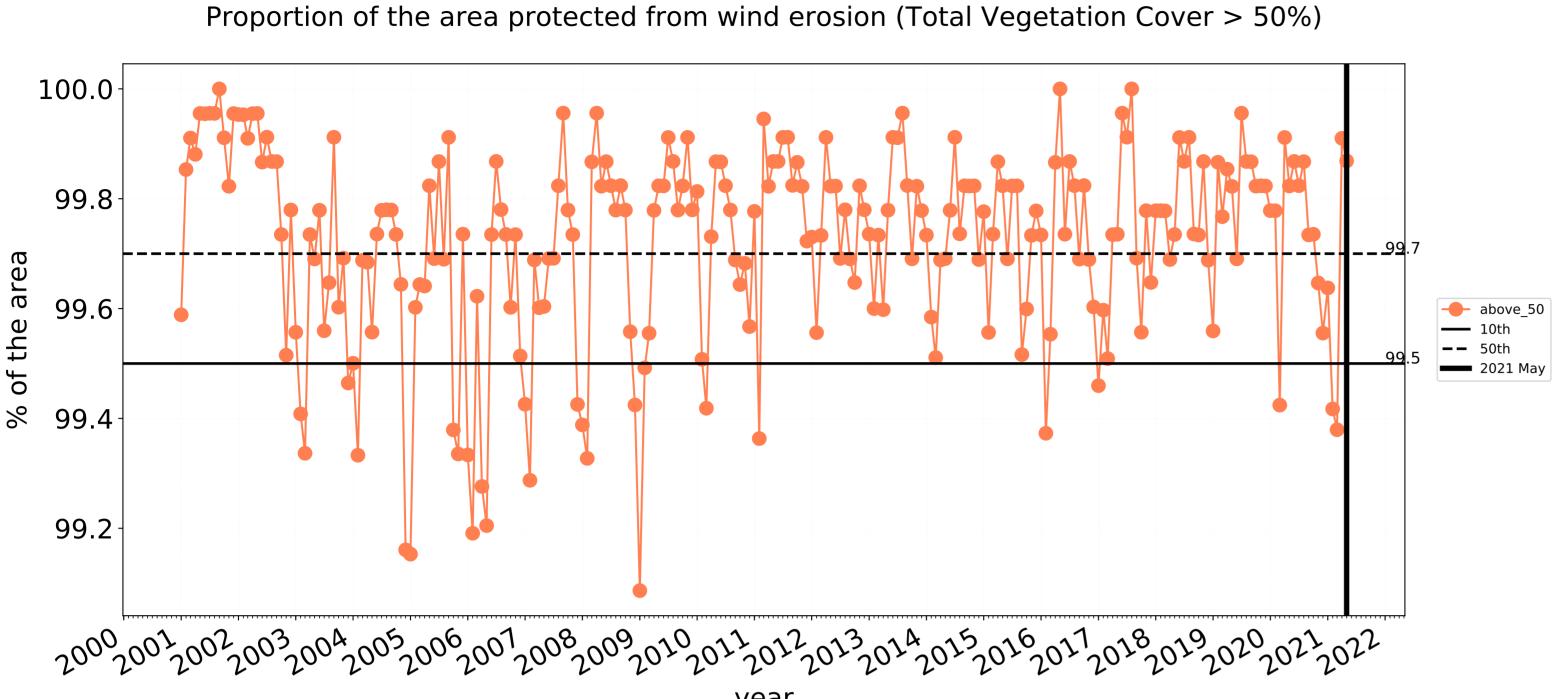


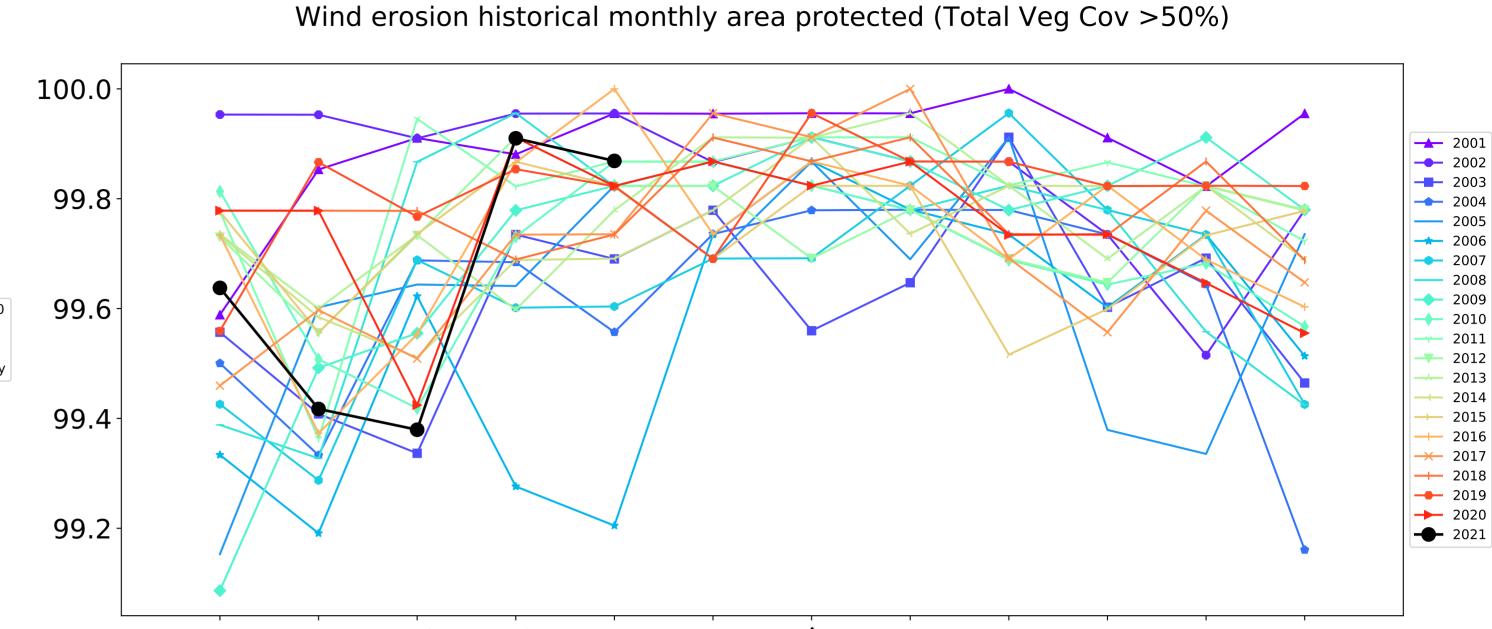


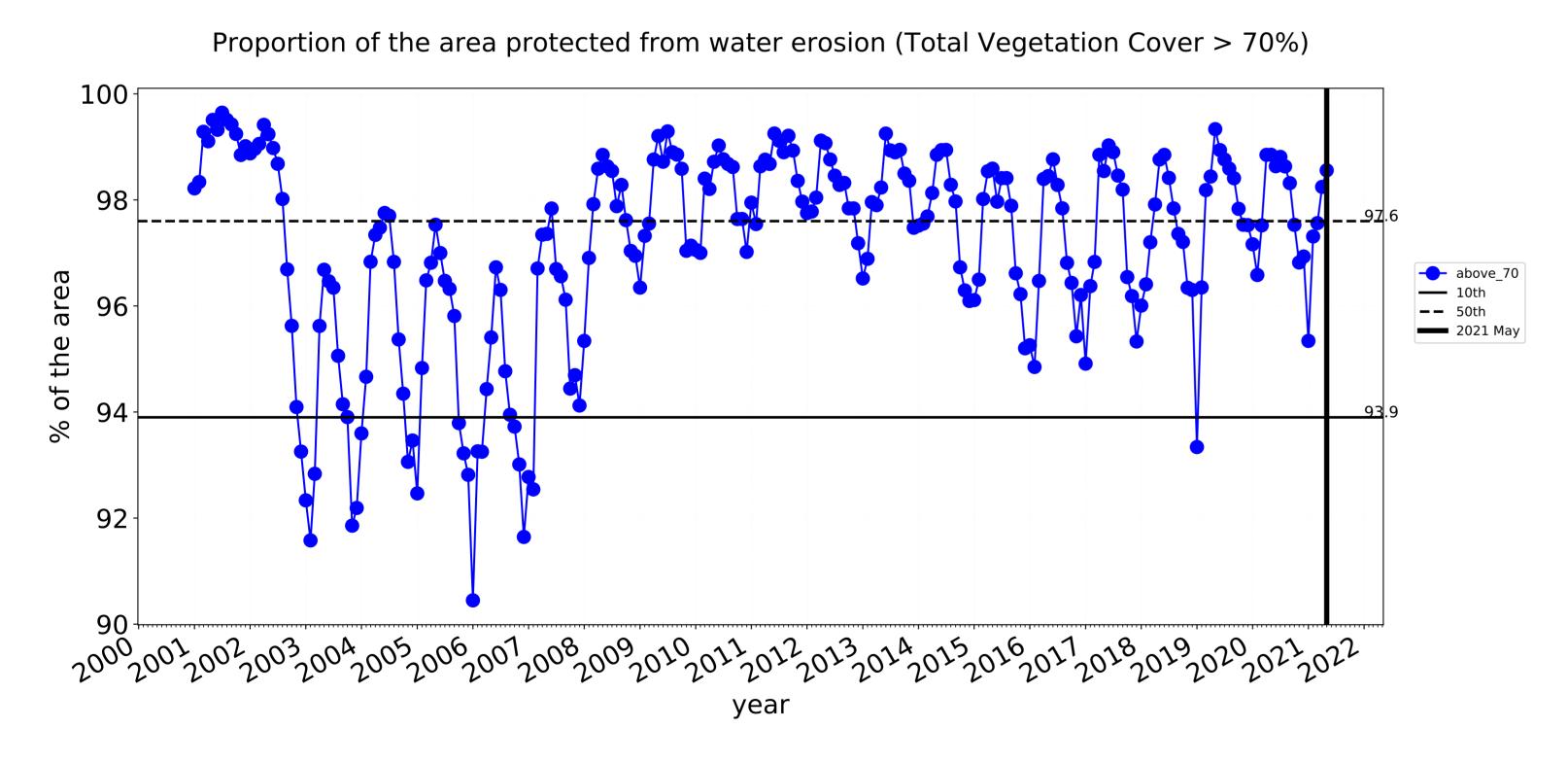


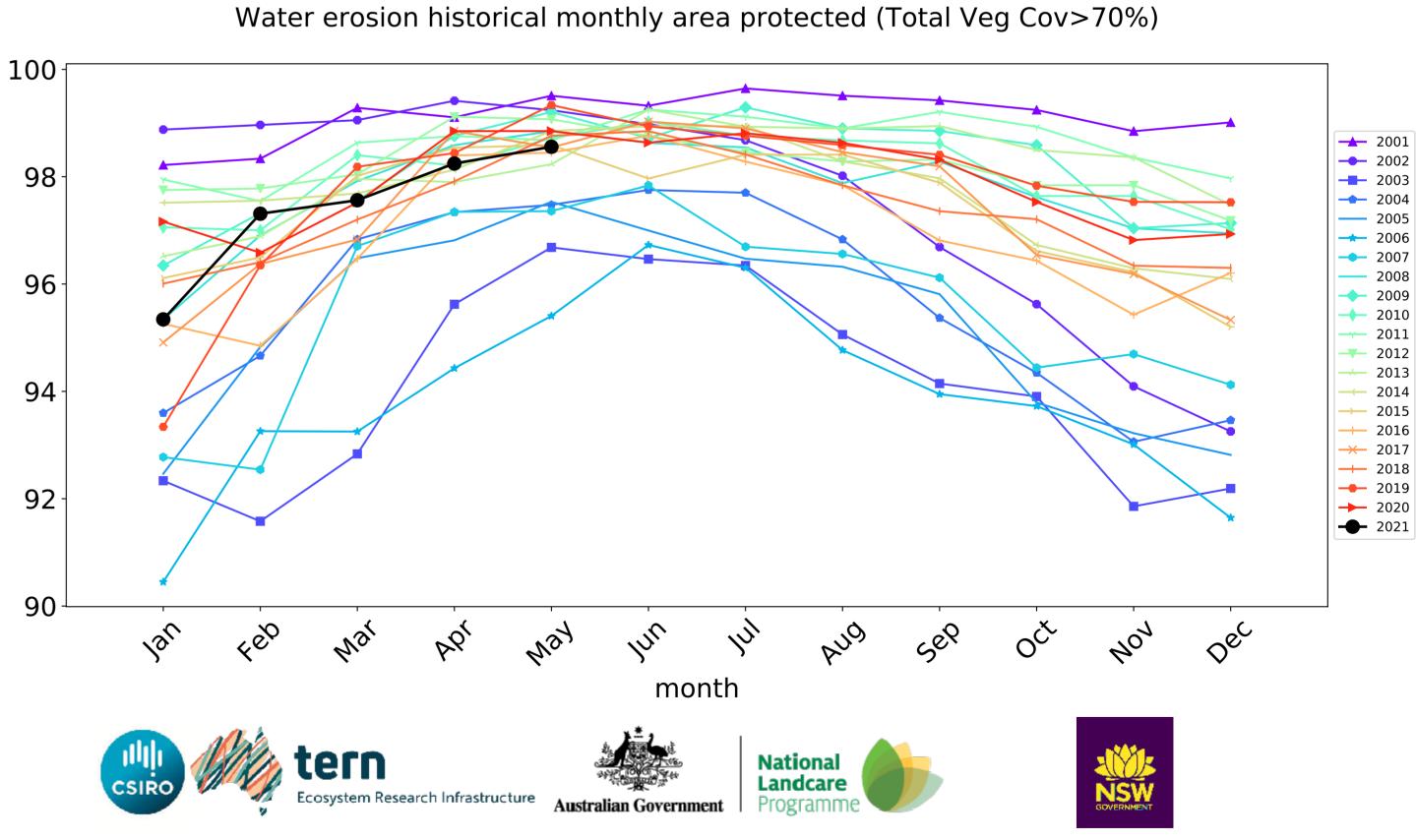






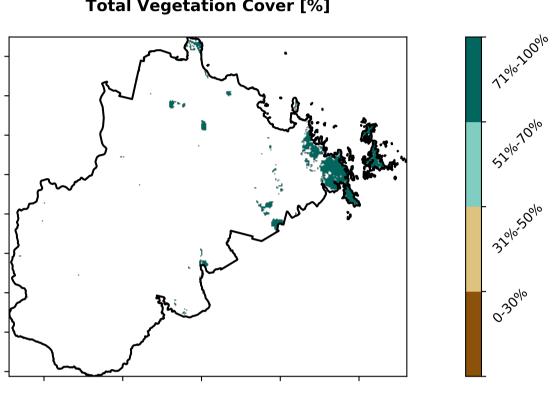


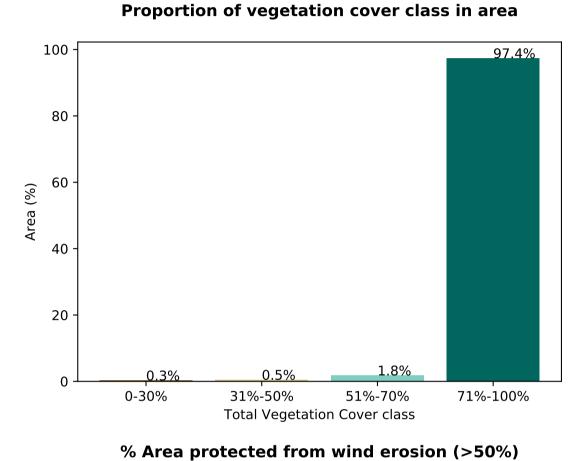


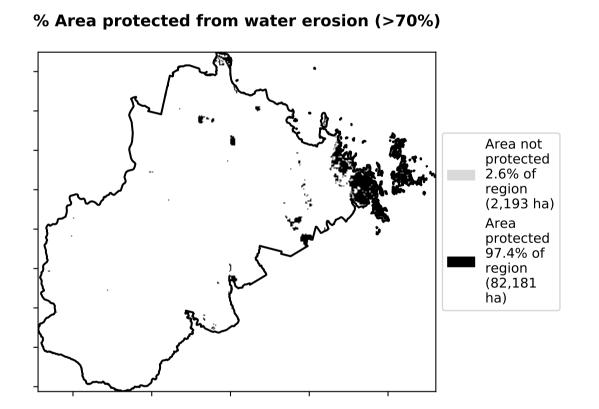


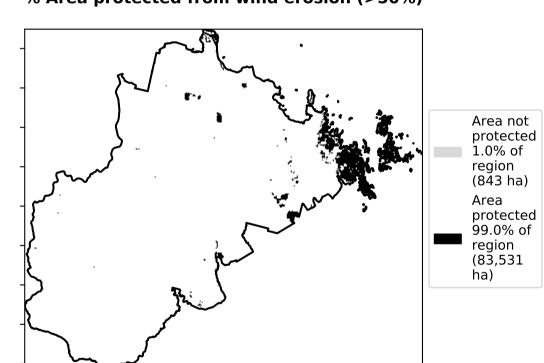
#### **Conservation and natural environments Forest (non woodland)**

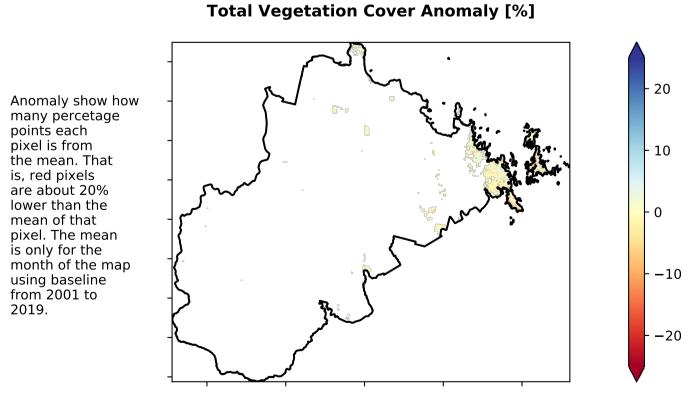
# Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) Total Vegetation Cover [%]

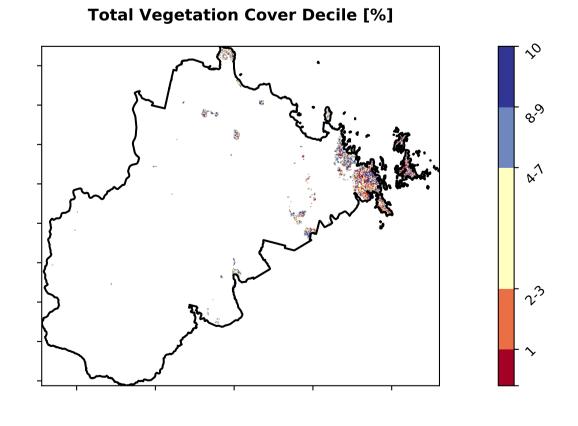












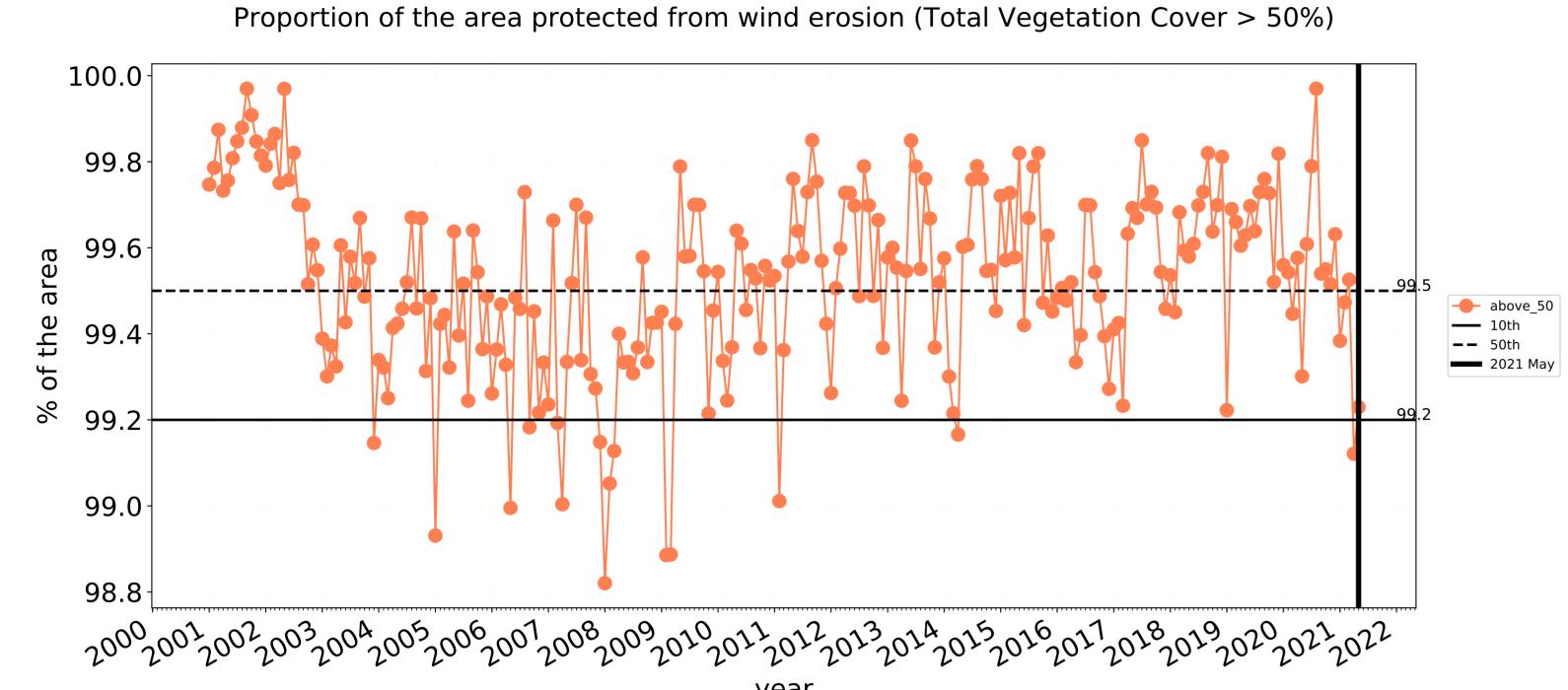
Australian Government

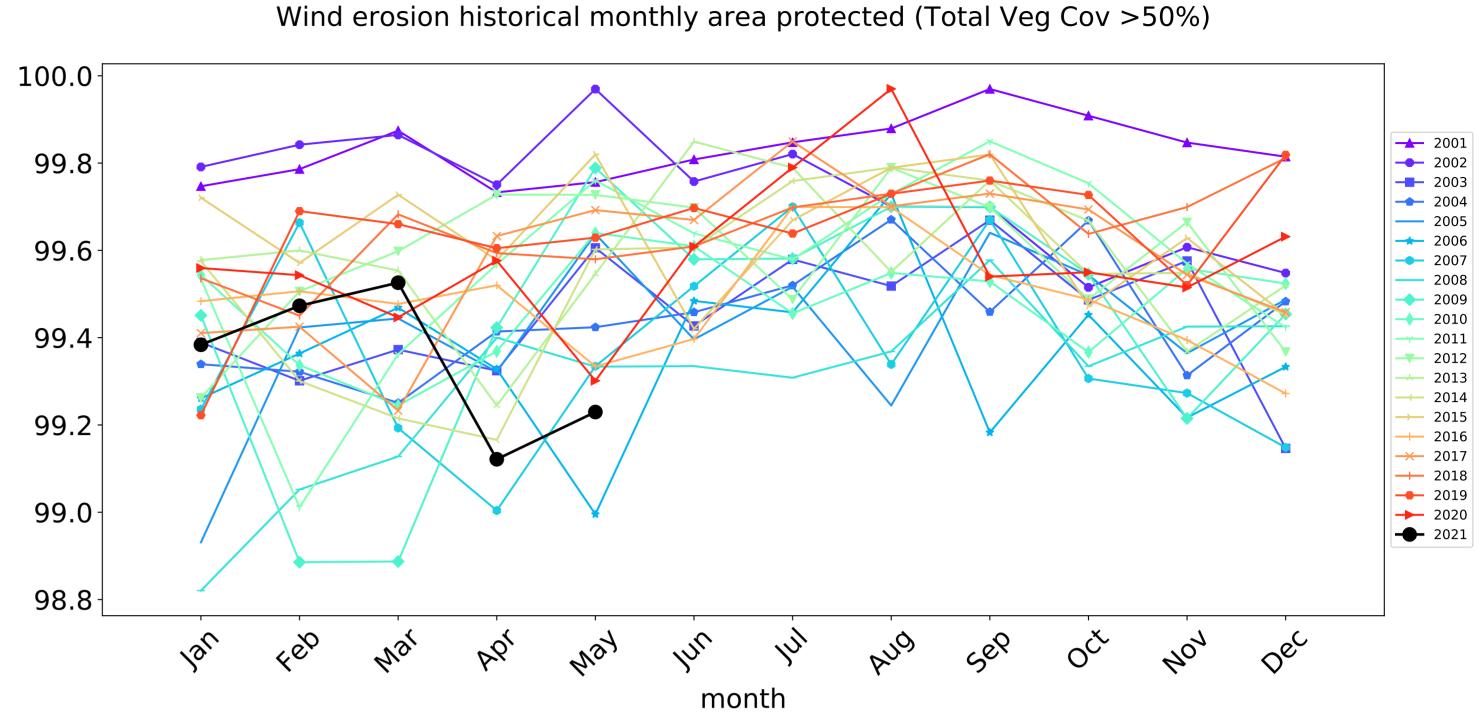
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseling.

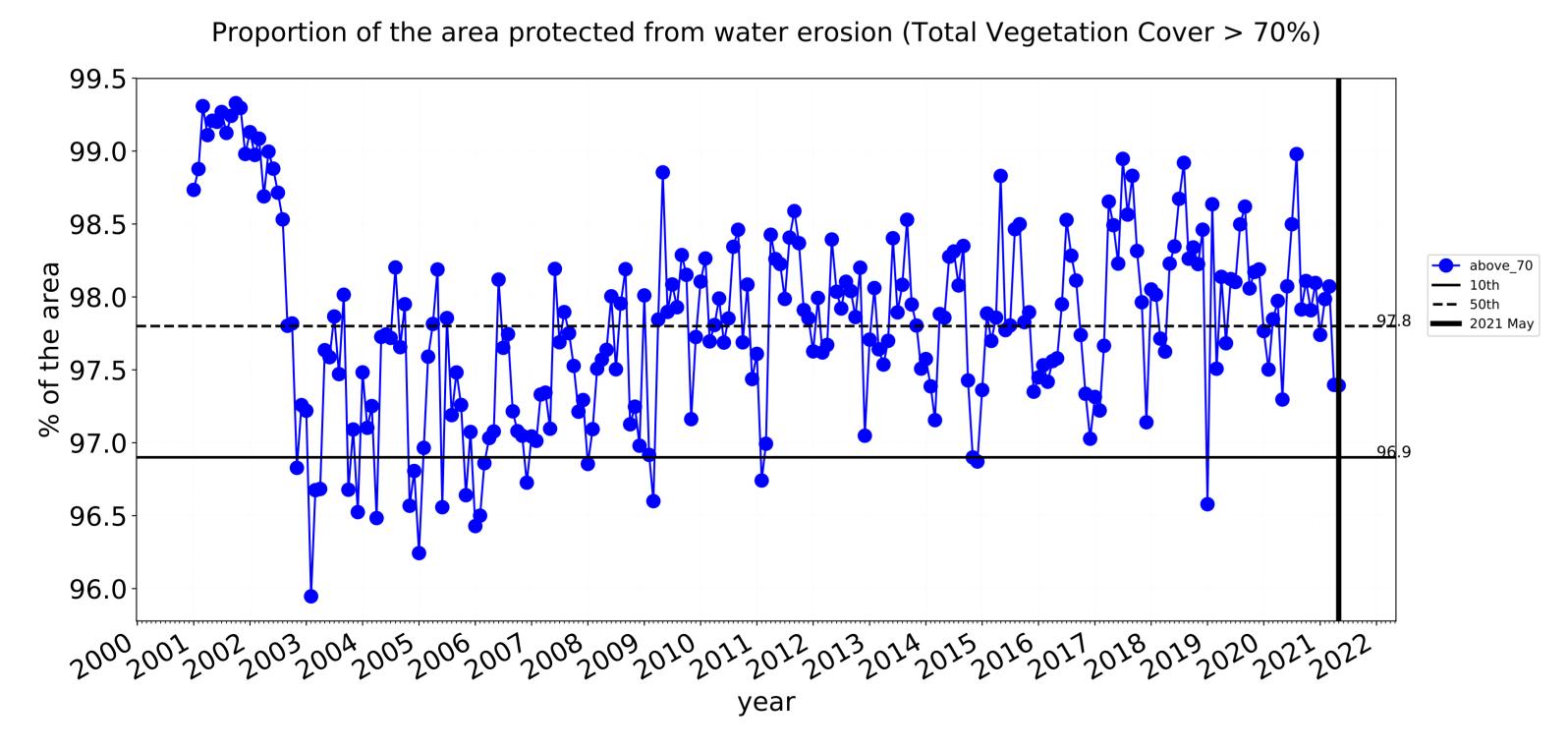
the map using baseline from 2001 to 2019.

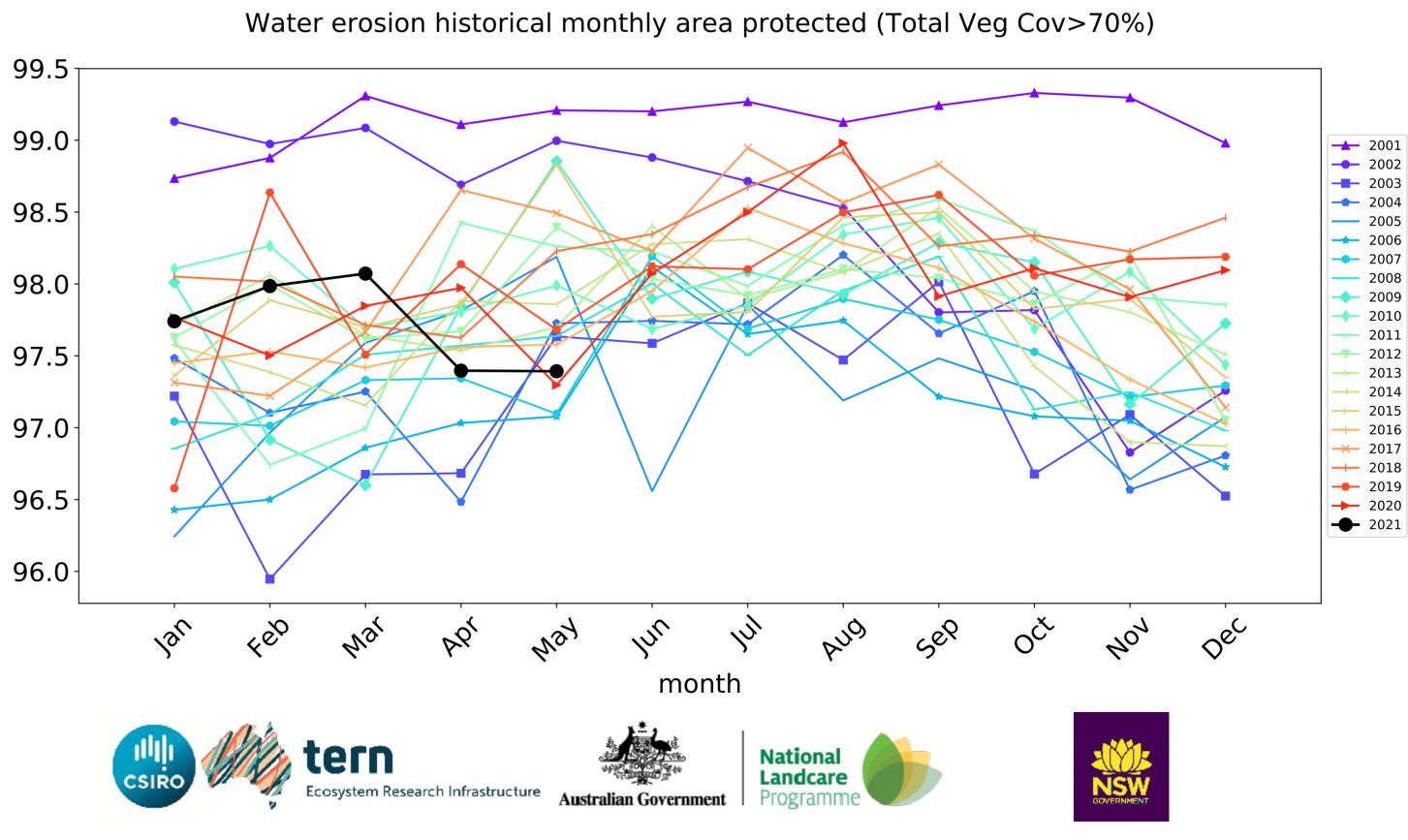












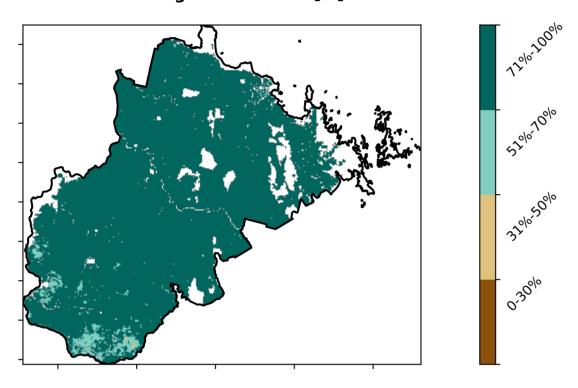
#### **Agriculture**

#### Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest Derived from 4 Agriculture - Grazing - Irrigated Catchment Scale Land 5 Agriculture - Cropping - Non-irrigated Use of Australia 6 Agriculture - Cropping - Irrigated (2018) and Forests of Australia (2018) 7 Agriculture - Horticulture - Non-irrigated 8 Agriculture - Horticulture - Irrigated

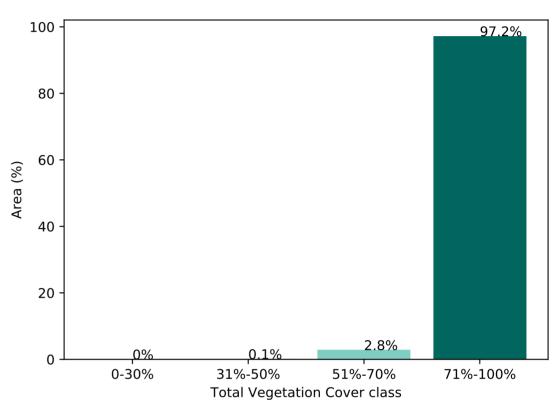
#### <u>56.</u>2% 50 39.3% 40 Area (%) 20 -10 Land use class

Proportion of each land class in area

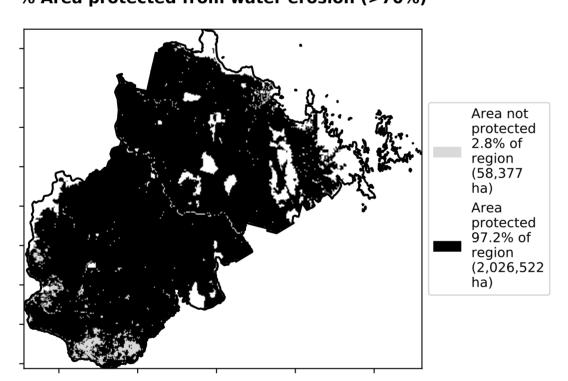




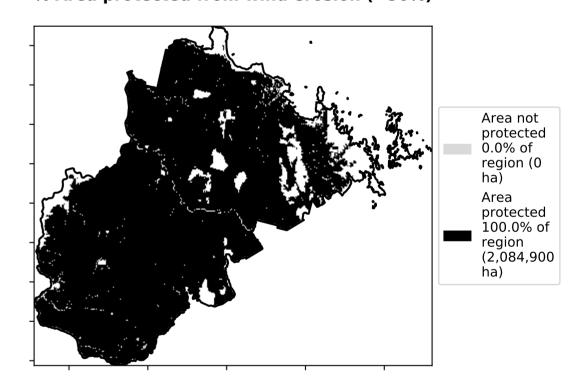
**Proportion of vegetation cover class in area** 



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



% Area protected from wind erosion (>50%)



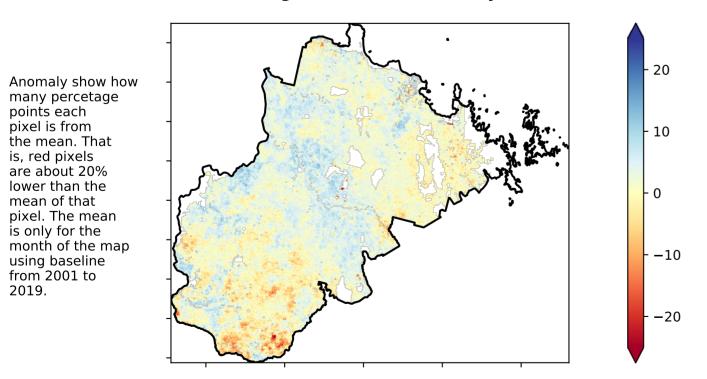
#### **Total Vegetation Cover Anomaly [%]**

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.

**Total Vegetation Cover Decile [%]** 

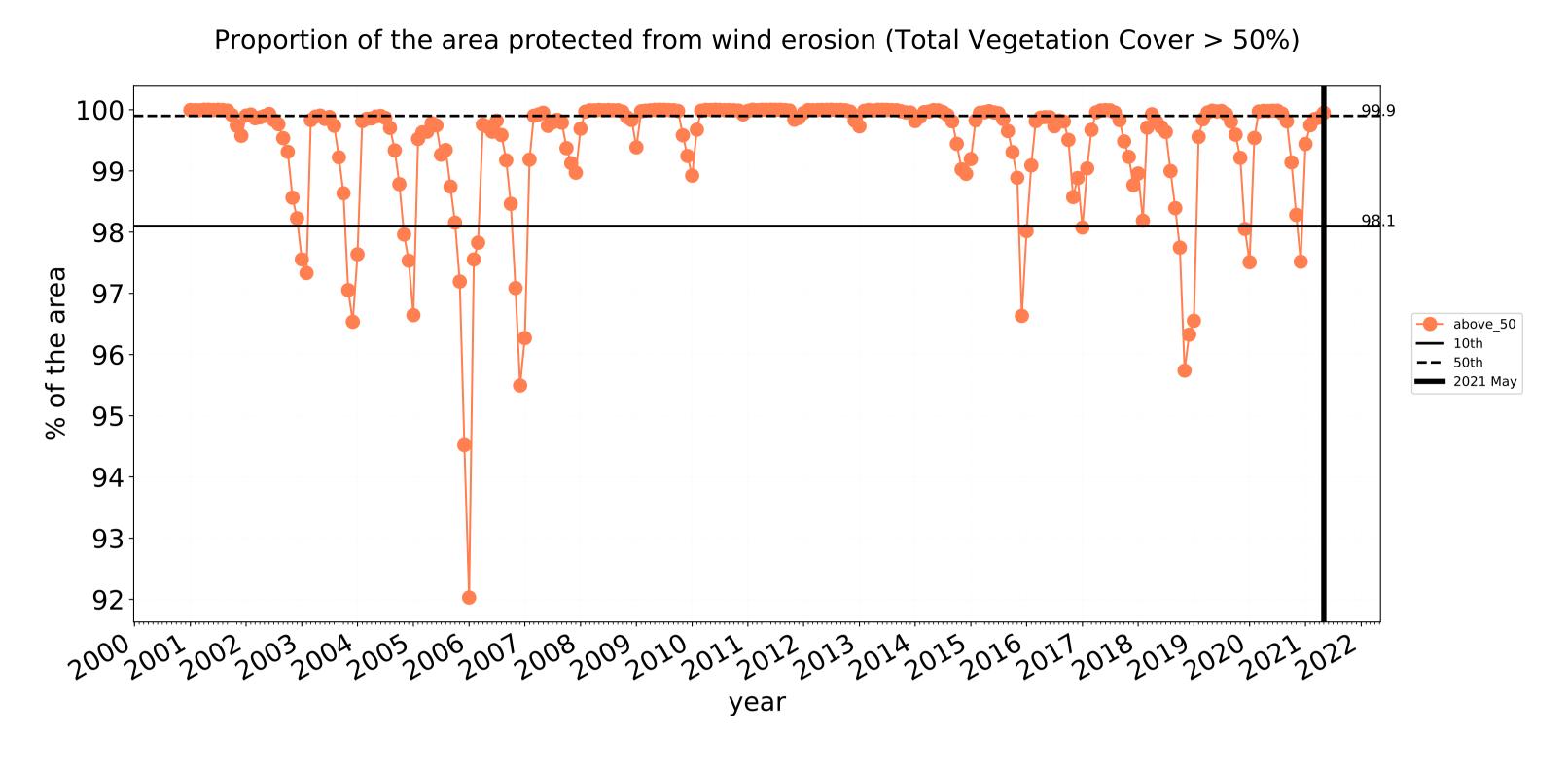
### Ecosystem Research Infrastructure

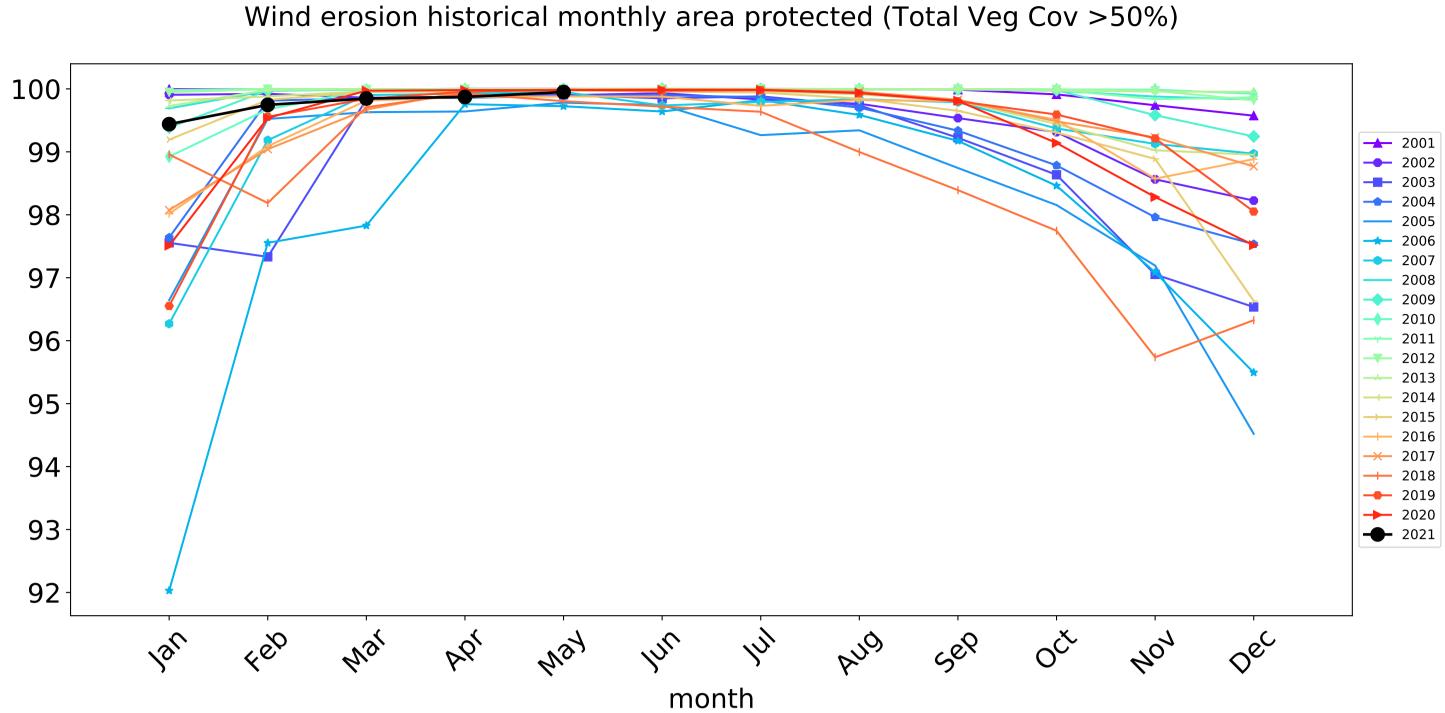


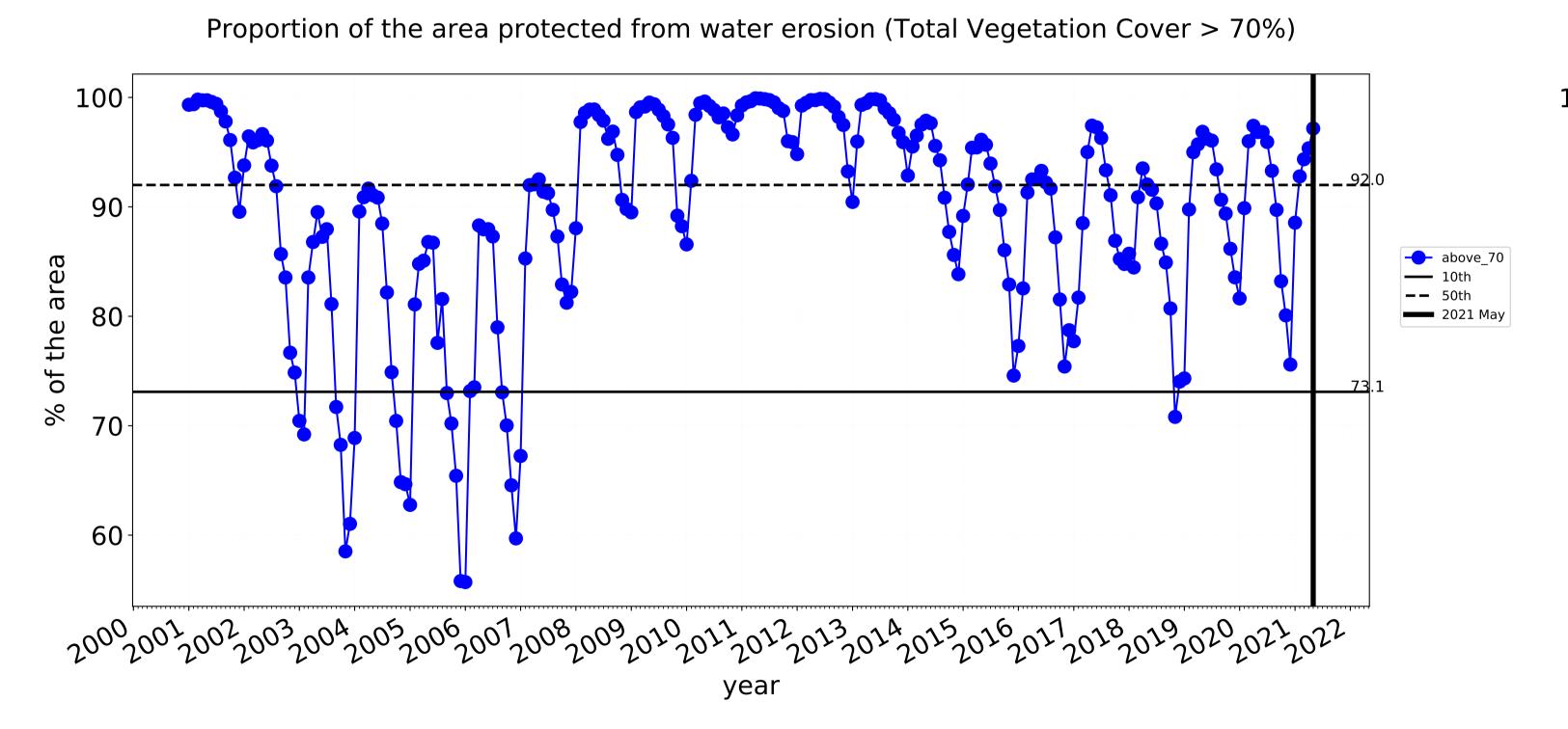


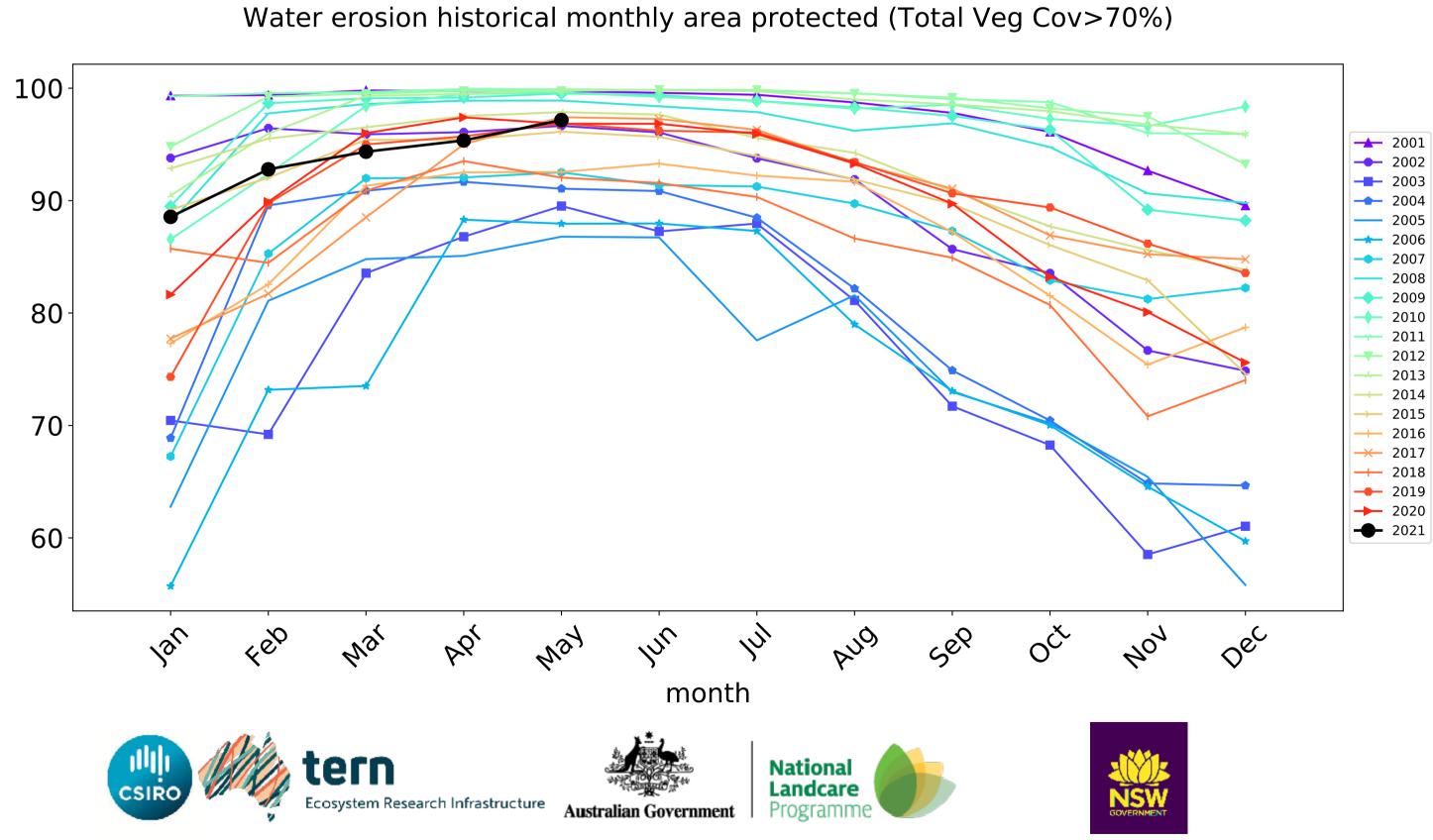


#### **Agriculture timeseries**



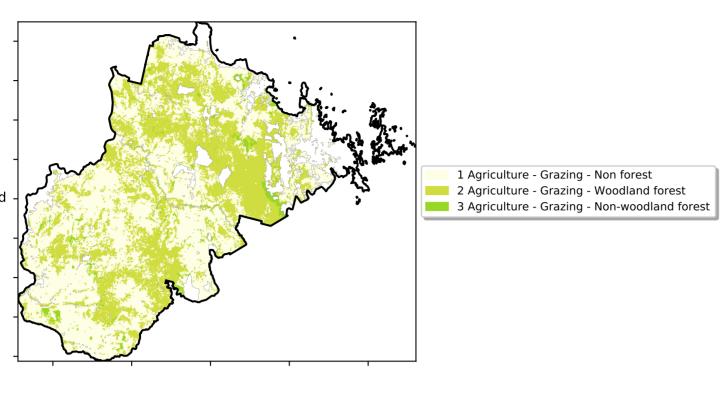




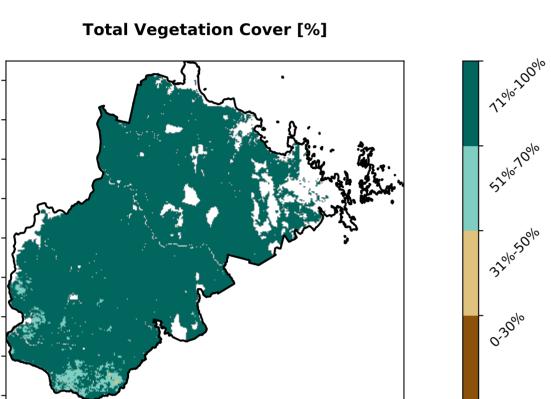


#### **Grazing**

### 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)

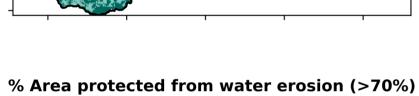


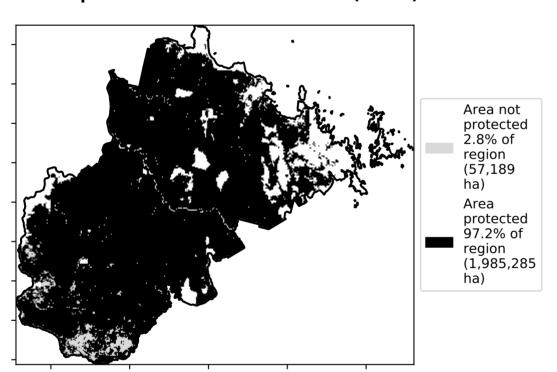
#### Proportion of each land class in area 60 -57.4% 50 40.1% 40 Area (%) 20 10 2.5% 2



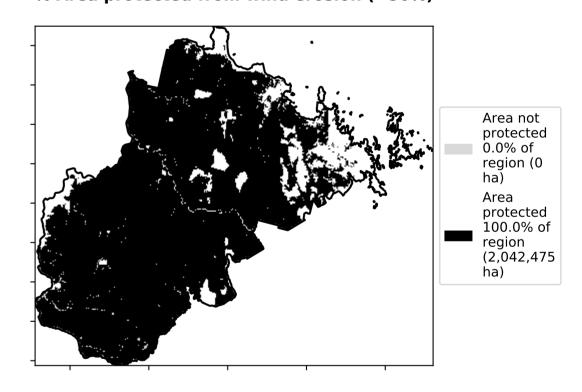
Land use class **Proportion of vegetation cover class in area** 

#### 100 97.2% 80 60 Area (%) 40 20 2.7% 51%-70% 0-30% 31%-50% 71%-100% **Total Vegetation Cover class**

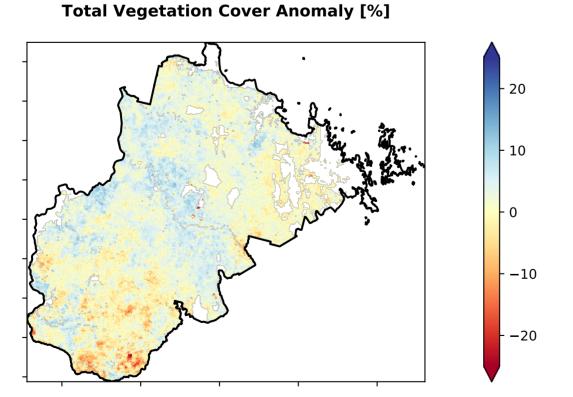




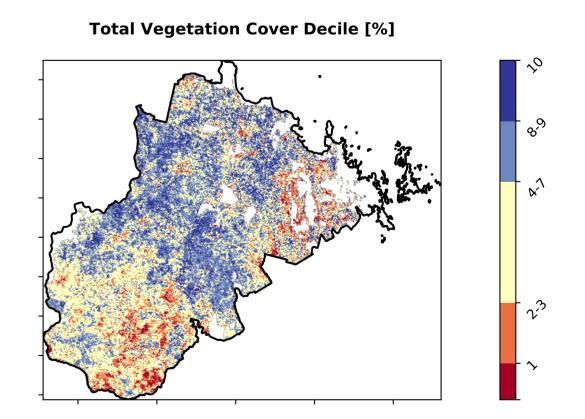
% Area protected from wind erosion (>50%)



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.



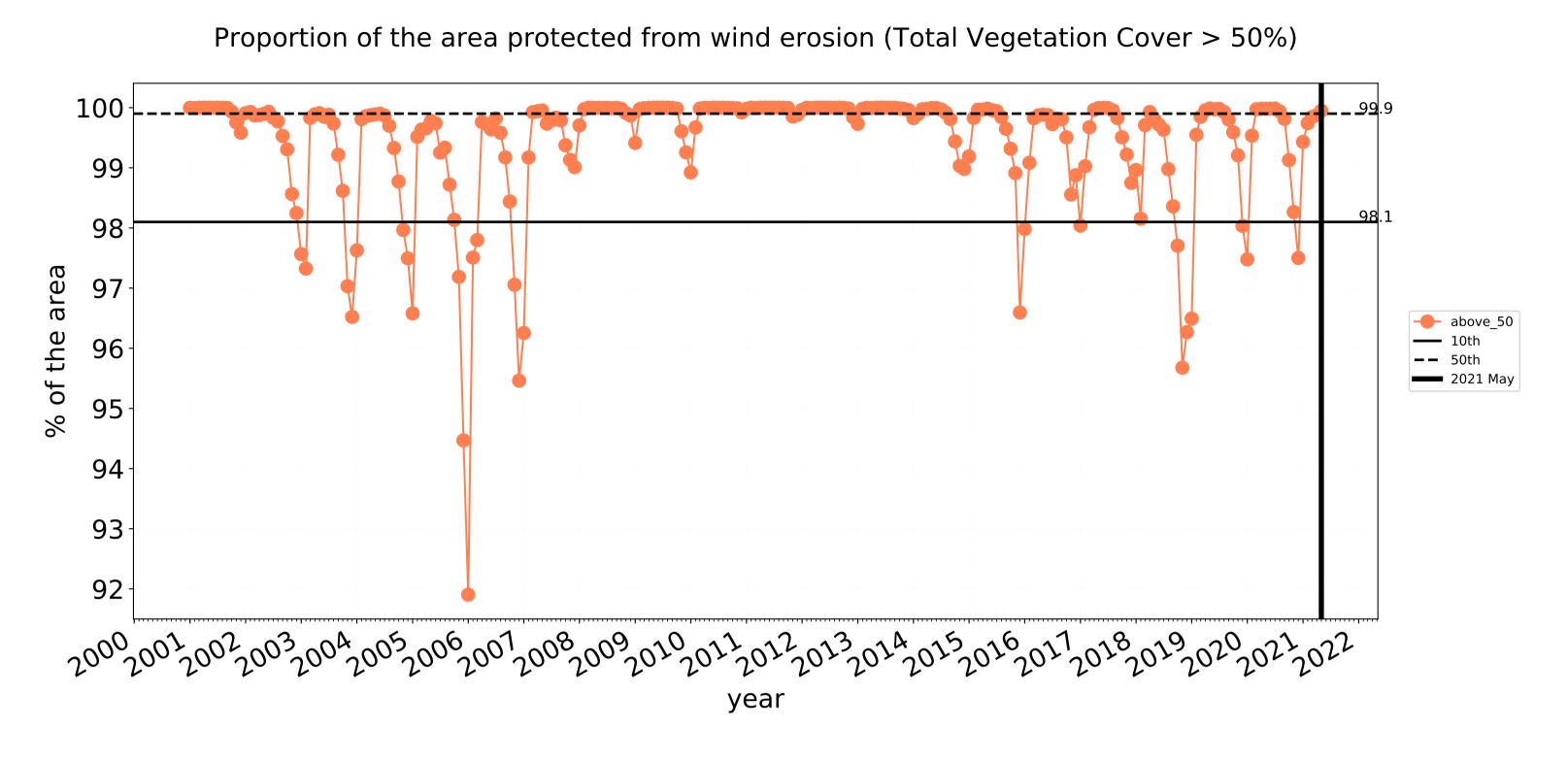


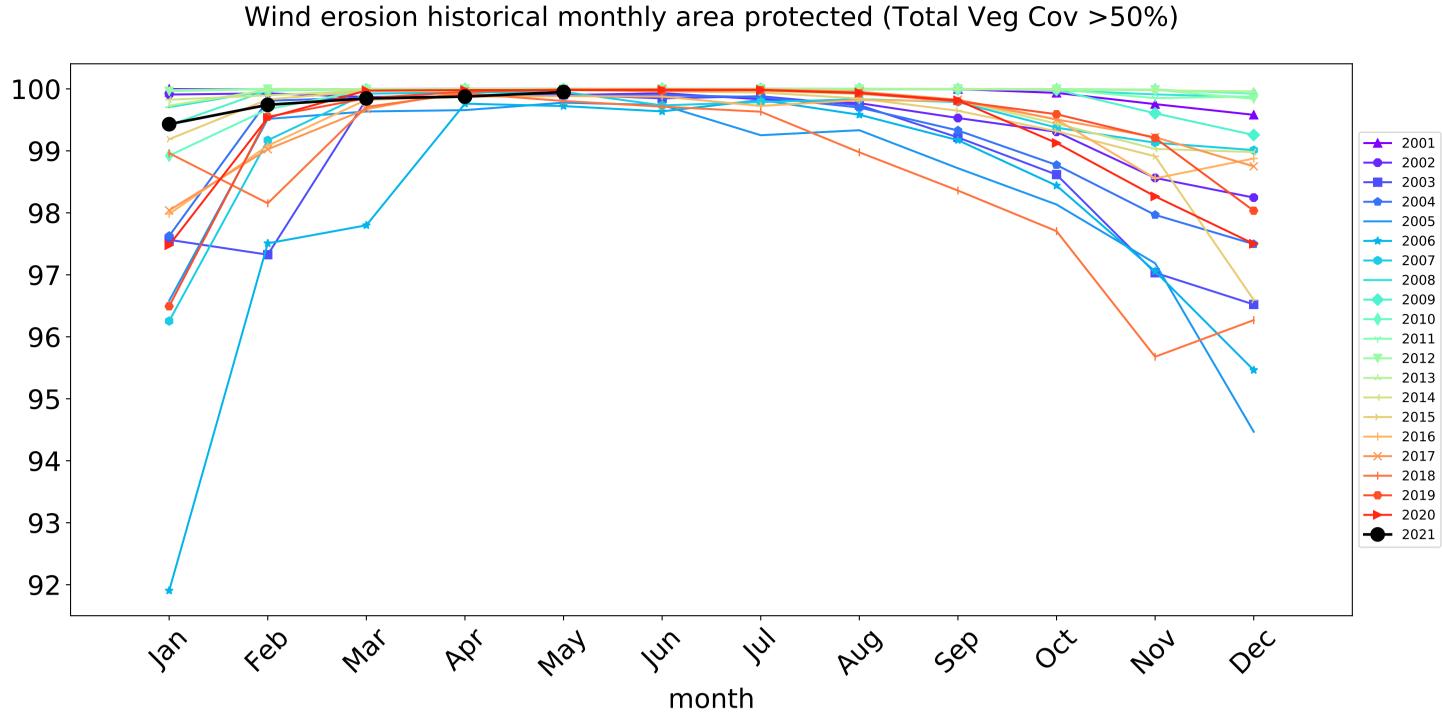


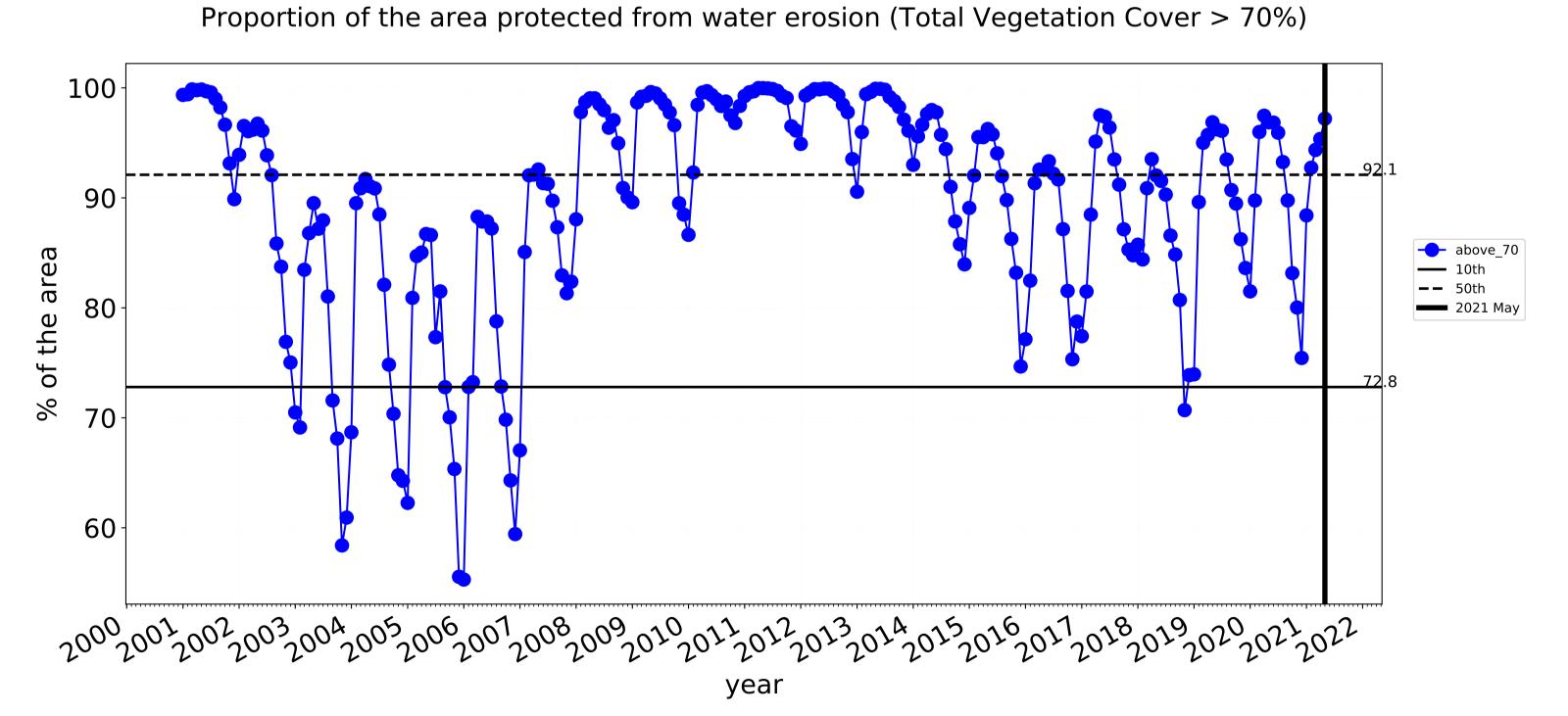


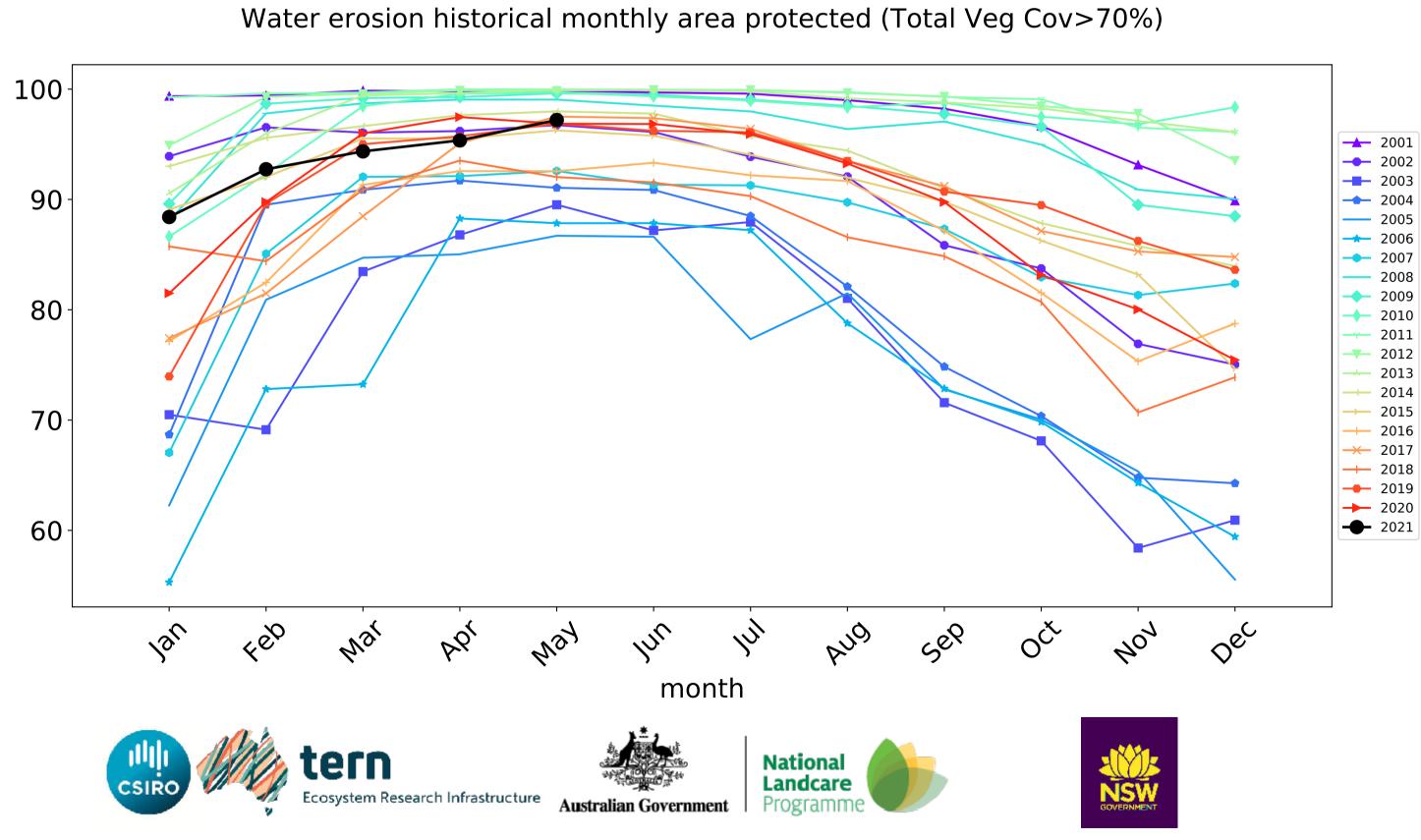


#### **Grazing timeseries**









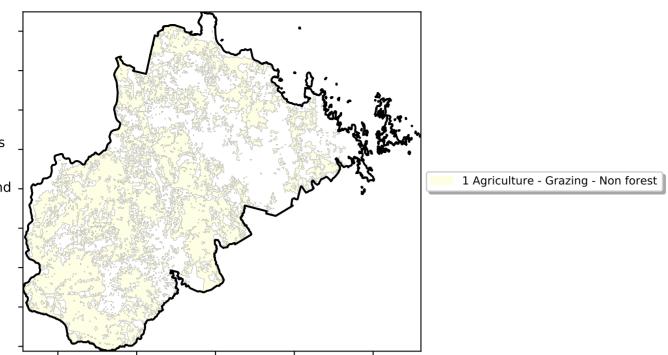
#### **Grazing non forest**

#### Land use and forest cover

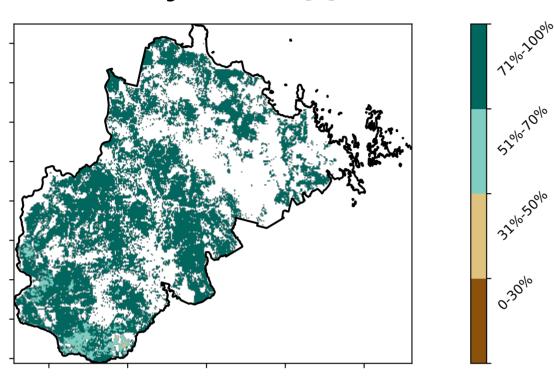
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

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

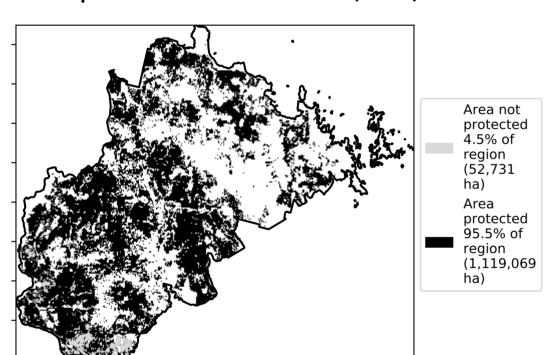
using baseline from 2001 to 2019.



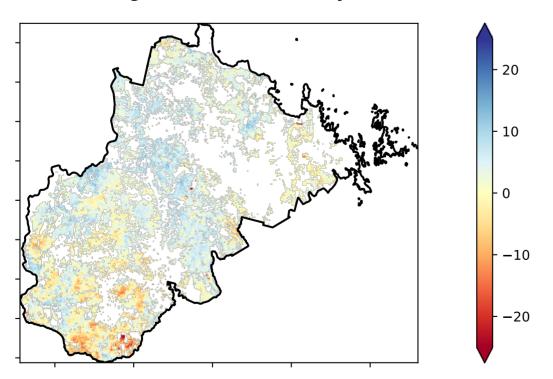
#### **Total Vegetation Cover [%]**



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

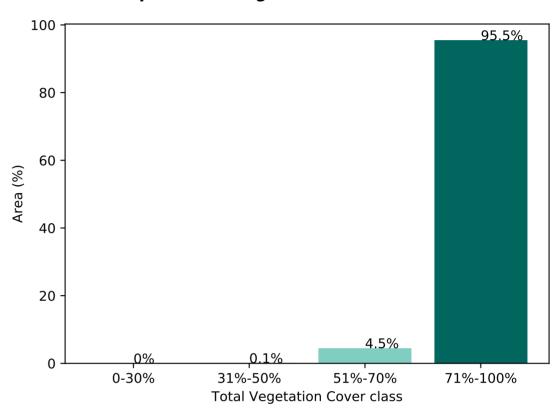


#### **Total Vegetation Cover Anomaly [%]**

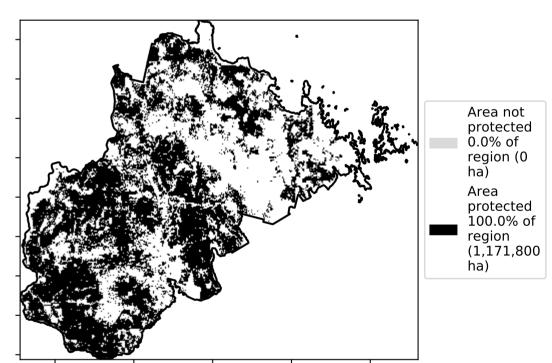


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

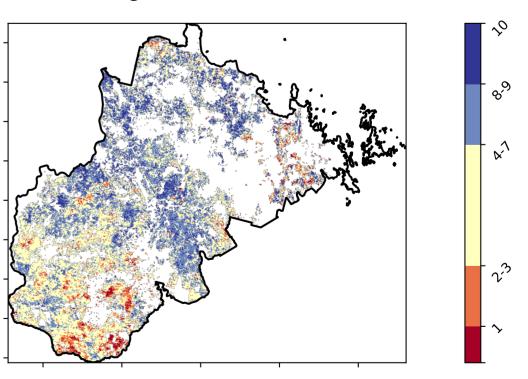
#### Proportion of vegetation cover class in area



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



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







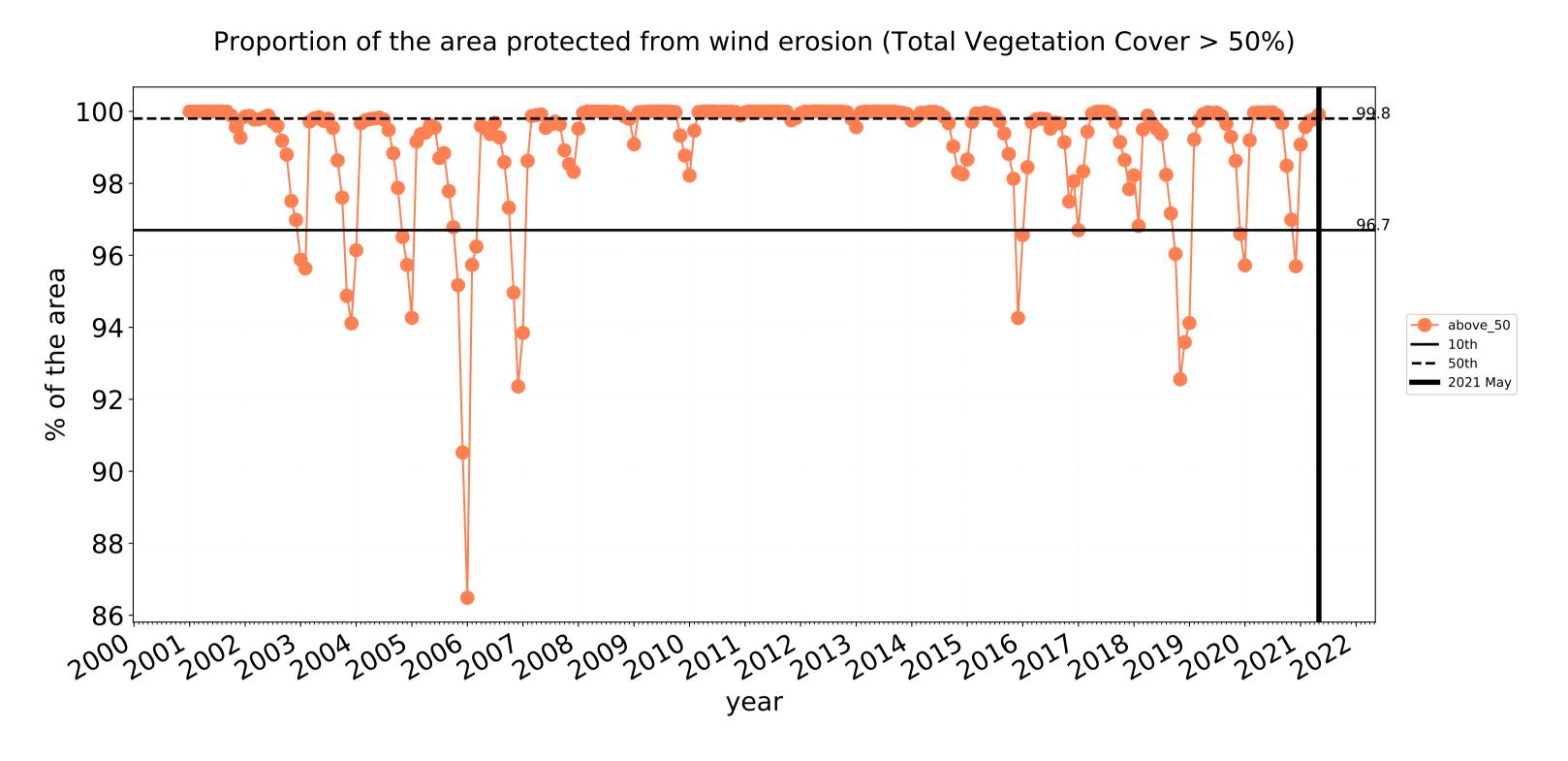


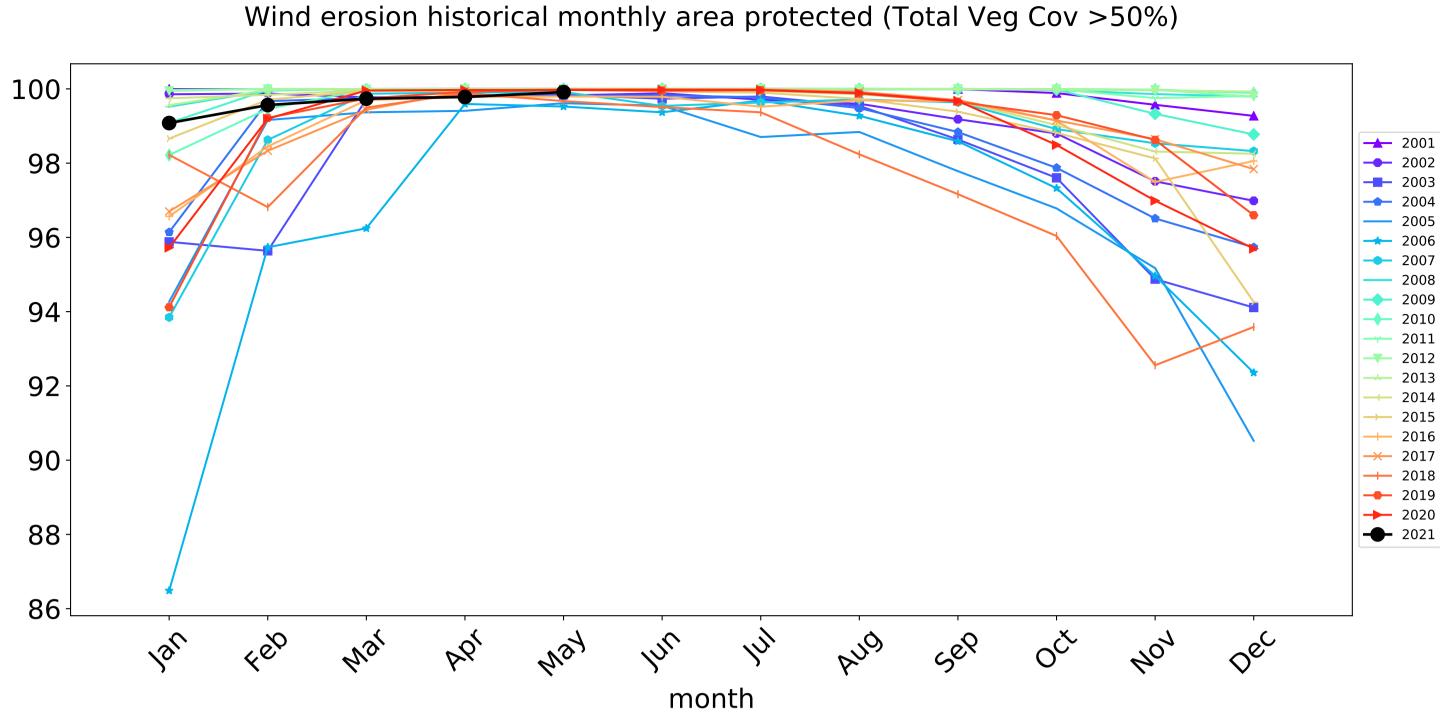


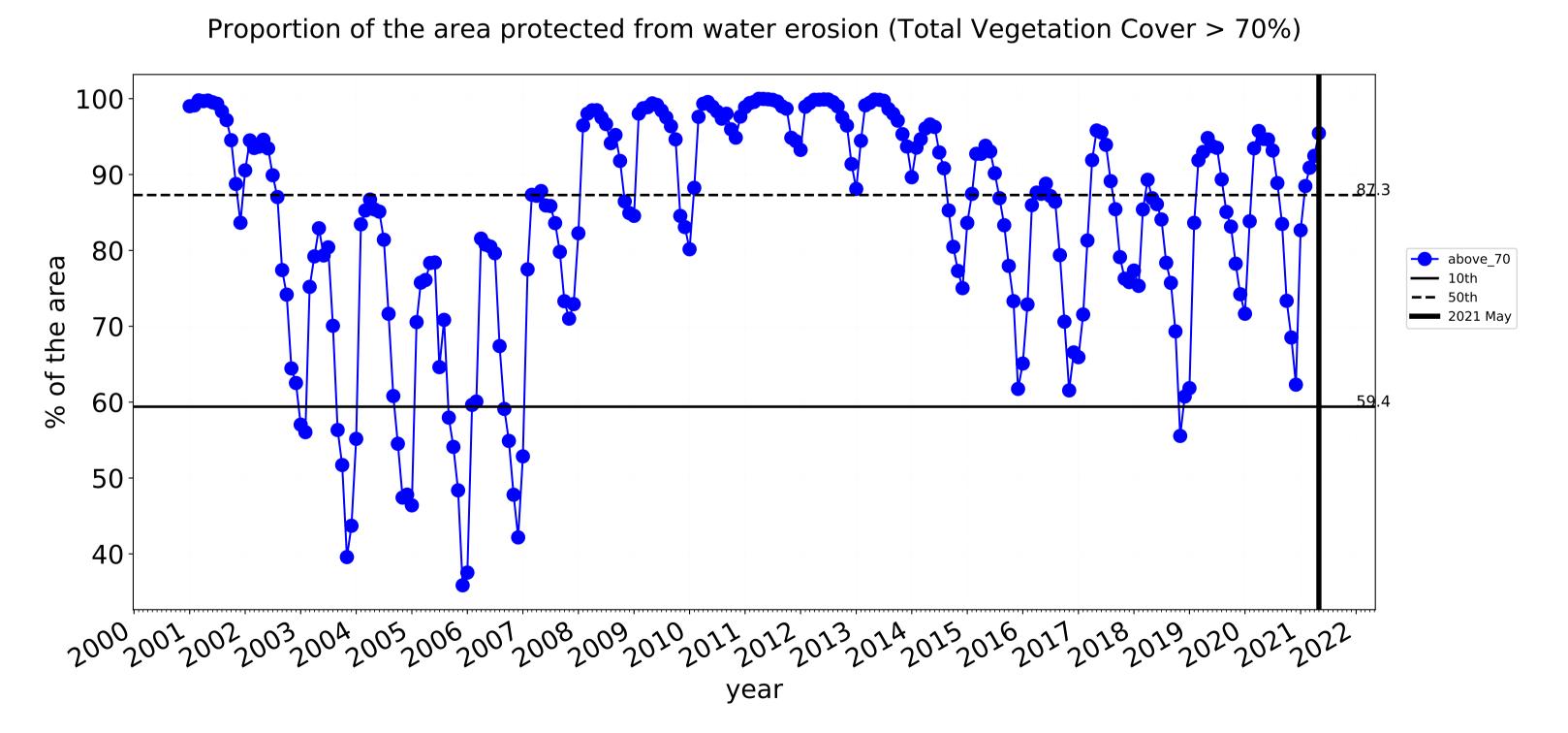


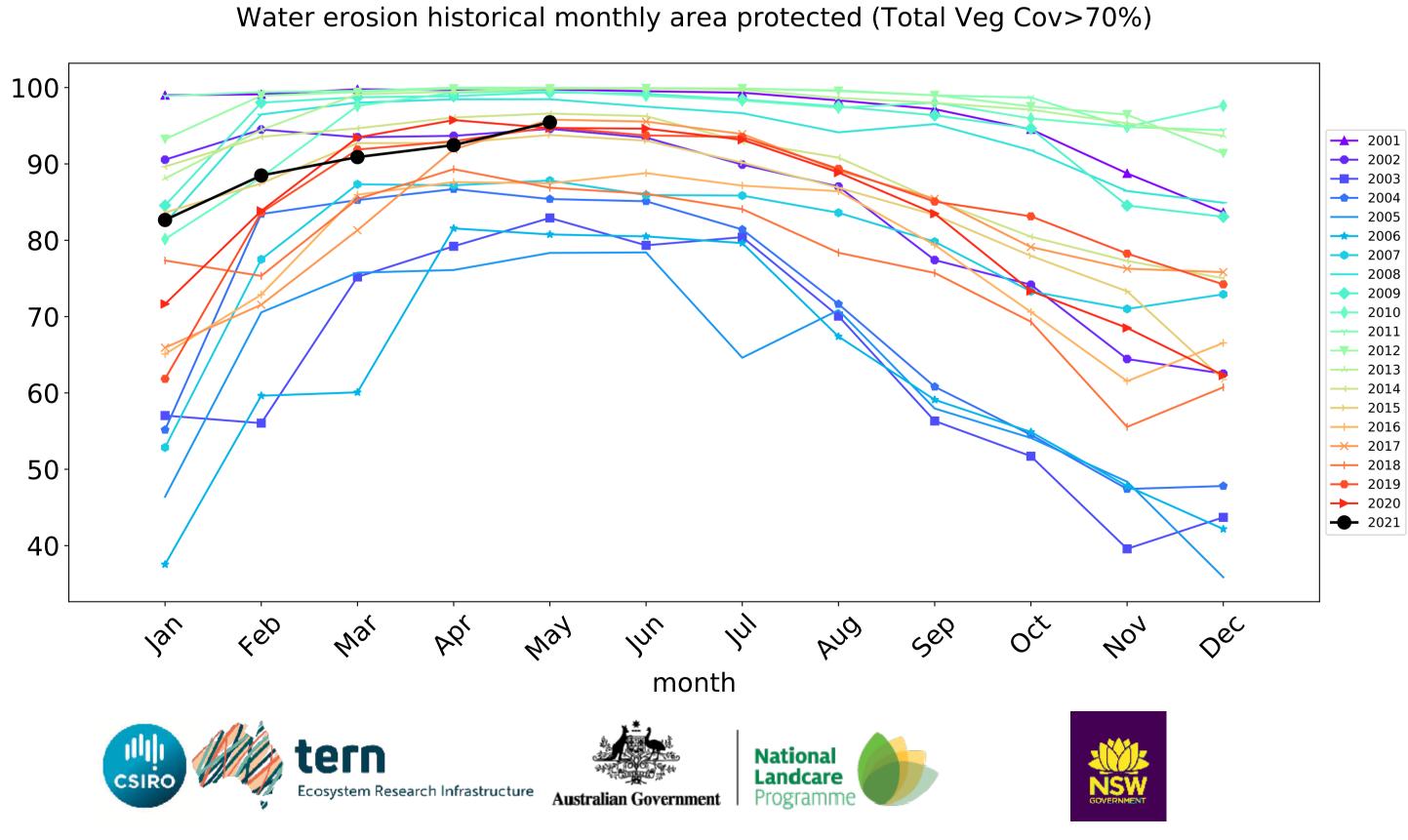


#### **Grazing non forest timeseries**





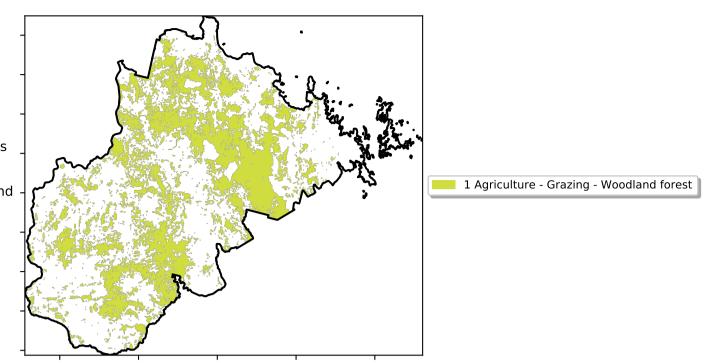




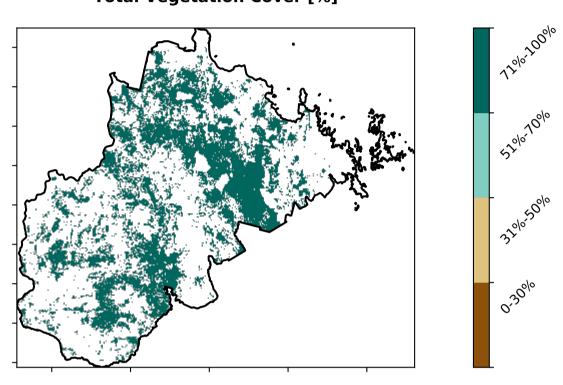
#### **Grazing Woodland forest**

#### Land use and forest cover

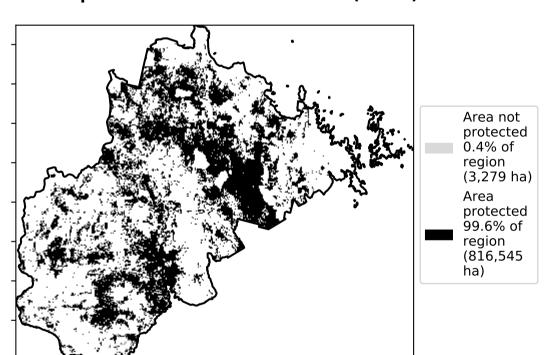
Catchment Scale
Land Use and Forests
of Australia (2018)
Derived from
Catchment Scale Land
Use of Australia
(2018) and Forests
of Australia (2018)



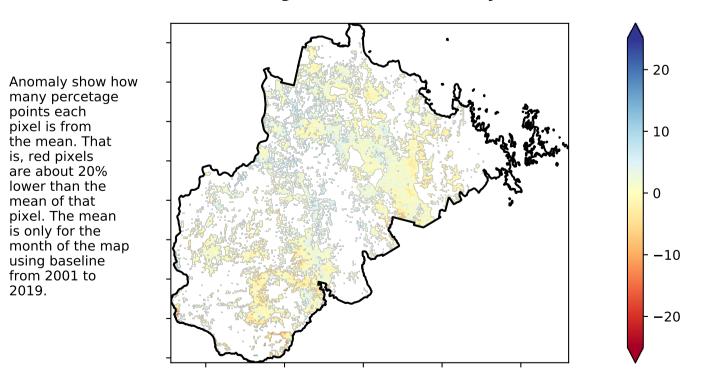
#### **Total Vegetation Cover [%]**



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

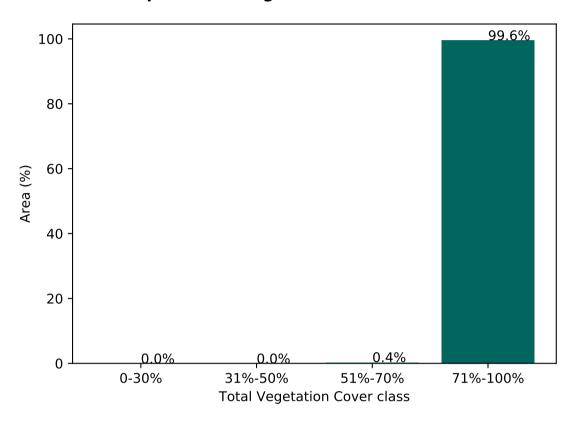


#### **Total Vegetation Cover Anomaly [%]**

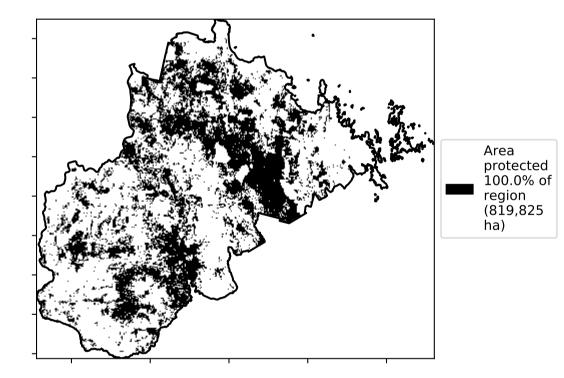


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

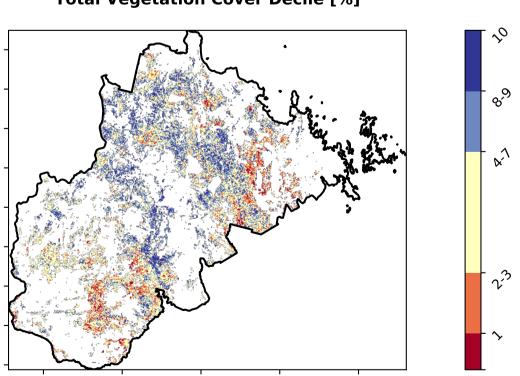
#### **Proportion of vegetation cover class in area**



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



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



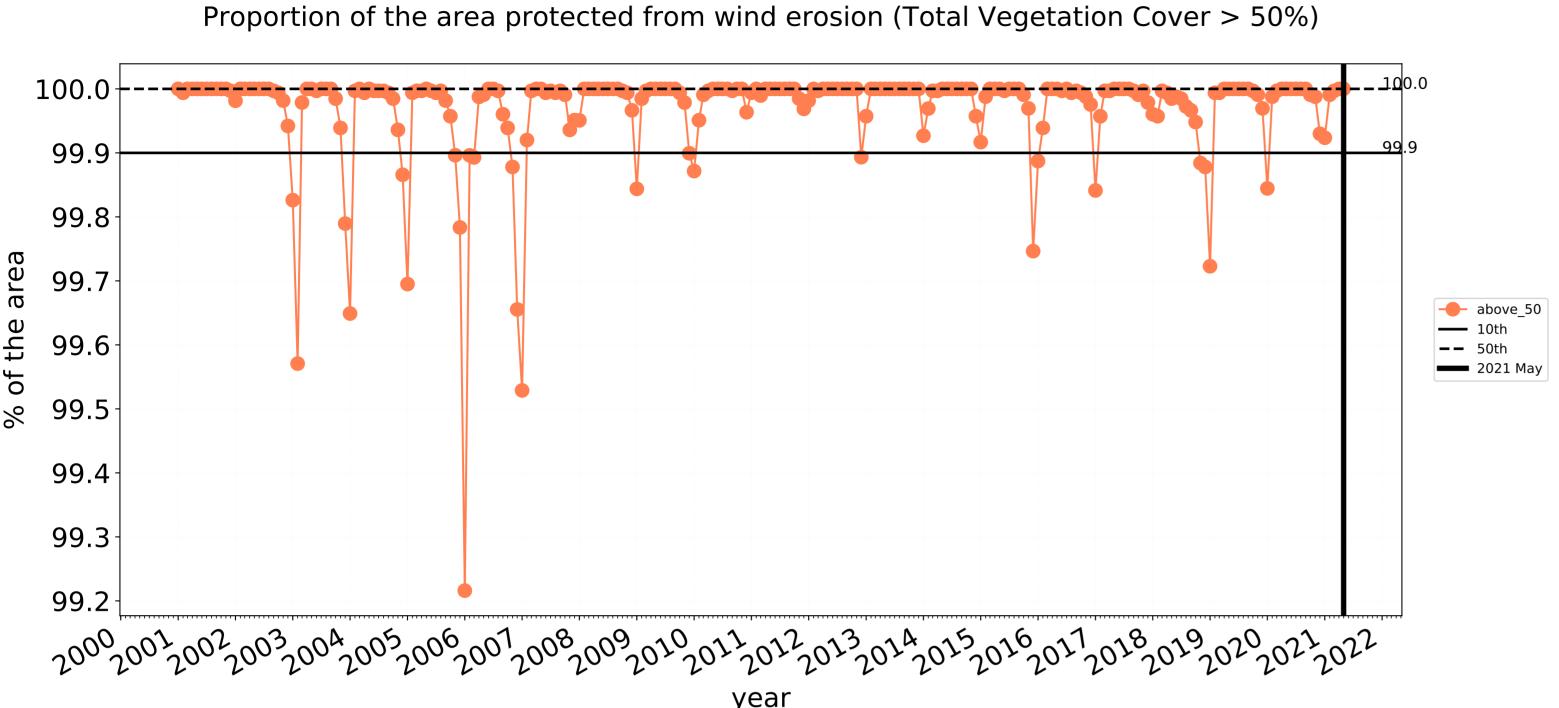


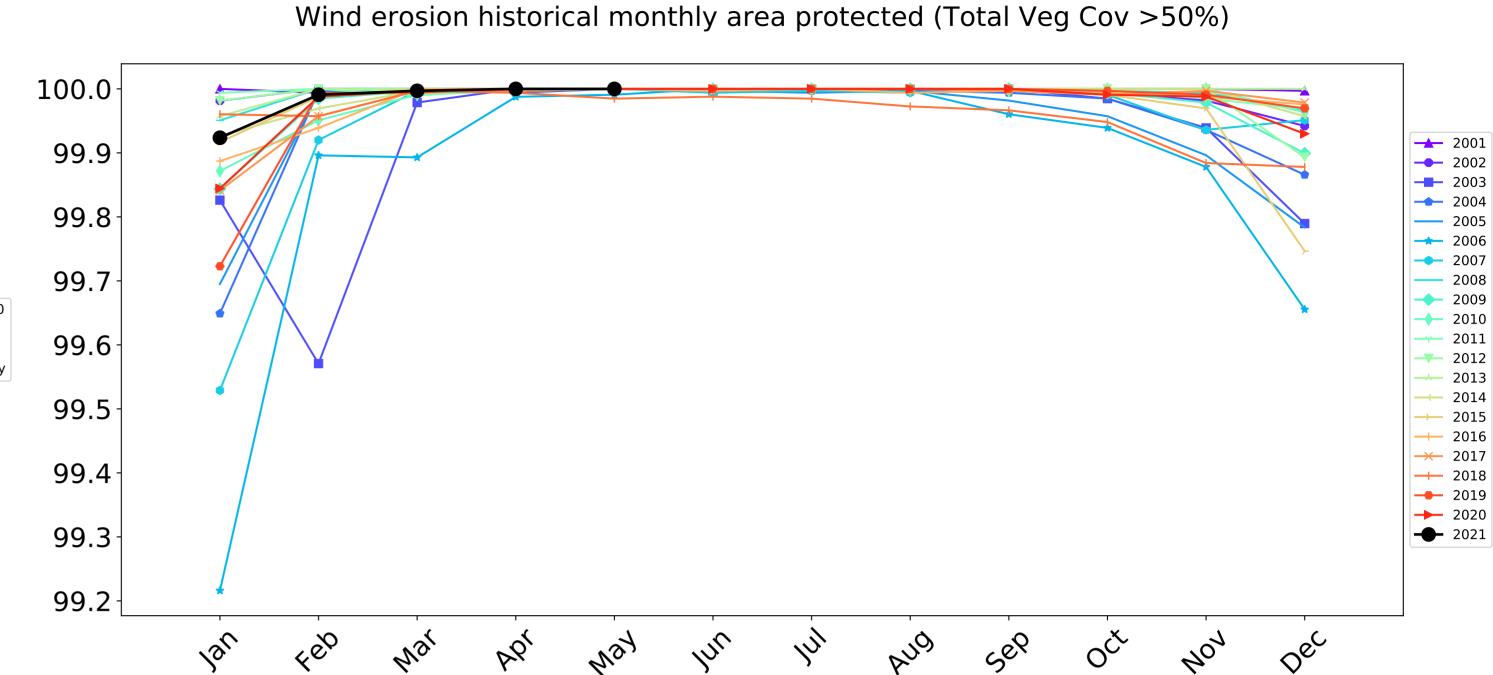


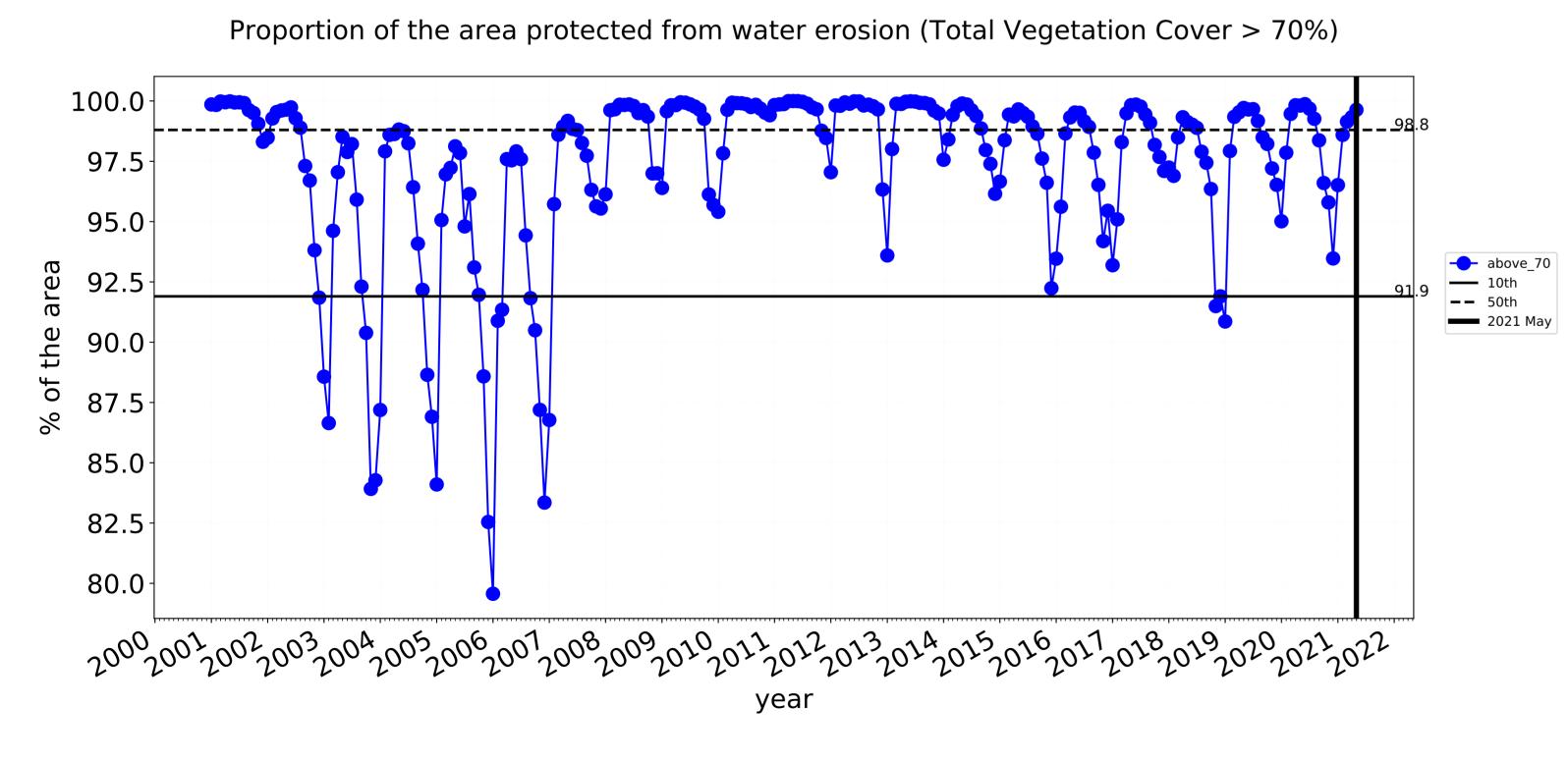


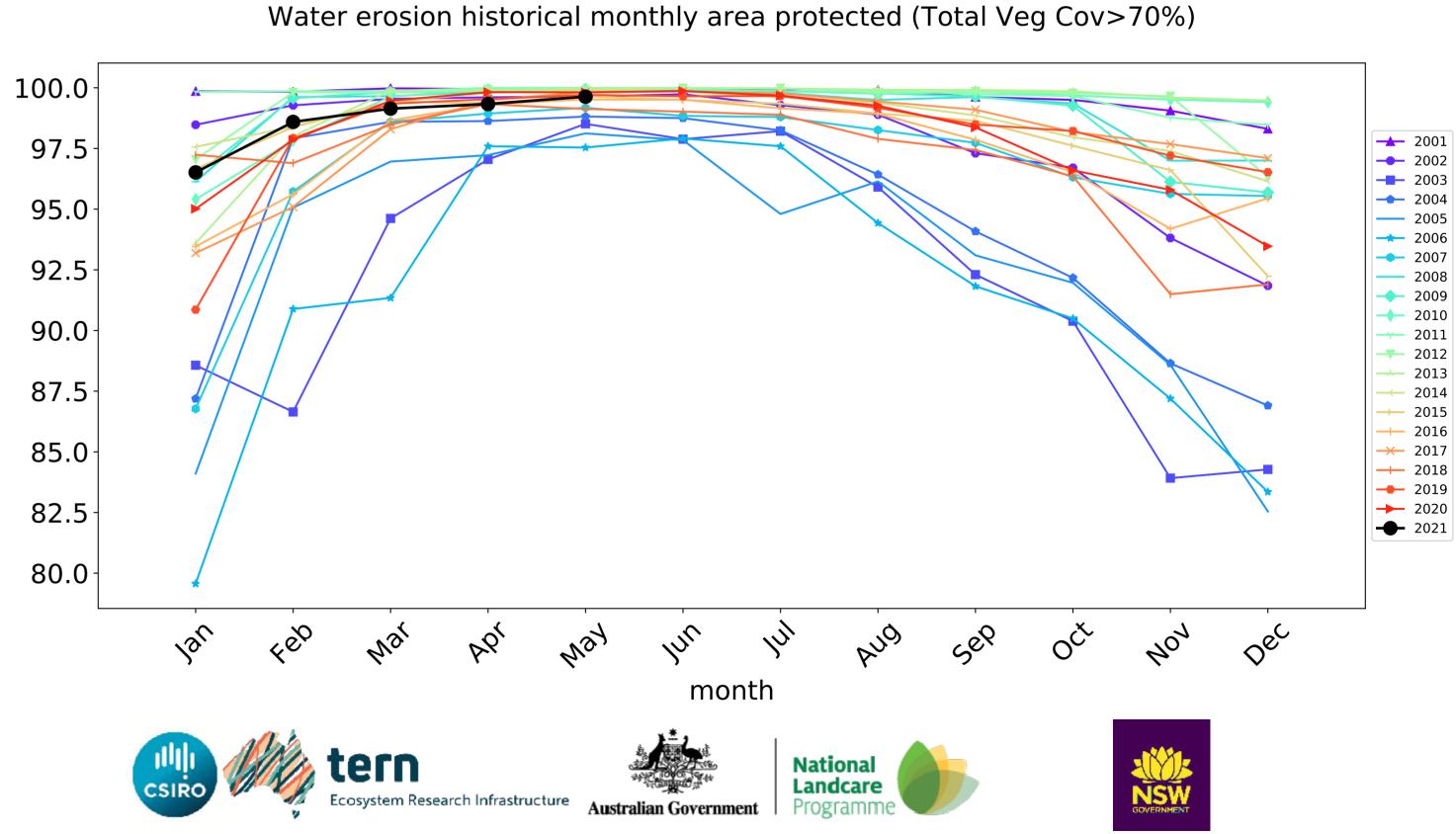


#### **Grazing Woodland forest timeseries**







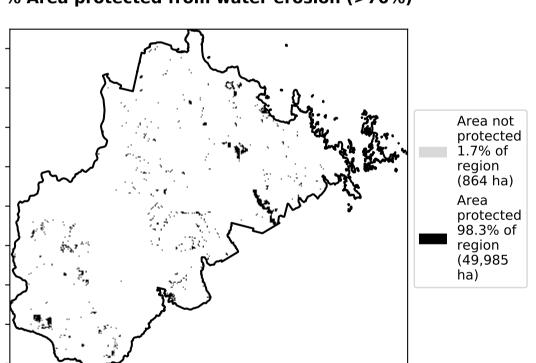


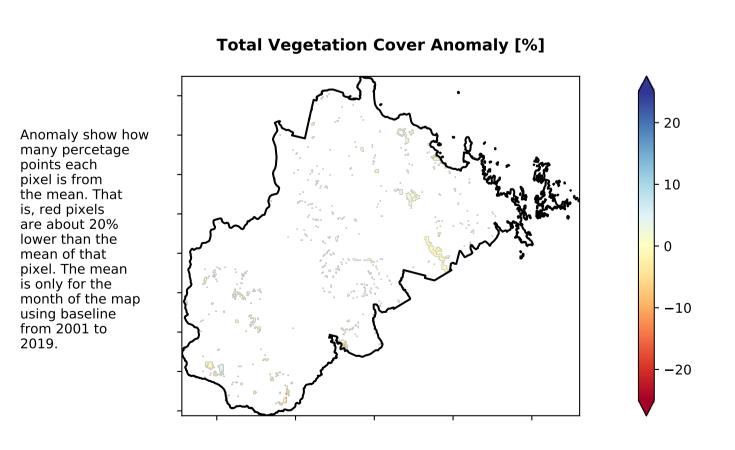
#### **Grazing - Forest (non woodland)**

## 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) 1 Agriculture - Grazing - Non-woodland forest

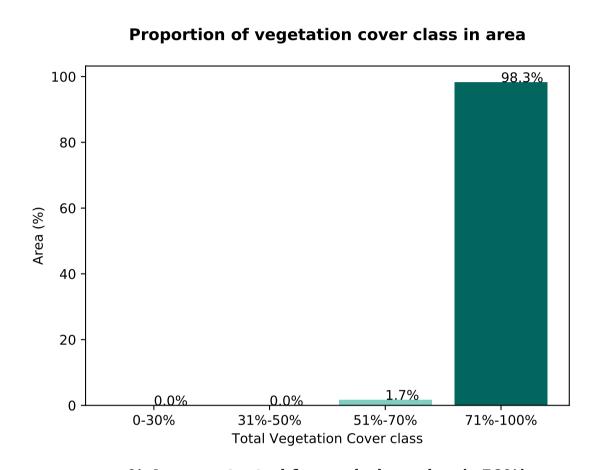
# **Total Vegetation Cover [%]**

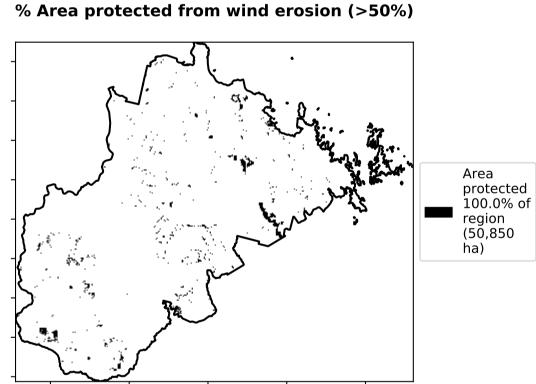
# % Area protected from water erosion (>70%)

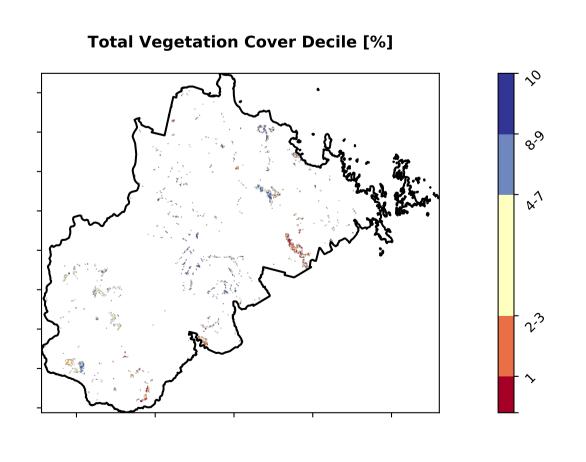




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of records for that month of the map using baseline from 2001 to 2019.





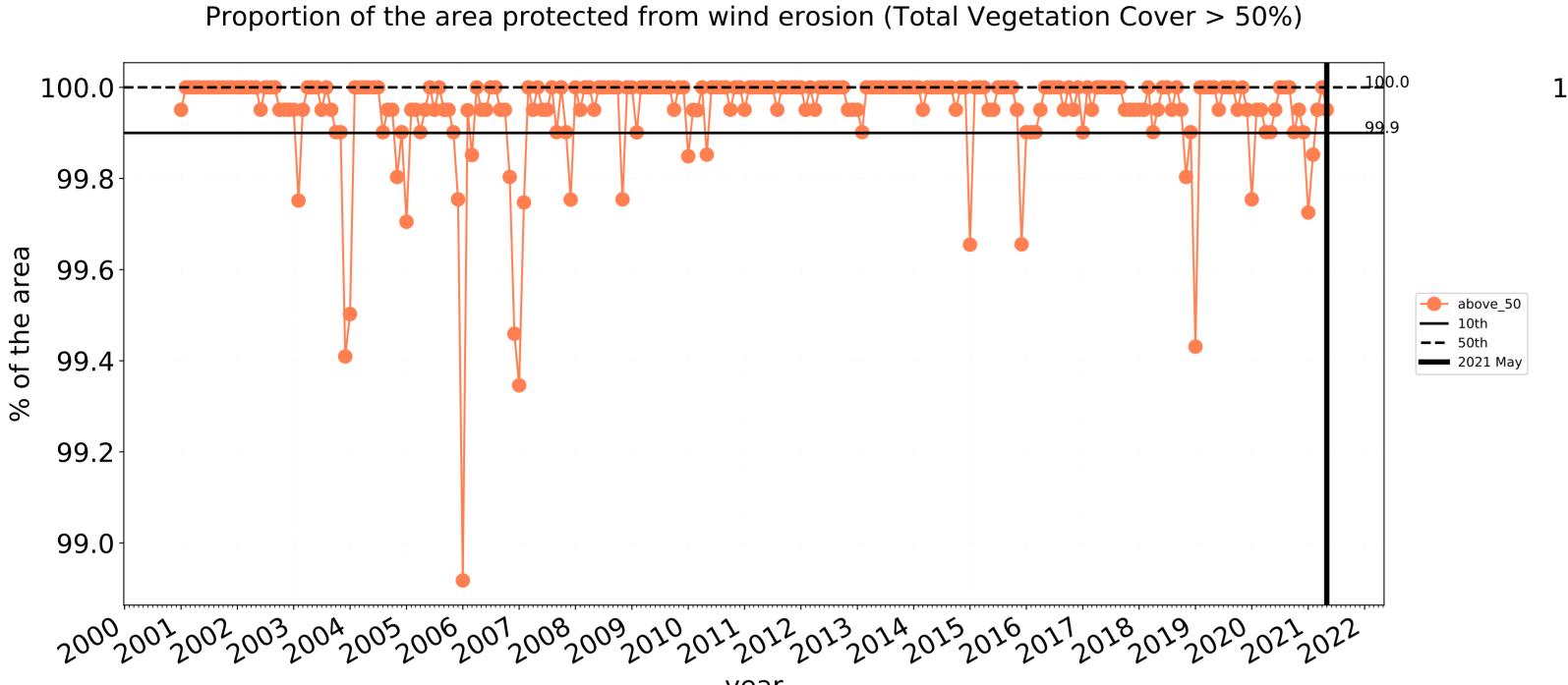


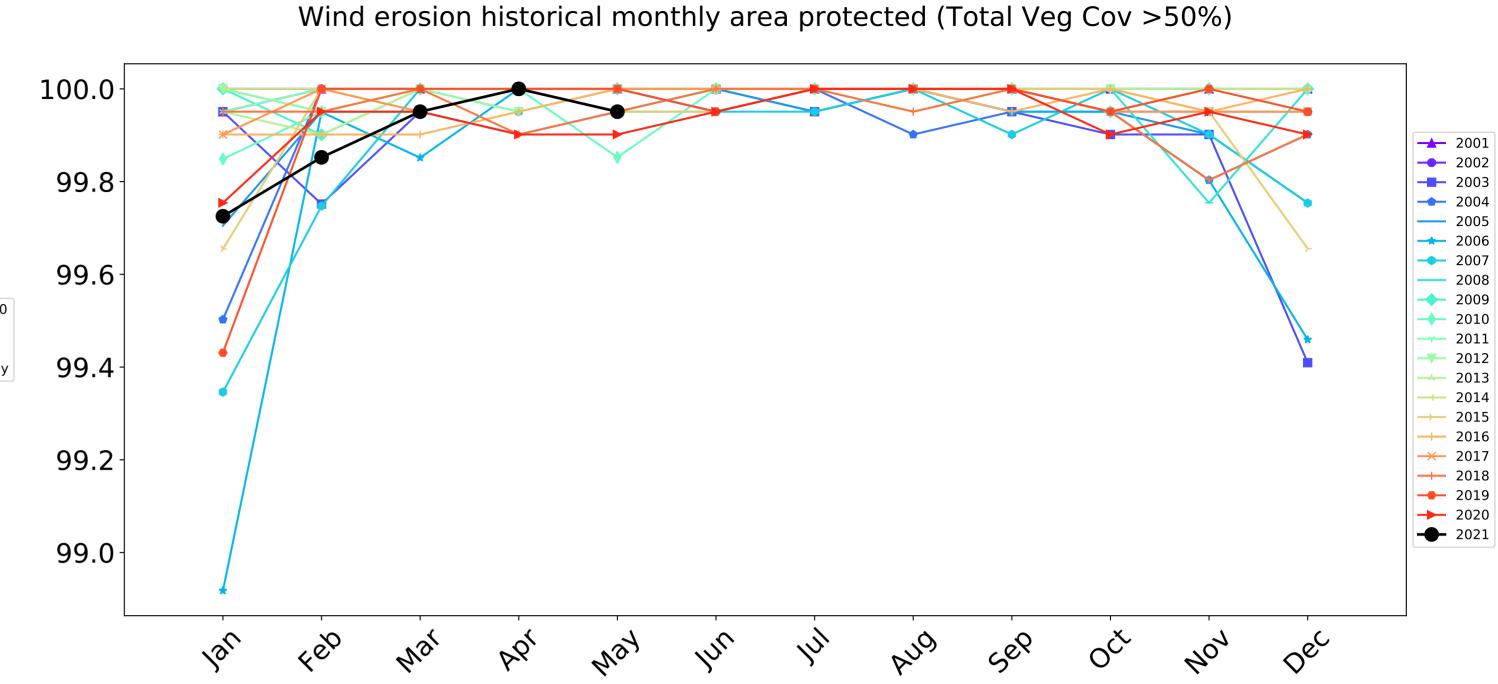


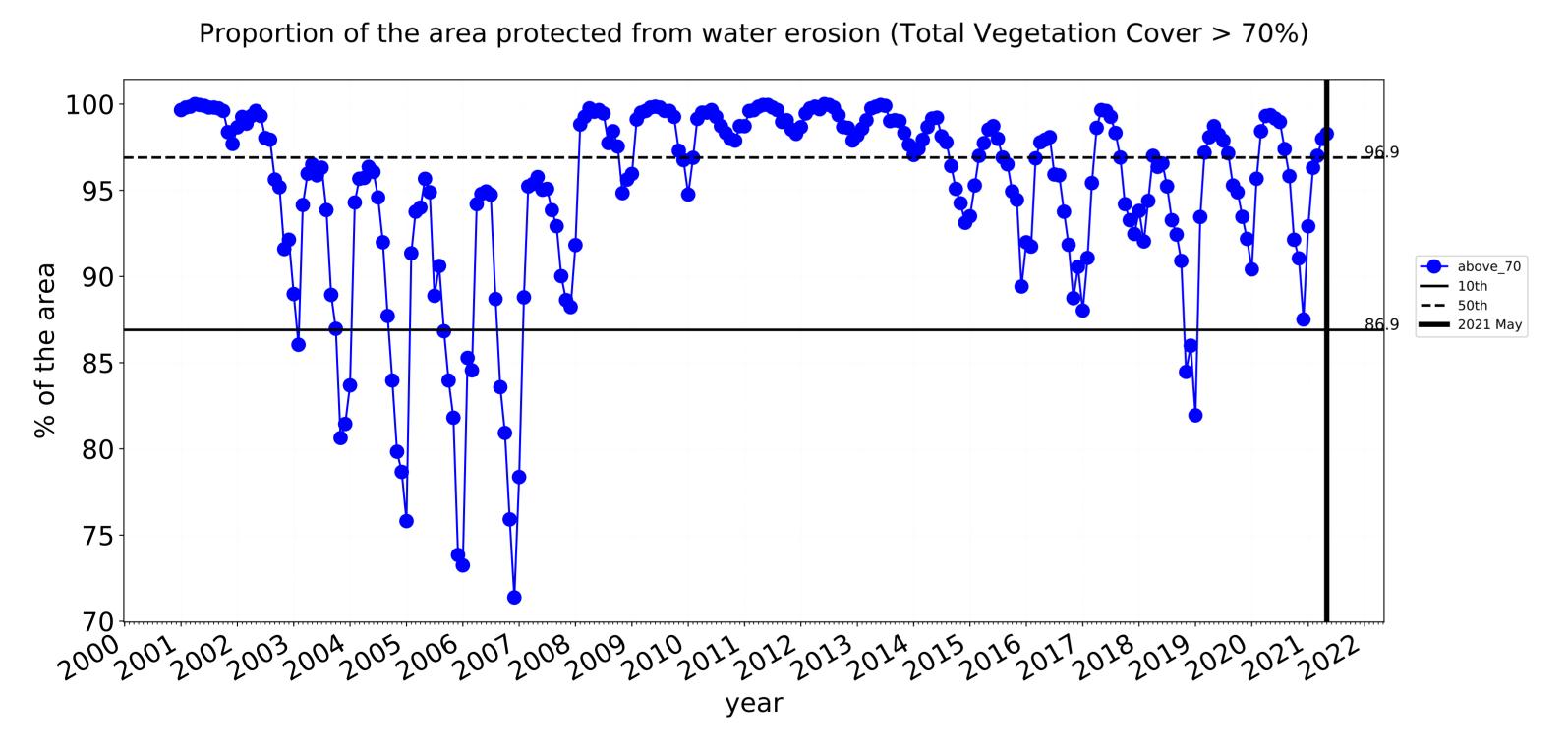


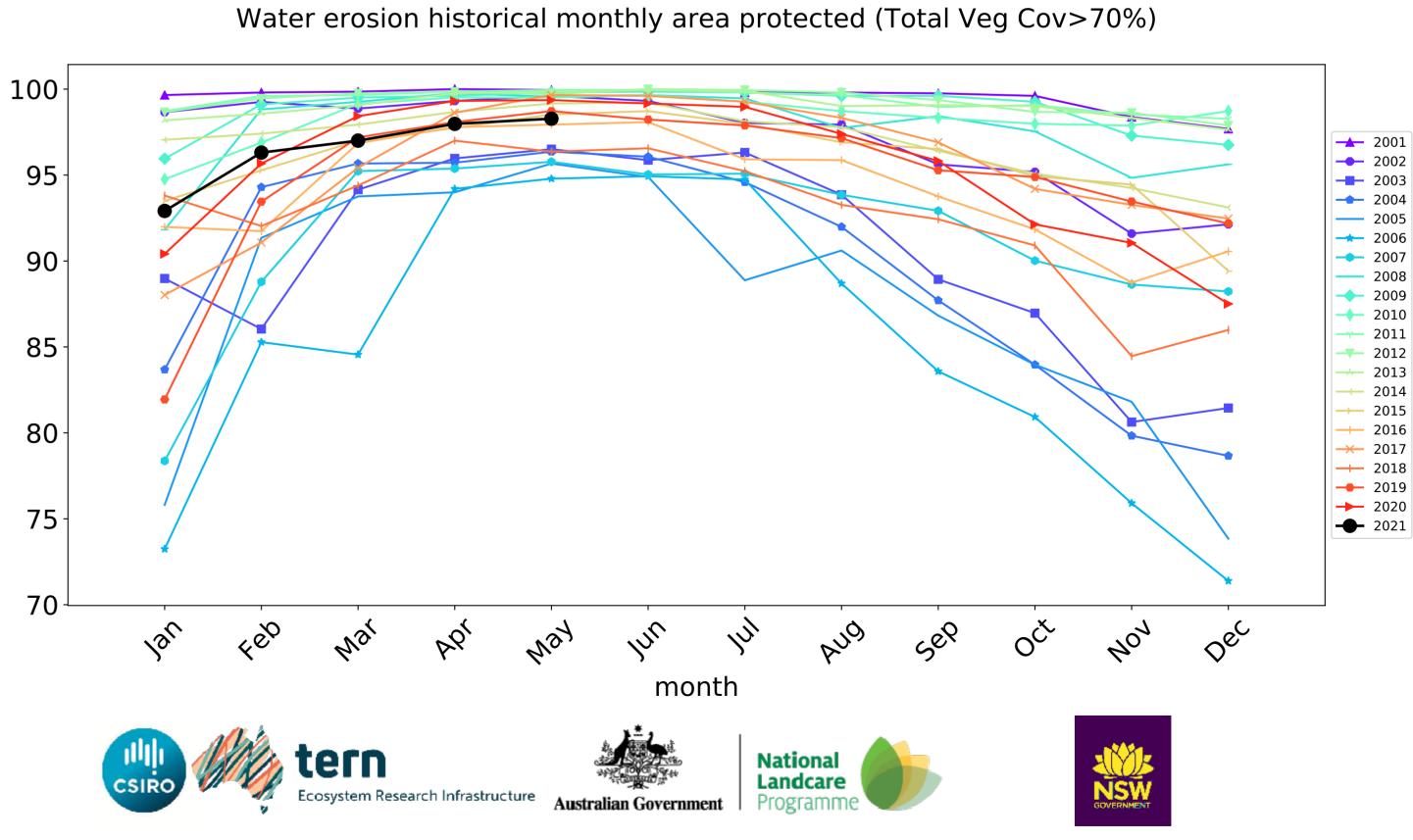








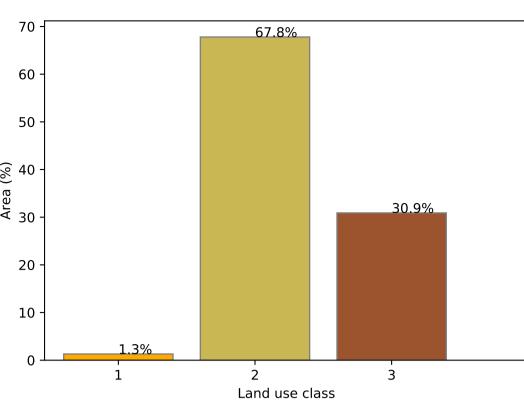




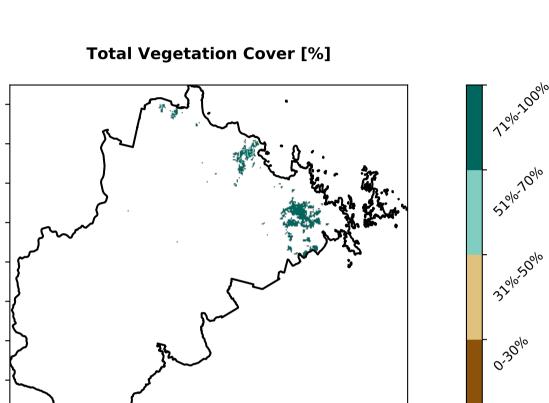
#### **Irrigation**

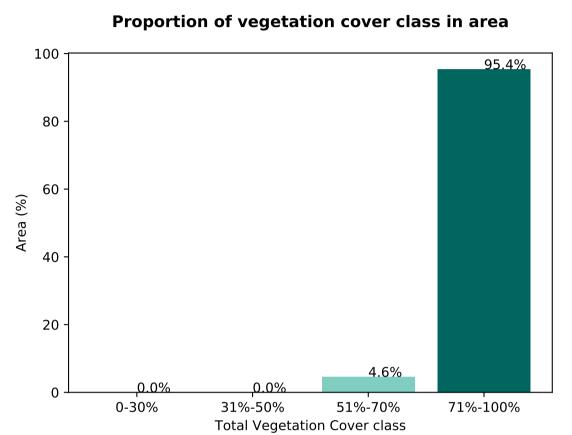
### Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 1 Agriculture - Grazing - Irrigated 2 Agriculture - Cropping - Irrigated 3 Agriculture - Horticulture - Irrigated

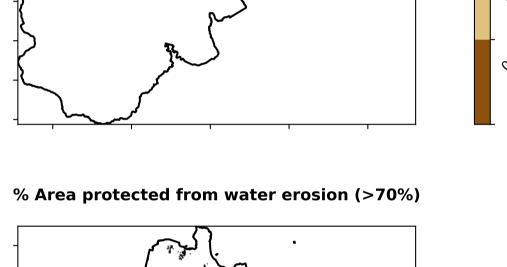
### 70 · 60 50 Area (%) 00 00 20 10



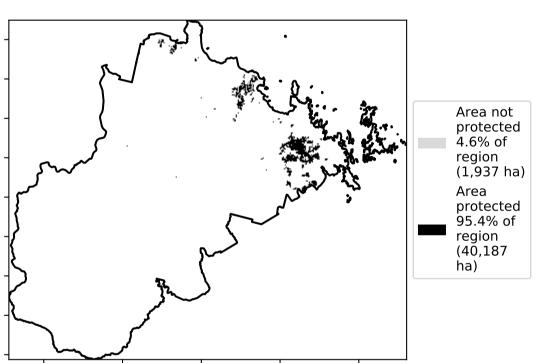
Proportion of each land class in area

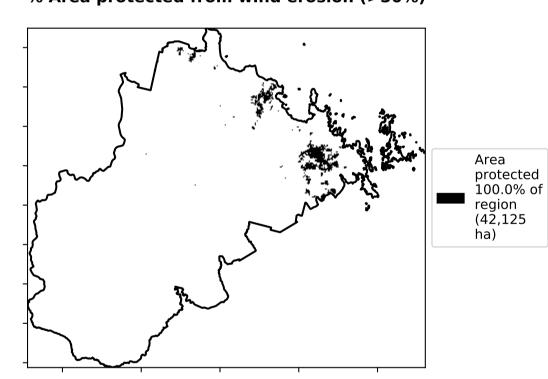












#### **Total Vegetation Cover Anomaly [%]**

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

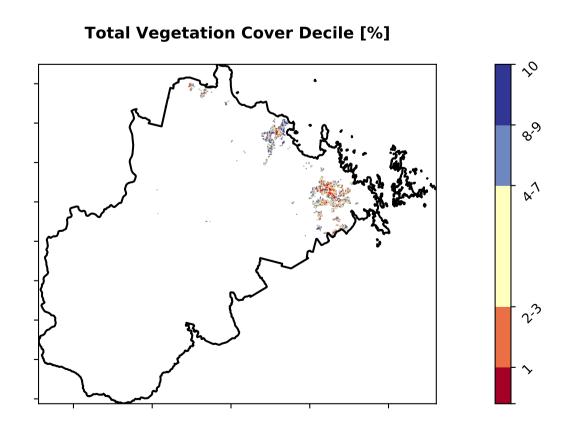
is only for the month of the map

using baseline from 2001 to 2019.

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

- 20 - 10 -10**-**20

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.



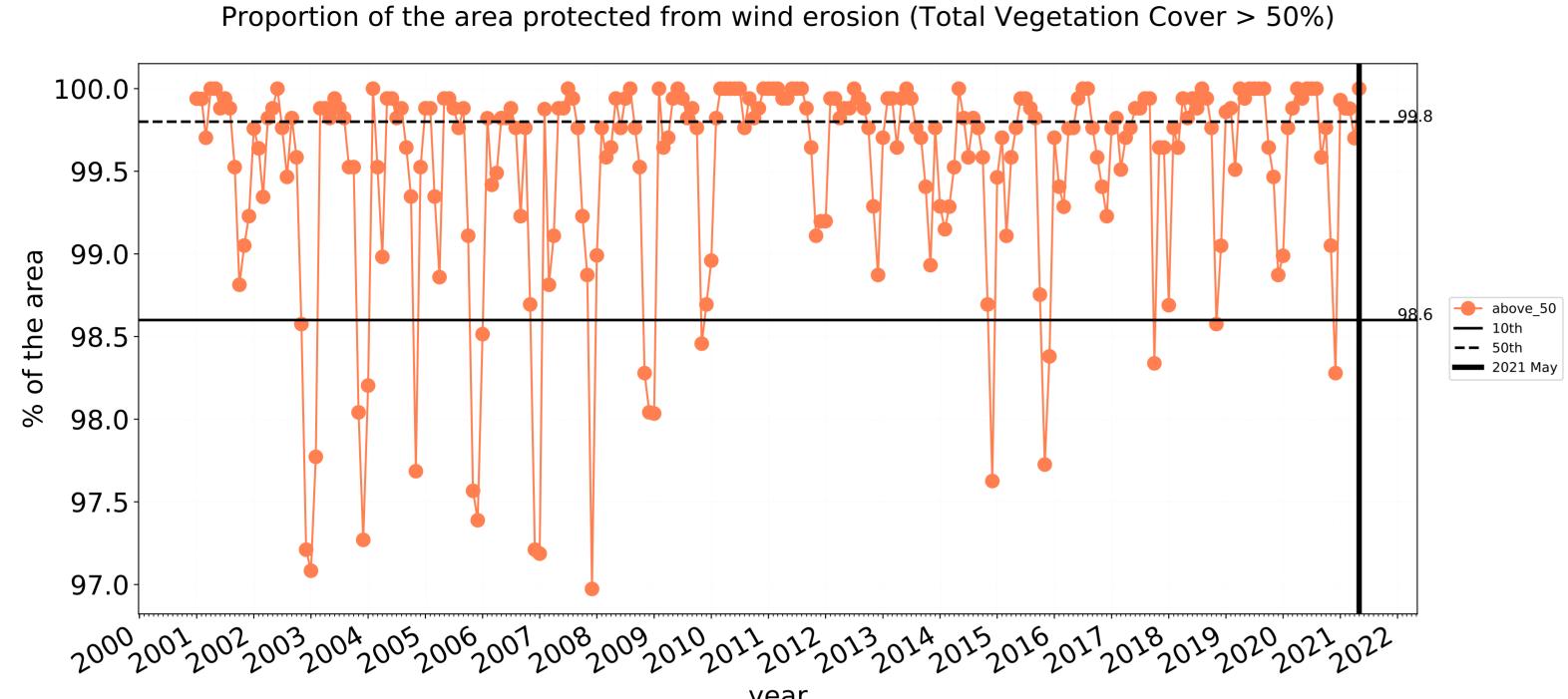


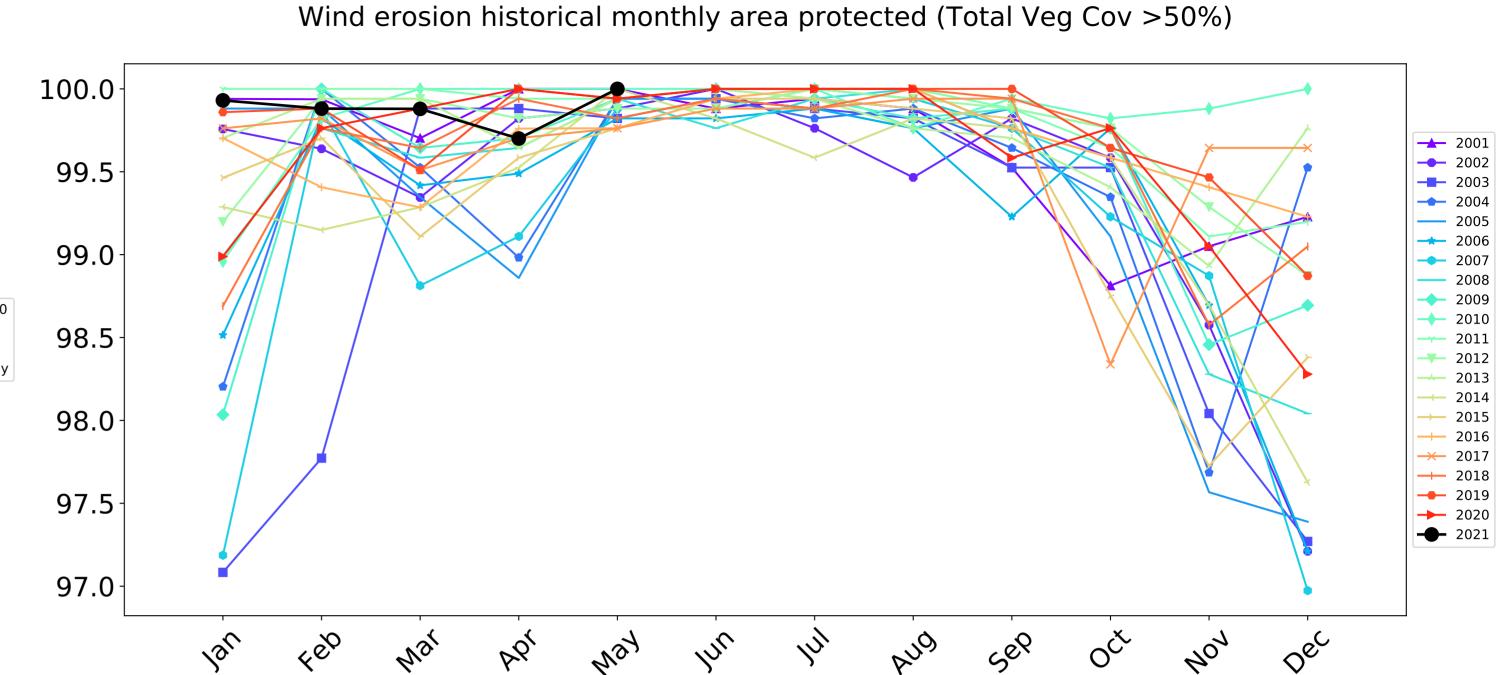


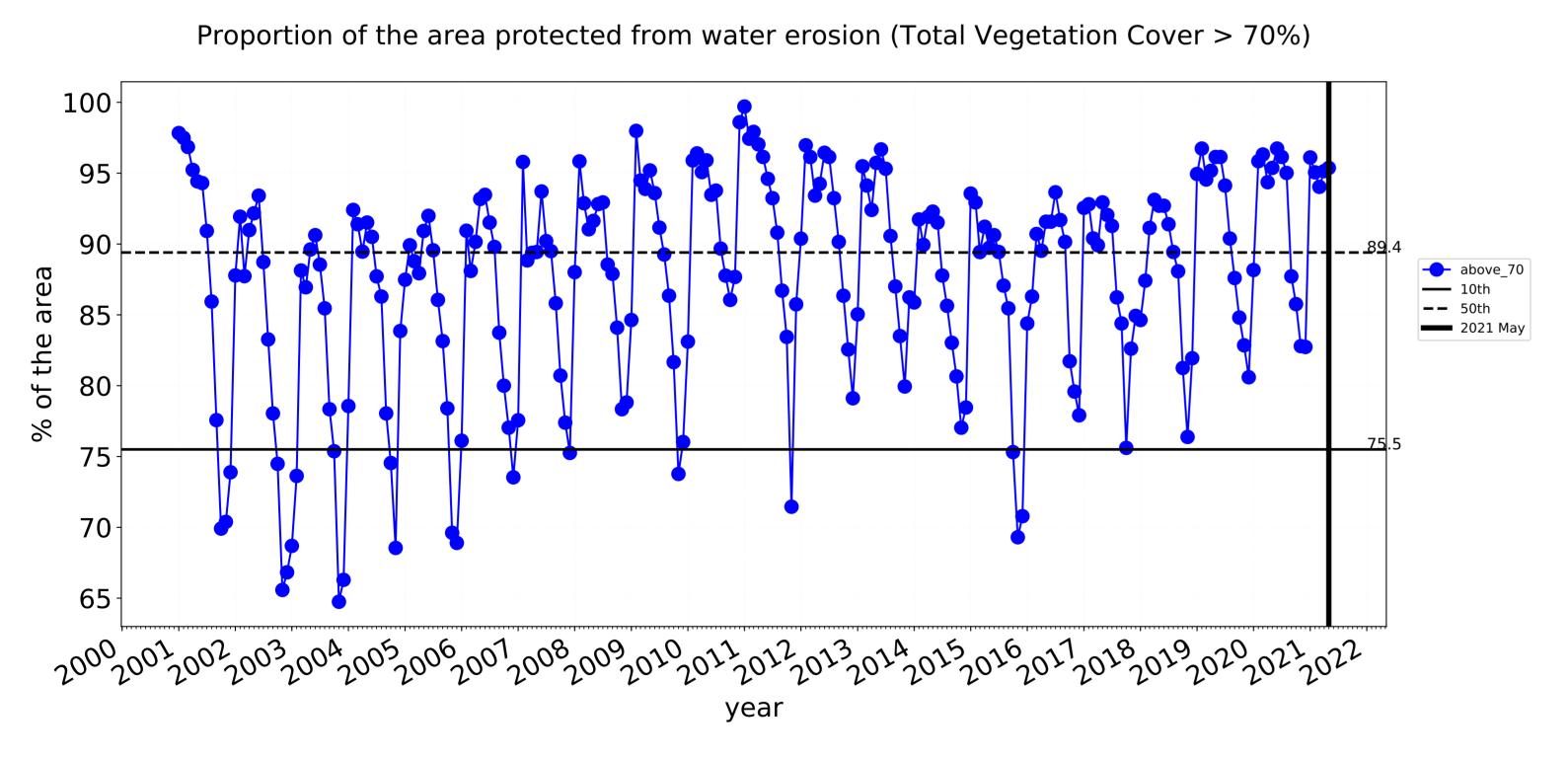


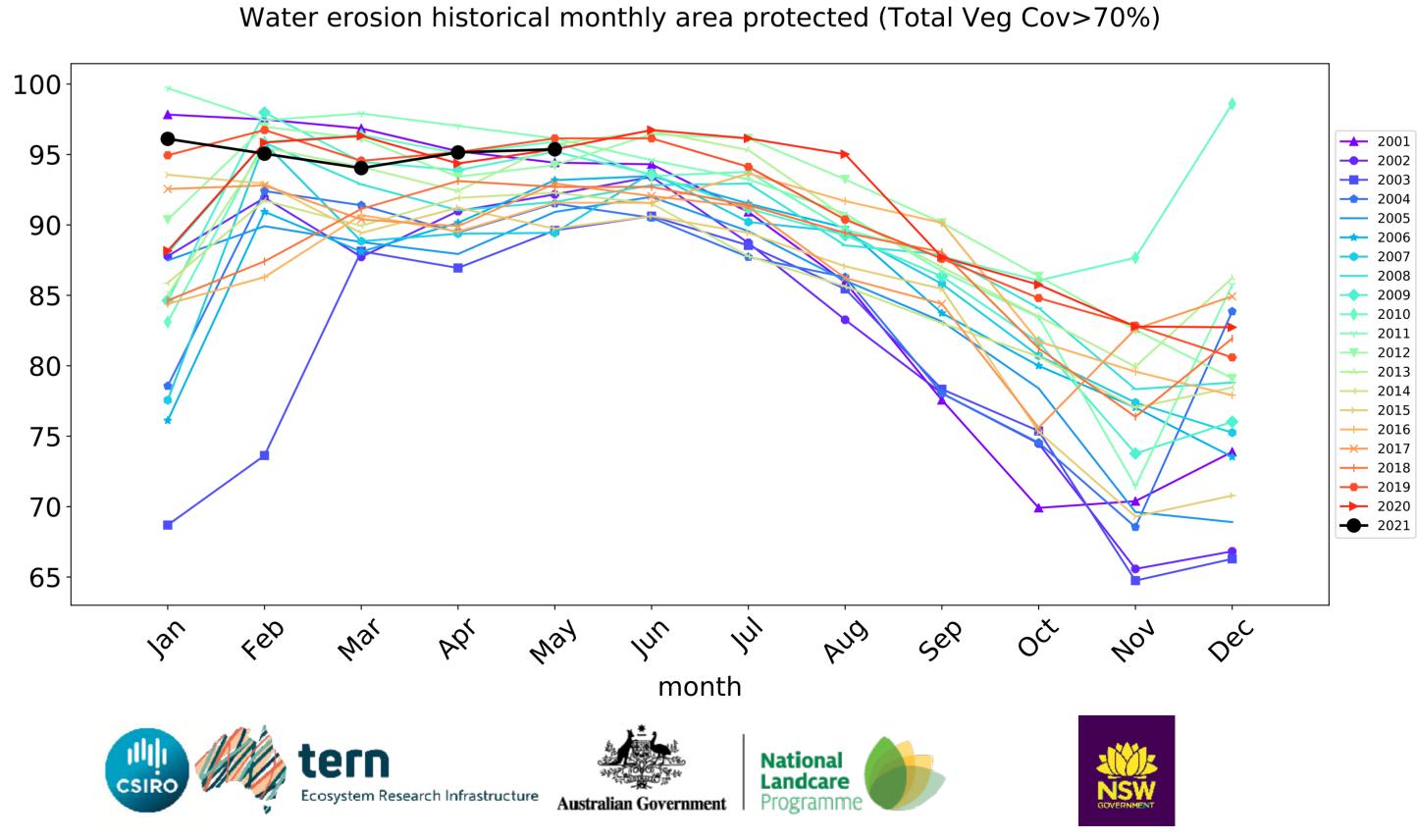


#### Irrigation timeseries







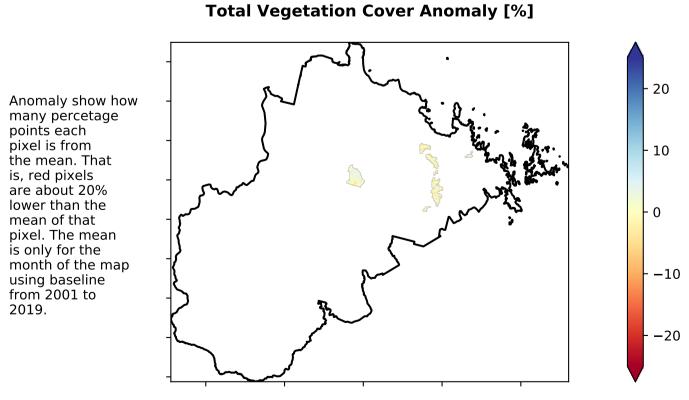


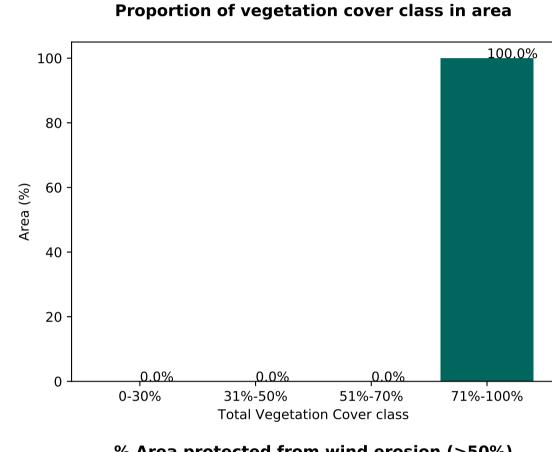
#### **Production native forests and plantation forests**

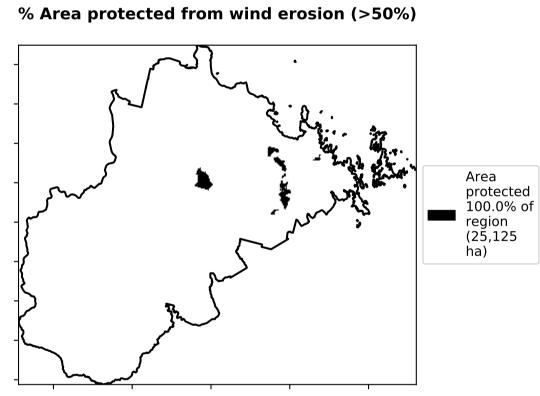
# Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) Australia (2018) 1 Production native forests and plantation forests of Australia (2018)

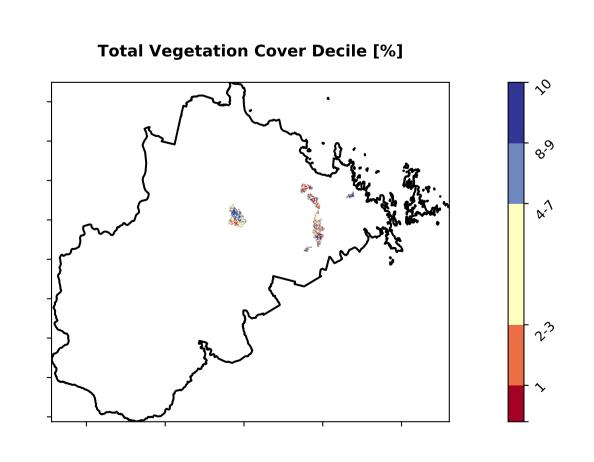
# Total Vegetation Cover [%]

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

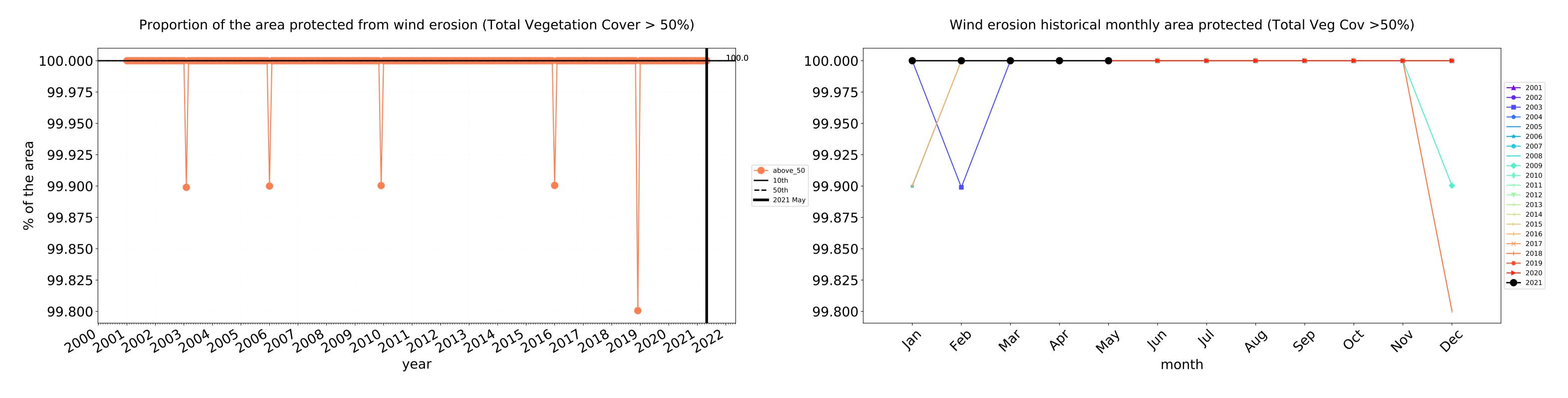
records for that month of

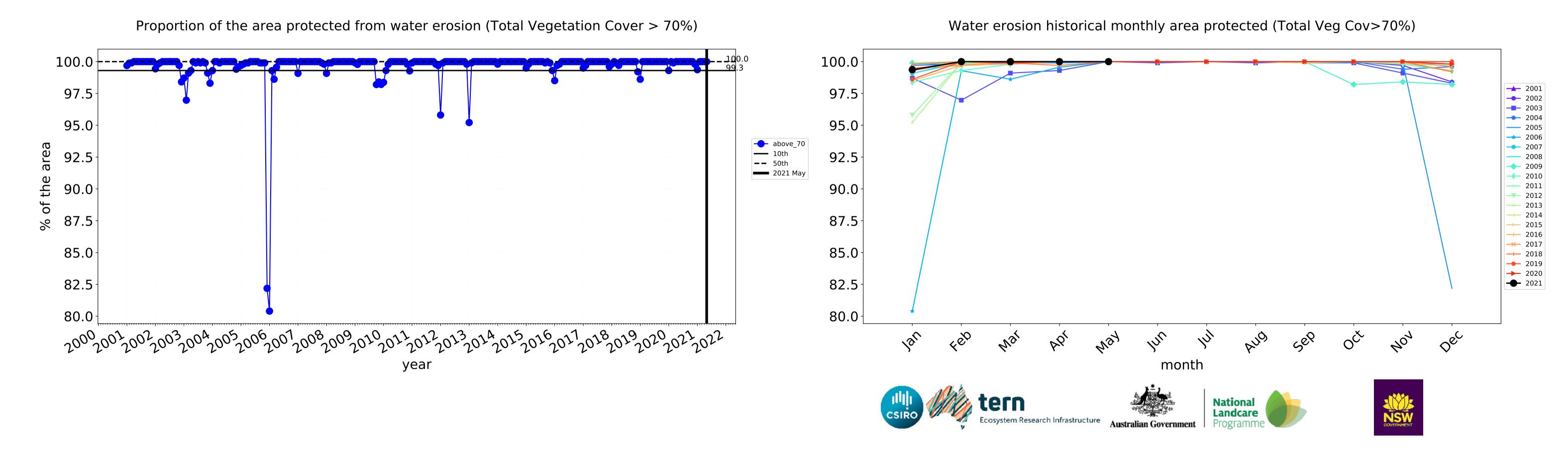
the map using baseline from 2001 to 2019.





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





### Whitsunday\_(R) (2,357,800 ha and no data 24,076 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	2,357,800	100.0% 2,357,150	99.9% 2,354,625	96.9% 2,285,675	88.9% 2,096,875	58.0% 1,366,575	21.3% 502,650
Conservation and natural environments	169,875	99.8% 169,550	99.4% 168,900	97.3% 165,350	89.6% 152,150	59.0% 100,300	24.1% 41,000
Conservation and natural environments non forest	28,300	99.6% 28,200	99.1% 28,050	94.7% 26,800	68.4% 19,350	13.1% 3,700	2.7% 775
Conservation and natural environments Woodland forest	57,200	100.0% 57,175	99.9% 57,125	98.6% 56,375	93.8% 53,650	68.4% 39,100	19.6% 11,200
Conservation and natural environments Forest (non woodland)	84,375	99.8% 84,175	99.2% 83,725	97.4% 82,175	93.8% 79,150	68.1% 57,500	34.4% 29,025
Agriculture	2,084,900	100.0% 2,084,900	99.9% 2,083,850	97.2% 2,025,800	89.5% 1,866,325	58.8% 1,226,350	21.5% 449,175
Grazing	2,042,475	100.0% 2,042,475	99.9% 2,041,425	97.2% 1,985,325	89.7% 1,832,925	59.7% 1,220,225	22.0% 448,450
Grazing non forest	1,171,800	100.0% 1,171,800	99.9% 1,170,775	95.5% 1,118,525	84.3% 987,950	50.5% 591,550	18.2% 213,250
Grazing Woodland forest	819,825	100.0% 819,825	100.0% 819,825	99.6% 816,825	97.3% 797,575	72.9% 597,650	27.5% 225,850
Grazing - Forest (non woodland)	50,850	100.0% 50,850	100.0% 50,825	98.3% 49,975	93.2% 47,400	61.0% 31,025	18.4% 9,350
Irrigation	42,125	100.0% 42,125	100.0% 42,125	95.4% 40,175	78.6% 33,100	14.0% 5,900	1.7% 725
Production native forests and plantation forests	25,125	100.0% 25,125	100.0% 25,125	100.0% 25,125	100.0% 25,125	87.5% 21,975	32.3% 8,125







