# Total vegetation cover soil protection Region:LGA Quairading\_(S) WA

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: June 2021

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 Jun 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.

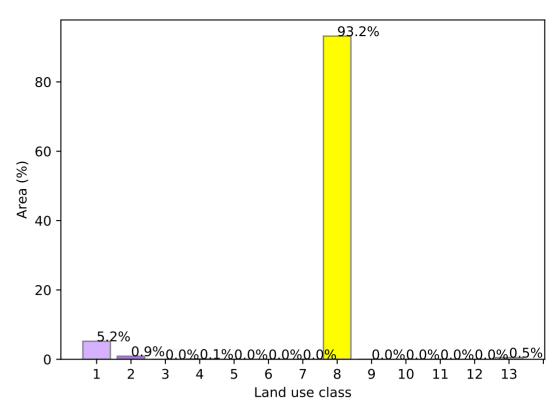
the mean. That is, red pixels are about 20% lower than the

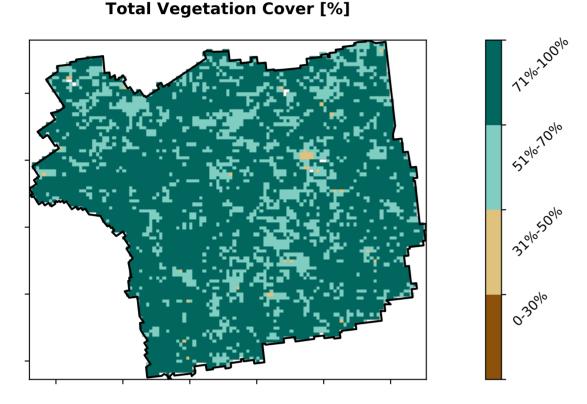
Derived from

Use of Australia

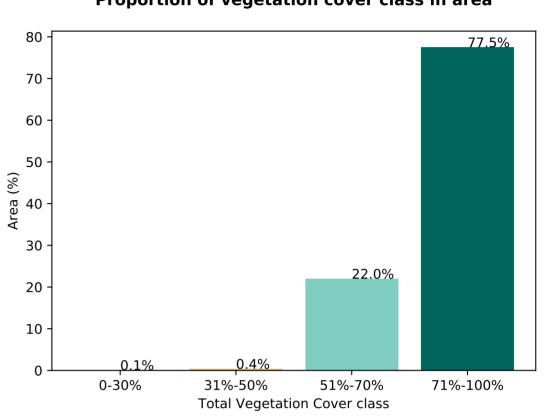
## Legend with land class forest cover and number, i.e. Forests is 12 1 Conservation and natural environments - Non-forest 2 Conservation and natural environments - Woodland forest 3 Conservation and natural environments - Non-Woodland forest Land Use and Forests 4 Agriculture - Grazing - Non-forest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

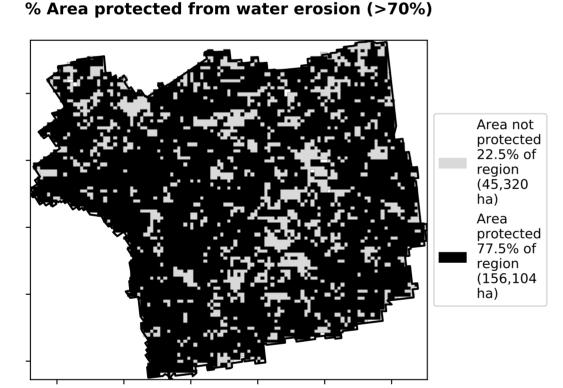
## Proportion of each land class in area



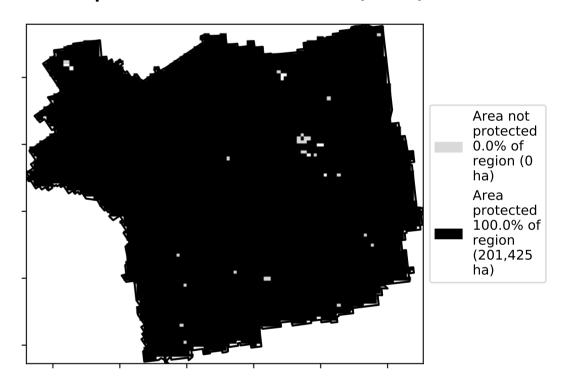


## Proportion of vegetation cover class in area

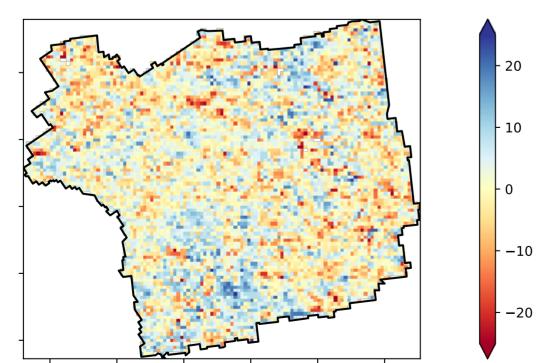




% Area protected from wind erosion (>50%)

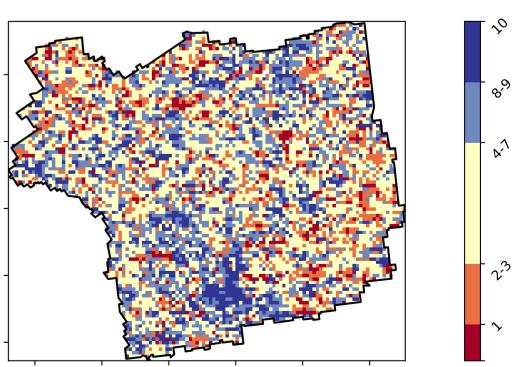


## **Total Vegetation Cover Anomaly [%]**



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 [%]**

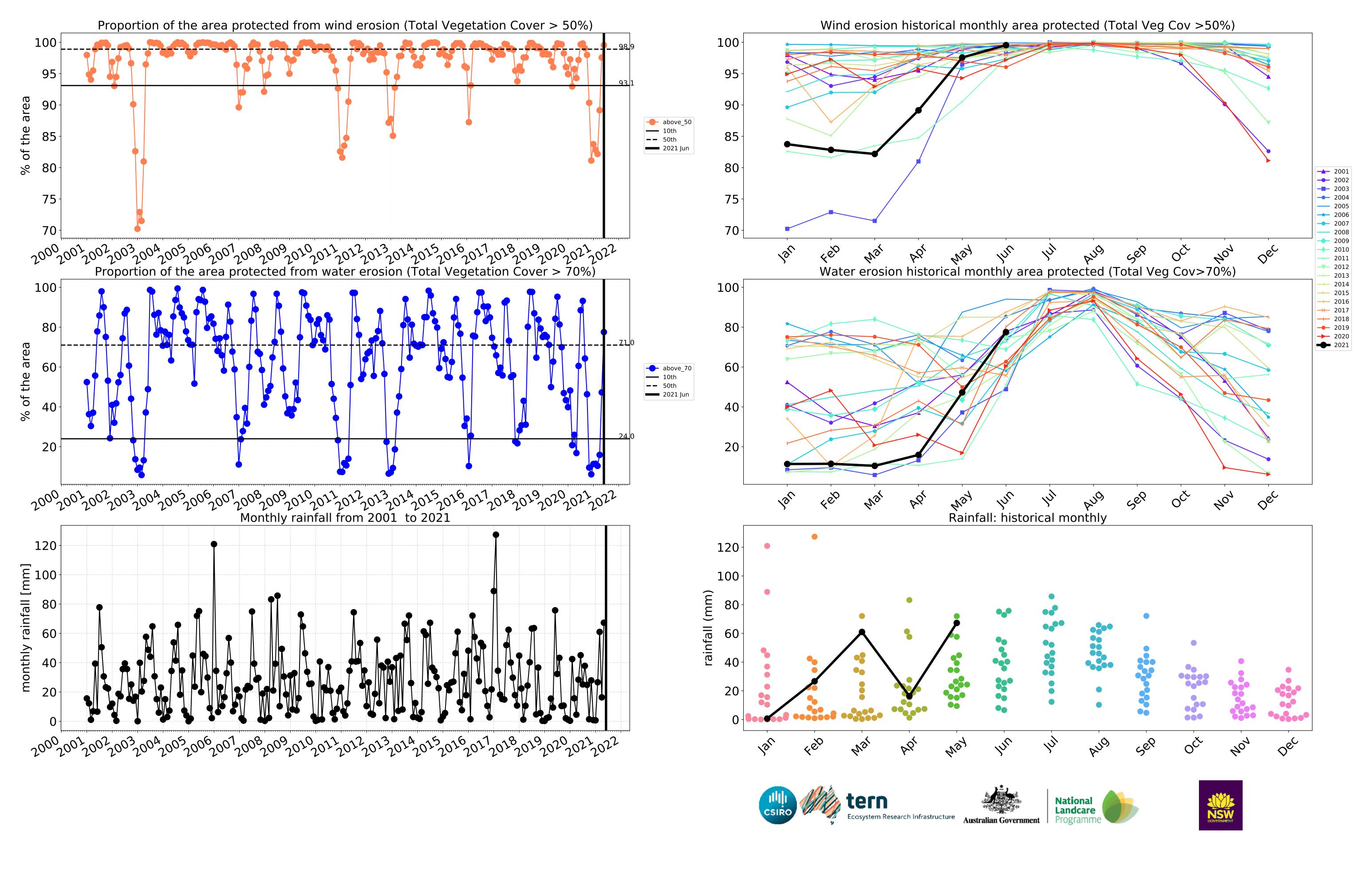












## **Conservation and natural environments**

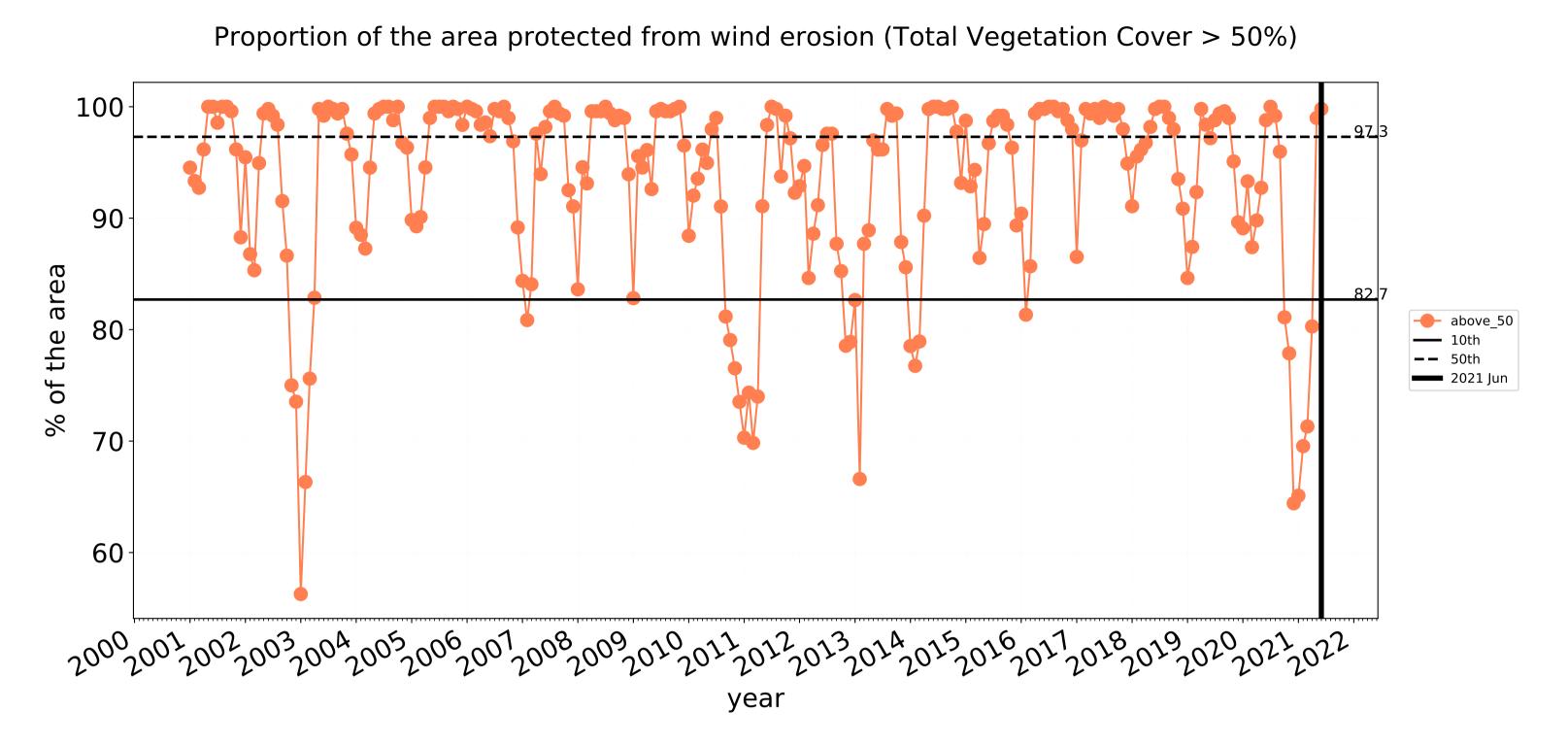
## Land use and forest cover **Proportion of each land class in area** 84.9% 80 -70 -60 Catchment Scale Land Use and Forests of Australia (2018) 1 Conservation and natural environments - Nonforest € 50 Derived from 2 Conservation and natural environments - Woodland Area 04 Catchment Scale Land Use of Australia 3 Conservation and natural environments - Non-woodland forest (2018) and Forests of Australia (2018) 30 20 14.3% 10 0.8% 2 Land use class Proportion of vegetation cover class in area **Total Vegetation Cover [%]** 90 85.7% 80 70 60 Area (%) 30 20 14.1% 10 0.2% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class** % Area protected from wind erosion (>50%) % Area protected from water erosion (>70%) Area not protected 0.0% of Area not protected 14.3% of region (1,773 ha) region (0 ha) Area Area protected protected 85.7% of 100.0% of region (10,626 region (12,400 ha) ha) **Total Vegetation Cover Anomaly [%] Total Vegetation Cover Decile [%]** - 20 Anomaly show how many percetage points each pixel is from Deciles show where the pixel value lies in the - 10 the mean. That is, red pixels record, from highest to lowest, for that month. That is, red pixels are are about 20% lower than the mean of that in the lowest 10% of pixel. The mean records for that month of is only for the month of the map the map using baseline from 2001 to 2019. using baseline from 2001 to 2019. -10 **-**20 National Landcare

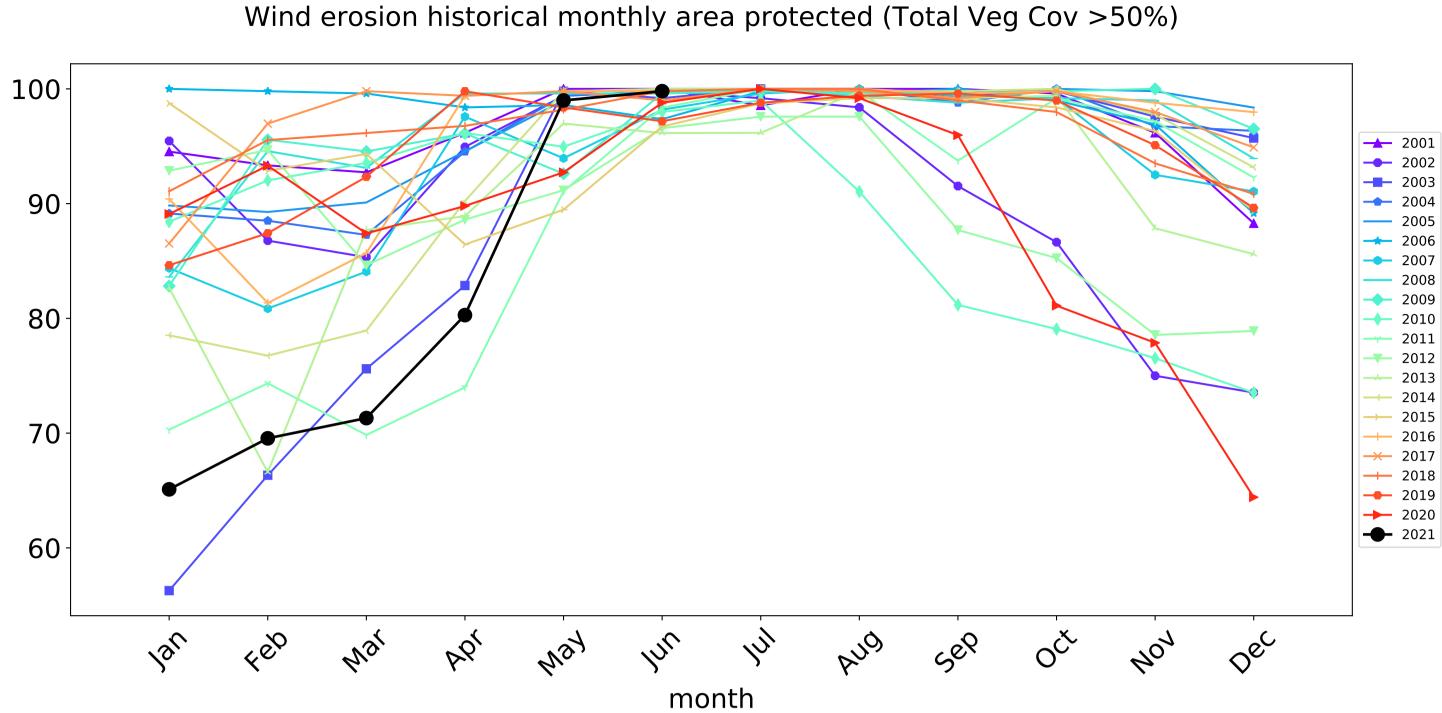
Australian Government

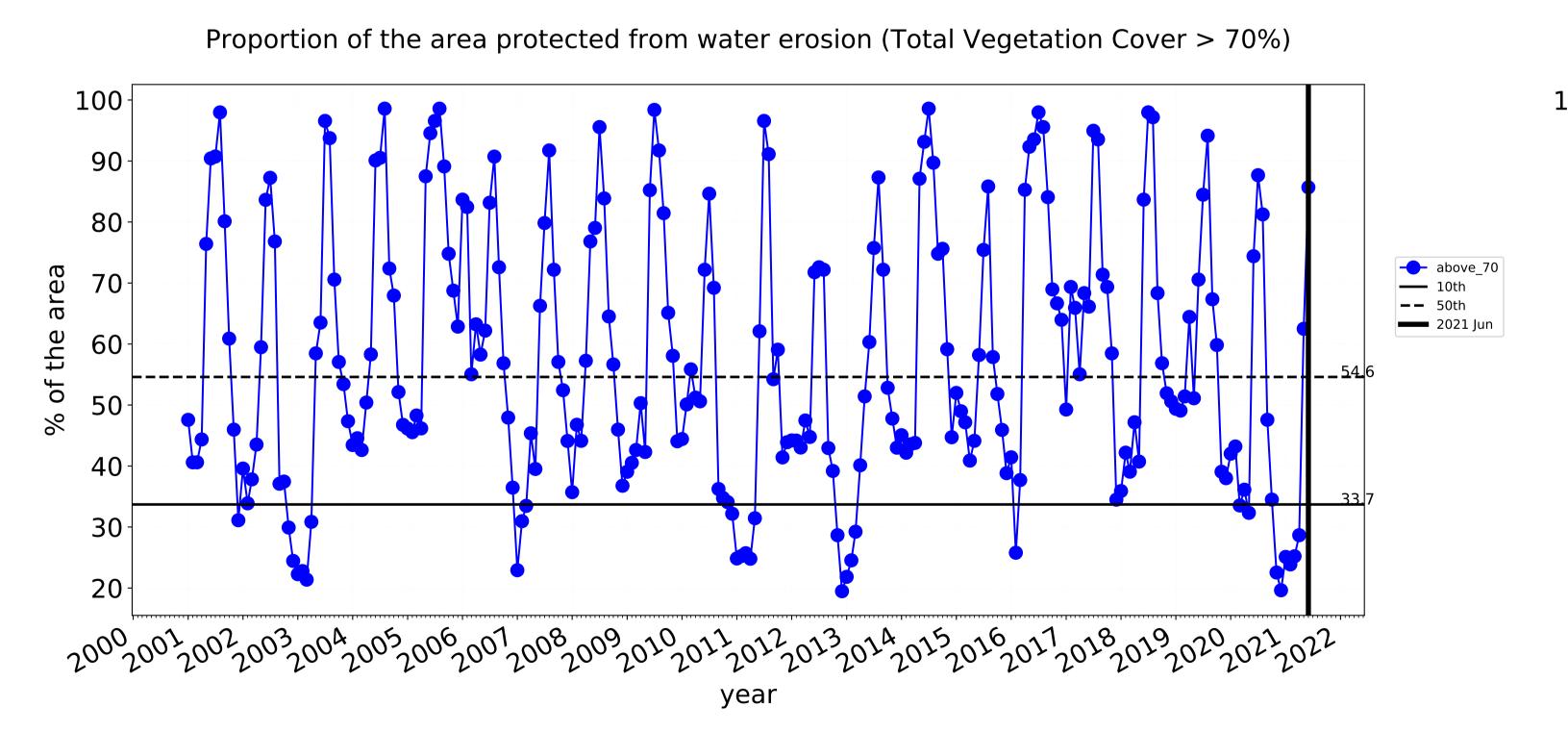
Programme

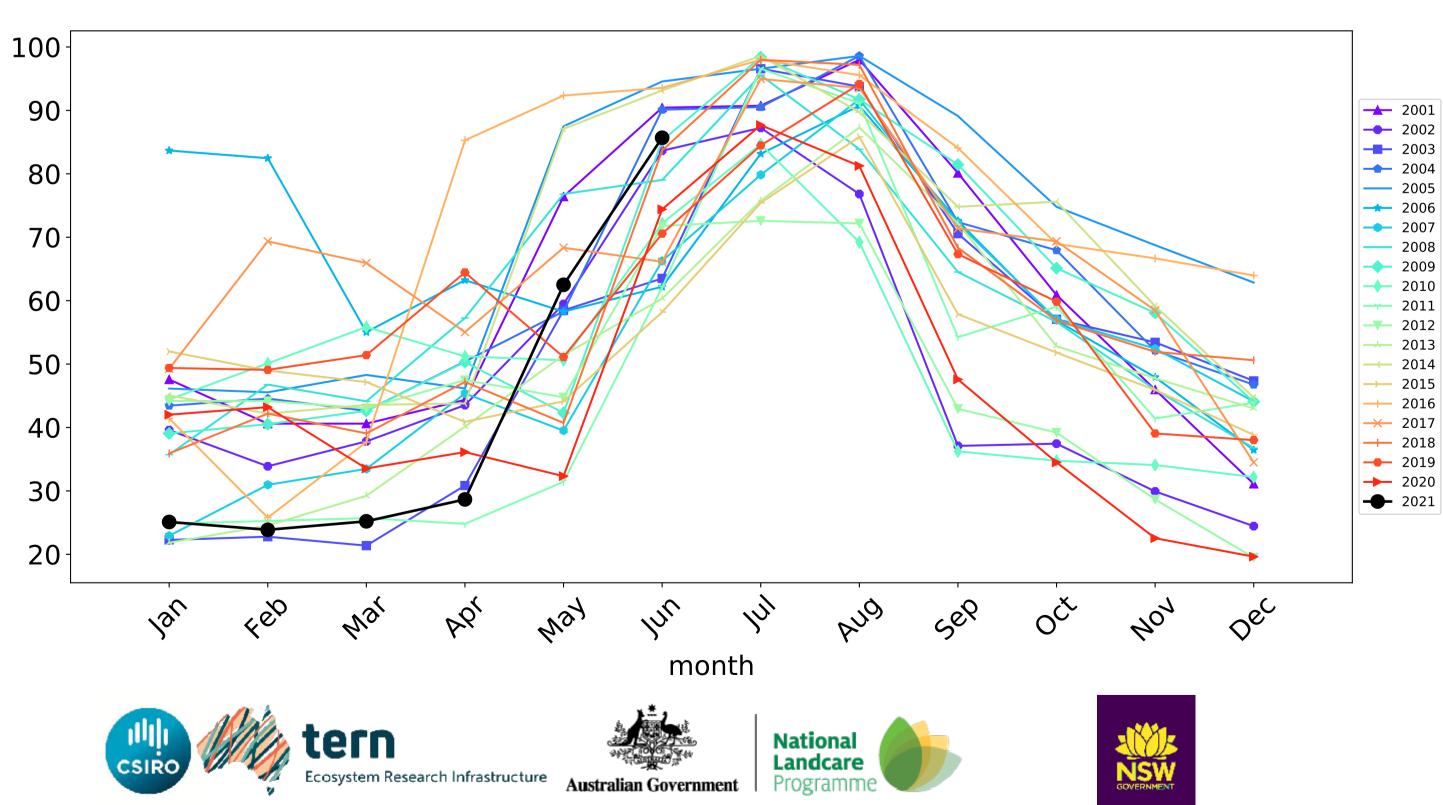
Ecosystem Research Infrastructure

## **Conservation and natural environments timeseries**









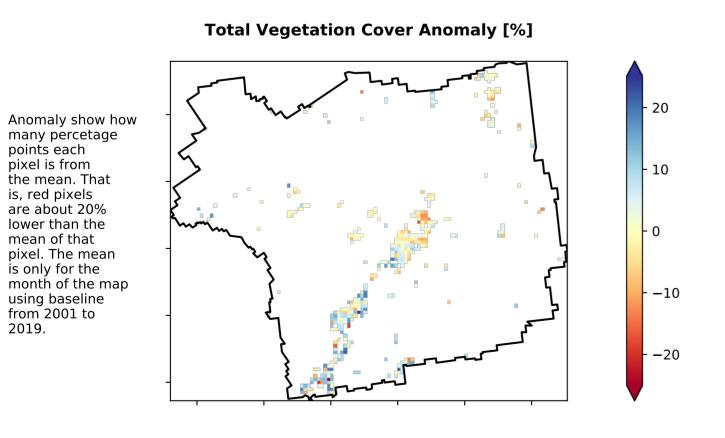
Water erosion historical monthly area protected (Total Veg Cov>70%)

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

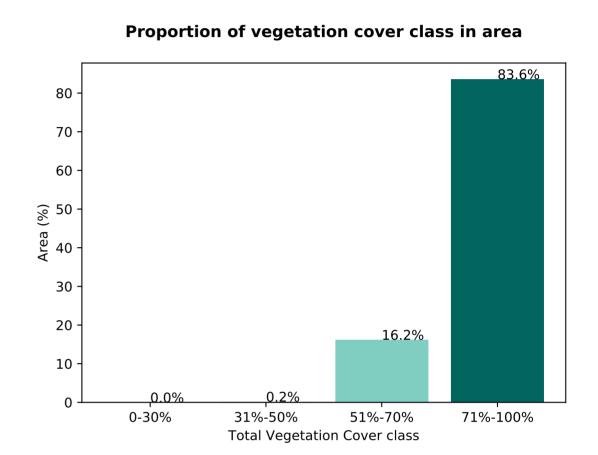
# Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

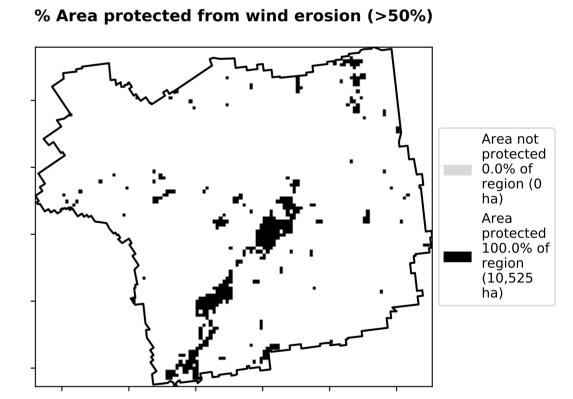
# Total Vegetation Cover [%]

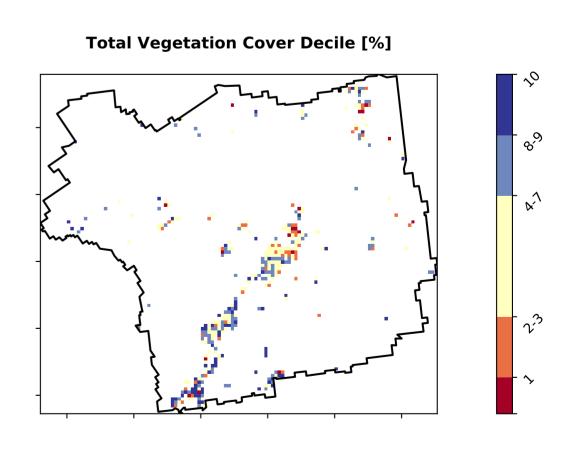
# Area not protected 16.4% of region (1,726 ha) Area protected 16.4% of region (1,726 ha) Area protected 83.6% of region (8,798 ha)



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.







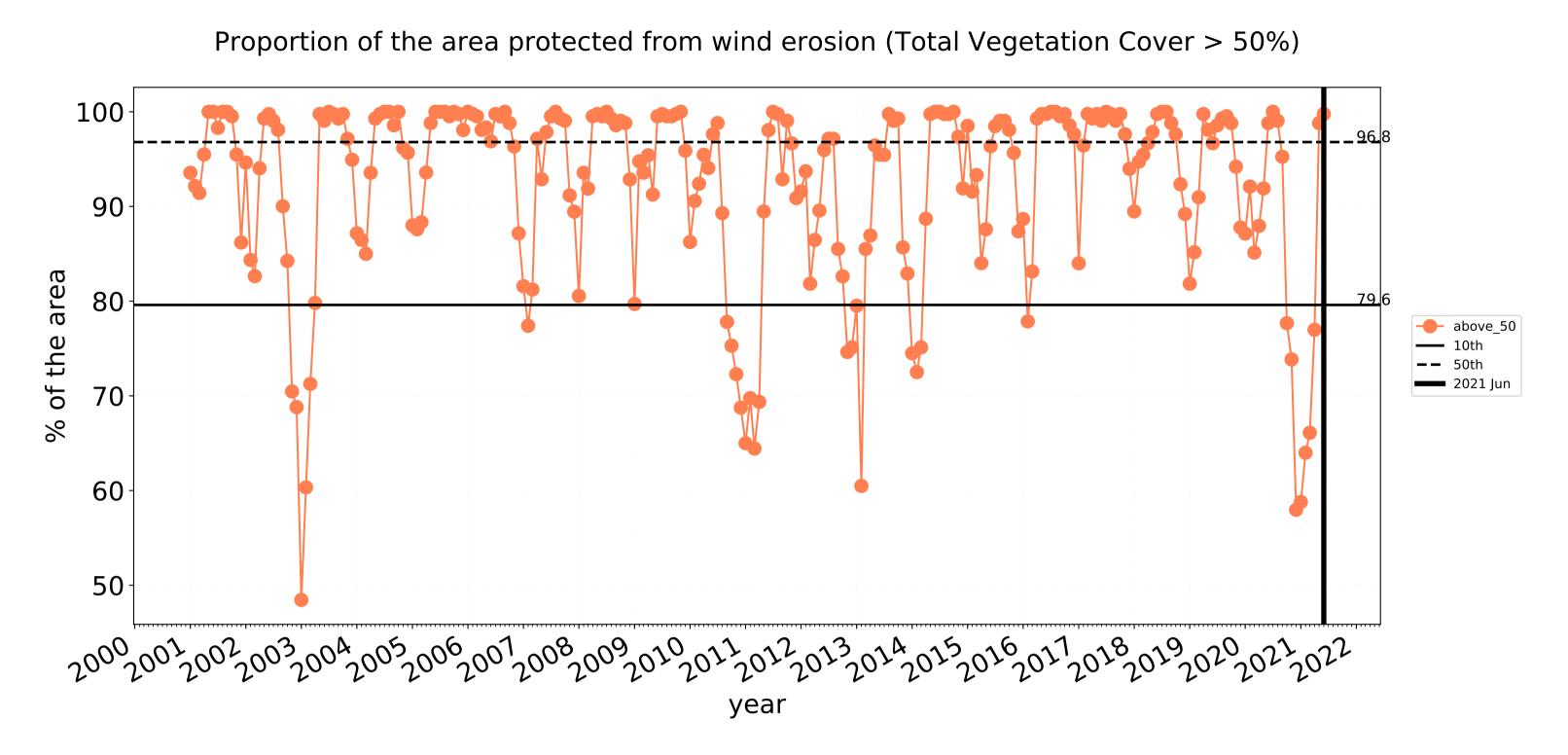


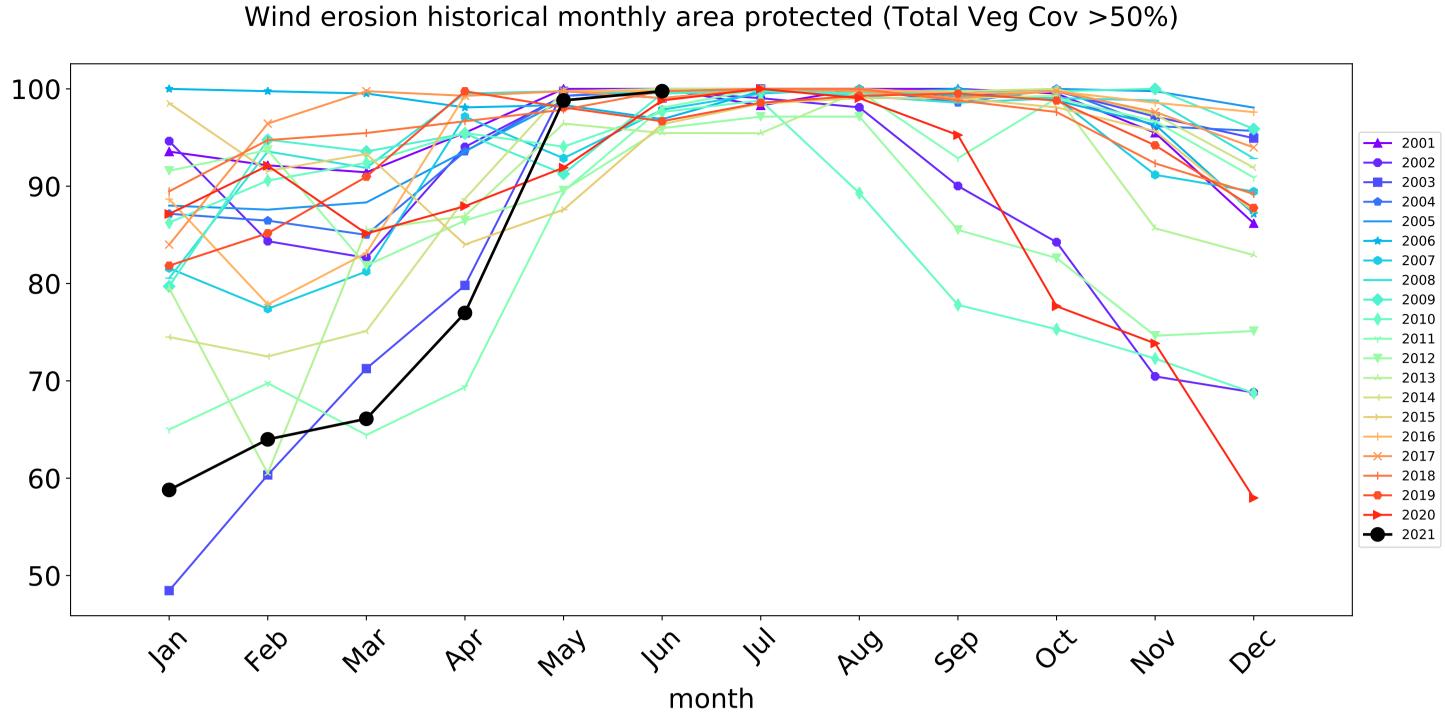


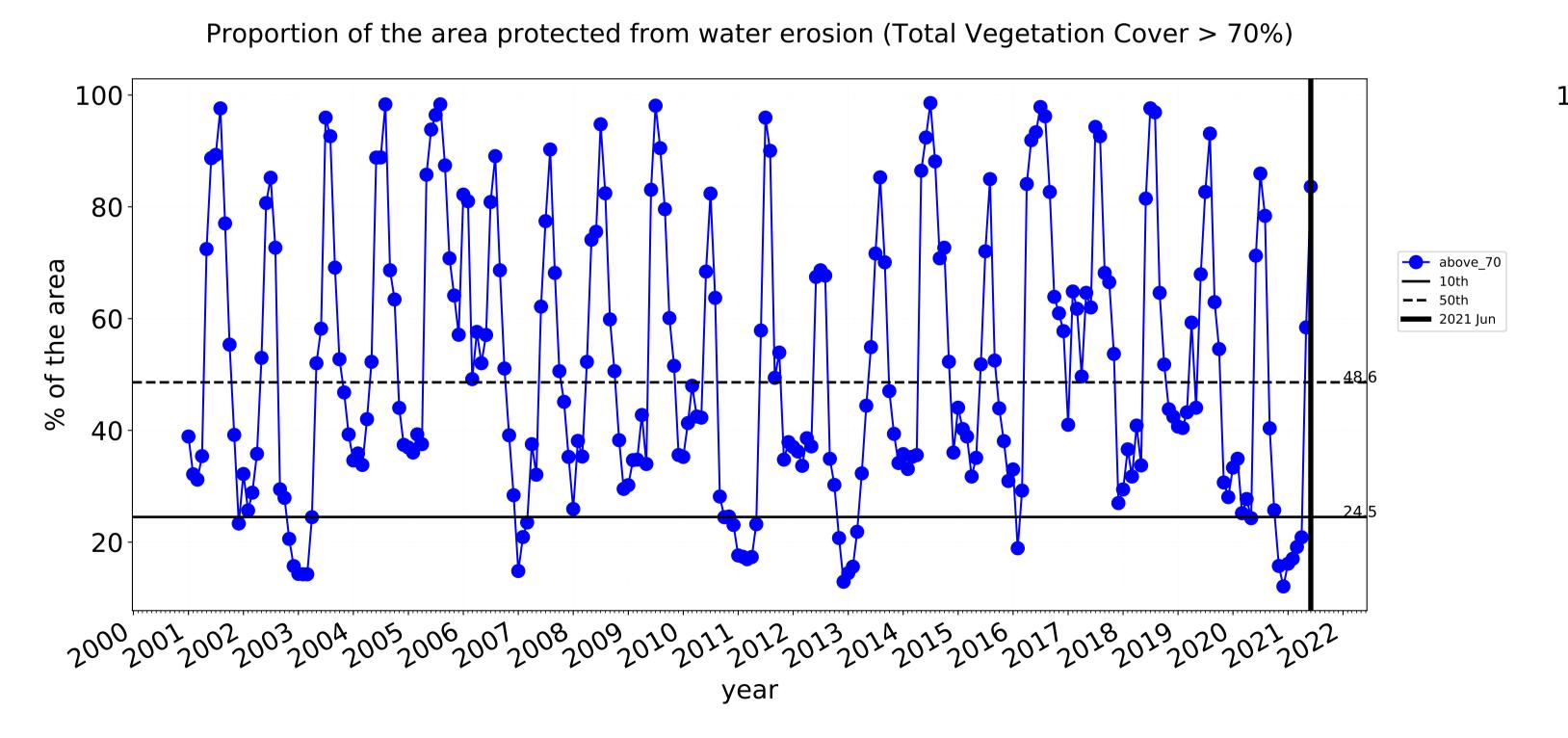


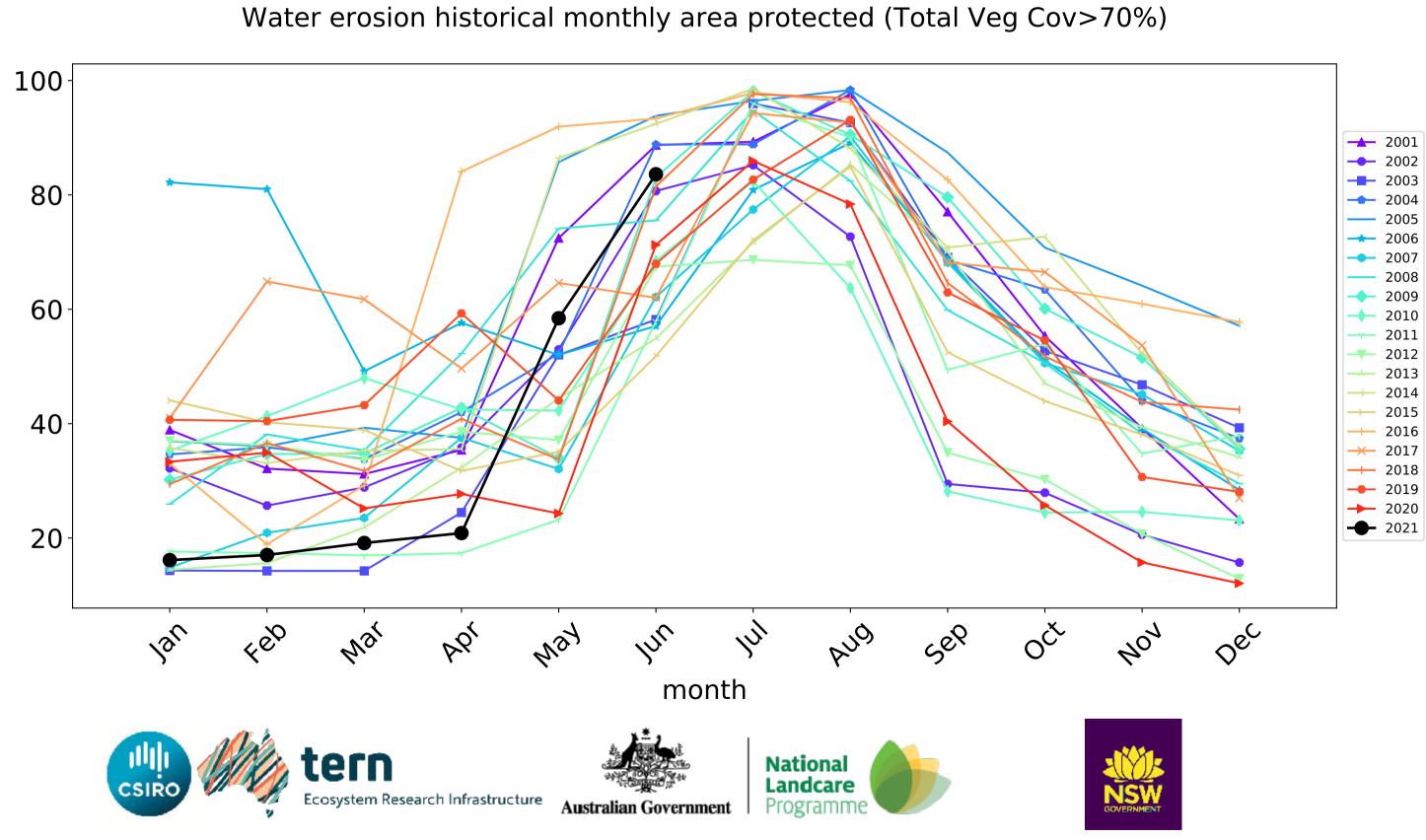


## **Conservation and natural environments non forest timeseries**





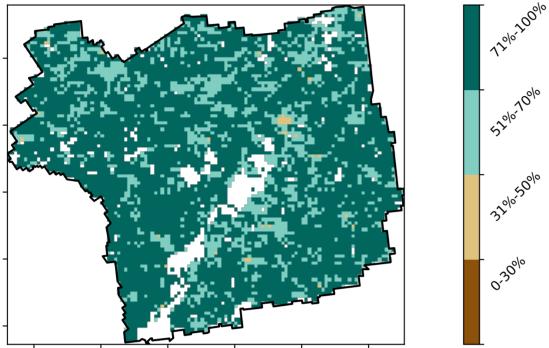




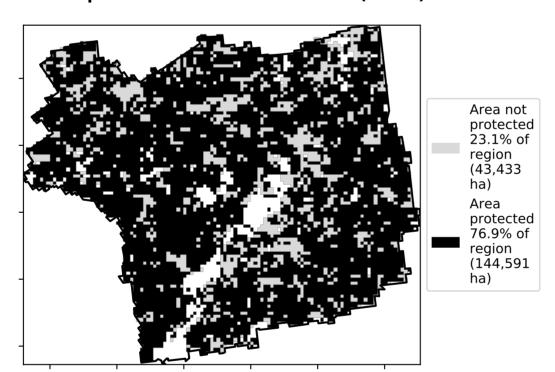
## **Agriculture**

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

# **Total Vegetation Cover [%]**



% Area protected from water erosion (>70%)



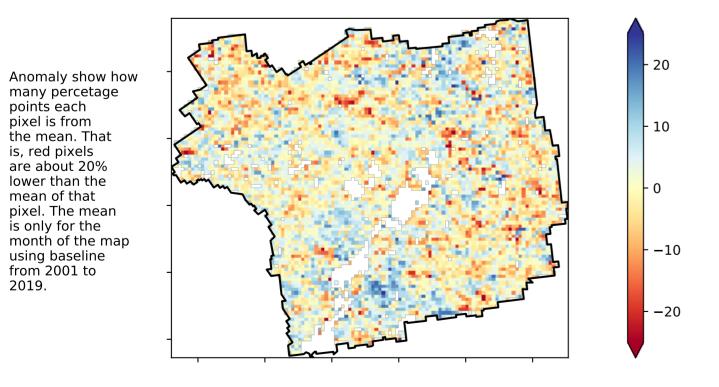
**Total Vegetation Cover Anomaly [%]** 

is, red pixels are about 20% lower than the

mean of that

using baseline from 2001 to 2019.

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



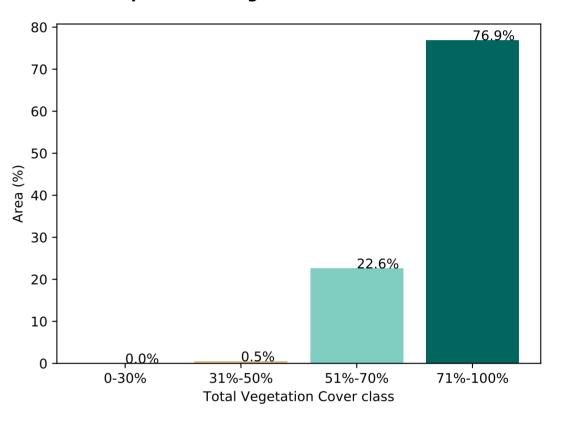
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

## 99.8% 100 80 60 40 20 2

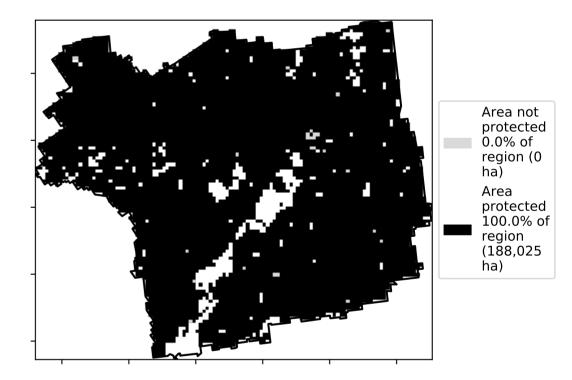
Proportion of each land class in area

Proportion of vegetation cover class in area

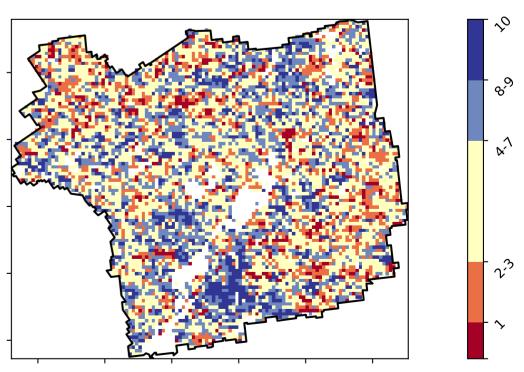
Land use class



% Area protected from wind erosion (>50%)



**Total Vegetation Cover Decile [%]** 



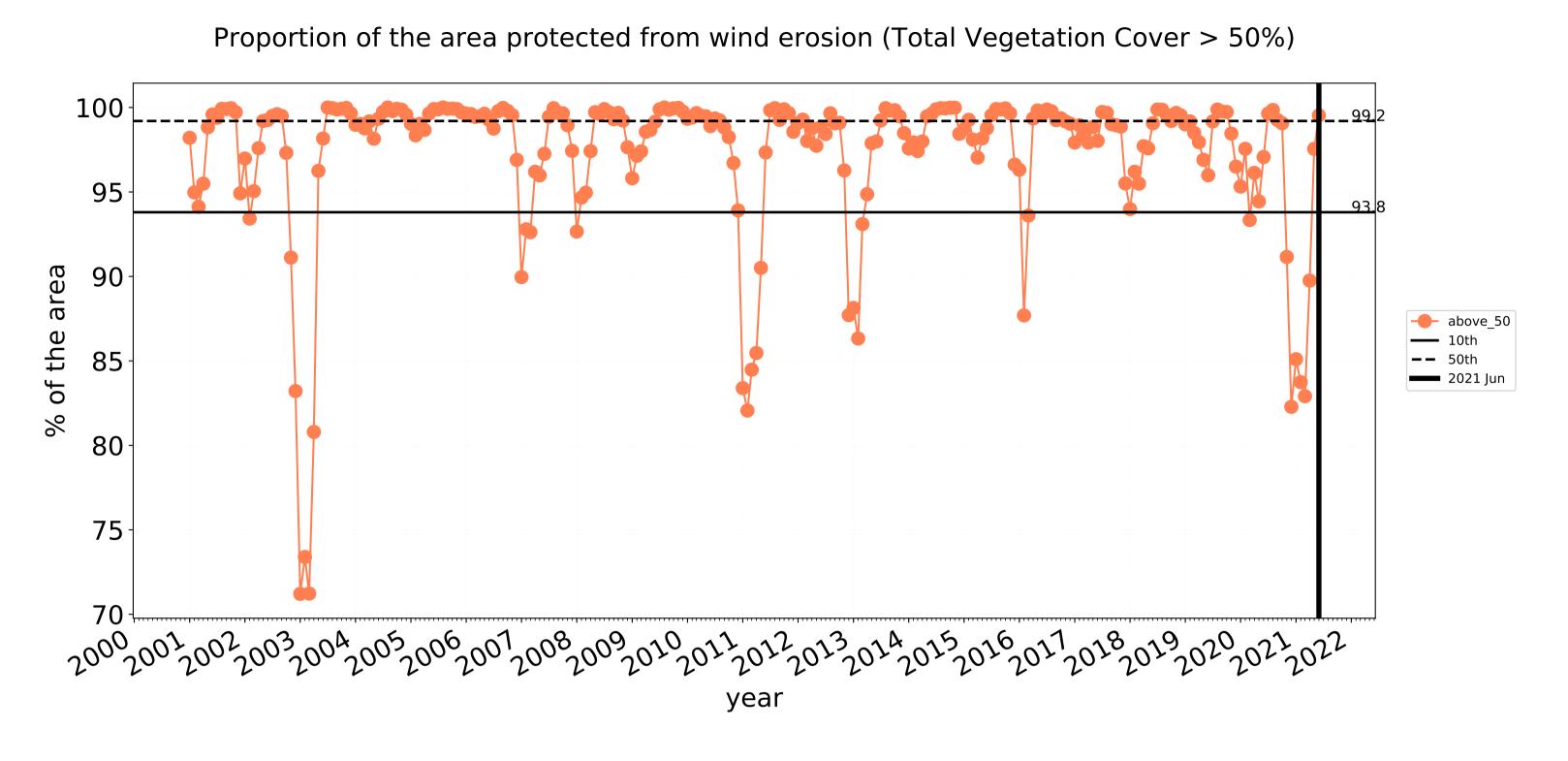


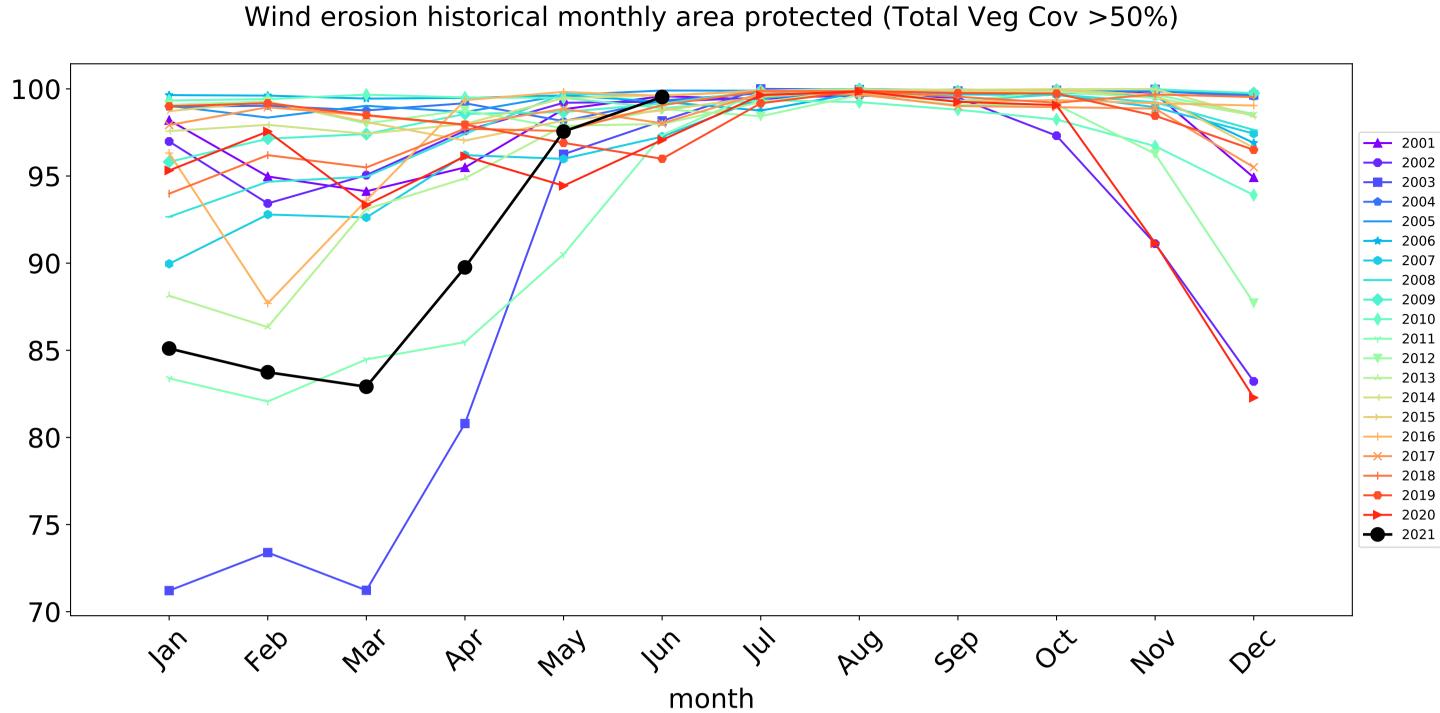


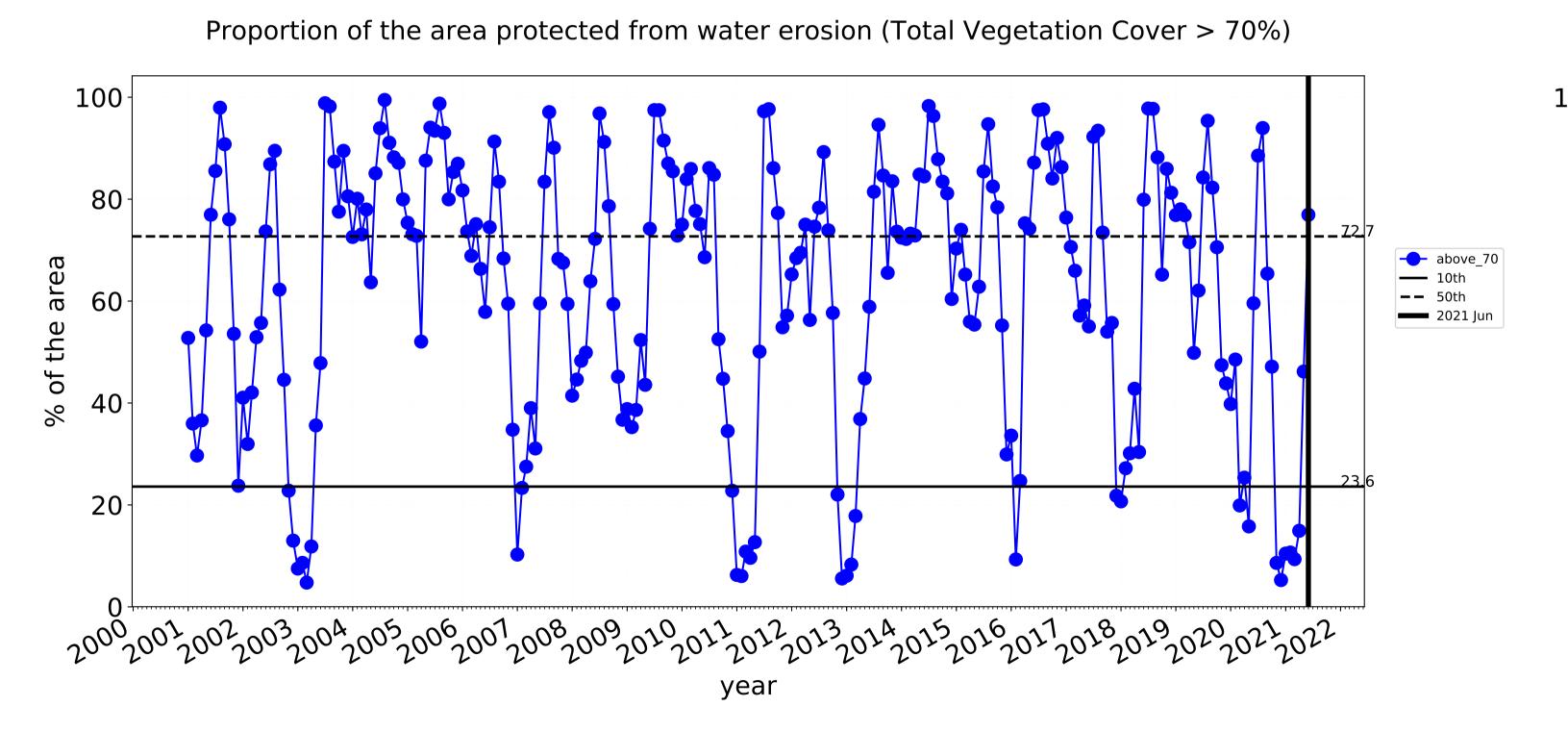


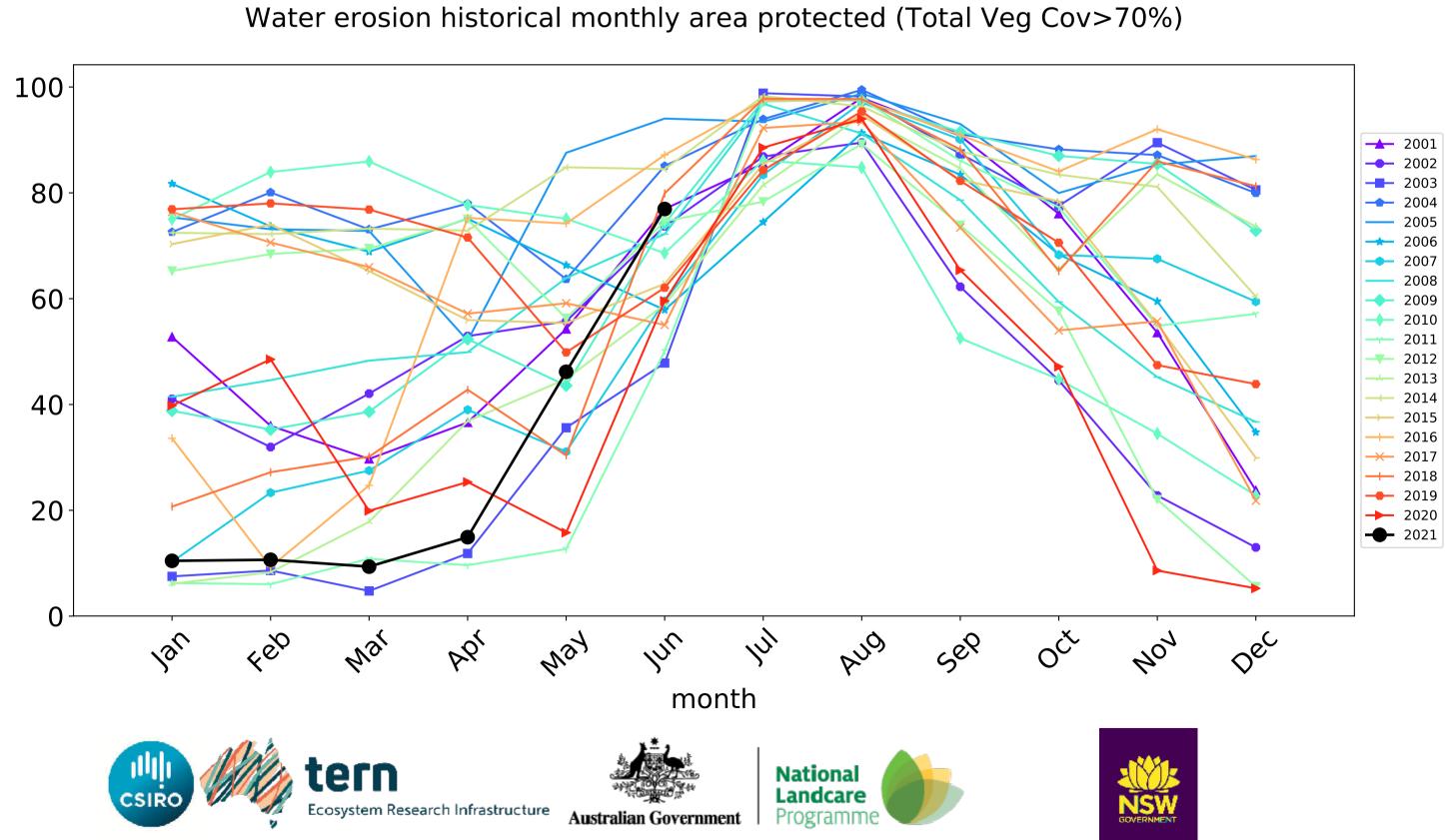


## **Agriculture timeseries**



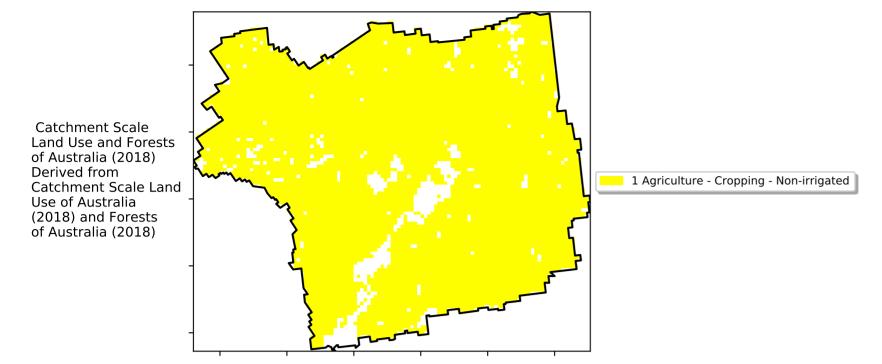




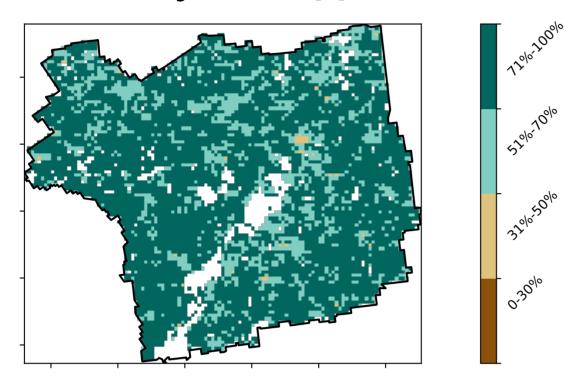


## **Cropping**

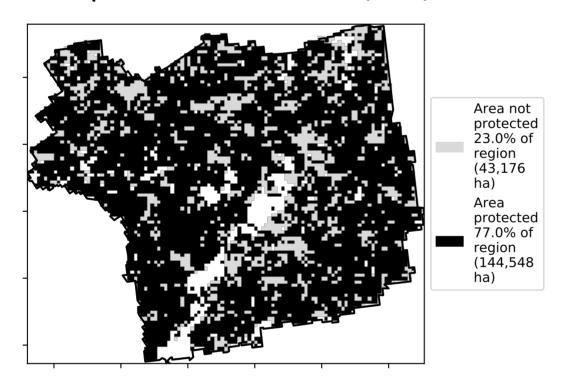
## Land use and forest cover



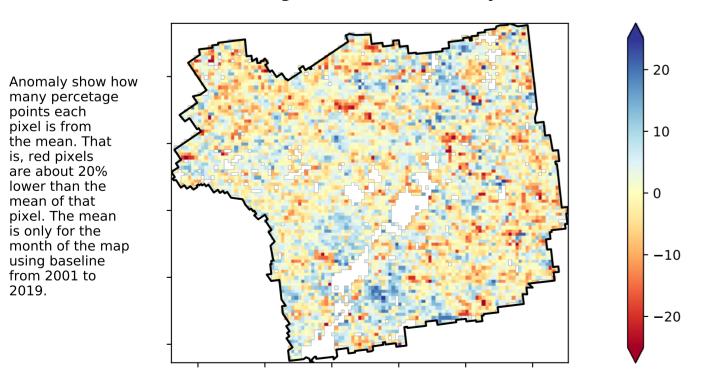
## **Total Vegetation Cover [%]**



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

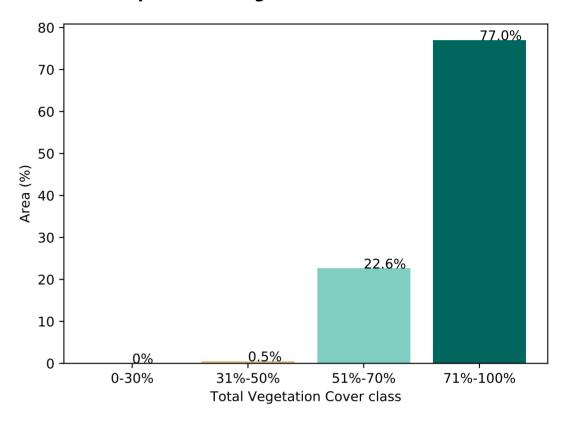


## Total Vegetation Cover Anomaly [%]

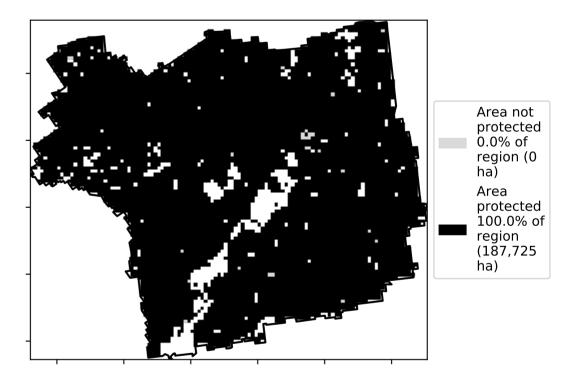


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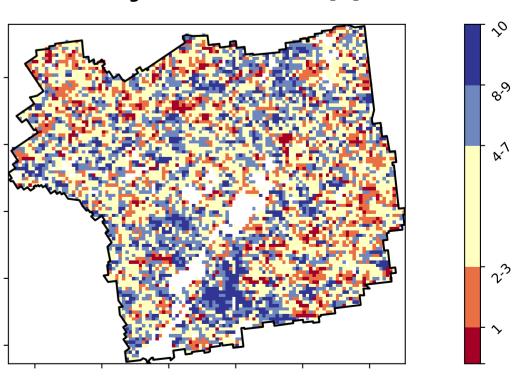
## Proportion of vegetation cover class in area



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



## Total Vegetation Cover Decile [%]



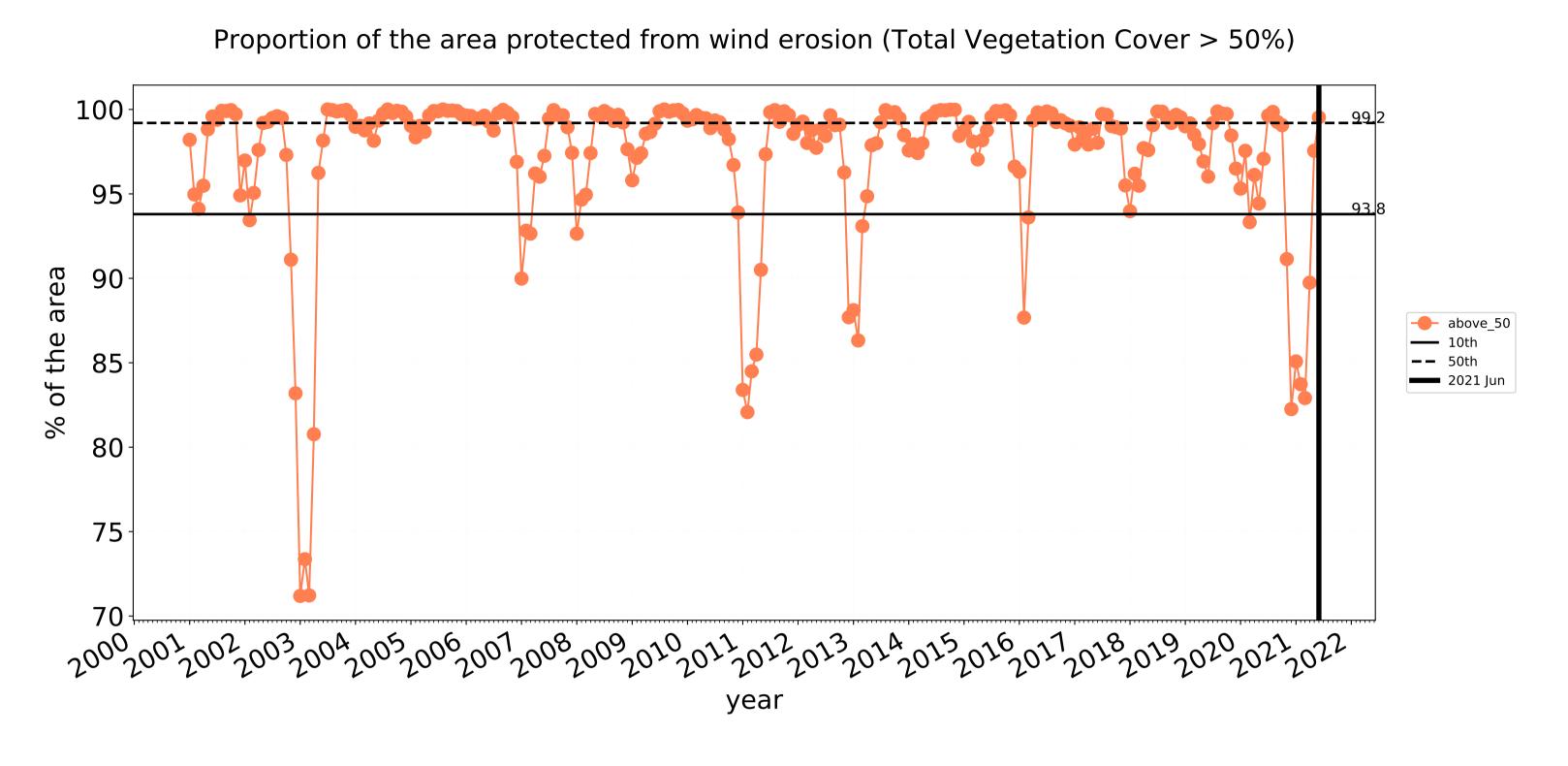


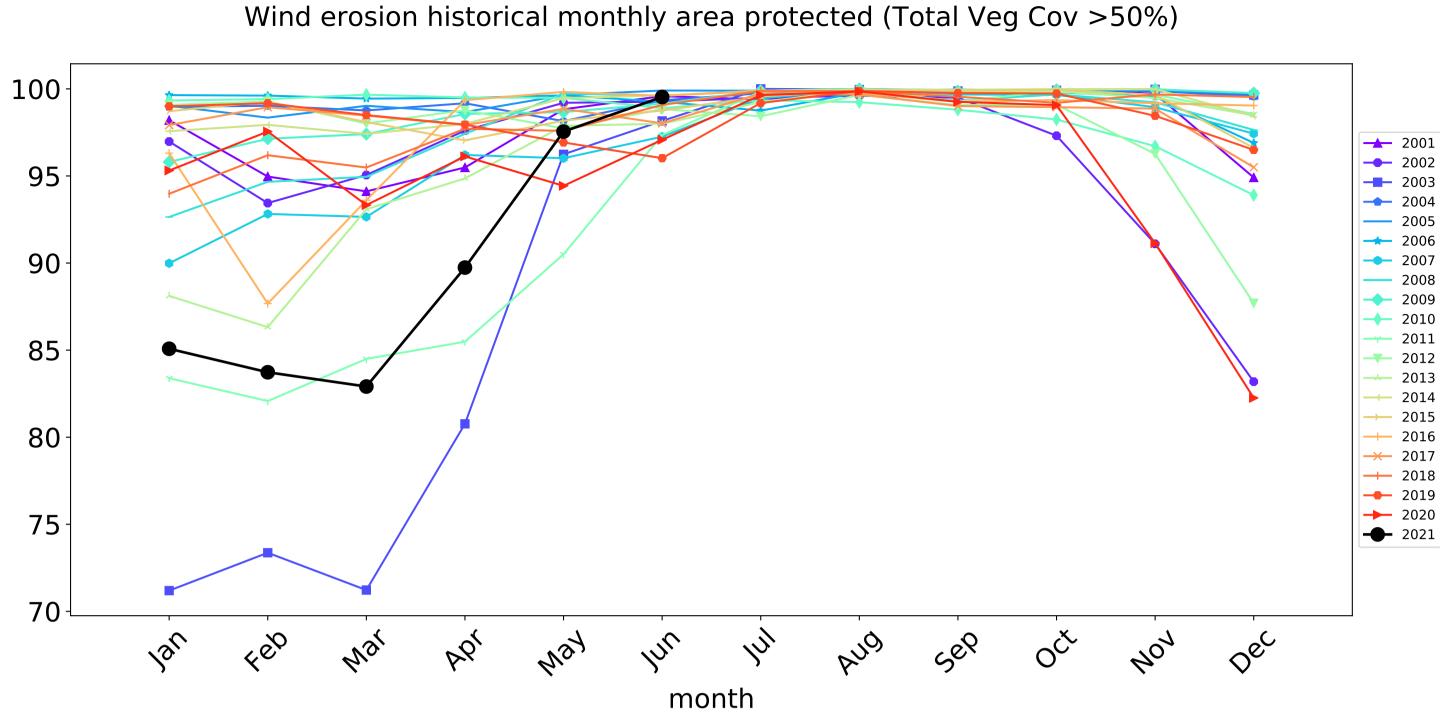


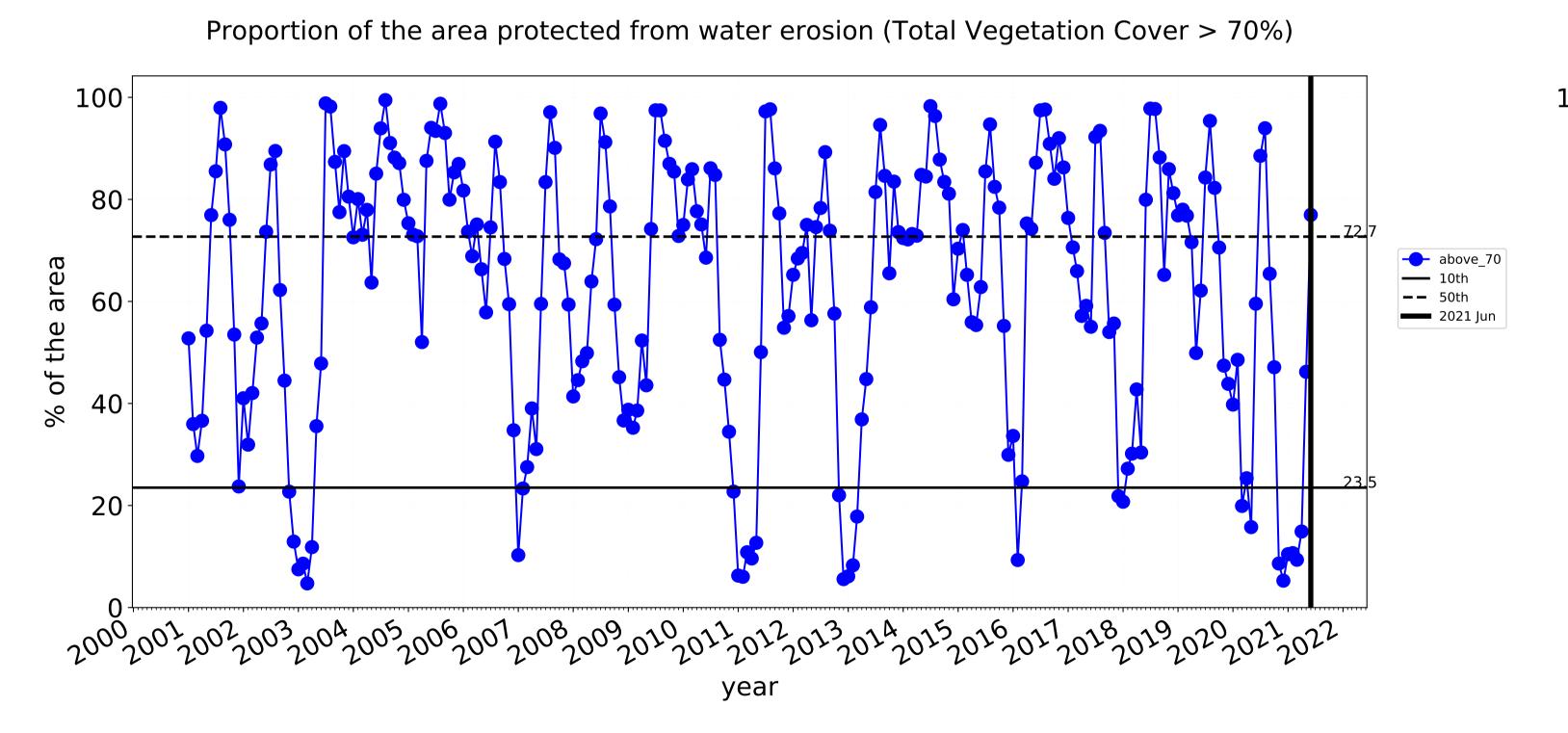


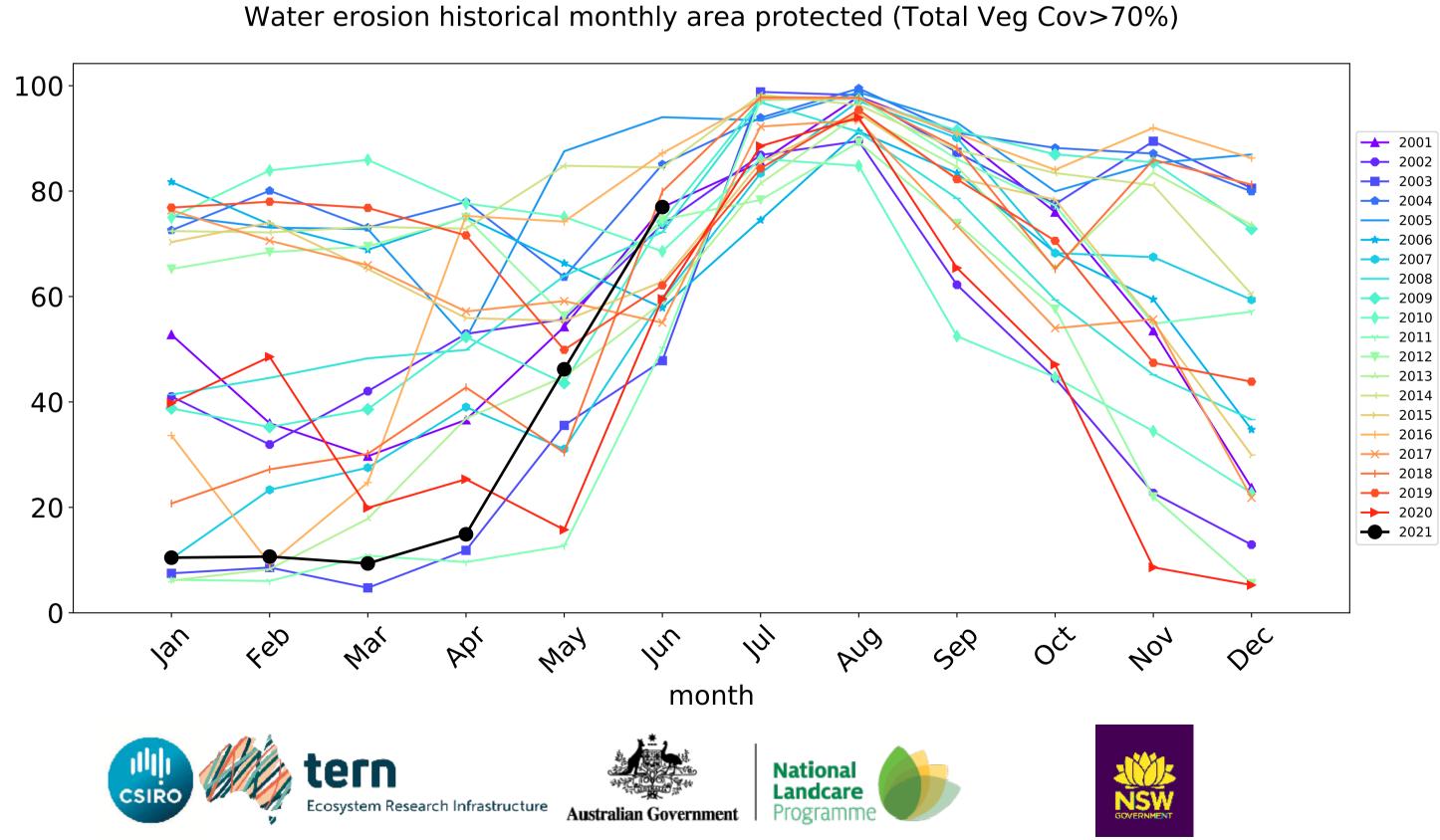


## **Cropping timeseries**









## Quairading\_(S) (201,425 ha and no data 273 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	201,425	100.0% 201,425	99.6% 200,525	77.5% 156,150	28.5% 57,350	3.2% 6,425	1.1% 2,275
Conservation and natural environments	12,400	100.0% 12,400	99.8% 12,375	85.7% 10,625	50.2% 6,225	10.5% 1,300	4.4% 550
Conservation and natural environments non forest	10,525	100.0% 10,525	99.8% 10,500	83.6% 8,800	45.1% 4,750	10.2% 1,075	5.0% 525
Agriculture	188,025	100.0% 188,025	99.5% 187,150	76.9% 144,675	26.9% 50,525	2.5% 4,725	0.8% 1,475
Cropping	187,725	100.0% 187,725	99.5% 186,850	77.0% 144,500	26.9% 50,450	2.5% 4,725	0.8% 1,475







