### Total vegetation cover soil protection Region:NRM Hunter NSW

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 2020** 

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 2020**

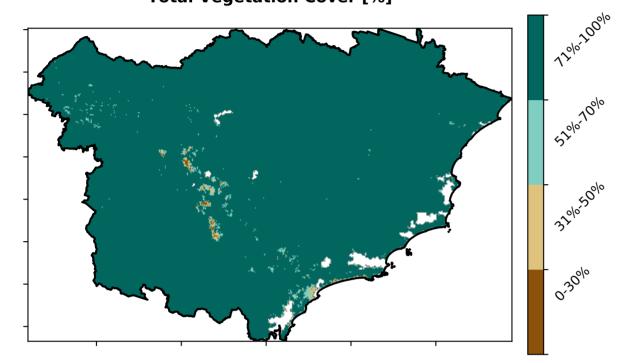
#### Land use and forest cover Legend with land class forest cover and number, i.e. Forests is 12 1 Conservation and natural environments - Non-forest 2 Conservation and natural environments - Woodland forest Catchment Scale Land Use and Forests 3 Conservation and natural environments - Non-Woodland forest of Australia (2018) 4 Agriculture - Grazing - Non-forest Derived from 5 Agriculture - Grazing - Woodland forest Catchment Scale Land 6 Agriculture - Grazing - Non-woodland forest Use of Australia 7 Agriculture - Grazing - Irrigated (2018) and Forests of Australia (2018) 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

# 35 - 32 .7% 30 - 25 - 25 - 20 - 25 - 10 - 10 - 5 - 4.2% 3,7% - 5,1% - 6,6% - 7,2% - 1,1% - 1,2 13

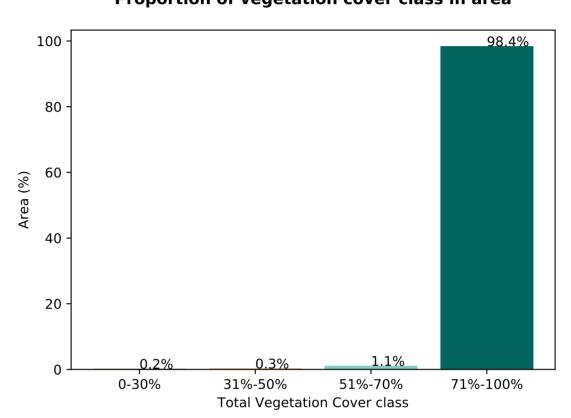
Proportion of each land class in area

#### Total Vegetation Cover [%]

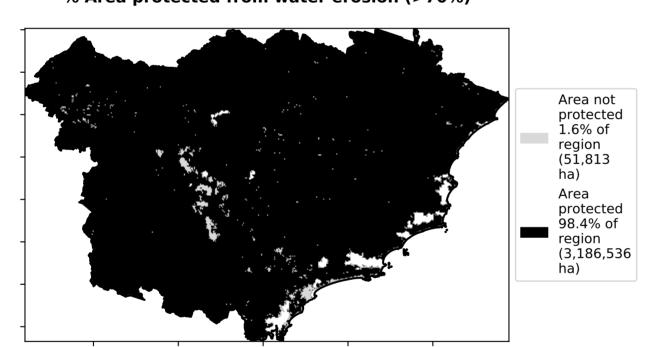


Proportion of vegetation cover class in area

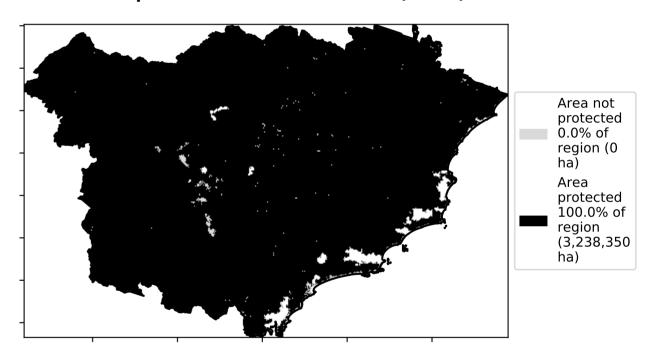
Land use class



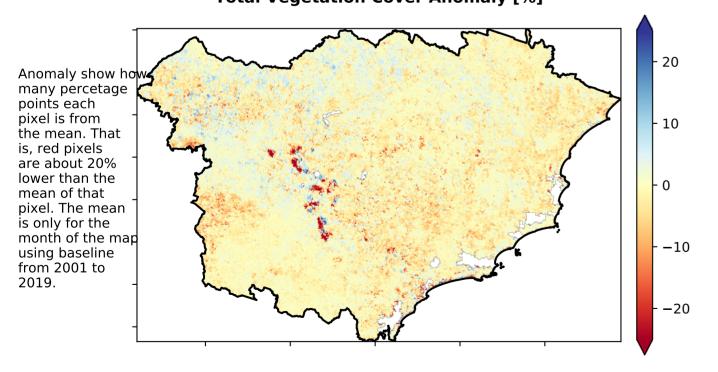
#### % Area protected from water erosion (>70%)

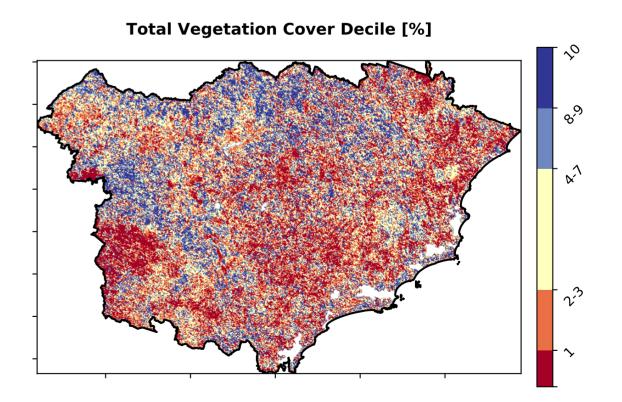


% Area protected from wind erosion (>50%)



#### Total Vegetation Cover Anomaly [%]



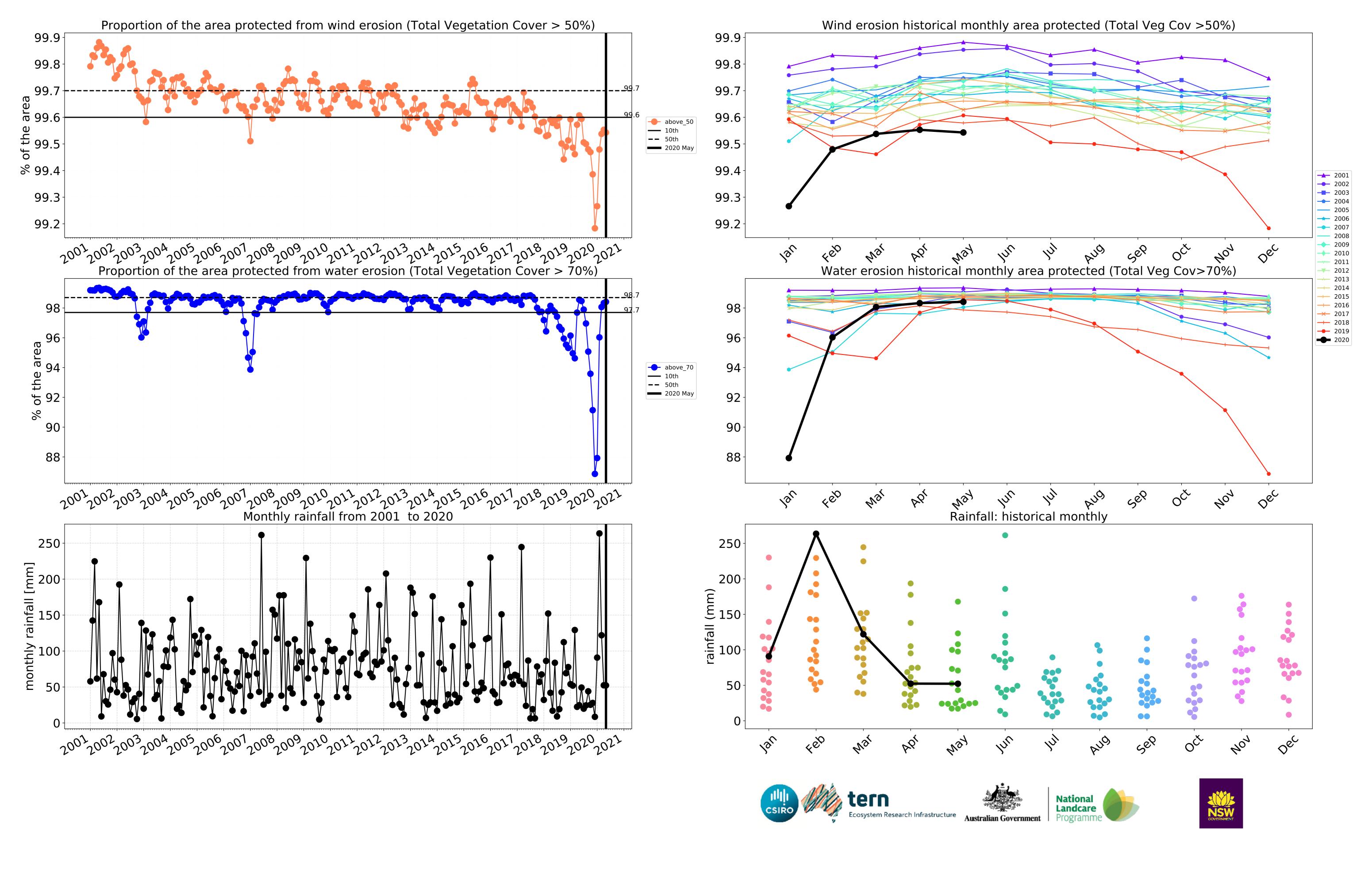




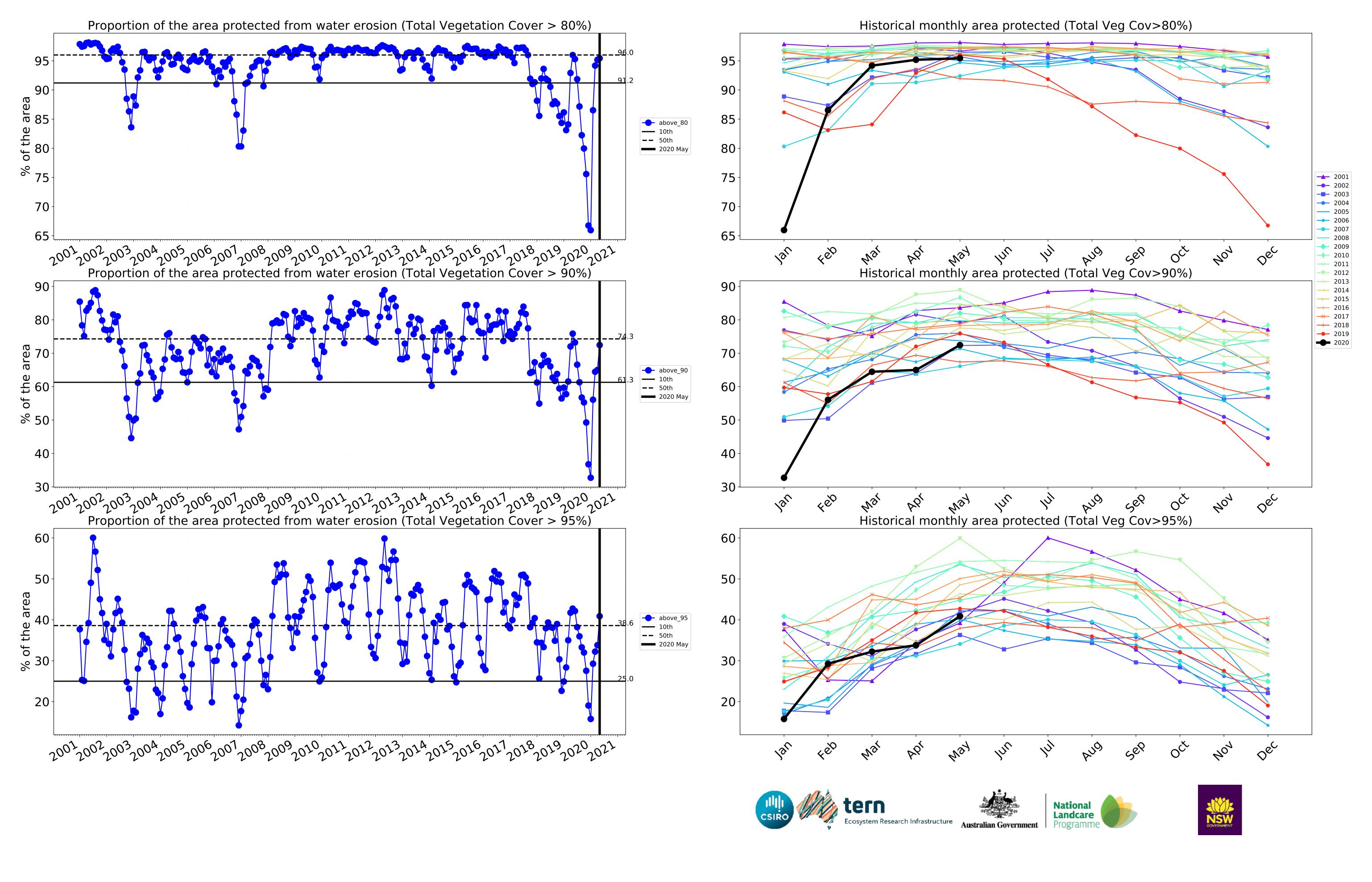




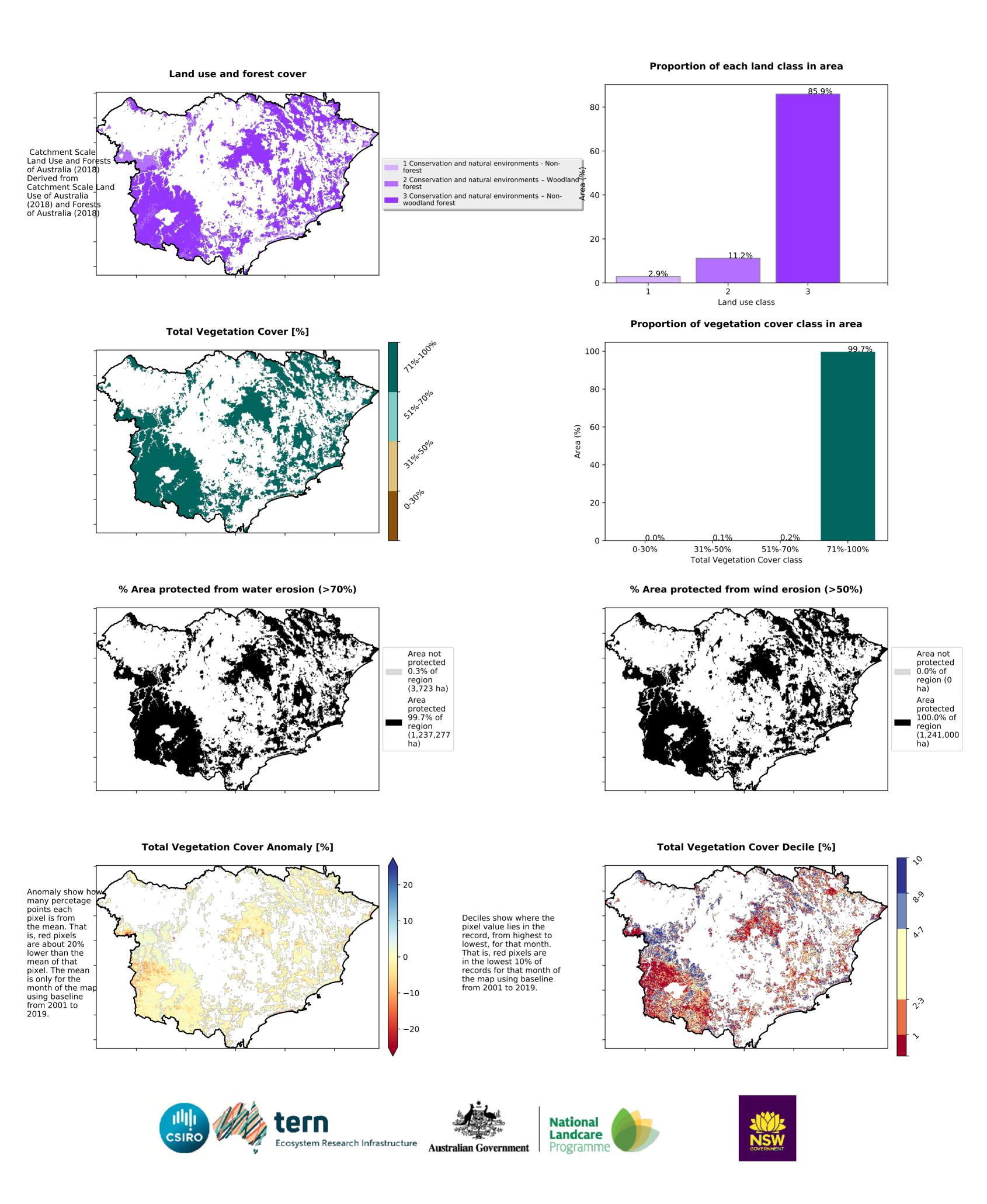




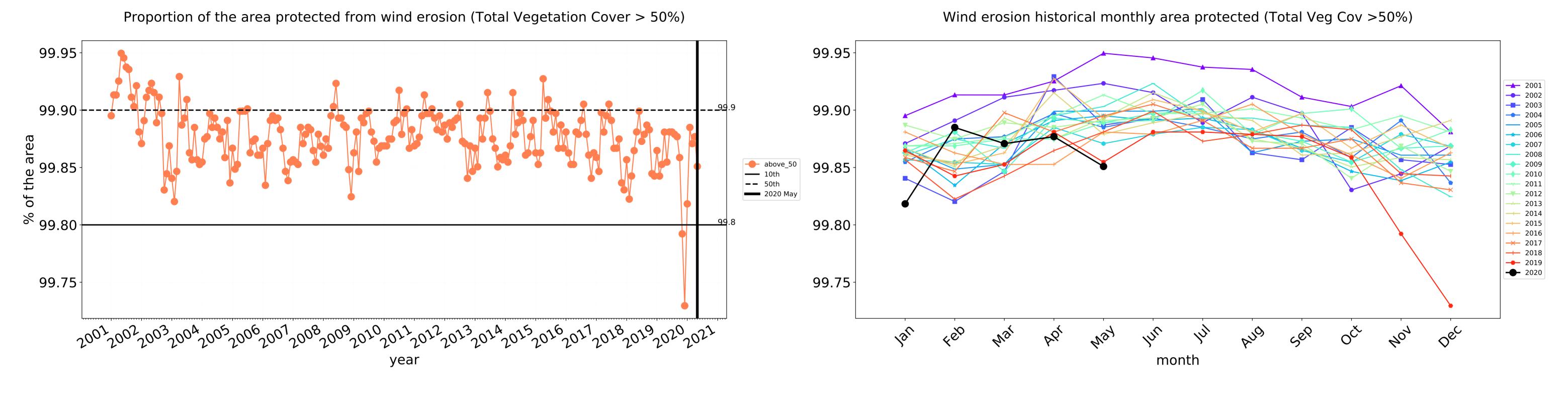
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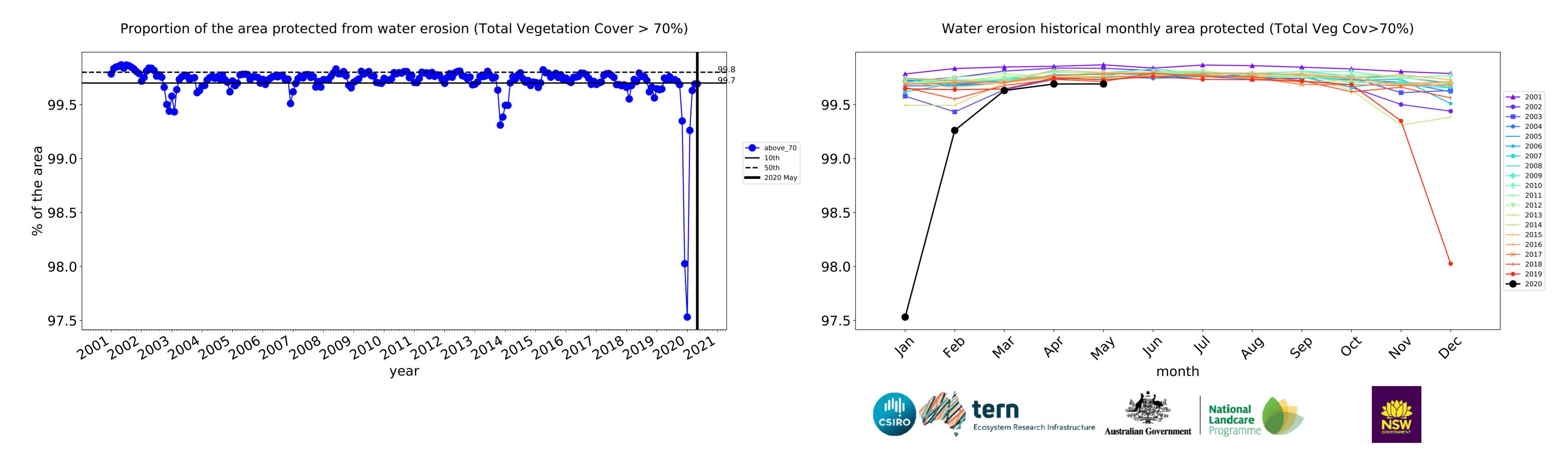


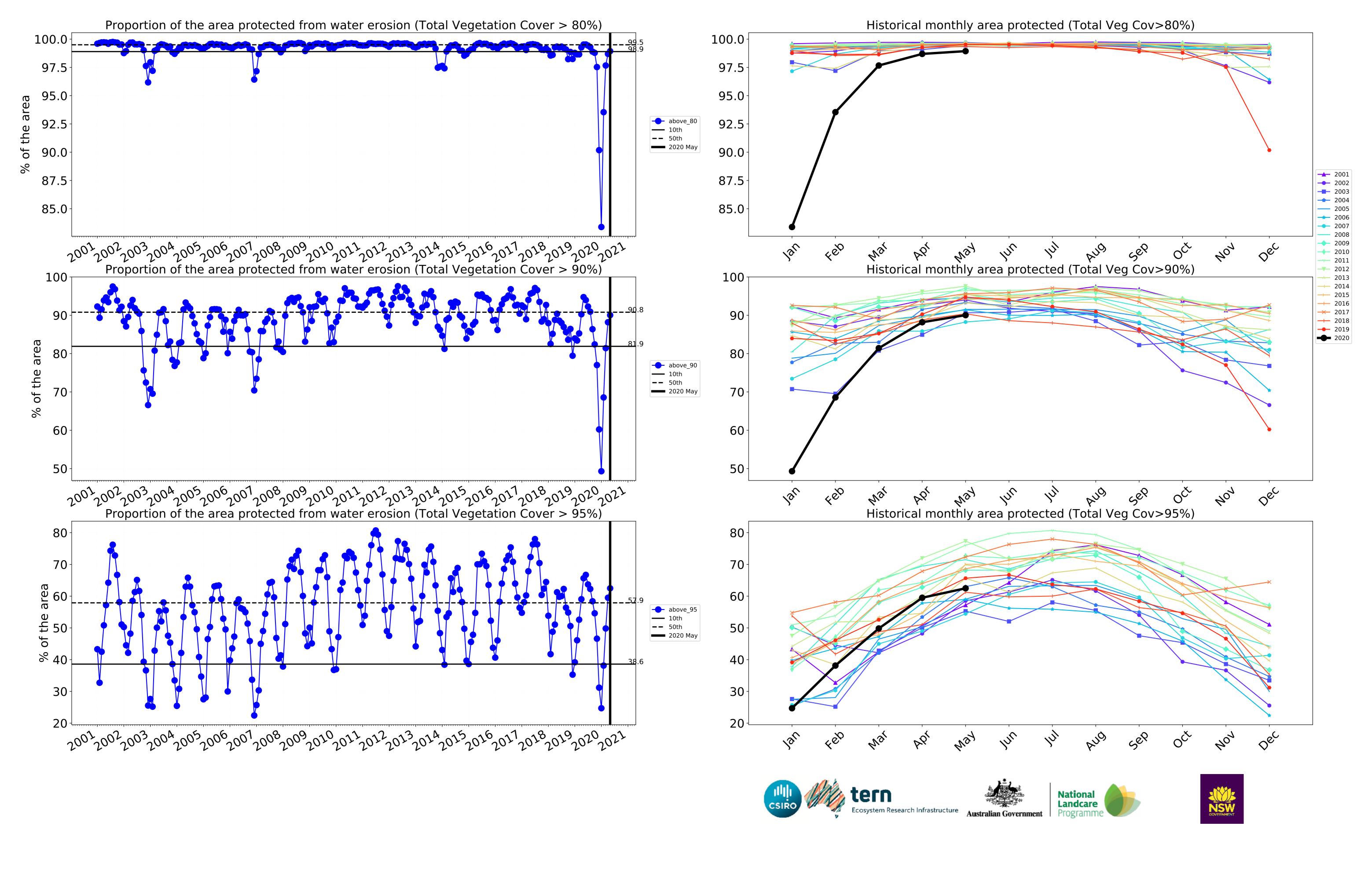
#### **Conservation and natural environments**



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



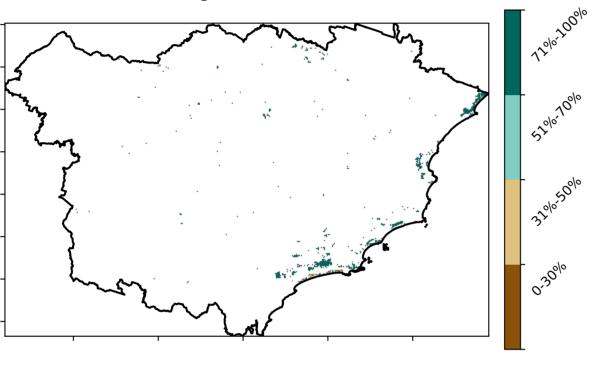


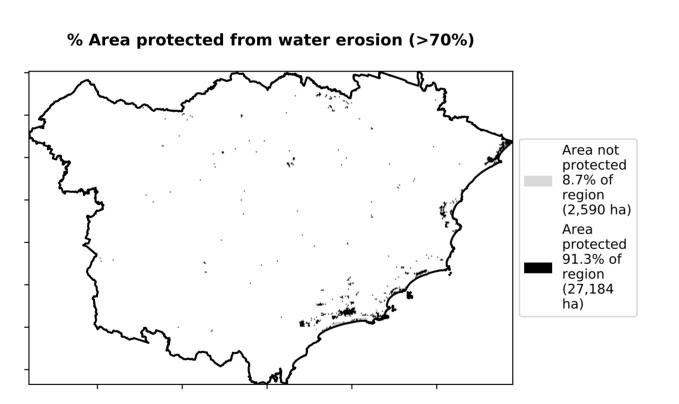


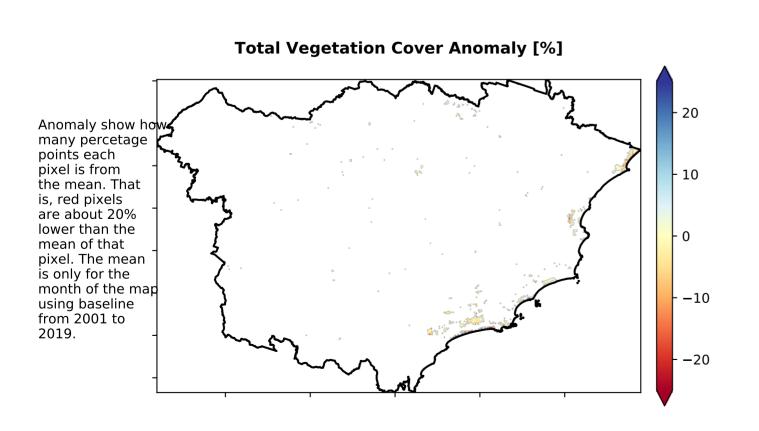
#### **Conservation and natural environments non forest**

### 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 [%]**

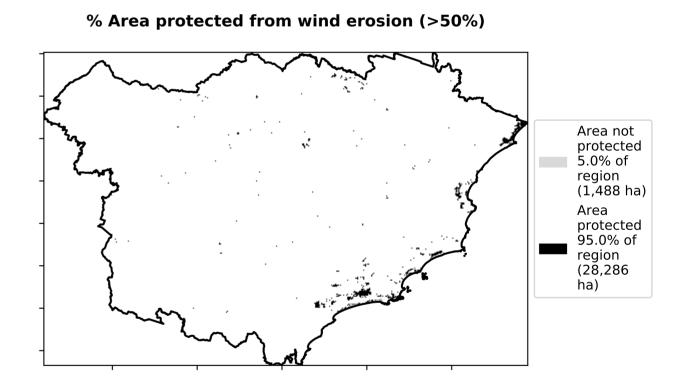


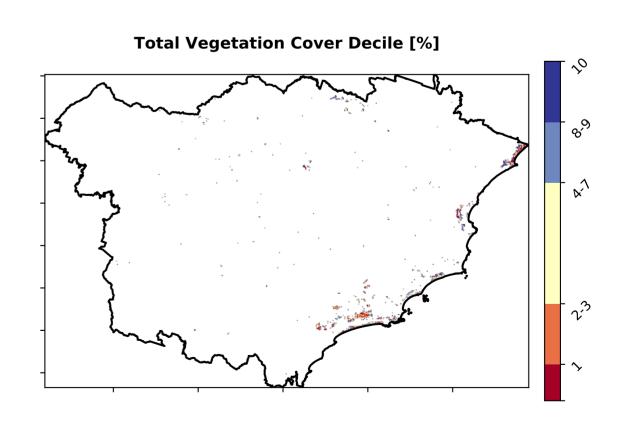




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area 91.3% 80 60 Area (%) 20 3.7% 2.0% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**





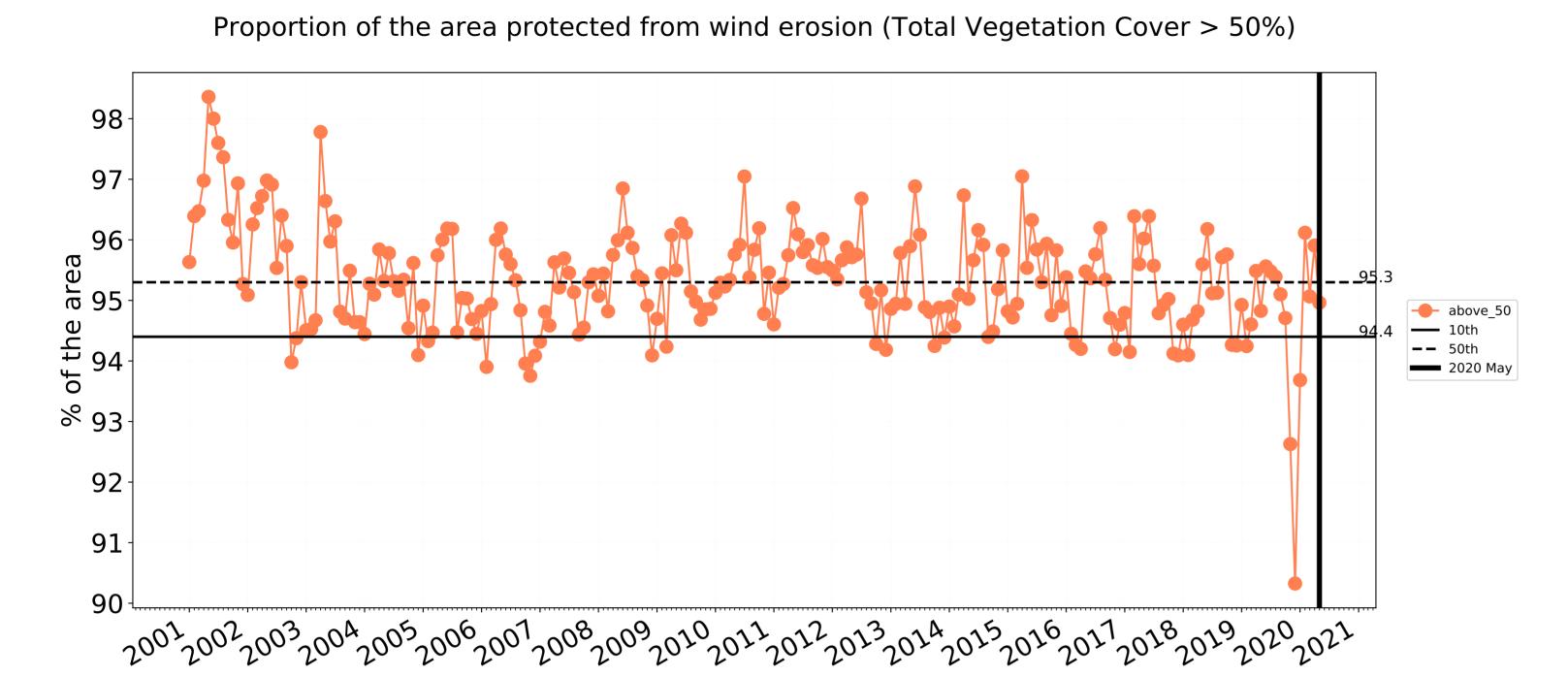




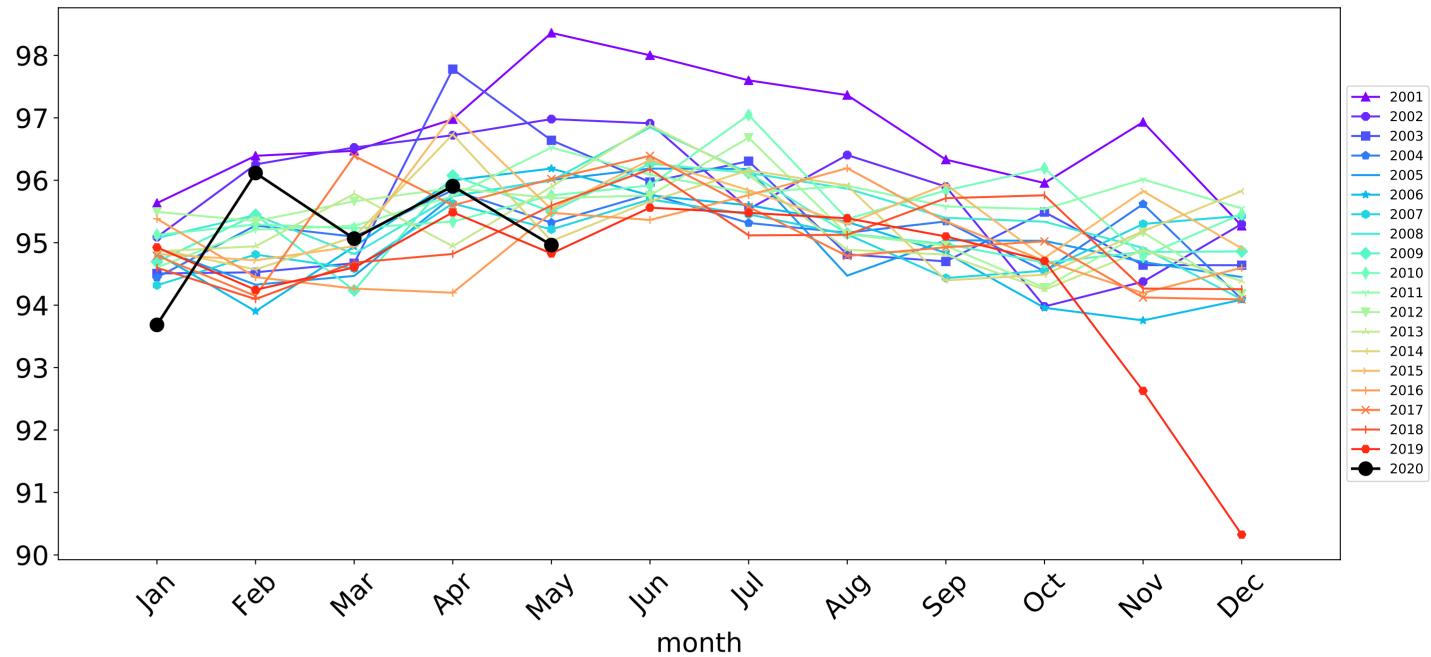


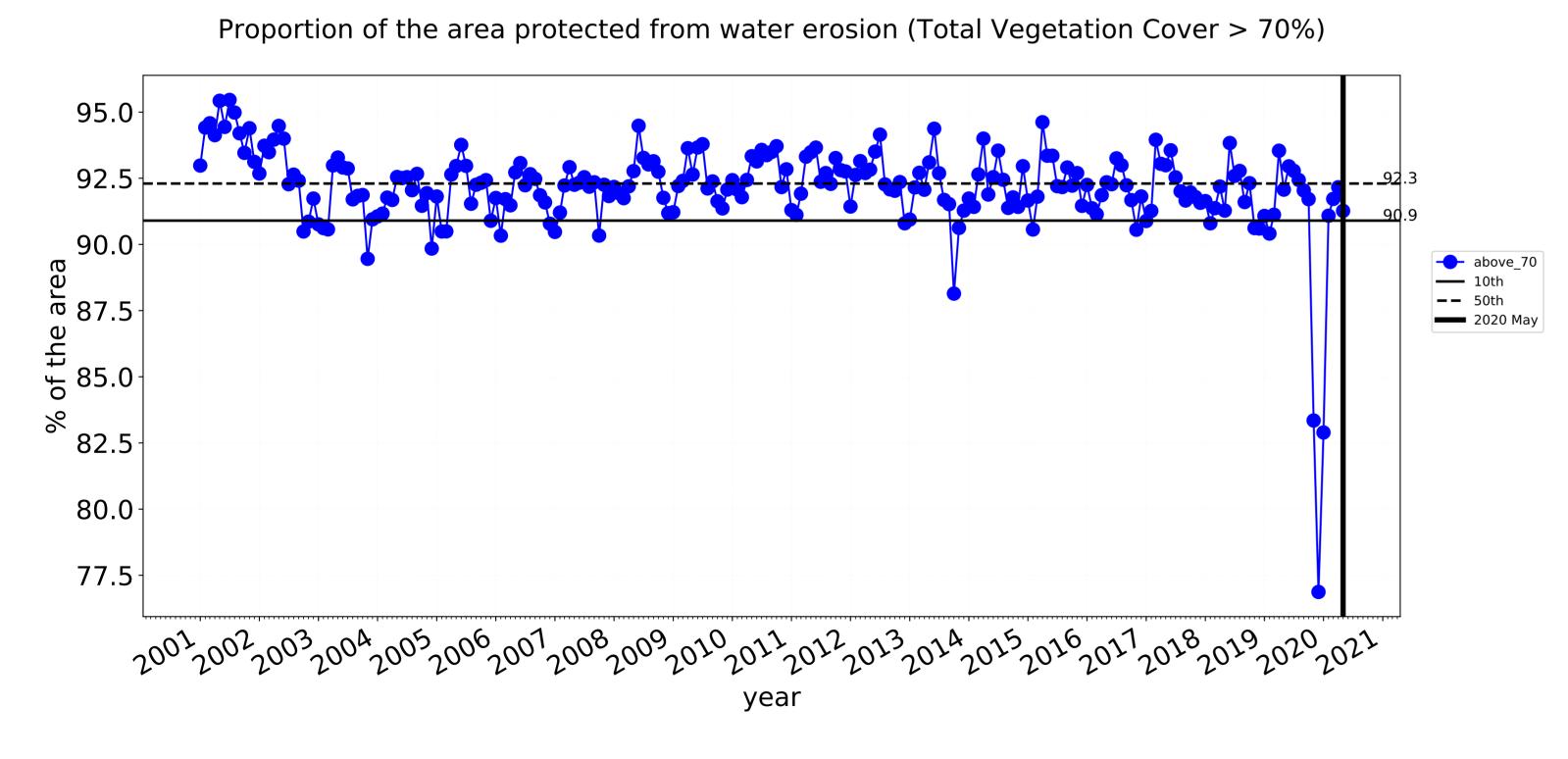


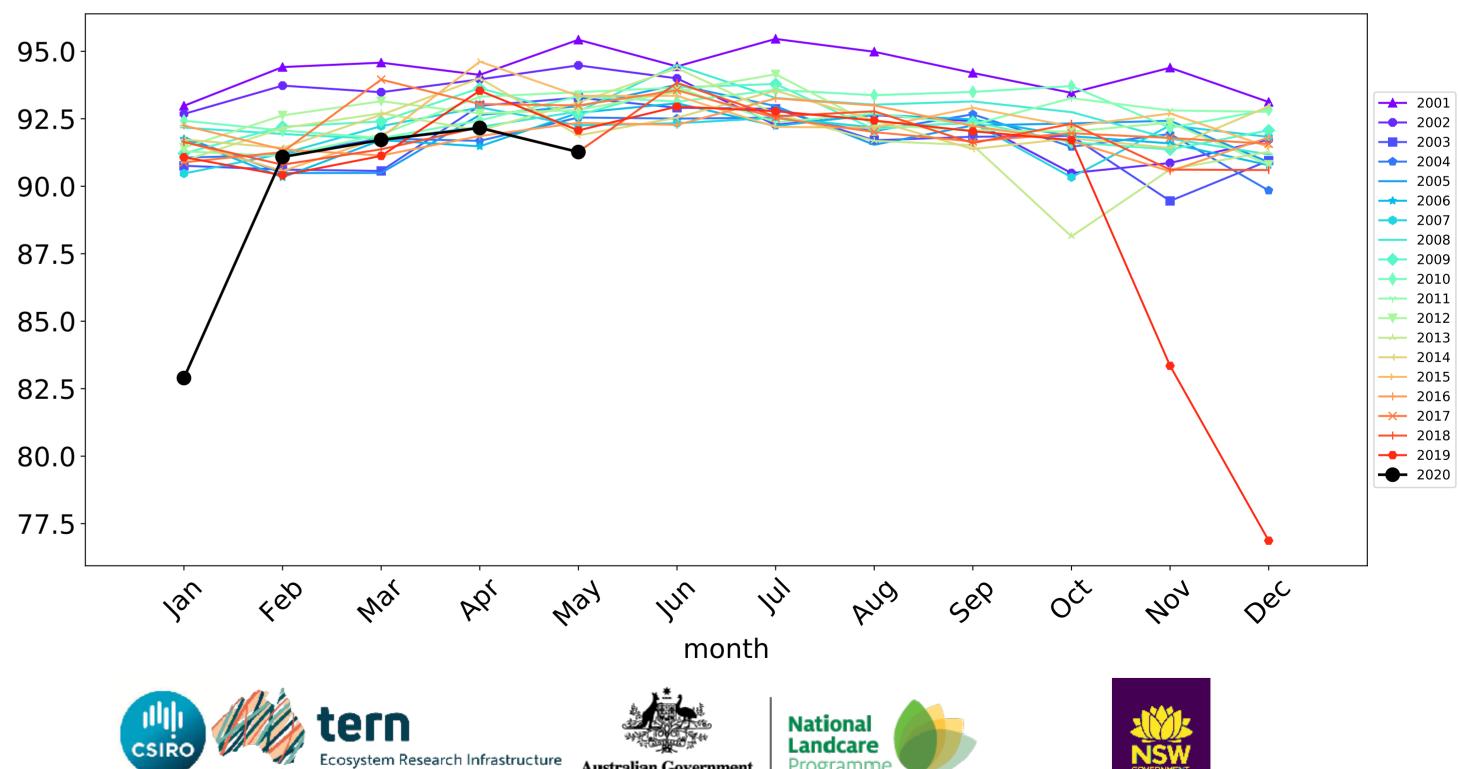
#### Conservation and natural environments non forest timeseries



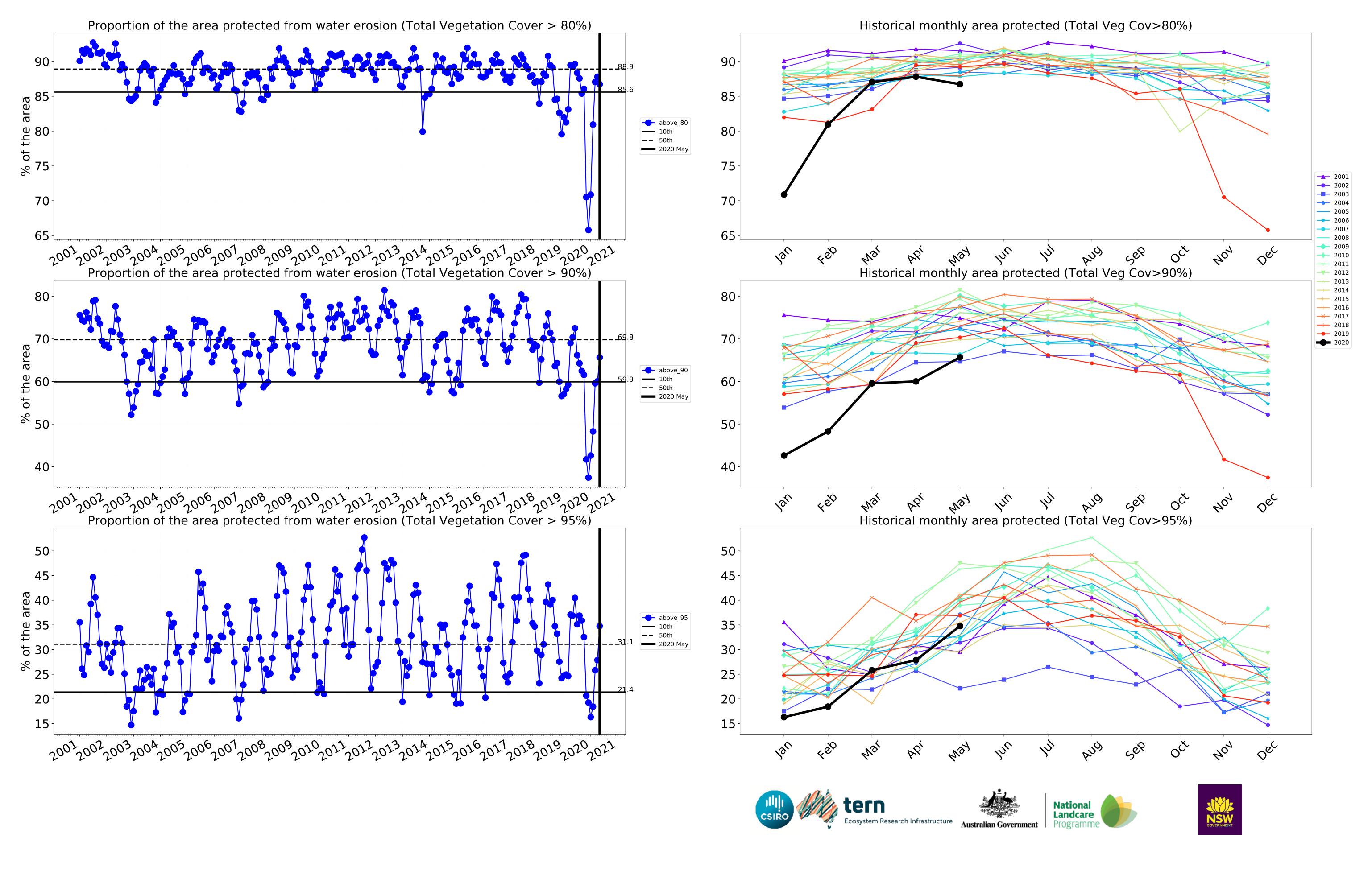
#### Wind erosion historical monthly area protected (Total Veg Cov >50%)



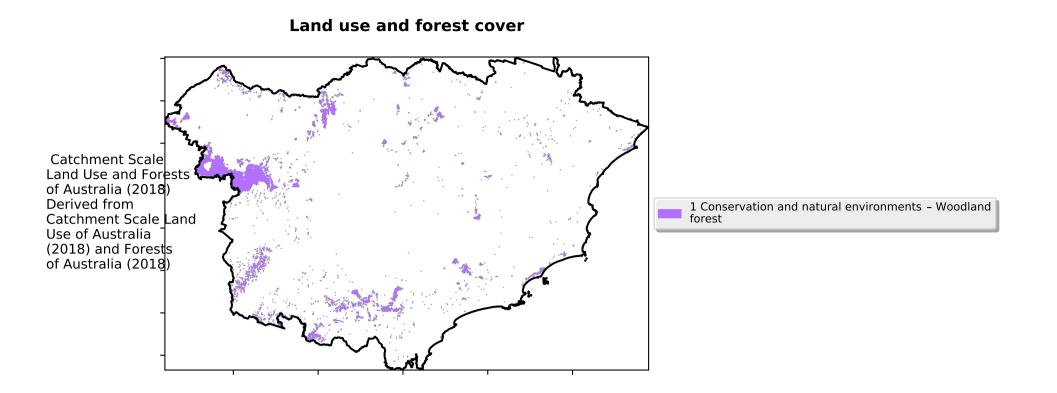


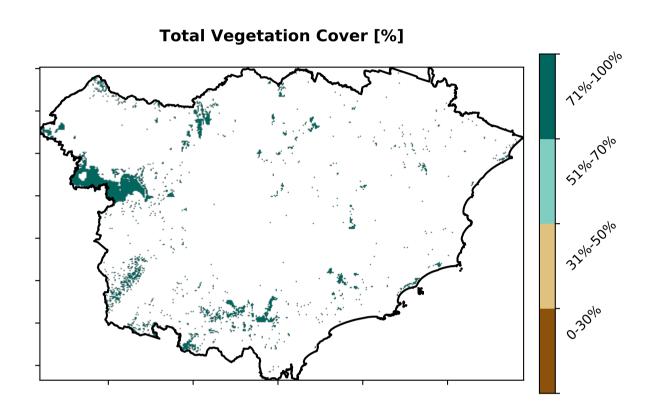


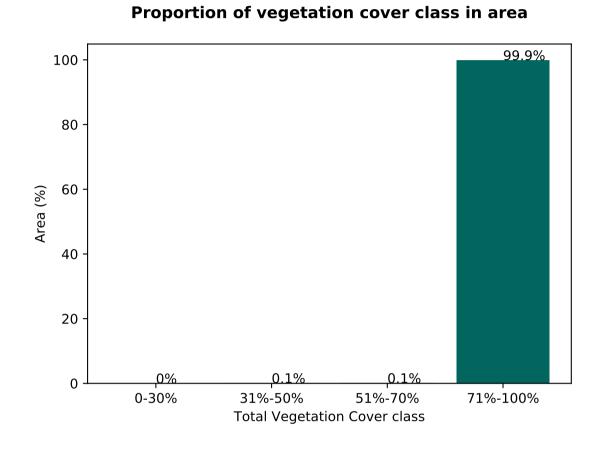
Water erosion historical monthly area protected (Total Veg Cov>70%)

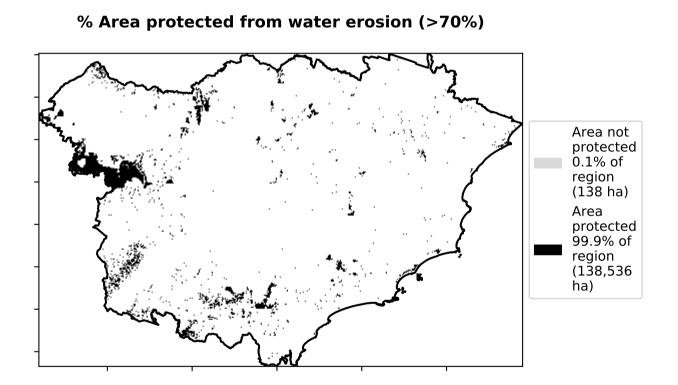


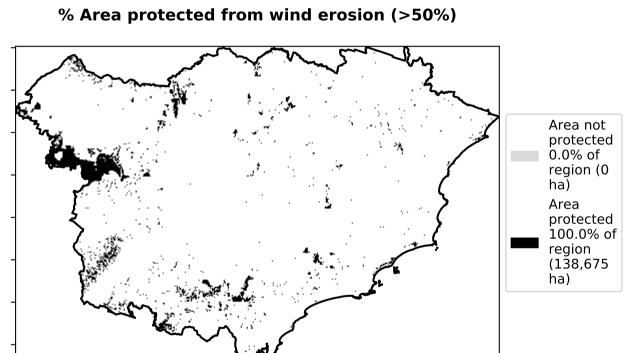
#### **Conservation and natural environments Woodland forest**

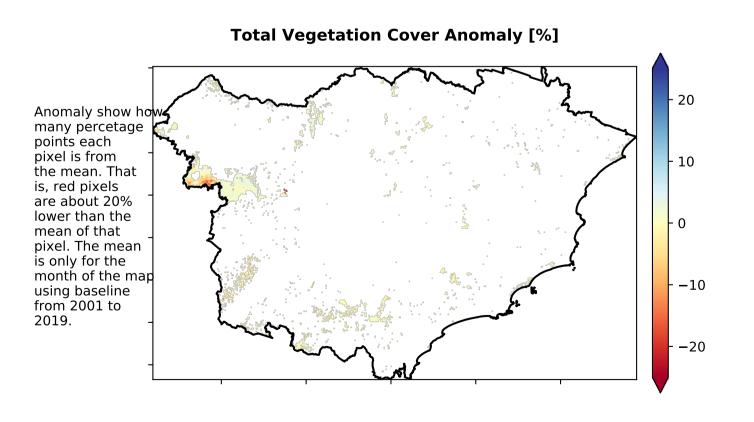


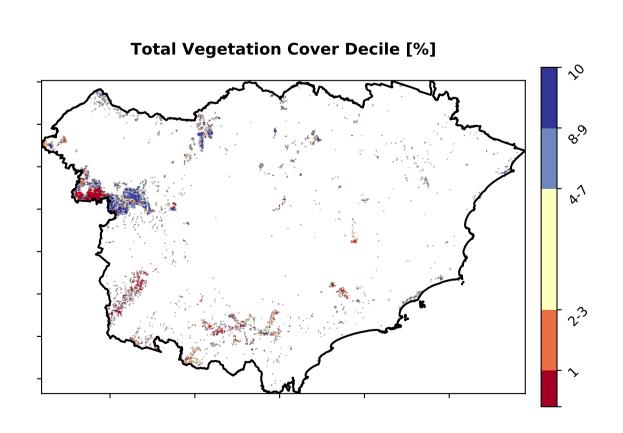










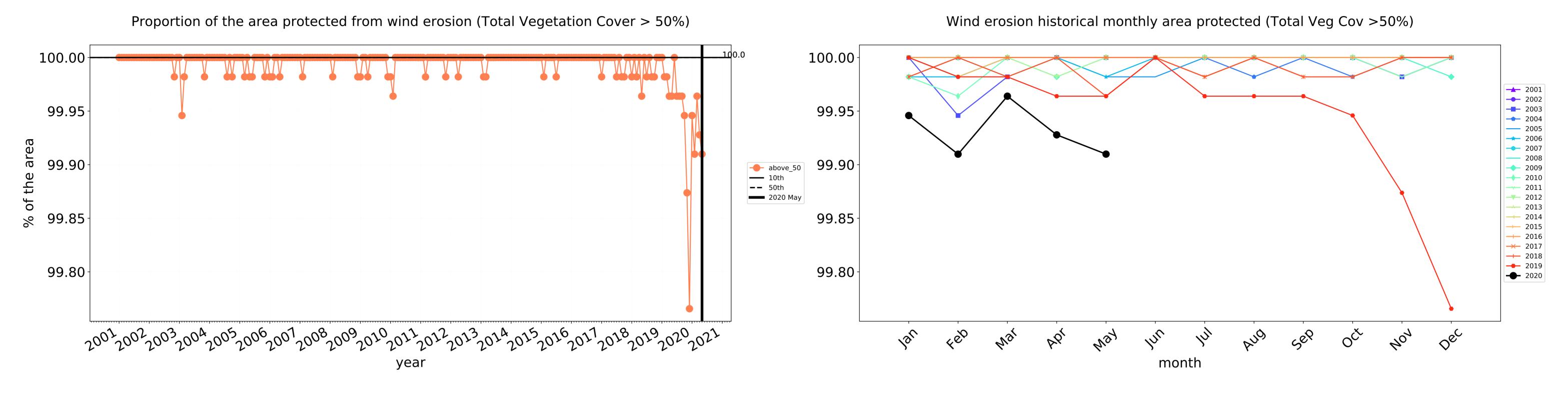


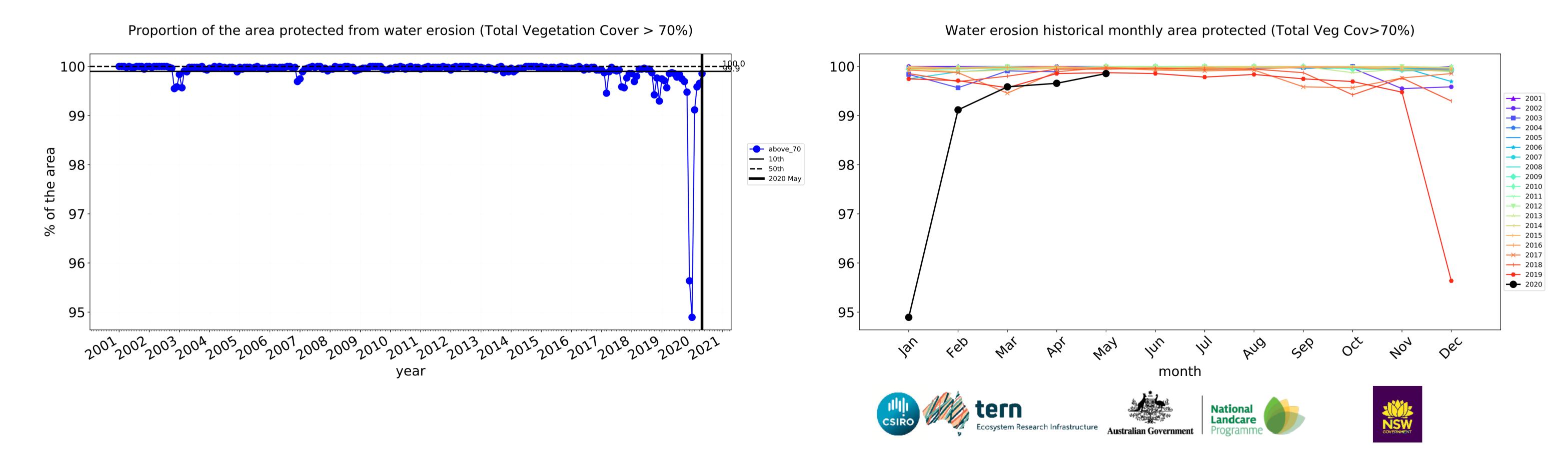


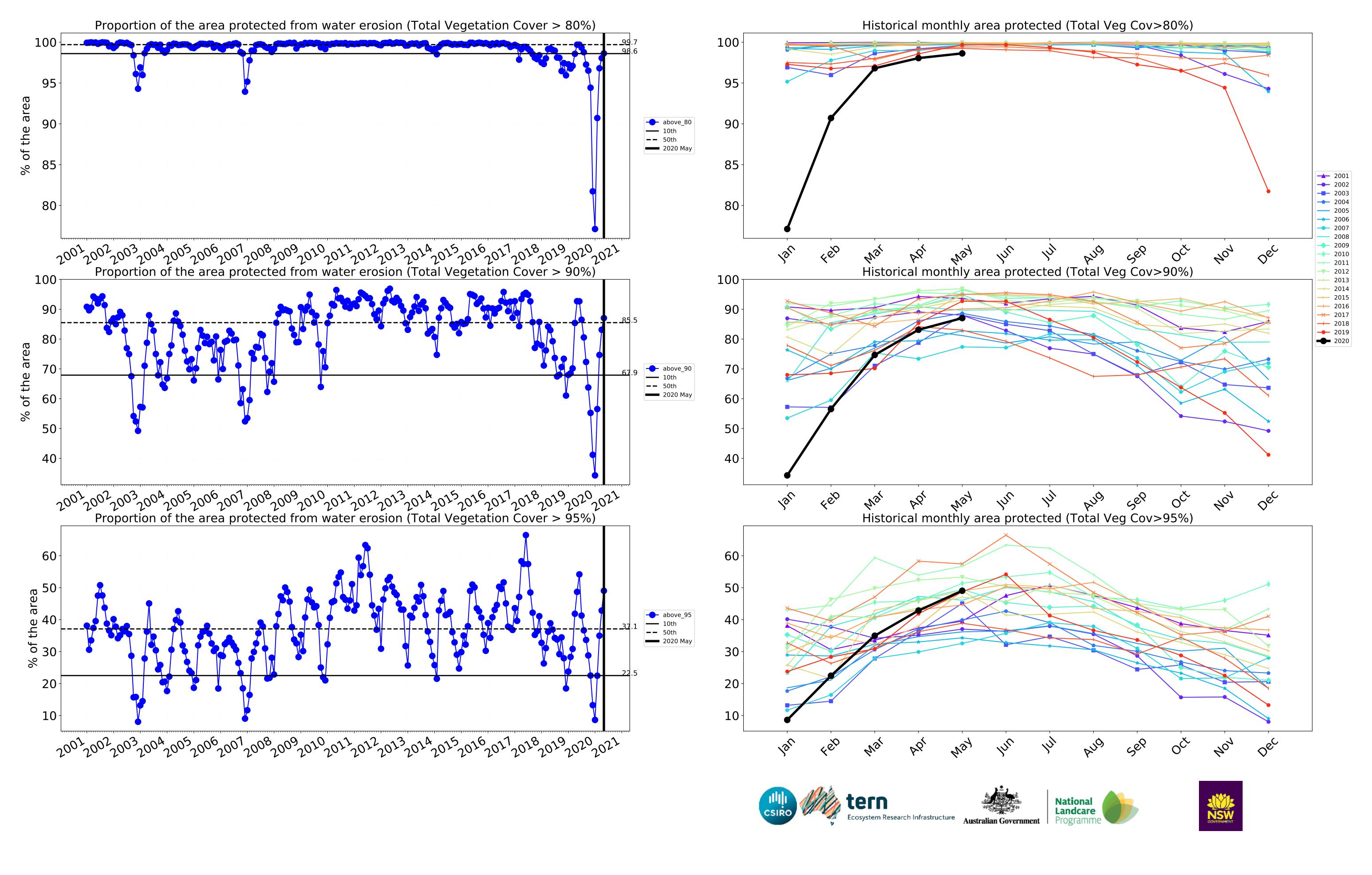




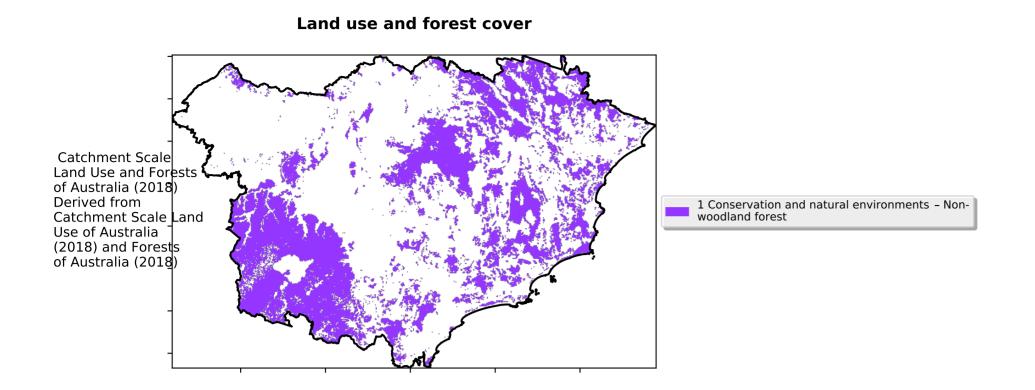




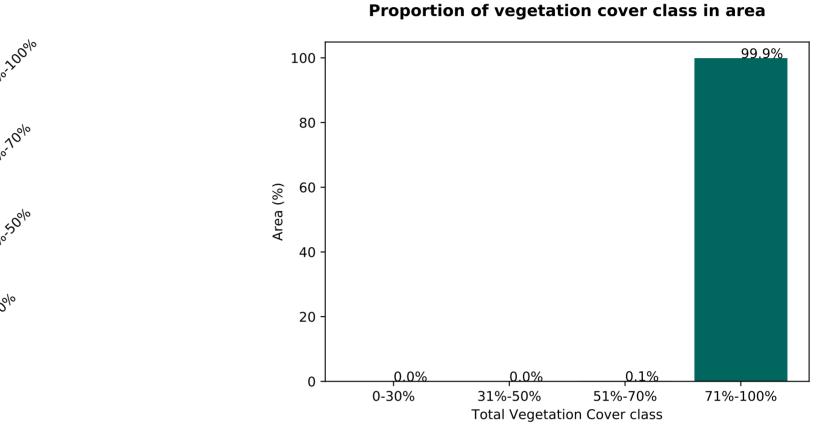


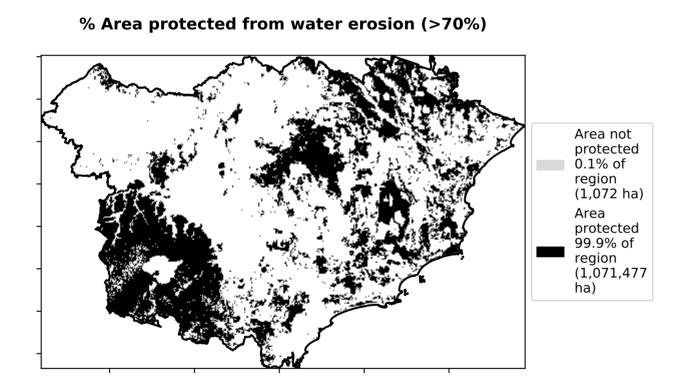


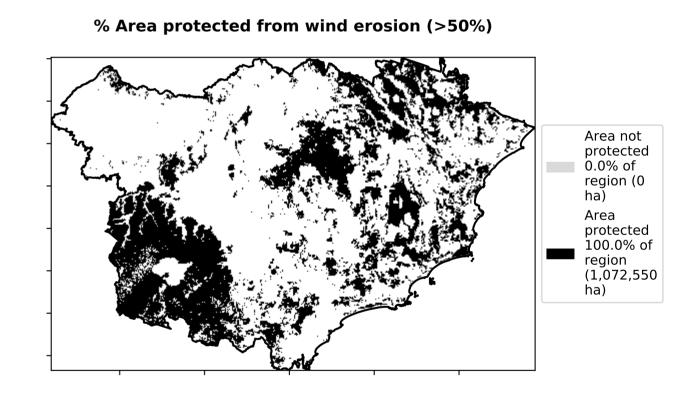
#### **Conservation and natural environments Forest (non woodland)**

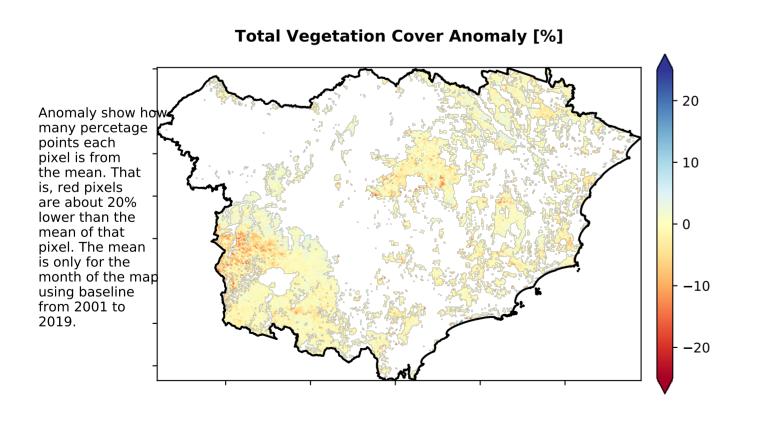


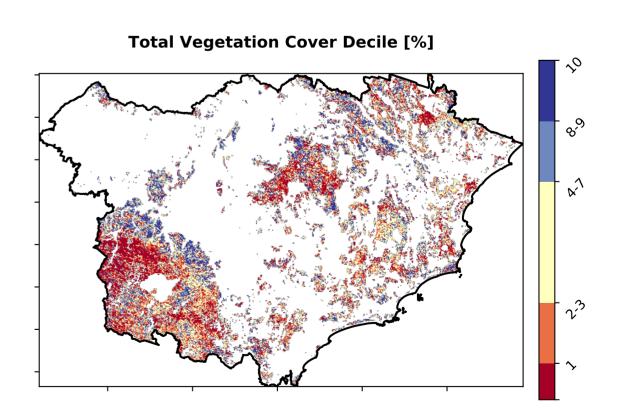
# Total Vegetation Cover [%] Total Vegetation Cover [%] Total Vegetation Cover [%] Total Vegetation Cover [%]











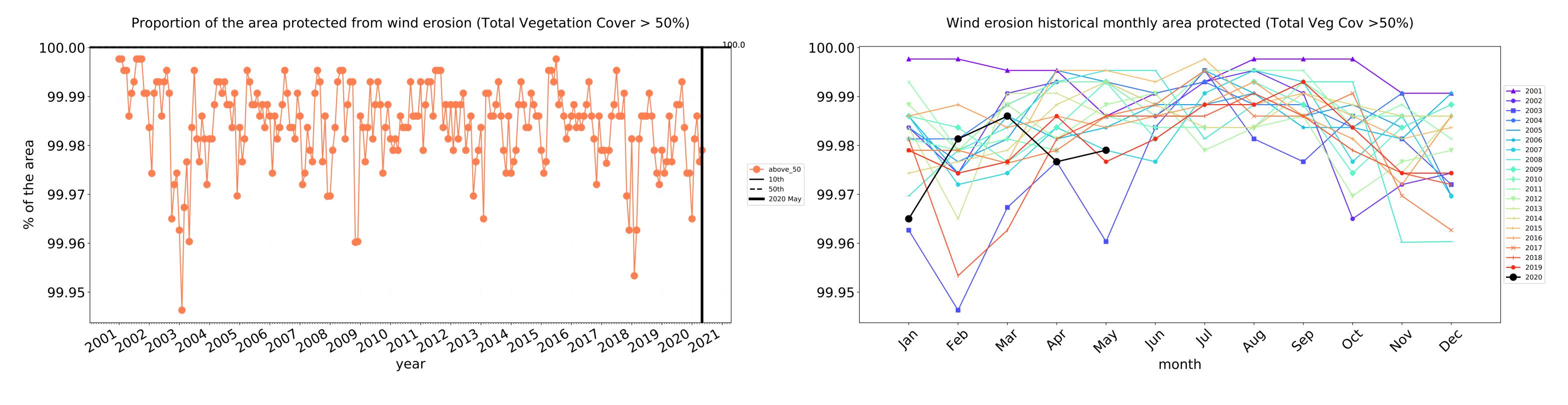


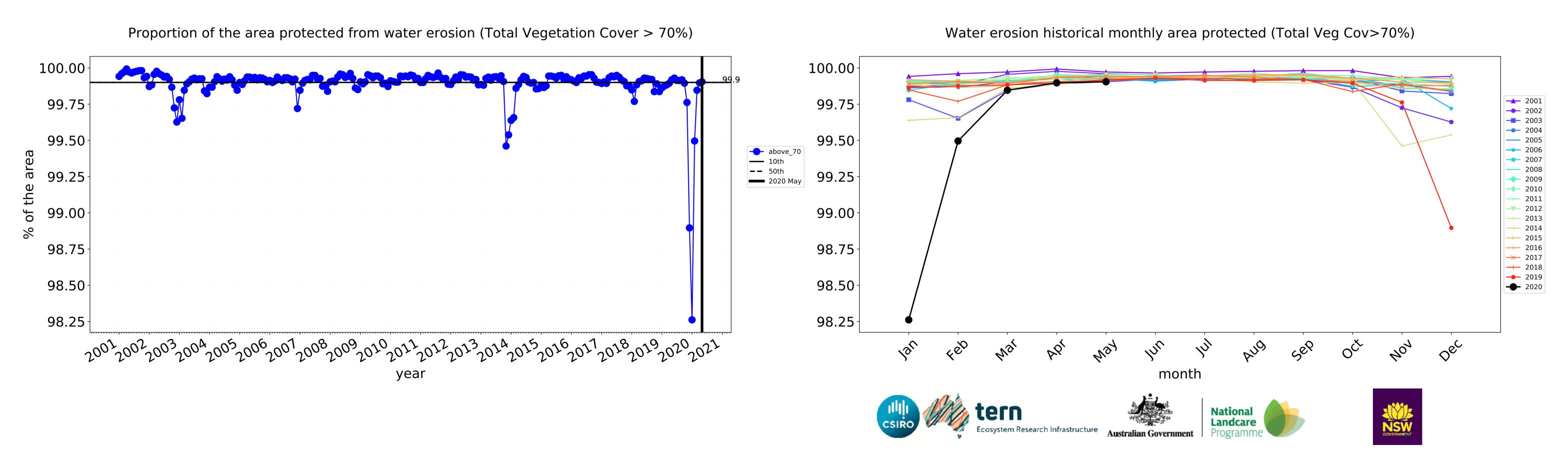


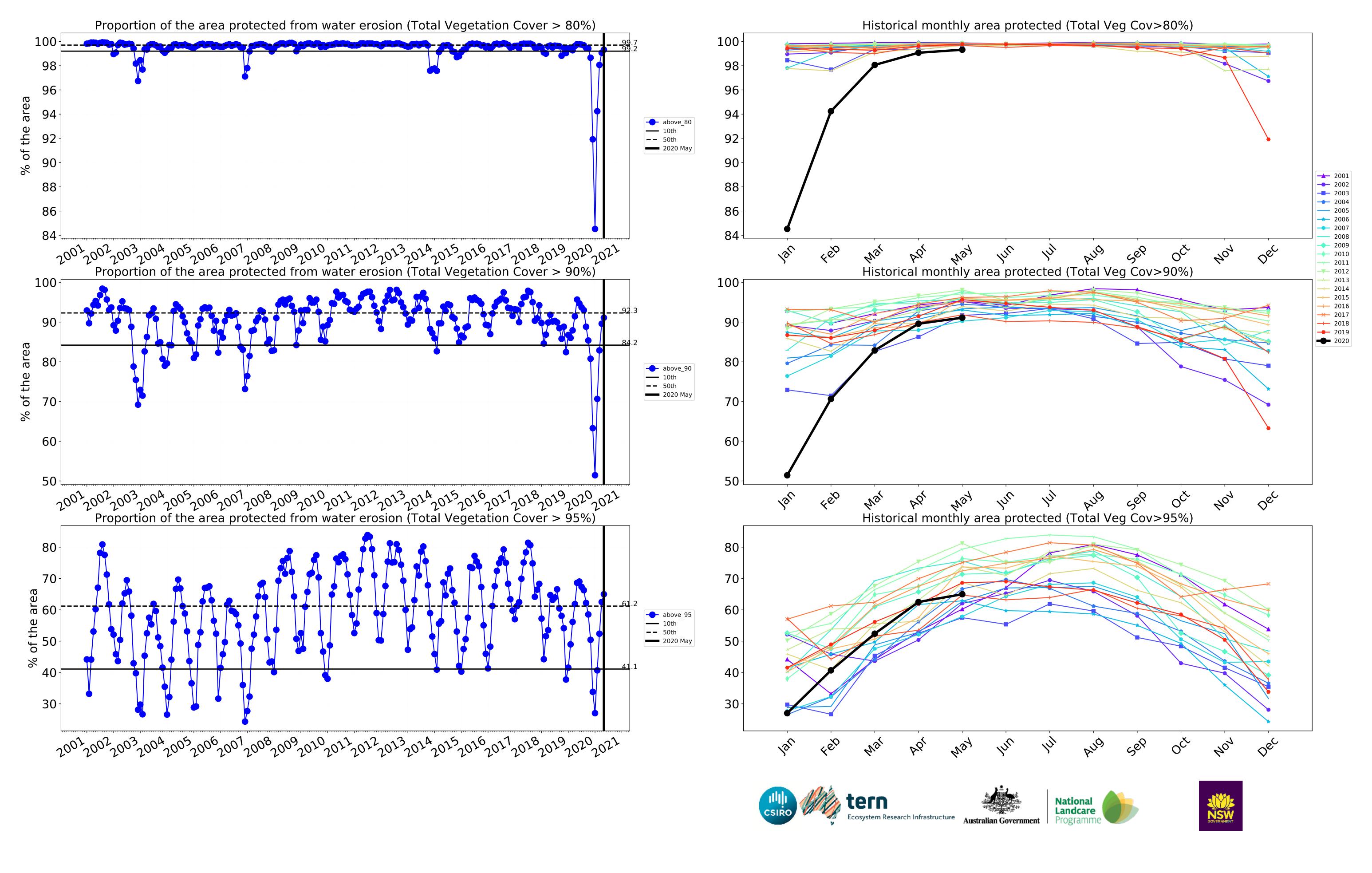




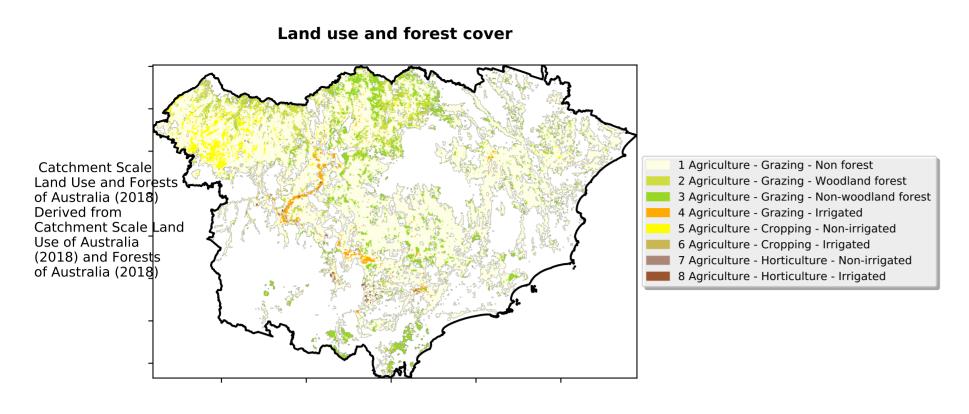
#### Conservation and natural environments Forest (non woodland) timeseries

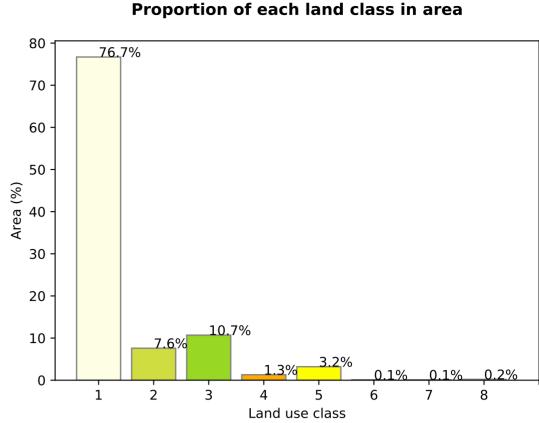




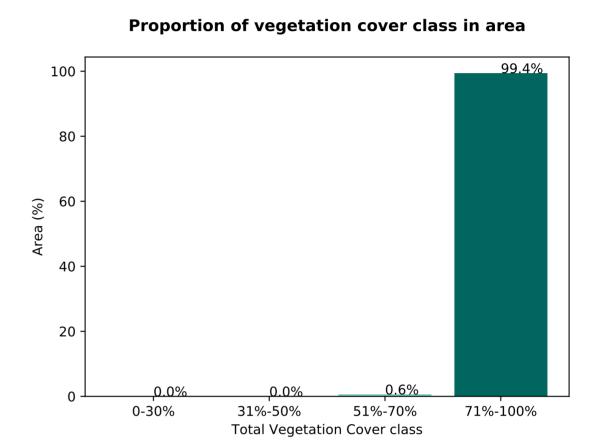


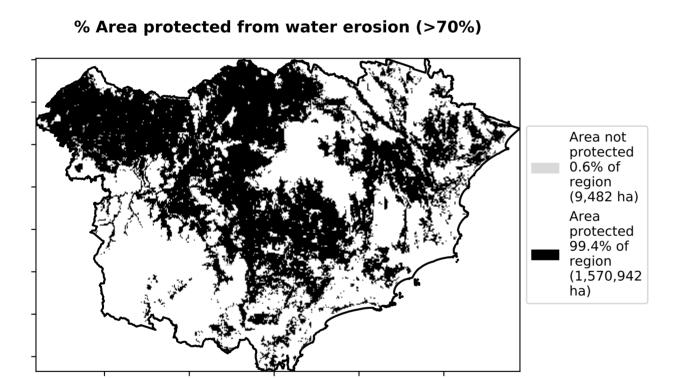
#### **Agriculture**

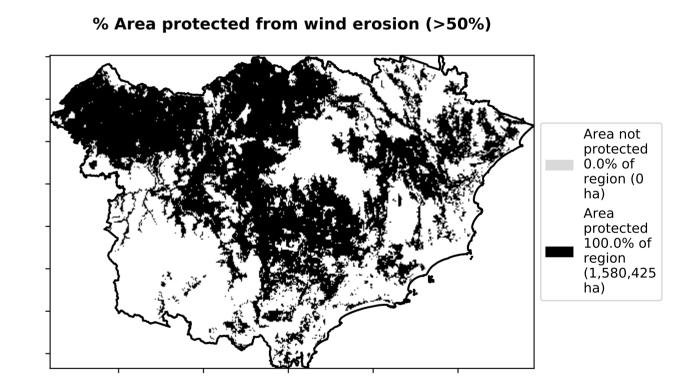


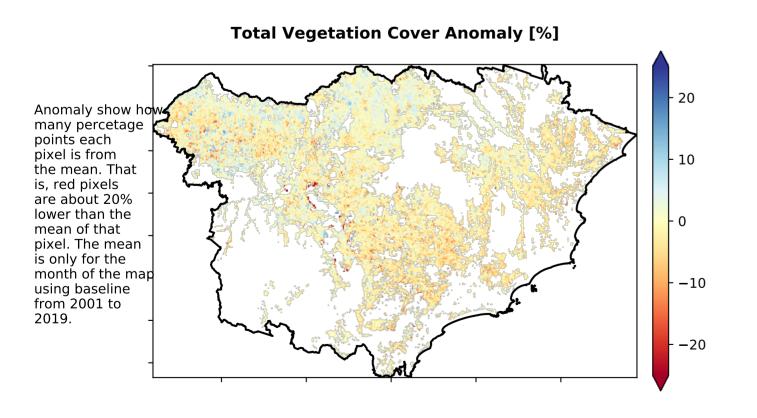


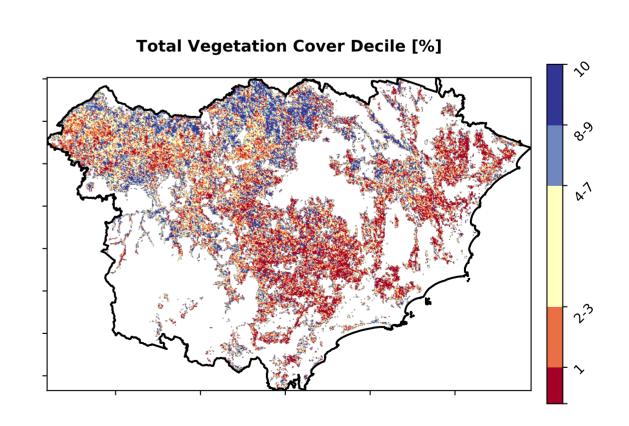
## Total Vegetation Cover [%] Tolar Vegetation Cover [%] Tolar Vegetation Cover [%] Tolar Vegetation Cover [%]











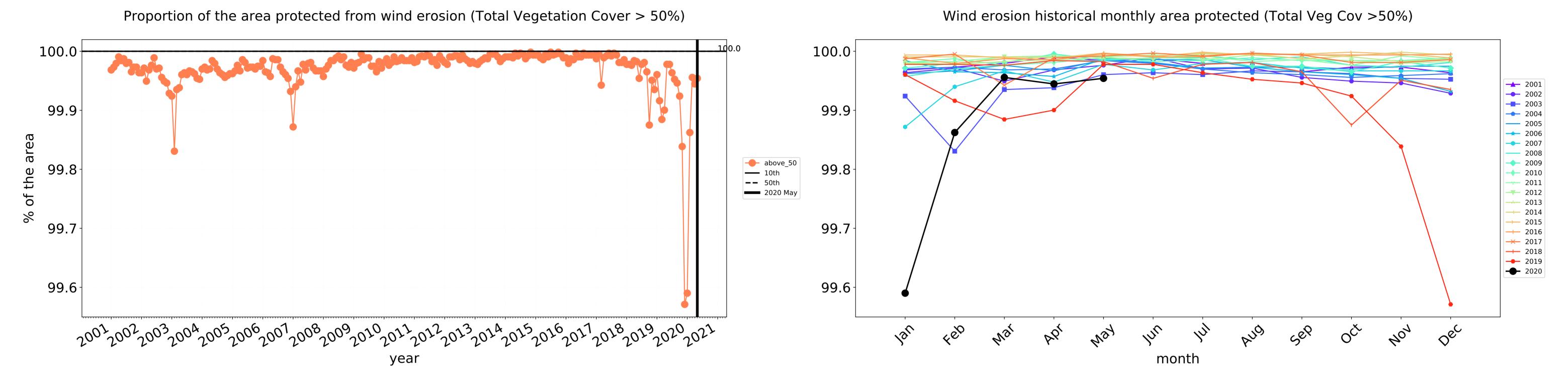


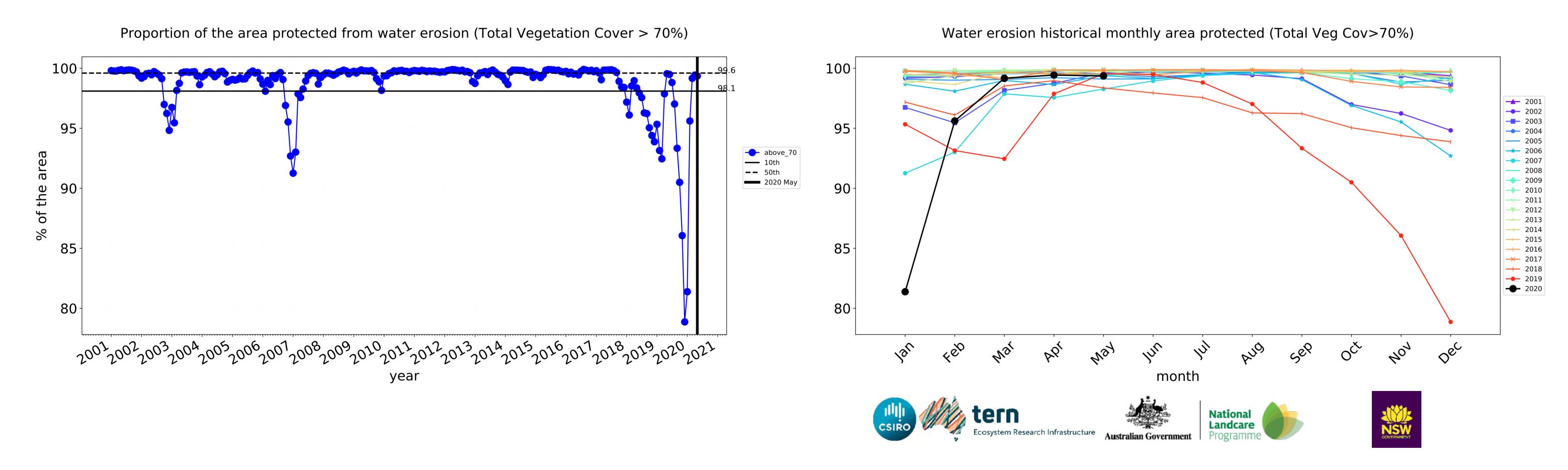


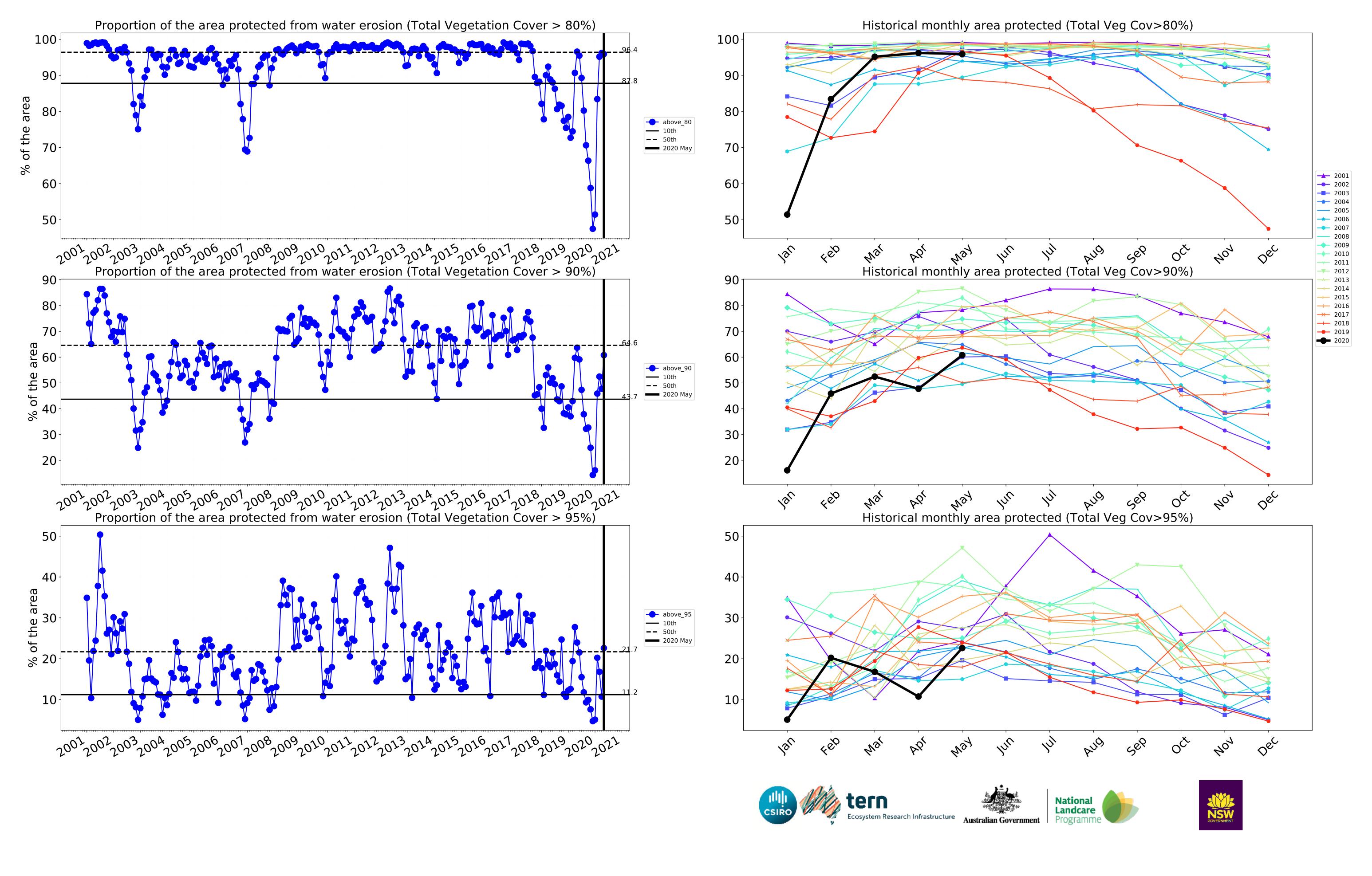




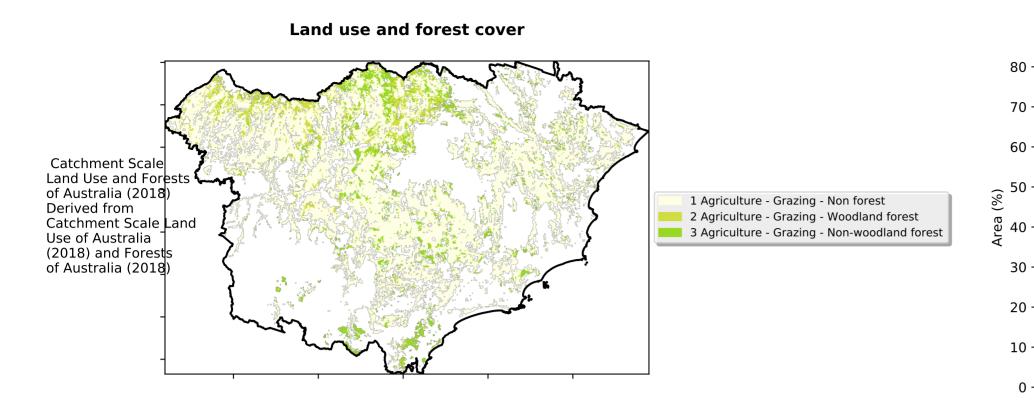
#### **Agriculture timeseries**







#### **Grazing**



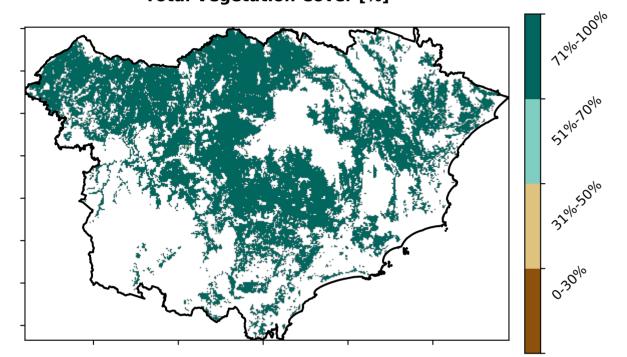
### 80.7%

11.3%

3

Proportion of each land class in area

#### Total Vegetation Cover [%]

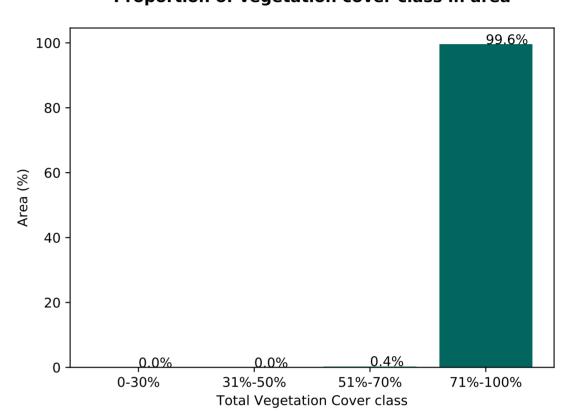


Proportion of vegetation cover class in area

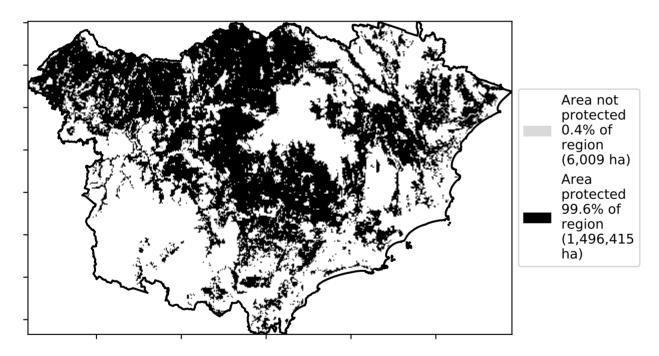
Land use class

8.0%

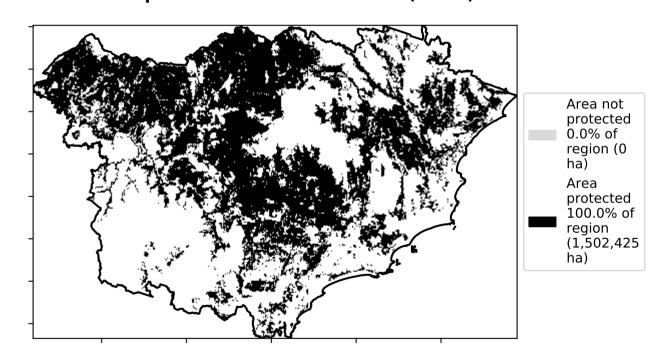
2



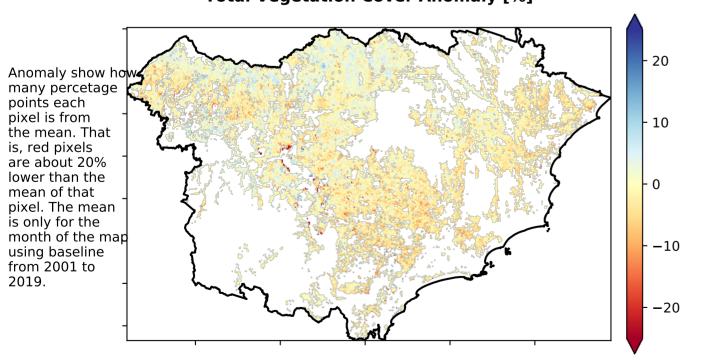
#### % Area protected from water erosion (>70%)

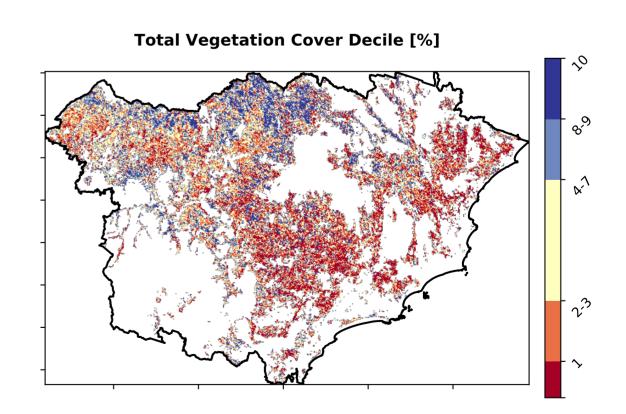


% Area protected from wind erosion (>50%)



#### Total Vegetation Cover Anomaly [%]







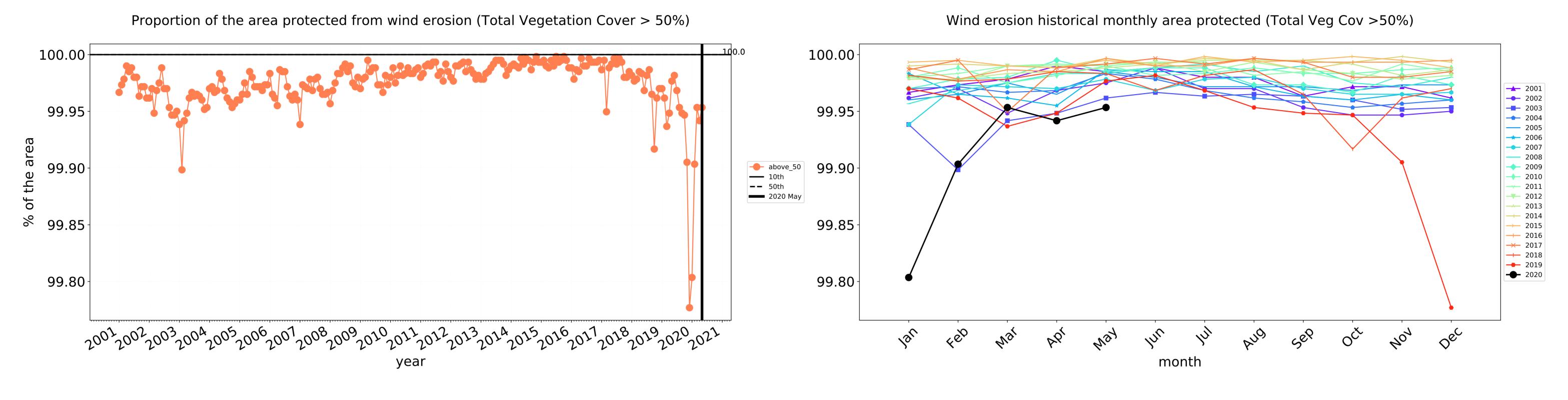


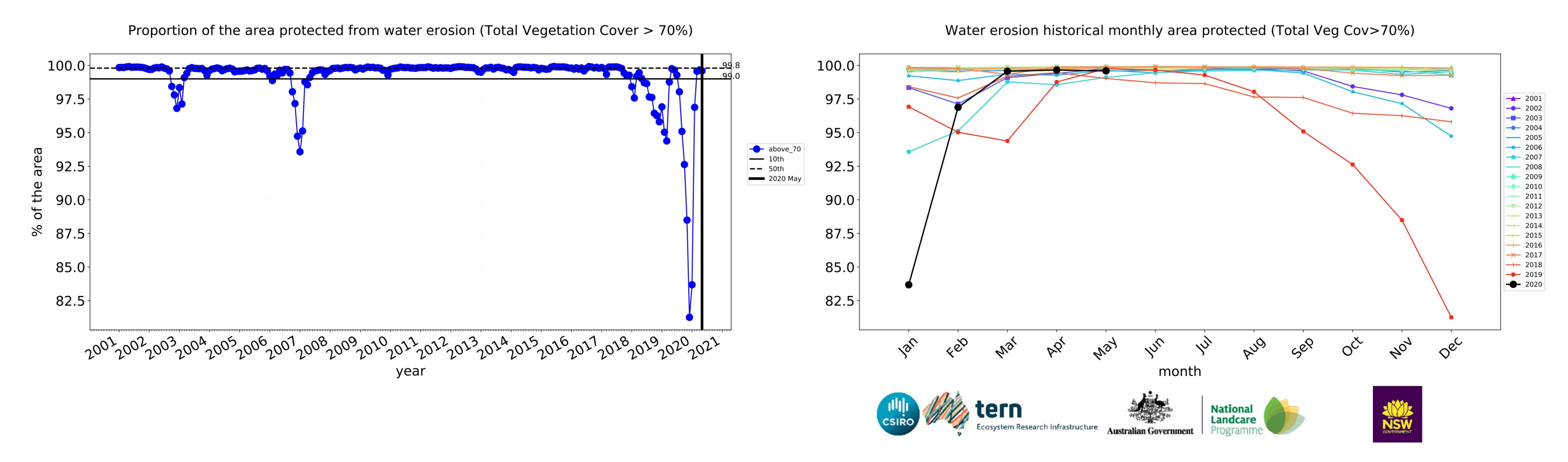


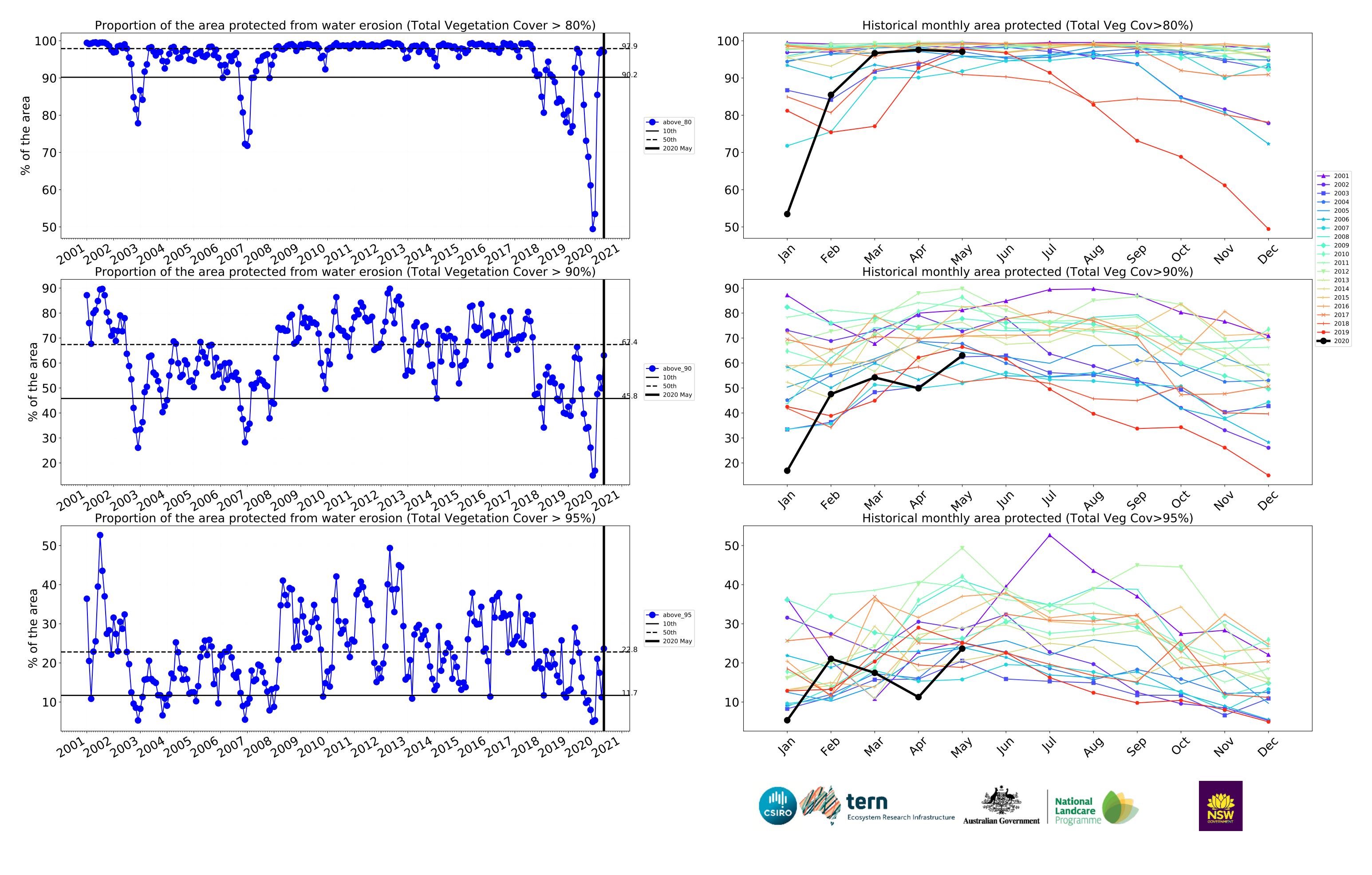




#### **Grazing timeseries**

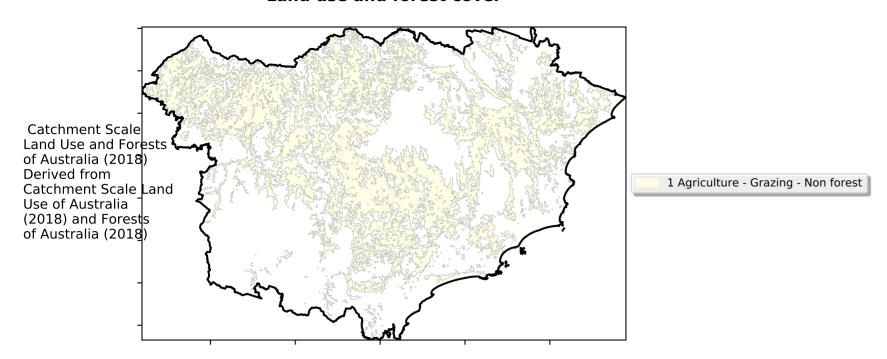




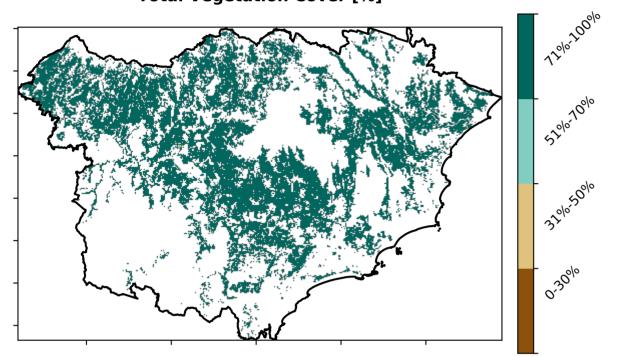


#### **Grazing non forest**

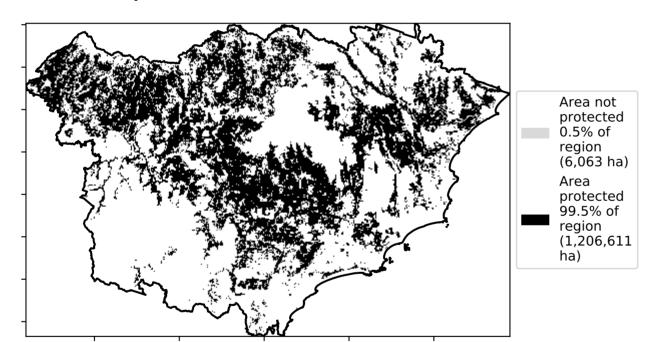
#### Land use and forest cover



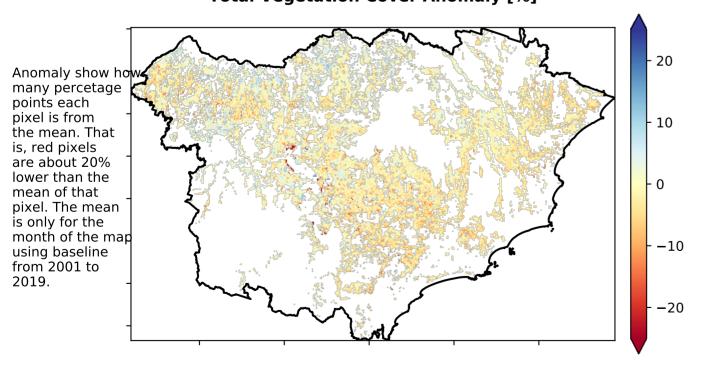
#### Total Vegetation Cover [%]



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

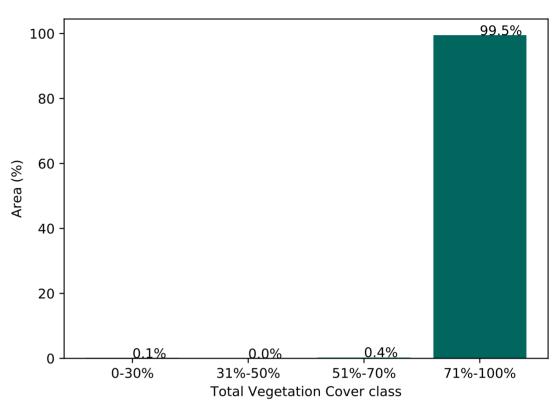


#### Total Vegetation Cover Anomaly [%]

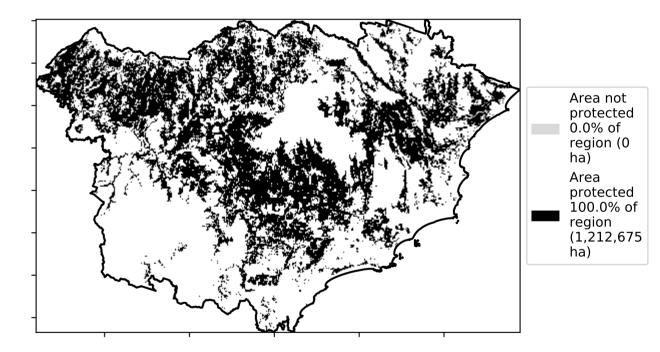


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

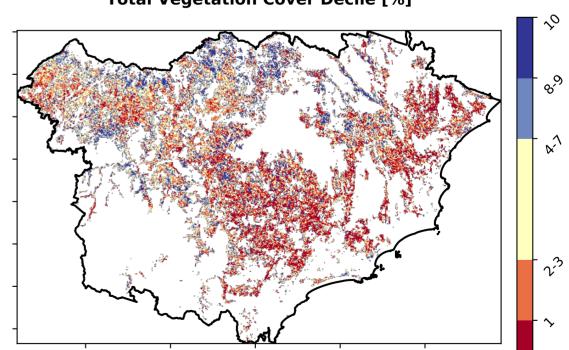
#### **Proportion of vegetation cover class in area**



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



#### Total Vegetation Cover Decile [%]



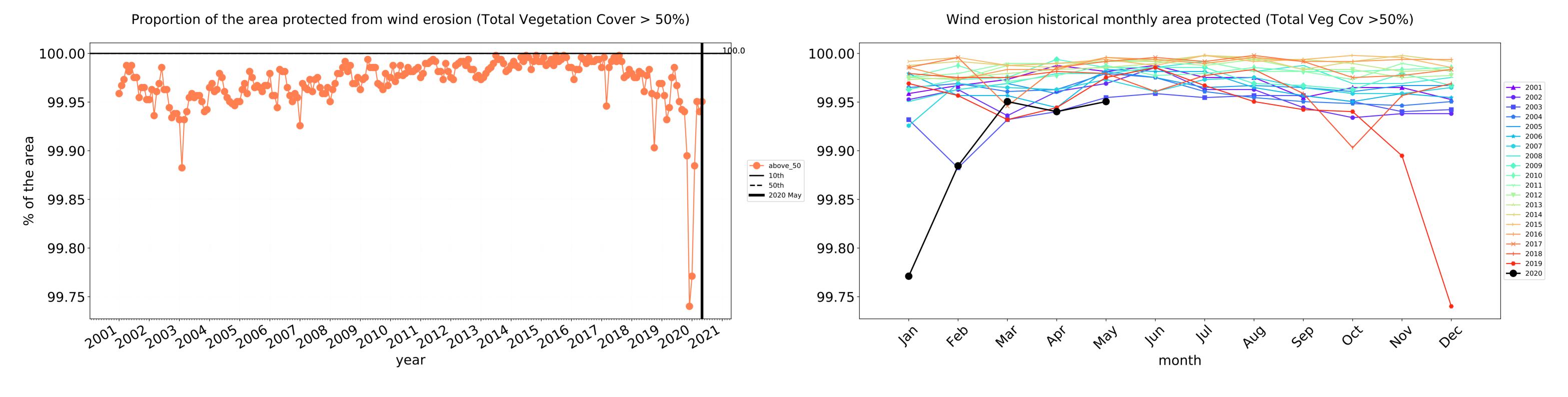


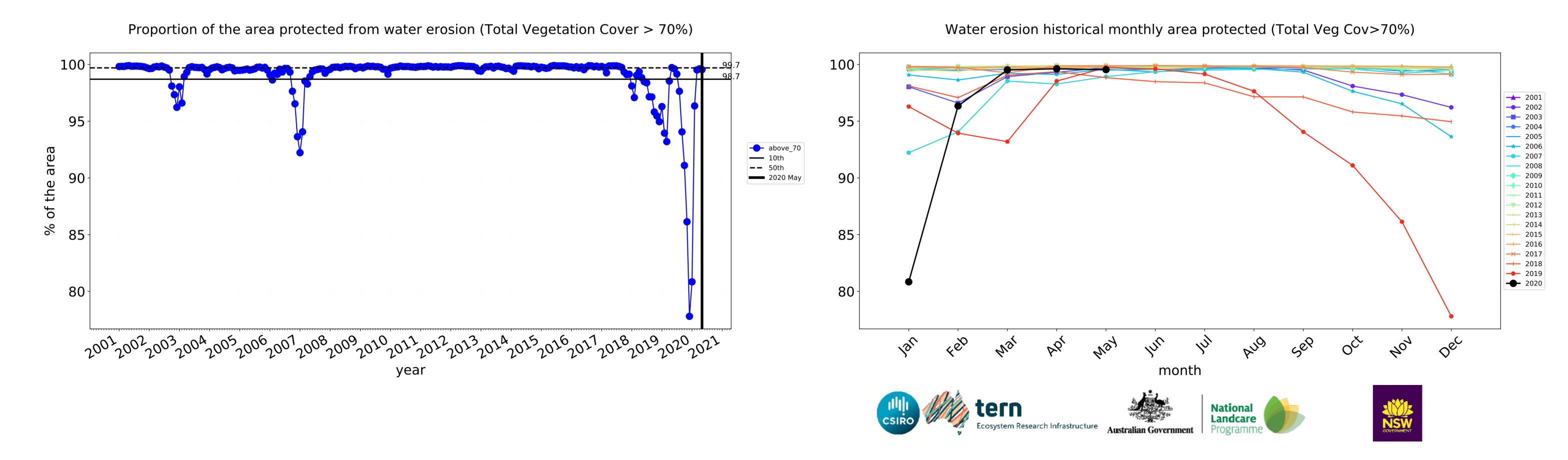


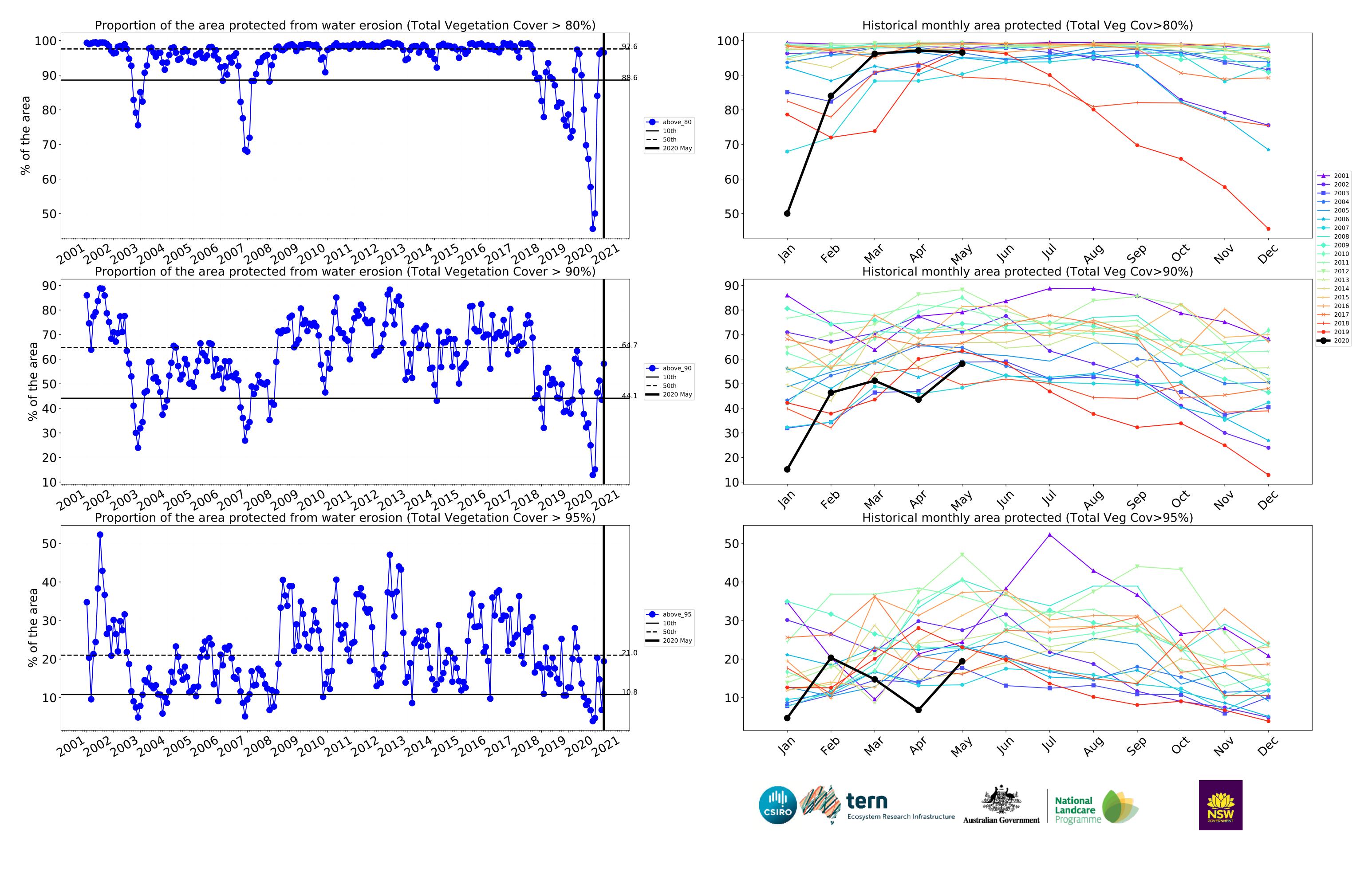




#### **Grazing non forest timeseries**





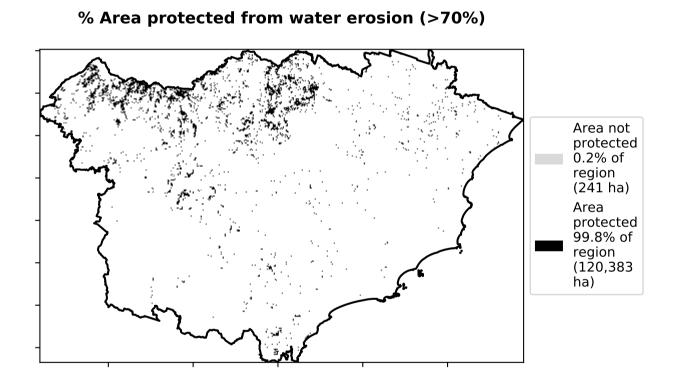


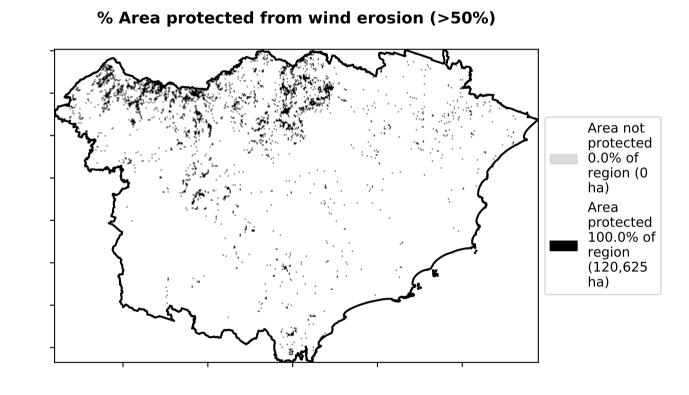
#### **Grazing Woodland forest**

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

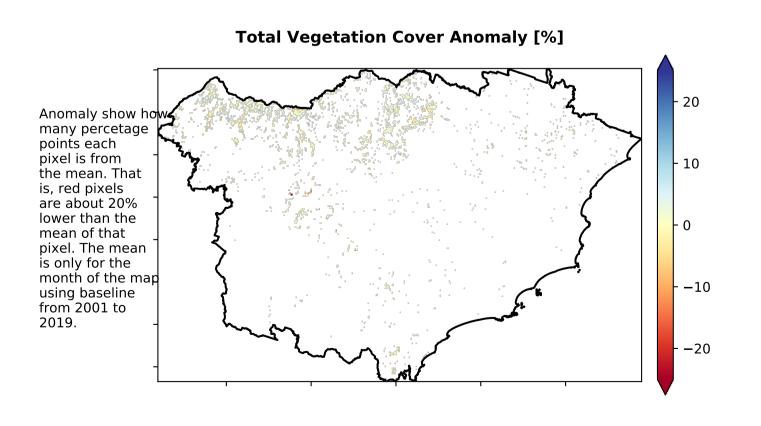
# **Total Vegetation Cover [%]**

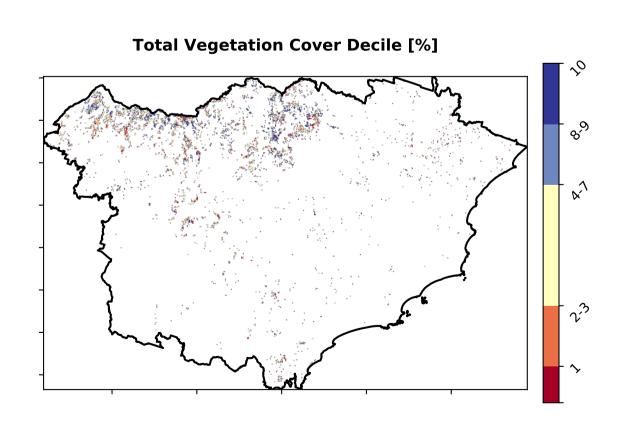
#### 99.8% 100 80 Area (%) 40 20 -0.2% 51%-70% 0-30% 31%-50% 71%-100% **Total Vegetation Cover class**





**Proportion of vegetation cover class in area** 





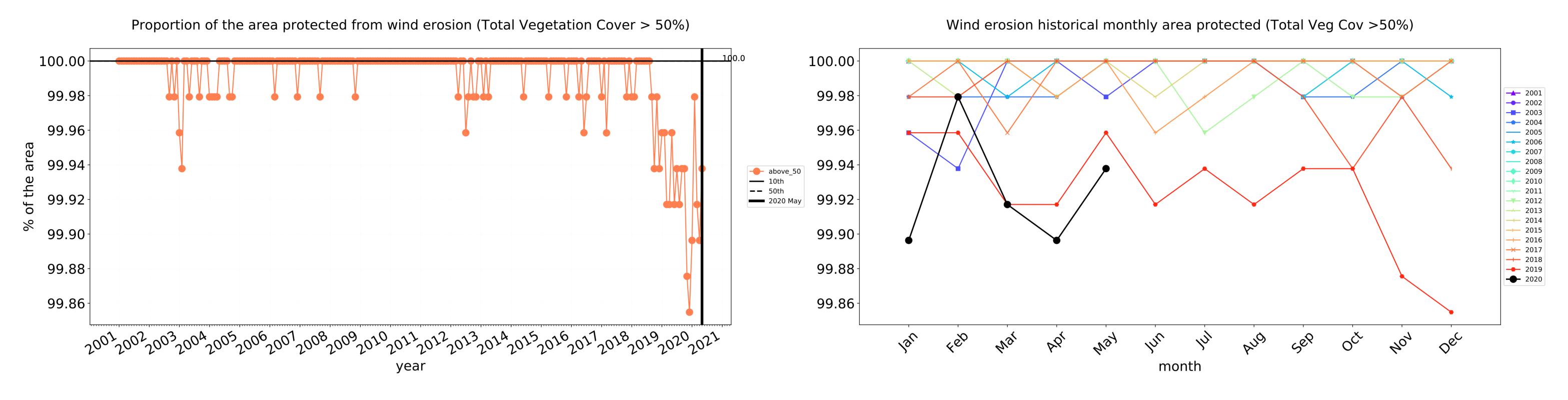


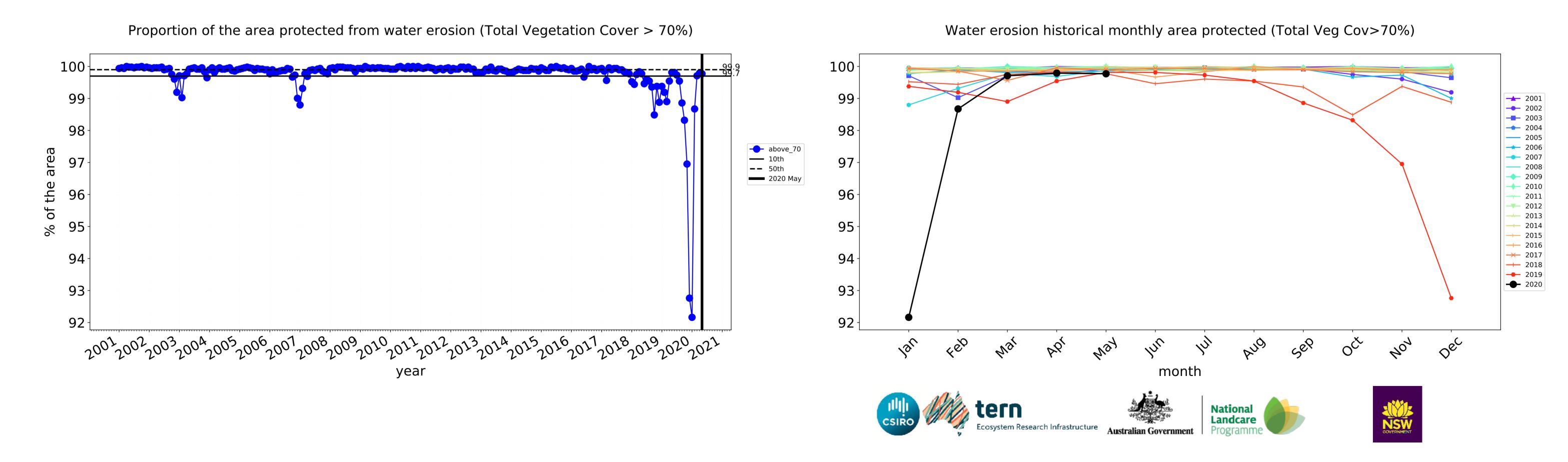


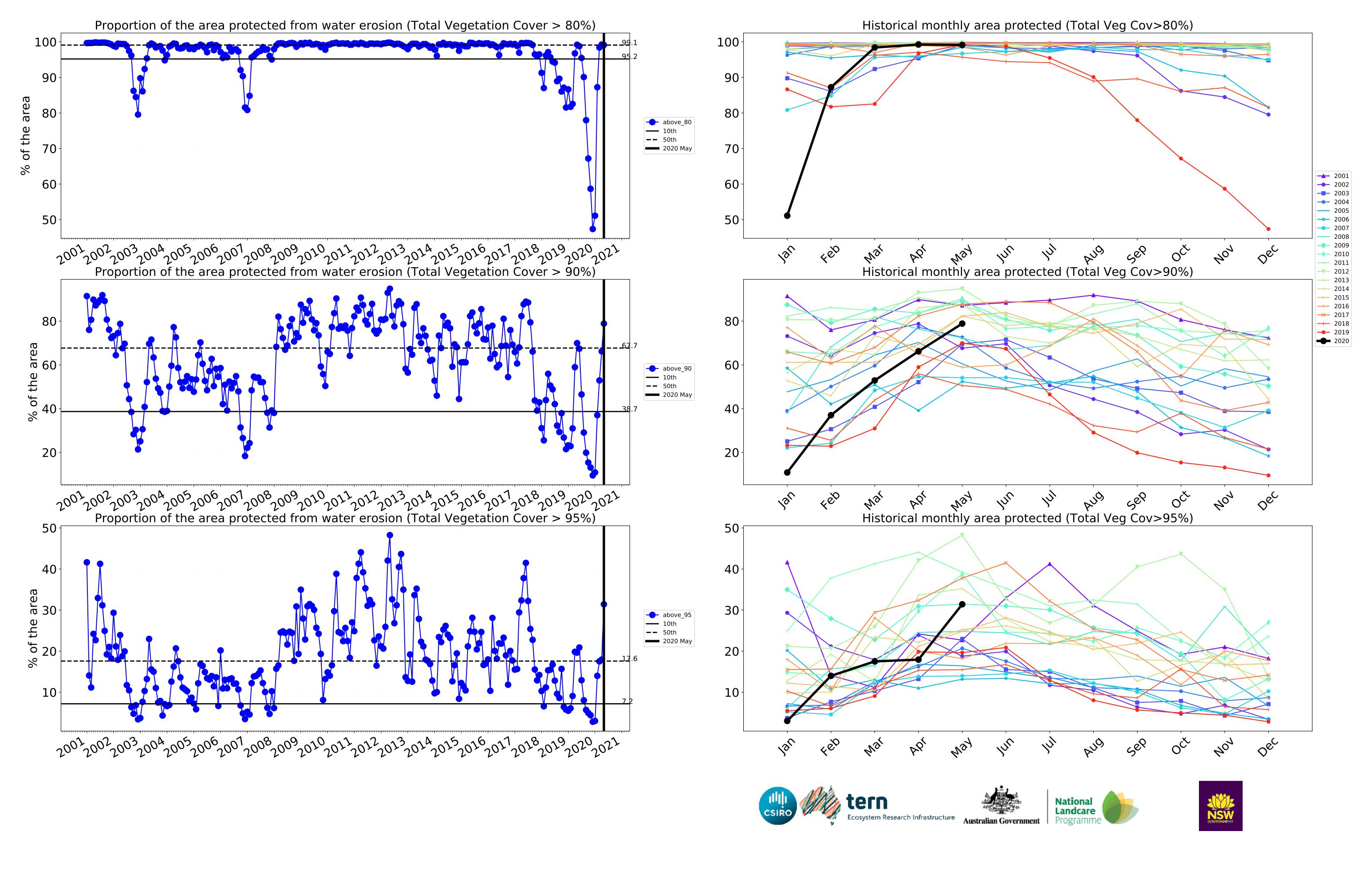




#### **Grazing Woodland forest timeseries**



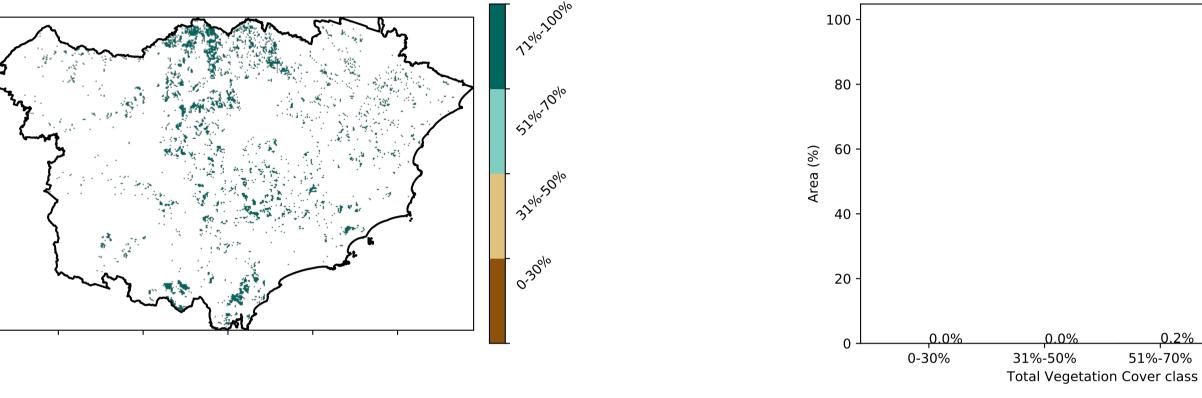


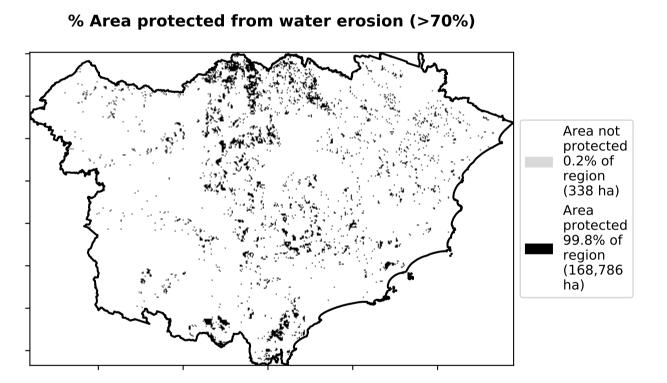


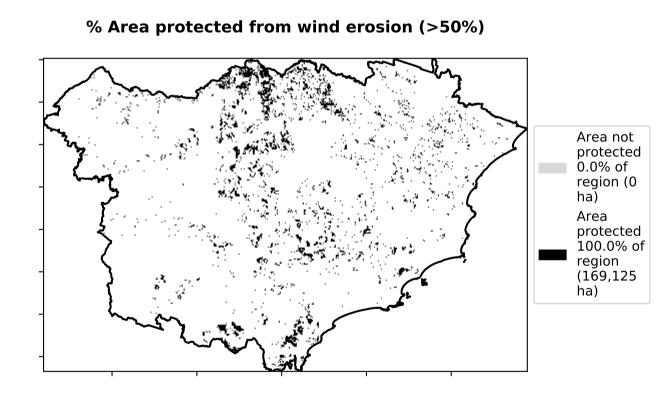
#### **Grazing - Forest (non woodland)**

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

# **Total Vegetation Cover [%]**



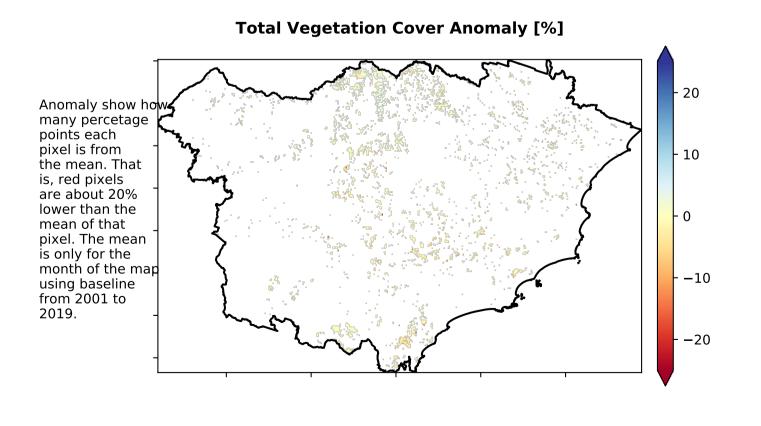


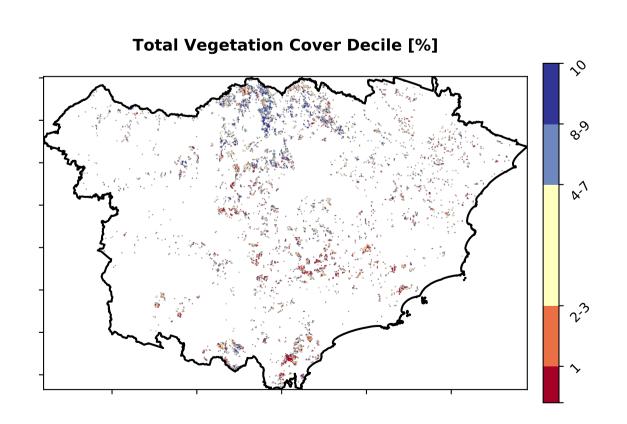


**Proportion of vegetation cover class in area** 

99.8%

71%-100%



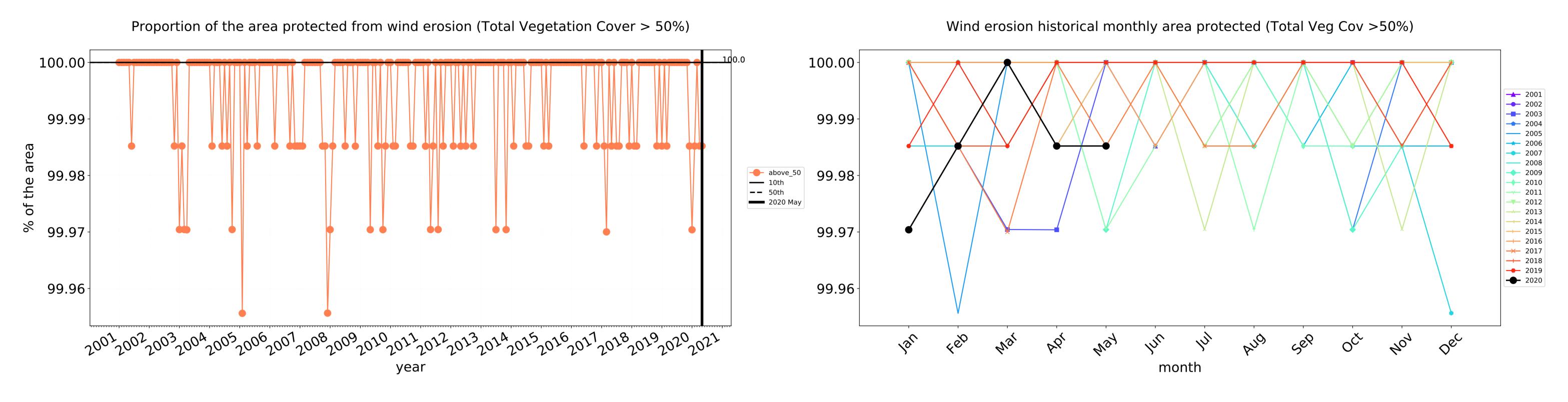


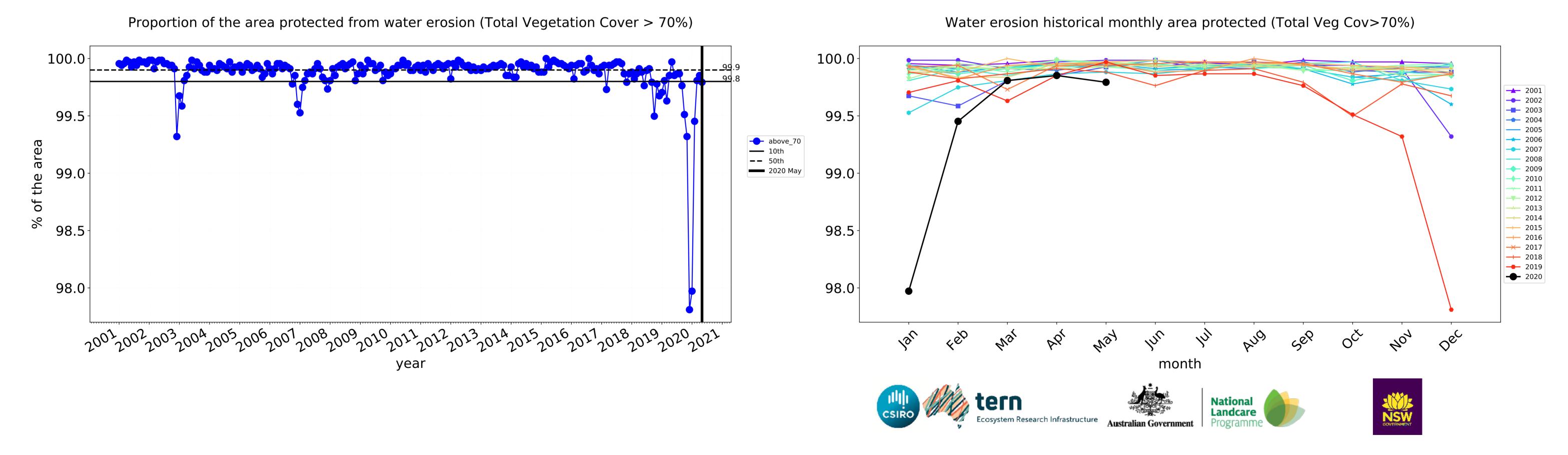


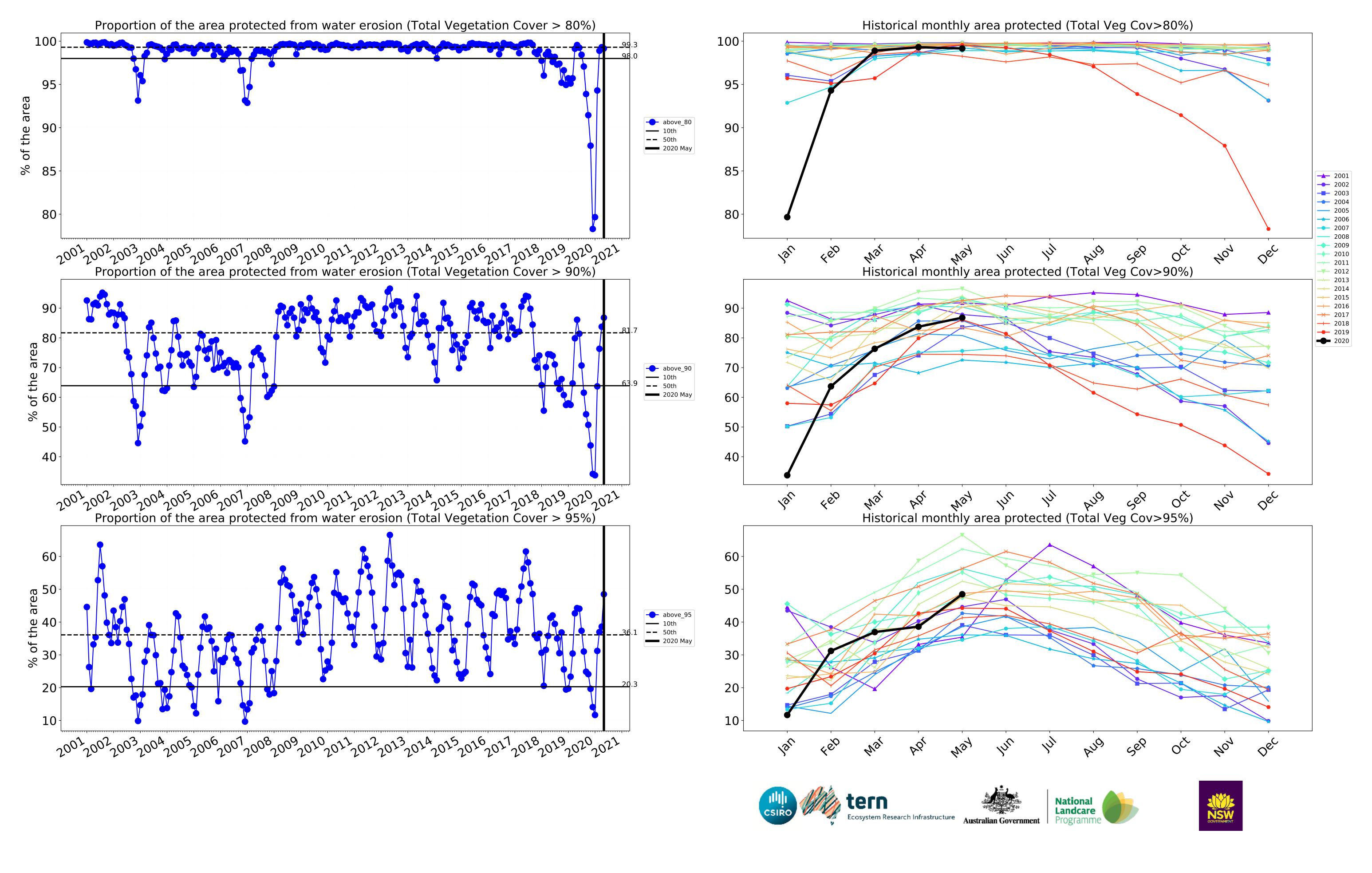






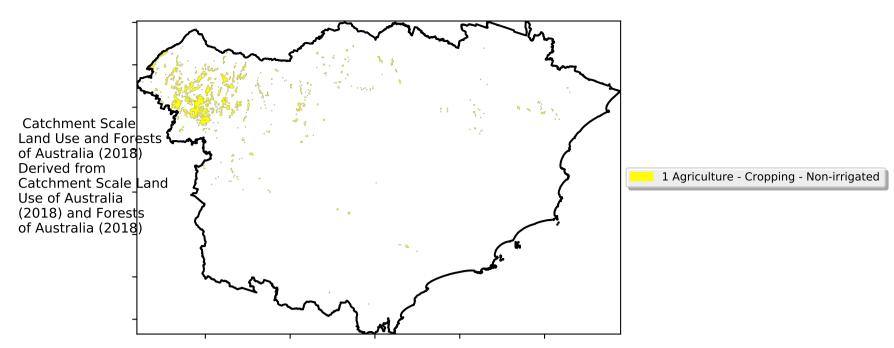




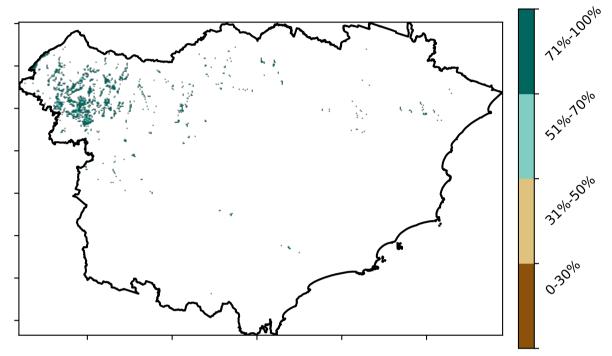


#### **Cropping**

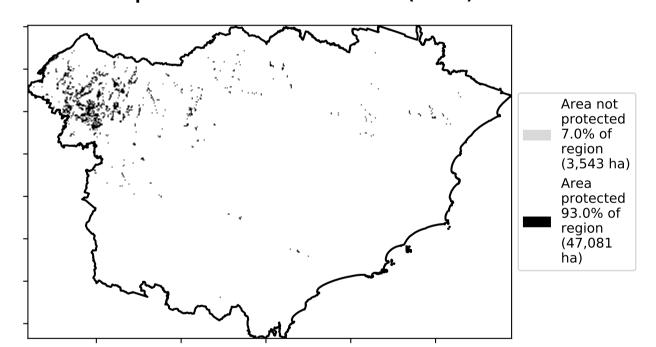
#### Land use and forest cover

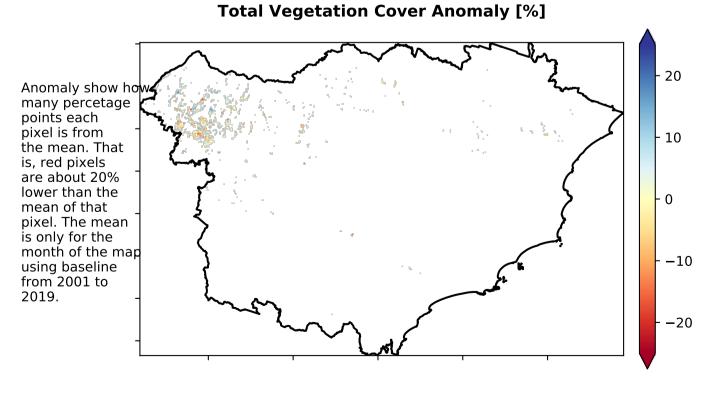


#### **Total Vegetation Cover [%]**



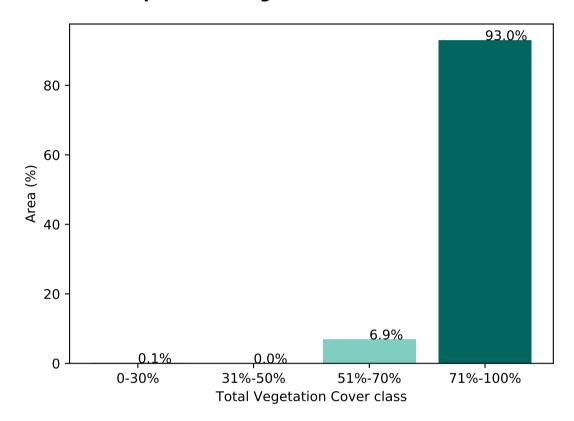
#### % Area protected from water erosion (>70%)



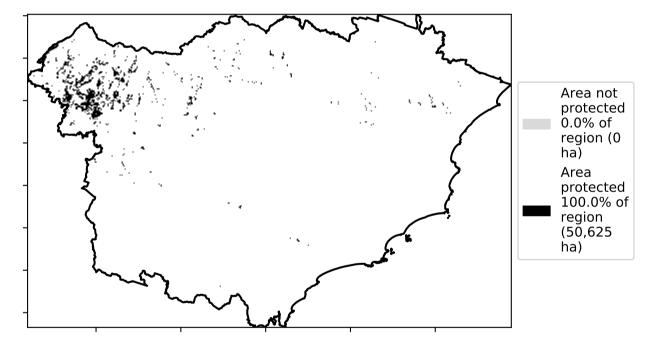


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

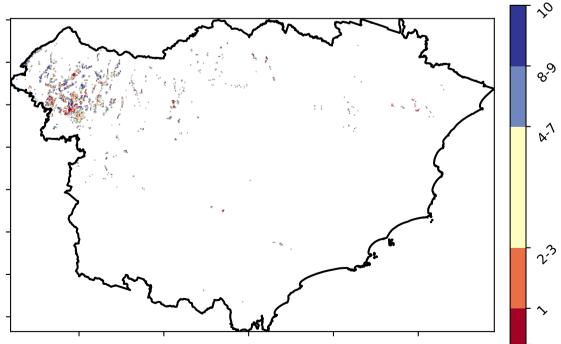
#### **Proportion of vegetation cover class in area**



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



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





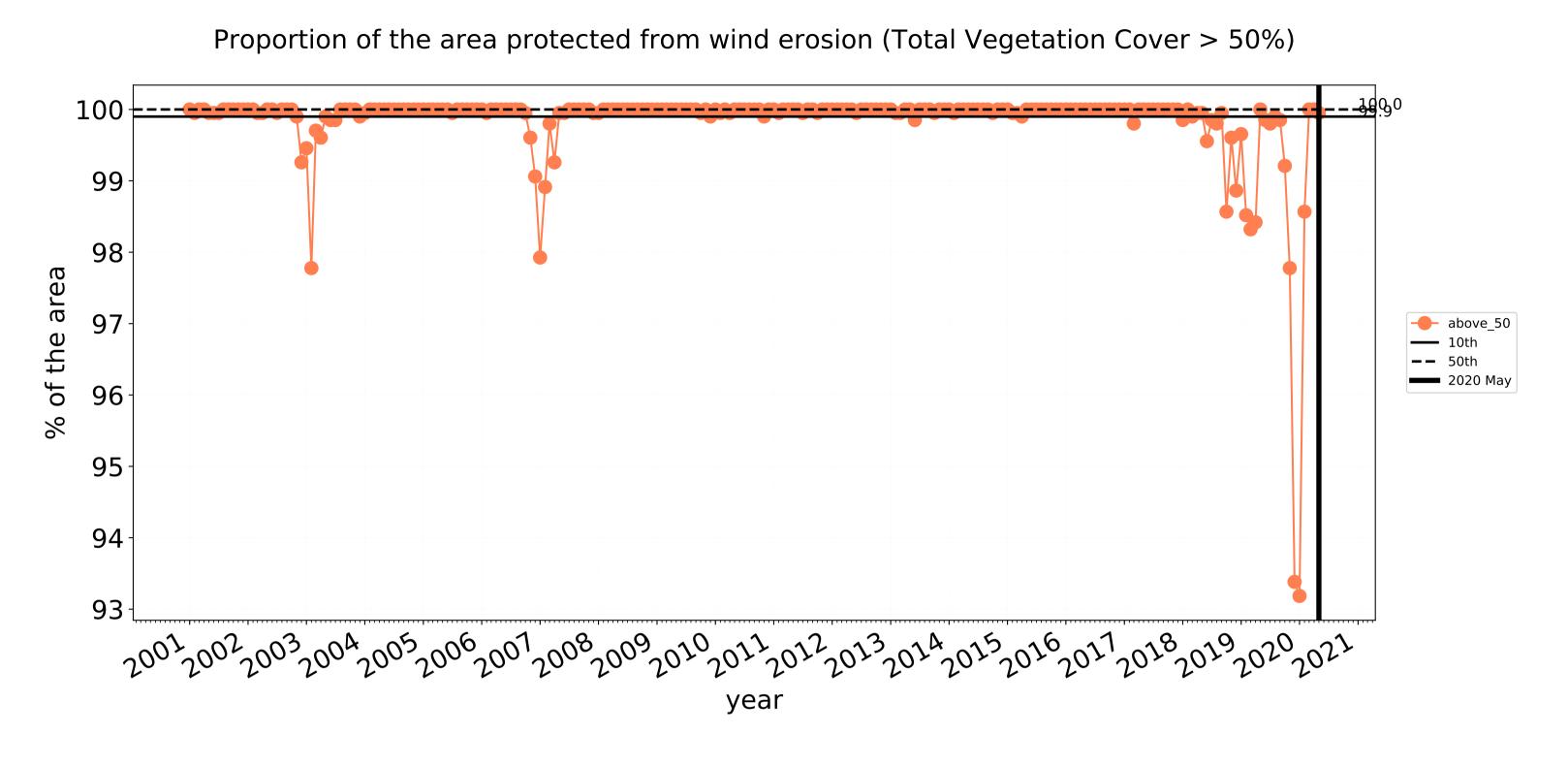


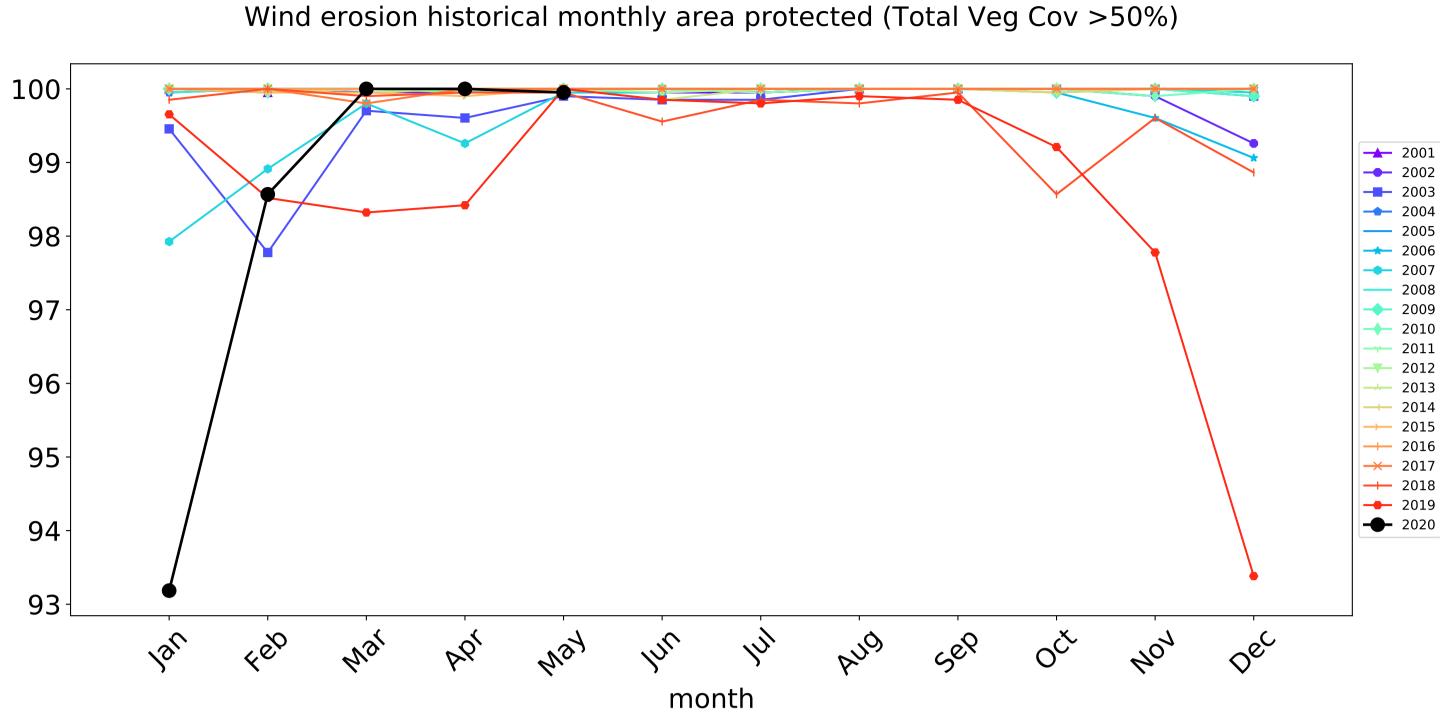


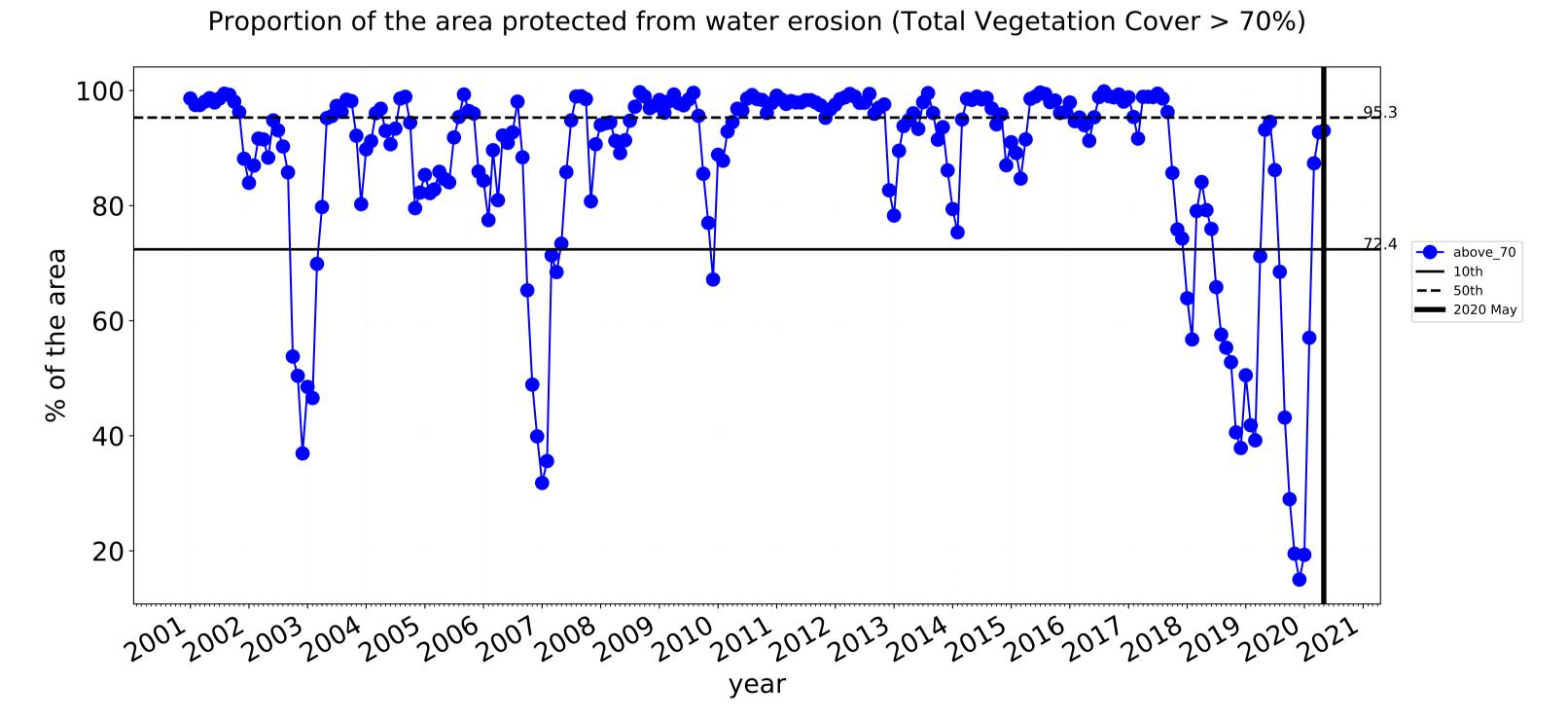


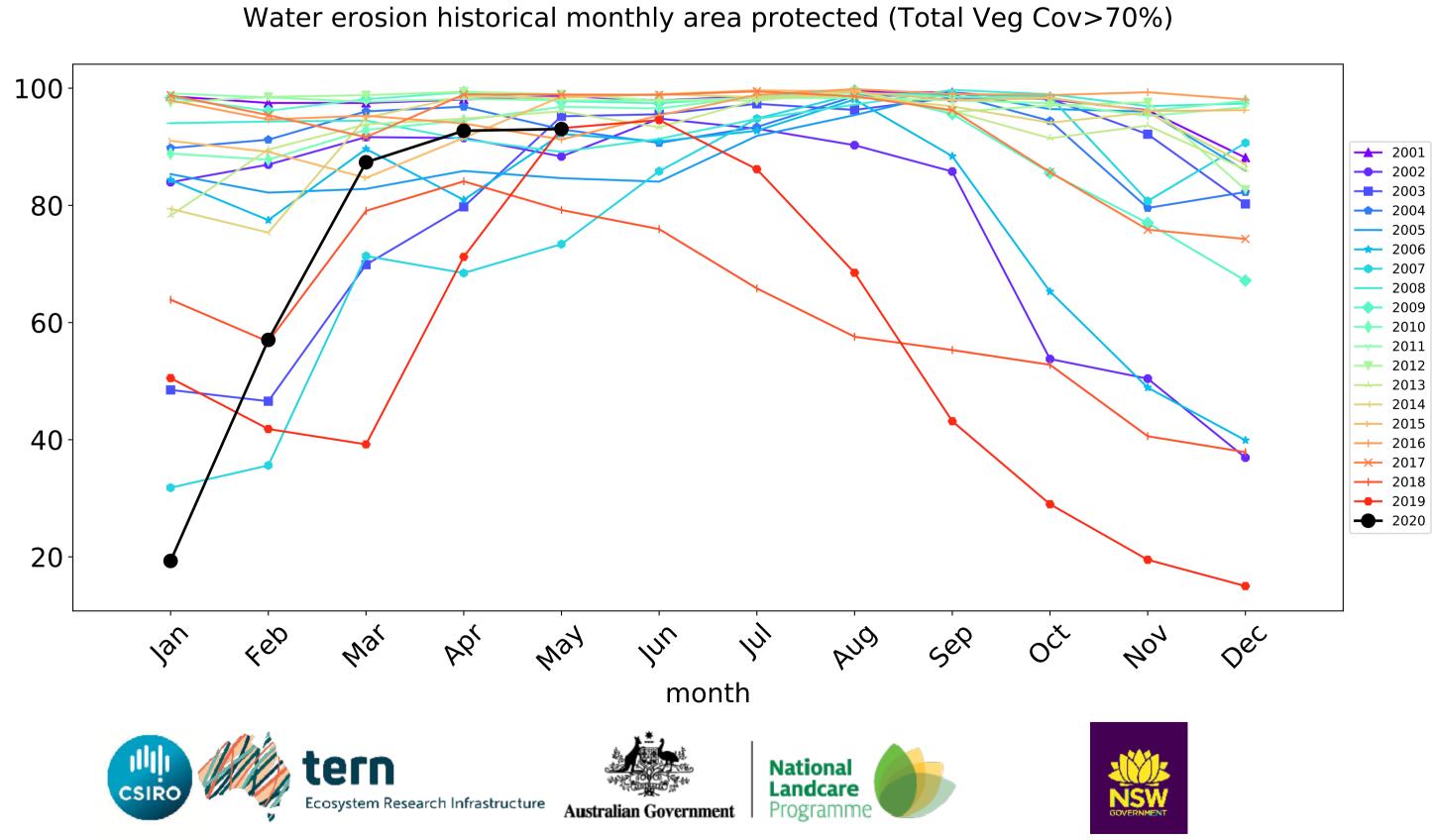


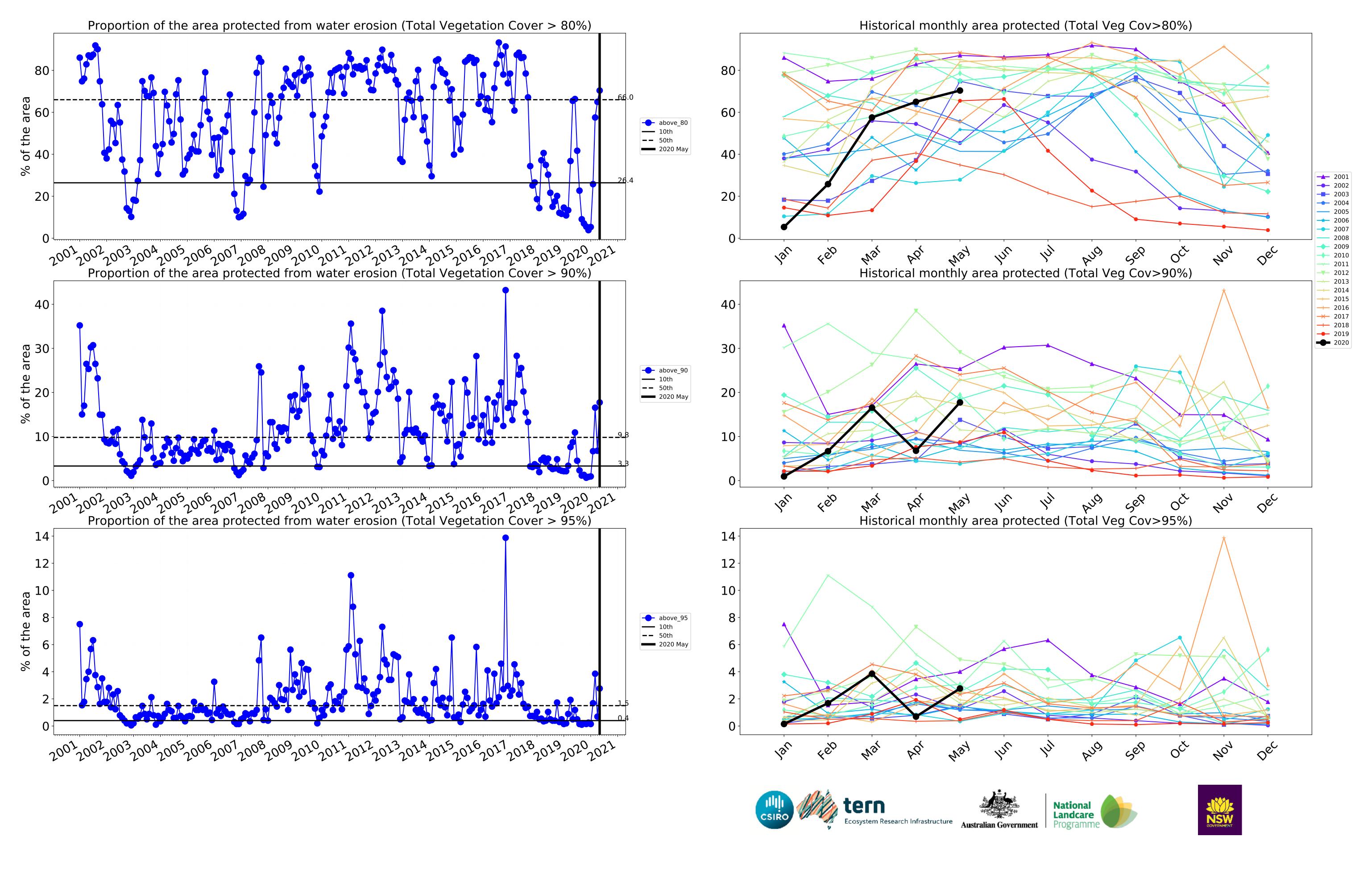
#### **Cropping timeseries**









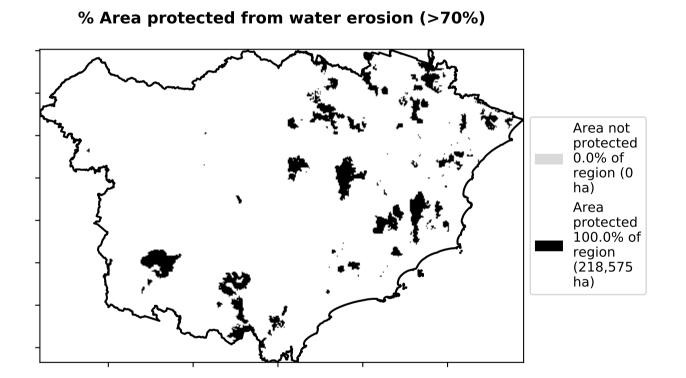


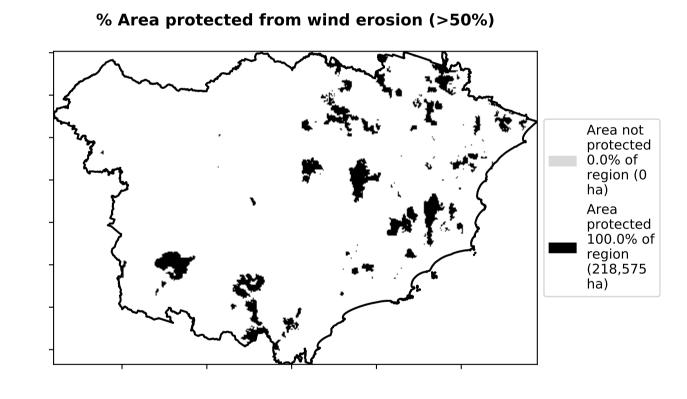
#### **Production native forests and plantation forests**

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

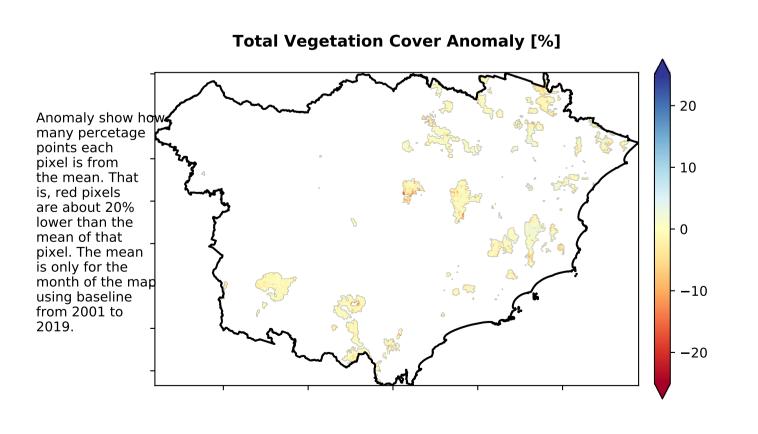
# **Total Vegetation Cover [%]**

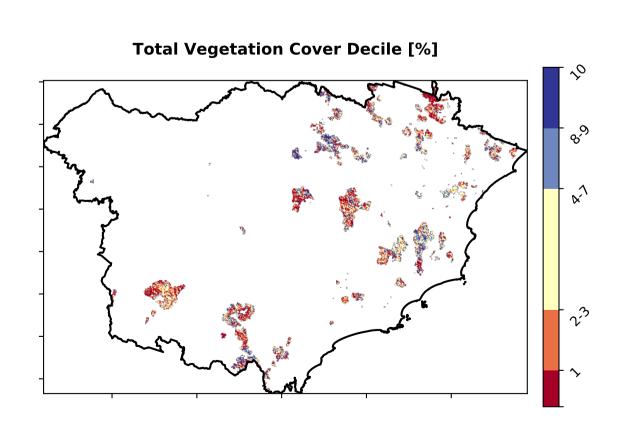
#### 100.0% 100 Area (%) 40 20 -0.0% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**





**Proportion of vegetation cover class in area** 





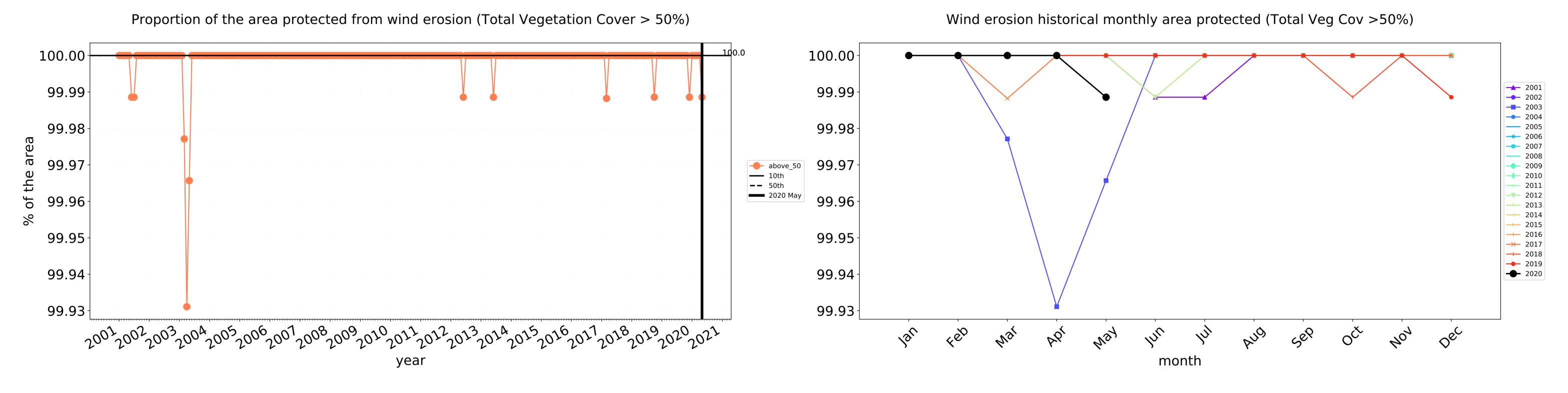


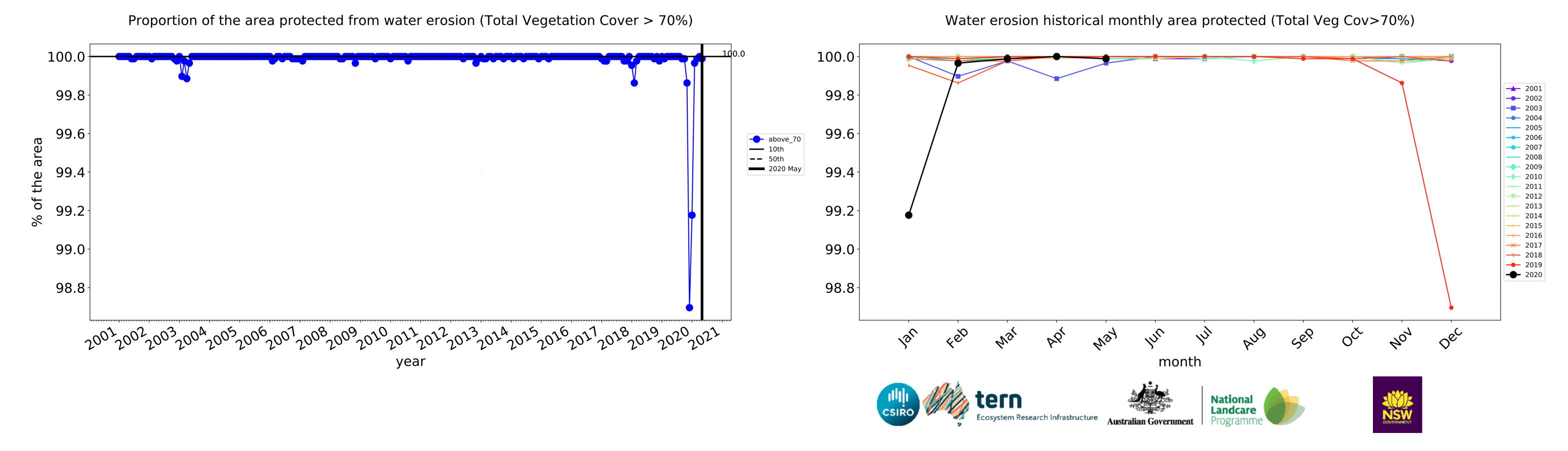


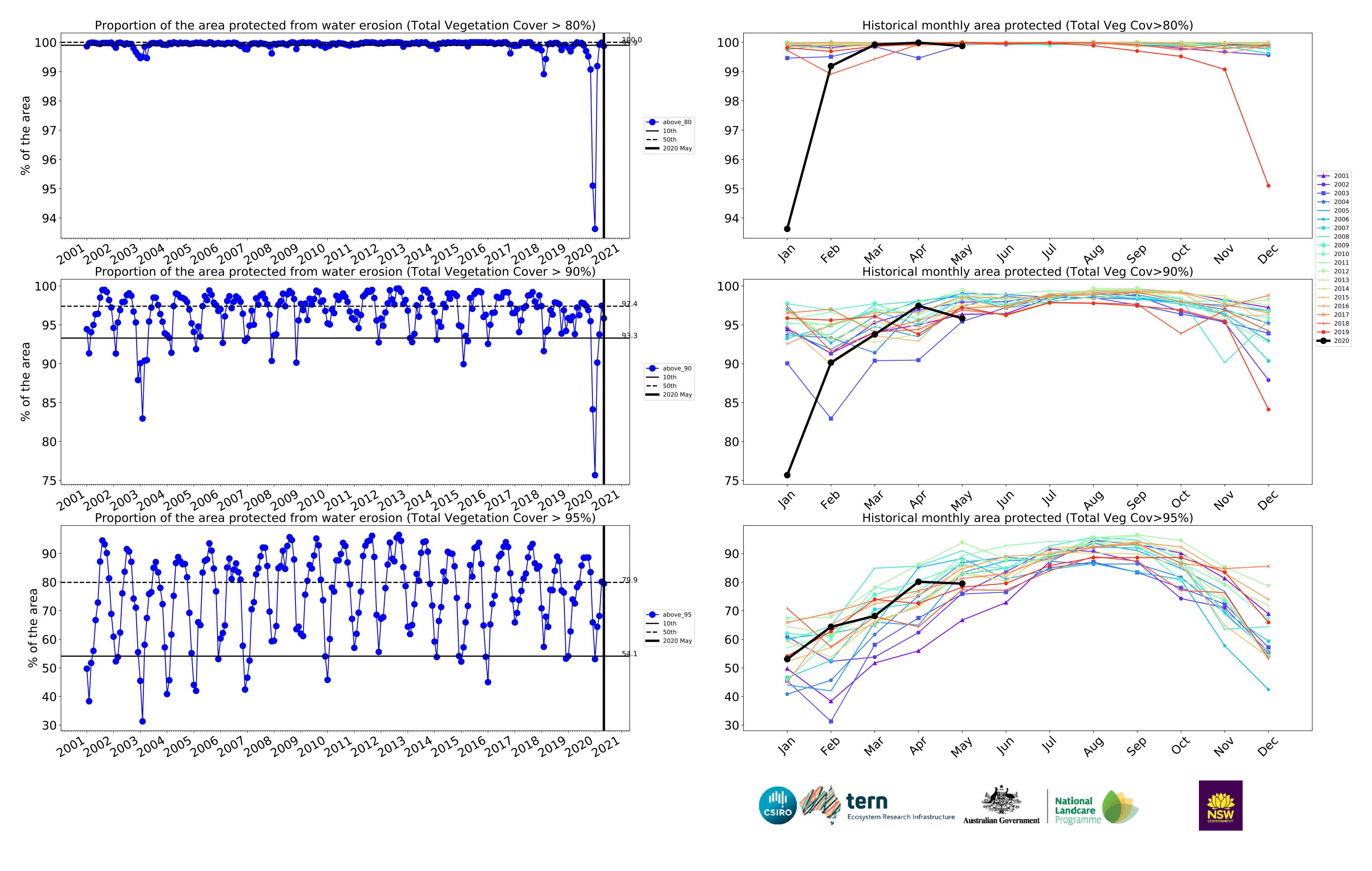




#### **Production native forests and plantation forests timeseries**







### Hunter (3,238,350 ha and no data 62,075 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	3,238,350	99.8% 3,233,000	99.5% 3,223,550	98.4% 3,186,900	95.4% 3,090,725	72.5% 2,346,425	40.9% 1,324,275
Conservation and natural environments	1,241,000	99.9% 1,240,050	99.9% 1,239,150	99.7% 1,237,175	98.9% 1,227,825	90.0% 1,117,375	62.5% 775,375
Conservation and natural environments non forest	29,775	97.0% 28,875	95.0% 28,275	91.3% 27,175	86.7% 25,825	65.7% 19,550	34.8% 10,350
Conservation and natural environments Woodland forest	138,675	100.0% 138,675	99.9% 138,550	99.9% 138,475	98.6% 136,775	87.0% 120,700	49.0% 68,000
natural environments Forest (non woodland)	1,072,550	100.0% 1,072,500	100.0% 1,072,325	99.9% 1,071,525	99.3% 1,065,225	91.1% 977,125	65.0% 697,025
Agriculture	1,580,425	100.0% 1,580,250	100.0% 1,579,700	99.4% 1,570,300	95.9% 1,515,725	60.8% 960,575	22.6% 357,400
Grazing	1,502,425	100.0% 1,502,250	100.0% 1,501,725	99.6% 1,496,275	97.0% 1,458,075	63.0% 947,200	23.7% 355,400
Grazing non forest	1,212,675	100.0% 1,212,575	100.0% 1,212,075	99.5% 1,207,150	96.5% 1,170,800	58.2% 705,250	19.4% 235,500
Grazing Woodland forest	120,625	99.9% 120,550	99.9% 120,550	99.8% 120,350	99.1% 119,575	78.9% 95,150	31.4% 37,900
Grazing - Forest (non woodland)	169,125	100.0% 169,125	100.0% 169,100	99.8% 168,775	99.2% 167,700	86.8% 146,800	48.5% 82,000
Cropping	50,625	100.0% 50,625	100.0% 50,600	93.0% 47,100	70.4% 35,625	17.7% 8,975	2.8% 1,400
Production native forests and plantation forests	218,575	100.0% 218,575	100.0% 218,550	100.0% 218,550	99.9% 218,300	95.8% 209,475	79.5% 173,700







