## Total vegetation cover soil protection Region:LGA Gympie\_(R) QLD

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

Date: July 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



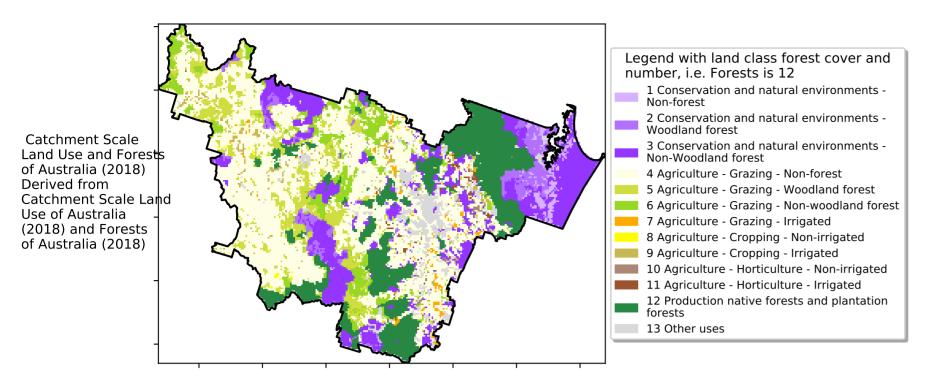




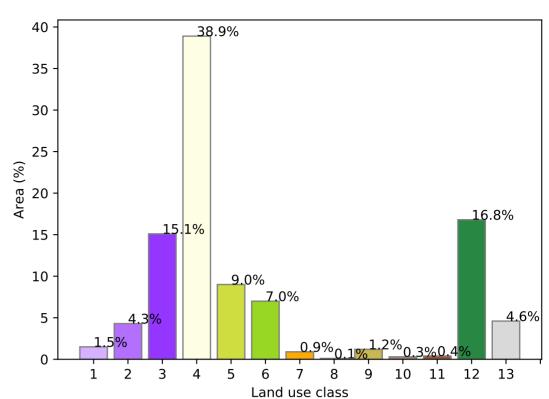


#### **Vegetation Cover Jul 2021**

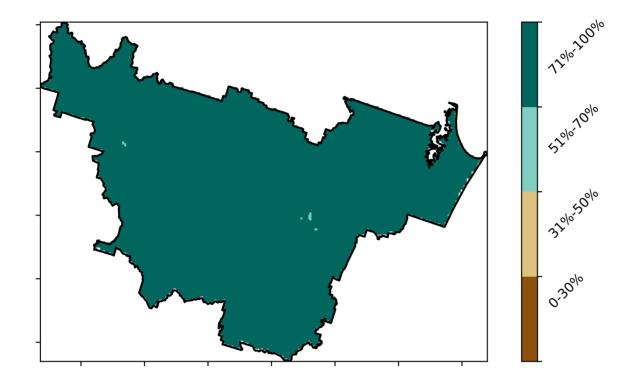
#### Land use and forest cover



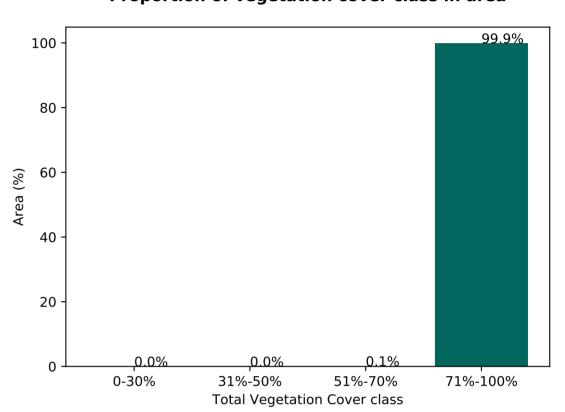
#### Proportion of each land class in area



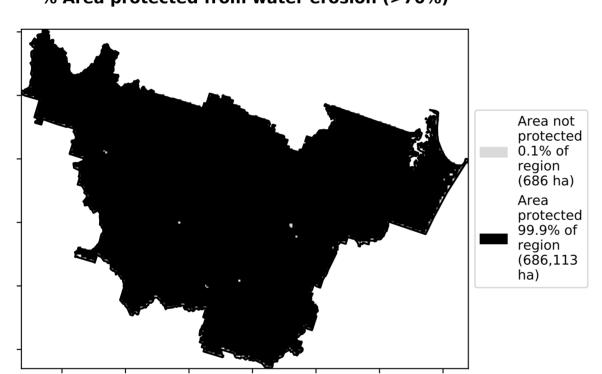
#### **Total Vegetation Cover [%]**



Proportion of vegetation cover class in area



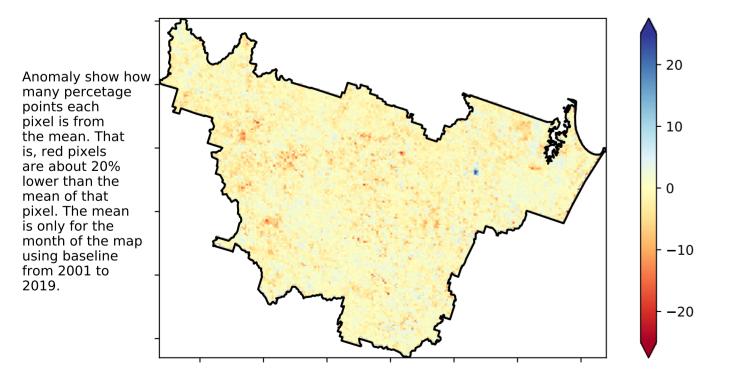
#### % Area protected from water erosion (>70%)



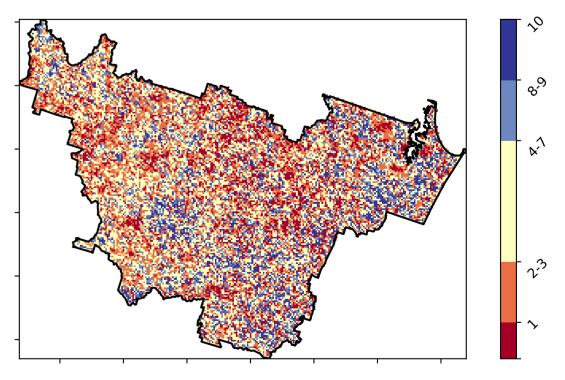
% Area protected from wind erosion (>50%)



#### Total Vegetation Cover Anomaly [%]



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.

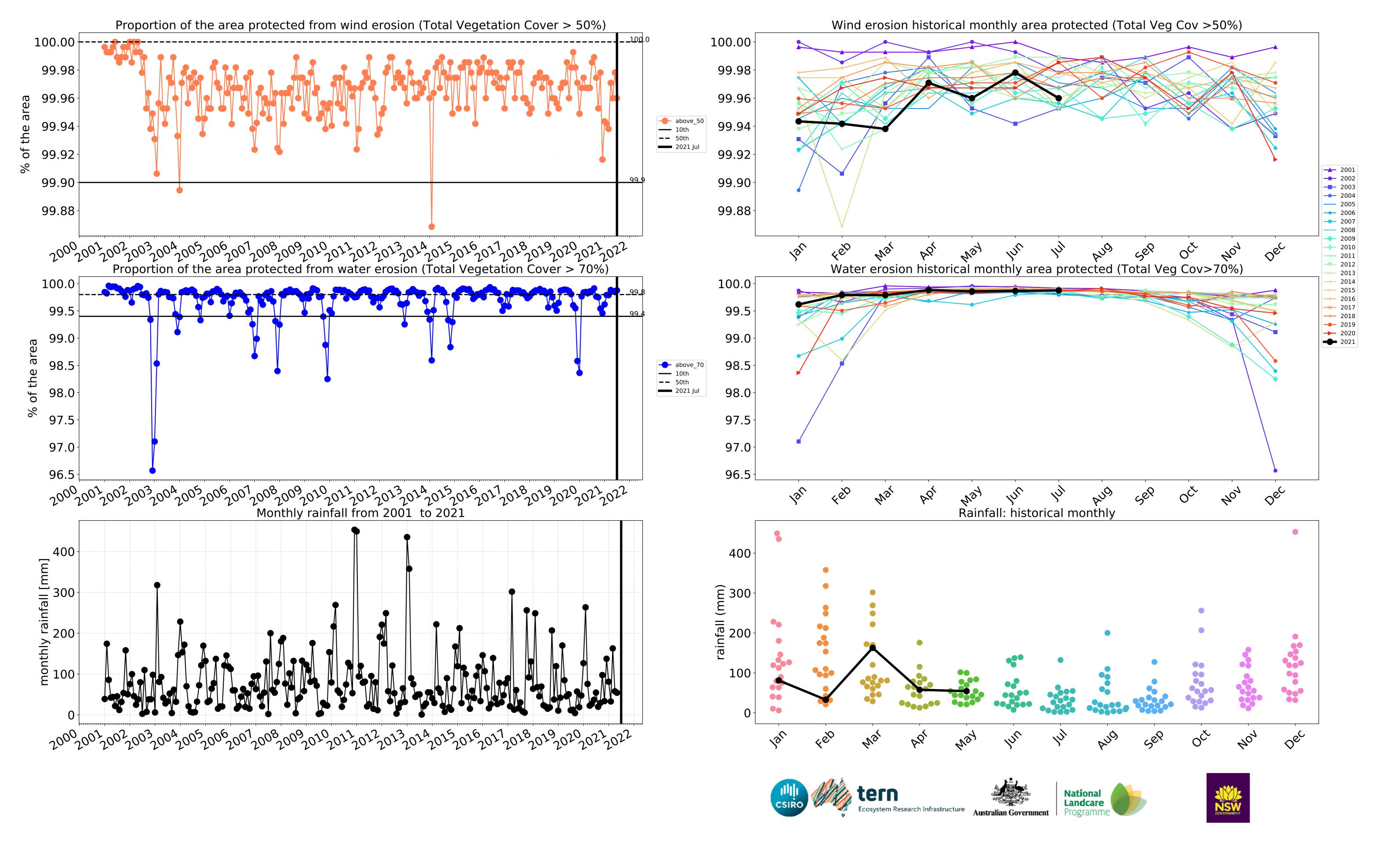


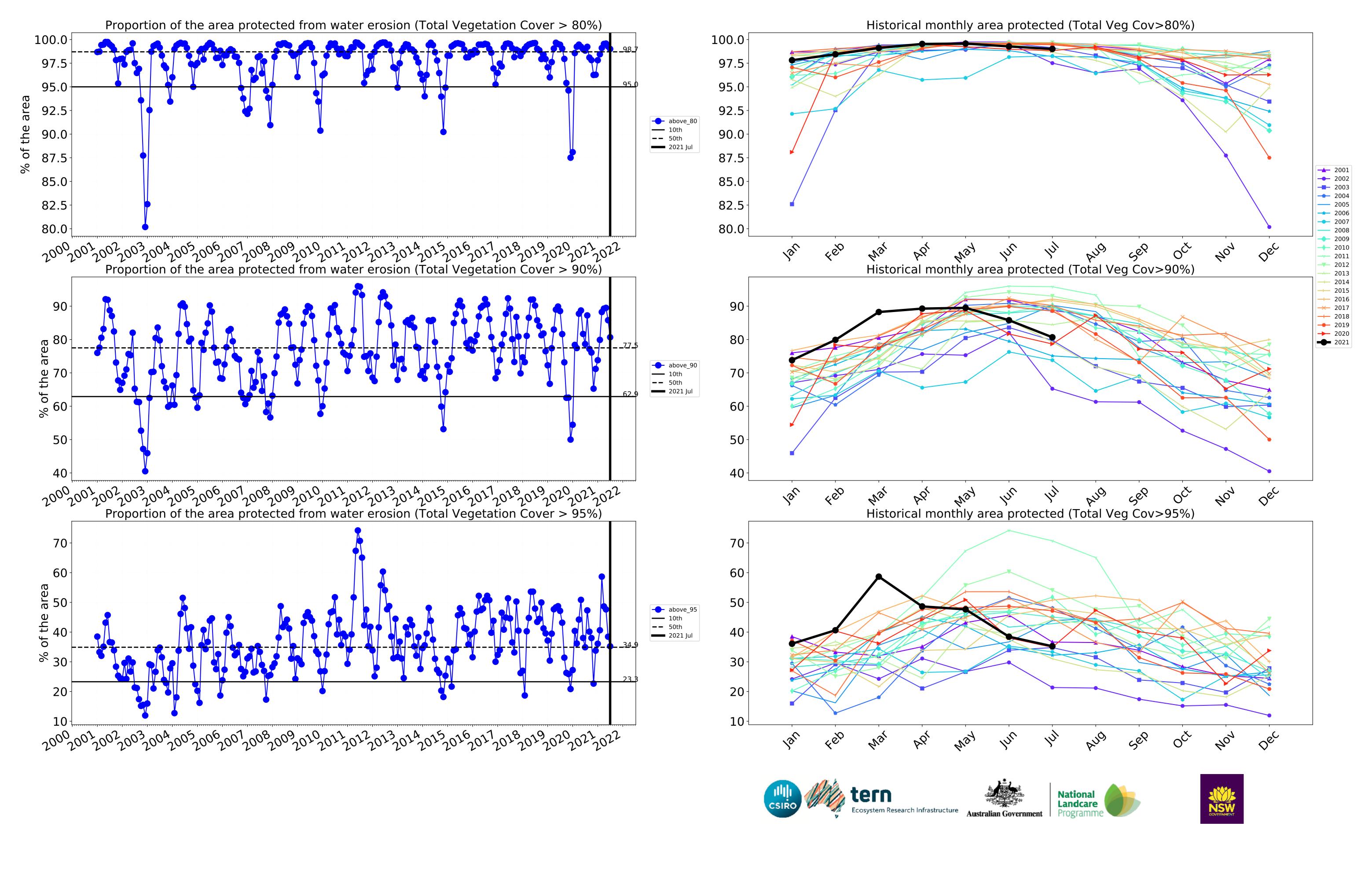




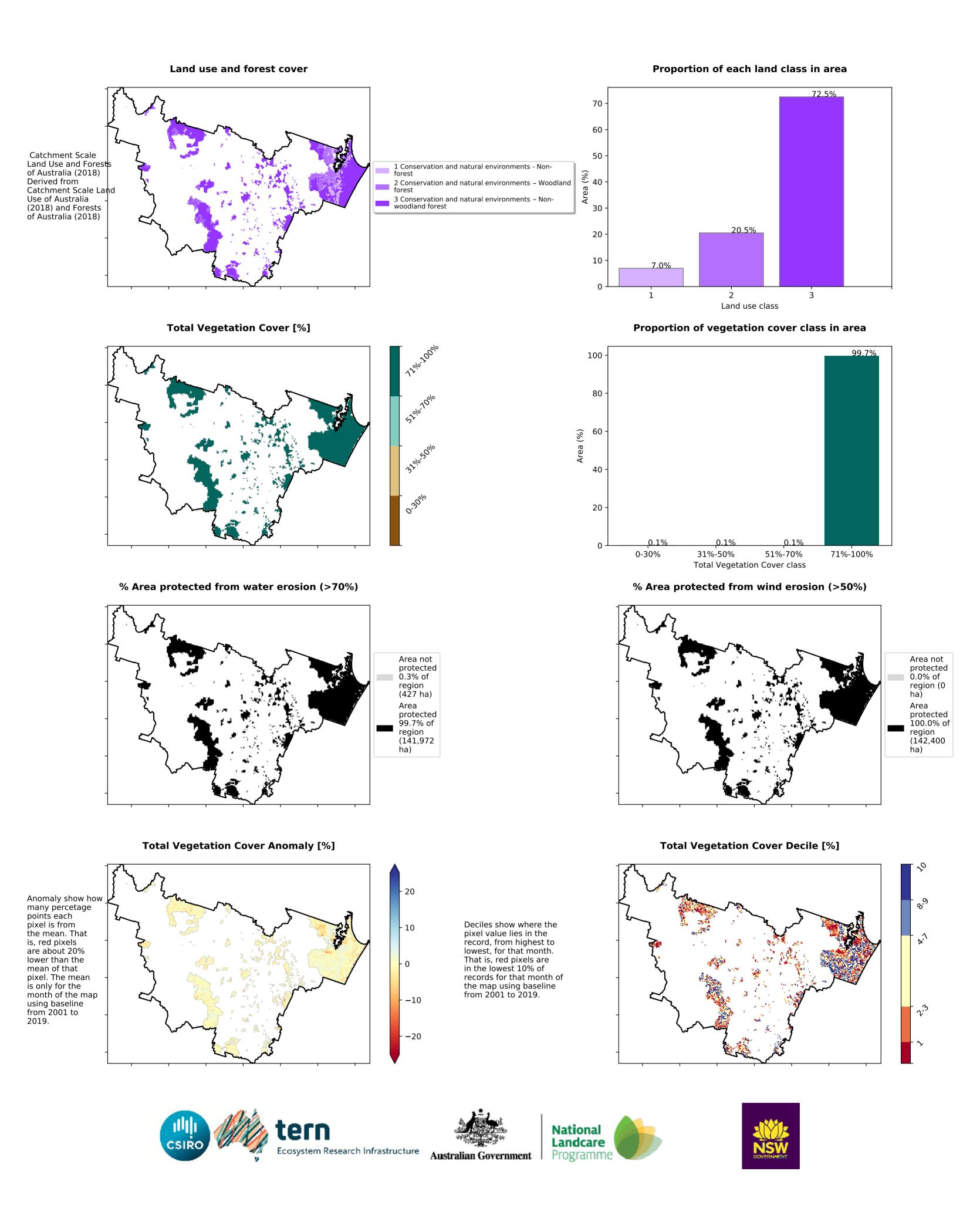




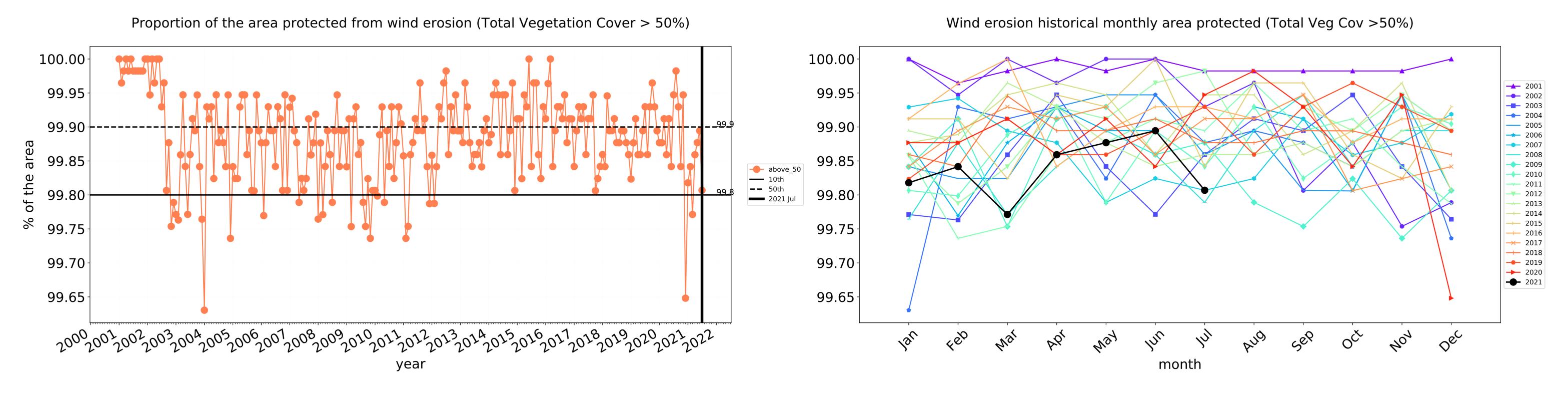


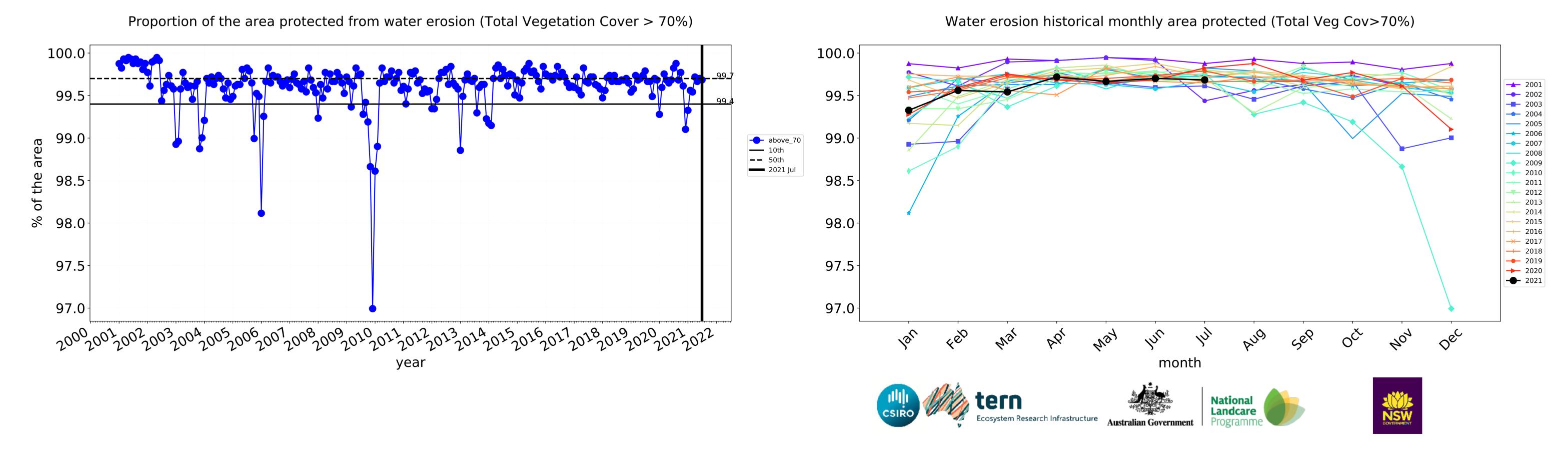


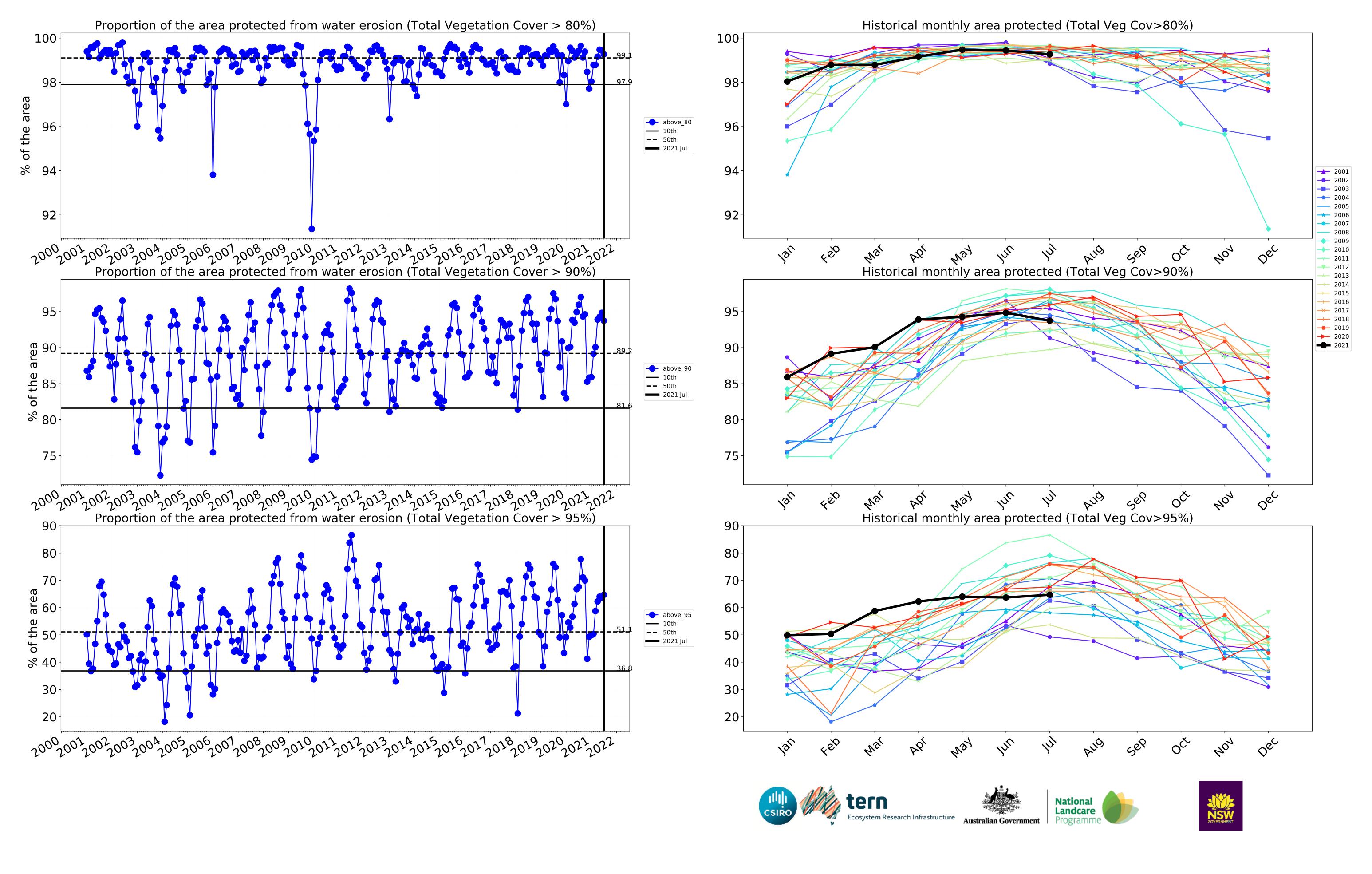
#### **Conservation and natural environments**



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

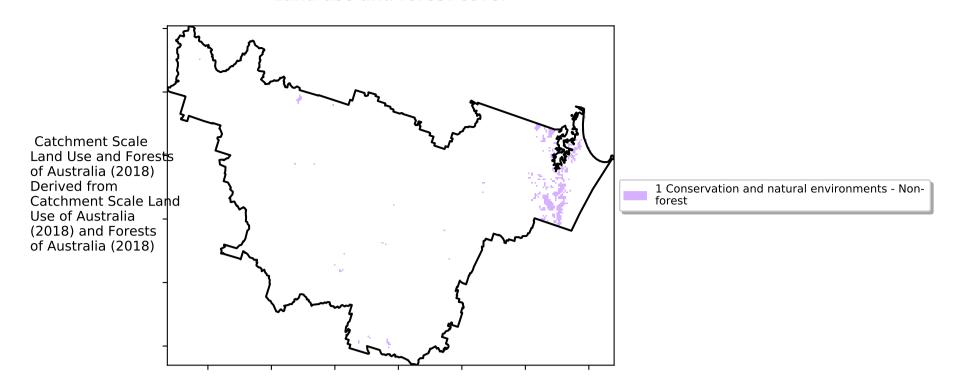




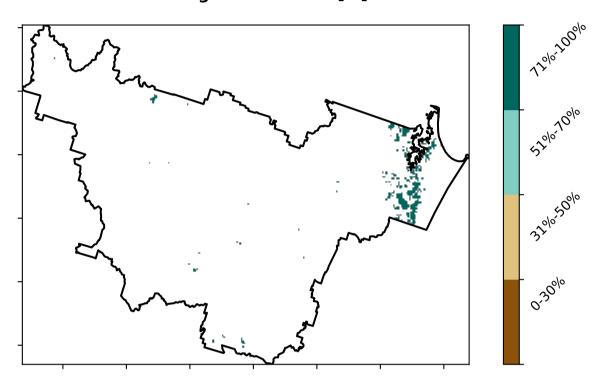


#### **Conservation and natural environments non forest**

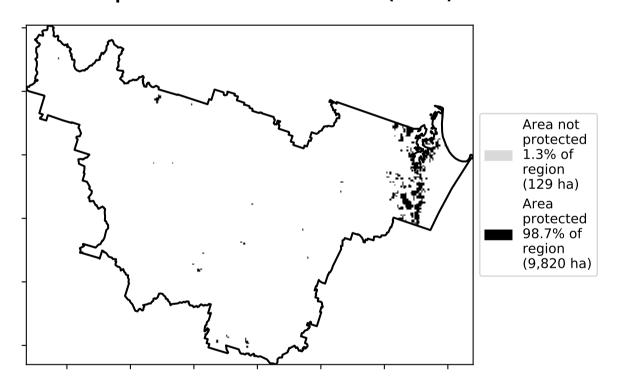
#### Land use and forest cover



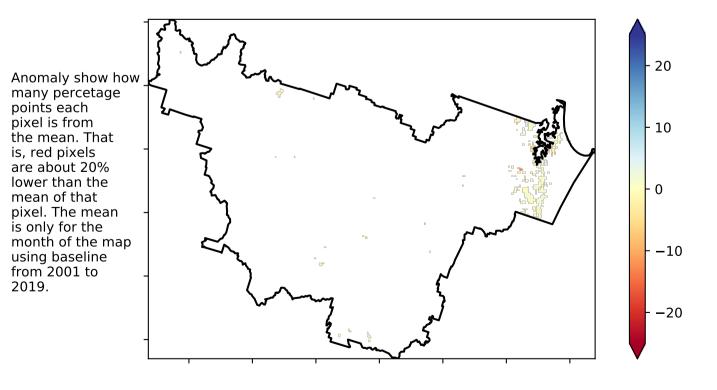
#### **Total Vegetation Cover [%]**



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

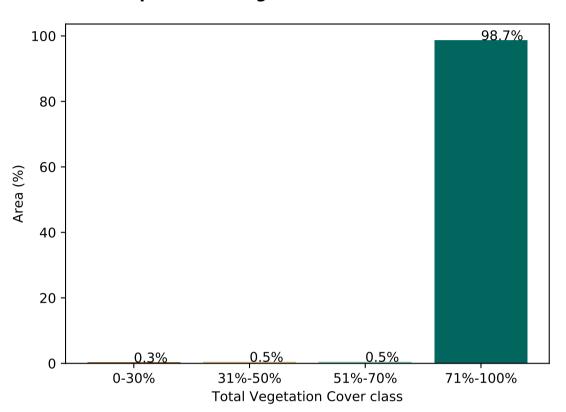


#### **Total Vegetation Cover Anomaly [%]**

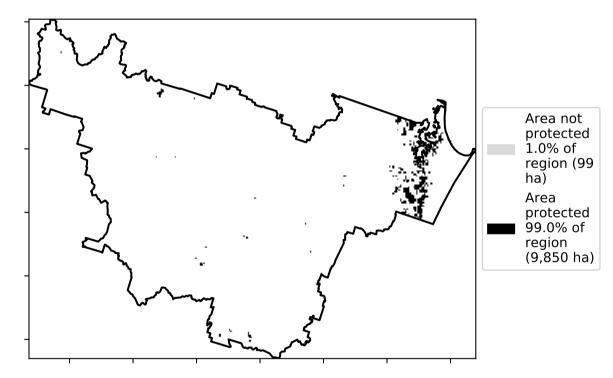


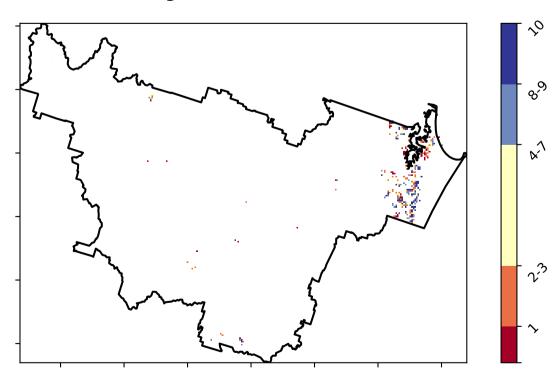
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



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





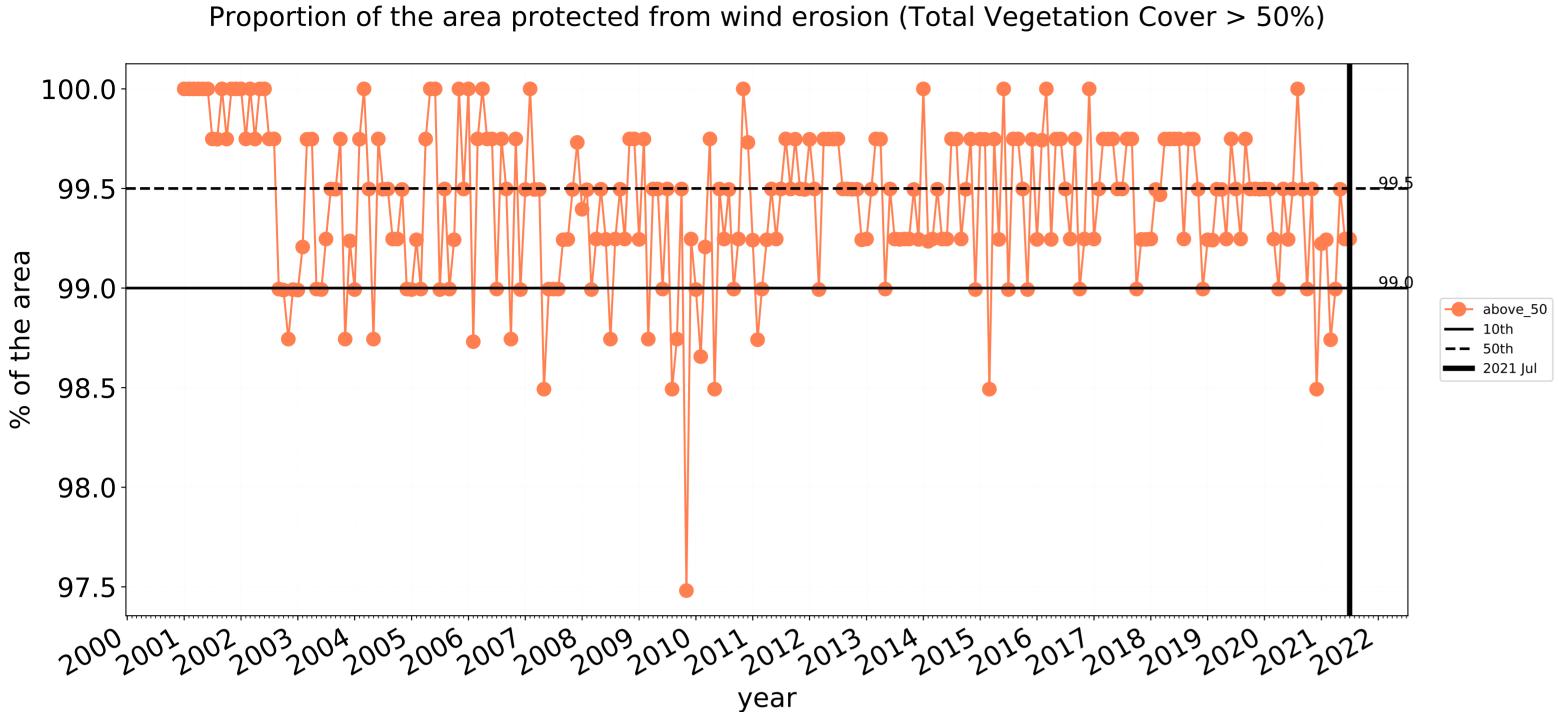


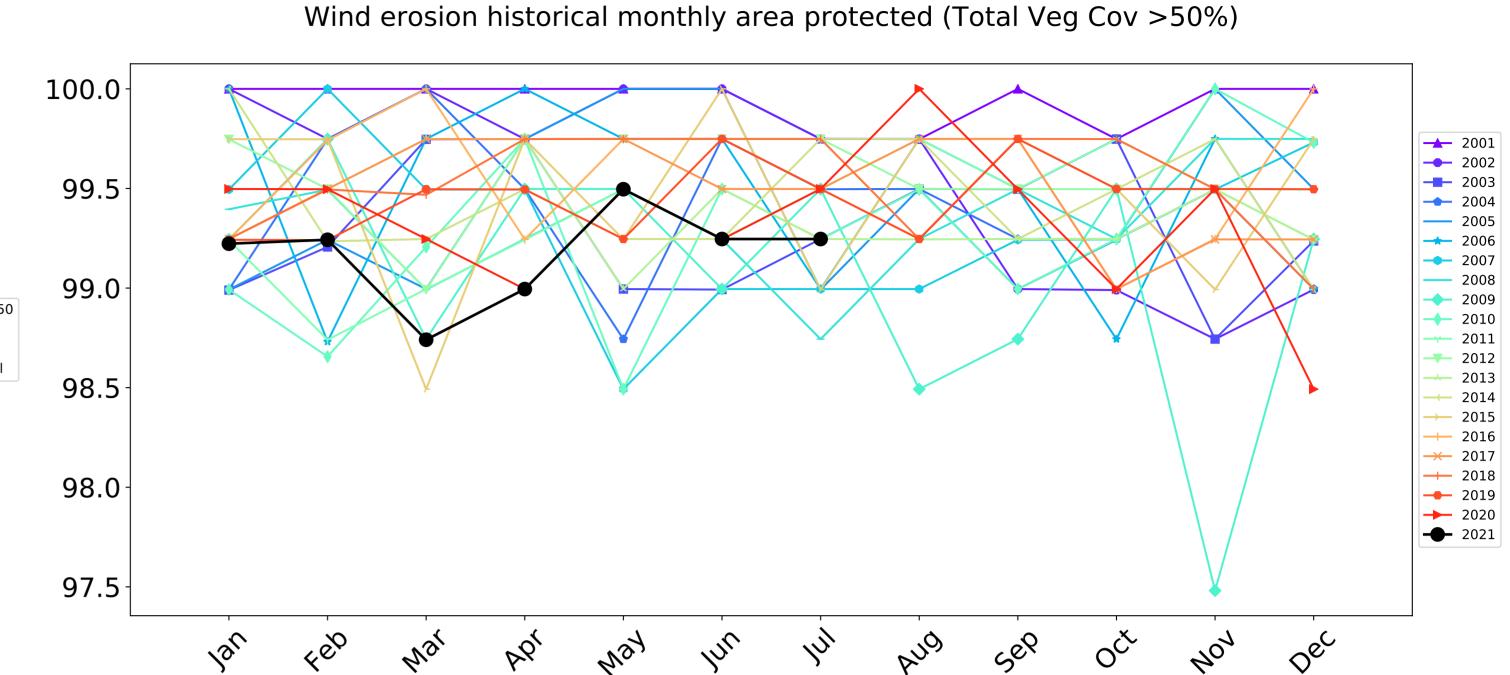




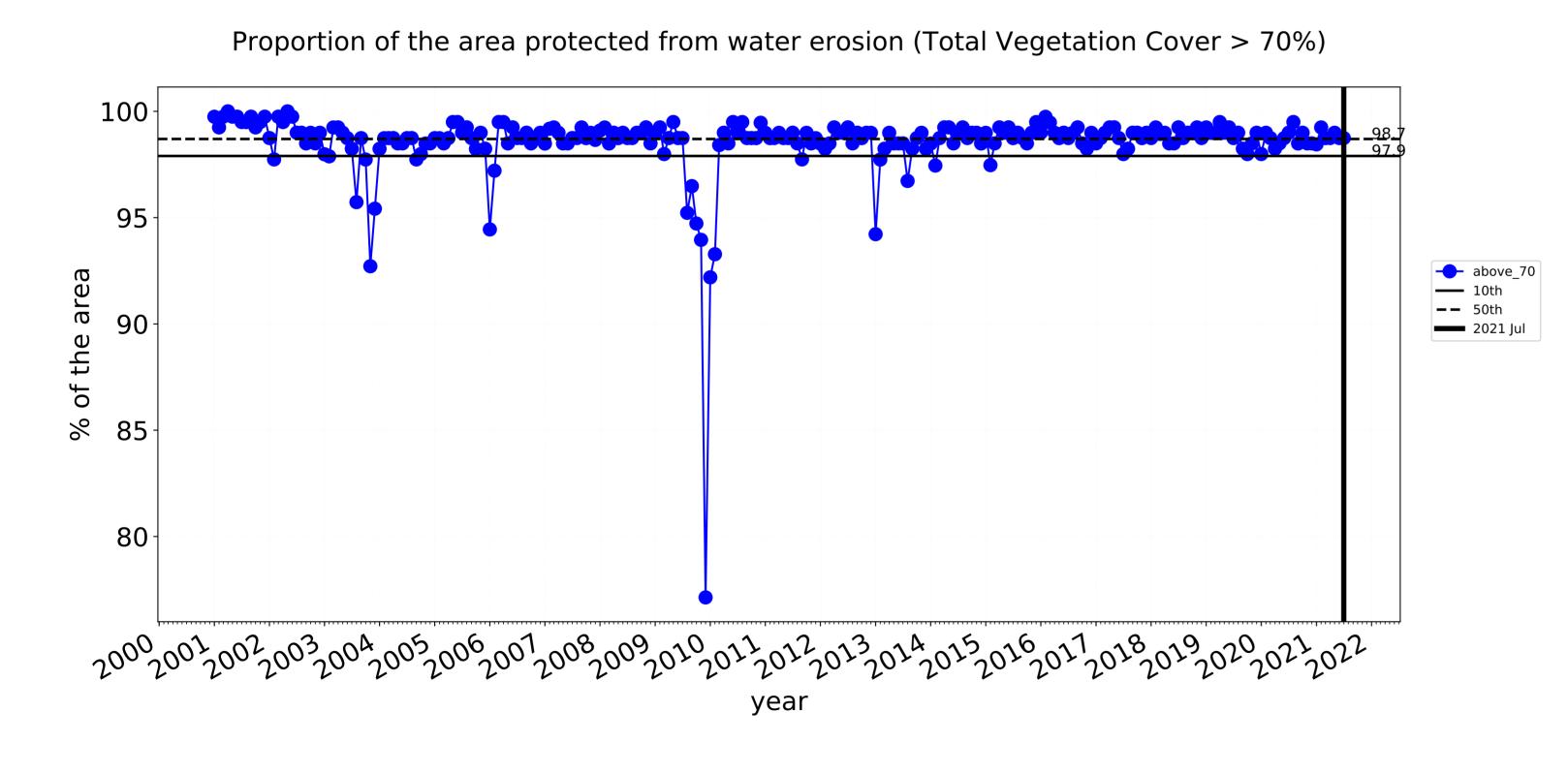


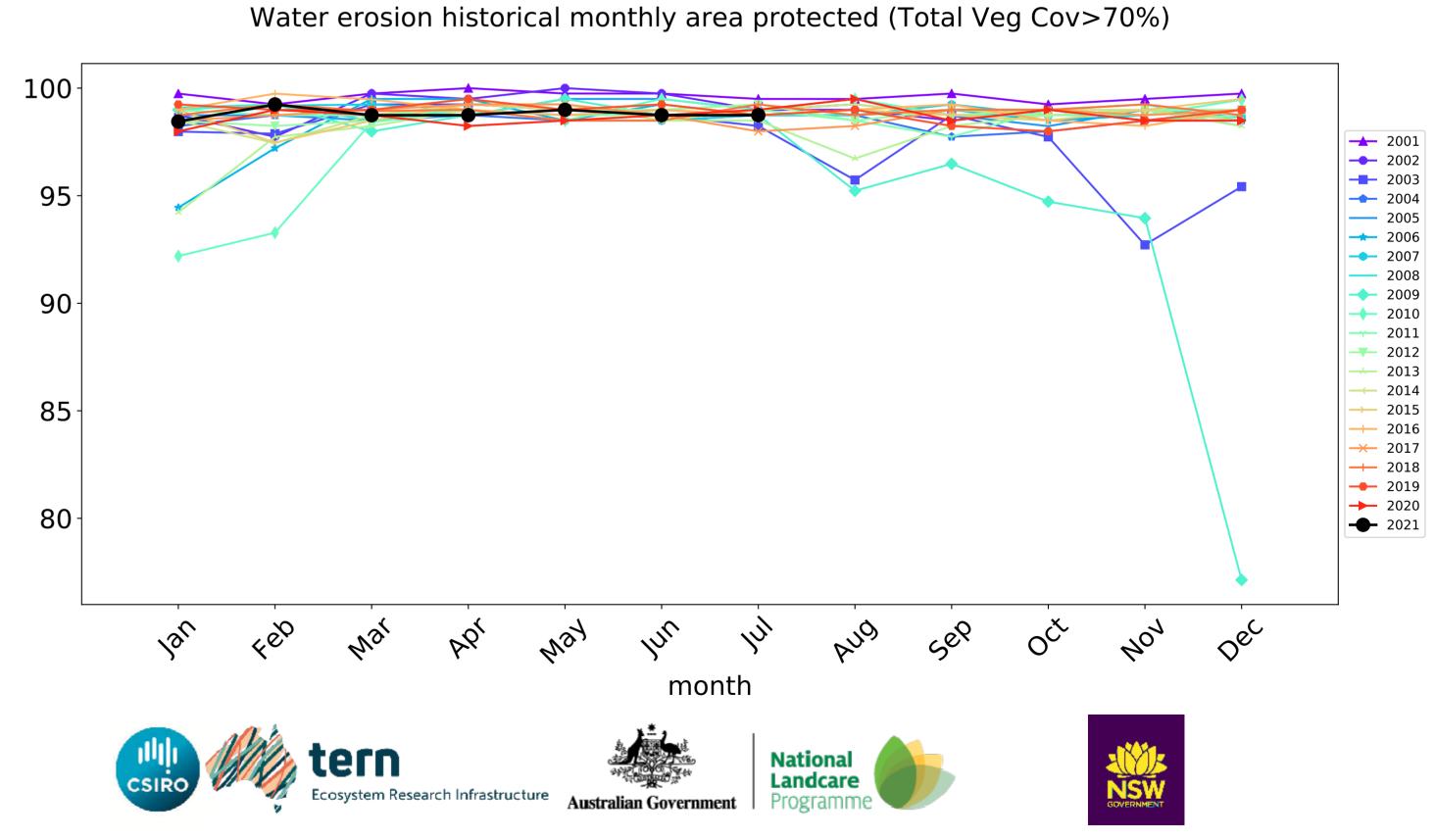
#### Conservation and natural environments non forest timeseries

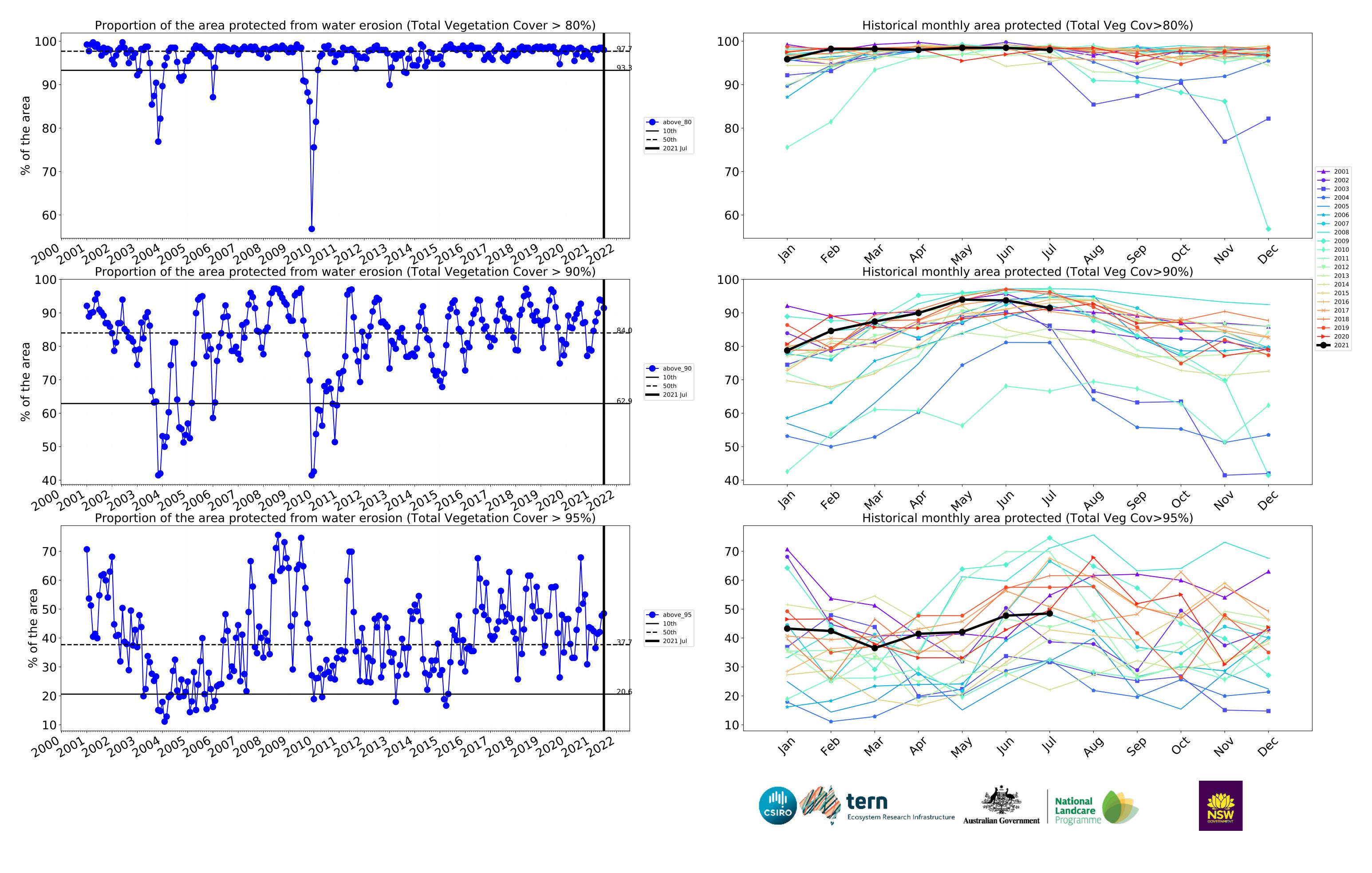




month





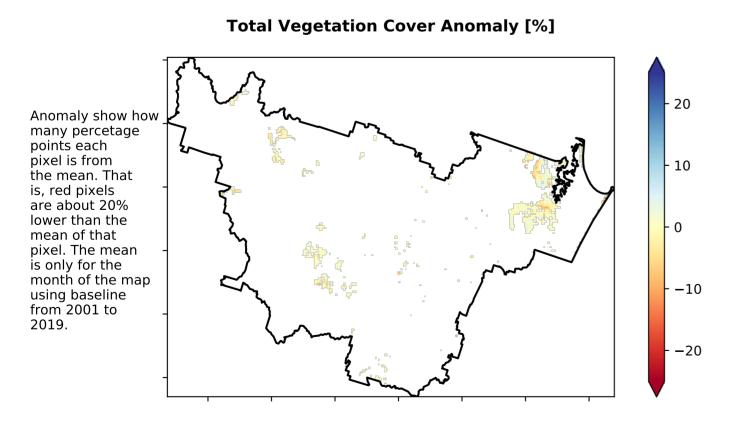


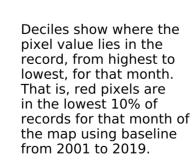
#### **Conservation and natural environments Woodland forest**

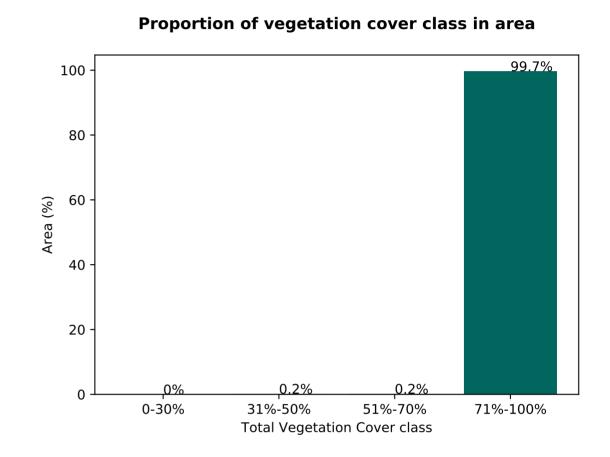
#### Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments - Woodland Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

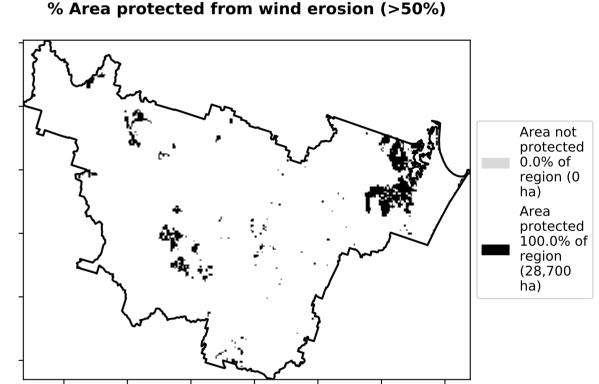
# **Total Vegetation Cover [%]**

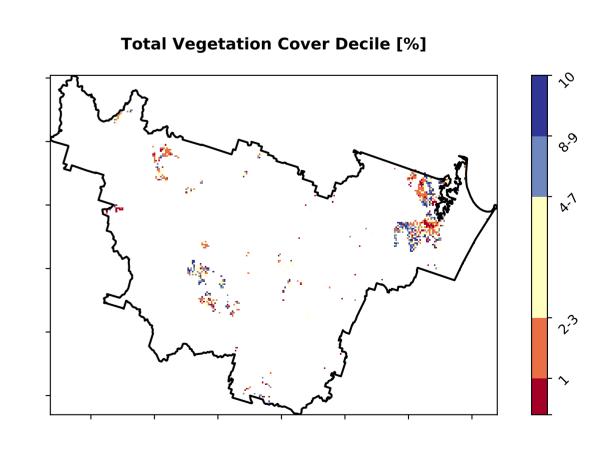
### % Area protected from water erosion (>70%) Area not protected 0.3% of region (86 Area protected 99.7% of region (28,613 ha)











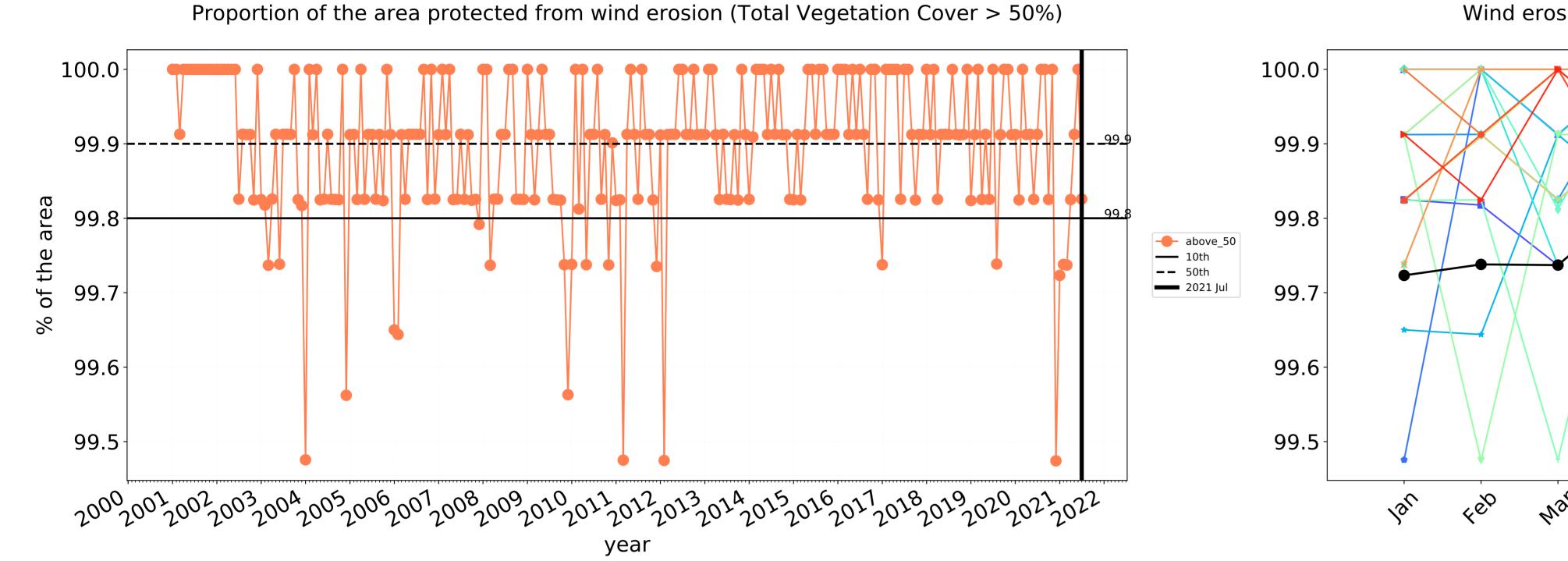


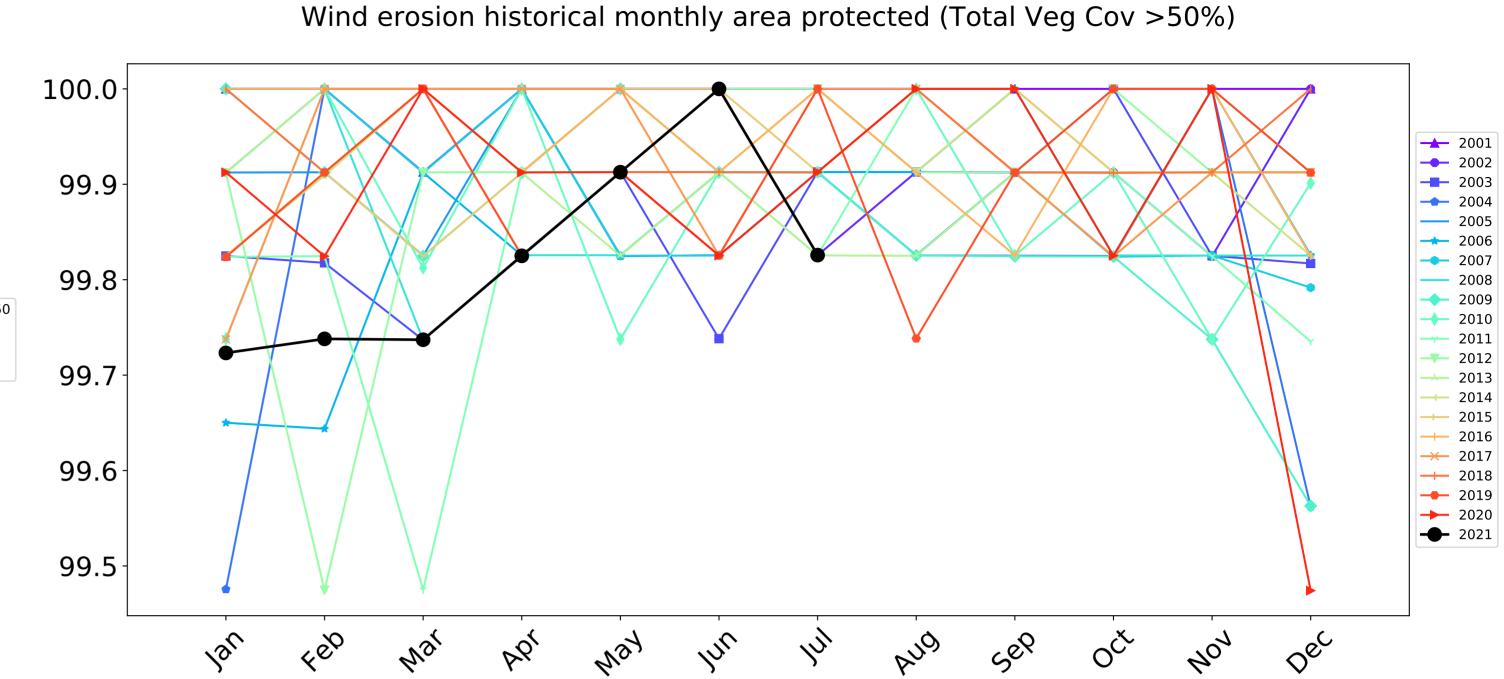




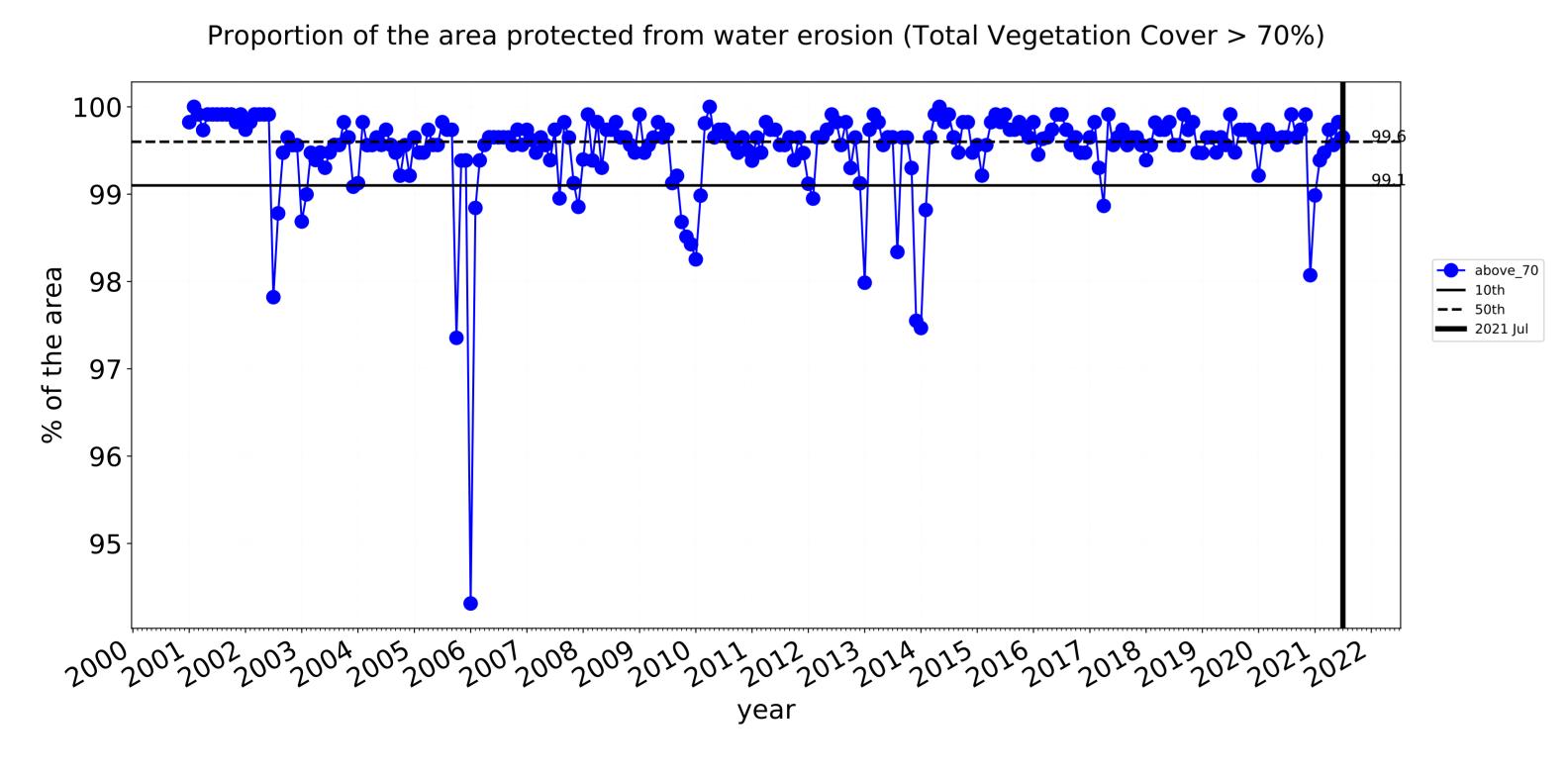


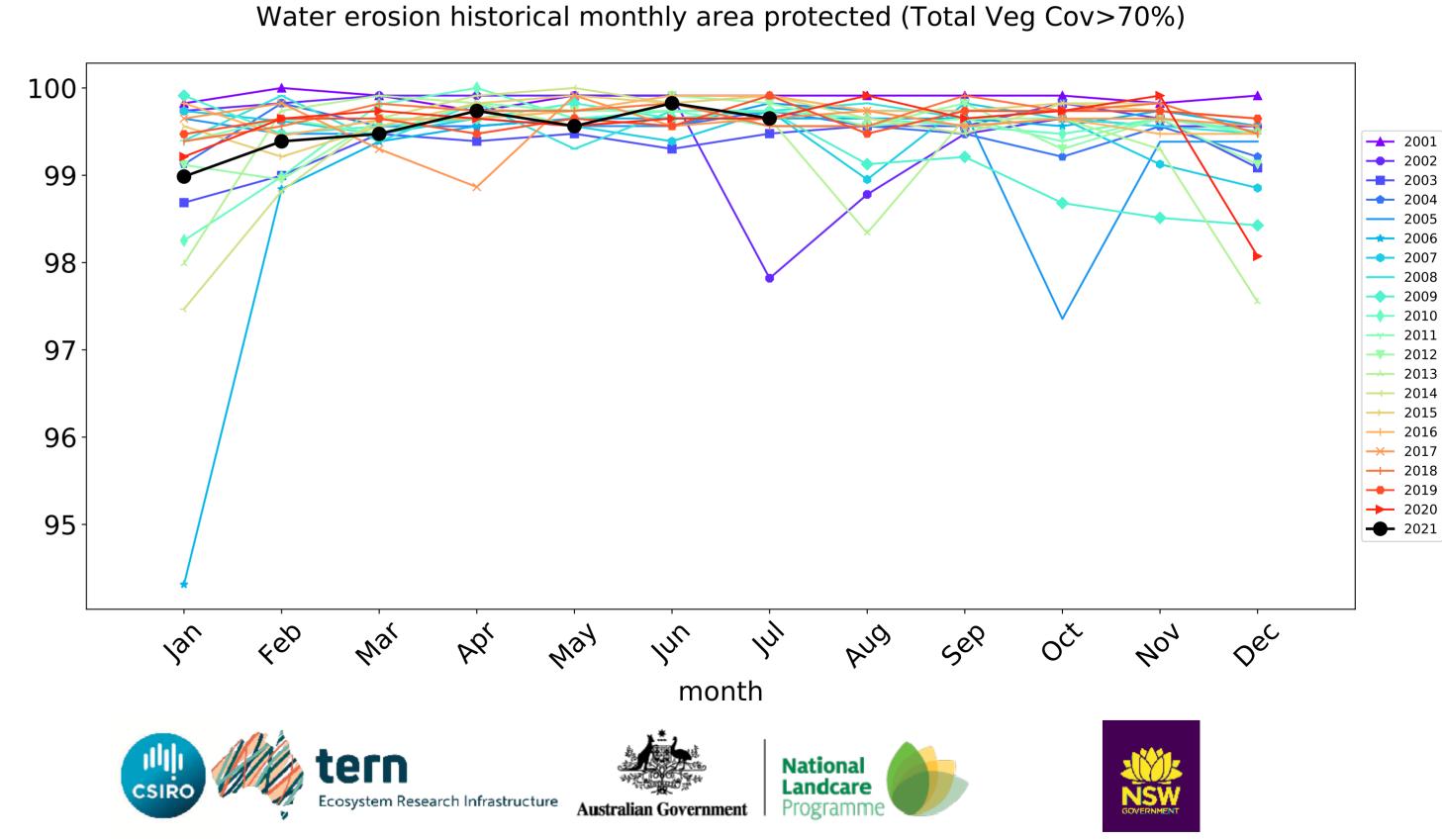
#### **Conservation and natural environments Woodland forest timeseries**

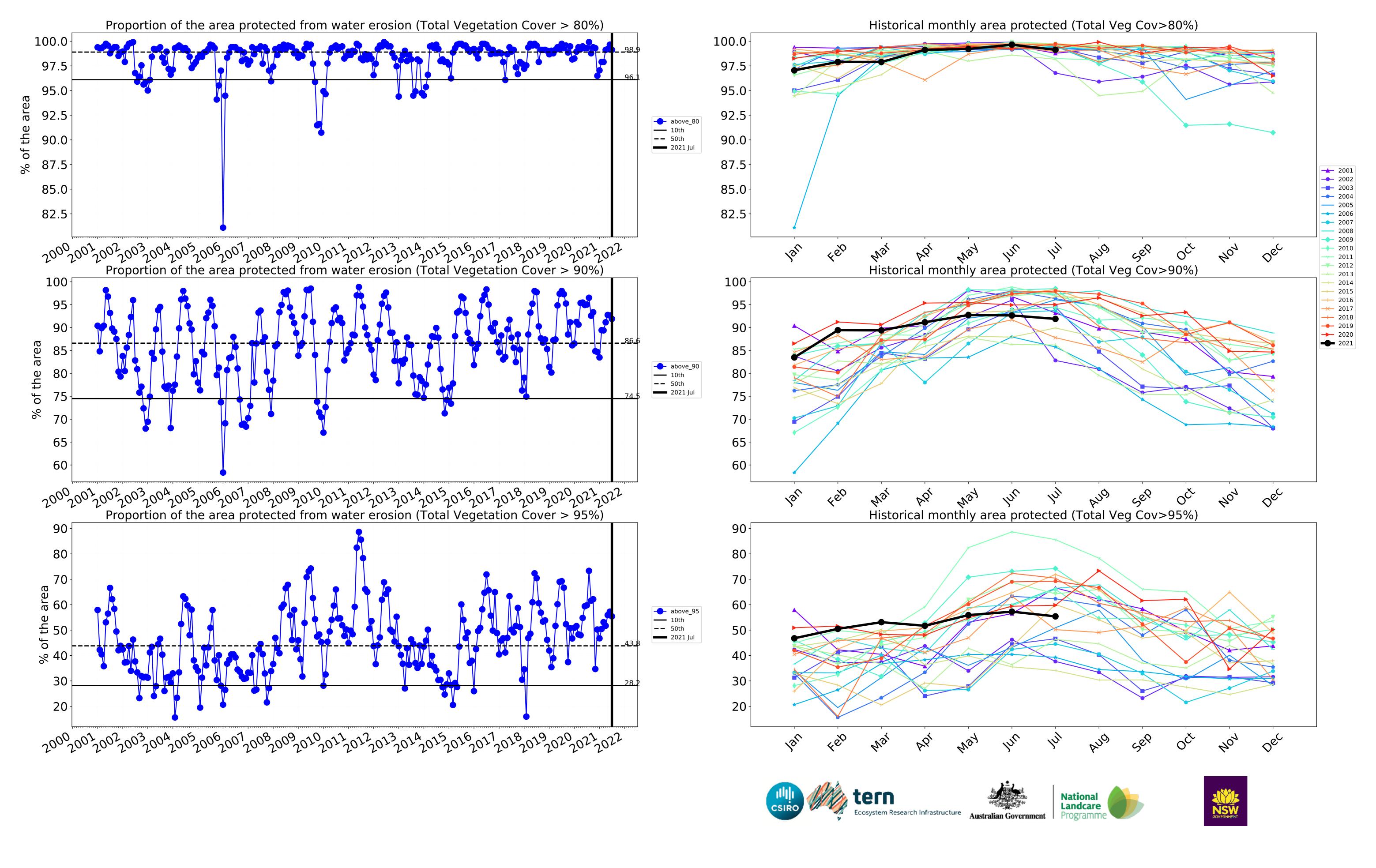




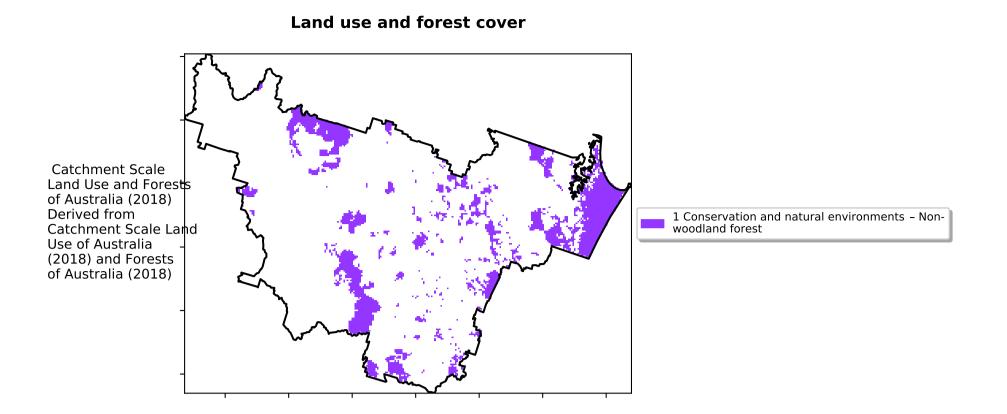
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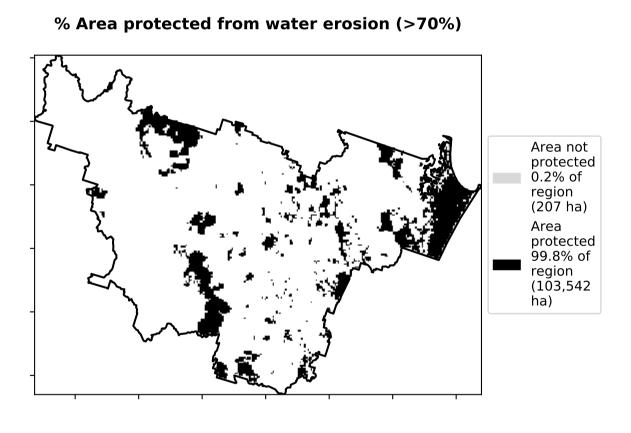


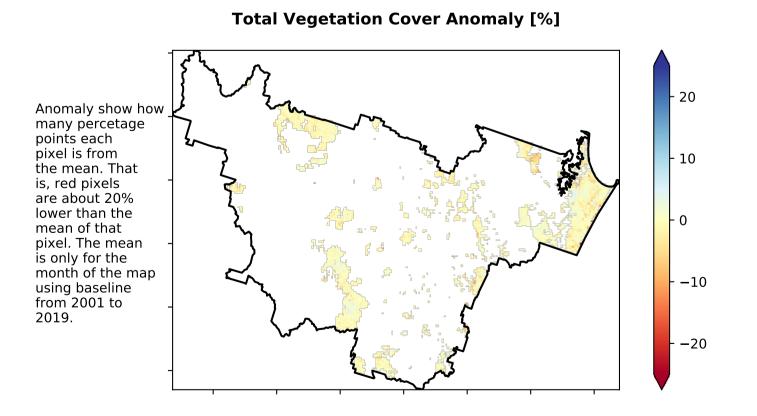


#### **Conservation and natural environments Forest (non woodland)**

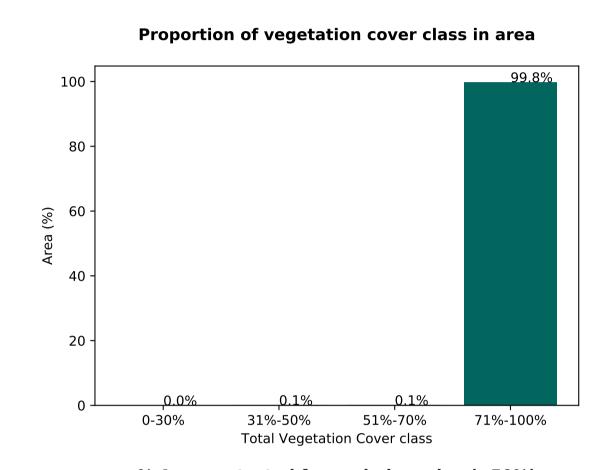


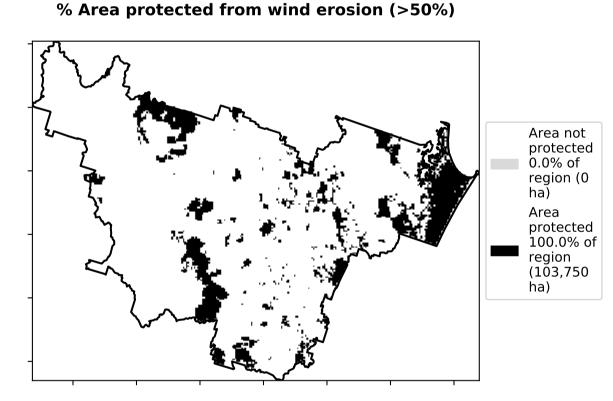
# Total Vegetation Cover [%] Total Vegetation Cover [%] Total Vegetation Cover [%]

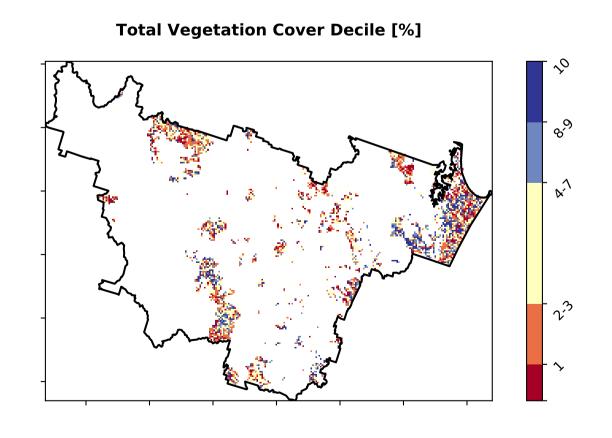




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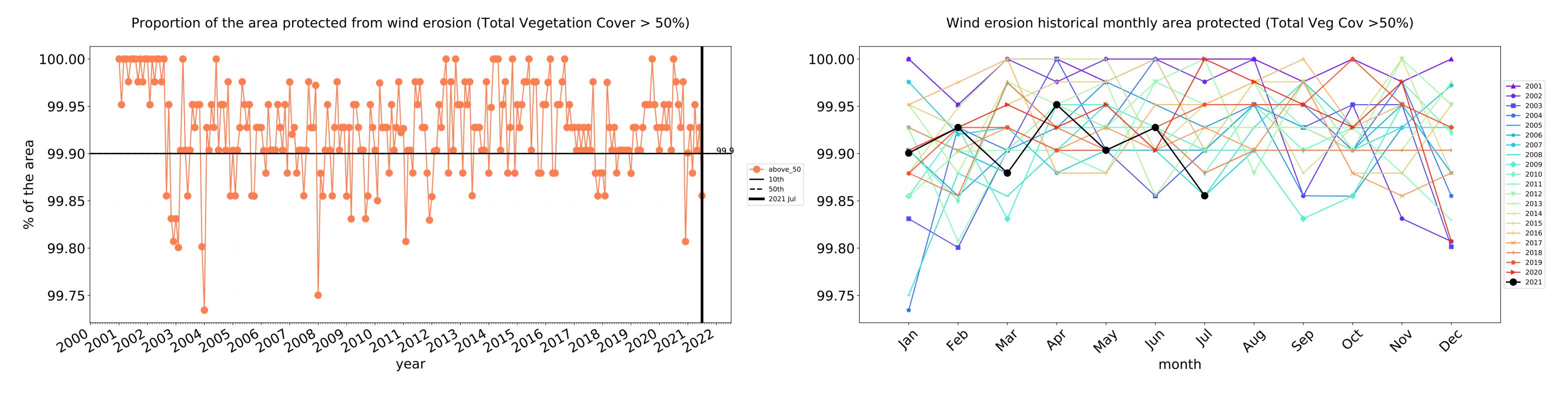


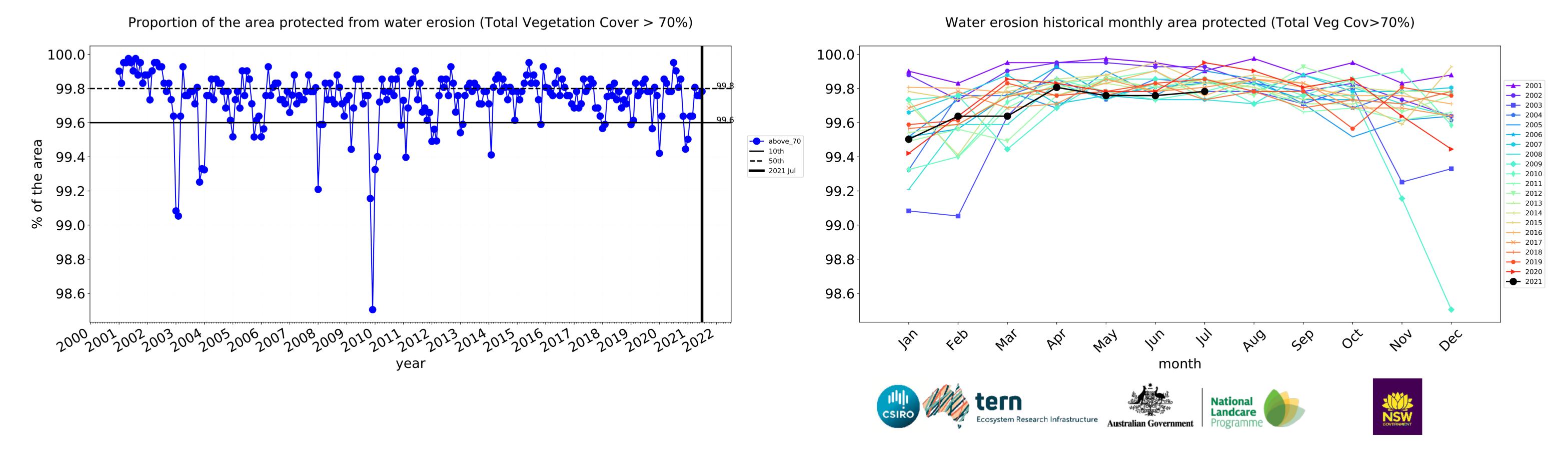


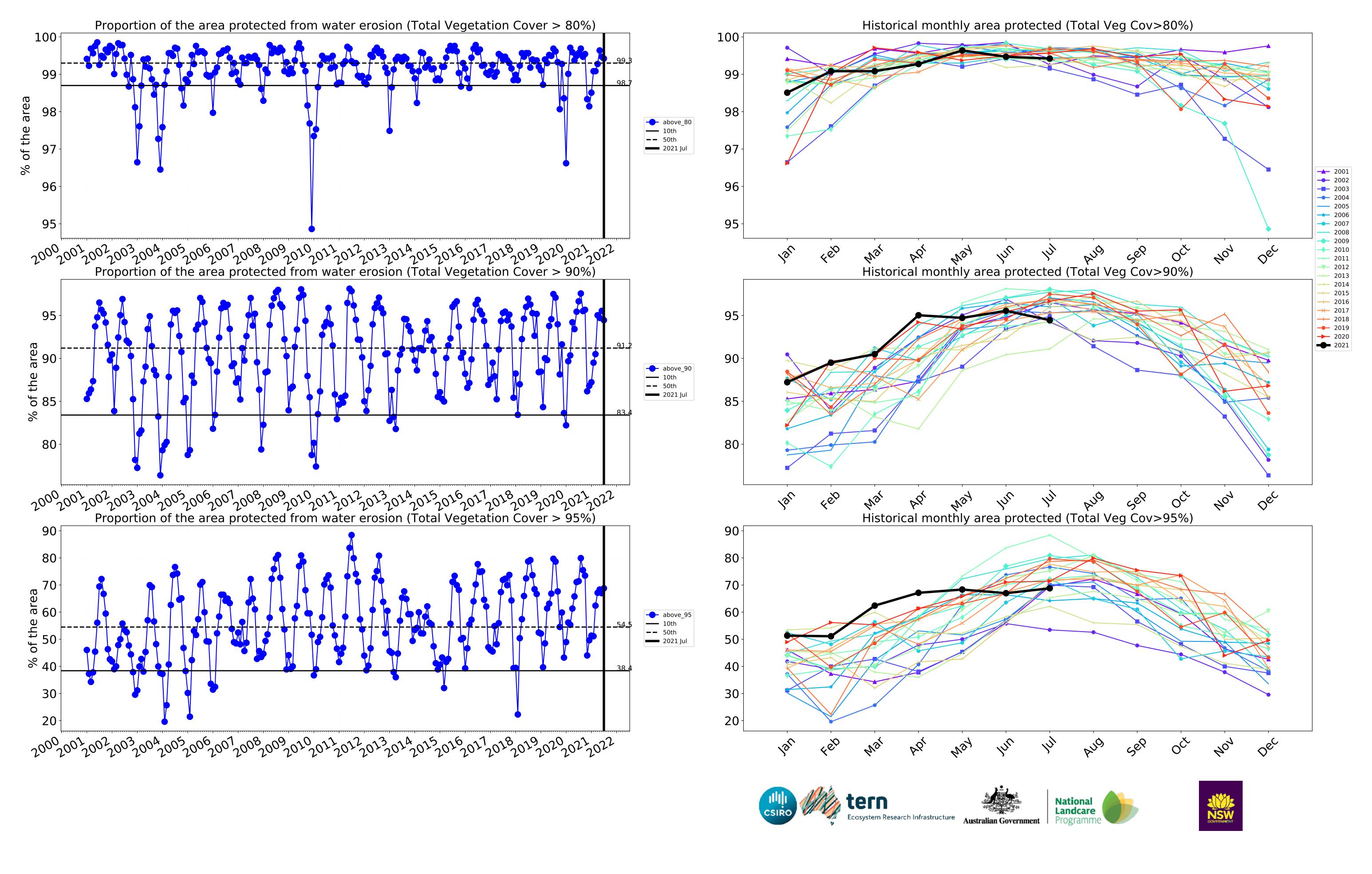








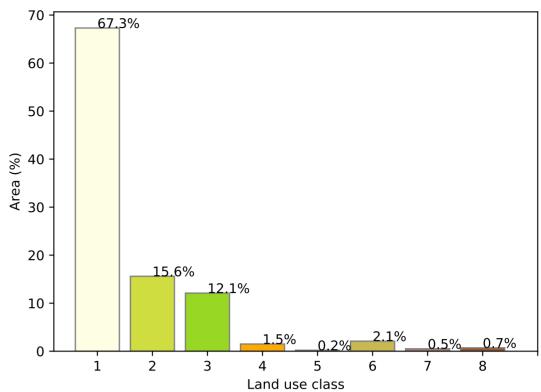




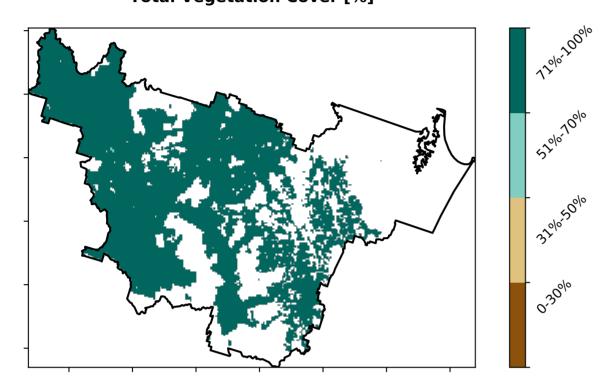
#### **Agriculture**

#### Land use and forest cover 1 Agriculture - Grazing - Non forest Catchment Scale Land Use and Forests of Australia (2018) 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 7 Agriculture - Horticulture - Non-irrigated of Australia (2018) 8 Agriculture - Horticulture - Irrigated

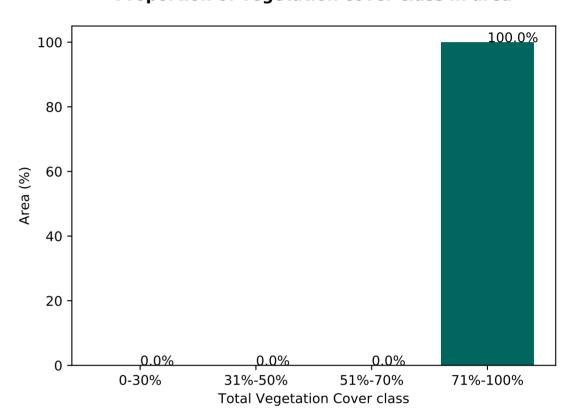
#### Proportion of each land class in area



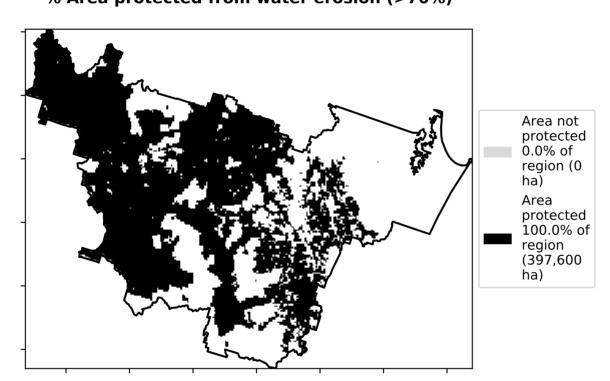
**Total Vegetation Cover [%]** 



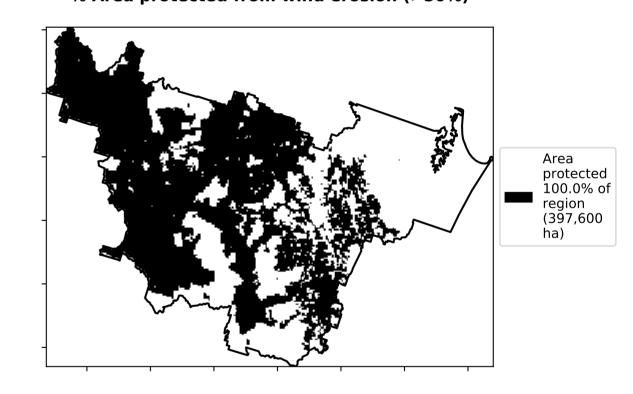
Proportion of vegetation cover class in area



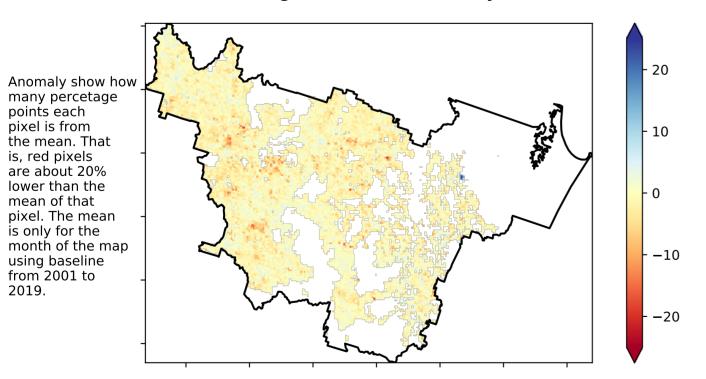
#### % Area protected from water erosion (>70%)



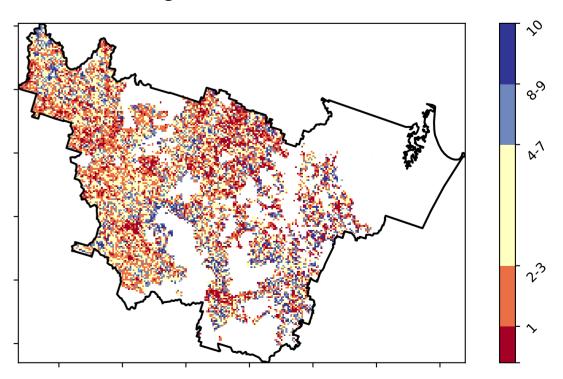
% Area protected from wind erosion (>50%)



#### Total Vegetation Cover Anomaly [%]



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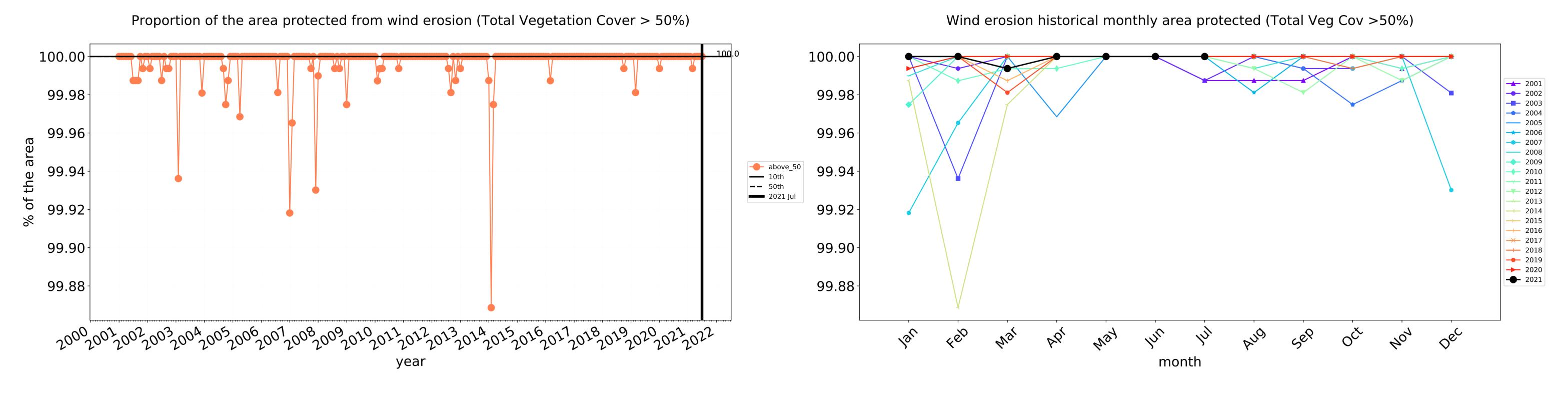


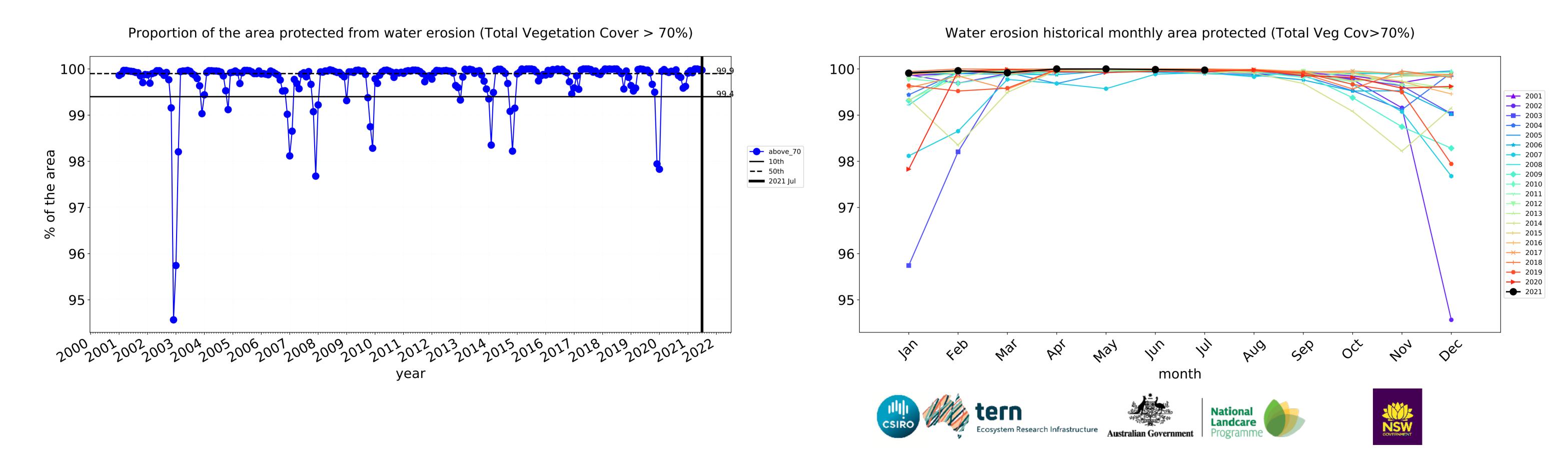


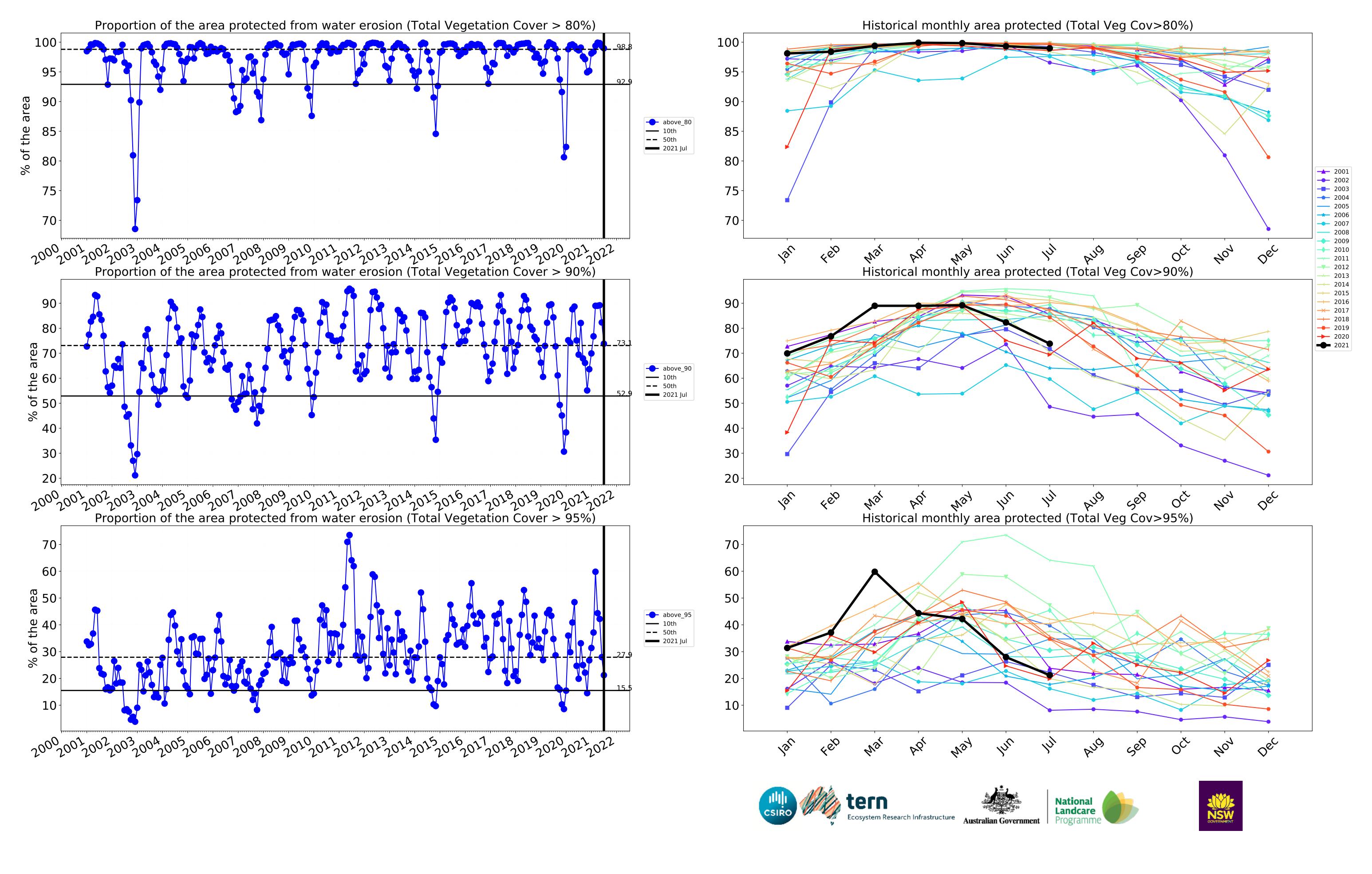




#### **Agriculture timeseries**





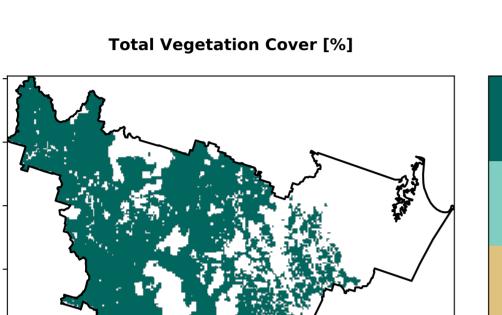


#### **Grazing**

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

#### 70.9% 70 60 -50 Area (%) 30 20 16.4% 12.7% 10

**Proportion of each land class in area** 

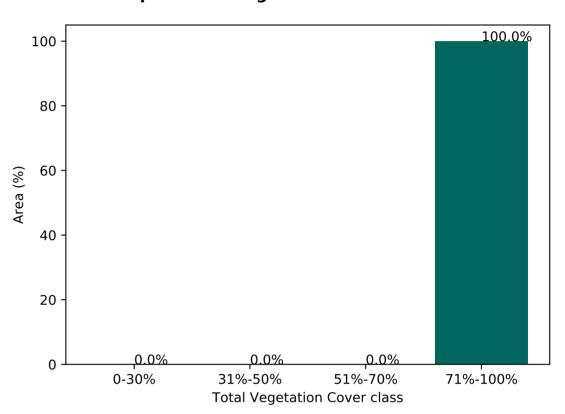


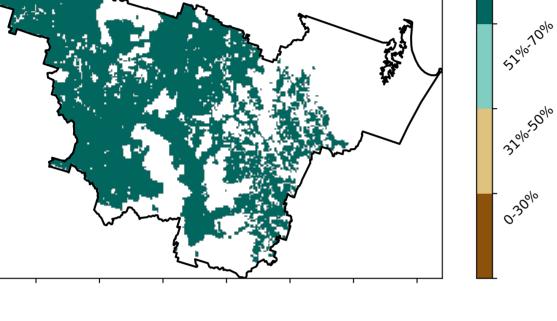
Proportion of vegetation cover class in area

Land use class

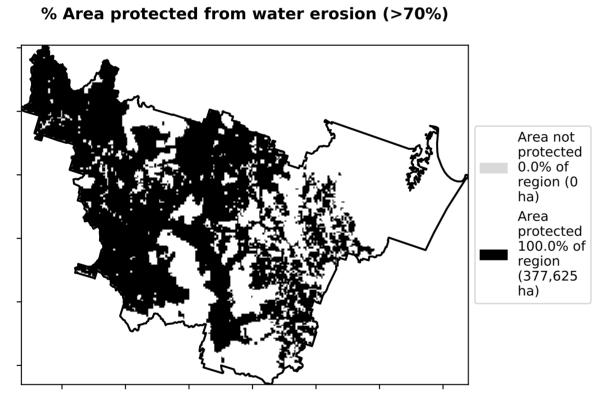
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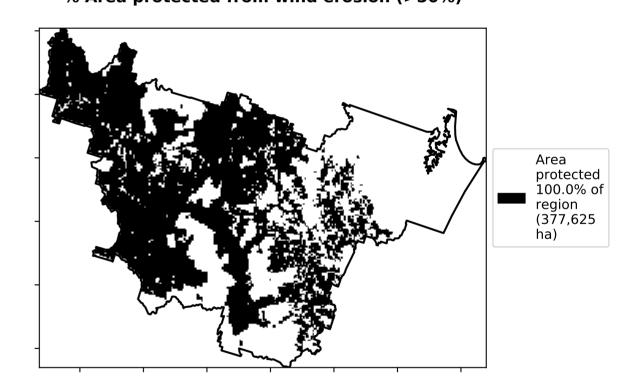
3





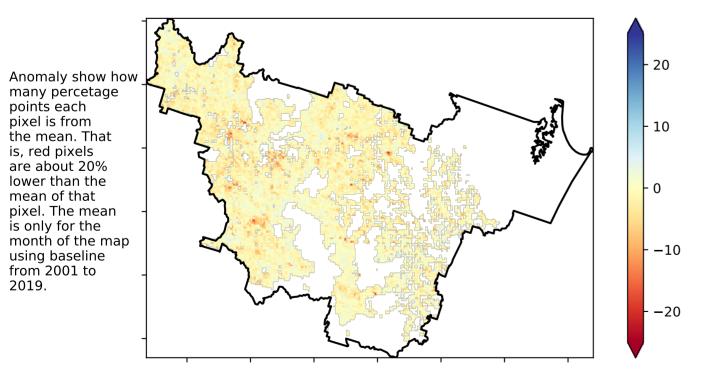
% Area protected from wind erosion (>50%)

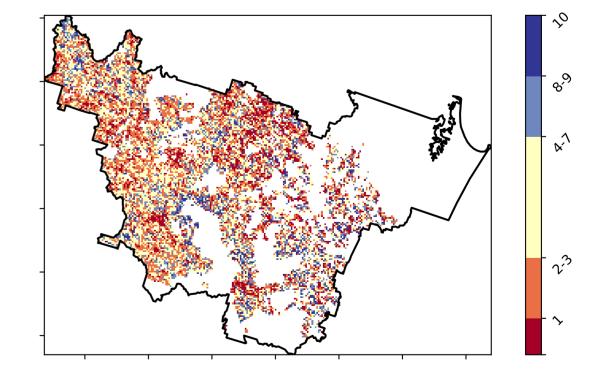






**Total Vegetation Cover Decile [%]** 











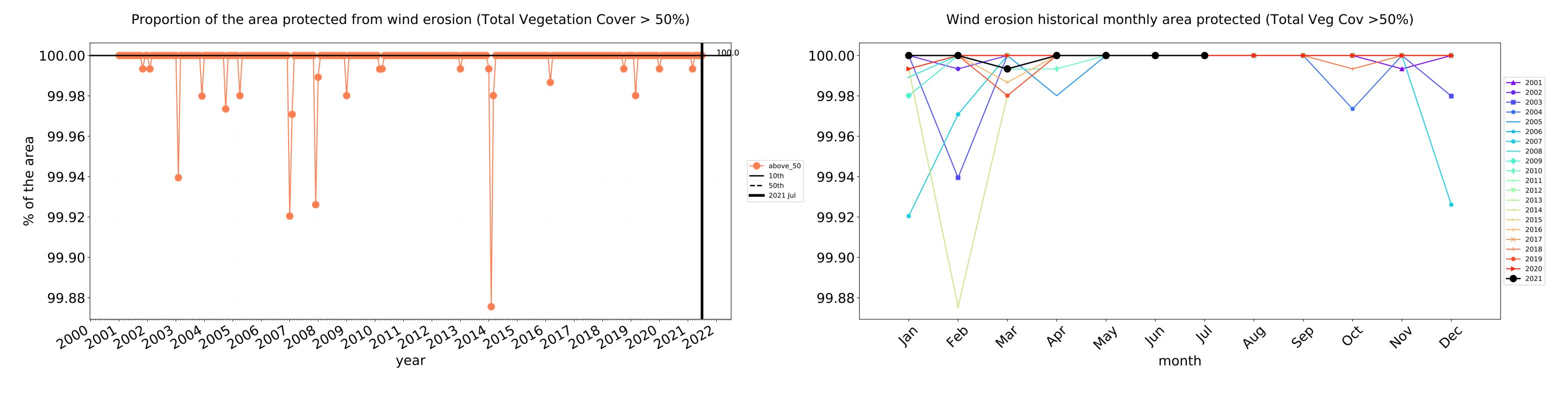


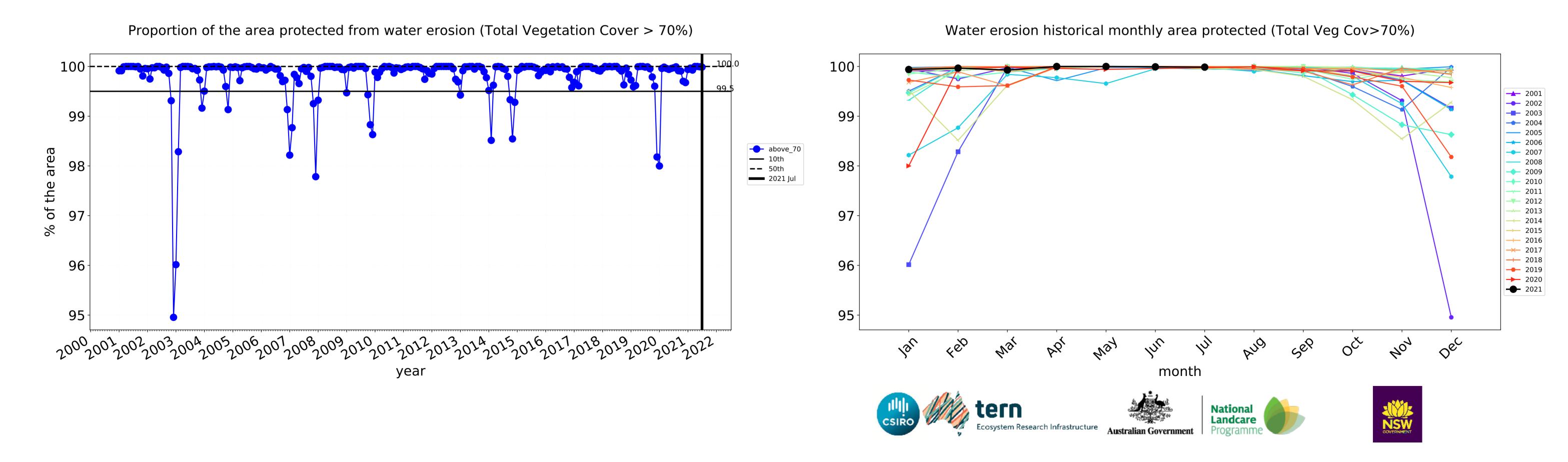
Deciles show where the pixel value lies in the

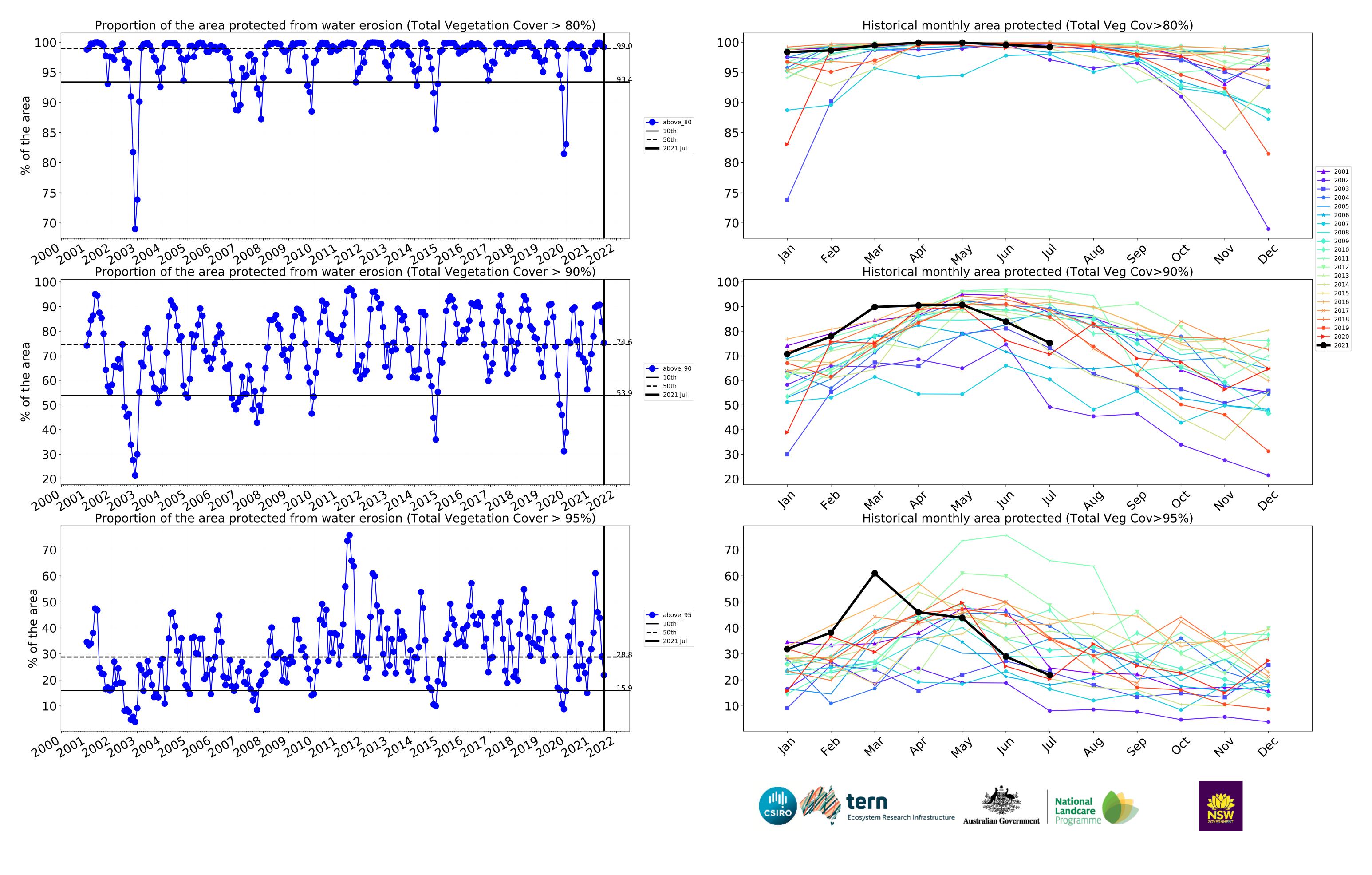
record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline.

the map using baseline from 2001 to 2019.

#### **Grazing timeseries**

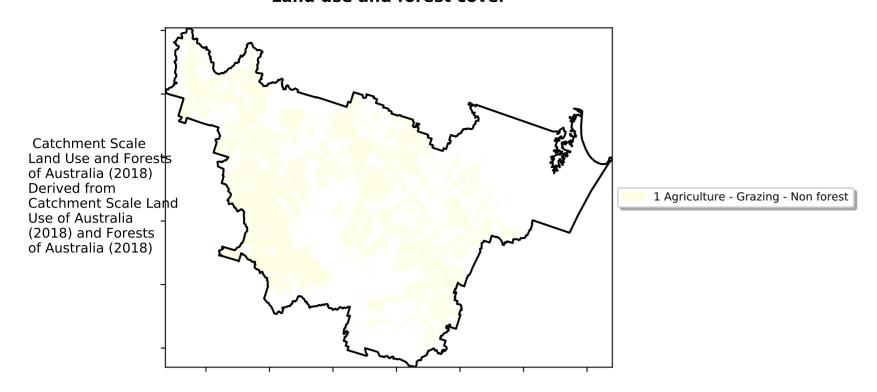




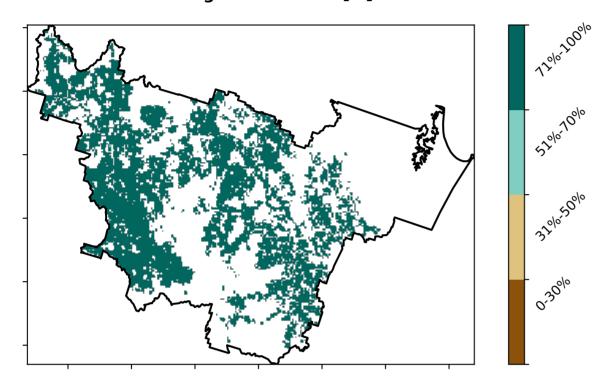


#### **Grazing non forest**

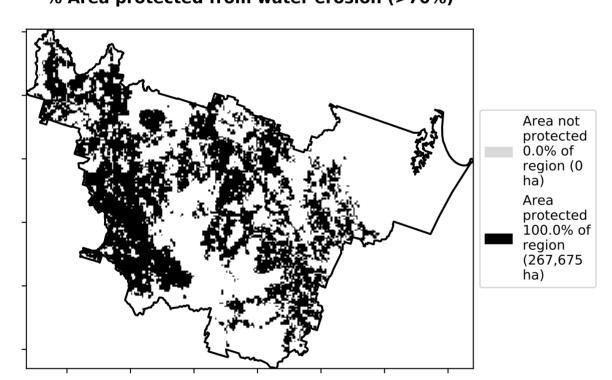
#### Land use and forest cover



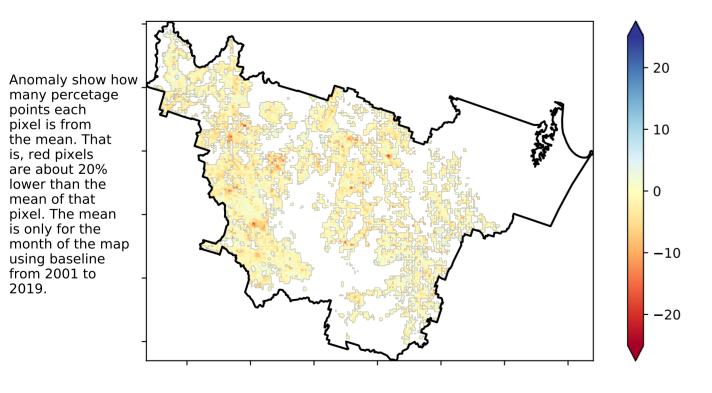
#### **Total Vegetation Cover [%]**



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

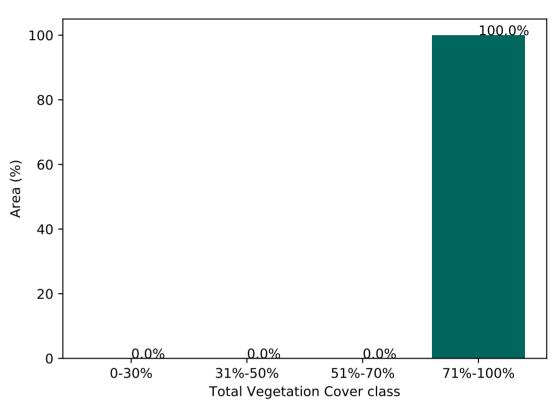


#### Total Vegetation Cover Anomaly [%]

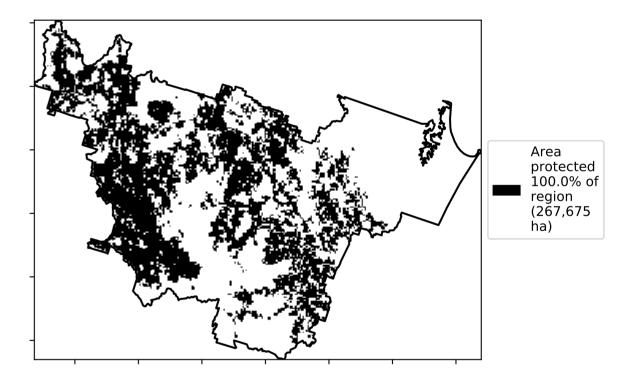


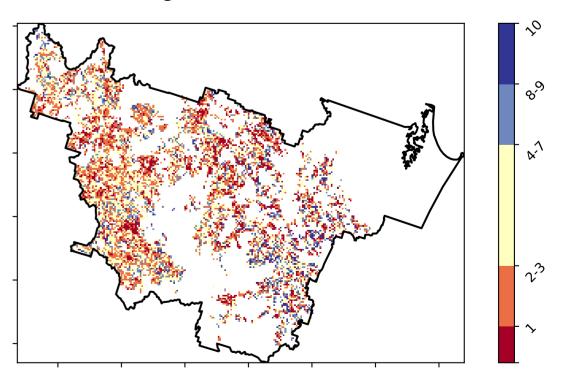
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#### **Proportion of vegetation cover class in area**



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





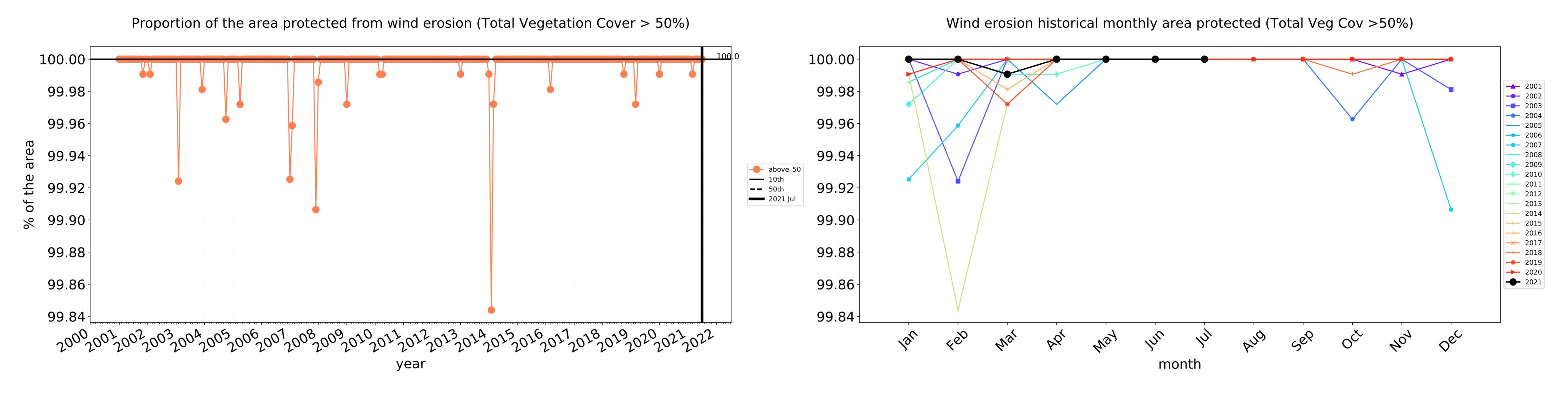


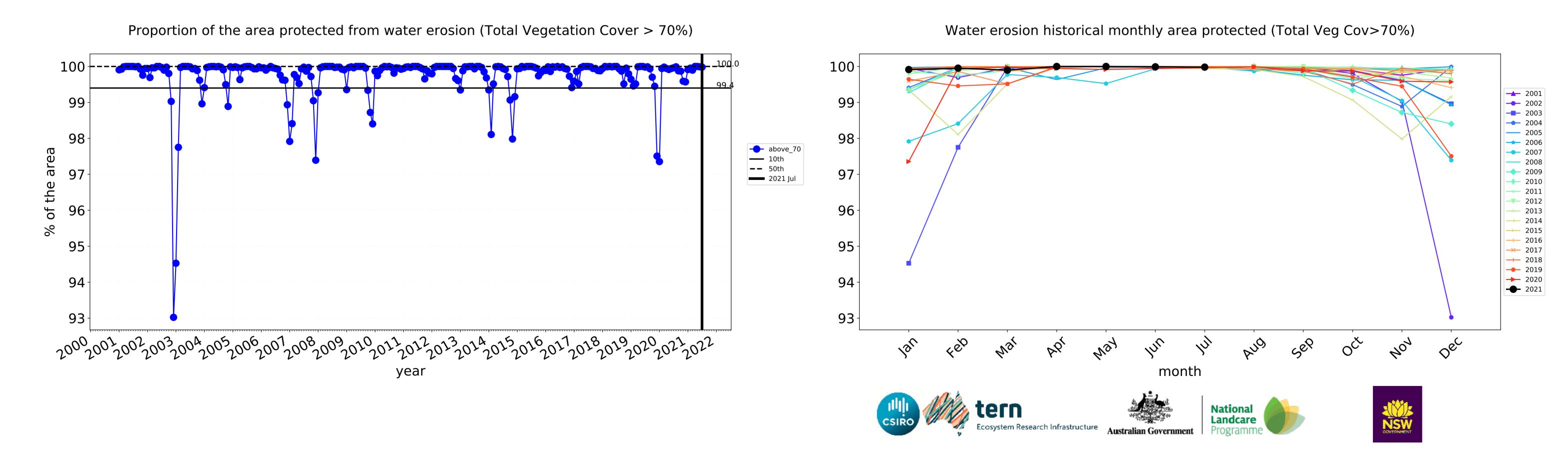


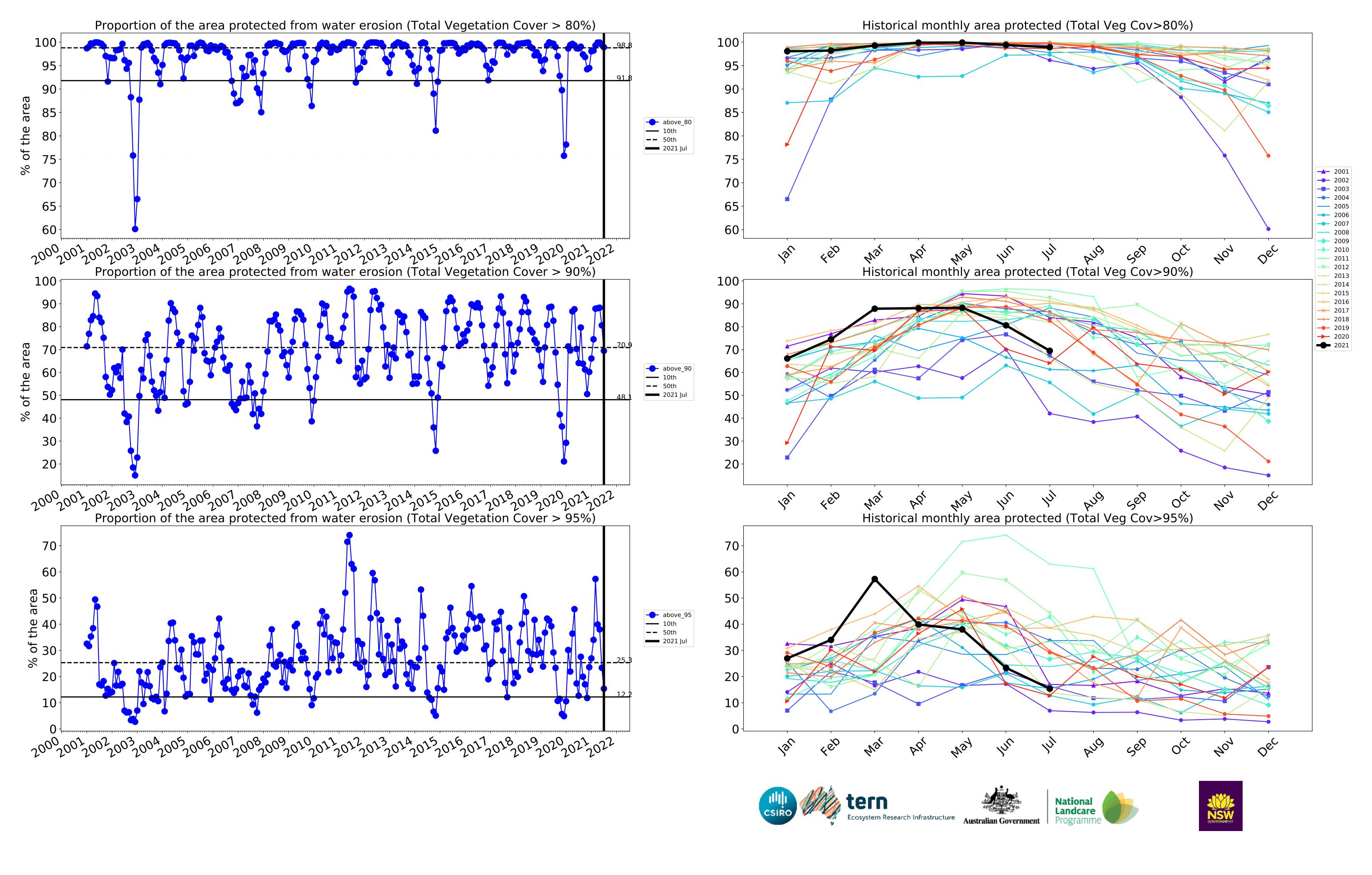




#### **Grazing non forest timeseries**

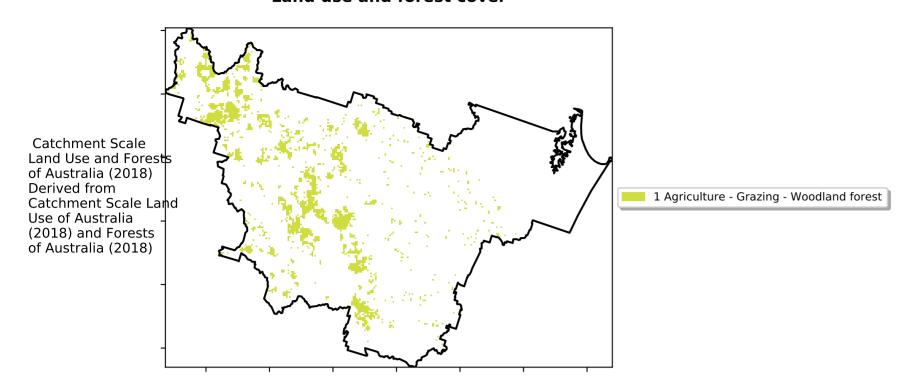




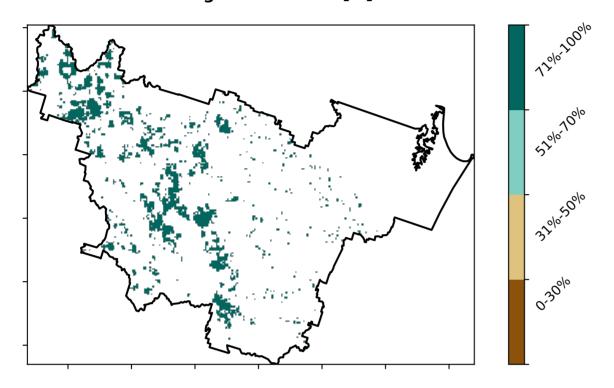


#### **Grazing Woodland forest**

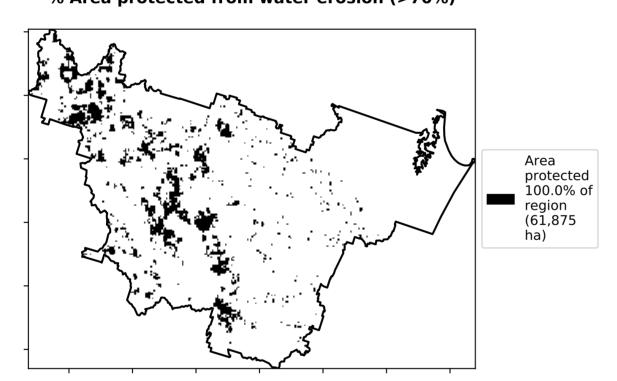
#### Land use and forest cover



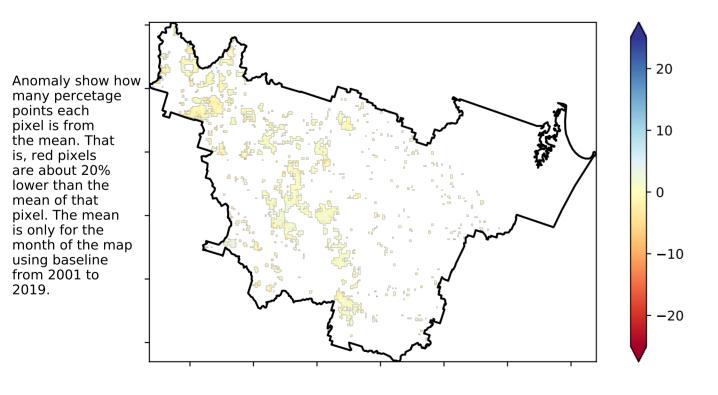
#### Total Vegetation Cover [%]



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

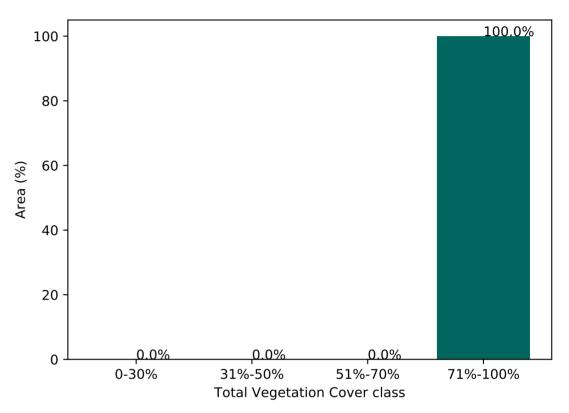


#### Total Vegetation Cover Anomaly [%]

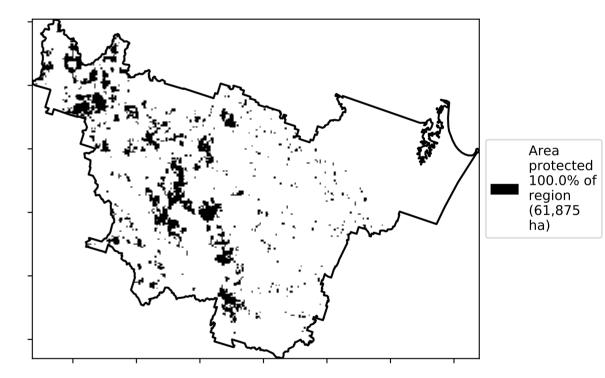


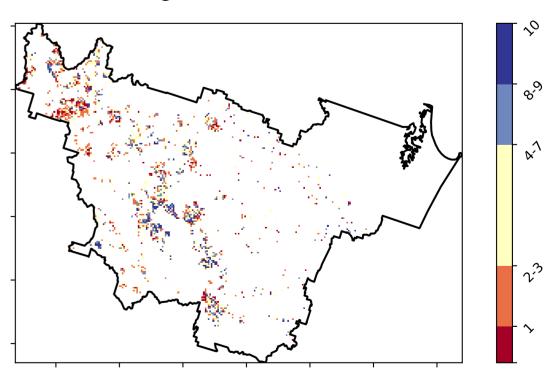
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



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





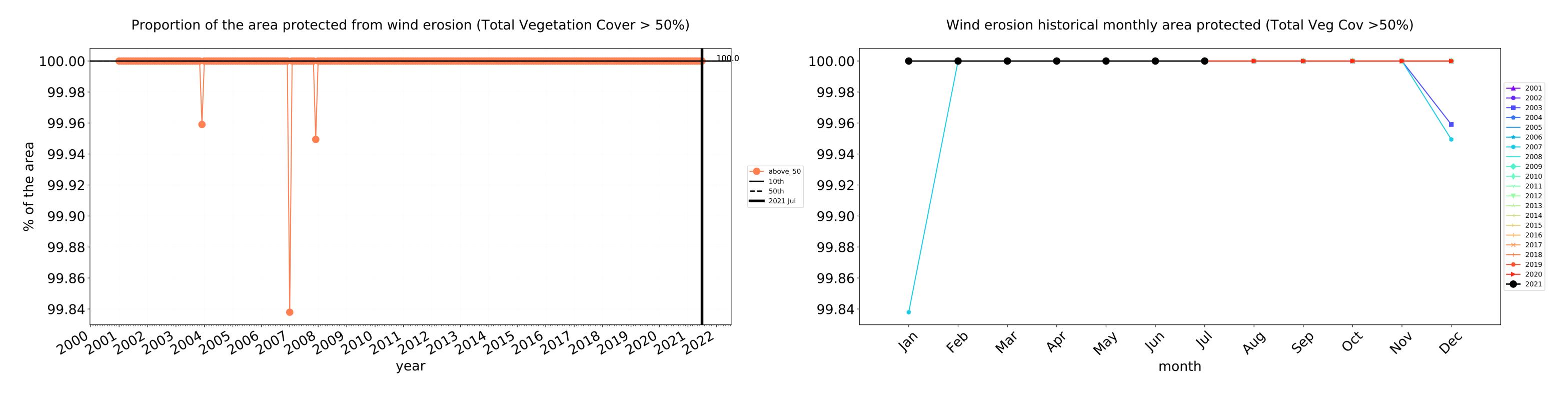


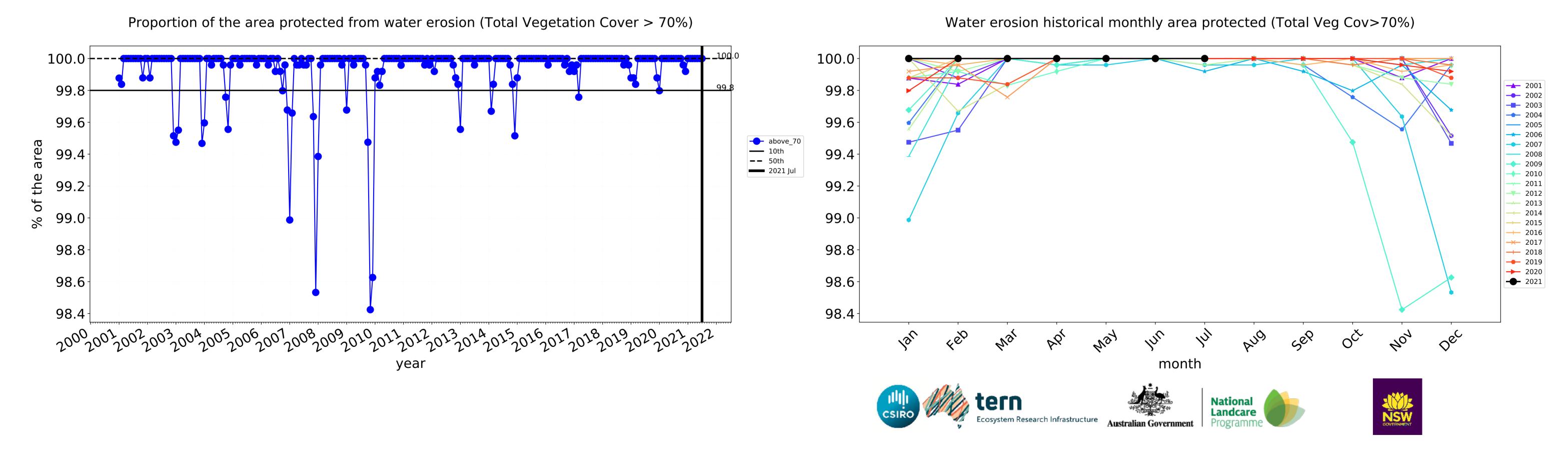


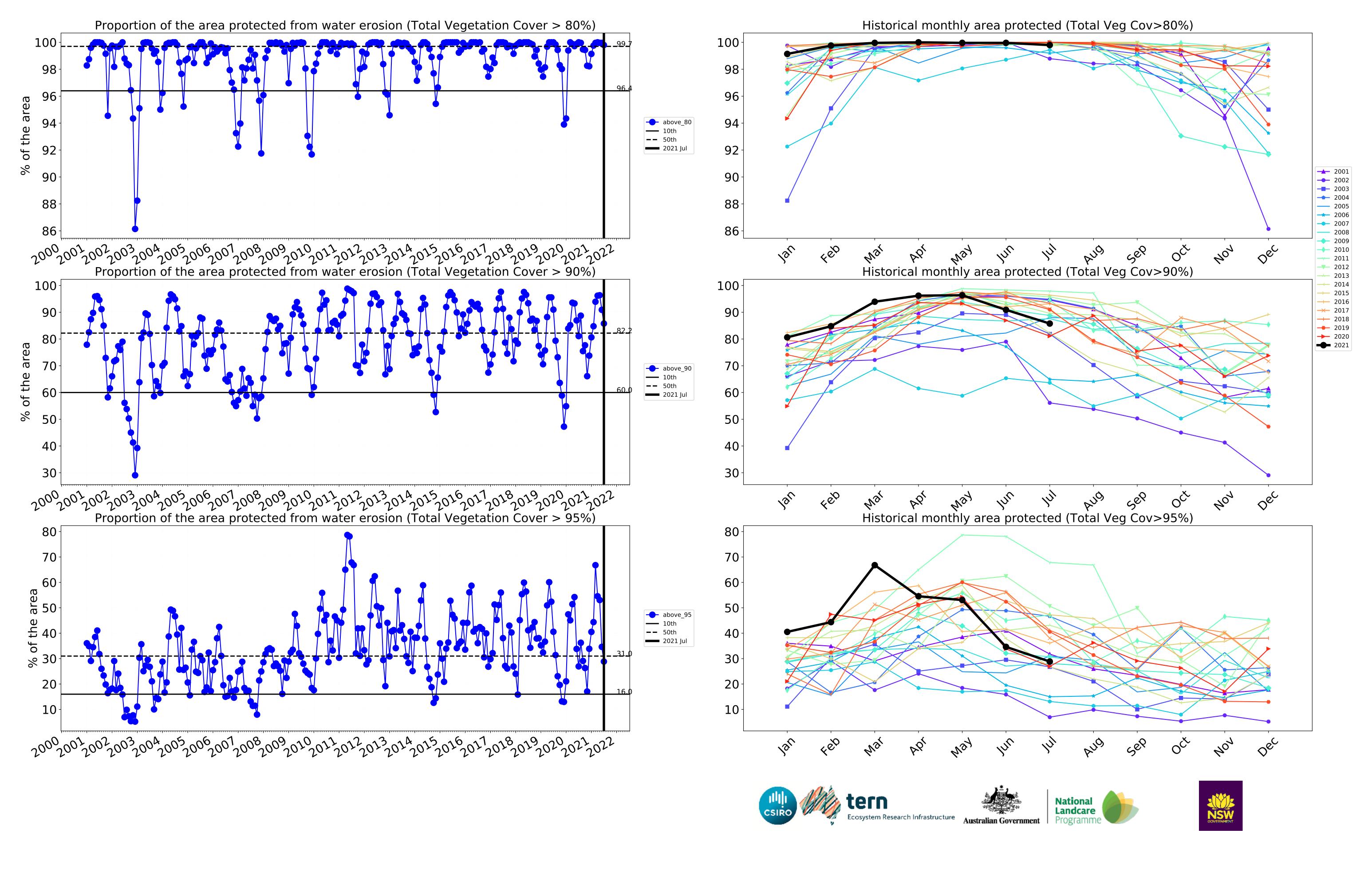




#### **Grazing Woodland forest timeseries**

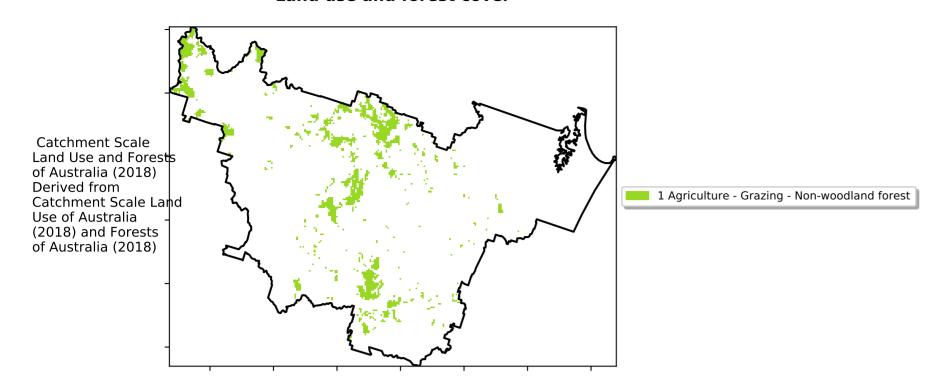




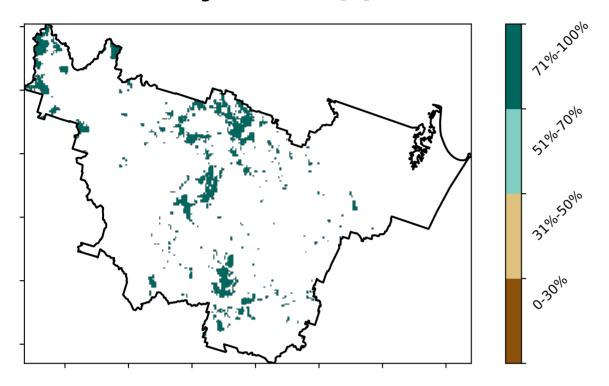


#### **Grazing - Forest (non woodland)**

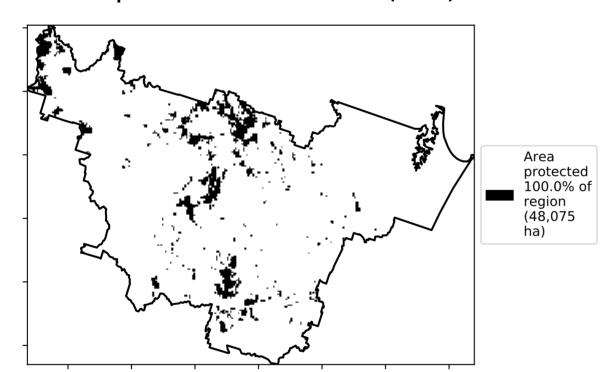
#### Land use and forest cover



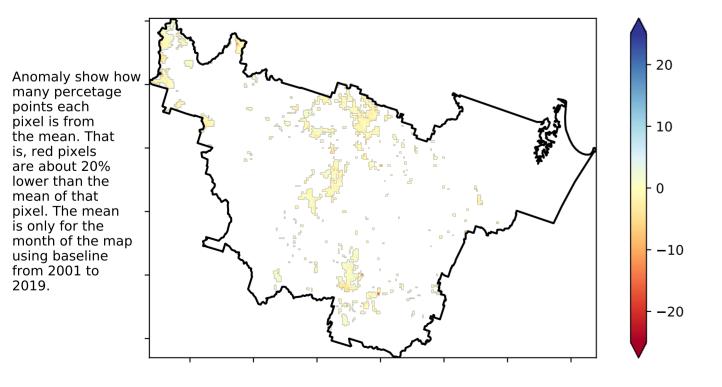
#### Total Vegetation Cover [%]



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

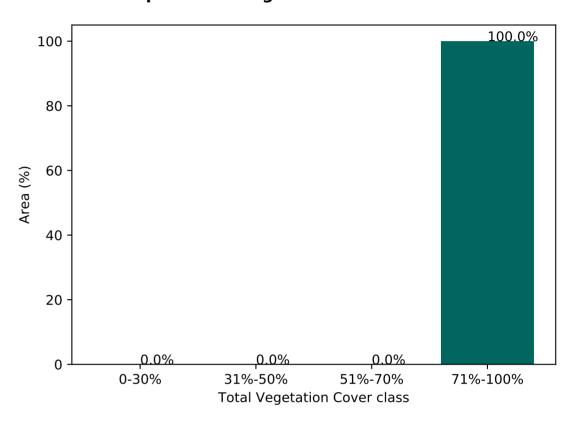


#### Total Vegetation Cover Anomaly [%]

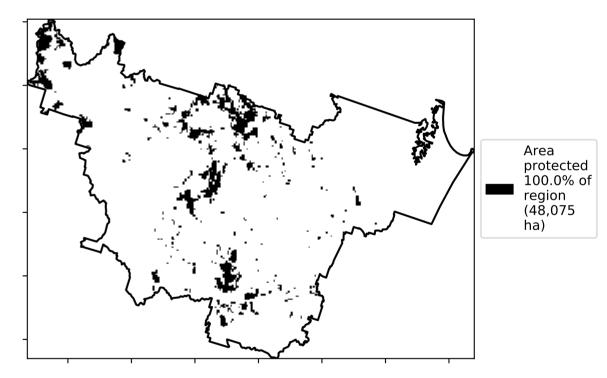


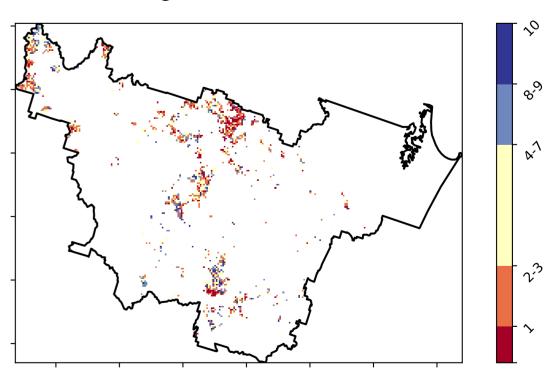
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

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



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



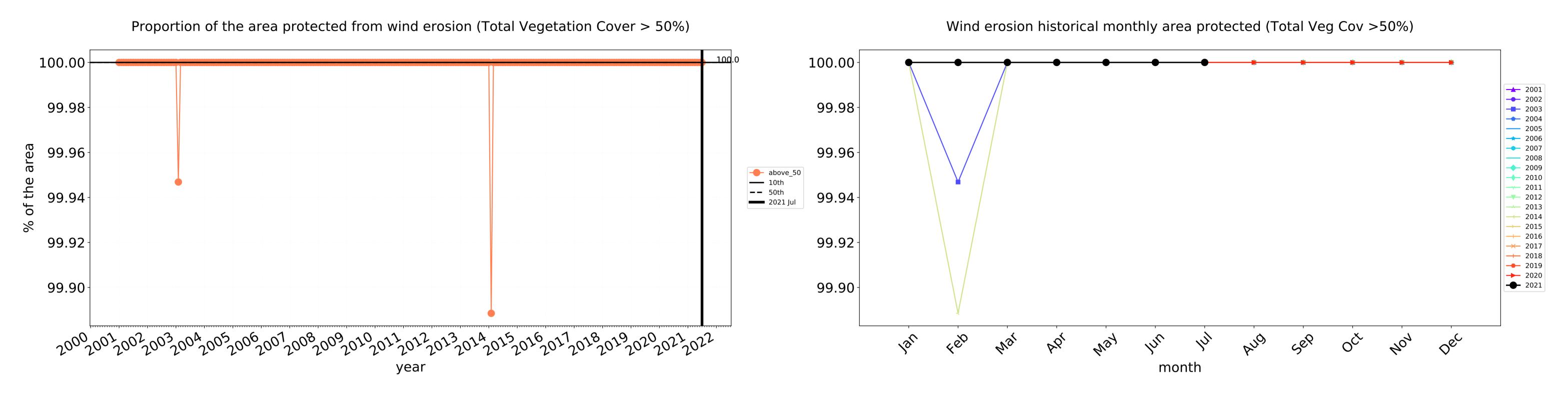


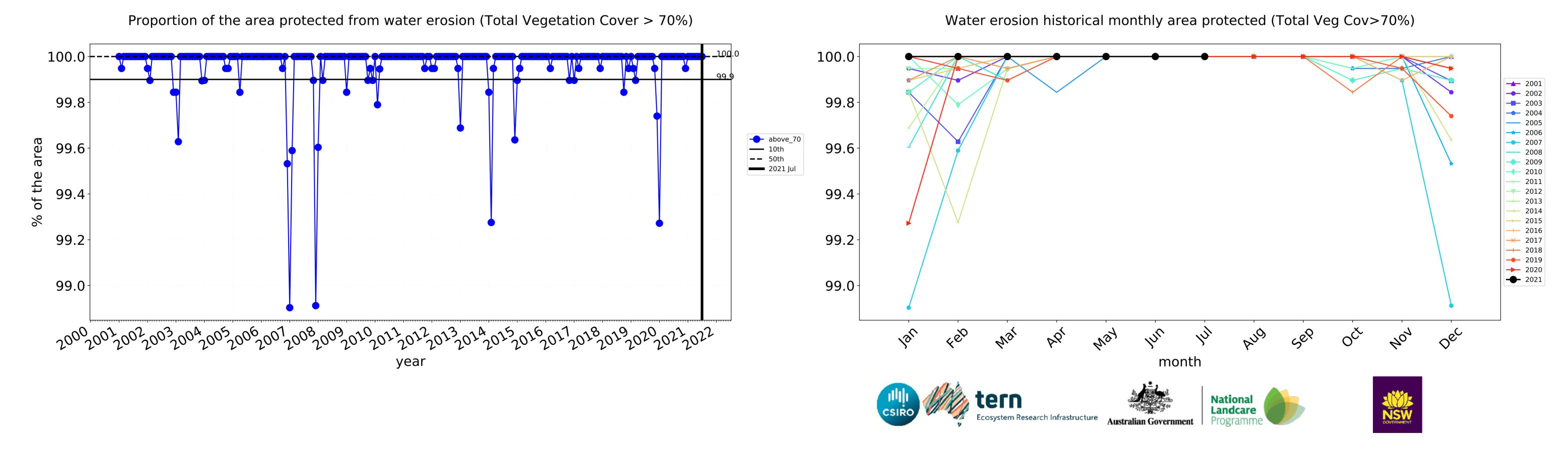


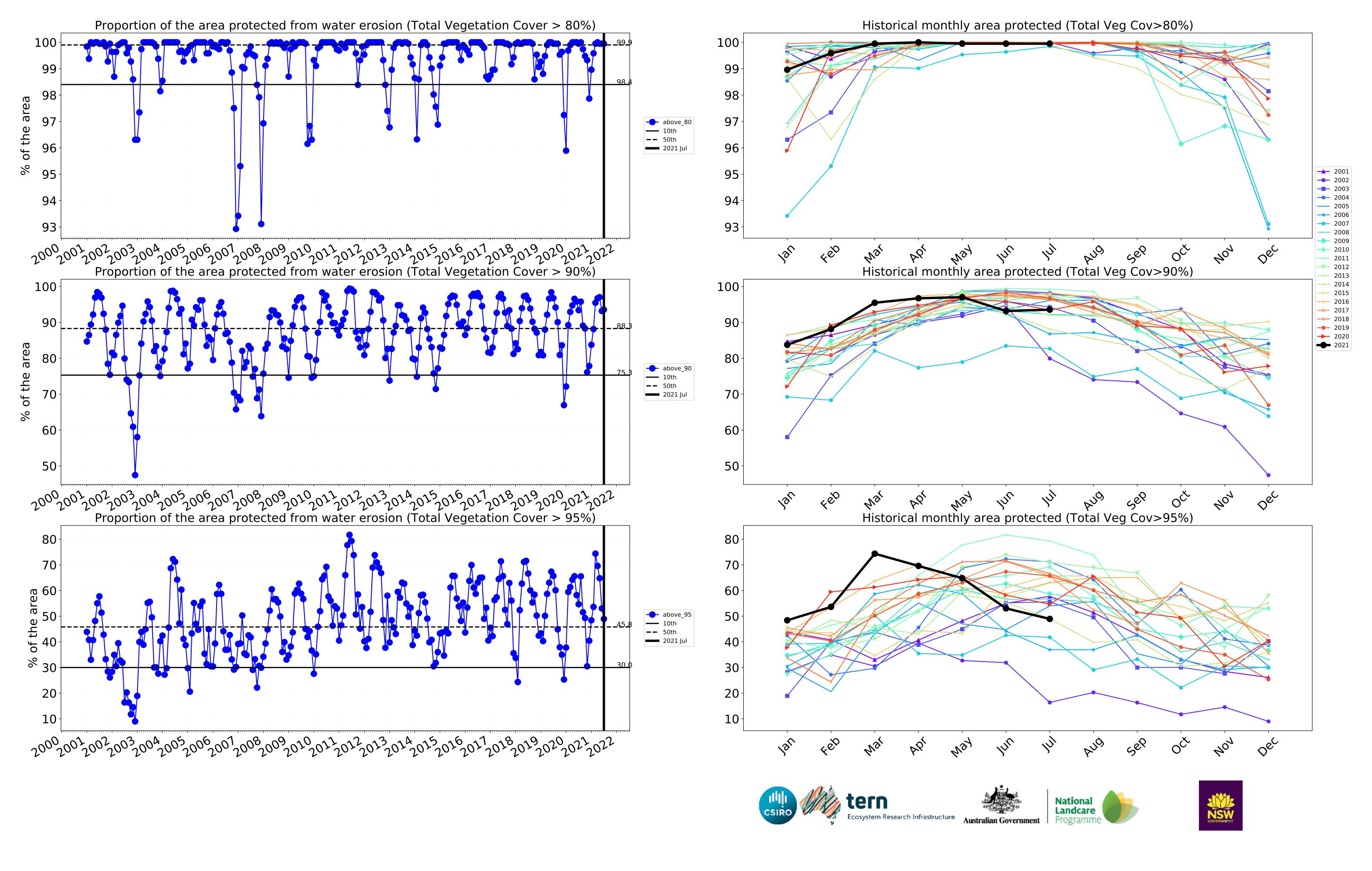




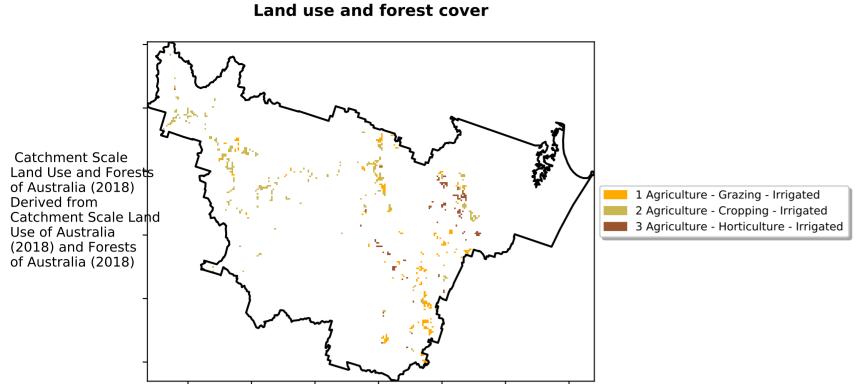


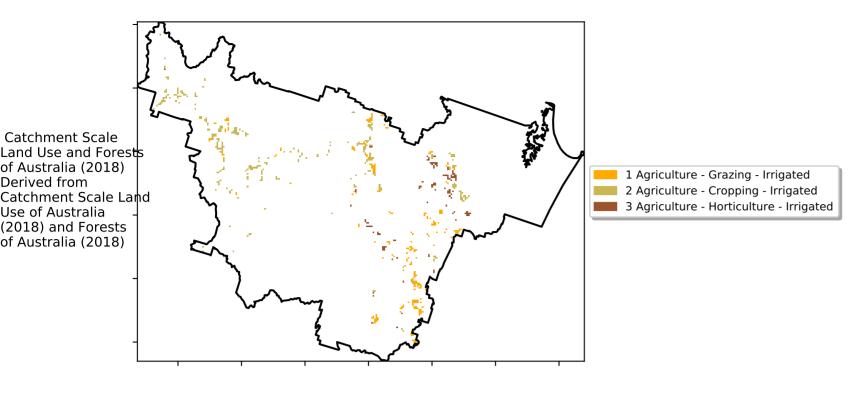


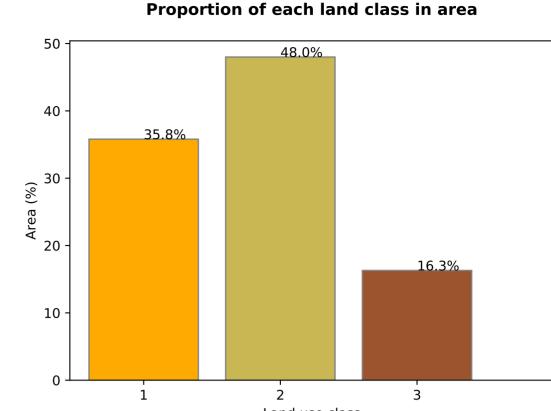


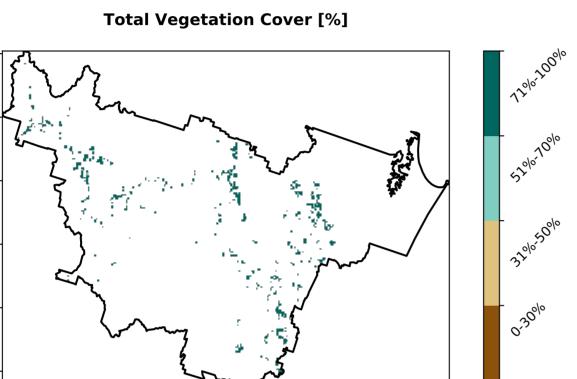


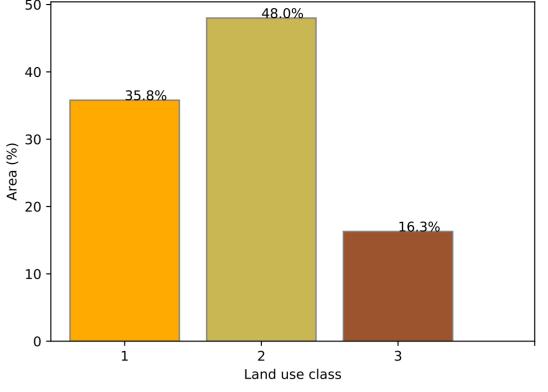
#### **Irrigation**





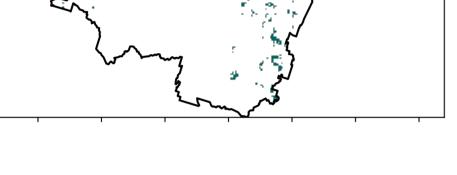






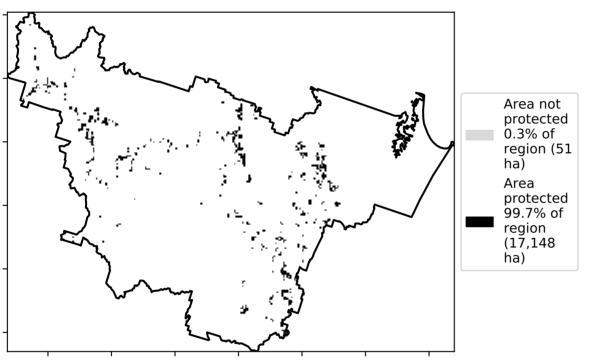
Proportion of vegetation cover class in area

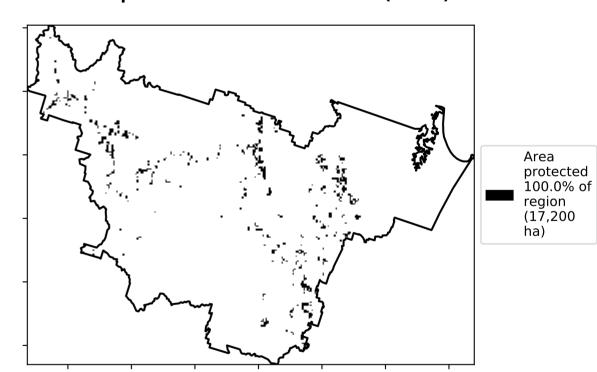
#### 99.7% 100 80 Area (%) 40 20 -0.0% 0.0% 0.3% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**

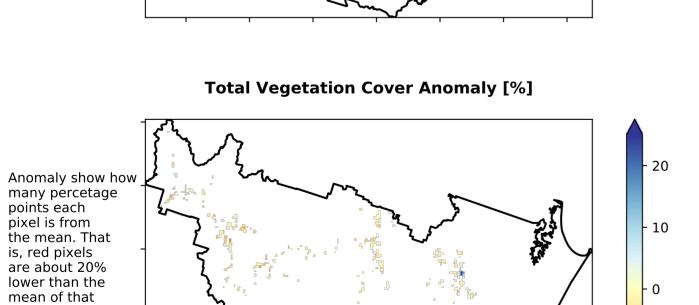


% Area protected from water erosion (>70%)

% Area protected from wind erosion (>50%)







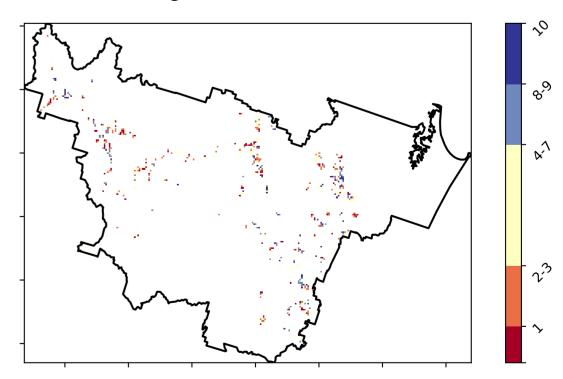
pixel. The mean

month of the map

is only for the

using baseline from 2001 to 2019.

**Total Vegetation Cover Decile [%]** 



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.





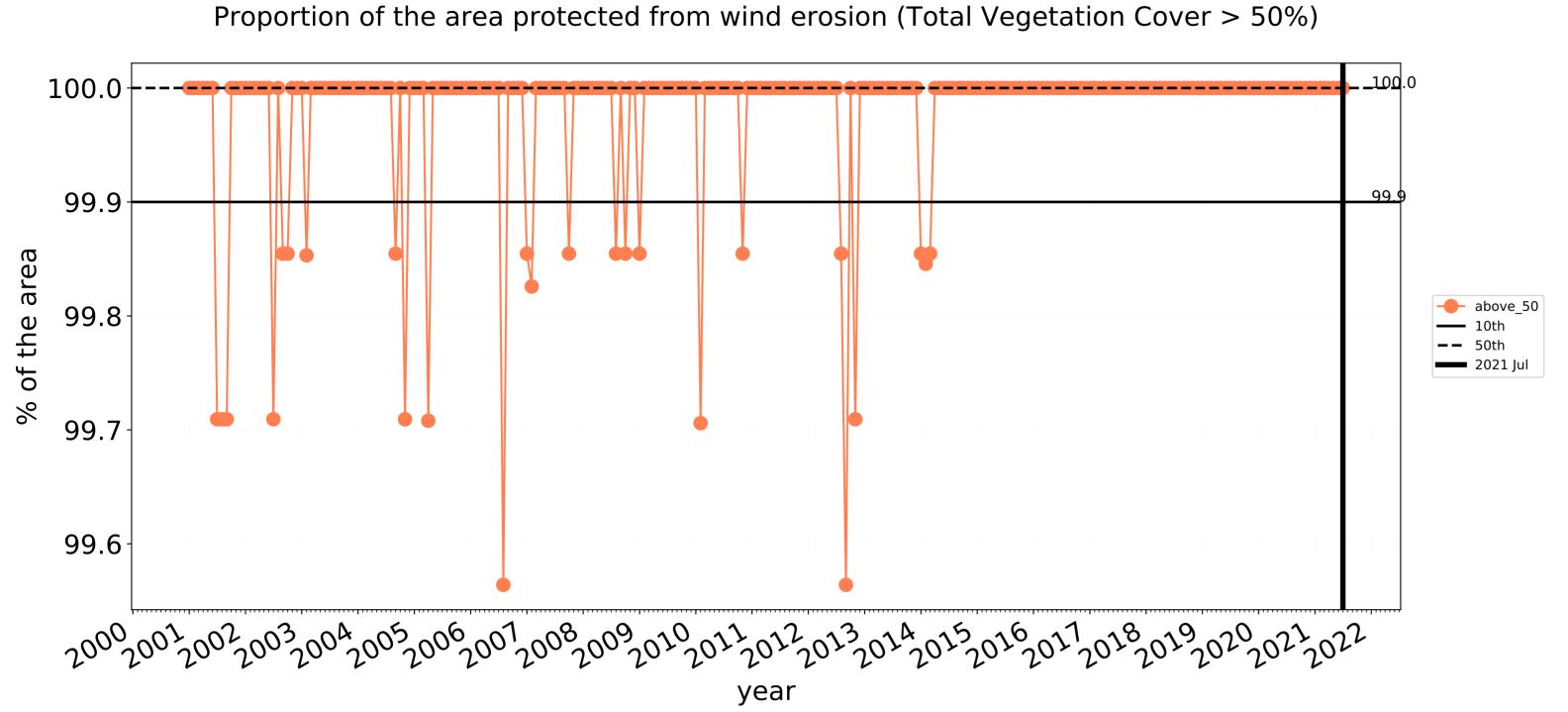


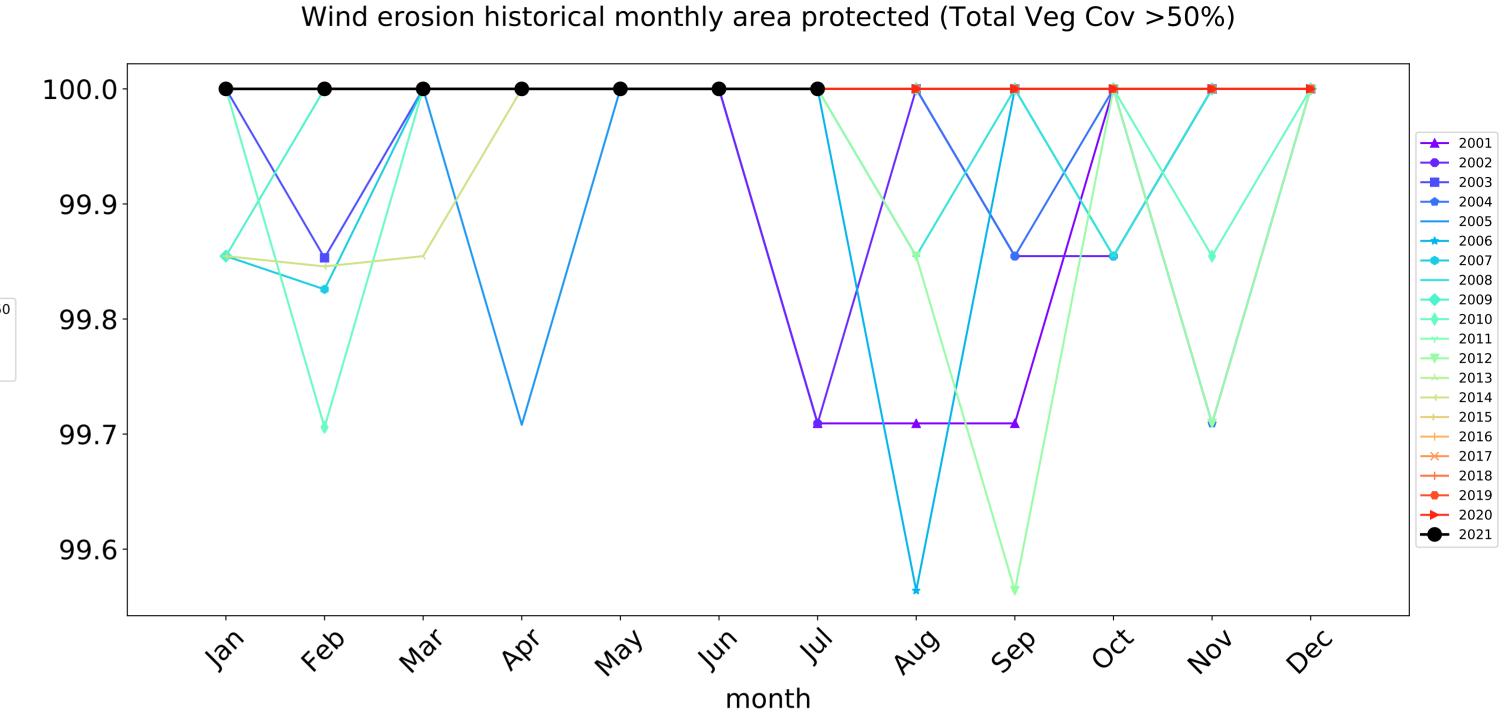


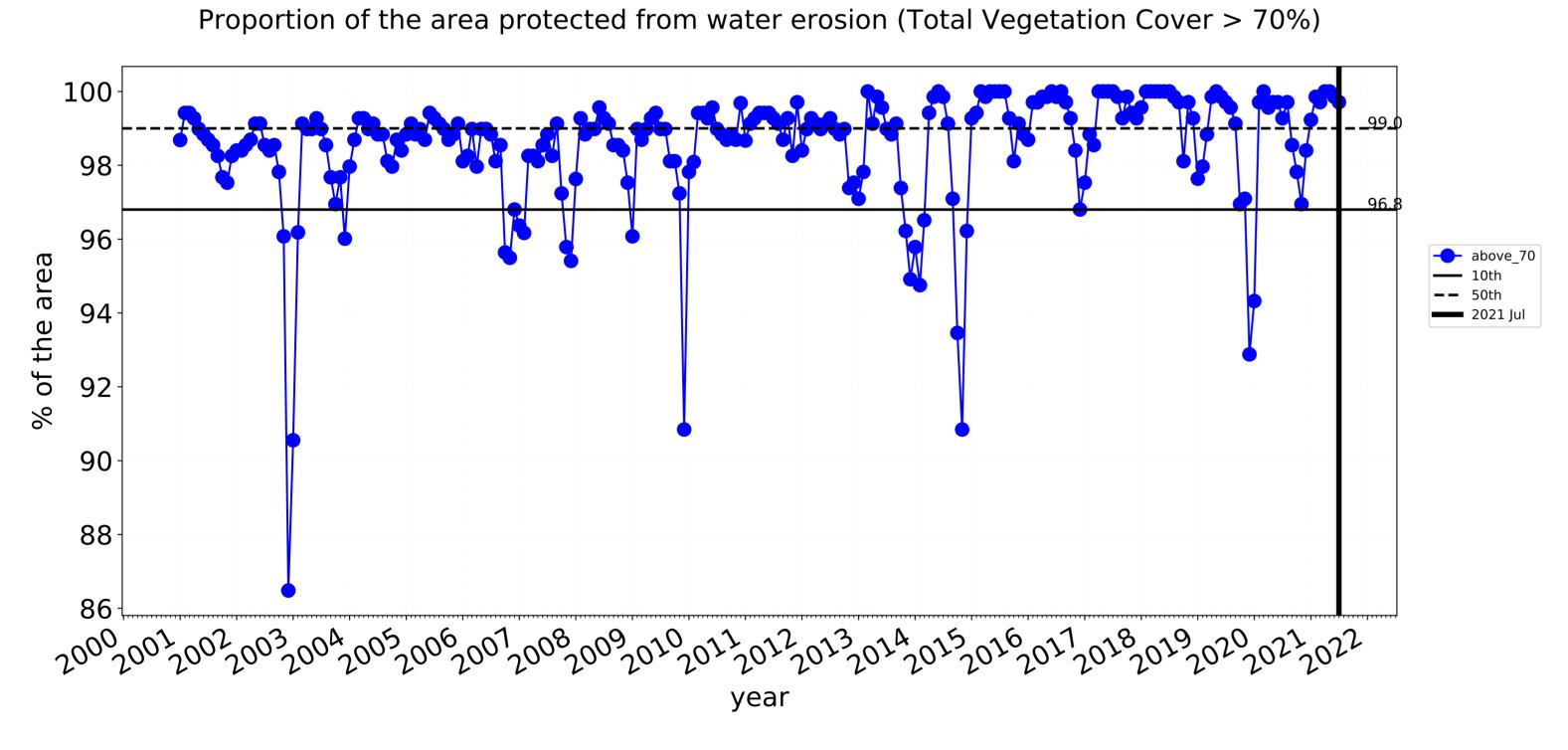
-10

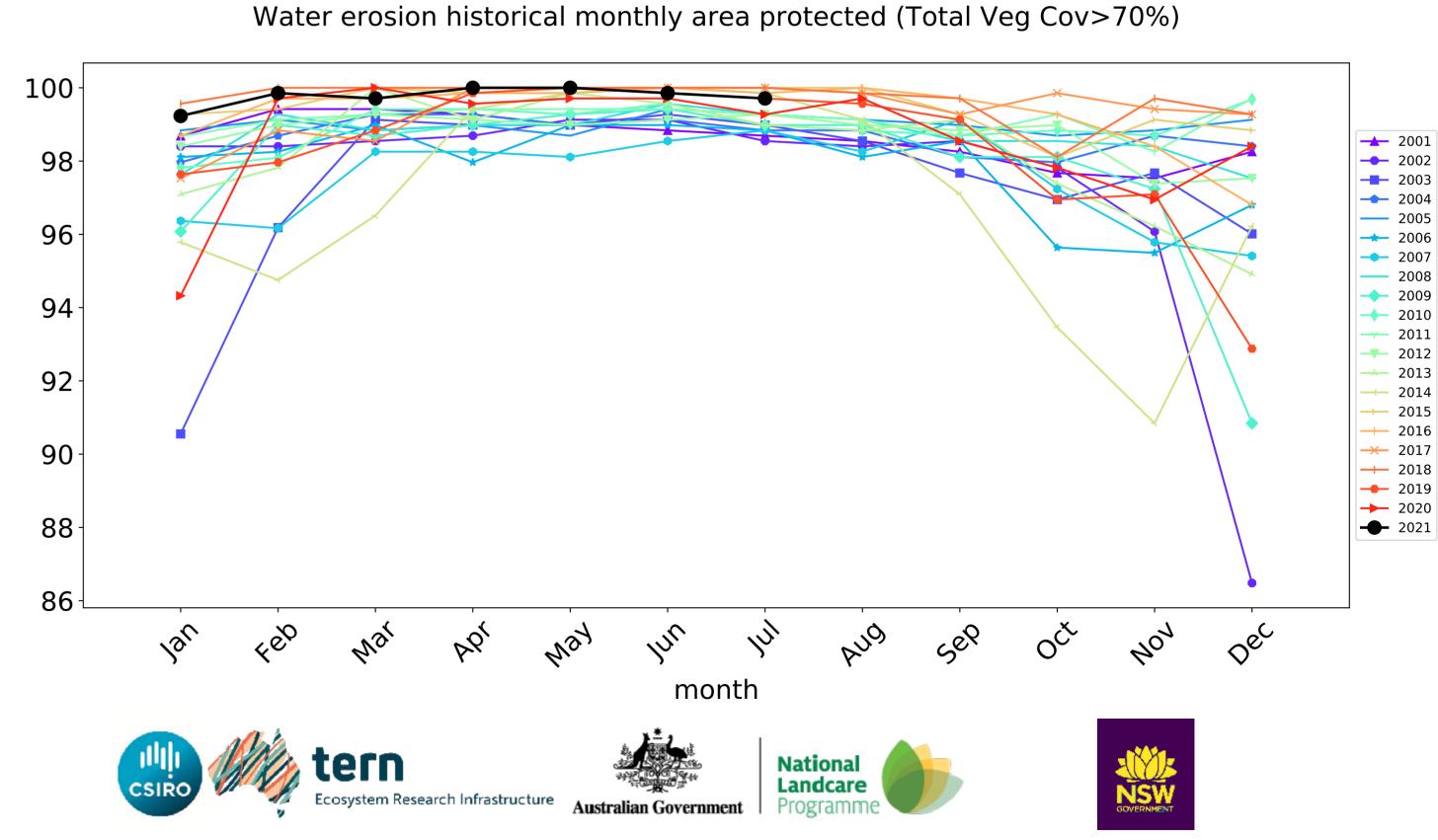
**-**20

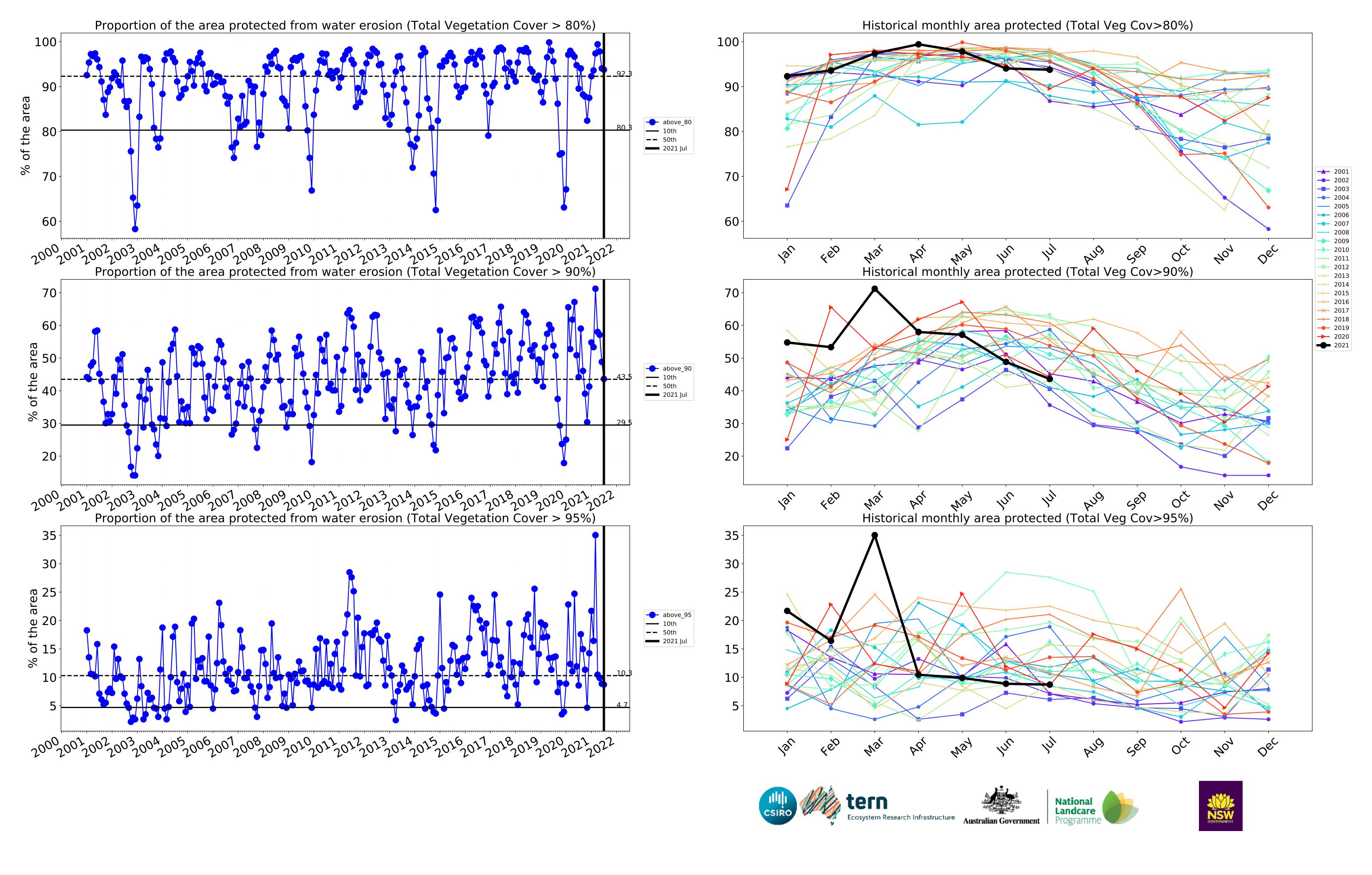
#### Irrigation timeseries





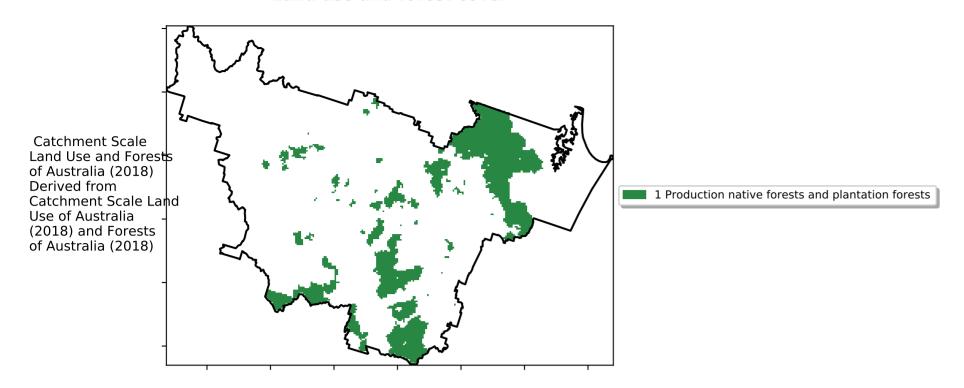




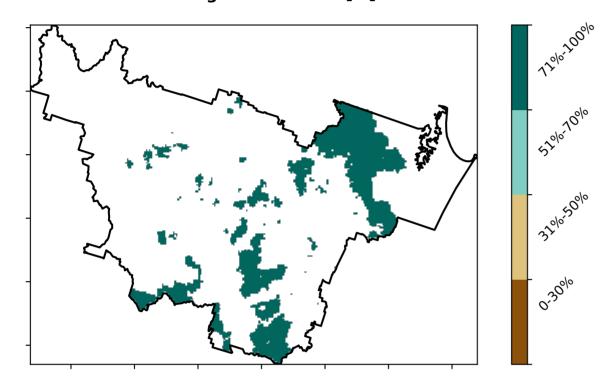


#### **Production native forests and plantation forests**

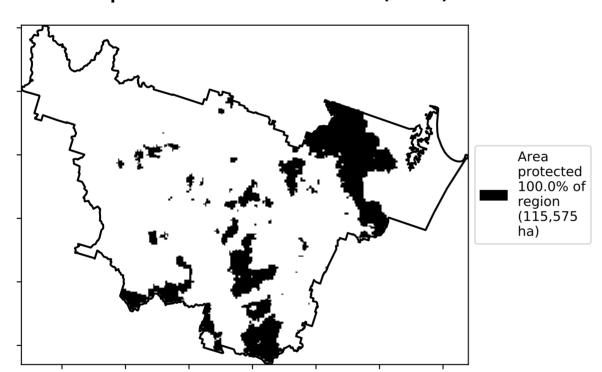
#### Land use and forest cover



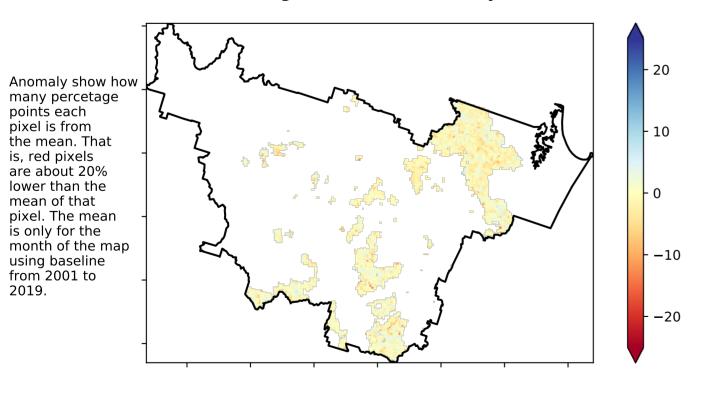
#### **Total Vegetation Cover [%]**



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

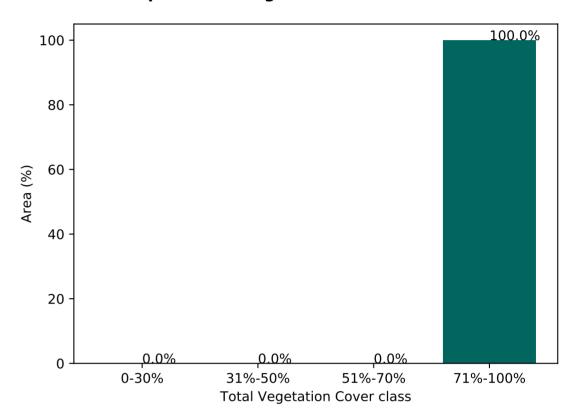


#### **Total Vegetation Cover Anomaly [%]**

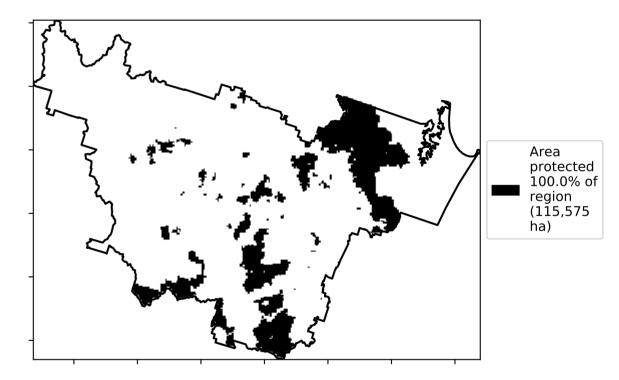


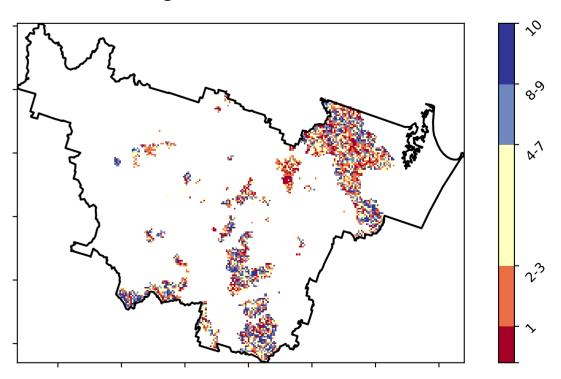
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

#### Proportion of vegetation cover class in area



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





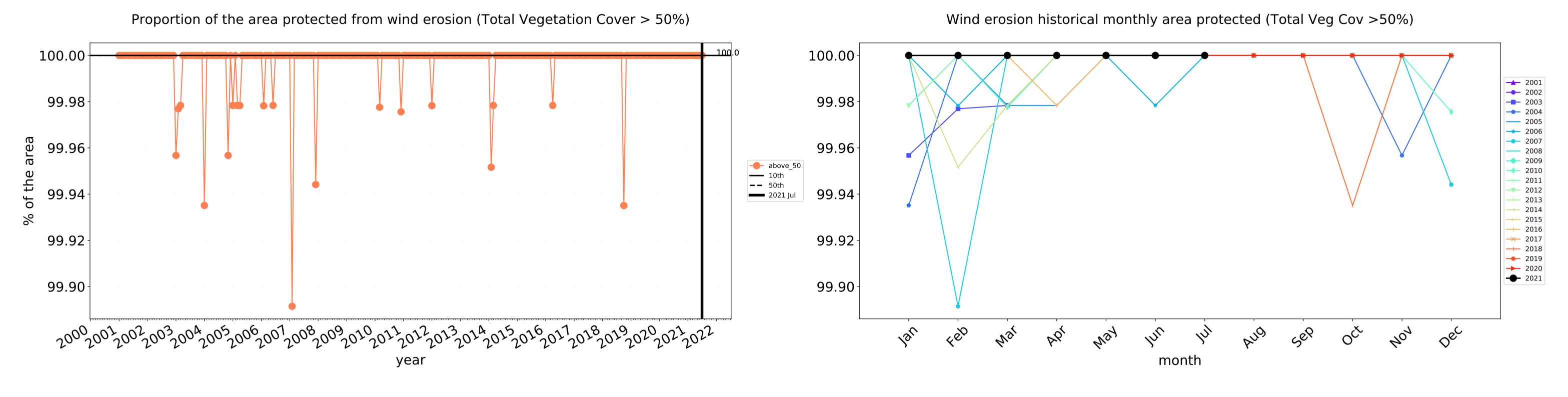


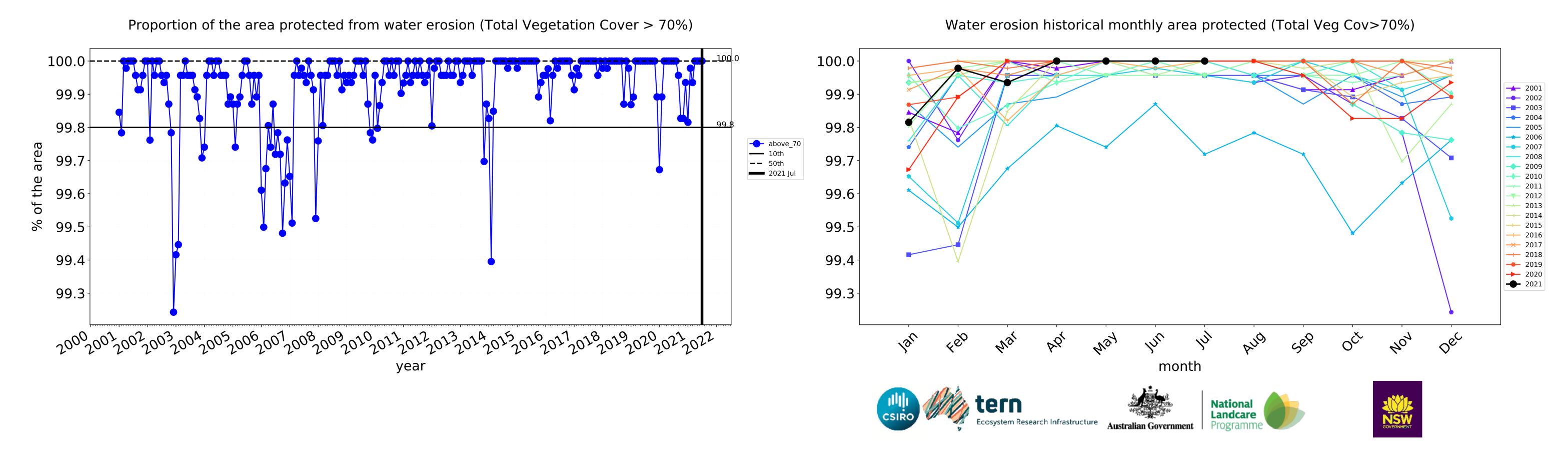


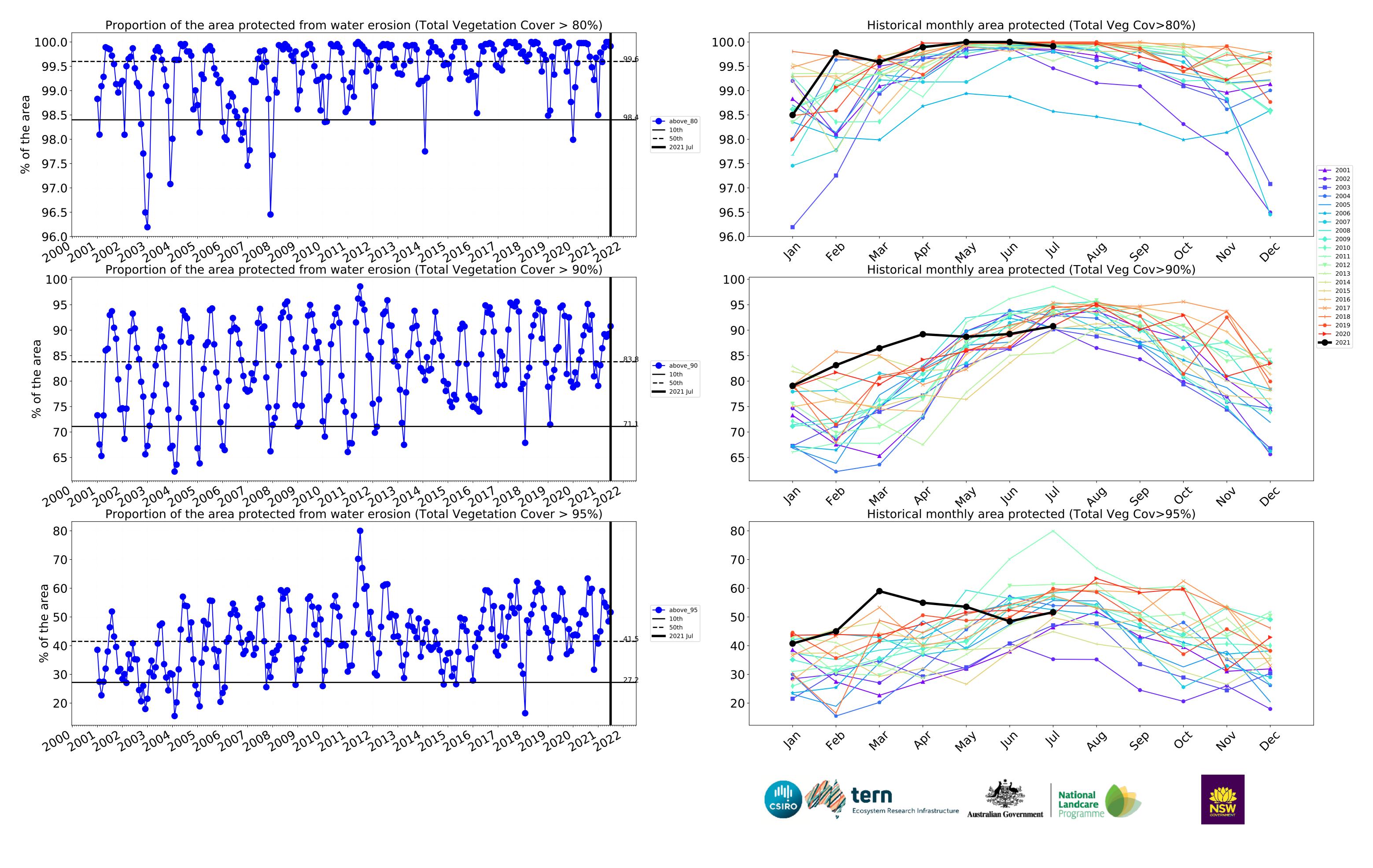




#### **Production native forests and plantation forests timeseries**







### Gympie\_(R) (686,800 ha and no data 1,575 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	686,800	100.0% 686,725	100.0% 686,525	99.9% 685,950	99.0% 679,950	80.7% 554,100	35.2% 242,000
Conservation and natural environments	142,400	99.9% 142,325	99.8% 142,125	99.7% 141,950	99.3% 141,350	93.7% 133,475	64.7% 92,100
Conservation and natural environments non forest	9,950	99.7% 9,925	99.2% 9,875	98.7% 9,825	98.0% 9,750	91.5% 9,100	48.5% 4,825
Conservation and natural environments Woodland forest	28,700	100.0% 28,700	99.8% 28,650	99.7% 28,600	99.1% 28,450	91.9% 26,375	55.4% 15,900
Conservation and natural environments Forest (non woodland)	103,750	100.0% 103,700	99.9% 103,600	99.8% 103,525	99.4% 103,150	94.5% 98,000	68.8% 71,375
Agriculture	397,600	100.0% 397,600	100.0% 397,600	100.0% 397,500	99.0% 393,500	73.8% 293,500	21.2% 84,325
Grazing	377,625	100.0% 377,625	100.0% 377,625	100.0% 377,575	99.2% 374,600	75.2% 284,025	21.8% 82,500
Grazing non forest	267,675	100.0% 267,675	100.0% 267,675	100.0% 267,625	98.9% 264,800	69.5% 185,975	15.4% 41,125
Grazing Woodland forest	61,875	100.0% 61,875	100.0% 61,875	100.0% 61,875	99.8% 61,750	85.8% 53,075	28.8% 17,850
Grazing - Forest (non woodland)	48,075	100.0% 48,075	100.0% 48,075	100.0% 48,075	99.9% 48,050	93.6% 44,975	48.9% 23,525
Irrigation	17,200	100.0% 17,200	100.0% 17,200	99.7% 17,150	93.8% 16,125	43.6% 7,500	8.7% 1,500
Production native forests and plantation forests	115,575	100.0% 115,575	100.0% 115,575	100.0% 115,575	99.9% 115,475	90.8% 104,925	51.7% 59,700







