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: November 2022

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



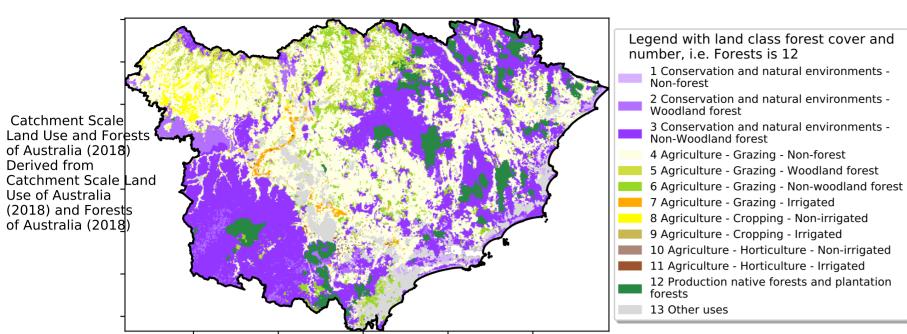




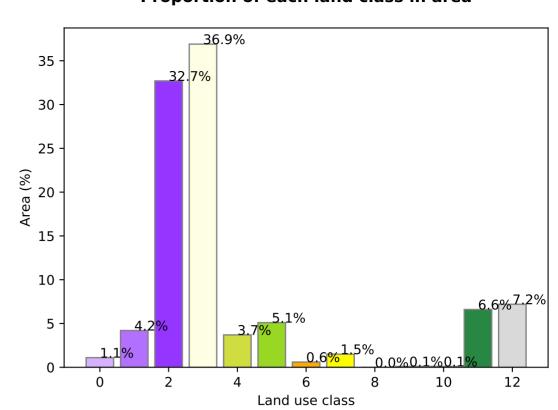


Vegetation Cover Nov 2022

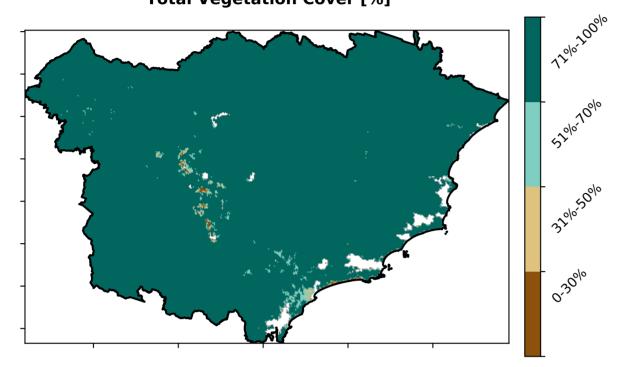
Land use and forest cover



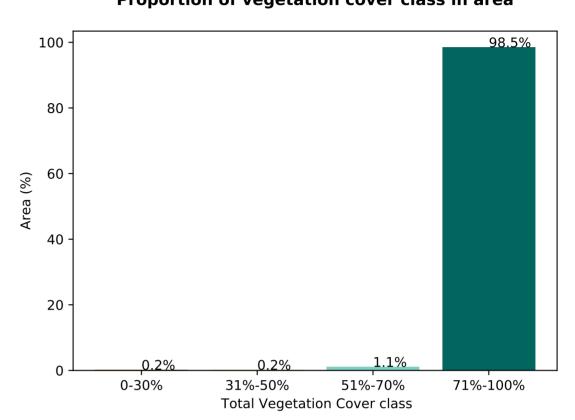
Proportion of each land class in area



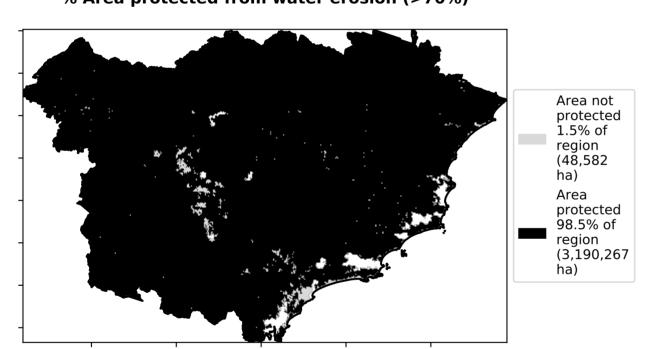
Total Vegetation Cover [%]



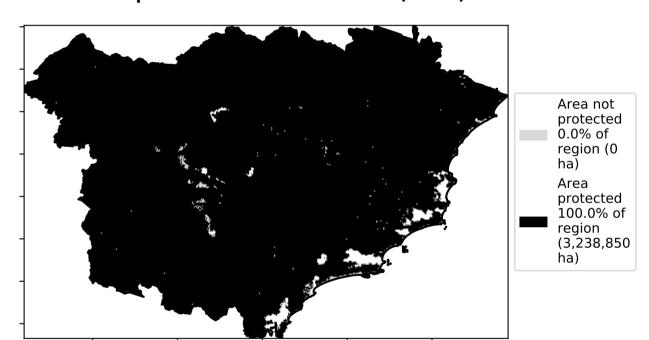
Proportion of vegetation cover class in area



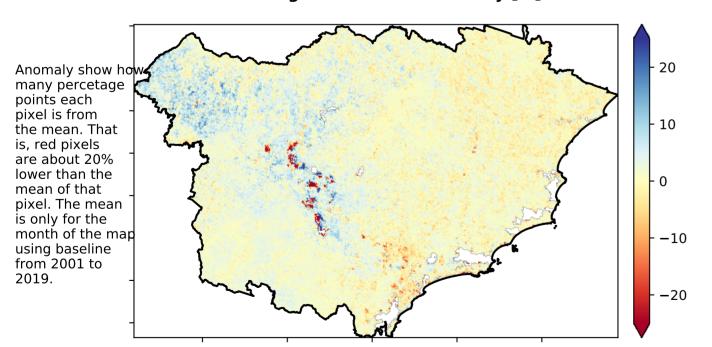
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

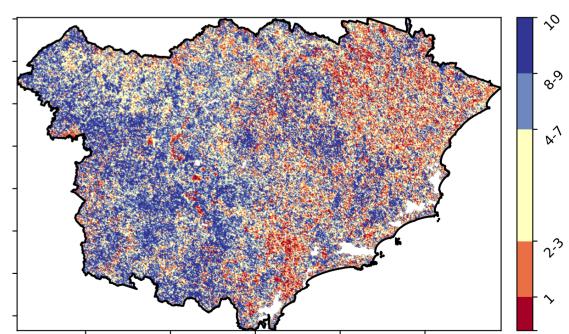


Total Vegetation Cover Anomaly [%]



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.

Total Vegetation Cover Decile [%]

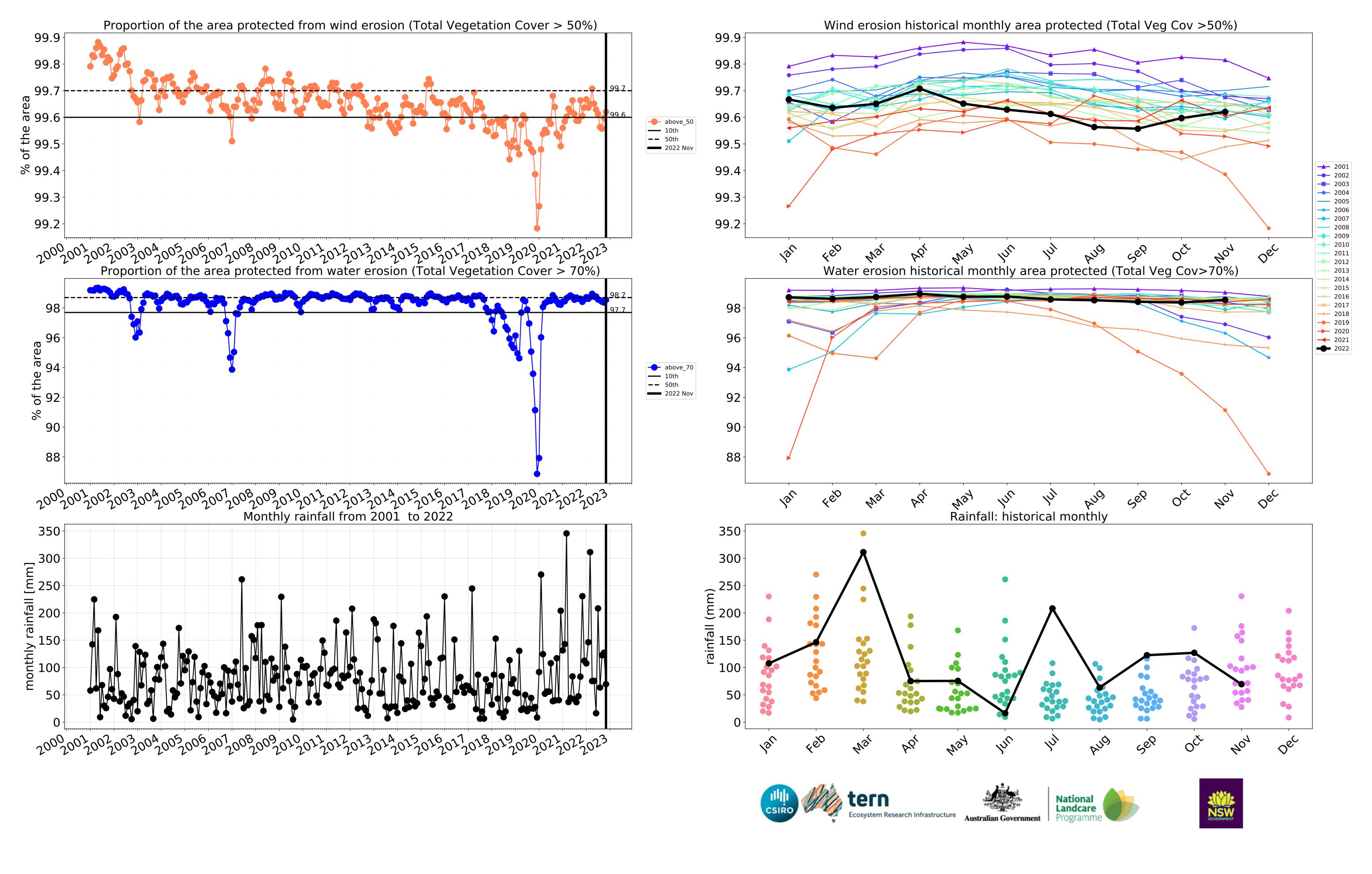


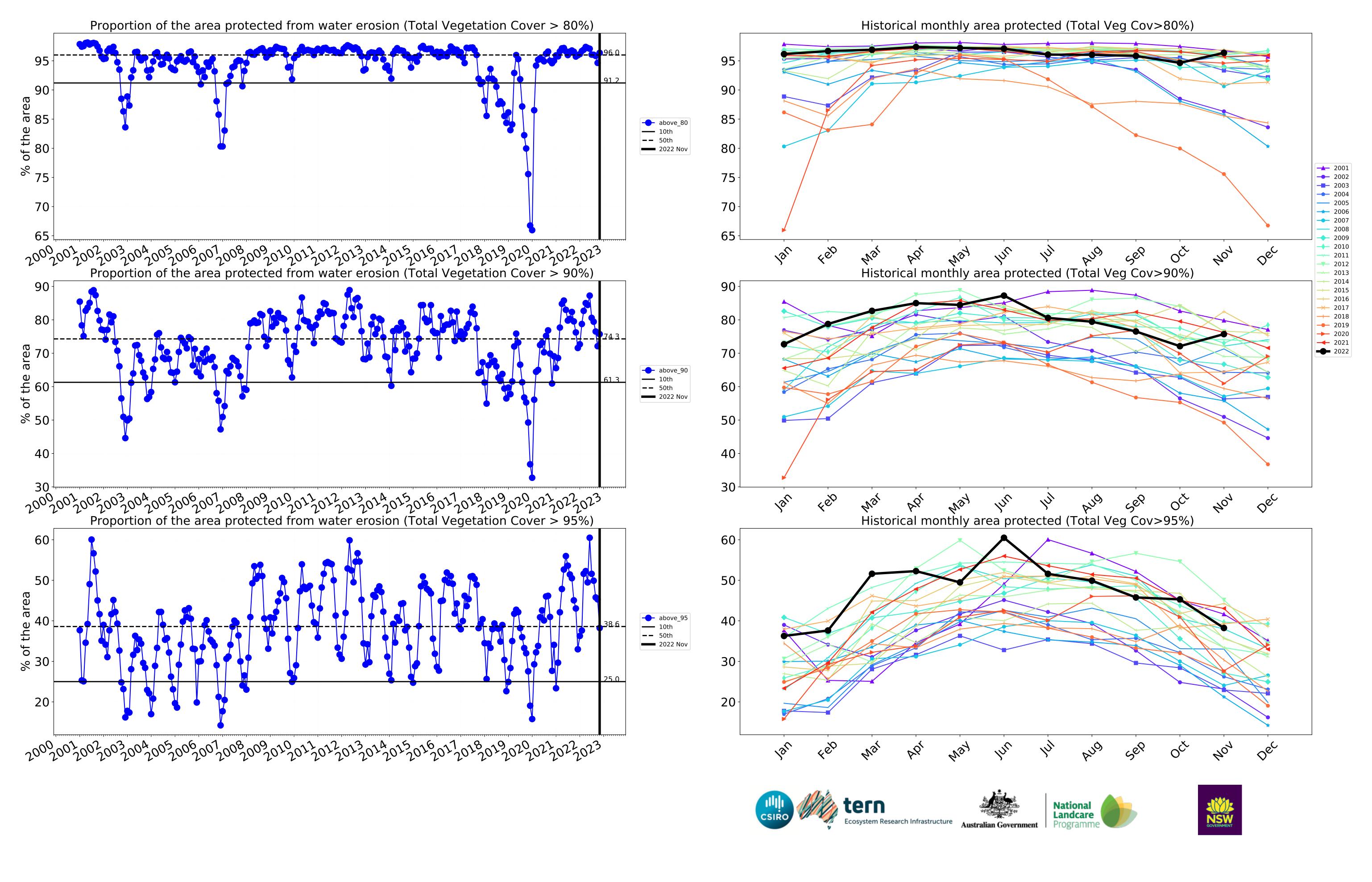




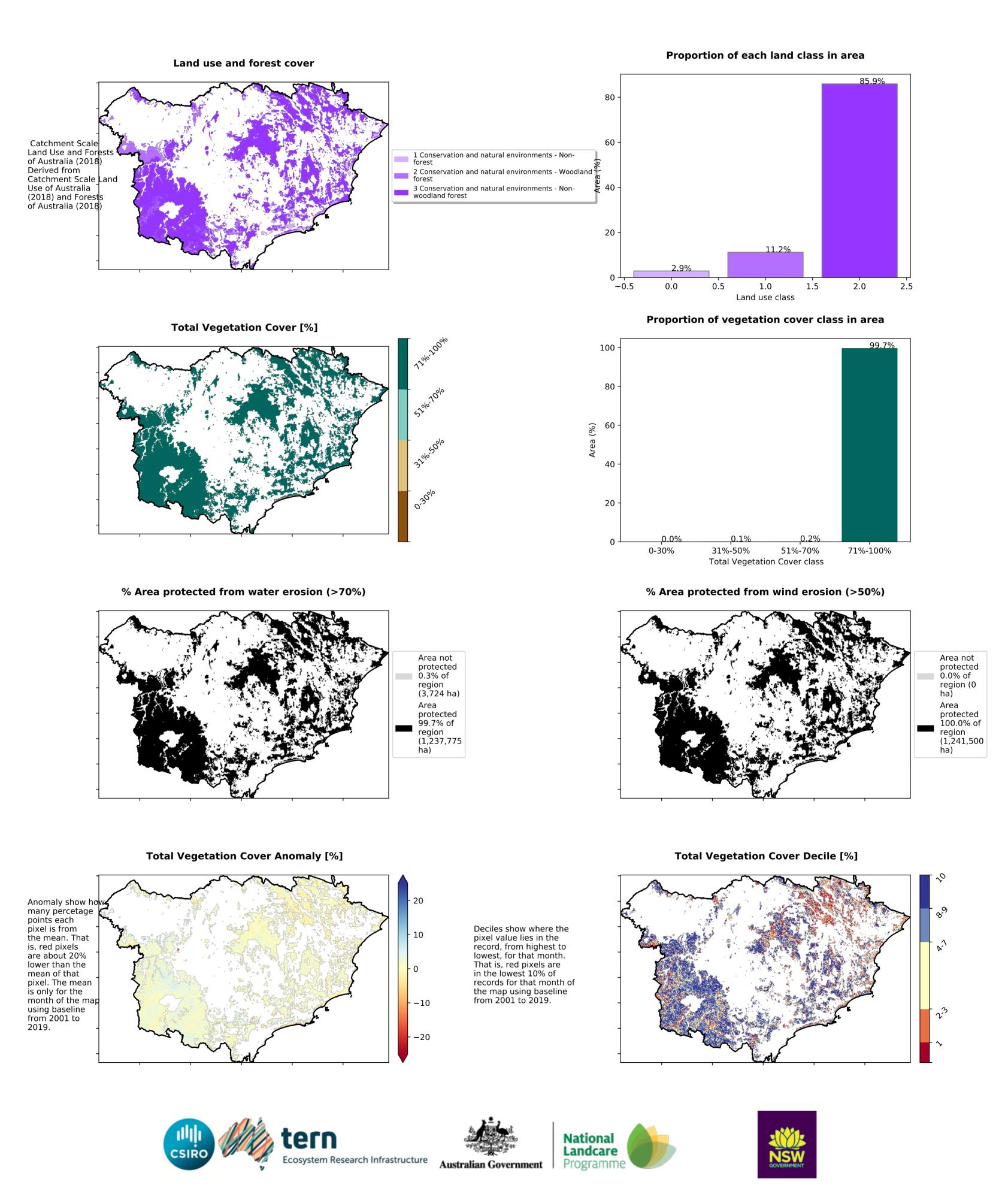




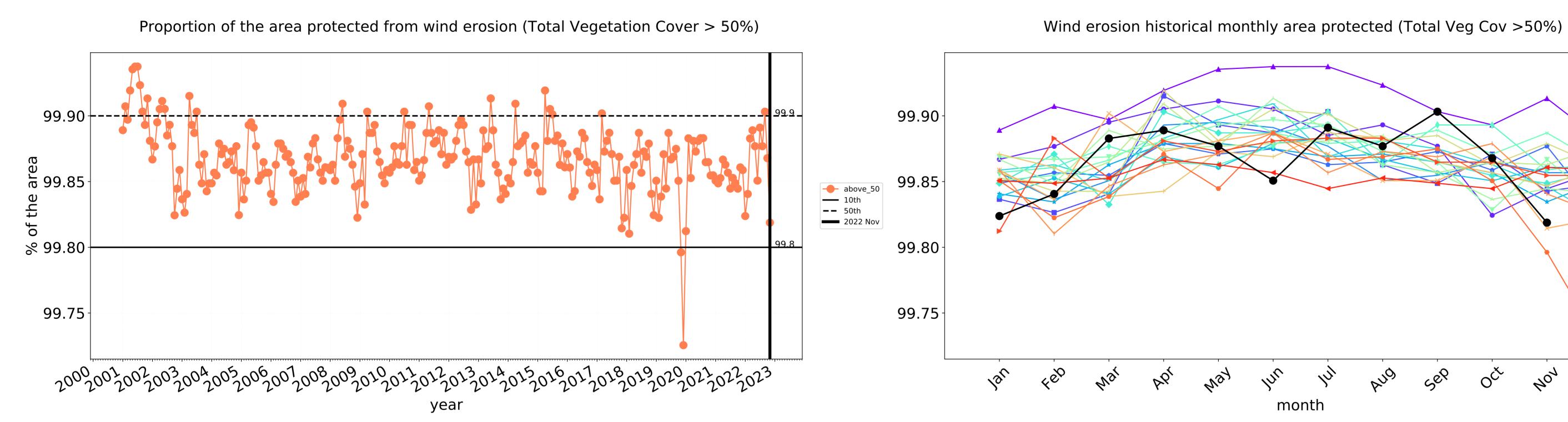


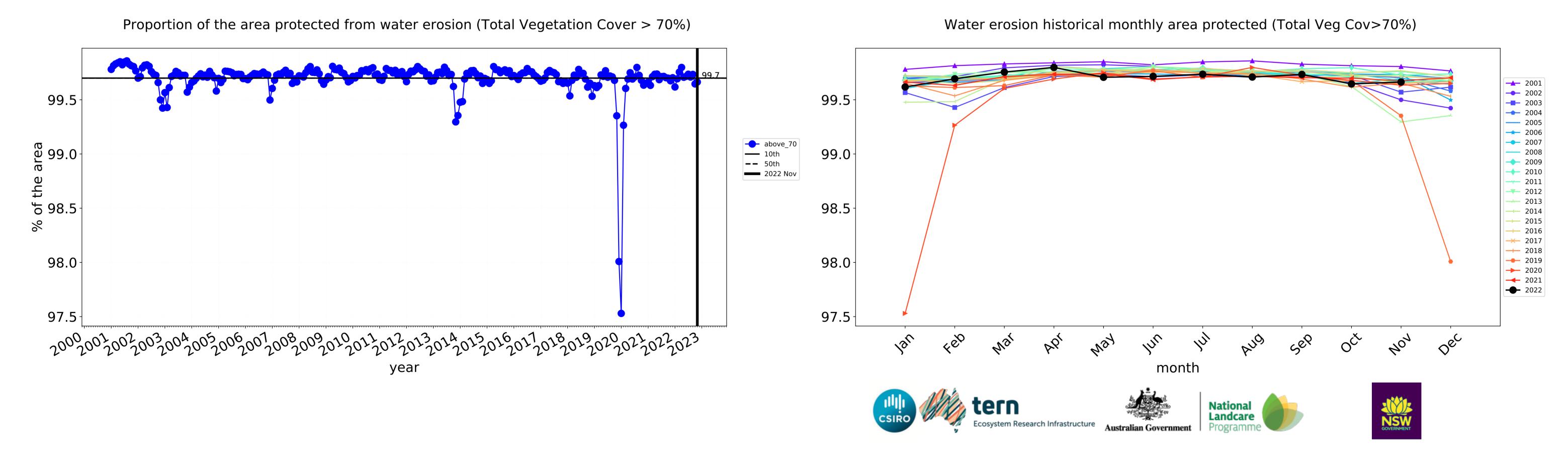


Conservation and natural environments



Conservation and natural environments timeseries

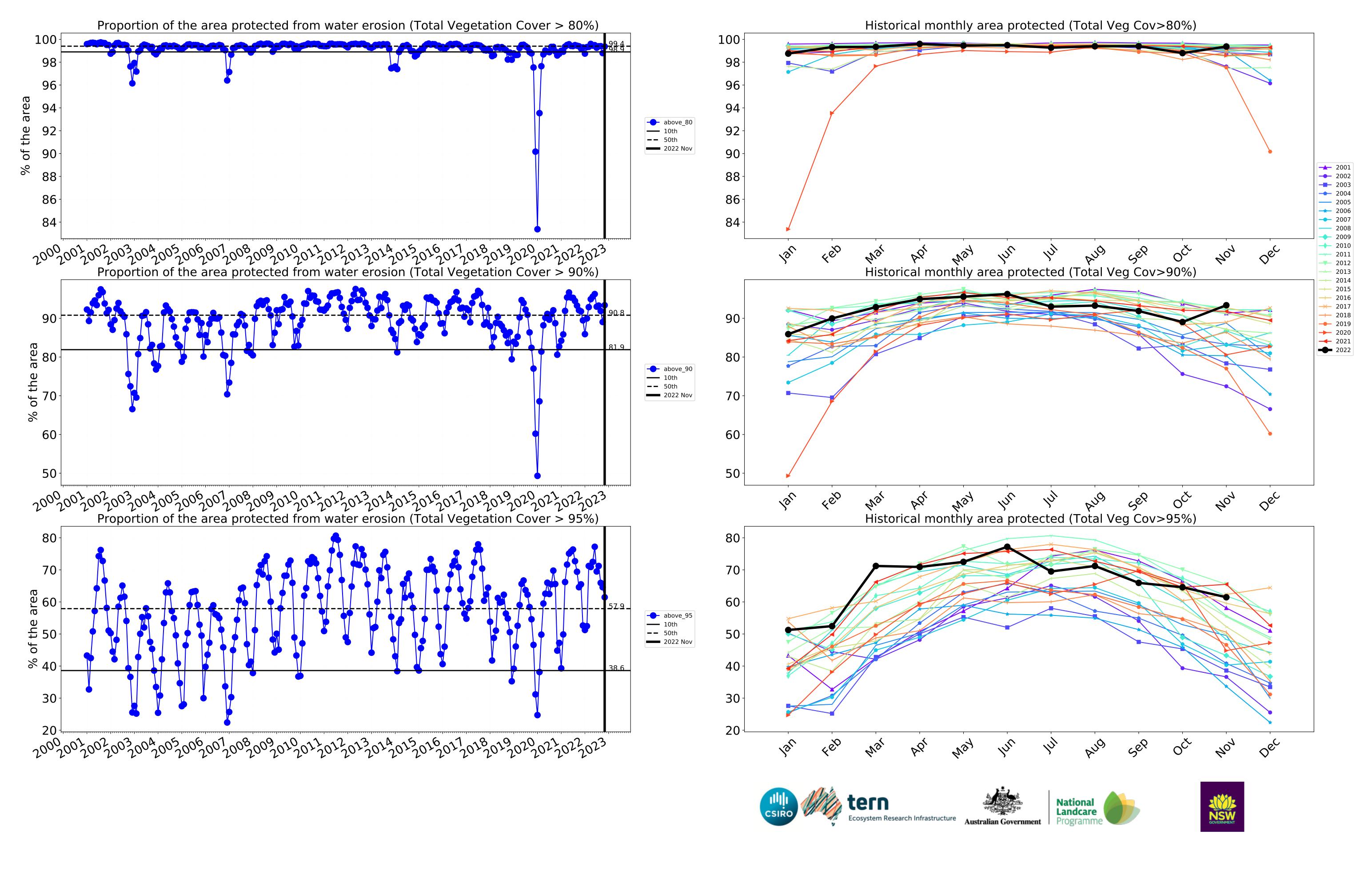




2016
2017
2018
2019

→ 2021

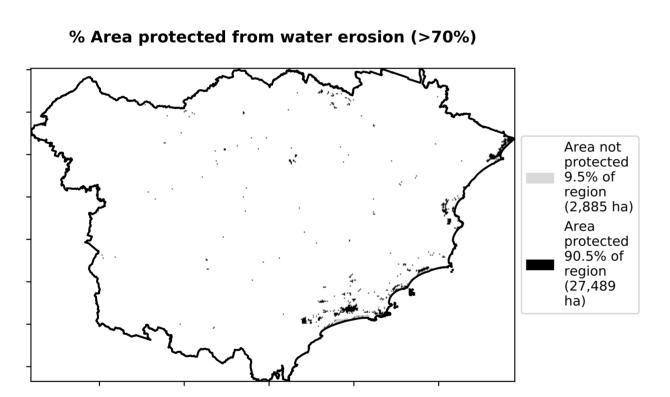
--- 2022

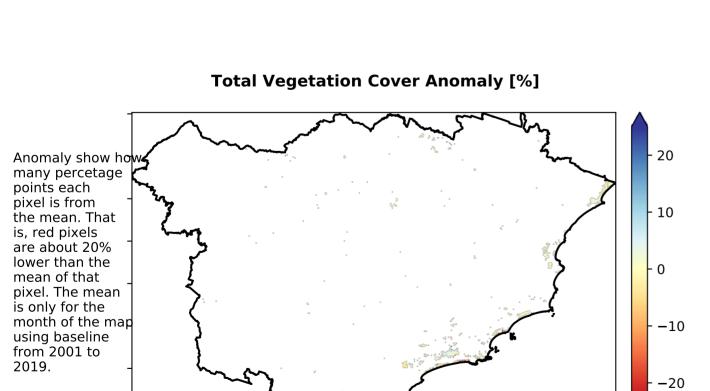


Conservation and natural environments non forest

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) 1 Conservation and natural environments - Nonforest 1 Conservation and natural environments - Nonforest

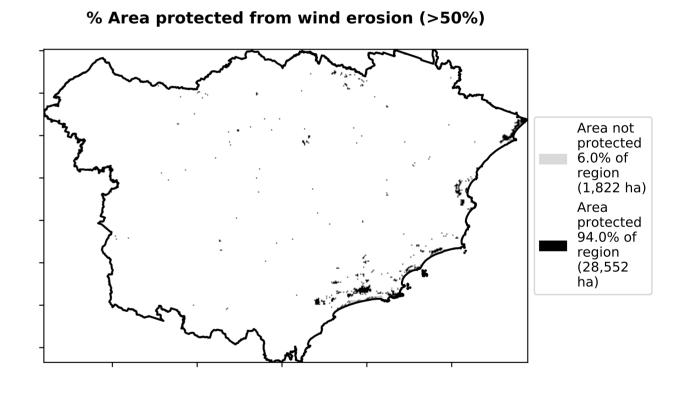
Total Vegetation Cover [%]

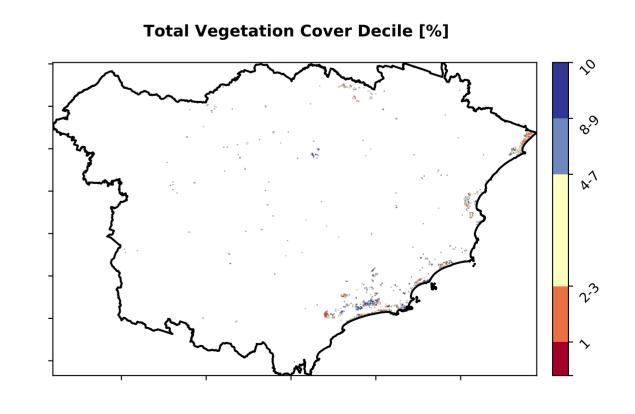




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area 90.5% 90.5% 40 20 0-30% 3.9% 2.6% 3.0% Total Vegetation Cover class





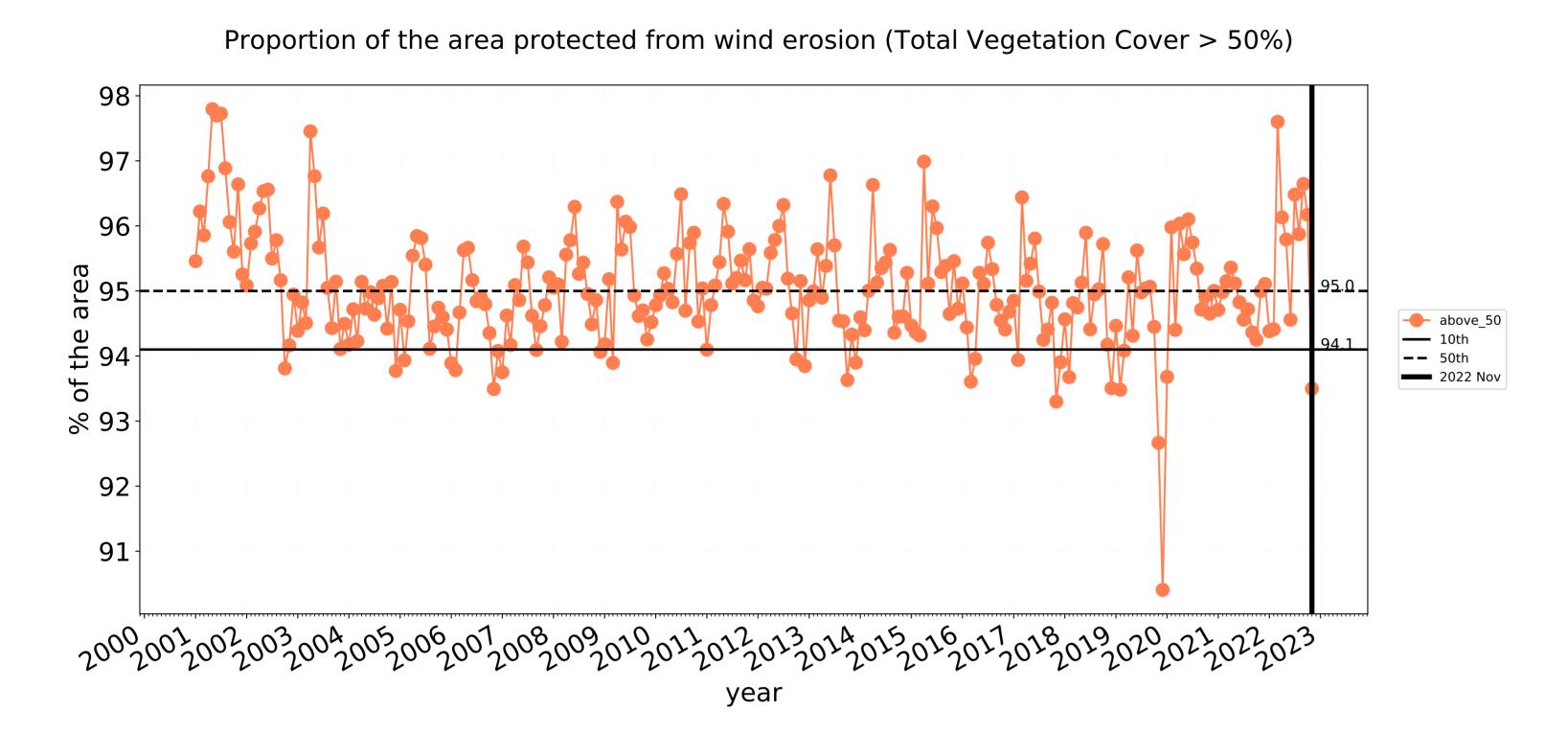


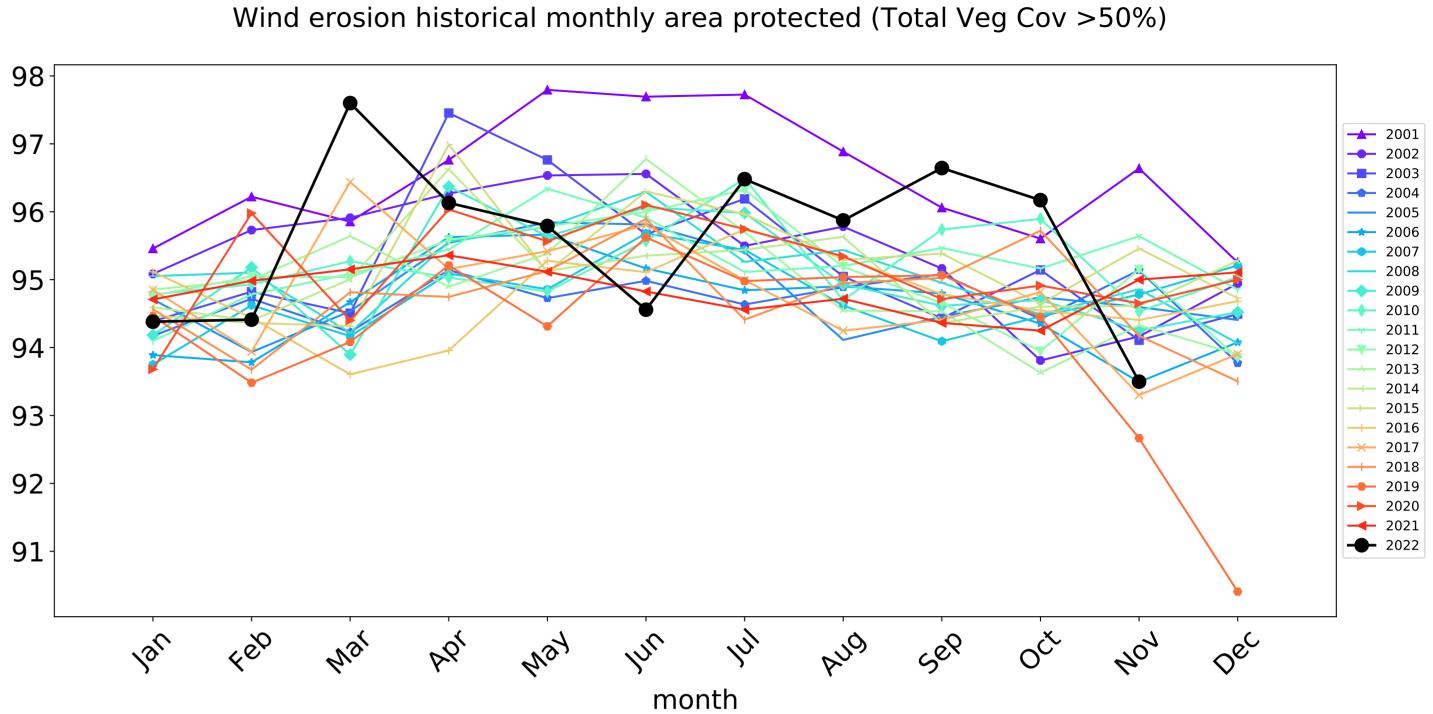


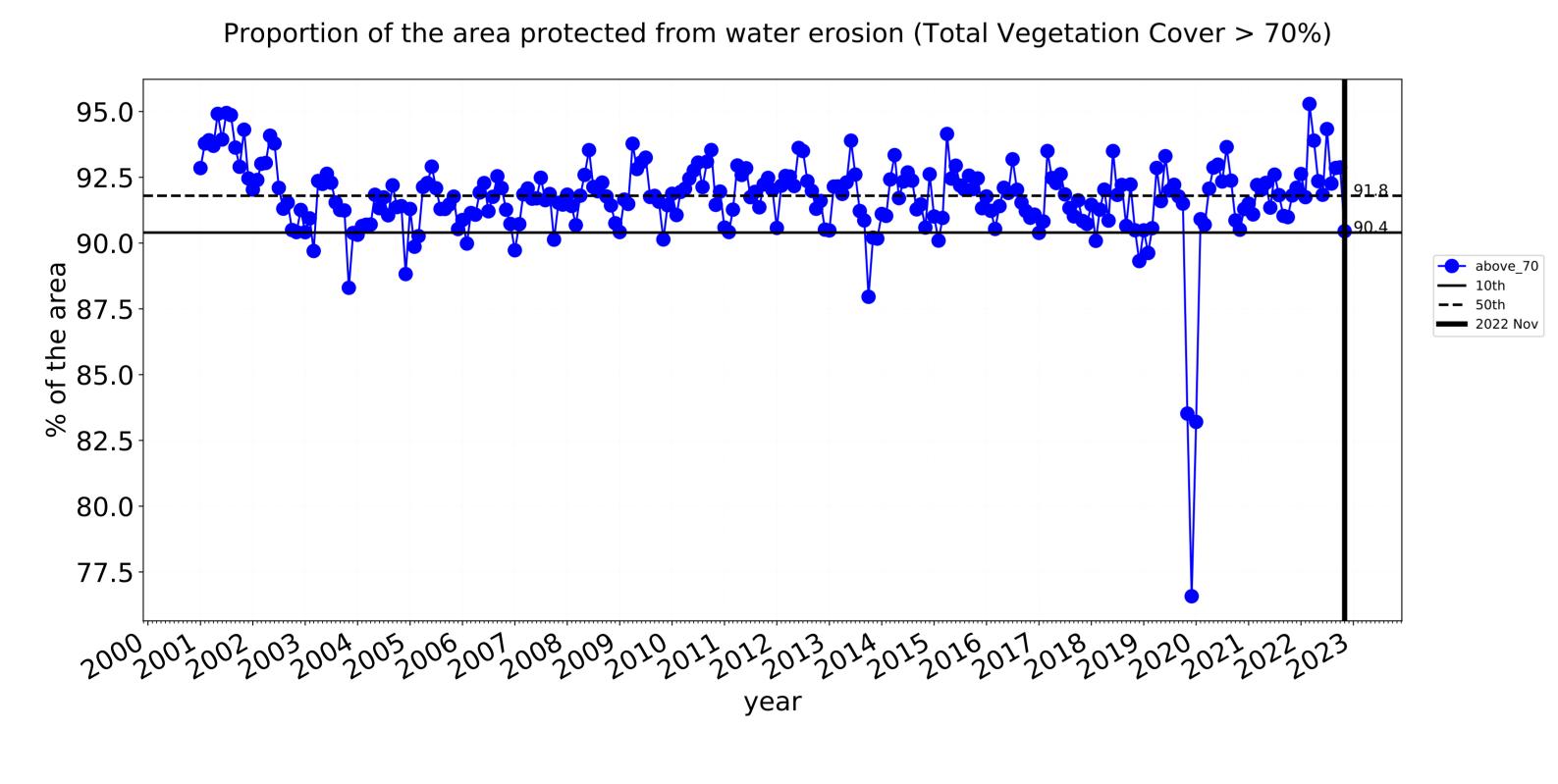


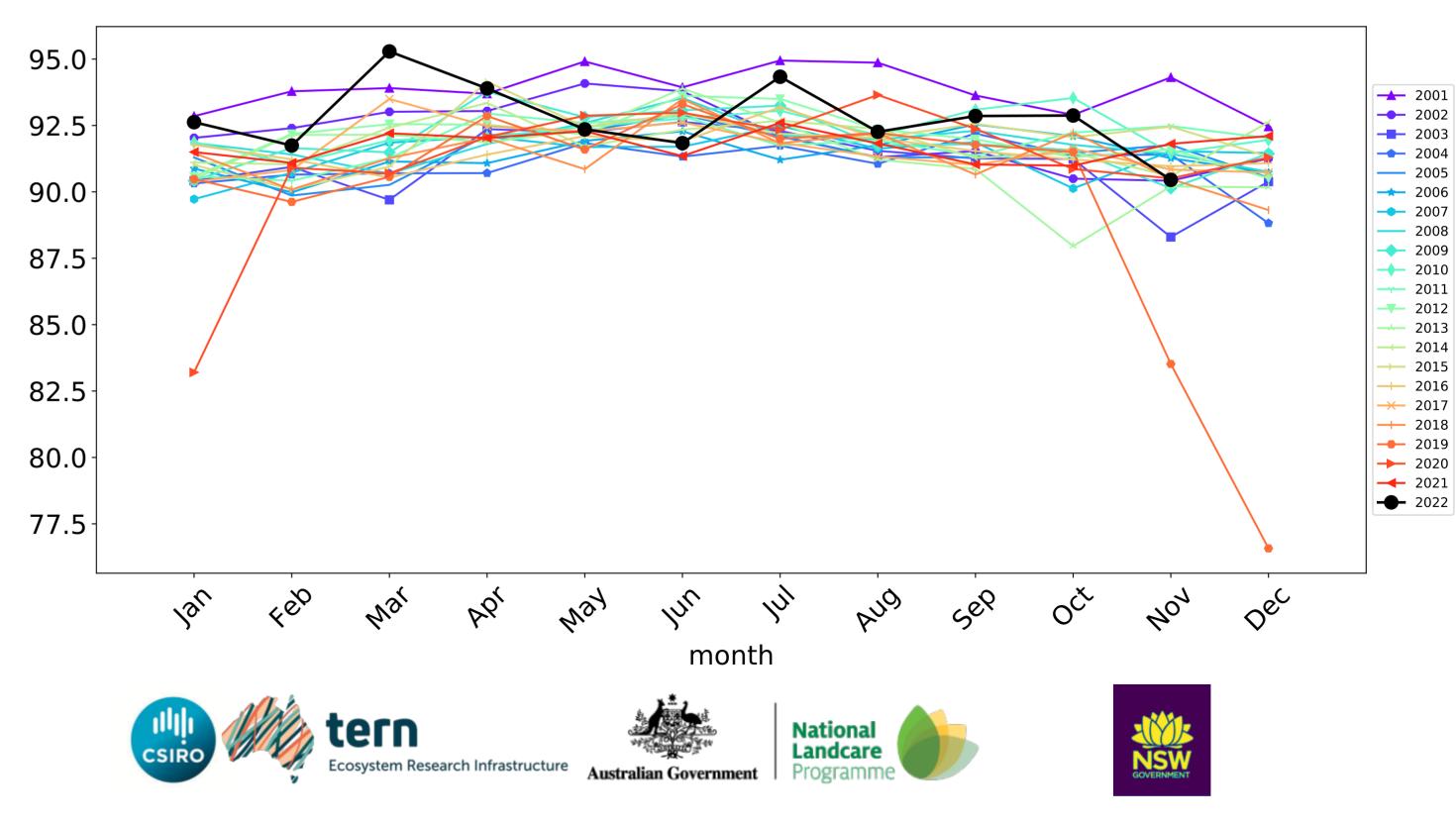


Conservation and natural environments non forest timeseries

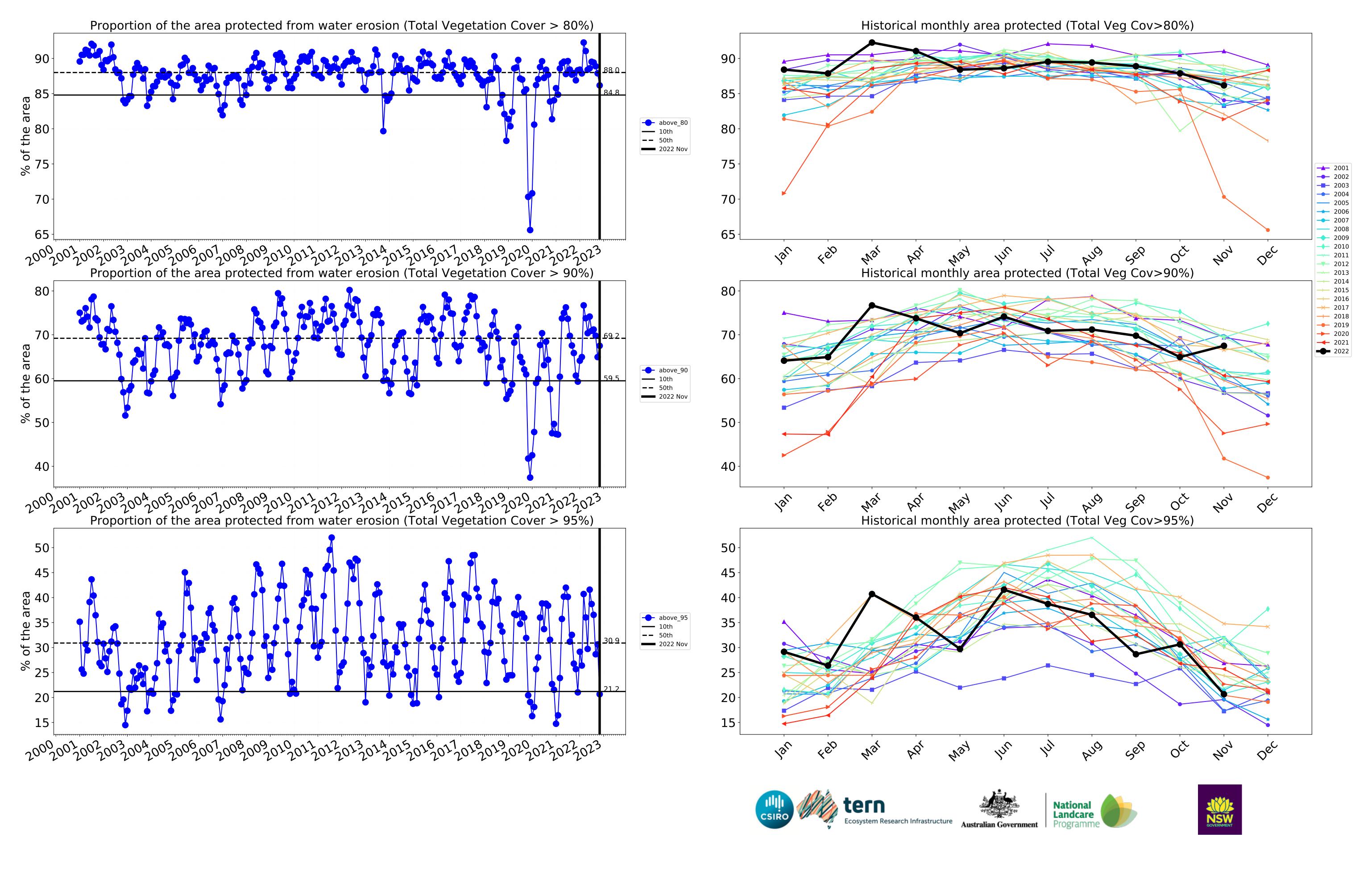




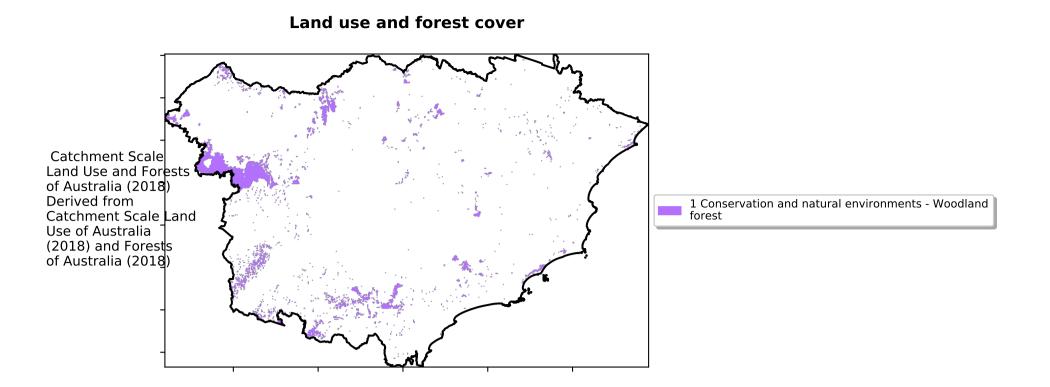


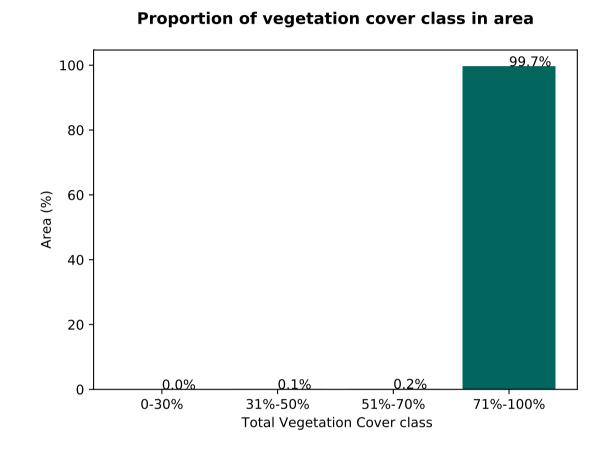


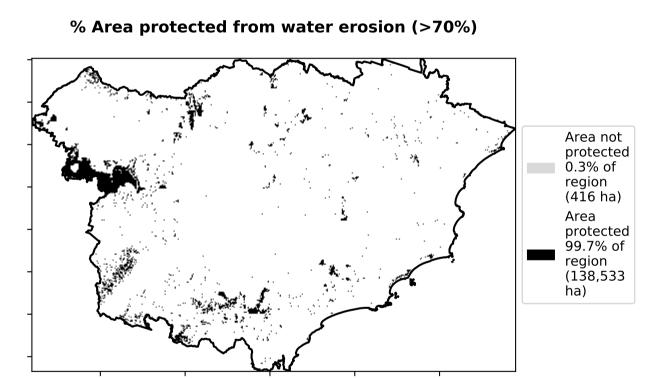
Water erosion historical monthly area protected (Total Veg Cov>70%)

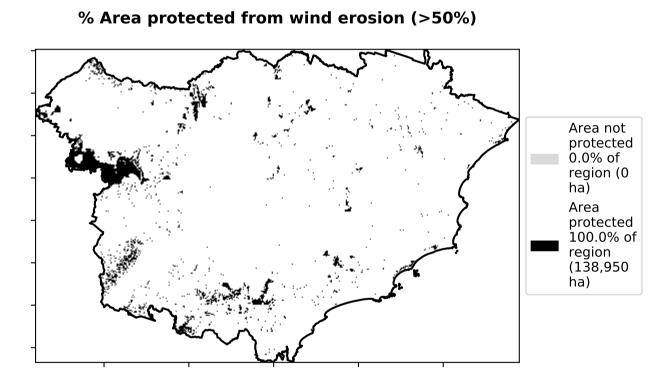


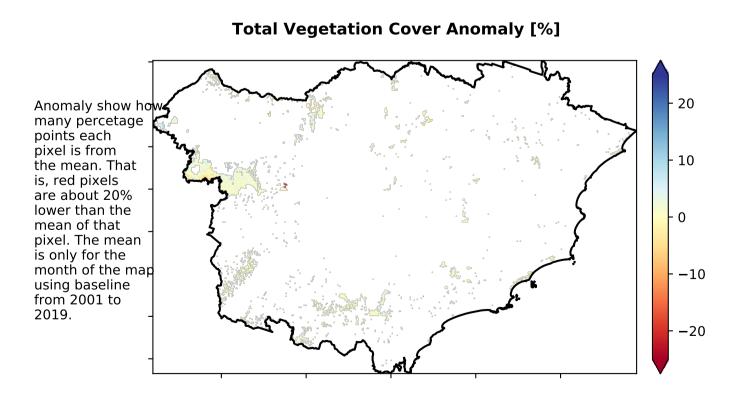
Conservation and natural environments Woodland forest

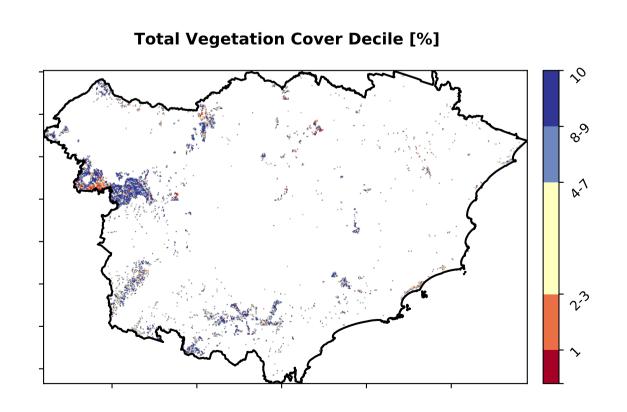












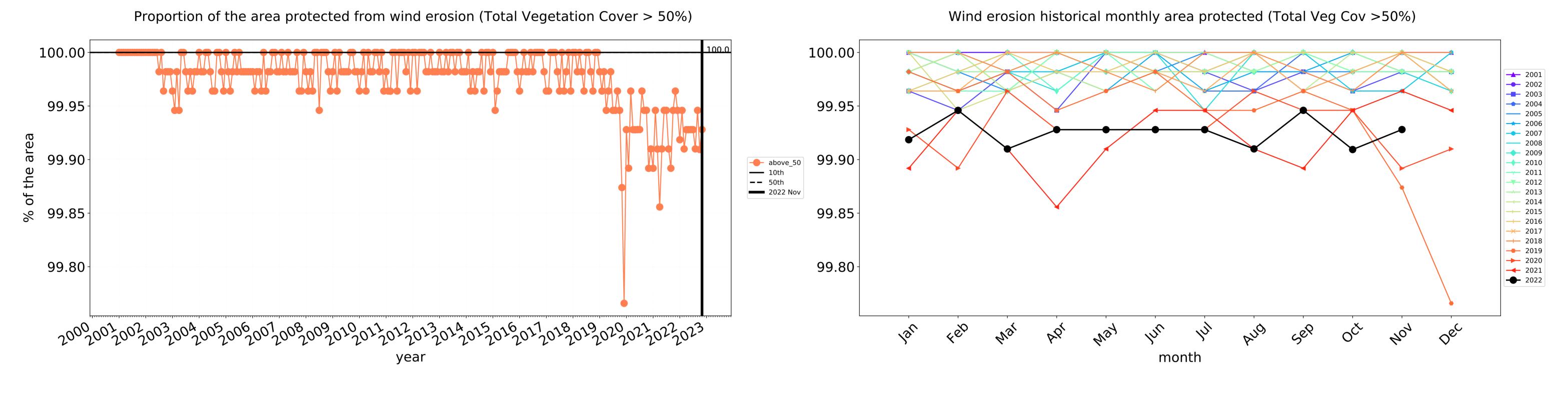


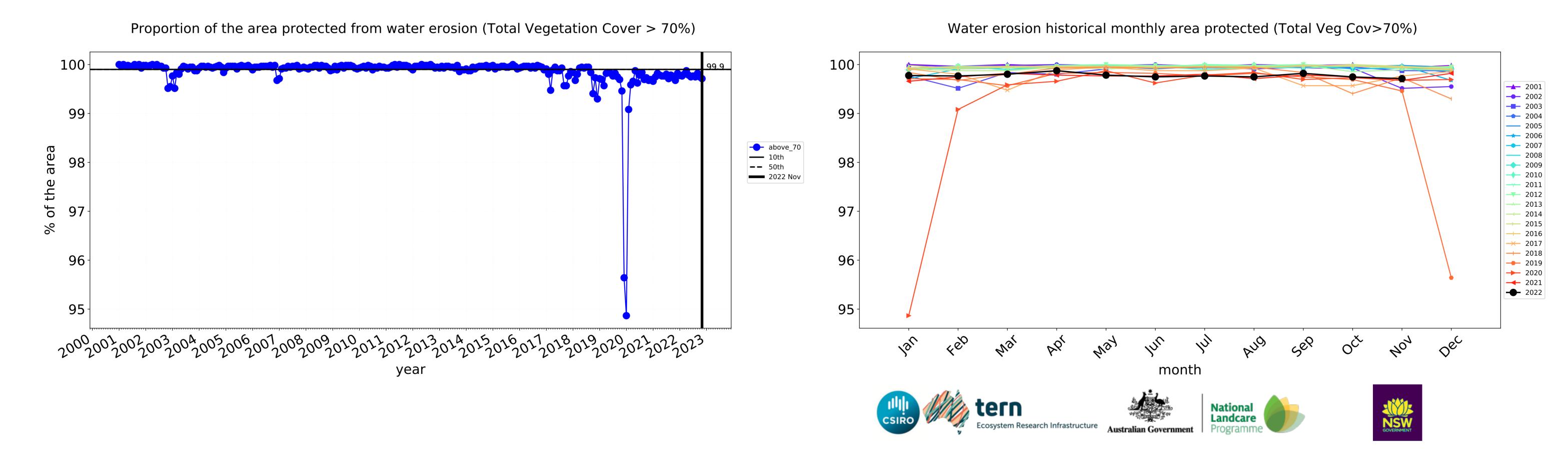


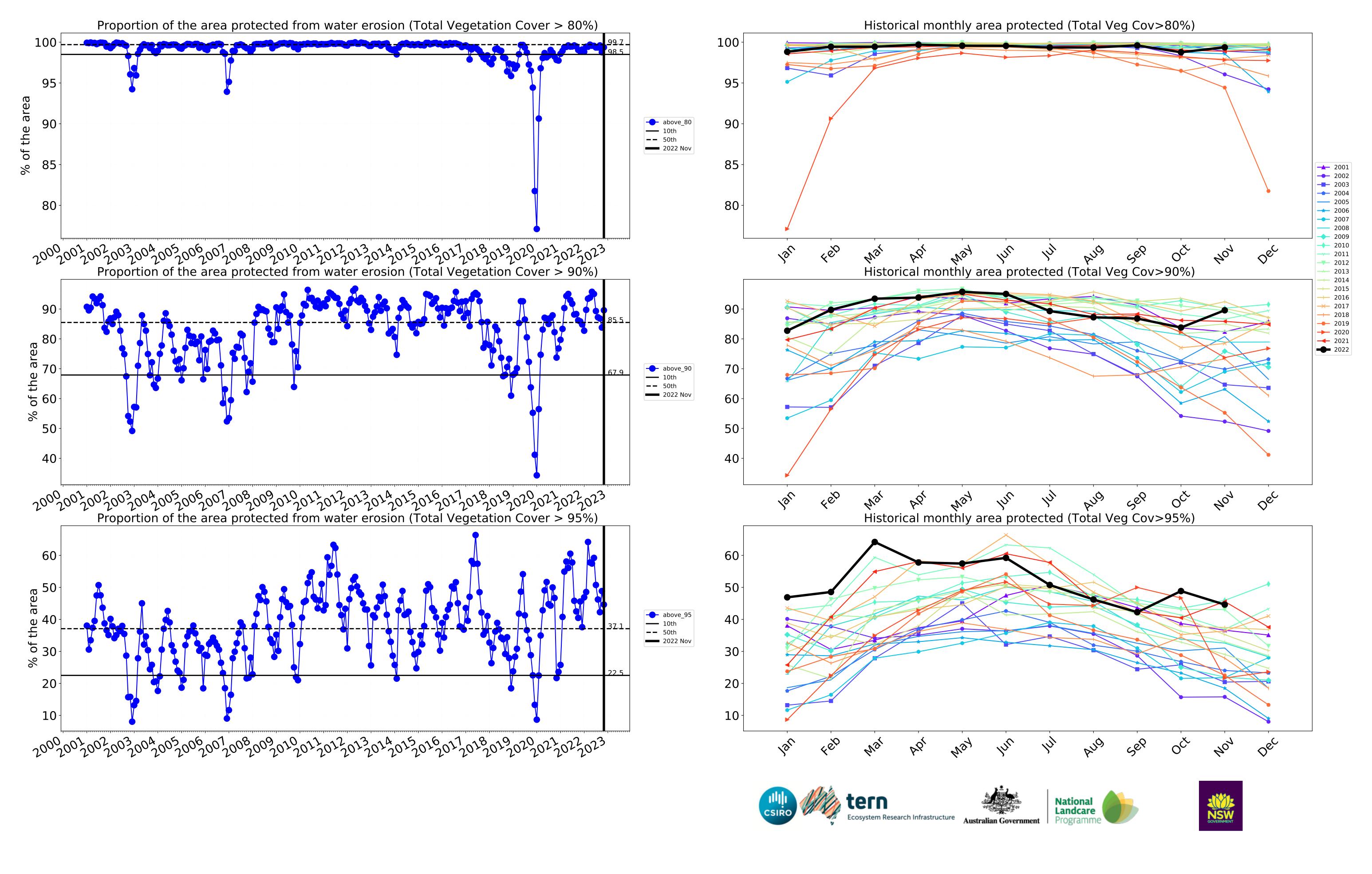




Conservation and natural environments Woodland forest timeseries



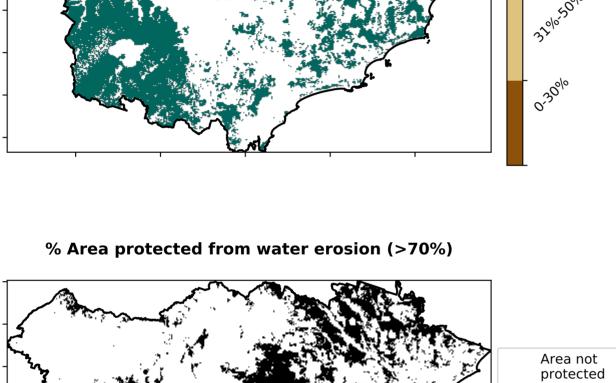


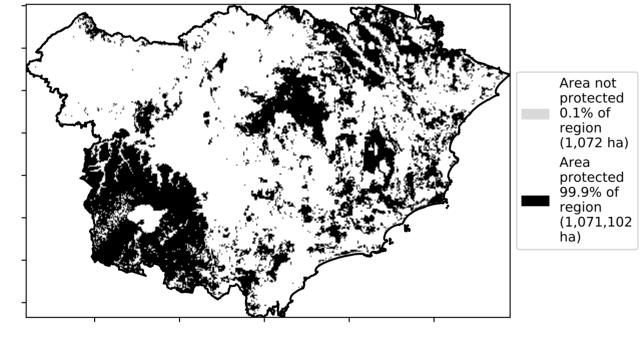


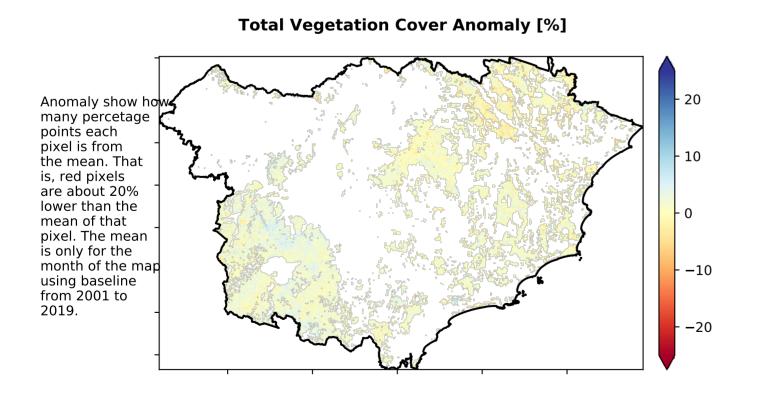
Conservation and natural environments Forest (non woodland)

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

Total Vegetation Cover [%] Tolandolo Tolan

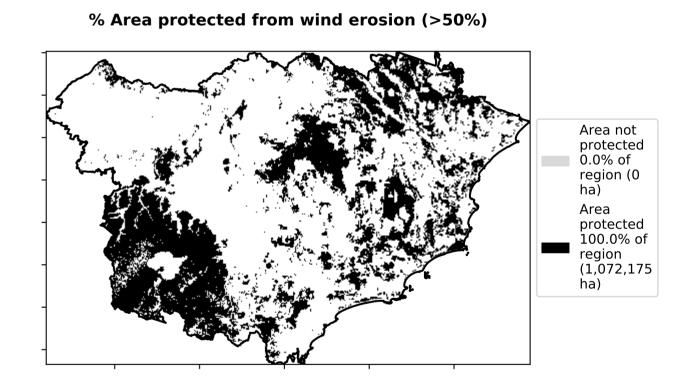


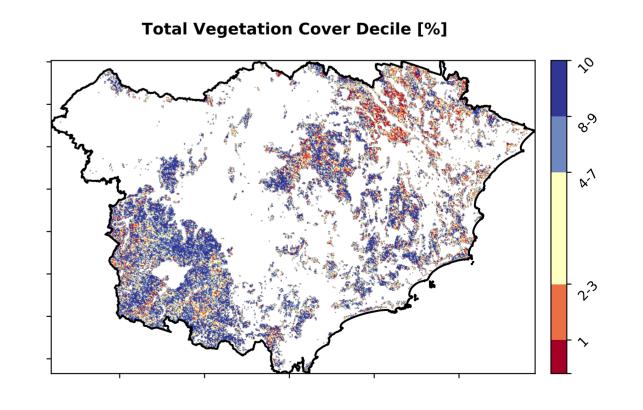




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Proportion of vegetation cover class in area 100 - 99.9% 80 - 60 - 40 - 40 - 20 - 0.30% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class





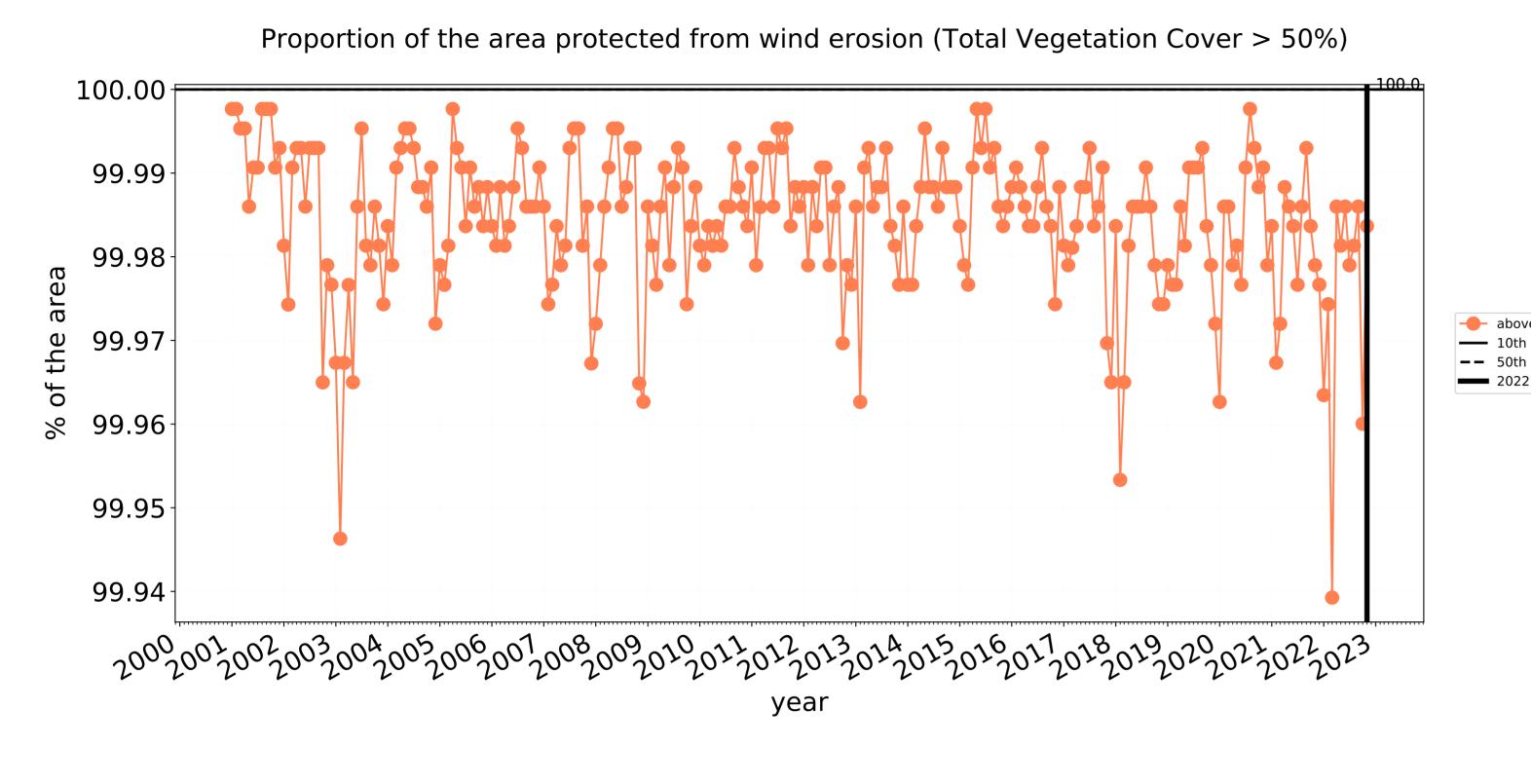


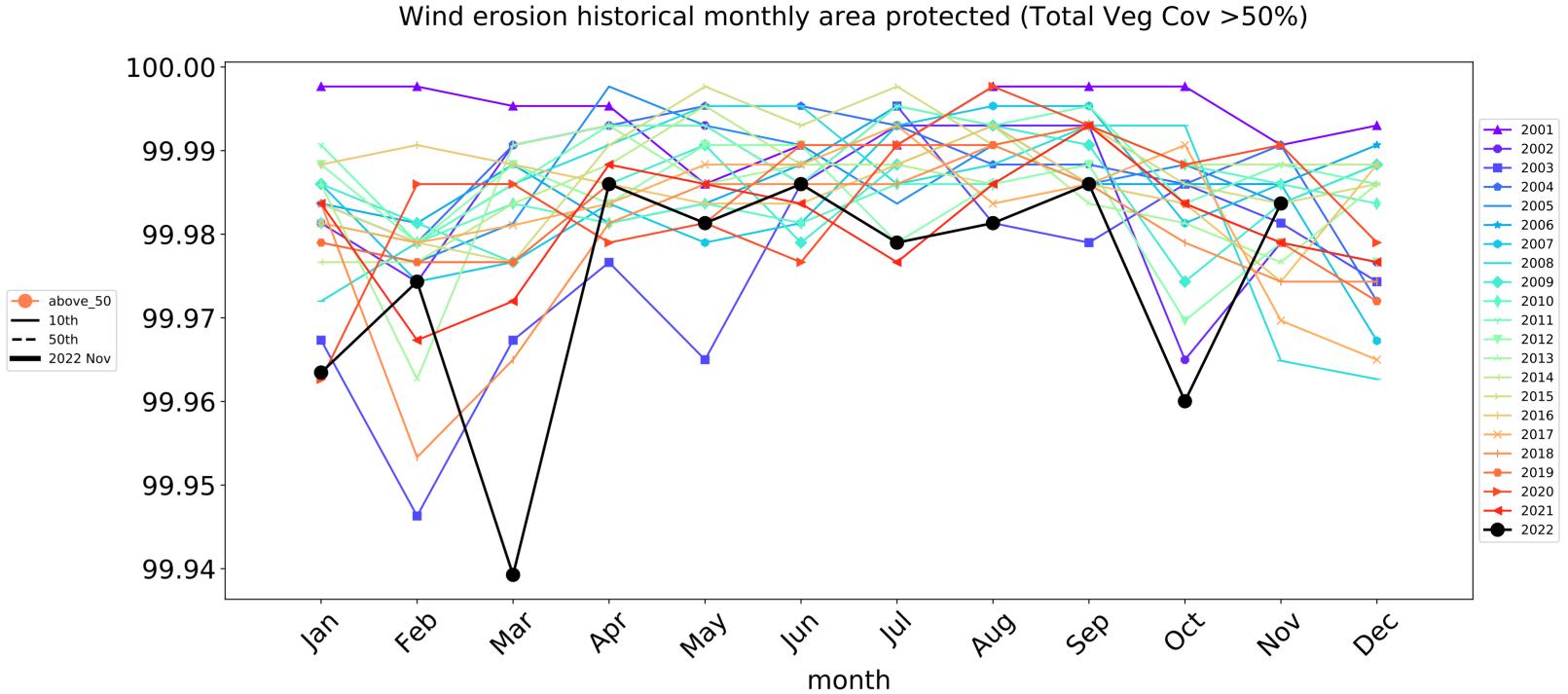


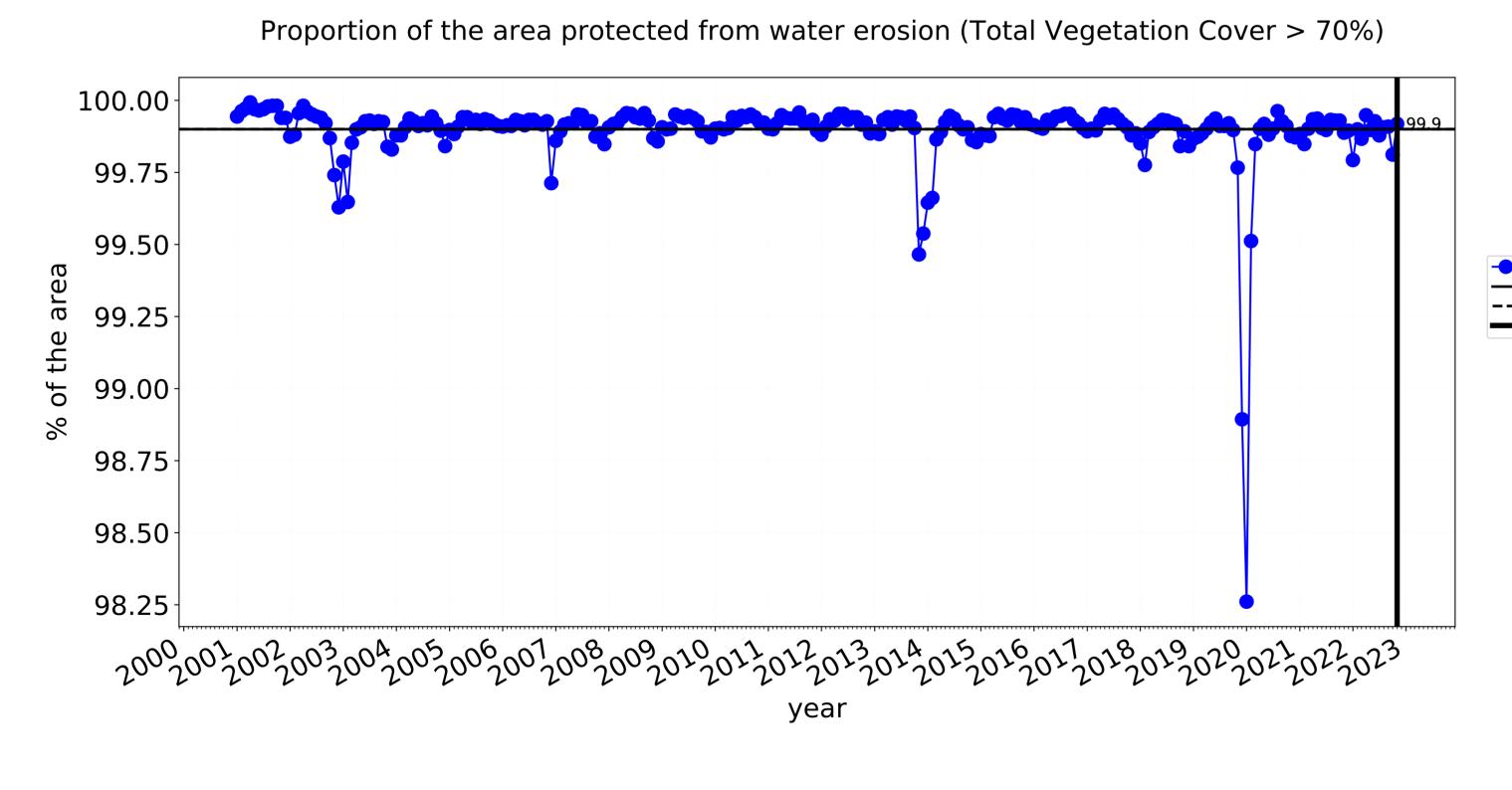


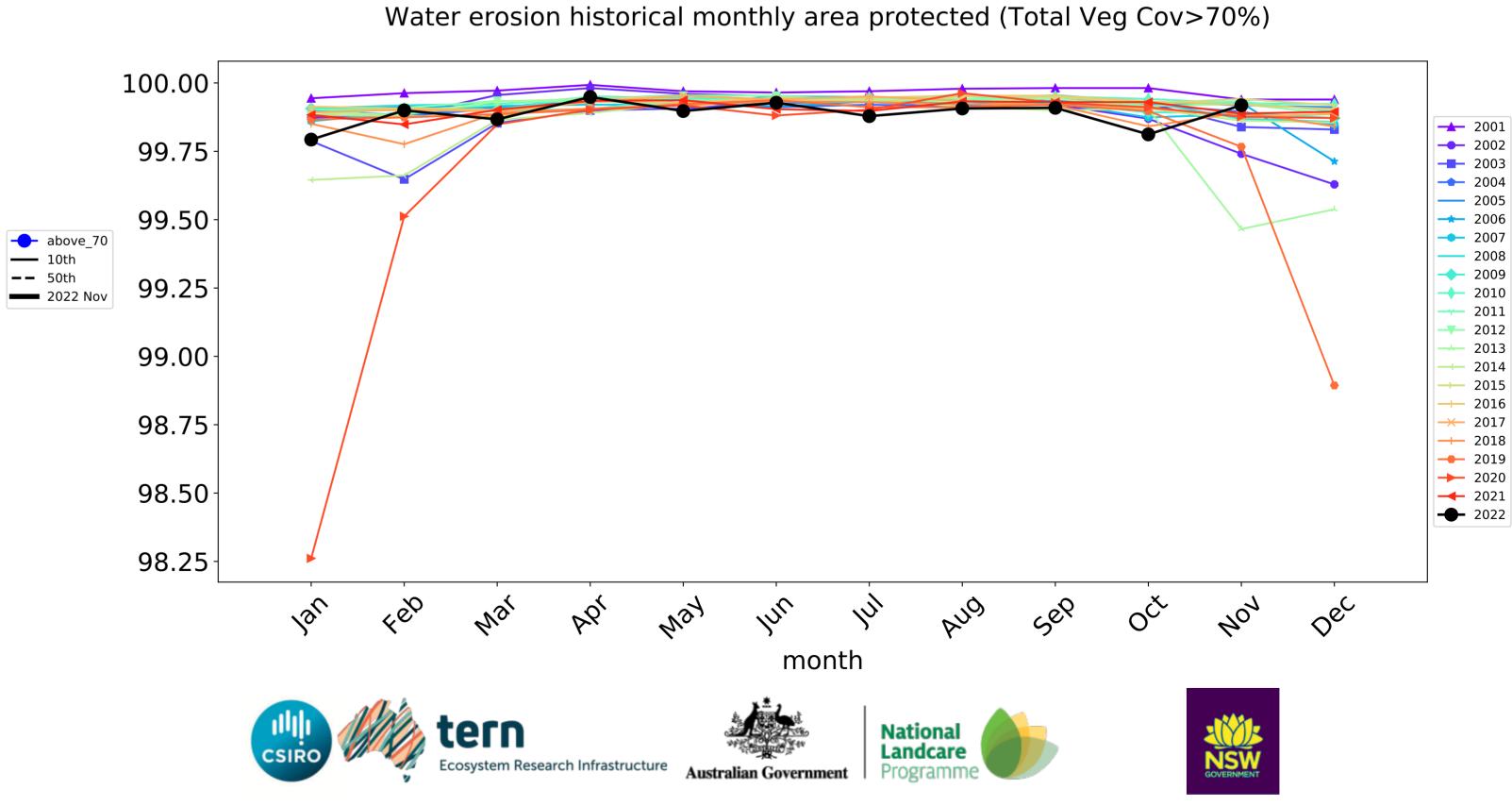


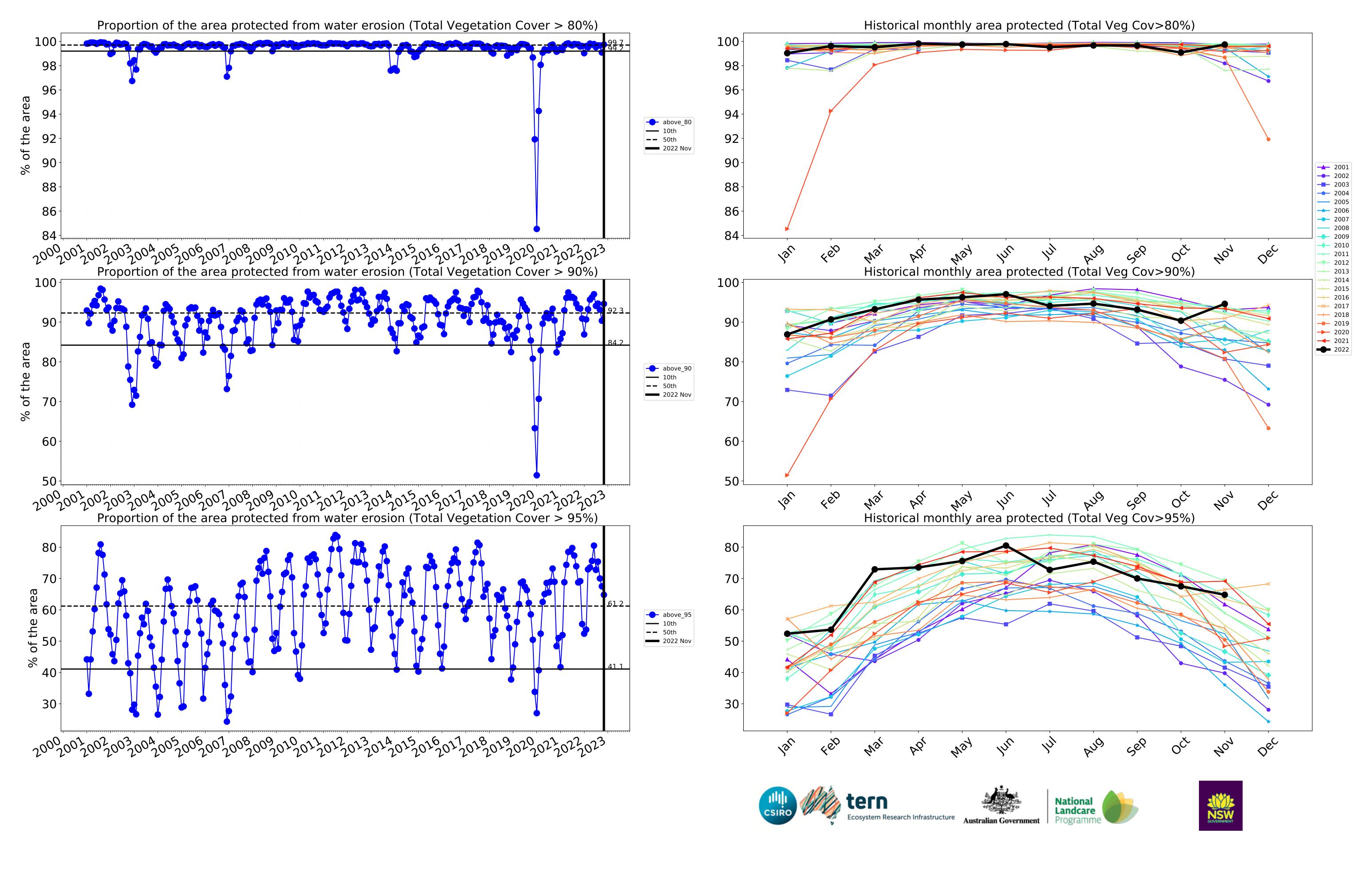
Conservation and natural environments Forest (non woodland) timeseries



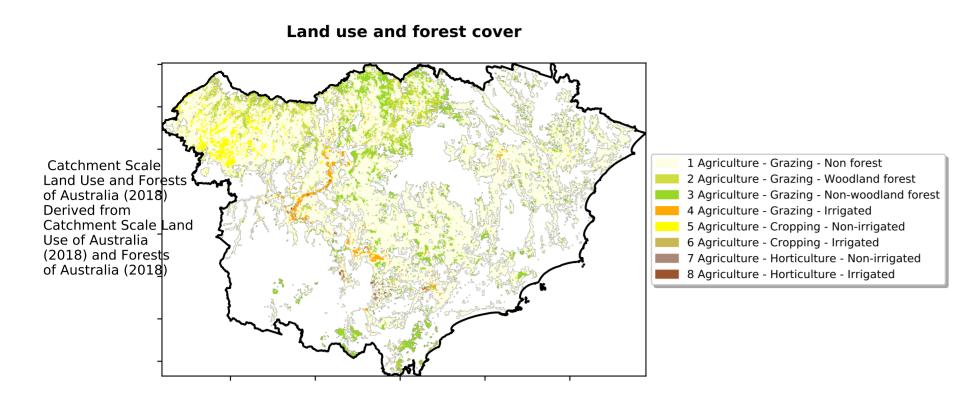


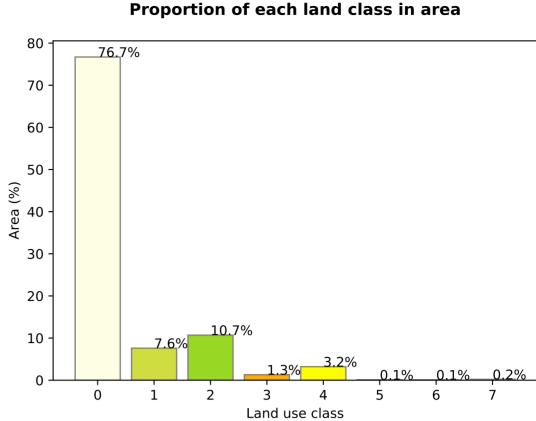


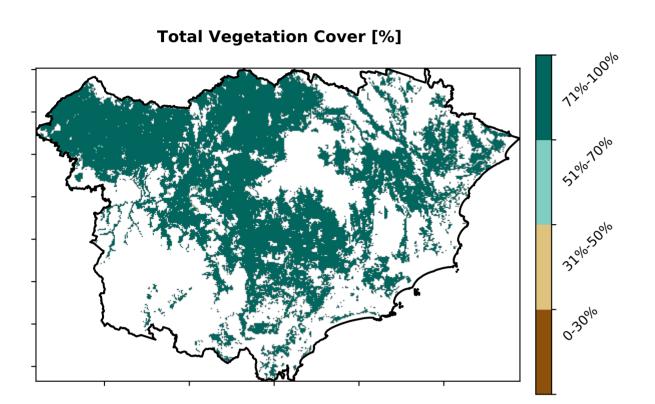


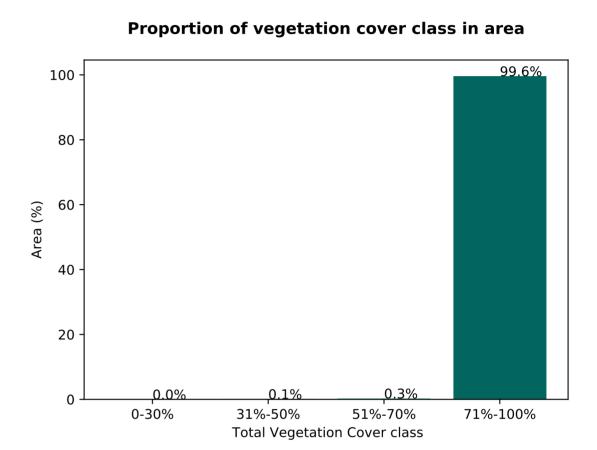


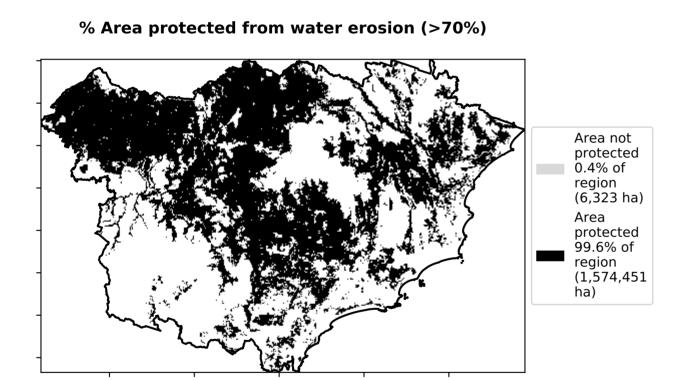
Agriculture

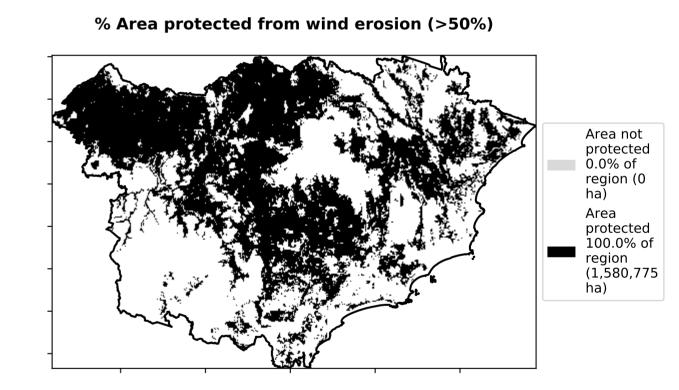


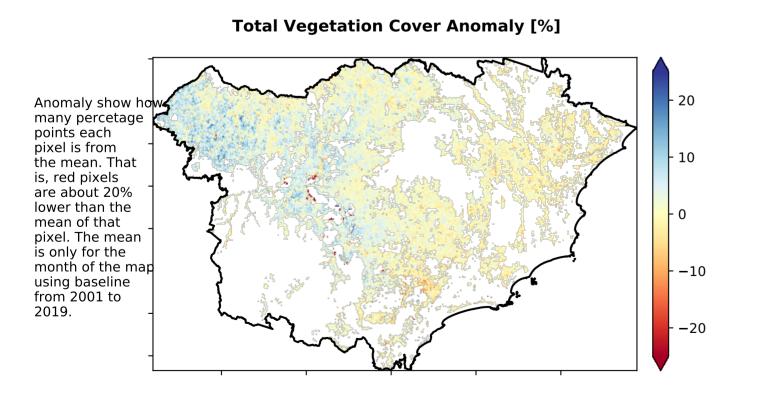


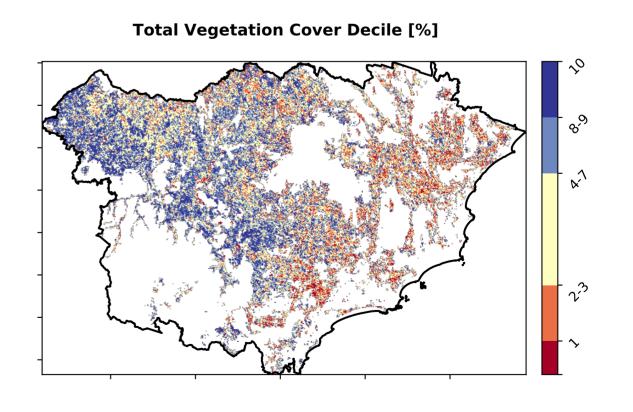












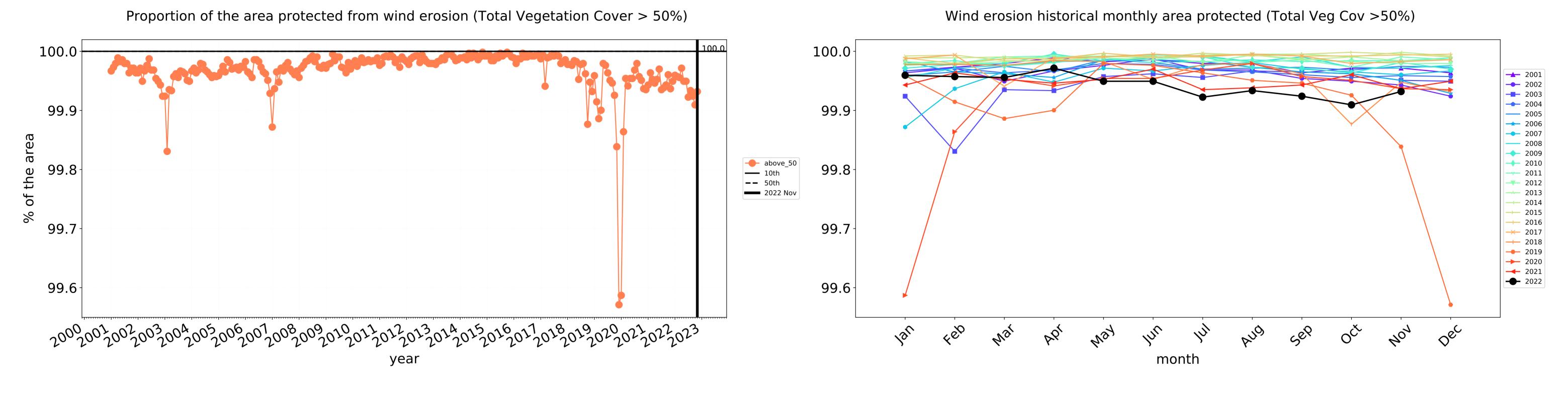


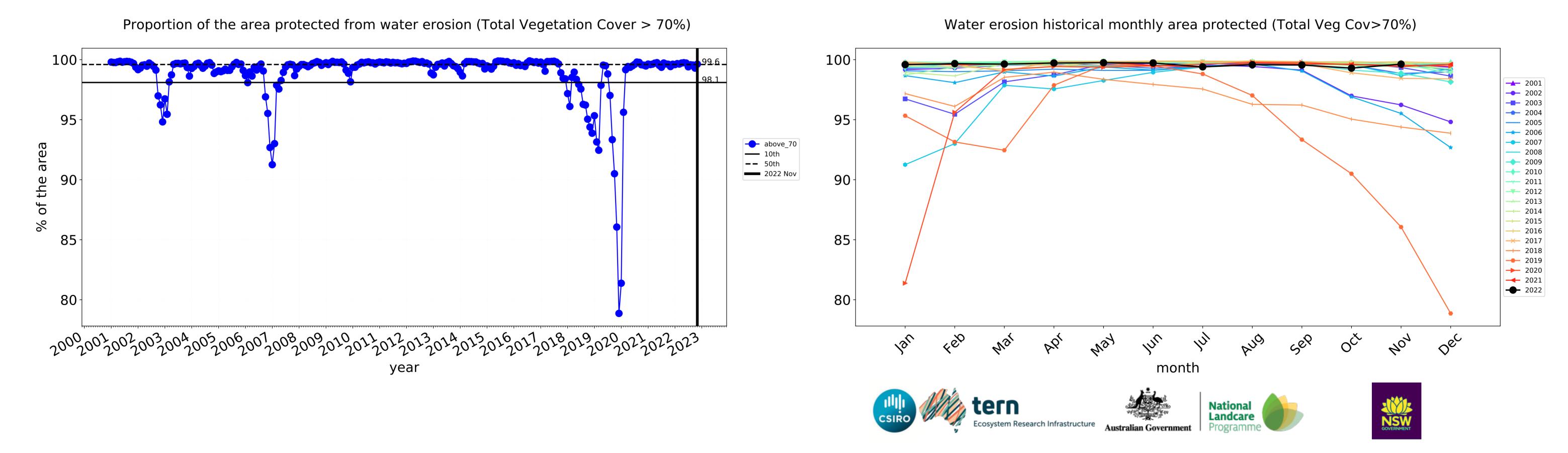


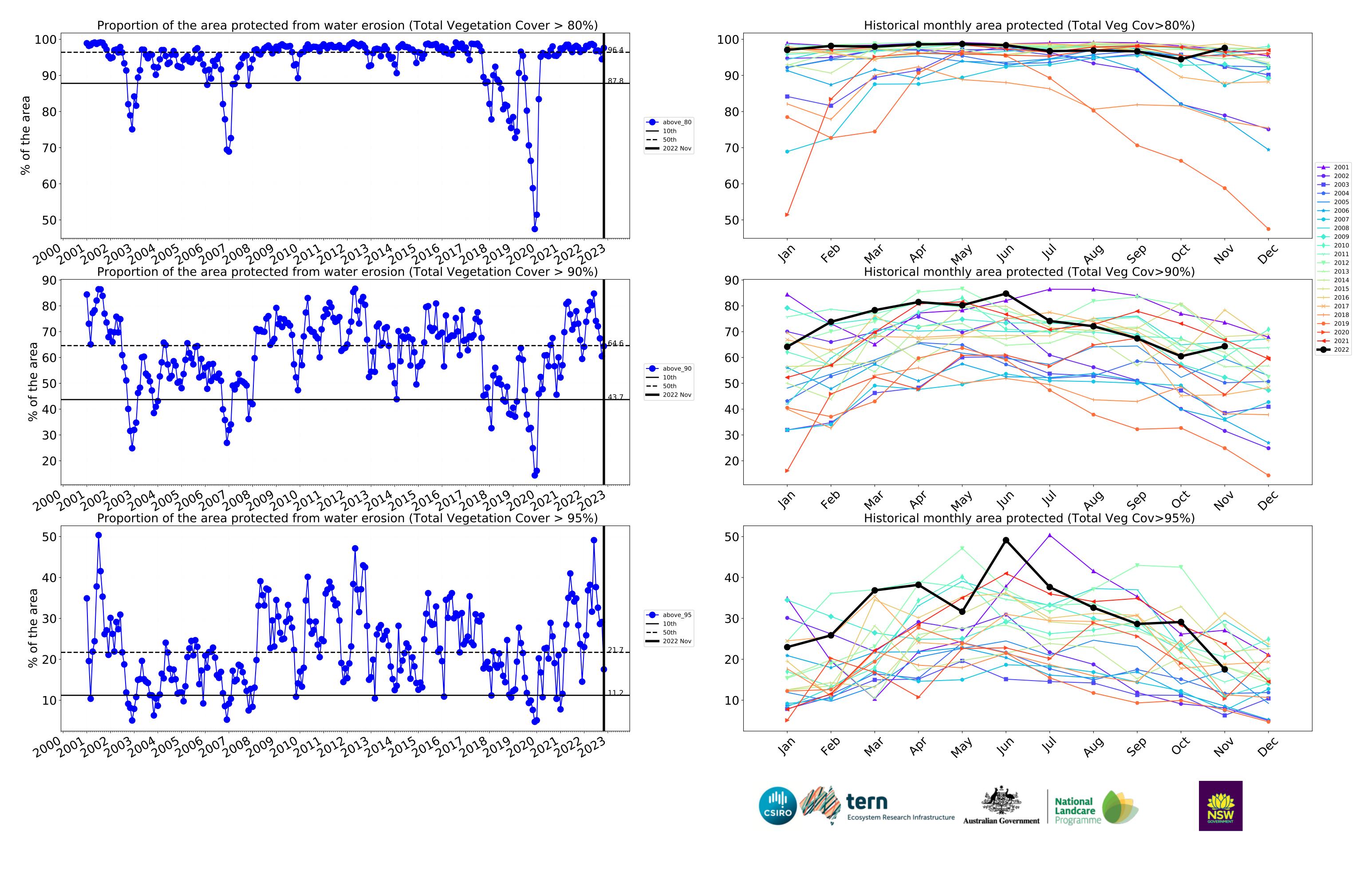




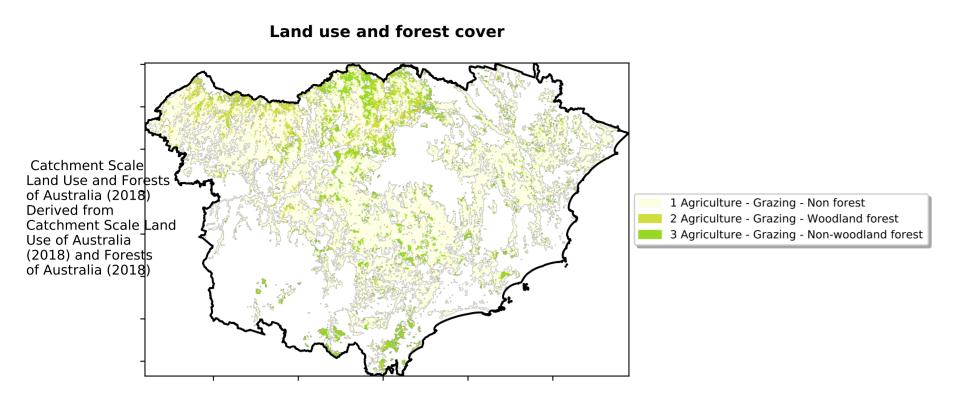
Agriculture timeseries



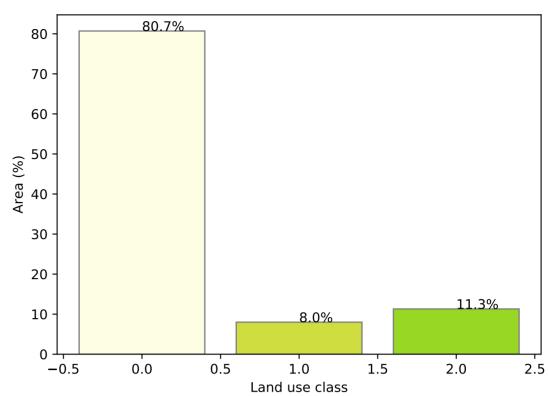




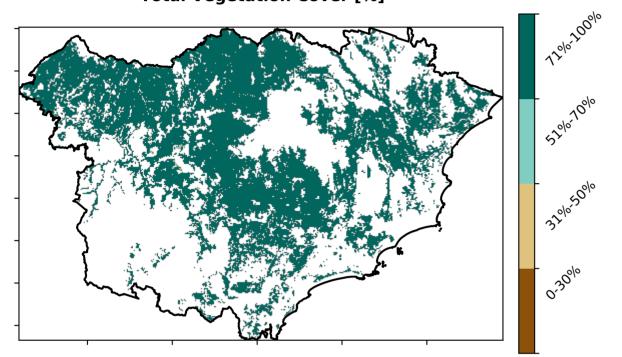
Grazing



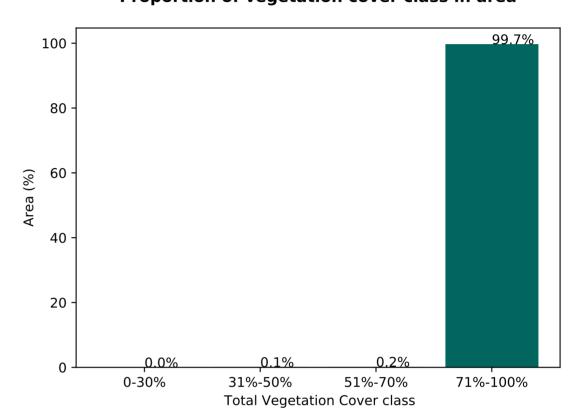
Proportion of each land class in area



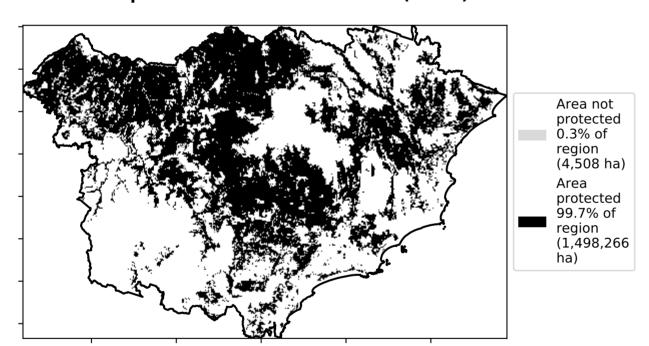
Total Vegetation Cover [%]



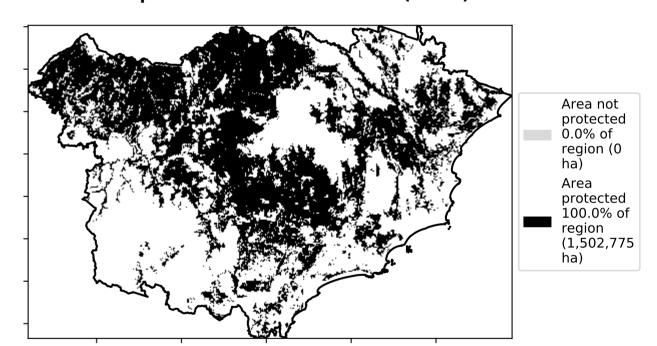
Proportion of vegetation cover class in area



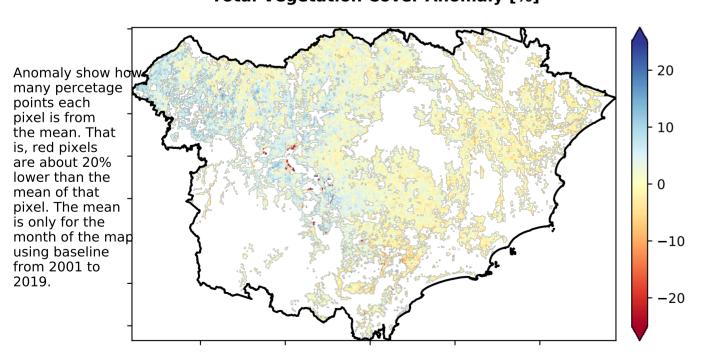
% Area protected from water erosion (>70%)

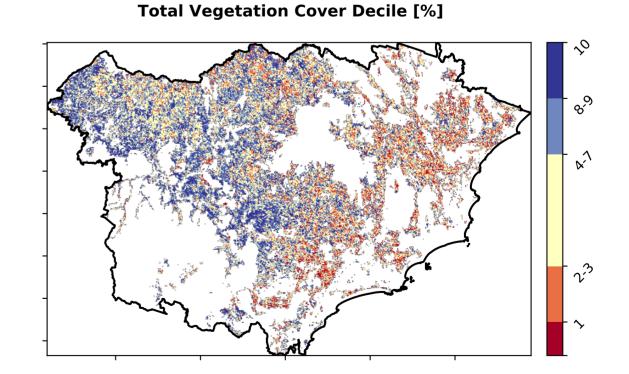


% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]







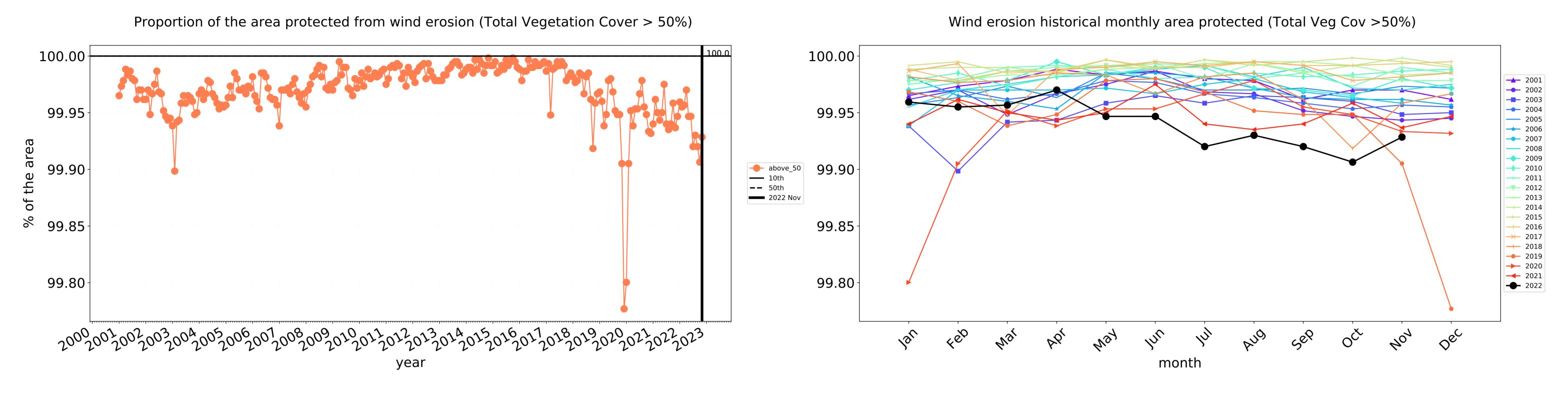


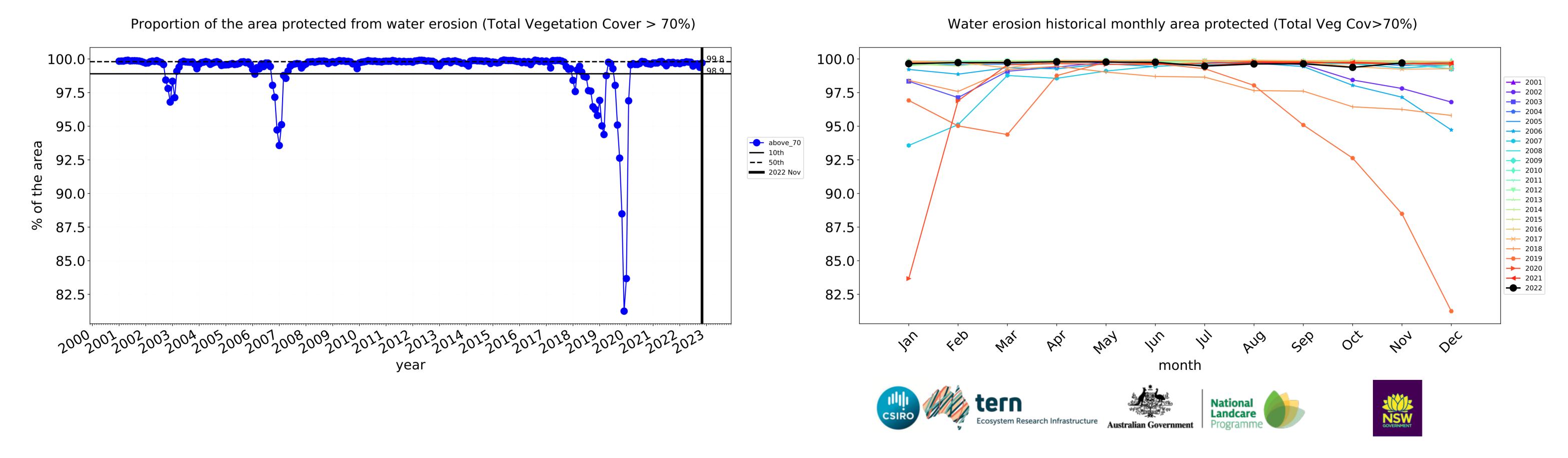


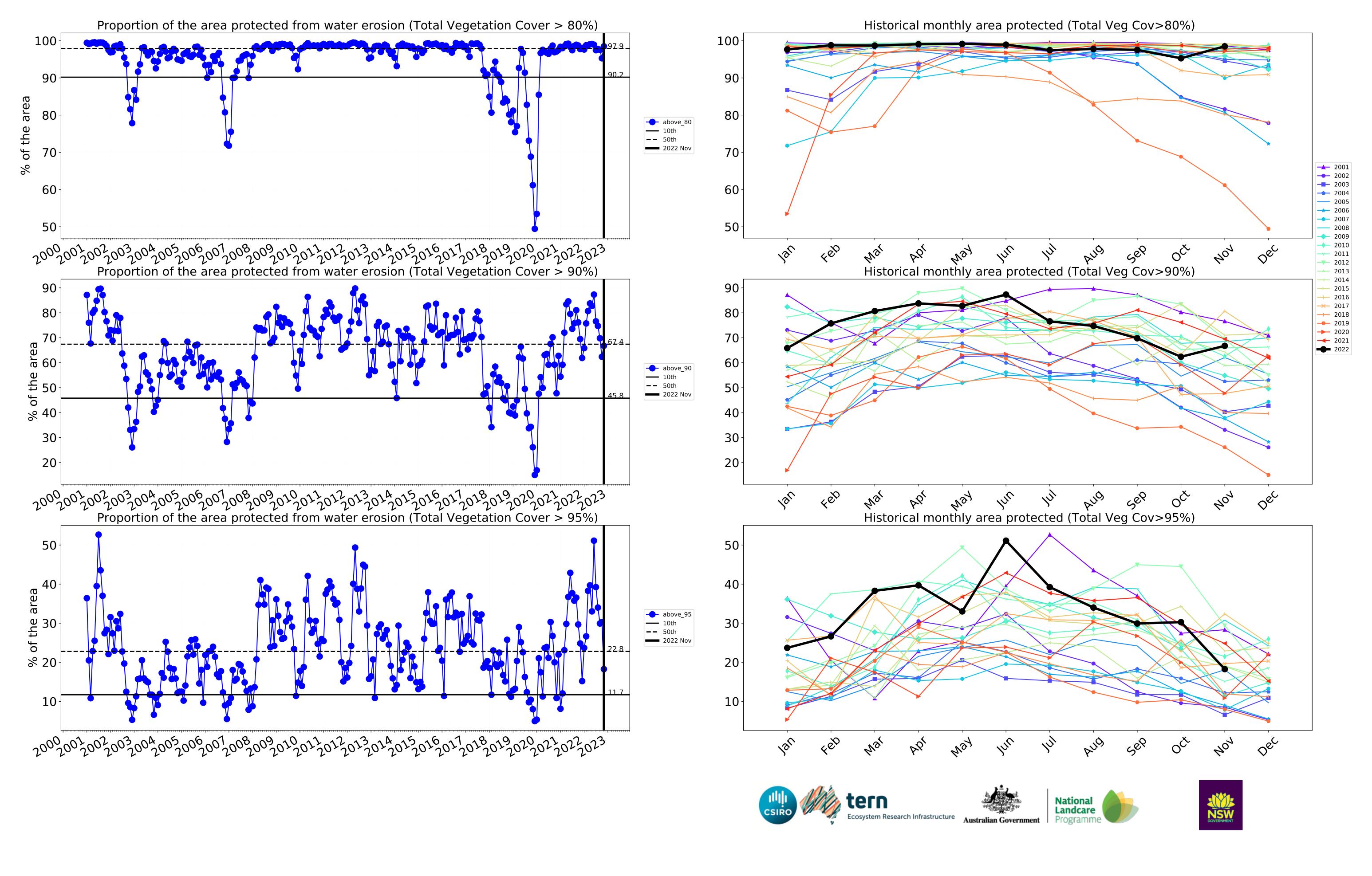




Grazing timeseries

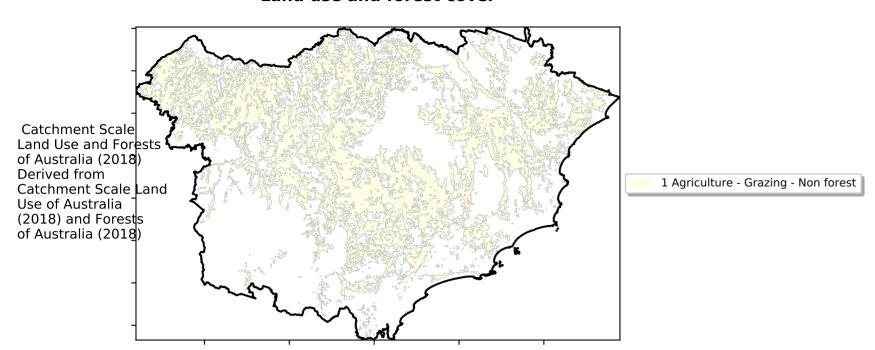




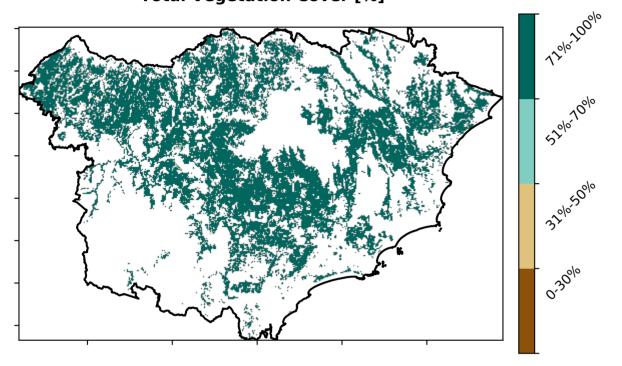


Grazing non forest

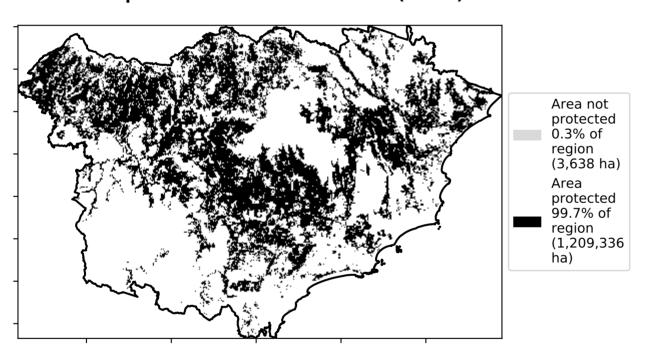
Land use and forest cover



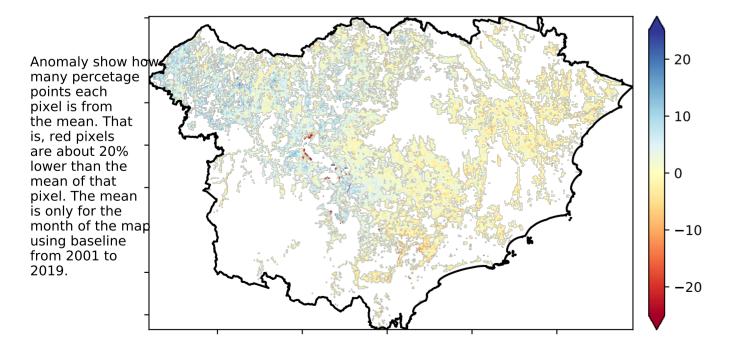
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

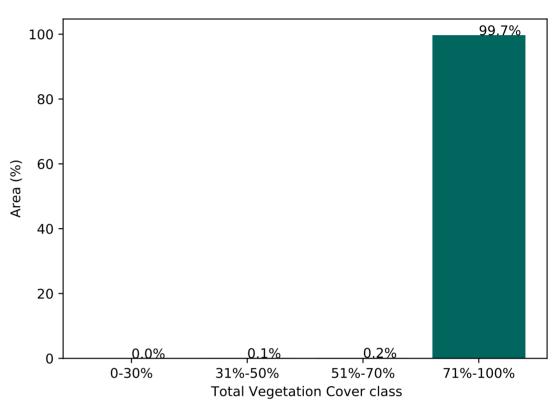


Total Vegetation Cover Anomaly [%]

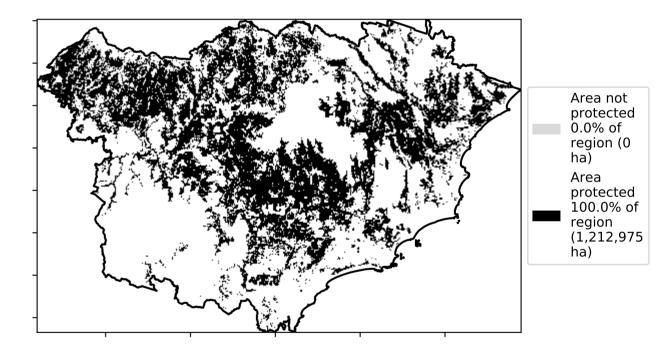


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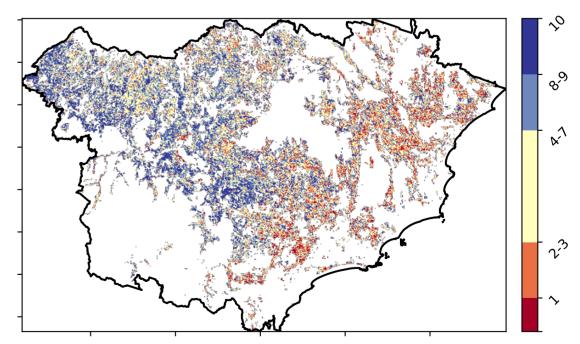
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]



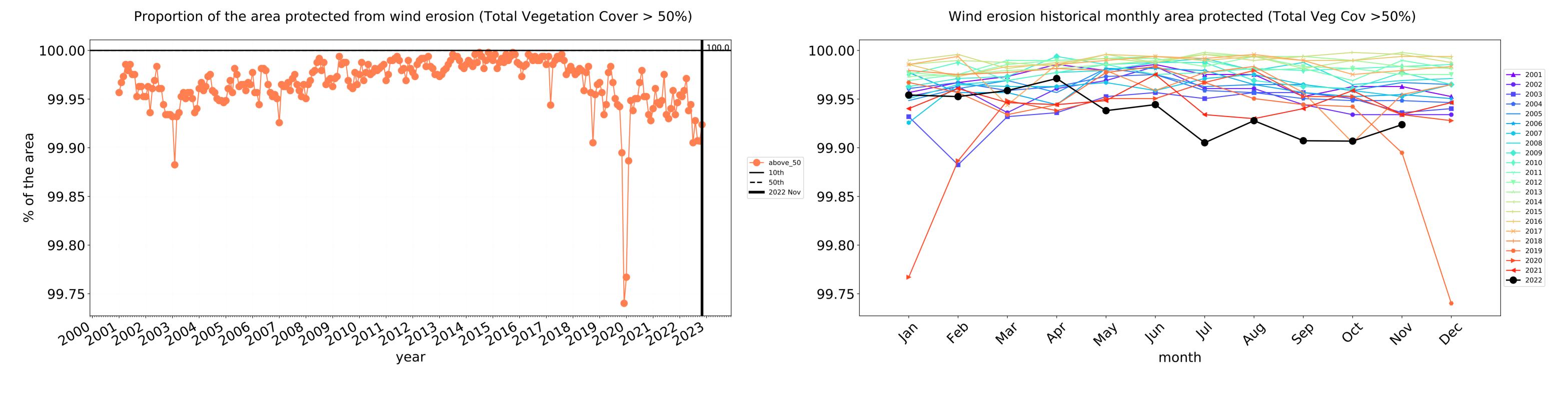


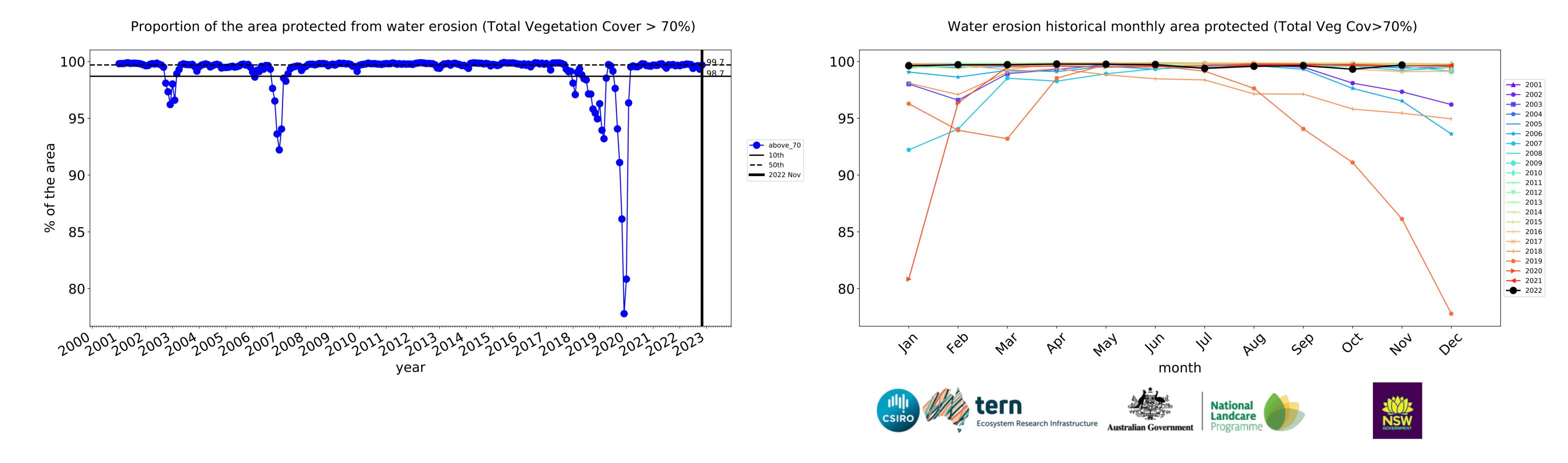


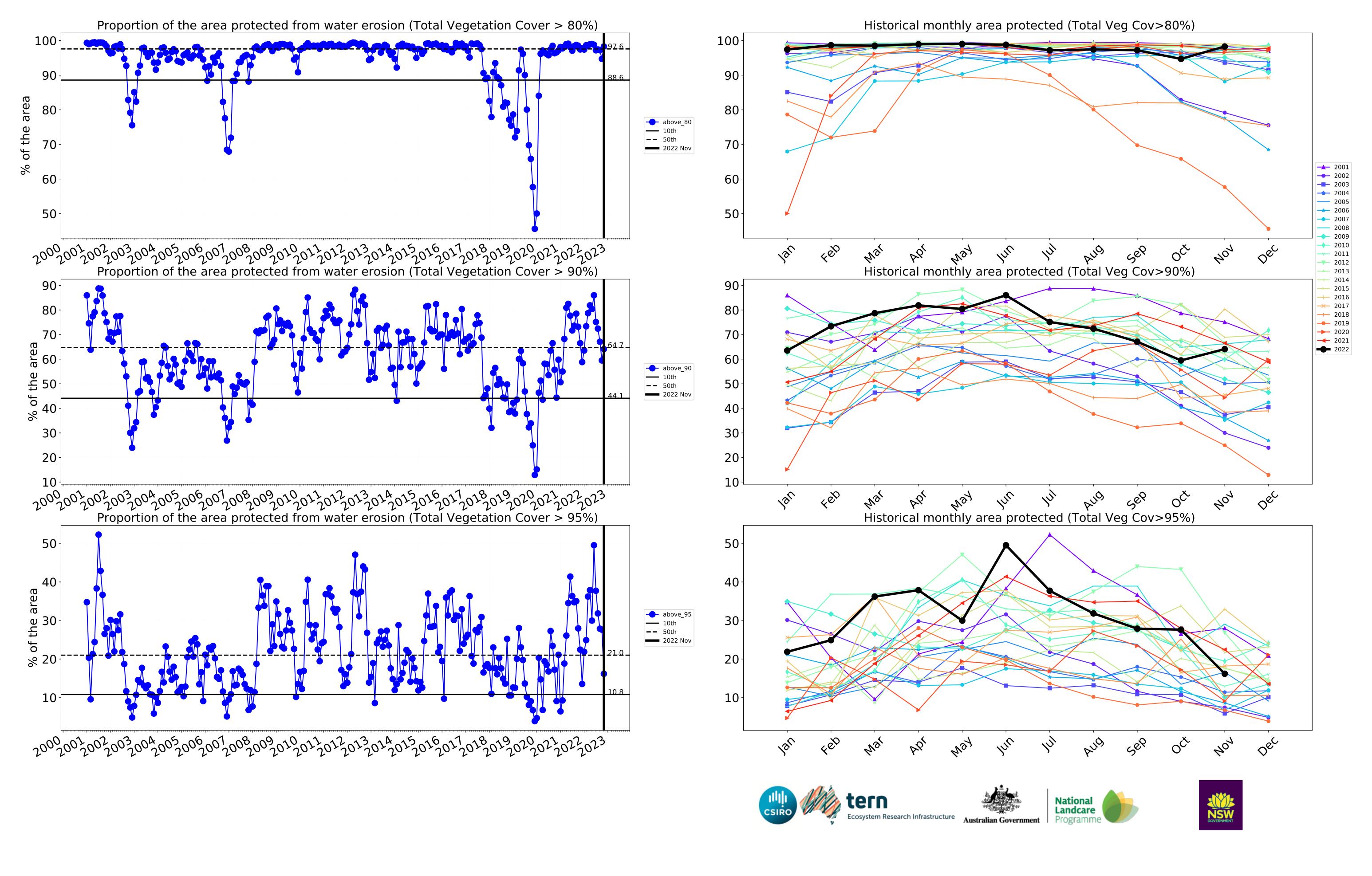




Grazing non forest timeseries



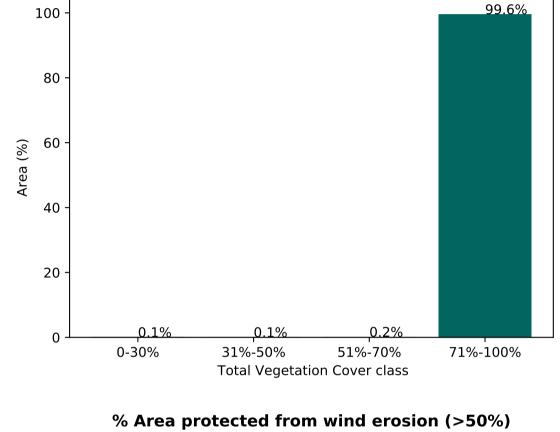




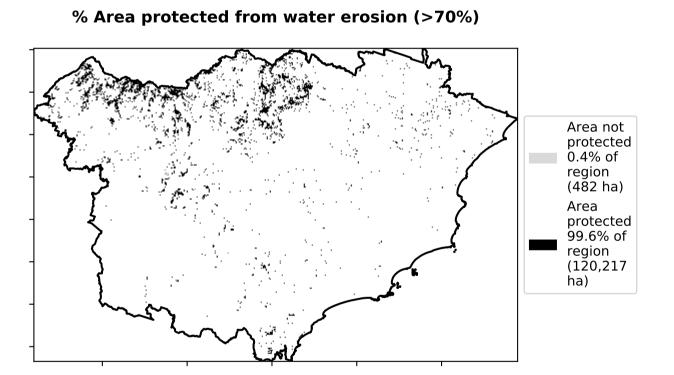
Grazing Woodland forest

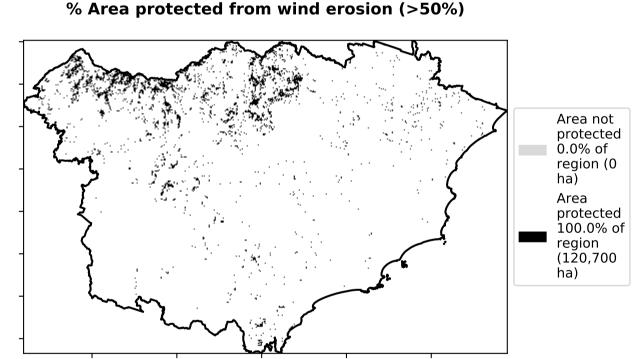
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Agriculture - Grazing - Woodland forest Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

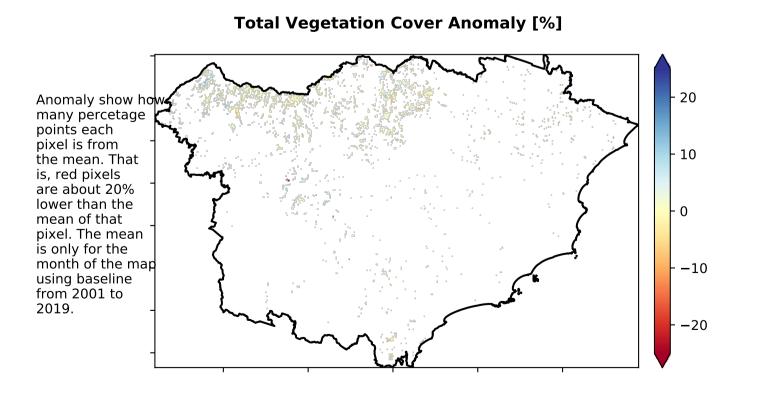
Total Vegetation Cover [%]

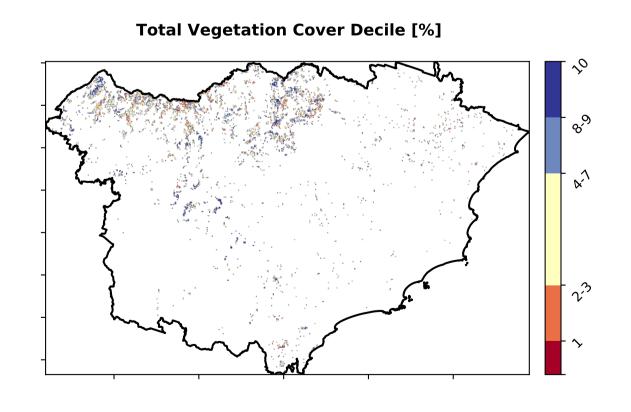


Proportion of vegetation cover class in area









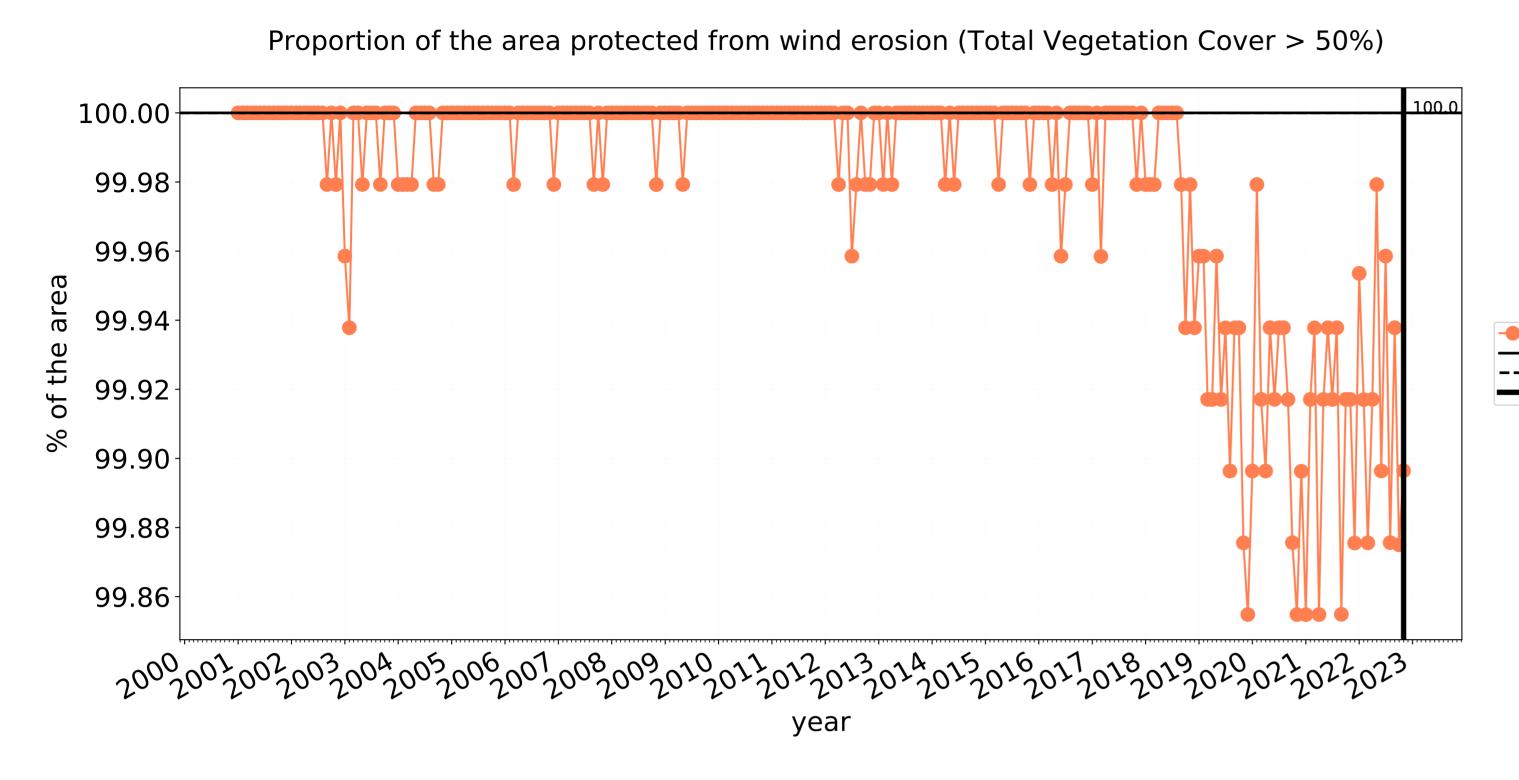




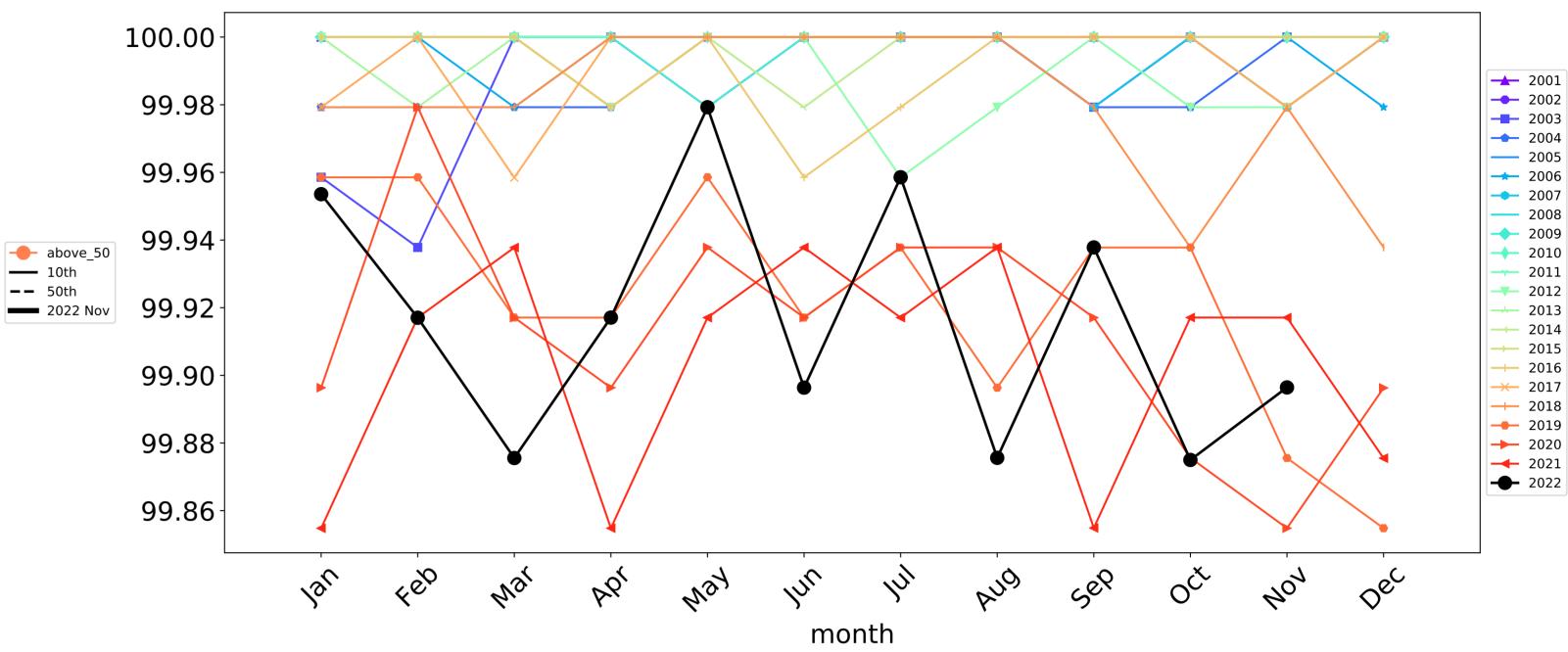


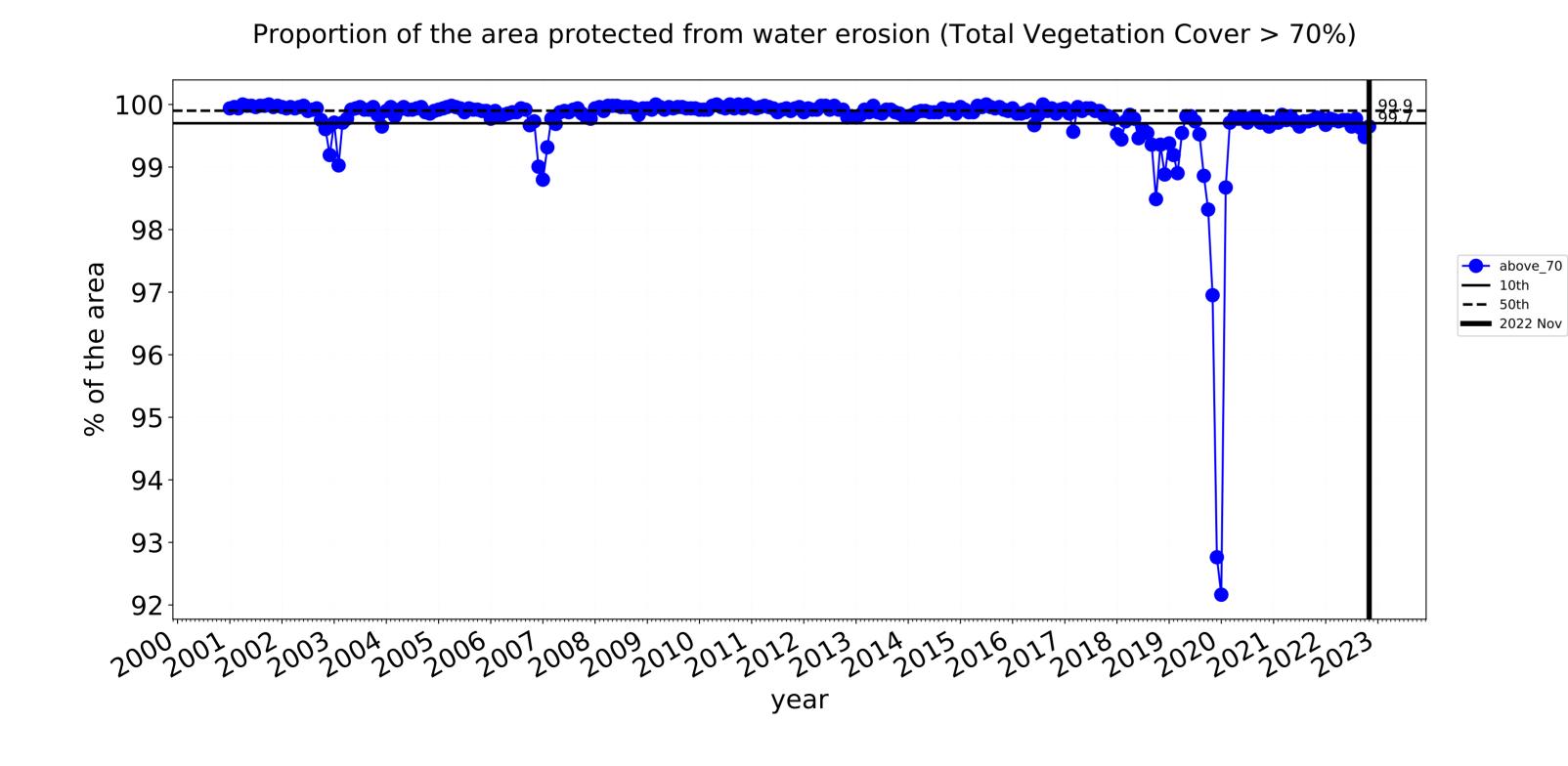


Grazing Woodland forest timeseries



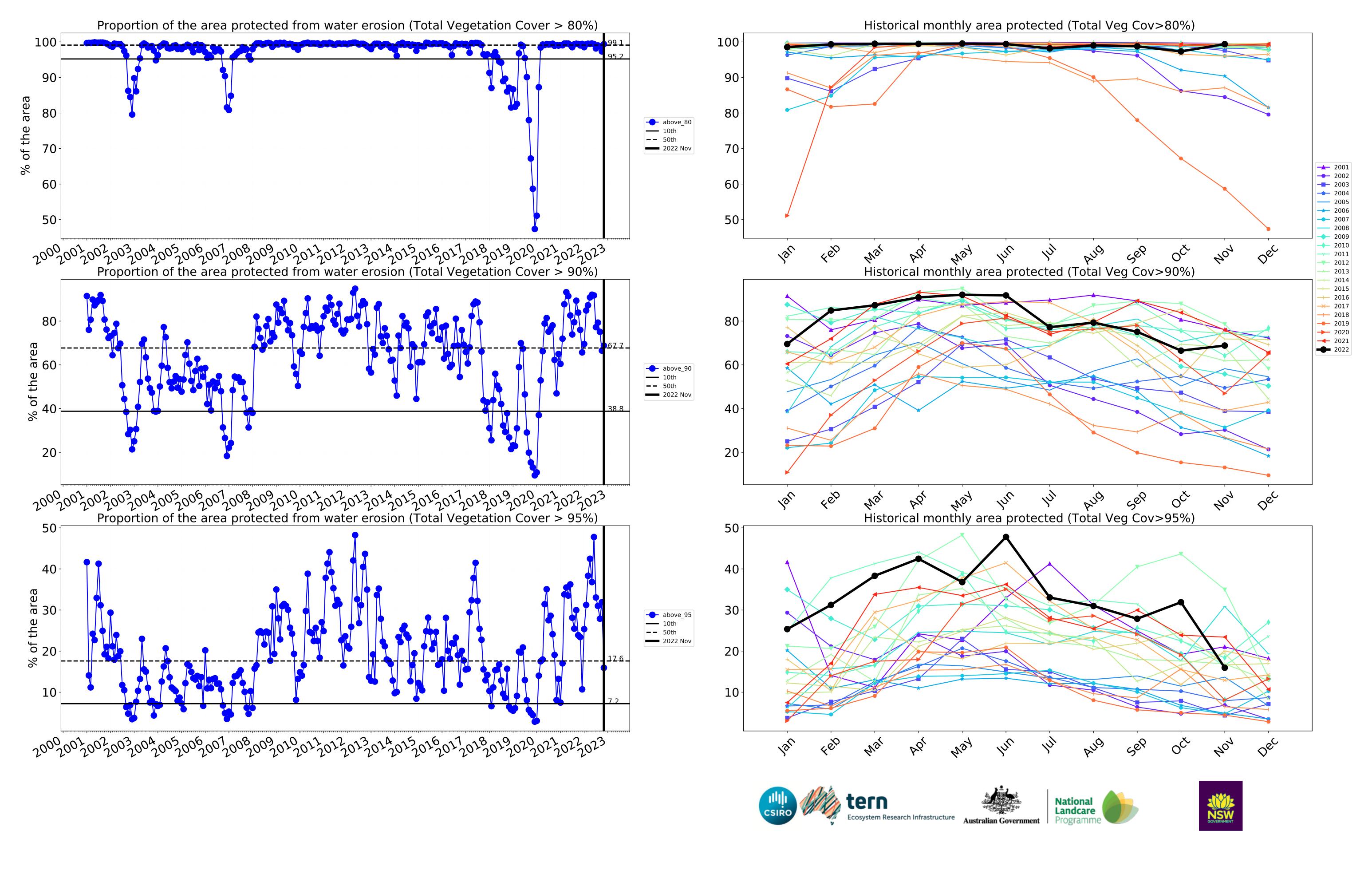
Wind erosion historical monthly area protected (Total Veg Cov >50%)





100 → 2001 99 2003 ____ 2005 98 → 2006 2008 97 → 2010 2011 96 ---- 2013 **─** 2014 95 **→** 2015 ─ 2017 ---- 2018 94 → 2020 **2021** 93 **---** 2022 92 month National Landcare

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

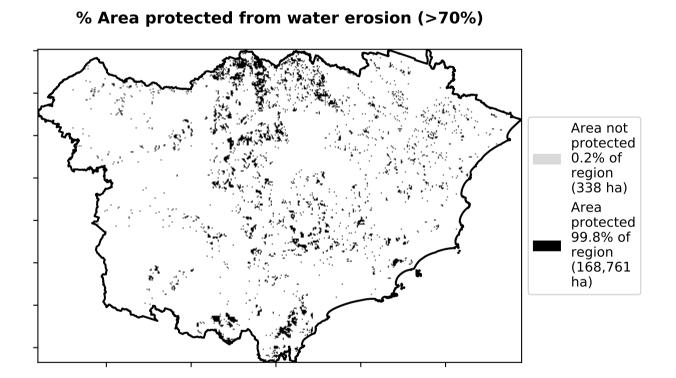


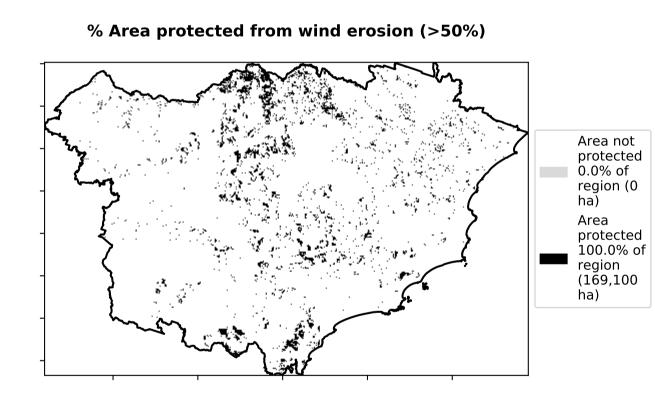
Grazing - Forest (non woodland)

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)

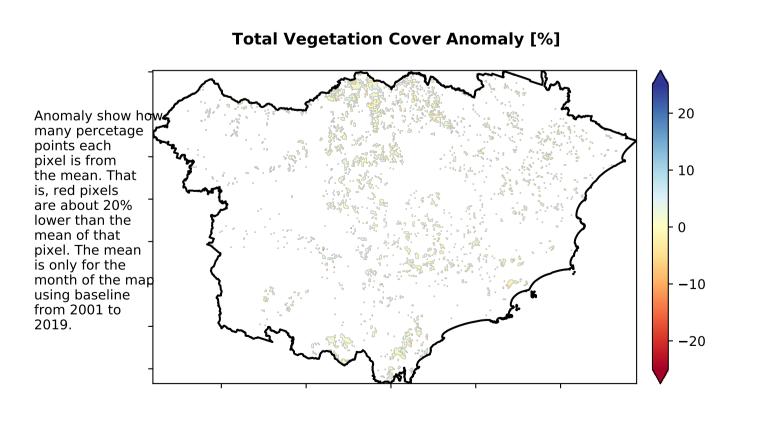
Total Vegetation Cover [%]

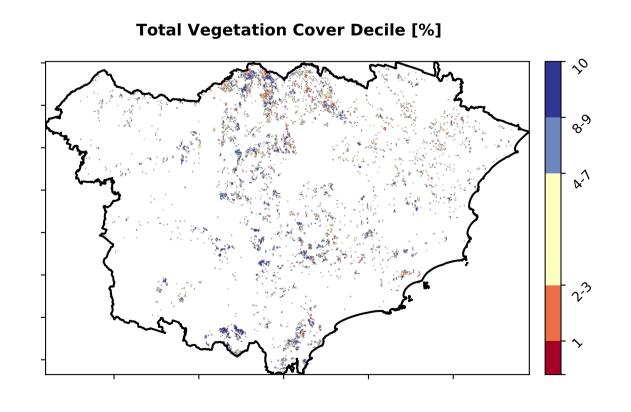
99.8% 100 80 Area (%) 40 20 -0.2% 31%-50% 0-30% 51%-70% 71%-100% **Total Vegetation Cover class**





Proportion of vegetation cover class in area



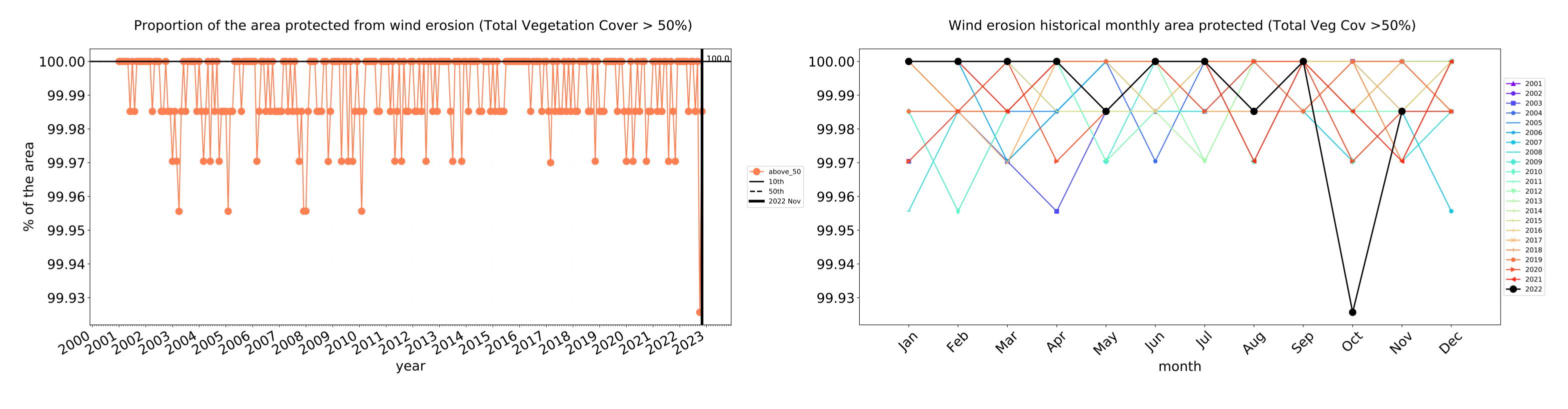


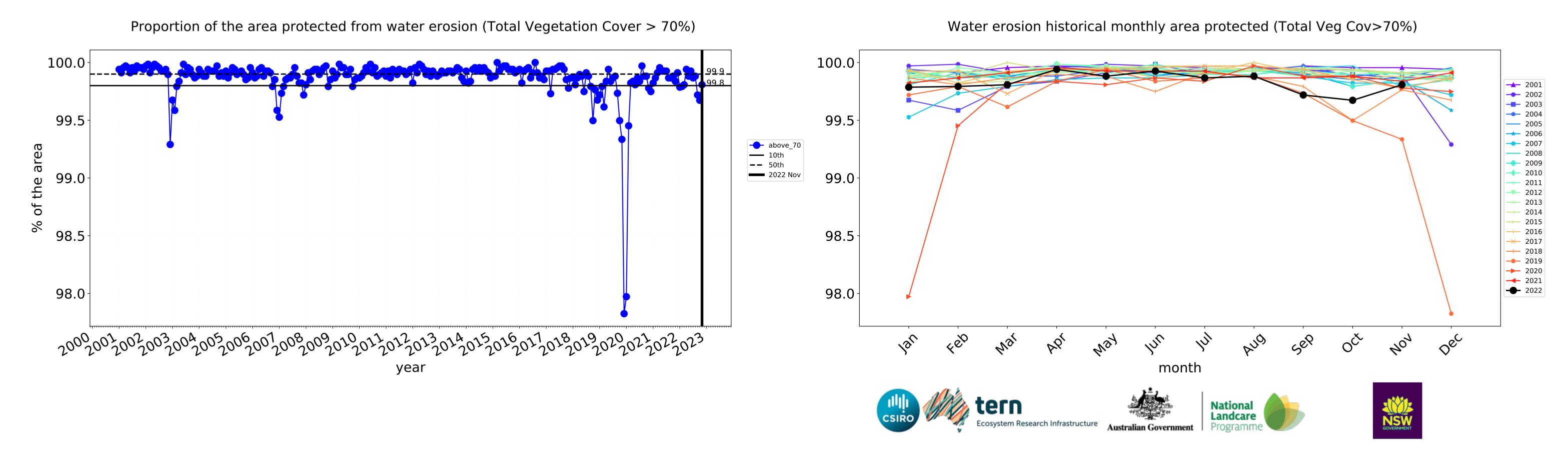


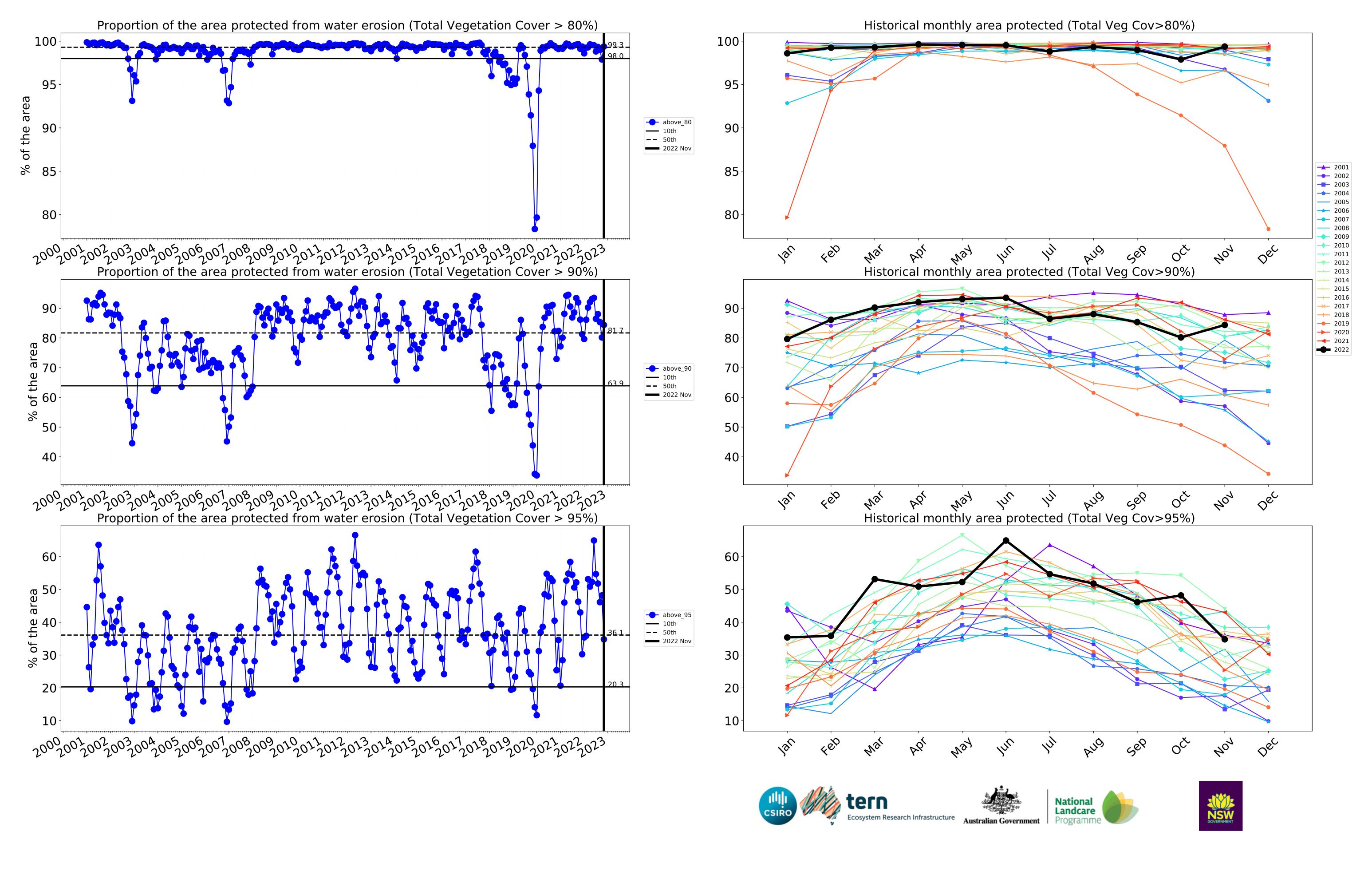






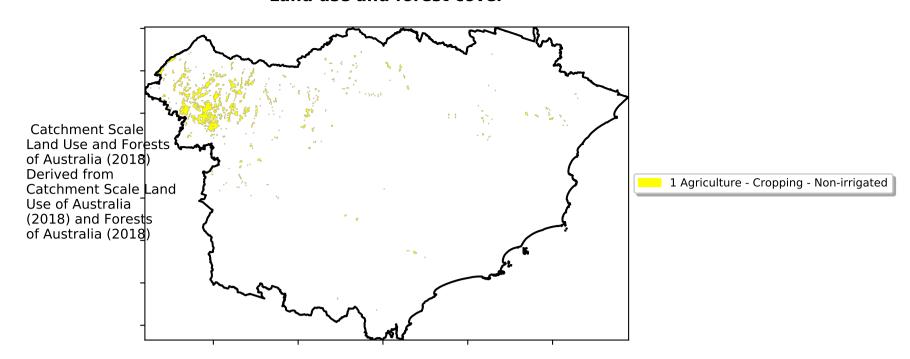




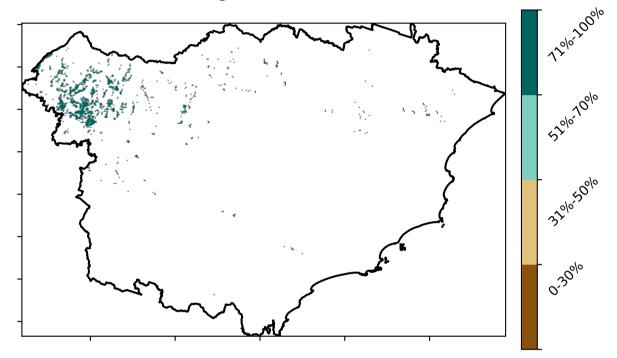


Cropping

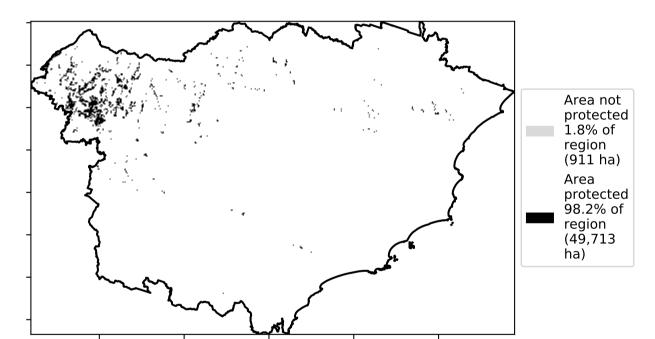
Land use and forest cover



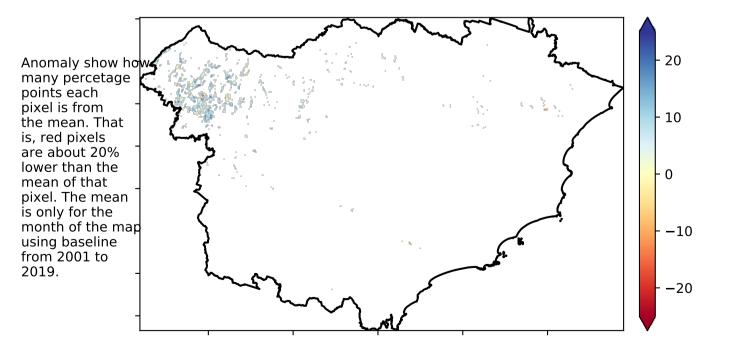
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

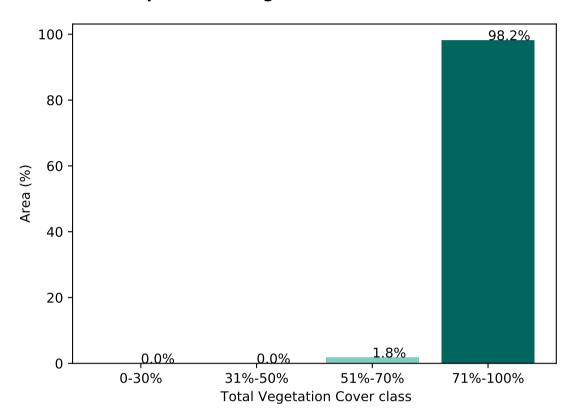


Total Vegetation Cover Anomaly [%]

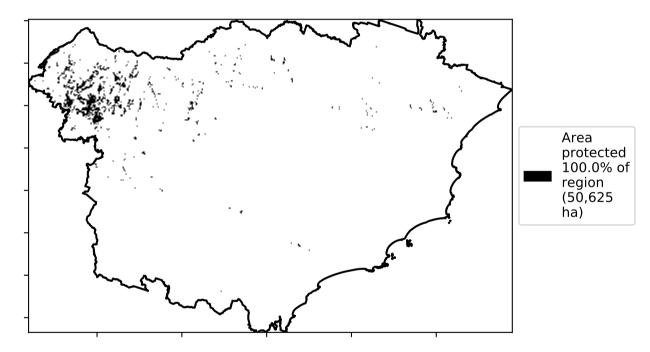


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

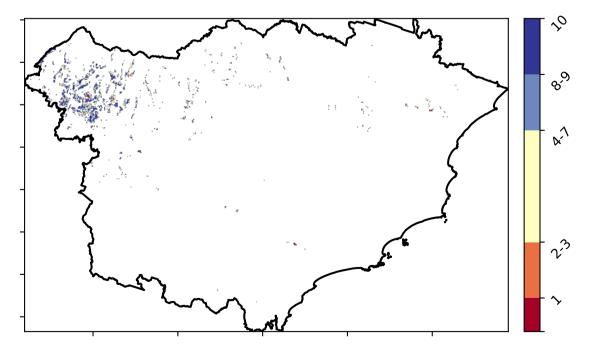
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]



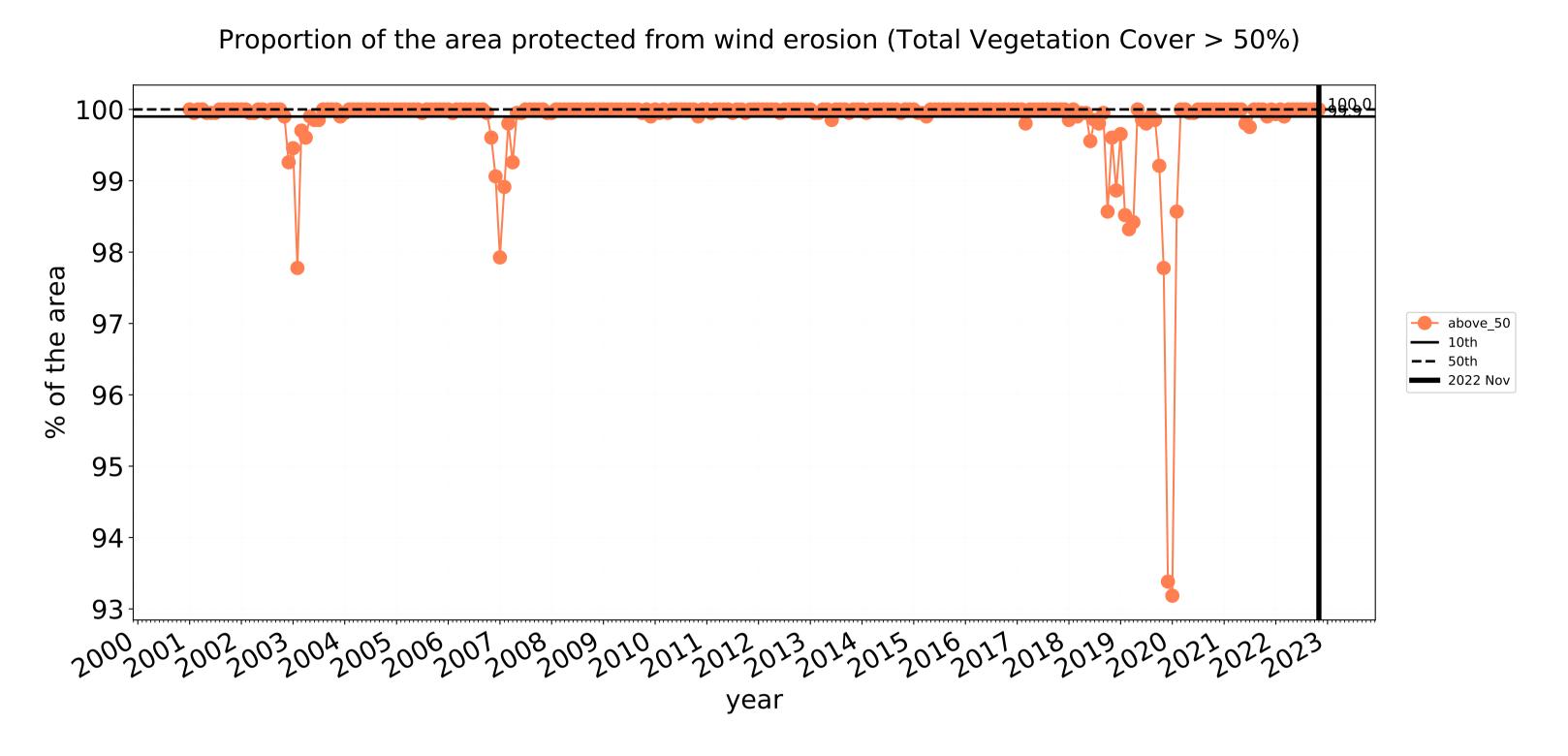


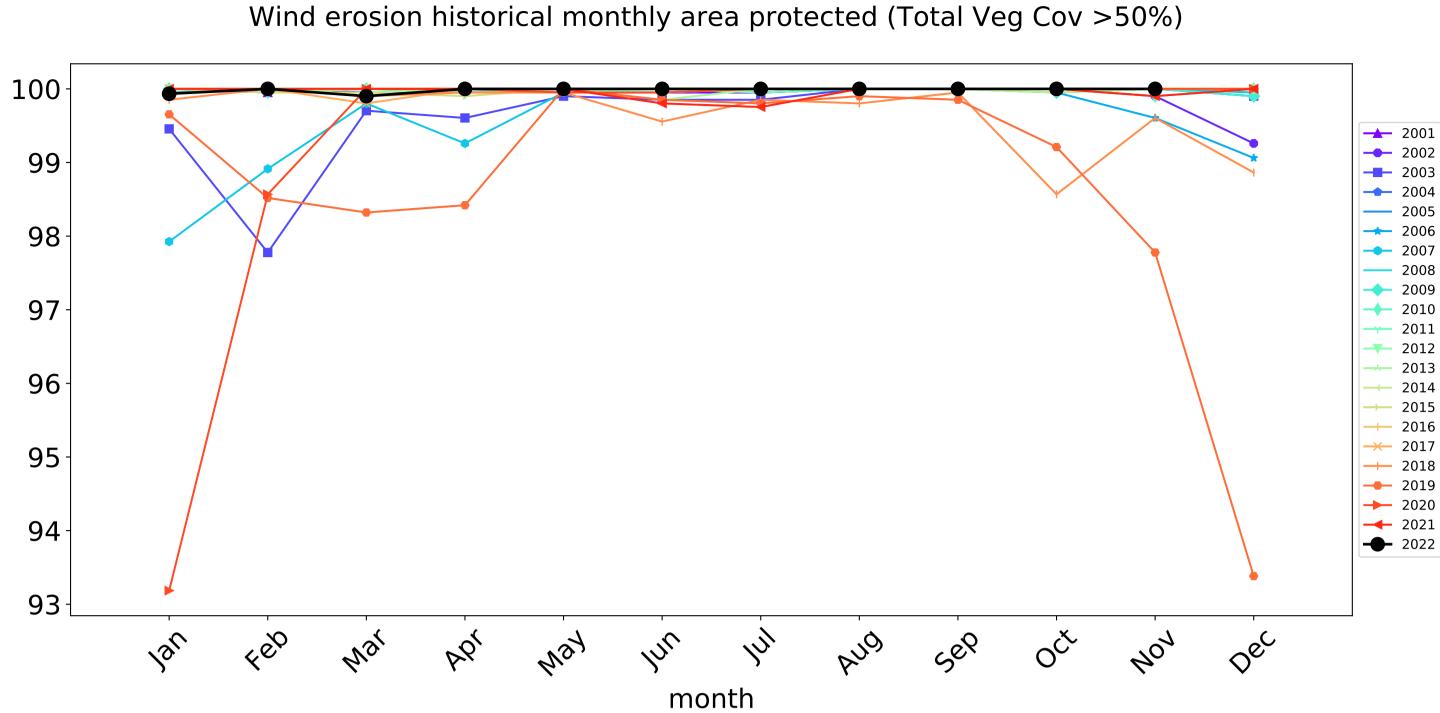


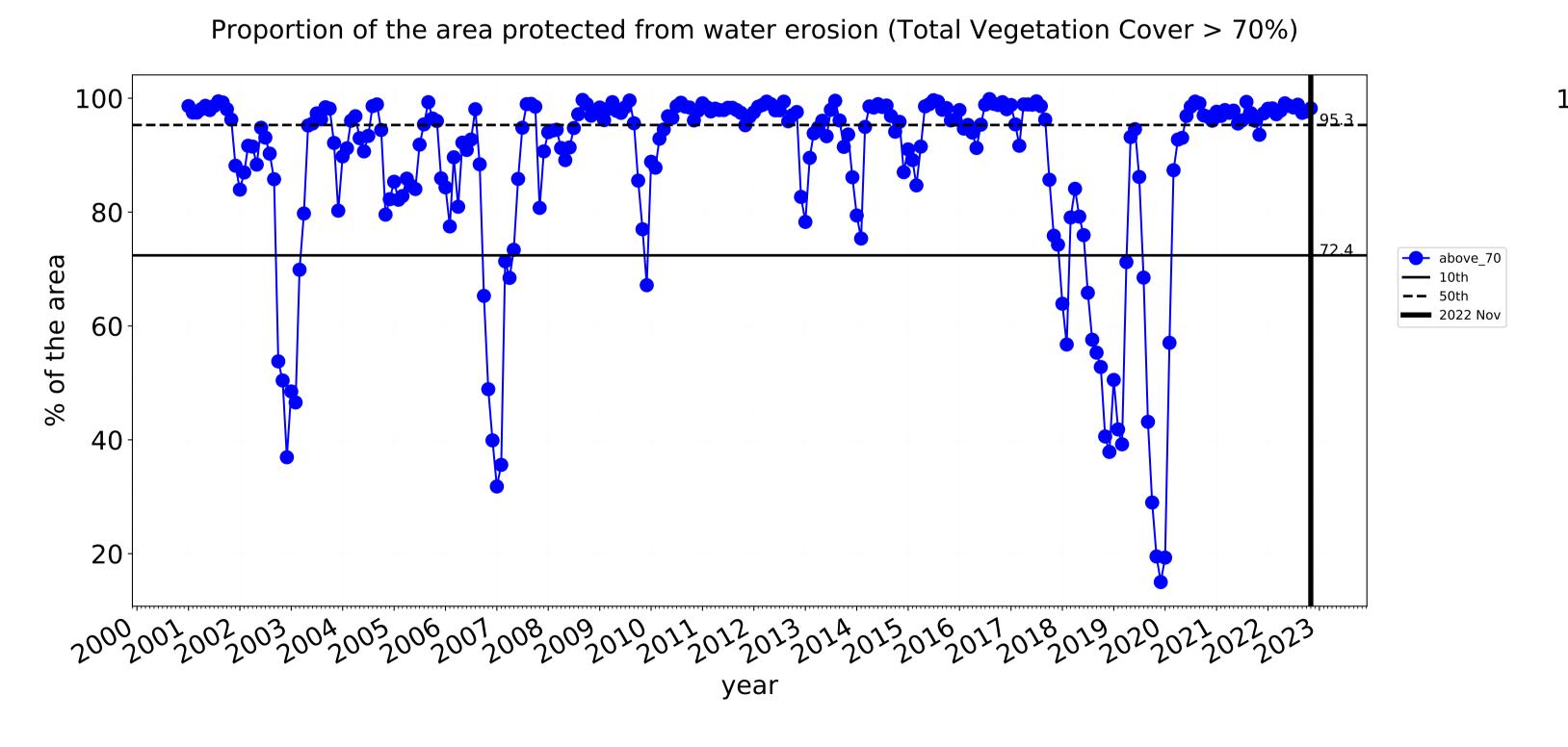


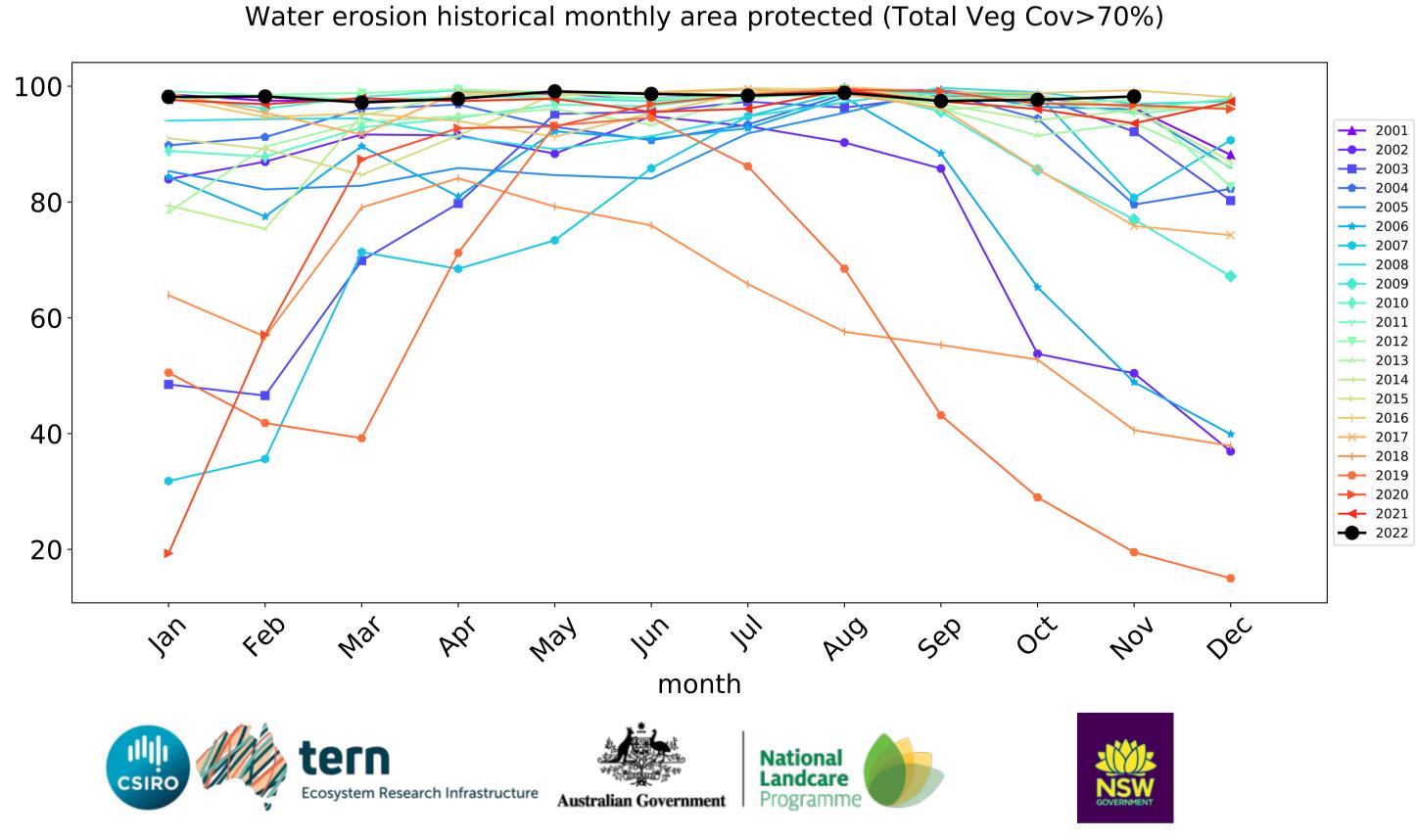


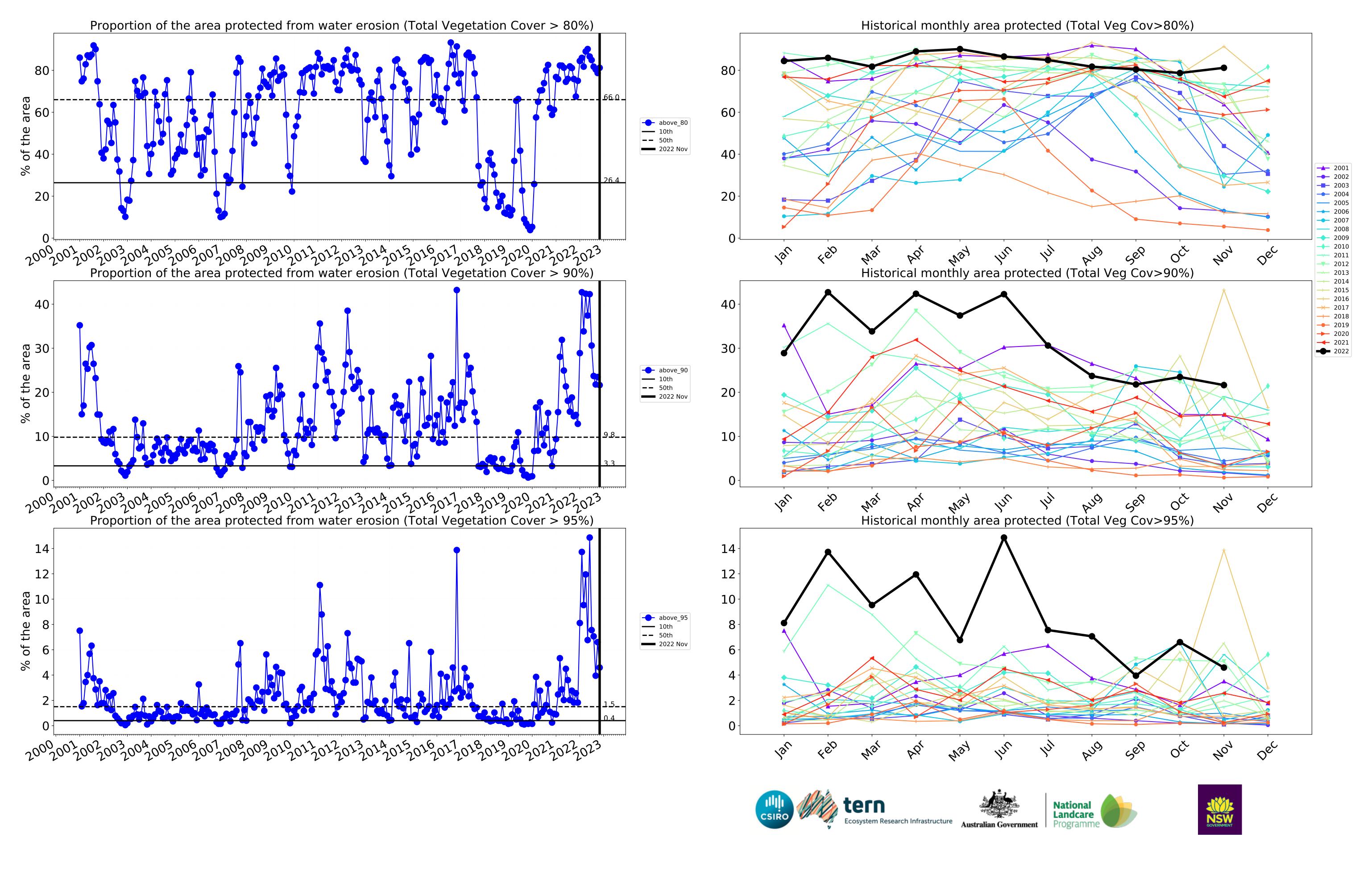
Cropping timeseries







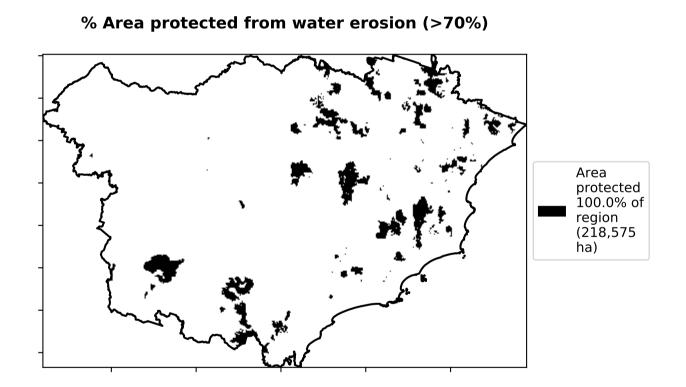


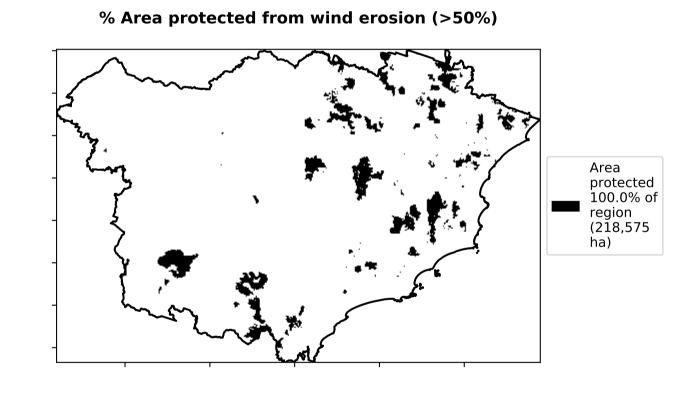


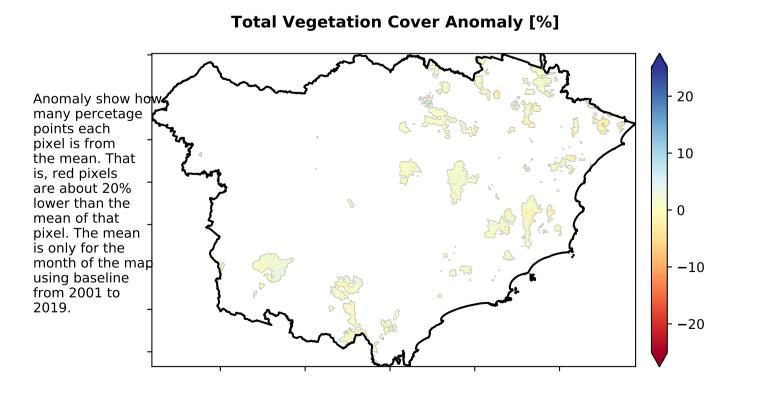
Production native forests and plantation forests

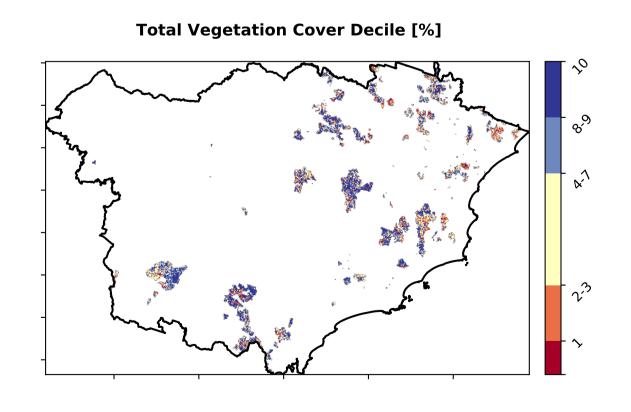
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) I Production native forests and plantation forests of Australia (2018)

Total Vegetation Cover [%]









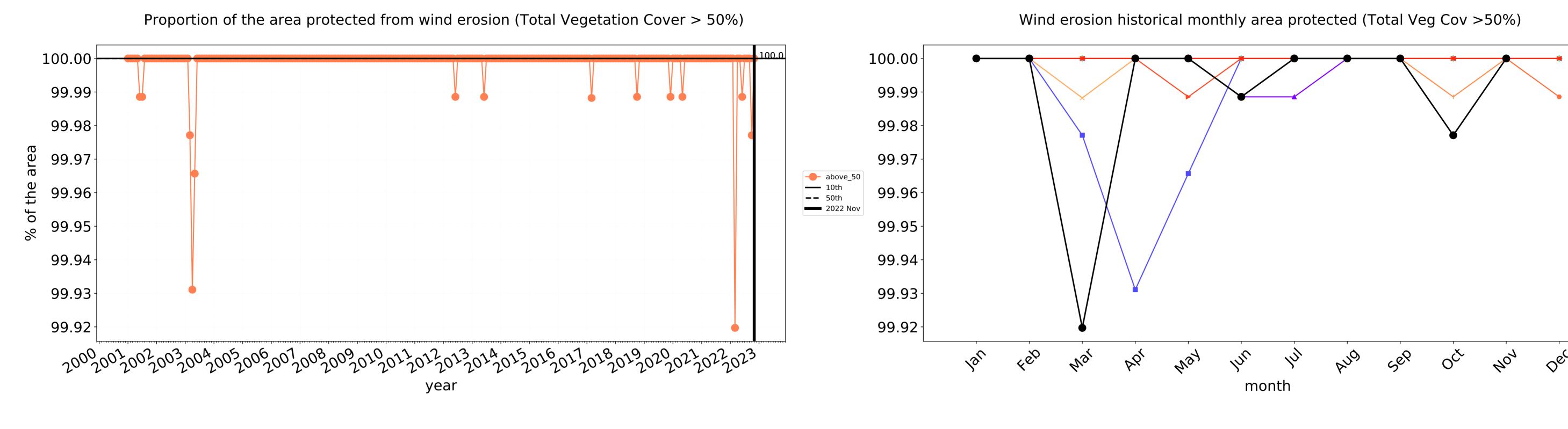


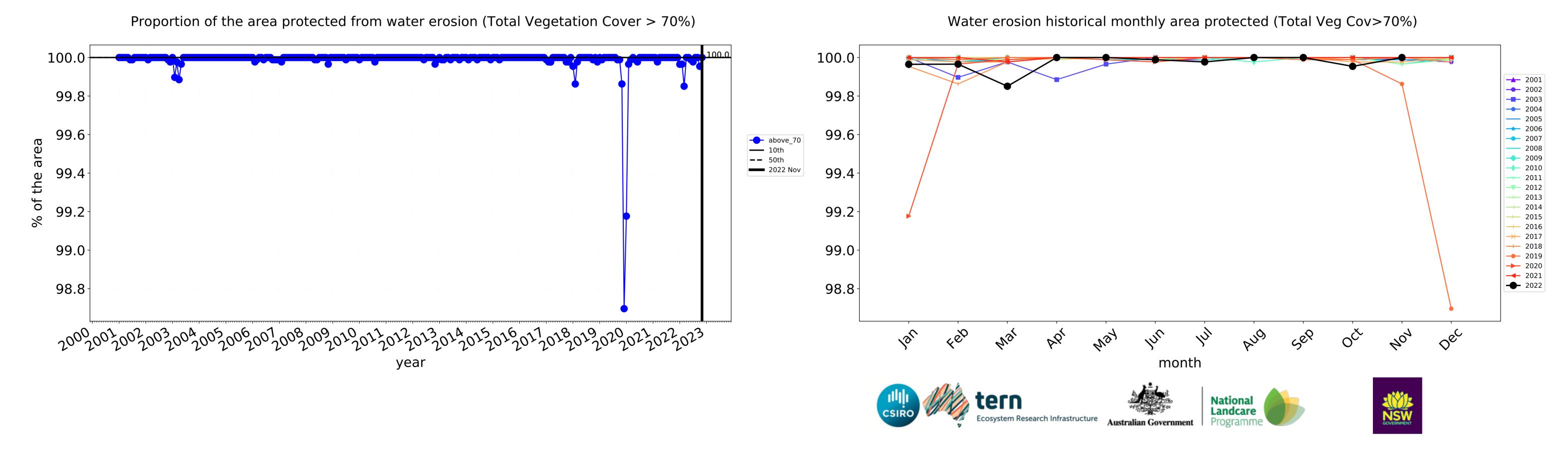






Production native forests and plantation forests timeseries



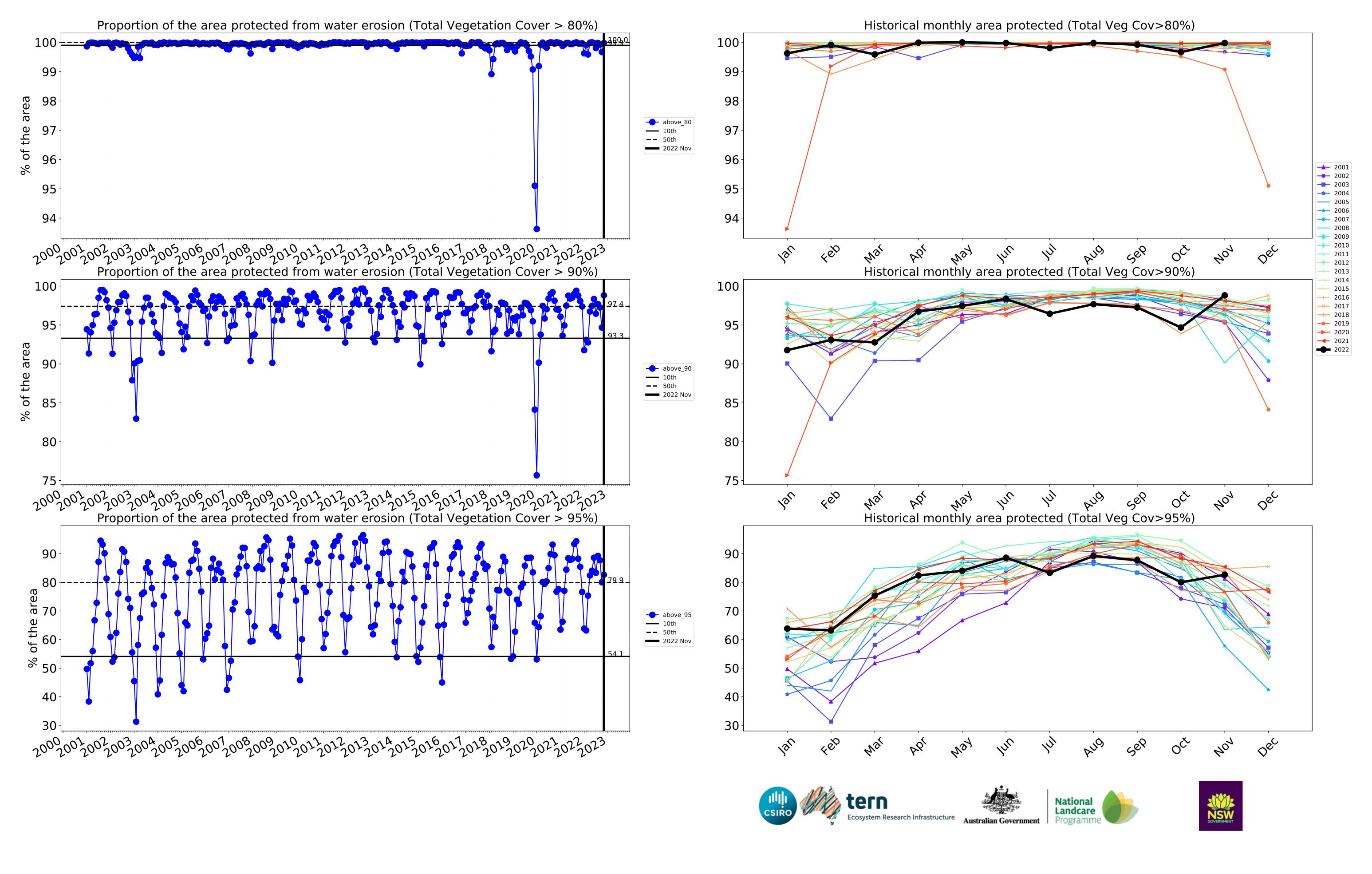


→ 2001

____ 2008

→ 2015

→ 2016
→ 2017



Hunter (3,238,850 ha and no data 61,575 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	3,238,850	99.8% 3,233,850	99.6% 3,226,550	98.5% 3,191,650	96.4% 3,121,225	75.7% 2,452,750	38.2% 1,238,425
Conservation and natural environments	1,241,500	99.9% 1,240,250	99.8% 1,239,250	99.7% 1,237,325	99.4% 1,233,675	93.4% 1,159,250	61.5% 763,025
Conservation and natural environments non forest	30,375	96.0% 29,175	93.5% 28,400	90.5% 27,475	86.2% 26,175	67.5% 20,500	20.7% 6,275
Conservation and natural environments Woodland forest	138,950	100.0% 138,950	99.9% 138,850	99.7% 138,550	99.4% 138,075	89.6% 124,475	44.6% 62,000
Conservation and natural environments Forest (non woodland)	1,072,175	100.0% 1,072,125	100.0% 1,072,000	99.9% 1,071,300	99.7% 1,069,425	94.6% 1,014,275	64.8% 694,750
Agriculture	1,580,775	100.0% 1,580,525	99.9% 1,579,700	99.6% 1,574,925	97.6% 1,543,100	64.4% 1,017,575	17.5% 277,225
Grazing	1,502,775	100.0% 1,502,525	99.9% 1,501,700	99.7% 1,498,325	98.5% 1,480,200	66.8% 1,003,175	18.3% 274,400
Grazing non forest	1,212,975	100.0% 1,212,800	99.9% 1,212,050	99.7% 1,209,275	98.3% 1,192,200	64.1% 777,425	16.2% 196,300
Grazing Woodland forest	120,700	100.0% 120,650	99.9% 120,575	99.6% 120,275	99.4% 119,950	68.8% 83,050	15.9% 19,250
Grazing - Forest (non woodland)	169,100	100.0% 169,075	100.0% 169,075	99.8% 168,775	99.4% 168,050	84.4% 142,700	34.8% 58,850
Cropping	50,625	100.0% 50,625	100.0% 50,625	98.2% 49,725	81.2% 41,100	21.6% 10,950	4.6% 2,325
Production native forests and plantation forests	218,575	100.0% 218,575	100.0% 218,575	100.0% 218,575	100.0% 218,525	98.8% 215,975	82.6% 180,650







