Total vegetation cover soil protection Region:LGA Gympie_(R) QLD

Date: August 2022

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:

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 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:

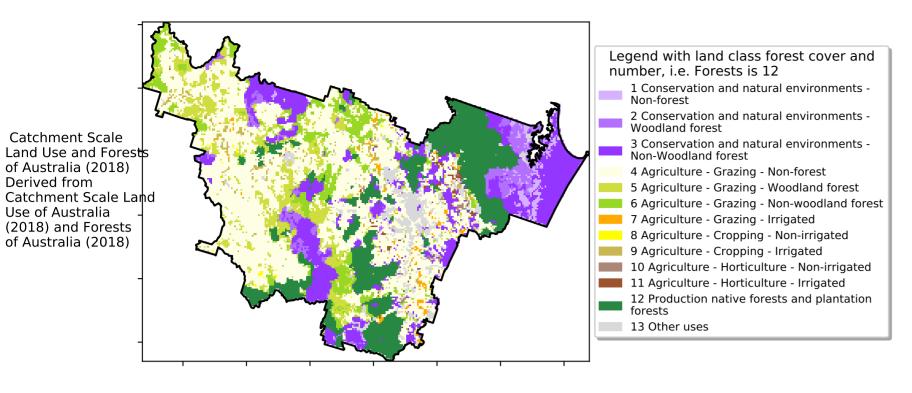
https://doi.org/10.4225/08/5848a3f19a7b3



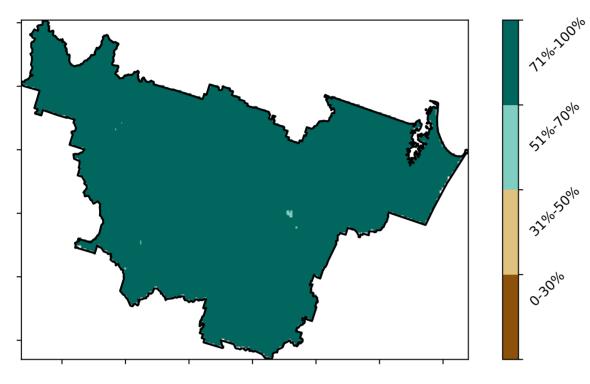
Vegetation Cover Aug 2022

Land use and forest cover

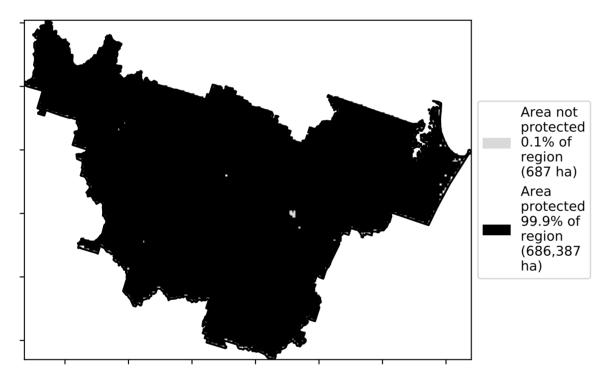
Proportion of each land class in area

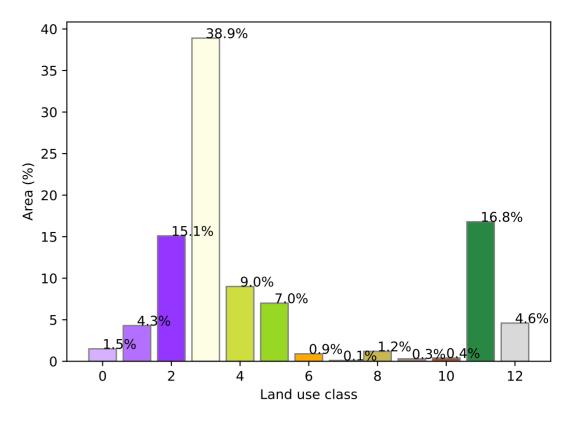


Total Vegetation Cover [%]

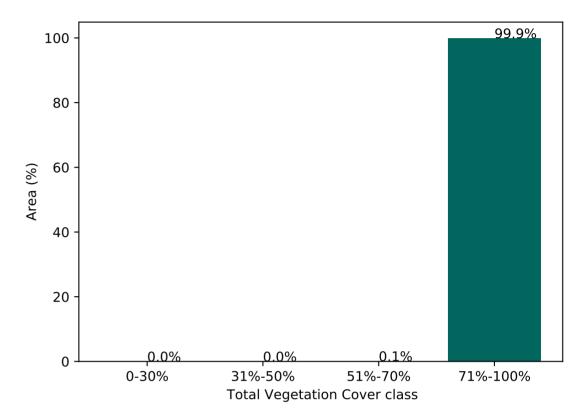


% Area protected from water erosion (>70%)





Proportion of vegetation cover class in area



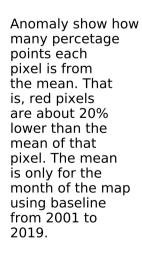
% Area protected from wind erosion (>50%)

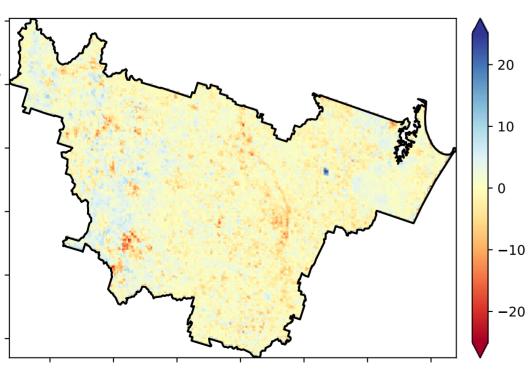


protected 0.0% of region (0

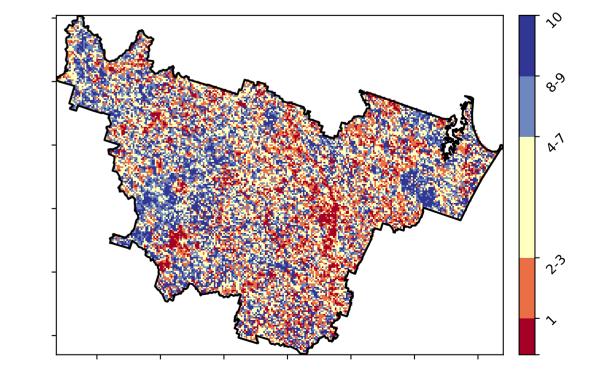


Total Vegetation Cover Decile [%]

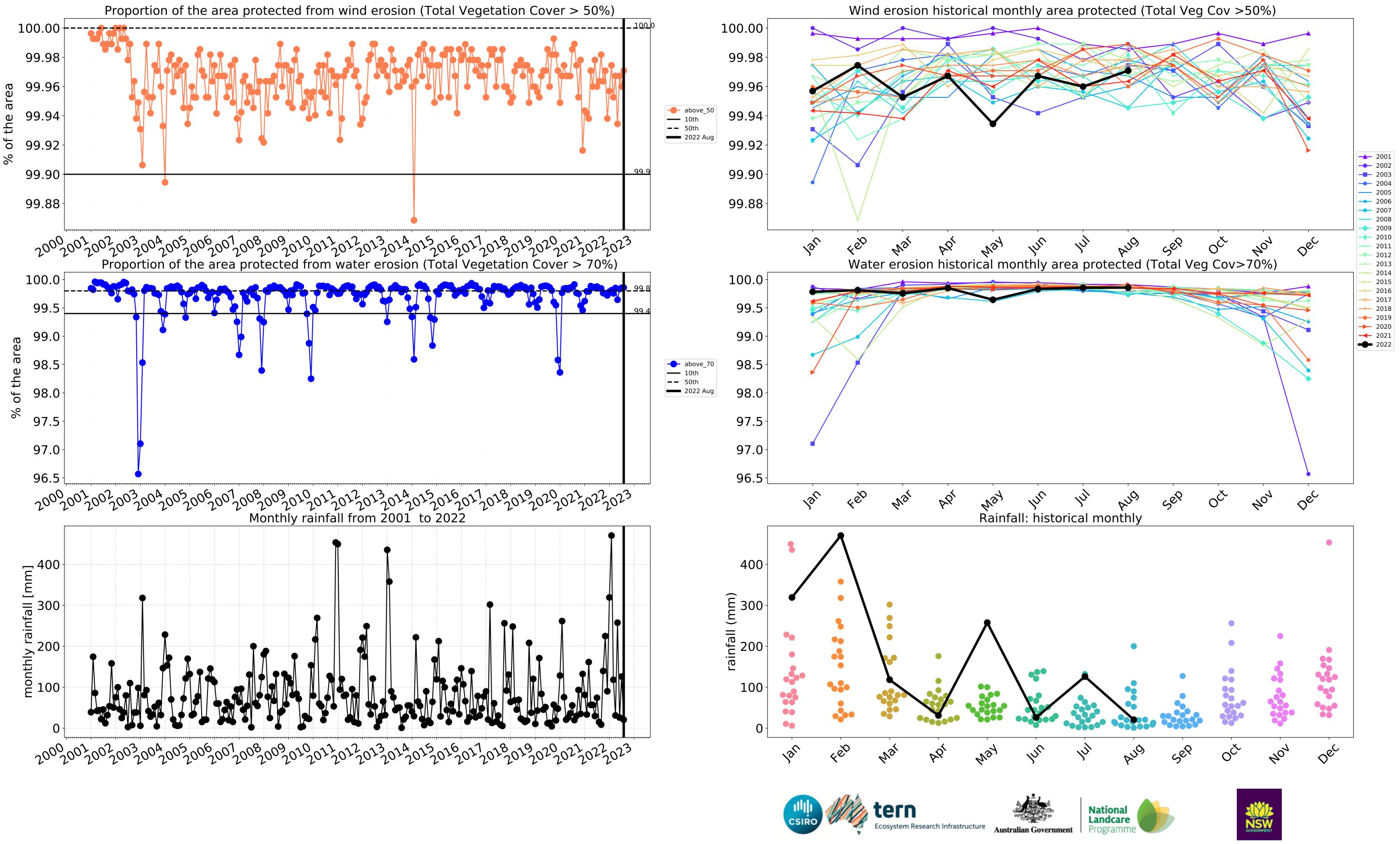


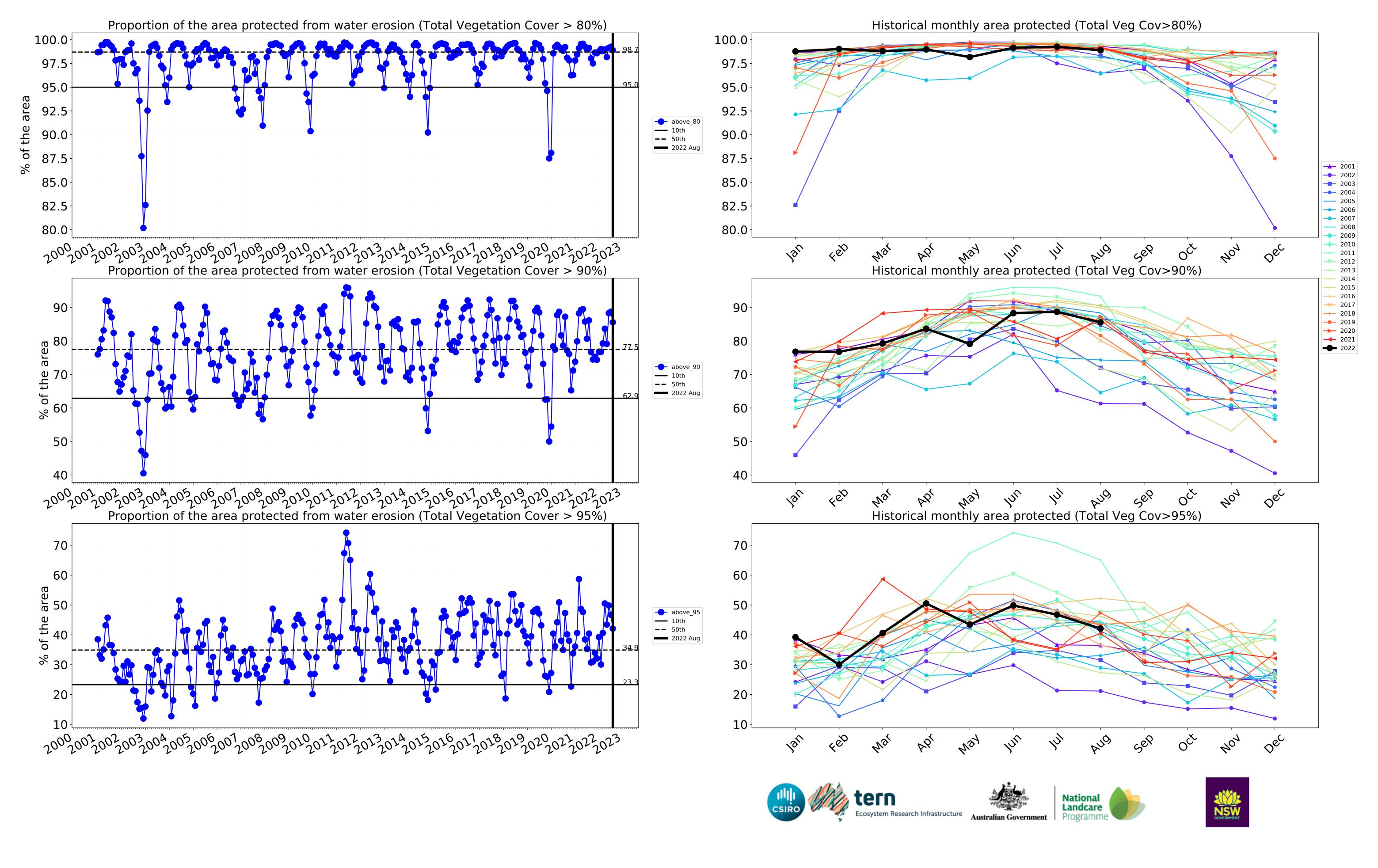


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.









Conservation and natural environments

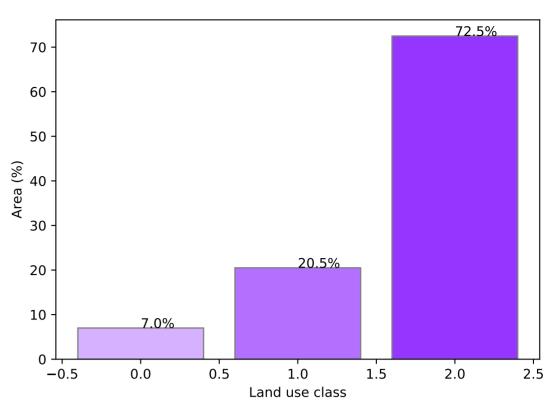
1 Conservation and natural environments - Nonforest

3 Conservation and natural environments - Nonwoodland forest

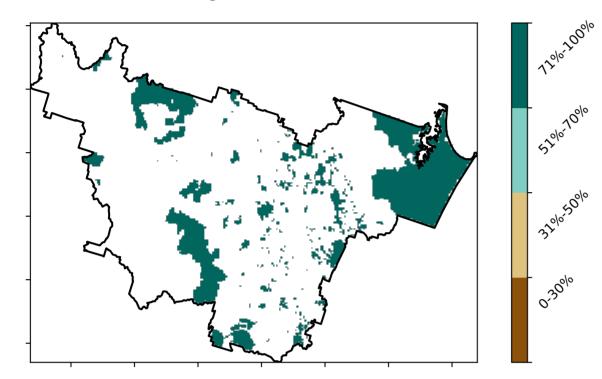
2 Conservation and natural environments - Woodland forest

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

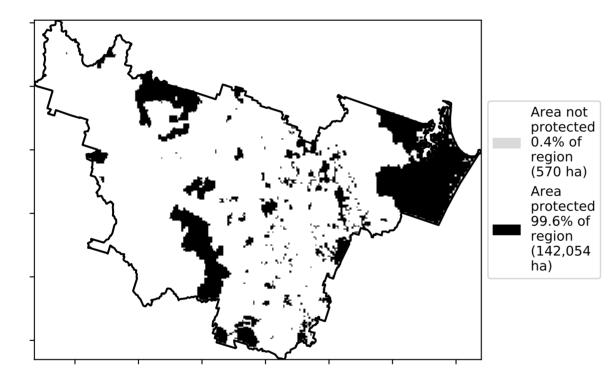
Proportion of each land class in area



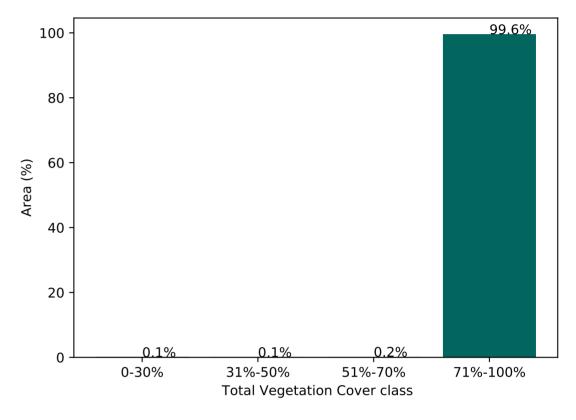
Total Vegetation Cover [%]



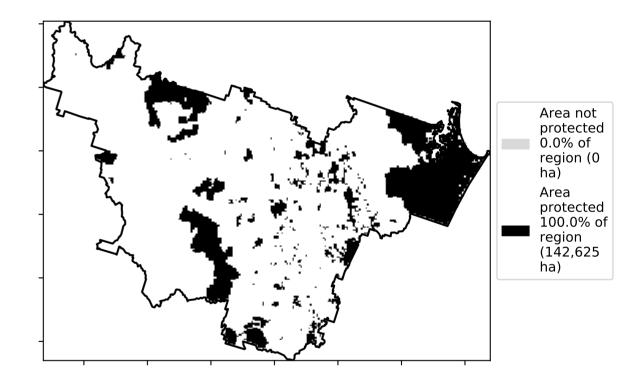
% Area protected from water erosion (>70%)



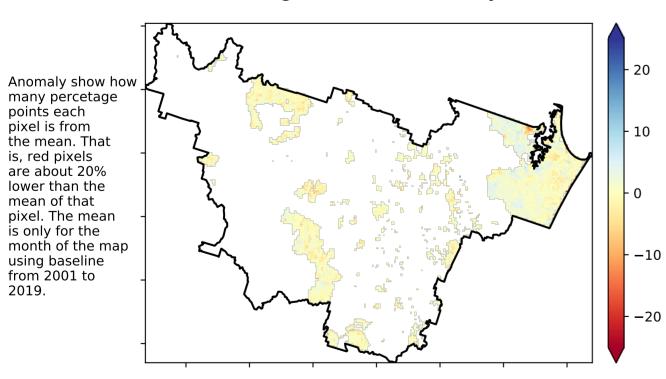
Proportion of vegetation cover class in area



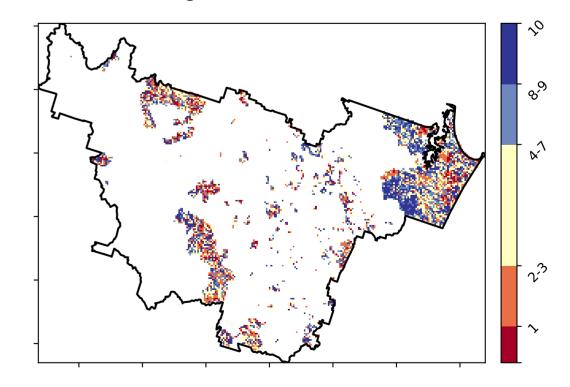
% Area protected from wind erosion (>50%)



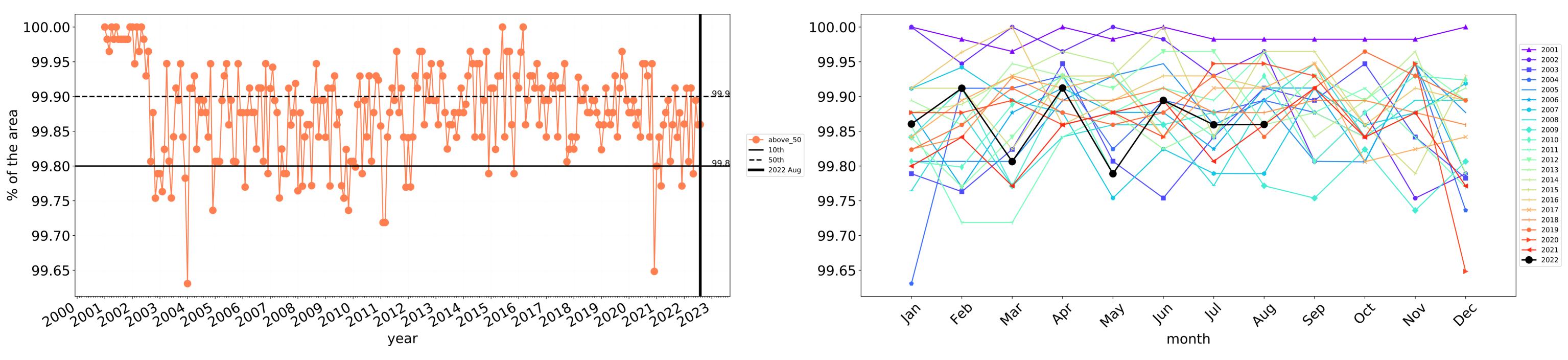
Total Vegetation Cover Anomaly [%]



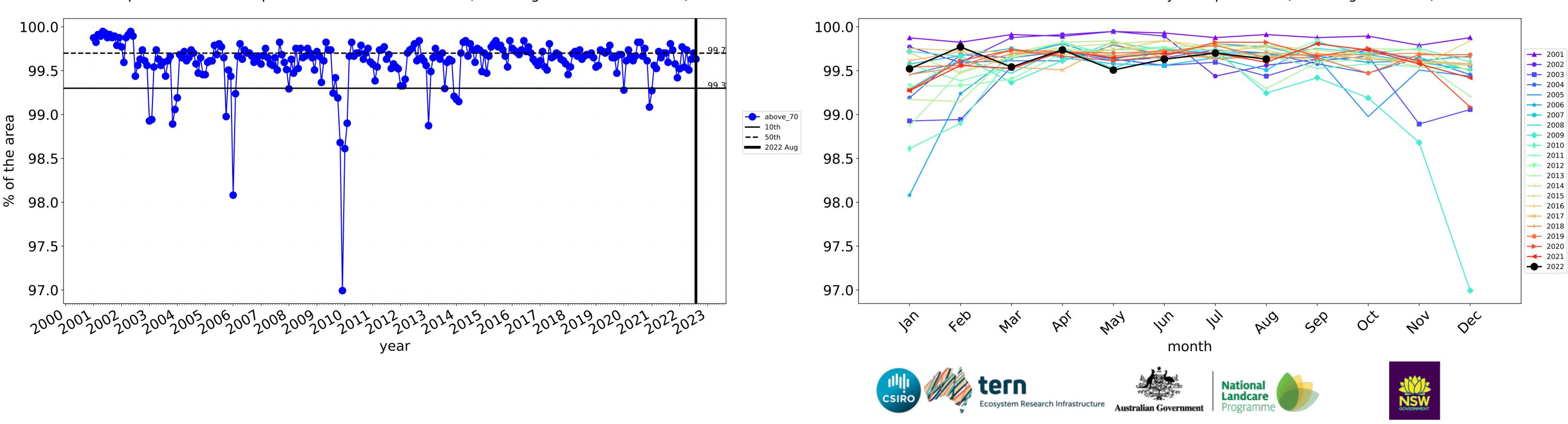
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]**





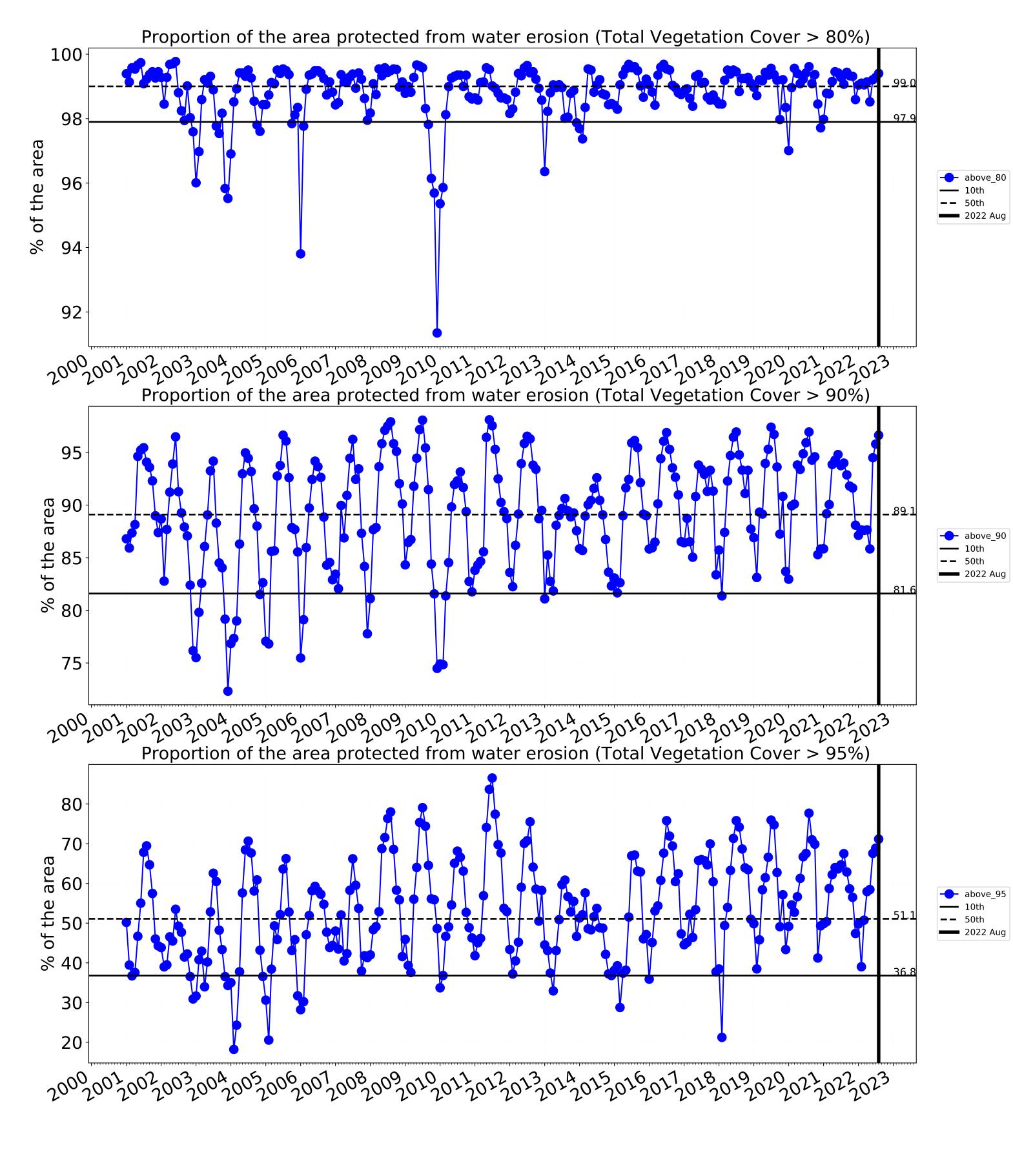


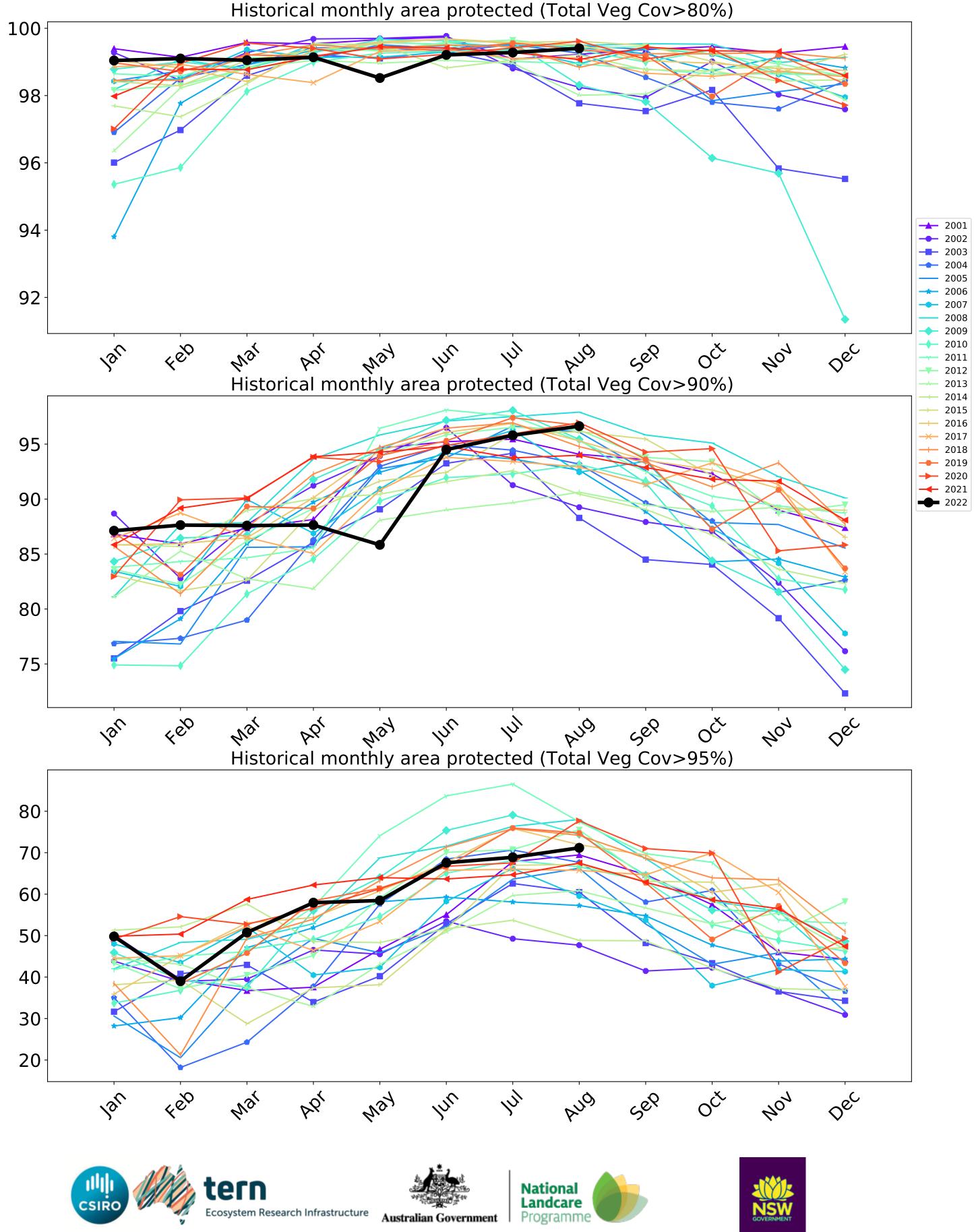
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



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

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





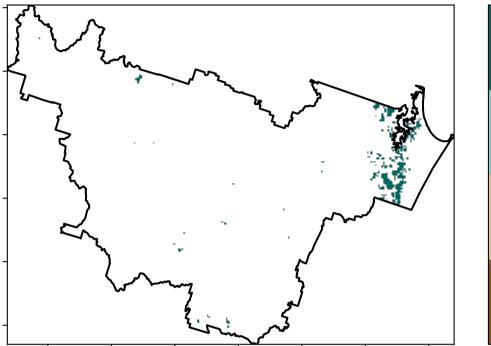


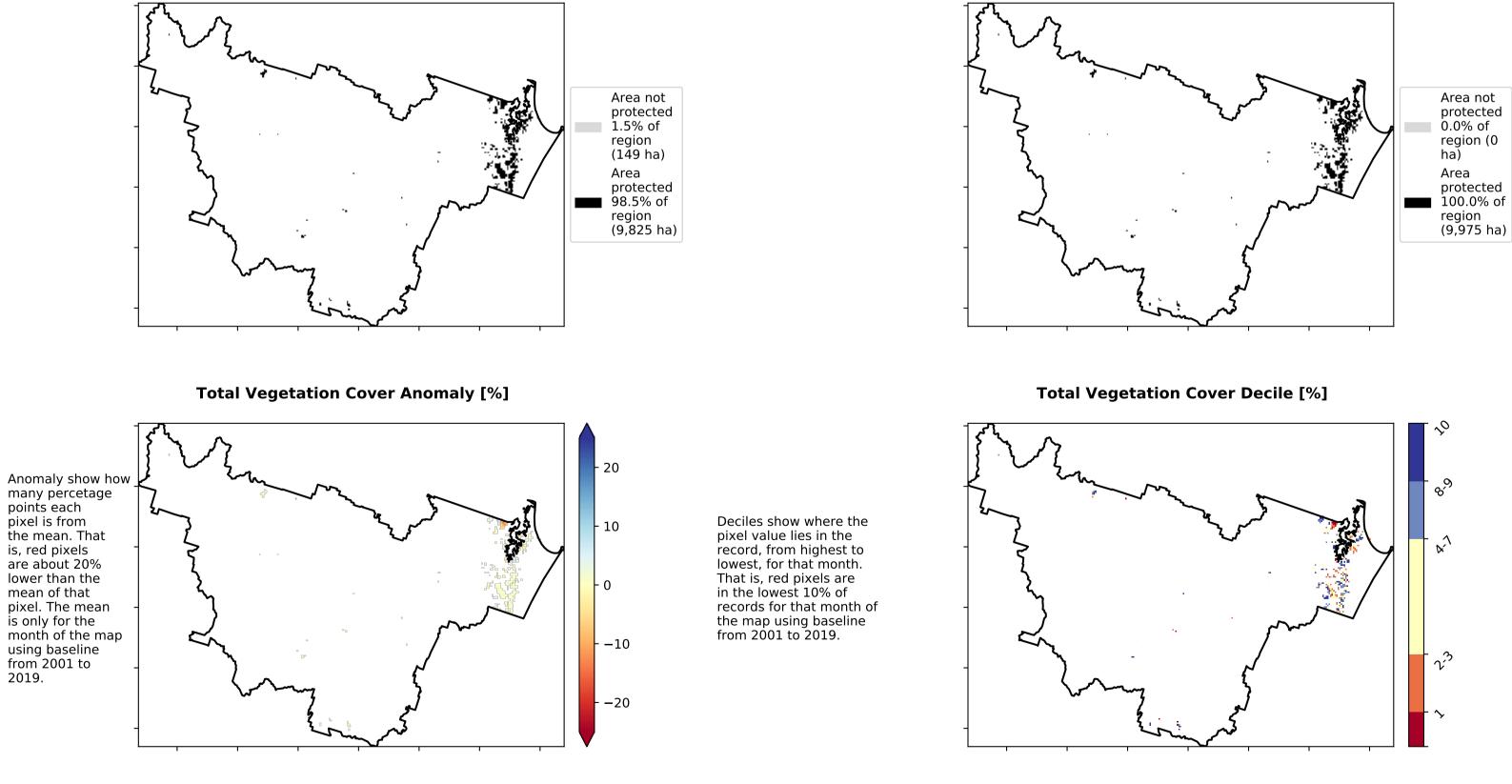
Conservation and natural environments non forest

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

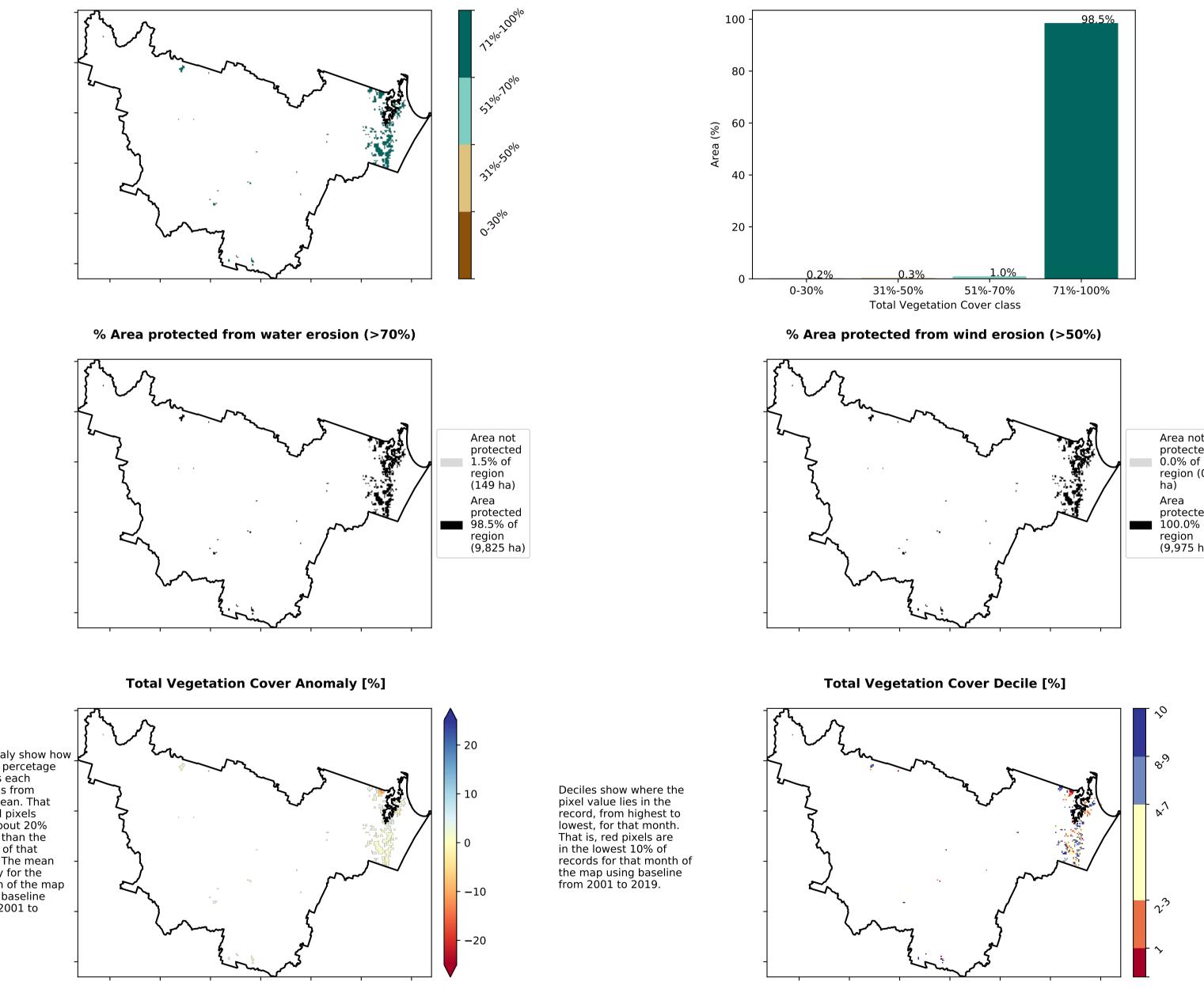
Total Vegetation Cover [%]

Land use and forest cover

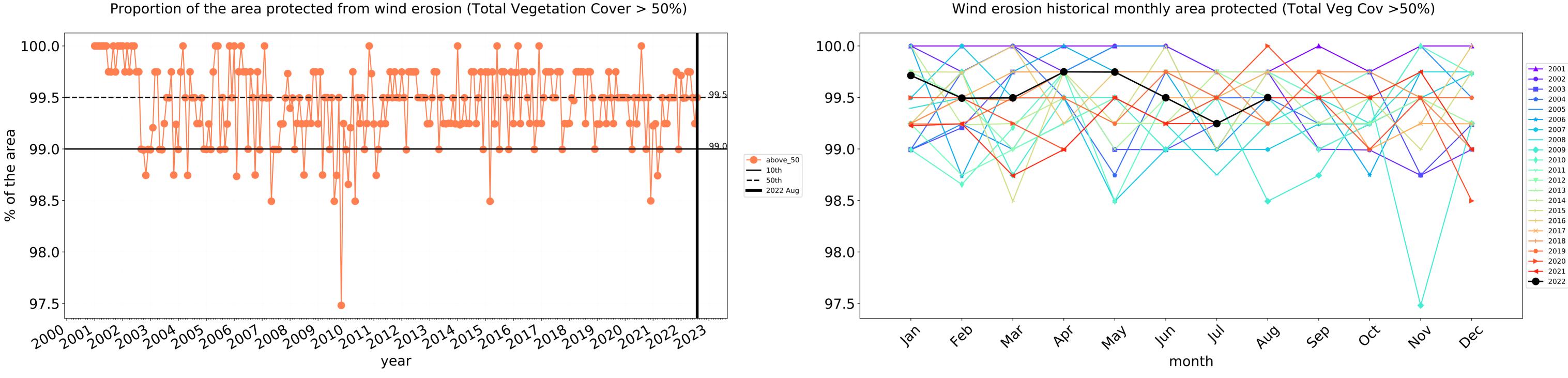




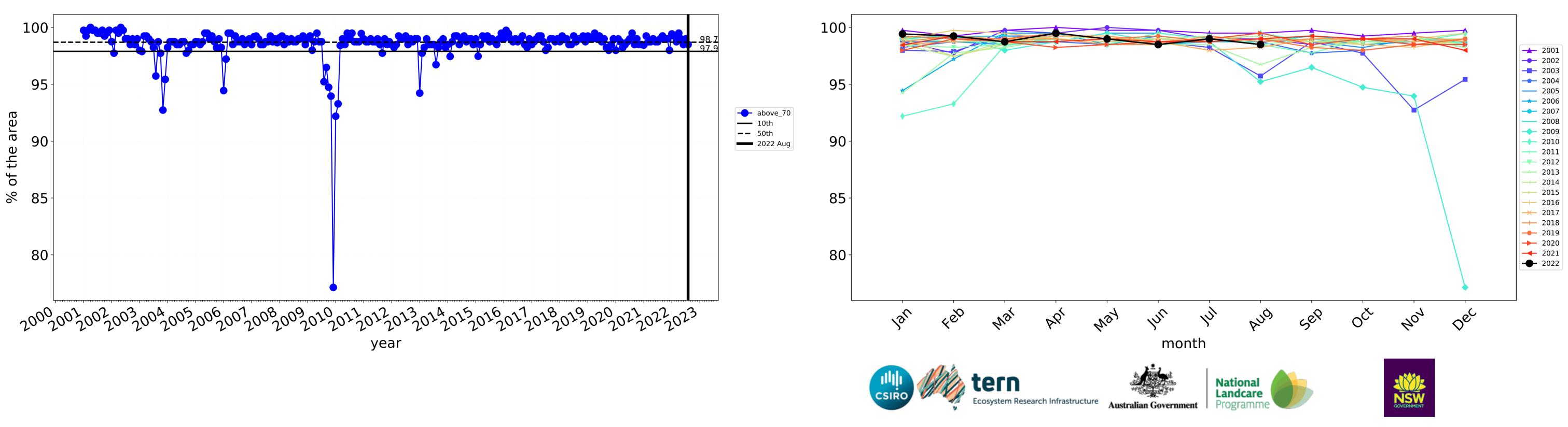
Proportion of vegetation cover class in area



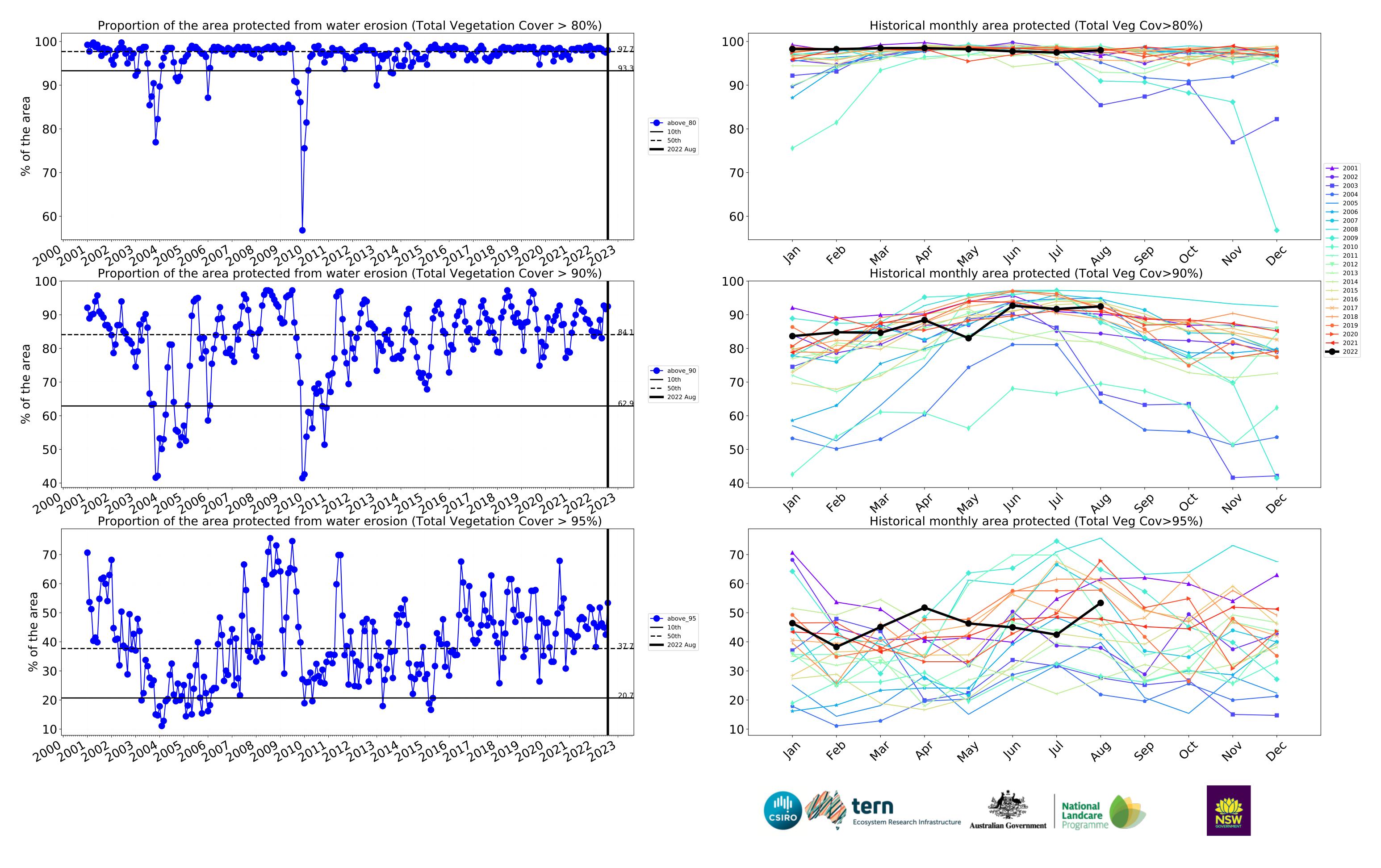




Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



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

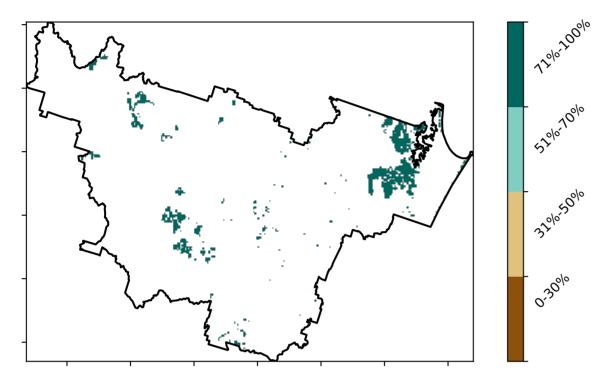


9

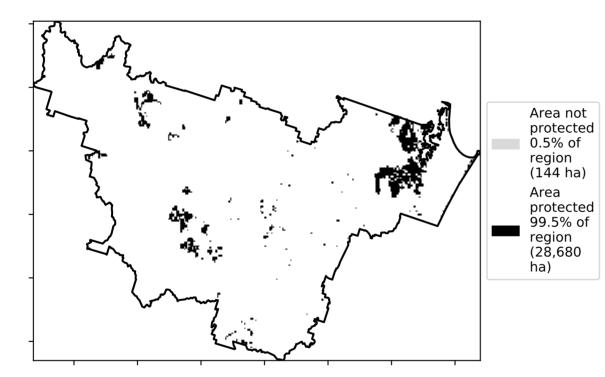
Conservation and natural environments Woodland forest

Catchment Scale Land Use and Forest cover

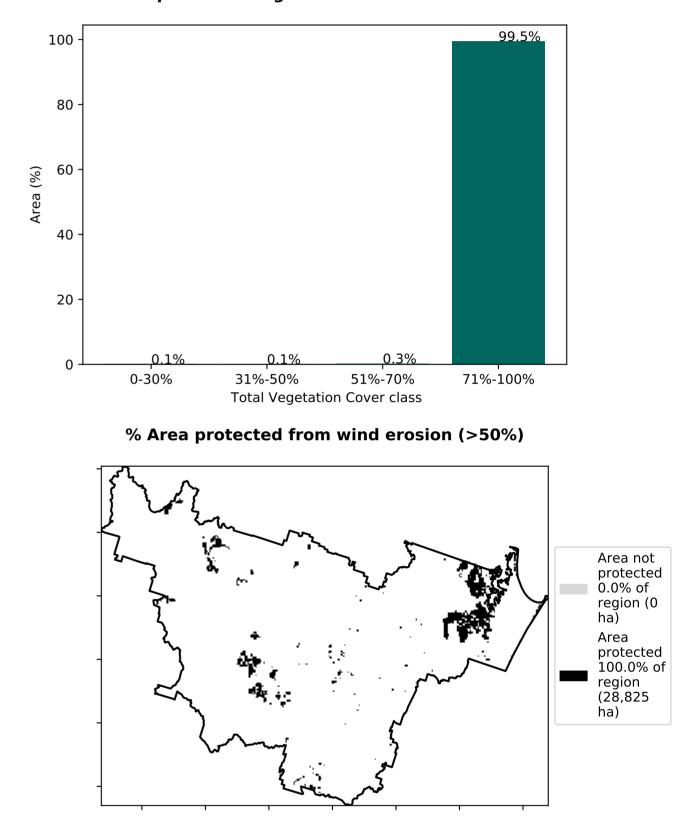
Total Vegetation Cover [%]



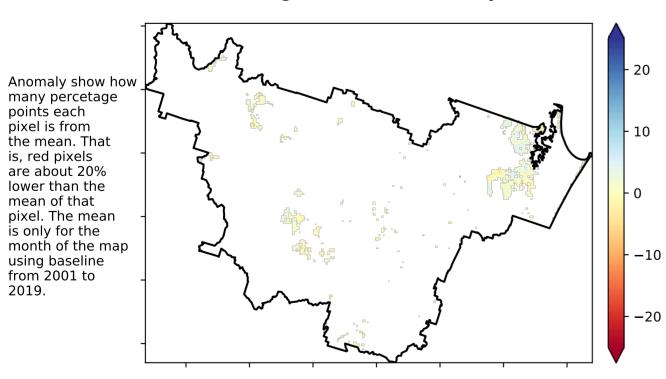
% Area protected from water erosion (>70%)



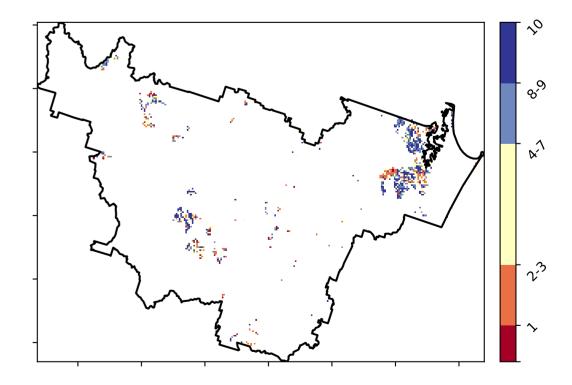
Proportion of vegetation cover class in area



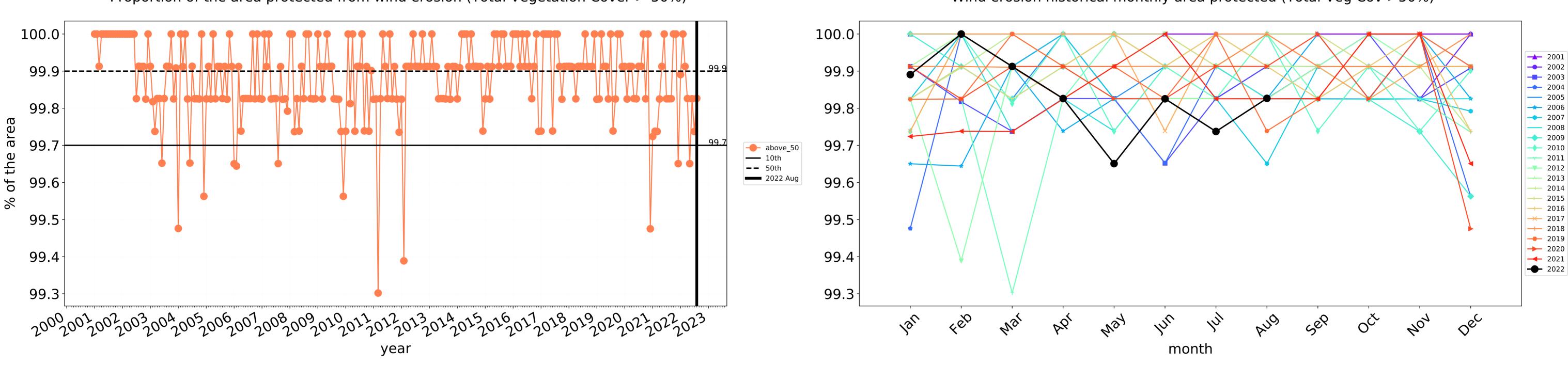
Total Vegetation Cover Anomaly [%]



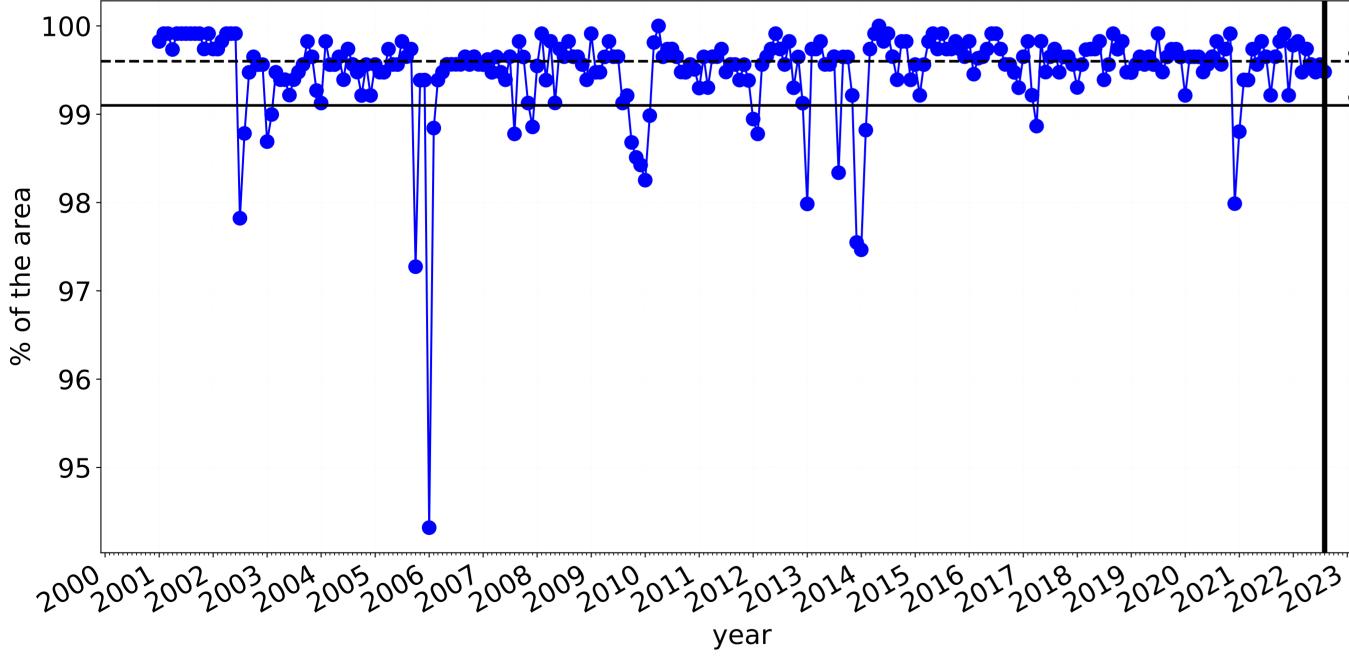
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]**







Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

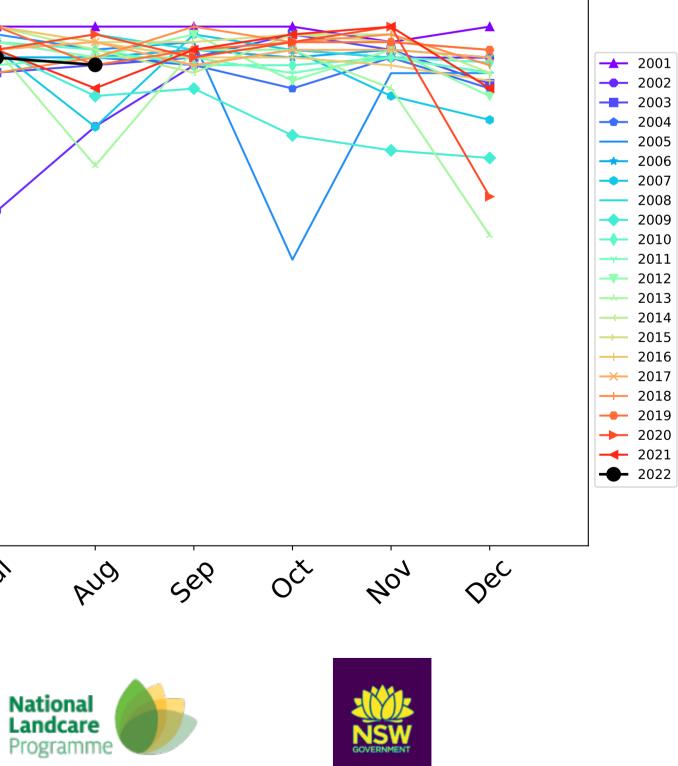


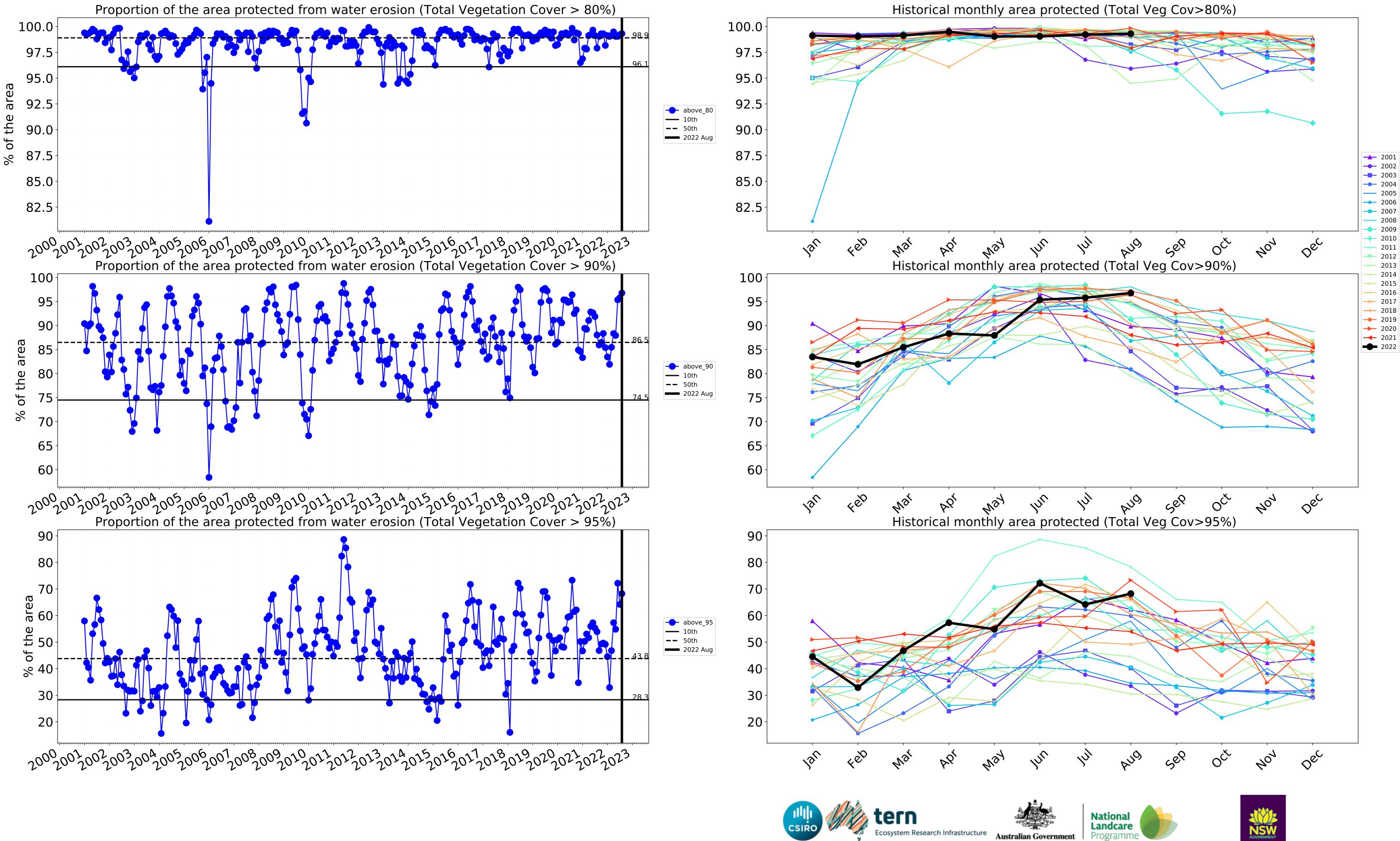
100 99.6 99 -99 ---- above_70 98-**—** 10th **——** 50th 2022 Aug 97 96 95 4eb Jan way PQ In 1st Mai month tern Ecosystem Research Infrastructure Australian Government

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

13

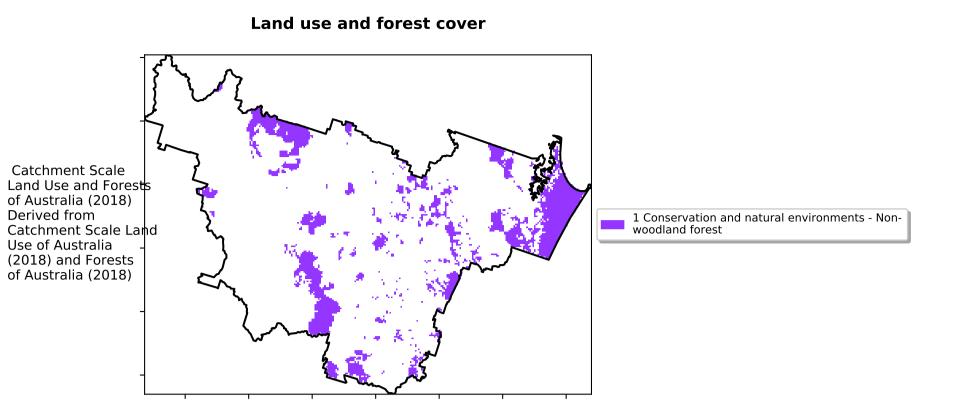
Water erosion historical monthly area protected (Total Veg Cov>70%)



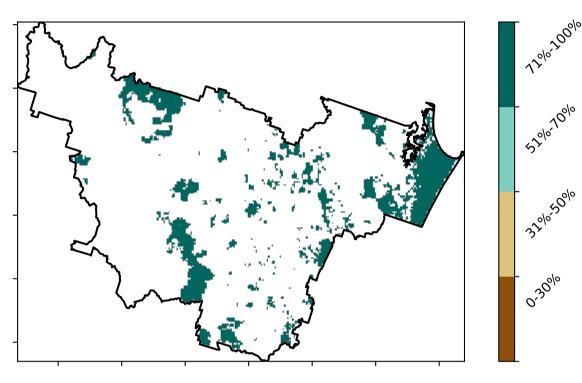


Australian Government

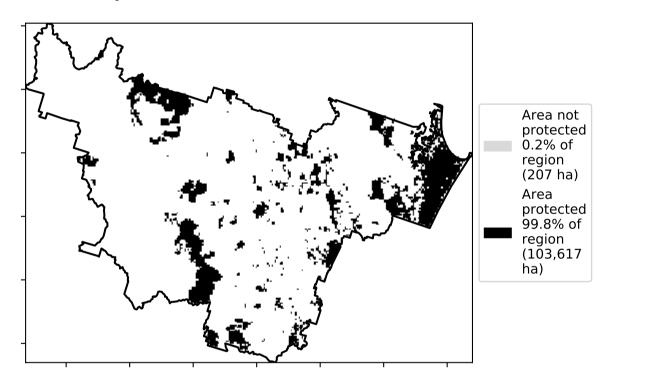
Conservation and natural environments Forest (non woodland)



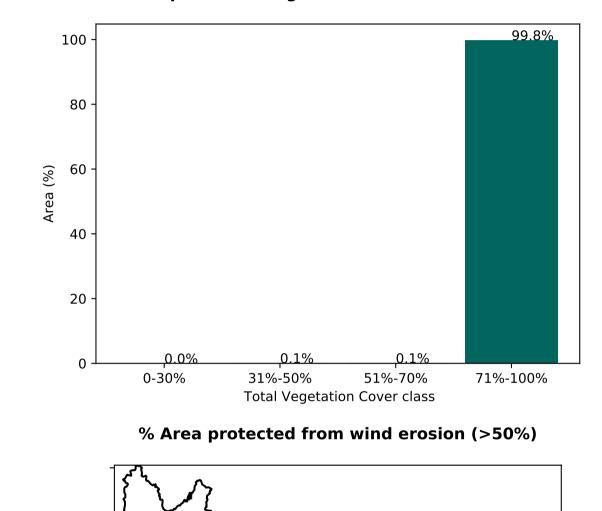
Total Vegetation Cover [%]

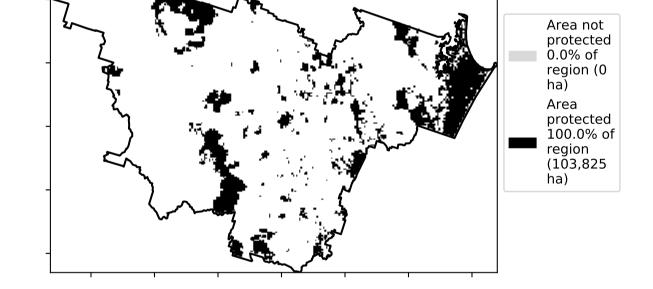


% Area protected from water erosion (>70%)

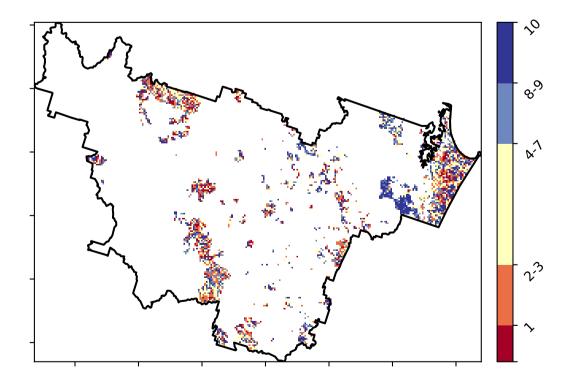


Proportion of vegetation cover class in area

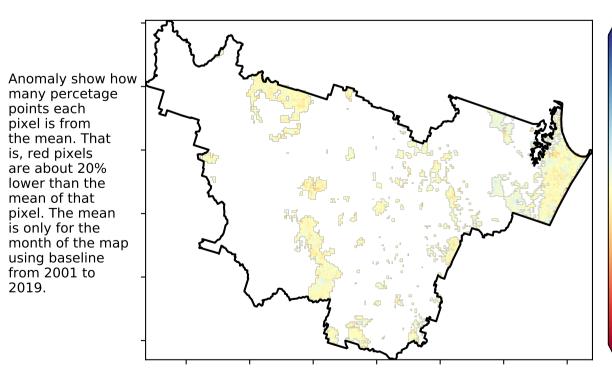




Total Vegetation Cover Decile [%]



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.

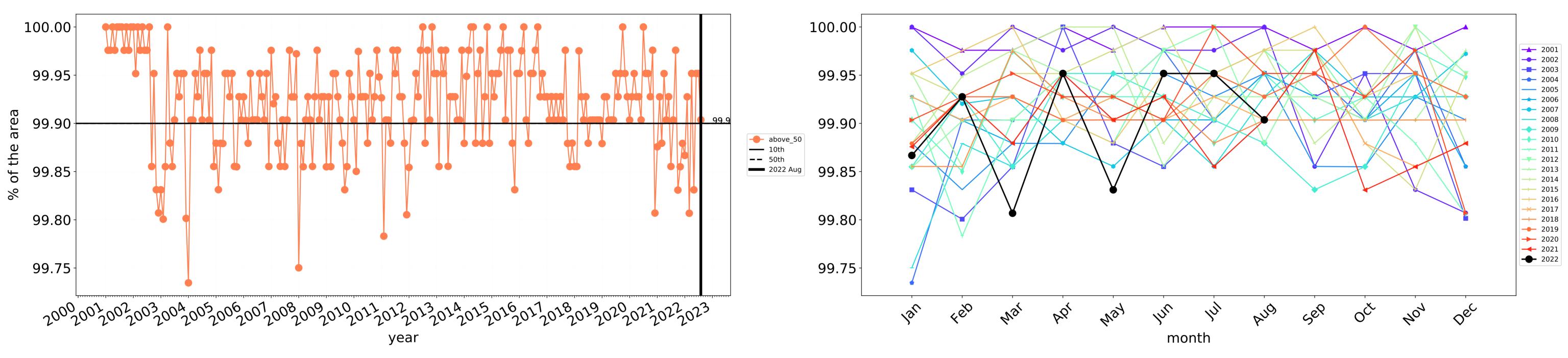
- 20

- 10

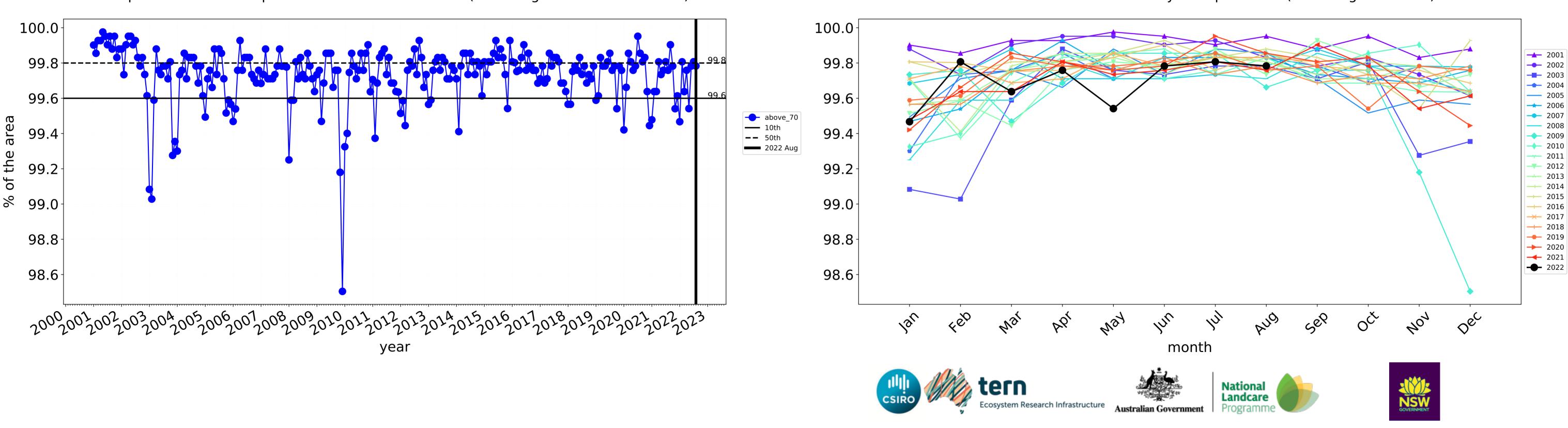
- 0

-10

-20



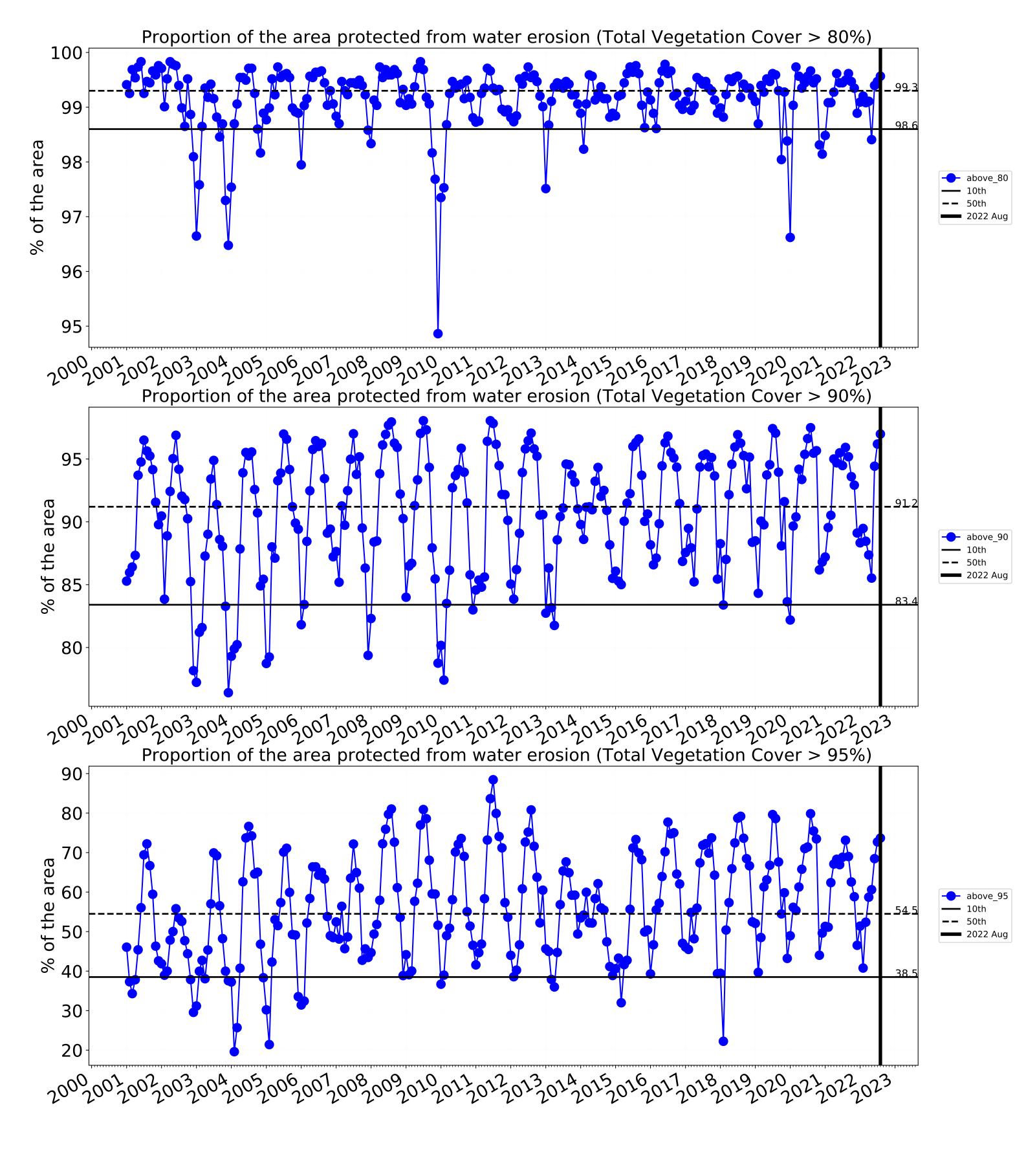
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

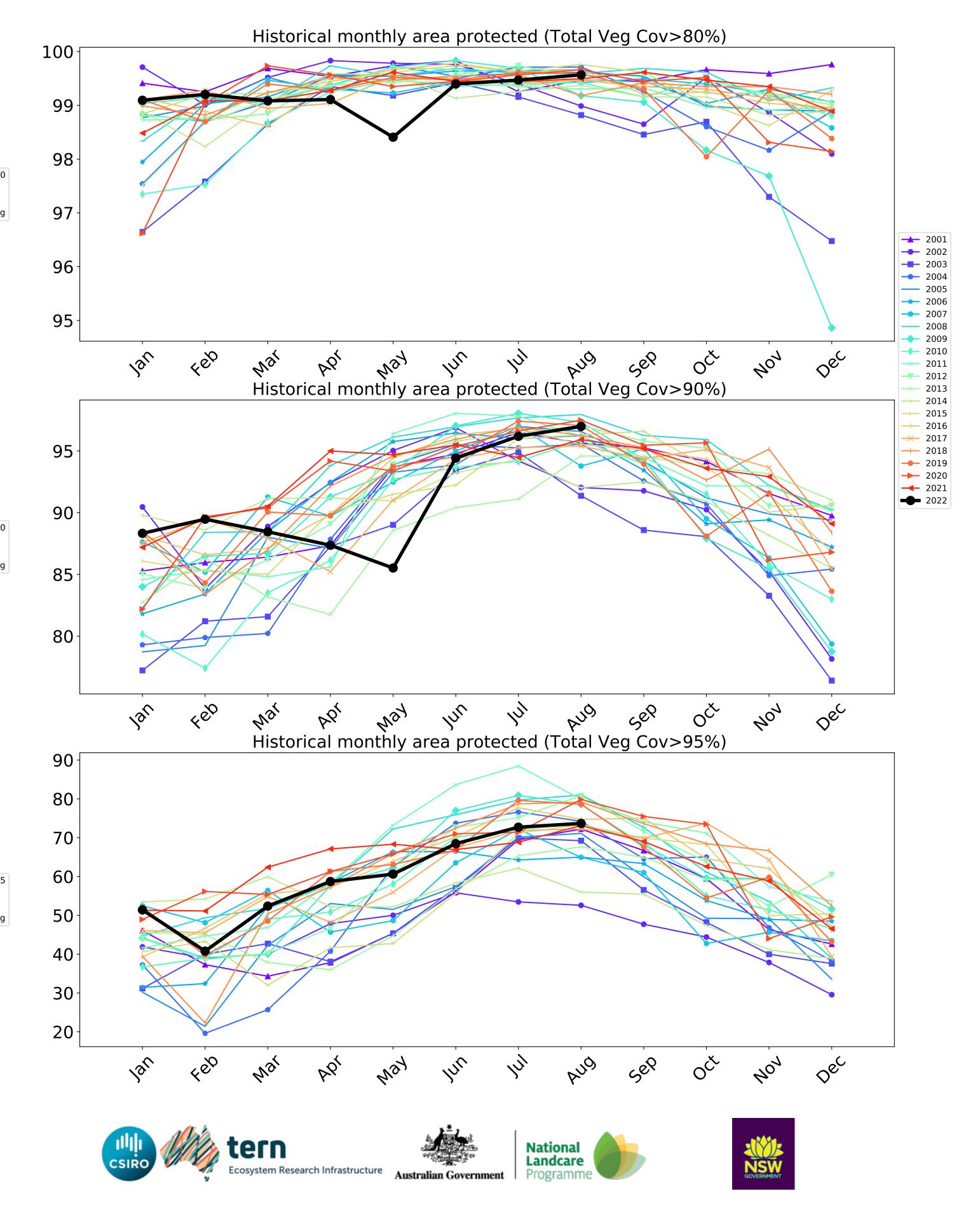


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

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

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



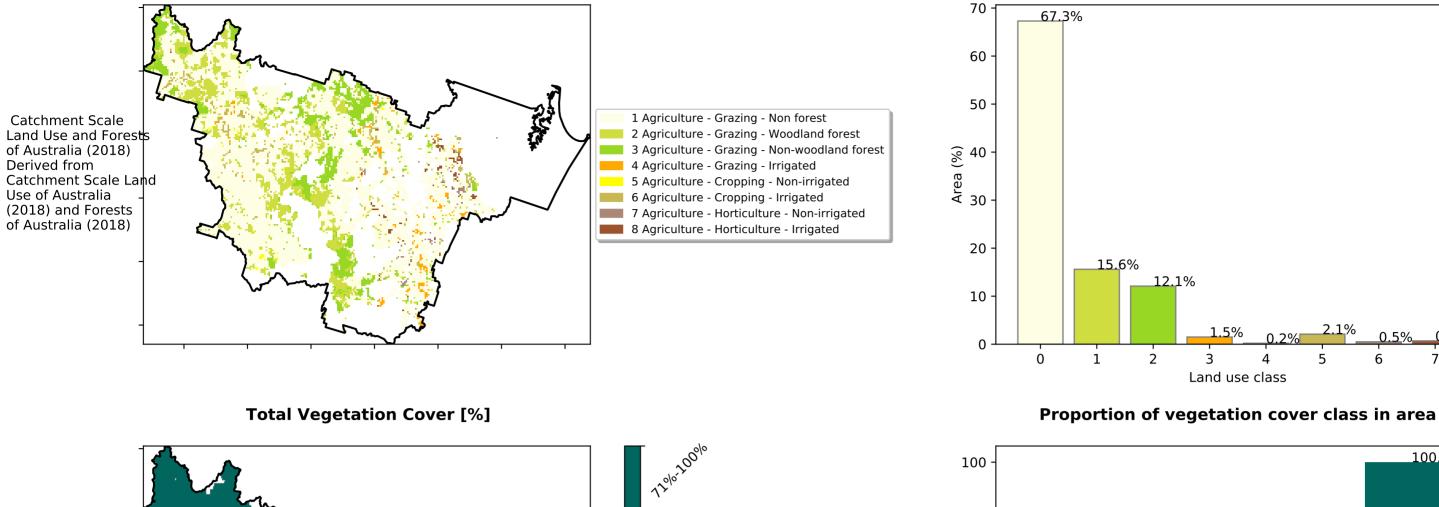


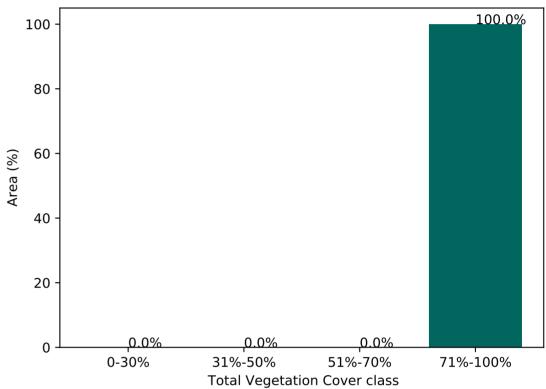
Agriculture

Land use and forest cover

Proportion of each land class in area

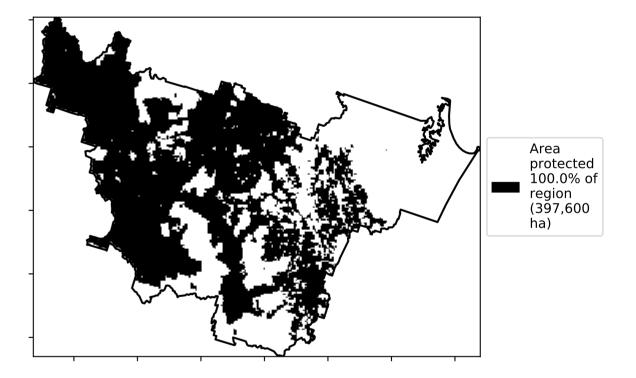
0.7%

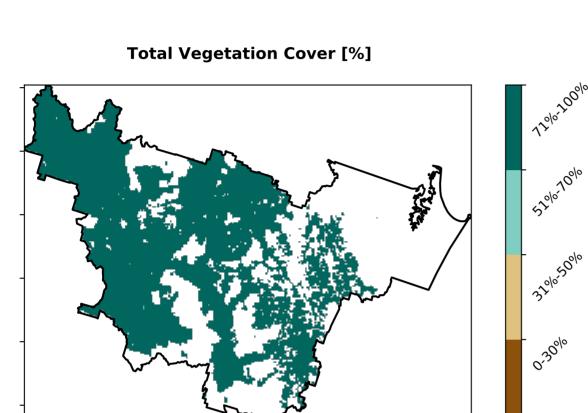




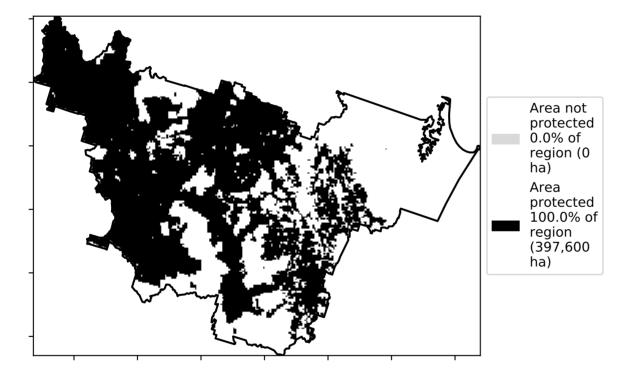
3

% Area protected from wind erosion (>50%)

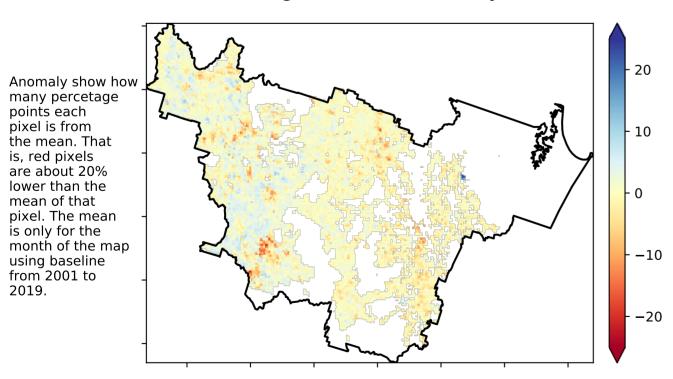




% Area protected from water erosion (>70%)



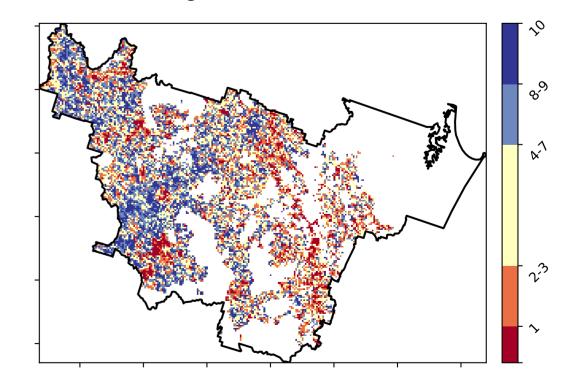
Total Vegetation Cover Anomaly [%]



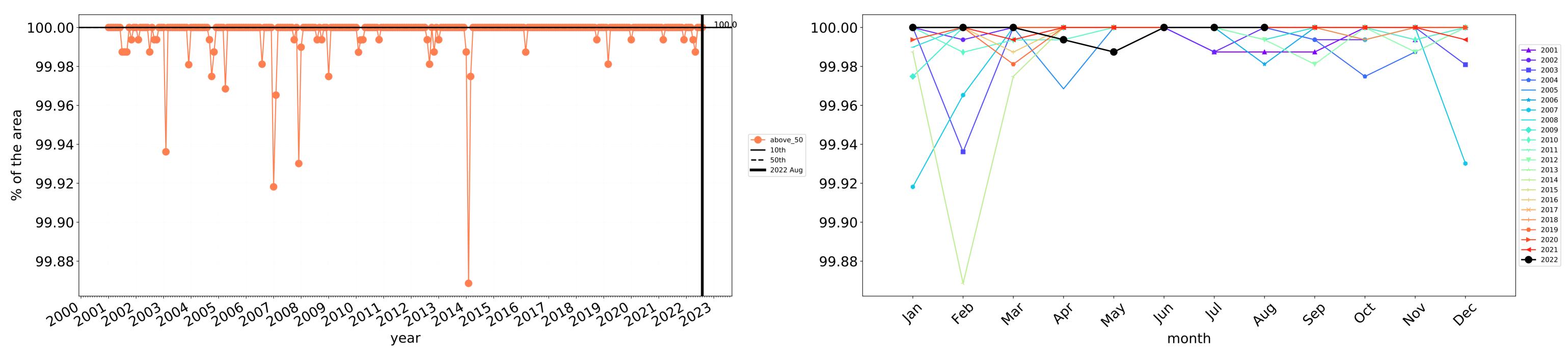
is, red pixels

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 [%]

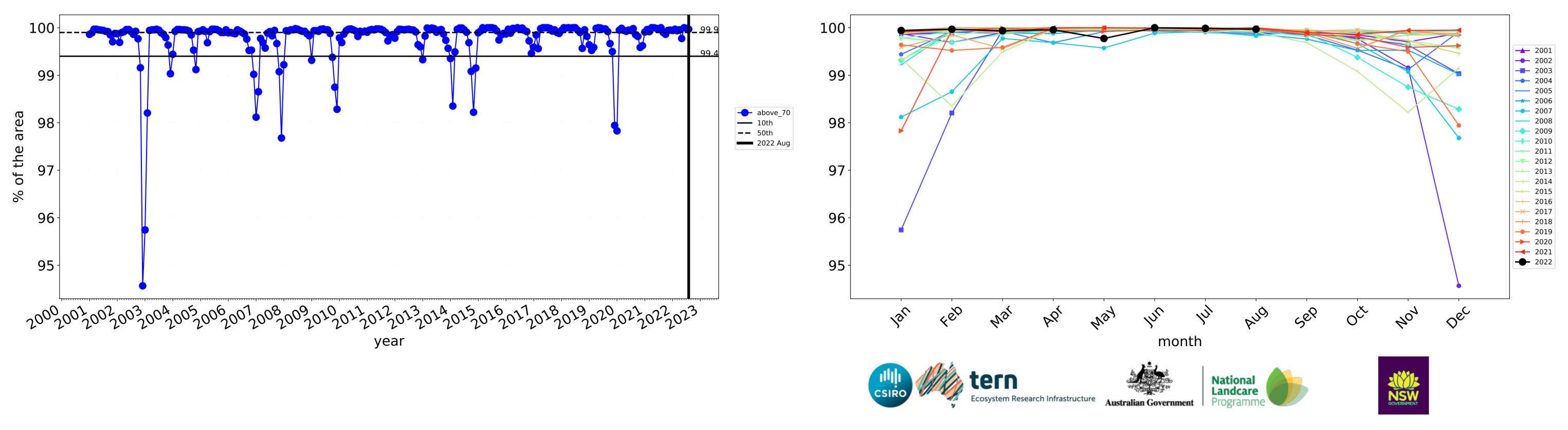






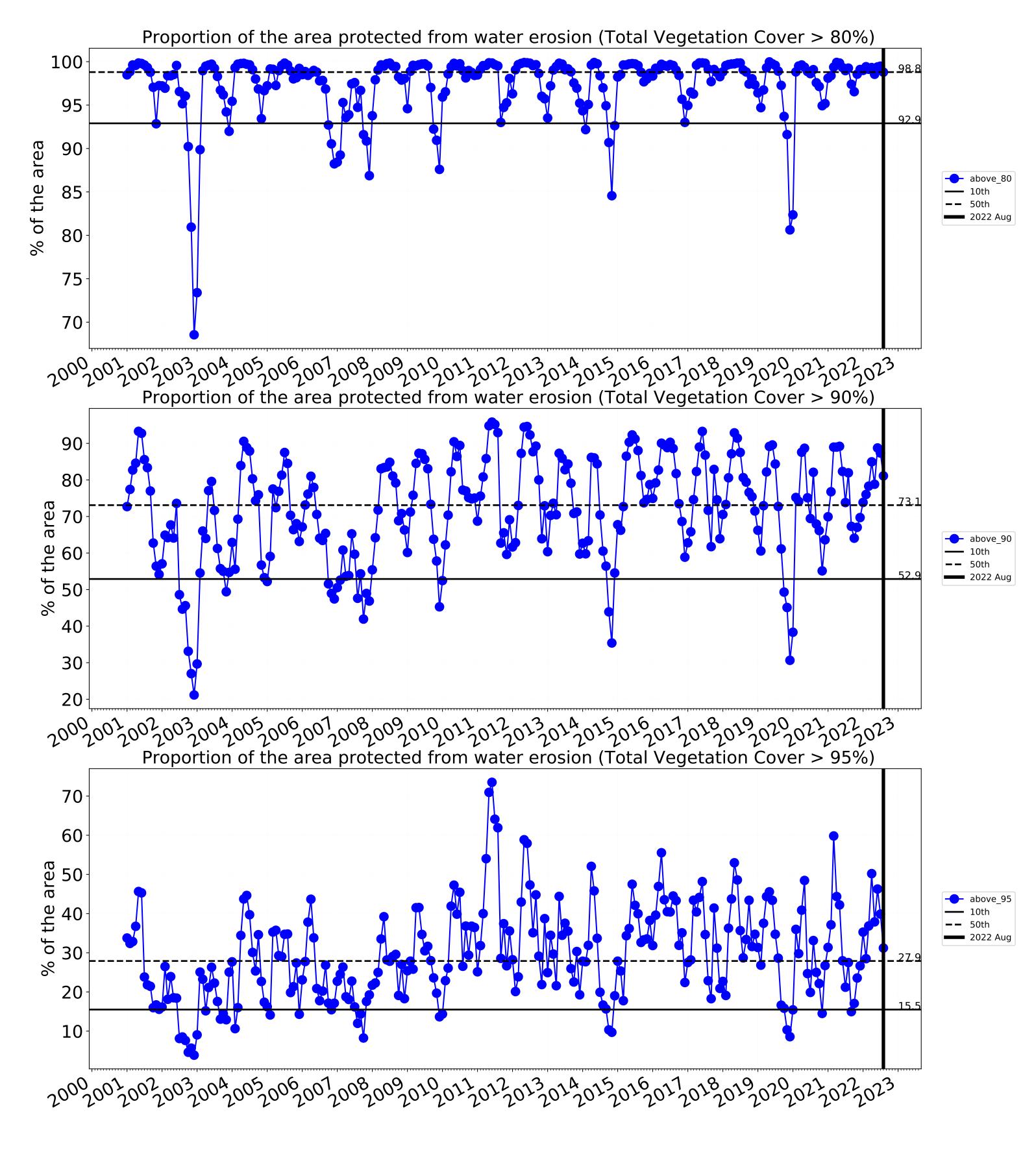
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

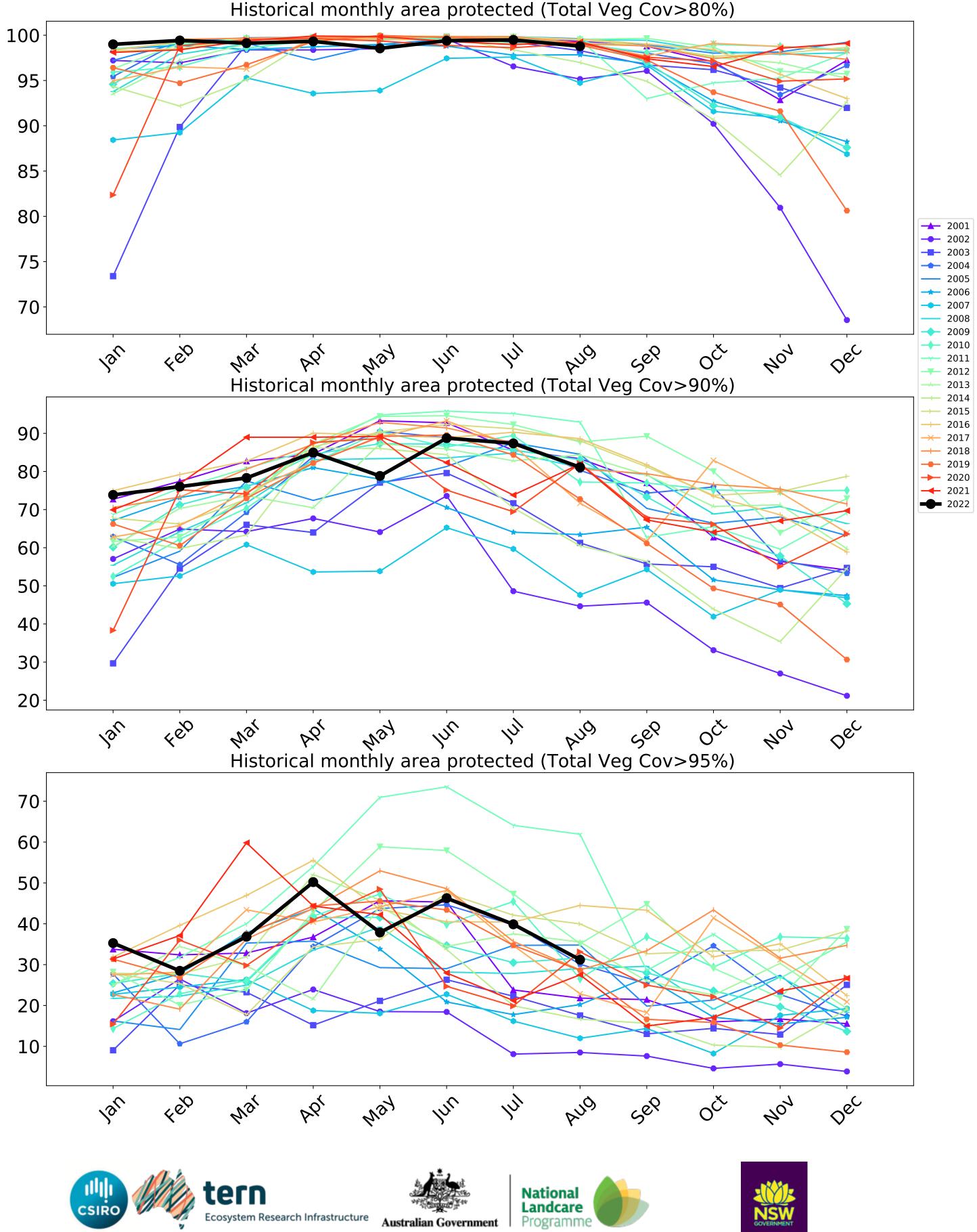
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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

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





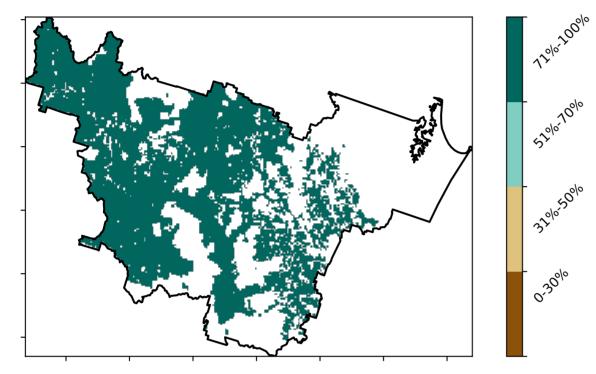


Grazing

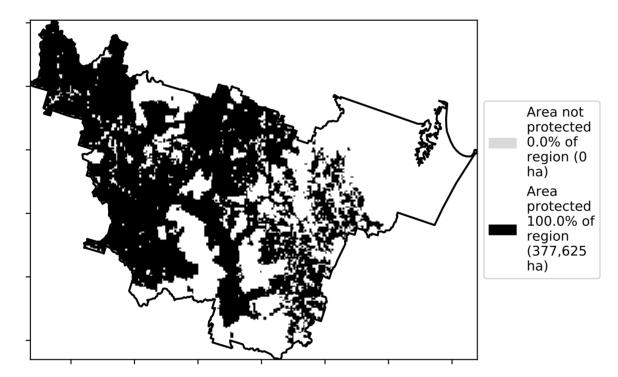
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest

Total Vegetation Cover [%]

Land use and forest cover



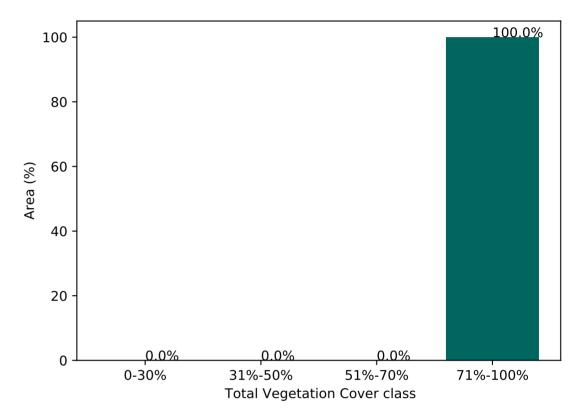
% Area protected from water erosion (>70%)



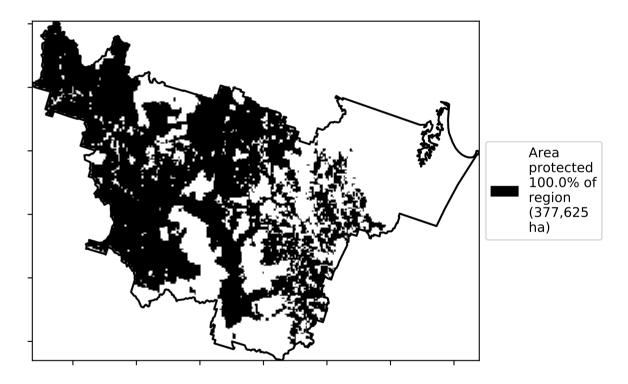
70.9% 70 60 · 50 · Area (%) 30 20 16.4% 12.7% 10 0 · -0.5 0.5 0.0 1.0 1.5 2.0 2.5 Land use class

Proportion of each land class in area

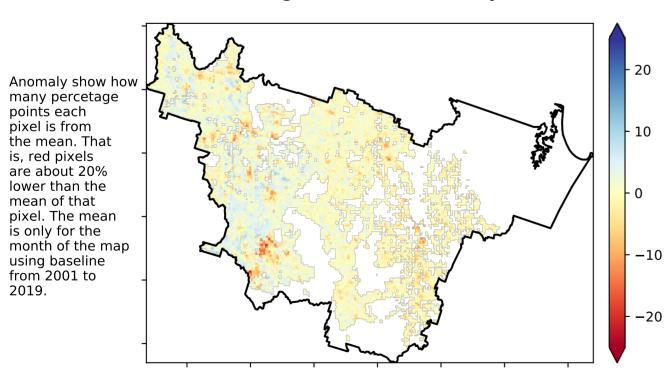
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

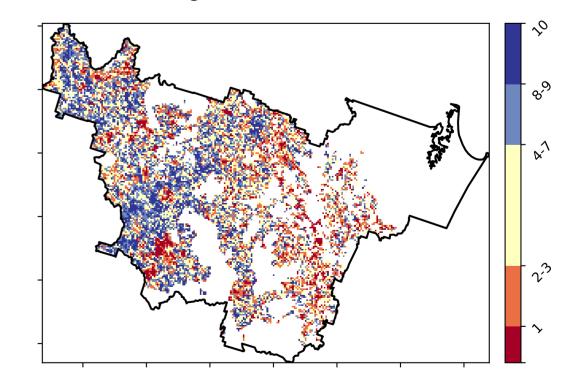


is, red pixels

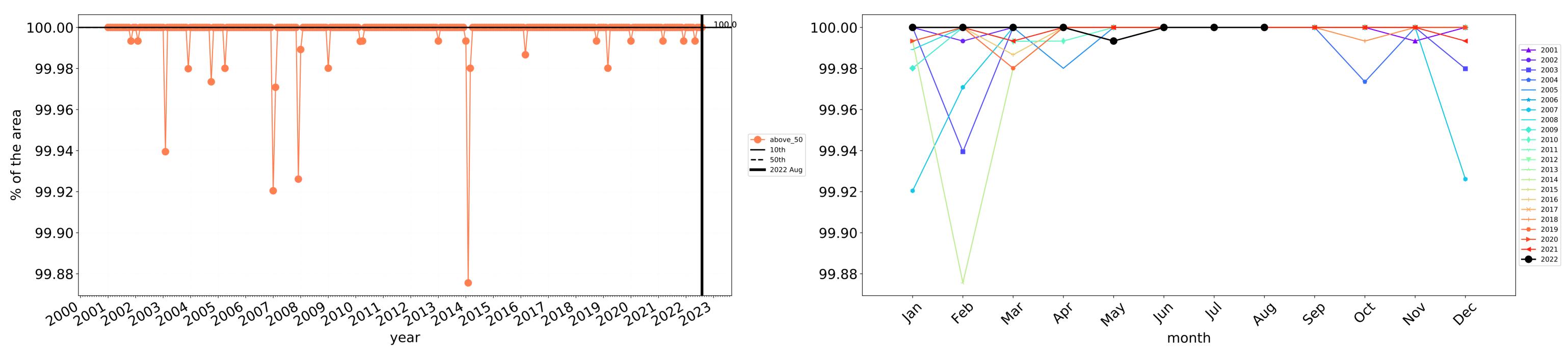
mean of that

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Total Vegetation Cover Decile [%]

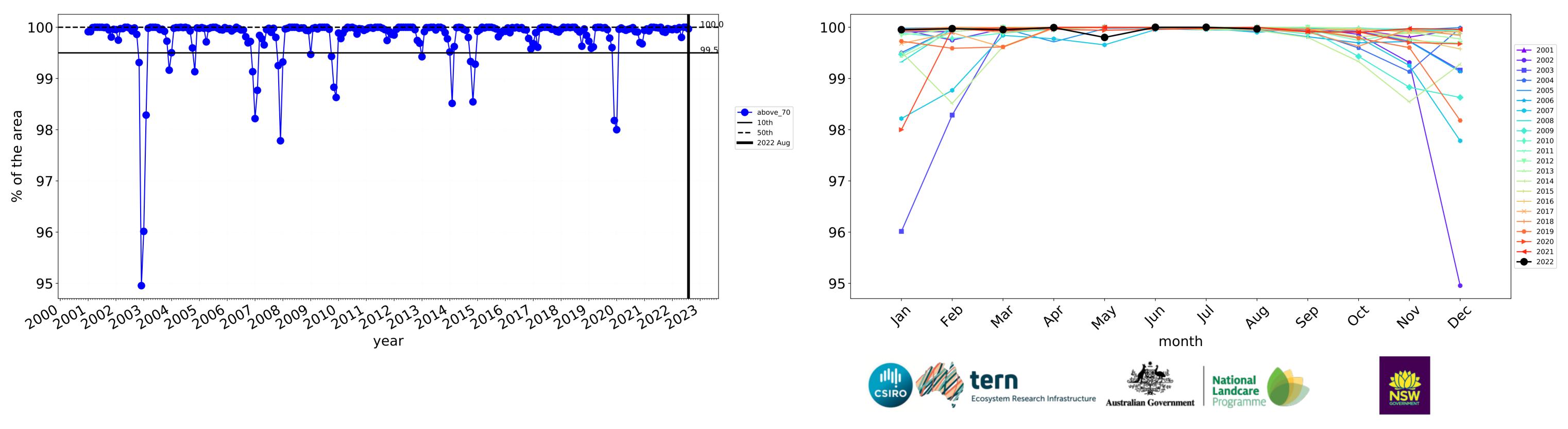






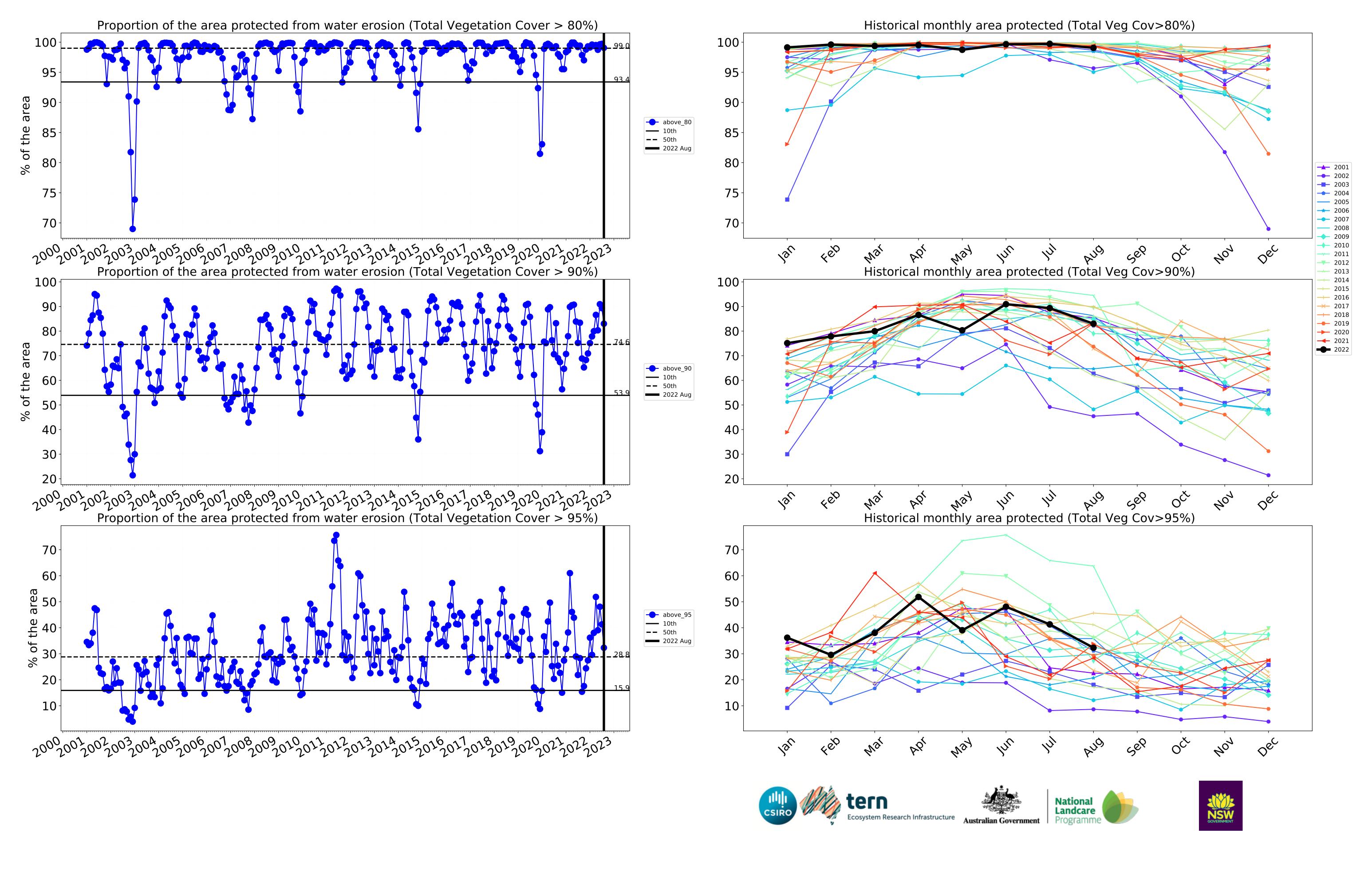
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

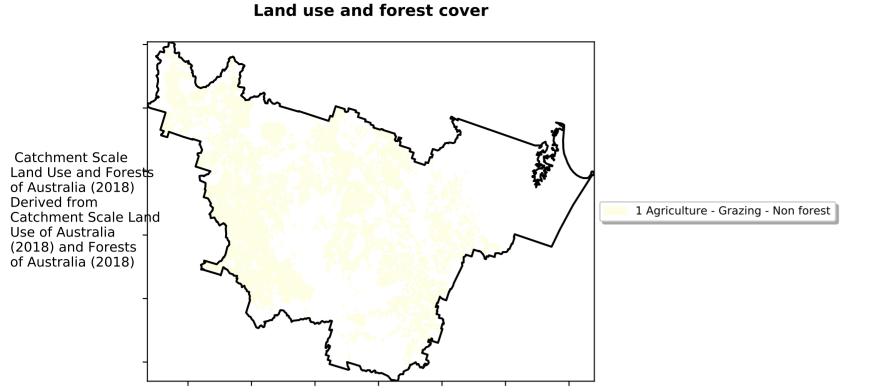


Wind erosion historical monthly area protected (Total Veg Cov >50%)

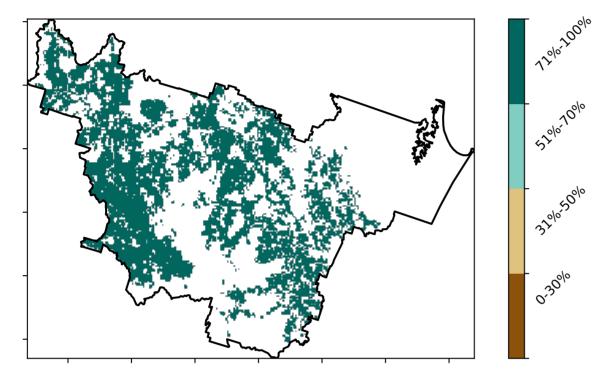
Water erosion historical monthly area protected (Total Veg Cov>70%)



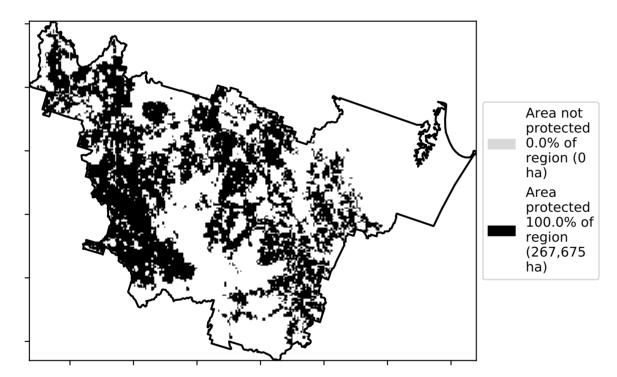
Grazing non forest



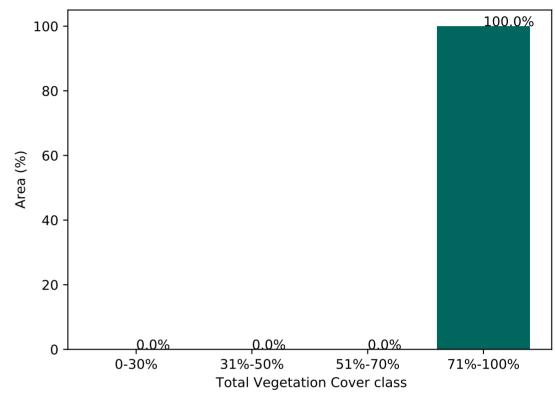
Total Vegetation Cover [%]



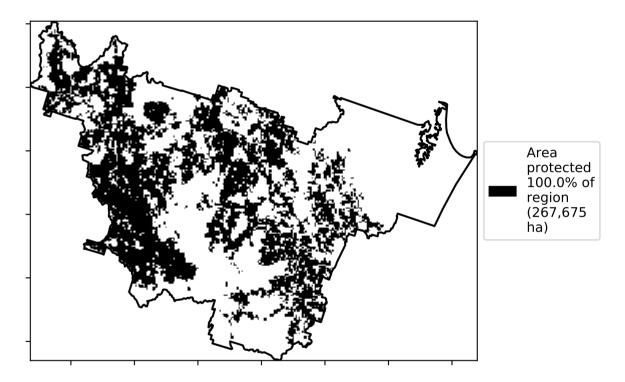
% Area protected from water erosion (>70%)



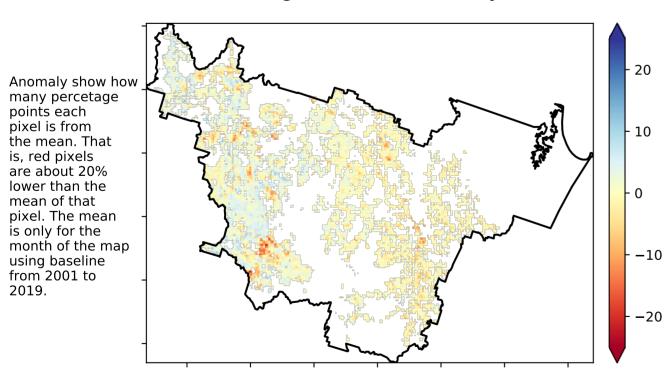
Proportion of vegetation cover class in area



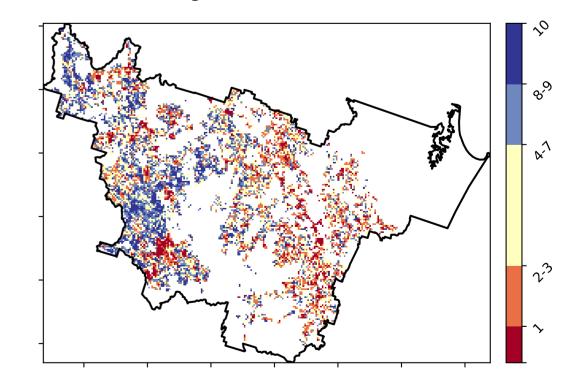
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



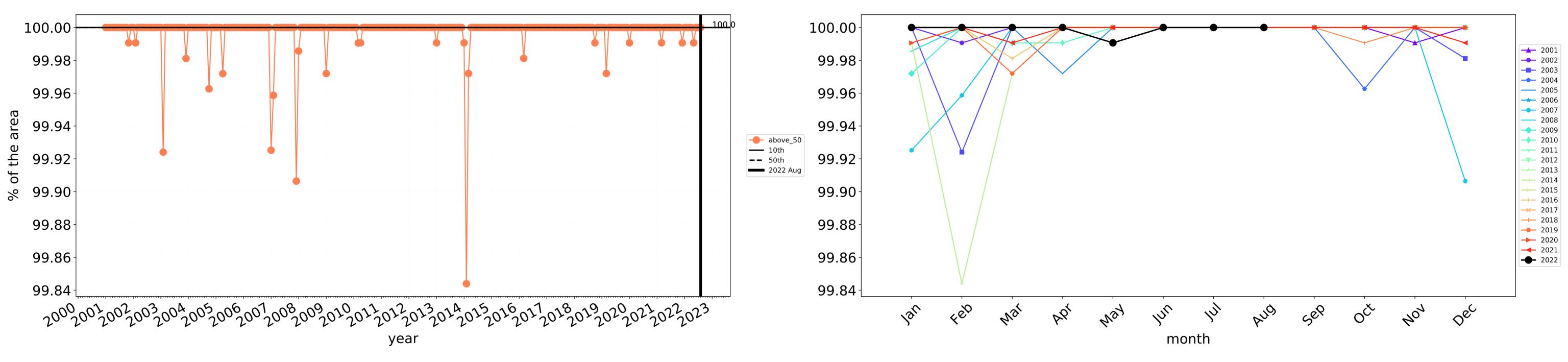
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]**



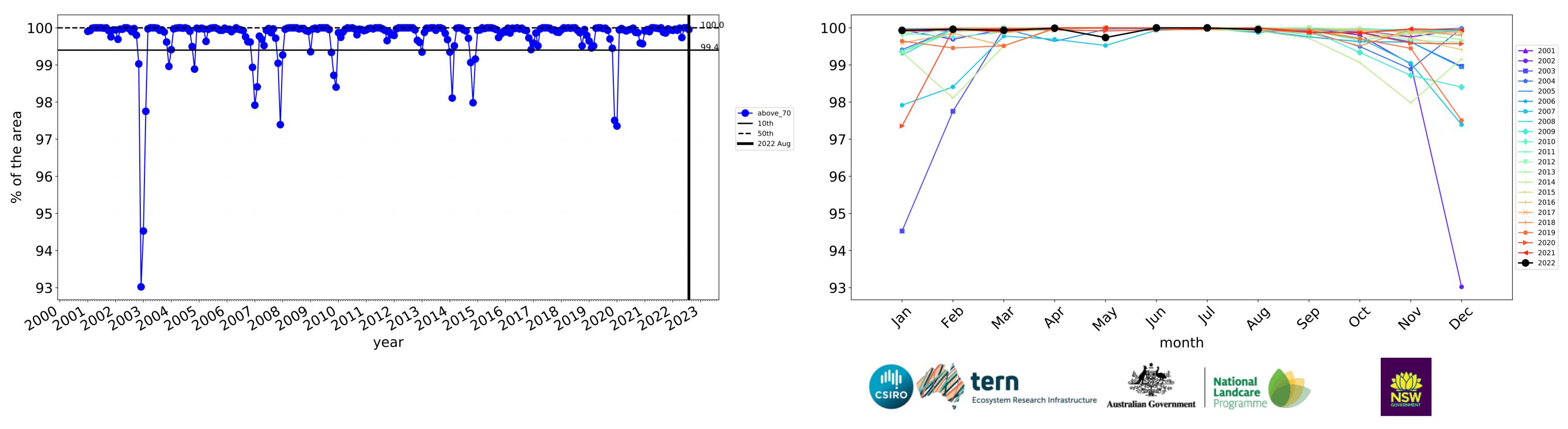


23



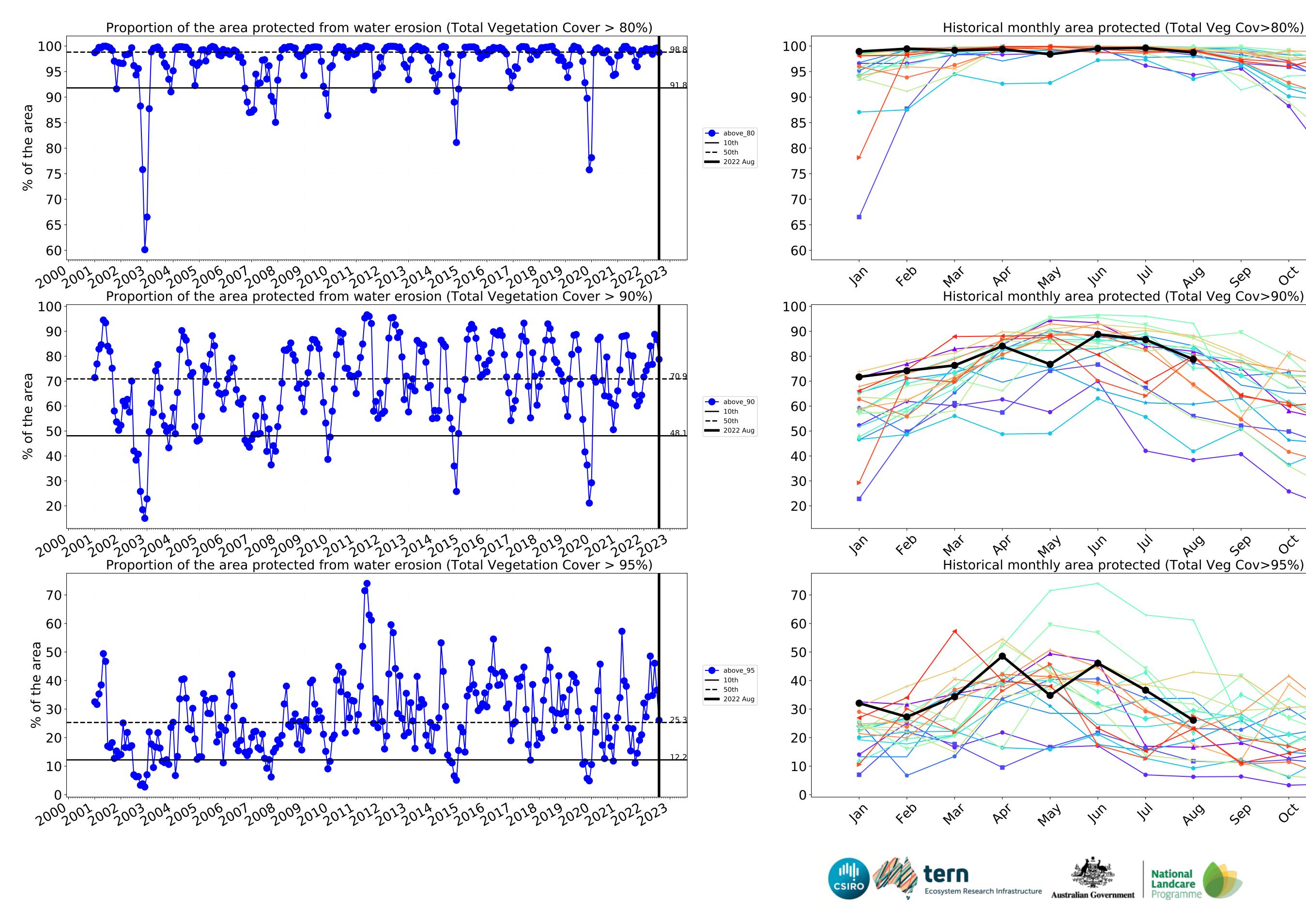


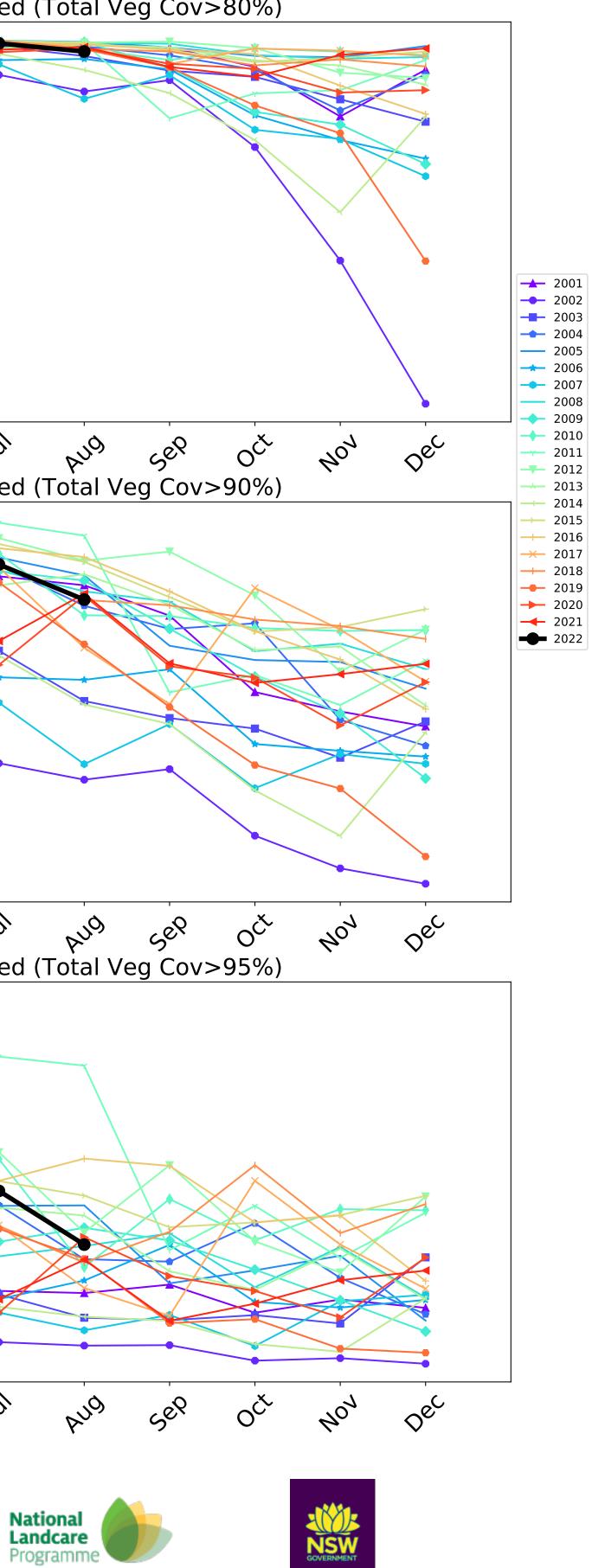
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



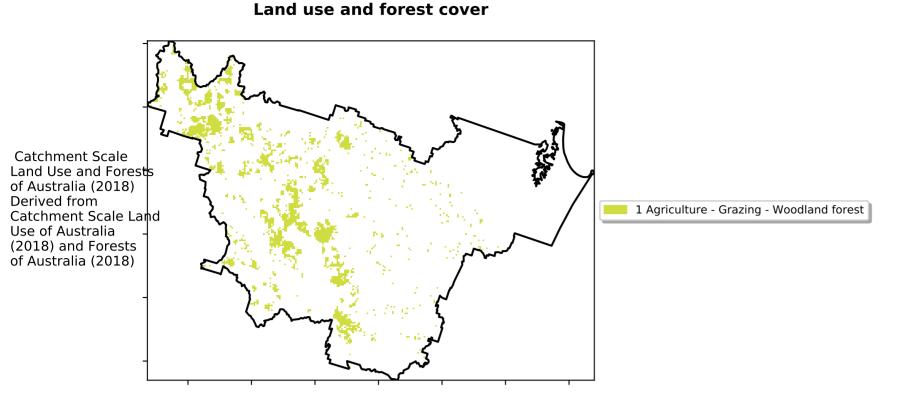
Wind erosion historical monthly area protected (Total Veg Cov >50%)



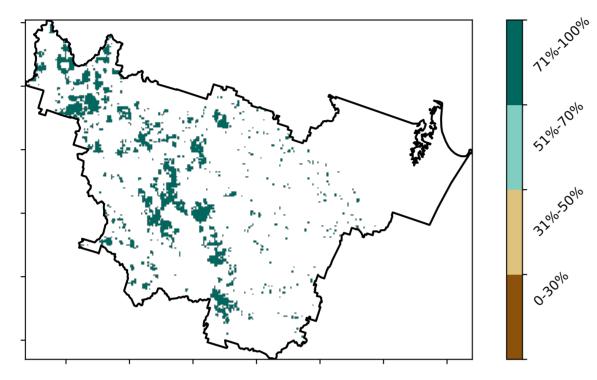




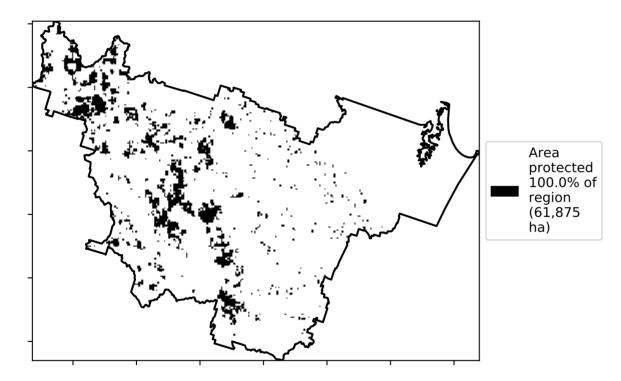
Grazing Woodland forest



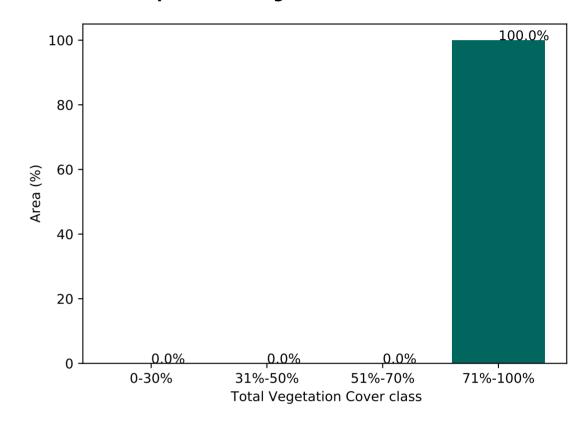
Total Vegetation Cover [%]



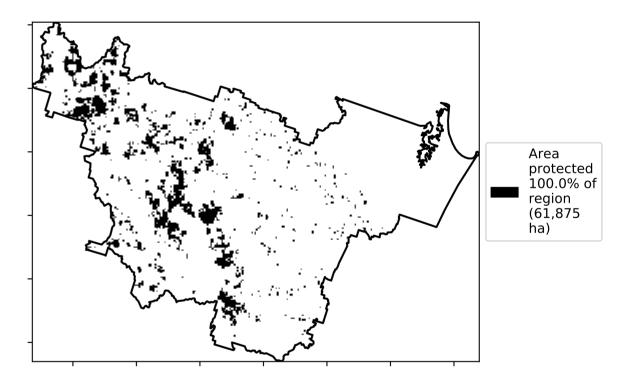
% Area protected from water erosion (>70%)



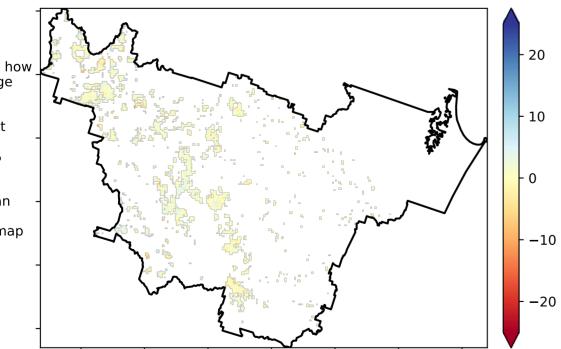
Proportion of vegetation cover class in area



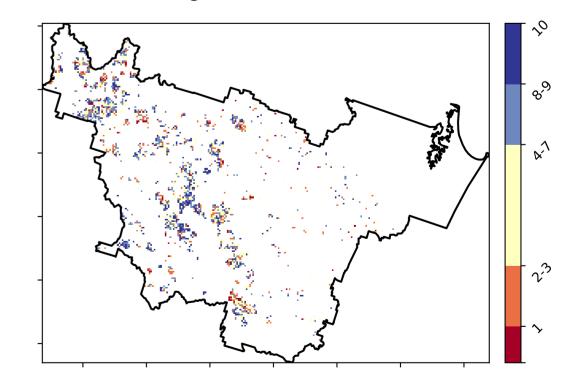
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



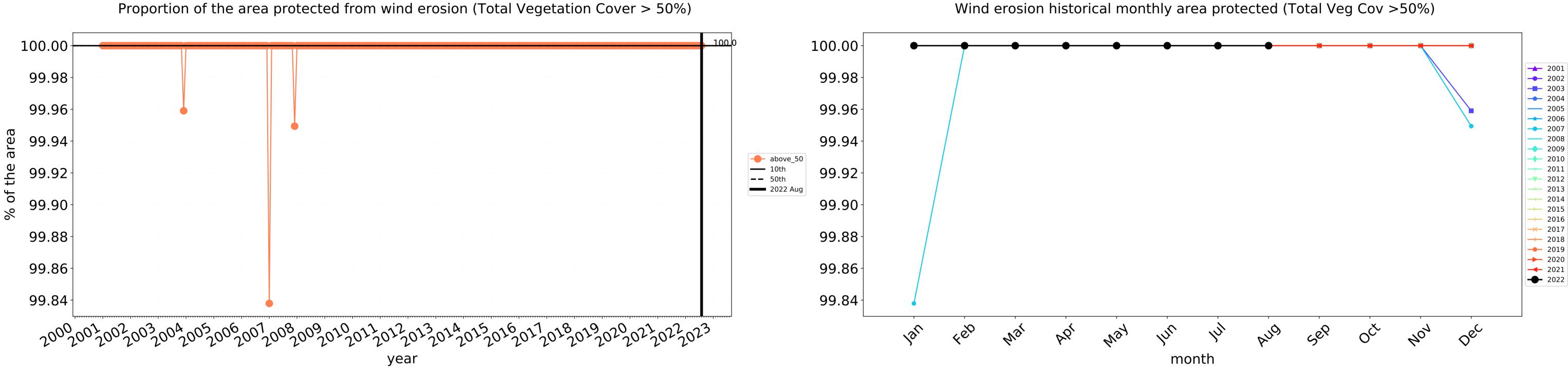
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]**





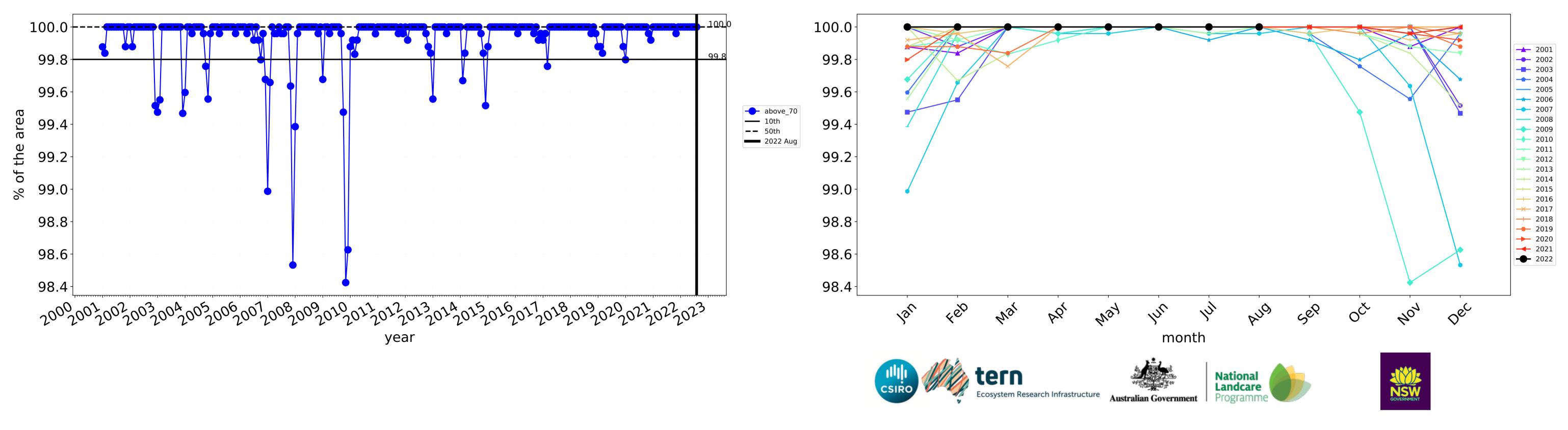
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

Grazing Woodland forest timeseries

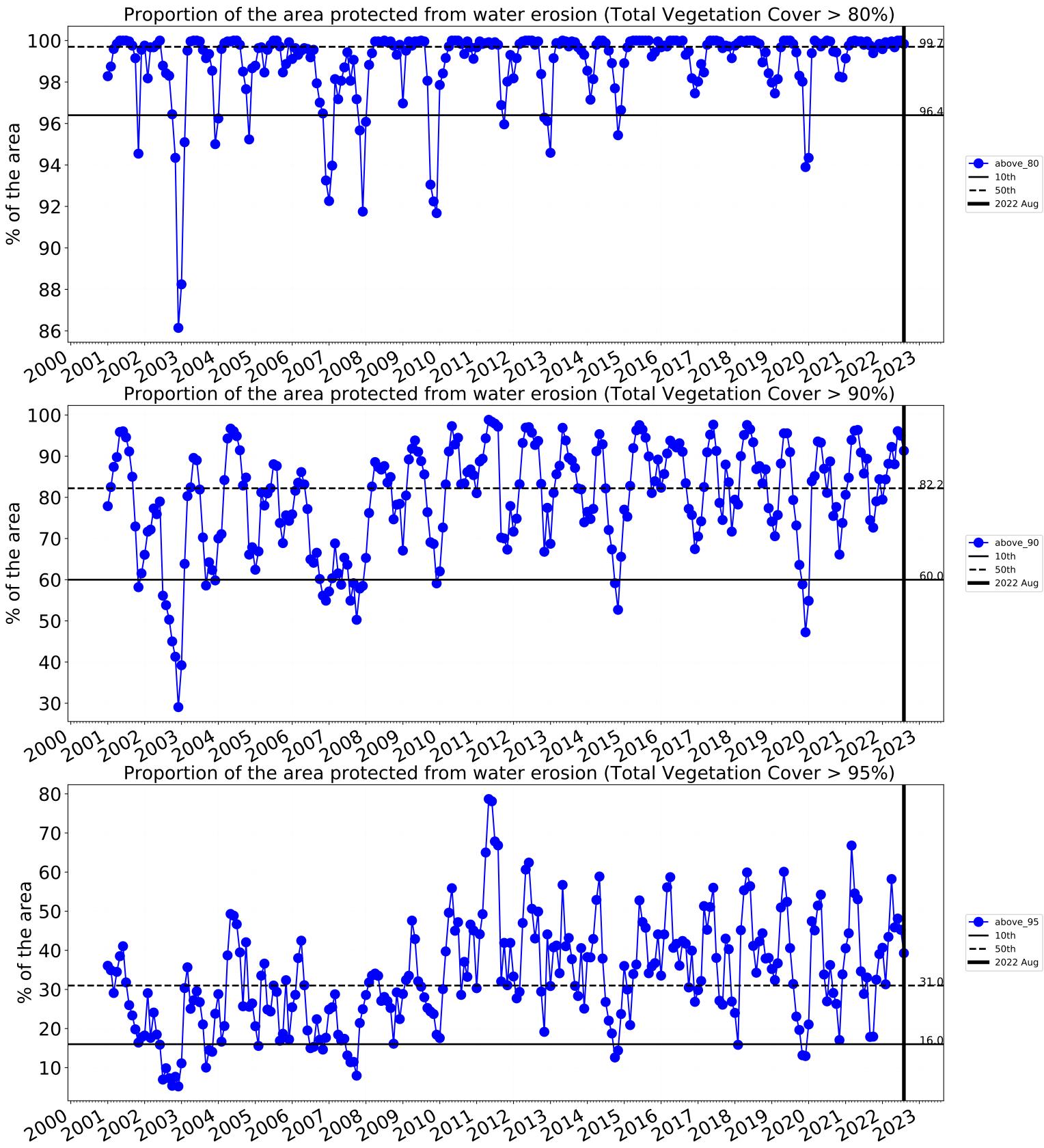


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



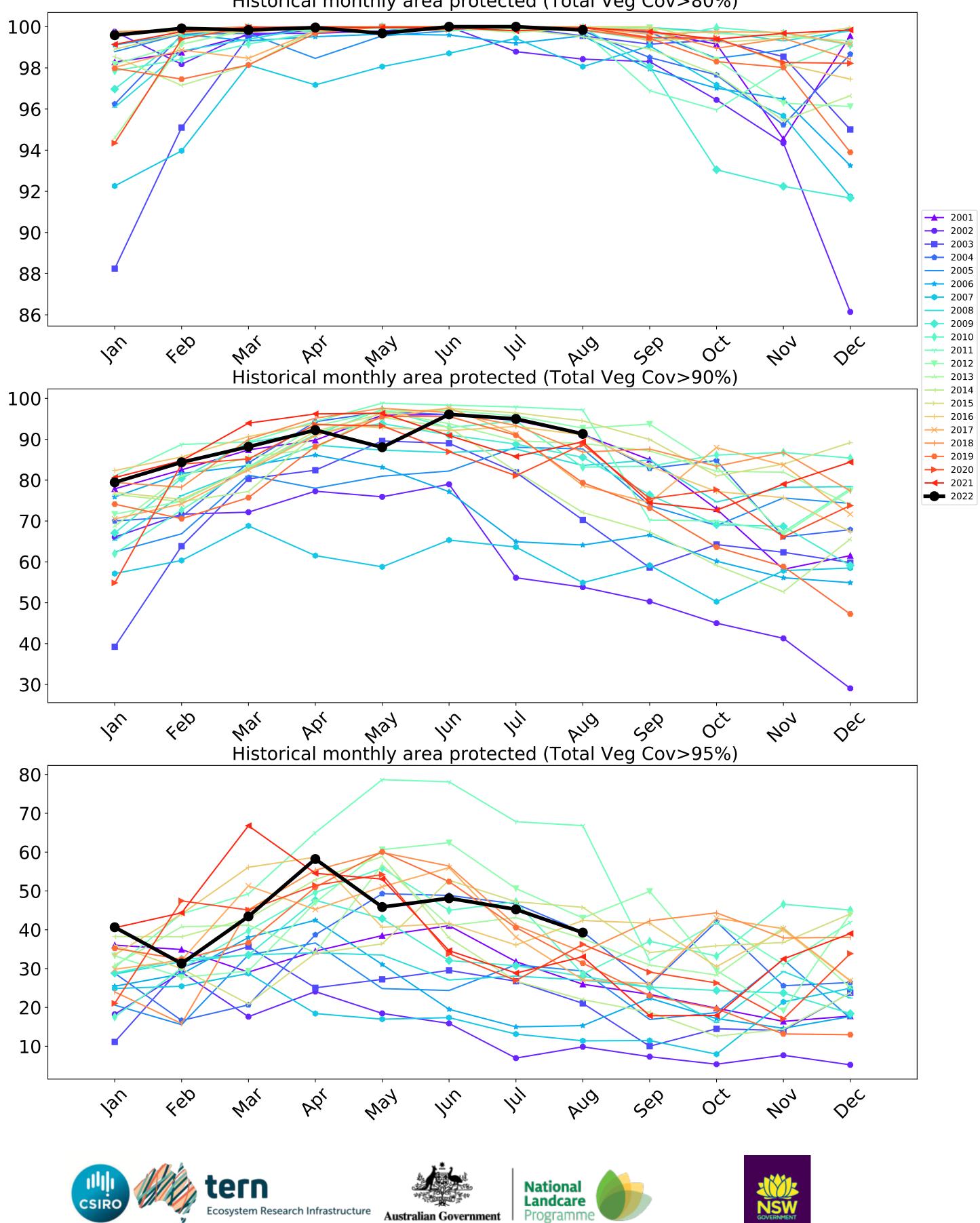
Water erosion historical monthly area protected (Total Veg Cov>70%)





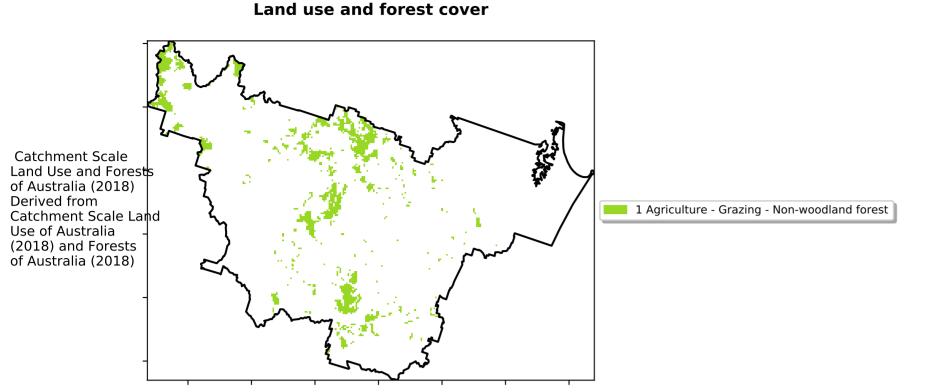
above_80

Historical monthly area protected (Total Veg Cov>80%)

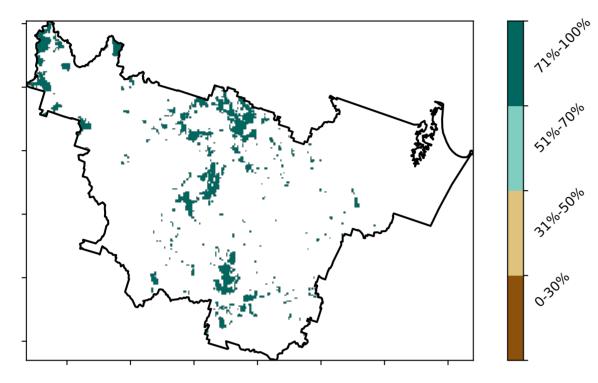




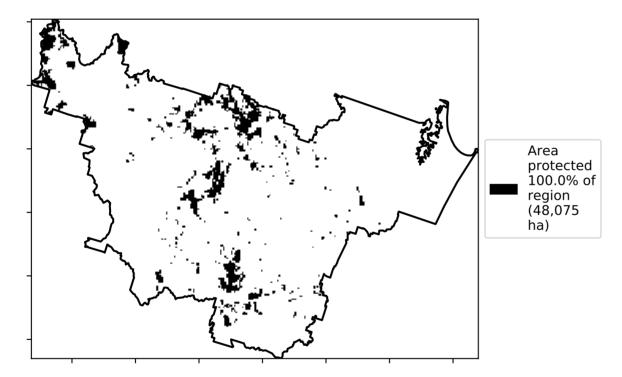
Grazing - Forest (non woodland)



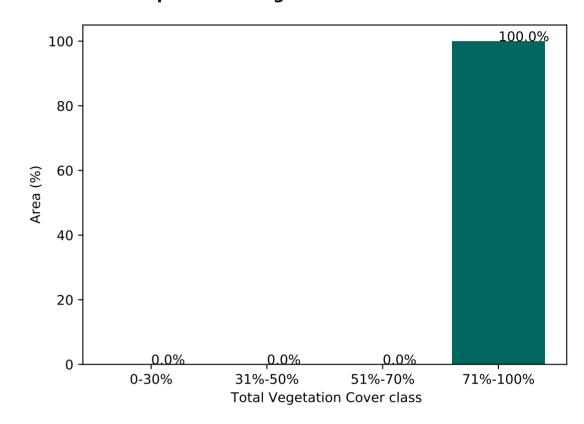
Total Vegetation Cover [%]



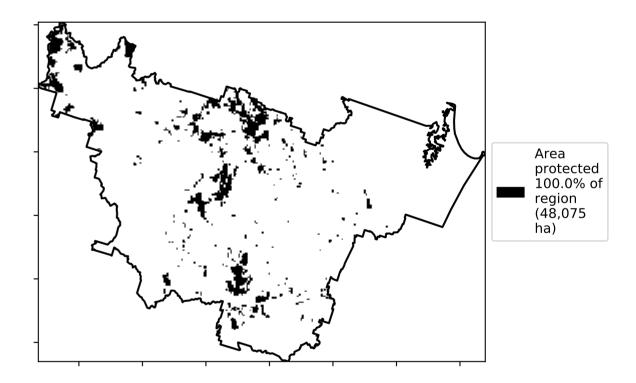
% Area protected from water erosion (>70%)



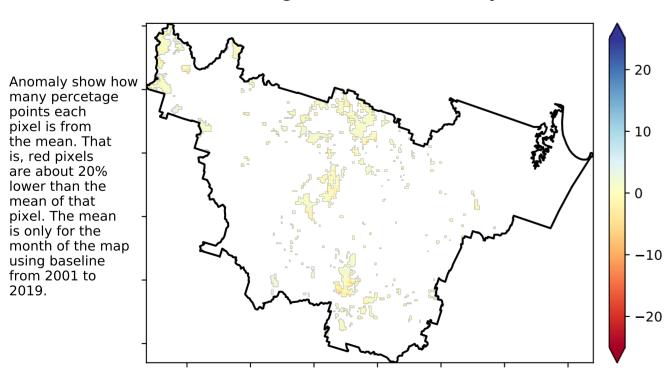
Proportion of vegetation cover class in area



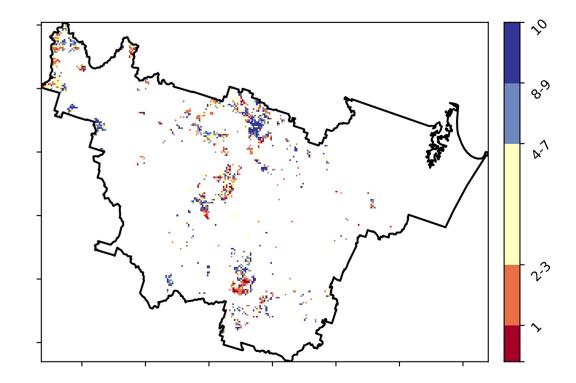
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

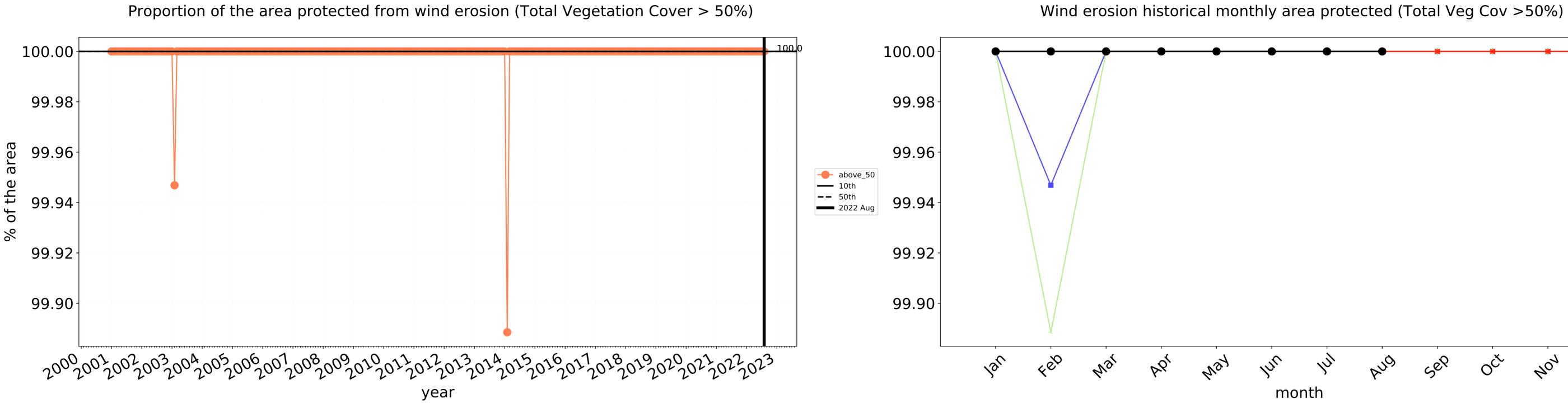


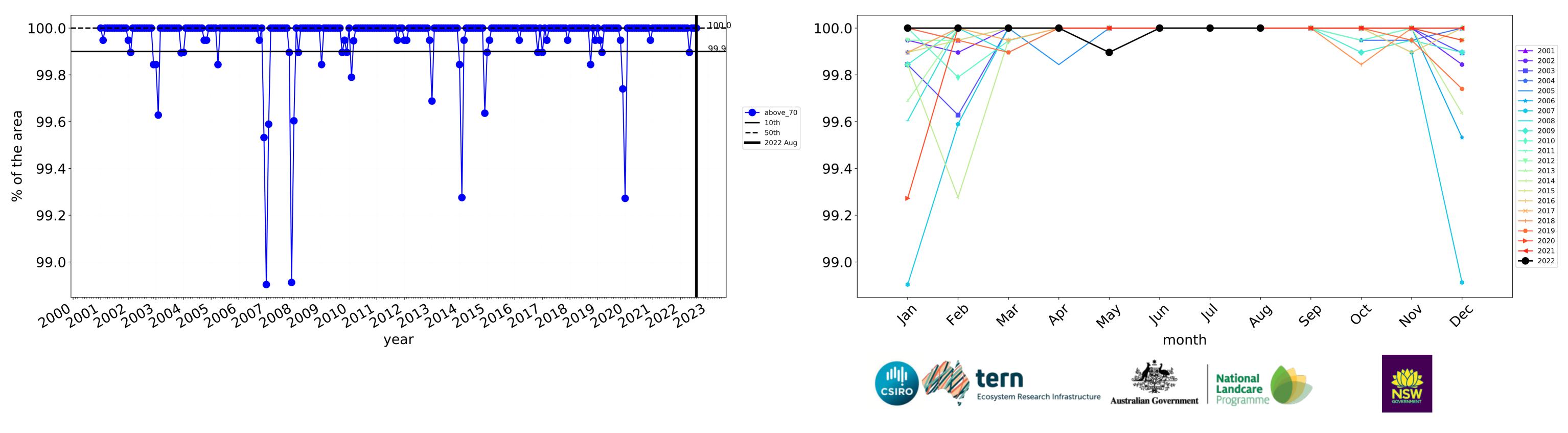
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]**





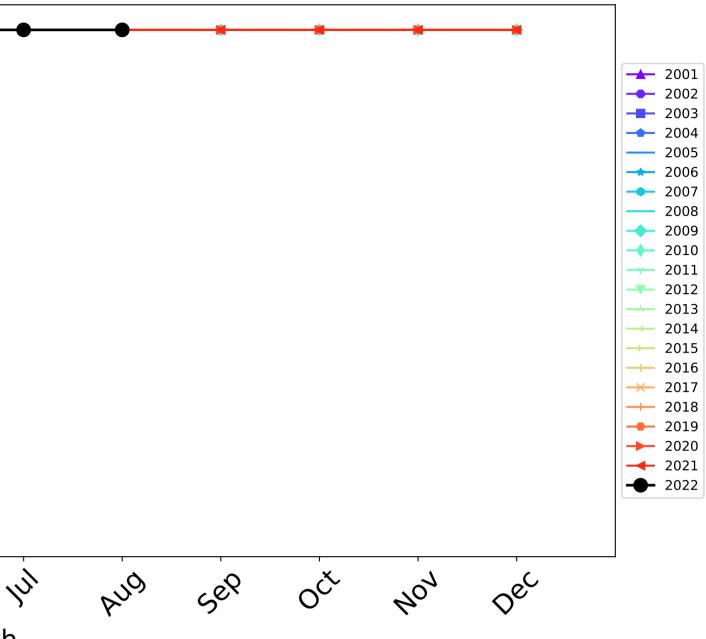
from 2001 to 2

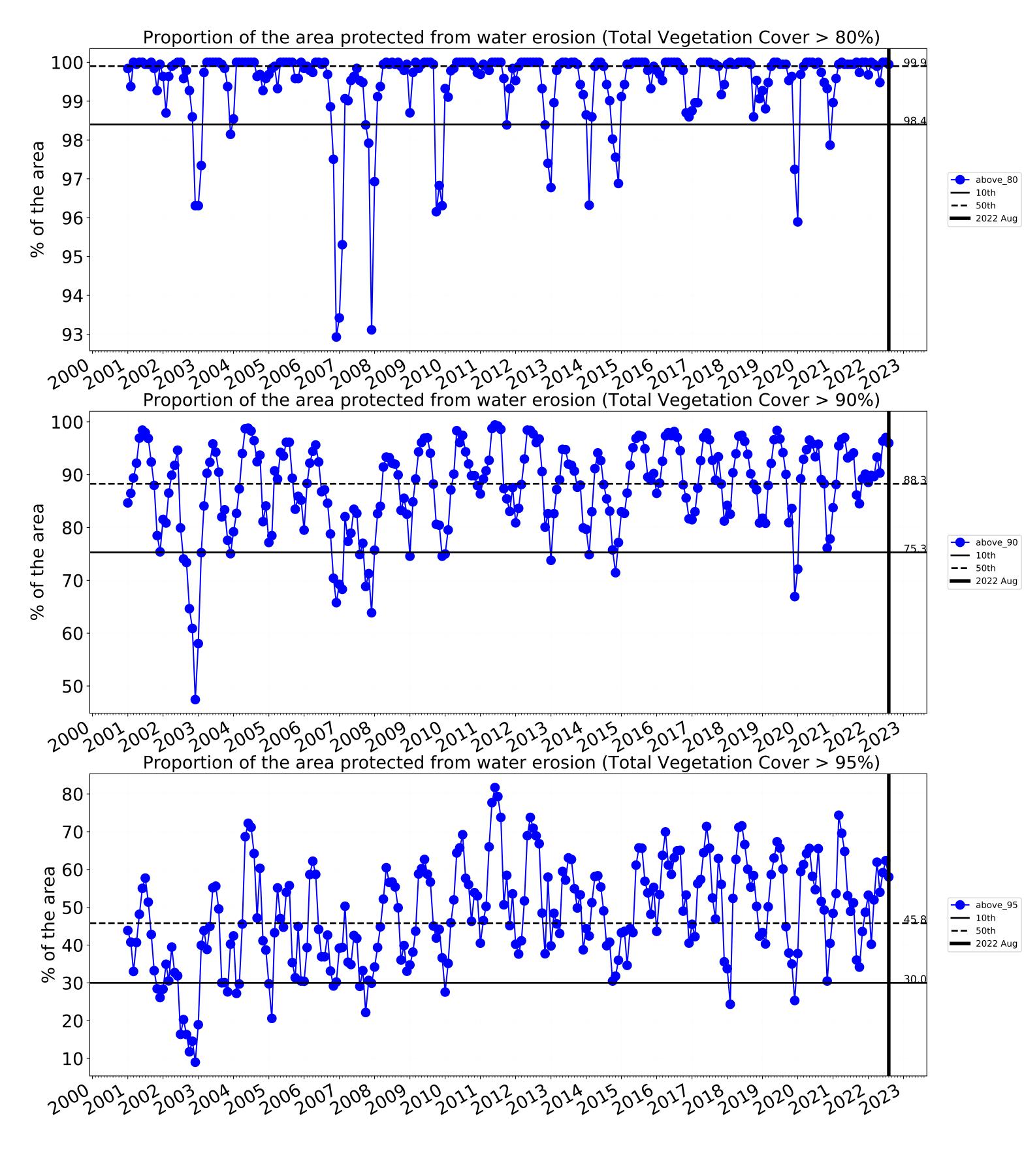




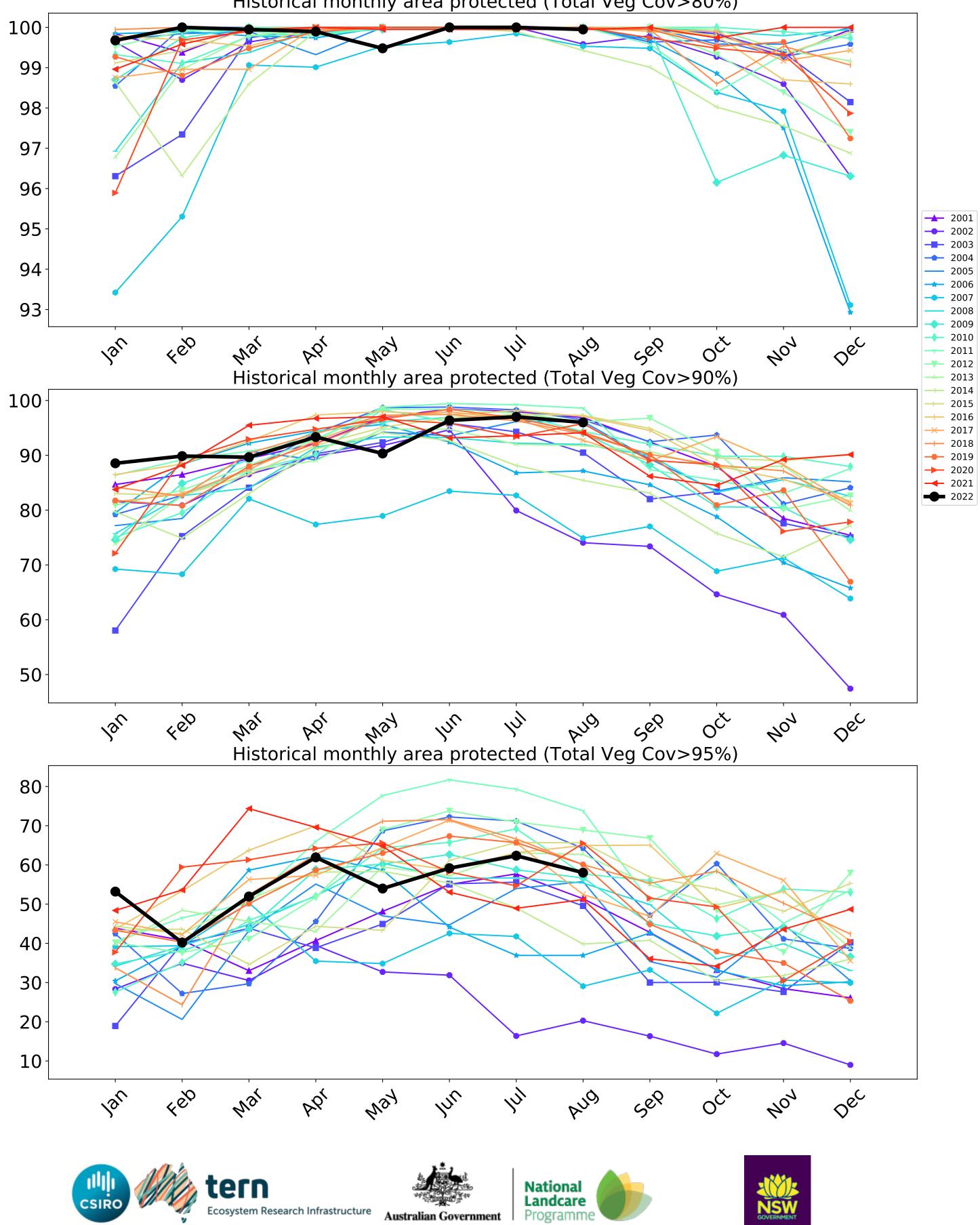
month

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





Historical monthly area protected (Total Veg Cov>80%)



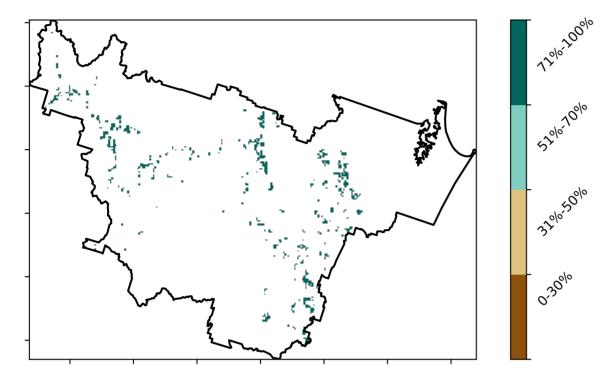


Irrigation

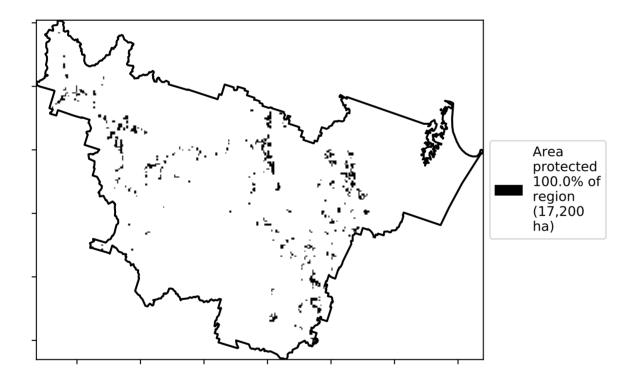
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) of Australia (2018)

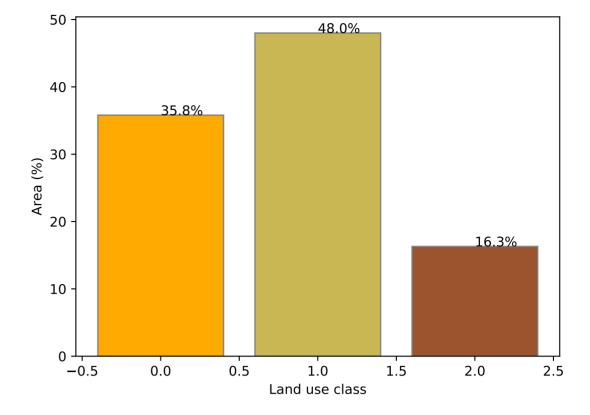
Total Vegetation Cover [%]

Land use and forest cover



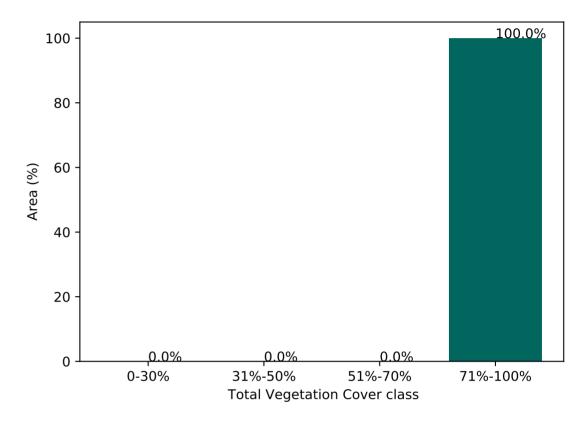
% Area protected from water erosion (>70%)



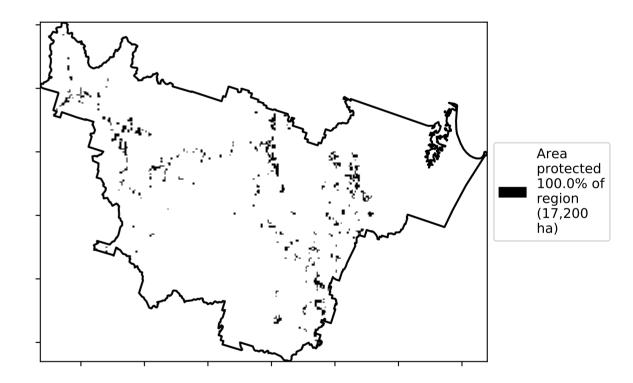


Proportion of each land class in area

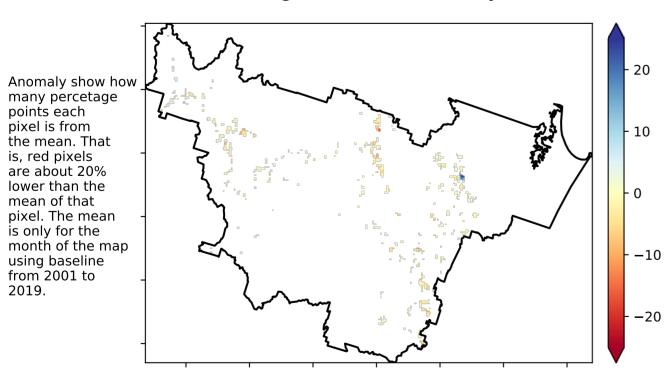
Proportion of vegetation cover class in area



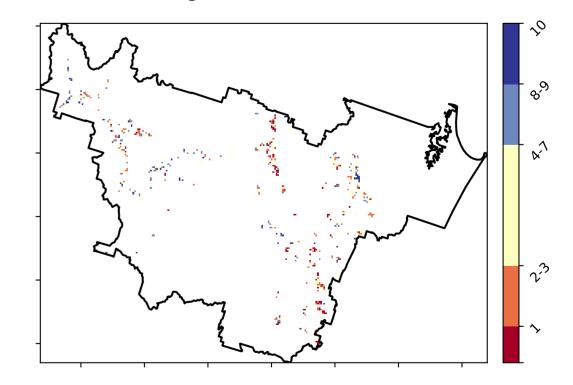
% Area protected from wind erosion (>50%)



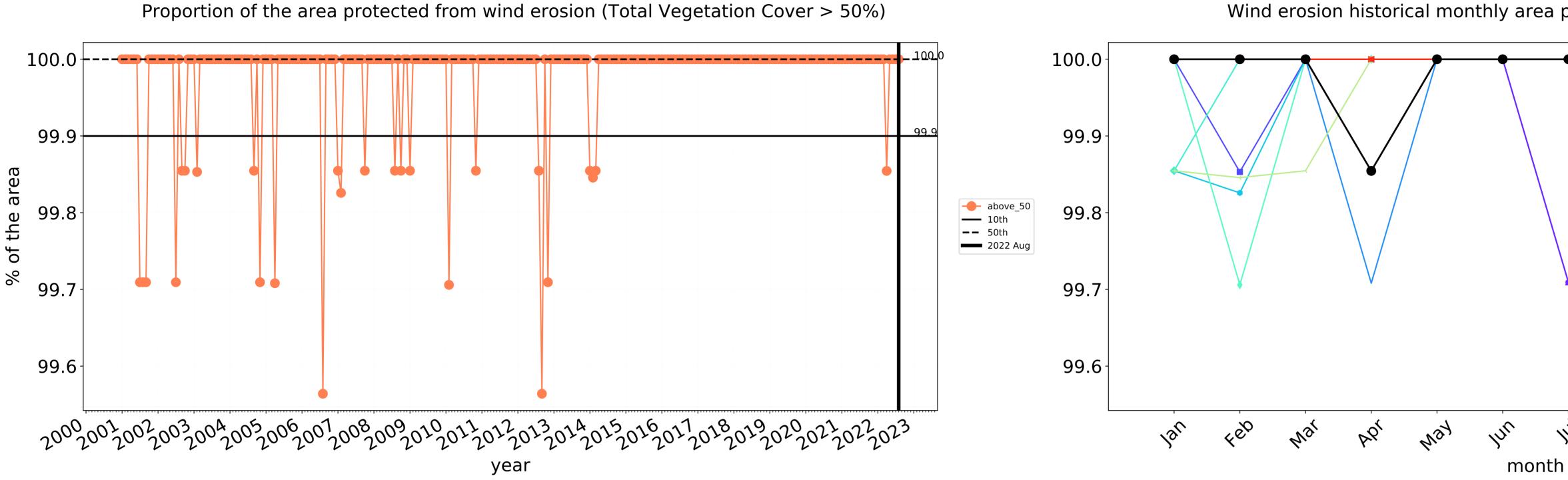
Total Vegetation Cover Anomaly [%]



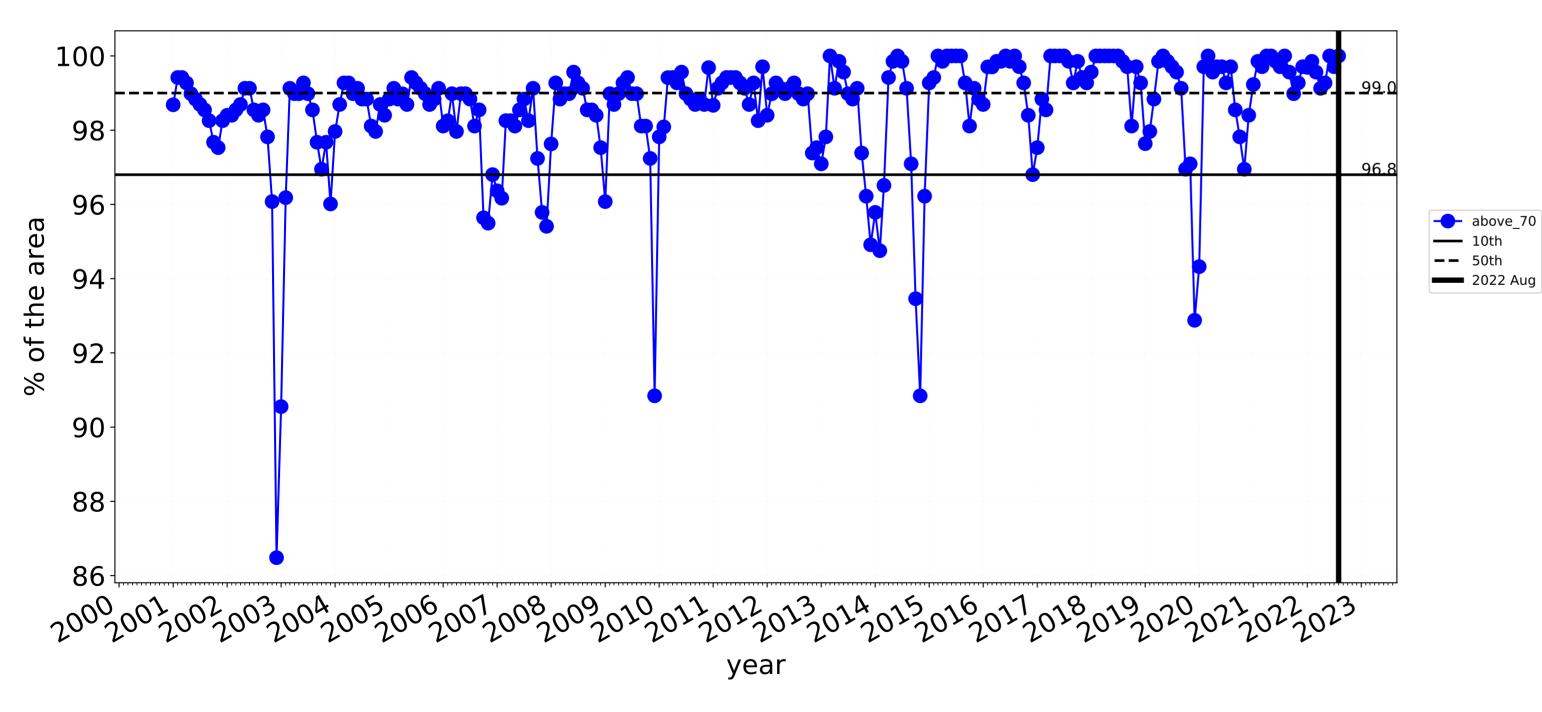
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]**

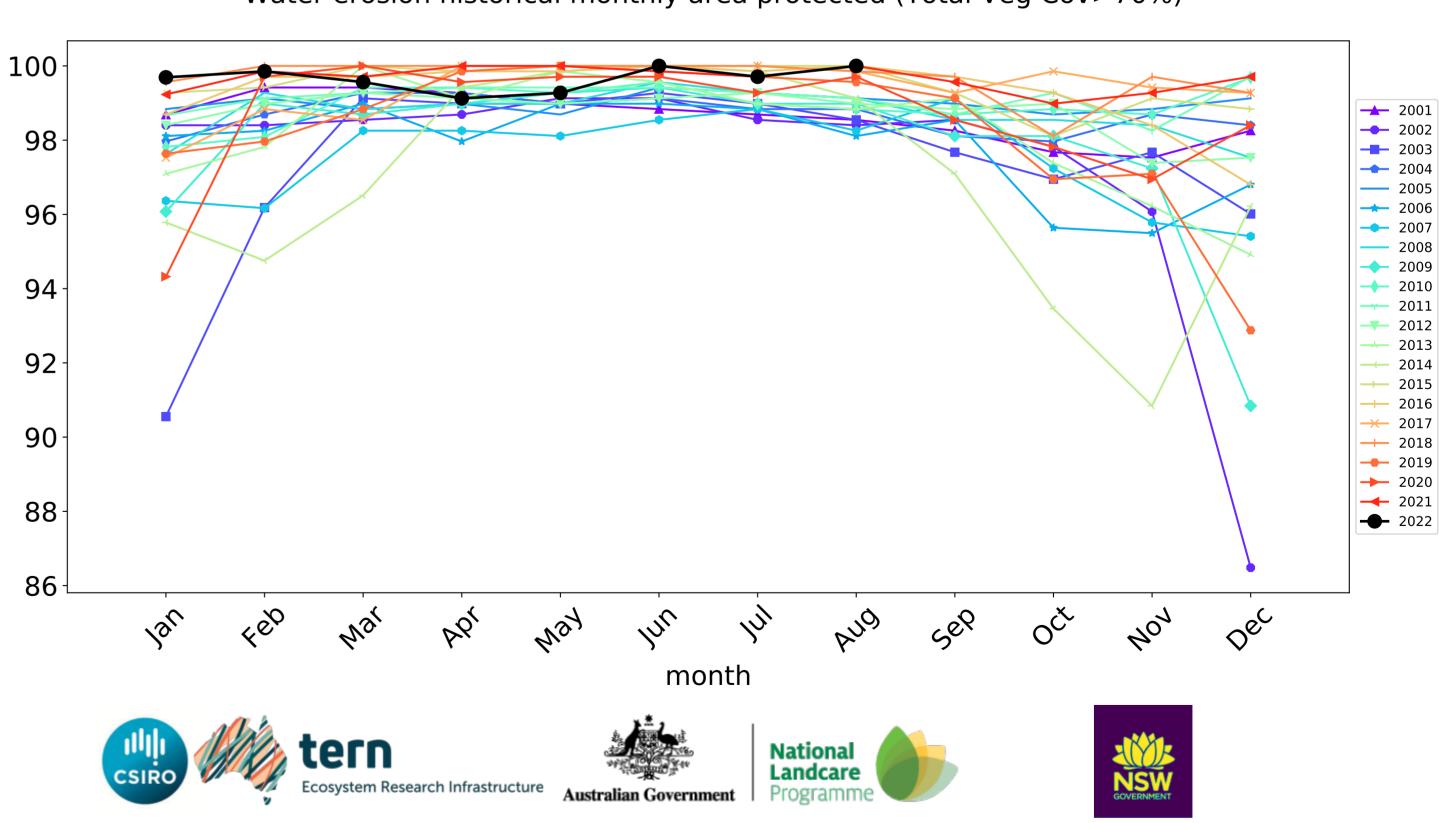




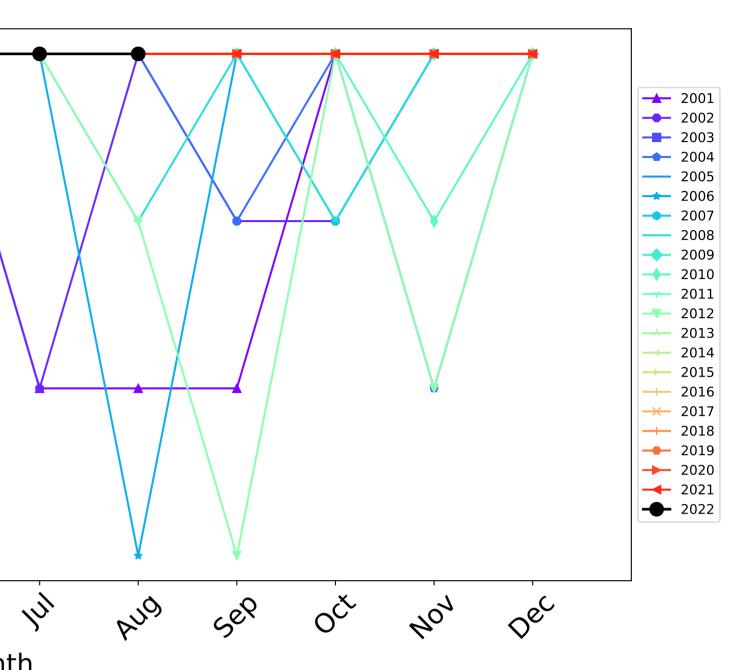


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

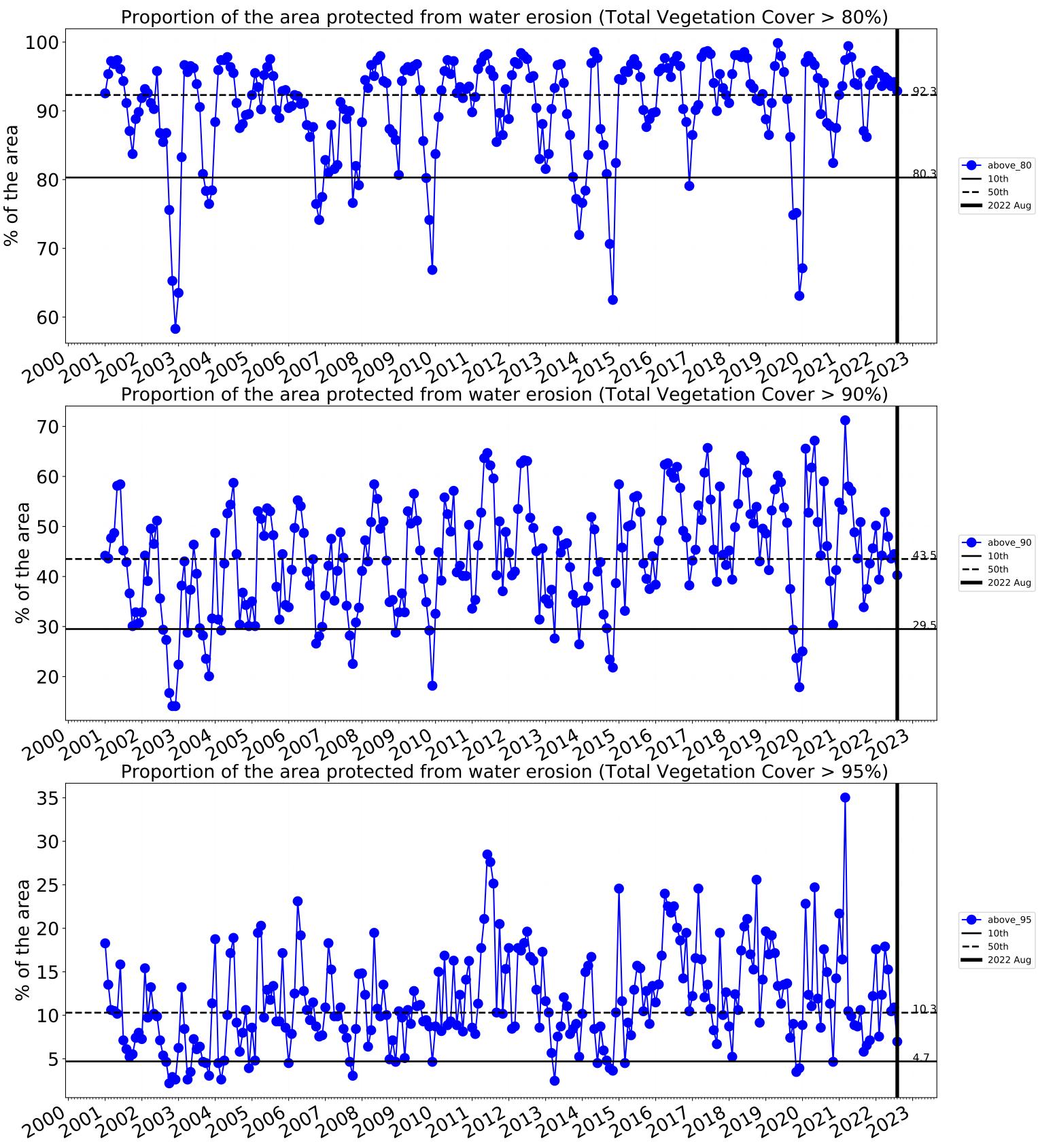


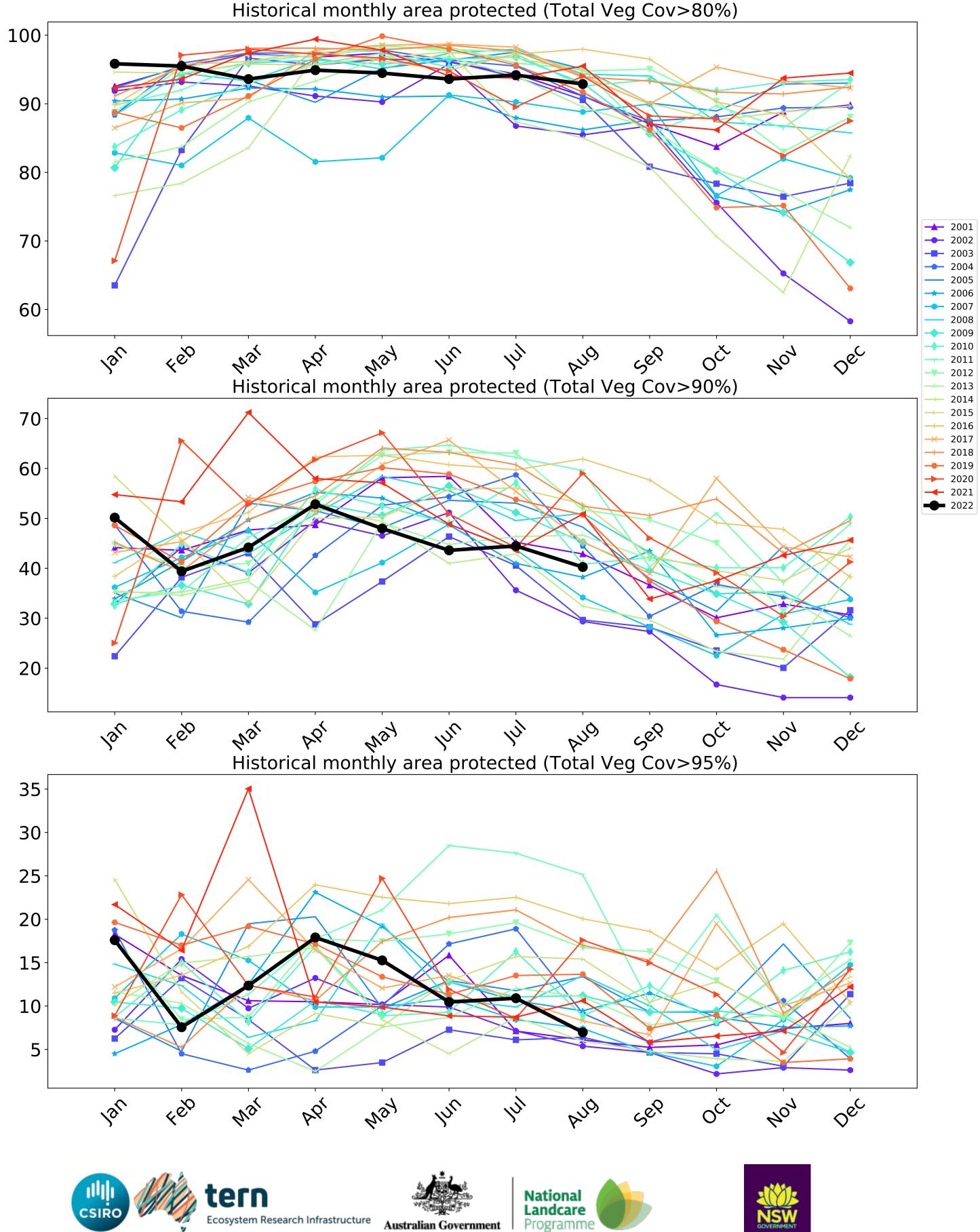


Wind erosion historical monthly area protected (Total Veg Cov >50%)



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







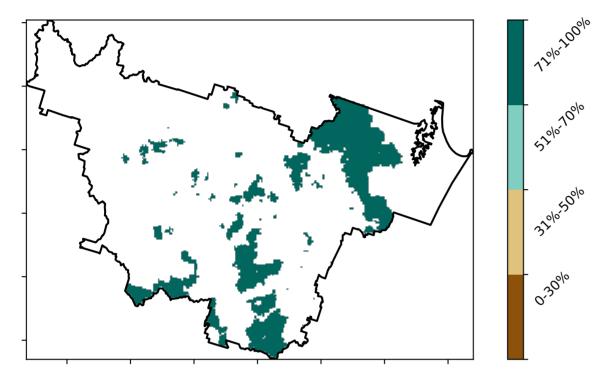
above_90

Production native forests and plantation forests

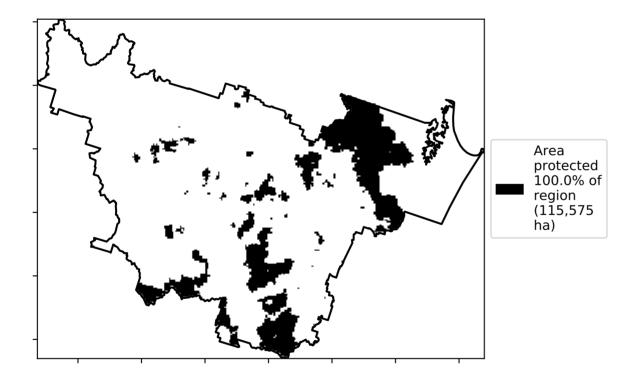
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]

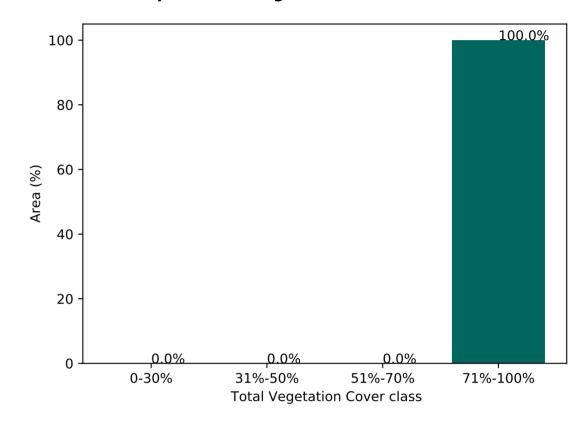
Land use and forest cover



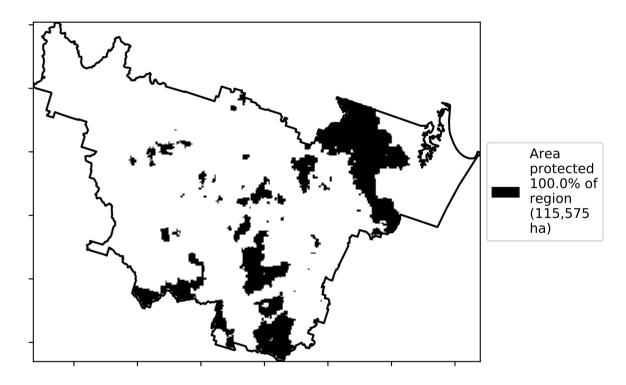
% Area protected from water erosion (>70%)



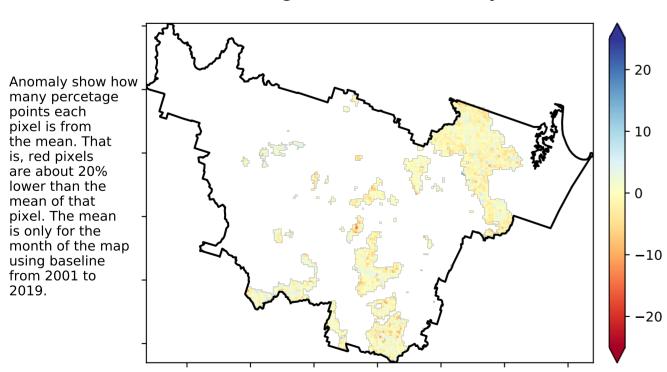
Proportion of vegetation cover class in area



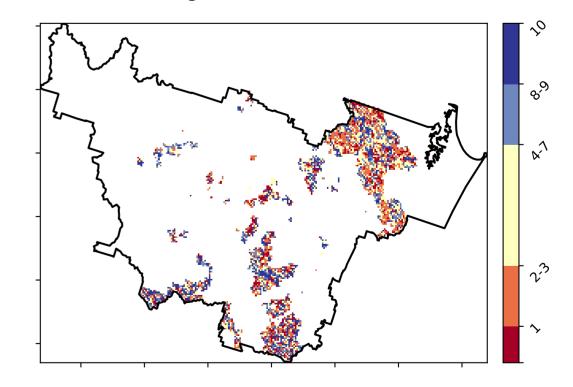
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

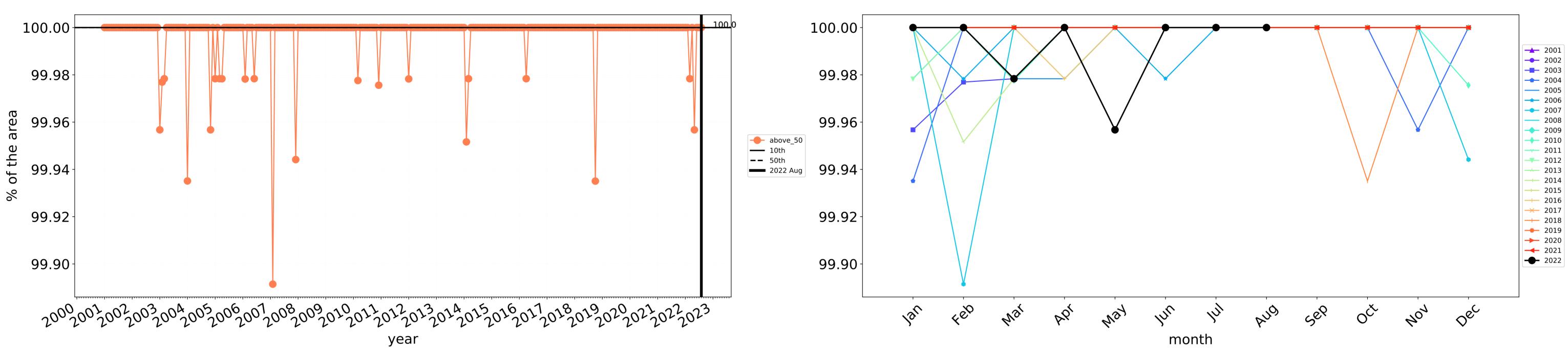


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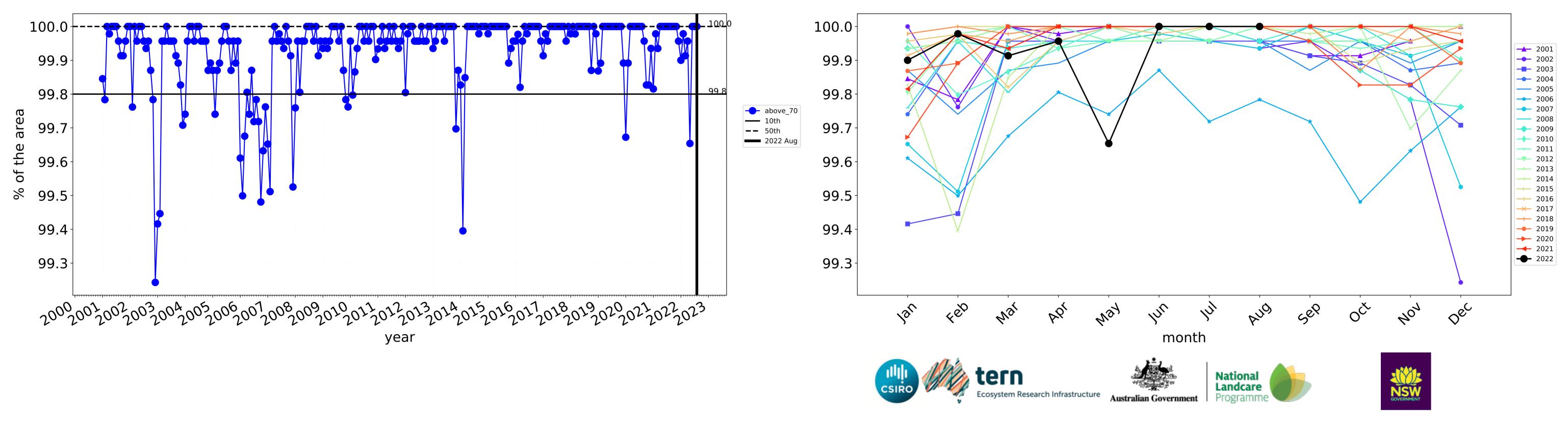




32

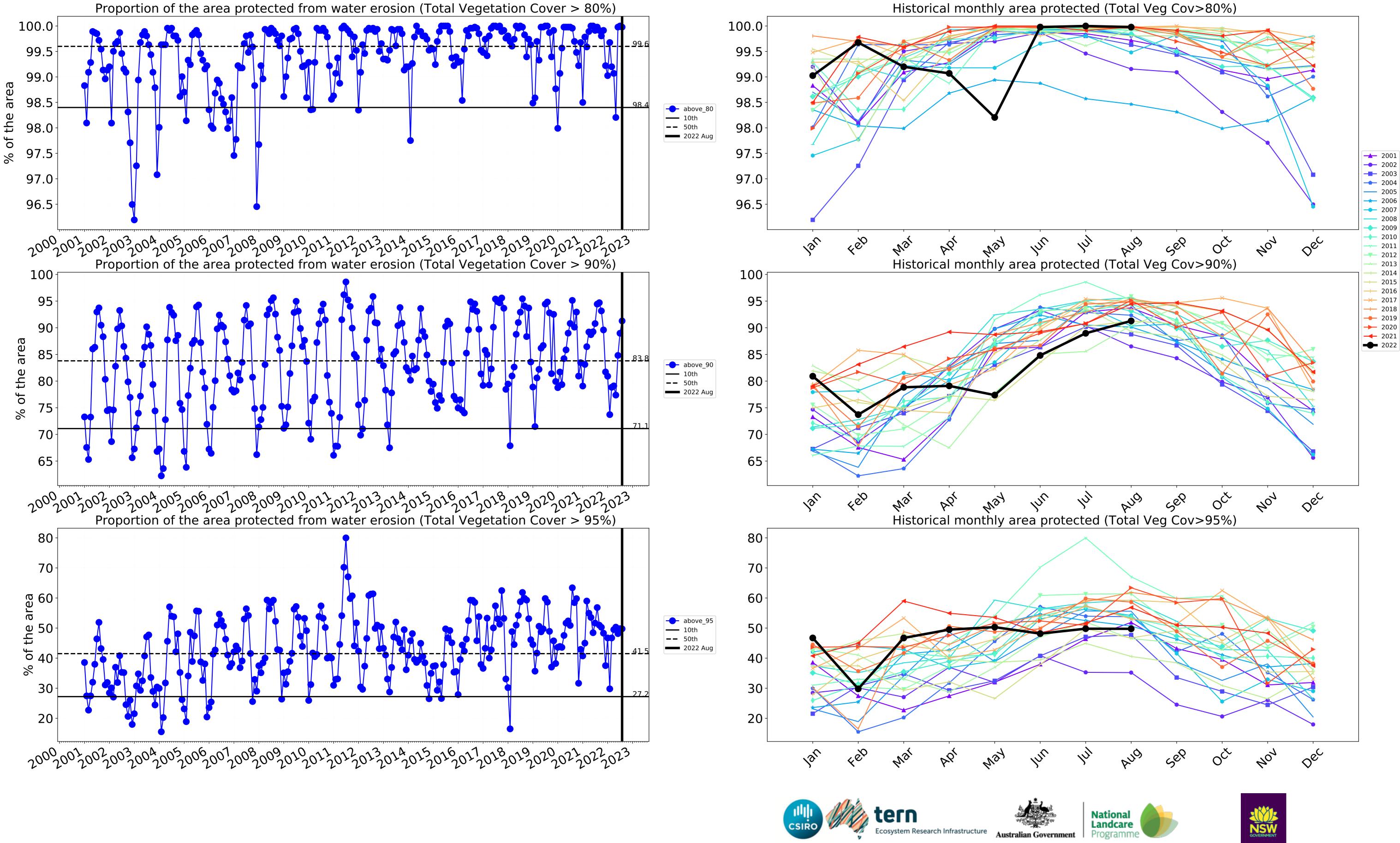


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



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

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



Australian Government

Gympie_(R) (687,075 ha and no data 1,300 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	687,075	100.0% 687,000	100.0% 686,875	99.9% 686,100	98.9% 679,450	85.6% 587,975	42.1% 289,275
Conservation and natural environments	142,625	99.9% 142,550	99.9% 142,425	99.6% 142,100	99.4% 141,775	96.6% 137,825	71.2% 101,500
Conservation and natural environments non forest	9,975	99.7% 9,950	99.5% 9,925	98.5% 9,825	98.0% 9,775	92.5% 9,225	53.4% 5,325
Conservation and natural environments Woodland forest Conservation and	28,825	99.9% 28,800	99.8% 28,775	99.5% 28,675	99.3% 28,625	96.8% 27,900	68.3% 19,675
natural environments Forest (non woodland)	103,825	100.0% 103,800	99.9% 103,725	99.8% 103,600	99.6% 103,375	97.0% 100,700	73.7% 76,500
Agriculture	397,600	100.0% 397,600	100.0% 397,600	100.0% 397,475	98.8% 392,800	81.1% 322,500	31.2% 124,075
Grazing	377,625	100.0% 377,625	100.0% 377,625	100.0% 377,500	99.1% 374,075	83.0% 313,475	32.3% 122,025
Grazing non forest	267,675	100.0% 267,675	100.0% 267,675	100.0% 267,550	98.7% 264,250	78.8% 210,825	26.1% 69,825
Grazing Woodland forest	61,875	100.0% 61,875	100.0% 61,875	100.0% 61,875	99.8% 61,775	91.3% 56,500	39.3% 24,300
Grazing - Forest (non woodland)	48,075	100.0% 48,075	100.0% 48,075	100.0% 48,075	99.9% 48,050	96.0% 46,150	58.0% 27,900
Irrigation	17,200	100.0% 17,200	100.0% 17,200	100.0% 17,200	92.9% 15,975	40.3% 6,925	7.0% 1,200
Production native forests and plantation forests	115,575	100.0% 115,575	100.0% 115,575	100.0% 115,575	100.0% 115,550	91.3% 105,500	49.8% 57,500

