Total vegetation cover soil protection Region:LGA Gladstone (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.

Land use forest cover:

Date: January 2023

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 Jan 2023

Land use and forest cover

Derived from

pixel is from

is, red pixels are about 20% lower than the

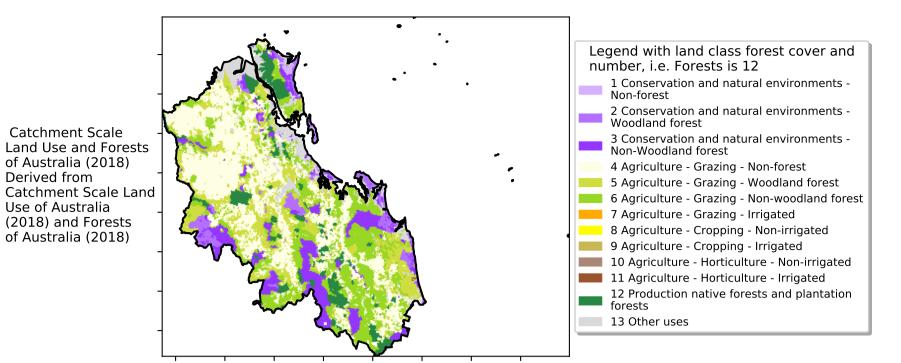
mean of that pixel. The mean is only for the

using baseline from 2001 to

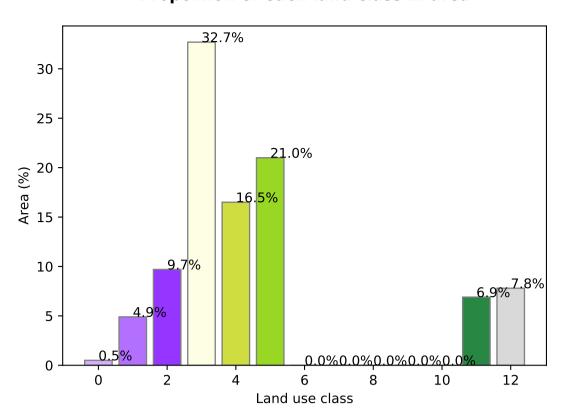
2019.

the mean. That

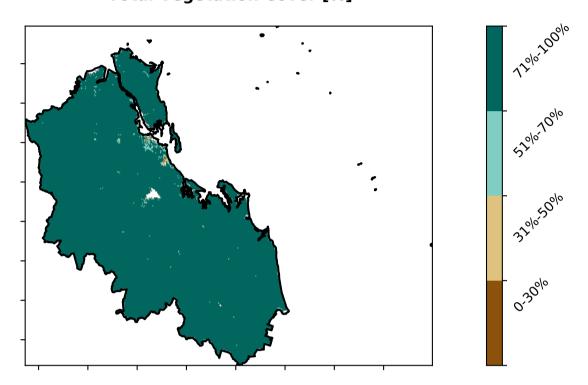
Use of Australia



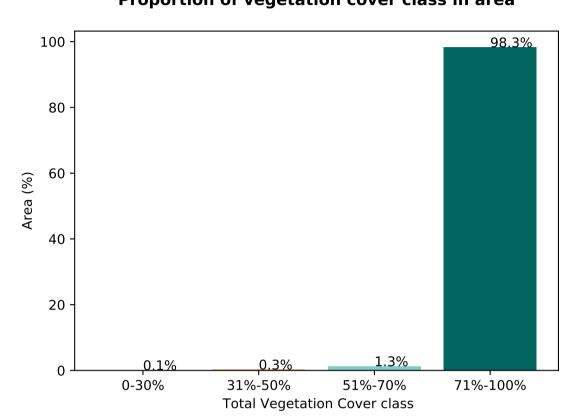
Proportion of each land class in area



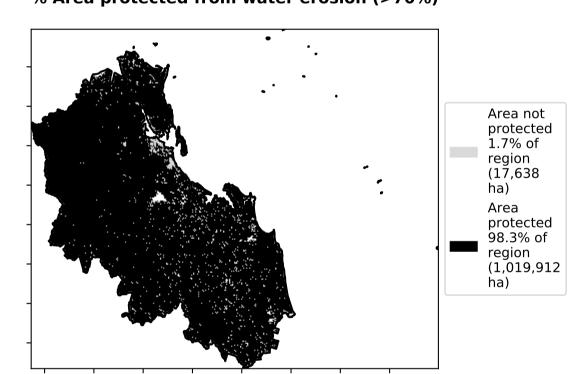
Total Vegetation Cover [%]



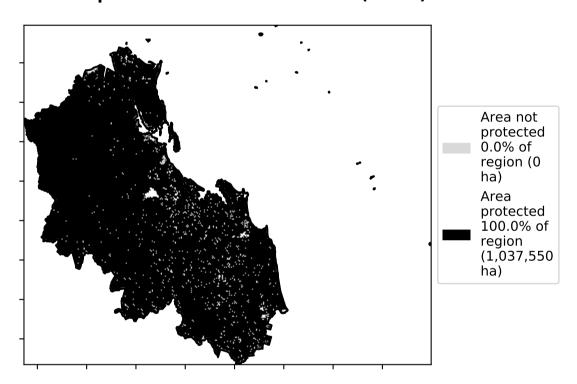
Proportion of vegetation cover class in area



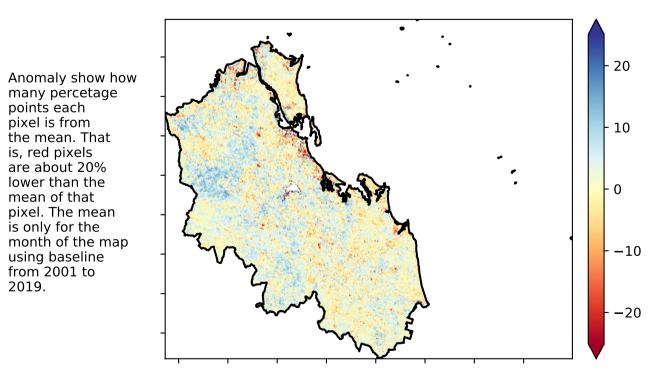
% Area protected from water erosion (>70%)



% 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.

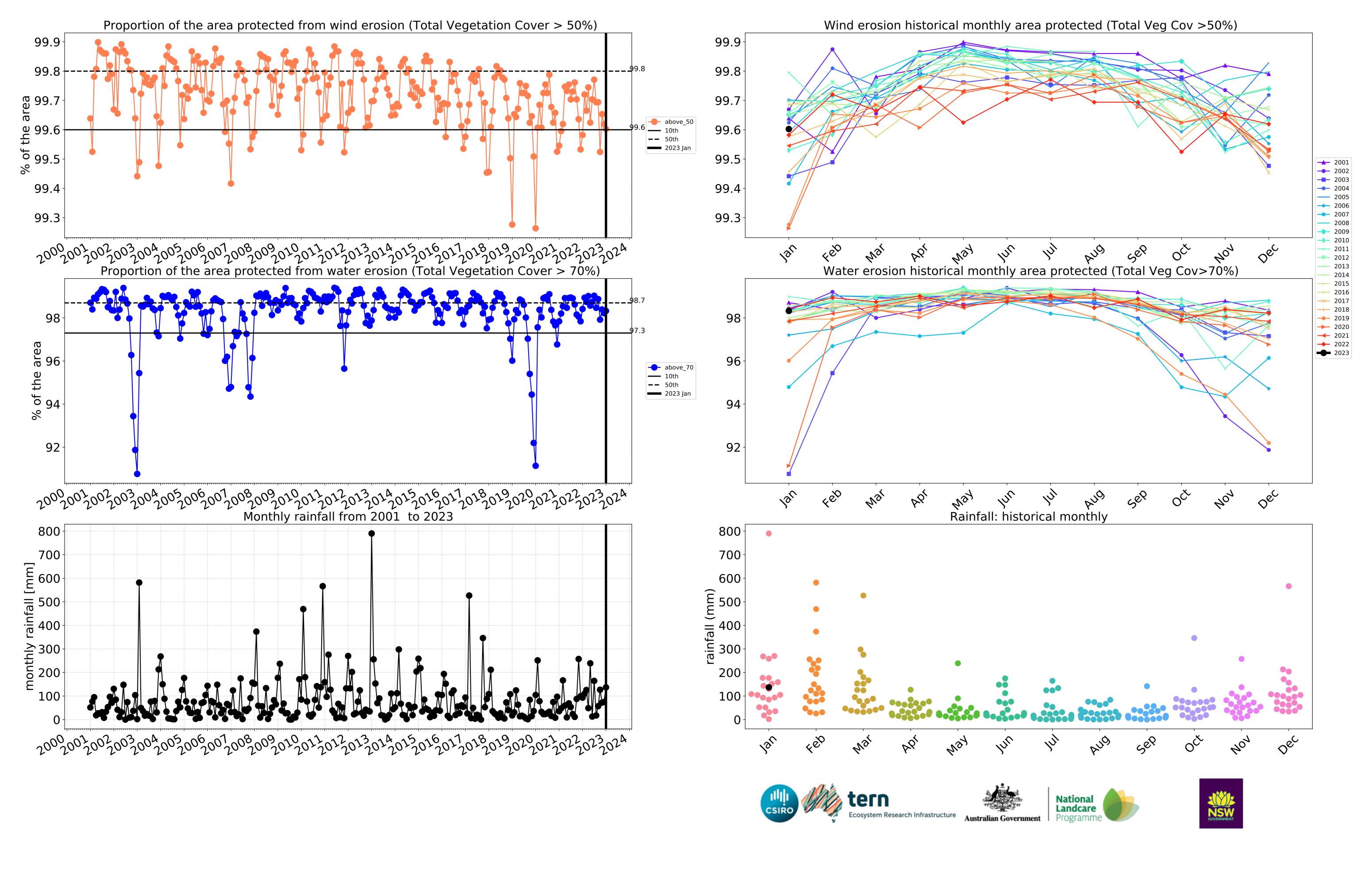
Total Vegetation Cover Decile [%]

Ecosystem Research Infrastructure

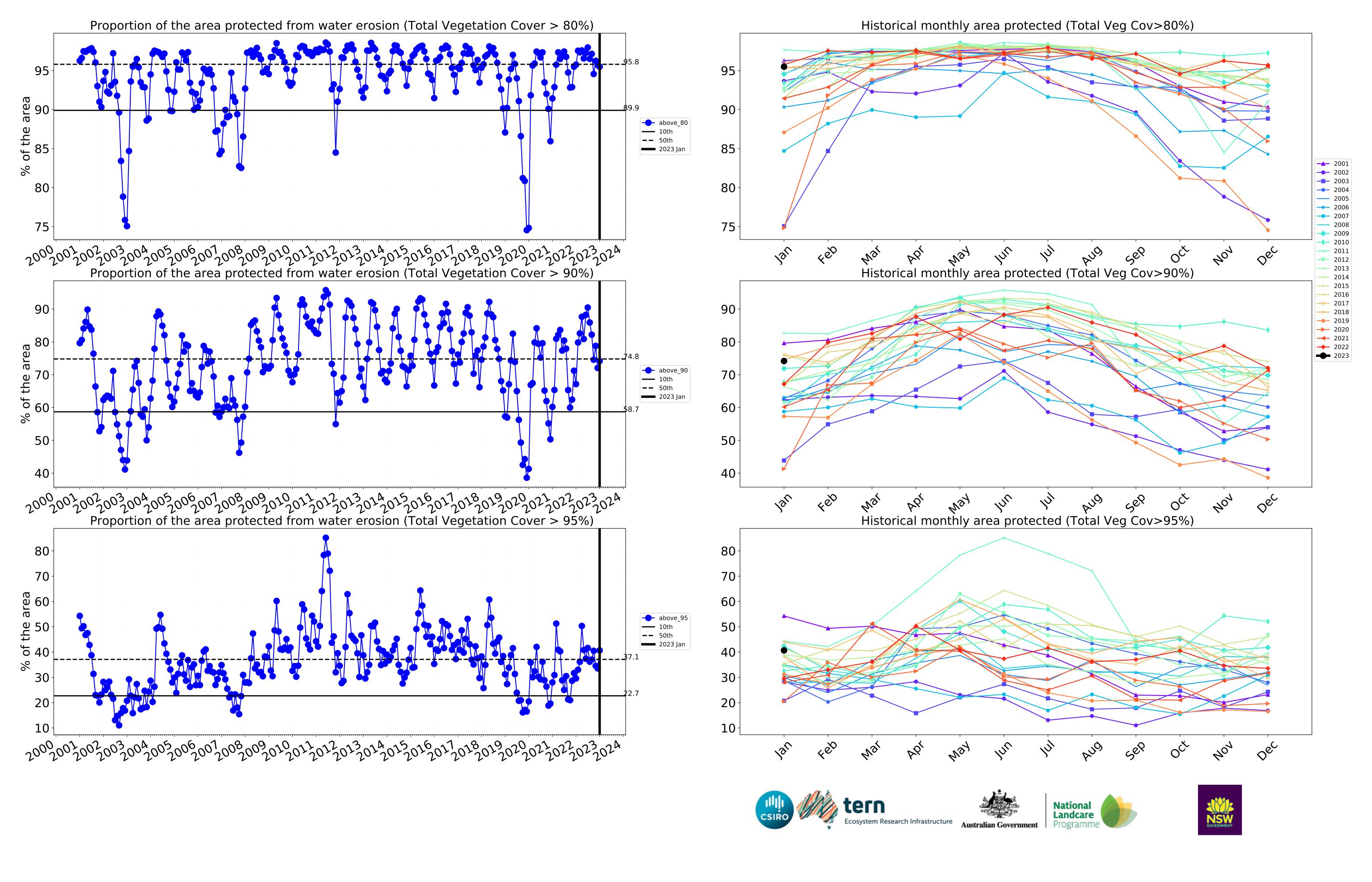








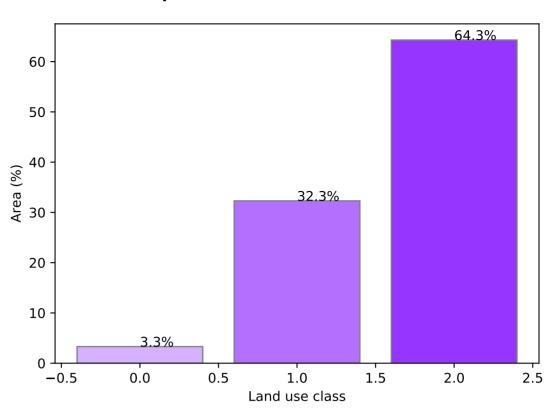
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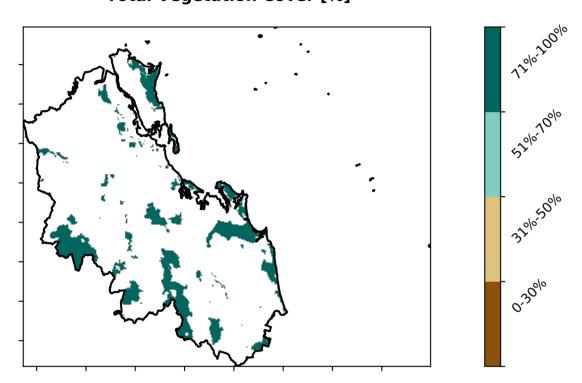
Conservation and natural environments

Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) 1 Conservation and natural environments - Non-Derived from 2 Conservation and natural environments - Woodland Catchment Scale Land Use of Australia 3 Conservation and natural environments - Non-woodland forest (2018) and Forests of Australia (2018)

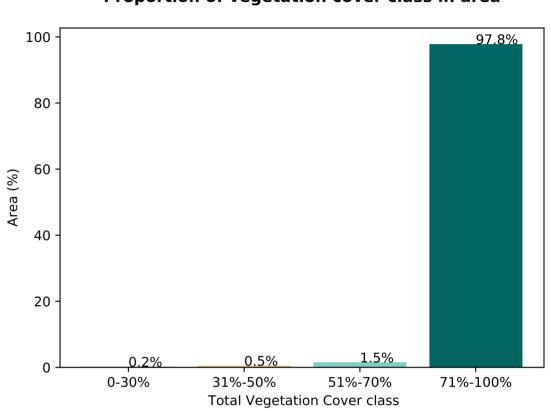
Proportion of each land class in area



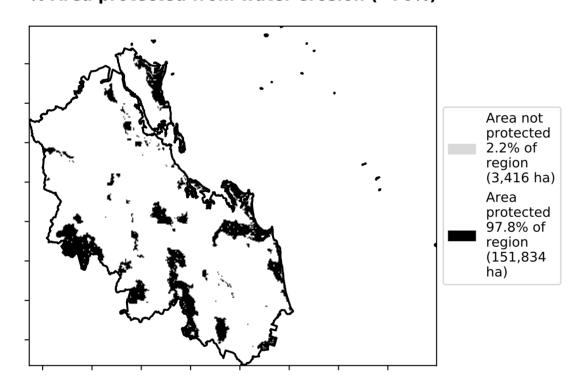
Total Vegetation Cover [%]



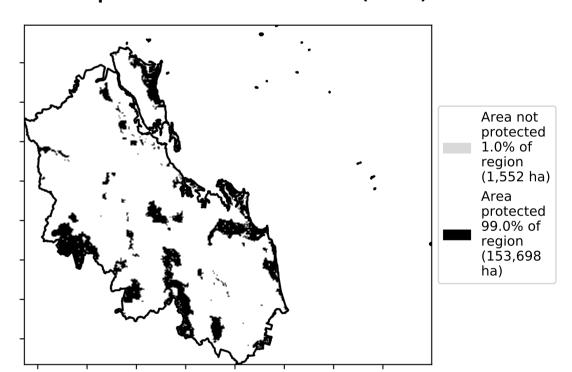
Proportion of vegetation cover class in area



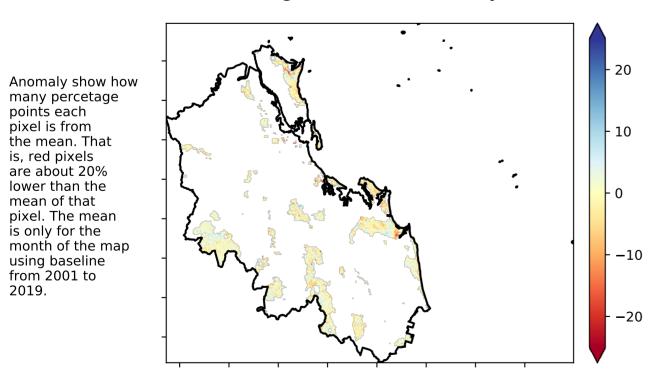
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

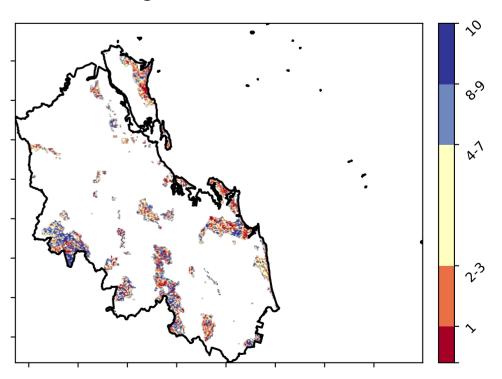


Total Vegetation Cover Anomaly [%]



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 [%]





is, red pixels are about 20% lower than the mean of that

pixel. The mean

using baseline from 2001 to 2019.

is only for the month of the map



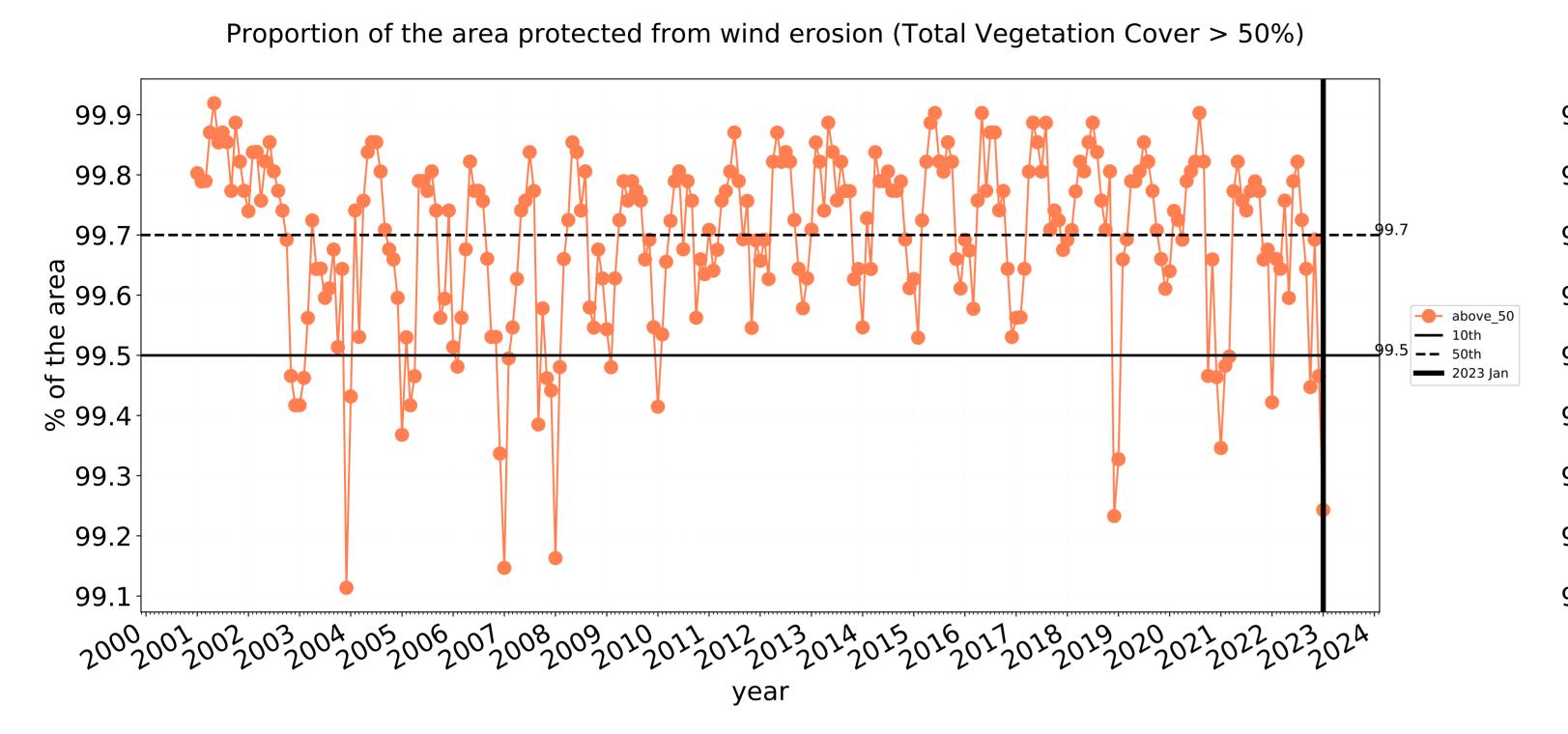


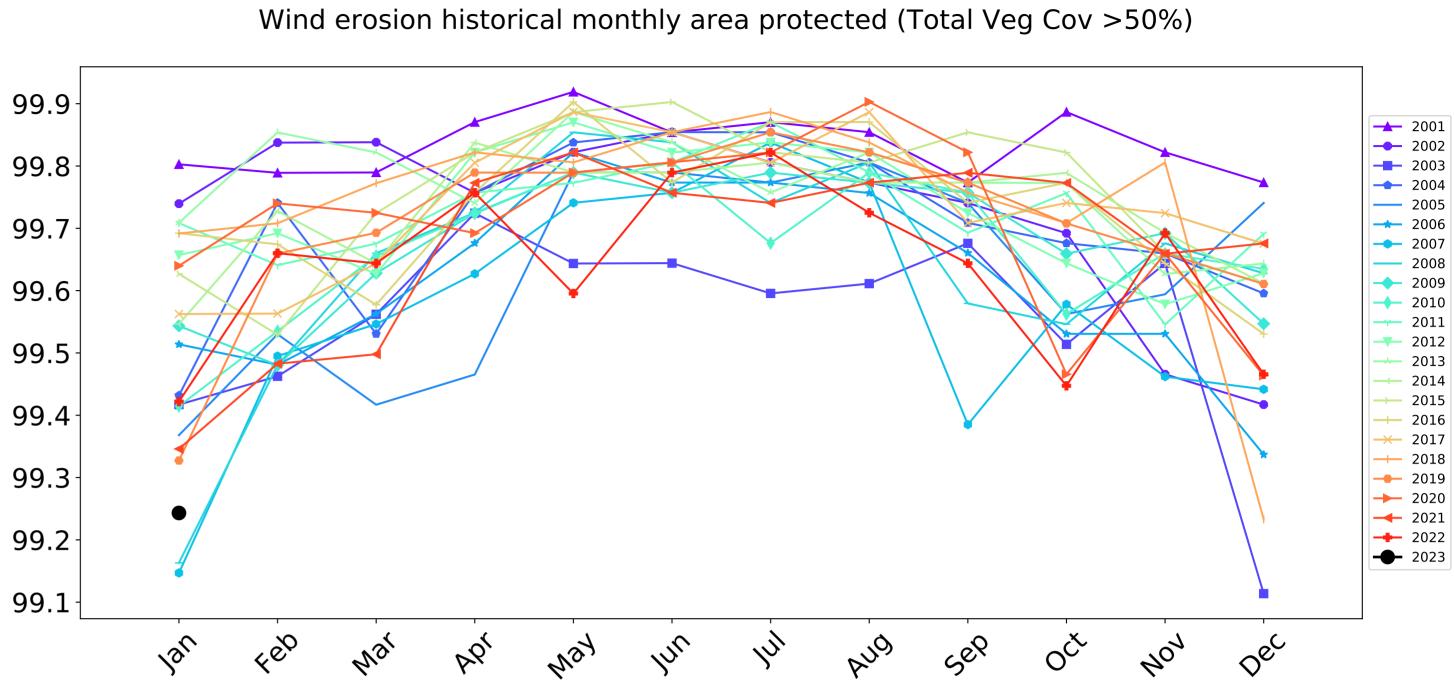




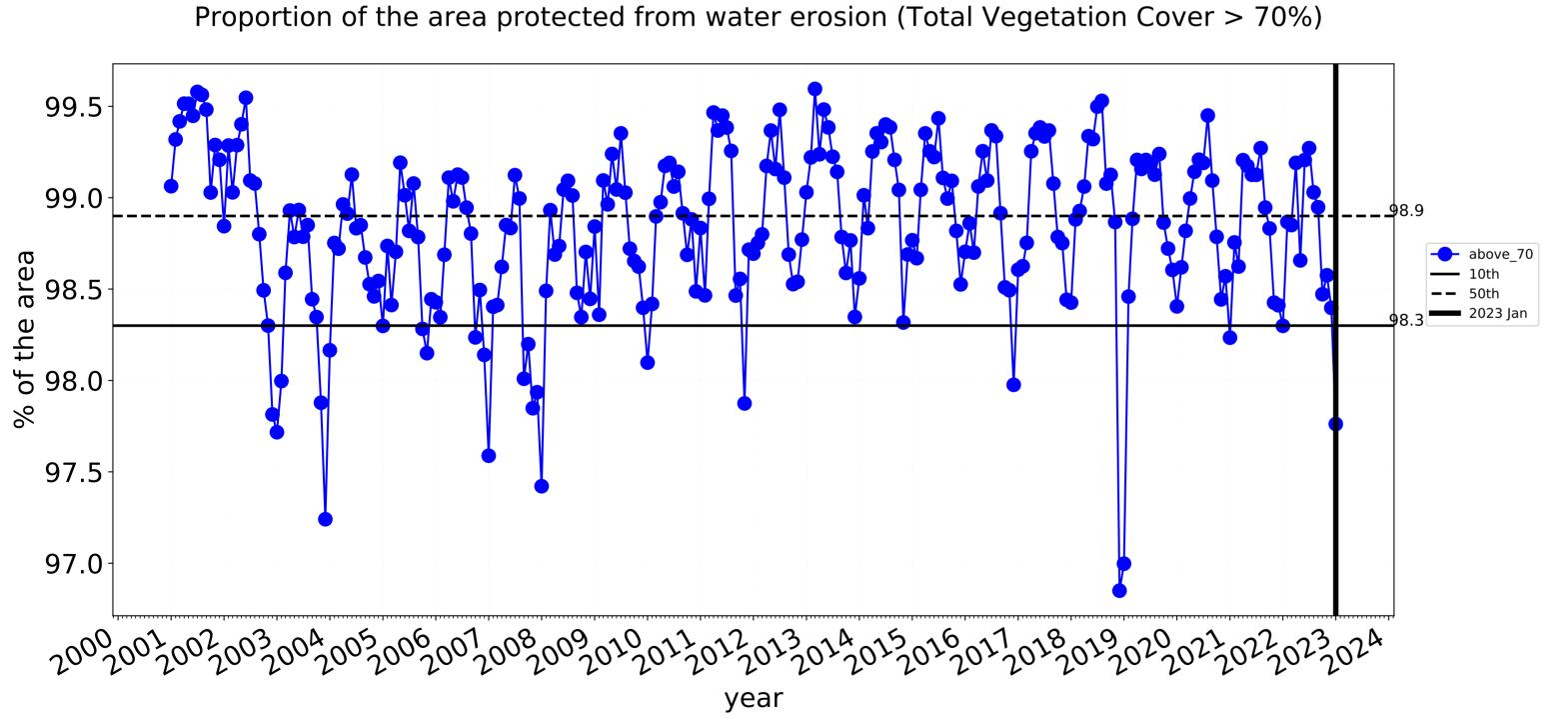


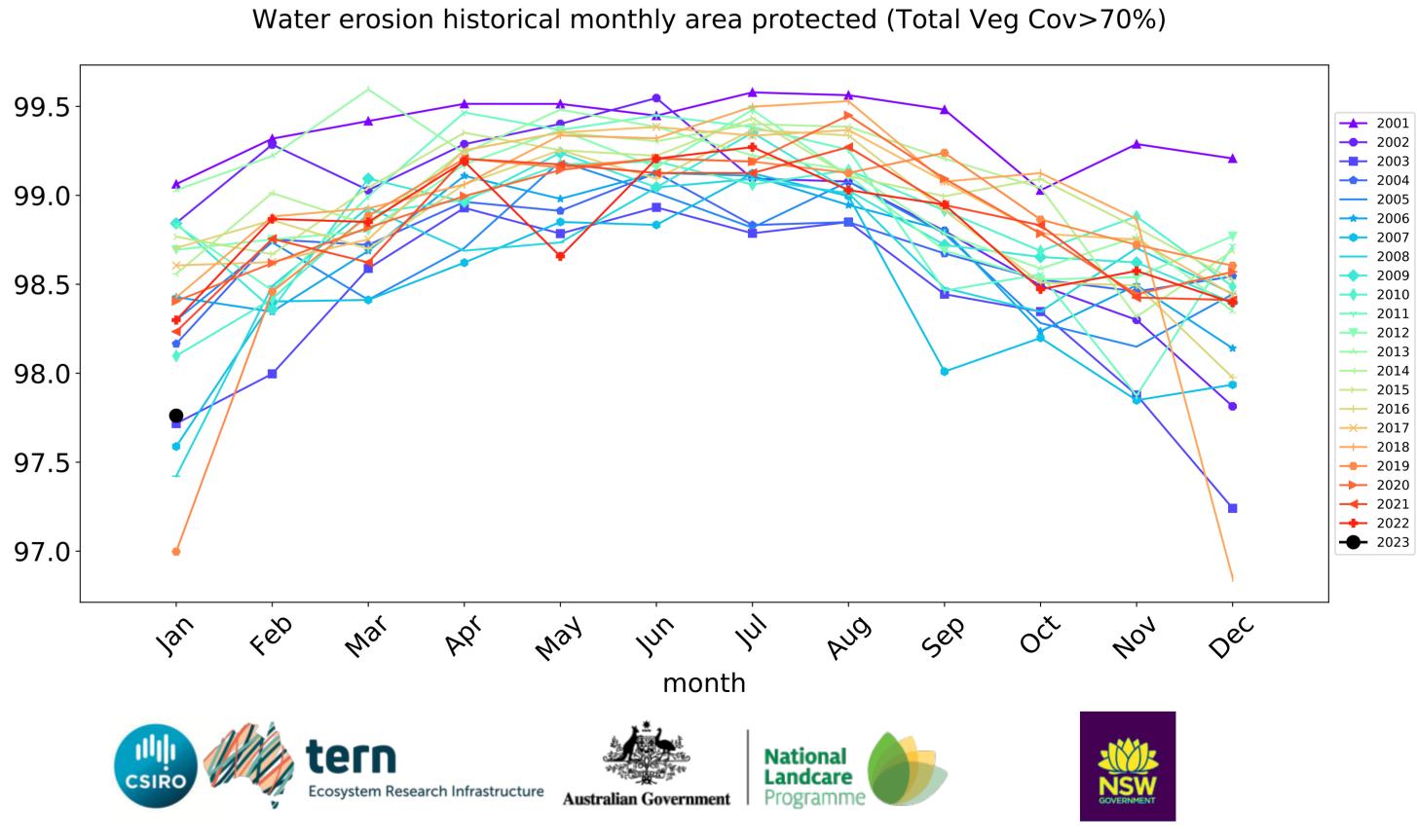
Conservation and natural environments timeseries

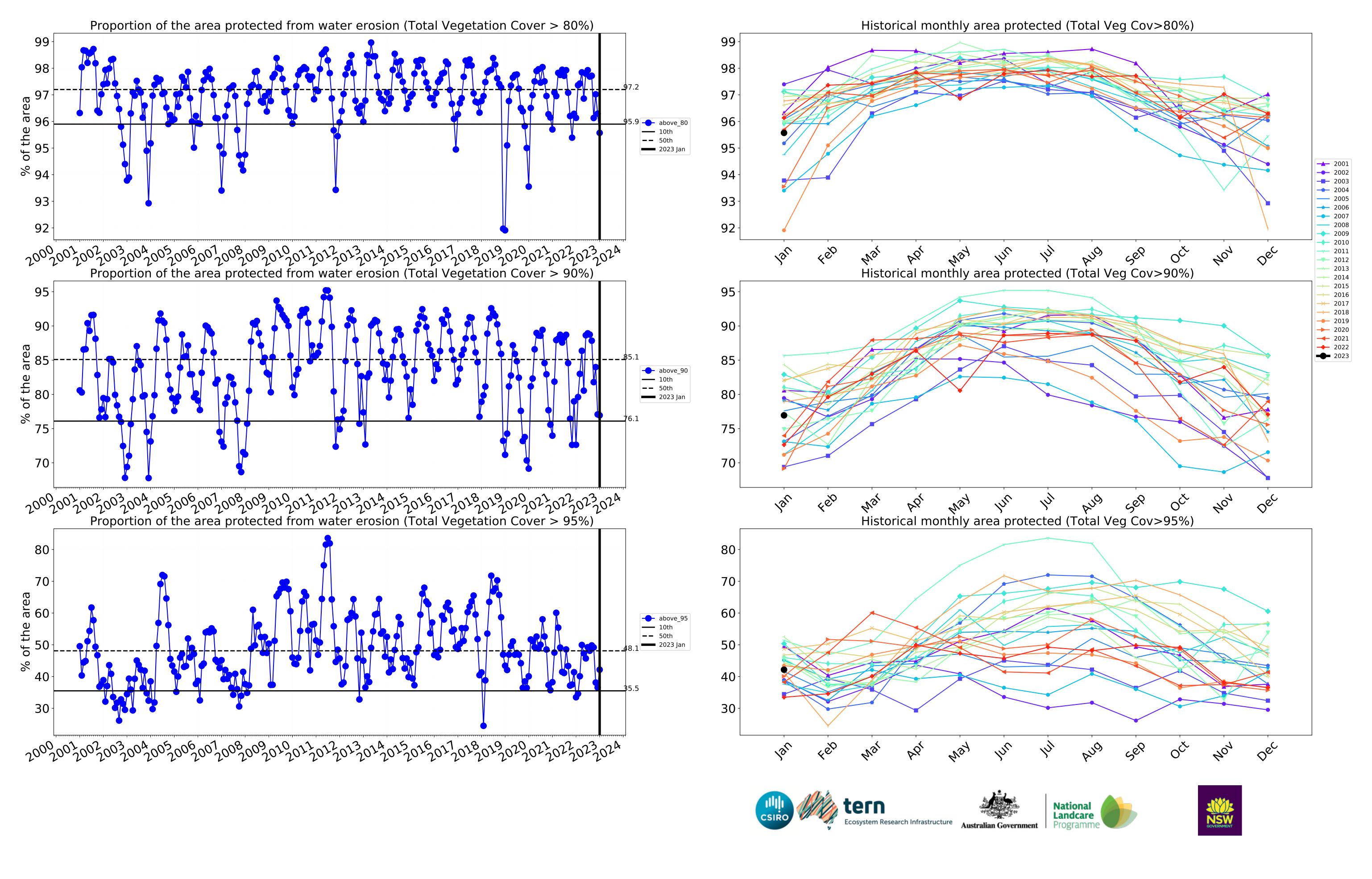




month





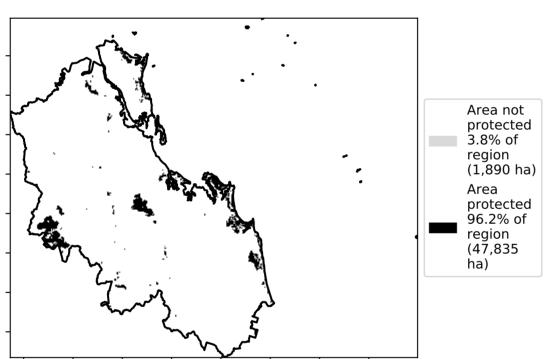


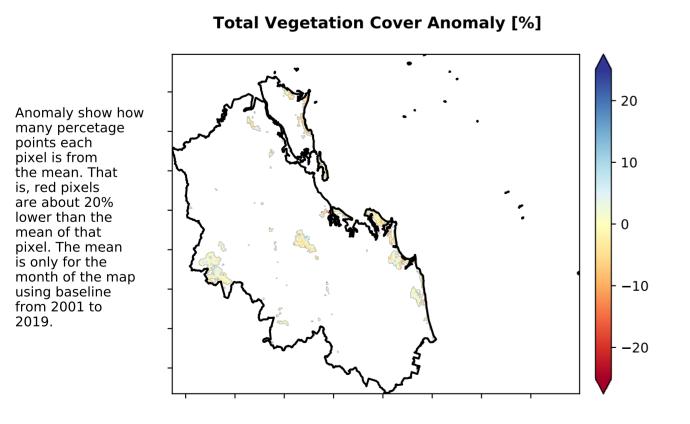
Conservation and natural environments Woodland forest

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)

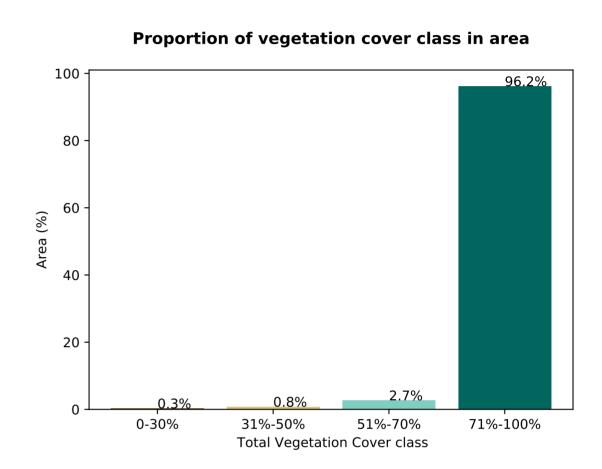
Total Vegetation Cover [%]

% Area protected from water erosion (>70%)



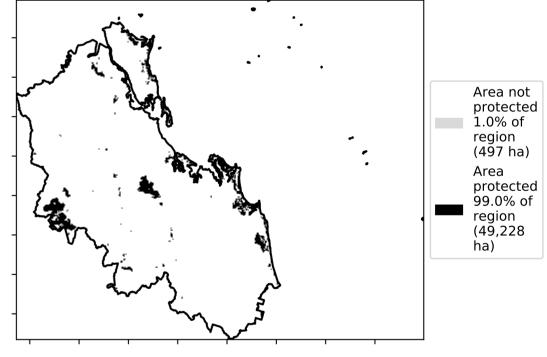


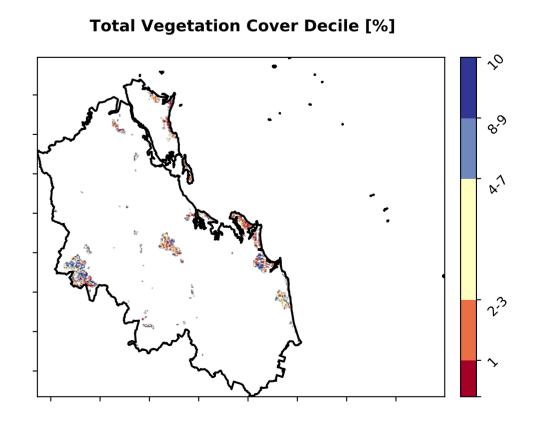
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



% Area protected from wind erosion (>50%)

region (497 ha) Area region (49,228 ha)





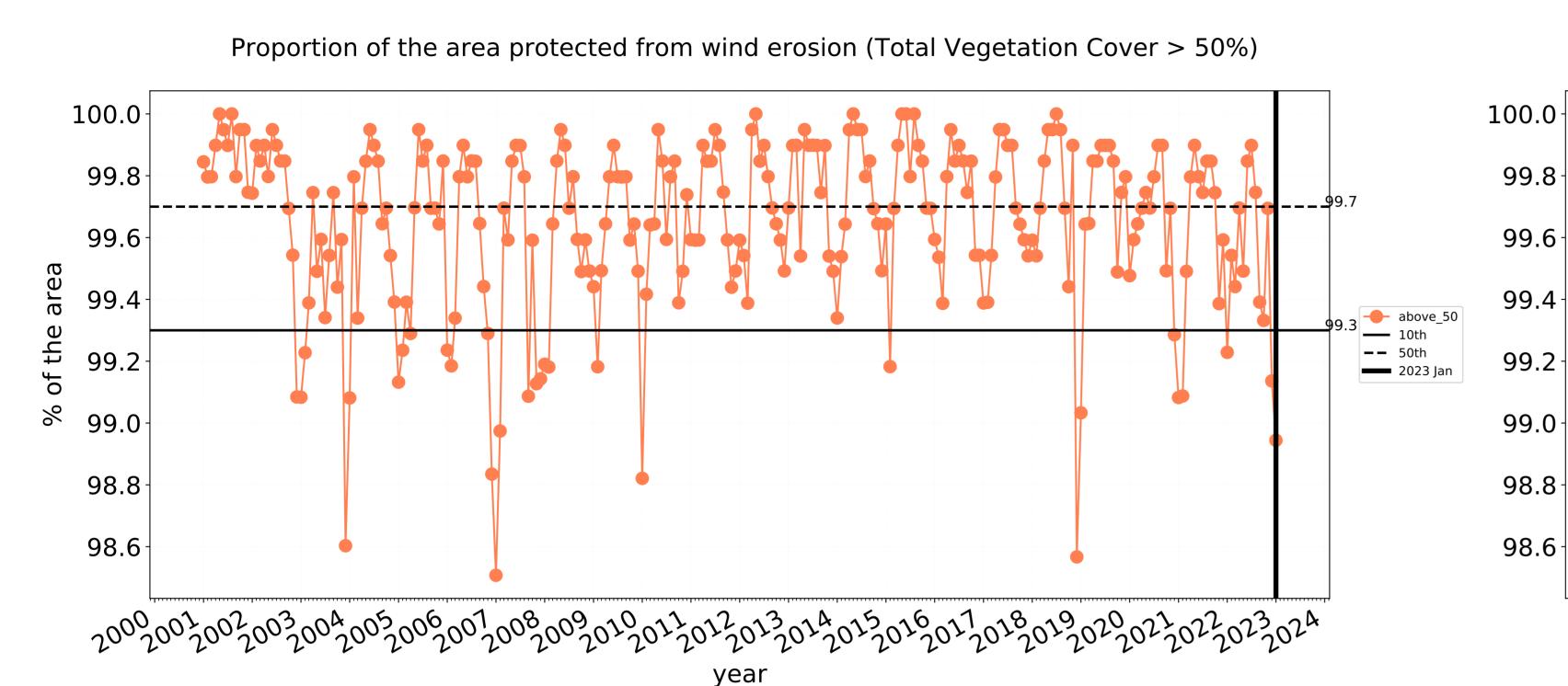


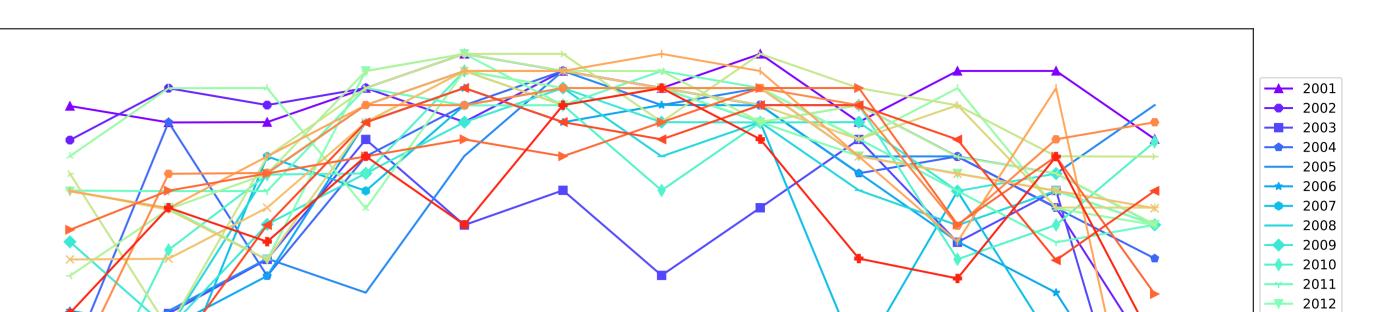






Conservation and natural environments Woodland forest timeseries





2013

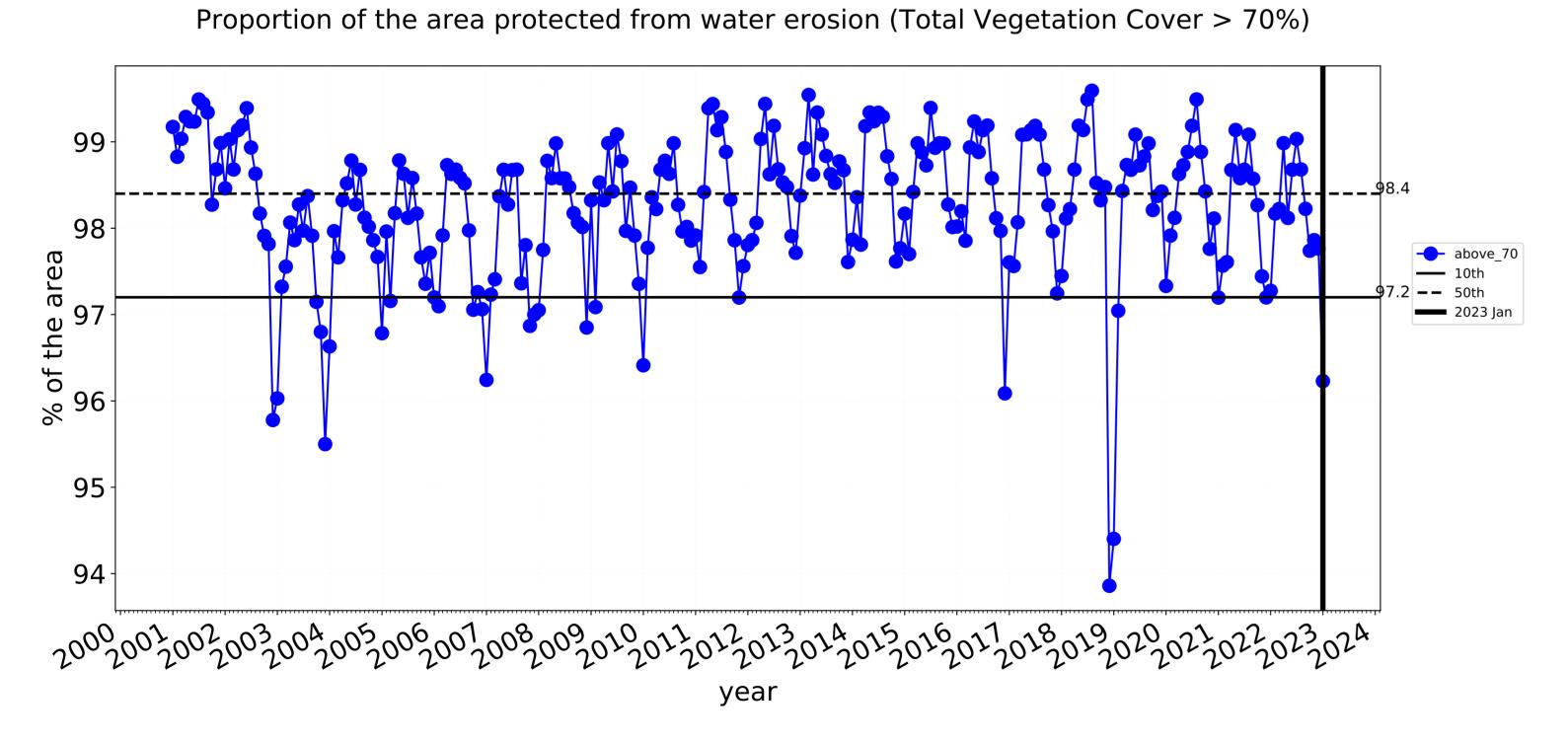
20142015

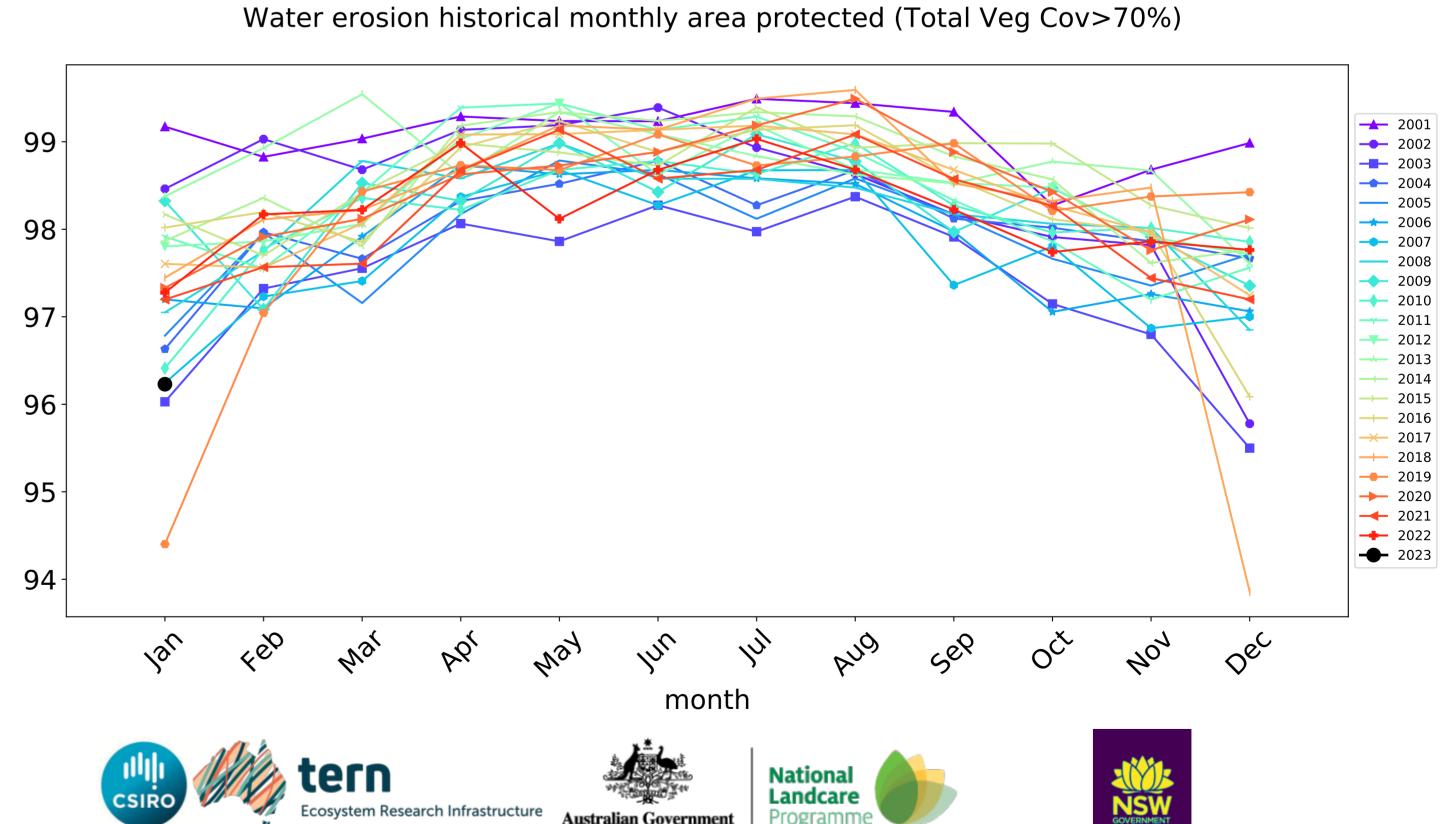
2017 --- 2018 --- 2019

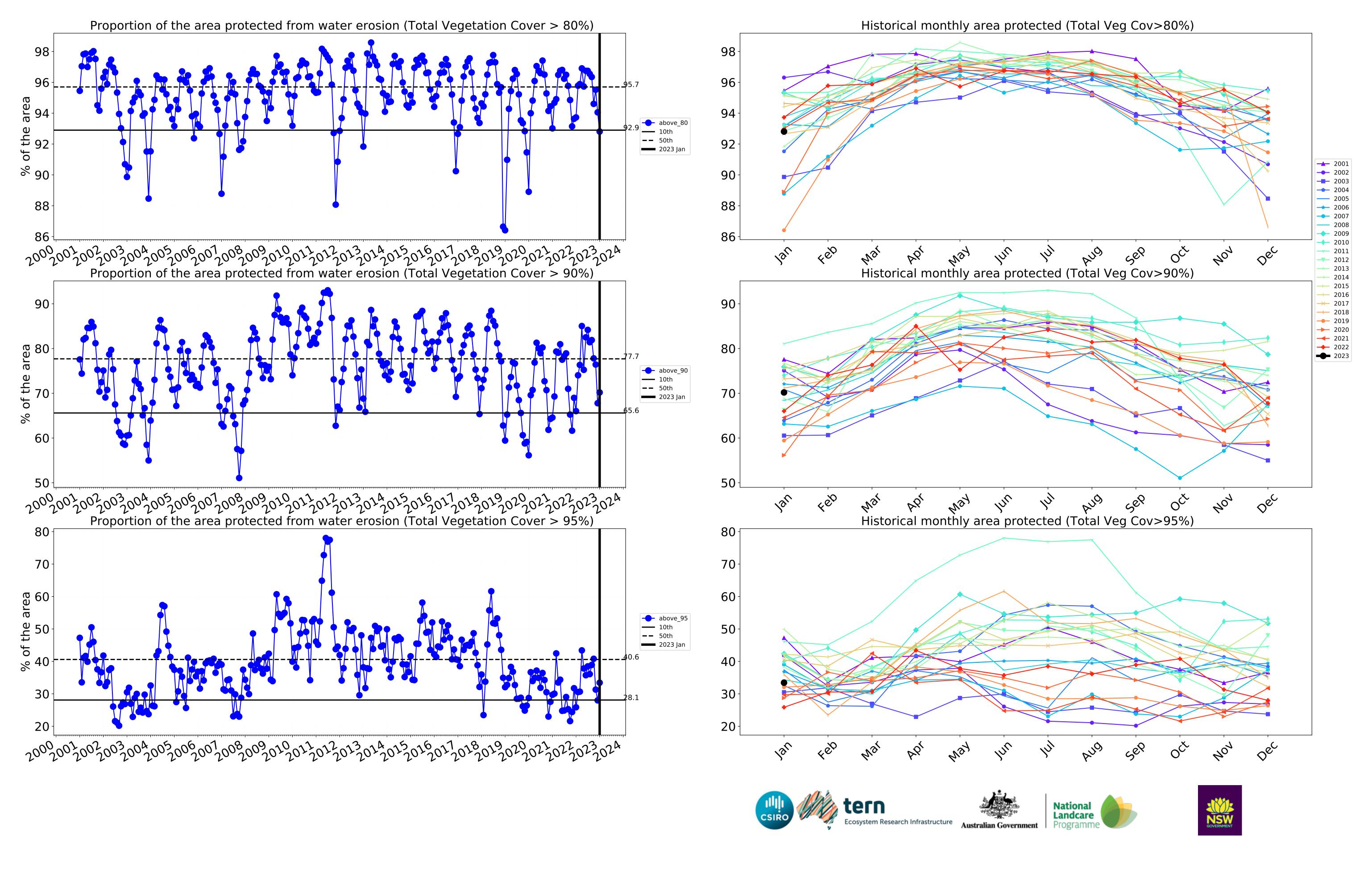
2020 2021 2022 2023

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

month

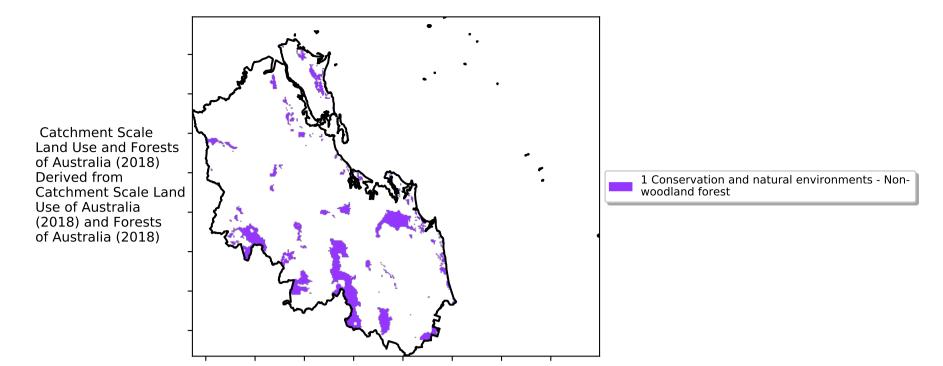




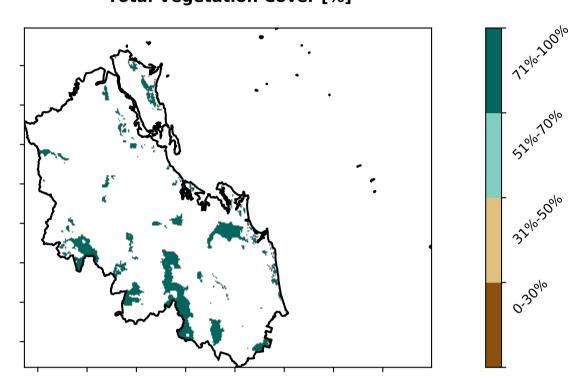


Conservation and natural environments Forest (non woodland)

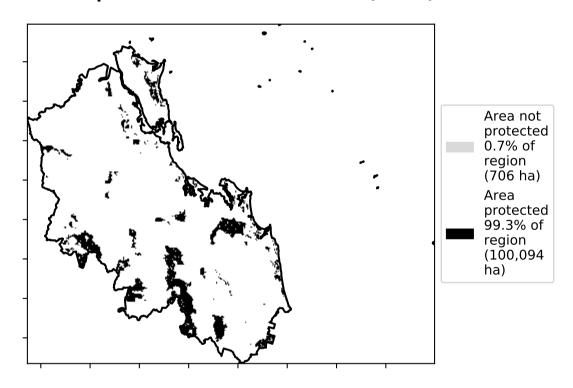
Land use and forest cover



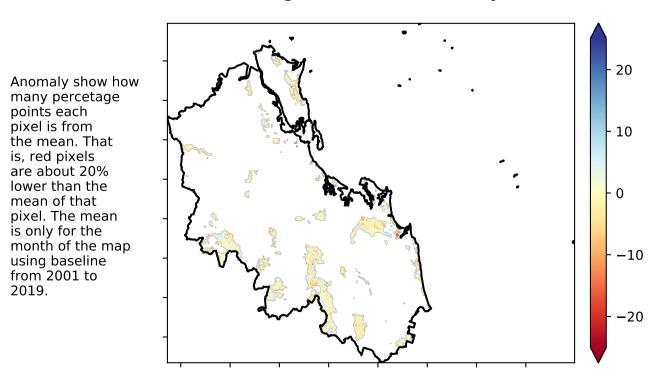
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



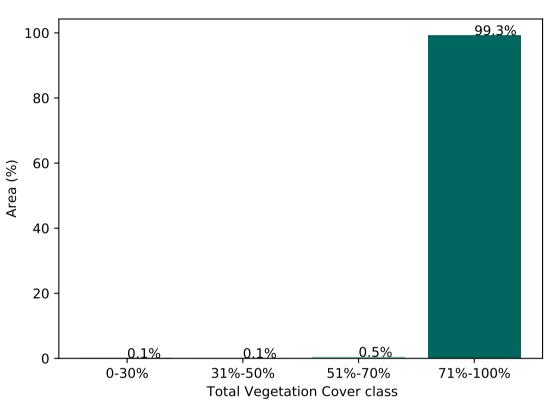
Total Vegetation Cover Anomaly [%]



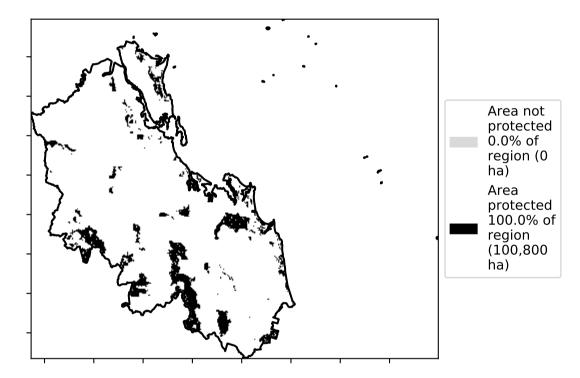
is, red pixels are about 20% lower than the mean of that

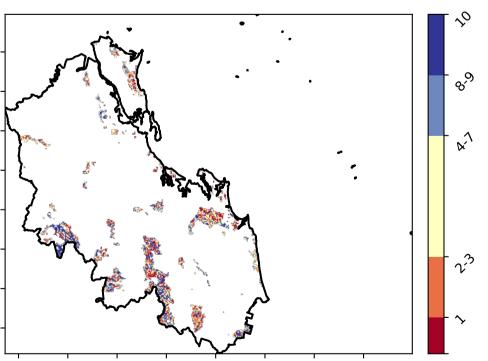
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Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





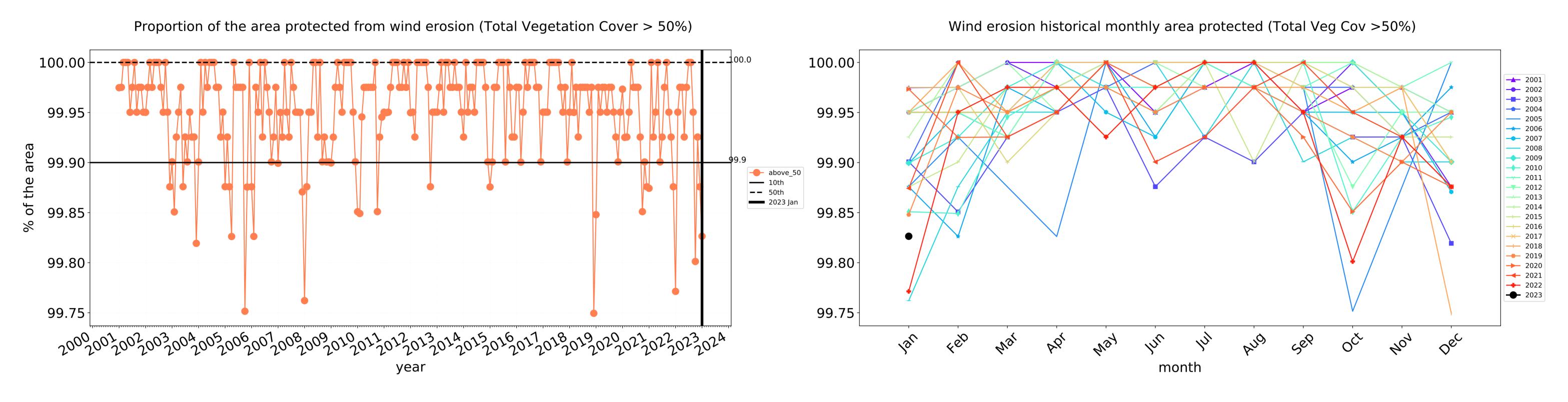


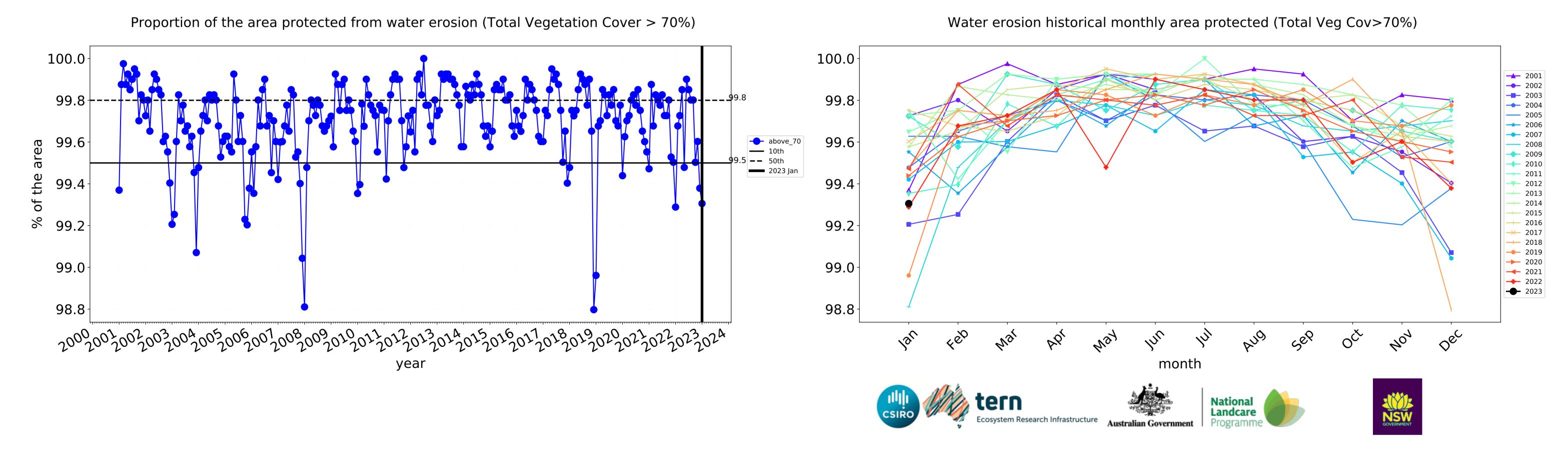


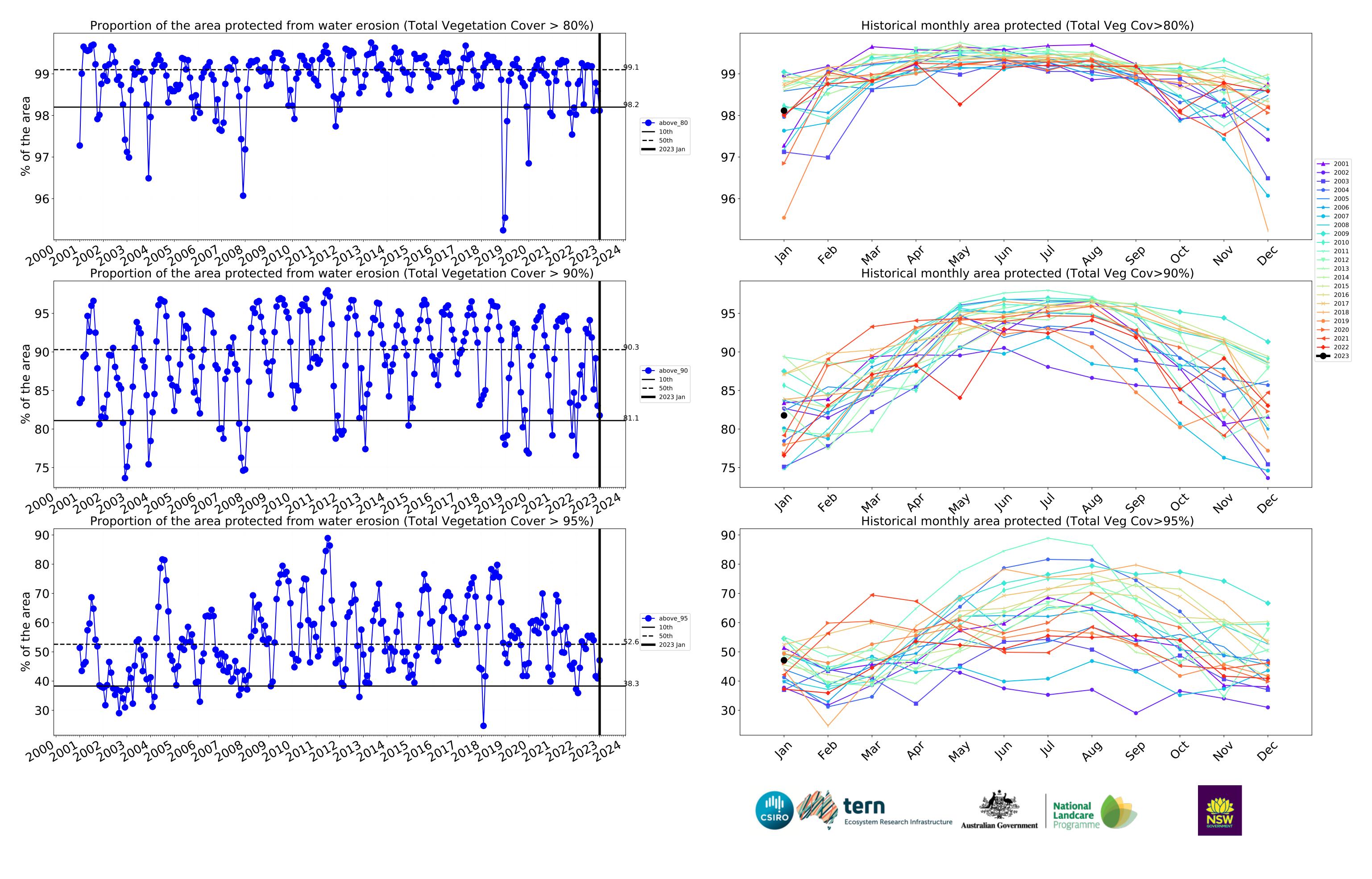




Conservation and natural environments Forest (non woodland) timeseries







Agriculture

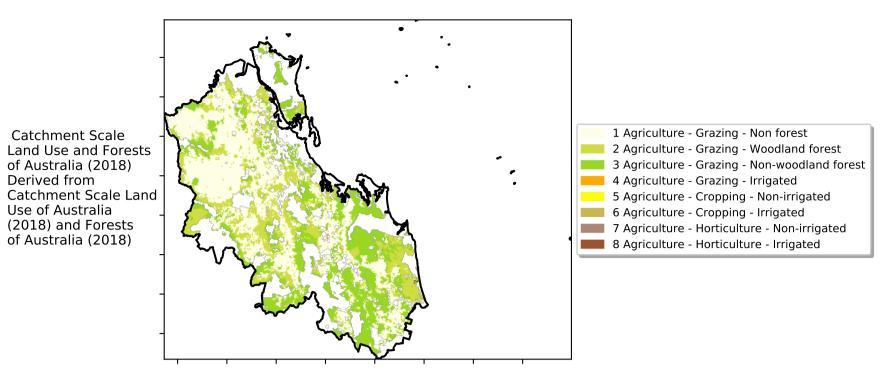
Land use and forest cover

Derived from

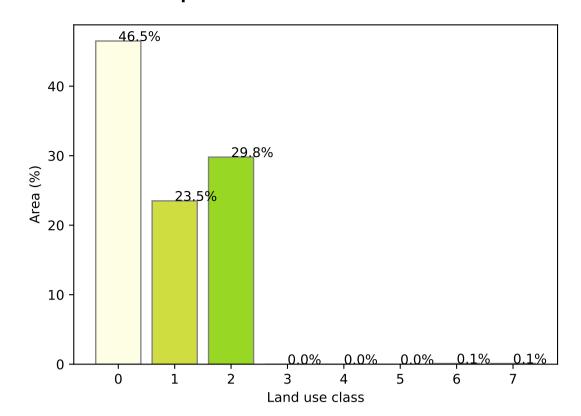
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pixel. The mean

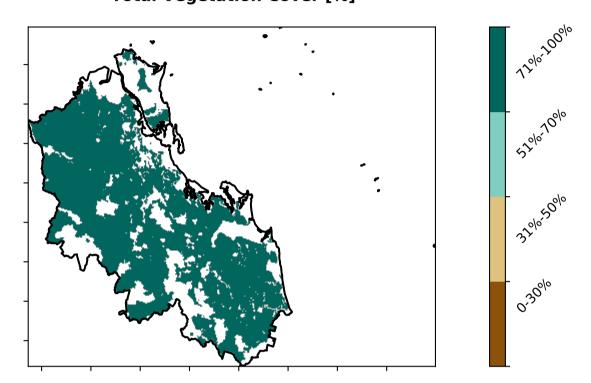
using baseline from 2001 to 2019.



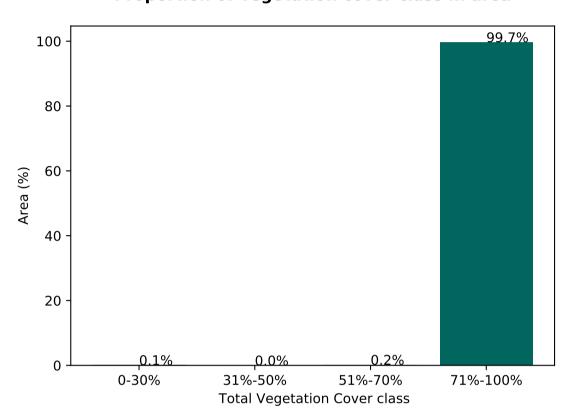
Proportion of each land class in area



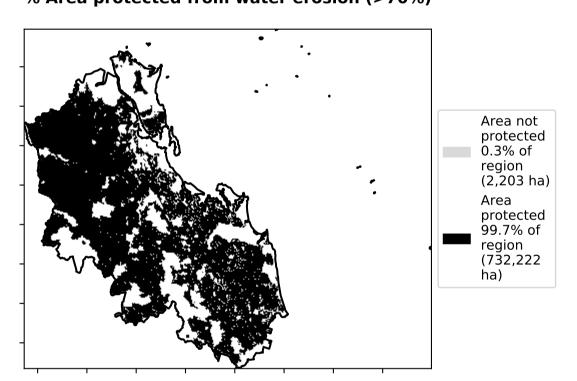
Total Vegetation Cover [%]



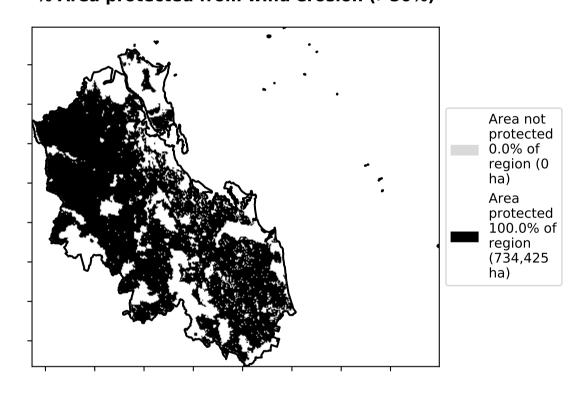
Proportion of vegetation cover class in area



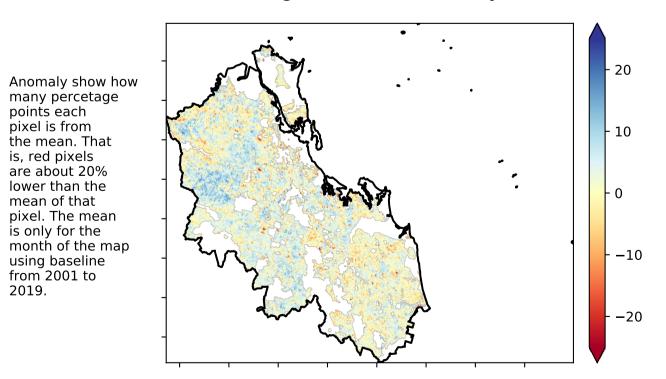
% Area protected from water erosion (>70%)



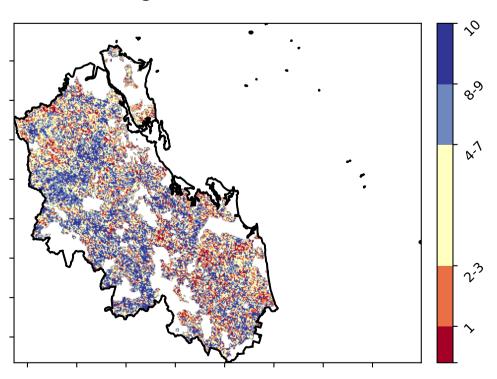
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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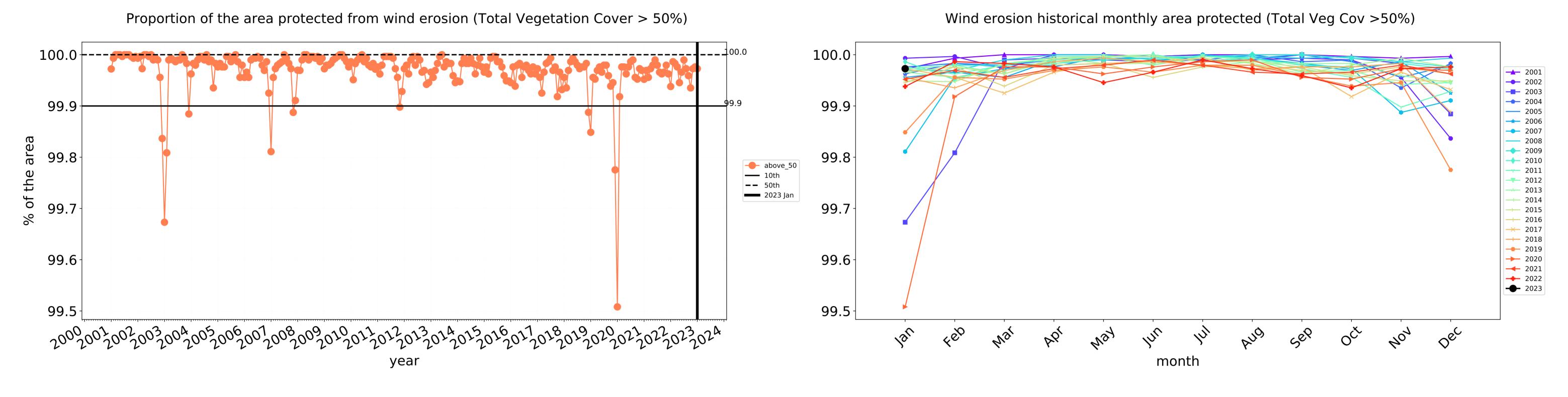


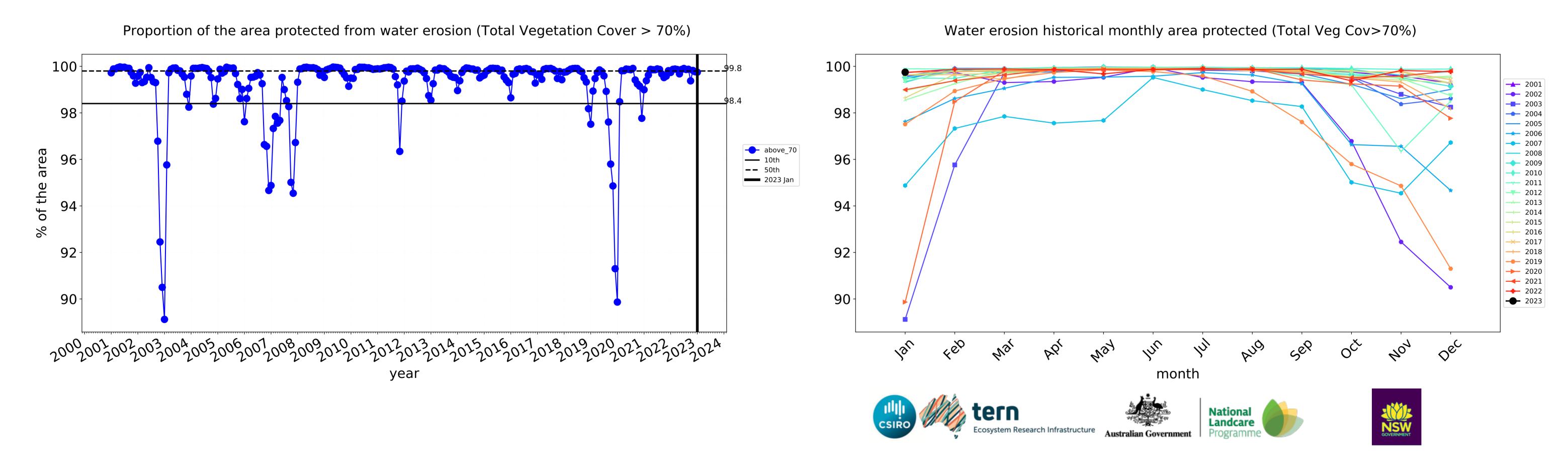


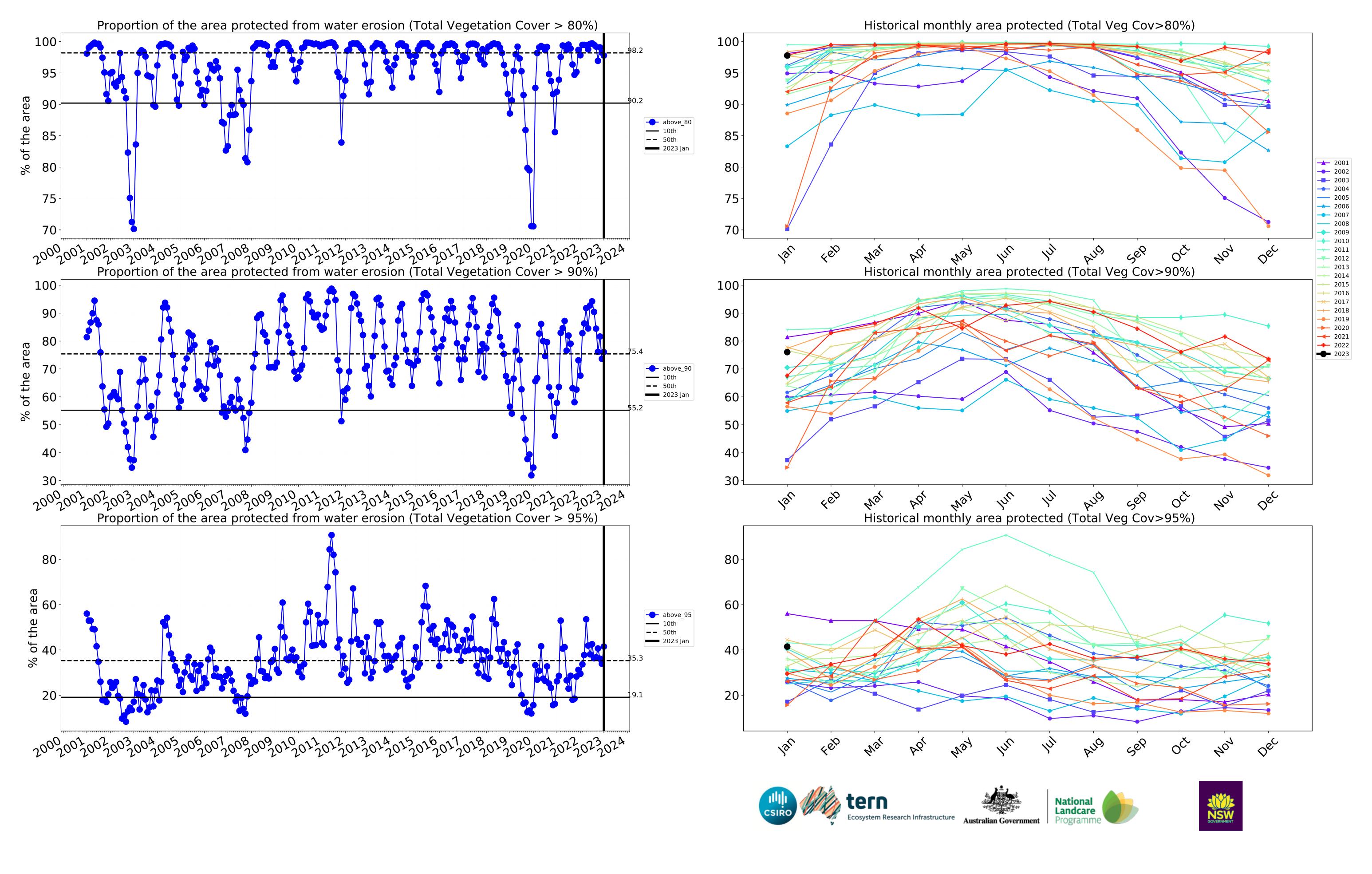




Agriculture timeseries

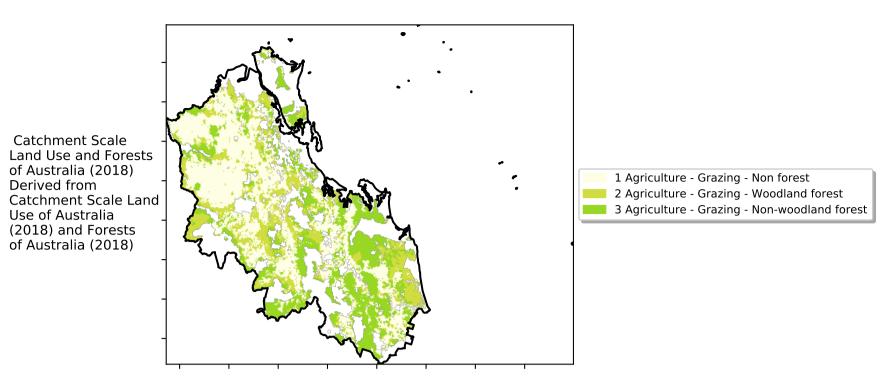




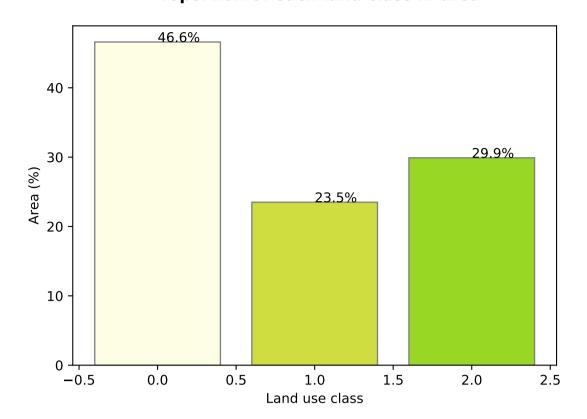


Grazing

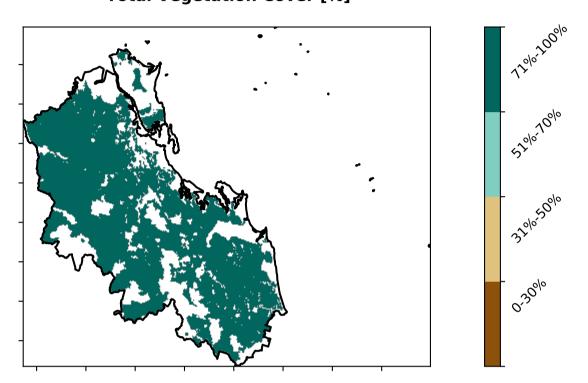
Land use and forest cover



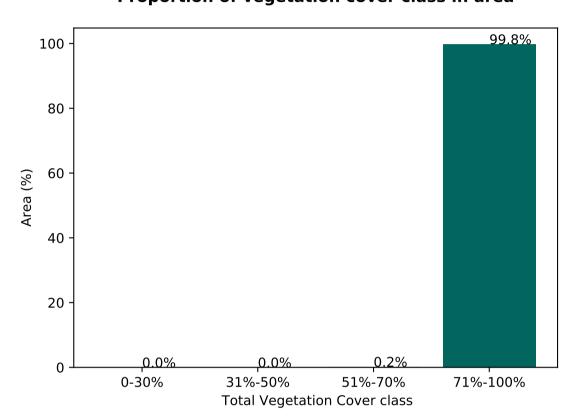
Proportion of each land class in area



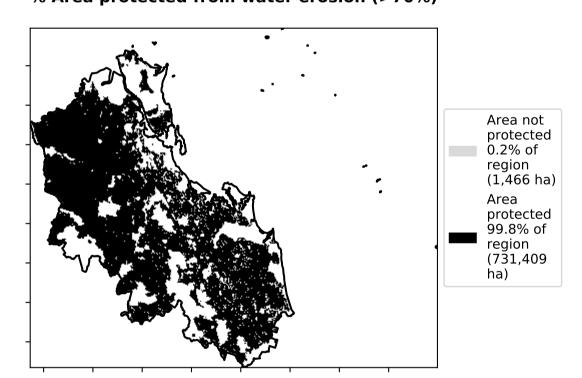
Total Vegetation Cover [%]



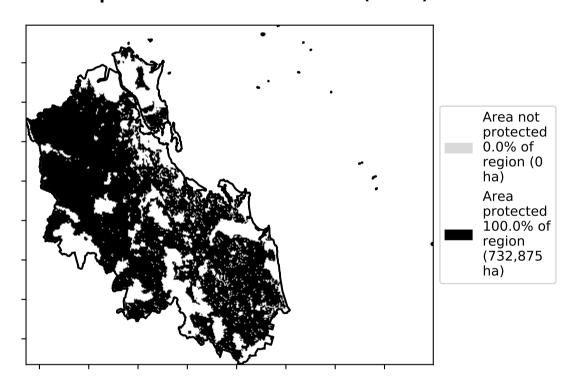
Proportion of vegetation cover class in area



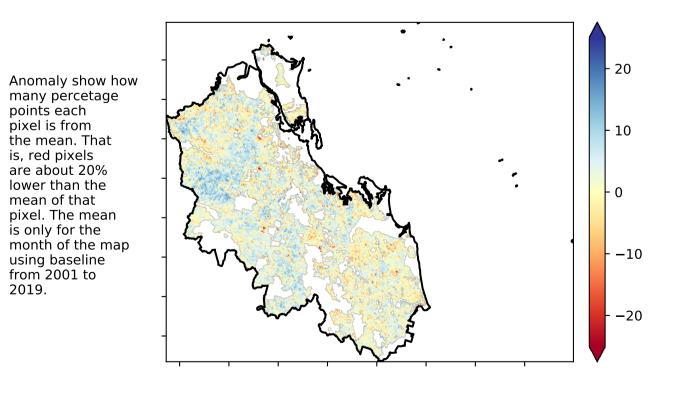
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

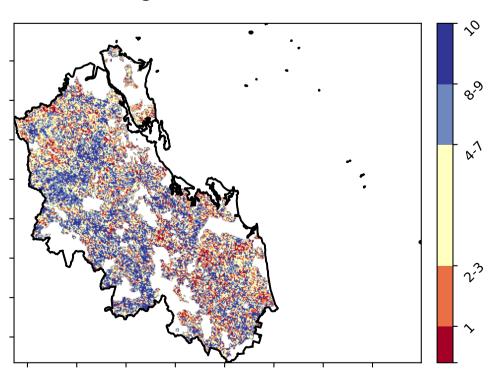


Total Vegetation Cover Anomaly [%]



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Total Vegetation Cover Decile [%]





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pixel. The mean



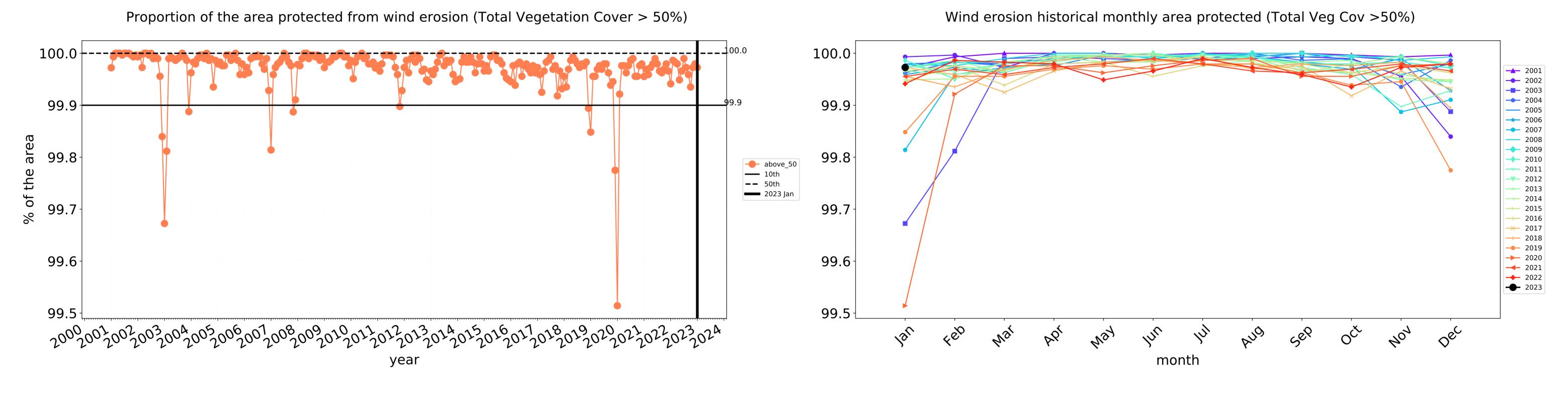


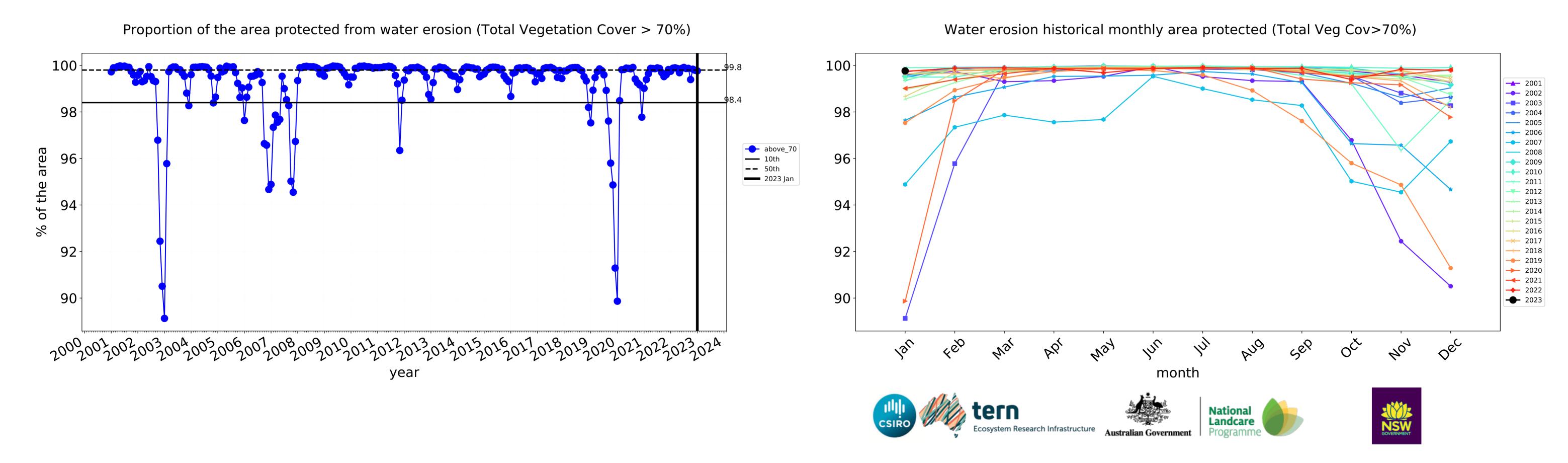


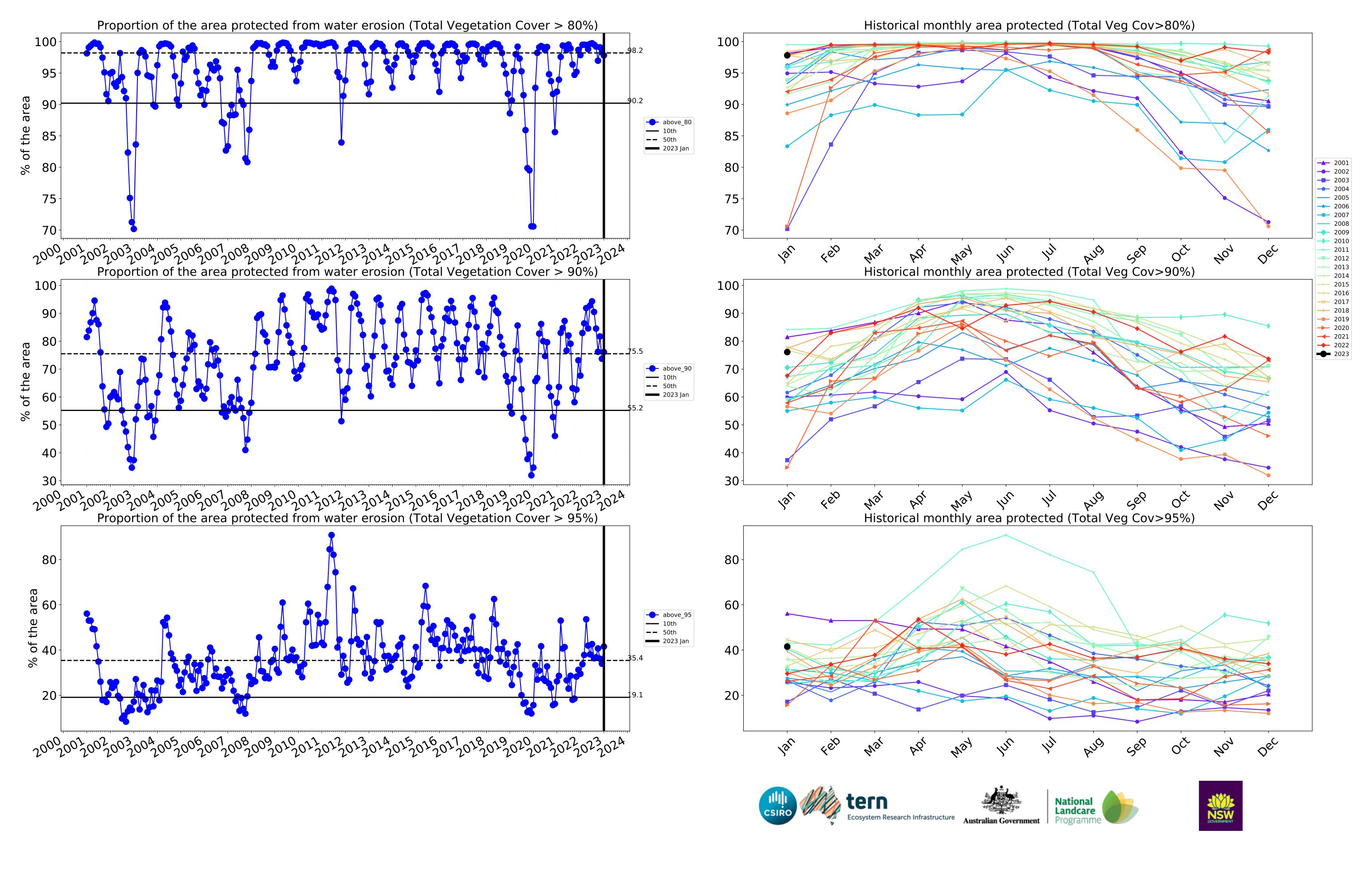




Grazing timeseries

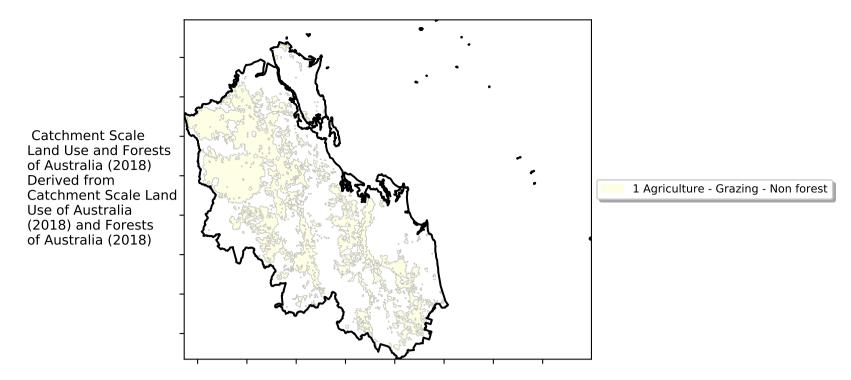




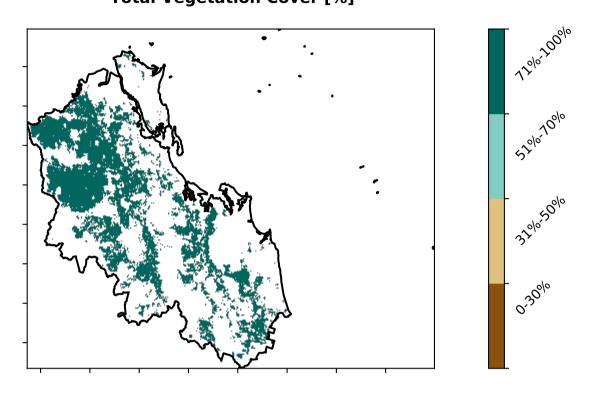


Grazing non forest

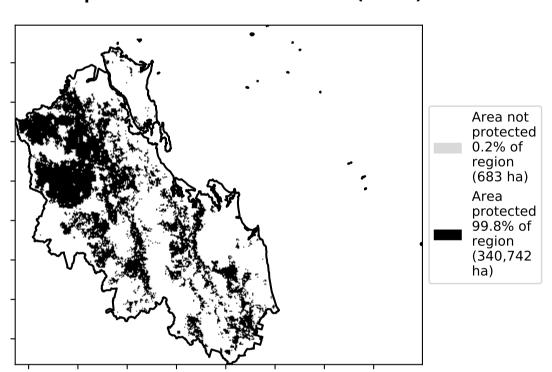
Land use and forest cover



Total Vegetation Cover [%]

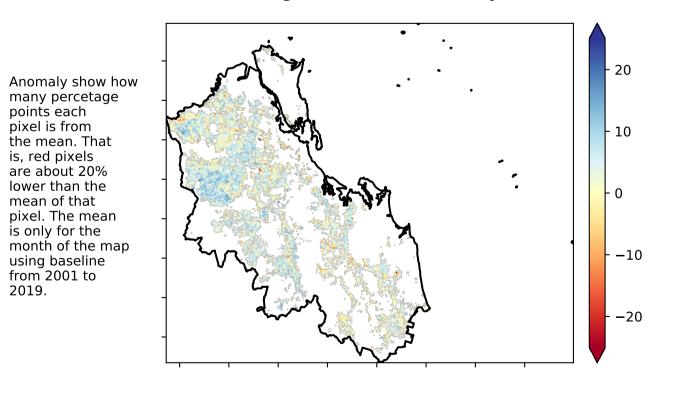


% Area protected from water erosion (>70%)



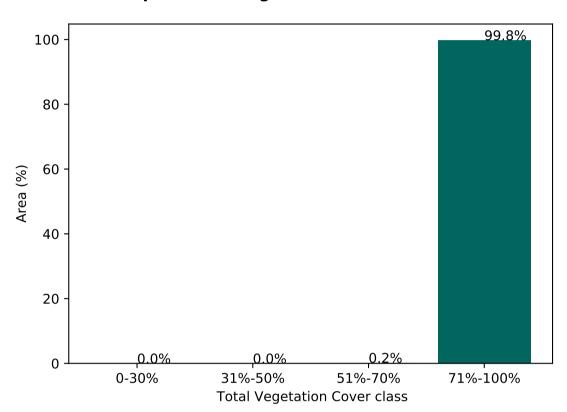
Total Vegetation Cover Anomaly [%]

lower than the

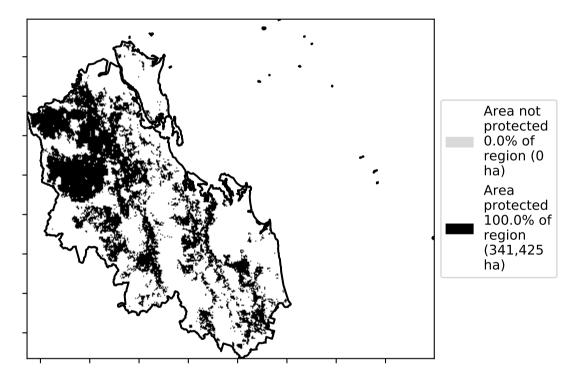


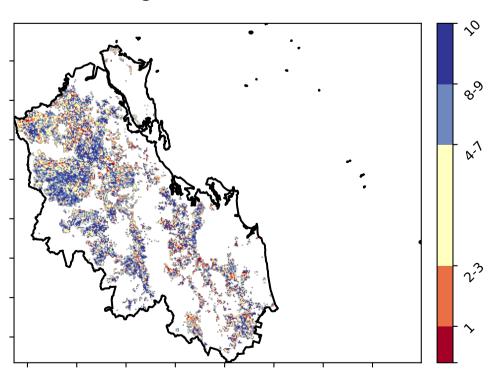
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Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





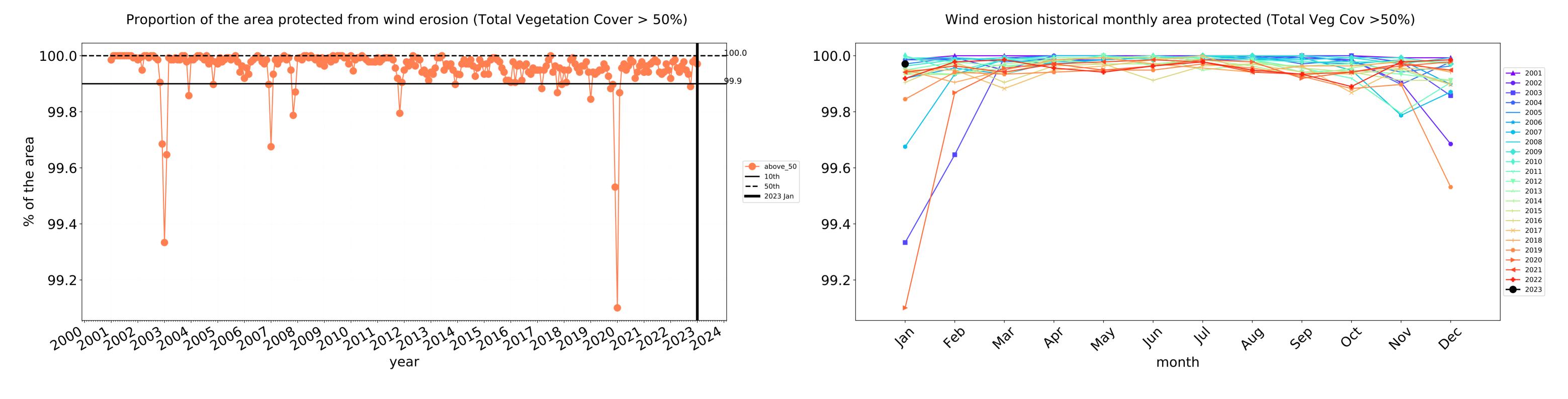


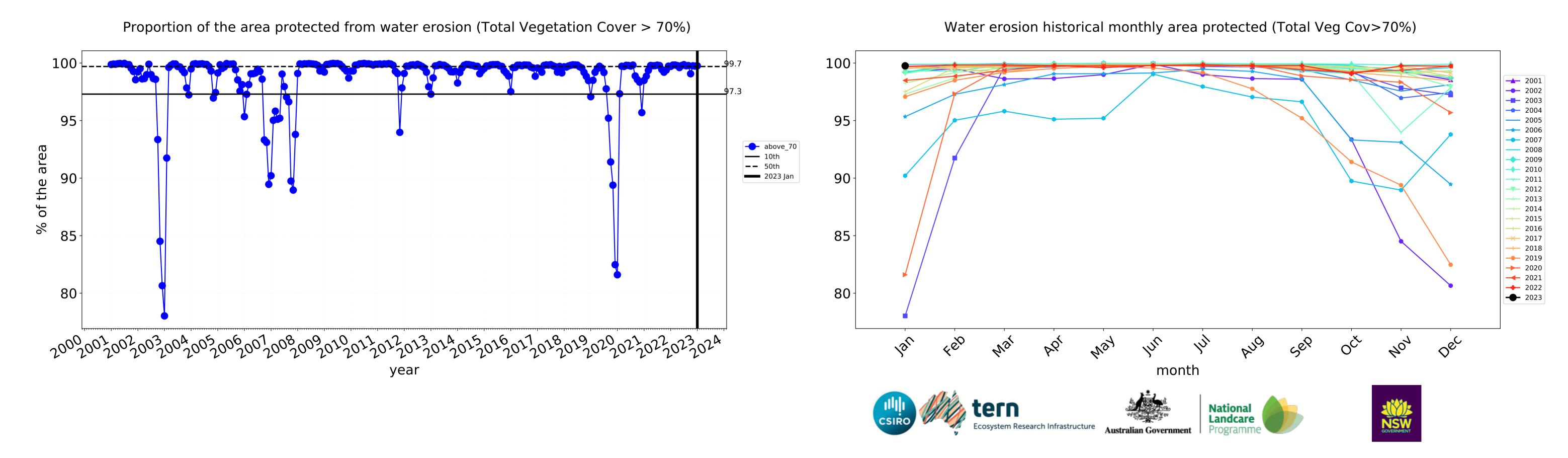


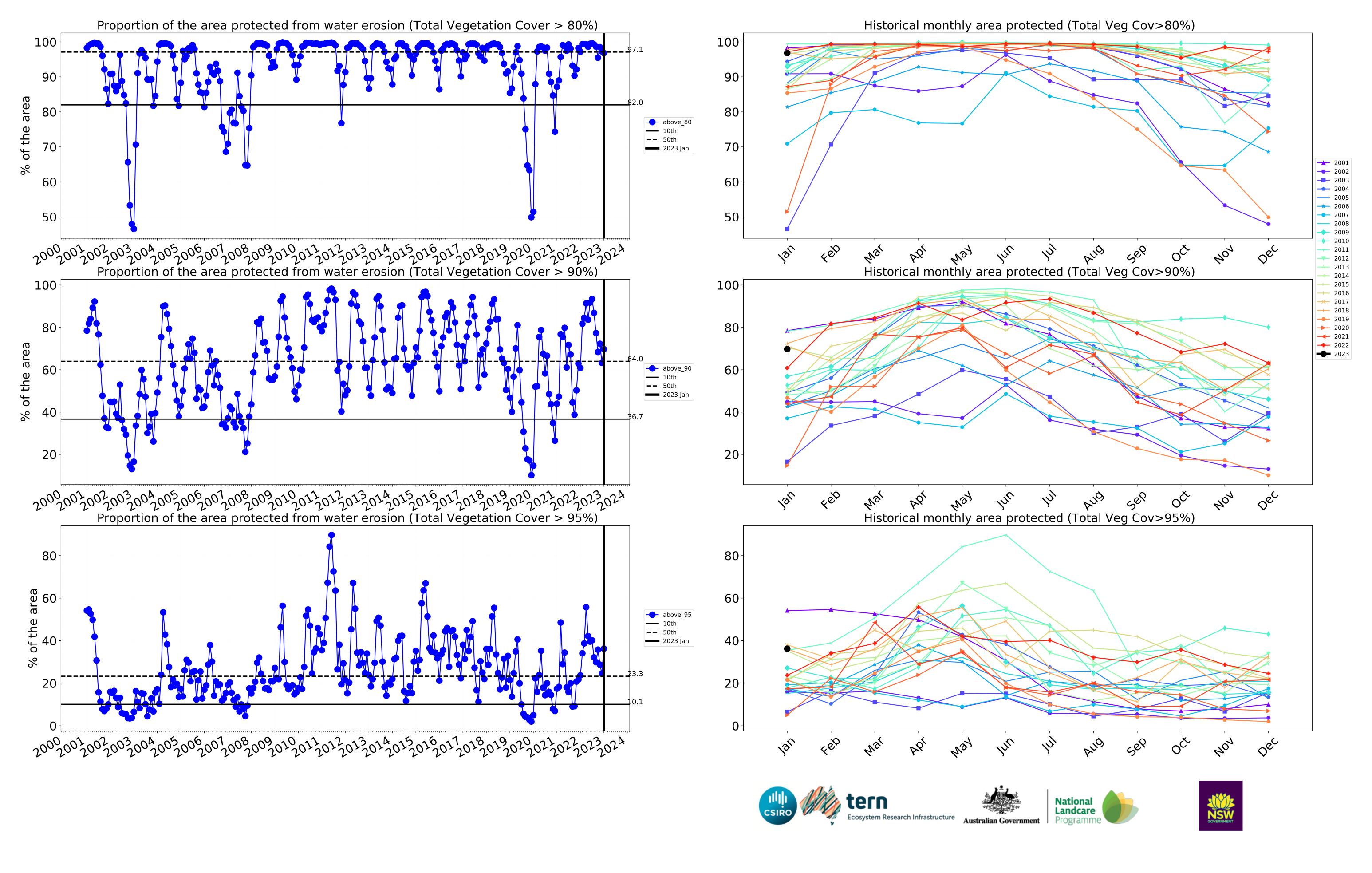




Grazing non forest timeseries

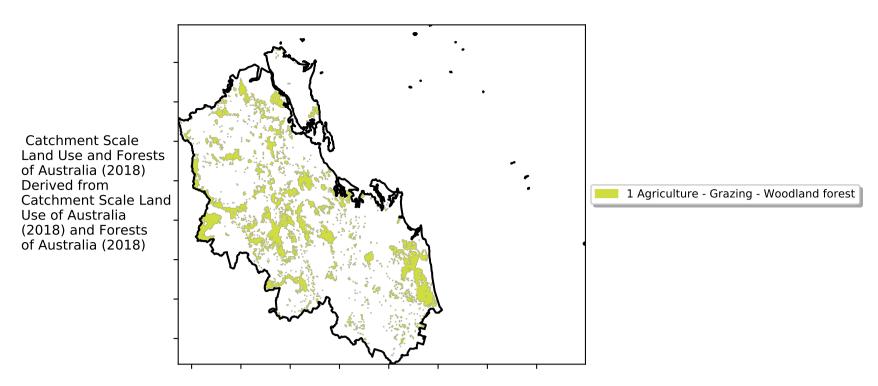




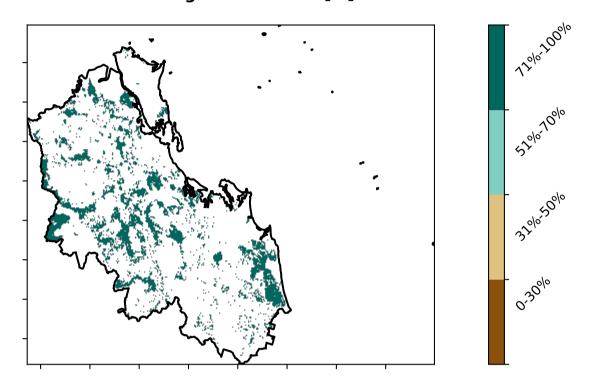


Grazing Woodland forest

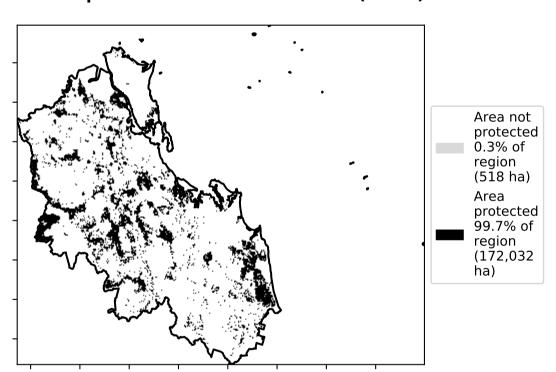
Land use and forest cover



Total Vegetation Cover [%]

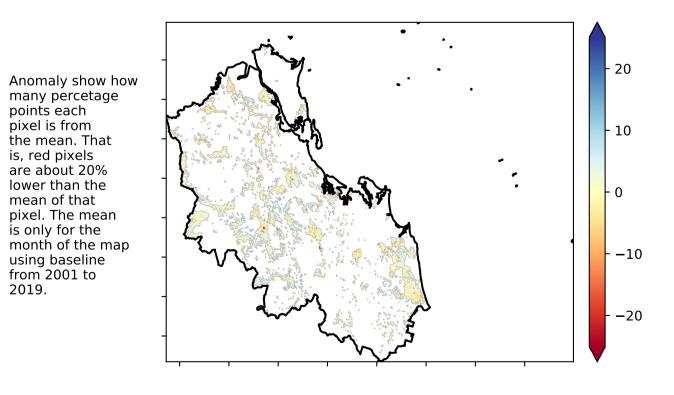


% Area protected from water erosion (>70%)



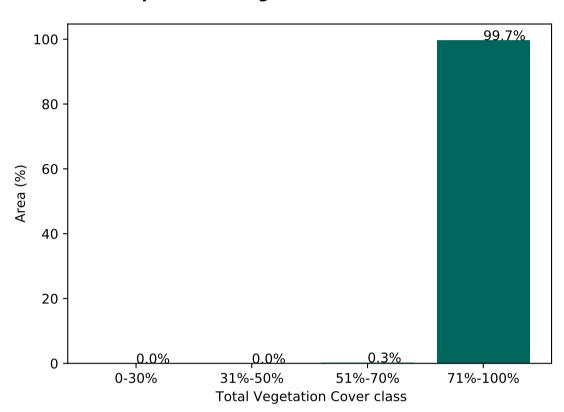
Total Vegetation Cover Anomaly [%]

lower than the

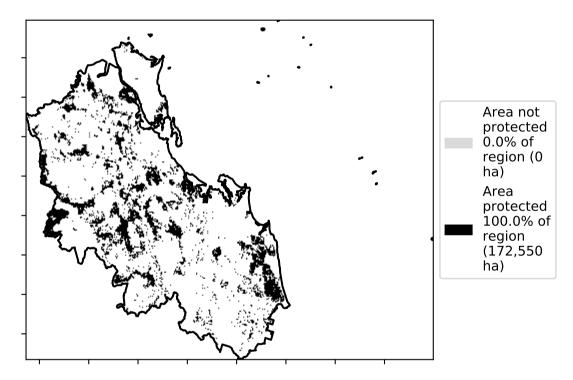


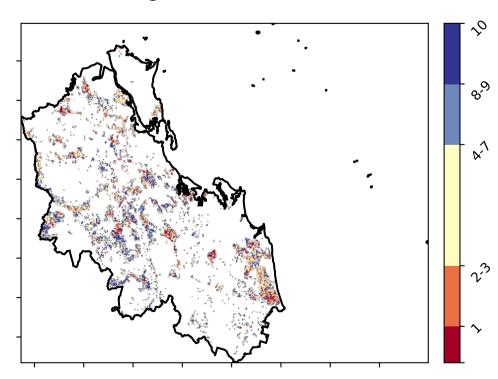
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





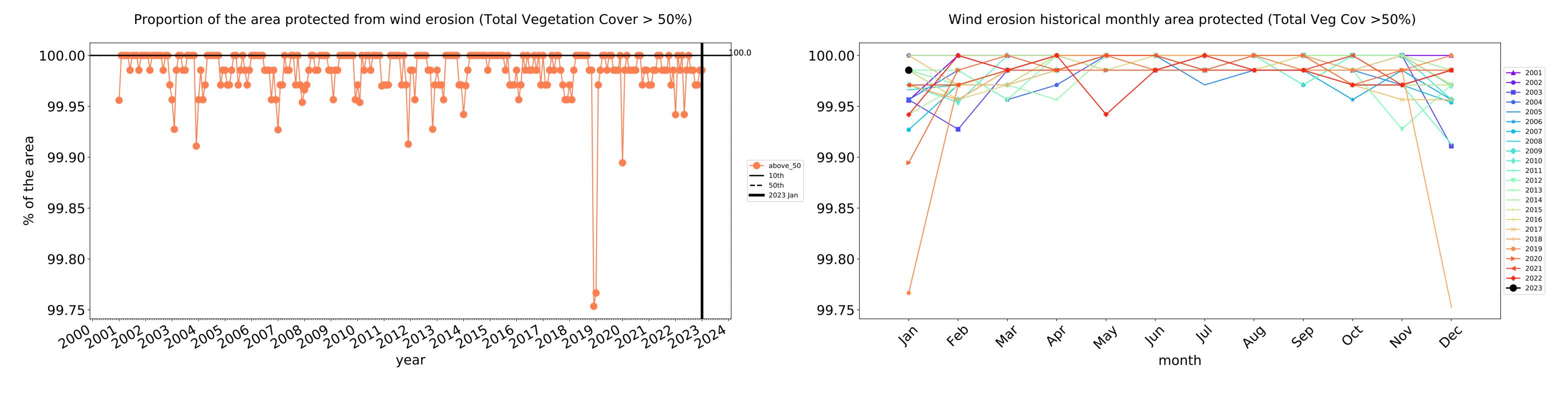


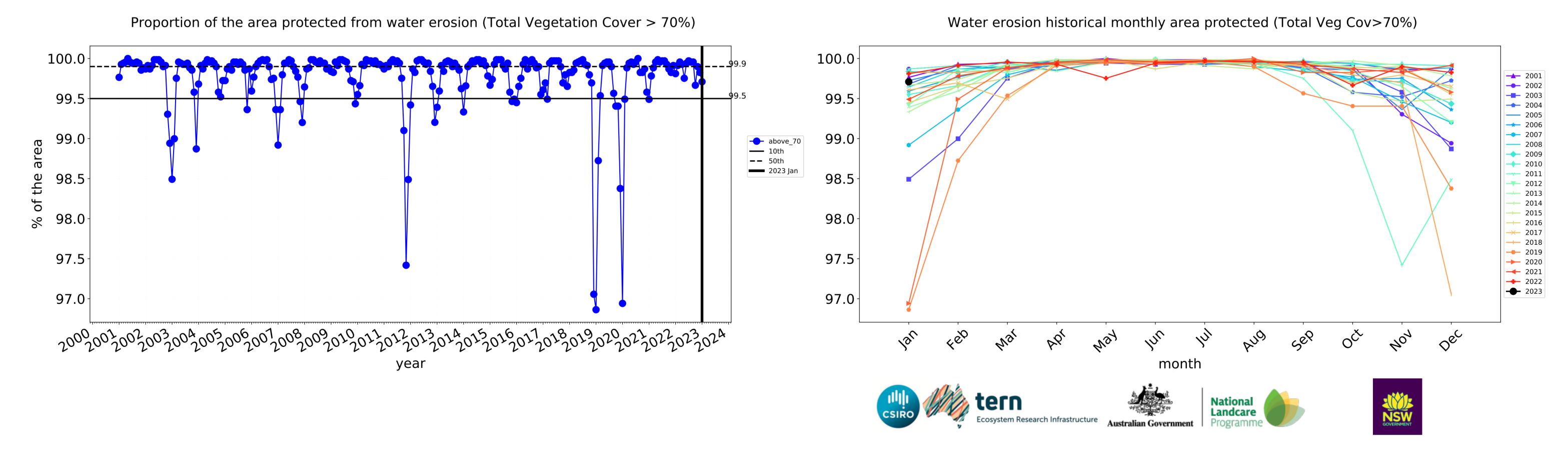


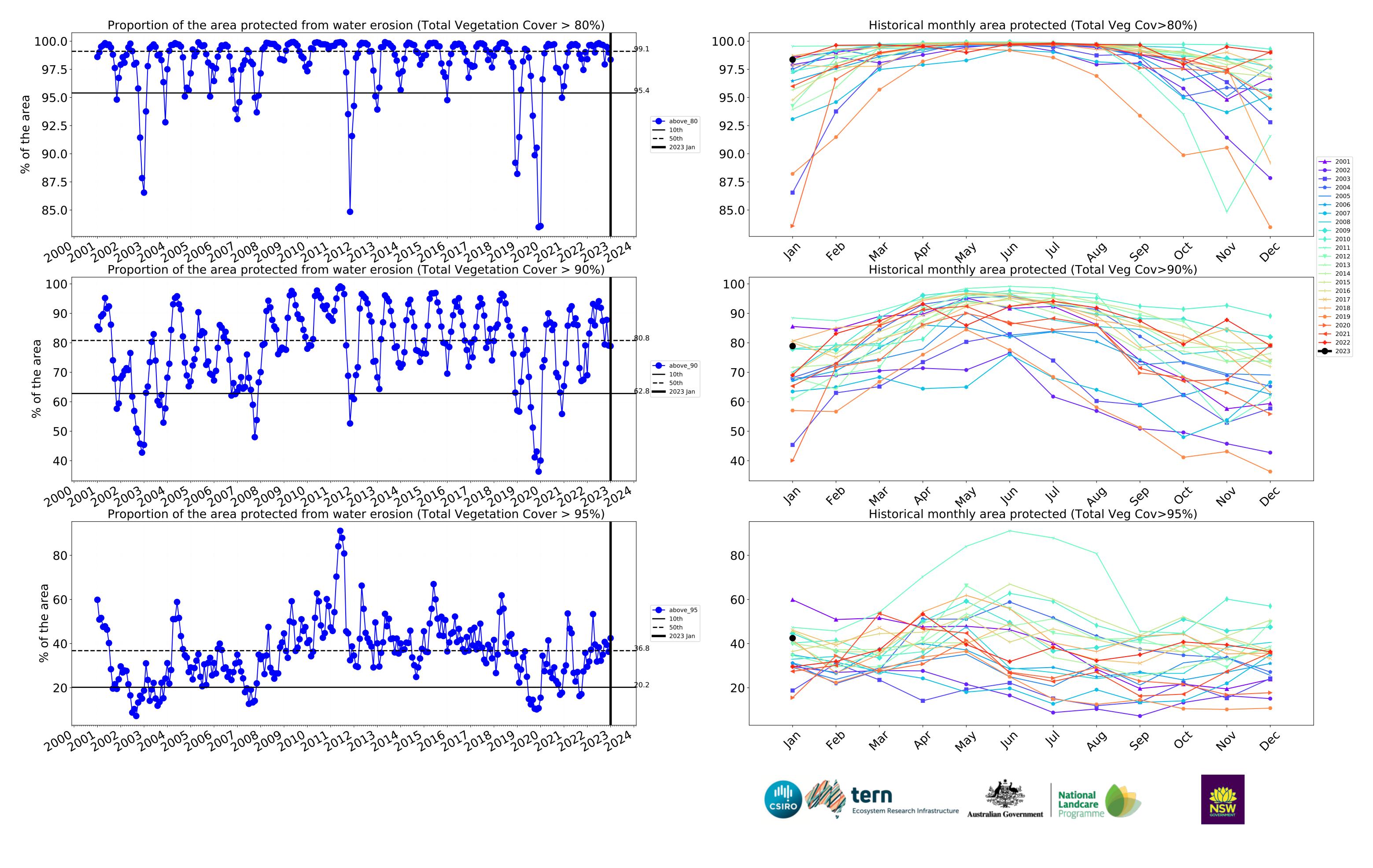




Grazing Woodland forest timeseries

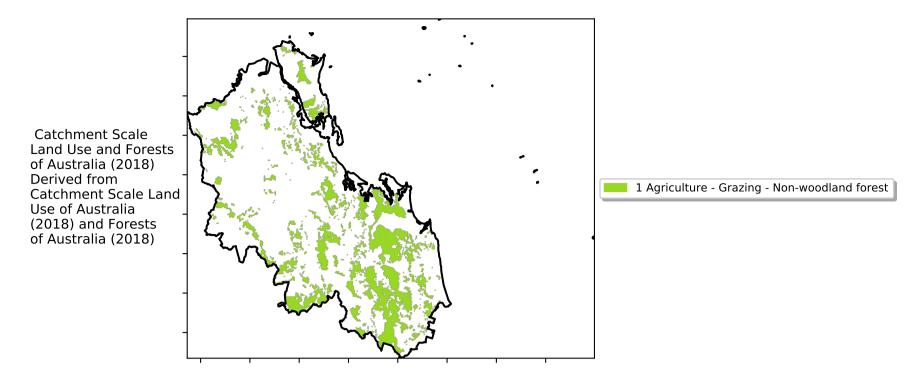




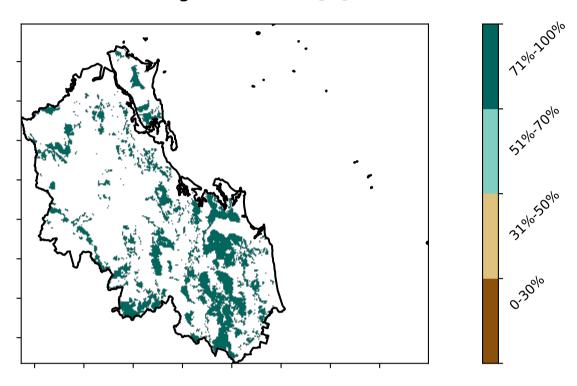


Grazing - Forest (non woodland)

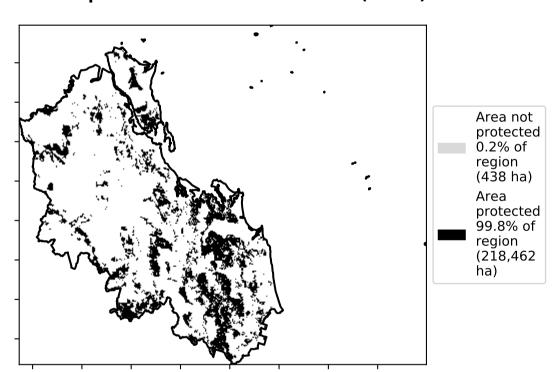
Land use and forest cover



Total Vegetation Cover [%]

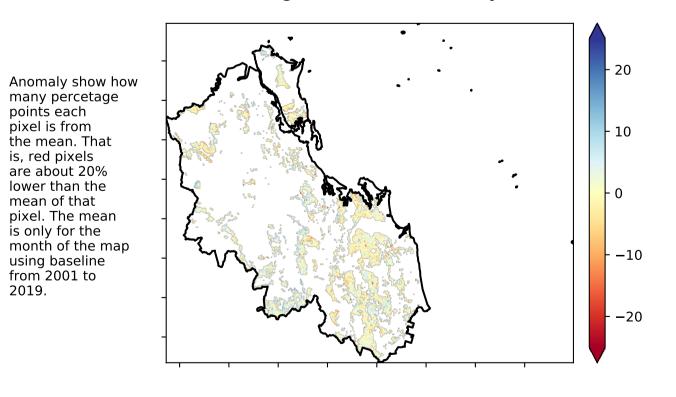


% Area protected from water erosion (>70%)



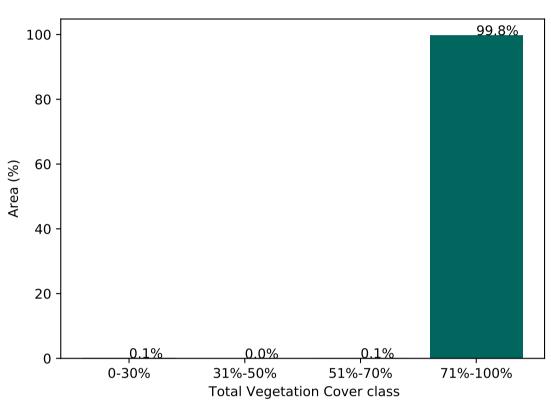
Total Vegetation Cover Anomaly [%]

lower than the

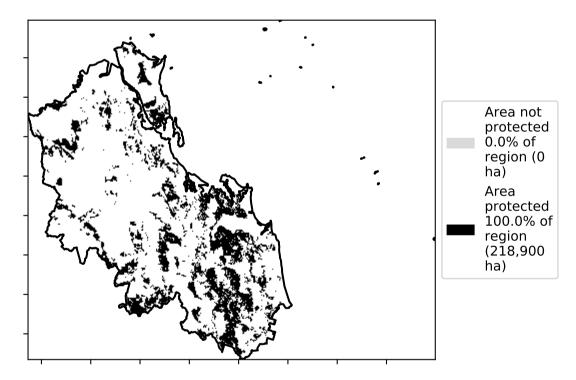


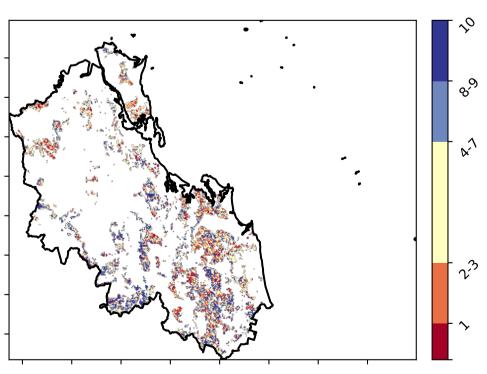
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



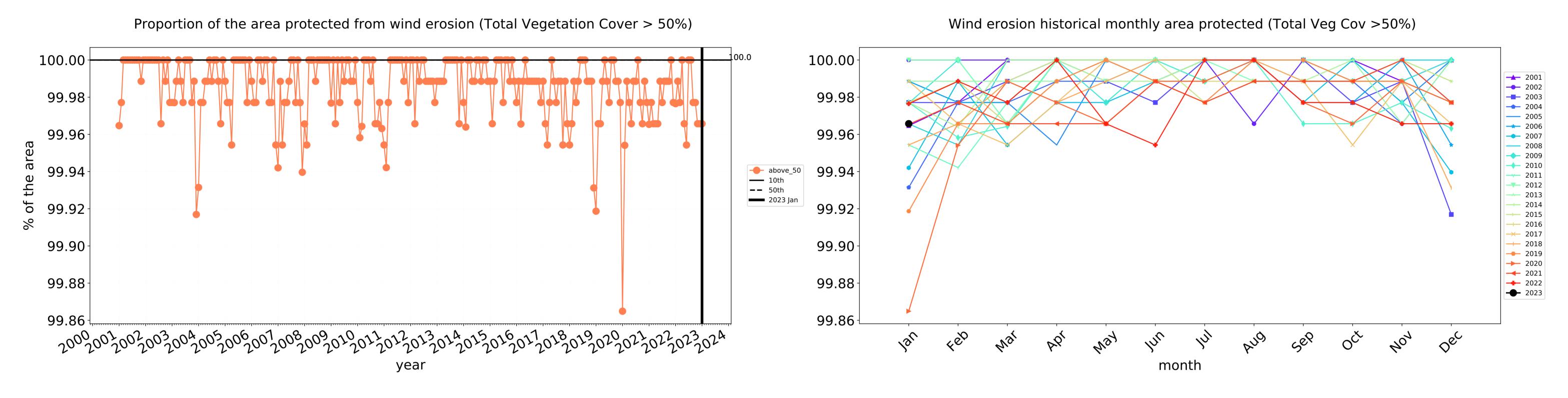


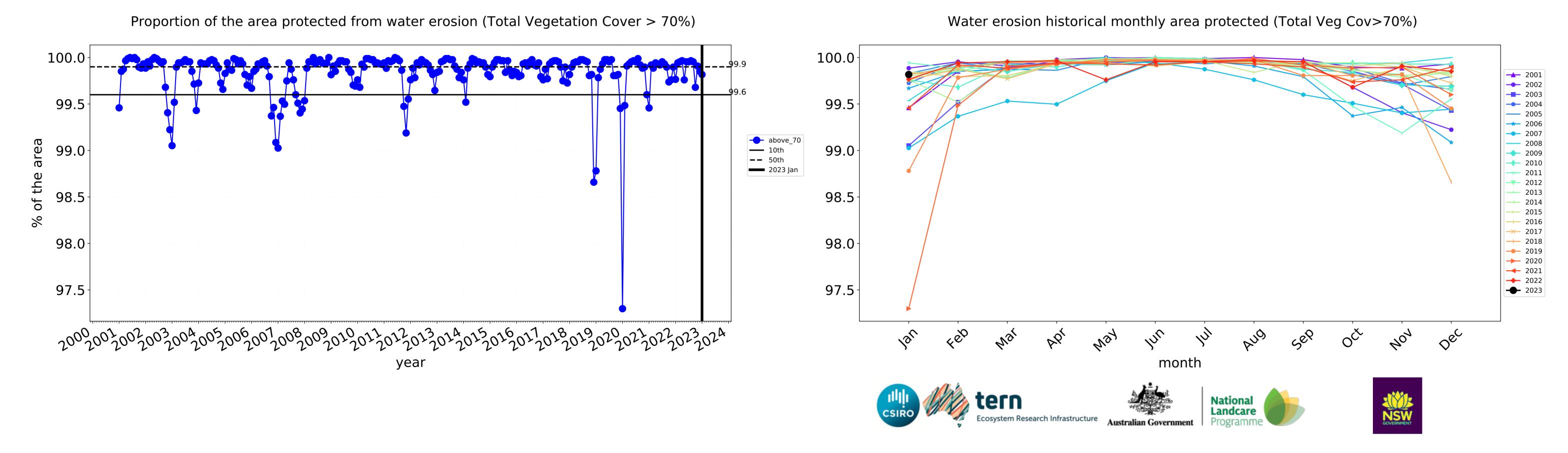


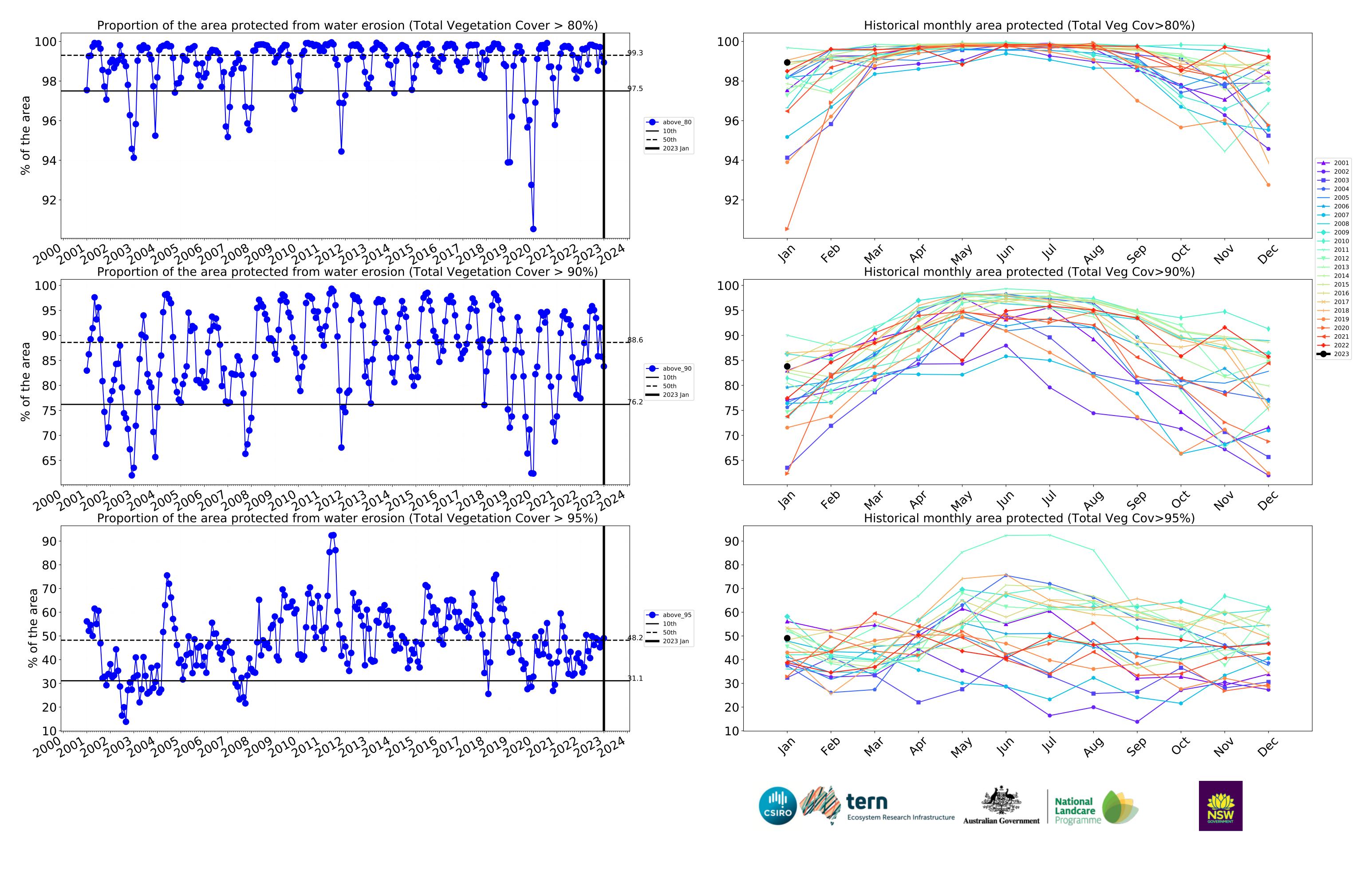






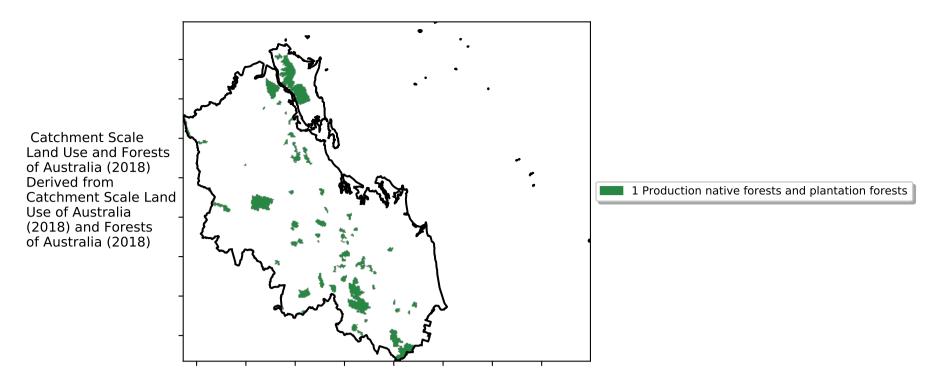




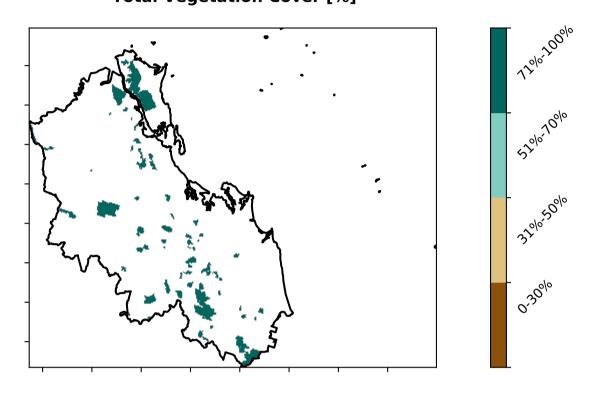


Production native forests and plantation forests

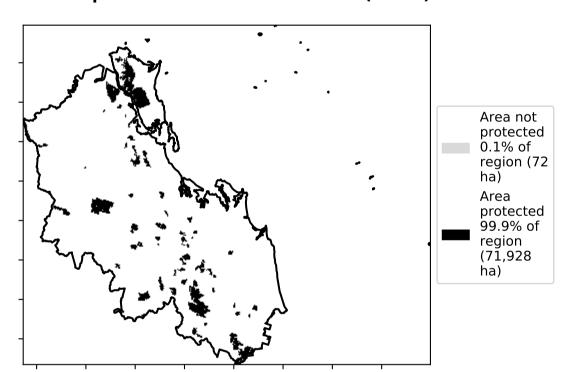
Land use and forest cover



Total Vegetation Cover [%]



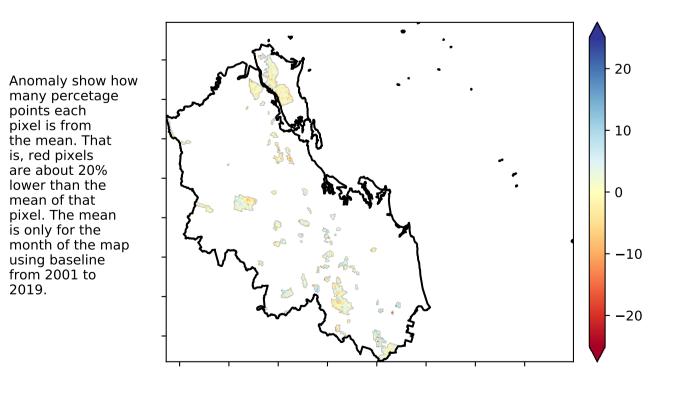
% Area protected from water erosion (>70%)



Total Vegetation Cover Anomaly [%]

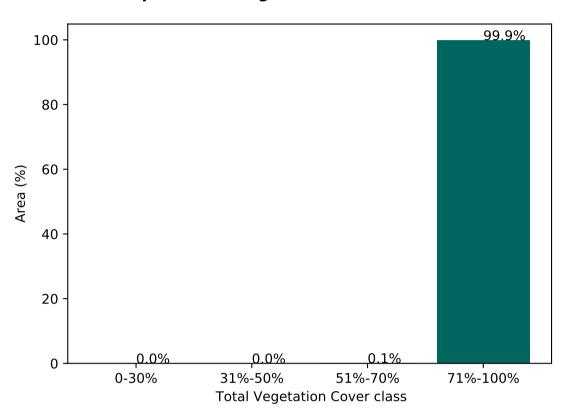
are about 20% lower than the mean of that

pixel. The mean

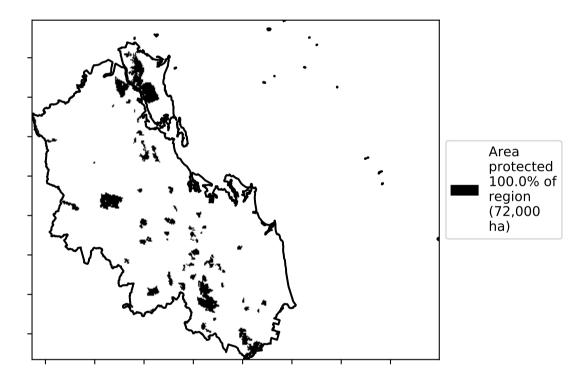


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

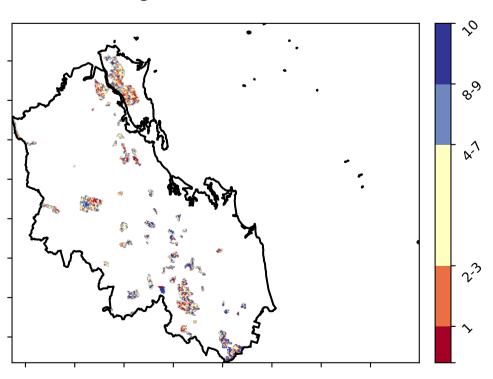
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]



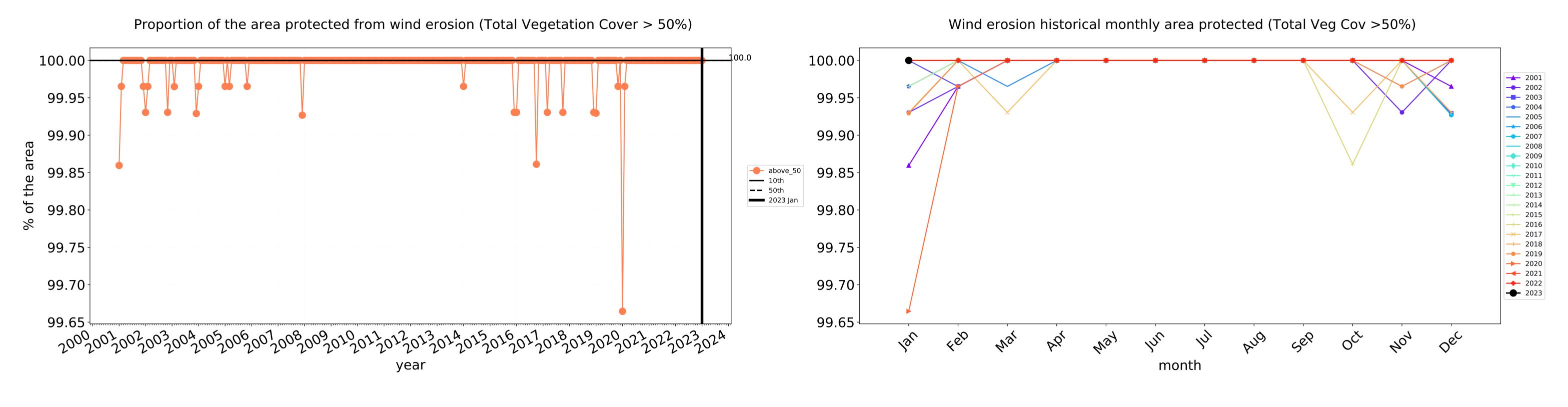


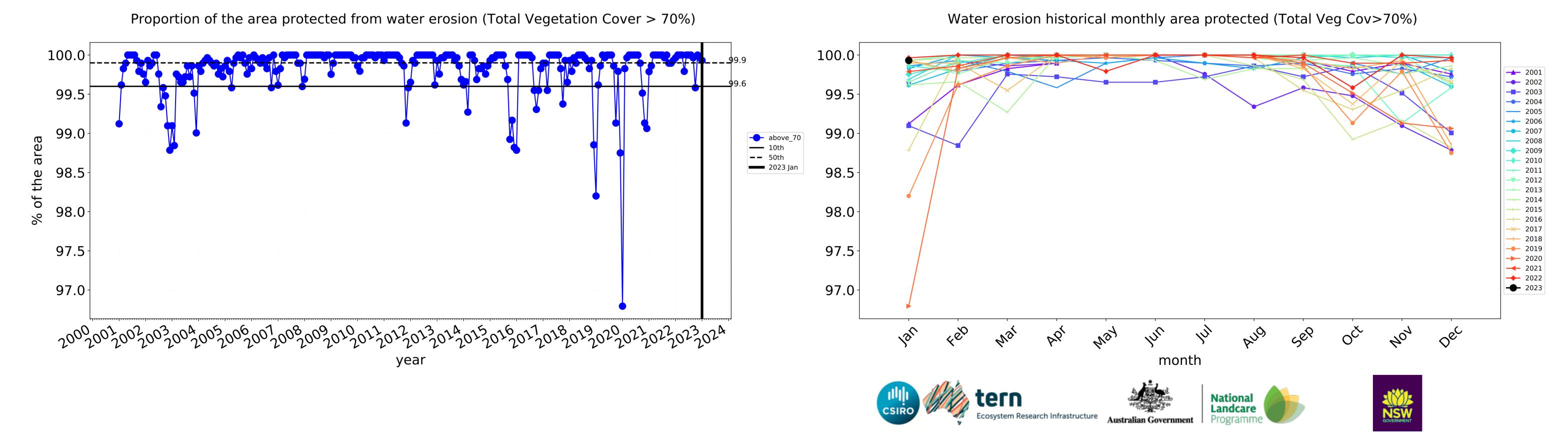


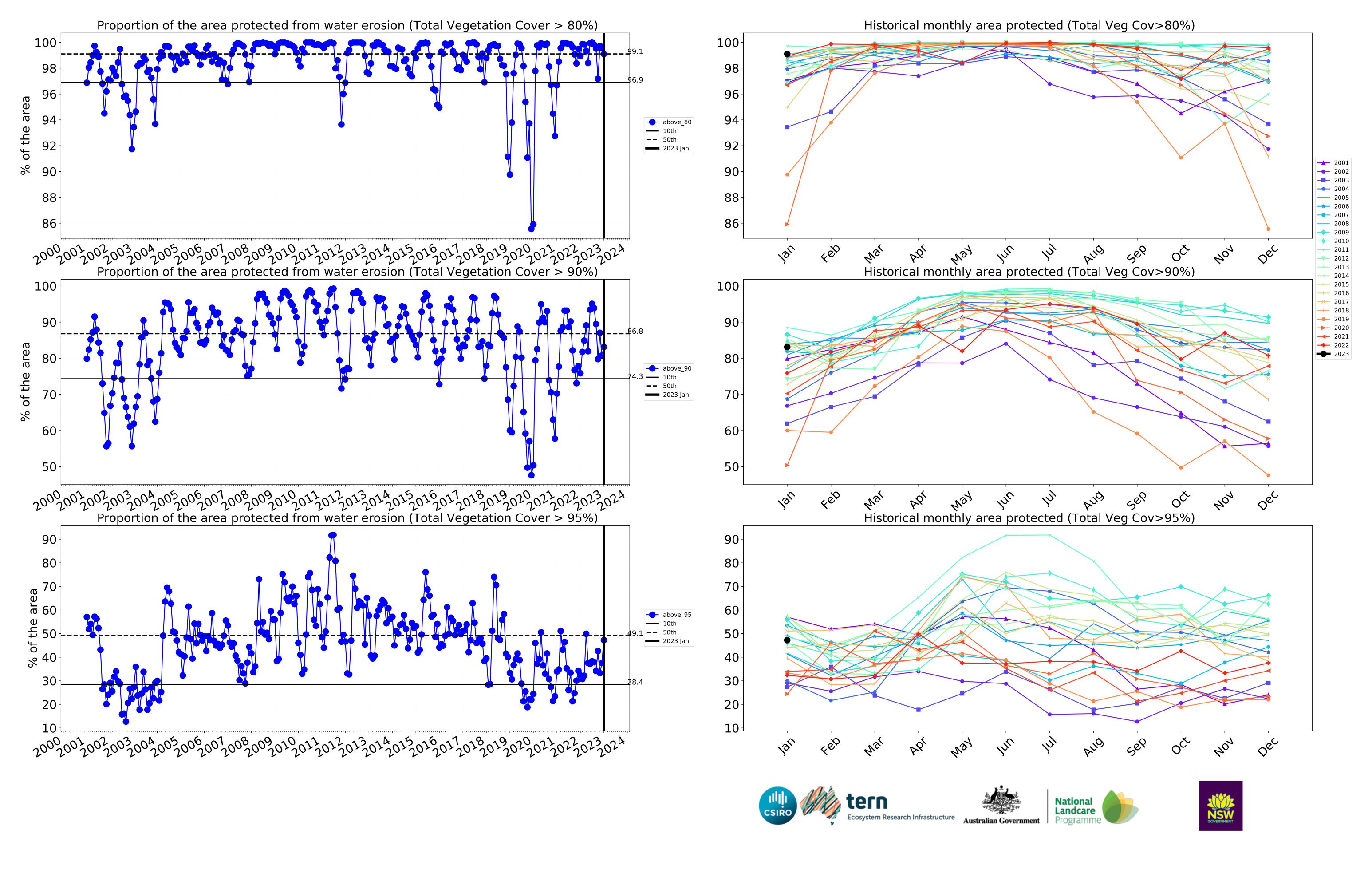




Production native forests and plantation forests timeseries







Gladstone_(R) (1,037,550 ha and no data 10,704 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 | 1,037,550 | 99.9% 1,036,275 | 99.6% 1,033,425 | 98.3% 1,020,200 | 95.5% 990,750 | 74.2% 769,600 | 40.7% 421,800 |
| Conservation and natural environments | 155,250 | 99.8% 154,900 | 99.2% 154,075 | 97.8% 151,775 | 95.6% 148,375 | 76.9% 119,450 | 42.2% 65,450 |
| Conservation and natural environments Woodland forest | 49,725 | 99.7% 49,575 | 98.9% 49,200 | 96.2% 47,850 | 92.8% 46,150 | 70.2% 34,900 | 33.4% 16,625 |
| Conservation and natural environments Forest (non woodland) | 100,800 | 100.0% 100,775 | 99.8% 100,625 | 99.3% 100,100 | 98.1% 98,900 | 81.8% 82,425 | 47.1% 47,500 |
| Agriculture | 734,425 | 100.0% 734,375 | 100.0% 734,225 | 99.7% 732,575 | 97.8% 718,125 | 76.0% 558,400 | 41.5% 304,750 |
| Grazing | 732,875 | 100.0% 732,825 | 100.0% 732,675 | 99.8% 731,150 | 97.8% 716,850 | 76.1% 557,700 | 41.5% 304,450 |
| Grazing non forest | 341,425 | 100.0% 341,375 | 100.0% 341,325 | 99.8% 340,600 | 96.8% 330,550 | 69.7% 238,125 | 36.2% 123,750 |
| Grazing Woodland forest | 172,550 | 100.0% 172,550 | 100.0% 172,525 | 99.7% 172,050 | 98.4% 169,725 | 78.9% 136,125 | 42.5% 73,325 |
| Grazing - Forest (non woodland) | 218,900 | 100.0% 218,900 | 100.0% 218,825 | 99.8% 218,500 | 98.9% 216,575 | 83.8% 183,450 | 49.1% 107,375 |
| Production native forests and plantation forests | 72,000 | 100.0% 72,000 | 100.0% 72,000 | 99.9% 71,950 | 99.1% 71,350 | 83.1% 59,850 | 47.2% 34,000 |







