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

Date: March 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:

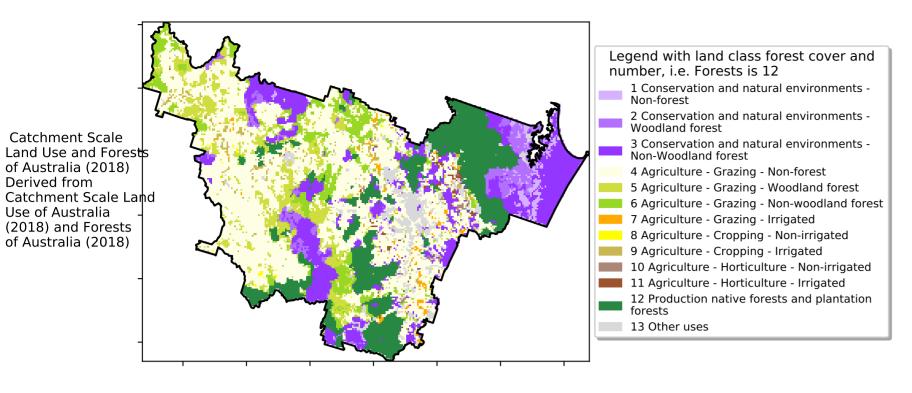
https://doi.org/10.4225/08/5848a3f19a7b3



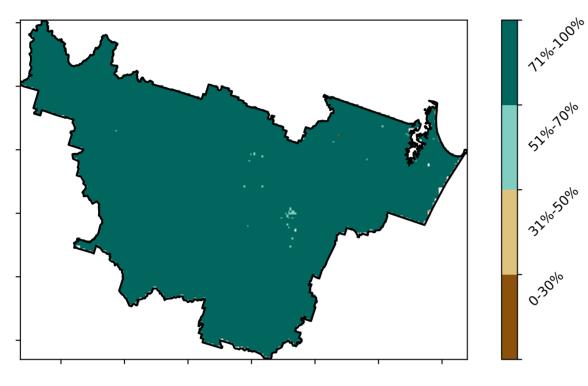
Vegetation Cover Mar 2022

Land use and forest cover

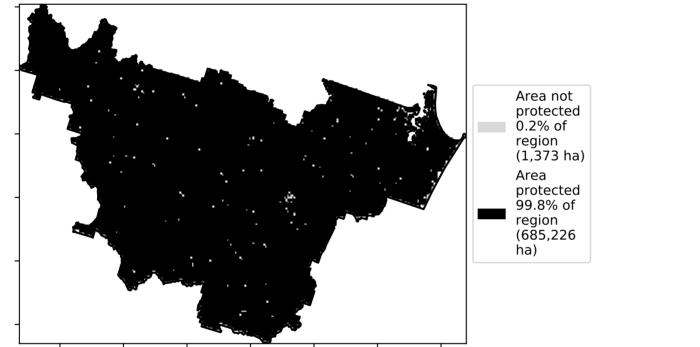
Proportion of each land class in area

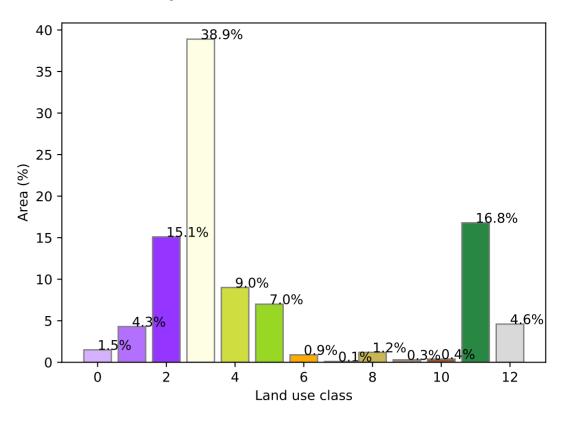


Total Vegetation Cover [%]

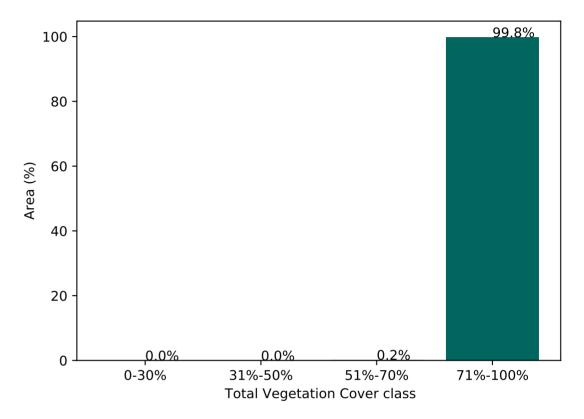


% Area protected from water erosion (>70%)

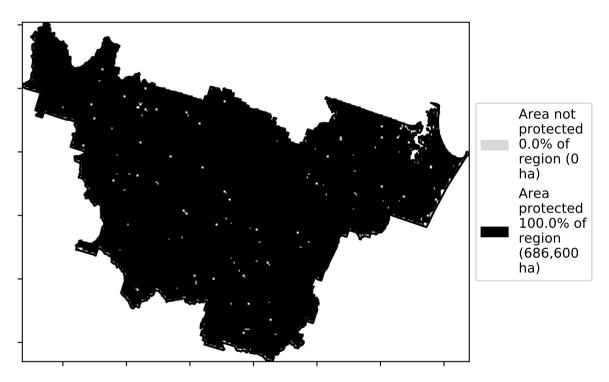




Proportion of vegetation cover class in area



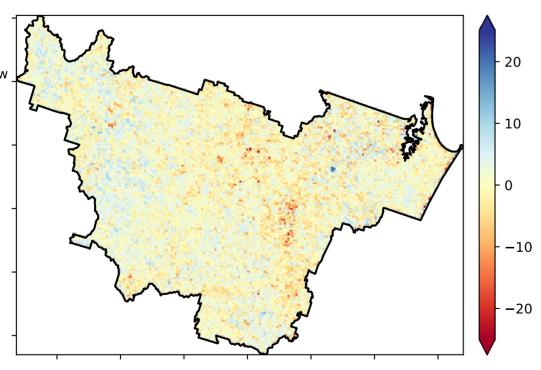
% Area protected from wind erosion (>50%)



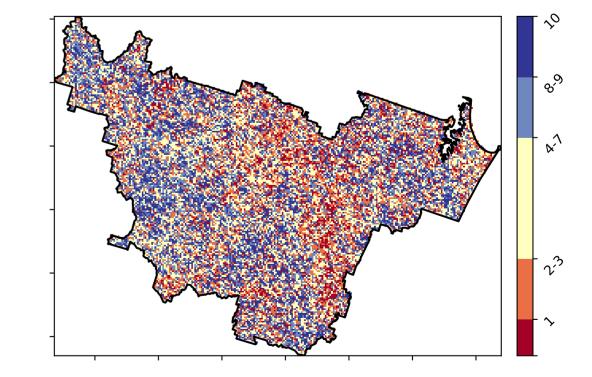
Total Vegetation Cover Anomaly [%]

Total Vegetation Cover Decile [%]

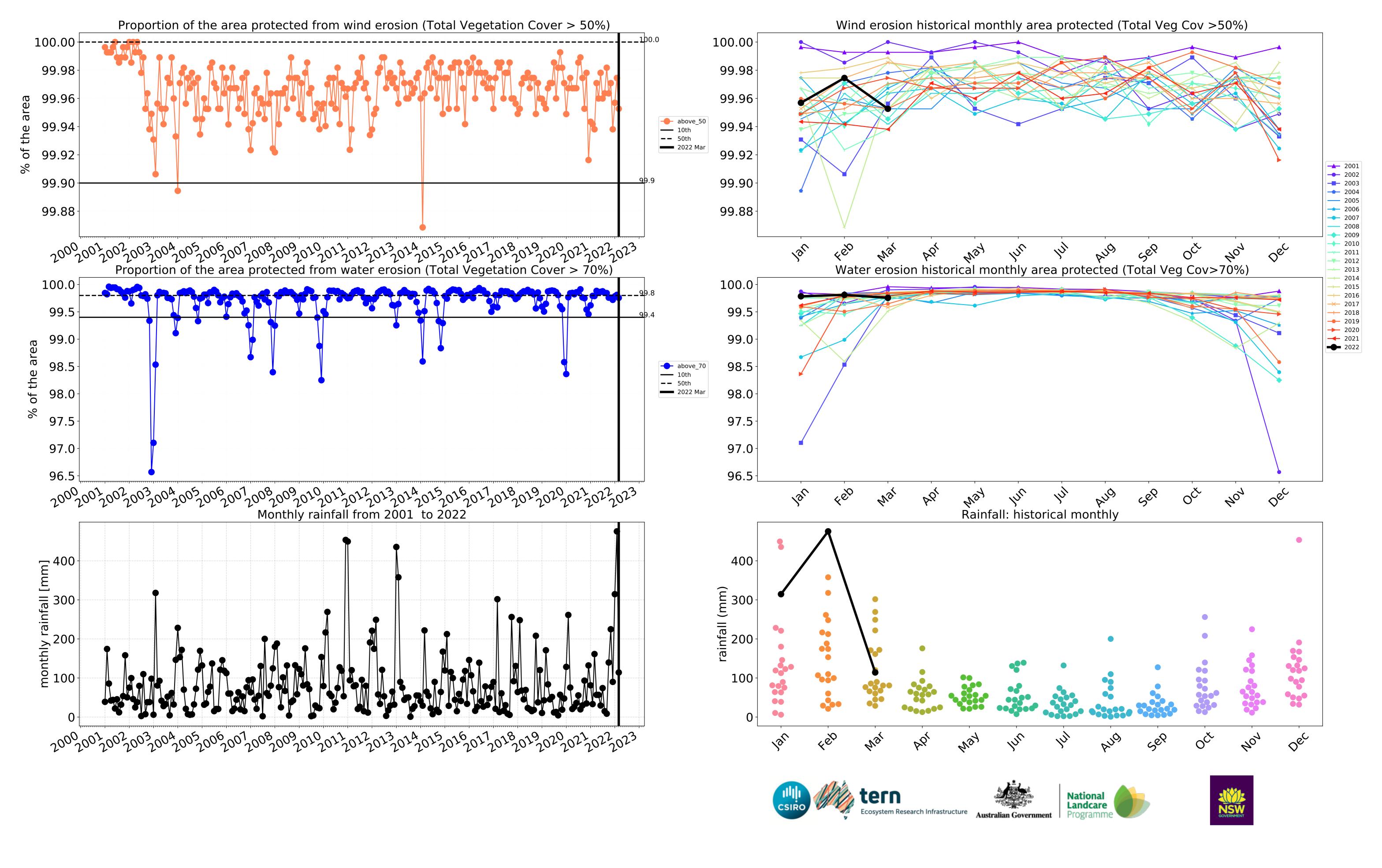
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

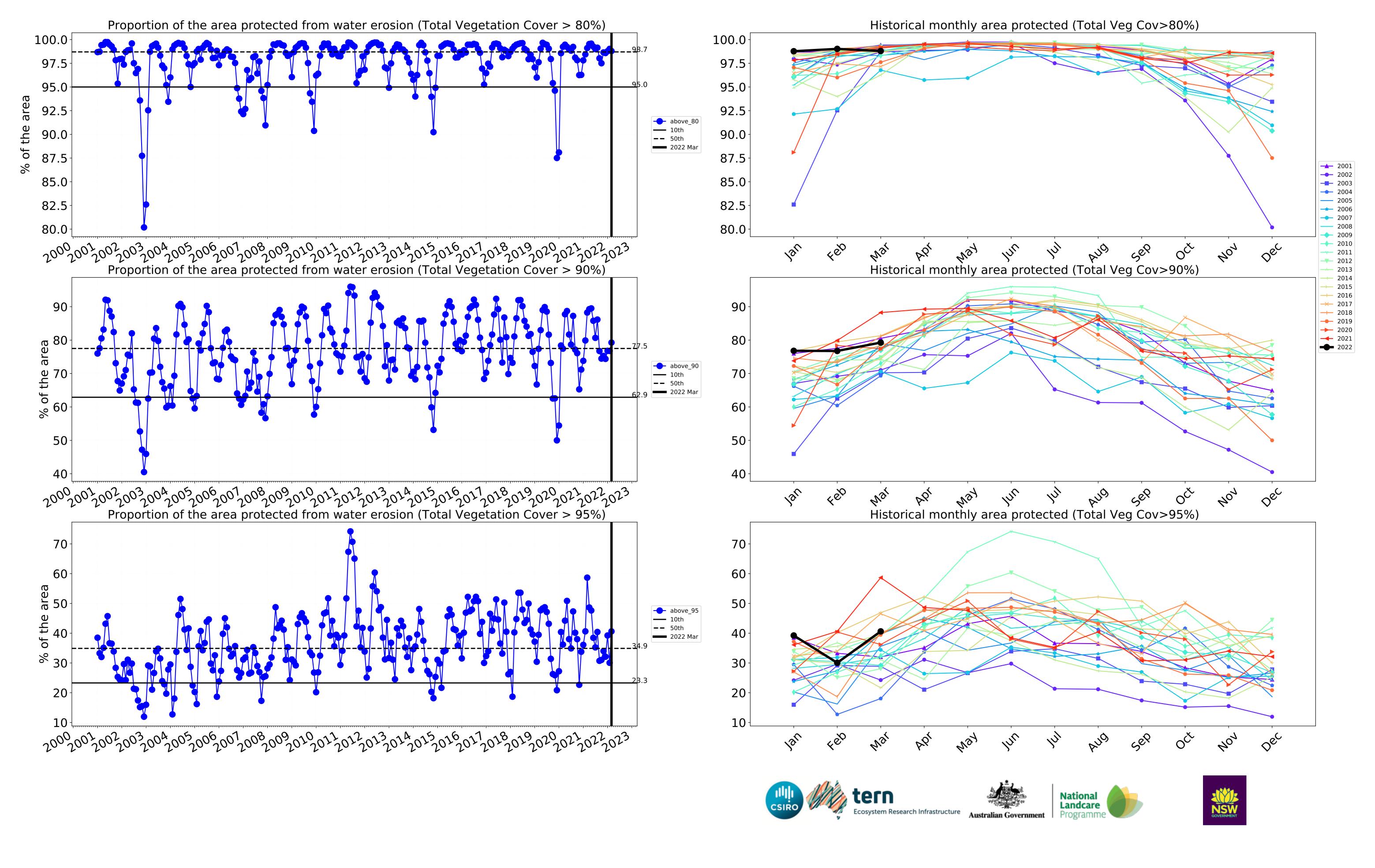


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.









Conservation and natural environments

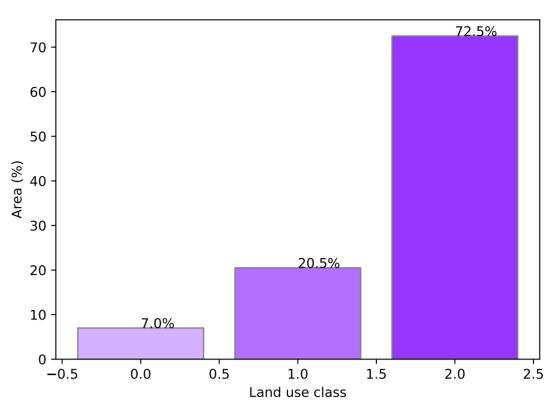
1 Conservation and natural environments - Nonforest

3 Conservation and natural environments - Nonwoodland forest

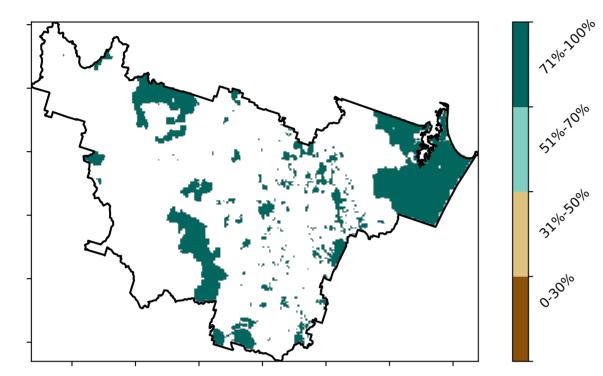
2 Conservation and natural environments - Woodland forest

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

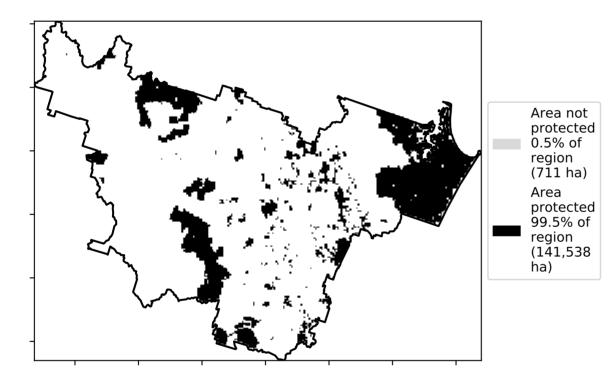
Proportion of each land class in area



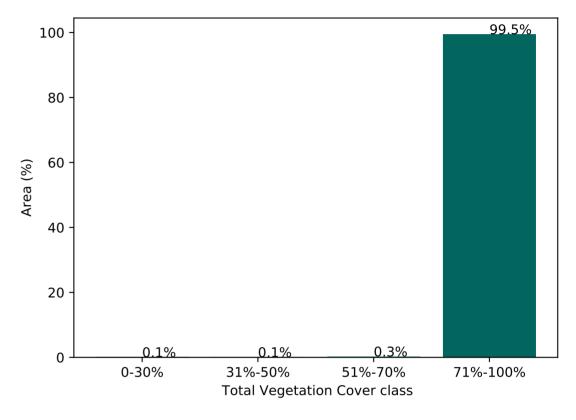
Total Vegetation Cover [%]



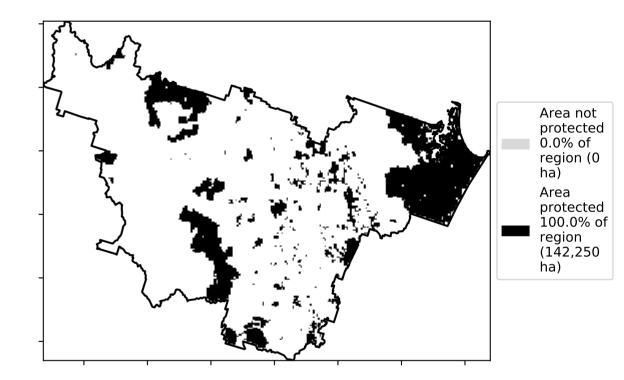
% Area protected from water erosion (>70%)



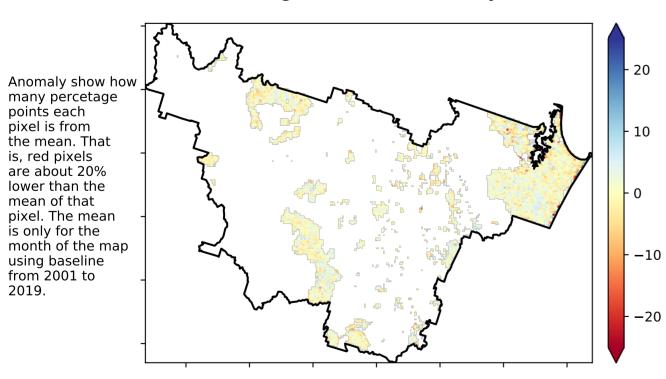
Proportion of vegetation cover class in area



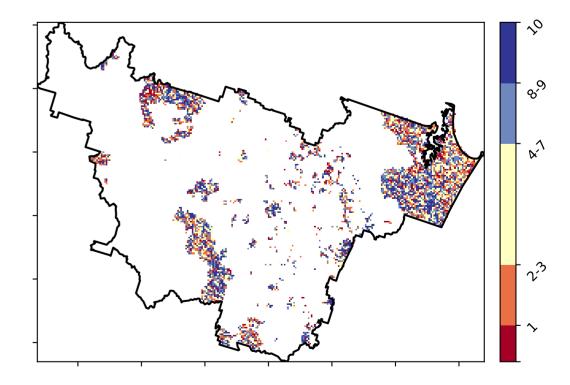
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

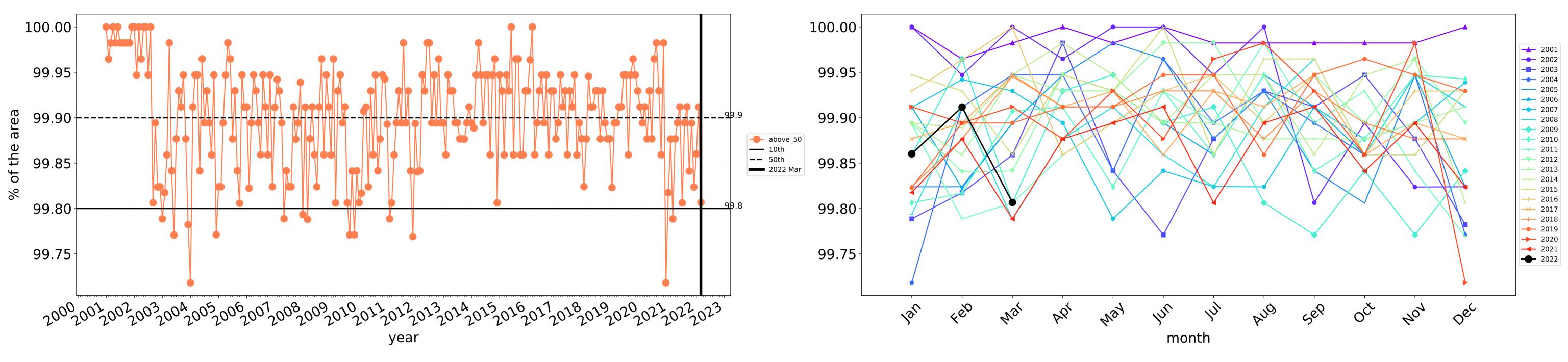


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]**

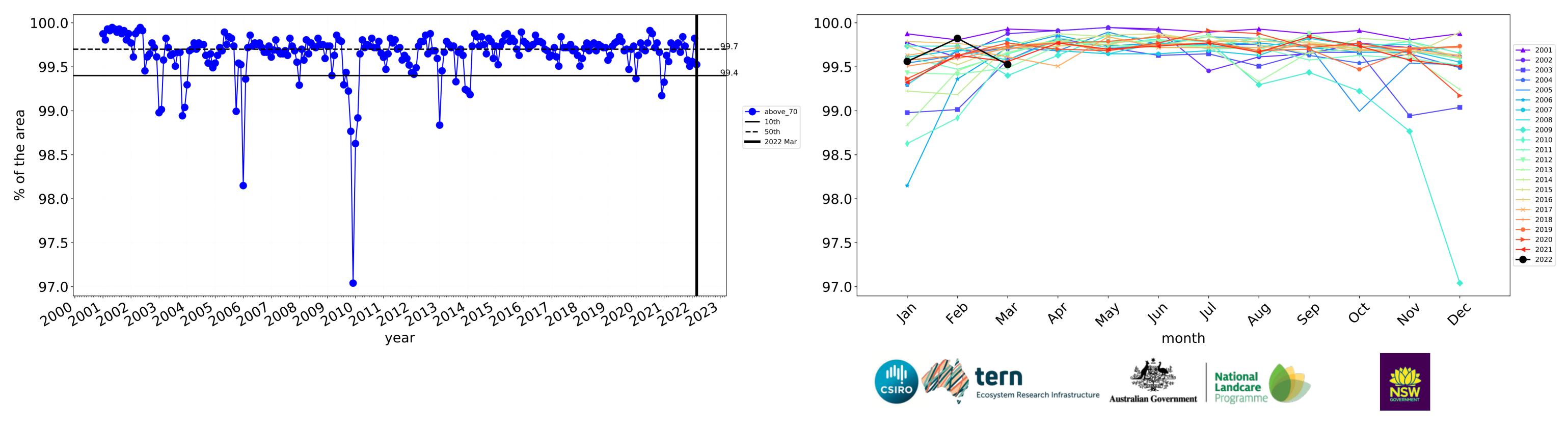




from 2001 to

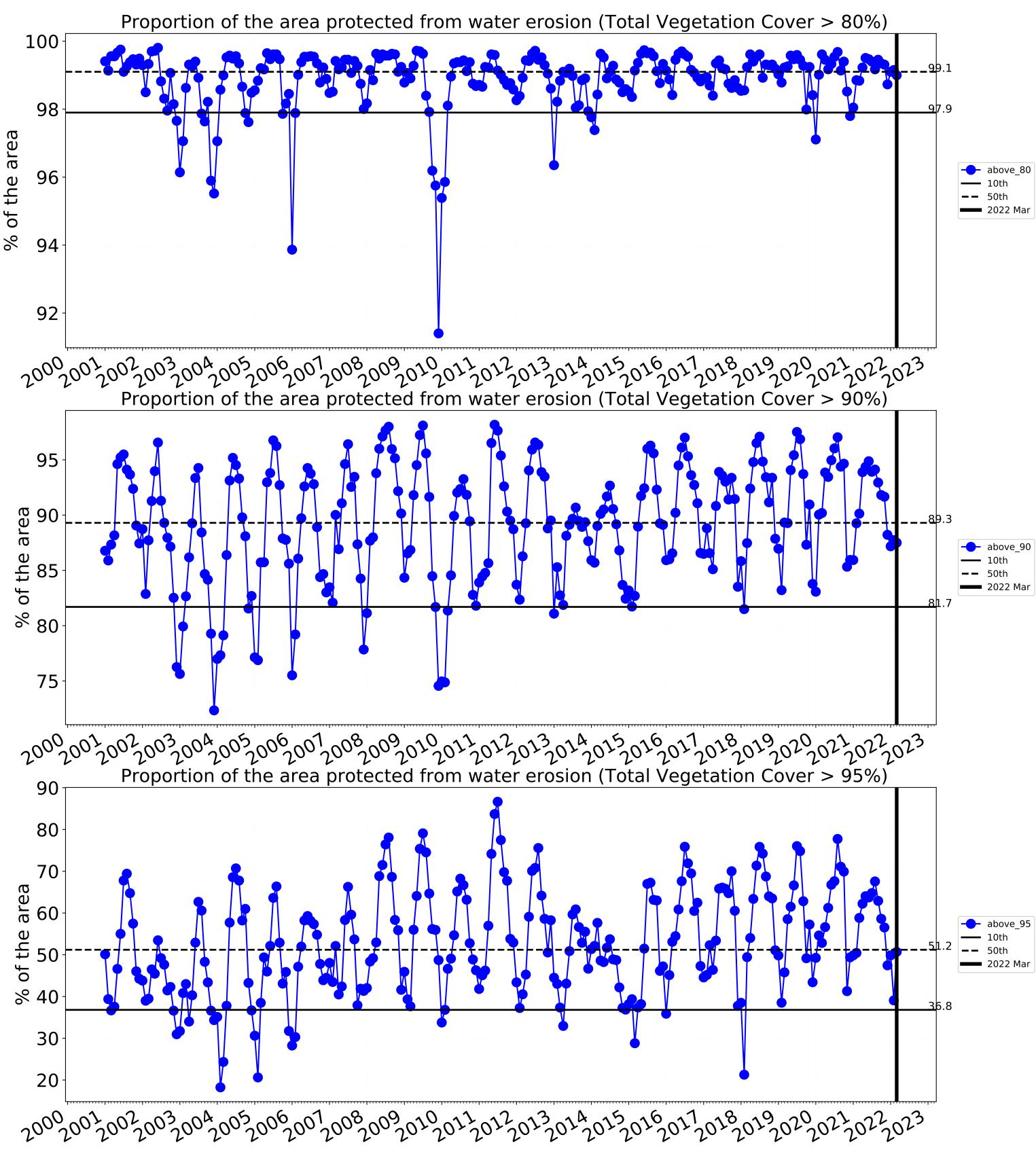


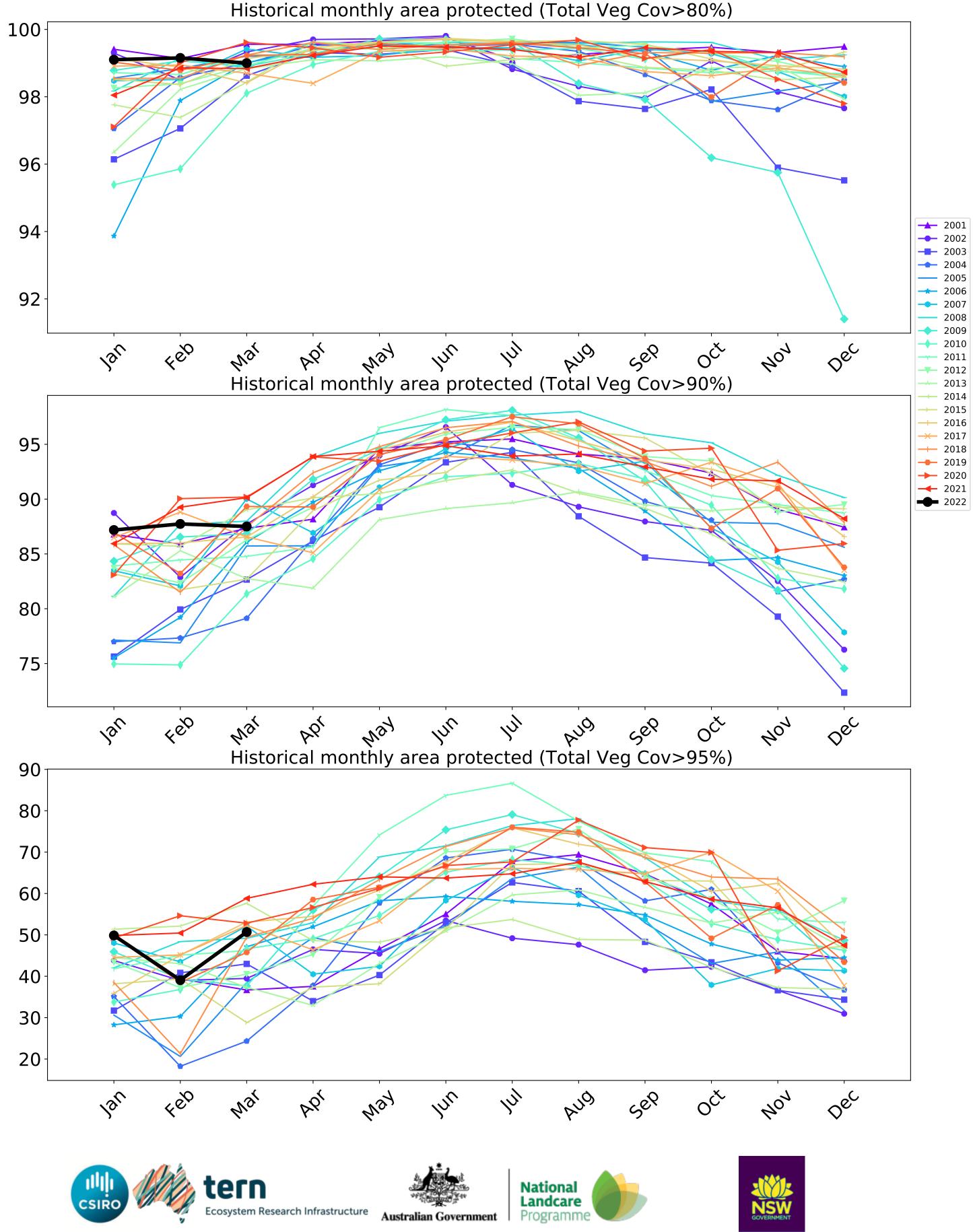
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



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

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





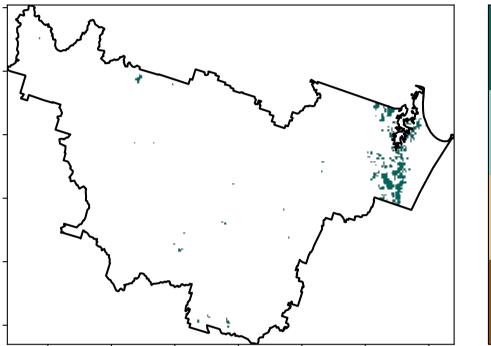


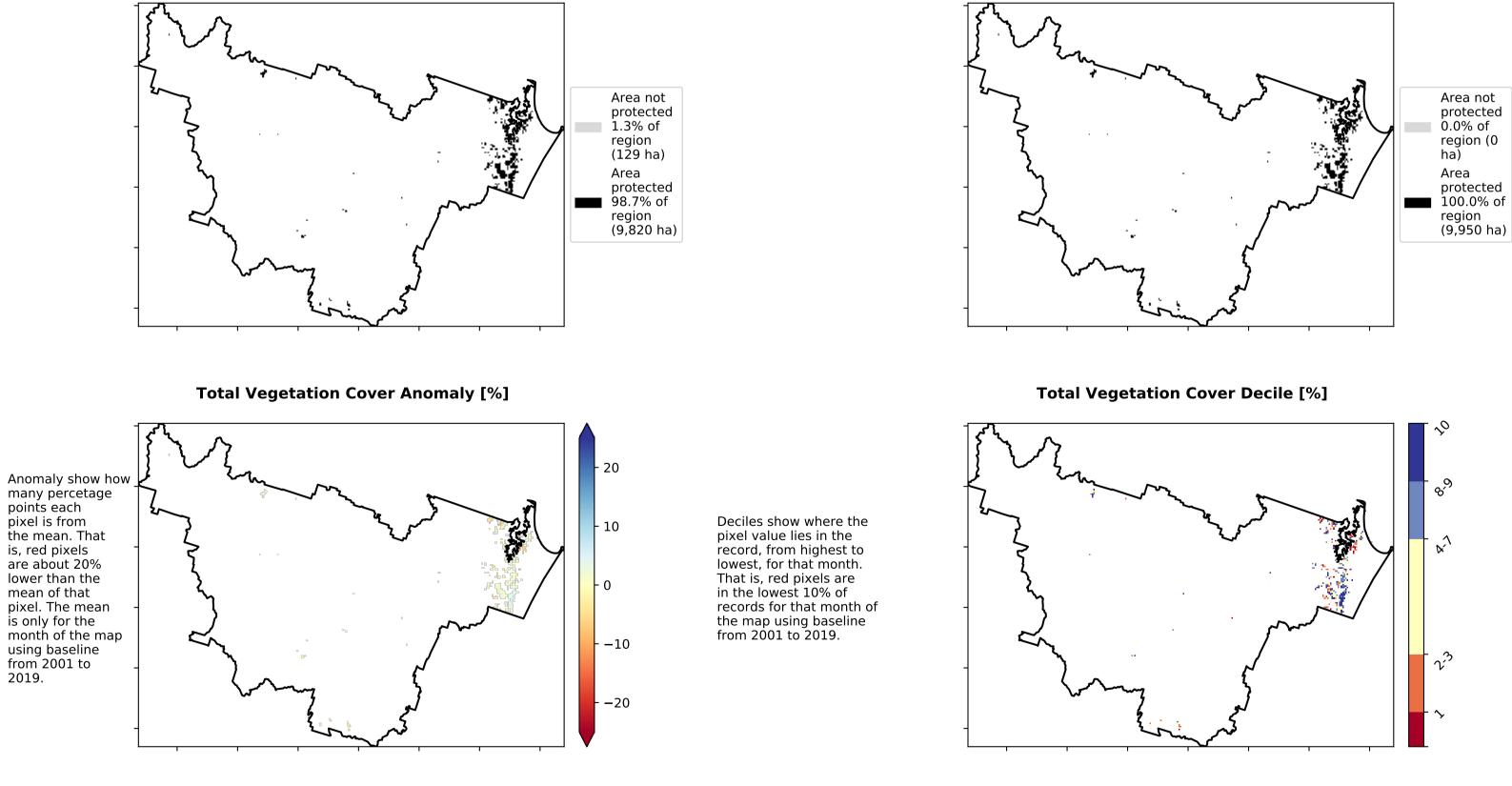
Conservation and natural environments non forest

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)

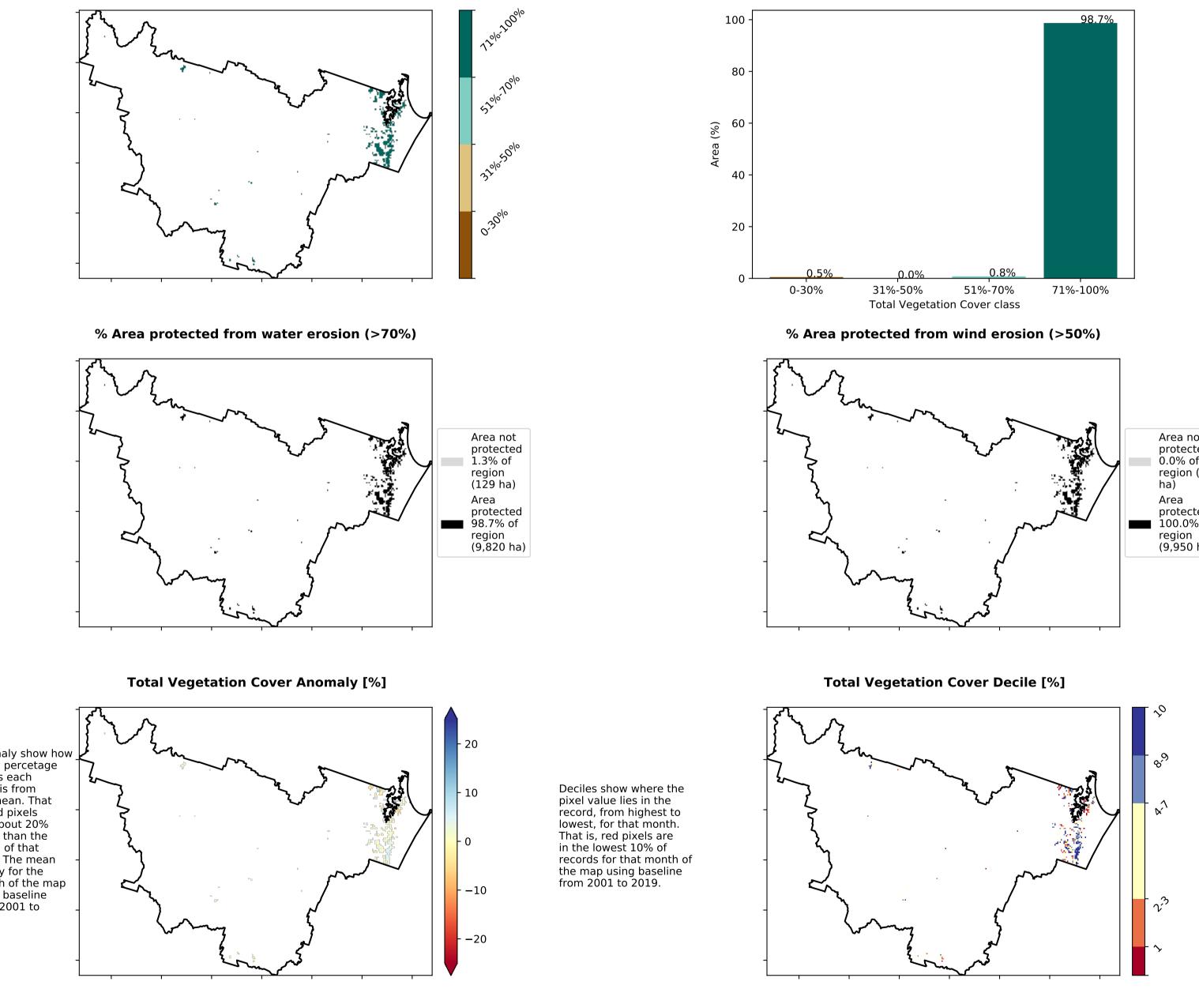
Total Vegetation Cover [%]

Land use and forest cover

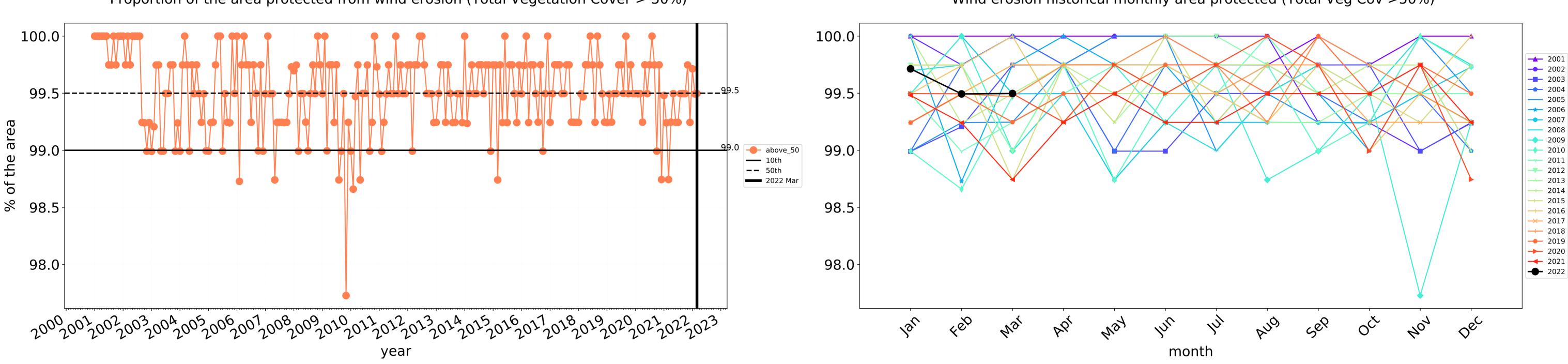




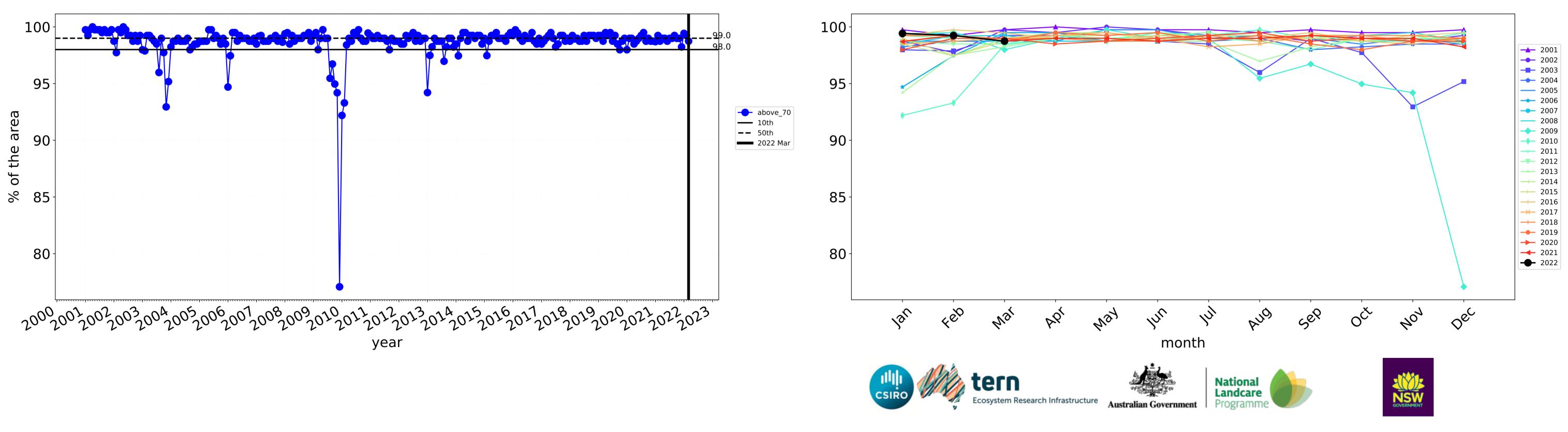
Proportion of vegetation cover class in area





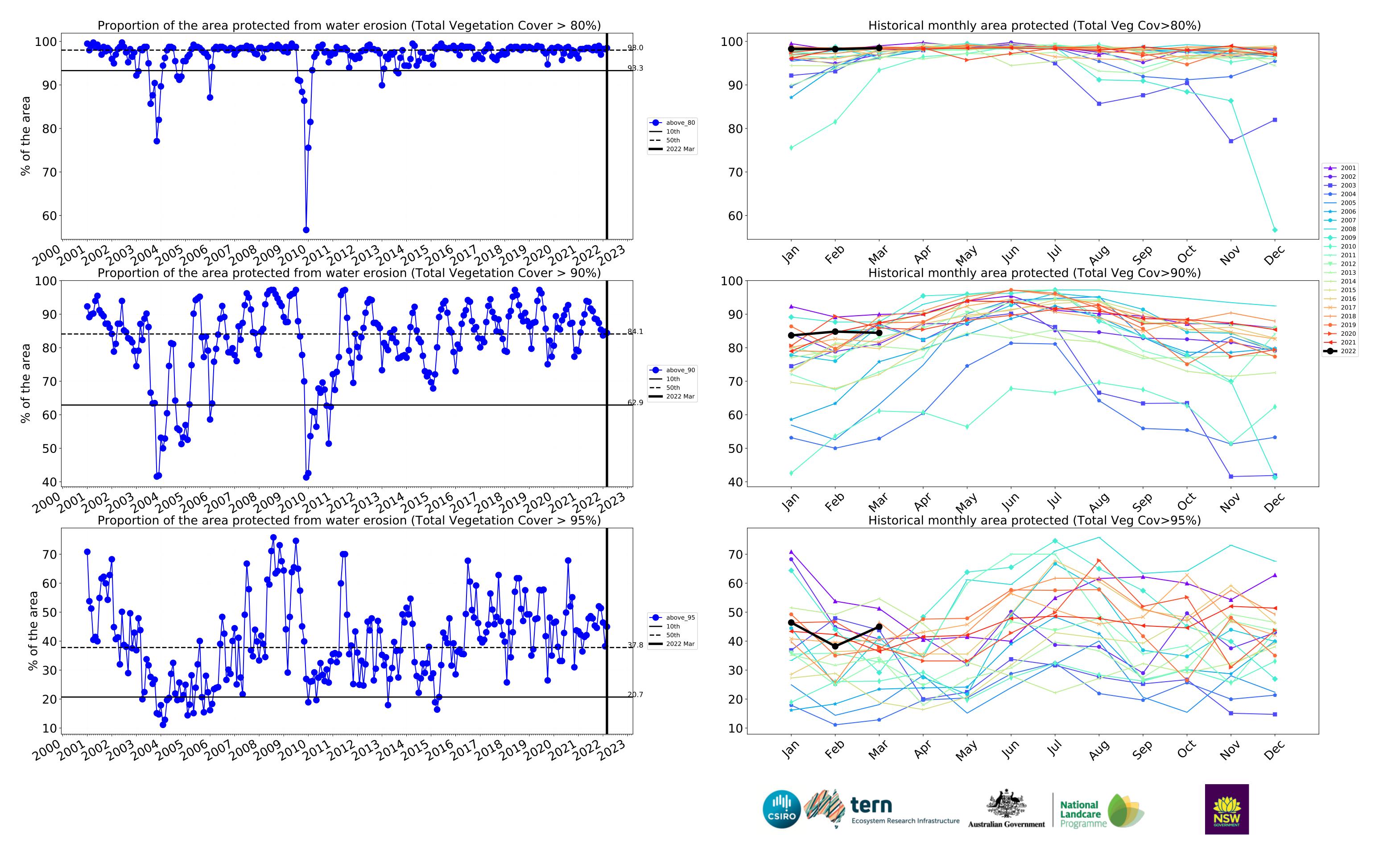


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



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

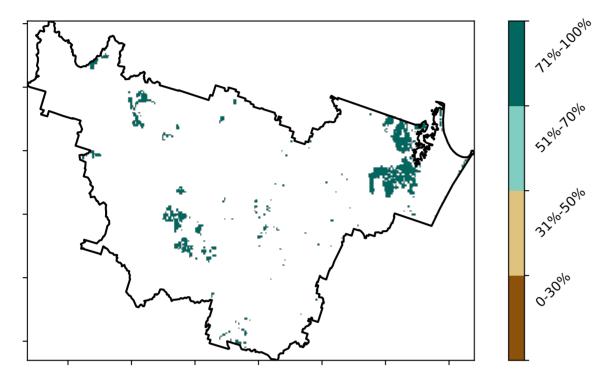
Wind erosion historical monthly area protected (Total Veg Cov >50%)



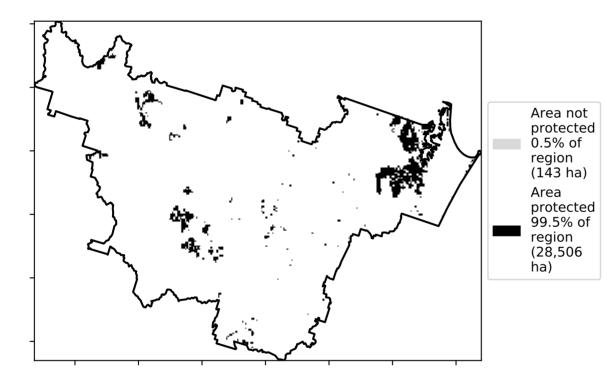
Conservation and natural environments Woodland forest

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

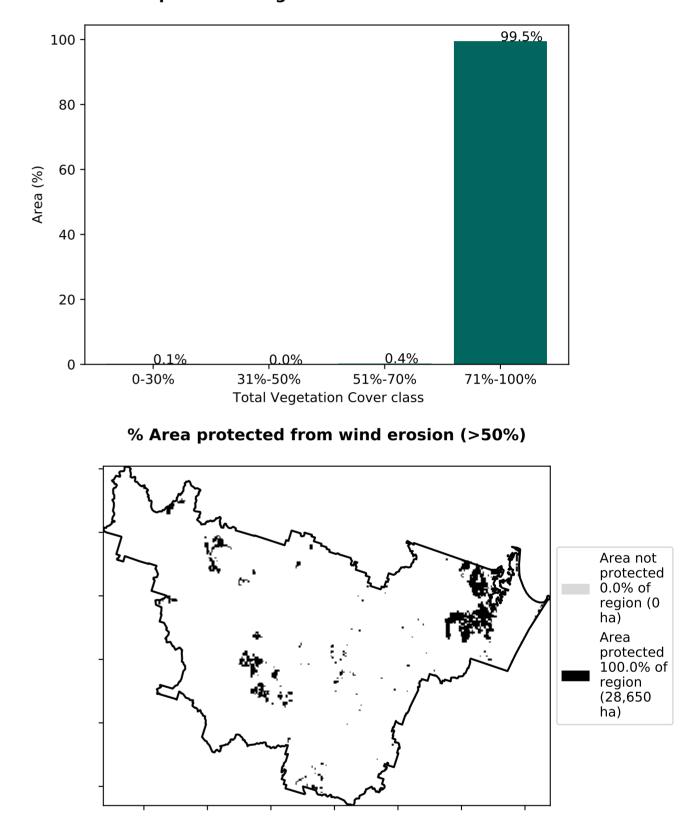
Total Vegetation Cover [%]



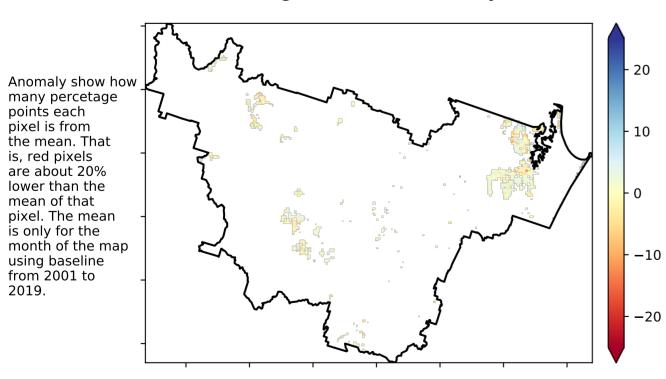
% Area protected from water erosion (>70%)



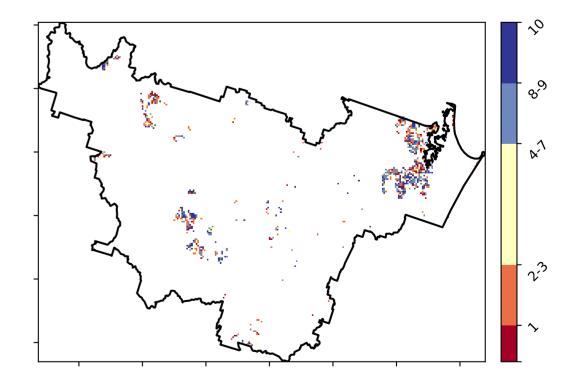
Proportion of vegetation cover class in area



Total Vegetation Cover Anomaly [%]

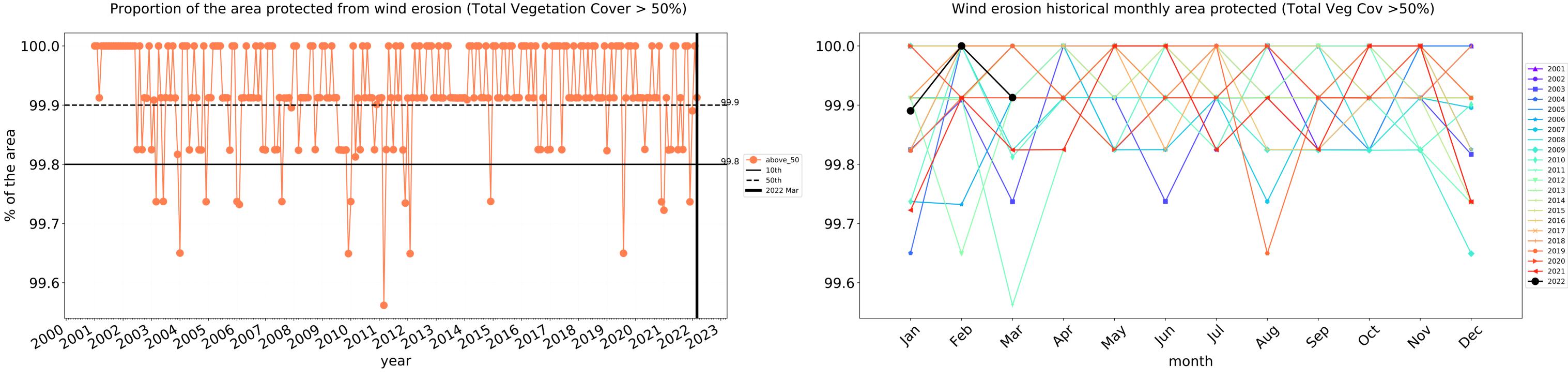


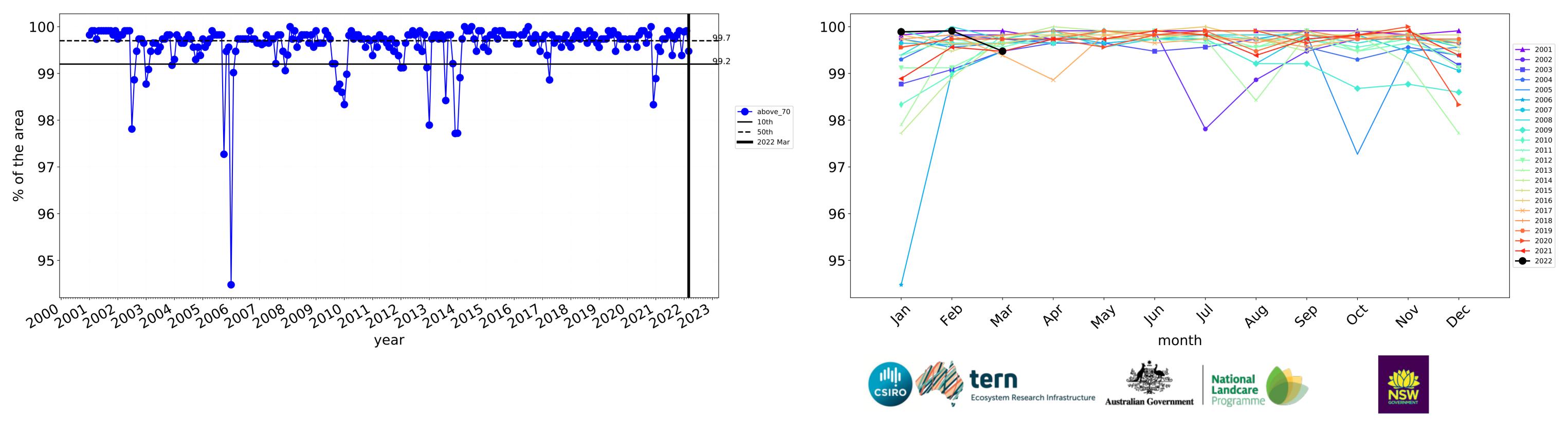
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]**



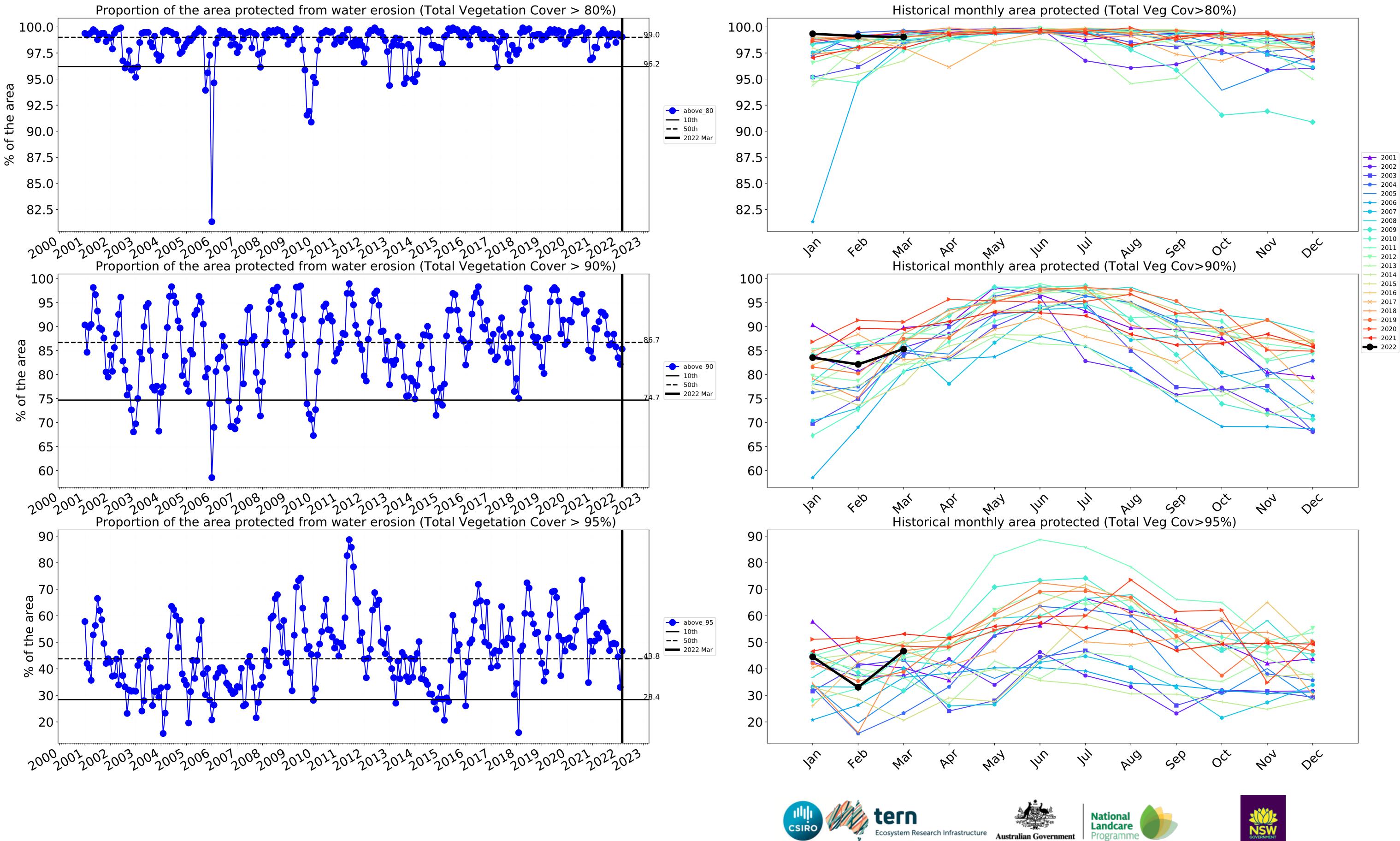


12

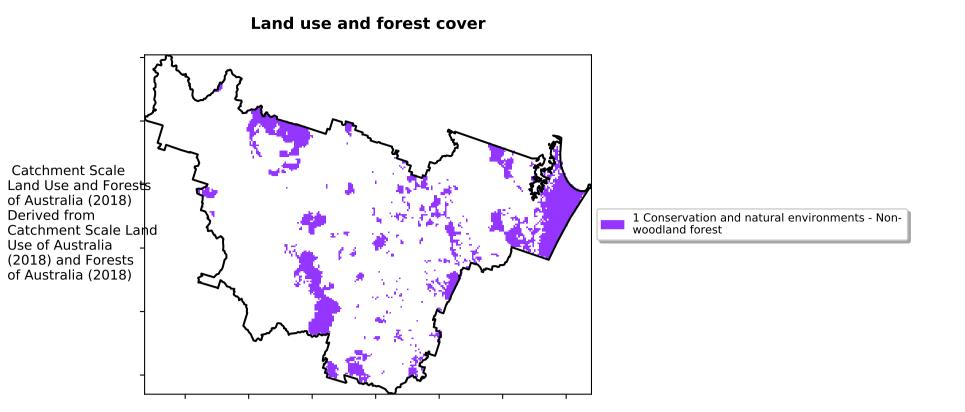




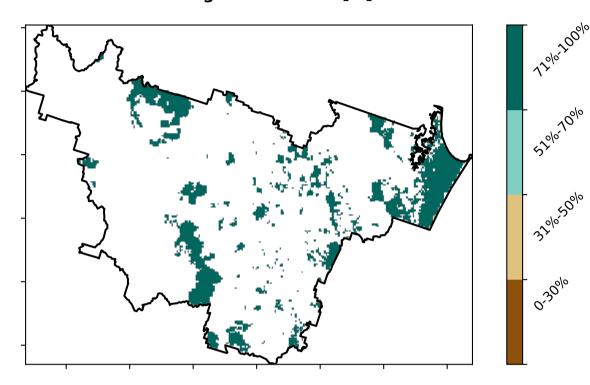
Water erosion historical monthly area protected (Total Veg Cov>70%)



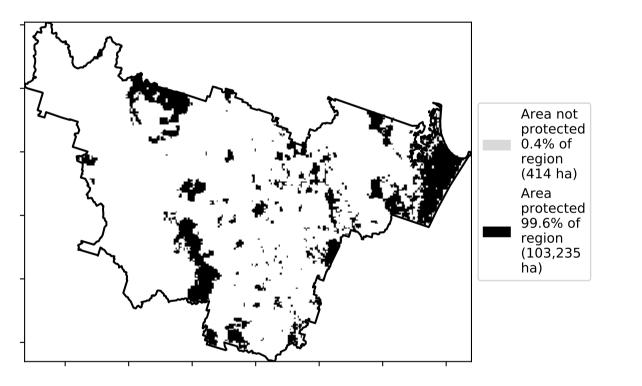
Conservation and natural environments Forest (non woodland)



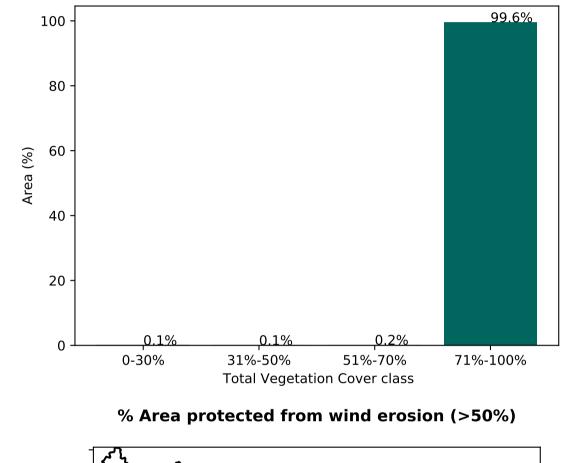
Total Vegetation Cover [%]

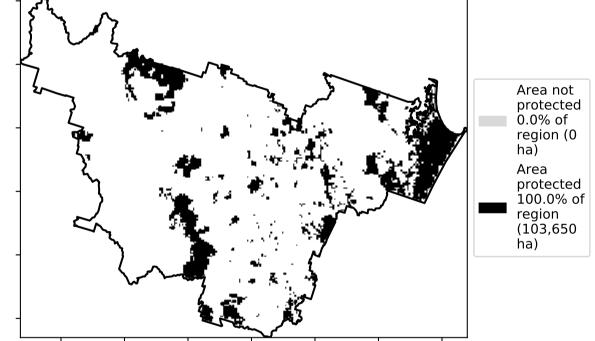


% Area protected from water erosion (>70%)

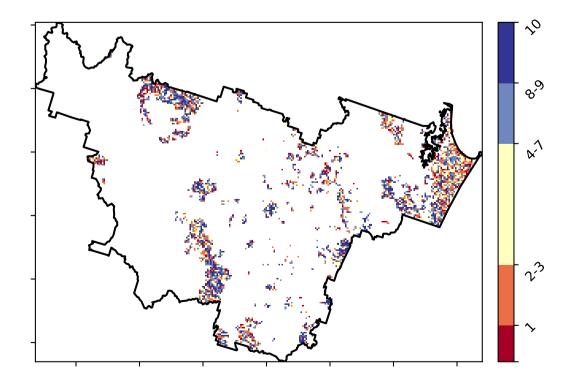


Proportion of vegetation cover class in area

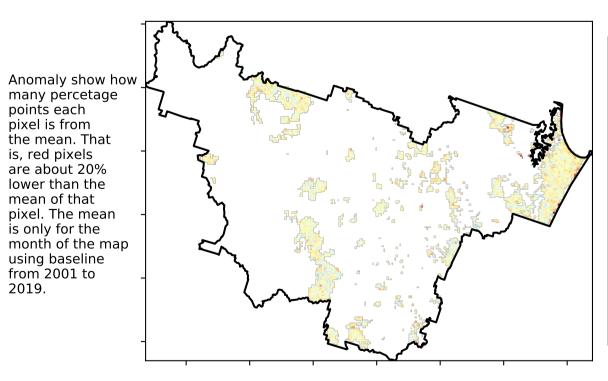




Total Vegetation Cover Decile [%]



Total Vegetation Cover Anomaly [%]



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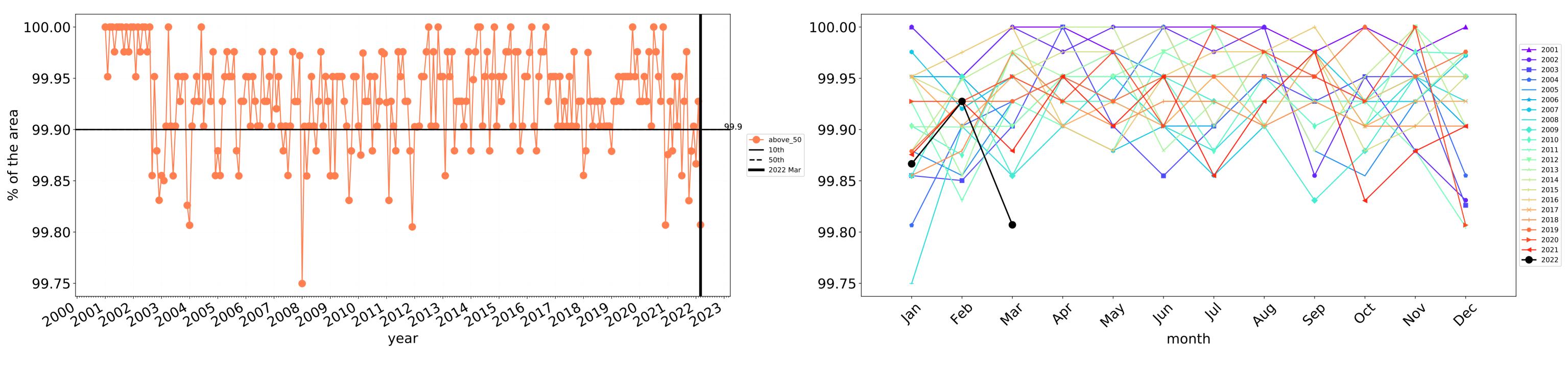
- 20

- 10

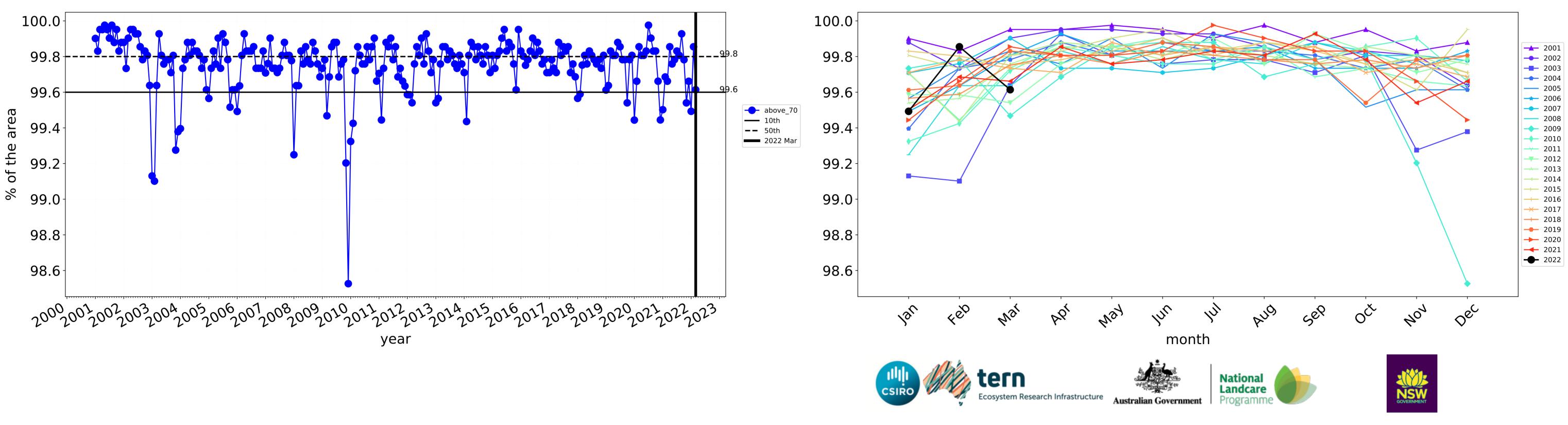
- 0

-10

-20

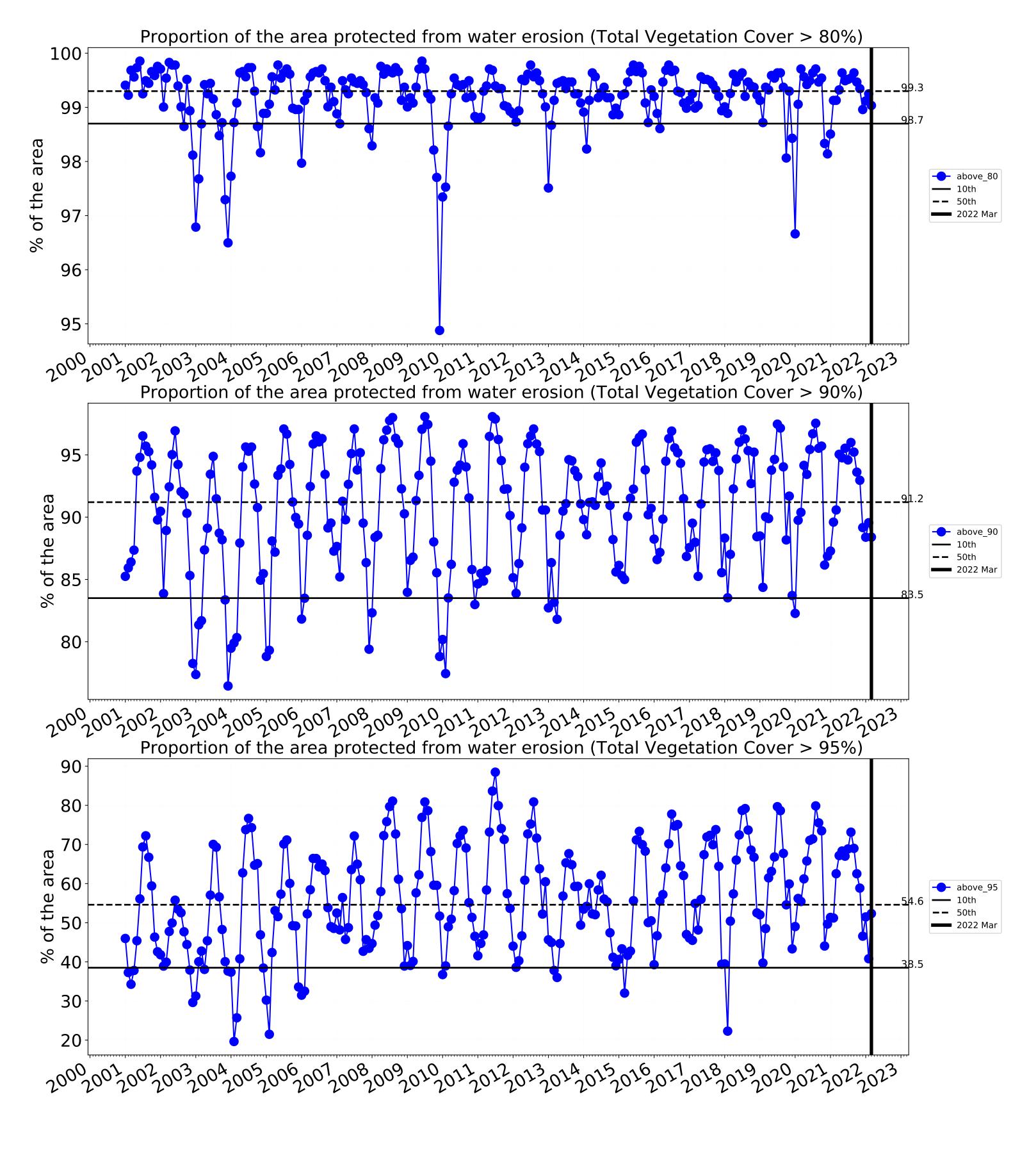


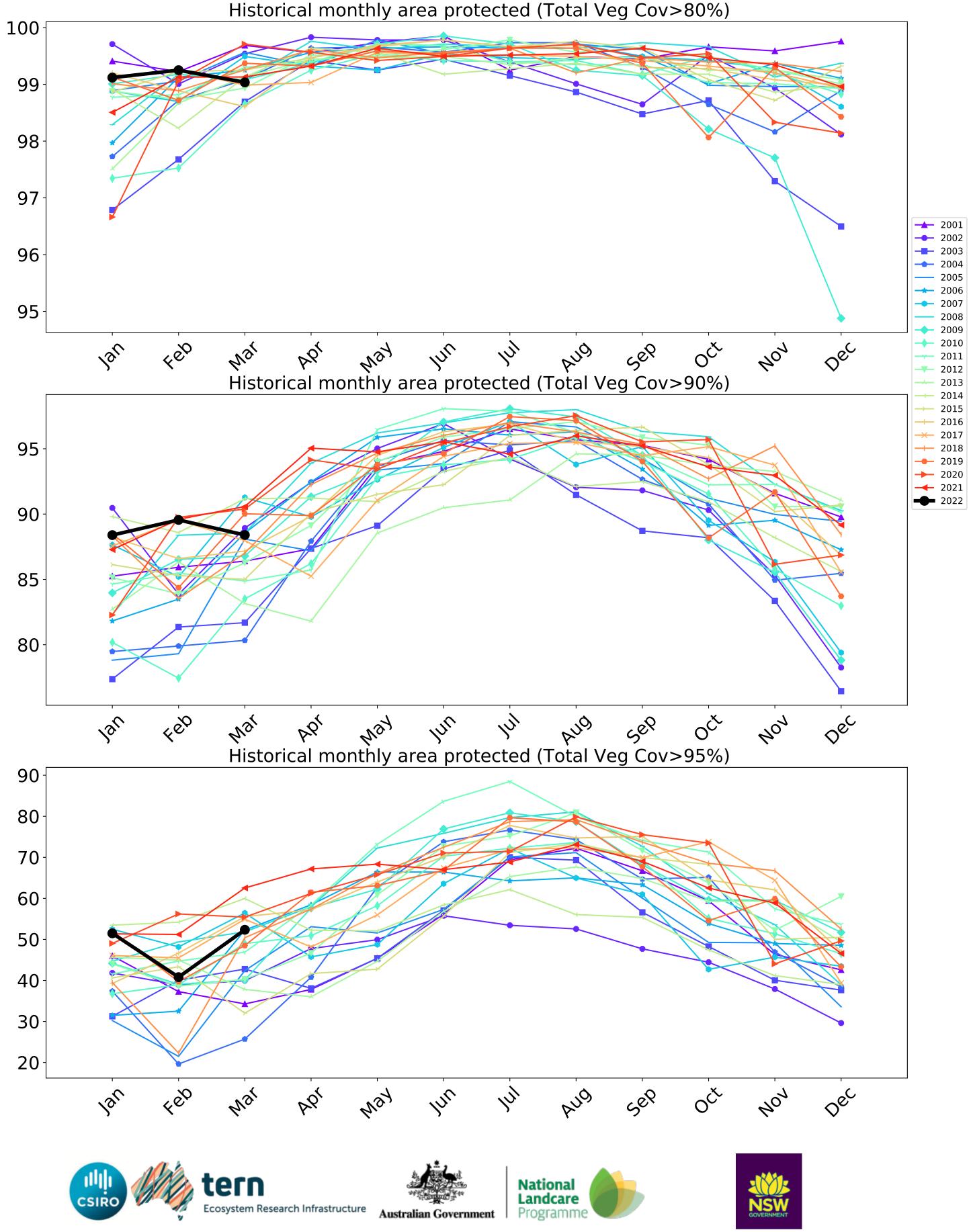
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



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

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

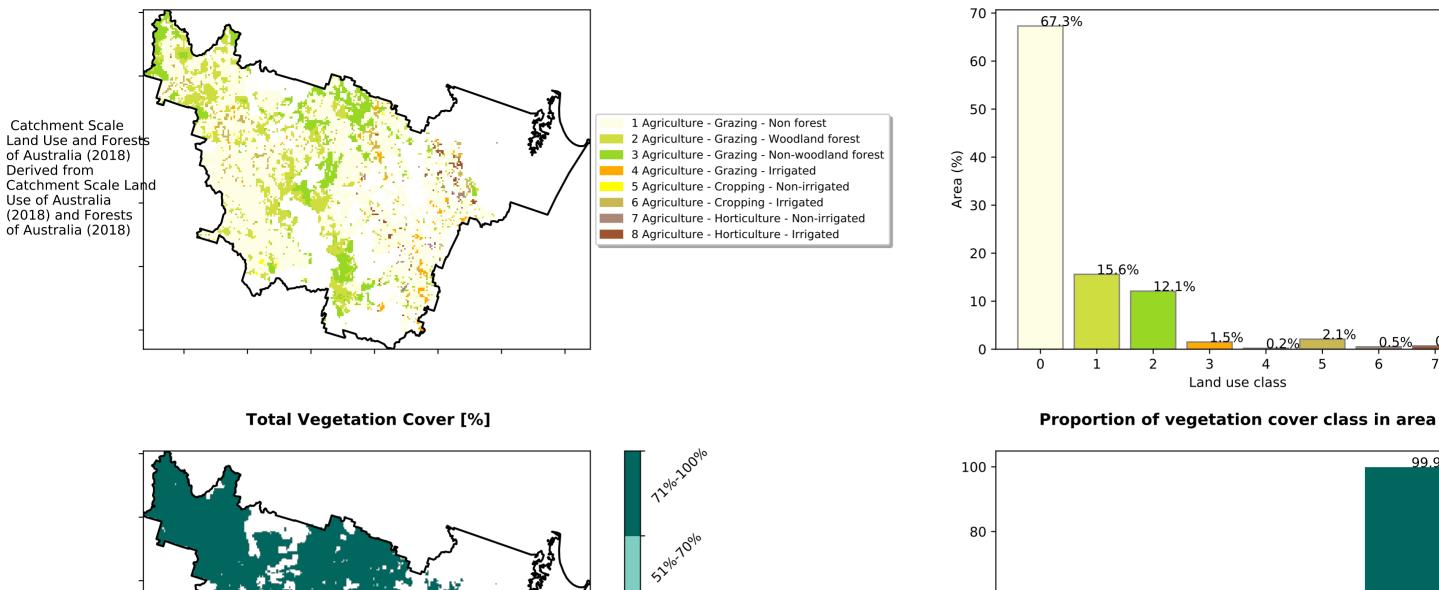


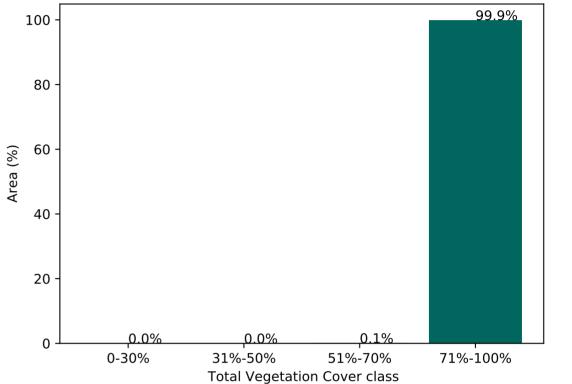


Agriculture

Land use and forest cover

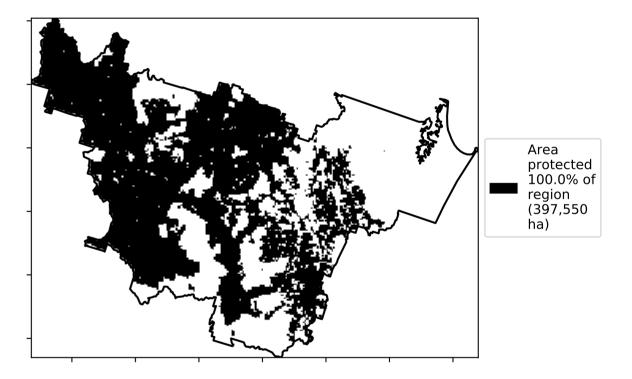
Proportion of each land class in area

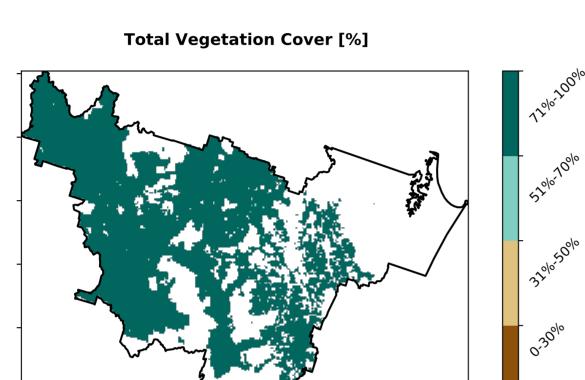




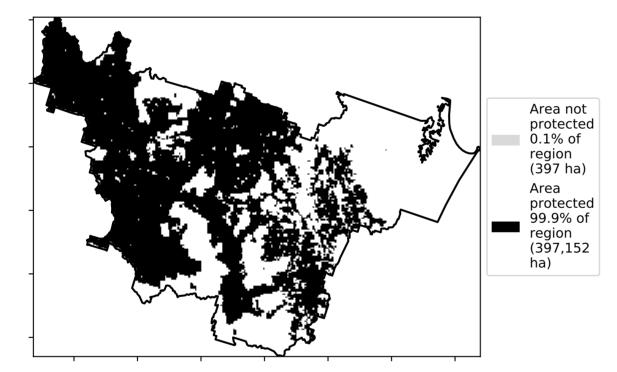
0.7%

% Area protected from wind erosion (>50%)

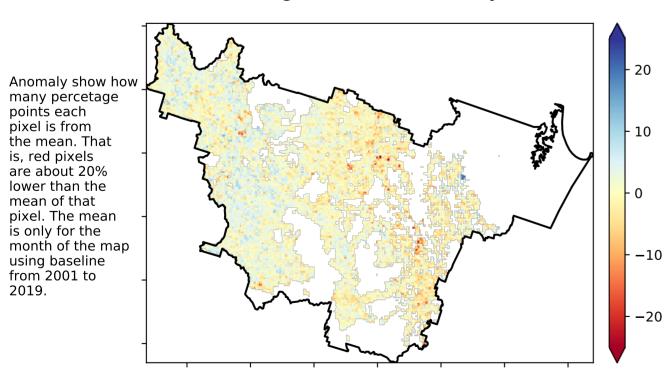




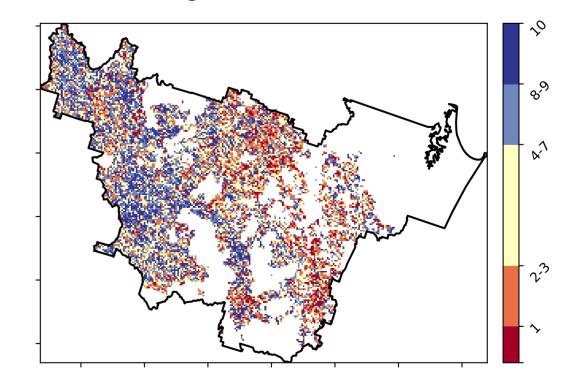
% Area protected from water erosion (>70%)



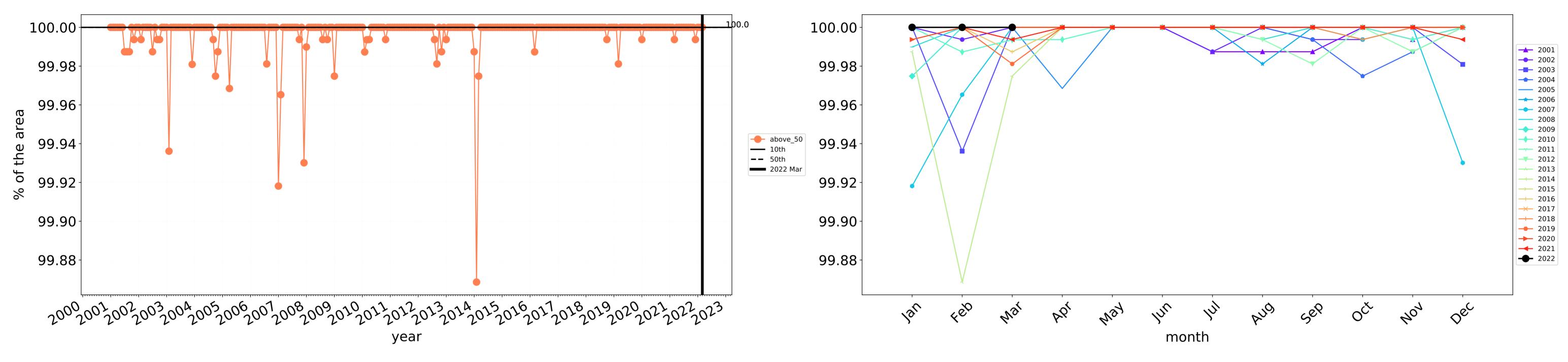
Total Vegetation Cover Anomaly [%]



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.

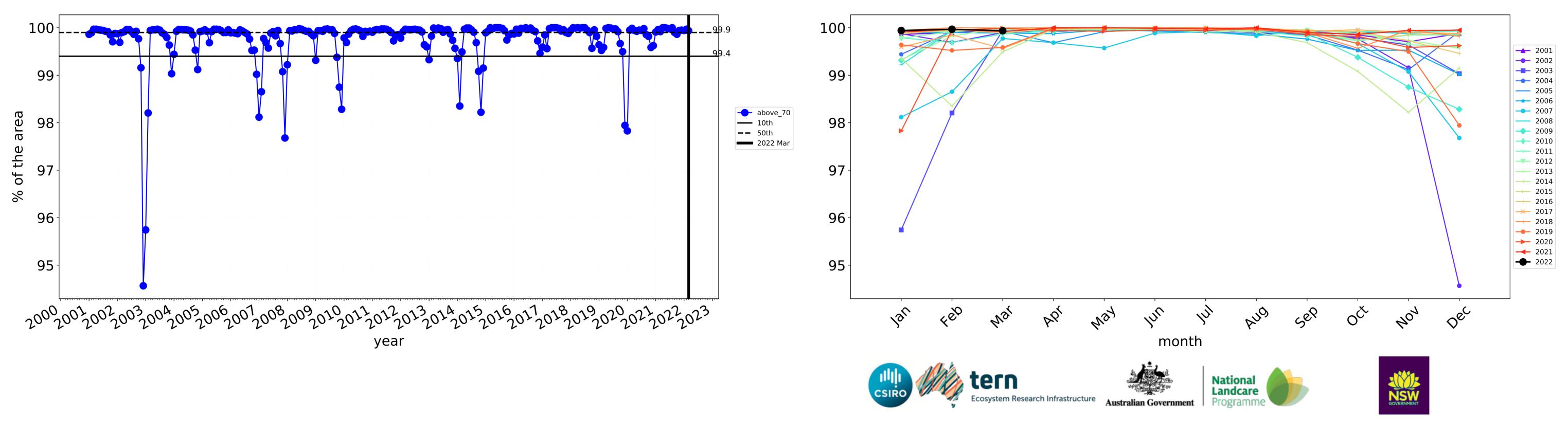






Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

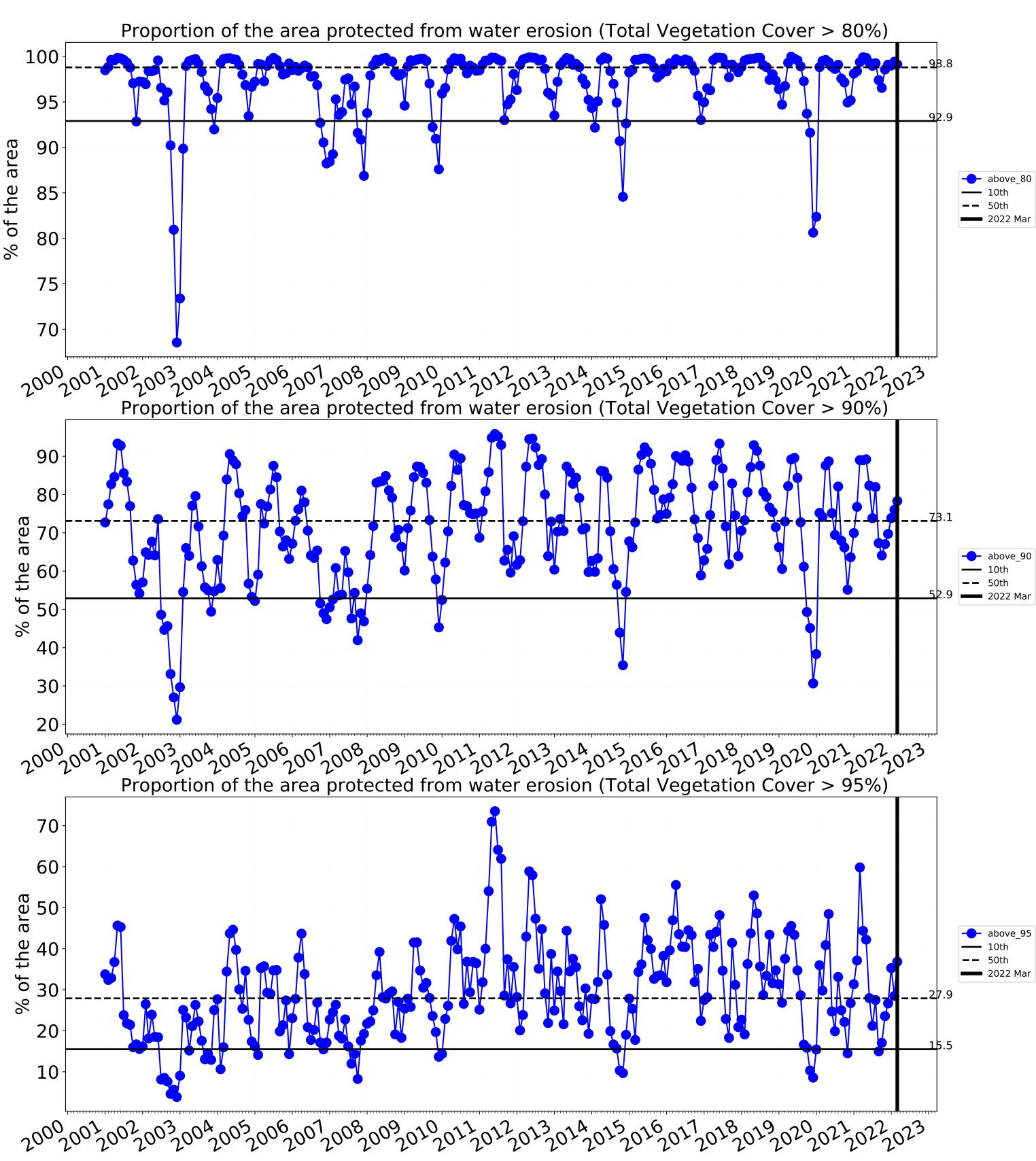
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

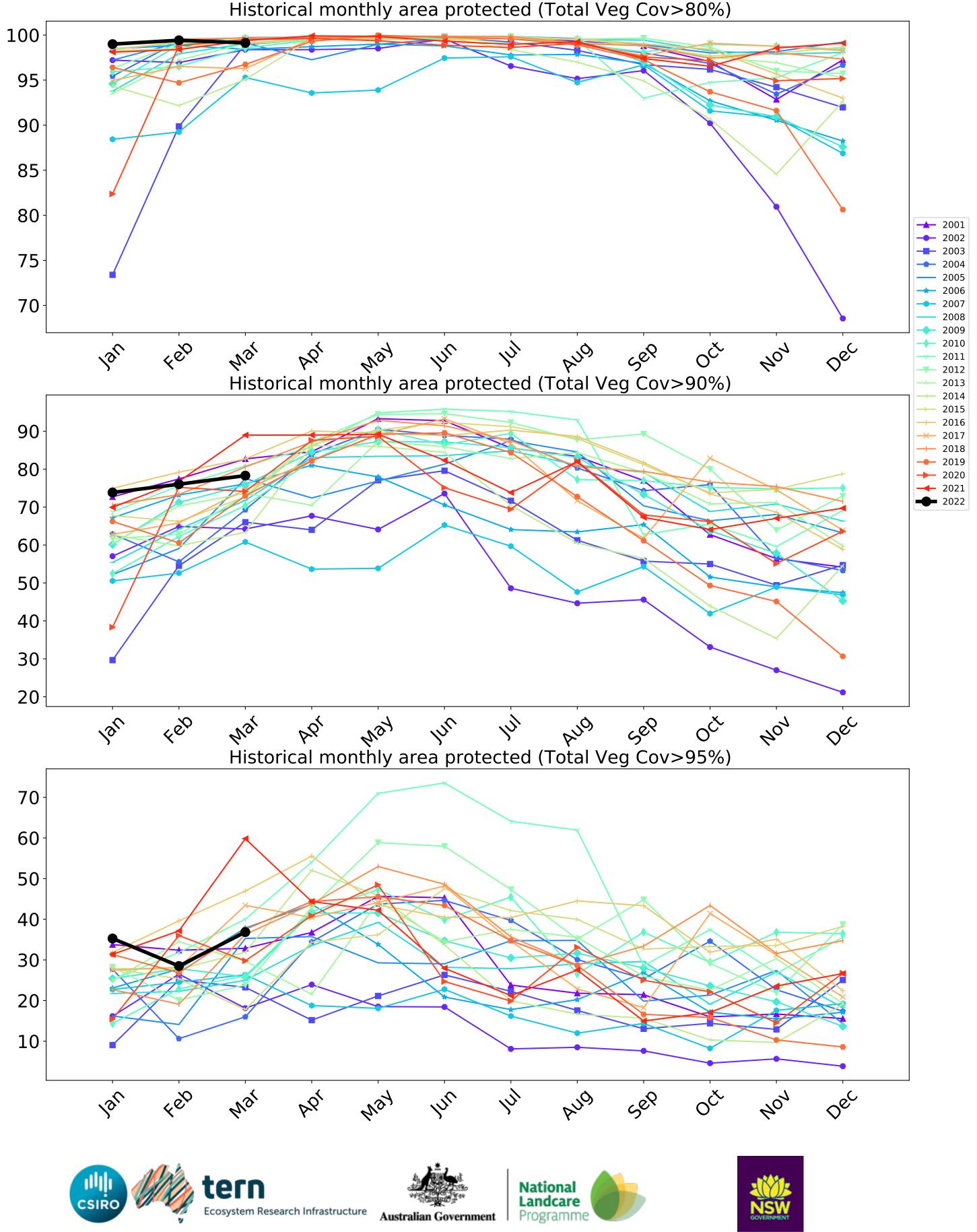


Agriculture timeseries

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

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



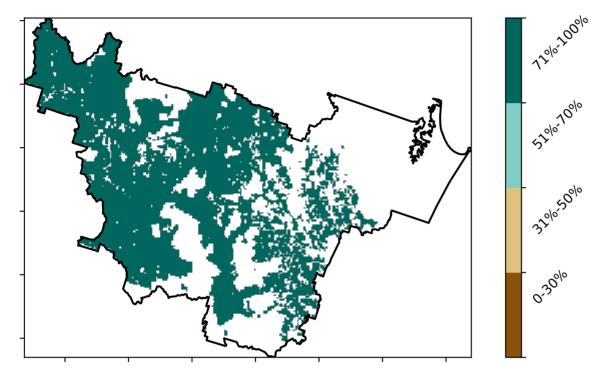


Grazing

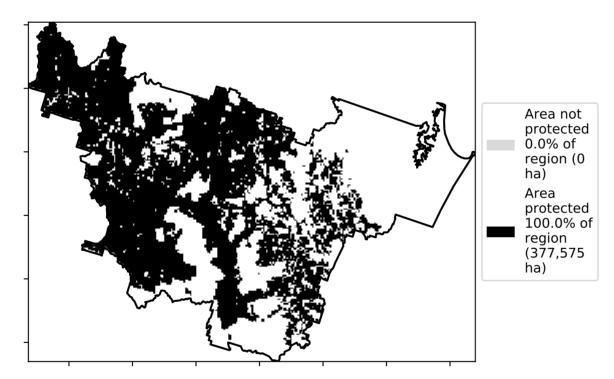
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]

Land use and forest cover



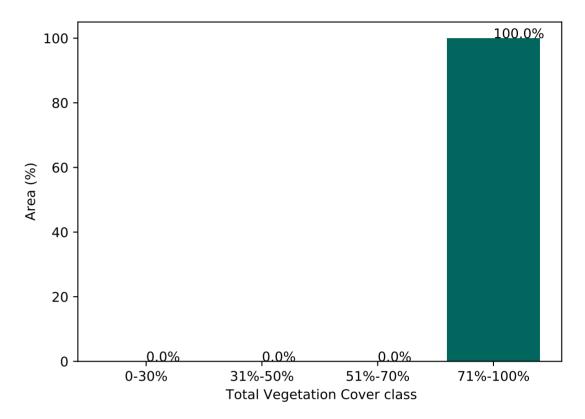
% Area protected from water erosion (>70%)



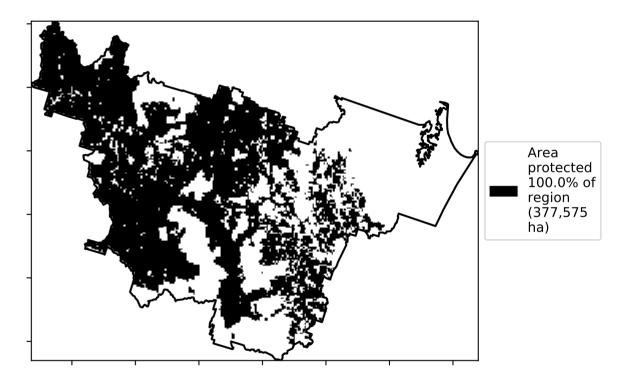
70.9% 70 60 · 50 · Area (%) 30 20 16.4% 12.7% 10 0 · -0.5 0.5 0.0 1.0 1.5 2.0 2.5 Land use class

Proportion of each land class in area

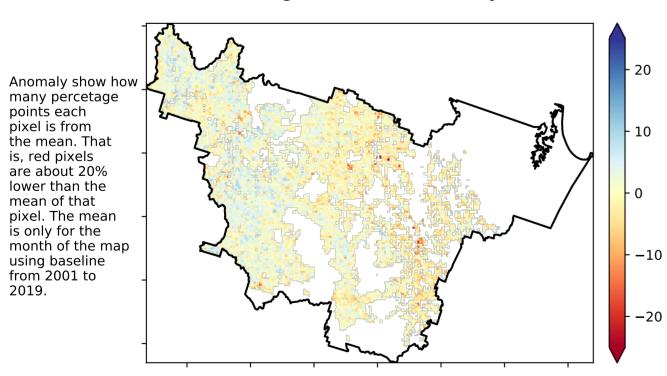
Proportion of vegetation cover class in area



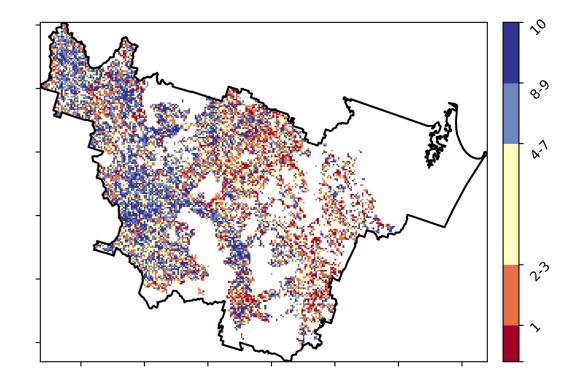
% Area protected from wind erosion (>50%)



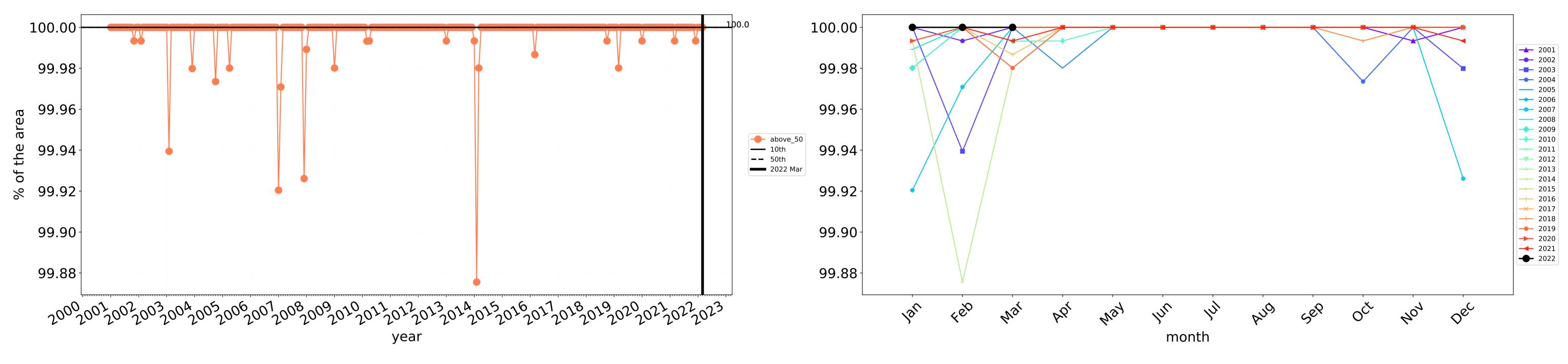
Total Vegetation Cover Anomaly [%]



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.

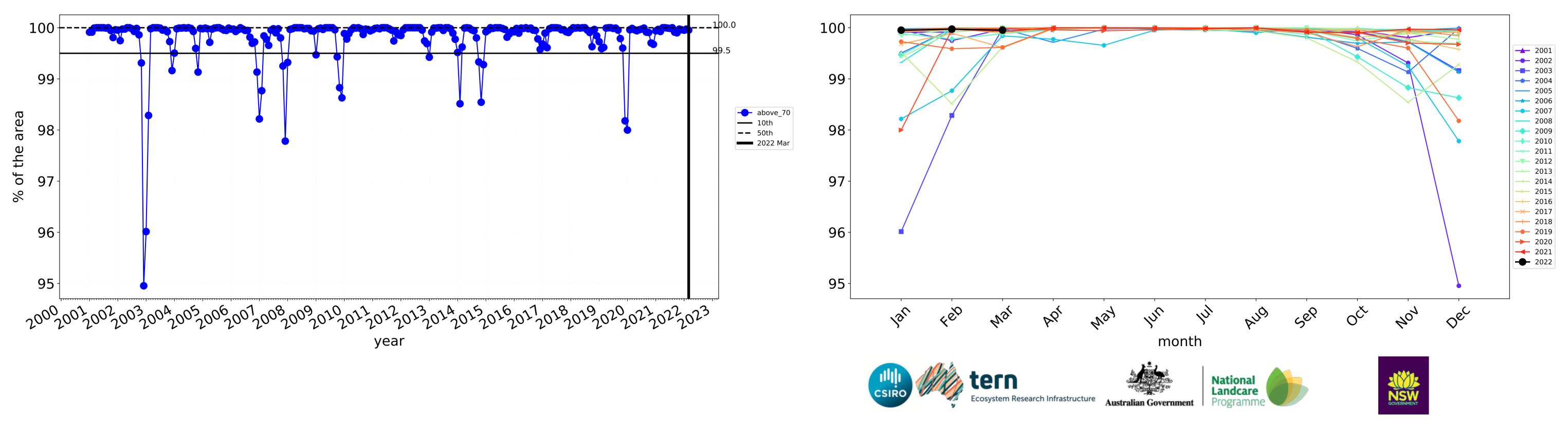






Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

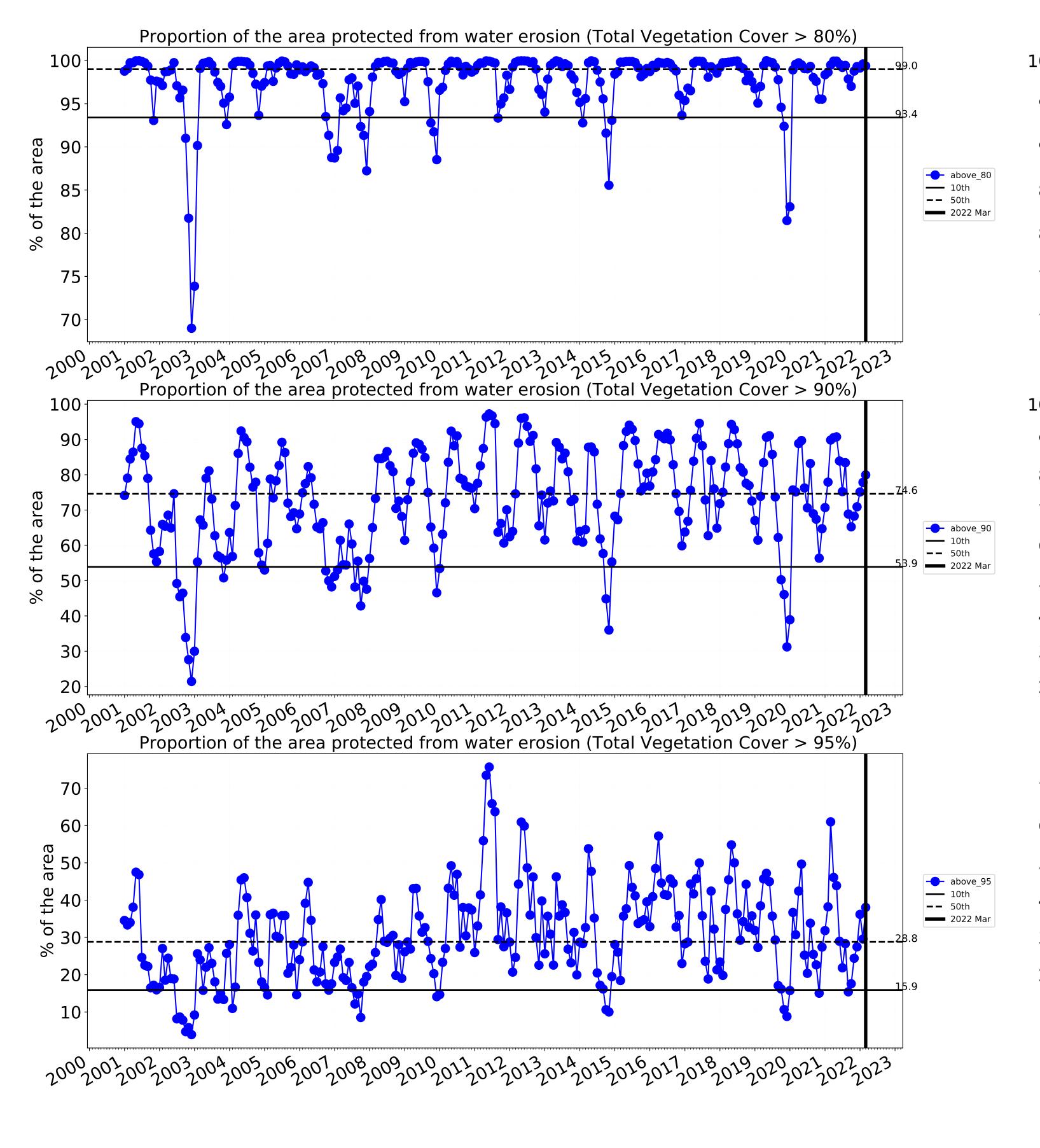
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

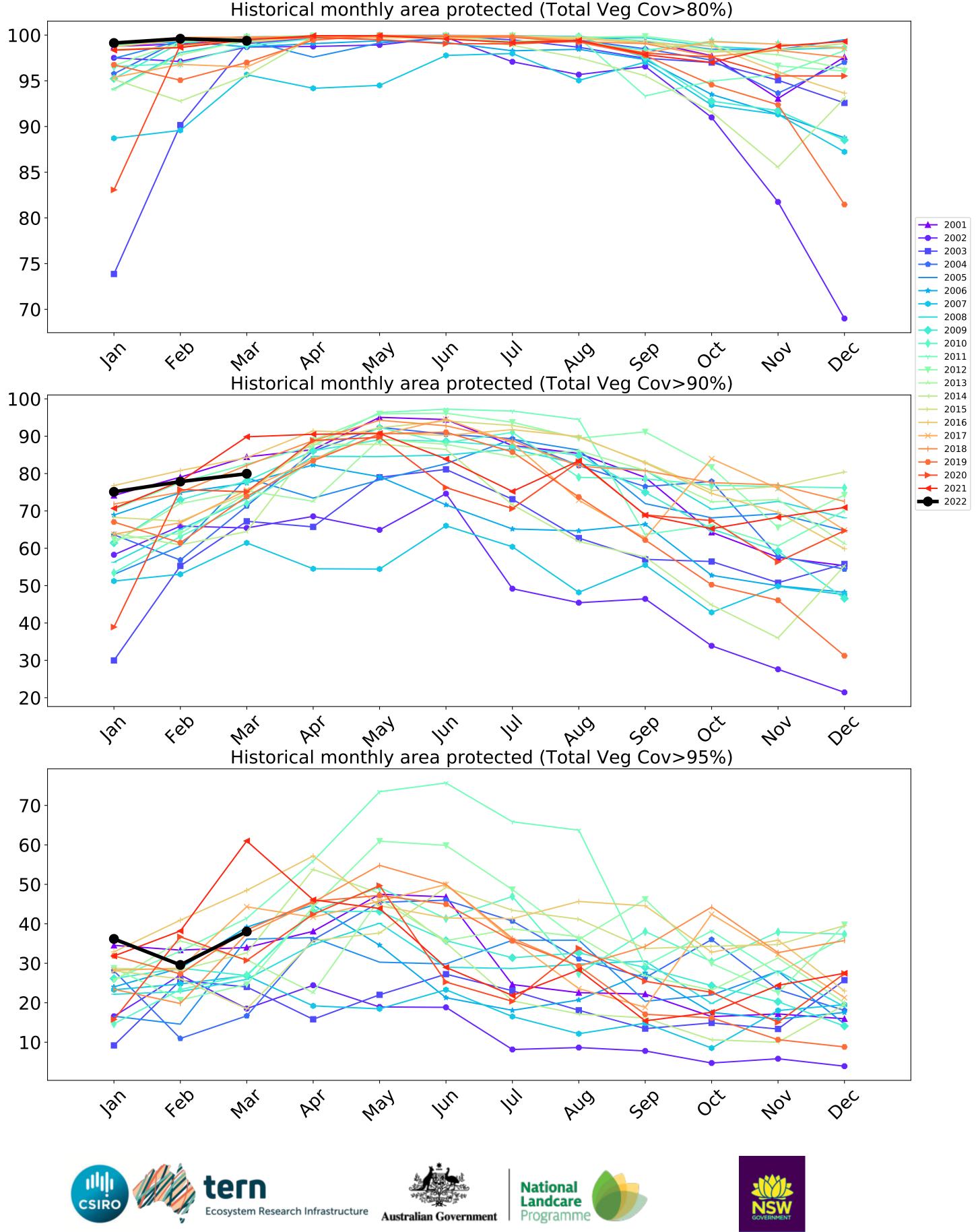


Grazing timeseries

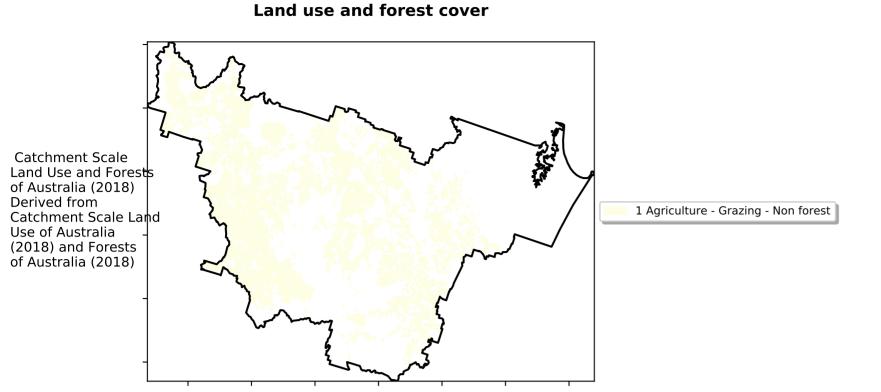
Wind erosion historical monthly area protected (Total Veg Cov >50%)

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

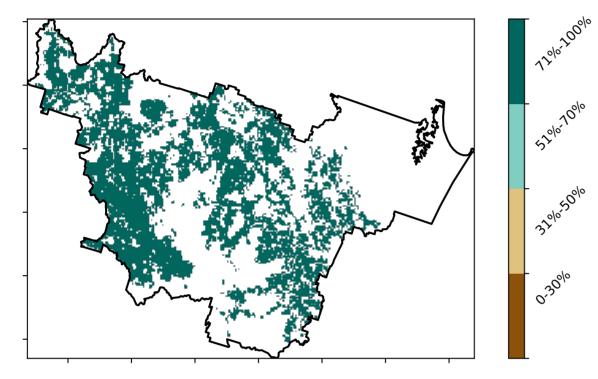




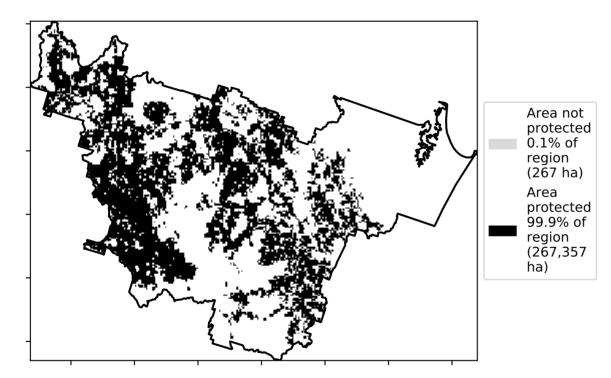
Grazing non forest



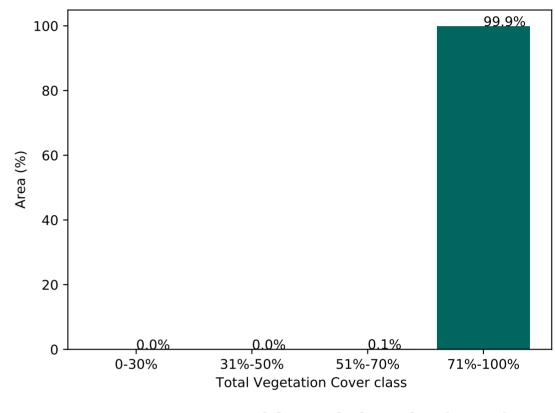
Total Vegetation Cover [%]



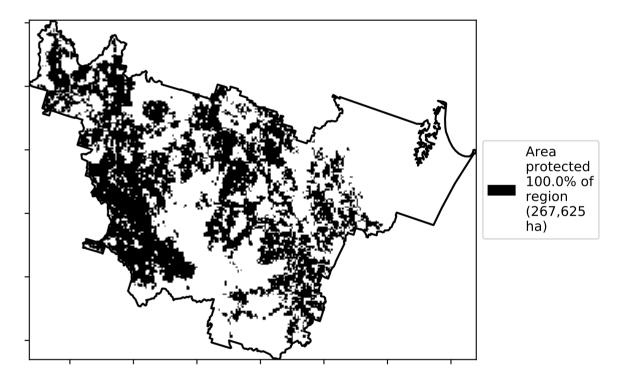
% Area protected from water erosion (>70%)



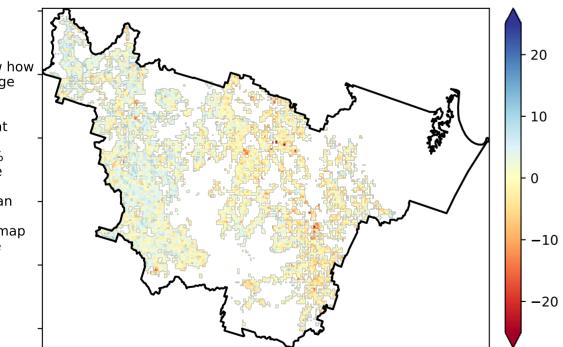
Proportion of vegetation cover class in area



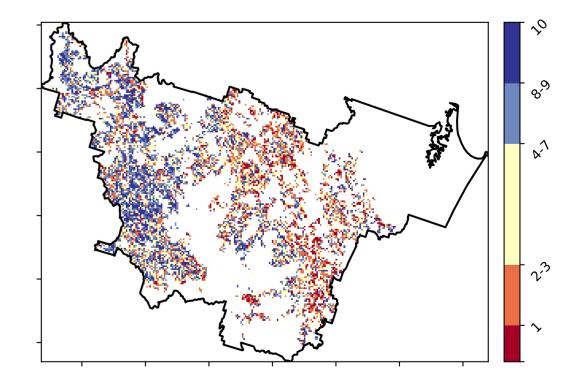
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



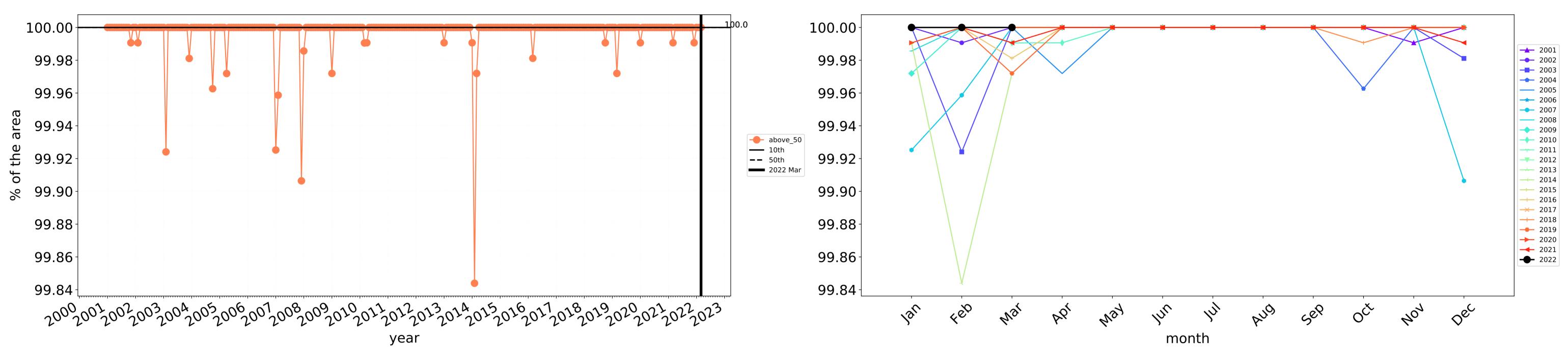
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]**



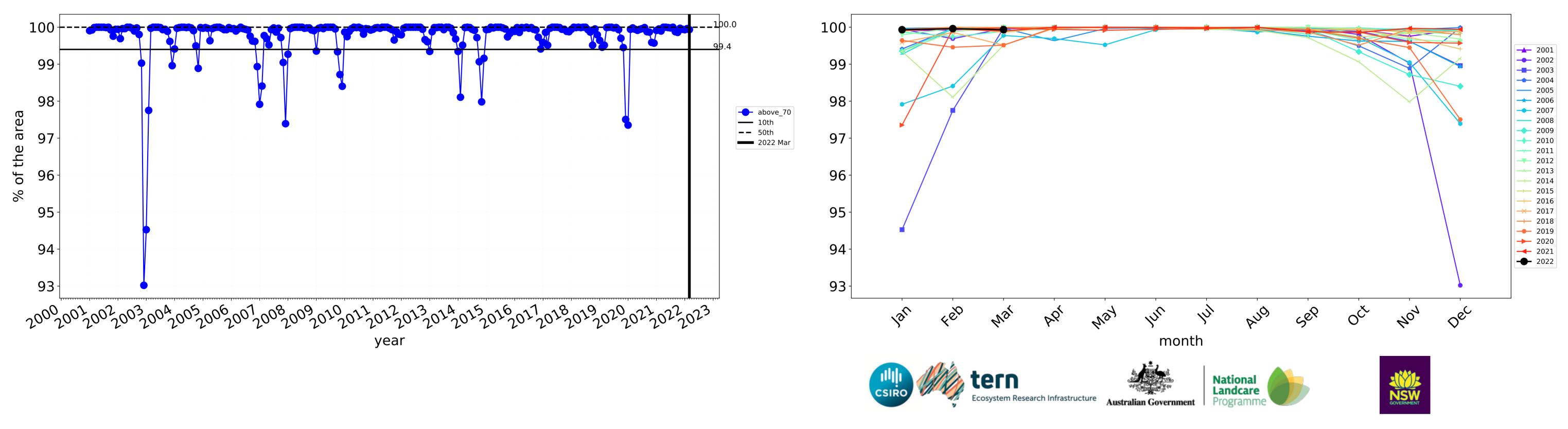


Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



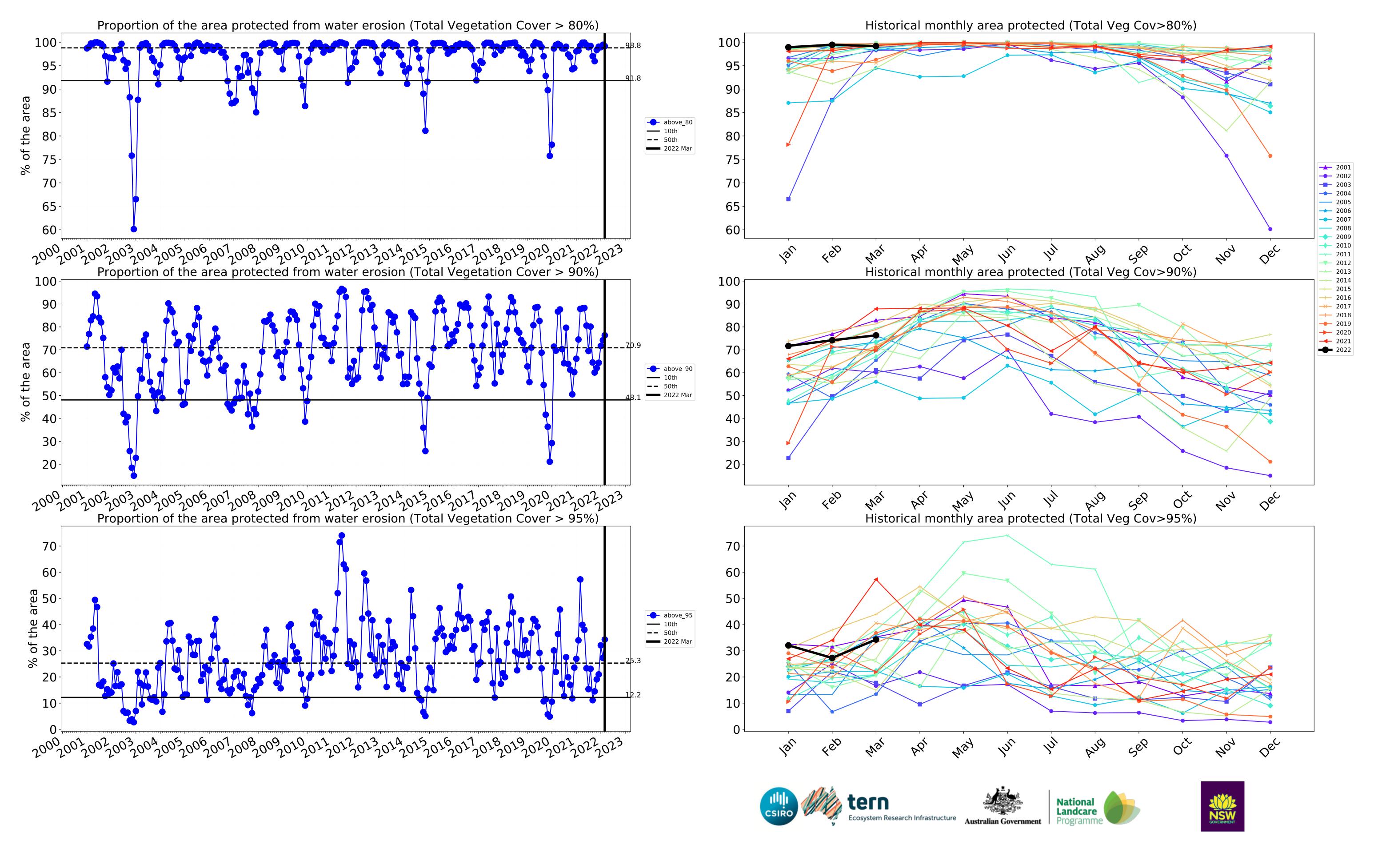


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

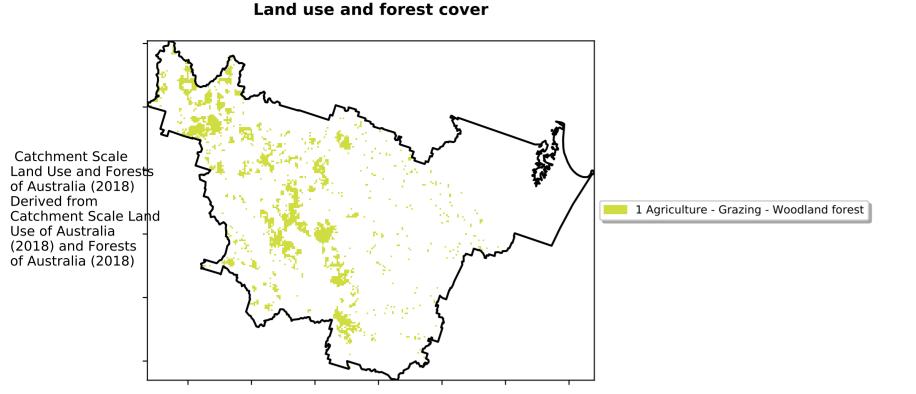


Wind erosion historical monthly area protected (Total Veg Cov >50%)

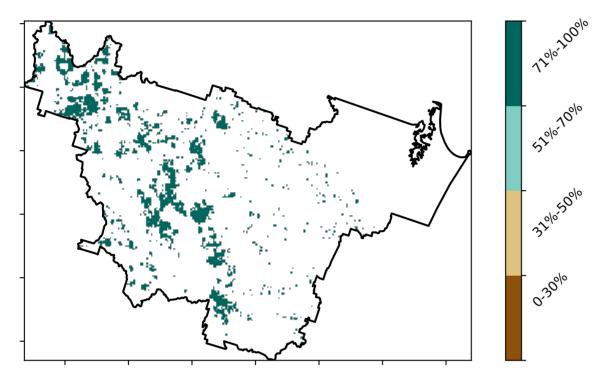
Water erosion historical monthly area protected (Total Veg Cov>70%)



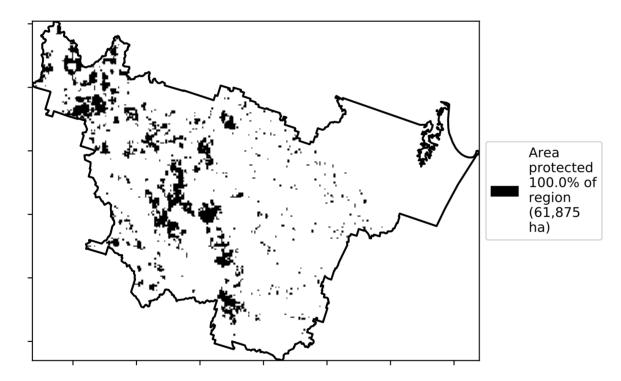
Grazing Woodland forest



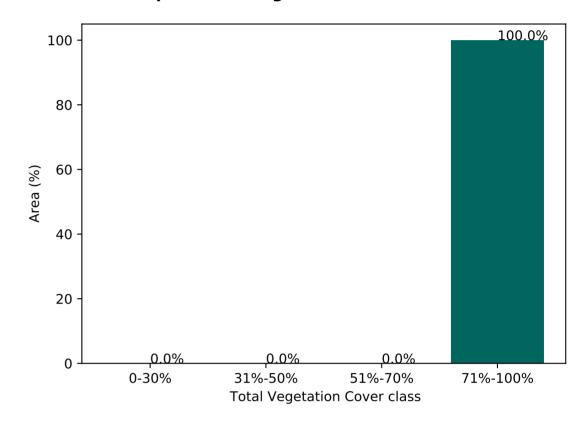
Total Vegetation Cover [%]



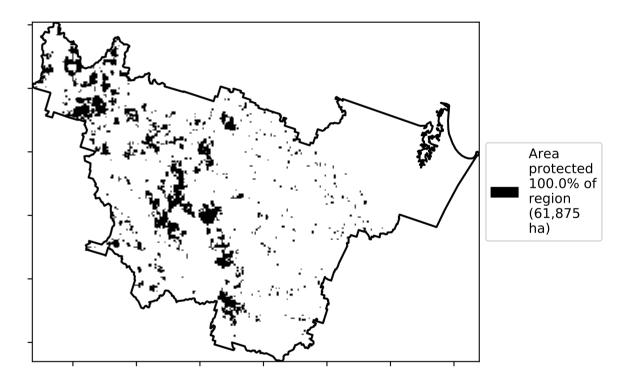
% Area protected from water erosion (>70%)



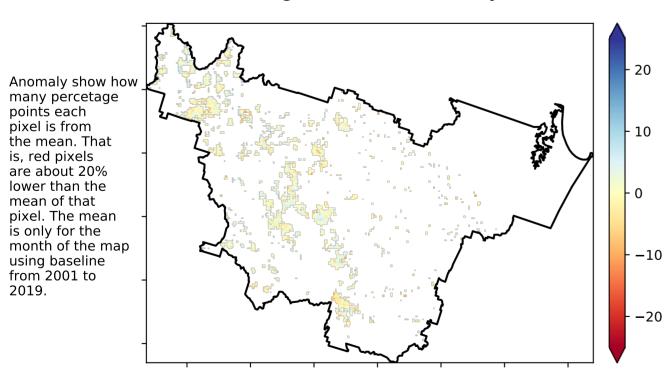
Proportion of vegetation cover class in area



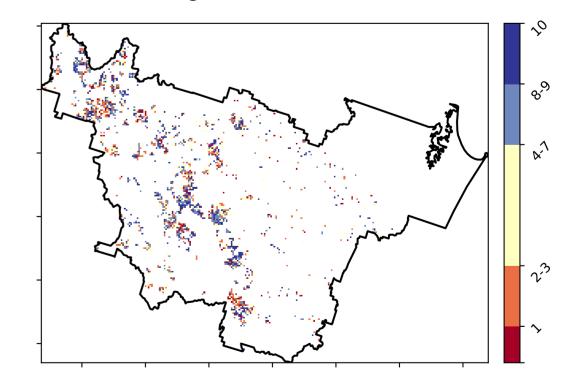
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

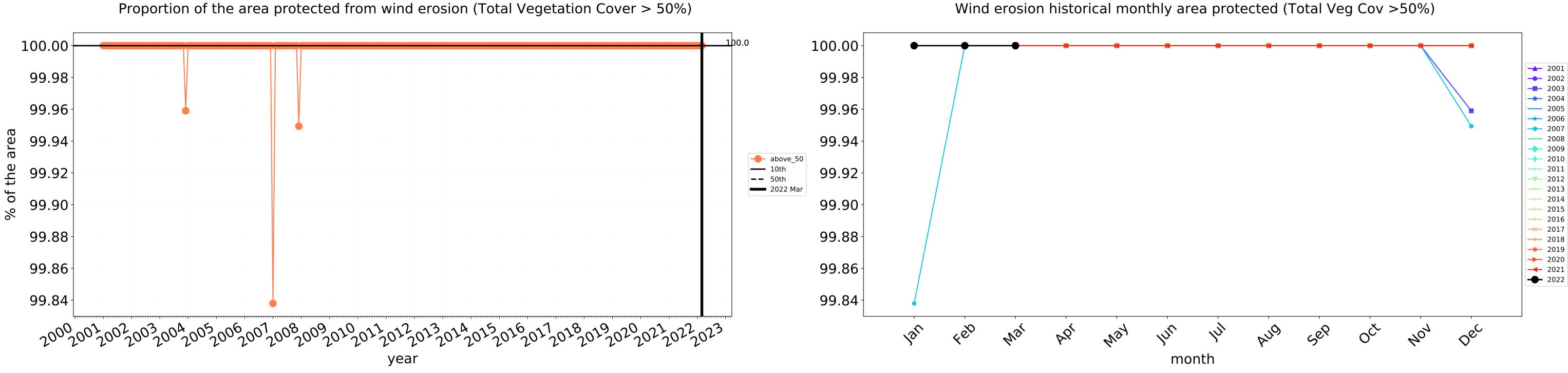


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



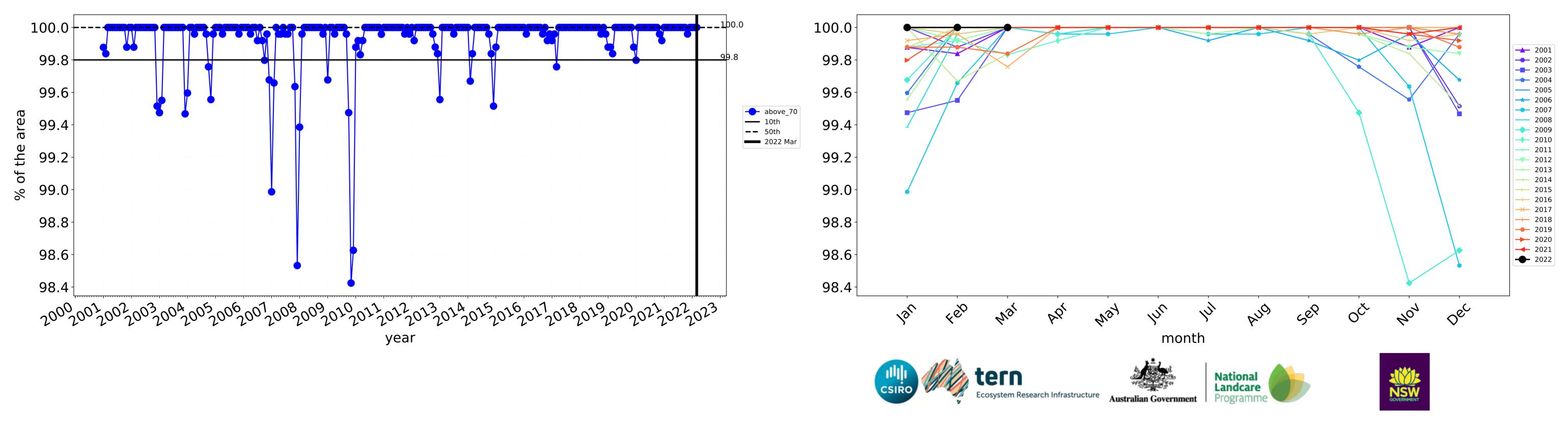


Grazing Woodland forest timeseries

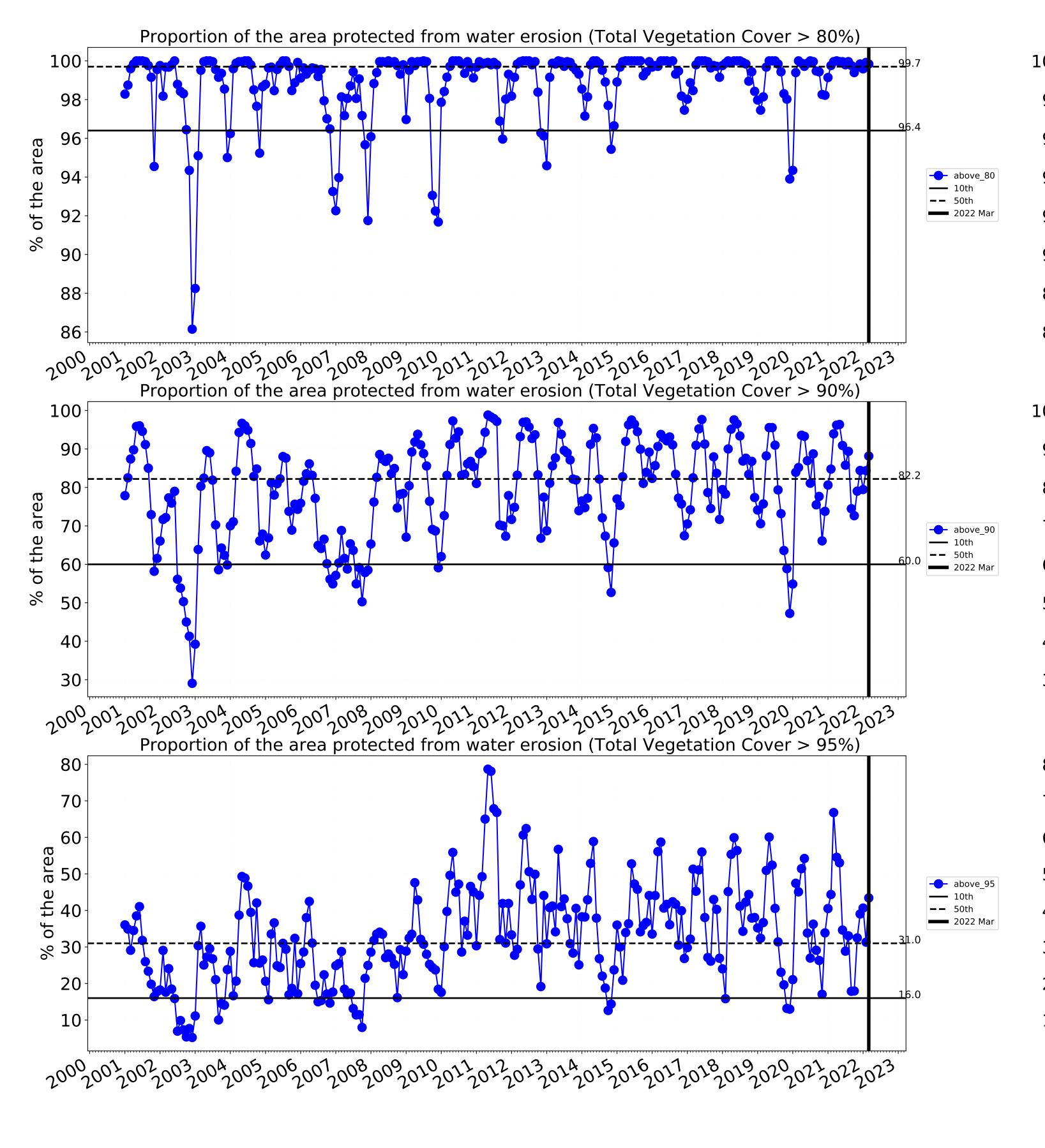


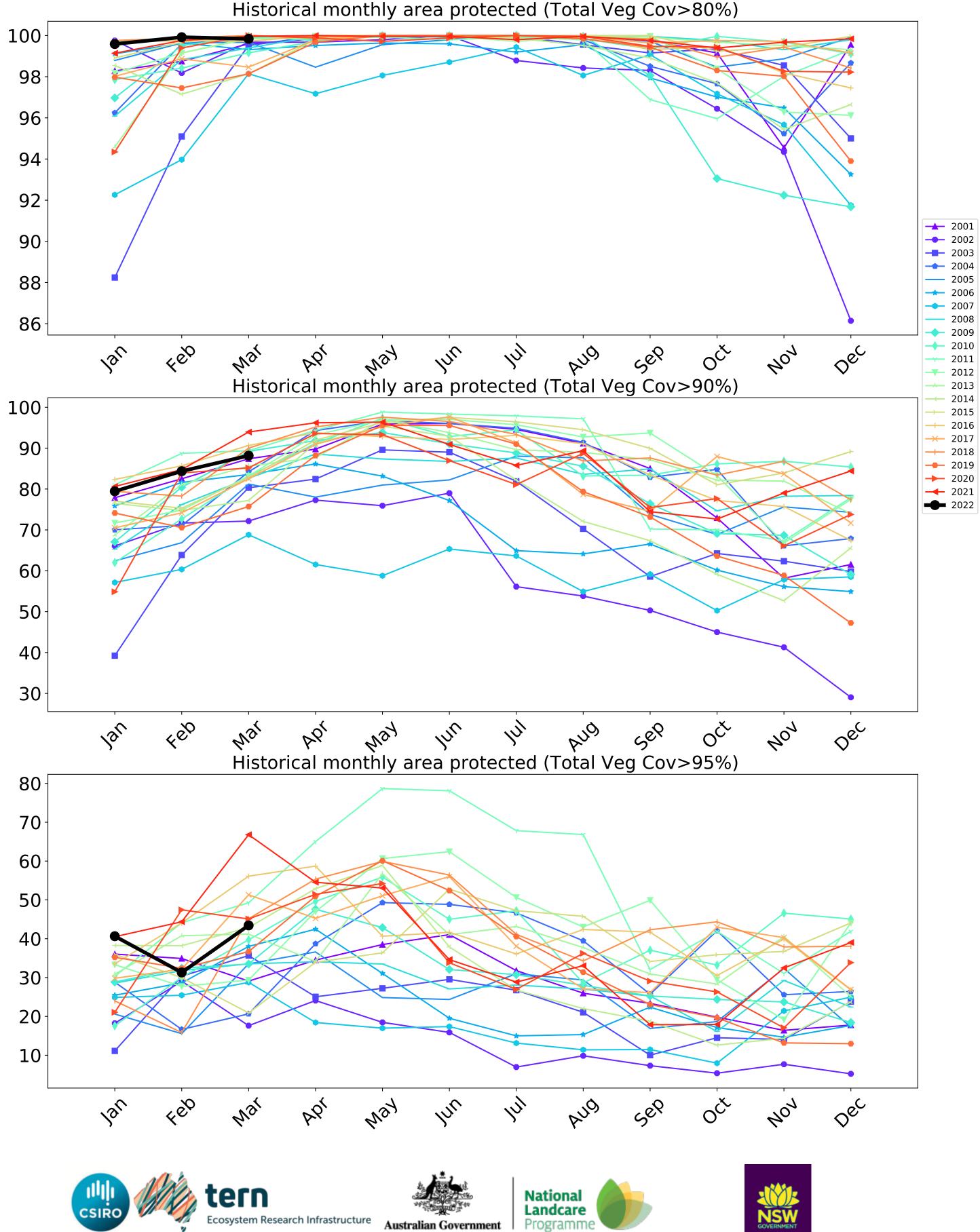
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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



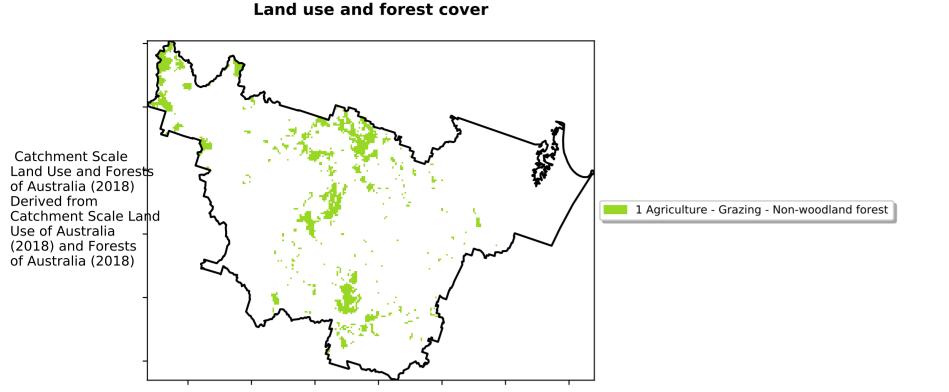
Water erosion historical monthly area protected (Total Veg Cov>70%)



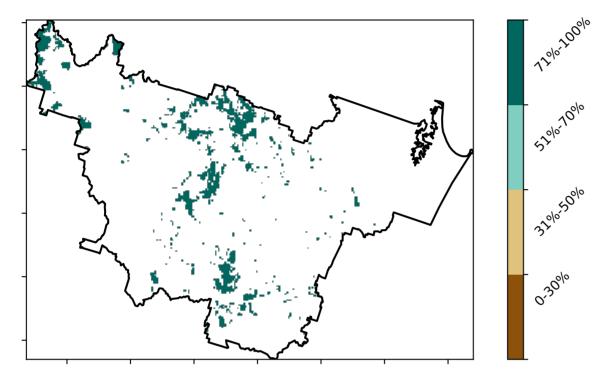


8

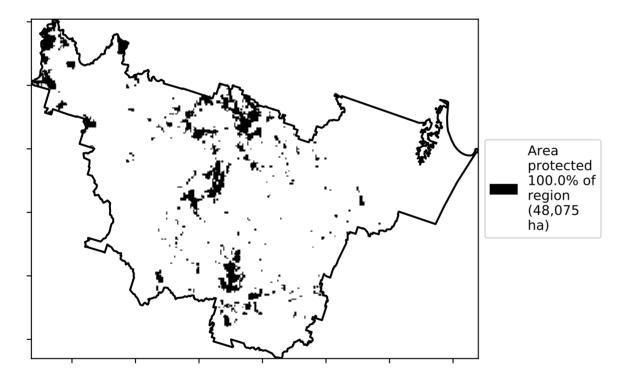
Grazing - Forest (non woodland)



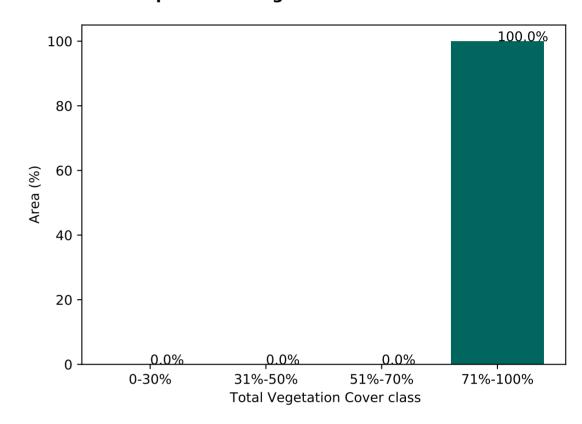
Total Vegetation Cover [%]



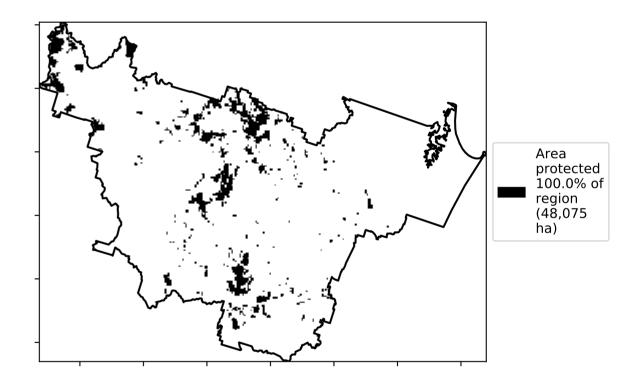
% Area protected from water erosion (>70%)



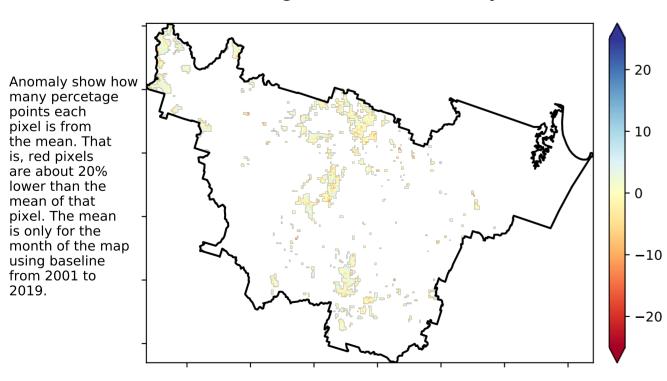
Proportion of vegetation cover class in area



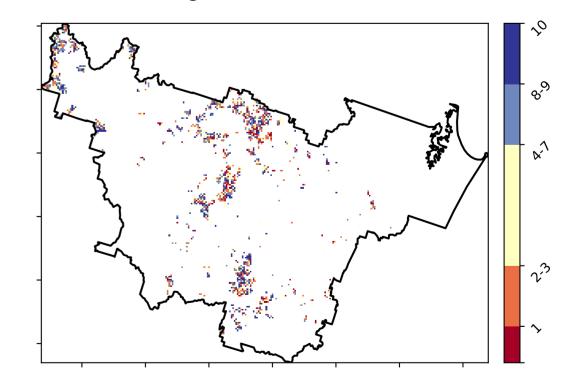
% Area protected from wind erosion (>50%)



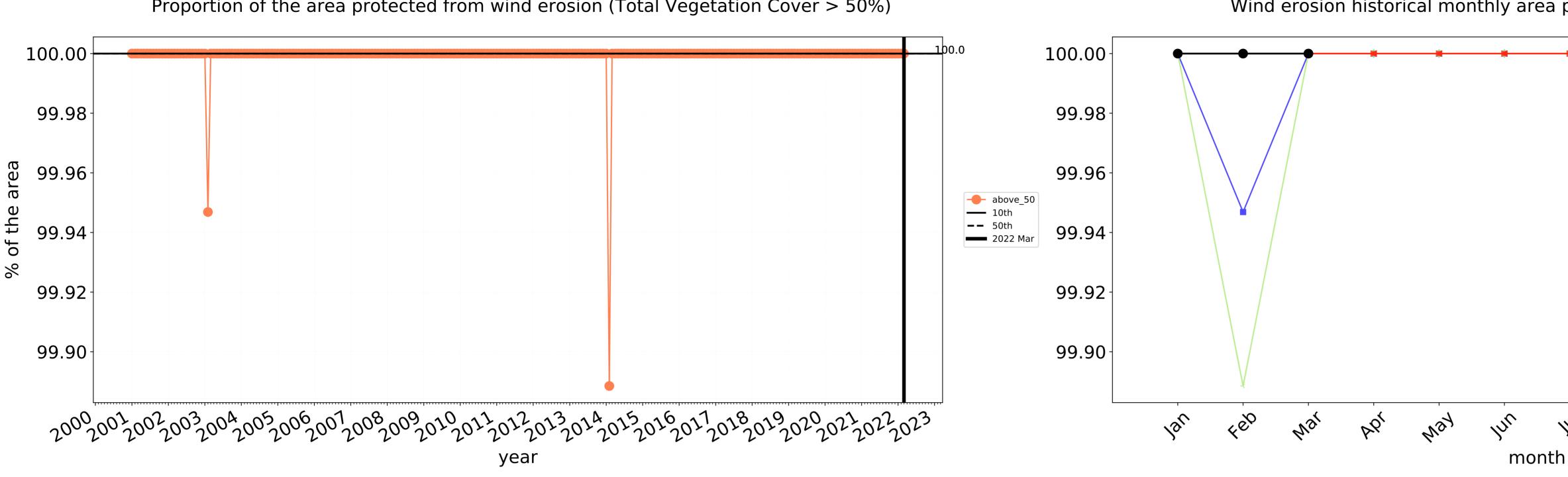
Total Vegetation Cover Anomaly [%]

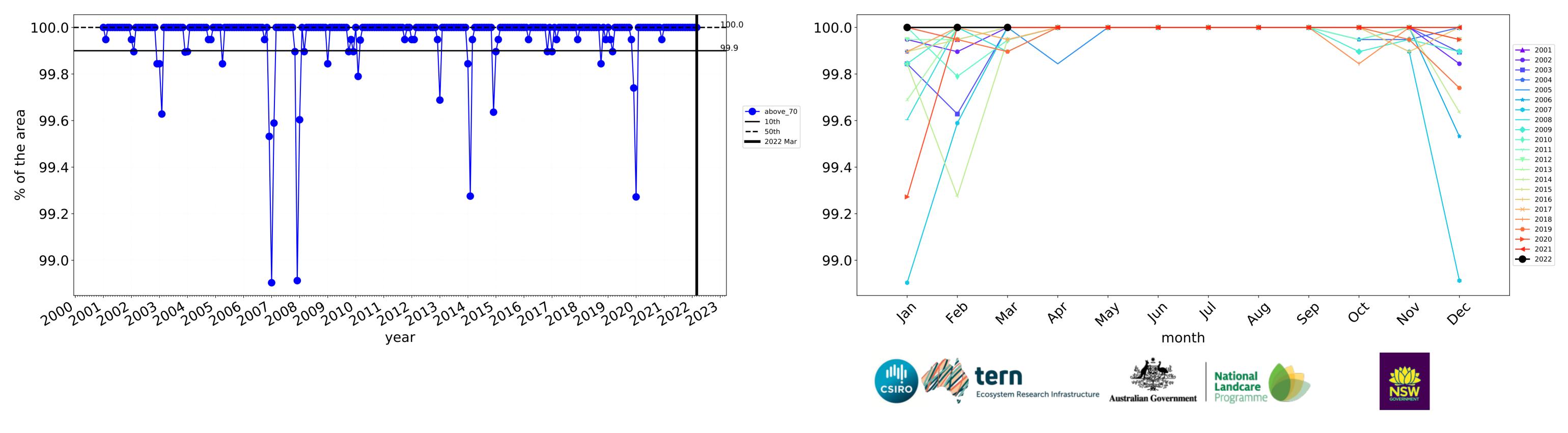


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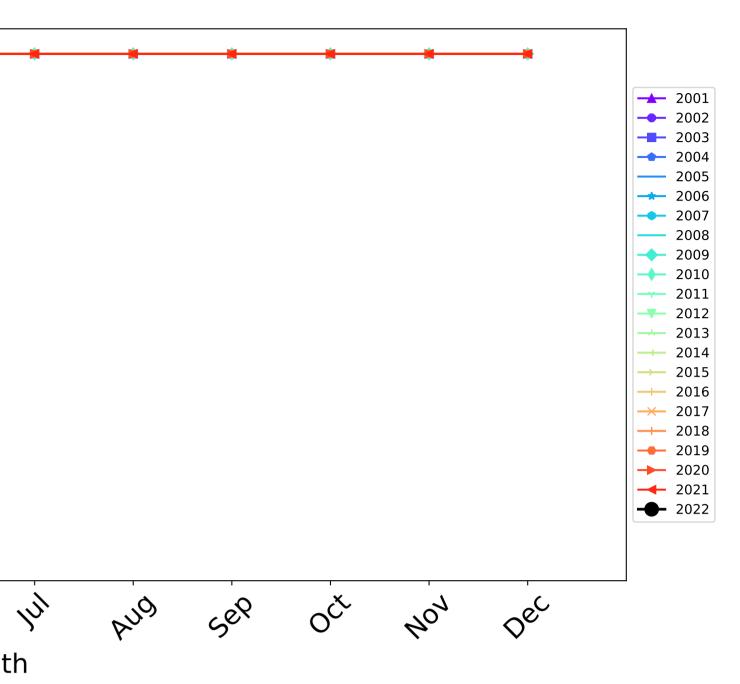


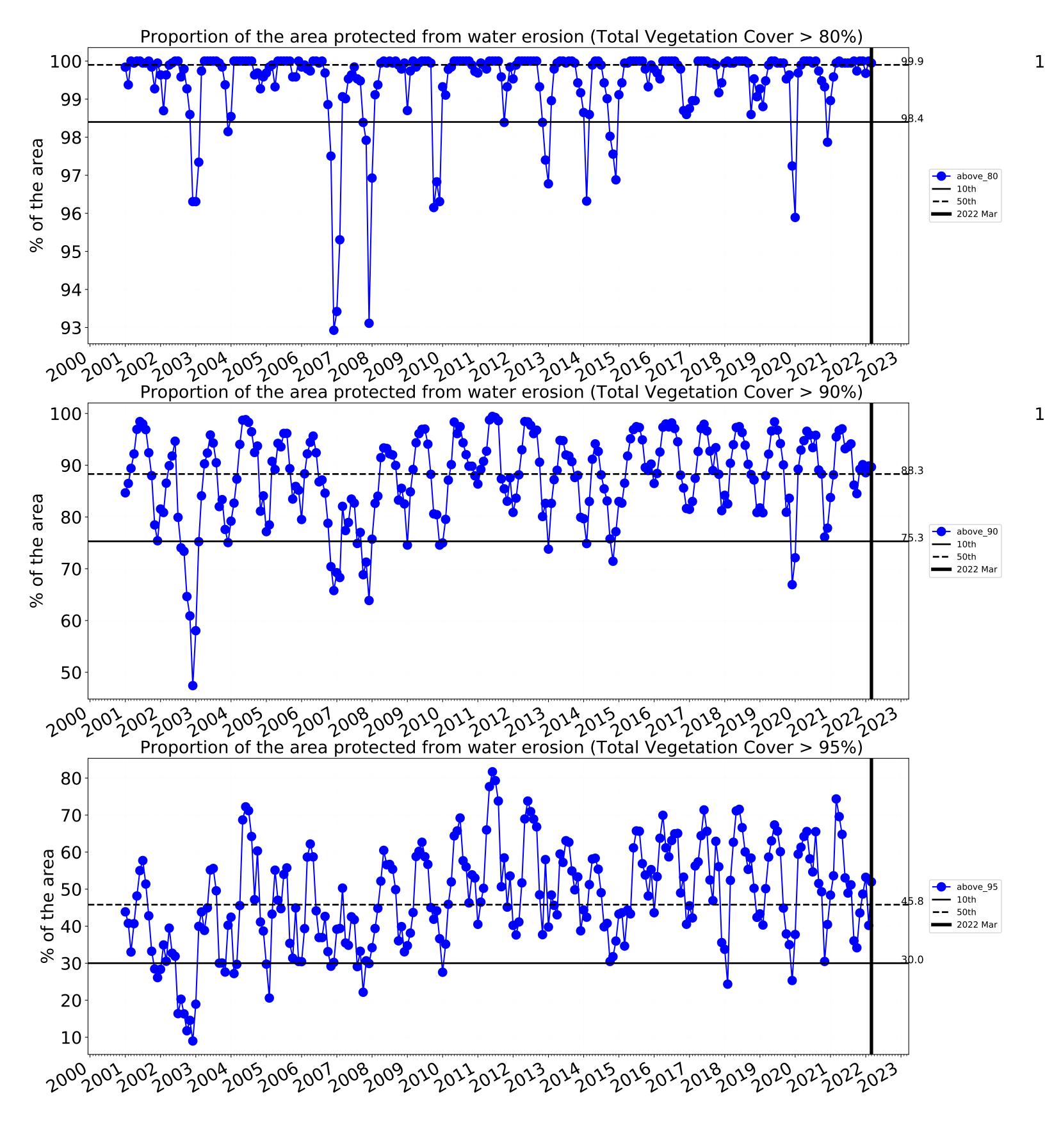


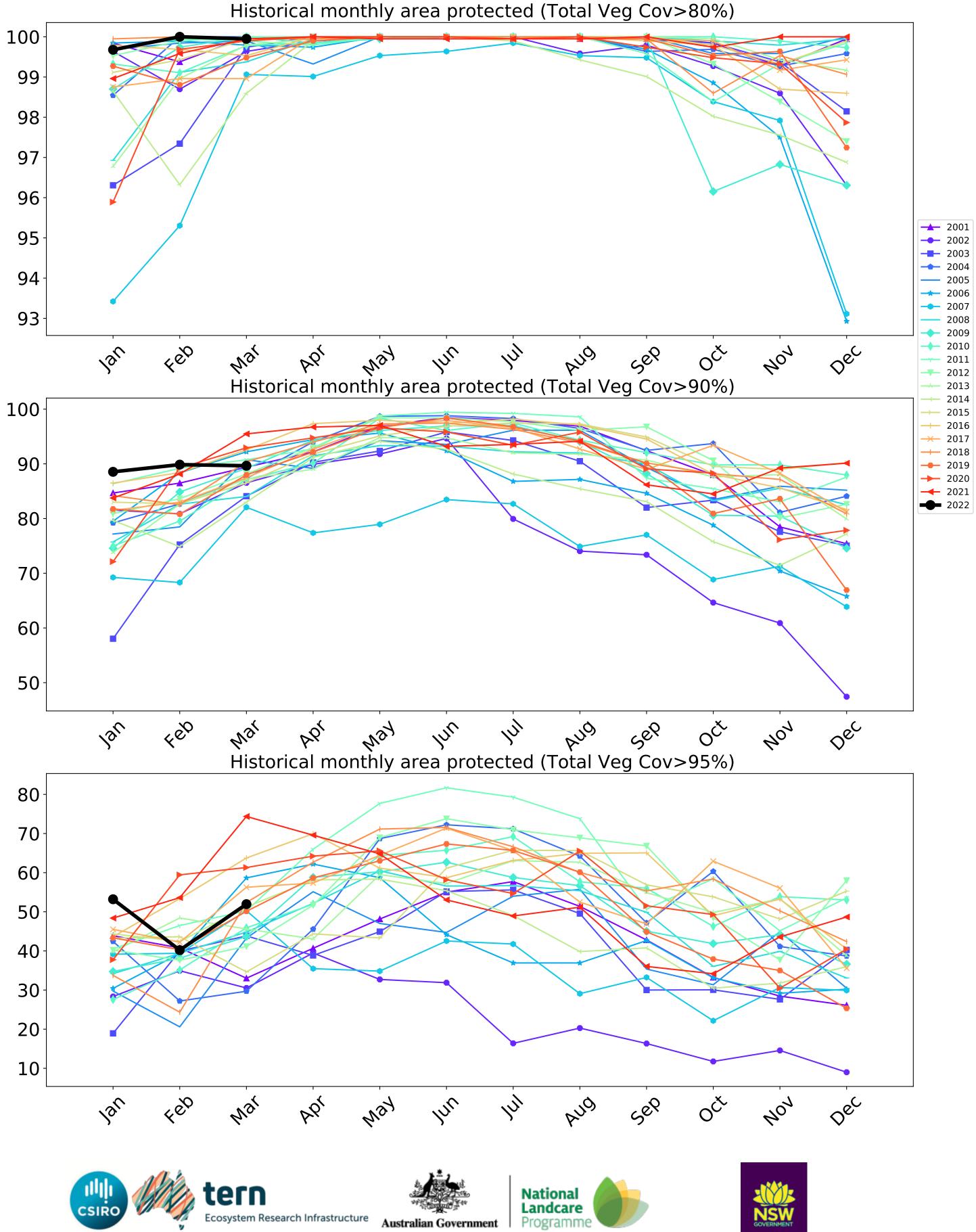


Water erosion historical monthly area protected (Total Veg Cov>70%)

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





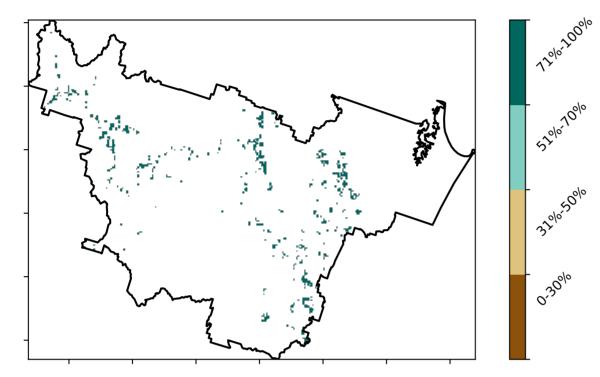


Irrigation

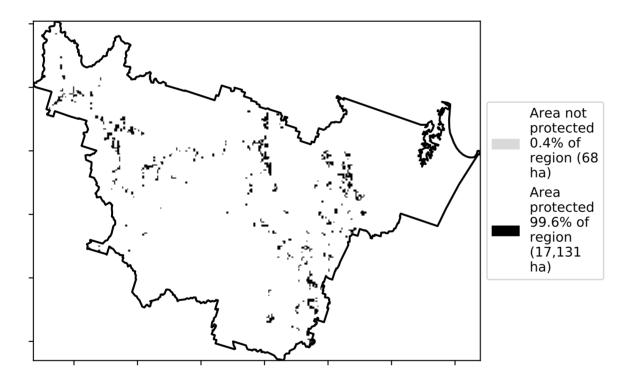
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) of Australia (2018)

Total Vegetation Cover [%]

Land use and forest cover



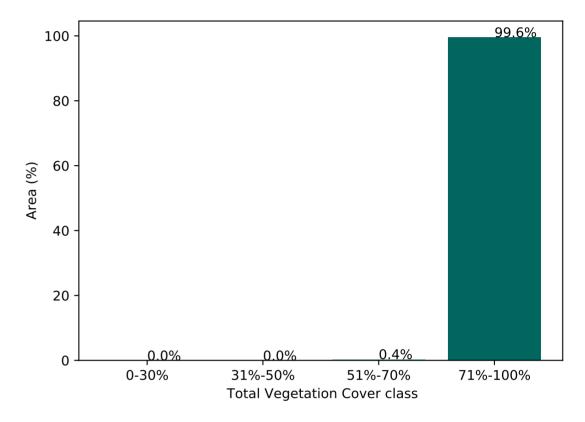
% Area protected from water erosion (>70%)



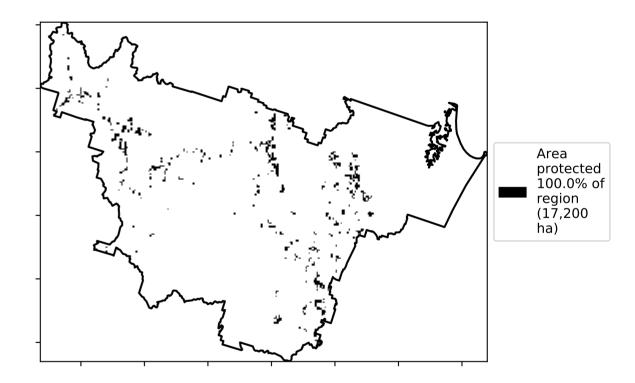
50 48.0% 40 35.8% Area (%) 05 20 16.3% 10 0 -0.5 0.5 1.0 0.0 1.5 2.0 2.5 Land use class

Proportion of each land class in area

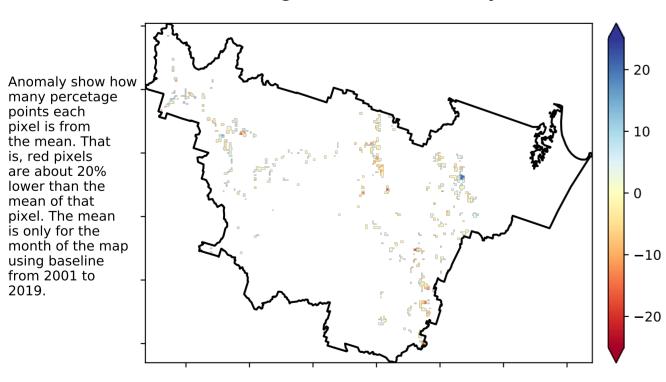
Proportion of vegetation cover class in area



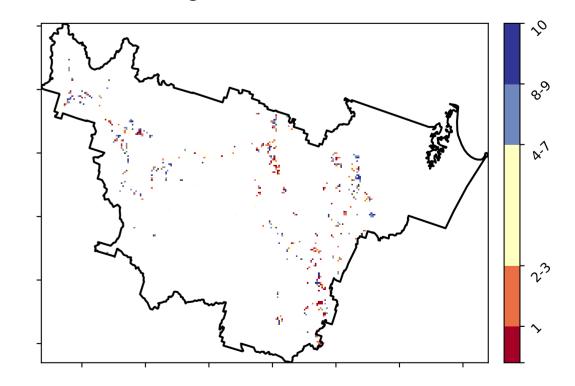
% Area protected from wind erosion (>50%)



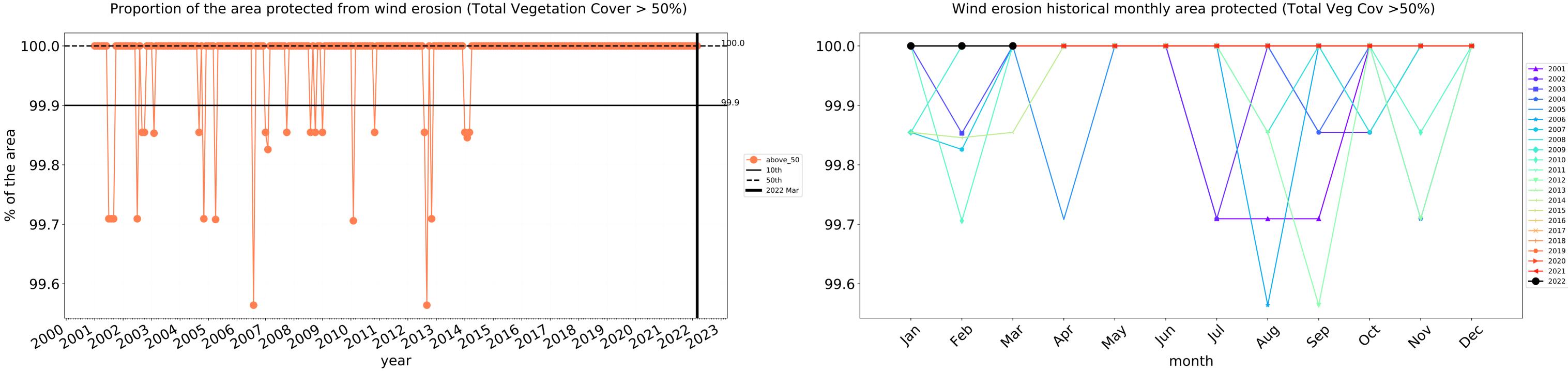
Total Vegetation Cover Anomaly [%]



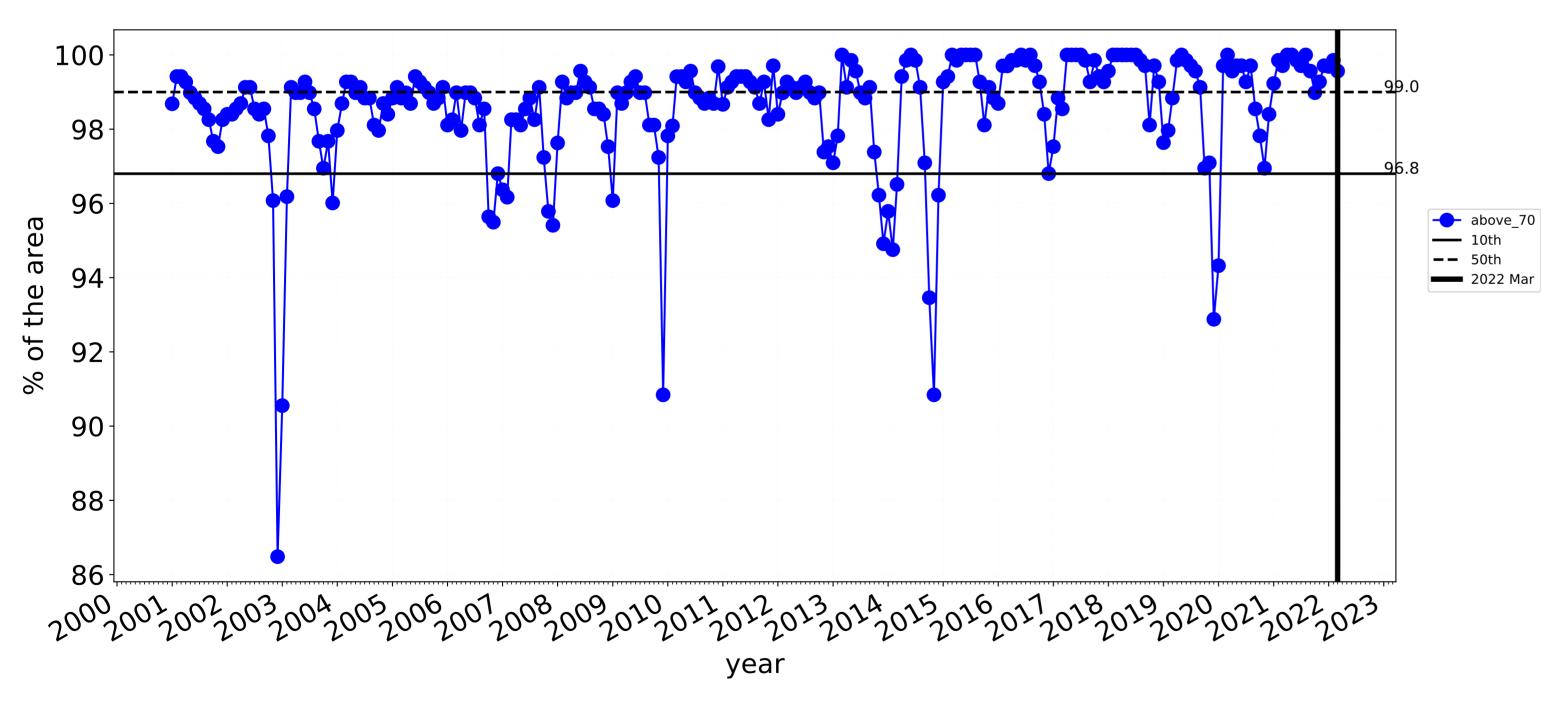
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

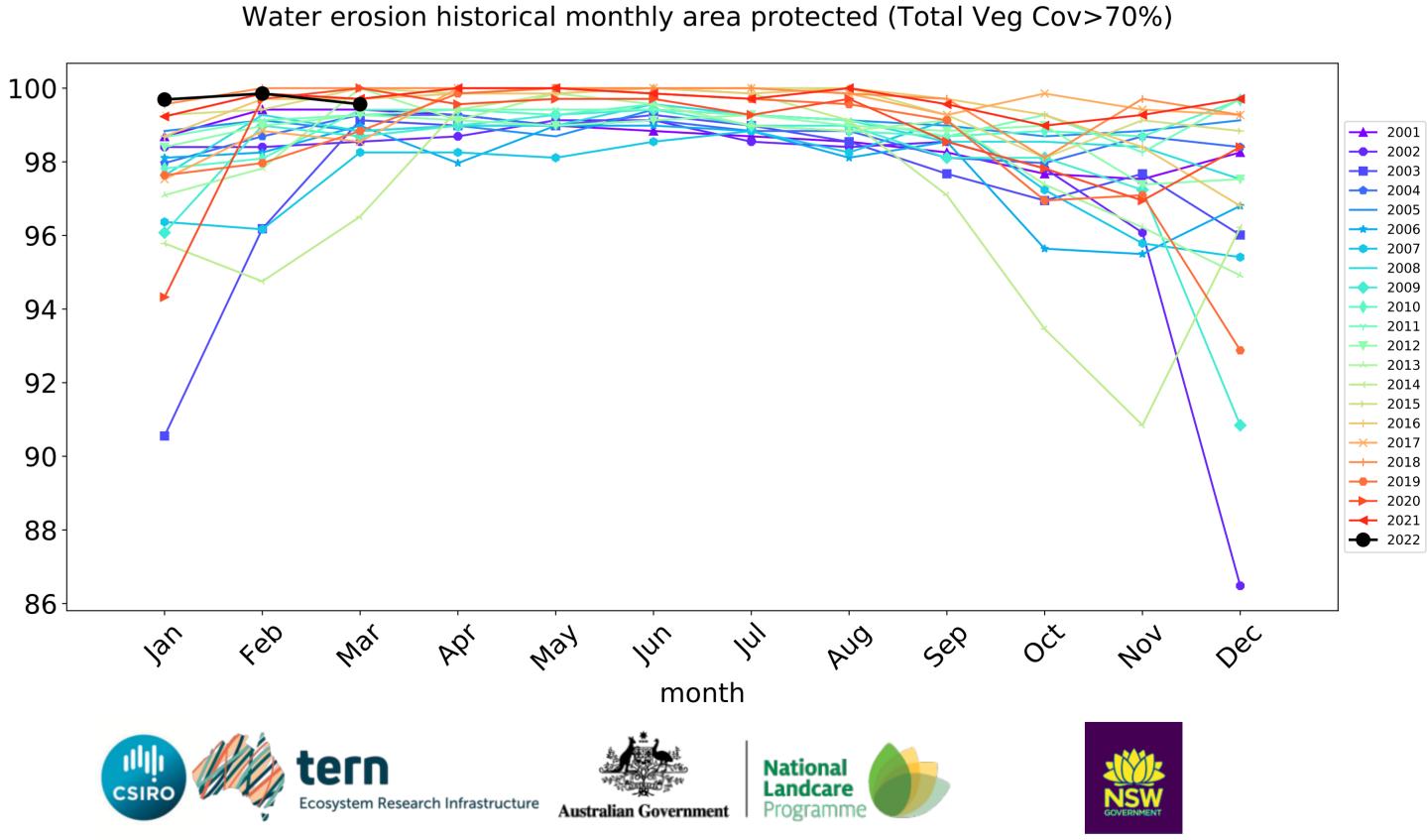


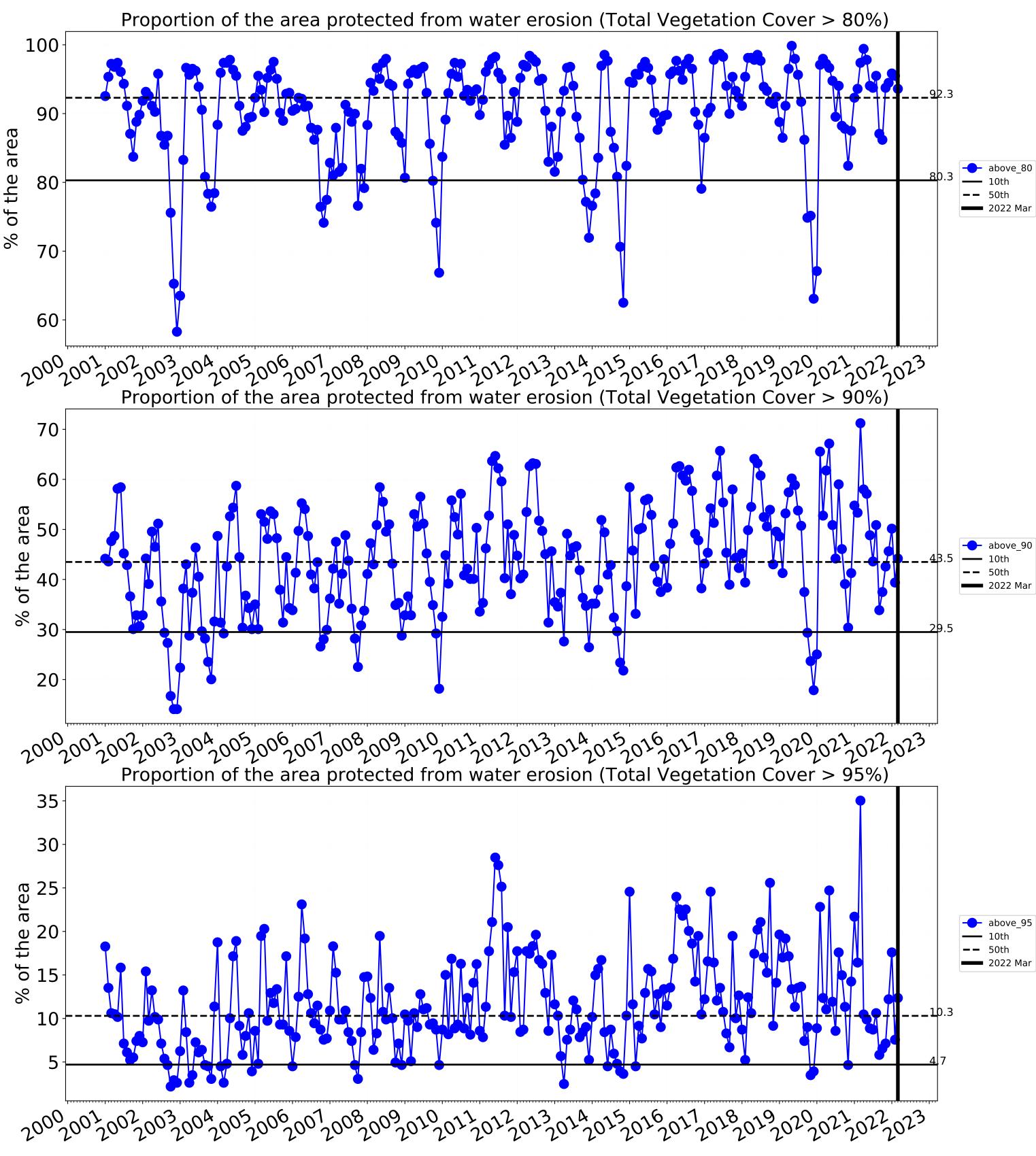


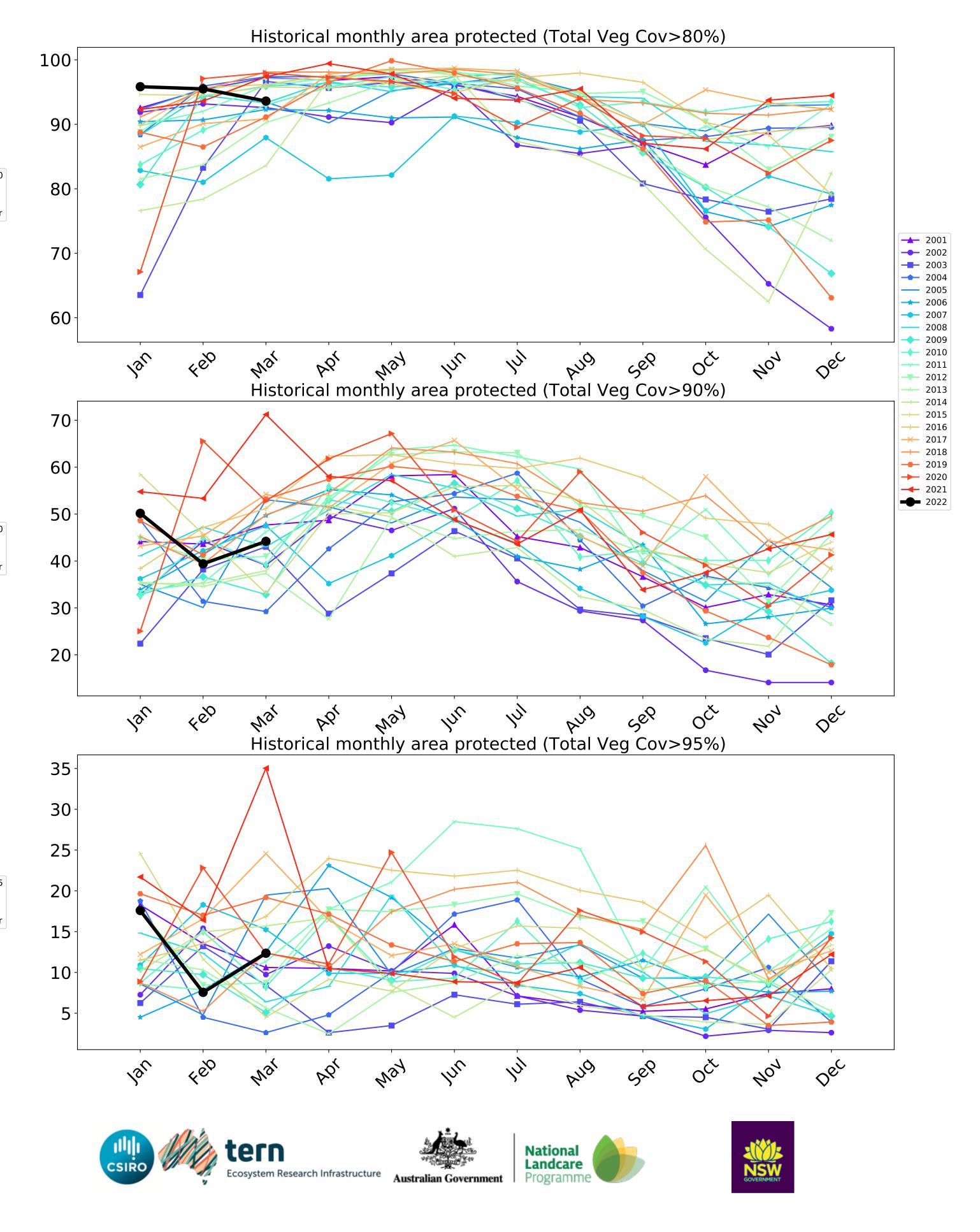


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)







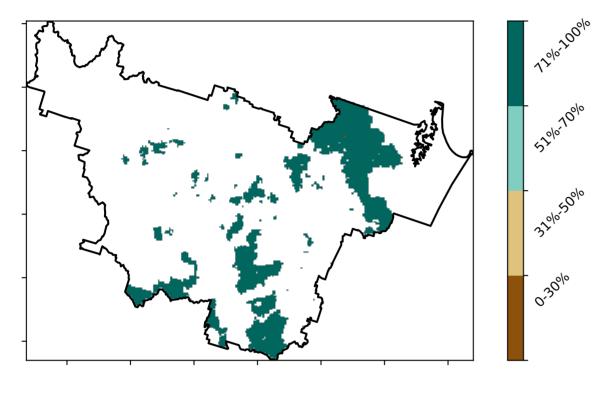


Production native forests and plantation forests

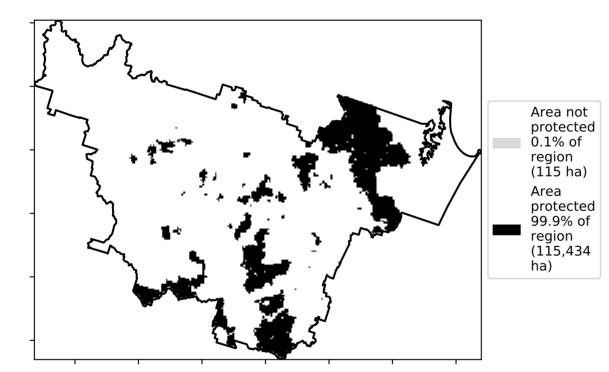
Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Production native forests and plantation forests Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]

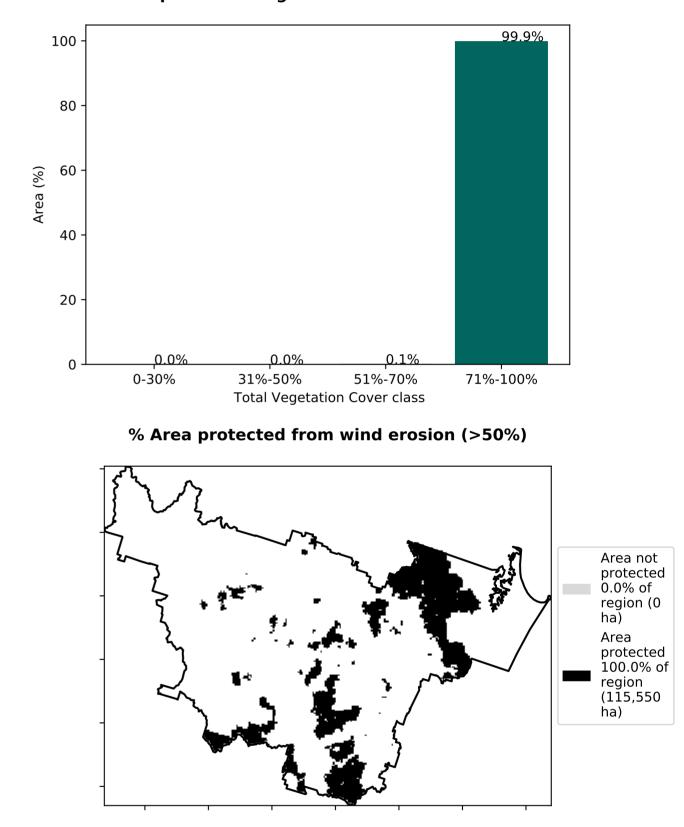
Land use and forest cover



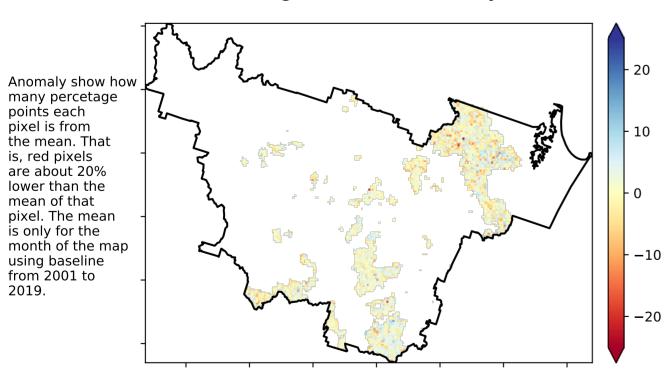
% Area protected from water erosion (>70%)



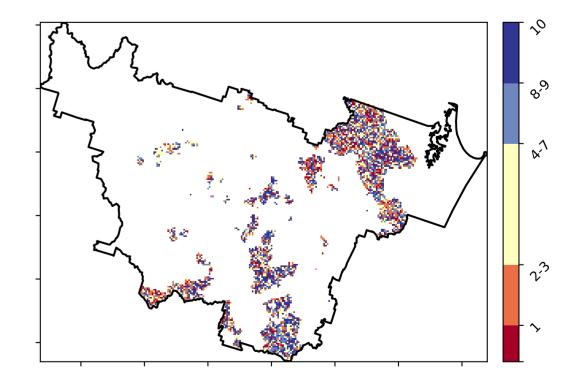
Proportion of vegetation cover class in area



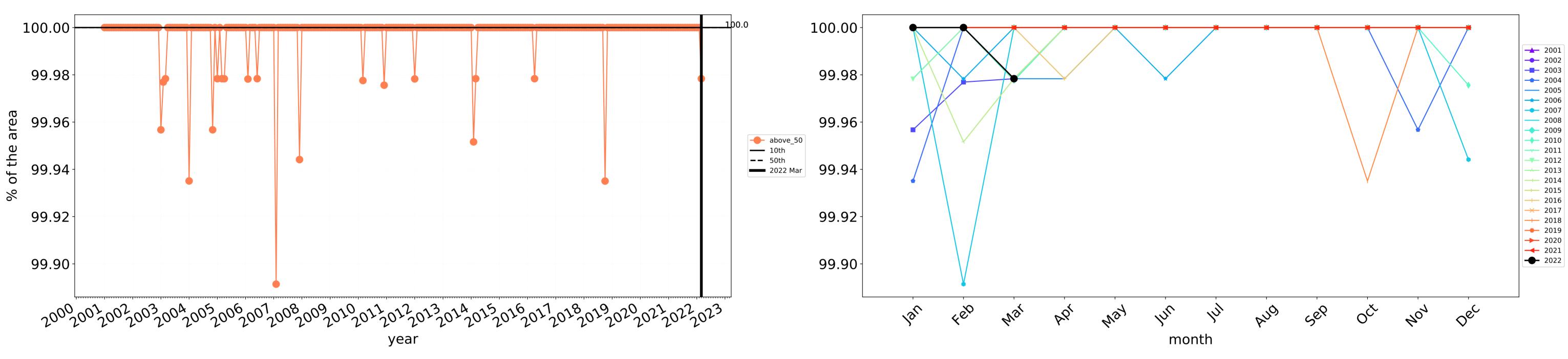
Total Vegetation Cover Anomaly [%]



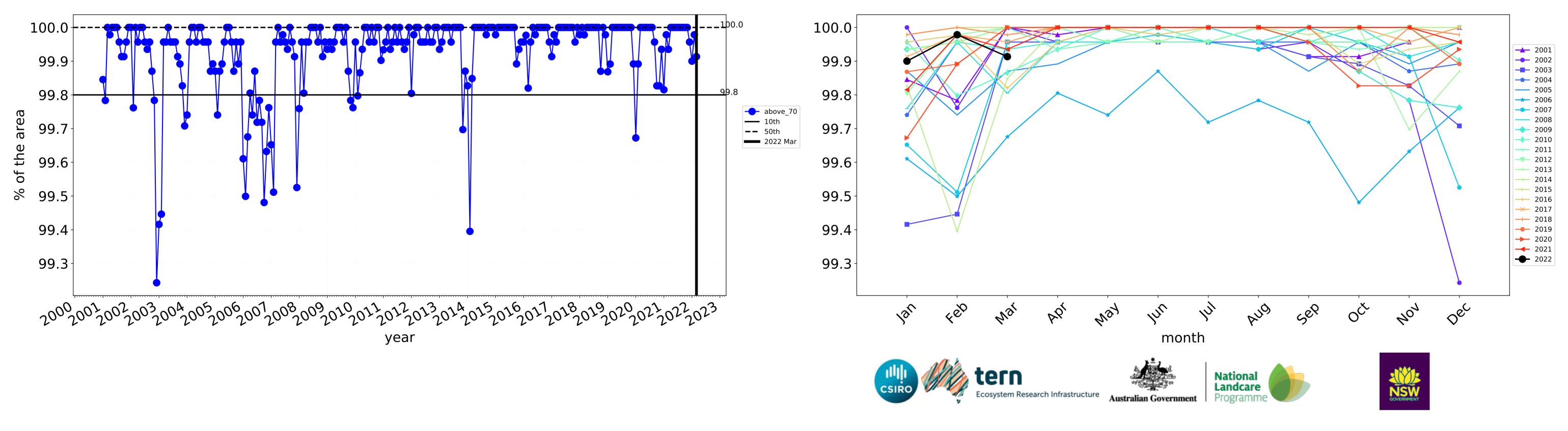
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.





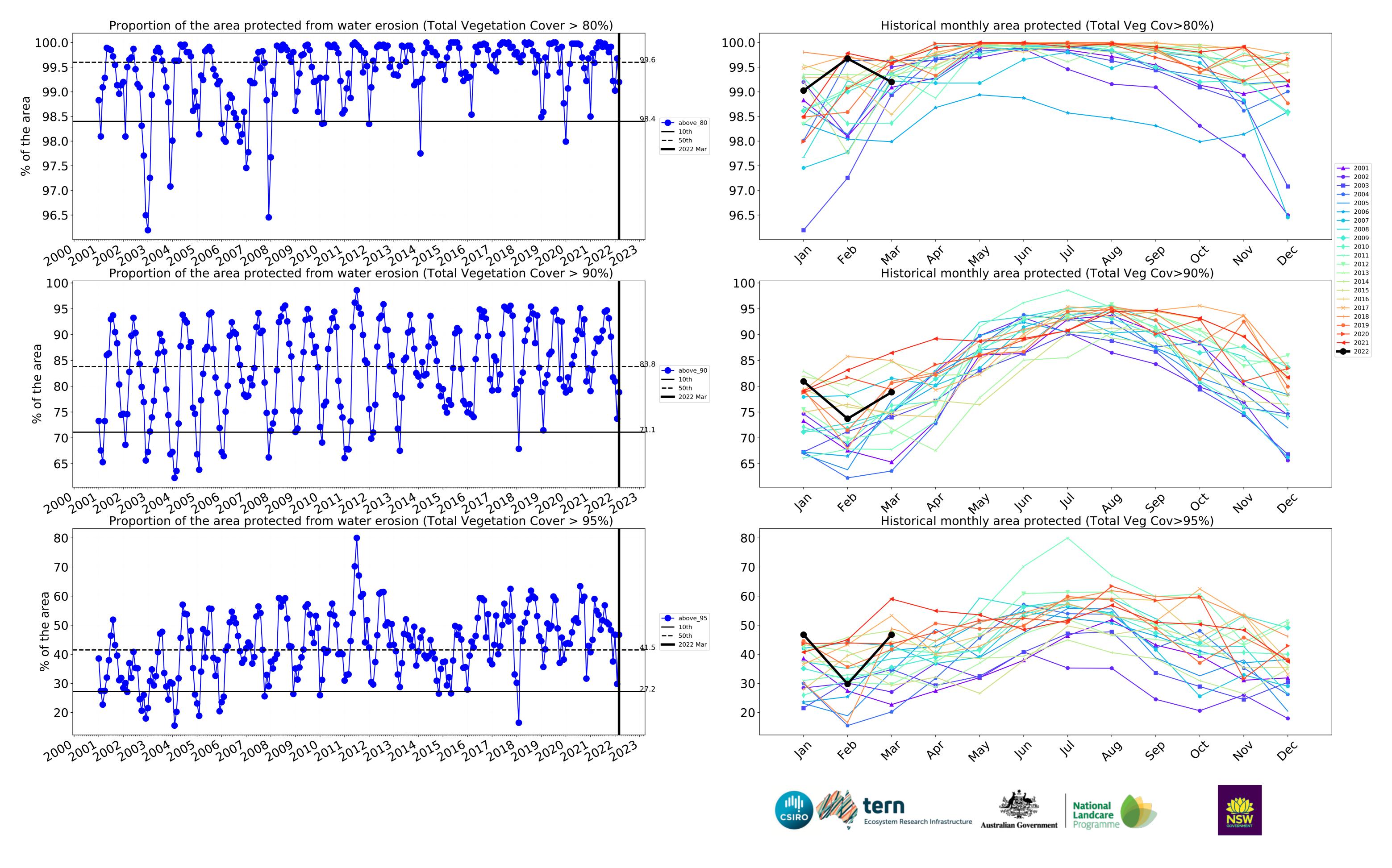


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



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

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



Gympie_(R) (686,600 ha and no data 1,775 ha) Percentage area and hectares protected with TVC threshold 30,50,70,80,90 and 95%

Land use and forest cover Class	area(ha)	above_30	above_50	above_70	above_80	above_90	above_95
Entire region	686,600	100.0% 686,425	100.0% 686,275	99.8% 684,925	98.8% 678,325	79.3% 544,250	40.6% 278,875
Conservation and natural environments	142,250	99.9% 142,100	99.8% 141,975	99.5% 141,575	99.0% 140,825	87.5% 124,475	50.7% 72,100
Conservation and natural environments non forest	9,950	99.5% 9,900	99.5% 9,900	98.7% 9,825	98.5% 9,800	84.4% 8,400	45.0% 4,475
Conservation and natural environments Woodland forest	28,650	99.9% 28,625	99.9% 28,625	99.5% 28,500	99.0% 28,375	85.3% 24,450	46.7% 13,375
Conservation and natural environments Forest (non woodland)	103,650	99.9% 103,575	99.8% 103,450	99.6% 103,250	99.0% 102,650	88.4% 91,625	52.3% 54,250
Agriculture	397,550	100.0% 397,550	100.0% 397,550	99.9% 397,300	99.1% 394,075	78.3% 311,275	36.8% 146,475
Grazing	377,575	100.0% 377,575	100.0% 377,575	100.0% 377,400	99.4% 375,225	80.0% 301,900	38.0% 143,650
Grazing non forest	267,625	100.0% 267,625	100.0% 267,625	99.9% 267,450	99.2% 265,400	76.3% 204,250	34.3% 91,800
Grazing Woodland forest	61,875	100.0% 61,875	100.0% 61,875	100.0% 61,875	99.8% 61,775	88.2% 54,550	43.4% 26,875
Grazing - Forest (non woodland)	48,075	100.0% 48,075	100.0% 48,075	100.0% 48,075	99.9% 48,050	89.7% 43,100	52.0% 24,975
Irrigation	17,200	100.0% 17,200	100.0% 17,200	99.6% 17,125	93.6% 16,100	44.2% 7,600	12.4% 2,125
Production native forests and plantation forests	115,550	100.0% 115,525	100.0% 115,525	99.9% 115,450	99.2% 114,625	78.8% 91,100	46.7% 53,975

