Total vegetation cover soil protection Region:LGA Serpentine-Jarrahdale_(S) WA

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

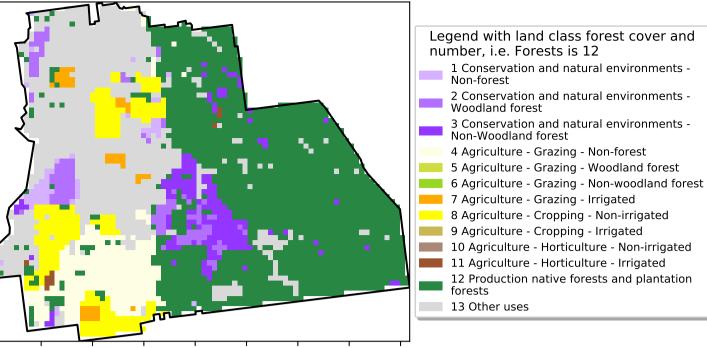


Vegetation Cover Aug 2022

Land use and forest cover

Proportion of each land class in area

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 [%]



% Area protected from water erosion (>70%)



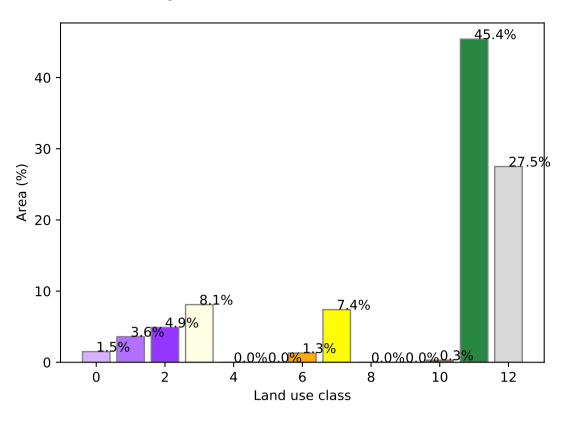
Area not protected 1.8% of (1,622 ha)

12%200%

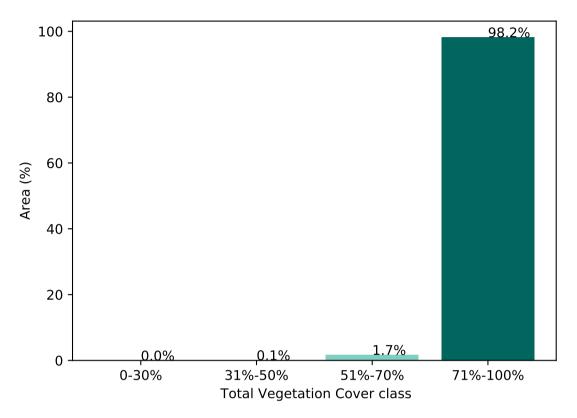
52% 70%

320050010

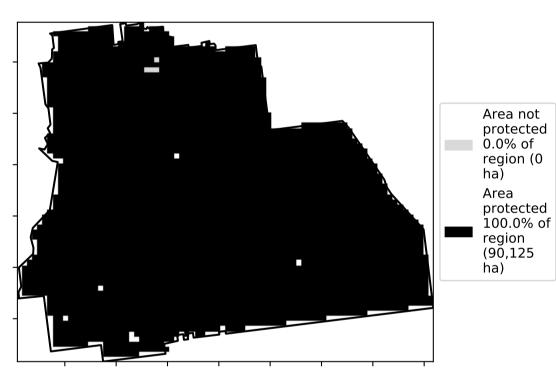
0.30%



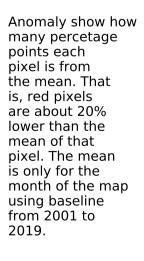
Proportion of vegetation cover class in area

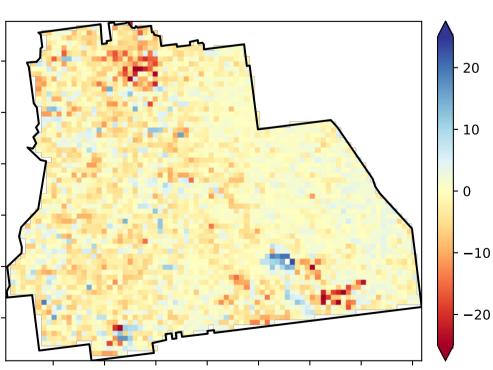


% Area protected from wind erosion (>50%)



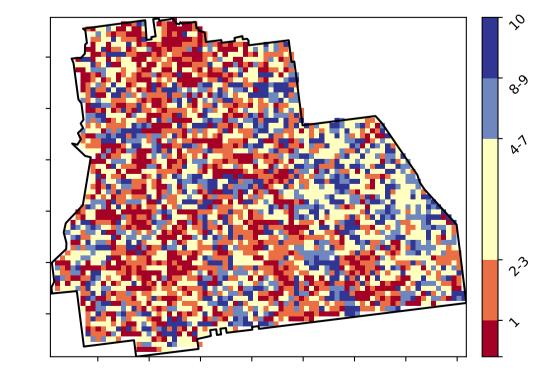
Total Vegetation Cover Anomaly [%]



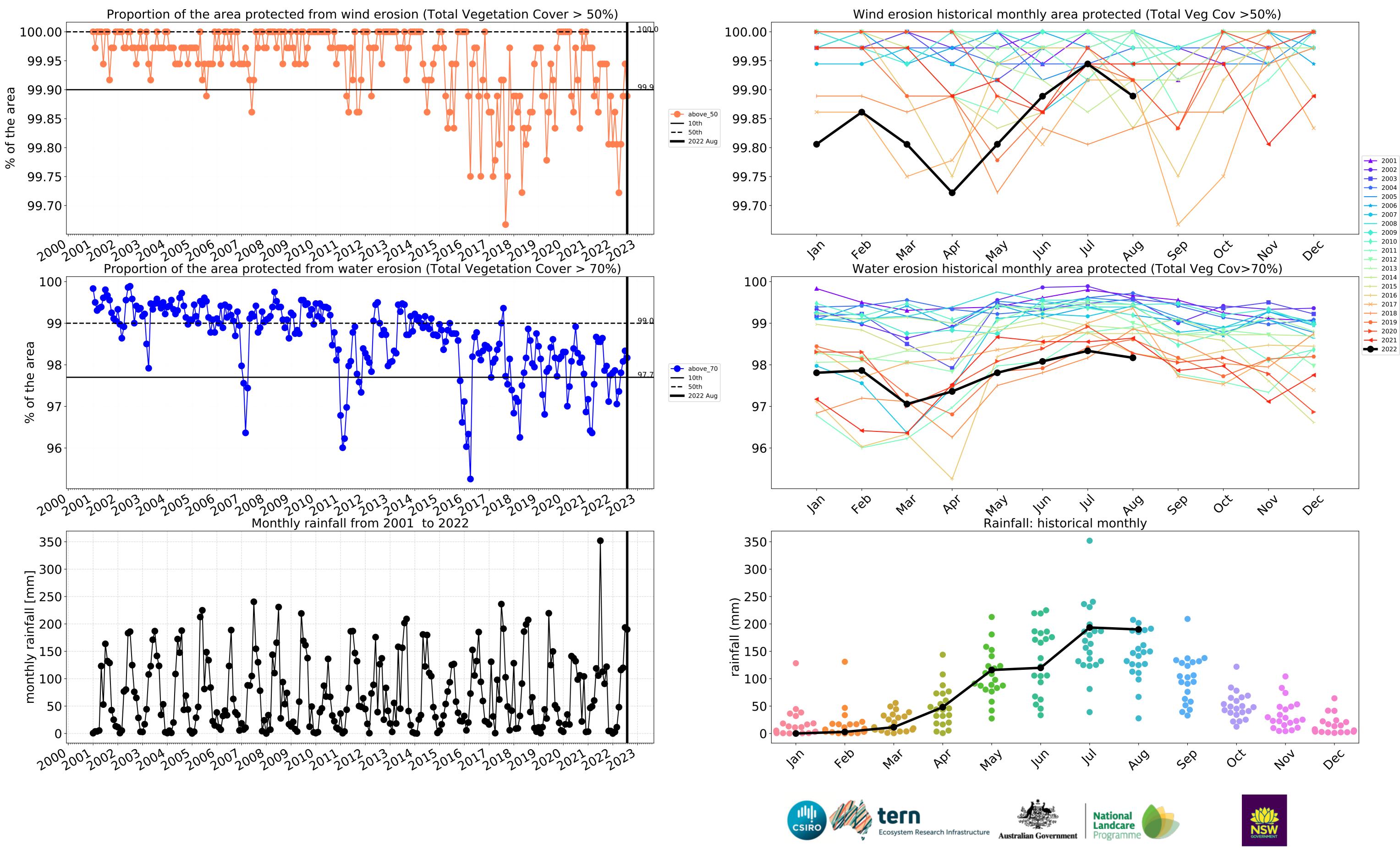


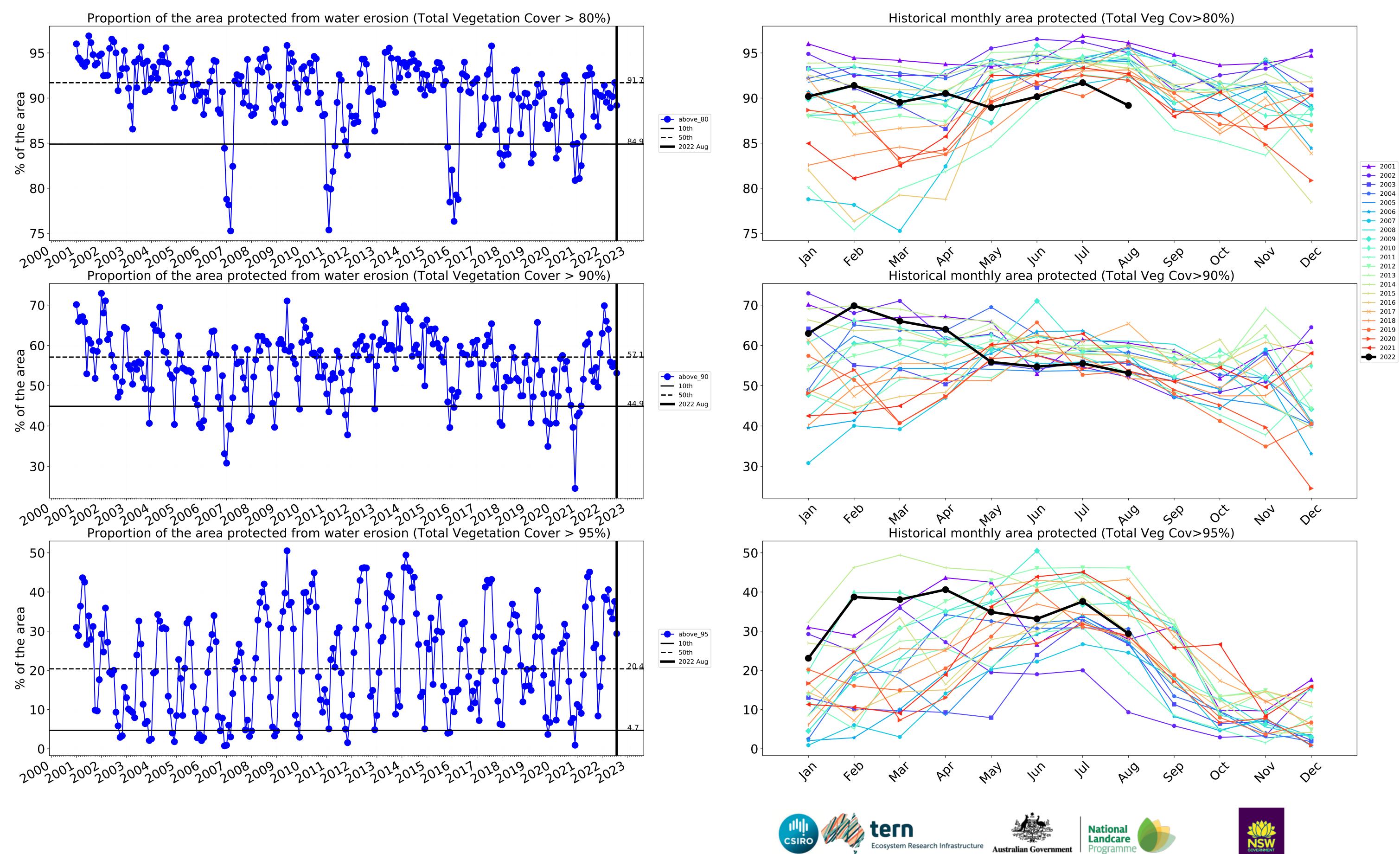
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]











Conservation and natural environments

forest

12% 100%

· 52% 70%

320/05/00/0

0.30%

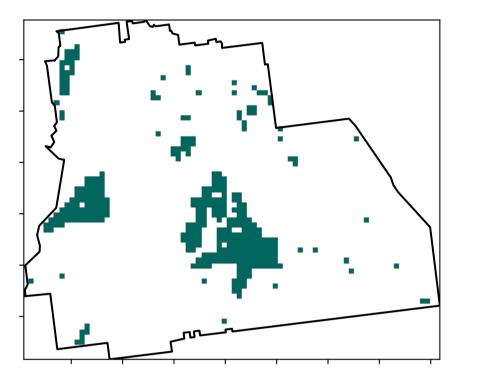
Land use and forest cover

50 49.0% 40 -36.3% 1 Conservation and natural environments - Non-forest Area (%) 00 00 2 Conservation and natural environments - Woodland 3 Conservation and natural environments - Non-woodland forest 20 14.7% 10 0 0.5 1.0 1.5 -0.5 2.0 2.5 0.0 Land use class

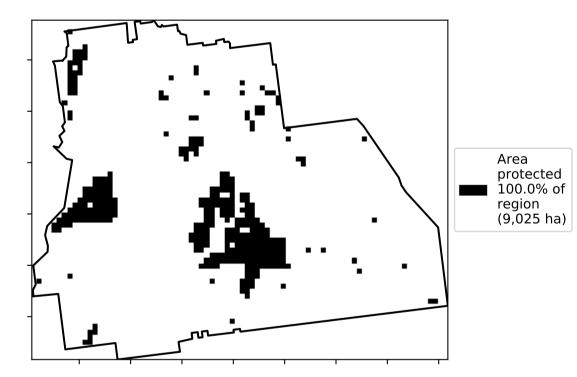


Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

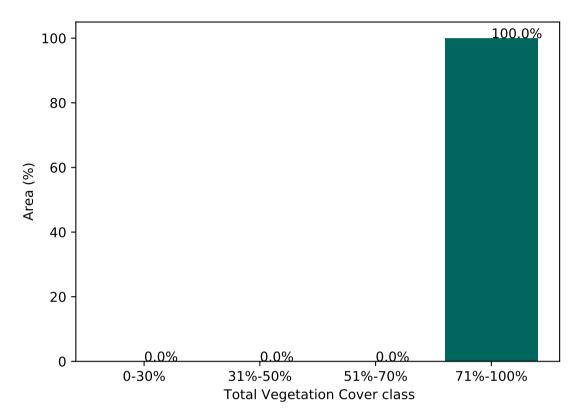
Total Vegetation Cover [%]



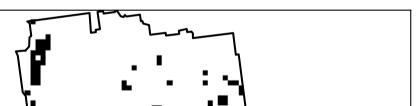
% Area protected from water erosion (>70%)



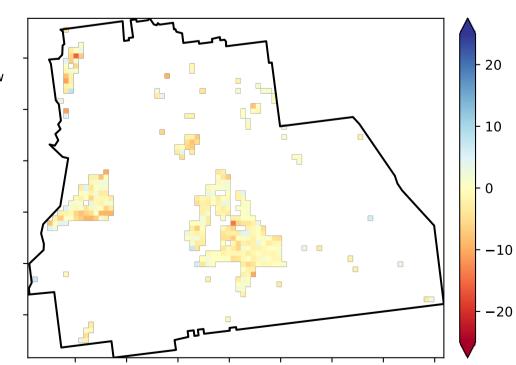




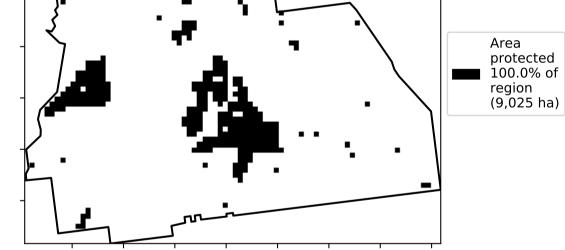
% Area protected from wind erosion (>50%)



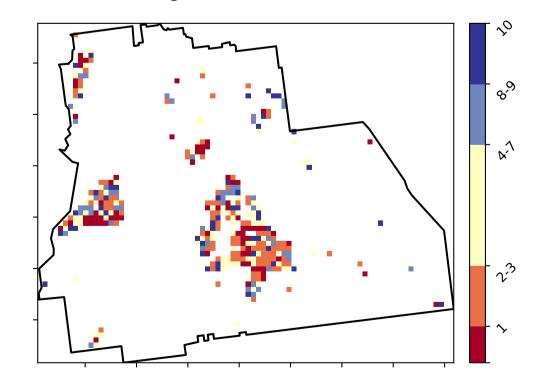
Total Vegetation Cover Anomaly [%]



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.



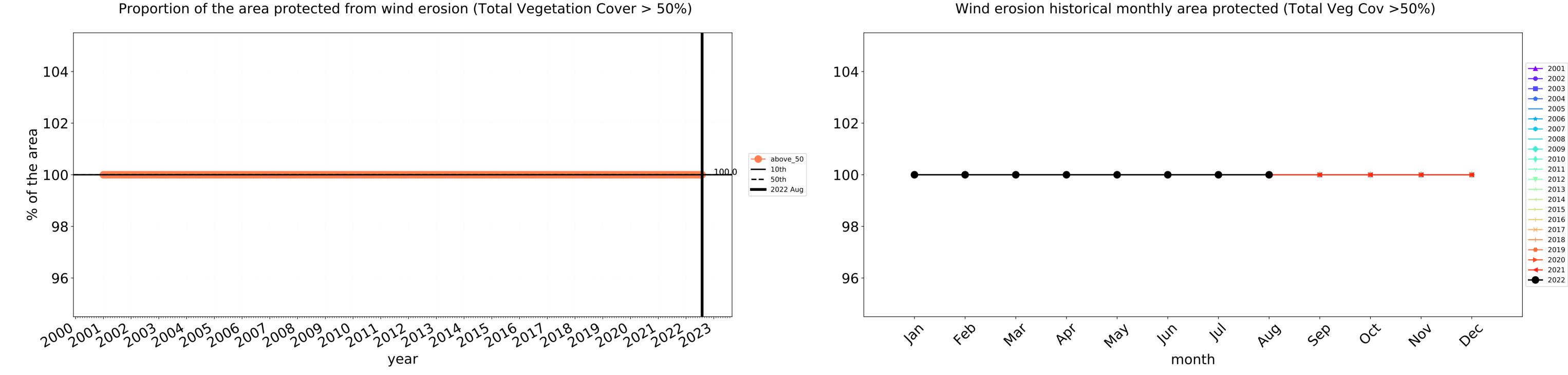
Total Vegetation Cover Decile [%]



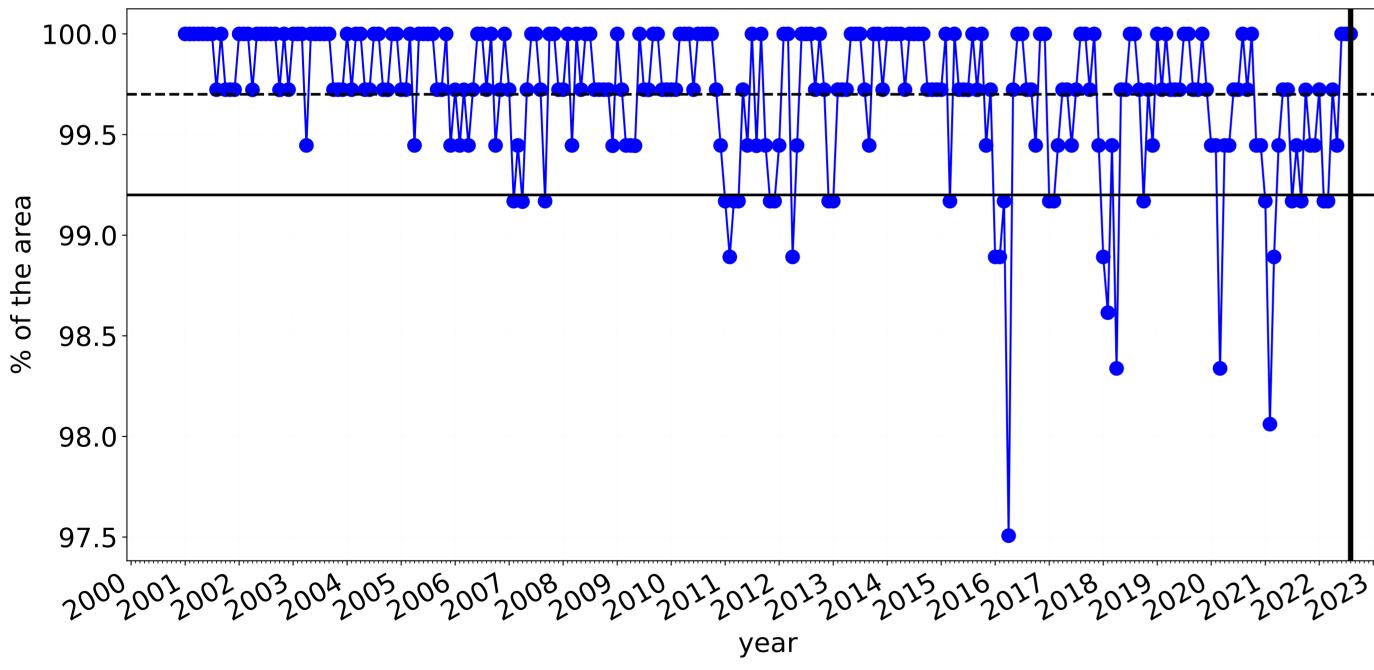




Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



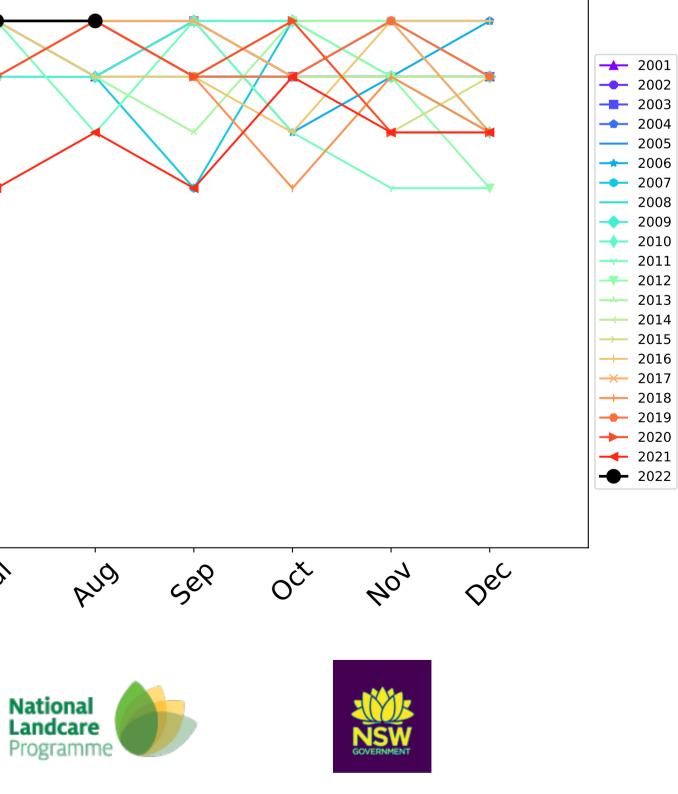
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

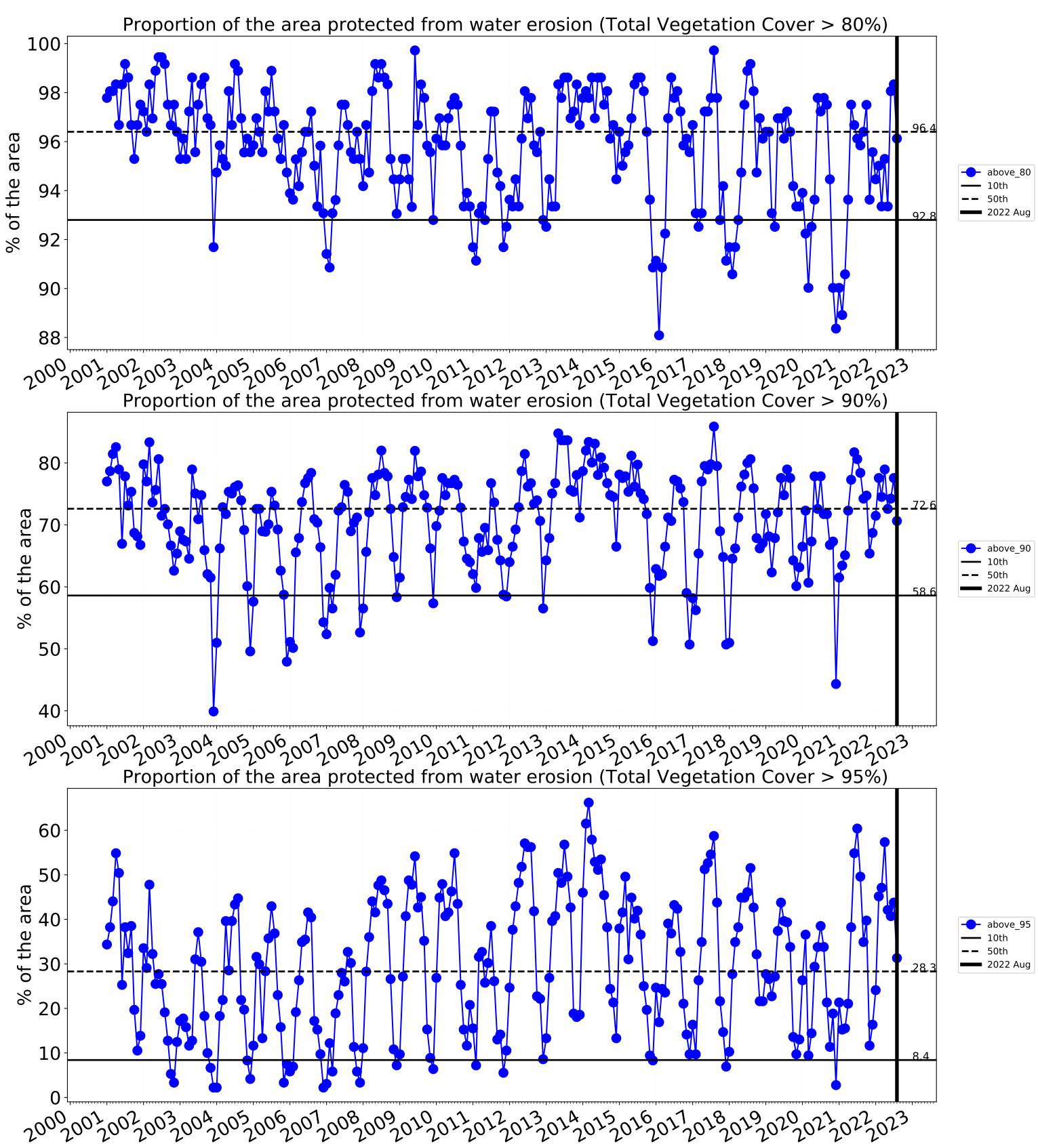


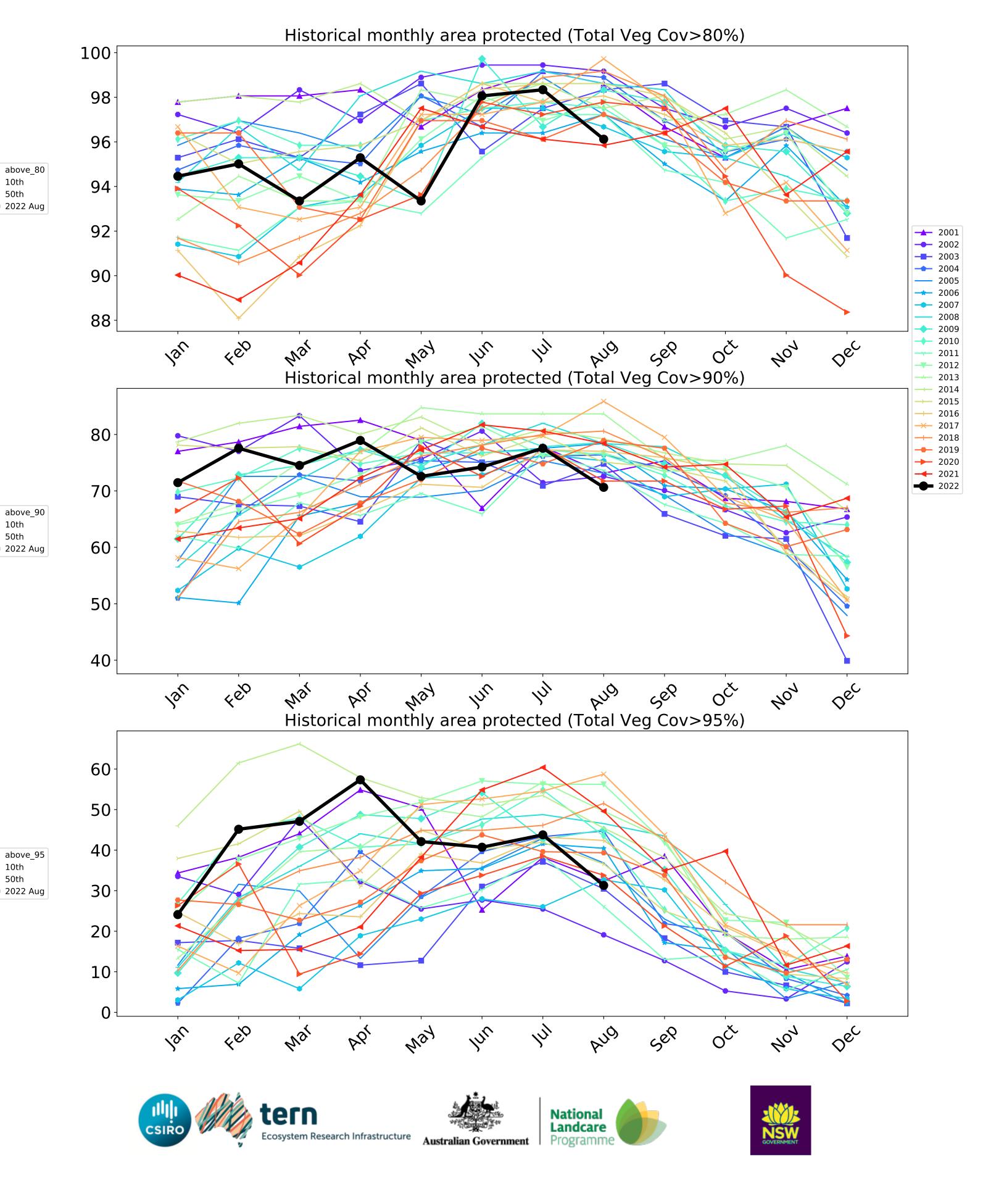
Conservation and natural environments timeseries

100.0-<u>99.7</u> 99.5 ---- above_70 **—** 10th 99.0 **——** 50th 98.5 98.0 97.5 Jan 4eb May In War P.Q 1st month tern Ecosystem Research Infrastructure Australian Government

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



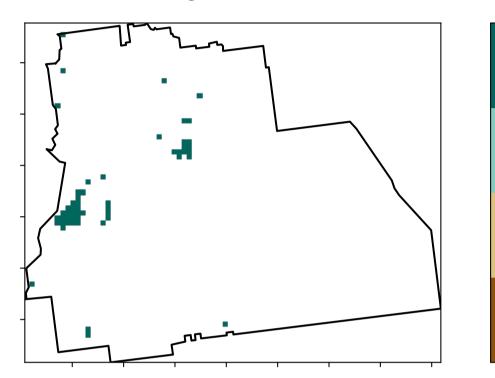




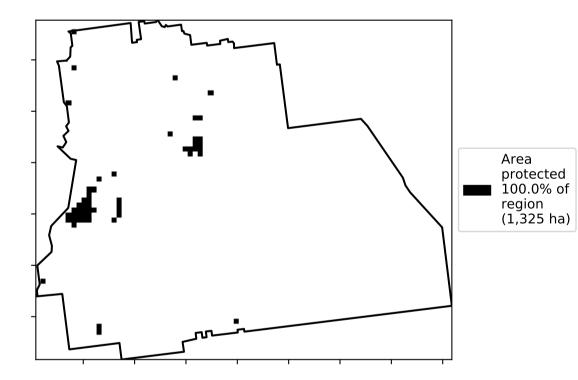
Conservation and natural environments non forest

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

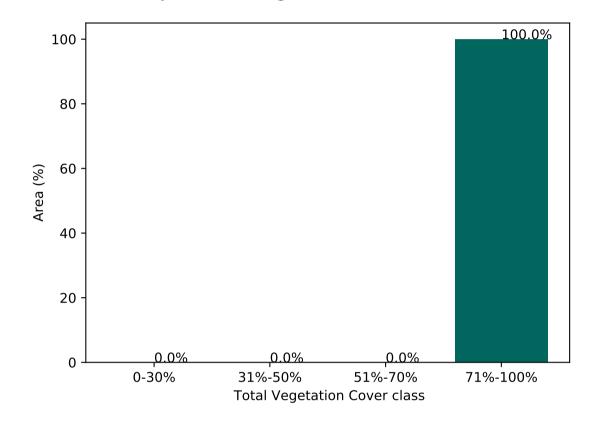
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area

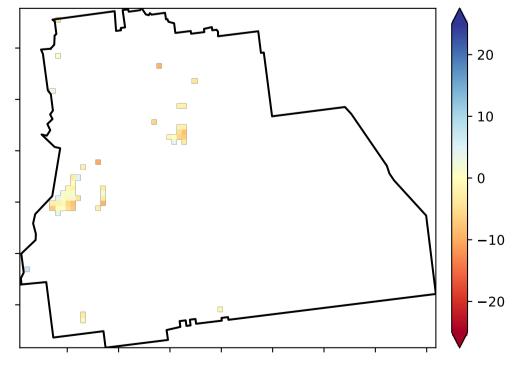


% Area protected from wind erosion (>50%)

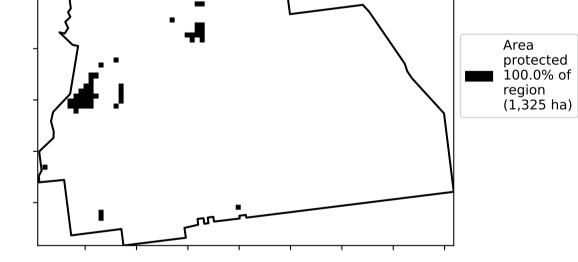


Total Vegetation Cover Anomaly [%]

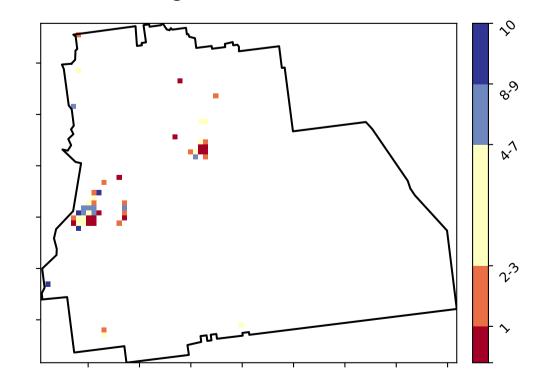
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Total Vegetation Cover Decile [%]





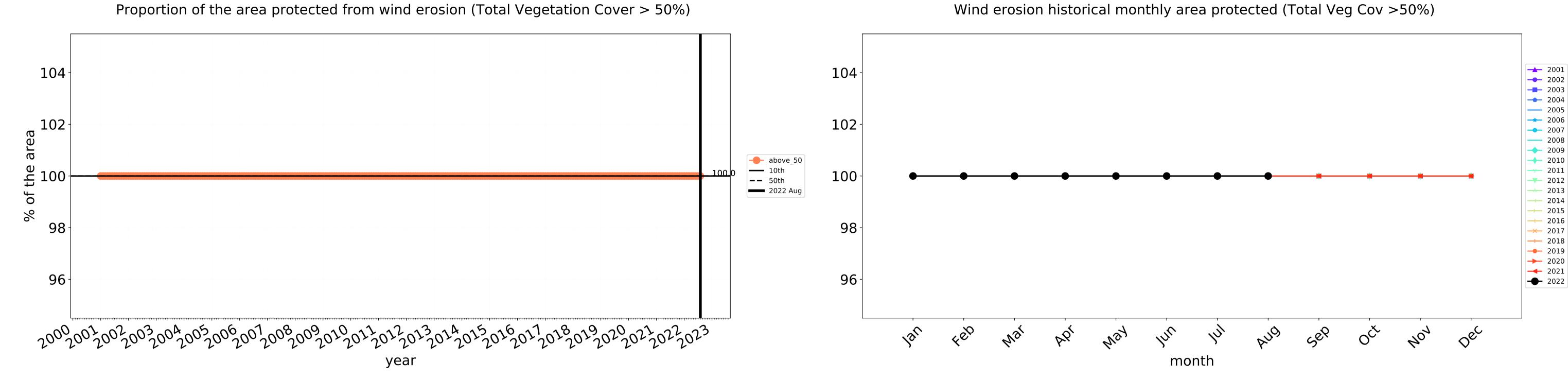
12% 100%

· 52% 70%

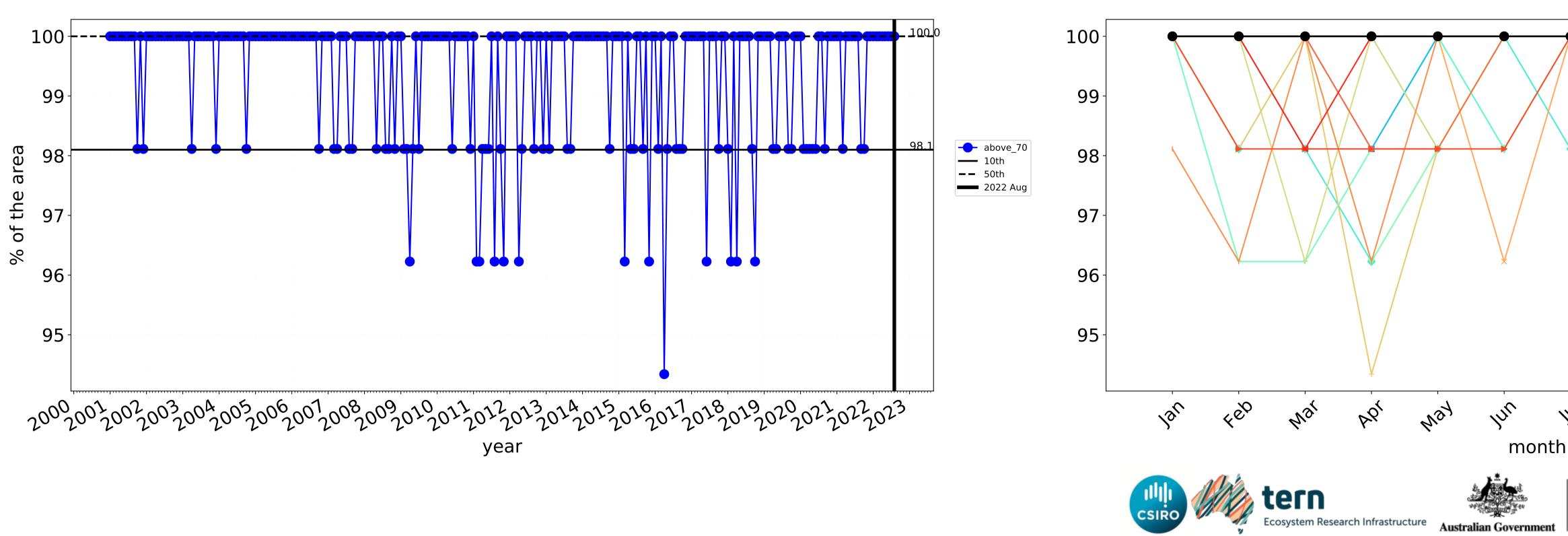
1 32°10'50010

0.30%

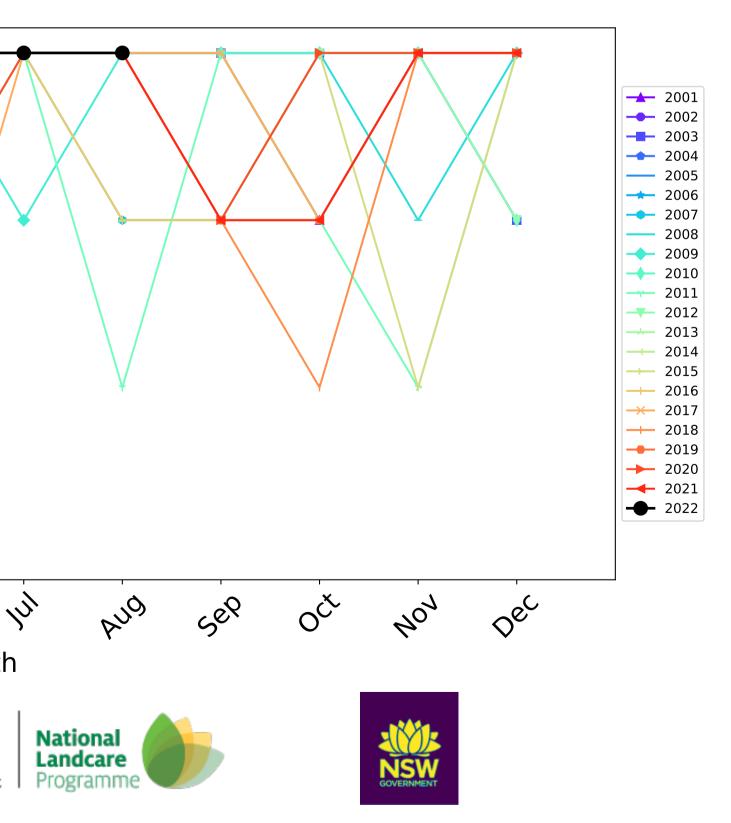




Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

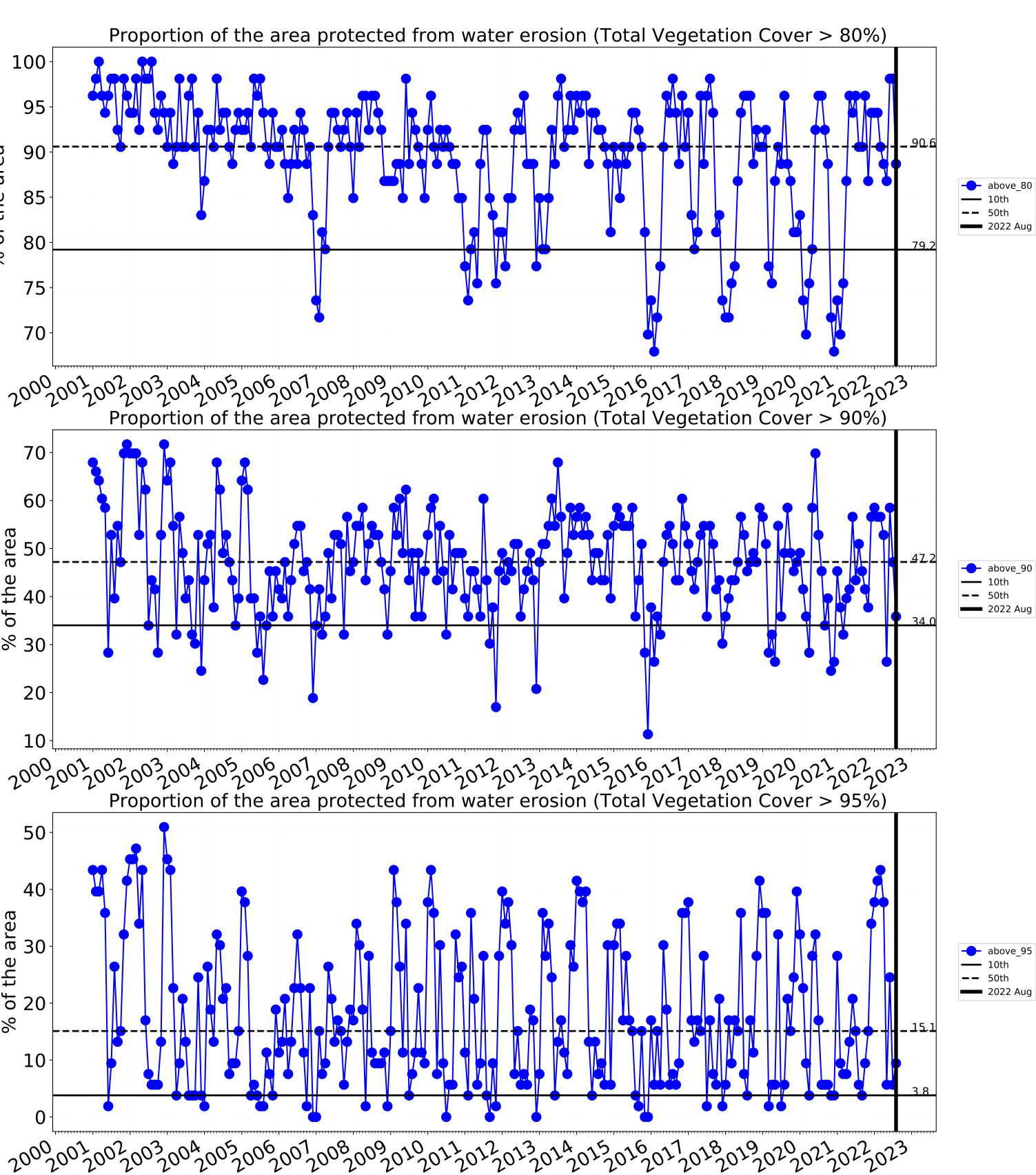


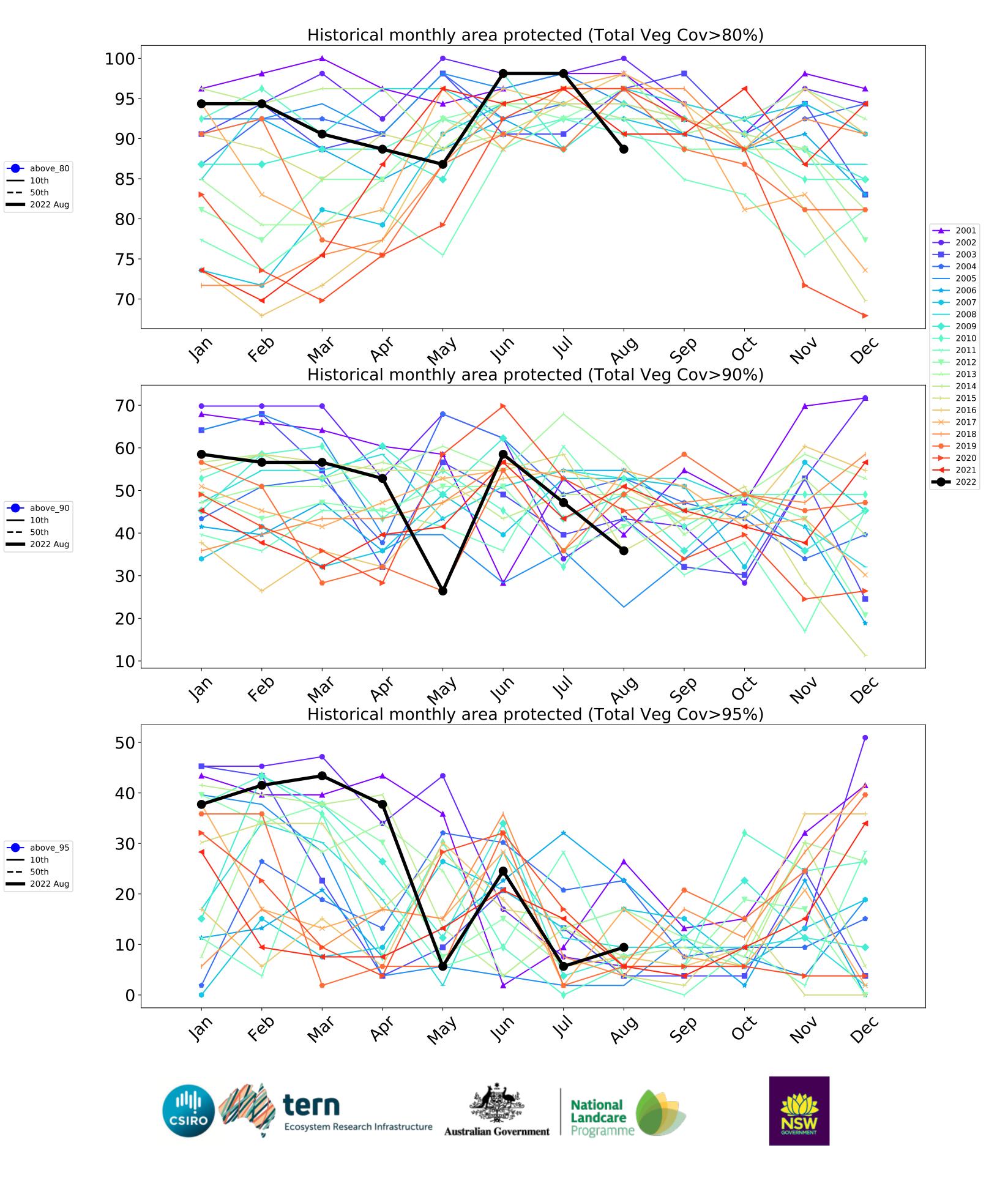




area of the % area 50 of the % 30 % of the area 0 W 0

Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)





Conservation and natural environments Woodland forest

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

12%200%

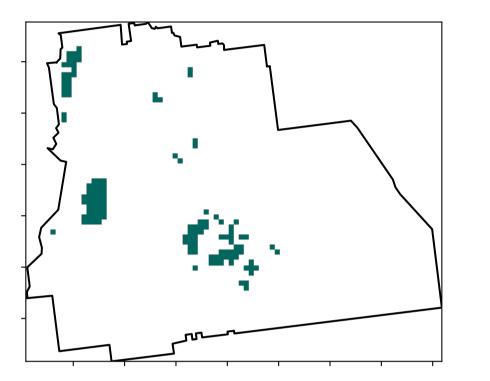
· 52% 70%

320050010

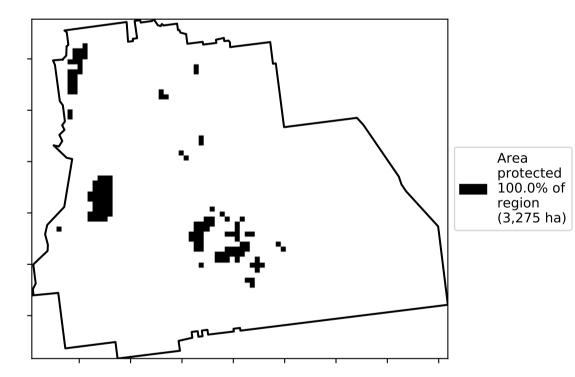
0.30%

Land use and forest cover

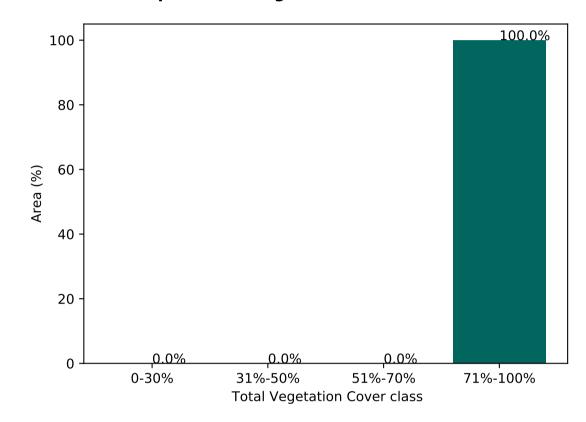
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



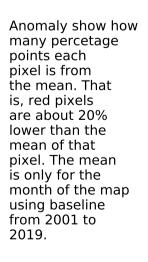
Proportion of vegetation cover class in area

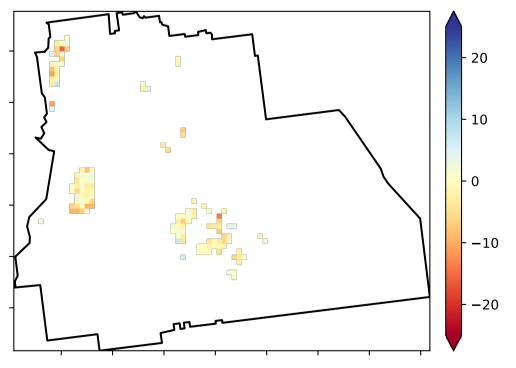


% Area protected from wind erosion (>50%)

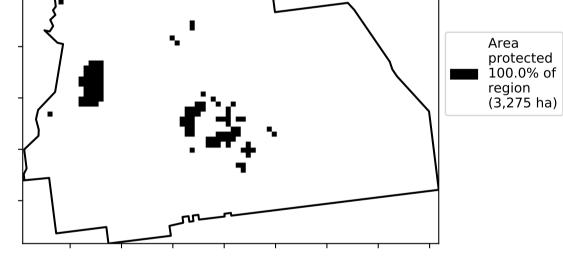


Total Vegetation Cover Anomaly [%]

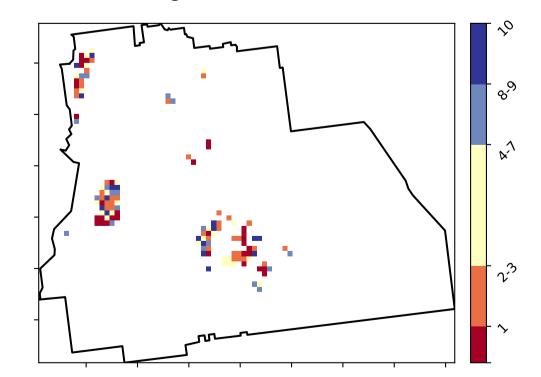




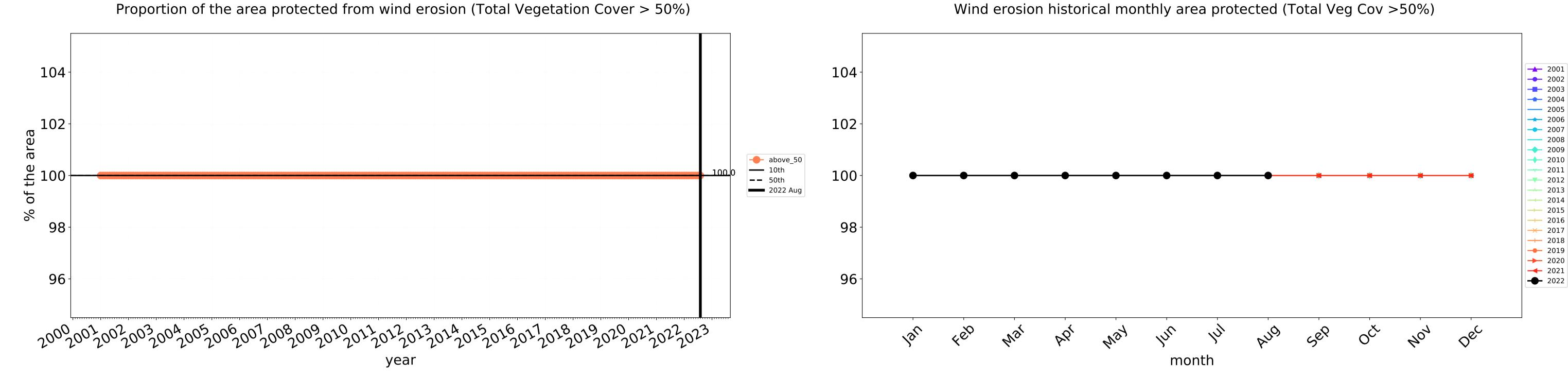
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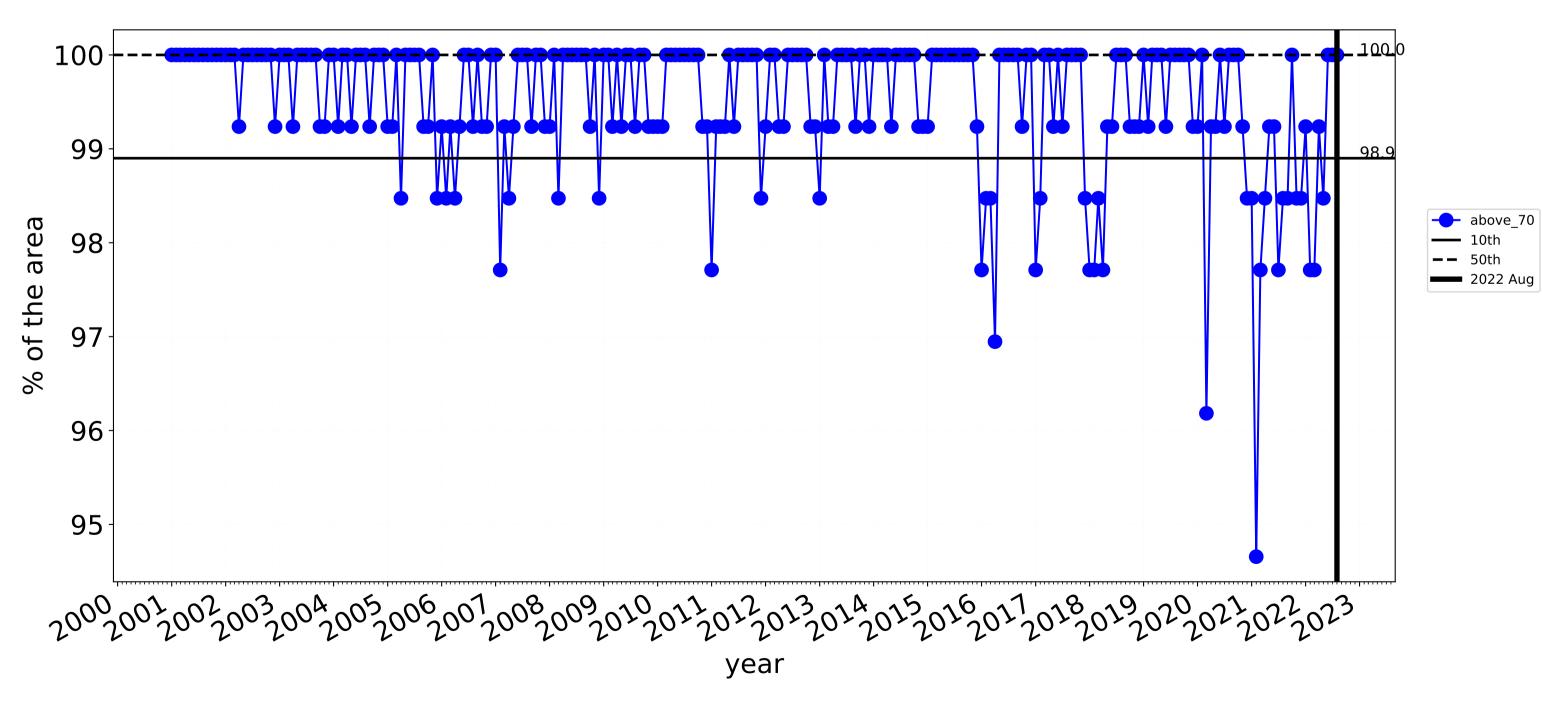
Total Vegetation Cover Decile [%]





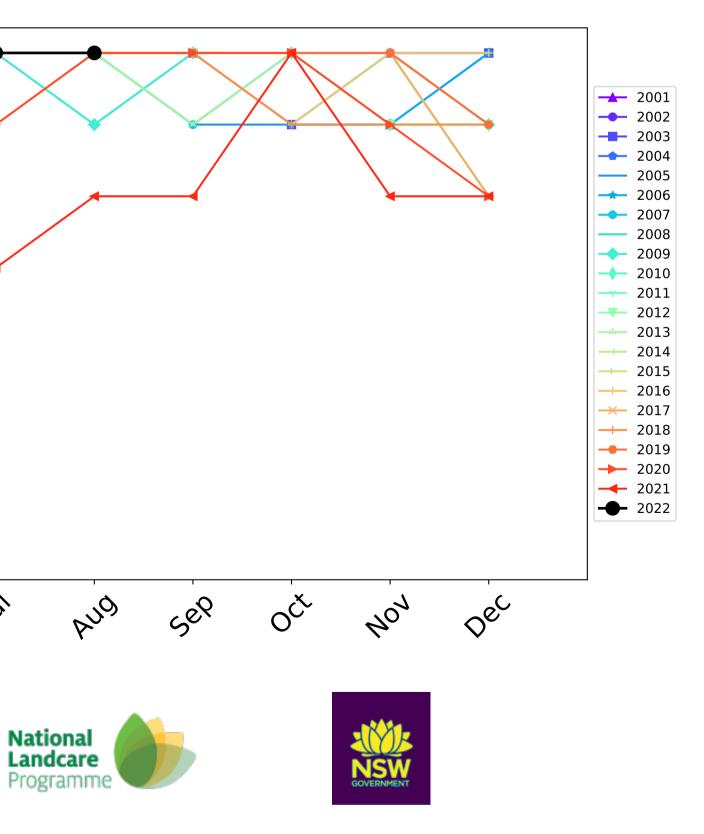


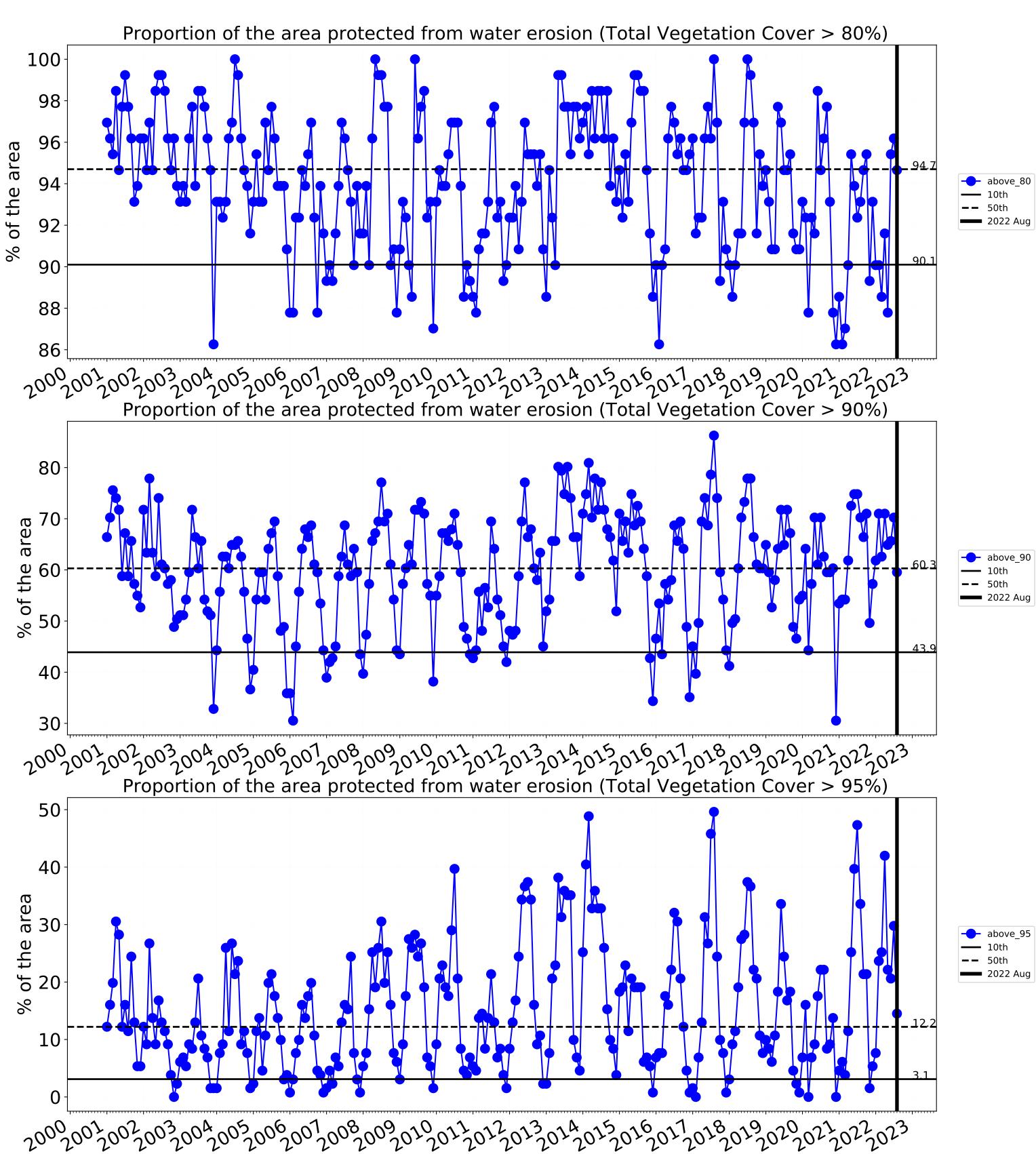
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

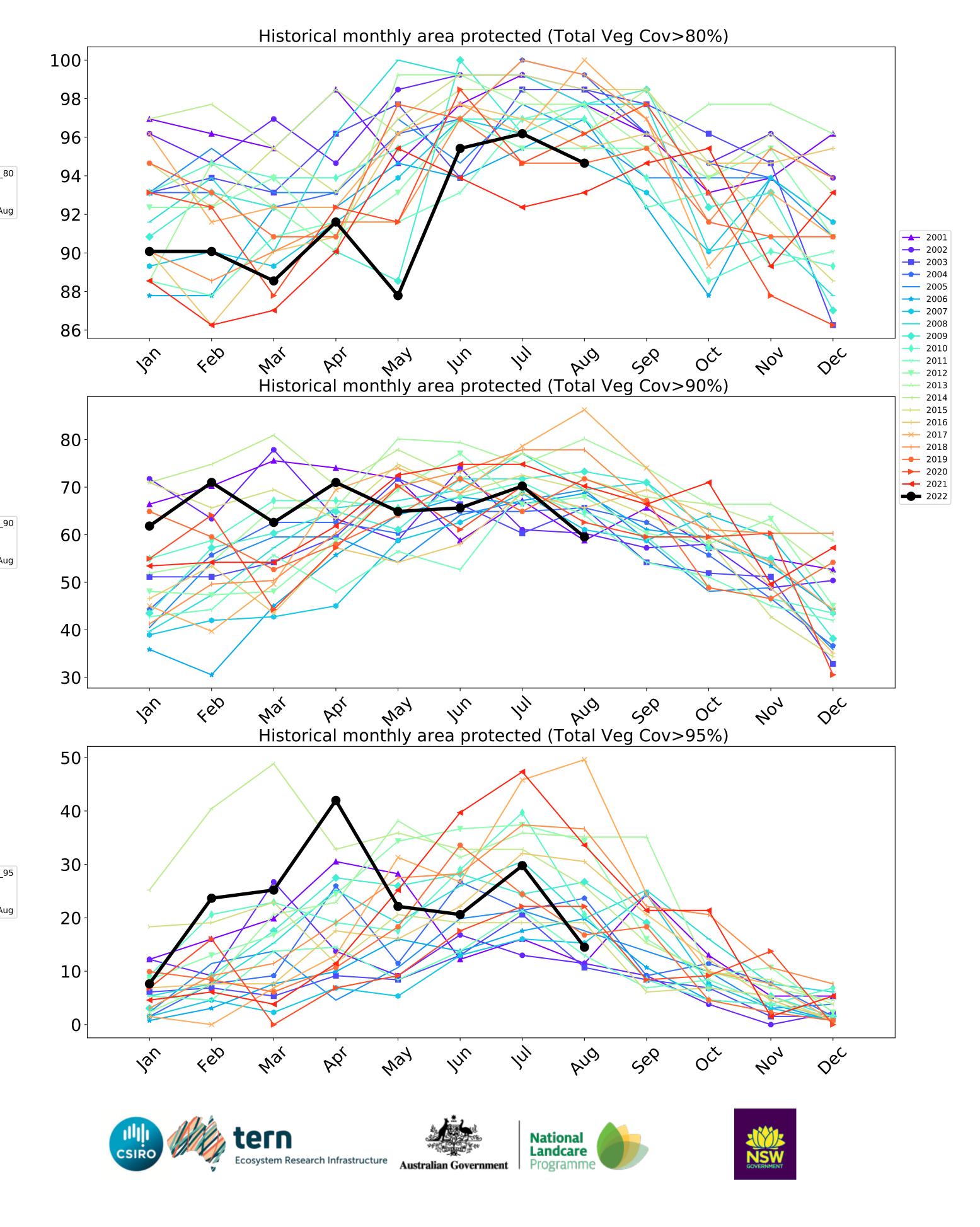


100 99 98-97 96-**9**5 4eb 1ar way In War PQ In 1 month tern Ecosystem Research Infrastructure Australian Government

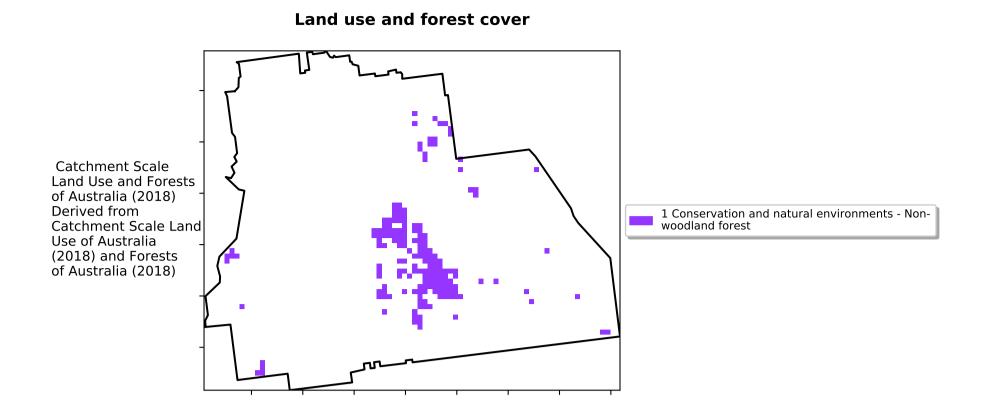
Water erosion historical monthly area protected (Total Veg Cov>70%)







Conservation and natural environments Forest (non woodland)



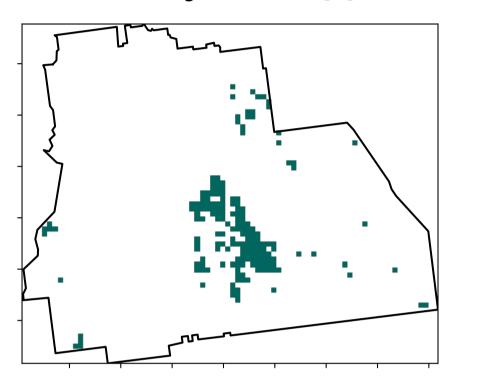
1 12% 100%

· 52% 70%

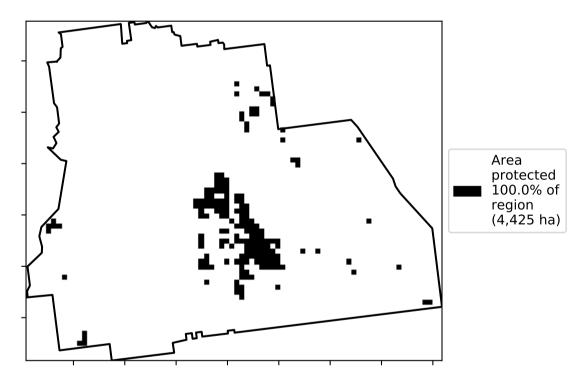
· 32%50%

0.30%

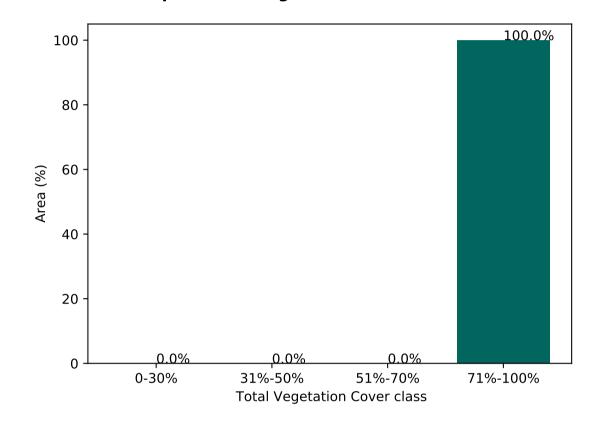
Total Vegetation Cover [%]



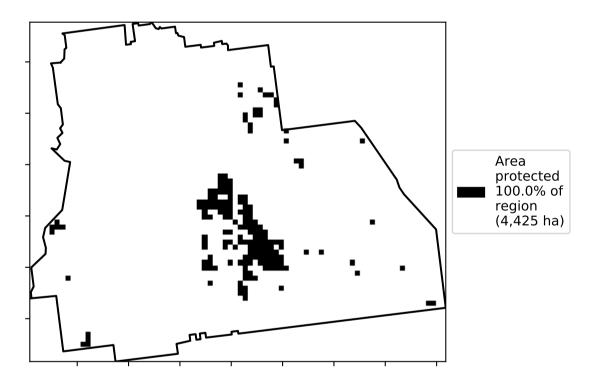
% Area protected from water erosion (>70%)



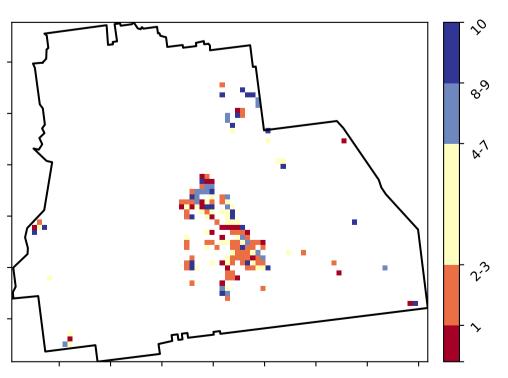
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]



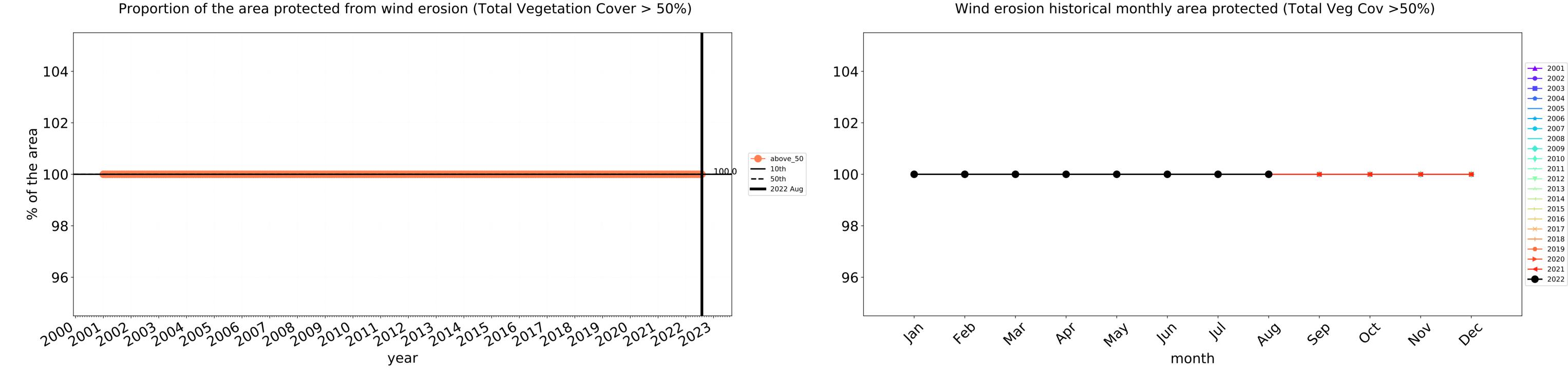
Total Vegetation Cover Anomaly [%]

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.

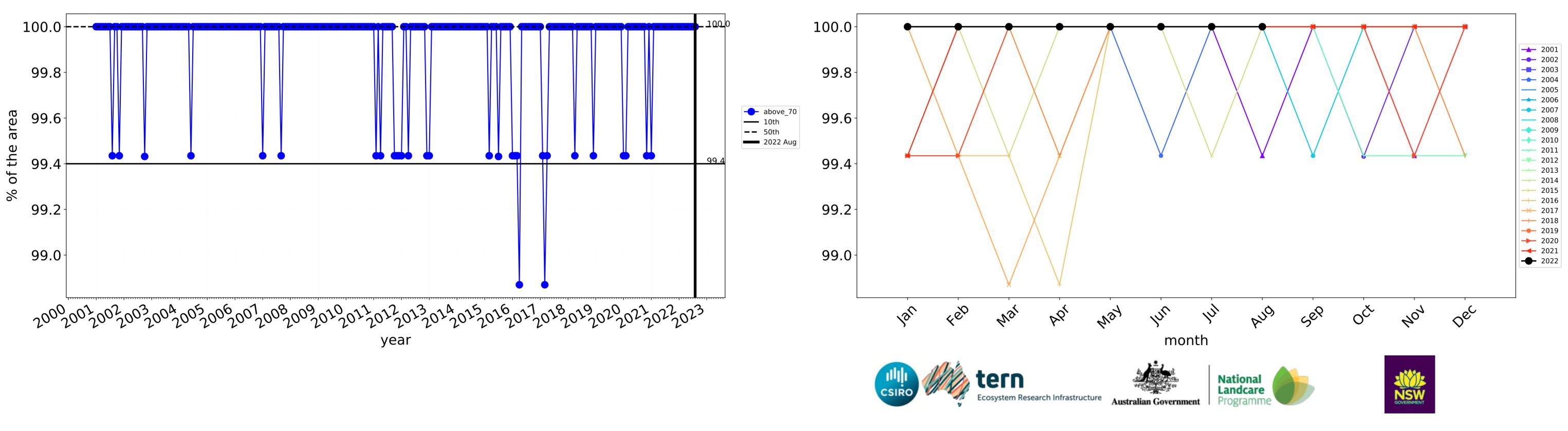


Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

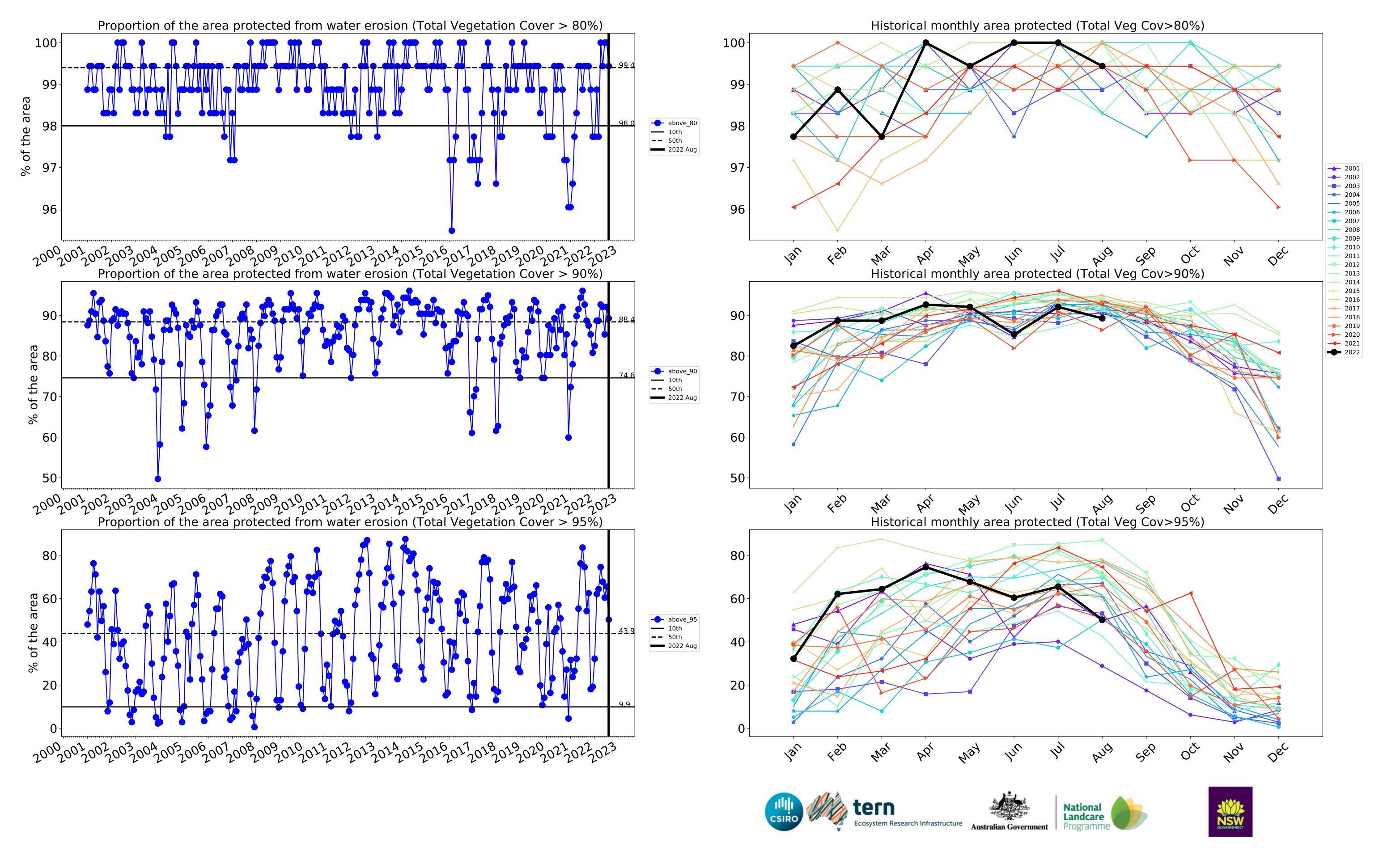
Conservation and natural environments Forest (non woodland) timeseries



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



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



Agriculture

12%100%

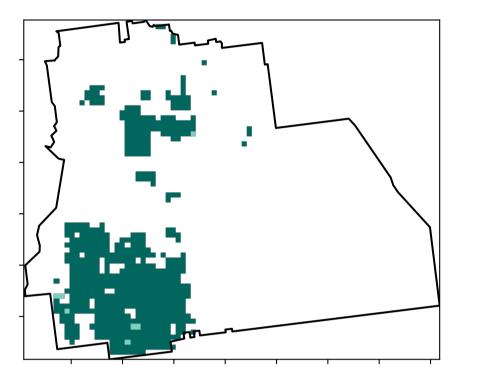
· 52% 70%

3201050010

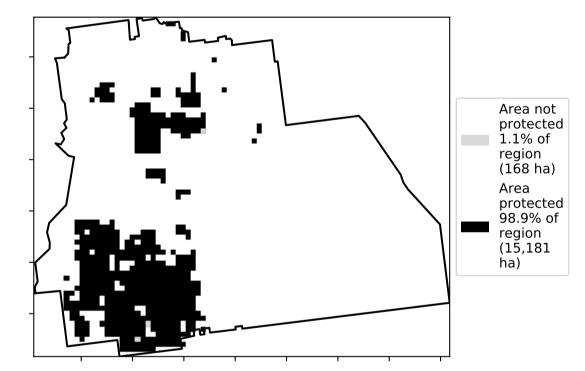
· 0.30%

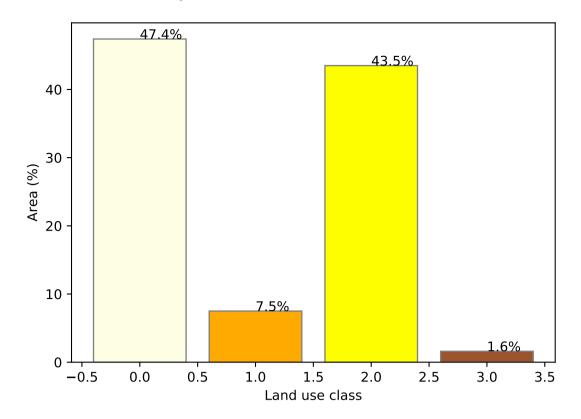
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) Derived from Catchment Scale Land (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]



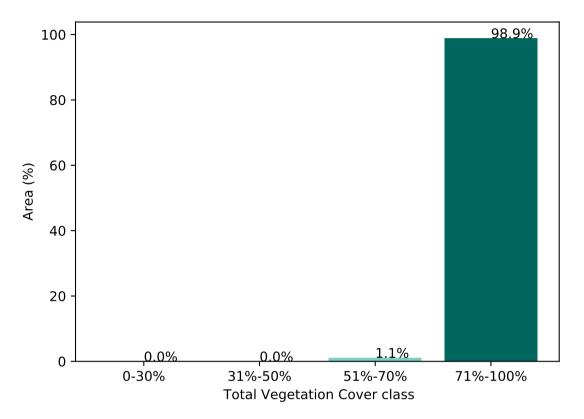
% Area protected from water erosion (>70%)



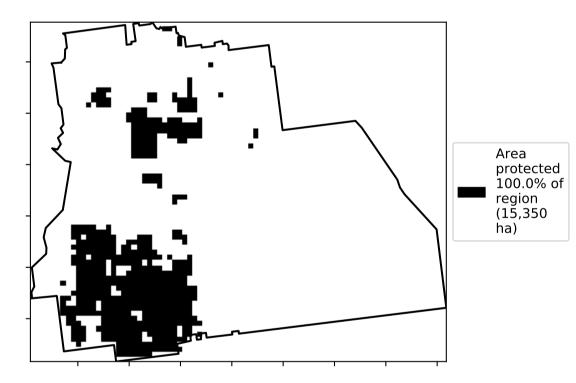


Proportion of each land class in area

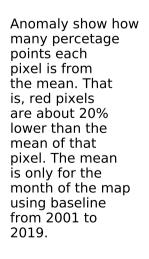
Proportion of vegetation cover class in area

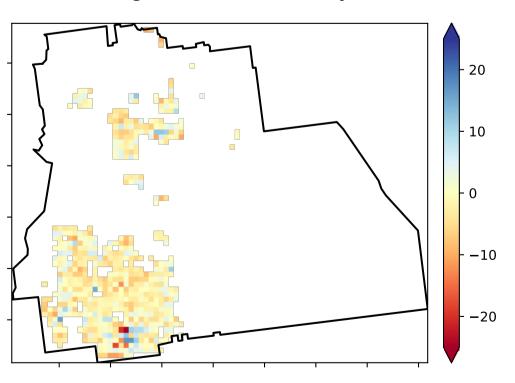


% Area protected from wind erosion (>50%)



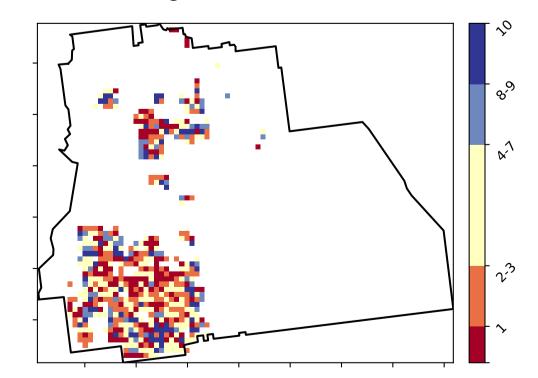
Total Vegetation Cover Anomaly [%]



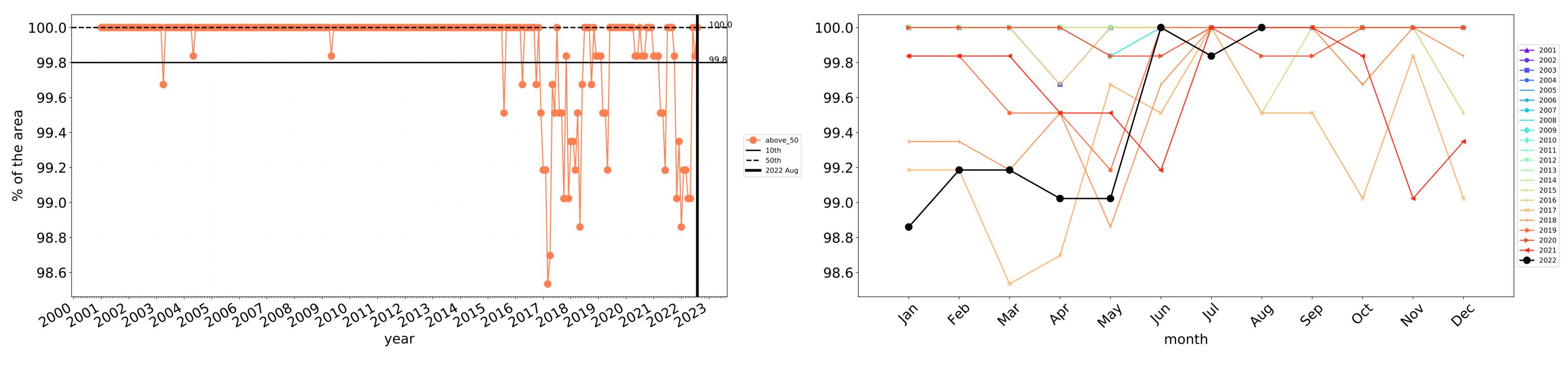


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Total Vegetation Cover Decile [%]

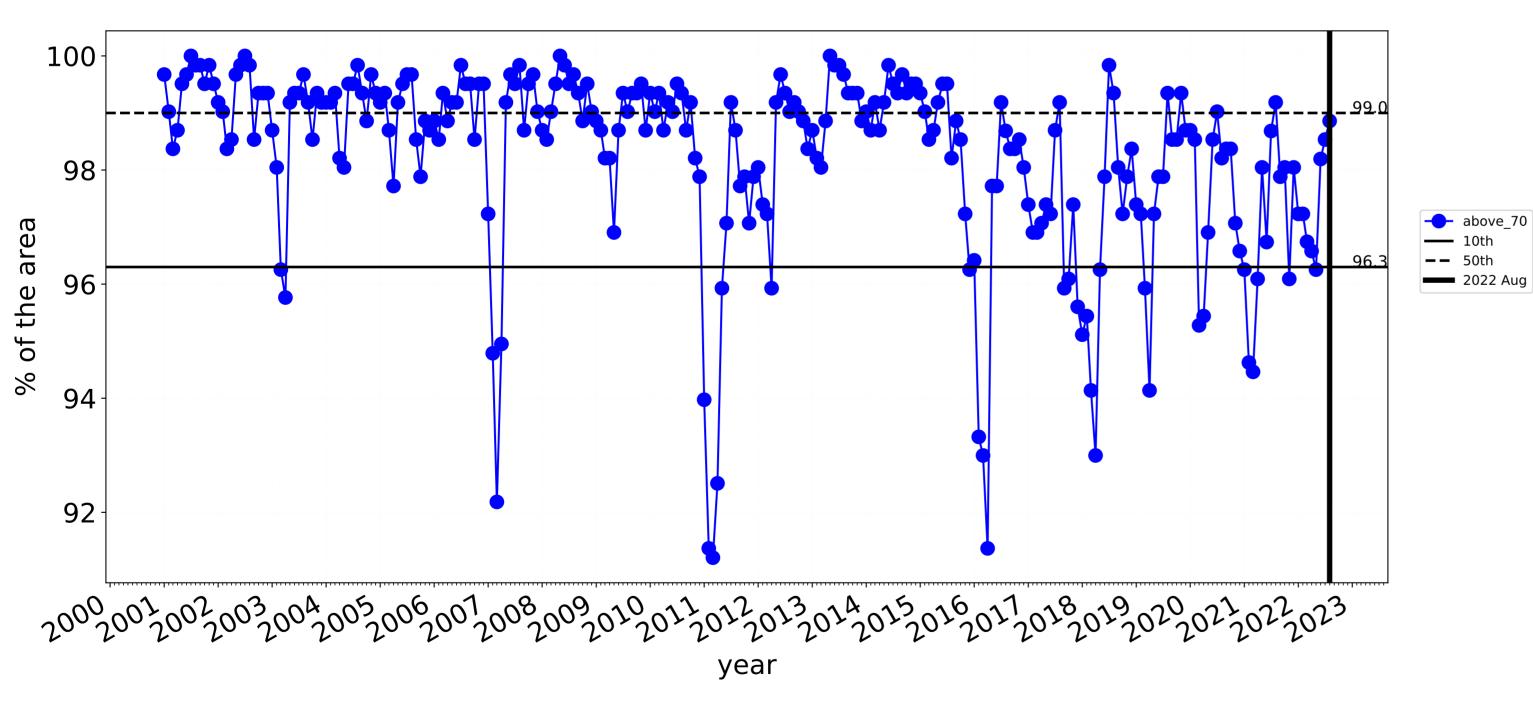


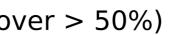




Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

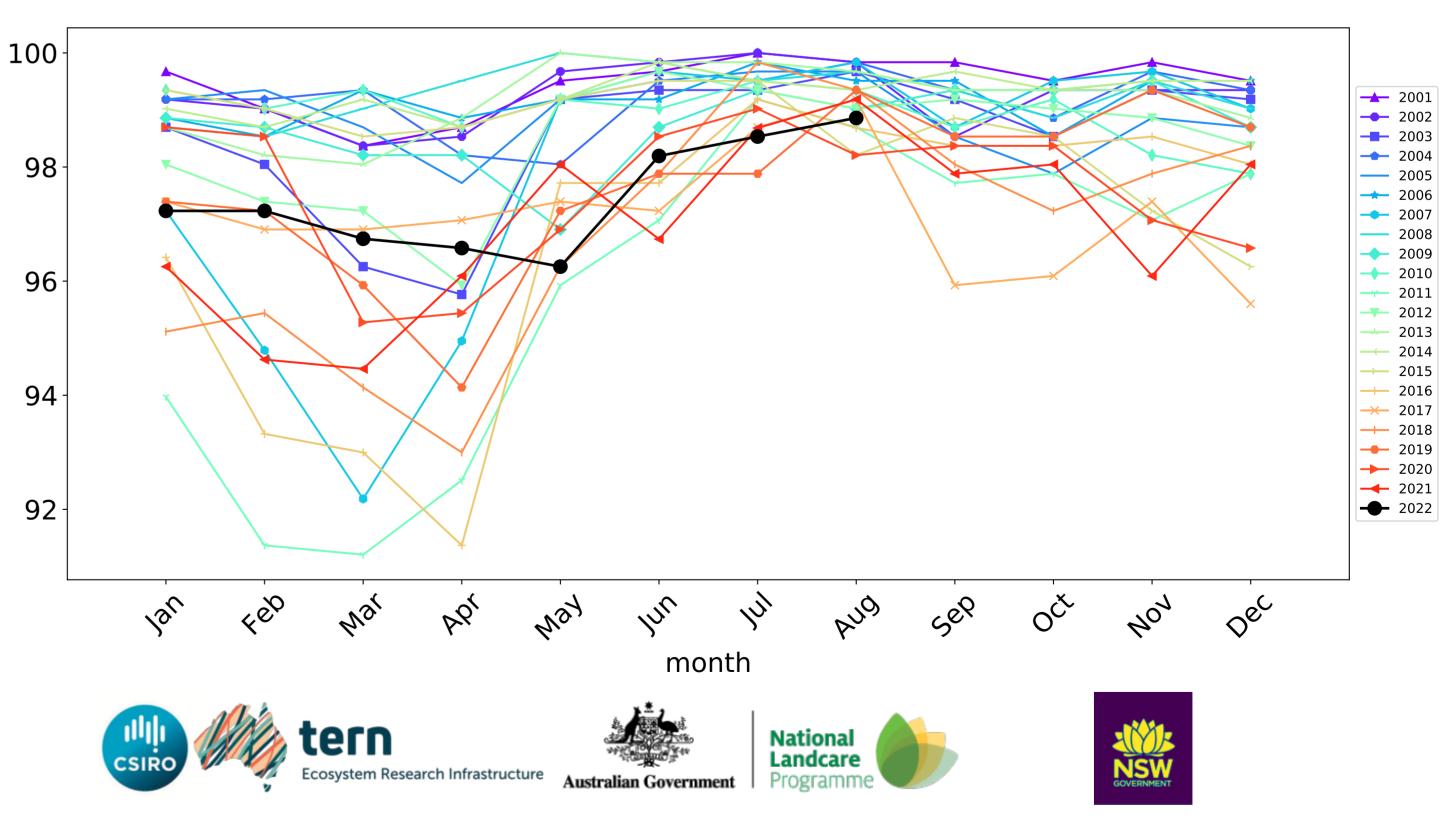
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

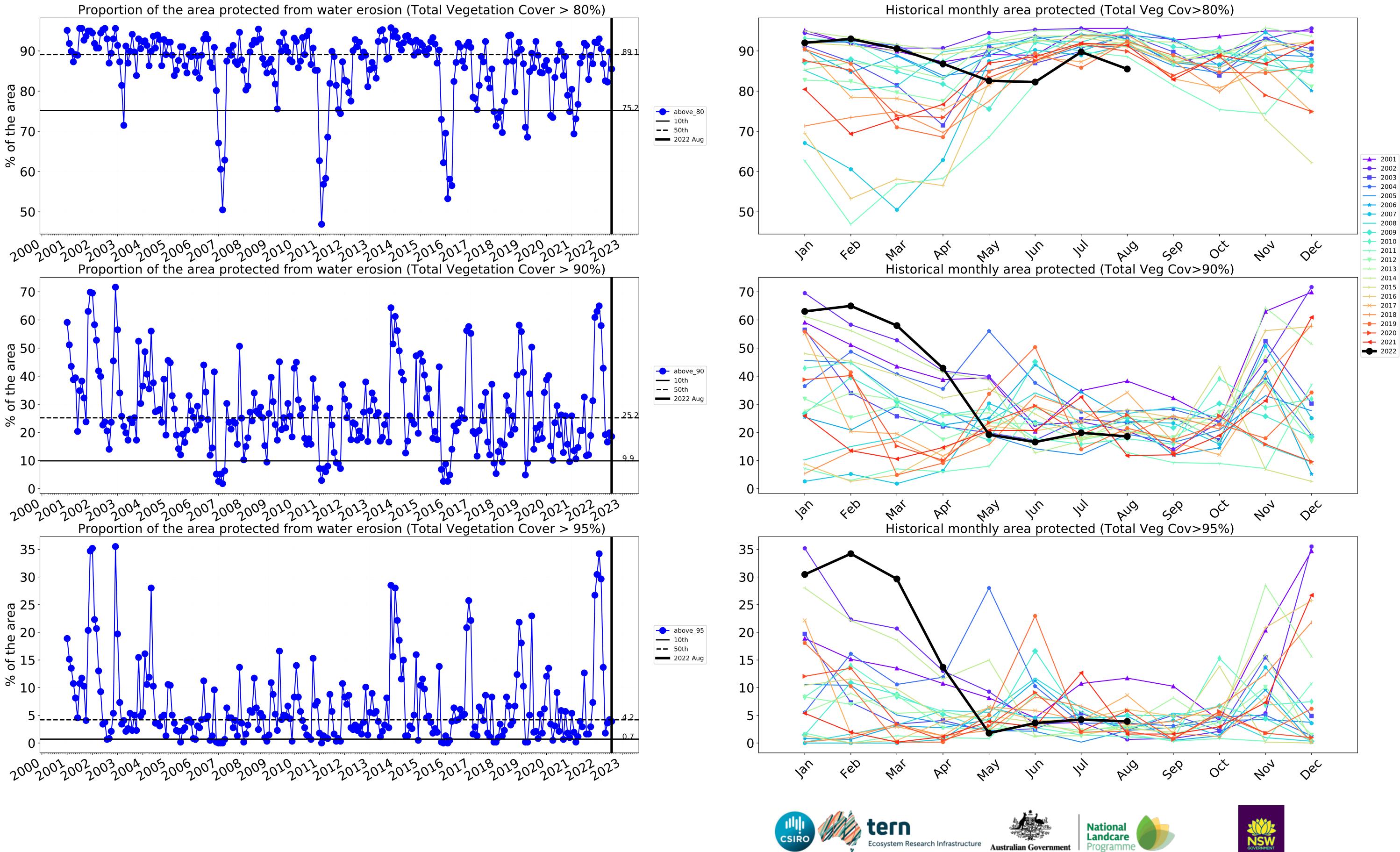




Wind erosion historical monthly area protected (Total Veg Cov >50%)

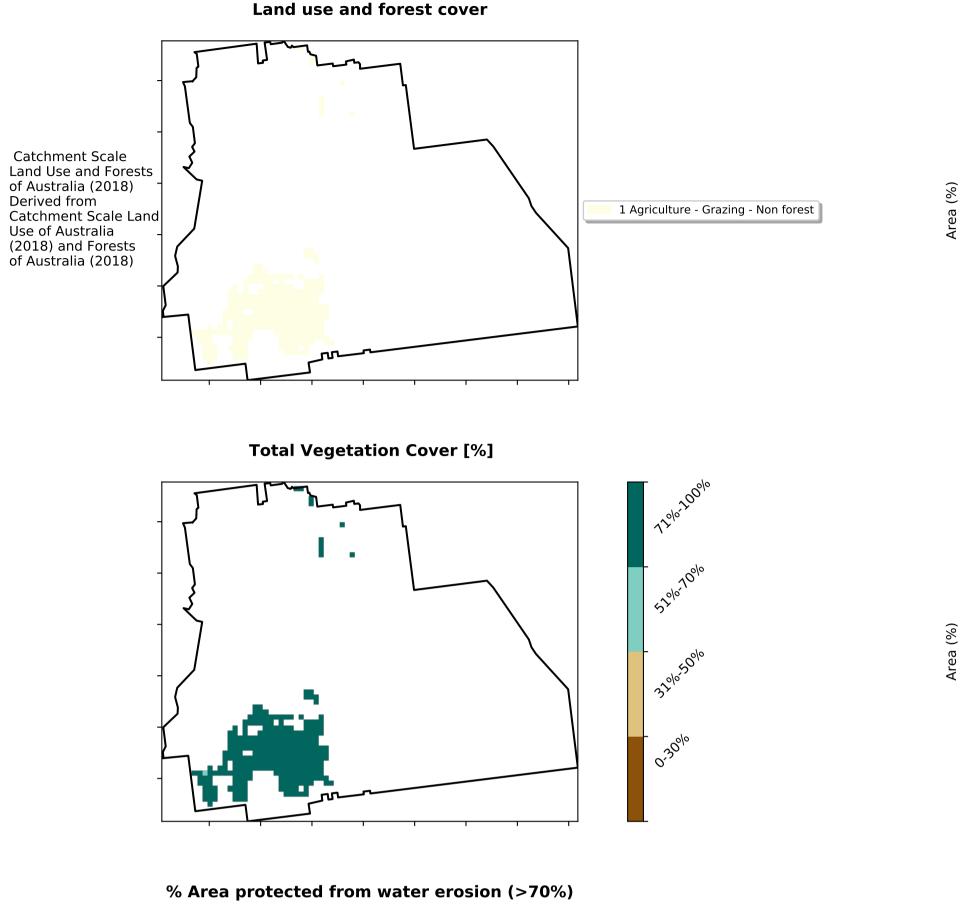
Water erosion historical monthly area protected (Total Veg Cov>70%)



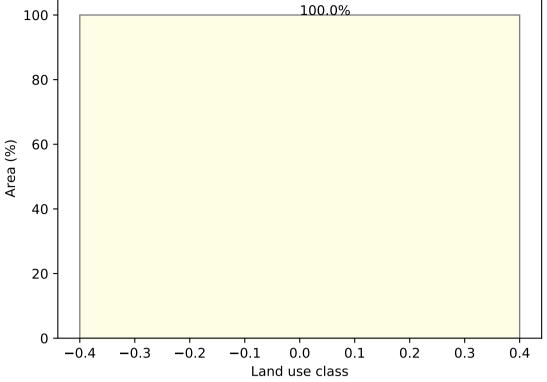




Grazing

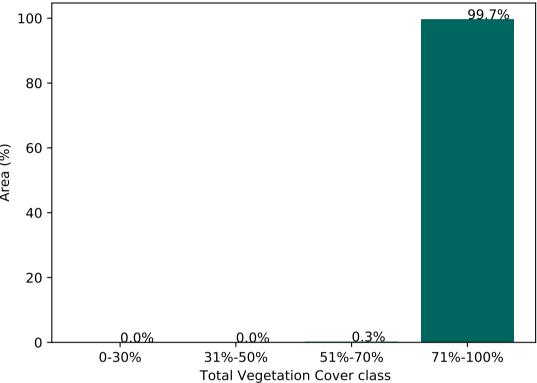




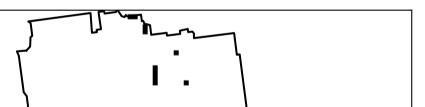


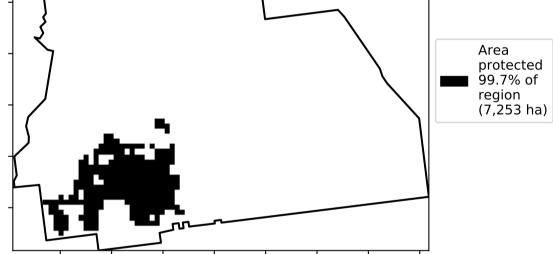
Proportion of each land class in area

Proportion of vegetation cover class in area

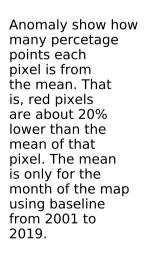


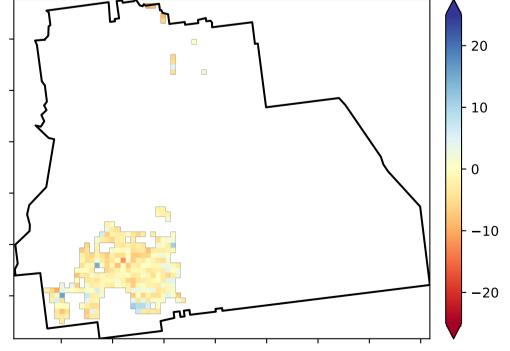
% Area protected from wind erosion (>50%)



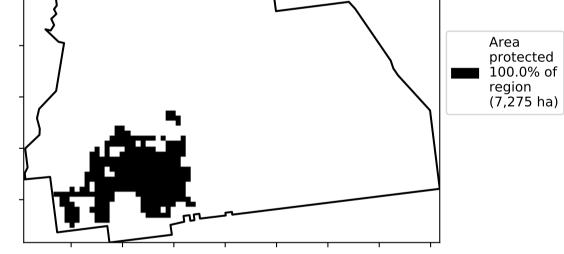


Total Vegetation Cover Anomaly [%]

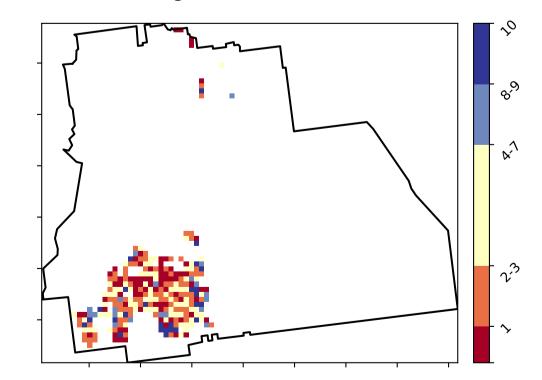




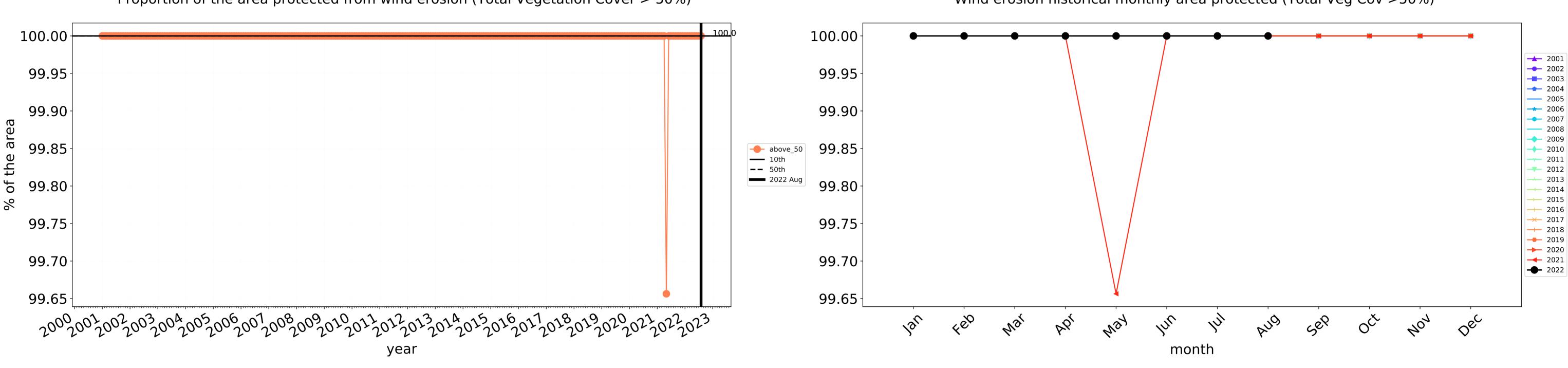
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



Total Vegetation Cover Decile [%]

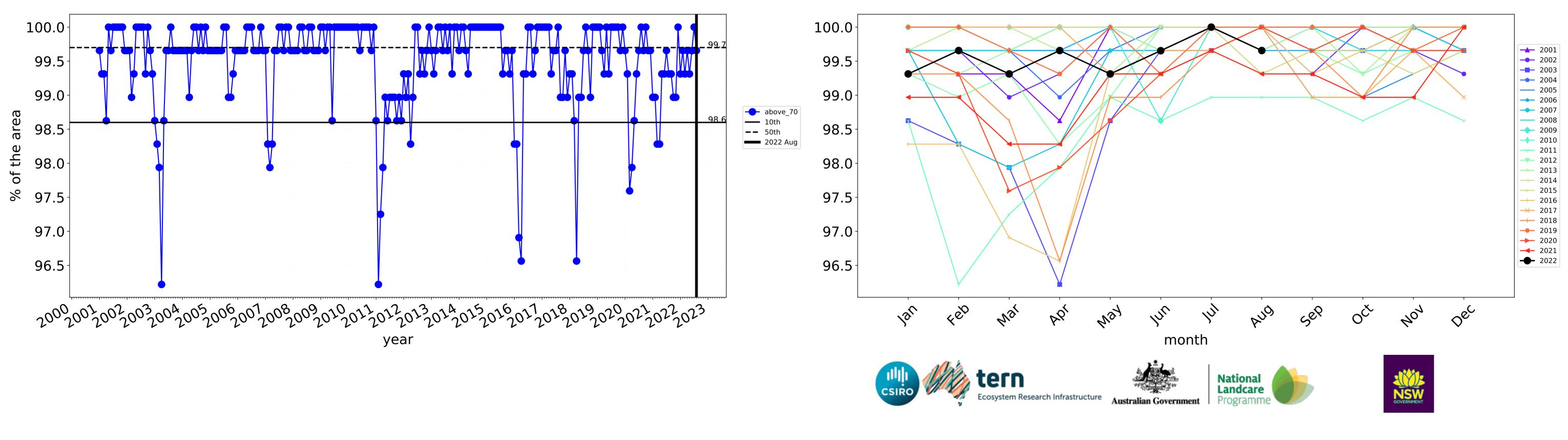






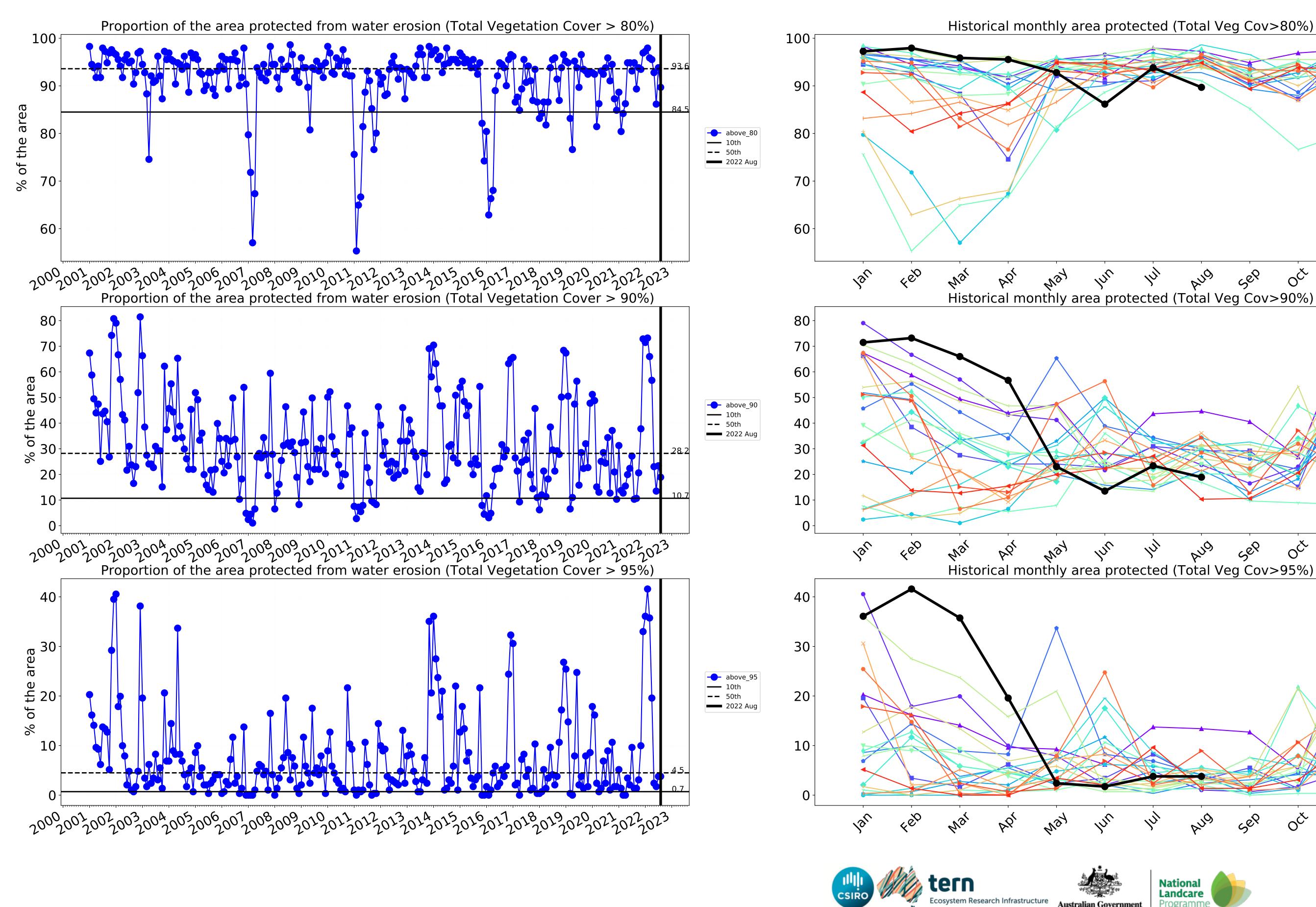
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)





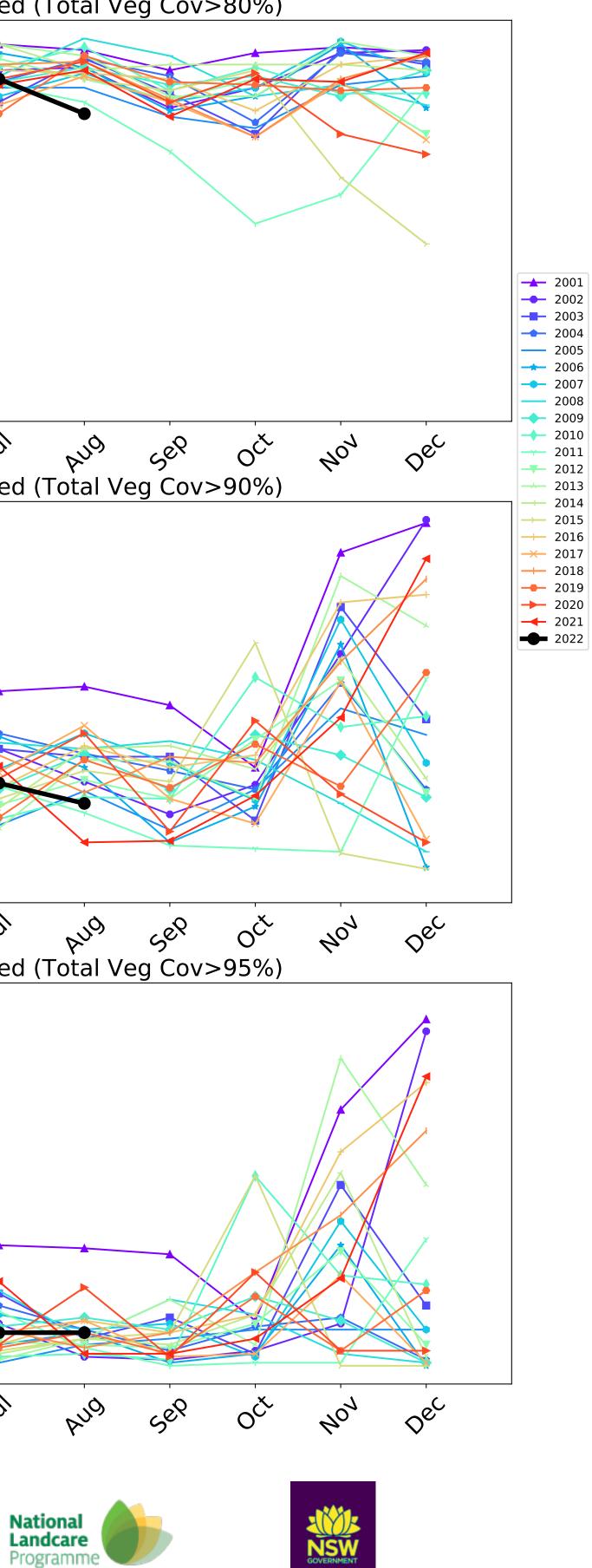


Wind erosion historical monthly area protected (Total Veg Cov >50%)



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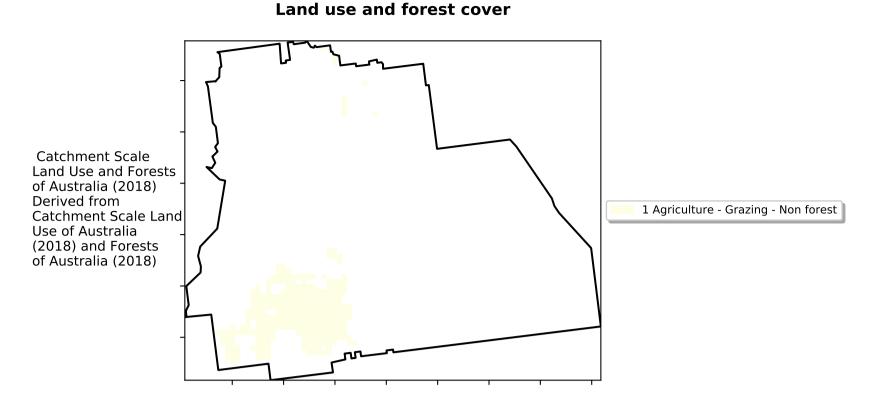
Grazing non forest

1 12% 100%

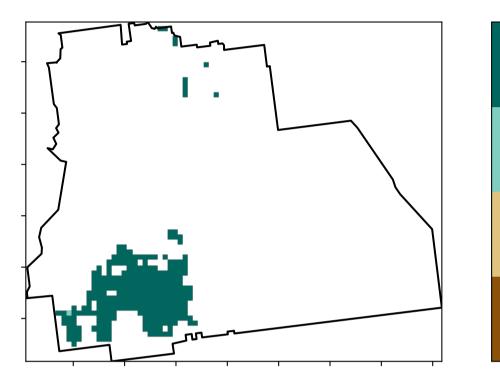
52°10°10°10

32°1050010

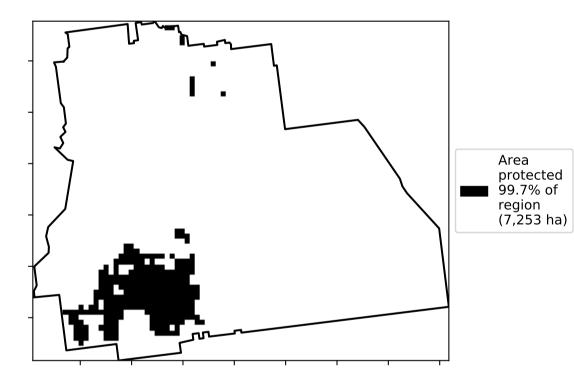
0-30%



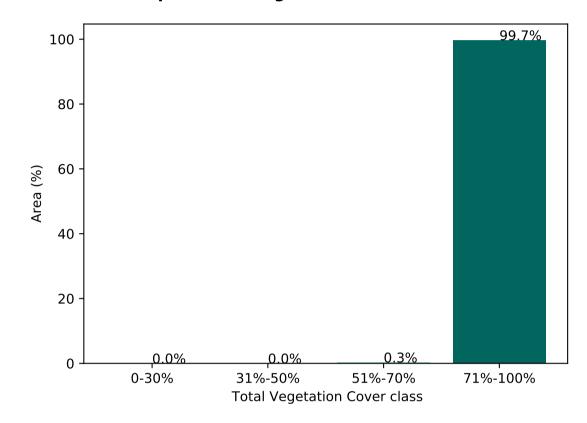
Total Vegetation Cover [%]



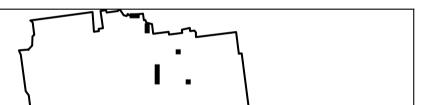
% Area protected from water erosion (>70%)



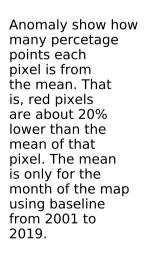
Proportion of vegetation cover class in area

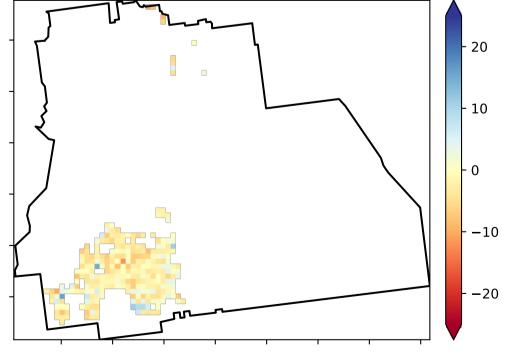


% Area protected from wind erosion (>50%)

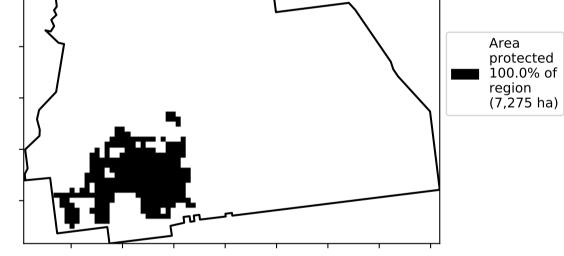


Total Vegetation Cover Anomaly [%]

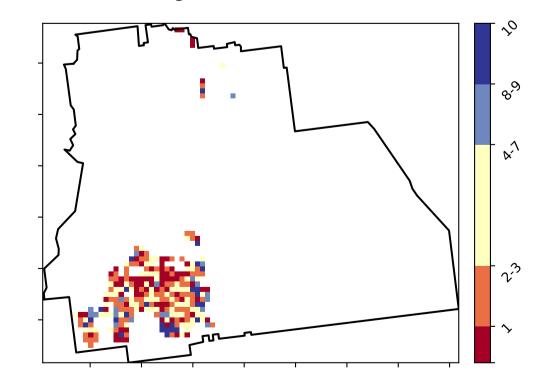




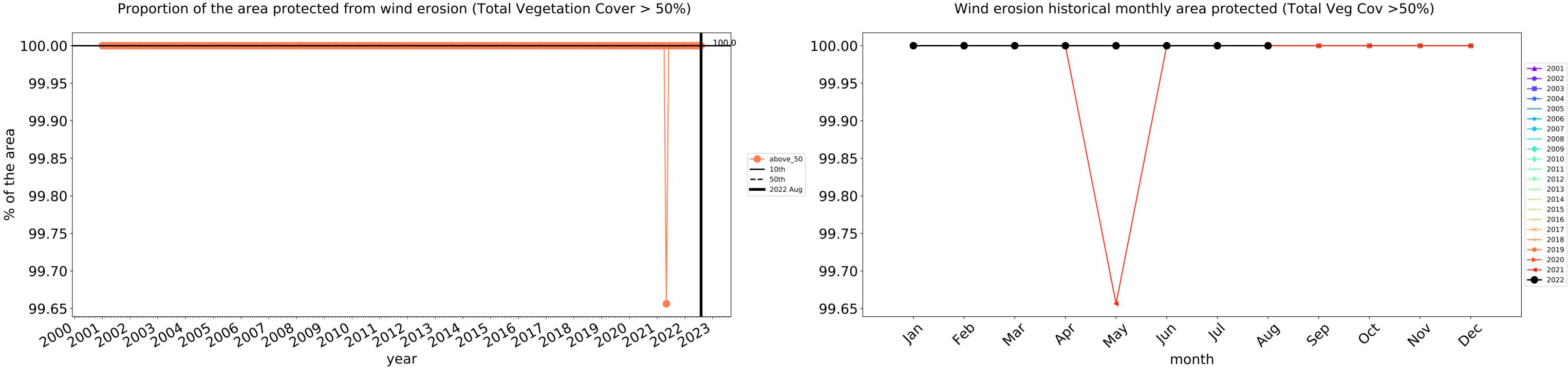
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



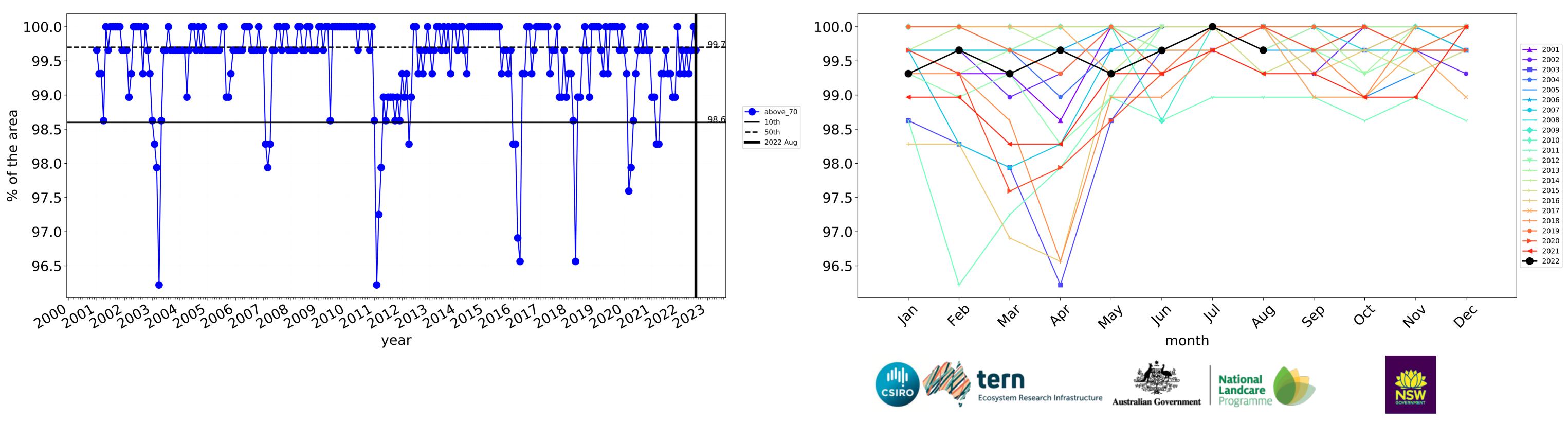
Total Vegetation Cover Decile [%]



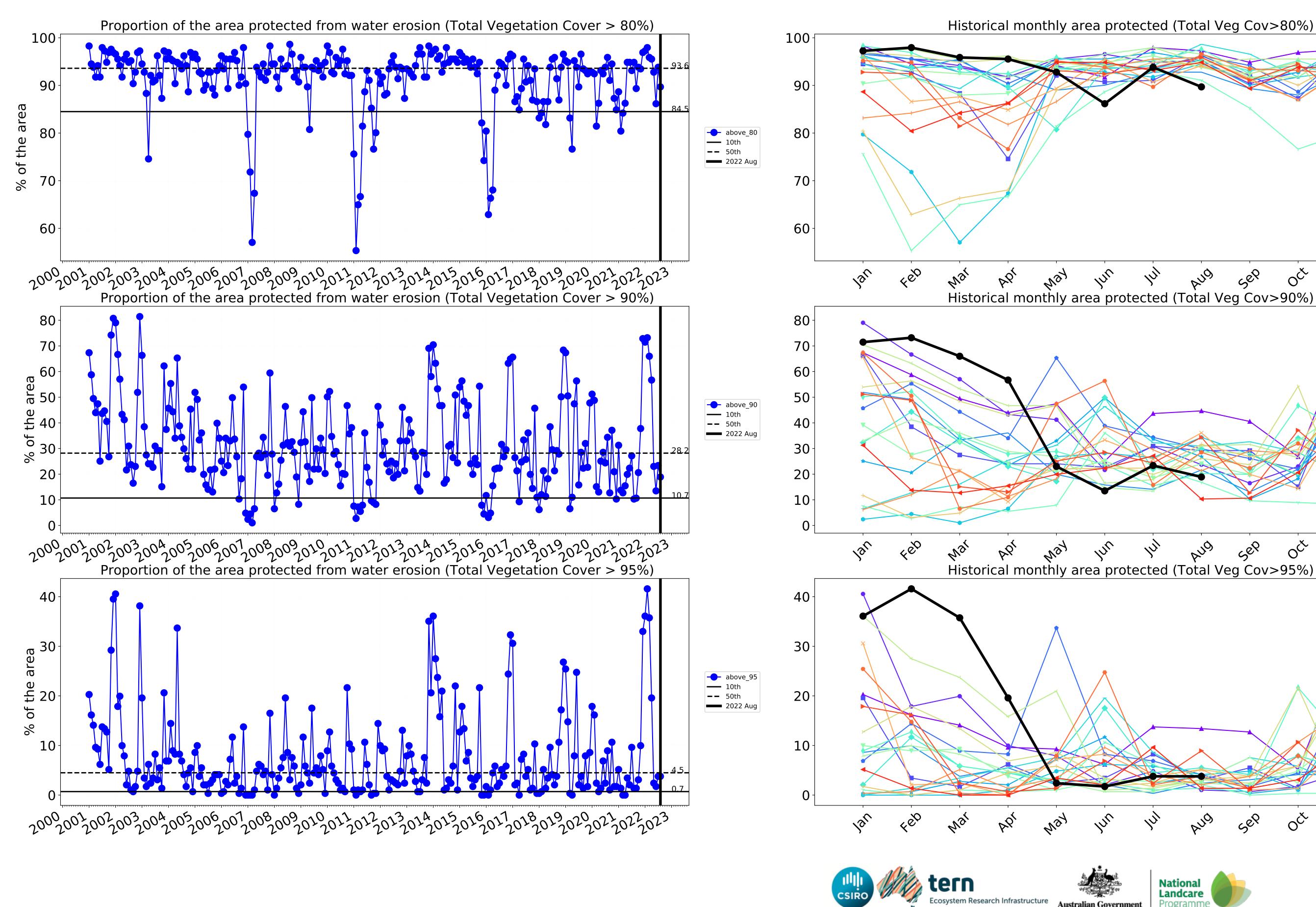




Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

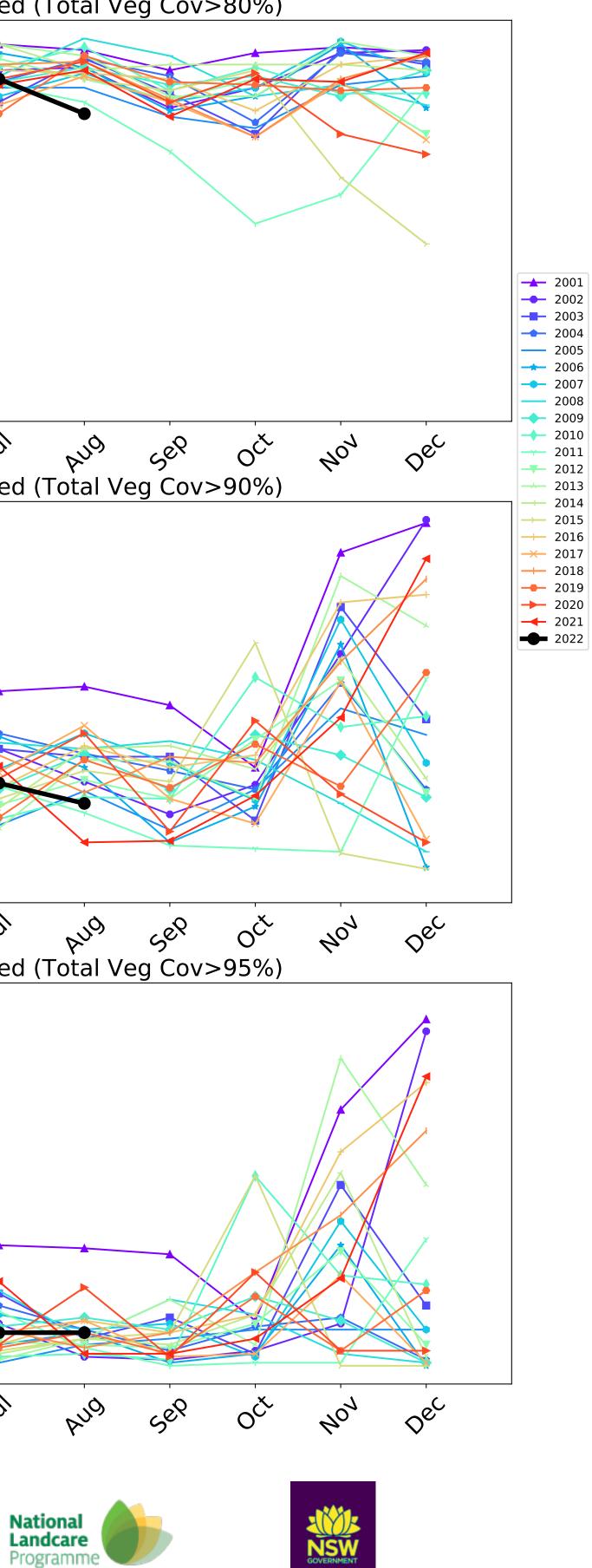






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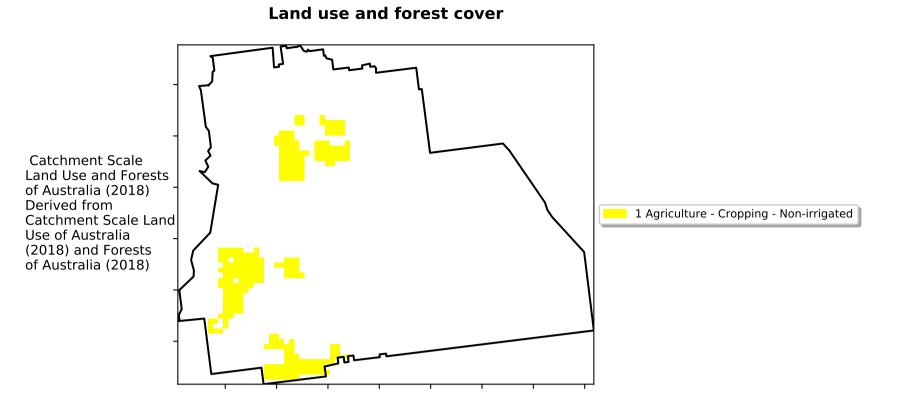
Cropping

1 12% 100%

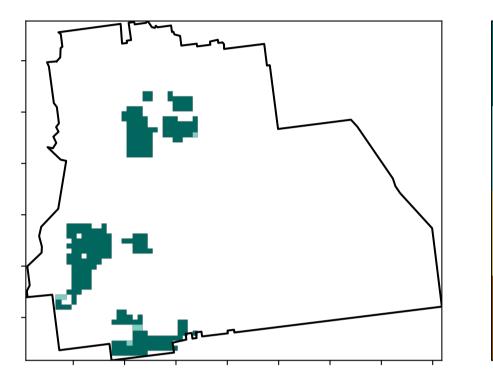
52°10°10°10

32005000

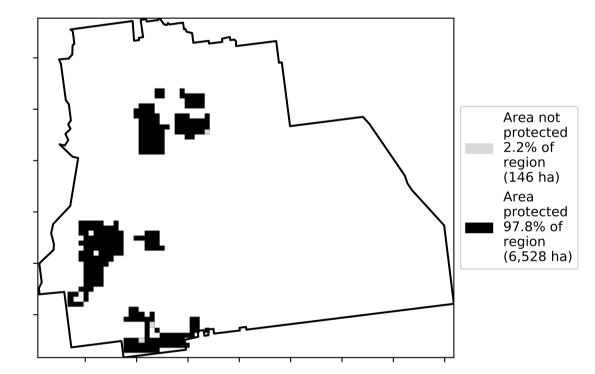
0.30%



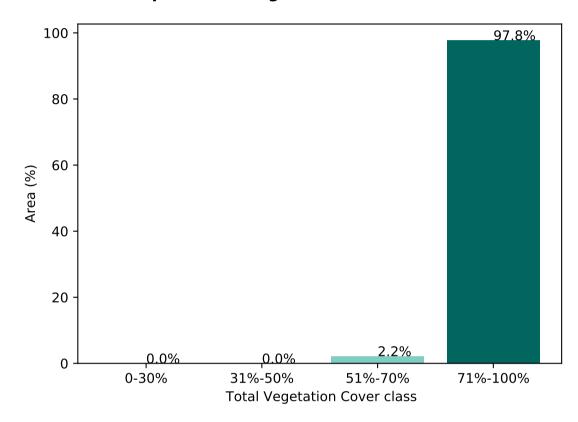
Total Vegetation Cover [%]



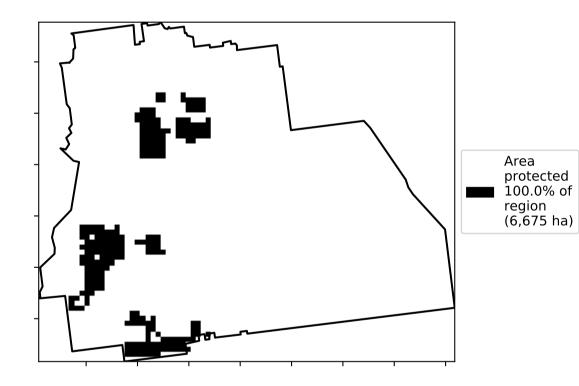
% Area protected from water erosion (>70%)



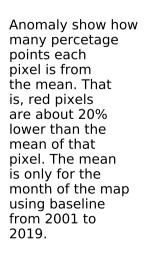
Proportion of vegetation cover class in area

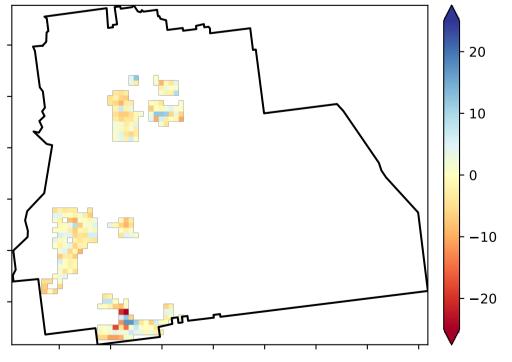


% Area protected from wind erosion (>50%)

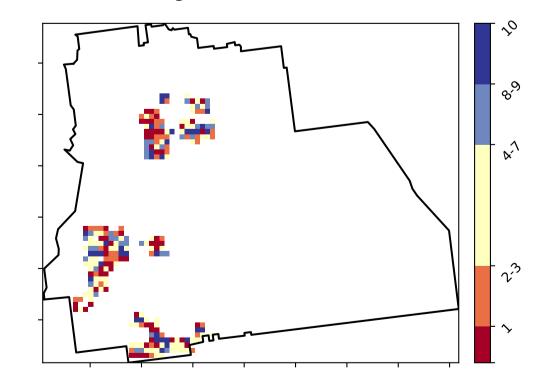


Total Vegetation Cover Anomaly [%]

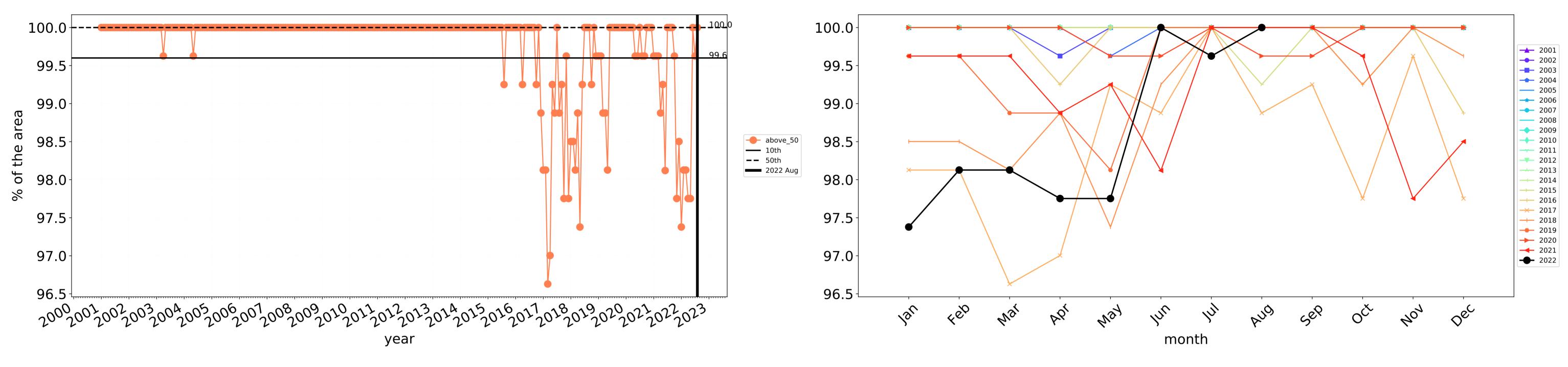




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]**

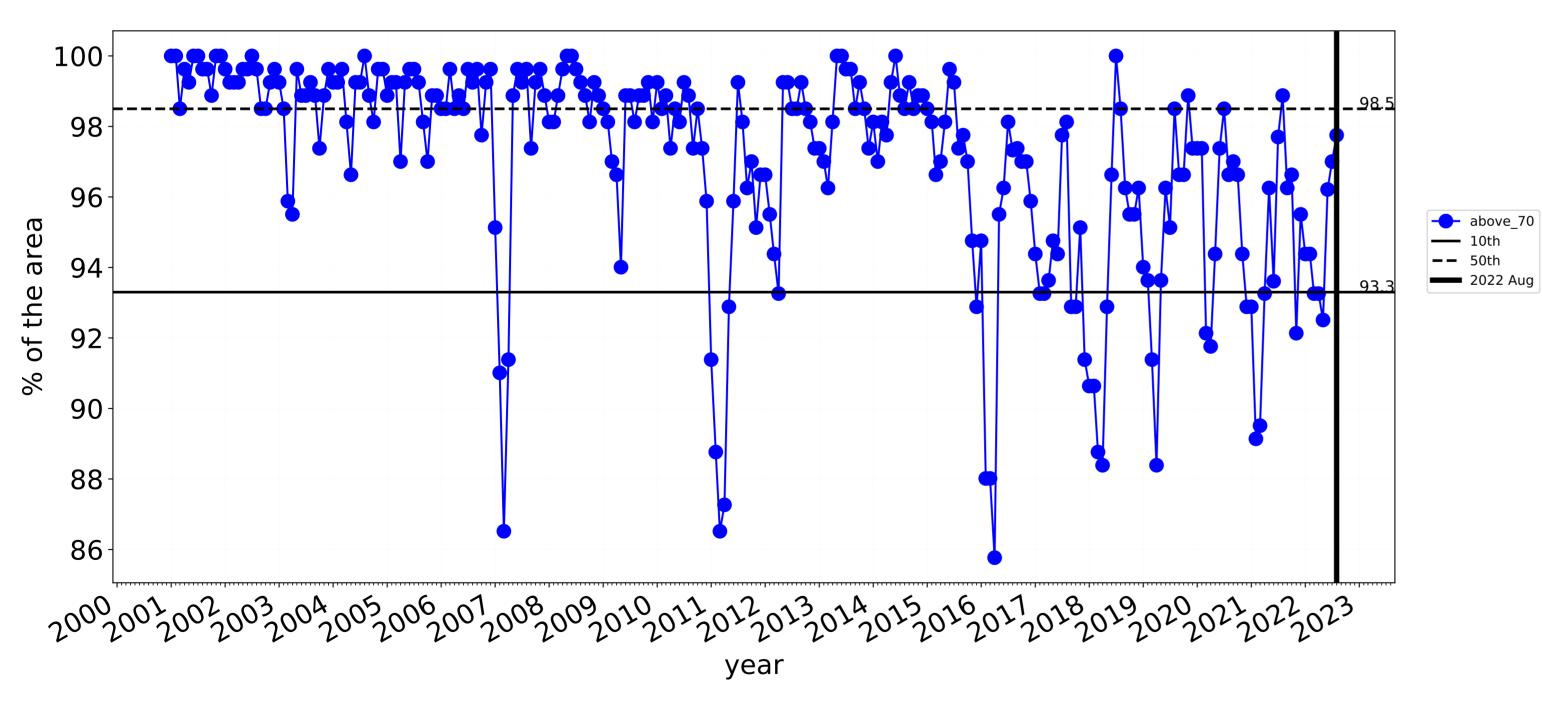


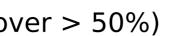




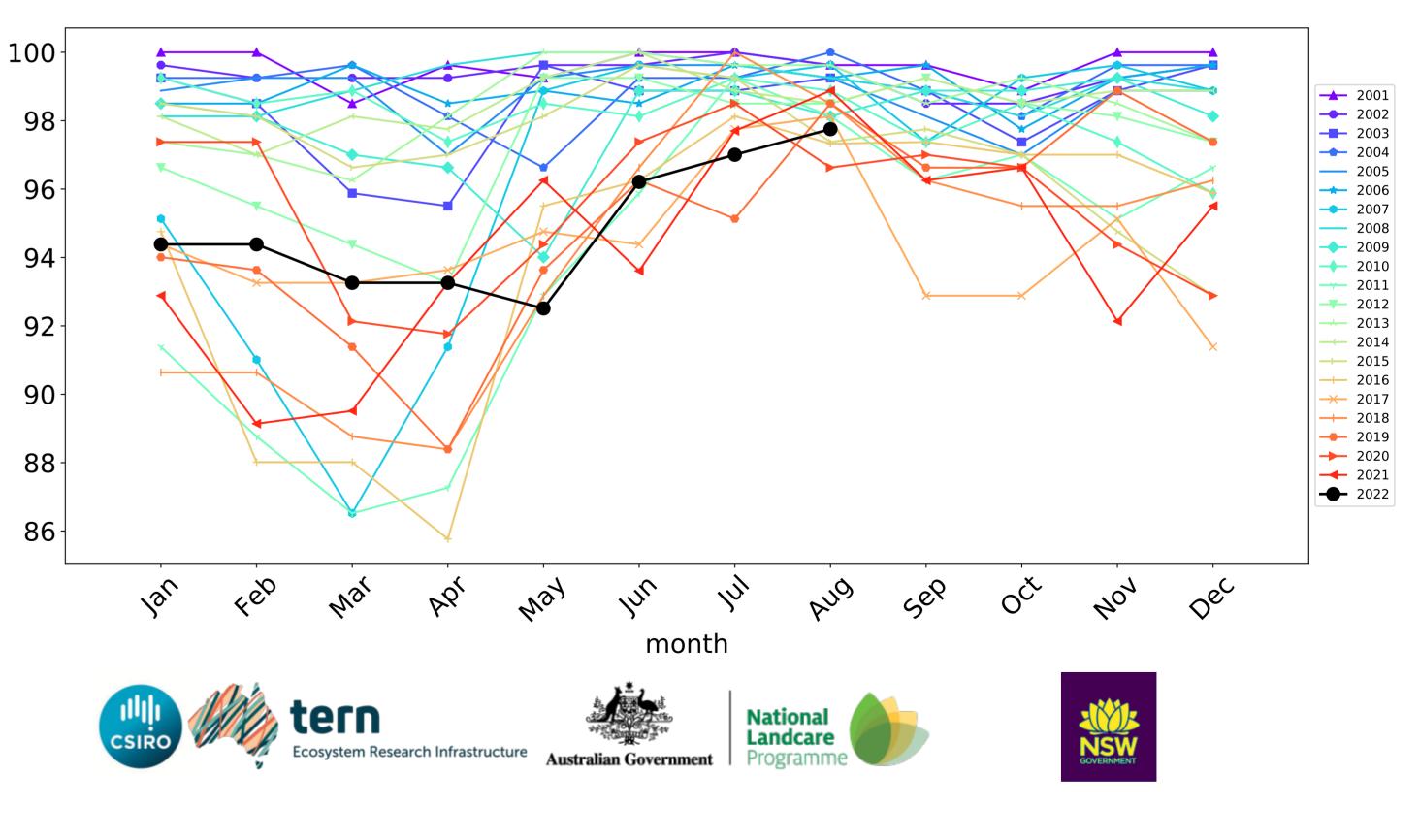
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

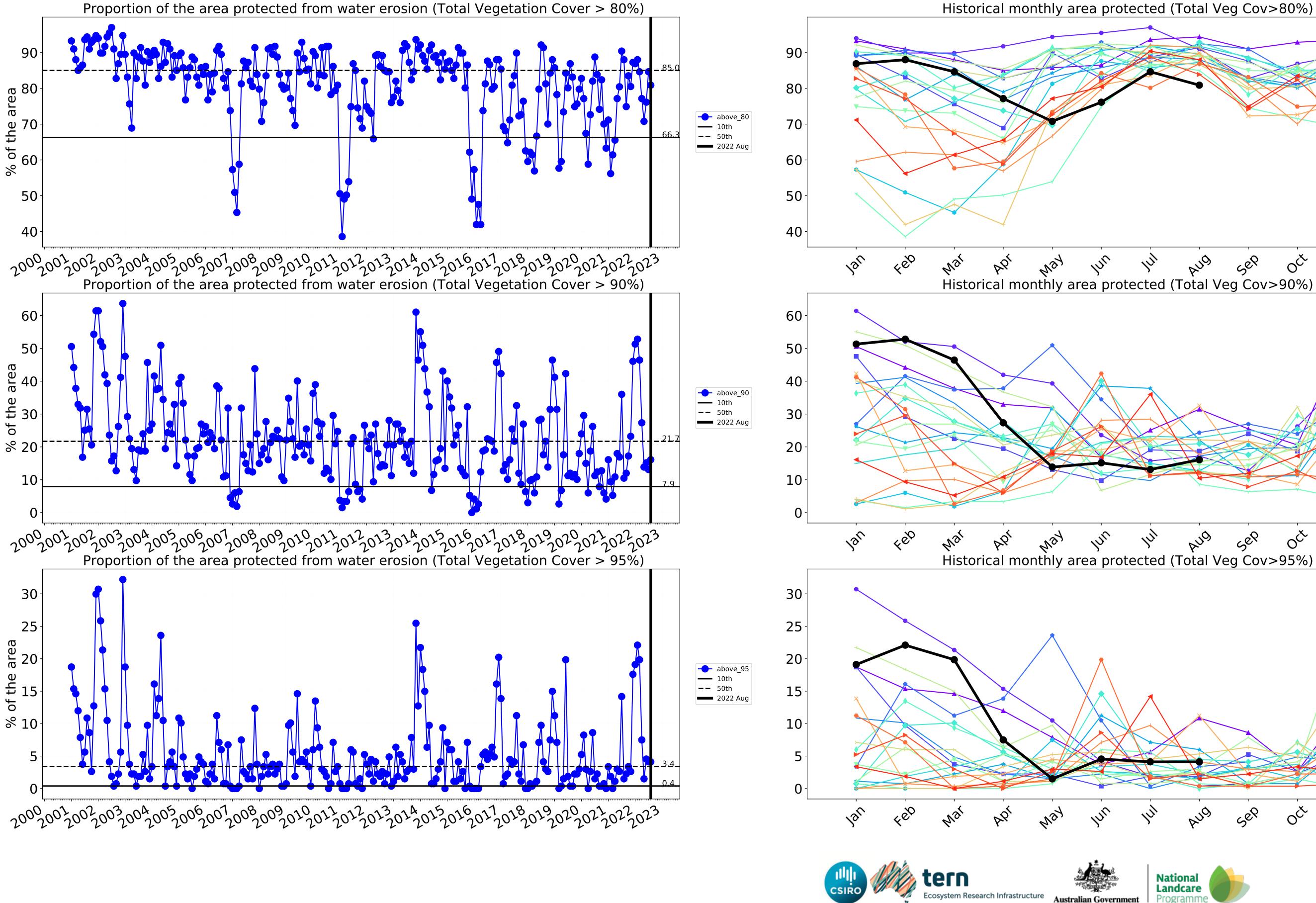




Wind erosion historical monthly area protected (Total Veg Cov >50%)



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





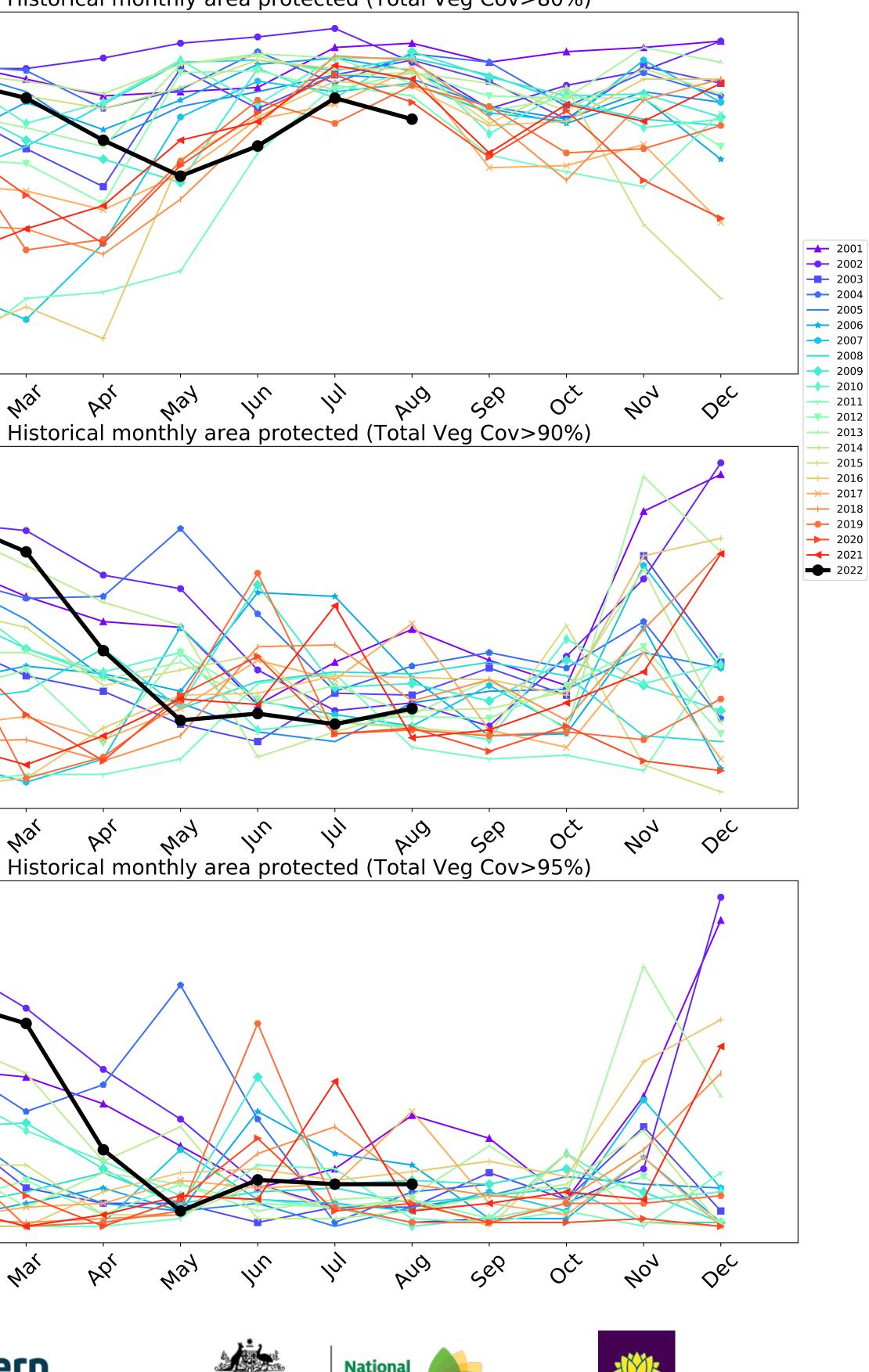
1's

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1)

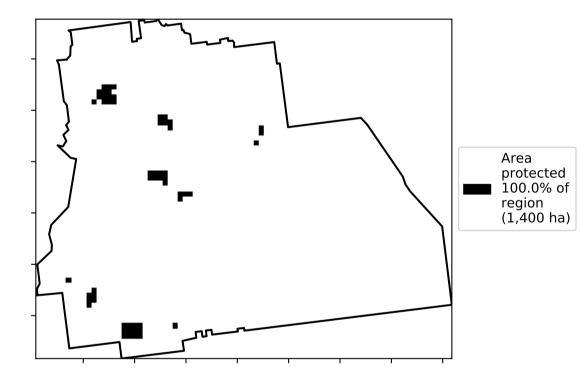


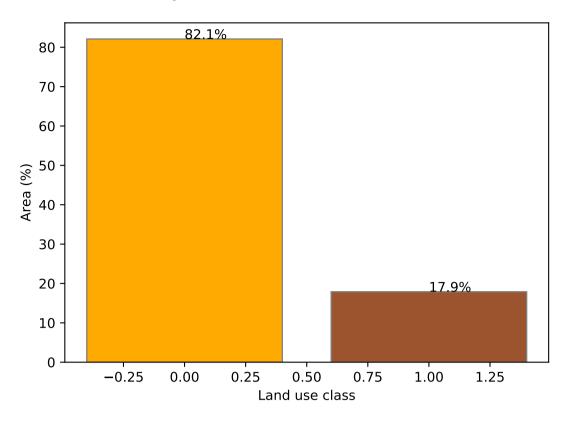
NSW

Irrigation

Each use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) 1 Agriculture - Grazing - Inflated 2 Agriculture - Horiculture - Infigated 1 Agriculture - Horiculture - Infigated 1 Agriculture - Horiculture - Infigated 1 Australia (2018) 1 Official Vegetation Cover [%] 1 O

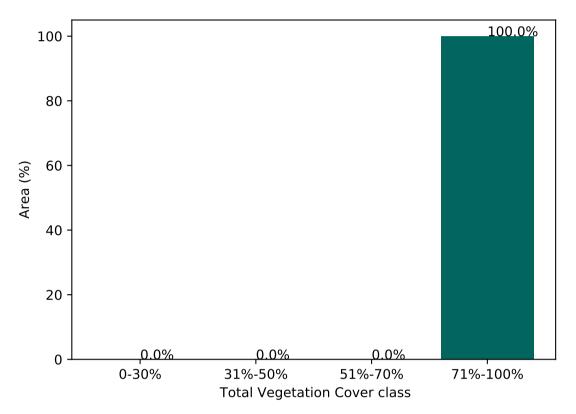
% Area protected from water erosion (>70%)





Proportion of each land class in area

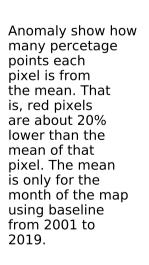
Proportion of vegetation cover class in area

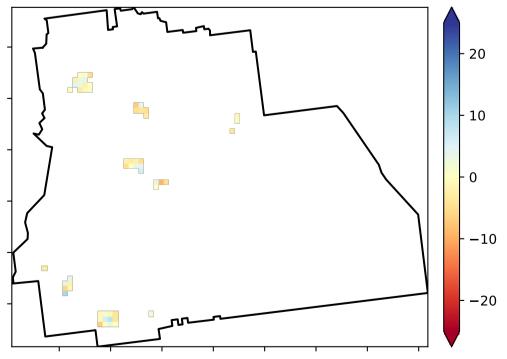


% Area protected from wind erosion (>50%)

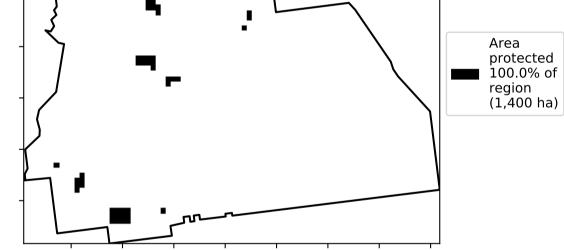


Total Vegetation Cover Anomaly [%]

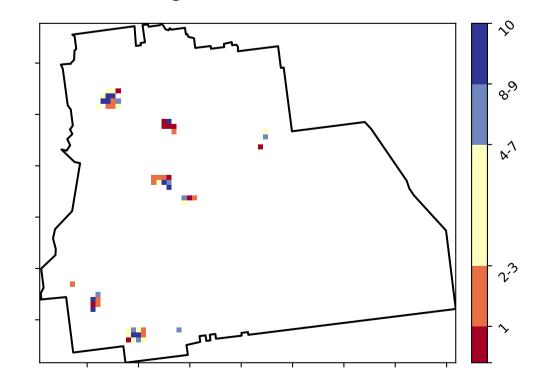




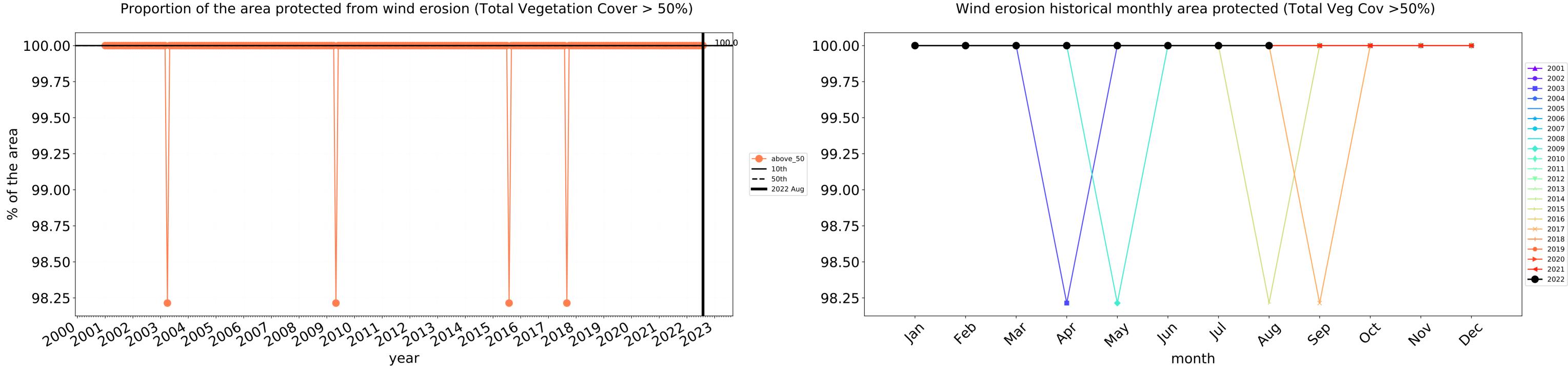
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



Total Vegetation Cover Decile [%]

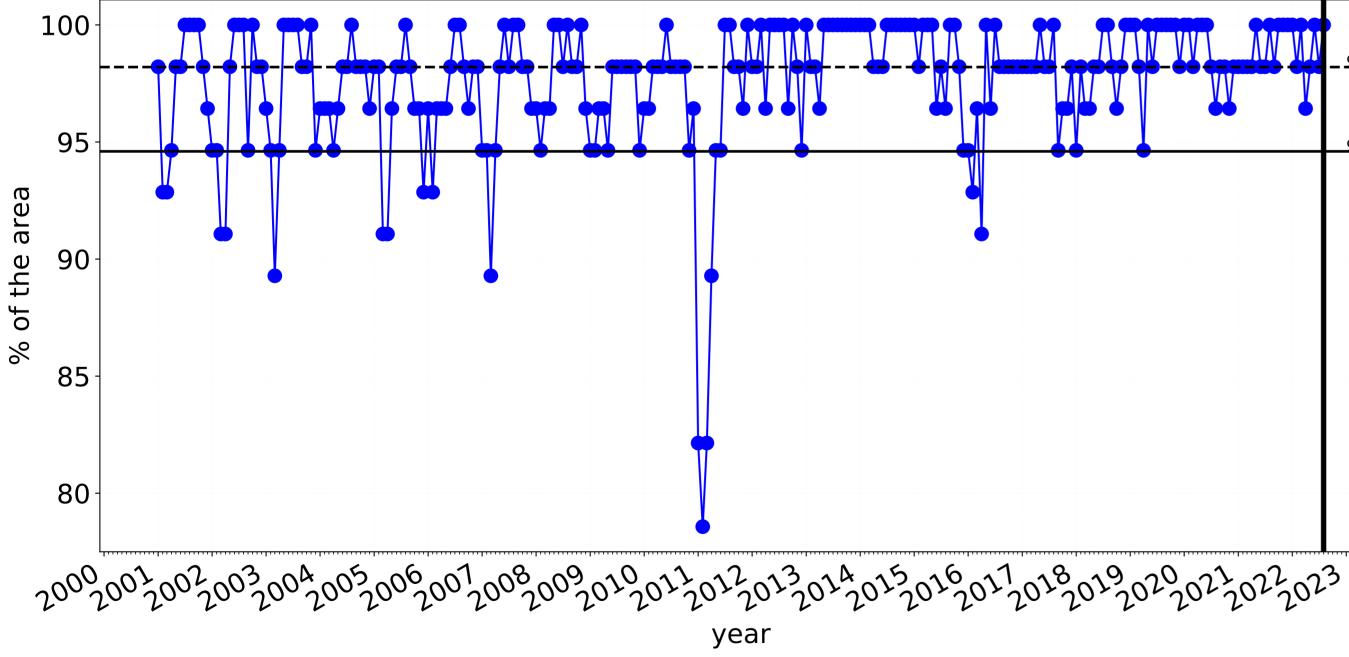






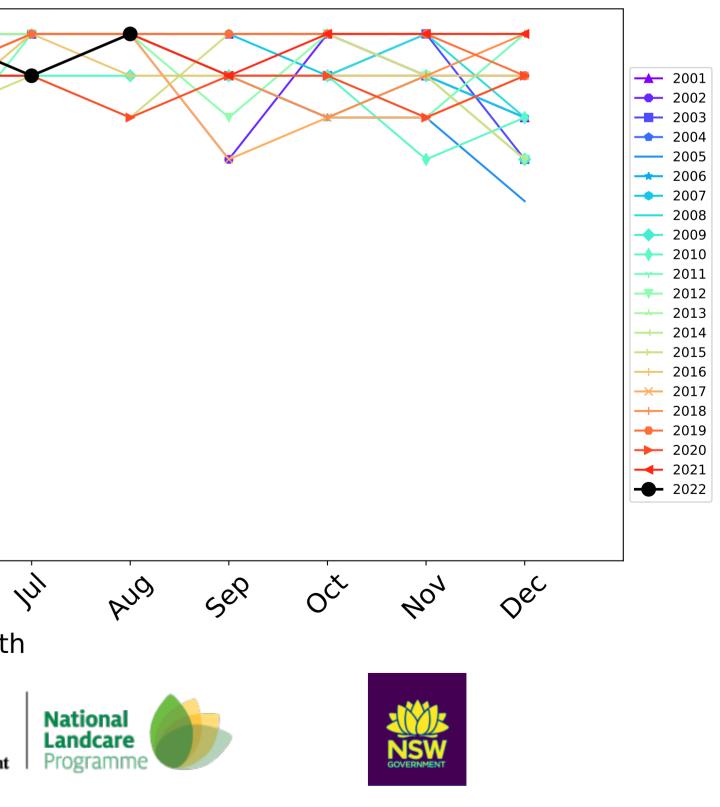
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

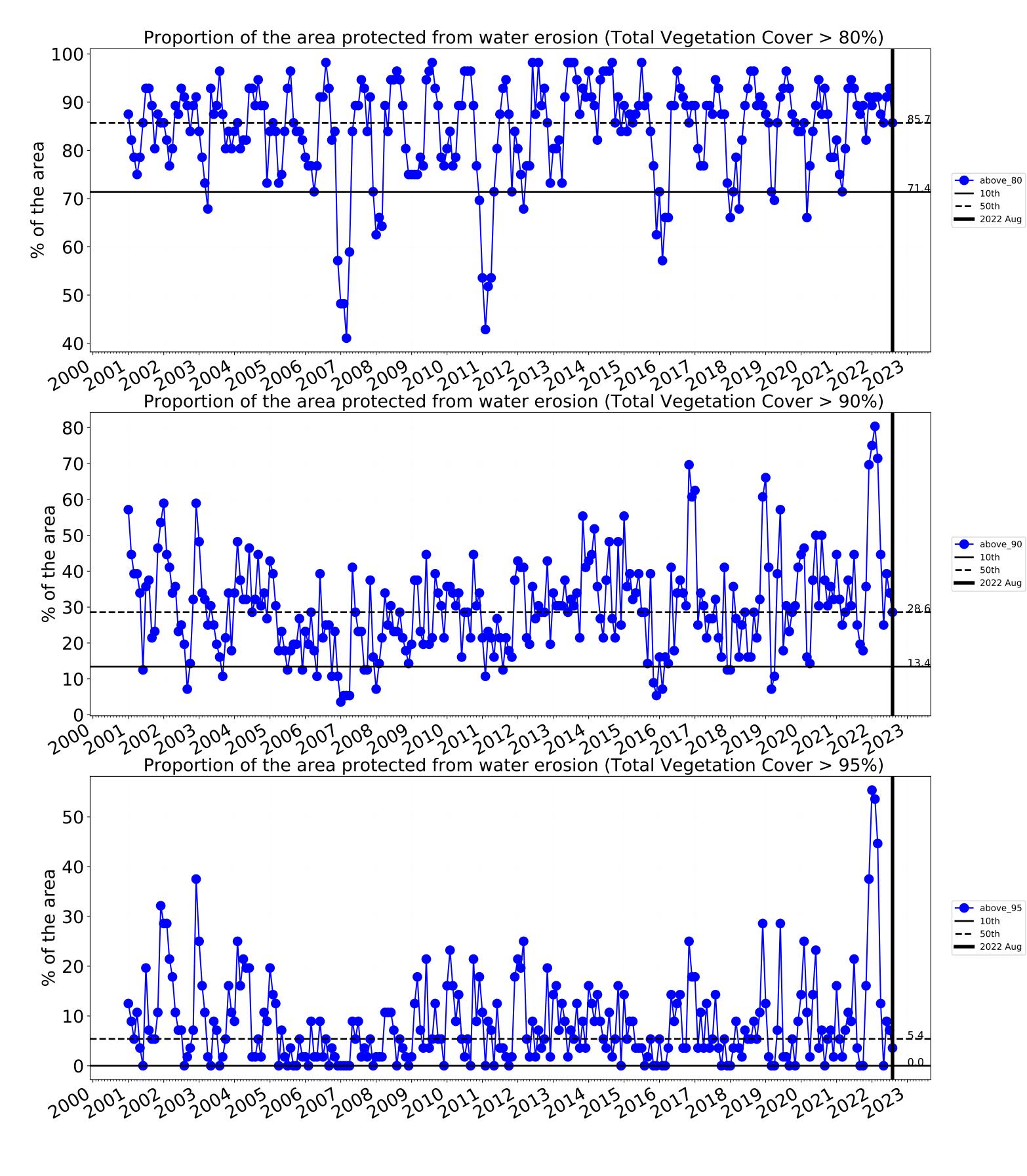


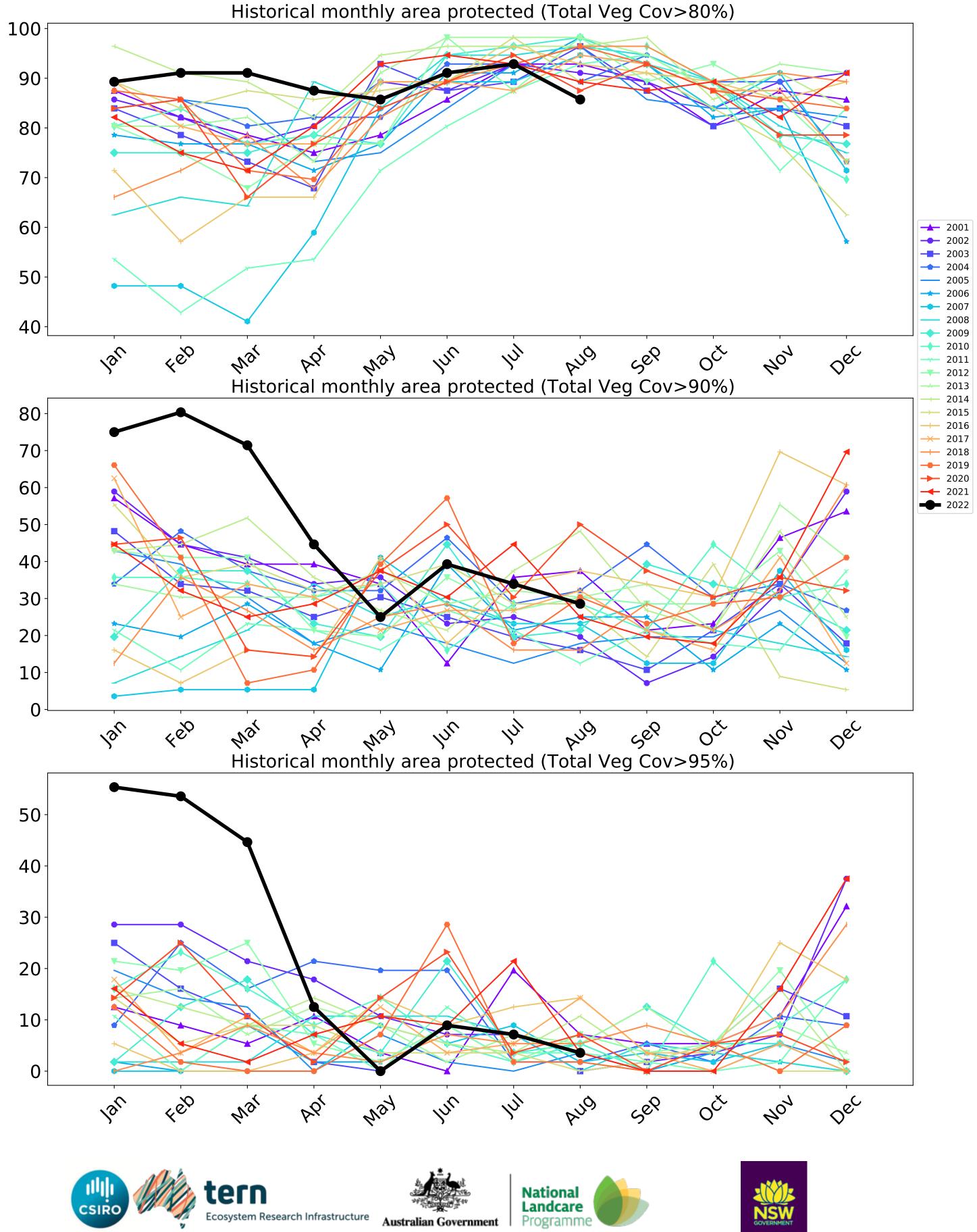


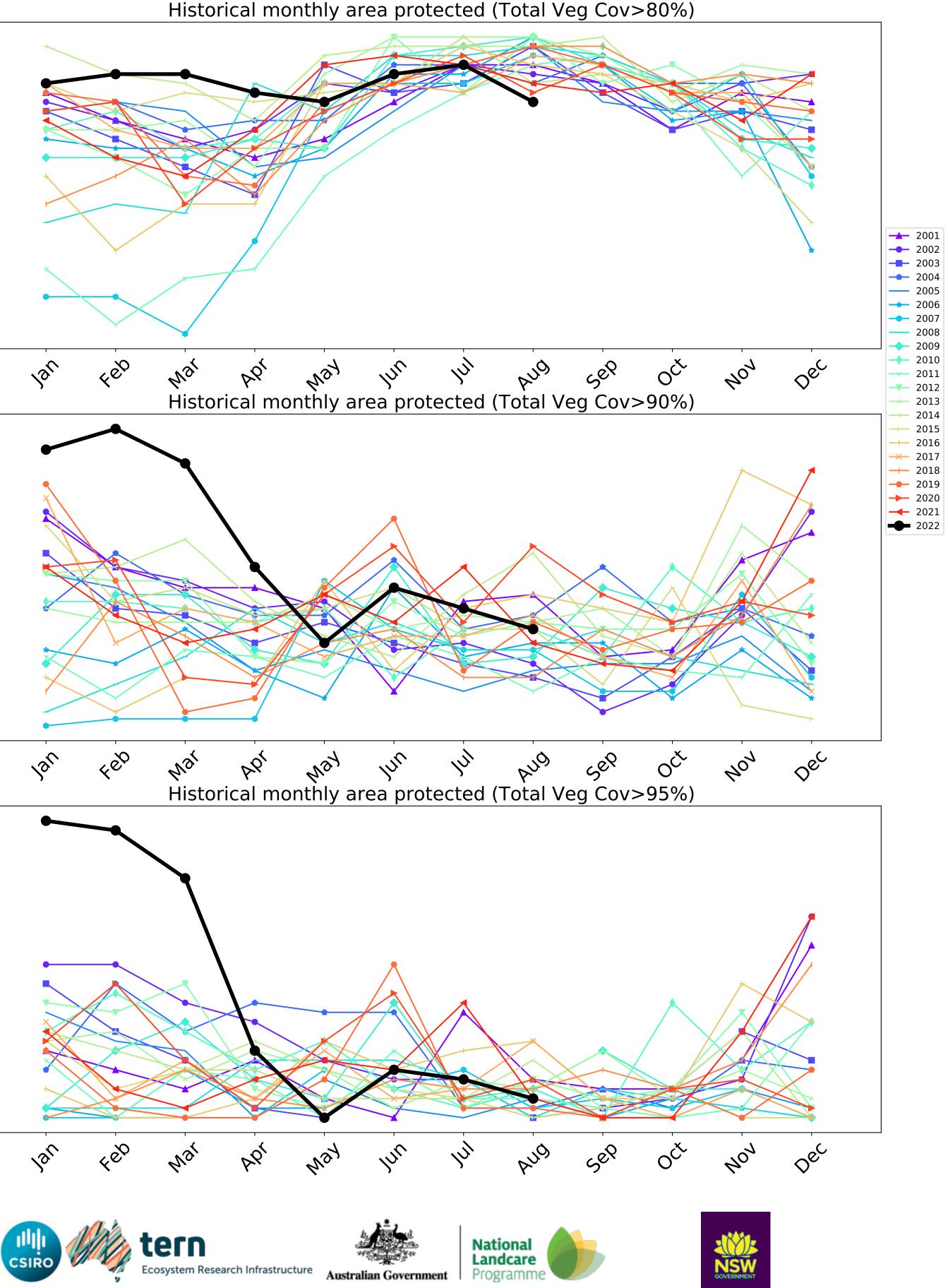
100 98.2 95 ---- above_70 **—** 10th **--** 50th **—** 2022 Aug 90 85 80 4eb lar way Inu POL War month tern Ecosystem Research Infrastructure Australian Government

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



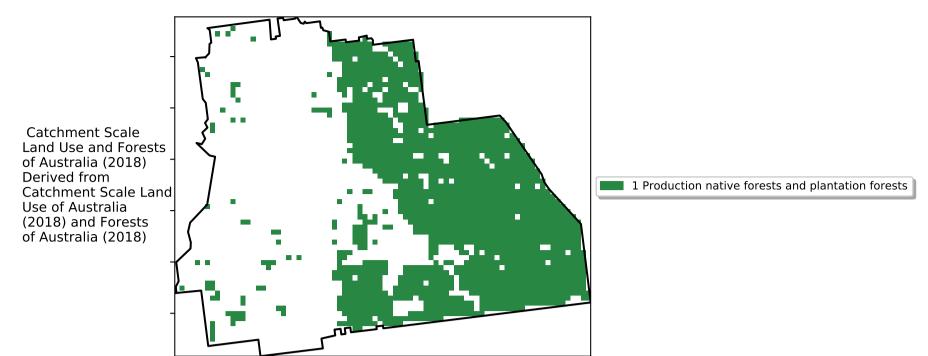




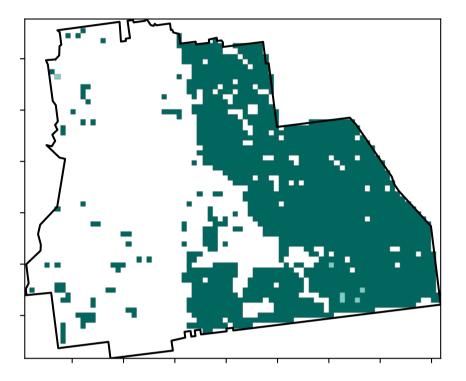


Production native forests and plantation forests

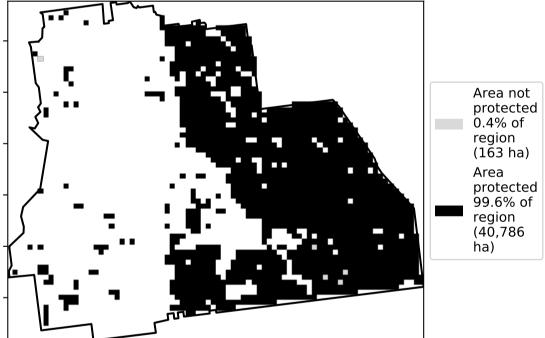
Land use and forest cover

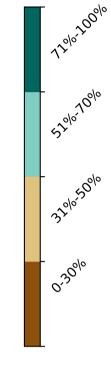


Total Vegetation Cover [%]



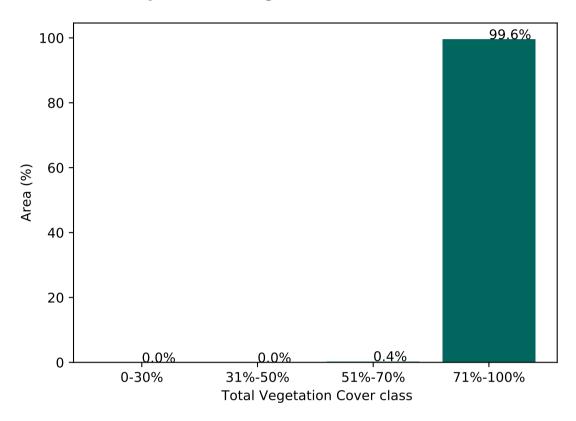
% Area protected from water erosion (>70%)



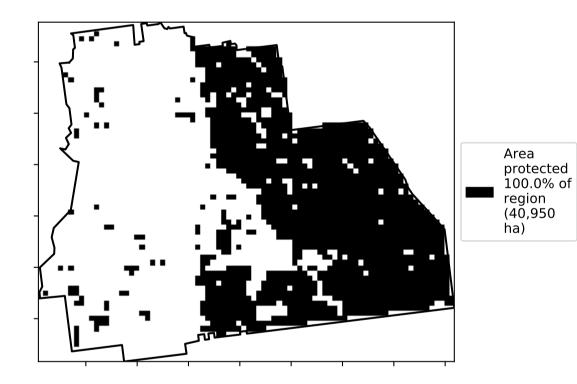




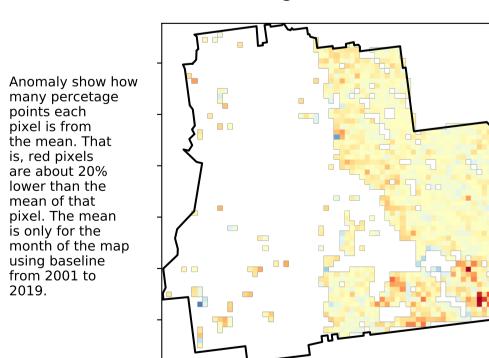
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



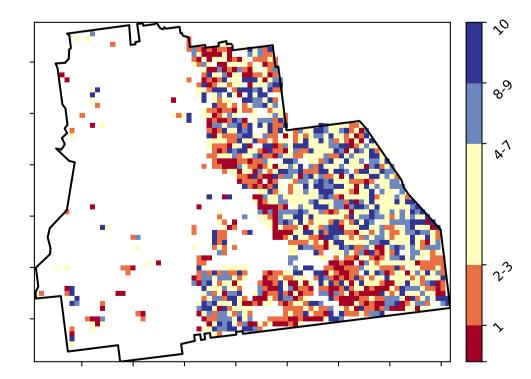
Total Vegetation Cover Anomaly [%]



- 20
- 10 Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.
- -10

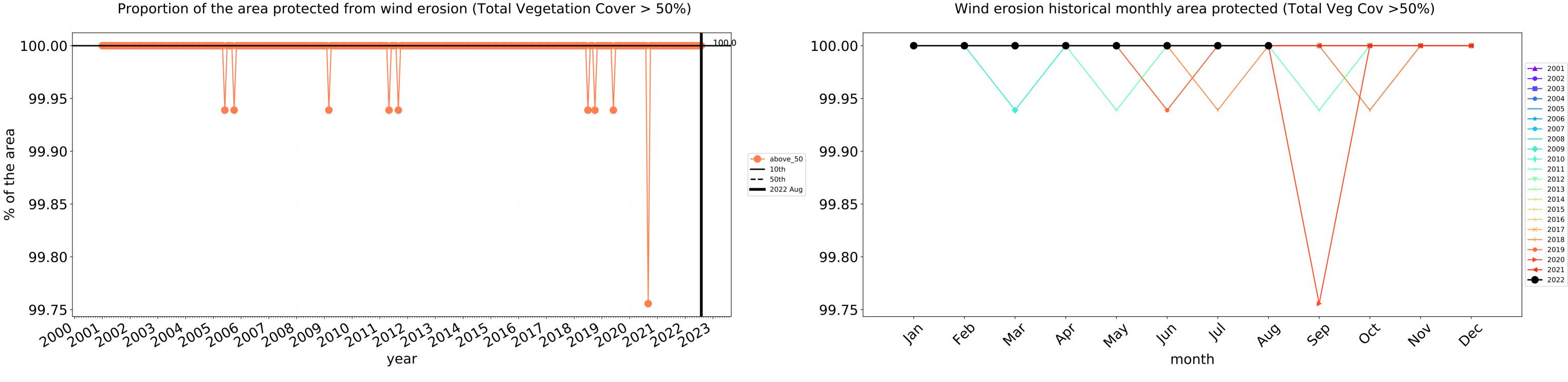
-20

Total Vegetation Cover Decile [%]

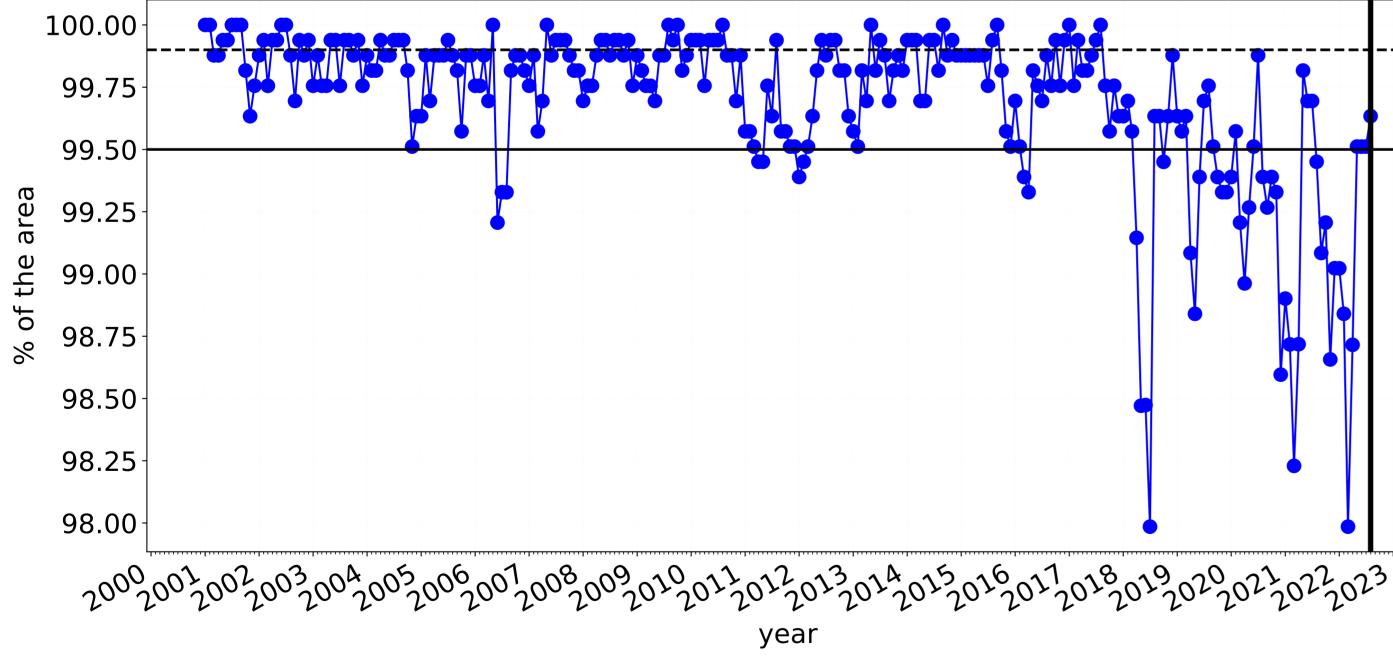




32

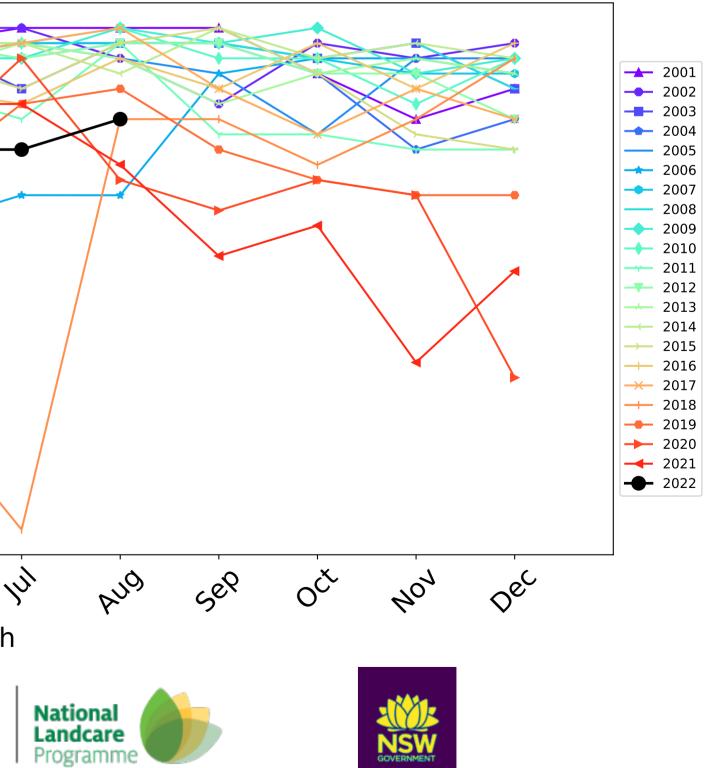


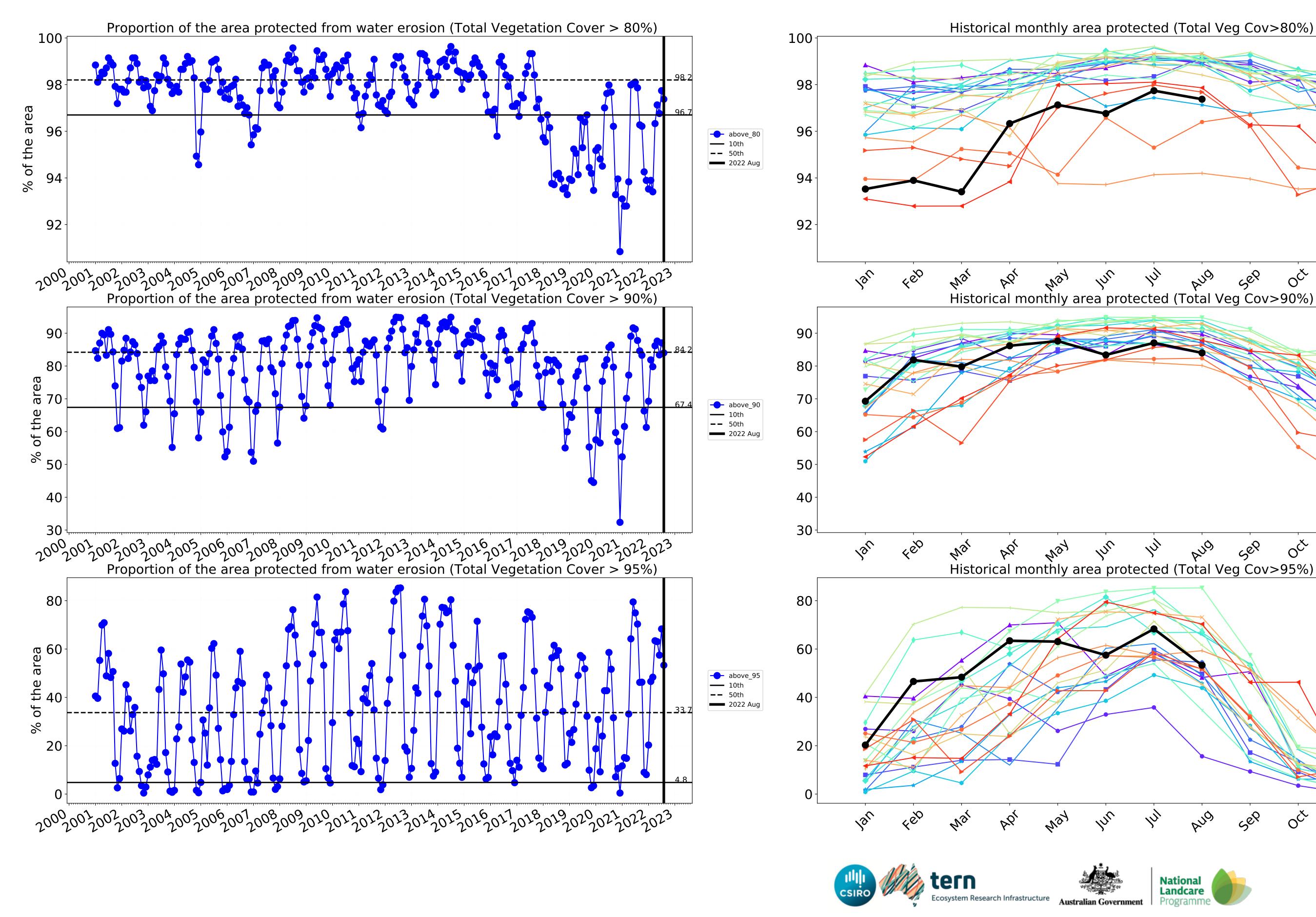
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

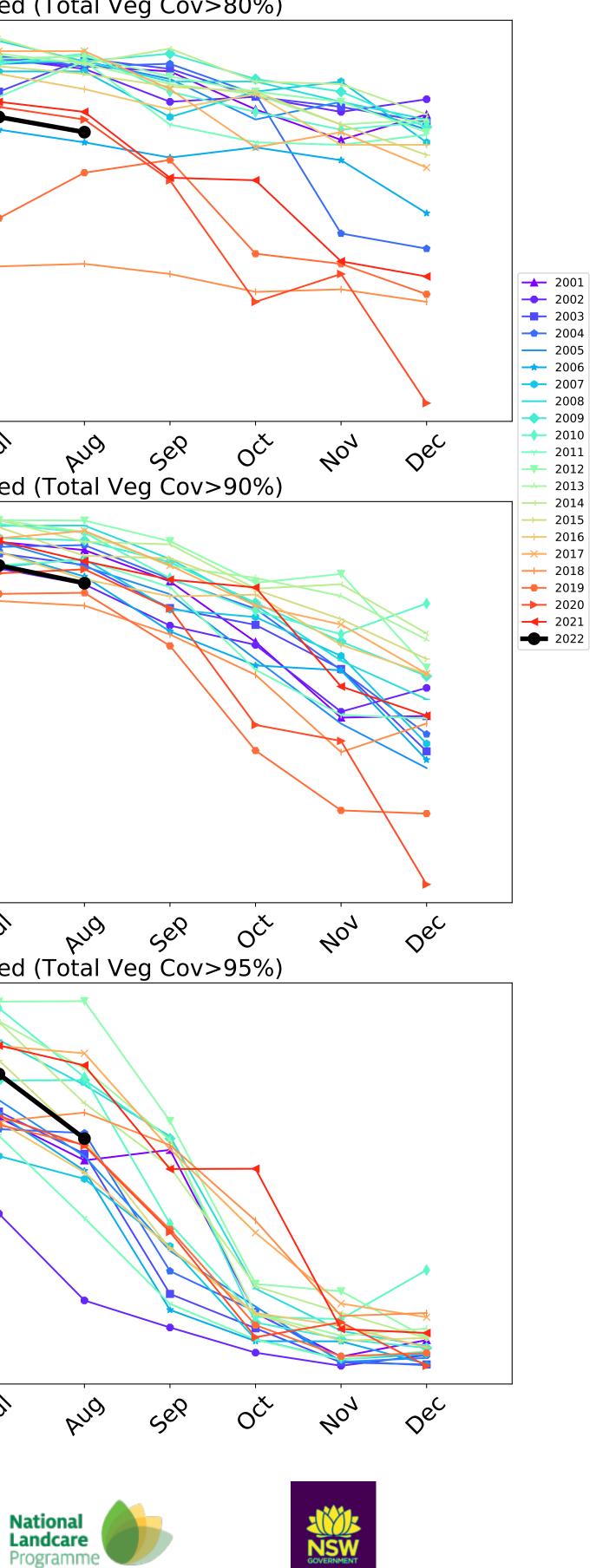


100.00-**99.75** 99.50 ---- above_70 99.25 --- 10th --- 50th 99.00 98.75 98.50 98.25 98.00 4eD Jan In way POL War month tern Ecosystem Research Infrastructure Australian Government

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







Serpentine-Jarrahdale_(S) (90,125 ha and no data 9 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	90,125	100.0% 90,125	99.9% 90,025	98.2% 88,475	89.2% 80,375	53.1% 47,875	29.4% 26,475
Conservation and natural environments	9,025	100.0% 9,025	100.0% 9,025	100.0% 9,025	96.1% 8,675	70.6% 6,375	31.3% 2,825
Conservation and natural environments non forest	1,325	100.0% 1,325	100.0% 1,325	100.0% 1,325	88.7% 1,175	35.8% 475	9.4% 125
Conservation and natural environments Woodland forest	3,275	100.0% 3,275	100.0% 3,275	100.0% 3,275	94.7% 3,100	59.5% 1,950	14.5% 475
Conservation and natural environments Forest (non woodland)	4,425	100.0% 4,425	100.0% 4,425	100.0% 4,425	99.4% 4,400	89.3% 3,950	50.3% 2,225
Agriculture	15,350	100.0% 15,350	100.0% 15,350	98.9% 15,175	85.5% 13,125	18.6% 2,850	3.9% 600
Grazing	7,275	100.0% 7,275	100.0% 7,275	99.7% 7,250	89.7% 6,525	18.9% 1,375	3.8% 275
Grazing non forest	7,275	100.0% 7,275	100.0% 7,275	99.7% 7,250	89.7% 6,525	18.9% 1,375	3.8% 275
Cropping	6,675	100.0% 6,675	100.0% 6,675	97.8% 6,525	80.9% 5,400	16.1% 1,075	4.1% 275
Irrigation	1,400	100.0% 1,400	100.0% 1,400	100.0% 1,400	85.7% 1,200	$28.6\% \\ 400$	3.6% 50
Production native forests and plantation forests	40,950	100.0% 40,950	100.0% 40,950	99.6% 40,800	97.4% 39,875	84.0% 34,400	53.3% 21,825

