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: September 2021

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 Sep 2021

Land use and forest cover

of Australia (2018)

Derived from

pixel is from

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.

the mean. That

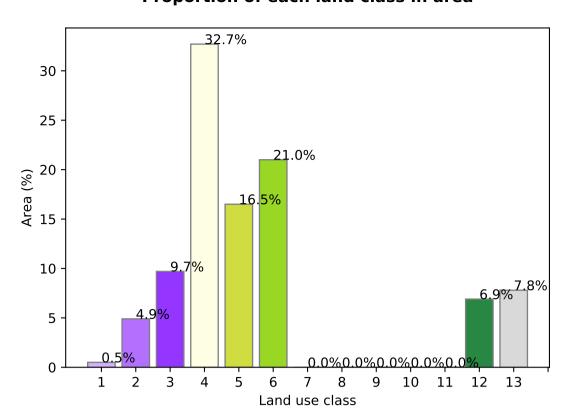
Use of Australia

(2018) and Forests

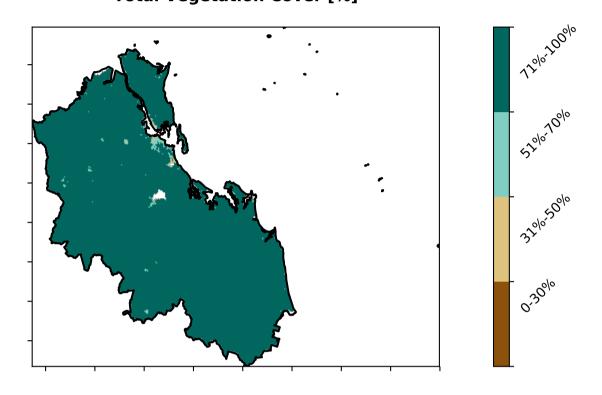
of Australia (2018)

Legend with land class forest cover and number, i.e. Forests is 12 1 Conservation and natural environments - Non-forest 2 Conservation and natural environments - Woodland forest Catchment Scale Land Use and Forests 3 Conservation and natural environments - Non-Woodland forest 4 Agriculture - Grazing - Non-forest 5 Agriculture - Grazing - Woodland forest Catchment Scale Land 6 Agriculture - Grazing - Non-woodland forest 7 Agriculture - Grazing - Irrigated 8 Agriculture - Cropping - Non-irrigated 9 Agriculture - Cropping - Irrigated 10 Agriculture - Horticulture - Non-irrigated 11 Agriculture - Horticulture - Irrigated 12 Production native forests and plantation forests 13 Other uses

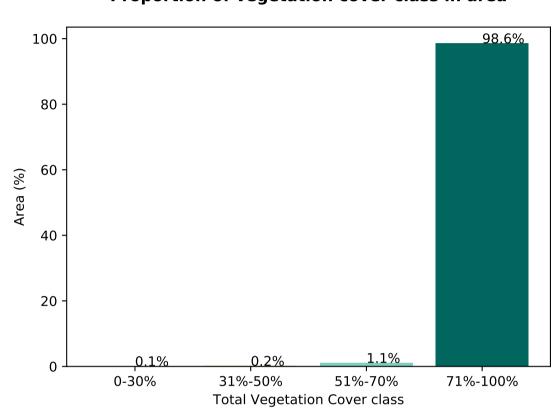
Proportion of each land class in area



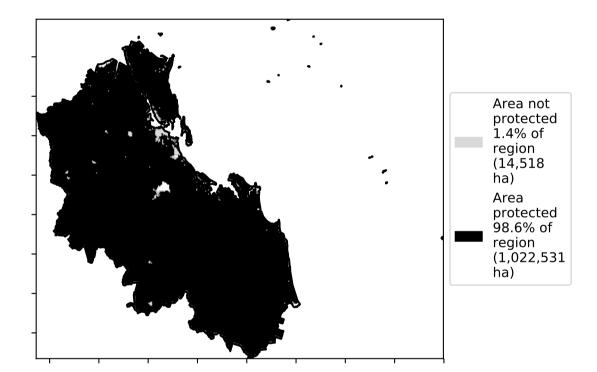
Total Vegetation Cover [%]



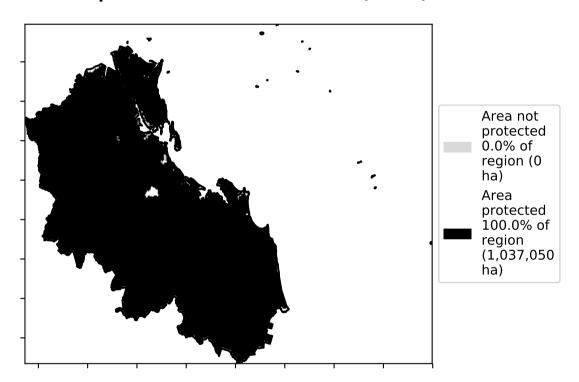
Proportion of vegetation cover class in area



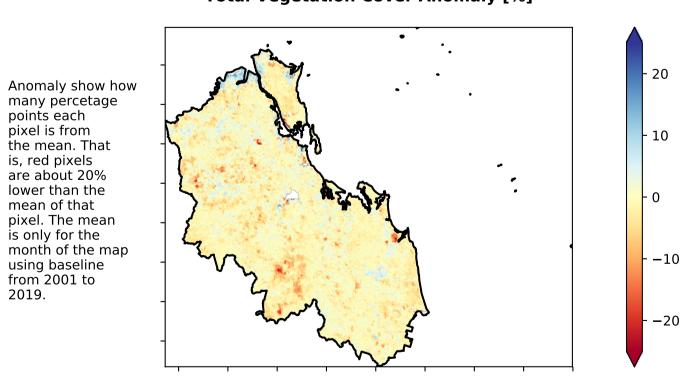
% Area protected from water erosion (>70%)



% 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.

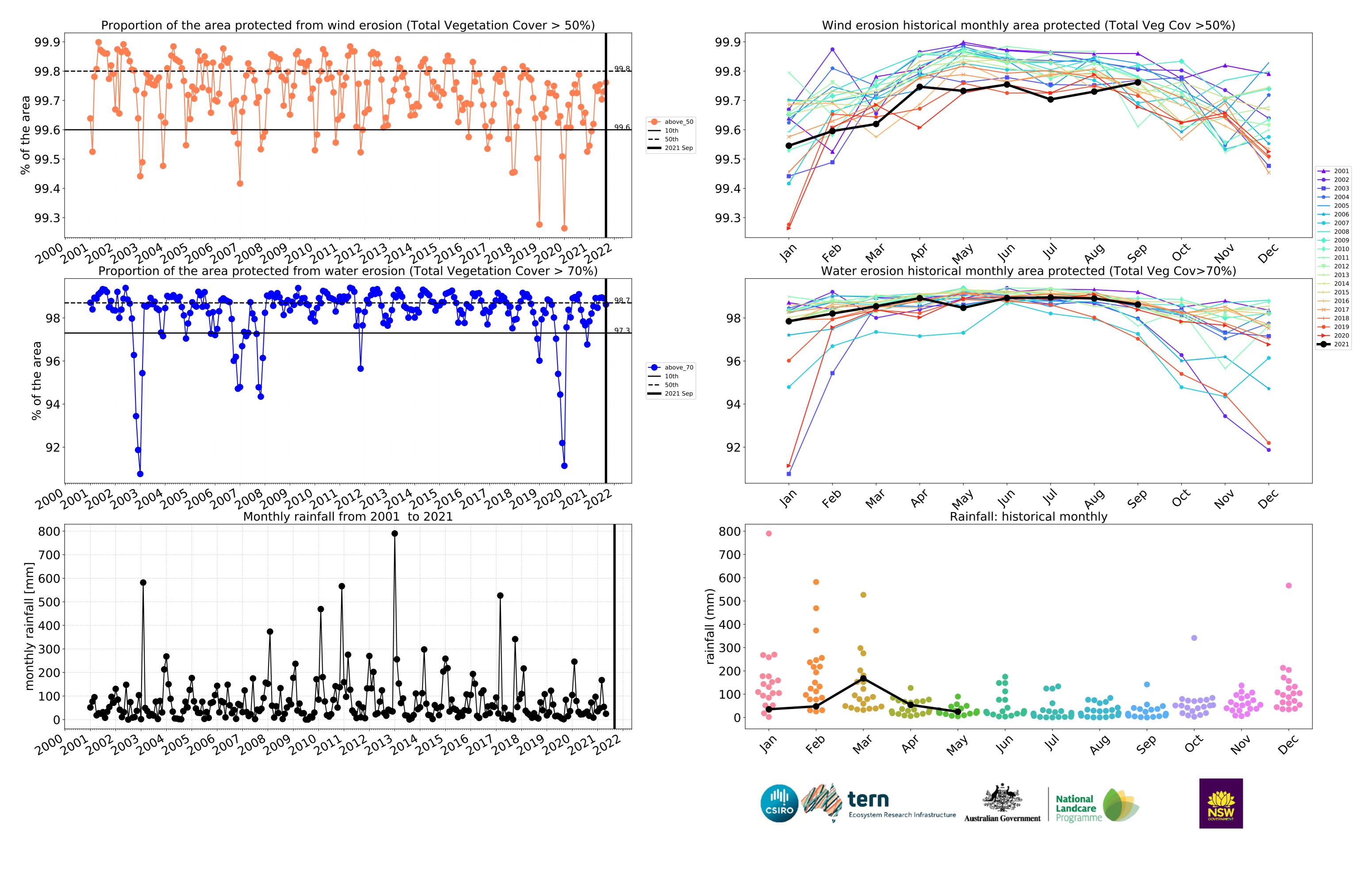
Total Vegetation Cover Decile [%]



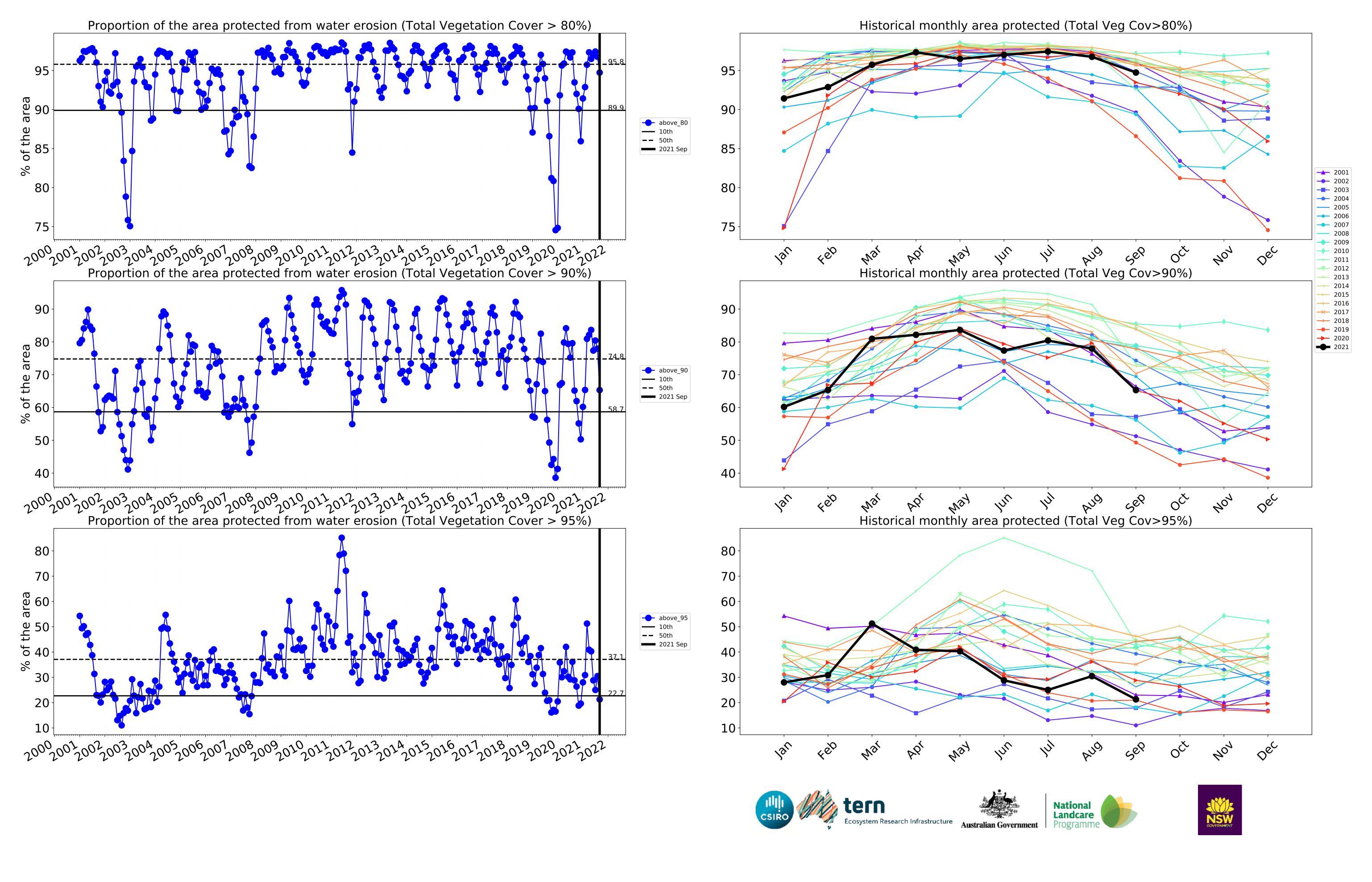








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Conservation and natural environments

Proportion of each land class in area **Land use and forest cover** 64.3% 60 50 Catchment Scale Land Use and Forests of Australia (2018) 1 Conservation and natural environments - Nonforest Area (%) Derived from 2 Conservation and natural environments – Woodland 32.3% Catchment Scale Land Use of Australia 3 Conservation and natural environments - Non-woodland forest (2018) and Forests of Australia (2018) 20 10 3 2 Land use class Proportion of vegetation cover class in area **Total Vegetation Cover [%]** 98.7% 100 80 60 20 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class** % Area protected from water erosion (>70%) % Area protected from wind erosion (>50%) Area not protected 0.0% of region (0 Area not protected 1.3% of region (2,012 ha) Area Area protected 98.7% of protected 100.0% of region (152,762 region (154,775 ha) ha) **Total Vegetation Cover Anomaly [%] Total Vegetation Cover Decile [%]** - 20 Anomaly show how many percetage points each pixel is from Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are 10 the mean. That is, red pixels are about 20% lower than the mean of that in the lowest 10% of pixel. The mean records for that month of is only for the month of the map the map using baseline from 2001 to 2019. using baseline from 2001 to 2019. -10- -20

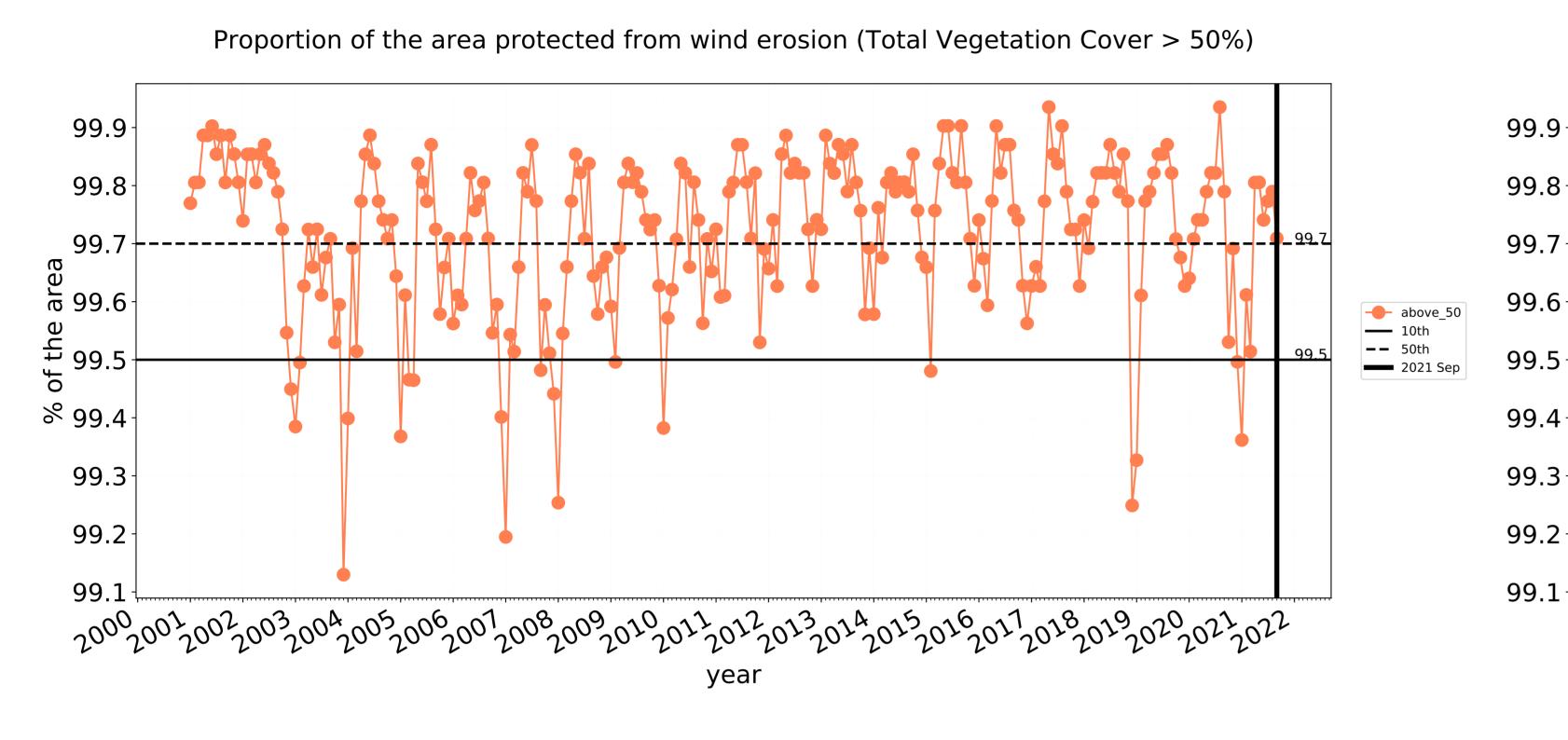
Australian Government

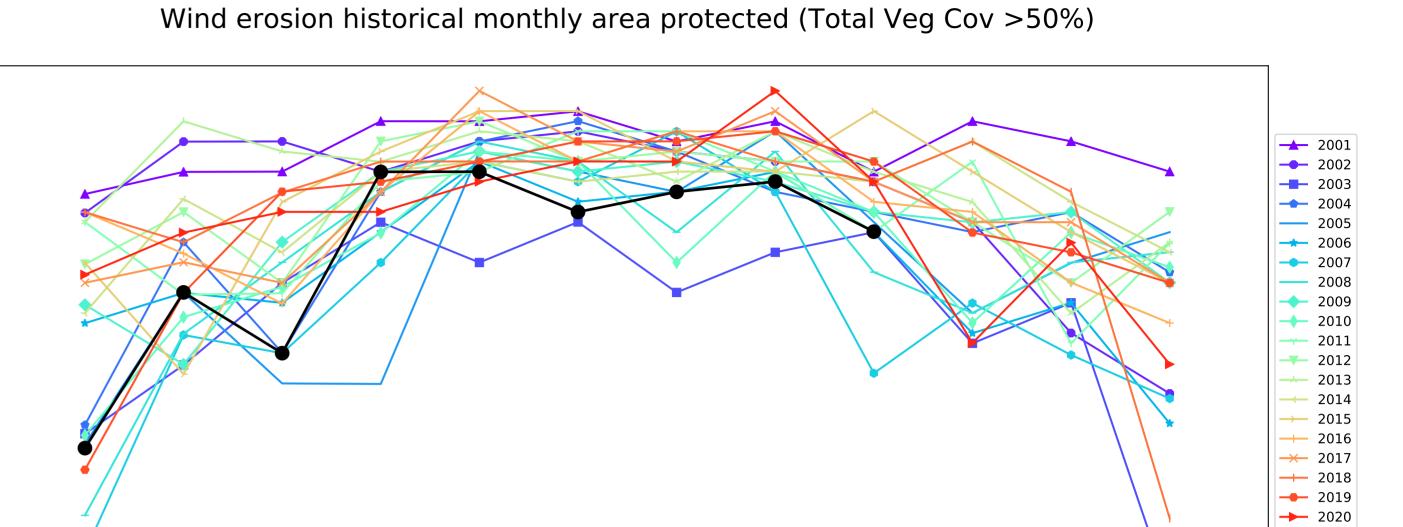
Ecosystem Research Infrastructure

National Landcare

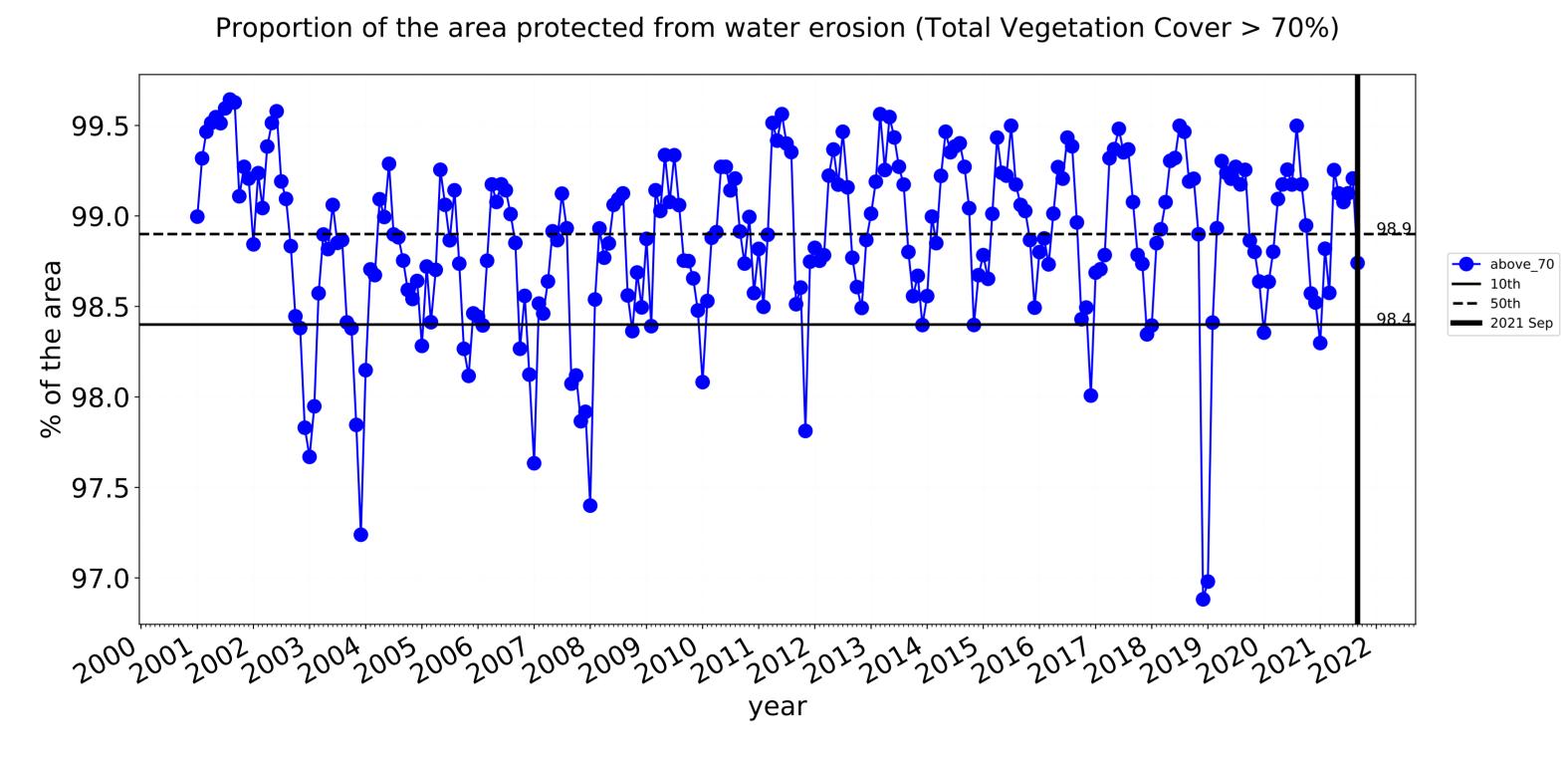
Programme

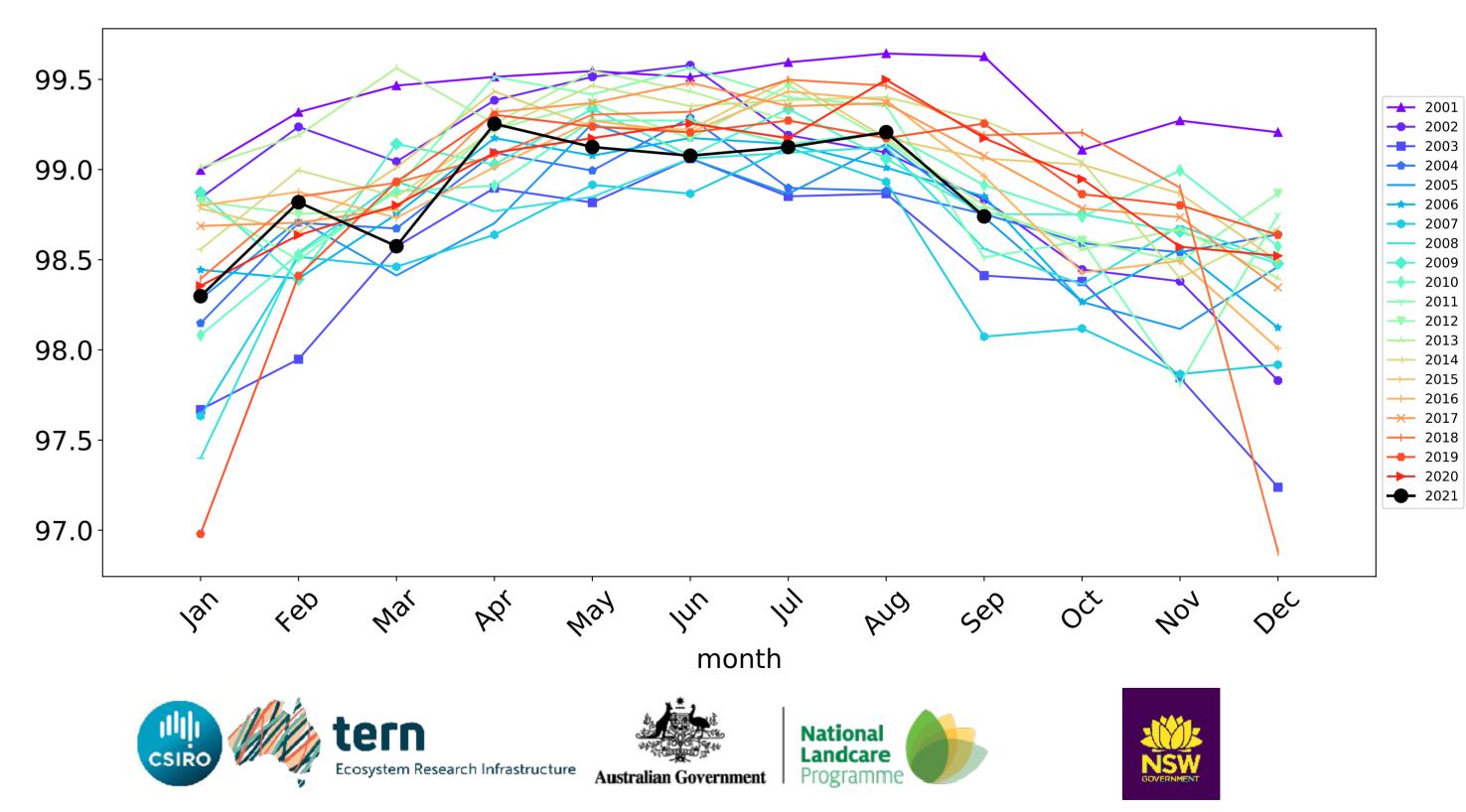
Conservation and natural environments timeseries





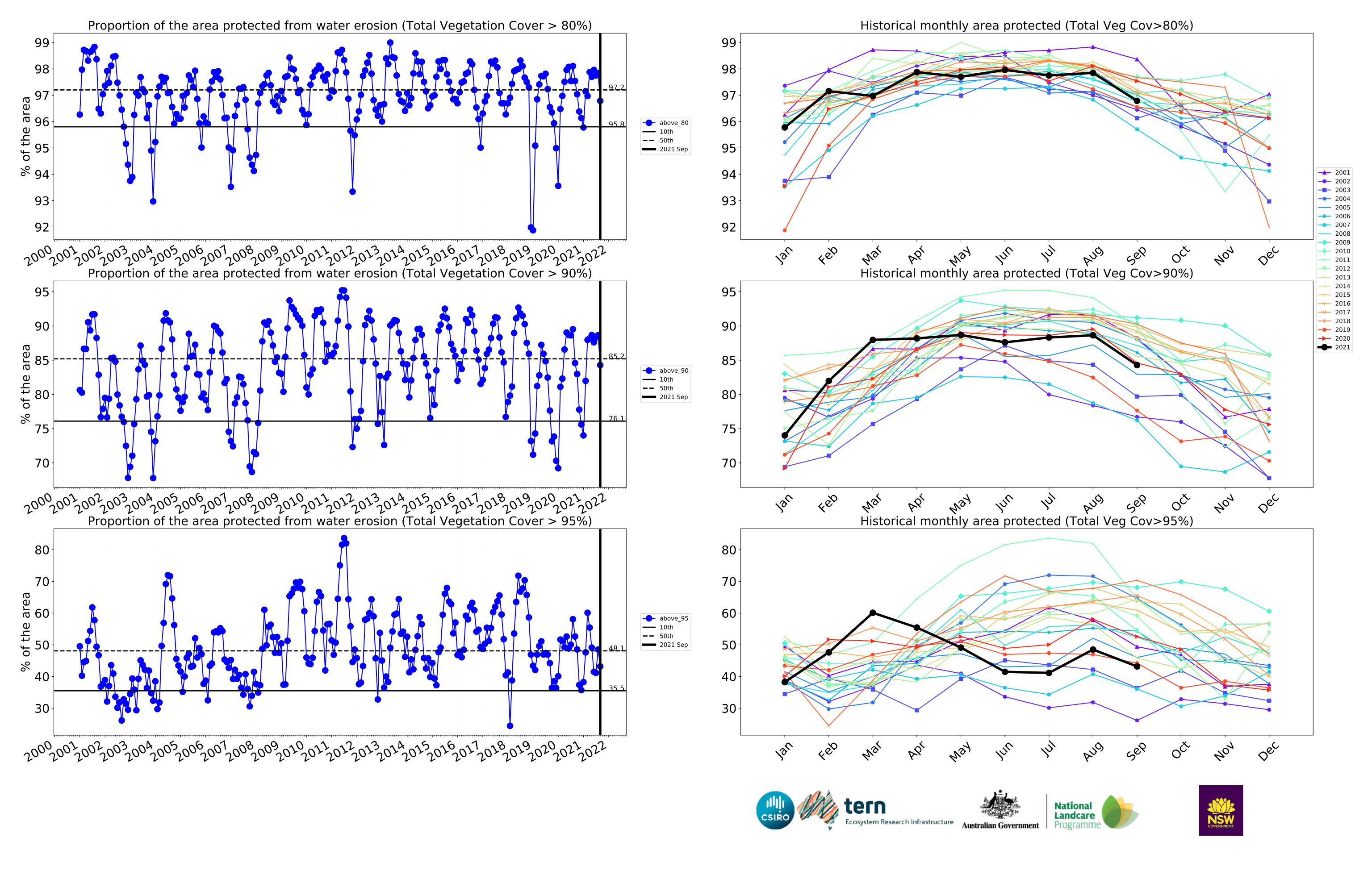
--- 2021





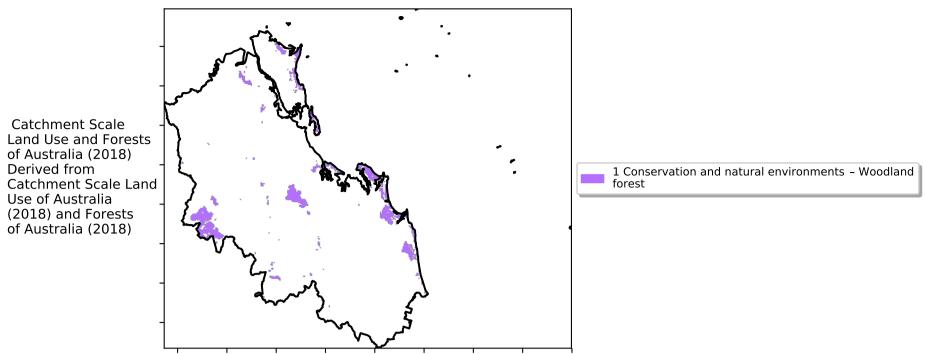
month

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

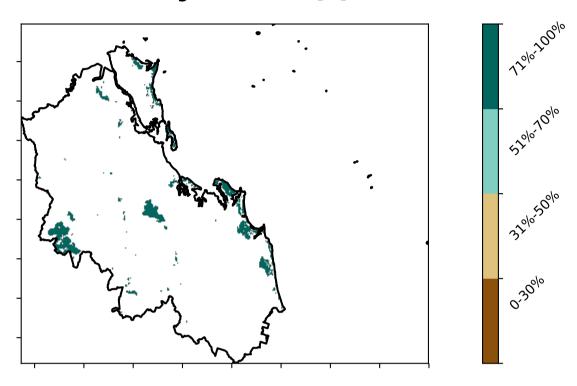


Conservation and natural environments Woodland forest

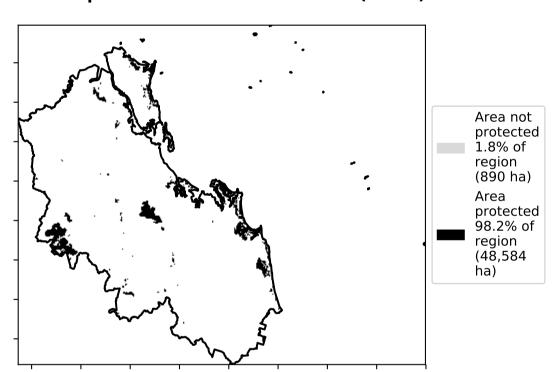
Land use and forest cover



Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

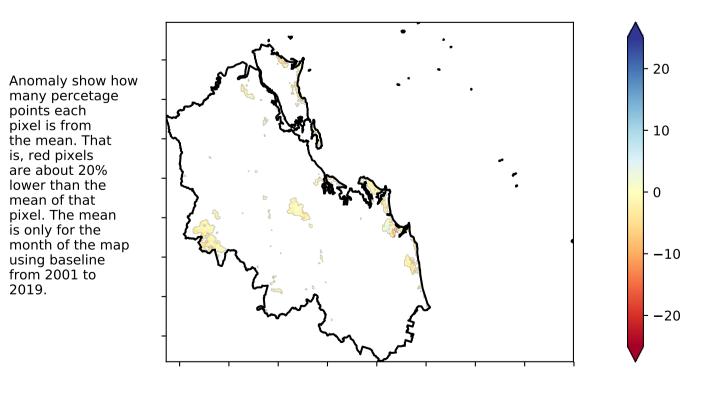


Total Vegetation Cover Anomaly [%]

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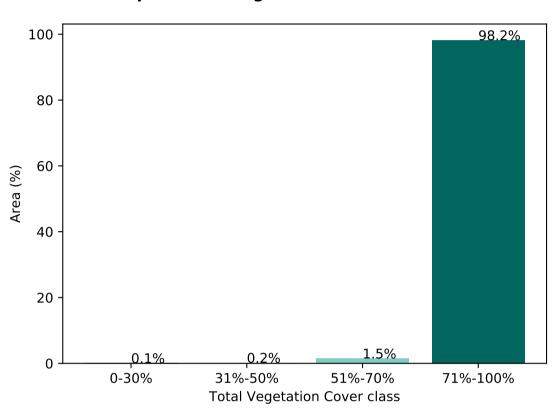
pixel. The mean

using baseline from 2001 to 2019.

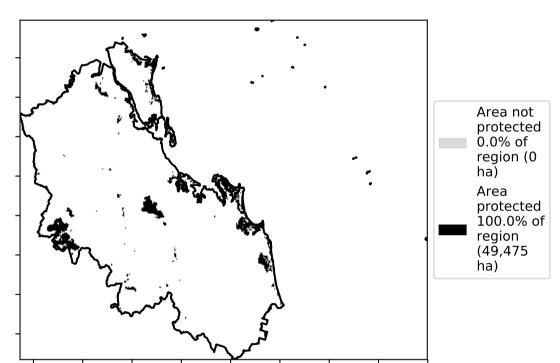


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

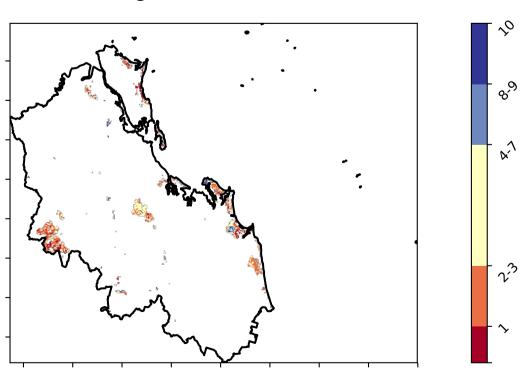
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]

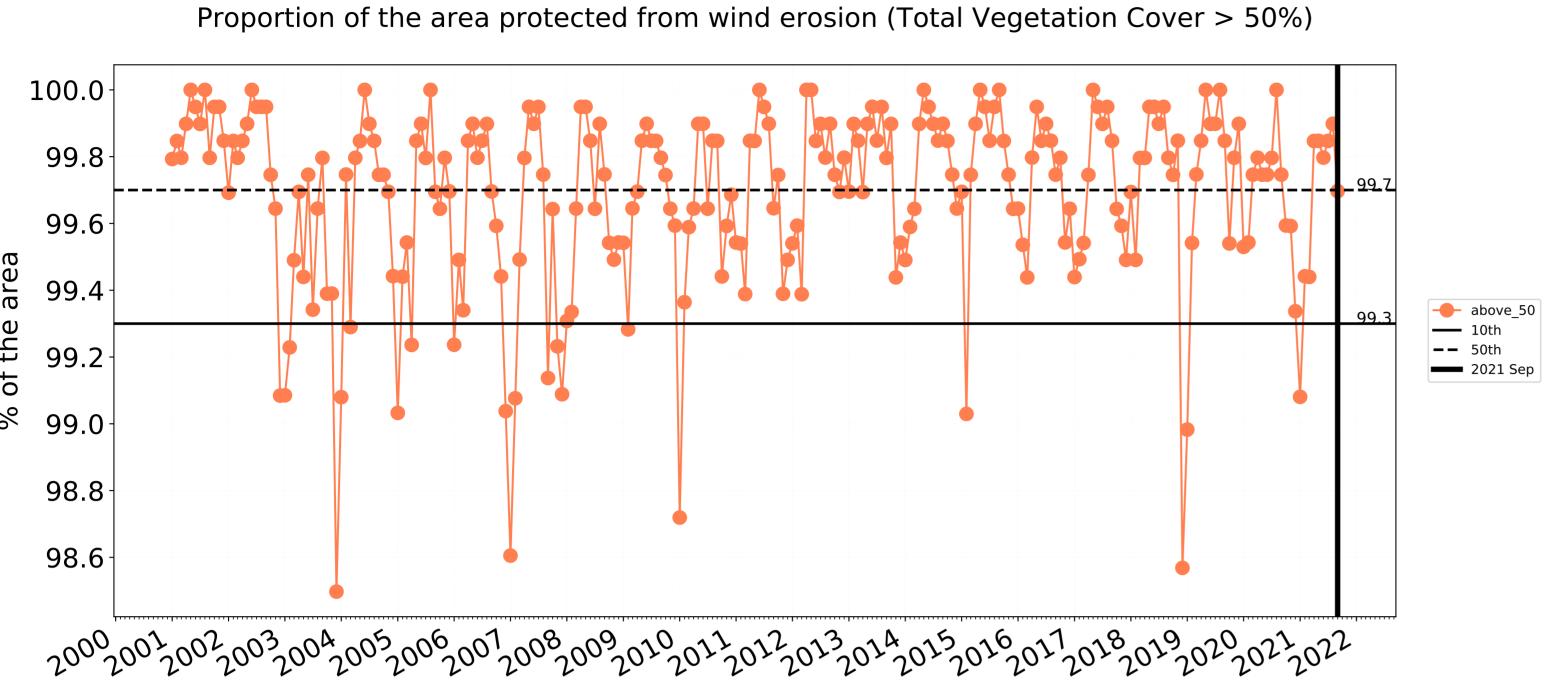




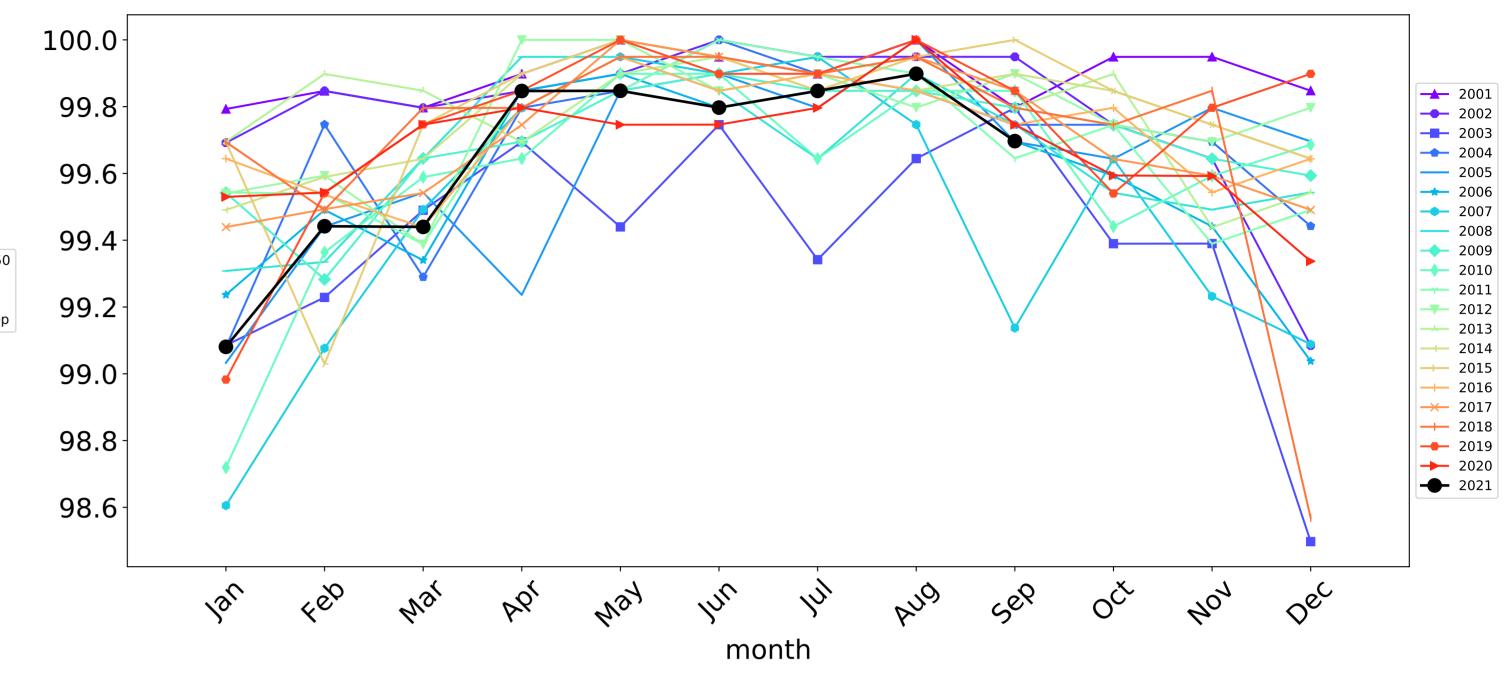


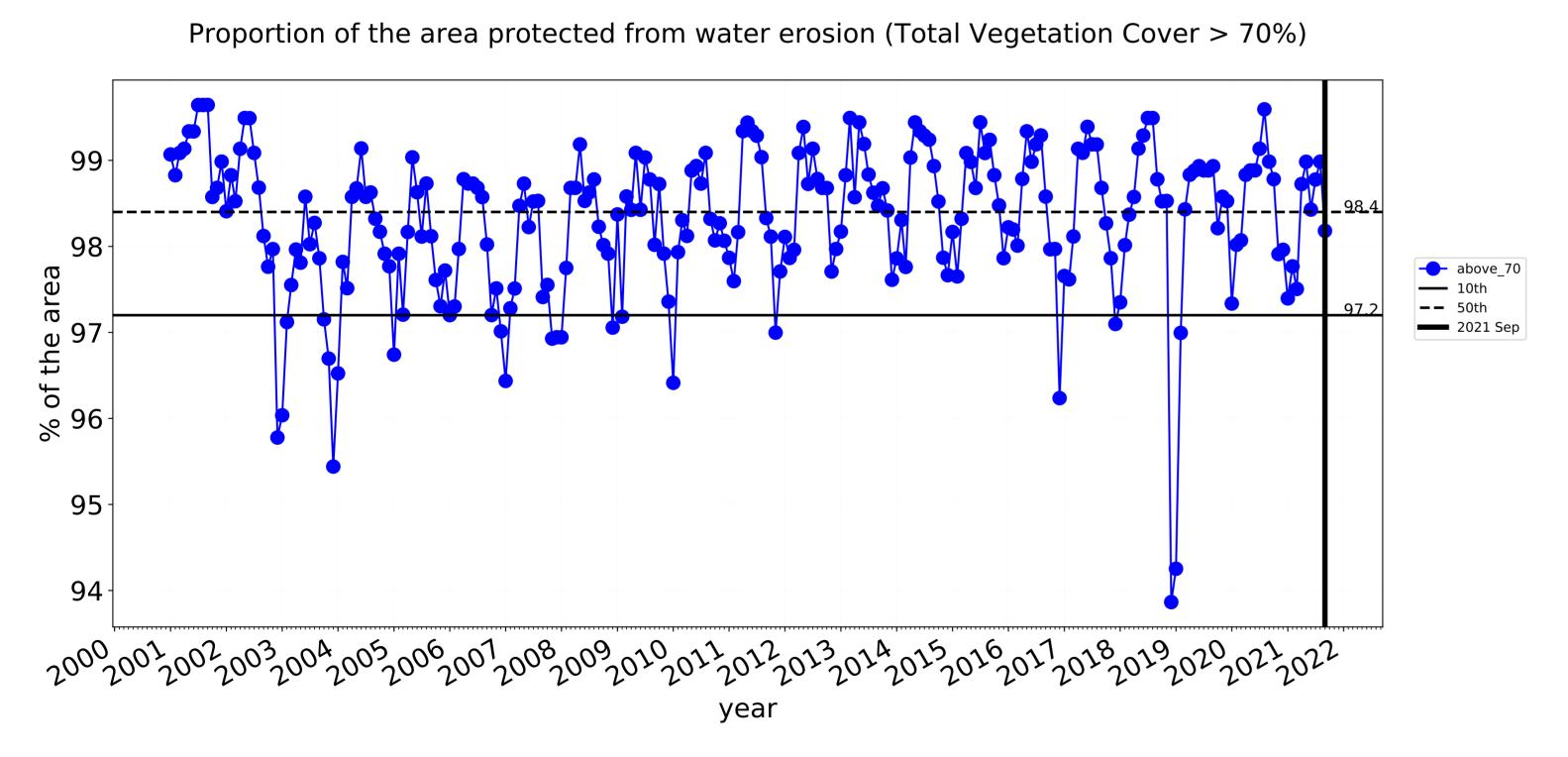




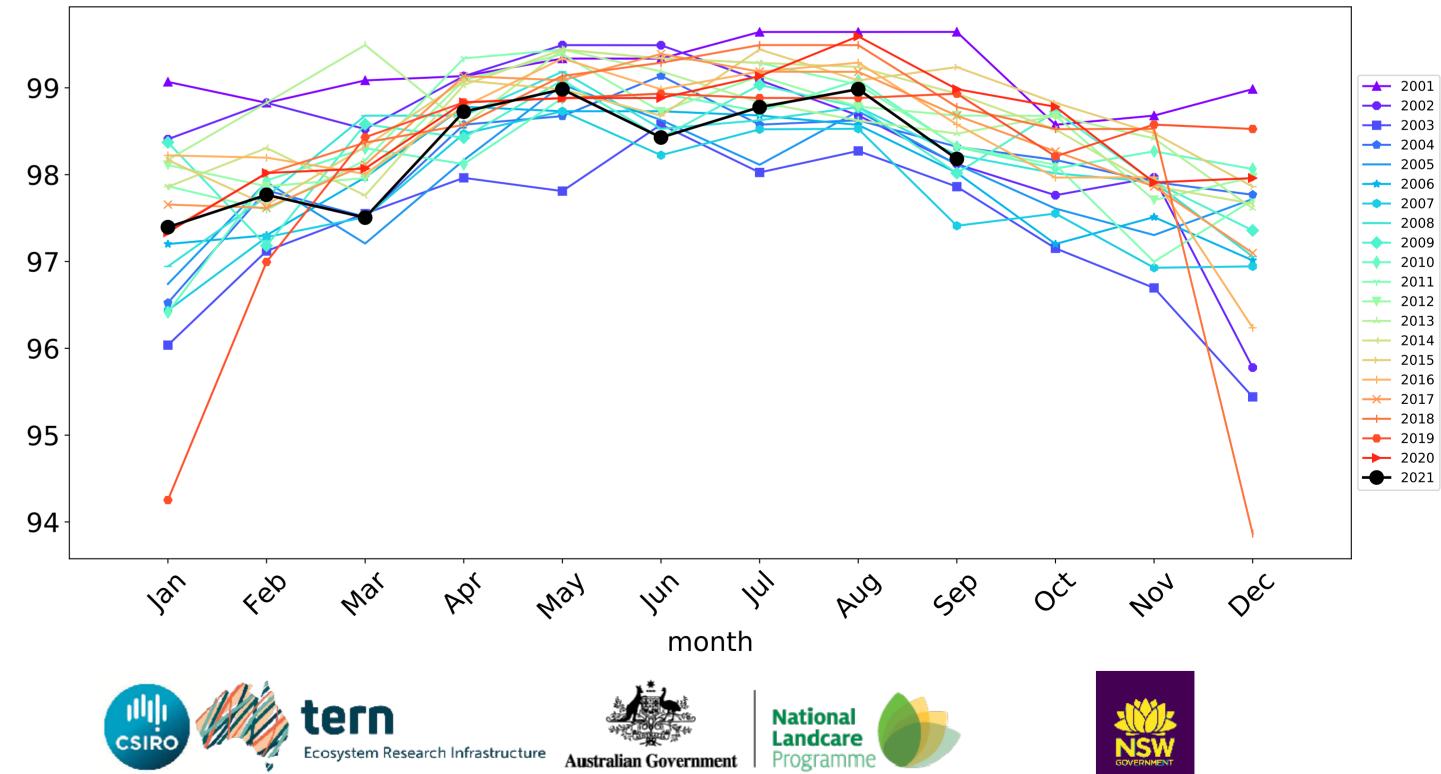


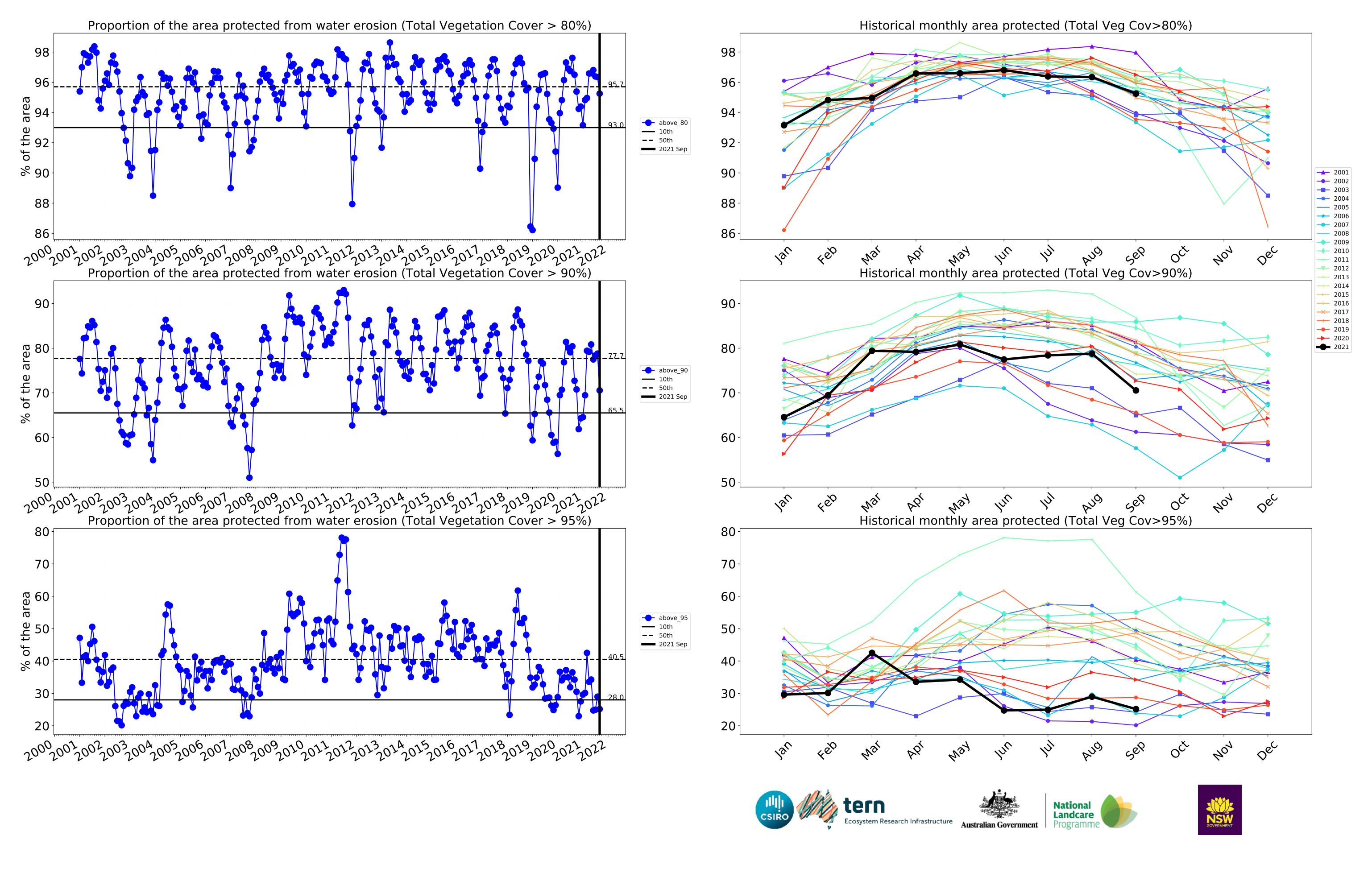
Wind erosion historical monthly area protected (Total Veg Cov >50%)





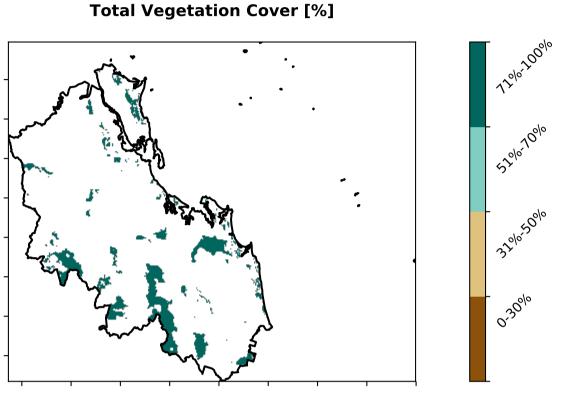
Water erosion historical monthly area protected (Total Veg Cov>70%)



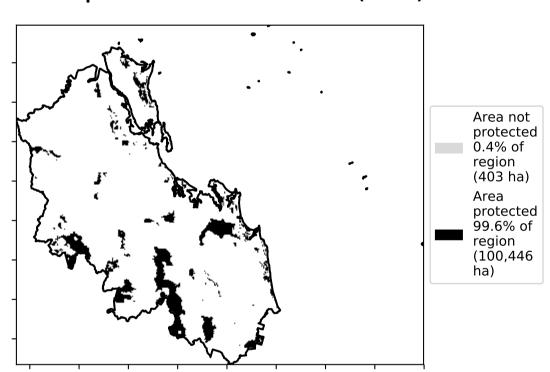


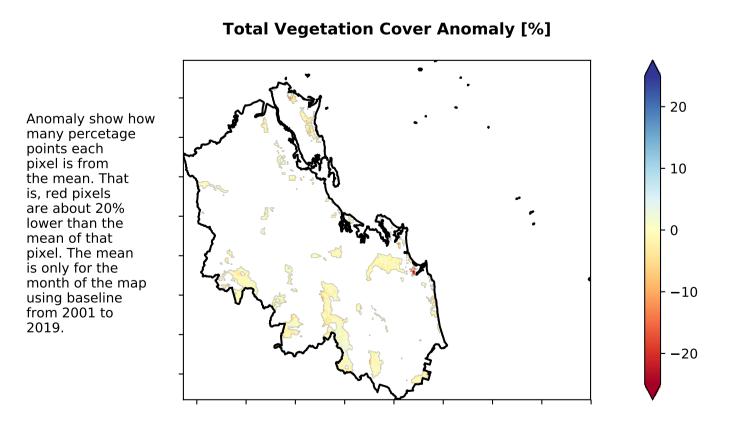
Conservation and natural environments Forest (non woodland)

Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments – Nonwoodland forest Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

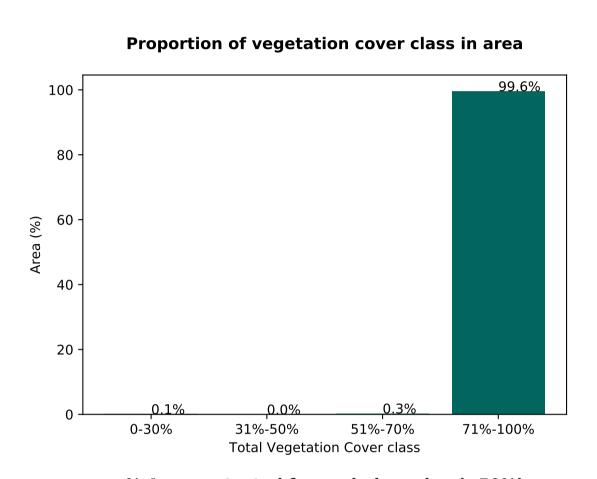


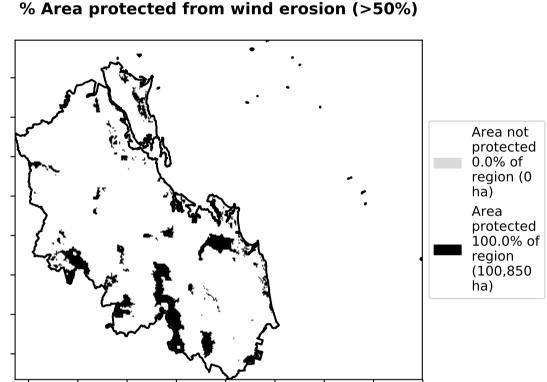
% Area protected from water erosion (>70%)

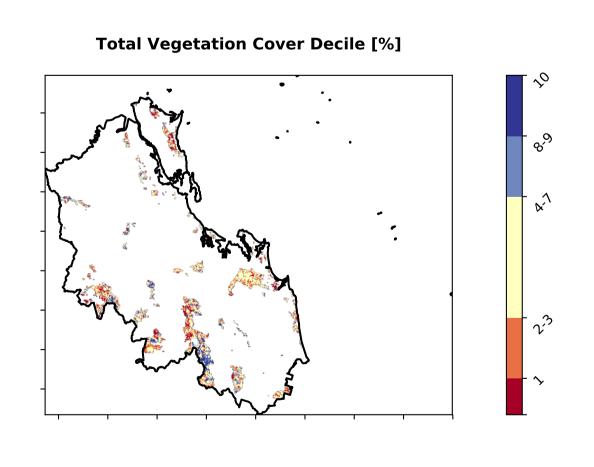




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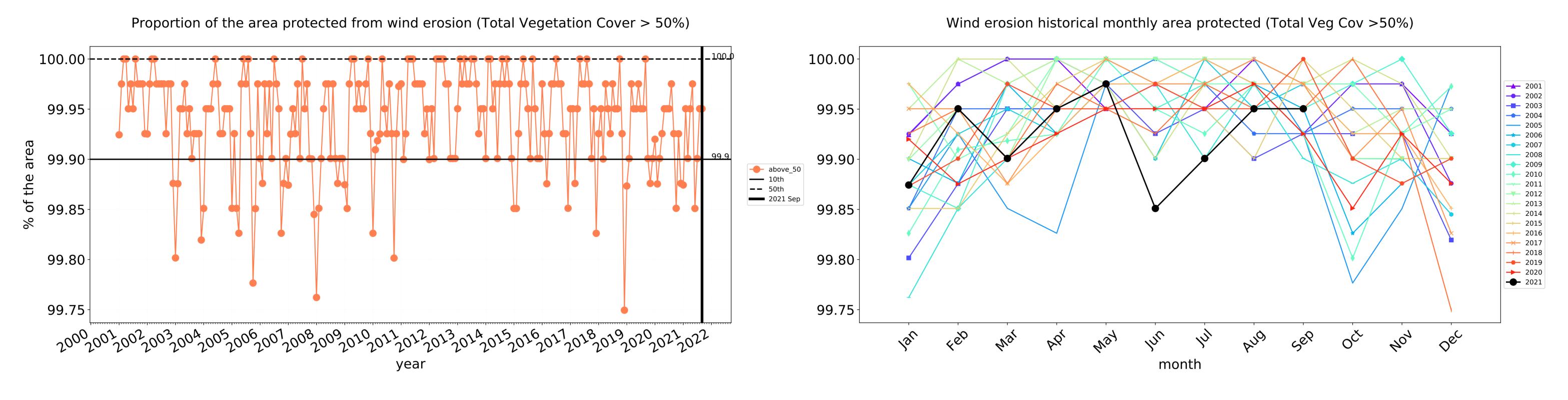


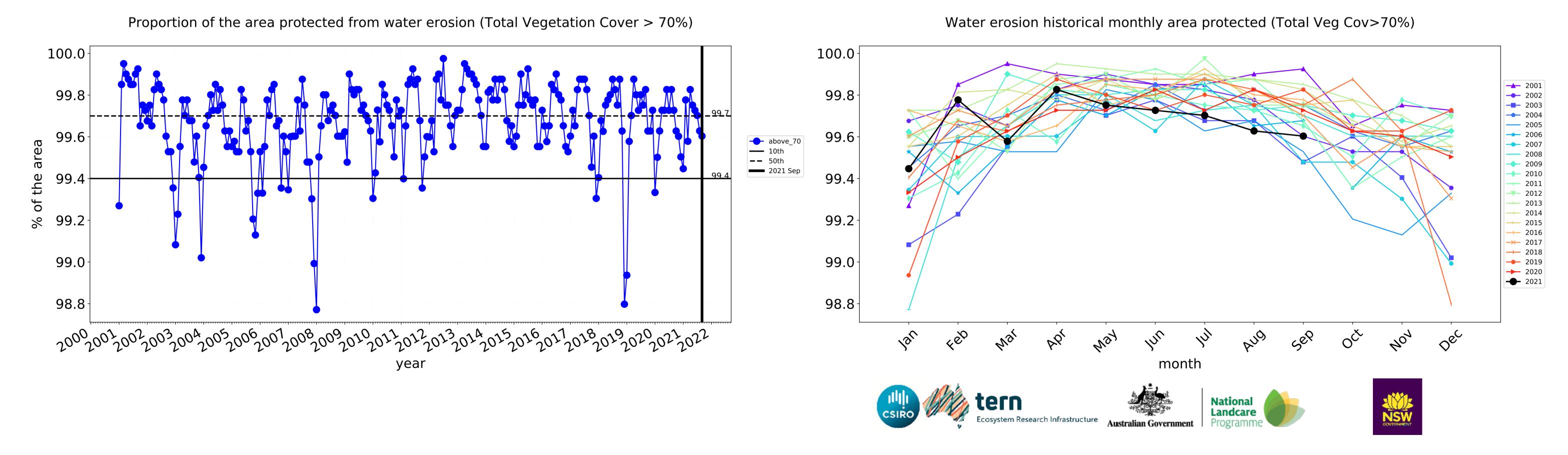


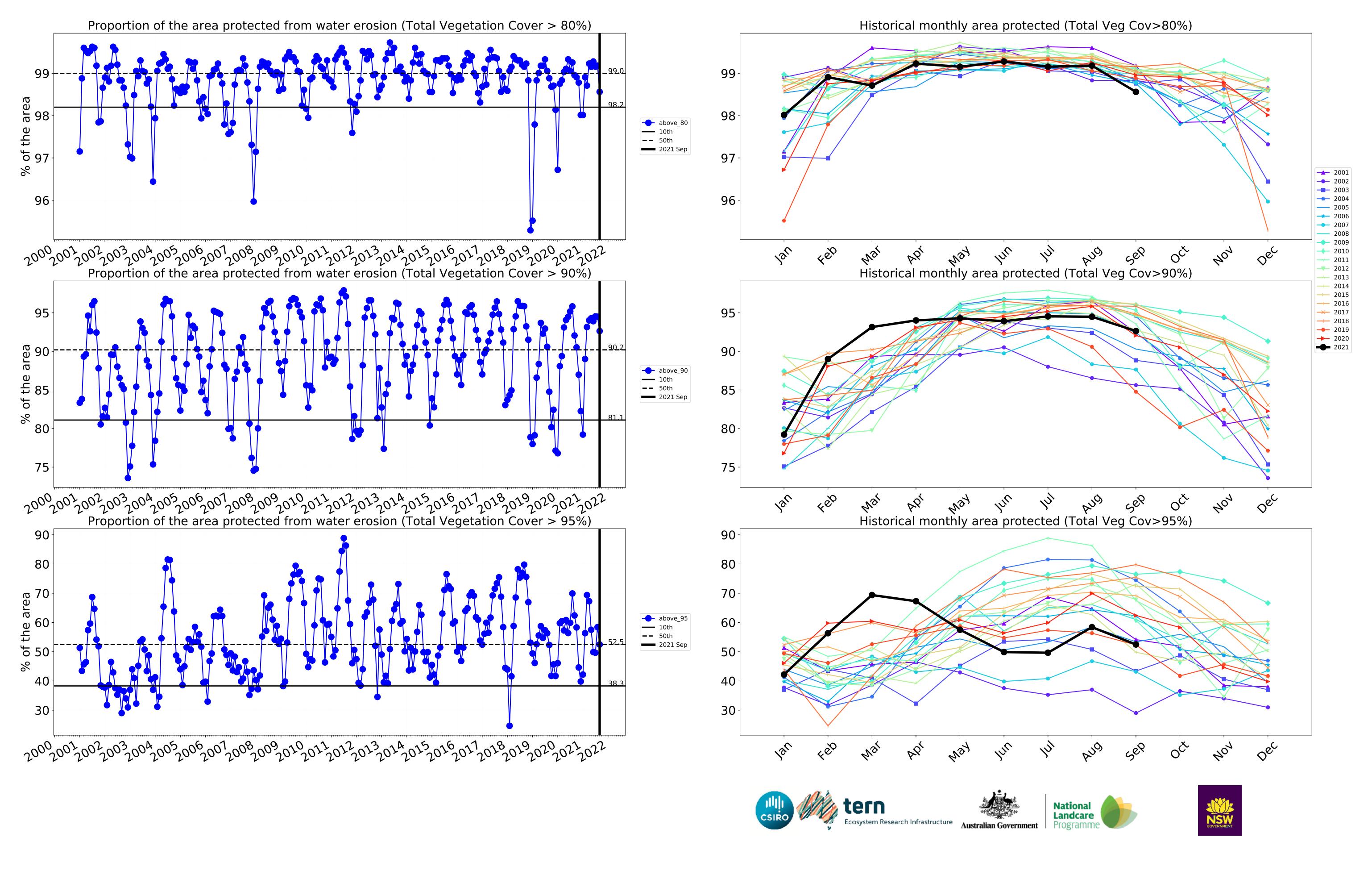




Conservation and natural environments Forest (non woodland) timeseries

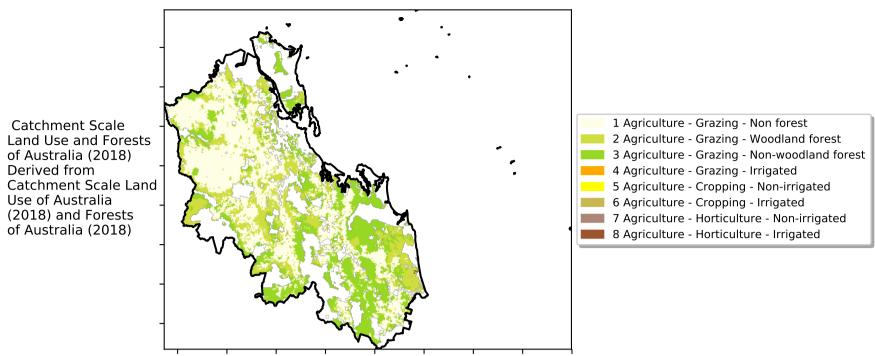




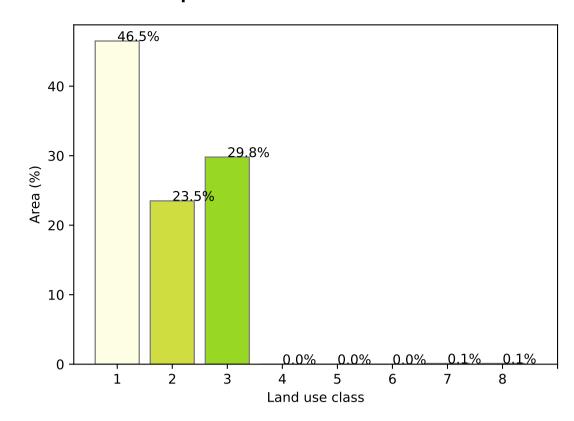


Agriculture

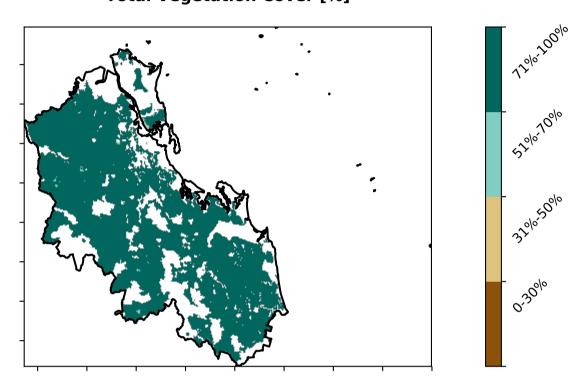
Land use and forest cover



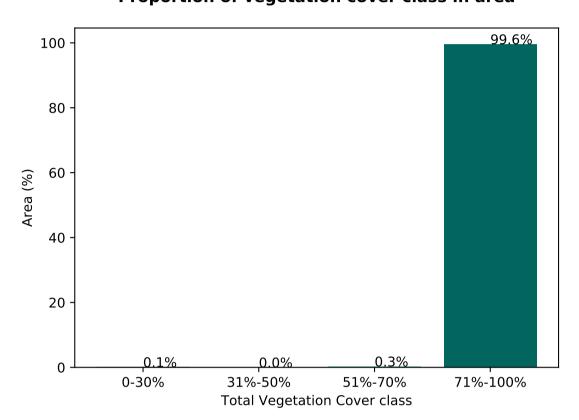
Proportion of each land class in area



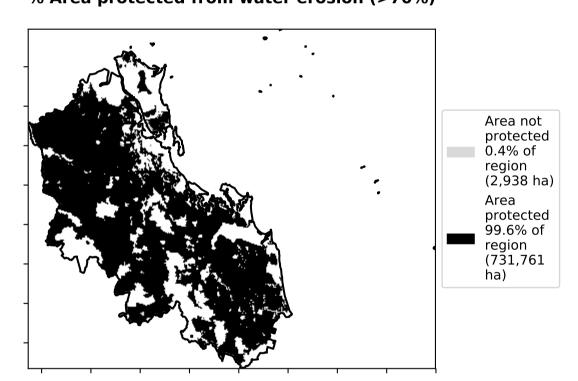
Total Vegetation Cover [%]



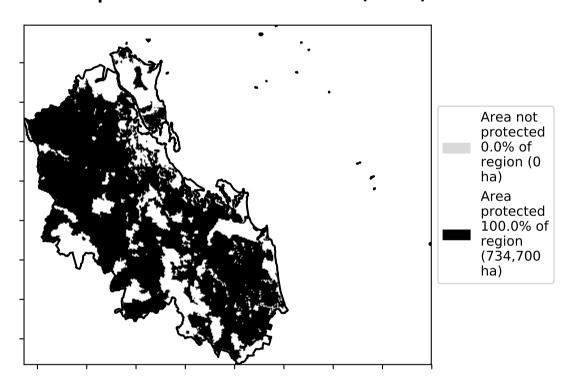
Proportion of vegetation cover class in area



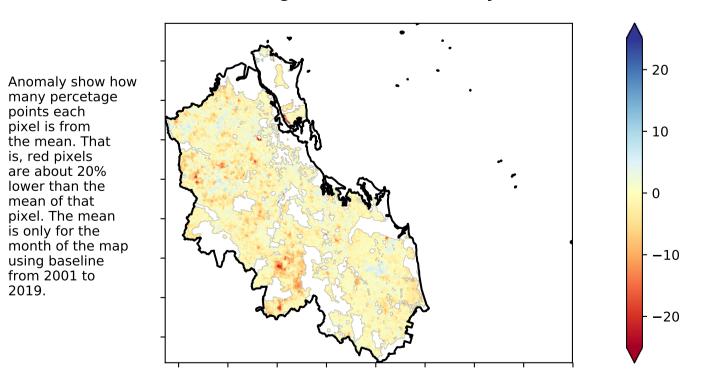
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

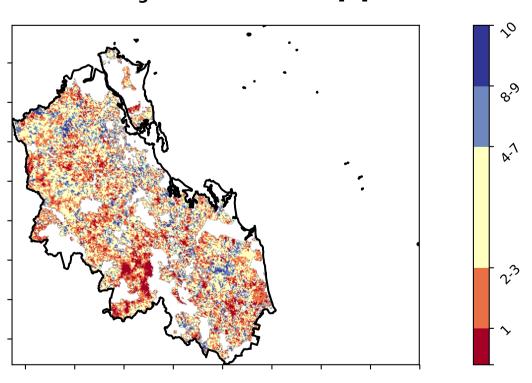


Total Vegetation Cover Anomaly [%]



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

Total Vegetation Cover Decile [%]





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

pixel. The mean

using baseline from 2001 to 2019.



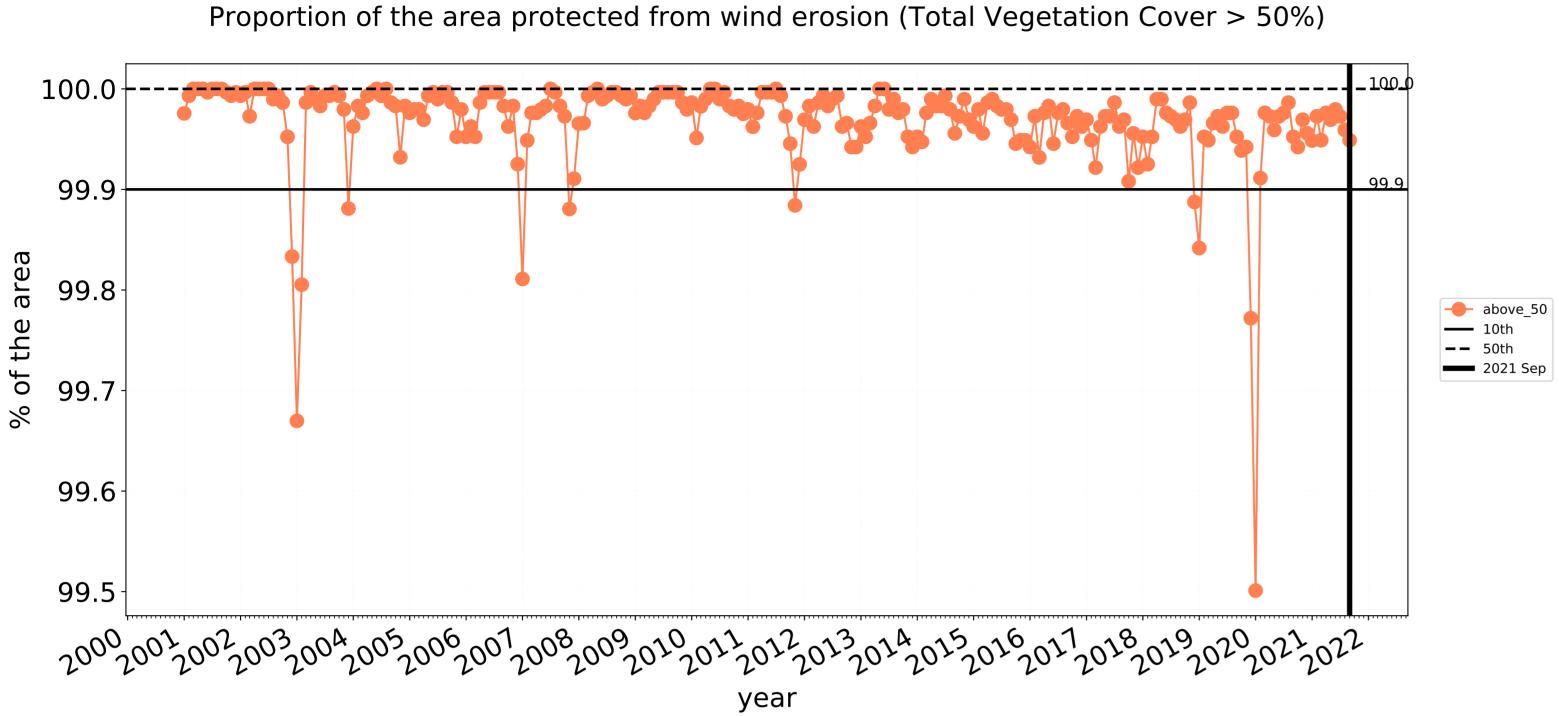


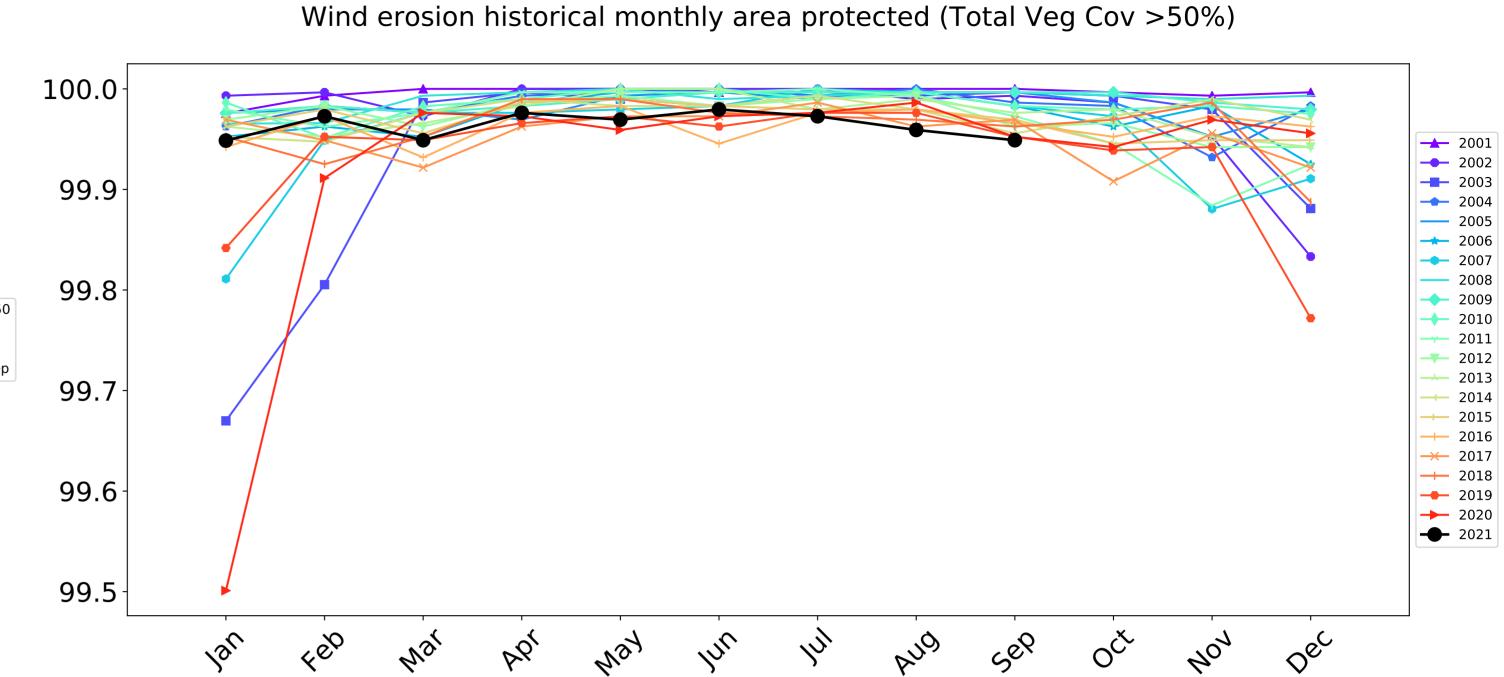




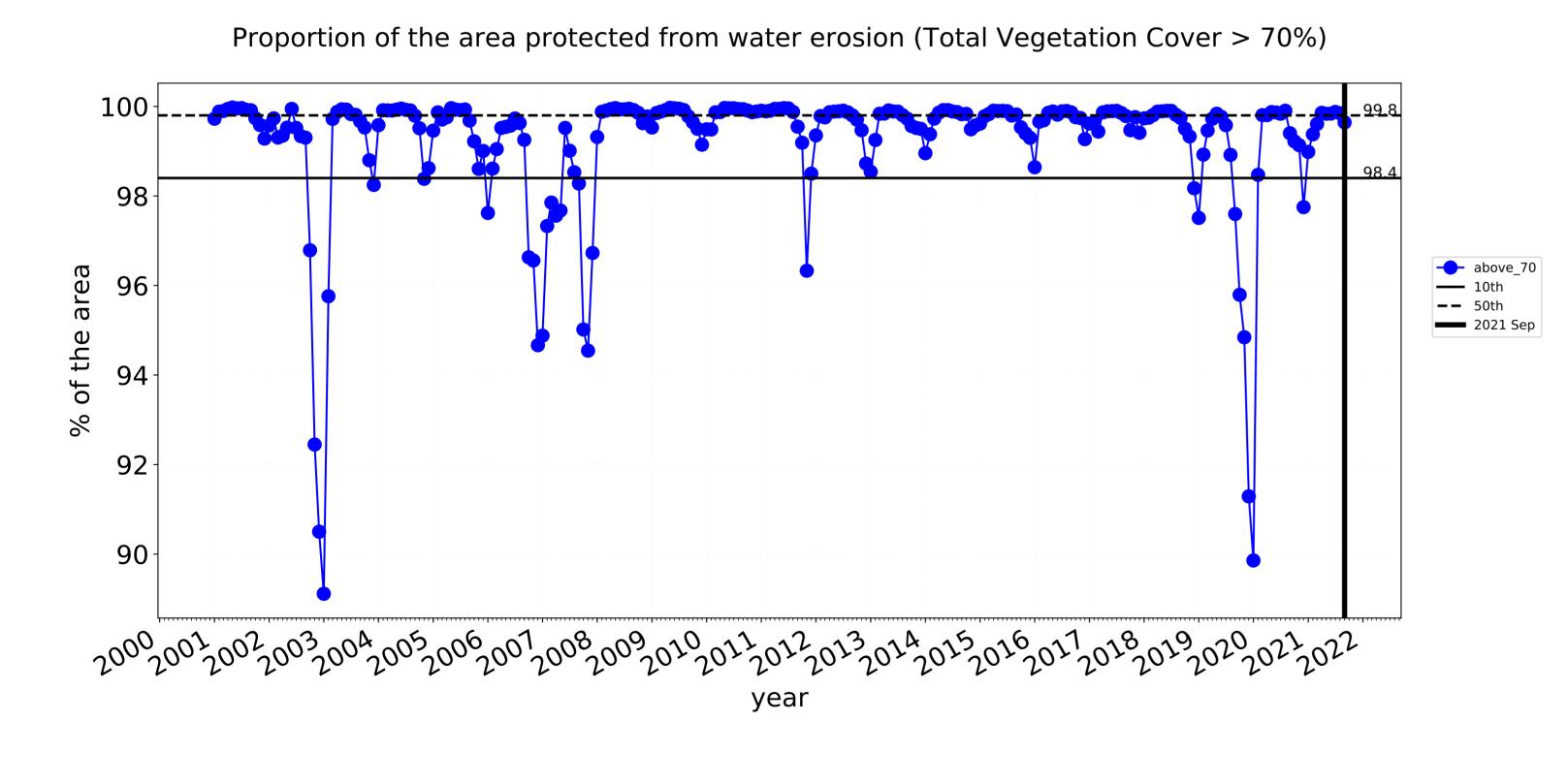


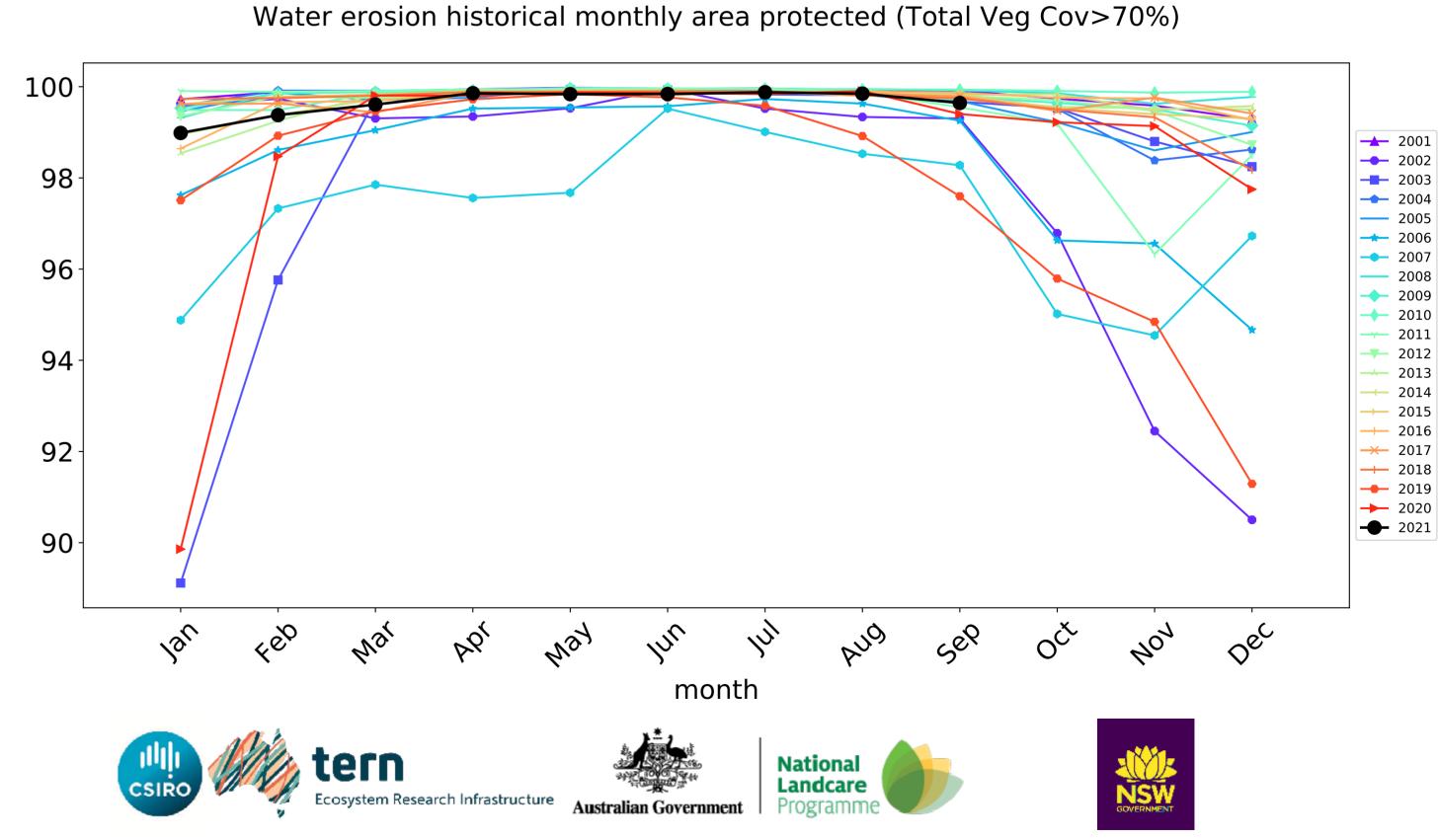
Agriculture timeseries

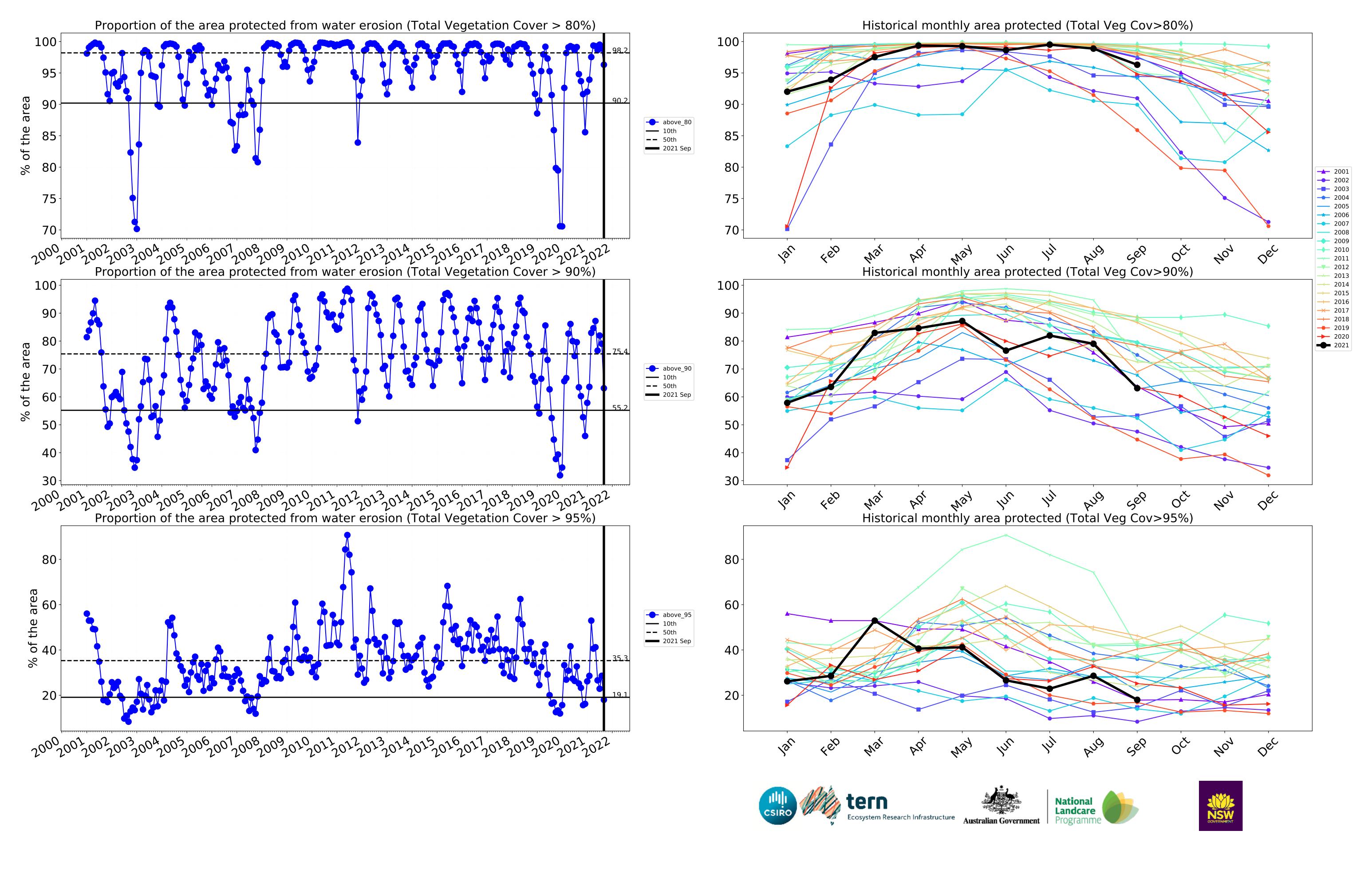




month





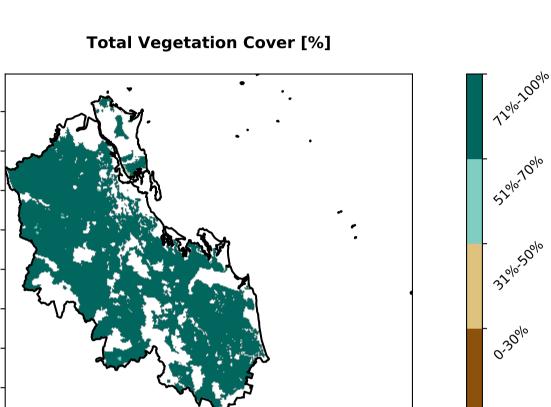


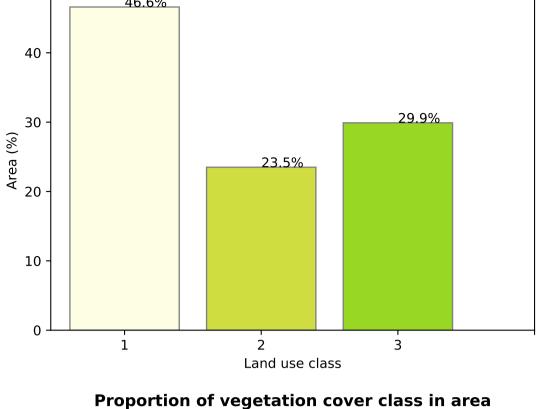
Grazing

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

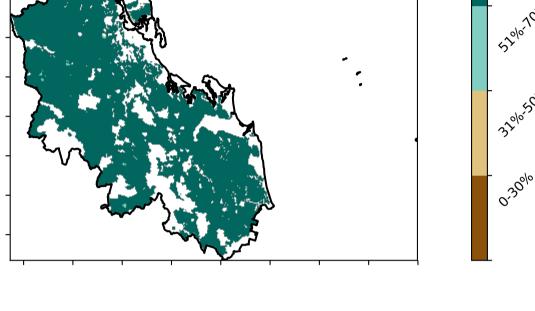
46.6% 40 29.9% 30 Area (%) 23.5% 10 2 3

Proportion of each land class in area



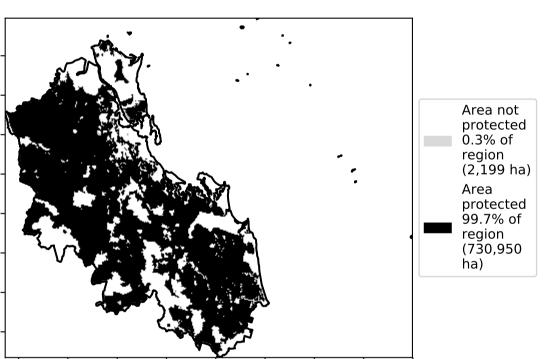


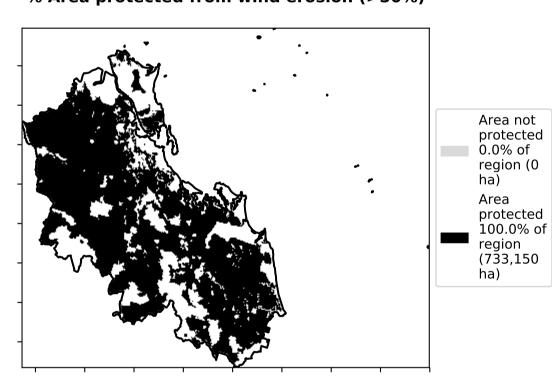
99.7% 100 80 60 40 20 0.0% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**

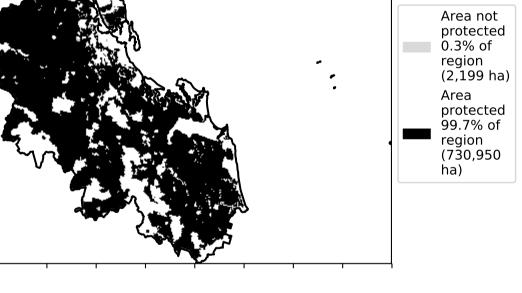


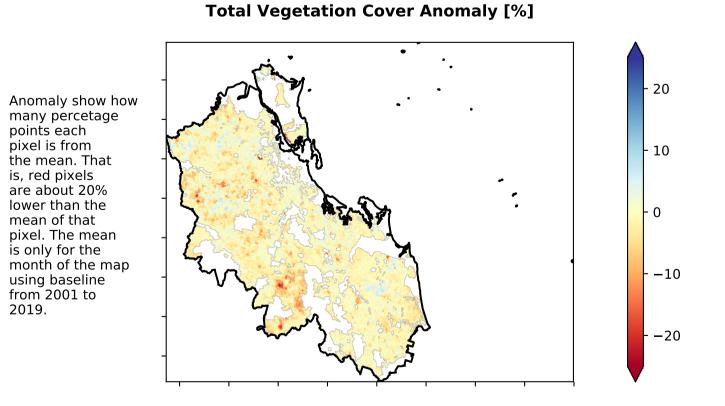
% Area protected from water erosion (>70%)

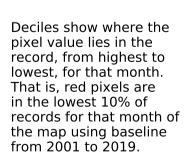
% Area protected from wind erosion (>50%)

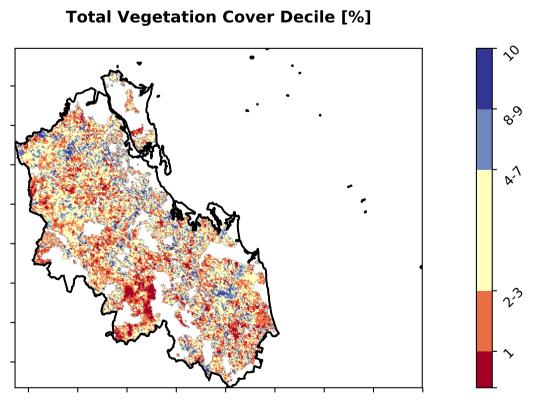












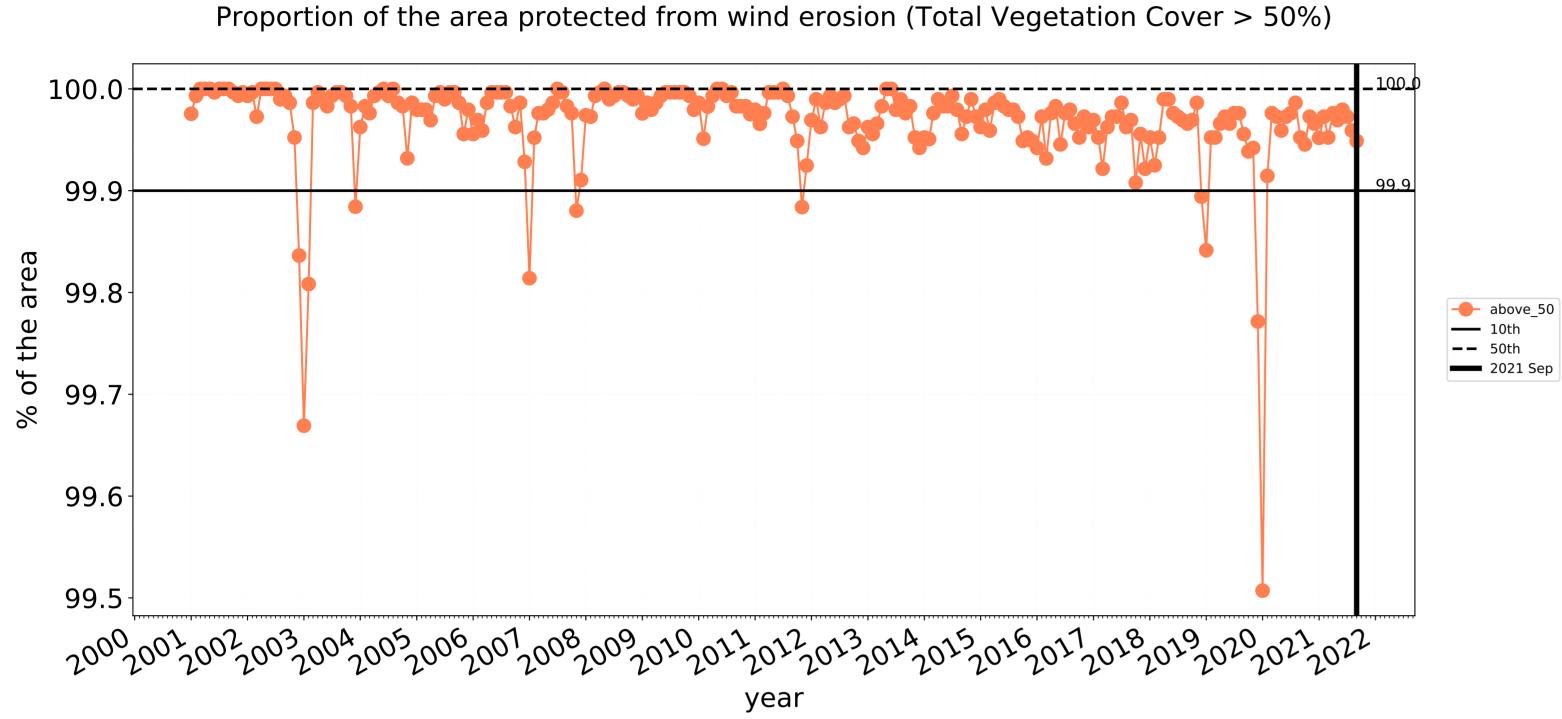


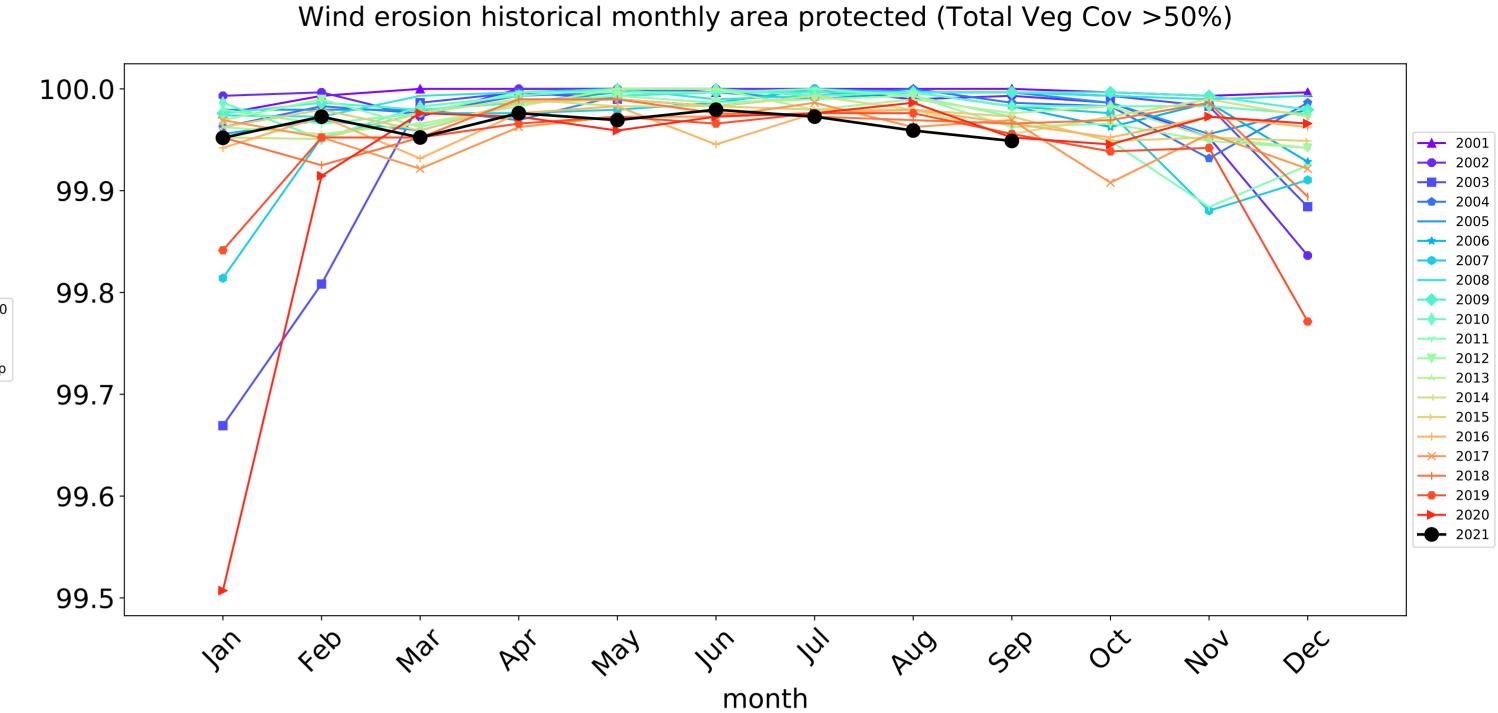


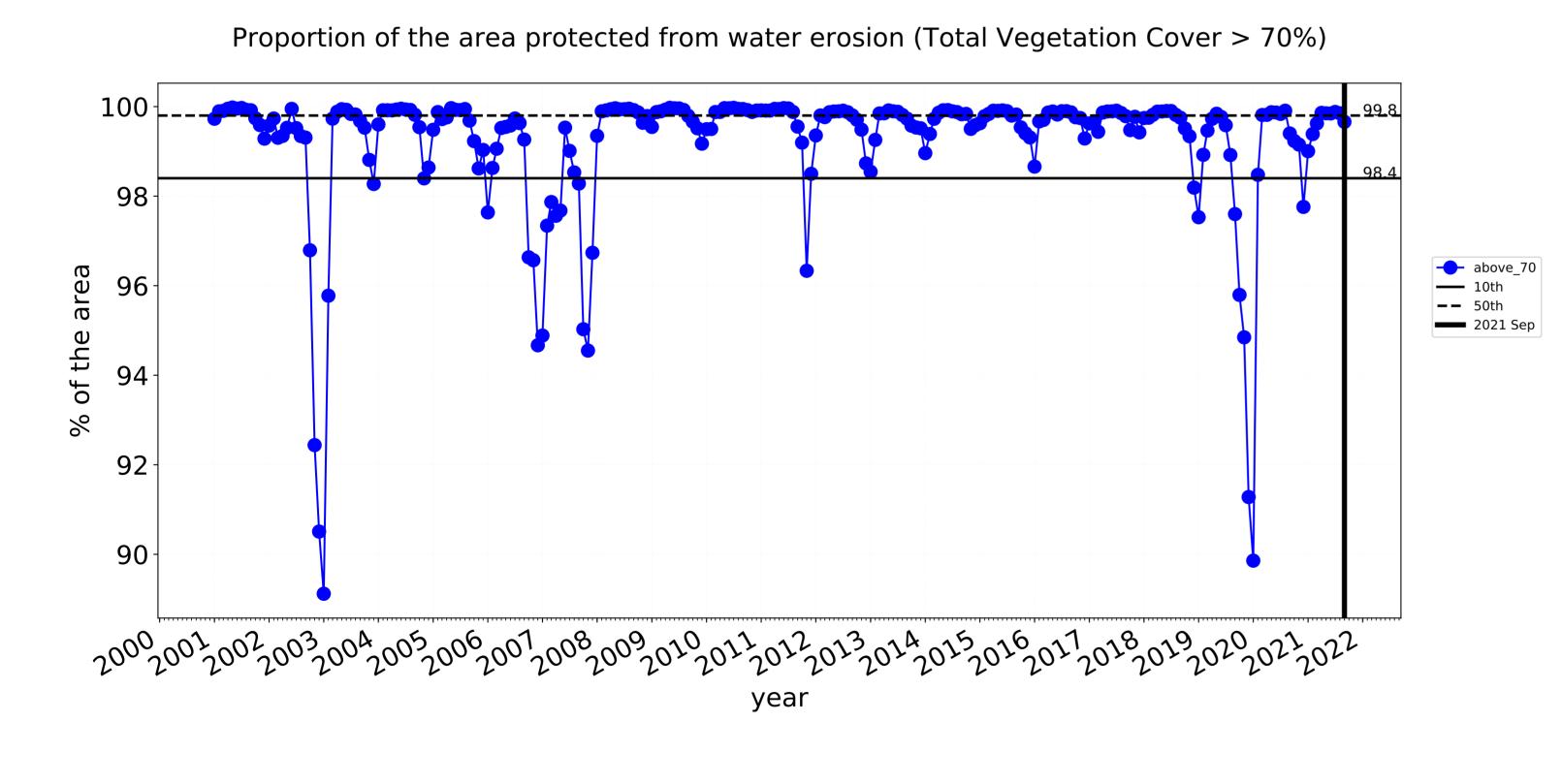


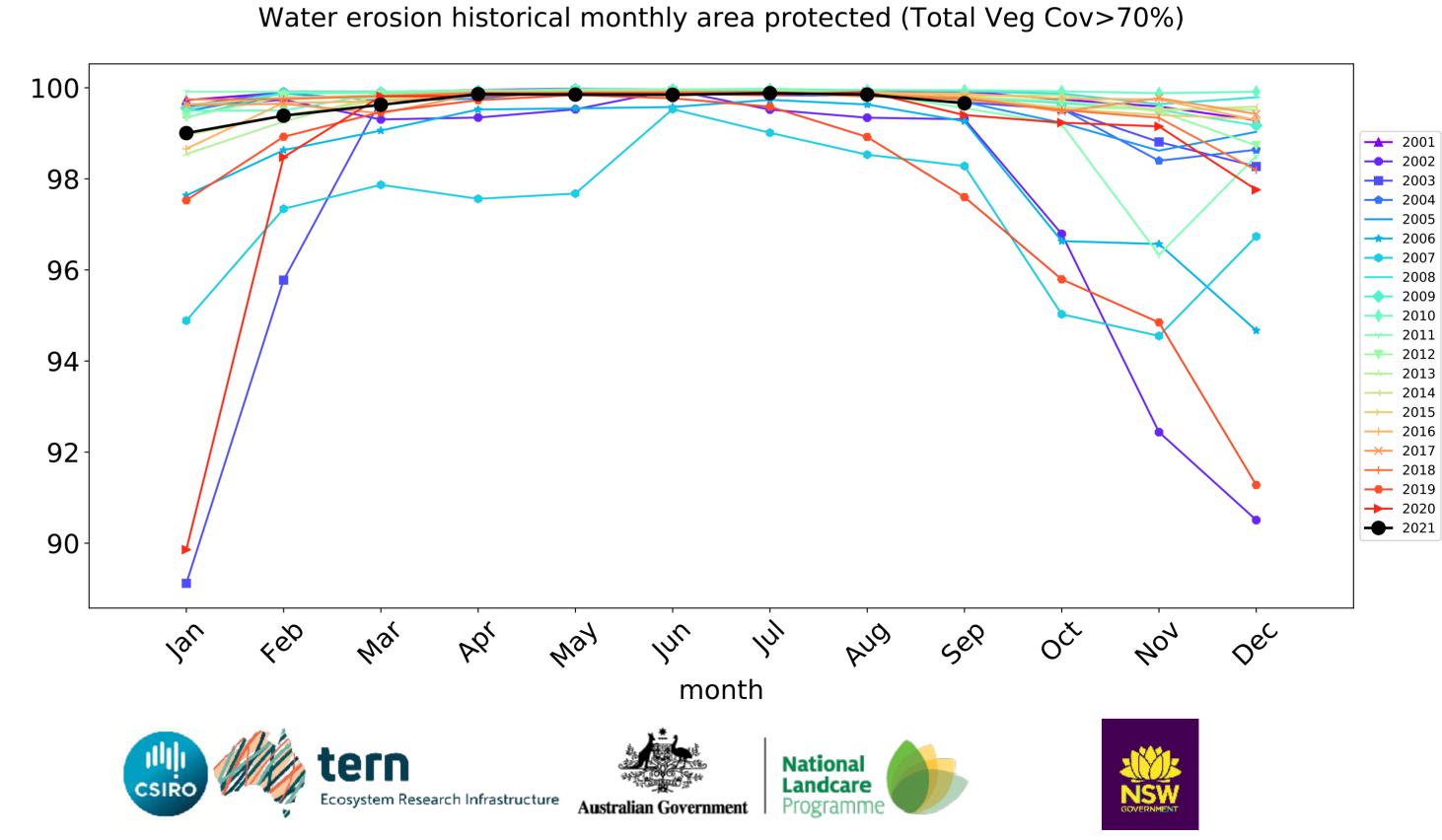


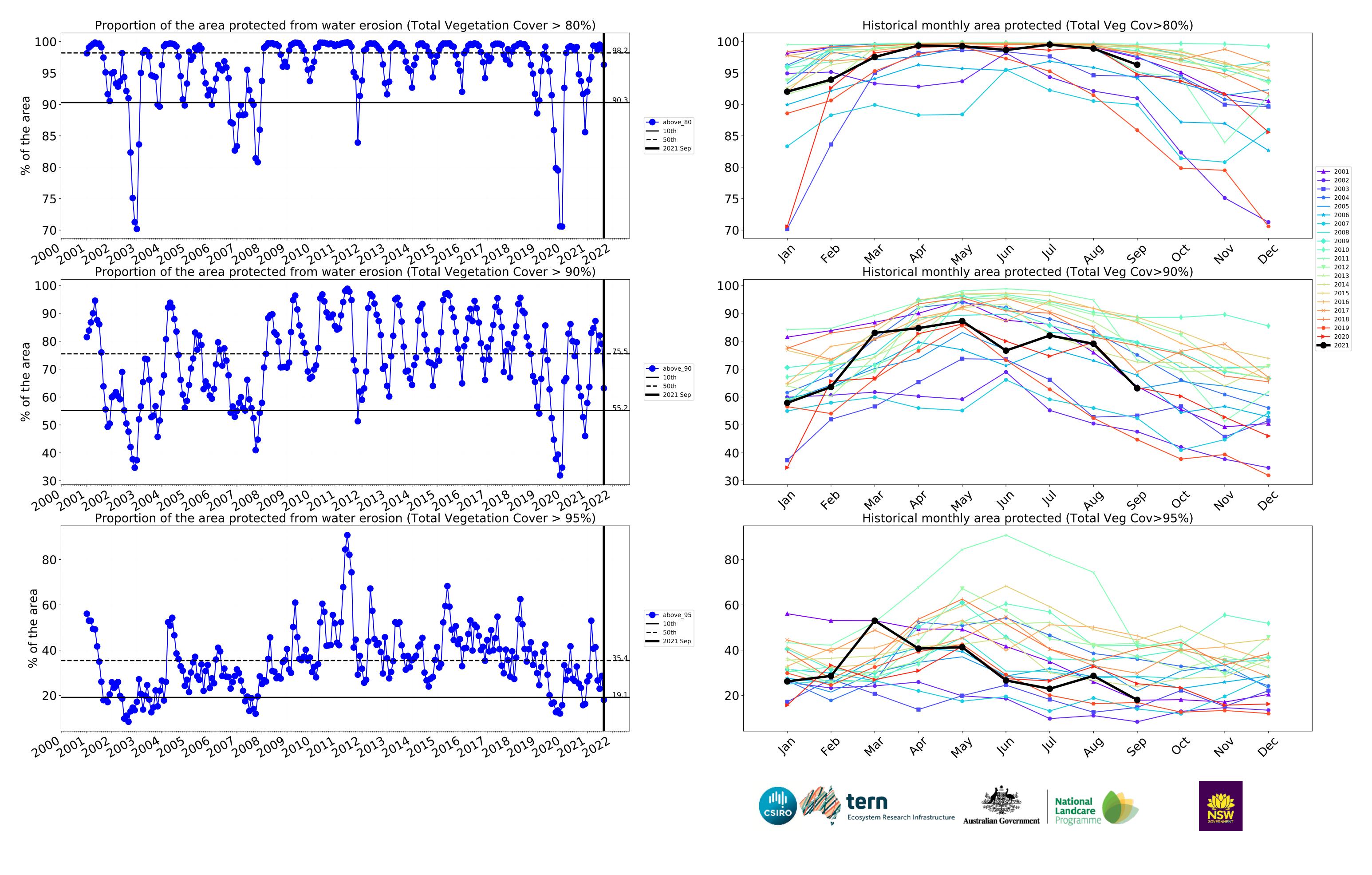
Grazing timeseries





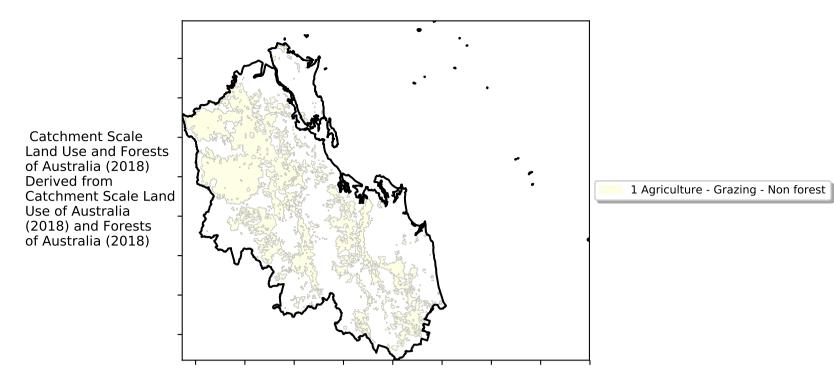




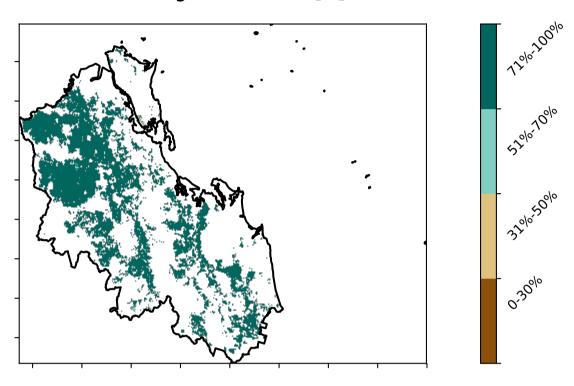


Grazing non forest

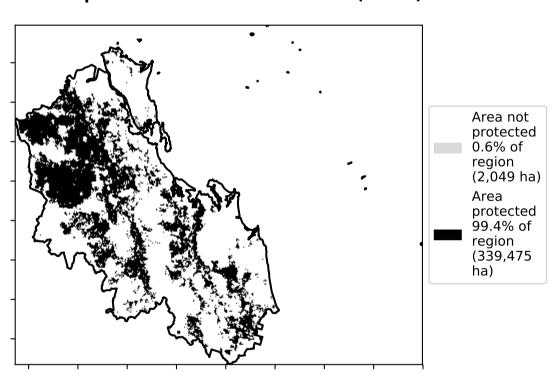
Land use and forest cover



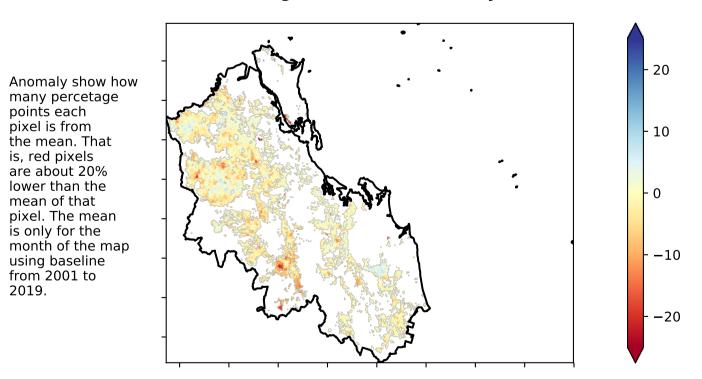
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

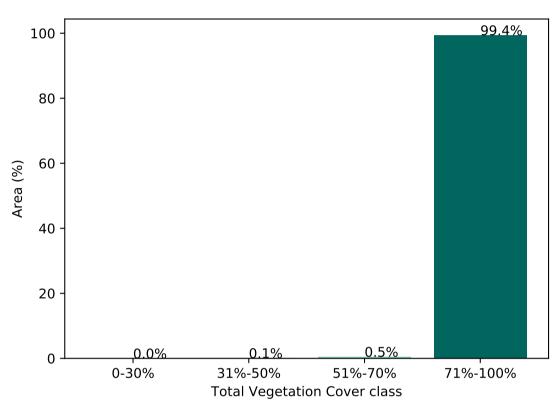


Total Vegetation Cover Anomaly [%]

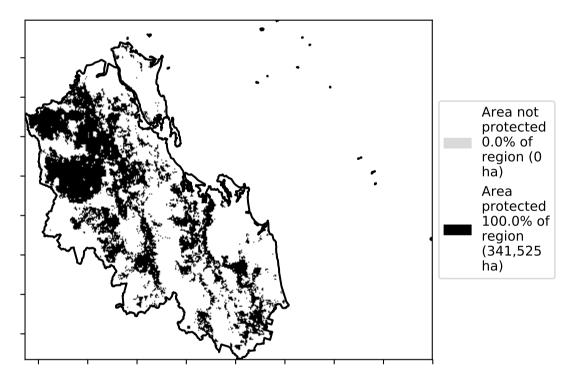


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

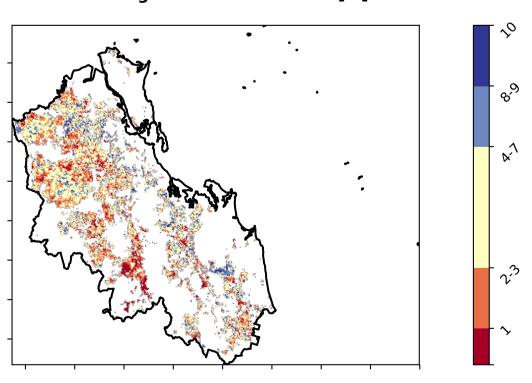
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]





lower than the



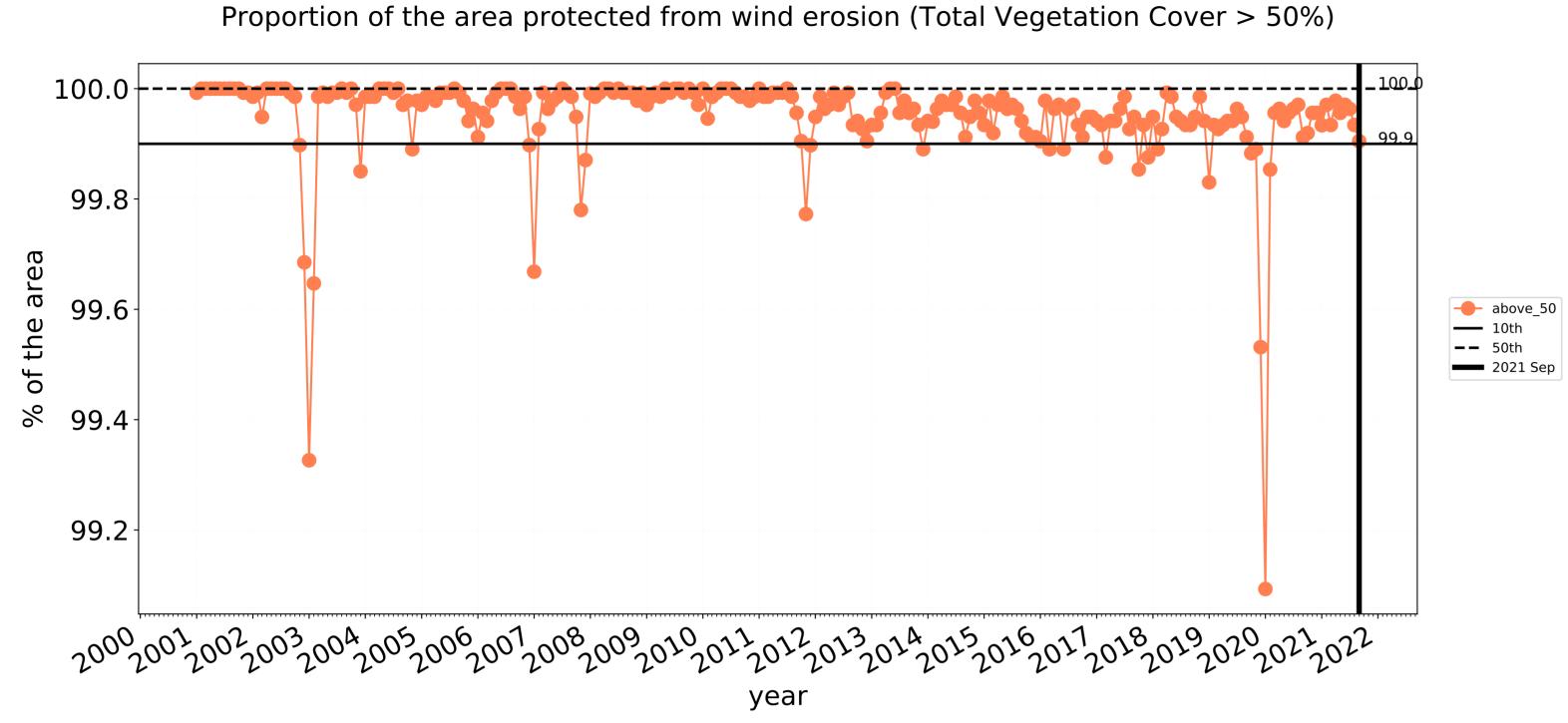


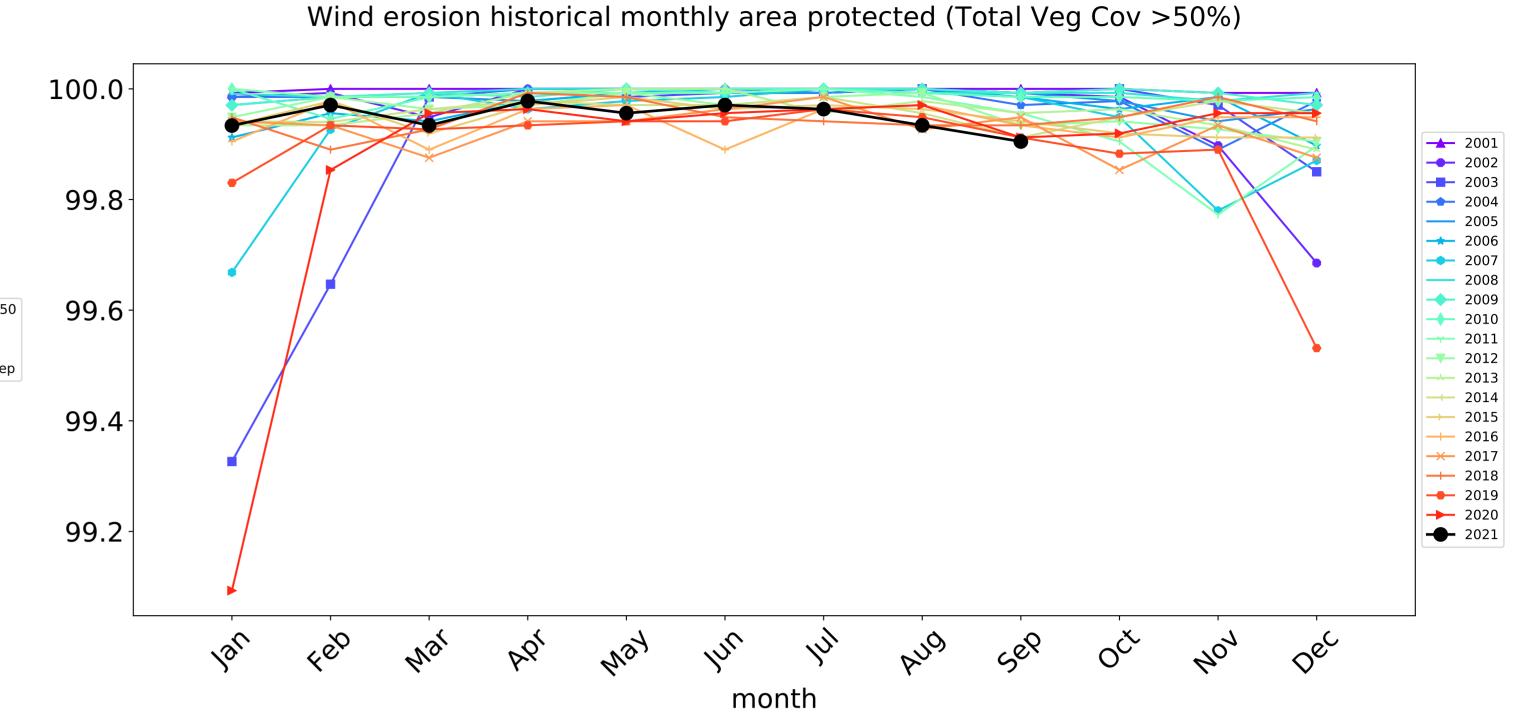


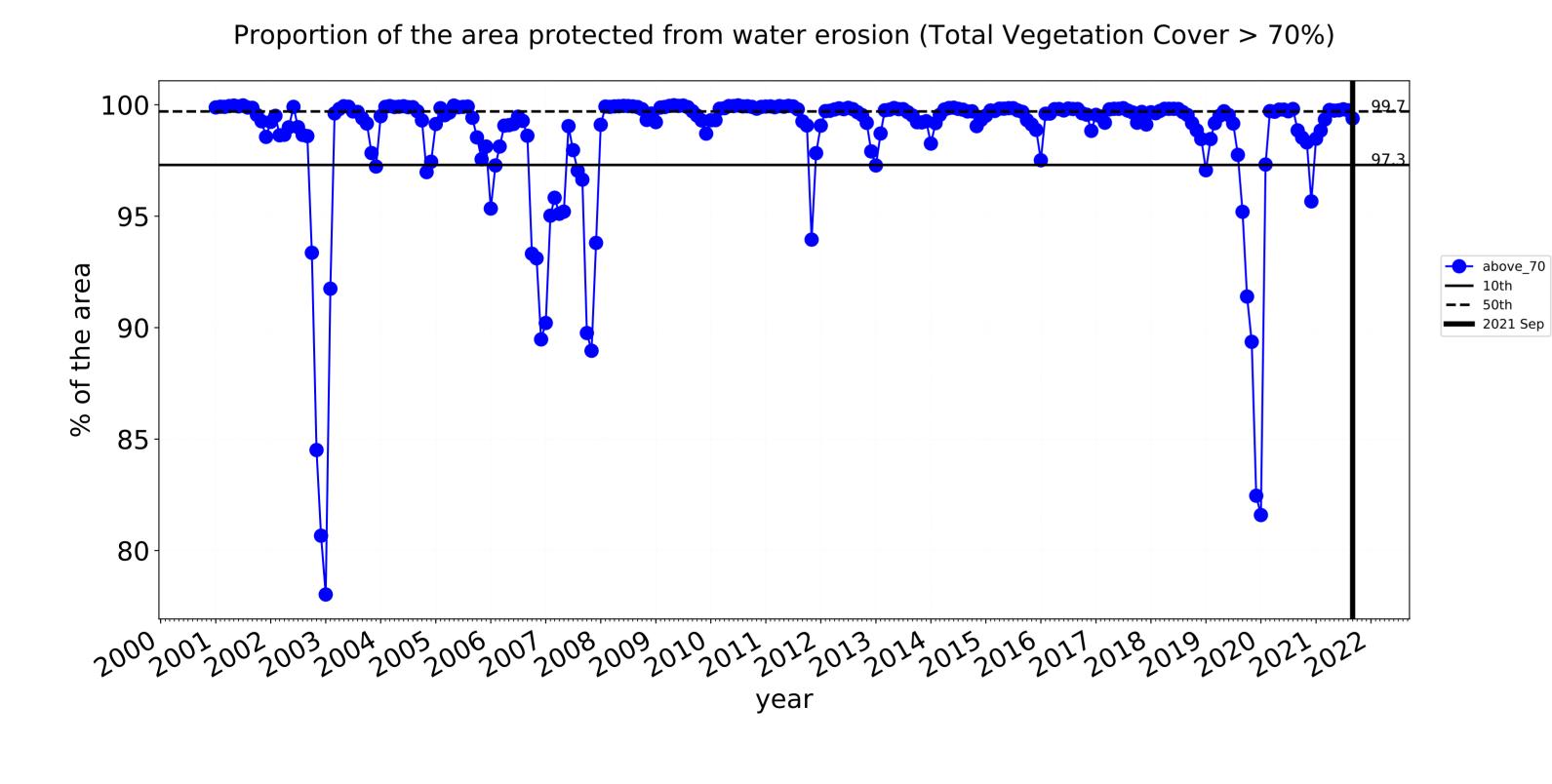


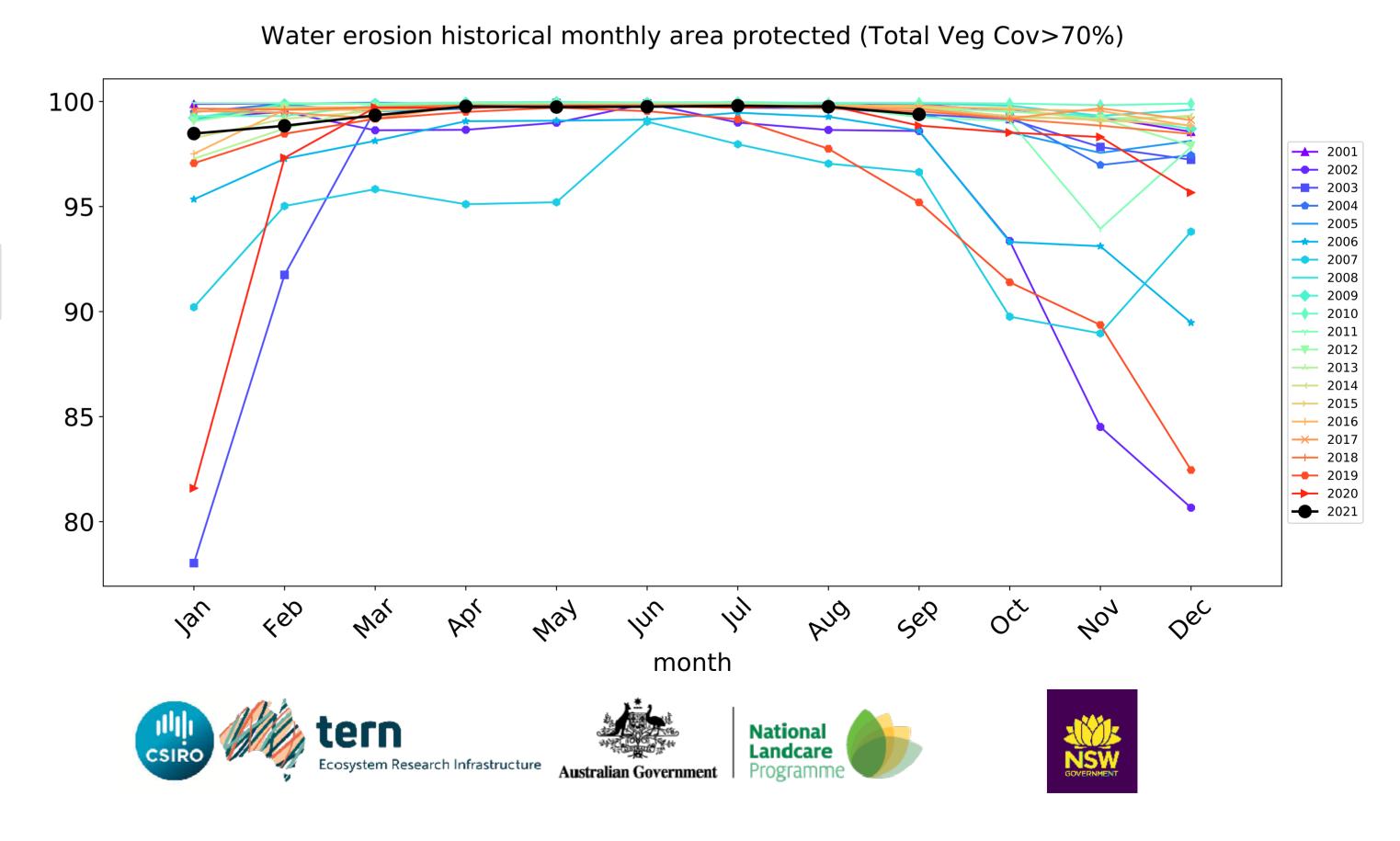


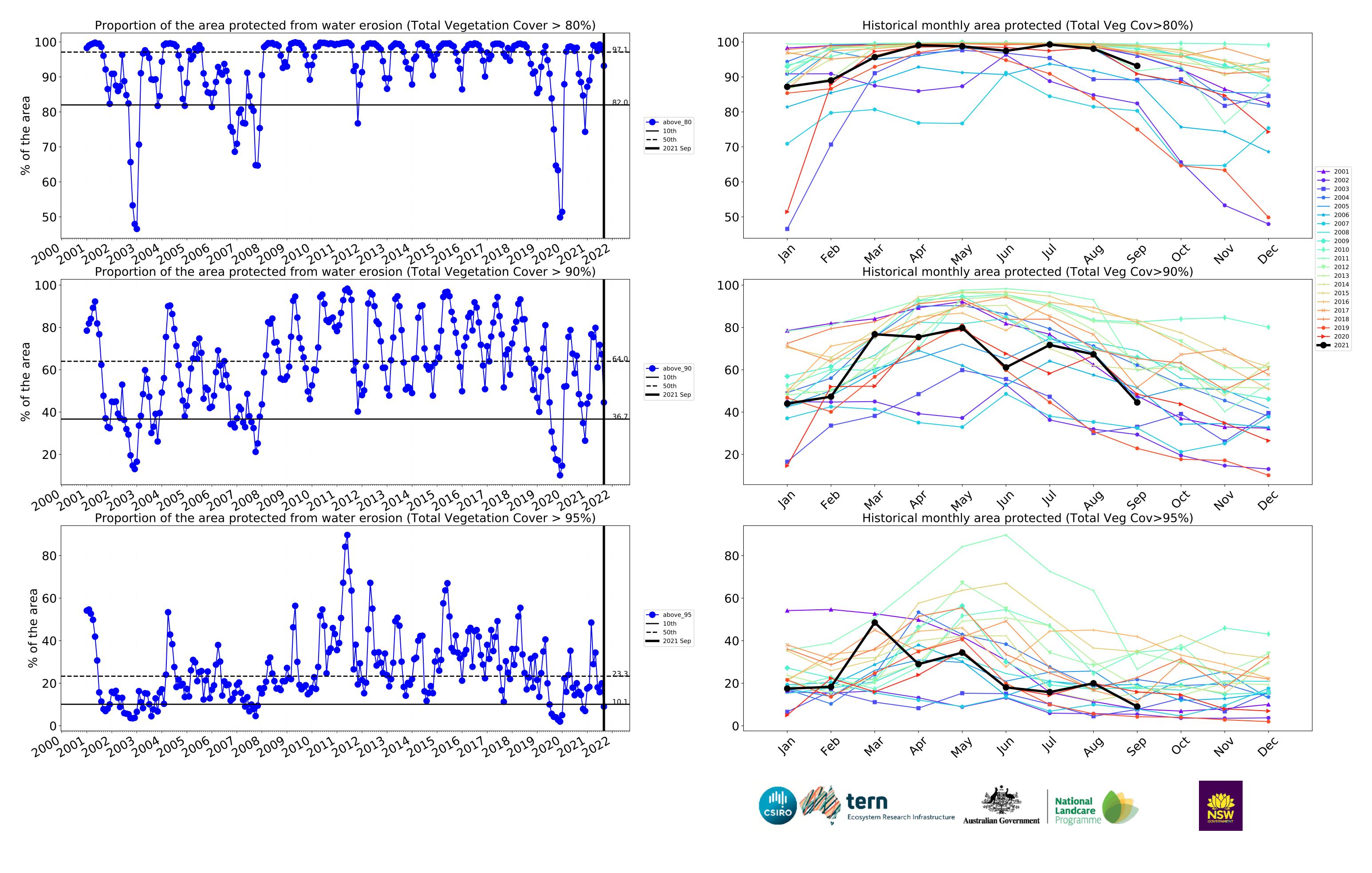
Grazing non forest timeseries





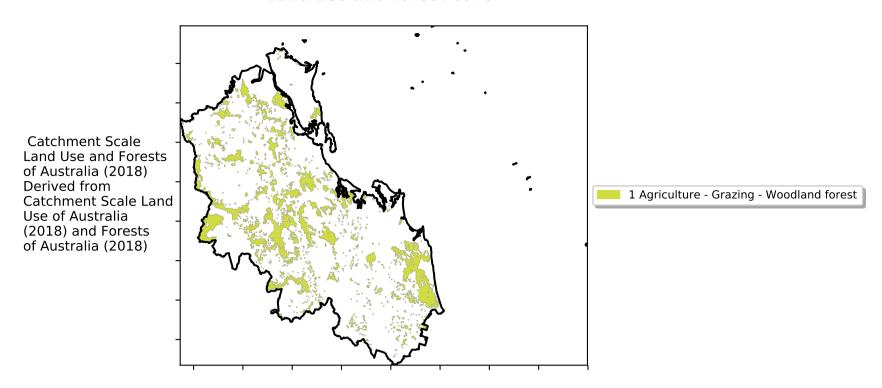




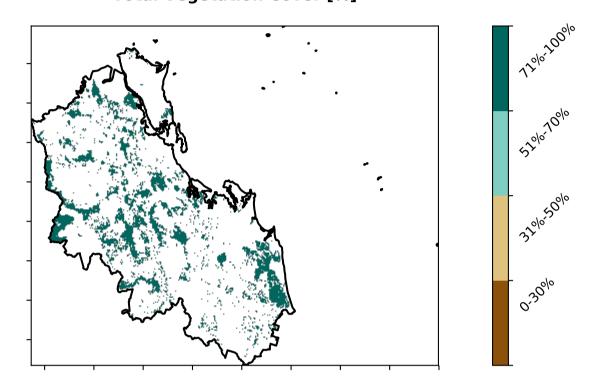


Grazing Woodland forest

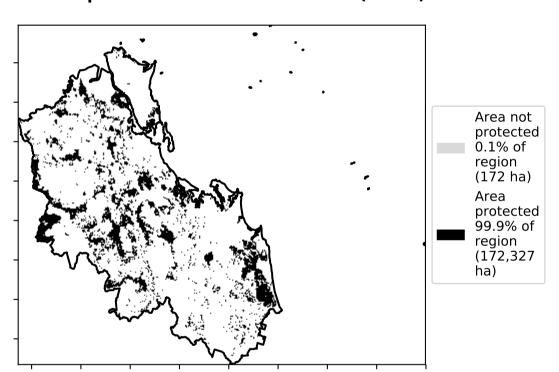
Land use and forest cover



Total Vegetation Cover [%]

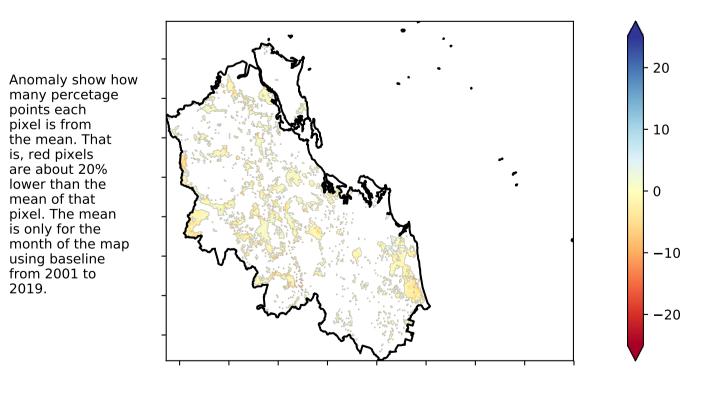


% Area protected from water erosion (>70%)



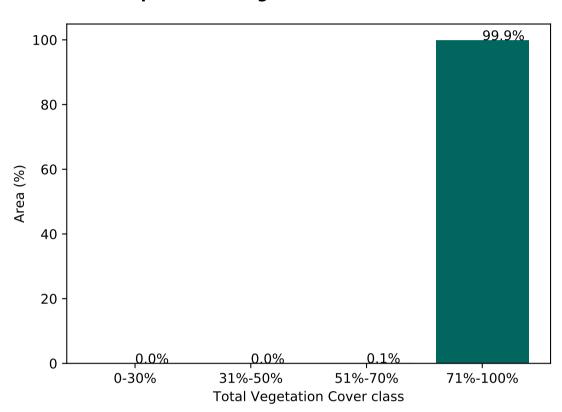
Total Vegetation Cover Anomaly [%]

lower than the

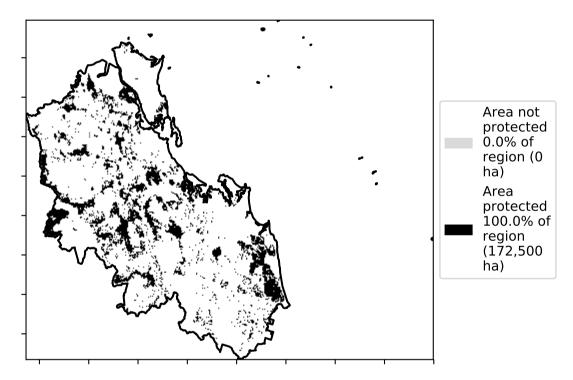


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

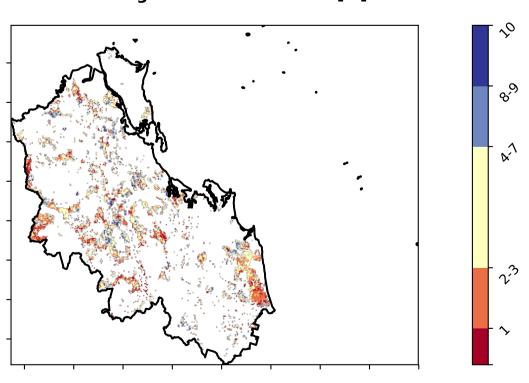
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]



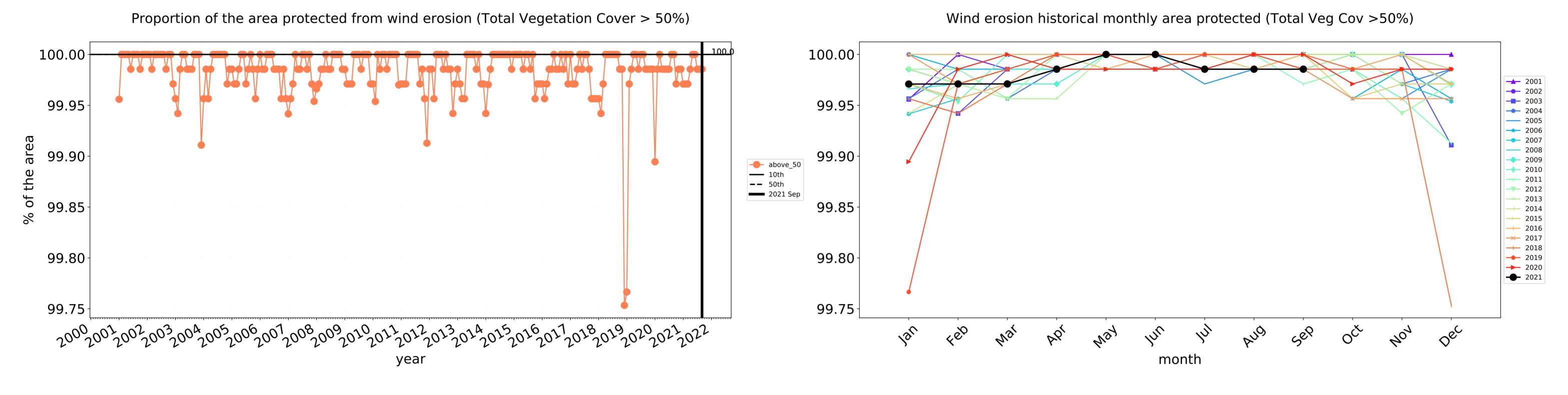


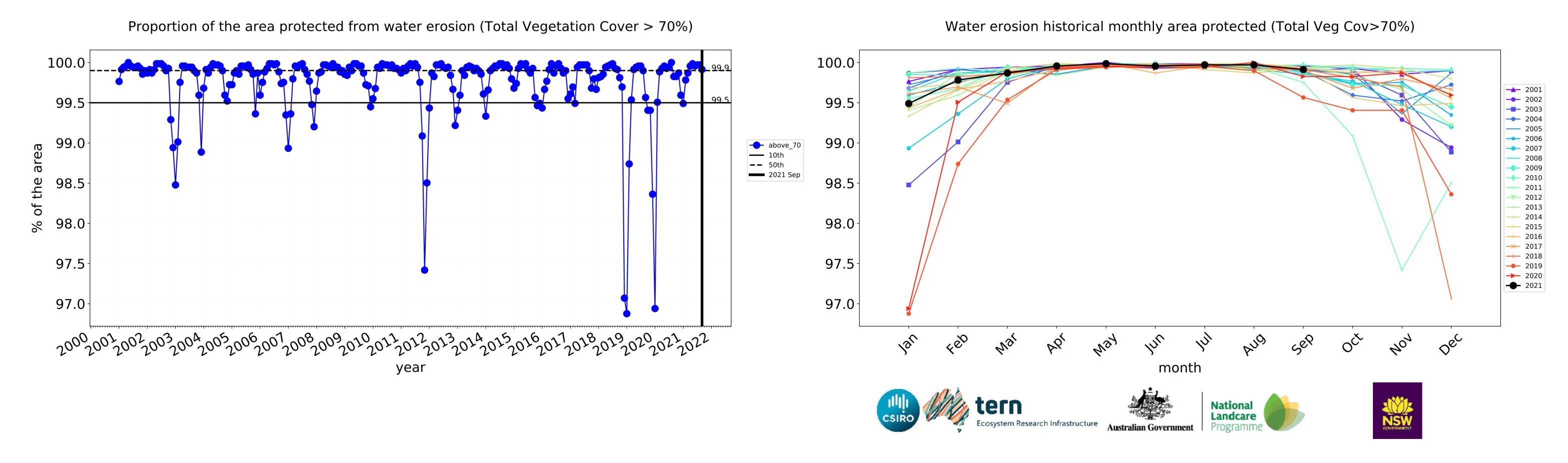


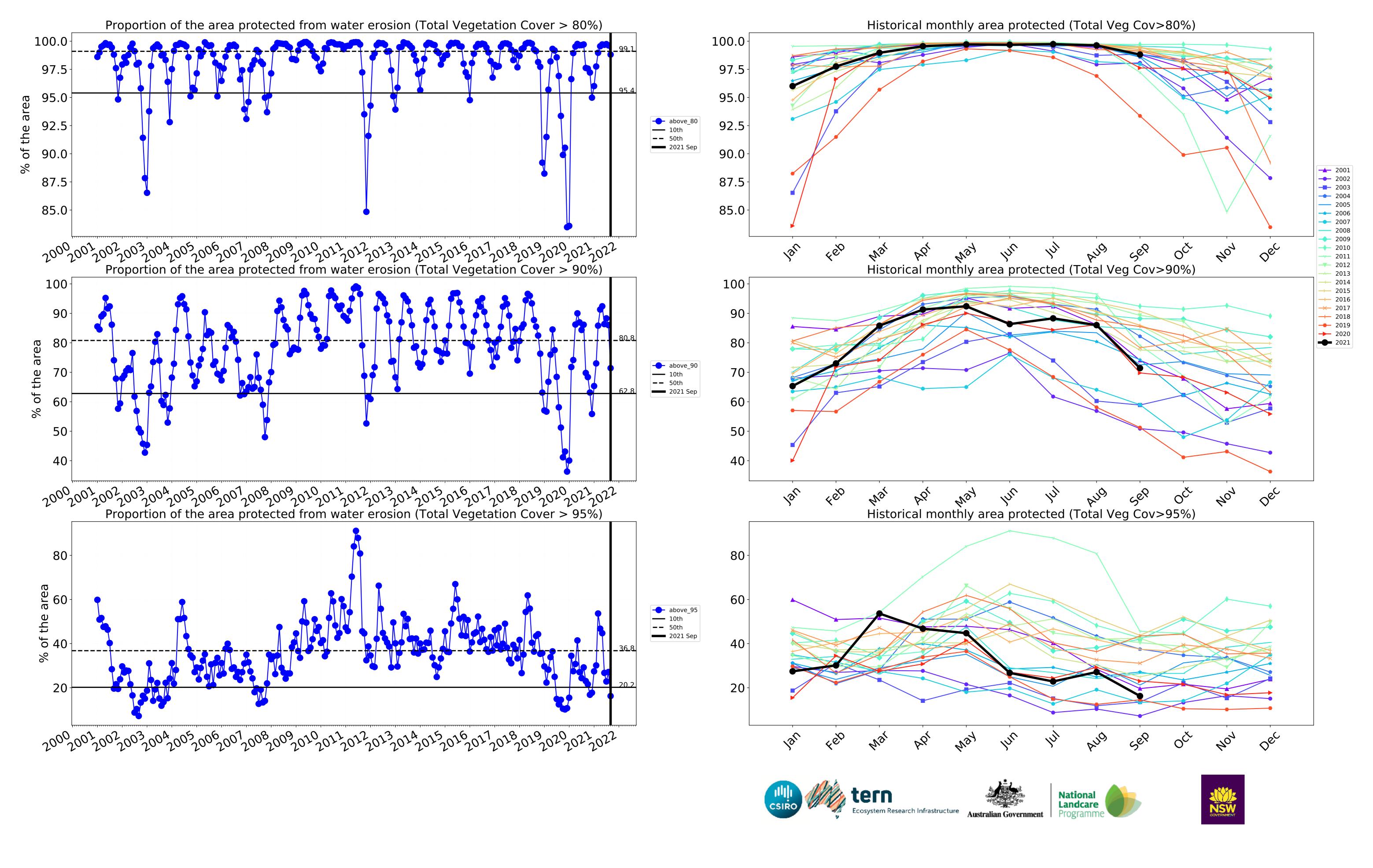




Grazing Woodland forest timeseries

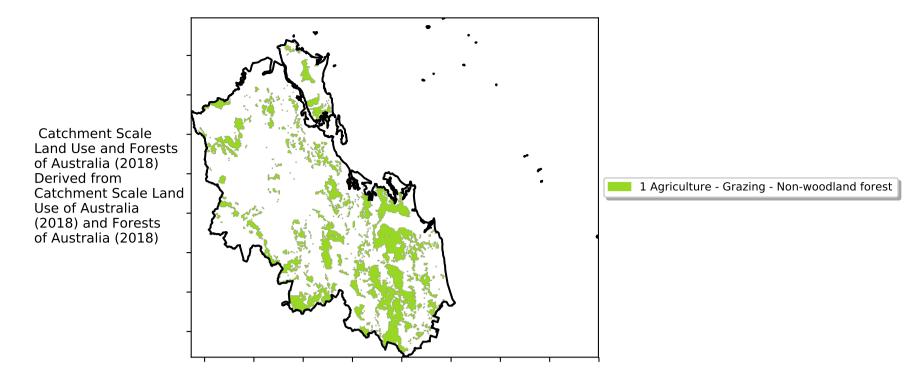




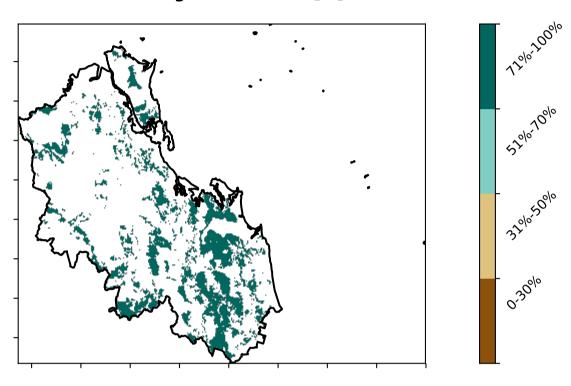


Grazing - Forest (non woodland)

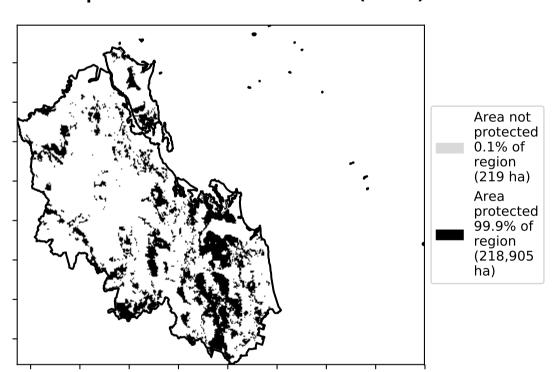
Land use and forest cover



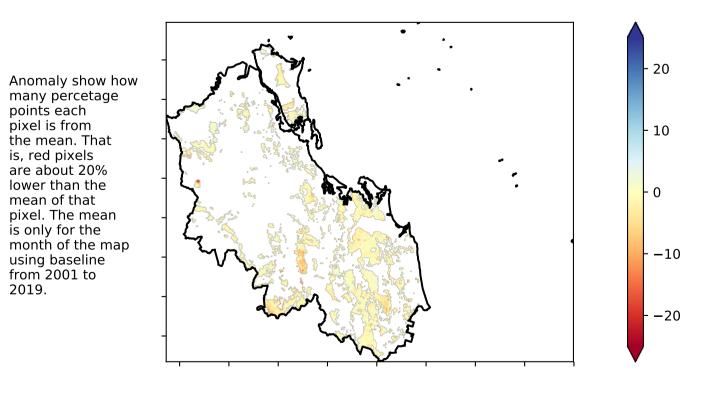
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

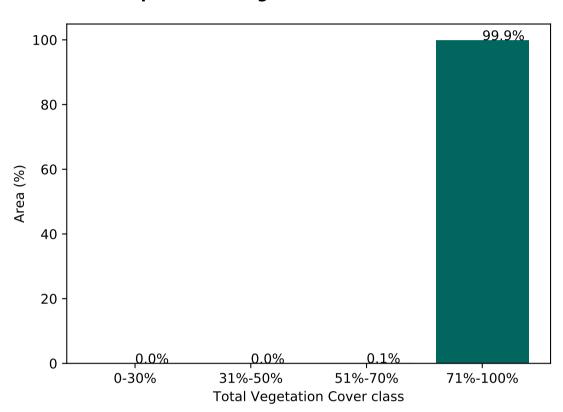


Total Vegetation Cover Anomaly [%]

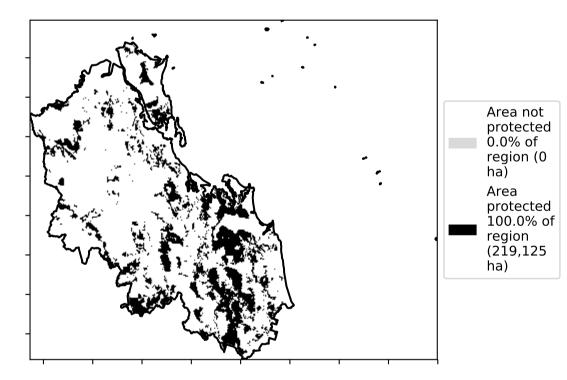


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

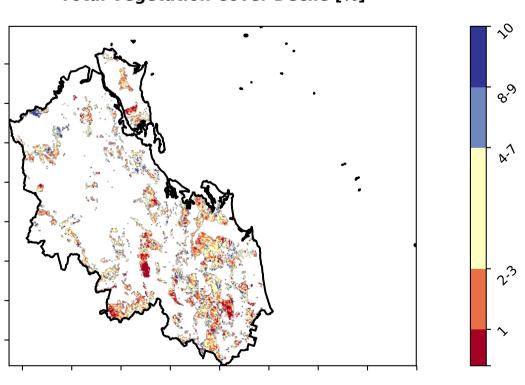
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]





lower than the

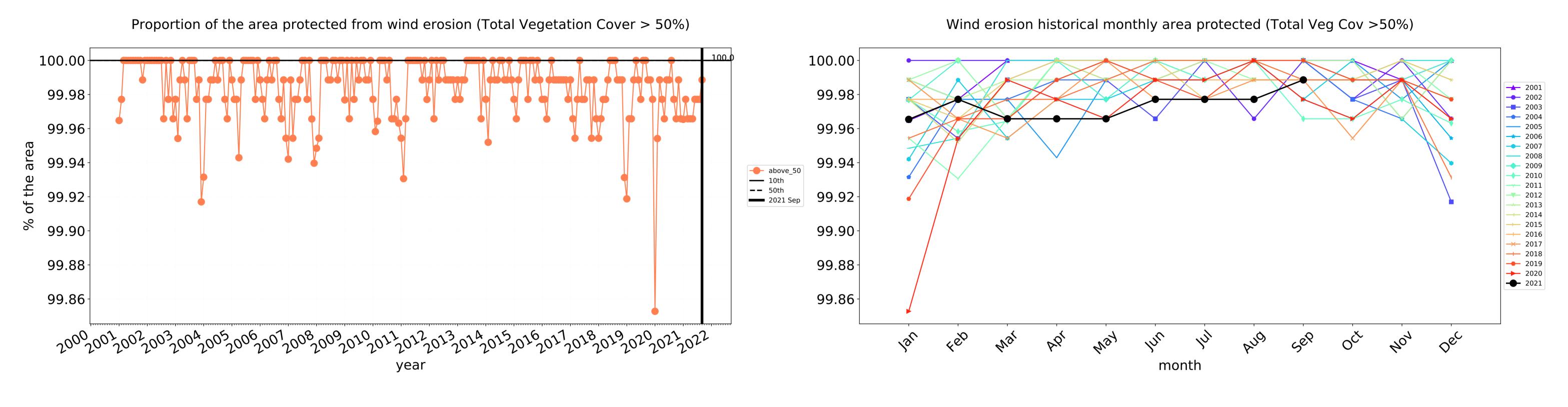


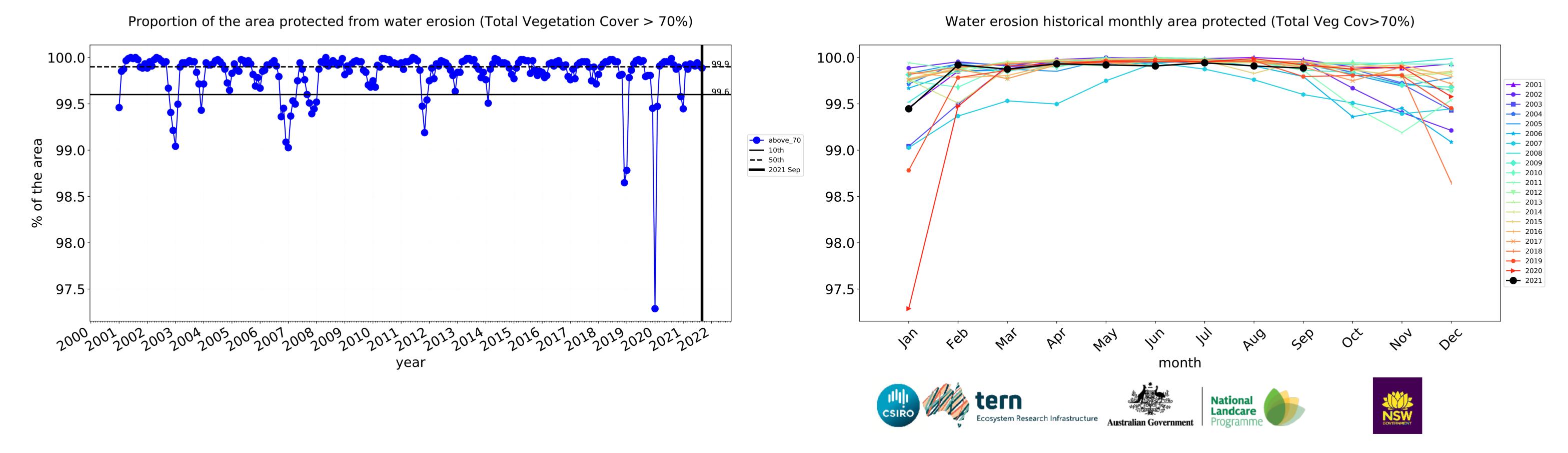


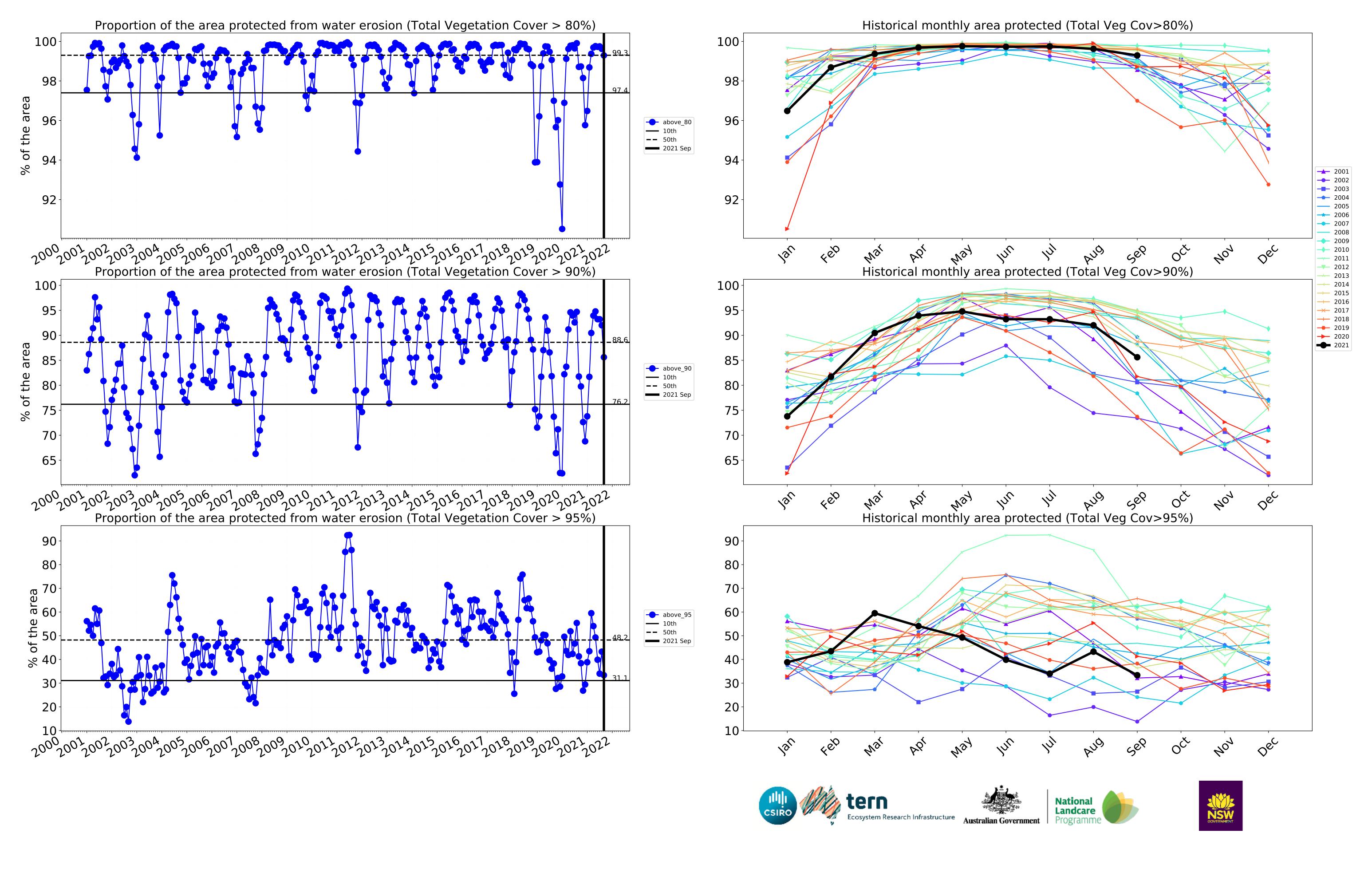






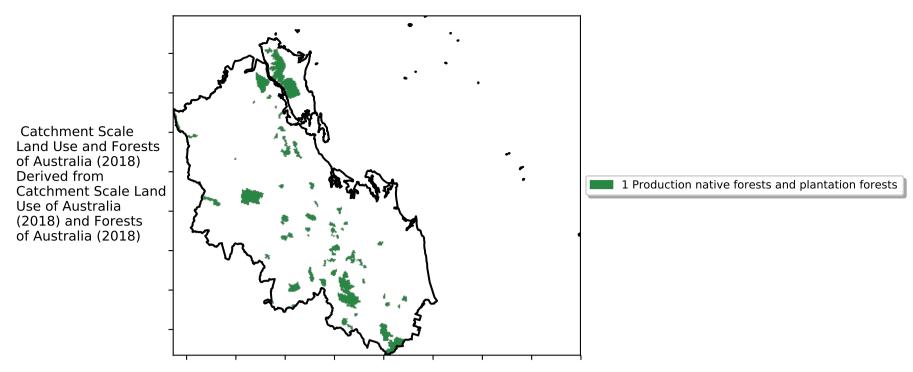




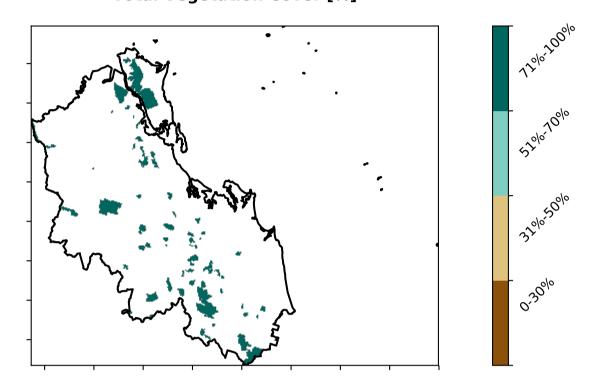


Production native forests and plantation forests

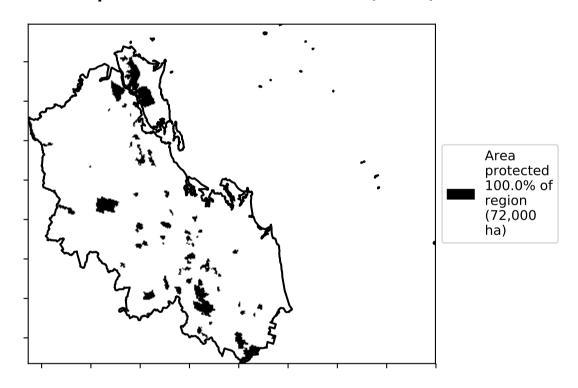
Land use and forest cover



Total Vegetation Cover [%]



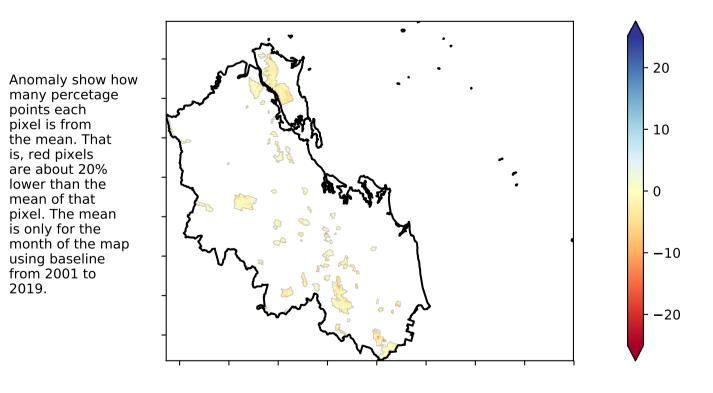
% Area protected from water erosion (>70%)



Total Vegetation Cover Anomaly [%]

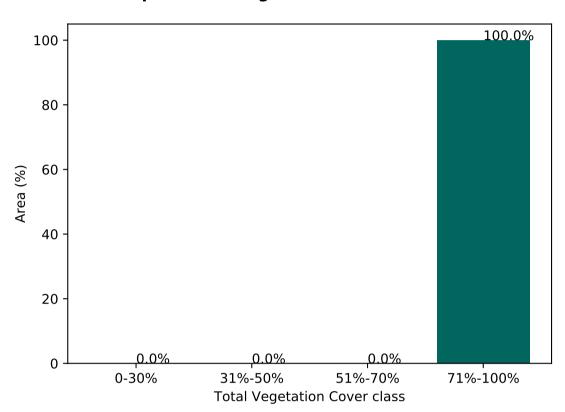
are about 20% lower than the mean of that

pixel. The mean

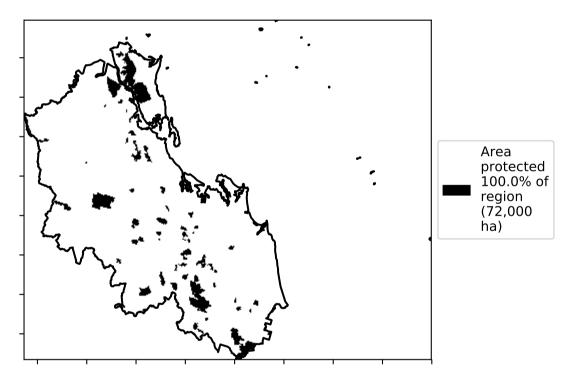


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

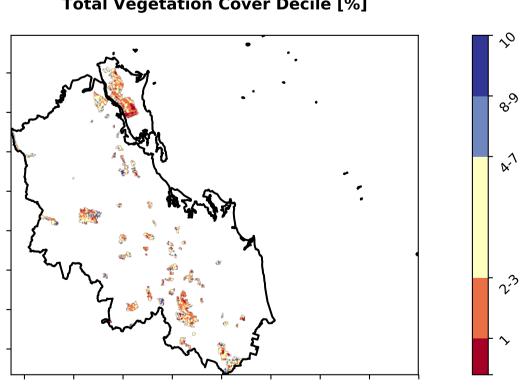
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]





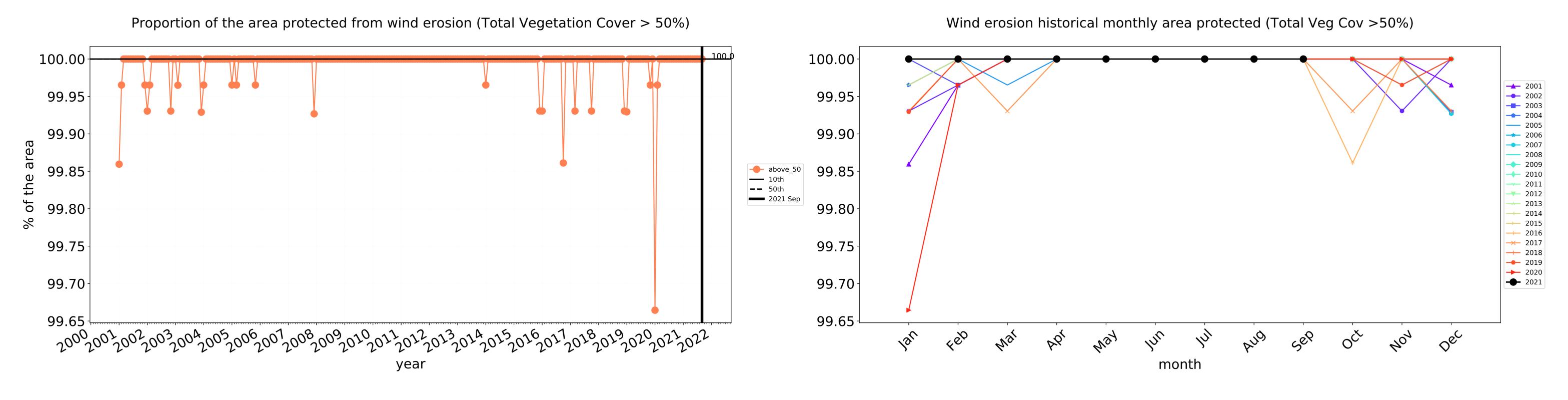


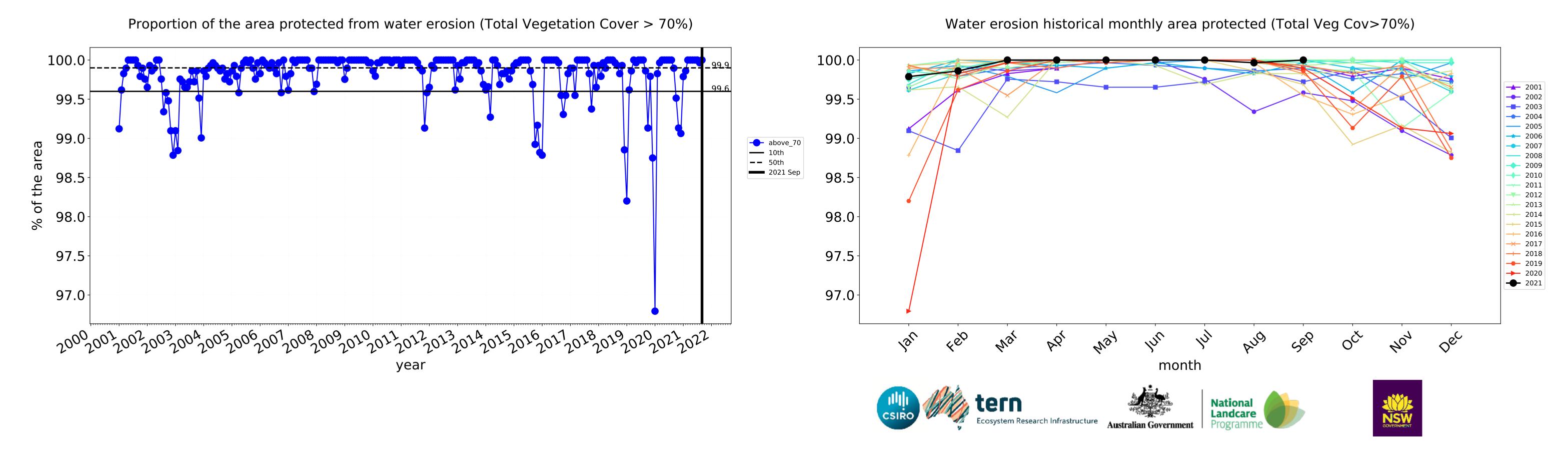


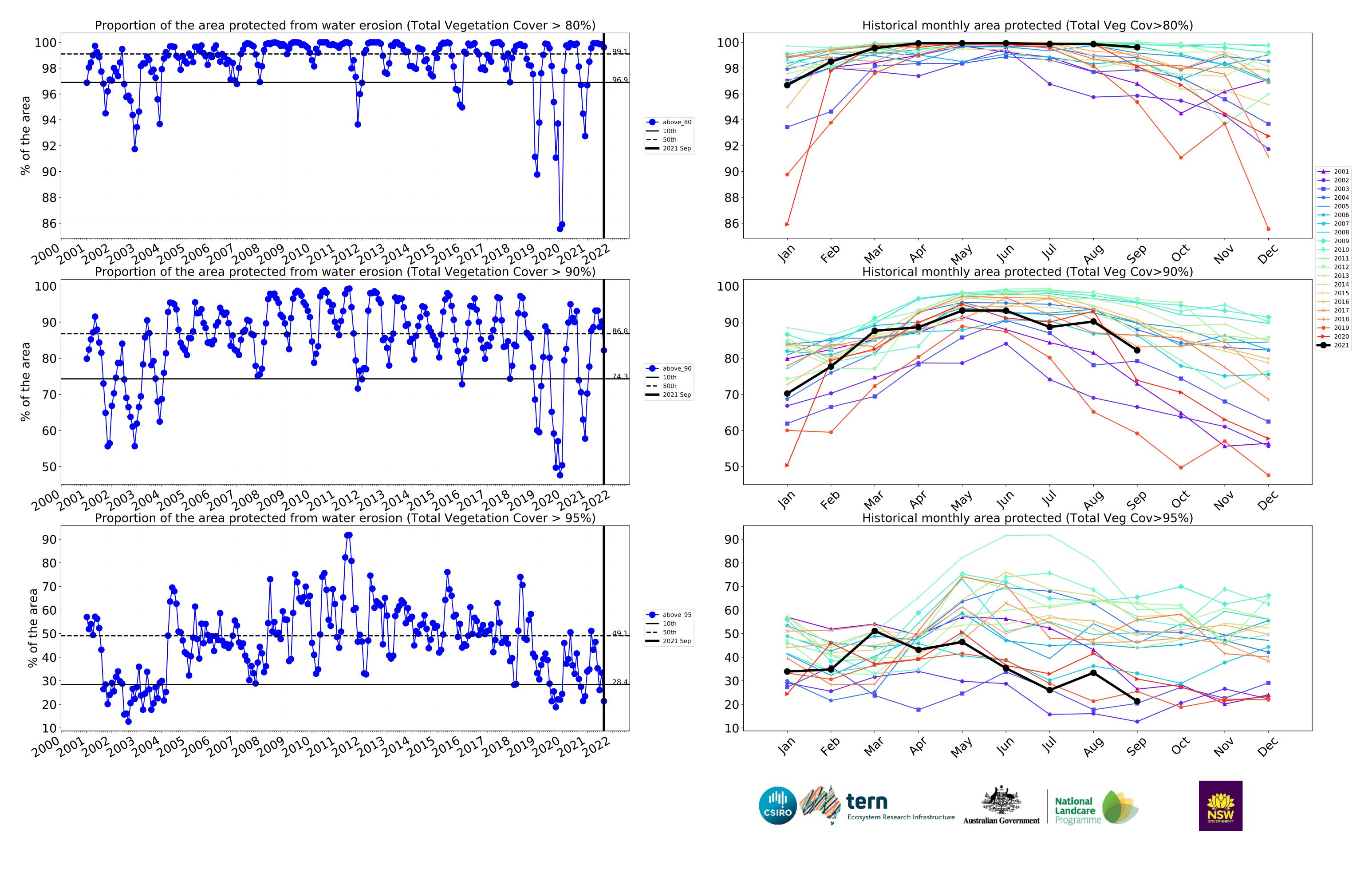




Production native forests and plantation forests timeseries







Gladstone_(R) (1,037,050 ha and no data 11,204 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	1,037,050	100.0% 1,036,550	99.8% 1,034,575	98.6% 1,022,775	94.7% 982,500	65.3% 677,325	21.3% 220,675
Conservation and natural environments	154,775	99.9% 154,625	99.7% 154,325	98.7% 152,825	96.8% 149,800	84.3% 130,450	43.2% 66,825
Conservation and natural environments Woodland forest	49,475	99.9% 49,425	99.7% 49,325	98.2% 48,575	95.3% 47,125	70.5% 34,900	25.2% 12,450
Conservation and natural environments Forest (non woodland)	100,850	100.0% 100,825	100.0% 100,800	99.6% 100,450	98.6% 99,400	92.6% 93,425	52.5% 52,925
Agriculture	734,700	100.0% 734,650	99.9% 734,325	99.6% 732,075	96.3% 707,575	63.1% 463,650	18.0% 132,125
Grazing	733,150	100.0% 733,100	99.9% 732,775	99.7% 730,650	96.3% 706,200	63.2% 463,000	18.0% 131,950
Grazing non forest	341,525	100.0% 341,475	99.9% 341,200	99.4% 339,425	93.2% 318,175	44.6% 152,200	9.0% 30,825
Grazing Woodland forest	172,500	100.0% 172,500	100.0% 172,475	99.9% 172,350	98.8% 170,450	71.4% 123,200	16.2% 28,025
Grazing - Forest (non woodland)	219,125	100.0% 219,125	100.0% 219,100	99.9% 218,875	99.3% 217,575	85.6% 187,600	33.4% 73,100
Production native forests and plantation forests	72,000	100.0% 72,000	100.0% 72,000	100.0% 72,000	99.6% 71,725	82.2% 59,175	21.4% 15,375







