Total vegetation cover soil protection Region:LGA Yankalilla_(DC) SA

Date: August 2021

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 2021

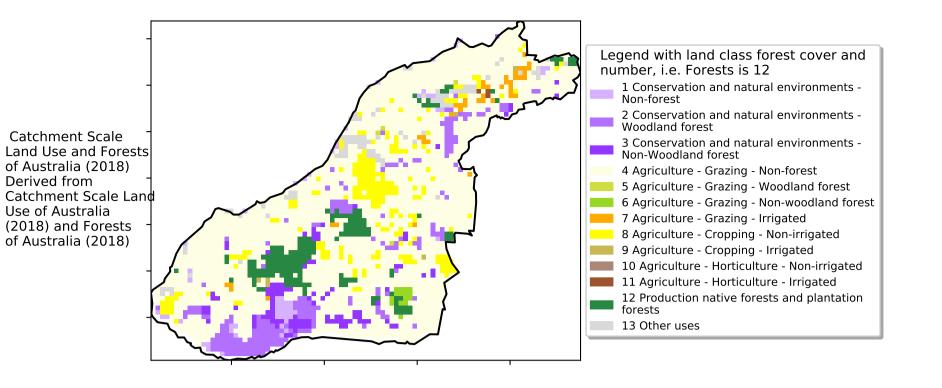
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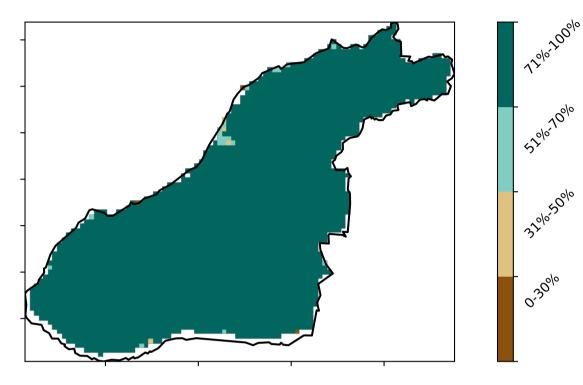
Land use and forest cover



67.9%

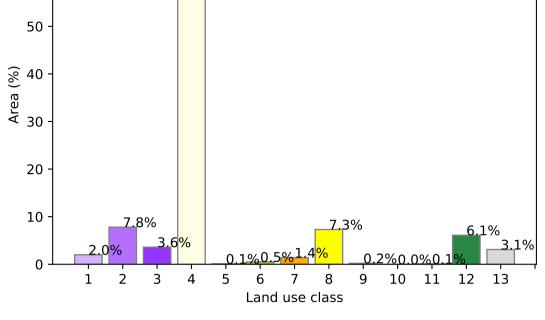


Total Vegetation Cover [%]

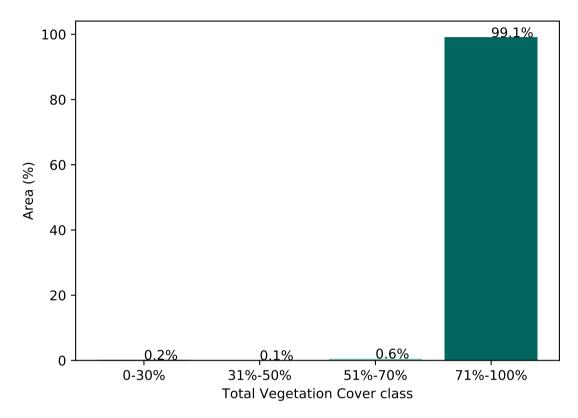


% Area protected from water erosion (>70%)





Proportion of vegetation cover class in area

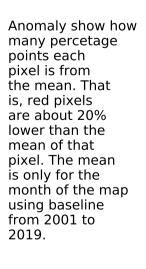


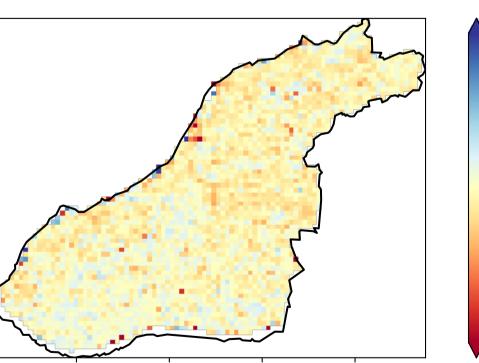
% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]

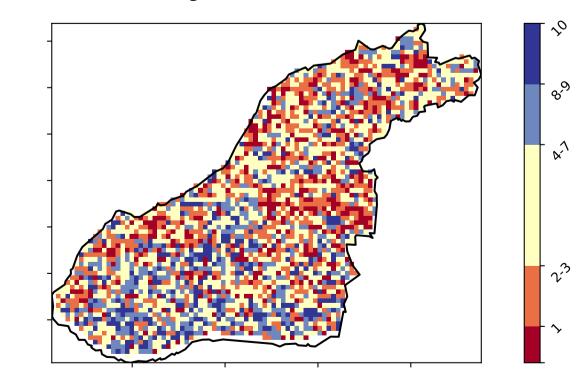
Total Vegetation Cover Anomaly [%]





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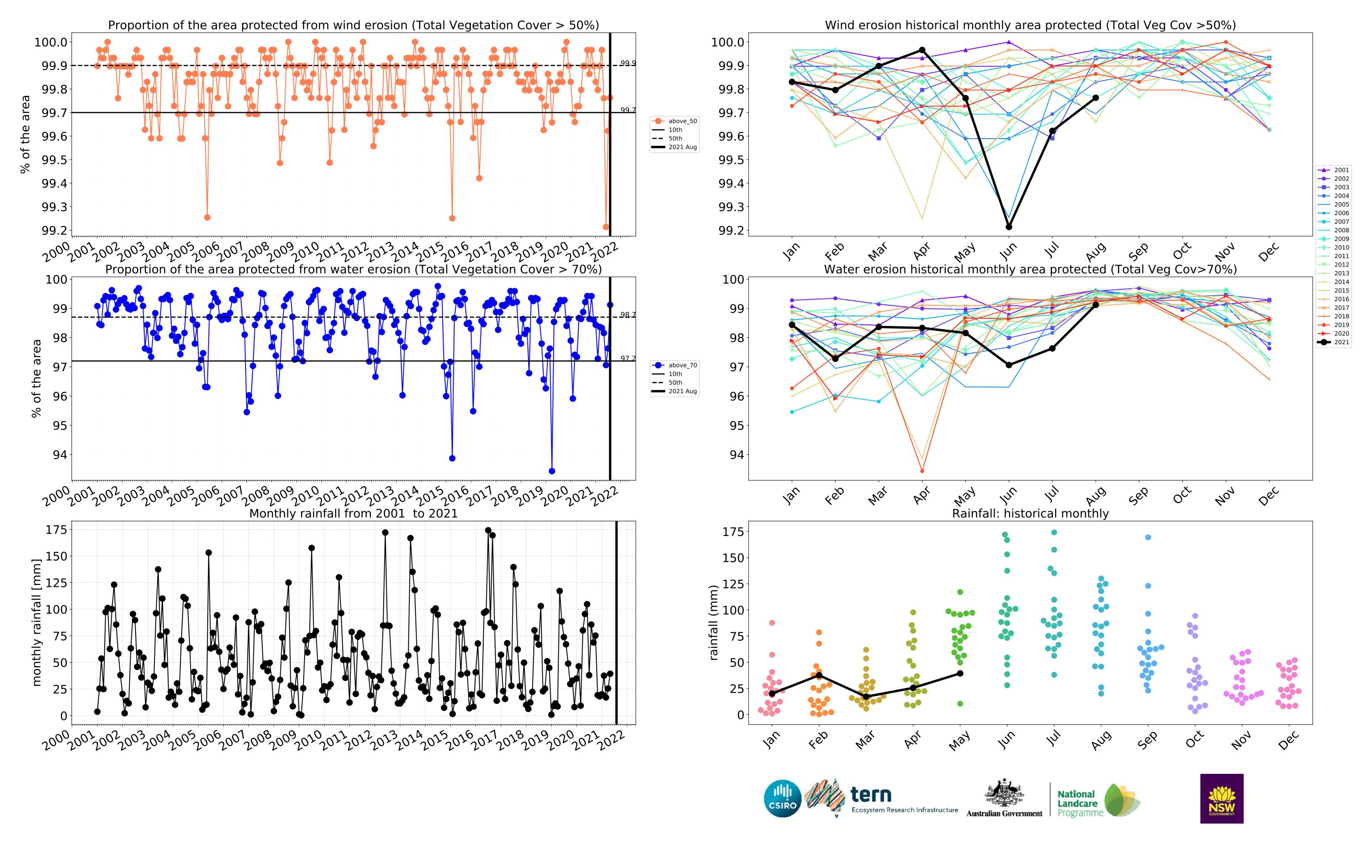
Deciles show where the

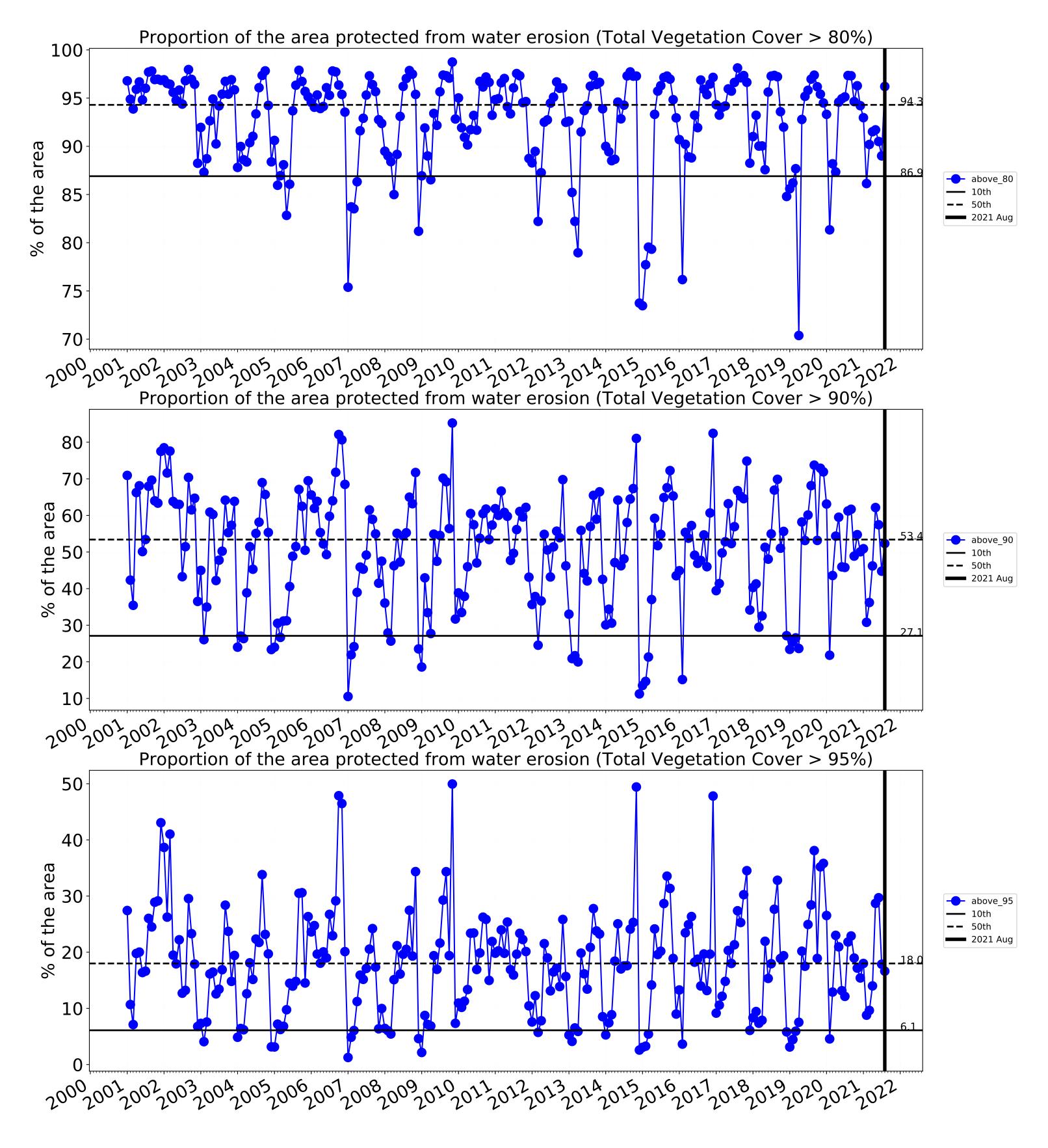
pixel value lies in the

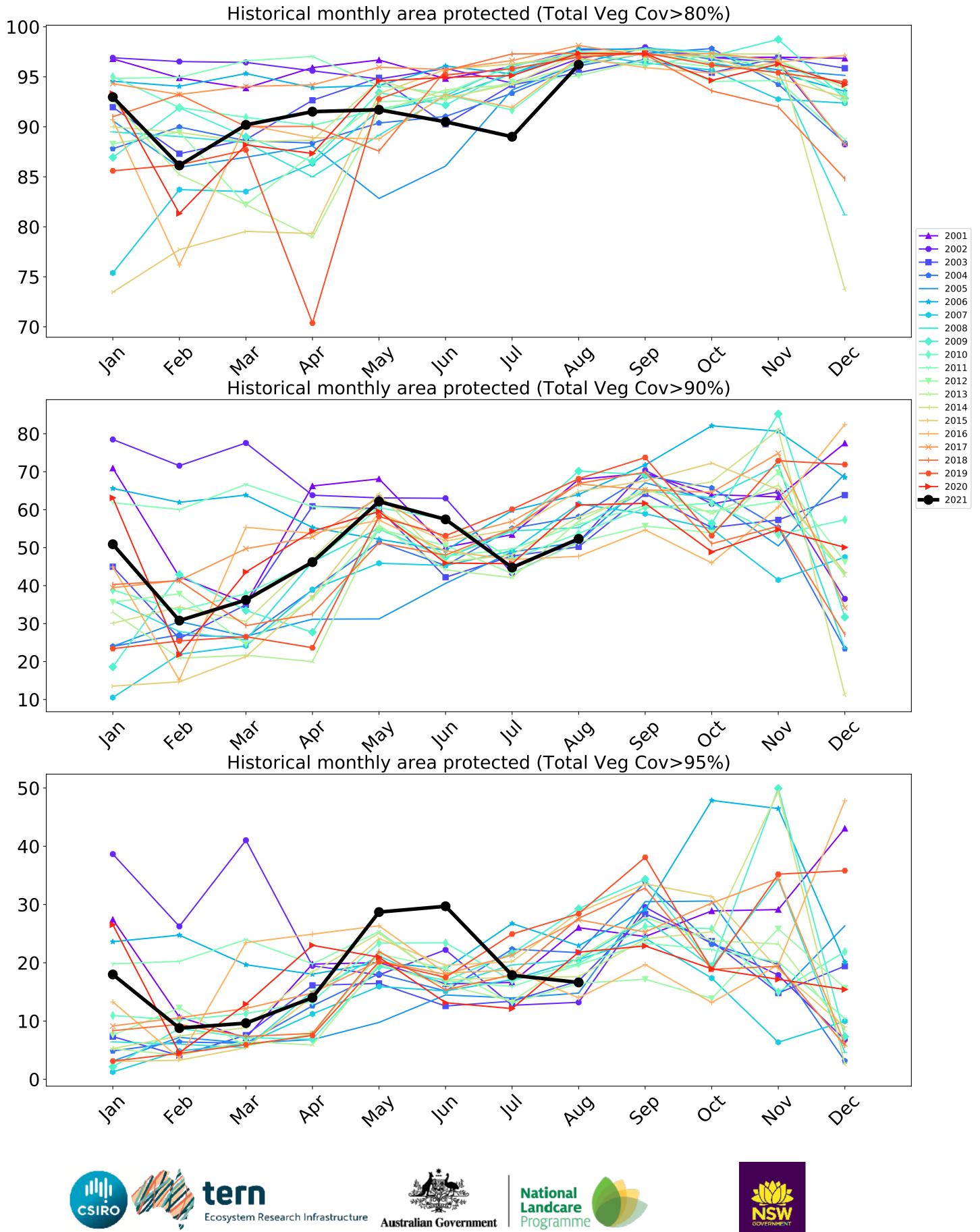
record, from highest to lowest, for that month.

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

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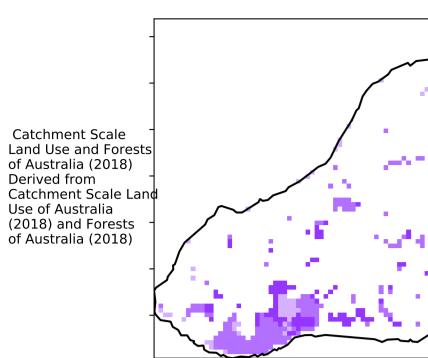
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1 Conservation and natural environments - Non-forest

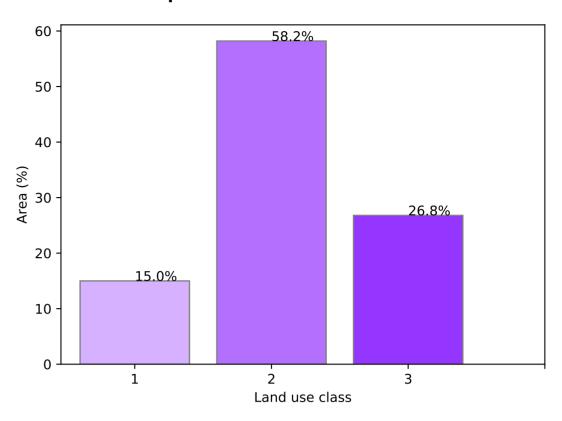
3 Conservation and natural environments - Non-woodland forest

2 Conservation and natural environments - Woodland forest

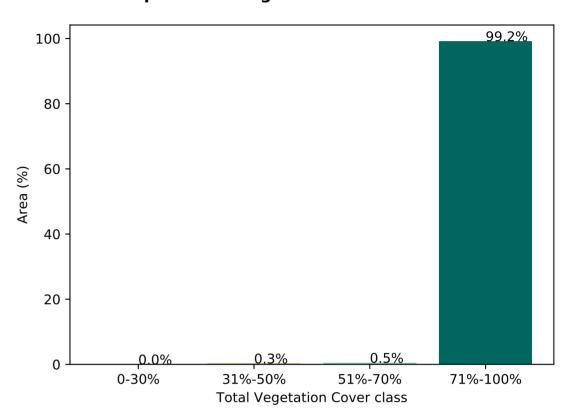


Land use and forest cover

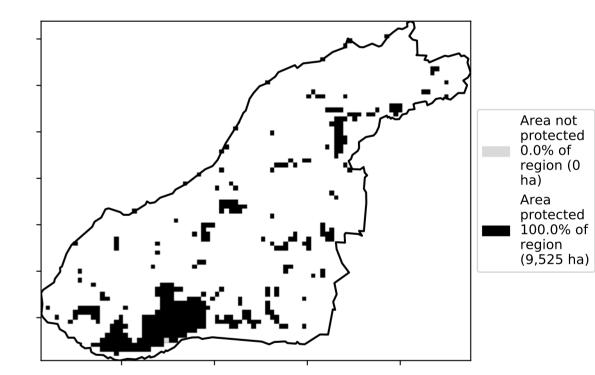
Proportion of each land class in area



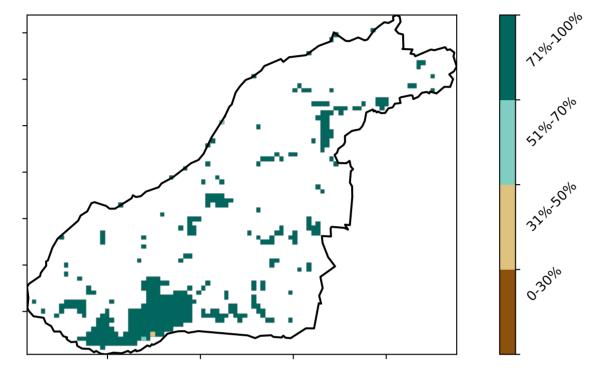
Proportion of vegetation cover class in area



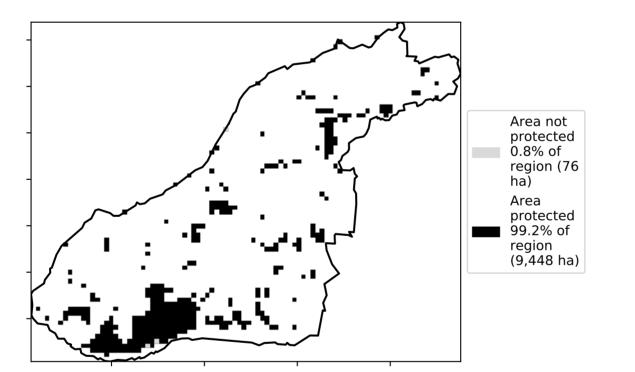
% Area protected from wind erosion (>50%)



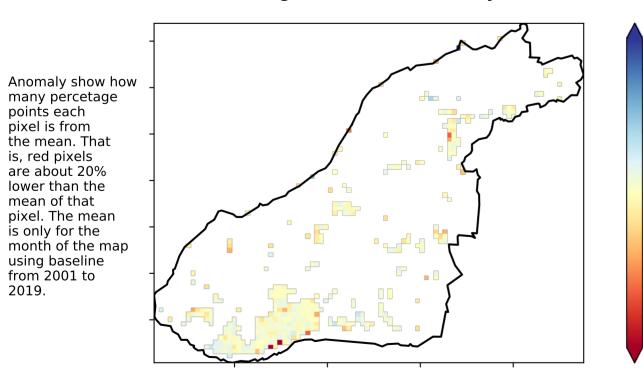
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



Total Vegetation Cover Anomaly [%]



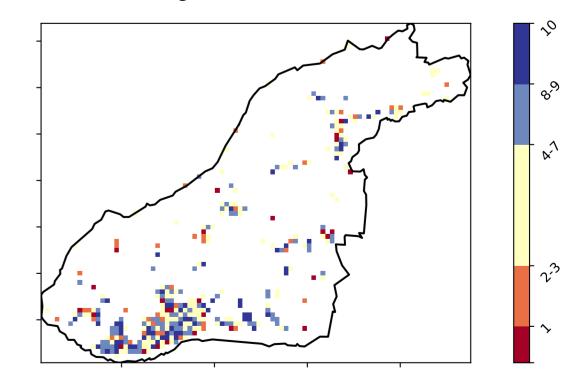
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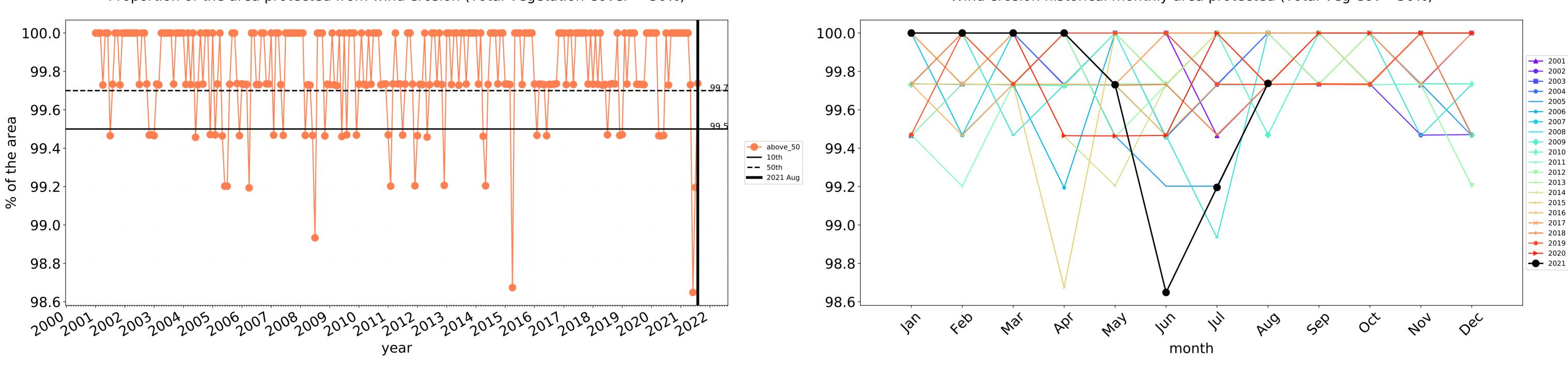
mean of that

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 [%]







100

Jan

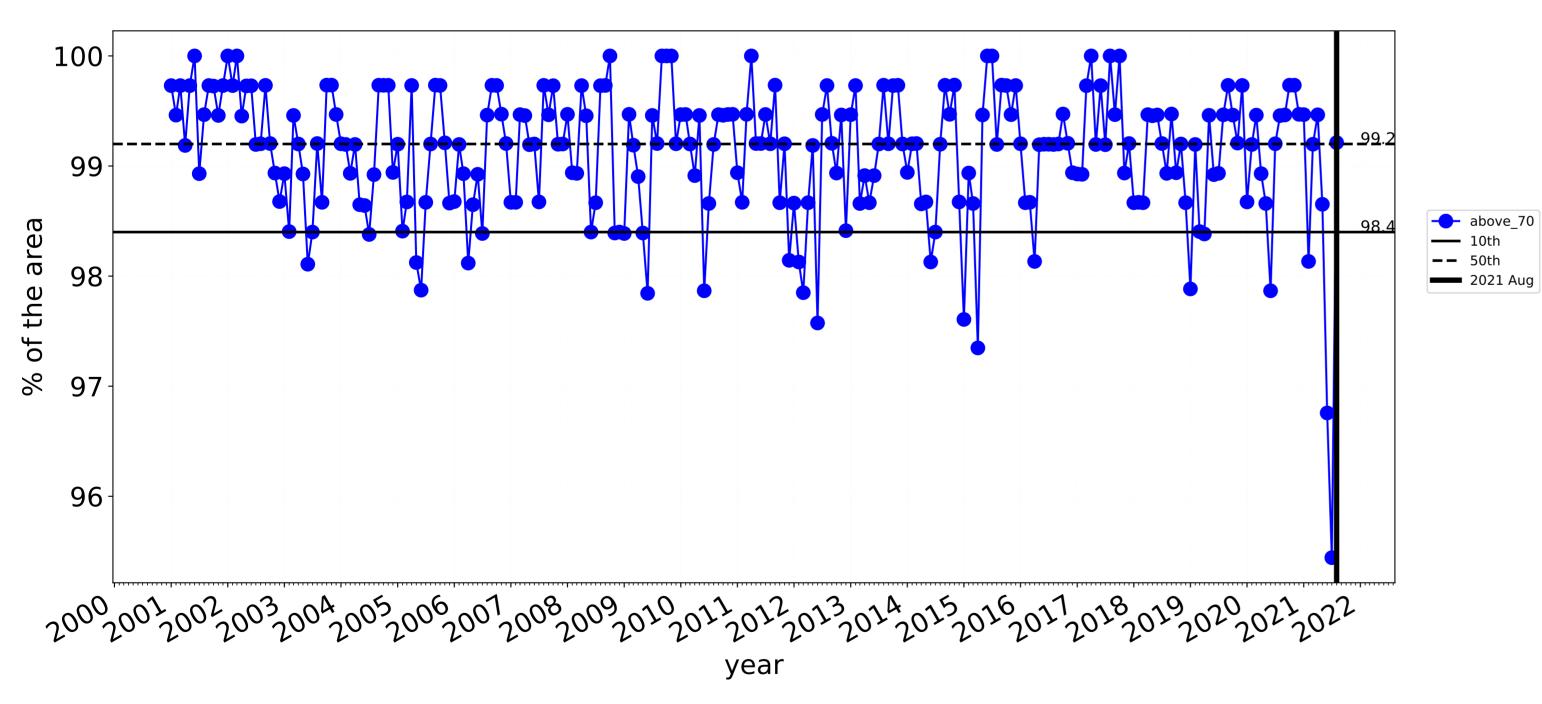
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—— 10th

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

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



Conservation and natural environments timeseries

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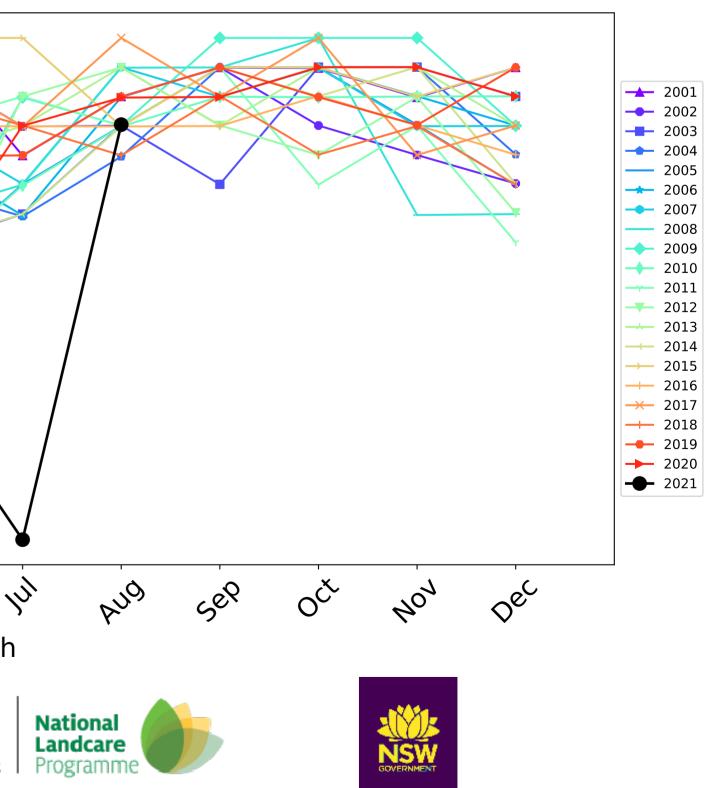


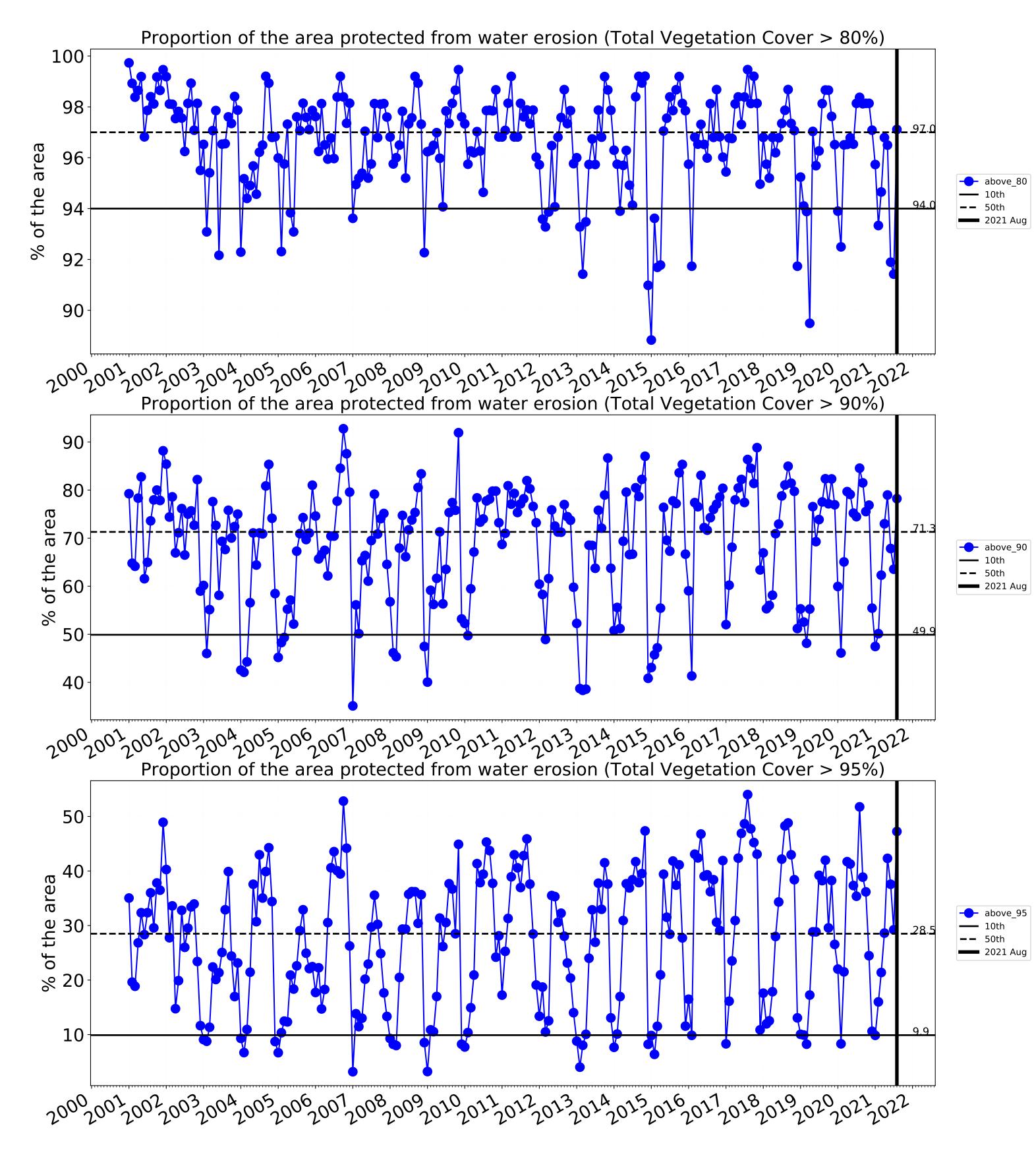
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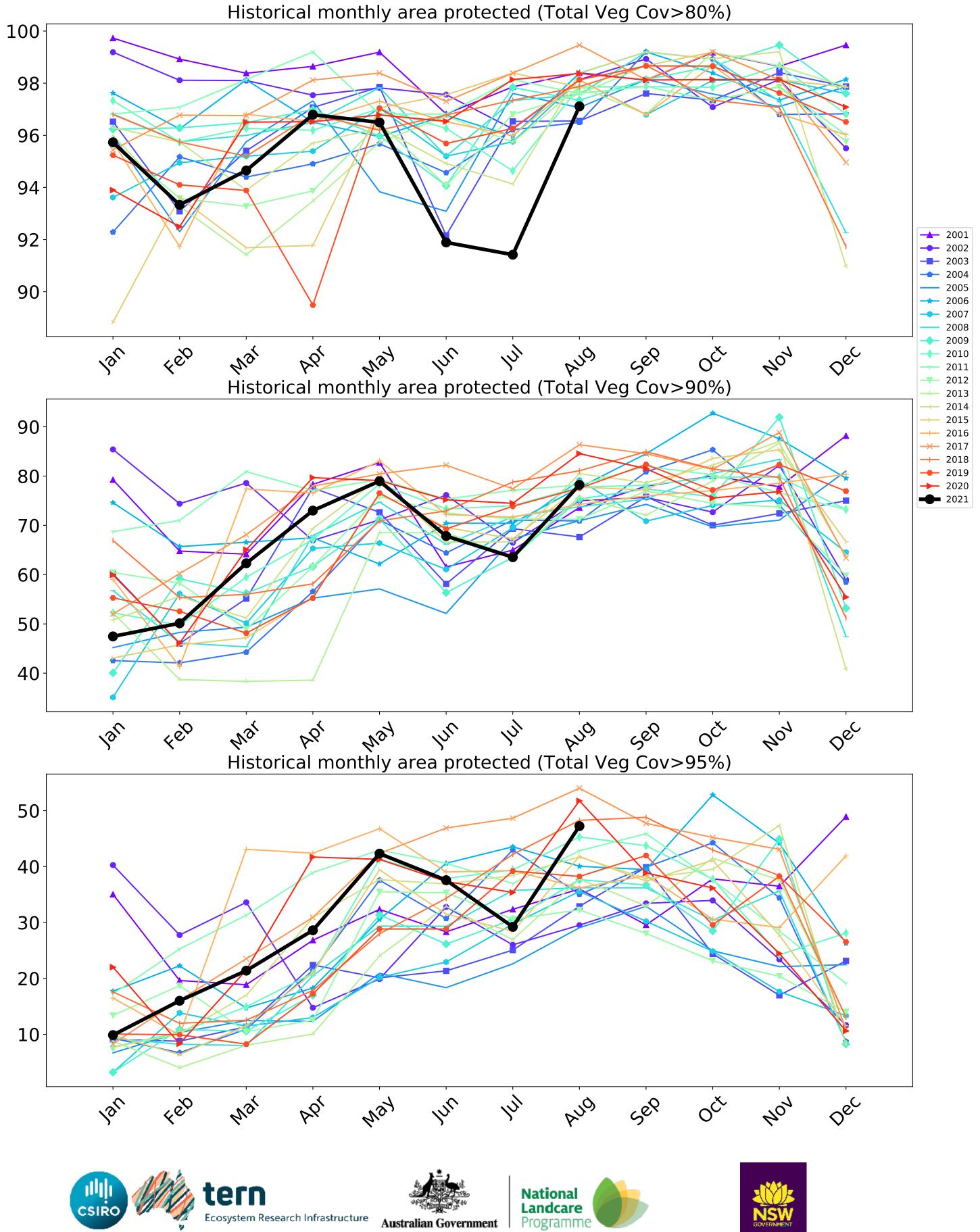
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Wind erosion historical monthly area protected (Total Veg Cov >50%)

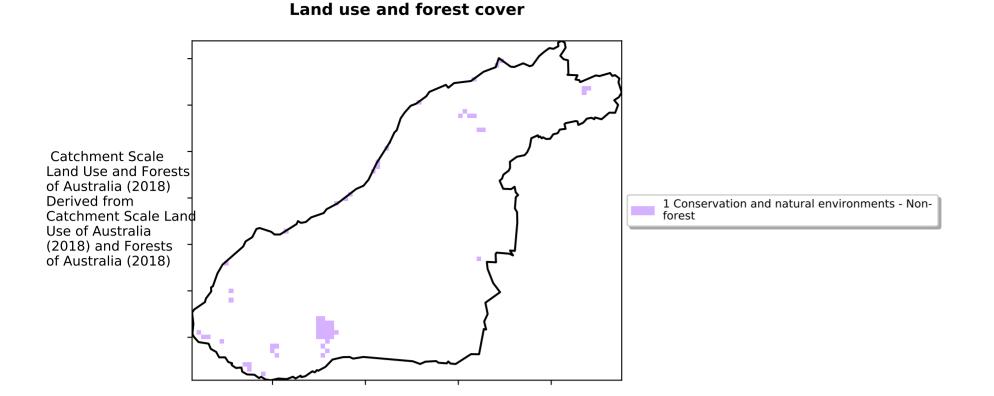




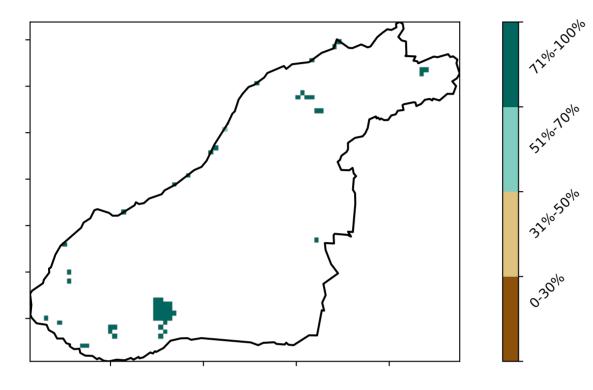




Conservation and natural environments non forest

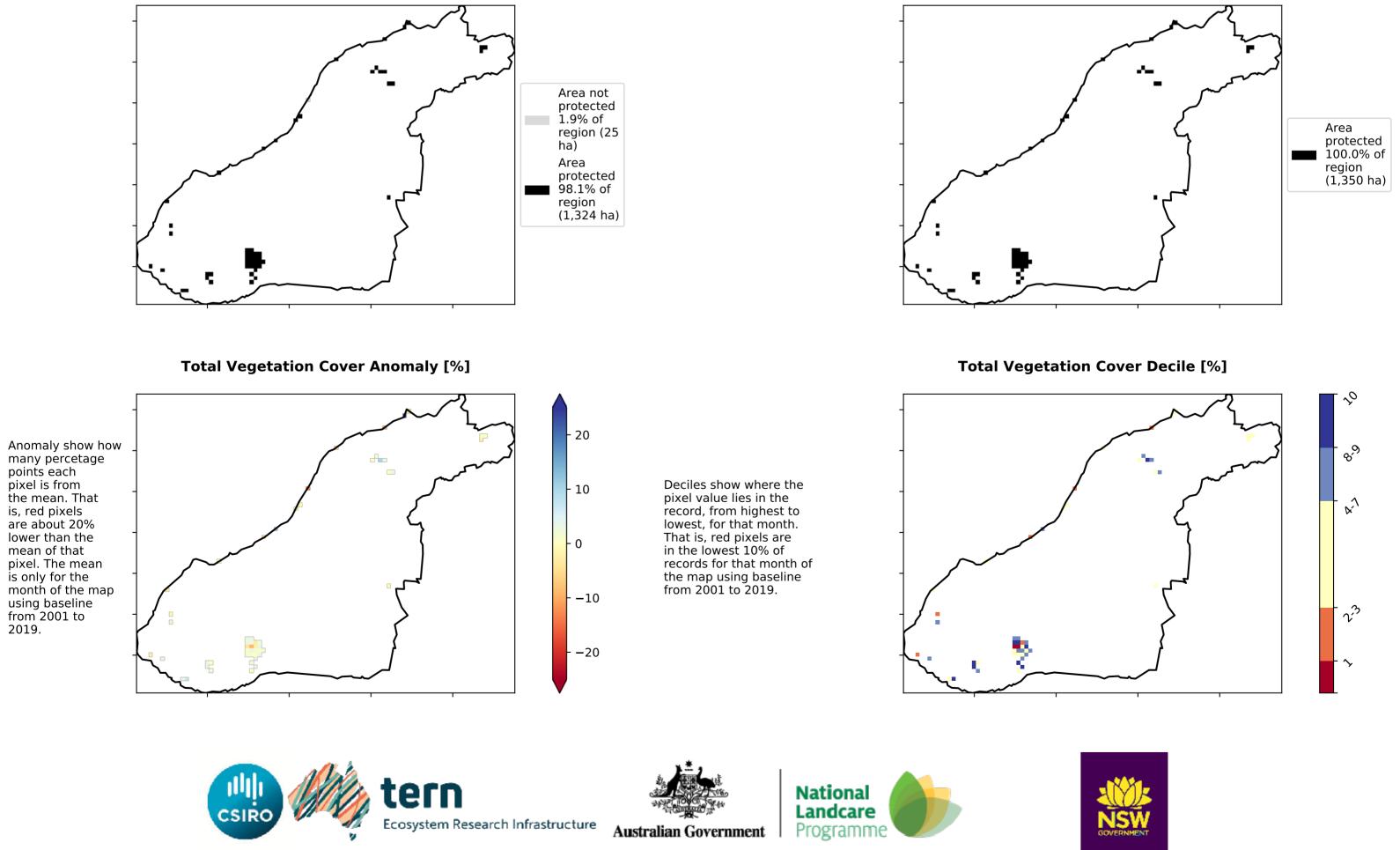


Total Vegetation Cover [%]

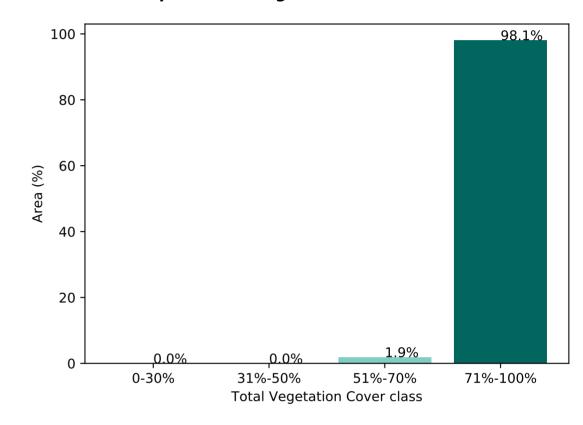


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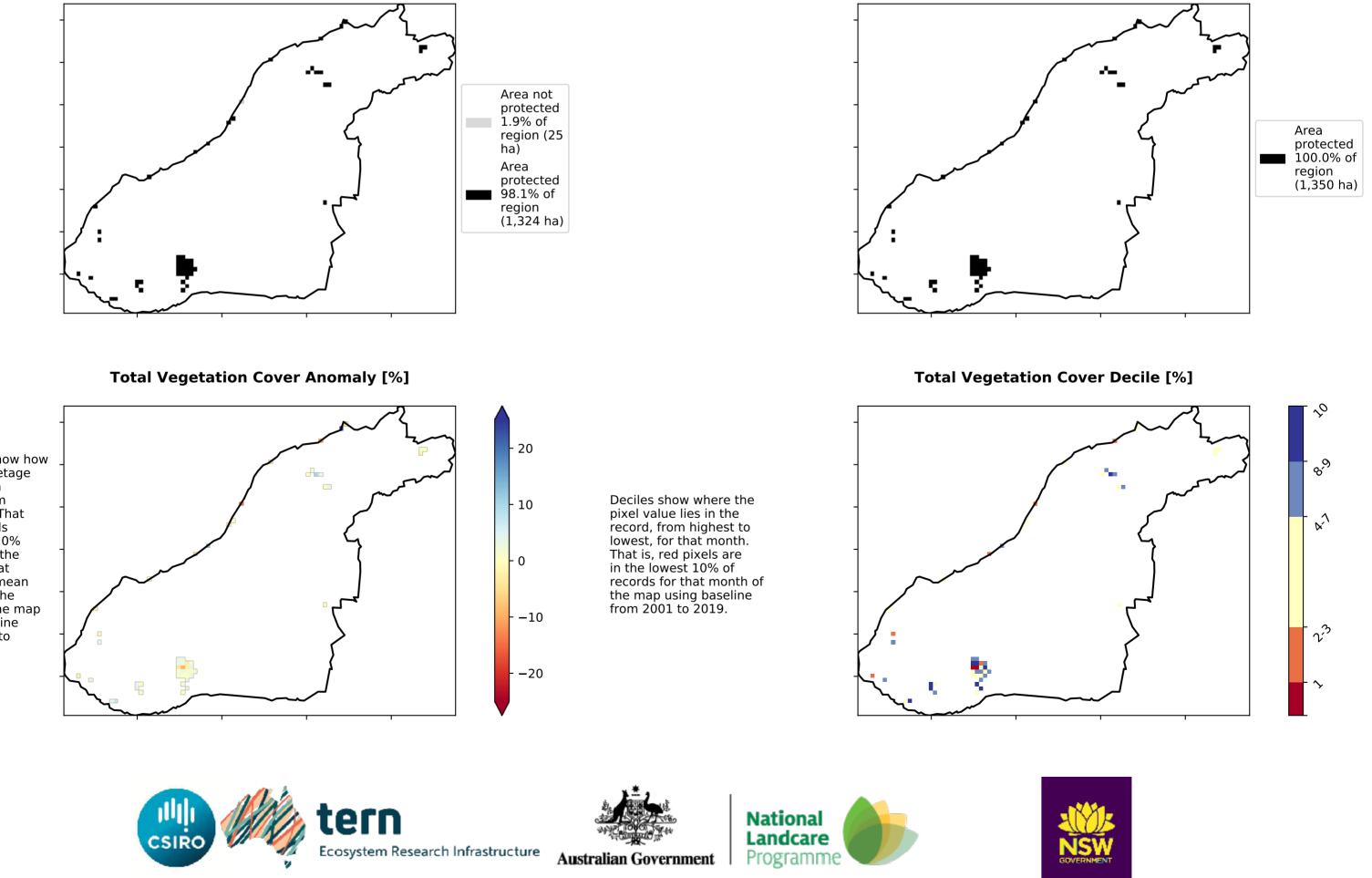
% Area protected from water erosion (>70%)

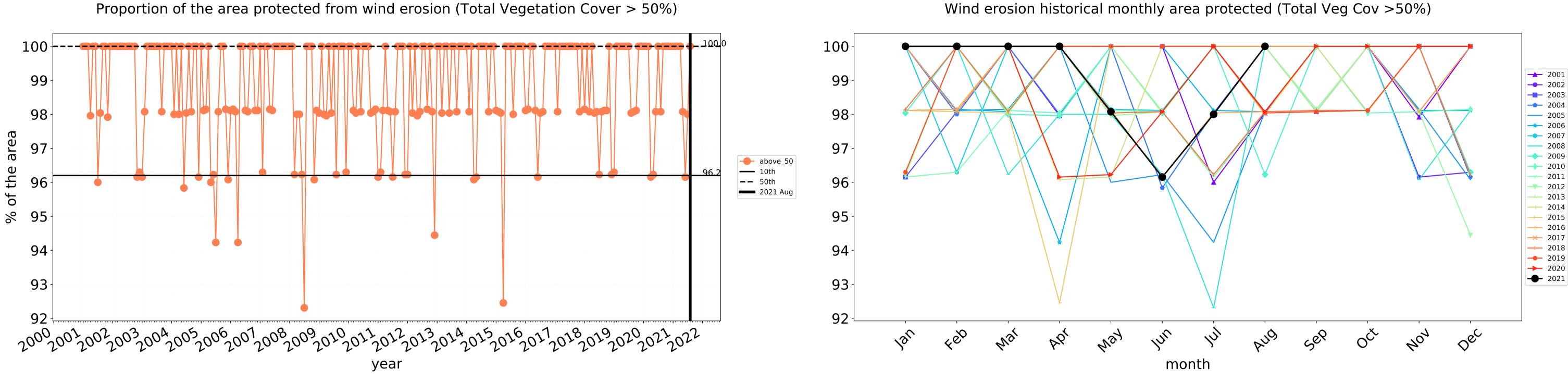


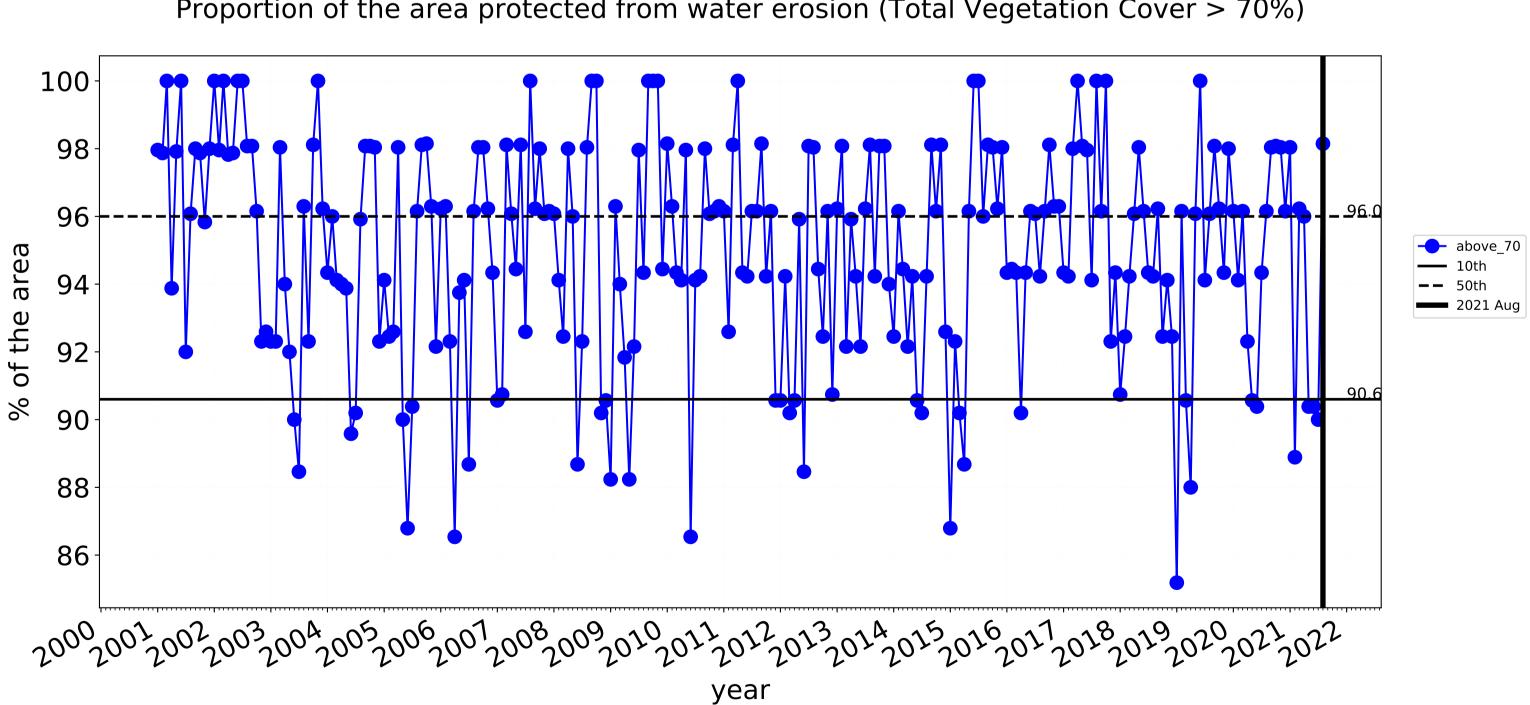
Proportion of vegetation cover class in area



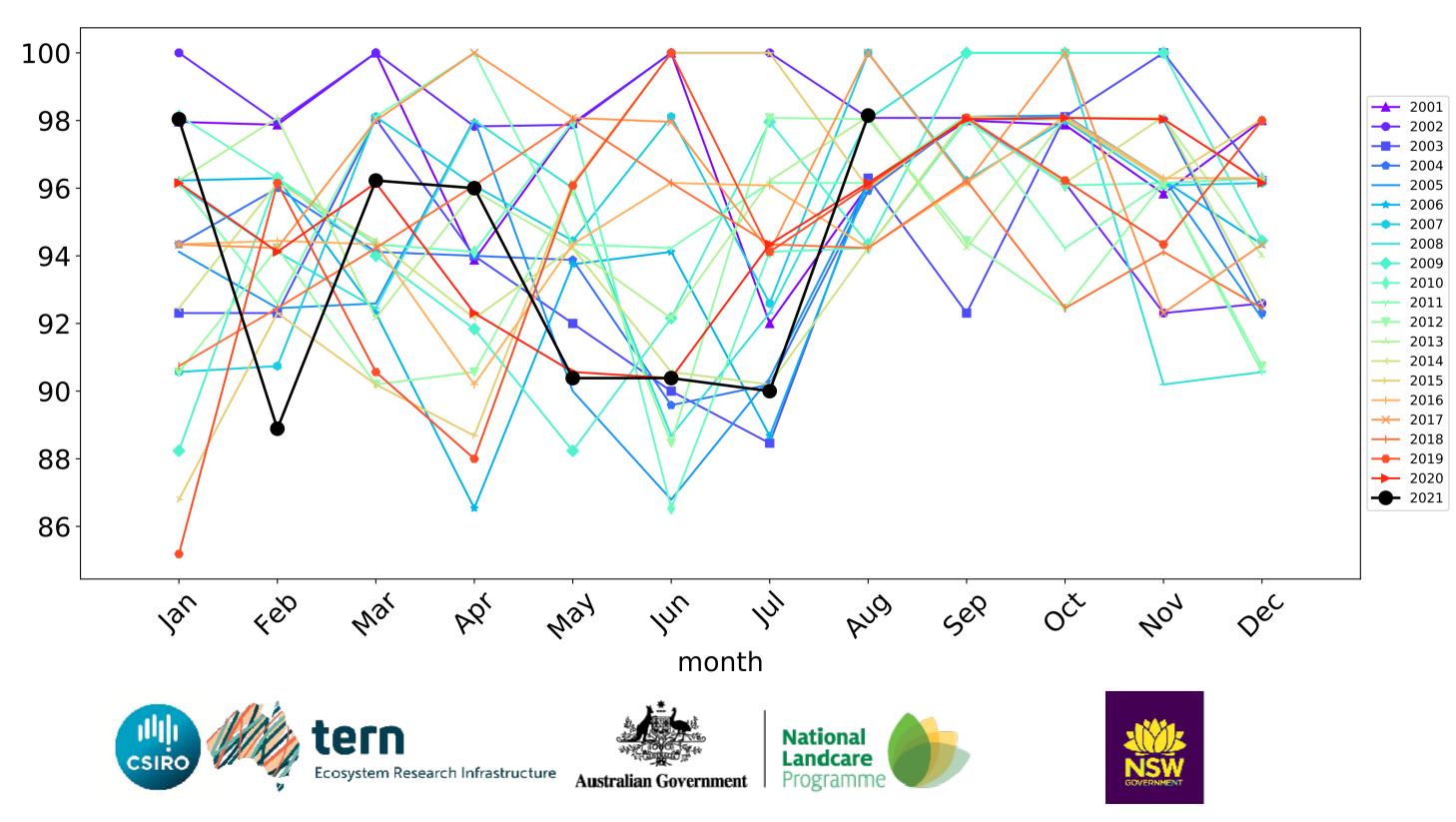
% Area protected from wind erosion (>50%)

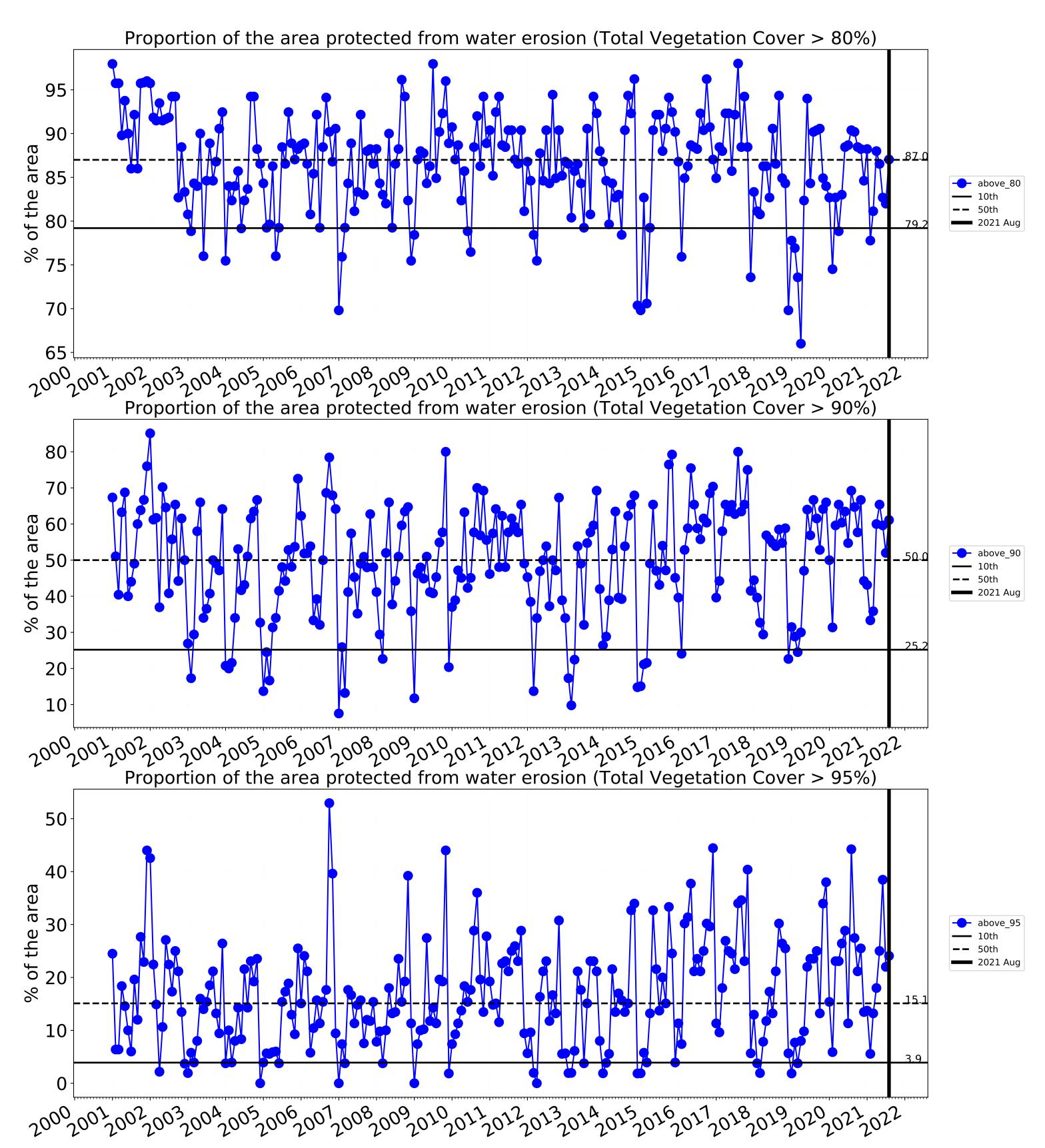


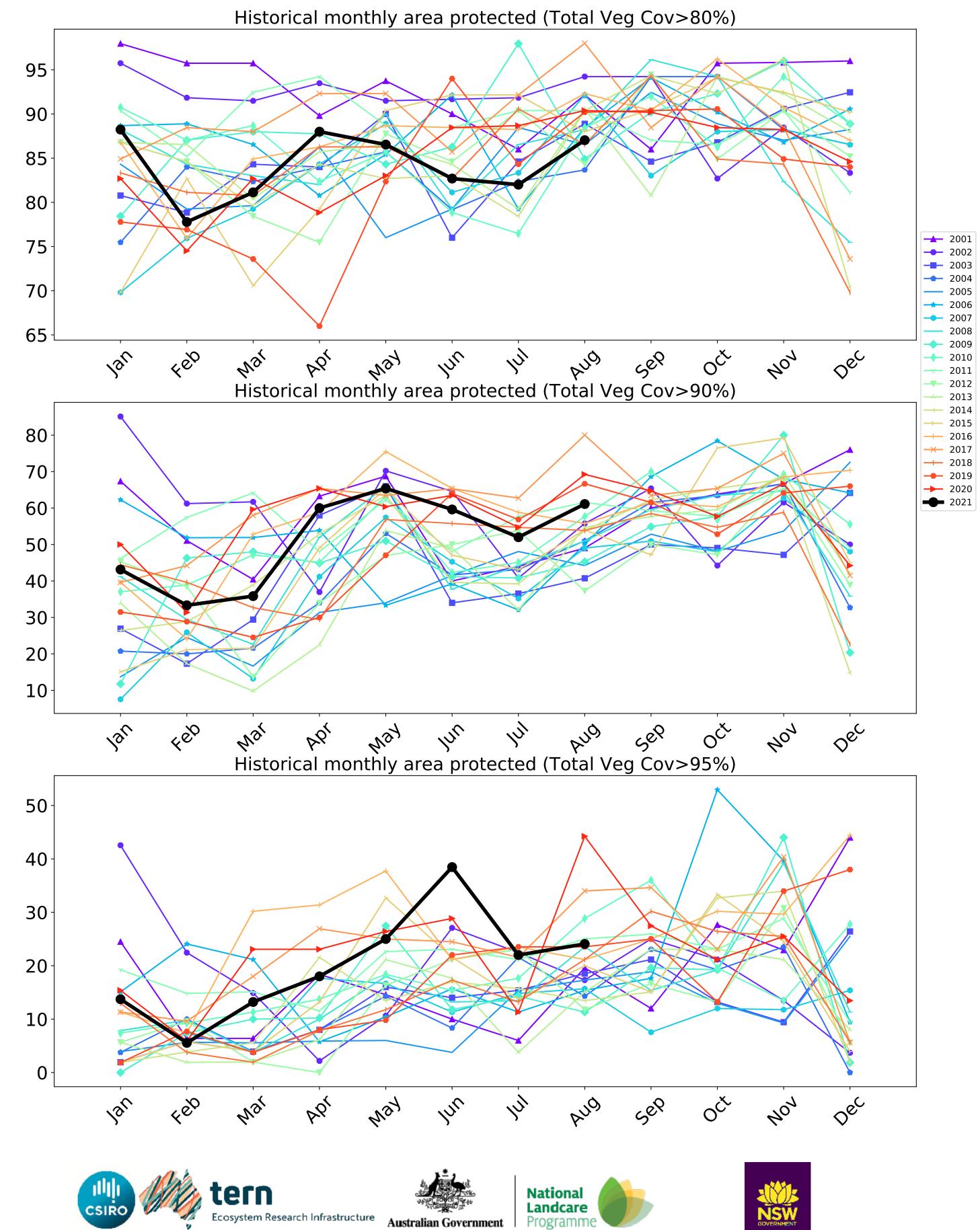




Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

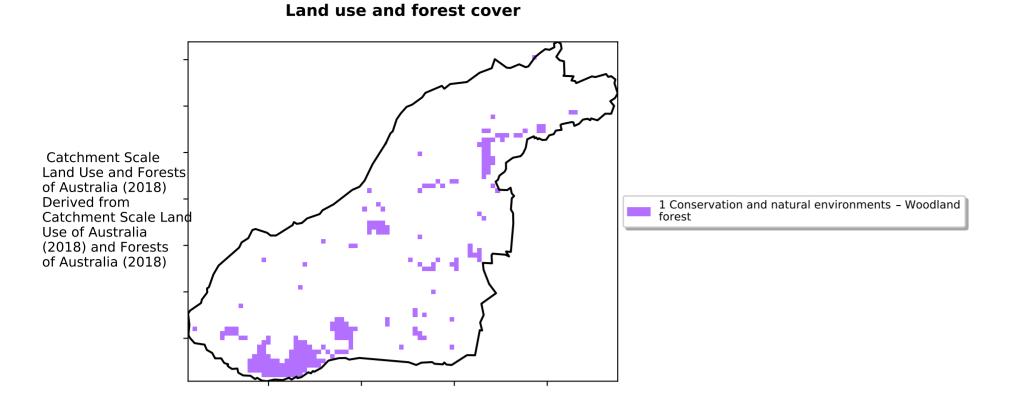




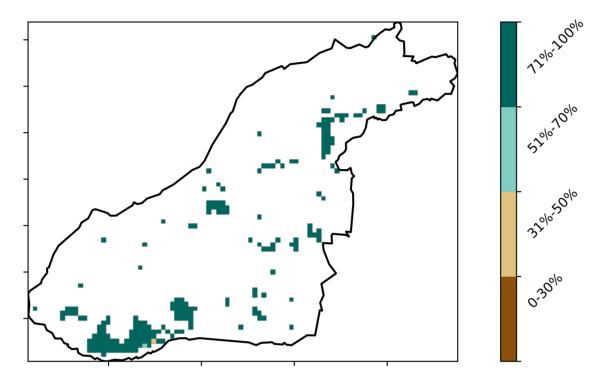




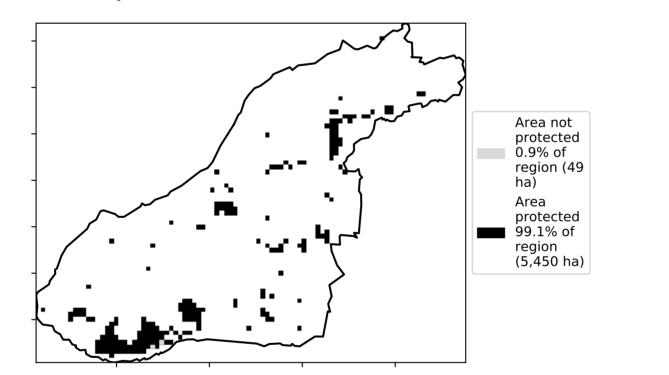
Conservation and natural environments Woodland forest



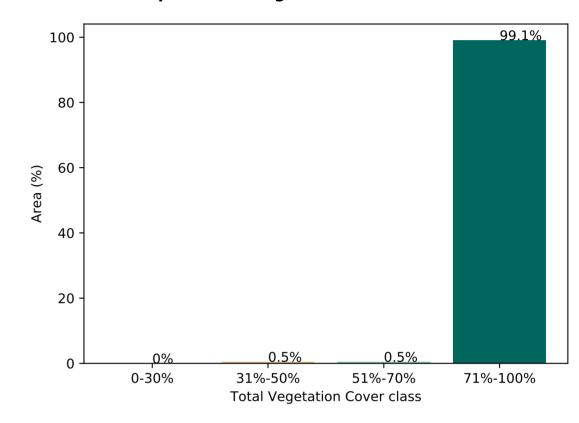
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



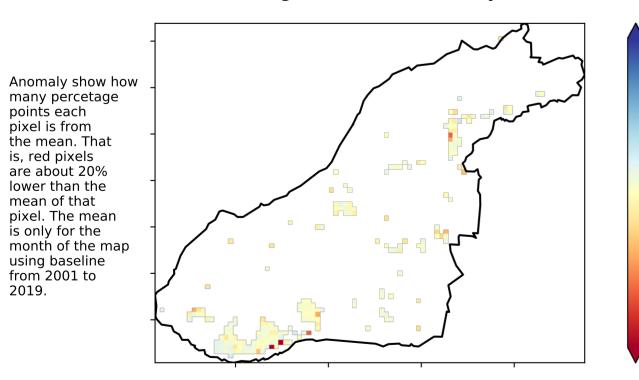
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



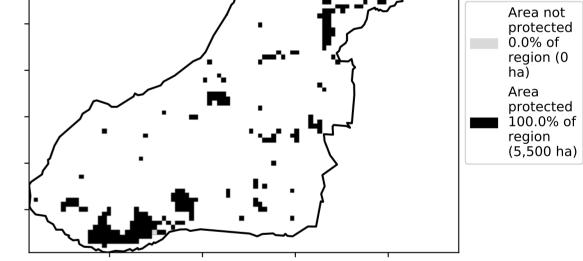
Total Vegetation Cover Anomaly [%]



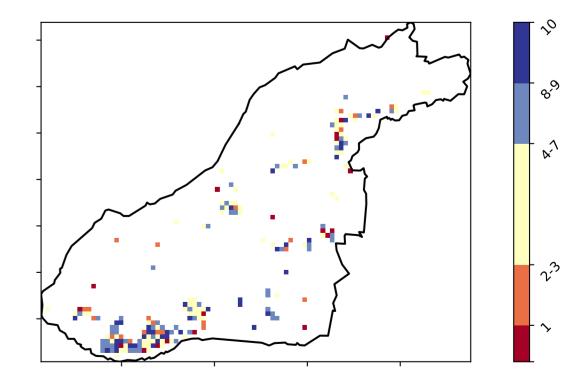
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Total Vegetation Cover Decile [%]





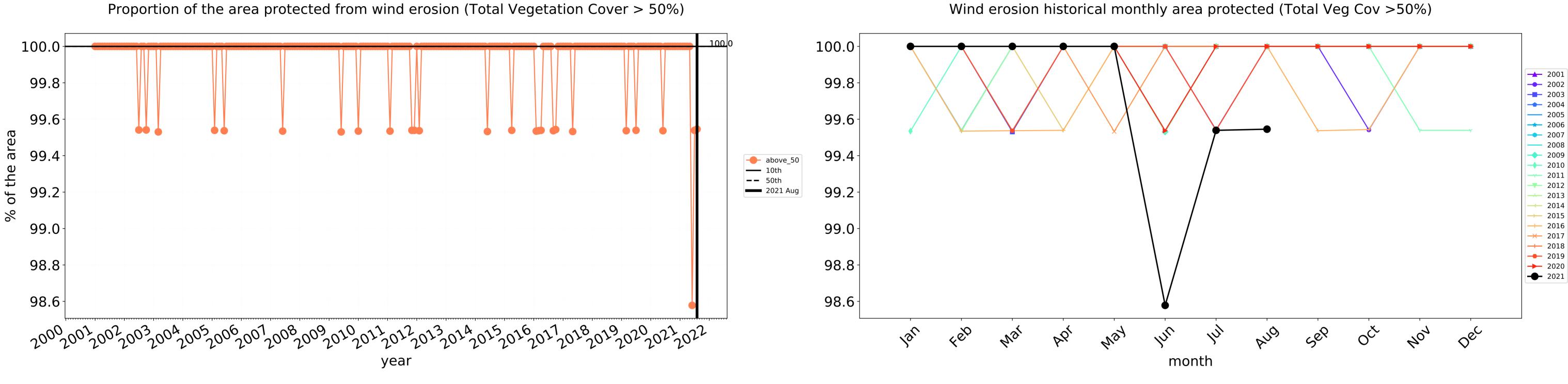
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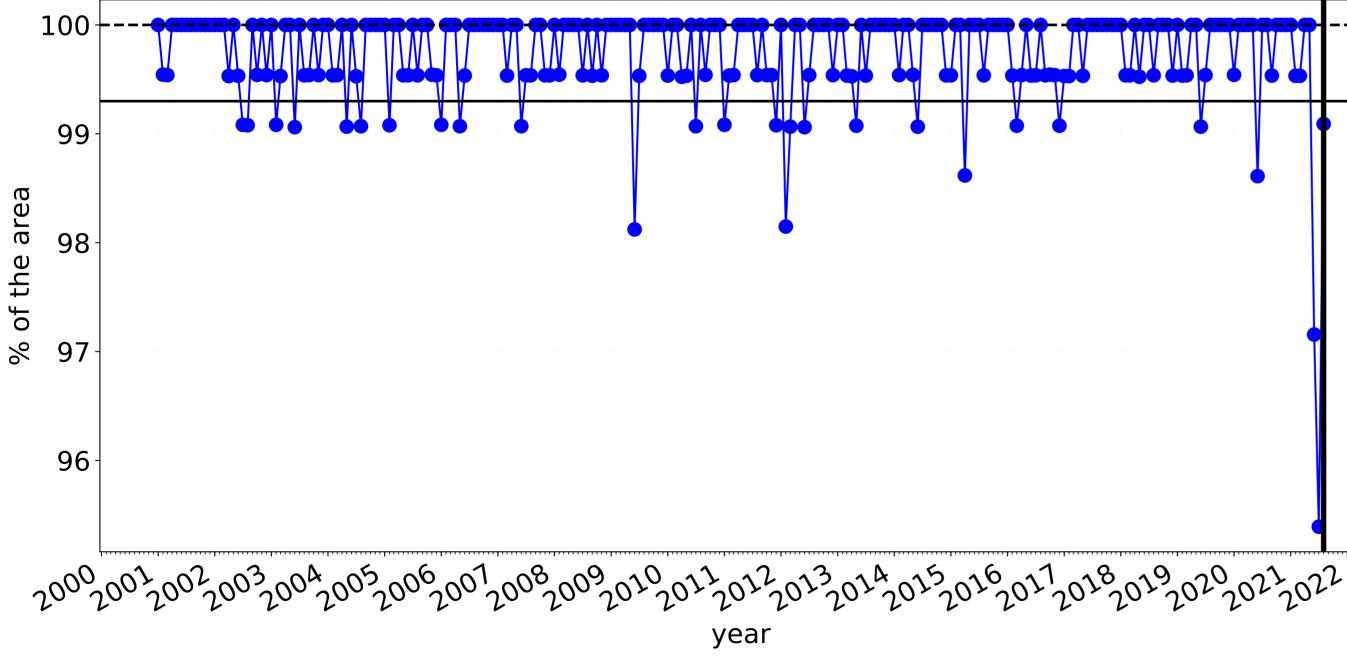
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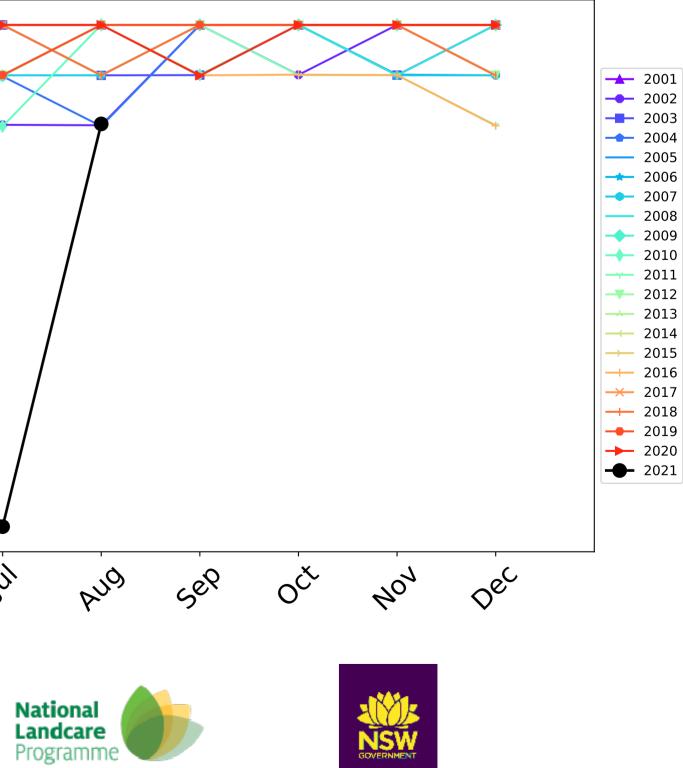
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

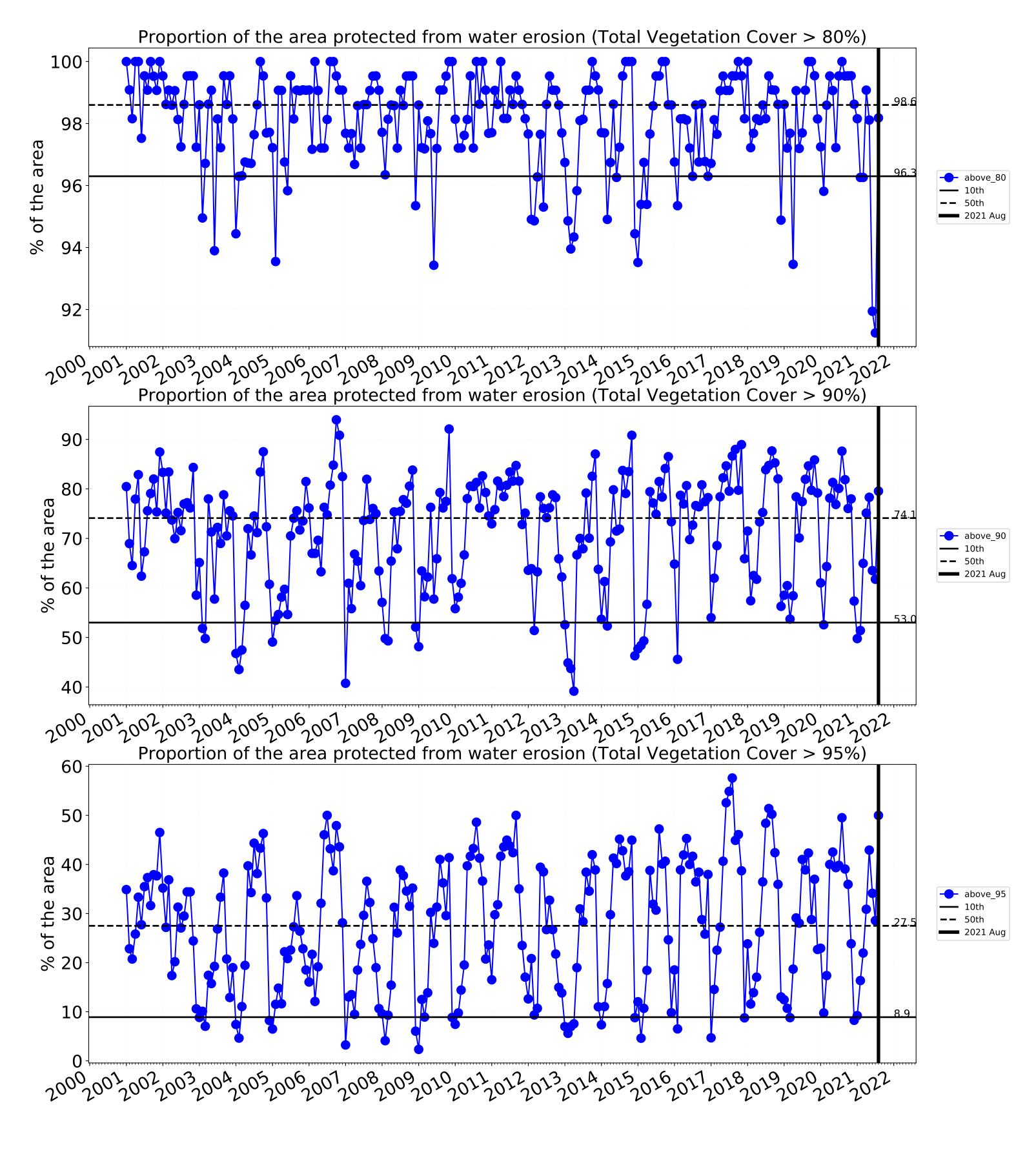


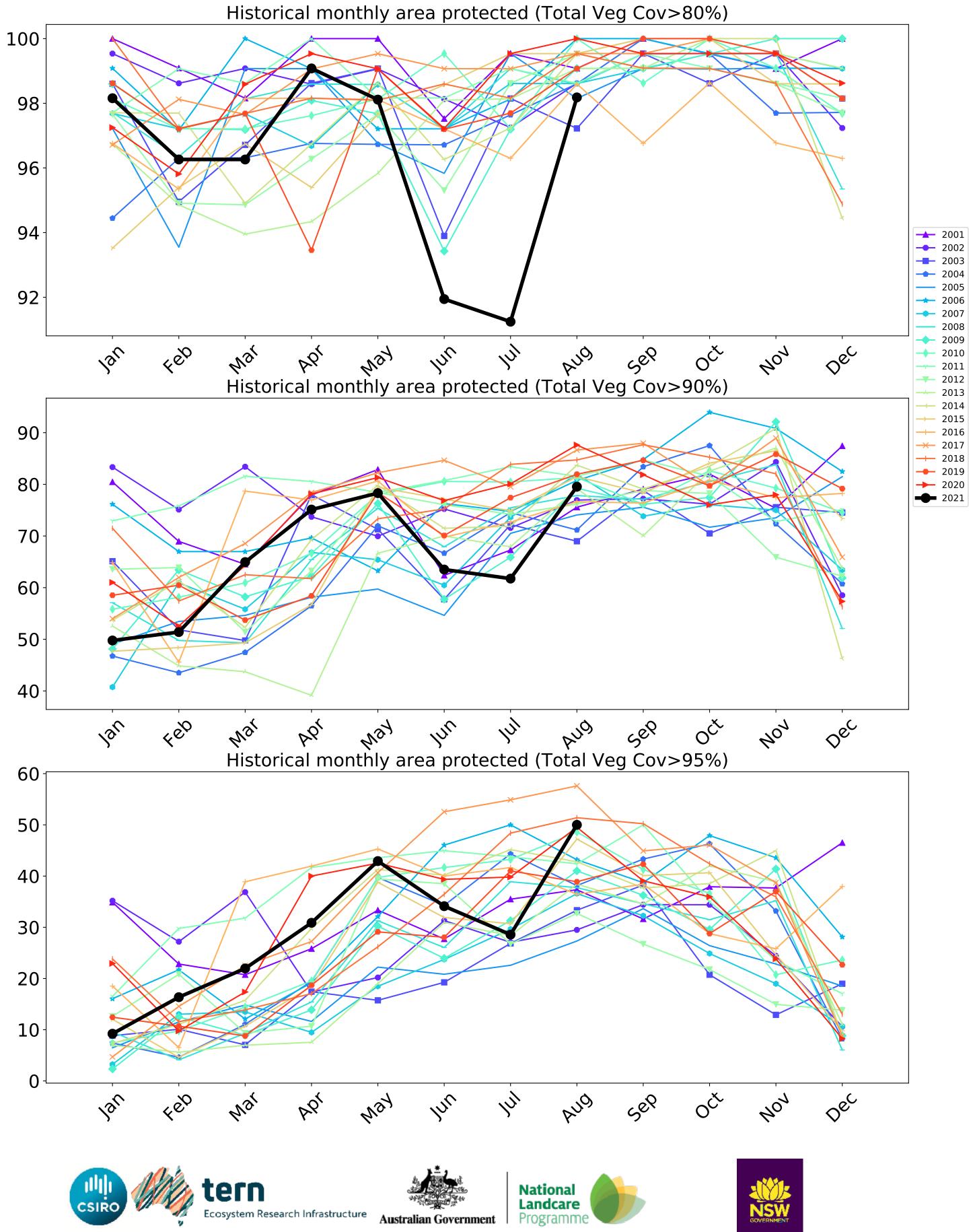
_ 100/0 100 99 ---- above_70 **—** 10th **——** 50th 98 **—** 2021 Aug 97 96 In Jan 4eb way PQ 1's Mai month tern Ecosystem Research Infrastructure Australian Government

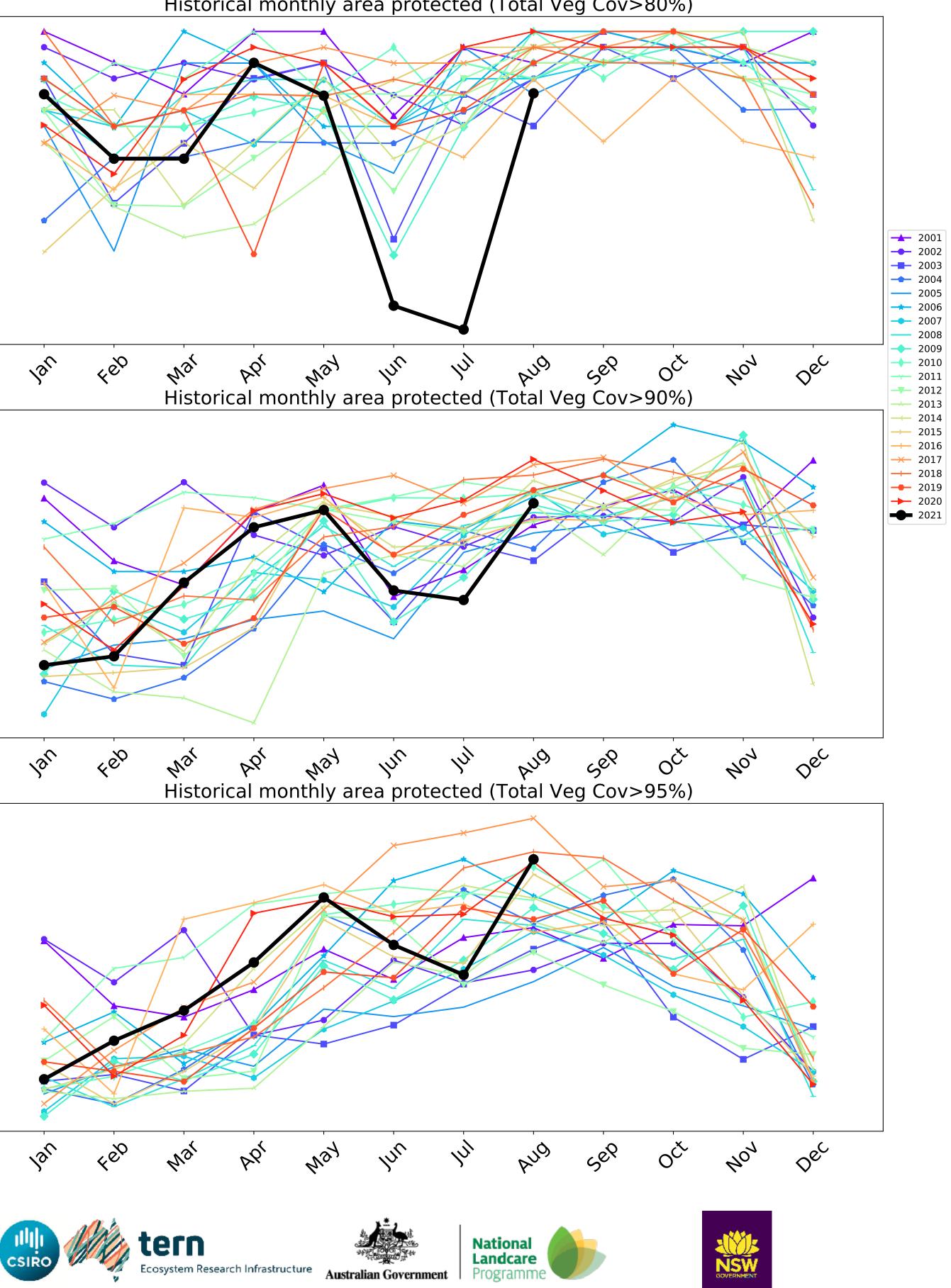
13

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





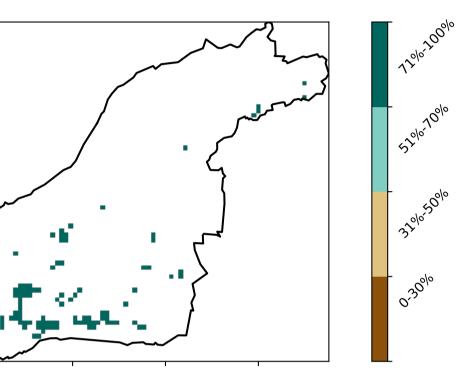




Conservation and natural environments Forest (non woodland)

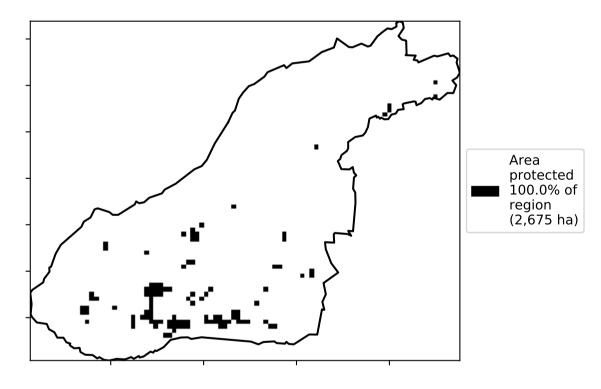
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments - Non-woodland forest Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]

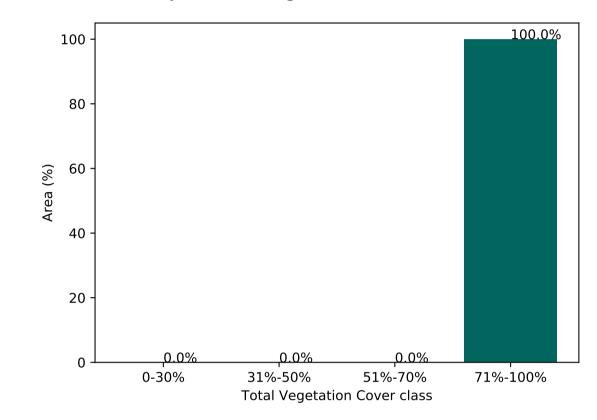


50%

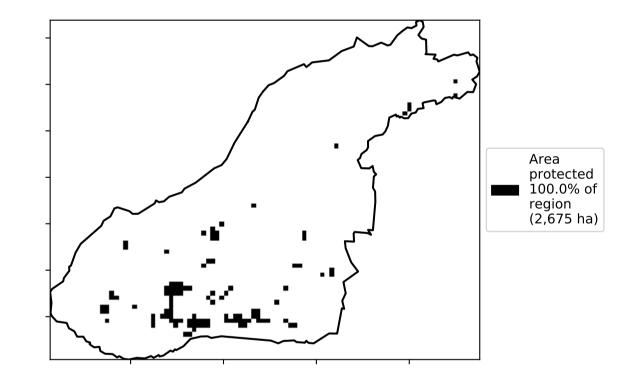
% Area protected from water erosion (>70%)



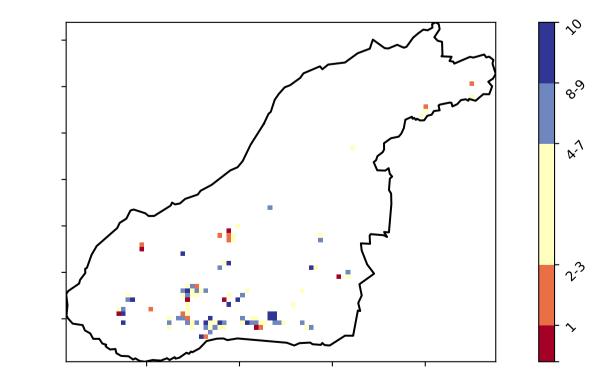
Proportion of vegetation cover class in area



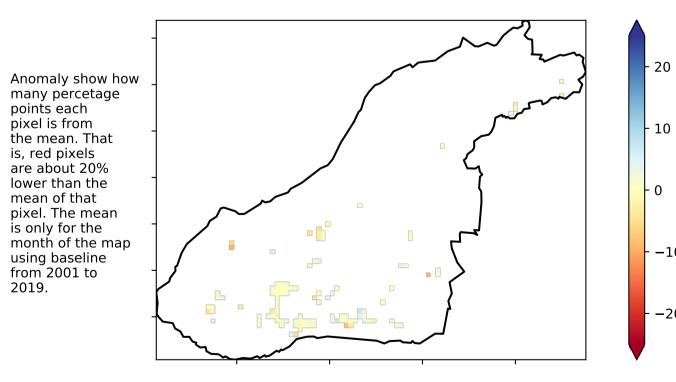
% Area protected from wind erosion (>50%)



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

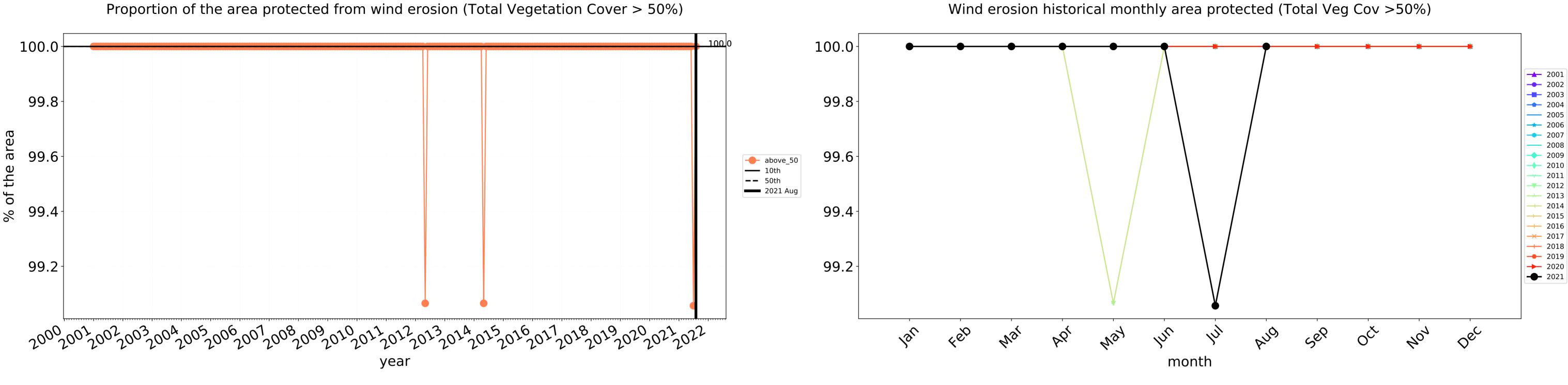
the map using baseline from 2001 to 2019.

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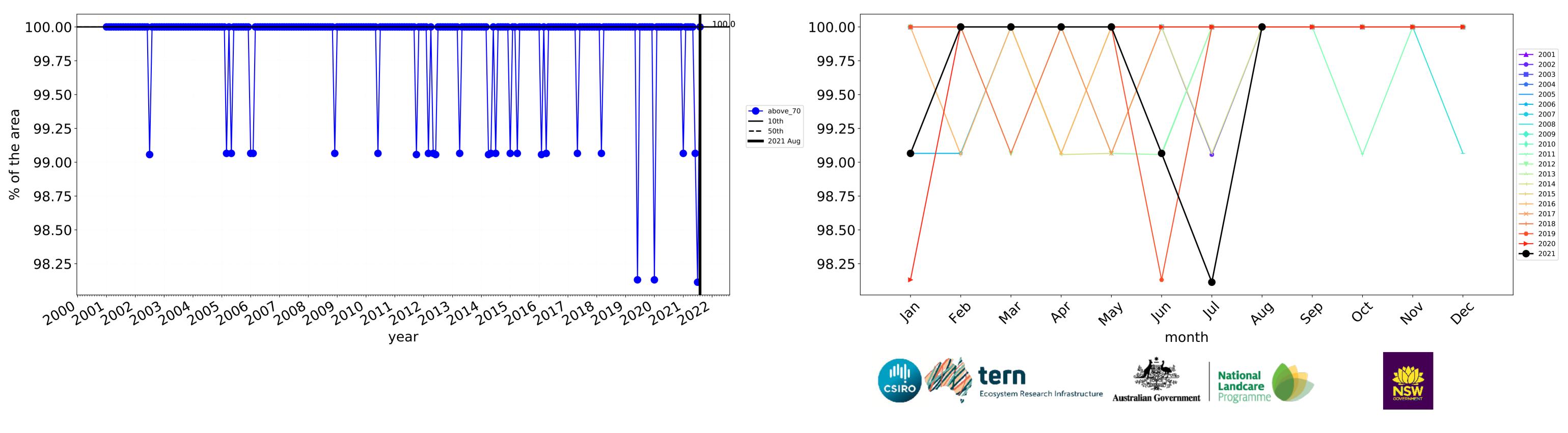
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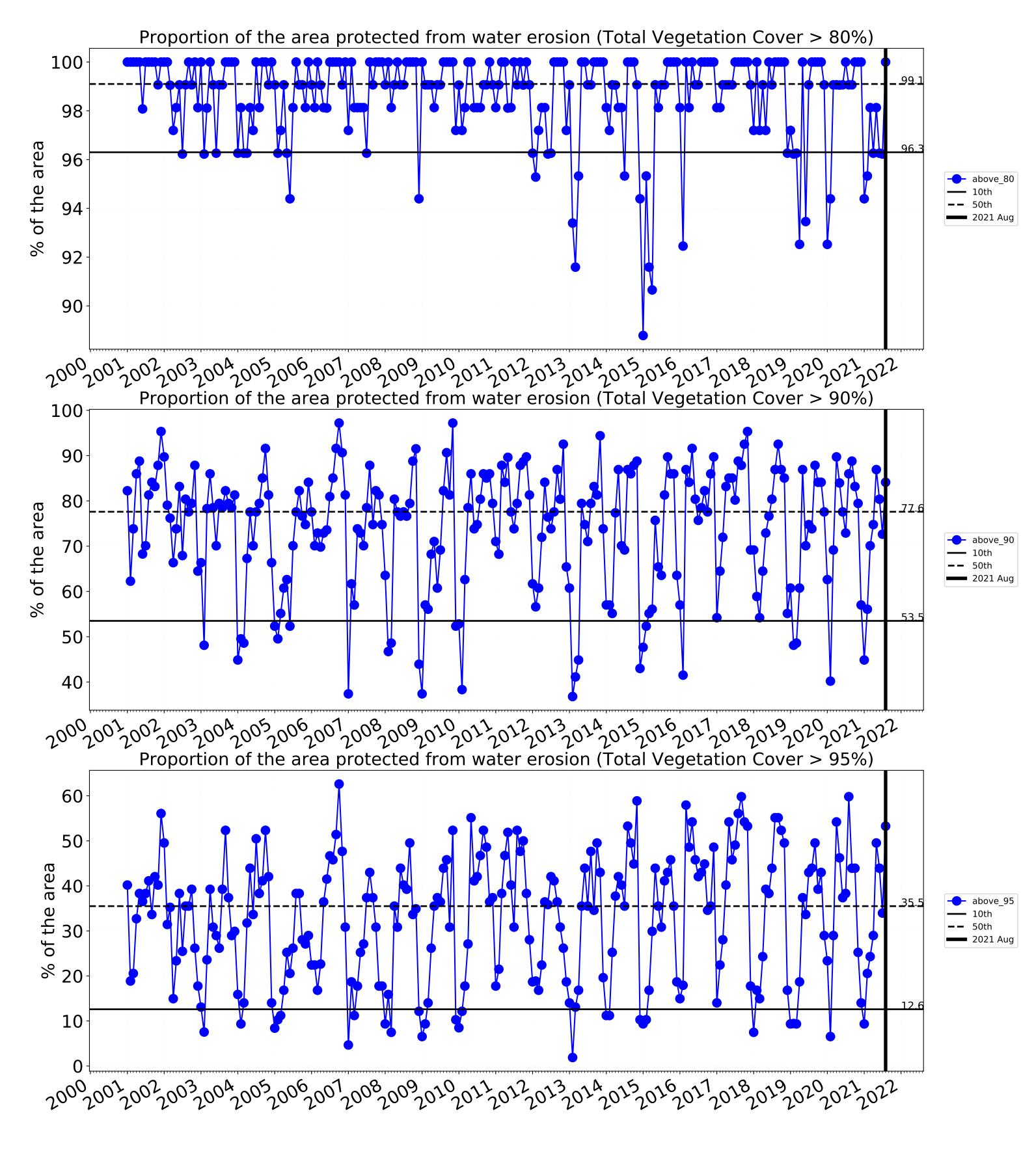
Conservation and natural environments Forest (non woodland) timeseries

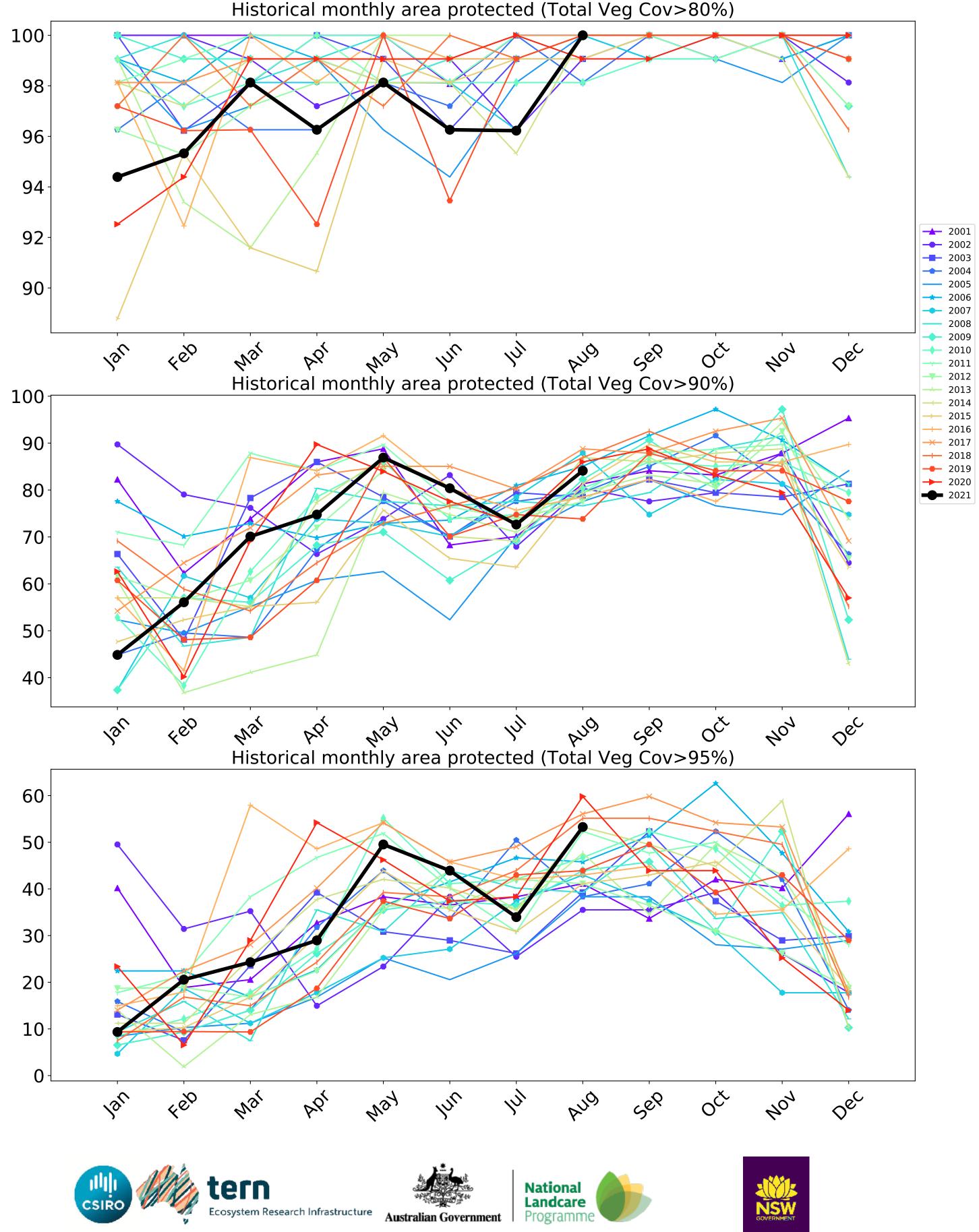


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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



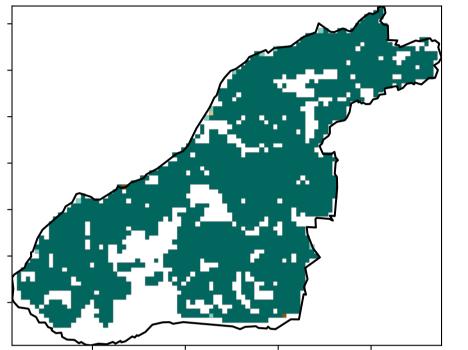


Agriculture

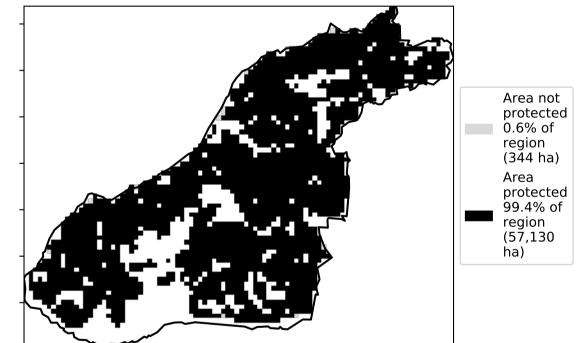
Catchment Scale Land Use and Forests of Australia (2018) 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest Derived from Catchment Scale Land 4 Agriculture - Grazing - Irrigated 5 Agriculture - Cropping - Non-irrigated Use of Australia 6 Agriculture - Cropping - Irrigated (2018) and Forests of Australia (2018) 7 Agriculture - Horticulture - Irrigated

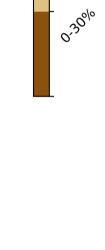
Total Vegetation Cover [%]

Land use and forest cover



% Area protected from water erosion (>70%)



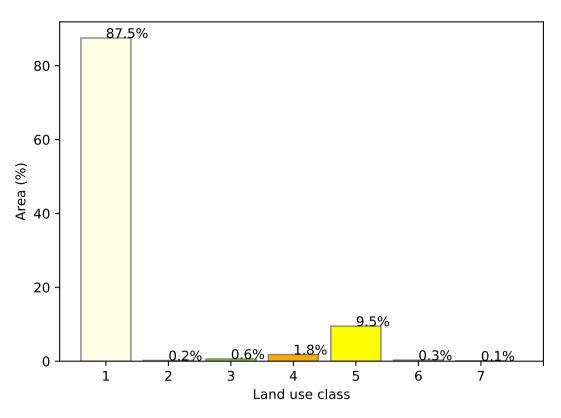


1 12º00 200%

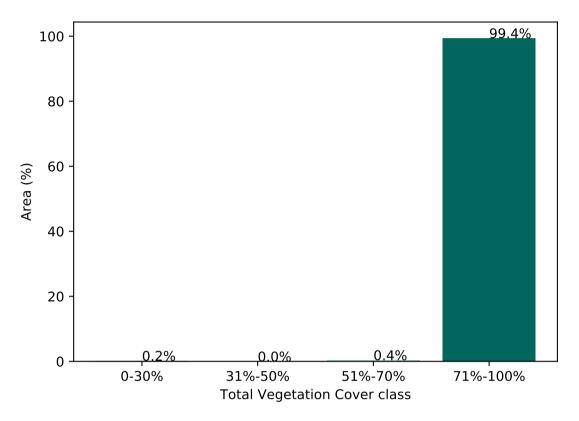
· 52% 70%

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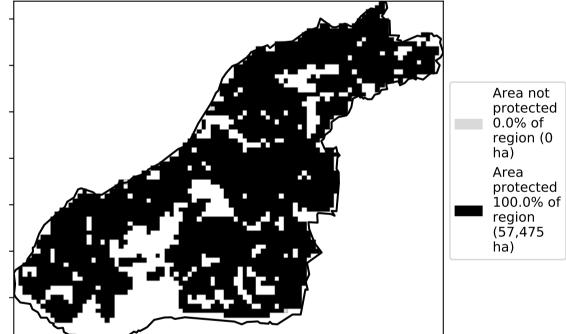




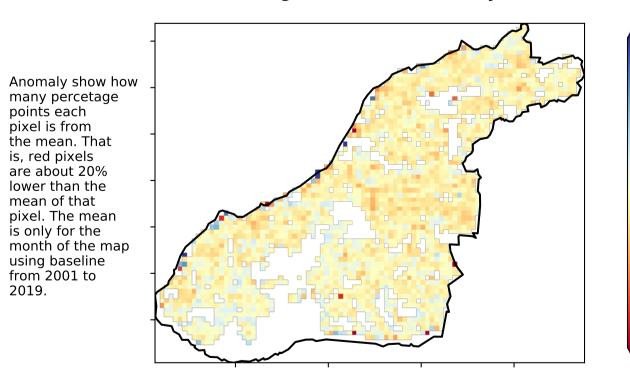
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

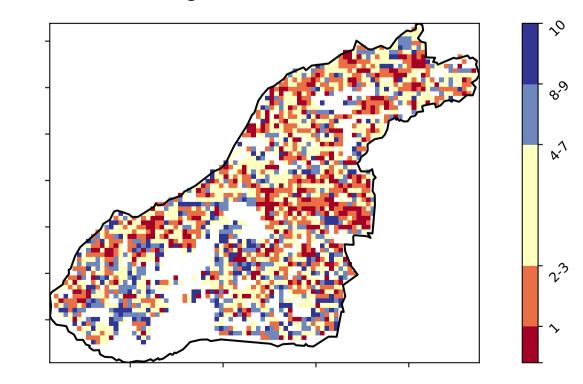


is, red pixels

- 10 - 0 -10-20

· 20

Total Vegetation Cover Decile [%]





Deciles show where the

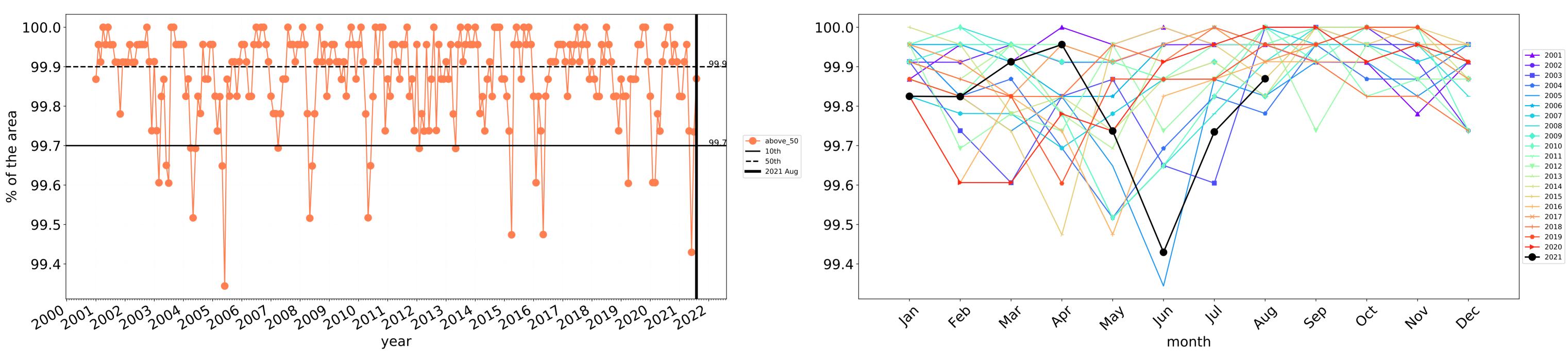
pixel value lies in the

record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of

records for that month of

the map using baseline from 2001 to 2019.

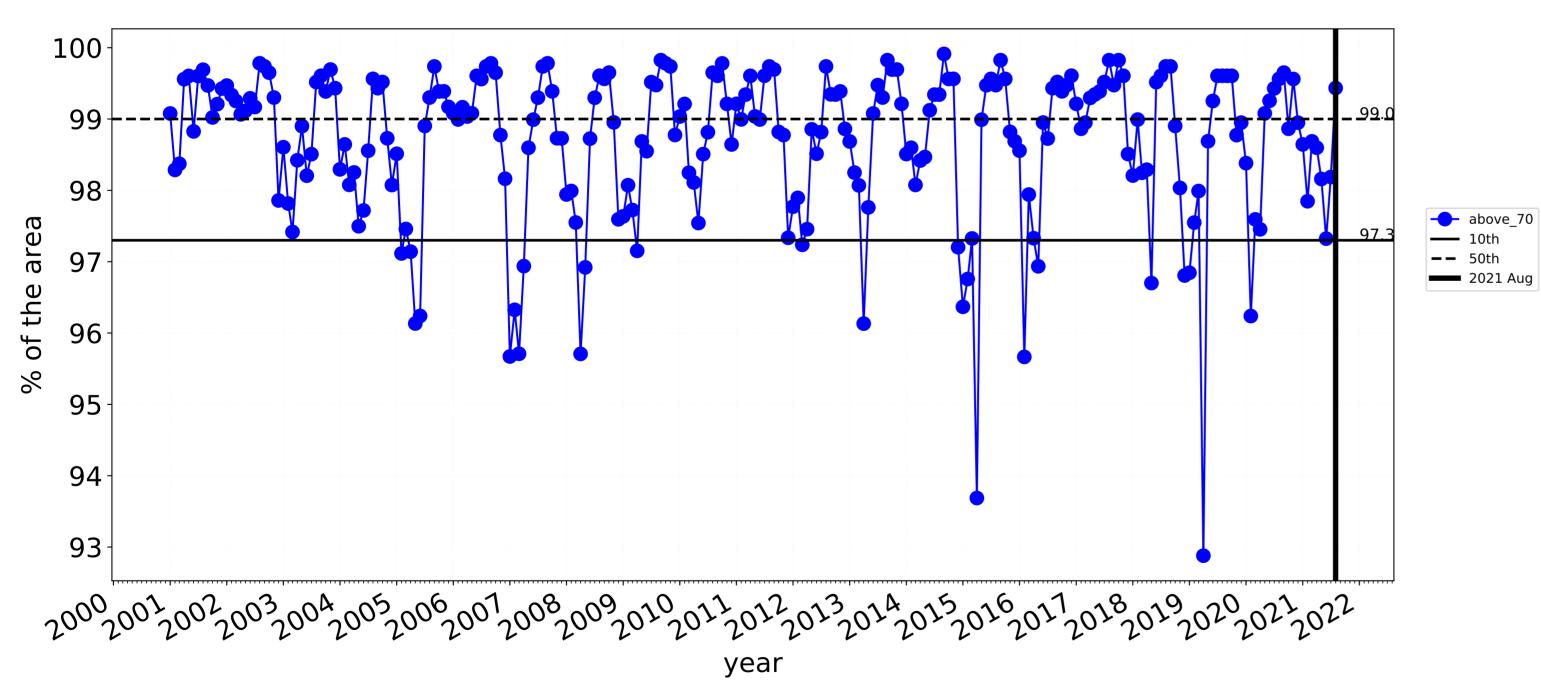
1**2**



---- above_70

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

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

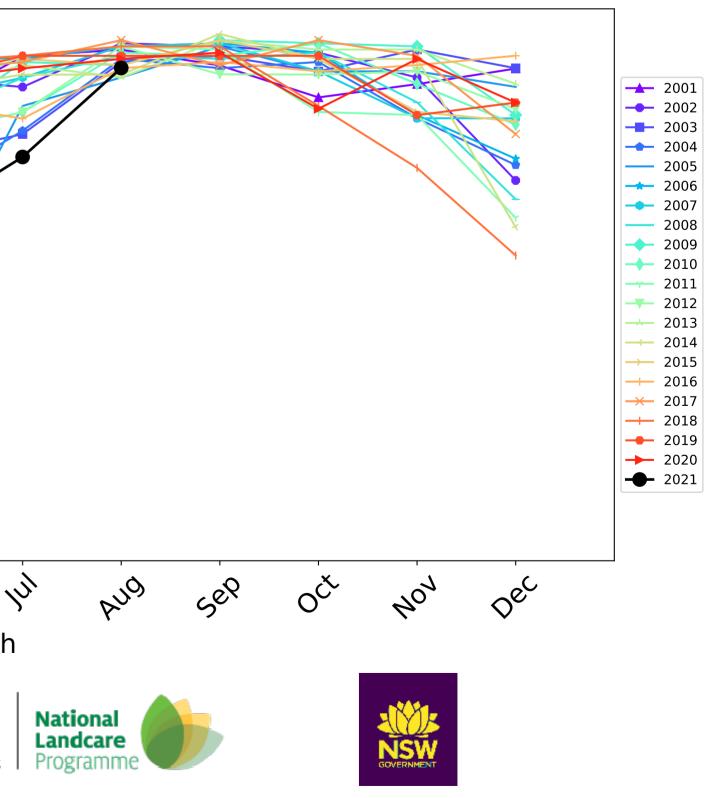


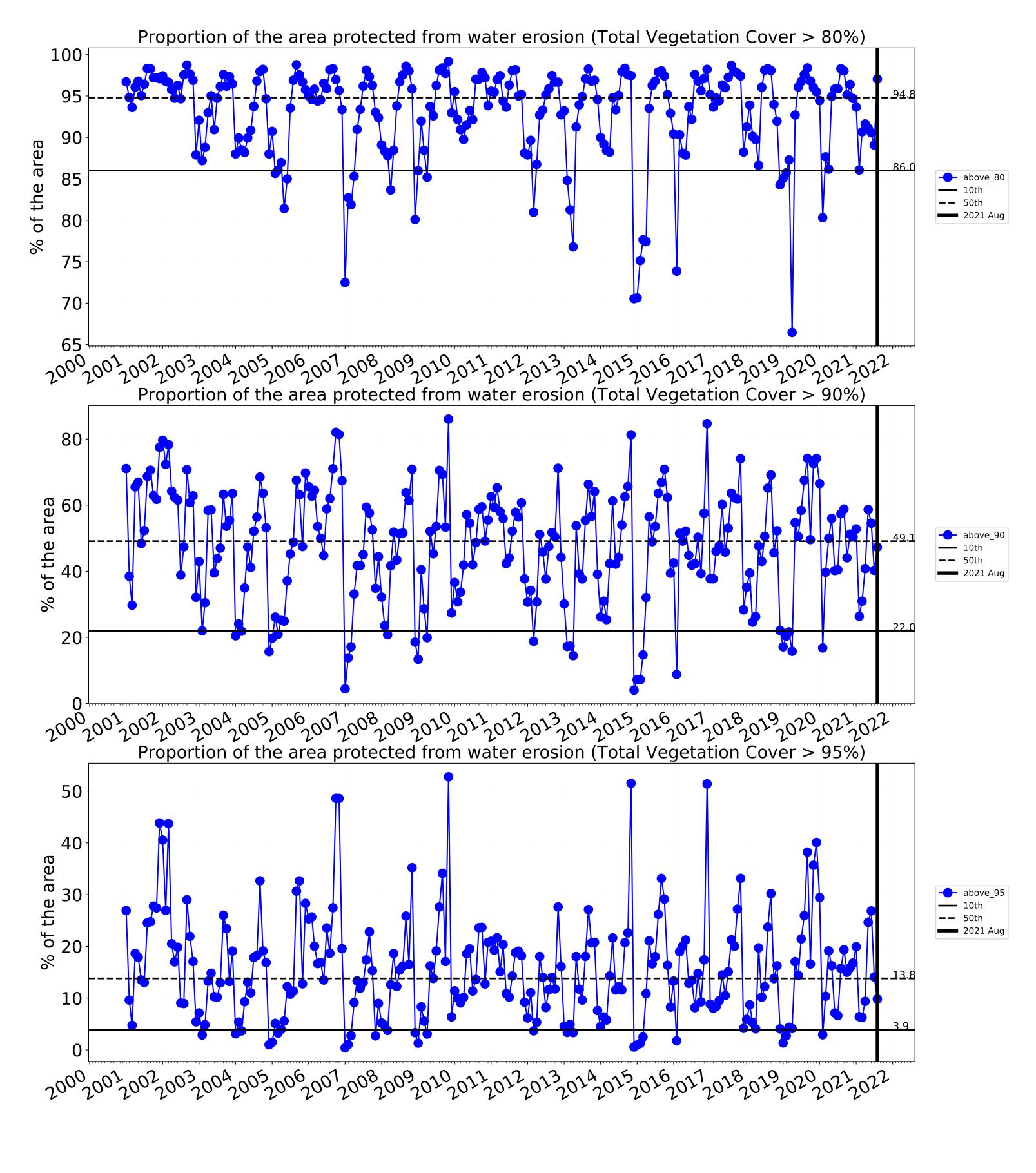
Agriculture timeseries

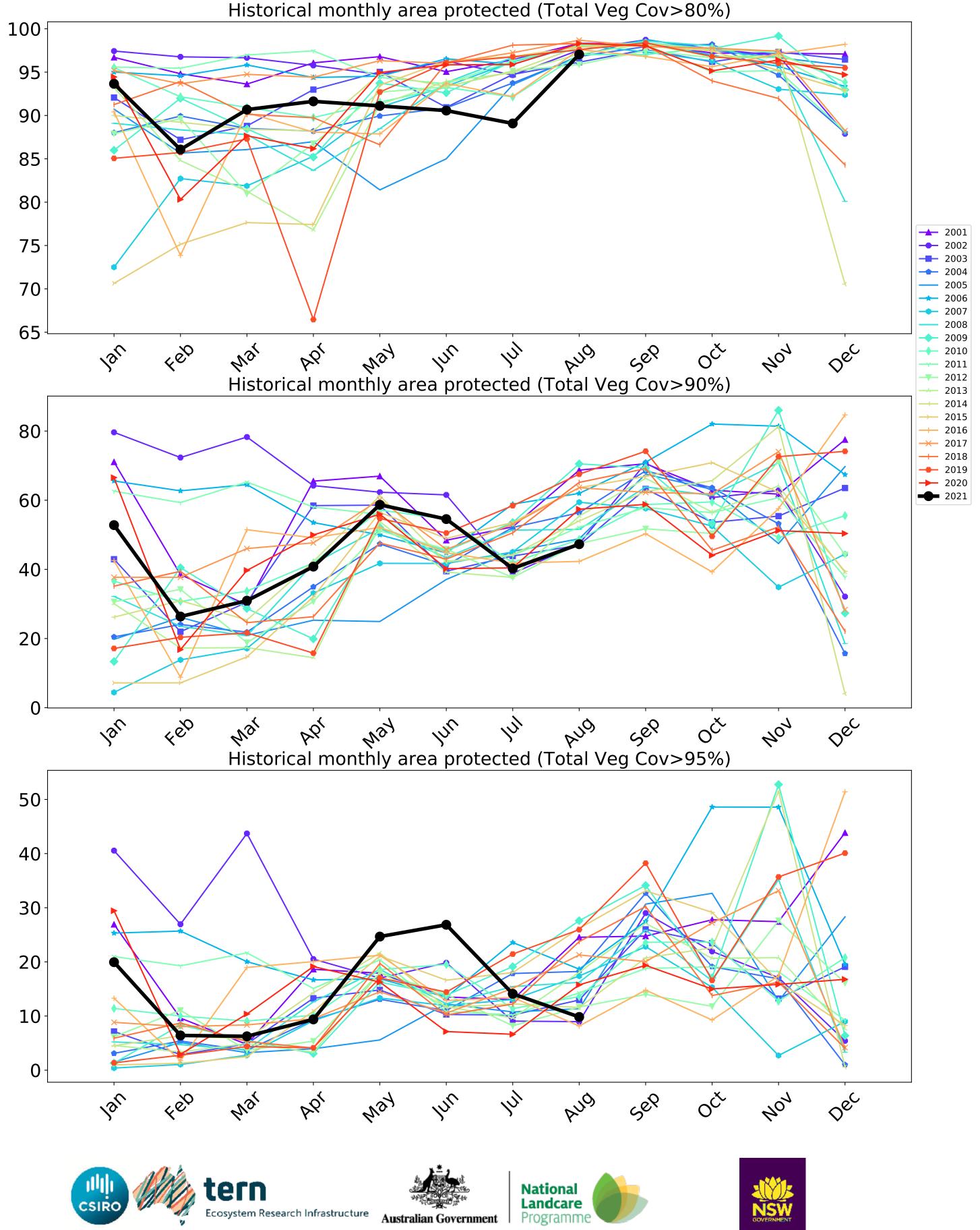
Wind erosion historical monthly area protected (Total Veg Cov >50%)

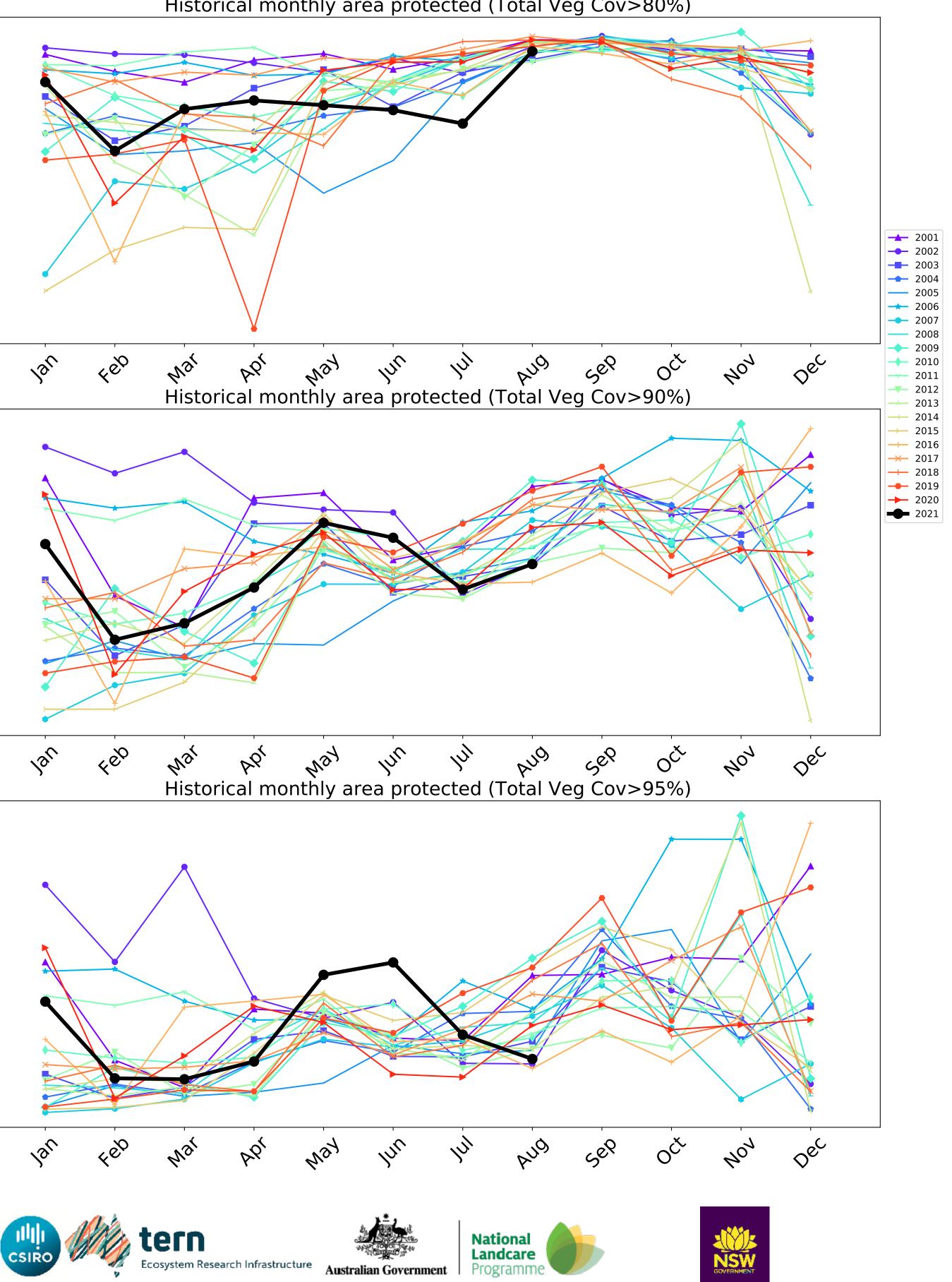
100-99 98 97 96 95 94 93 Jan 4eb In Mai May Þb, month tern Ecosystem Research Infrastructure Australian Government

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









Grazing

1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest

1 12º00 200%

52°10'10°10

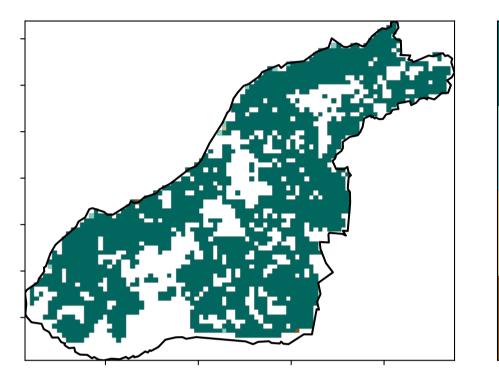
32005001

0.30%

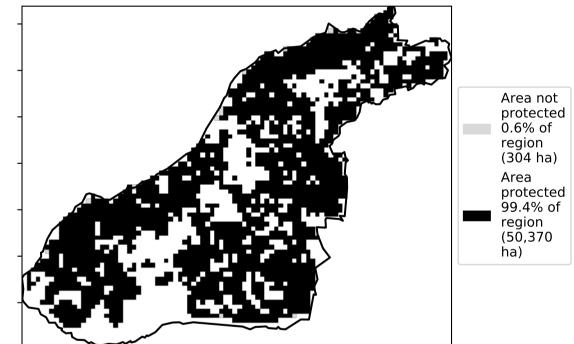
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia 3 Agriculture - Grazing - Non-woodland forest (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]

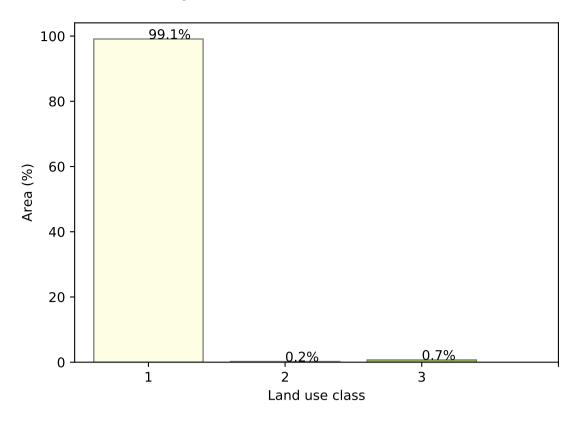
Land use and forest cover



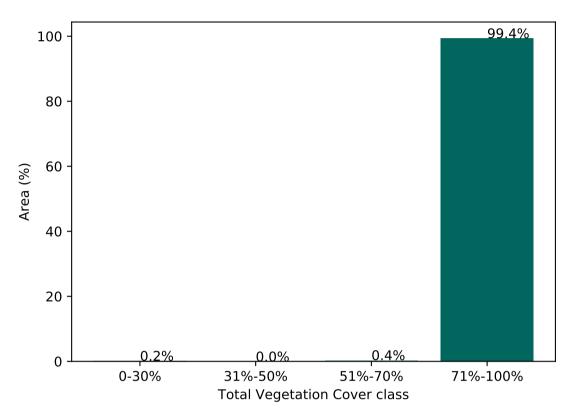
% Area protected from water erosion (>70%)



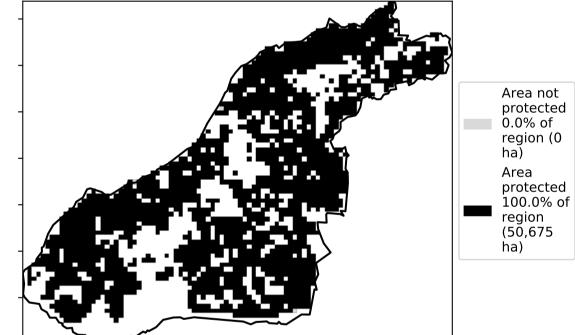




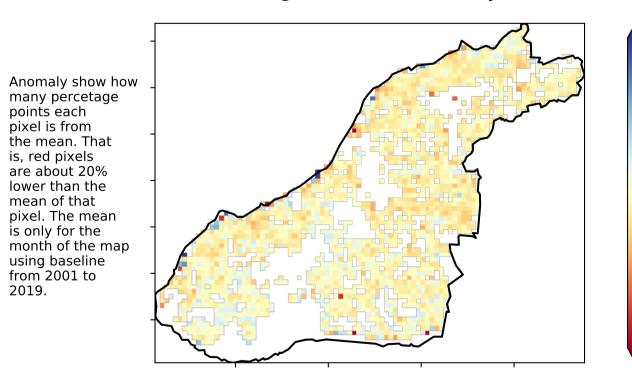
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



is, red pixels

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

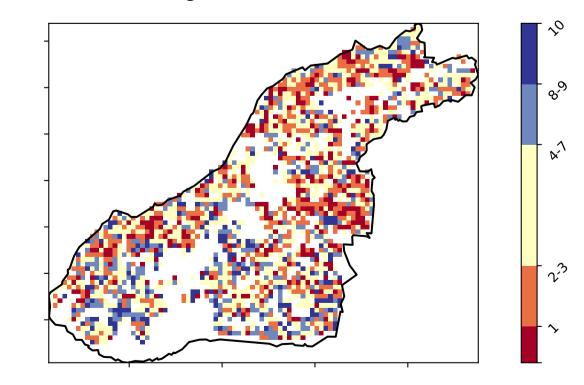
· 20

- 10

- 0

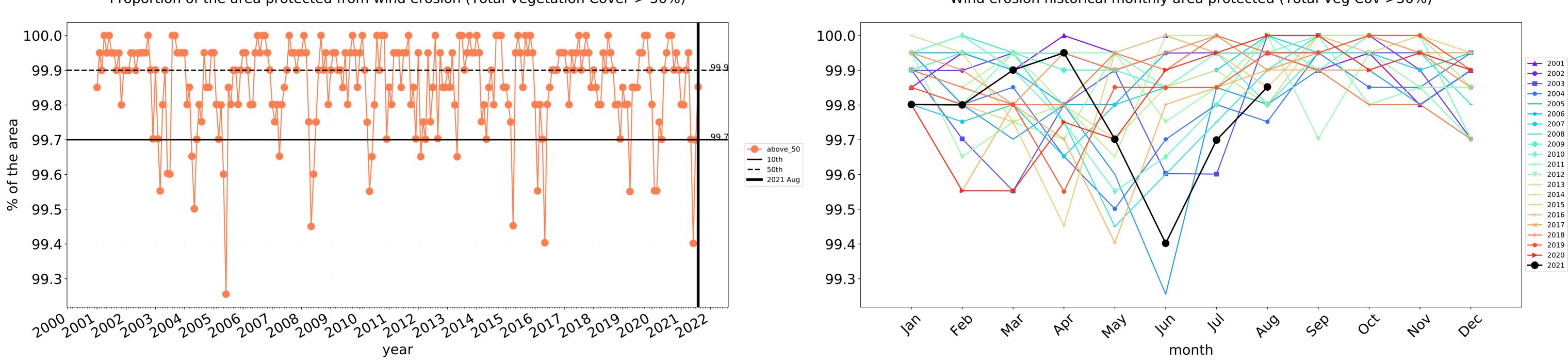
-20

Total Vegetation Cover Decile [%]



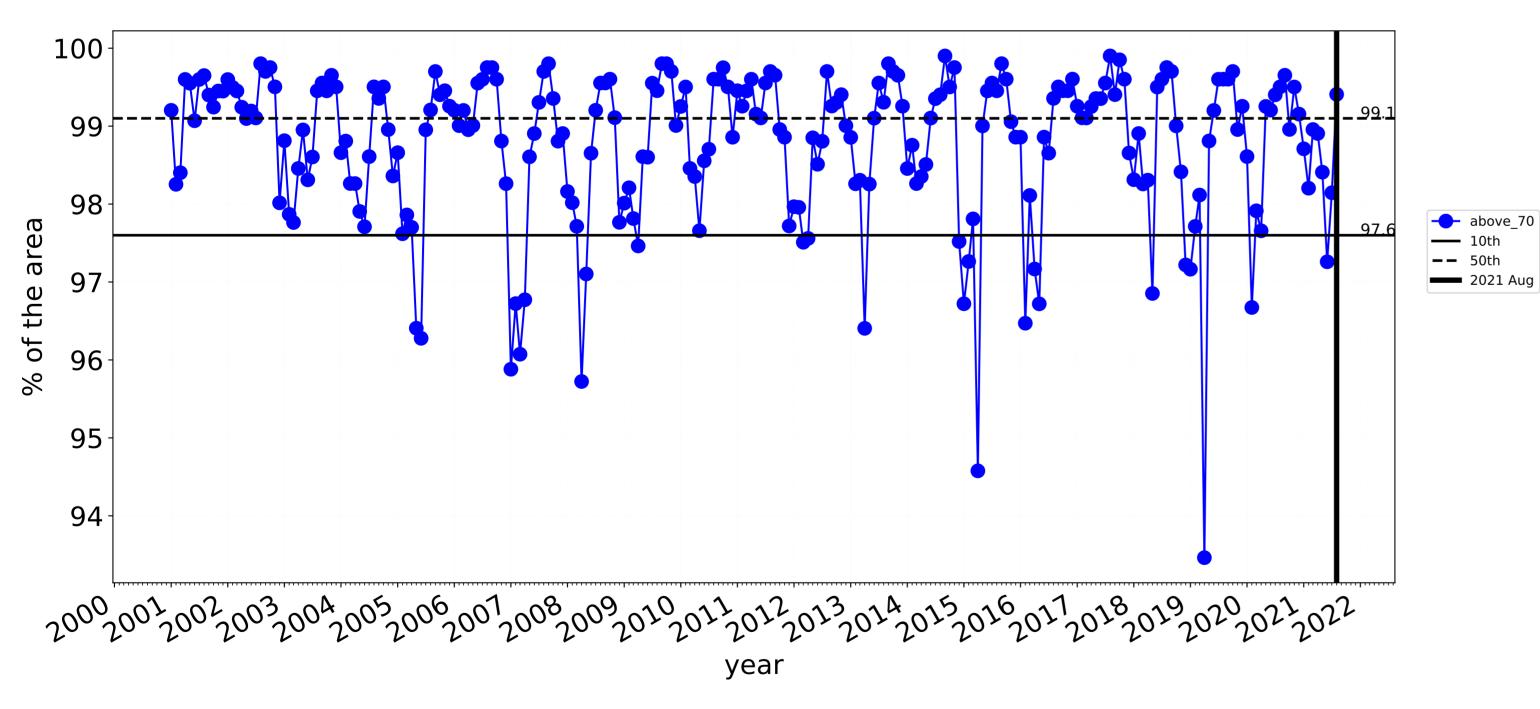


20



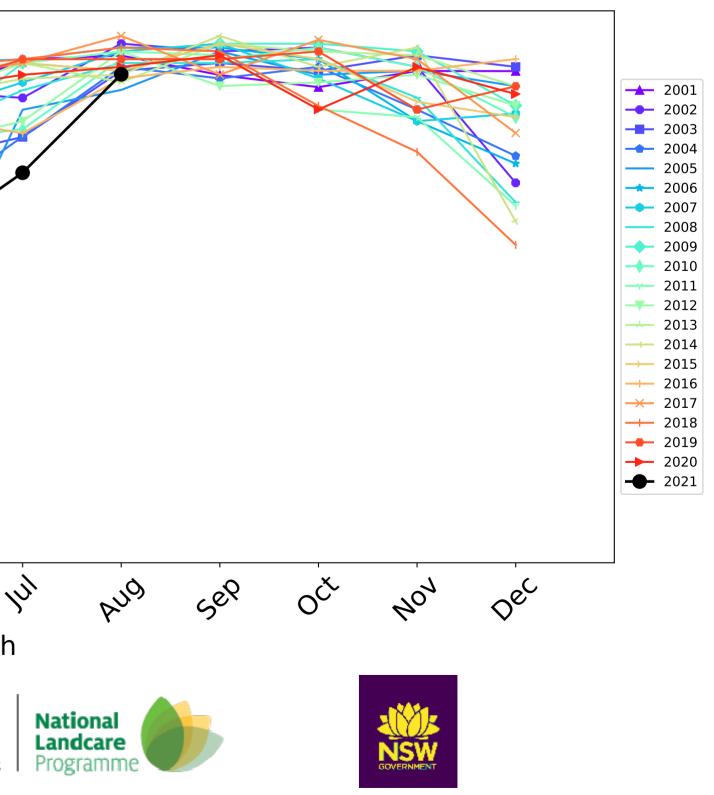
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

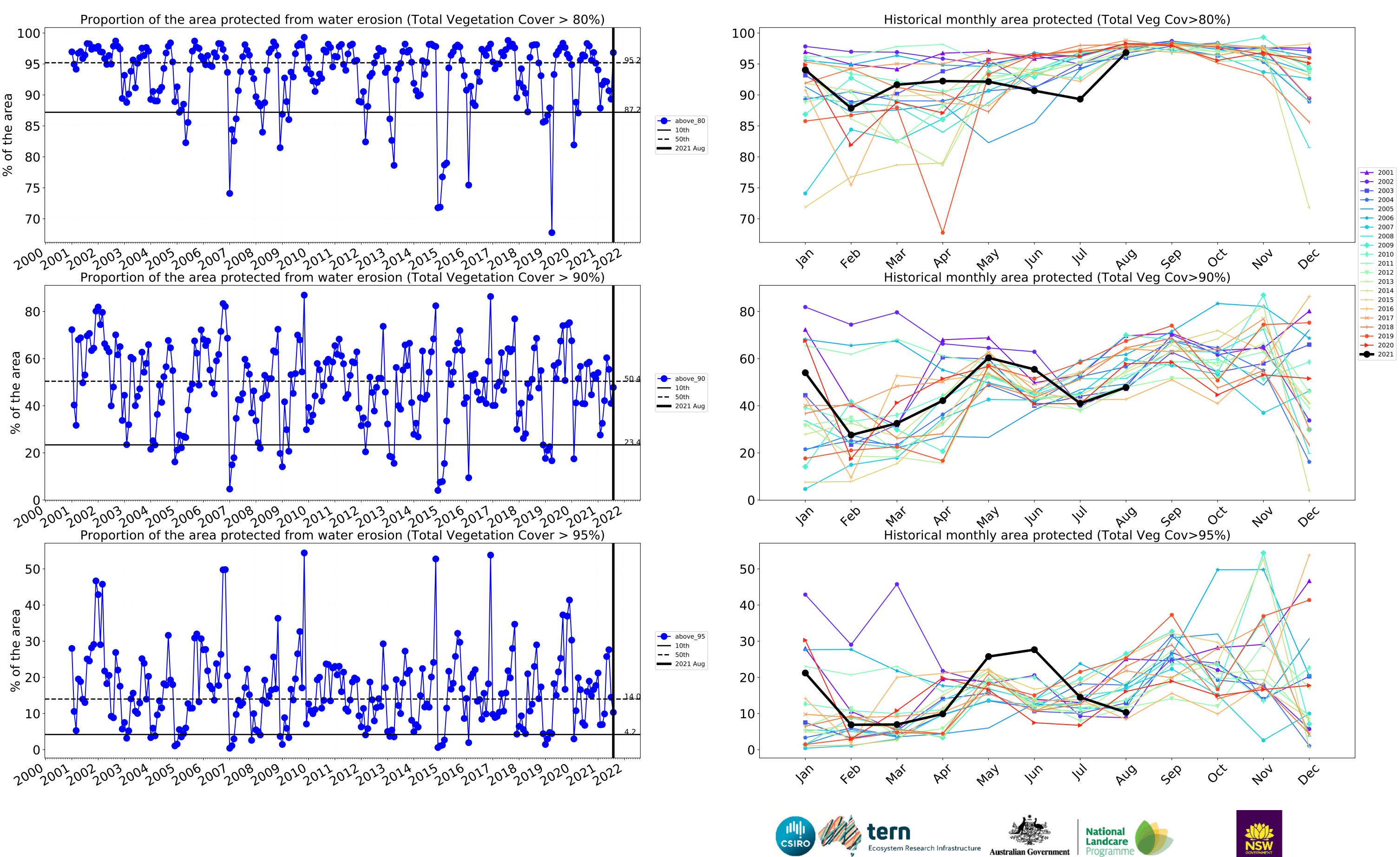
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



100-99 98 97 96 95⁻ 94 lar 4eb In Mai May PQ month tern Ecosystem Research Infrastructure Australian Government

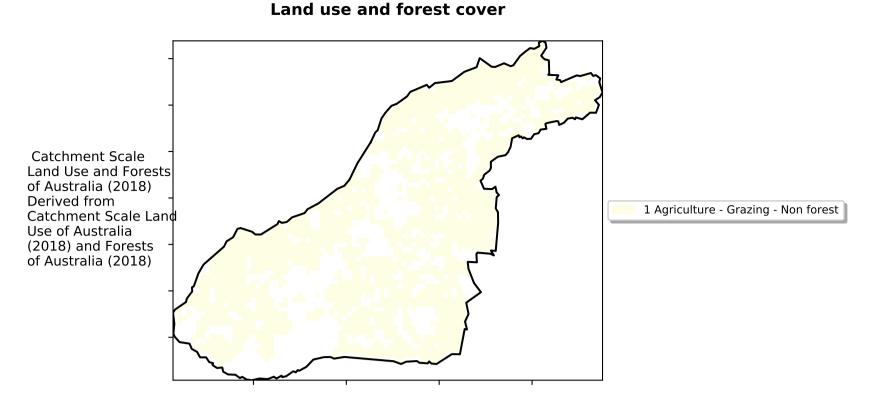
Water erosion historical monthly area protected (Total Veg Cov>70%)



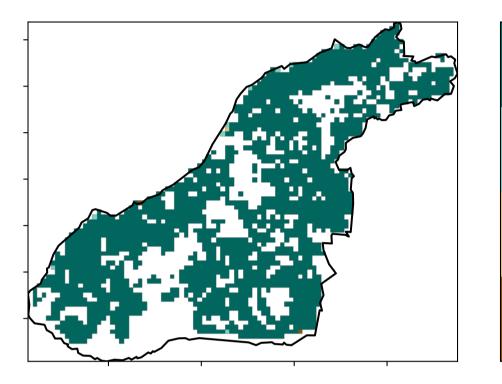




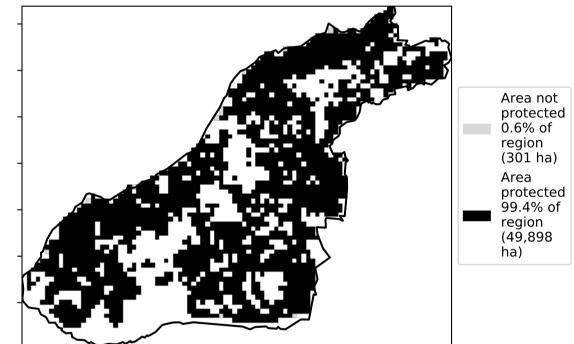
Grazing non forest



Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



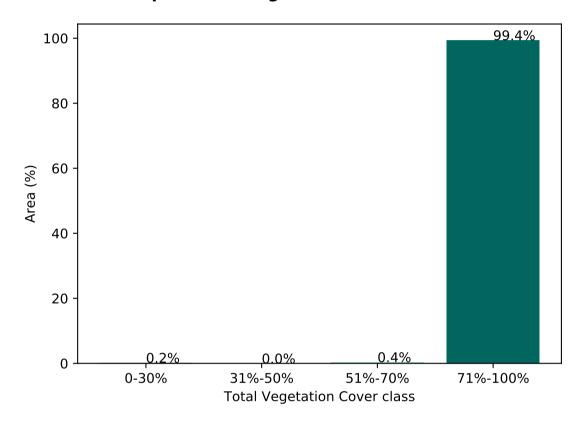
1 12º00 200%

52°10°10°10

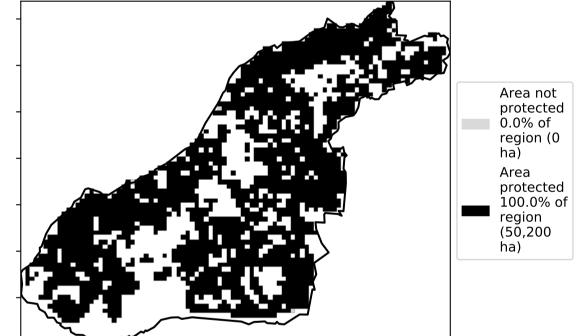
32005001

0.30%

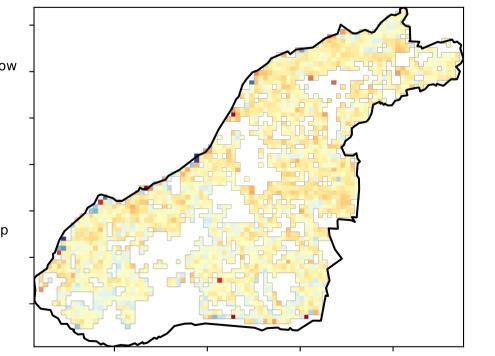




% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

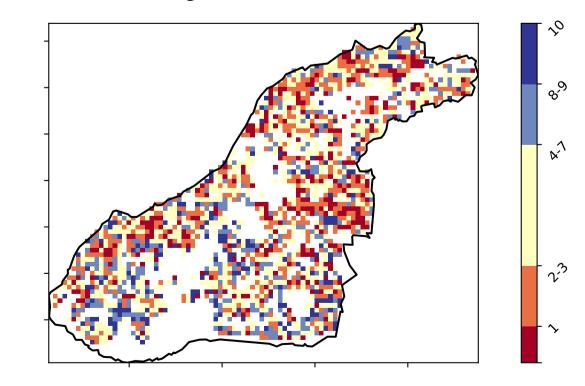


- 10 - 0 -10

-20

· 20

Total Vegetation Cover Decile [%]

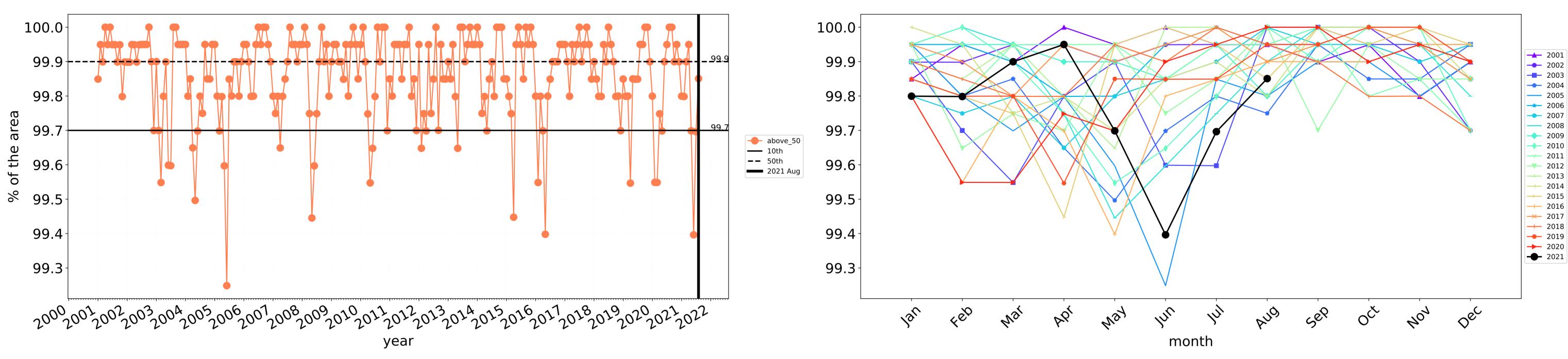




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline

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 lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

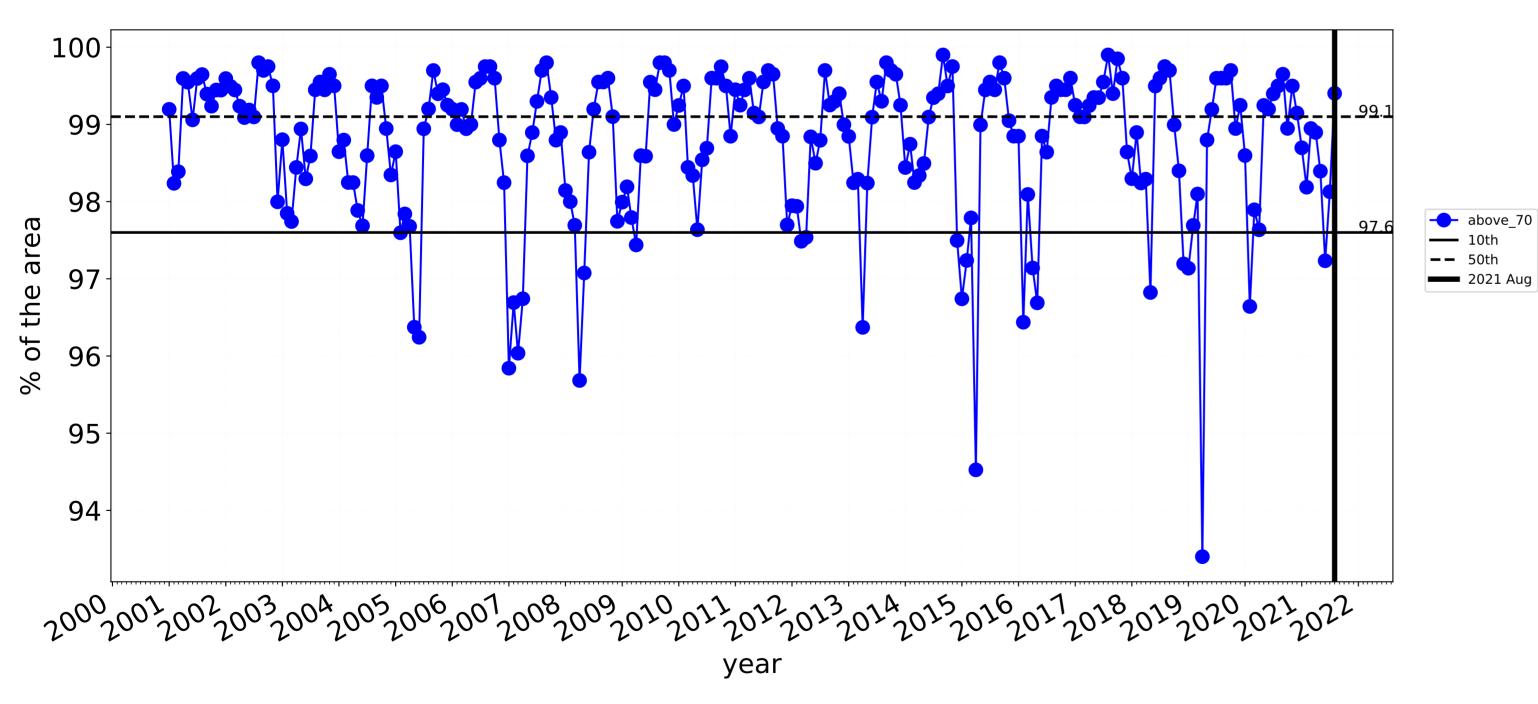


---- above_70

— 10th

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

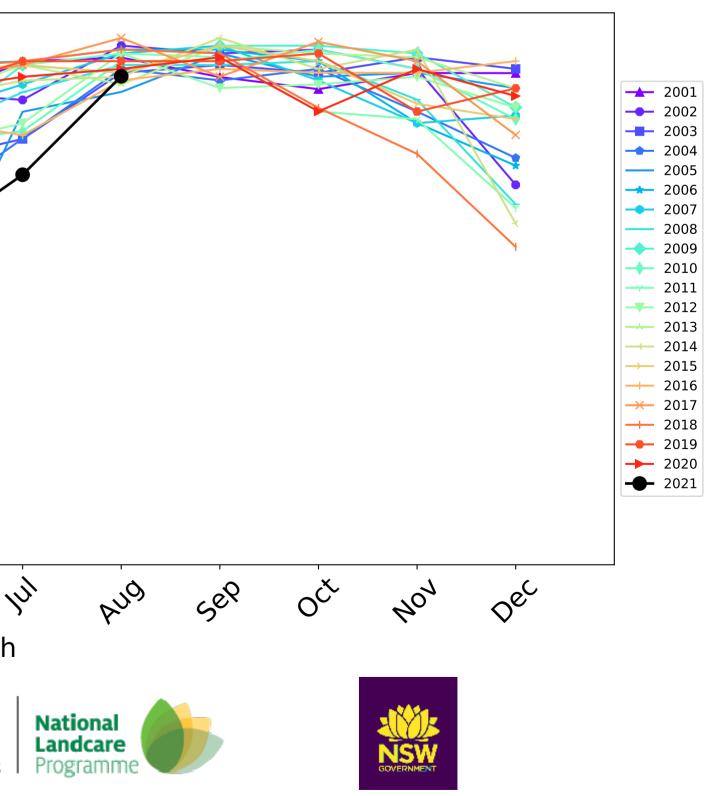


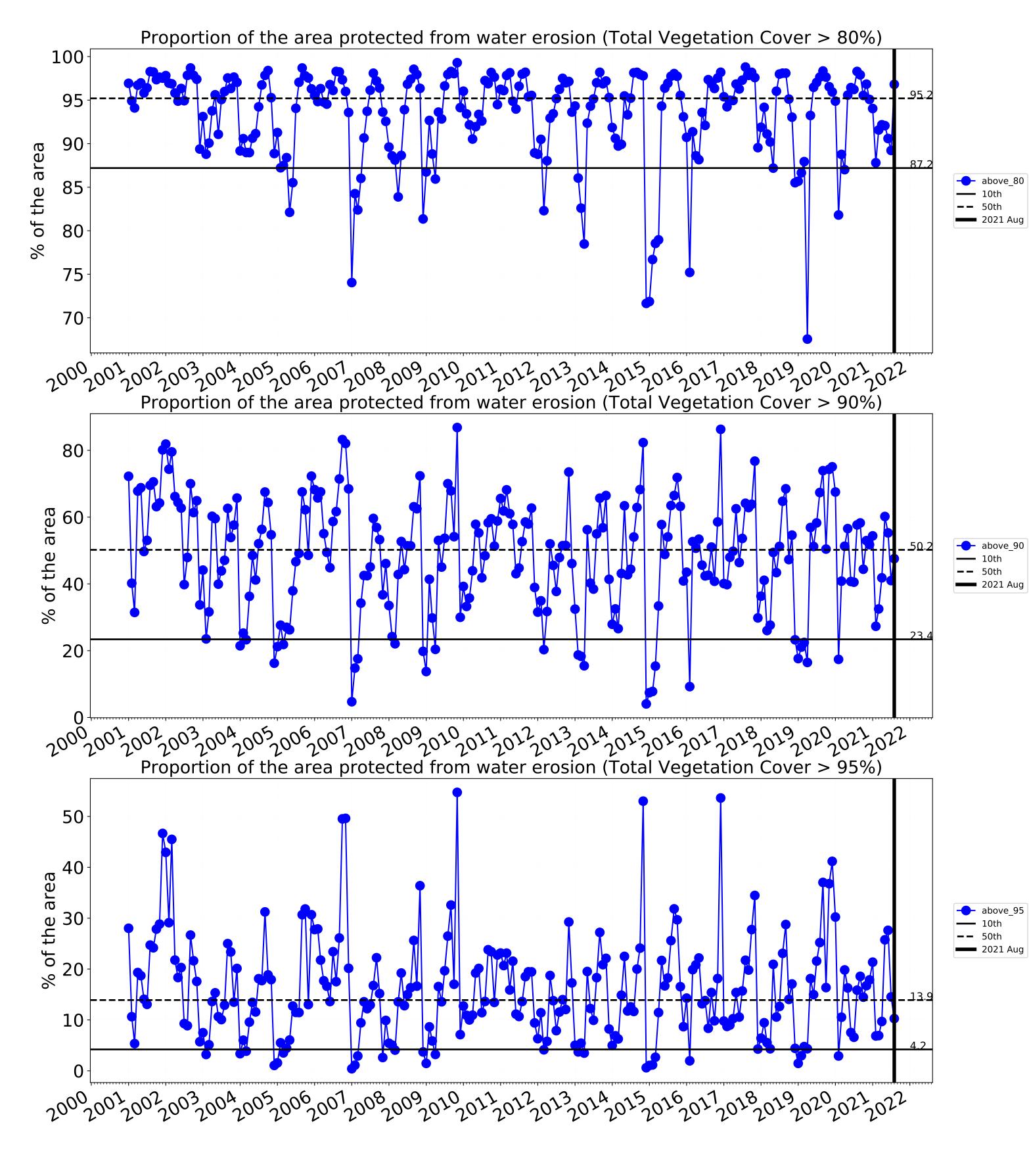


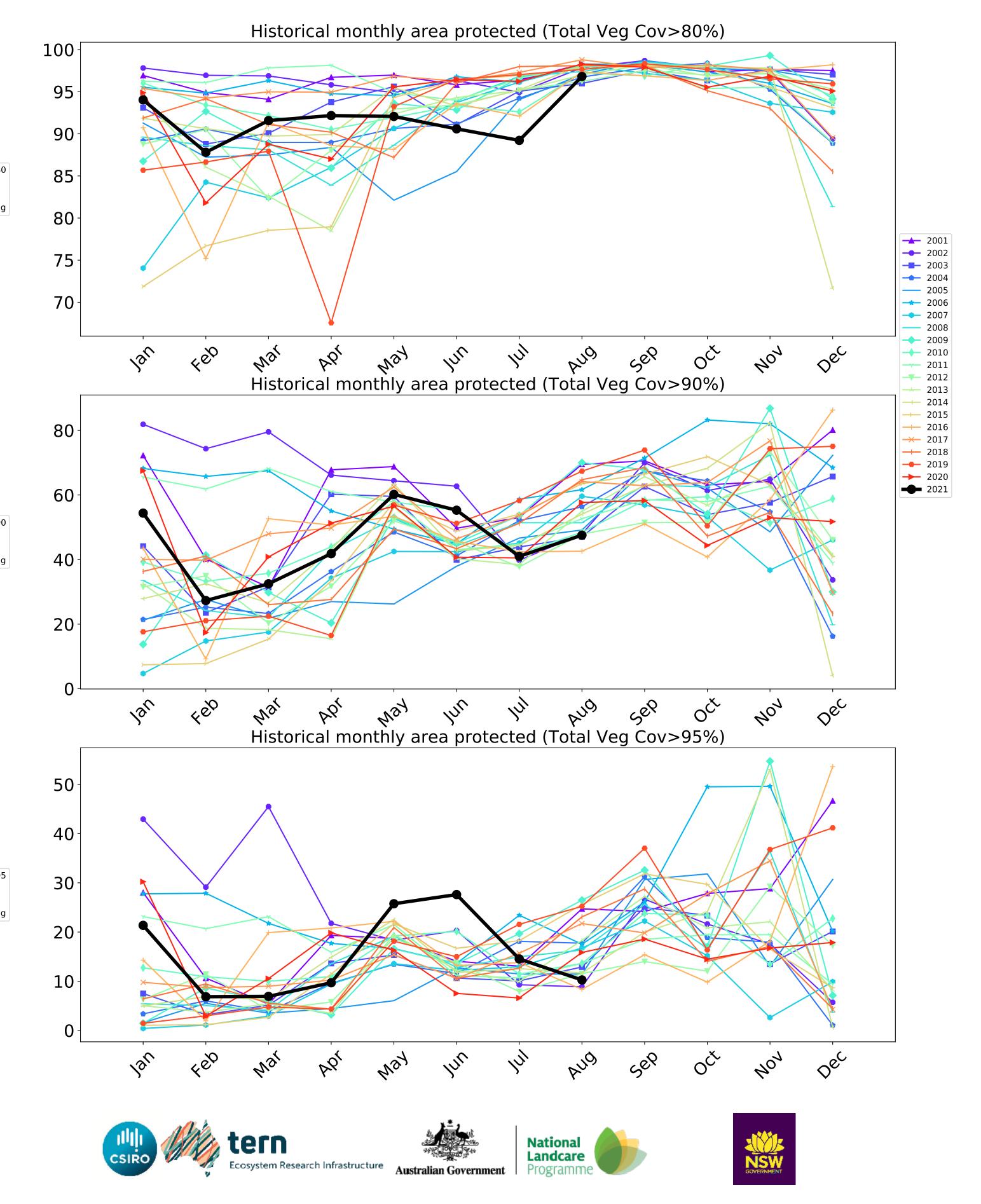
Grazing non forest timeseries

100-99 98 97 96 95 94 lar 4eb In Mai PQ1 May month tern Ecosystem Research Infrastructure Australian Government

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







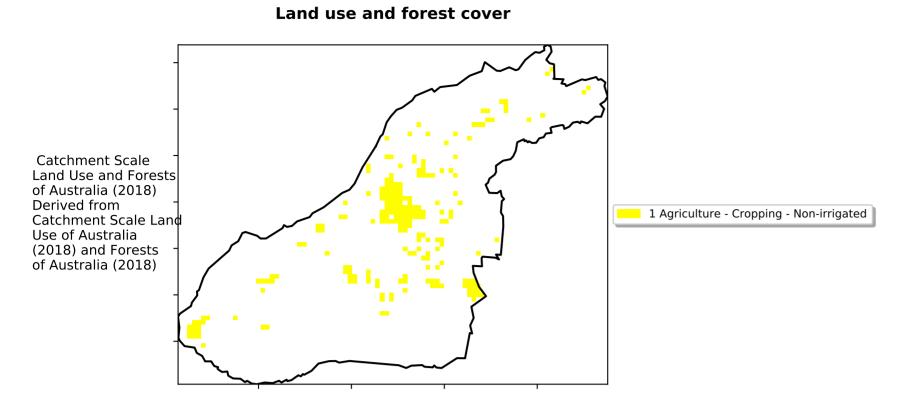
Cropping

12% 200%

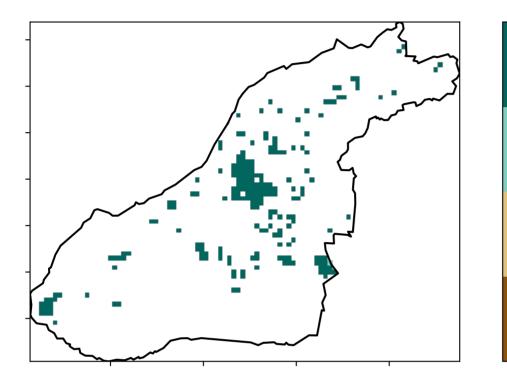
52°10°10°10

32°1050°10

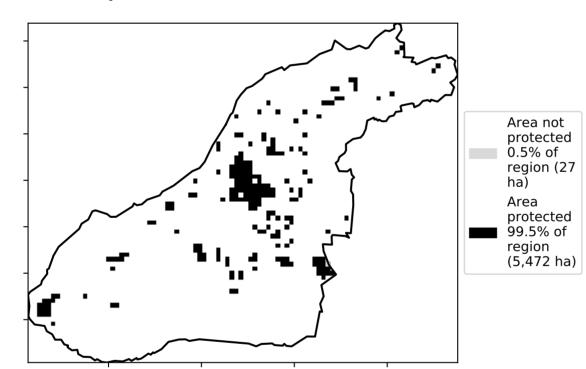
0.30%



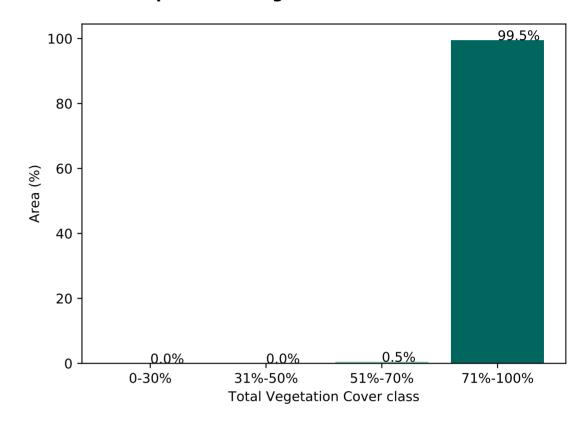
Total Vegetation Cover [%]



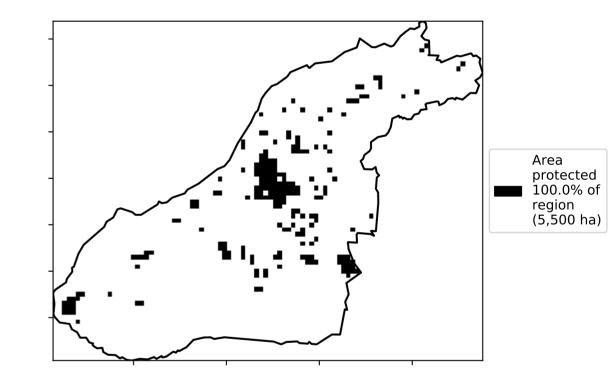
% Area protected from water erosion (>70%)



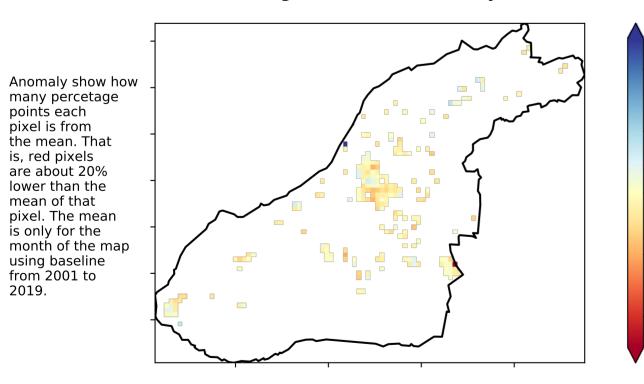
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



is, red pixels are about 20% lower than the

mean of that

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 man using baseline the map using baseline from 2001 to 2019.

- 20

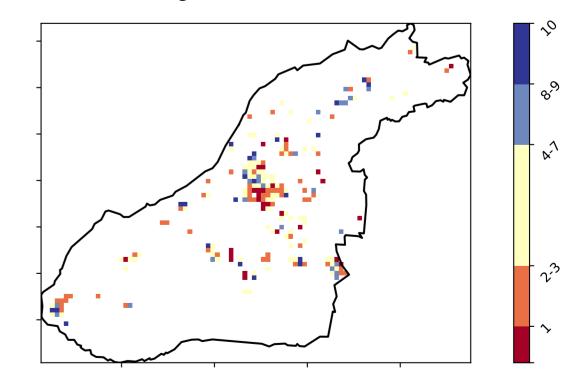
- 10

- 0

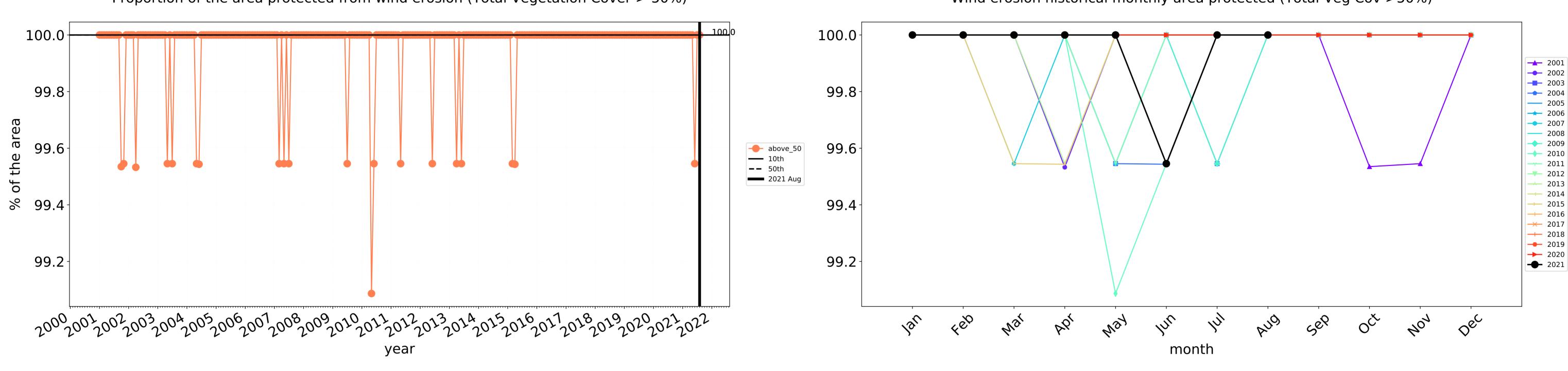
-10

- -20

Total Vegetation Cover Decile [%]

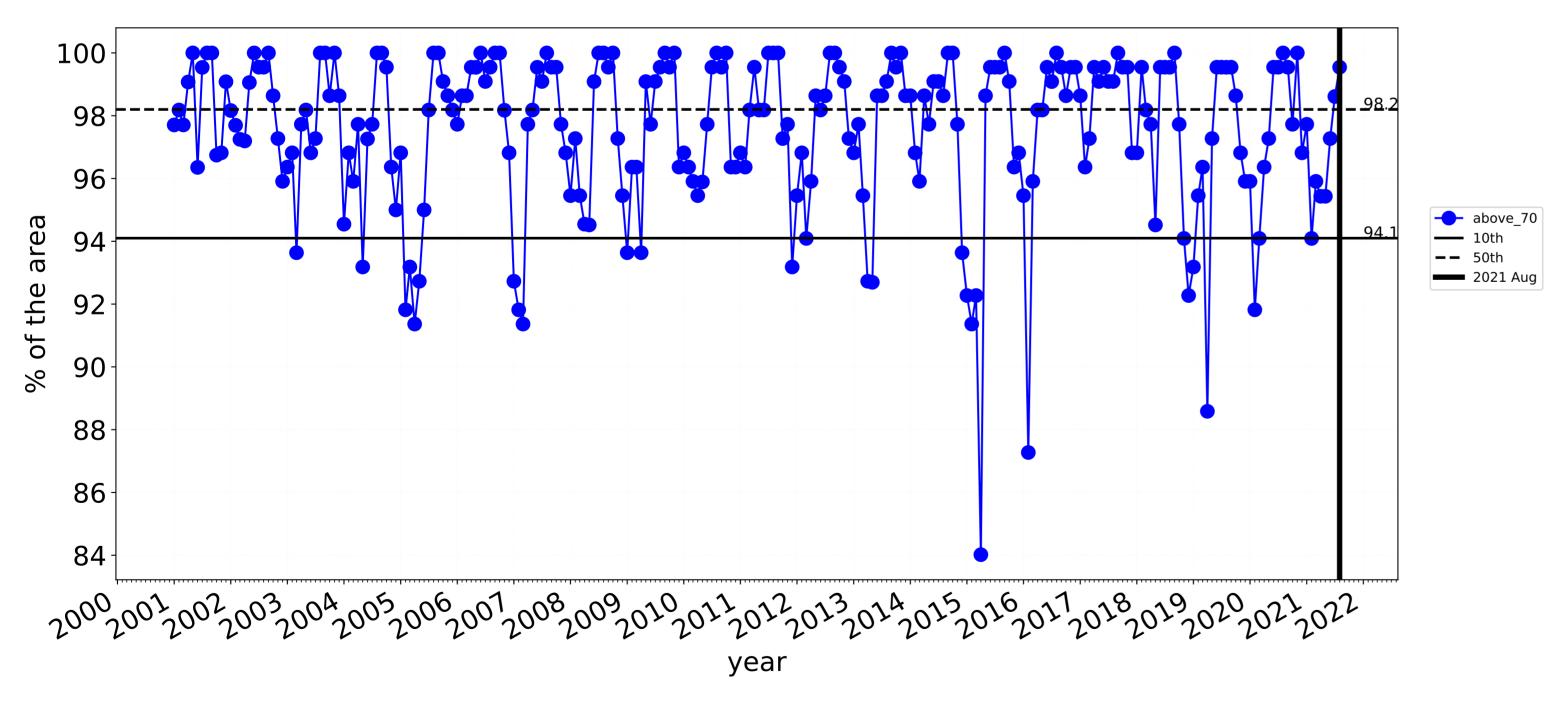






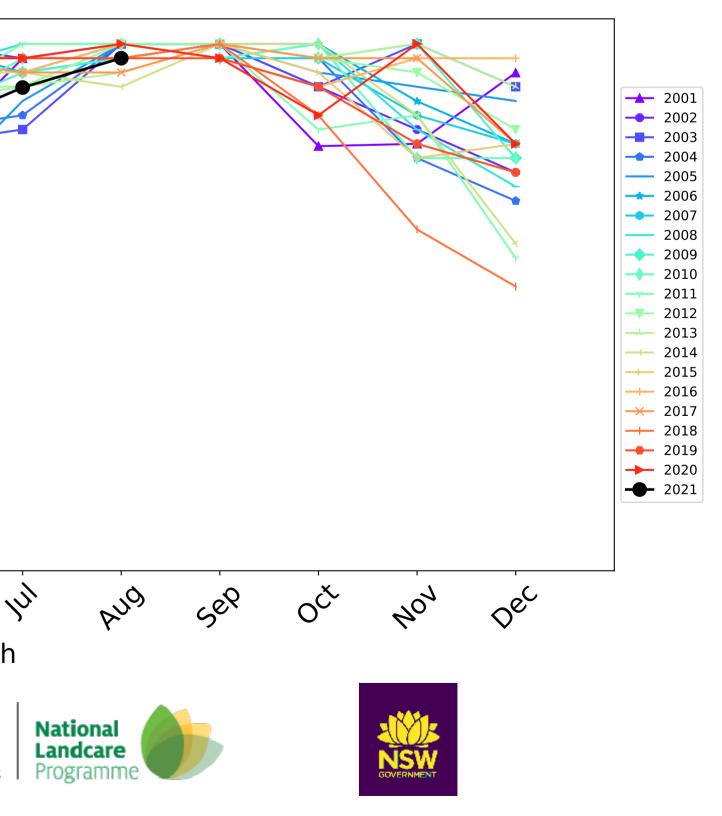
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

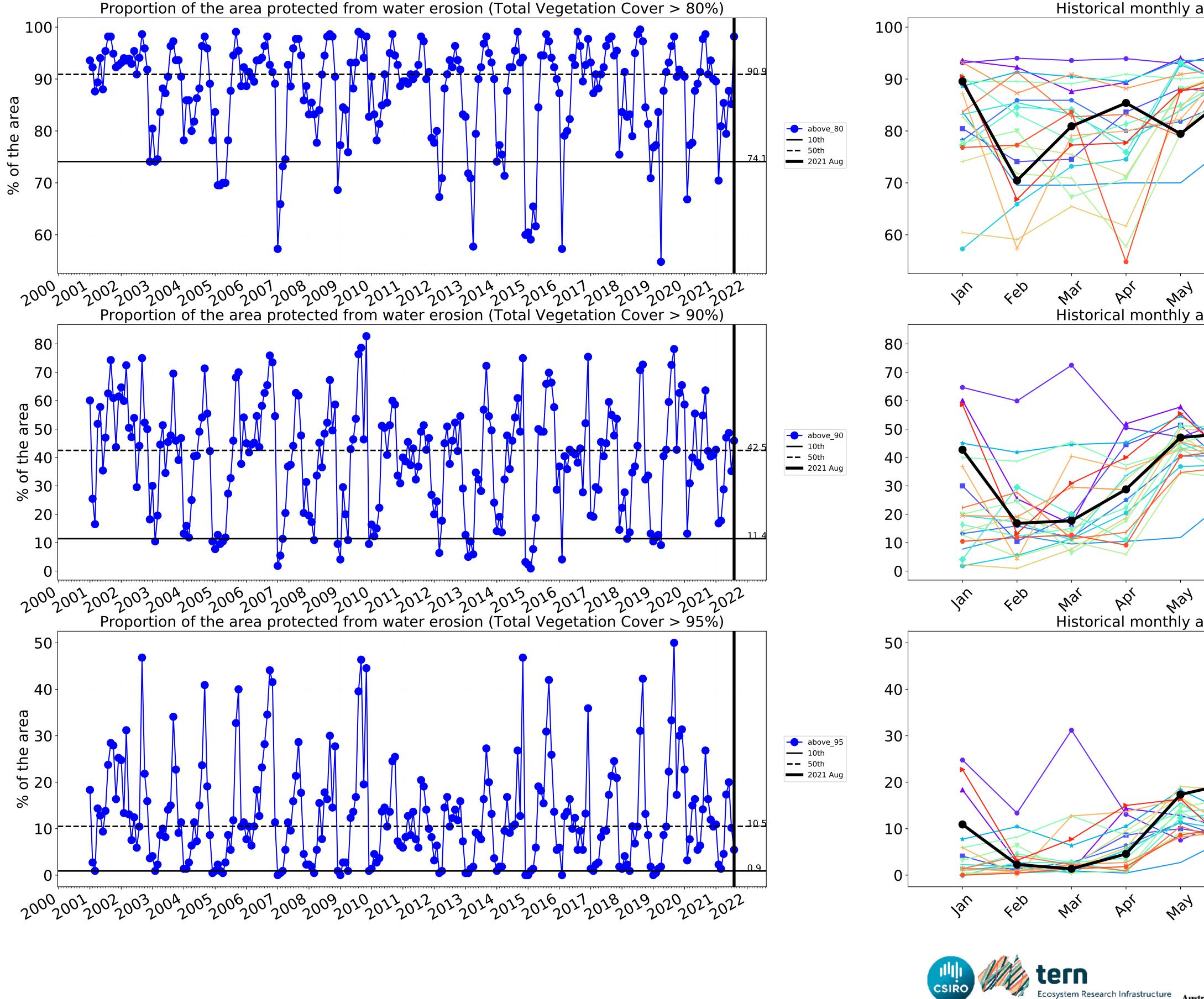
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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

100 98 96 94 92 90 88 86 84 Jan 4eb In May Mai Þ6, month tern Ecosystem Research Infrastructure Australian Government



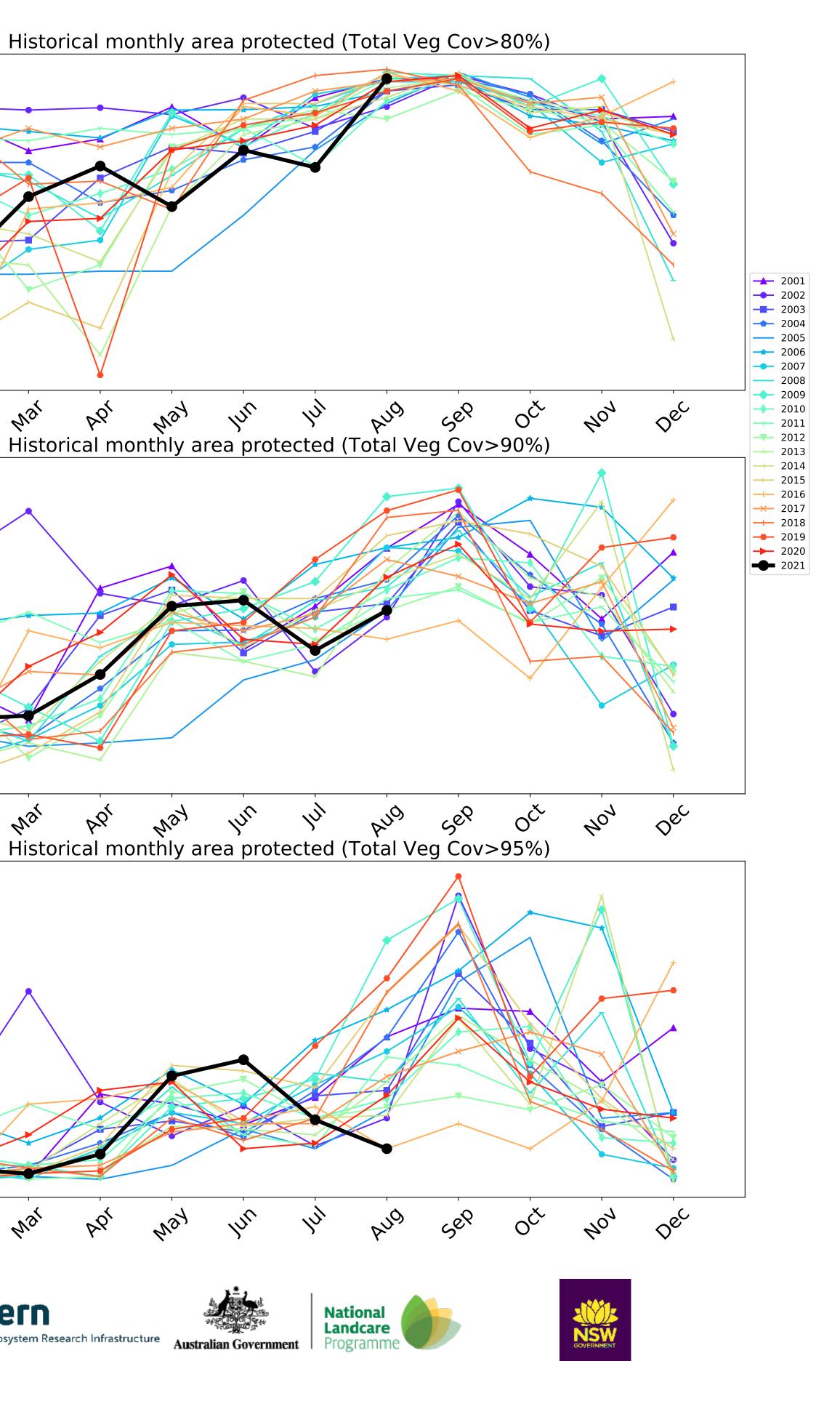


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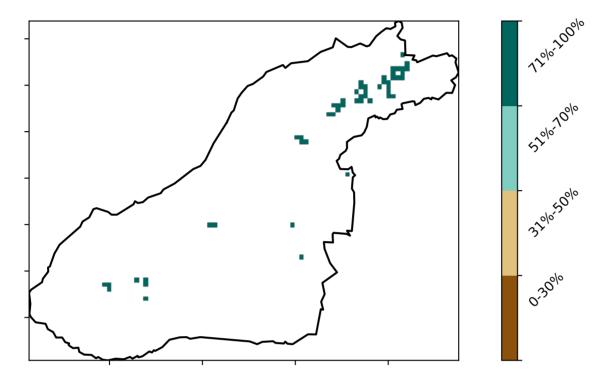


Irrigation

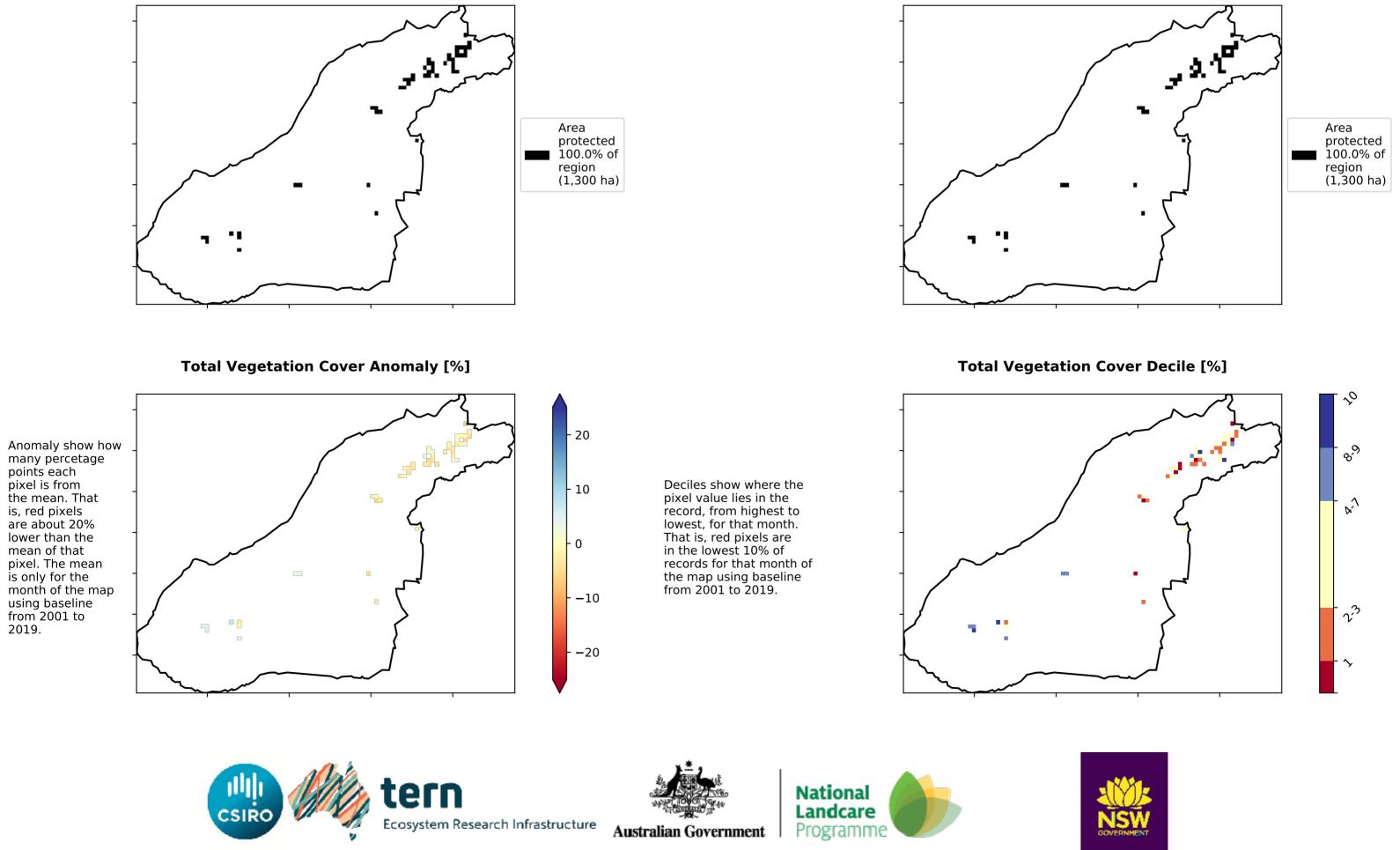
9. Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land 1 Agriculture - Grazing - Irrigated 2 Agriculture - Cropping - Irrigated 3 Agriculture - Horticulture - Irrigated Use of Australia (2018) and Forests of Australia (2018)

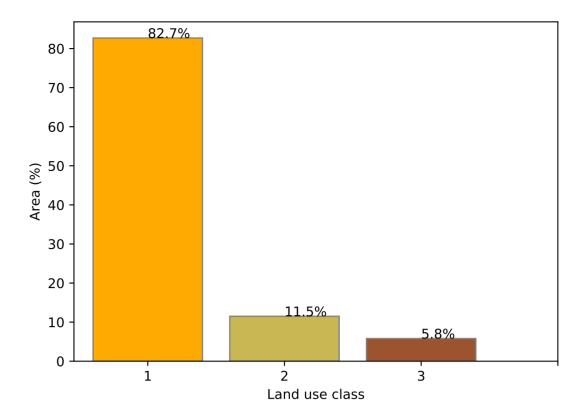
Land use and forest cover

Total Vegetation Cover [%]



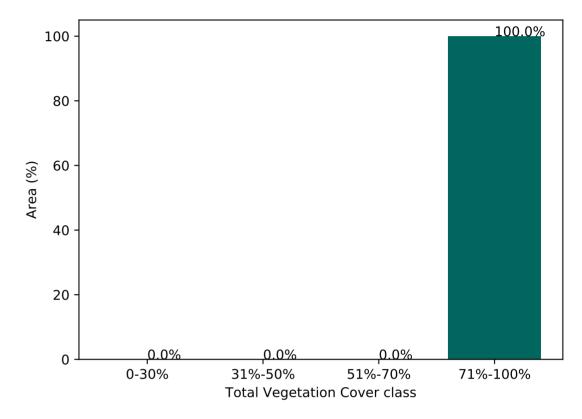
% Area protected from water erosion (>70%)



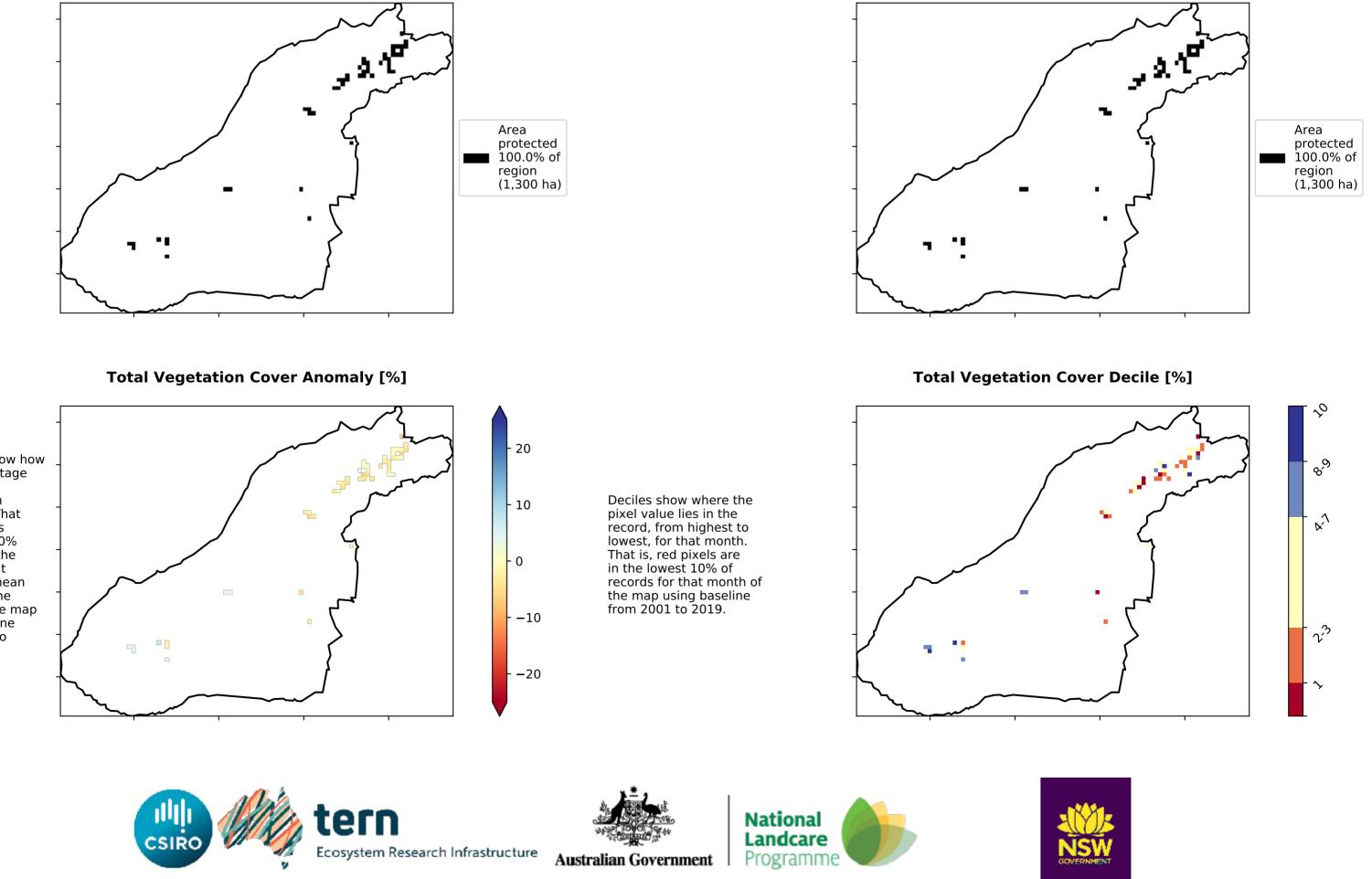


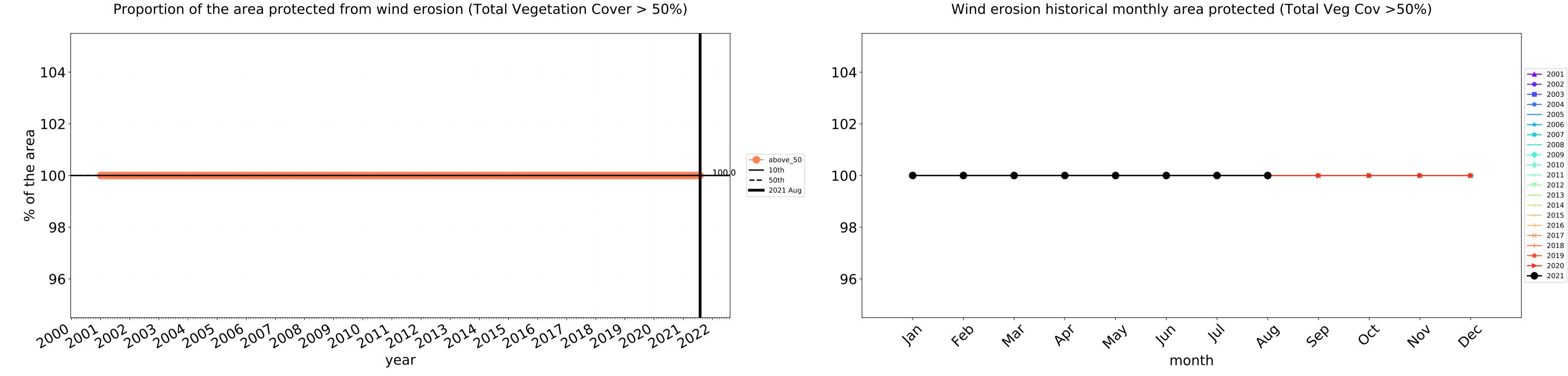
Proportion of each land class in area

Proportion of vegetation cover class in area

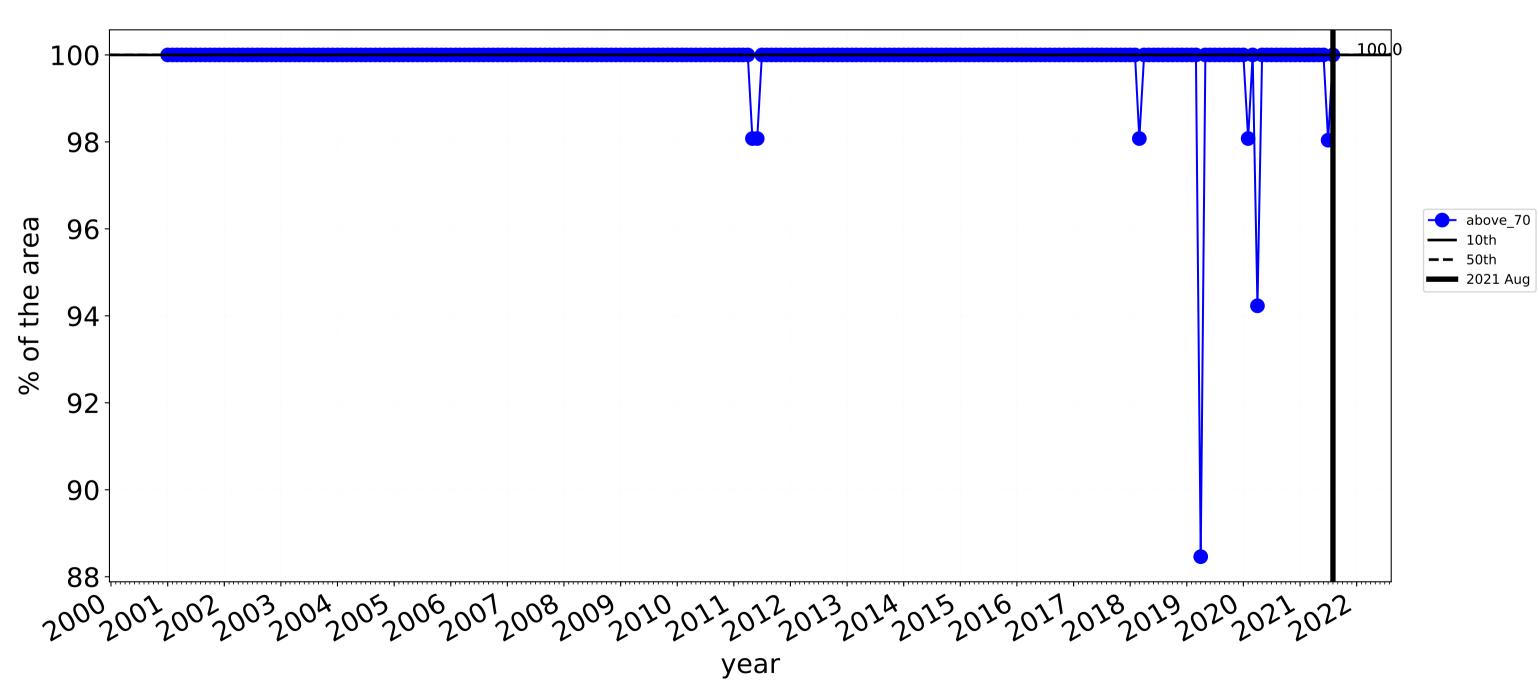


% Area protected from wind erosion (>50%)

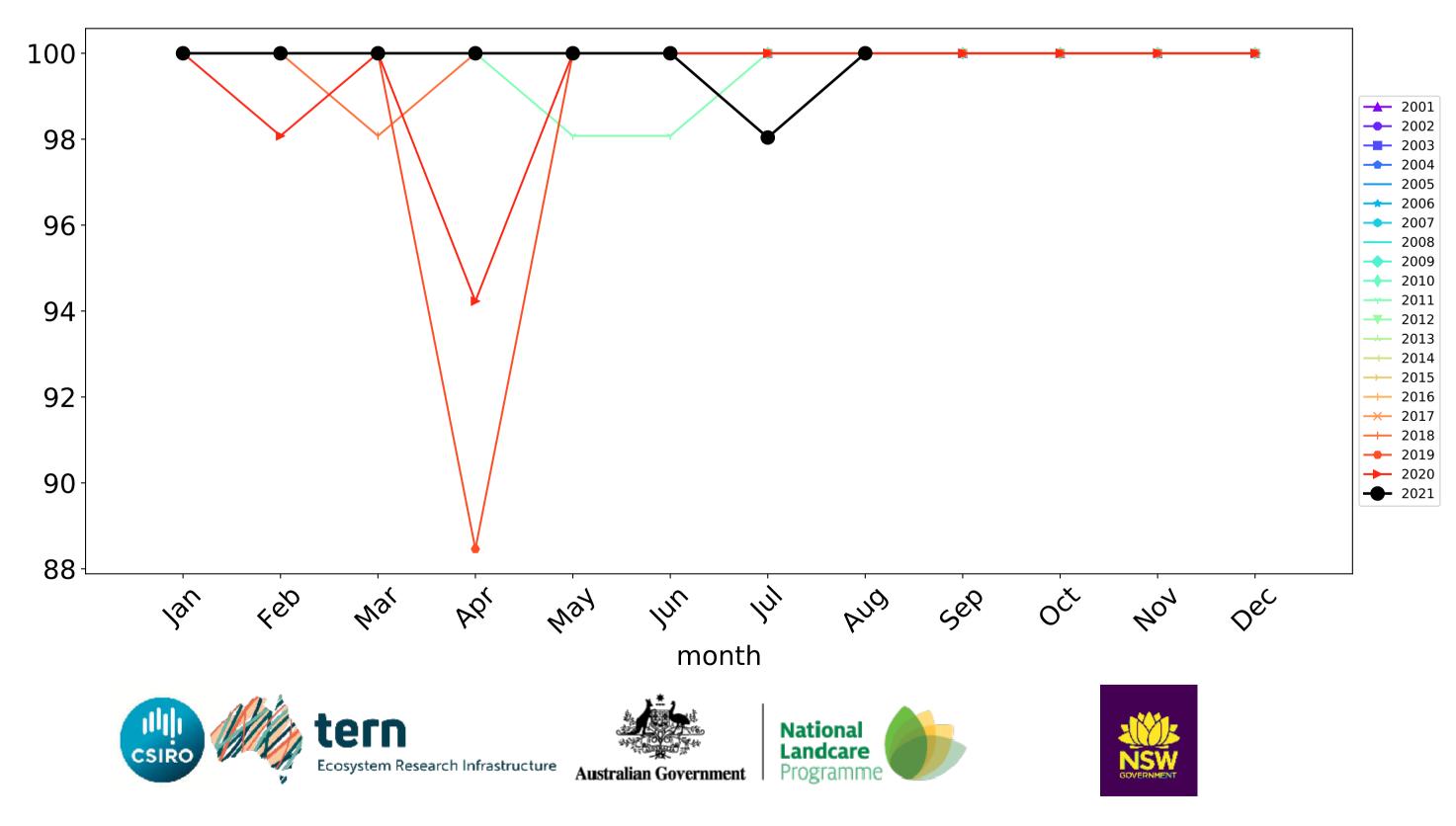


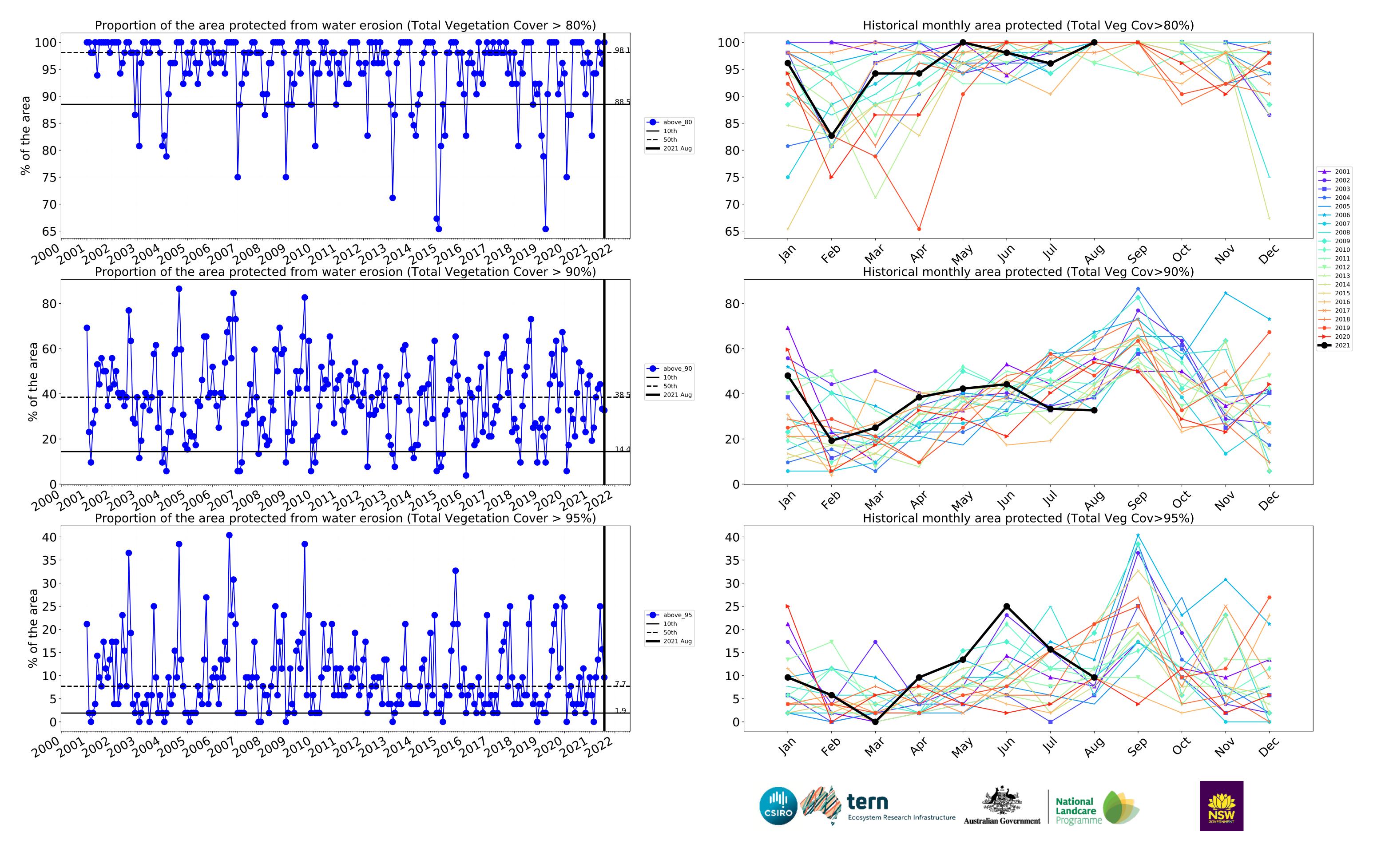


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

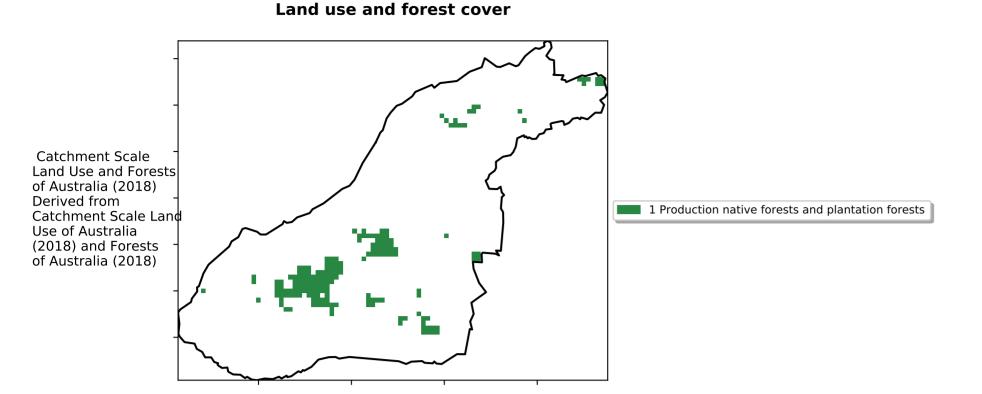


Irrigation timeseries





Production native forests and plantation forests



12% 10°10°%

· 52°10°10°10

3201050010

0.30%

- 20

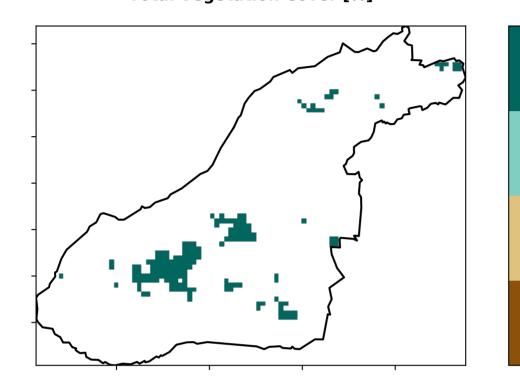
- 10

- 0

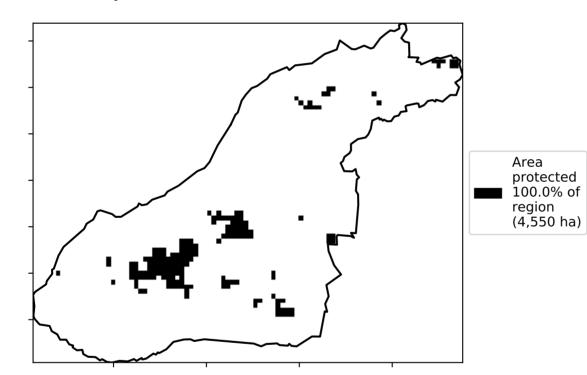
-10

-20

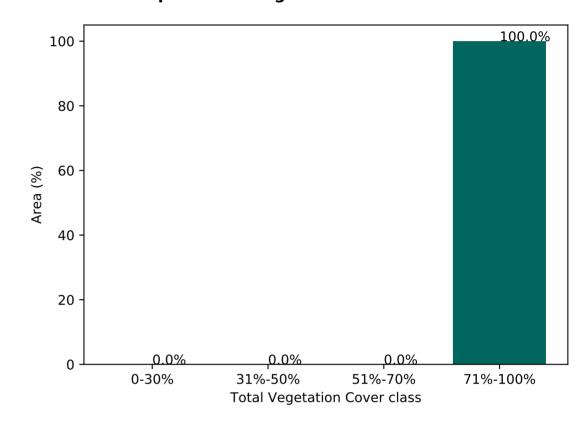
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



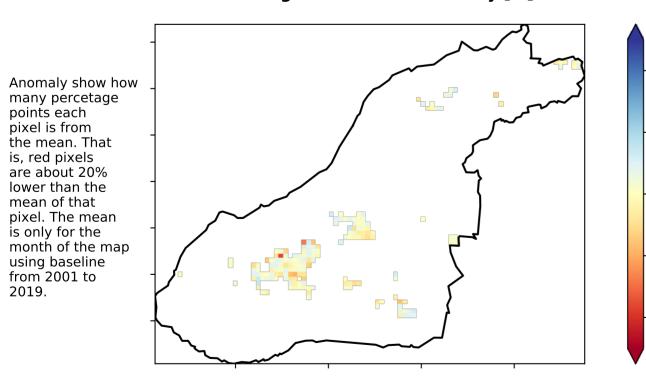
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

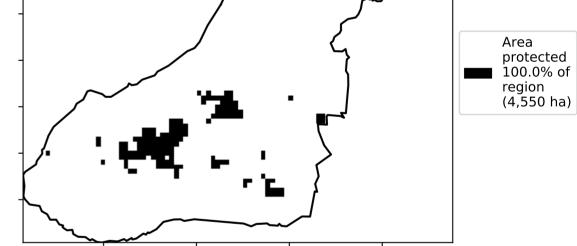


pixel is from

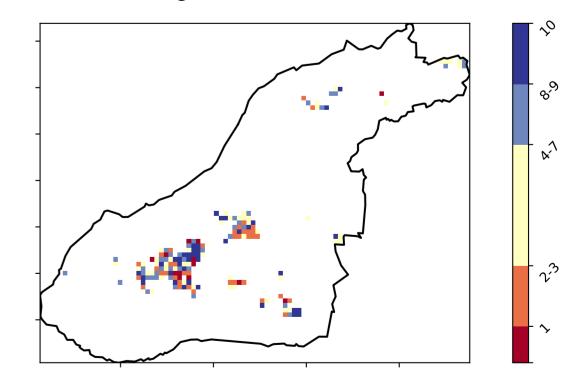
is, red pixels

mean of that

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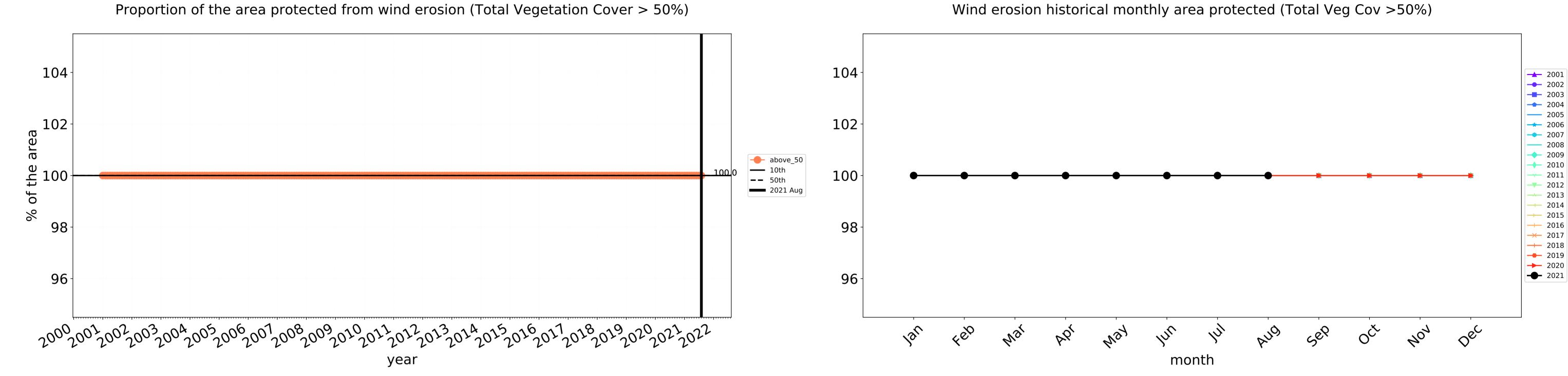


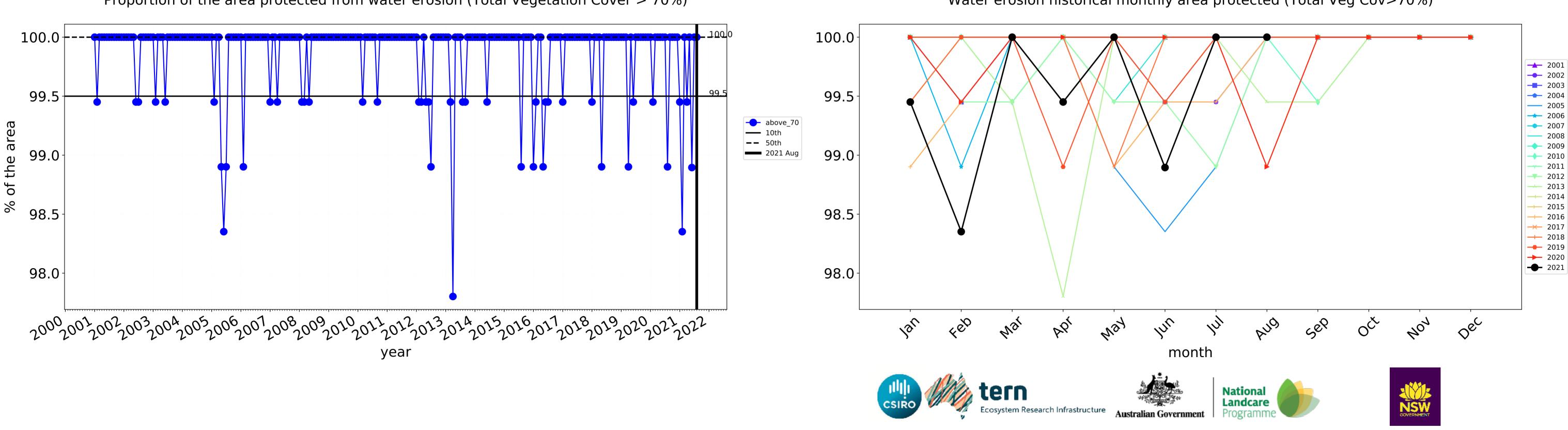
Total Vegetation Cover Decile [%]



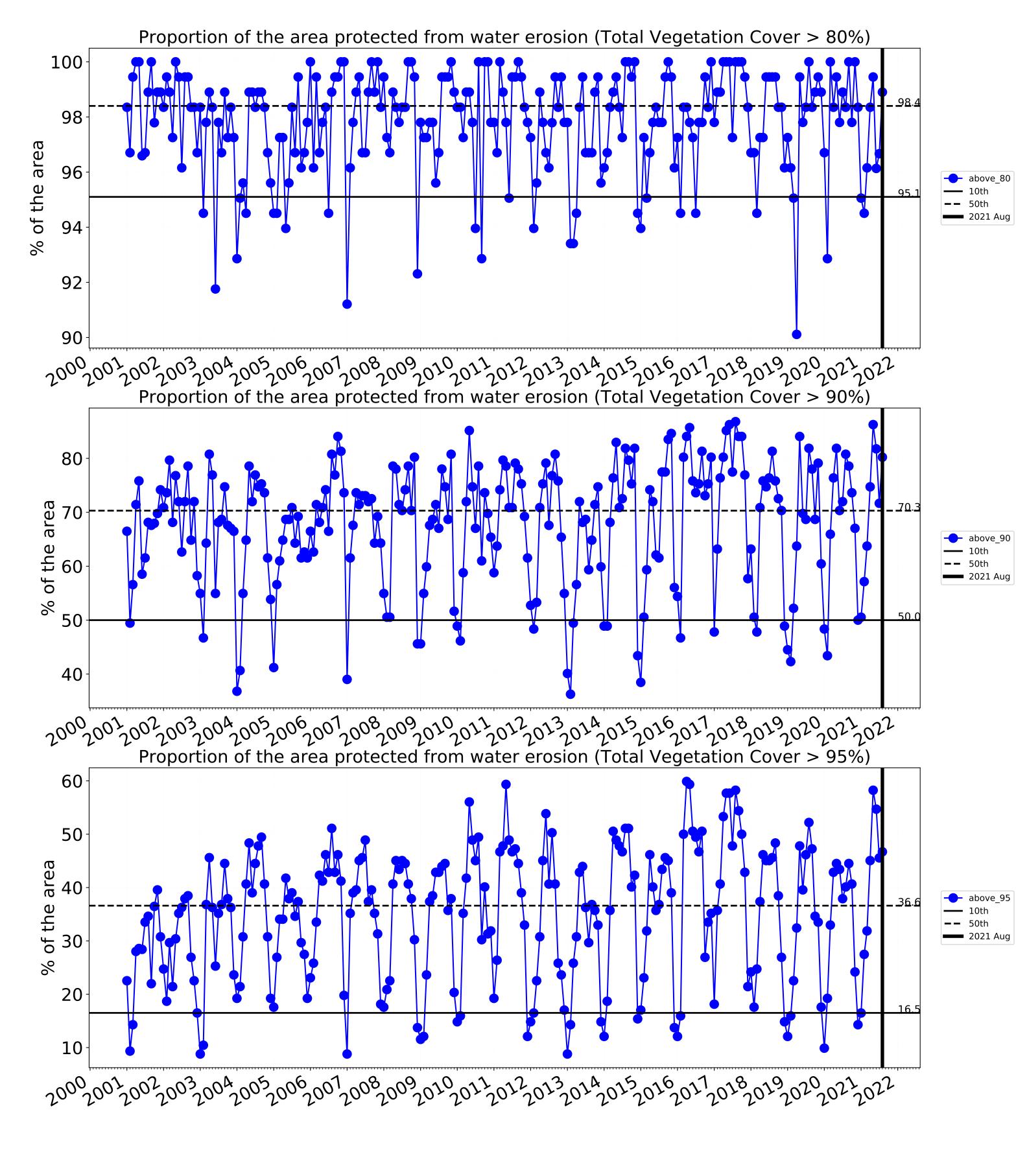


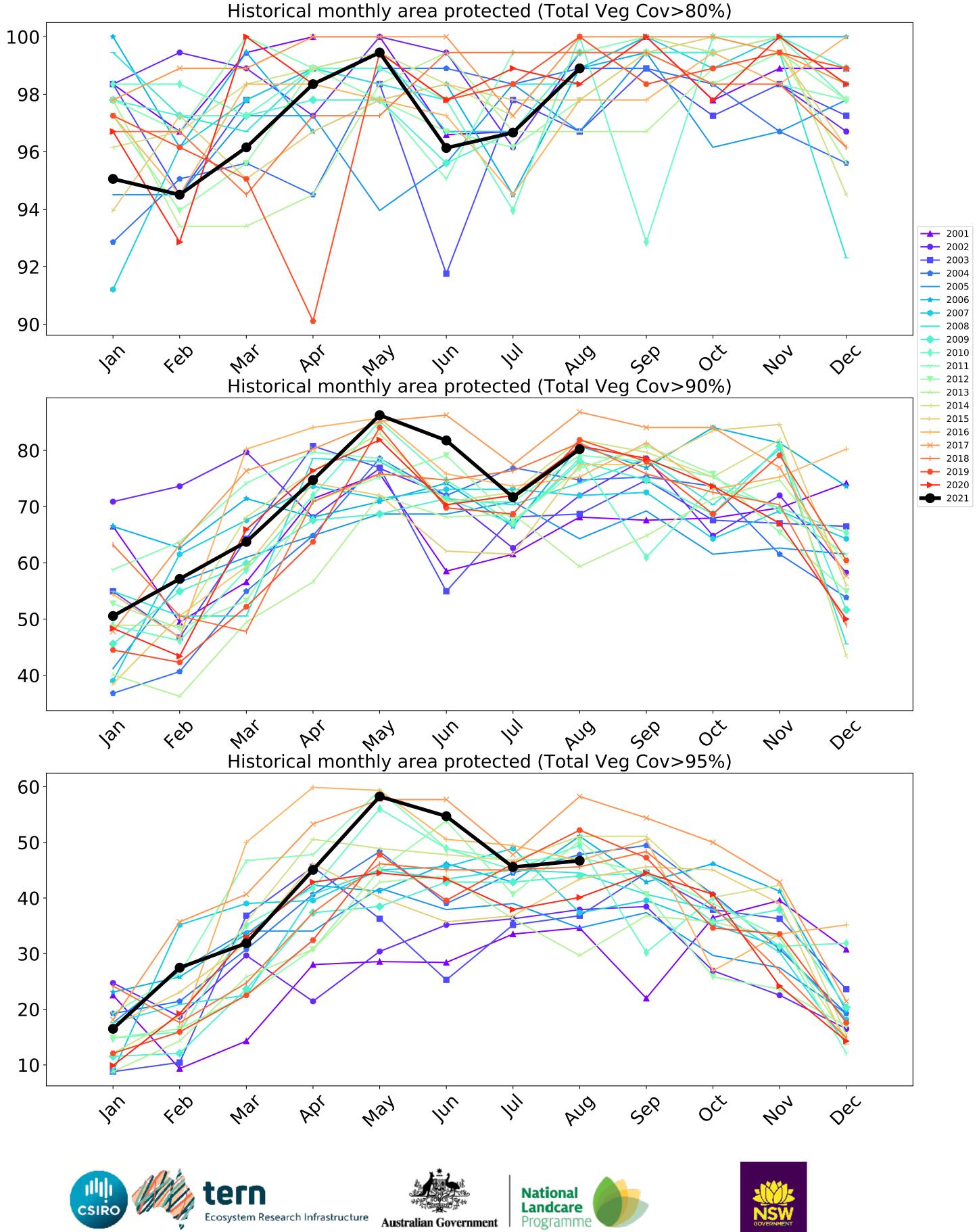
Production native forests and plantation forests timeseries





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





Yankalilla_(DC) (73,825 ha and no data 1,312 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	73,825	99.9% 73,750	99.8% 73,650	99.1% 73,175	96.2% 71,025	52.3% 38,625	16.6% 12,275
Conservation and natural environments	9,525	100.0% 9,525	99.7% 9,500	99.2% 9,450	97.1% 9,250	78.2% 7,450	47.2% 4,500
Conservation and natural environments non forest	1,350	100.0% 1,350	100.0% 1,350	98.1% 1,325	87.0% 1,175	61.1% 825	24.1% 325
Conservation and natural environments Woodland forest	5,500	100.0% 5,500	99.5% 5,475	99.1% 5,450	98.2% 5,400	79.5% 4,375	50.0% 2,750
Conservation and natural environments Forest (non woodland)	2,675	100.0% 2,675	100.0% 2,675	100.0% 2,675	100.0% 2,675	84.1% 2,250	53.3% 1,425
Agriculture	57,475	99.9% 57,425	99.9% 57,400	99.4% 57,150	97.0% 55,775	47.3% 27,175	9.8% 5,650
Grazing	50,675	99.9% 50,625	99.9% 50,600	99.4% 50,375	96.8% 49,075	47.8% 24,225	10.3% 5,225
Grazing non forest	50,200	99.9% 50,150	99.9% 50,125	99.4% 49,900	96.8% 48,600	47.6% 23,875	10.3% 5,150
Cropping	5,500	100.0% 5,500	100.0% 5,500	99.5% 5,475	98.2% 5,400	45.9% 2,525	5.5% 300
Irrigation	1,300	100.0% 1,300	100.0% 1,300	100.0% 1,300	100.0% 1,300	32.7% 425	9.6% 125
Production native forests and plantation forests	4,550	100.0% 4,550	100.0% 4,550	100.0% 4,550	98.9% 4,500	80.2% 3,650	46.7% 2,125

