Total vegetation cover soil protection Region:NRM Wet Tropics 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

40

35

30

Area (%)

15

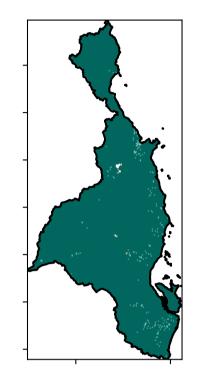
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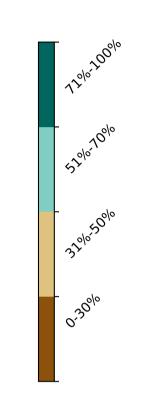
Land use and forest cover

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 3 Conservation and natural environments - Non-Woodland forest 4 Agriculture - Grazing - Non-forest 5 Agriculture - Grazing - Woodland forest 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 13 Other uses

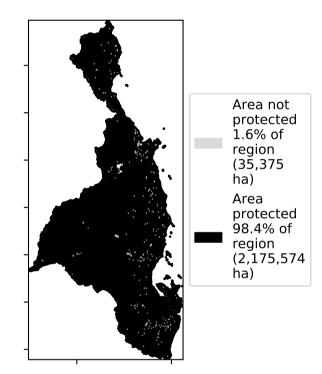
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]

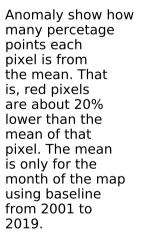


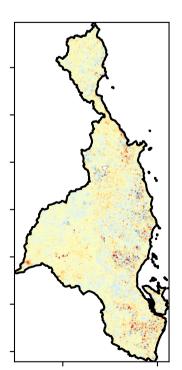


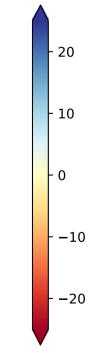
% Area protected from water erosion (>70%)



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

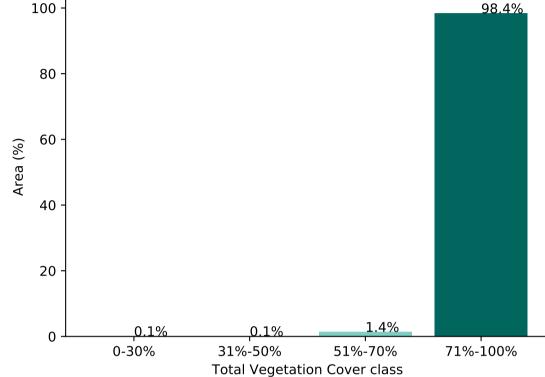






Ecosystem Research Infrastructure

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 each land class in area

8

9

10 11 12 13

41.9%

3

4

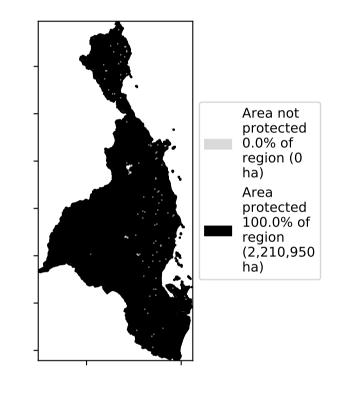
5

6

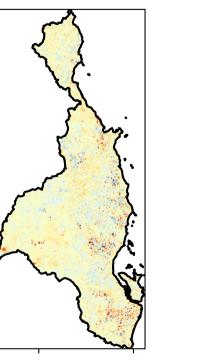
7 Land use class

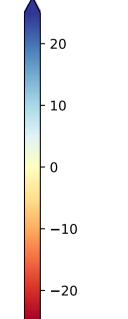
Proportion of vegetation cover class in area

% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

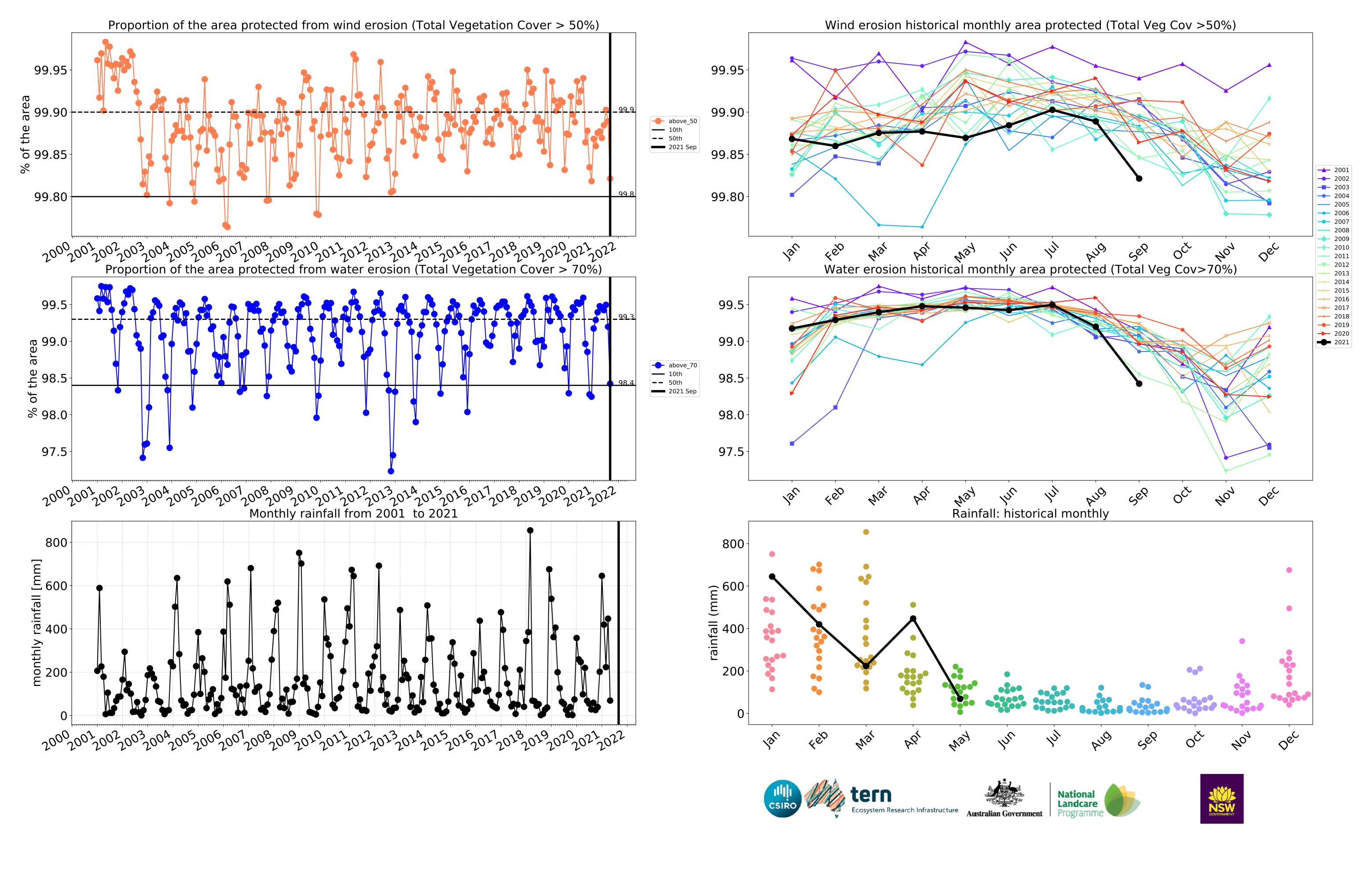


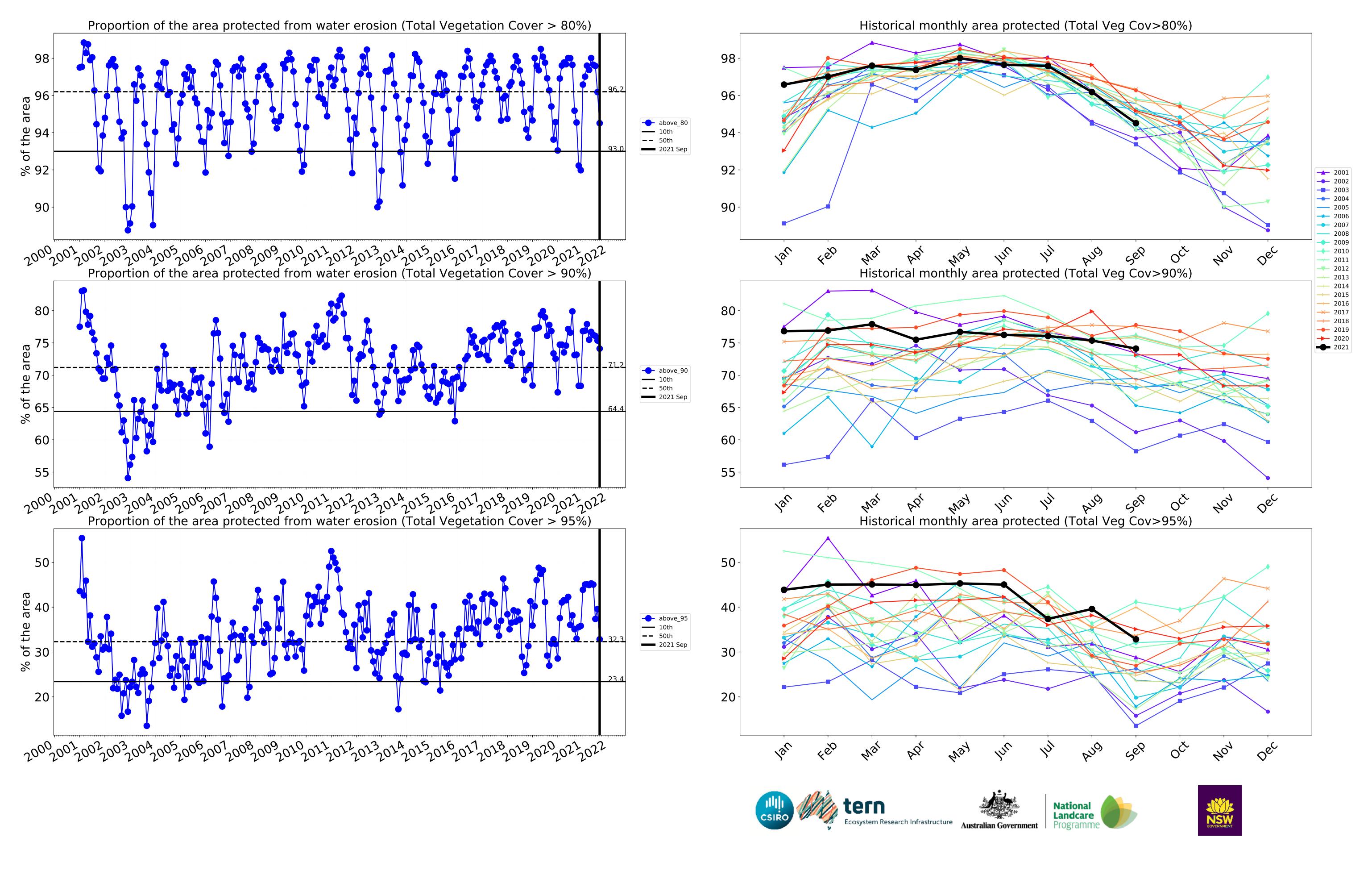


Australian Government









Conservation and natural environments

Land use and forest cover

Catchment Scale

of Australia (2018)

(2018) and Forests of Australia (2018)

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

using baseline from 2001 to 2019.

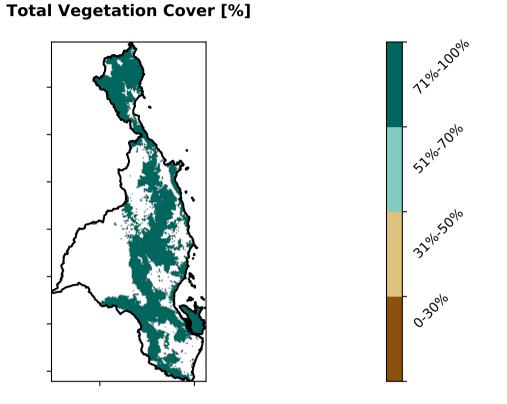
is only for the month of the map

Derived from

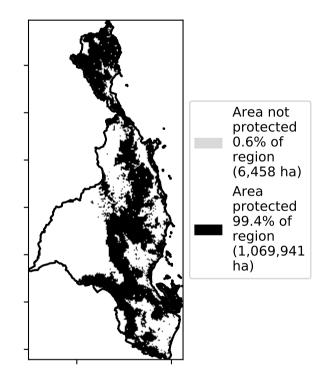
Land Use and Forests

Catchment Scale Land Use of Australia

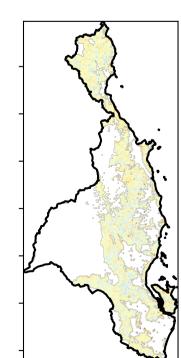
1 Conservation and natural environments - Nonforest 2 Conservation and natural environments - Woodland 3 Conservation and natural environments – Non-woodland forest

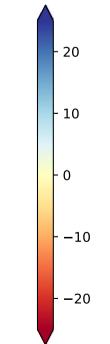


% Area protected from water erosion (>70%)



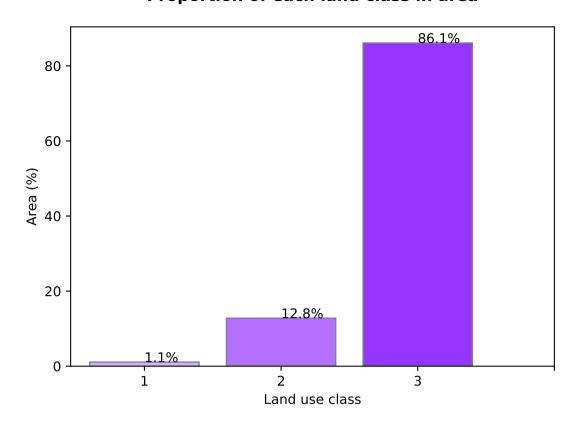
Total Vegetation Cover Anomaly [%]



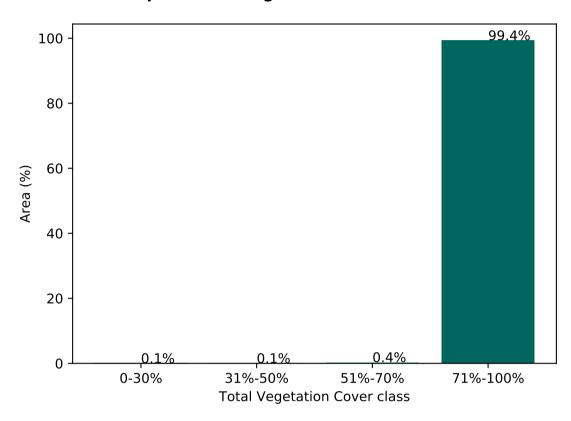


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline

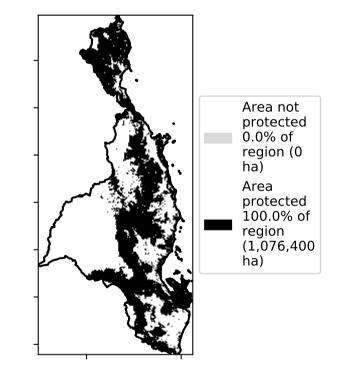
Proportion of each land class in area

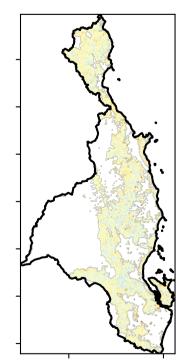


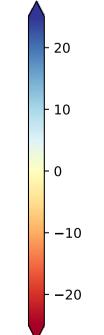
Proportion of vegetation cover class in area



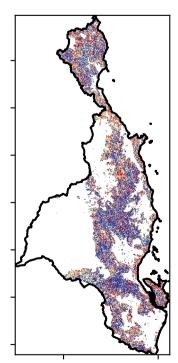
% Area protected from wind erosion (>50%)

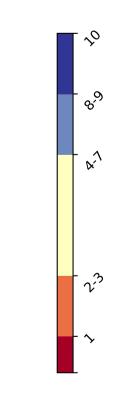






from 2001 to 2019.









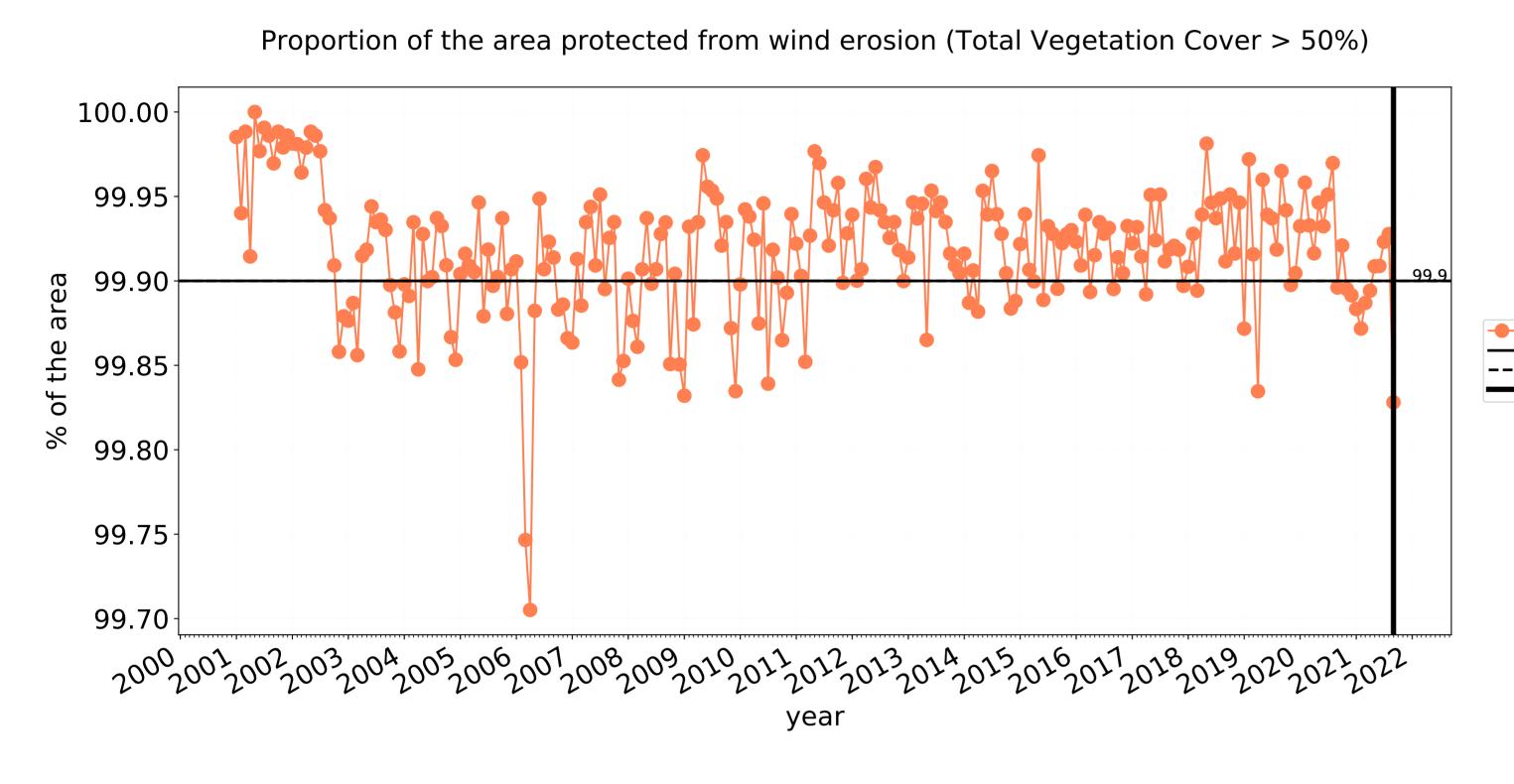


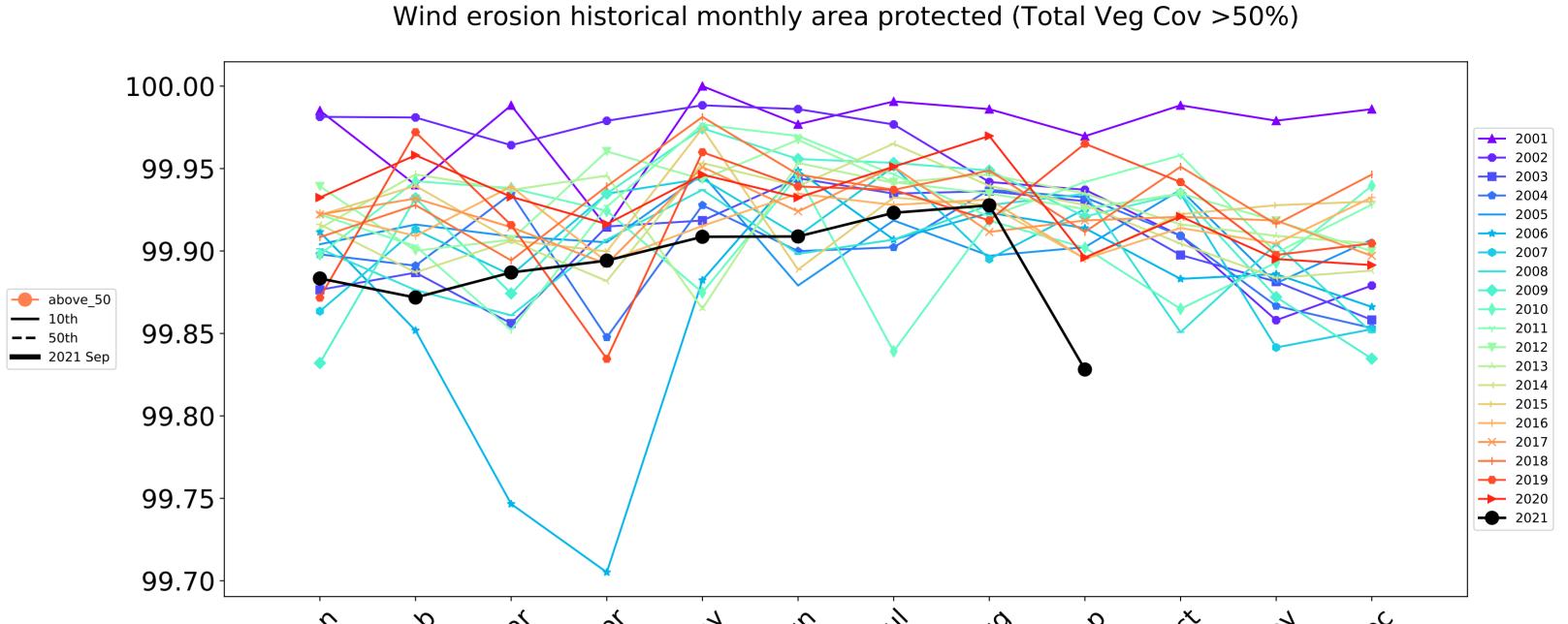




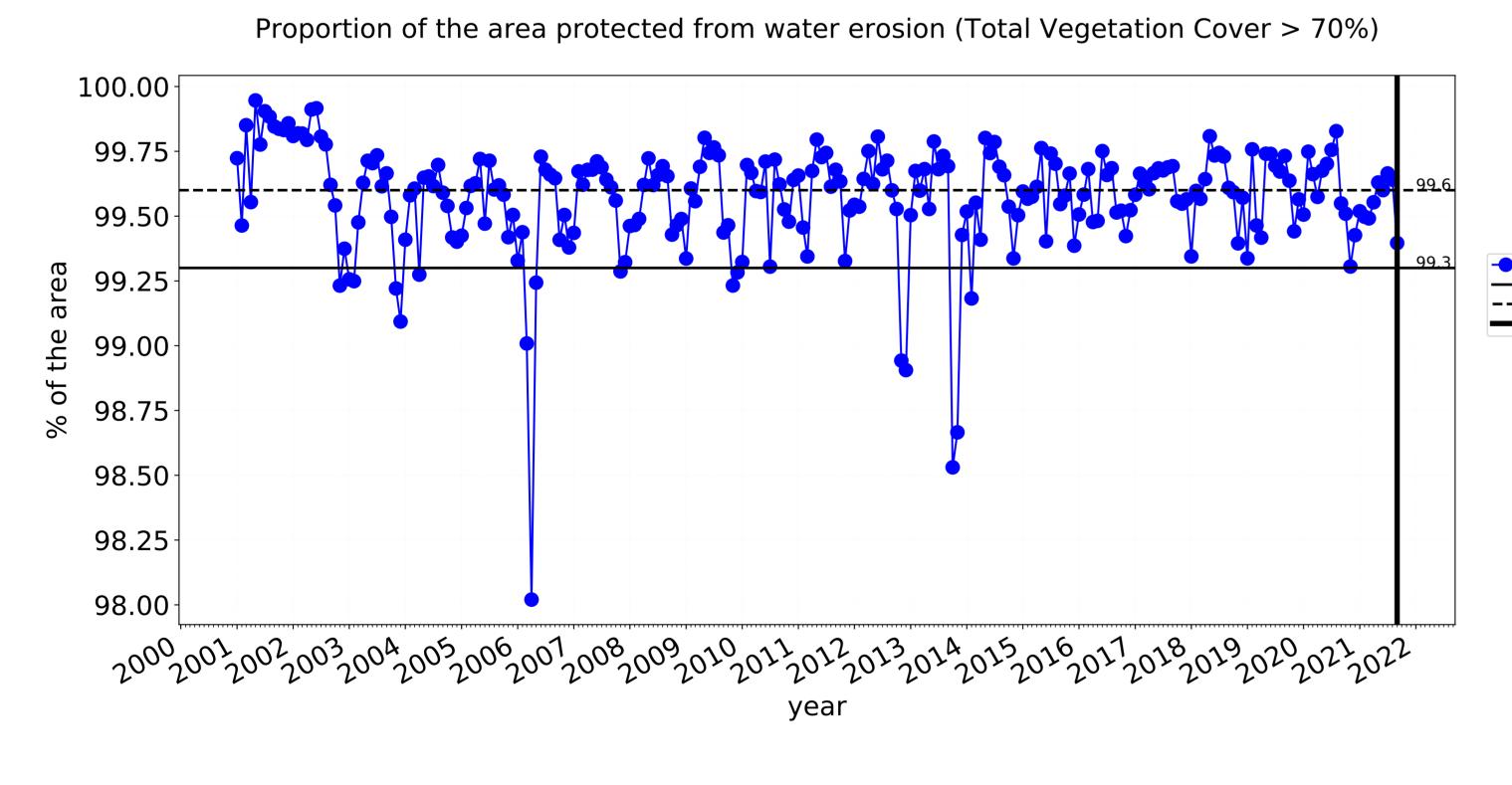


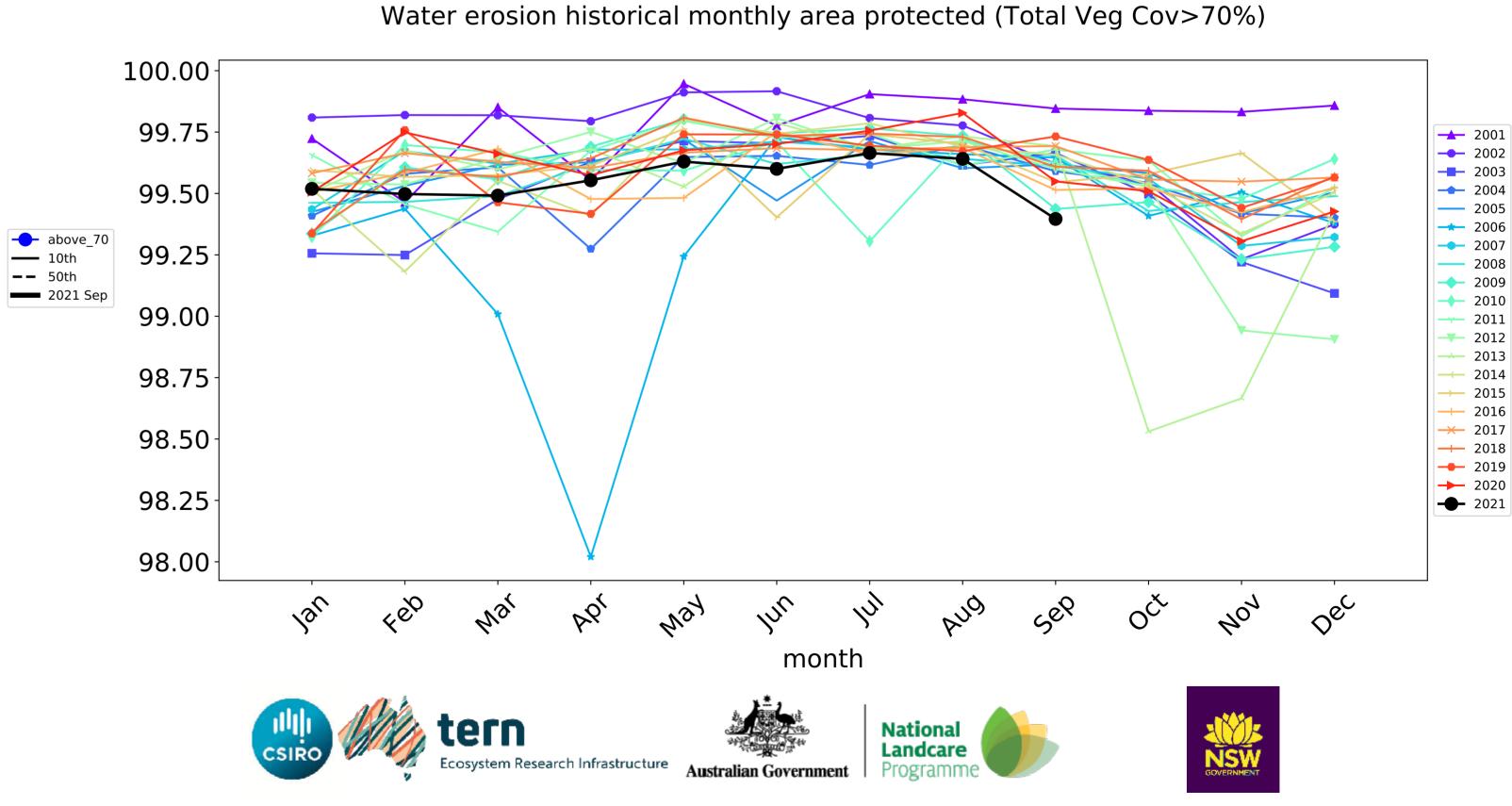
Conservation and natural environments timeseries

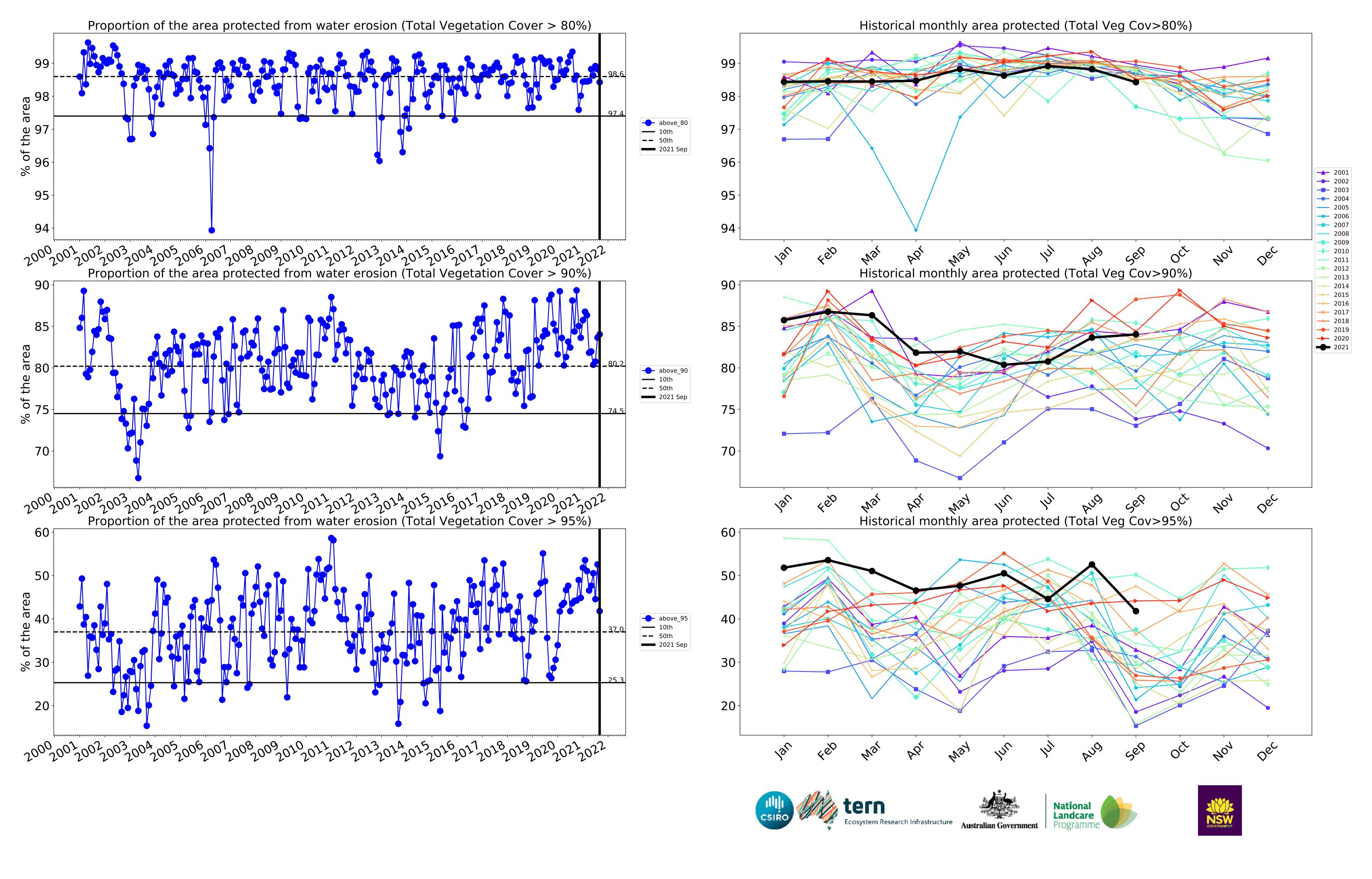




month







Conservation and natural environments Woodland forest

Land use and forest cover

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

Anomaly show how many percetage points each

pixel is from

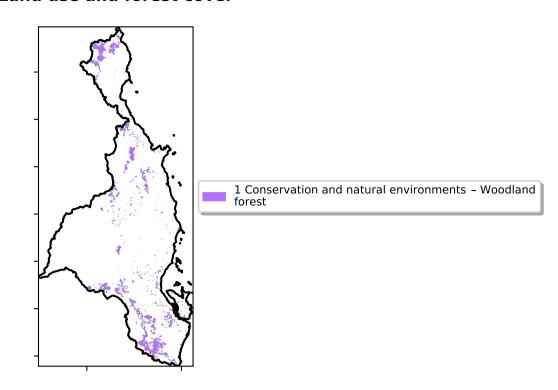
is, red pixels are about 20% lower than the mean of that

the mean. That

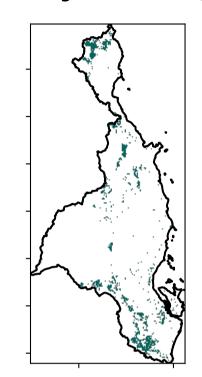
pixel. The mean

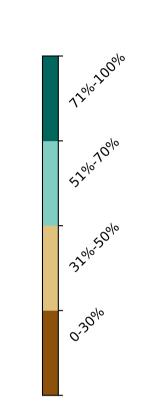
using baseline from 2001 to 2019.

is only for the month of the map

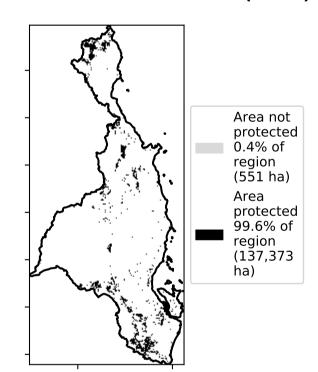


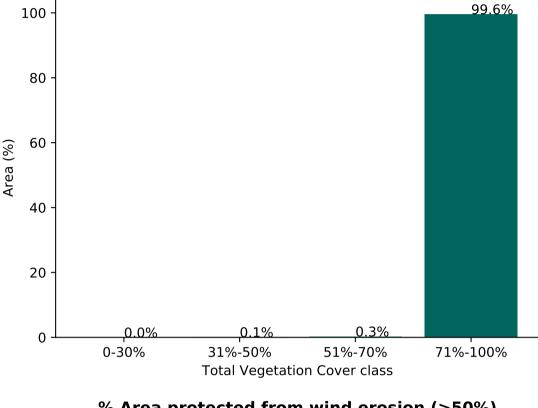
Total Vegetation Cover [%]





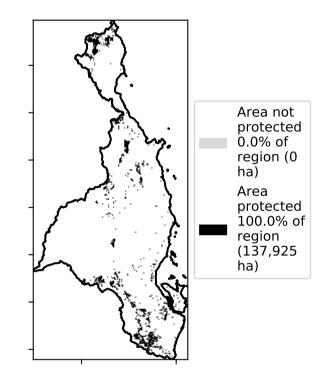
% Area protected from water erosion (>70%)



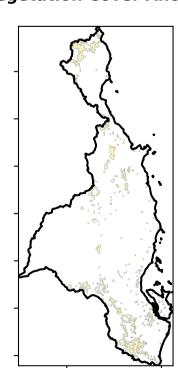


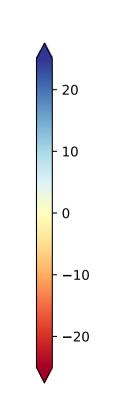
Proportion of vegetation cover class in area

% Area protected from wind erosion (>50%)

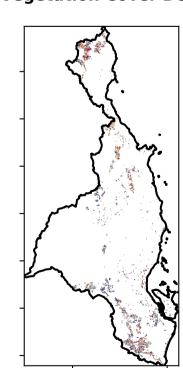


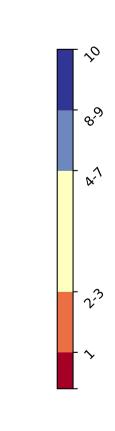
Total Vegetation Cover Anomaly [%]





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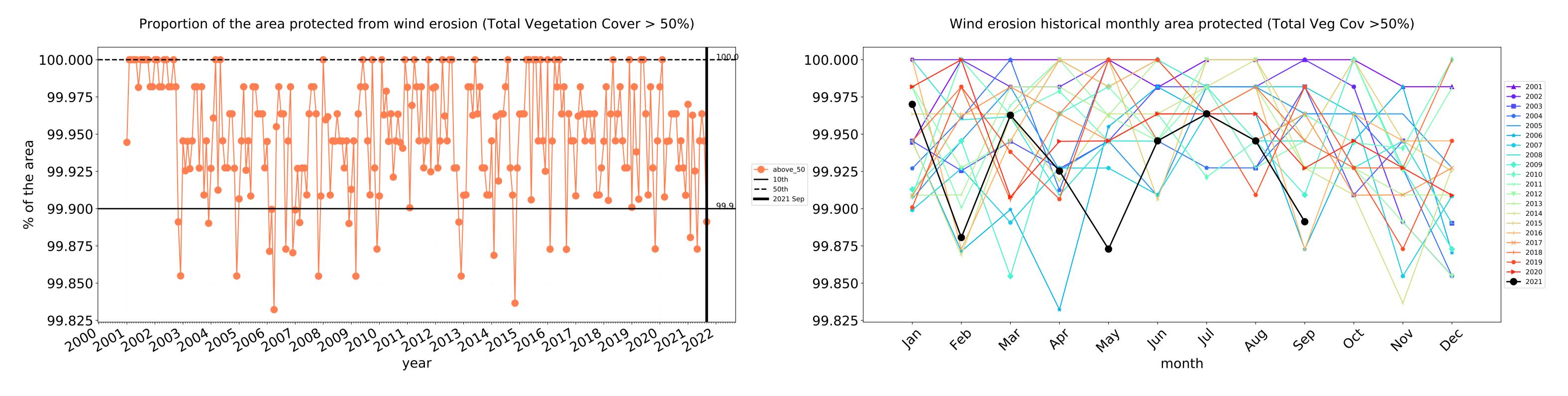


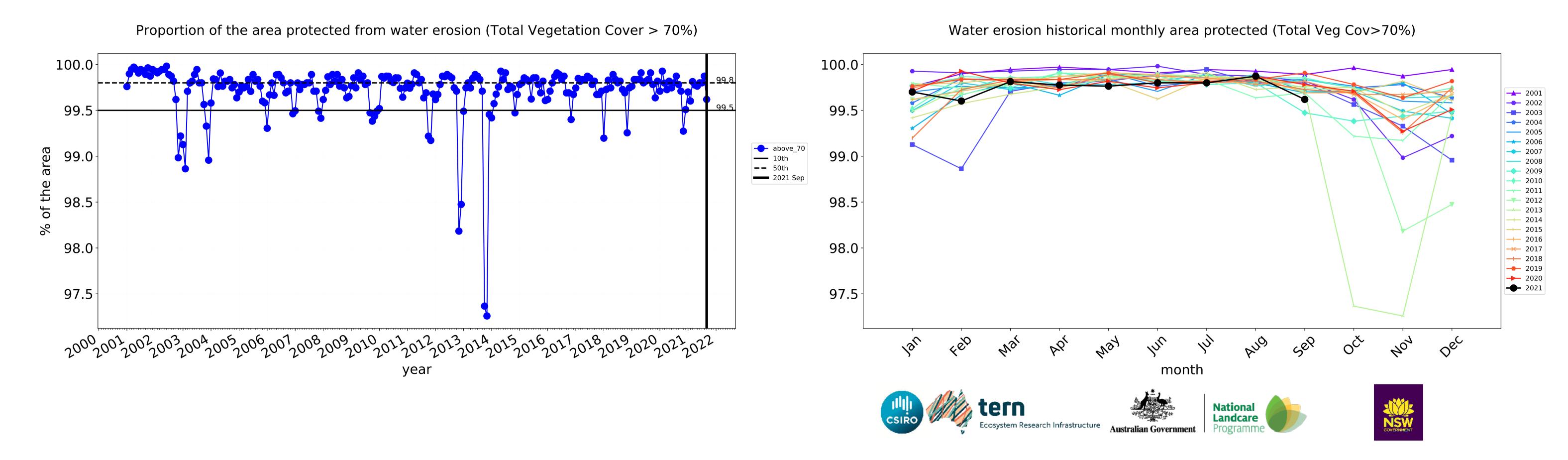


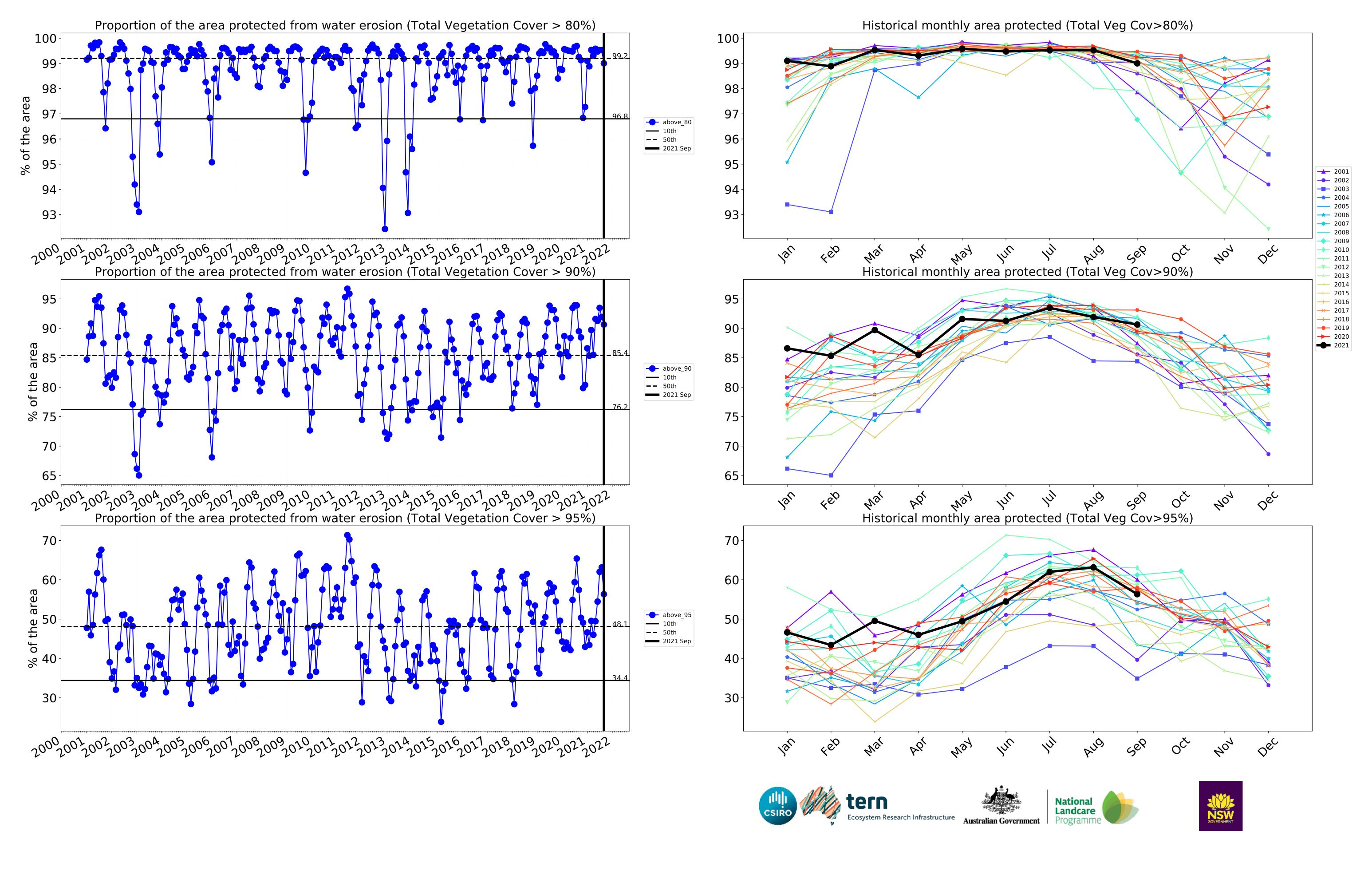








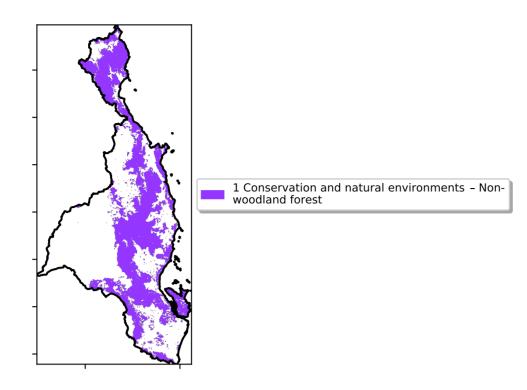




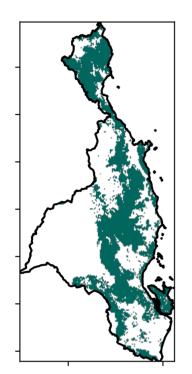
Conservation and natural environments Forest (non woodland)

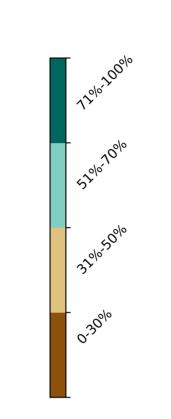
Land use and forest cover

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

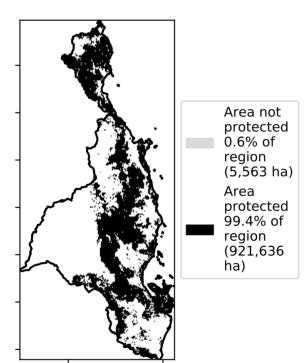


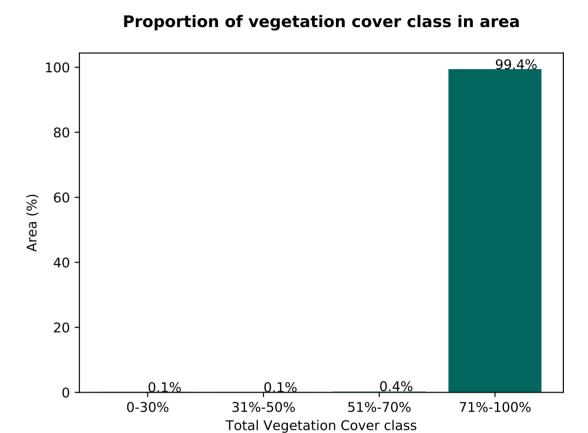
Total Vegetation Cover [%]



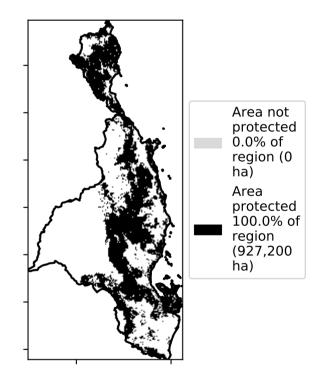


% Area protected from water erosion (>70%)

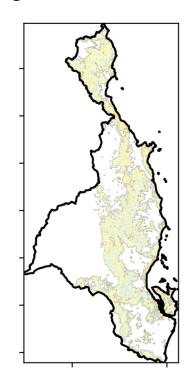


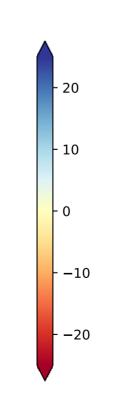


% Area protected from wind erosion (>50%)



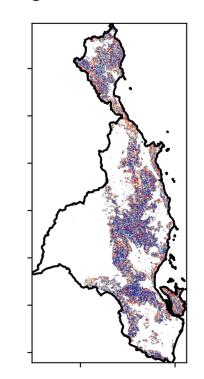
Total Vegetation Cover Anomaly [%]

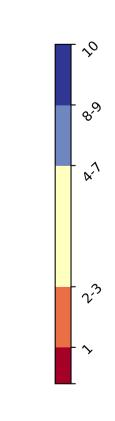




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

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.

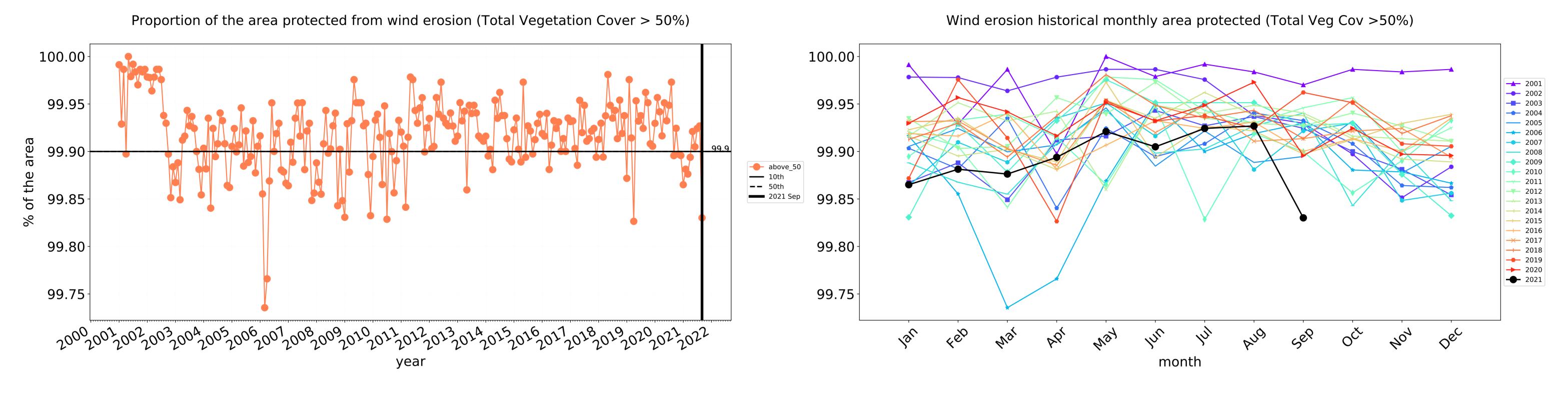


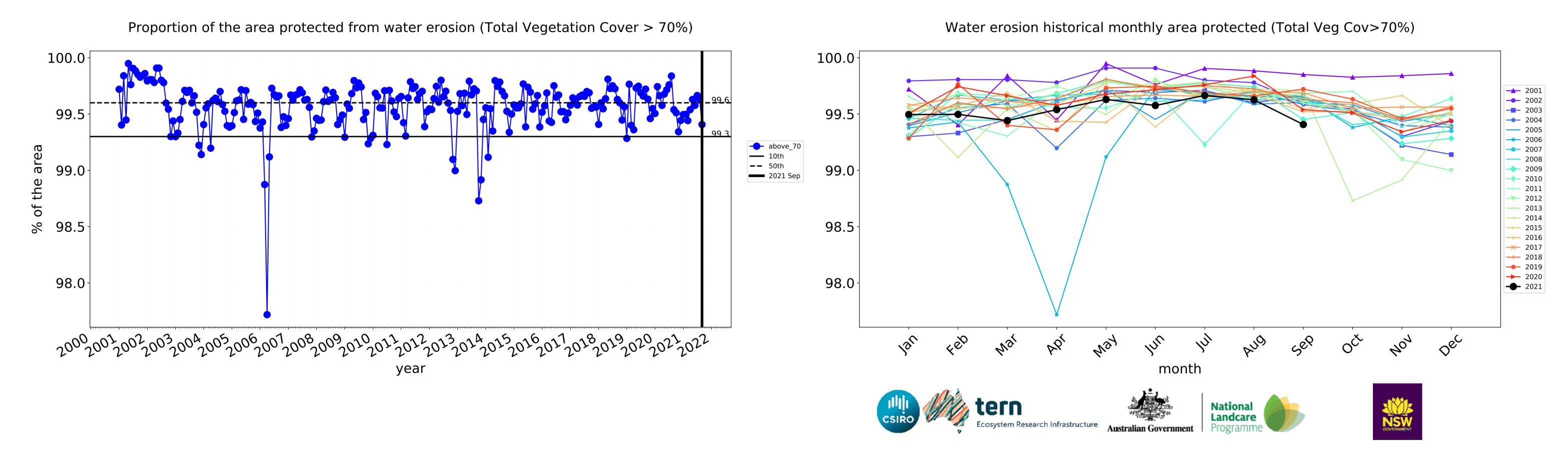


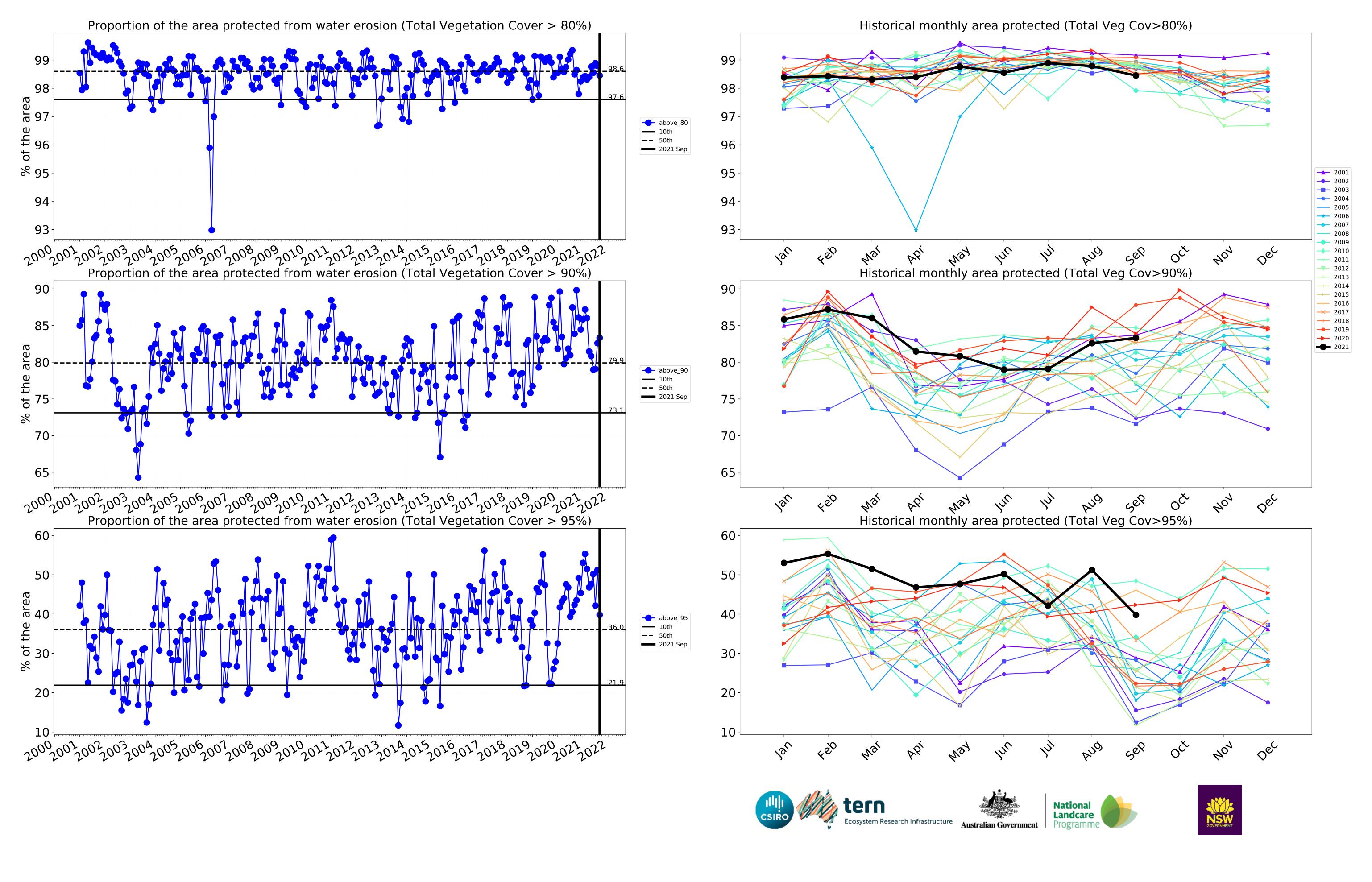




Conservation and natural environments Forest (non woodland) timeseries







Agriculture

Land use and forest cover

Catchment Scale

of Australia (2018)

Derived from

Use of Australia

(2018) and Forests

of Australia (2018)

Anomaly show how many percetage points each

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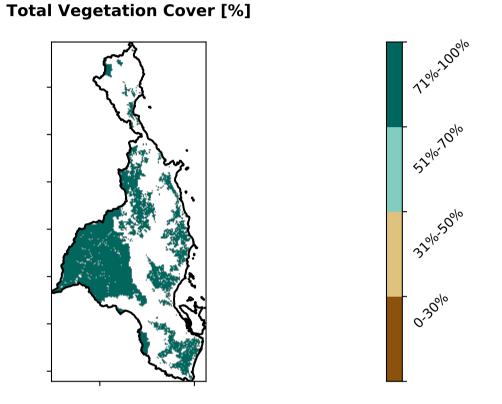
using baseline from 2001 to 2019.

is only for the month of the map

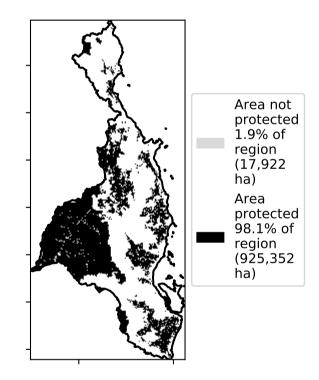
Land Use and Forests

Catchment Scale Land

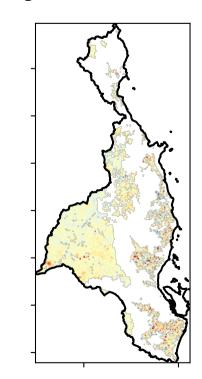
1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest 4 Agriculture - Grazing - Irrigated 5 Agriculture - Cropping - Non-irrigated 6 Agriculture - Cropping - Irrigated 7 Agriculture - Horticulture - Non-irrigated 8 Agriculture - Horticulture - Irrigated

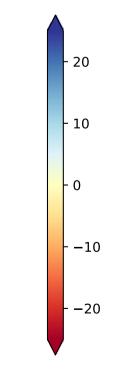


% Area protected from water erosion (>70%)



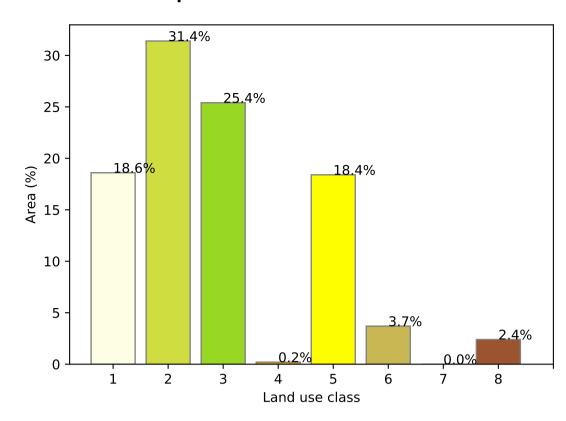
Total Vegetation Cover Anomaly [%]



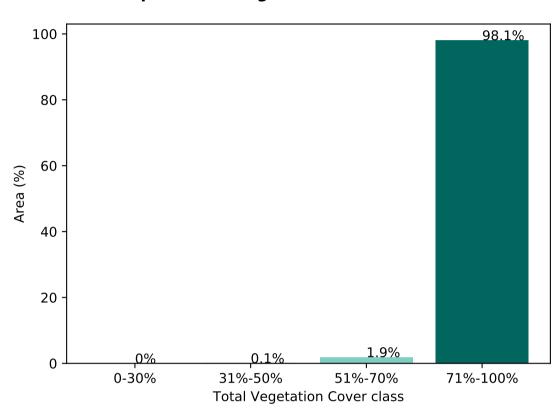


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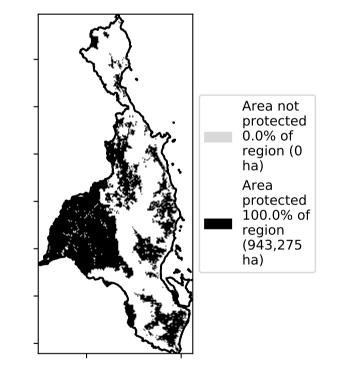
Proportion of each land class in area



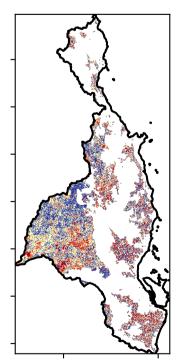
Proportion of vegetation cover class in area

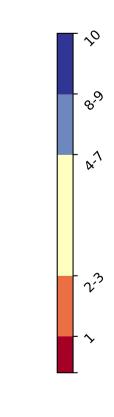


% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]









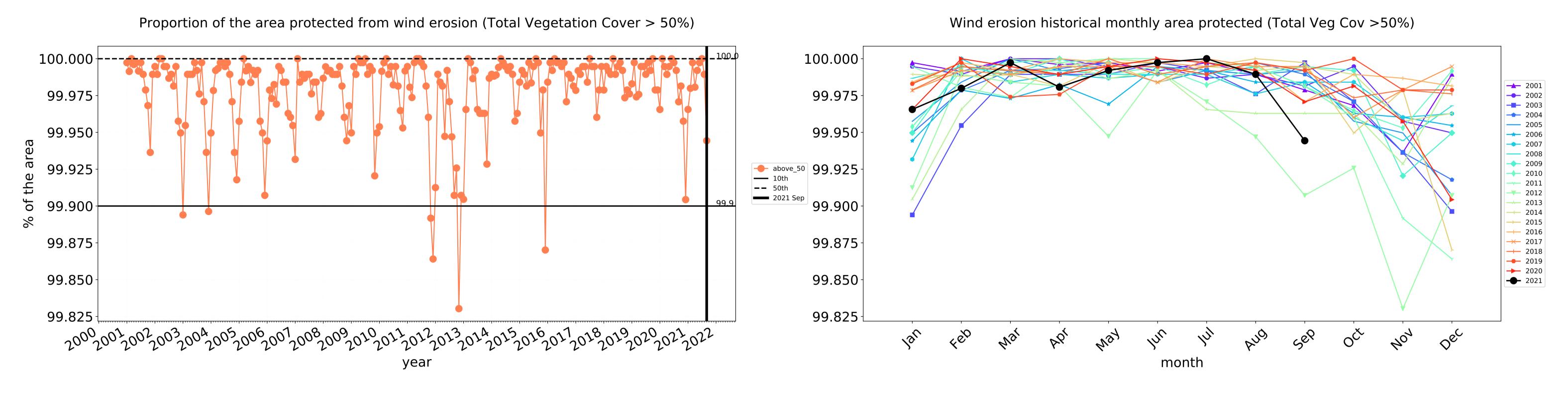
tern
Ecosystem Research Infrastructure

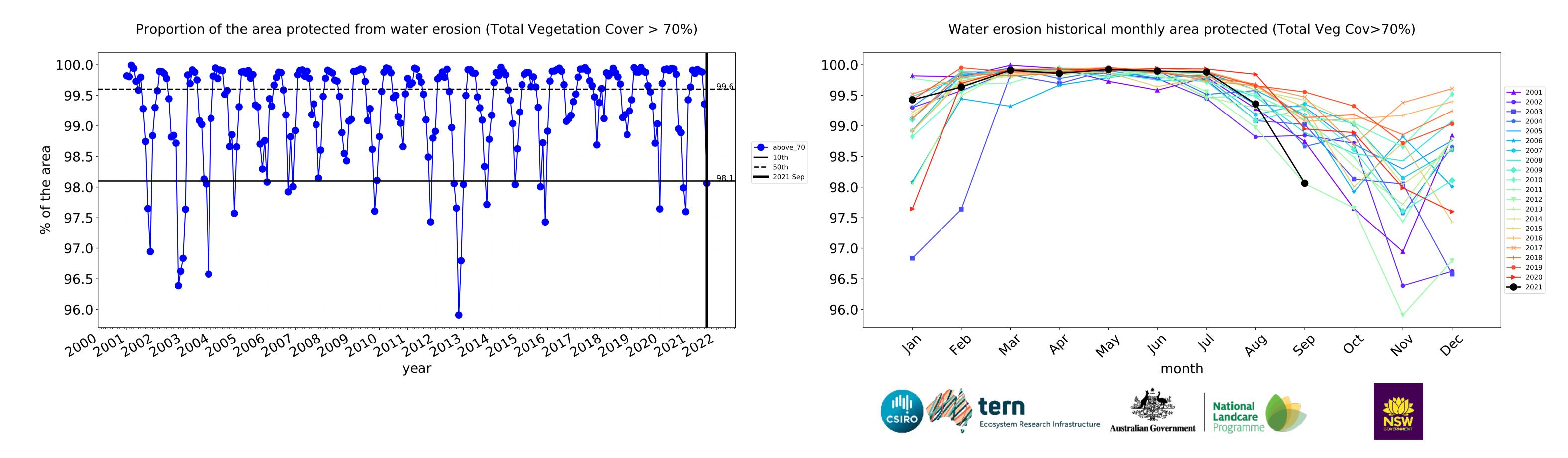


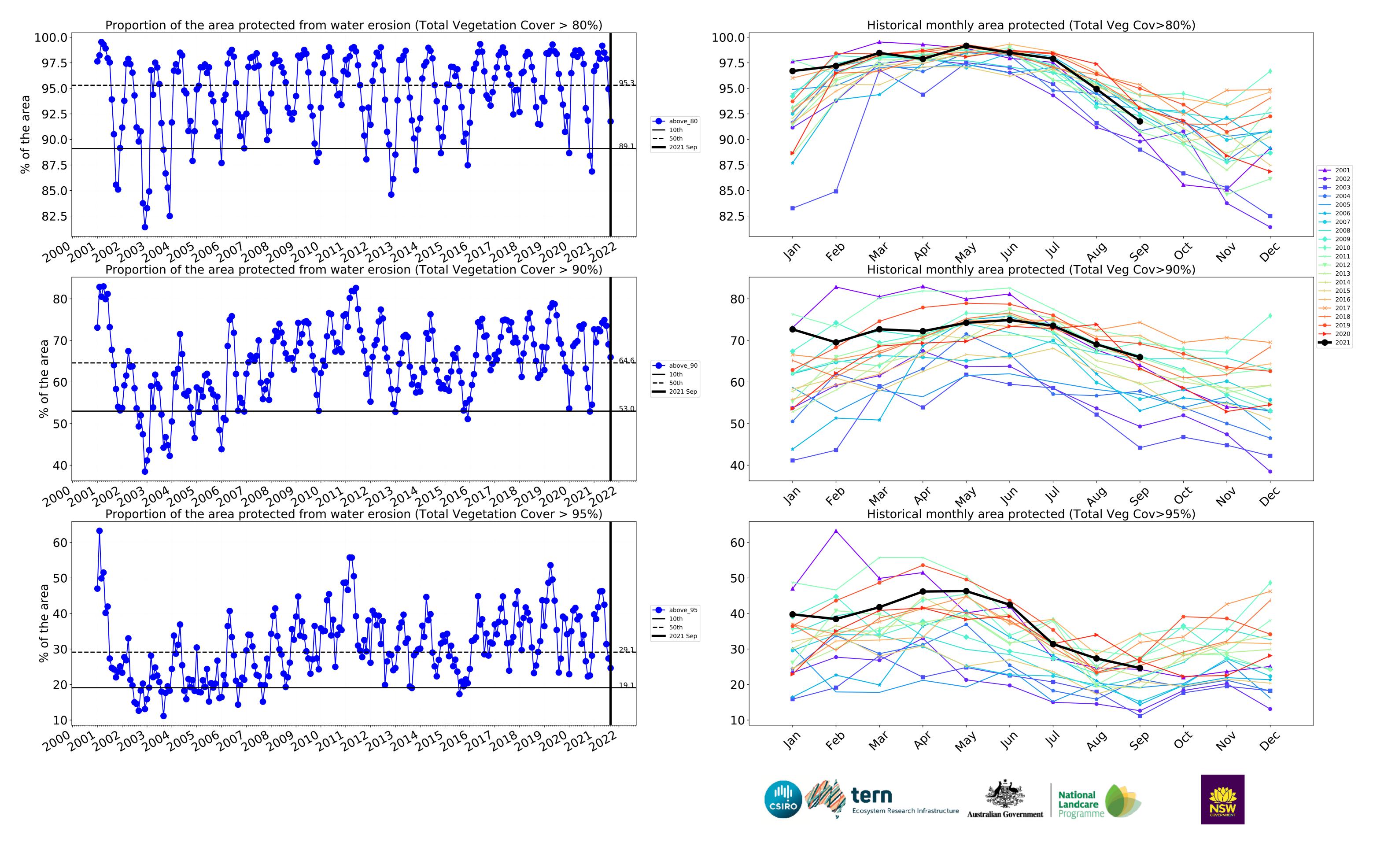




Agriculture timeseries







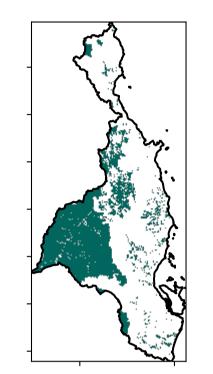
Grazing

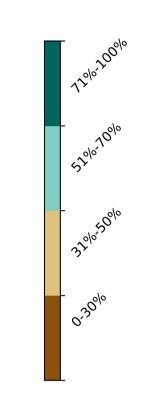
Land use and forest cover

1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest

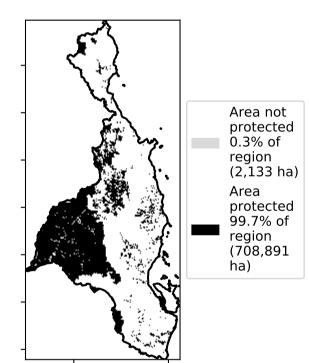
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]

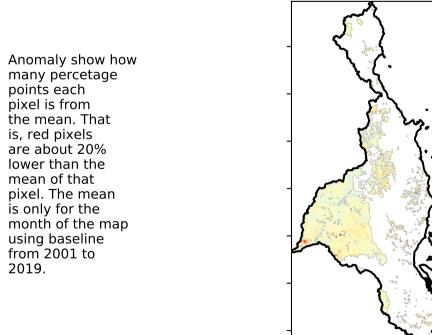


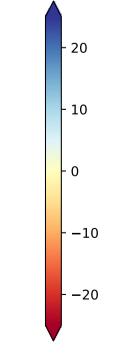


% Area protected from water erosion (>70%)



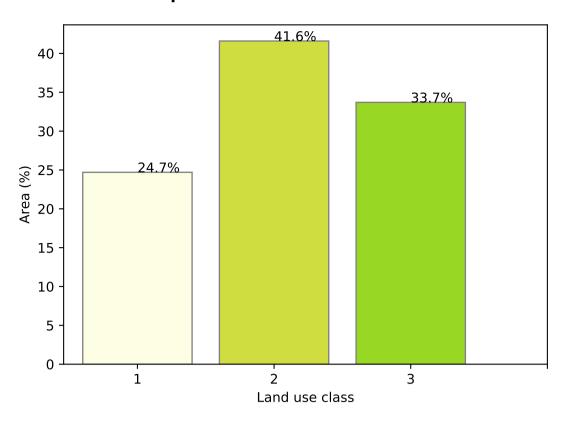
Total Vegetation Cover Anomaly [%]



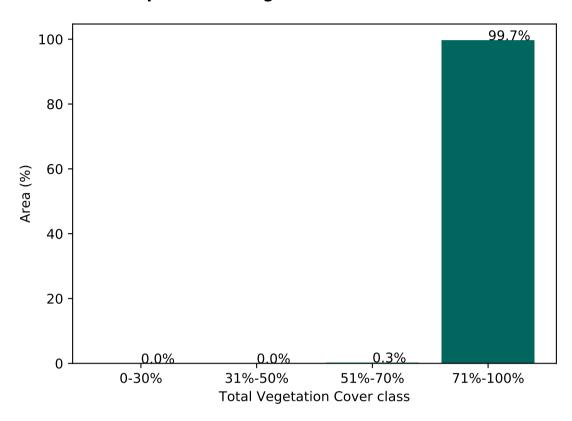


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline

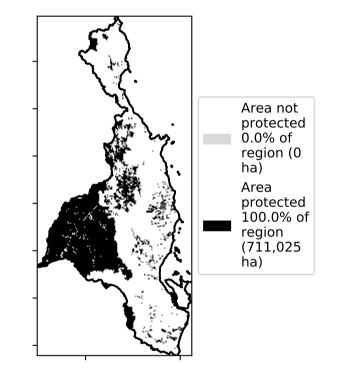
Proportion of each land class in area

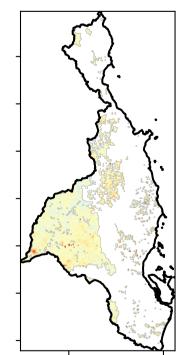


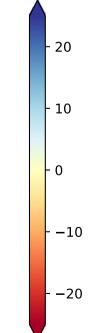
Proportion of vegetation cover class in area



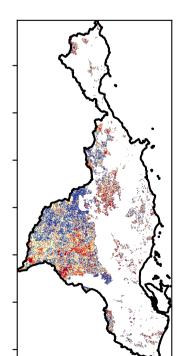
% Area protected from wind erosion (>50%)

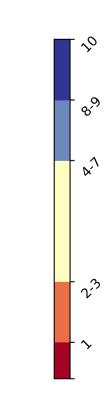






from 2001 to 2019.









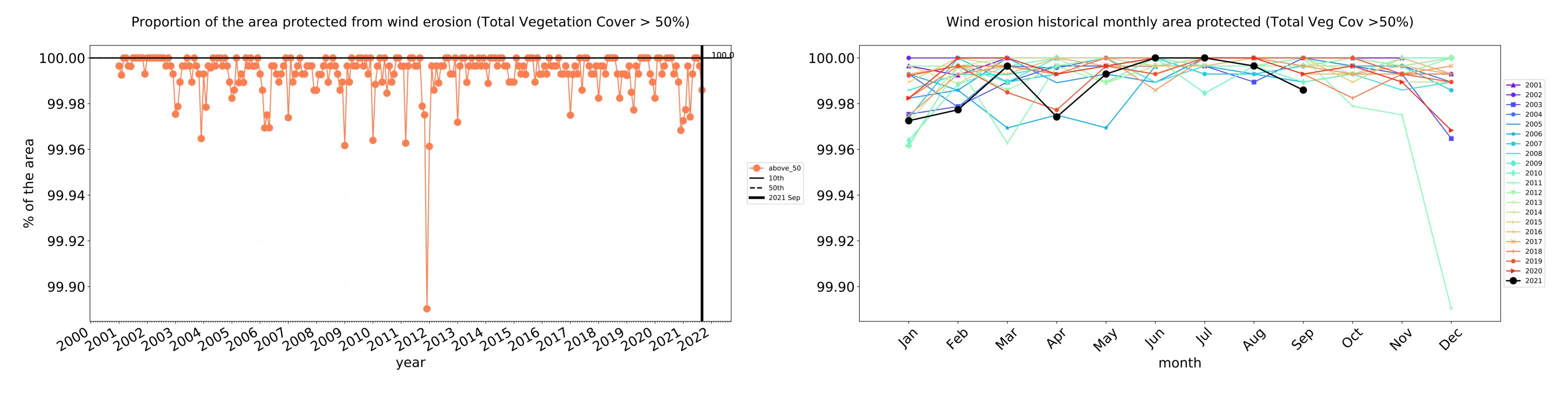


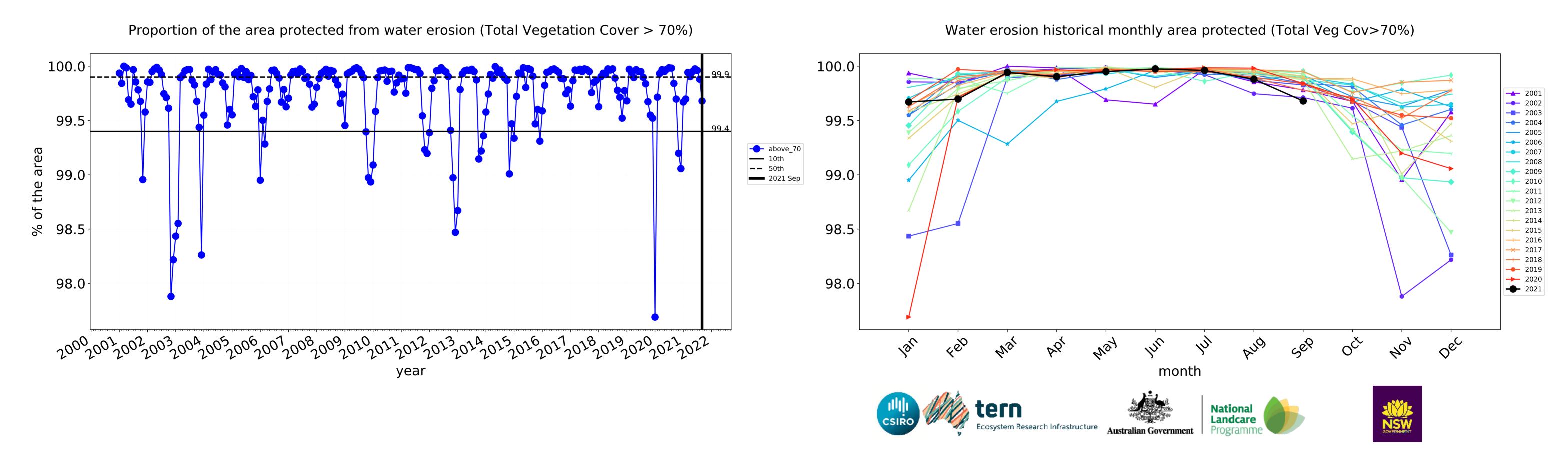


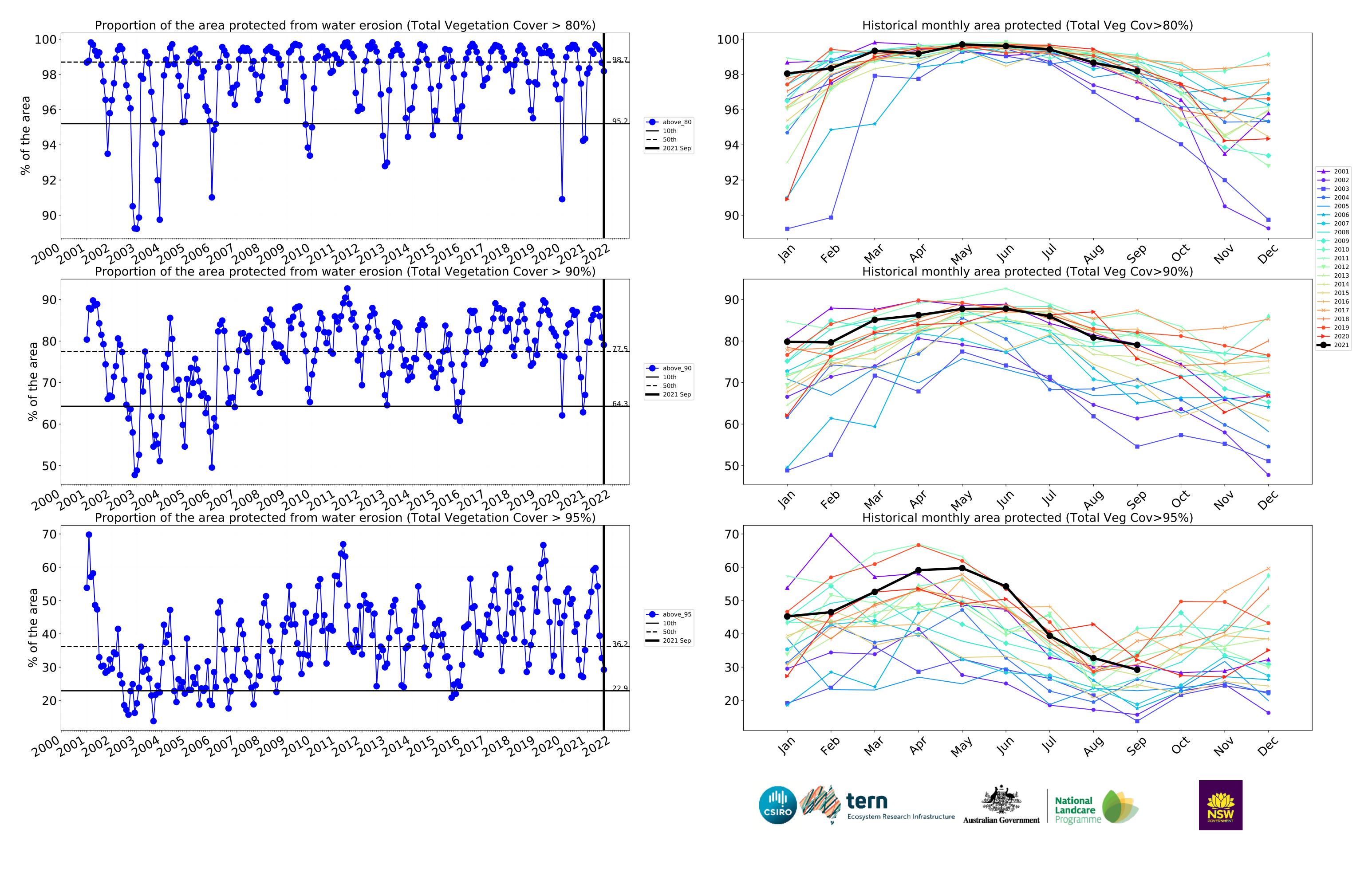




Grazing timeseries







Grazing non forest

Land use and forest cover

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

Anomaly show how many percetage points each

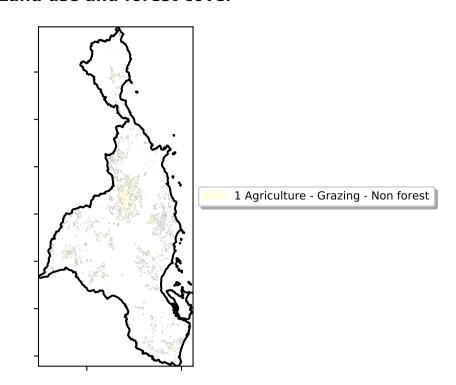
pixel is from

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

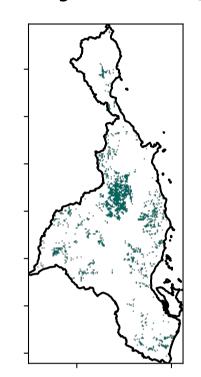
the mean. That

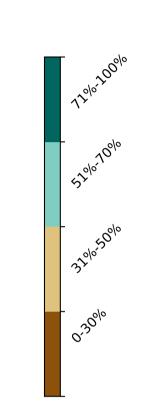
pixel. The mean is only for the month of the map using baseline

from 2001 to 2019.

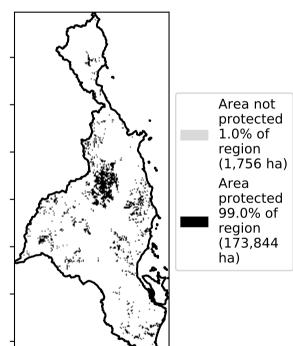


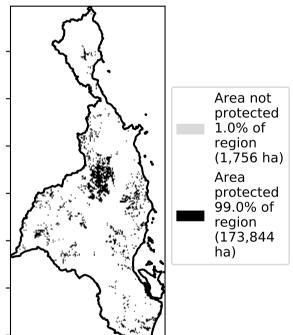
Total Vegetation Cover [%]



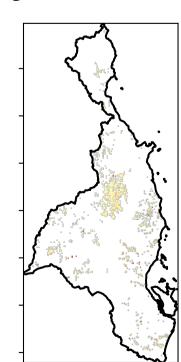


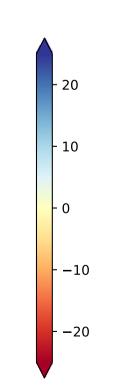
% Area protected from water erosion (>70%)





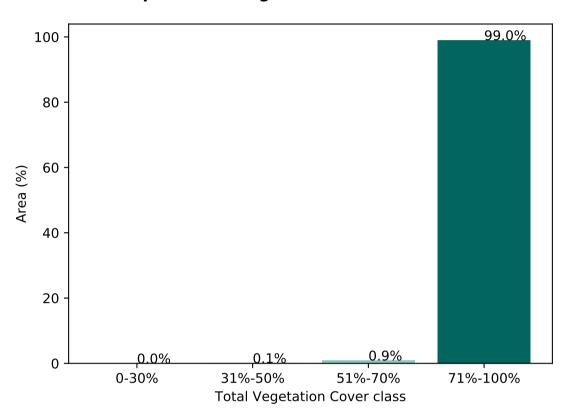
Total Vegetation Cover Anomaly [%]



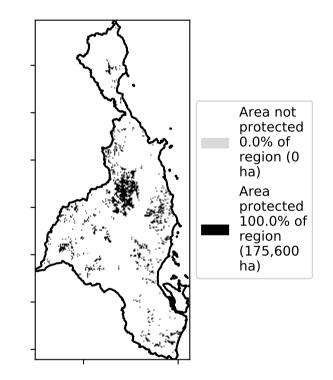


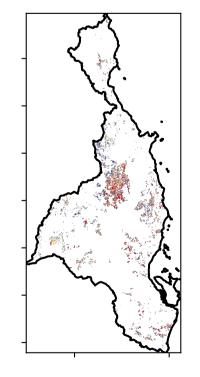
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

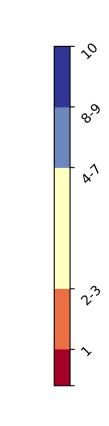
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)











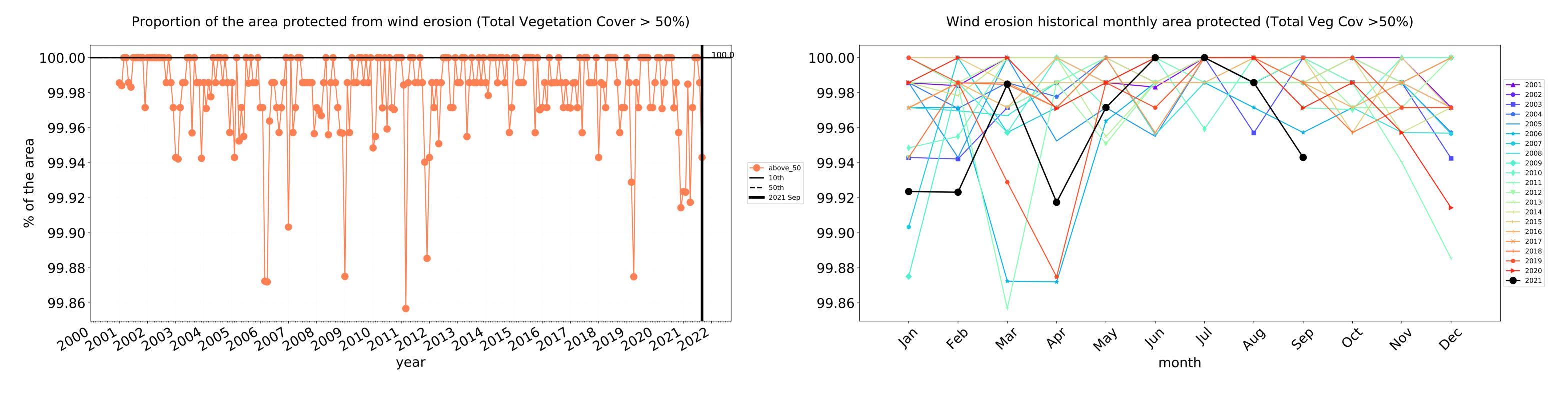


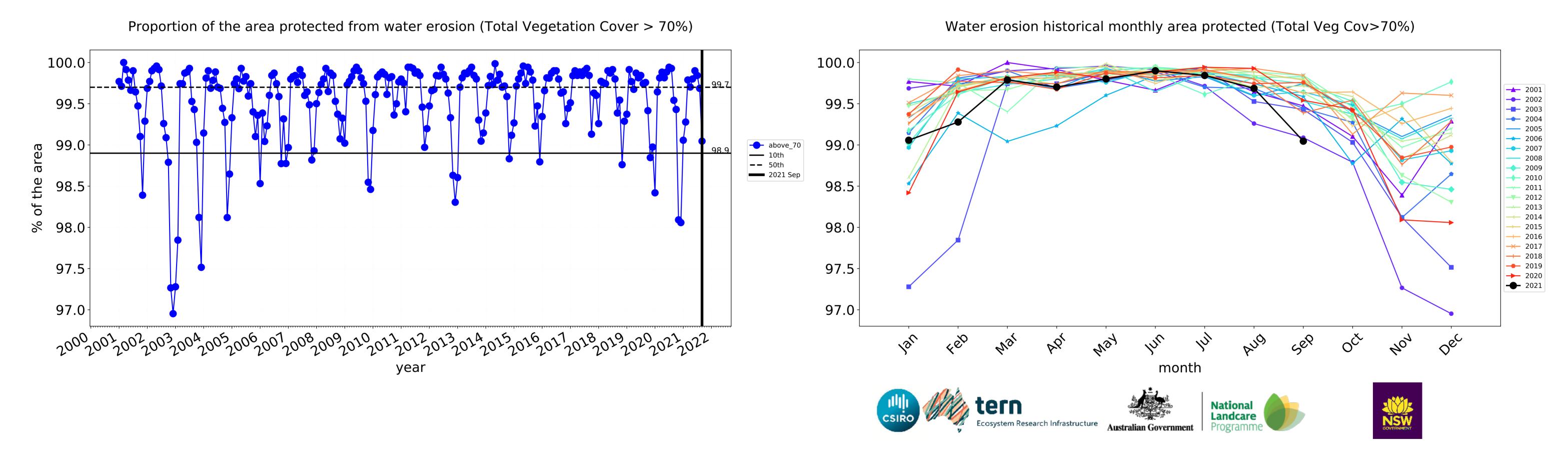


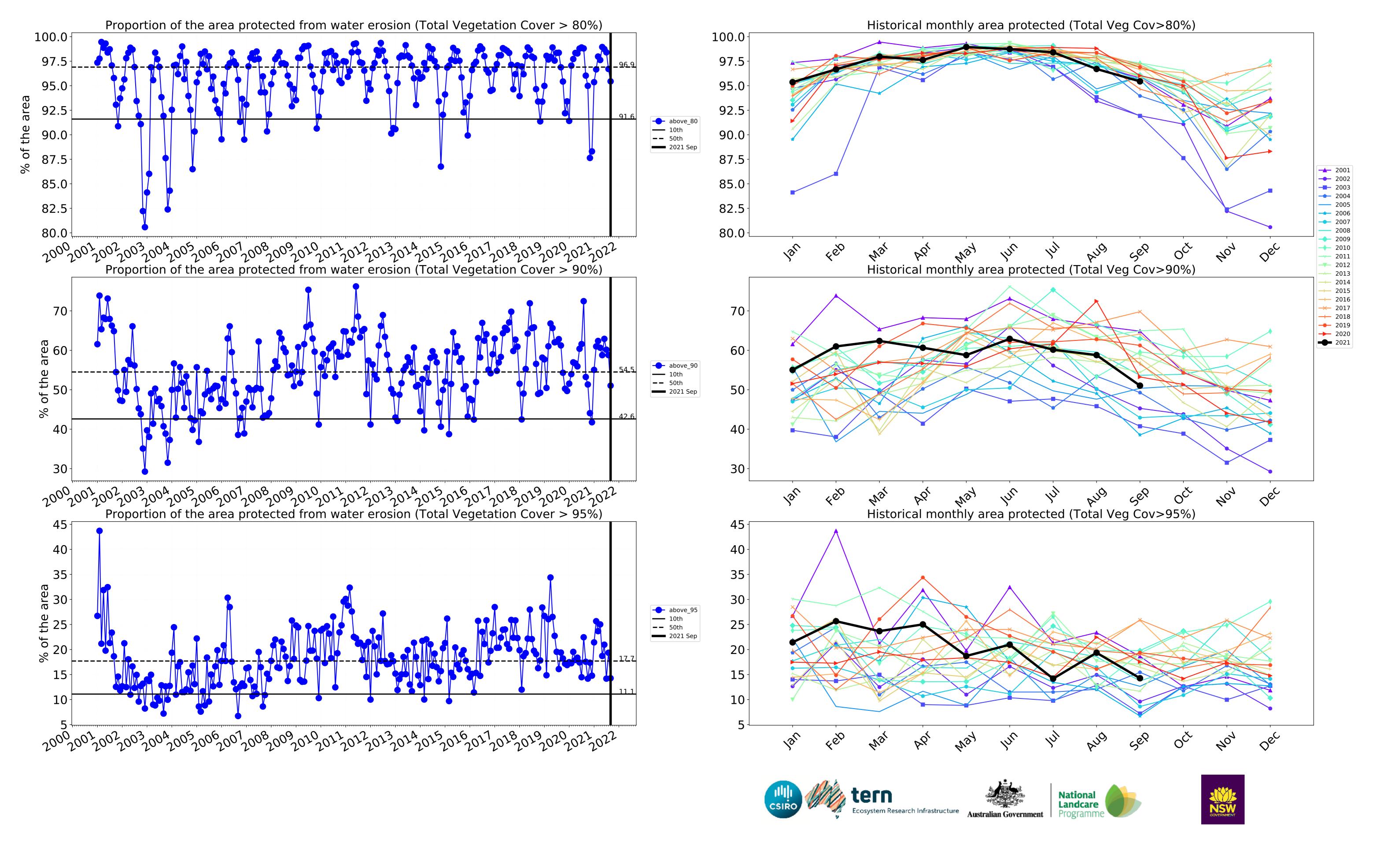




Grazing non forest timeseries







Grazing Woodland forest

Land use and forest cover

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

Anomaly show how many percetage points each

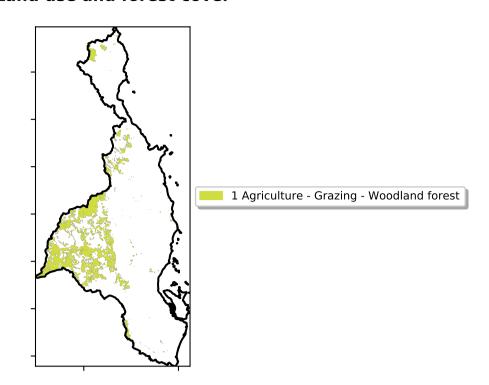
pixel is from

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

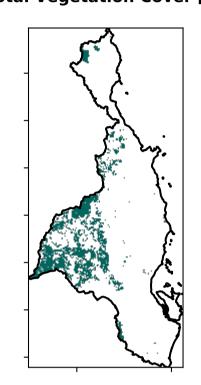
the mean. That

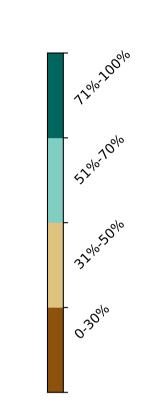
is only for the month of the map using baseline

from 2001 to 2019.

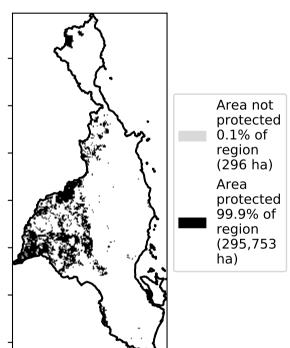


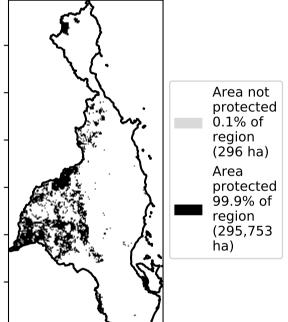
Total Vegetation Cover [%]



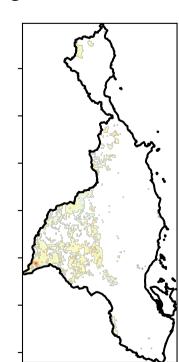


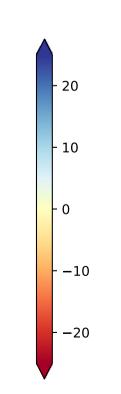
% Area protected from water erosion (>70%)





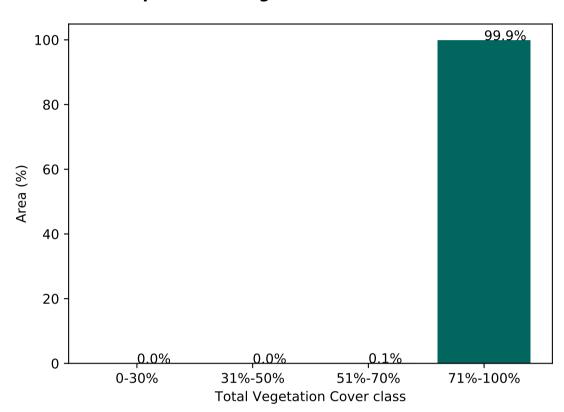
Total Vegetation Cover Anomaly [%]



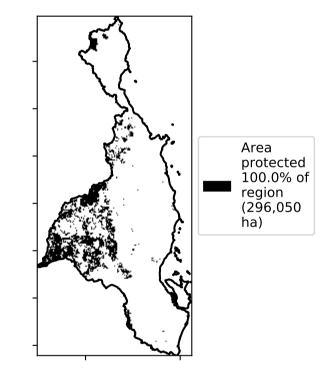


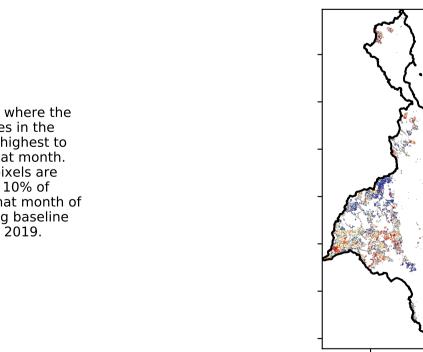
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

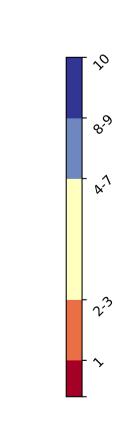
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)











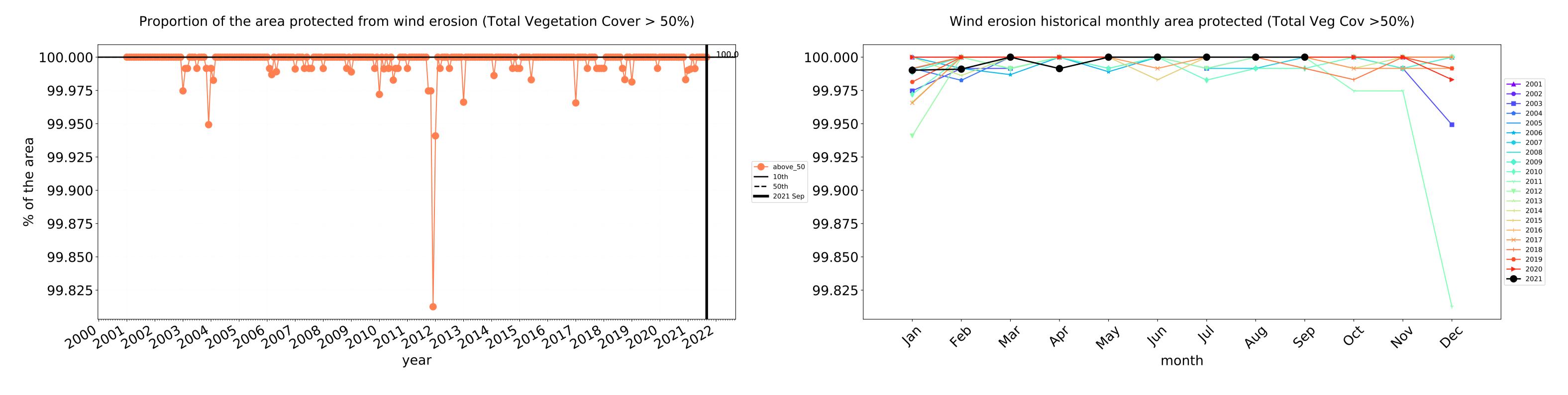


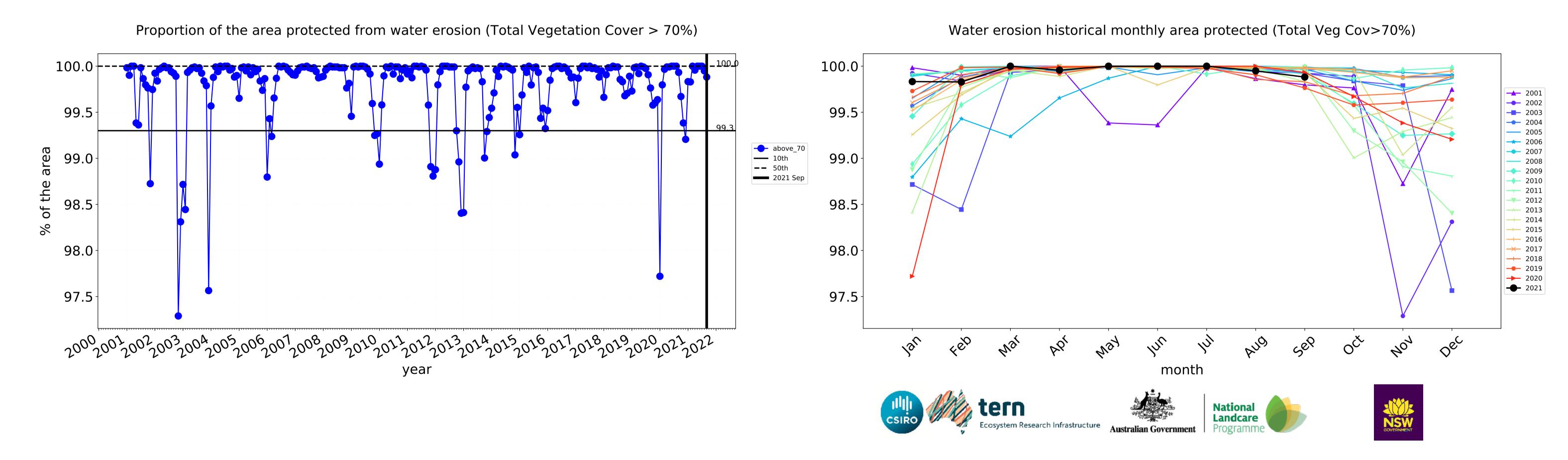


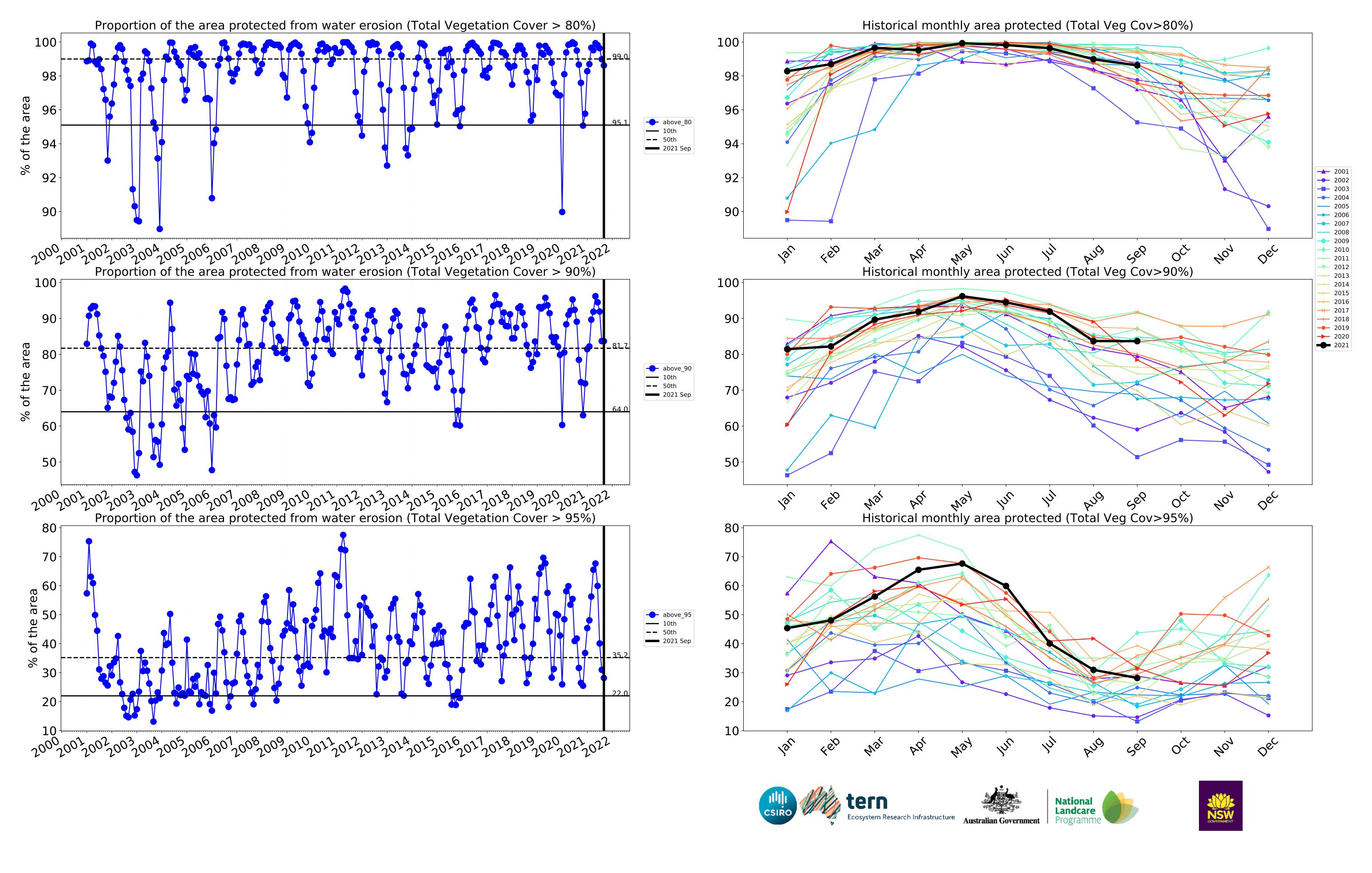




Grazing Woodland forest timeseries



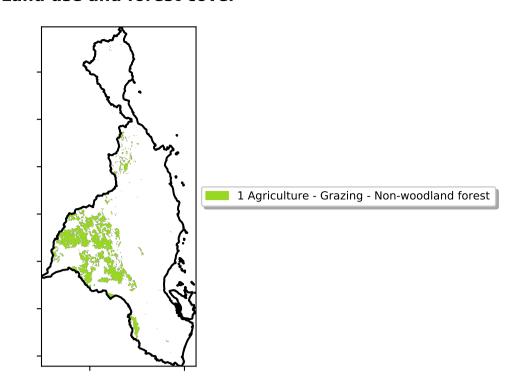




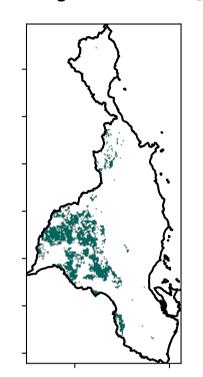
Grazing - Forest (non woodland)

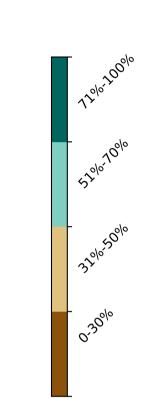
Land use and forest cover

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

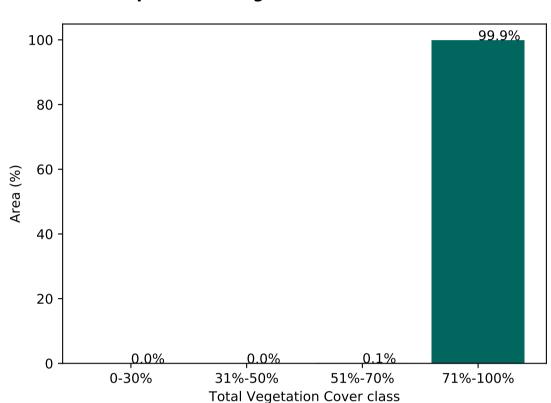


Total Vegetation Cover [%]

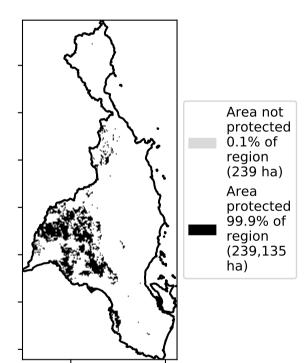




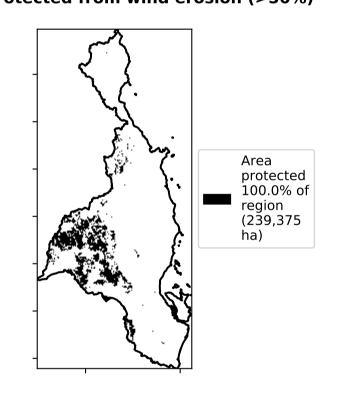
Proportion of vegetation cover class in area



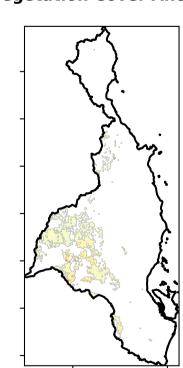
% Area protected from water erosion (>70%)

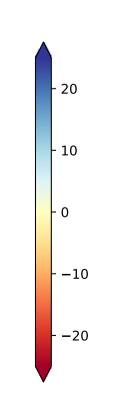


% Area protected from wind erosion (>50%)



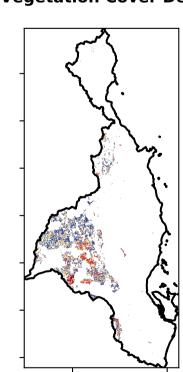
Total Vegetation Cover Anomaly [%]

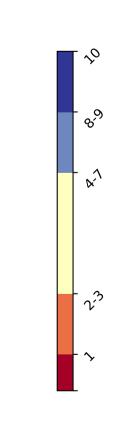




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]





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.

Anomaly show how many percetage points each

pixel is from

is, red pixels

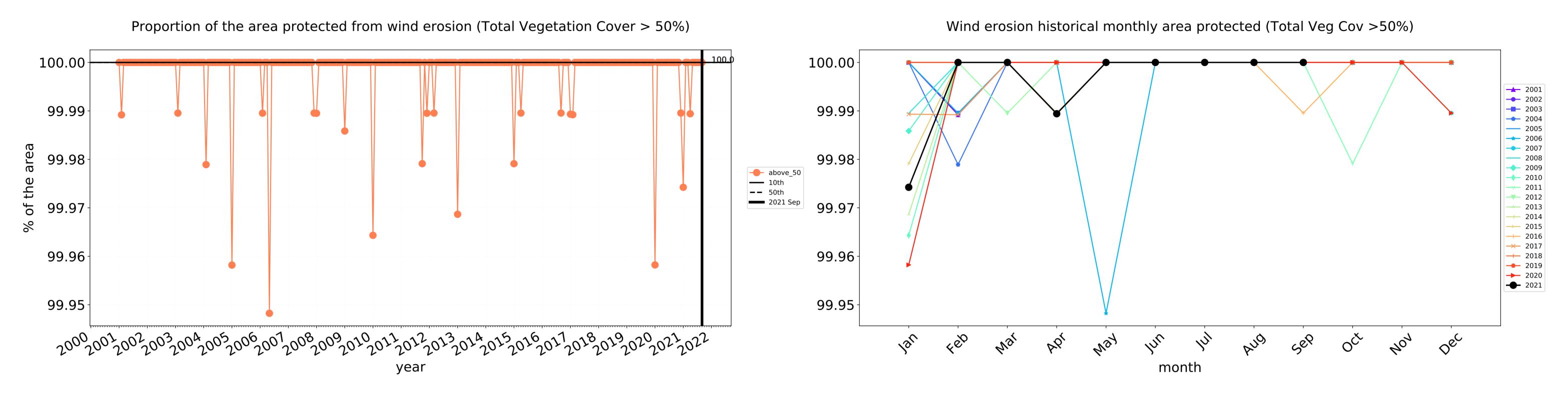
the mean. That

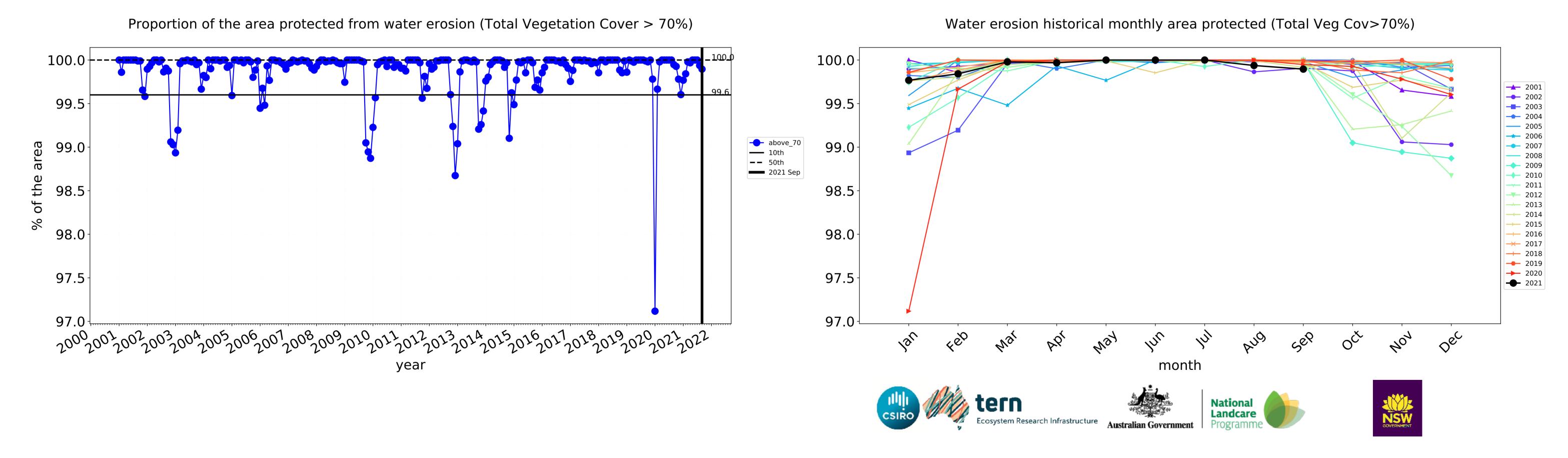


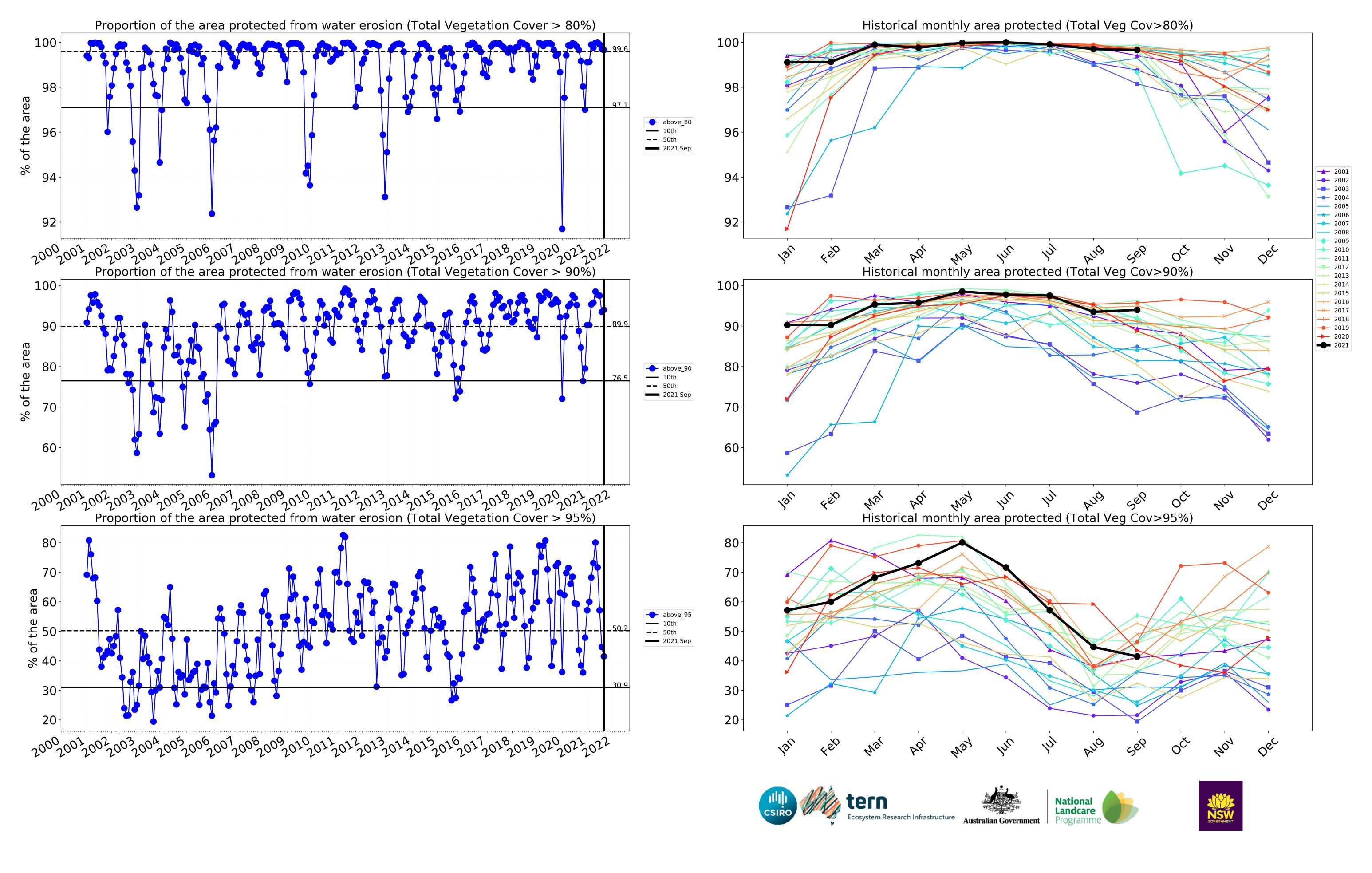












Cropping

Land use and forest cover

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

Anomaly show how many percetage points each

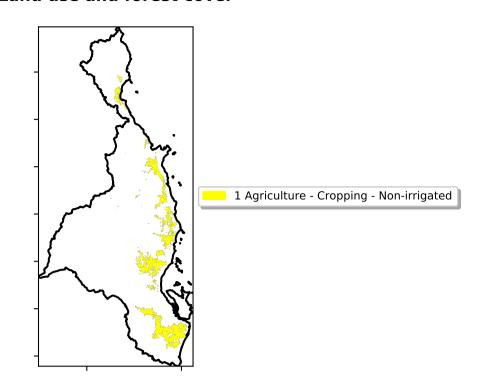
pixel is from

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

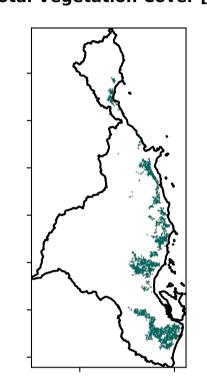
the mean. That

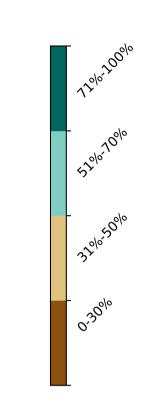
is only for the month of the map using baseline

from 2001 to 2019.

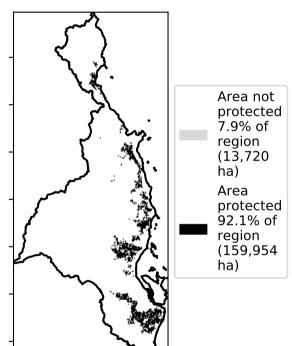


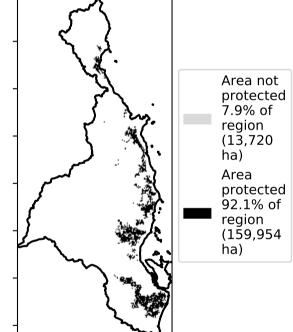
Total Vegetation Cover [%]



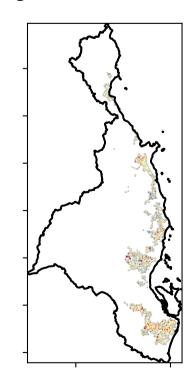


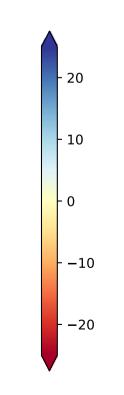
% Area protected from water erosion (>70%)





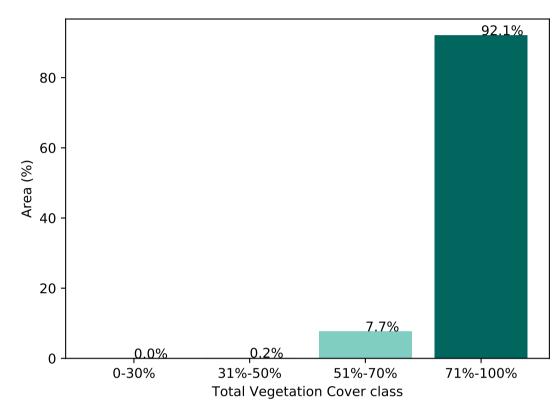
Total Vegetation Cover Anomaly [%]



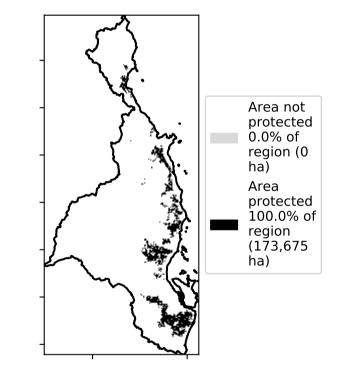


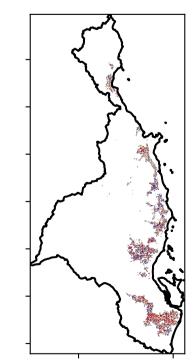
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

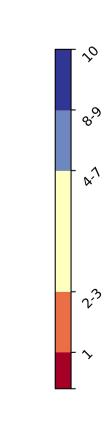
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)











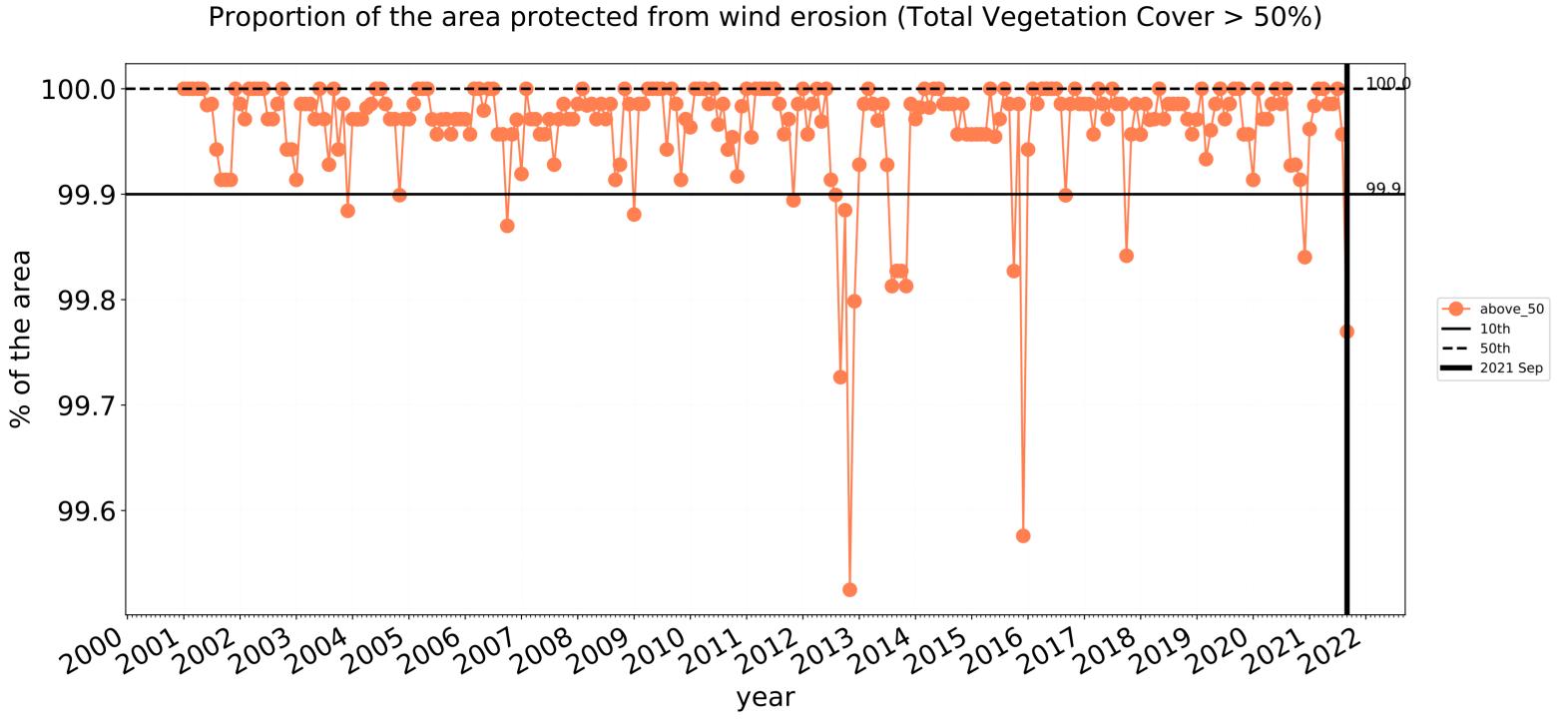


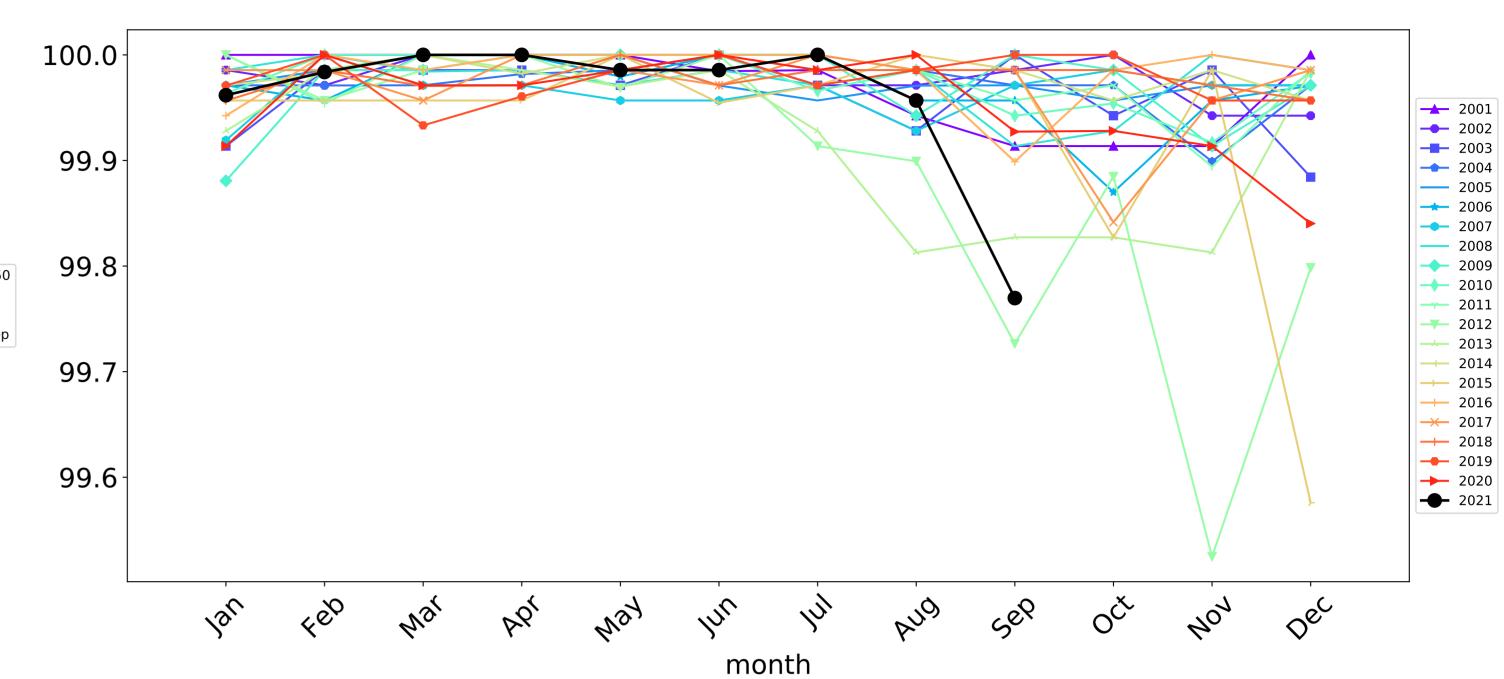




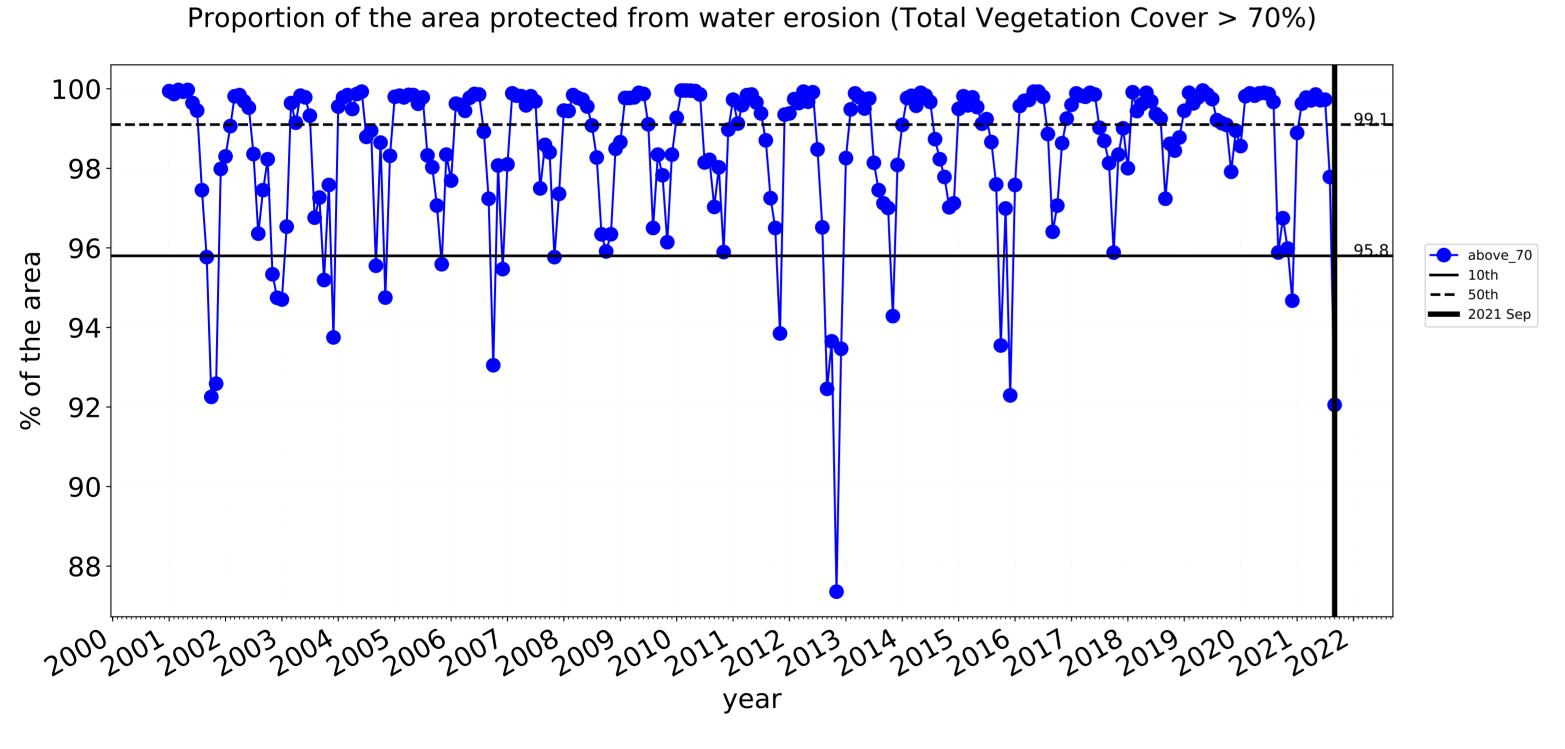


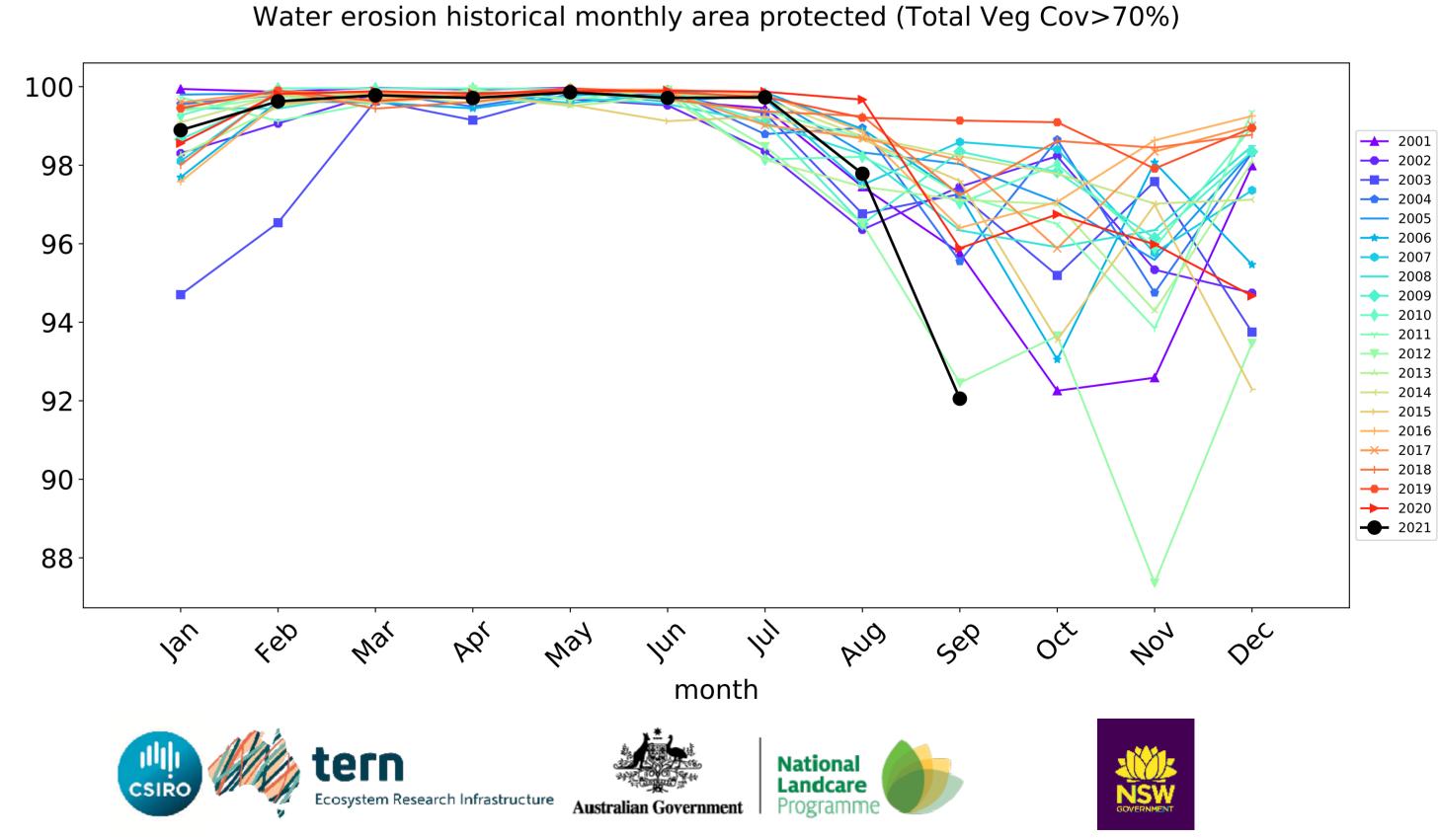
Cropping timeseries

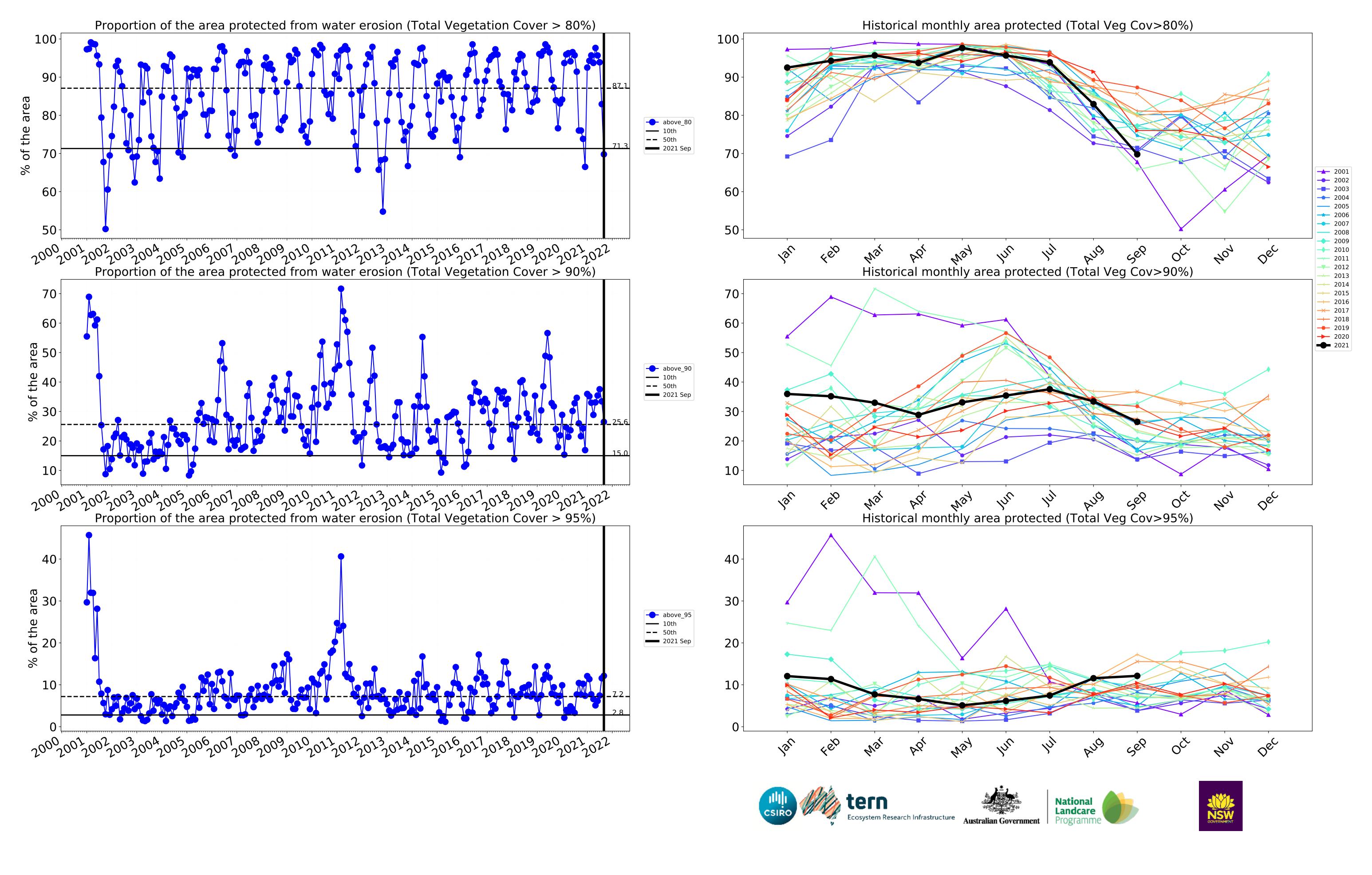




Wind erosion historical monthly area protected (Total Veg Cov >50%)







Irrigation

Land use and forest cover

1 Agriculture - Grazing - Irrigated 2 Agriculture - Cropping - Irrigated 3 Agriculture - Horticulture - Irrigated

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

Anomaly show how many percetage points each

pixel is from

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

the mean. That

pixel. The mean

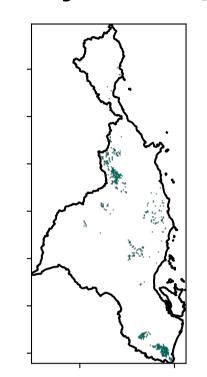
using baseline from 2001 to 2019.

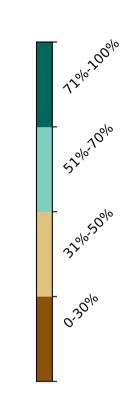
is only for the month of the map

Catchment Scale

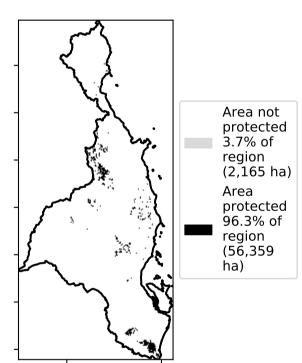
Land Use and Forests of Australia (2018)

Total Vegetation Cover [%]

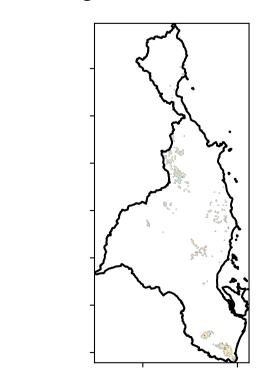


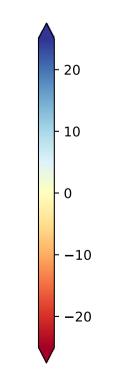


% Area protected from water erosion (>70%)



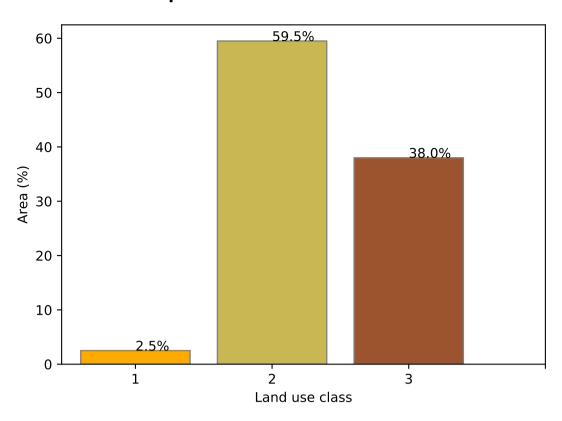
Total Vegetation Cover Anomaly [%]



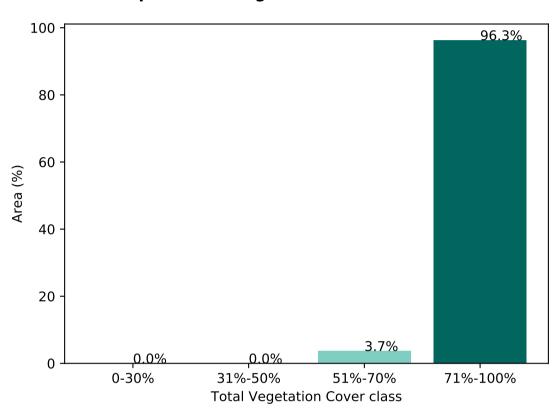


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

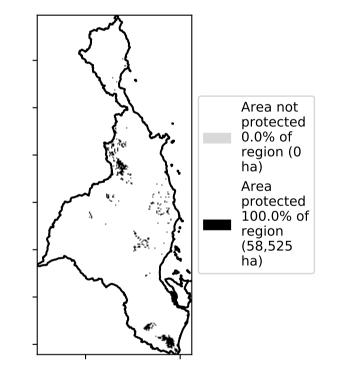
Proportion of each land class in area

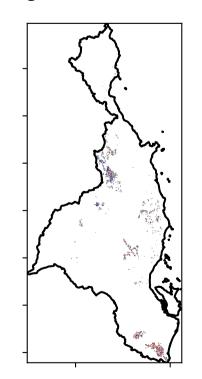


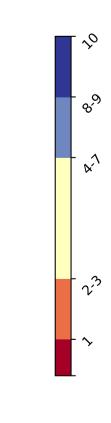
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)











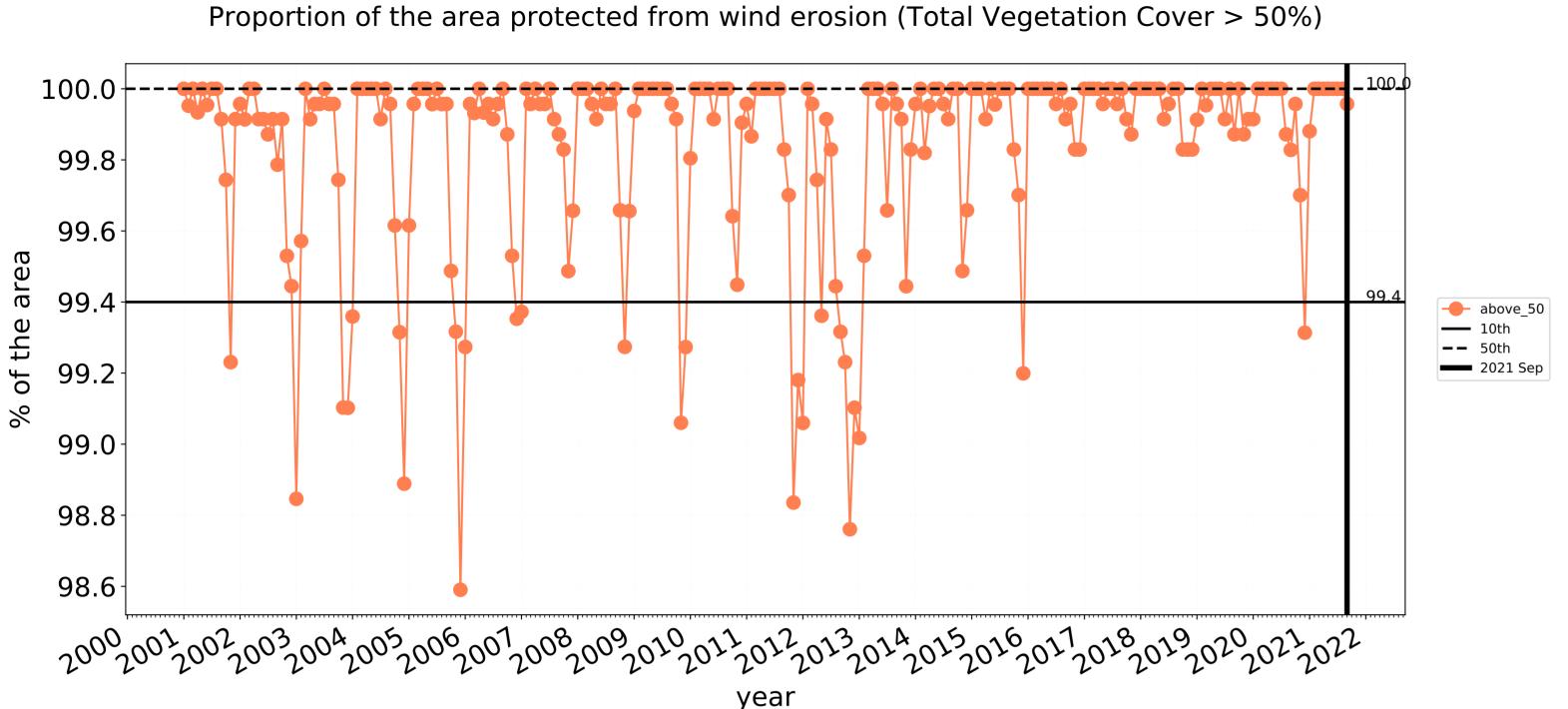


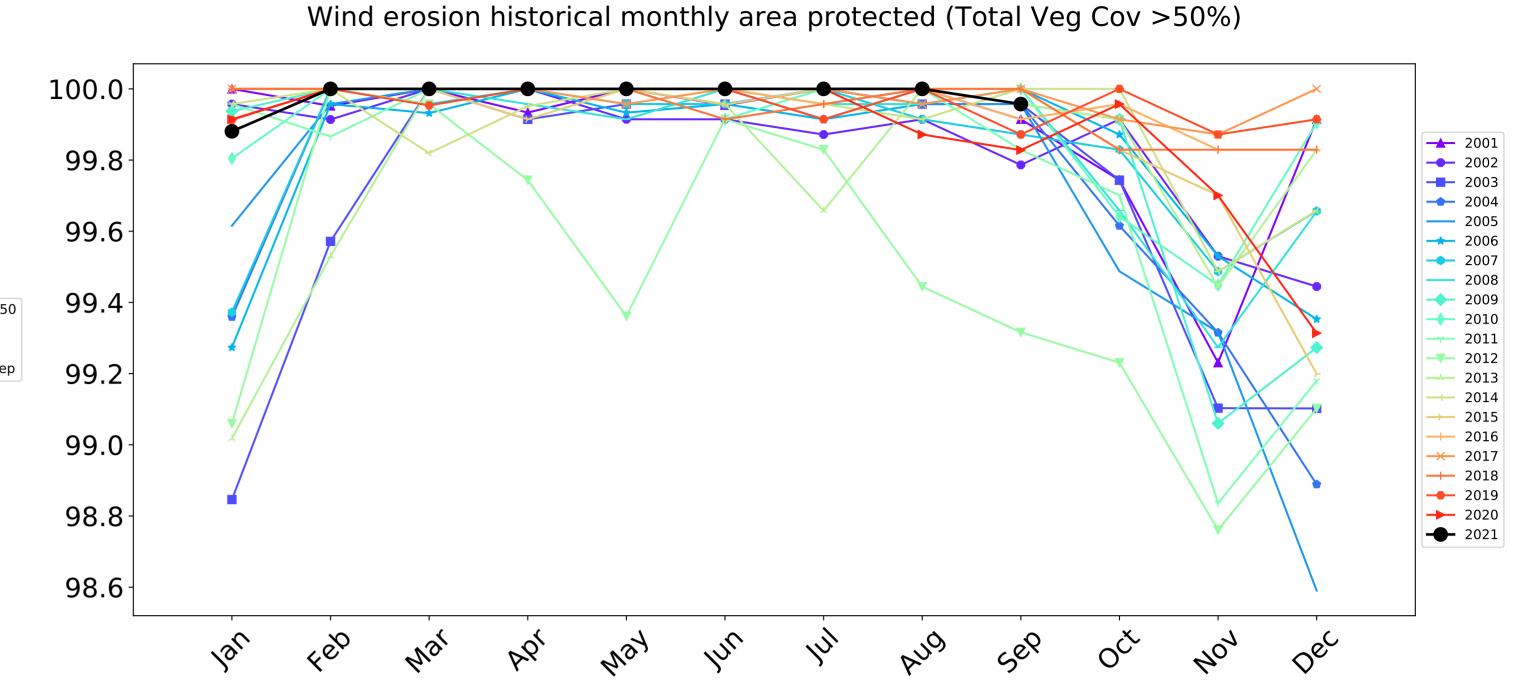




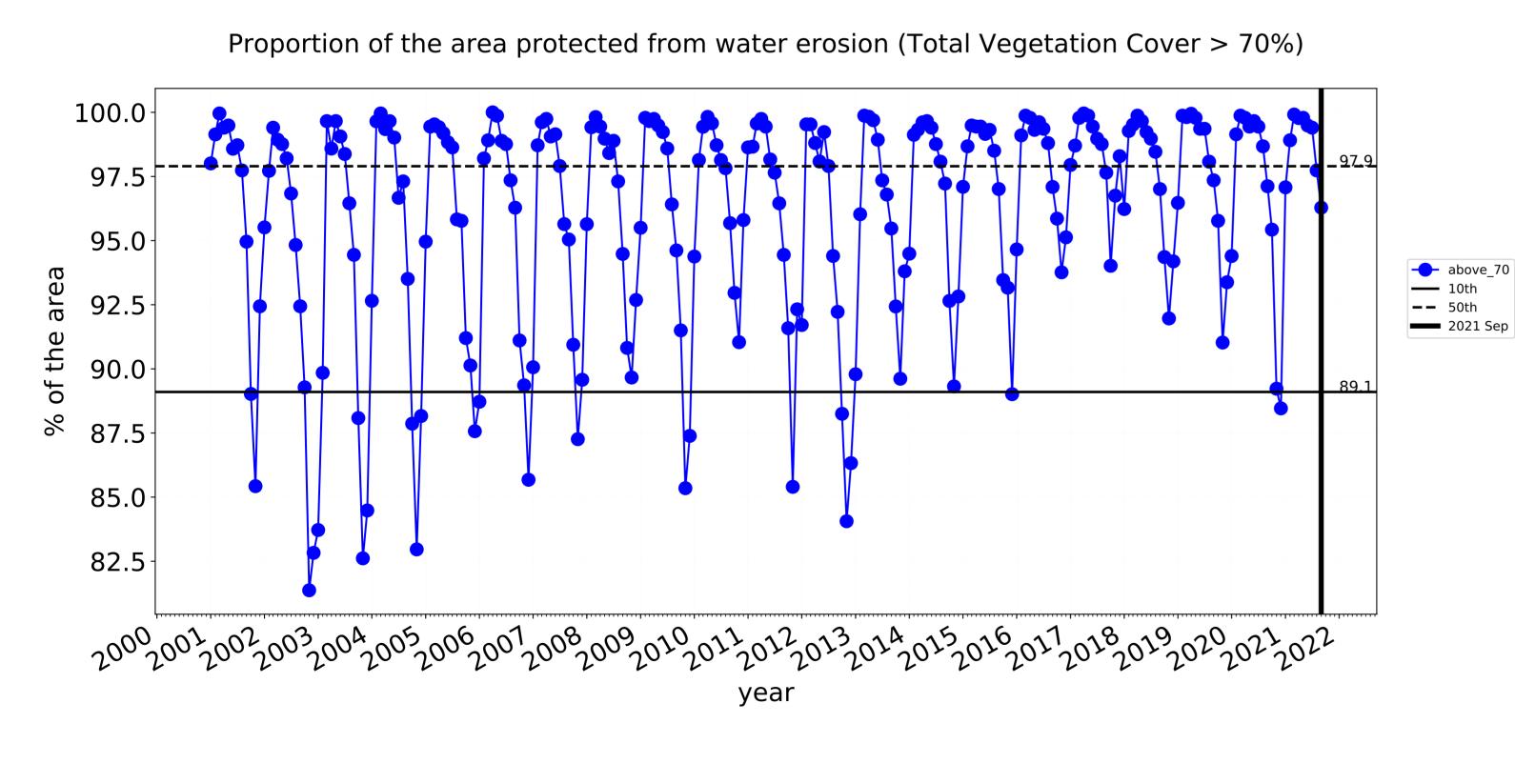


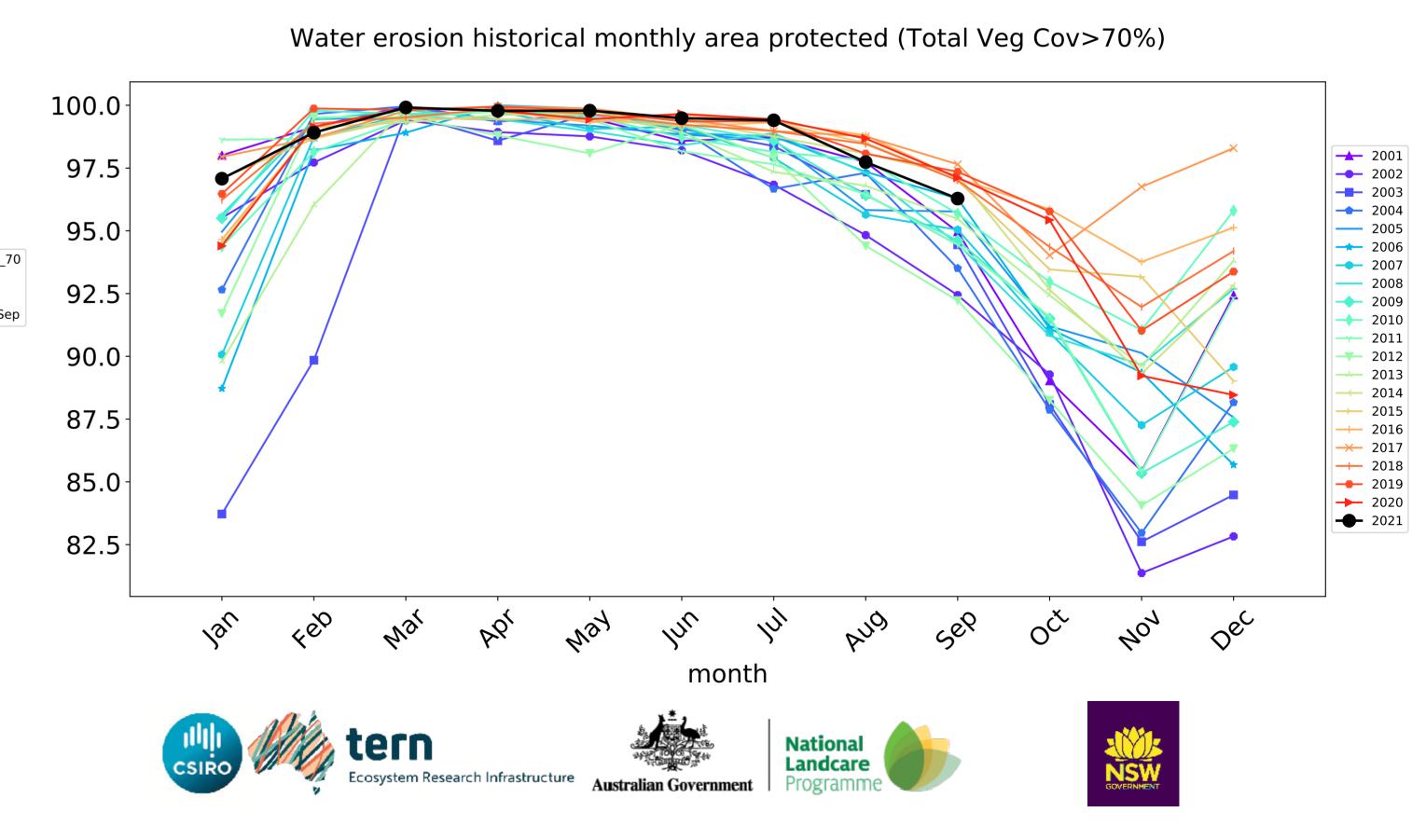
Irrigation timeseries

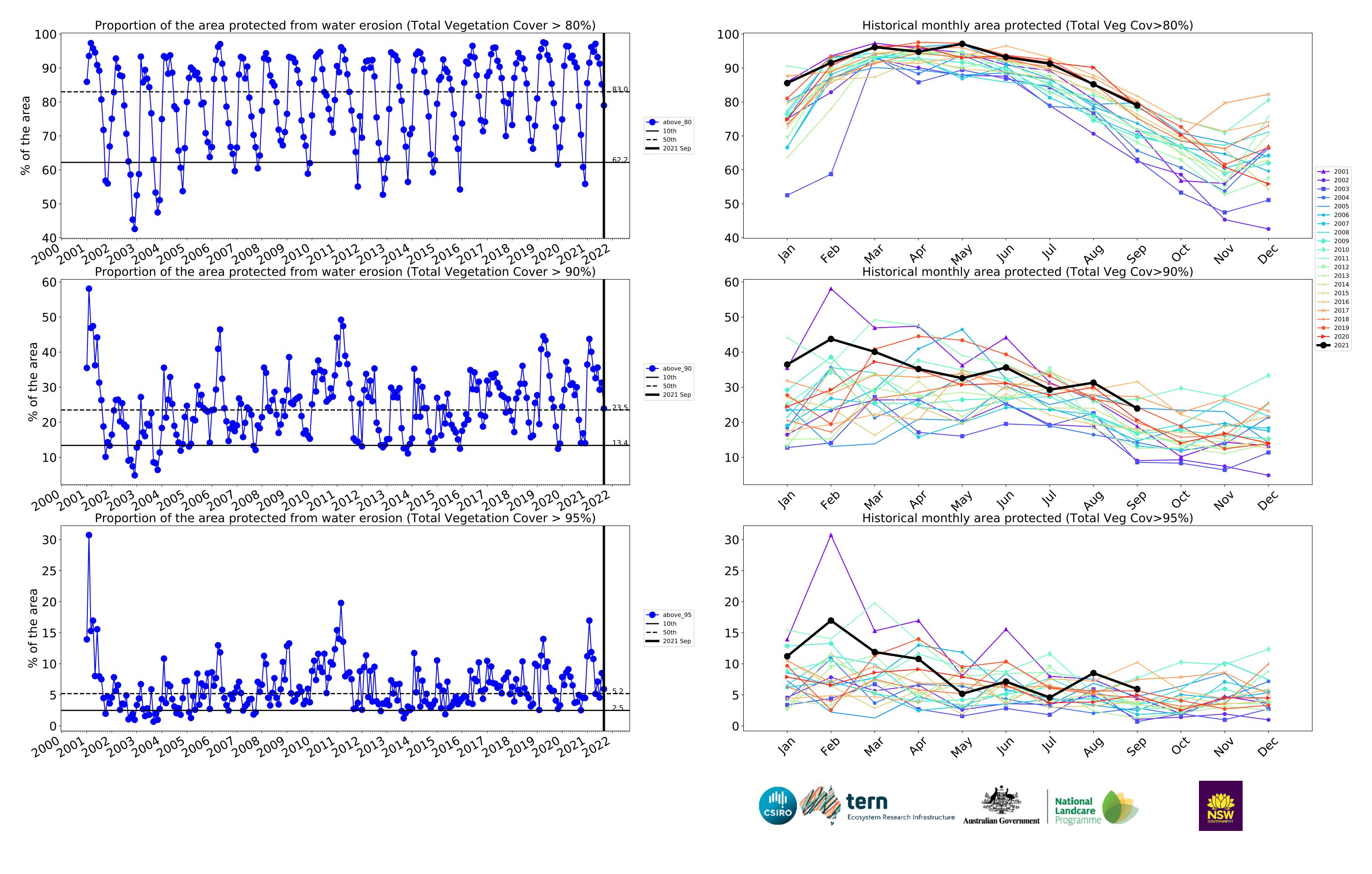




month



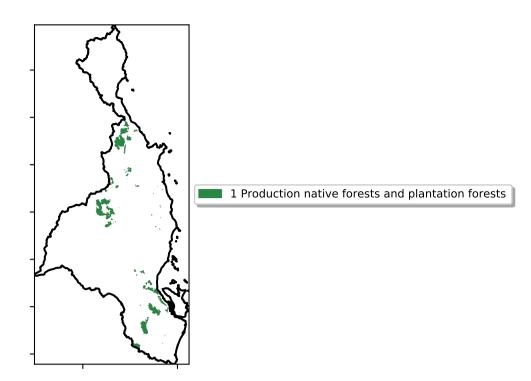




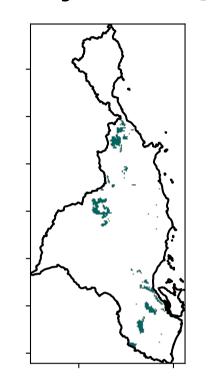
Production native forests and plantation forests

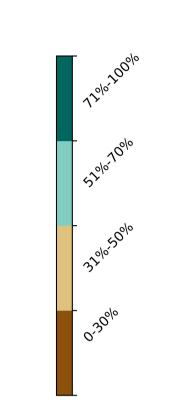
Land use and forest cover

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

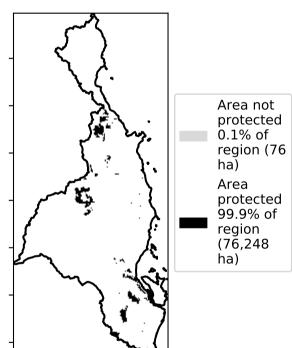


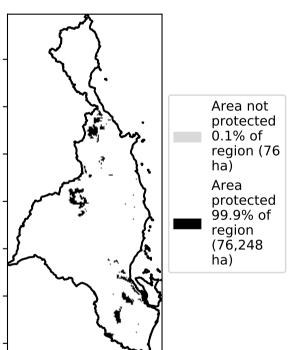
Total Vegetation Cover [%]



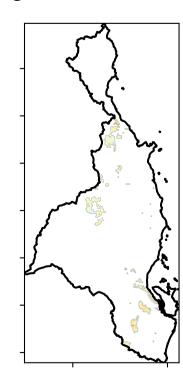


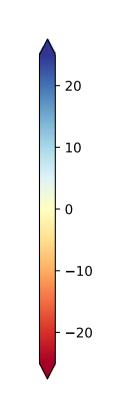
% Area protected from water erosion (>70%)





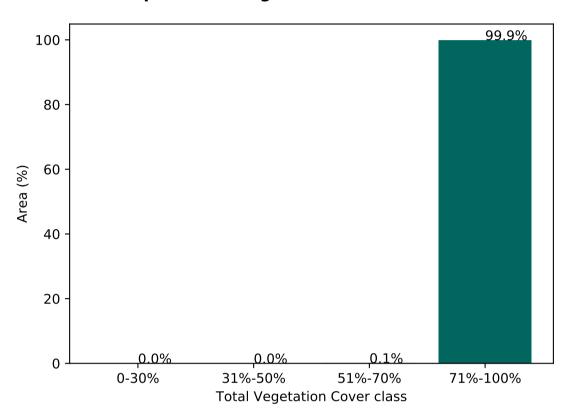
Total Vegetation Cover Anomaly [%]



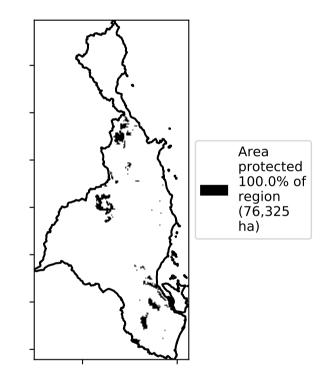


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

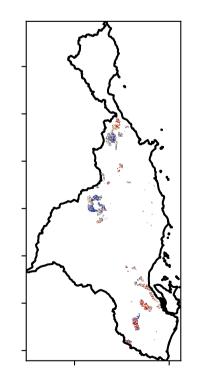
Proportion of vegetation cover class in area

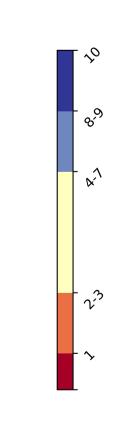


% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]





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.

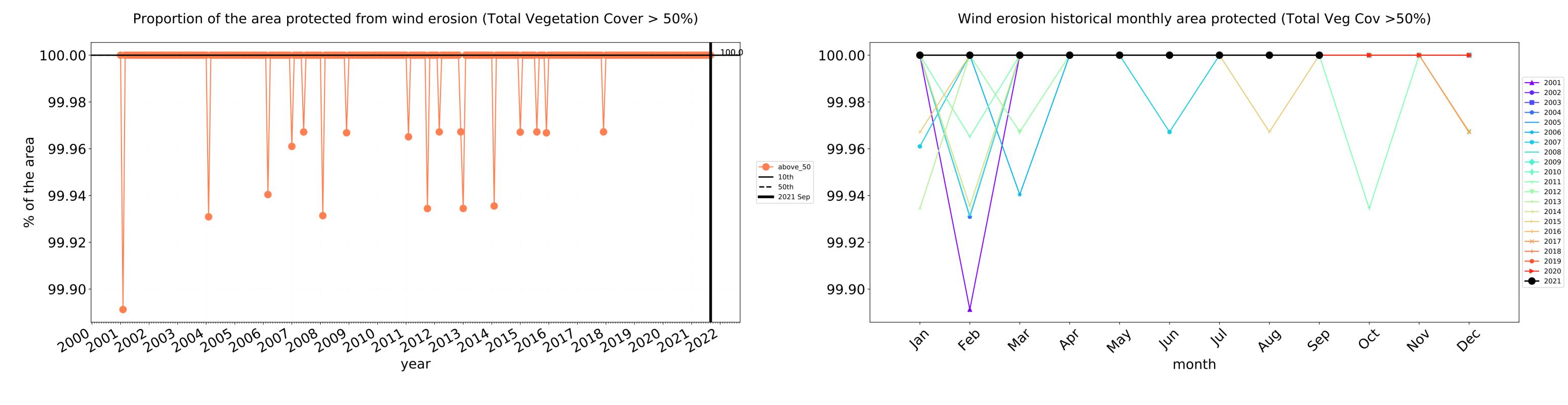


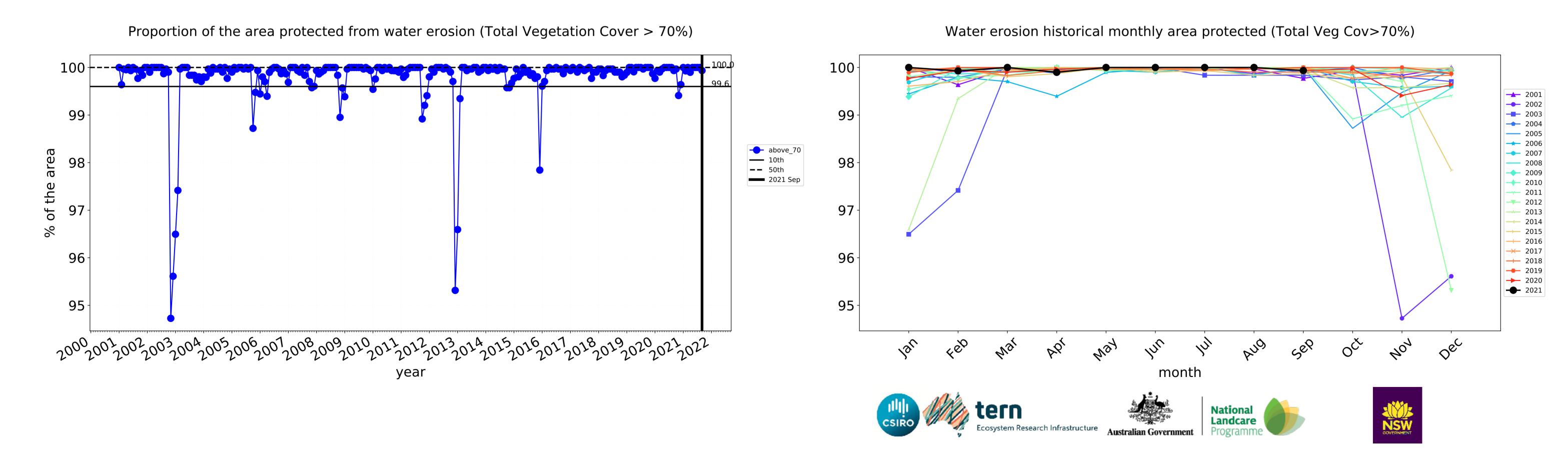


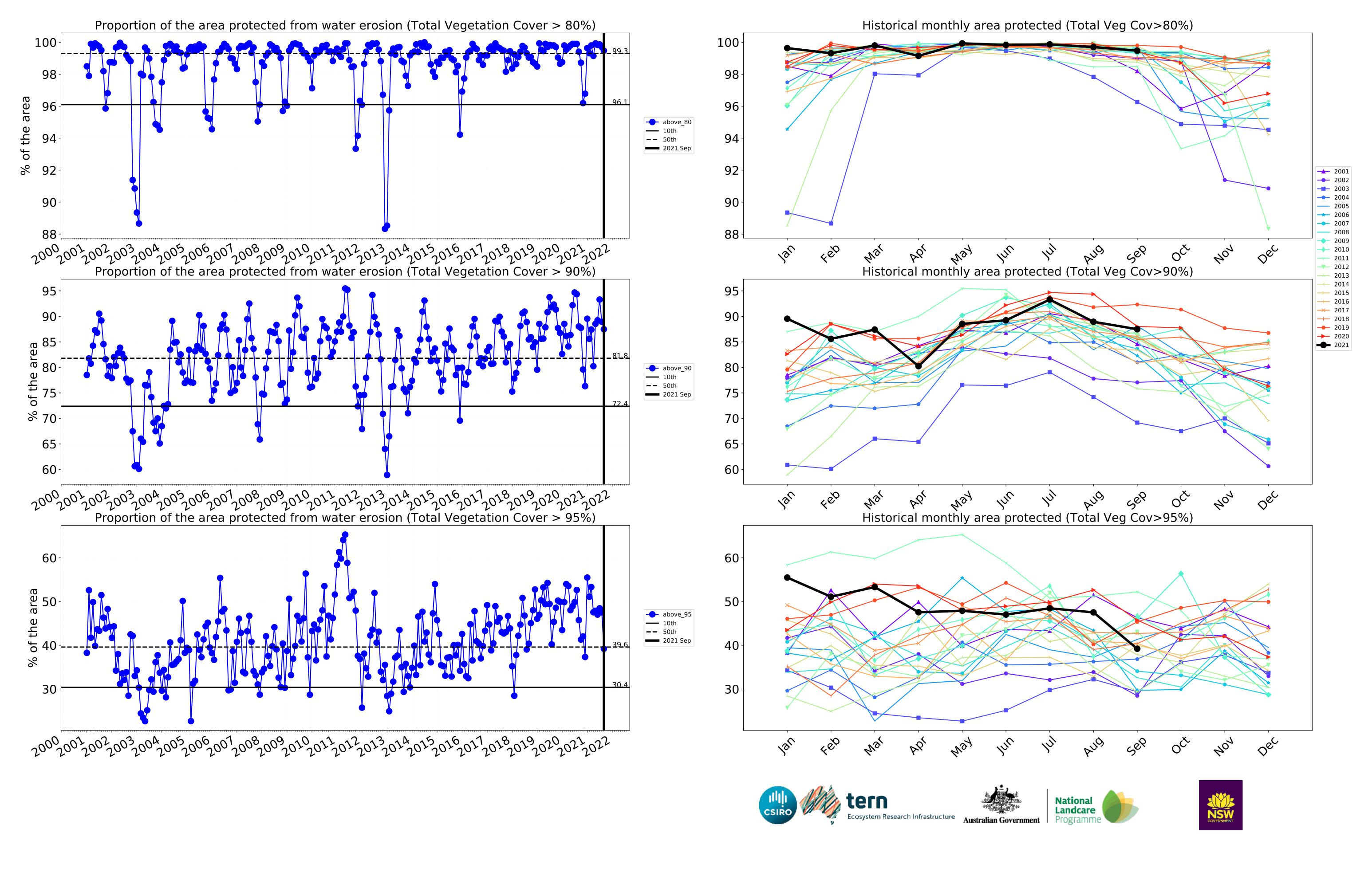




Production native forests and plantation forests timeseries







Wet Tropics (2,210,950 ha and no data 13,294 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	2,210,950	100.0% 2,209,925	99.8% 2,207,000	98.4% 2,176,075	94.5% 2,089,575	74.1% 1,638,725	32.8% 725,825
Conservation and natural environments	1,076,400	100.0% 1,075,975	99.8% 1,074,550	99.4% 1,069,900	98.4% 1,059,475	84.0% 904,475	41.8% 449,775
Conservation and natural environments Woodland forest	137,925	100.0% 137,875	99.9% 137,775	99.6% 137,400	99.0% 136,550	90.6% 125,025	56.3% 77,700
Conservation and natural environments Forest (non woodland)	927,200	100.0% 926,850	99.8% 925,625	99.4% 921,700	98.5% 912,850	83.3% 772,550	39.8% 368,925
Agriculture	943,275	100.0% 943,275	99.9% 942,750	98.1% 925,000	91.8% 865,575	66.0% 622,275	24.6% 232,350
Grazing	711,025	100.0% 711,025	100.0% 710,925	99.7% 708,750	98.2% 698,125	79.1% 562,300	29.2% 207,800
Grazing non forest	175,600	100.0% 175,600	99.9% 175,500	99.0% 173,925	95.4% 167,600	51.0% 89,625	14.3% 25,050
Grazing Woodland forest	296,050	100.0% 296,050	100.0% 296,050	99.9% 295,700	98.6% 291,975	83.7% 247,700	28.2% 83,375
Grazing - Forest (non woodland)	239,375	100.0% 239,375	100.0% 239,375	99.9% 239,125	99.7% 238,550	94.0% 224,975	41.5% 99,375
Cropping	173,675	100.0% 173,675	99.8% 173,275	92.1% 159,875	69.8% 121,200	26.5% 45,975	12.1% 21,075
Irrigation	58,525	100.0% 58,525	100.0% 58,500	96.3% 56,350	79.0% 46,225	23.9% 14,000	5.9% 3,475
Production native forests and plantation forests	76,325	100.0% 76,325	100.0% 76,325	99.9% 76,275	99.5% 75,925	87.5% 66,775	39.2% 29,925







