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

Date: December 2019

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:

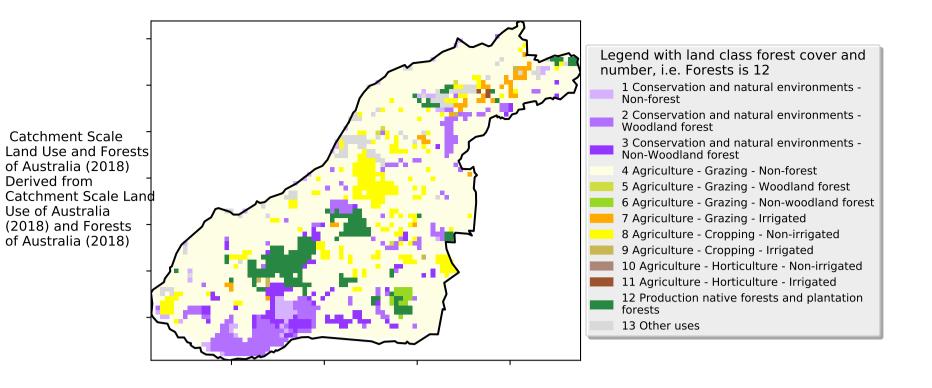
https://doi.org/10.4225/08/5848a3f19a7b3



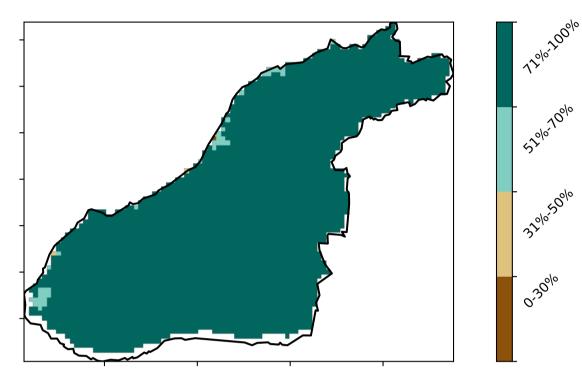
Vegetation Cover Dec 2019

Land use and forest cover



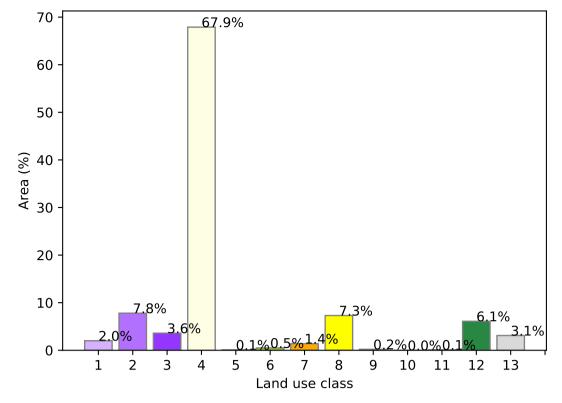


Total Vegetation Cover [%]

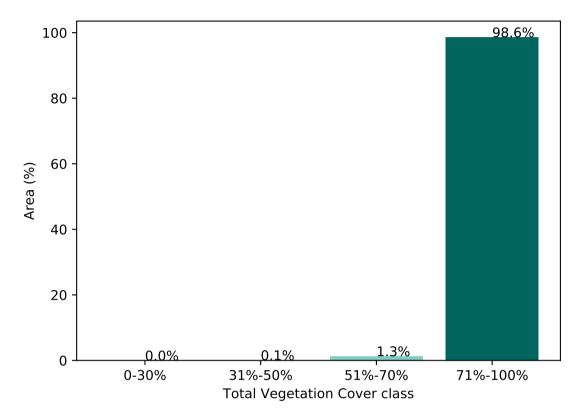


% Area protected from water erosion (>70%)





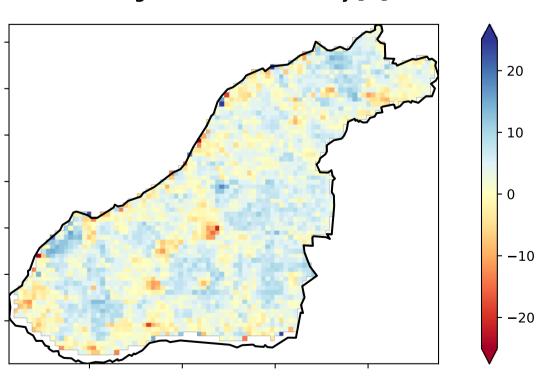
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



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.

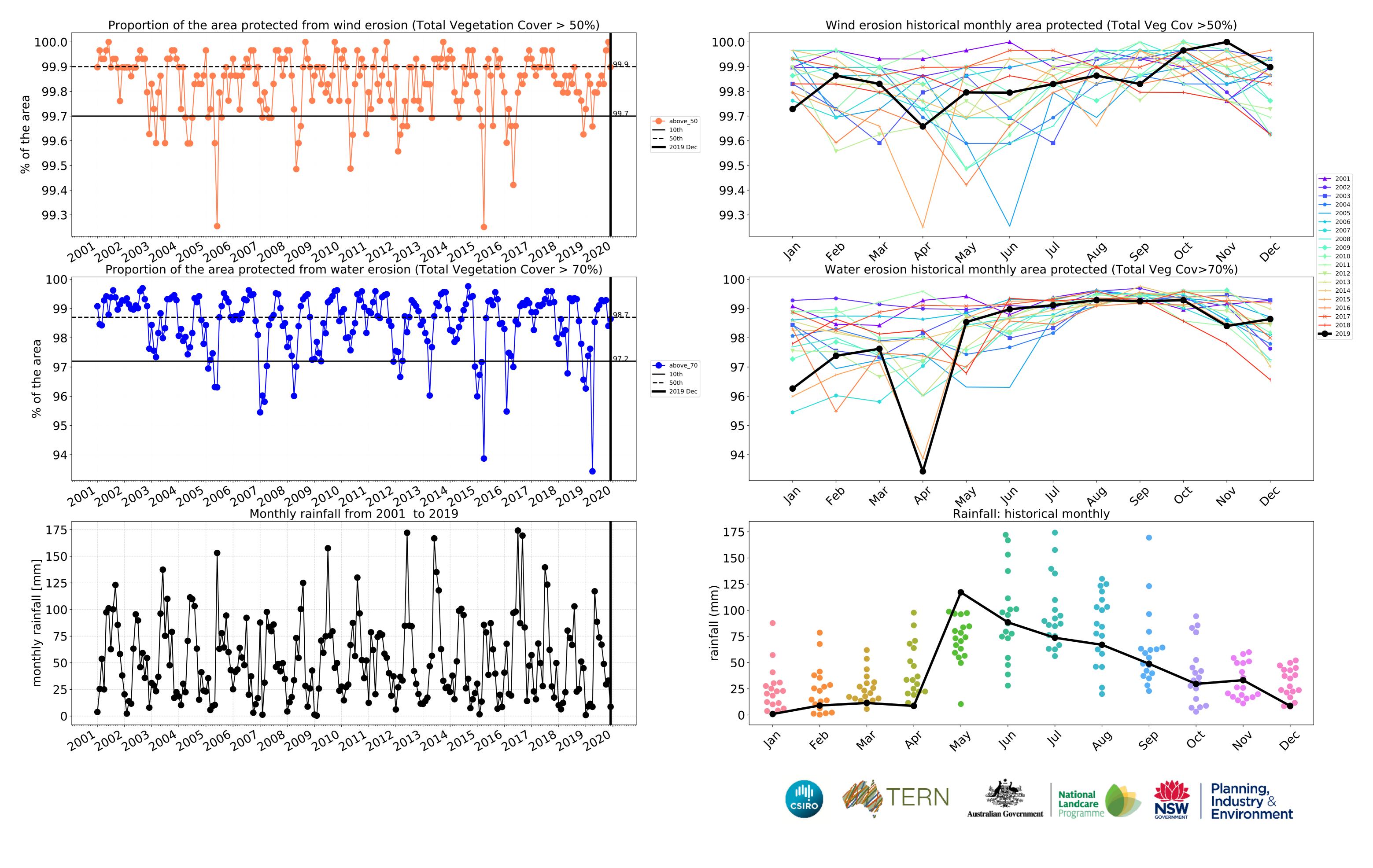


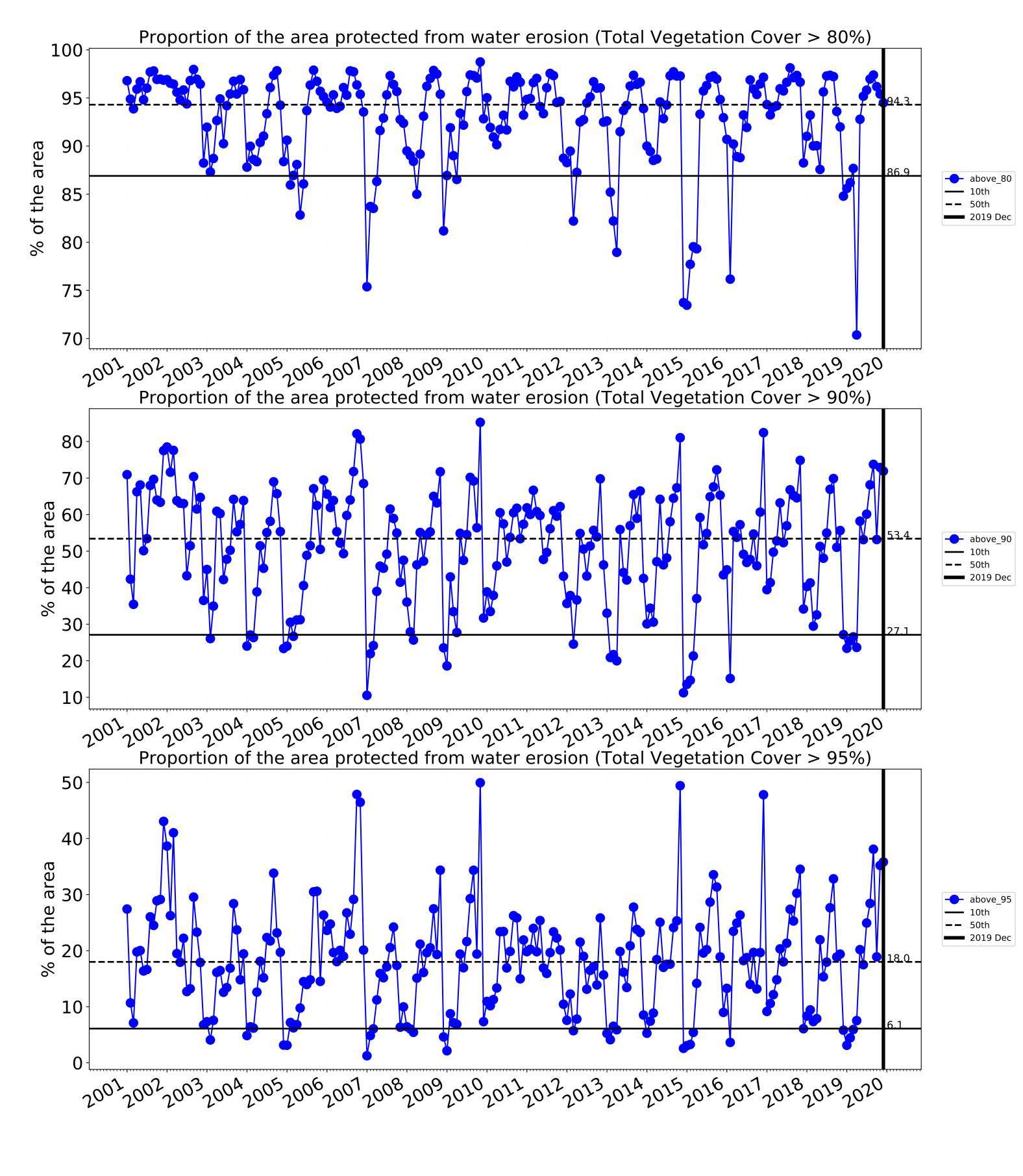
Total Vegetation Cover Anomaly [%]

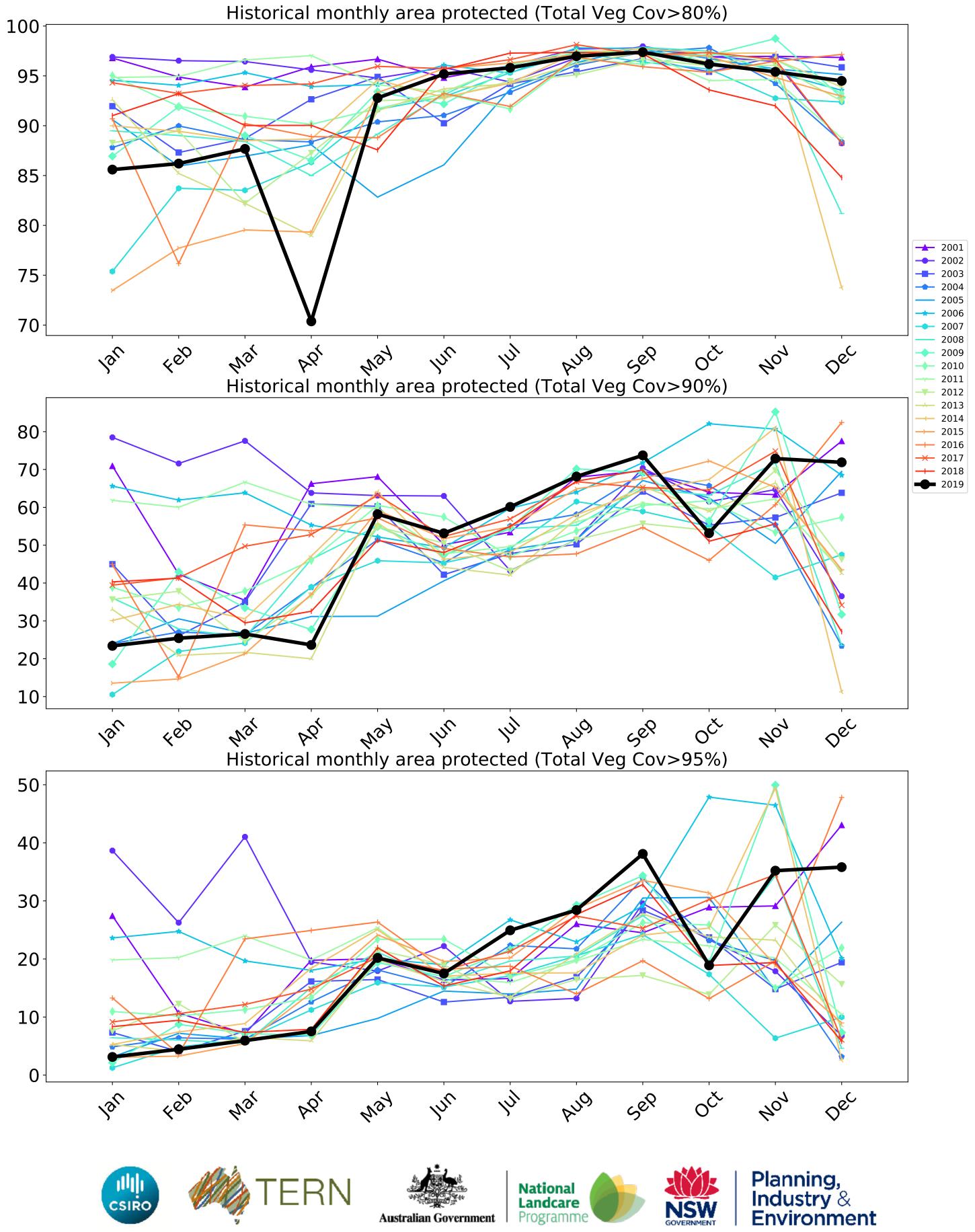
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]









Australian Government

Conservation and natural environments

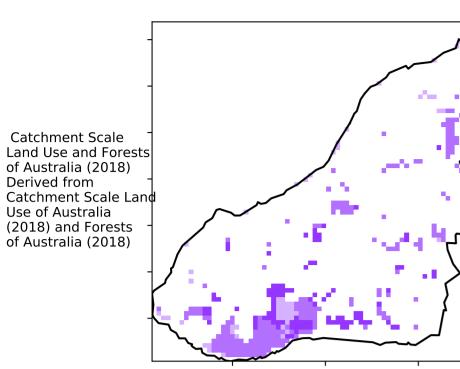
1 Conservation and natural environments - Non-forest

3 Conservation and natural environments - Non-

woodland forest

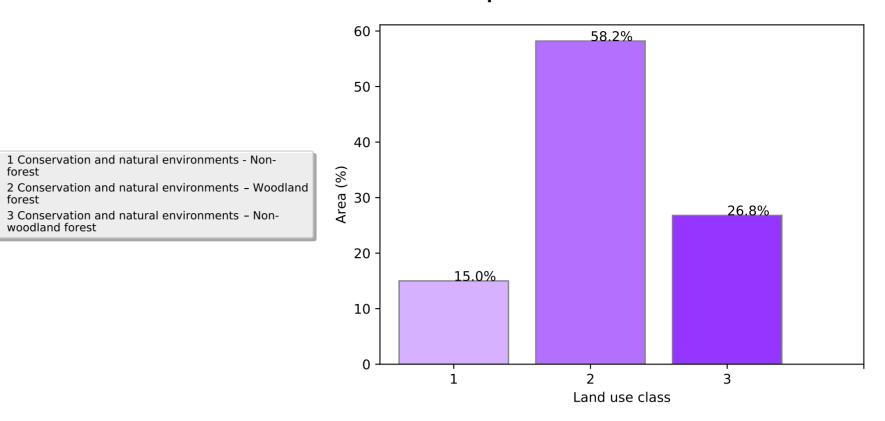
52% 70%

3201050010

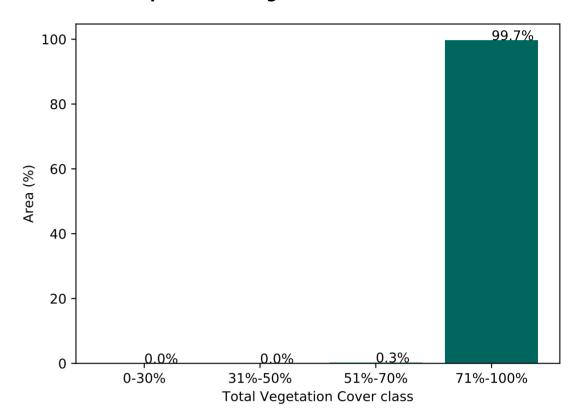


Land use and forest cover

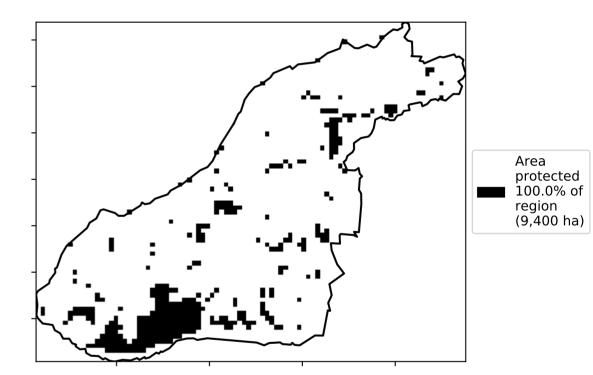
Proportion of each land class in area



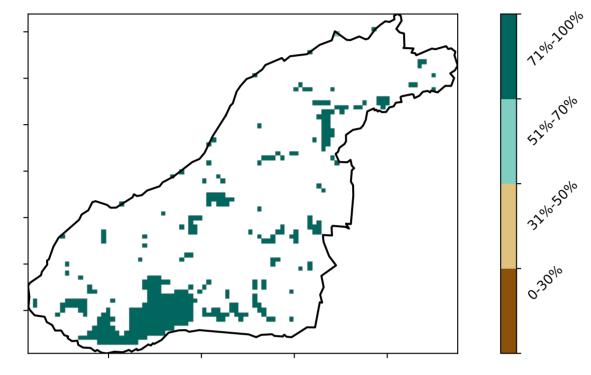
Proportion of vegetation cover class in area



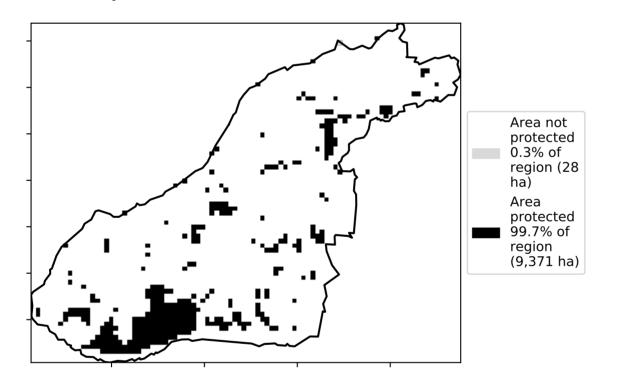
% Area protected from wind erosion (>50%)



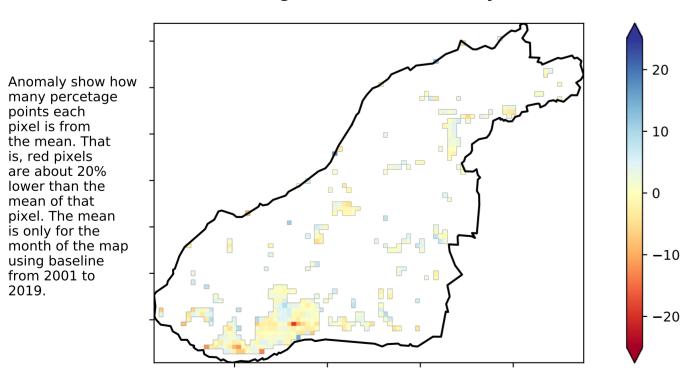
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



Total Vegetation Cover Anomaly [%]



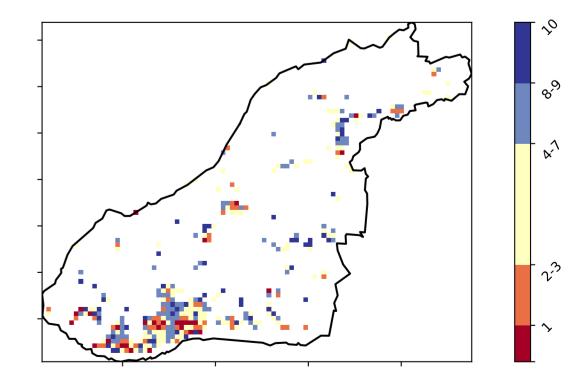
pixel is from

is, red pixels

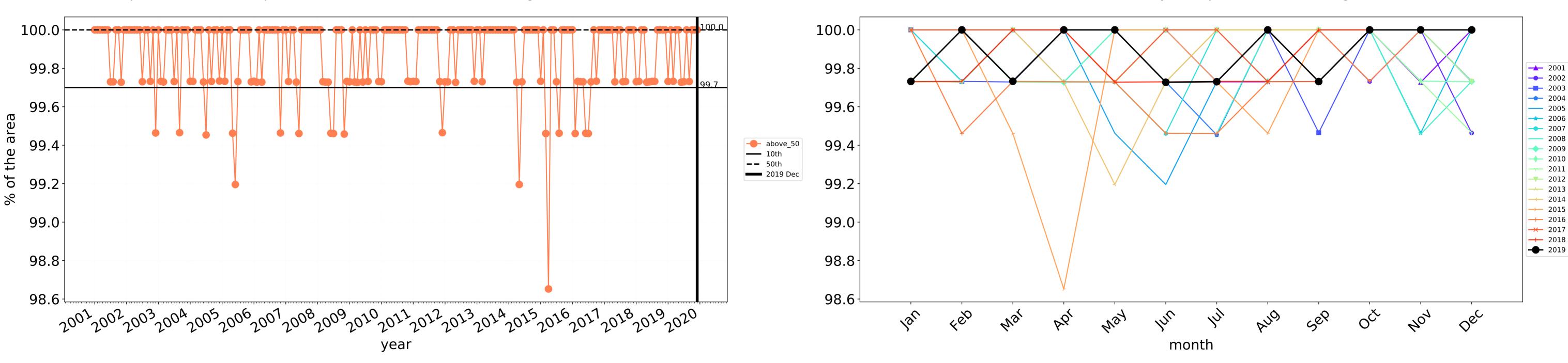
mean of that

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. -10

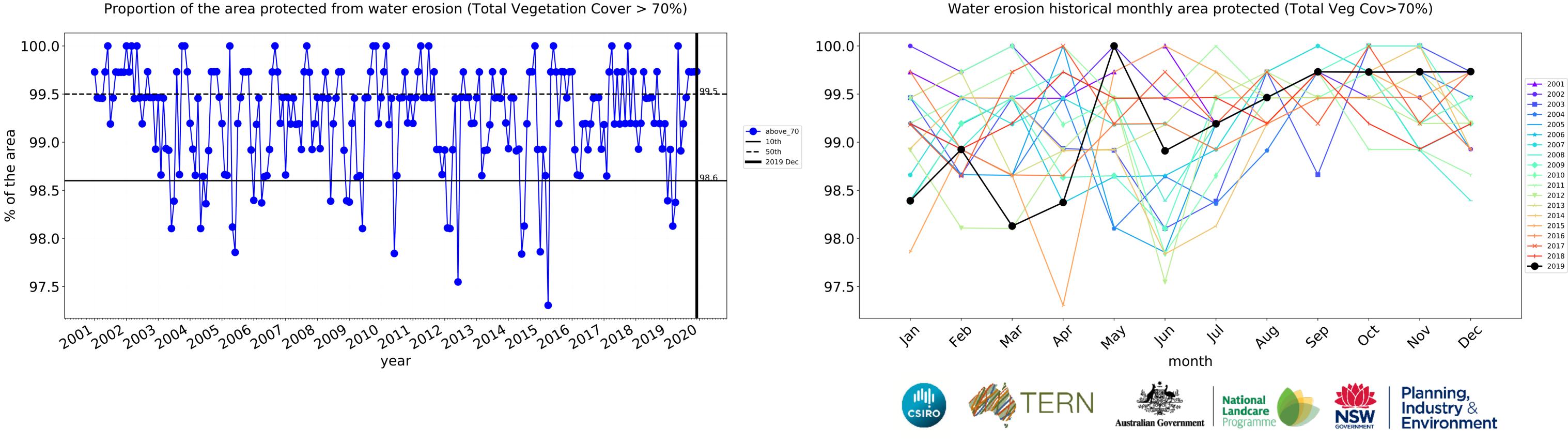
Total Vegetation Cover Decile [%]







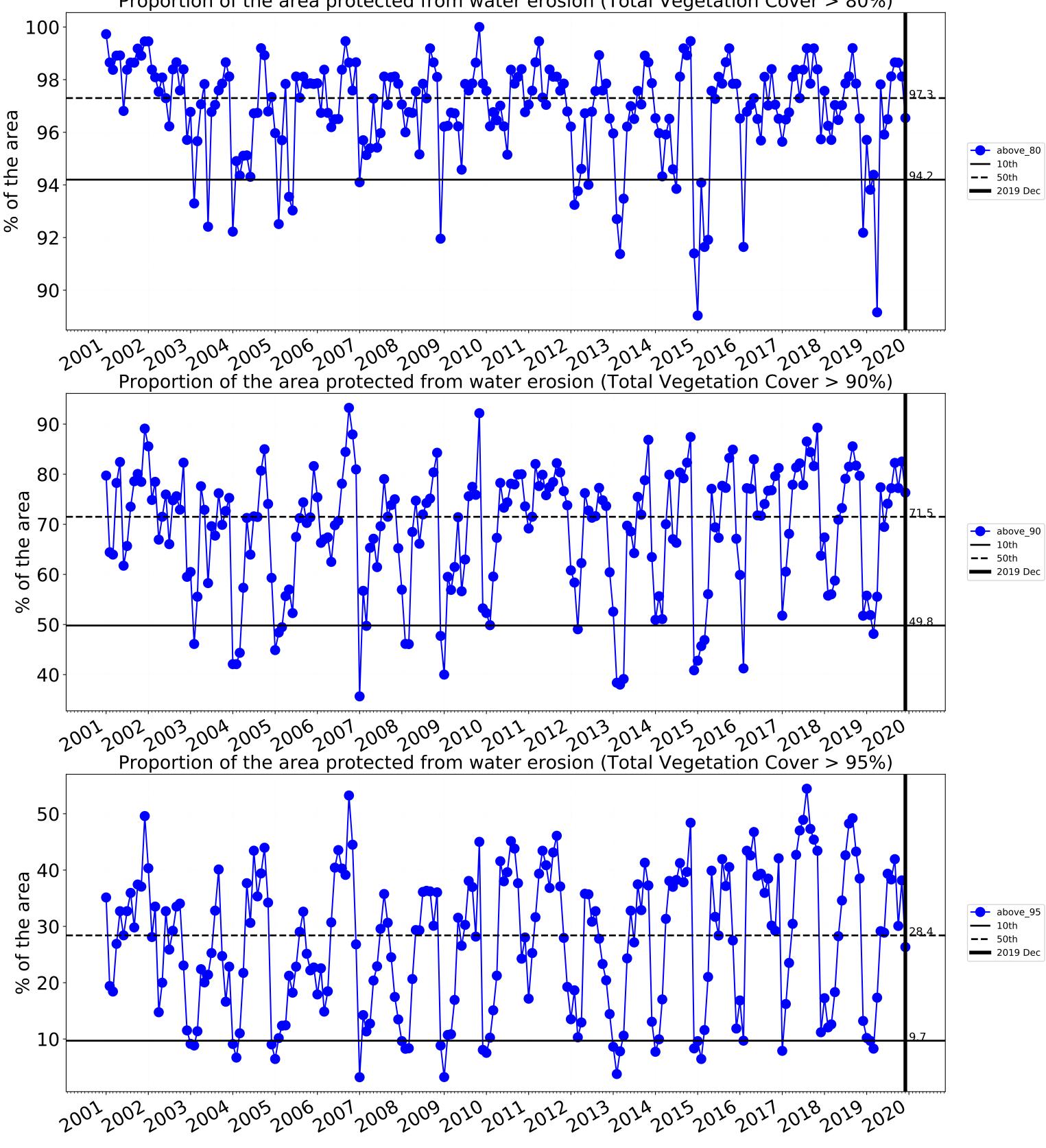
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



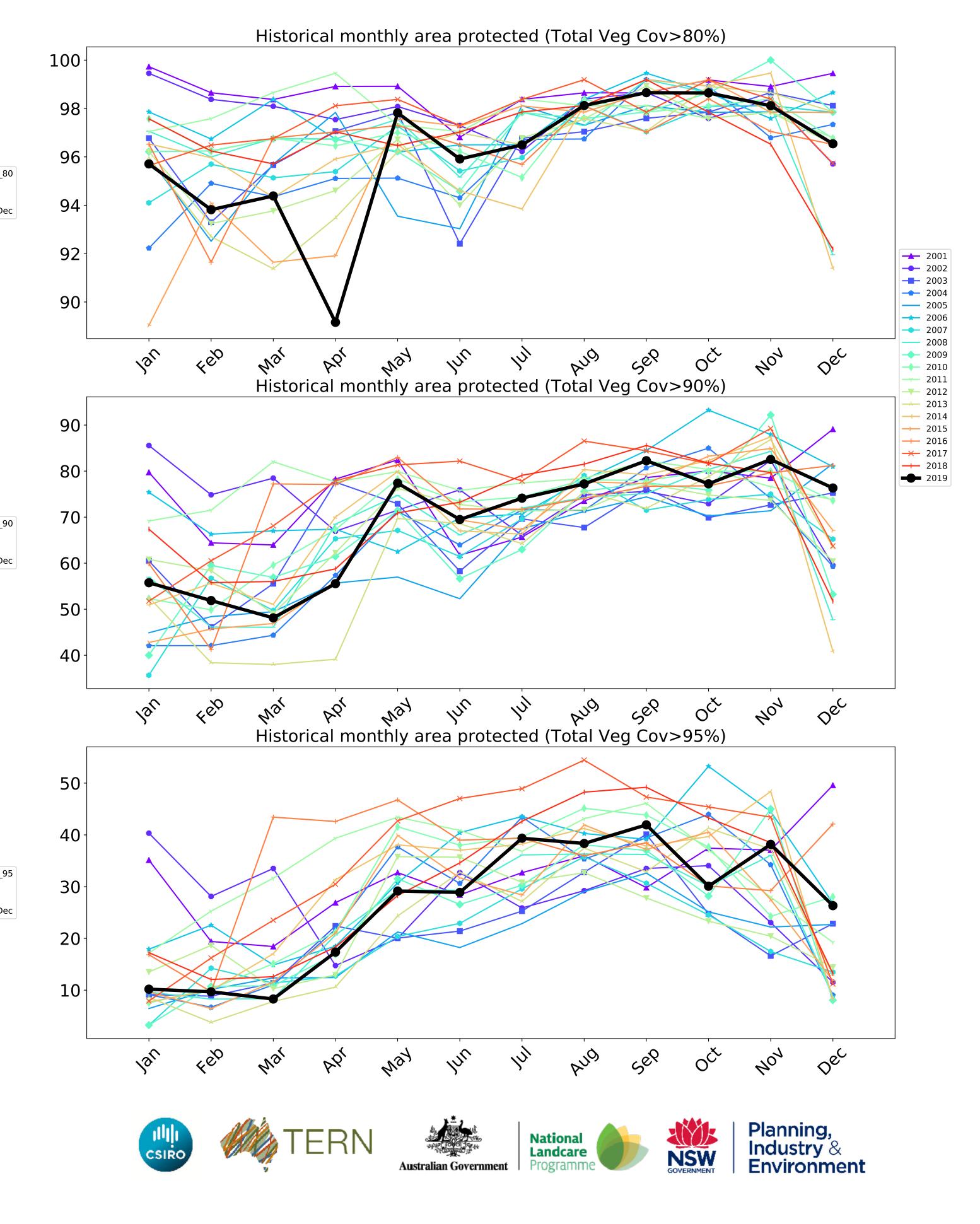
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

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

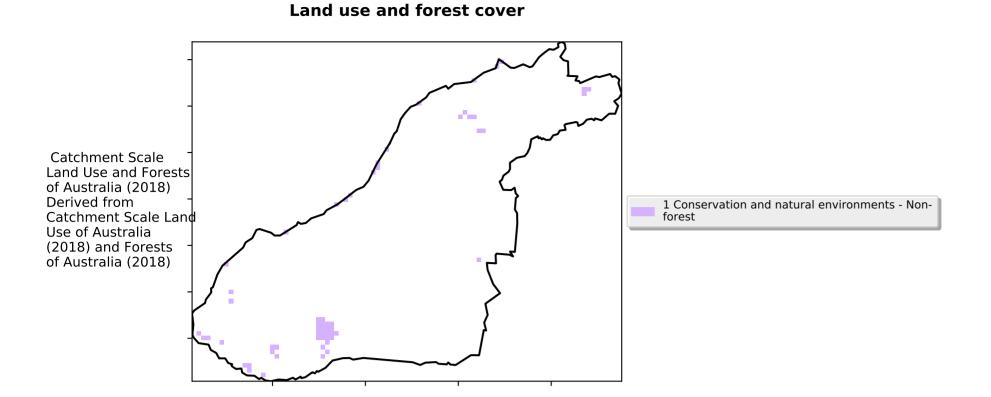
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



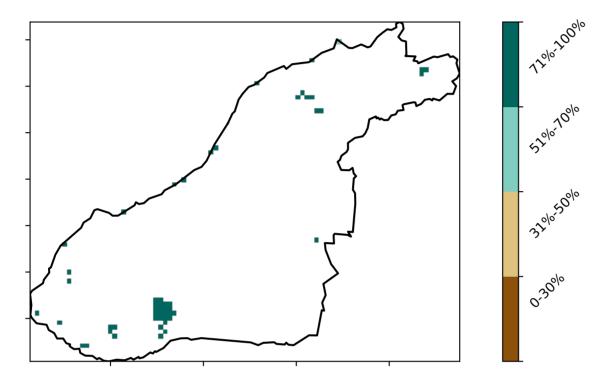




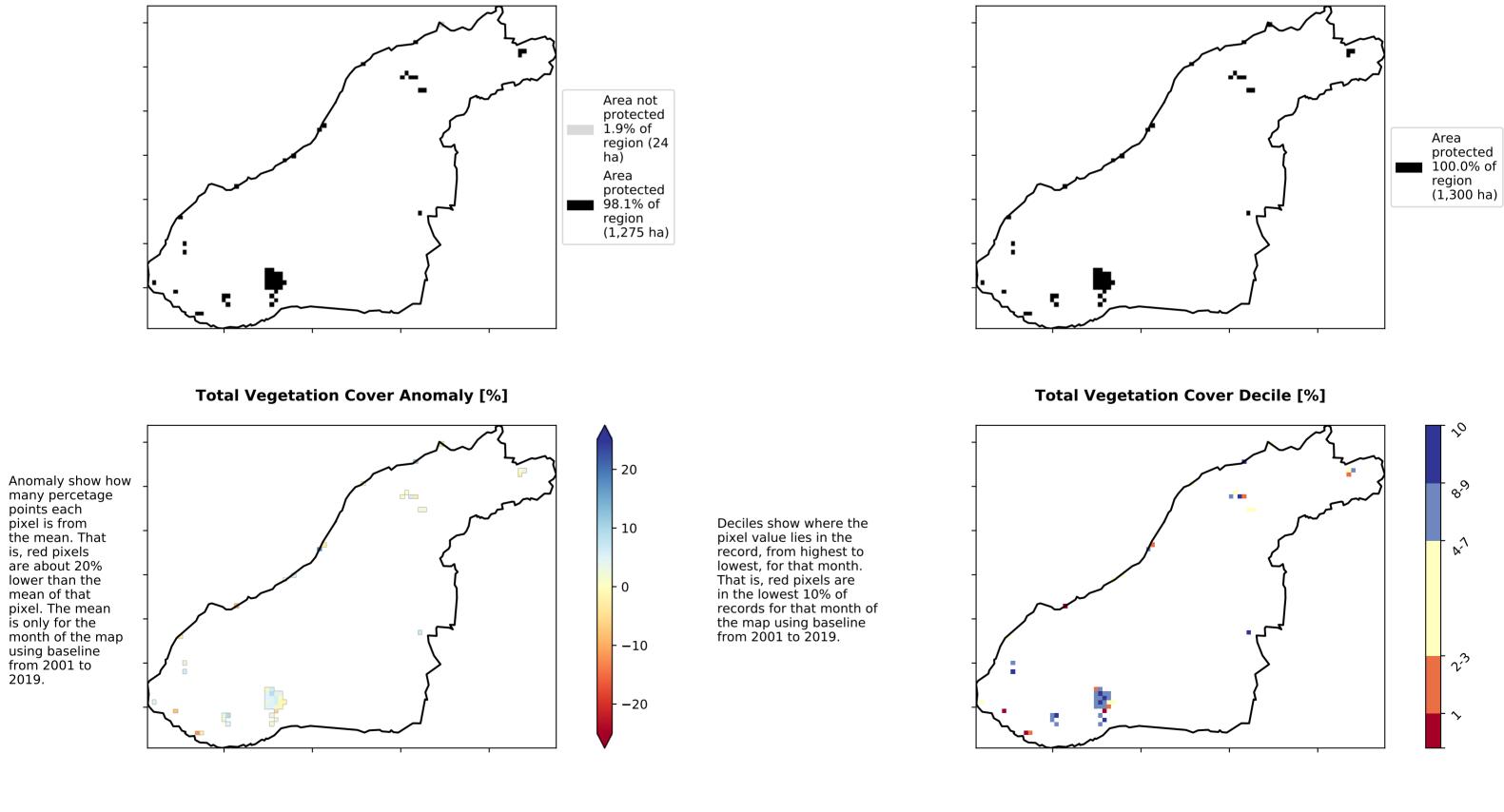
Conservation and natural environments non forest



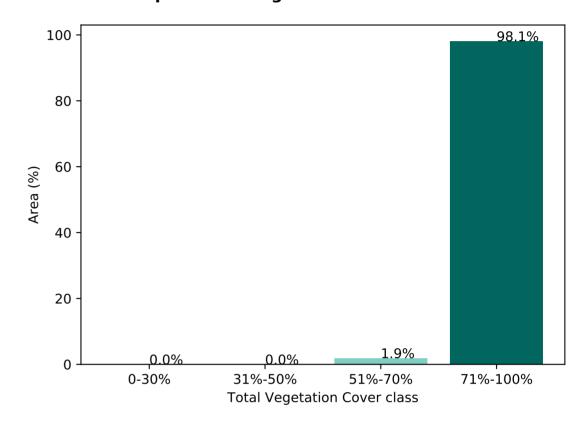
Total Vegetation Cover [%]



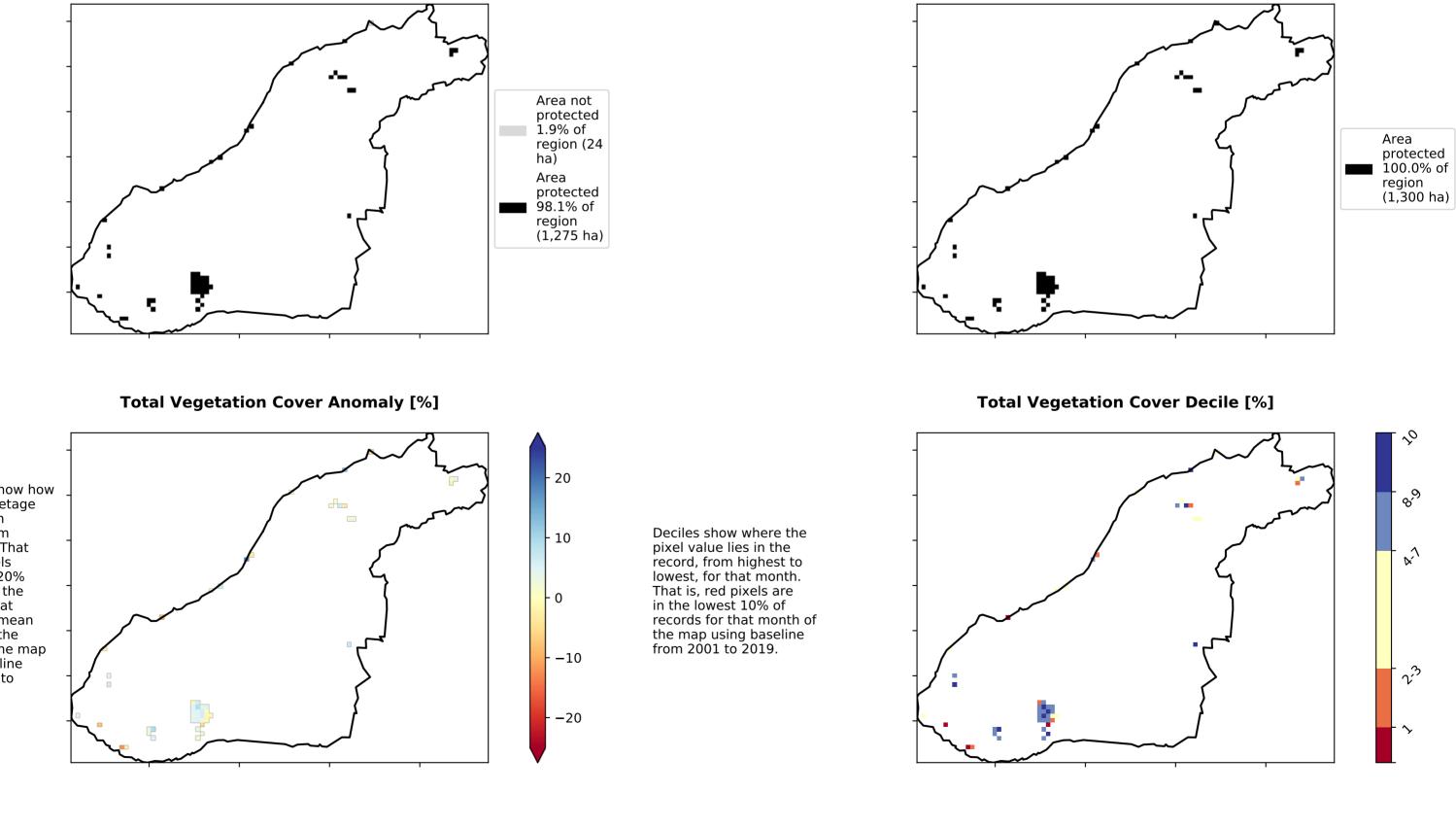
% Area protected from water erosion (>70%)



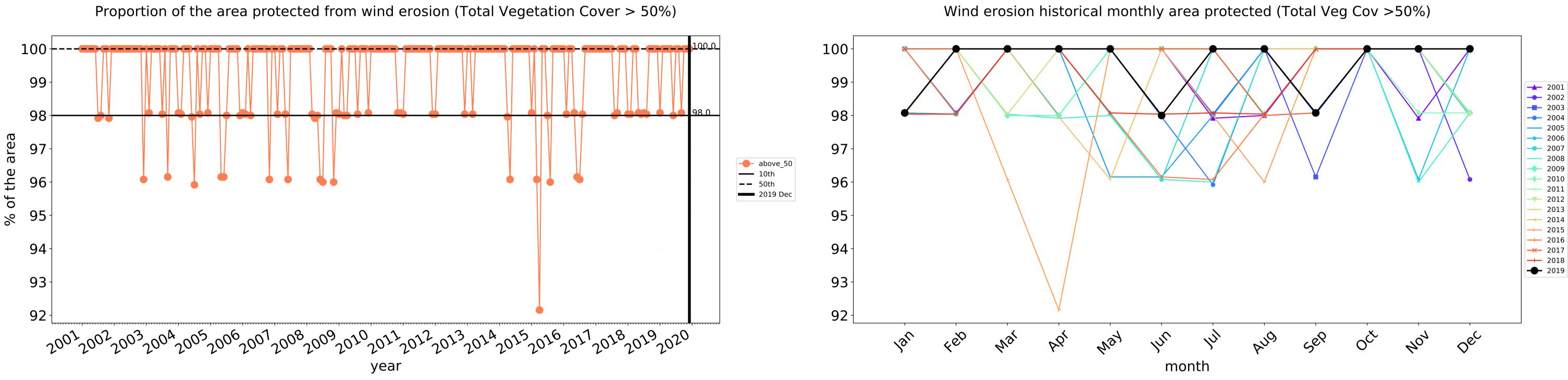
Proportion of vegetation cover class in area

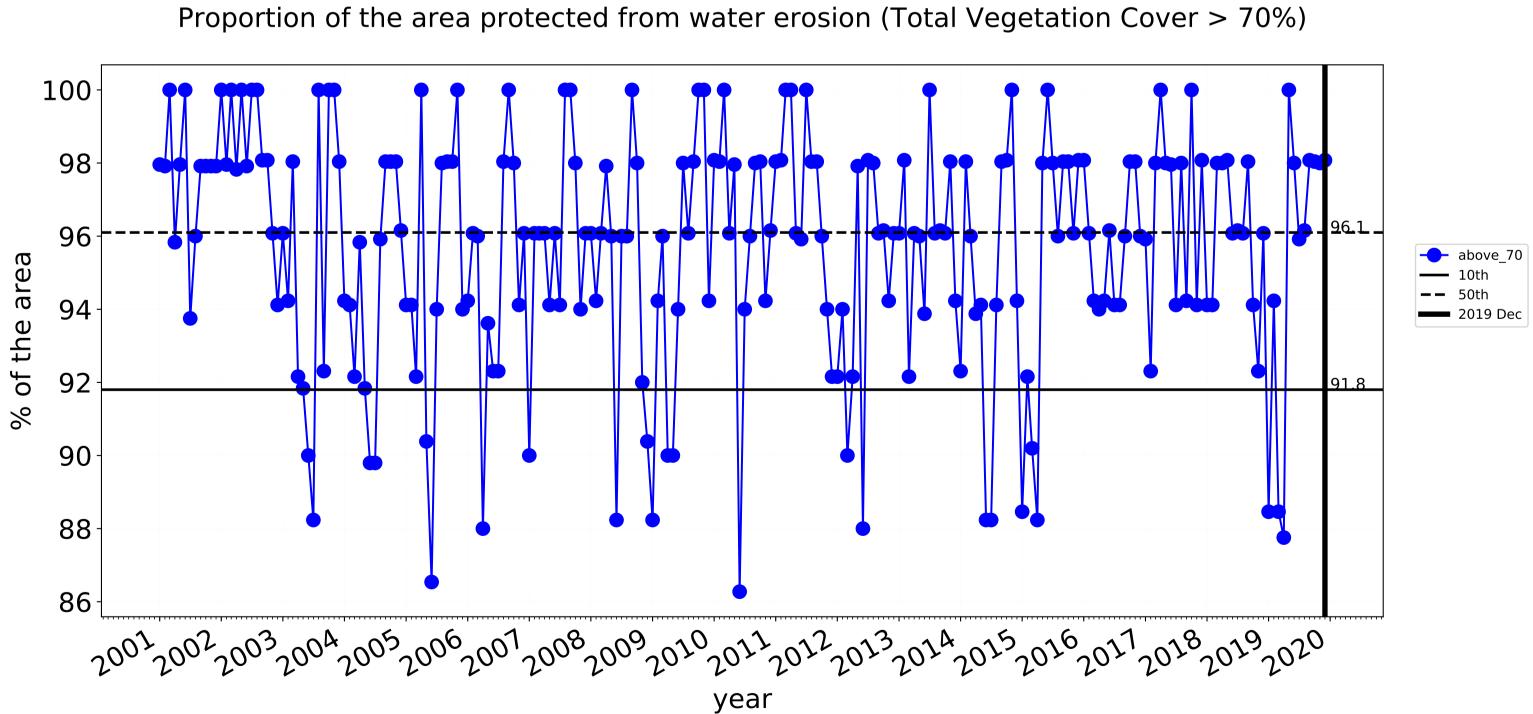


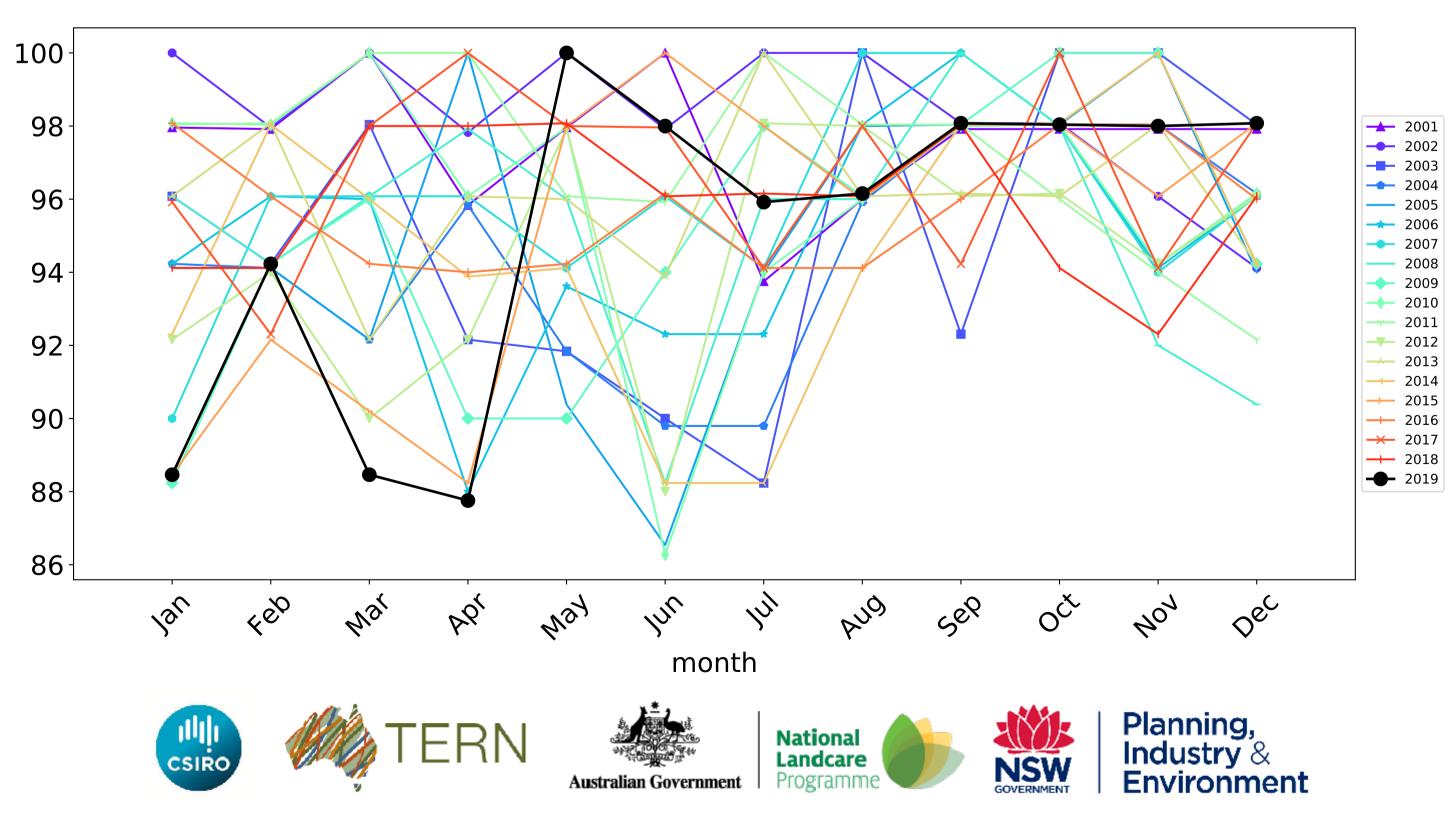
% Area protected from wind erosion (>50%)

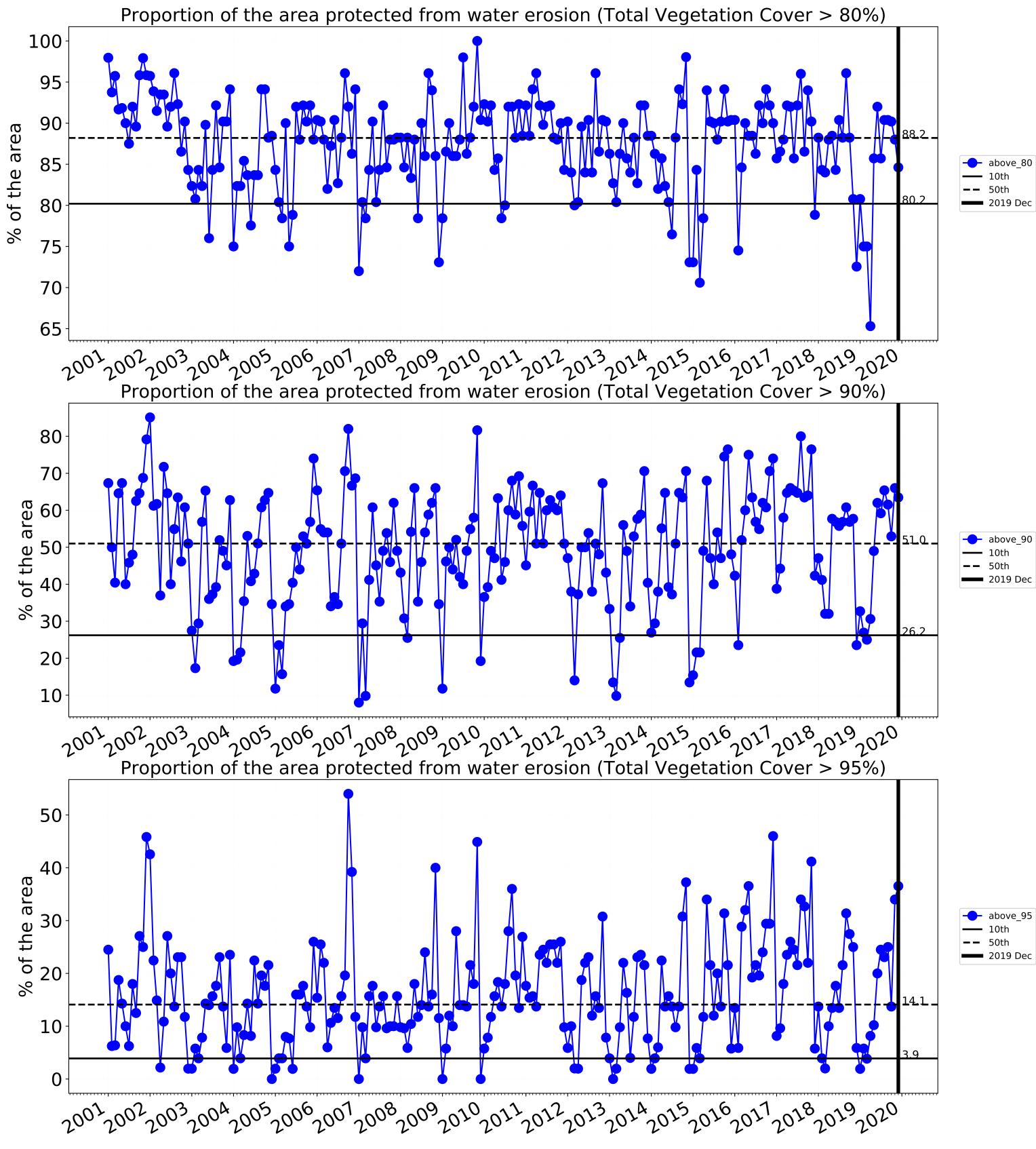


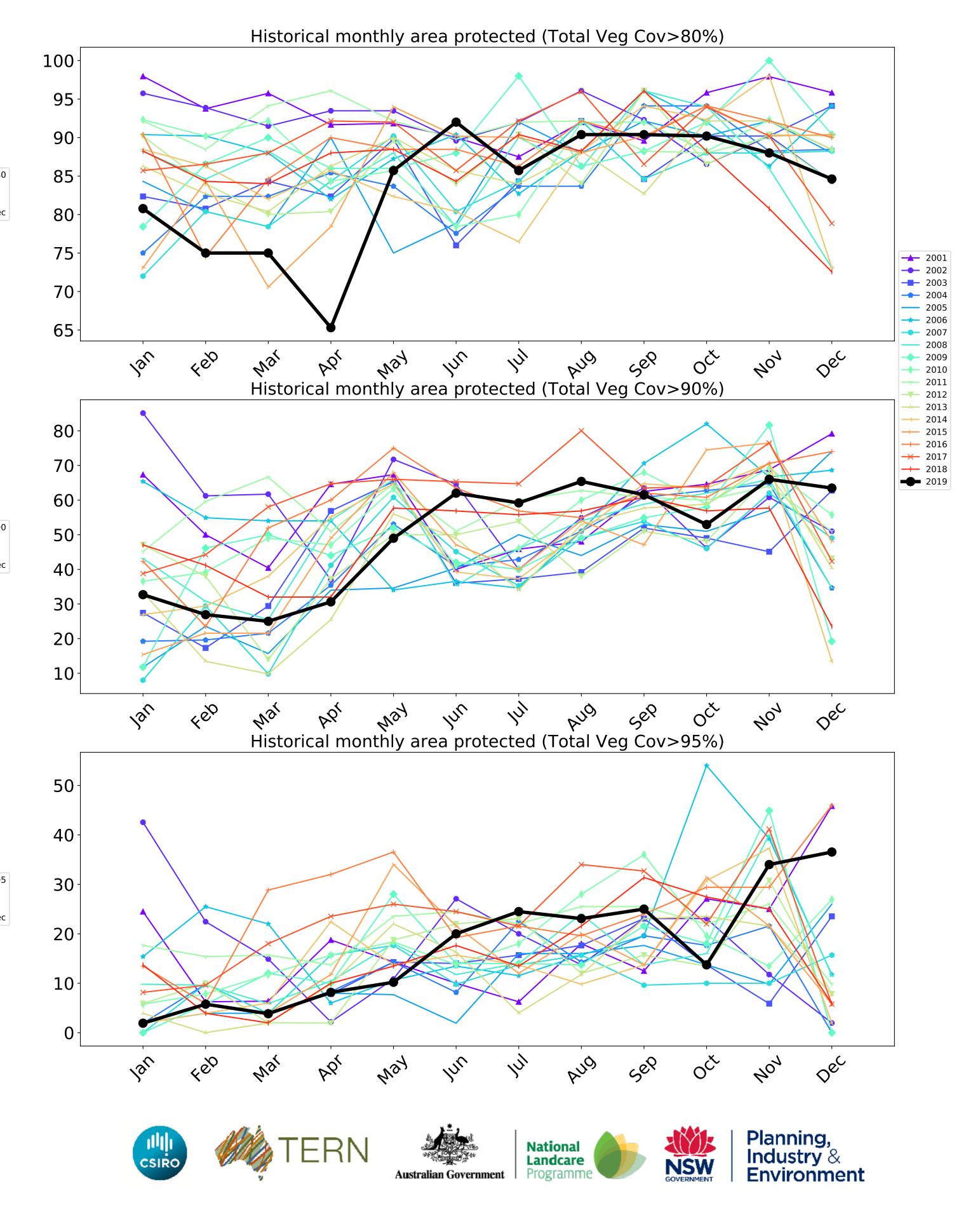






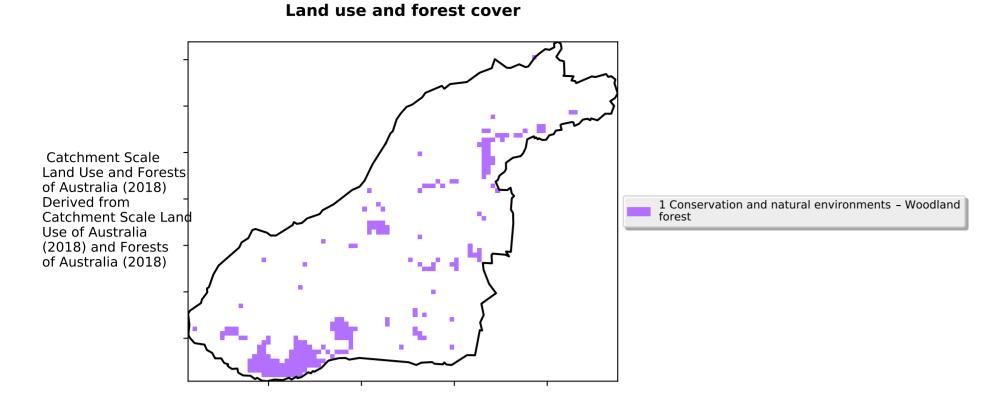




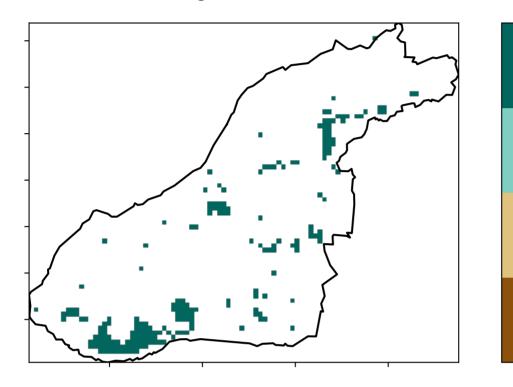




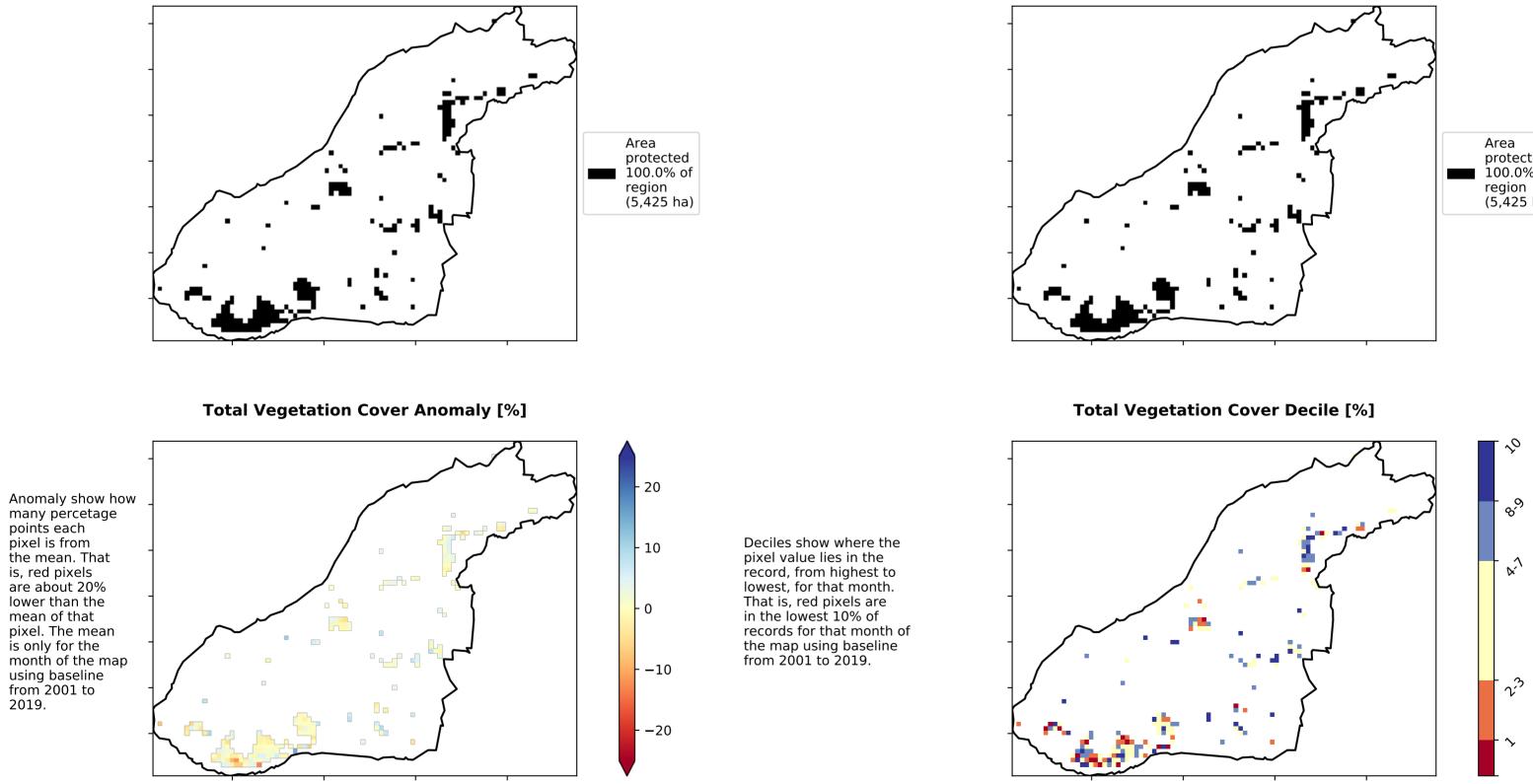
Conservation and natural environments Woodland forest



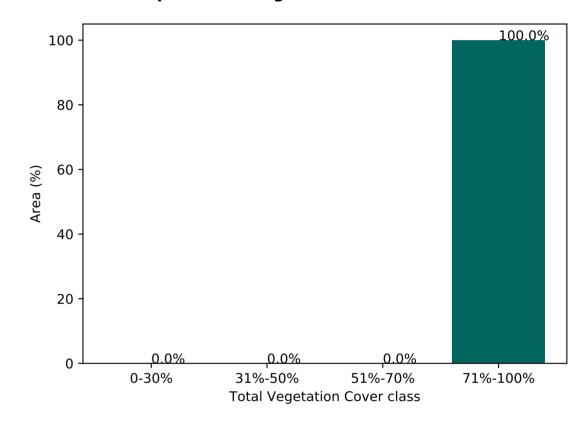
Total Vegetation Cover [%]



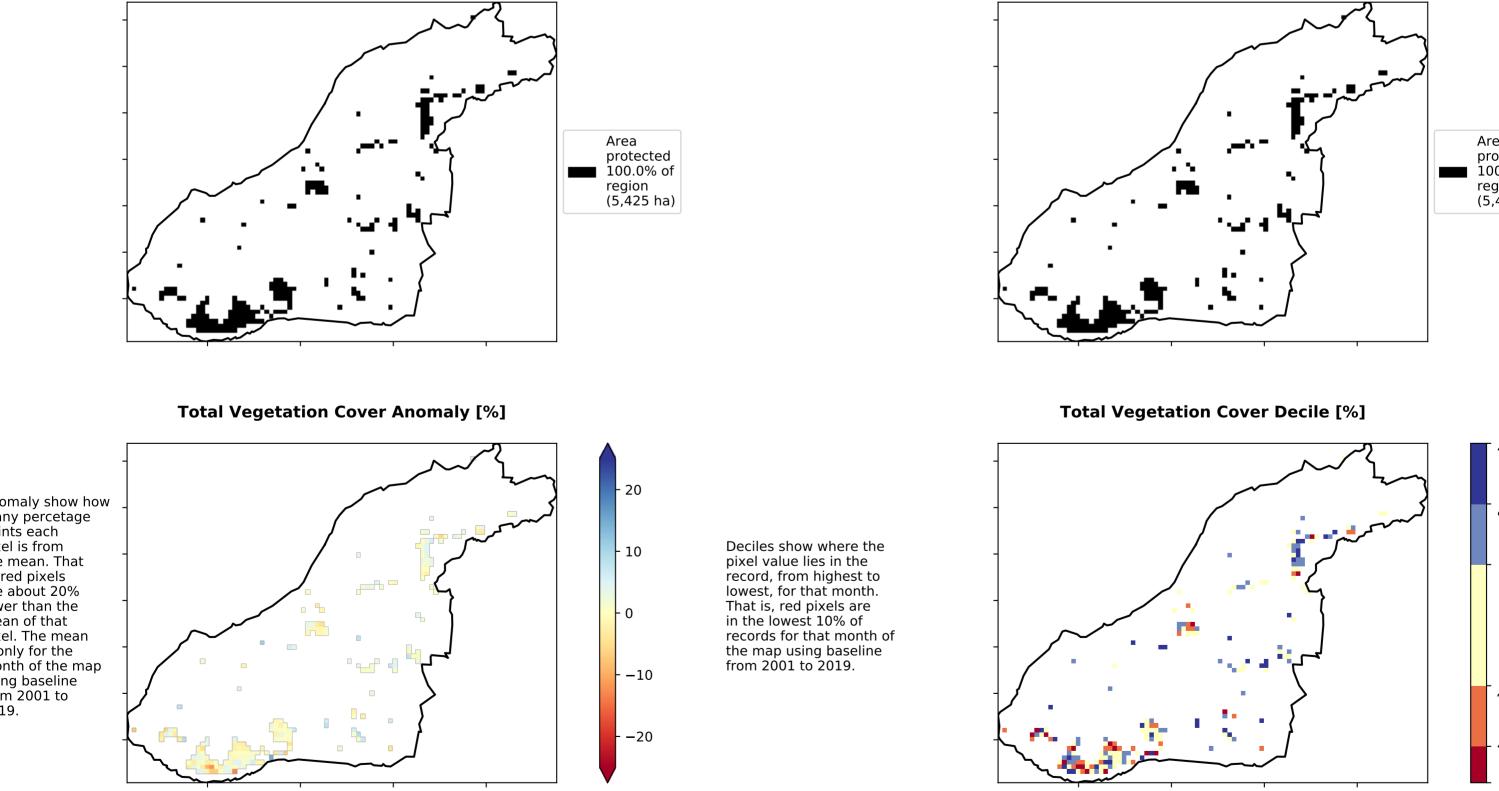
% Area protected from water erosion (>70%)

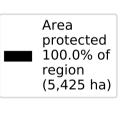


Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





12% 10°10°%

52% 70%

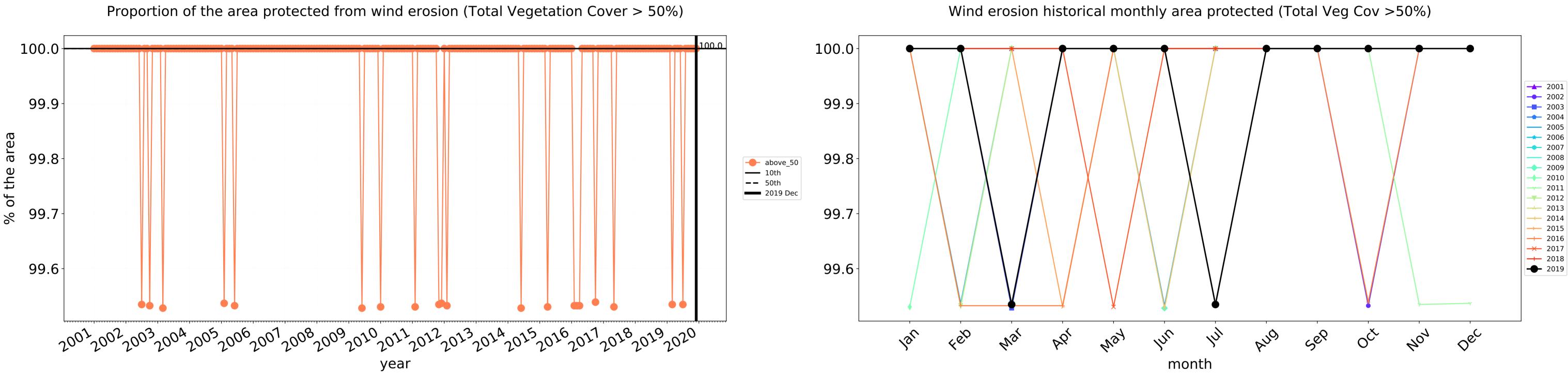
3201050010

0-30%

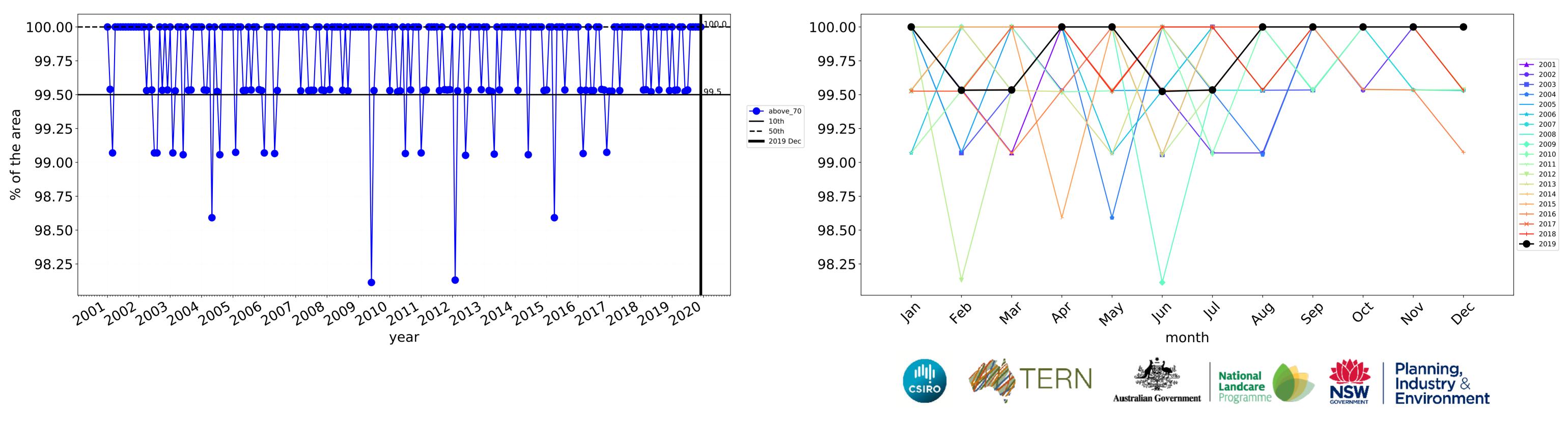


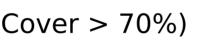
12

Conservation and natural environments Woodland forest timeseries

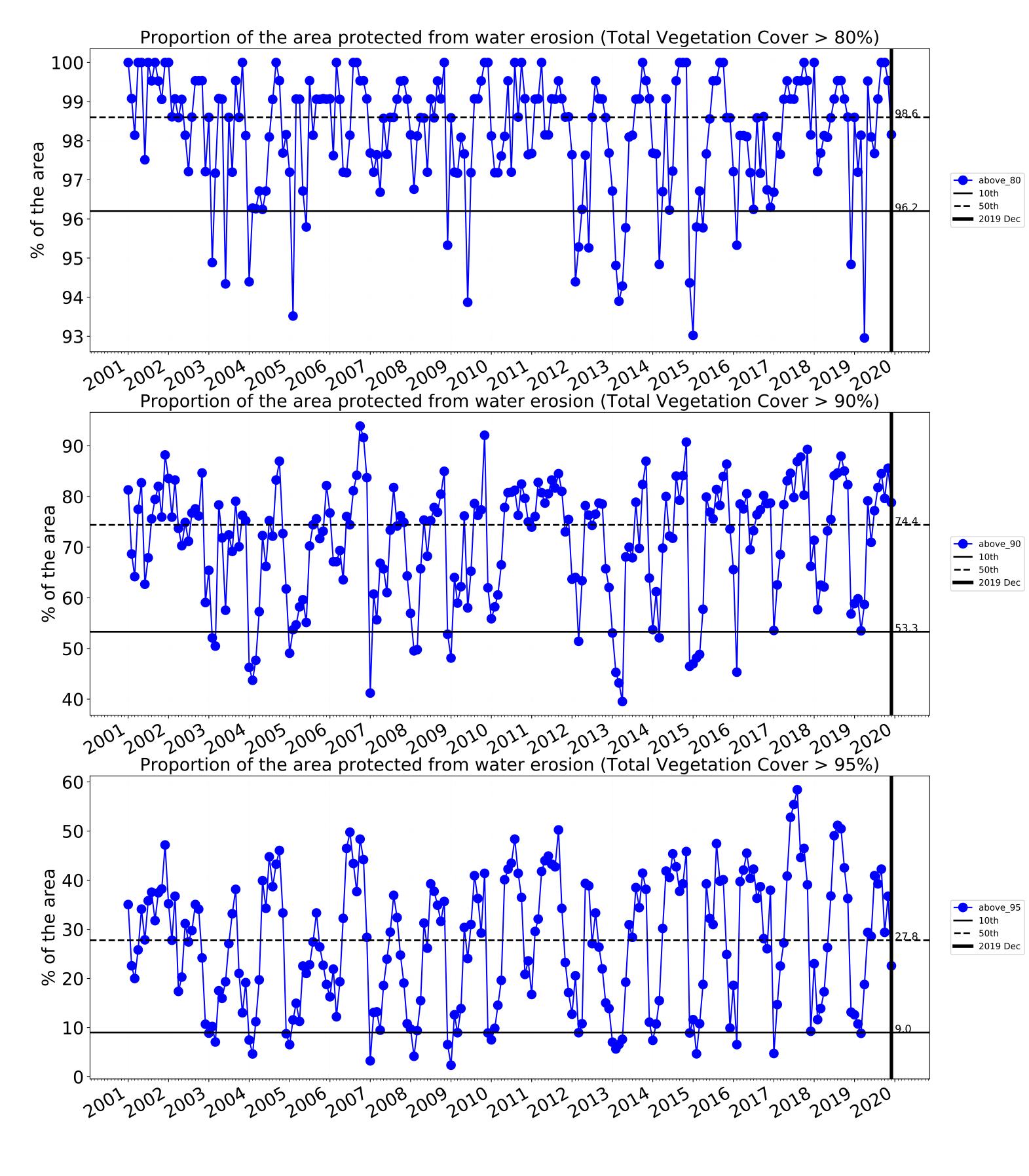


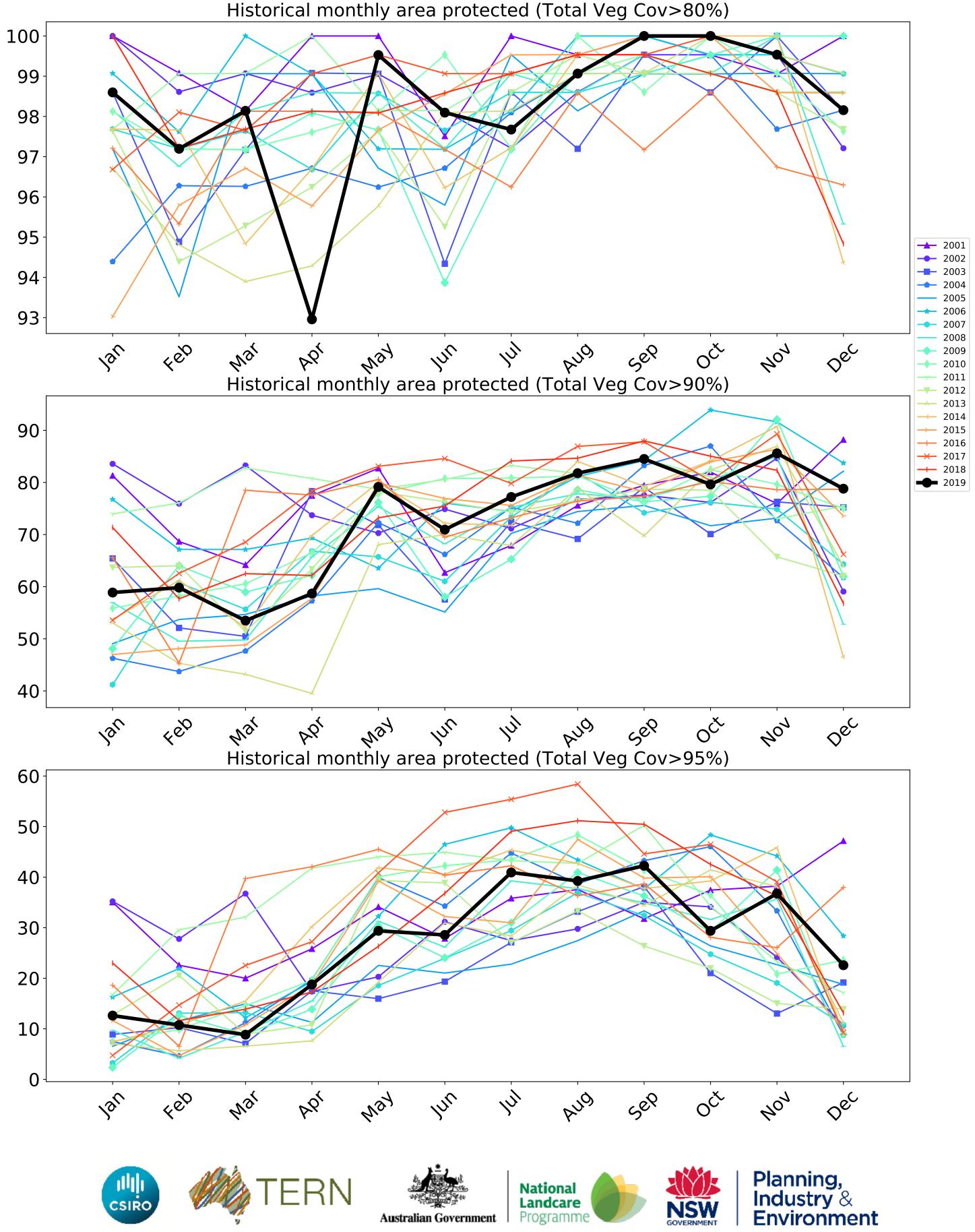
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)





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

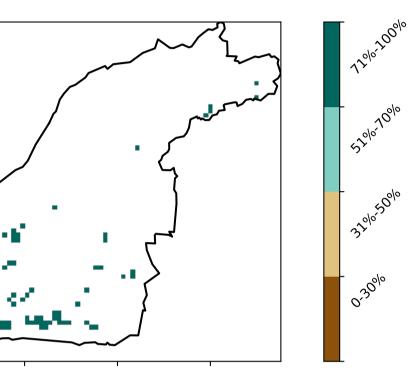




Conservation and natural environments Forest (non woodland)

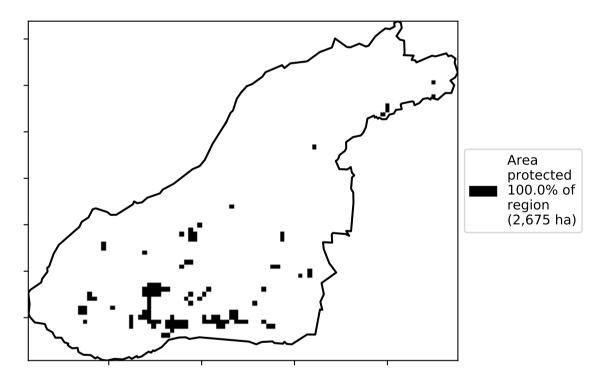
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments – Non-woodland forest Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]

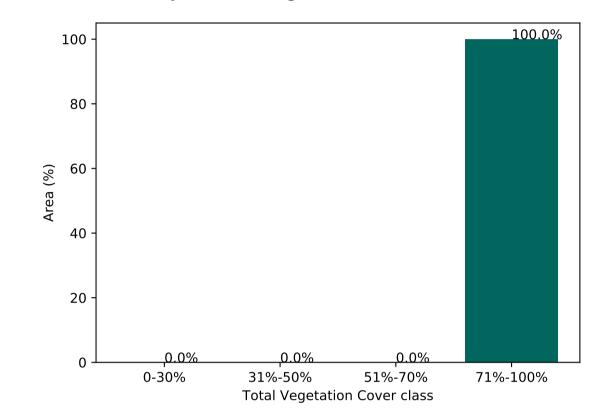


50%

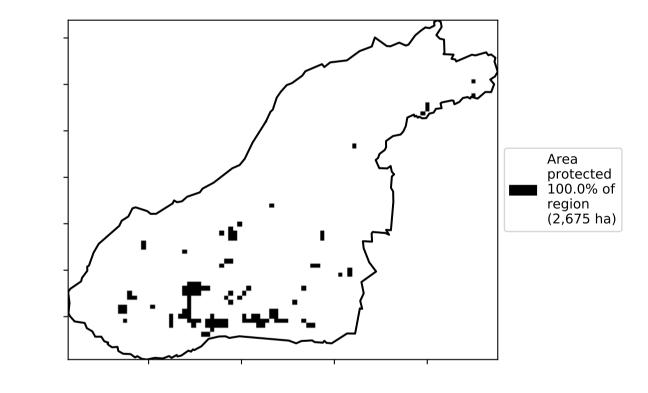
% Area protected from water erosion (>70%)



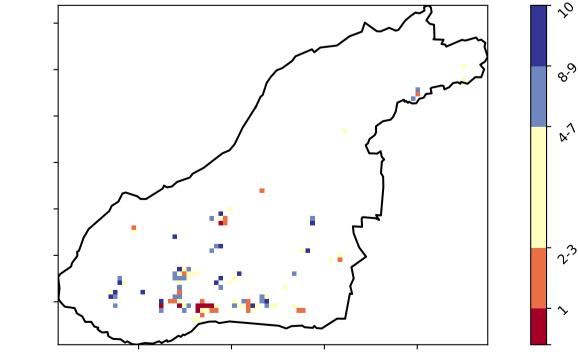
Proportion of vegetation cover class in area



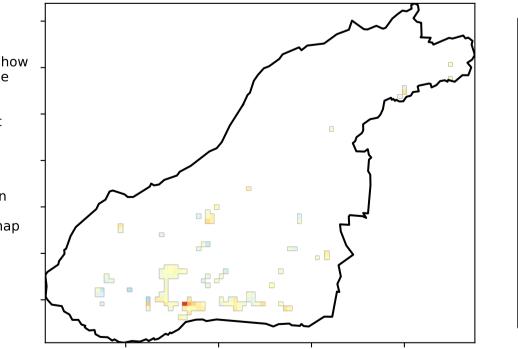
% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]



Total Vegetation Cover Anomaly [%]



CSIRO



Anomaly show how many percetage points each pixel is from the mean That 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.

- 20

- 10

0

-10

-20

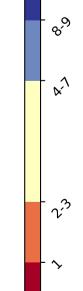
Deciles show where the

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

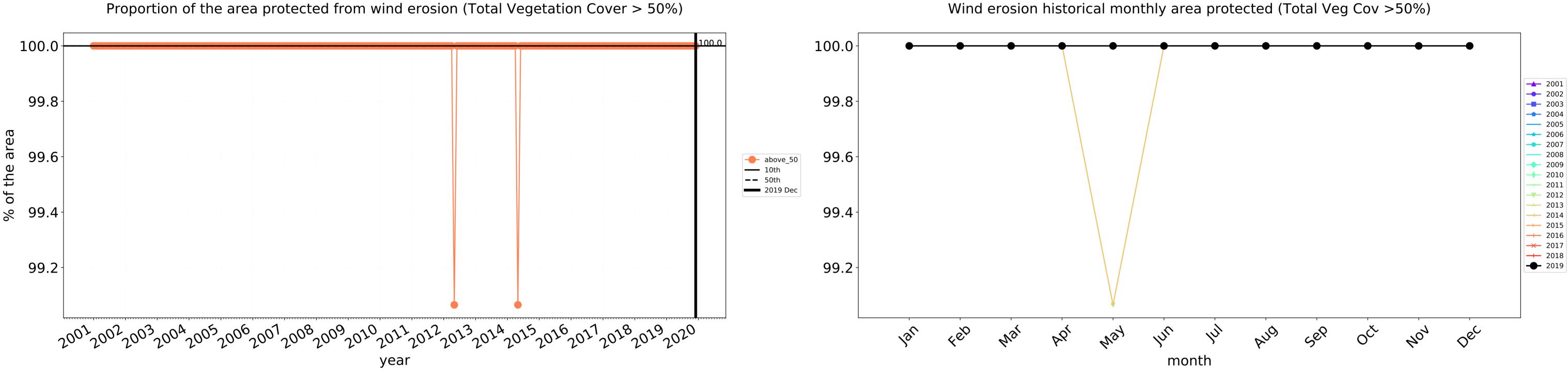
the map using baseline from 2001 to 2019.

pixel value lies in the

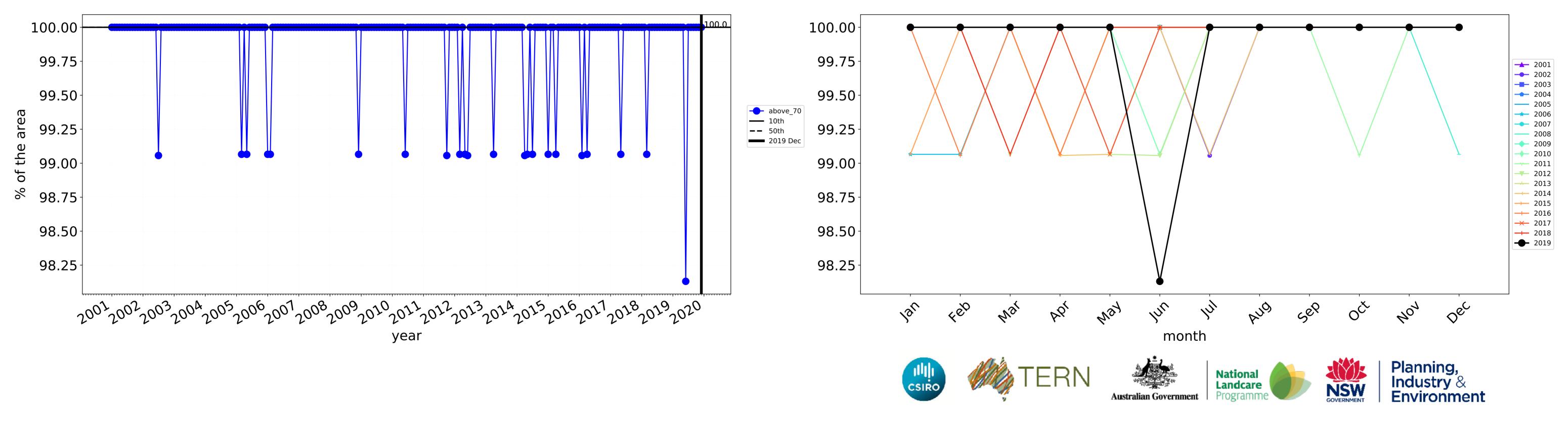




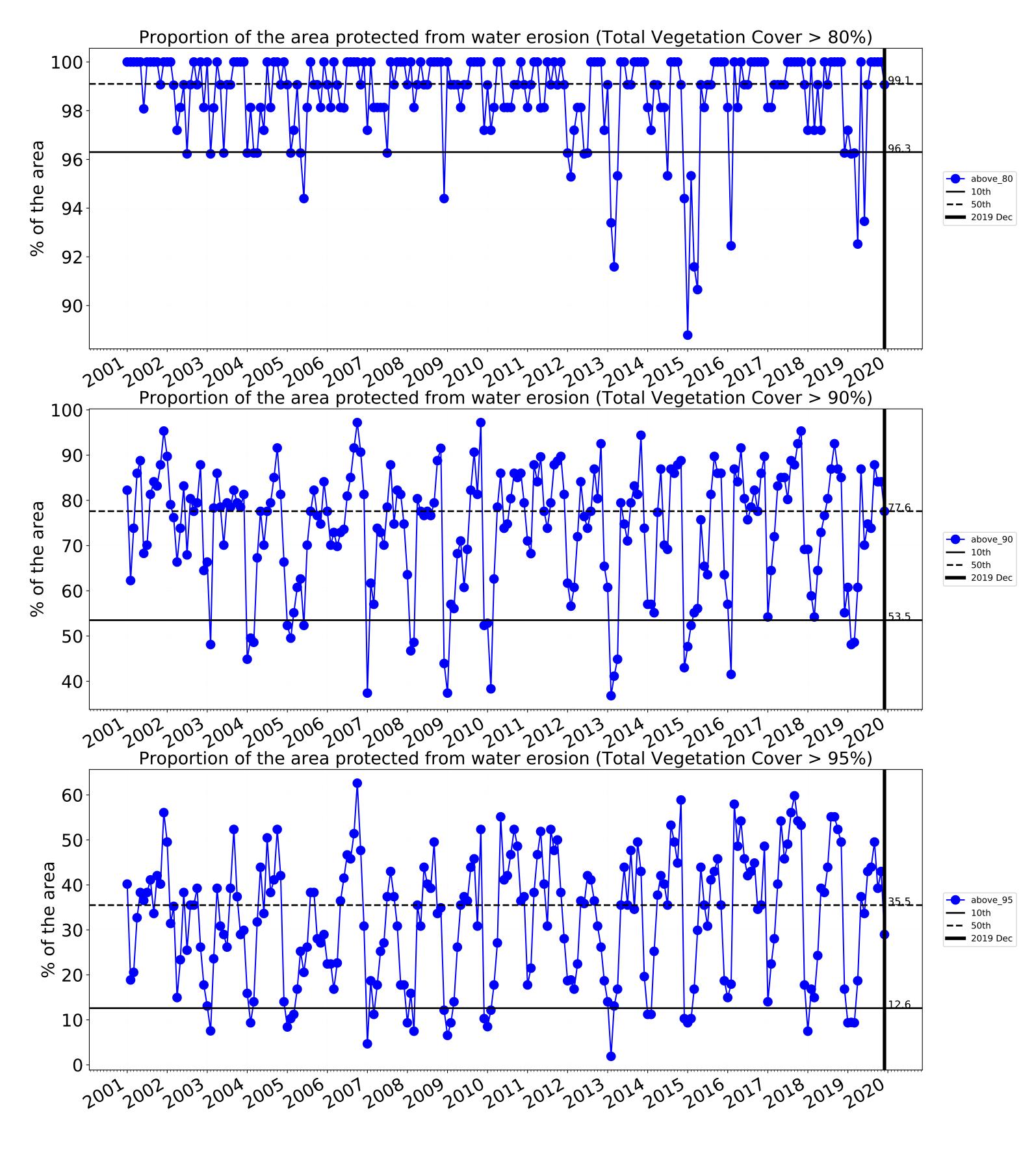
Conservation and natural environments Forest (non woodland) timeseries



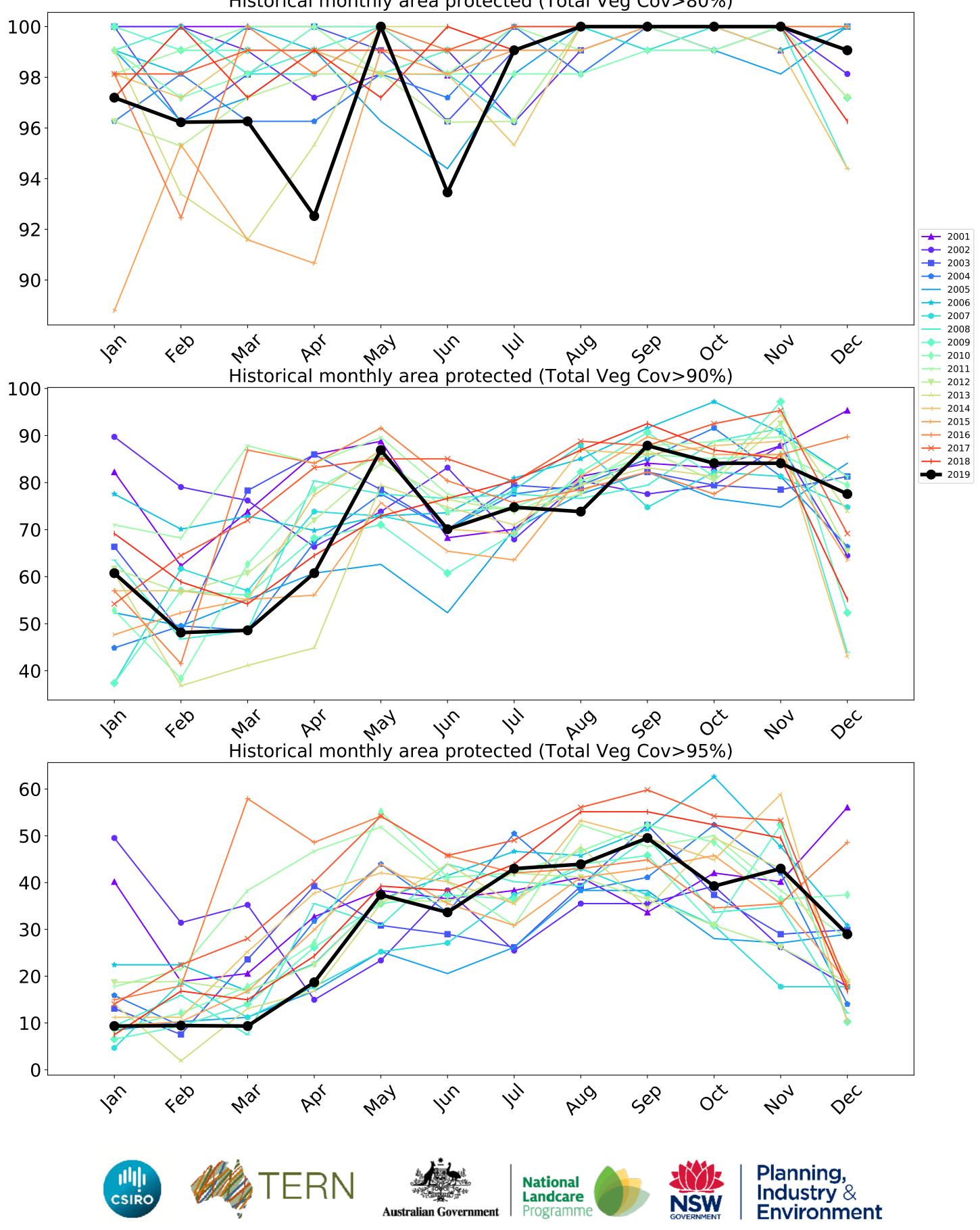
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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



Historical monthly area protected (Total Veg Cov>80%)



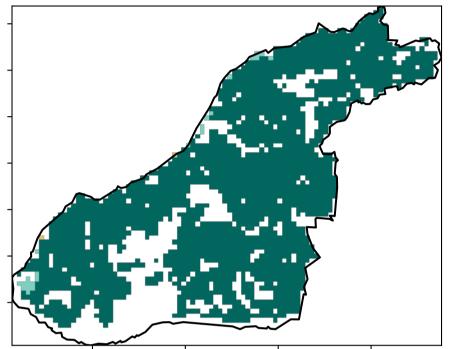


Agriculture

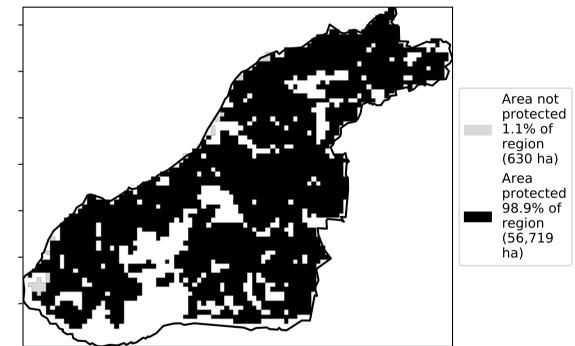
Catchment Scale Land Use and Forests of Australia (2018) 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest Derived from 4 Agriculture - Grazing - Irrigated Catchment Scale Land 5 Agriculture - Cropping - Non-irrigated Use of Australia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

Total Vegetation Cover [%]

Land use and forest cover



% Area protected from water erosion (>70%)



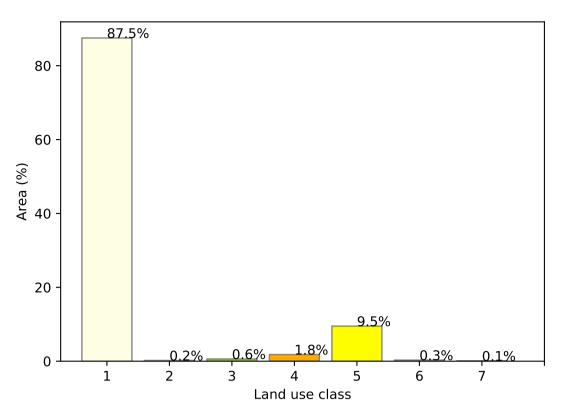
· 0.30%

12%100%

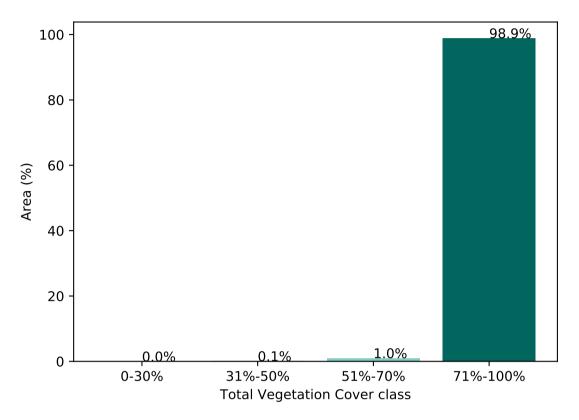
· 52% 70%

32010-

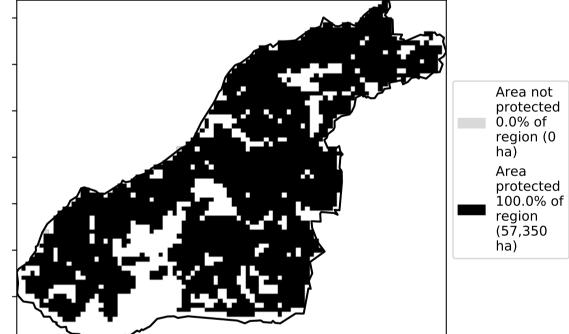




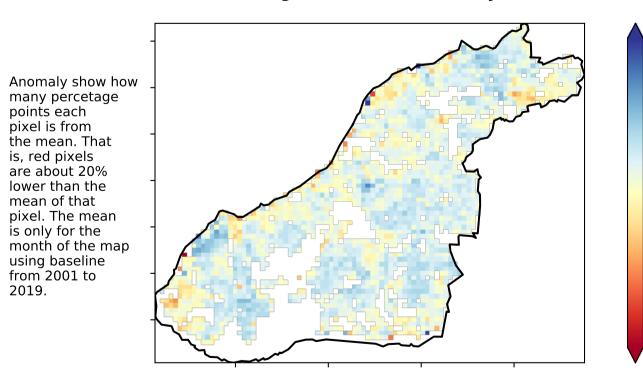
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

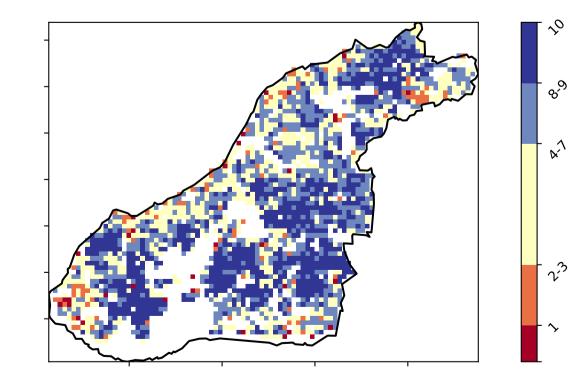


is, red pixels

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 [%]





· 20

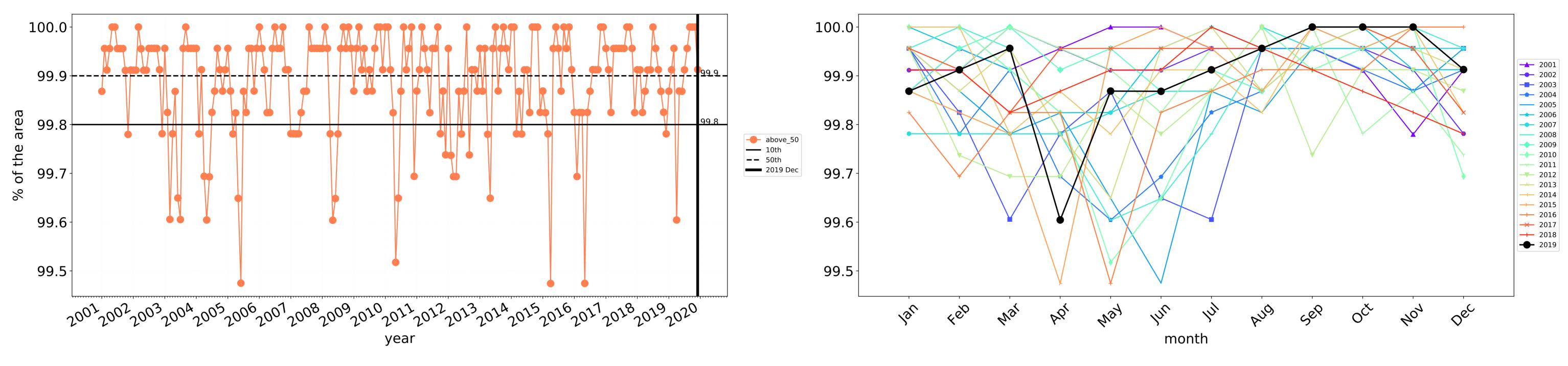
- 10

- 0

-10

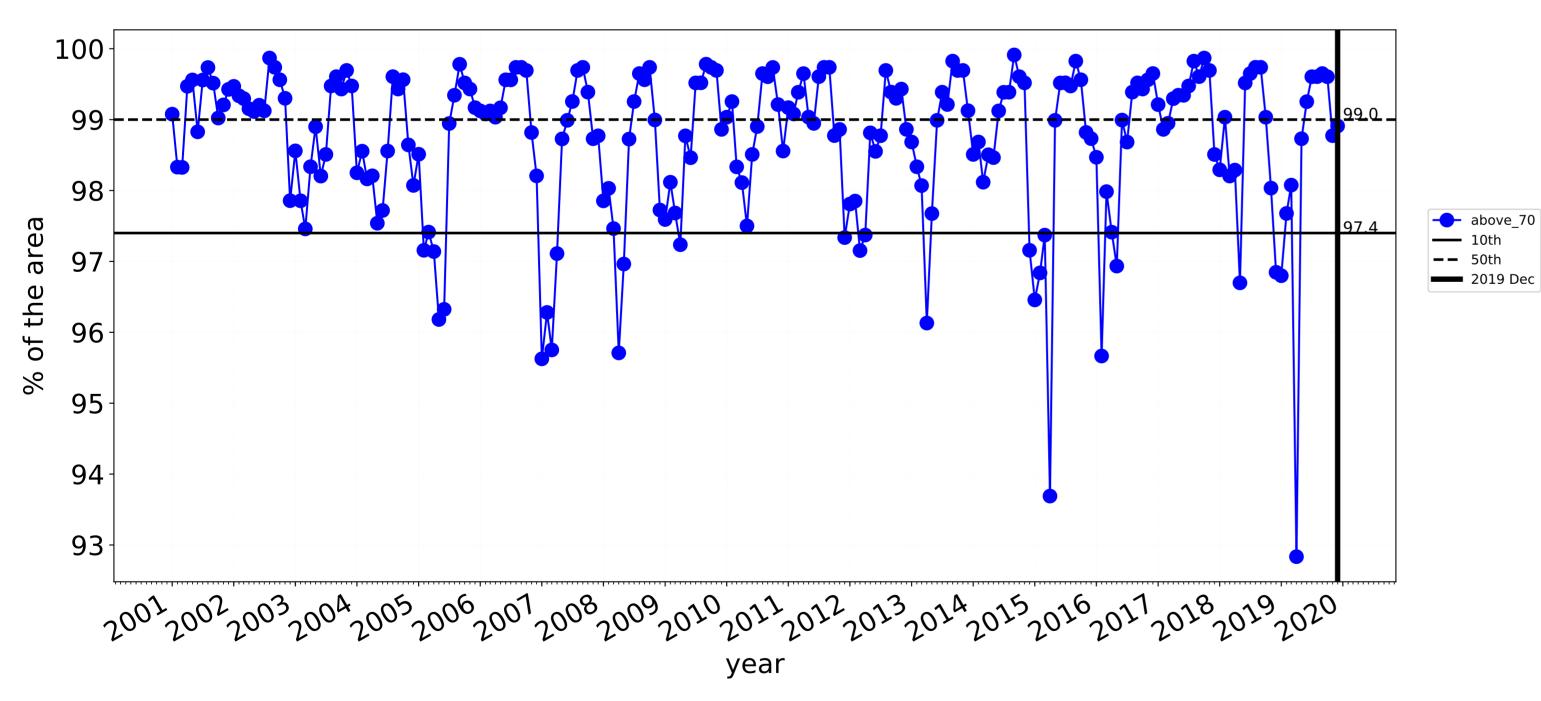
-20

1**2**

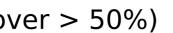


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

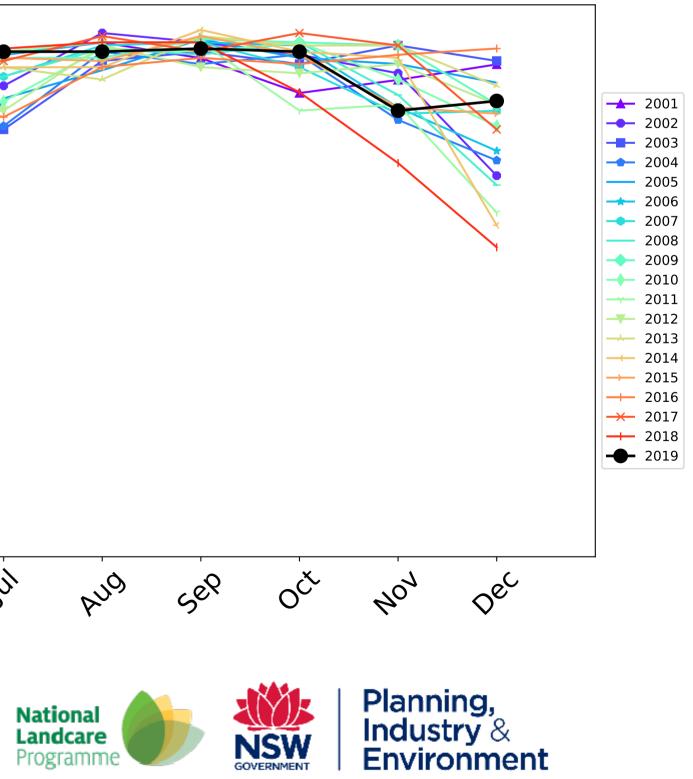


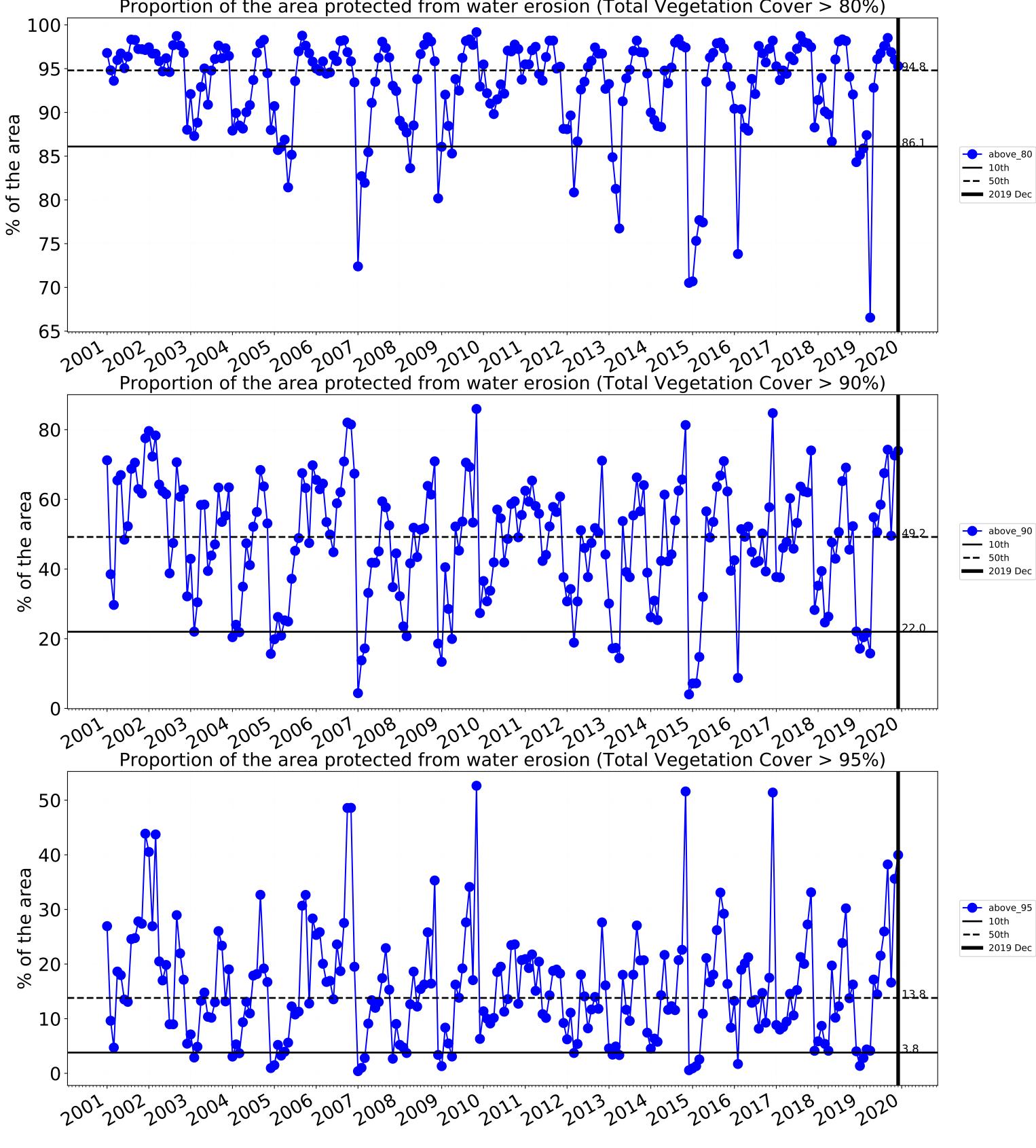
Agriculture timeseries



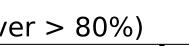
Wind erosion historical monthly area protected (Total Veg Cov >50%)

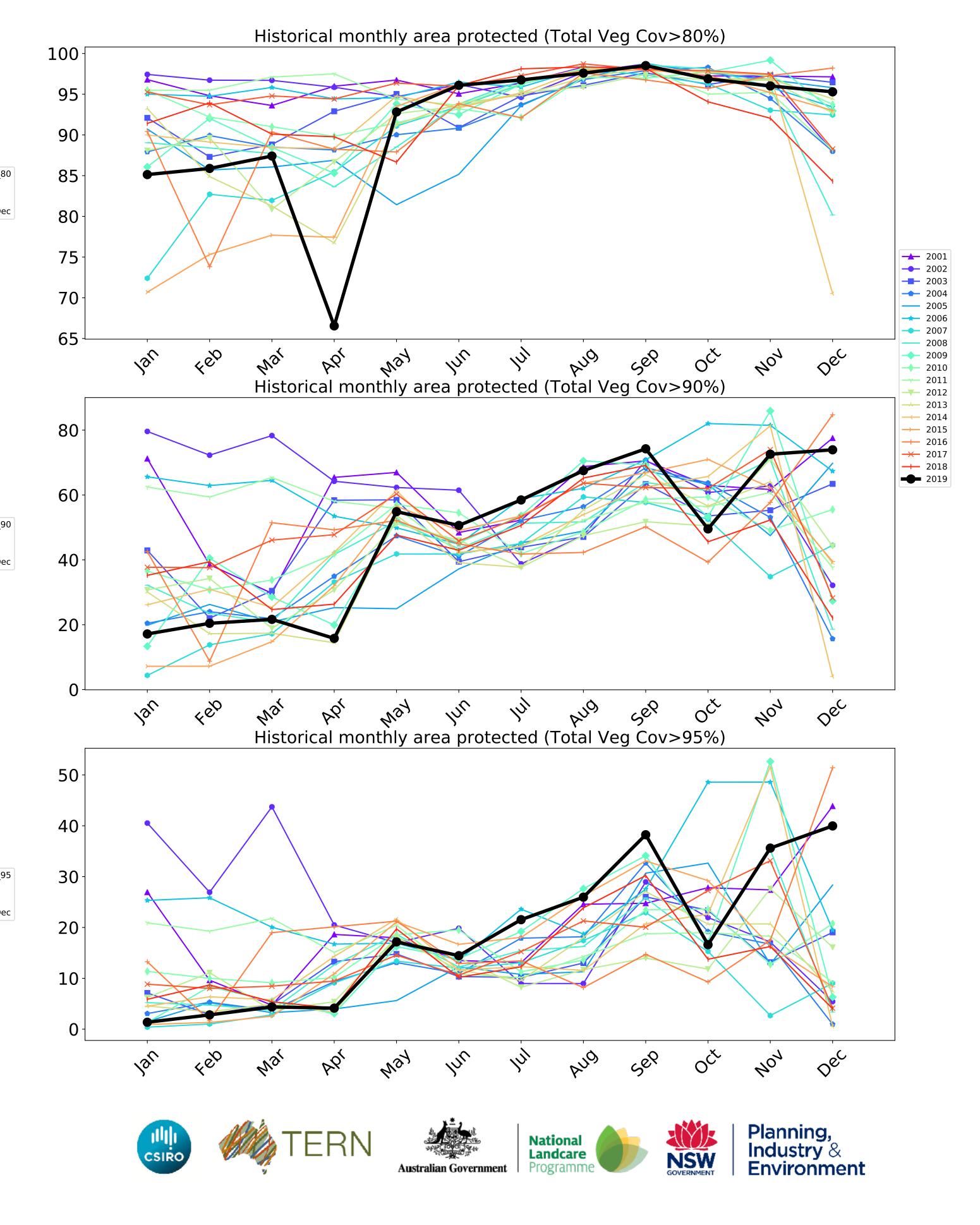
100-99 98 97 96 95 94 93 Jan 4er May In PQ hy Mar month ERN Australian Government





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





Grazing

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

12%100%

52% 70%

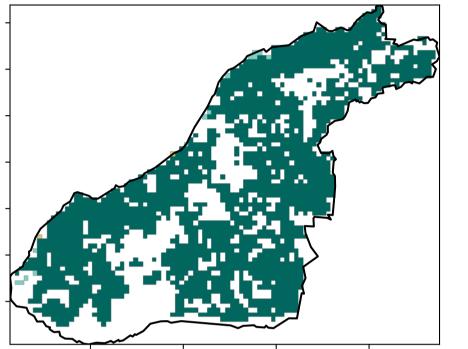
32010

0.30%

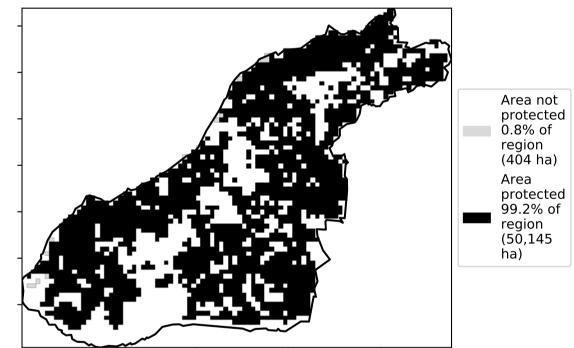
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]

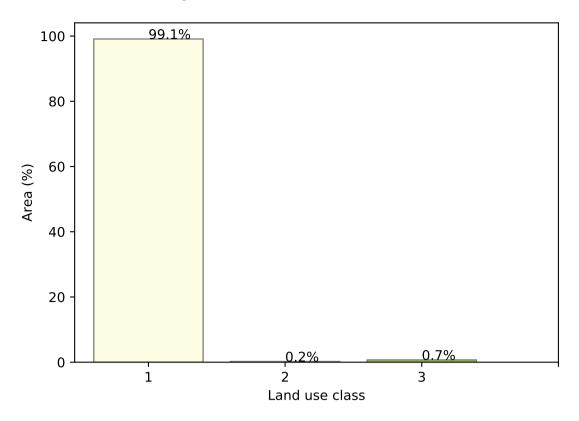
Land use and forest cover



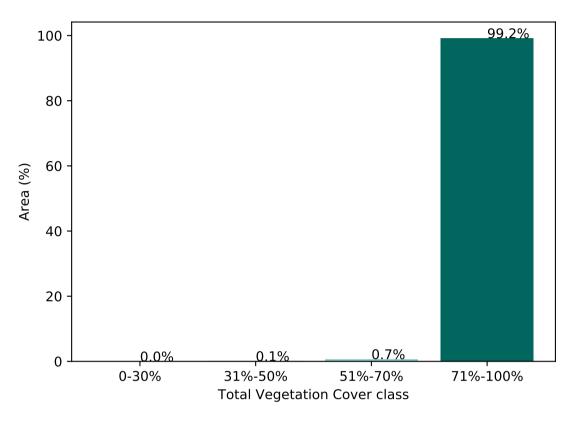
% Area protected from water erosion (>70%)



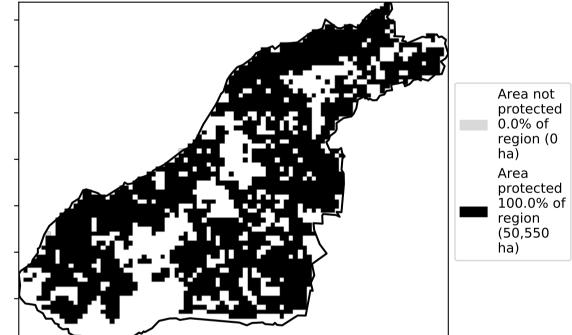




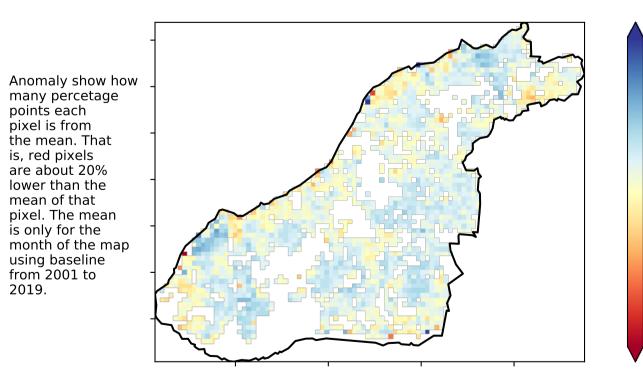
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



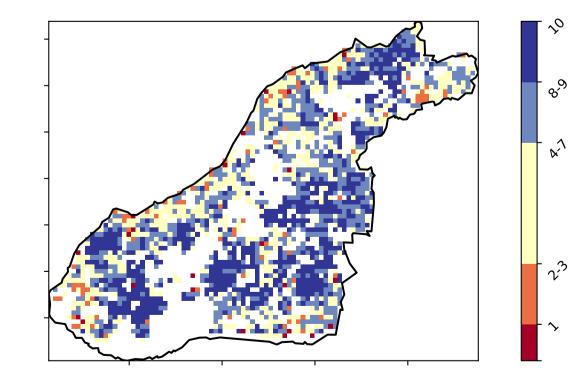
Total Vegetation Cover Anomaly [%]



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 map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]



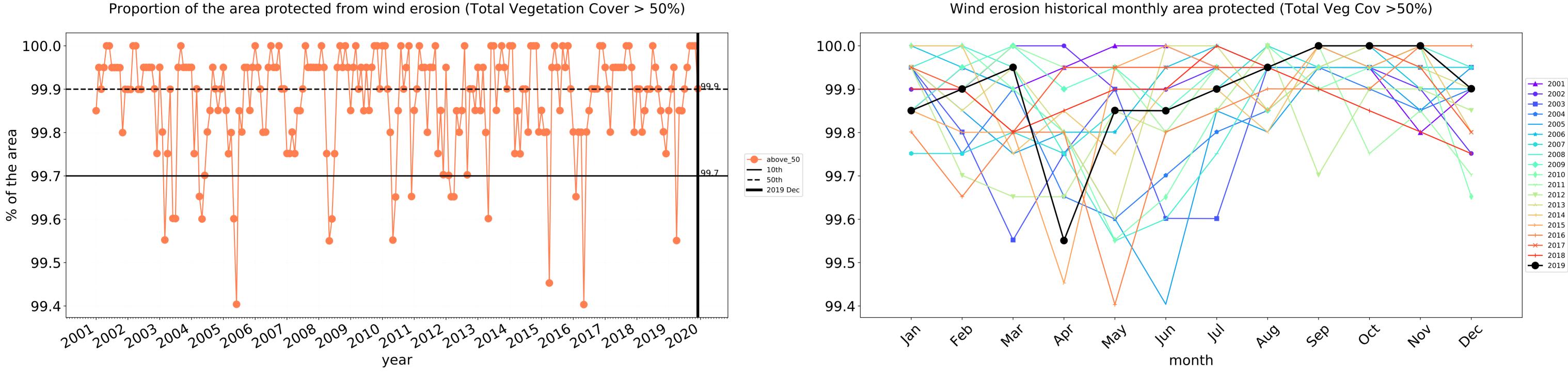


-10-20

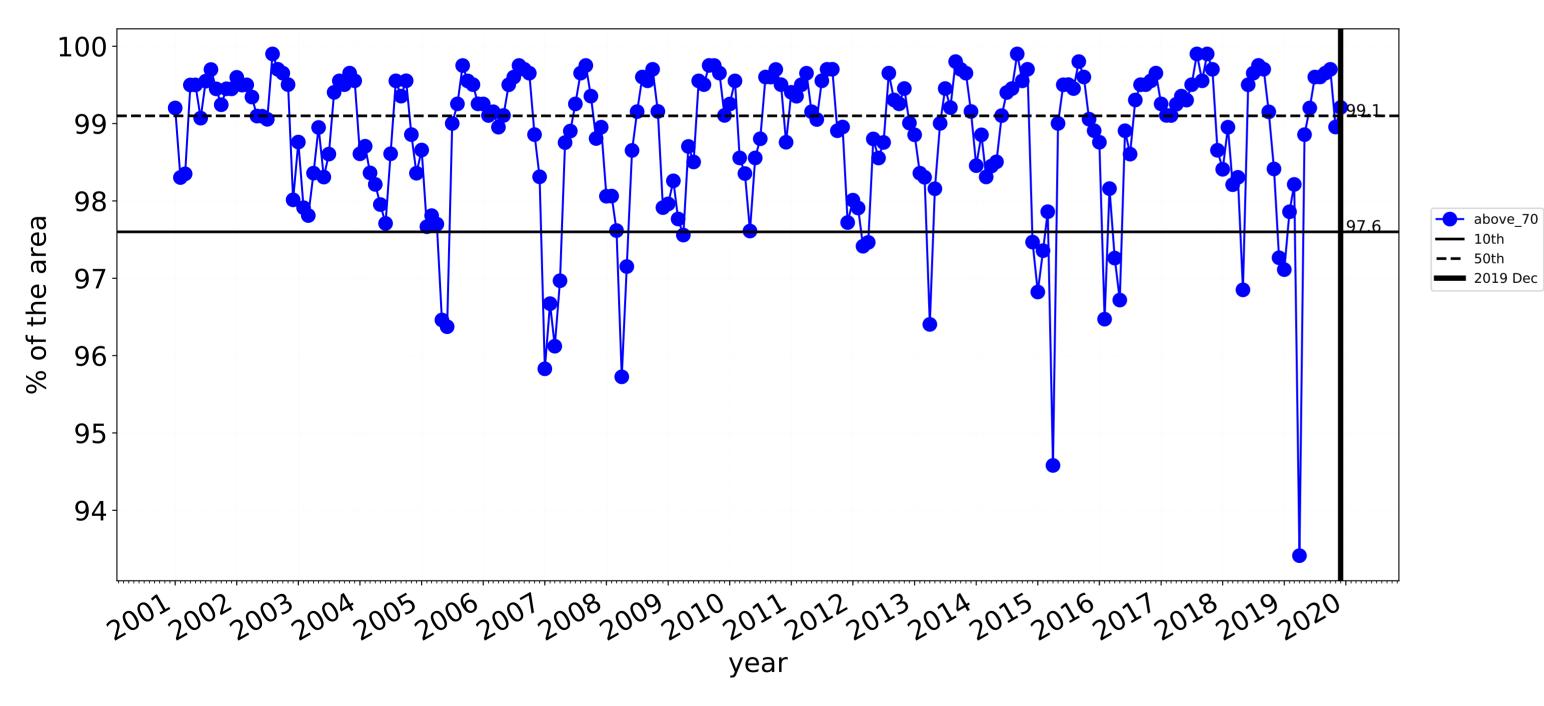
· 20

- 10

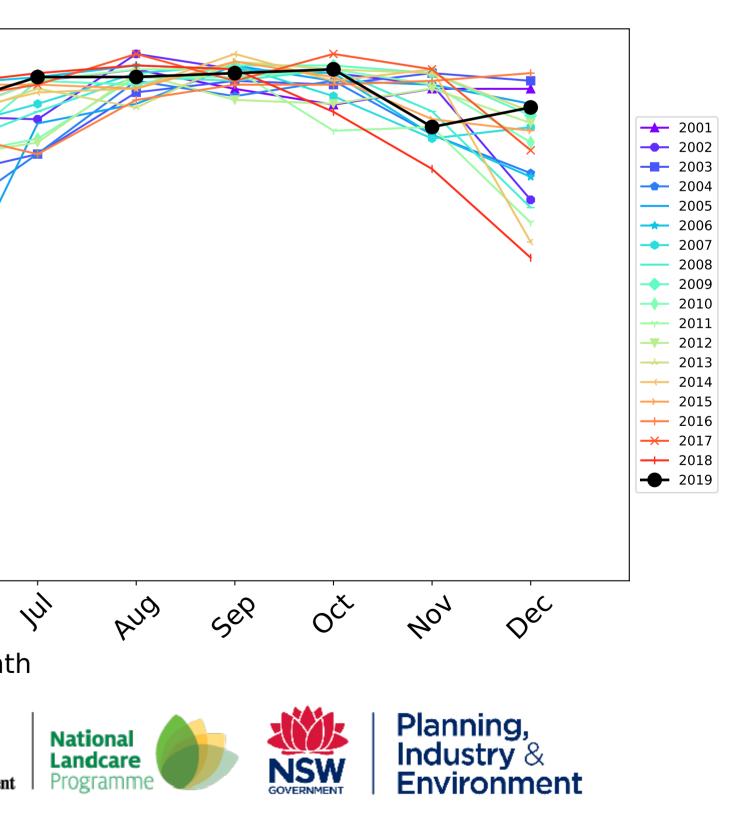
- 0

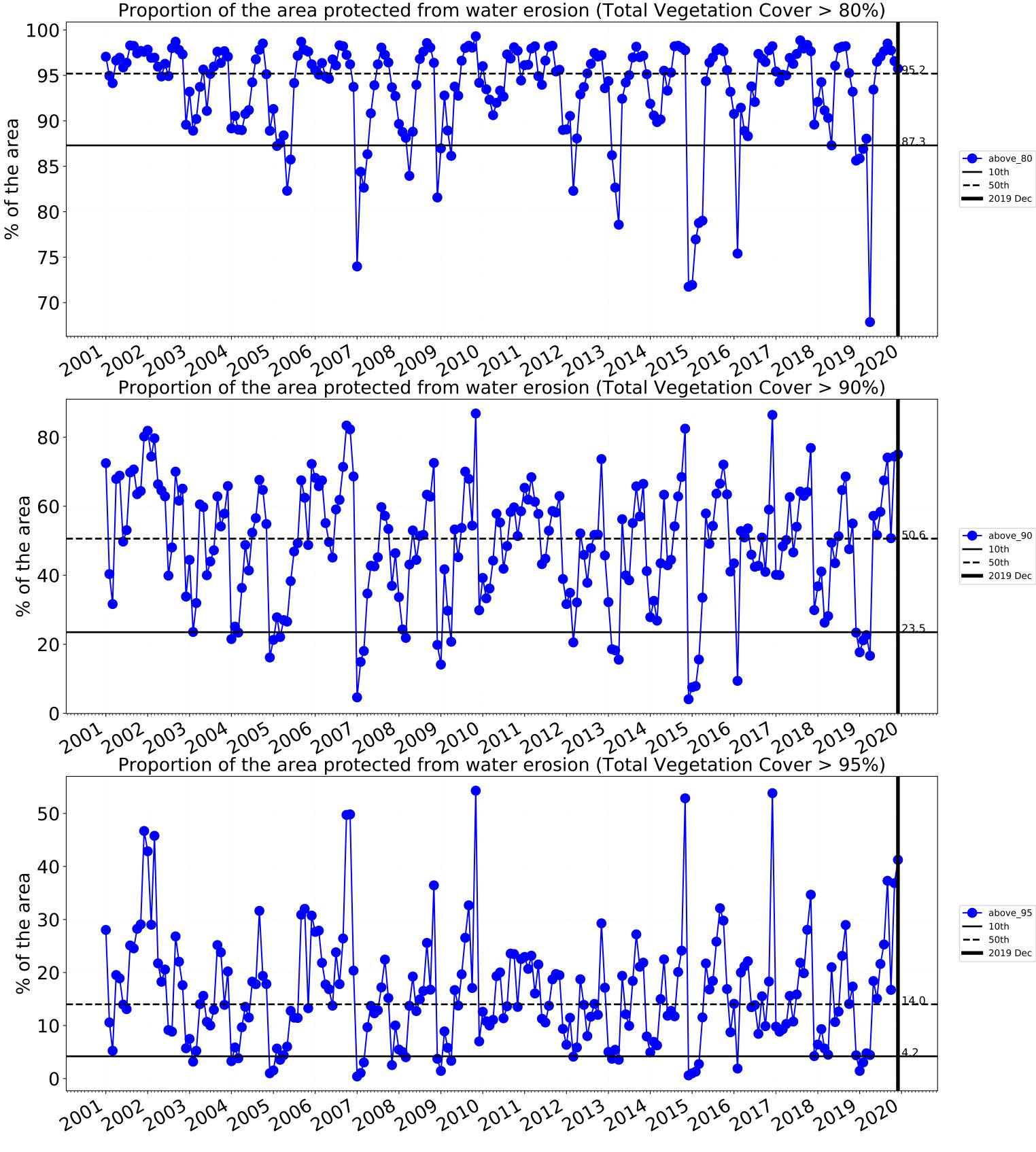


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

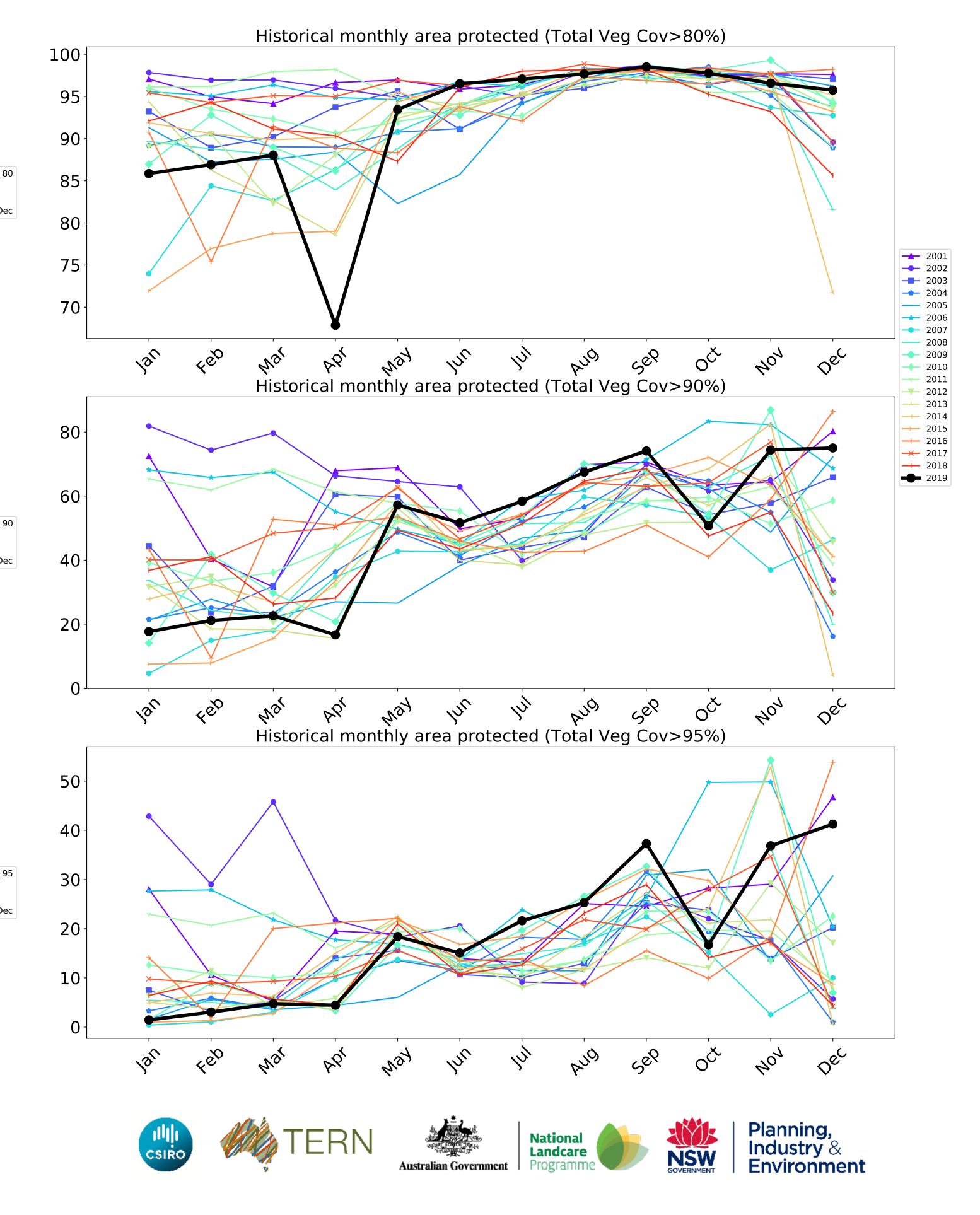


100-99 98 97 96 95⁻ 94 Par 4eb May In PQ Mar month ERN Australian Government



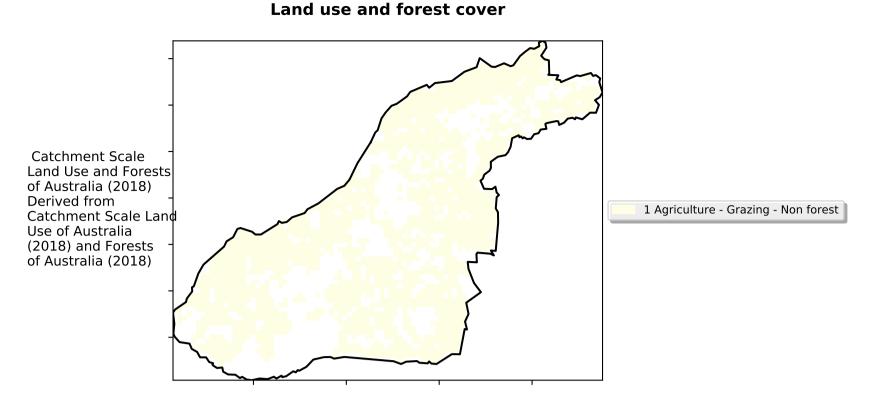




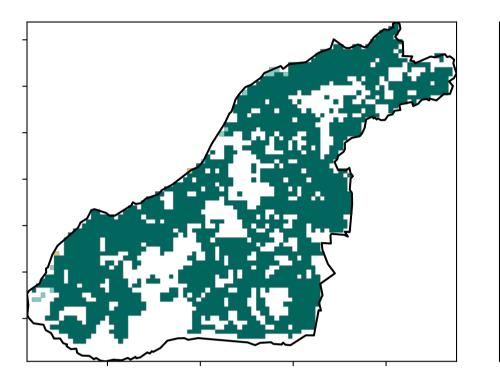


4

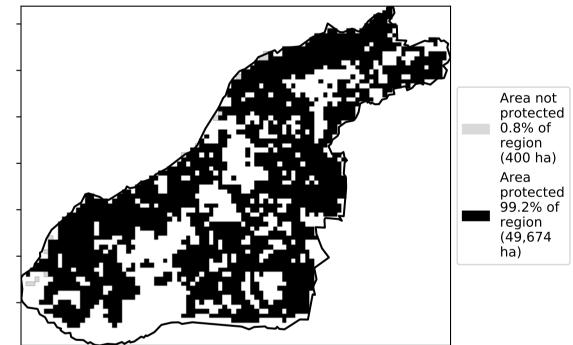
Grazing non forest



Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



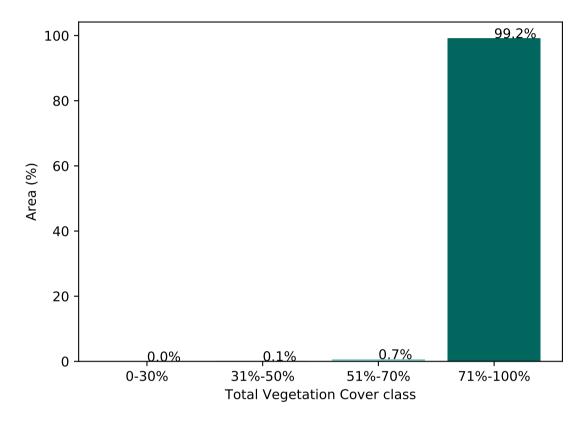
12%100%

52°10'10°10

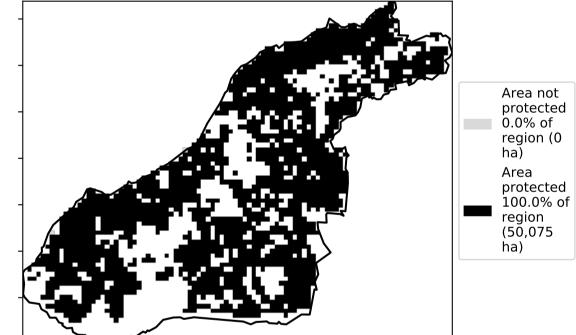
32%50%

0-30%

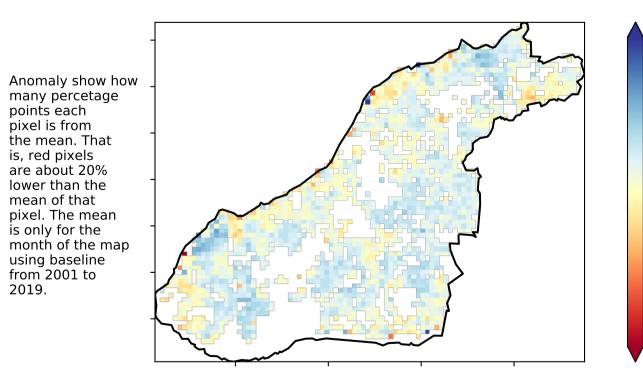
Proportion of vegetation cover class in area



% 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

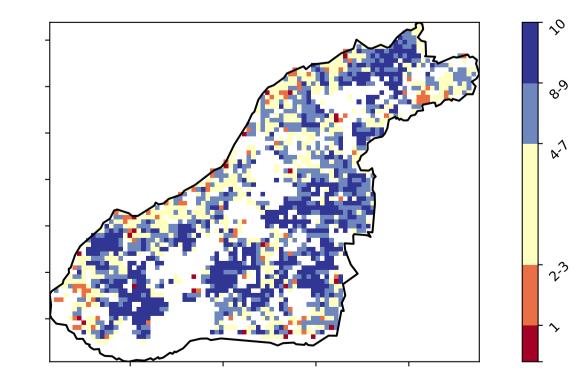
- 10

- 0

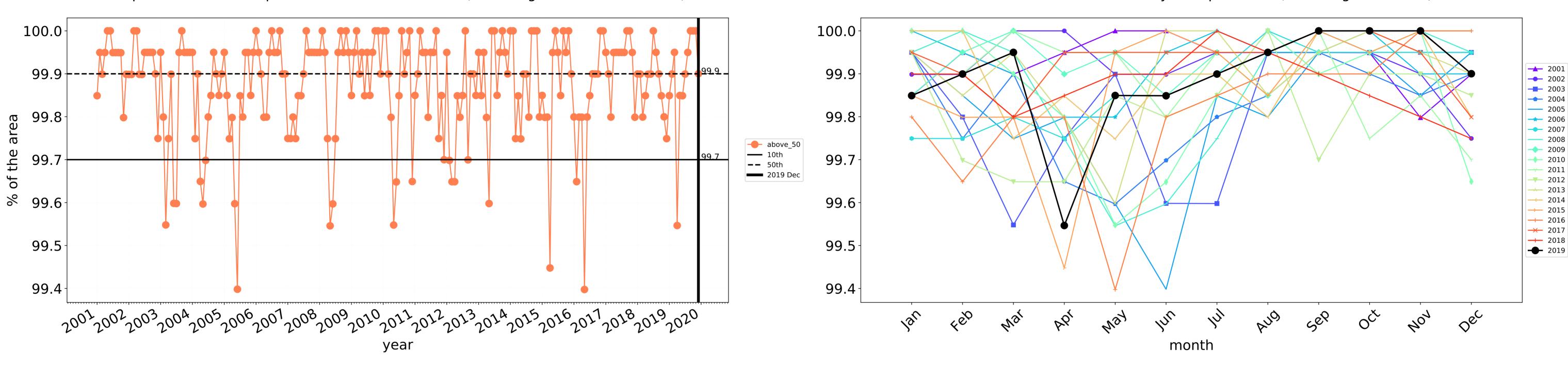
-10

-20

Total Vegetation Cover Decile [%]

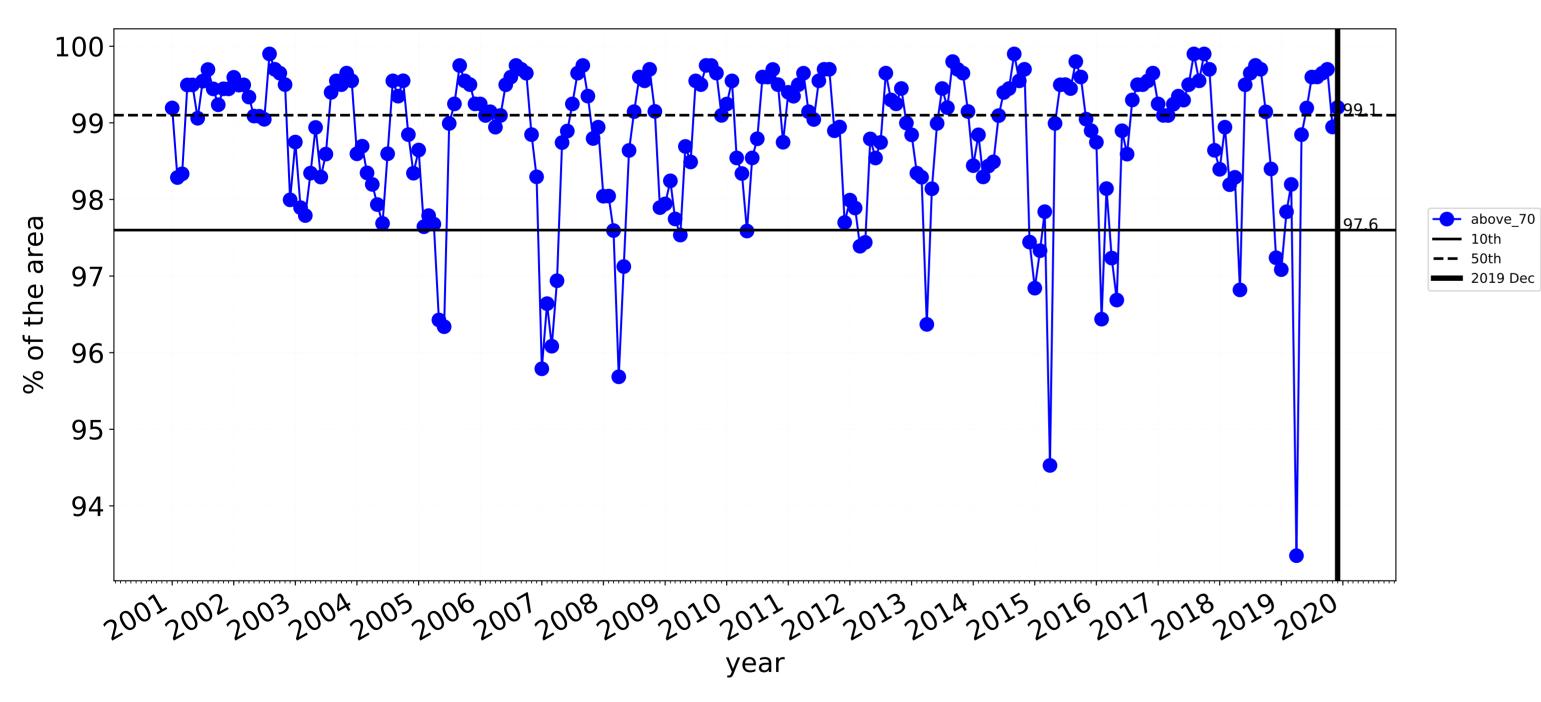




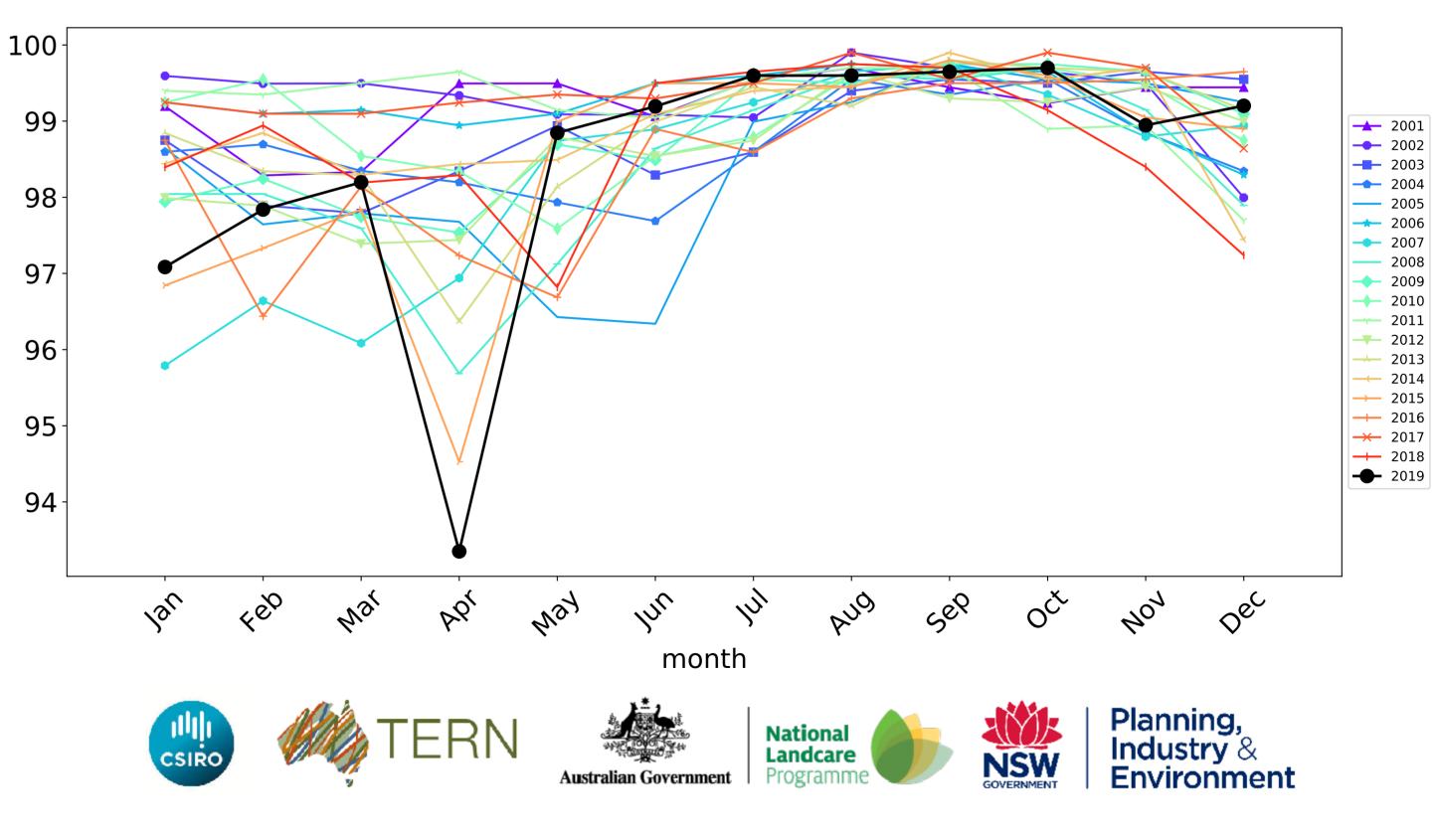


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

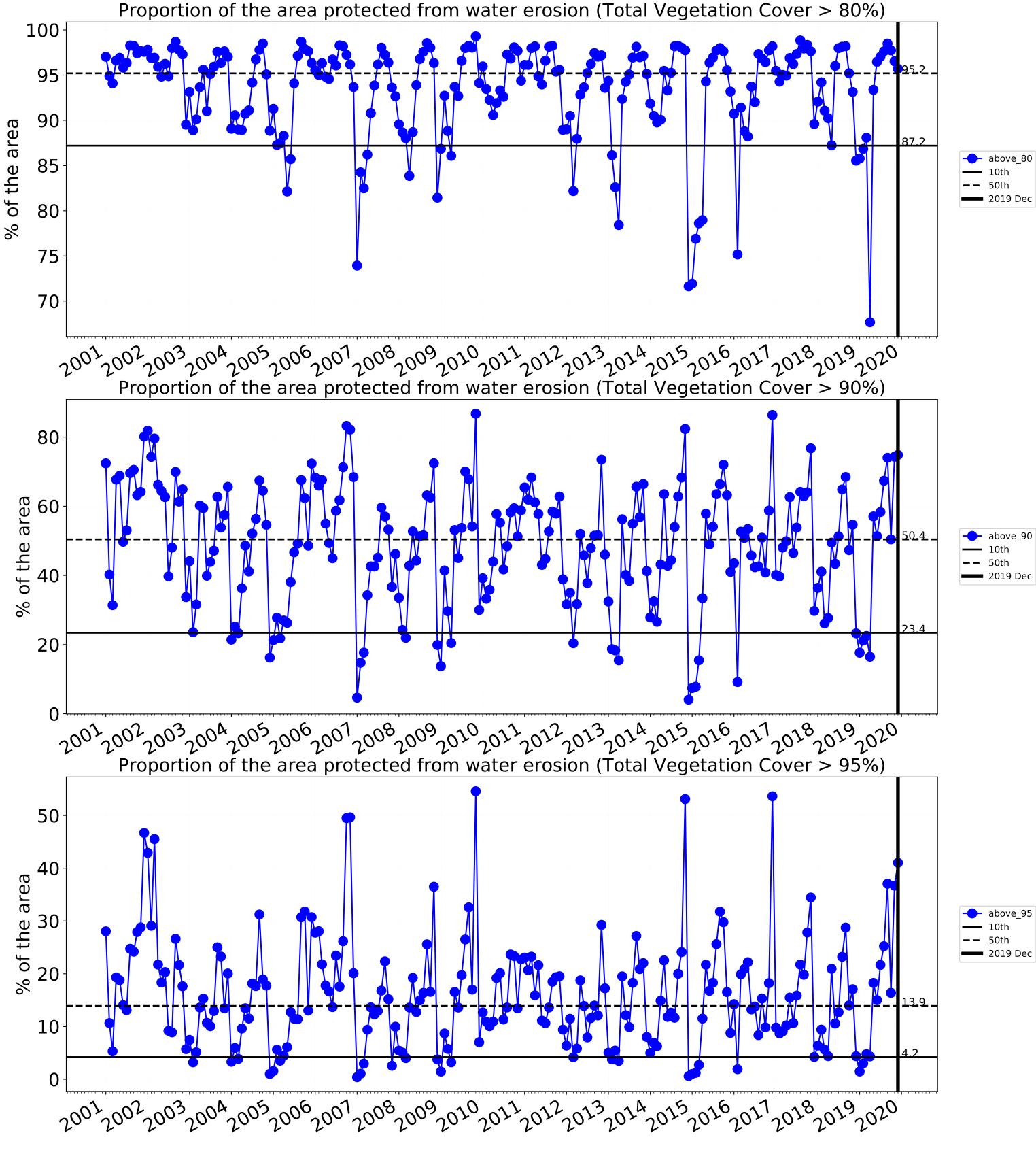
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



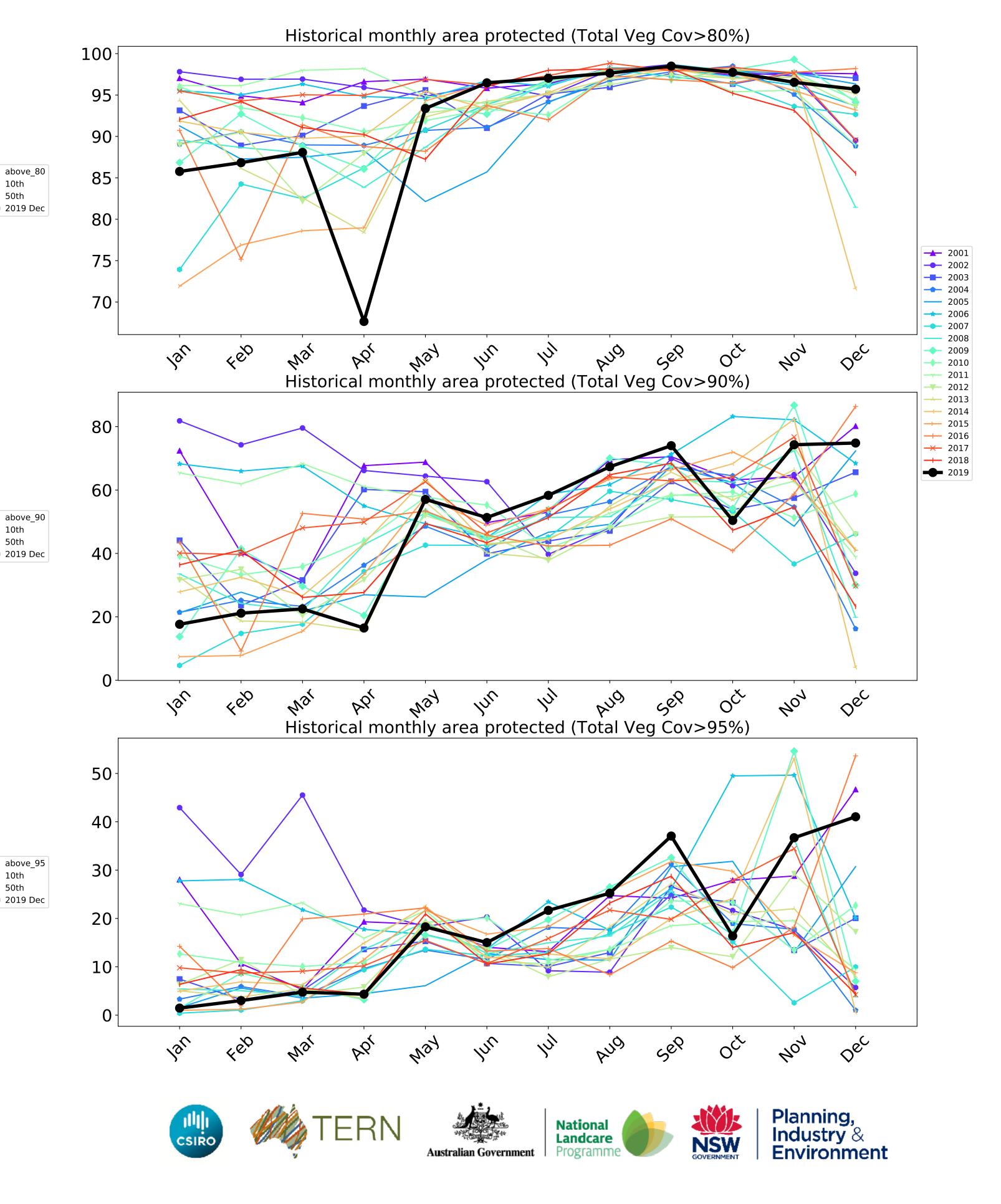
Grazing non forest timeseries



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







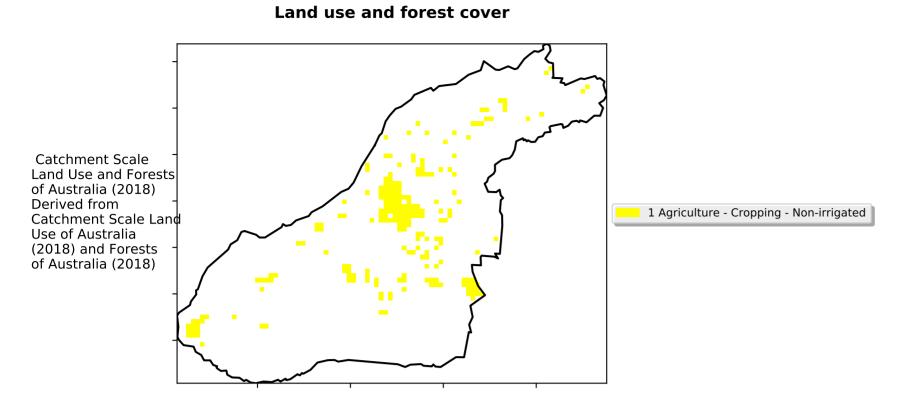
Cropping

12%100%

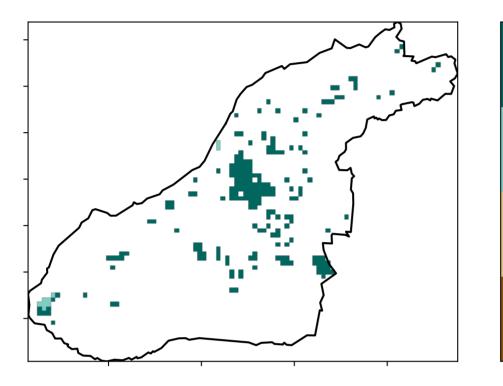
52°10°10°10

32°1050°10

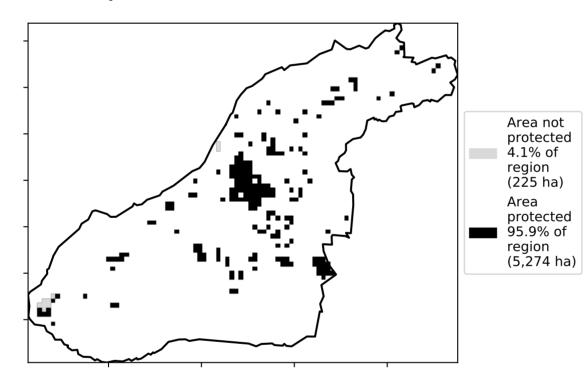
0.30%



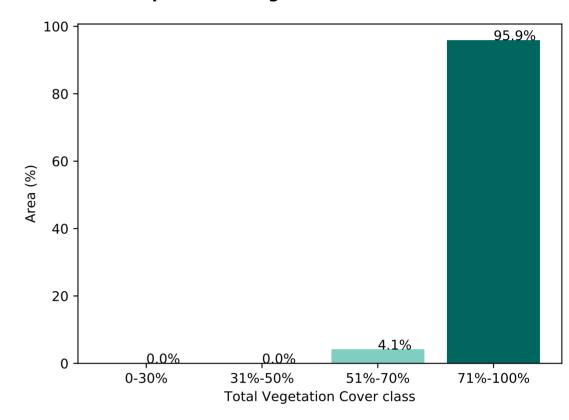
Total Vegetation Cover [%]



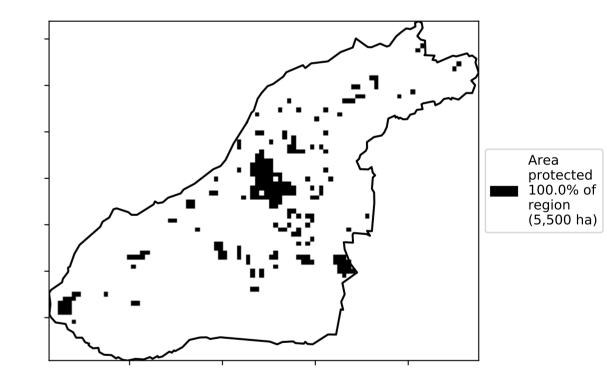
% Area protected from water erosion (>70%)



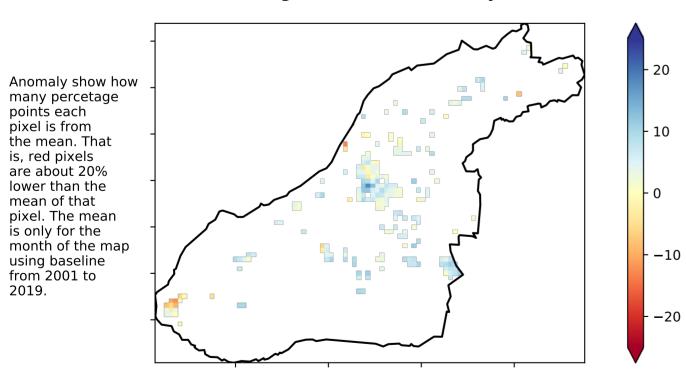
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

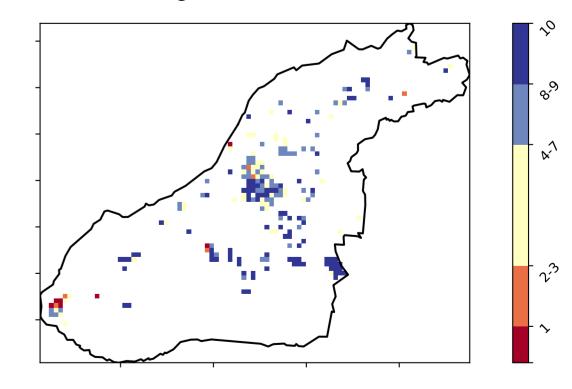


is, red pixels are about 20% lower than the

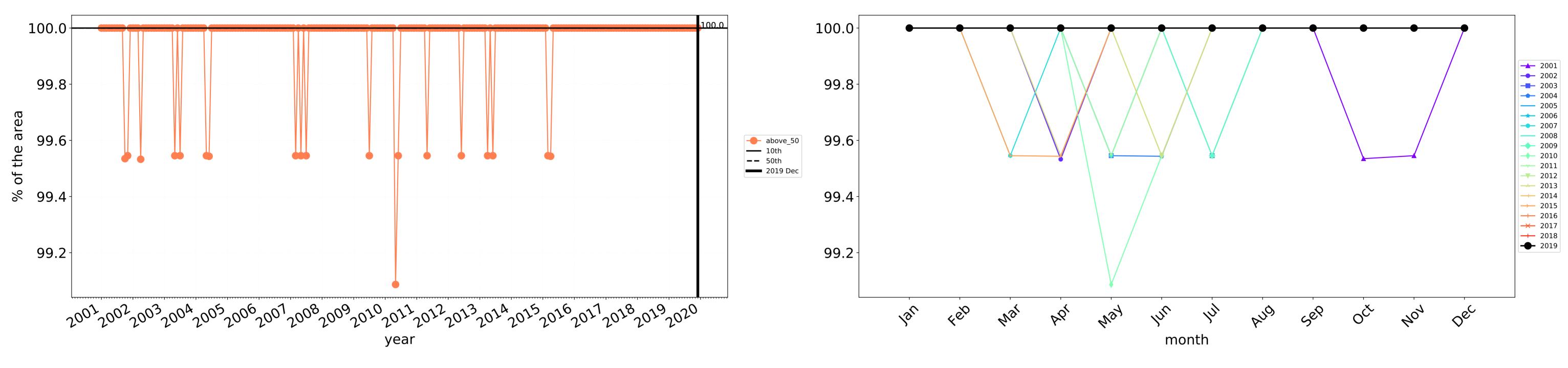
mean of that

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.

Total Vegetation Cover Decile [%]

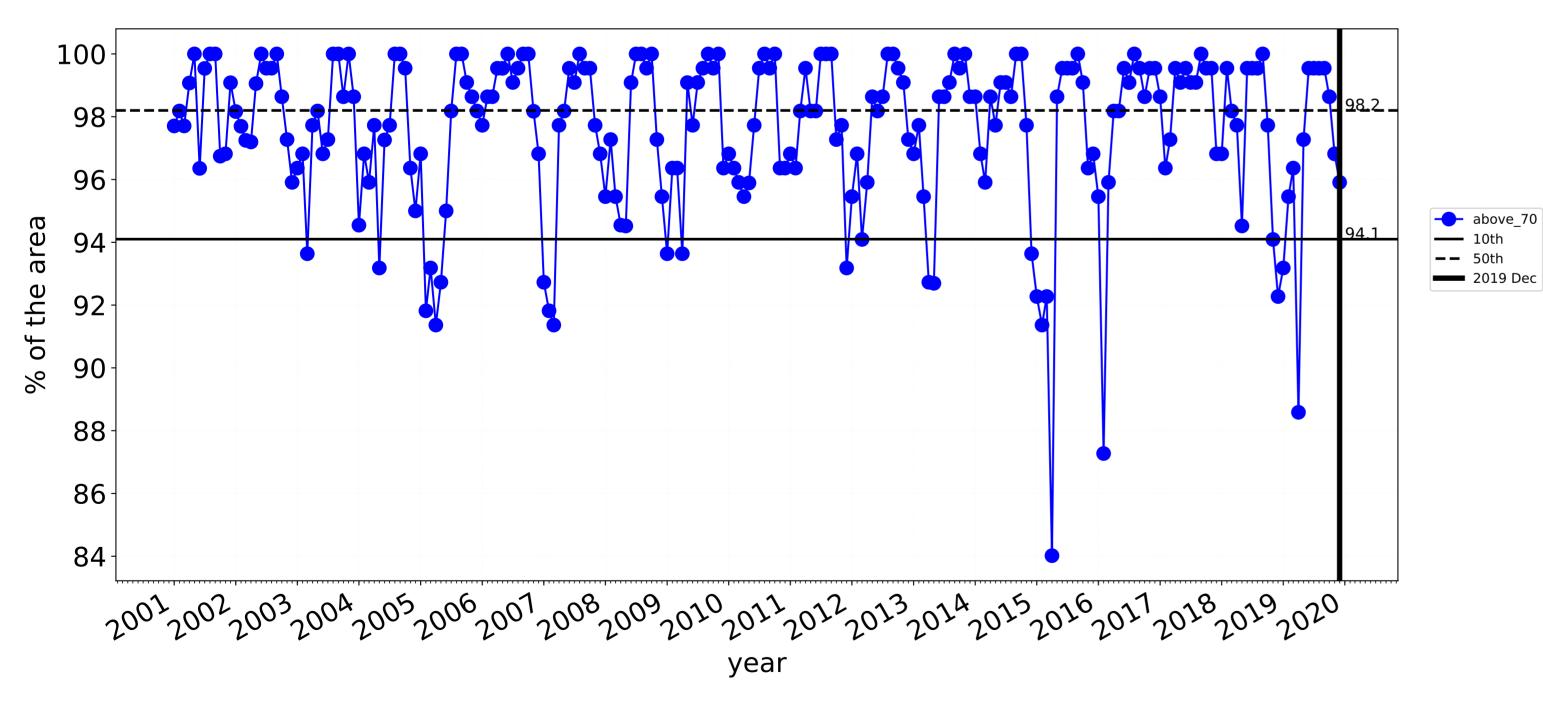






Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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

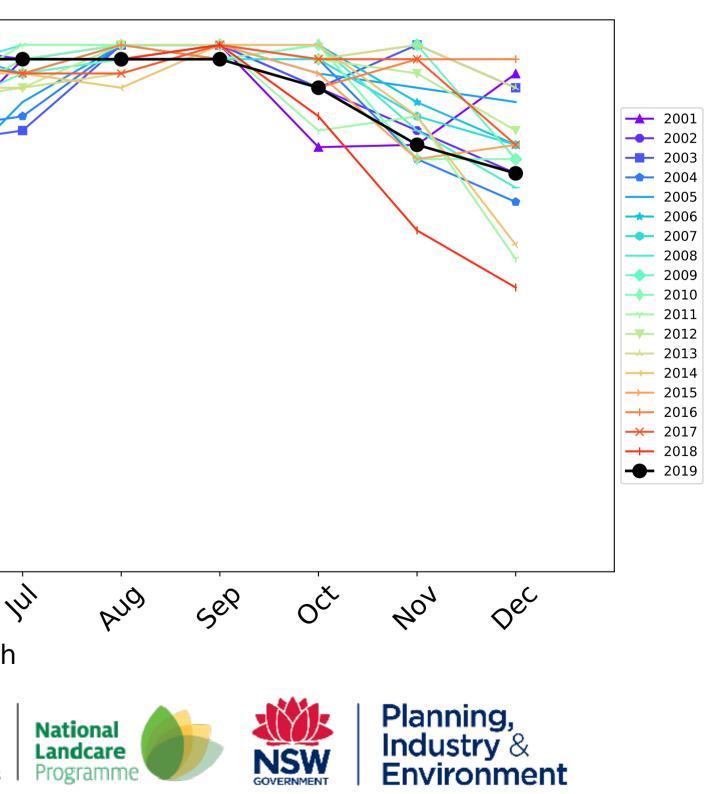


Cropping timeseries

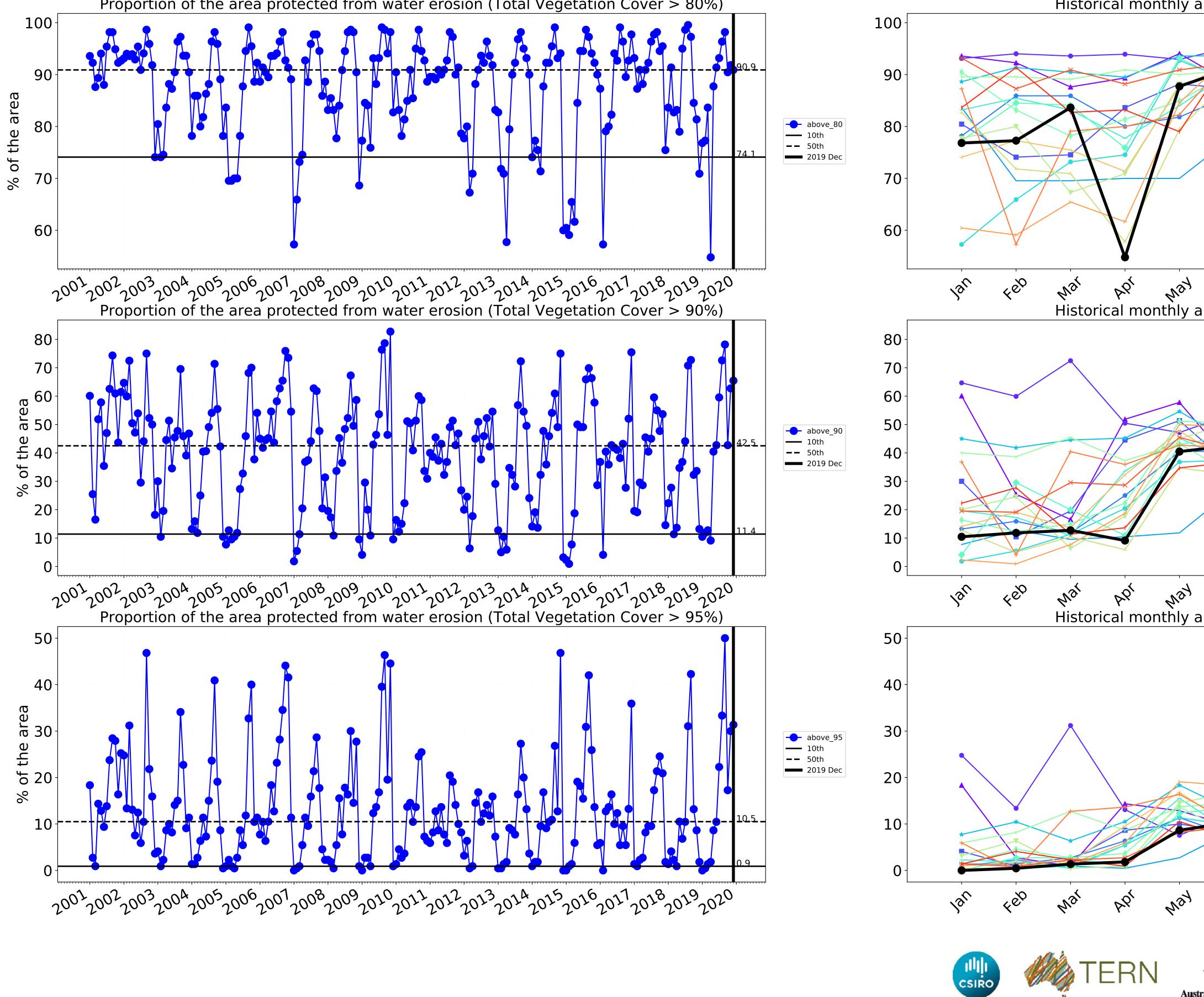
Wind erosion historical monthly area protected (Total Veg Cov >50%)

100 98 96 94 92 90 88 86 84 Jan 4er In May Mar PQ month ERN (SOQ) CSIRC Australian Government

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



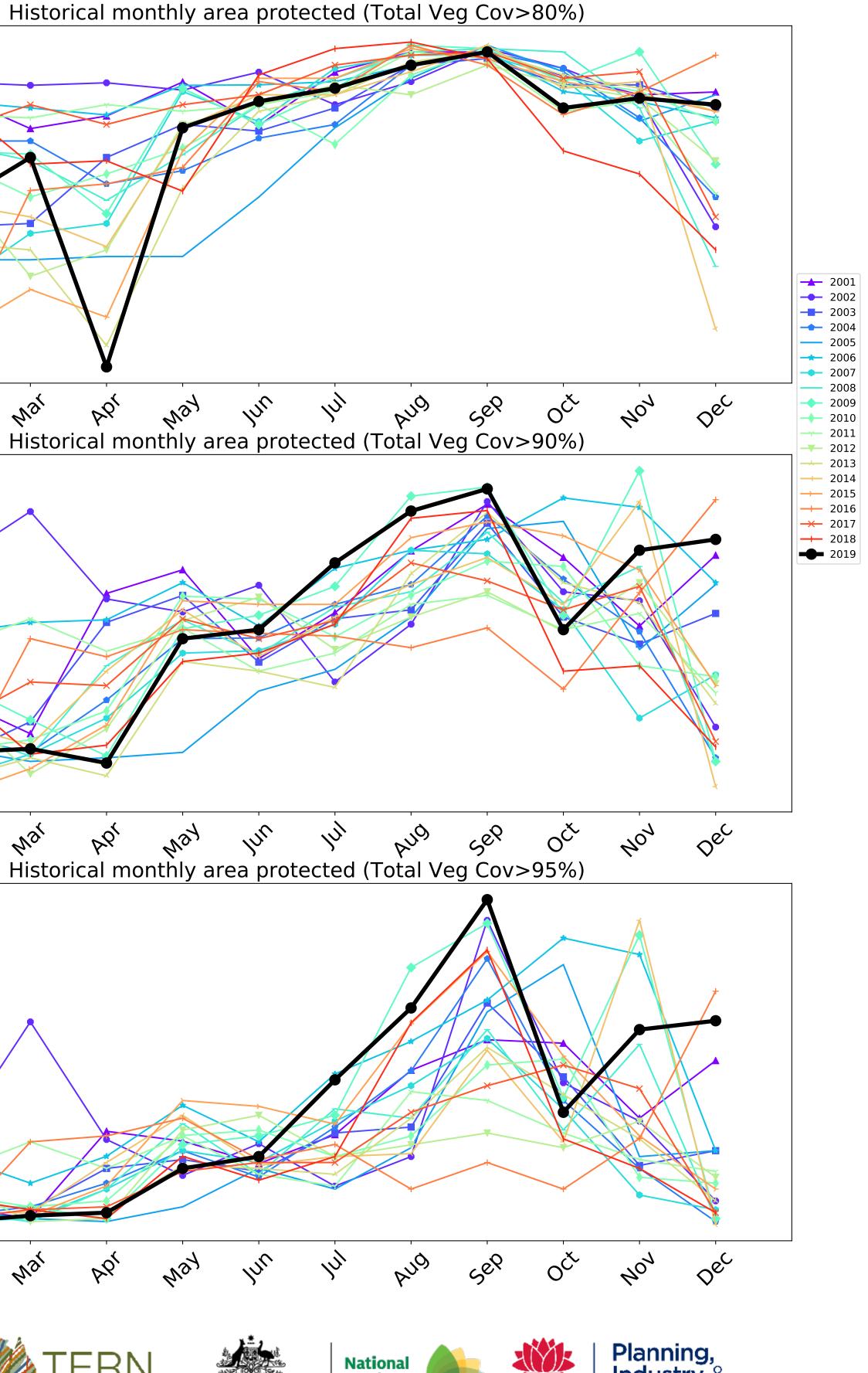
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



In

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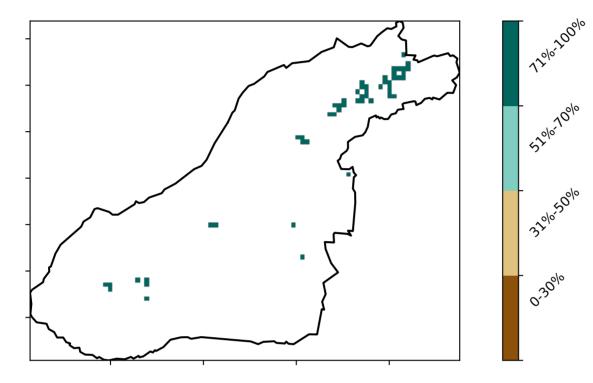


Irrigation

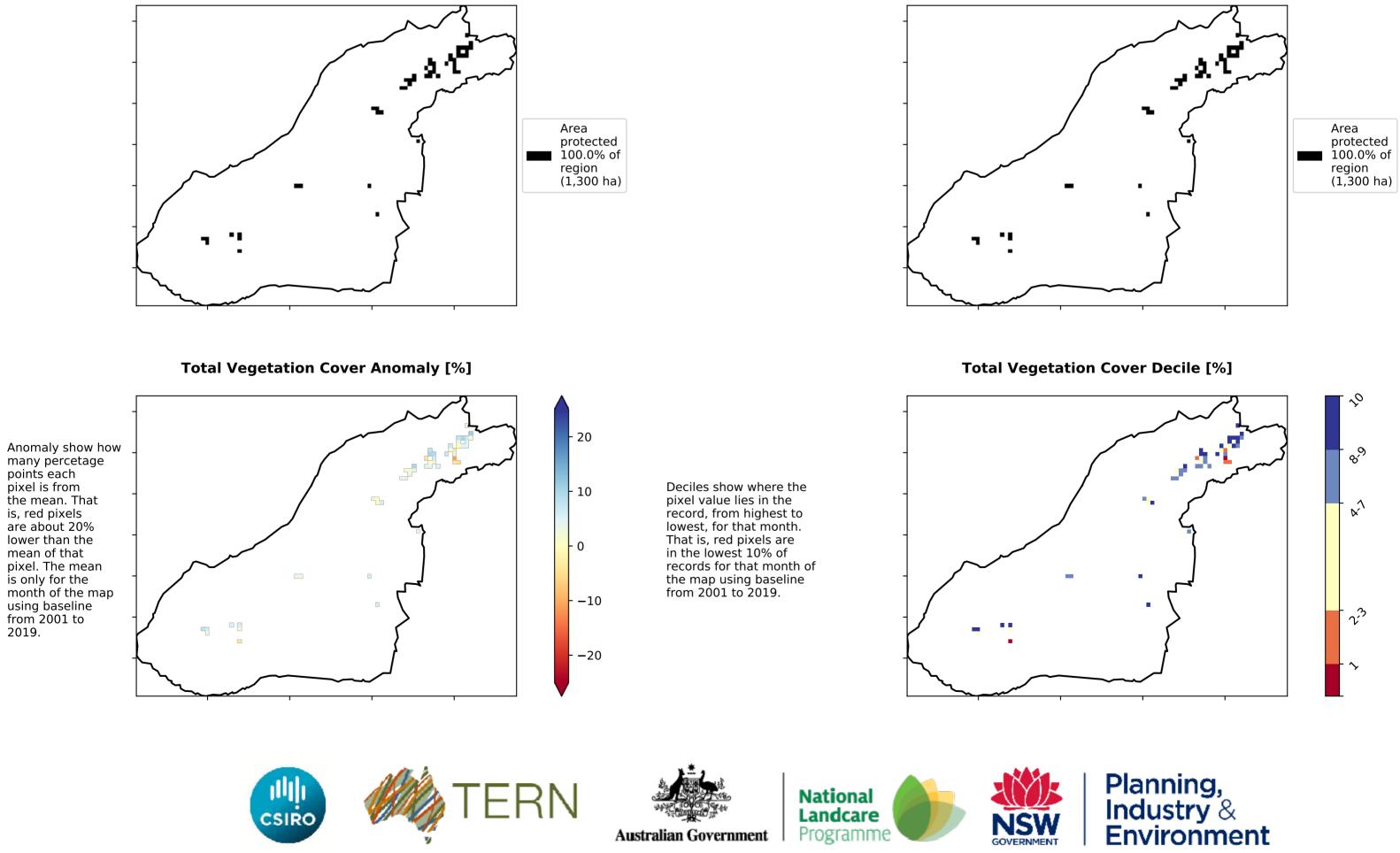
Catchment Scale Land Use and Forests of Australia (2018) 1 Agriculture - Grazing - Irrigated Derived from Catchment Scale Land 2 Agriculture - Cropping - Irrigated 3 Agriculture - Horticulture - Irrigated Use of Australia (2018) and Forests of Australia (2018)

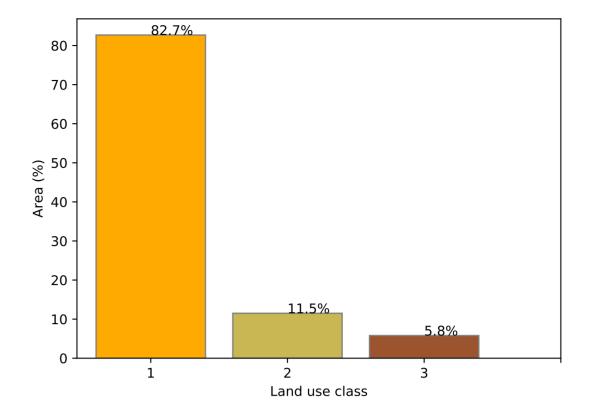
Land use and forest cover

Total Vegetation Cover [%]



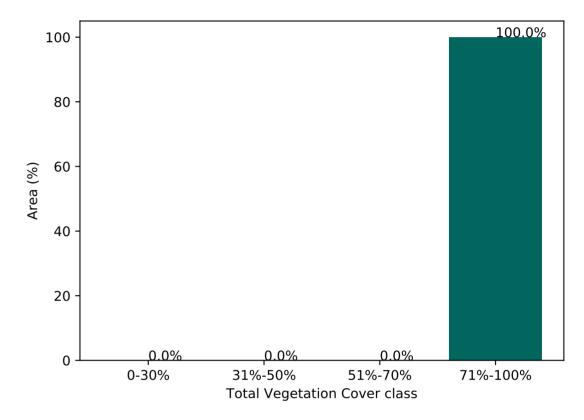
% Area protected from water erosion (>70%)



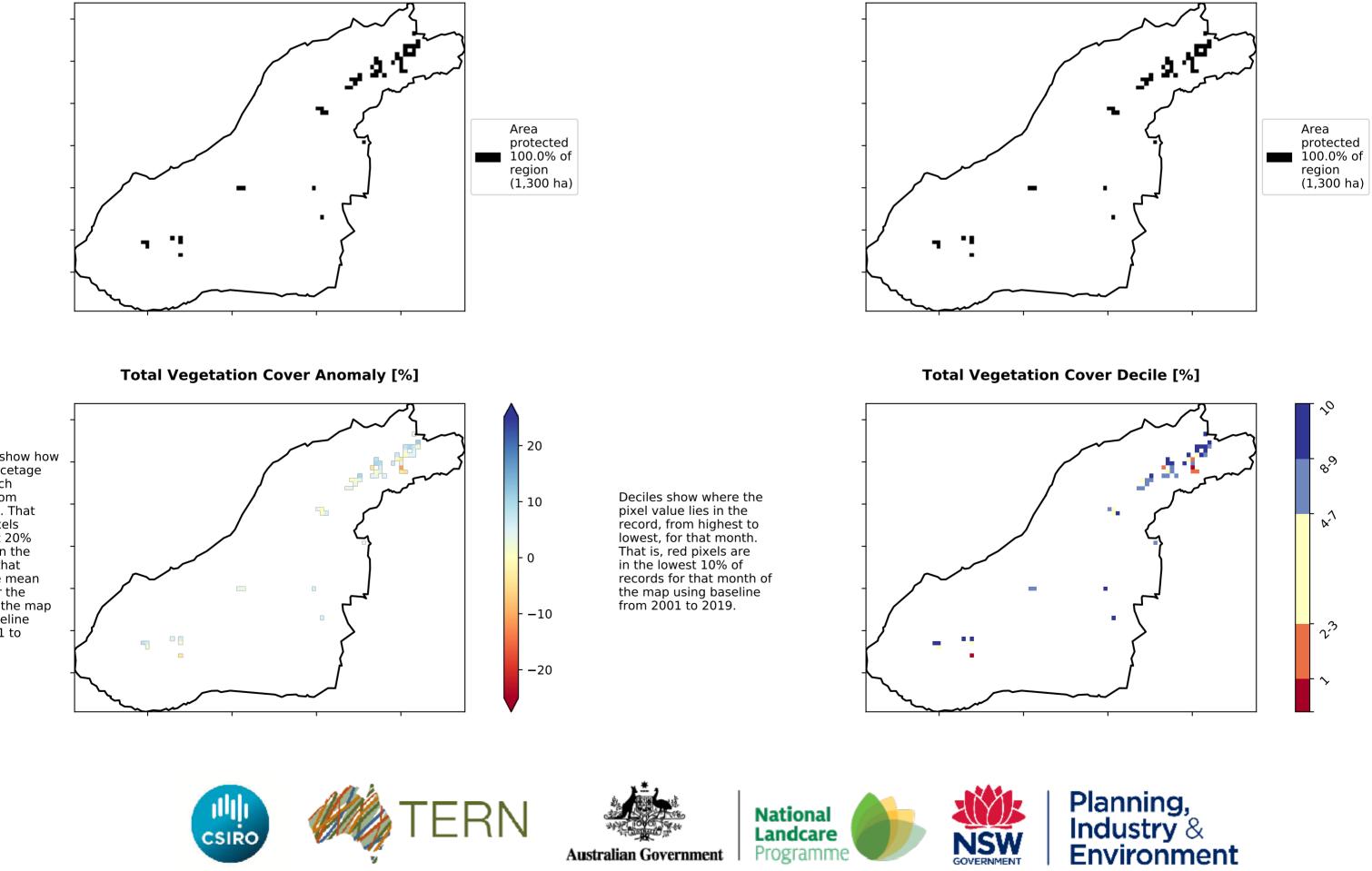


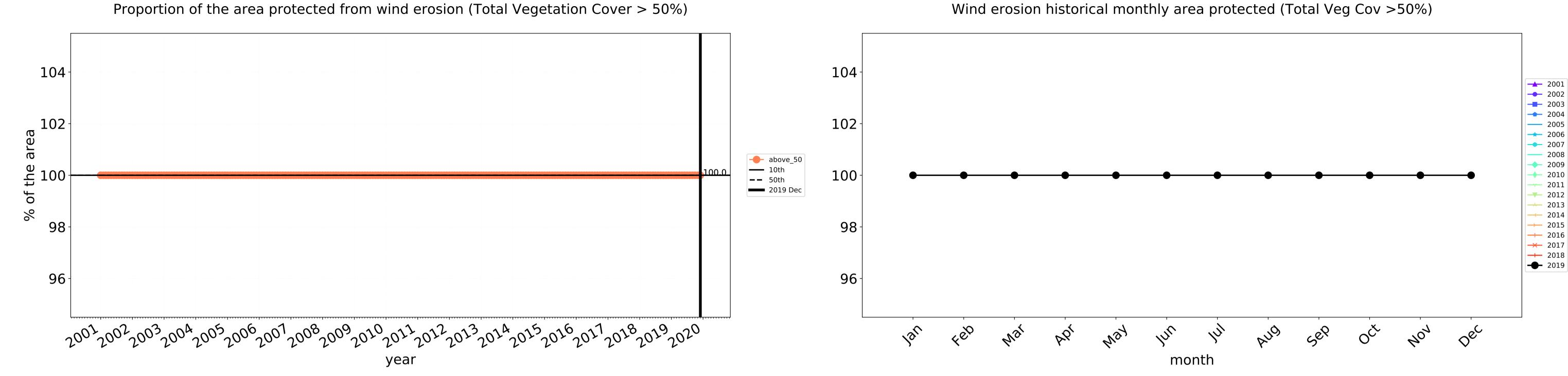
Proportion of each land class in area

Proportion of vegetation cover class in area

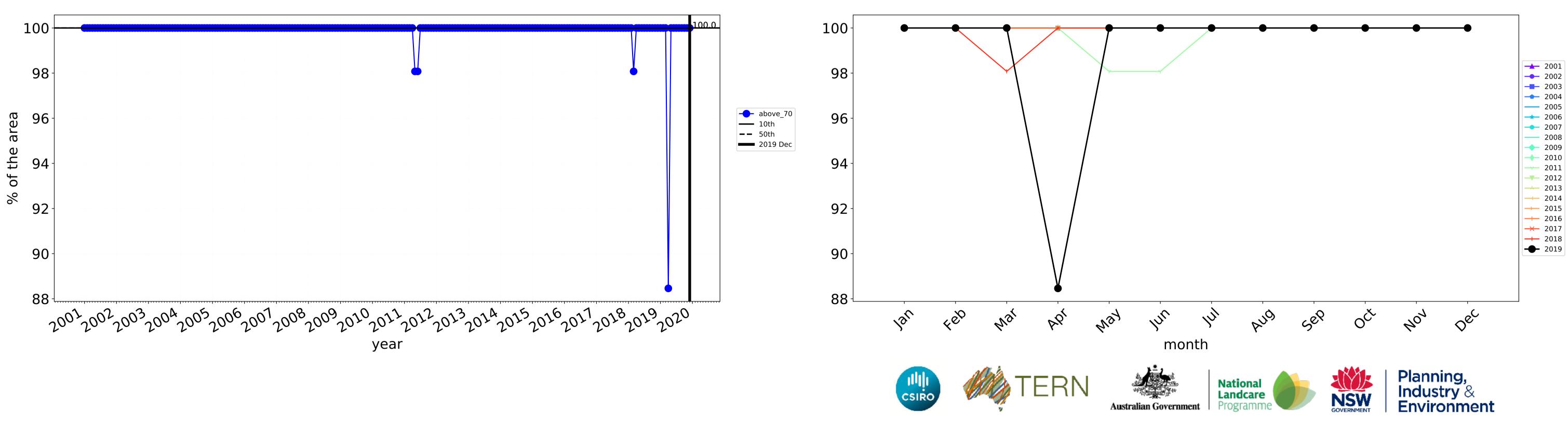


% Area protected from wind erosion (>50%)

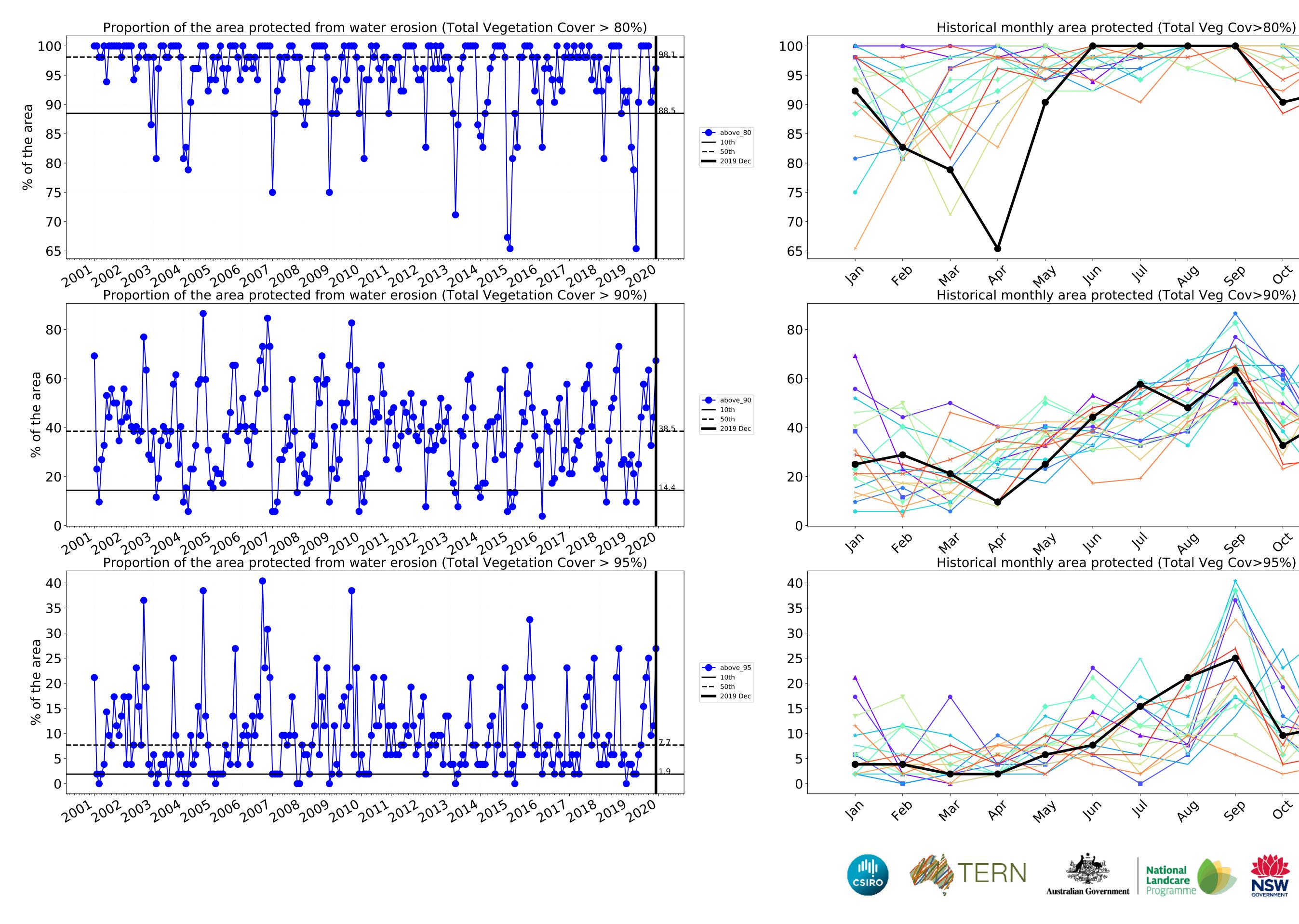


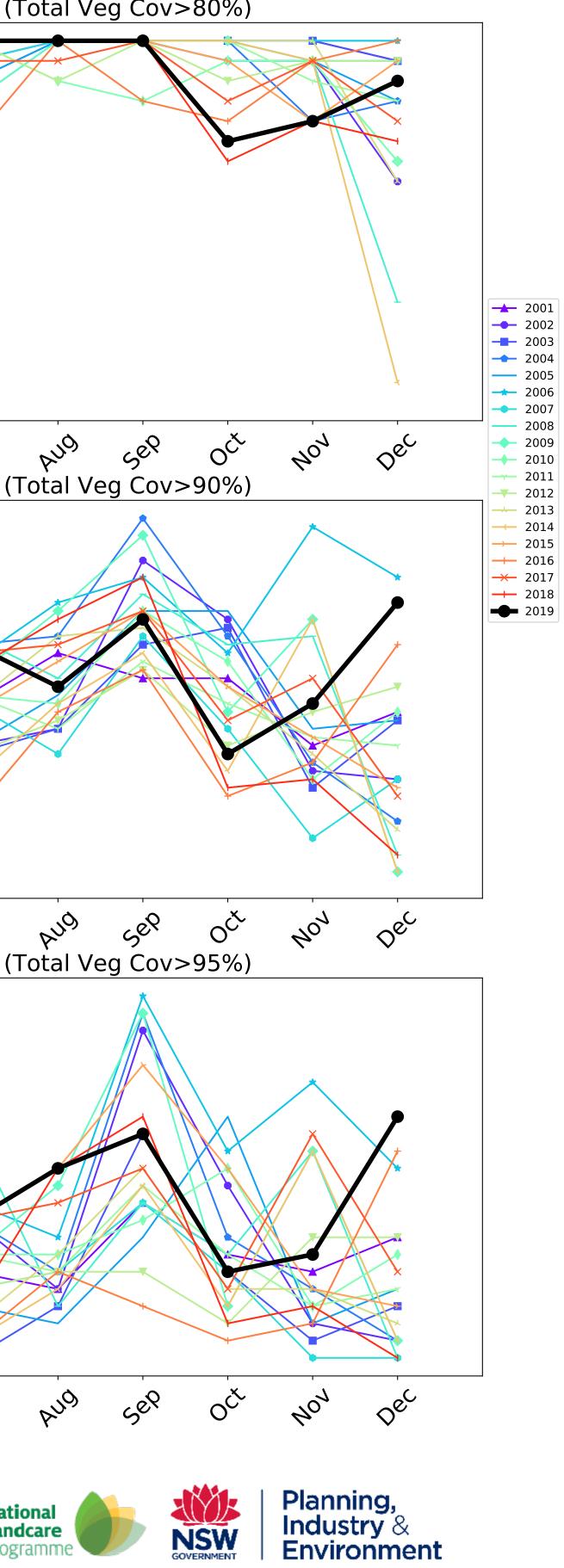


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

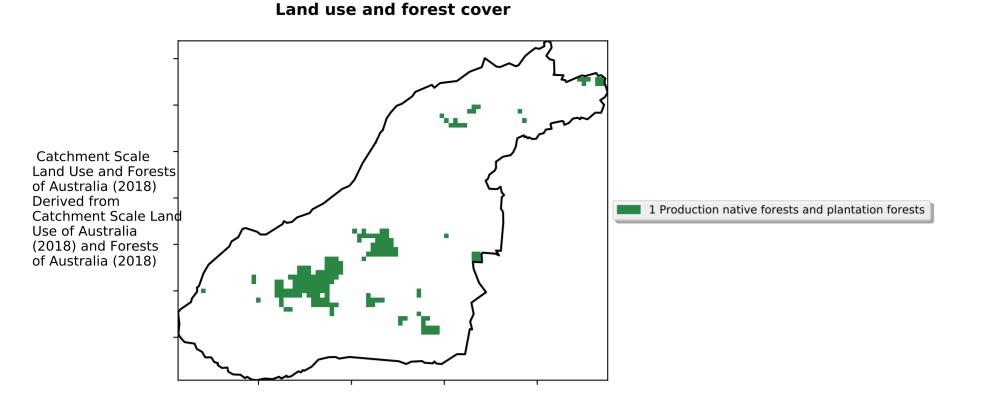


Irrigation timeseries

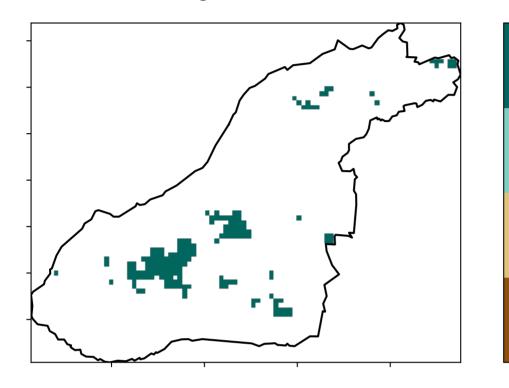




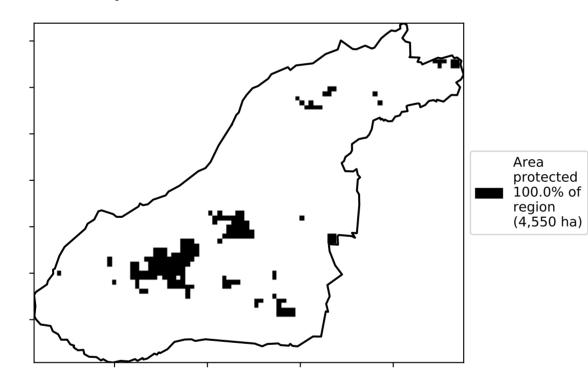
Production native forests and plantation forests



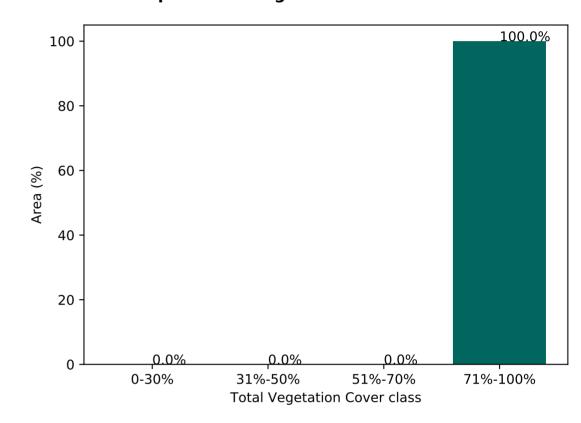
Total Vegetation Cover [%]



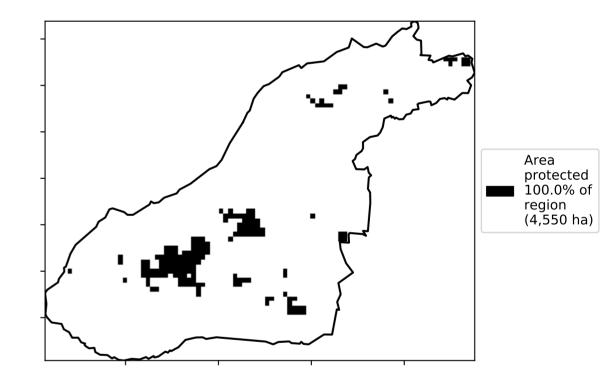
% Area protected from water erosion (>70%)



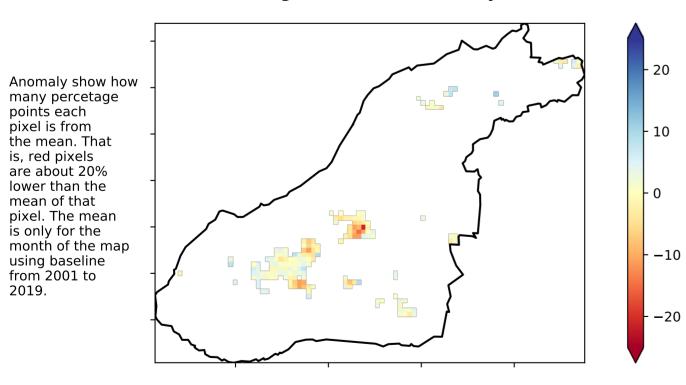
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



- 10 - 0 - —10

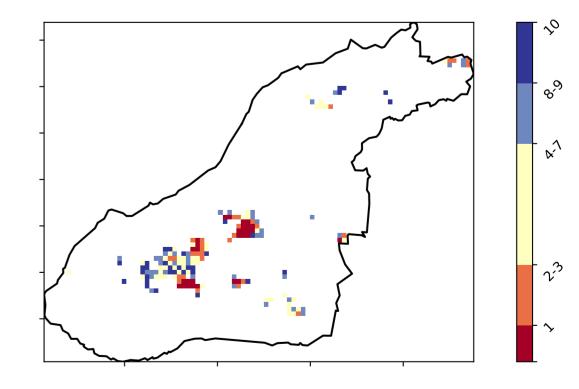
12% 10°10°%

· 52% 70%

320050010

0-30%

Total Vegetation Cover Decile [%]

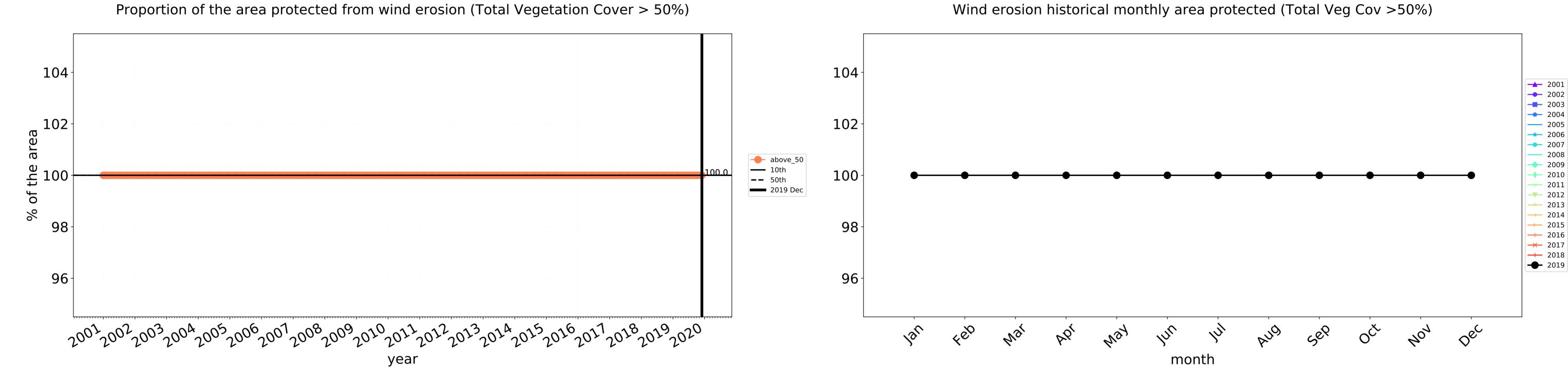




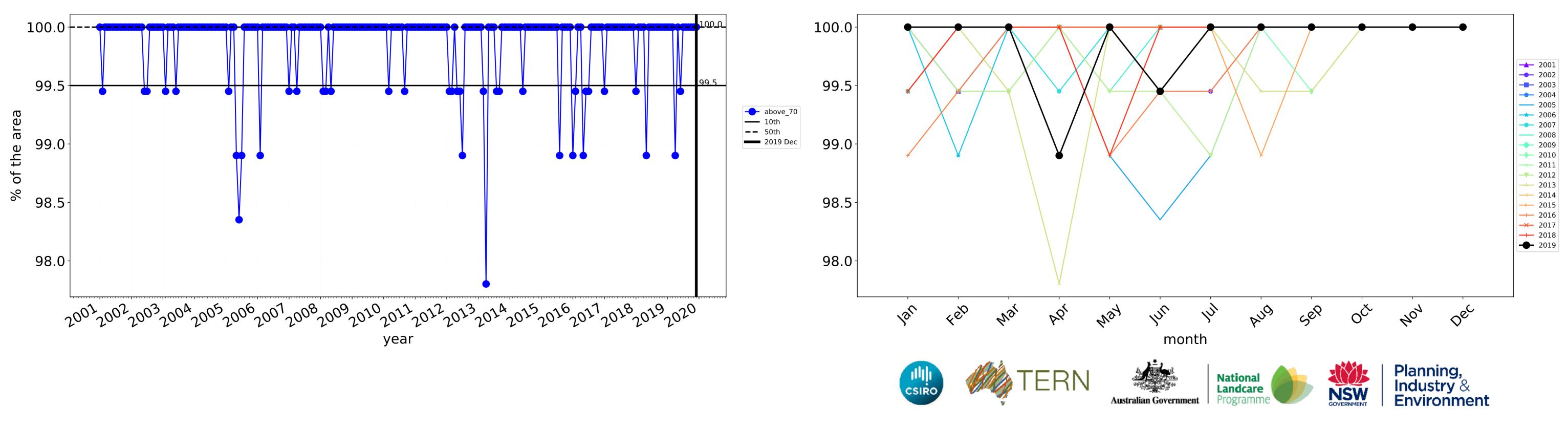
Deciles show where the

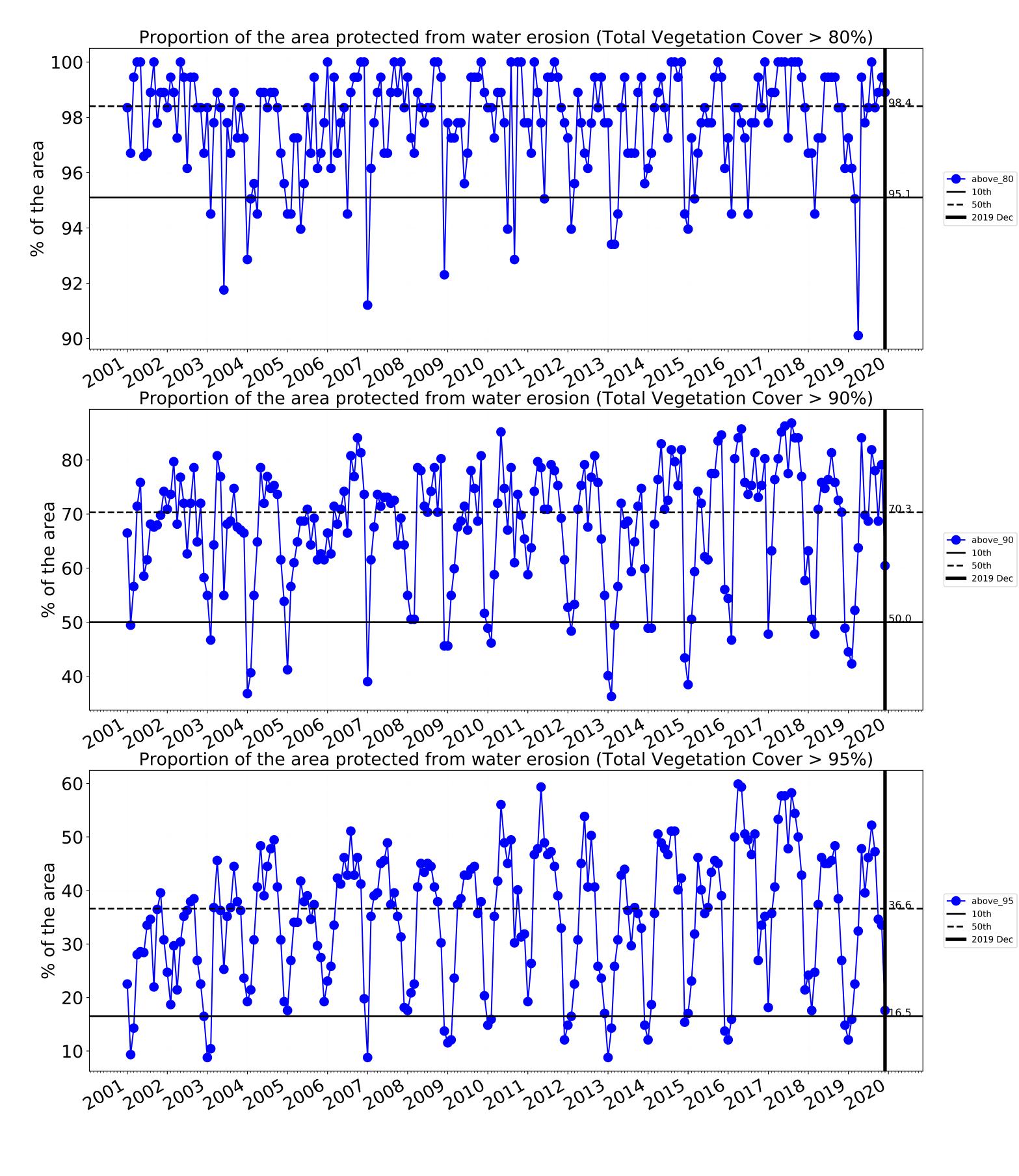
pixel value lies in the

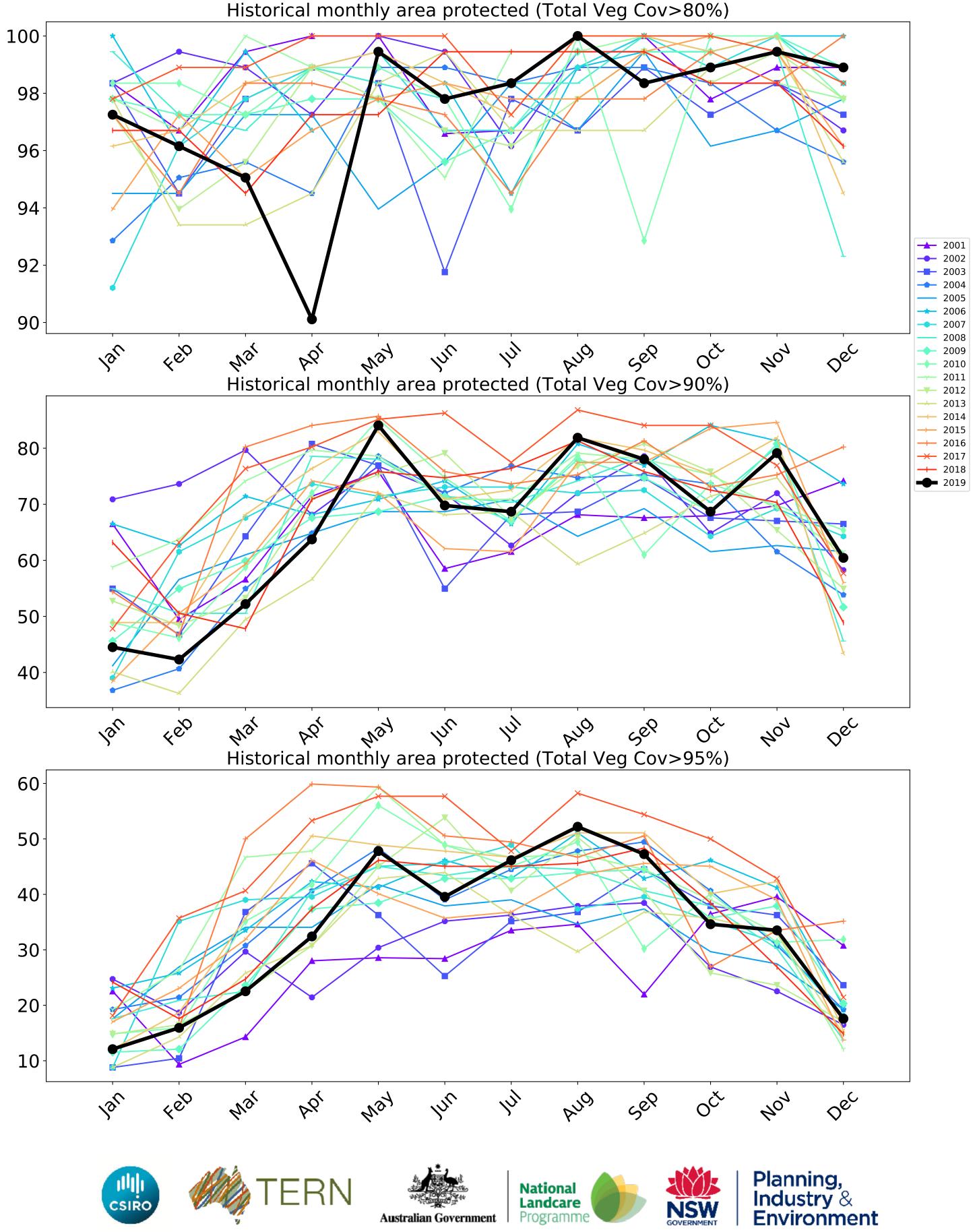
record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.











Australian Government

Yankalilla_(DC) (73,575 ha and no data 1,562 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	73,575	100.0% 73,550	99.9% 73,500	98.6% 72,575	94.5% 69,525	71.9% 52,900	35.8% 26,350
Conservation and natural environments	9,400	100.0% 9,400	100.0% 9,400	99.7% 9,375	96.5% 9,075	76.3% 7,175	26.3% 2,475
Conservation and natural environments non forest	1,300	100.0% 1,300	100.0% 1,300	98.1% 1,275	84.6% 1,100	63.5% 825	36.5% 475
Conservation and natural environments Woodland forest	5,425	100.0% 5,425	100.0% 5,425	100.0% 5,425	98.2% 5,325	78.8% 4,275	22.6% 1,225
Conservation and natural environments Forest (non woodland)	2,675	100.0% 2,675	100.0% 2,675	100.0% 2,675	99.1% 2,650	77.6% 2,075	29.0% 775
Agriculture	57,350	100.0% 57,350	99.9% 57,300	98.9% 56,725	95.3% 54,650	73.9% 42,400	40.0% 22,925
Grazing	50,550	100.0% 50,550	99.9% 50,500	99.2% 50,150	95.7% 48,400	75.0% 37,925	41.2% 20,850
Grazing non forest	50,075	100.0% 50,075	99.9% 50,025	99.2% 49,675	95.7% 47,925	74.8% 37,475	41.0% 20,550
Cropping	5,500	100.0% 5,500	100.0% 5,500	95.9% 5,275	90.9% 5,000	65.5% 3,600	31.4% 1,725
Irrigation	1,300	100.0% 1,300	100.0% 1,300	100.0% 1,300	96.2% 1,250	67.3% 875	26.9% 350
Production native forests and plantation forests	4,550	100.0% 4,550	100.0% 4,550	100.0% 4,550	98.9% 4,500	60.4% 2,750	17.6% 800

