Total vegetation cover soil protection Region:LGA Wingecarribee_(A) NSW

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



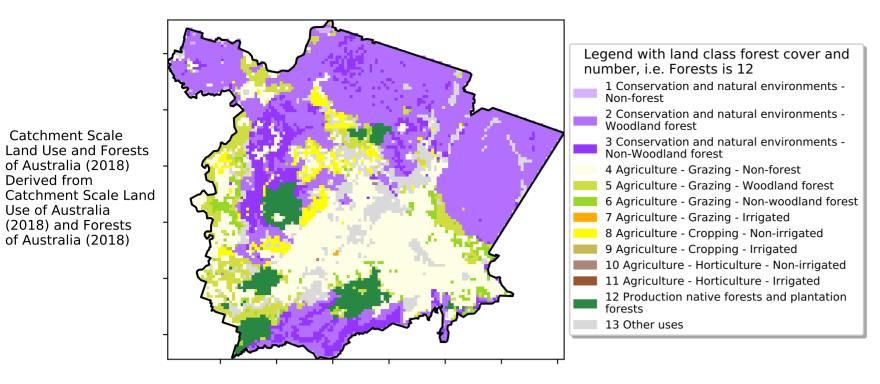
Vegetation Cover Jan 2021

Land use and forest cover

Derived from

Use of Australia





1200010

5201070010

3201050010

0.30%

- 20

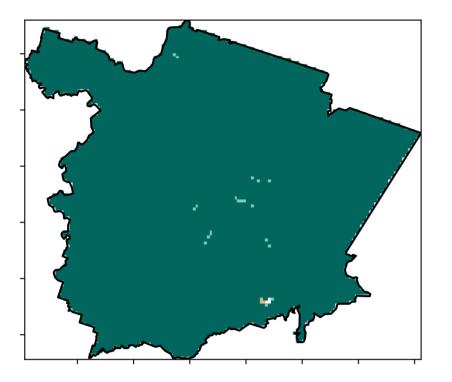
· 10

0

-10

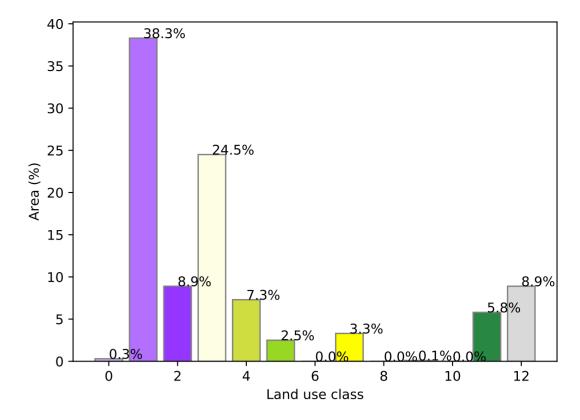
-20

Total Vegetation Cover [%]

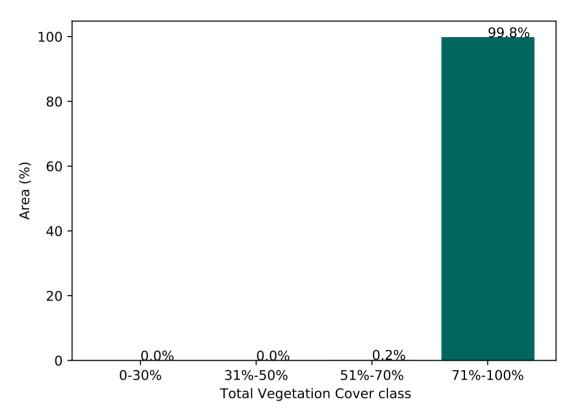


% Area protected from water erosion (>70%)





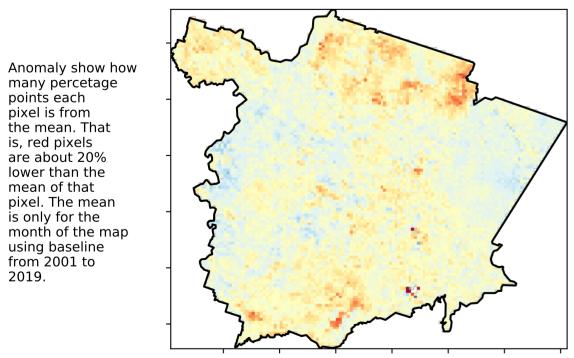
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

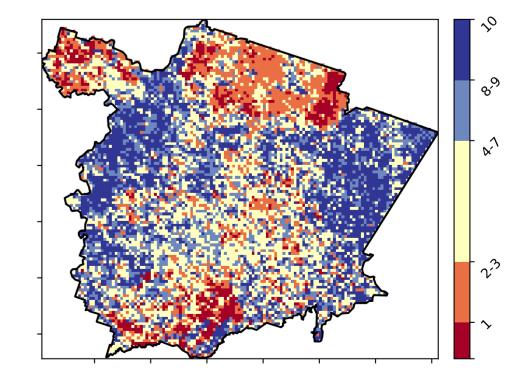


Total Vegetation Cover Anomaly [%]

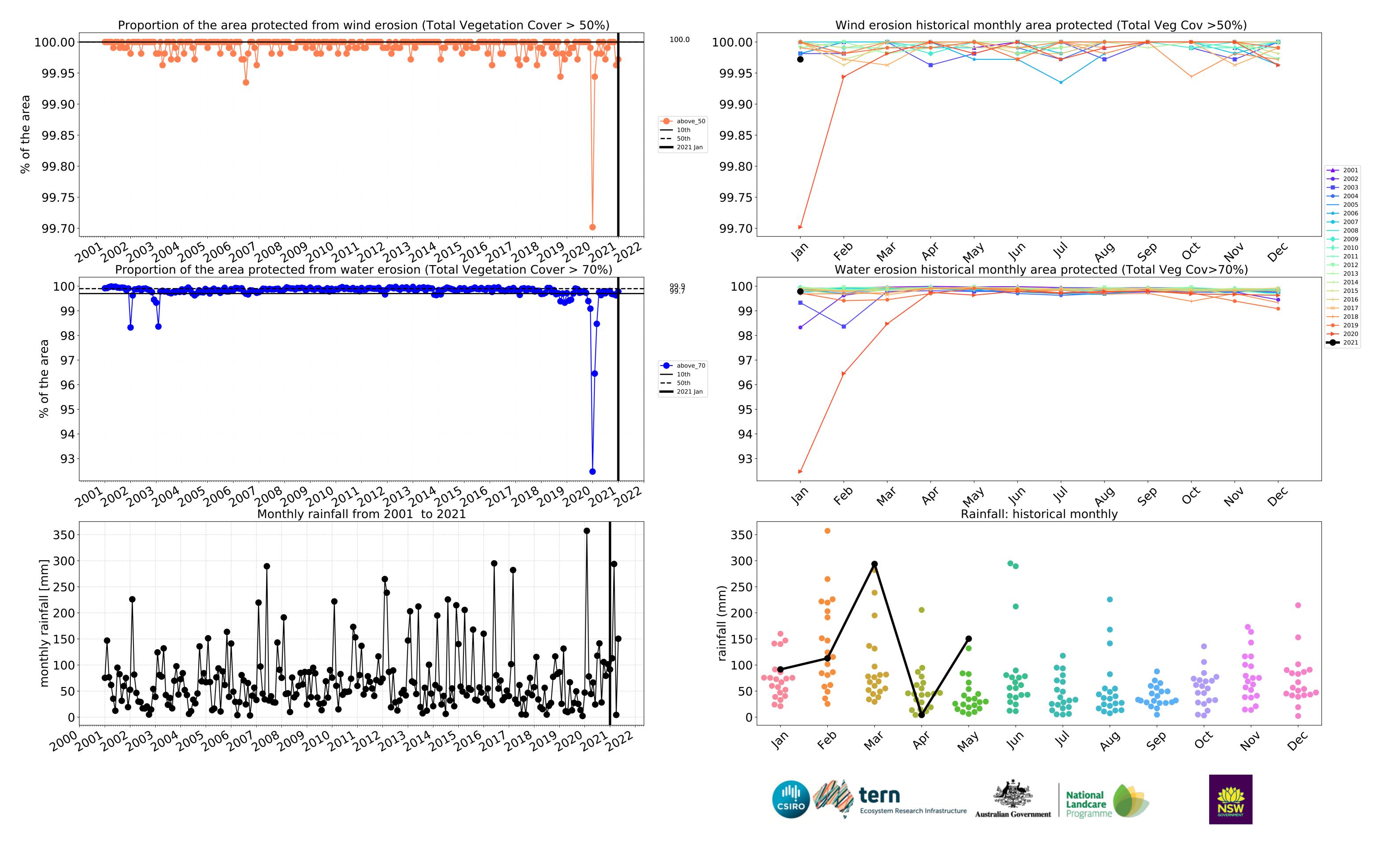


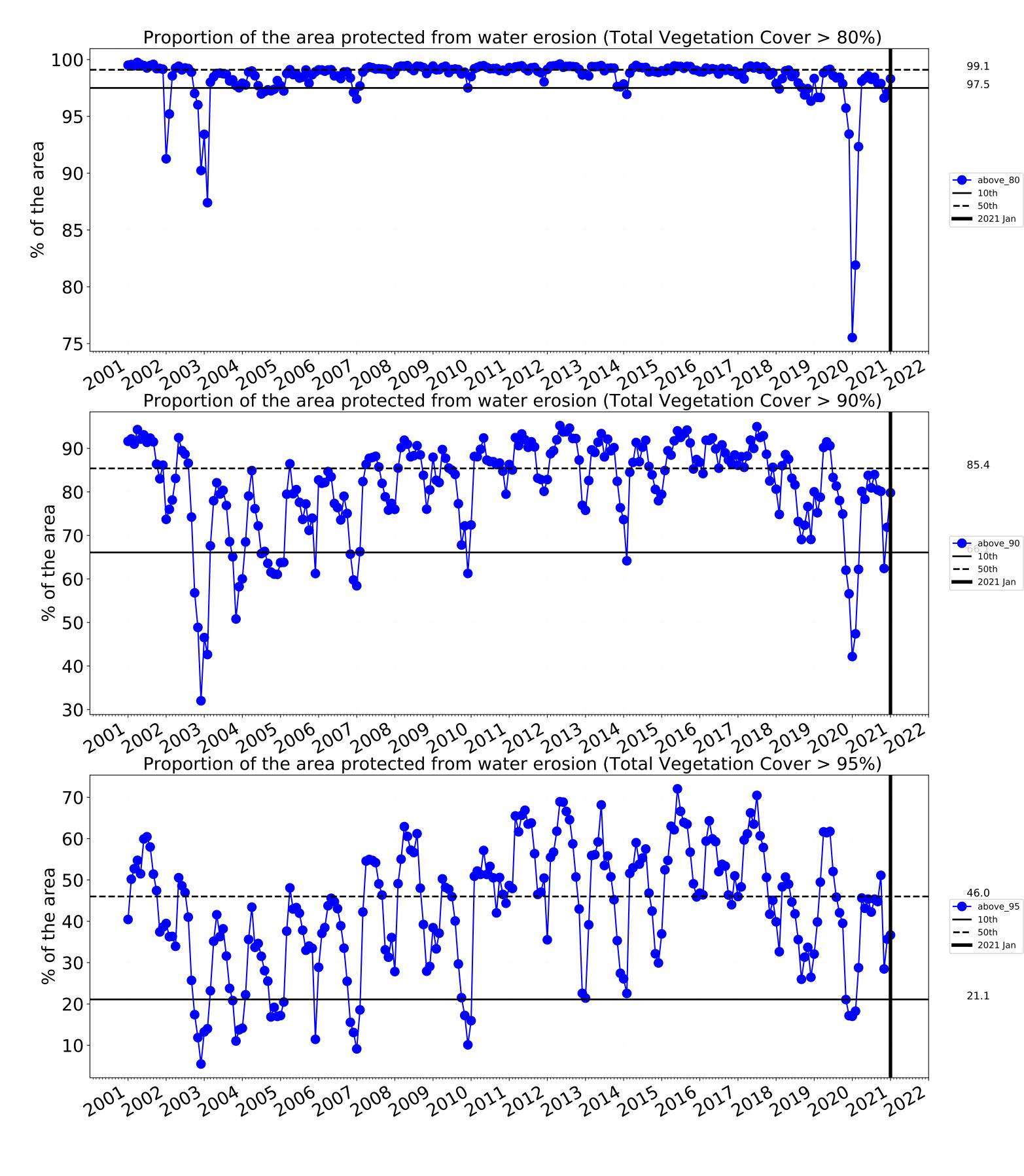
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

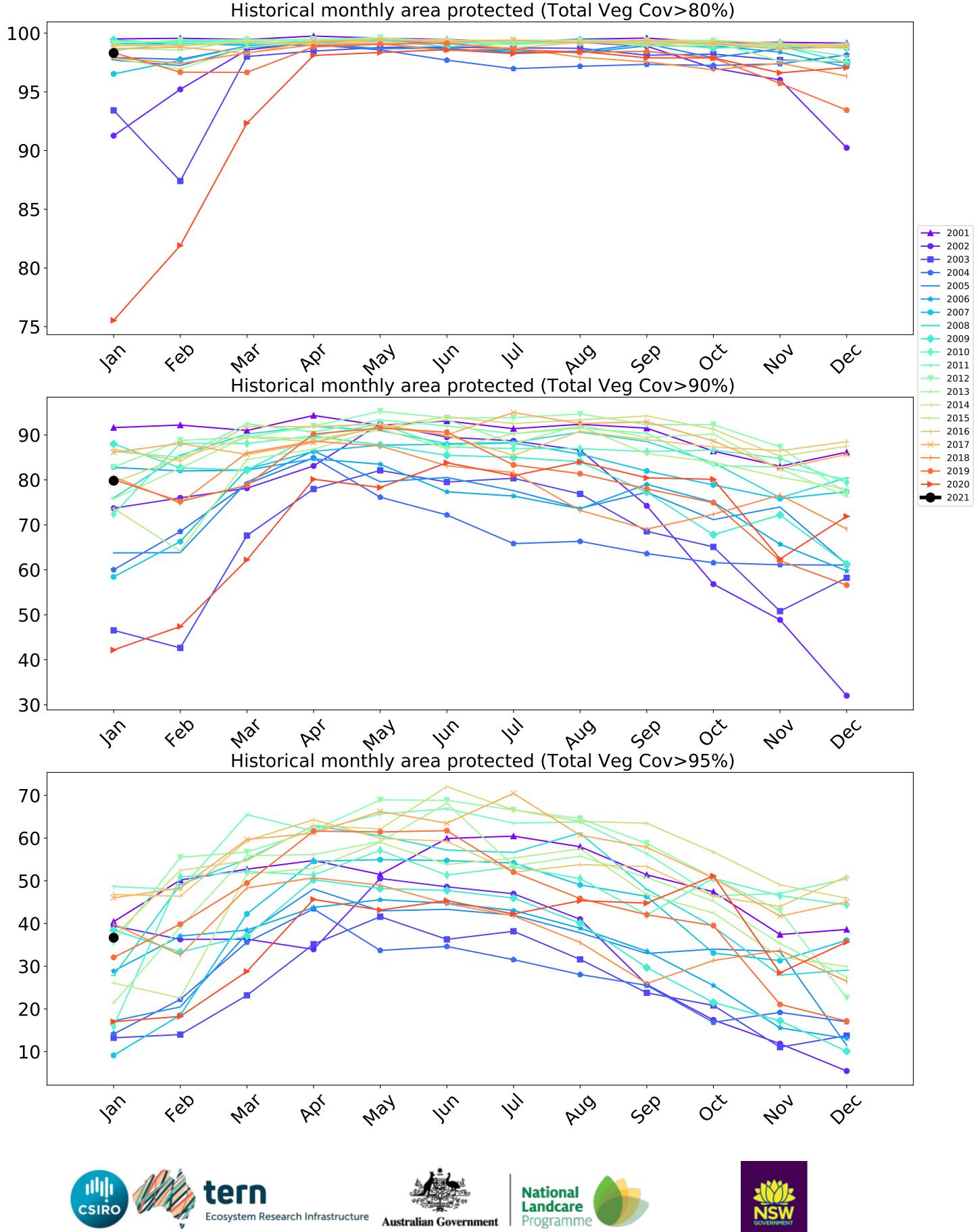
Total Vegetation Cover Decile [%]

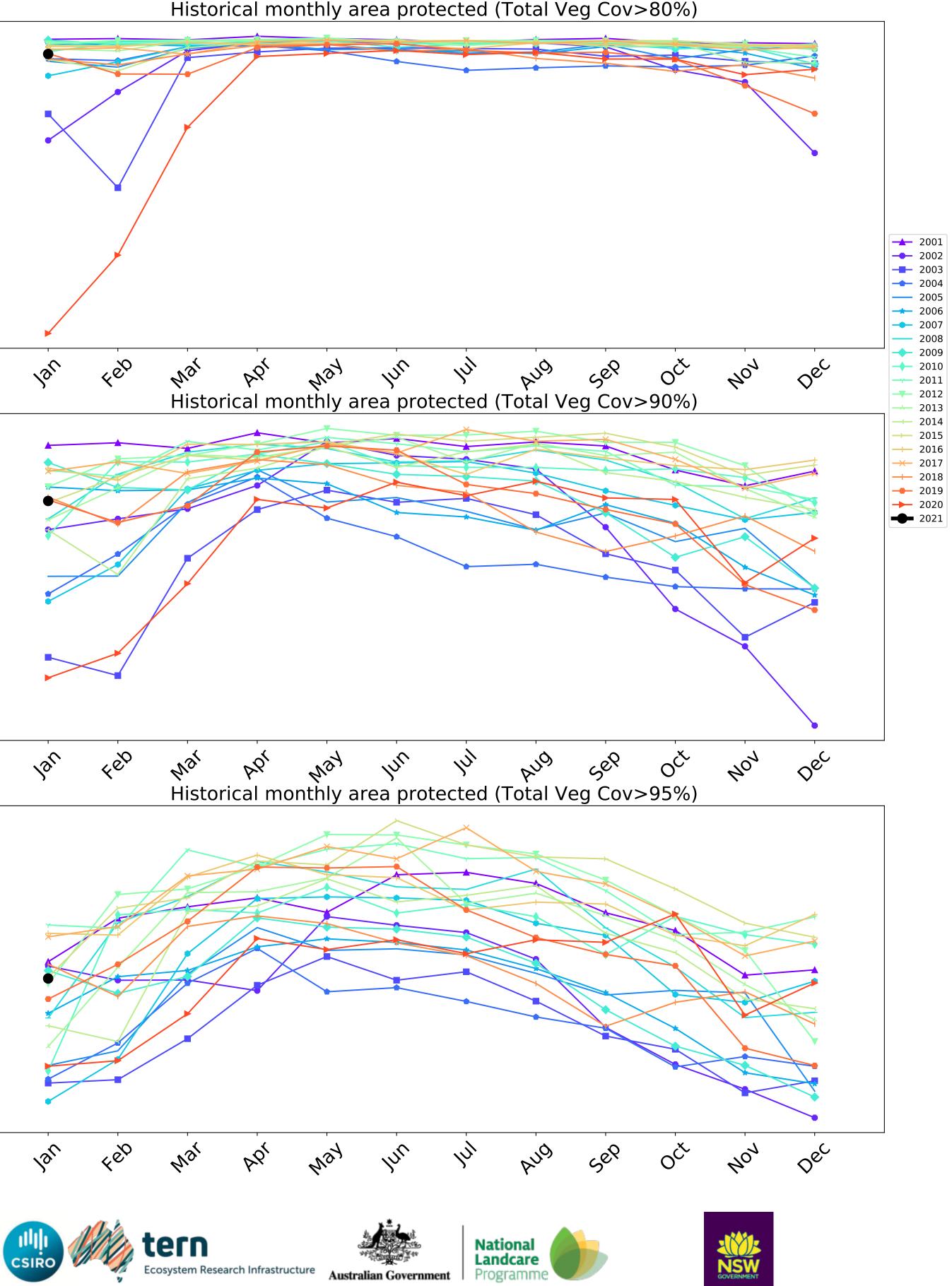








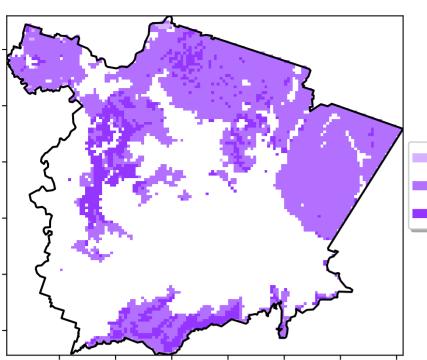




Conservation and natural environments

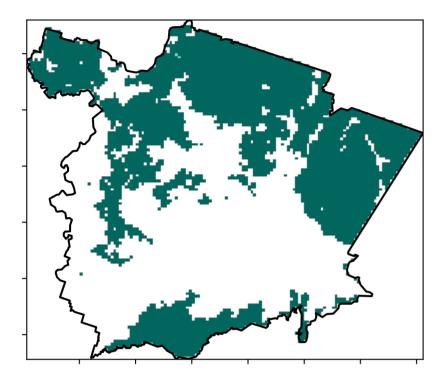
forest

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

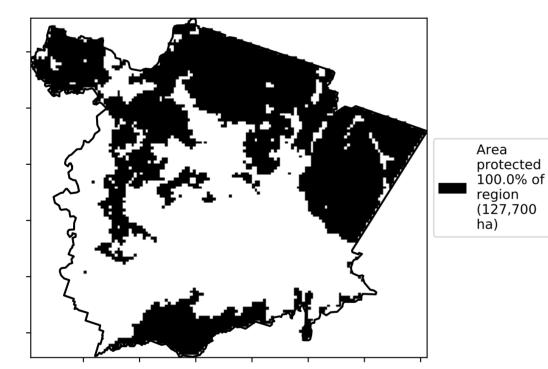


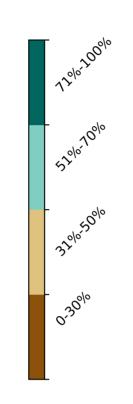
Land use and forest cover

Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



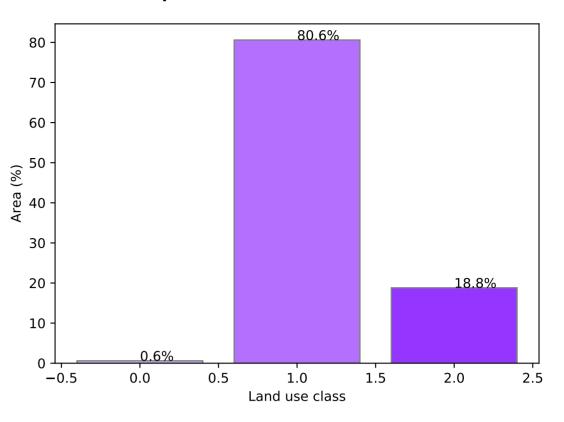


1 Conservation and natural environments - Nonforest

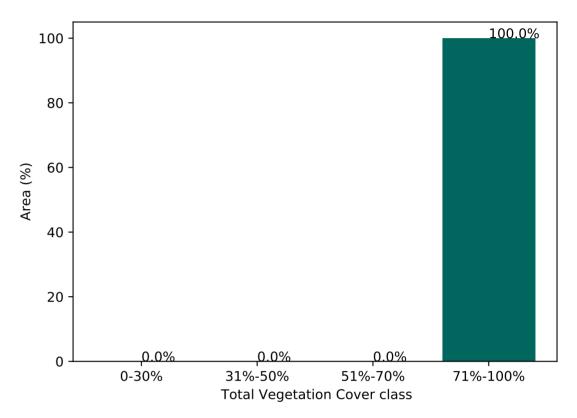
3 Conservation and natural environments – Nonwoodland forest

2 Conservation and natural environments - Woodland

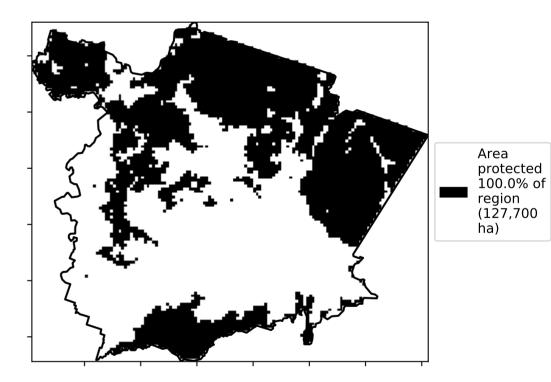
Proportion of each land class in area



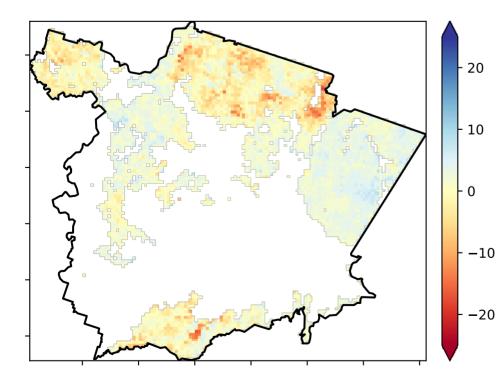
Proportion of vegetation cover class in area



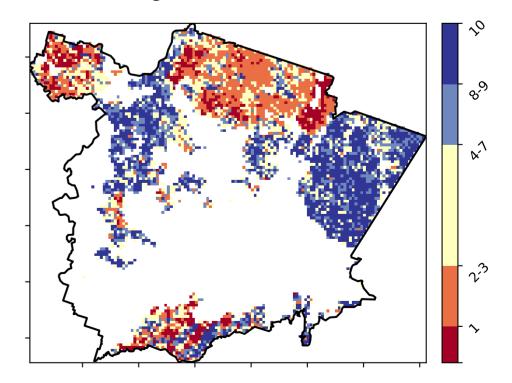
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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

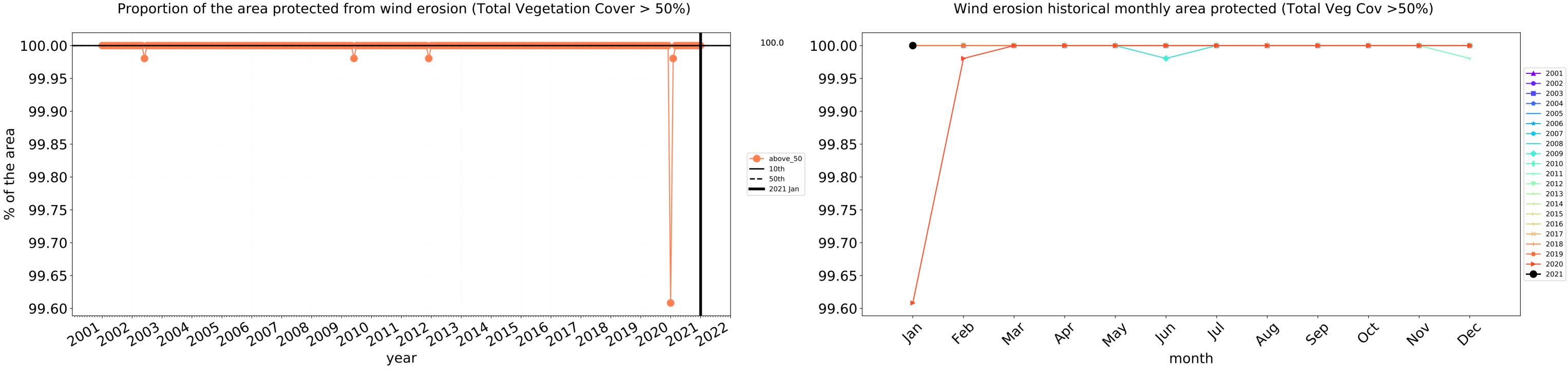


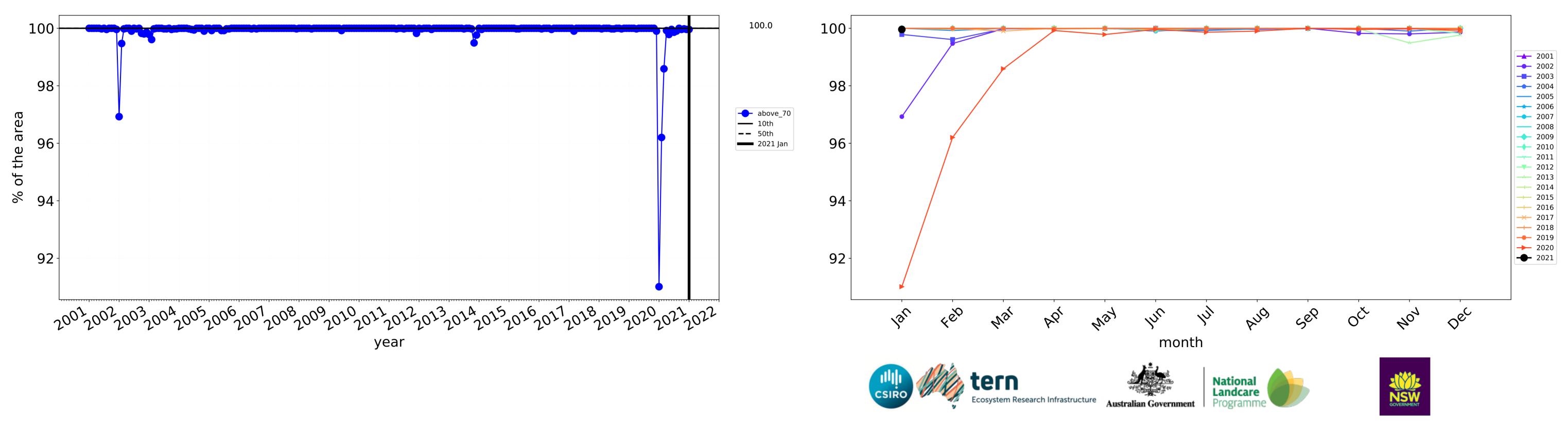


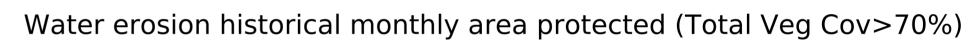


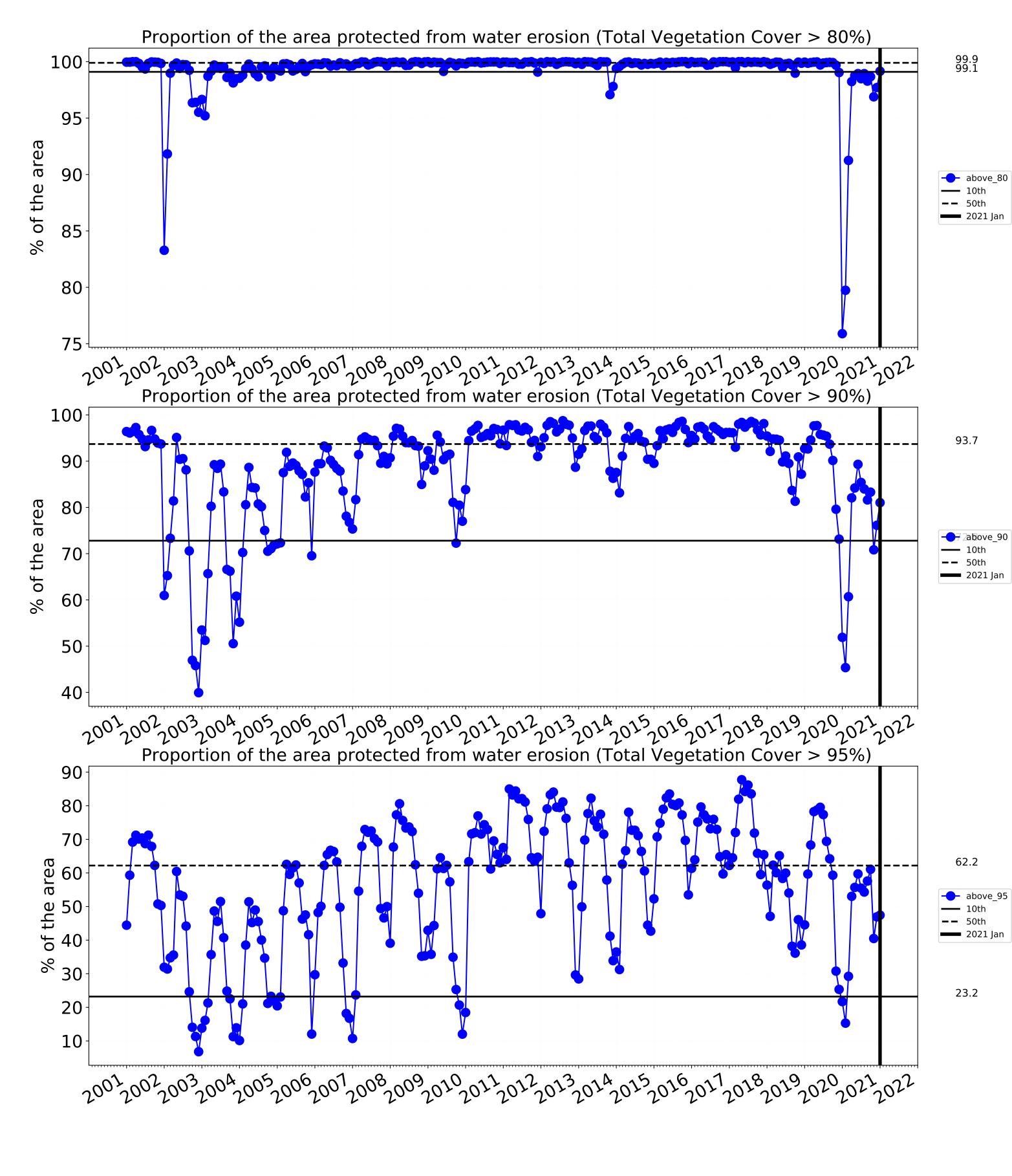
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

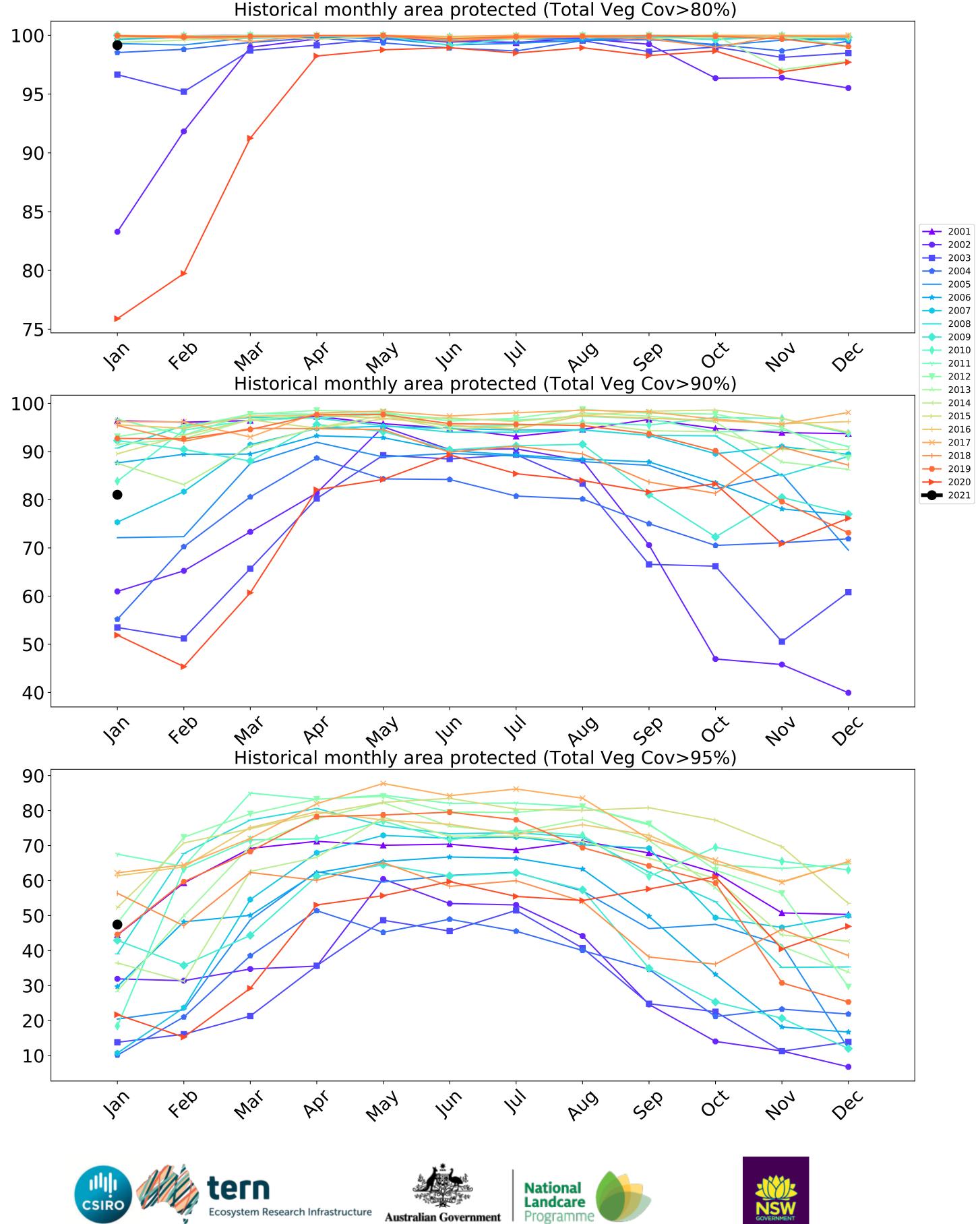


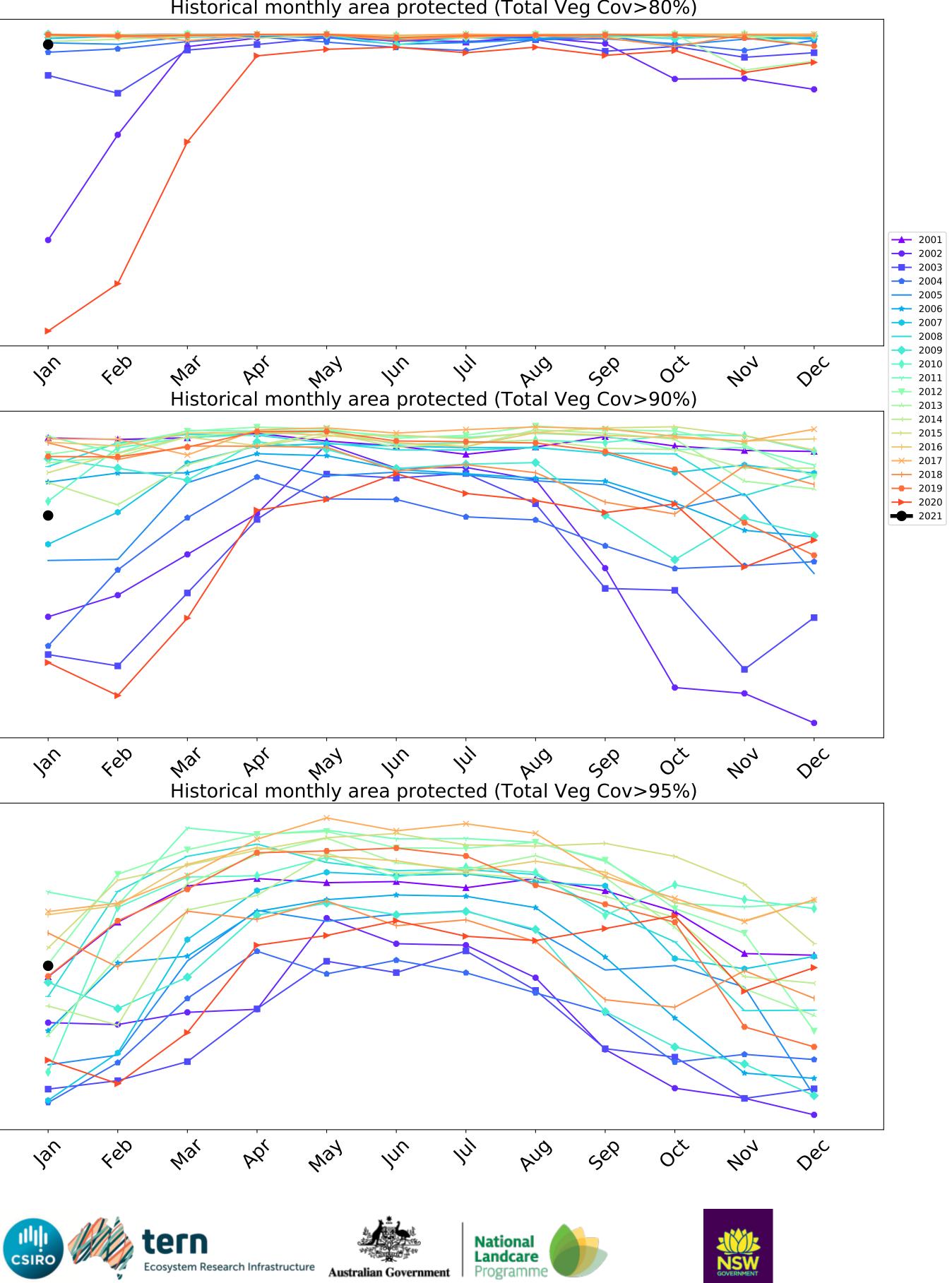








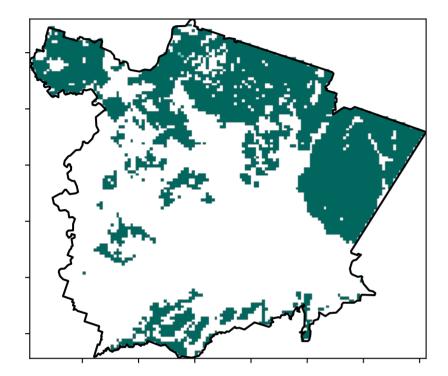




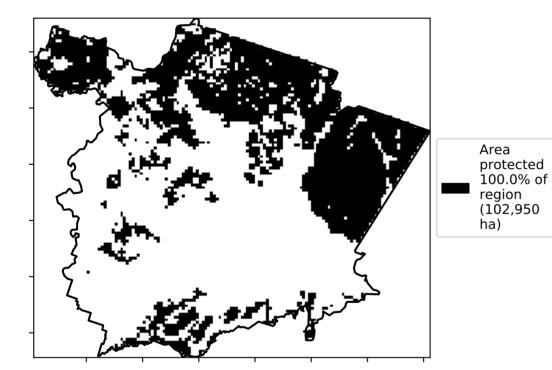
Conservation and natural environments Woodland forest

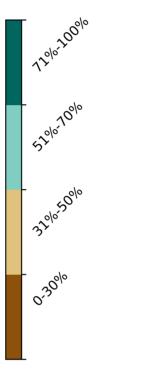
1 Conservation and natural environments - Woodland forest

Total Vegetation Cover [%]

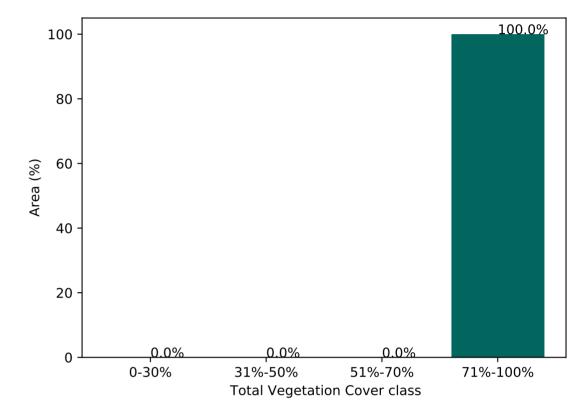


% Area protected from water erosion (>70%)





Proportion of vegetation cover class in area



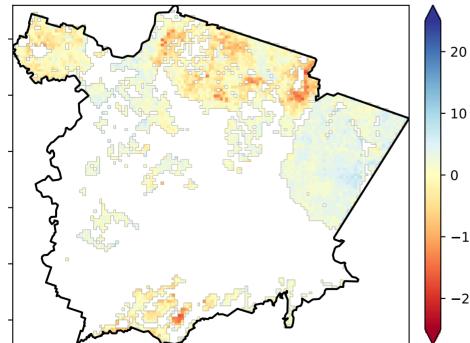
% Area protected from wind erosion (>50%)



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

Land use and forest cover

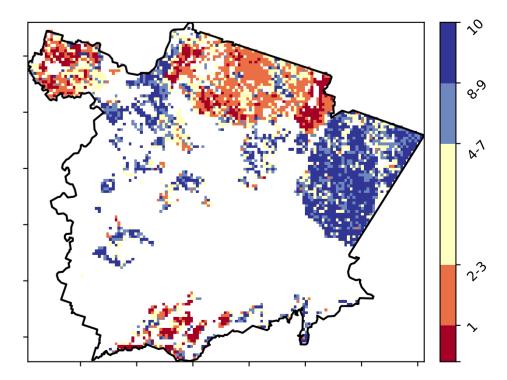
Total Vegetation Cover Anomaly [%]



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.



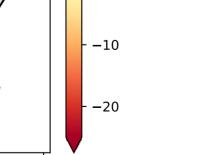
Total Vegetation Cover Decile [%]



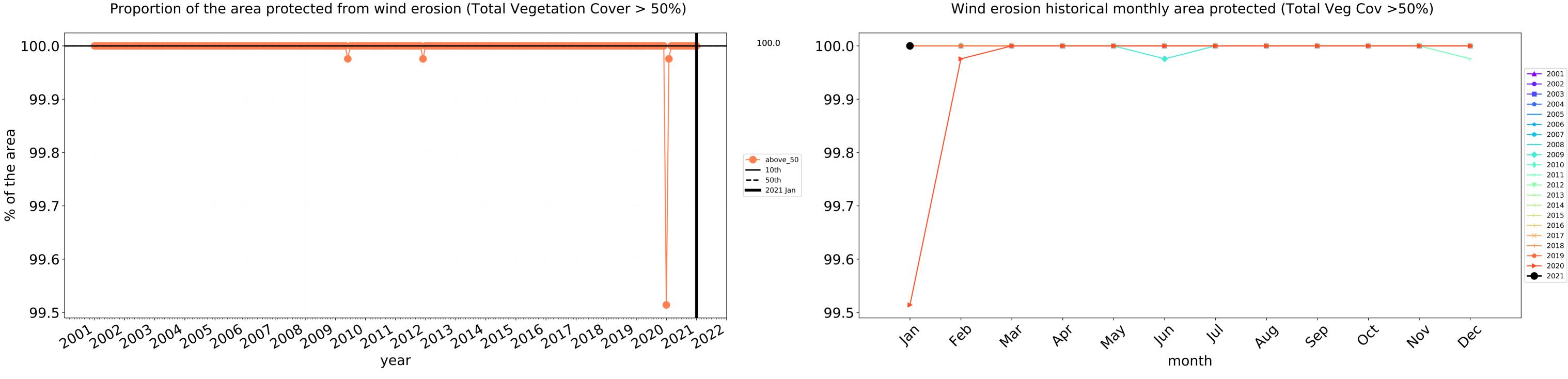


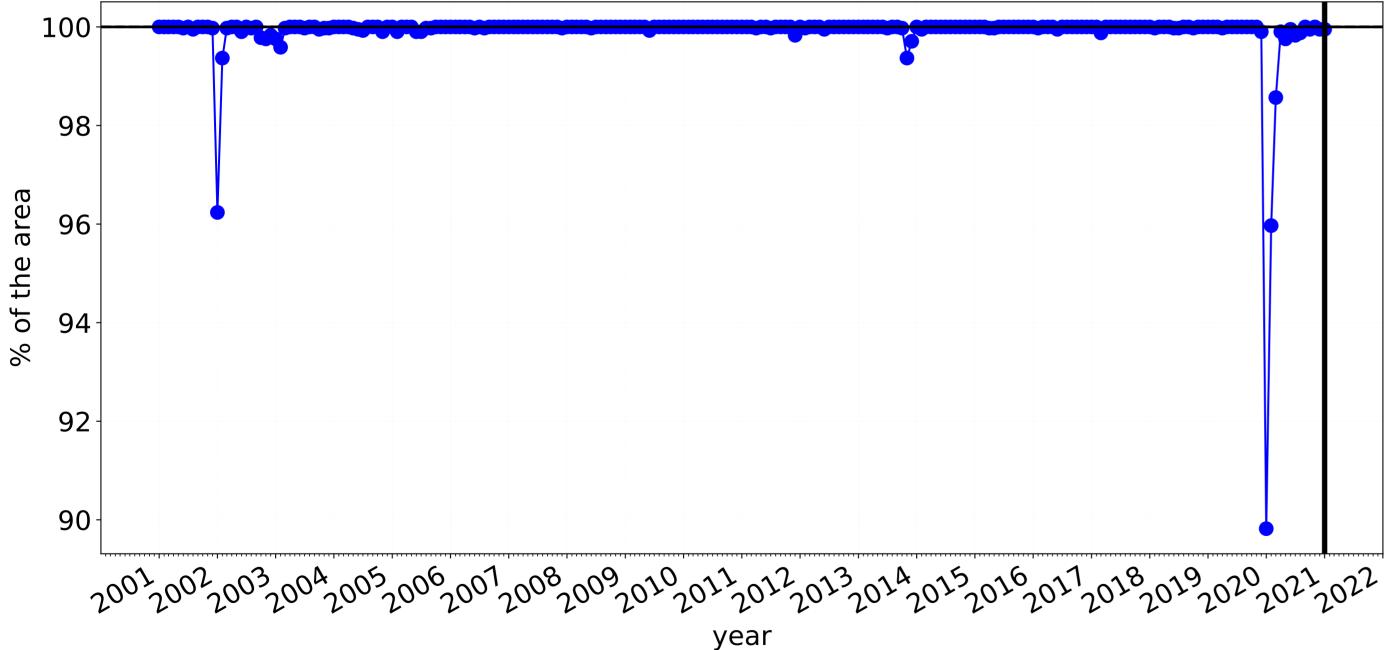


Anomaly show how many percetage points each pixel is from the mean That the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



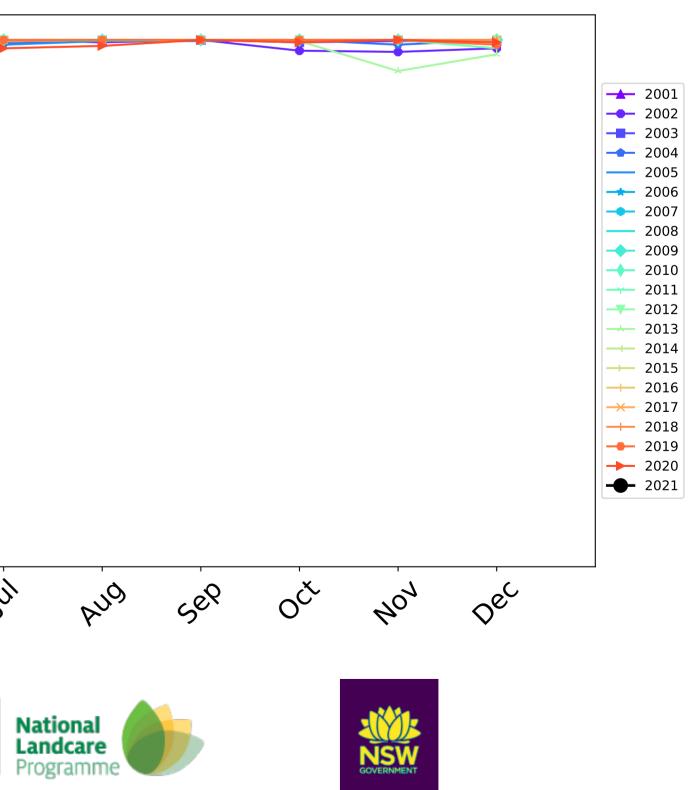


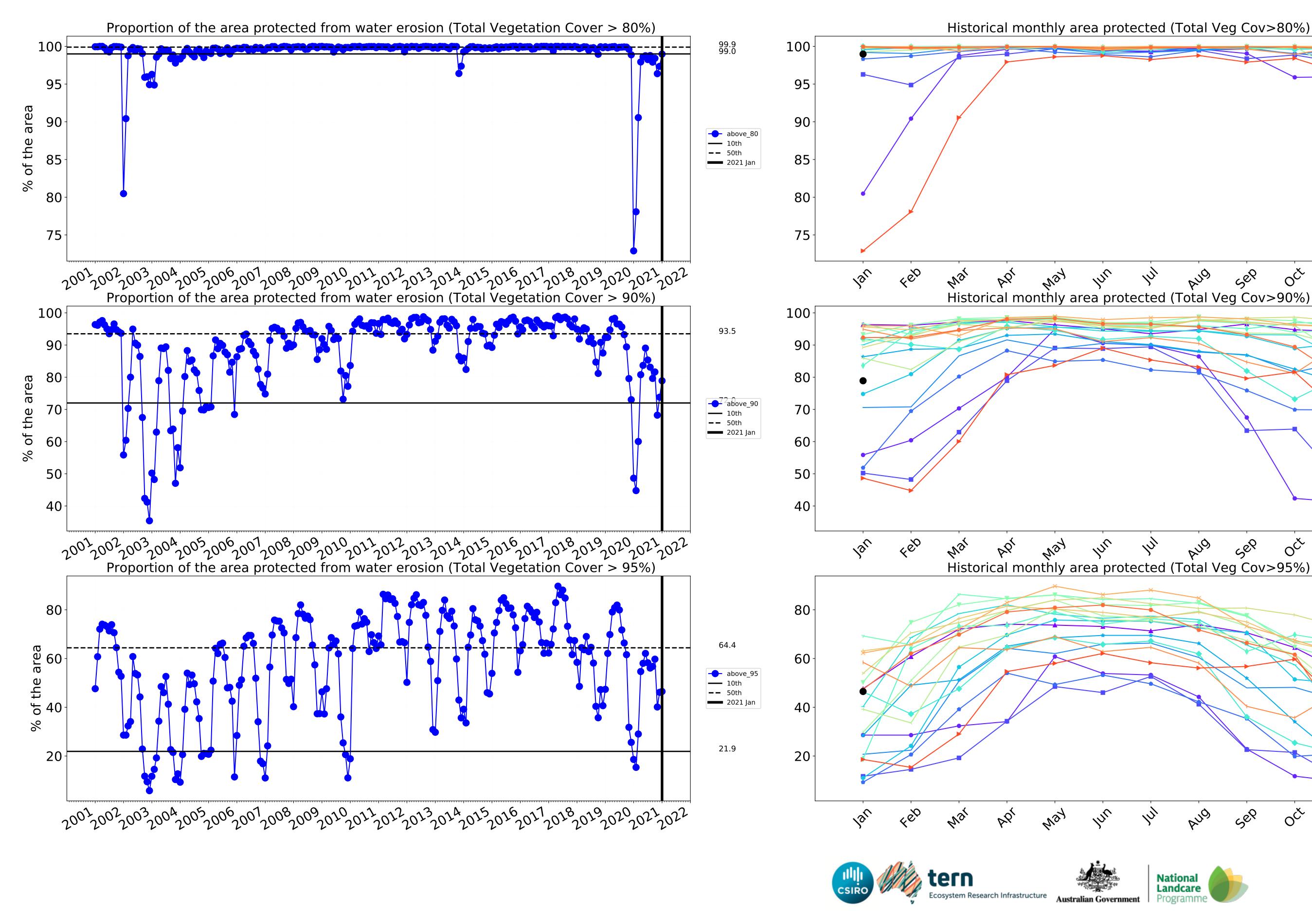




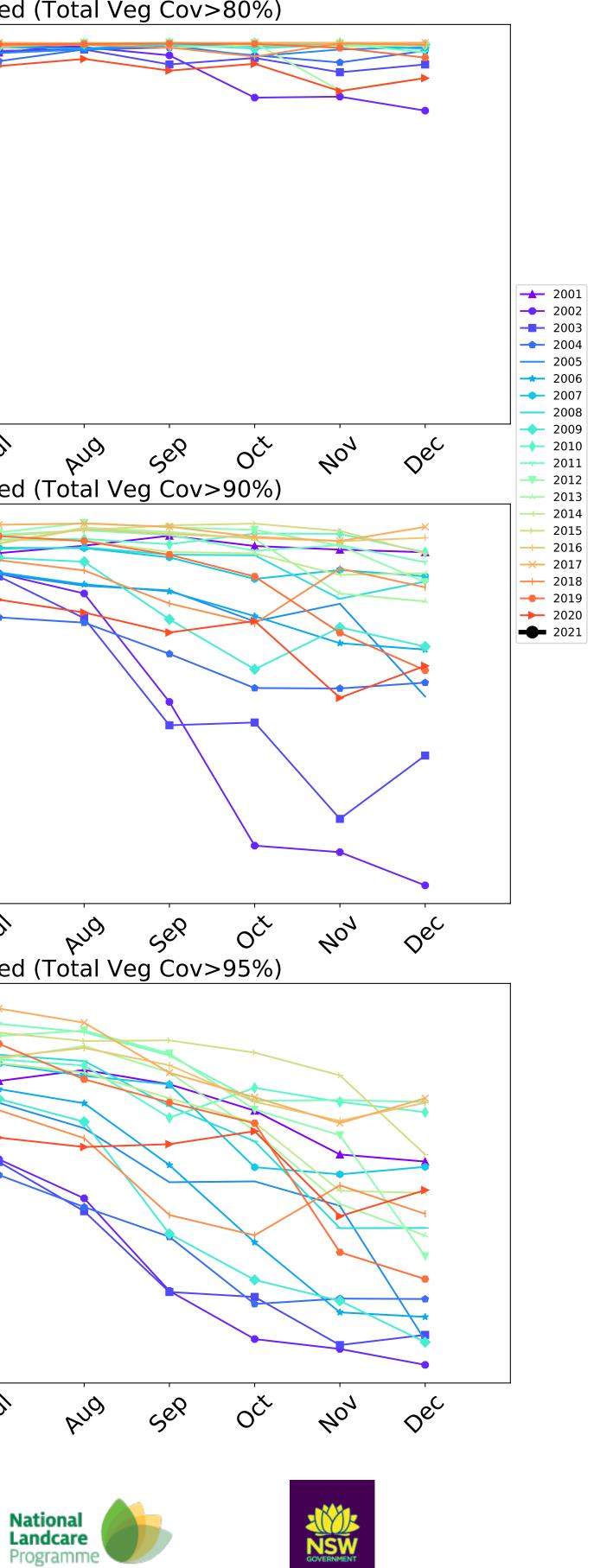
100.0 100 98 ---- above_70 **——** 10th 96 **——** 50th **——** 2021 Jan 94 92 90 lar 4eb In may 1/2/ PQ Mar month tern Ecosystem Research Infrastructure Australian Government

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

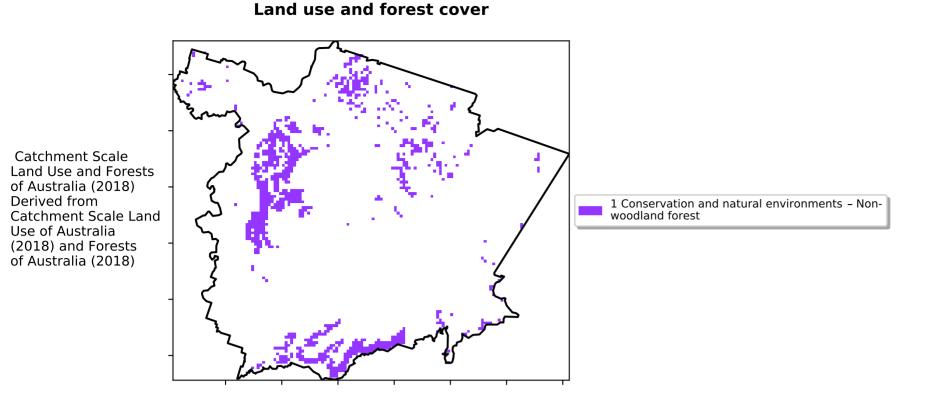




9



Conservation and natural environments Forest (non woodland)



12%100%

· 520/07/00/0

50%

32010-

0.30%

20

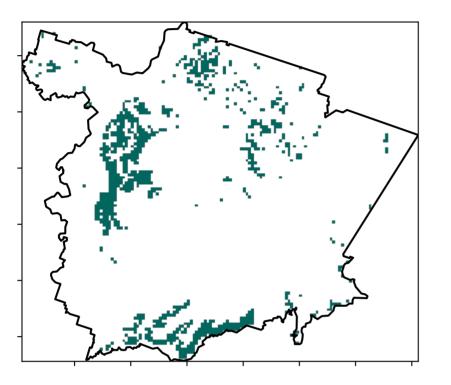
- 10

· 0

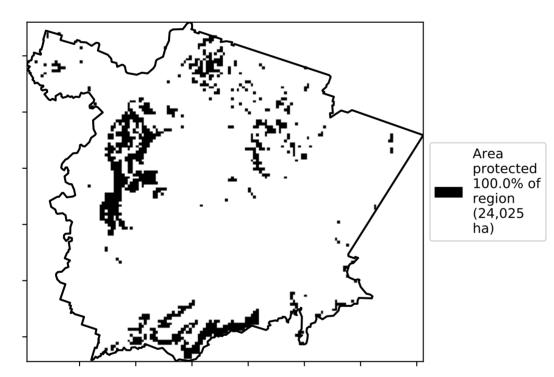
-10

-20

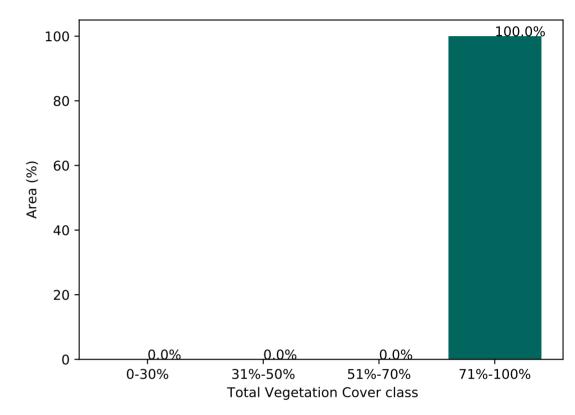
Total Vegetation Cover [%]



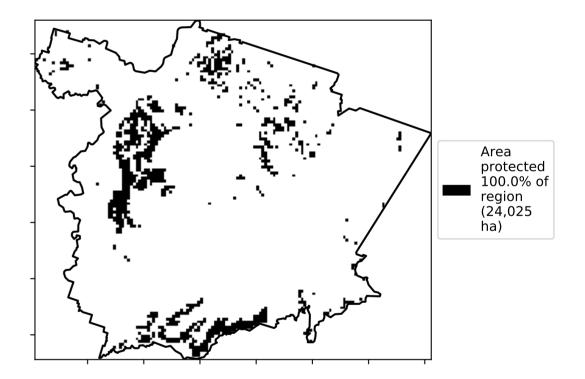
% Area protected from water erosion (>70%)







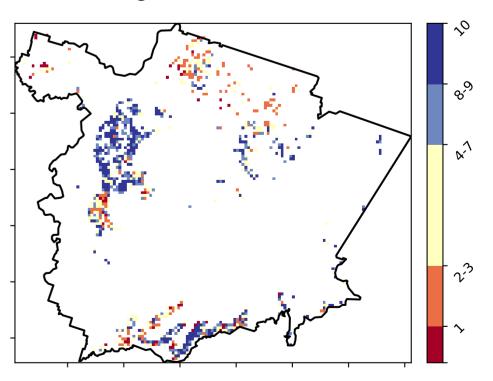
% Area protected from wind erosion (>50%)



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 [%]

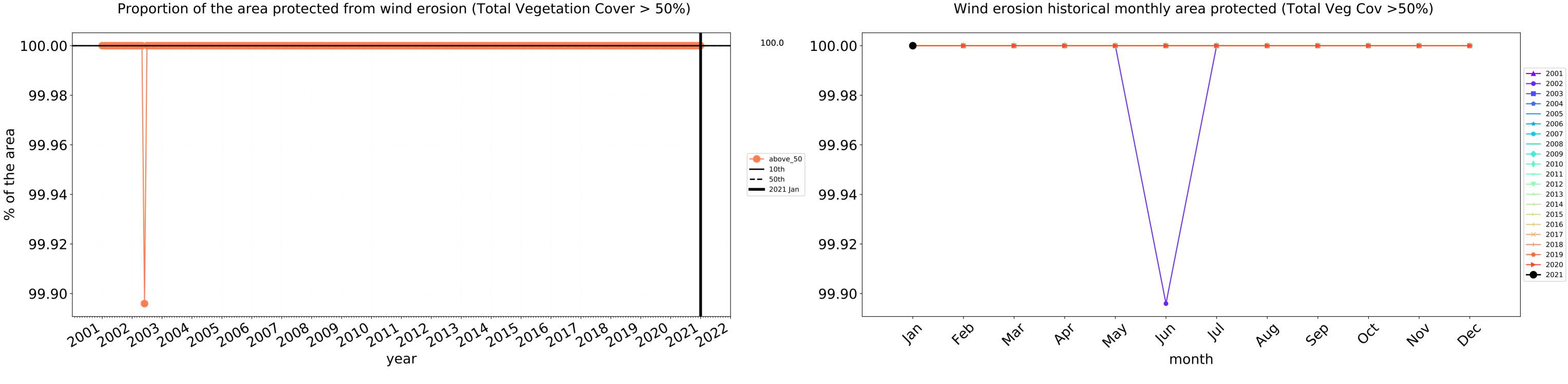




Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

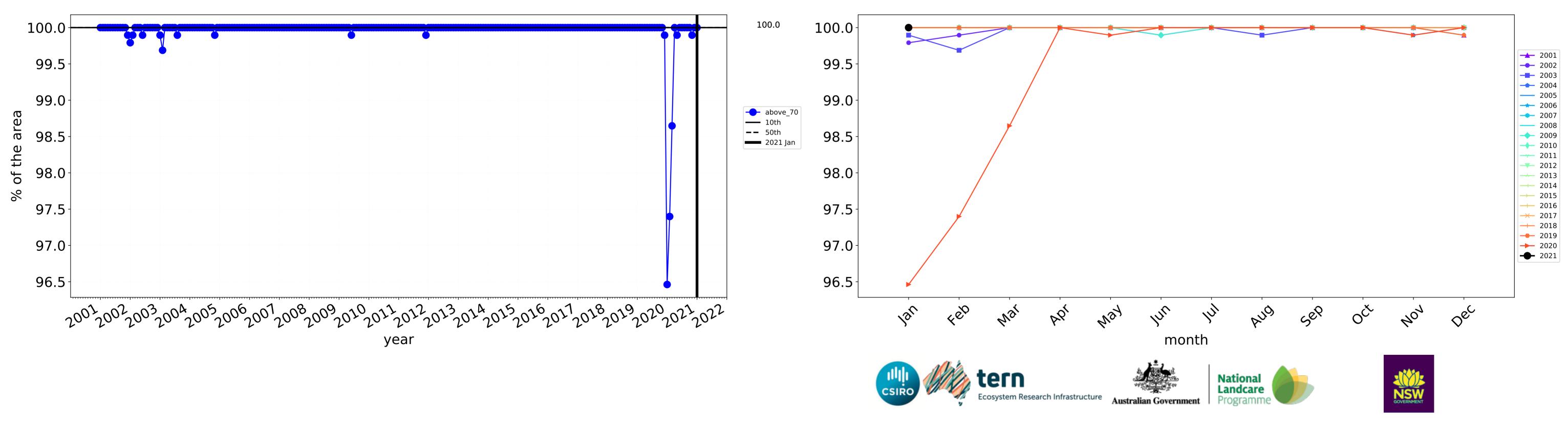
12

Conservation and natural environments Forest (non woodland) timeseries

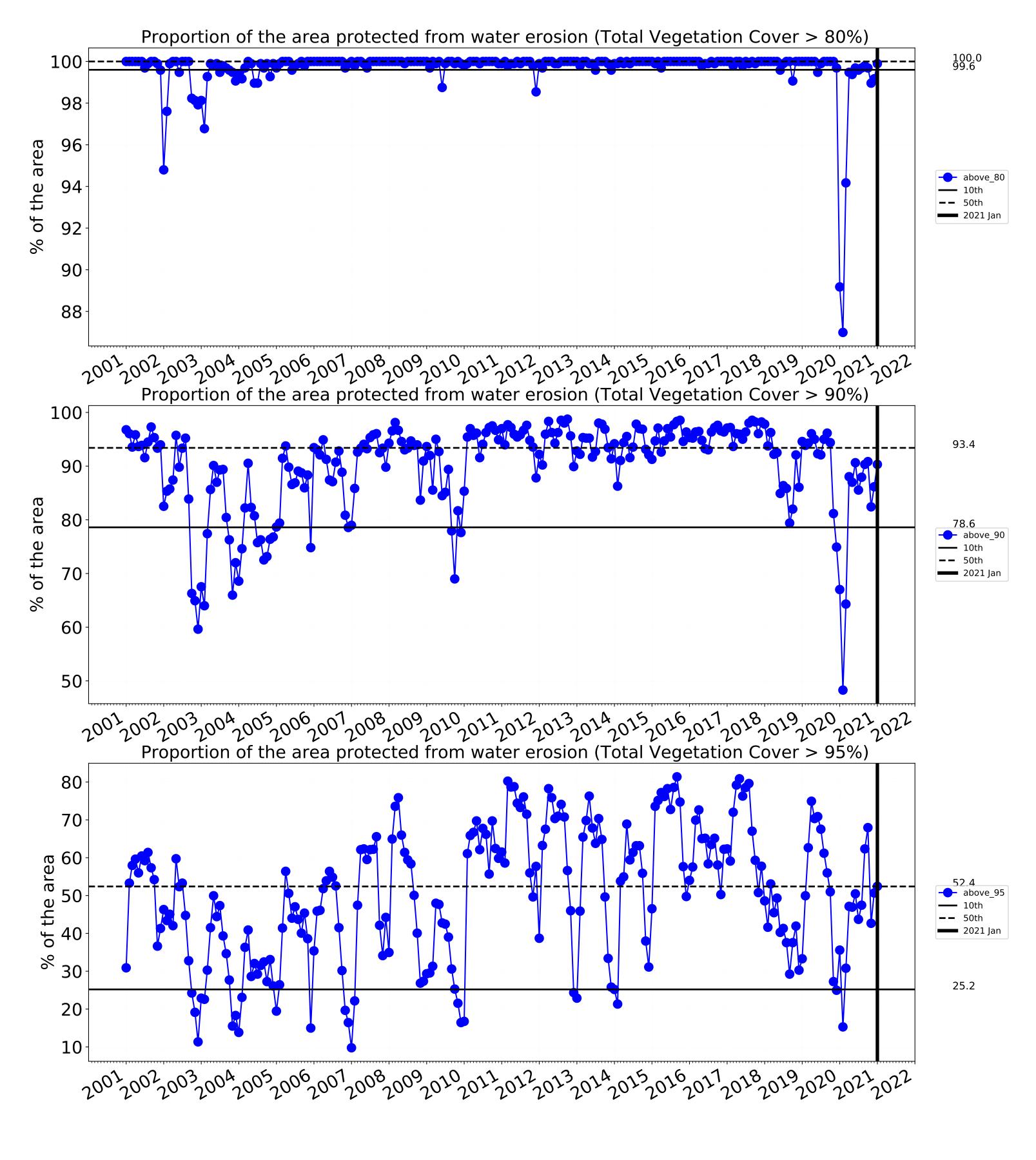


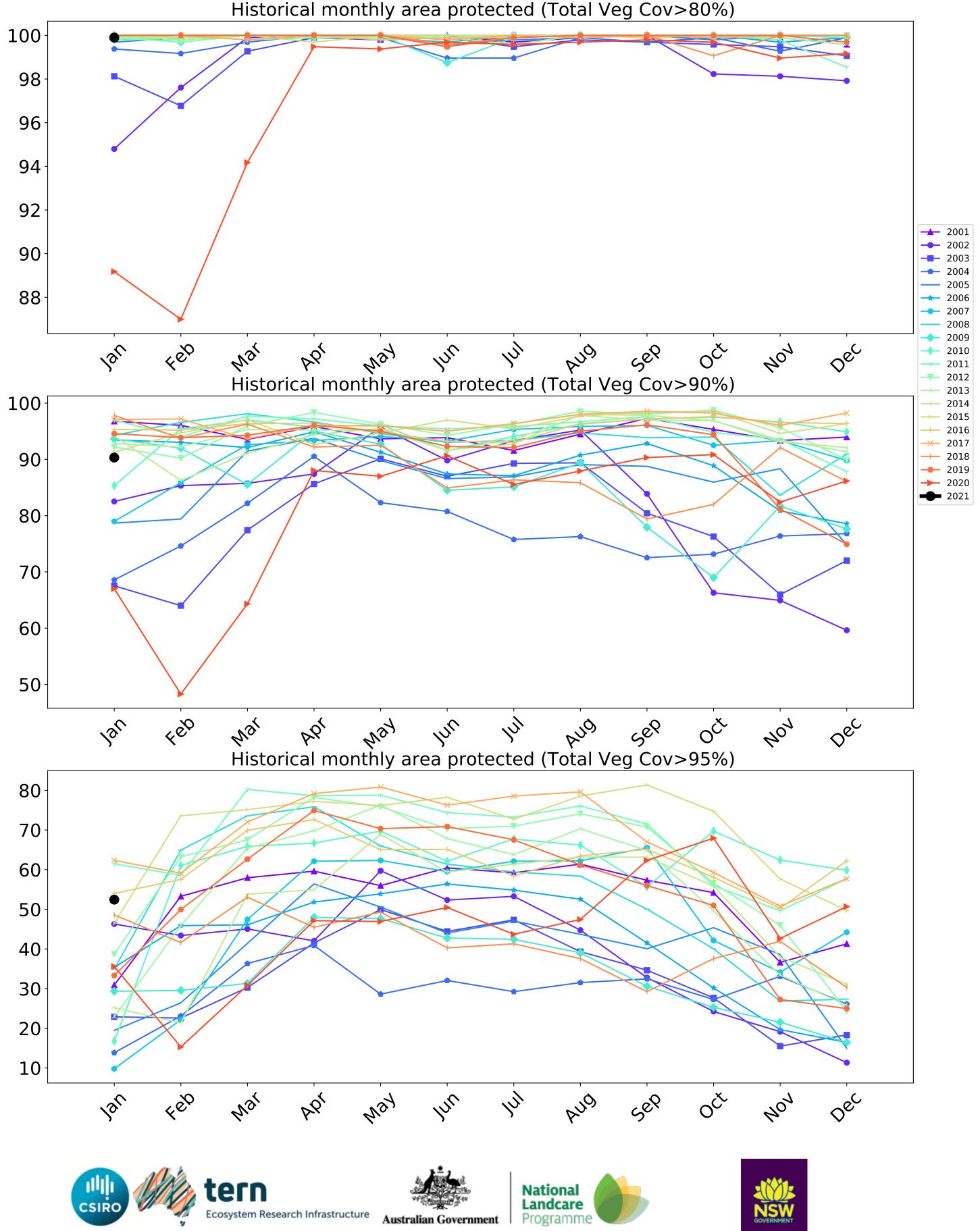
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

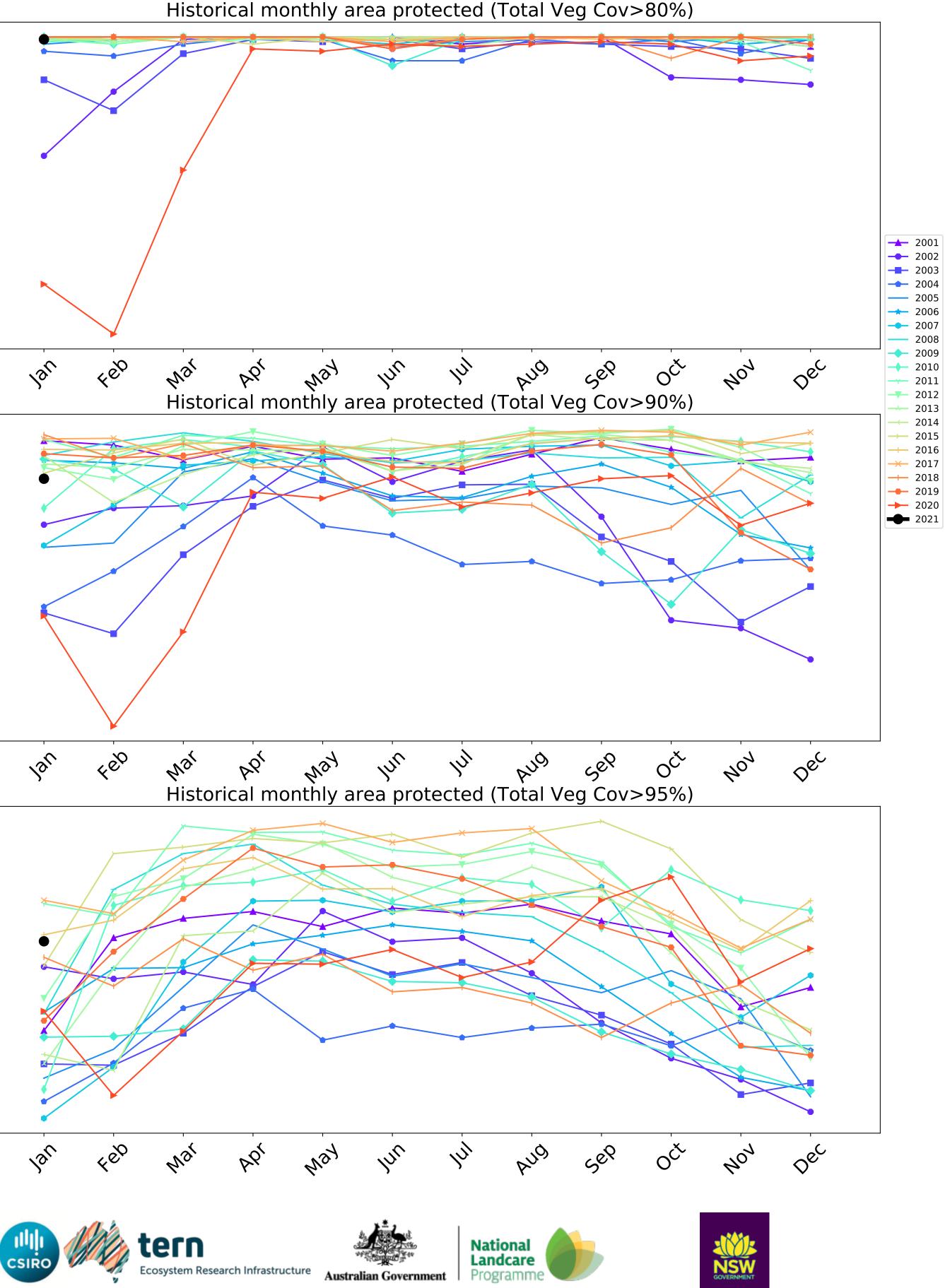
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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







Agriculture

12%200%

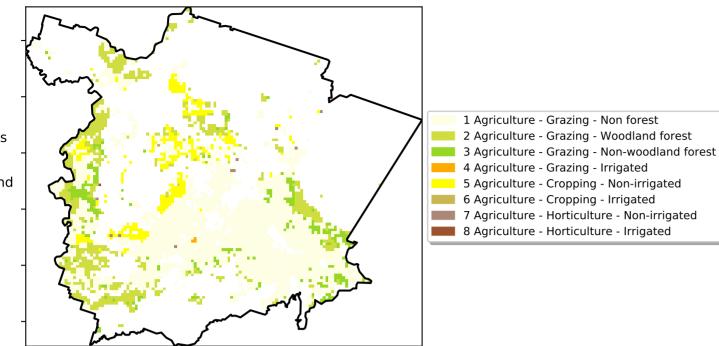
52°10010

3201050010

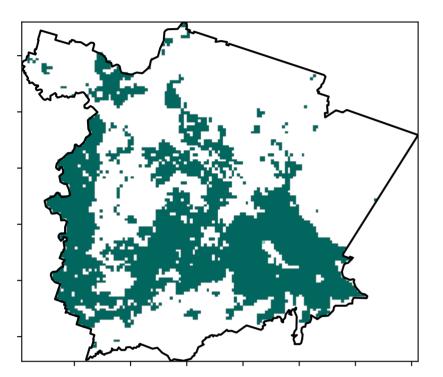
0.30%

Land use and forest cover

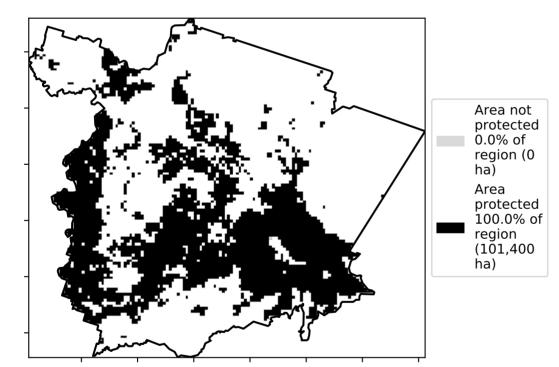
Proportion of each land class in area

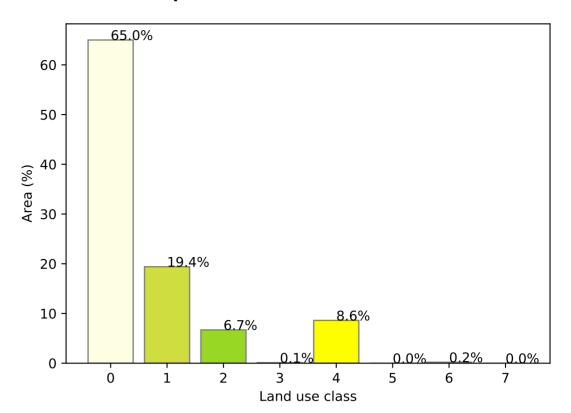


Total Vegetation Cover [%]

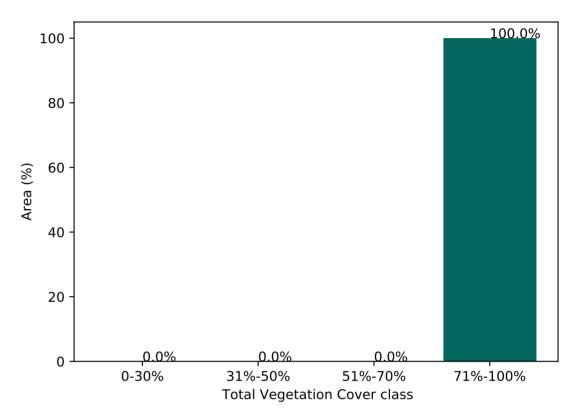


% Area protected from water erosion (>70%)

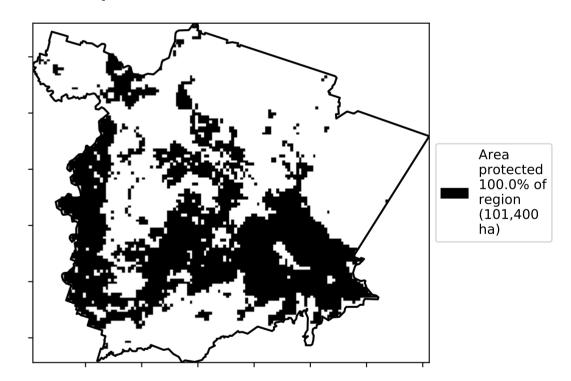




Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



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

is, red pixels are about 20% lower than the

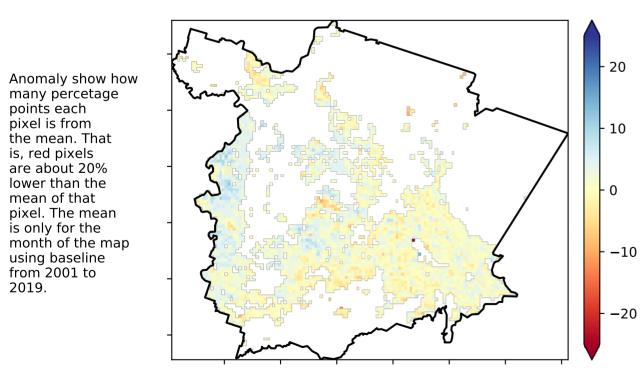
mean of that

pixel. The mean

using baseline from 2001 to 2019.

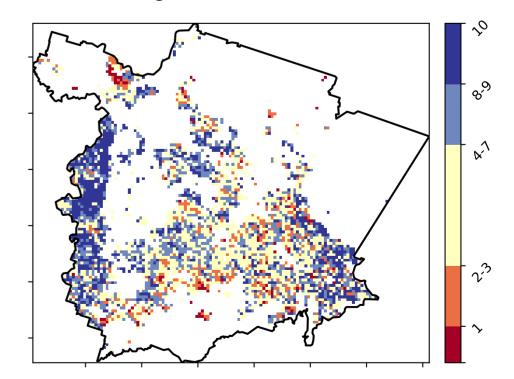
is only for the month of the map

Total Vegetation Cover Anomaly [%]

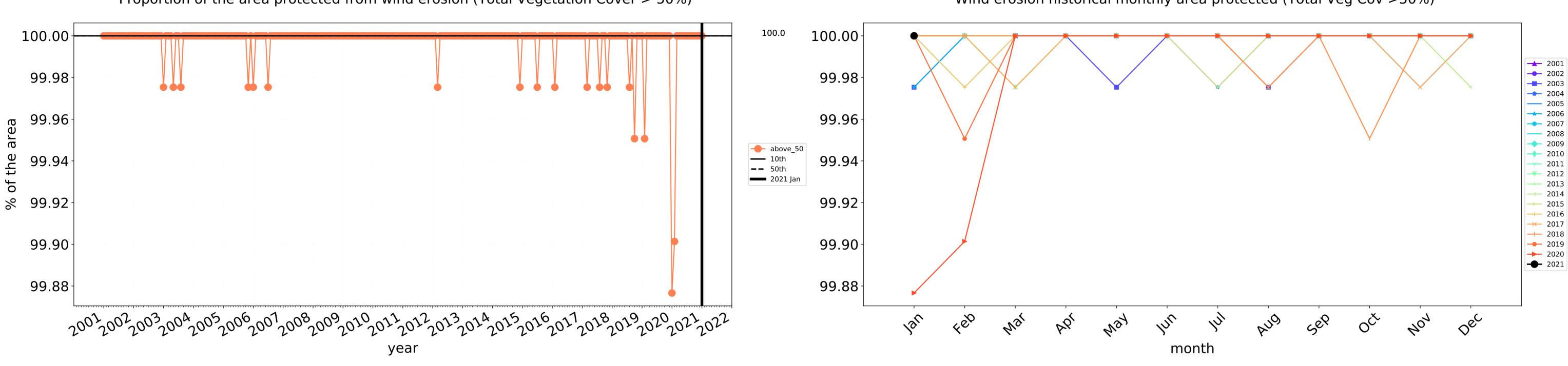


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

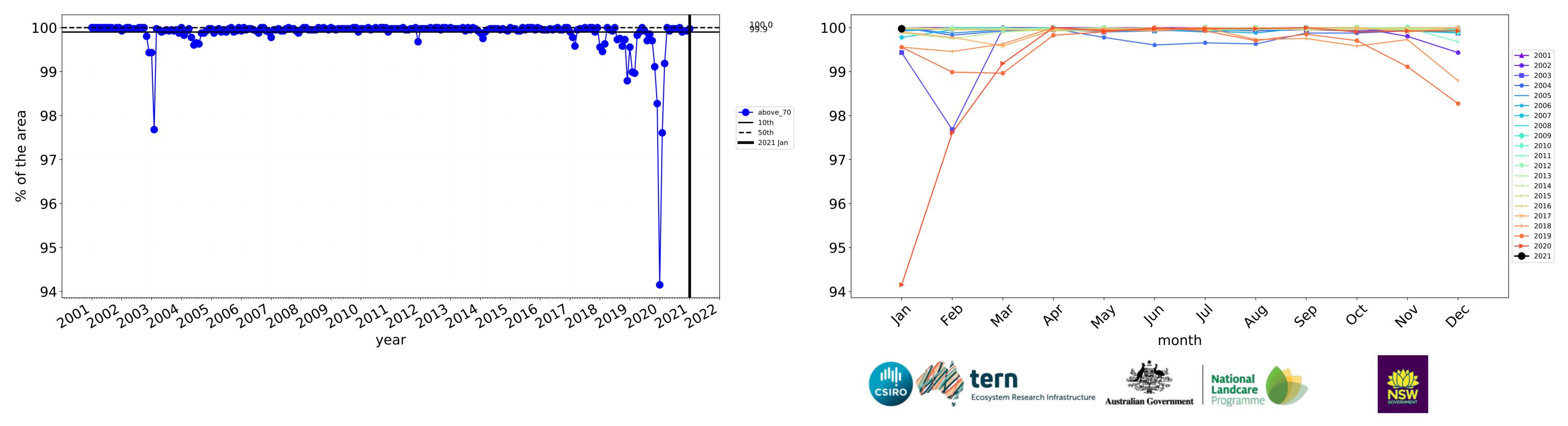
Total Vegetation Cover Decile [%]





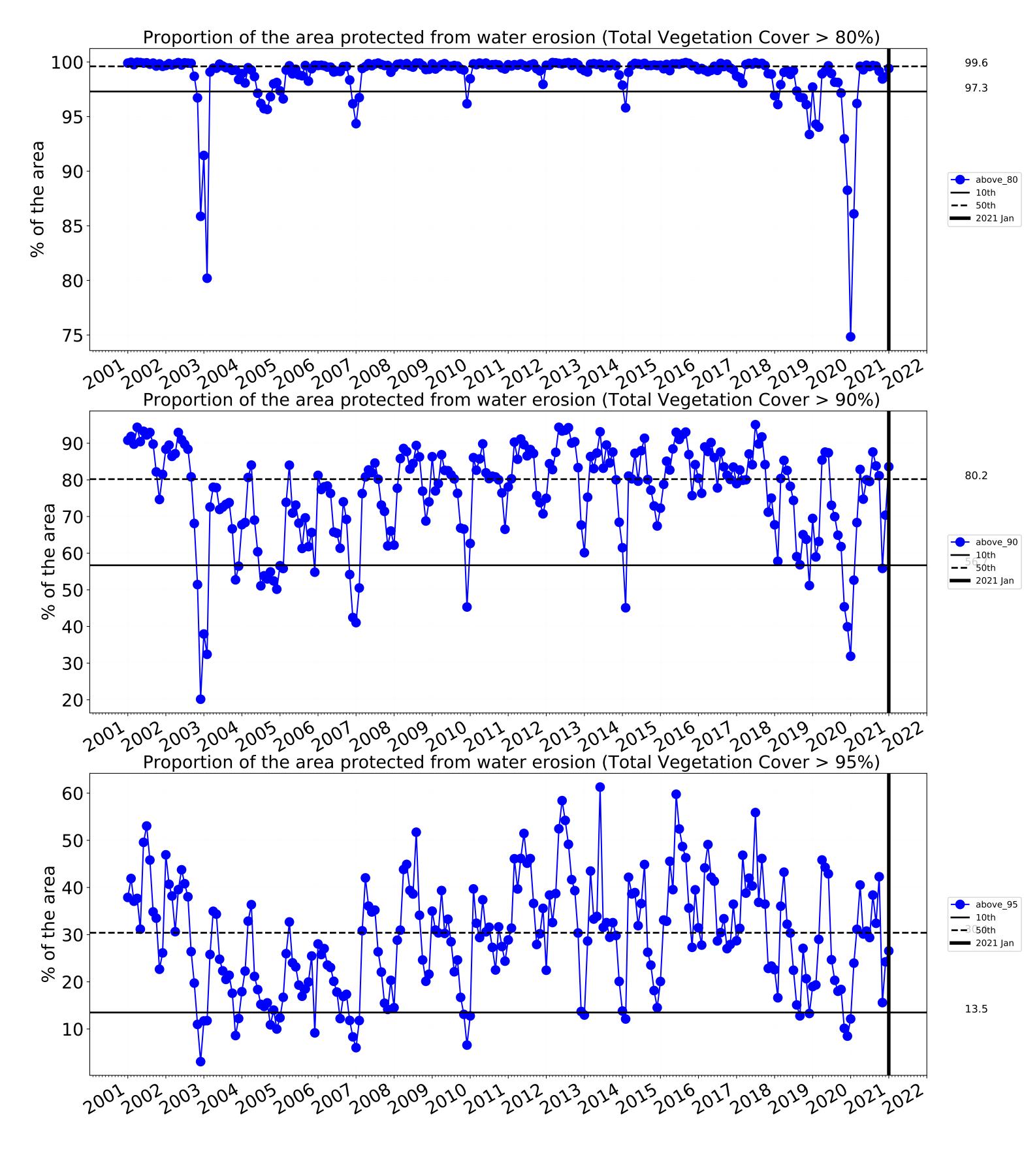


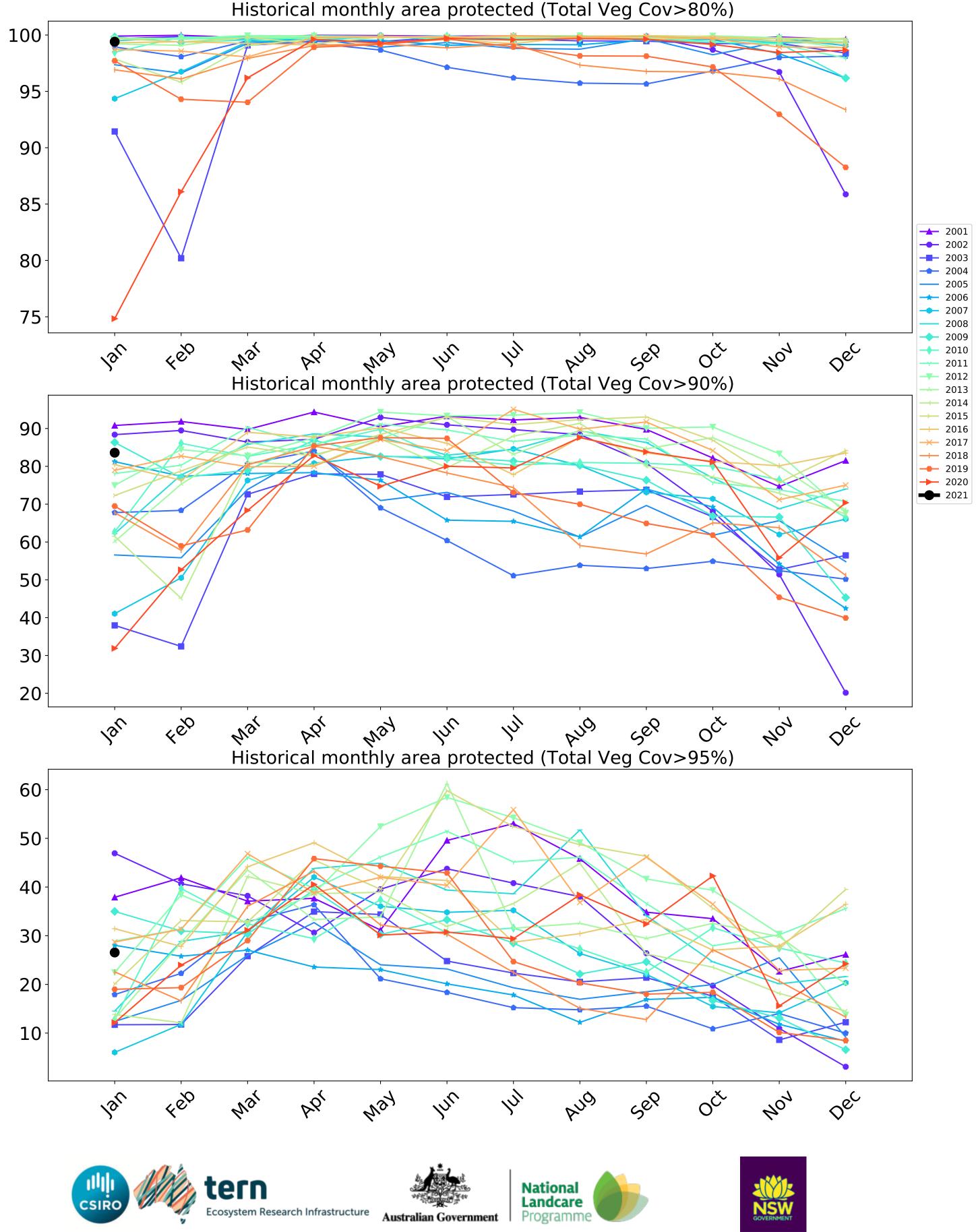
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



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

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

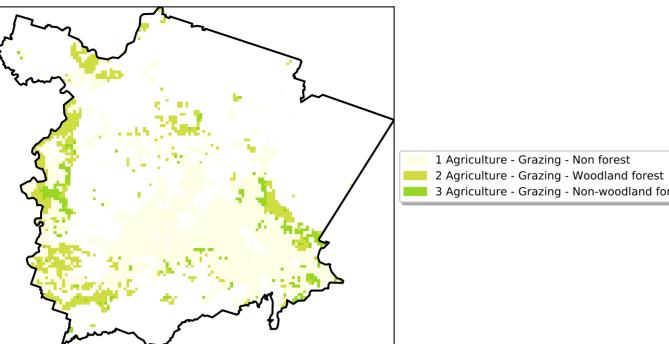




Grazing

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)



3 Agriculture - Grazing - Non-woodland forest

120/0700010

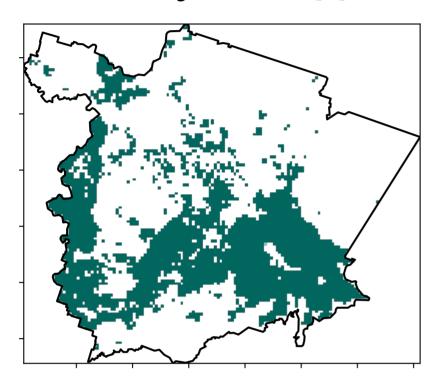
52°1070°10

1 32°1050°10

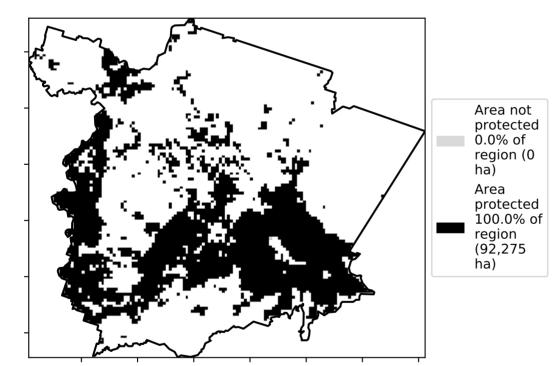
0.30%

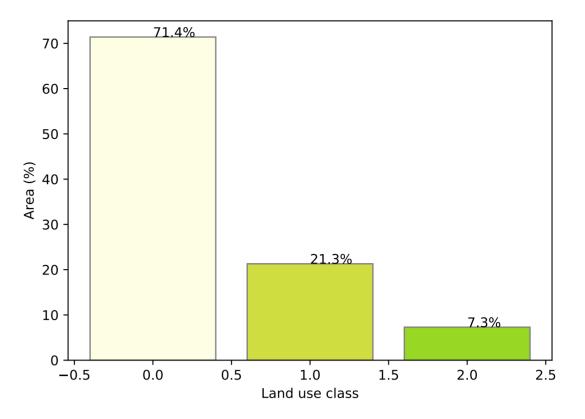
1 Agriculture - Grazing - Non forest

Total Vegetation Cover [%]



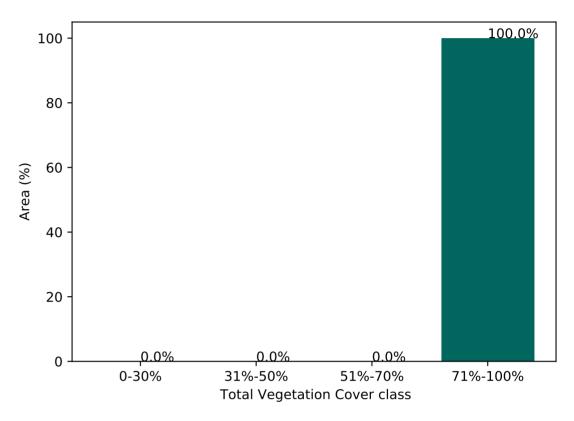
% Area protected from water erosion (>70%)



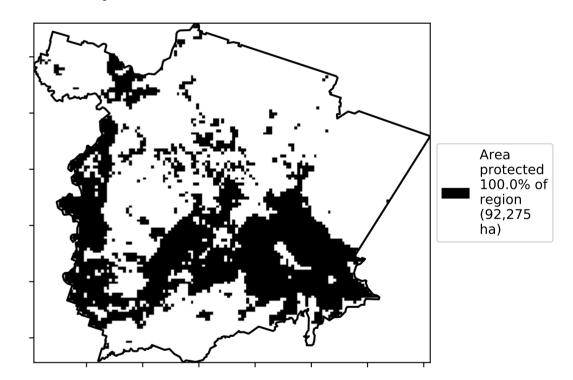


Proportion of each land class in area

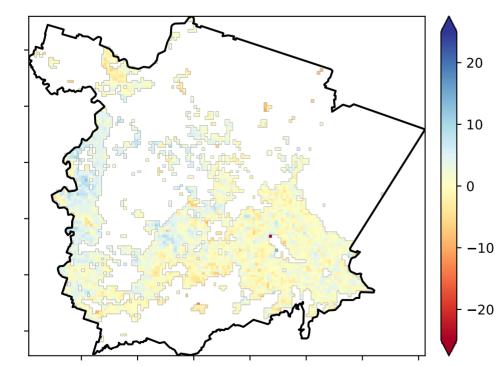
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

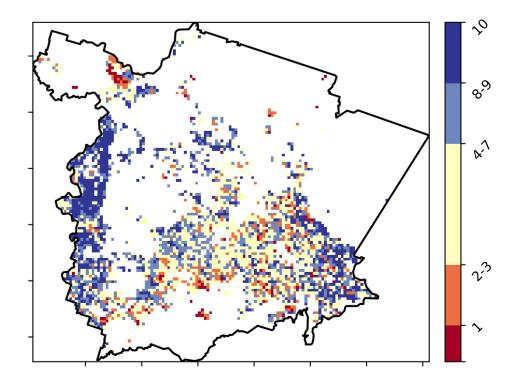


Total Vegetation Cover Anomaly [%]



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

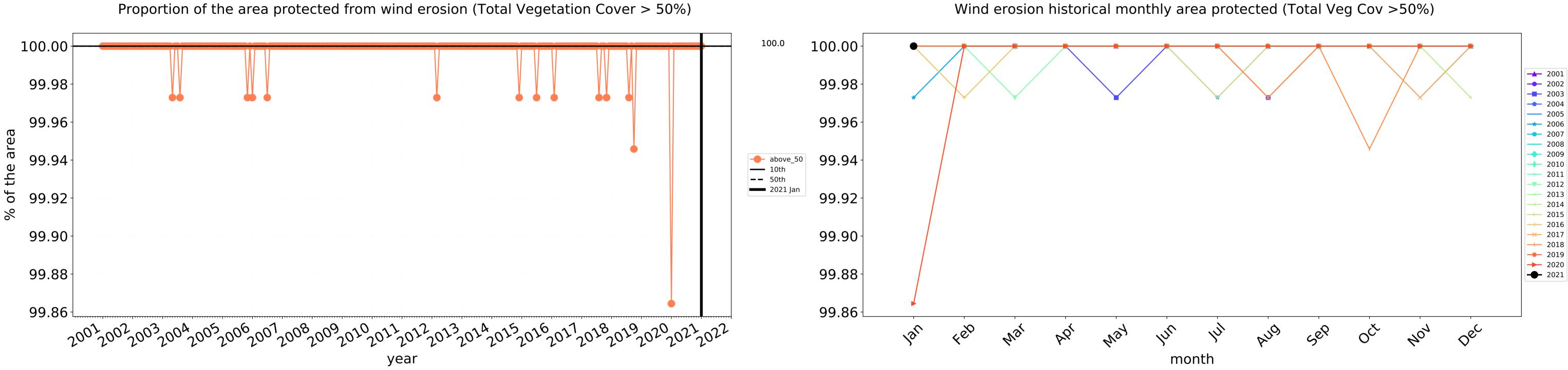
Total Vegetation Cover Decile [%]



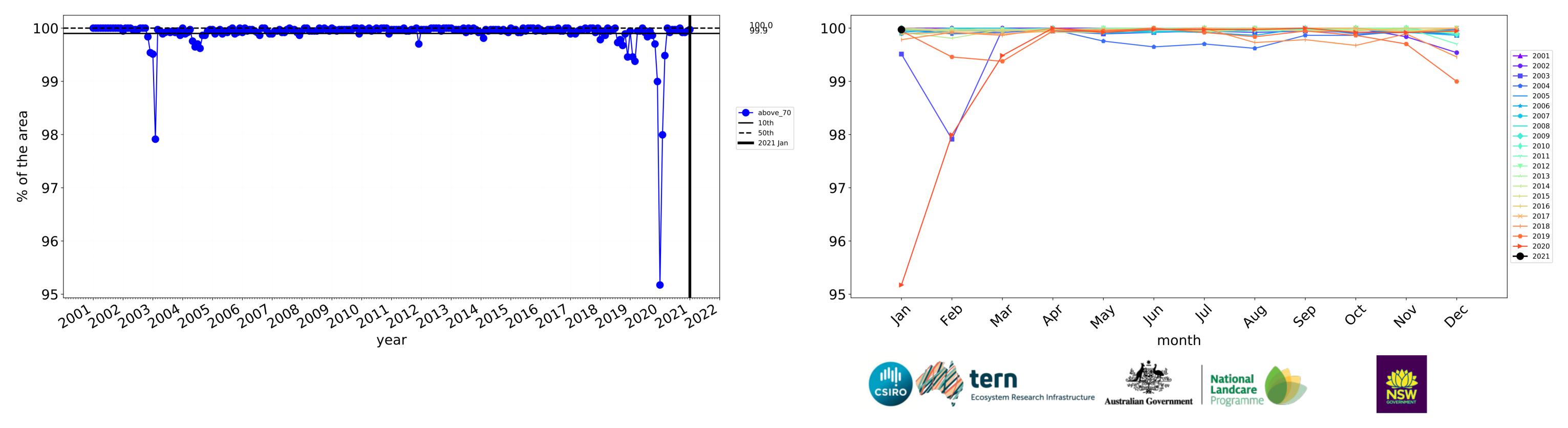


Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



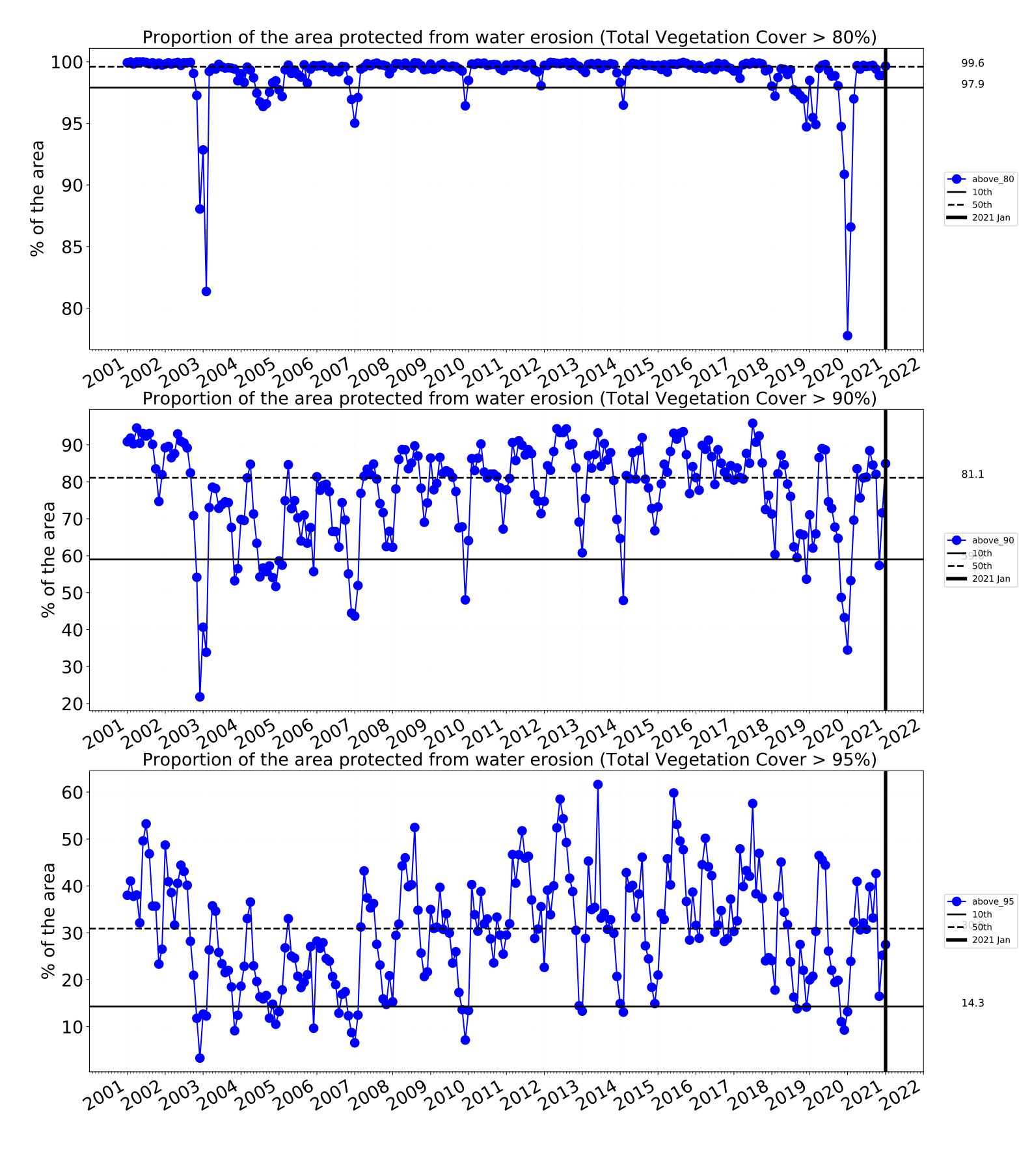


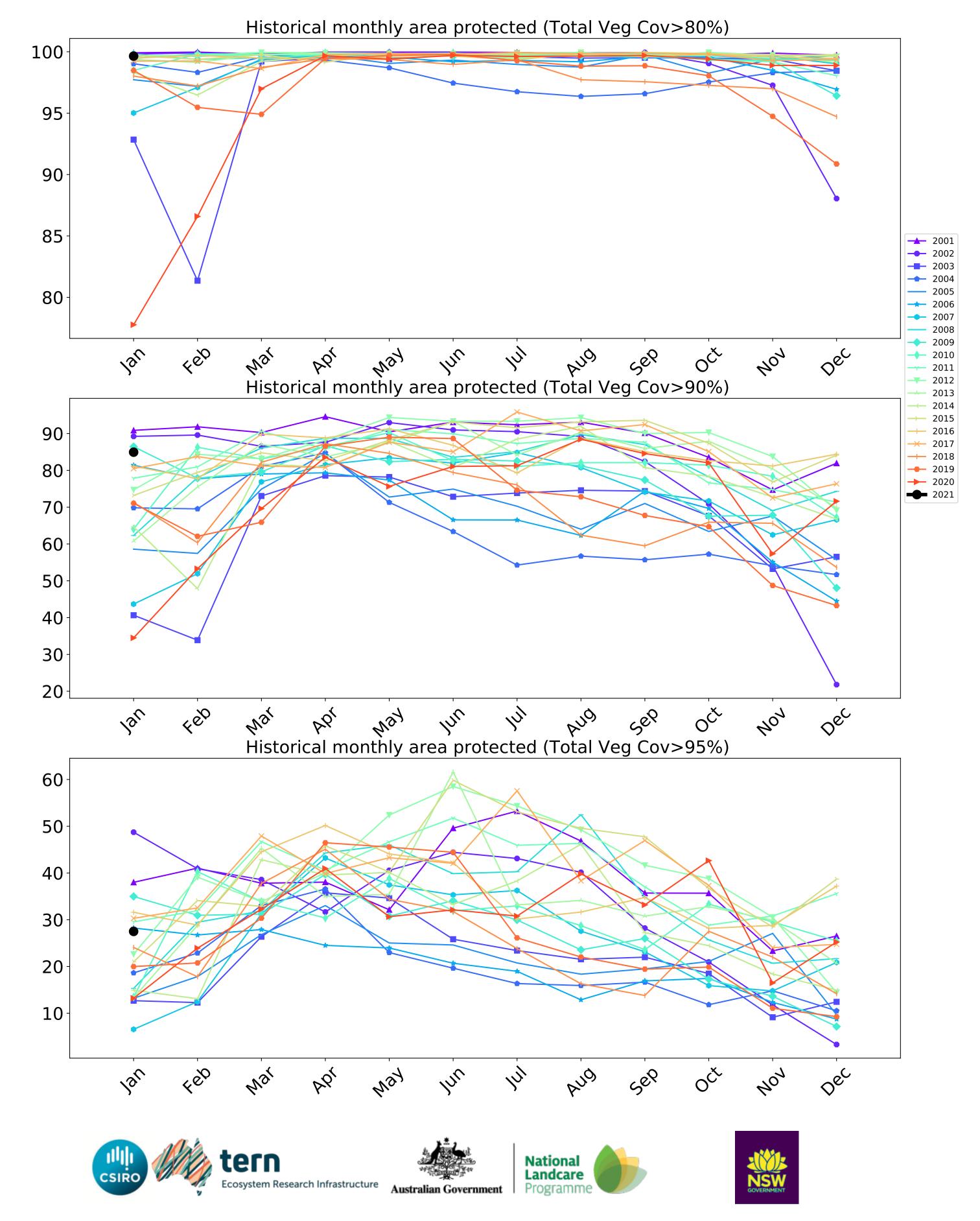
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



Grazing timeseries

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





Grazing non forest

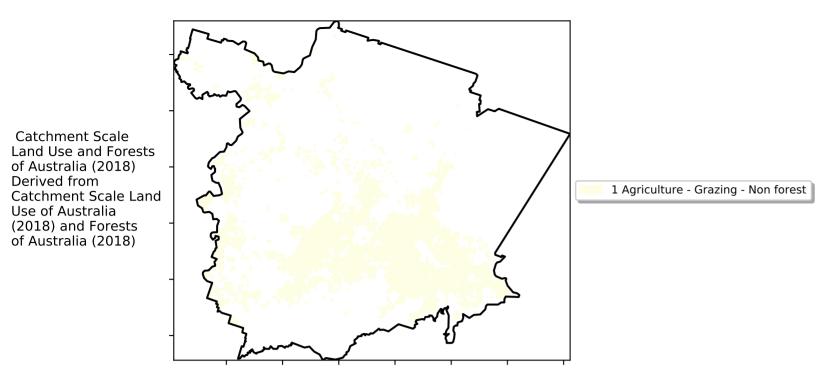
1200-200%

52°10010

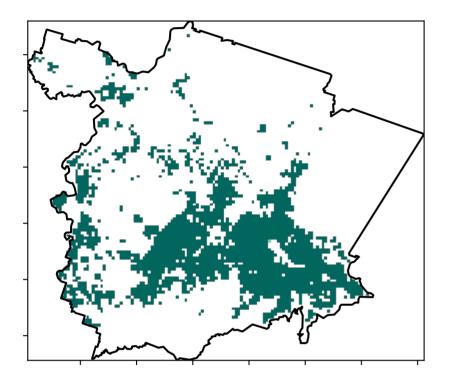
32005000

0.30%

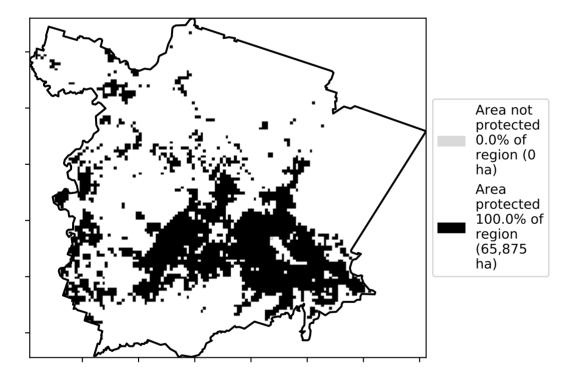
Land use and forest cover



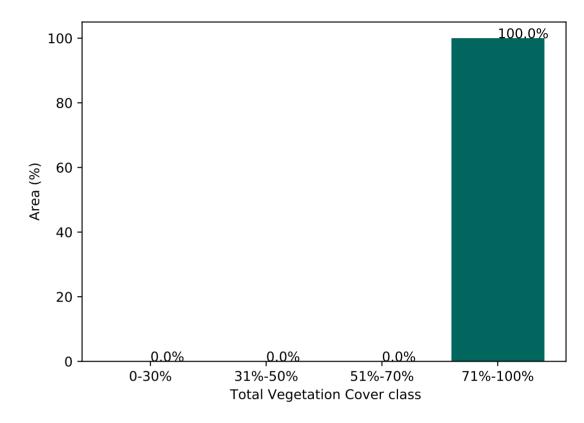
Total Vegetation Cover [%]



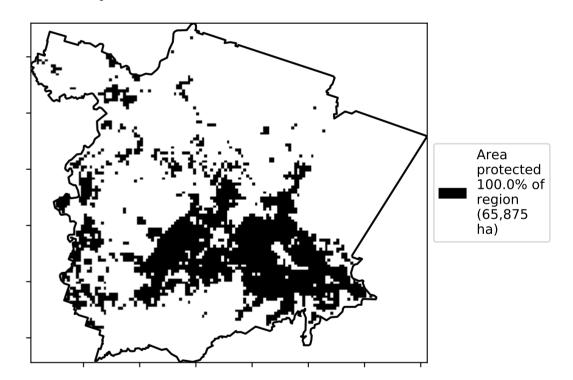
% Area protected from water erosion (>70%)



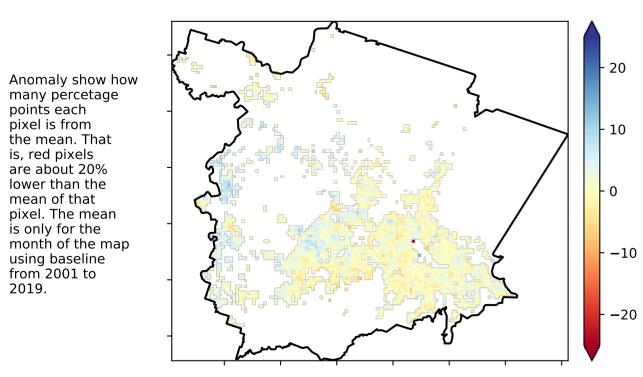
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



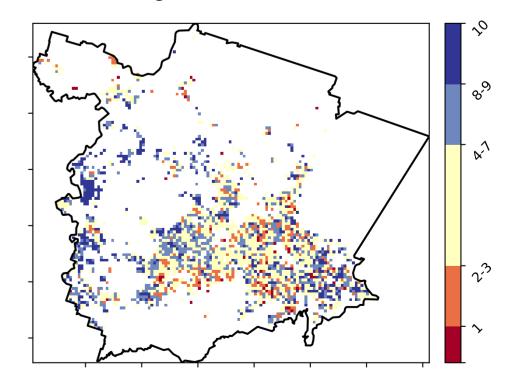
Total Vegetation Cover Anomaly [%]



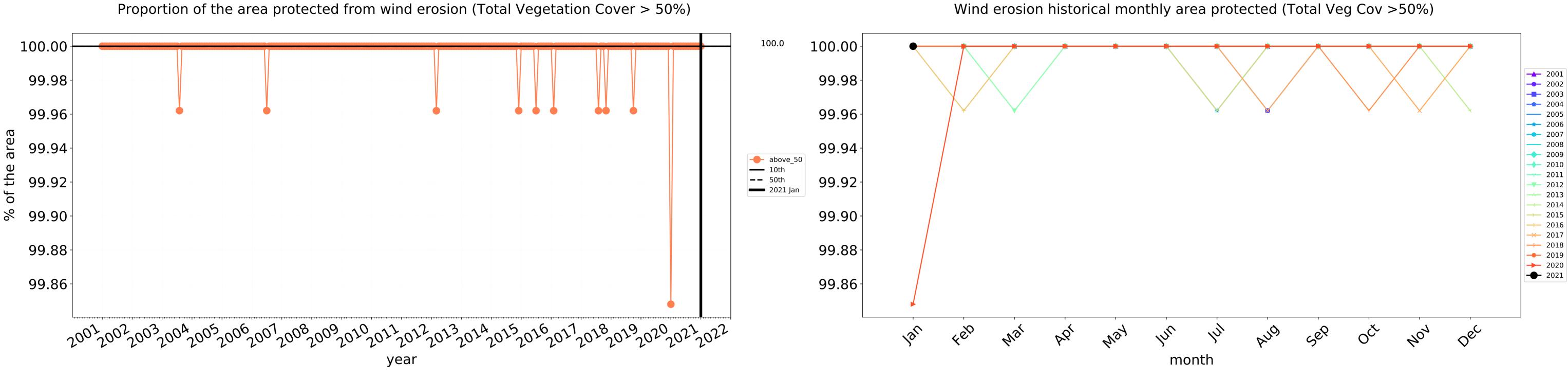
lower than the

mean of that

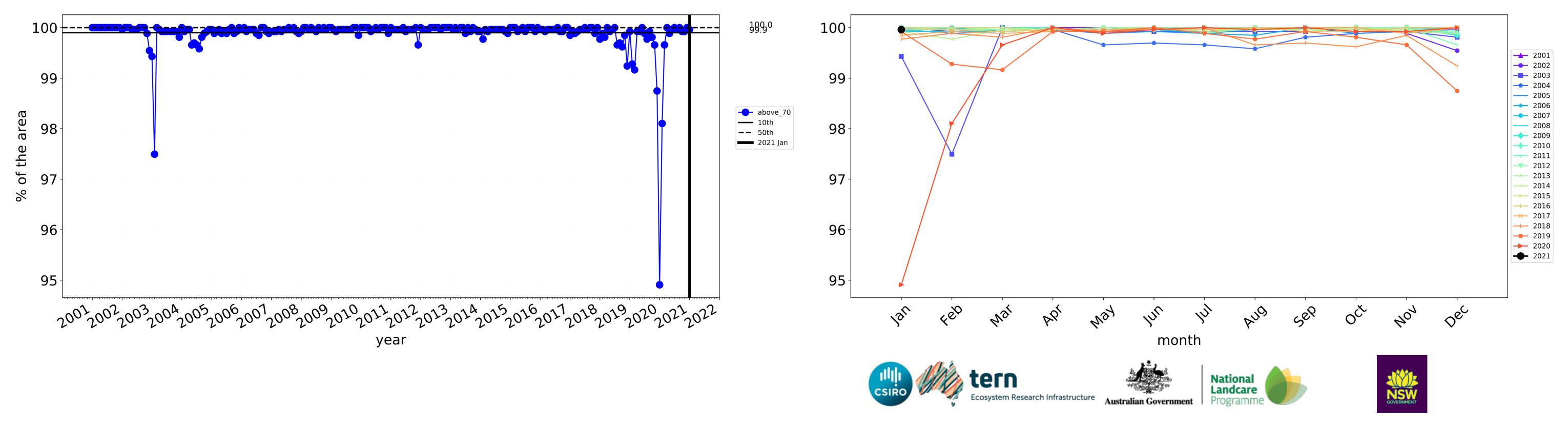
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019. **Total Vegetation Cover Decile [%]**



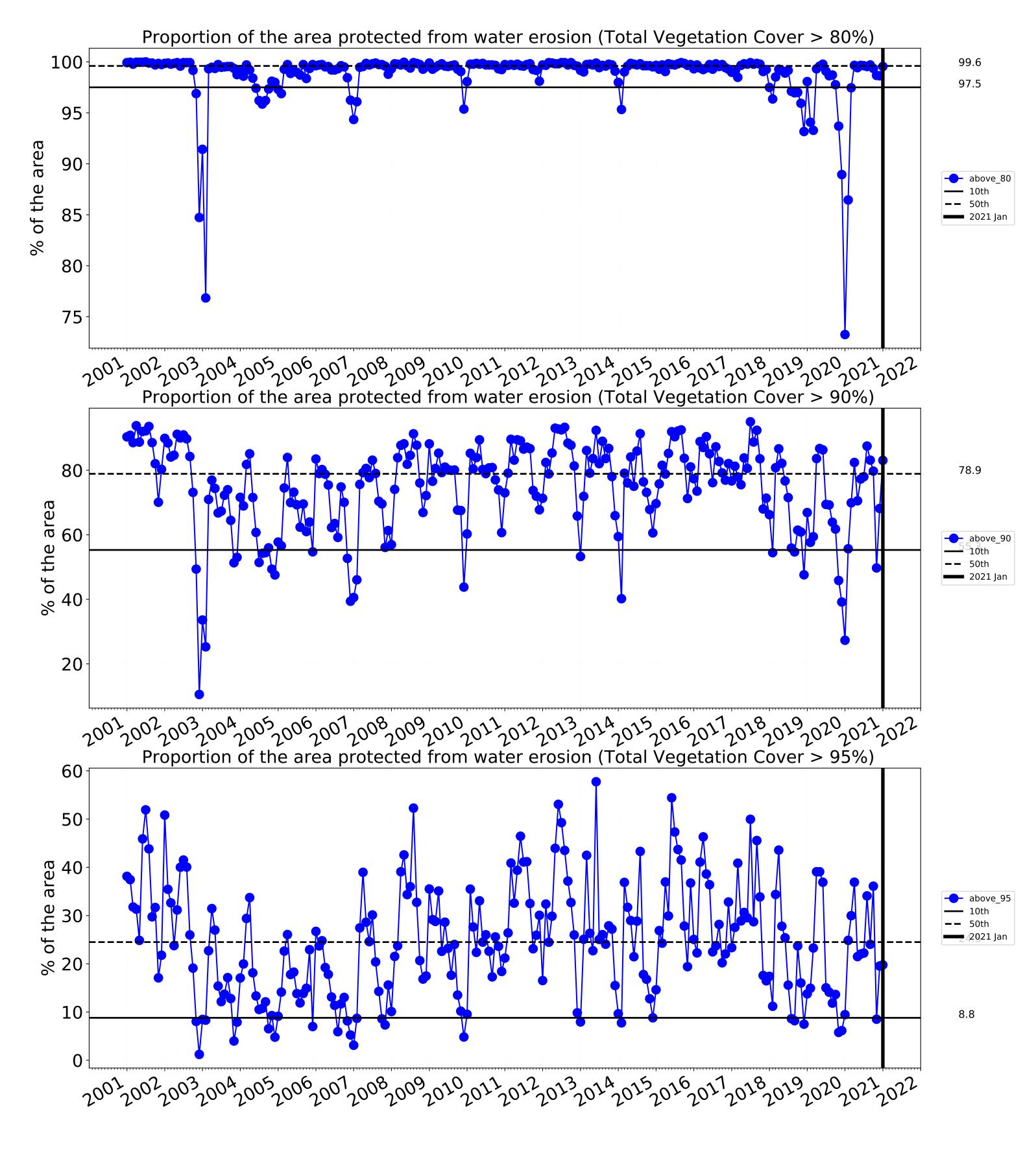


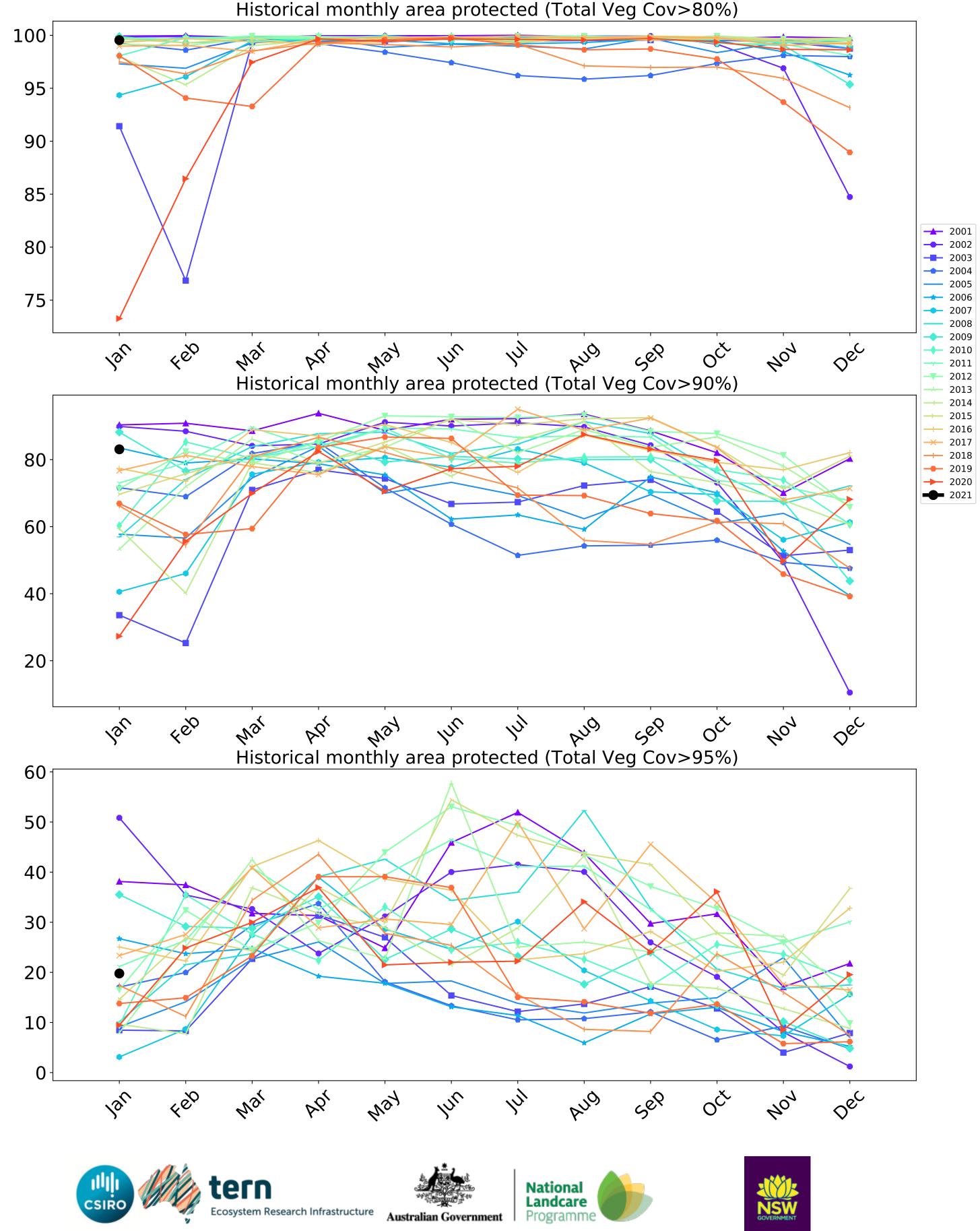


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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





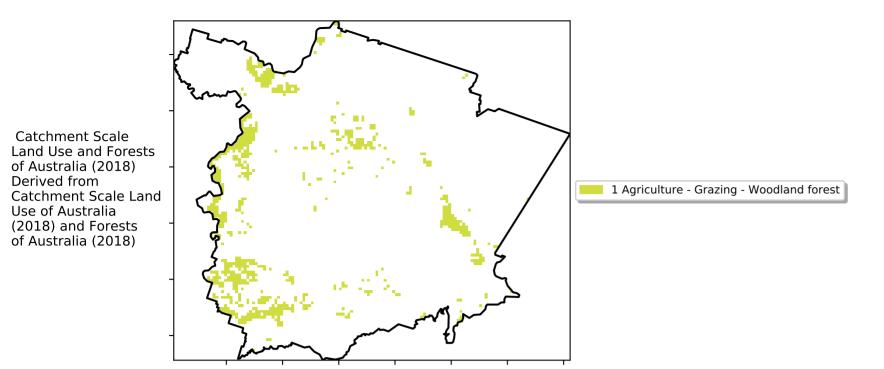
Grazing Woodland forest

120020000

52°10010

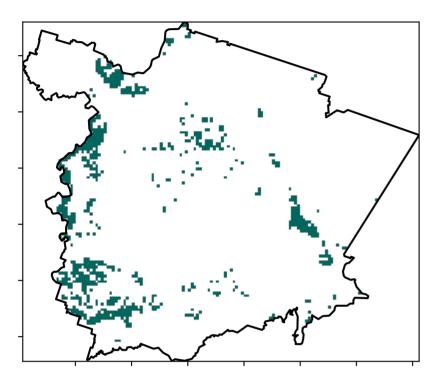
32°10'50010

0.30%

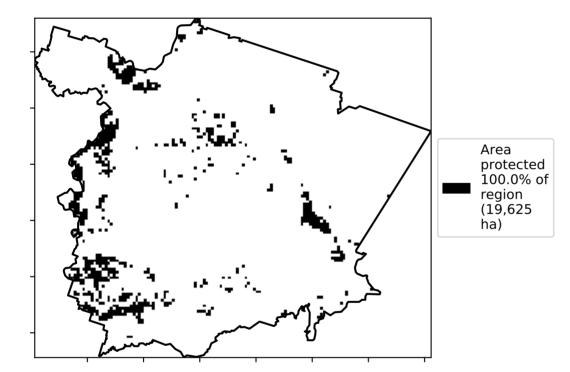


Total Vegetation Cover [%]

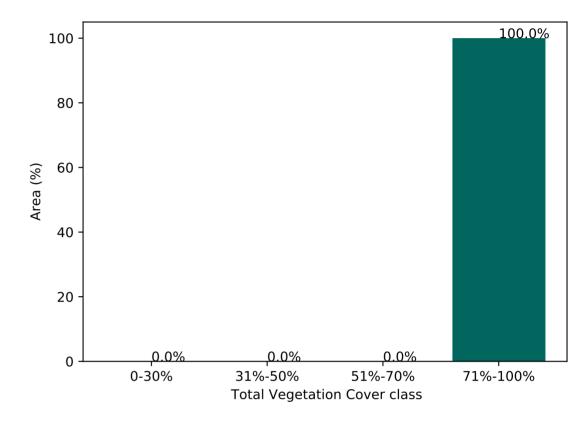
Land use and forest cover



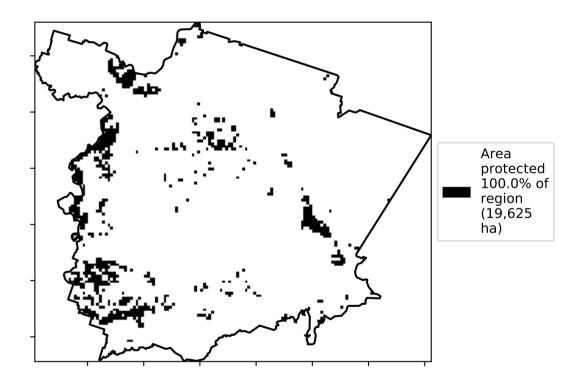
% Area protected from water erosion (>70%)



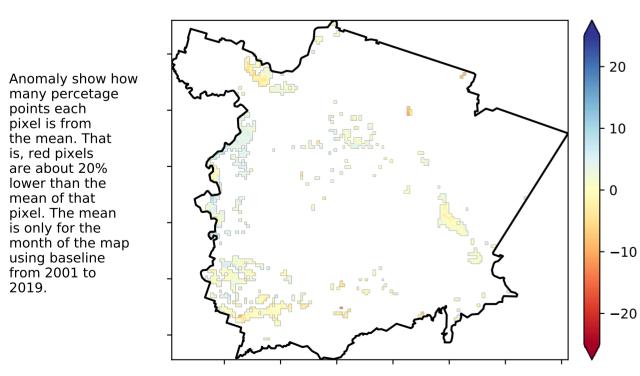
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



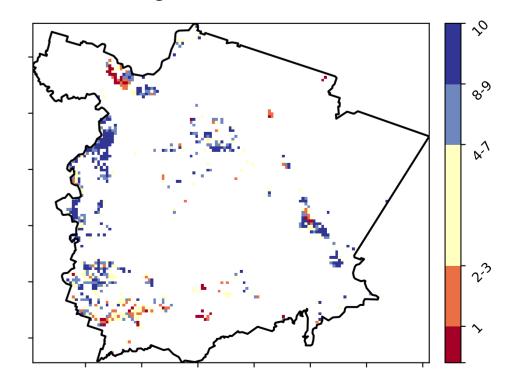
Total Vegetation Cover Anomaly [%]



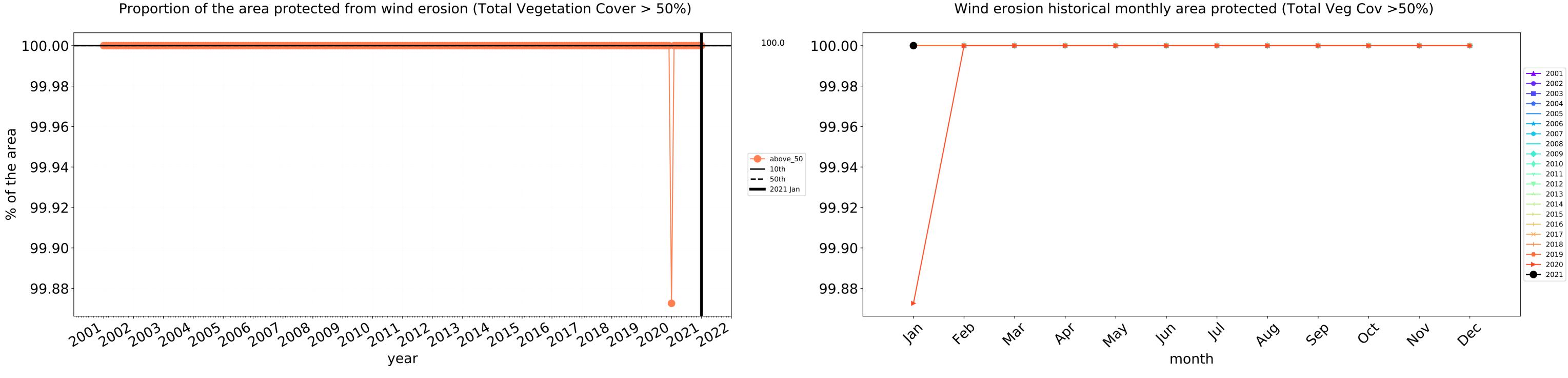
lower than the

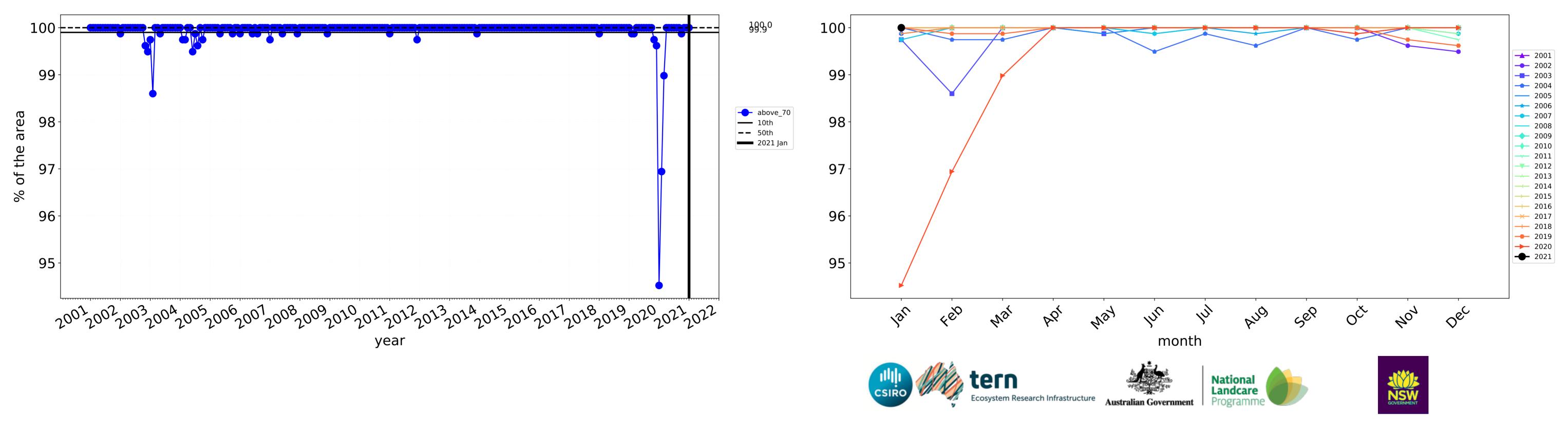
mean of that pixel. The mean Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]

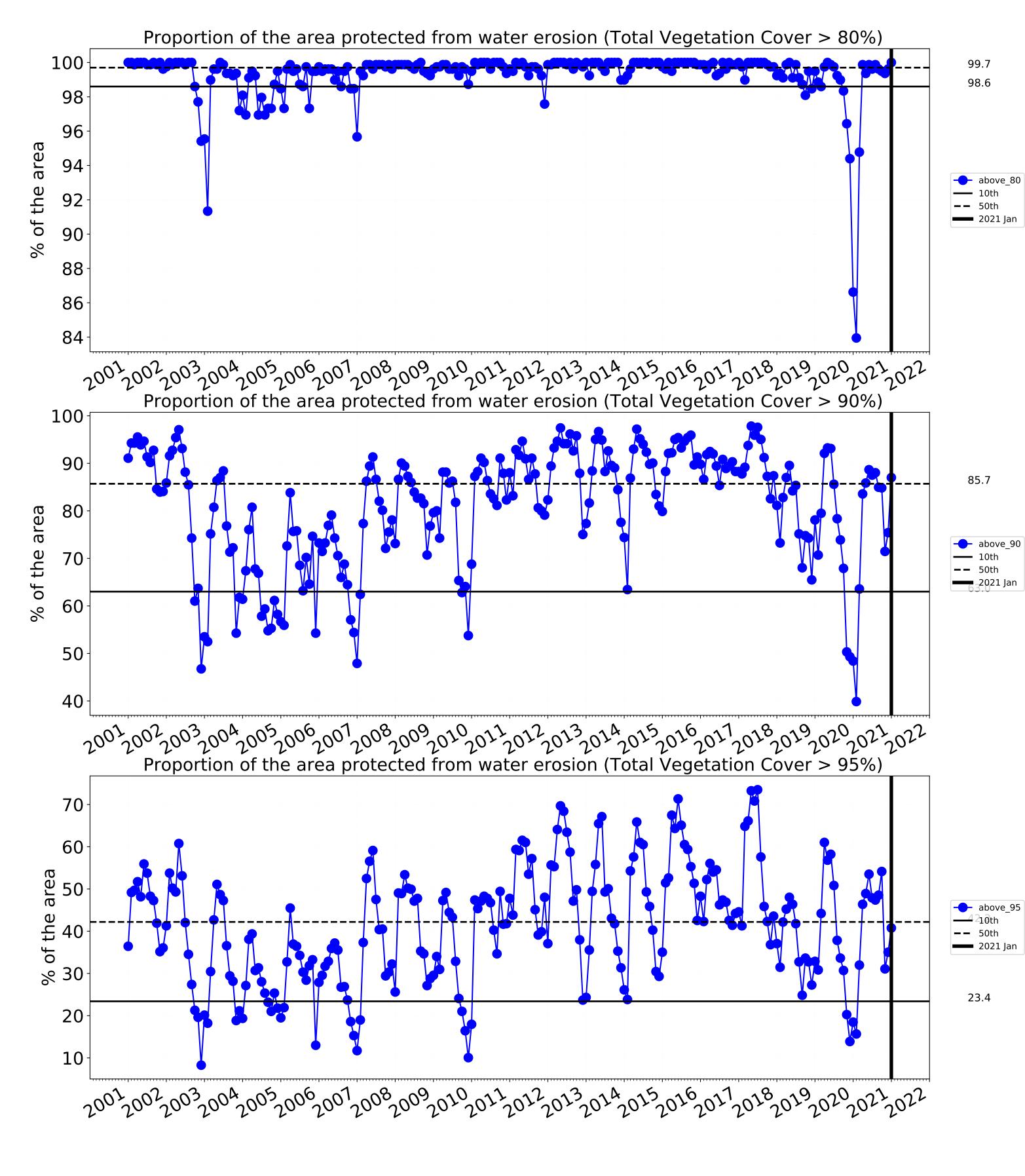


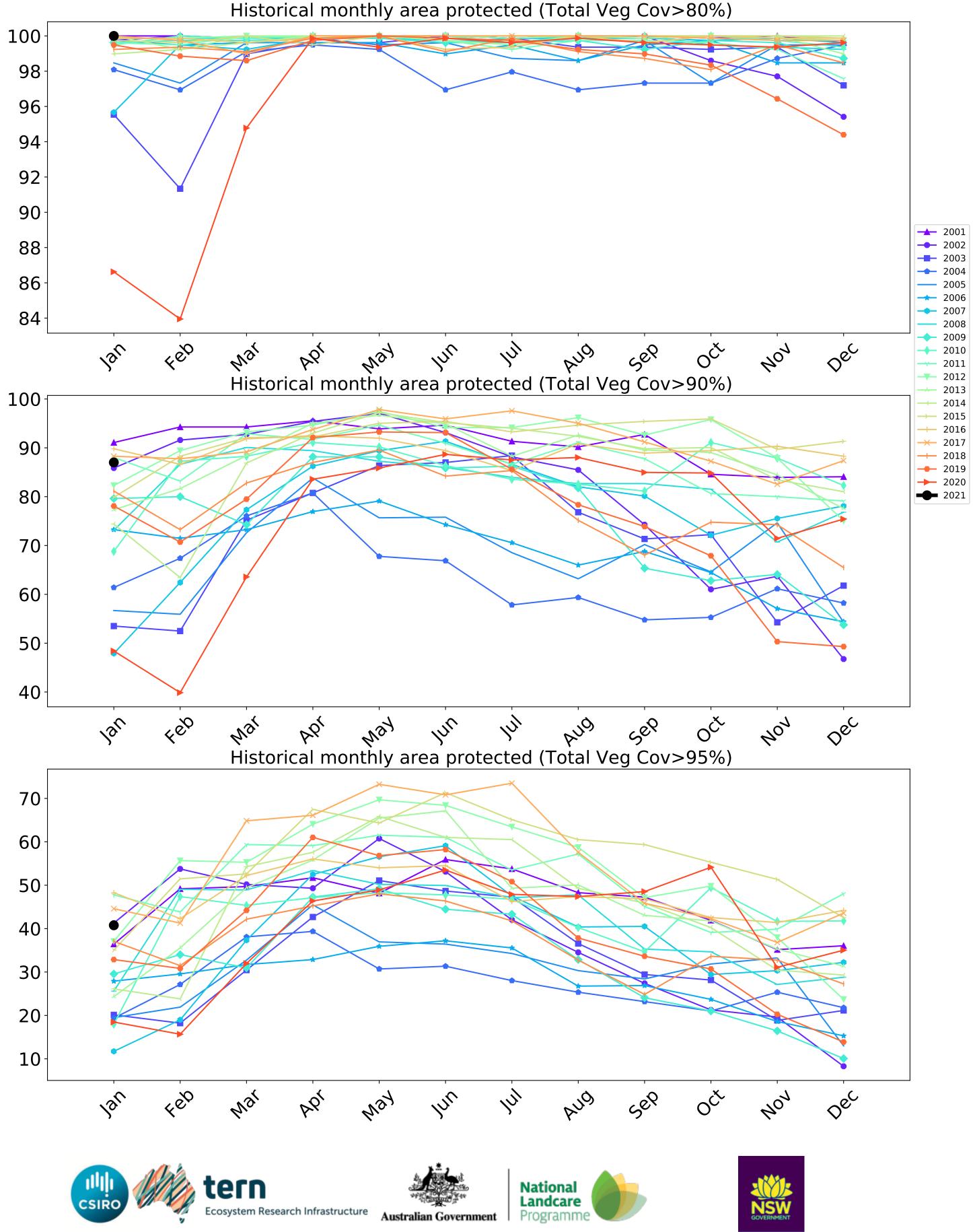






Water erosion historical monthly area protected (Total Veg Cov>70%)







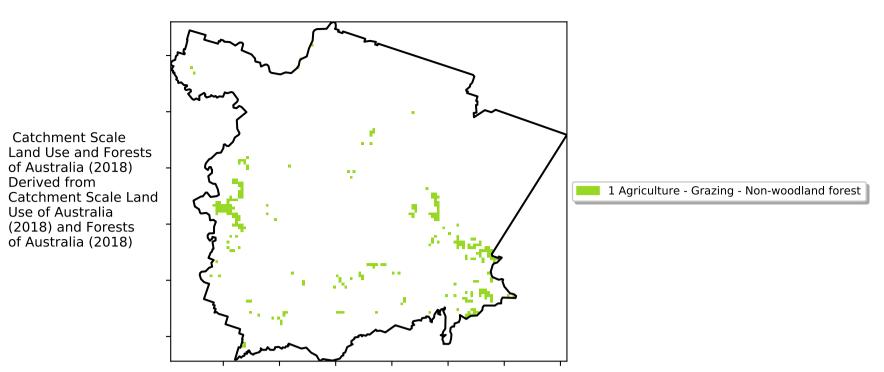
Grazing - Forest (non woodland)

12% 10°10°%

52°10010

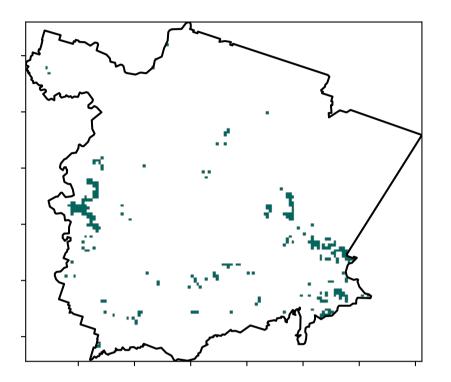
· 32°10'50°10

0.30%

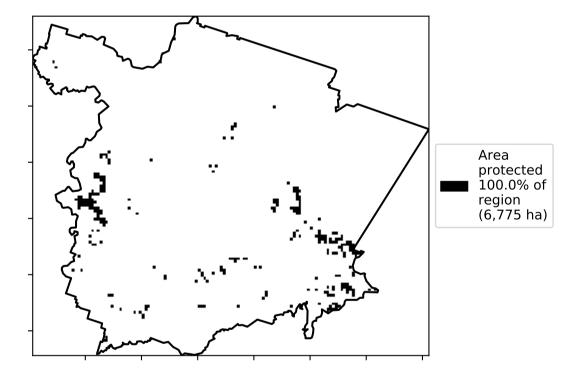


Land use and forest cover

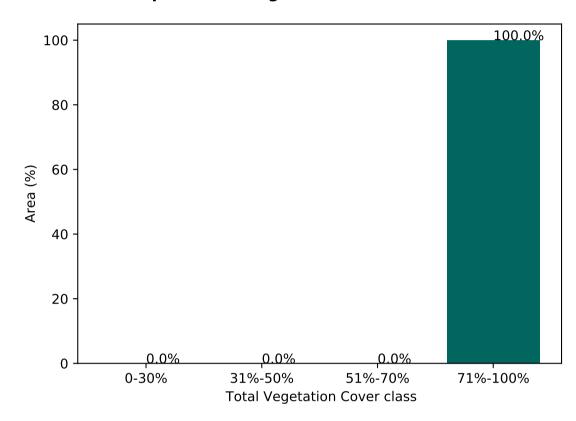
Total Vegetation Cover [%]



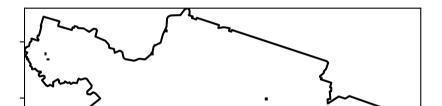
% Area protected from water erosion (>70%)



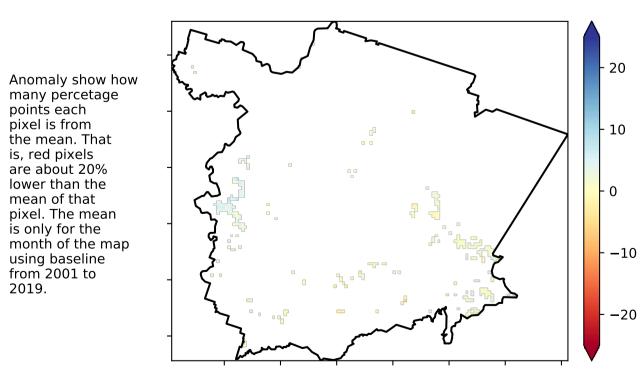
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



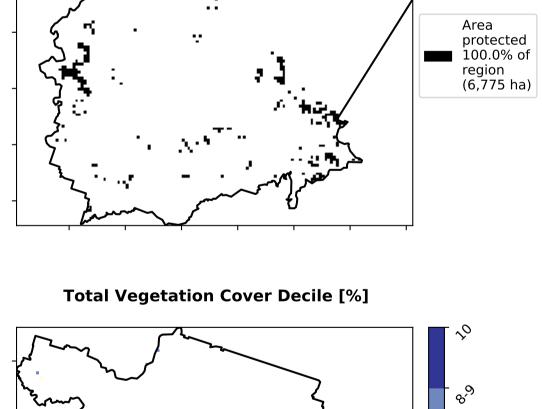
is, red pixels are about 20% lower than the

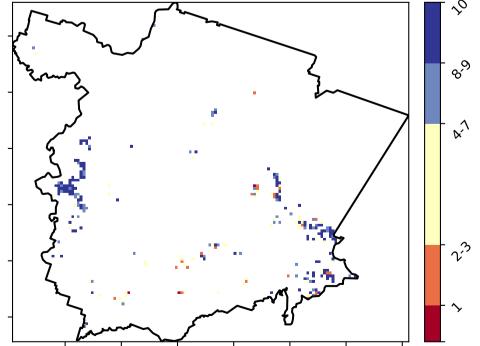
mean of that

pixel. The mean

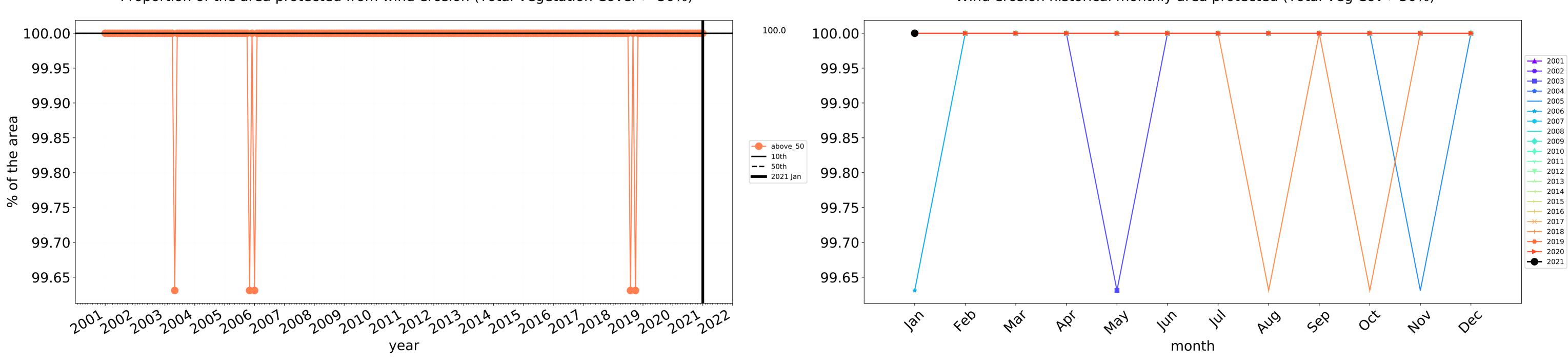
using baseline from 2001 to 2019.

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

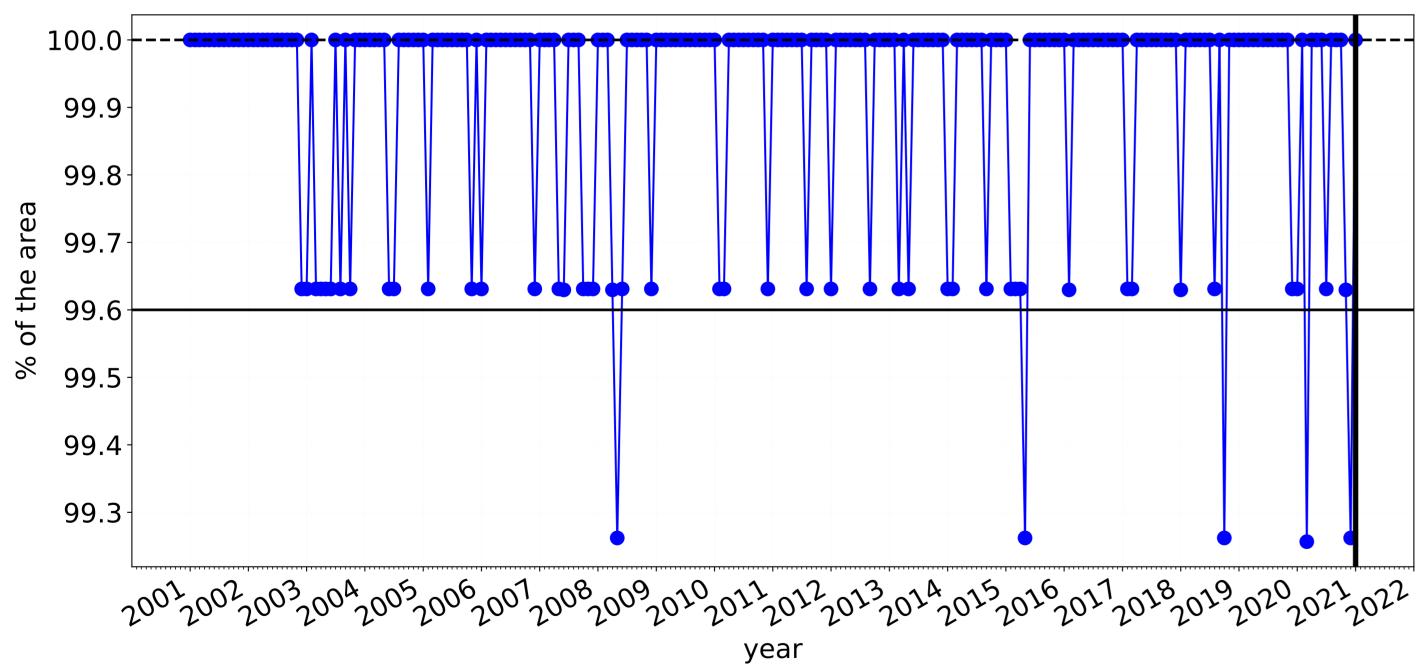












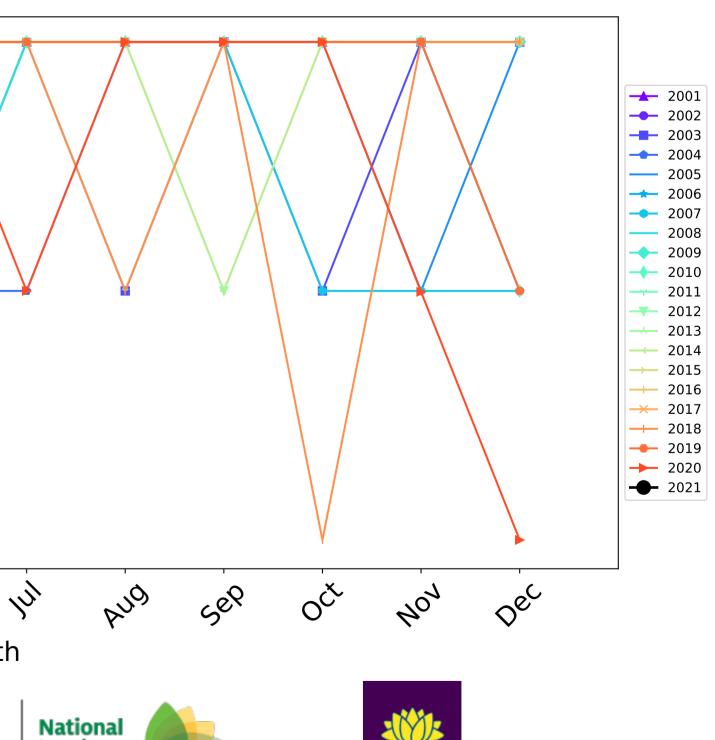
100.0 100.0 99.9 99.8 ---- above_70 **—** 10th 99.7 **——** 50th **——** 2021 Jan 99.6 99.6 99.5 99.4 99.3 400 May In Mar Jar Pb month tern Ecosystem Research Infrastructure Australian Government

Landcare

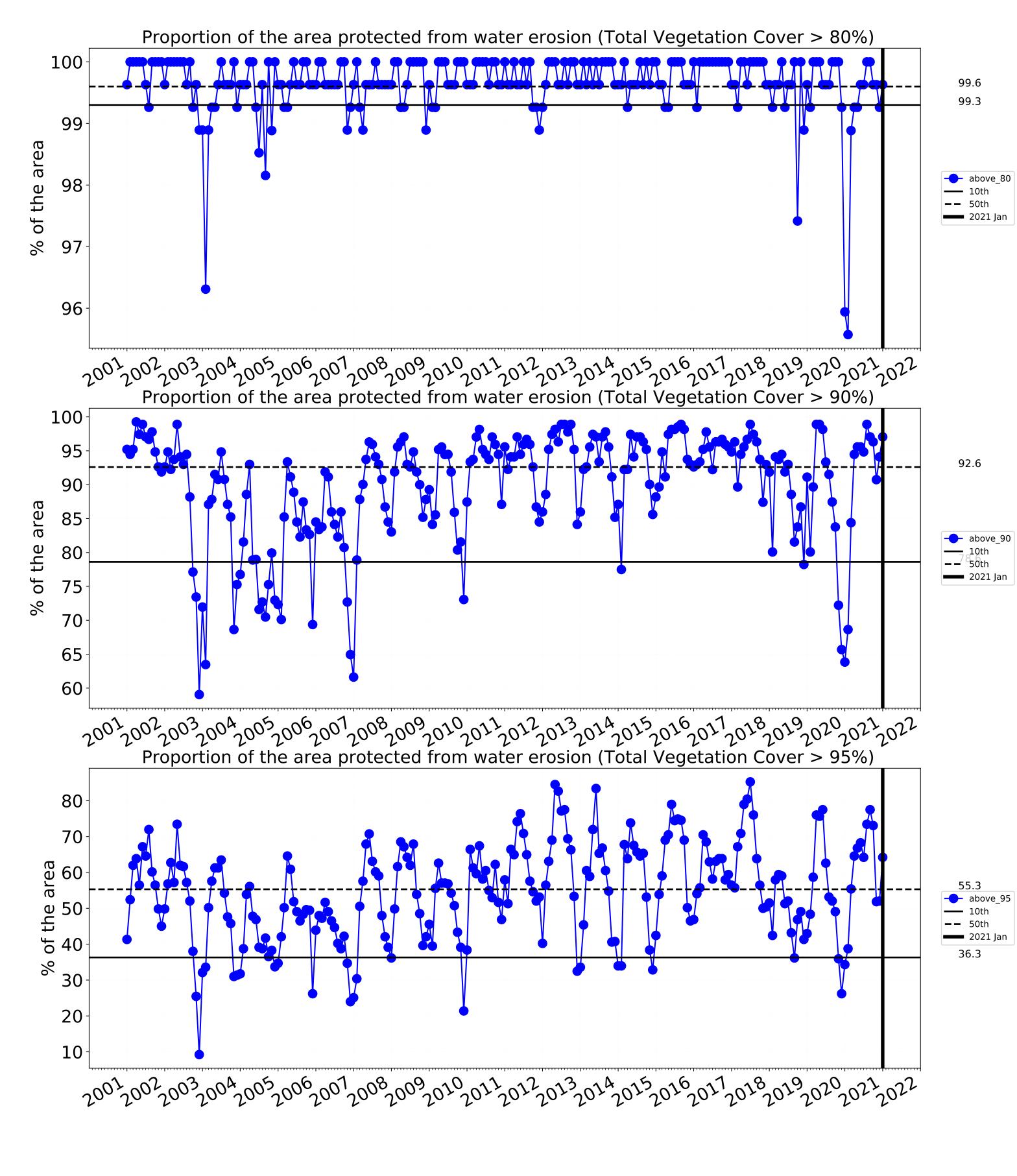
Programm

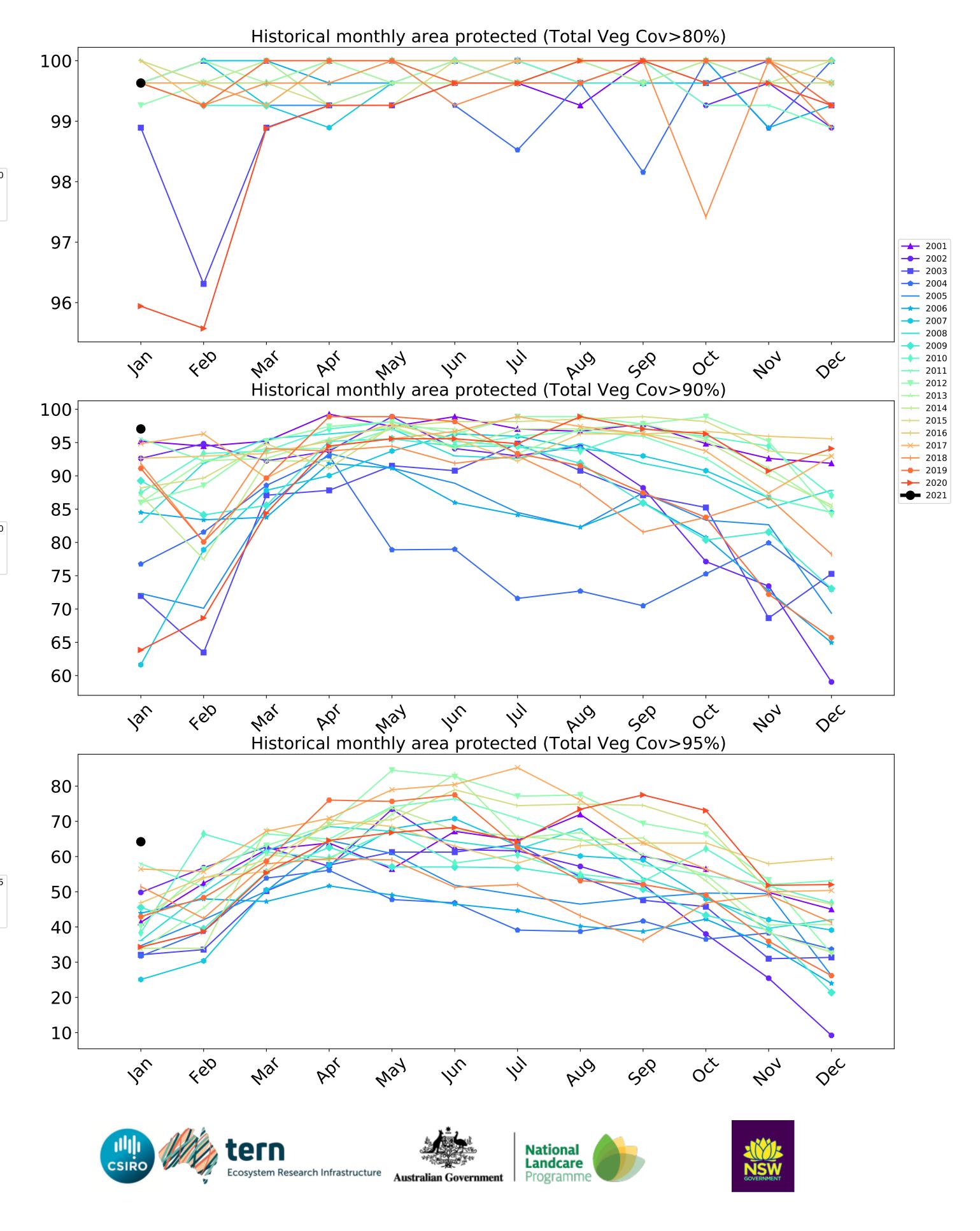
Wind erosion historical monthly area protected (Total Veg Cov >50%)

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



GOVERNMENT





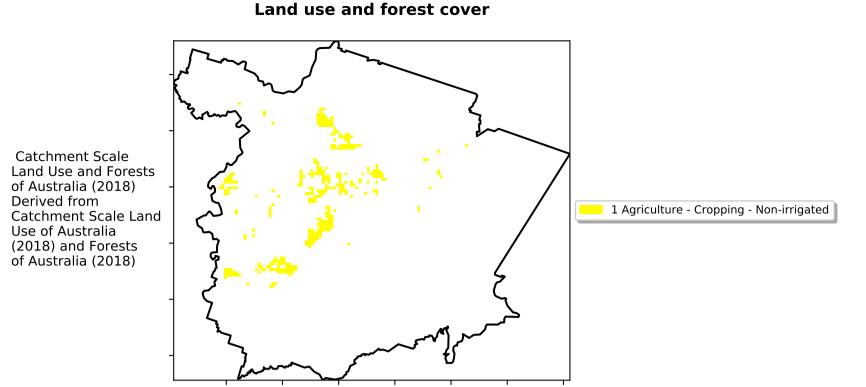
Cropping

12%^{100%}

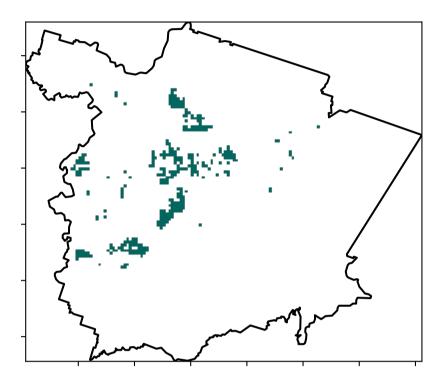
52°10°10°10

32005000

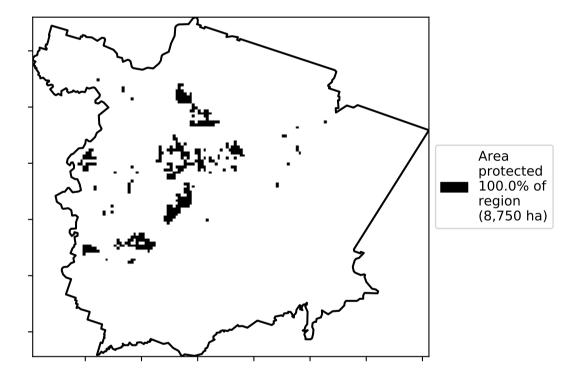
0.30%



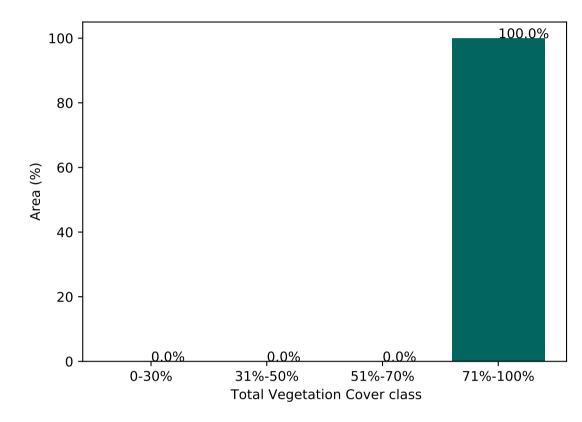
Total Vegetation Cover [%]



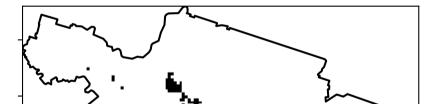
% Area protected from water erosion (>70%)



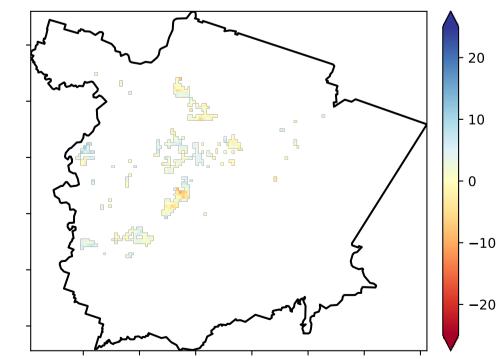
Proportion of vegetation cover class in area



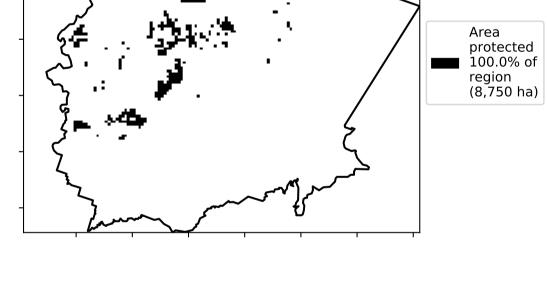
% Area protected from wind erosion (>50%)



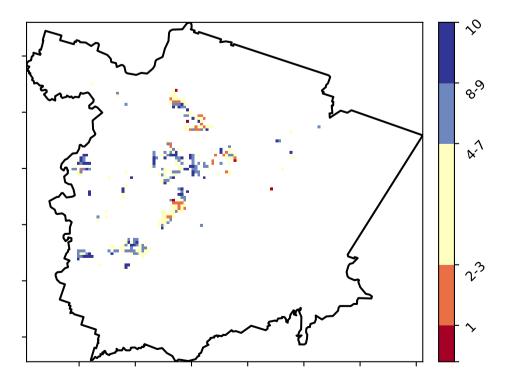
Total Vegetation Cover Anomaly [%]



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



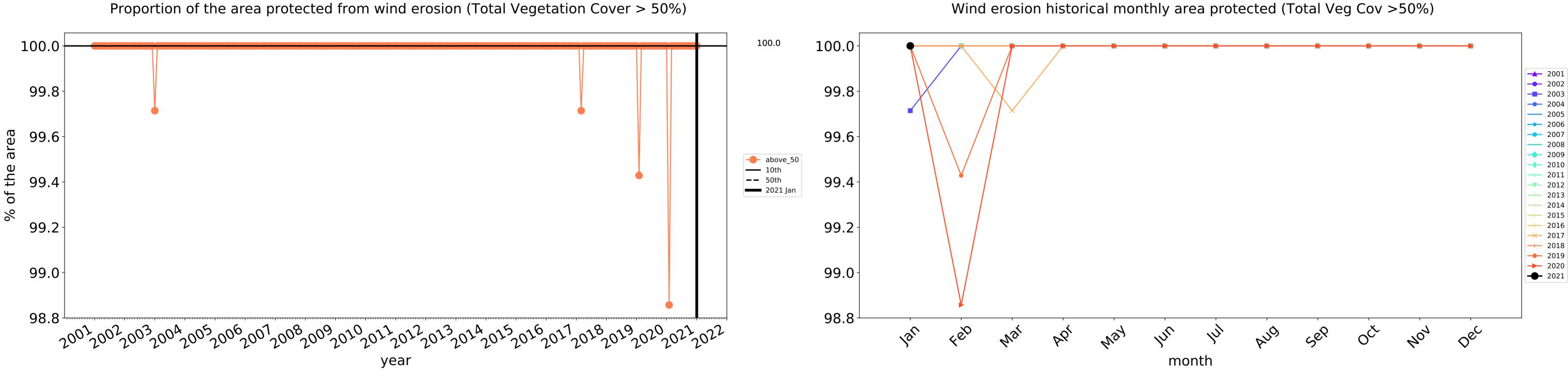
Total Vegetation Cover Decile [%]

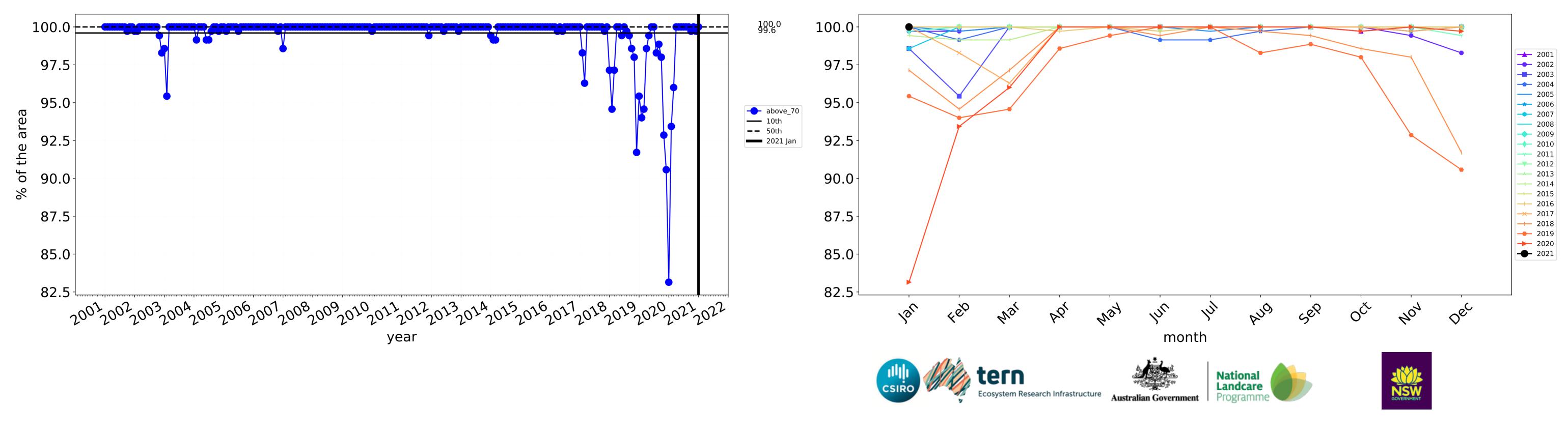




Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

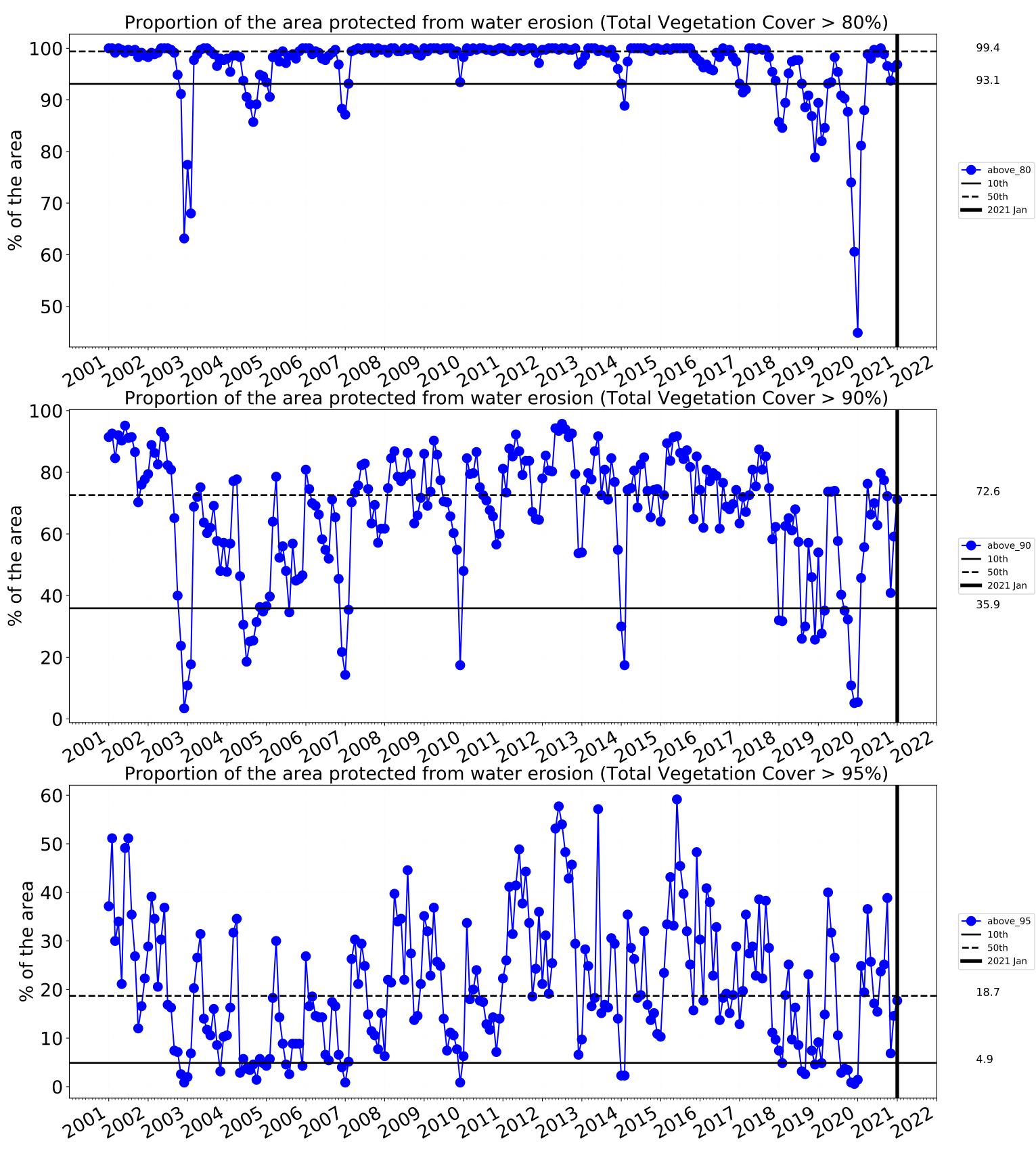


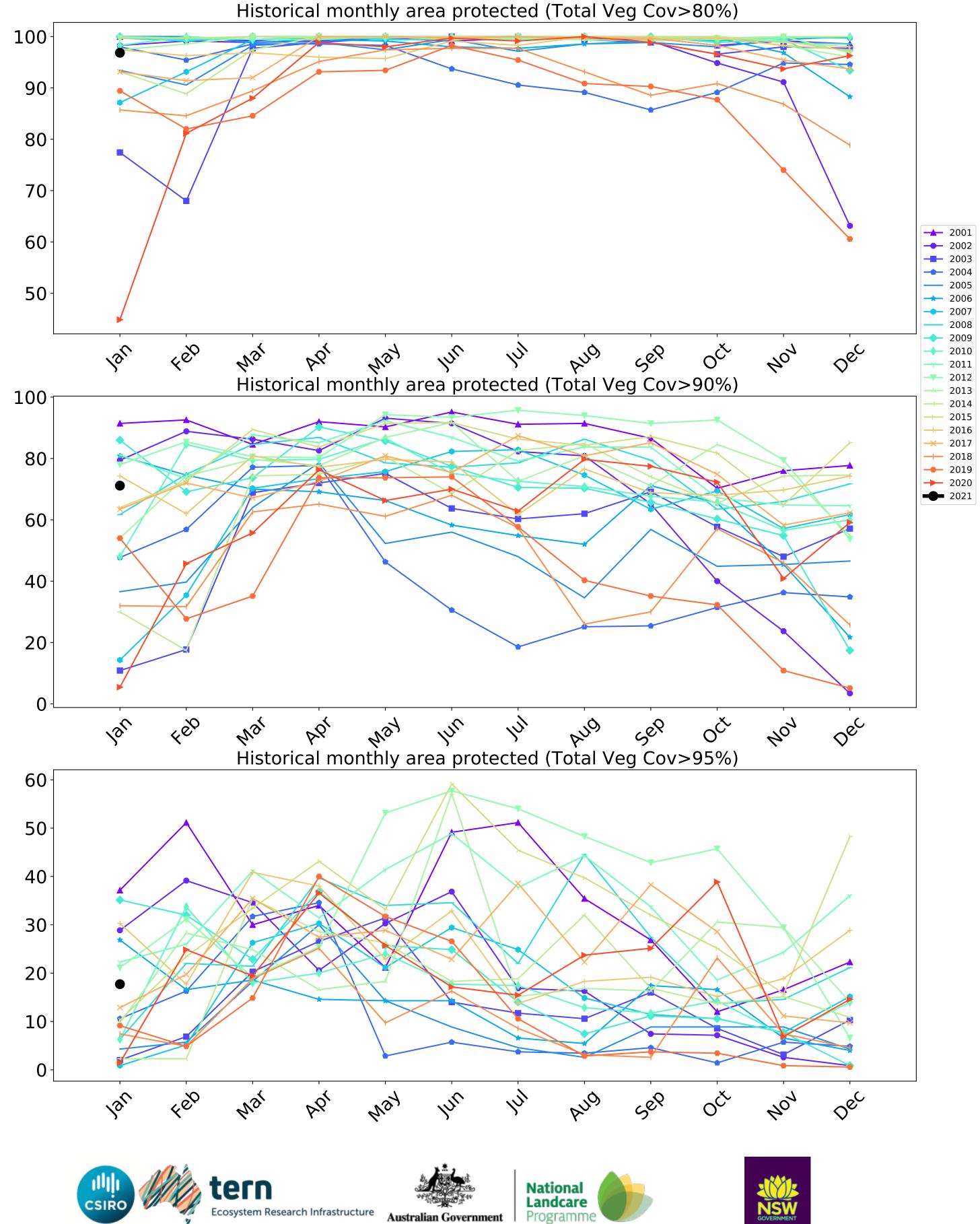




Cropping timeseries

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







above 90

4.9

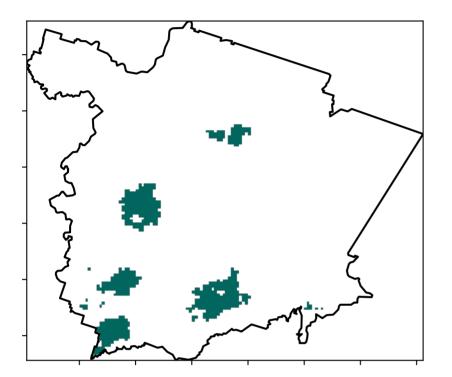
Production native forests and plantation forests

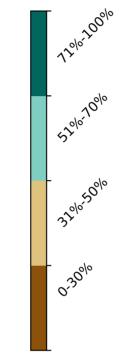
1 Production native forests and plantation forests Use of Australia (2018) and Forests of Australia (2018)

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

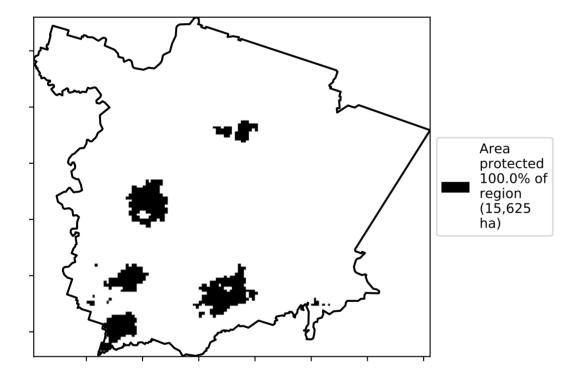
Total Vegetation Cover [%]

Land use and forest cover

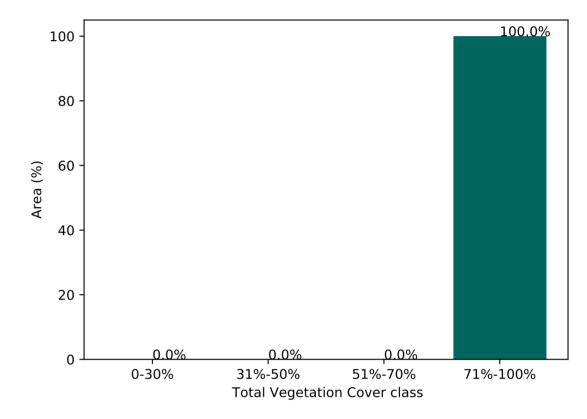




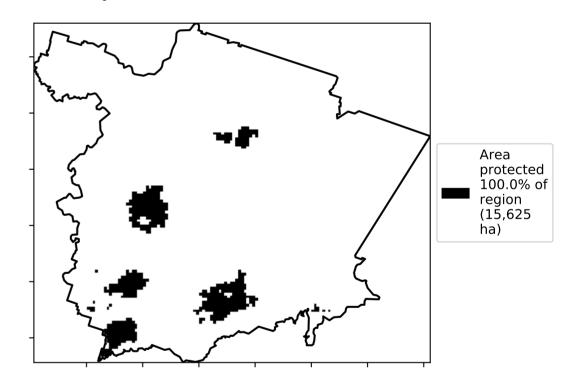
% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area

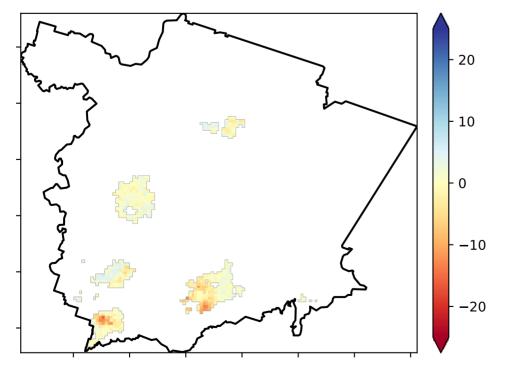


% Area protected from wind erosion (>50%)



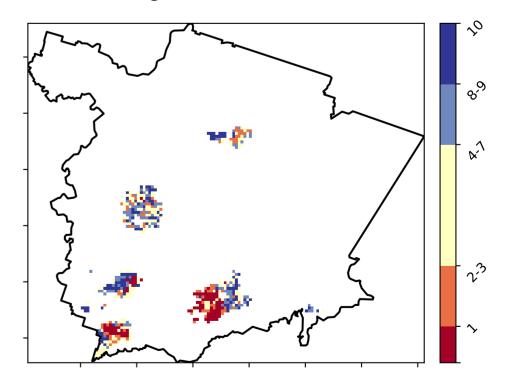
Total Vegetation Cover Anomaly [%]

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.



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.

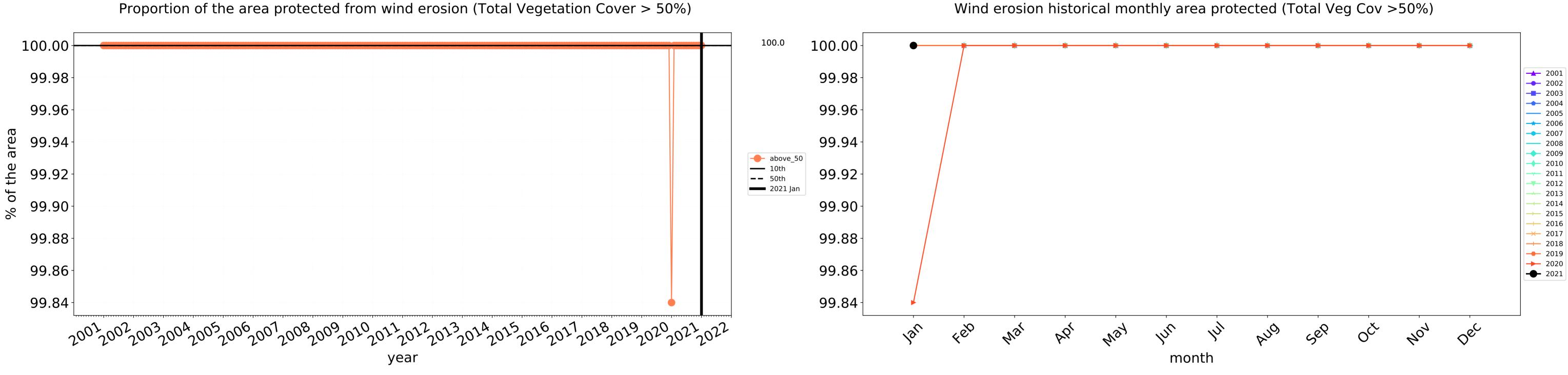
Total Vegetation Cover Decile [%]



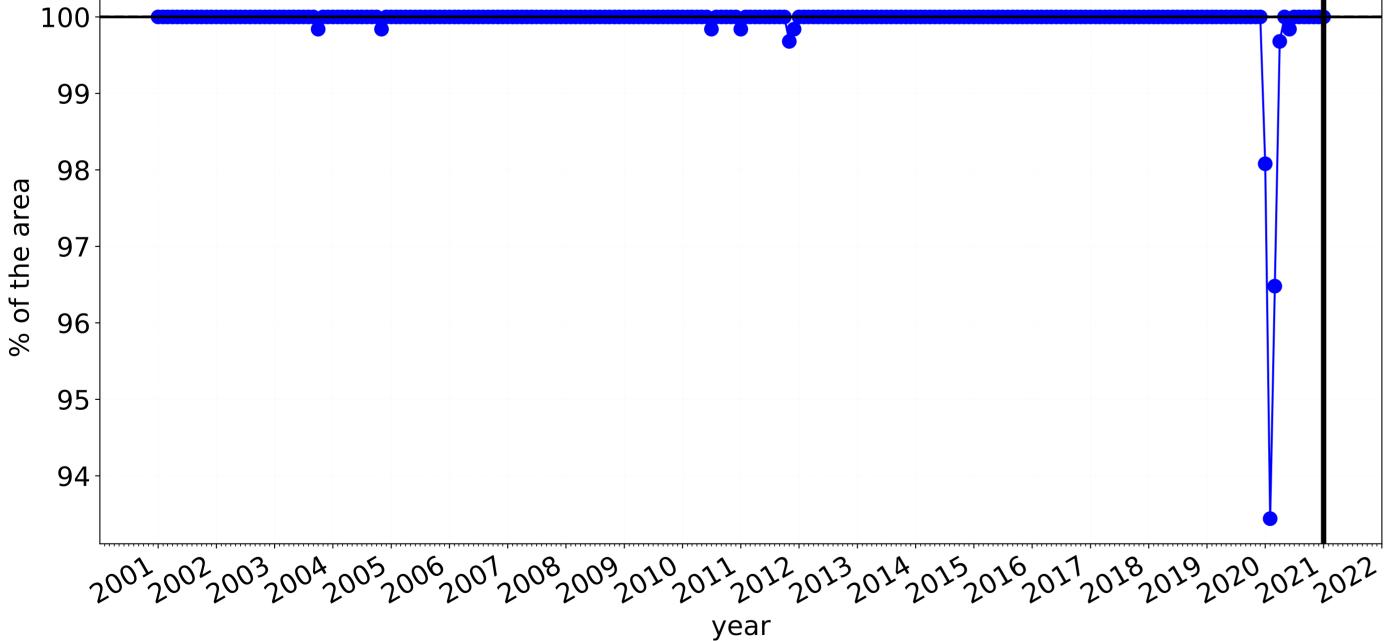




Production native forests and plantation forests timeseries



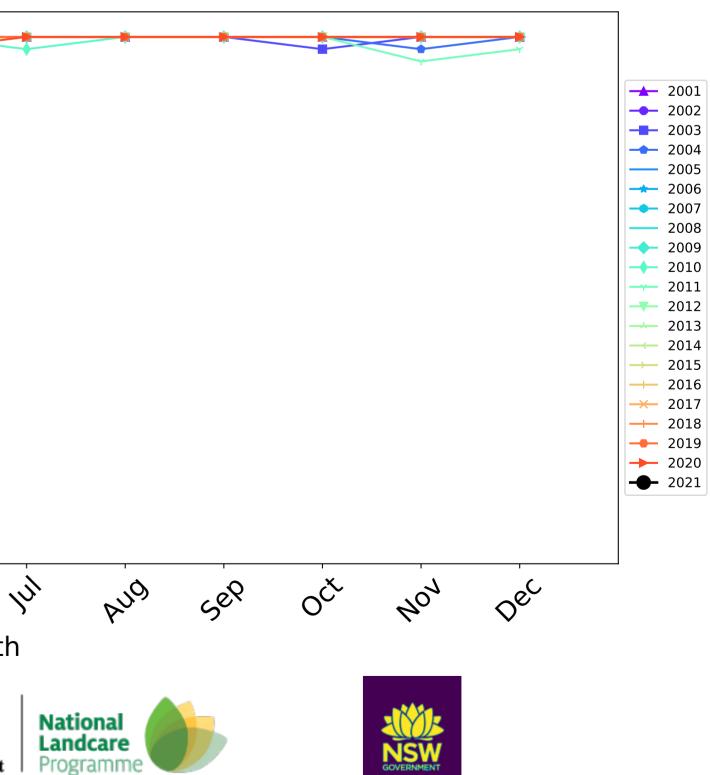
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

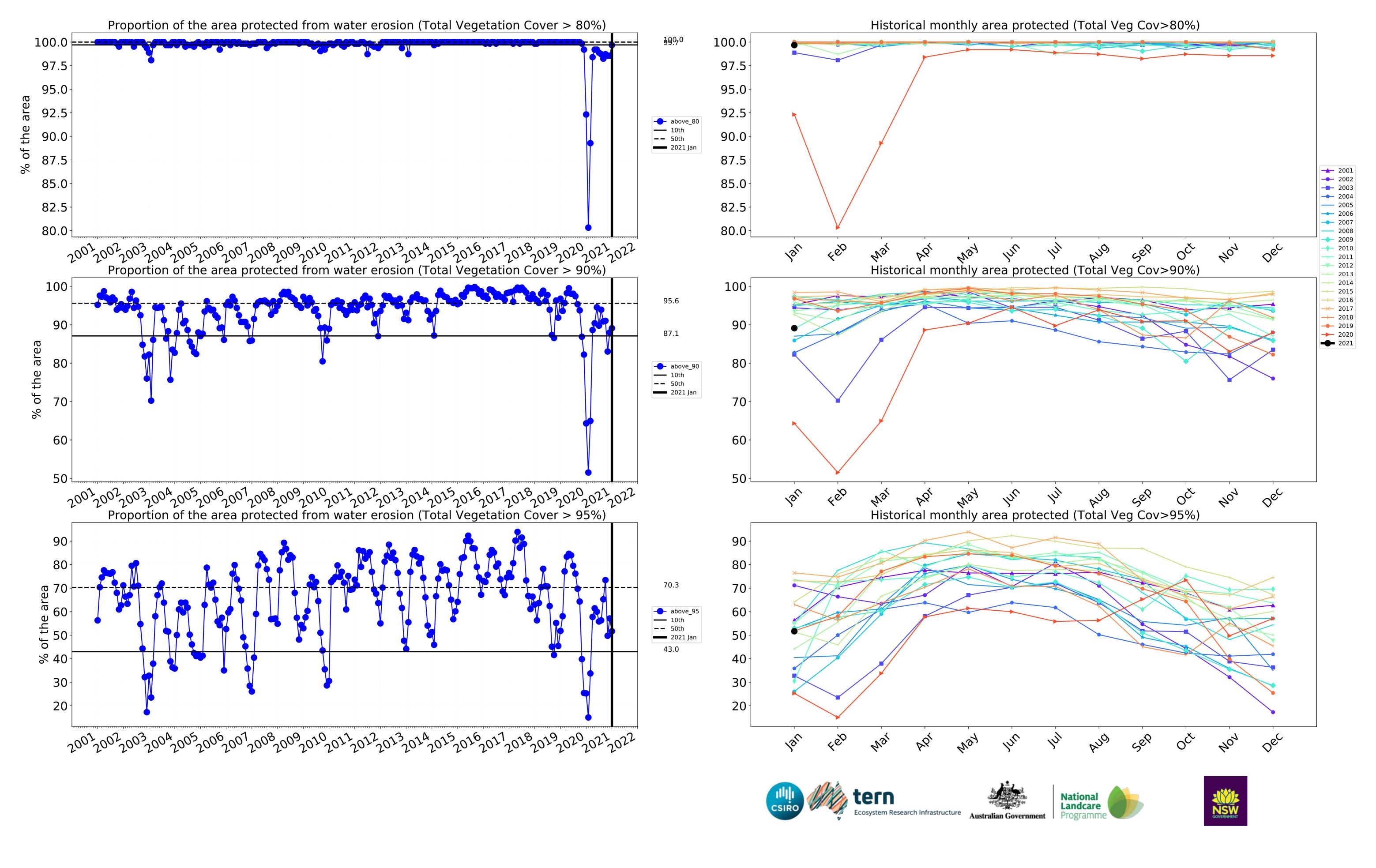


100.0 100 99 98 ---- above_70 **—** 10th **--** 50th **——** 2021 Jan 97 96 95 94 4eb lar way In Mar POX month mi tern Ecosystem Research Infrastructure Australian Government

33

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





Wingecarribee_(A) (268,650 ha and no data 251 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	268,650	100.0% 268,650	100.0% 268,575	99.8% 268,075	98.3% 264,100	79.8% 214,400	36.7% 98,525
Conservation and natural environments	127,700	100.0% 127,700	100.0% 127,700	100.0% 127,650	99.2% 126,625	81.0% 103,475	47.4% 60,575
Conservation and natural environments Woodland forest	102,950	100.0% 102,950	100.0% 102,950	100.0% 102,900	99.0% 101,900	78.9% 81,225	46.5% 47,850
Conservation and natural environments Forest (non woodland)	24,025	100.0% 24,025	100.0% 24,025	100.0% 24,025	99.9% 24,000	90.3% 21,700	52.4% 12,600
Agriculture	101,400	100.0% 101,400	100.0% 101,400	100.0% 101,375	99.4% 100,800	83.6% 84,775	26.6% 26,925
Grazing	92,275	100.0% 92,275	100.0% 92,275	100.0% 92,250	99.6% 91,950	84.9% 78,375	27.5% 25,375
Grazing non forest	65,875	100.0% 65,875	100.0% 65,875	100.0% 65,850	99.5% 65,575	83.1% 54,725	19.8% 13,025
Grazing Woodland forest	19,625	100.0% 19,625	100.0% 19,625	100.0% 19,625	100.0% 19,625	87.0% 17,075	40.8% 8,000
Grazing - Forest (non woodland)	6,775	100.0% 6,775	100.0% 6,775	100.0% 6,775	99.6% 6,750	97.0% 6,575	64.2% 4,350
Cropping	8,750	100.0% 8,750	100.0% 8,750	100.0% 8,750	96.9% 8,475	71.1% 6,225	17.7% 1,550
Production native forests and plantation forests	15,625	100.0% 15,625	100.0% 15,625	100.0% 15,625	99.7% 15,575	89.1% 13,925	51.7% 8,075

