Total vegetation cover soil protection Region:NRM Burnett Mary QLD

Date: April 2020

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

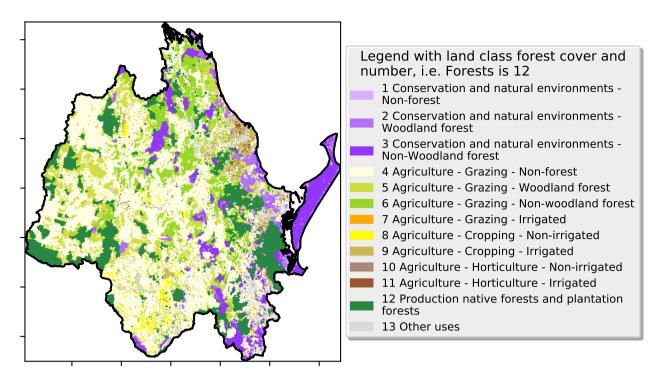


Vegetation Cover Apr 2020

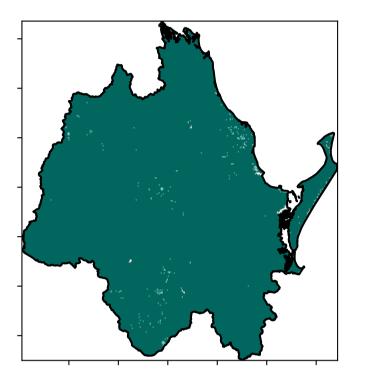
Land use and forest cover

Proportion of each land class in area

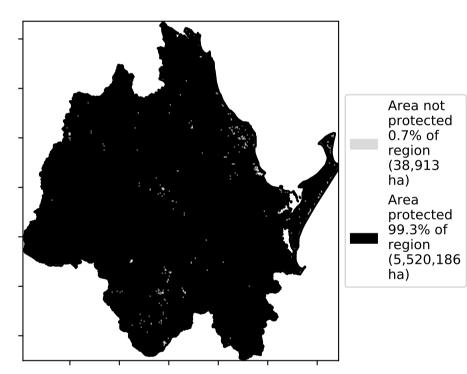


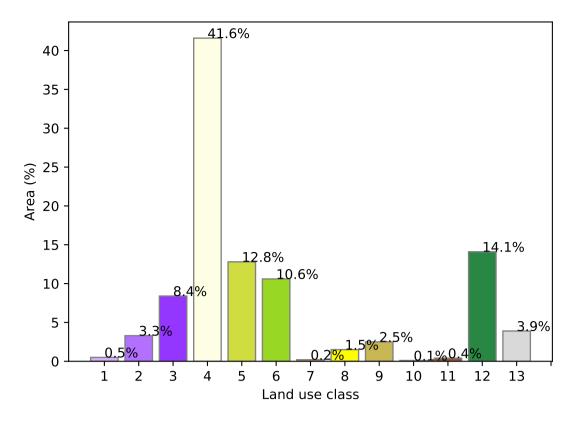


Total Vegetation Cover [%]

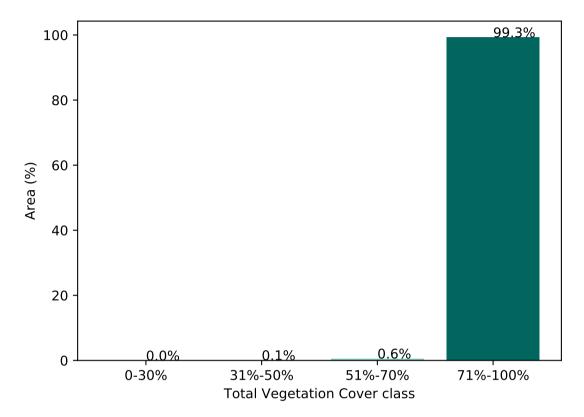


% Area protected from water erosion (>70%)





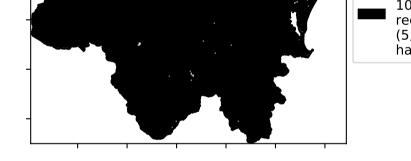
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

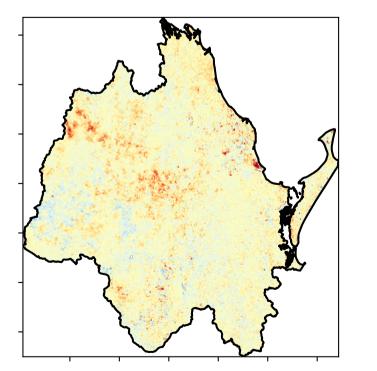


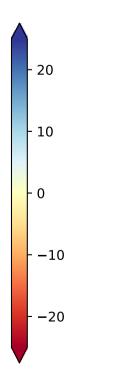
Total Vegetation Cover Anomaly [%]



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.





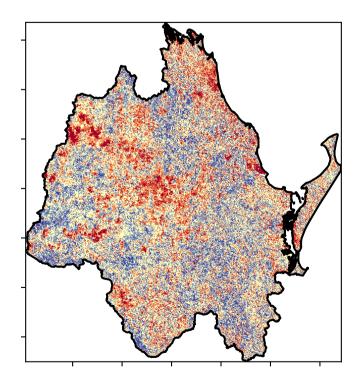
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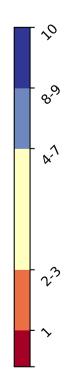
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Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

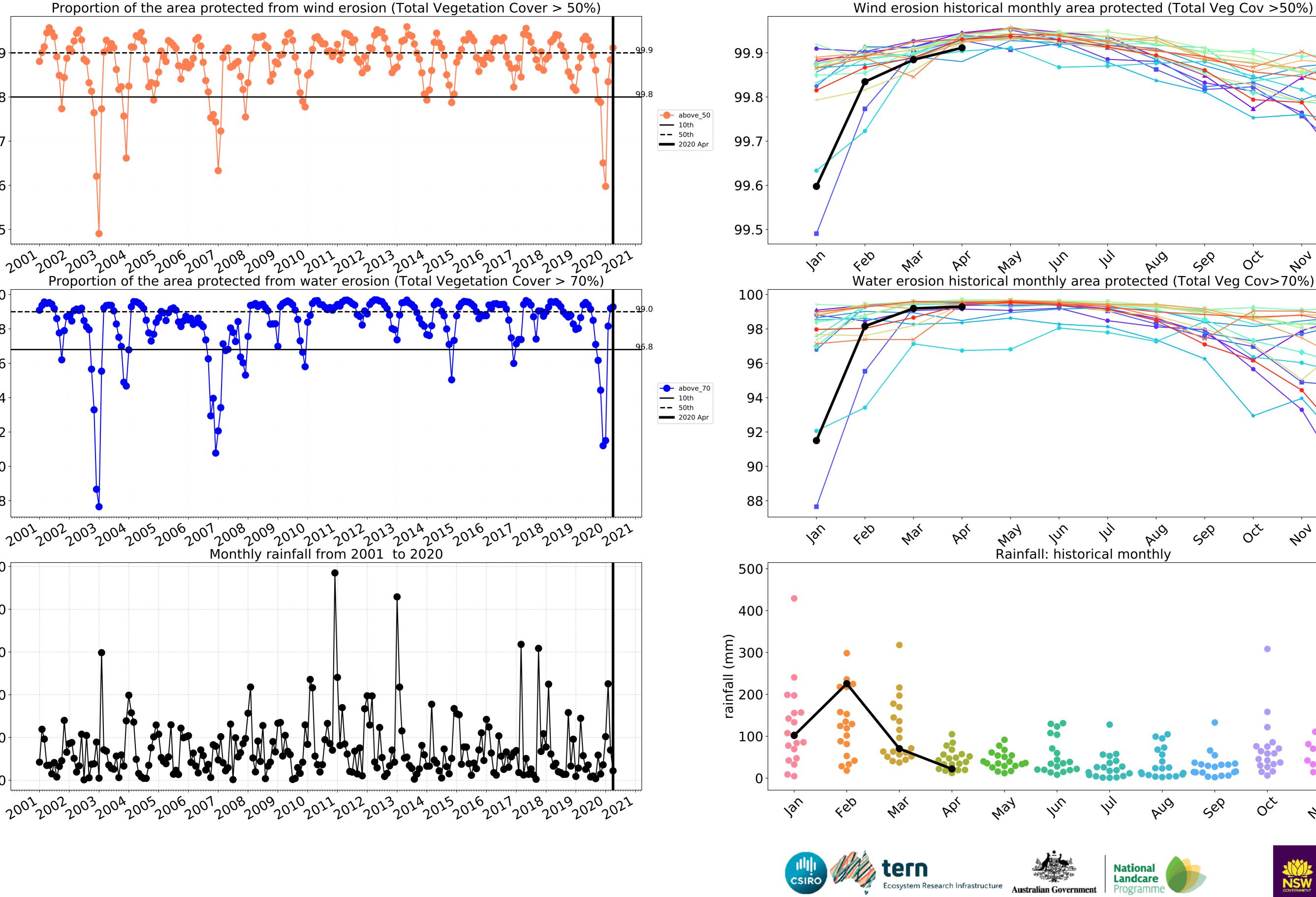


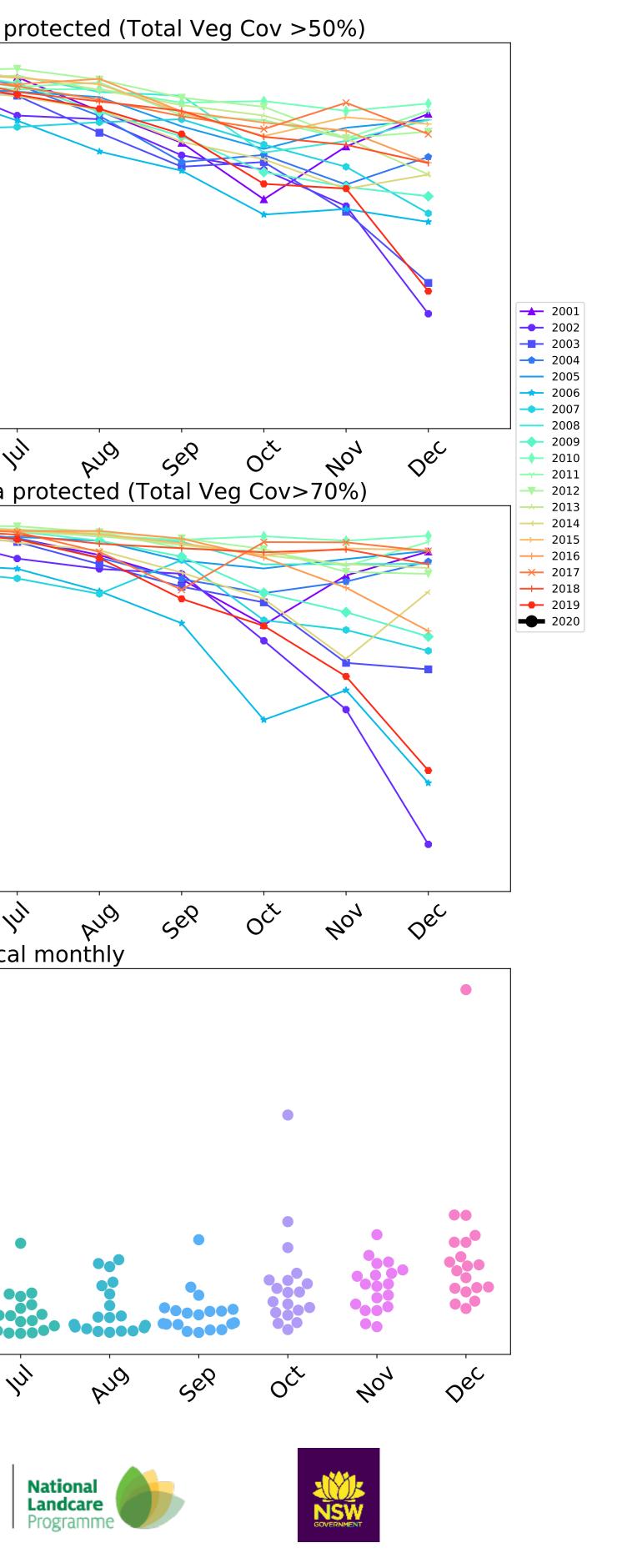


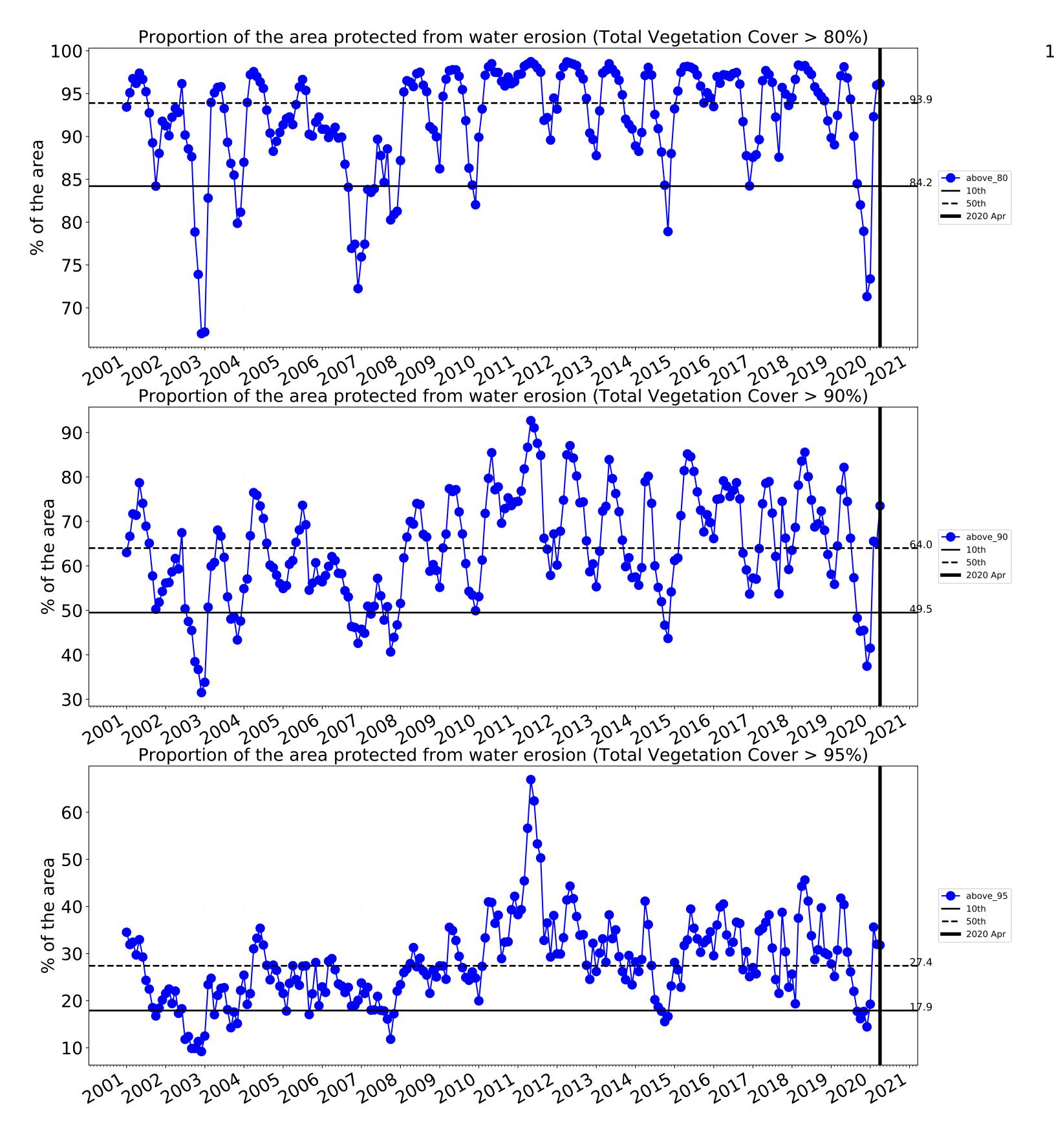


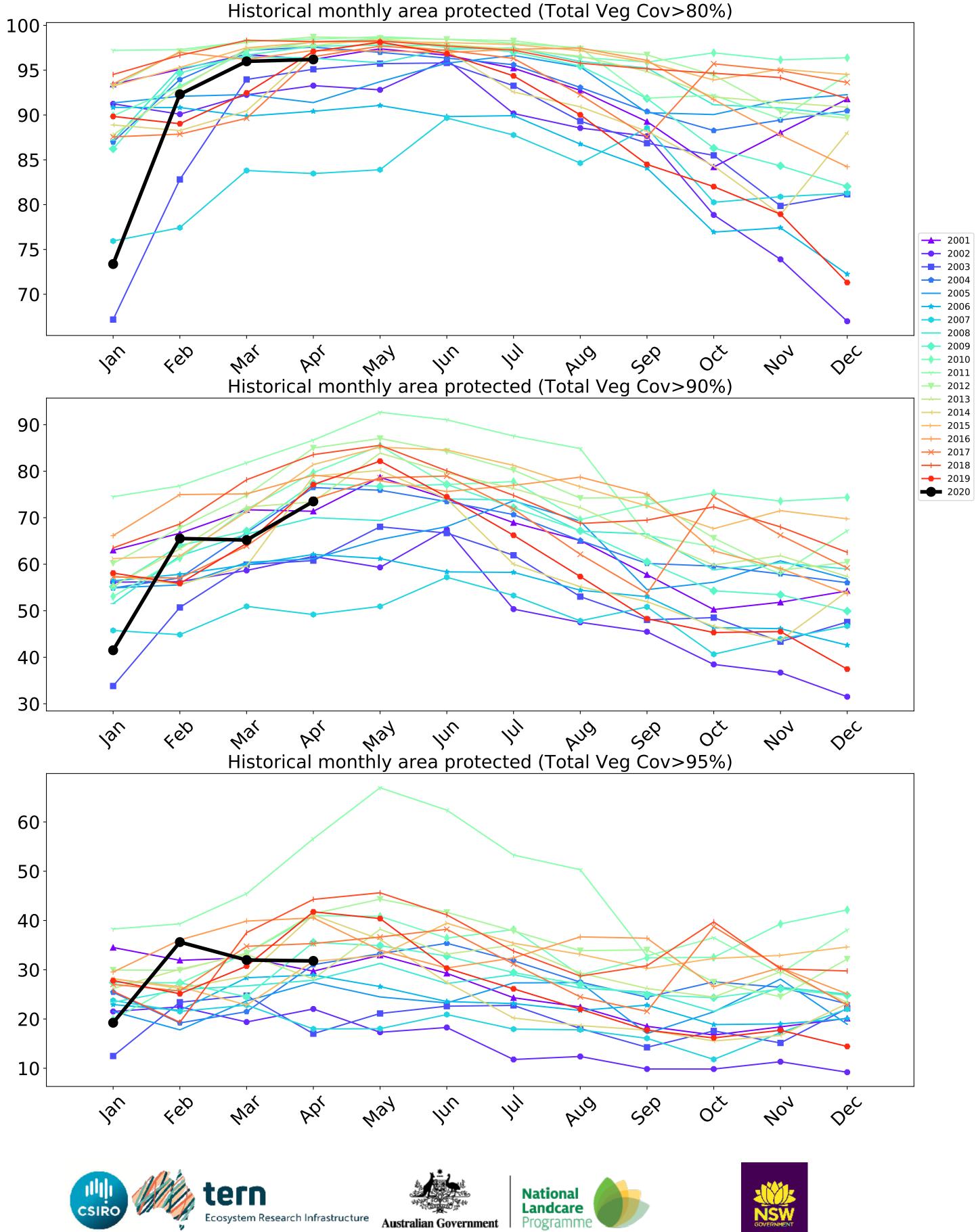
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Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)







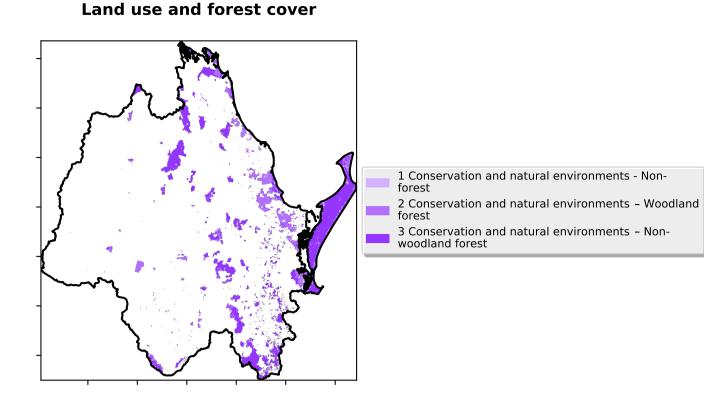


Australian Government

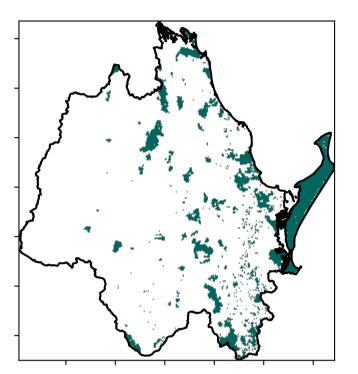
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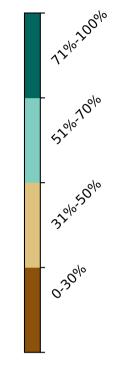
Conservation and natural environments

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

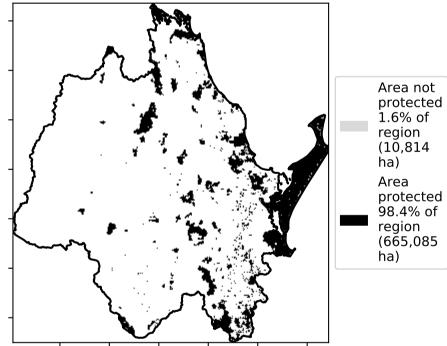


Total Vegetation Cover [%]



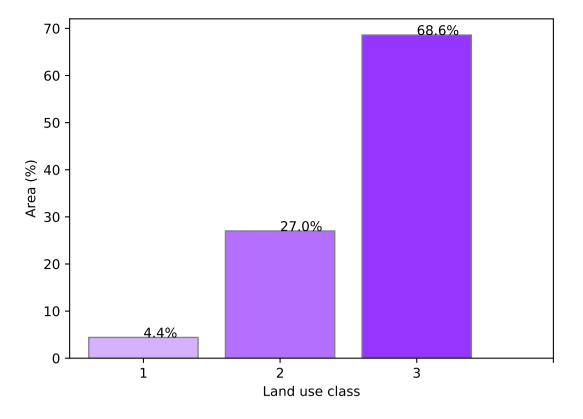


% Area protected from water erosion (>70%)

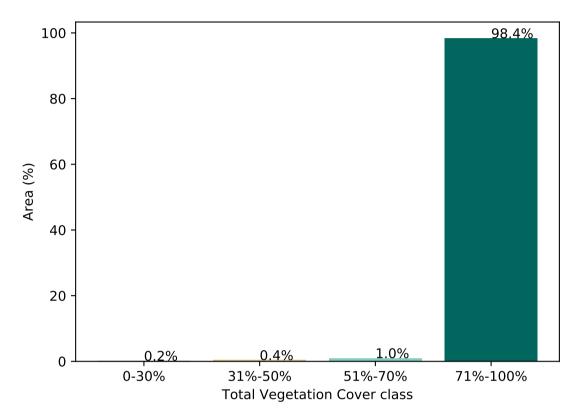




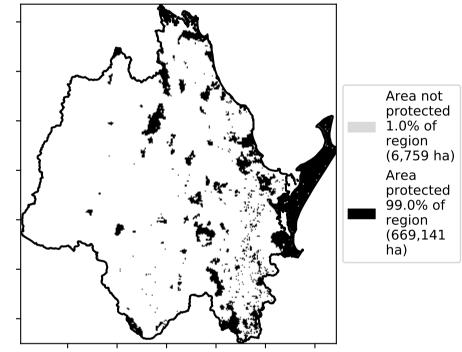
Proportion of each land class in area



Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



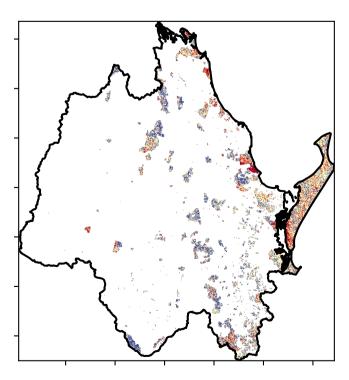
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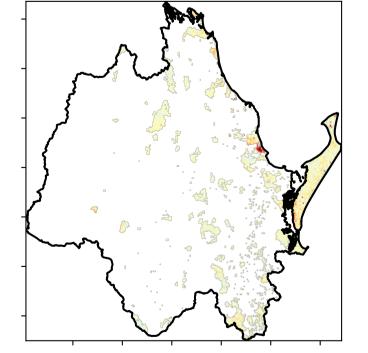
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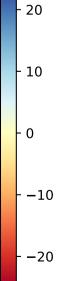
Total Vegetation Cover Decile [%]



Total Vegetation Cover Anomaly [%]

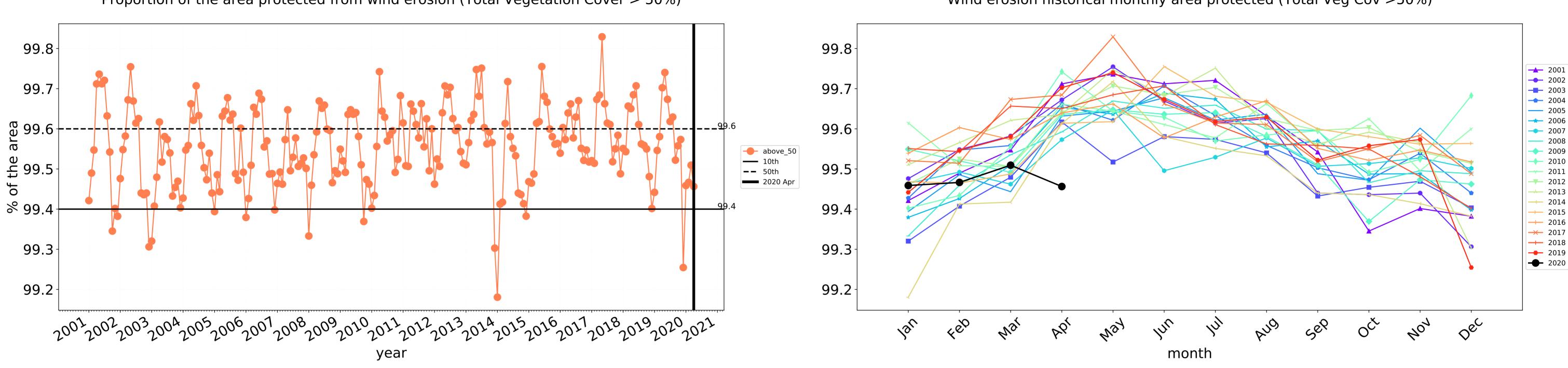
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map from 2001 to 2019.





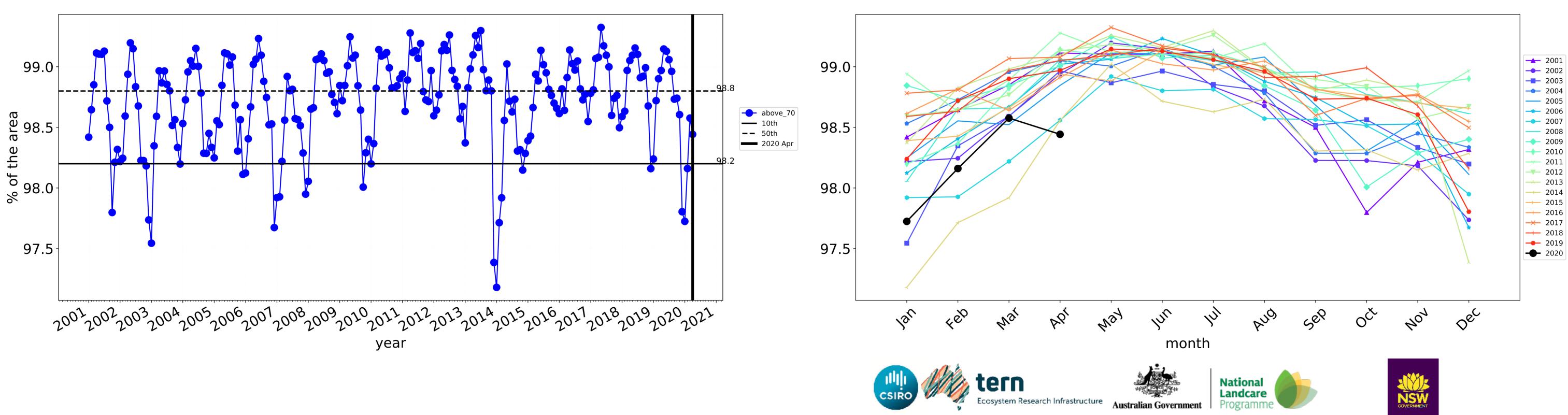
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.





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



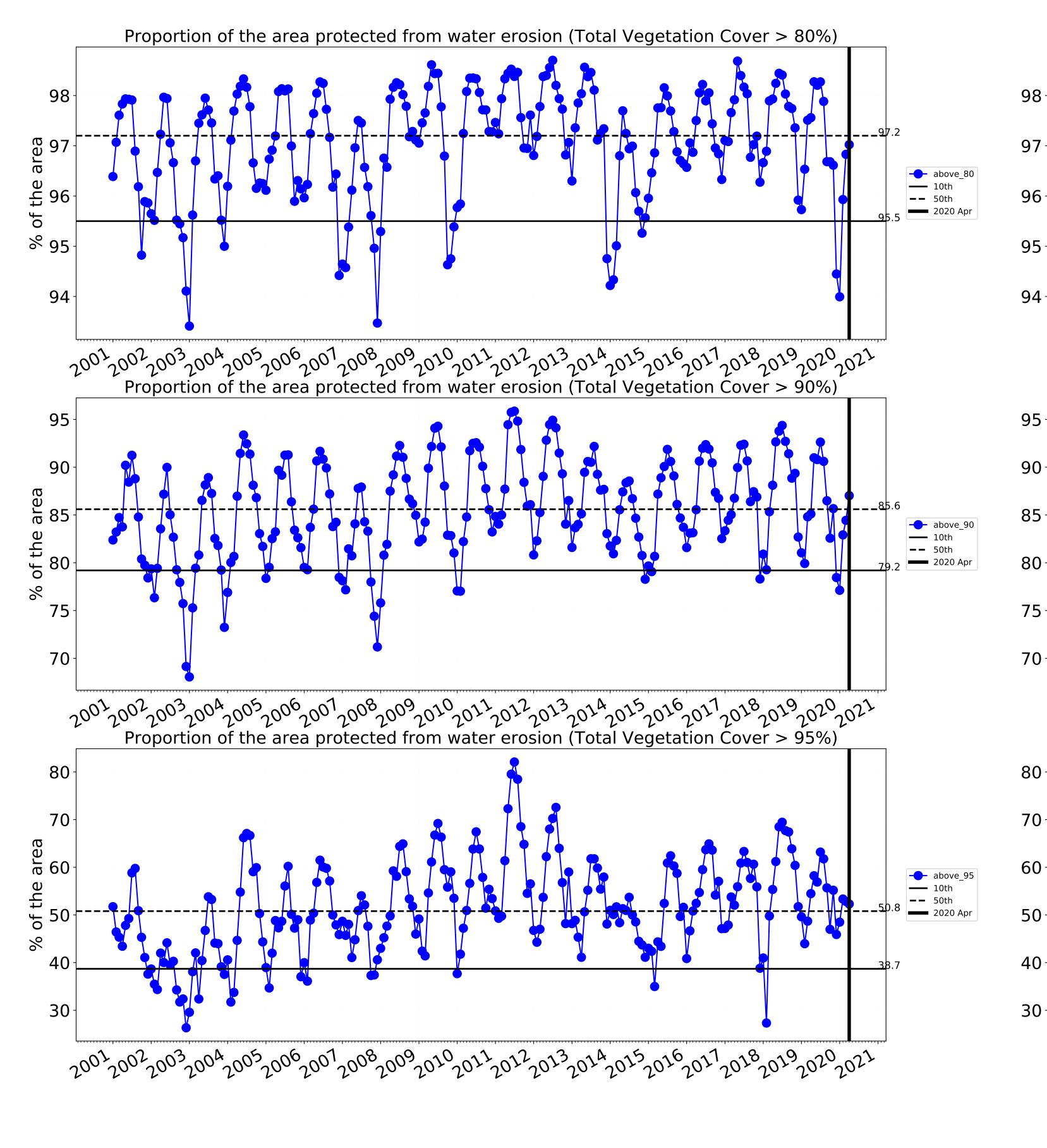


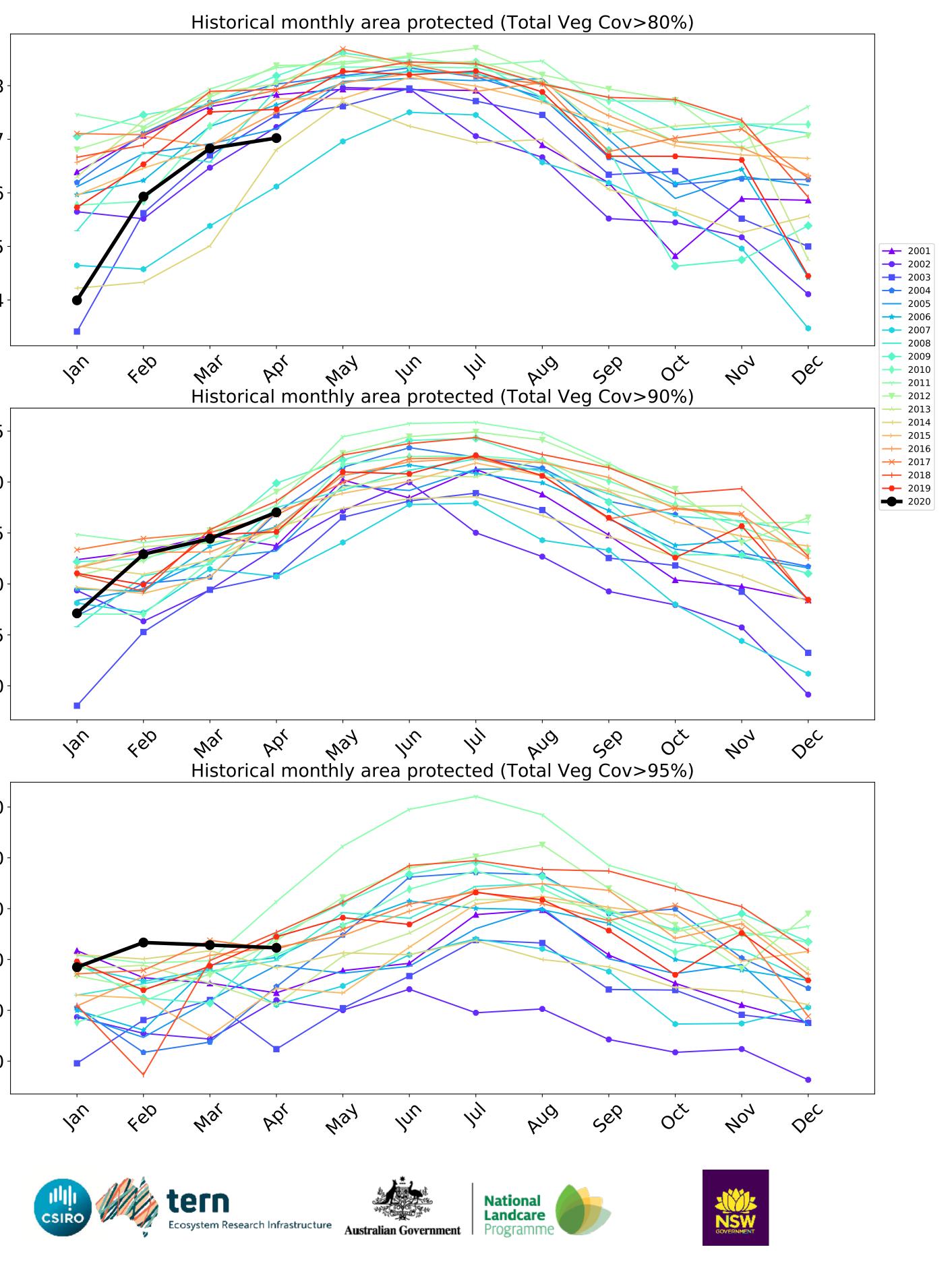
Conservation and natural environments timeseries

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

6

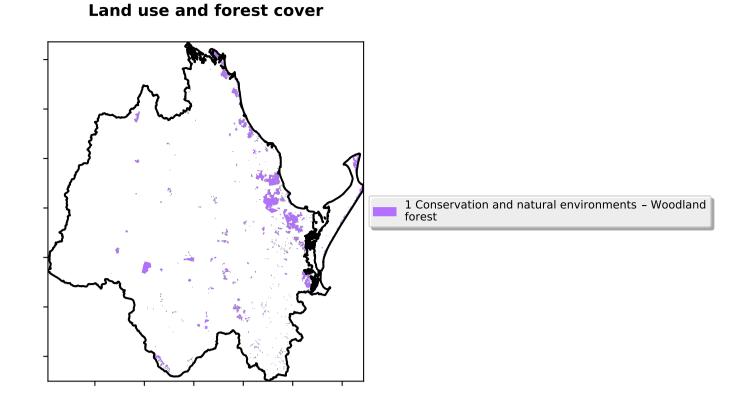
Water erosion historical monthly area protected (Total Veg Cov>70%)



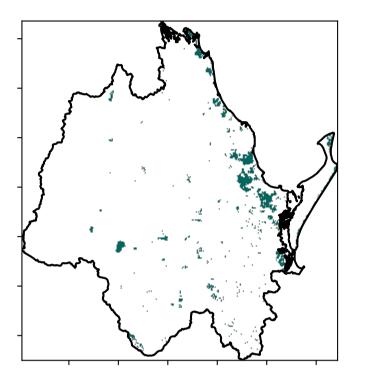


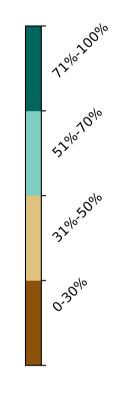
Conservation and natural environments Woodland forest

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

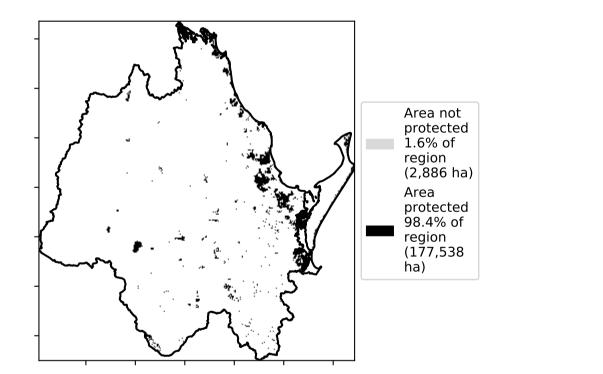


Total Vegetation Cover [%]

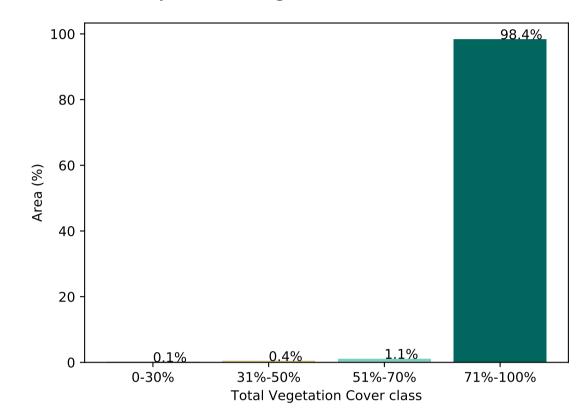




% Area protected from water erosion (>70%)





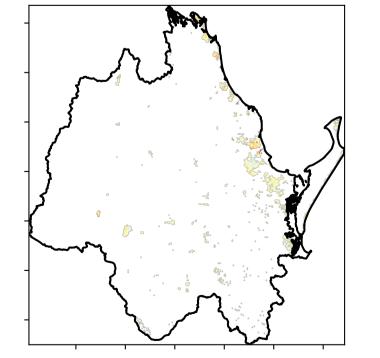


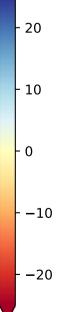
% Area protected from wind erosion (>50%)

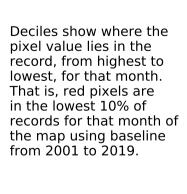


Total Vegetation Cover Anomaly [%]

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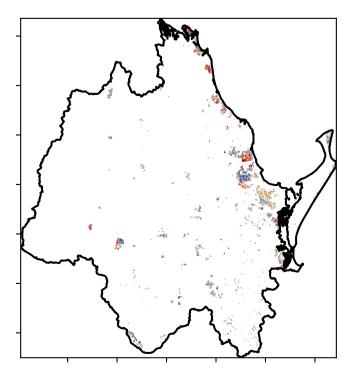


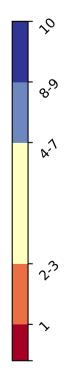




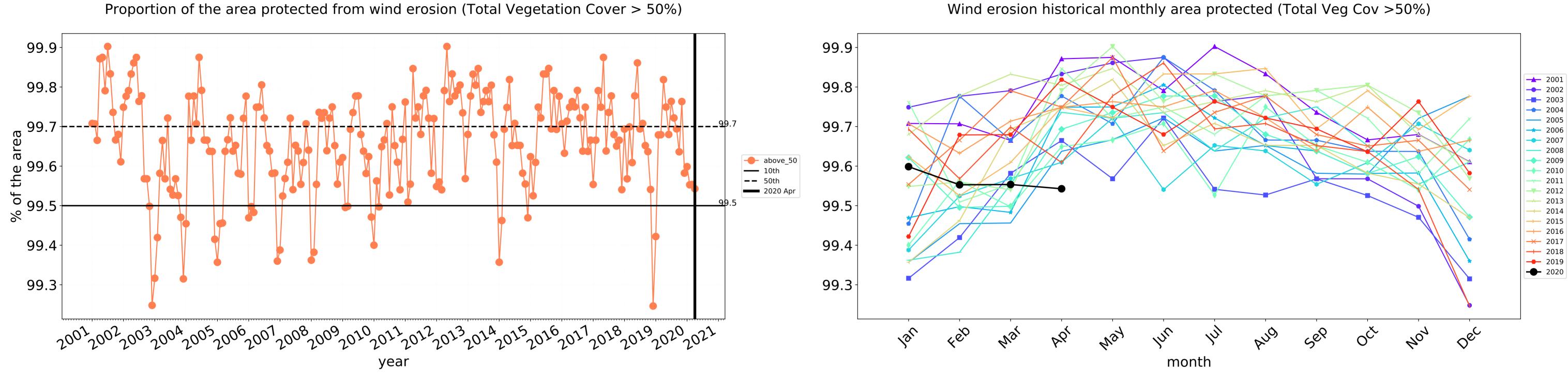
Area not protected 0.0% of region (0 ha) Area protected 100.0% of region (180,425 ha)

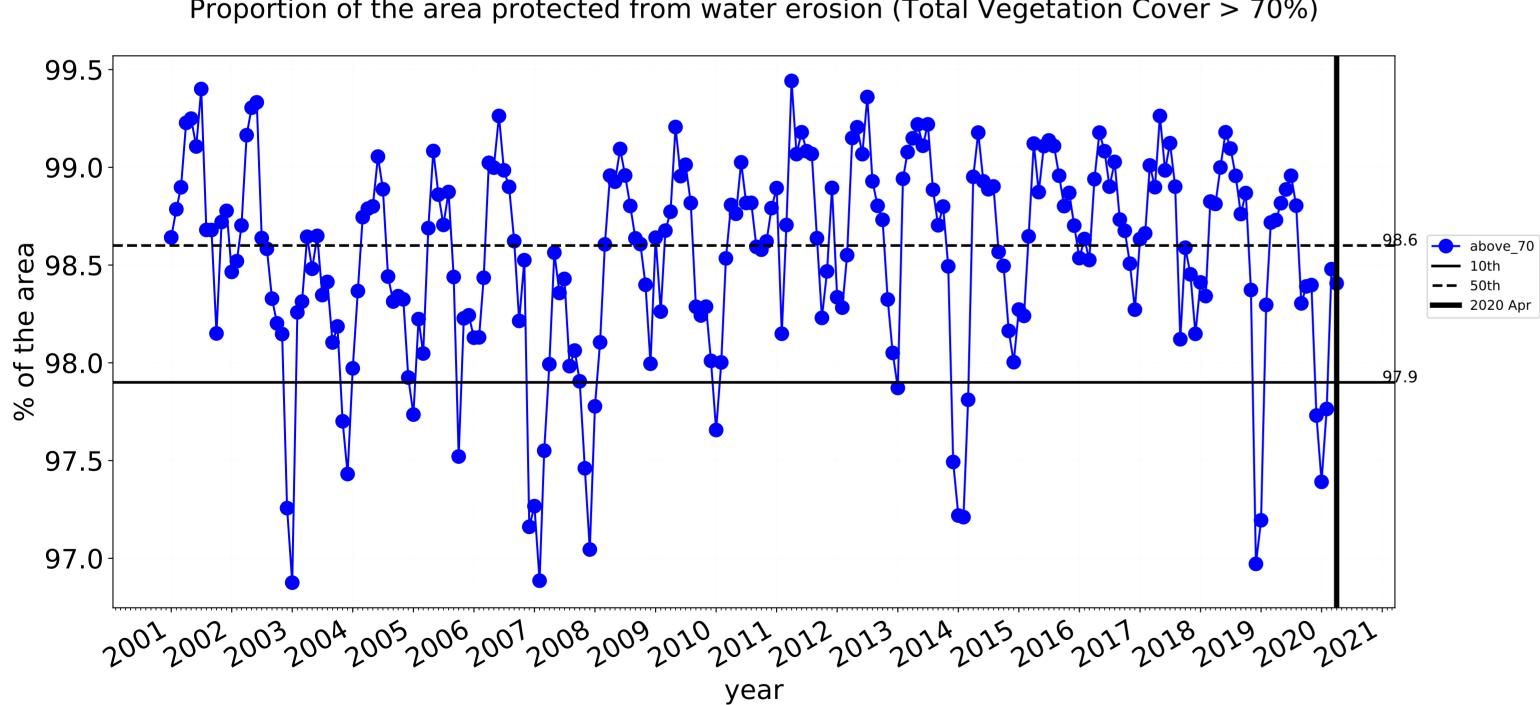
Total Vegetation Cover Decile [%]







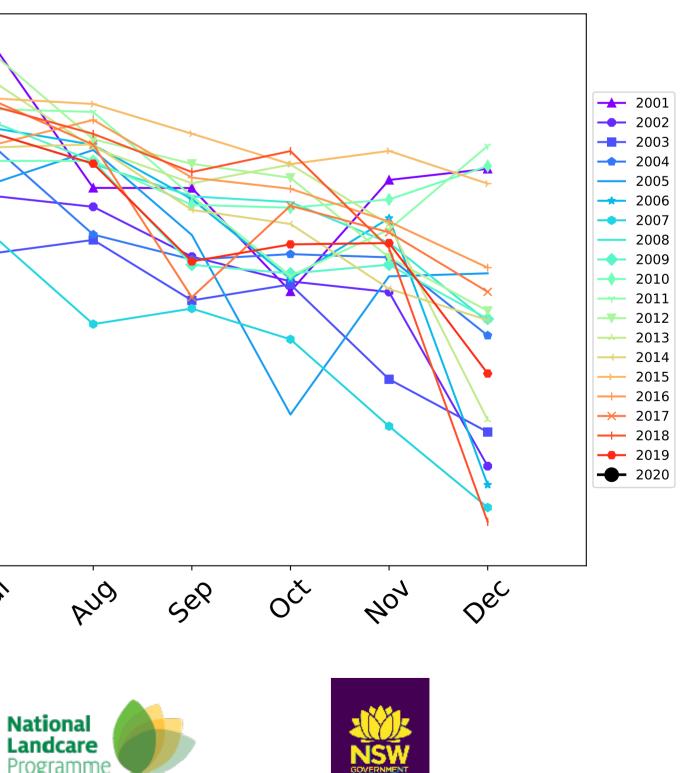


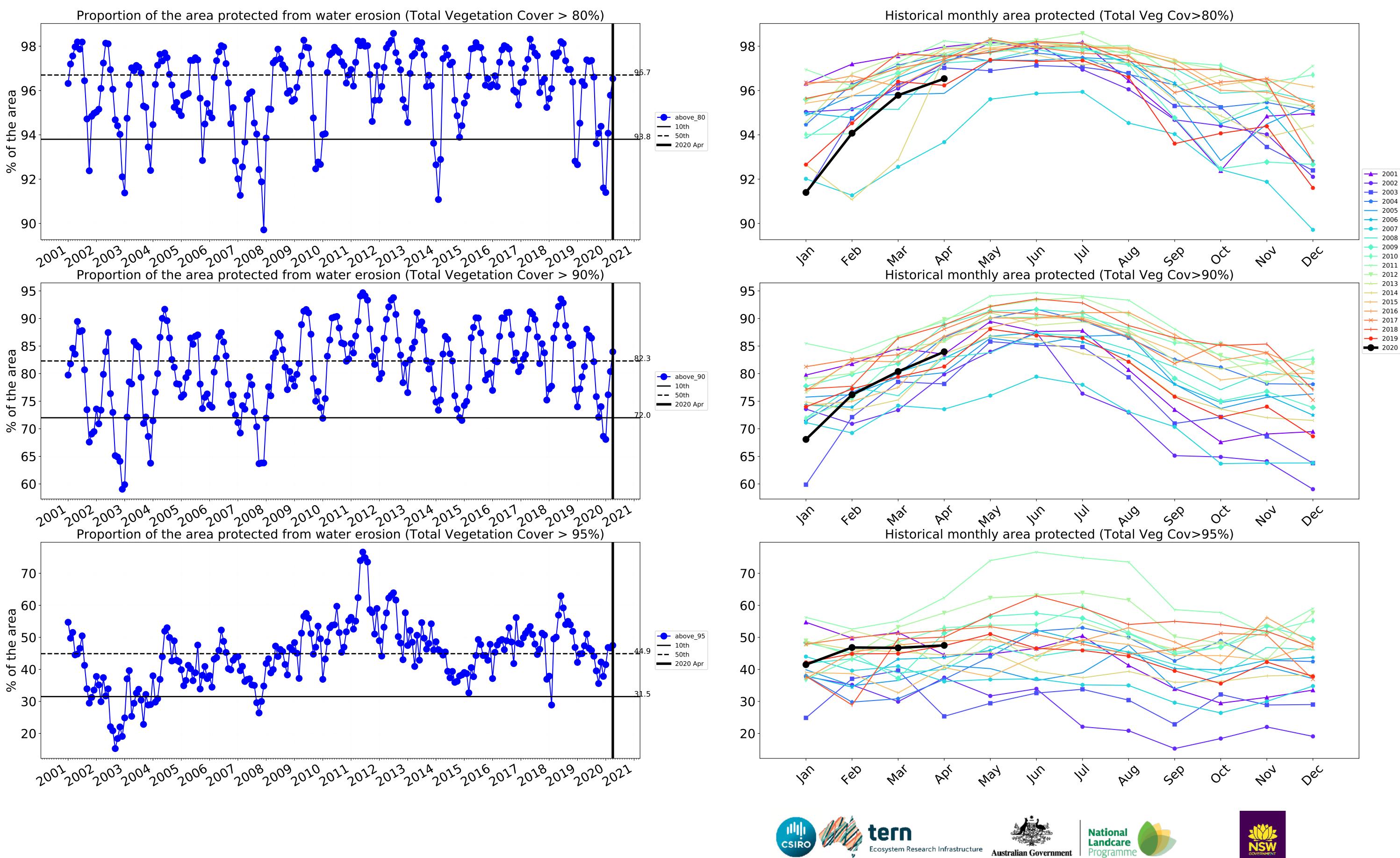


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

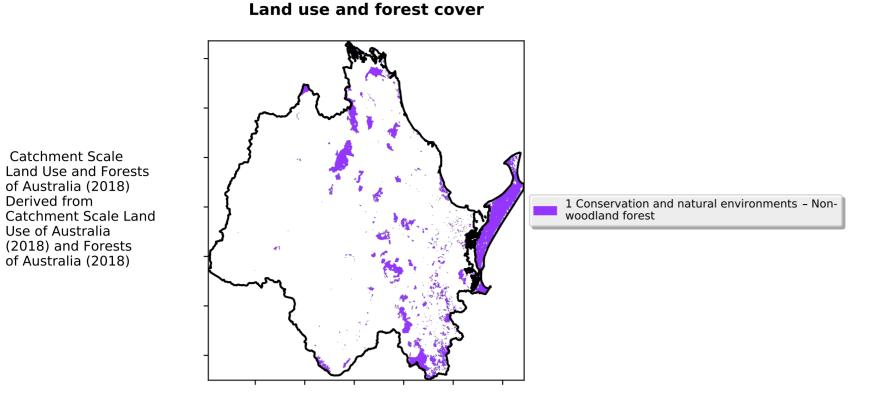
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Water erosion historical monthly area protected (Total Veg Cov>70%)

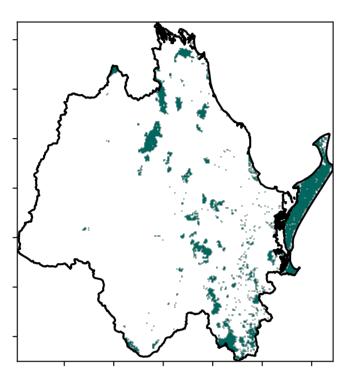




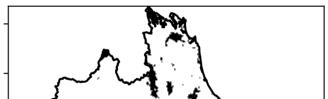
Conservation and natural environments Forest (non woodland)

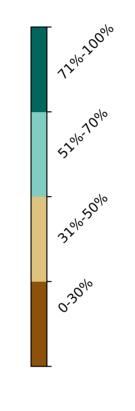


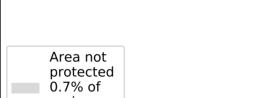
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)







region (3,268 ha)

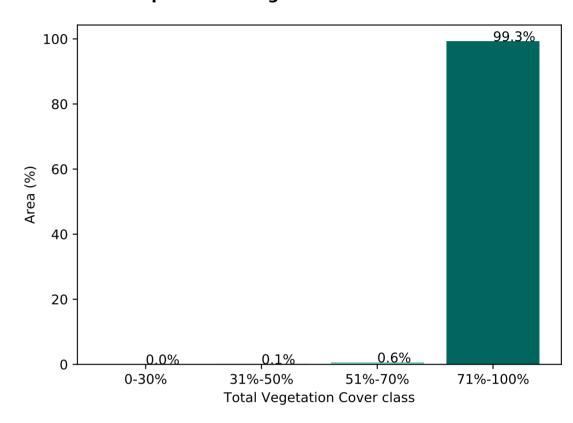
protected 99.3% of

region (463,631

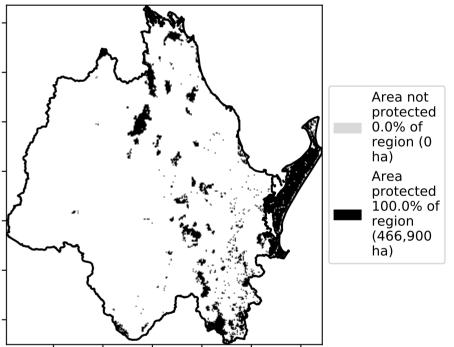
Area

ha)

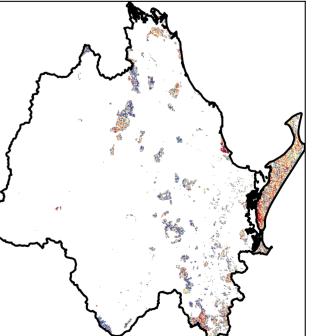
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]



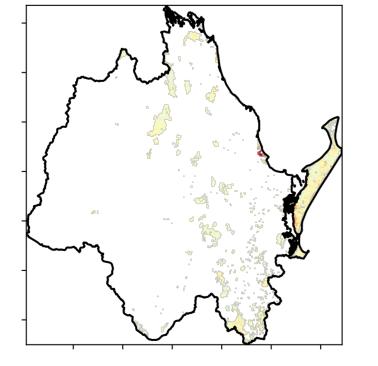


Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

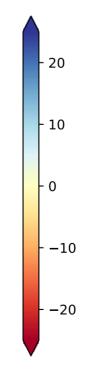
Catchment Scale

Derived from

Use of Australia (2018) and Forests of Australia (2018)



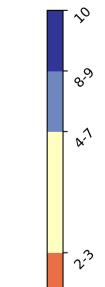
Total Vegetation Cover Anomaly [%]

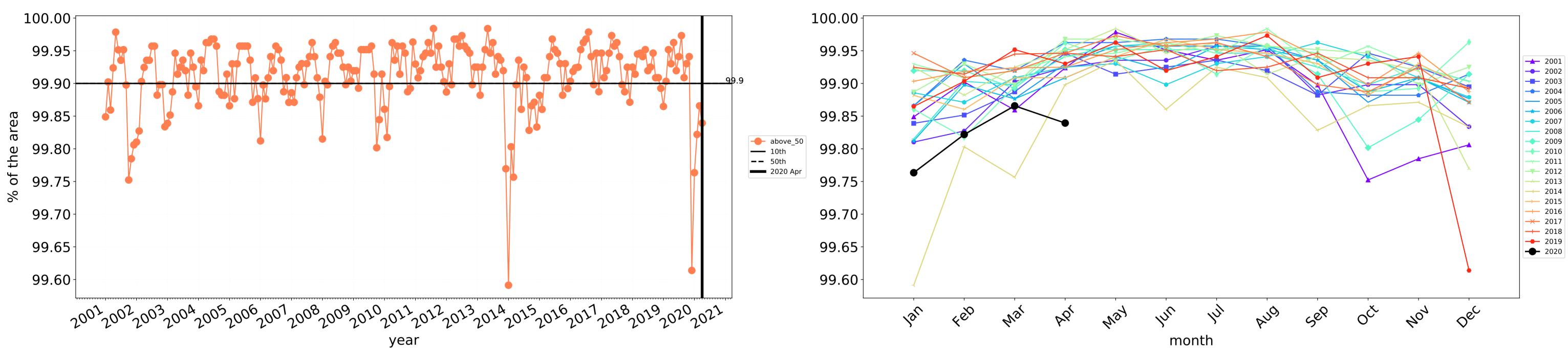


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

12

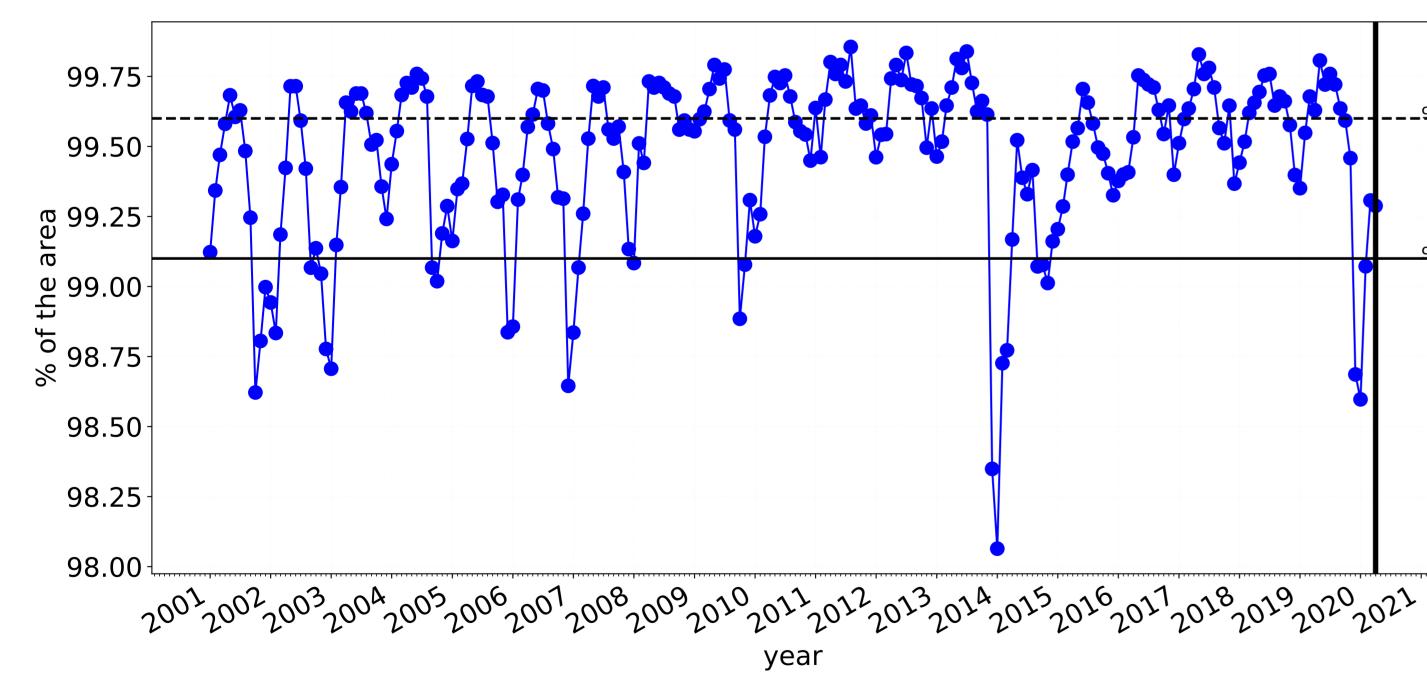


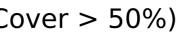




Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

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





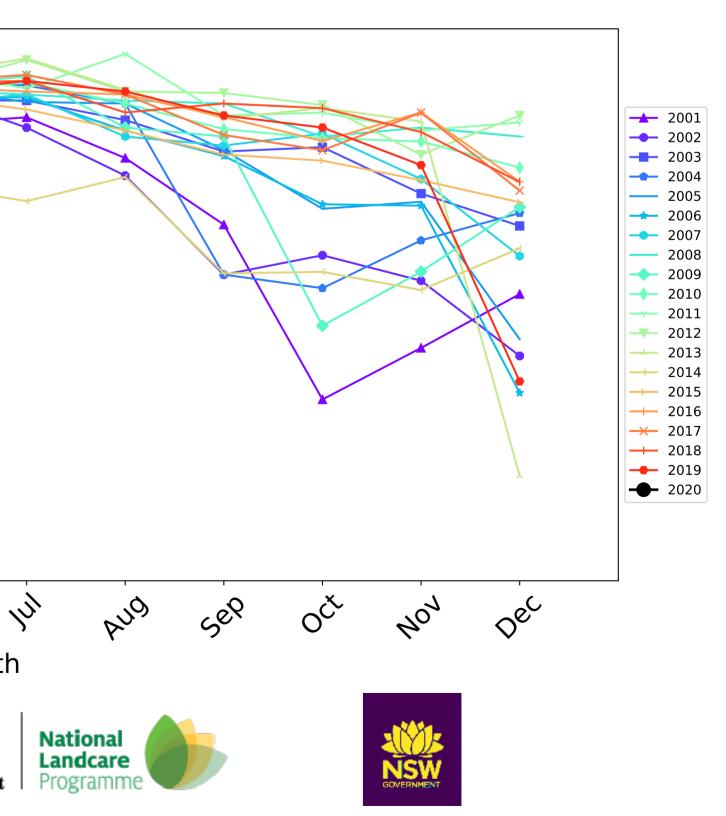
Wind erosion historical monthly area protected (Total Veg Cov >50%)

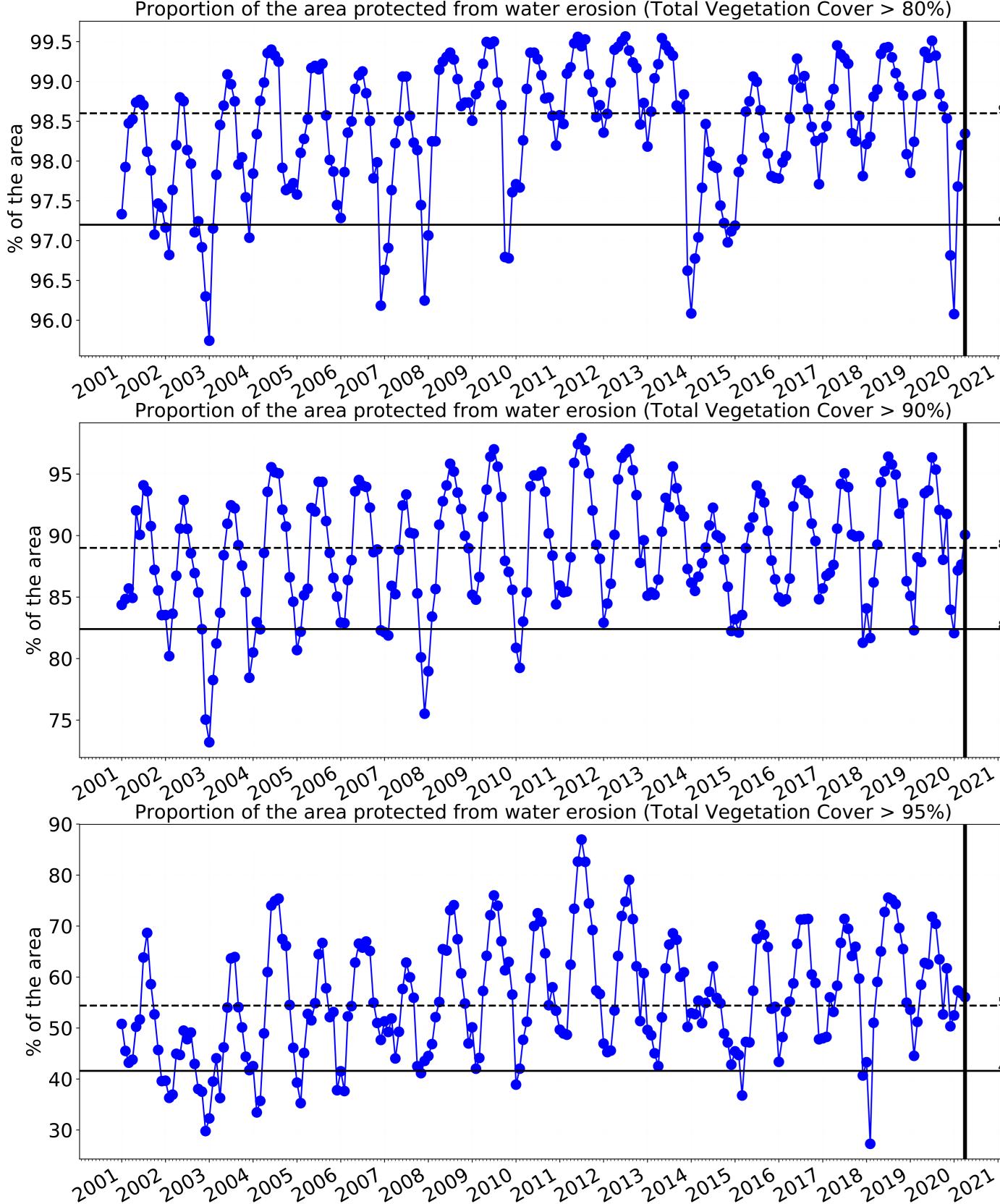


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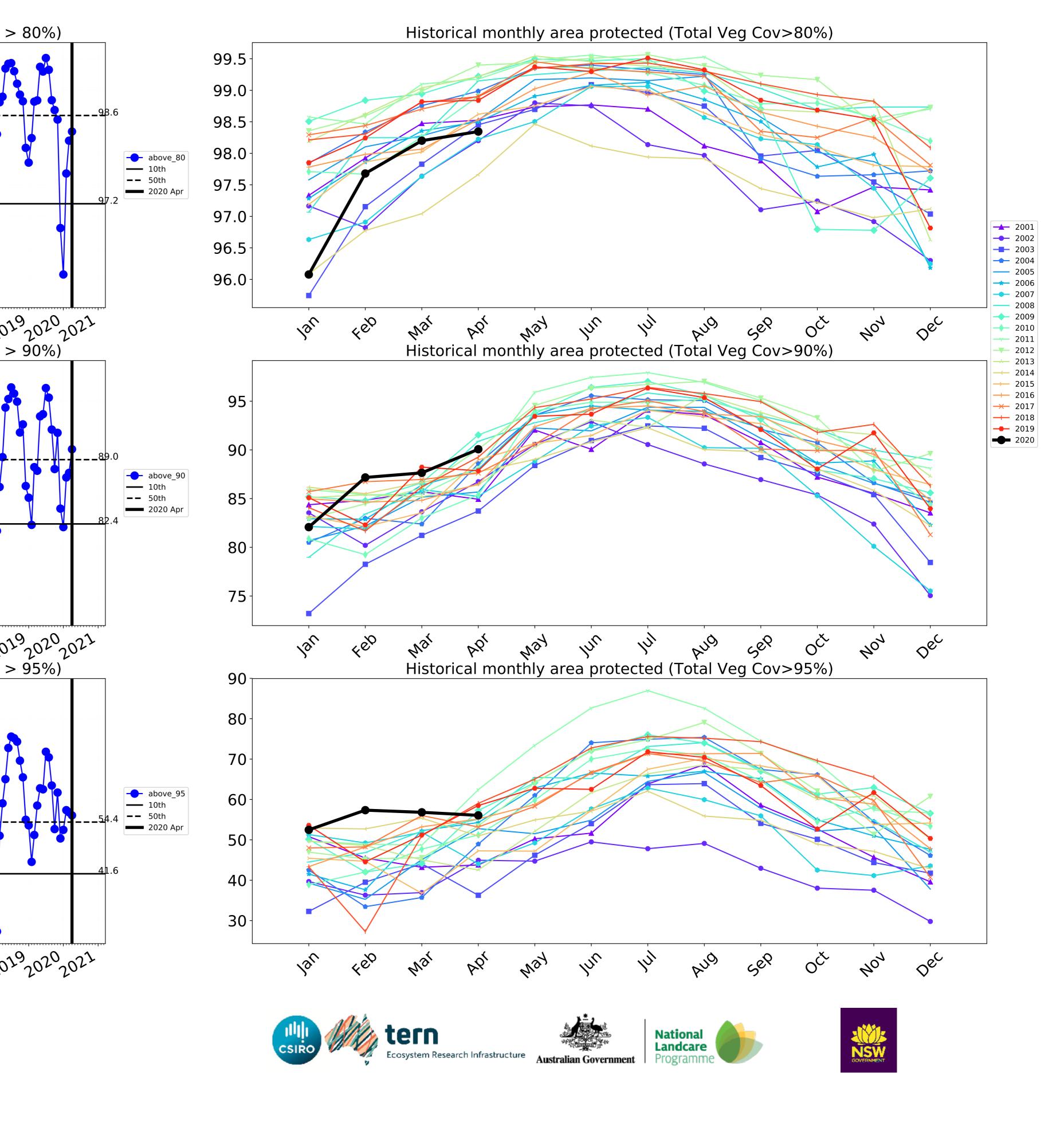
13

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



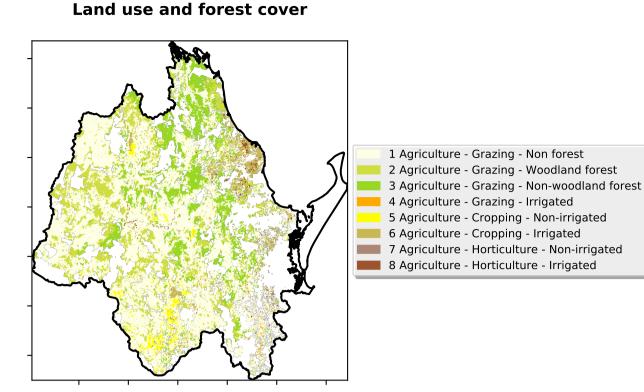


Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)

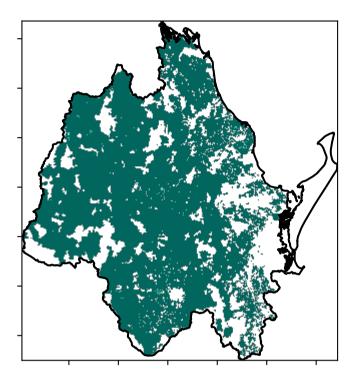


Agriculture

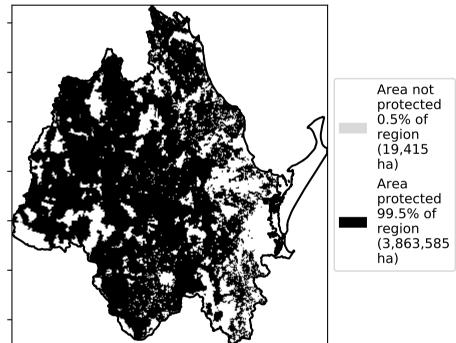
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



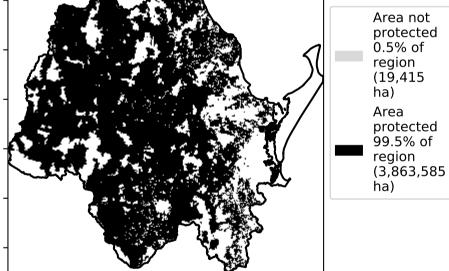
Total Vegetation Cover [%]

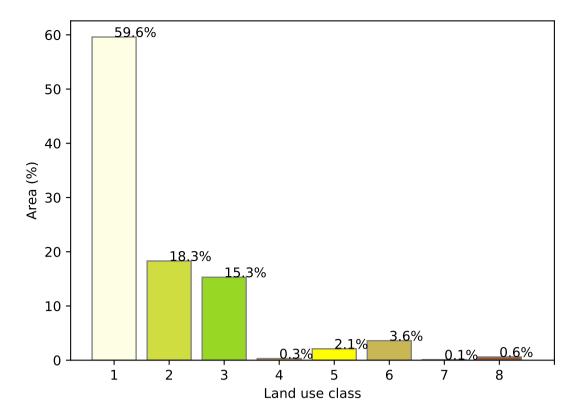






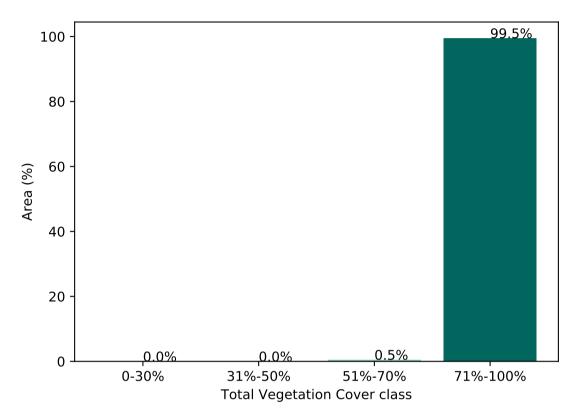
· 12%-200° · 52% 70% 3201050010 0.30%



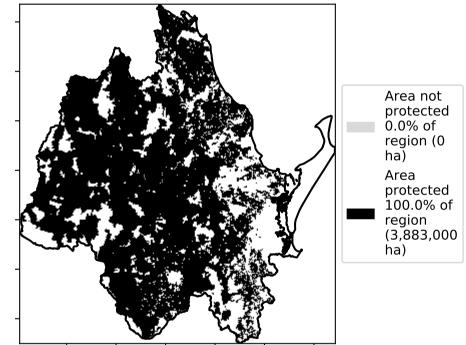


Proportion of each land class in area

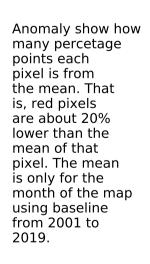
Proportion of vegetation cover class in area

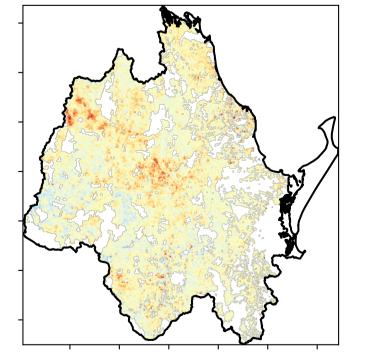


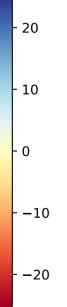
% Area protected from wind erosion (>50%)

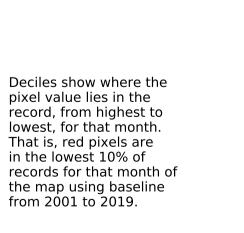


Total Vegetation Cover Anomaly [%]

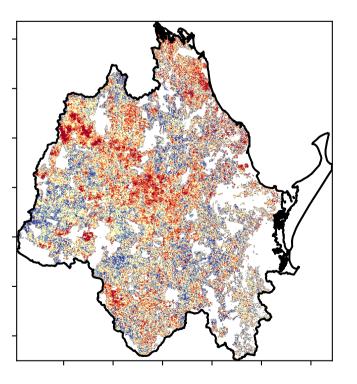


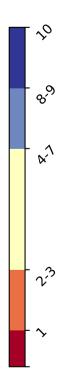




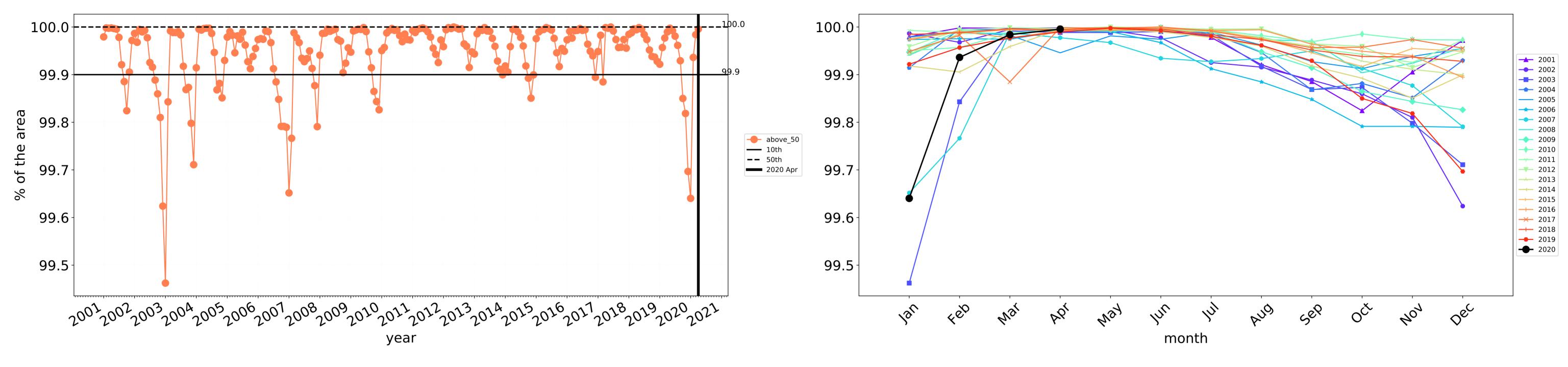


Total Vegetation Cover Decile [%]



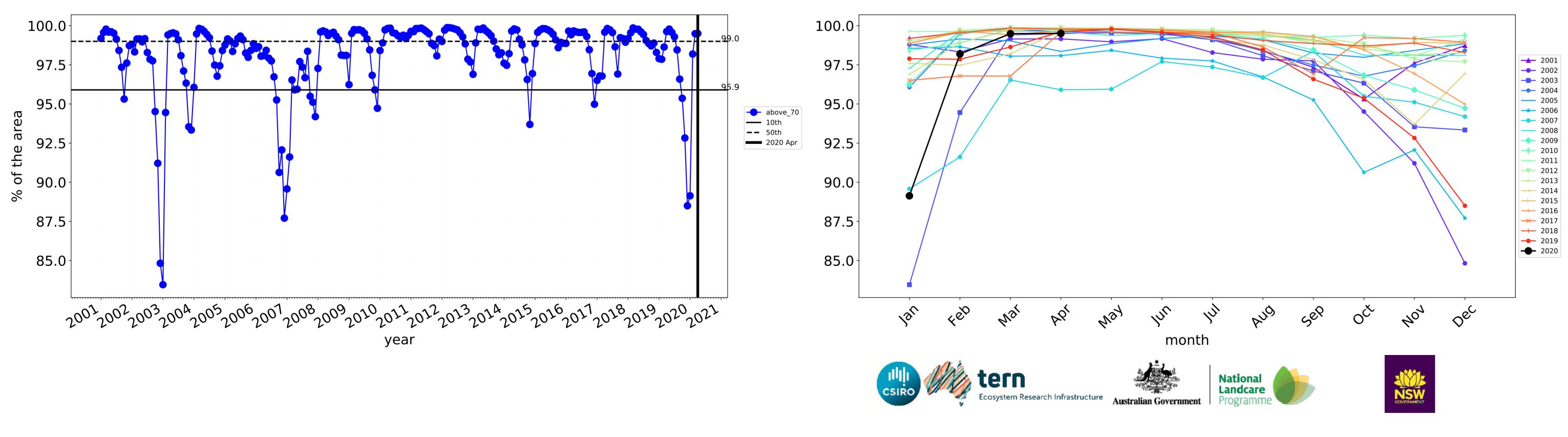






Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

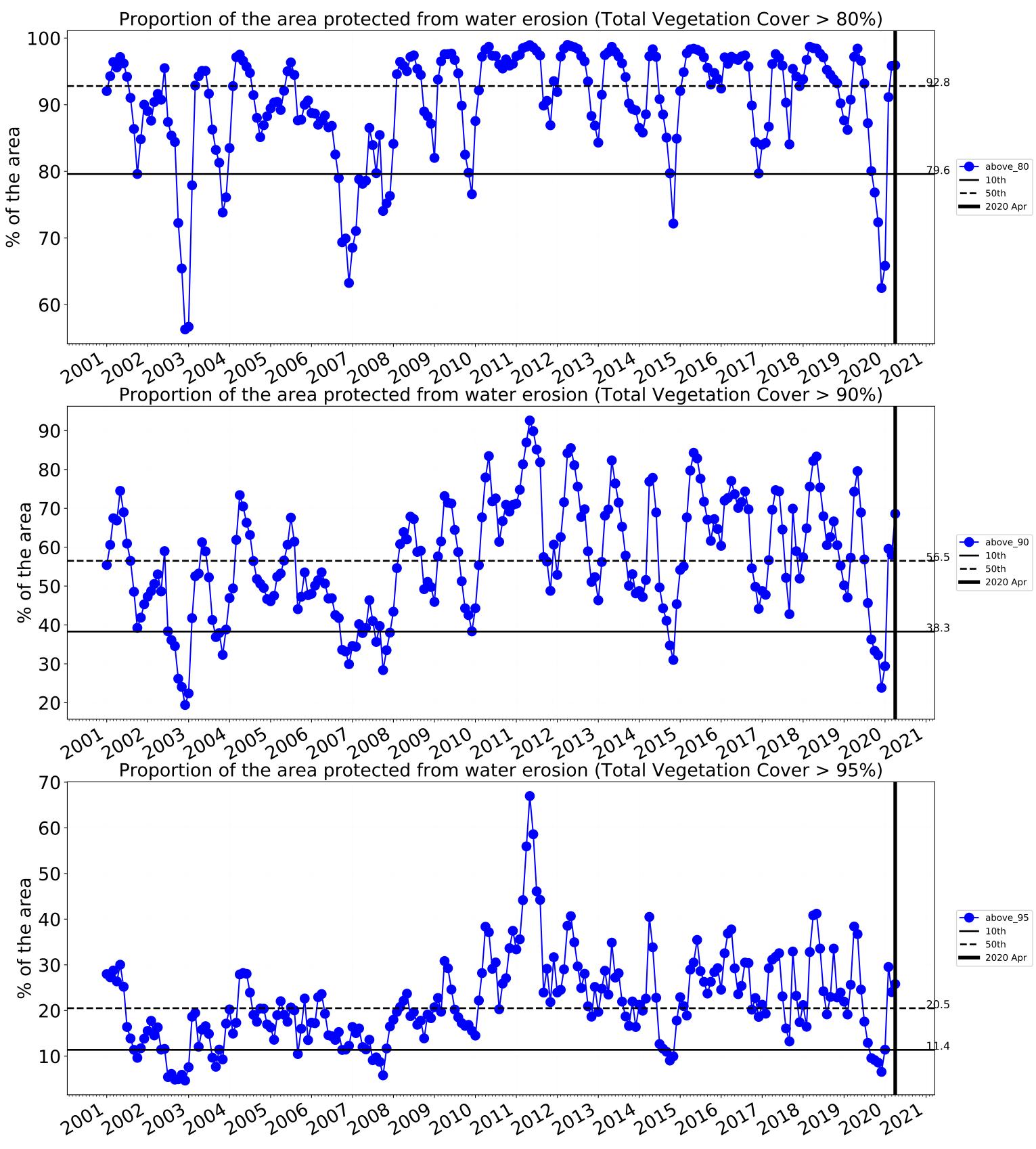
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

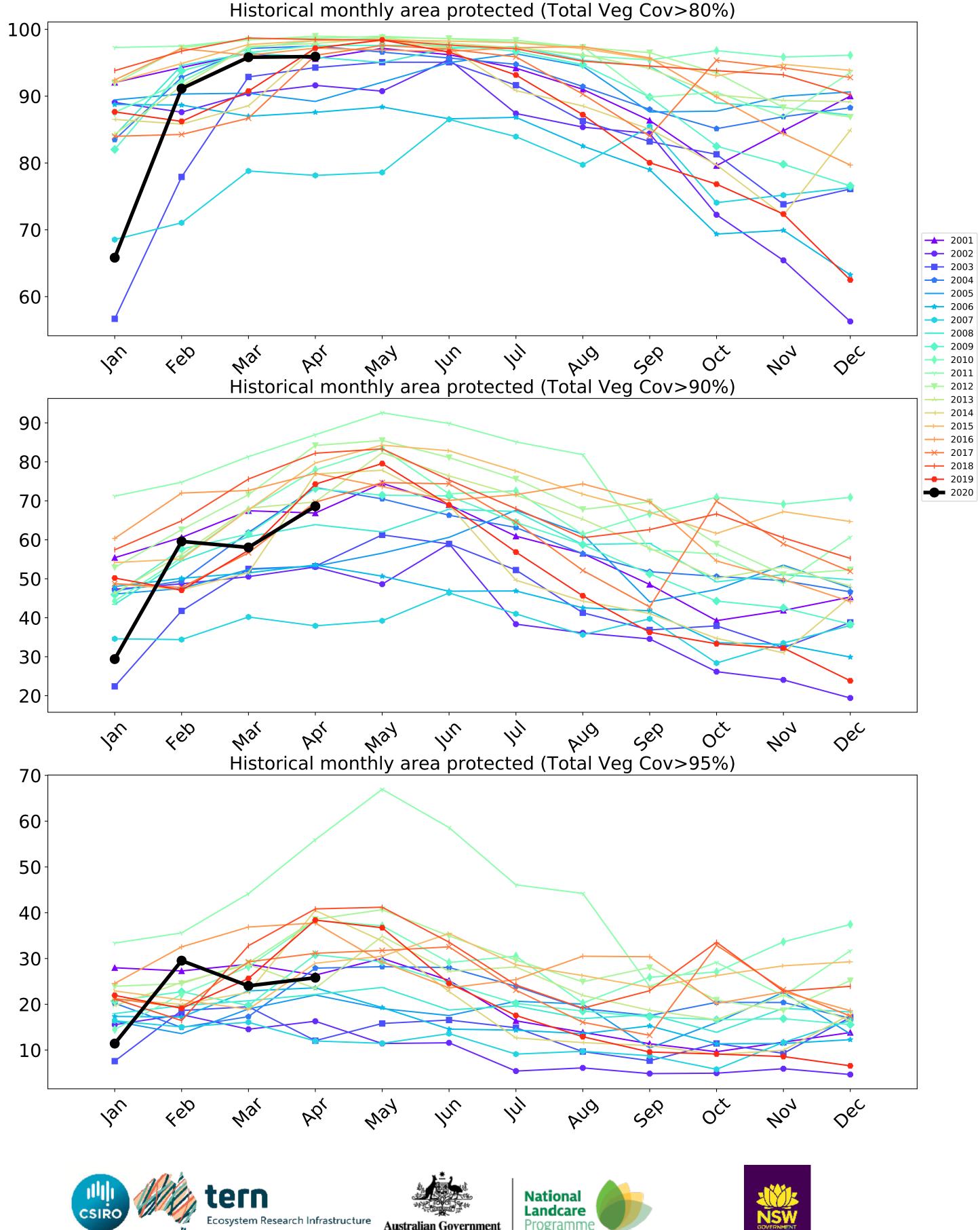


Agriculture timeseries

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

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



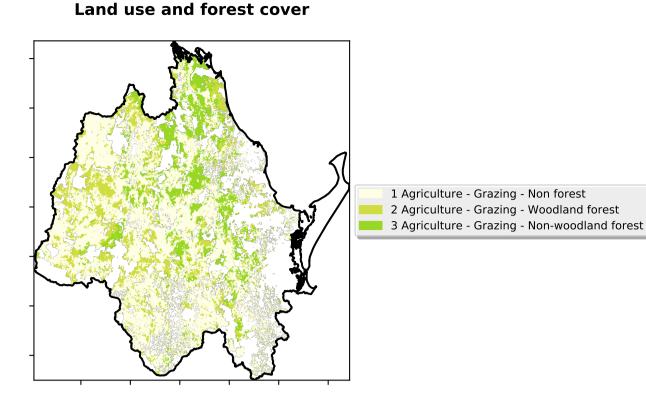


Programm

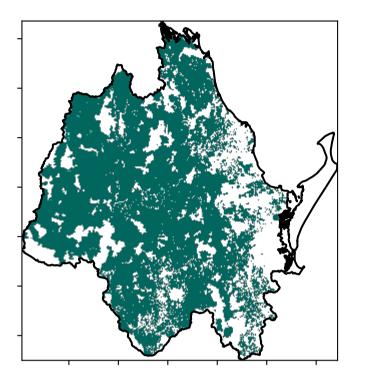
Australian Government

Grazing

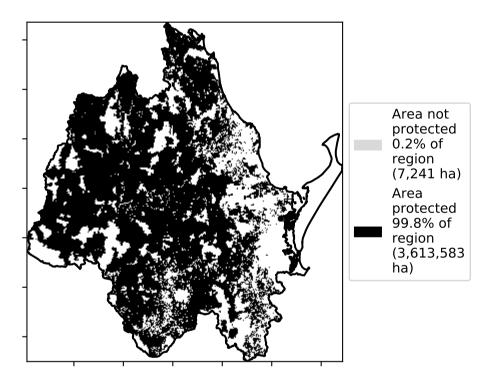
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

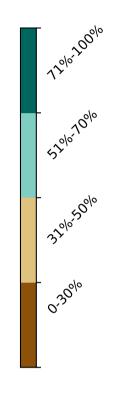


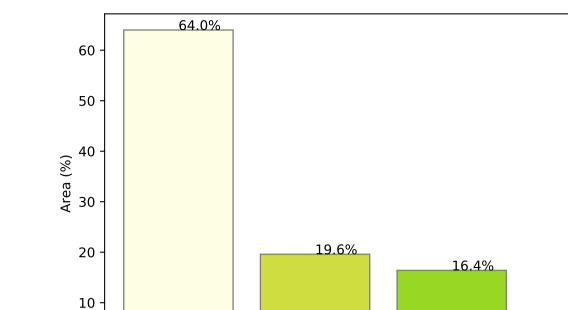
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)







0

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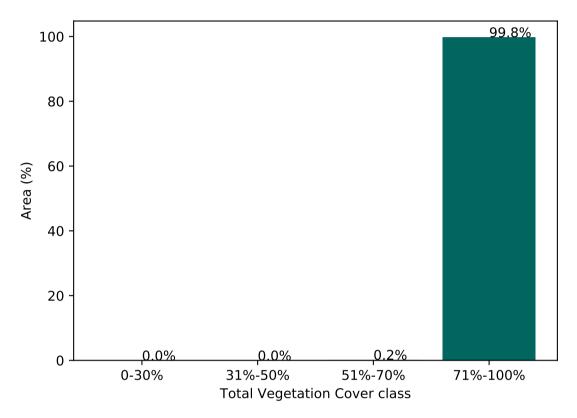
Proportion of each land class in area

Proportion of vegetation cover class in area

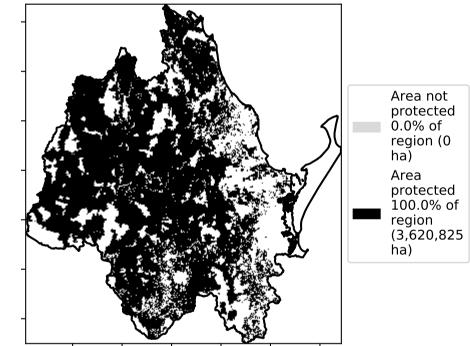
Land use class

3

2



% Area protected from wind erosion (>50%)



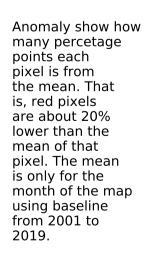
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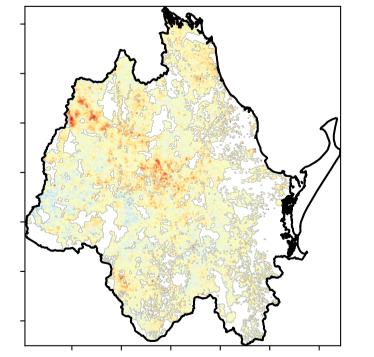
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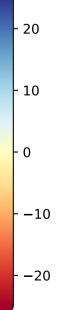
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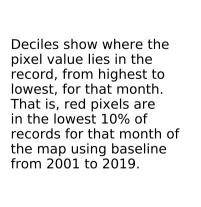
2?

Total Vegetation Cover Anomaly [%]

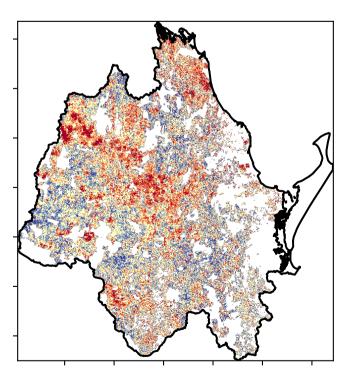




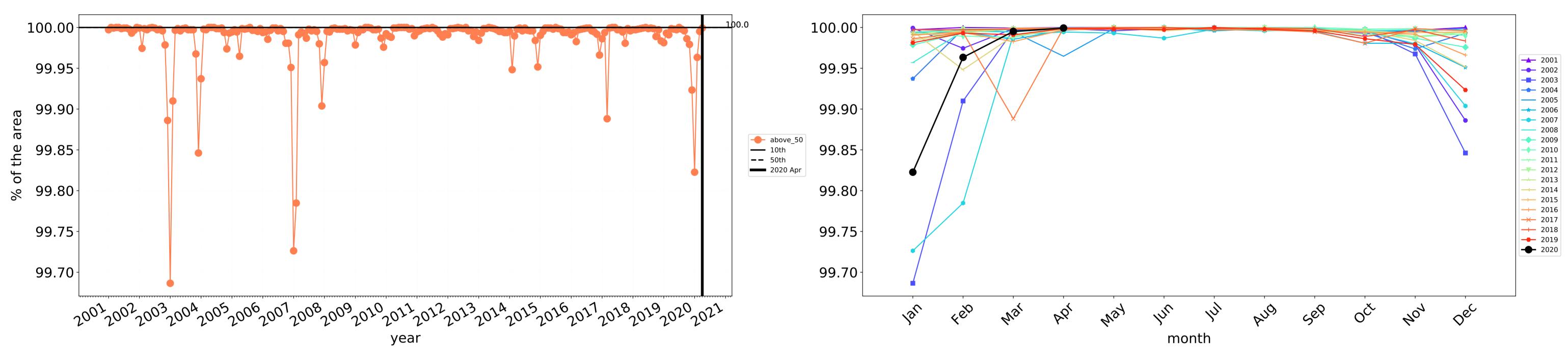




Total Vegetation Cover Decile [%]

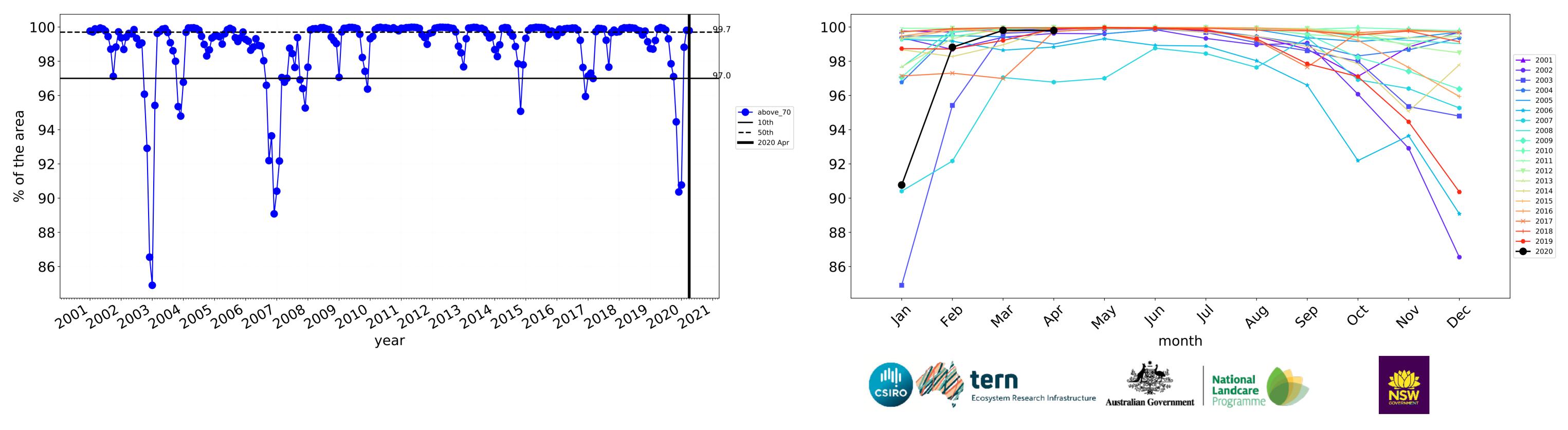






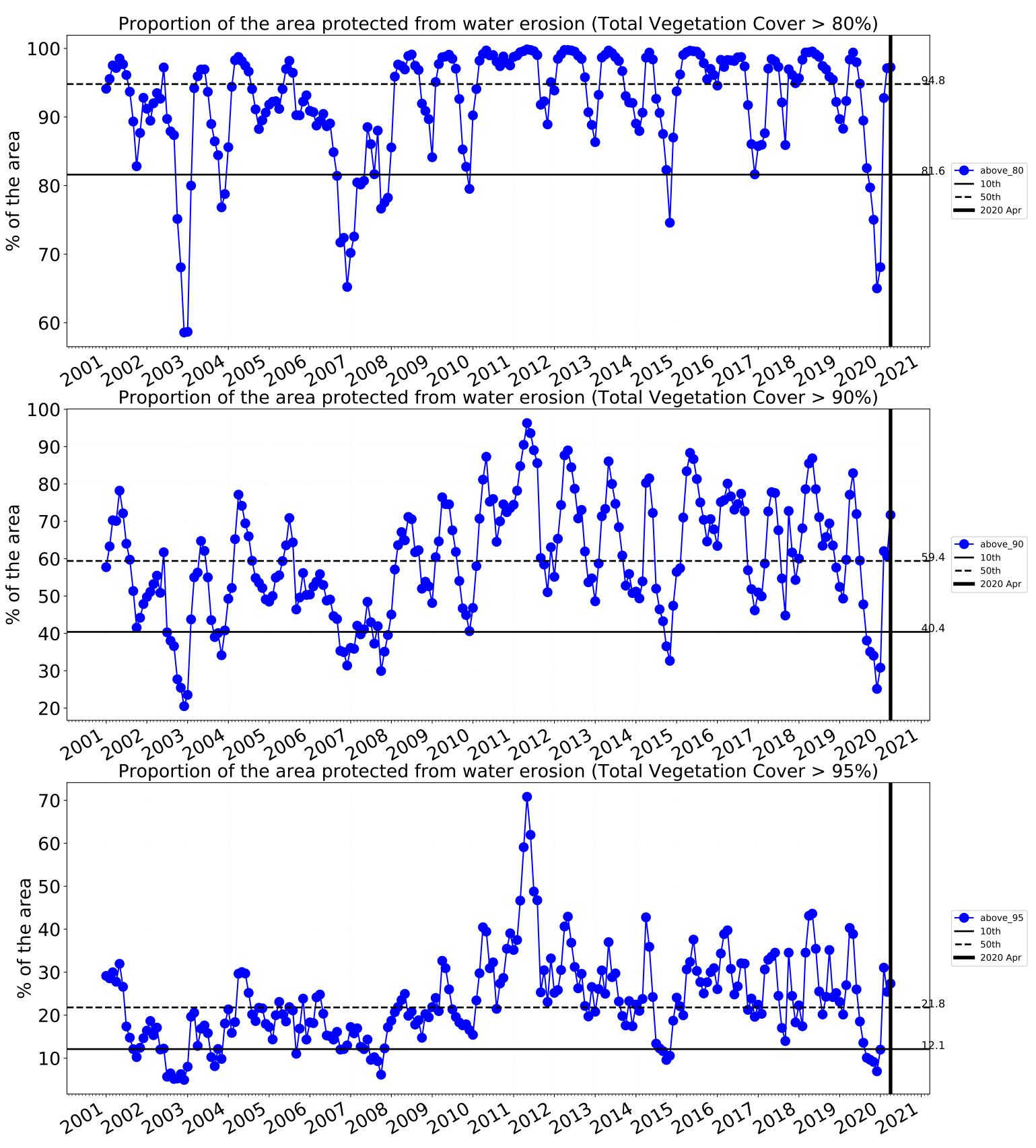
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

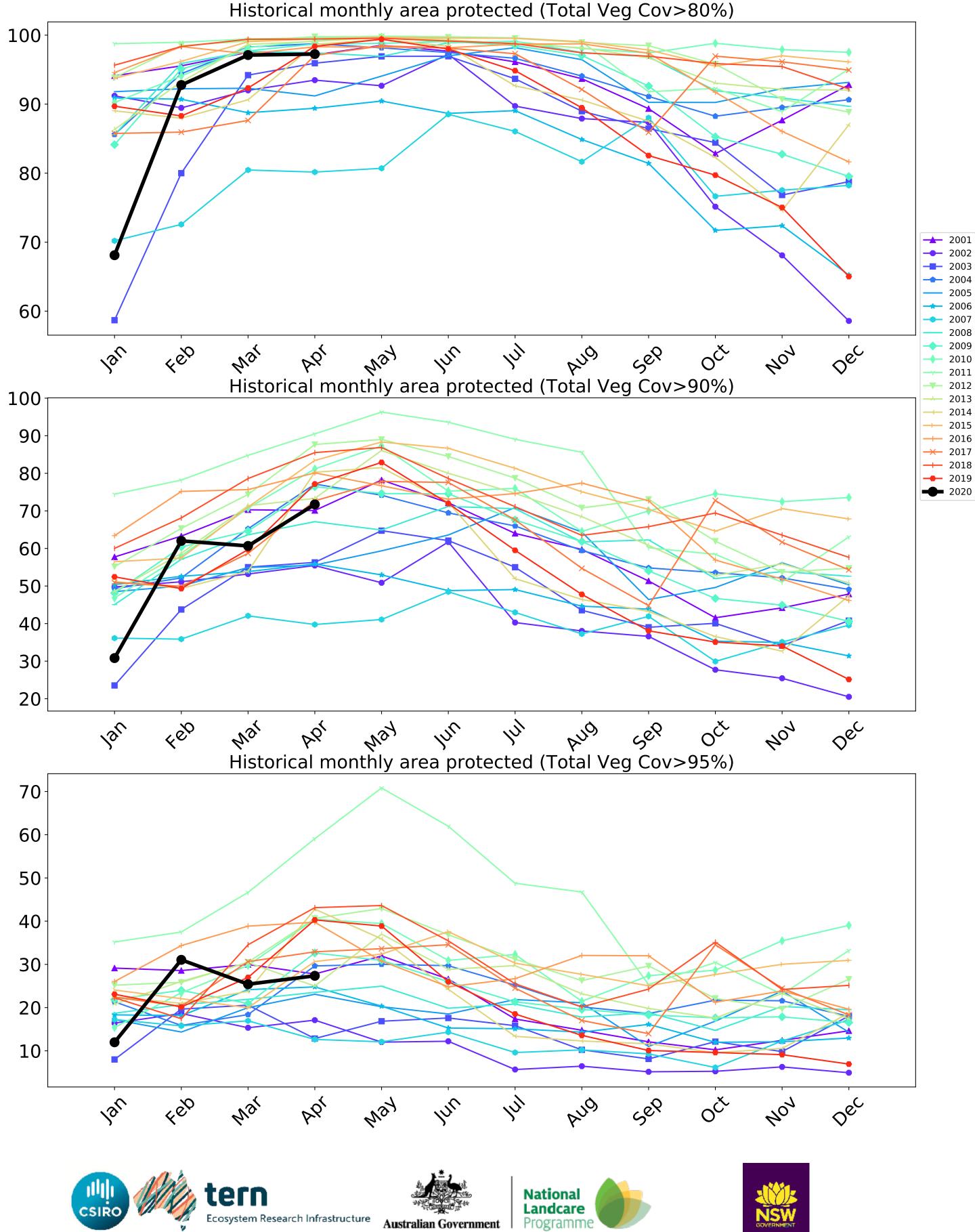
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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

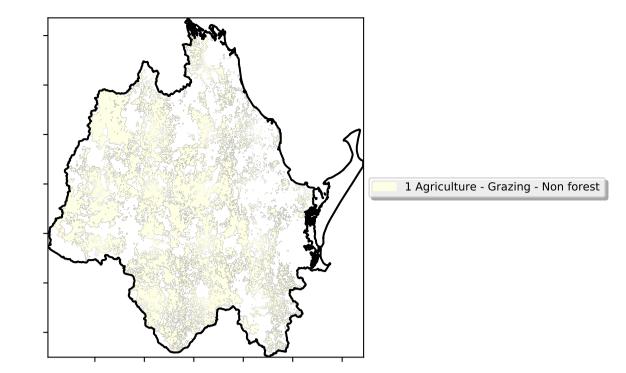
Water erosion historical monthly area protected (Total Veg Cov>70%)



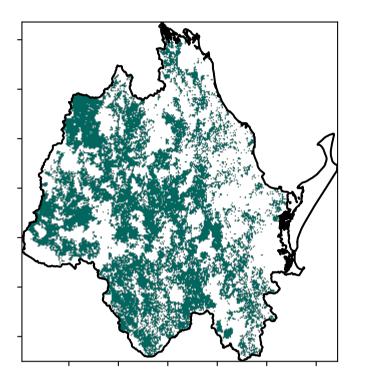


Grazing non forest

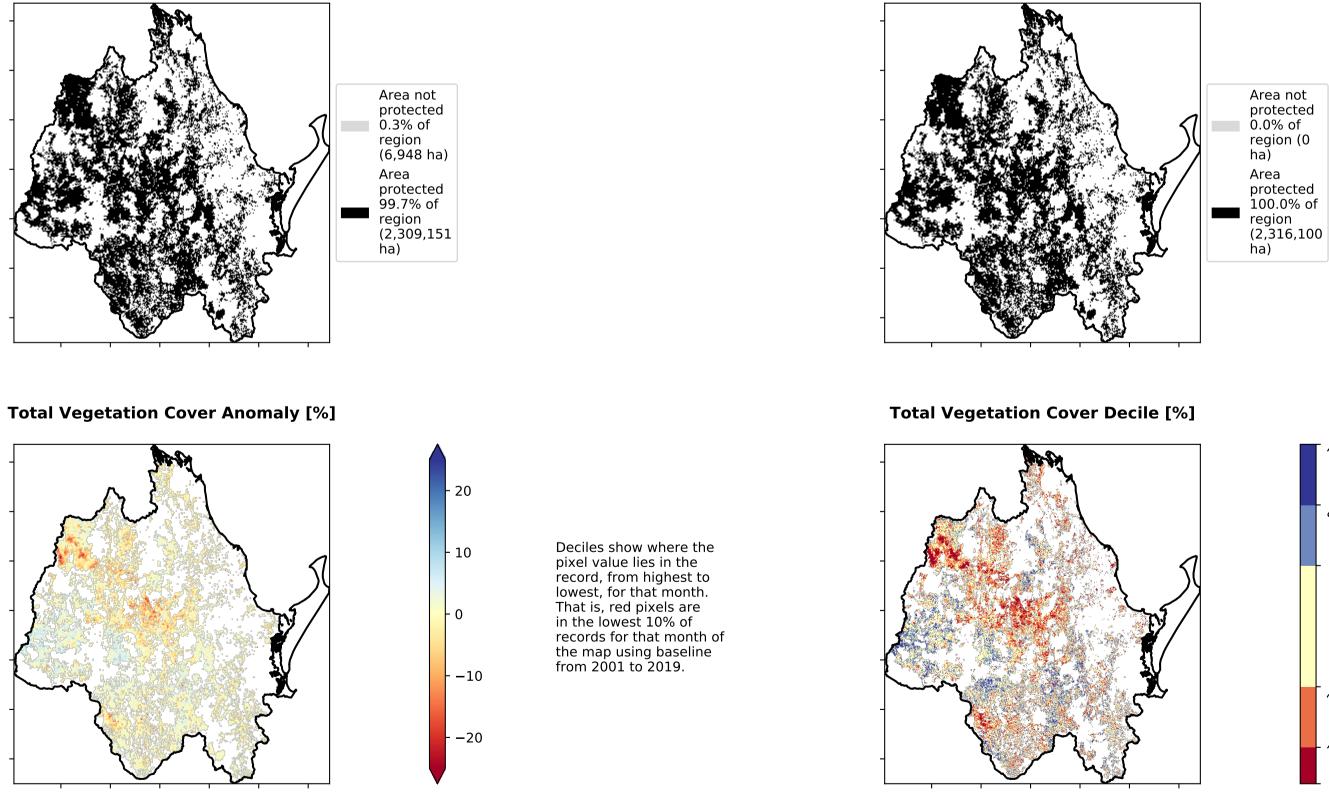
Land use and forest cover

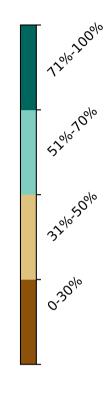


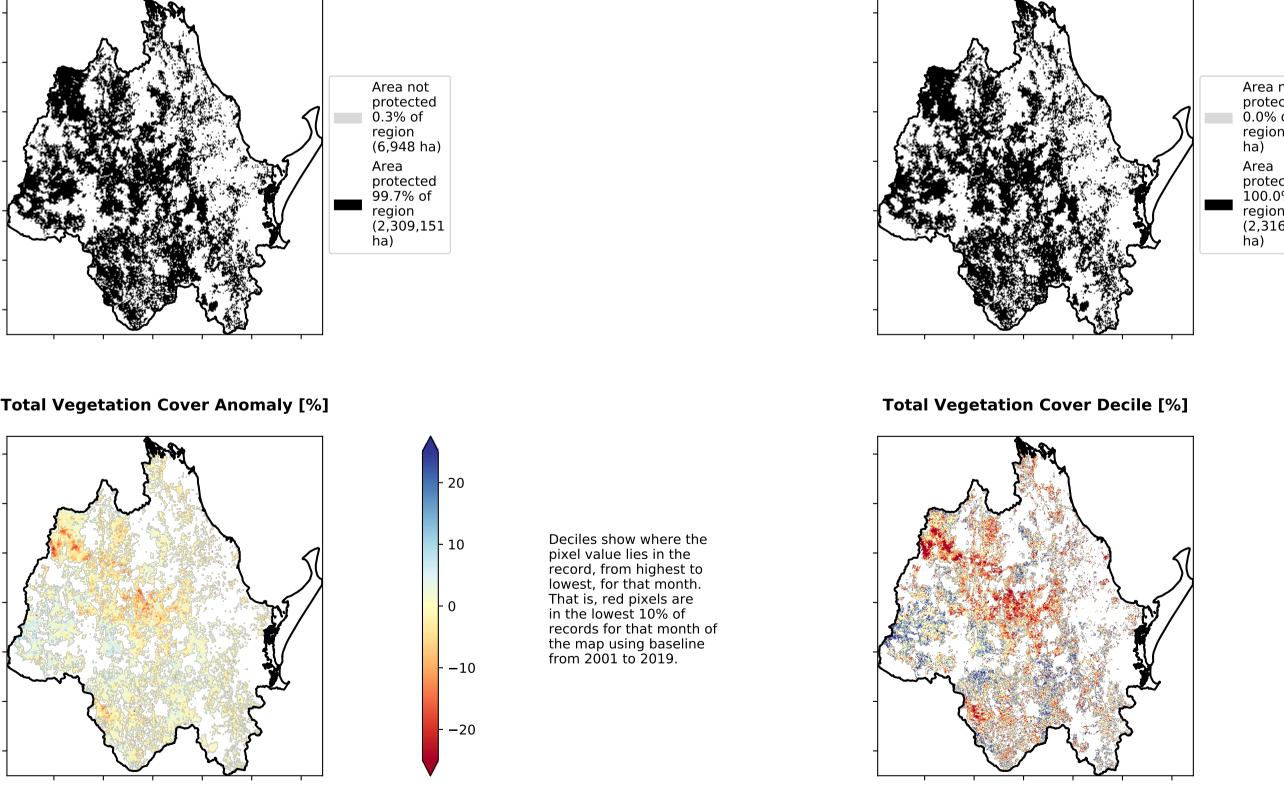
Total Vegetation Cover [%]



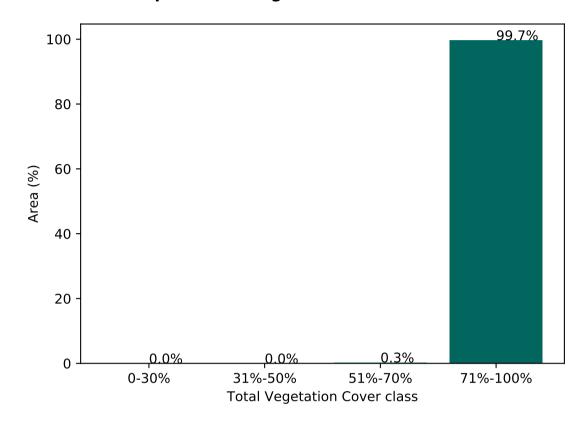




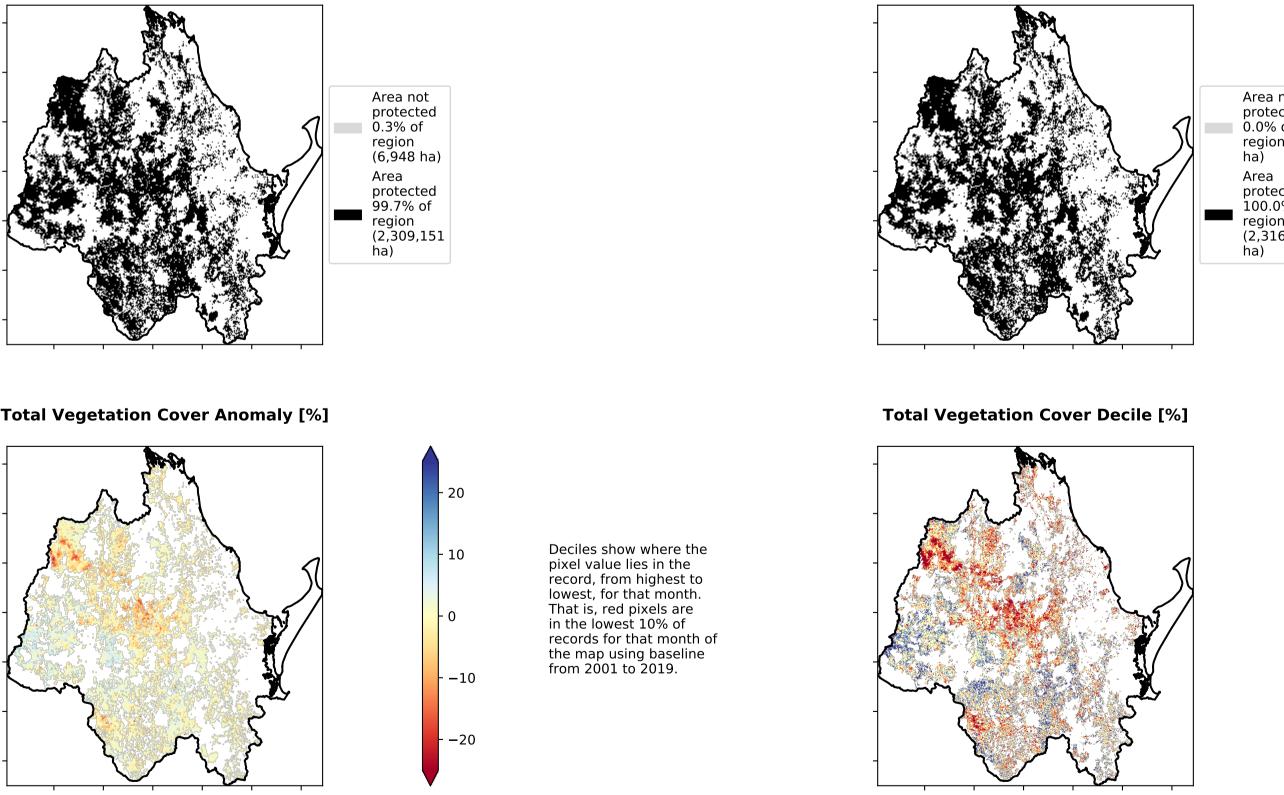




Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



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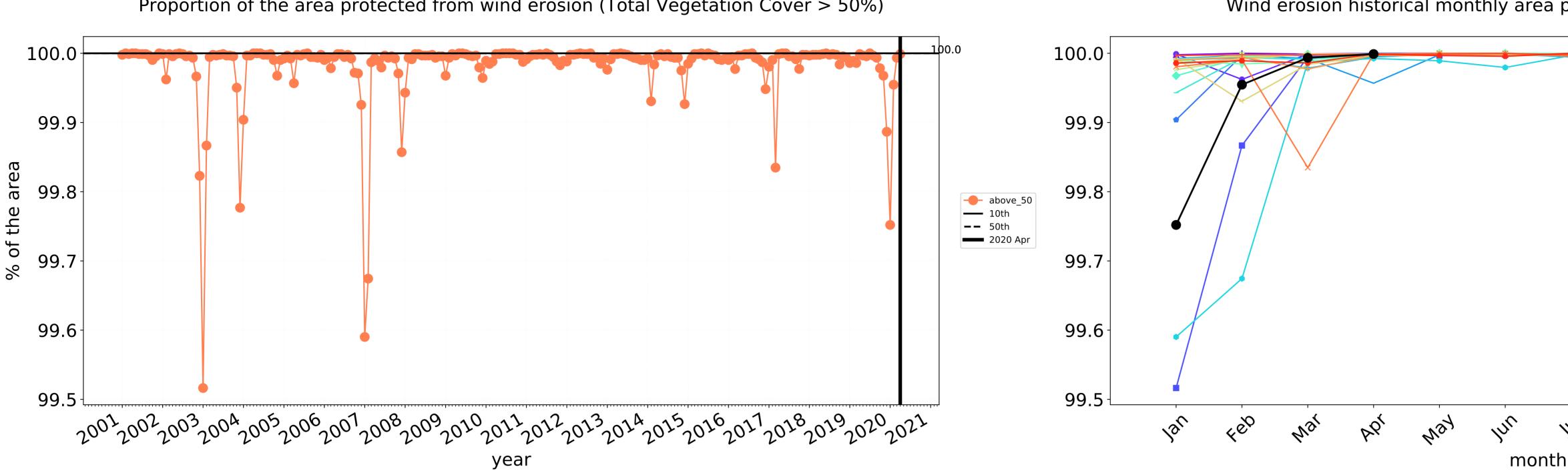
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Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

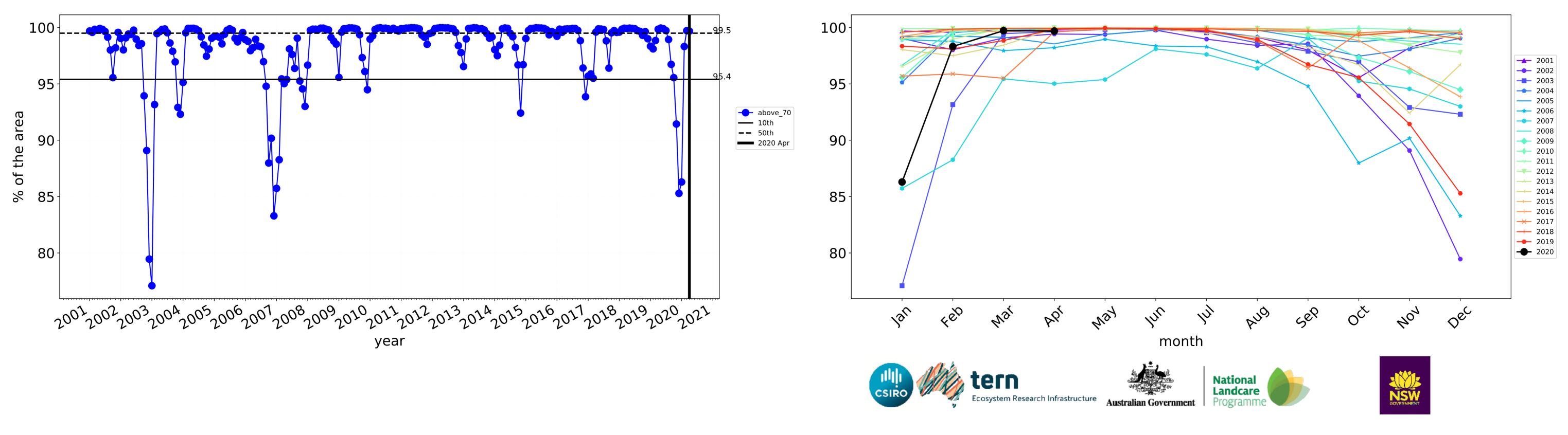
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.





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

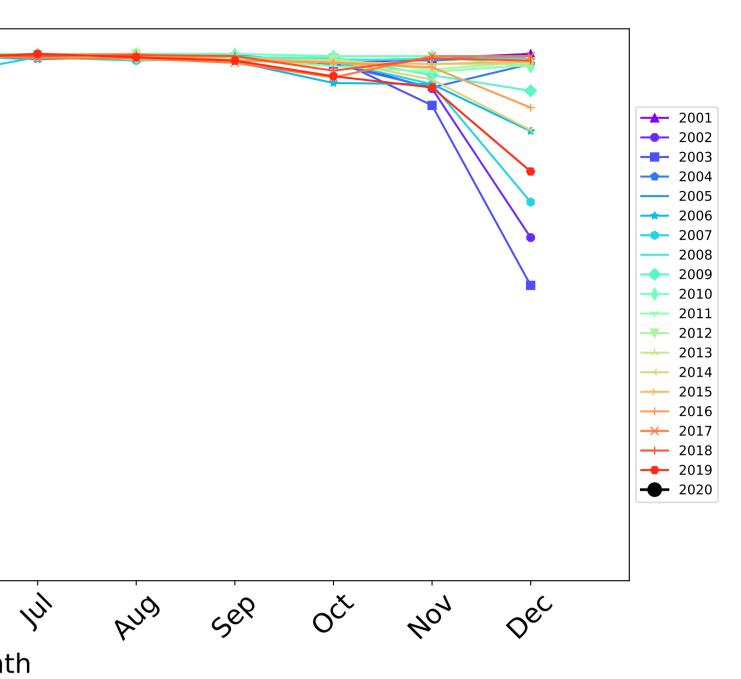
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)

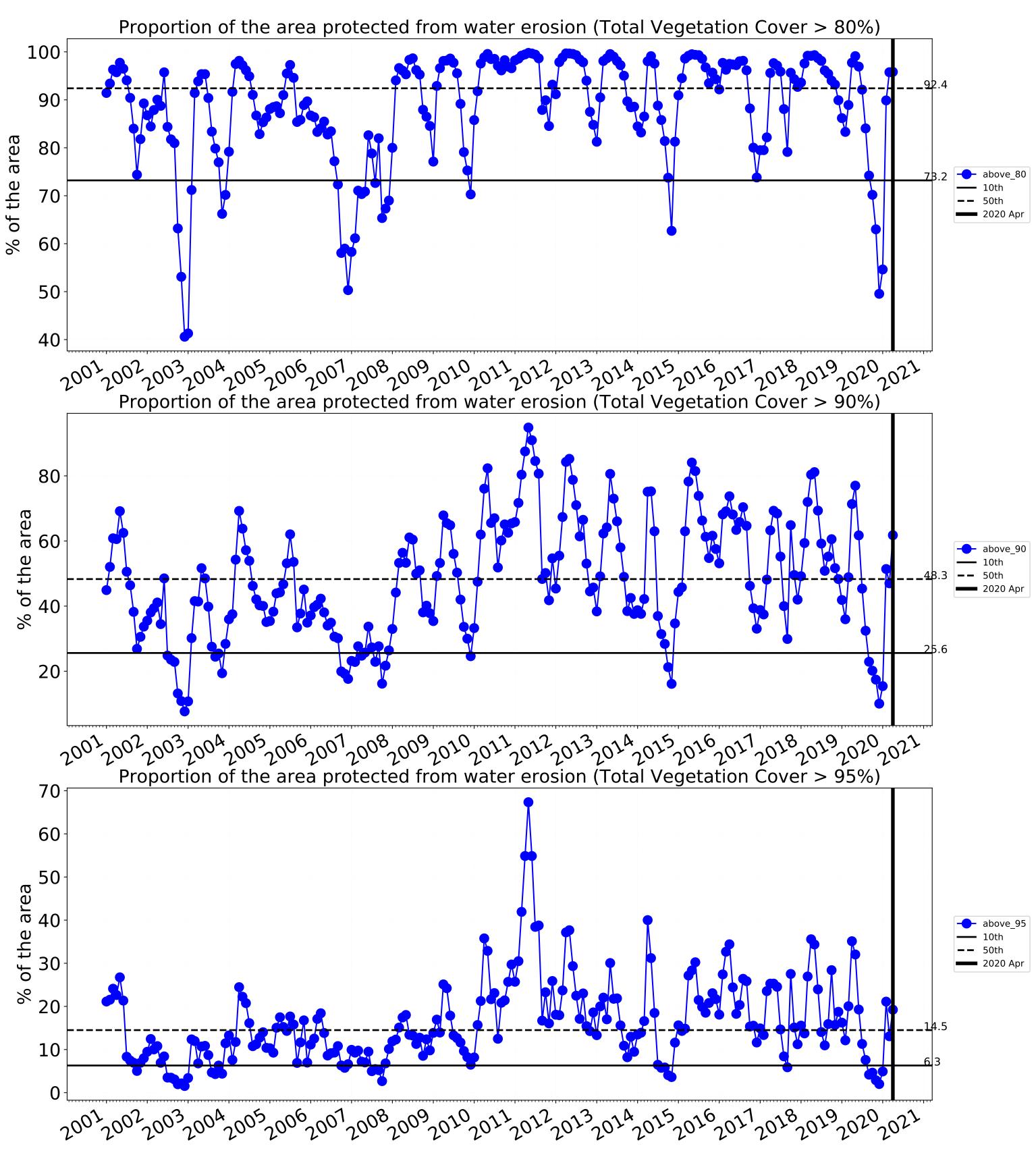


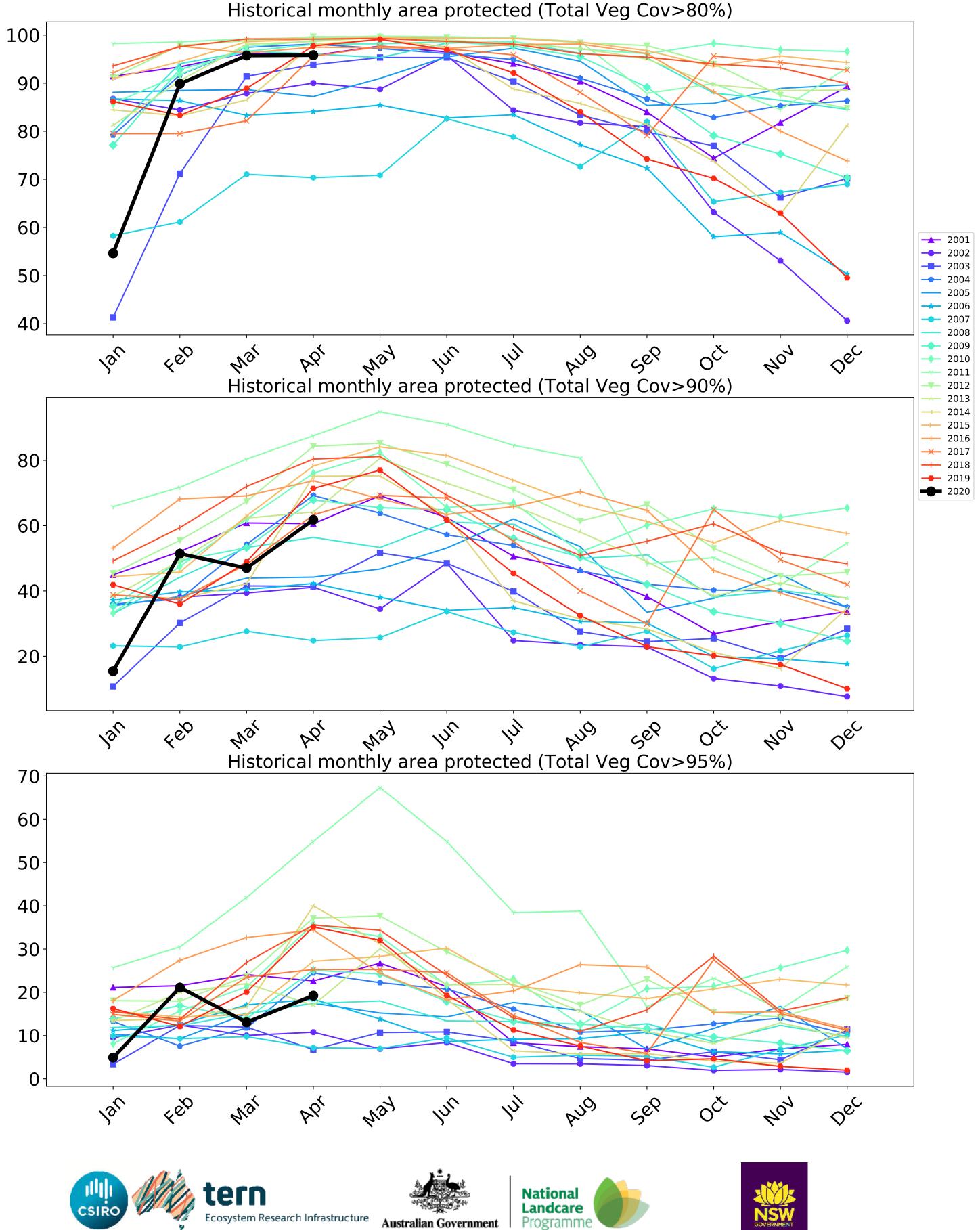
Grazing non forest timeseries

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

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









Grazing Woodland forest

12%200%

· 52°10'70°10

· 3201050010

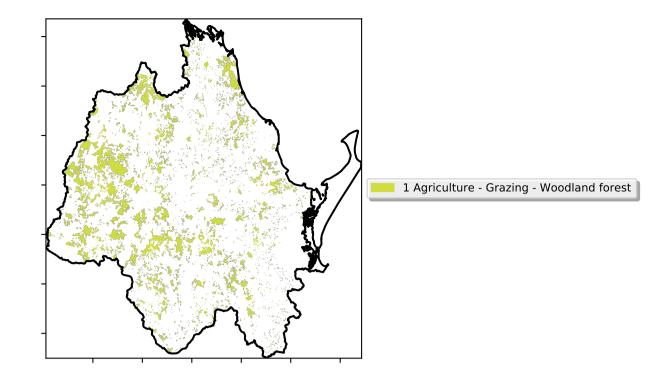
0.30%

region (0 ha) Area

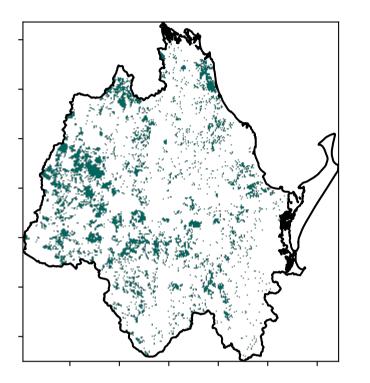
protected 100.0% of

region (711,325

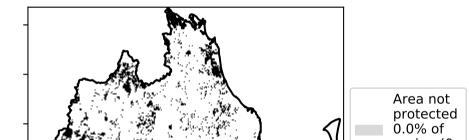
Land use and forest cover



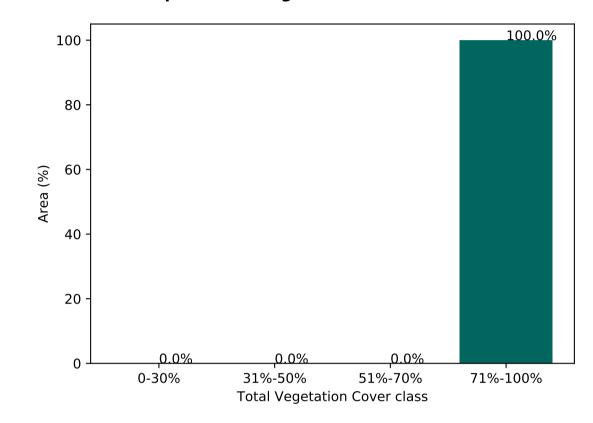
Total Vegetation Cover [%]



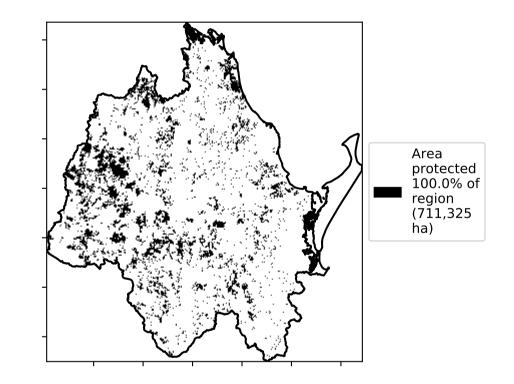




Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



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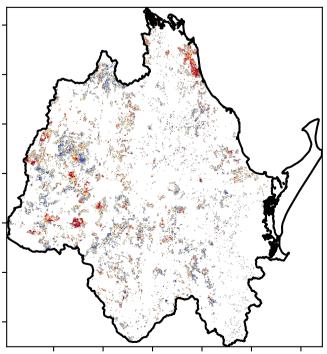
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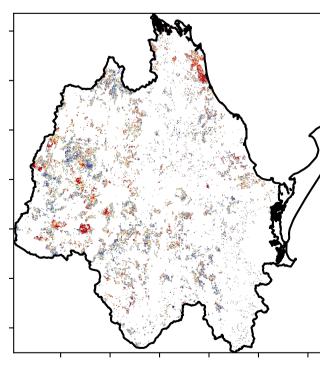
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Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover Decile [%]



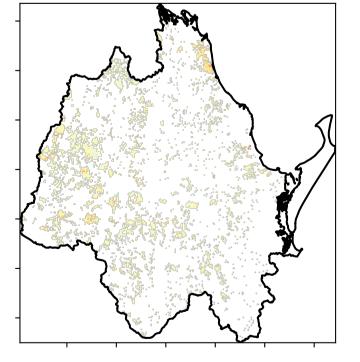




ha)

Total Vegetation Cover Anomaly [%]

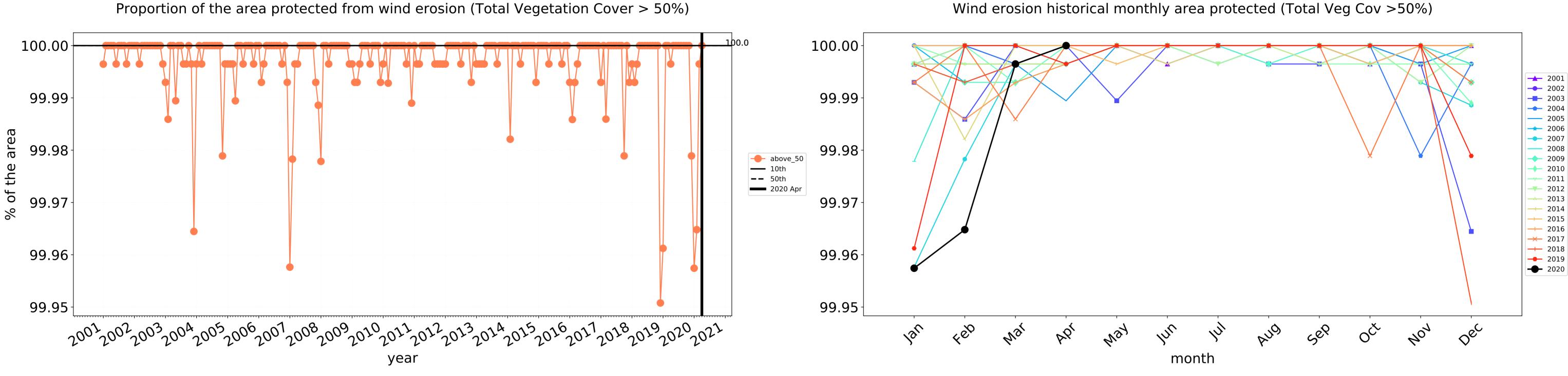
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



- 10 0 -10-20

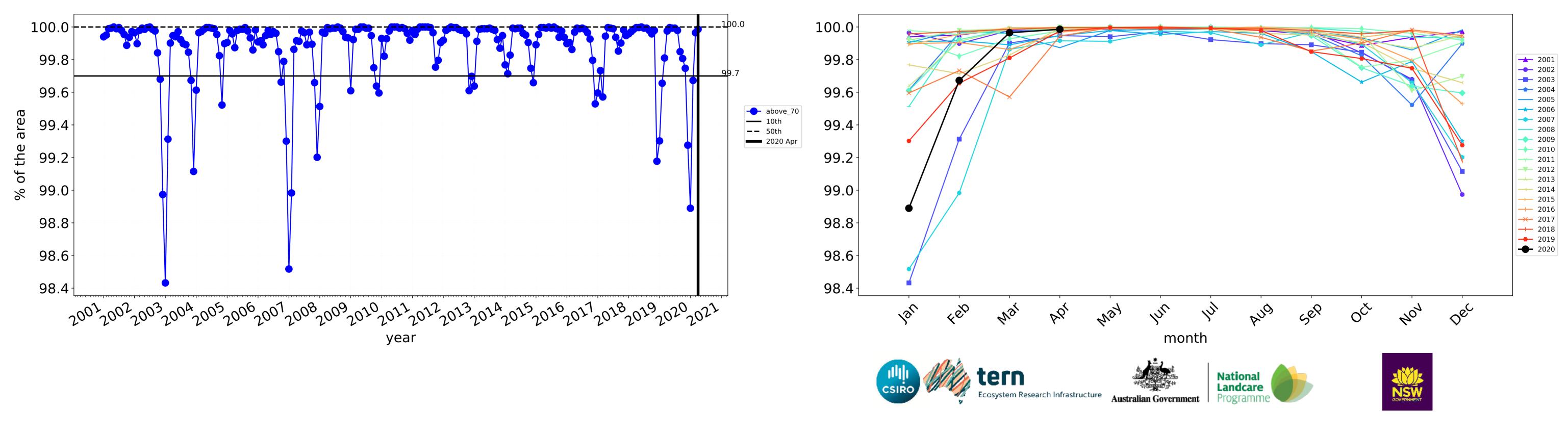
- 20

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.

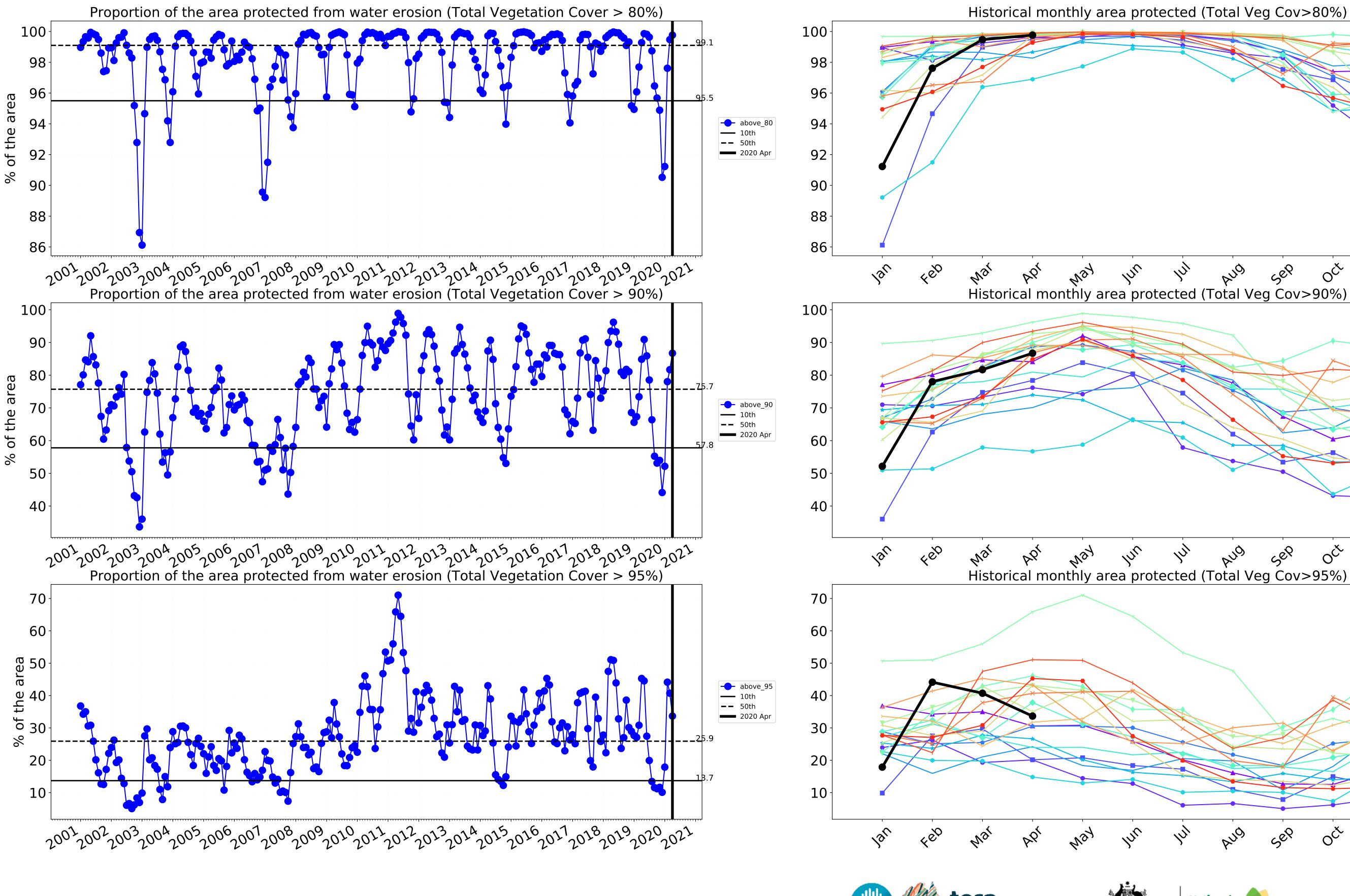


Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

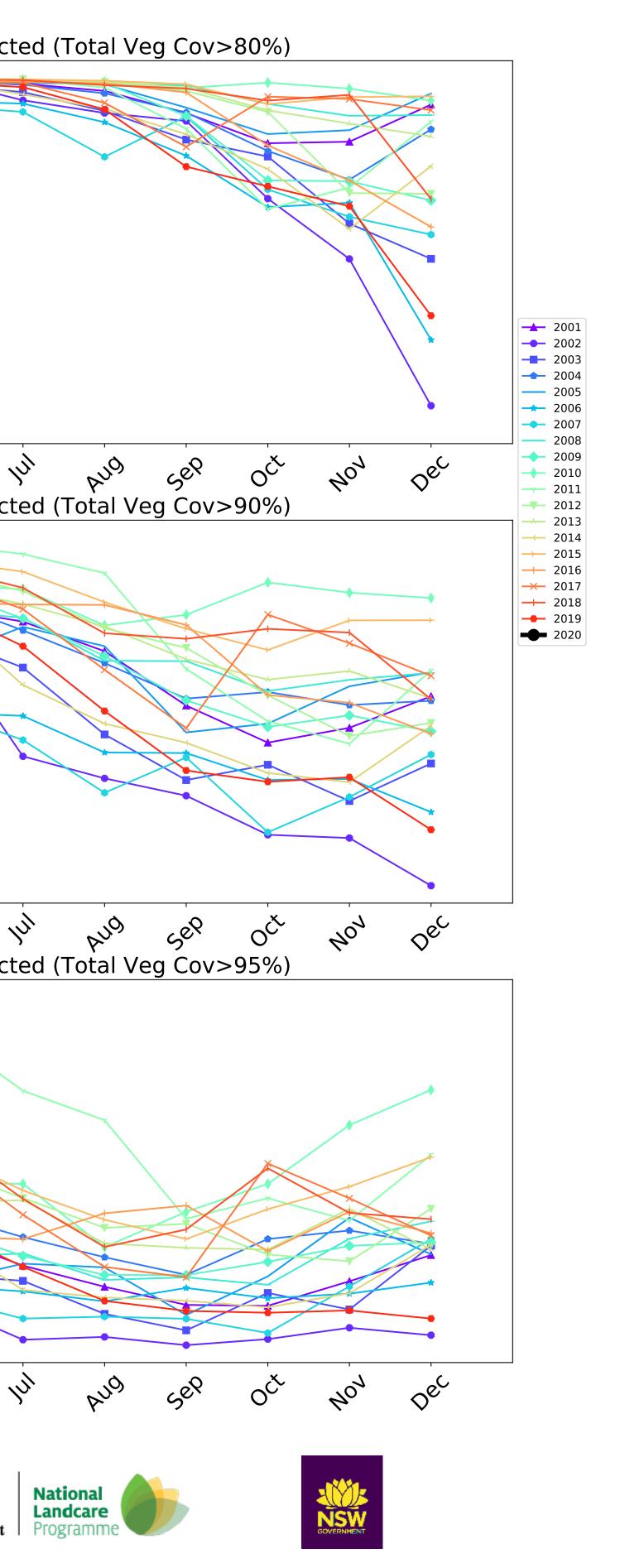
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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



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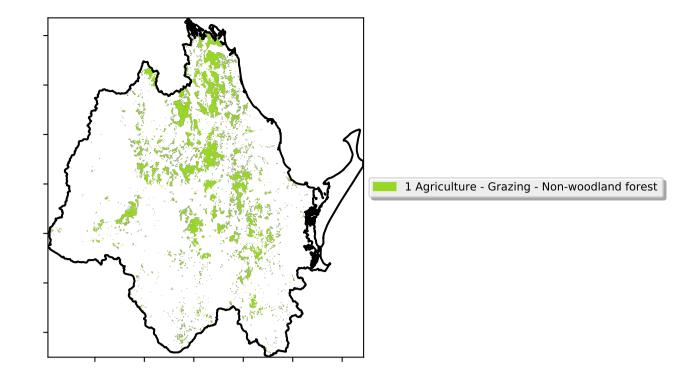
Grazing - Forest (non woodland)

12%200%

· 52% 70%

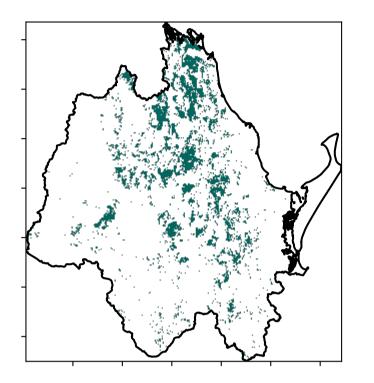
· 320050010

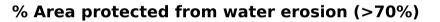
0.30%

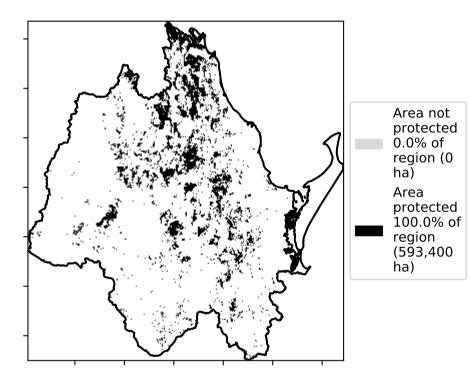


Total Vegetation Cover [%]

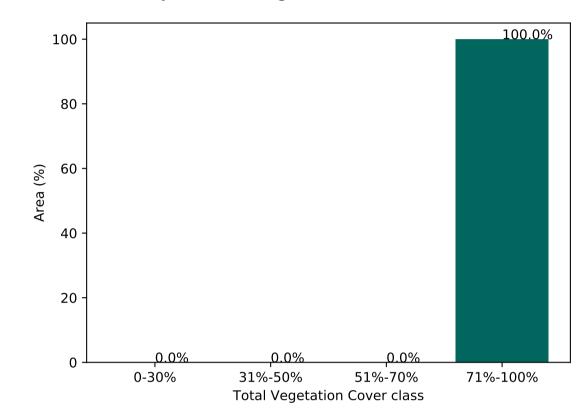
Land use and forest cover



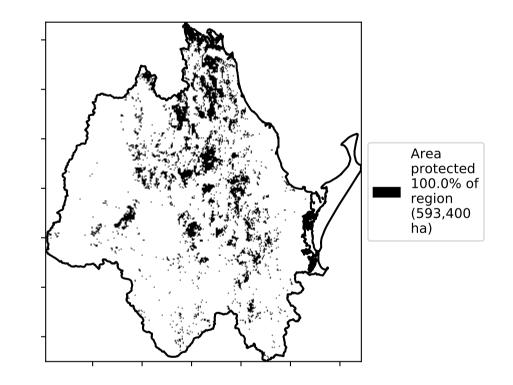








% Area protected from wind erosion (>50%)



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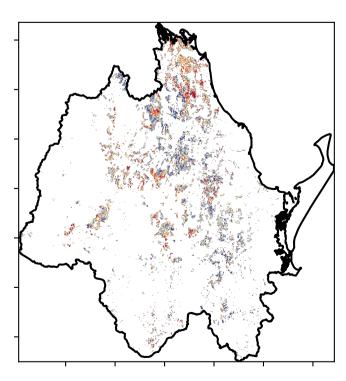
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Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

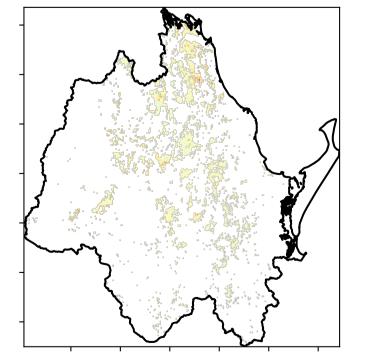
Total Vegetation Cover Decile [%]

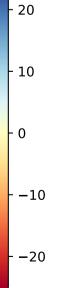




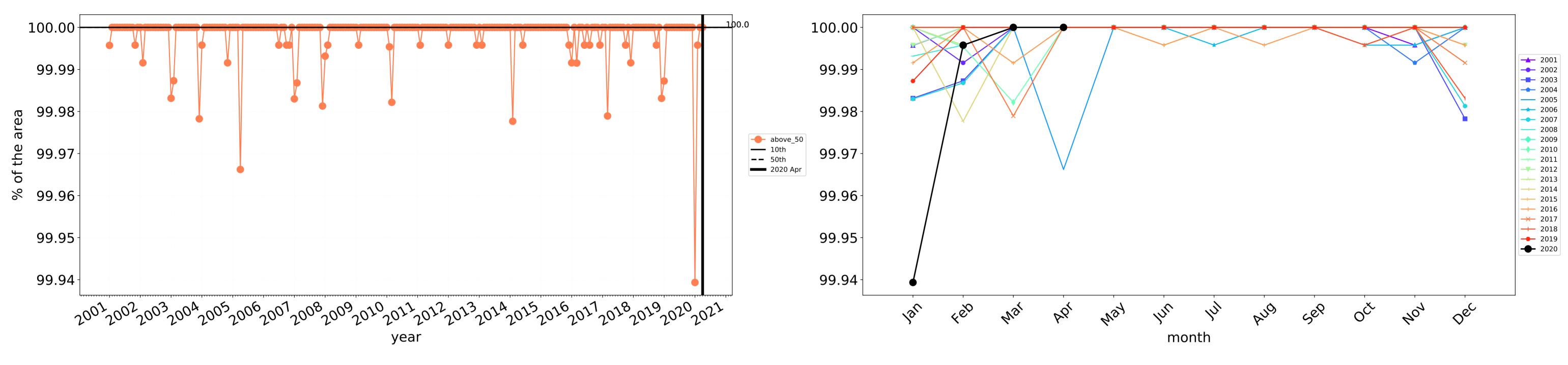
Total Vegetation Cover Anomaly [%]

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.



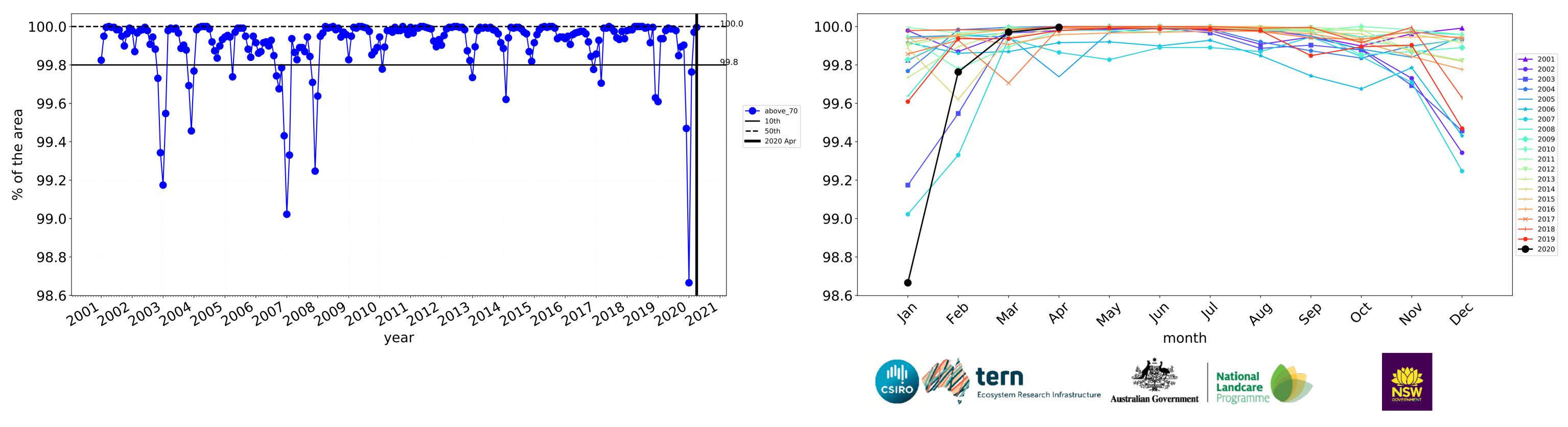


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



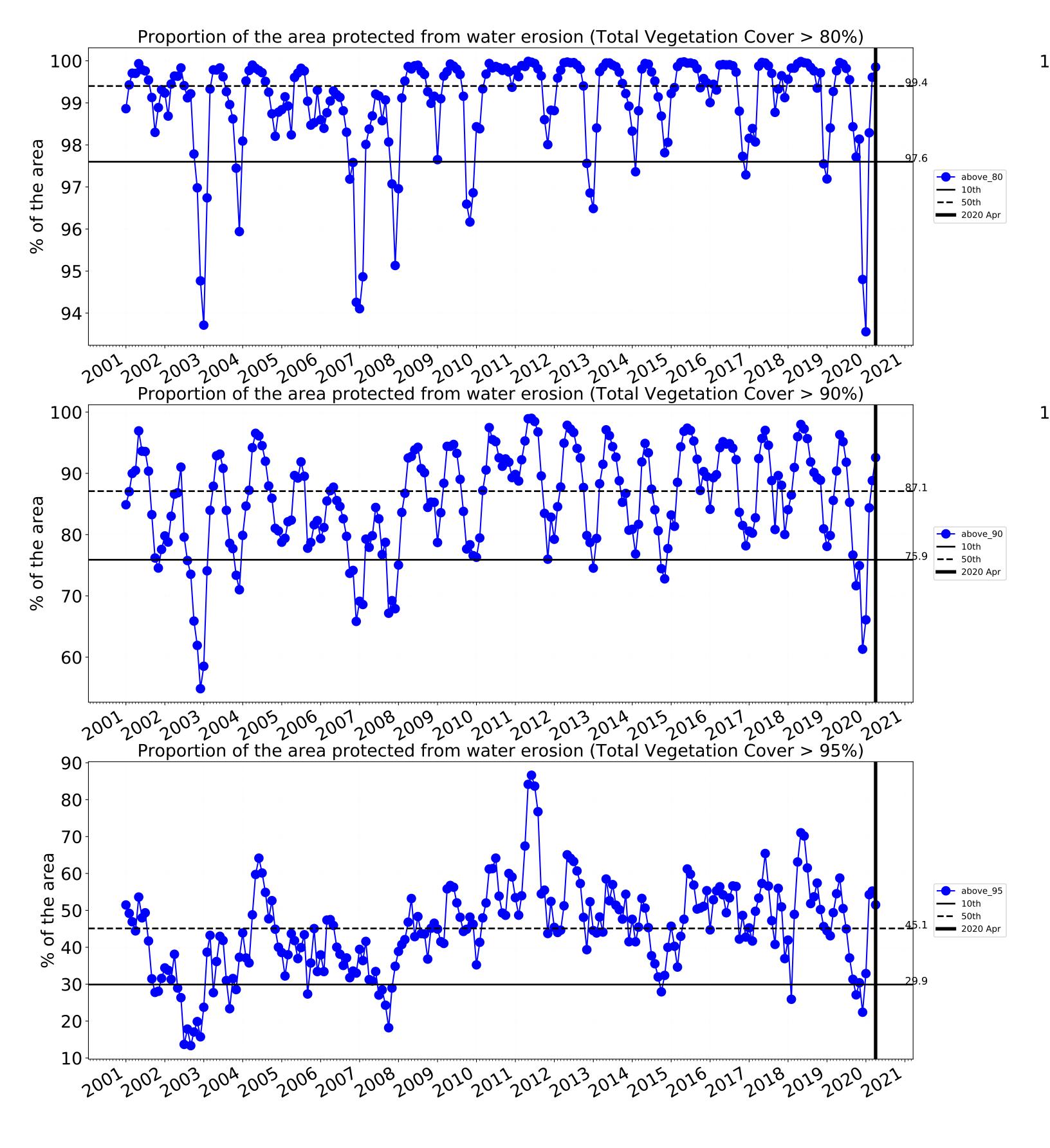
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

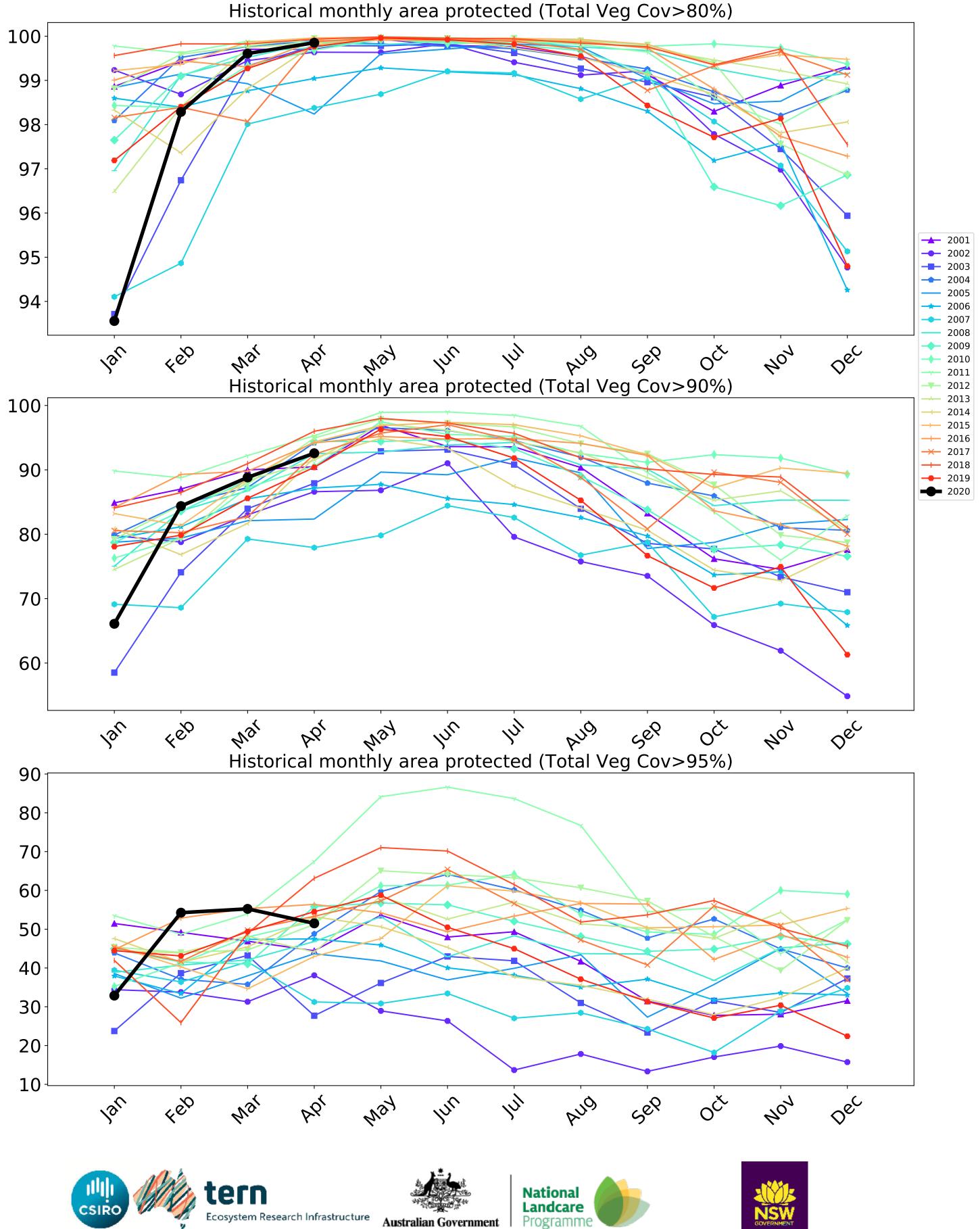
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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

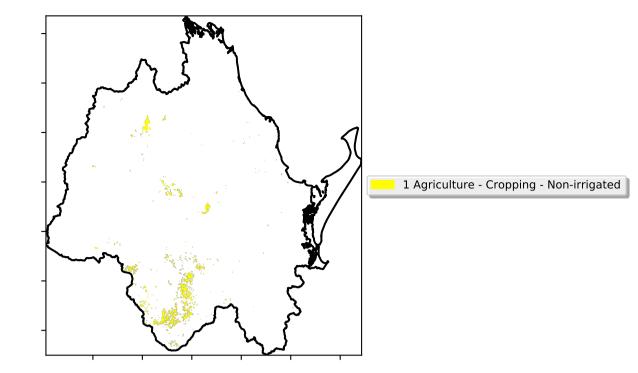
Water erosion historical monthly area protected (Total Veg Cov>70%)



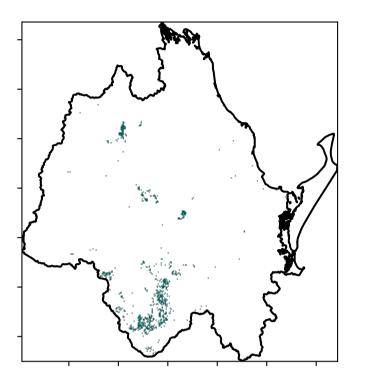


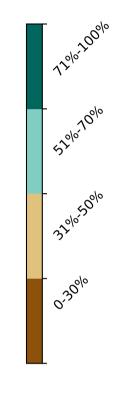
Cropping

Land use and forest cover

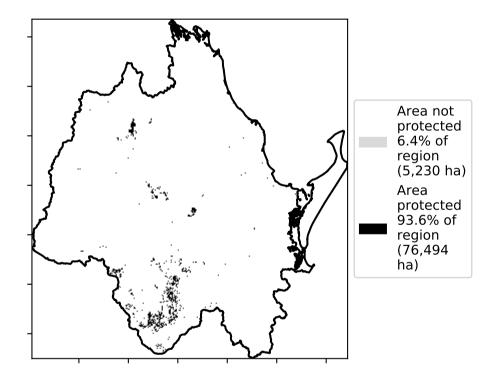


Total Vegetation Cover [%]

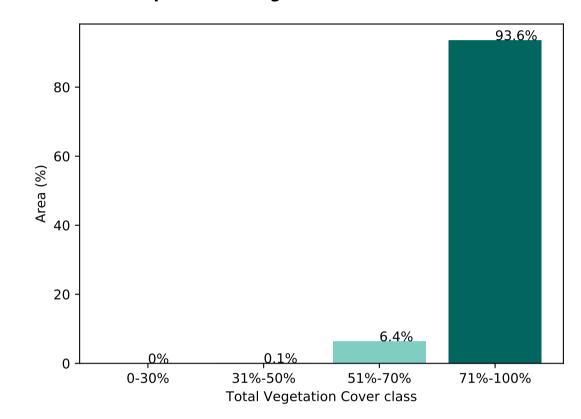




% Area protected from water erosion (>70%)



Proportion of vegetation cover class in area



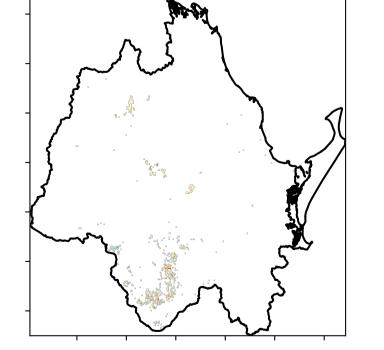
% Area protected from wind erosion (>50%)

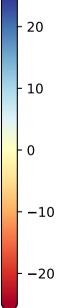


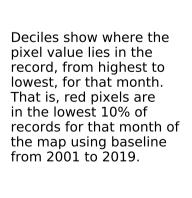
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover Anomaly [%]

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.

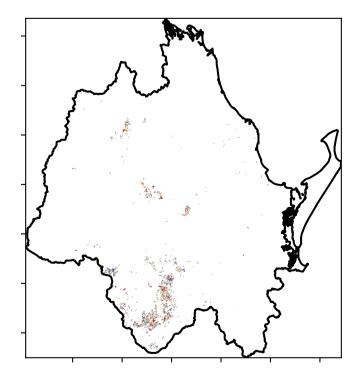


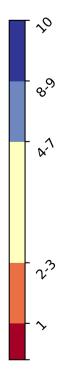




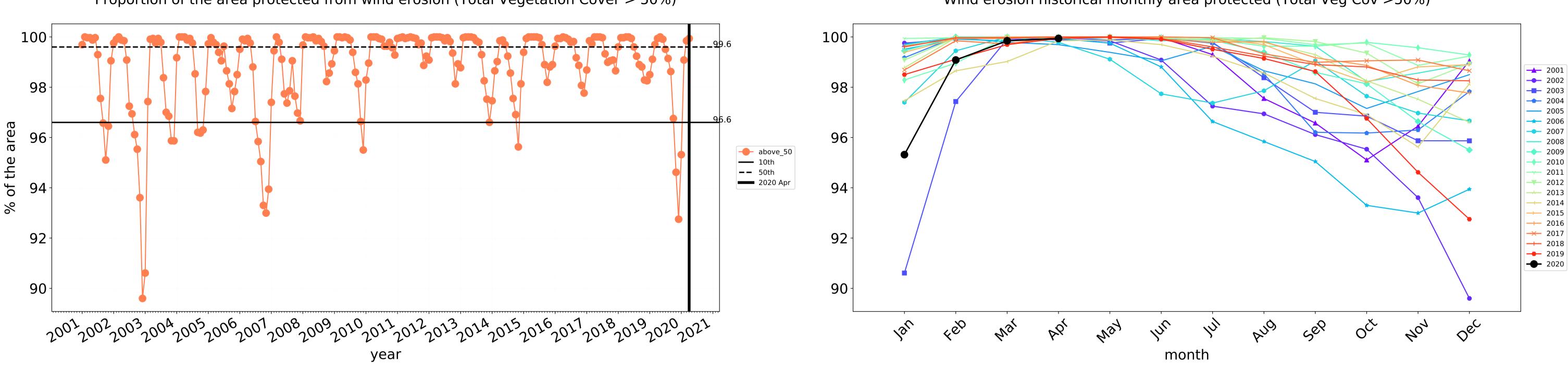
Area not protected 0.0% of region (0 ha) Area protected 100.0% of region (81,725 ha)

Total Vegetation Cover Decile [%]



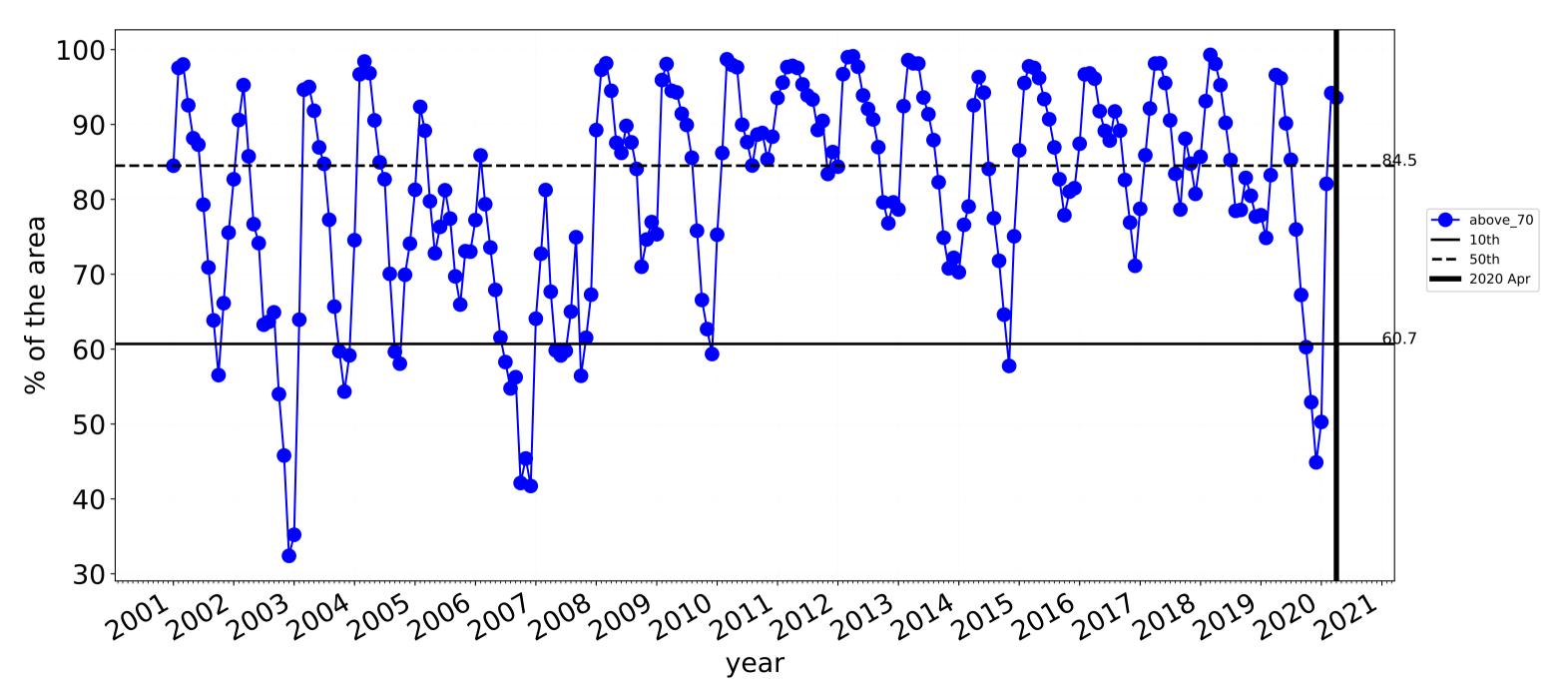






Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



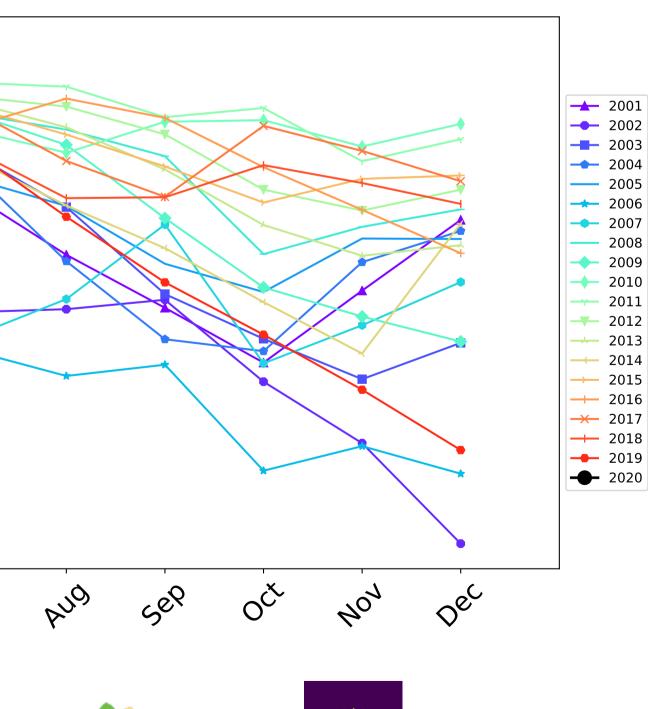


Cropping timeseries

100-90 80 70-60 50 40 30 4eb lar way In War 1's PG, month Ecosystem Research Infrastructure Australian Government

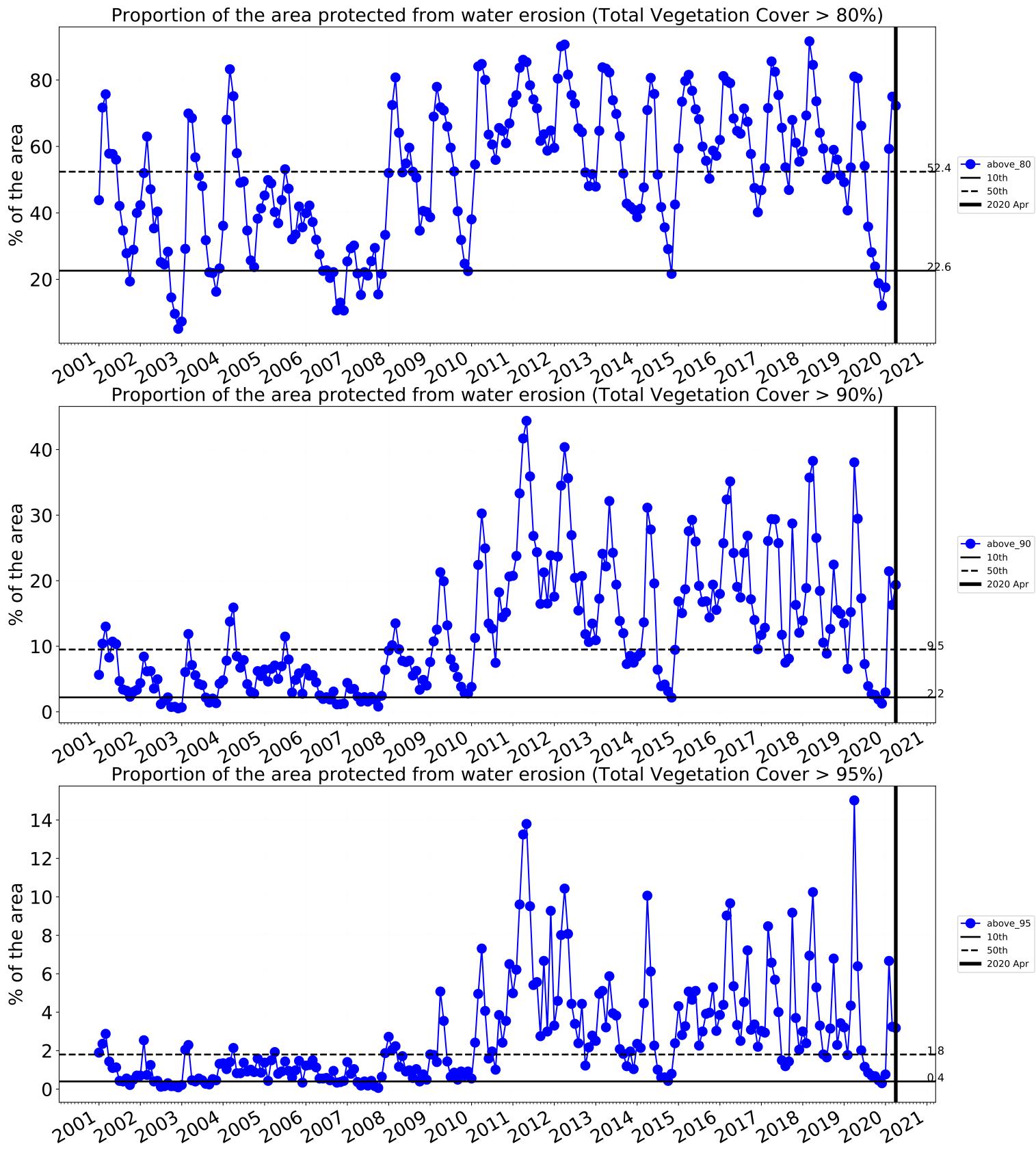
Wind erosion historical monthly area protected (Total Veg Cov >50%)

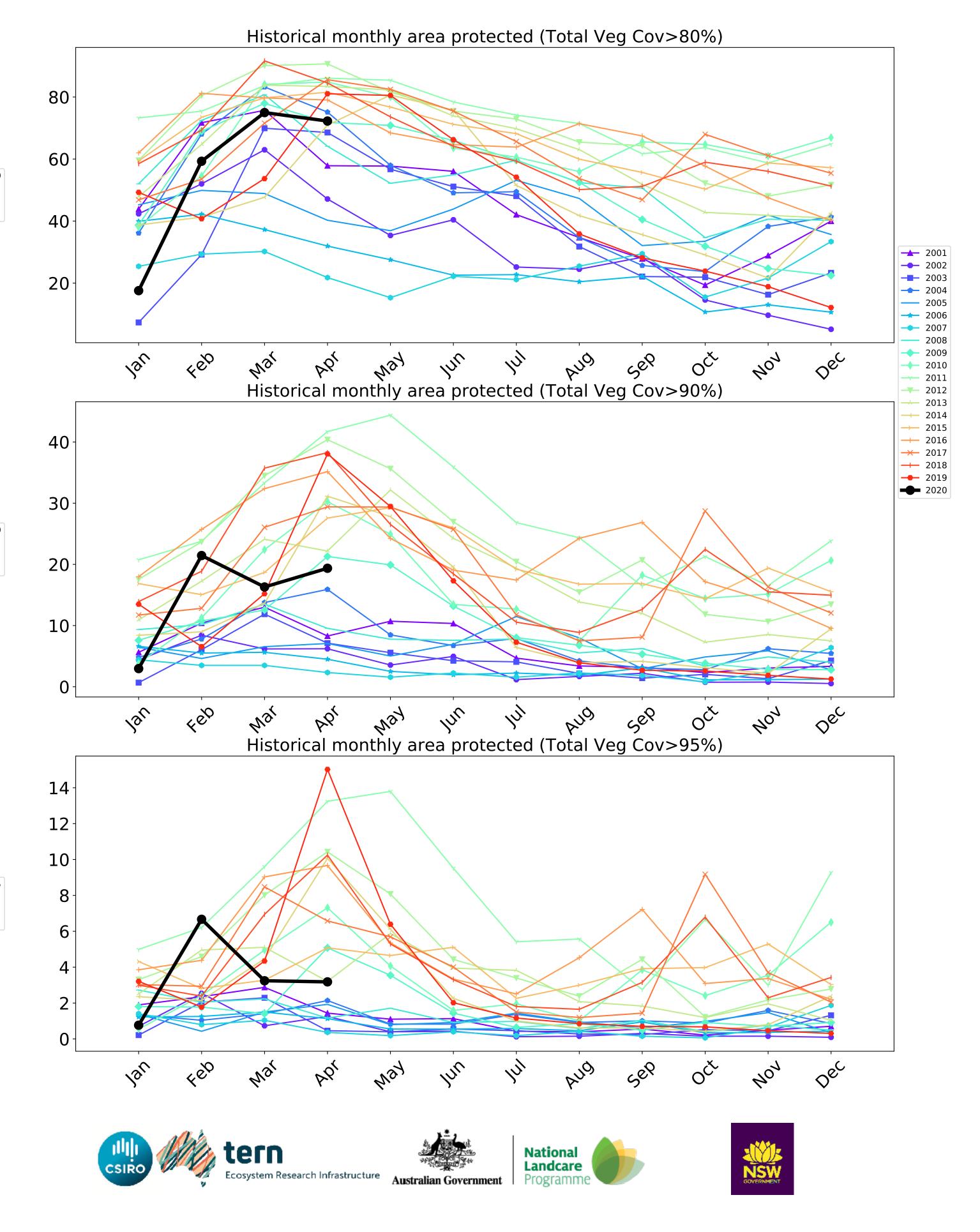
Water erosion historical monthly area protected (Total Veg Cov>70%)





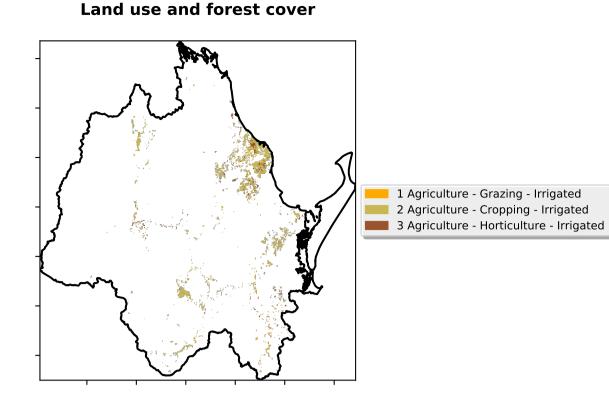




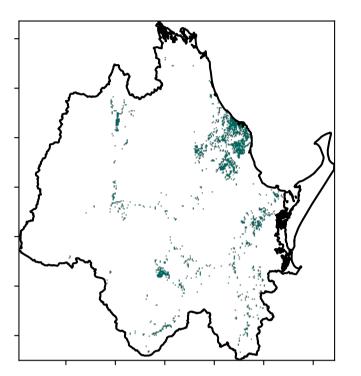


Irrigation

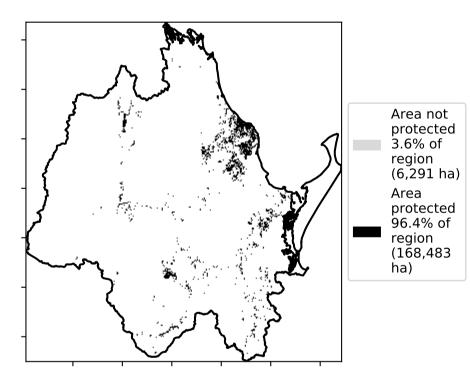
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

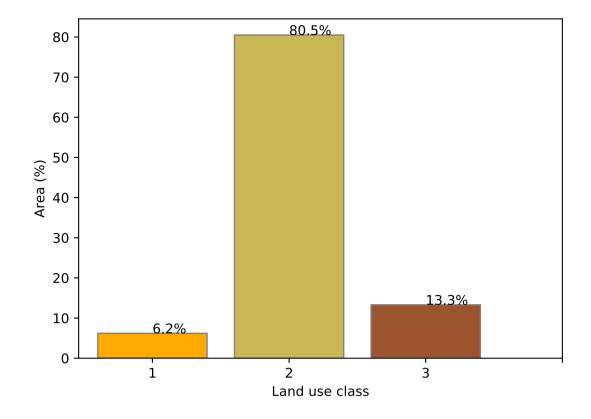


Total Vegetation Cover [%]



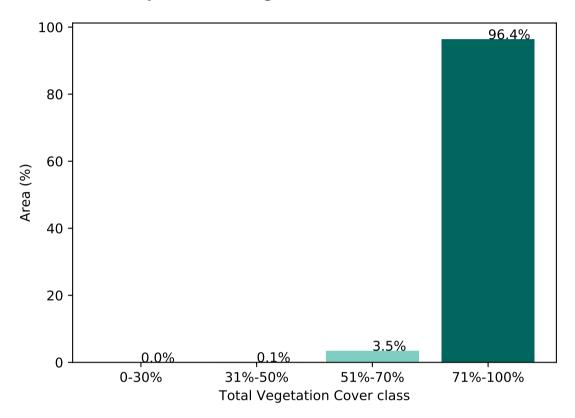




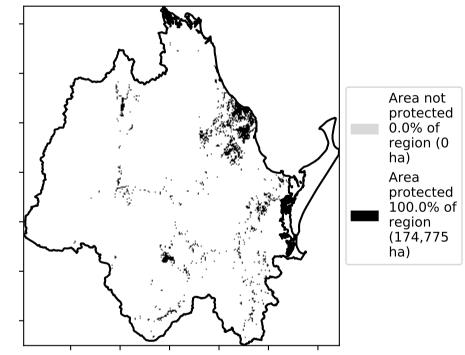


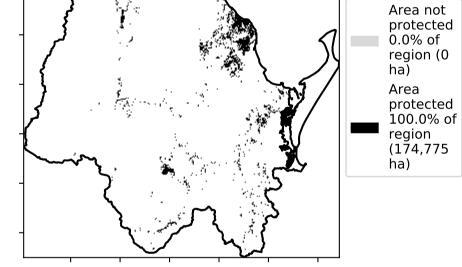
Proportion of each land class in area

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





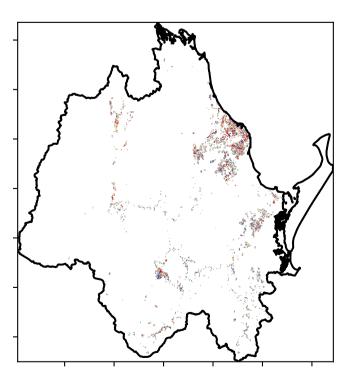
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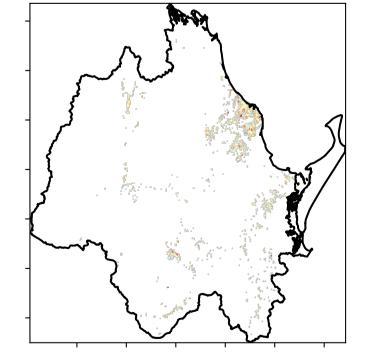
Total Vegetation Cover Decile [%]

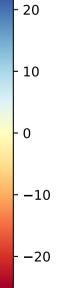




Total Vegetation Cover Anomaly [%]

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.





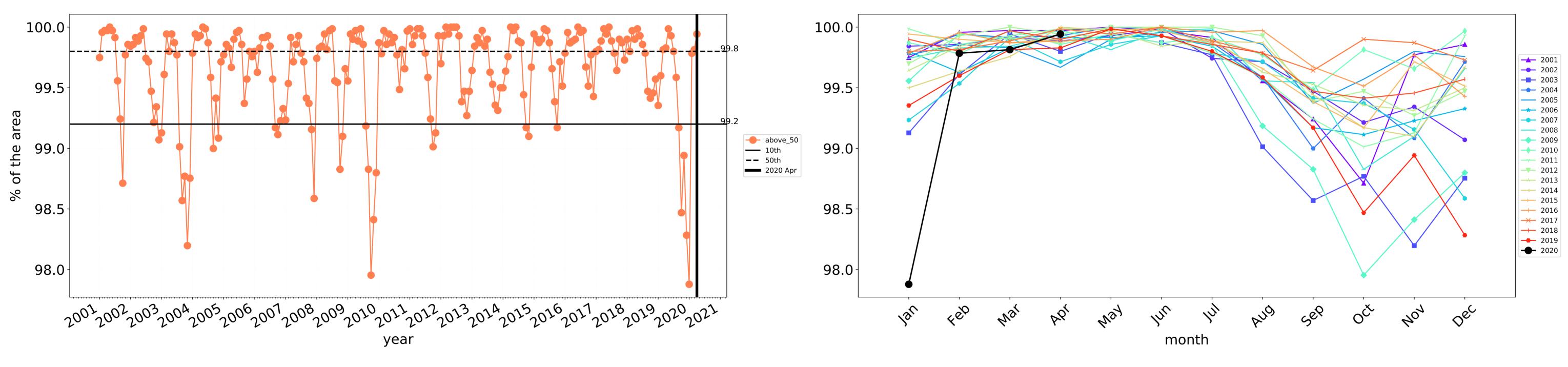
12%200%

52% TO%

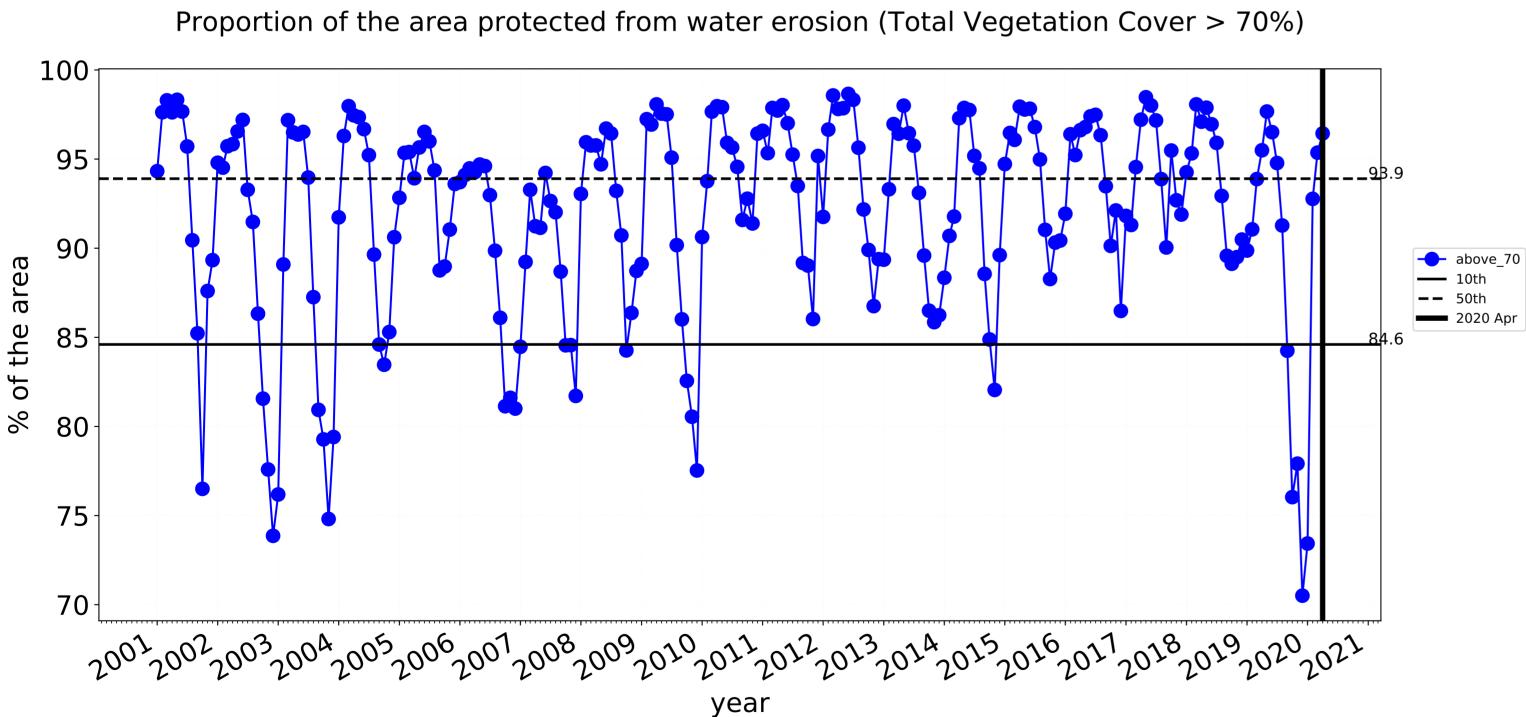
3201050010

0.30%

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

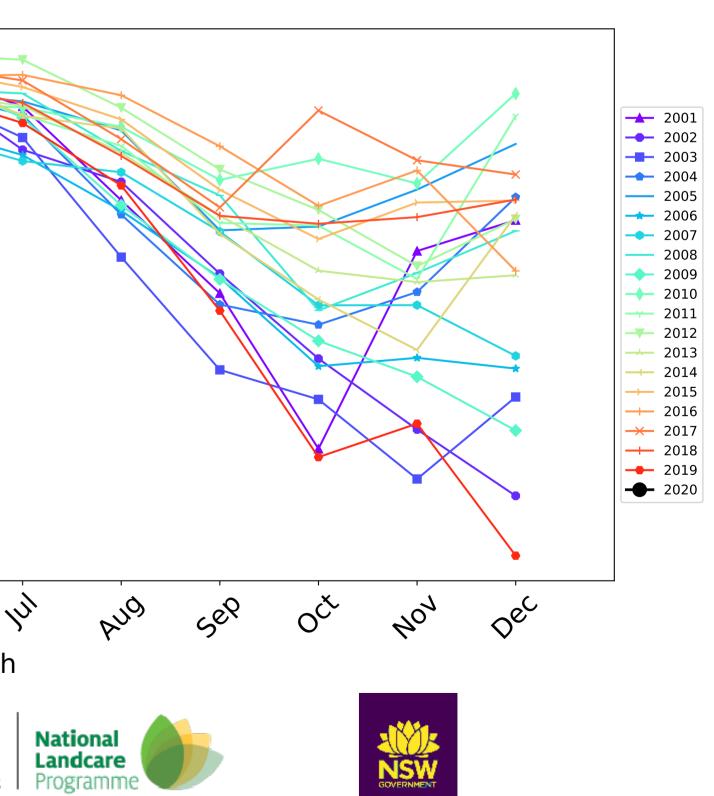


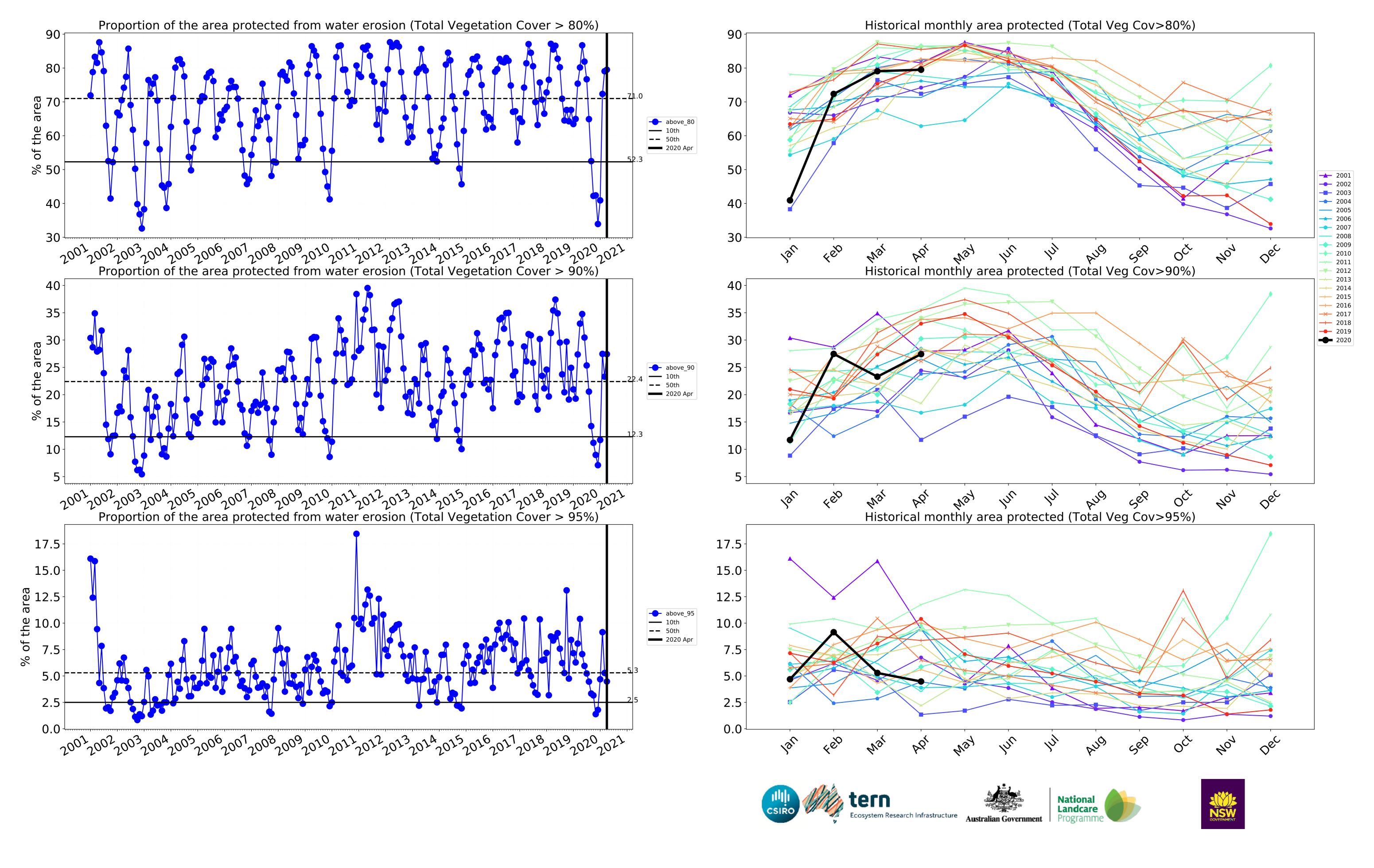
Wind erosion historical monthly area protected (Total Veg Cov >50%)

100-95 90 85 80 75 70 lar 4eb May Mar In Þ6, month tern Ecosystem Research Infrastructure Australian Government

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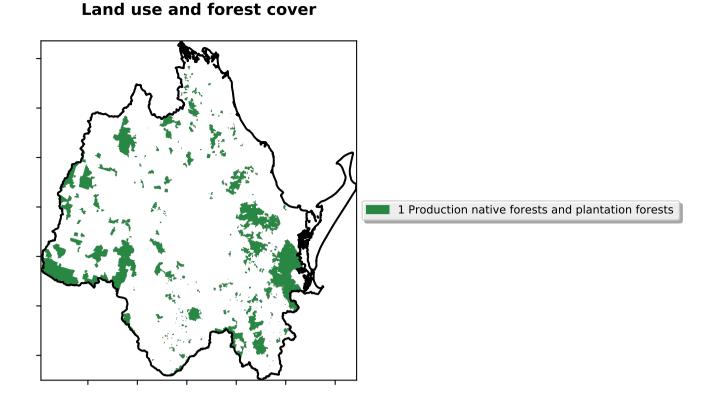
Water erosion historical monthly area protected (Total Veg Cov>70%)



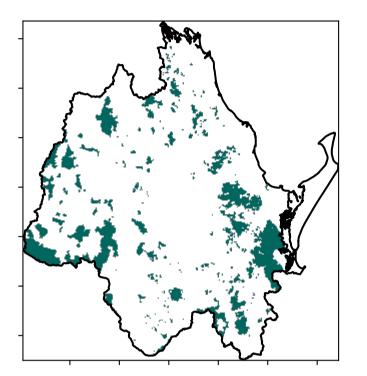


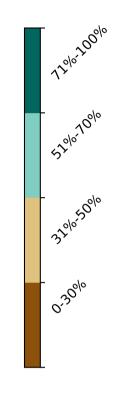
Production native forests and plantation forests

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

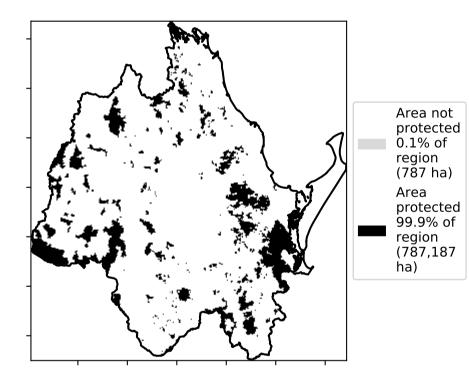


Total Vegetation Cover [%]

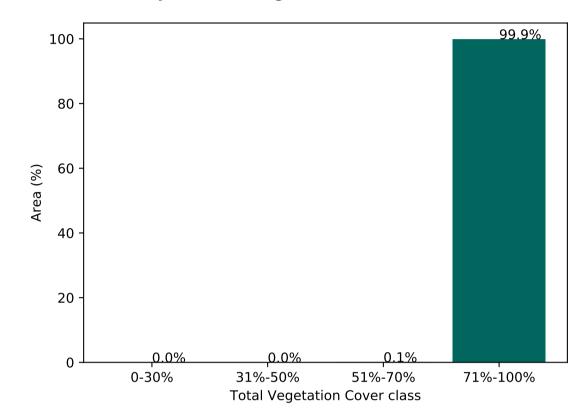




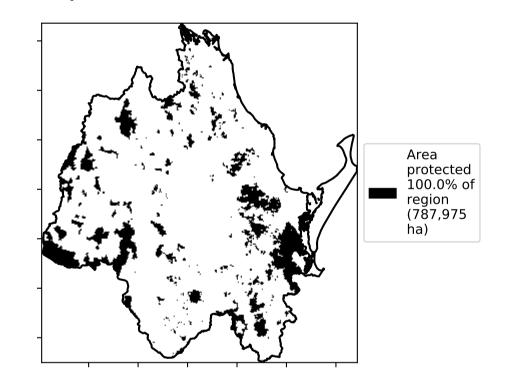
% Area protected from water erosion (>70%)







% Area protected from wind erosion (>50%)



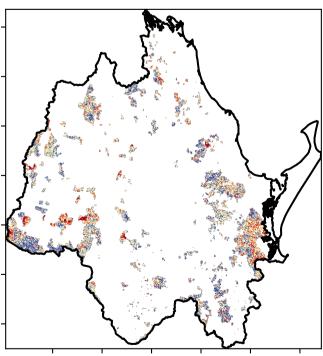
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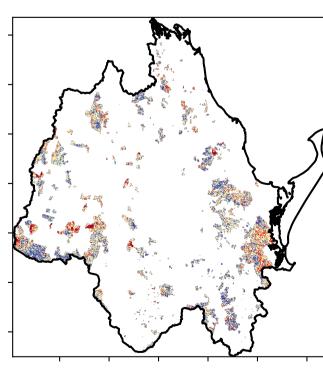
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2?3

Total Vegetation Cover Decile [%]





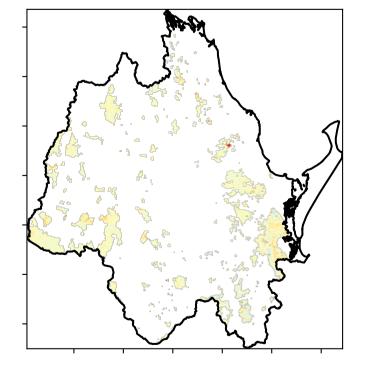


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline

the map using baseline from 2001 to 2019.

Total Vegetation Cover Anomaly [%]

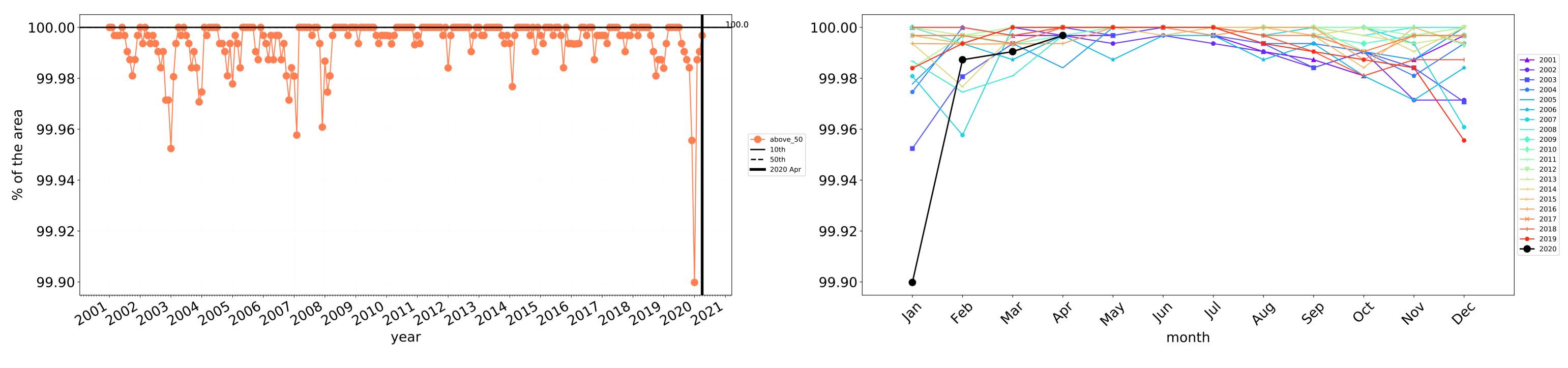
Anomaly show how many percetage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



- 10 0 -10-20

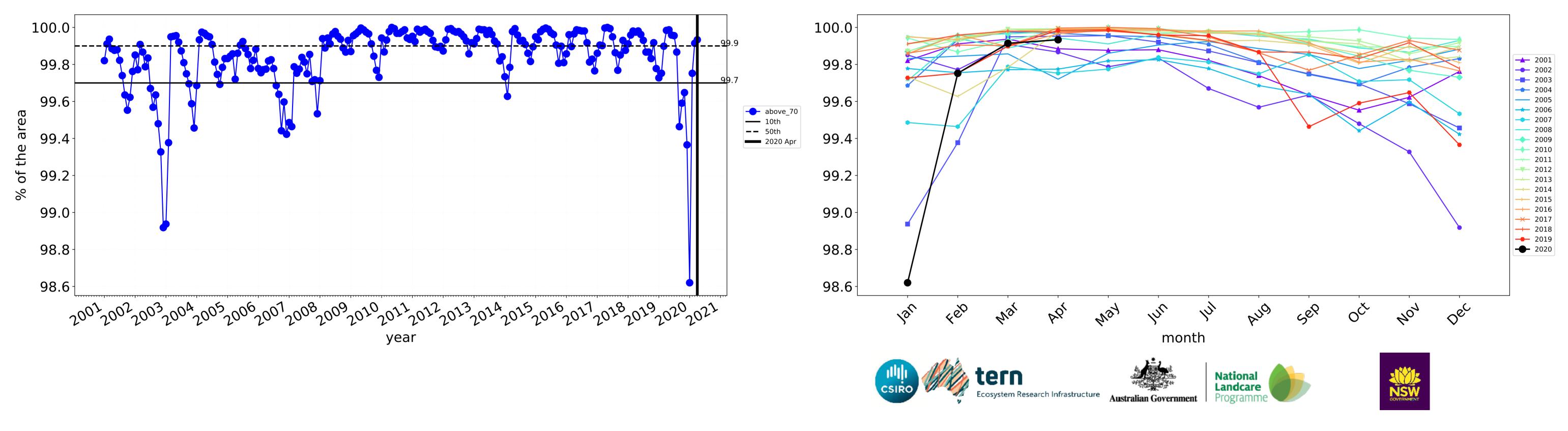
- 20

Production native forests and plantation forests timeseries



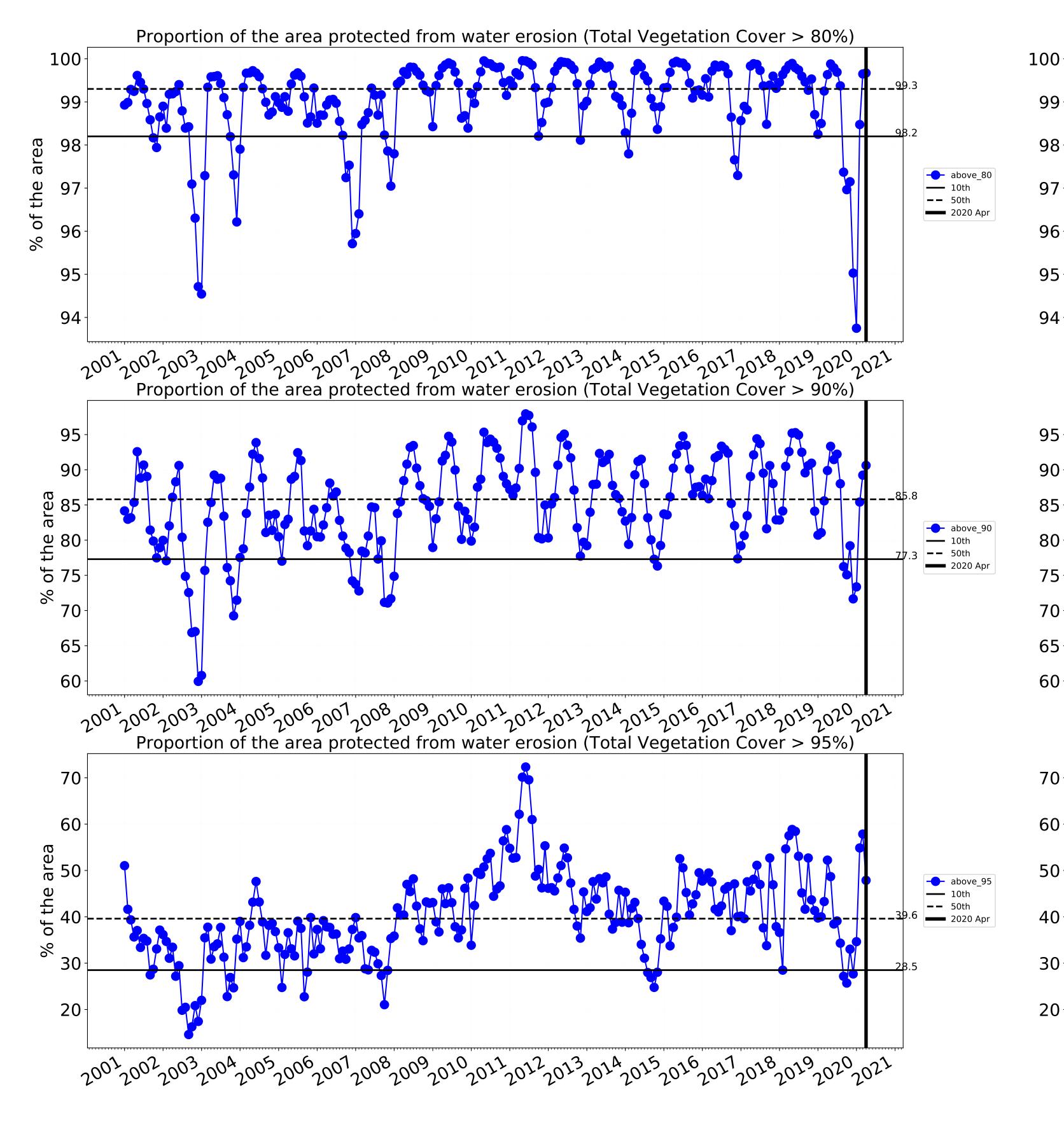
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)

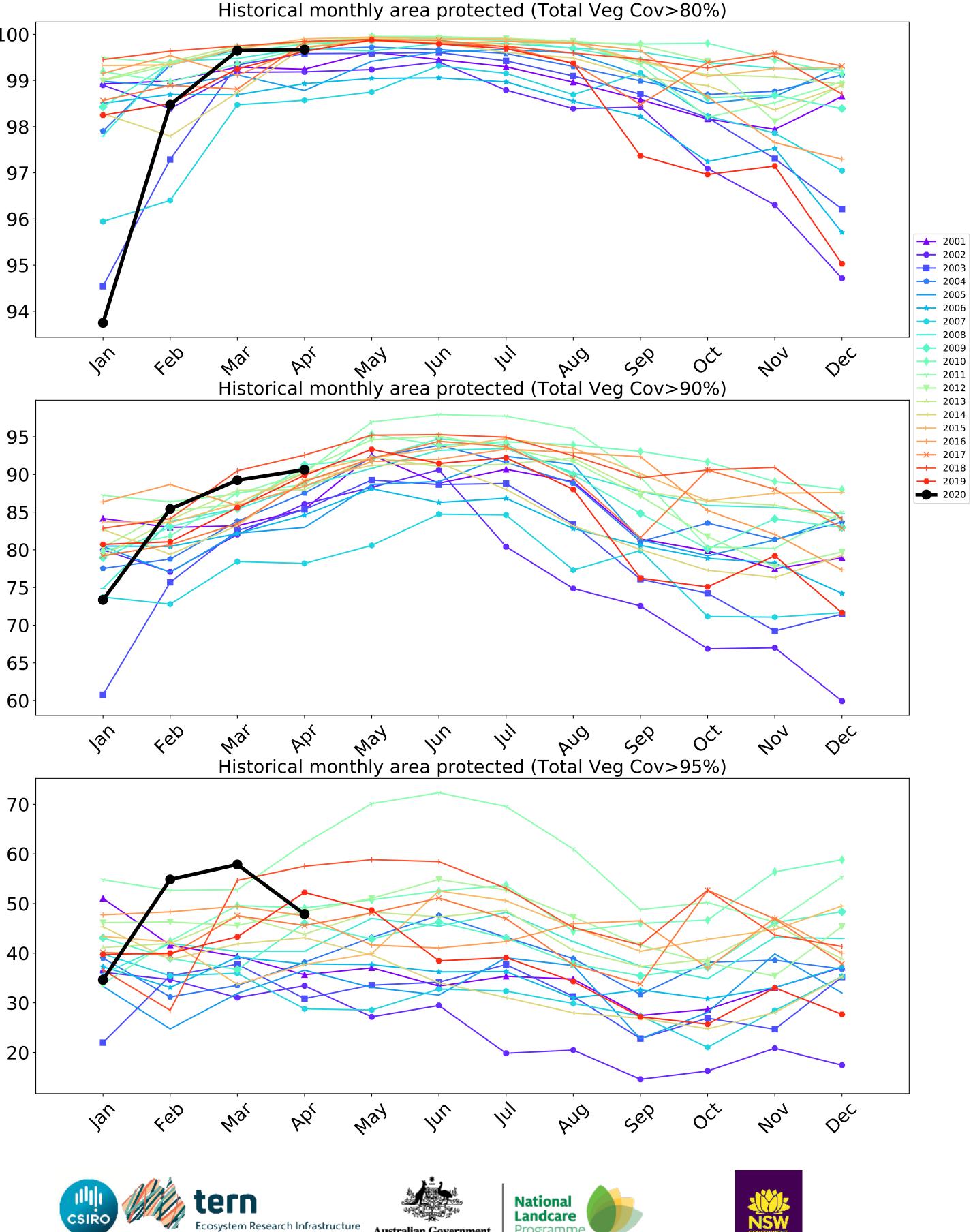
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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

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





Programm

Ecosystem Research Infrastructure Australian Government

Burnett Mary (5,559,100 ha and no data 17,755 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	5,559,100	100.0% 5,557,925	99.9% 5,554,175	99.3% 5,519,425	96.2% 5,347,750	73.5% 4,086,150	31.8% 1,767,425
Conservation and natural environments	675,900	99.9% 674,900	99.5% 672,225	98.4% 665,375	97.0% 655,775	87.0% 588,200	52.3% 353,500
Conservation and natural environments Woodland forest	180,425	99.9% 180,275	99.5% 179,600	98.4% 177,550	96.5% 174,175	84.0% 151,500	47.5% 85,700
Conservation and natural environments Forest (non woodland)	466,900	100.0% 466,750	99.8% 466,150	99.3% 463,575	98.3% 459,175	90.1% 420,525	56.1% 261,775
Agriculture	3,883,000	100.0% 3,883,000	100.0% 3,882,825	99.5% 3,863,800	95.9% 3,724,750	68.6% 2,664,125	25.8% 1,002,050
Grazing	3,620,825	100.0% 3,620,825	100.0% 3,620,800	99.8% 3,613,350	97.3% 3,521,550	71.7% 2,597,125	27.4% 990,600
Grazing non forest	2,316,100	100.0% 2,316,100	100.0% 2,316,075	99.7% 2,308,750	95.8% 2,219,375	61.8% 1,430,900	19.2% 445,575
Grazing Woodland forest	711,325	100.0% 711,325	100.0% 711,325	100.0% 711,225	99.8% 709,650	86.7% 616,850	33.7% 239,400
Grazing - Forest (non woodland)	593,400	100.0% 593,400	100.0% 593,400	100.0% 593,375	99.9% 592,525	92.6% 549,375	51.5% 305,625
Cropping	81,725	100.0% 81,725	99.9% 81,675	93.6% 76,475	72.3% 59,050	19.4% 15,825	3.2% 2,600
Irrigation	174,775	100.0% 174,775	99.9% 174,675	96.4% 168,550	79.5% 138,950	27.4% 47,925	4.5% 7,825
Production native forests and plantation forests	787,975	100.0% 787,975	100.0% 787,950	99.9% 787,450	99.7% 785,375	90.6% 714,125	47.9% 377,225

