Total vegetation cover soil protection Region:NRM West Gippsland VIC

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 cover class that covers at least 1% of the area of the chosen region. Total vegetation Cover:

The total vegetation cover indicates where soil is likely to be protected from wind and or water hillslope erosion. Total vegetation cover for this month is shown on a map and chart classified into 4 classes.

- 71-100% High cover protected from wind and usually water erosion (high rainfall, steep slopes, and erodible soils may need greater than 80, 90, 95 and up to 100% cover)
 - 51-70% Moderate cover protected from wind erosion
 - 31-50% Low cover not protected
 - 0-30% Very Low cover not protected

Erosion protection: Wind erosion 50% total vegetation cover

The vegetation cover threshold required to prevent soil erosion is usually 50% to reduce wind erosion, 70% or 80% to reduce water (hillslope) erosion depending on the steepness and rainfall. Areas protected from erosion for the month:

- Map: water erosion protection (>70% cover) percentage area and hectares.
- Map: wind erosion protection (>50% cover) percentage area and hectares.

Comparison with previous years:

- Map: anomaly comparing this month to the average cover from the same month in previous years.
- Map: deciles rank of month against the same month in previous years.

Anomalies and deciles until September 2019 are calculated comparing to the same months 2001 to 2019. Extra monthly data will be used to calculate anomalies and deciles post September 2019 as they become available. Time series monthly from January 2001 to current:

Erosion protection

- Wind erosion protection time series: percentage of the area of the region with greater than 50% cover for each month (orange lines). Horizontal lines are 10th (cover target) and 50th percentiles.
- Water erosion protection time series: percentage of the area of the region with greater than 70% cover for each month (blue line). Horizontal lines are 10th (cover target) and 50th percentiles.

Rainfall

• Millimetres rainfall each month (black line).

Each time series is also stacked by year. The black line shows the current year of data.

Water erosion protection for higher rainfall and steeper slopes:

Water erosion protection on higher slopes. As slope increases, more cover is required to control water erosion. The thresholds reported are:

- the percentage area with pixels greater than 80% total cover.
- the percentage area with pixels greater than 90% total cover.
- the percentage area with pixels greater than 95% total cover.

Acknowledgment of data:

- 1. http://www.agriculture.gov.au/abares/aclump/land-use/alum-classification
- 2. http://www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2018
- 3. https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/establishment-mgmt/production-management2/groundcover
- 4. MODIS Fractional cover algorithm:

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











Date: April 2019



Vegetation Cover Apr 2019

Land use and forest cover

Catchment Scale

of Australia (2018)

(2018) and Forests

of Australia (2018)

Anomaly show how many percetage points each pixel is from

the mean. That

is, red pixels are about 20% lower than the

mean of that pixel. The mean

is only for the

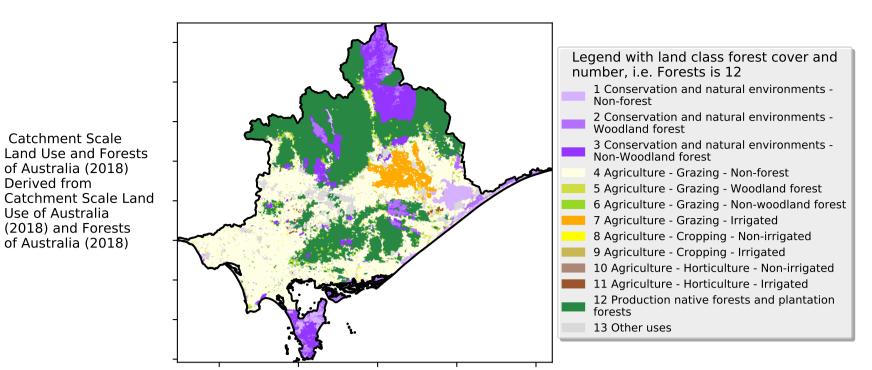
using baseline from 2001 to

2019.

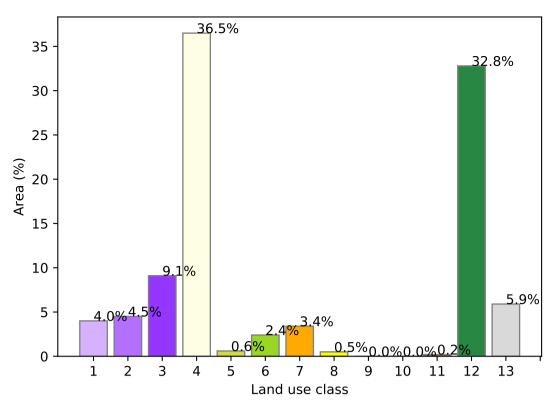
month of the map

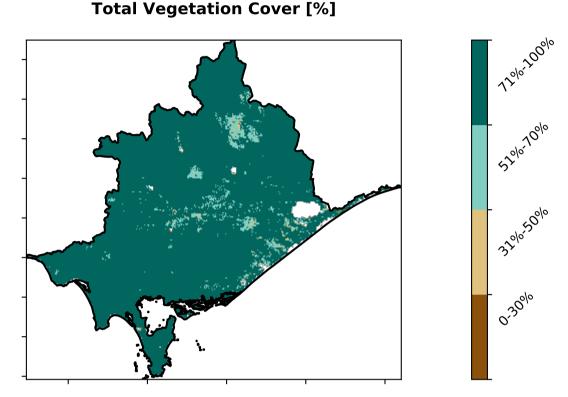
Derived from

Use of Australia

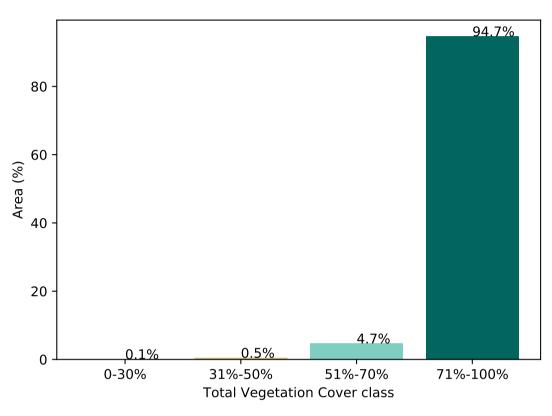


Proportion of each land class in area

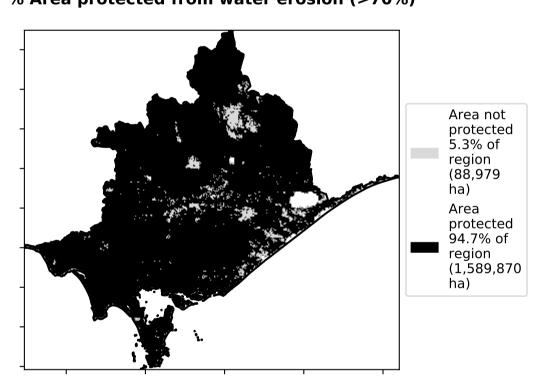




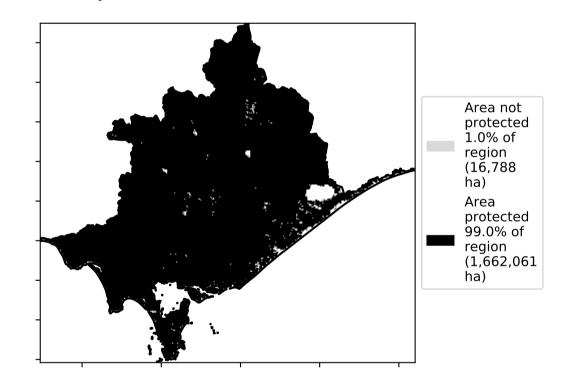
Proportion of vegetation cover class in area



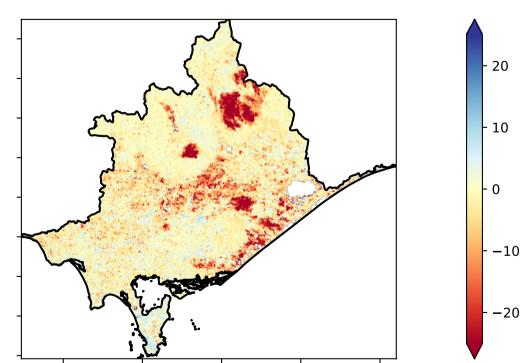
% Area protected from water erosion (>70%)



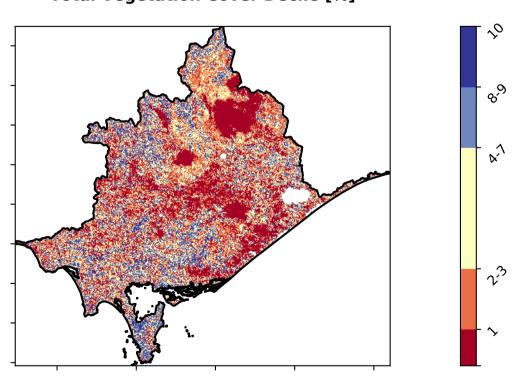
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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





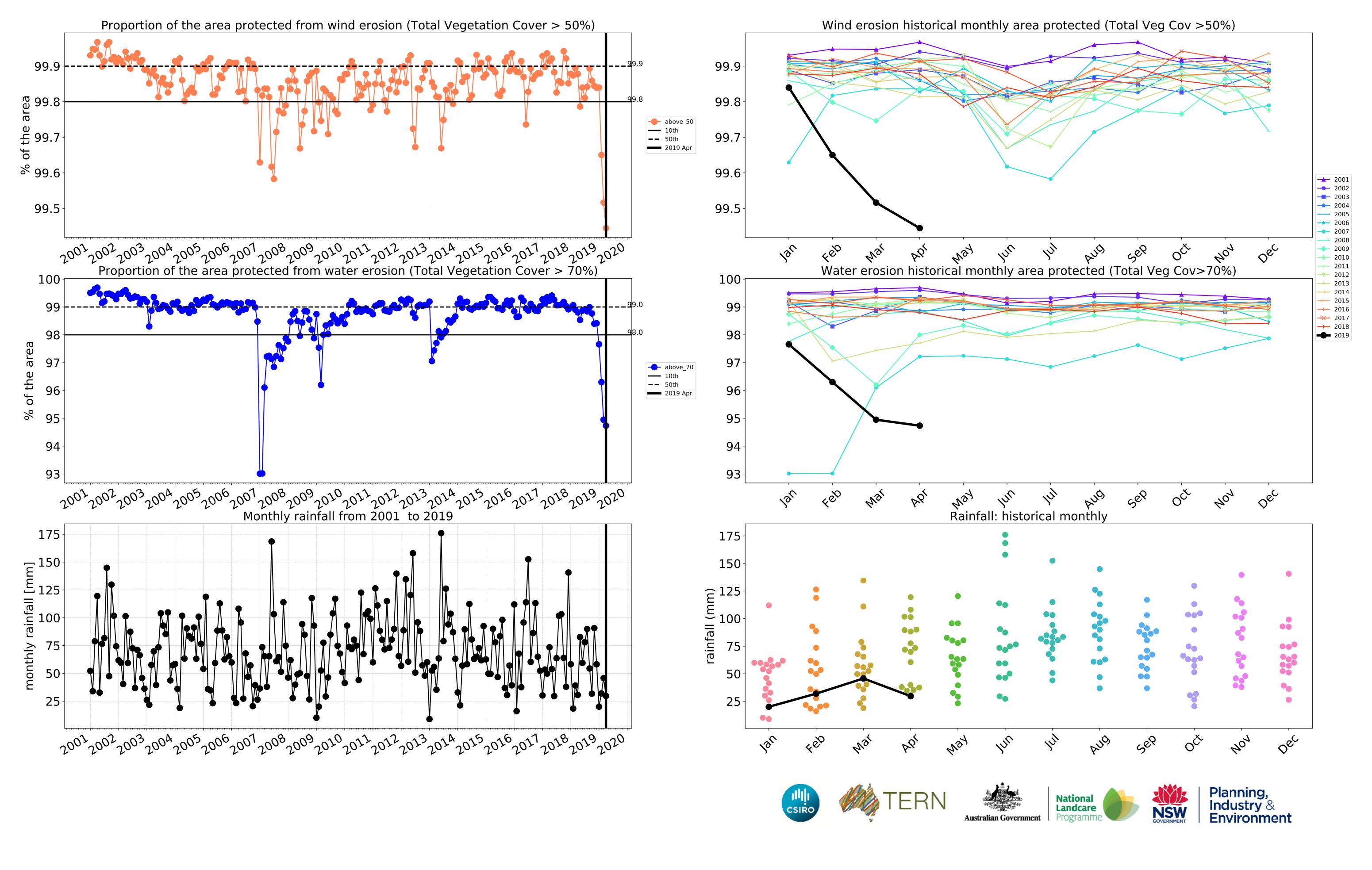


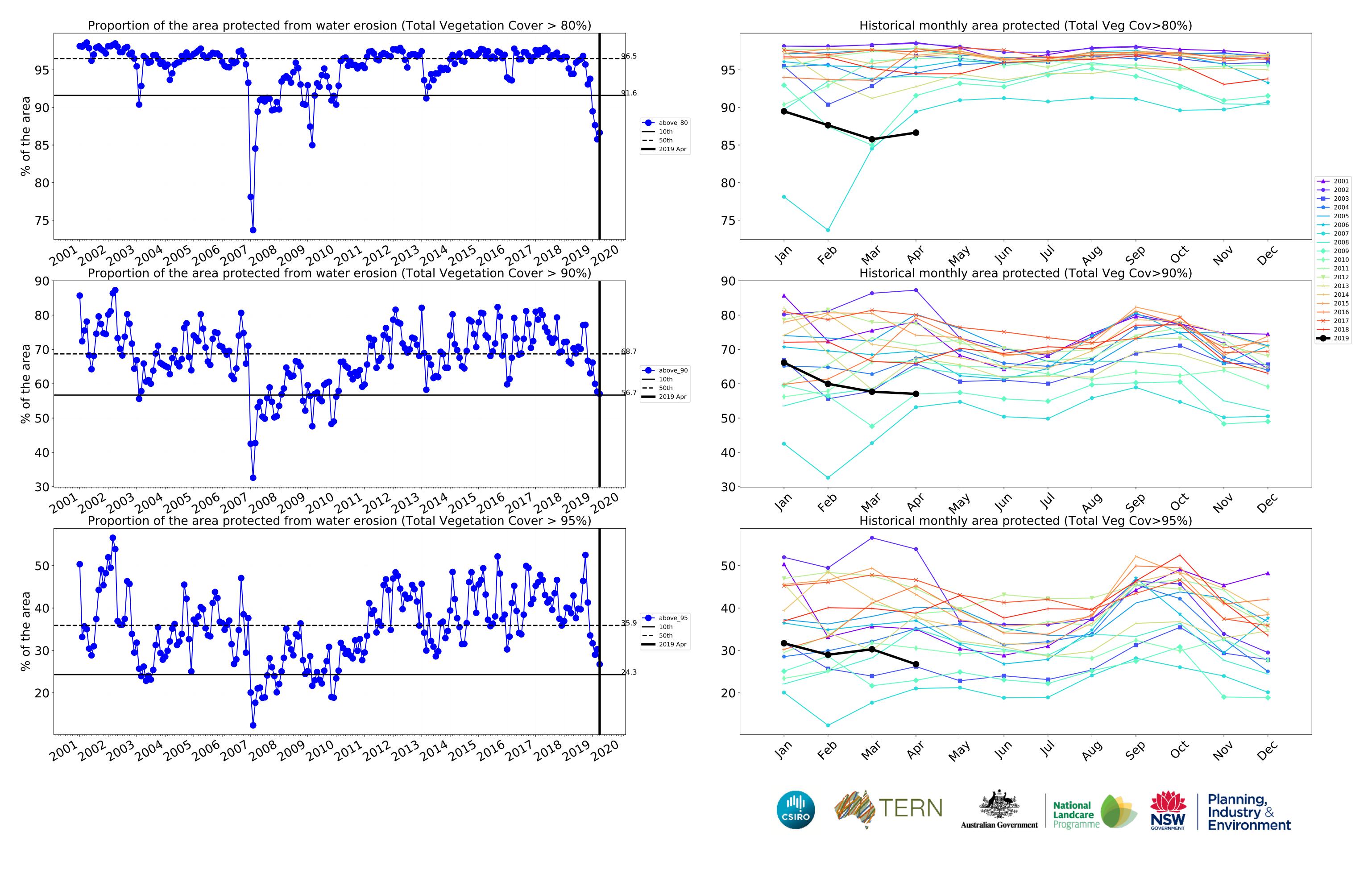












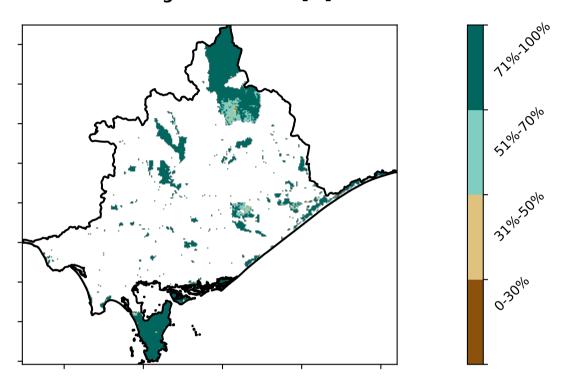
Conservation and natural environments

Catchment Scale Land Use and Forests 1 Conservation and natural environments - Nonforest of Australia (2018) Derived from 2 Conservation and natural environments - Woodland Catchment Scale Land Use of Australia 3 Conservation and natural environments - Non-(2018) and Forests of Australia (2018)

Proportion of each land class in area 51.5% 50 40 Area (%) 25.7% 22.7% 20 10 3 2

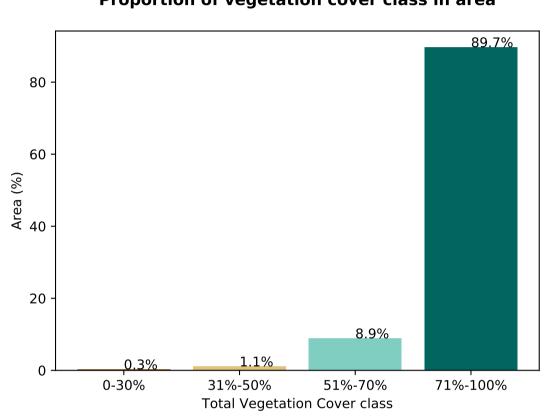
Total Vegetation Cover [%]

Land use and forest cover

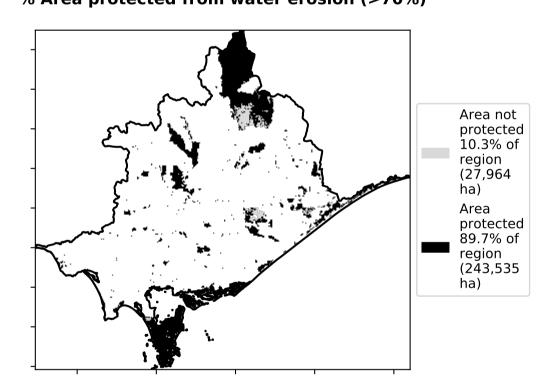


Proportion of vegetation cover class in area

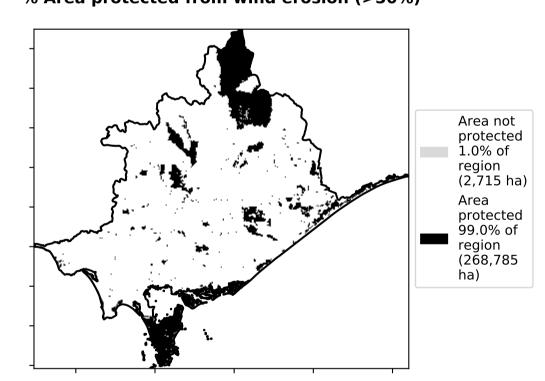
Land use class



% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

Anomaly show how many percetage points each

pixel is from

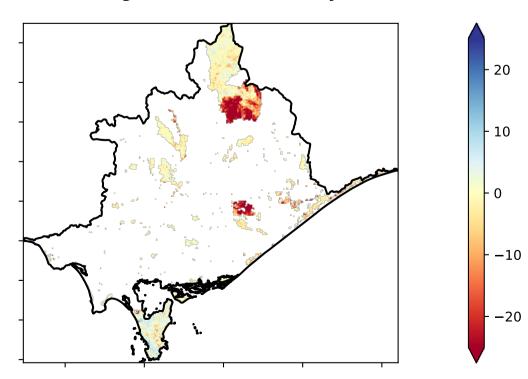
the mean. That is, red pixels

are about 20% lower than the

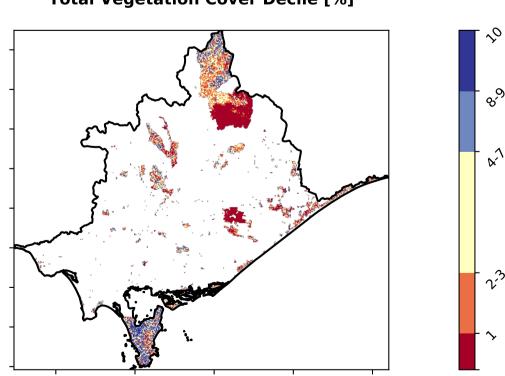
mean of that pixel. The mean

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.







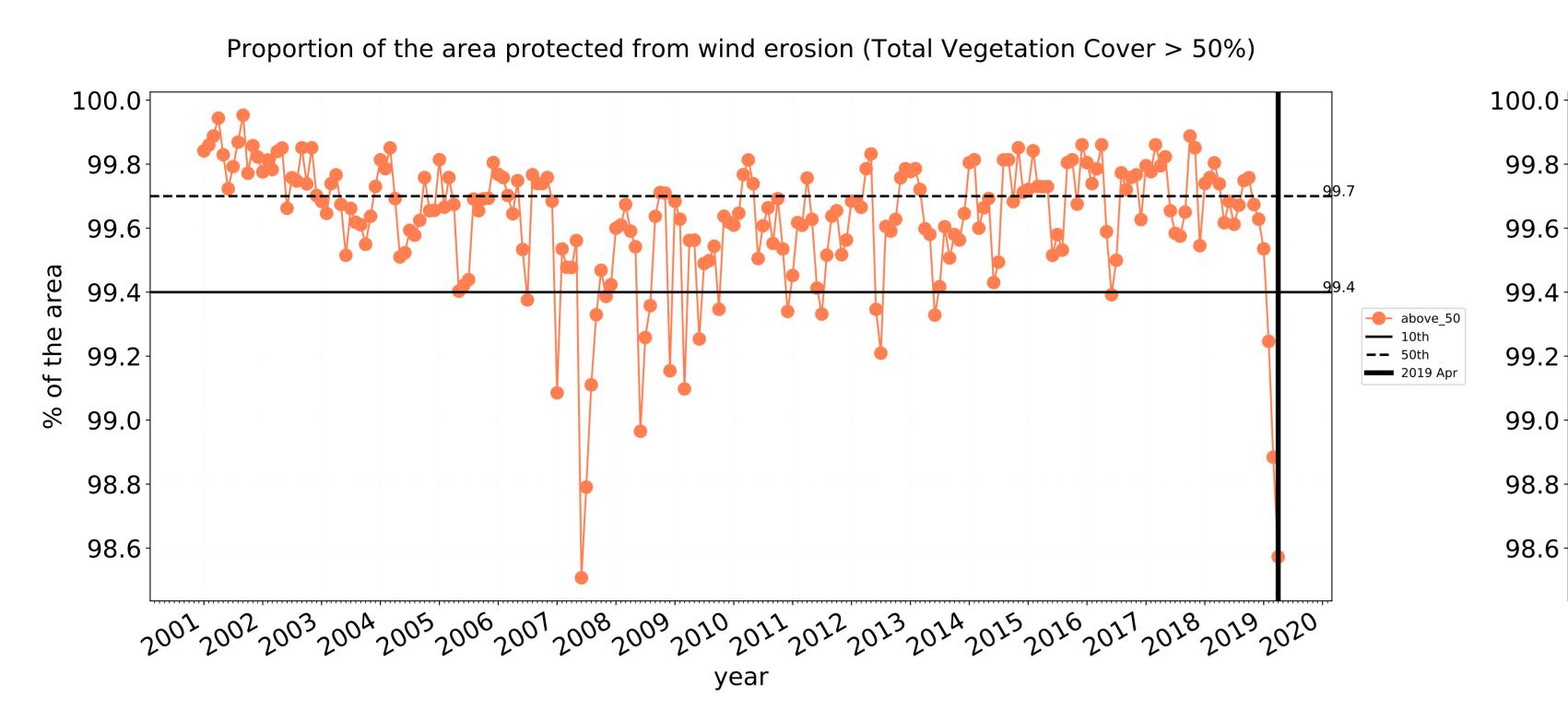


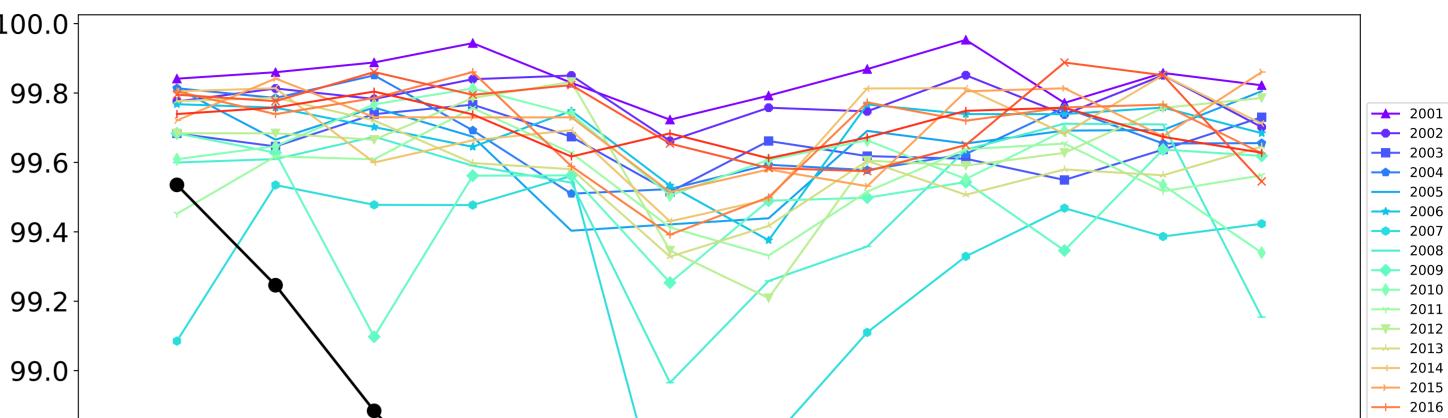






Conservation and natural environments timeseries



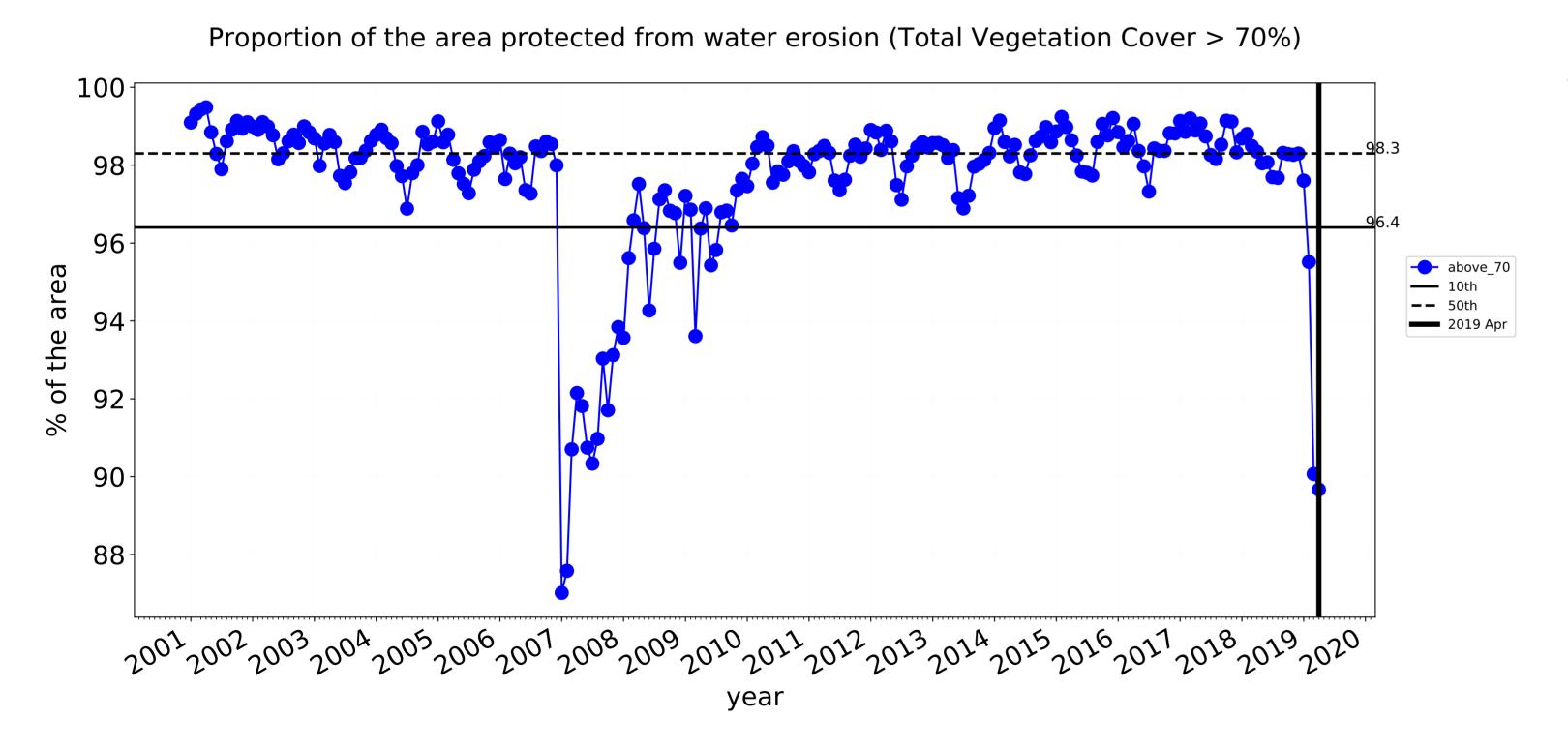


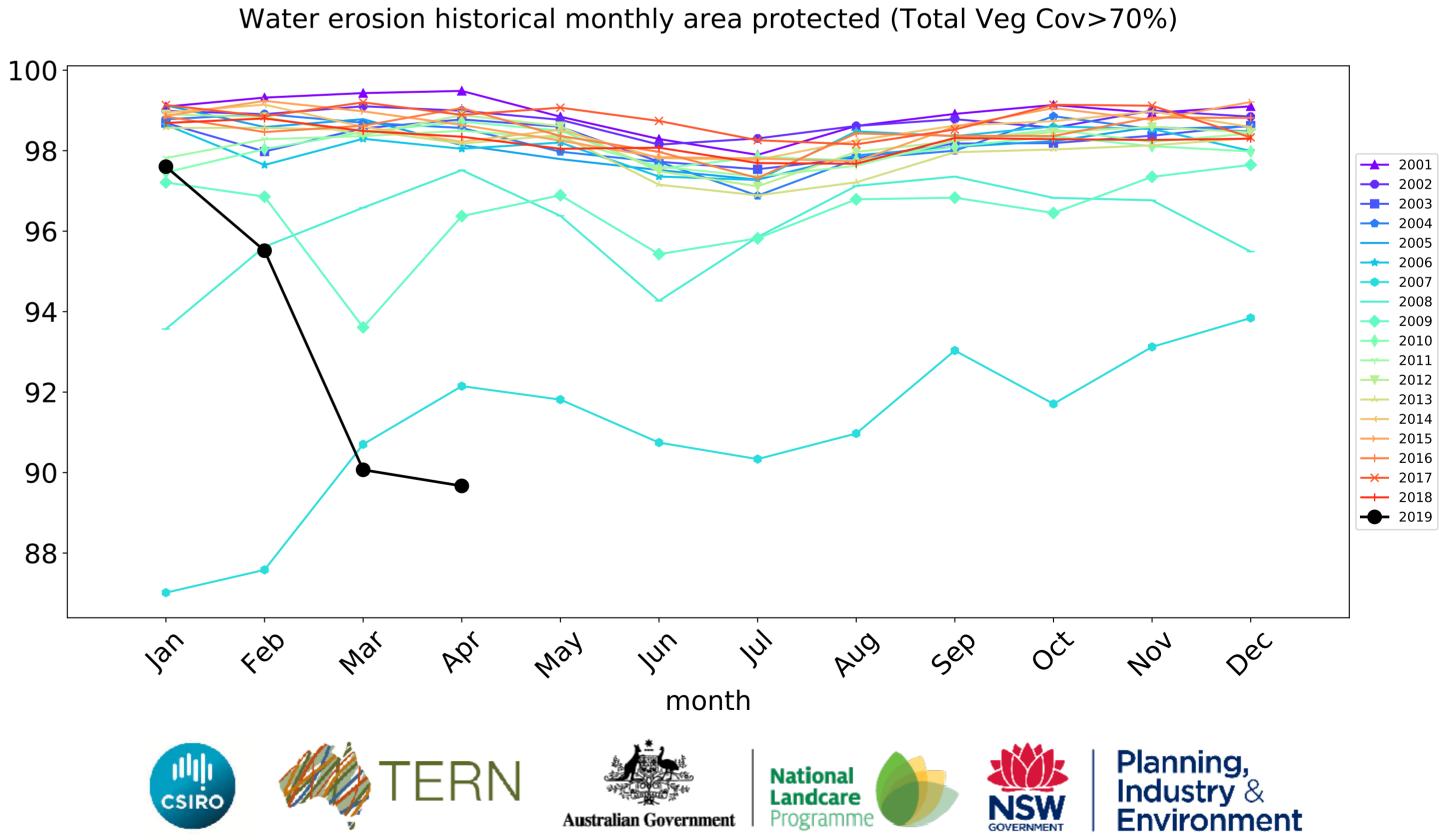
month

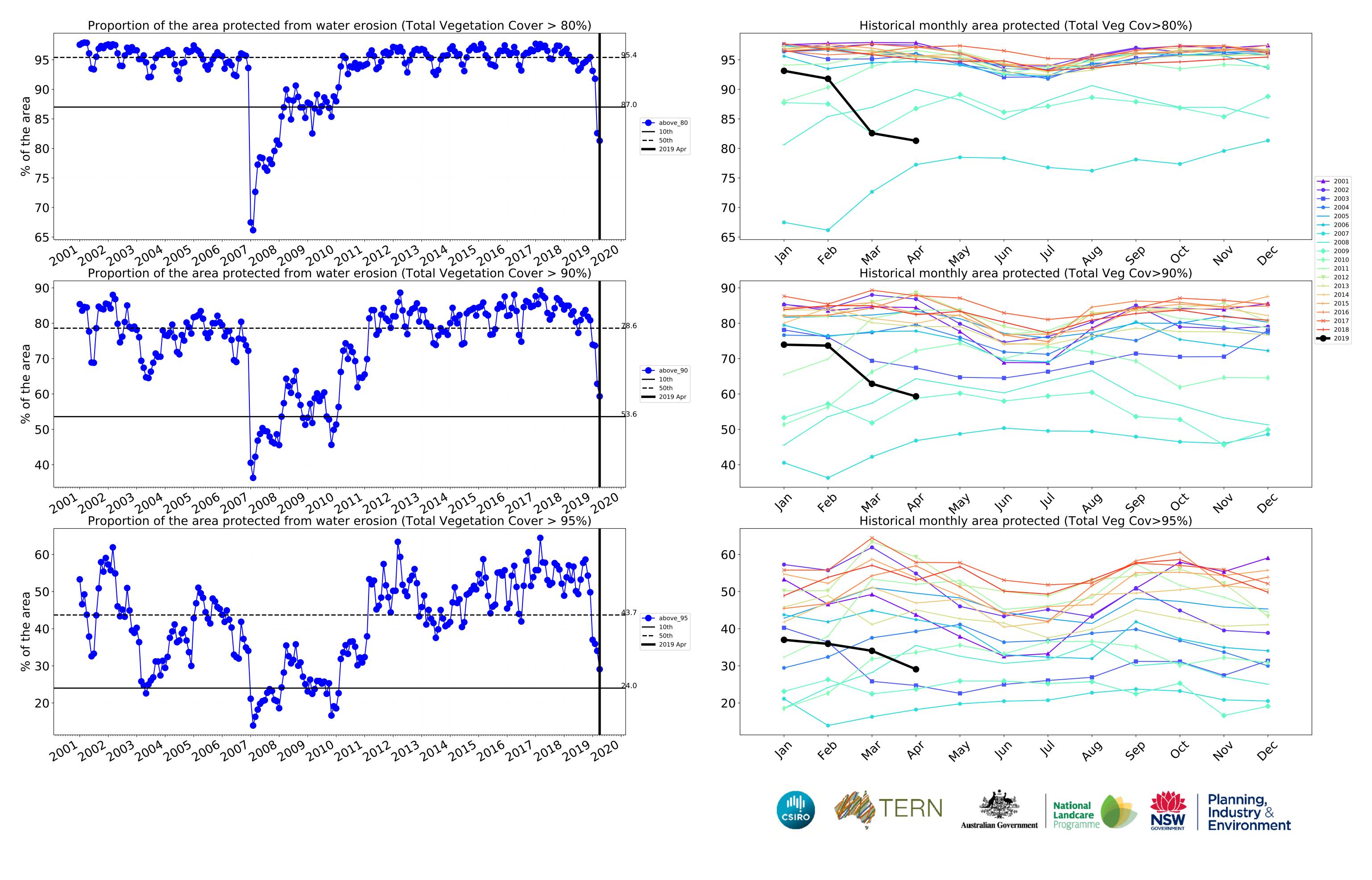
× 2017

2018 2019

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







Conservation and natural environments non forest

Land use and forest cover

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

Anomaly show how many percetage points each

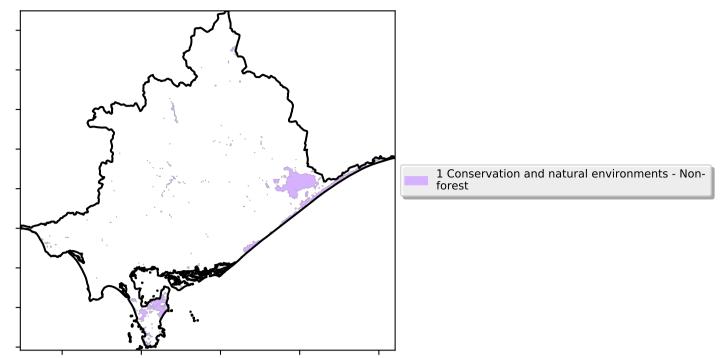
pixel is from

mean of that pixel. The mean

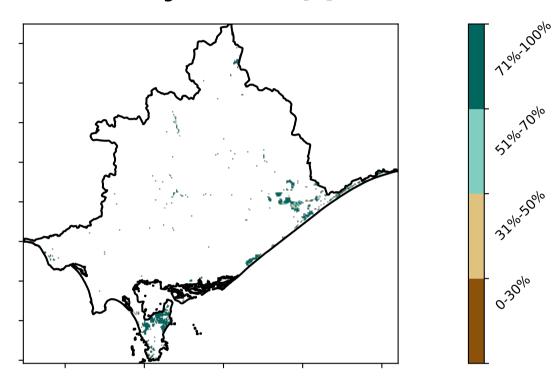
is only for the month of the map

using baseline from 2001 to 2019.

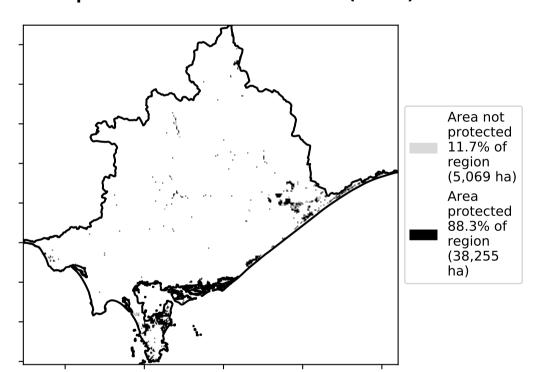
the mean. That is, red pixels are about 20% lower than the



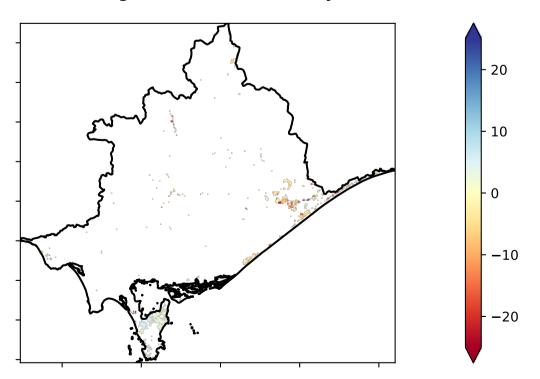
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

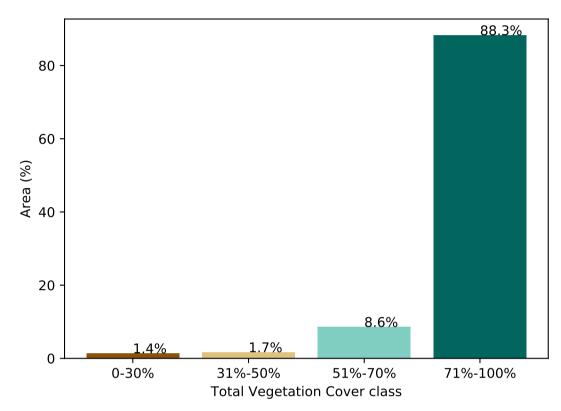


Total Vegetation Cover Anomaly [%]

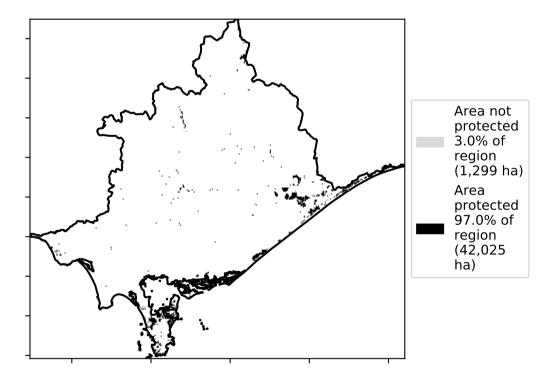


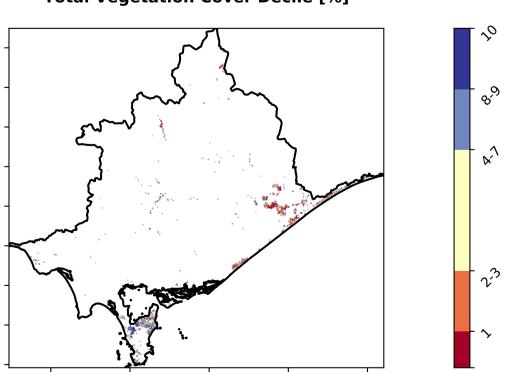
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)











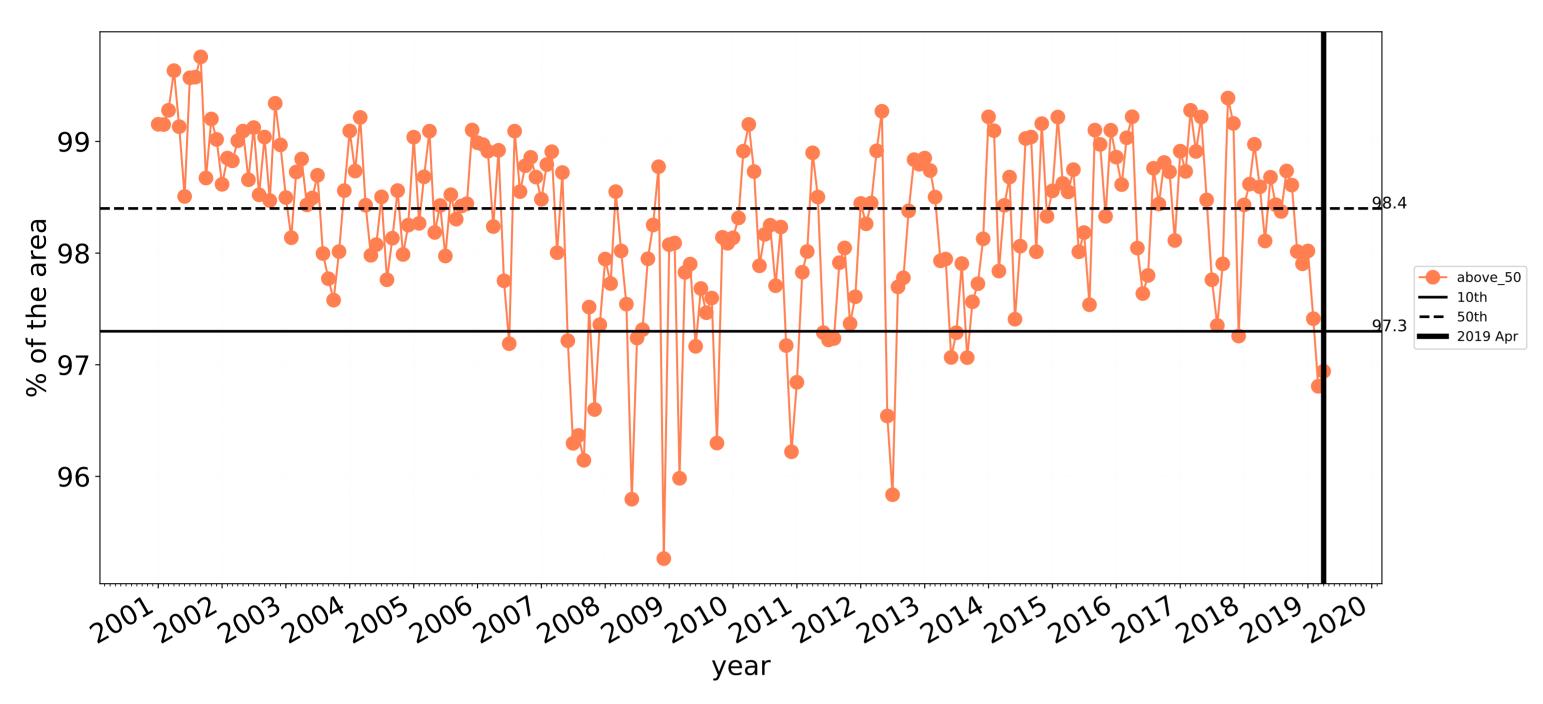




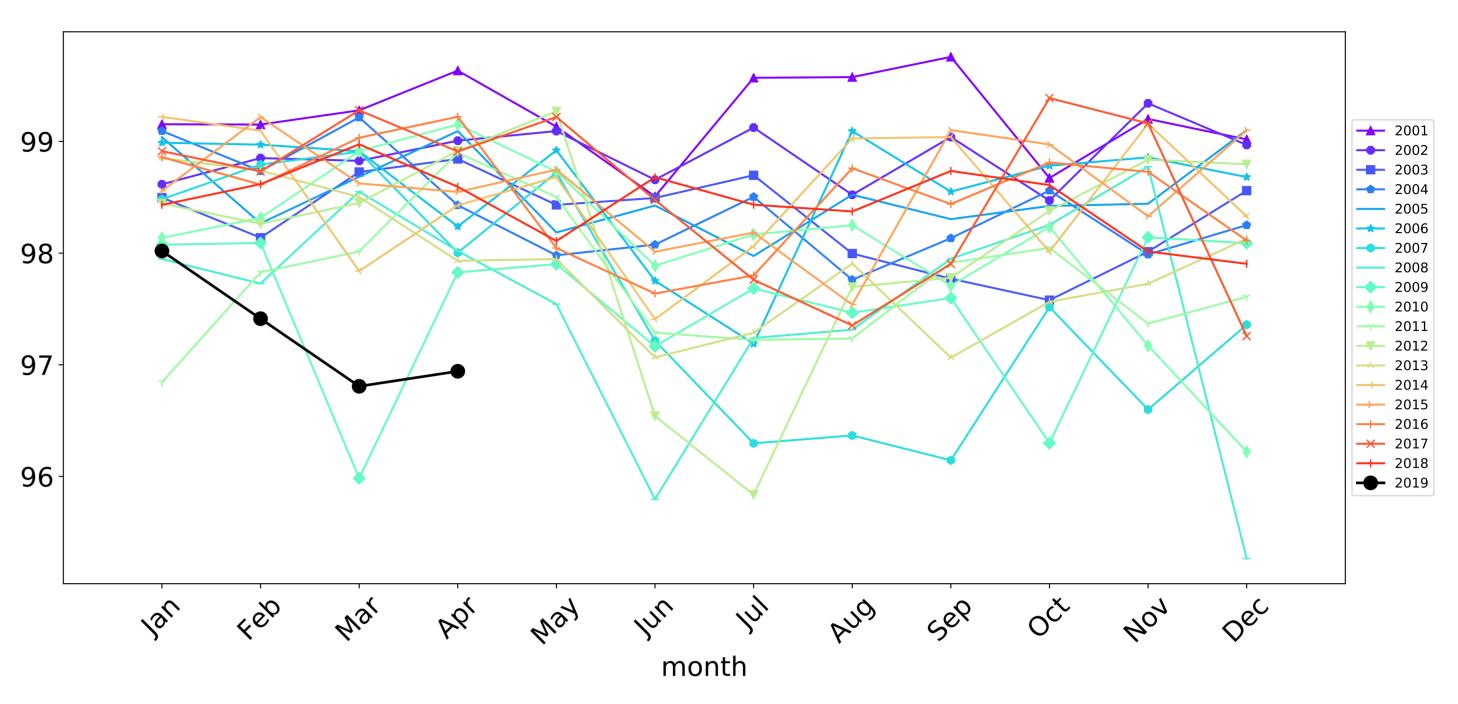


Conservation and natural environments non forest timeseries

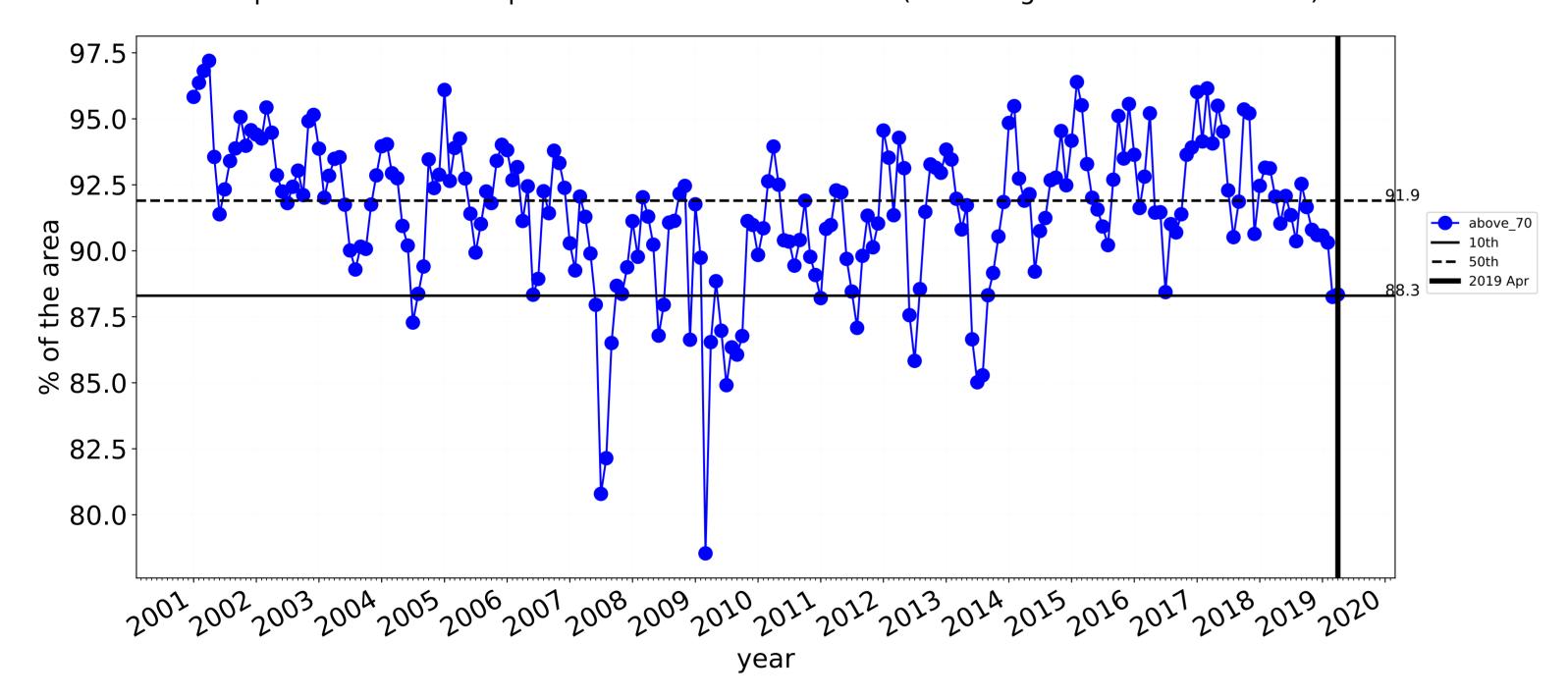




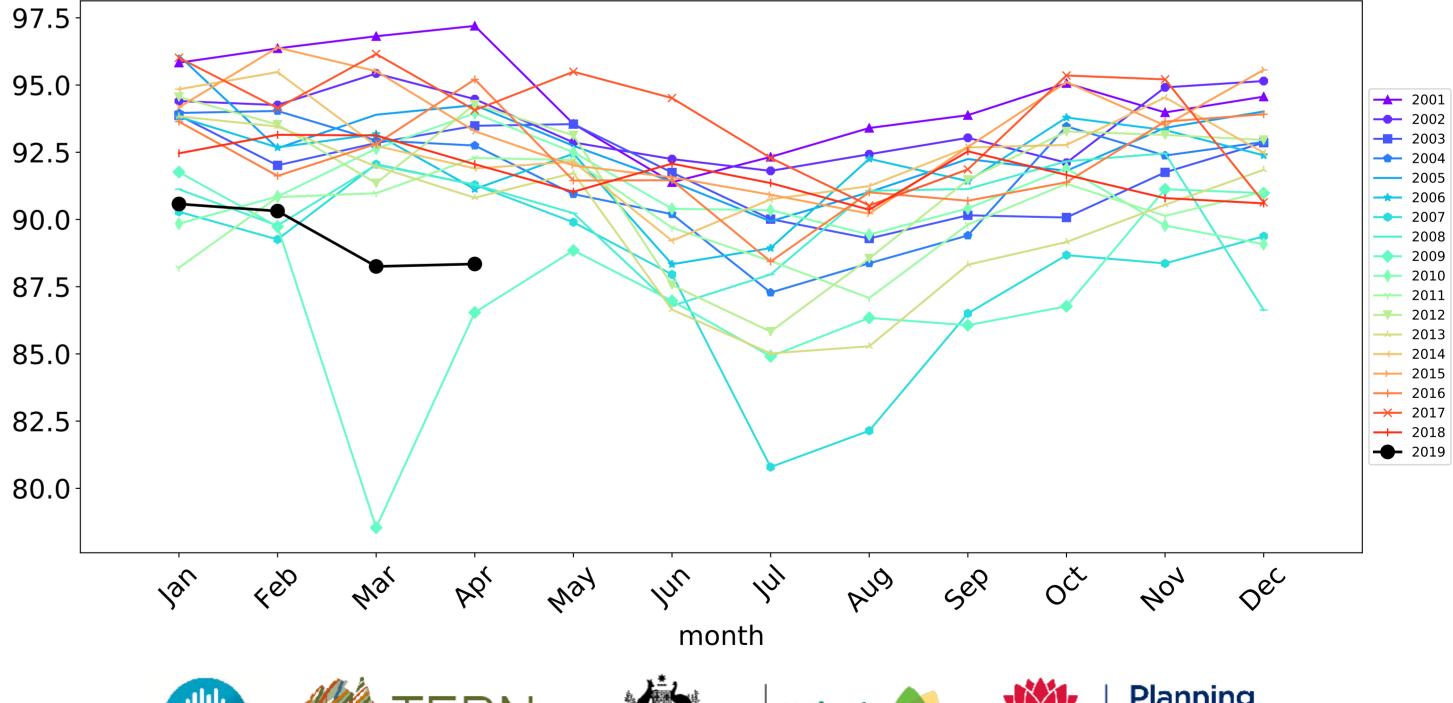
Wind erosion historical monthly area protected (Total Veg Cov >50%)

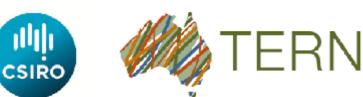


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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



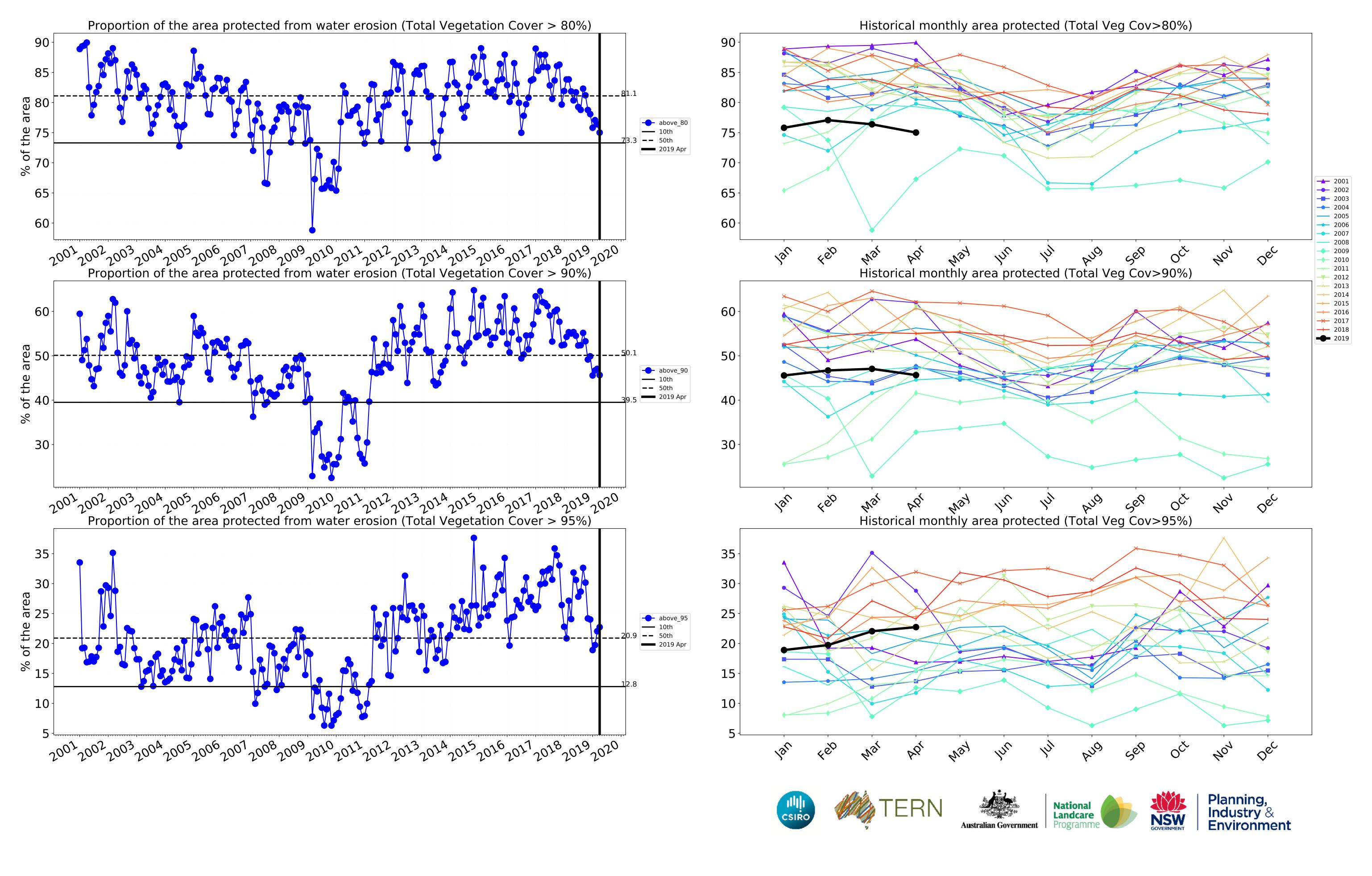












Conservation and natural environments Woodland forest

Land use and forest cover

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

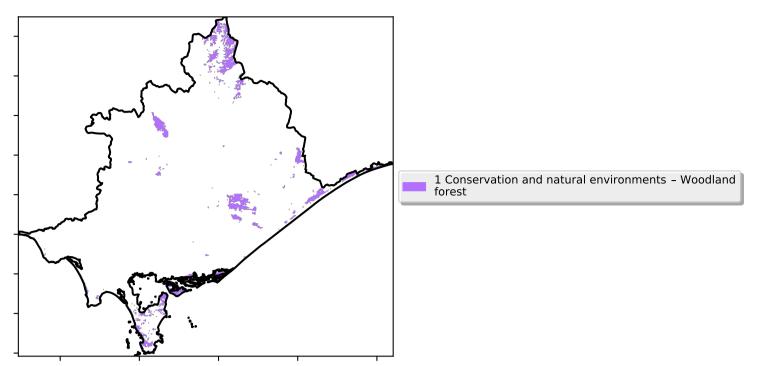
Anomaly show how many percetage points each

pixel is from the mean. That

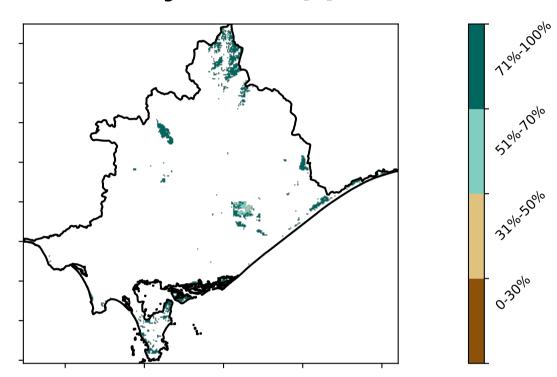
pixel. The mean is only for the month of the map

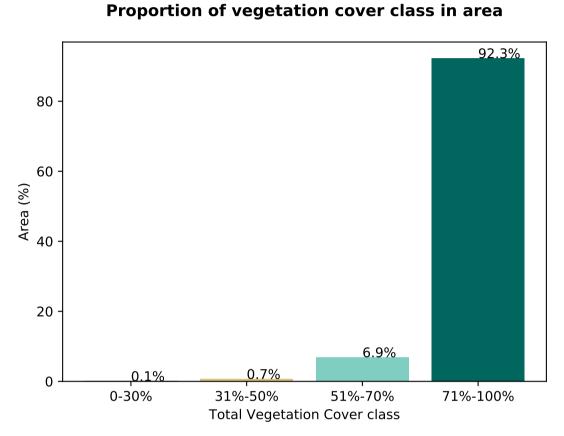
using baseline from 2001 to 2019.

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

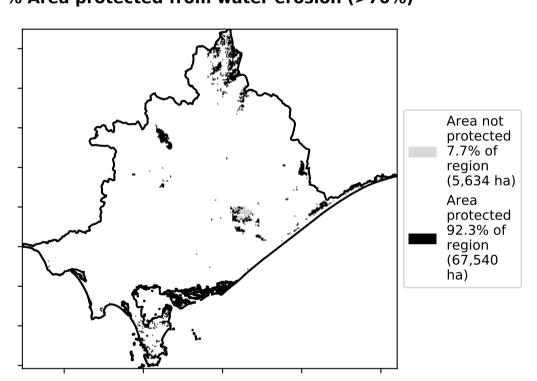


Total Vegetation Cover [%]

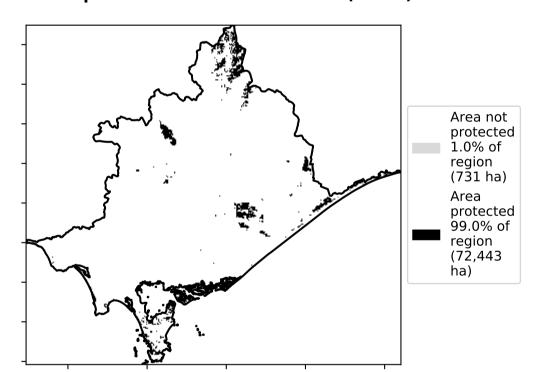




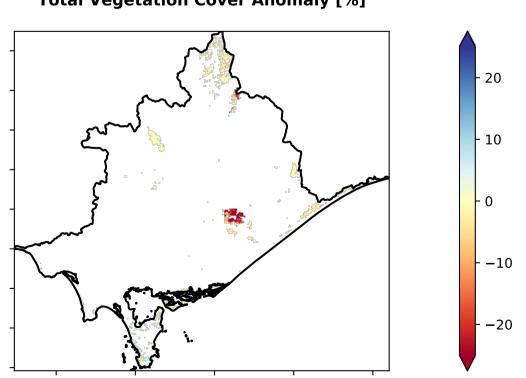
% Area protected from water erosion (>70%)



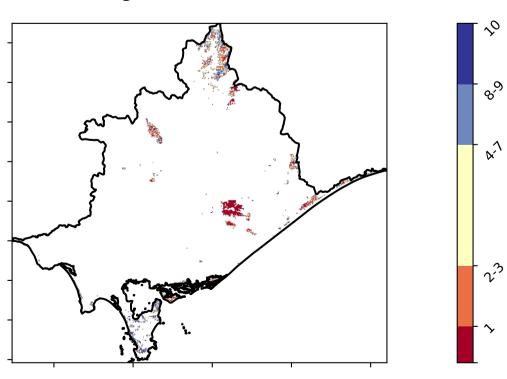
% Area protected from wind erosion (>50%)



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.





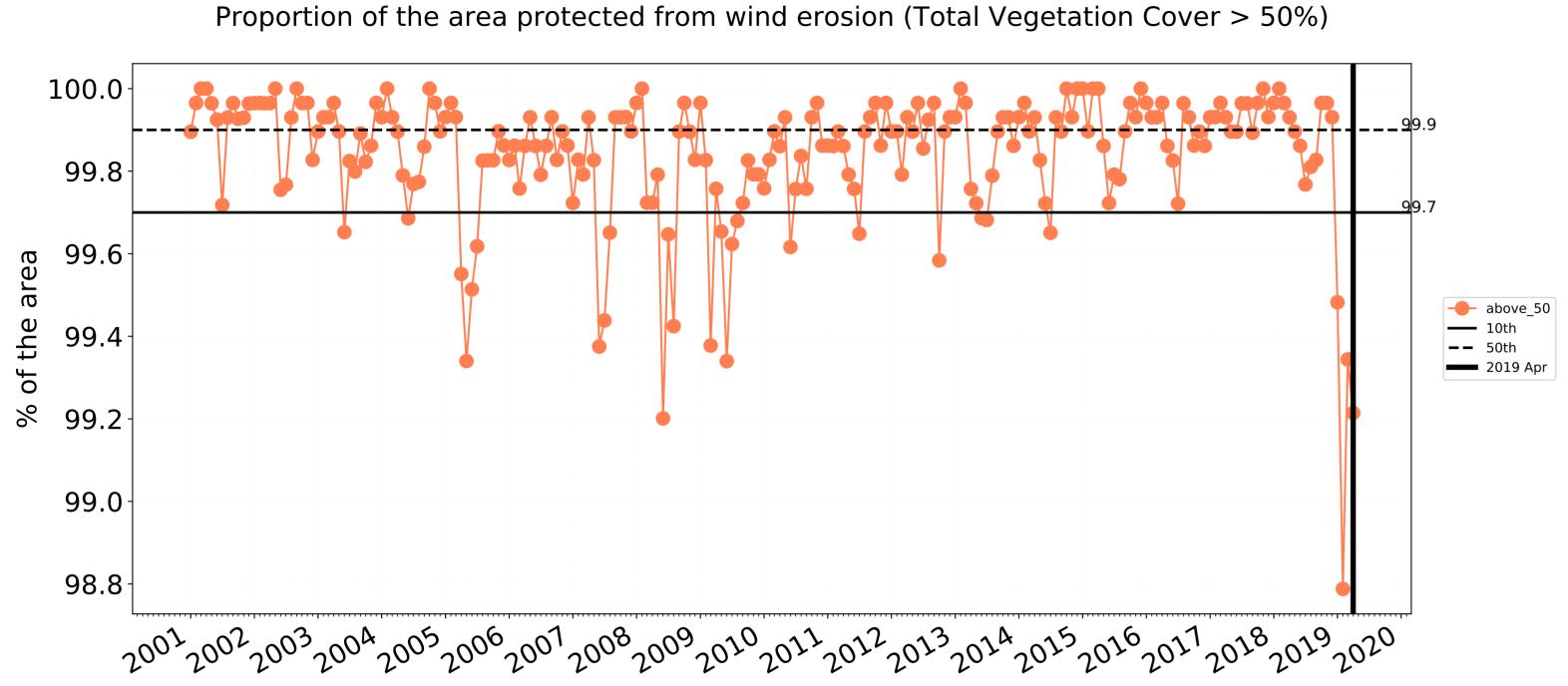




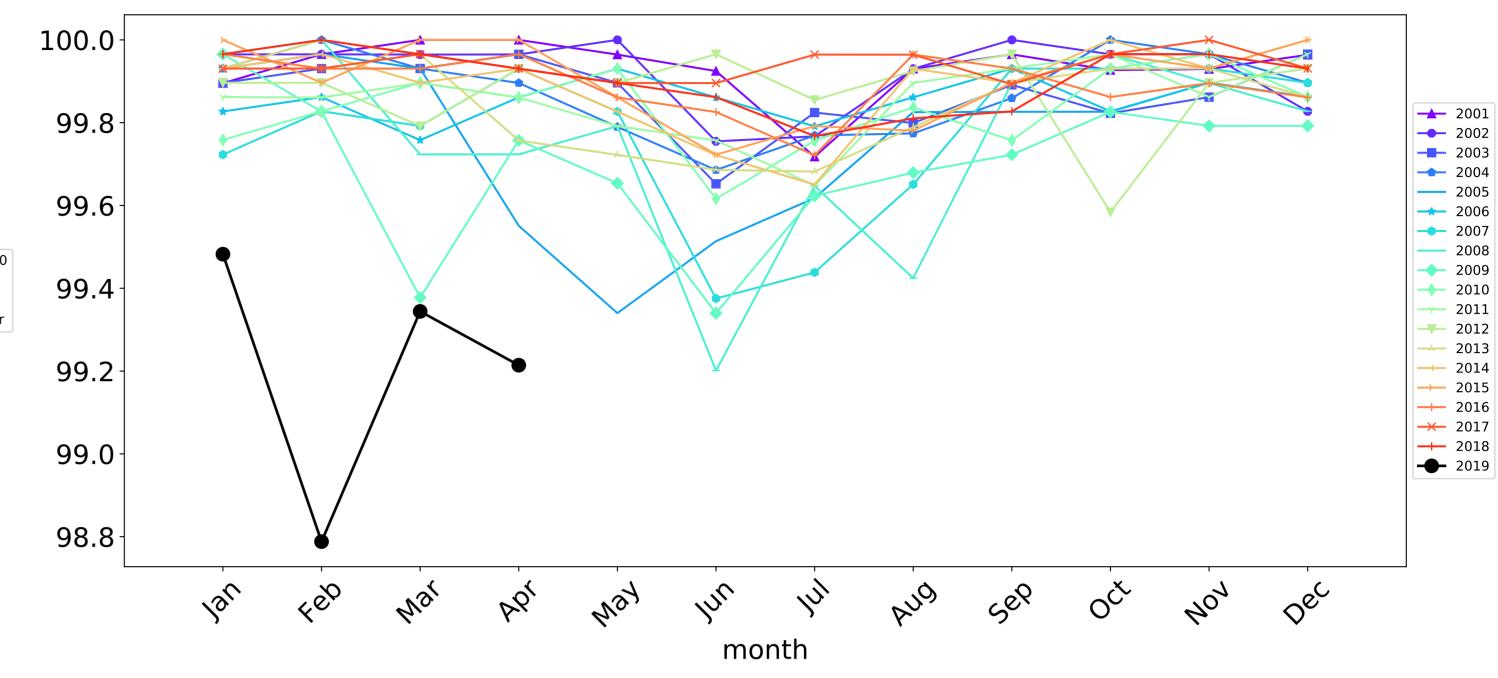


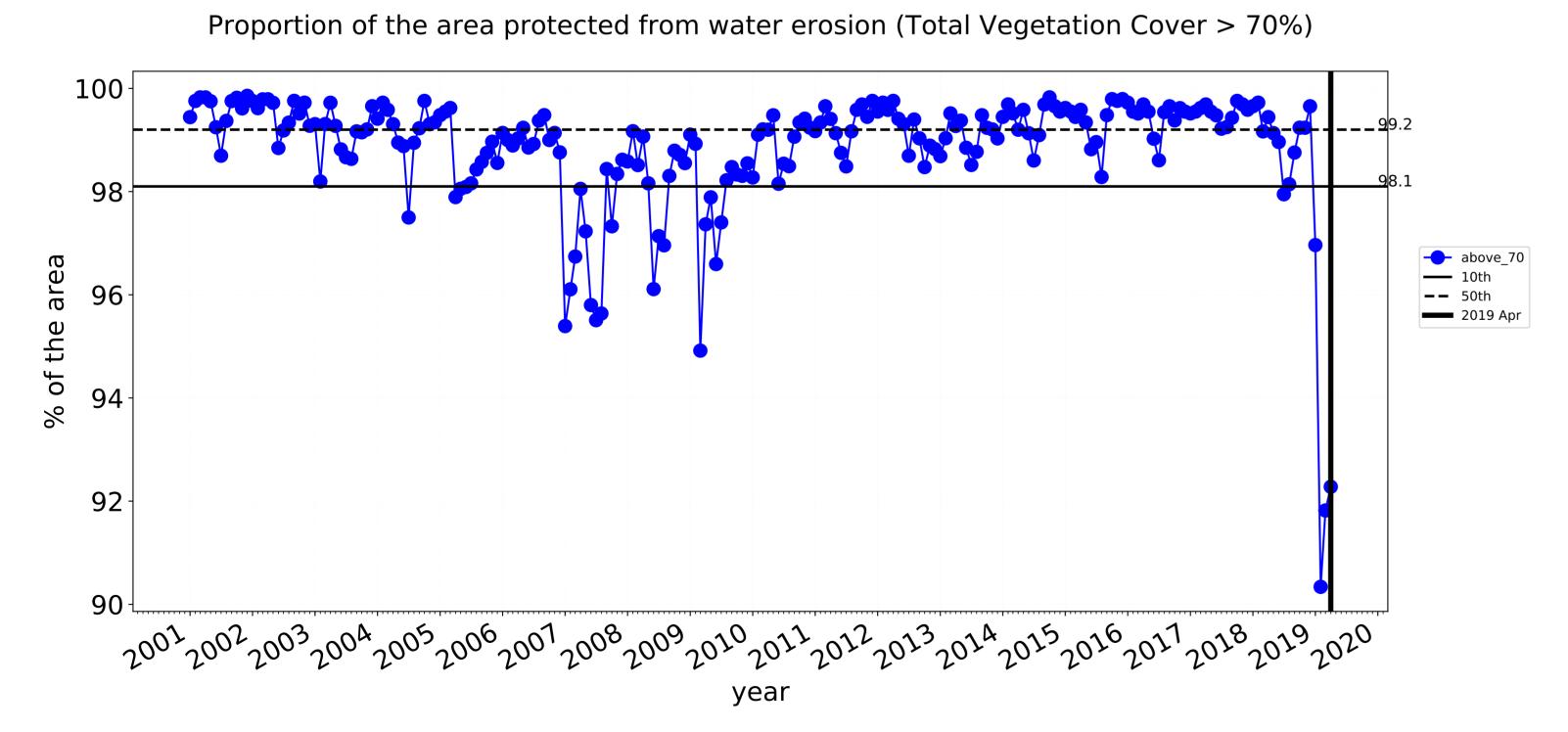


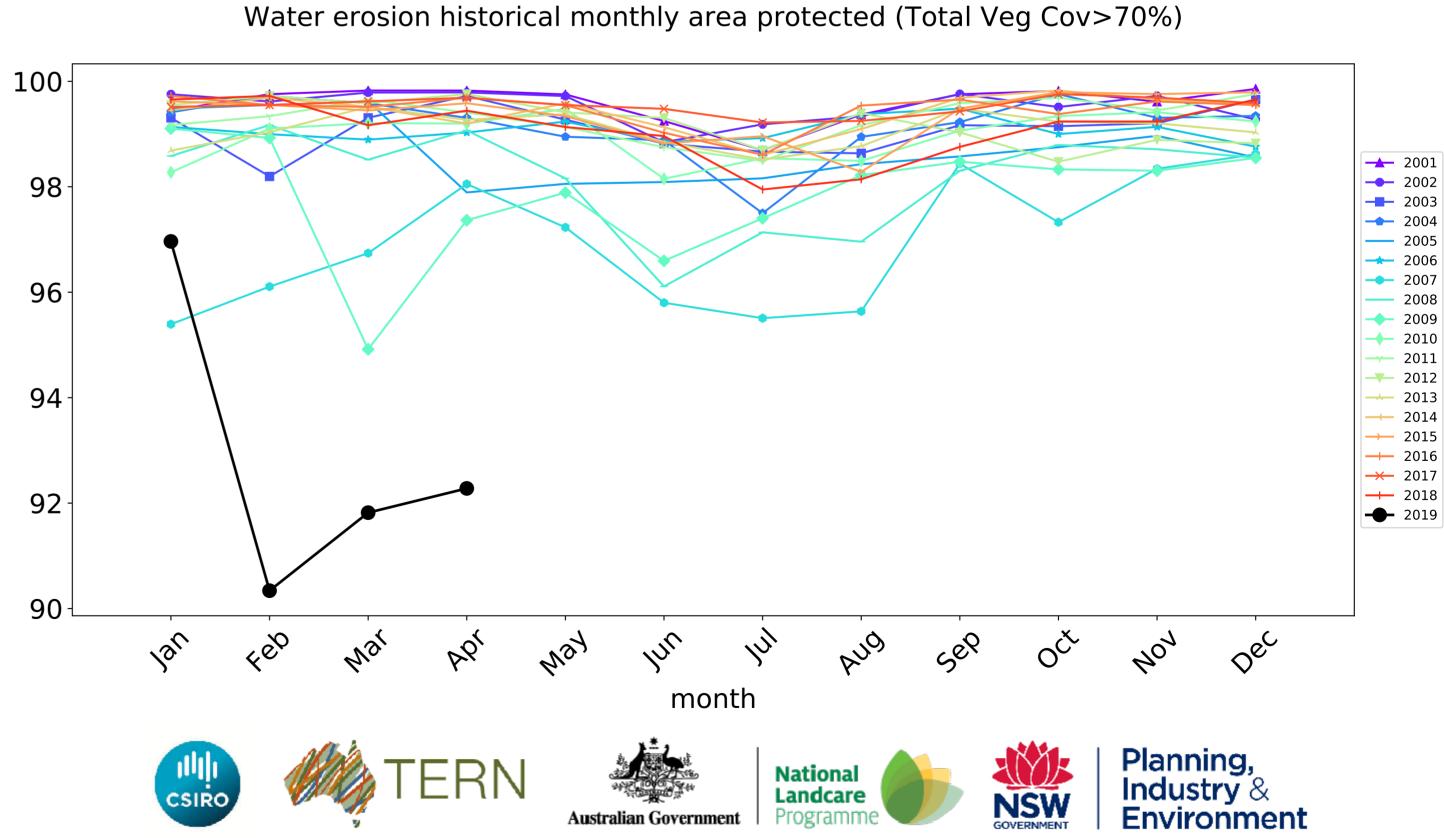


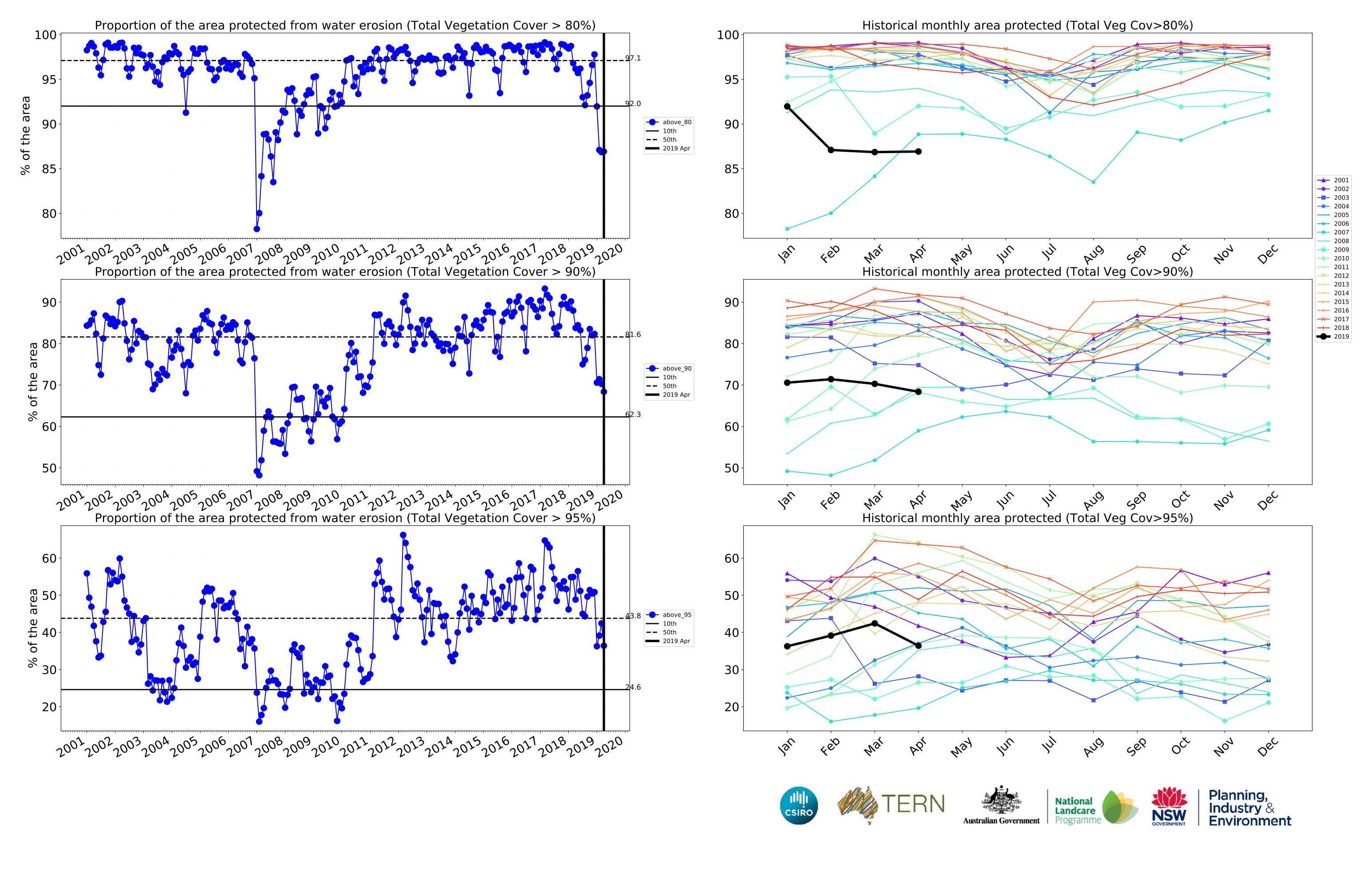


Wind erosion historical monthly area protected (Total Veg Cov >50%)









Conservation and natural environments Forest (non woodland)

Land use and forest cover

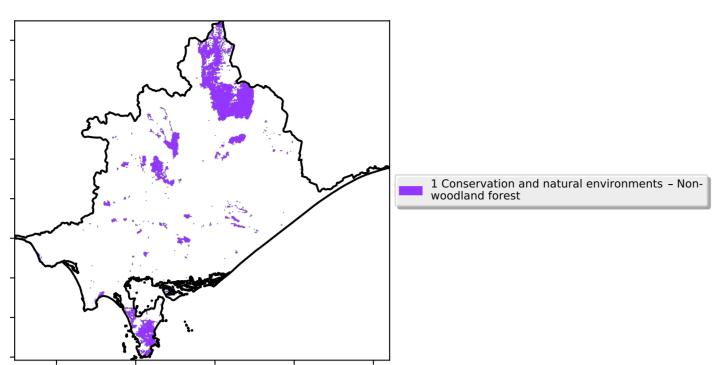
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Anomaly show how many percetage points each pixel is from

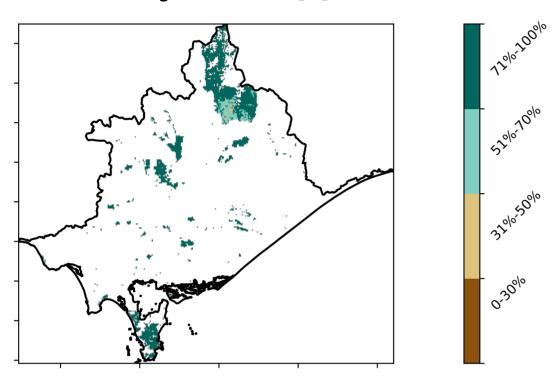
the mean. That

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

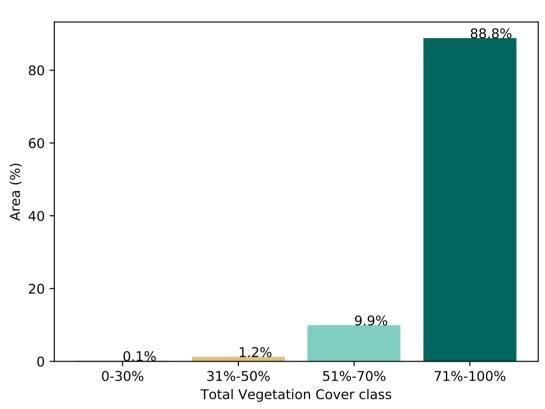
is, red pixels are about 20% lower than the mean of that



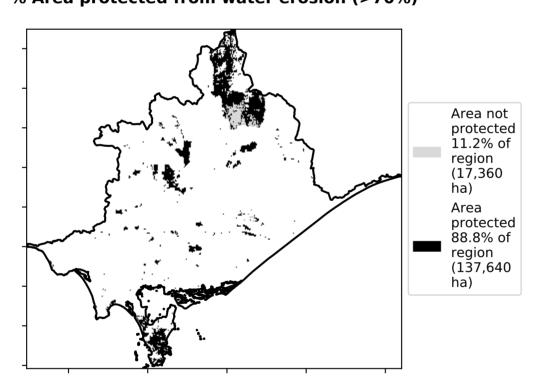
Total Vegetation Cover [%]



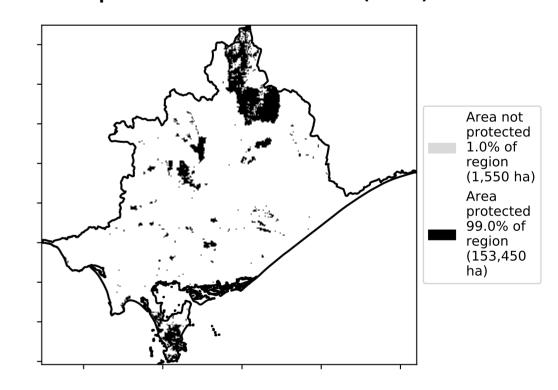
Proportion of vegetation cover class in area



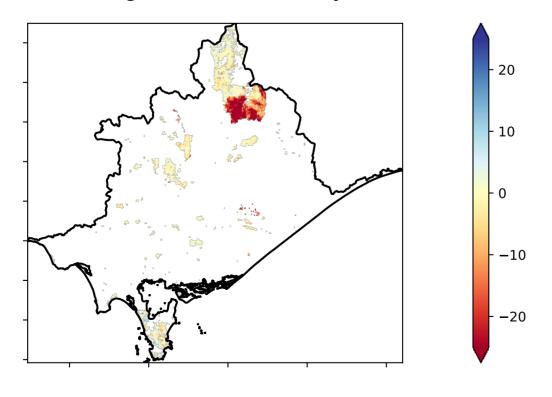
% Area protected from water erosion (>70%)



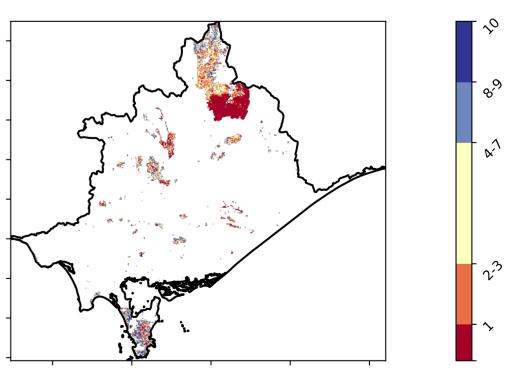
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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





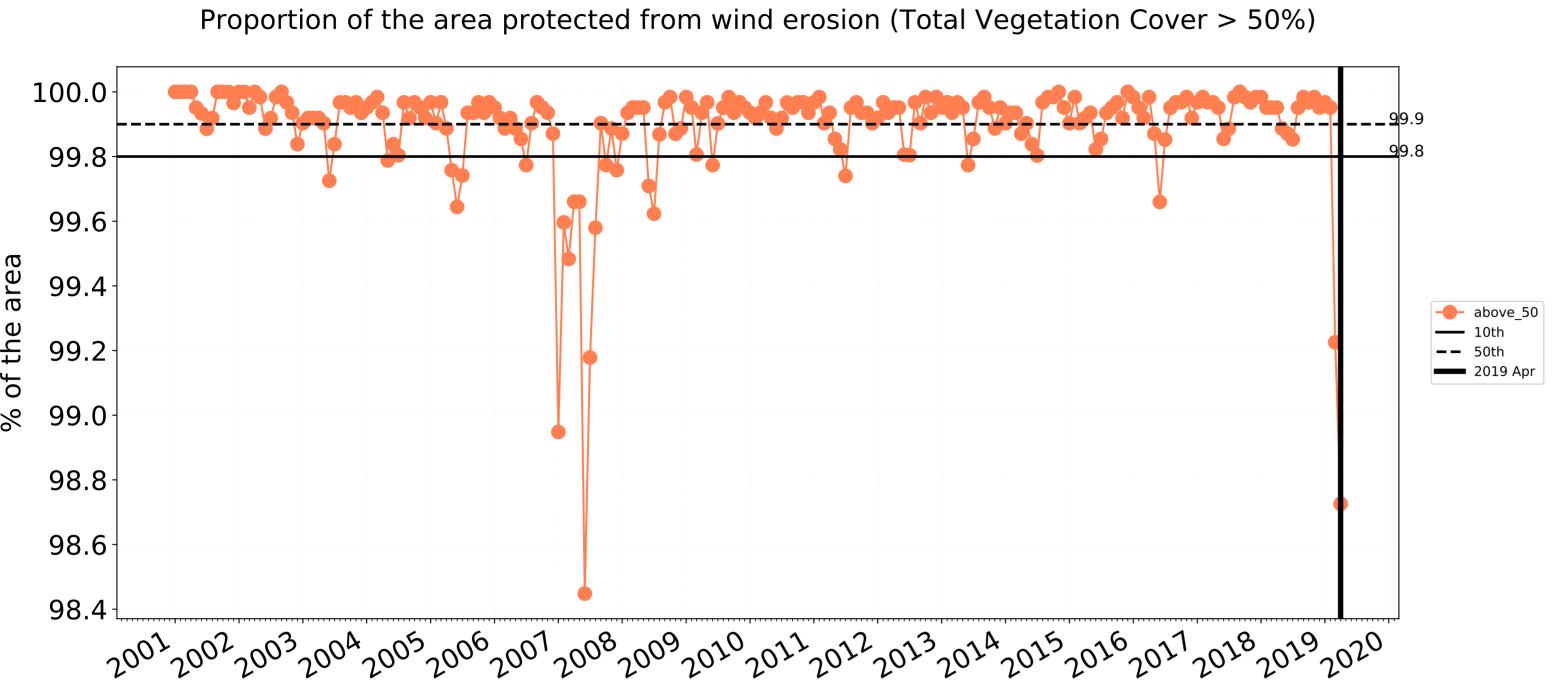


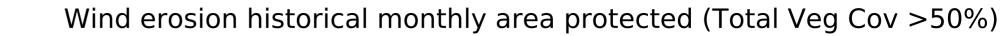


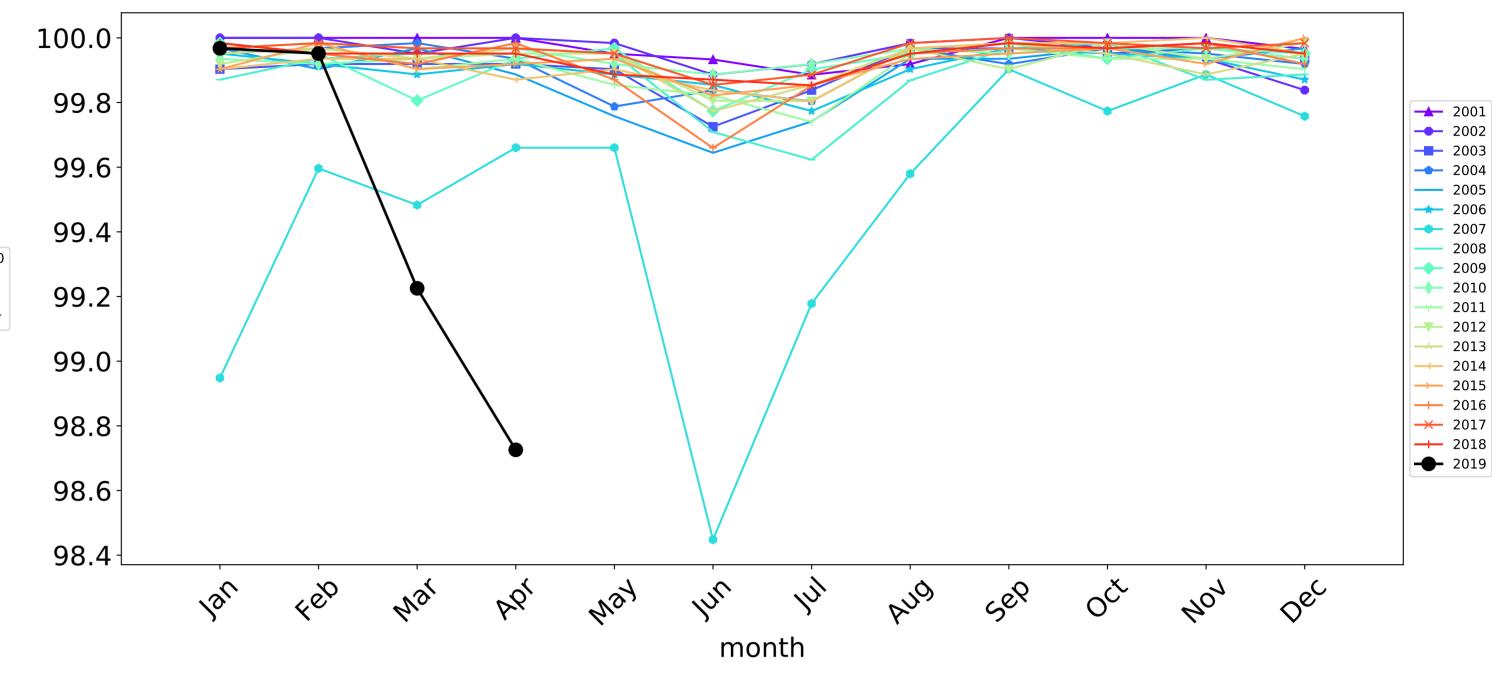


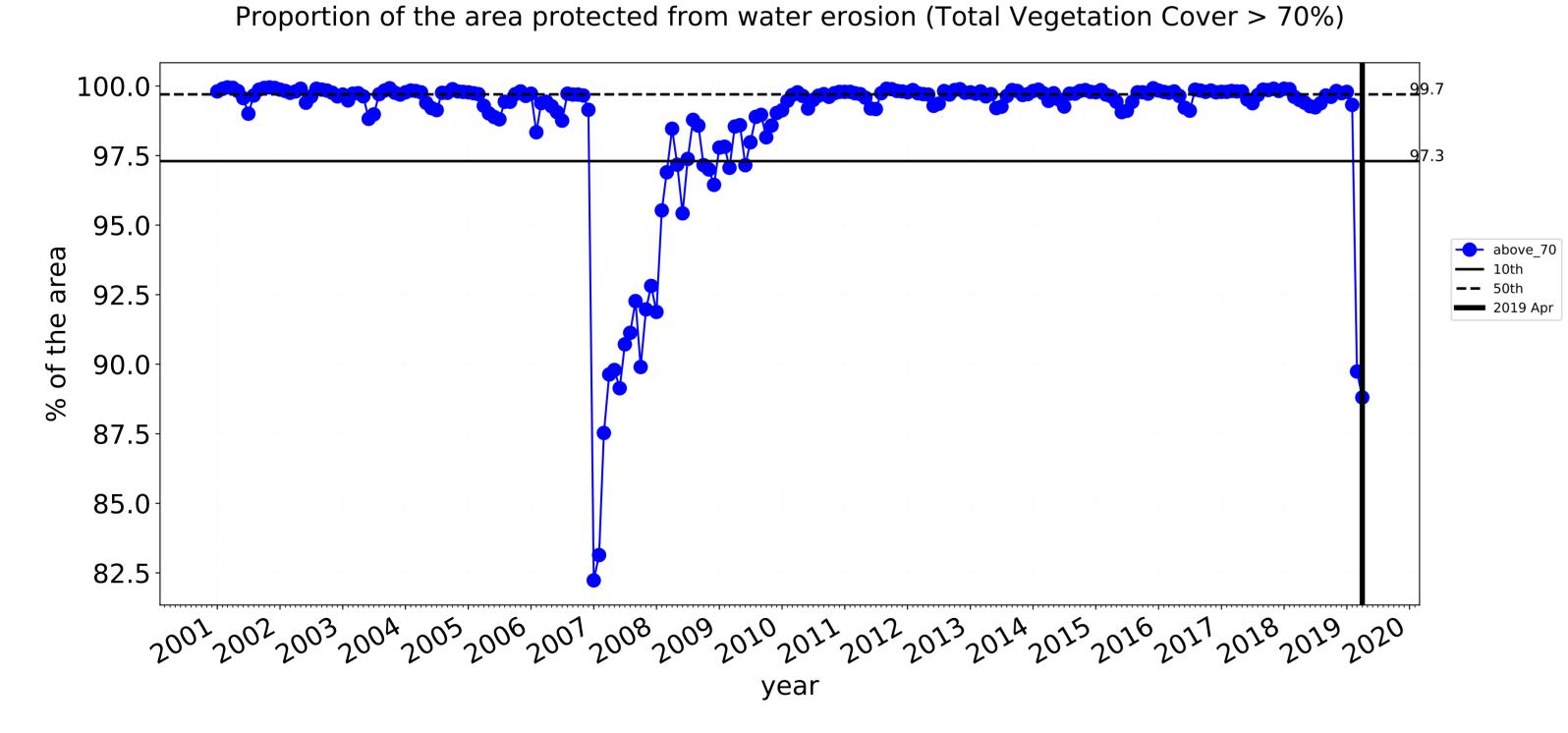


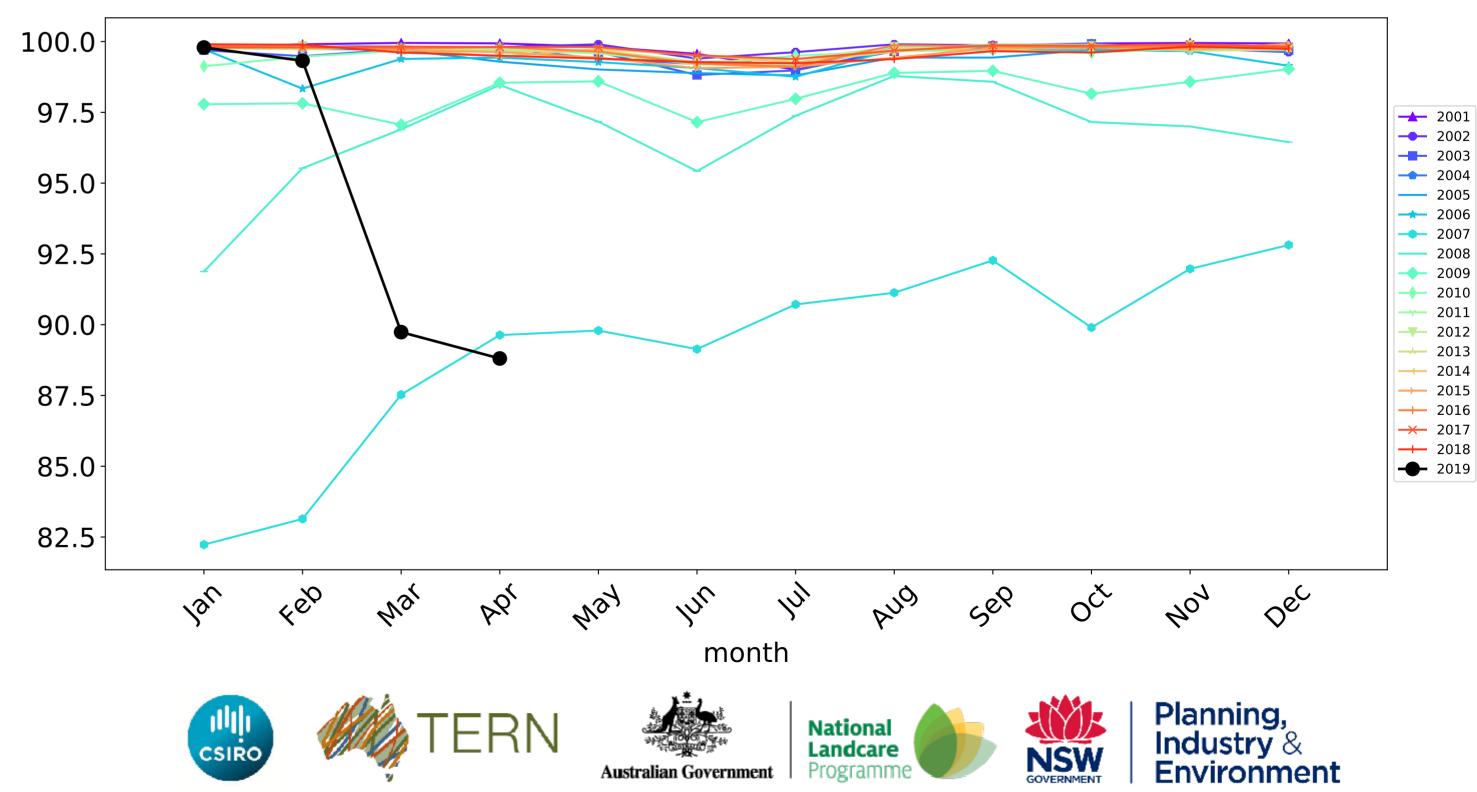




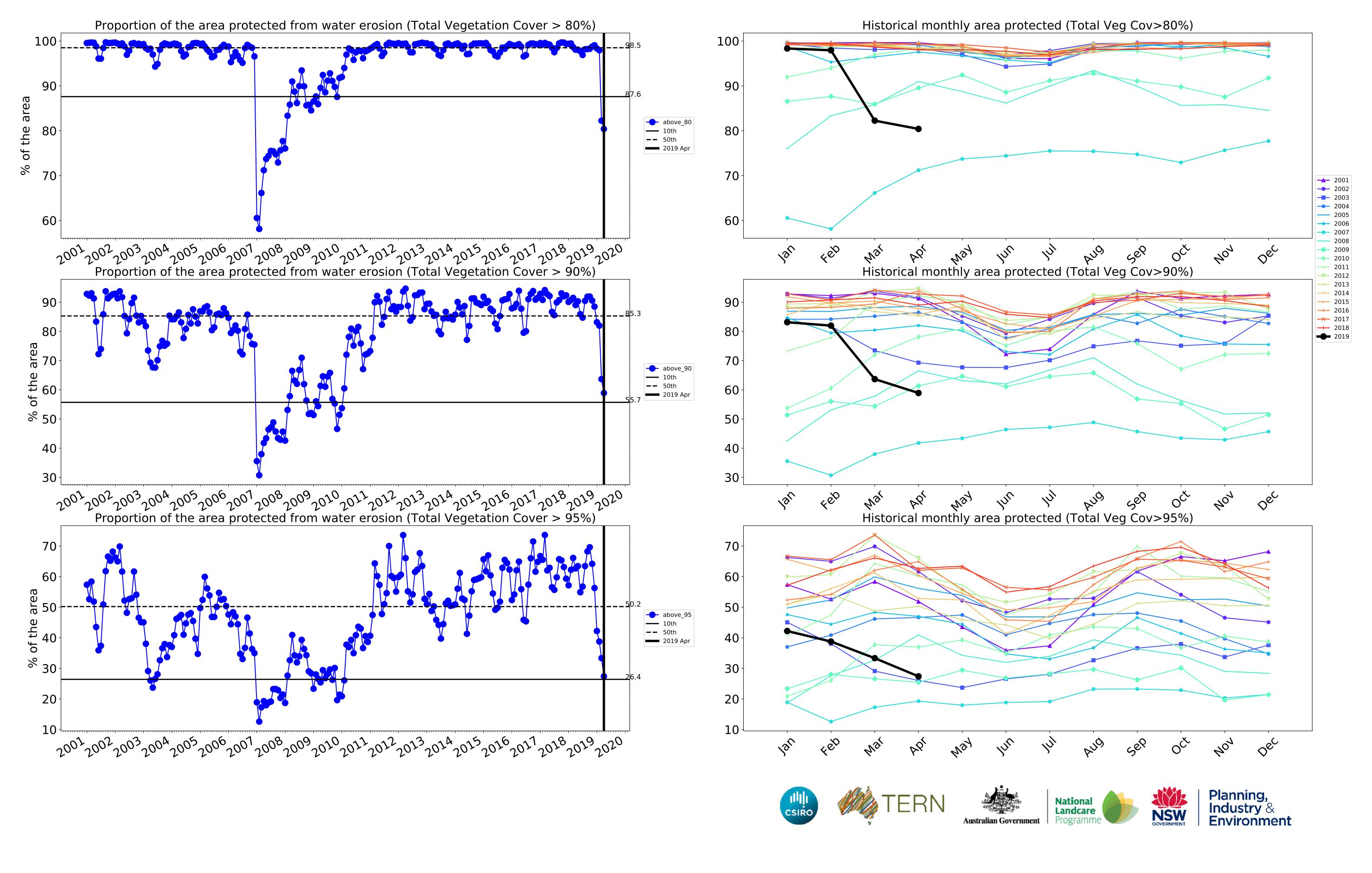








Water erosion historical monthly area protected (Total Veg Cov>70%)



Agriculture

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

Anomaly show how many percetage points each

pixel is from

is, red pixels are about 20% lower than the

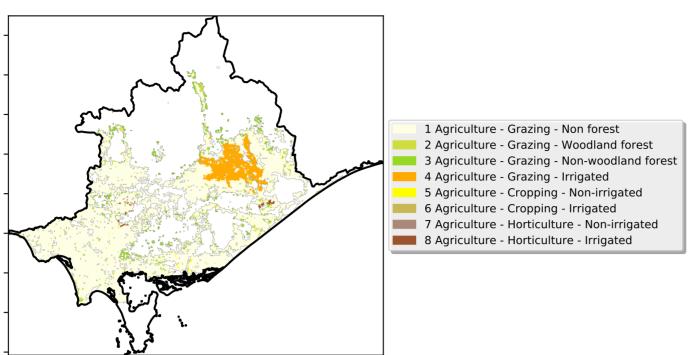
mean of that

pixel. The mean

using baseline from 2001 to 2019.

is only for the month of the map

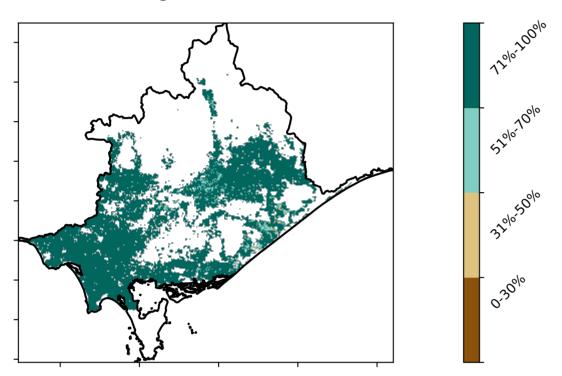
the mean. That



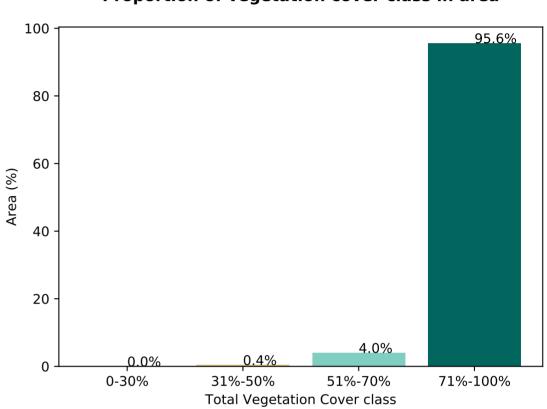
83.5% 80 70 -60 Area (%) 30 -20 -10 Land use class

Proportion of each land class in area



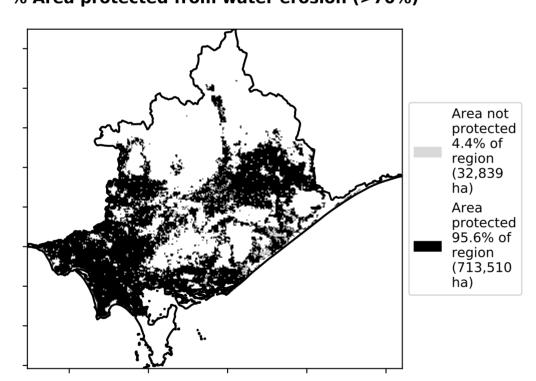


Proportion of vegetation cover class in area

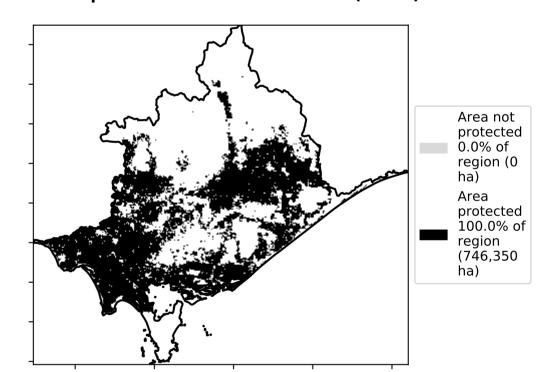


% Area protected from water erosion (>70%)

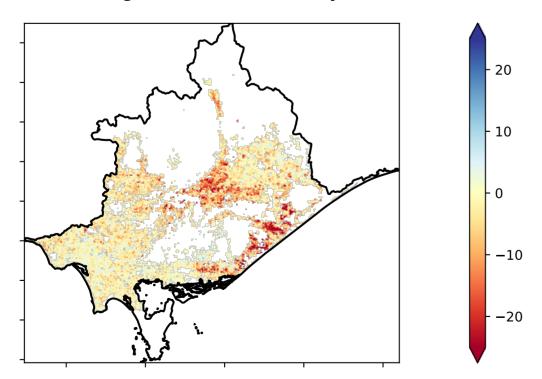
Land use and forest cover



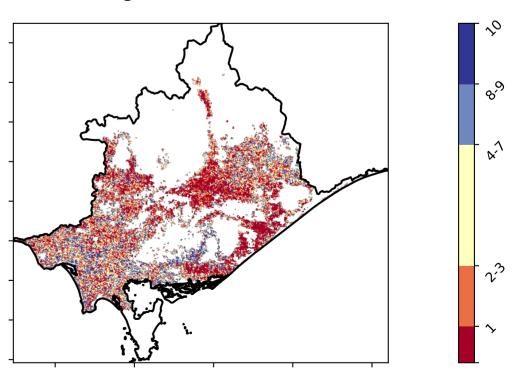
% Area protected from wind erosion (>50%)



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.







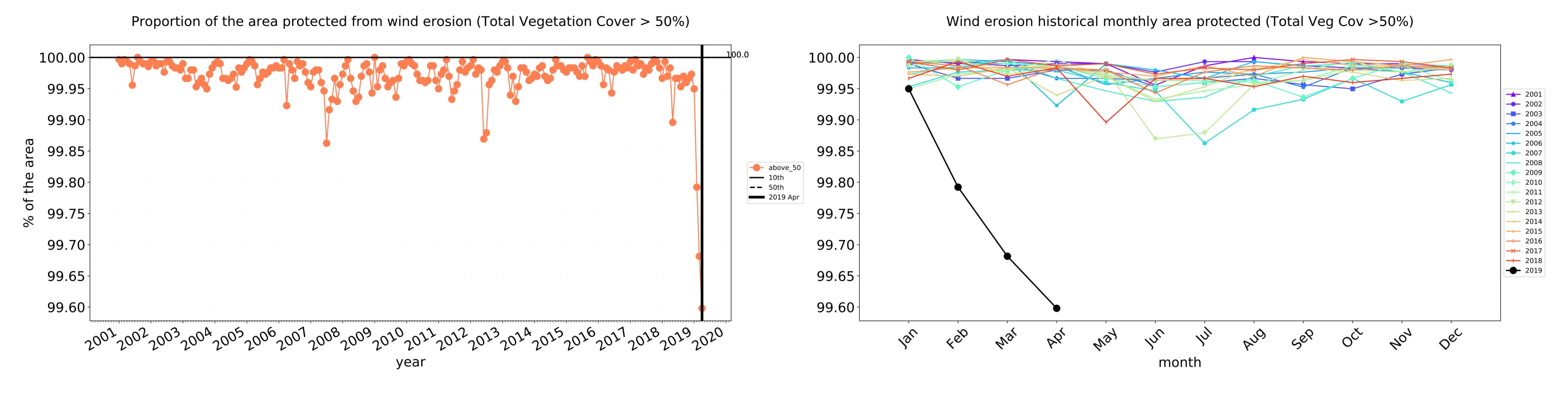


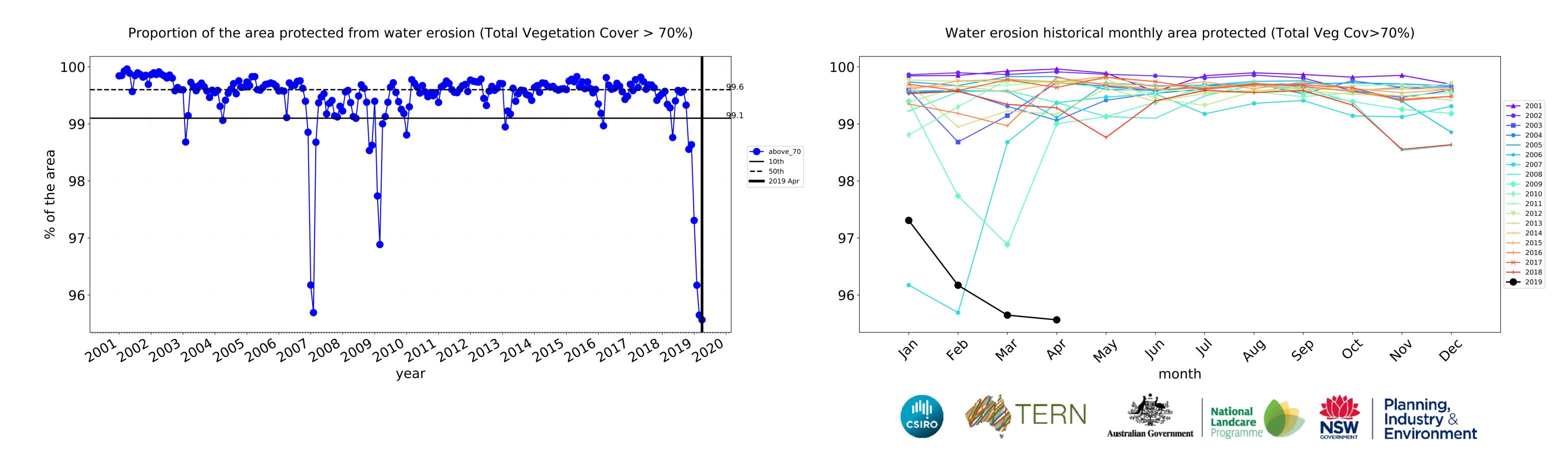


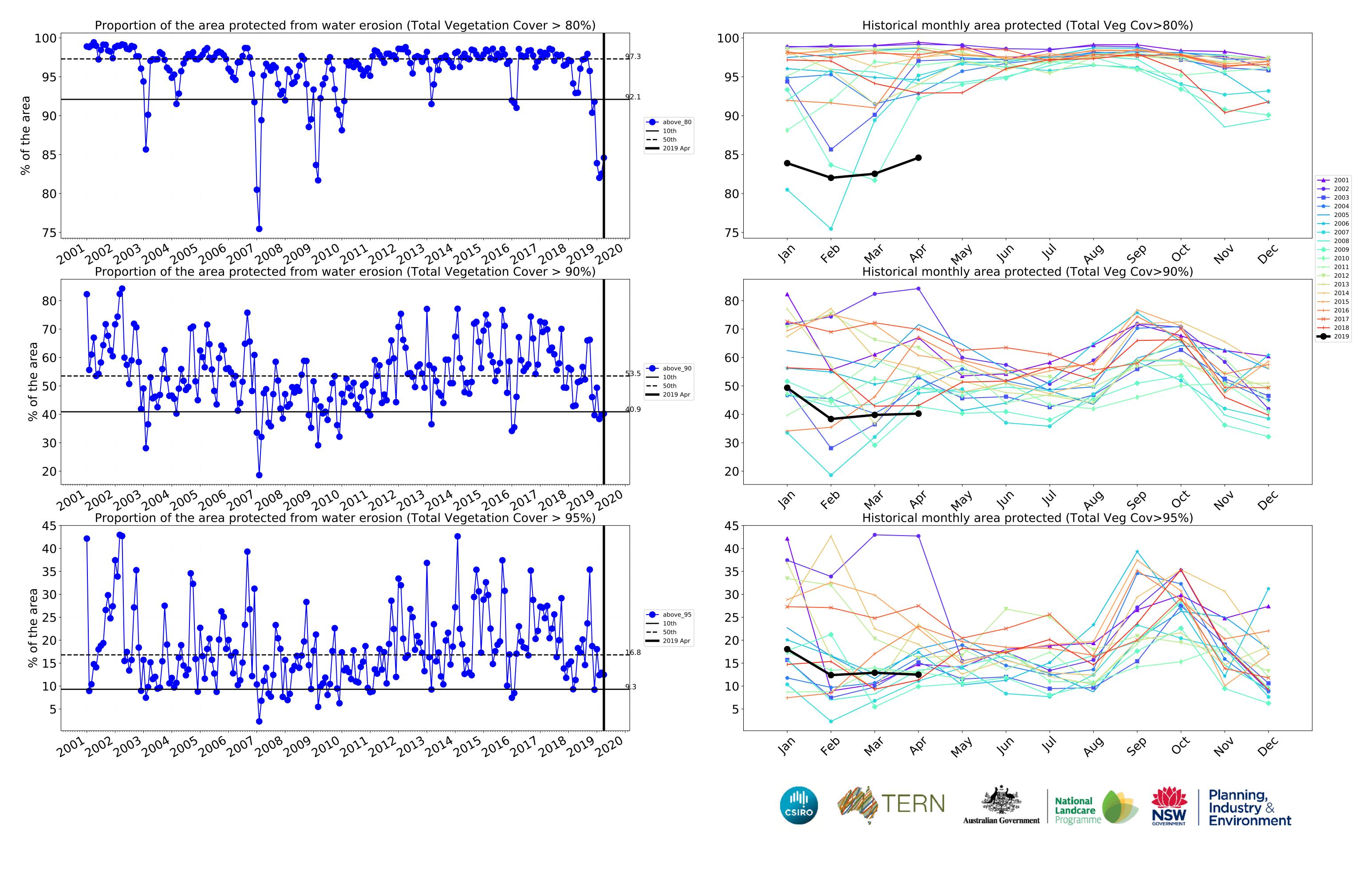




Agriculture timeseries







Grazing

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

Anomaly show how many percetage points each

pixel is from

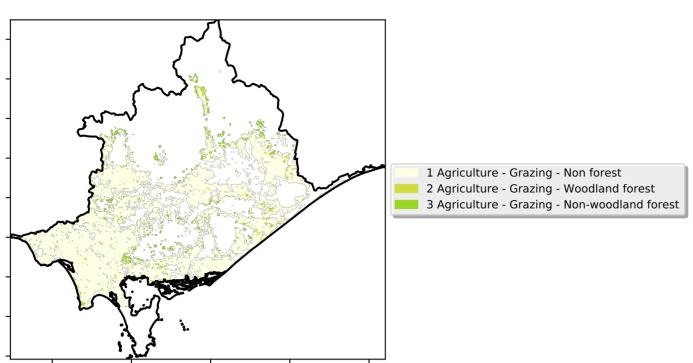
is, red pixels are about 20% lower than the

mean of that pixel. The mean

is only for the month of the map

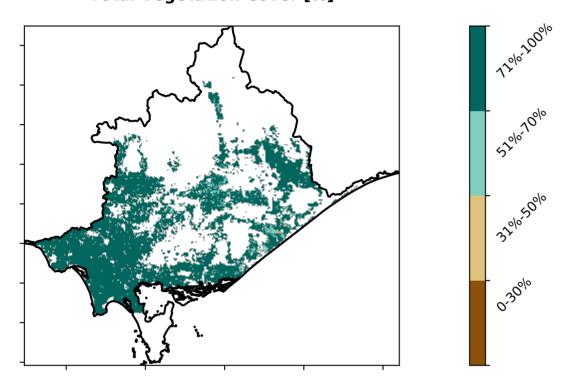
using baseline from 2001 to 2019.

the mean. That

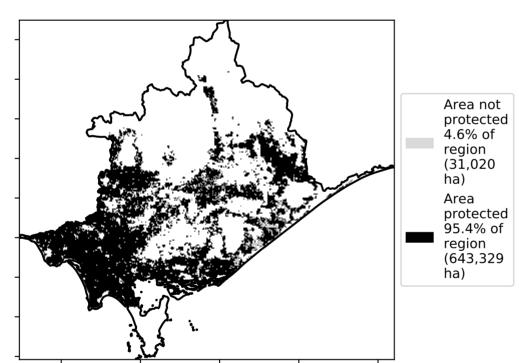


Total Vegetation Cover [%]

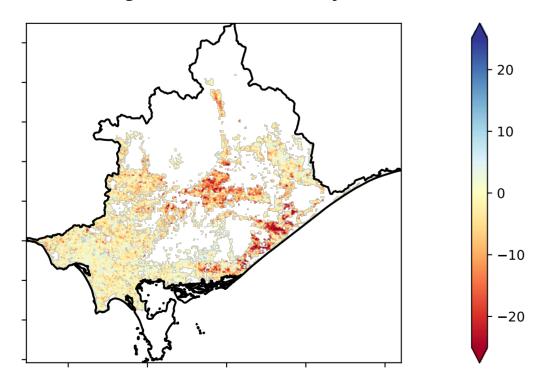
Land use and forest cover



% Area protected from water erosion (>70%)

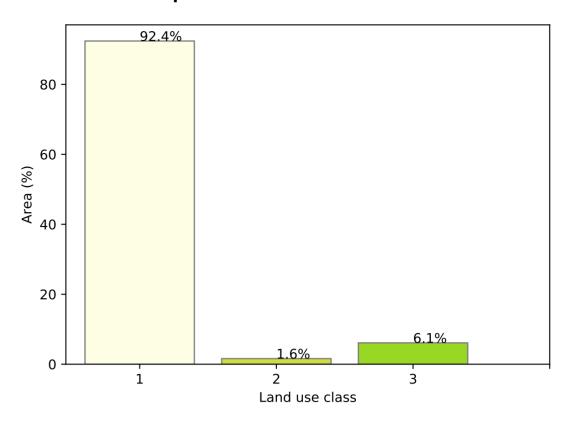


Total Vegetation Cover Anomaly [%]

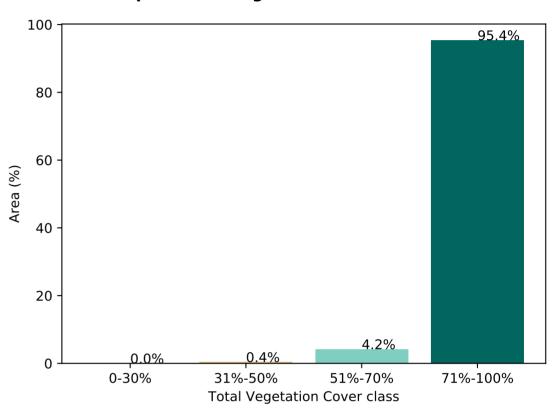


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

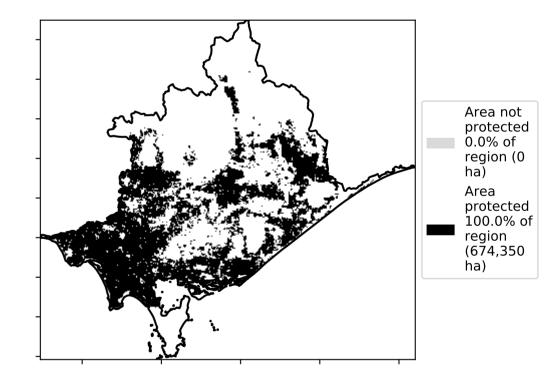
Proportion of each land class in area



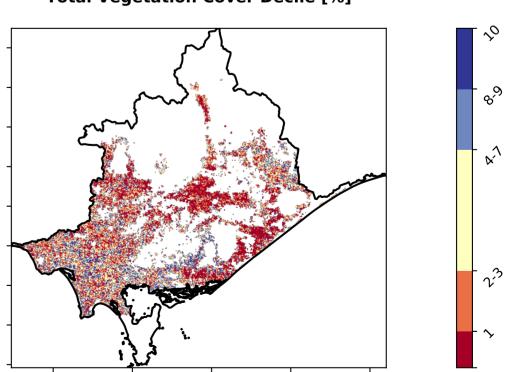
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







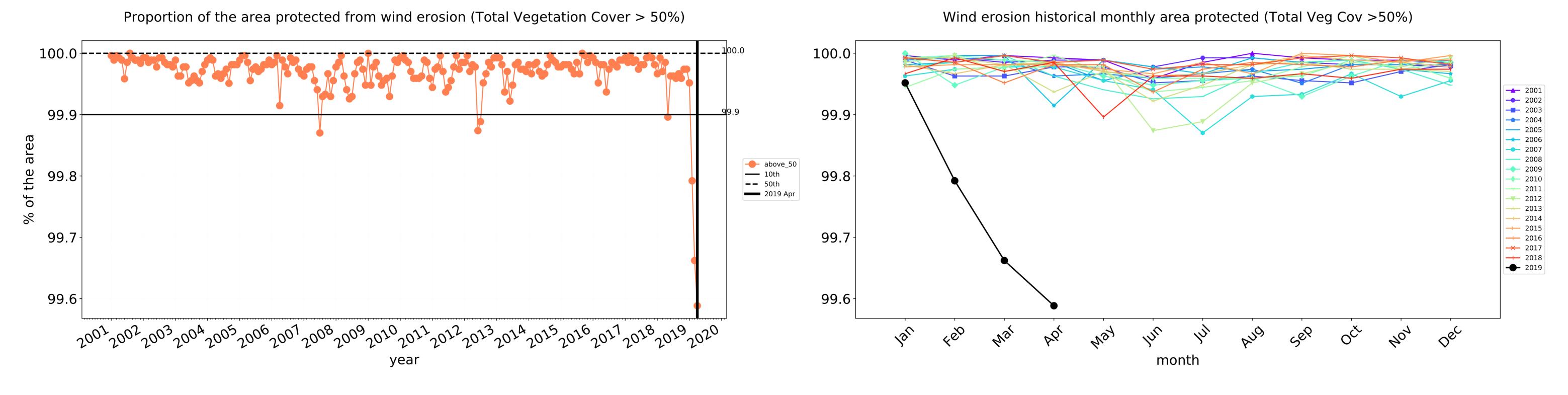


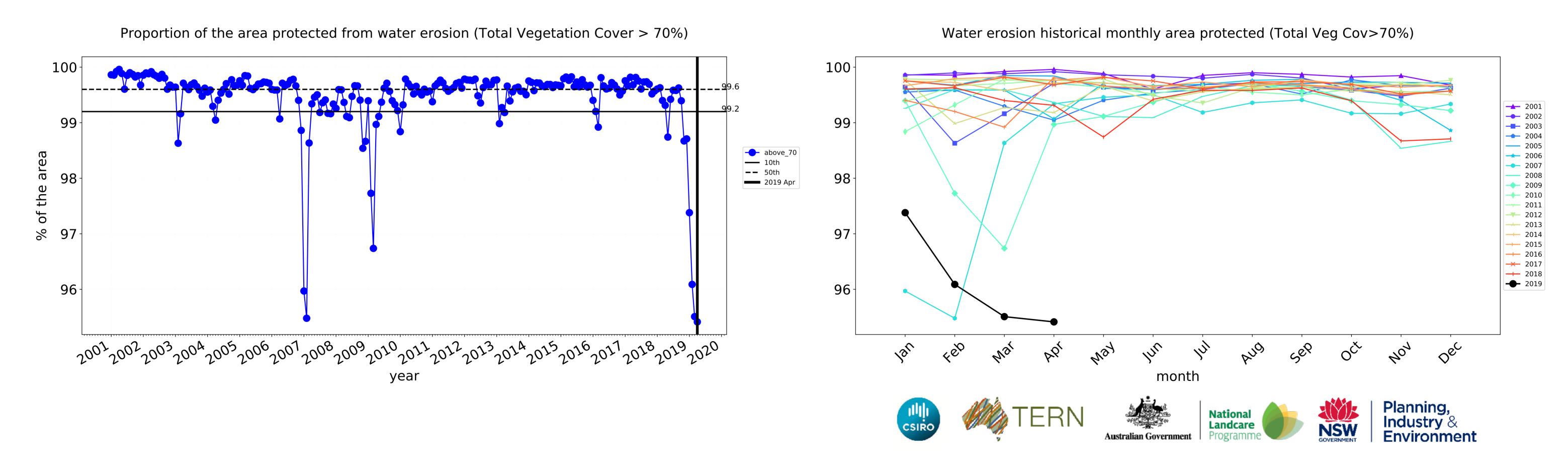


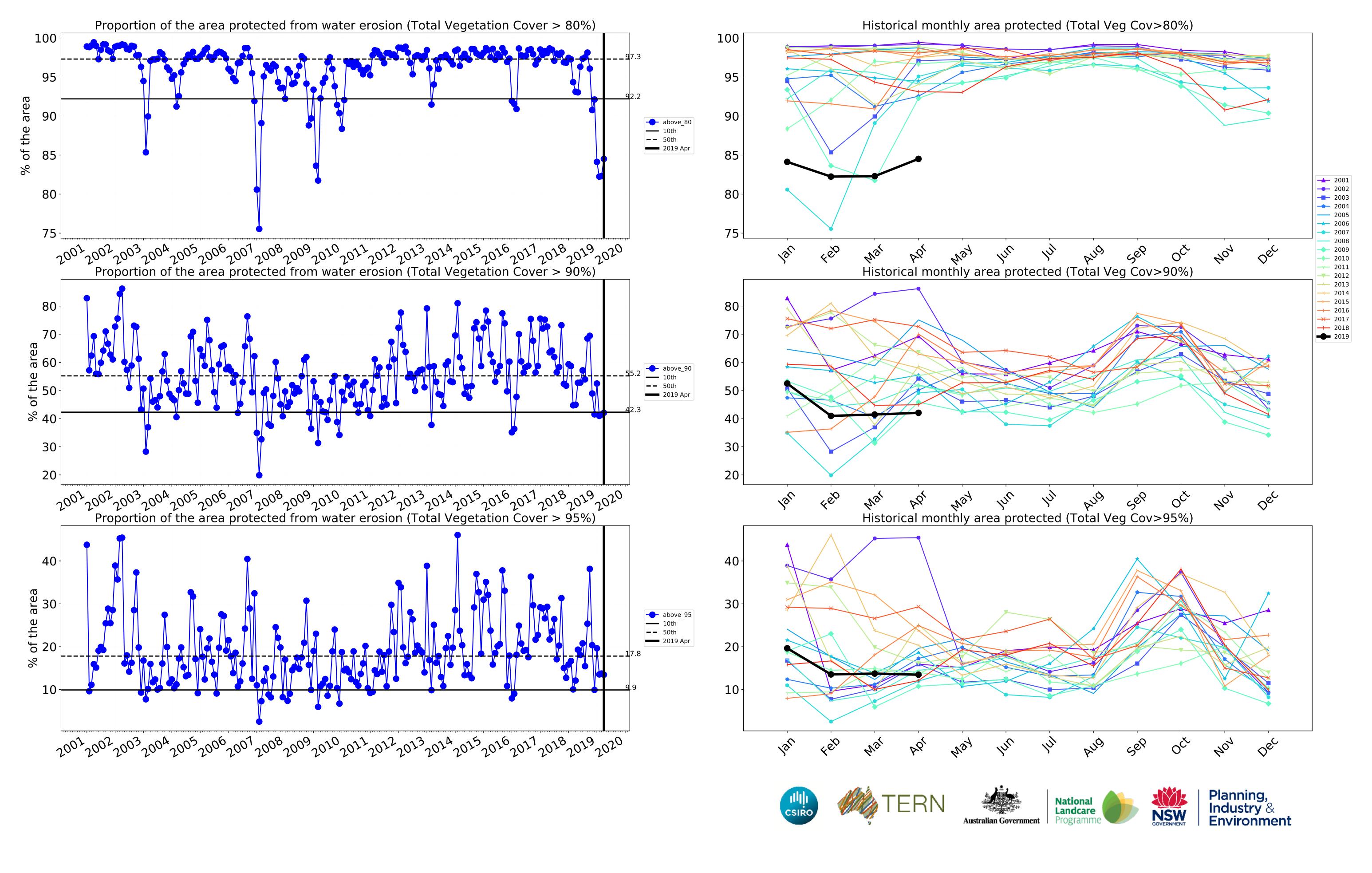




Grazing timeseries







Grazing non forest

Land use and forest cover

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

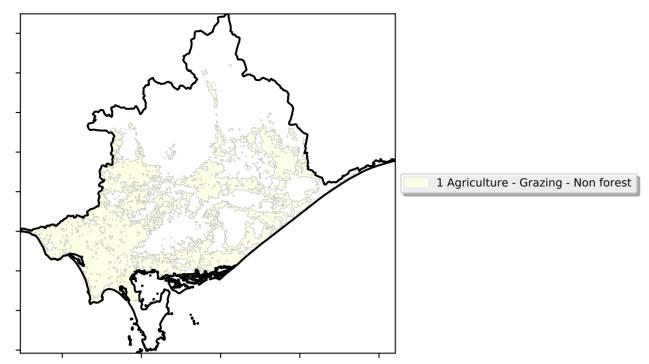
Anomaly show how many percetage points each

pixel is from the mean. That

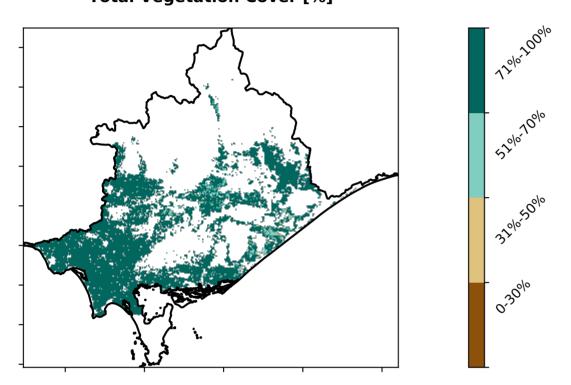
is, red pixels are about 20% lower than the

mean of that

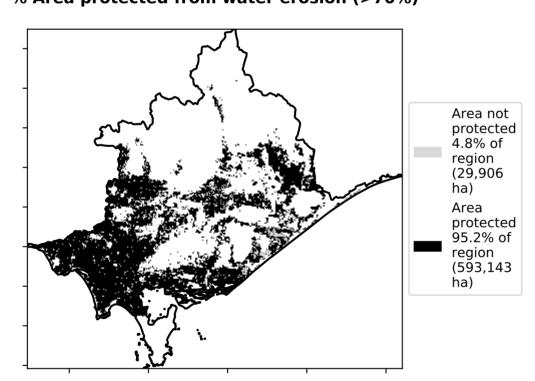
pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



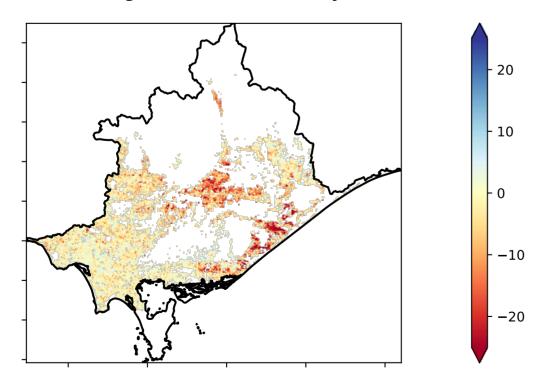
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

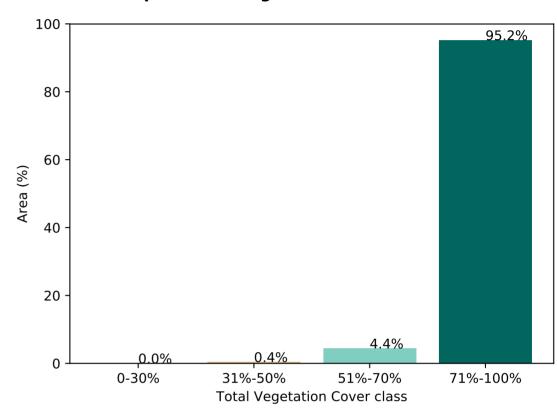


Total Vegetation Cover Anomaly [%]

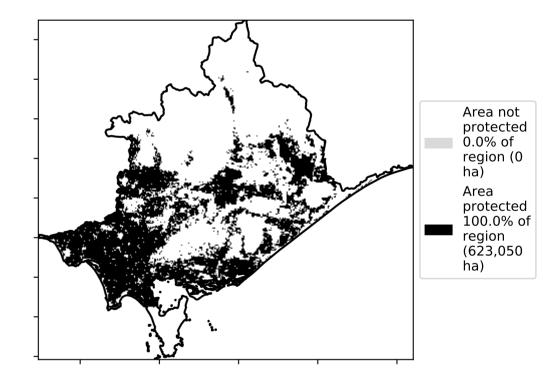


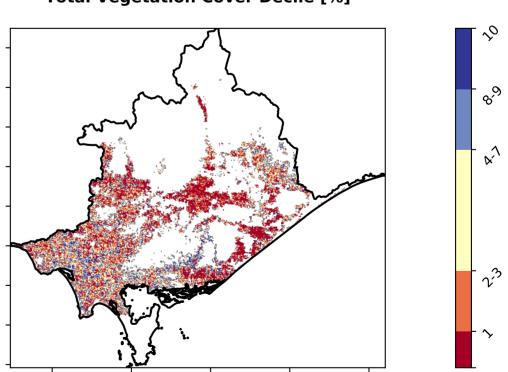
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









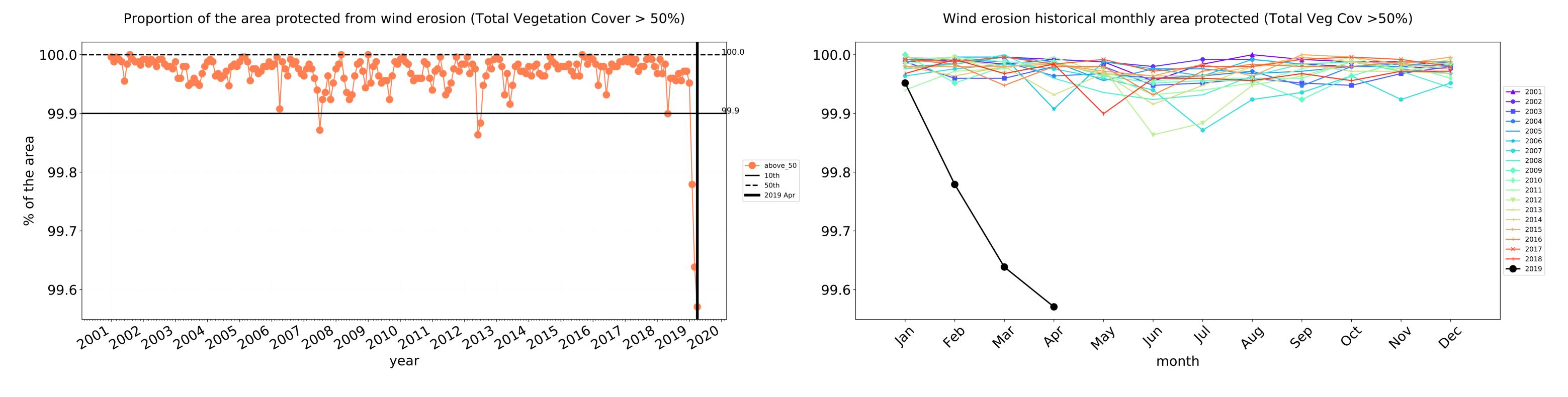


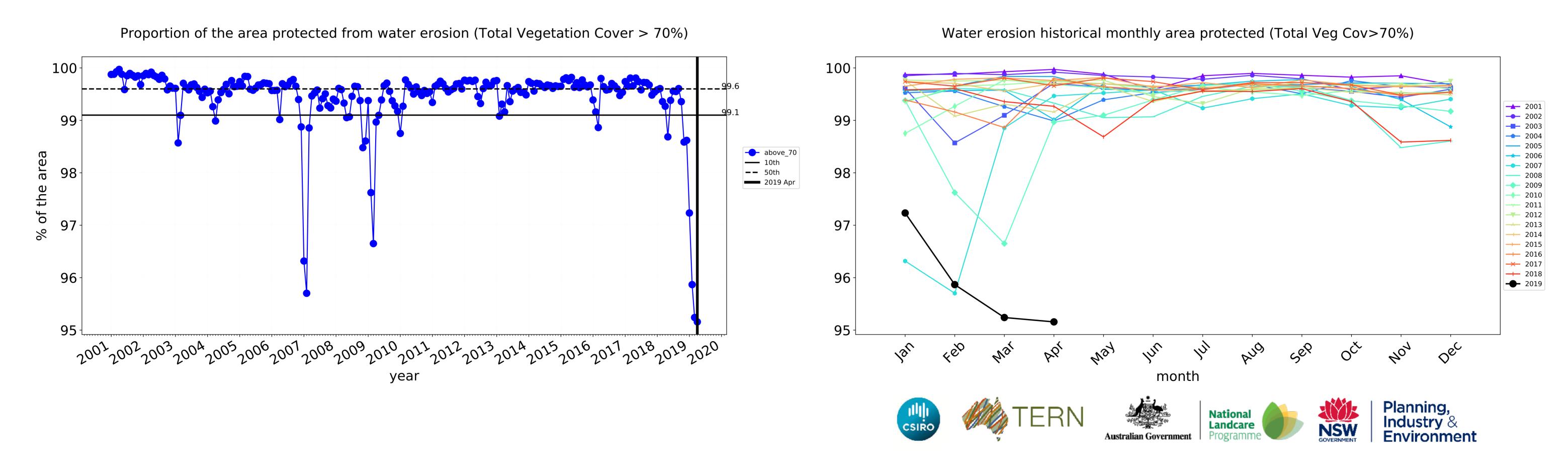


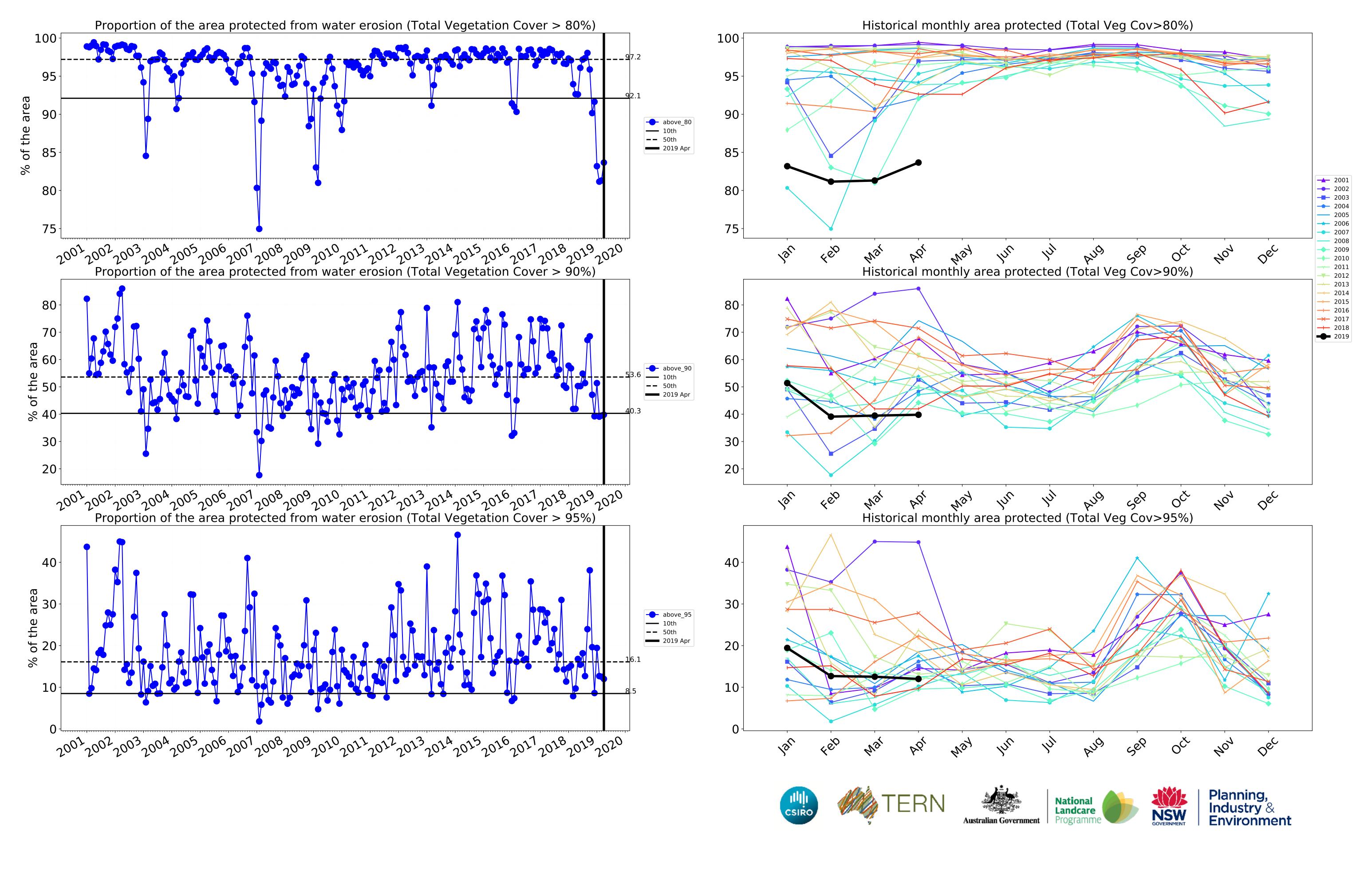




Grazing non forest timeseries







Grazing - Forest (non woodland)

Land use and forest cover

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

Anomaly show how many percetage points each

pixel is from

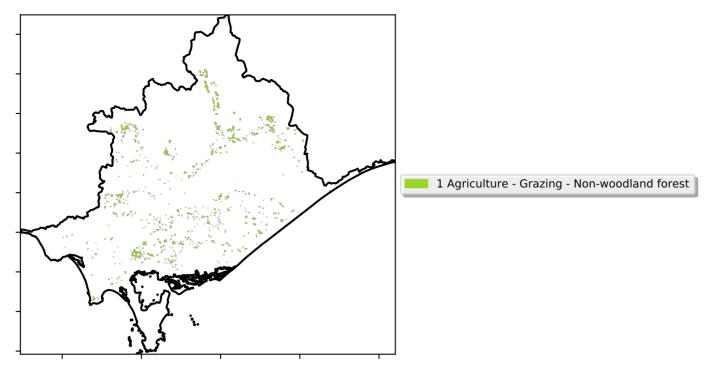
is, red pixels are about 20% lower than the

mean of that pixel. The mean

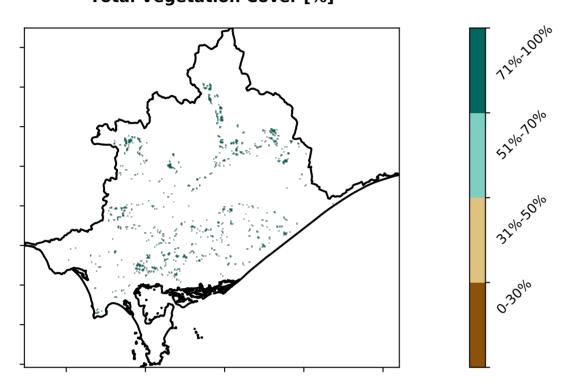
is only for the month of the map

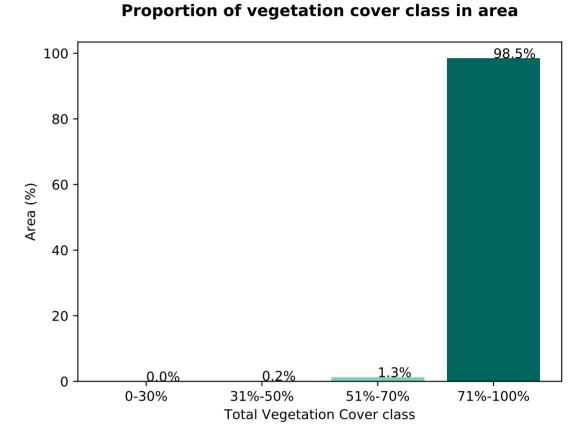
using baseline from 2001 to 2019.

the mean. That

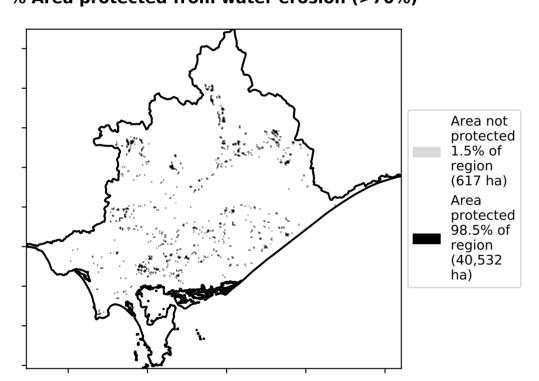


Total Vegetation Cover [%]

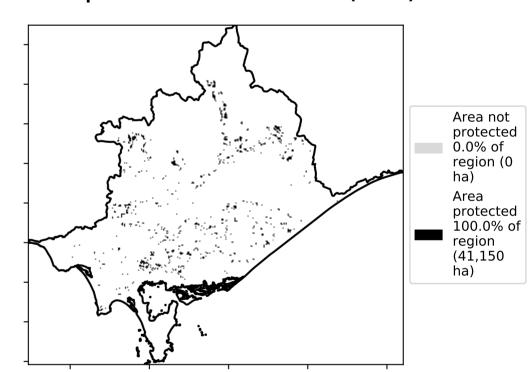




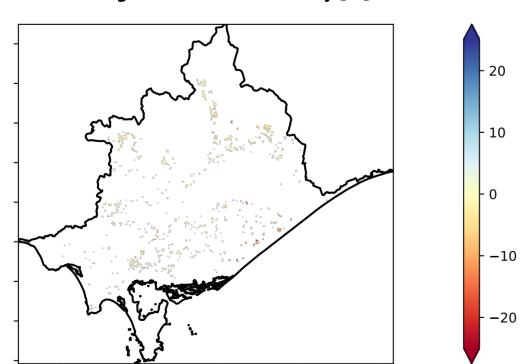
% Area protected from water erosion (>70%)



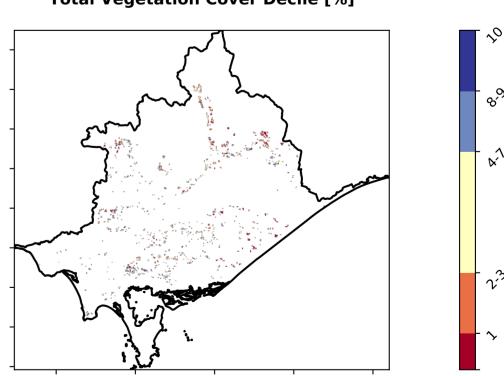
% Area protected from wind erosion (>50%)



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.





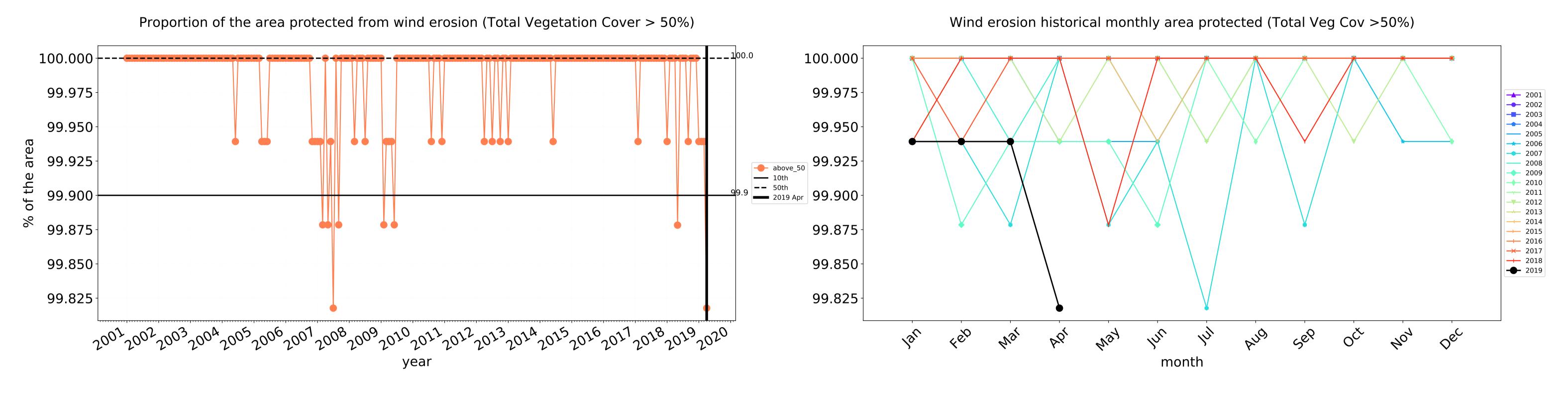


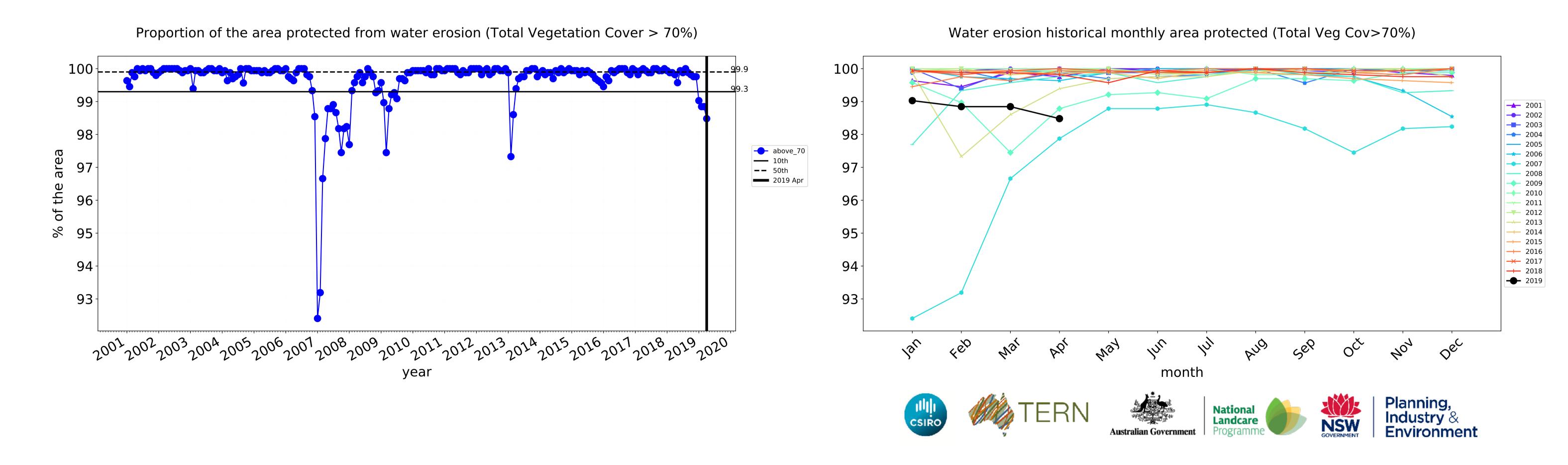


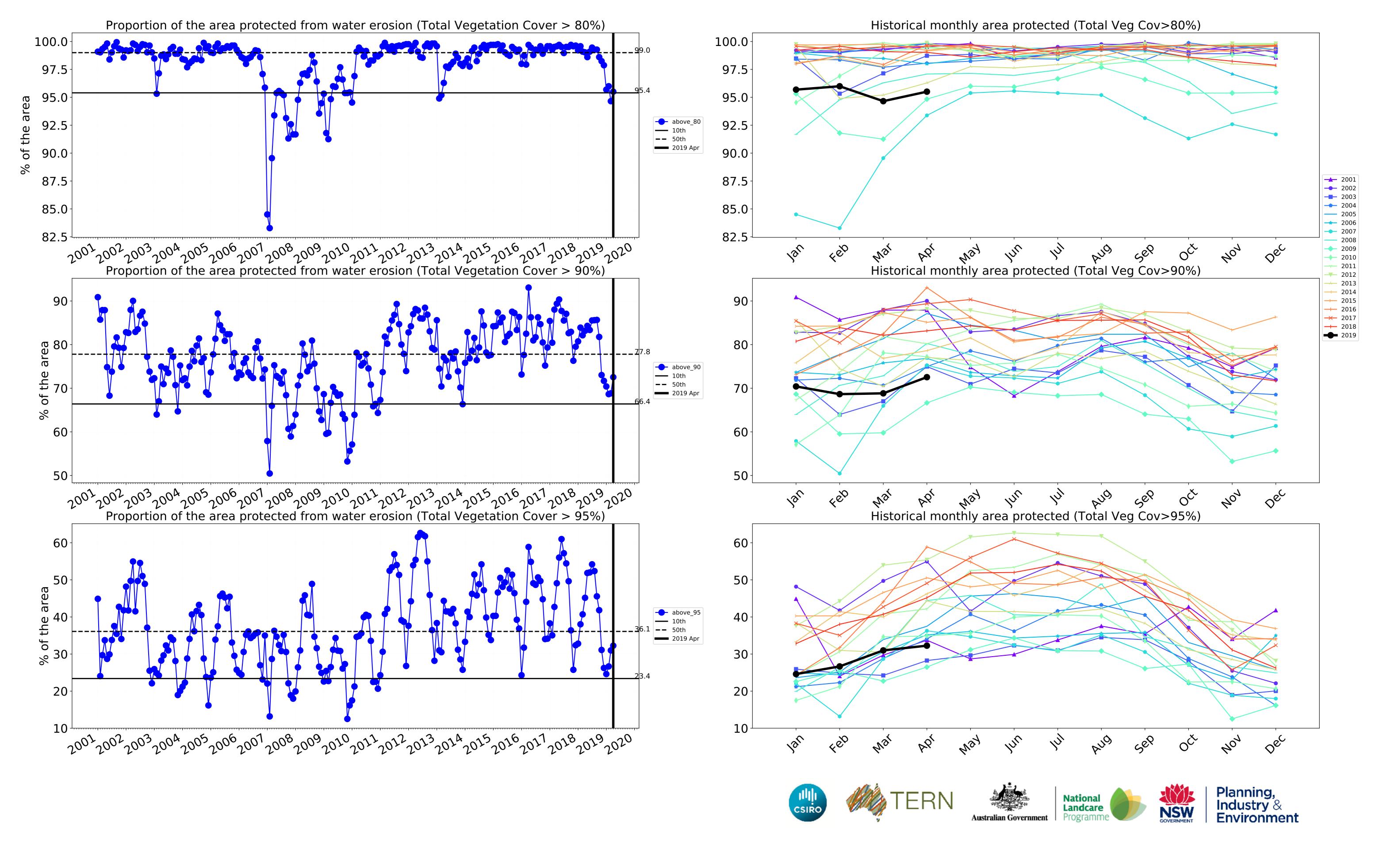












Irrigation

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

Anomaly show how many percetage points each

pixel is from

is, red pixels are about 20% lower than the

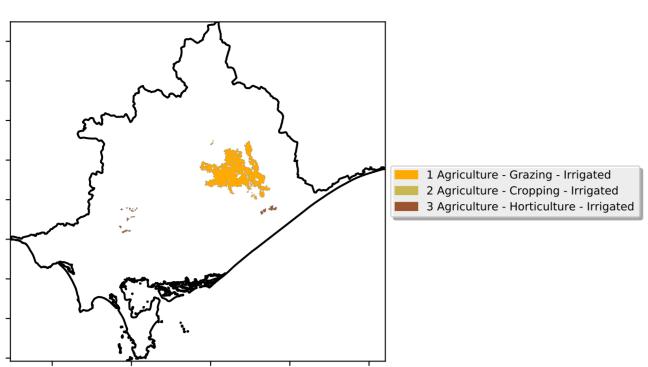
mean of that

pixel. The mean

using baseline from 2001 to 2019.

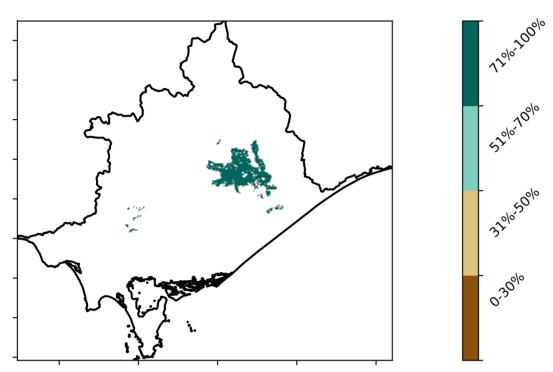
is only for the month of the map

the mean. That

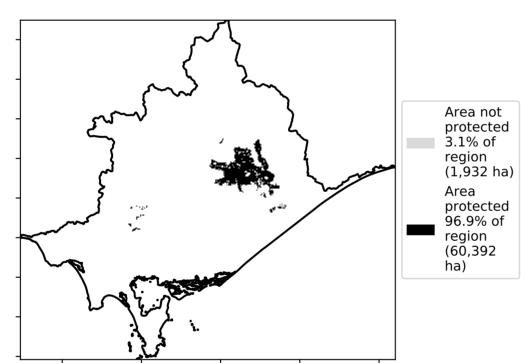


Total Vegetation Cover [%]

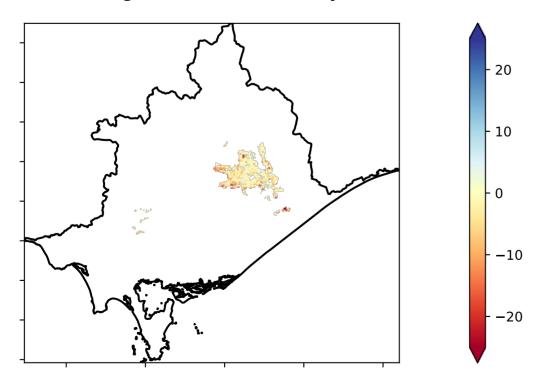
Land use and forest cover



% Area protected from water erosion (>70%)

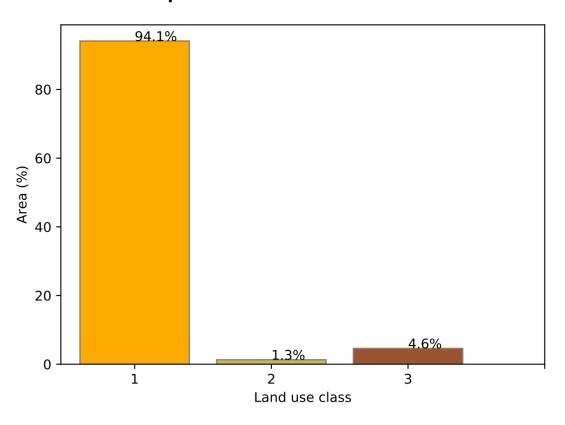


Total Vegetation Cover Anomaly [%]

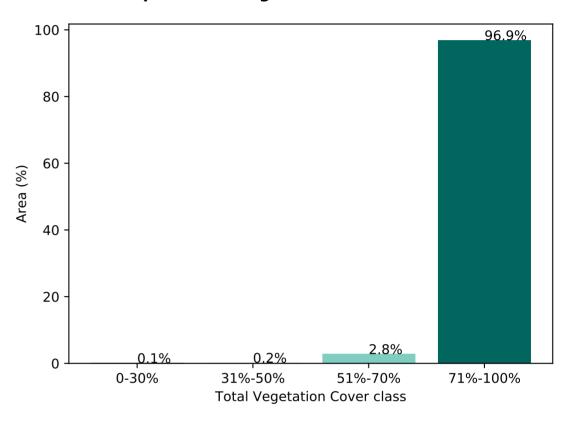


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

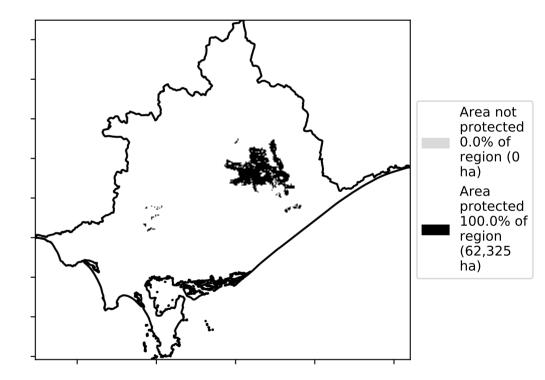
Proportion of each land class in area



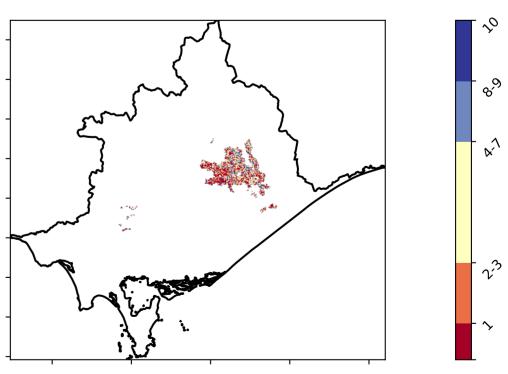
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







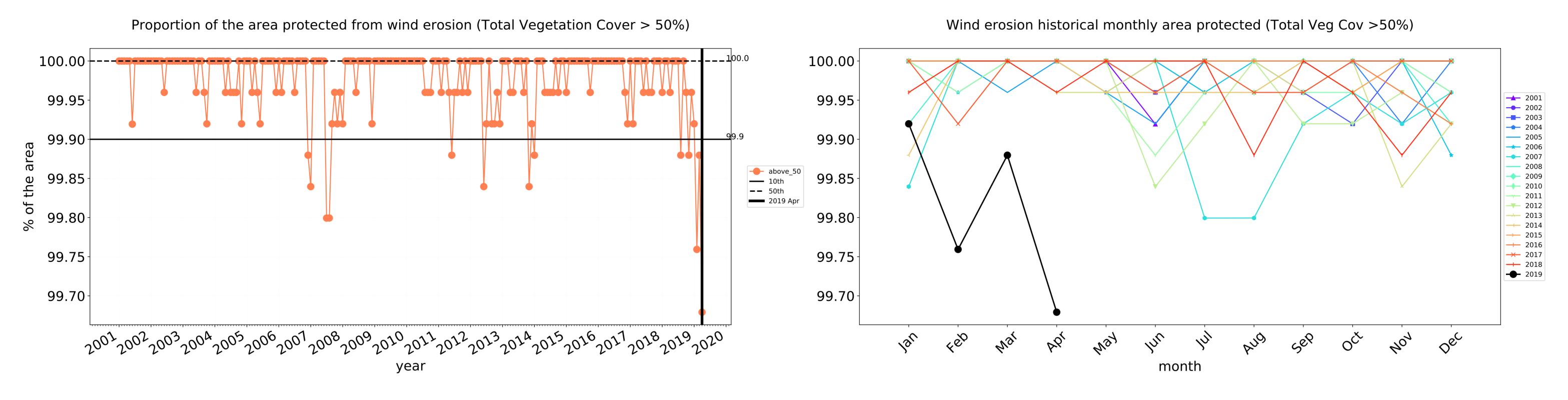


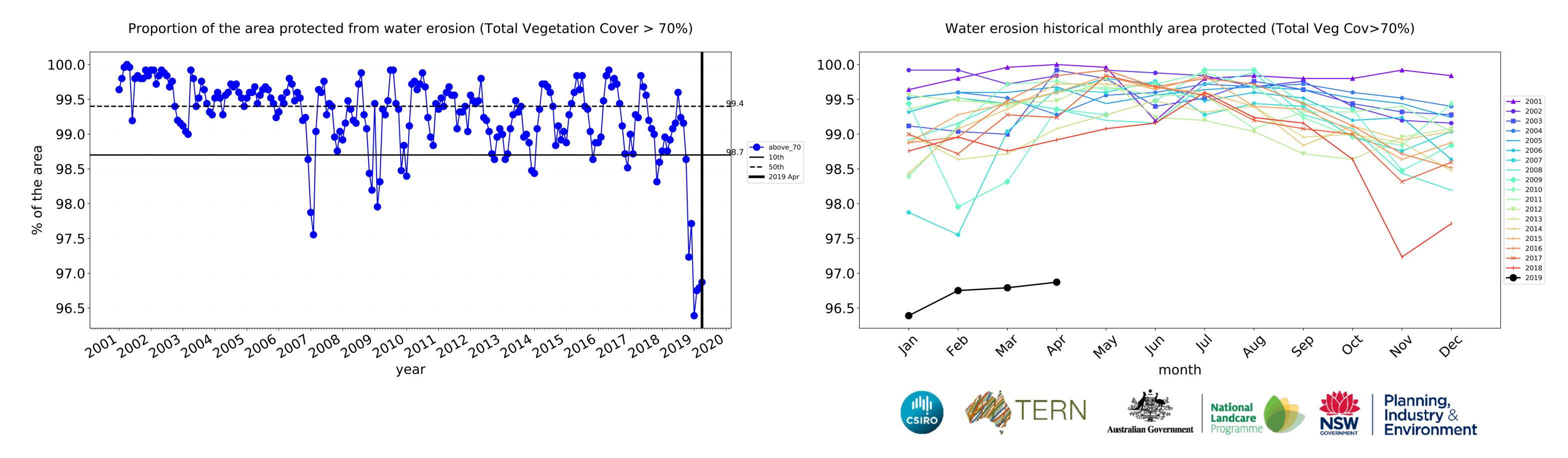


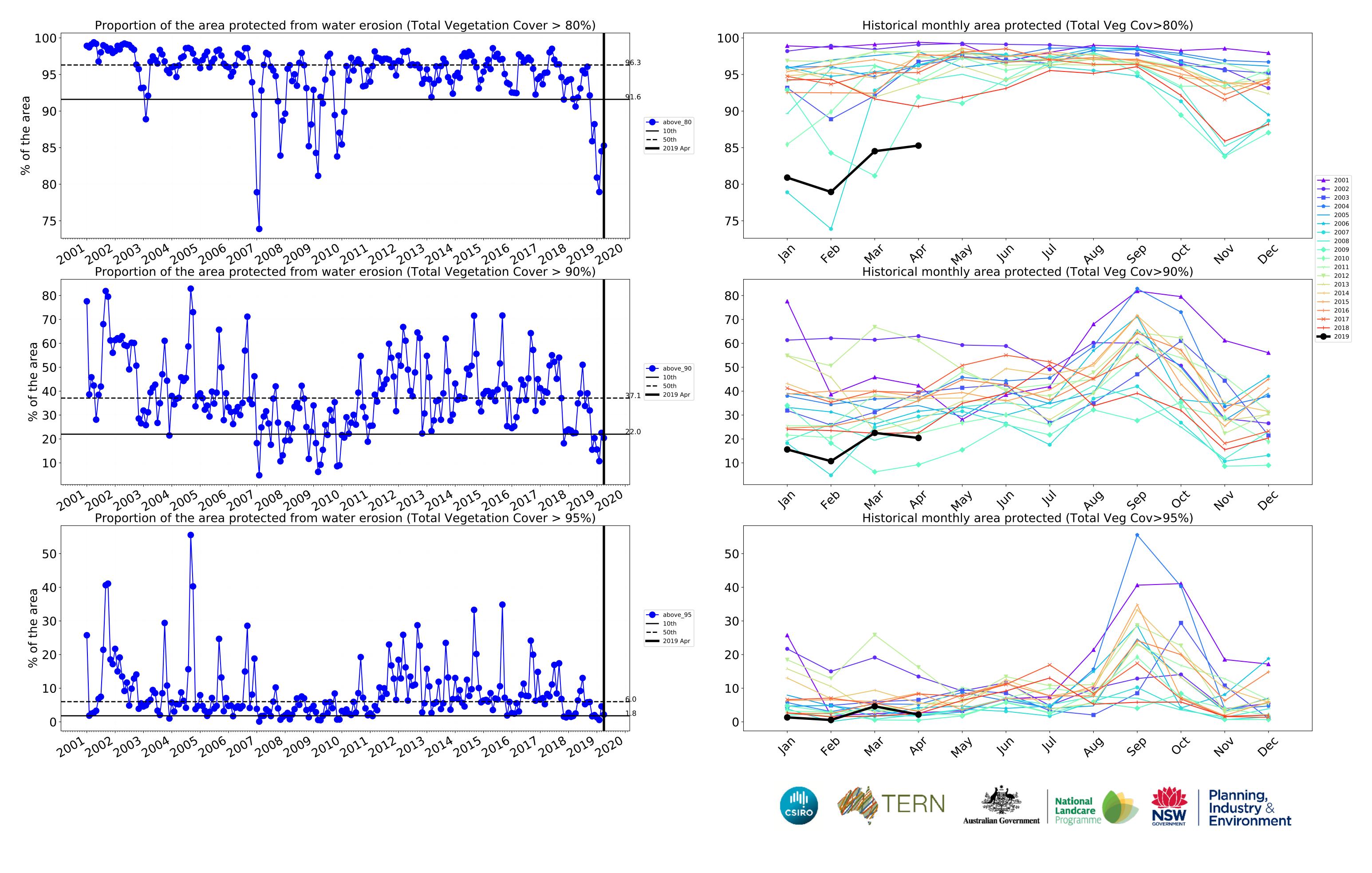




Irrigation timeseries







Production native forests and plantation forests

Land use and forest cover

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

Anomaly show how many percetage points each

pixel is from

is, red pixels are about 20% lower than the

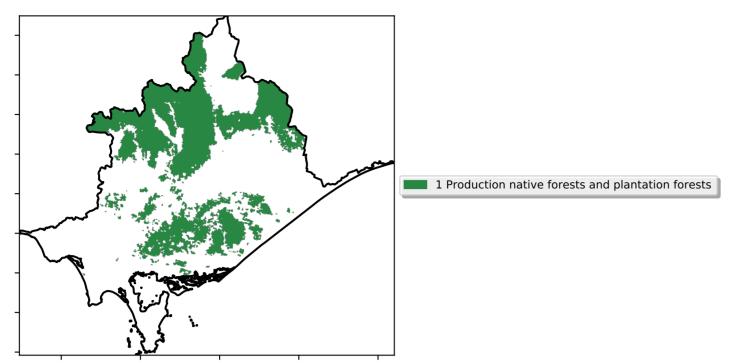
mean of that

pixel. The mean

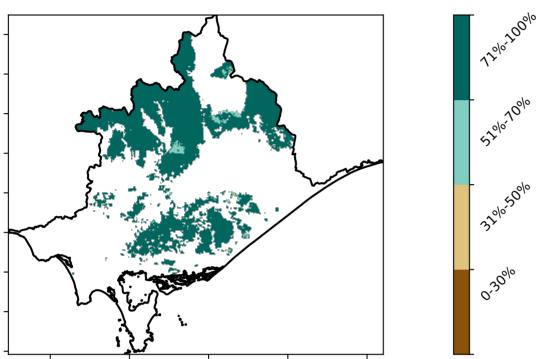
using baseline from 2001 to 2019.

is only for the month of the map

the mean. That

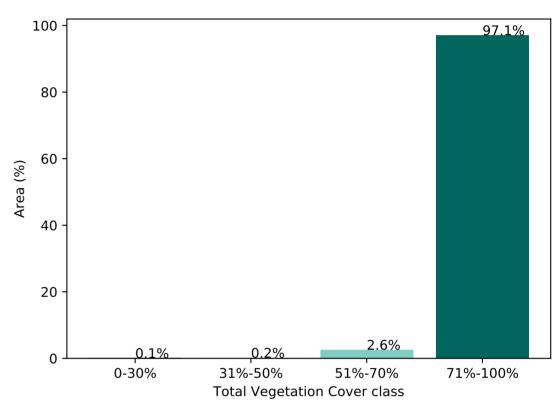


Total Vegetation Cover [%]

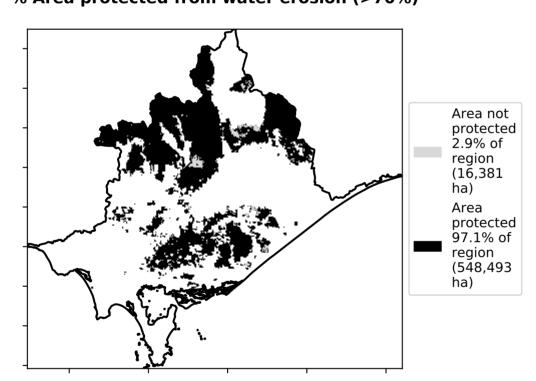


5

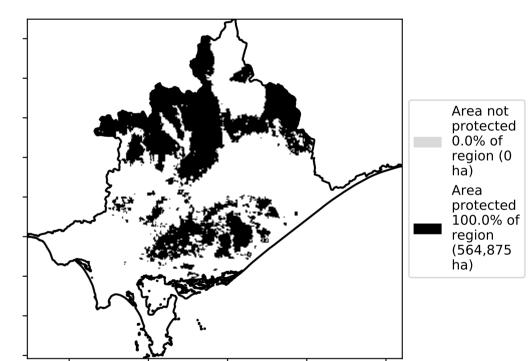
Proportion of vegetation cover class in area



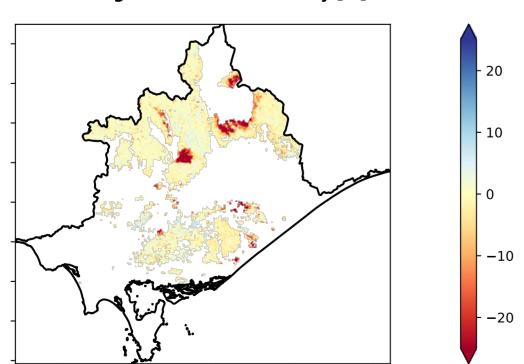
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

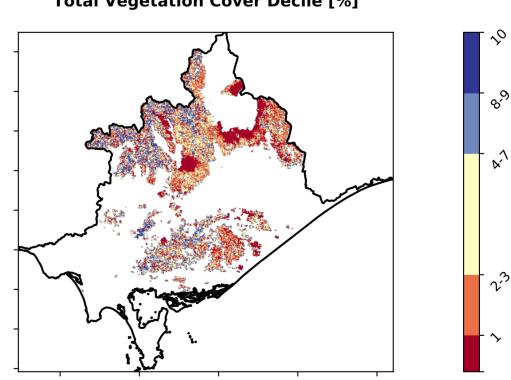


Total Vegetation Cover Anomaly [%]



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

Total Vegetation Cover Decile [%]







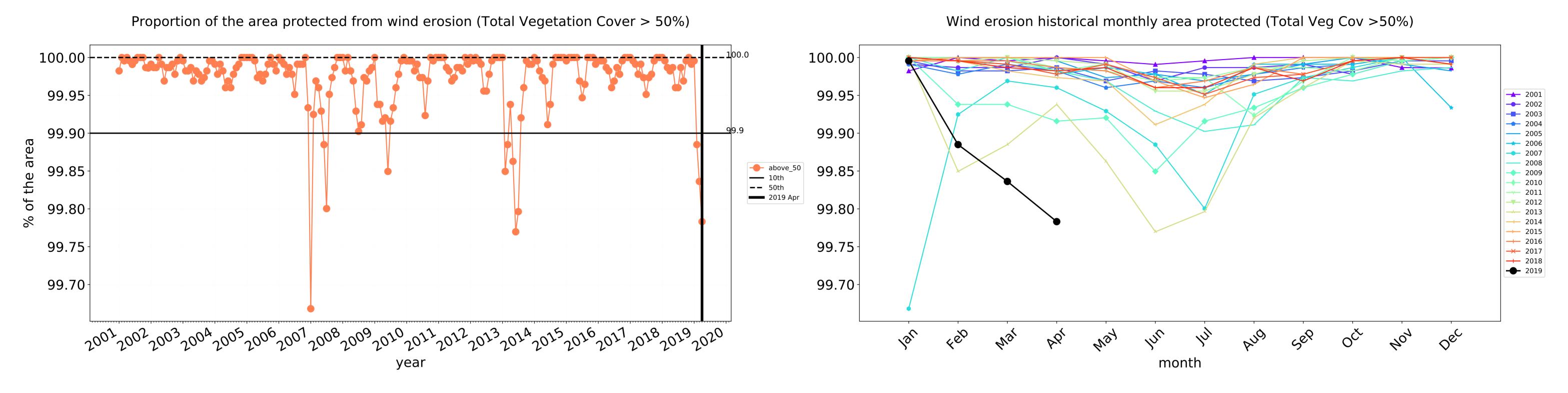


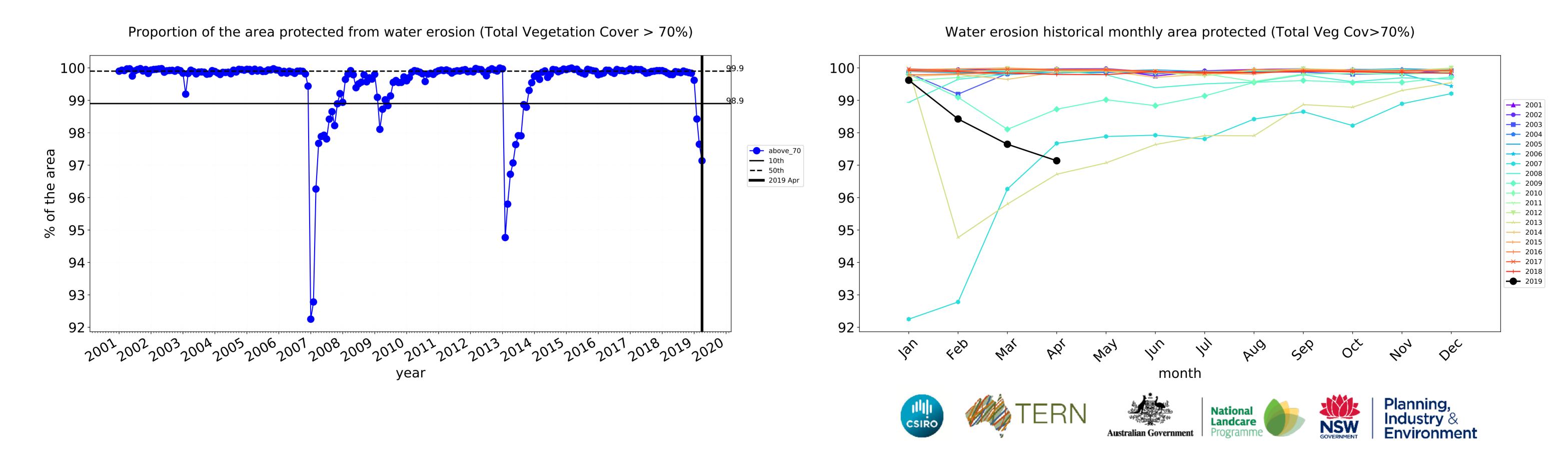


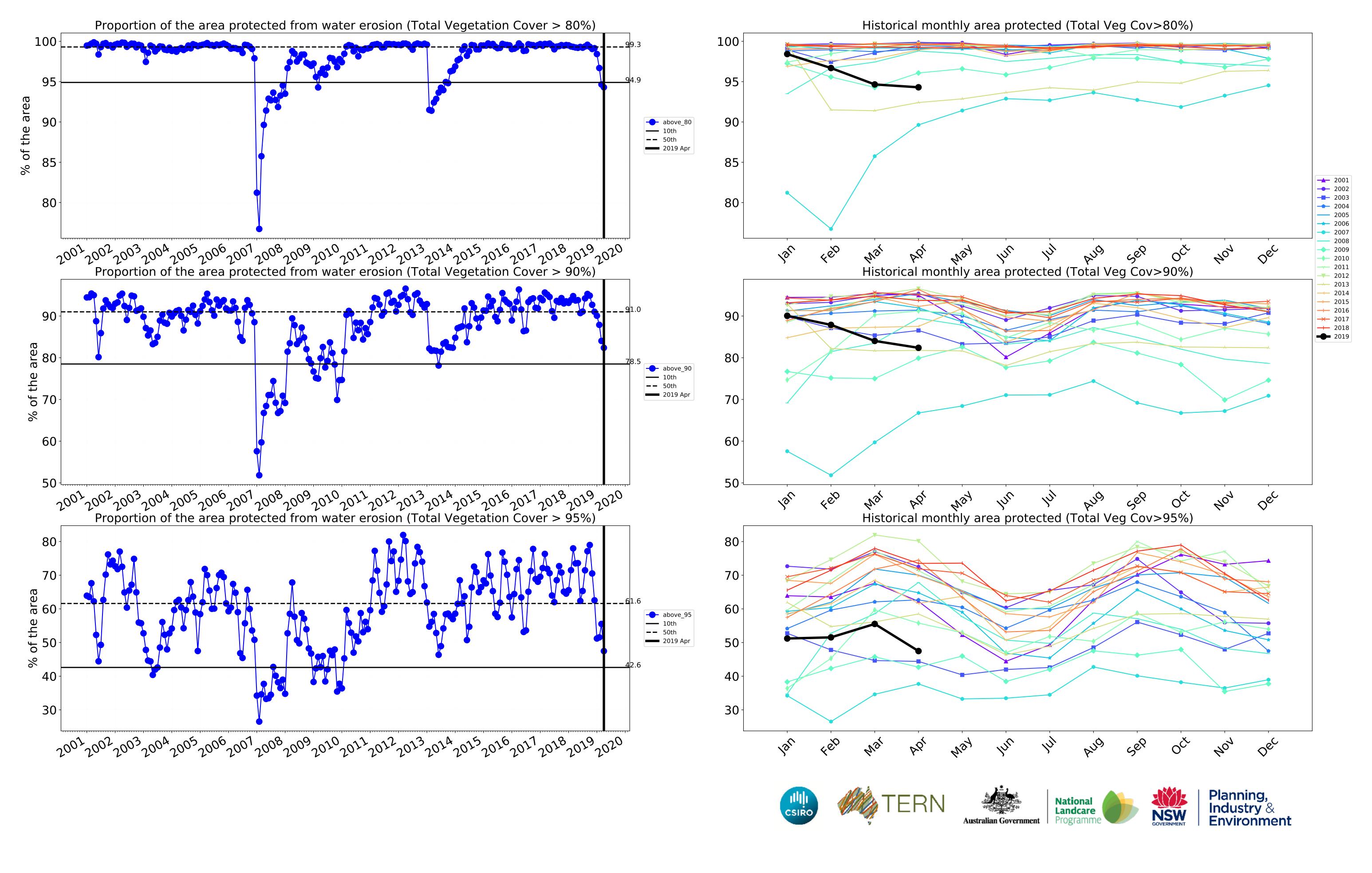




Production native forests and plantation forests timeseries







West Gippsland (1,678,850 ha and no data 46,794 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	1,678,850	99.9% 1,677,250	99.4% 1,669,525	94.7% 1,590,475	86.6% 1,454,700	57.1% 957,800	26.7% 448,925
Conservation and natural environments	271,500	99.7% 270,675	98.6% 267,625	89.7% 243,450	81.3% 220,725	59.3% 161,100	29.1% 78,950
Conservation and natural environments non forest	43,325	98.7% 42,750	96.9% 42,000	88.3% 38,275	75.0% 32,500	45.6% 19,775	22.7% 9,850
Conservation and natural environments Woodland forest	73,175	99.9% 73,100	99.2% 72,600	92.3% 67,525	86.9% 63,600	68.4% 50,025	36.4% 26,650
Conservation and natural environments Forest (non woodland)	155,000	99.9% 154,825	98.7% 153,025	88.8% 137,650	80.4% 124,625	58.9% 91,300	27.4% 42,450
Agriculture	746,350	100.0% 746,075	99.6% 743,350	95.6% 713,250	84.6% 631,425	40.2% 300,400	12.5% 93,175
Grazing	674,350	100.0% 674,150	99.6% 671,575	95.4% 643,425	84.5% 569,900	42.1% 283,675	13.5% 90,725
Grazing non forest	623,050	100.0% 622,875	99.6% 620,375	95.2% 592,875	83.7% 521,250	39.8% 247,925	12.0% 74,775
Grazing - Forest (non woodland)	41,150	100.0% 41,150	99.8% 41,075	98.5% 40,525	95.5% 39,300	72.5% 29,850	32.3% 13,275
Irrigation	62,325	99.9% 62,250	99.7% 62,125	96.9% 60,375	85.3% 53,150	20.4% 12,725	2.2% 1,350
Production native forests and plantation forests	564,875	100.0% 564,775	99.8% 563,650	97.1% 548,700	94.3% 532,675	82.4% 465,350	47.5% 268,150











