Total vegetation cover soil protection Region:LGA Livingstone (S) QLD

This report describes vegetation protecting the soil surface from erosion during a chosen month compared to previous years. This report has been generated using MODIS fractional vegetation cover information available in Rangelands and Pasture Productivity (RAPP) map tool https://map.geo-rapp.org/#australia. The report is based on 500 metre pixel data on monthly time steps.

Land use forest cover:

Date: October 2021

Results can be shown for the whole region (polygon), and separated by land use and forest cover classes which are likely to show different cover patterns and targets. Land use is divided into four broad classes: Conservation and natural environments, Agriculture, production native forests and plantation forests (no report), and other (no report). Agriculture is divided into grazing, crops and horticulture which are sub-divided into non-irrigated and irrigated. If forest is present land use is further divided into: non-forest, woodland forest and non-woodland forest. The area of each land use and forest class are shown as a map and chart. The report content is repeated for each land use and forest cover class that covers at least 1% of the area of the chosen region. Total vegetation Cover:

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

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

Erosion protection: Wind erosion 50% total vegetation cover

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

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

Comparison with previous years:

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

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

Erosion protection

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

Rainfall

• Millimetres rainfall each month (black line).

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

Water erosion protection for higher rainfall and steeper slopes:

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

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

Acknowledgment of data:

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

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









Vegetation Cover Oct 2021

Land use and forest cover

Catchment Scale

Derived from

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

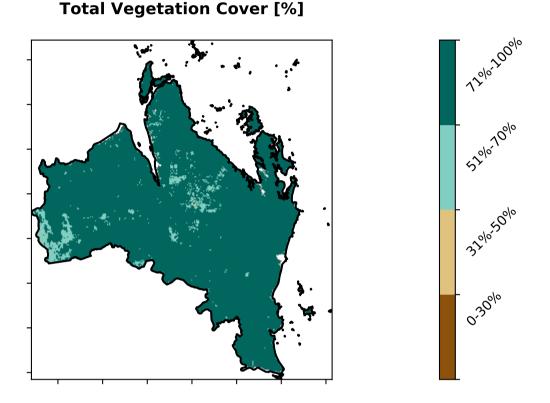
using baseline from 2001 to 2019.

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

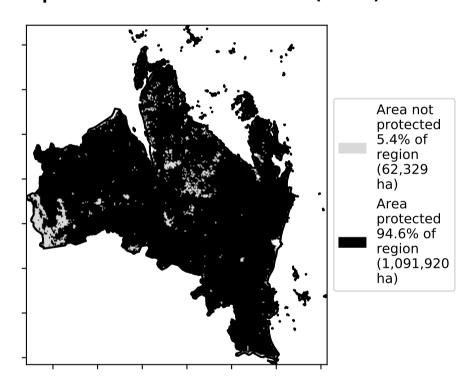
Land Use and Forests of Australia (2018)

Catchment Scale Land

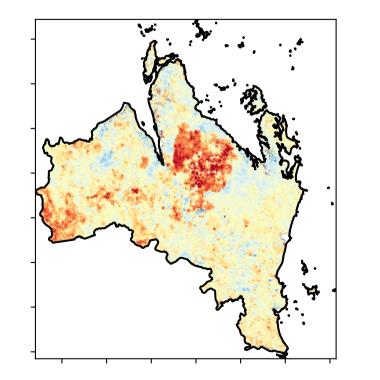
Legend with land class forest cover and number, i.e. Forests is 12 1 Conservation and natural environments - Non-forest 2 Conservation and natural environments - Woodland forest 3 Conservation and natural environments - Non-Woodland forest 4 Agriculture - Grazing - Non-forest 5 Agriculture - Grazing - Woodland forest 6 Agriculture - Grazing - Non-woodland forest 7 Agriculture - Grazing - Irrigated 8 Agriculture - Cropping - Non-irrigated 9 Agriculture - Cropping - Irrigated 10 Agriculture - Horticulture - Non-irrigated 11 Agriculture - Horticulture - Irrigated 12 Production native forests and plantation forests 13 Other uses



% Area protected from water erosion (>70%)

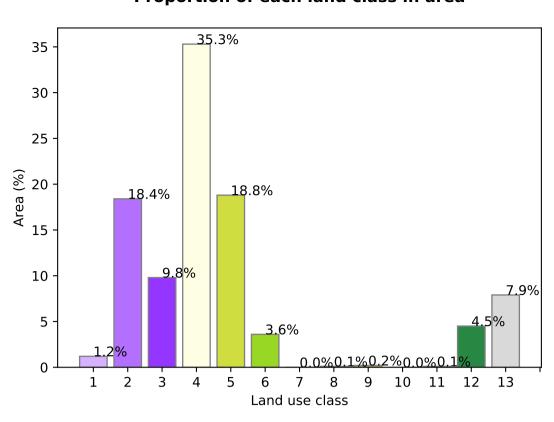


Total Vegetation Cover Anomaly [%]

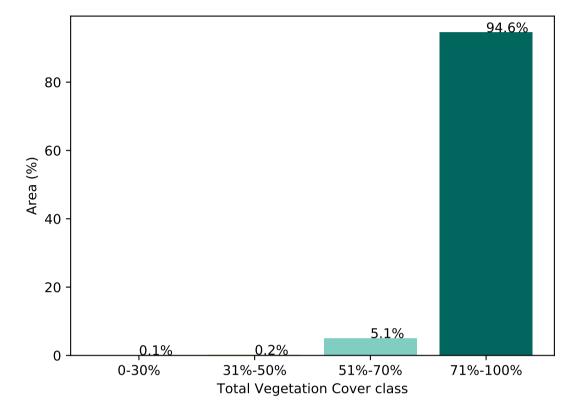


- 20 - 10 - 0 - -10

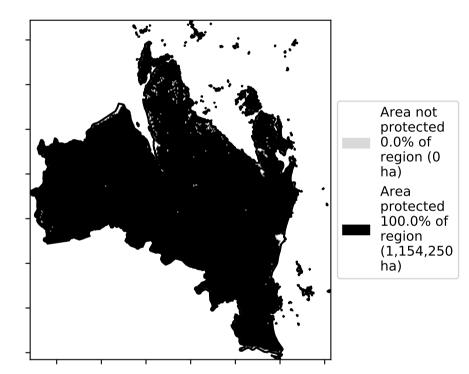
Proportion of each land class in area



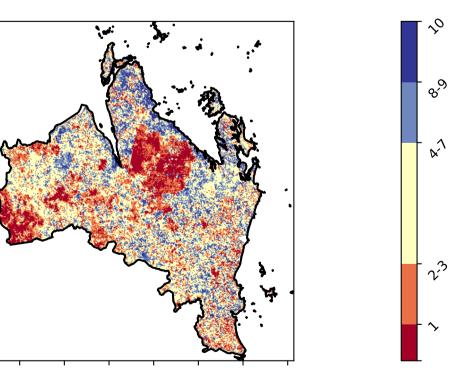
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







Deciles show where the

pixel value lies in the record, from highest to lowest, for that month.

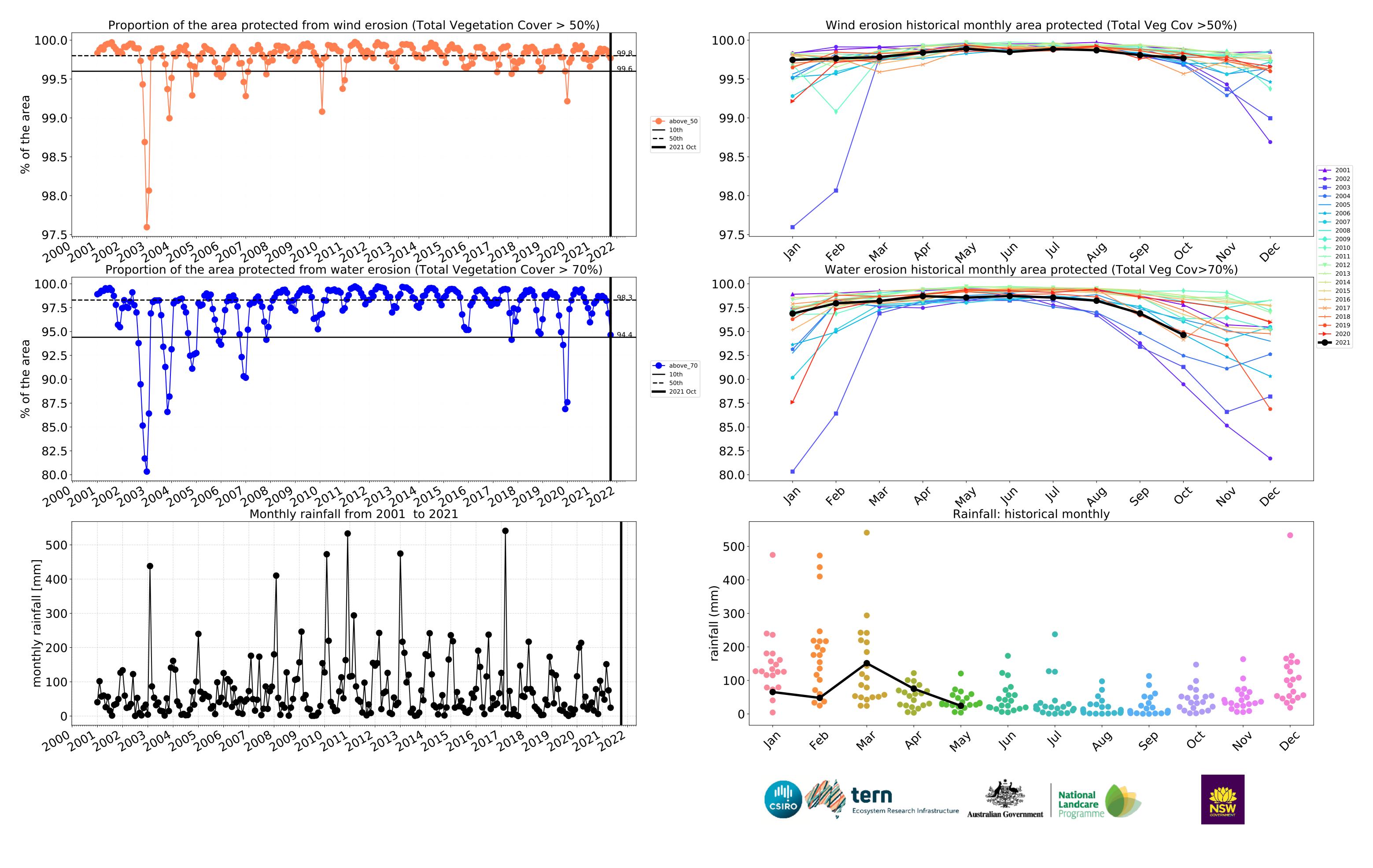
That is, red pixels are

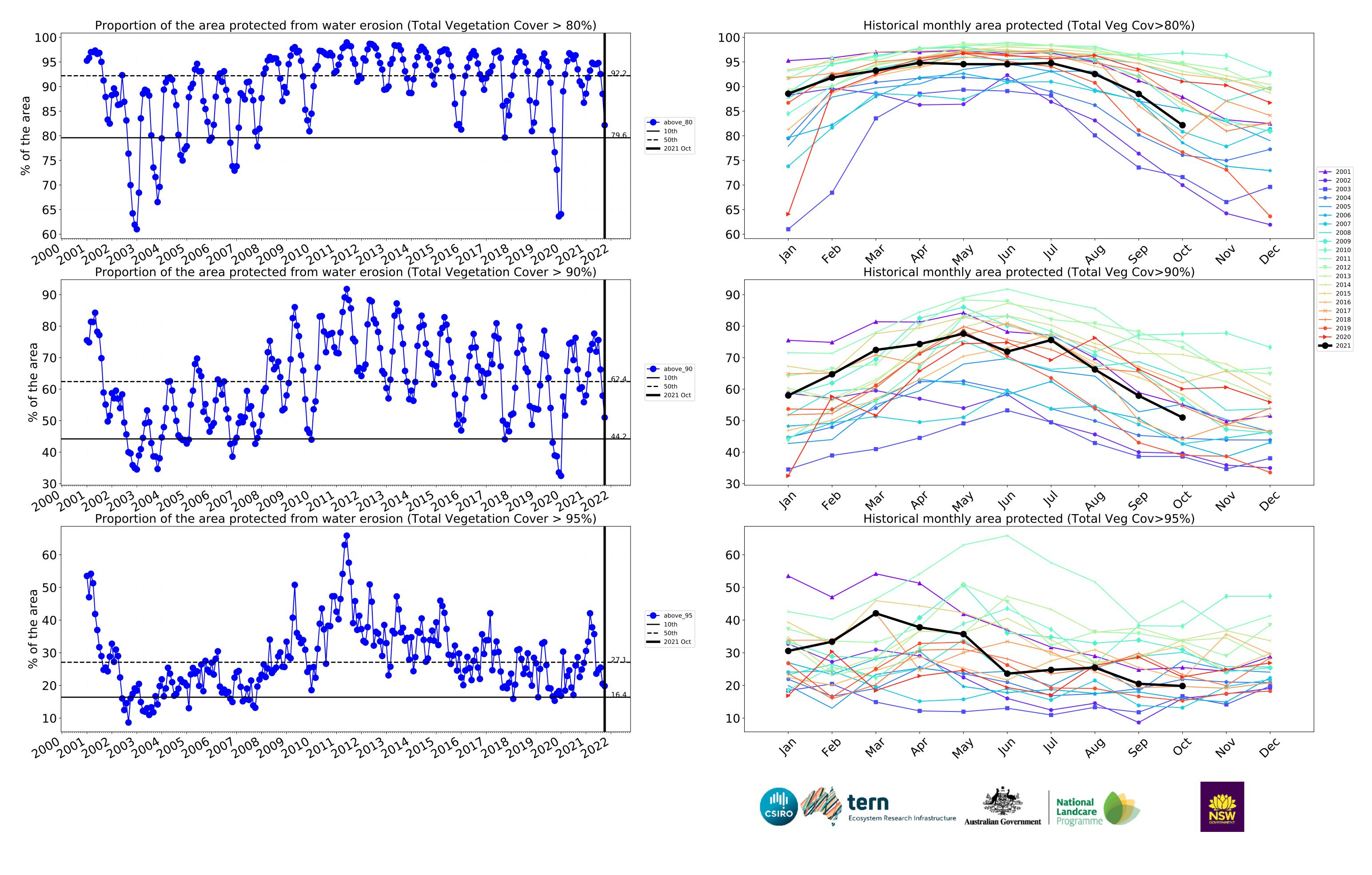
from 2001 to 2019.

in the lowest 10% of records for that month of the map using baseline









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)

Anomaly show how many percetage points each

pixel is from

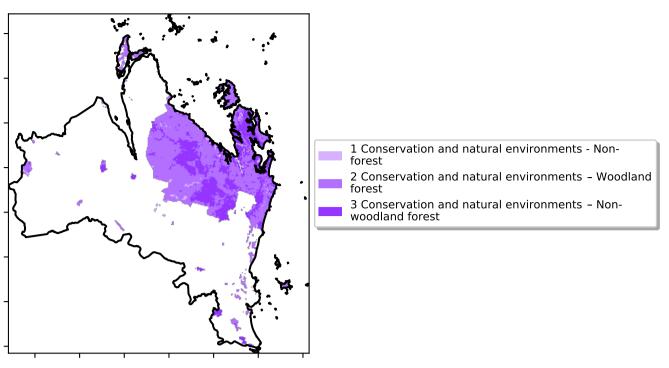
is, red pixels are about 20% lower than the mean of that

the mean. That

pixel. The mean

using baseline from 2001 to 2019.

is only for the month of the map

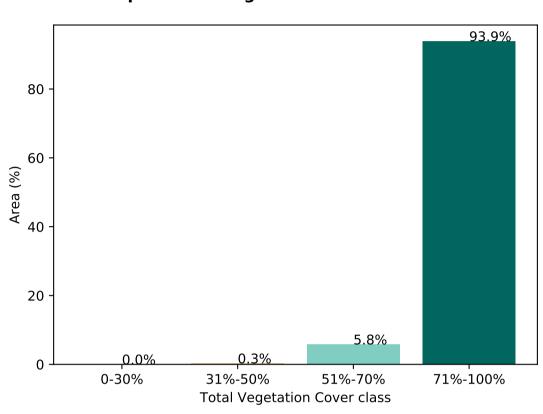


60 50 40 Area (%) 20 10

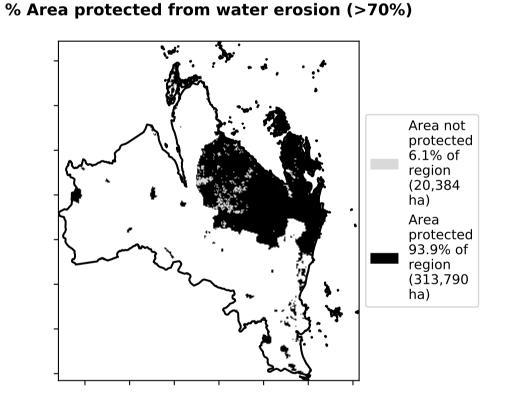
Proportion of each land class in area 62.5% 33.3% 2 3 Land use class

Total Vegetation Cover [%]

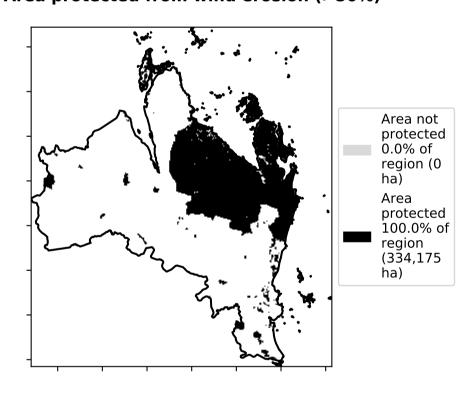
Proportion of vegetation cover class in area



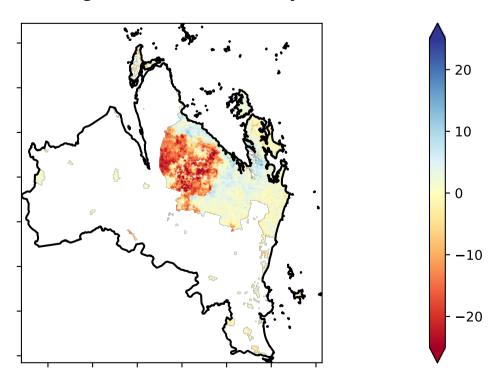
Land use and forest cover



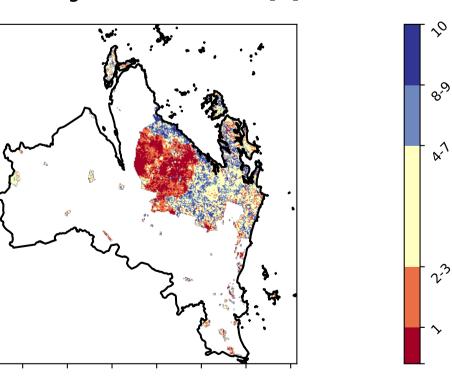
% Area protected from wind erosion (>50%)



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.





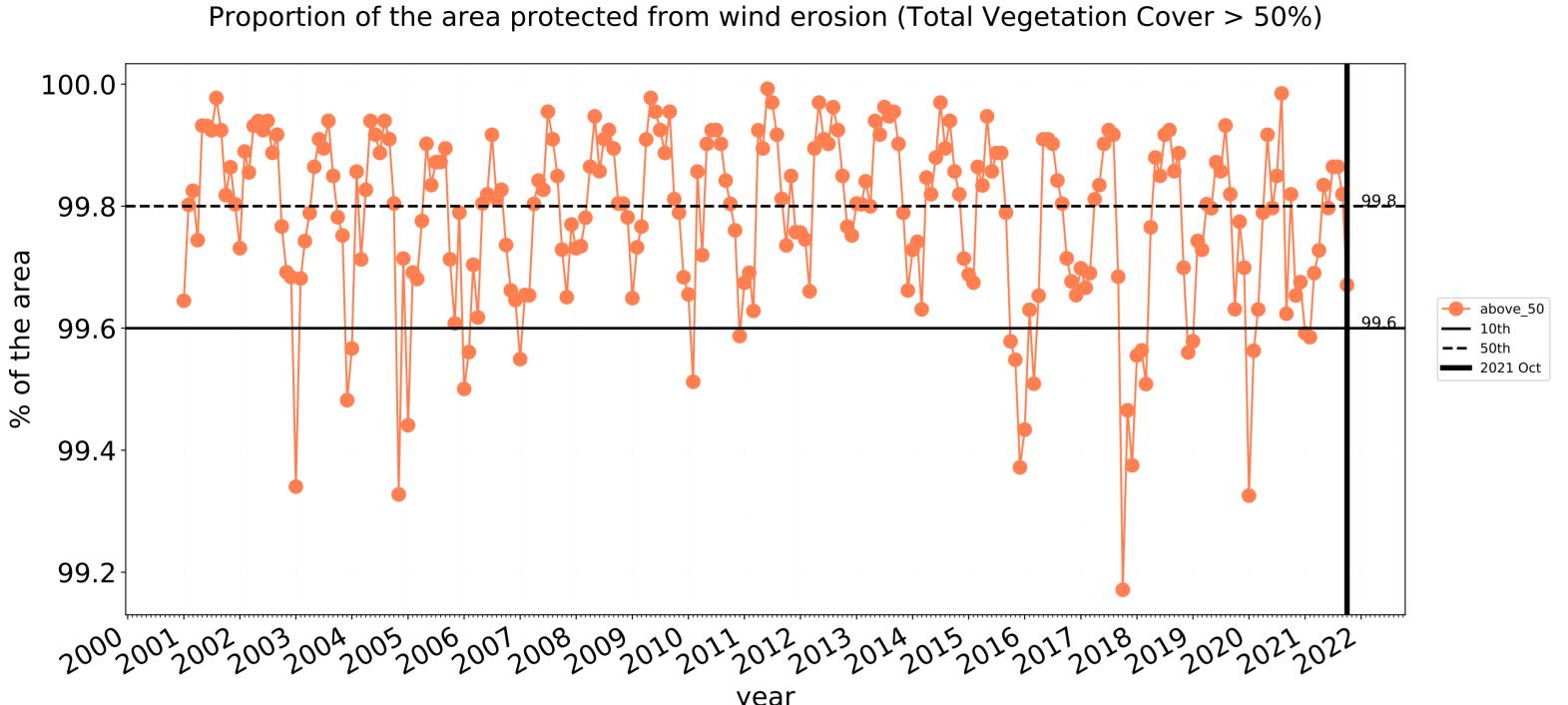


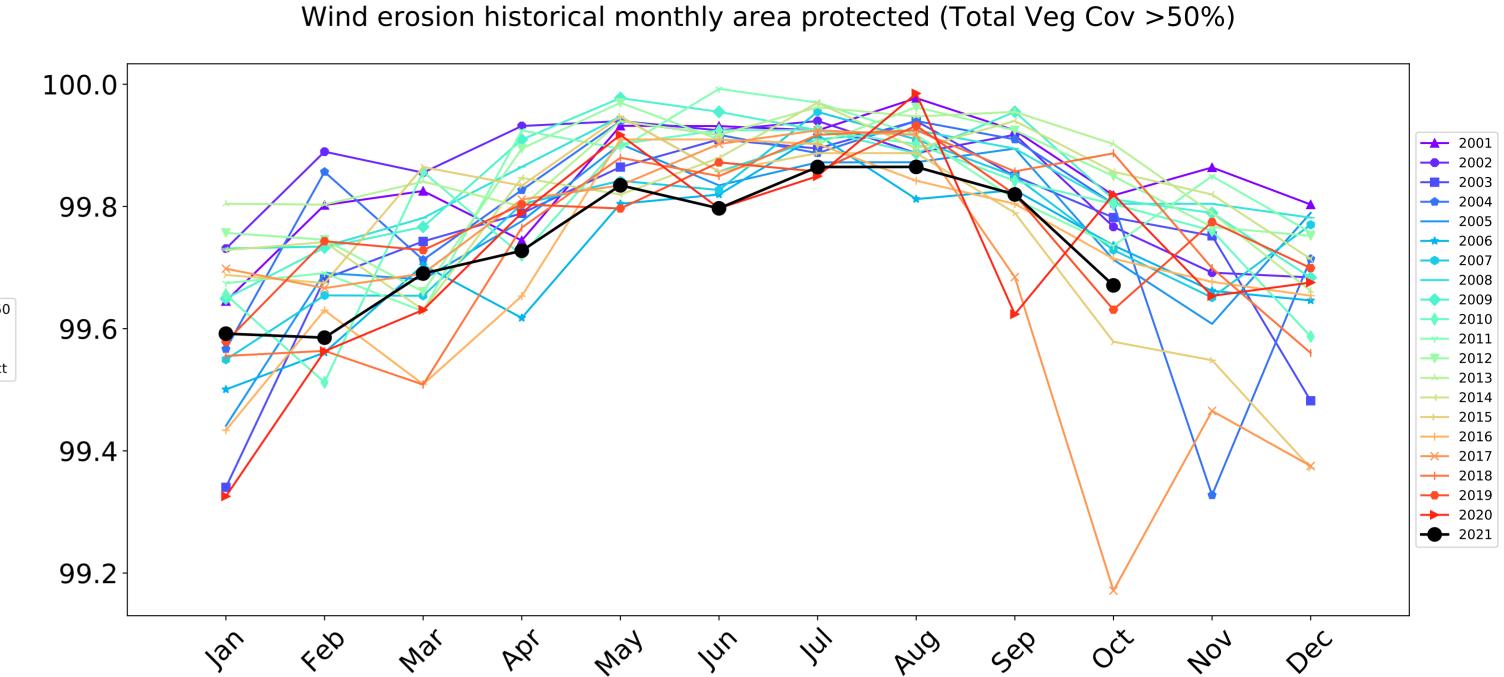




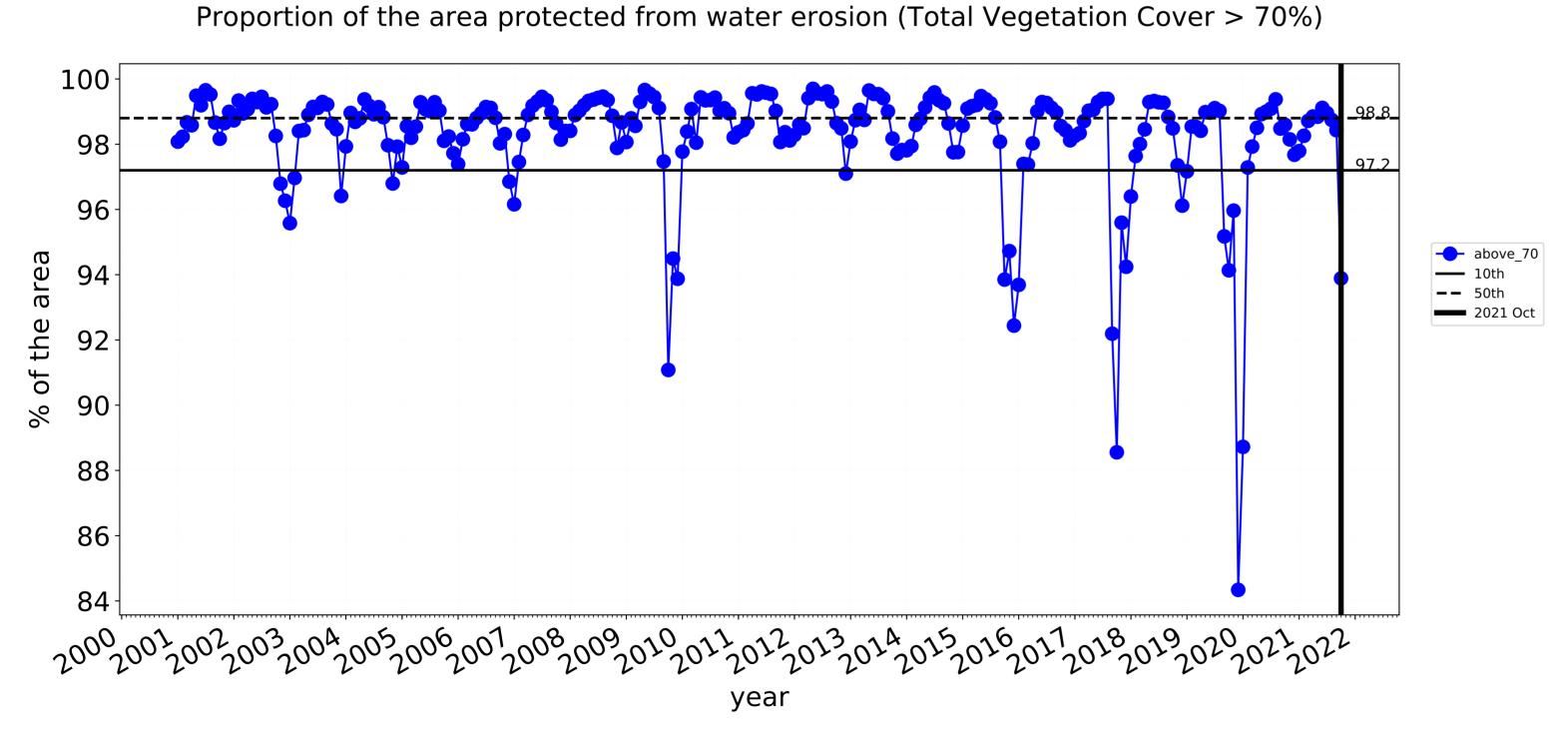


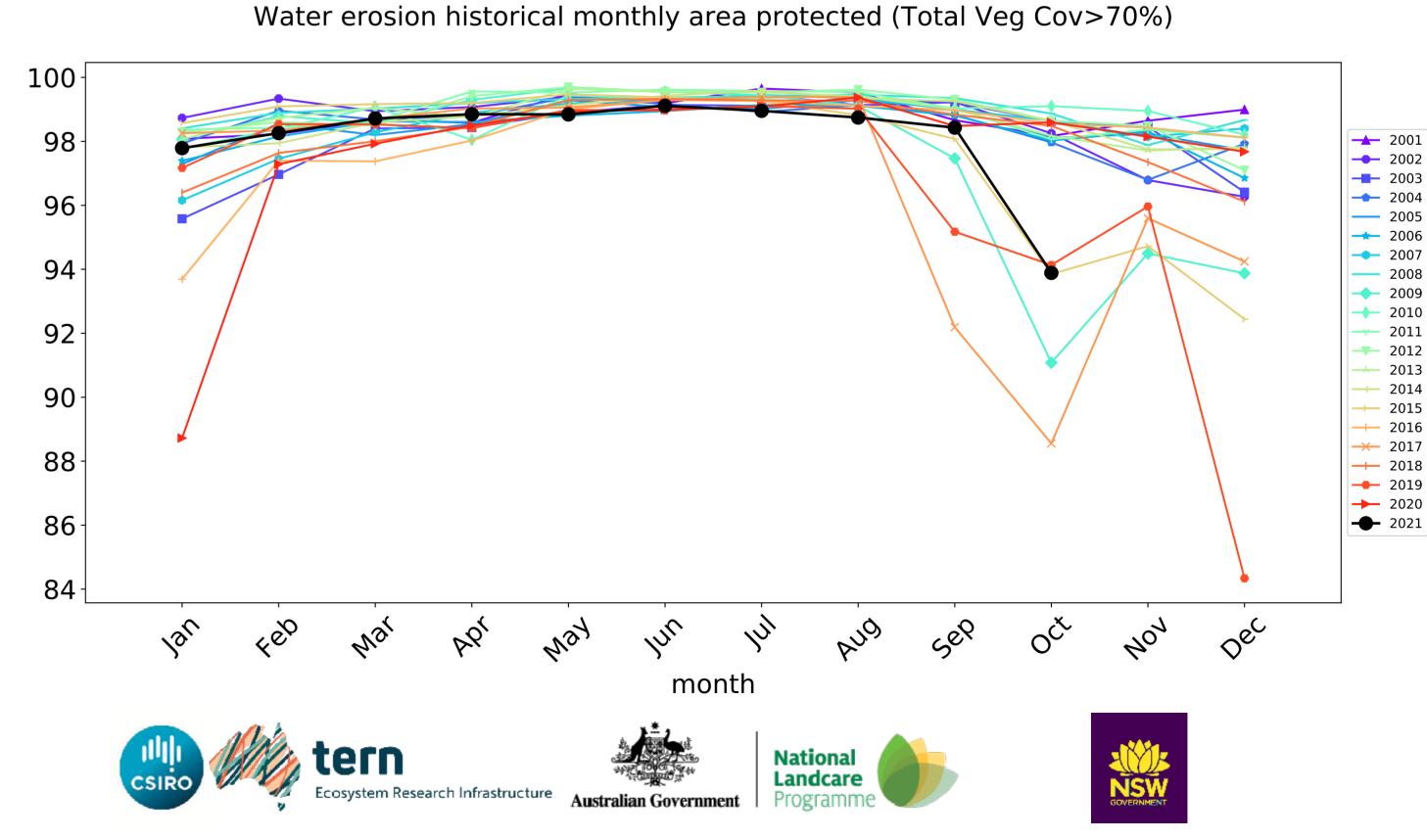
Conservation and natural environments timeseries

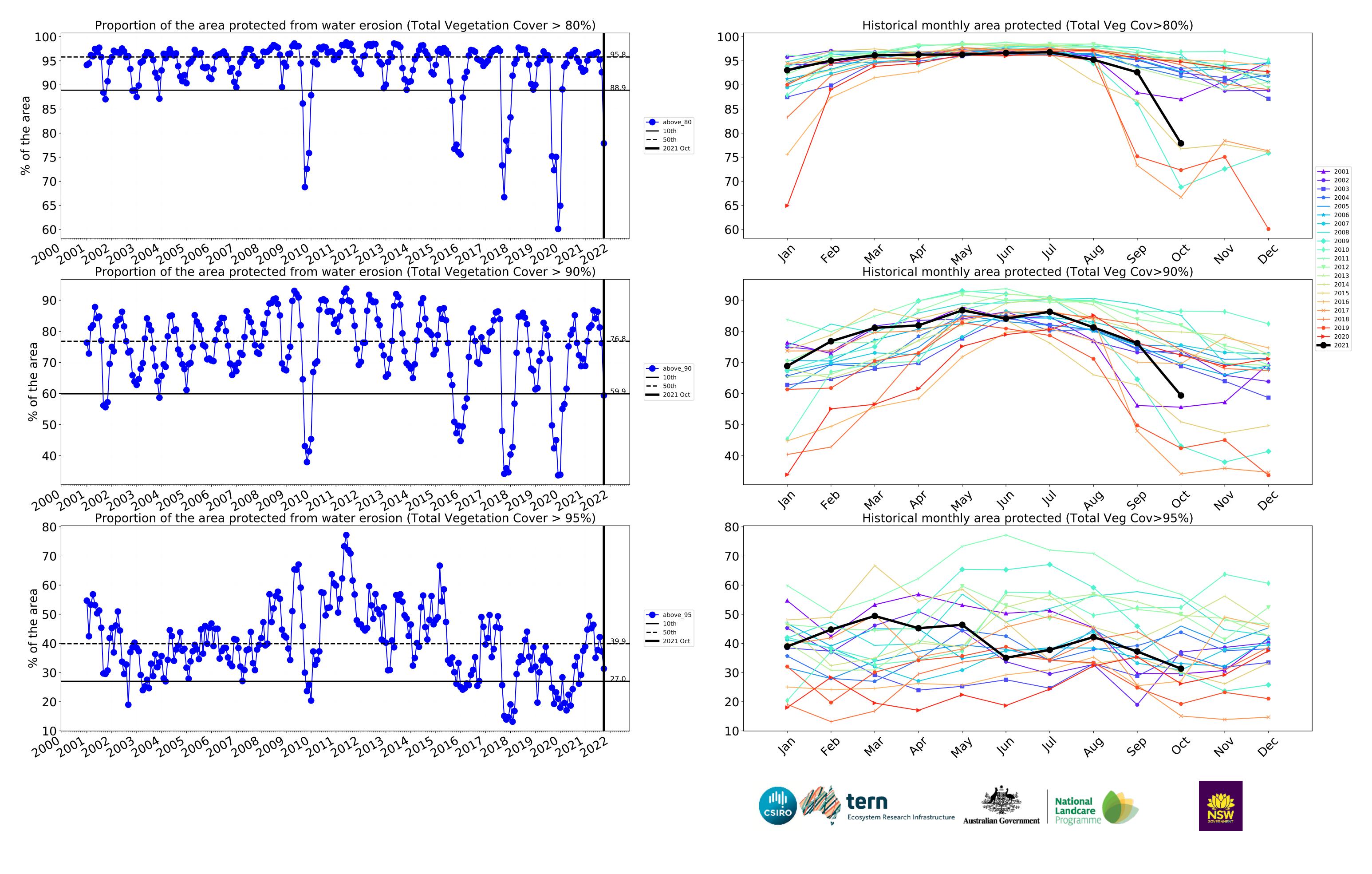




month







Conservation and natural environments non forest

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

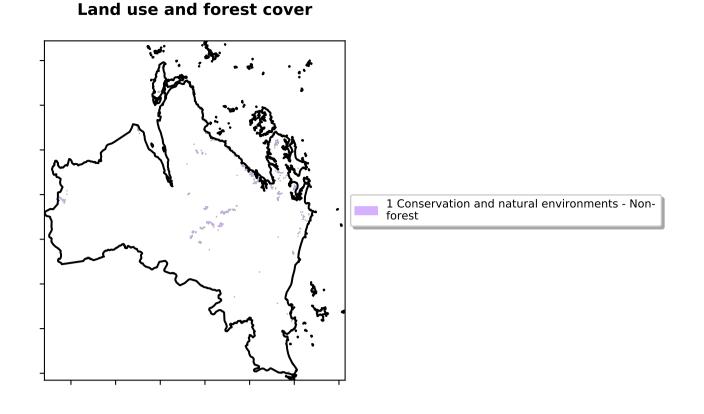
Anomaly show how many percetage points each

pixel is from the mean. That

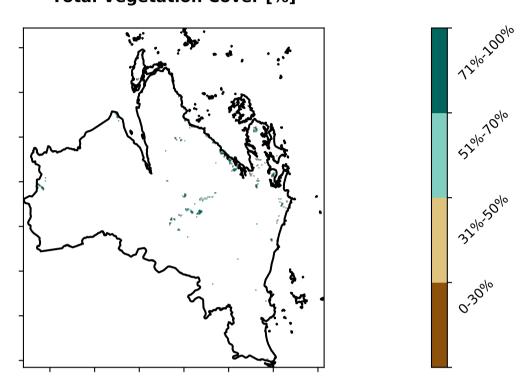
pixel. The mean is only for the month of the map

using baseline from 2001 to 2019.

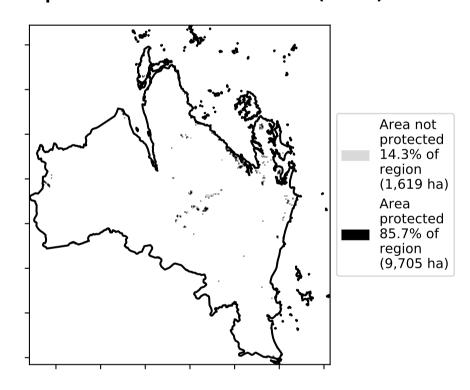
is, red pixels are about 20% lower than the mean of that



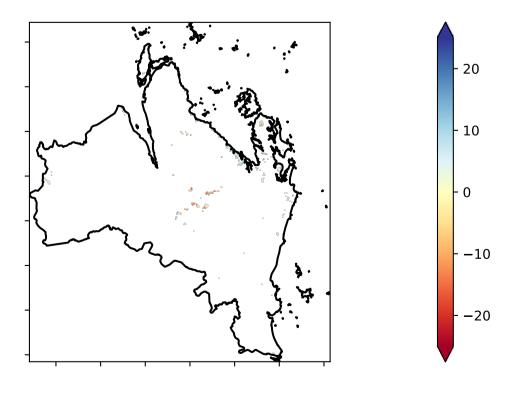
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

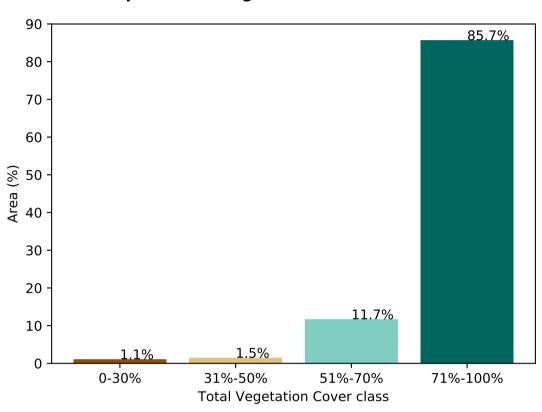


Total Vegetation Cover Anomaly [%]

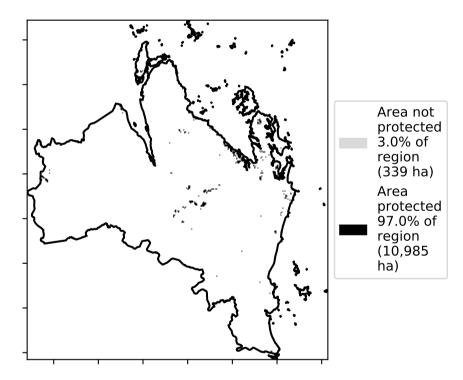


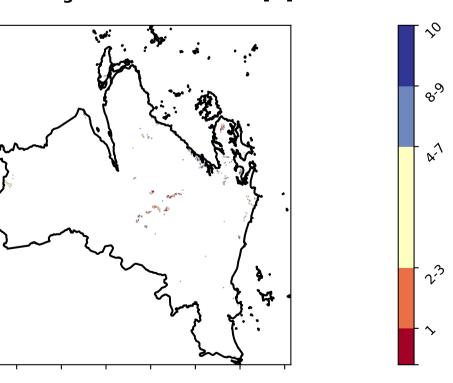
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)







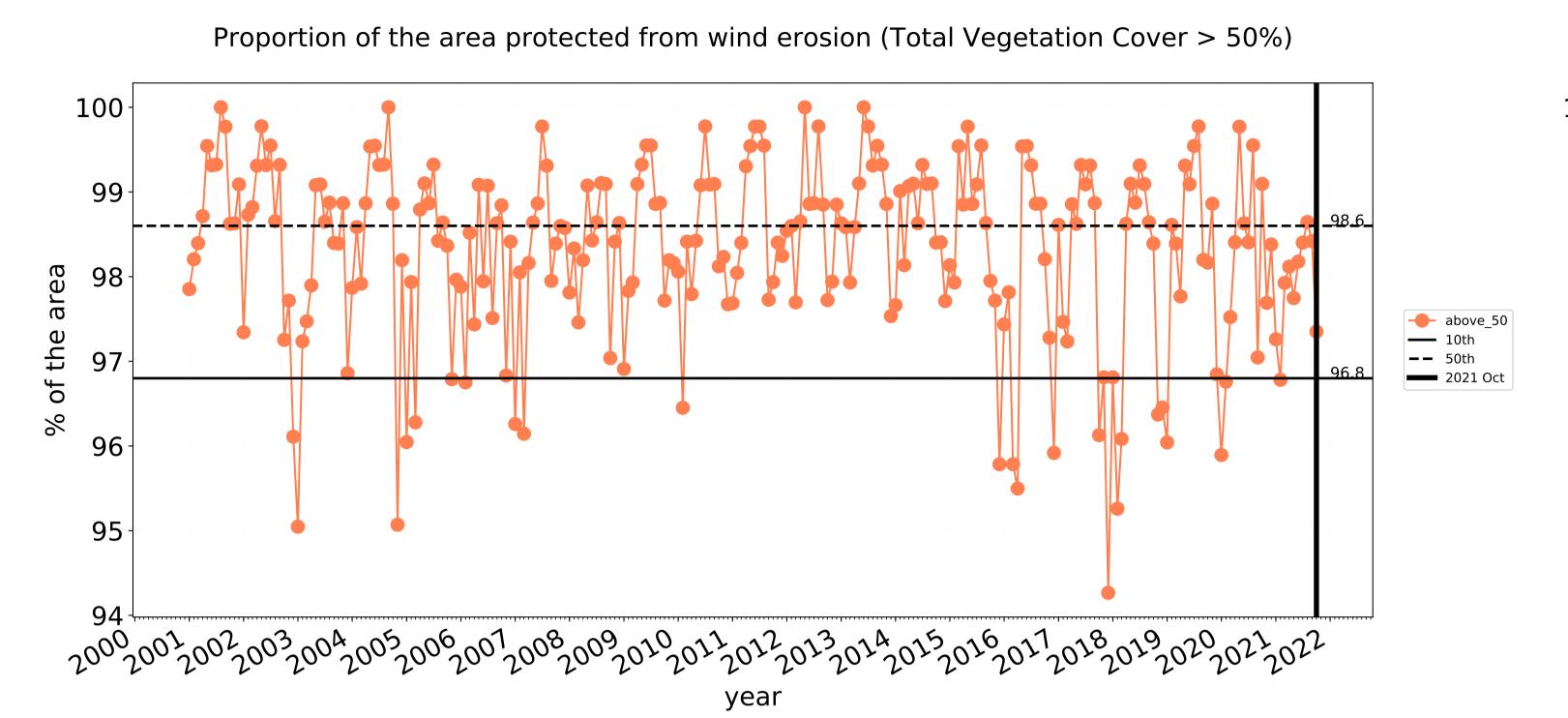


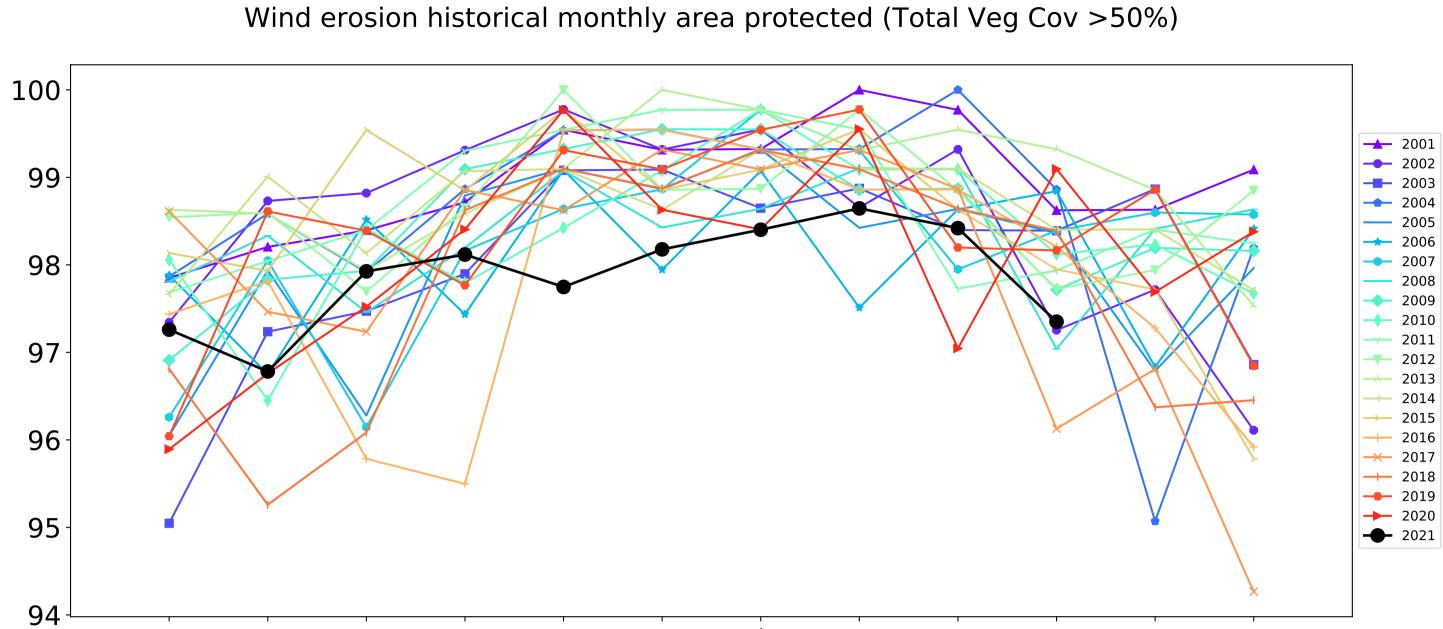




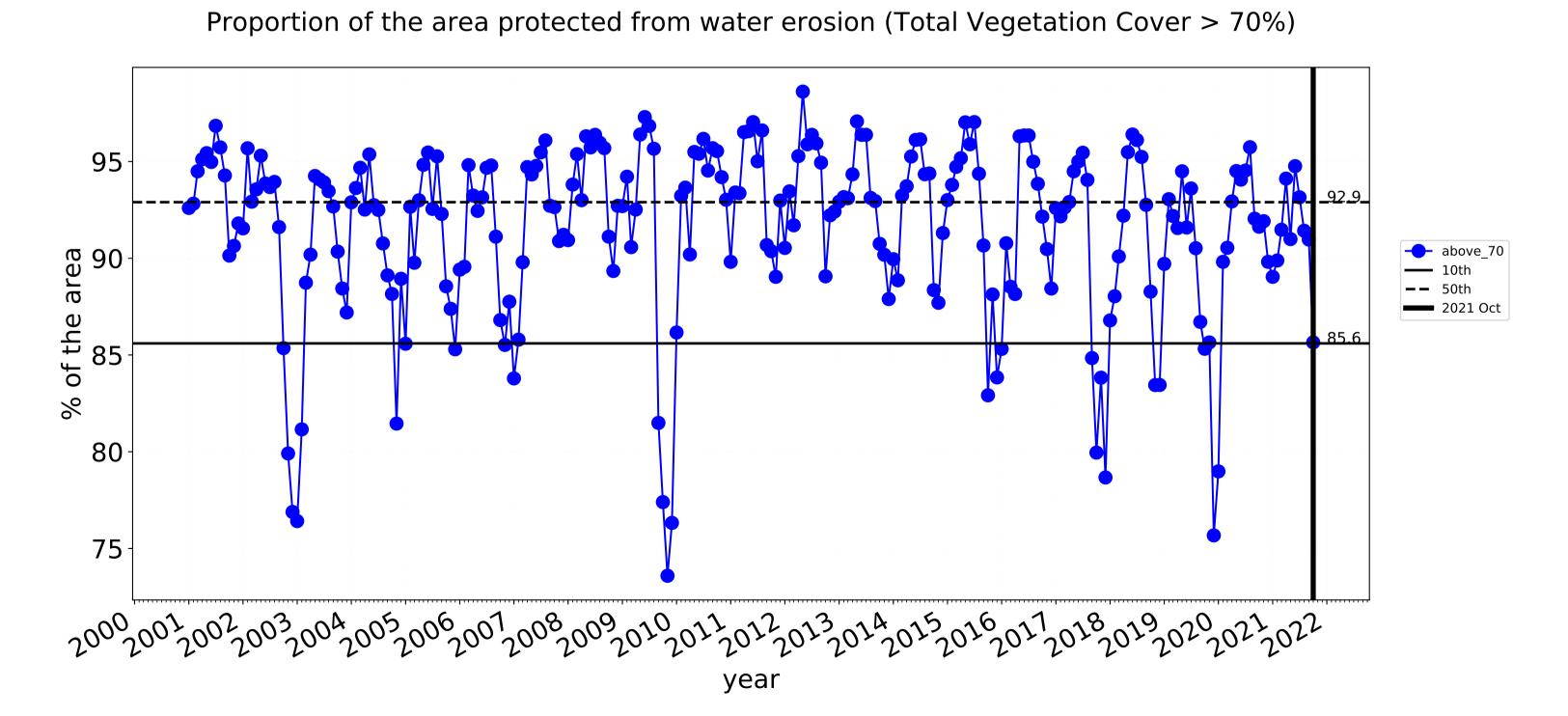


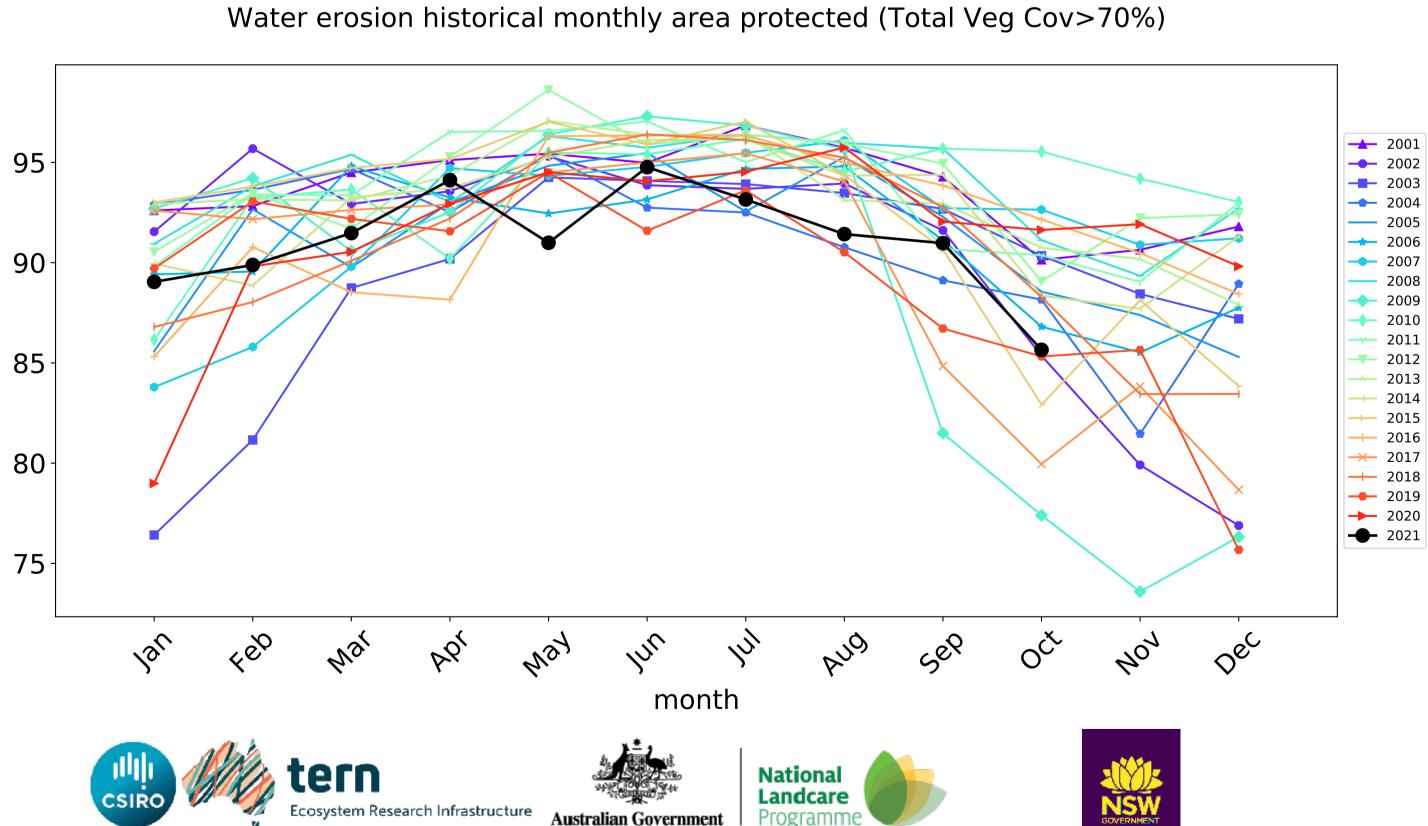
Conservation and natural environments non forest timeseries

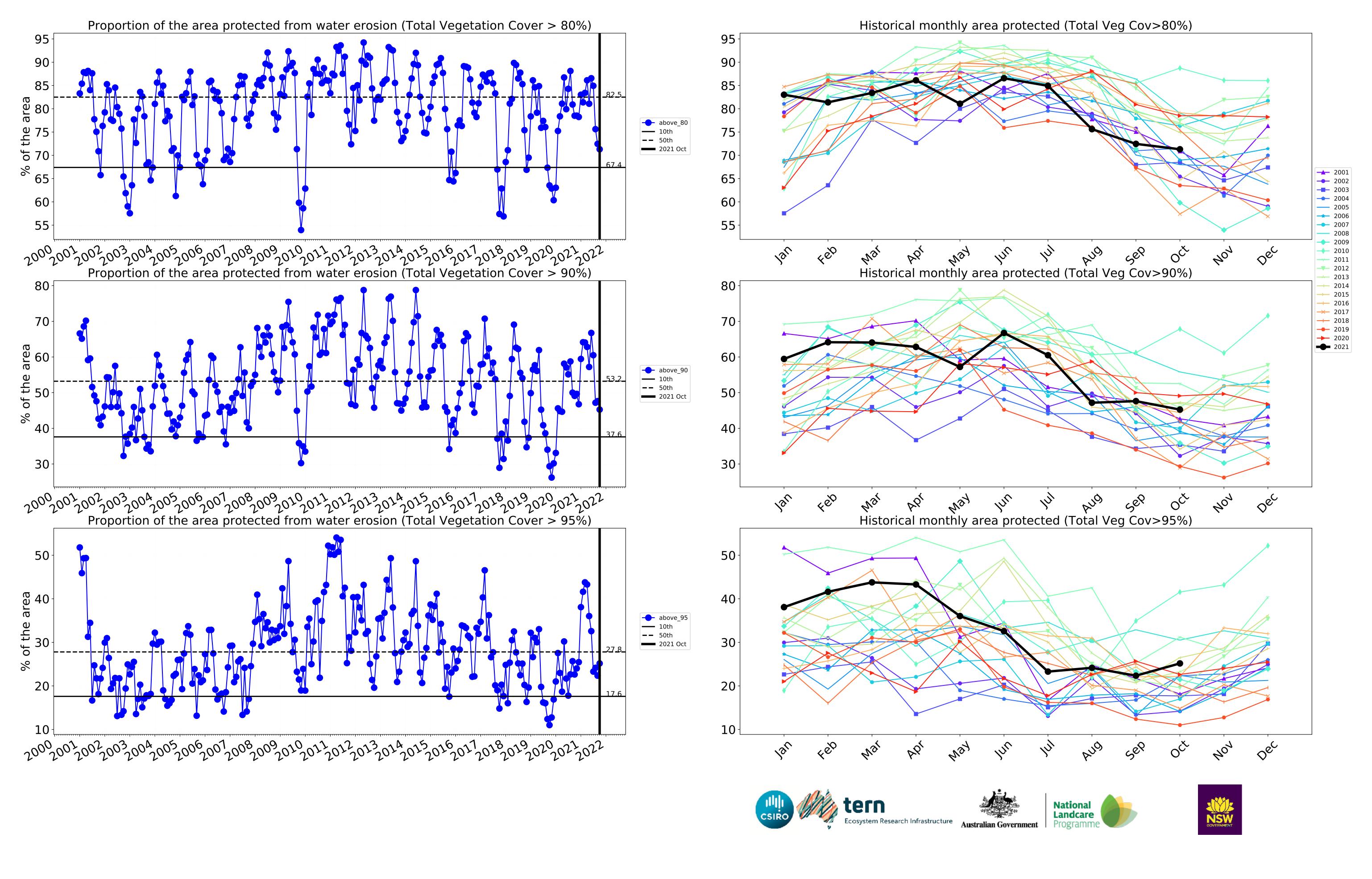




month







Conservation and natural environments Woodland forest

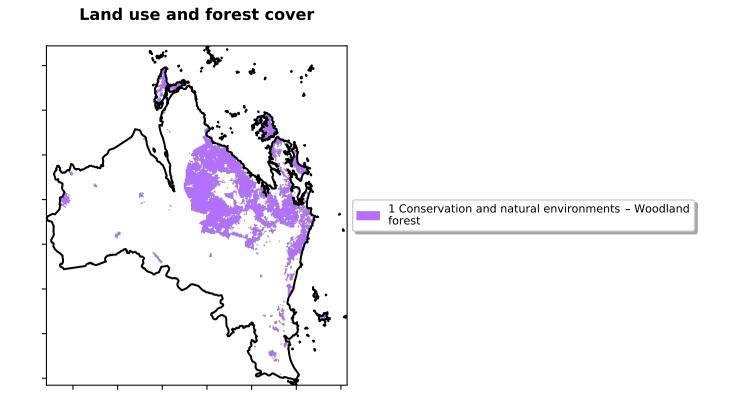
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Anomaly show how many percetage points each

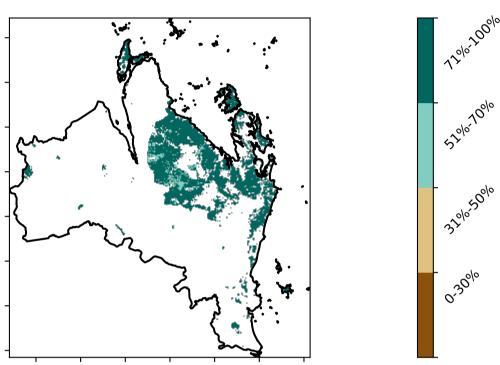
pixel is from the mean. That

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

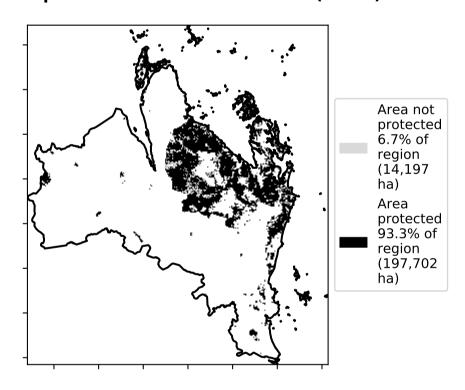
is, red pixels are about 20% lower than the mean of that



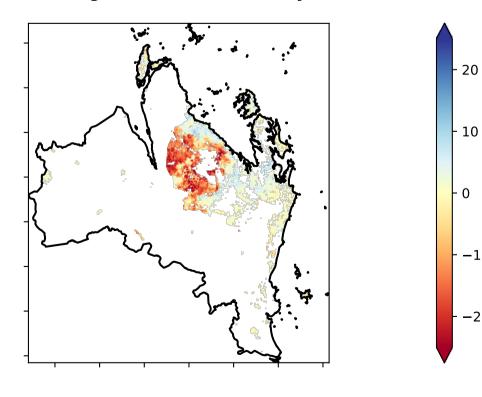
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

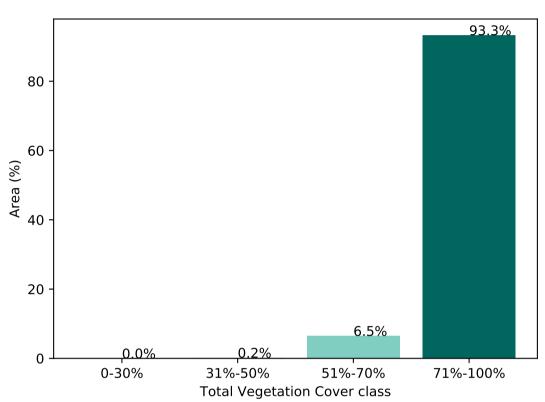


Total Vegetation Cover Anomaly [%]

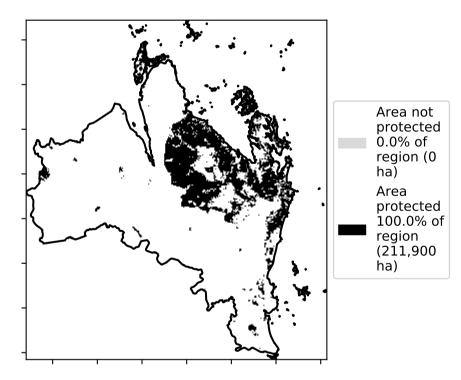


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseling. the map using baseline from 2001 to 2019.

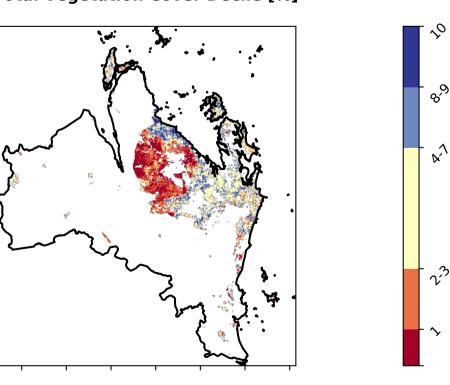
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]











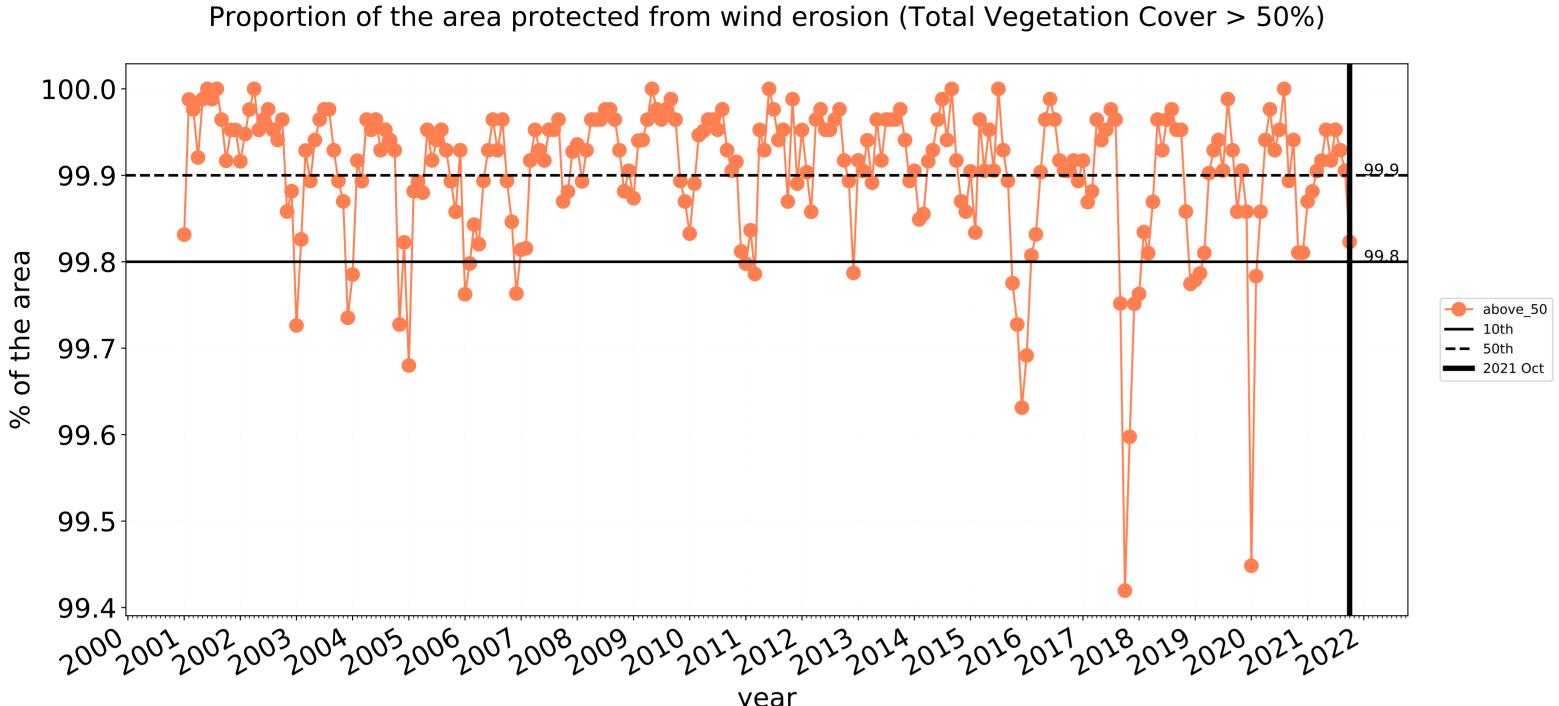


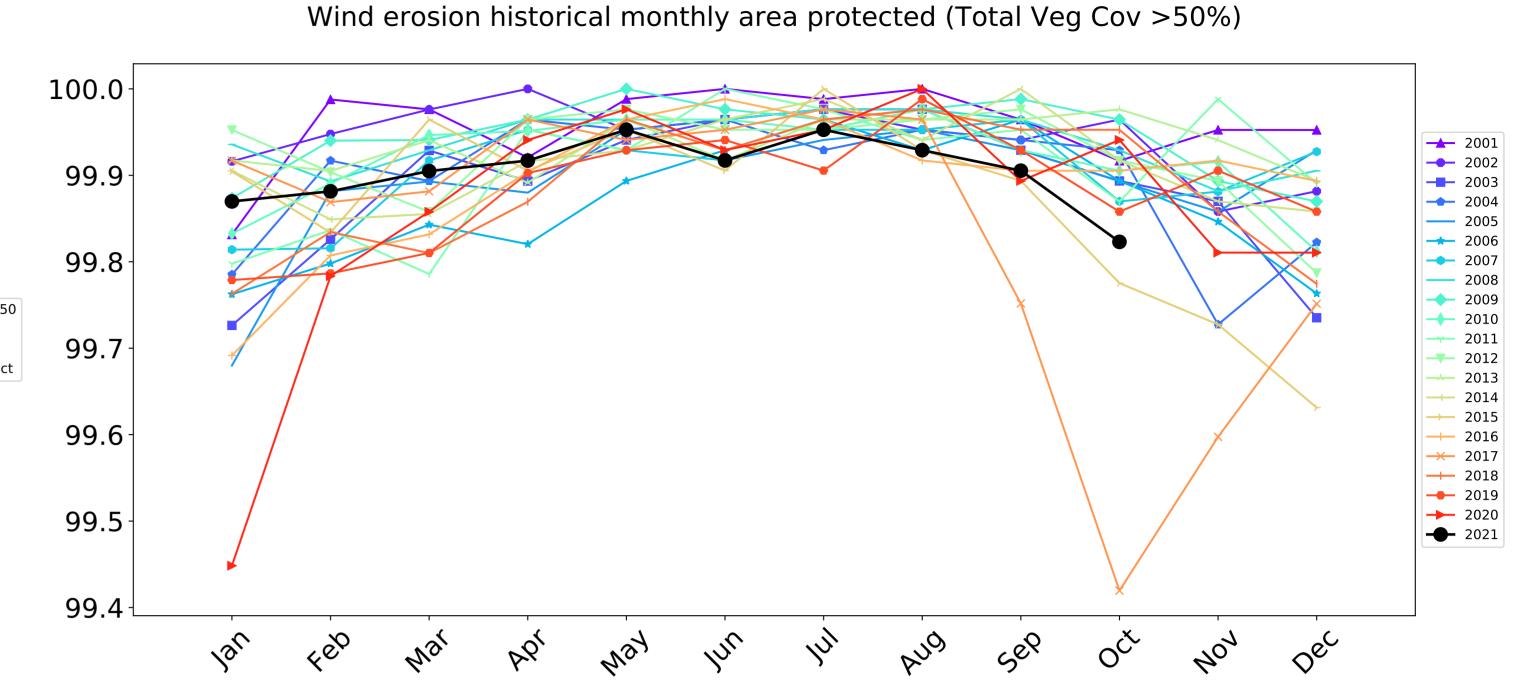


-10

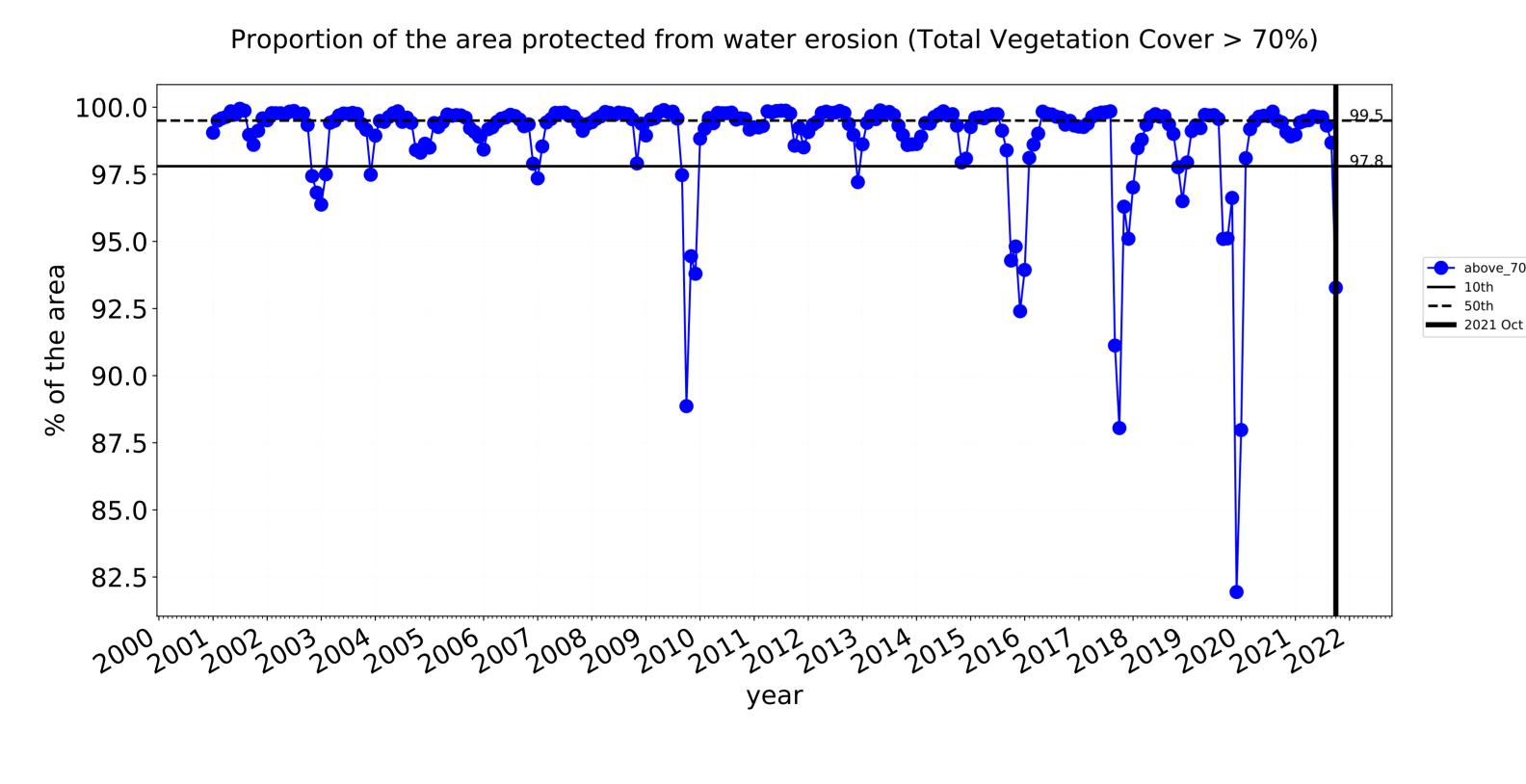
-20

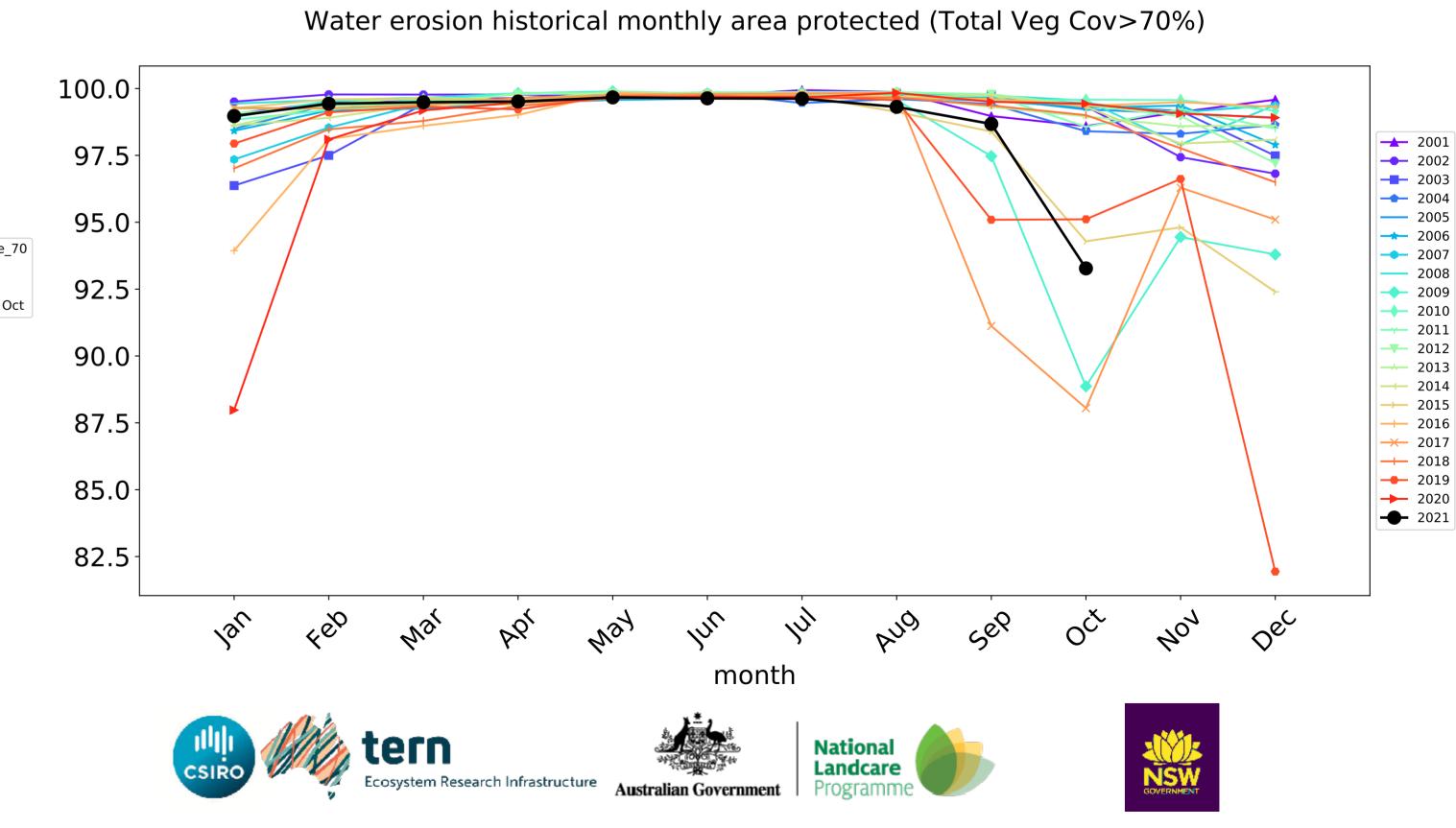
Conservation and natural environments Woodland forest timeseries

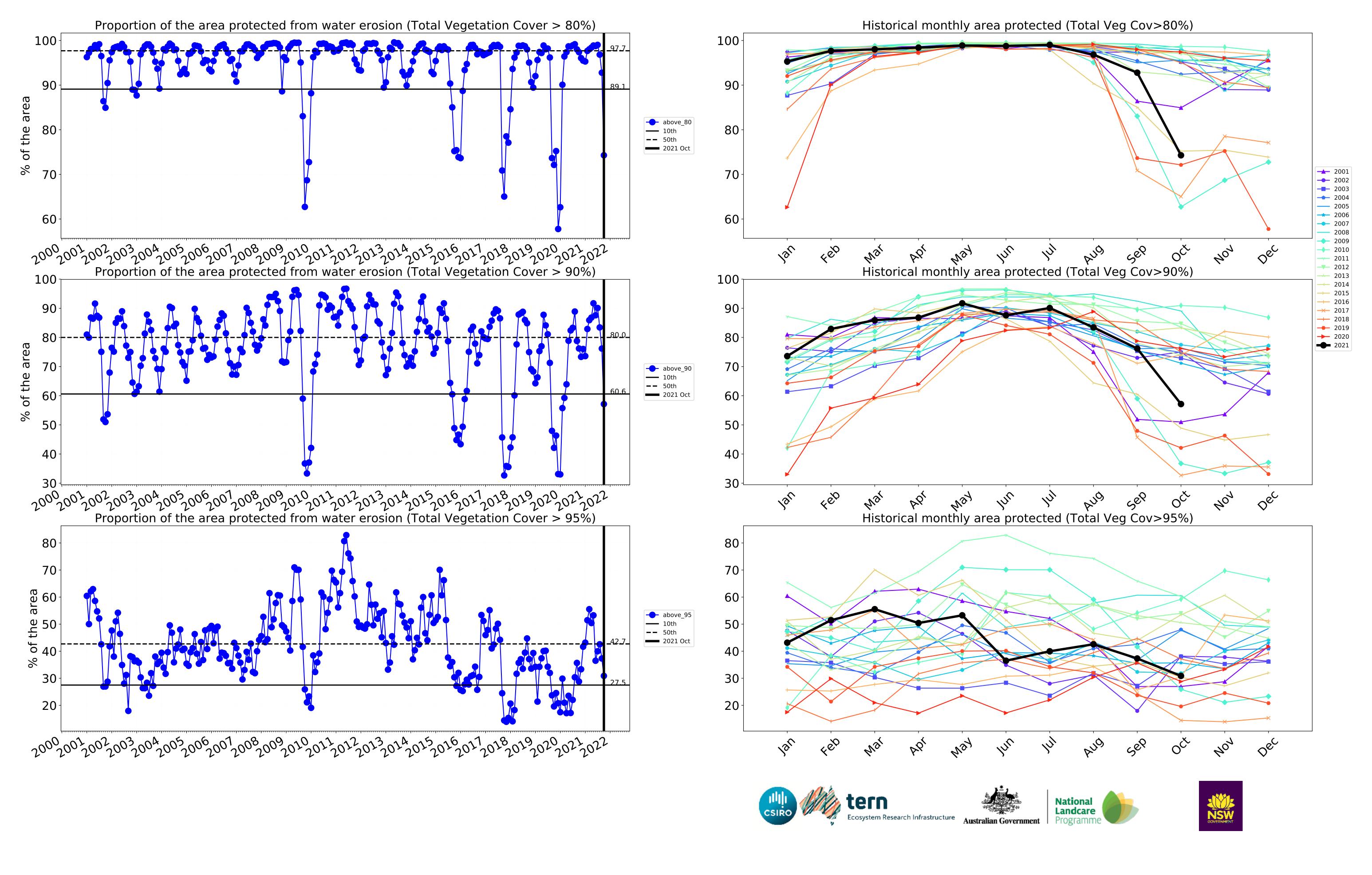




month







Conservation and natural environments Forest (non woodland)

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

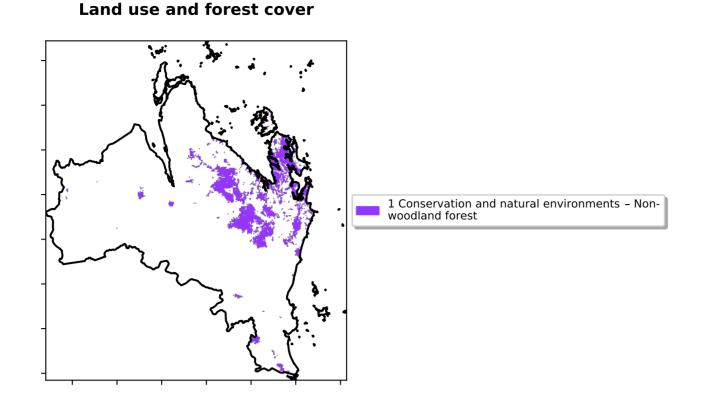
Use of Australia (2018) and Forests of Australia (2018)

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

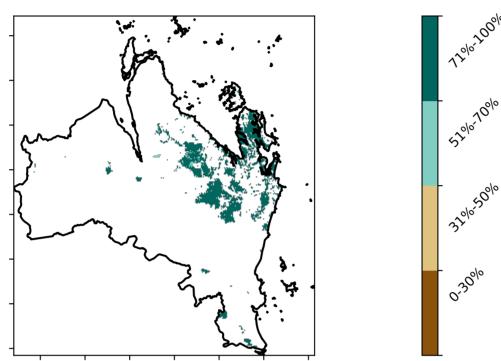
is, red pixels are about 20% lower than the mean of that

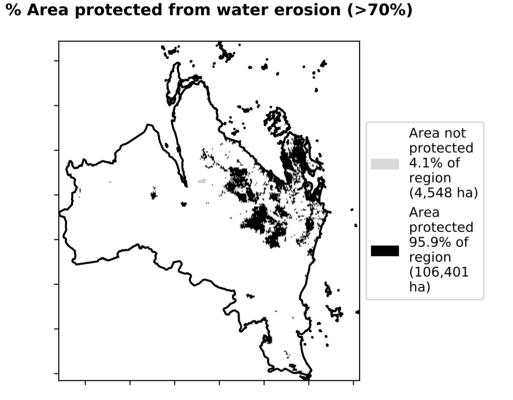
pixel. The mean

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

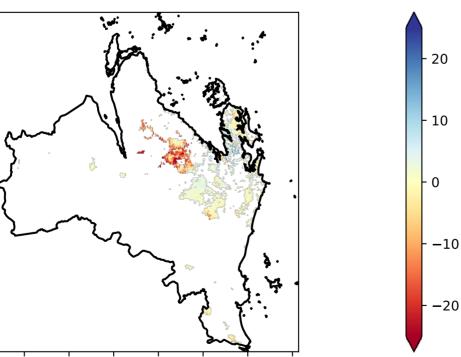


Total Vegetation Cover [%]



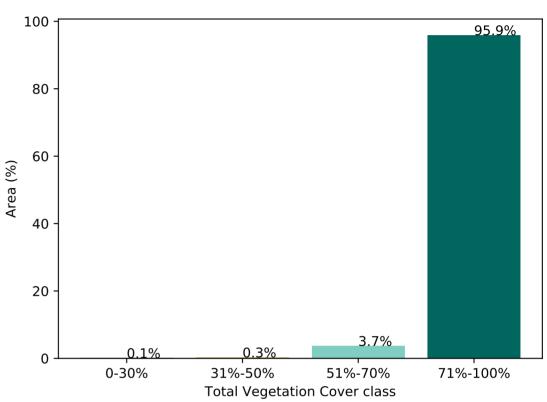


Total Vegetation Cover Anomaly [%]

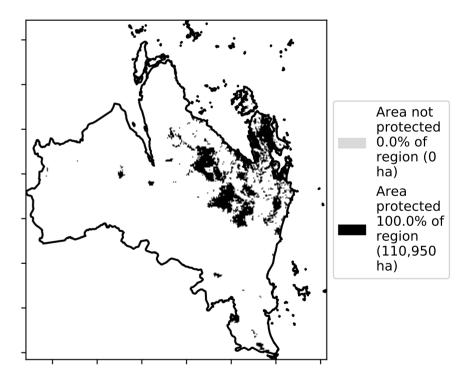


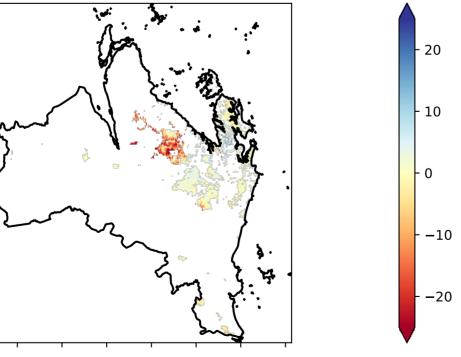
record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area

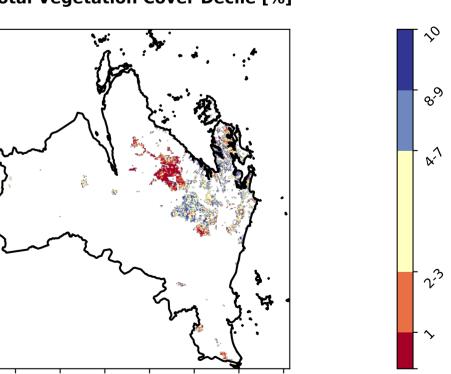


% Area protected from wind erosion (>50%)





Deciles show where the pixel value lies in the





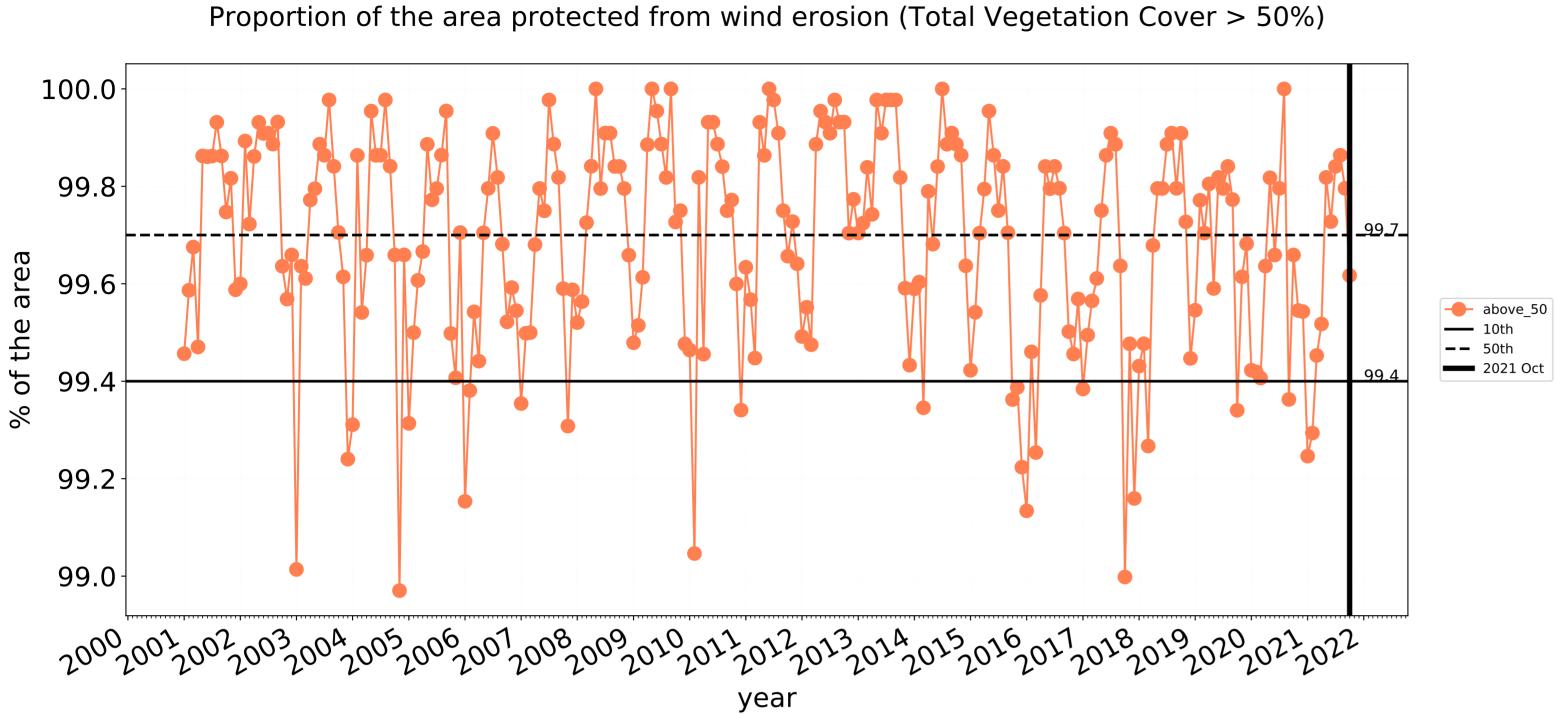


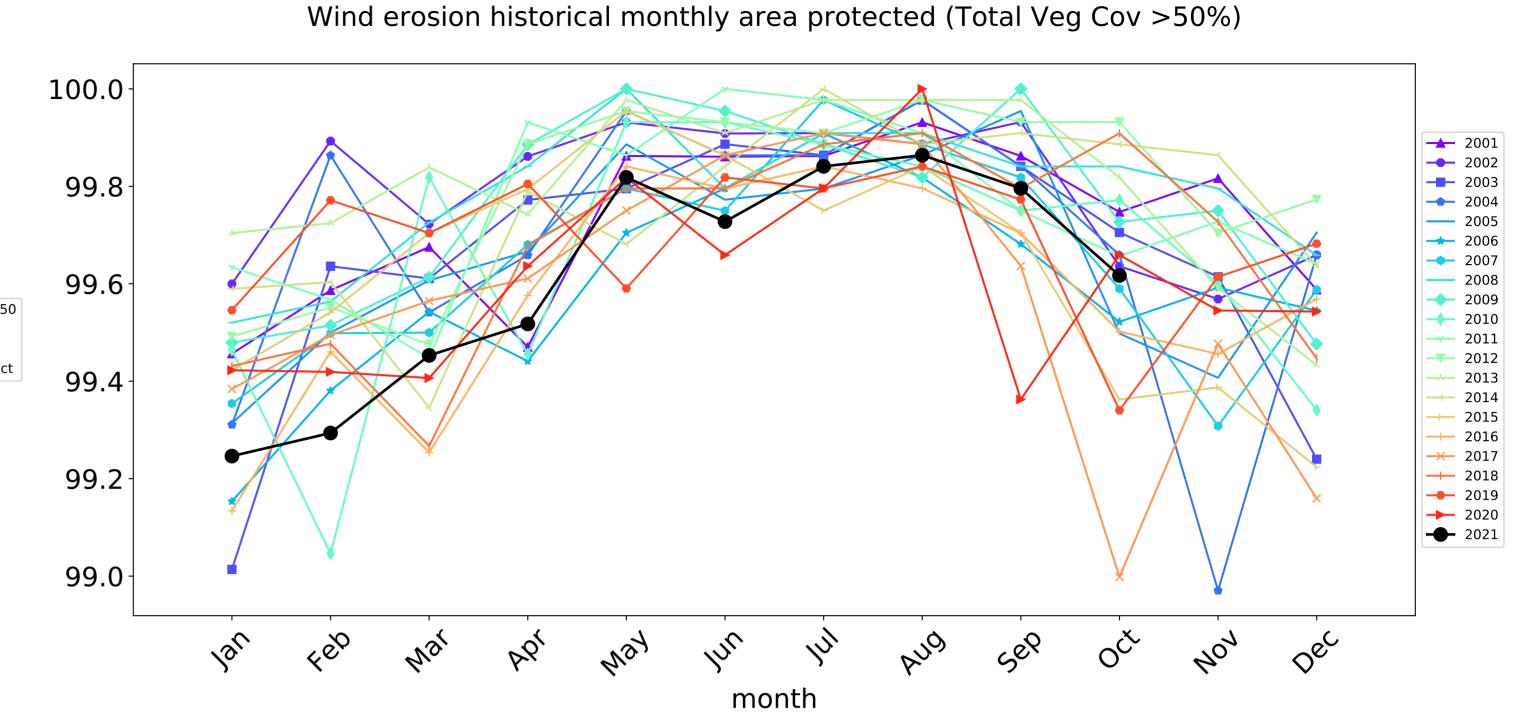


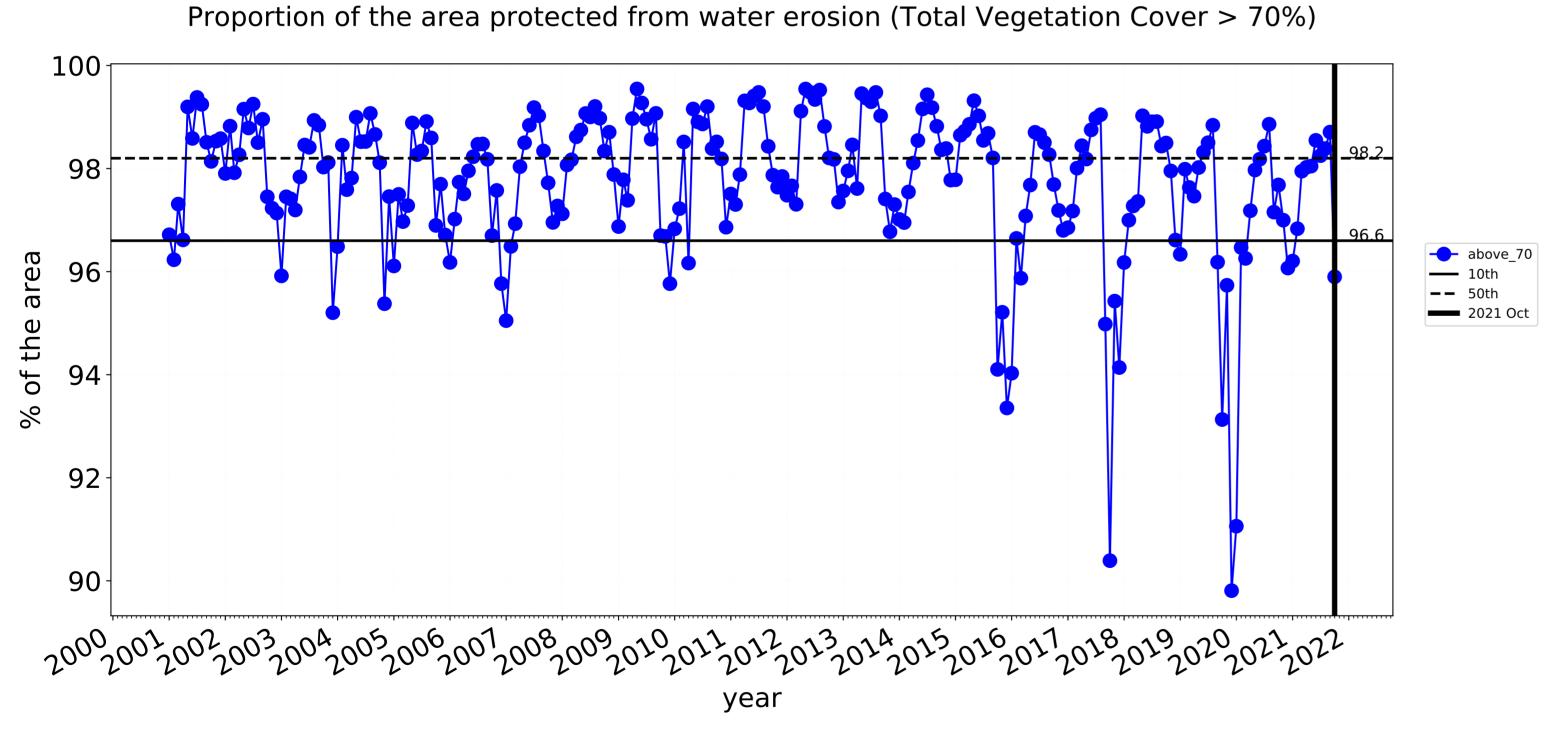


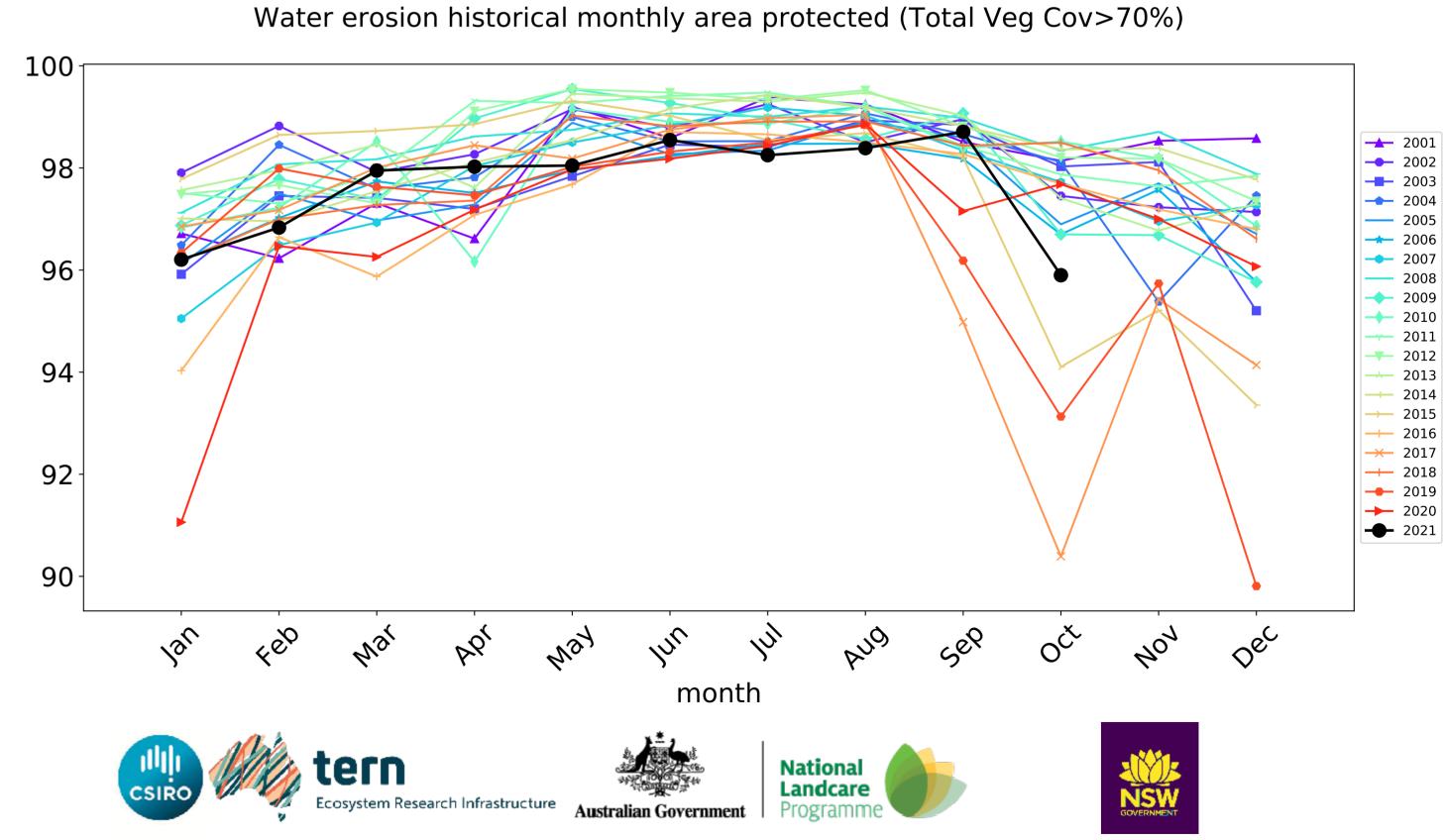


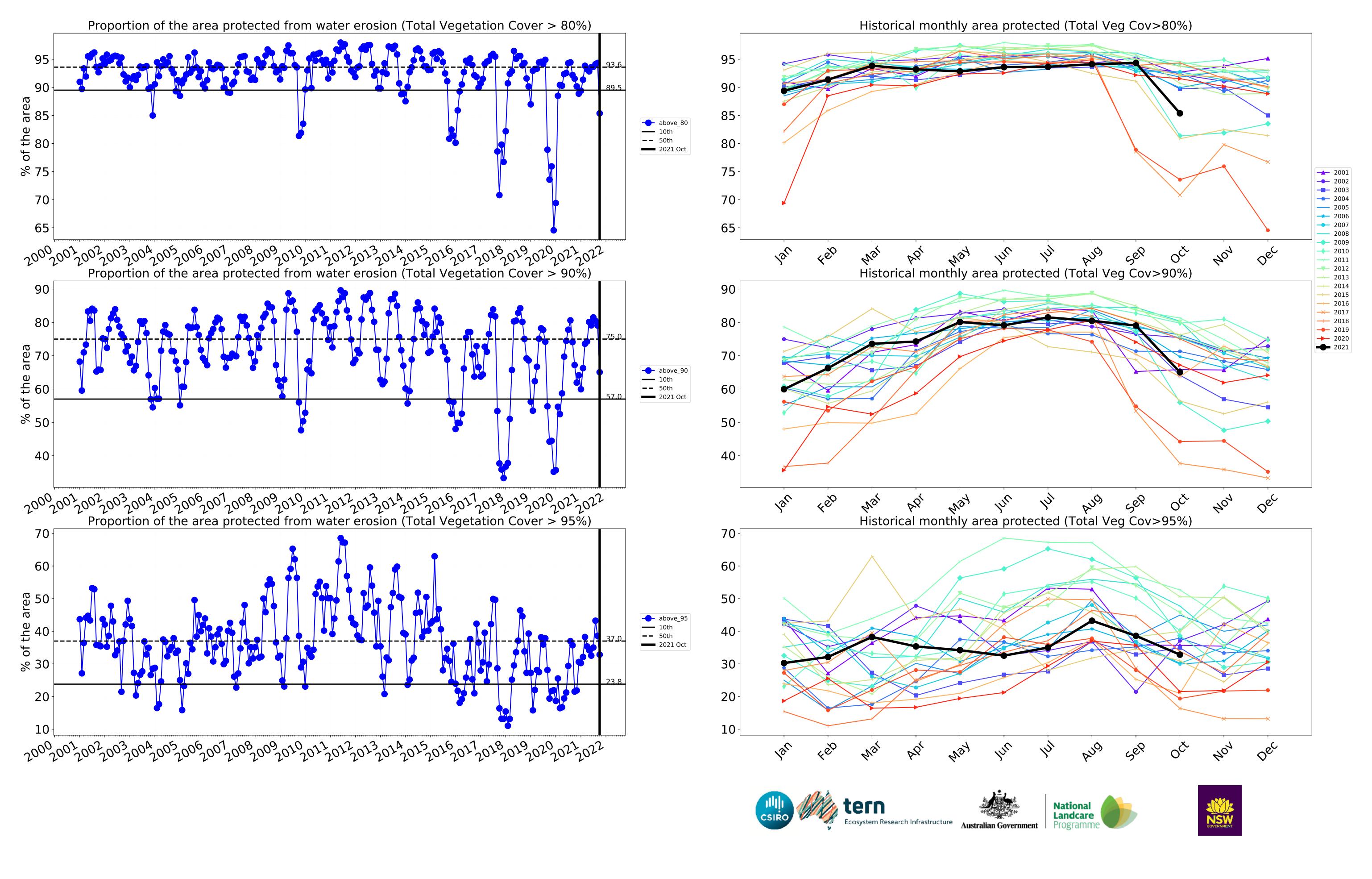












Agriculture

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

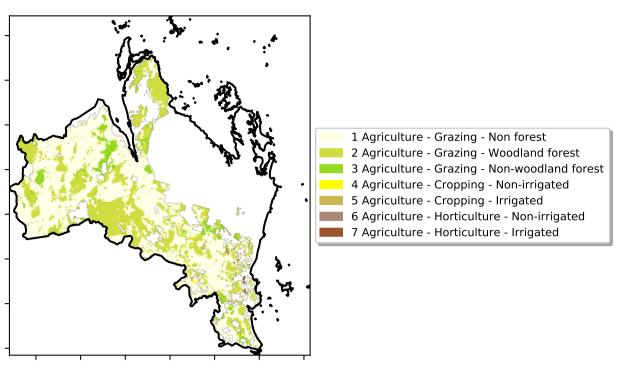
is, red pixels are about 20% lower than the mean of that

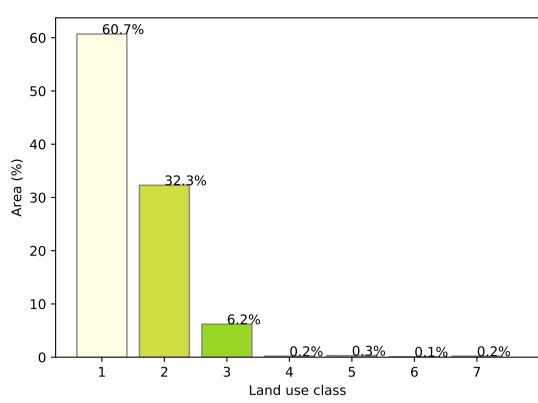
the mean. That

pixel. The mean

using baseline from 2001 to 2019.

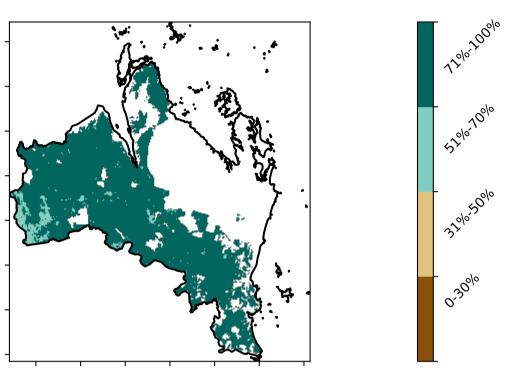
is only for the month of the map

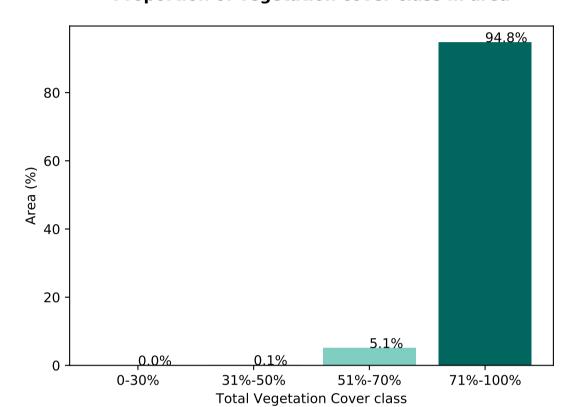




Proportion of each land class in area

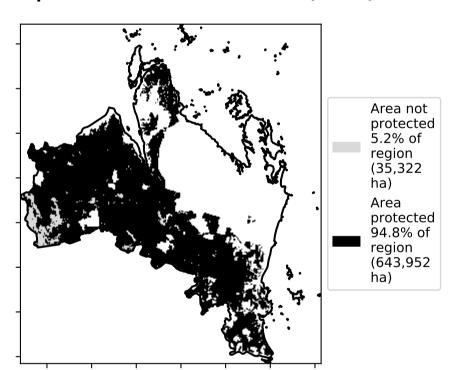




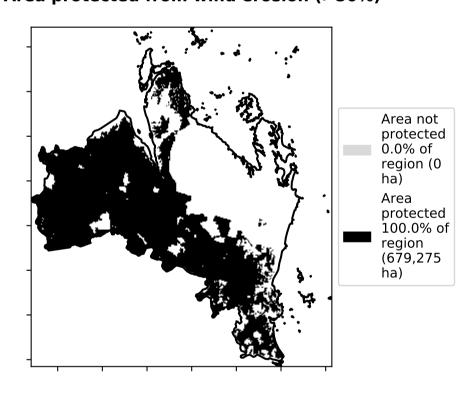


% Area protected from water erosion (>70%)

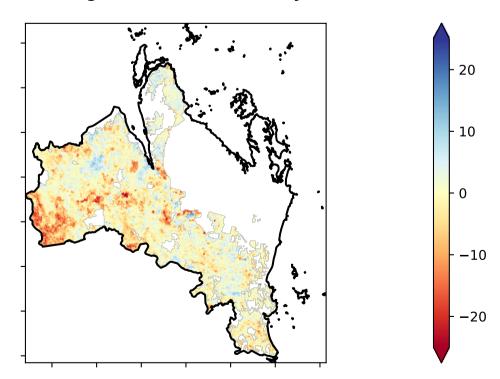
Land use and forest cover

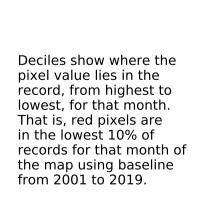


% Area protected from wind erosion (>50%)

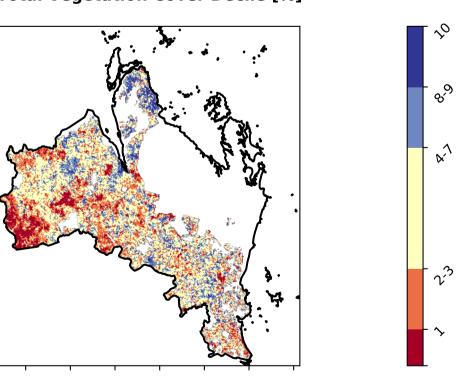


Total Vegetation Cover Anomaly [%]





Total Vegetation Cover Decile [%]







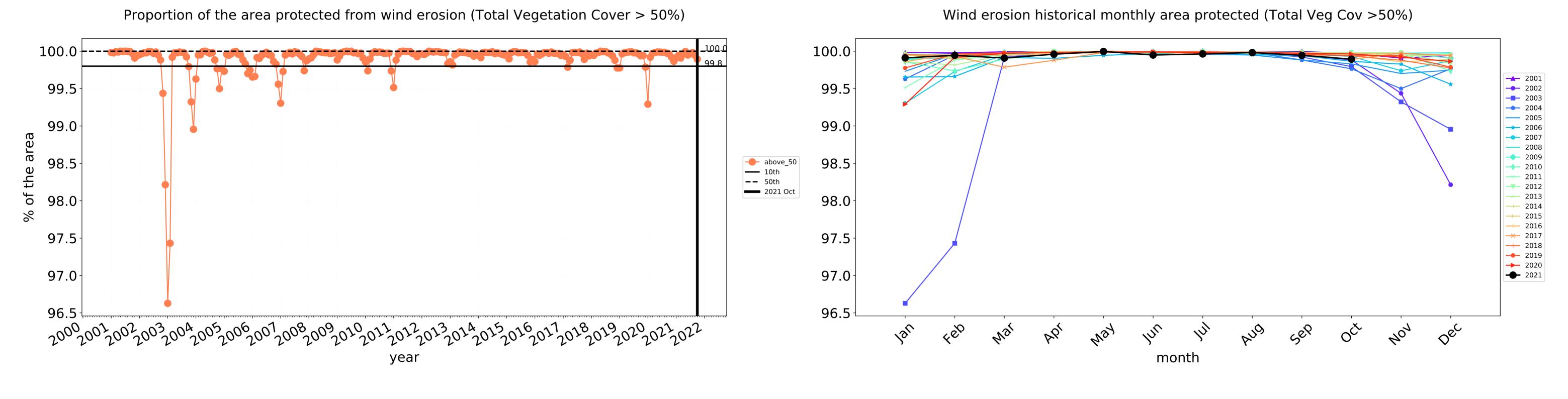


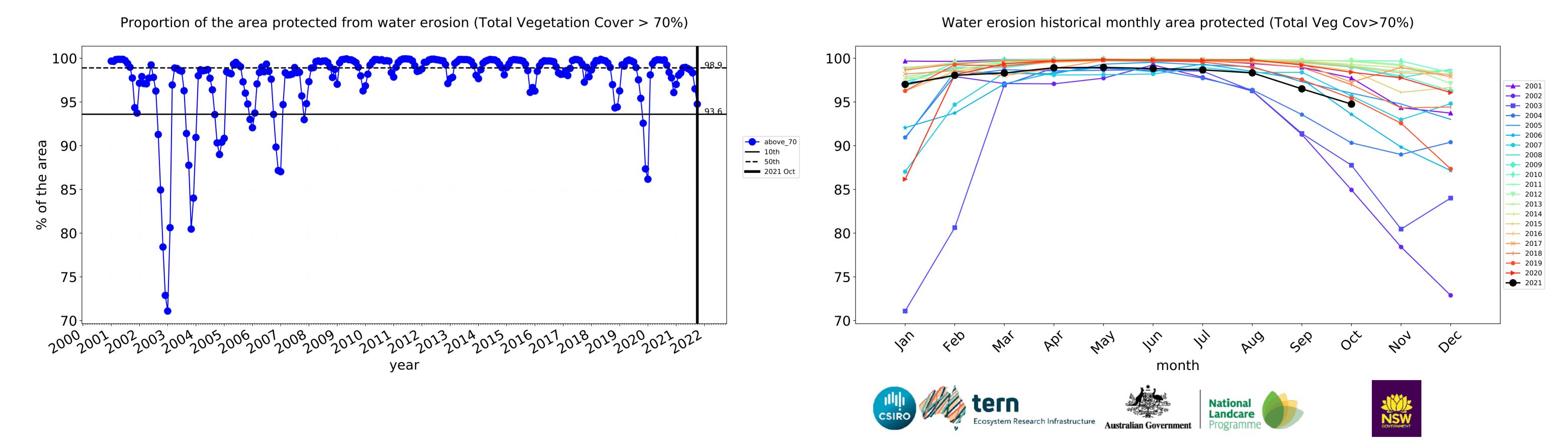


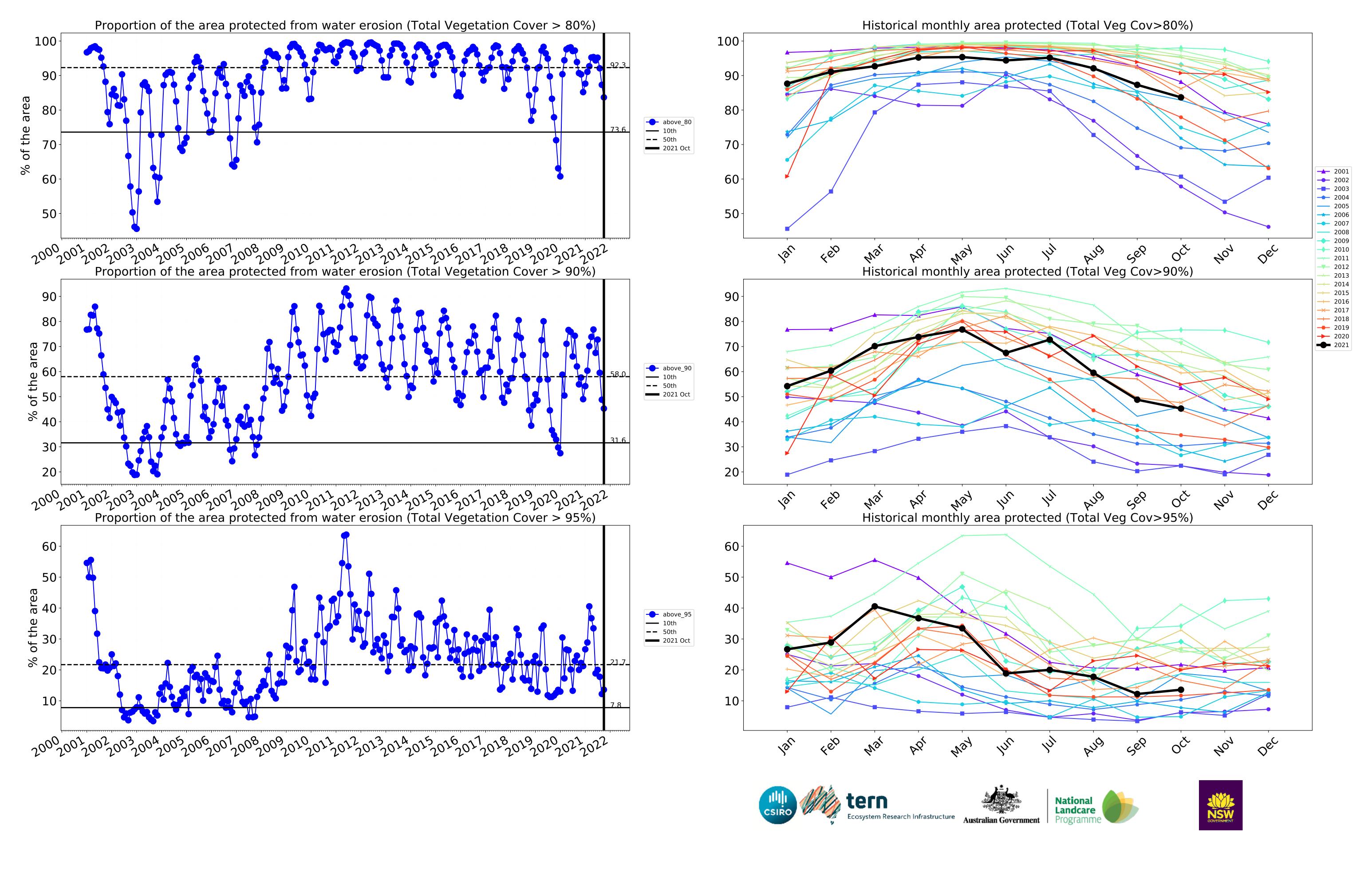




Agriculture timeseries

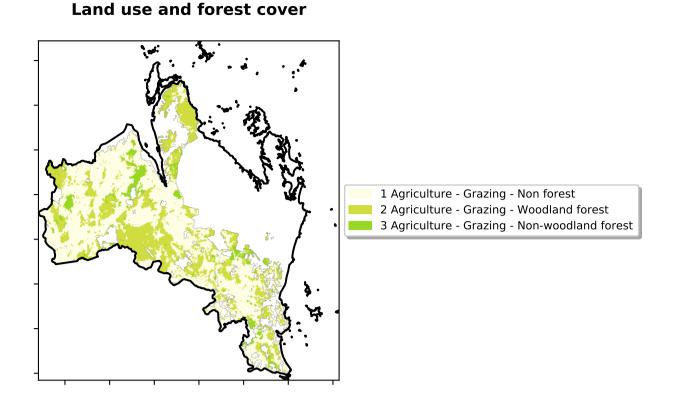


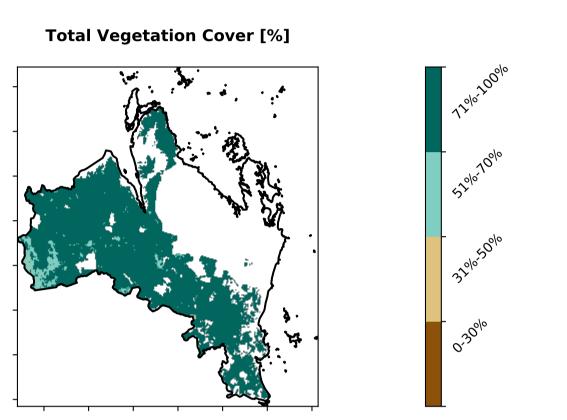




Grazing

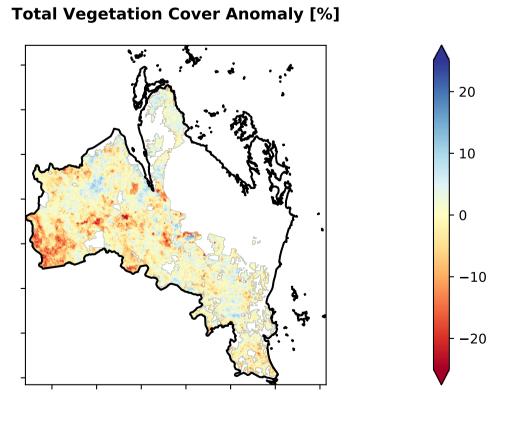
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)





% Area protected from water erosion (>70%) Area not protected 5.2% of region (35,042 ha) Area protected 94.8% of region (638,857 ha)

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 man using baseline. the map using baseline from 2001 to 2019.

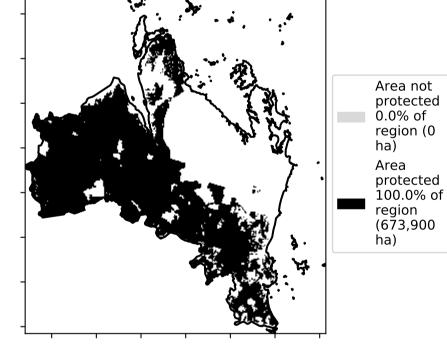
61.2% 60 50 40 Area (%) 32.5% 20 10 6.2% 2 3 Land use class

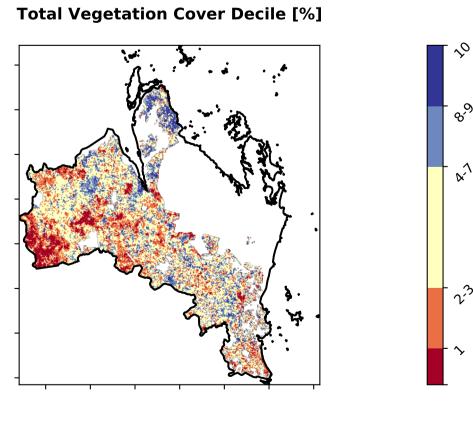
Proportion of each land class in area

Proportion of vegetation cover class in area 94.8% 80 Area (%) 0 20 5.1% 0.0% 51%-70% 0-30% 31%-50% 71%-100%

Total Vegetation Cover class

% Area protected from wind erosion (>50%) region (0 ha) Area ha)





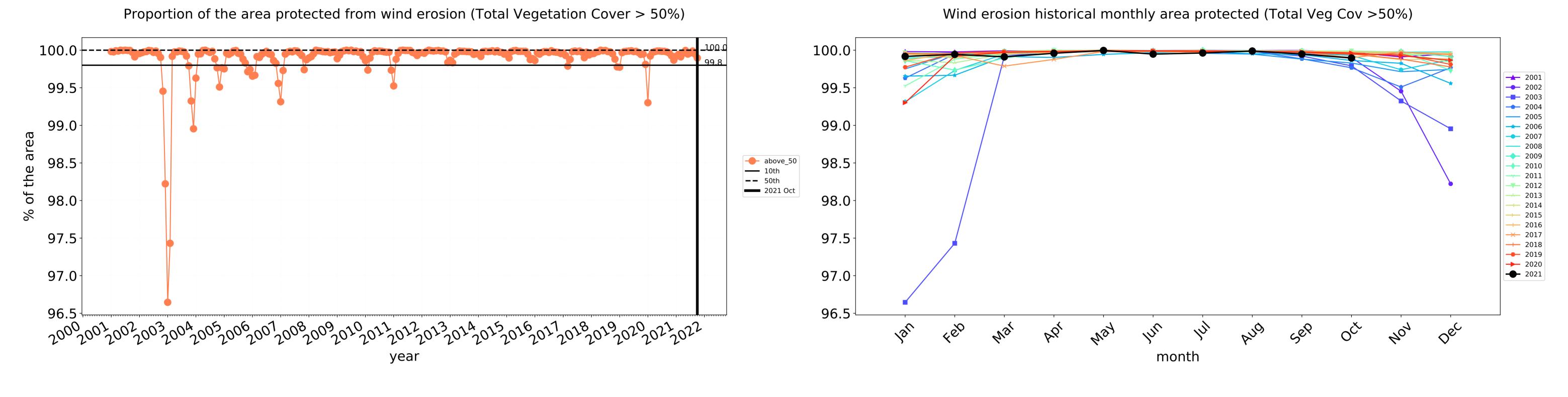


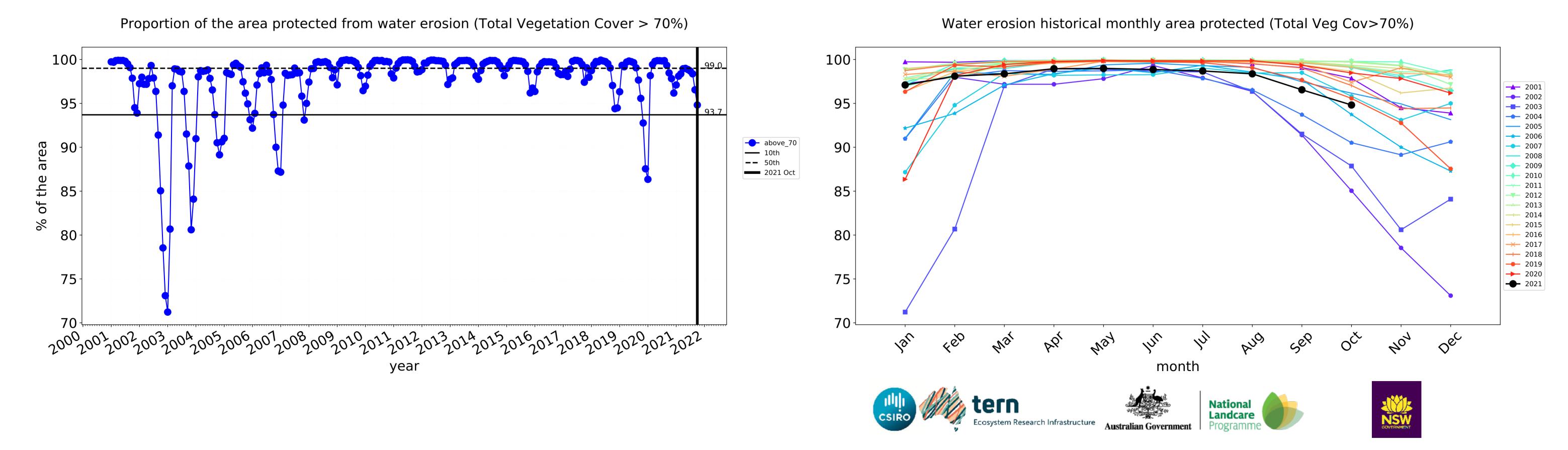


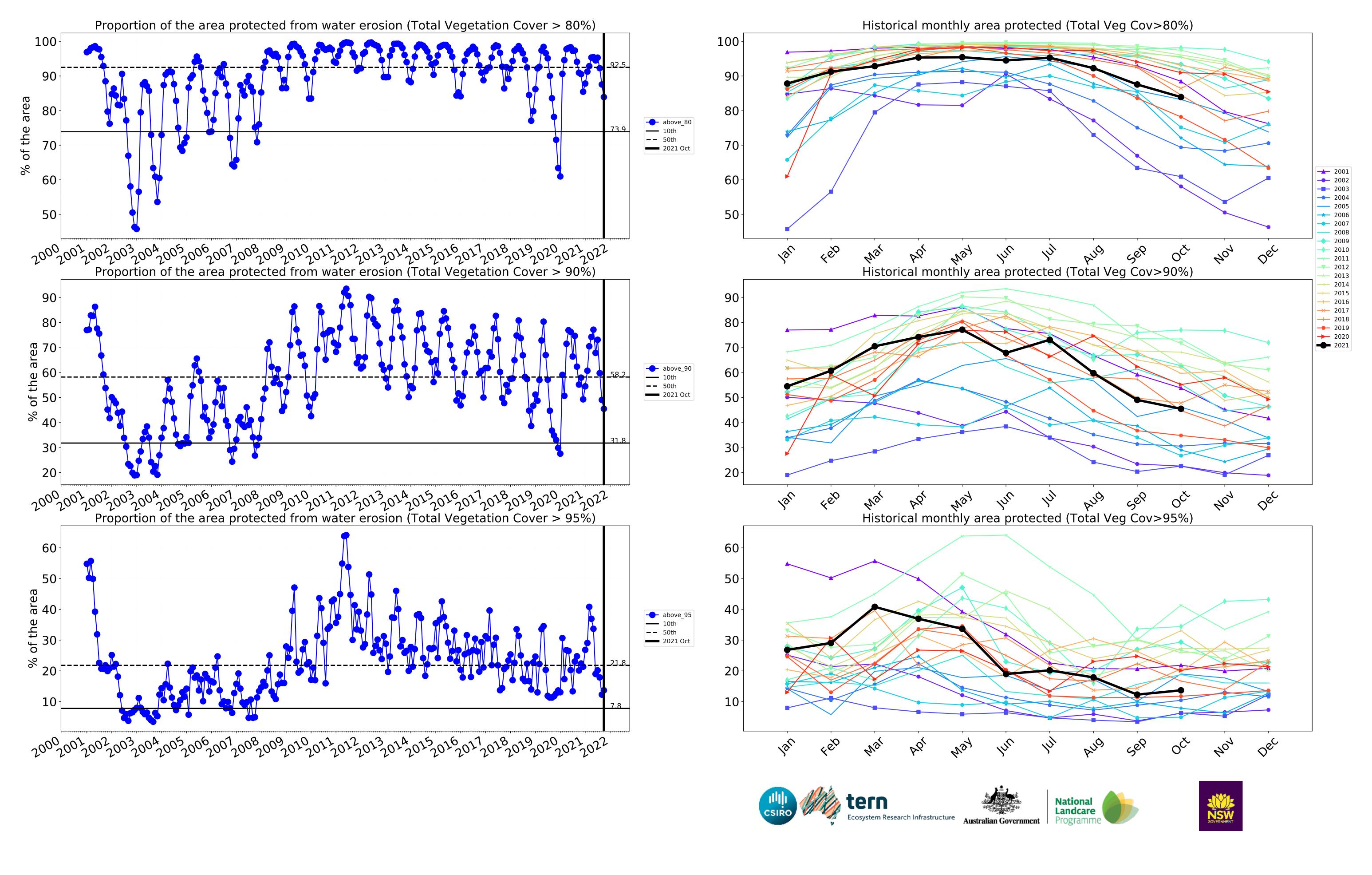




Grazing timeseries







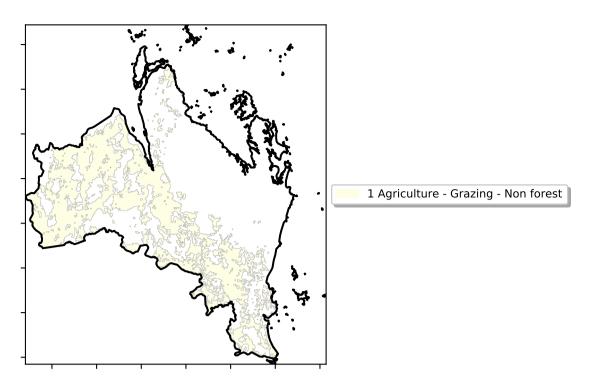
Grazing non forest

Land use and forest cover

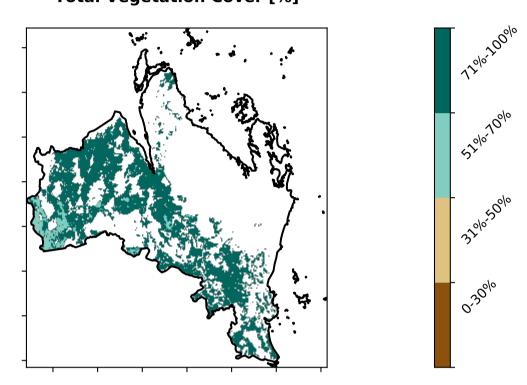
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Anomaly show how many percetage points each

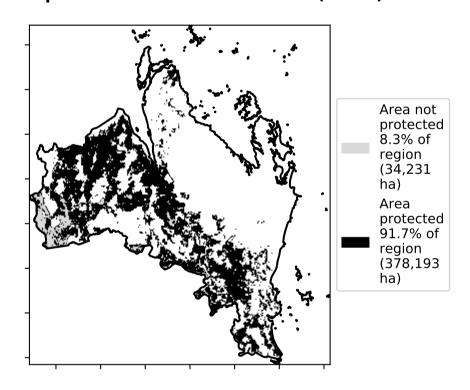
points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



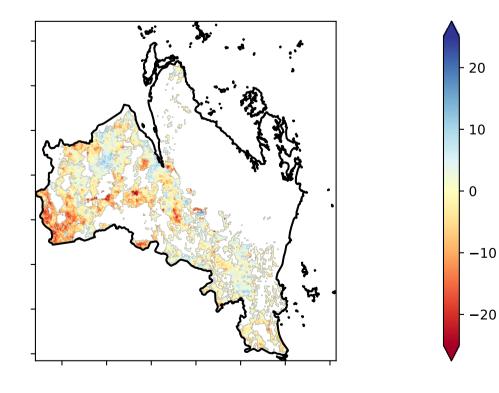
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

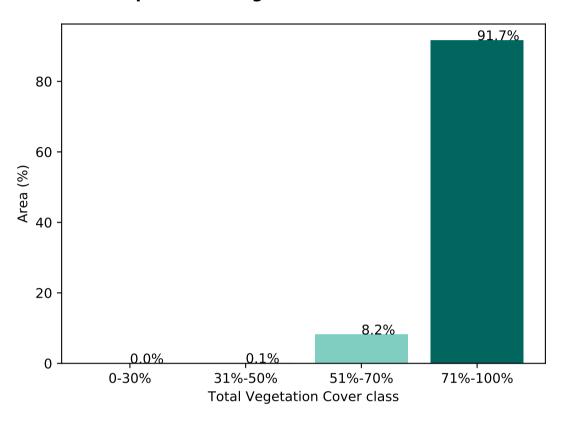


Total Vegetation Cover Anomaly [%]

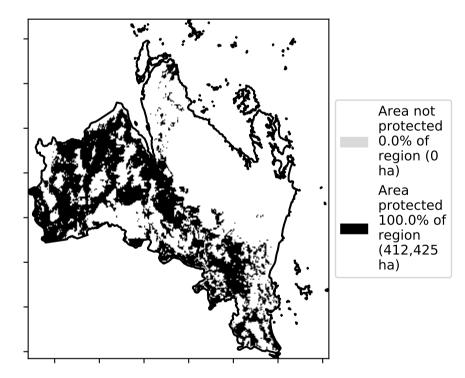


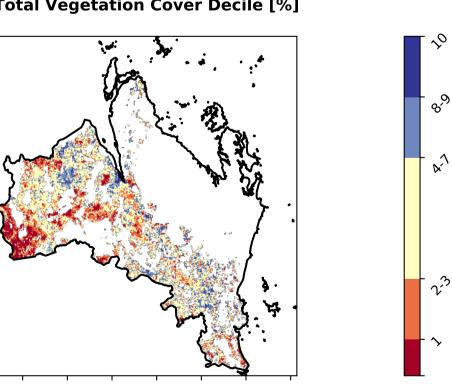
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





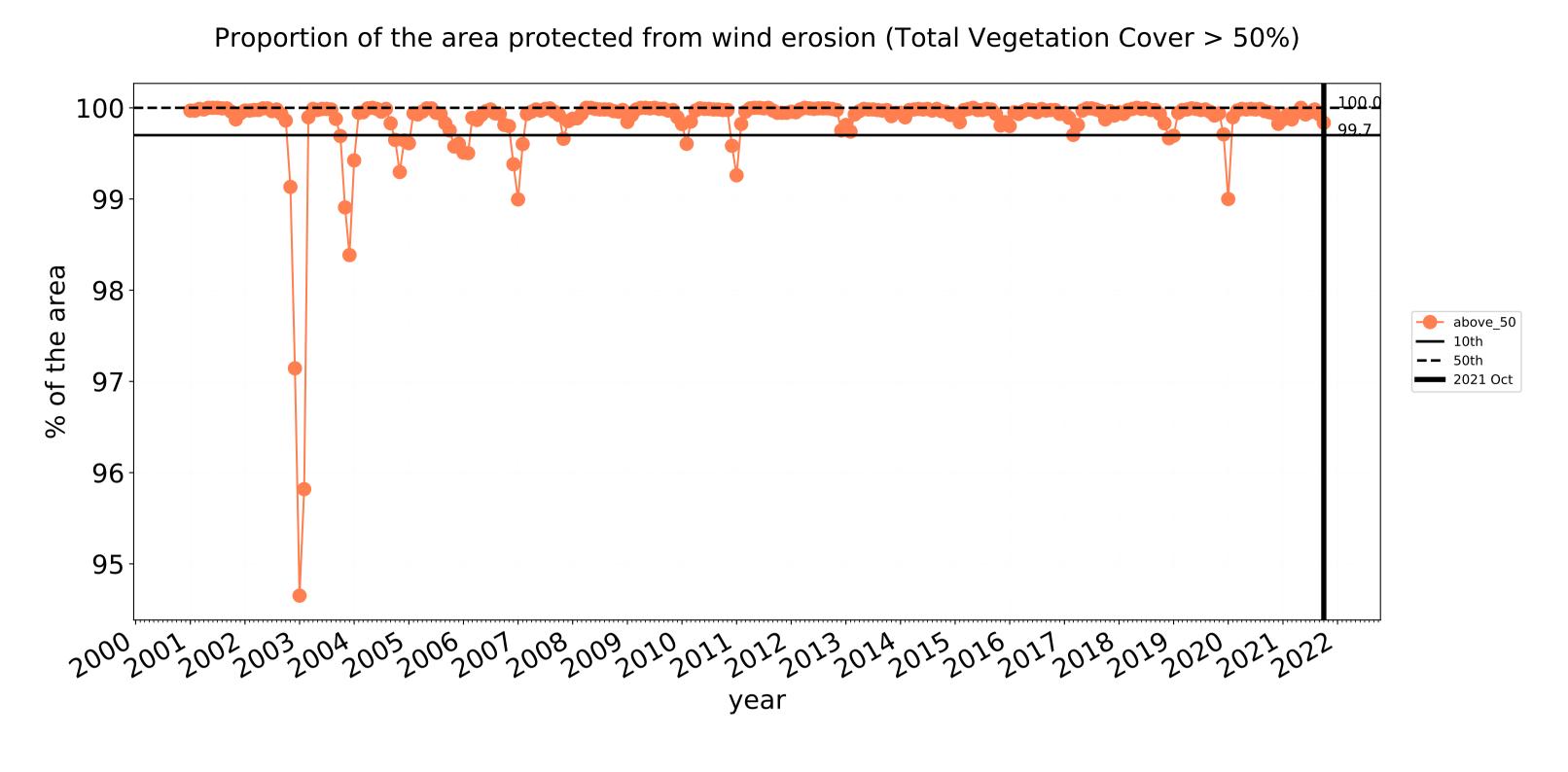


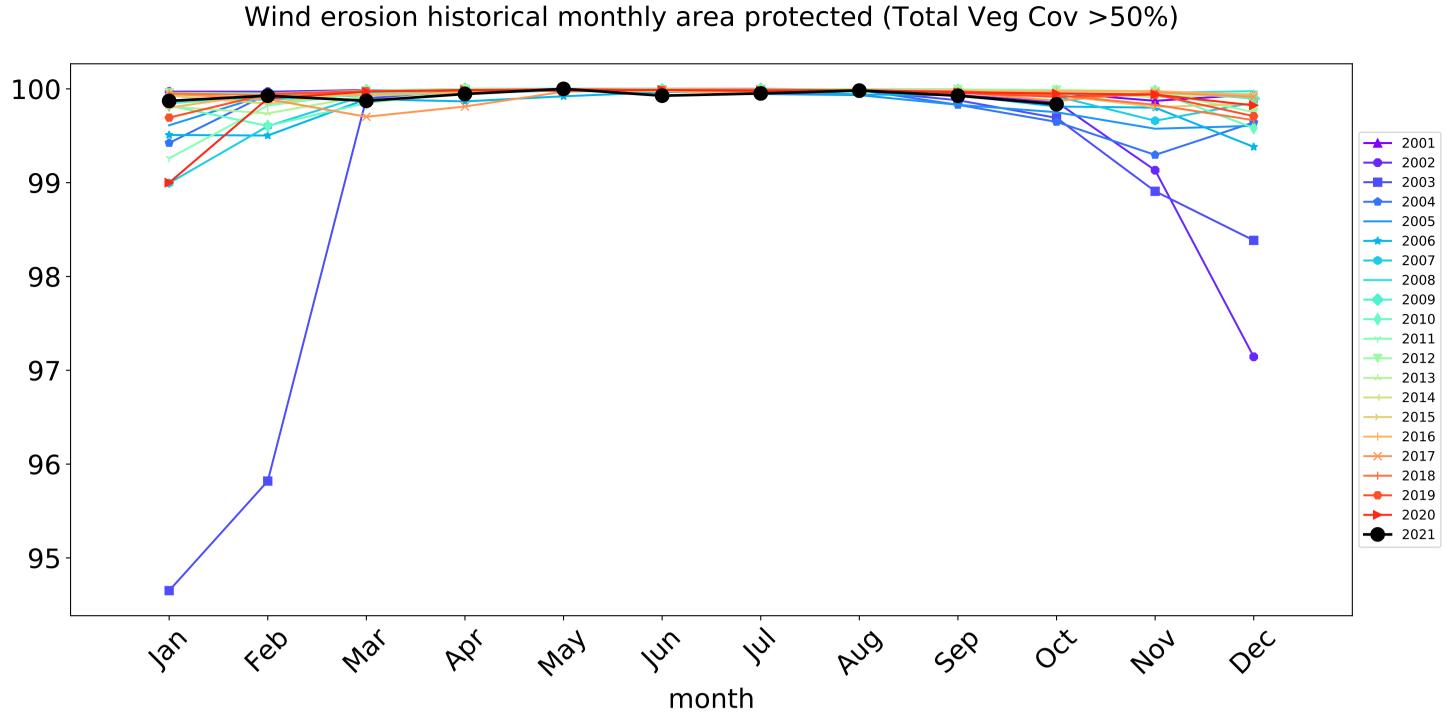


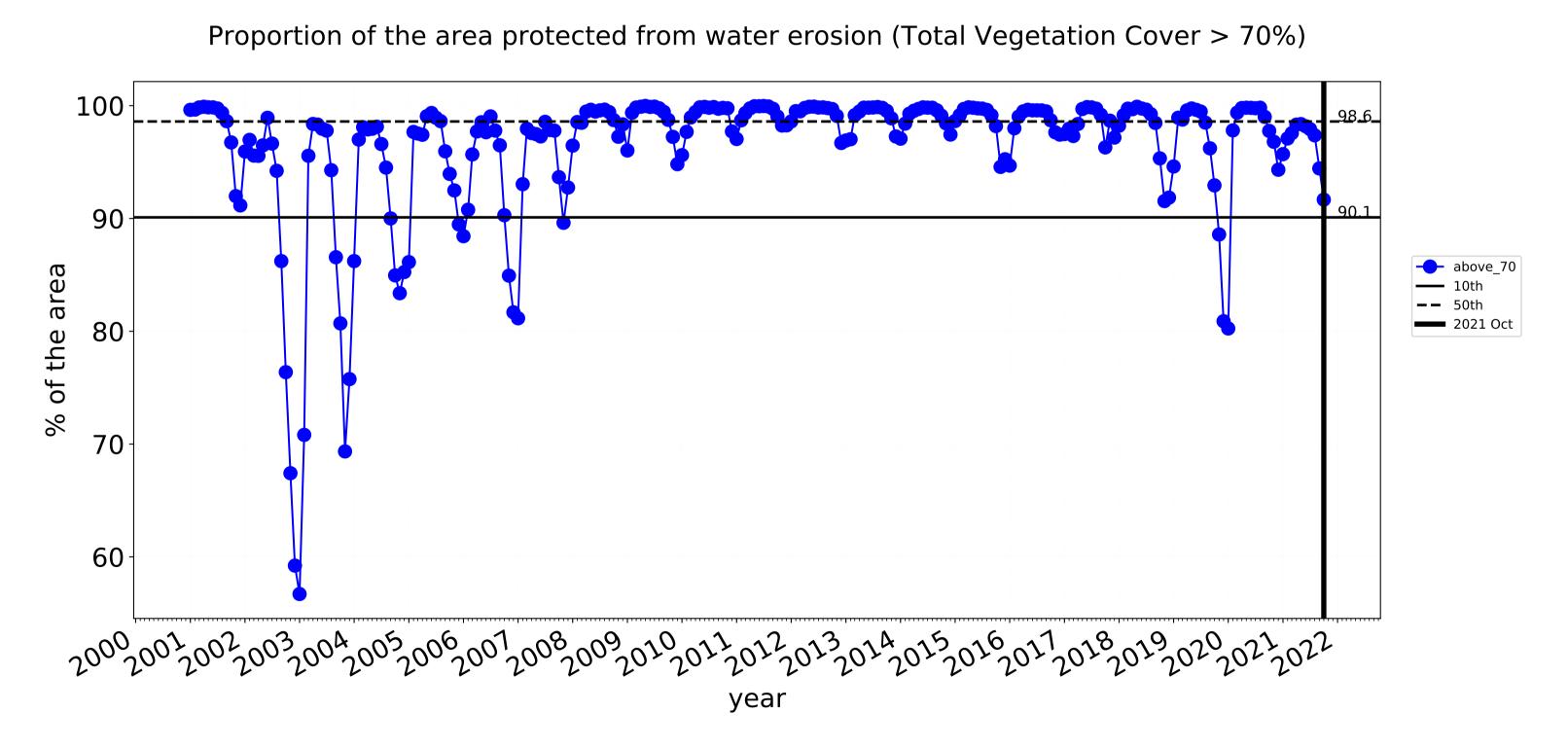


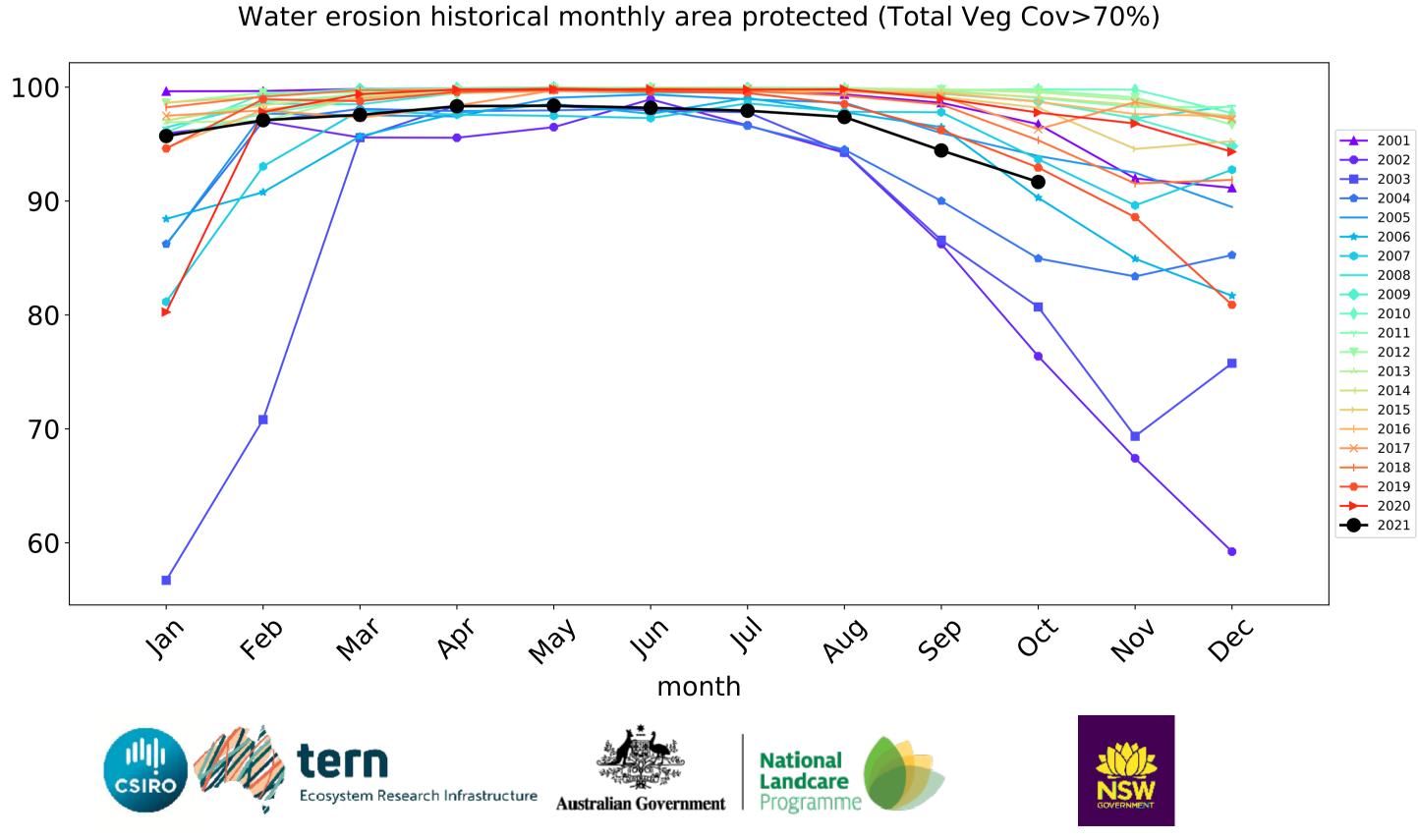


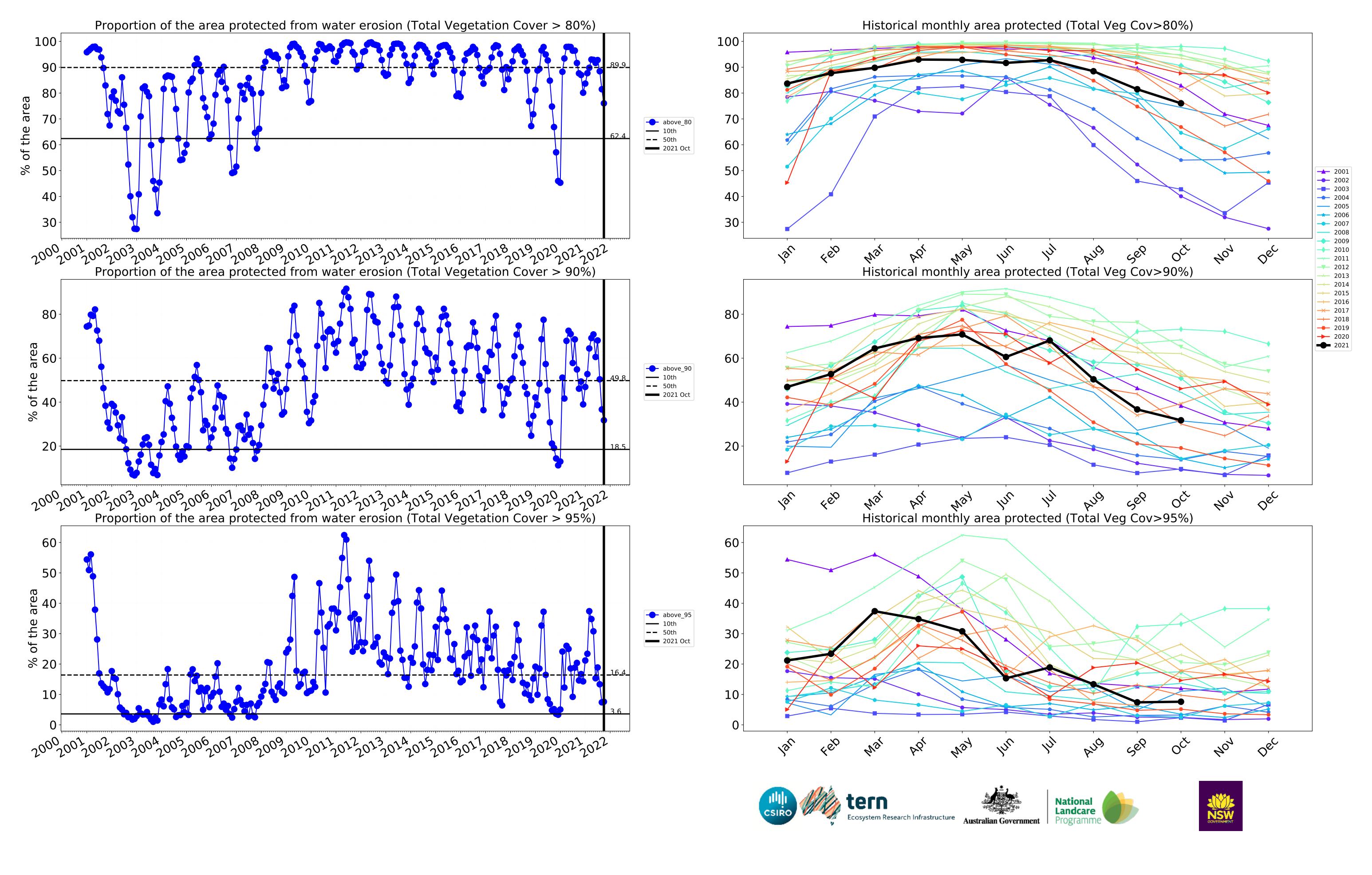
Grazing non forest timeseries











Grazing Woodland forest

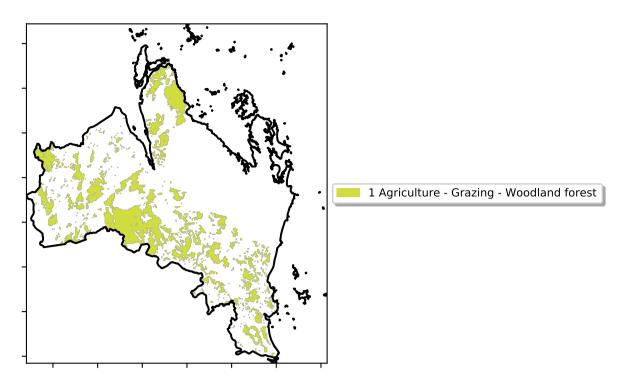
Land use and forest cover

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

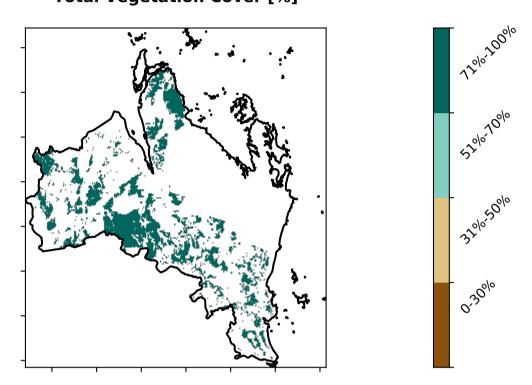
Anomaly show how many percetage points each

pinel is from the mean. That is, red pixels are about 20% lower than the mean of that

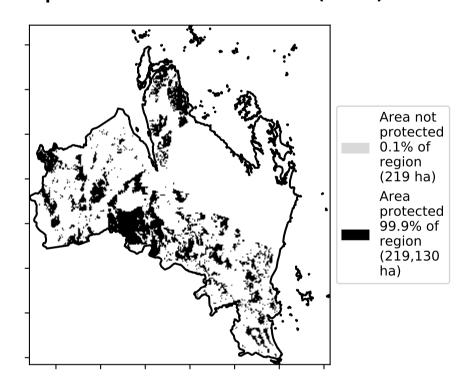
pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



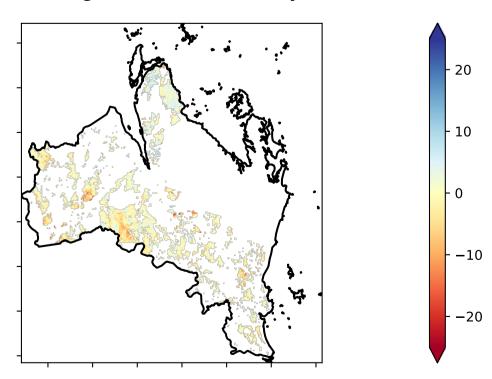
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

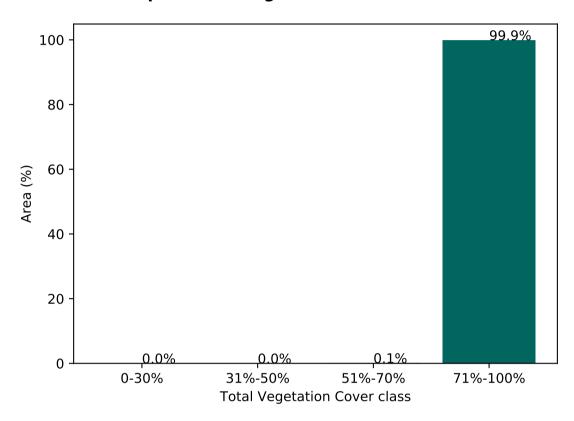


Total Vegetation Cover Anomaly [%]

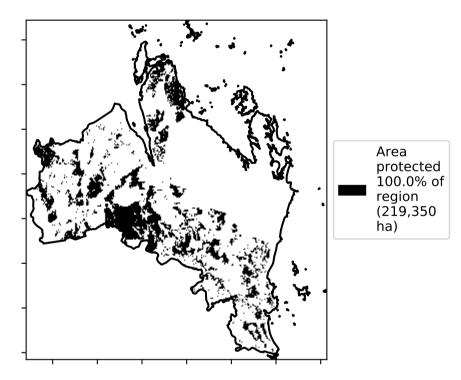


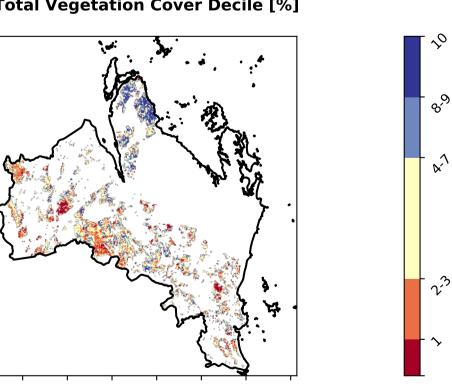
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









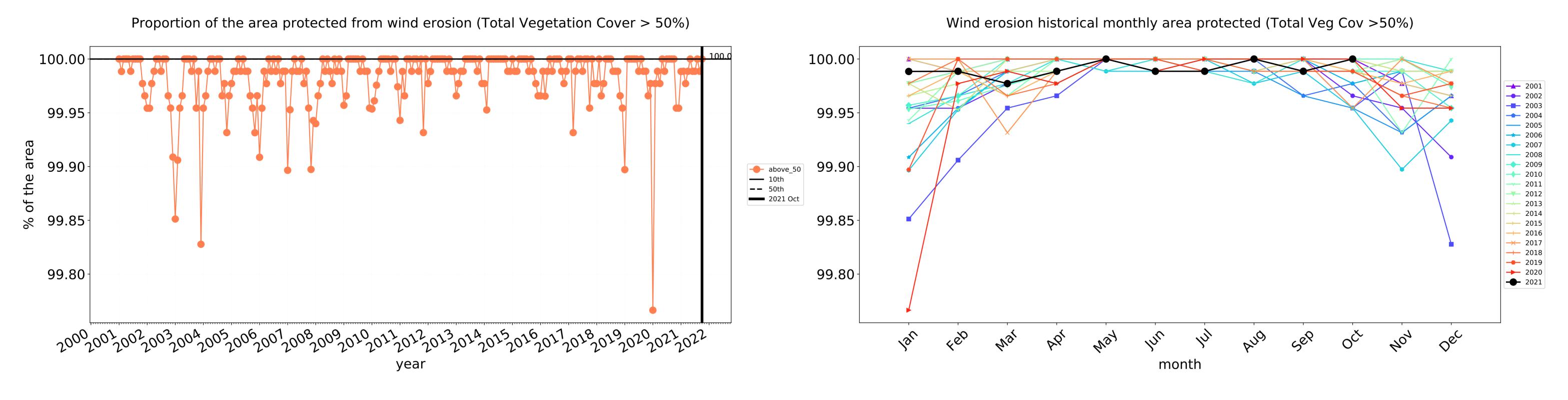


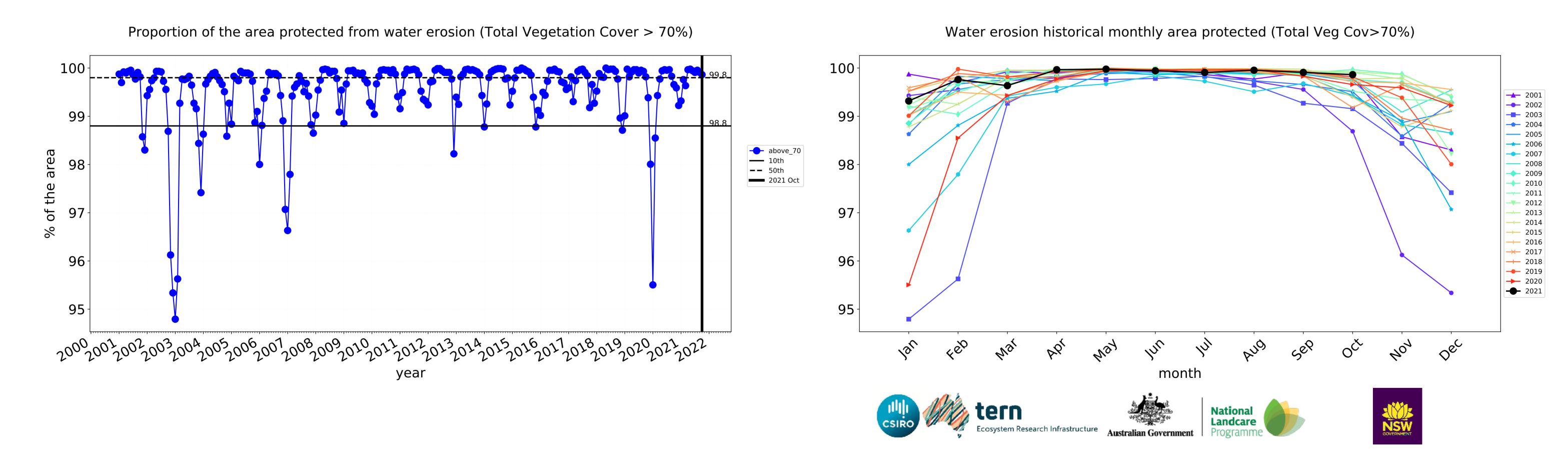


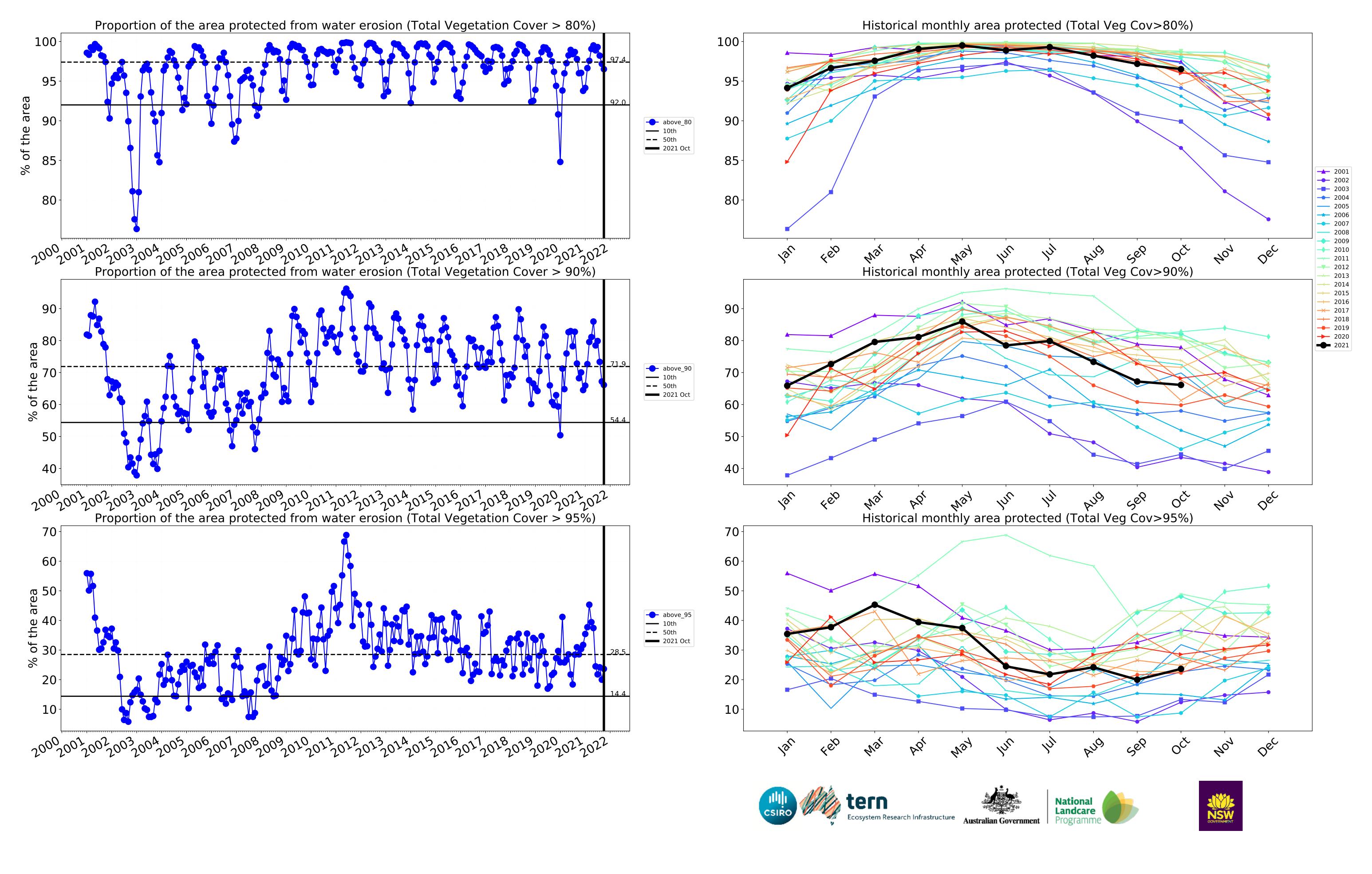




Grazing Woodland forest timeseries







Grazing - Forest (non woodland)

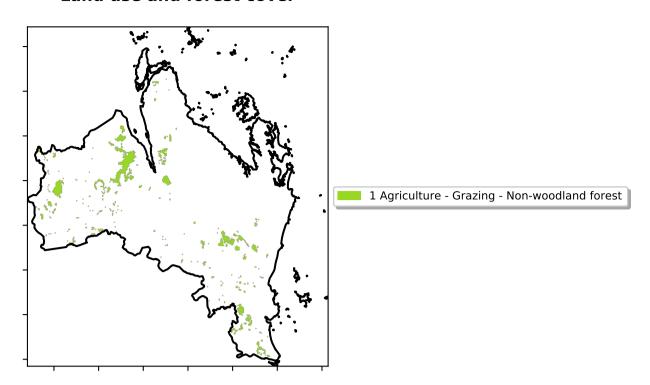
Land use and forest cover

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

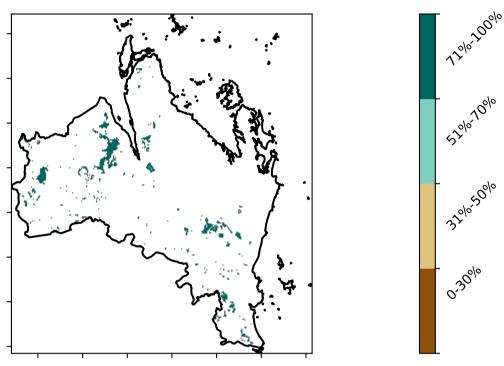
Anomaly show how many percetage points each

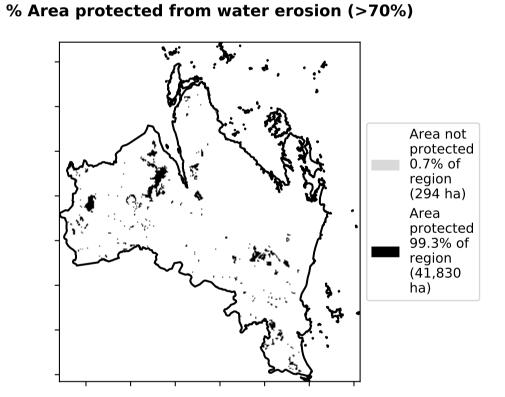
pinel is from the mean. That is, red pixels are about 20% lower than the mean of that

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

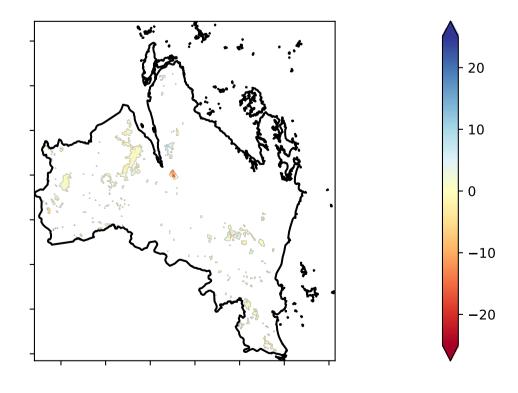


Total Vegetation Cover [%]



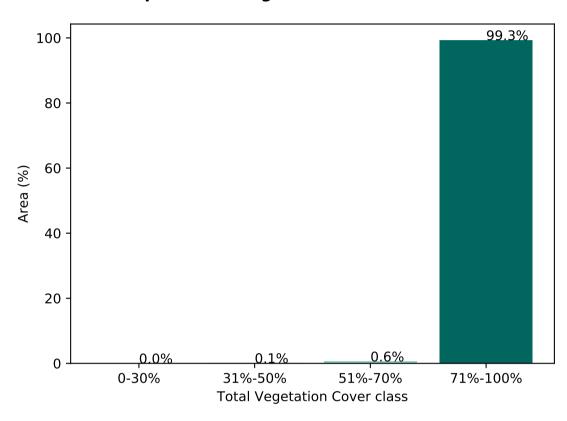


Total Vegetation Cover Anomaly [%]

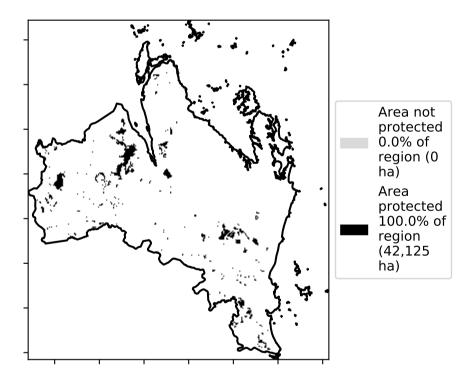


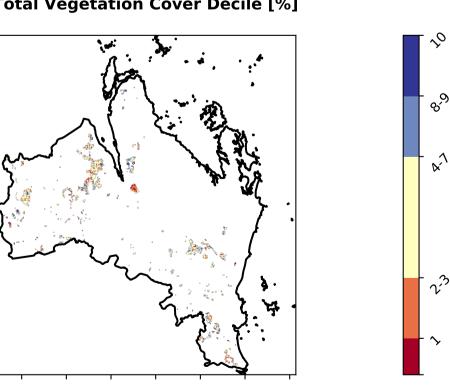
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)







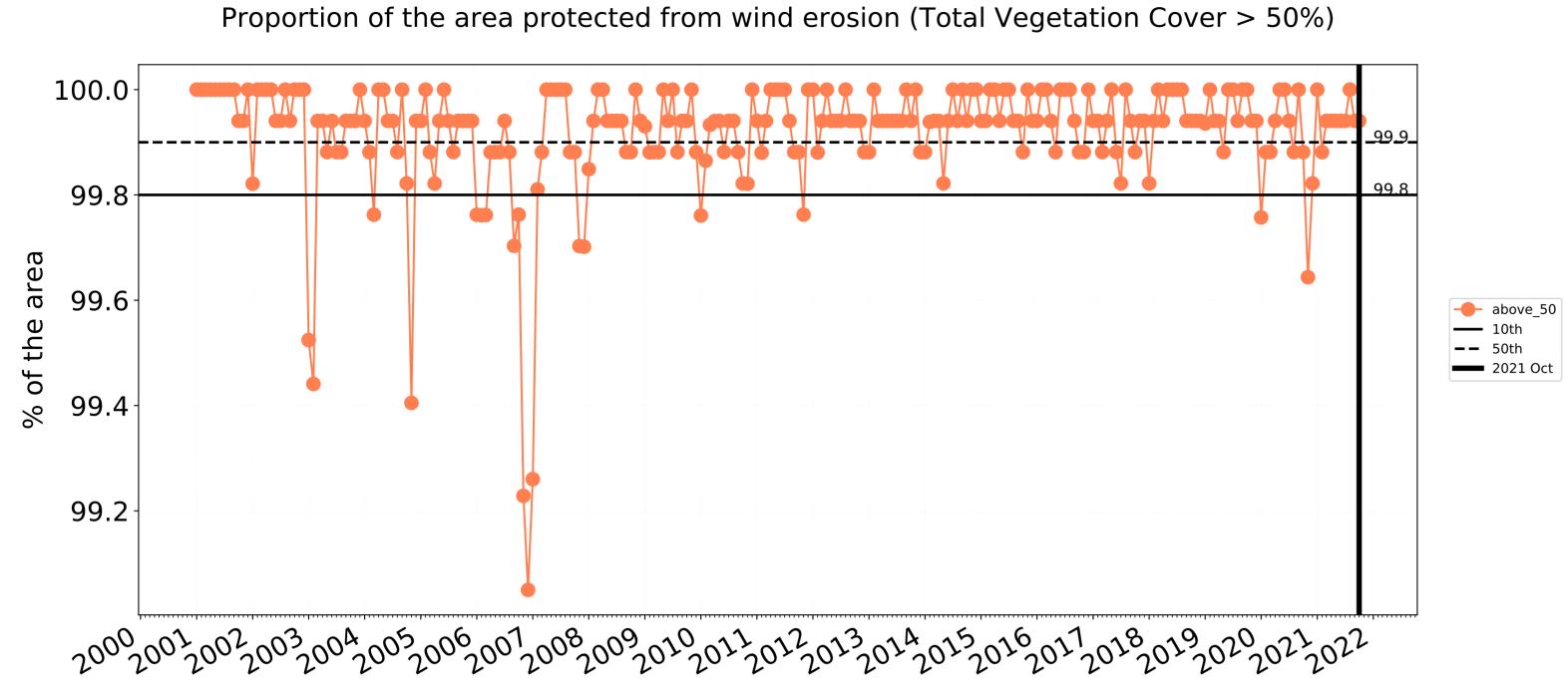


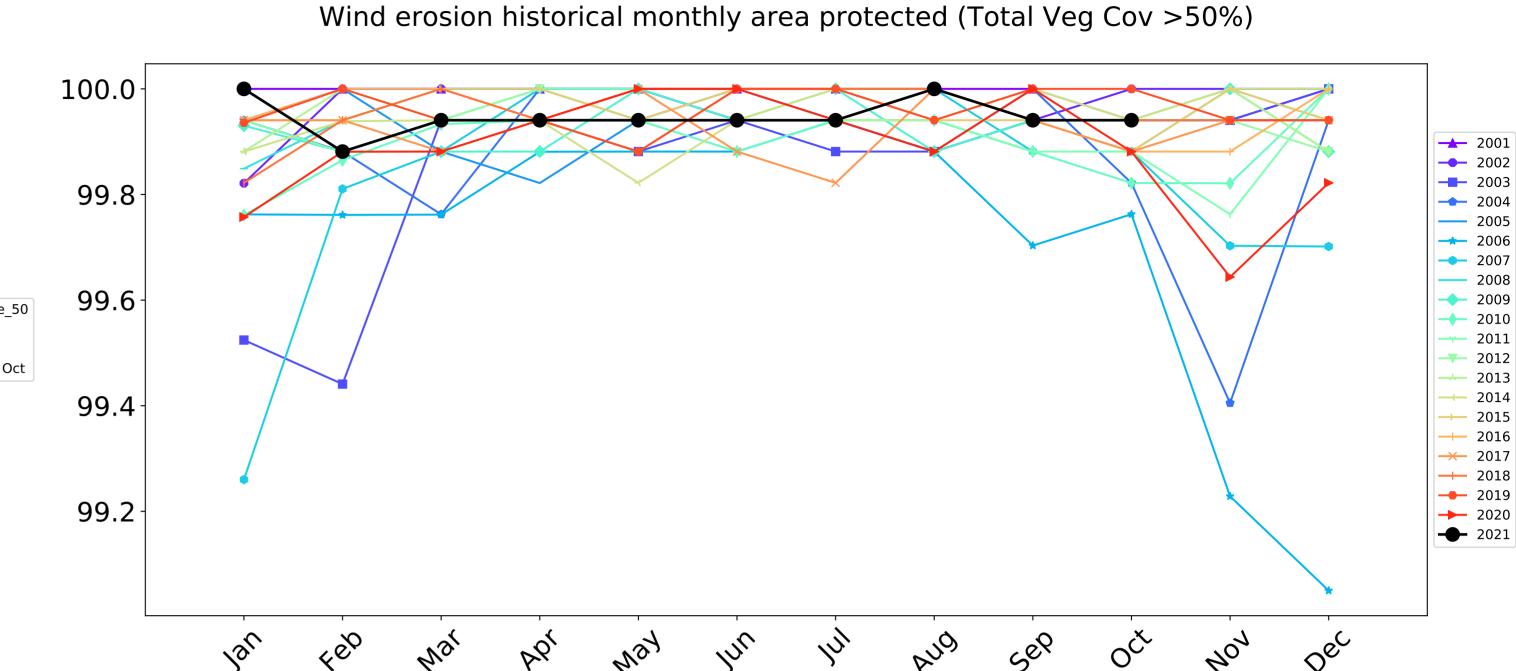




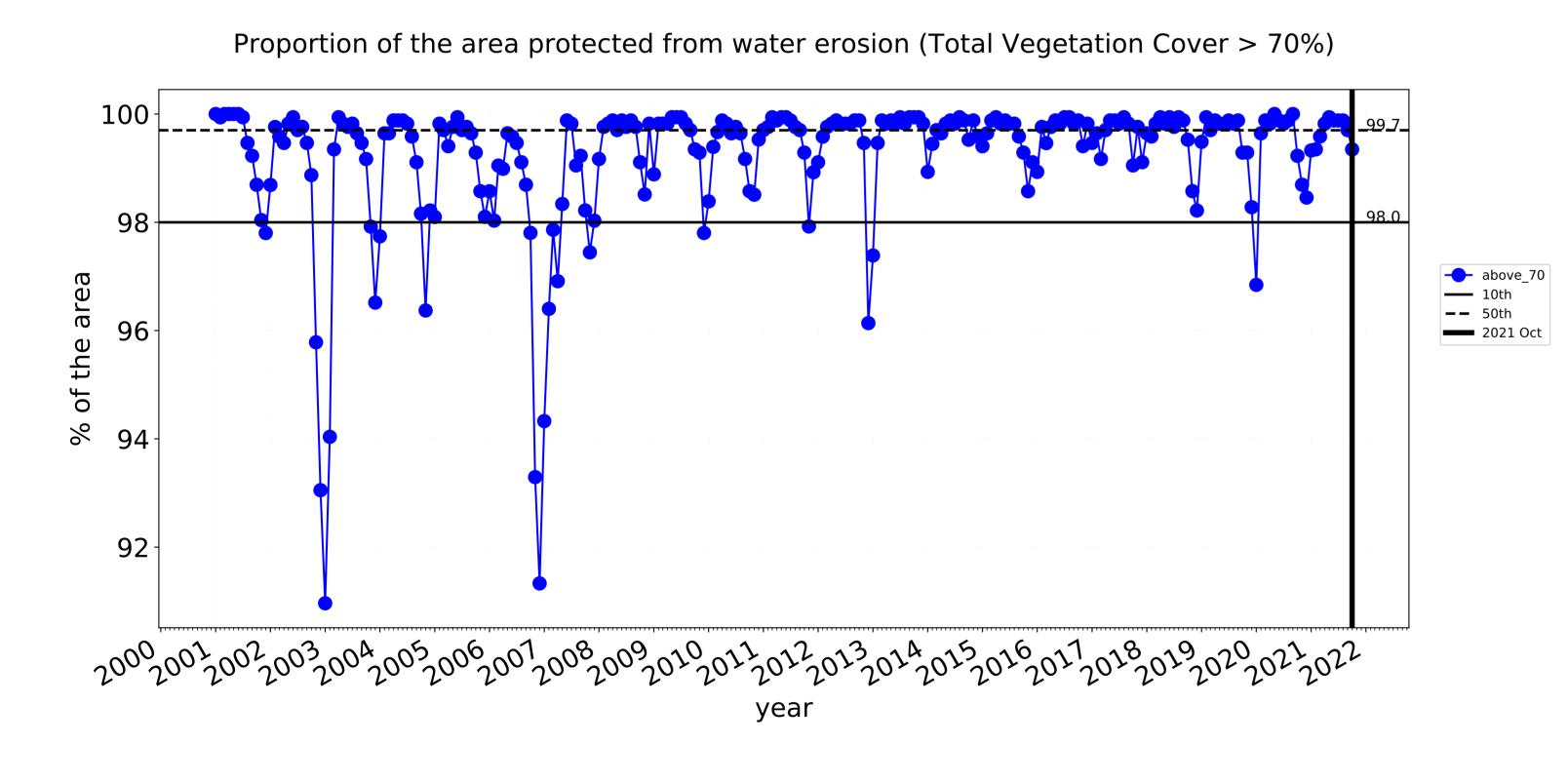


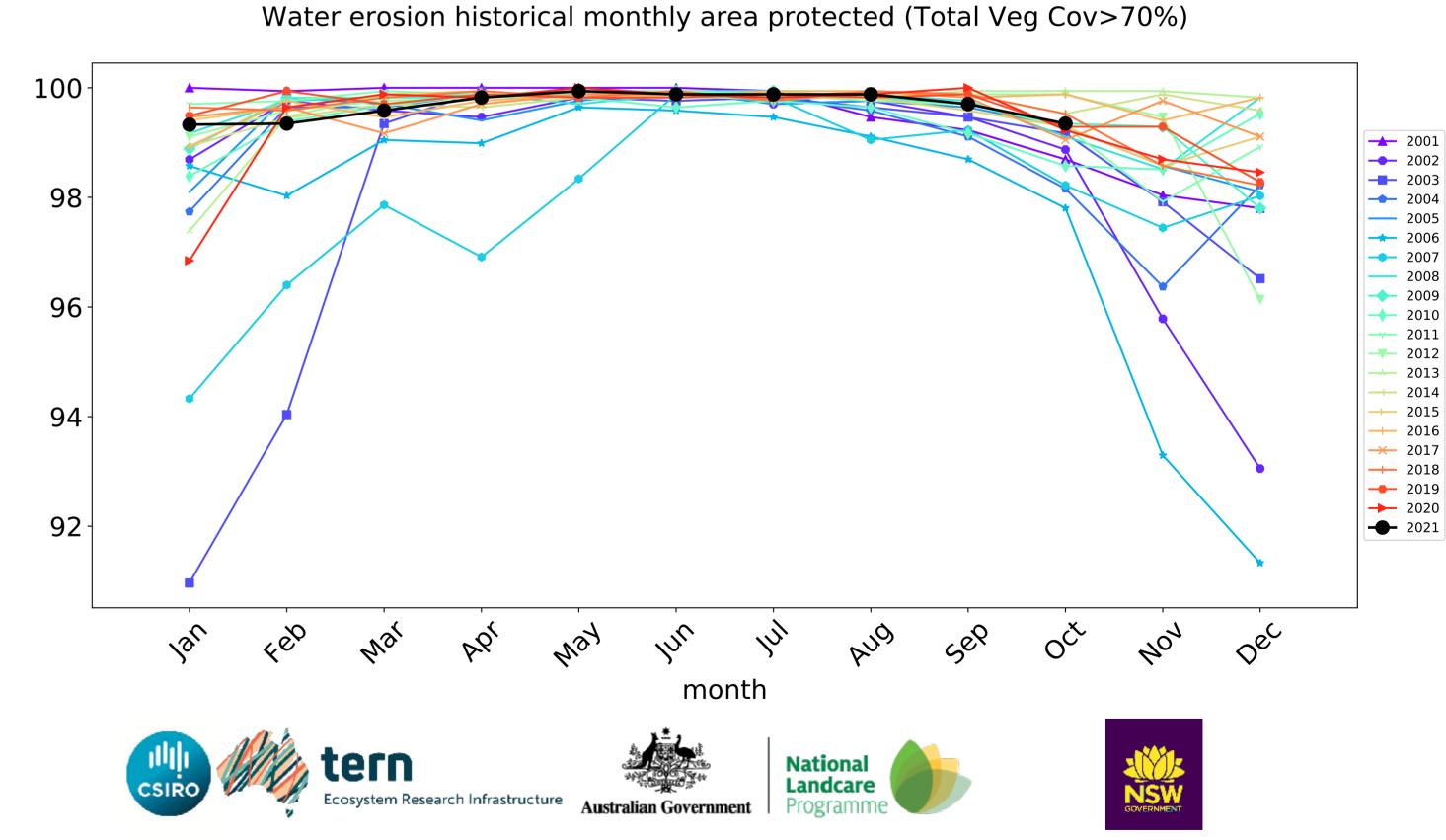


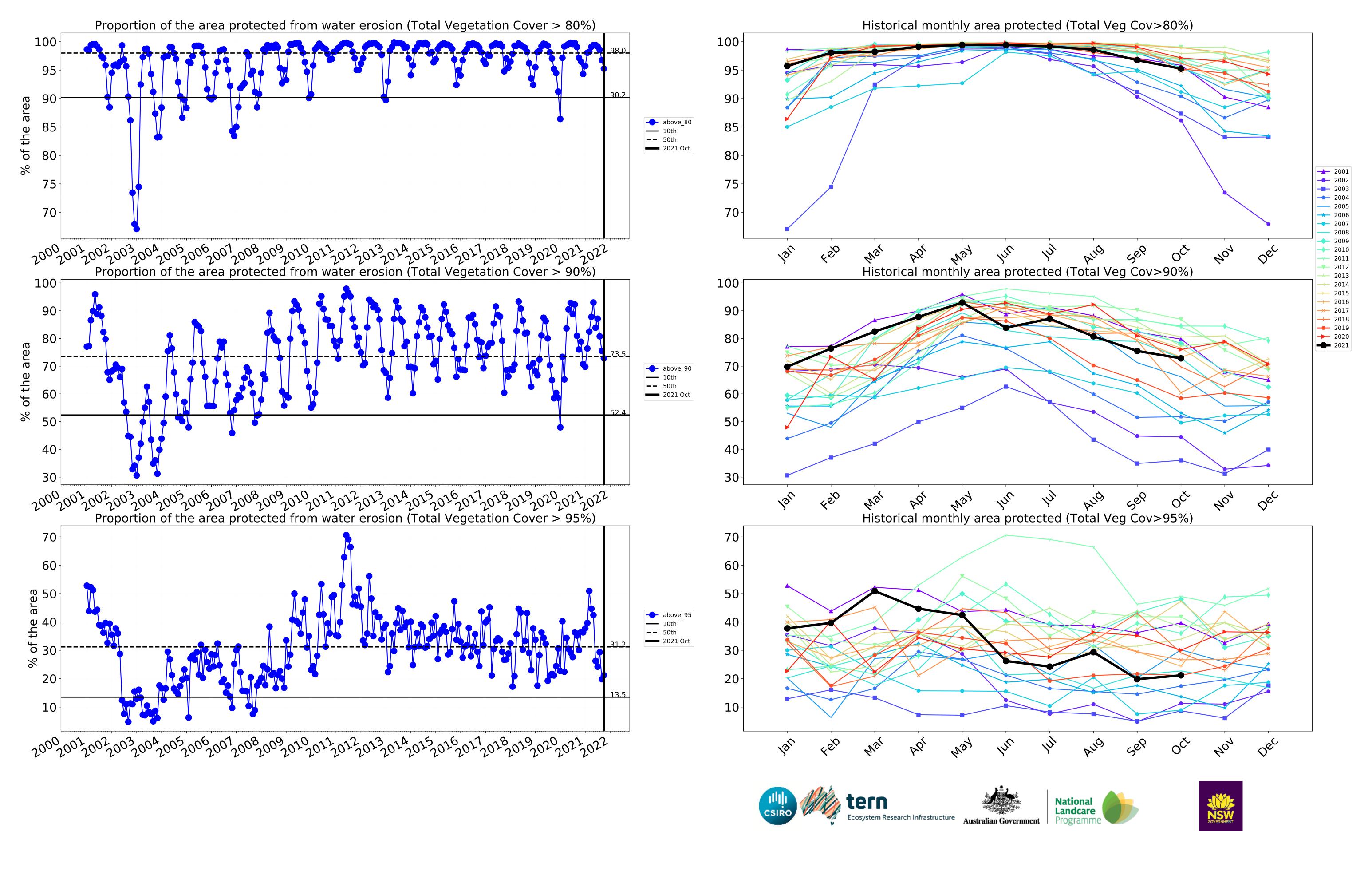




month







Production native forests and plantation forests

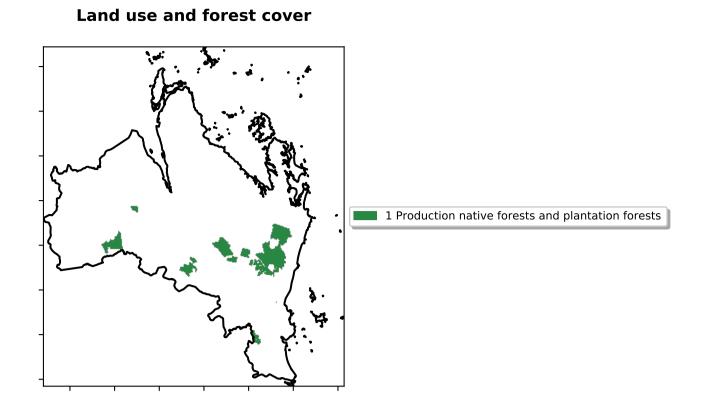
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Anomaly show how many percetage points each

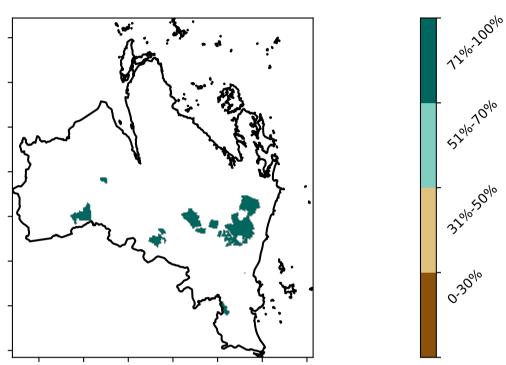
pixel is from the mean. That

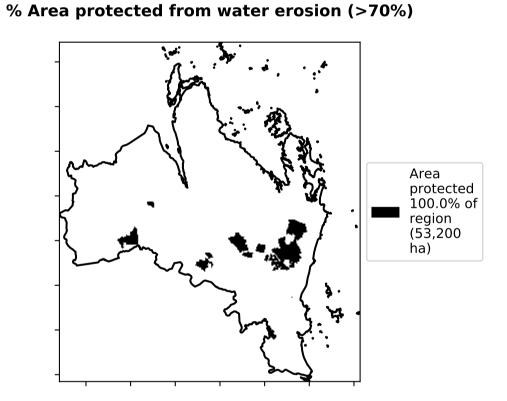
pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

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

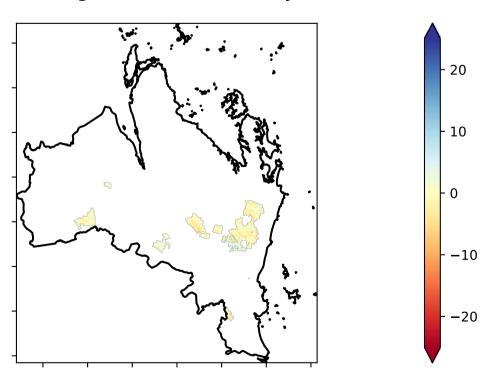


Total Vegetation Cover [%]



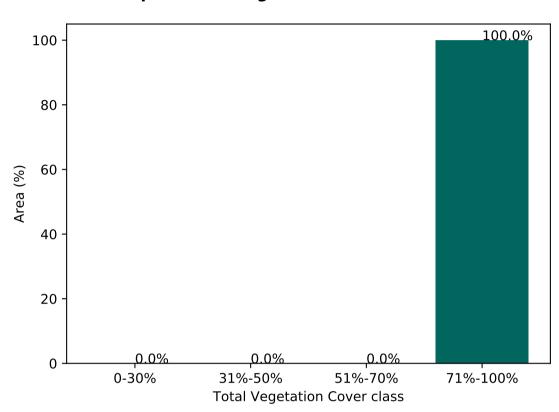


Total Vegetation Cover Anomaly [%]

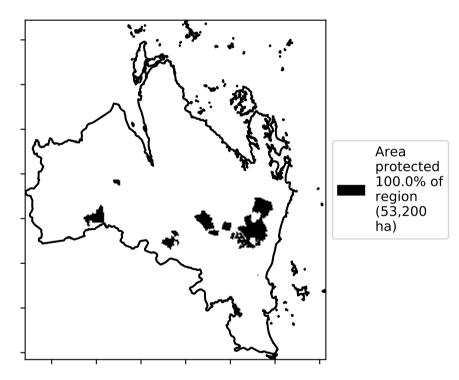


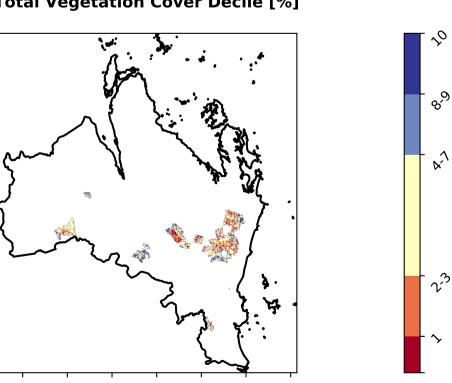
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





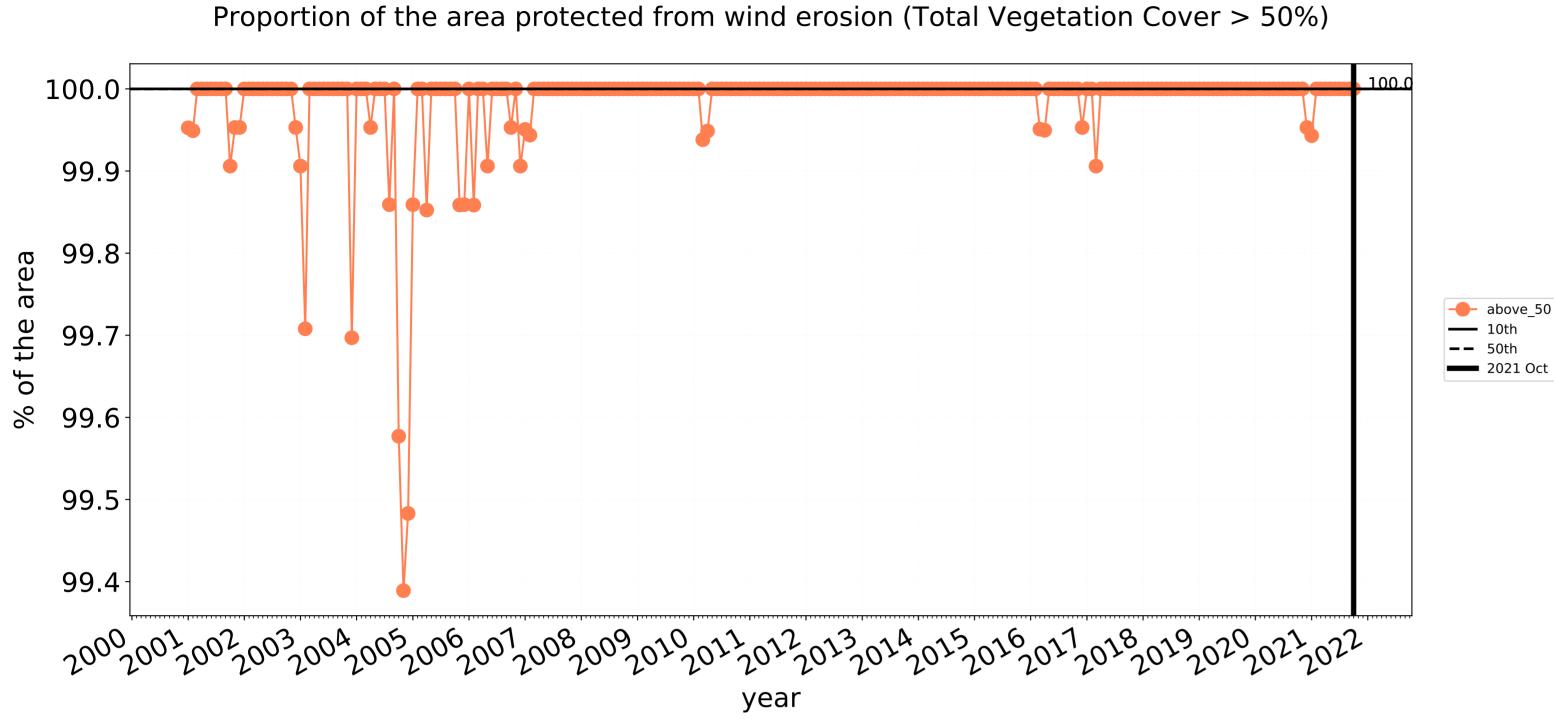


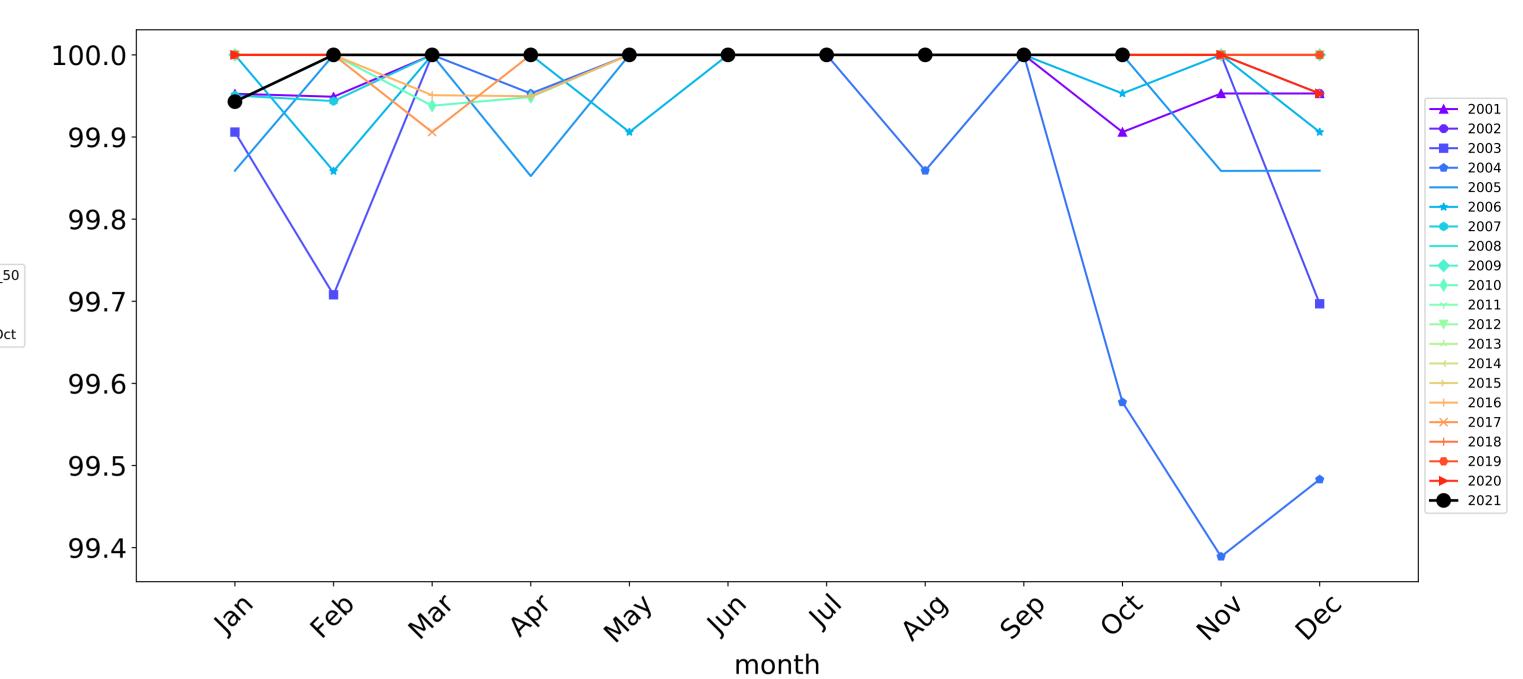




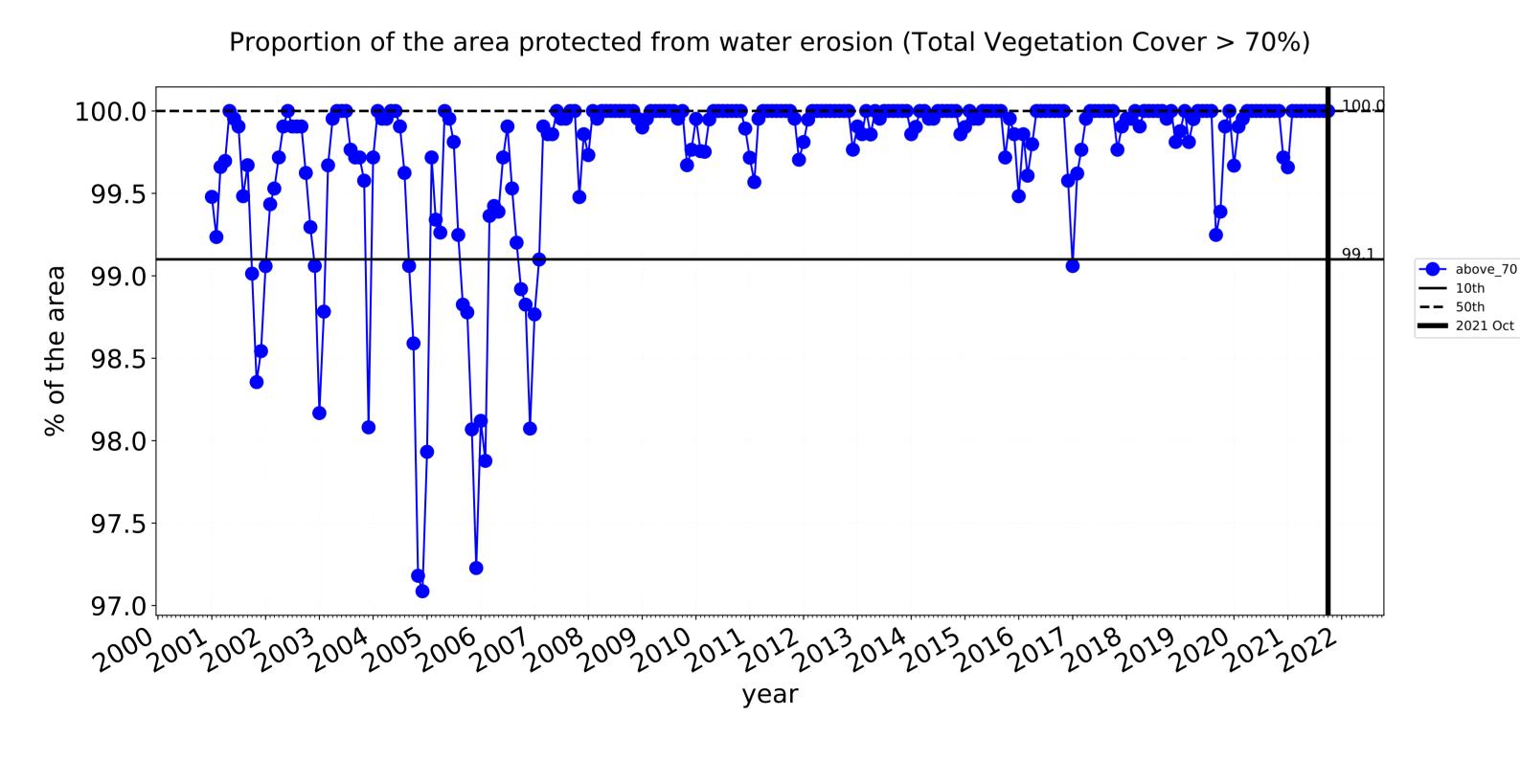


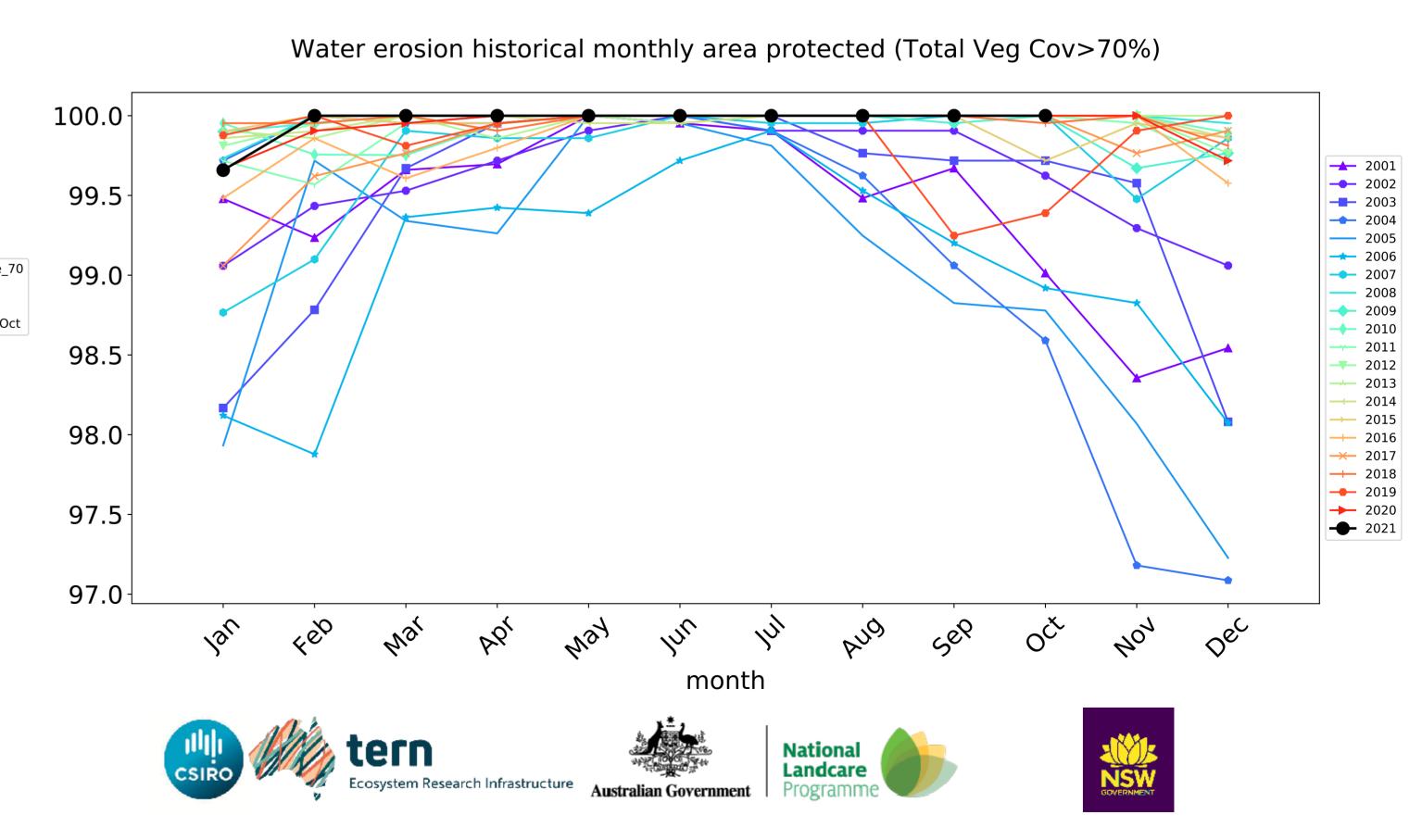
Production native forests and plantation forests timeseries

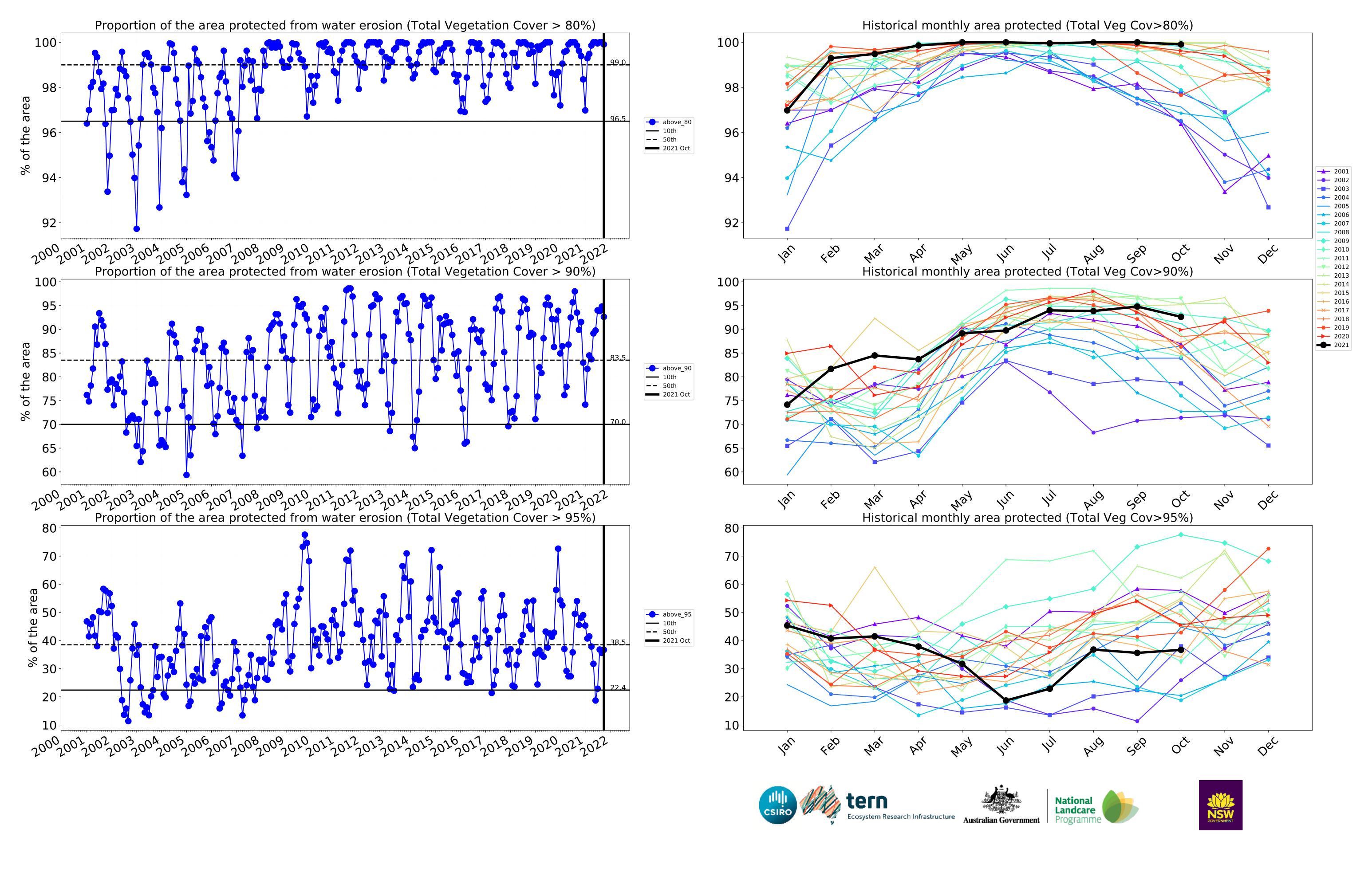




Wind erosion historical monthly area protected (Total Veg Cov >50%)







Livingstone_(S) (1,154,250 ha and no data 21,210 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	1,154,250	100.0% 1,153,775	99.8% 1,151,575	94.6% 1,092,450	82.2% 948,275	51.0% 588,550	19.8% 228,925
Conservation and natural environments	334,175	99.9% 333,950	99.7% 333,075	93.9% 313,750	77.9% 260,200	59.4% 198,400	31.3% 104,725
Conservation and natural environments non forest	11,325	98.9% 11,200	97.4% 11,025	85.7% 9,700	71.3% 8,075	45.3% 5,125	25.2% 2,850
Conservation and natural environments Woodland forest	211,900	100.0% 211,875	99.8% 211,525	93.3% 197,650	74.3% 157,400	57.1% 121,075	30.9% 65,450
Conservation and natural environments Forest (non woodland)	110,950	99.9% 110,875	99.6% 110,525	95.9% 106,400	85.4% 94,725	65.1% 72,200	32.8% 36,425
Agriculture	679,275	100.0% 679,175	99.9% 678,550	94.8% 643,675	83.7% 568,325	45.3% 307,575	13.6% 92,300
Grazing	673,900	100.0% 673,800	99.9% 673,200	94.8% 638,975	83.9% 565,400	45.5% 306,675	13.7% 92,150
Grazing non forest	412,425	100.0% 412,325	99.8% 411,750	91.7% 378,075	76.0% 313,575	31.7% 130,925	7.6% 31,375
Grazing Woodland forest	219,350	100.0% 219,350	100.0% 219,350	99.9% 219,050	96.5% 211,700	66.1% 145,075	23.6% 51,850
Grazing - Forest (non woodland)	42,125	100.0% 42,125	99.9% 42,100	99.3% 41,850	95.3% 40,125	72.8% 30,675	21.2% 8,925
Production native forests and plantation forests	53,200	100.0% 53,200	100.0% 53,200	100.0% 53,200	99.9% 53,150	92.6% 49,275	36.7% 19,525







