Total vegetation cover soil protection Region:LGA Whitsunday (R) 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:

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: September 2021

Vegetation Cover Sep 2021

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

mean of that pixel. The mean is only for the

month of the map

using baseline from 2001 to

2019.

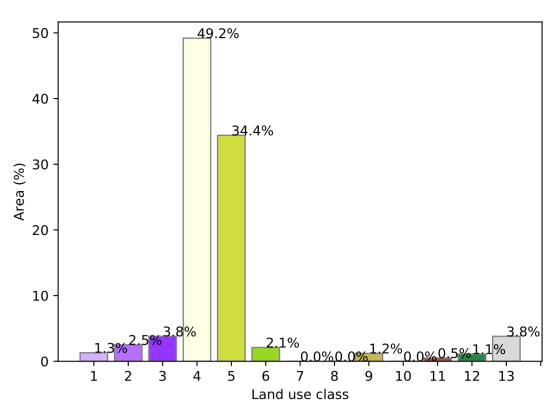
the mean. That is, red pixels are about 20% lower than the

Derived from

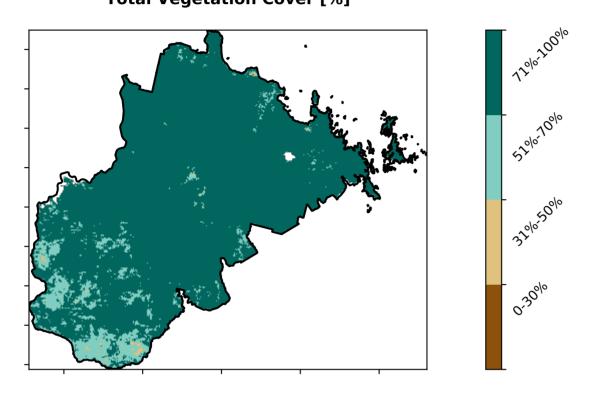
Use of Australia

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 -Land Use and Forests Non-Woodland forest 4 Agriculture - Grazing - Non-forest 5 Agriculture - Grazing - Woodland forest Catchment Scale Land 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

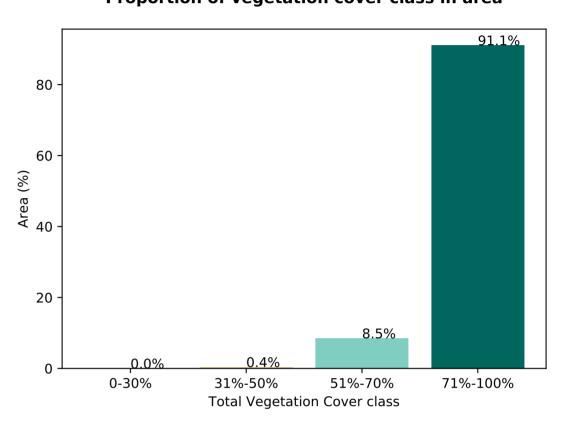
Proportion of each land class in area

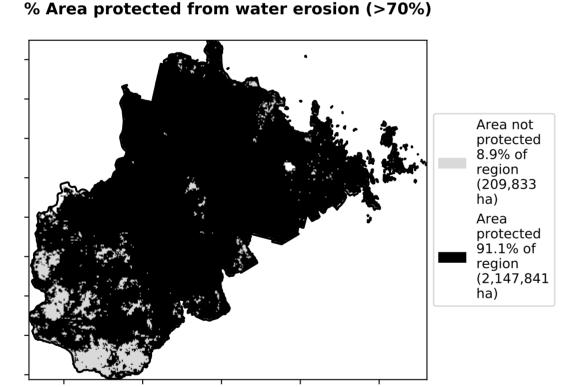


Total Vegetation Cover [%]

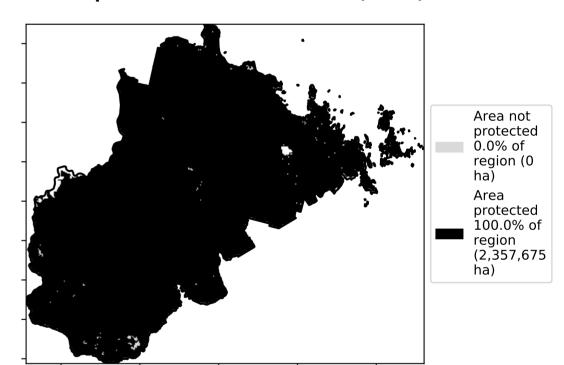


Proportion of vegetation cover class in area

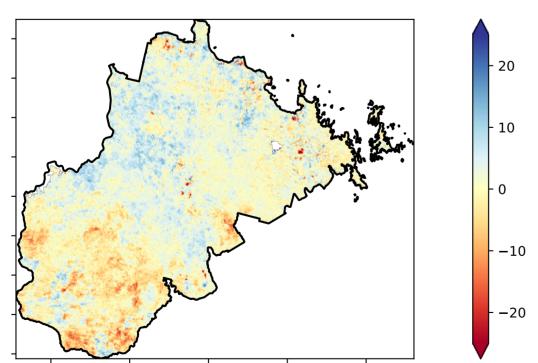




% Area protected from wind erosion (>50%)

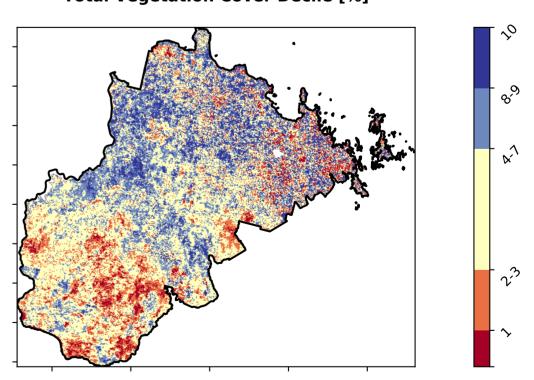


Total Vegetation Cover Anomaly [%]



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

Total Vegetation Cover Decile [%]

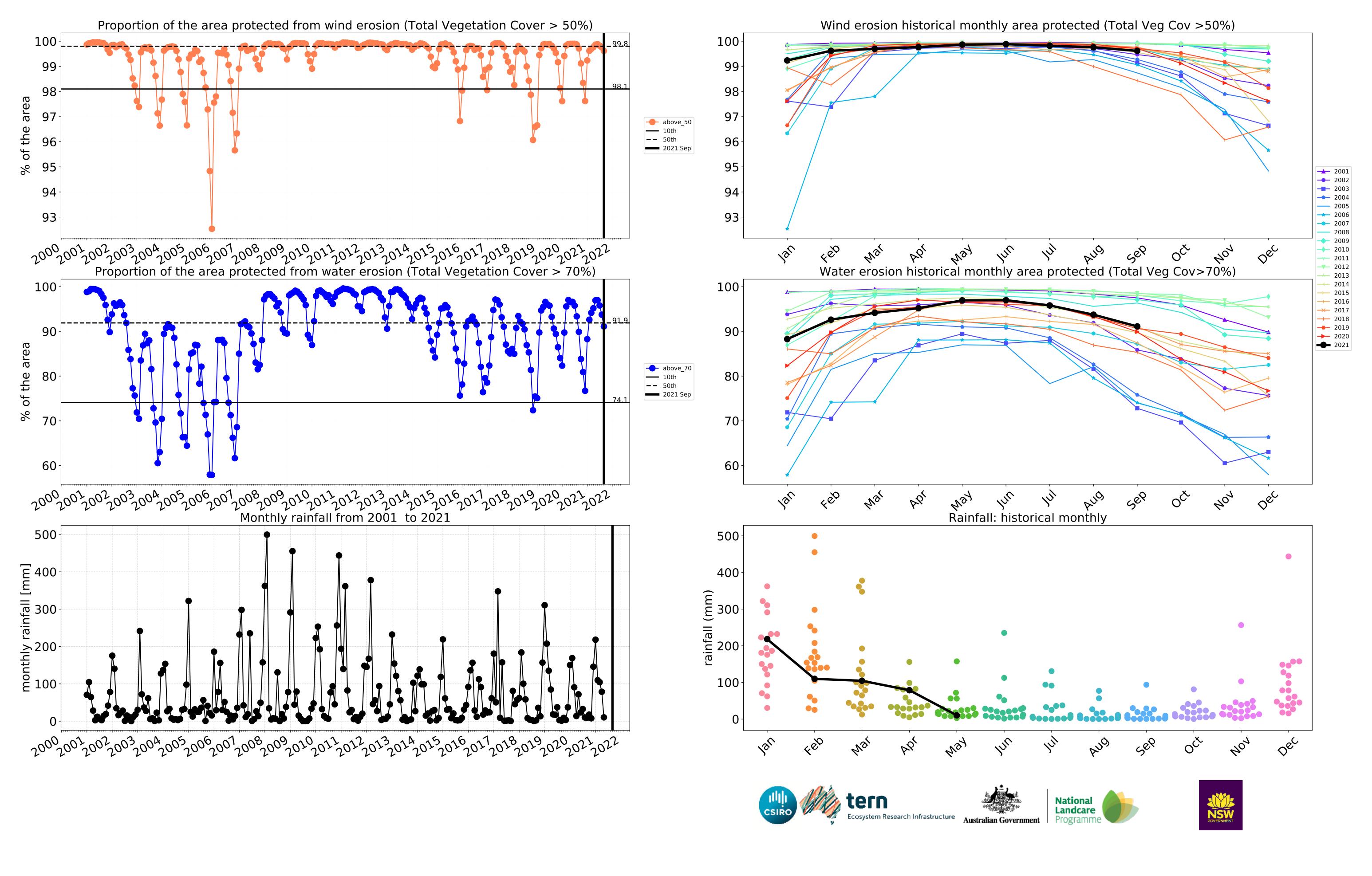












Conservation and natural environments

Land use and forest cover Proportion of each land class in area 50.2% 50 40 Catchment Scale 32.8% Land Use and Forests 1 Conservation and natural environments - Nonof Australia (2018) Area (%) 08 Derived from Catchment Scale Land 2 Conservation and natural environments - Woodland Use of Australia (2018) and Forests of Australia (2018) 3 Conservation and natural environments - Non-20 17.0% 10 3 2 Land use class **Total Vegetation Cover [%]** Proportion of vegetation cover class in area 94.2% 80 60 20 5.2% 31%-50% 0-30% 51%-70% 71%-100% **Total Vegetation Cover class** % Area protected from water erosion (>70%) % Area protected from wind erosion (>50%) Area not protected 5.8% of Area not protected 1.0% of region (1,697 ha) region (9,846 ha) Area Area protected protected 99.0% of 94.2% of region (168,077 region (159,928 ha) ha) **Total Vegetation Cover Anomaly [%] Total Vegetation Cover Decile [%]** - 20 Anomaly show how many percetage points each pixel is from Deciles show where the - 10 pixel value lies in the the mean. That record, from highest to lowest, for that month. That is, red pixels are is, red pixels are about 20% lower than the mean of that in the lowest 10% of pixel. The mean records for that month of is only for the month of the map the map using baseline from 2001 to 2019. using baseline from 2001 to 2019. -10 **-**20

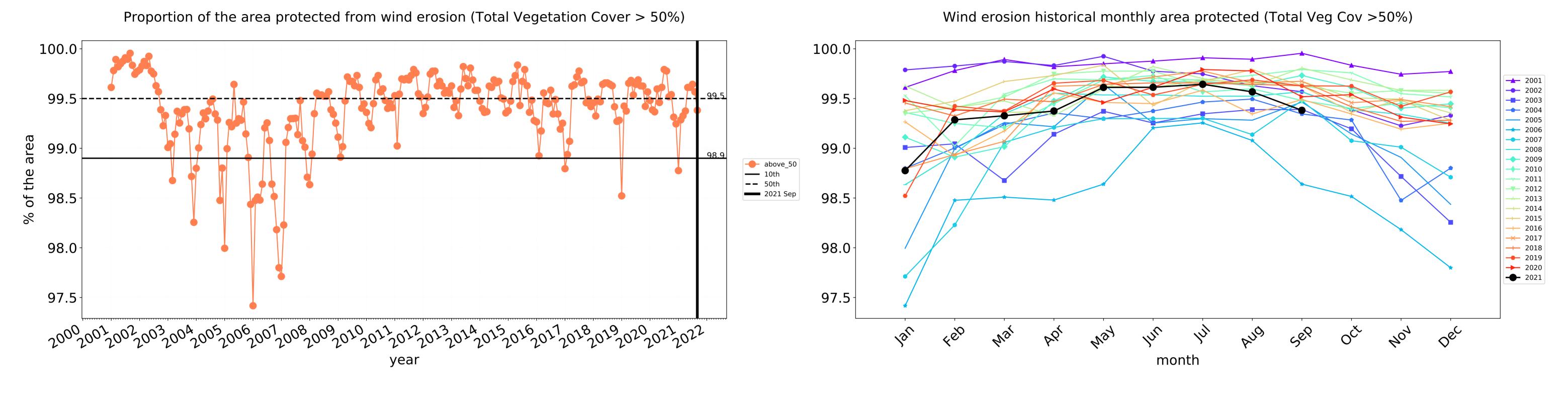


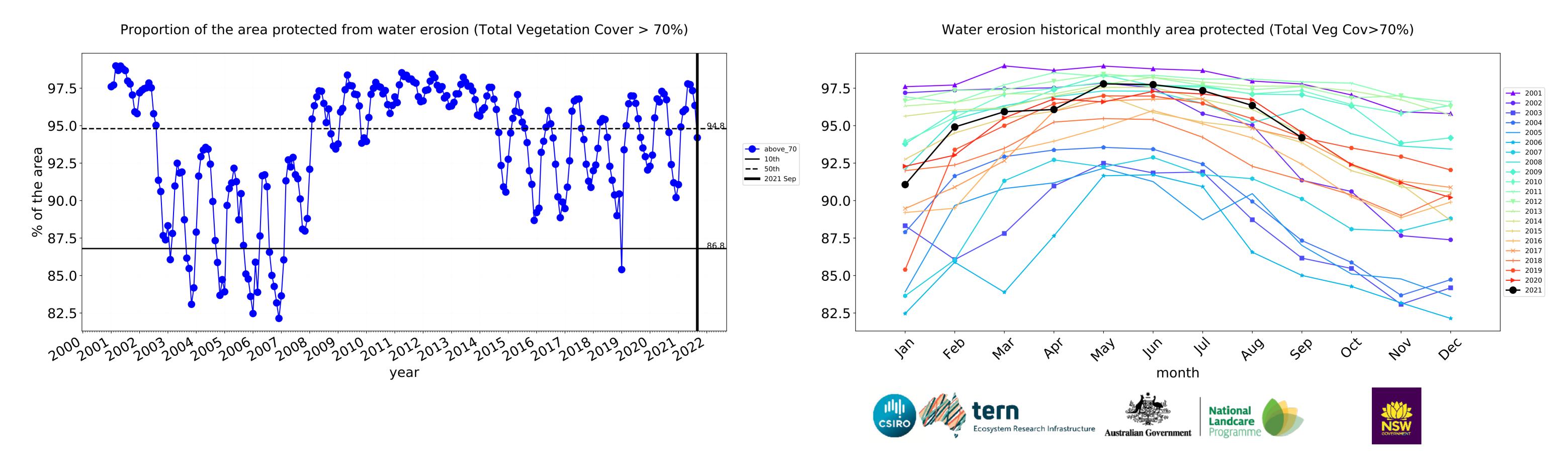






Conservation and natural environments timeseries



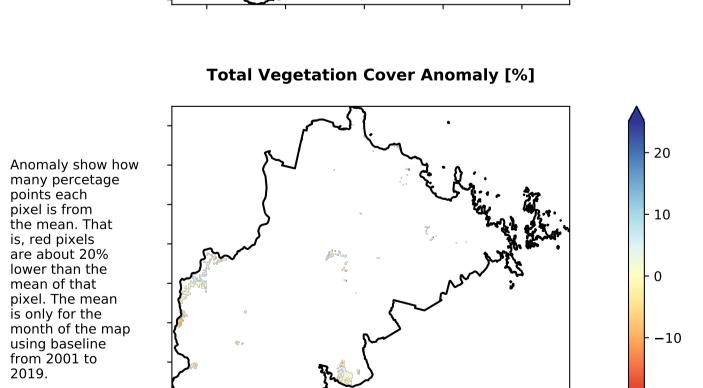


Conservation and natural environments non forest

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) 1 Conservation and natural environments - Non-

Total Vegetation Cover [%]

% Area protected from water erosion (>70%) Area not protected 21.2% of region (6,004 ha) Area protected 78.8% of region (22,320 ha)



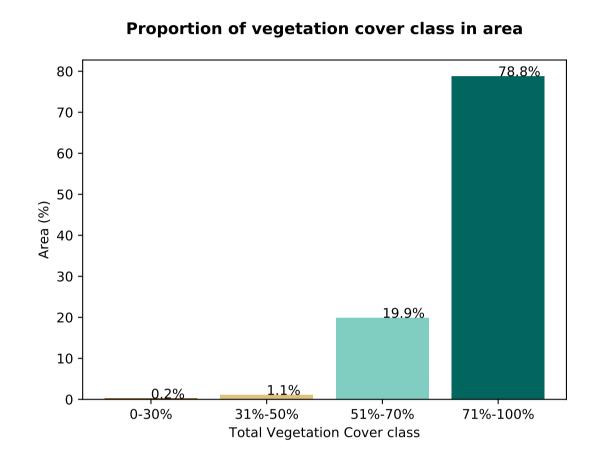
is, red pixels

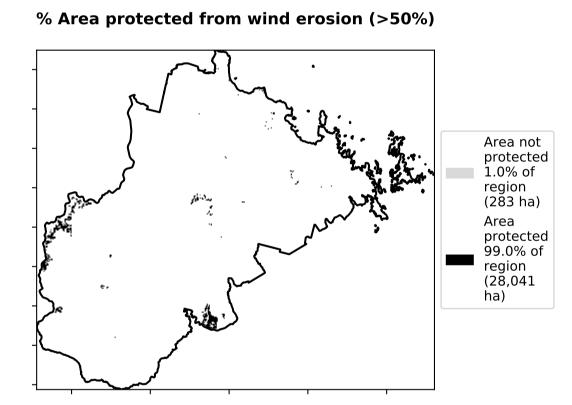
mean of that pixel. The mean is only for the month of the map

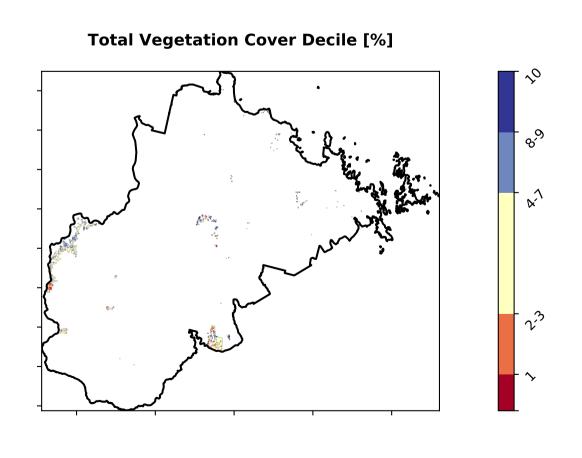
using baseline from 2001 to 2019.

are about 20% lower than the

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.









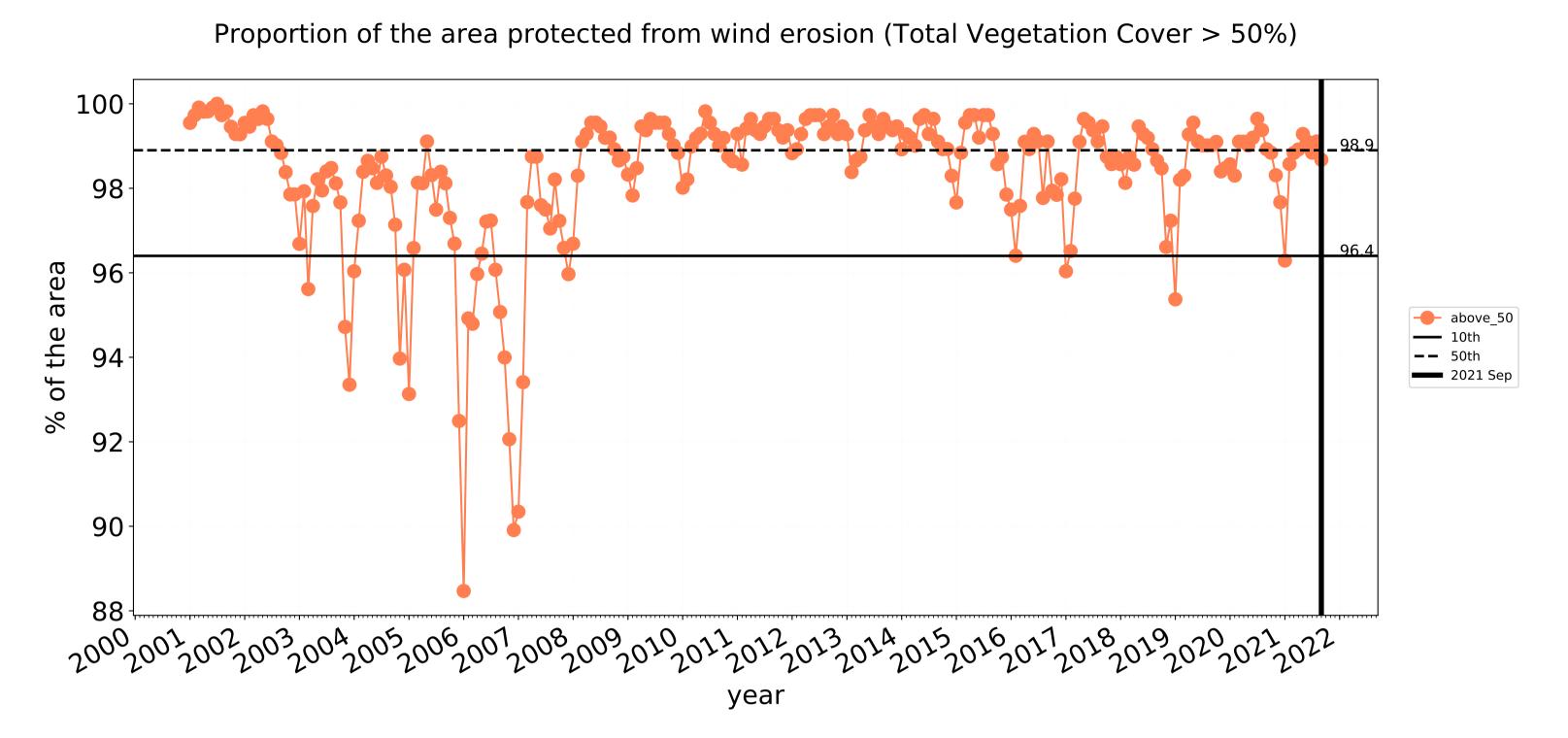


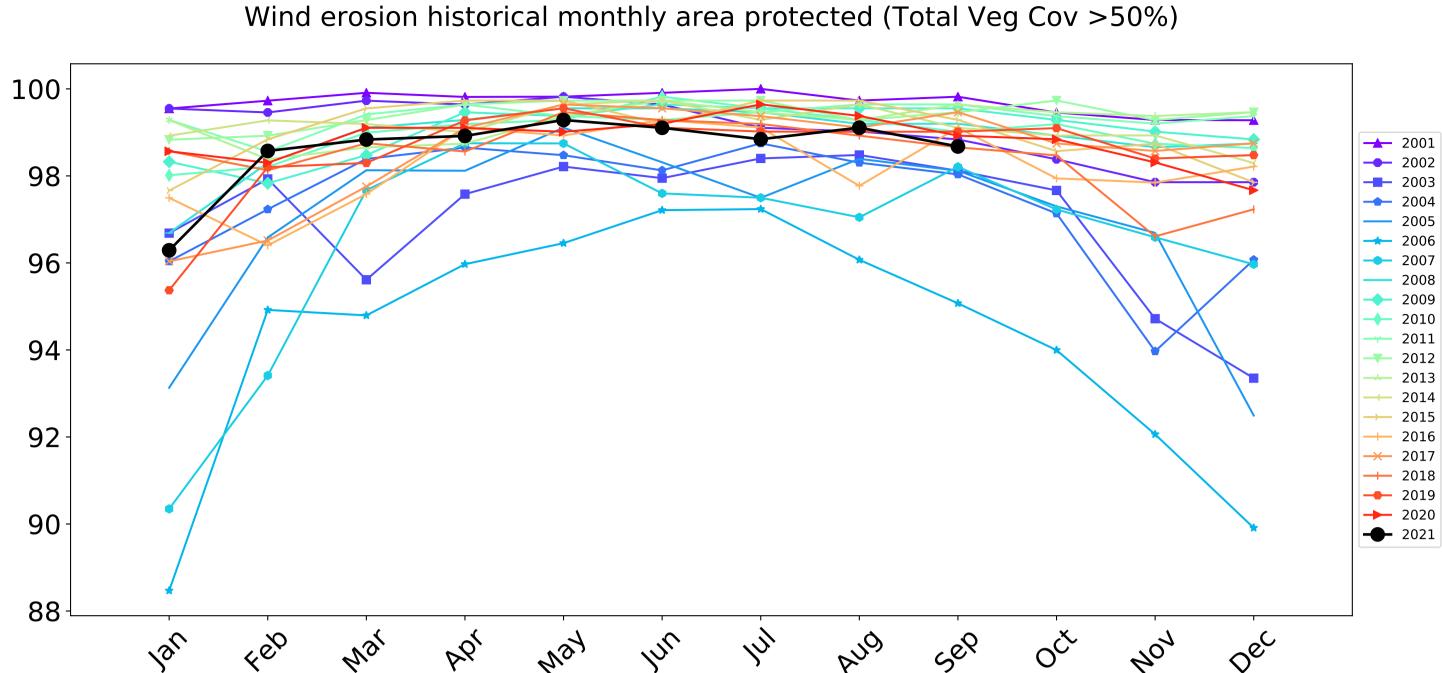




-20

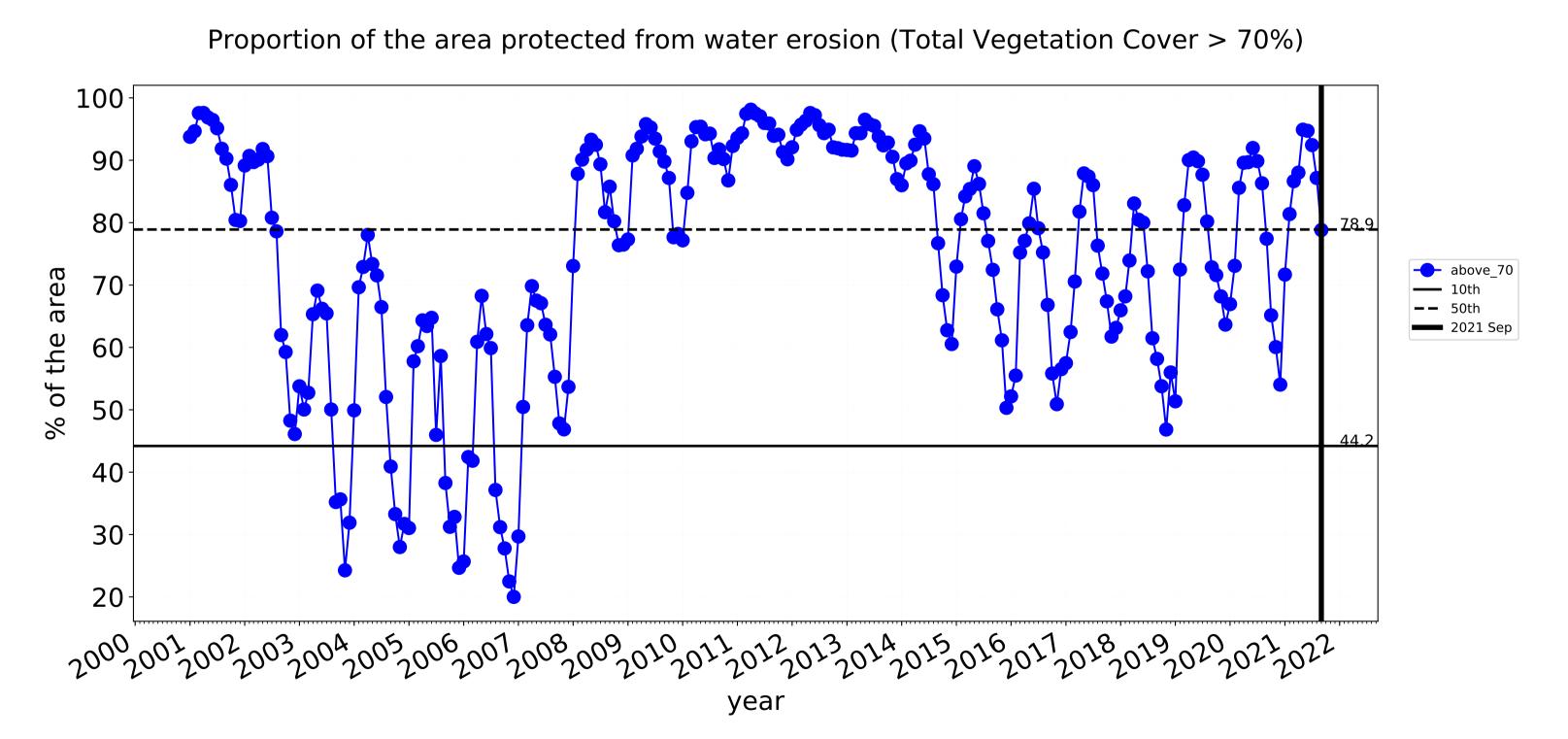
Conservation and natural environments non forest timeseries

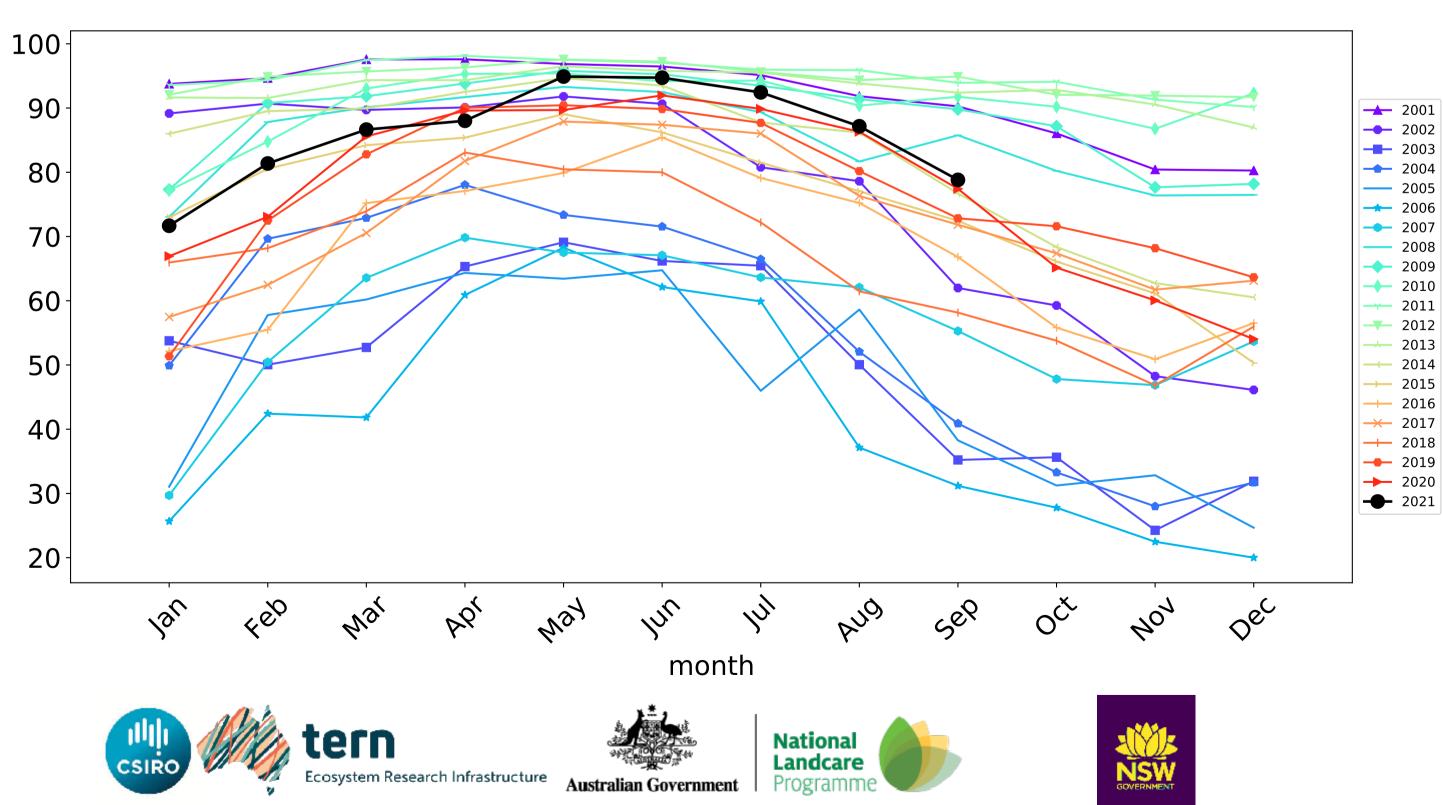




month

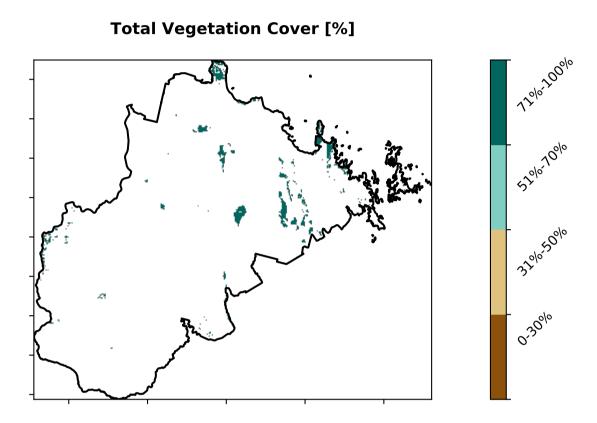
Water erosion historical monthly area protected (Total Veg Cov>70%)



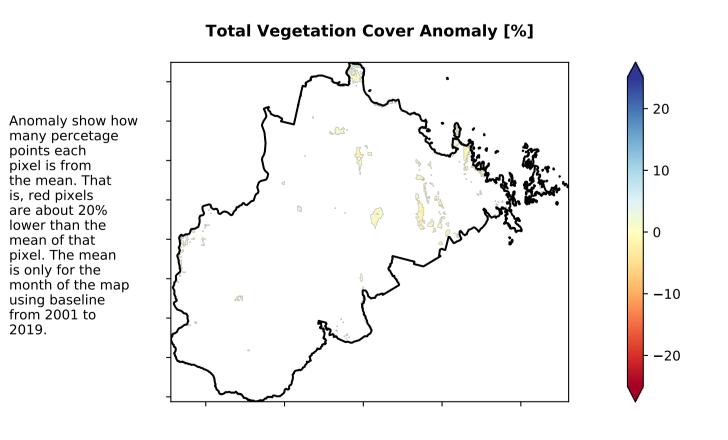


Conservation and natural environments Woodland forest

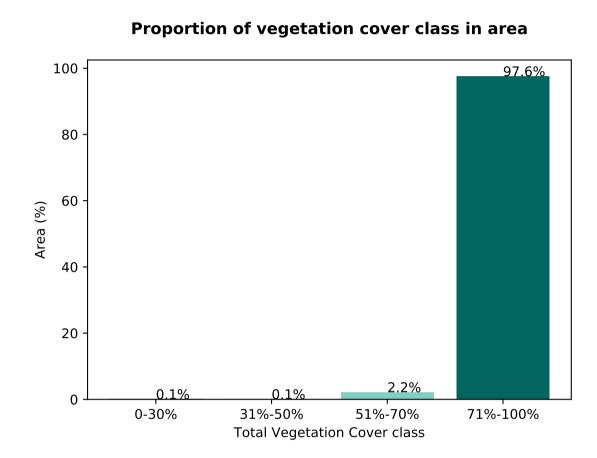
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) Australia (2018) 1 Conservation and natural environments - Woodland forest forest



Area not protected 2.4% of region (1,365 ha) Area protected 2.4% of region (1,365 ha) Area protected 97.6% of region (55,510 ha)

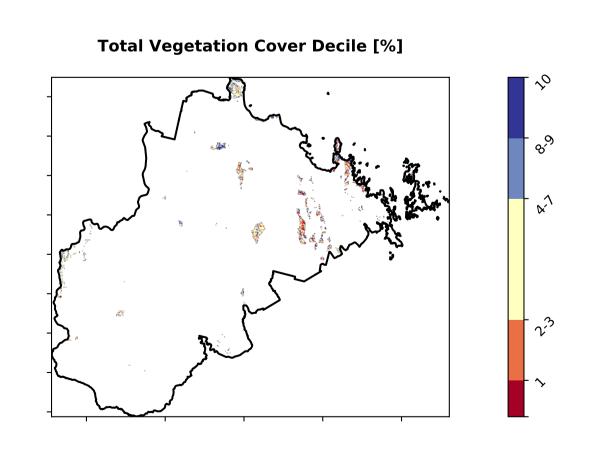


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



Area not protected 0.0% of region (0 ha)

Area protected 100.0% of region (56,875 ha)

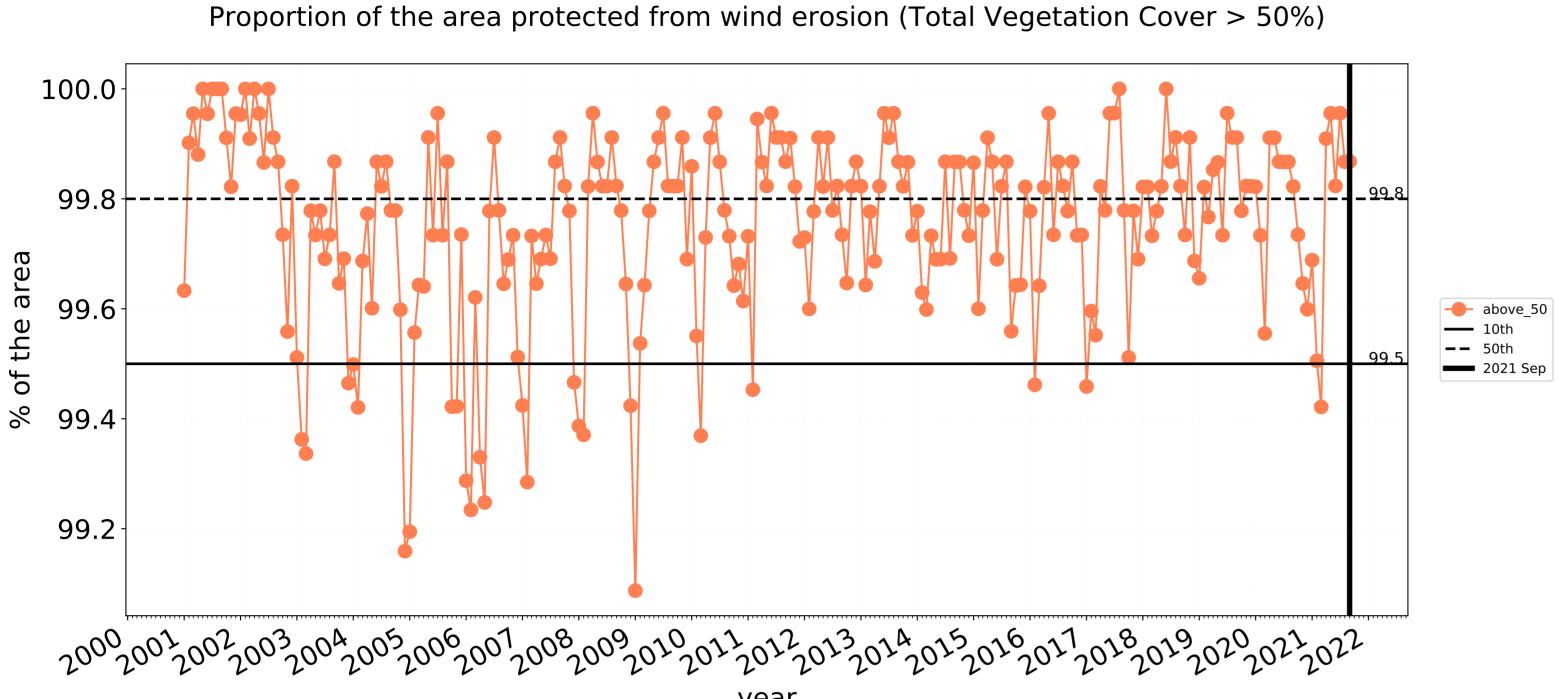




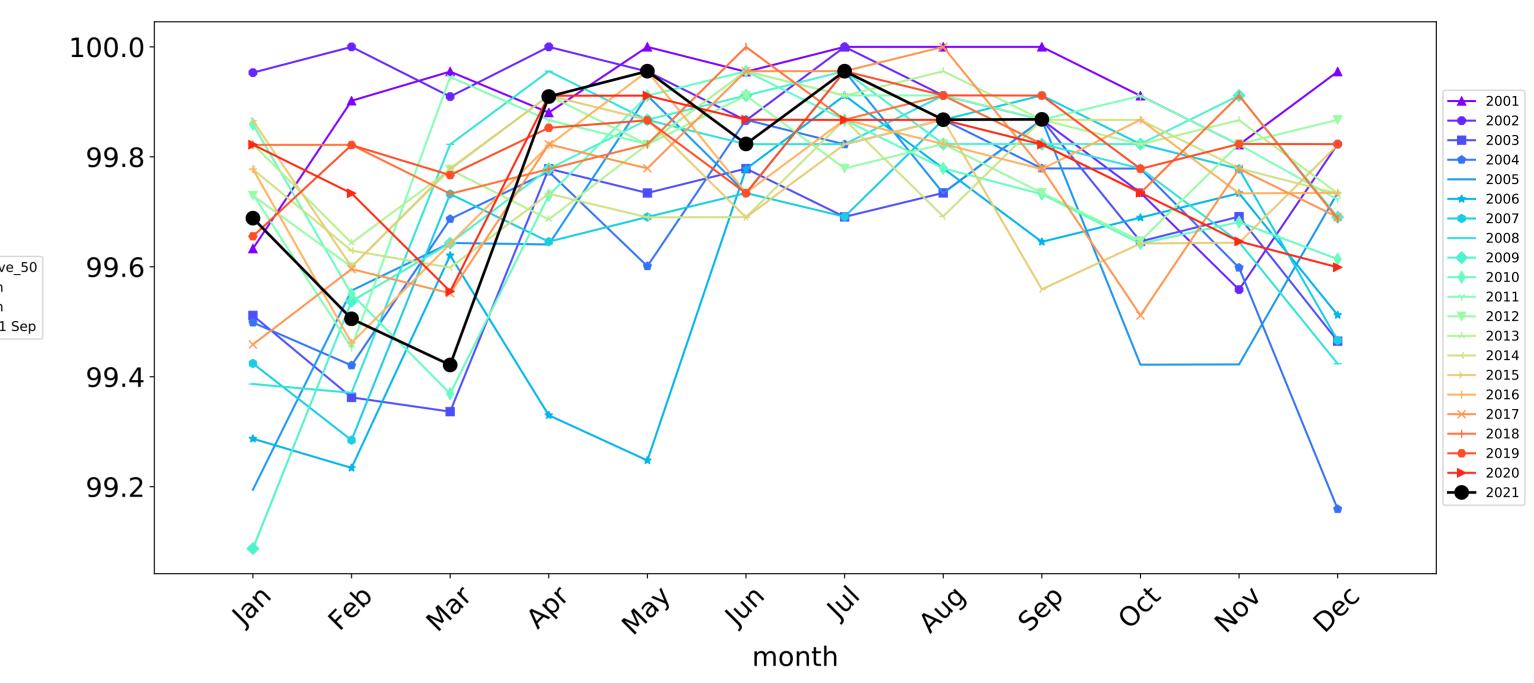


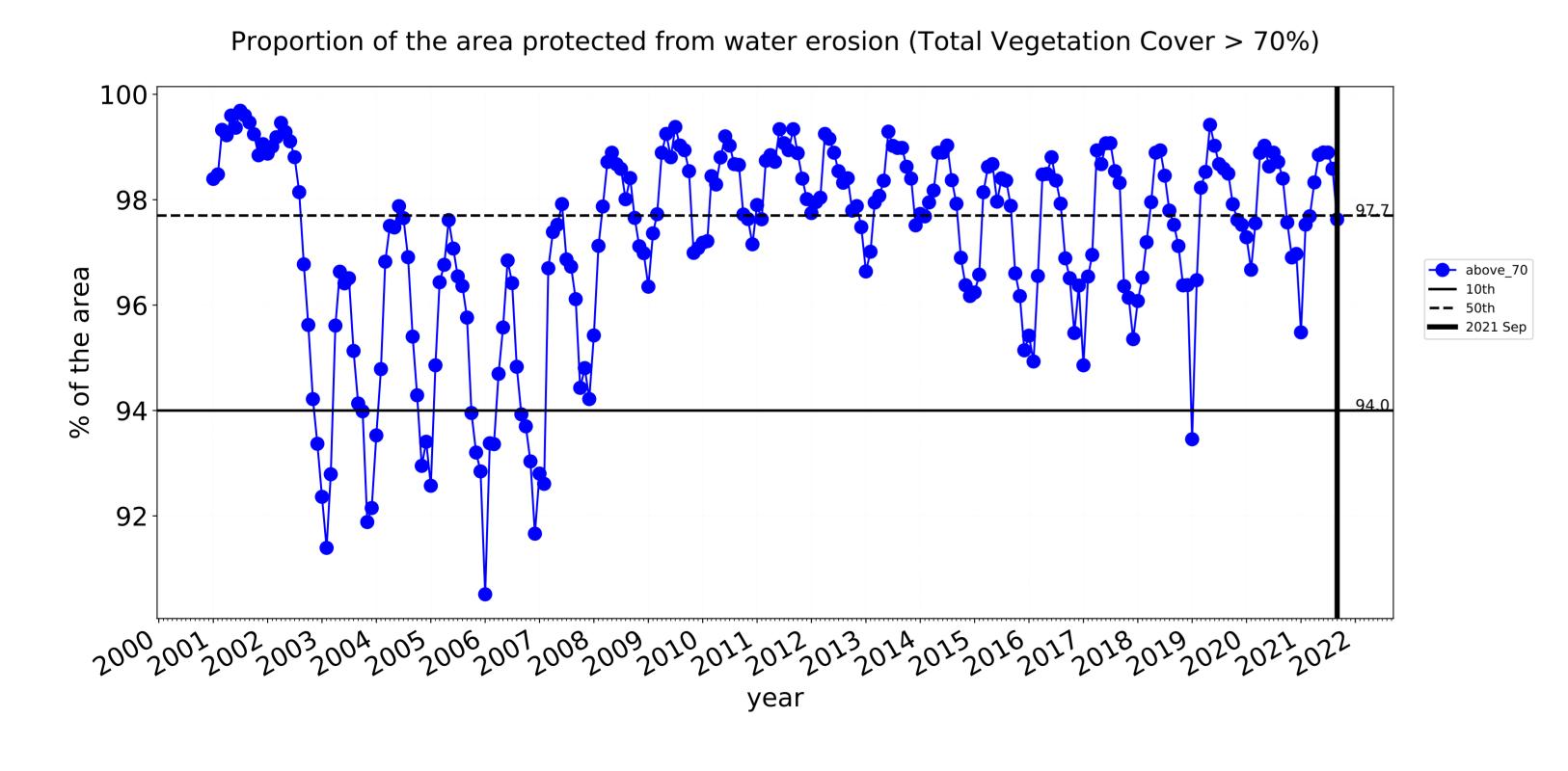


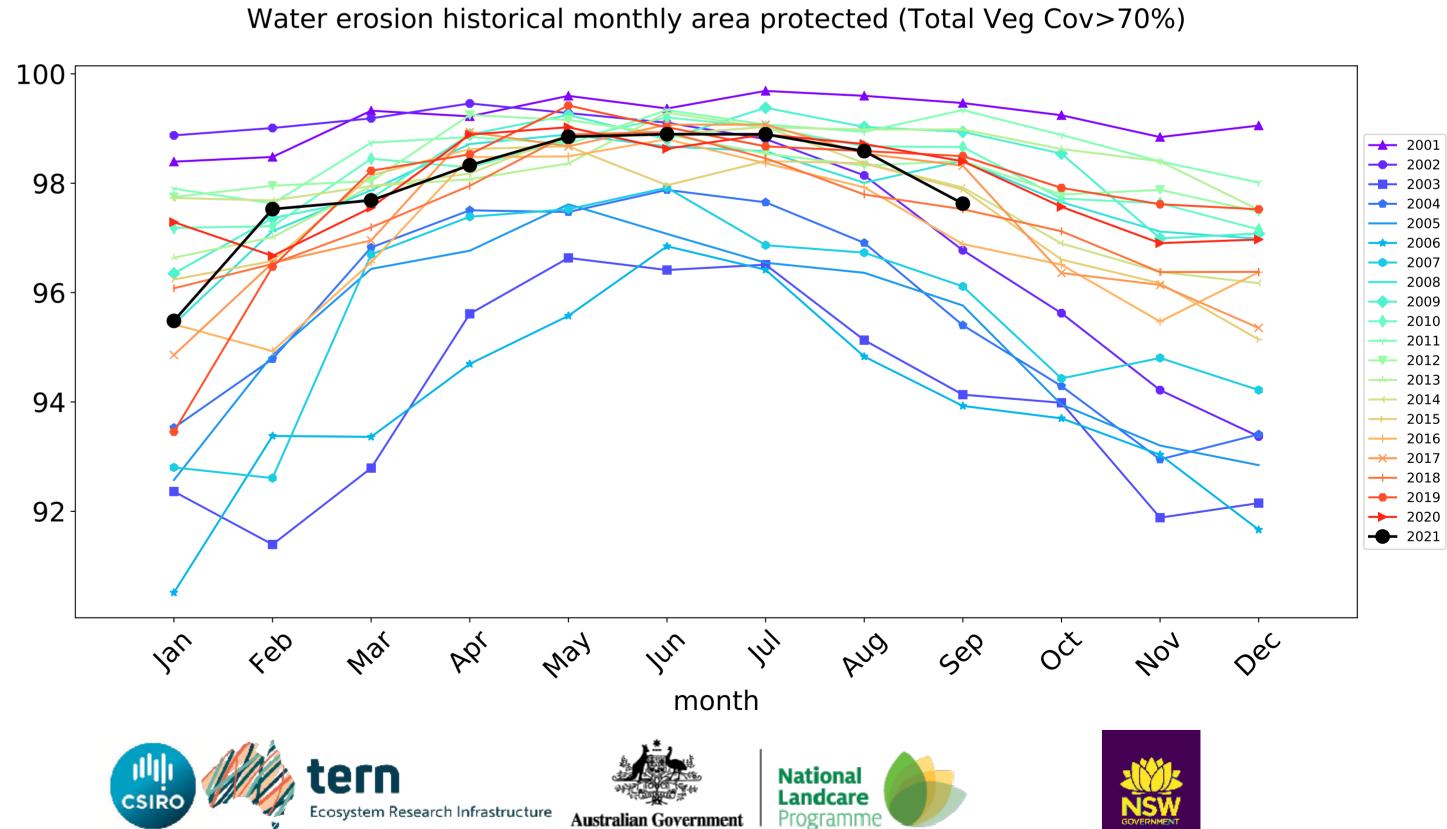




Wind erosion historical monthly area protected (Total Veg Cov >50%)

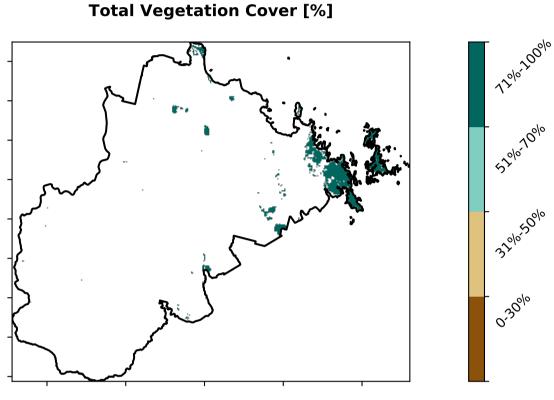


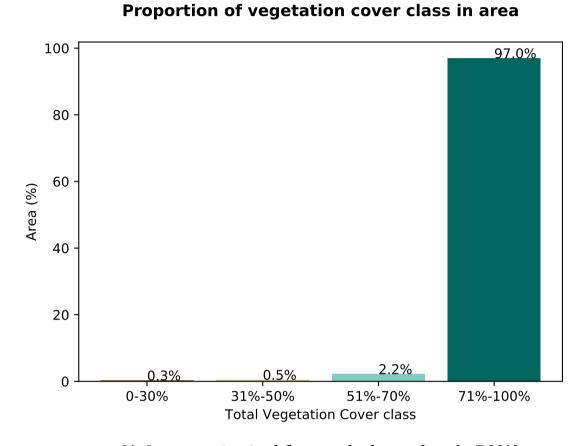


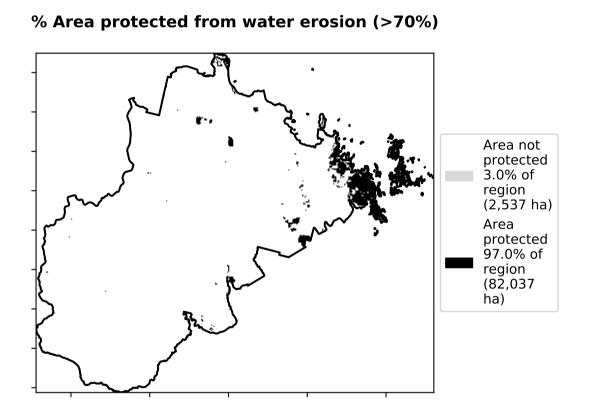


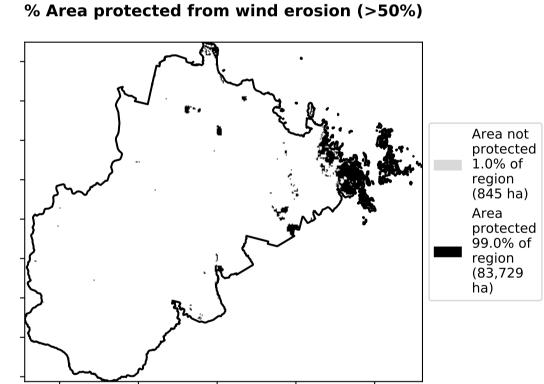
Conservation and natural environments Forest (non woodland)

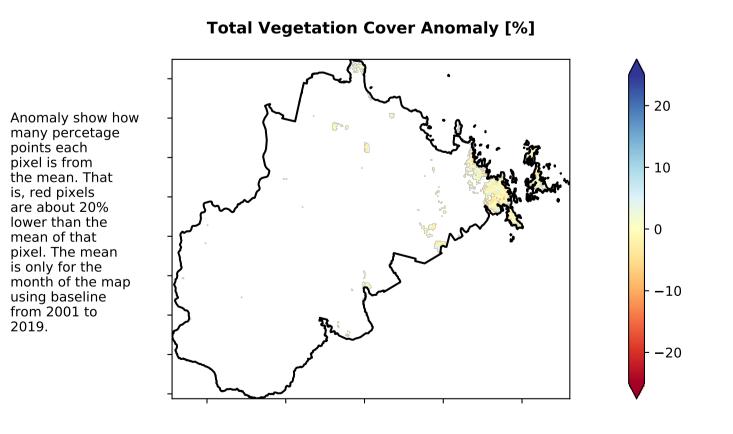
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) Tatal Vocastation Sever 1941



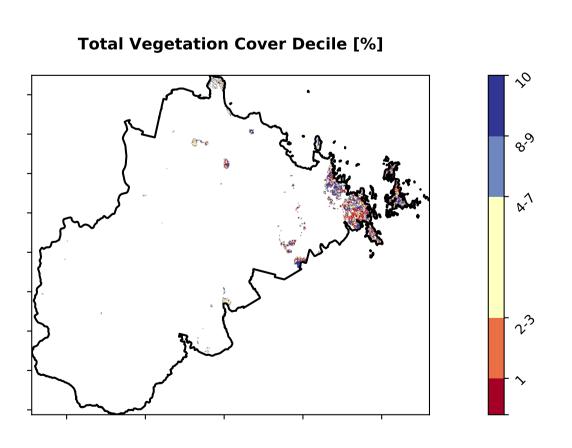








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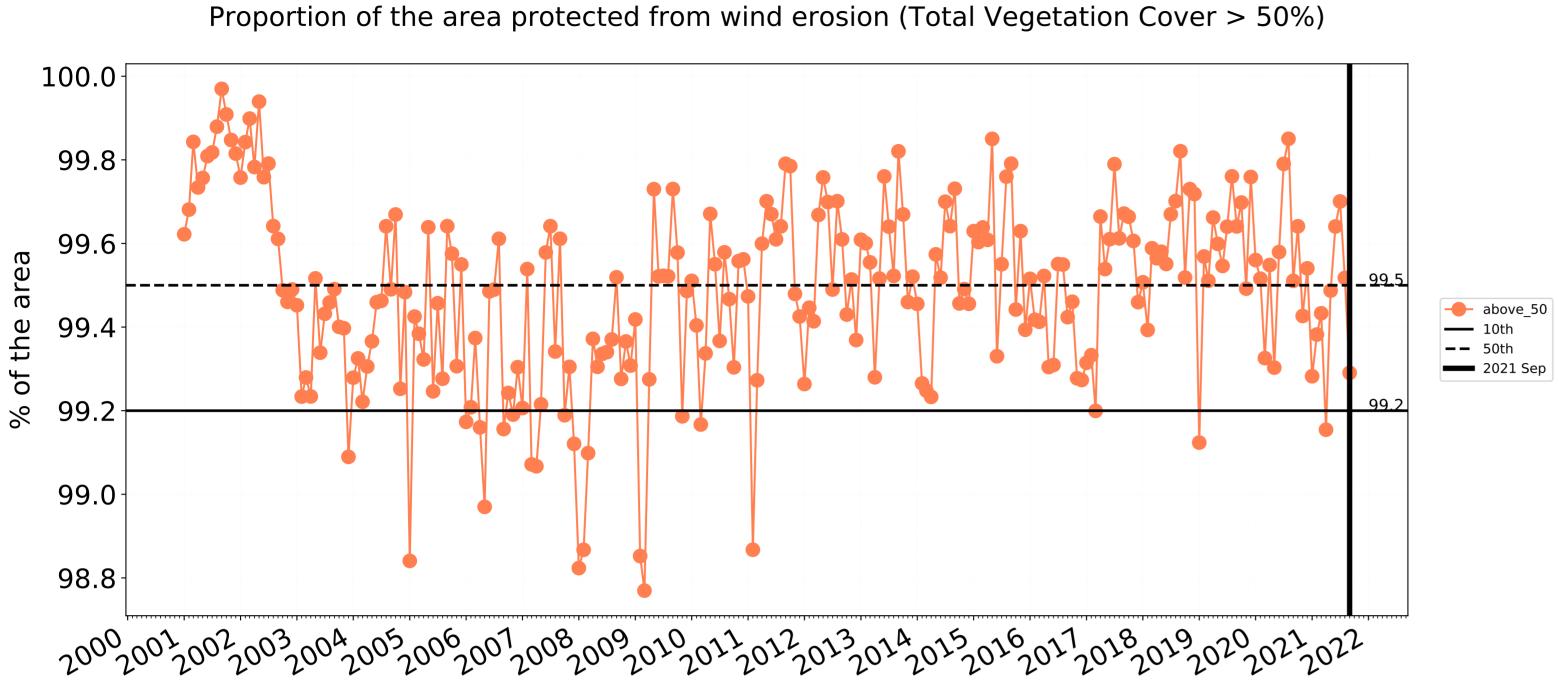


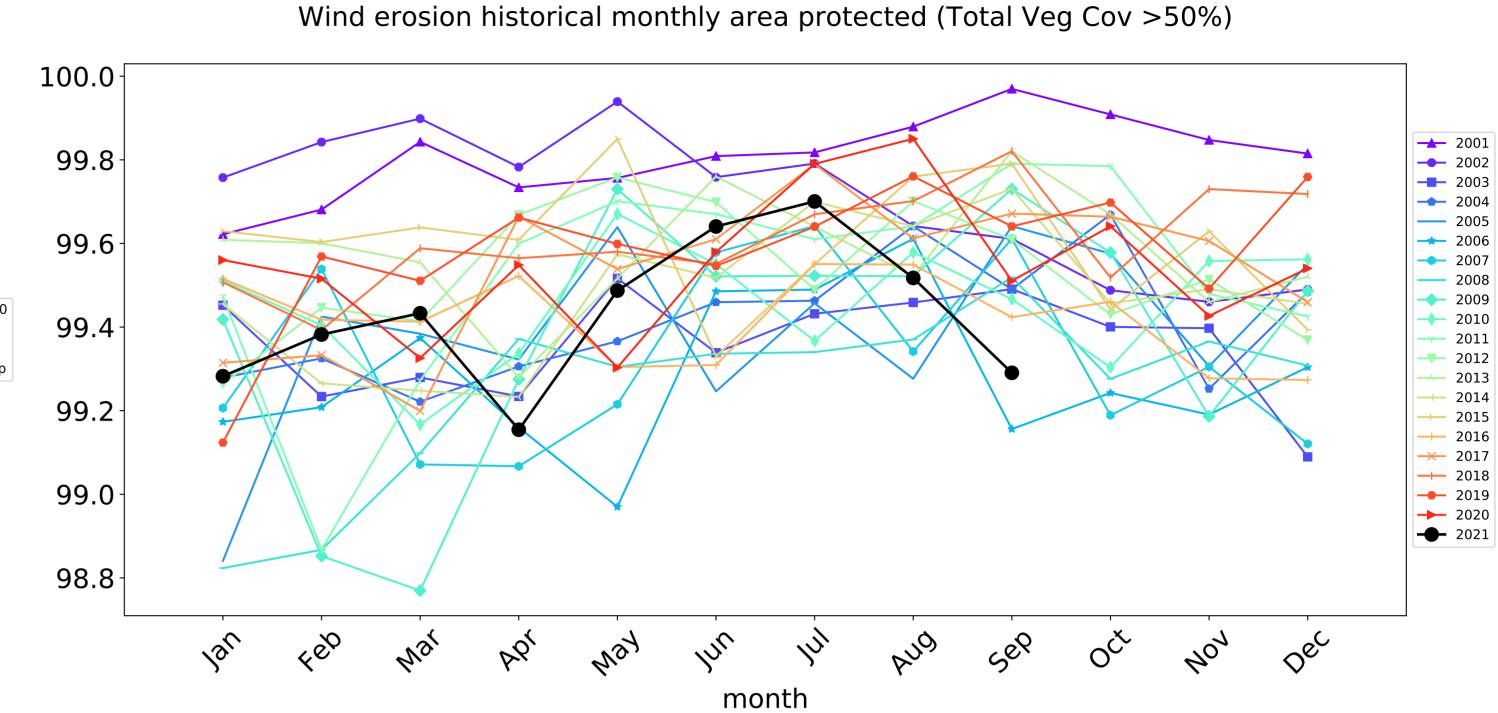


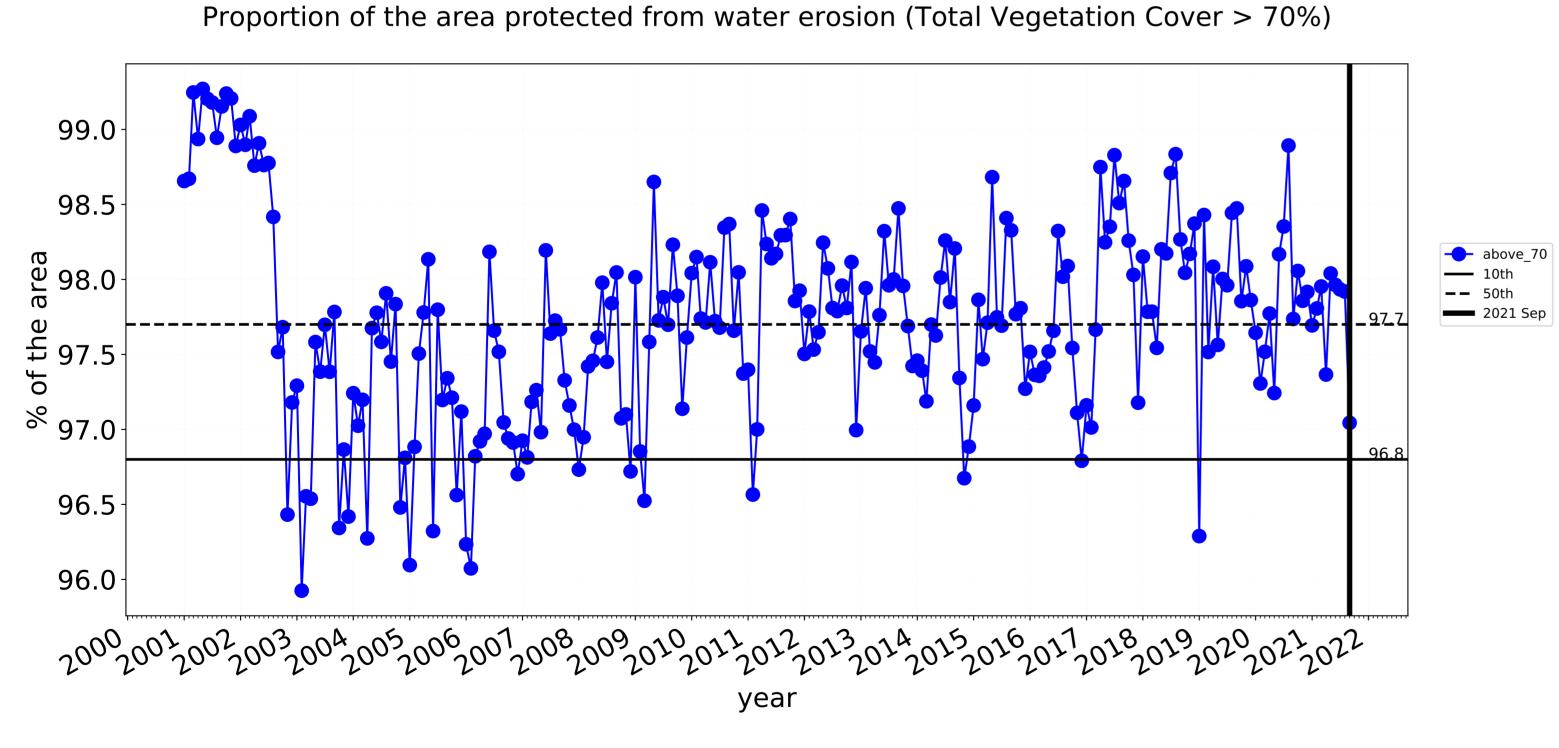


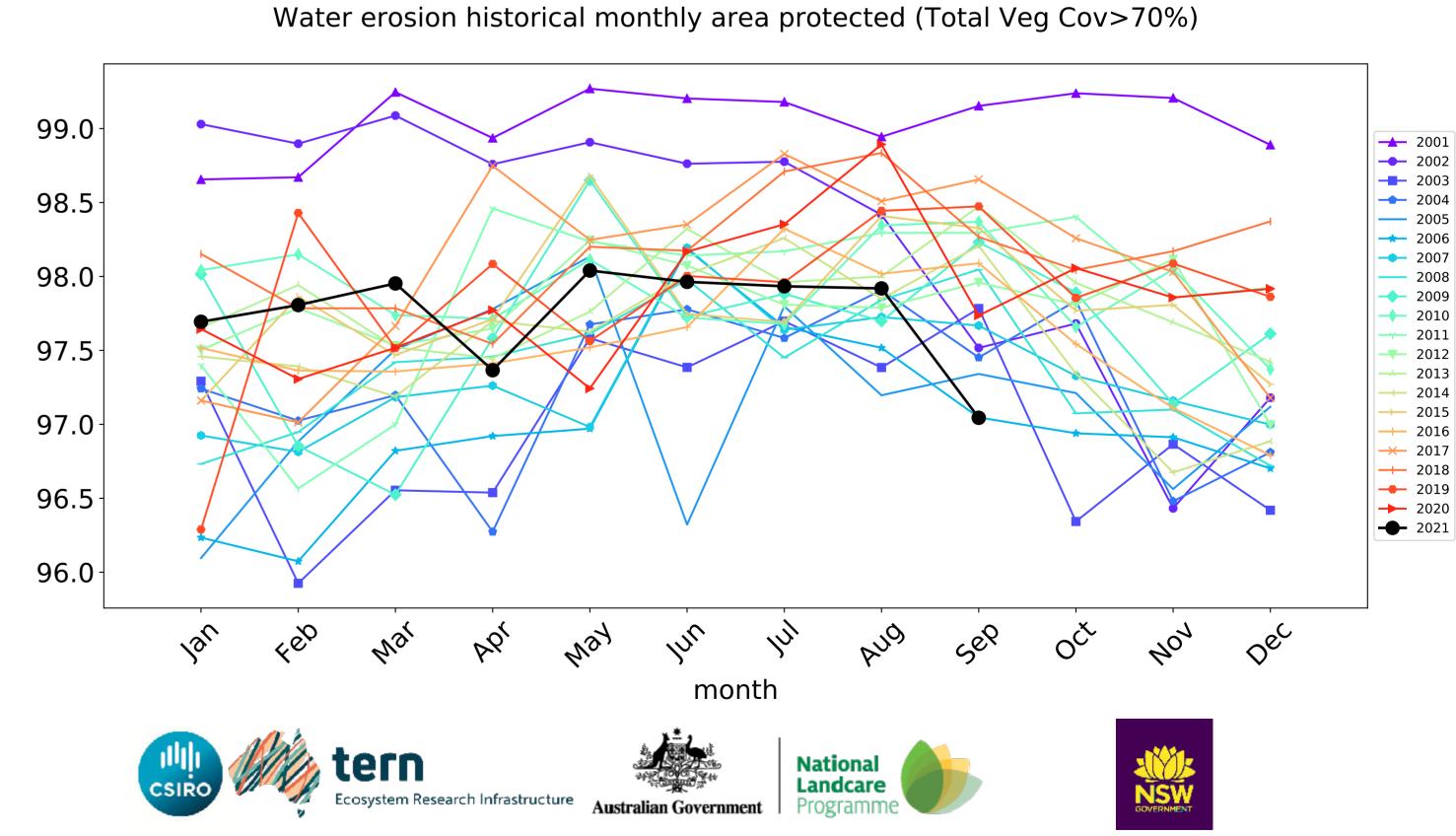






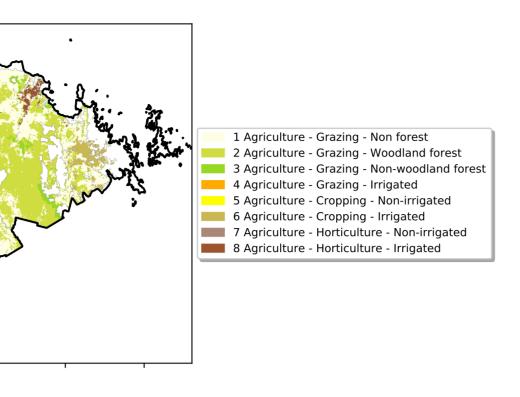






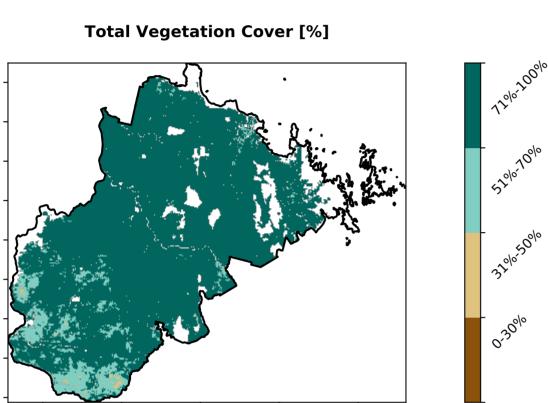
Agriculture

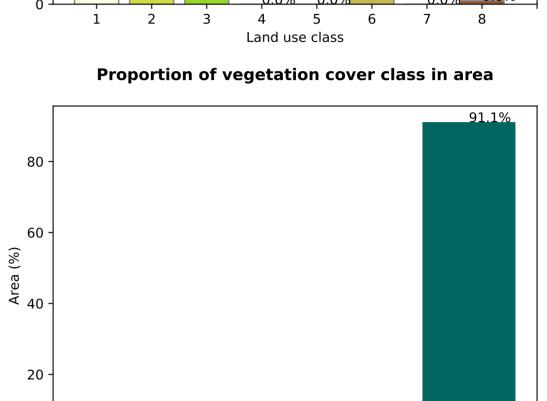
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest Derived from 4 Agriculture - Grazing - Irrigated Catchment Scale Land 5 Agriculture - Cropping - Non-irrigated Use of Australia 6 Agriculture - Cropping - Irrigated (2018) and Forests of Australia (2018) 7 Agriculture - Horticulture - Non-irrigated 8 Agriculture - Horticulture - Irrigated



<u>56.</u>2% 50 39.3% 40 Area (%) 20 -10

Proportion of each land class in area





% Area protected from water erosion (>70%)

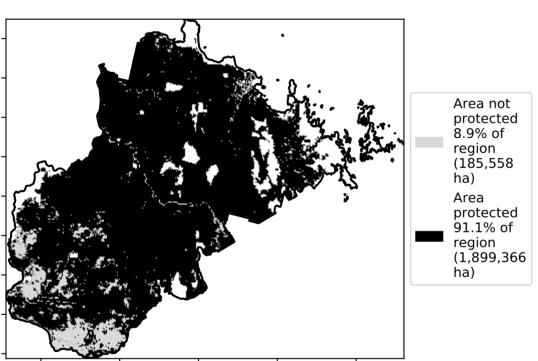


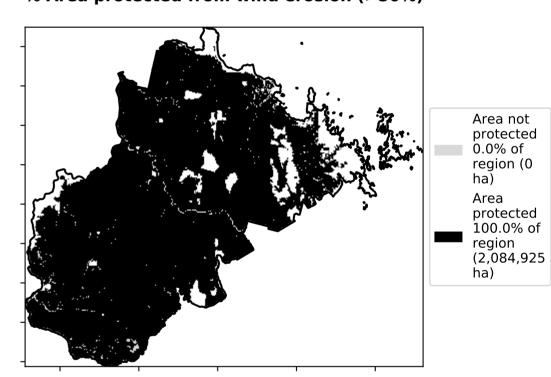
Total Vegetation Cover class

0.3%

31%-50%

0-30%





8.6%

71%-100%

51%-70%

Total Vegetation Cover Anomaly [%]

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

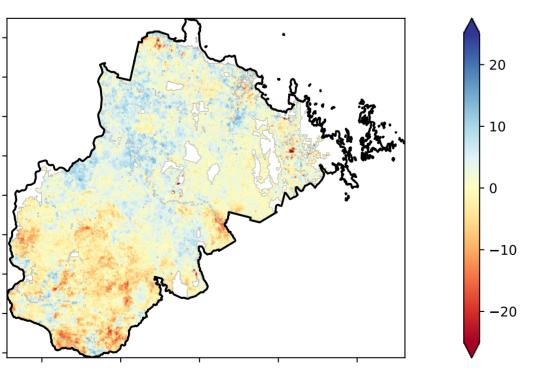
is, red pixels are about 20% lower than the mean of that

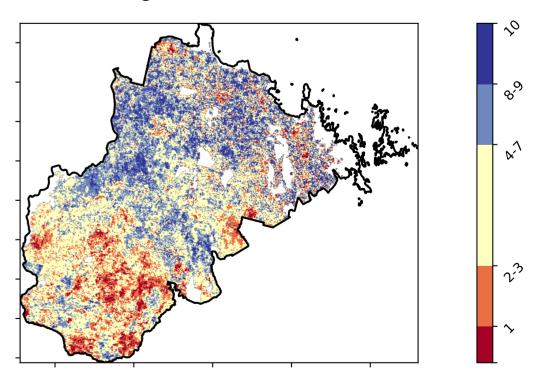
pixel. The mean

using baseline from 2001 to 2019.

is only for the month of the map

Total Vegetation Cover Decile [%]





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

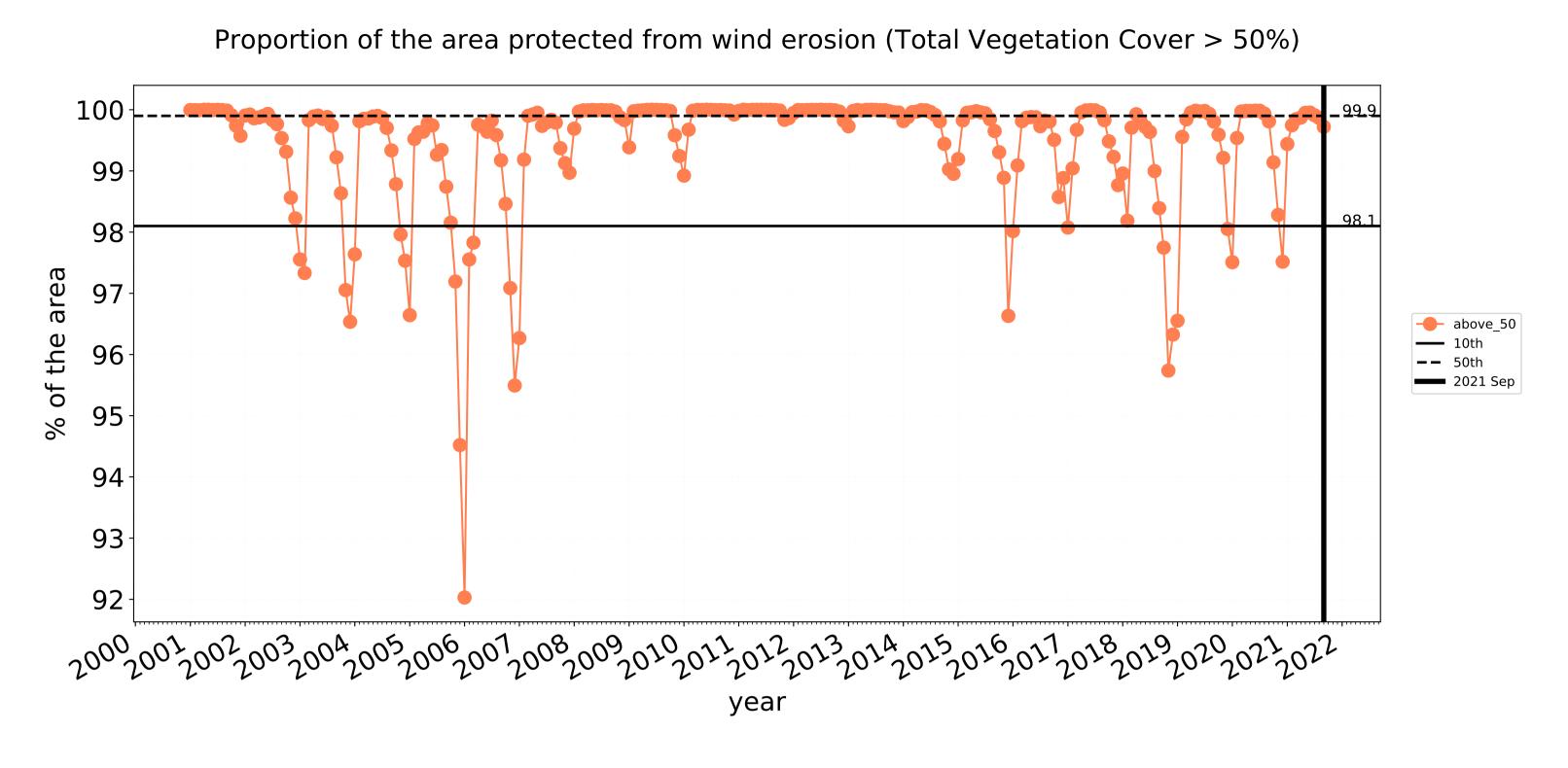


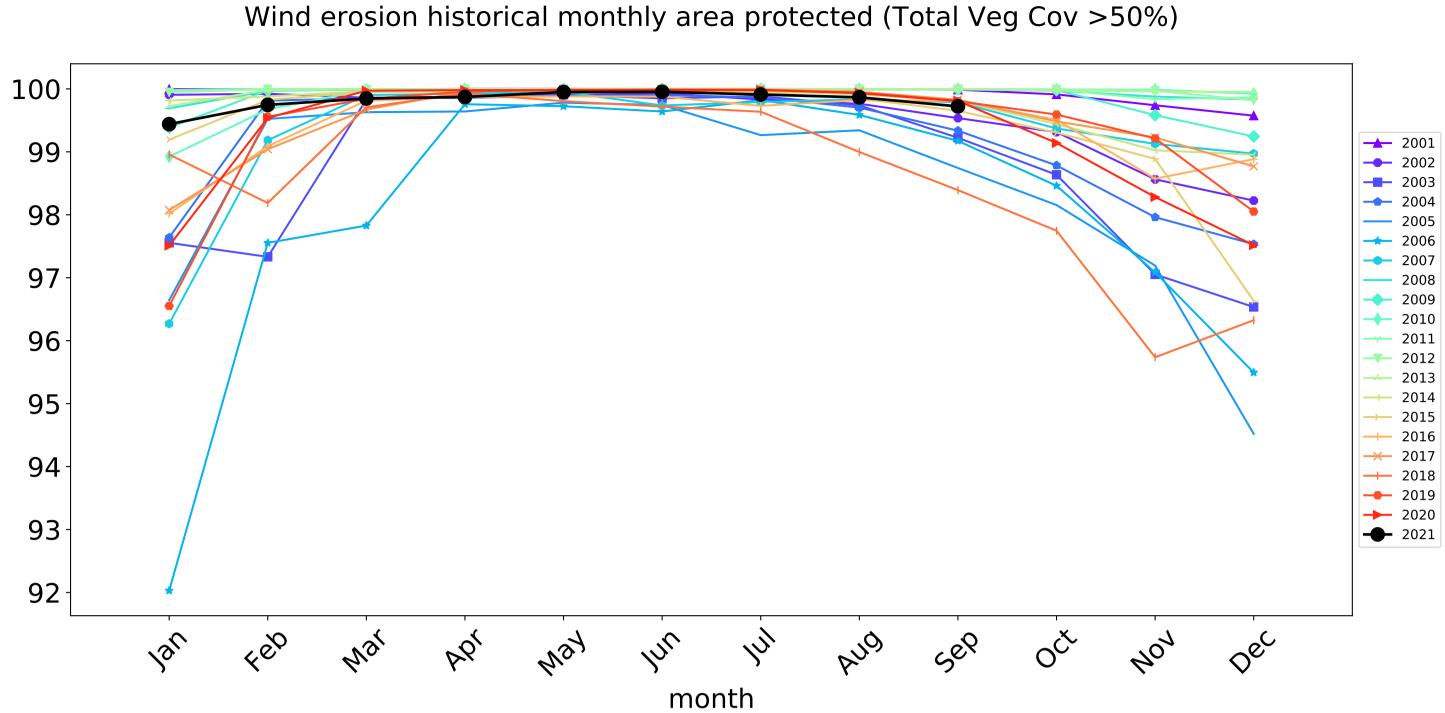


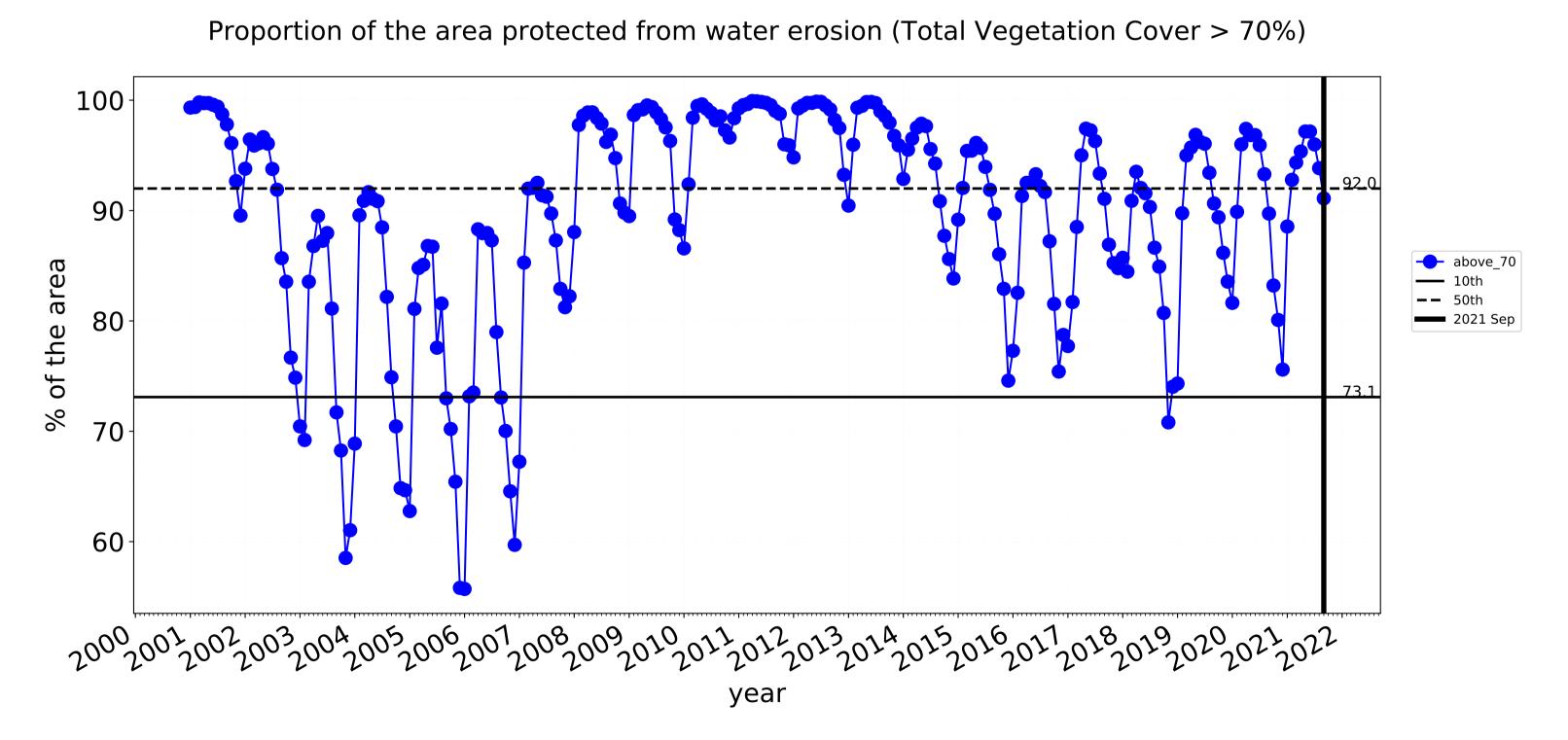


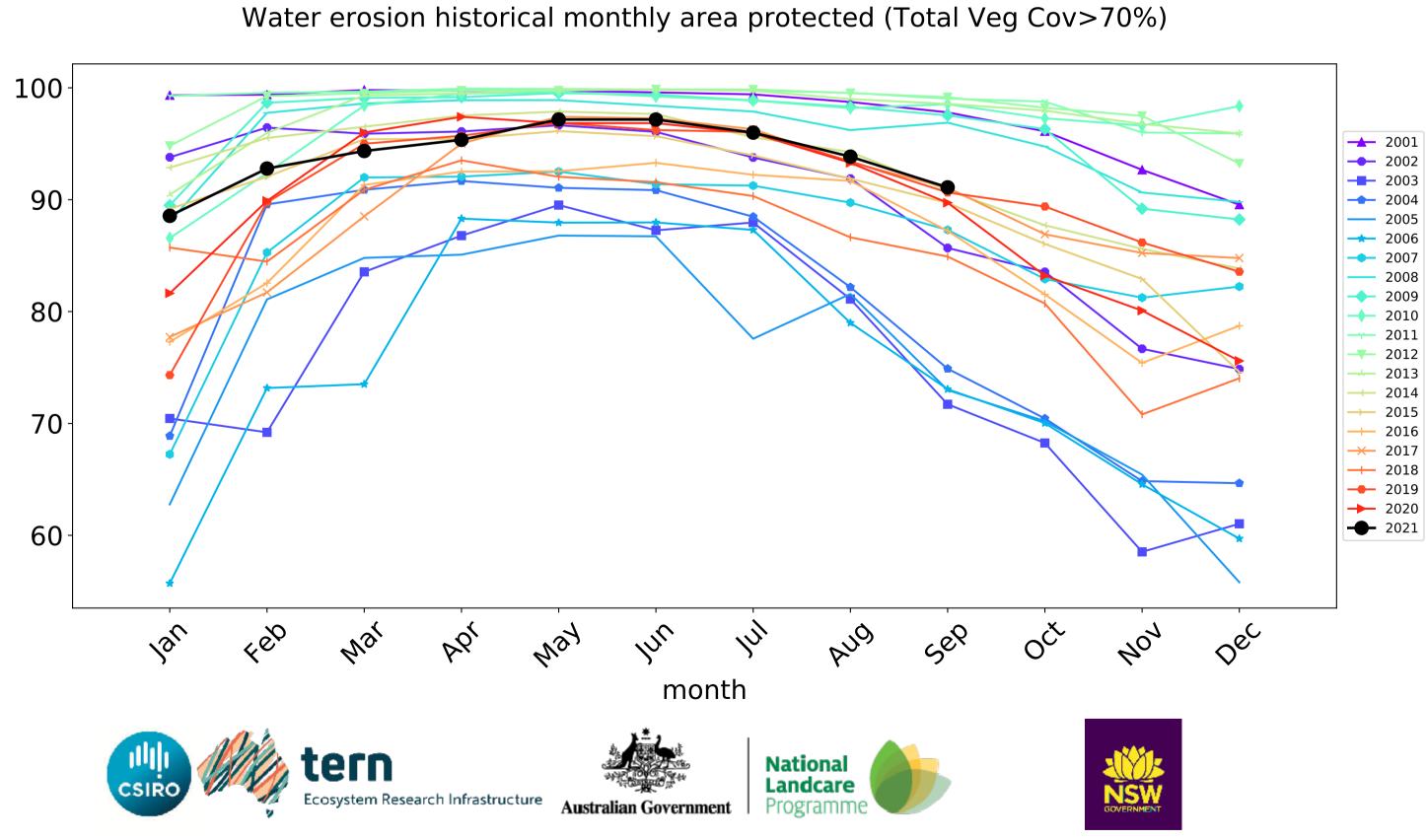


Agriculture timeseries



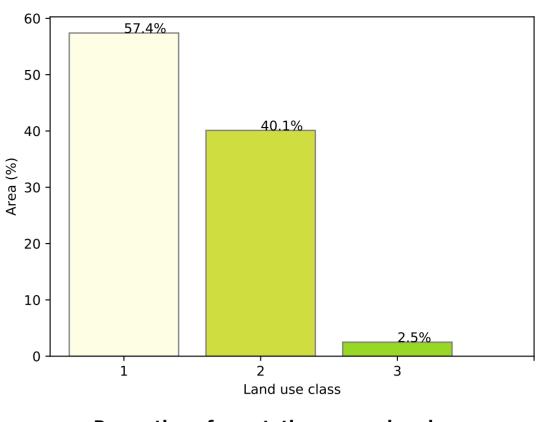






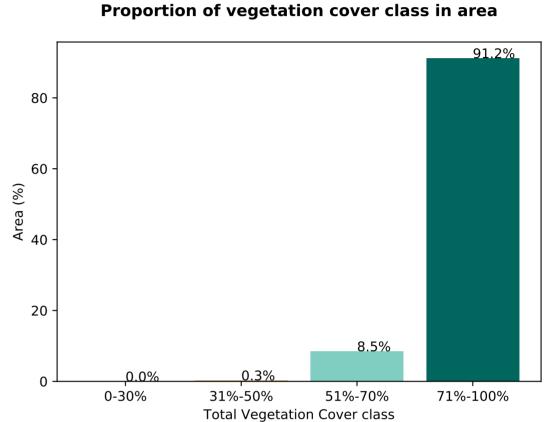
Grazing

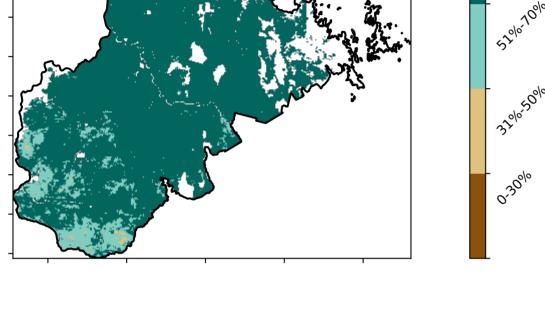
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest Use of Australia (2018) and Forests of Australia (2018)



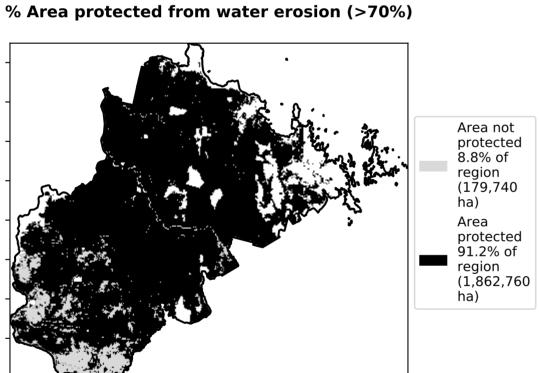
Proportion of each land class in area

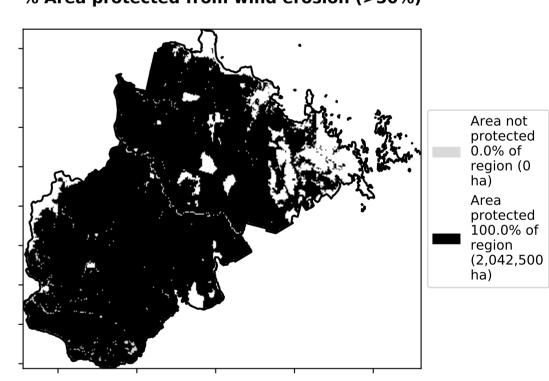
Total Vegetation Cover [%]

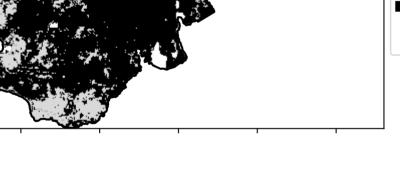




% Area protected from wind erosion (>50%)







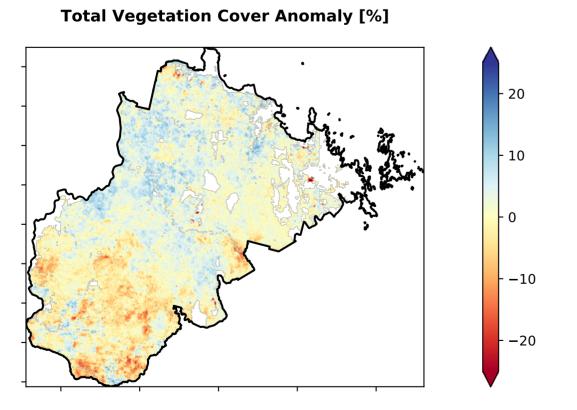
Anomaly show how many percetage points each pixel is from the mean. That

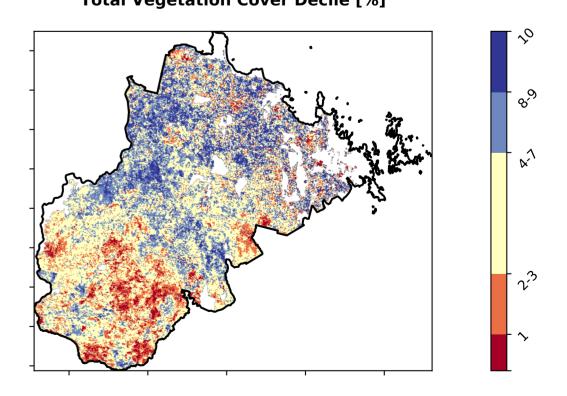
is only for the month of the map

using baseline from 2001 to 2019.

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

Total Vegetation Cover Decile [%]





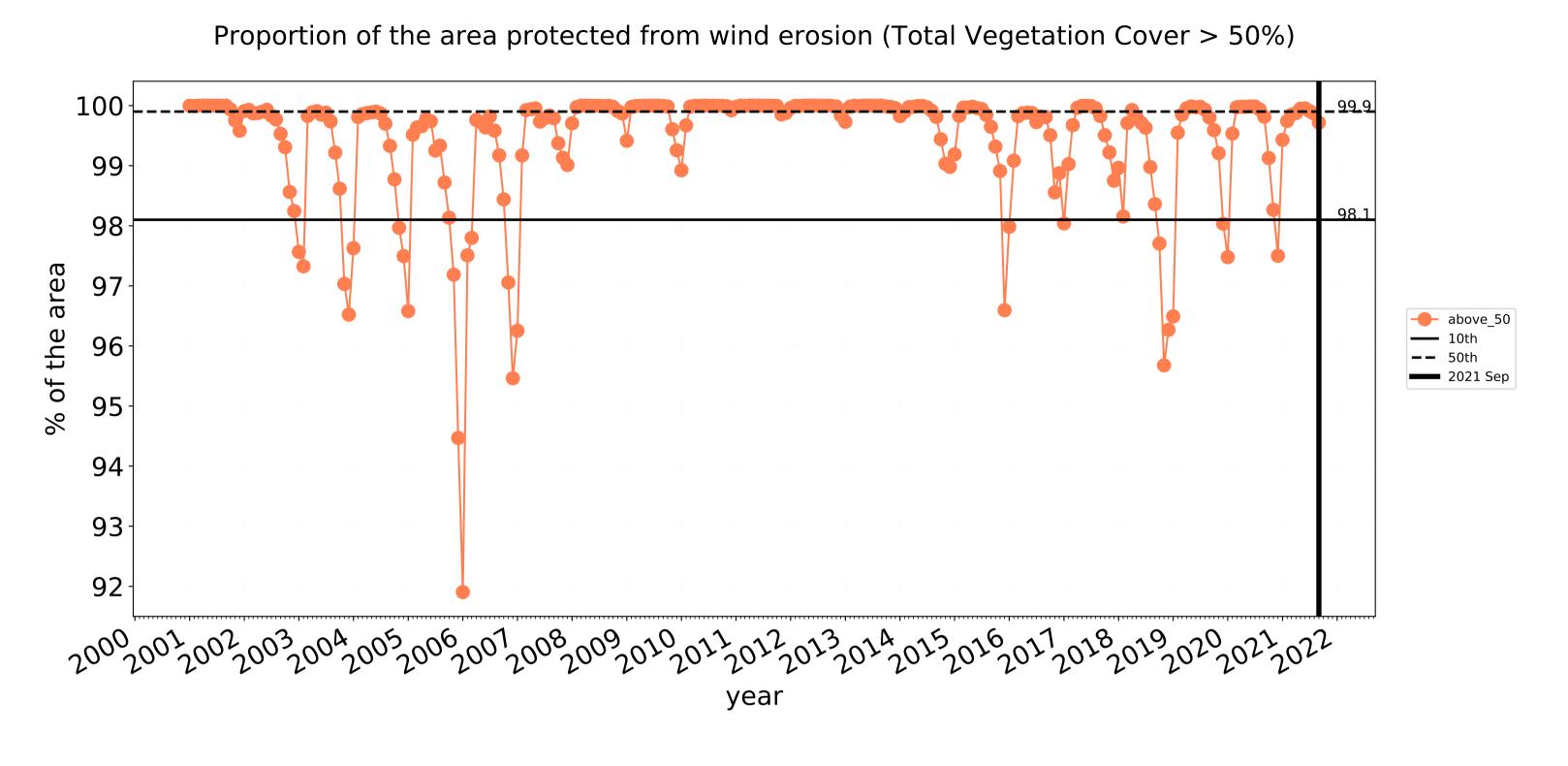
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of records for that month of the map using baseline from 2001 to 2019.

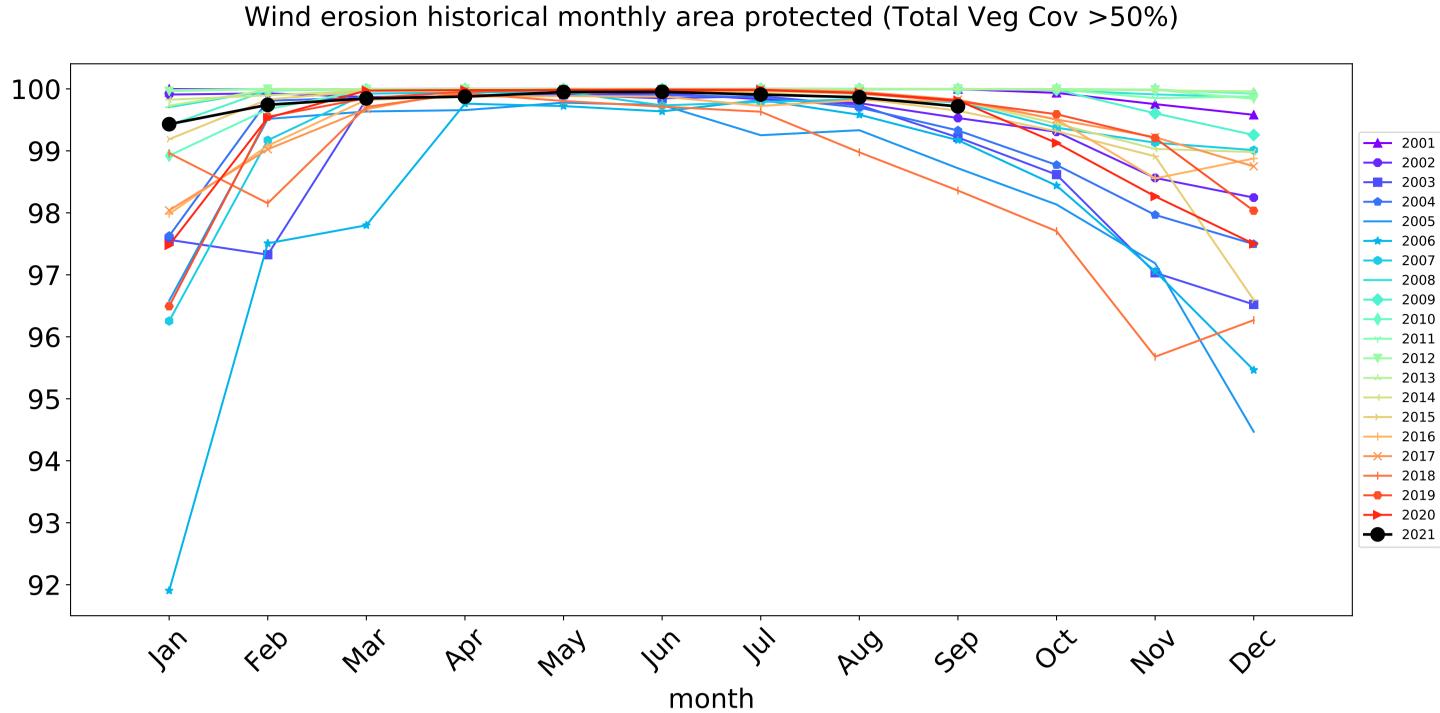


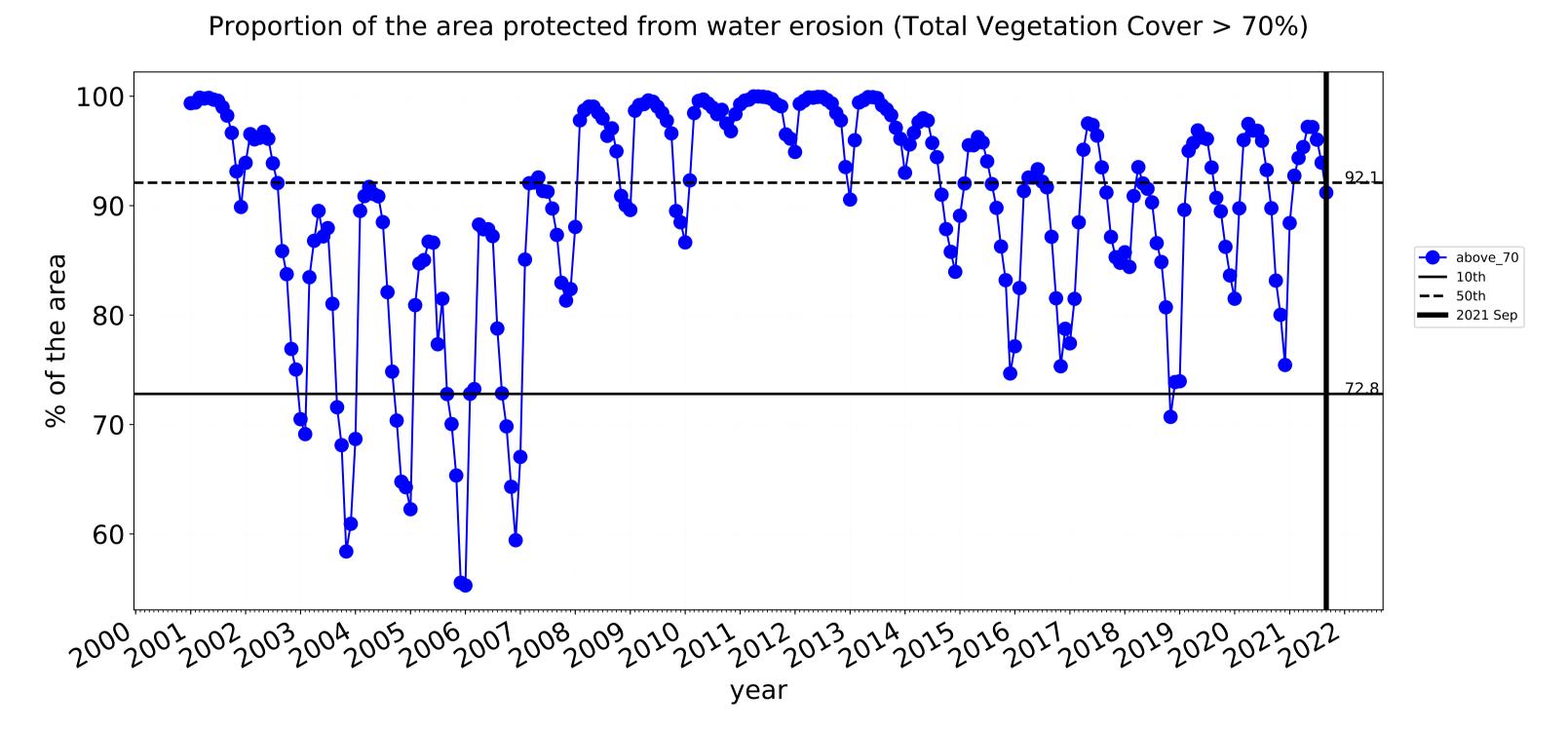


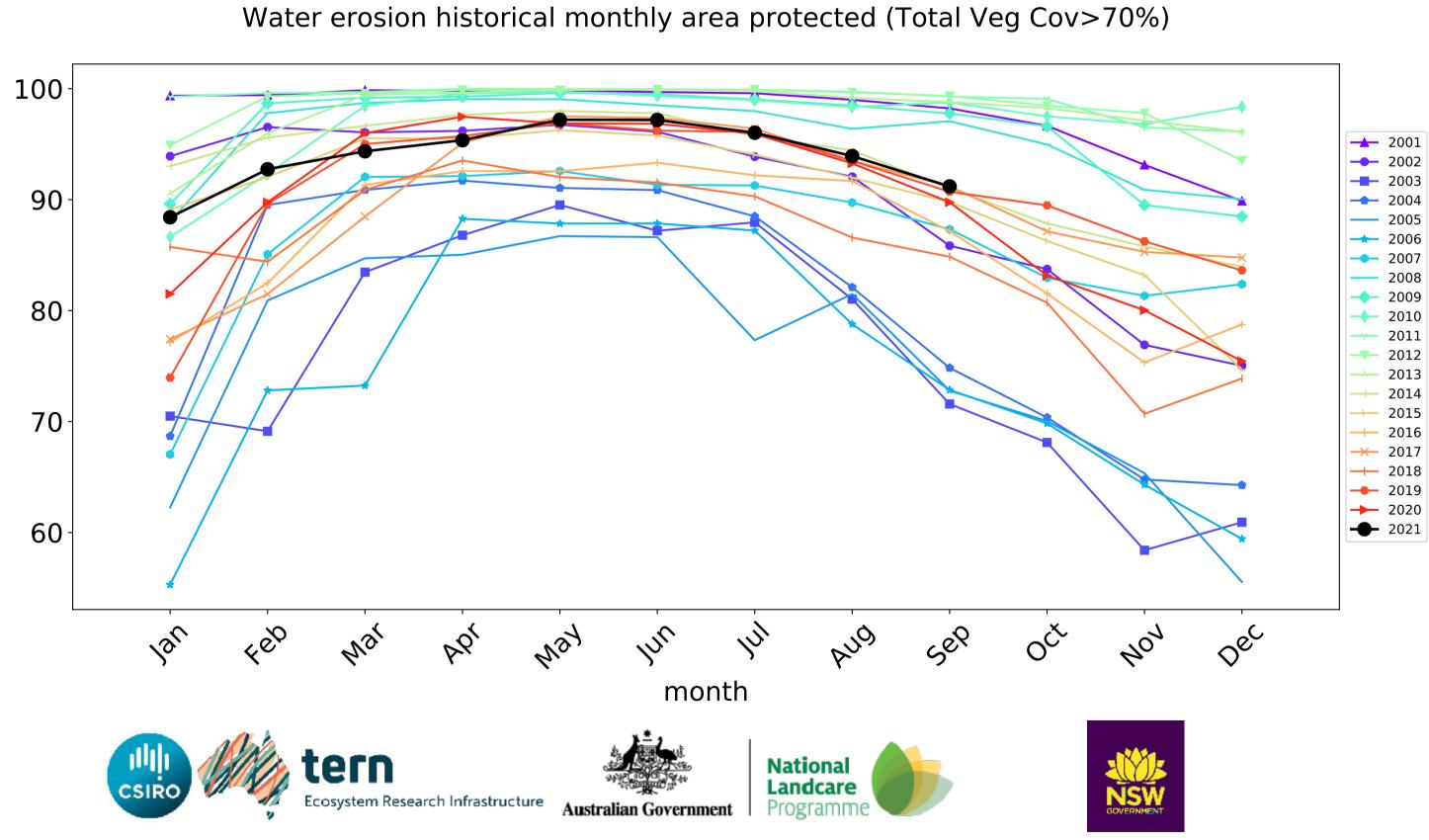


Grazing timeseries





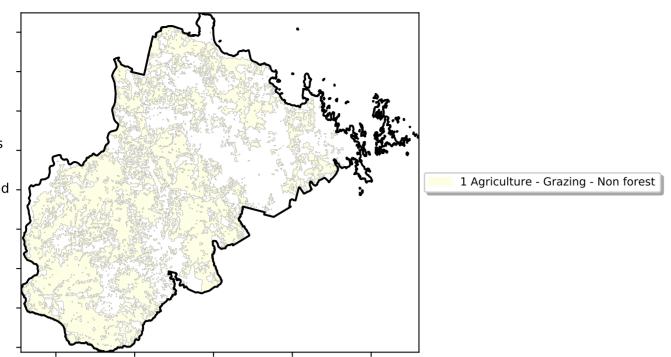




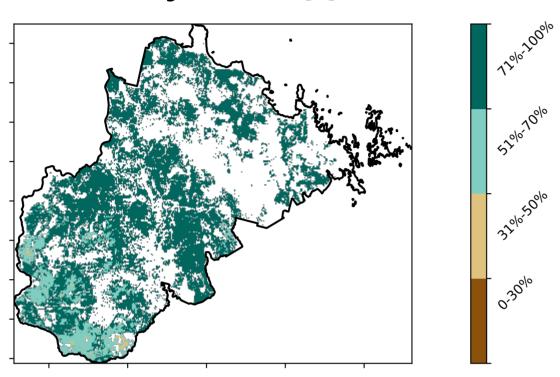
Grazing non forest

Land use and forest cover

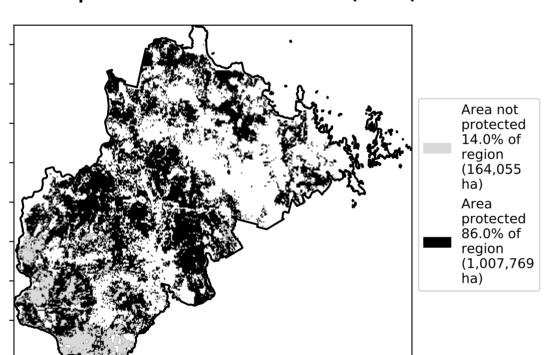
Catchment Scale
Land Use and Forests
of Australia (2018)
Derived from
Catchment Scale Land
Use of Australia
(2018) and Forests
of Australia (2018)



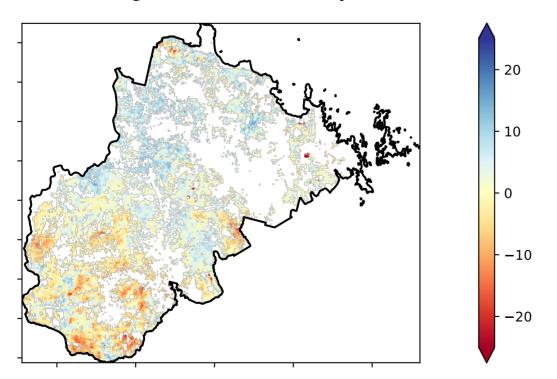
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

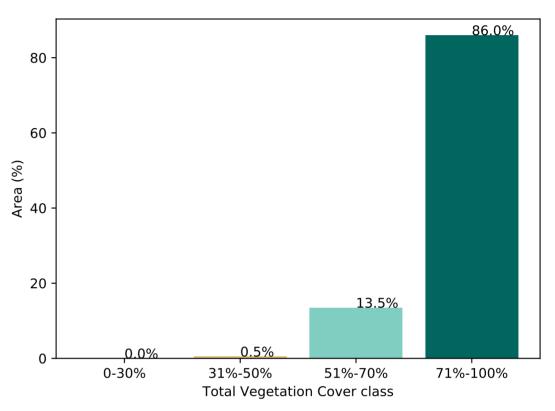


Total Vegetation Cover Anomaly [%]

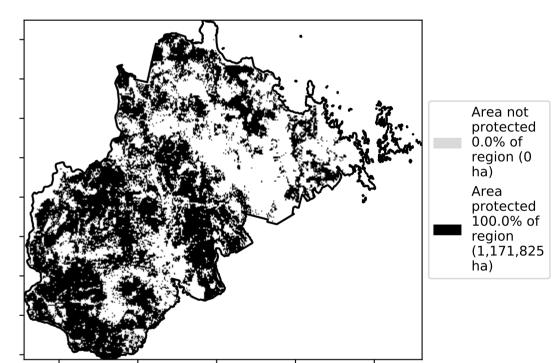


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

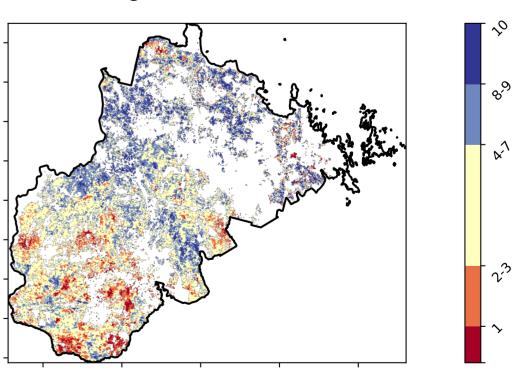
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



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

using baseline from 2001 to 2019.



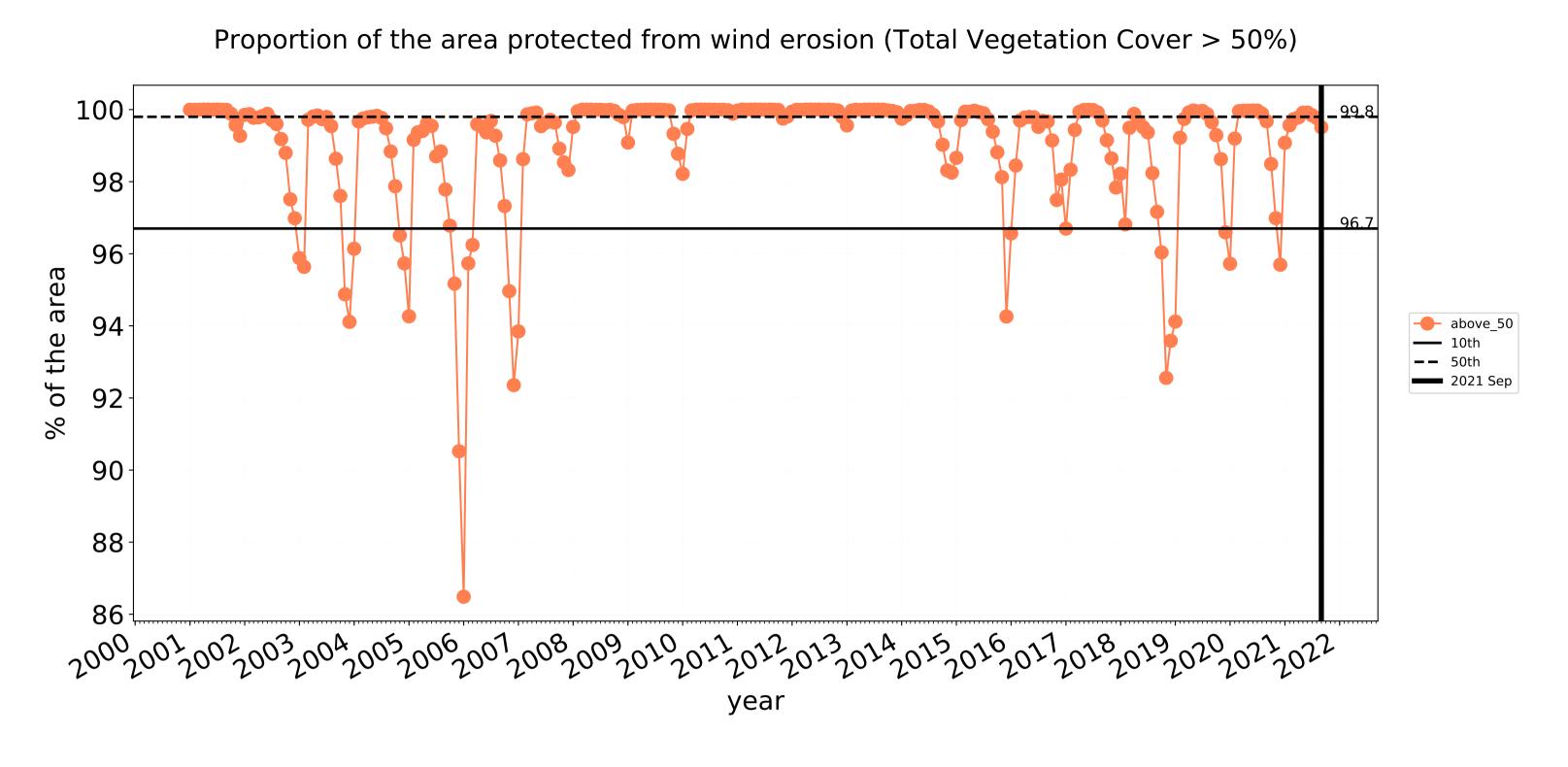


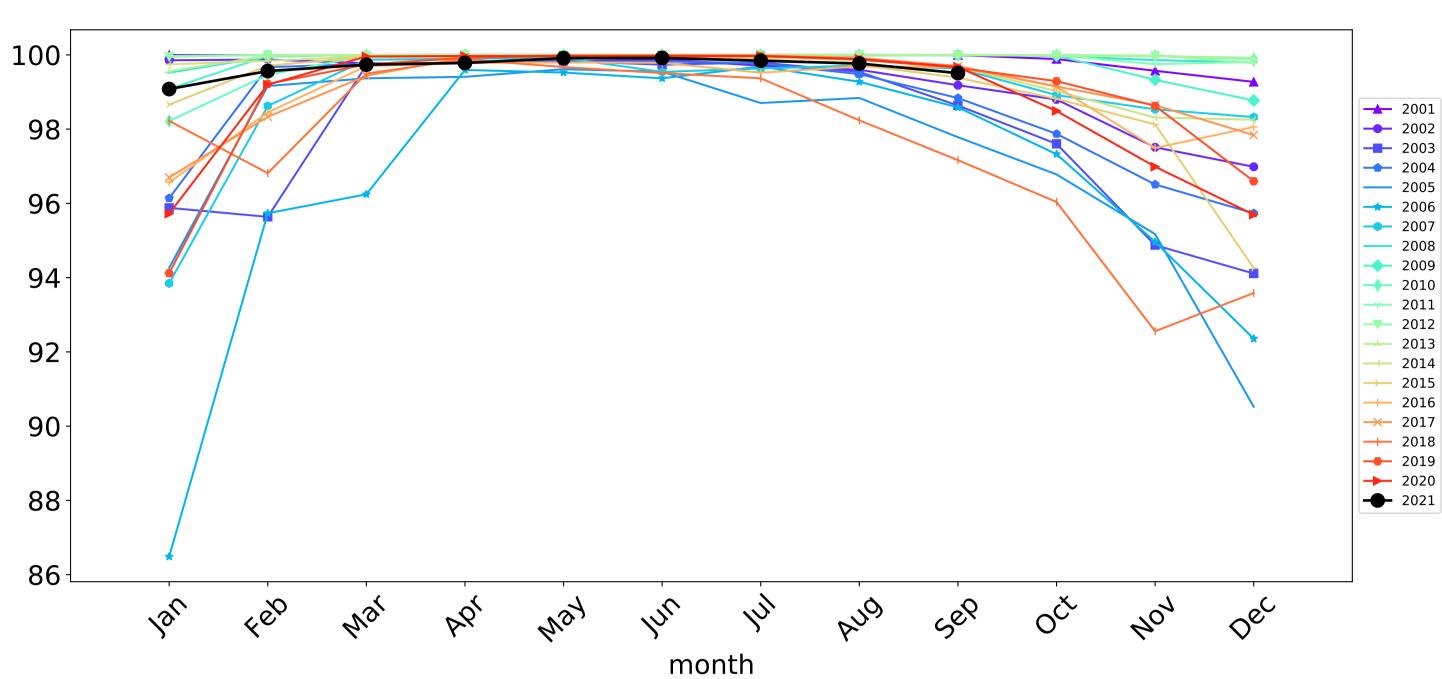




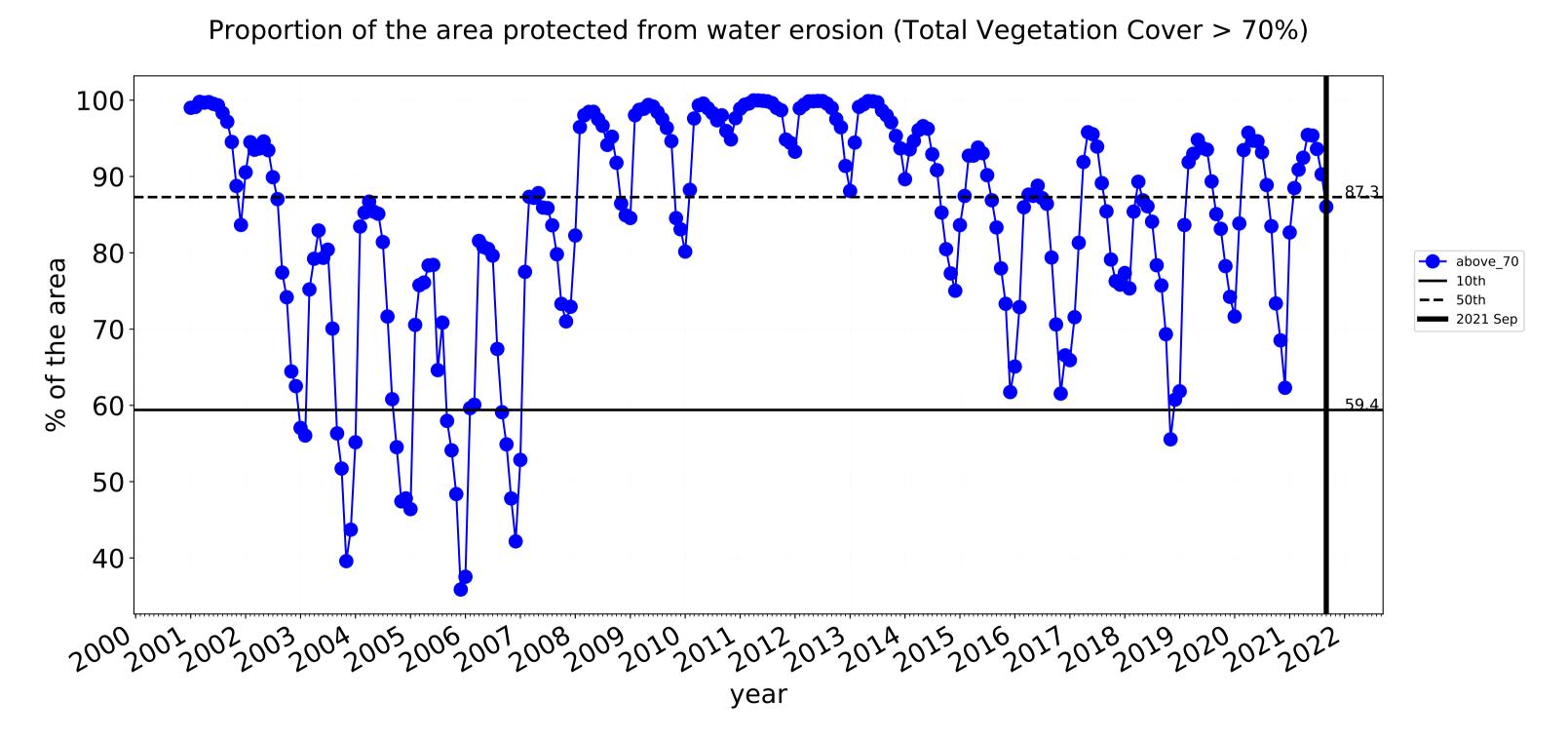


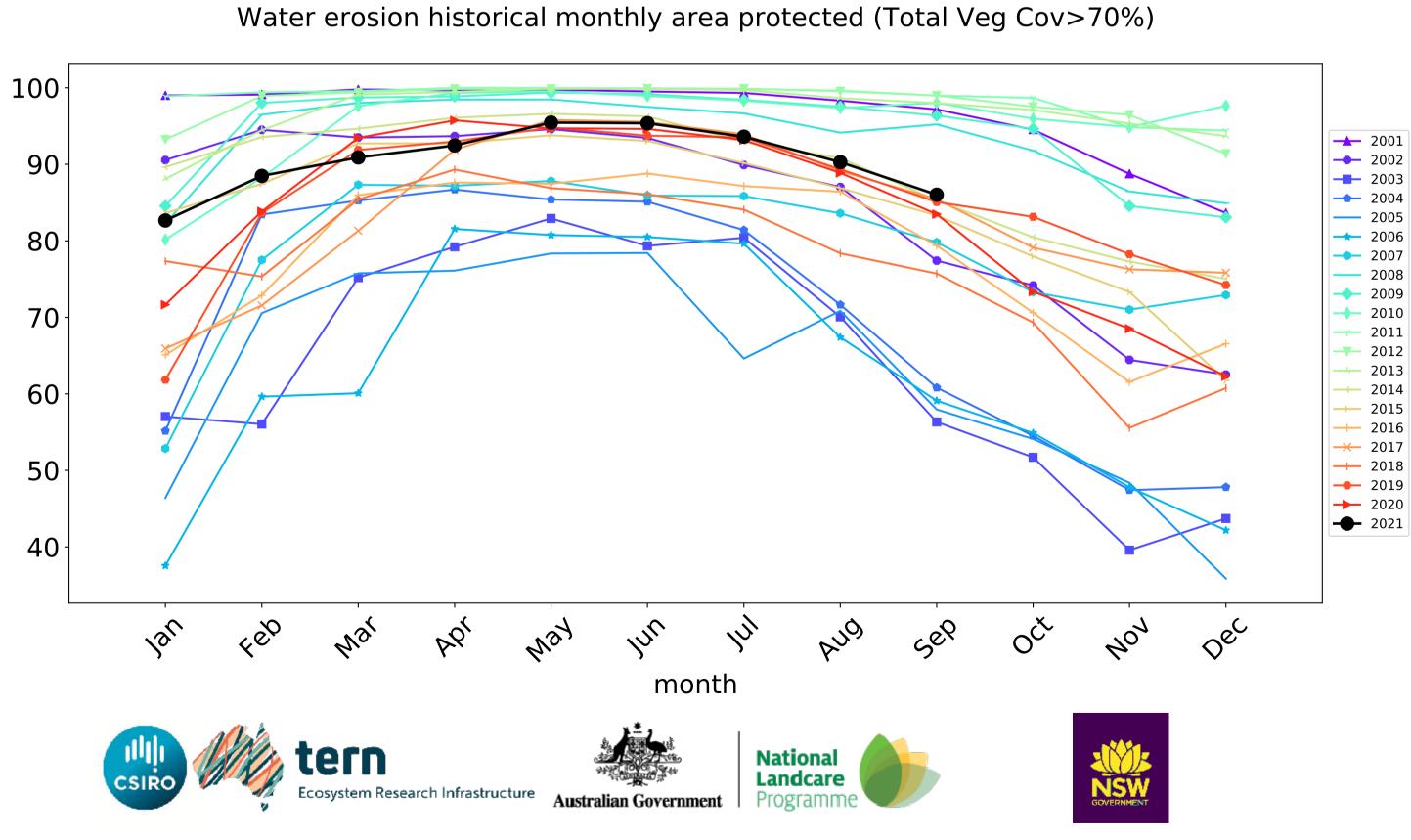
Grazing non forest timeseries





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

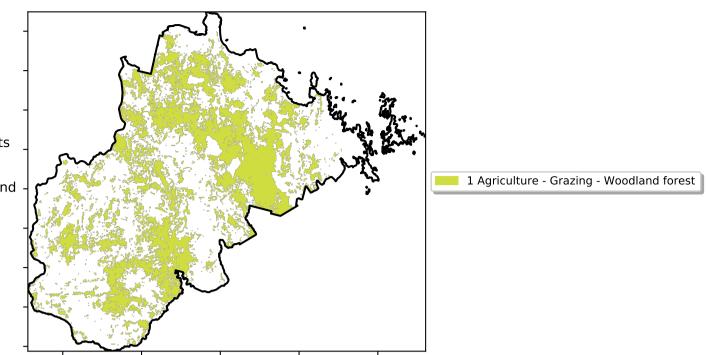




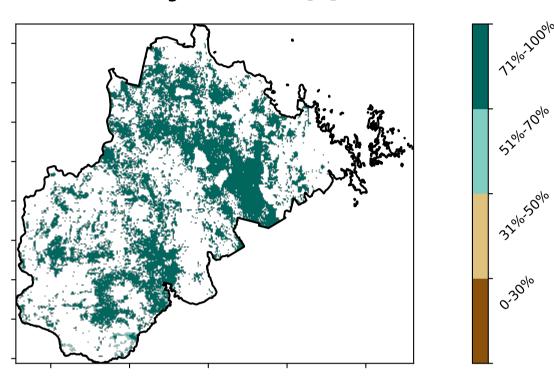
Grazing Woodland forest

Land use and forest cover

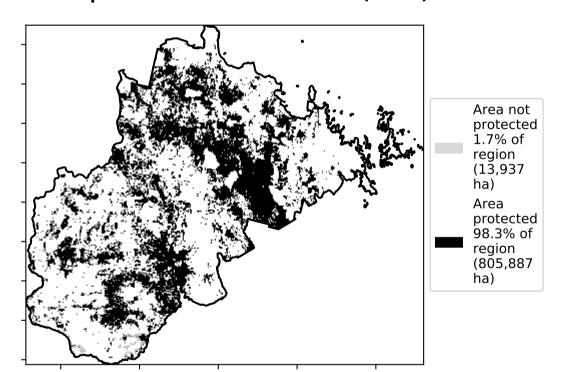




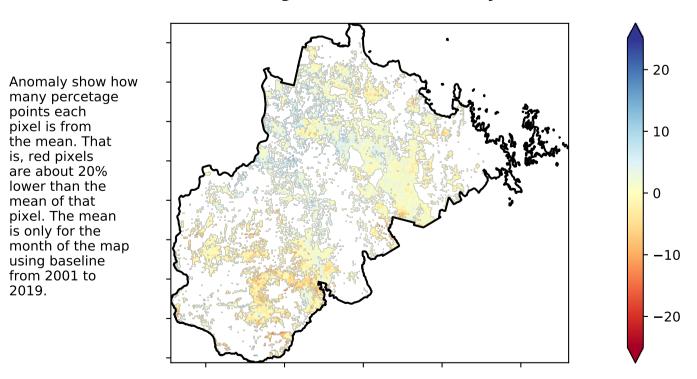
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

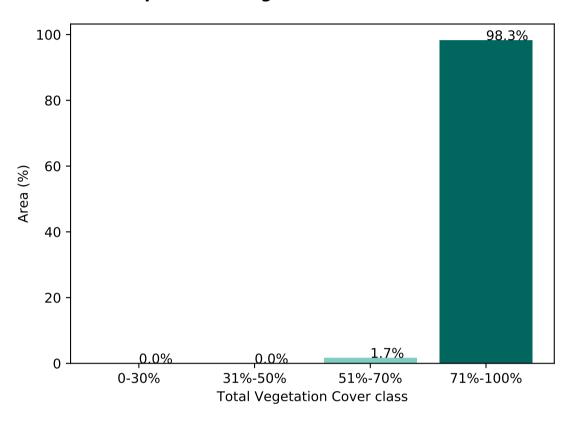


Total Vegetation Cover Anomaly [%]

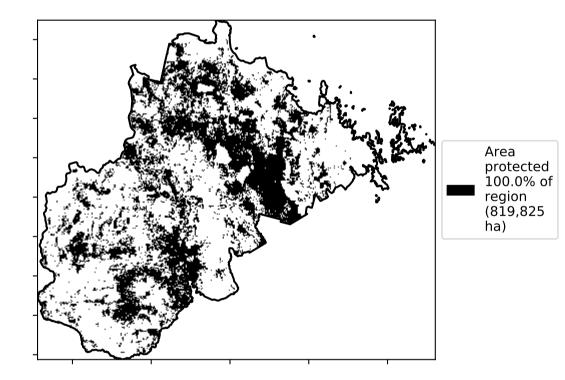


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

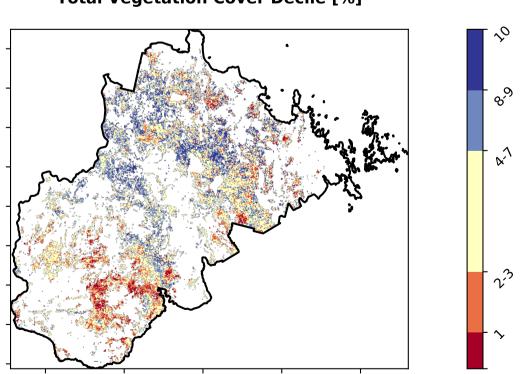
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]





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



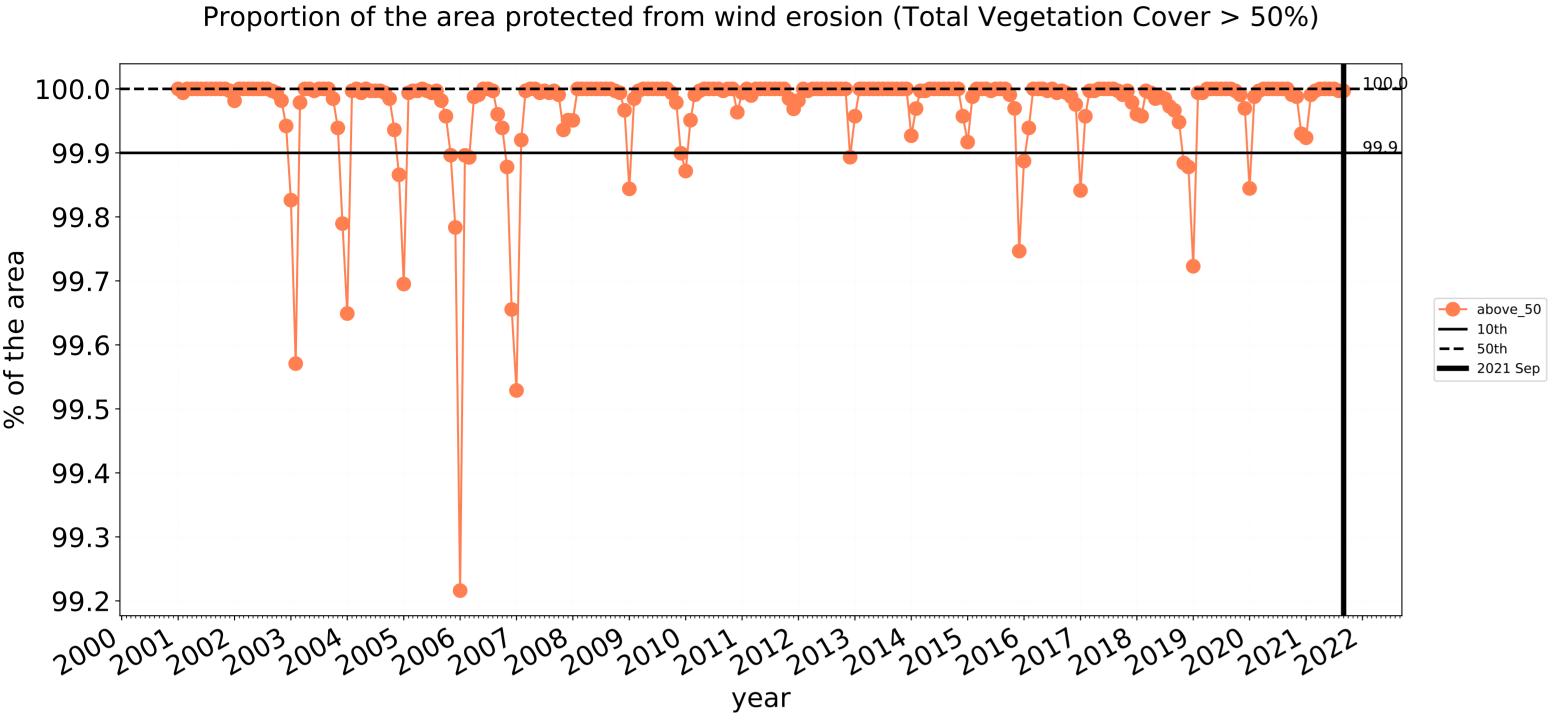


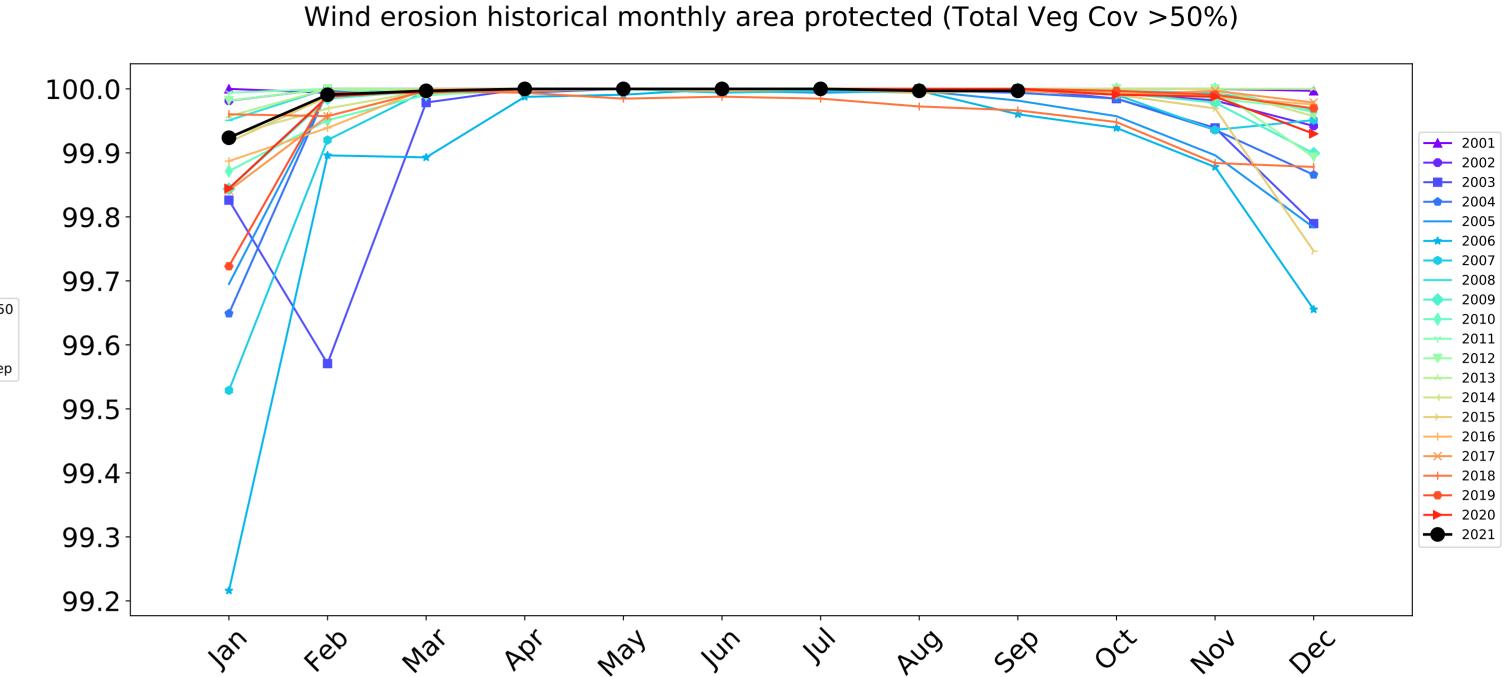




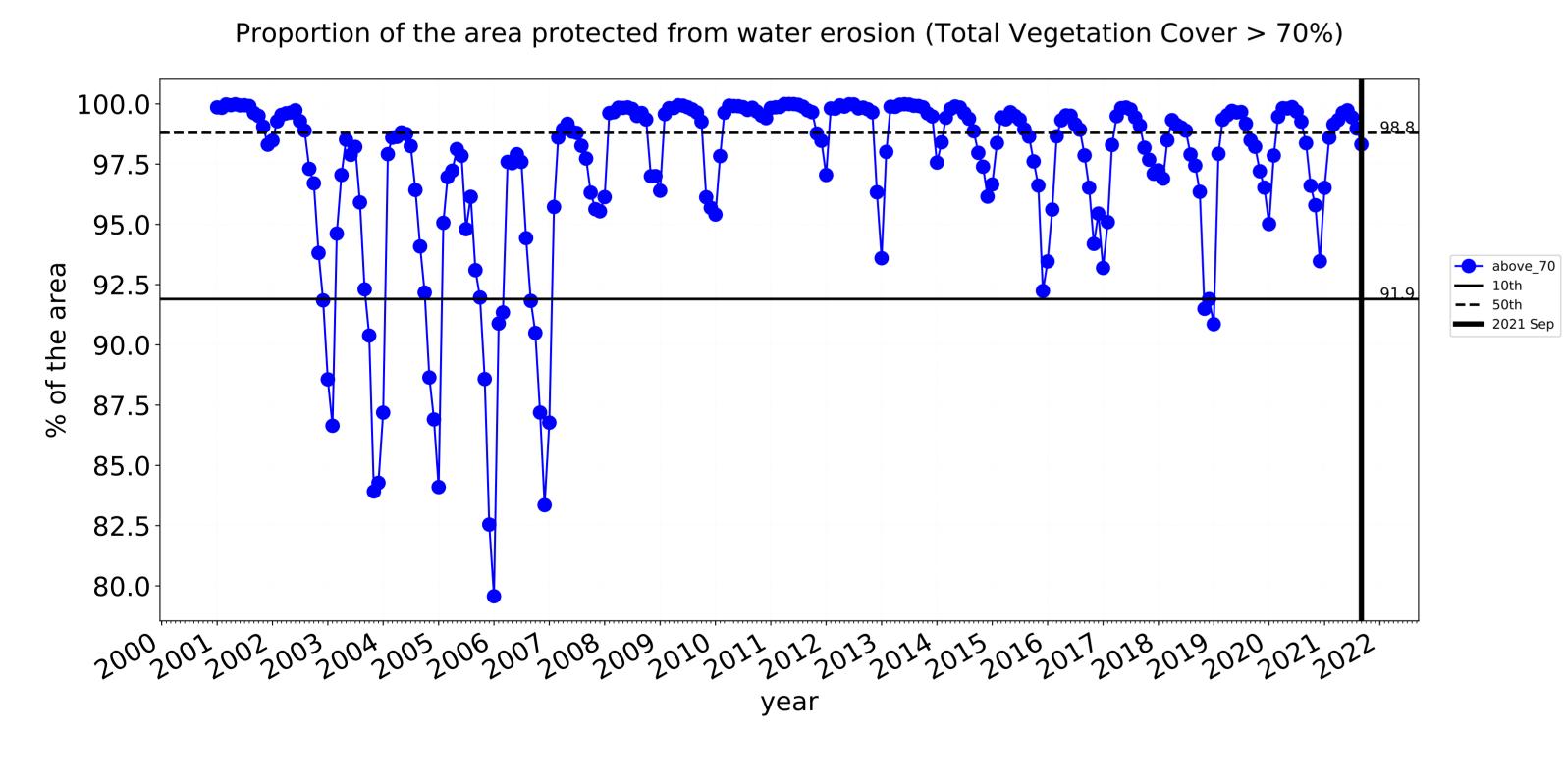


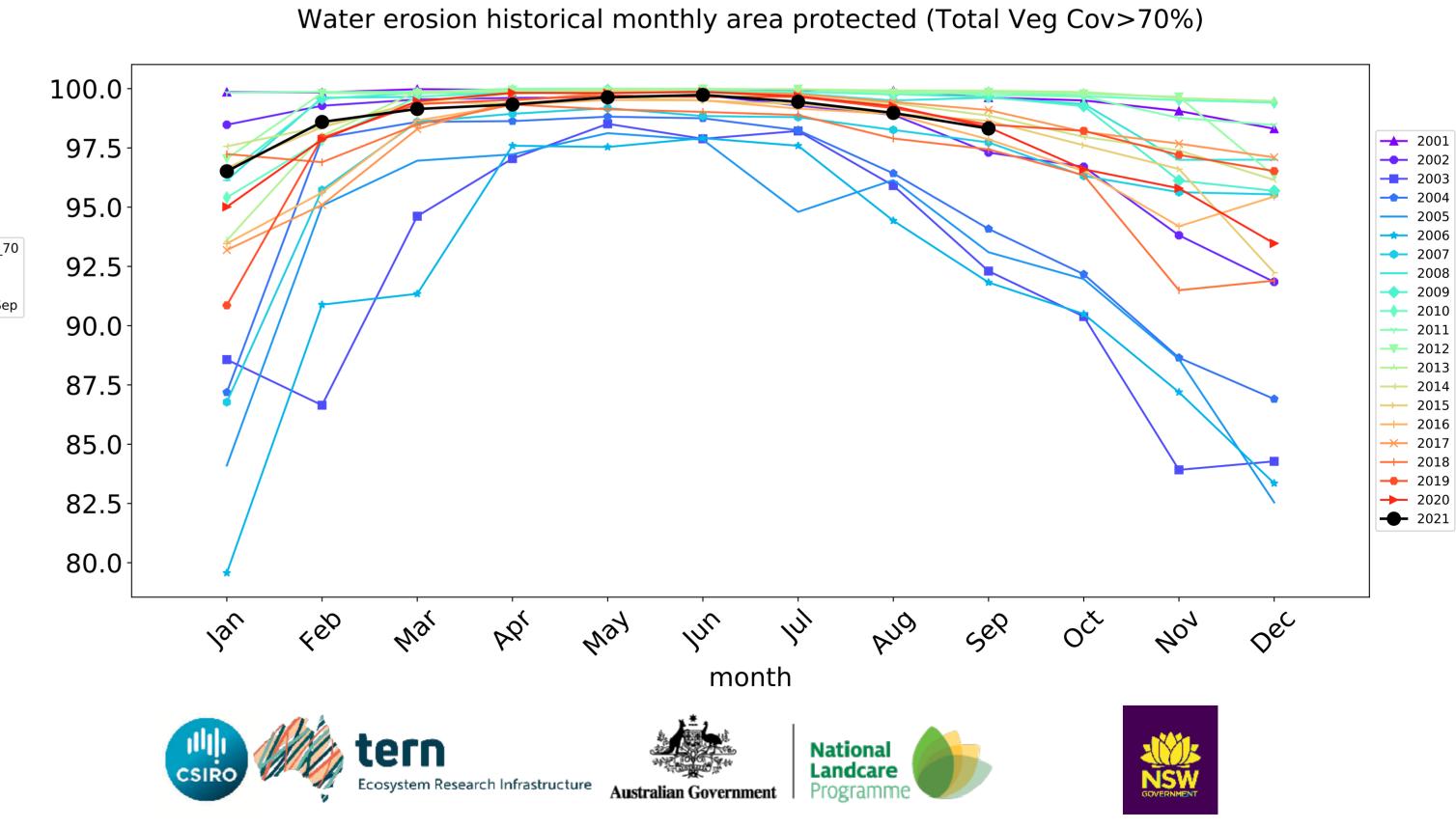
Grazing Woodland forest timeseries





month

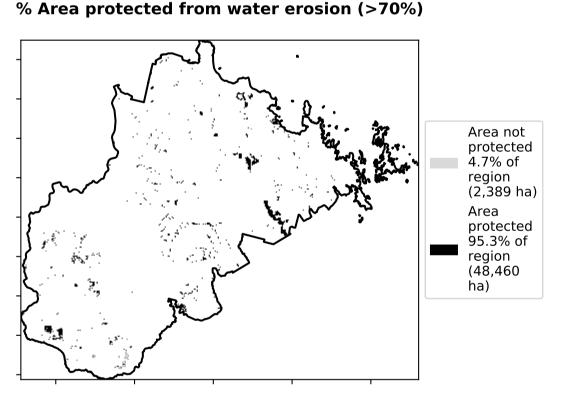


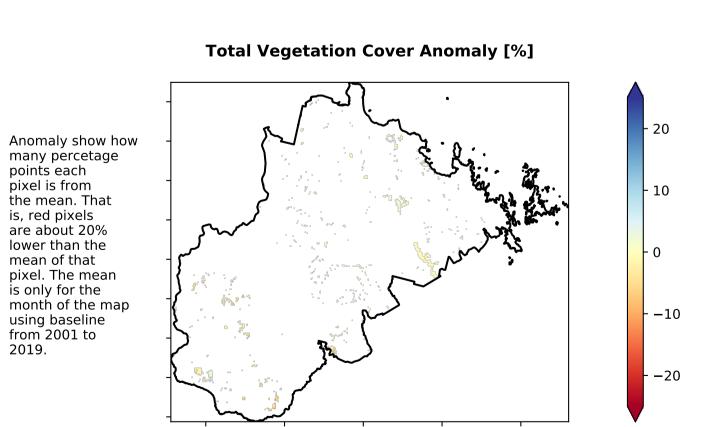


Grazing - Forest (non woodland)

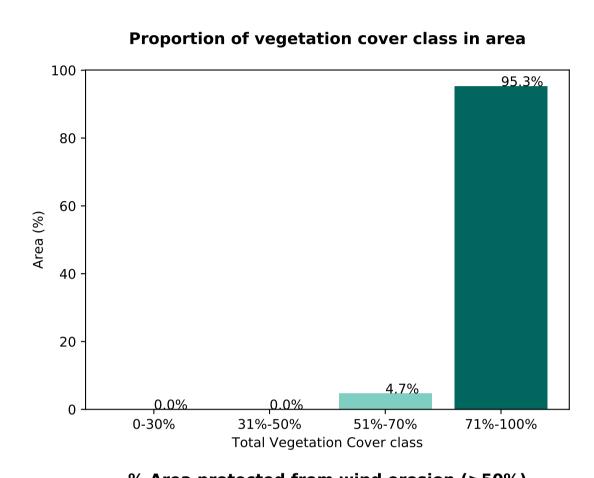
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 1 Agriculture - Grazing - Non-woodland forest

Total Vegetation Cover [%]

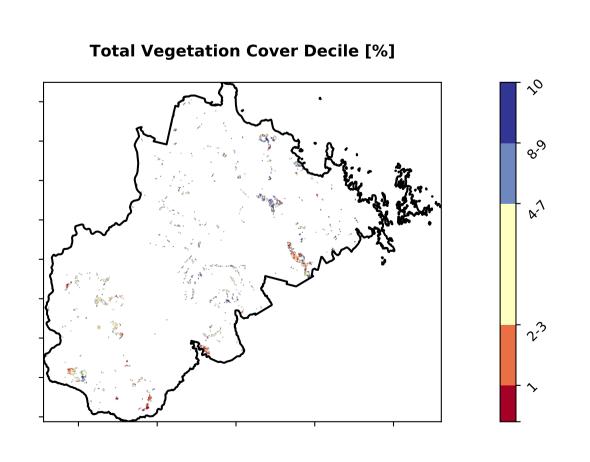




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of records for that month of the map using baseline from 2001 to 2019.



% Area protected from wind erosion (>50%) Area protected 100.0% of region (50,850 ha)

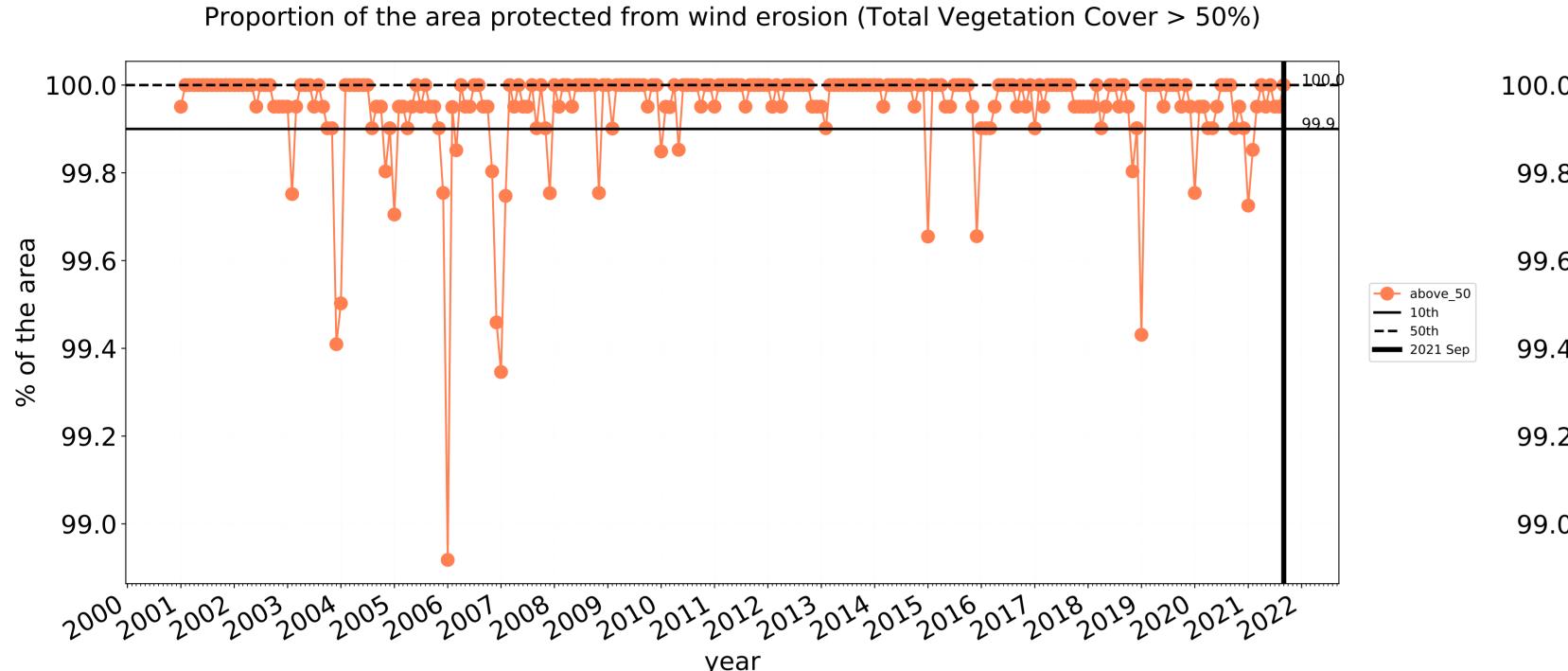


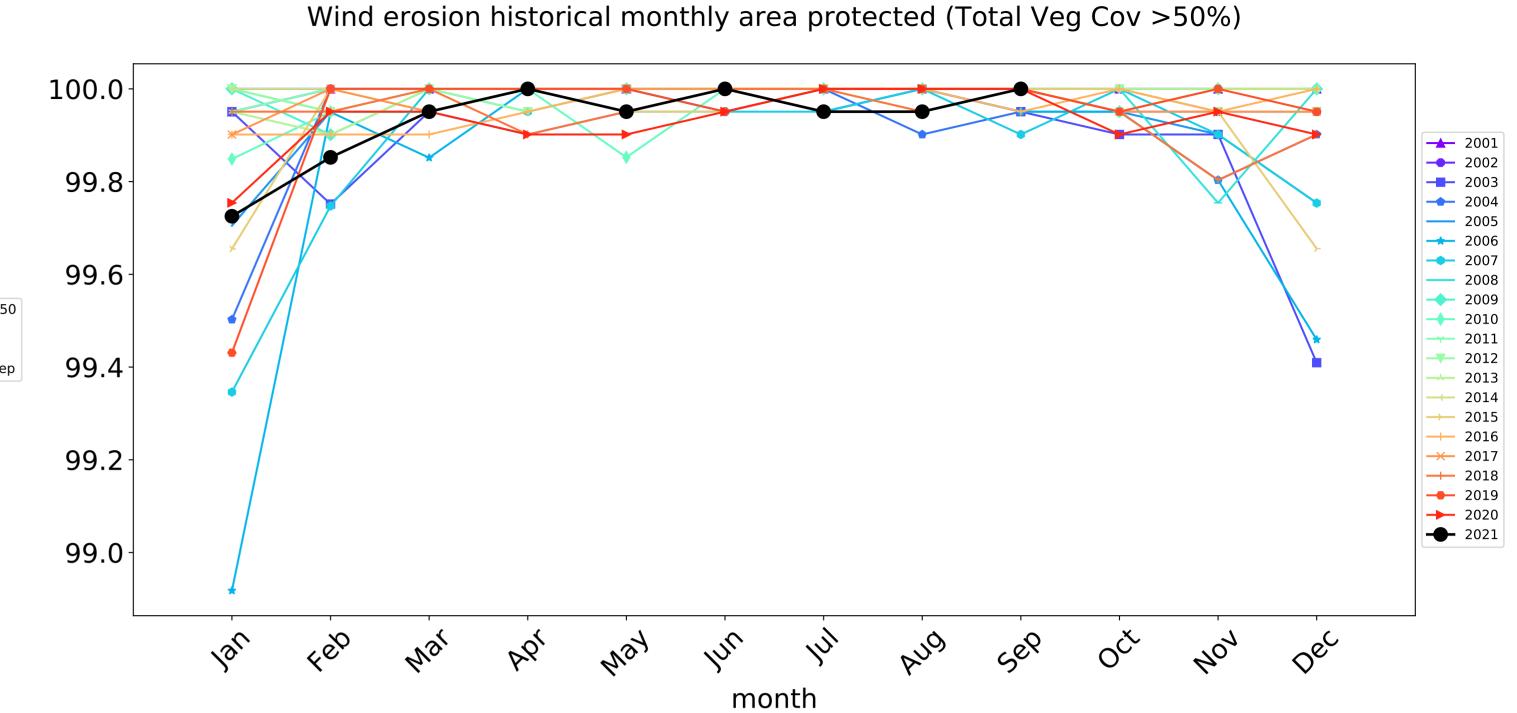


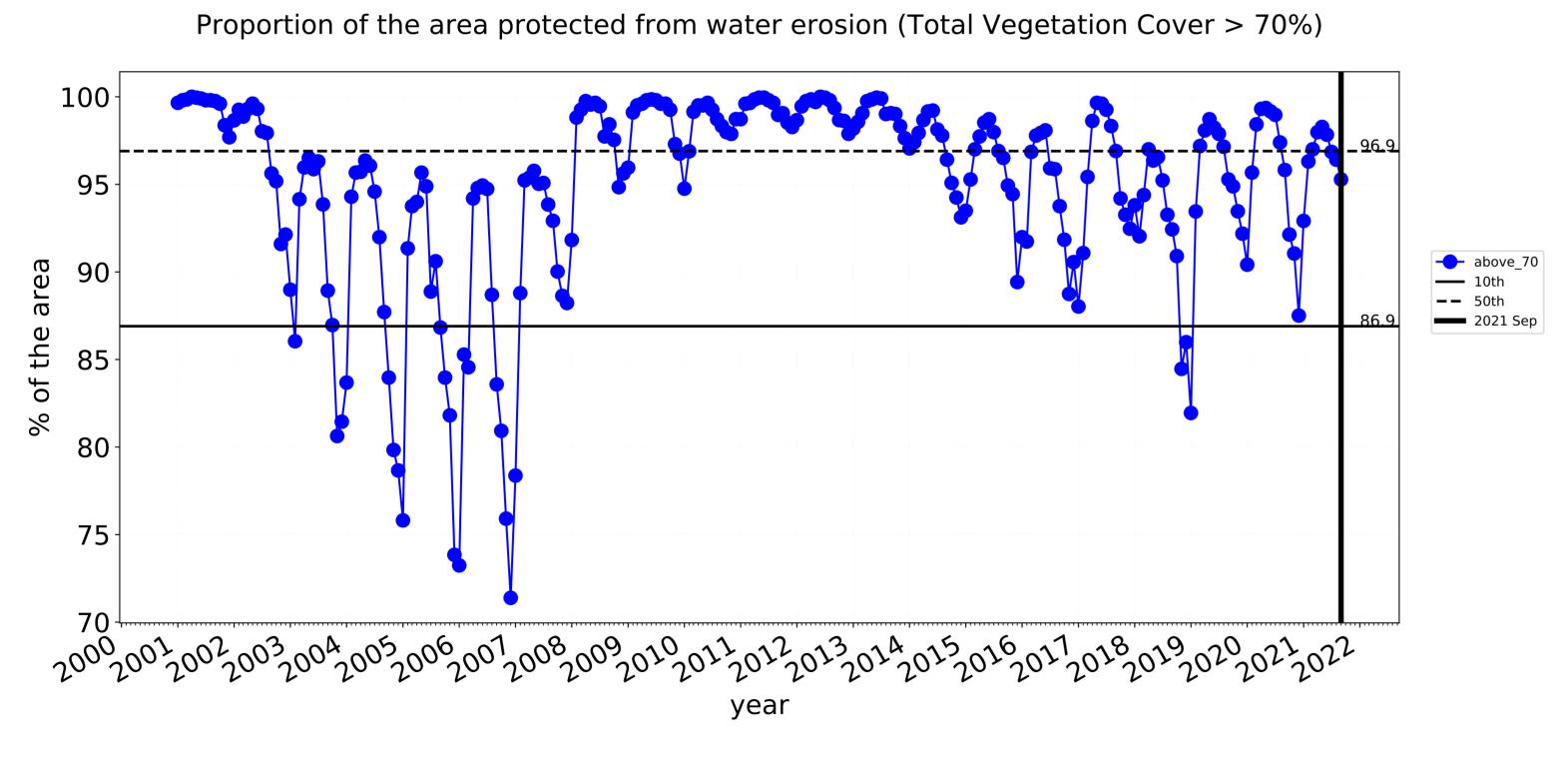


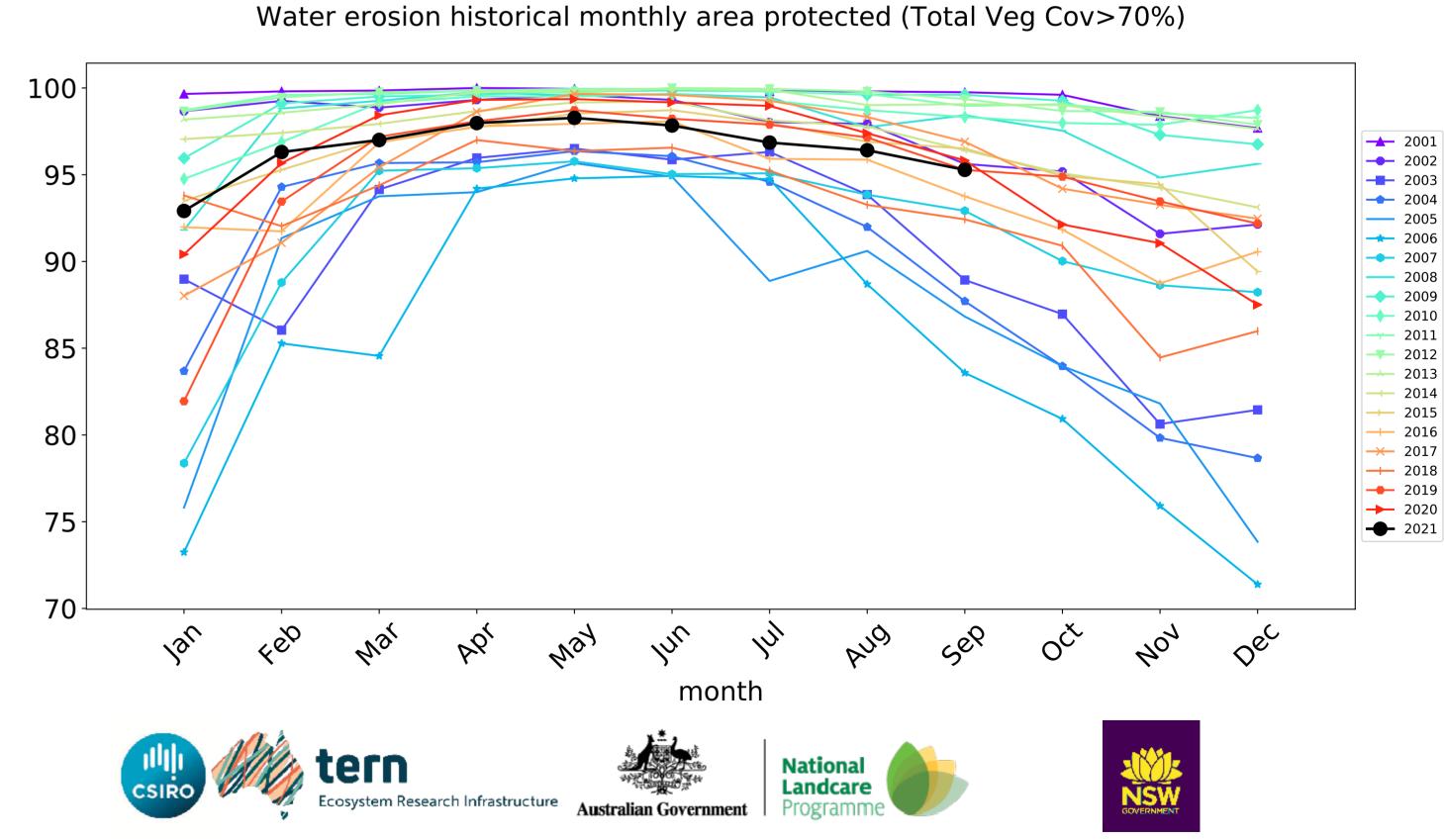








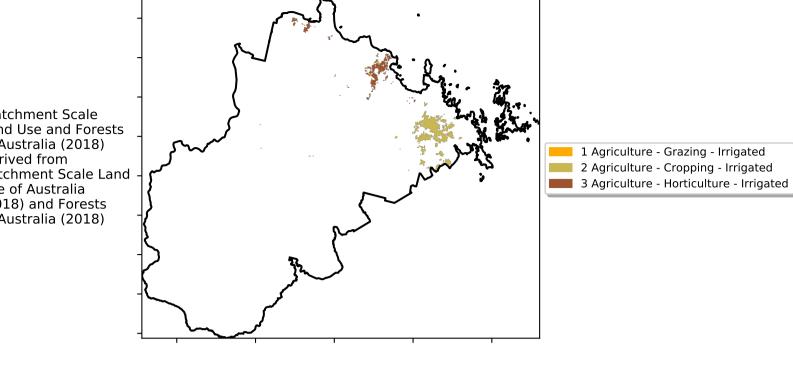




Irrigation

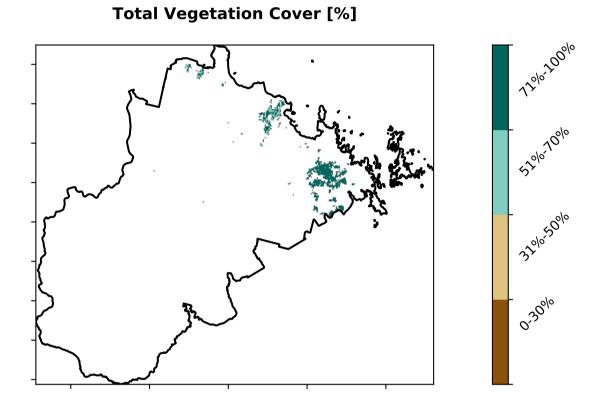
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 1 Agriculture - Grazing - Irrigated 2 Agriculture - Cropping - Irrigated 3 Agriculture - Horticulture - Irrigated

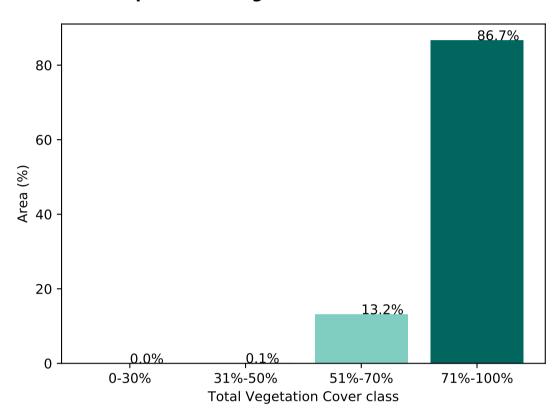
70 · 67.8% 60 50 Area (%) 00 00 30.9% 20 10 2 3 Land use class



Proportion of vegetation cover class in area

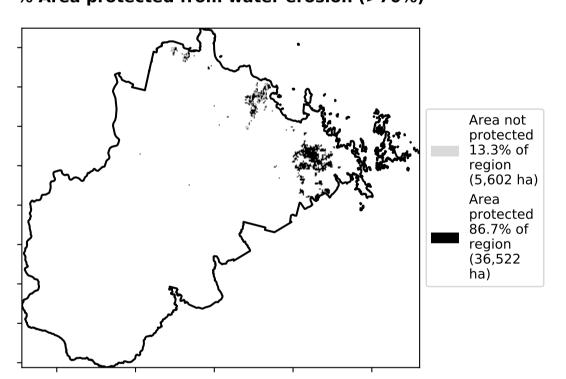
Proportion of each land class in area

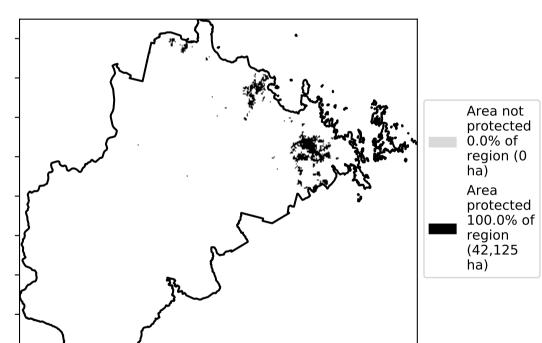




% Area protected from water erosion (>70%)

% Area protected from wind erosion (>50%)





Total Vegetation Cover Anomaly [%]

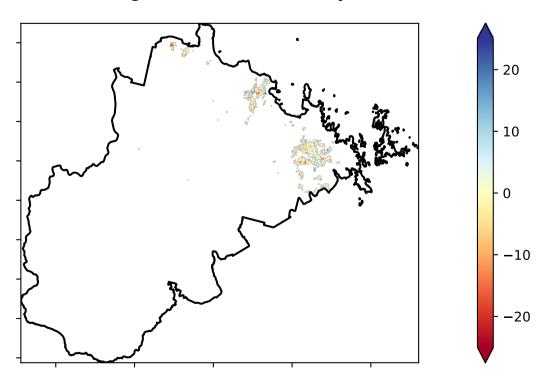
Anomaly show how many percetage points each pixel is from the mean. That

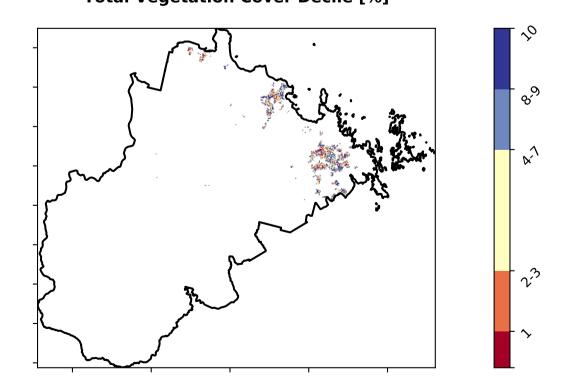
is only for the month of the map

using baseline from 2001 to 2019.

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

Total Vegetation Cover Decile [%]





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.

Deciles show where the pixel value lies in the

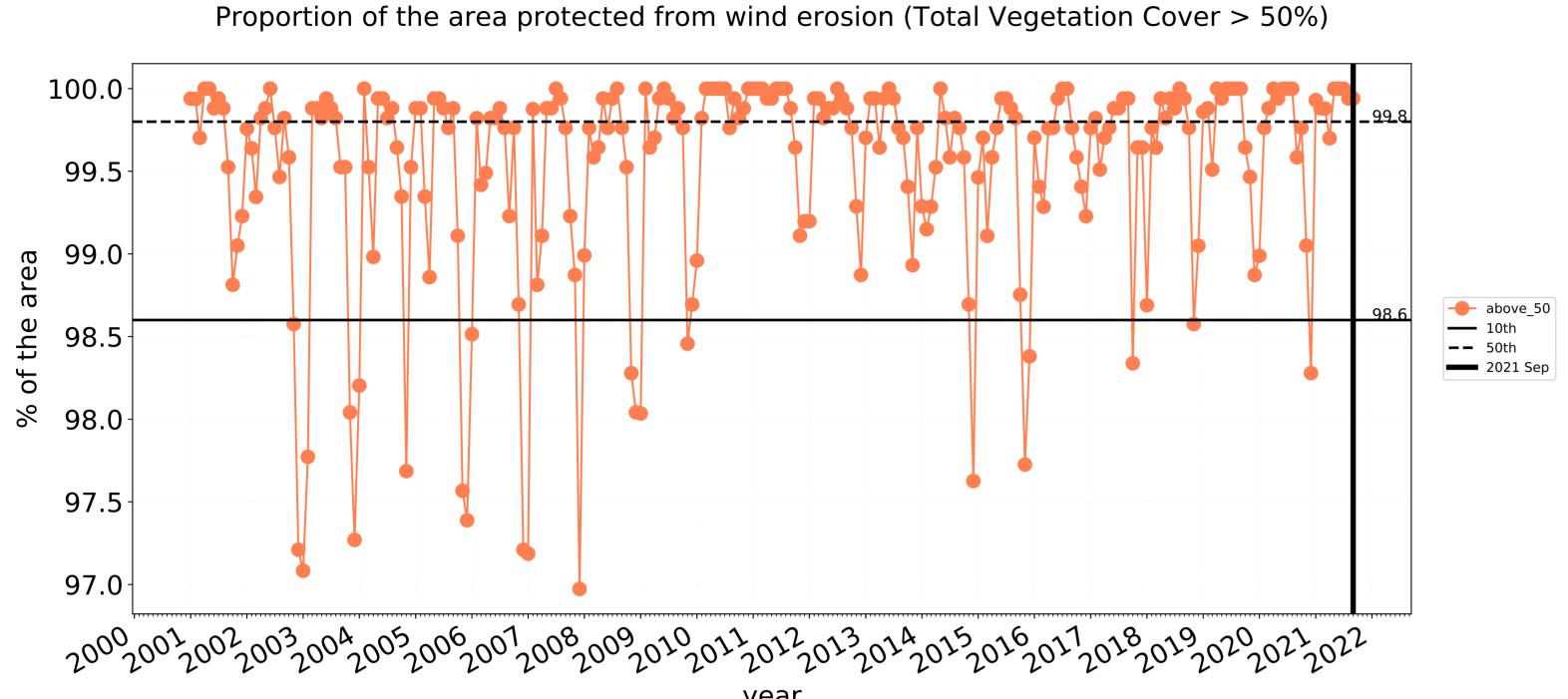


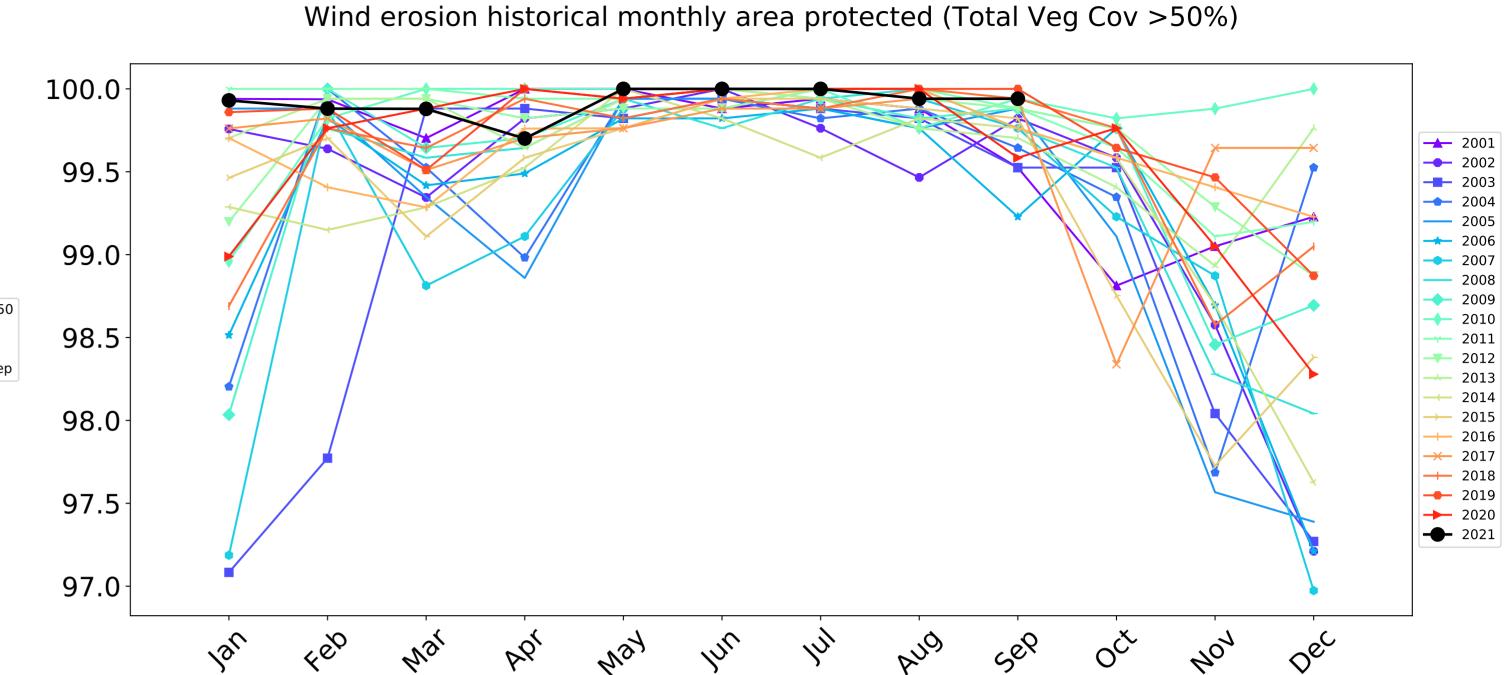




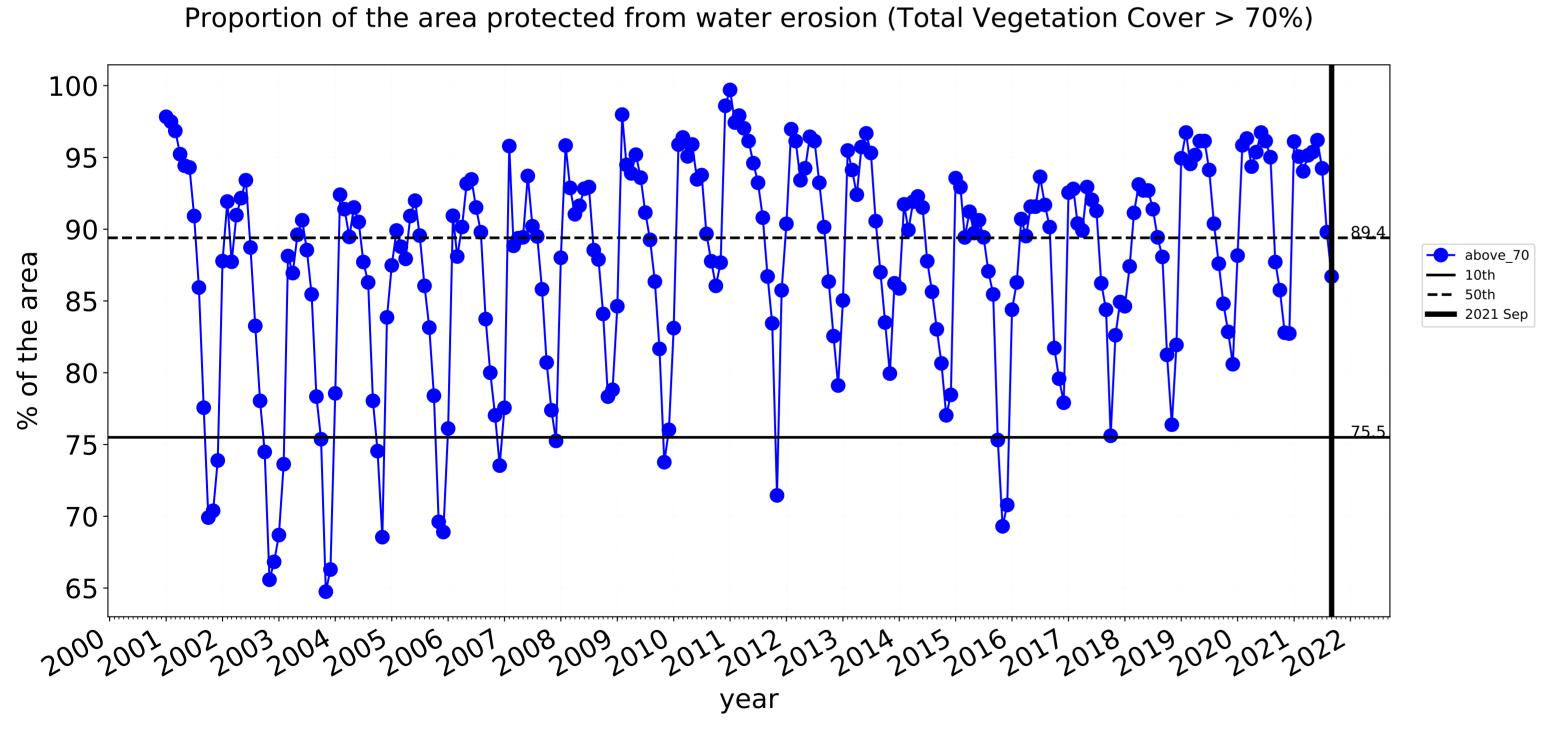


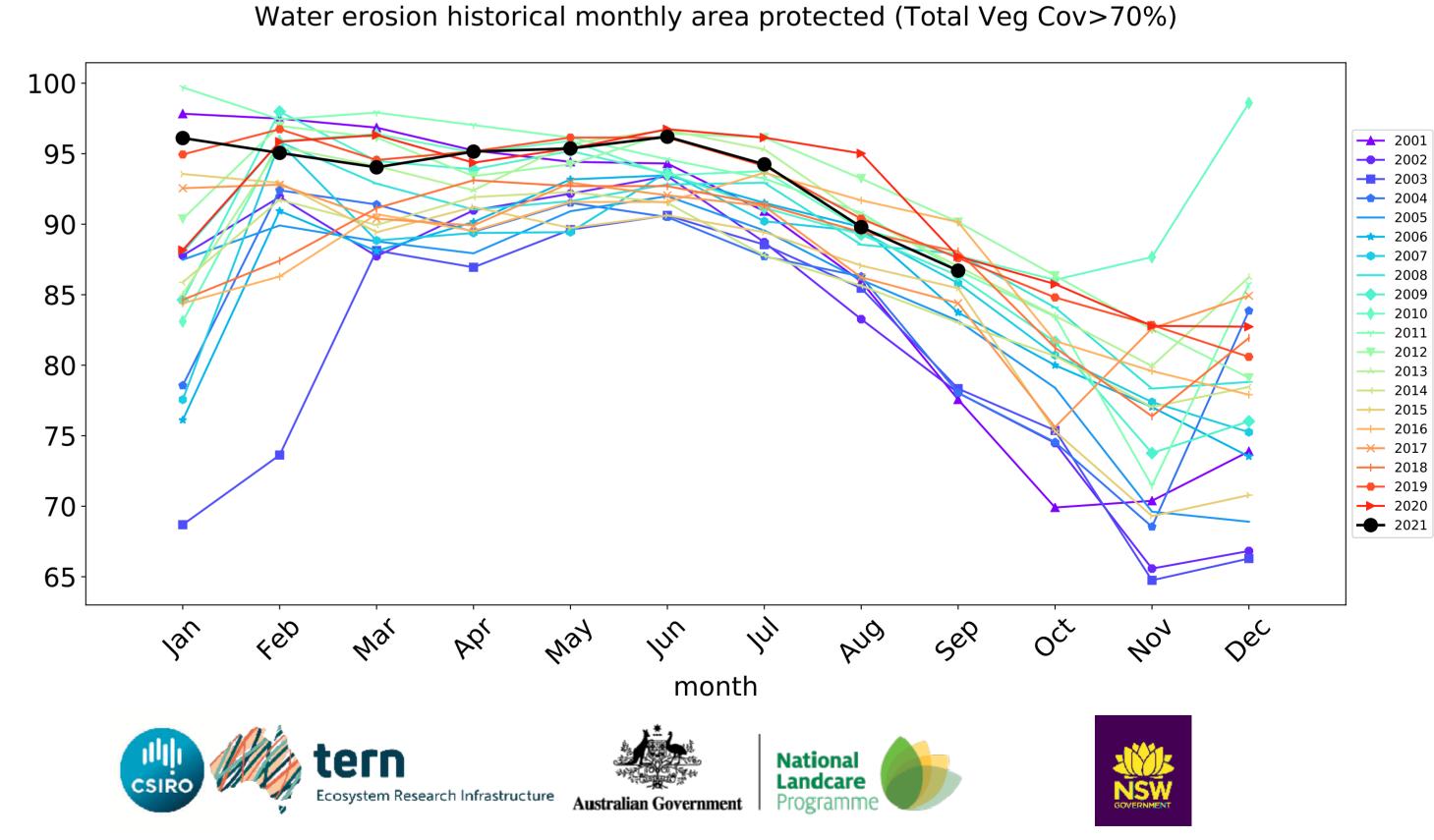
Irrigation timeseries





month



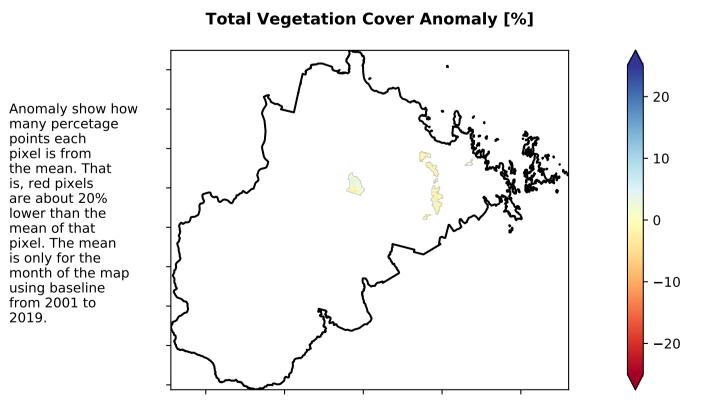


Production native forests and plantation forests

Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Production native forests and plantation forests Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

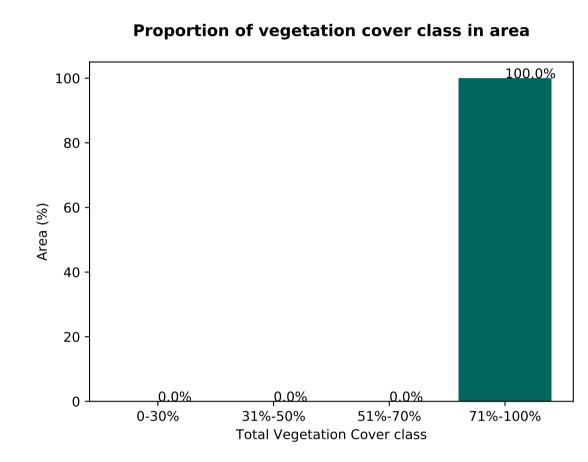
Total Vegetation Cover [%]

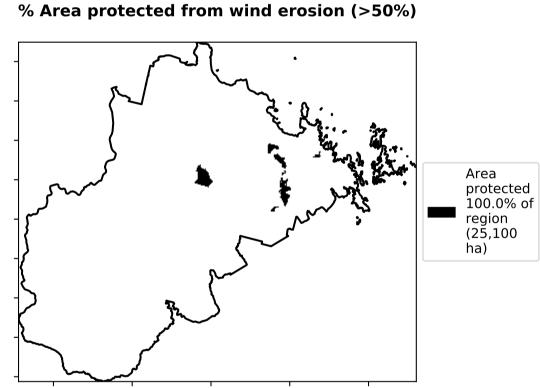
% Area protected from water erosion (>70%) Area protected 100.0% of region (25,100 ha)

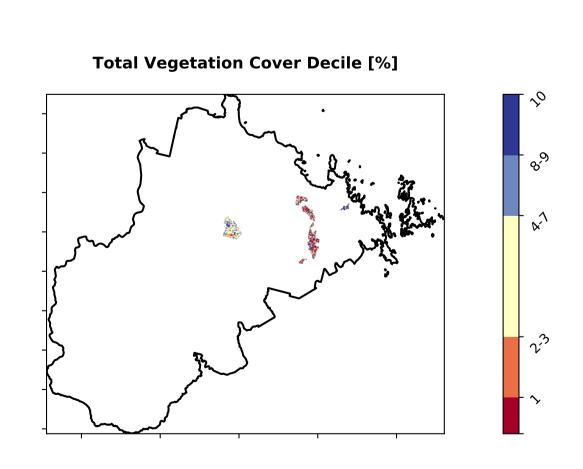


is, red pixels

mean of that













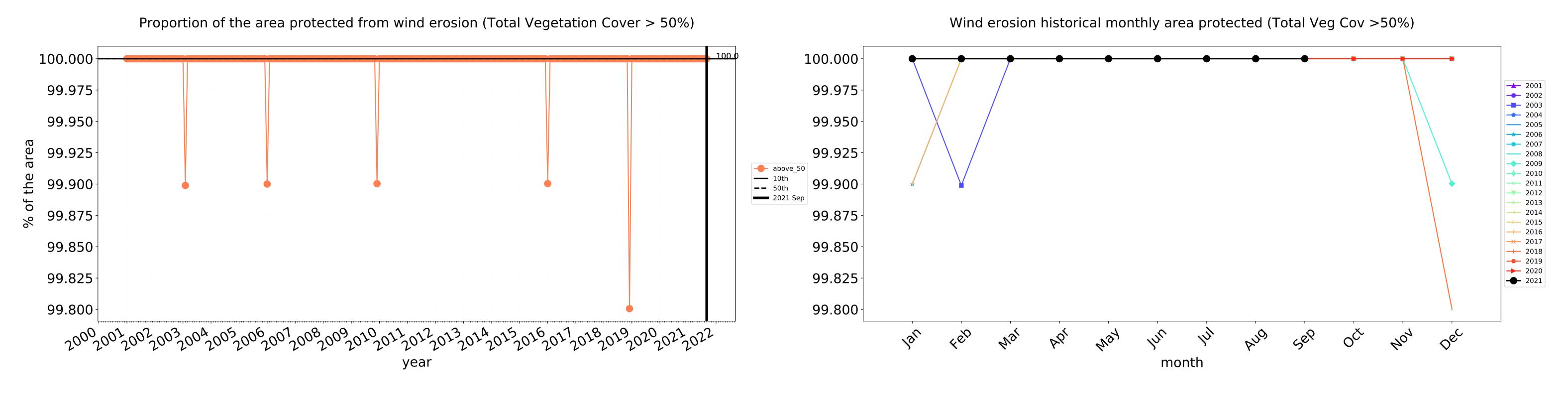
Deciles show where the pixel value lies in the

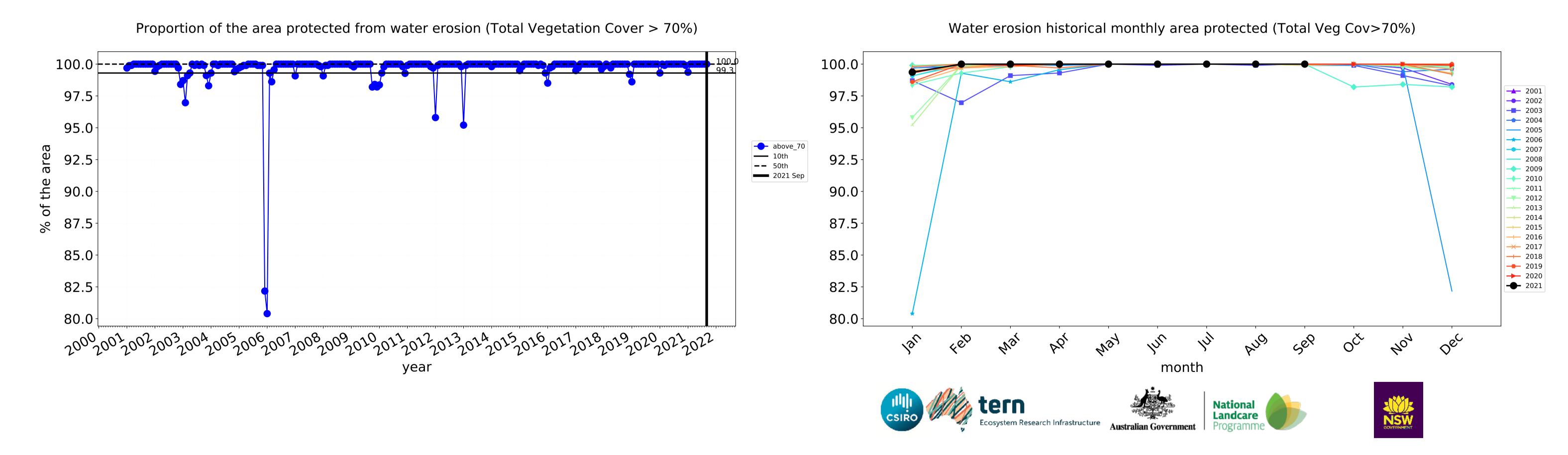
record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of

records for that month of

the map using baseline from 2001 to 2019.

Production native forests and plantation forests timeseries





Whitsunday_(R) (2,357,675 ha and no data 24,201 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	2,357,675	100.0% 2,357,025	99.6% 2,348,625	91.1% 2,148,250	74.1% 1,747,025	36.5% 861,150	8.9% 208,925
Conservation and natural environments	169,775	99.9% 169,525	99.4% 168,725	94.2% 159,925	83.0% 140,925	57.4% 97,375	23.5% 39,875
Conservation and natural environments non forest	28,325	99.8% 28,275	98.7% 27,950	78.8% 22,325	34.6% 9,800	4.9% 1,400	1.9% 525
Conservation and natural environments Woodland forest	56,875	100.0% 56,875	99.9% 56,800	97.6% 55,525	91.1% 51,825	65.0% 36,950	22.9% 13,050
natural environments Forest (non woodland)	84,575	99.8% 84,375	99.3% 83,975	97.0% 82,075	93.8% 79,300	69.8% 59,025	31.1% 26,300
Agriculture	2,084,925	100.0% 2,084,925	99.7% 2,079,125	91.1% 1,899,400	73.8% 1,538,650	34.9% 727,550	7.5% 155,975
Grazing	2,042,500	100.0% 2,042,500	99.7% 2,036,725	91.2% 1,862,575	74.1% 1,512,850	35.3% 720,025	7.5% 153,400
Grazing non forest	1,171,825	100.0% 1,171,825	99.5% 1,166,075	86.0% 1,008,100	63.2% 740,600	25.1% 294,225	5.4% 63,050
Grazing Woodland forest	819,825	100.0% 819,825	100.0% 819,800	98.3% 806,025	89.3% 731,750	49.4% 404,750	10.0% 81,975
Grazing - Forest (non woodland)	50,850	100.0% 50,850	100.0% 50,850	95.3% 48,450	79.6% 40,500	41.4% 21,050	16.5% 8,375
Irrigation	42,125	100.0% 42,125	99.9% 42,100	86.7% 36,525	60.5% 25,500	17.8% 7,500	6.1% 2,575
Production native forests and plantation forests	25,100	100.0% 25,100	100.0% 25,100	100.0% 25,100	100.0% 25,100	81.4% 20,425	28.3% 7,100







