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: October 2022

Vegetation Cover Oct 2022

Land use and forest cover

Catchment Scale

of Australia (2018)

(2018) and Forests

of Australia (2018)

Use of Australia

pixel is from

mean of that pixel. The mean is only for the

month of the map

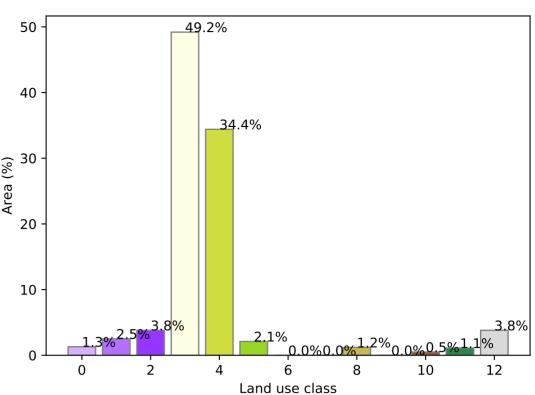
using baseline from 2001 to

2019.

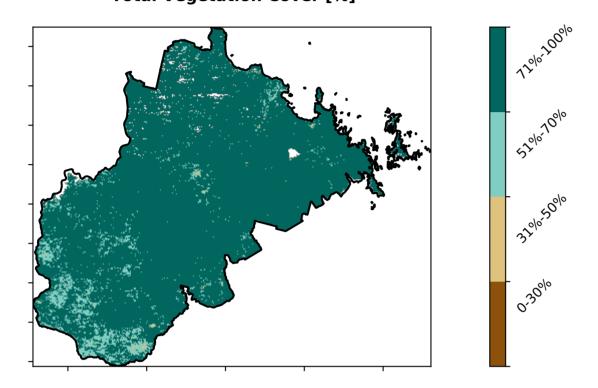
the mean. That is, red pixels are about 20% lower than the

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 Land Use and Forests 4 Agriculture - Grazing - Non-forest Derived from Catchment Scale Land 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

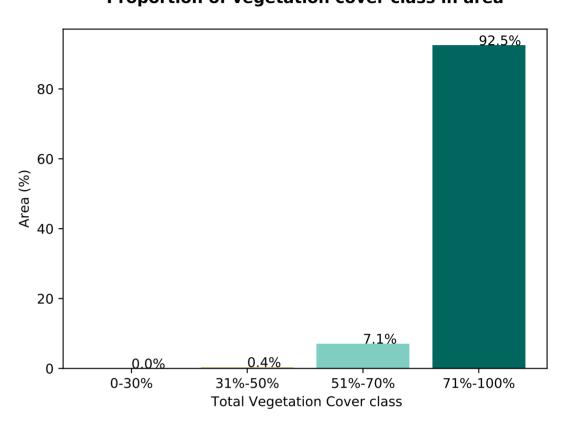
Proportion of each land class in area

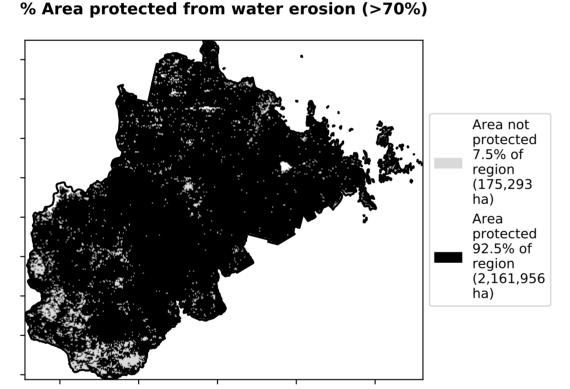


Total Vegetation Cover [%]

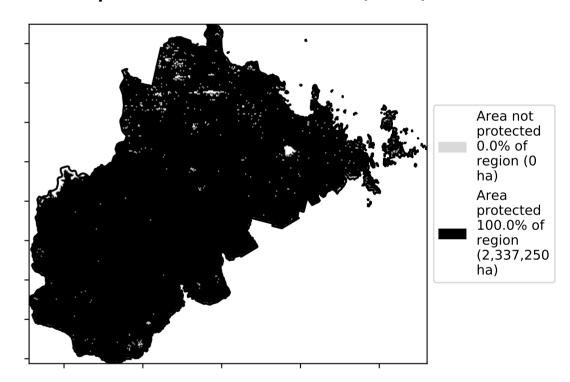


Proportion of vegetation cover class in area

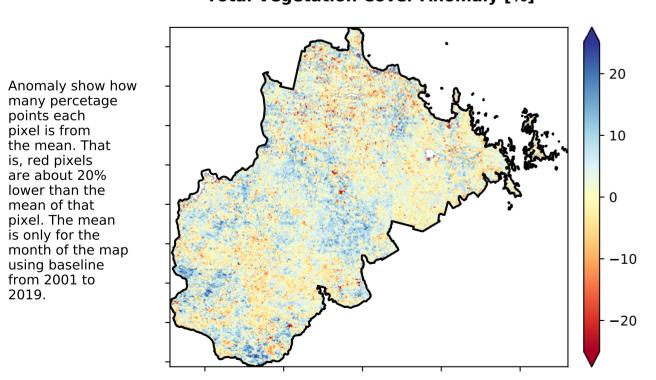




% Area protected from wind erosion (>50%)

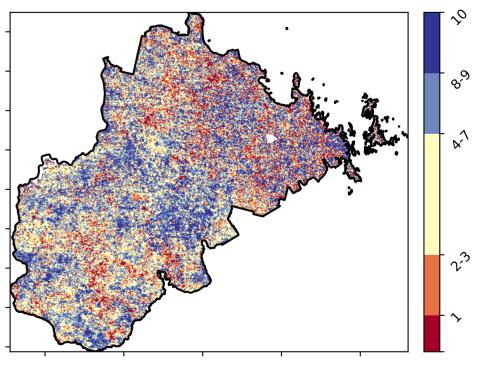


Total Vegetation Cover Anomaly [%]



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 [%]

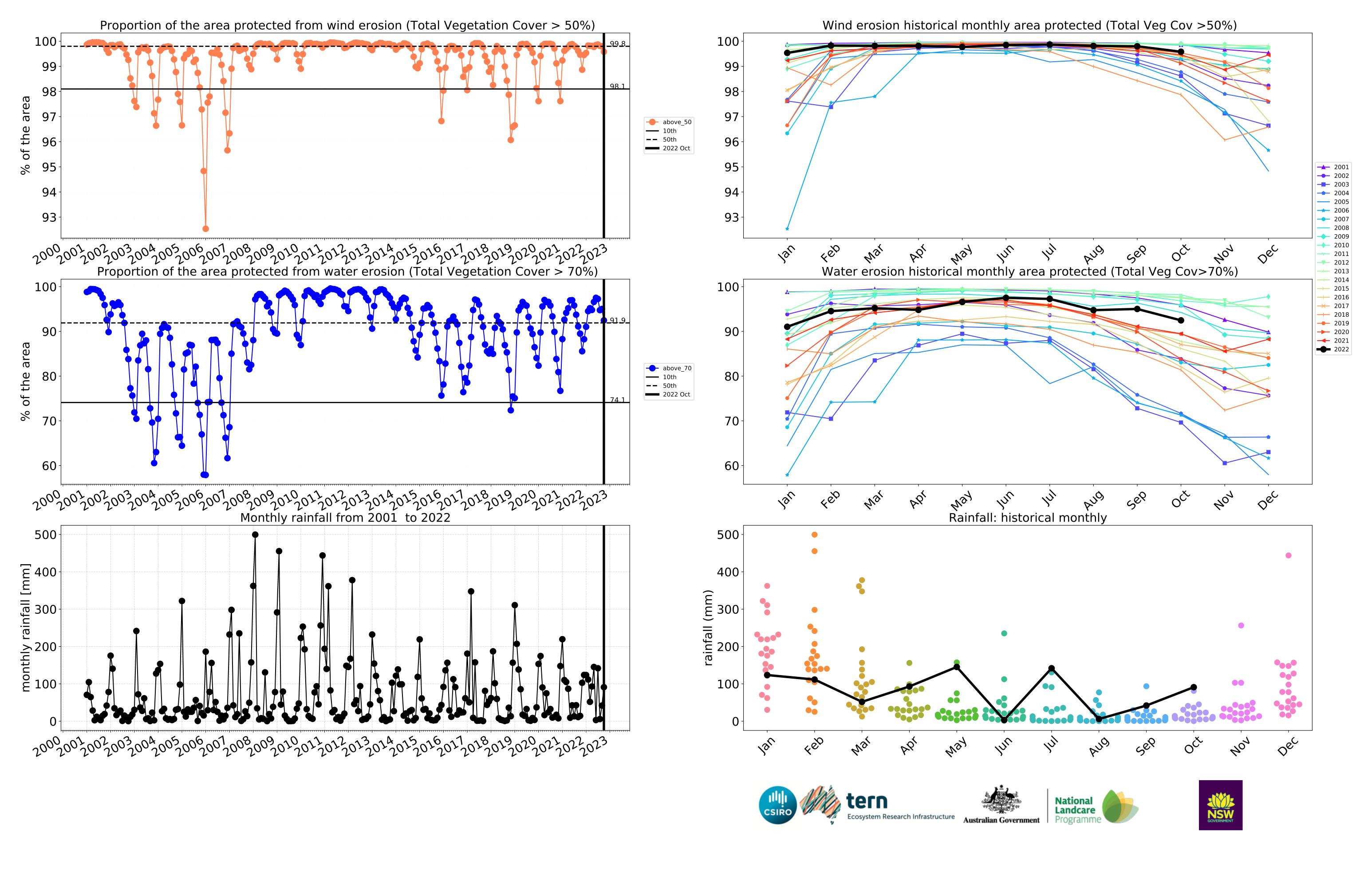








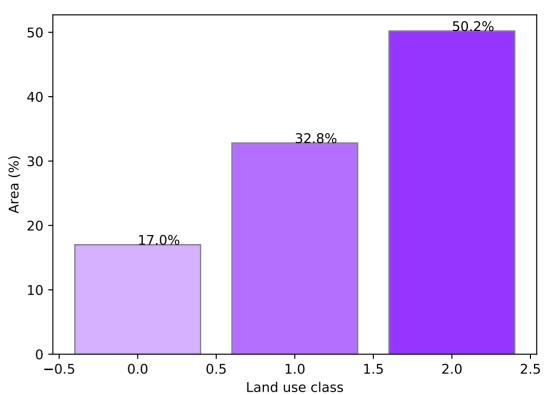




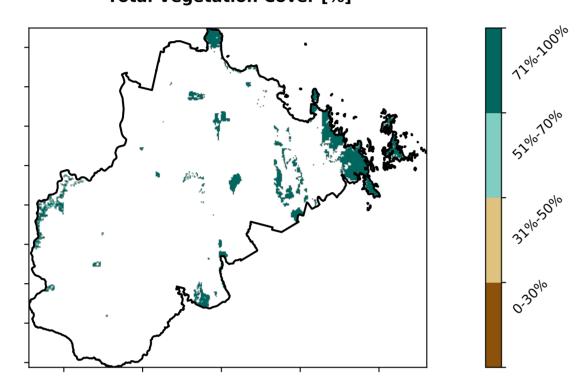
Conservation and natural environments

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) Australia (2018) The conservation and natural environments - Nonforest 2 Conservation and natural environments - Woodland forest 3 Conservation and natural environments - Nonwoodland forest woodland forest

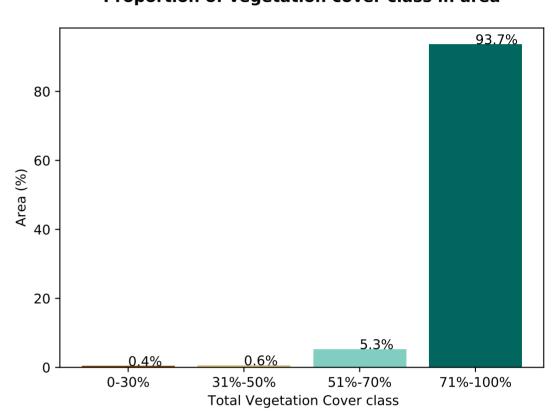
Proportion of each land class in area



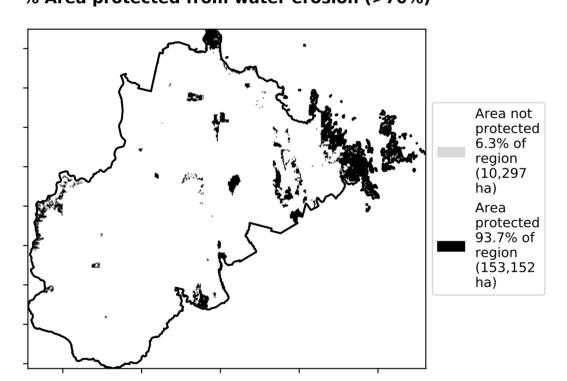
Total Vegetation Cover [%]



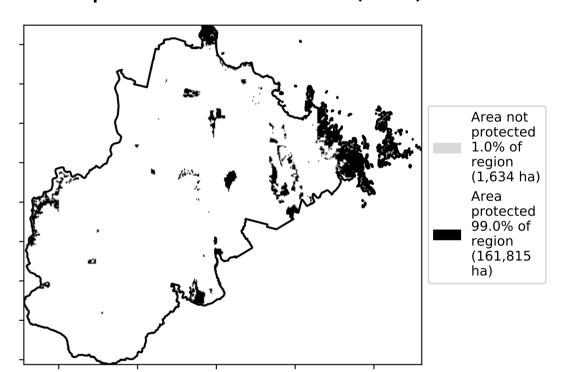
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

Anomaly show how many percetage points each pixel is from

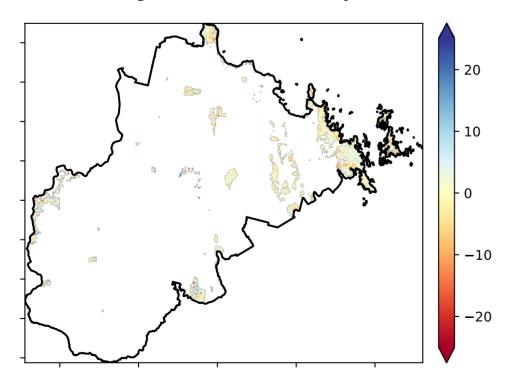
the mean. That

pixel. The mean

using baseline from 2001 to 2019.

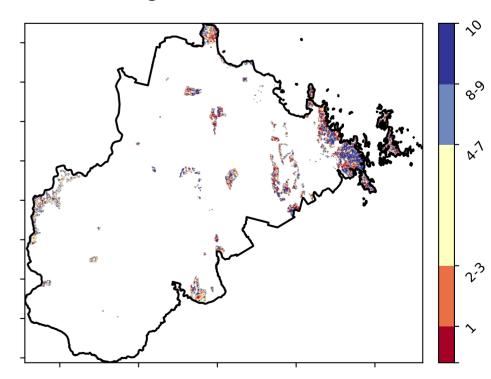
is only for the month of the map

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Total Vegetation Cover Decile [%]



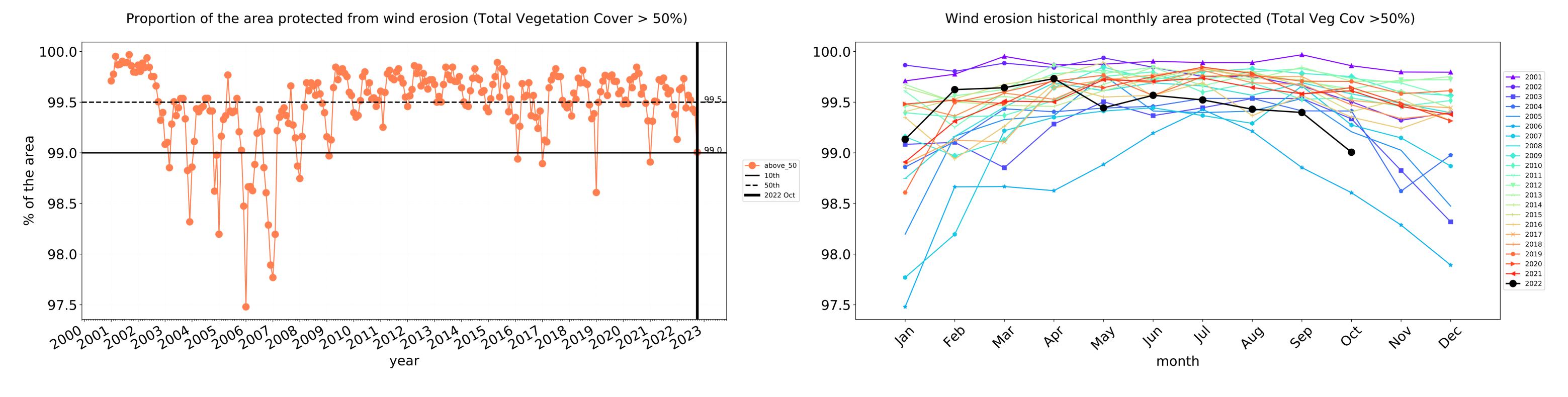


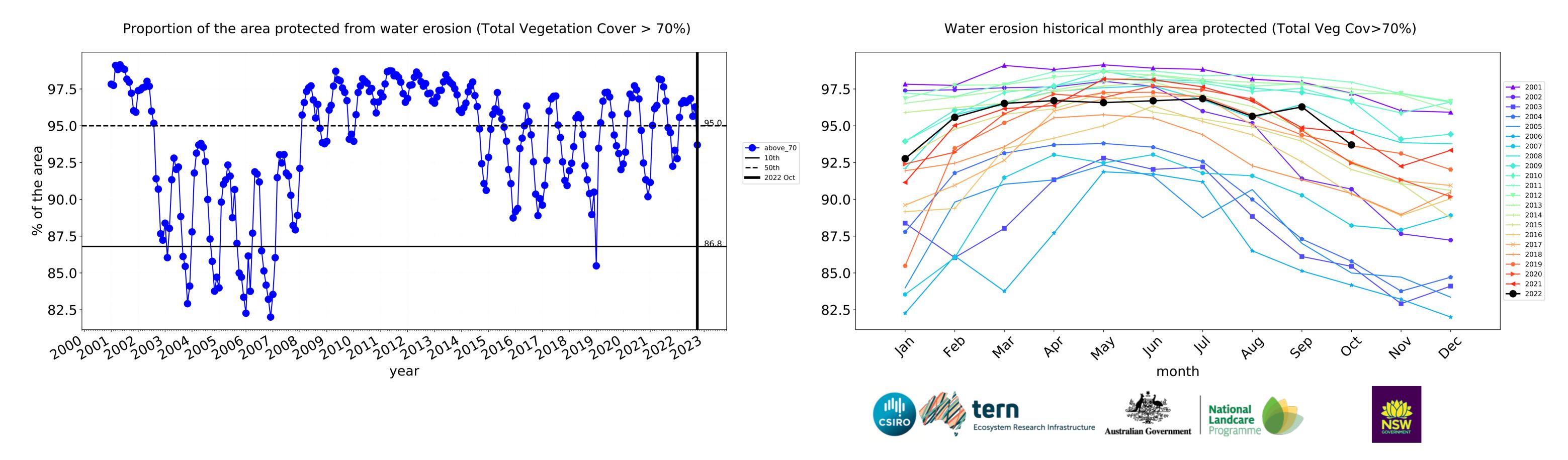






Conservation and natural environments timeseries





Conservation and natural environments non forest

Land use and forest cover

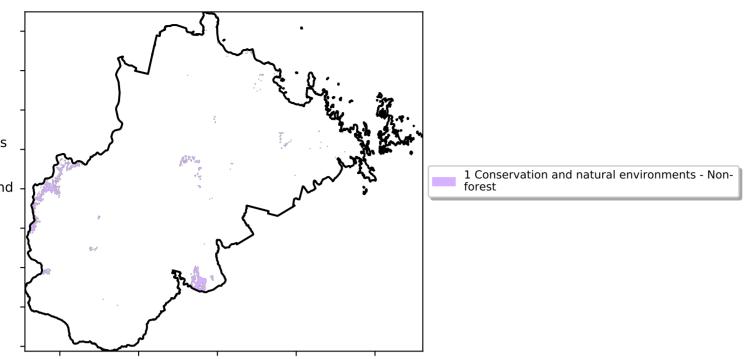
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Anomaly show how many percetage points each pixel is from

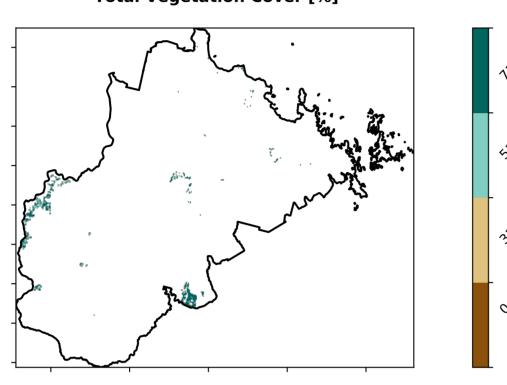
the mean. That

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

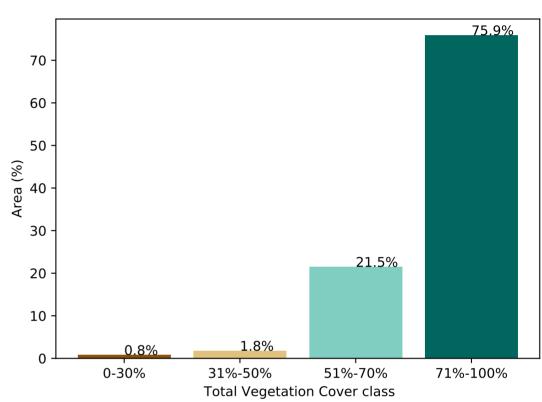
using baseline from 2001 to 2019.



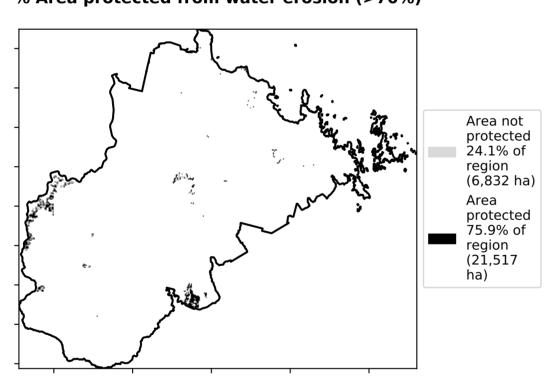
Total Vegetation Cover [%]



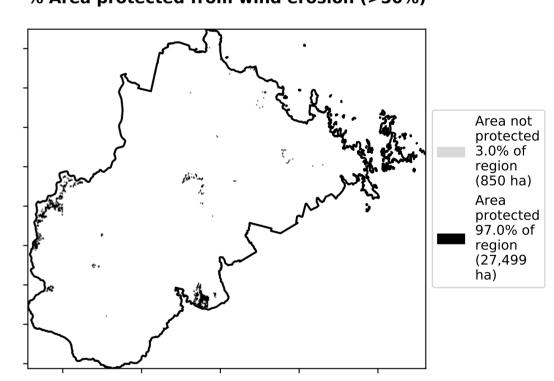
Proportion of vegetation cover class in area



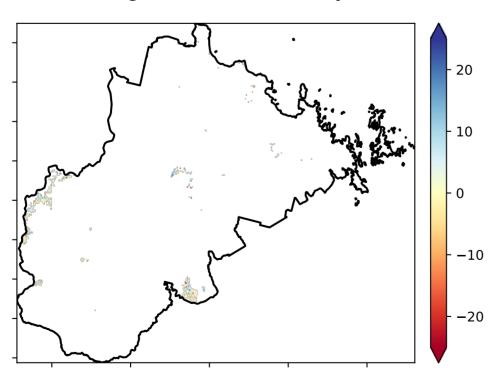
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

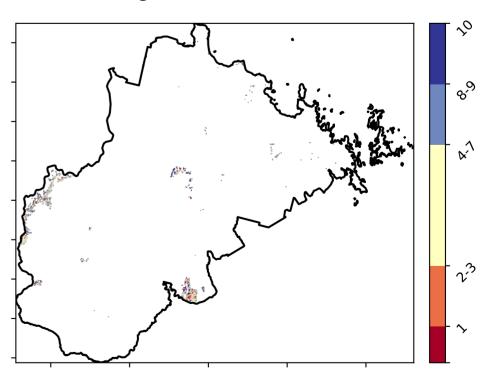


Total Vegetation Cover Anomaly [%]



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 [%]







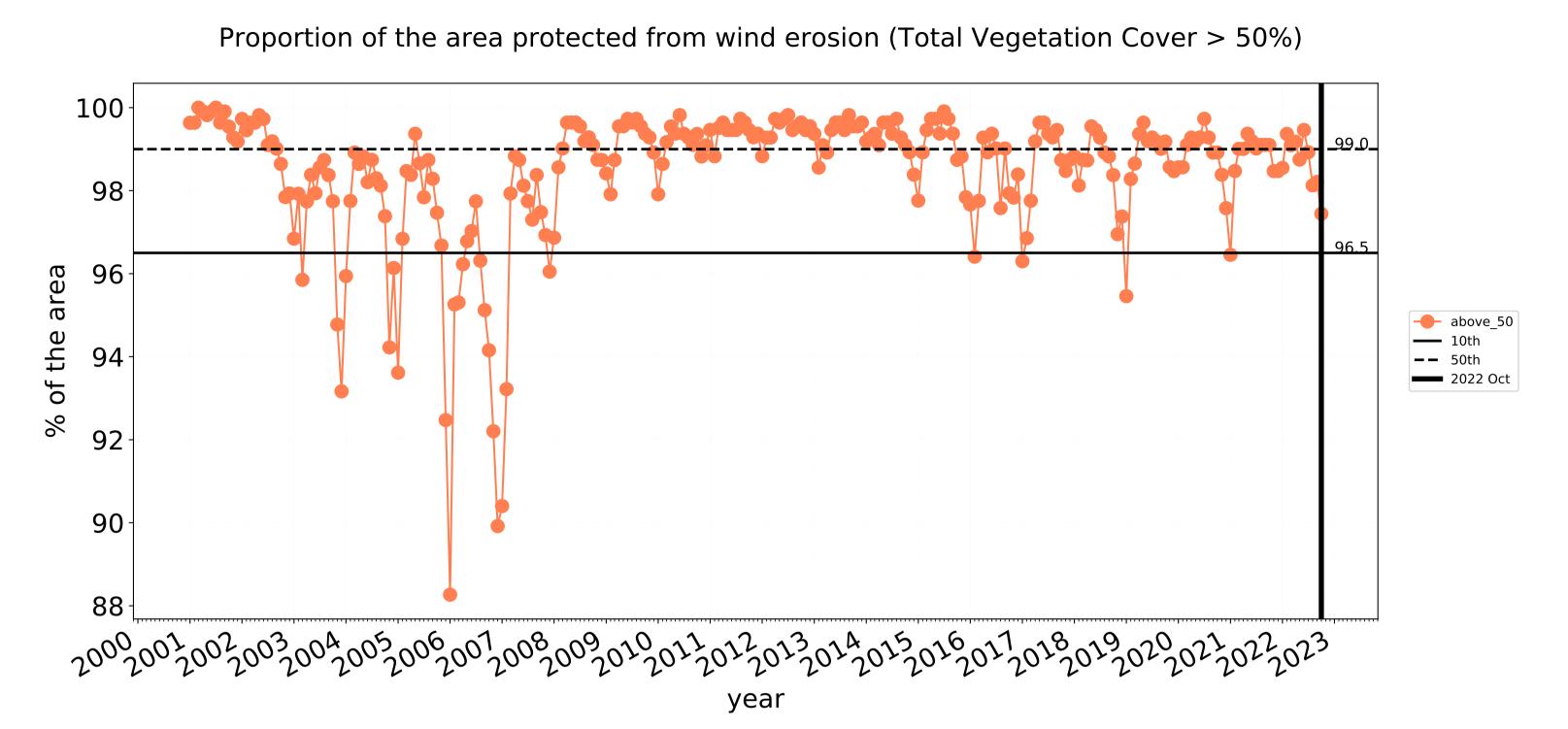


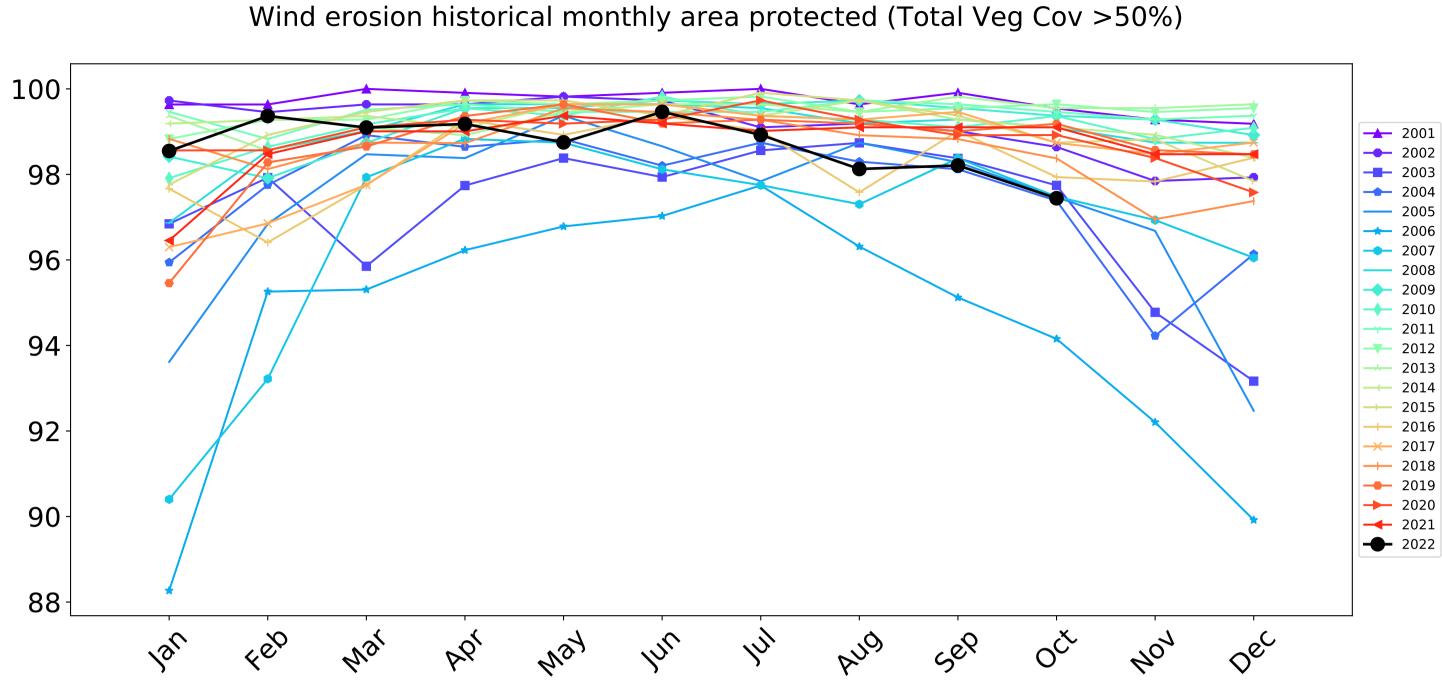




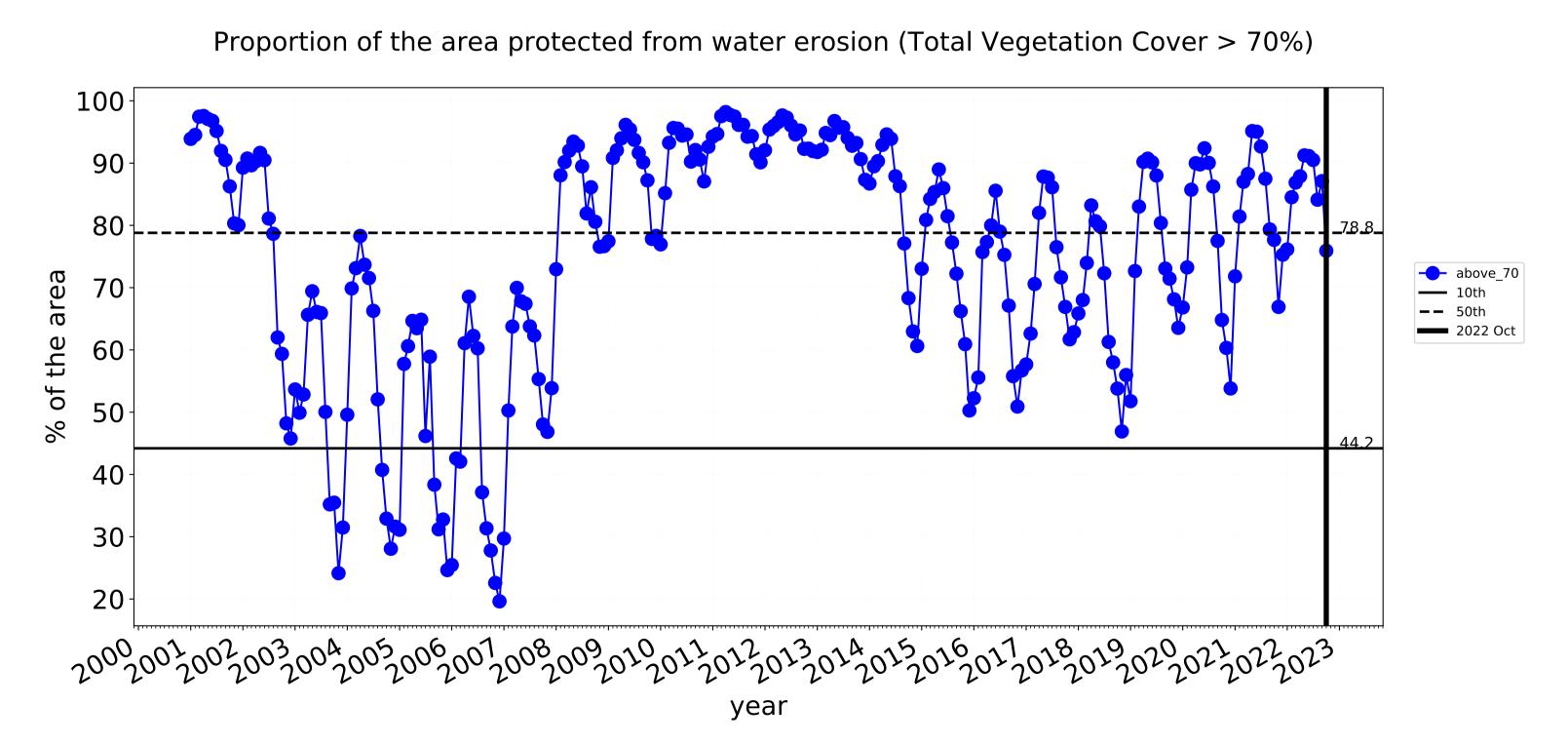


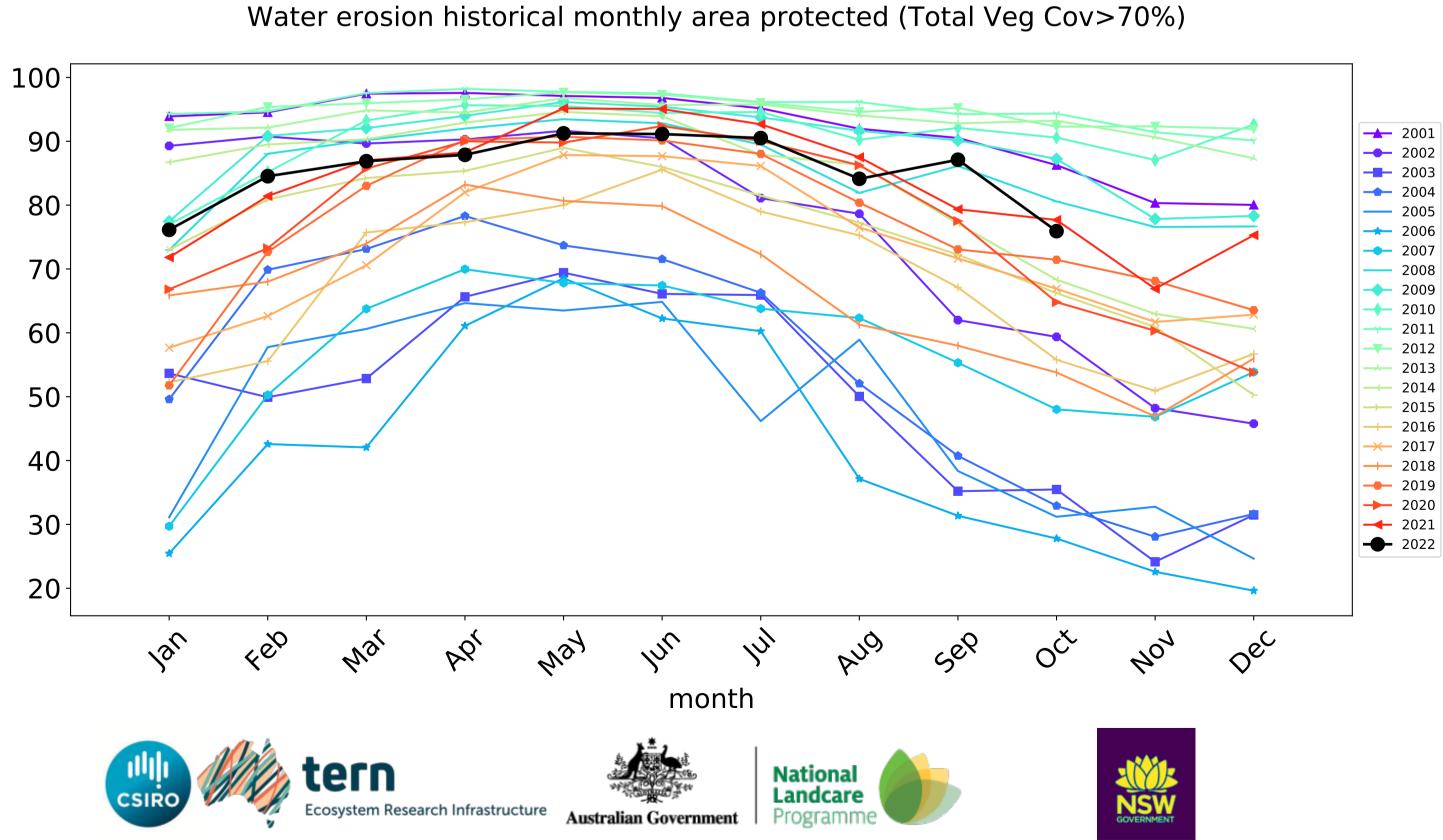
Conservation and natural environments non forest timeseries





month

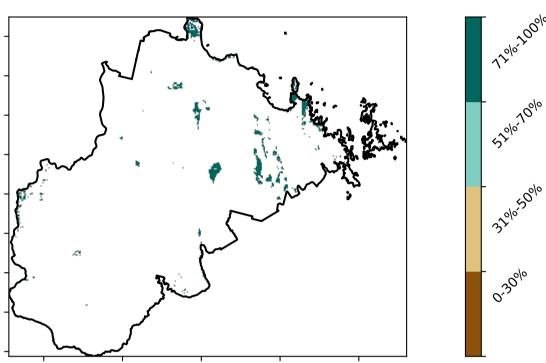




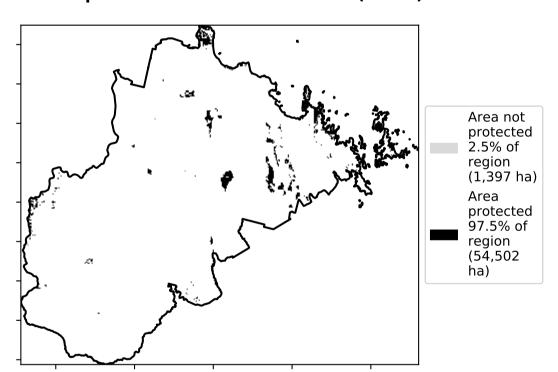
Conservation and natural environments Woodland forest

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

Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



Total Vegetation Cover Anomaly [%]

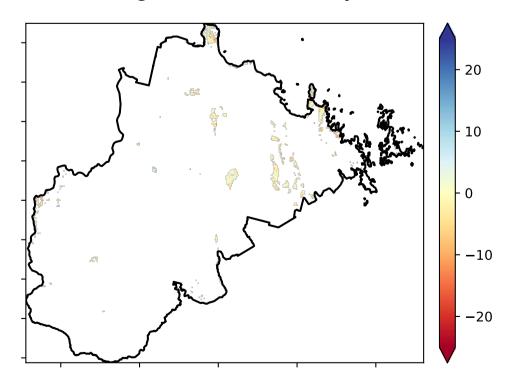
Anomaly show how many percetage points each pixel is from the mean. That

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pixel. The mean

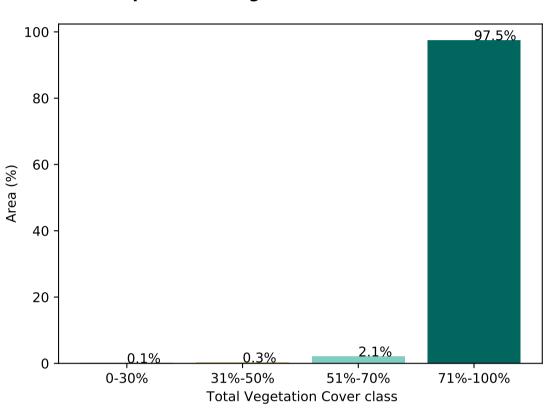
using baseline from 2001 to 2019.

is only for the month of the map

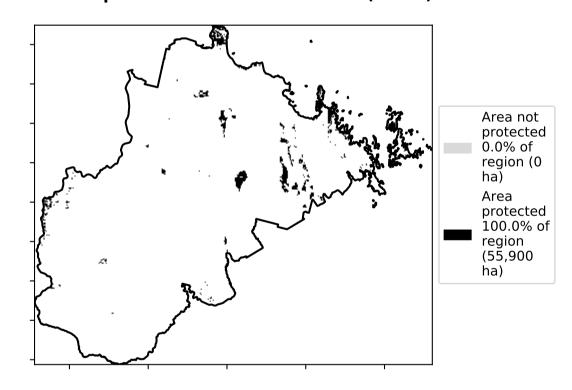


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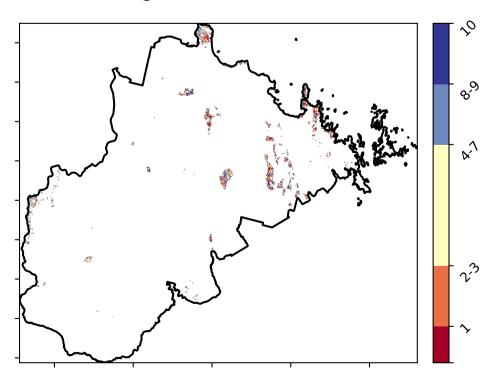
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]



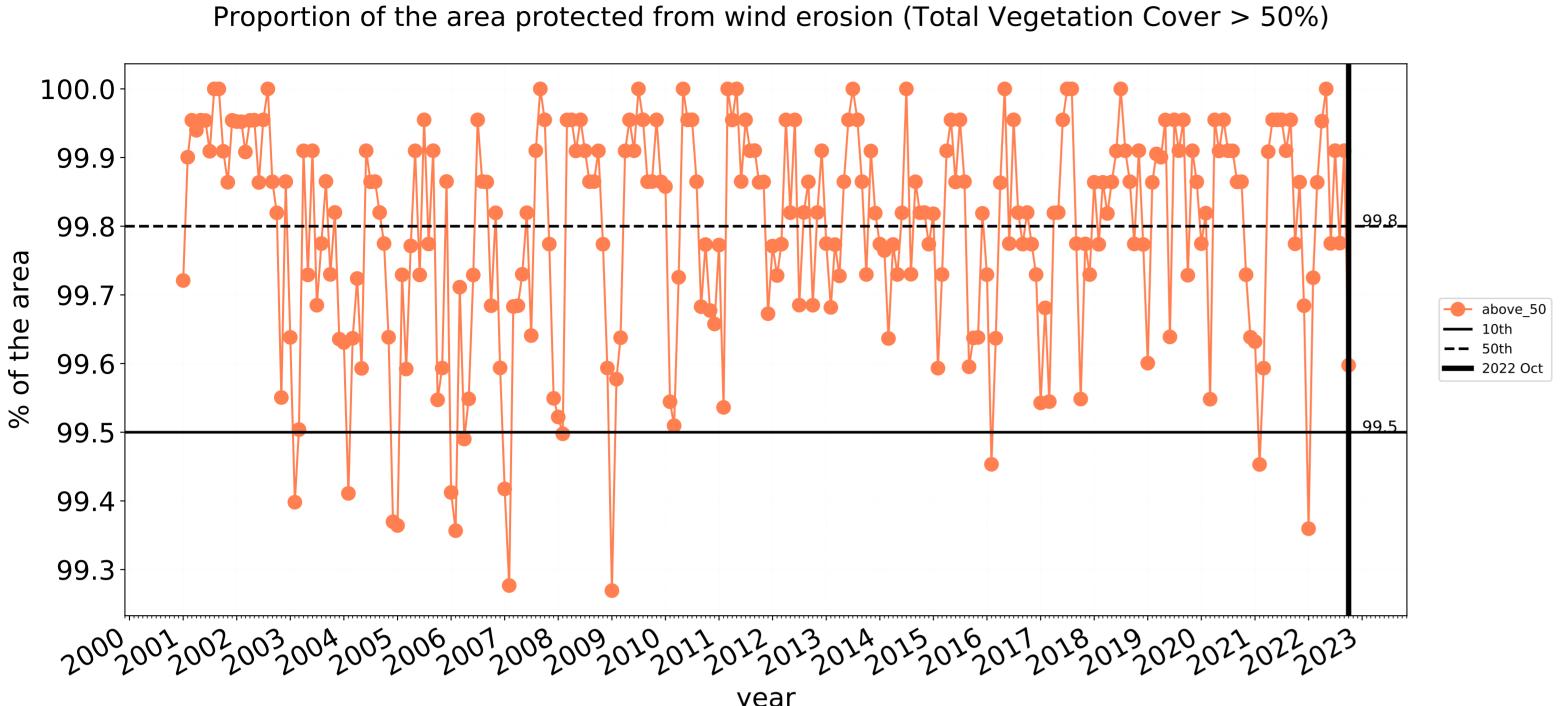


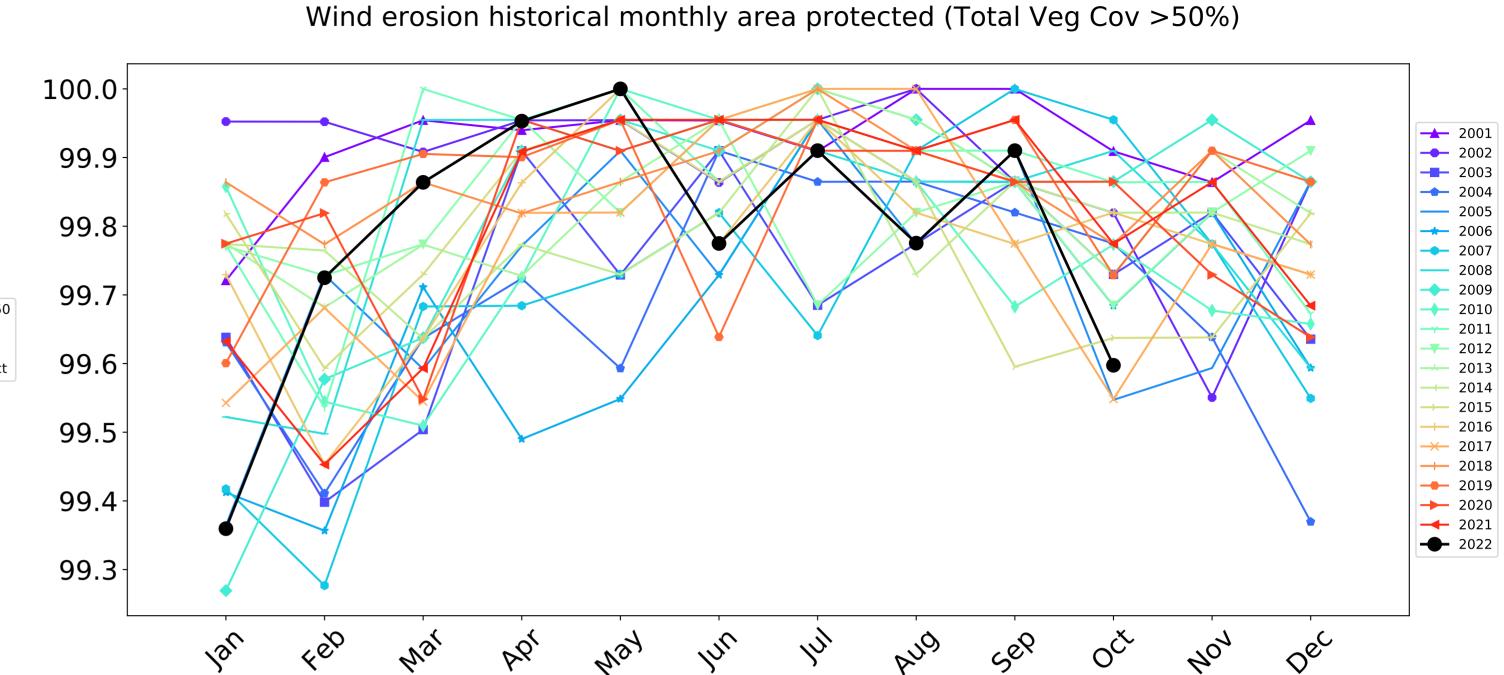




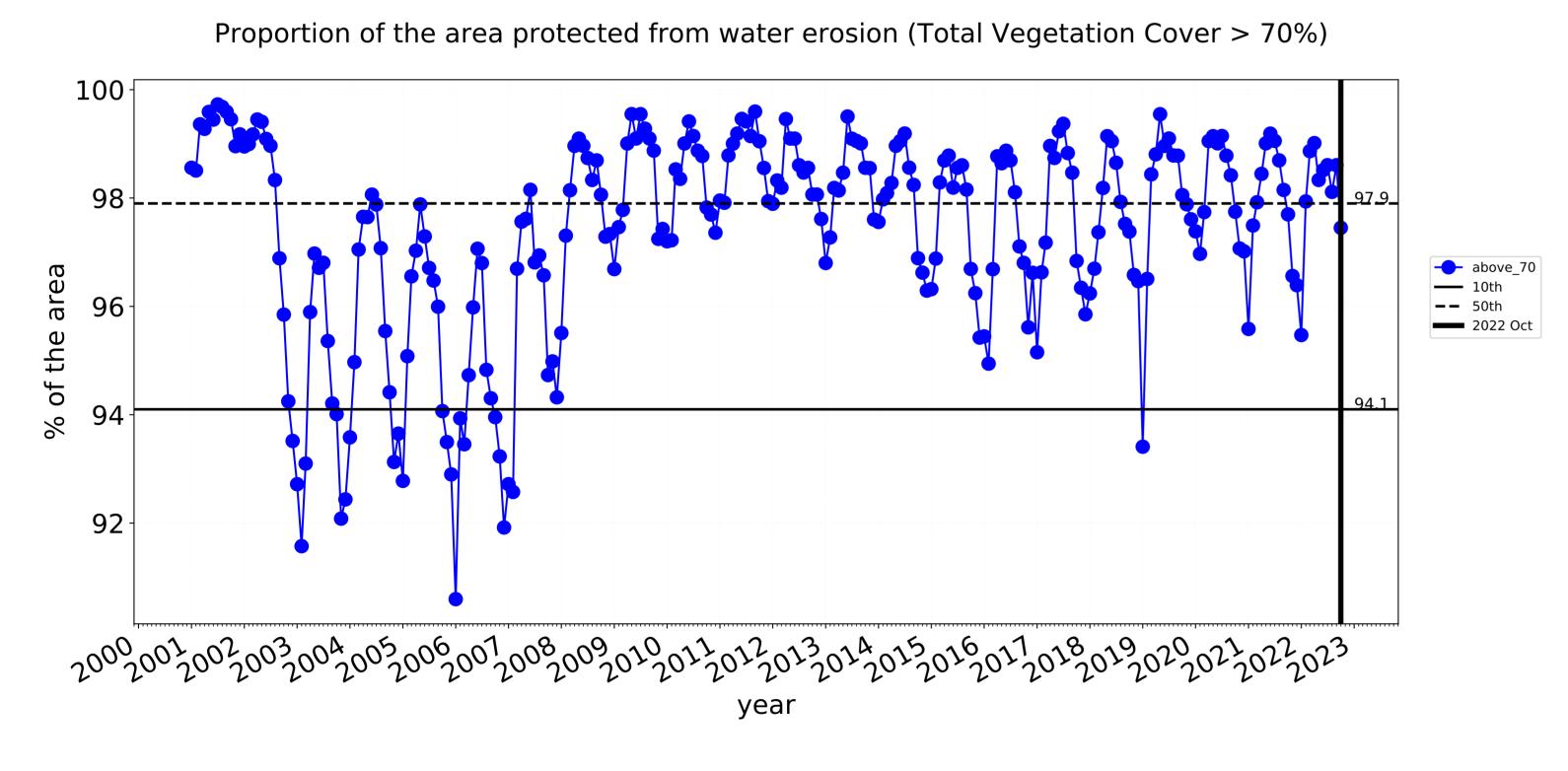


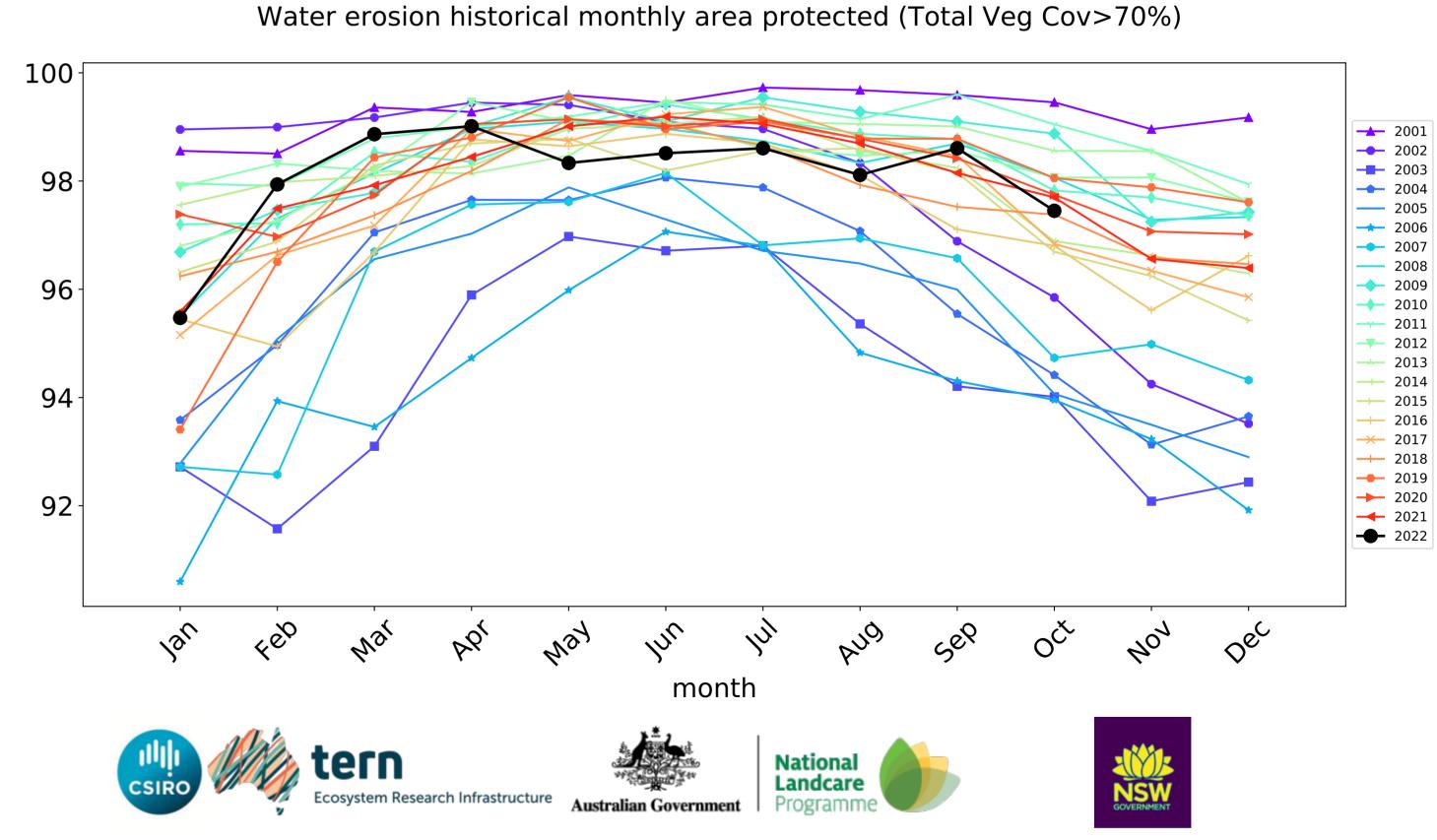
Conservation and natural environments Woodland forest timeseries





month

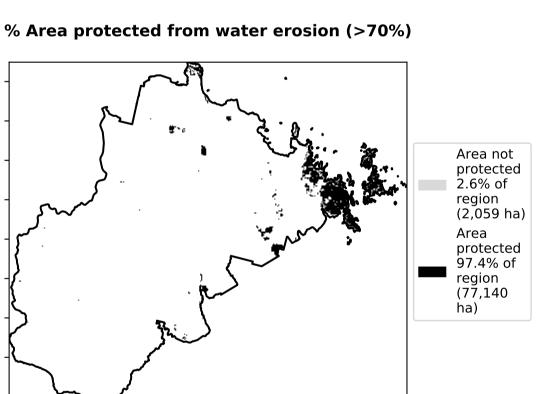


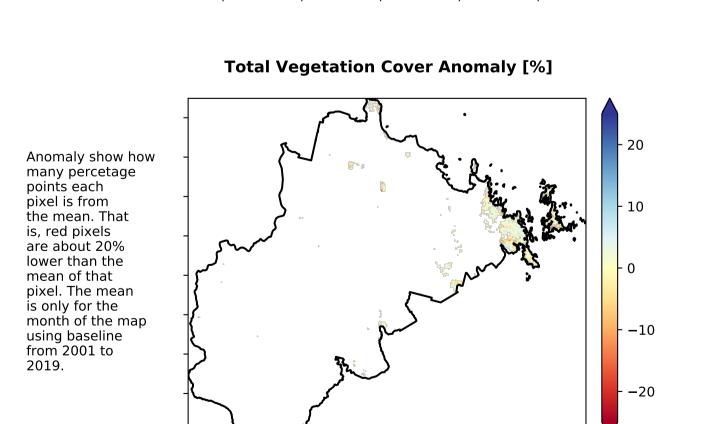


Conservation and natural environments Forest (non woodland)

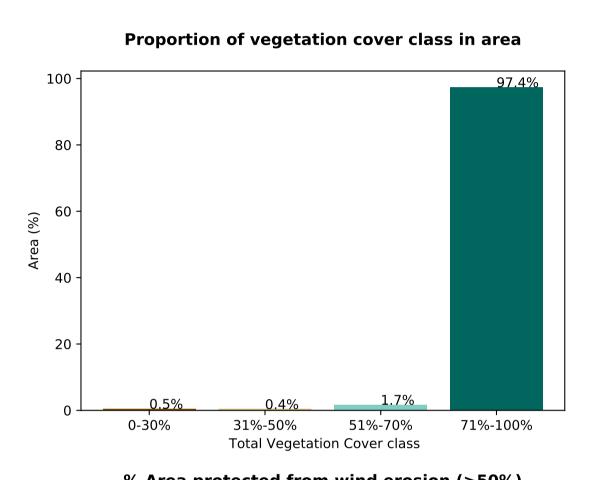
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) Derived from 1 Conservation and natural environments - Non-Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

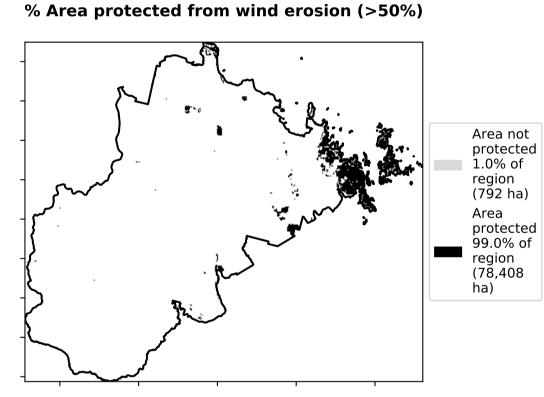
Total Vegetation Cover [%]

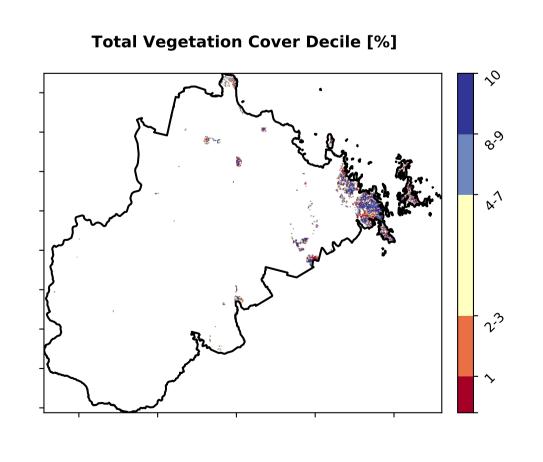




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.







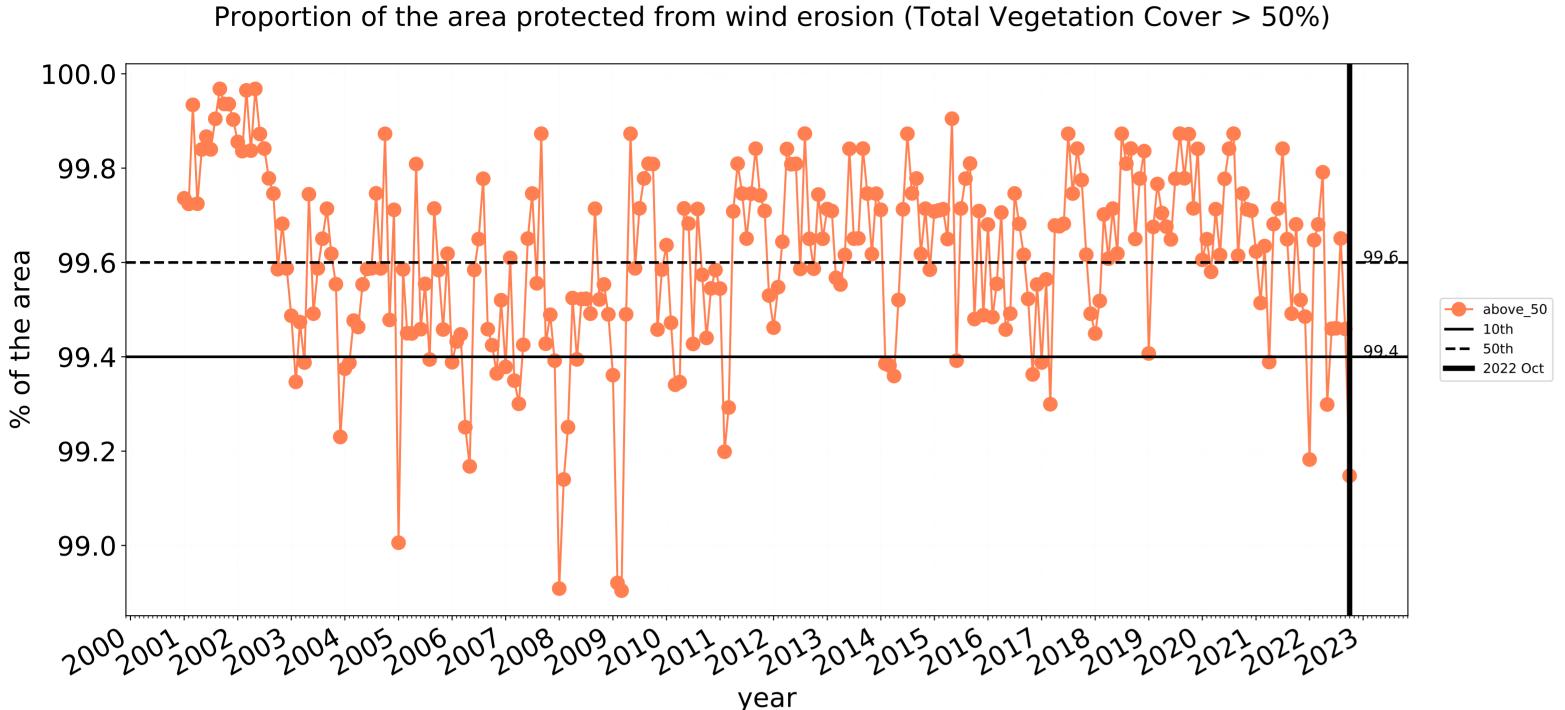


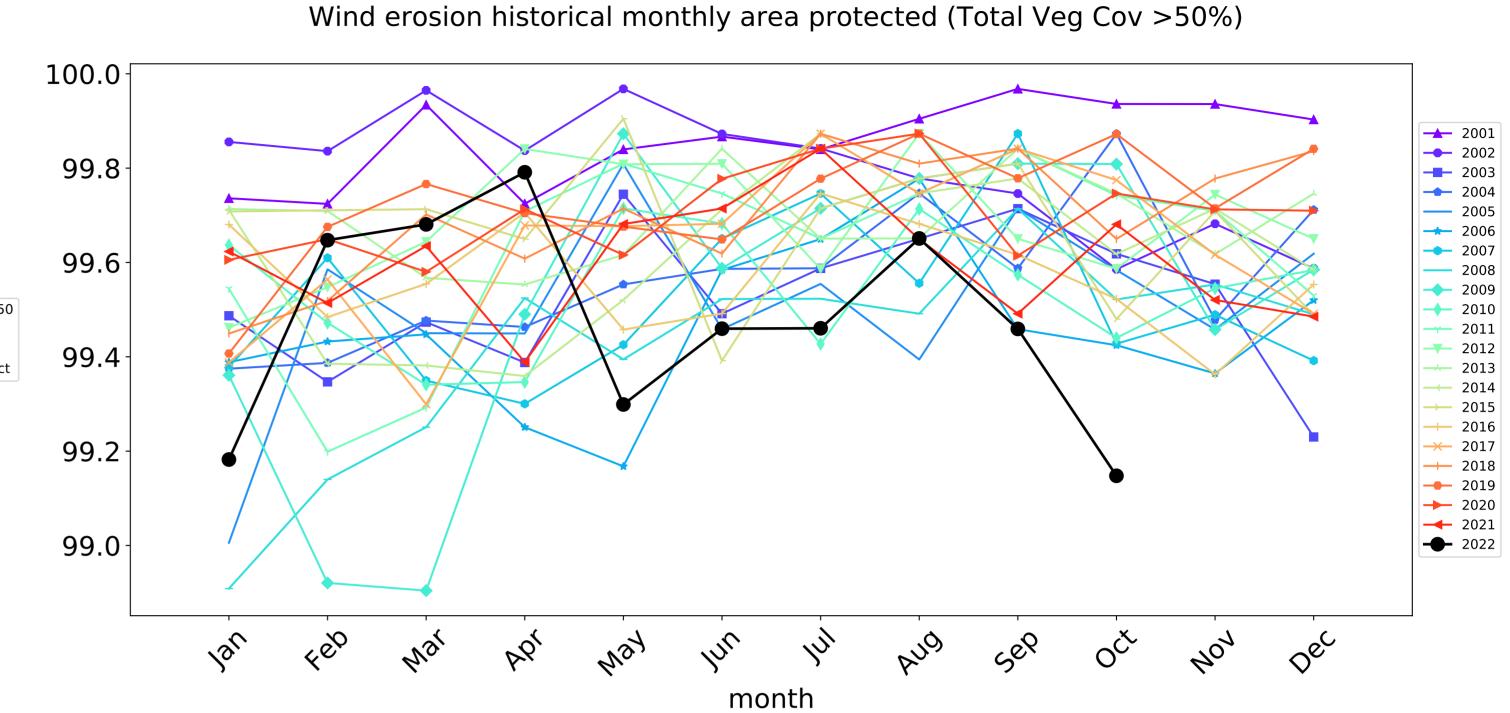


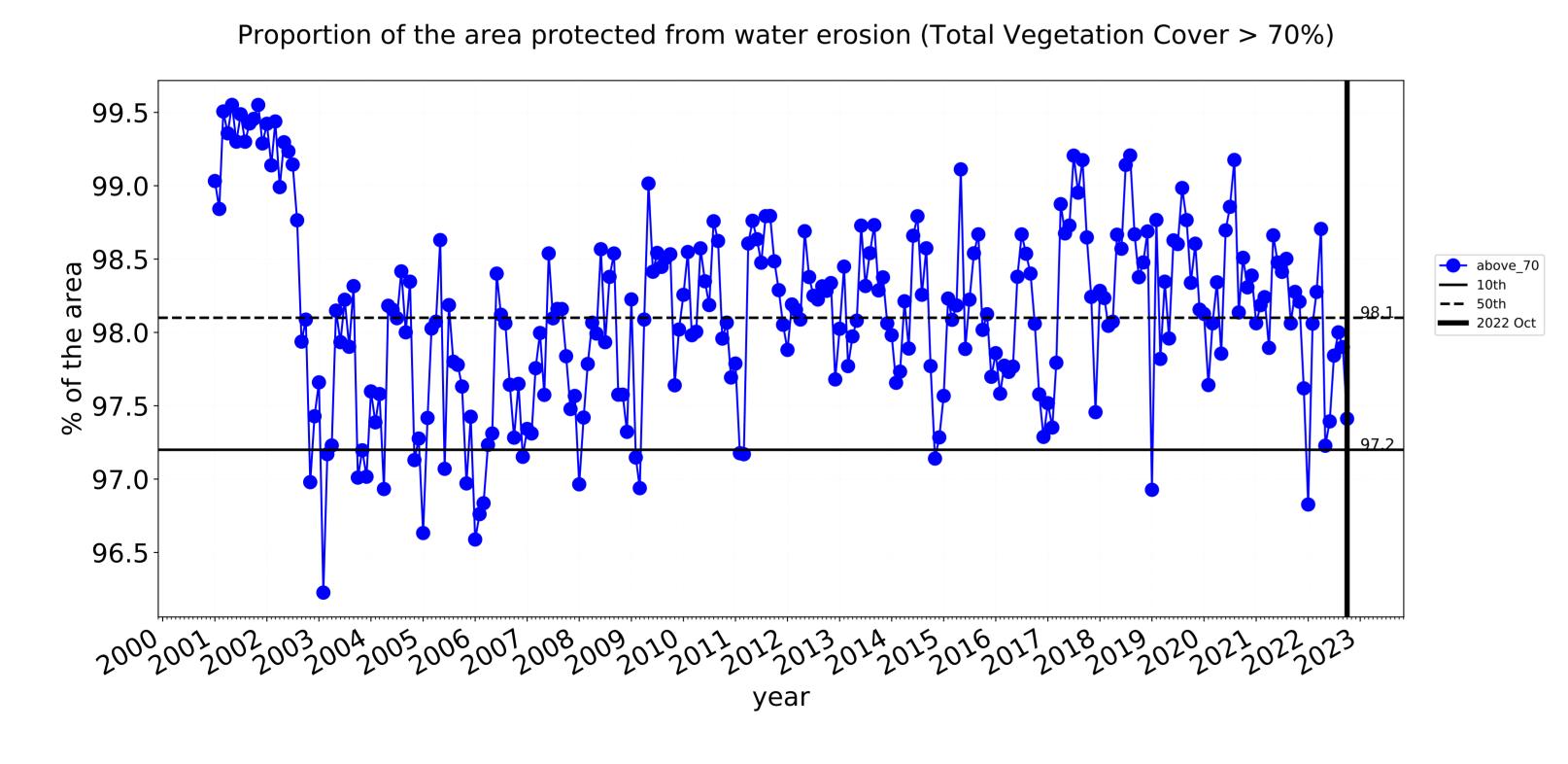


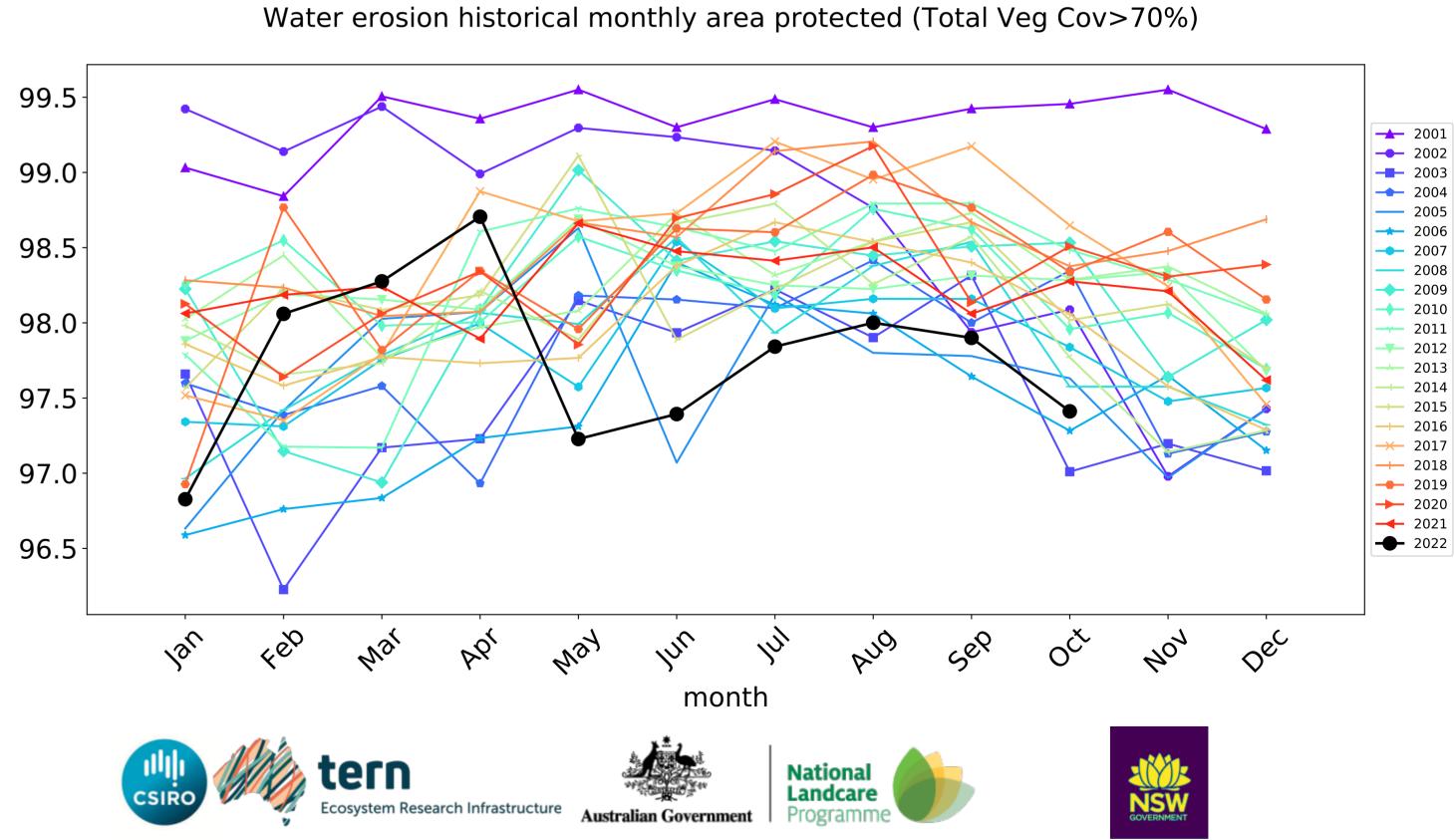


Conservation and natural environments Forest (non woodland) timeseries







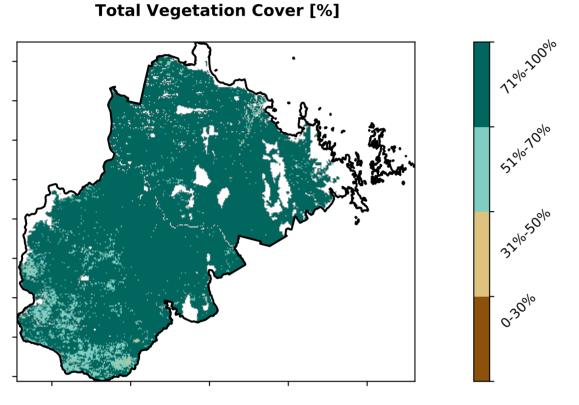


Agriculture

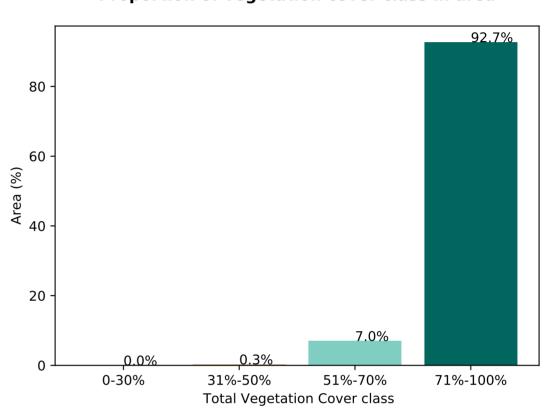
Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) 1 Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest Derived from 4 Agriculture - Grazing - Irrigated Catchment Scale Land 5 Agriculture - Cropping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

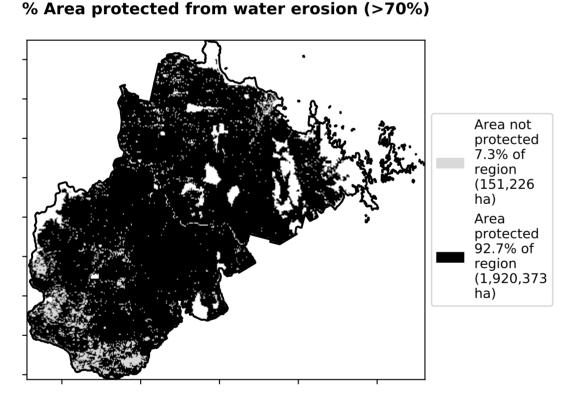
56.2% 50 39.3% 40 Area (%) 20 -10 Land use class

Proportion of each land class in area

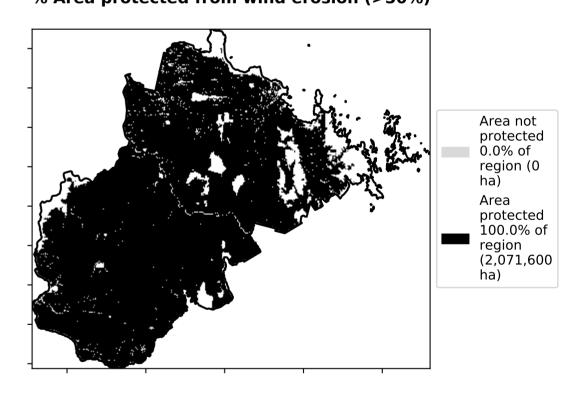


Proportion of vegetation cover class in area





% Area protected from wind erosion (>50%)



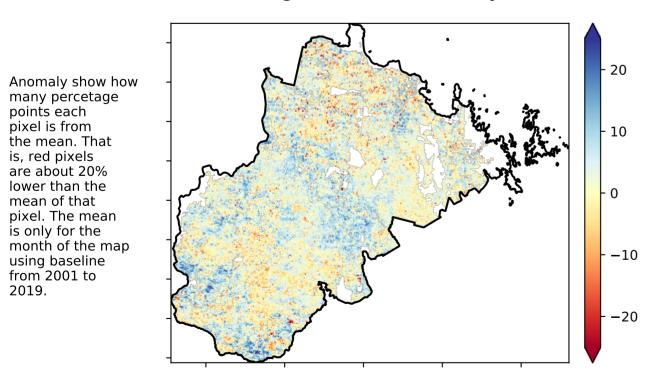
Total Vegetation Cover Anomaly [%]

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

pixel. The mean

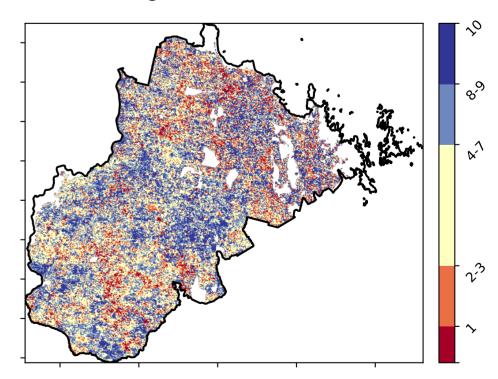
using baseline from 2001 to 2019.

is only for the month of the map



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 [%]



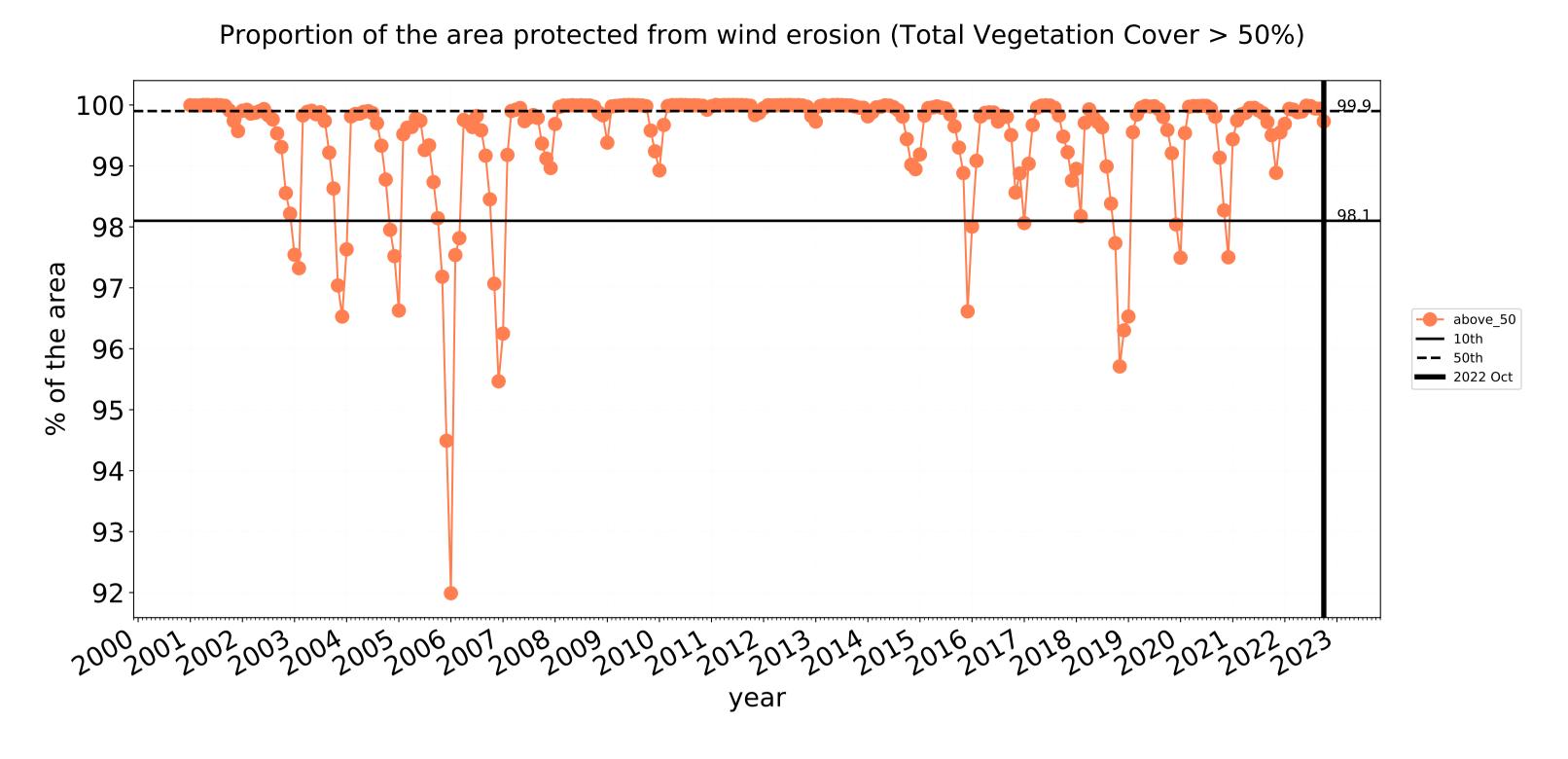


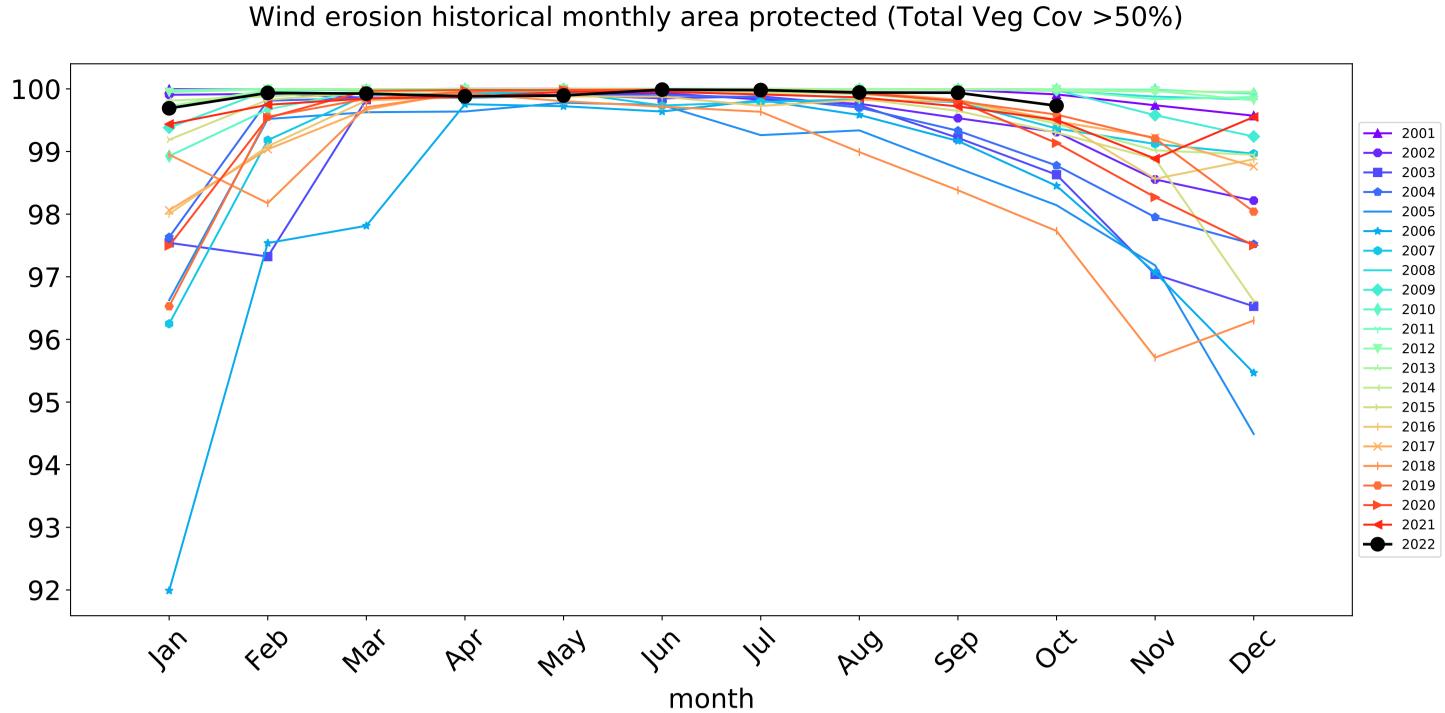


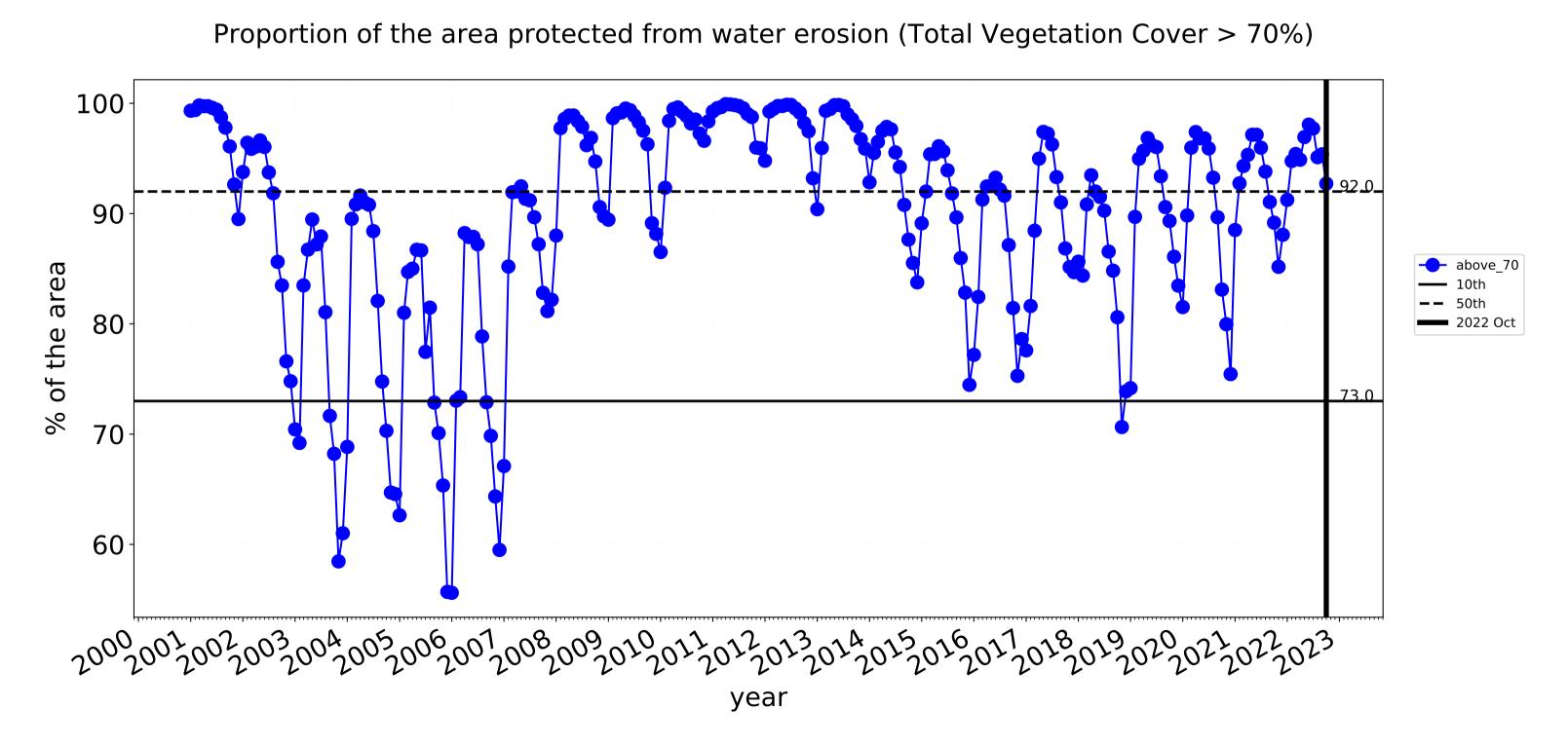


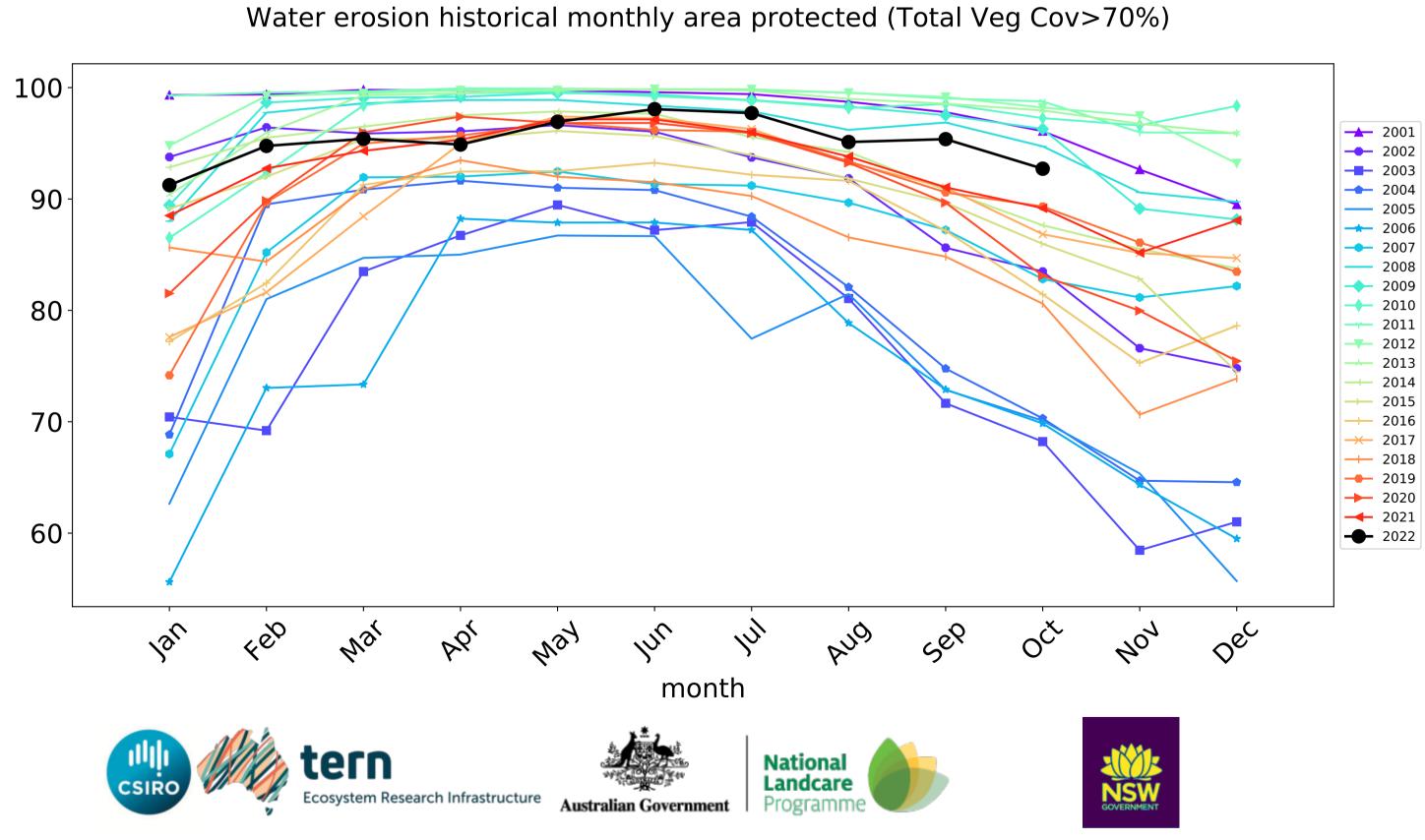


Agriculture timeseries









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)



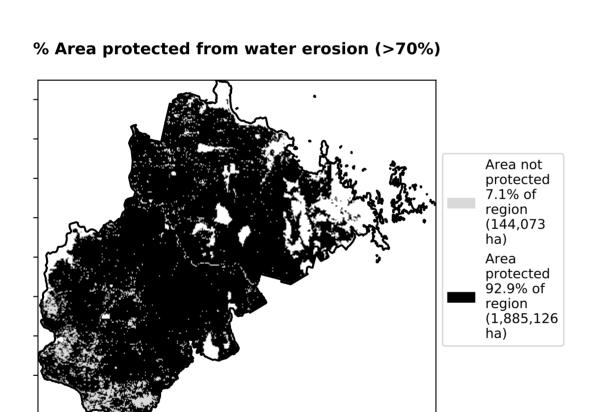
Proportion of each land class in area 60 -57.4% 50 40.1% 40 Area (%) 20 10 0.5 1.0 -0.5 1.5 0.0 2.0 2.5 Land use class

Total Vegetation Cover [%]

Proportion of vegetation cover class in area 92.9% 80 60 Area (%) 20 6.8% 0.2%

31%-50%

0-30%

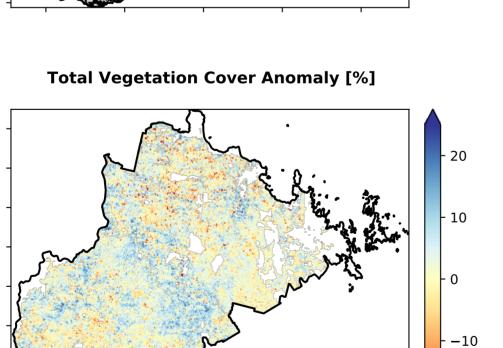


% Area protected from wind erosion (>50%) Area not protected 0.0% of region (0 ha) Area protected 100.0% of region (2,029,200 ha)

51%-70%

Total Vegetation Cover class

71%-100%



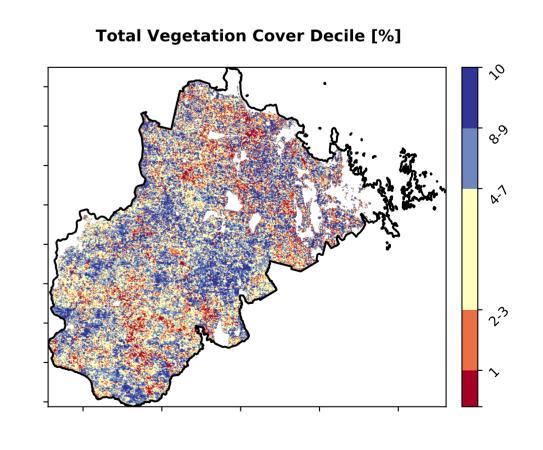
Anomaly show how many percetage points each pixel is from the mean. That

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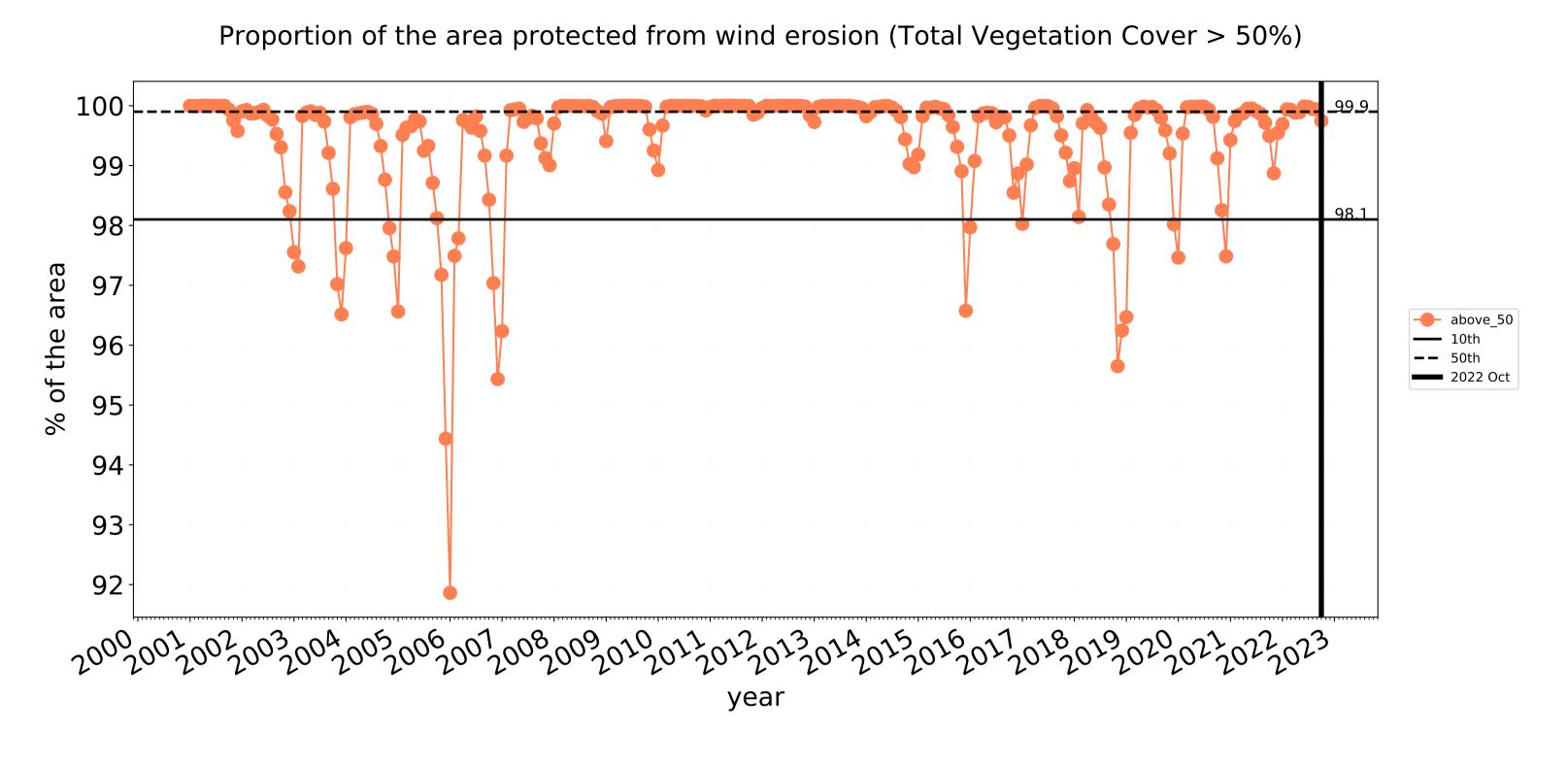


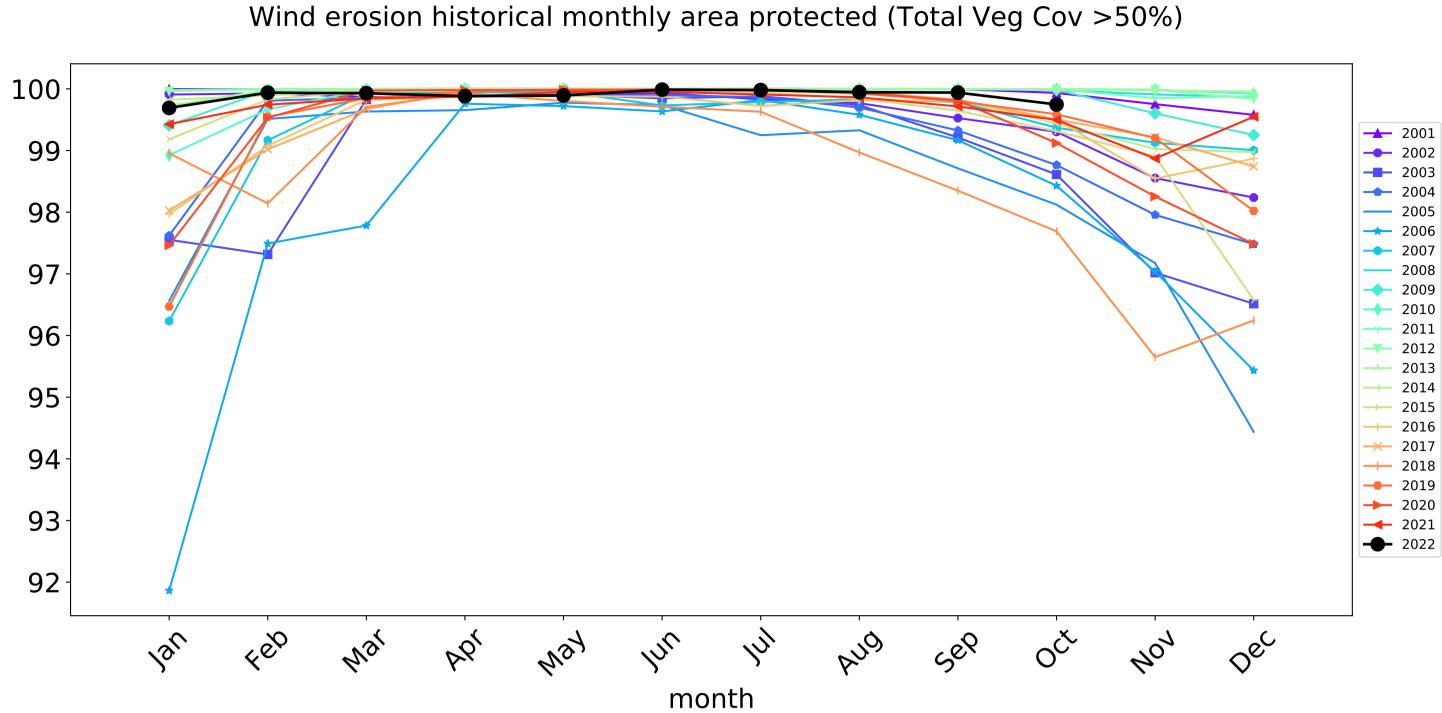


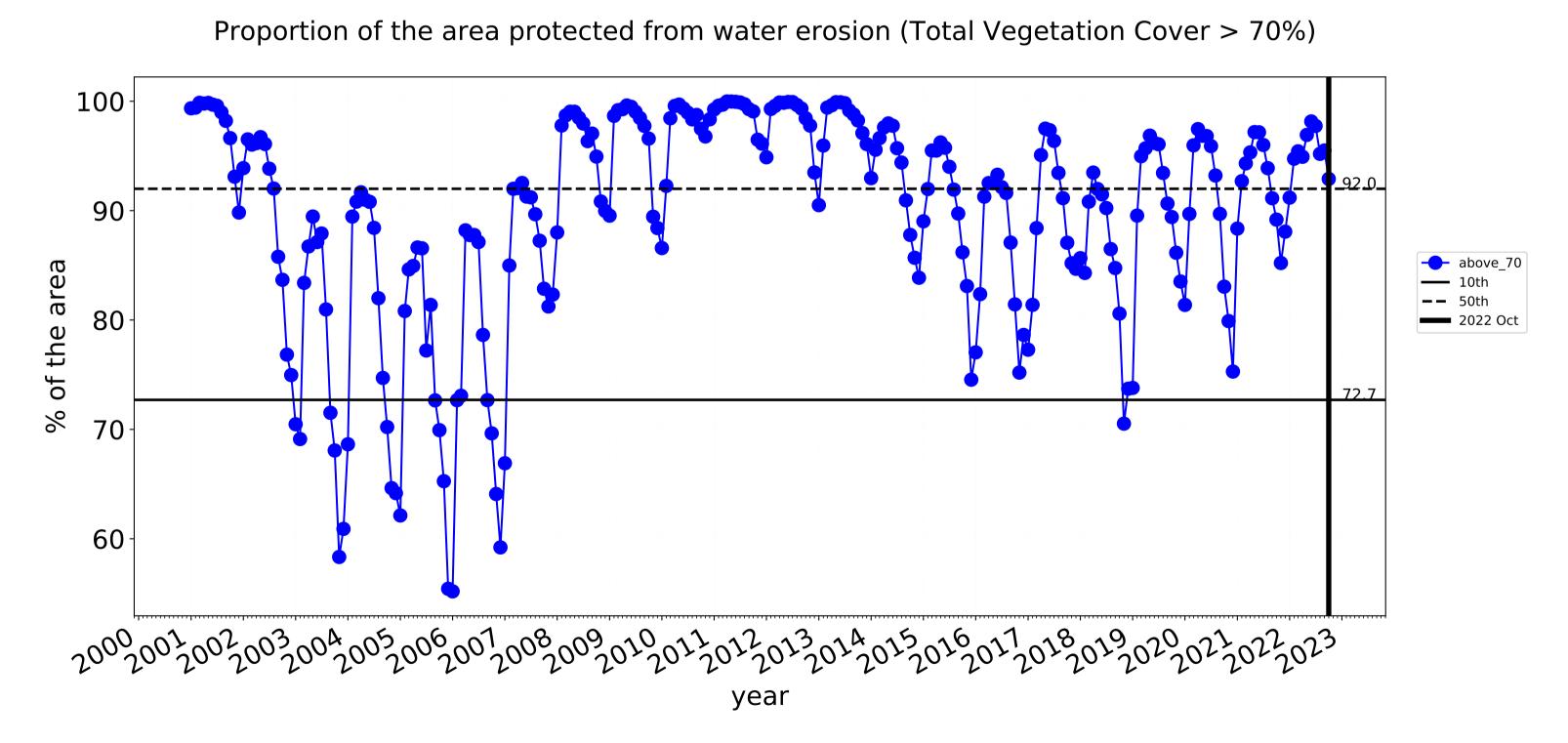


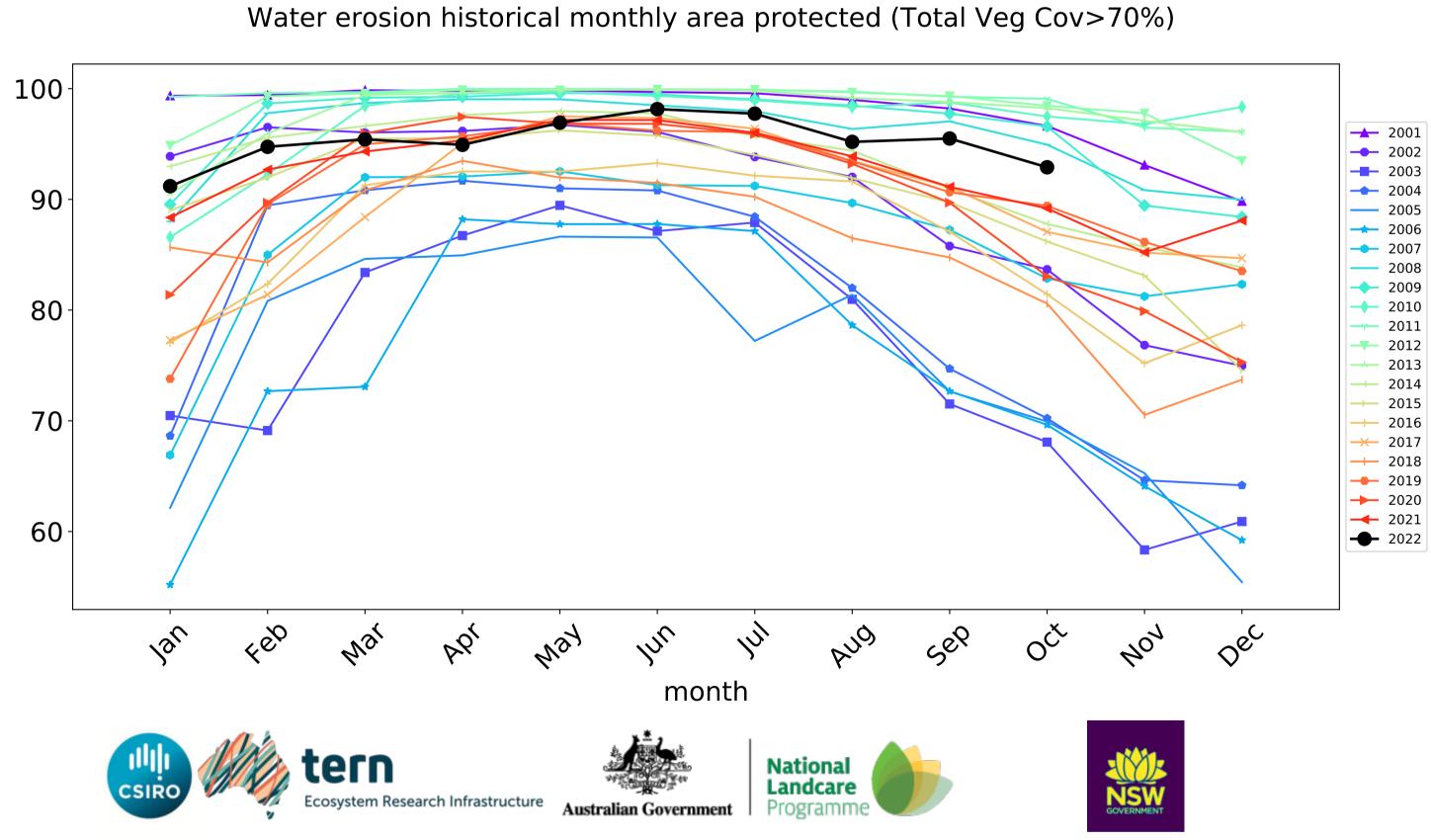
-20

Grazing timeseries





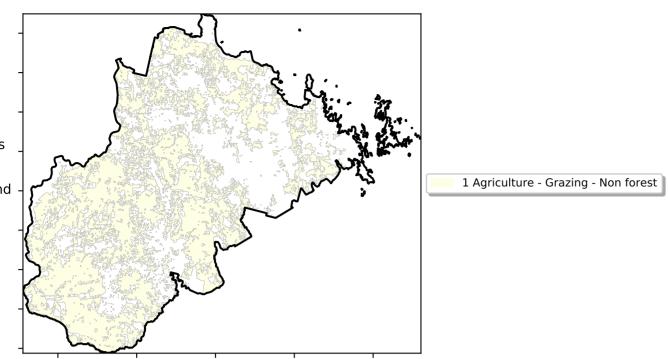




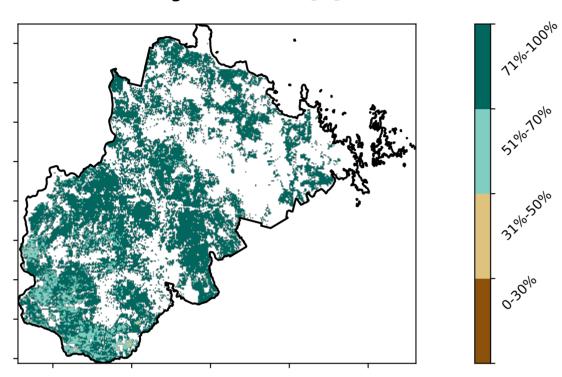
Grazing non forest

Land use and forest cover

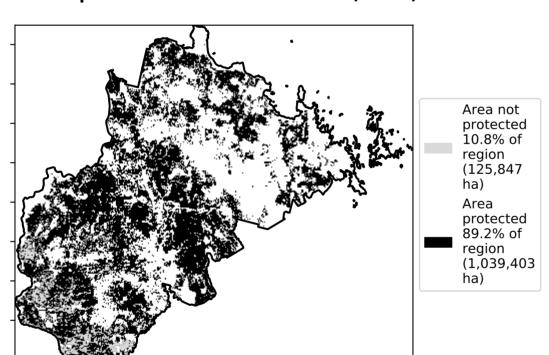
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



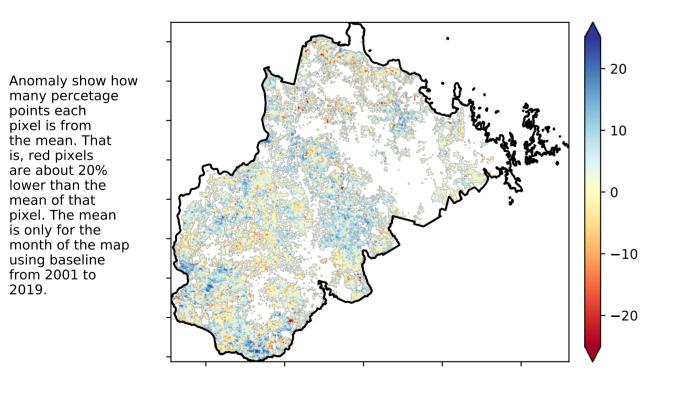
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

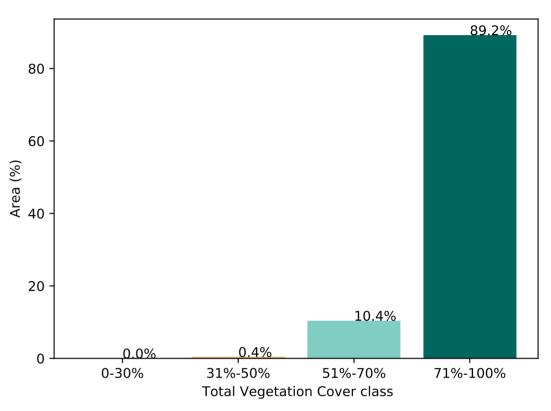


Total Vegetation Cover Anomaly [%]

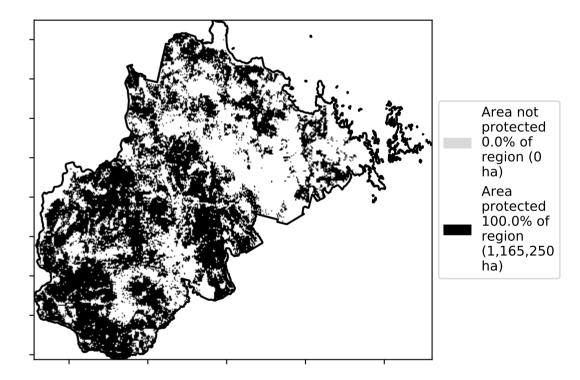


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

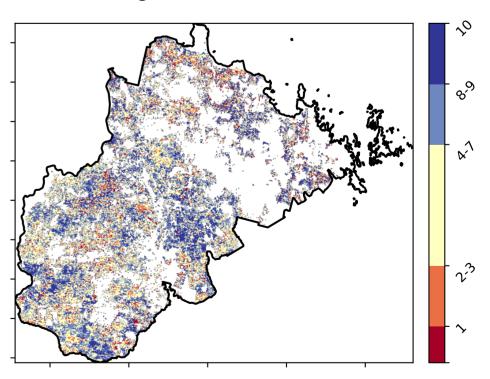
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]





using baseline from 2001 to 2019.



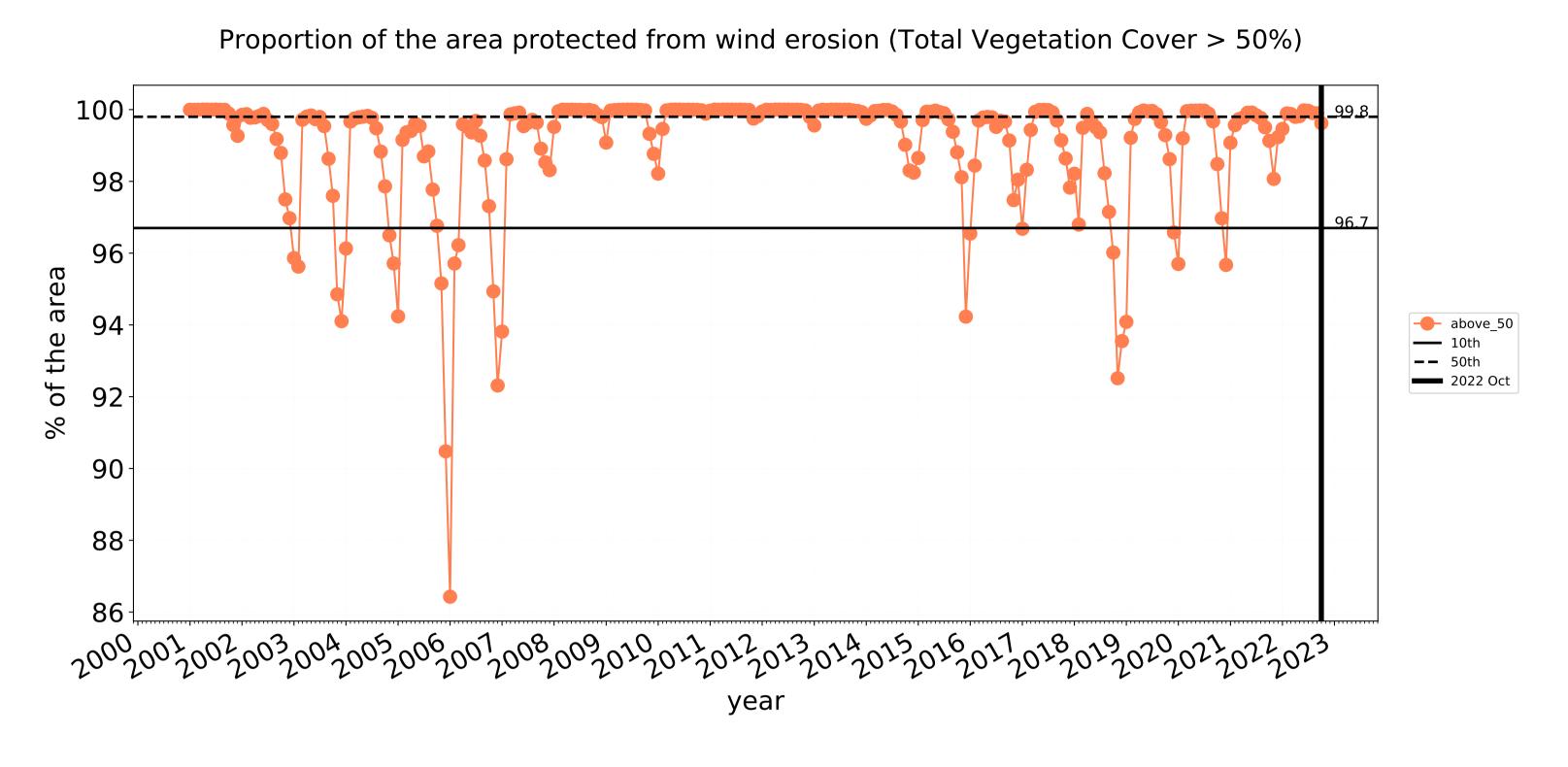


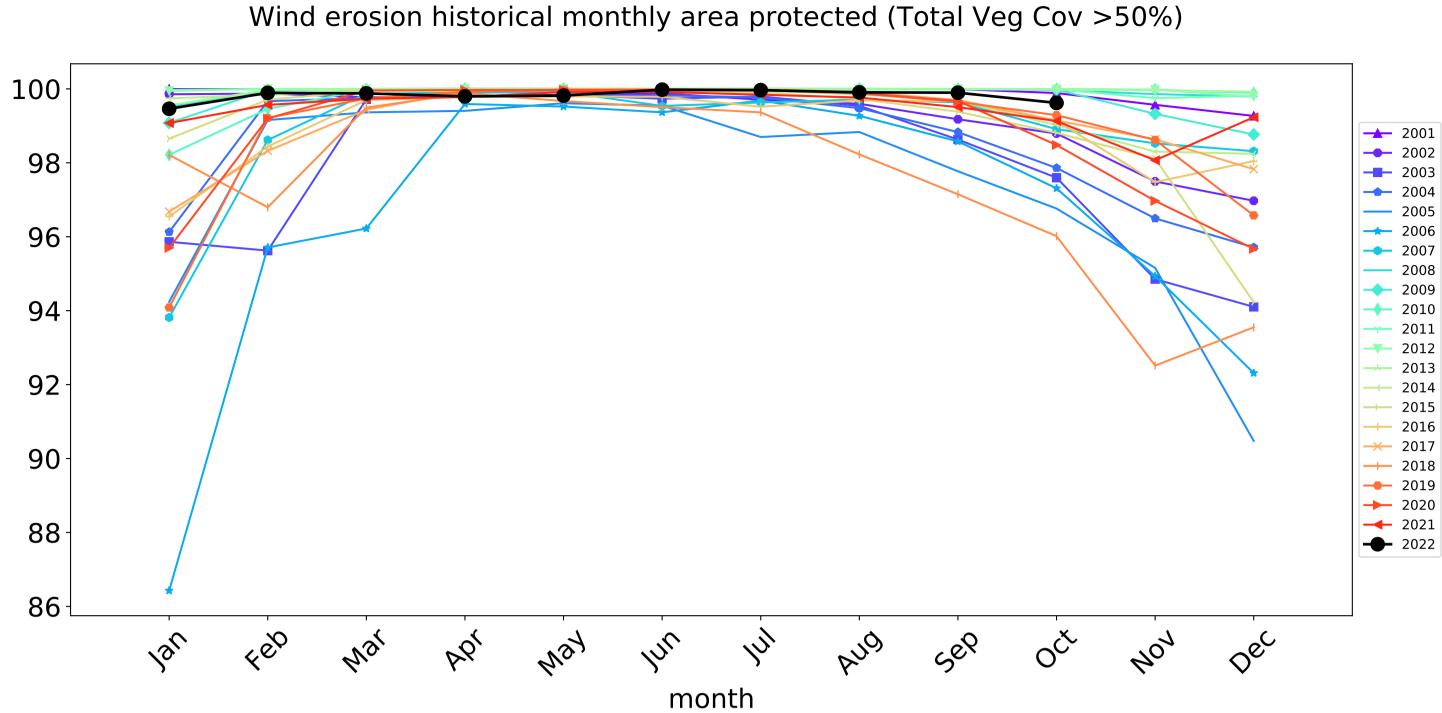


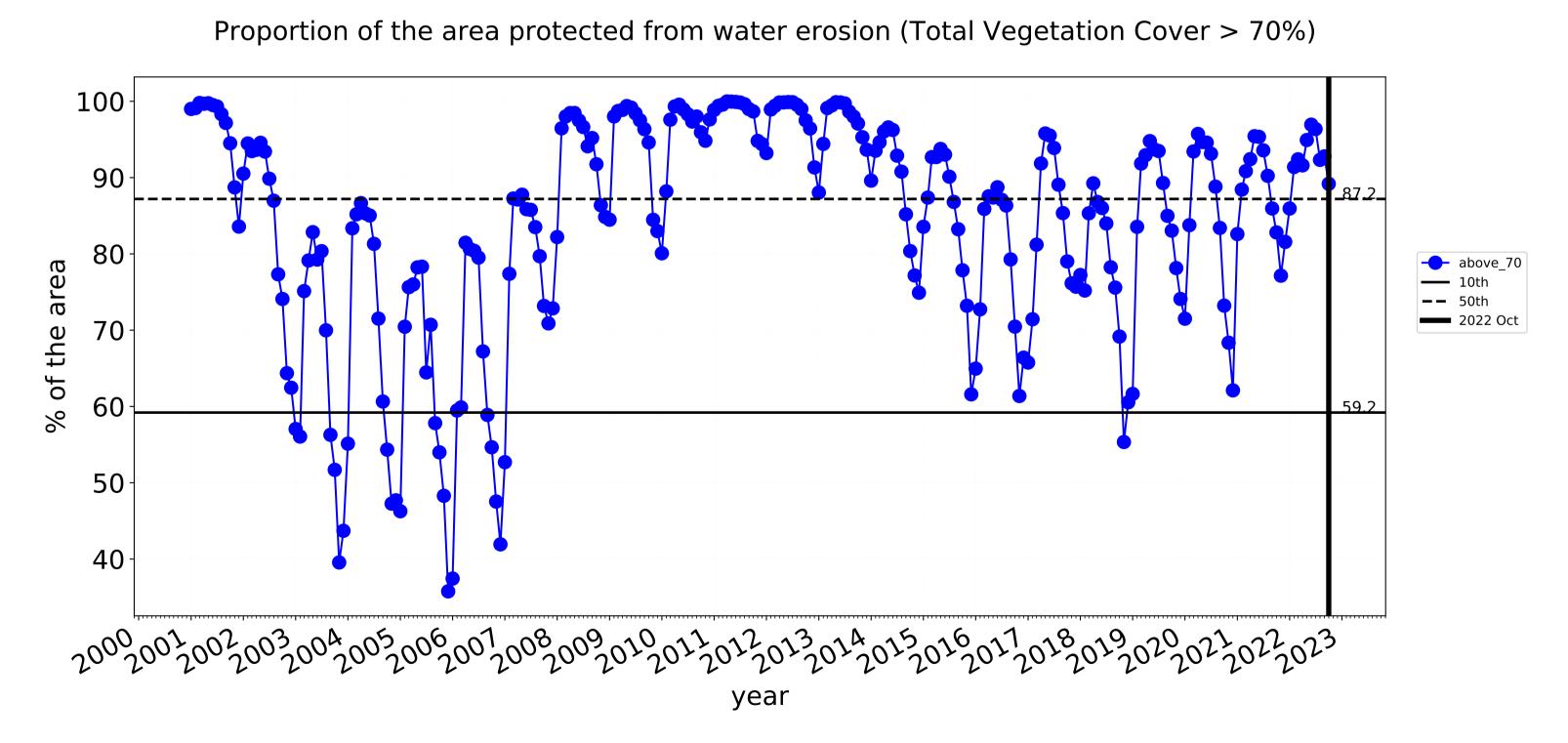


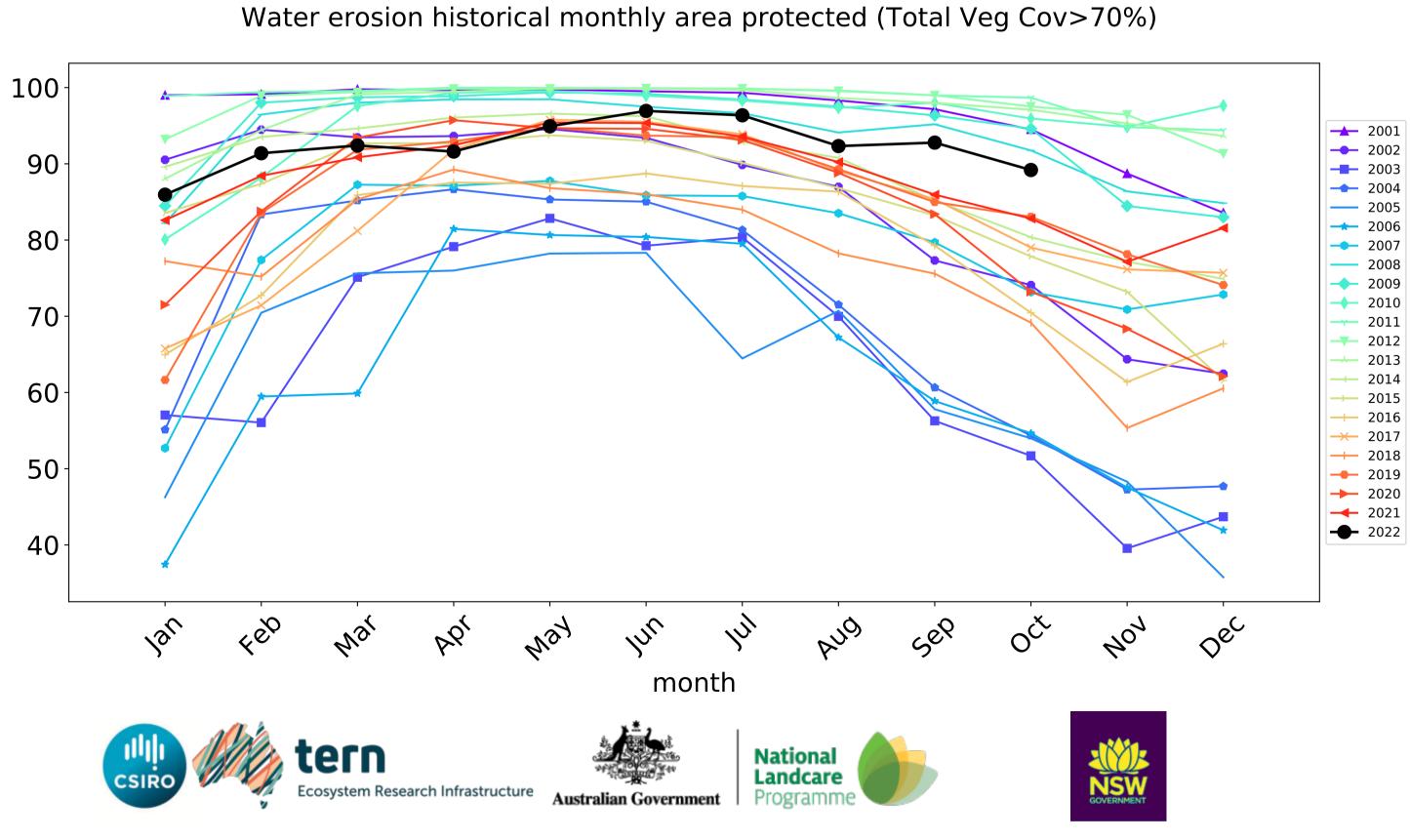


Grazing non forest timeseries









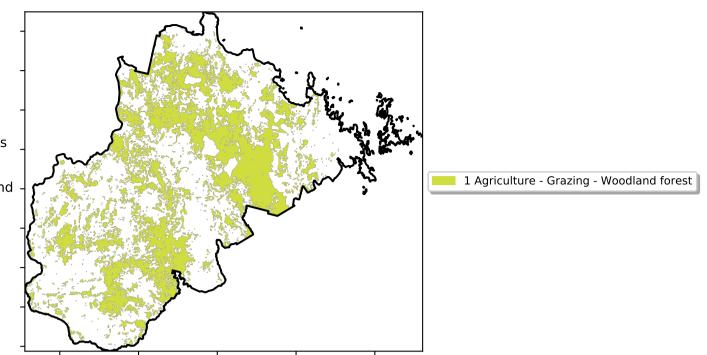
Grazing Woodland forest

Land use and forest cover

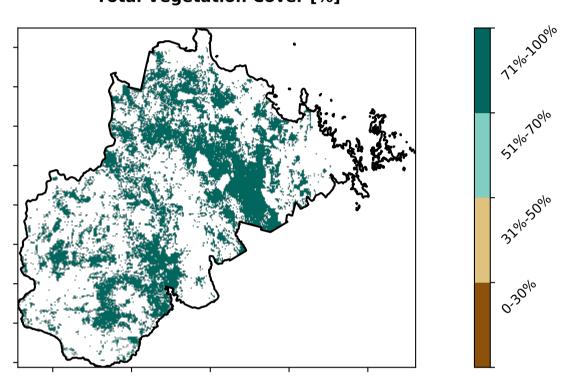
Catchment Scale
Land Use and Forests
of Australia (2018)
Derived from
Catchment Scale Land
Use of Australia
(2018) and Forests
of Australia (2018)

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

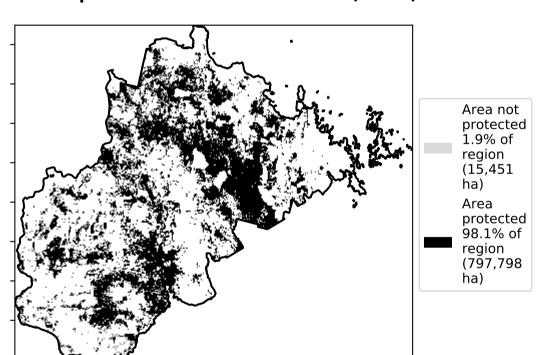
using baseline from 2001 to 2019.



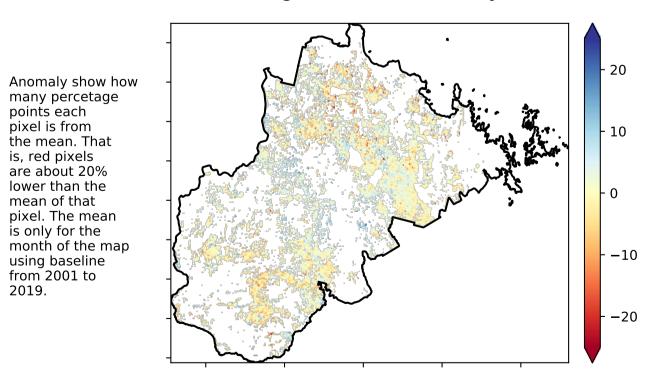
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

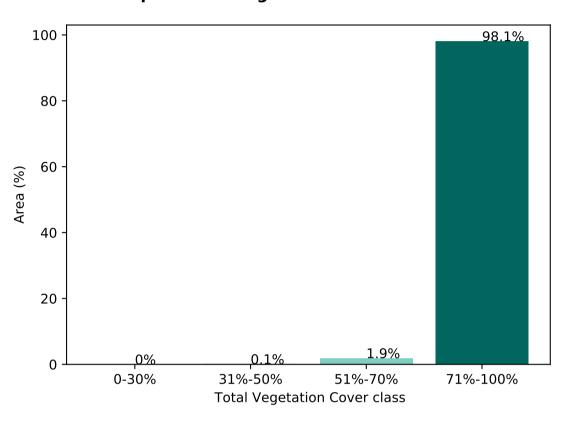


Total Vegetation Cover Anomaly [%]

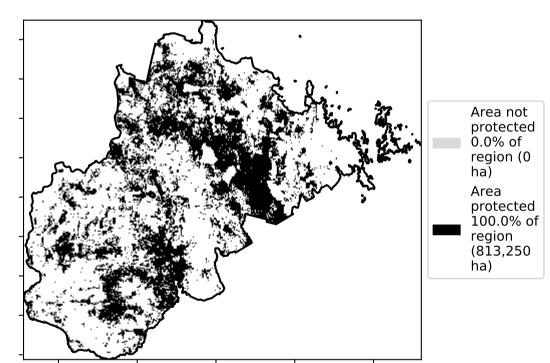


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

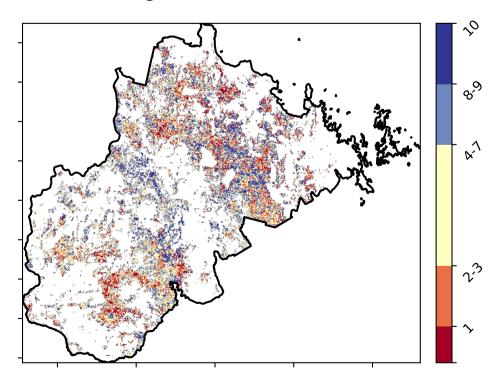
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]



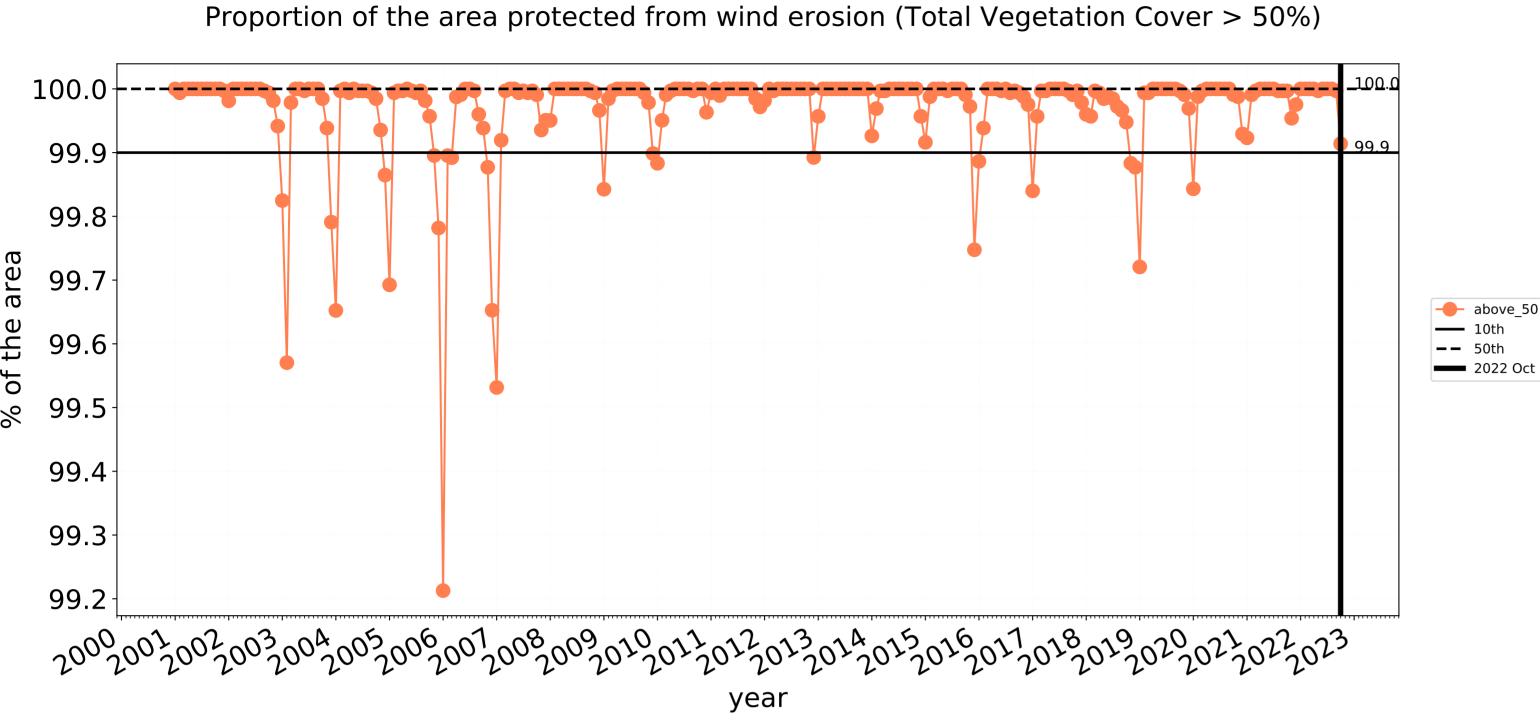


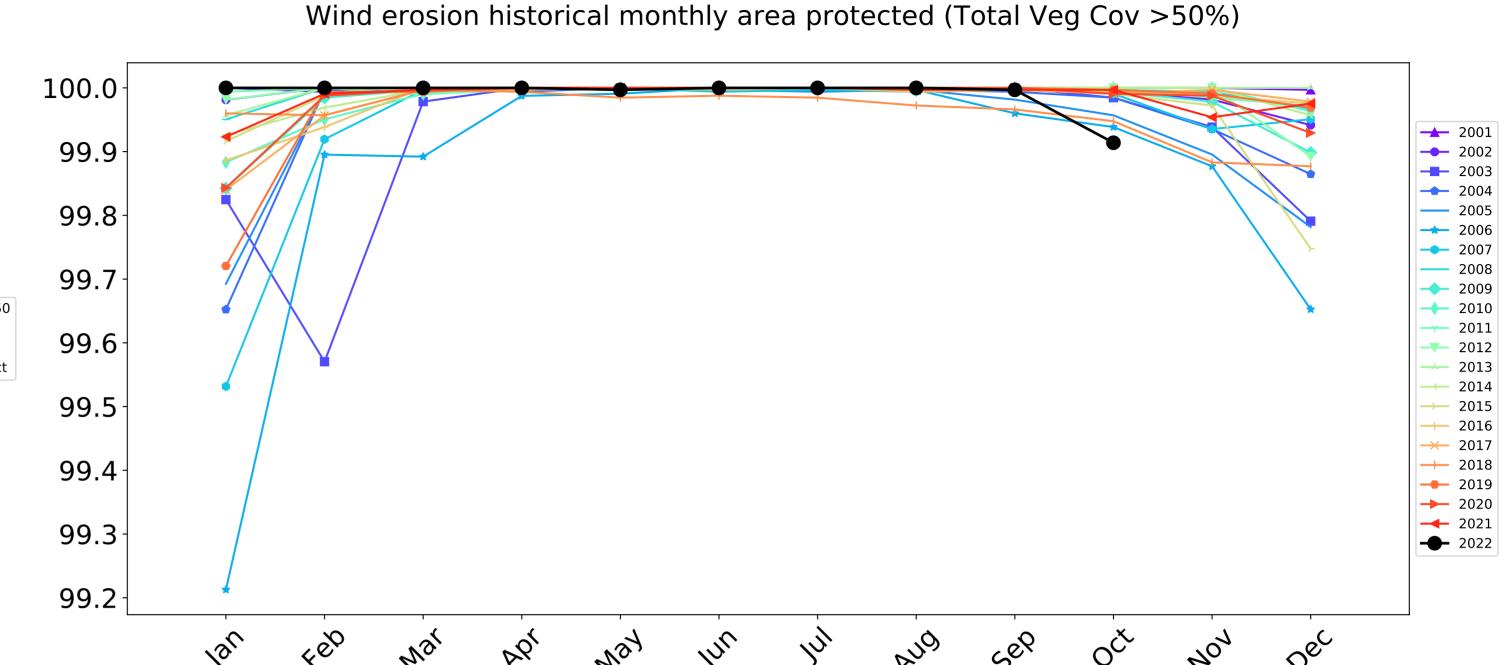




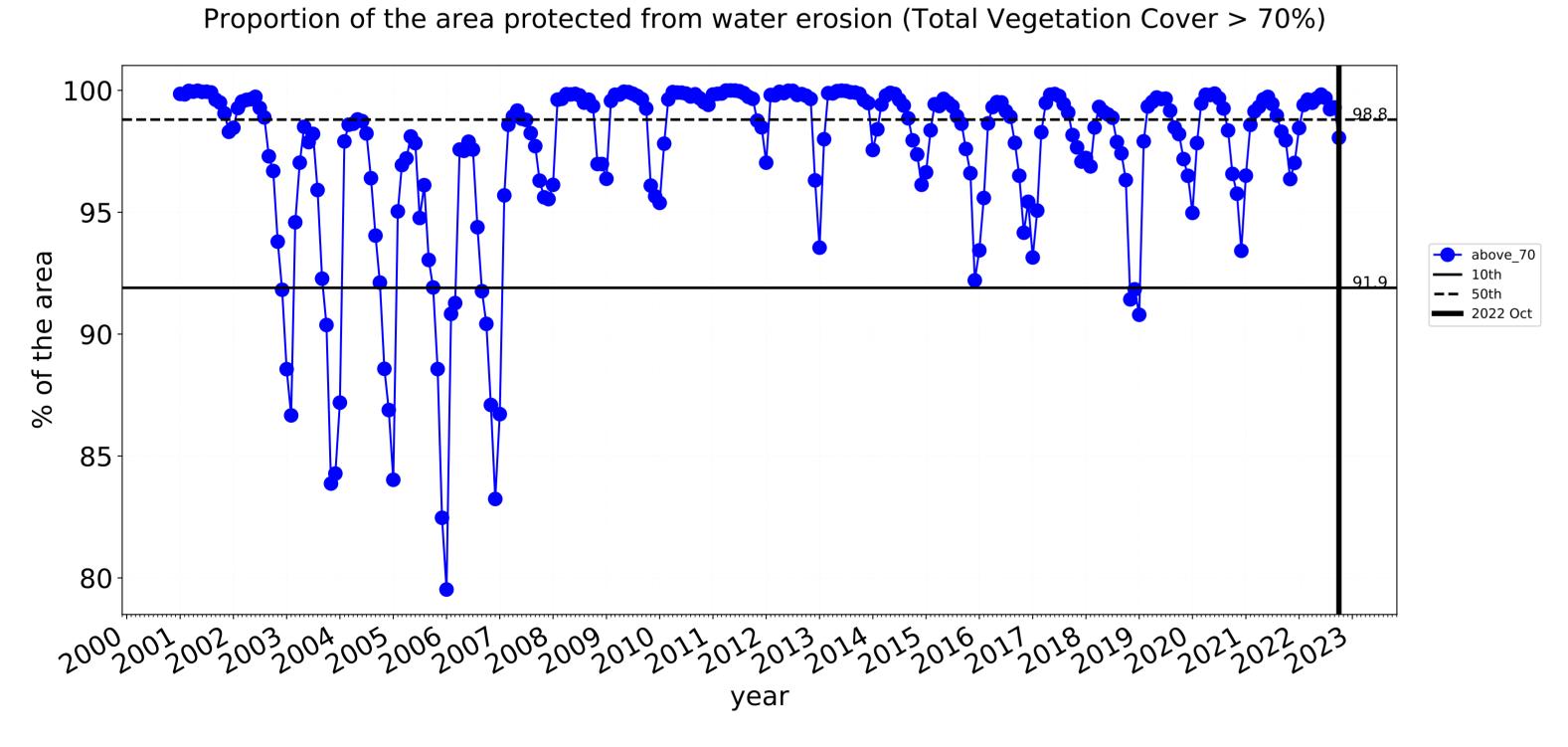


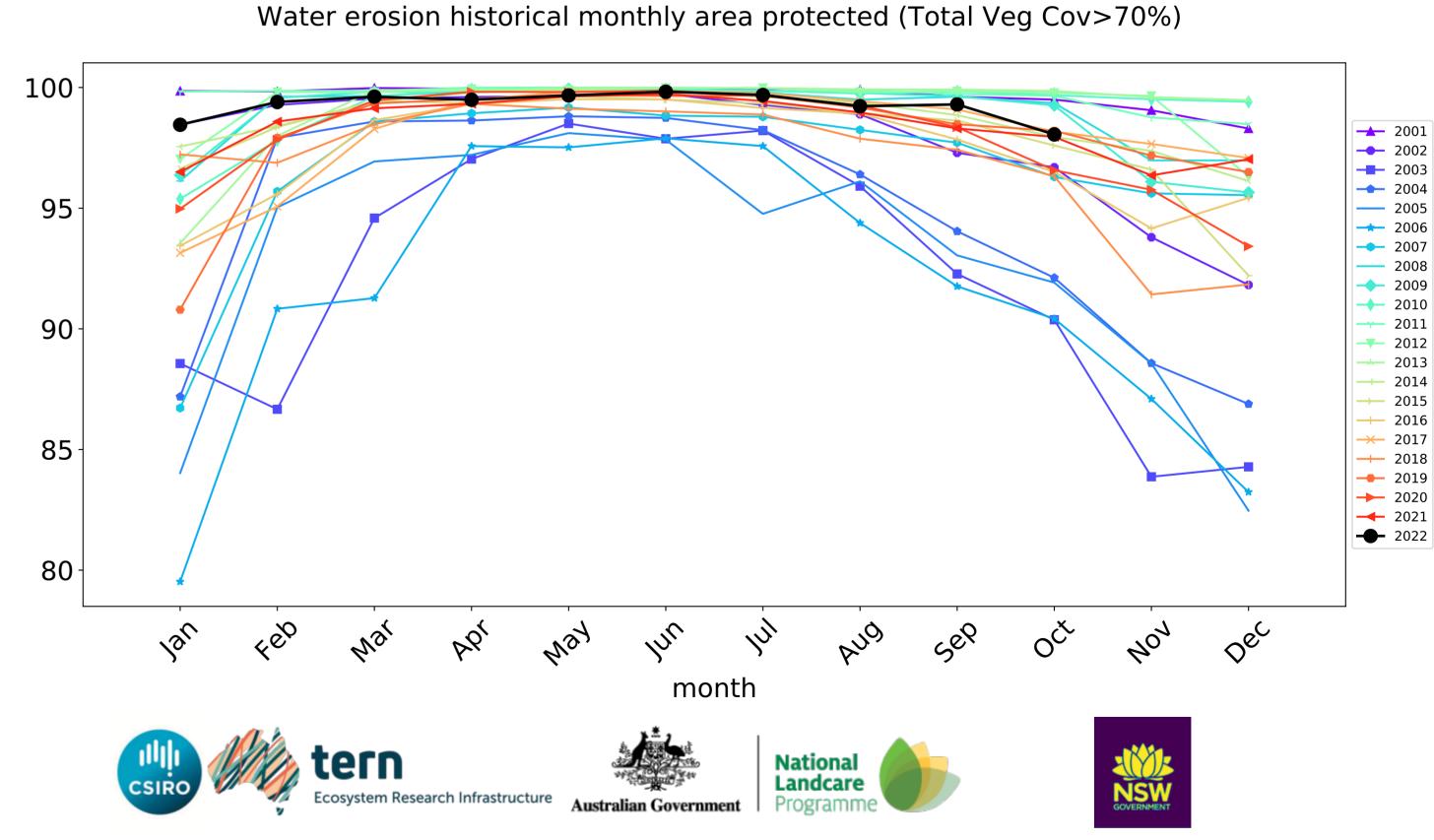
Grazing Woodland forest timeseries





month



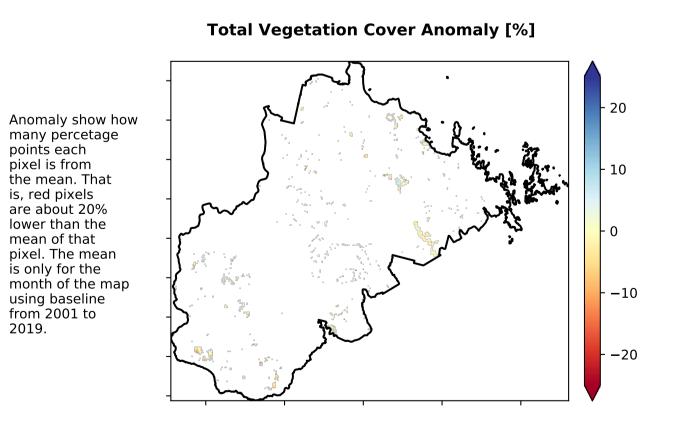


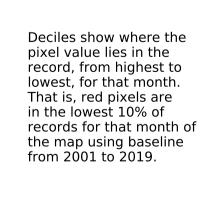
Grazing - Forest (non woodland)

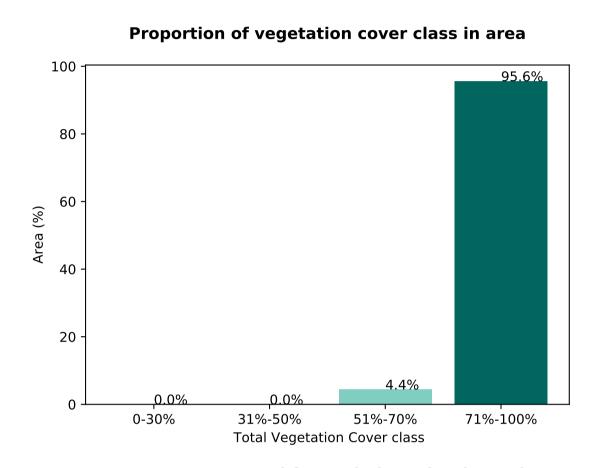
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]

Area not protected 4.4% of region (2,230 ha) Area protected 4.4% of region (2,430 ha) Area protected 95.6% of region (48,469 ha)

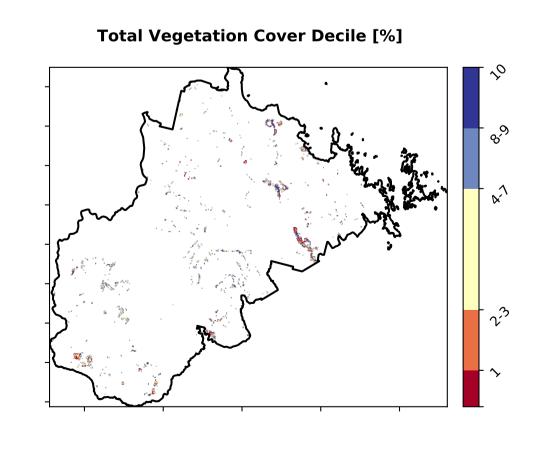






Area protected from wind erosion (>50%)

Area protected 100.0% of region (50,700 ha)

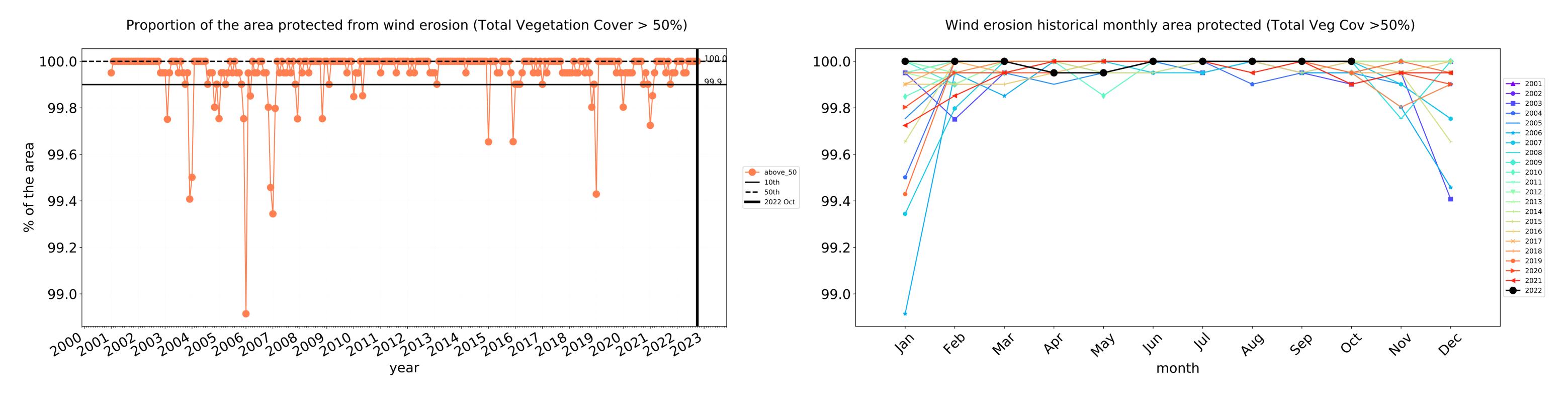


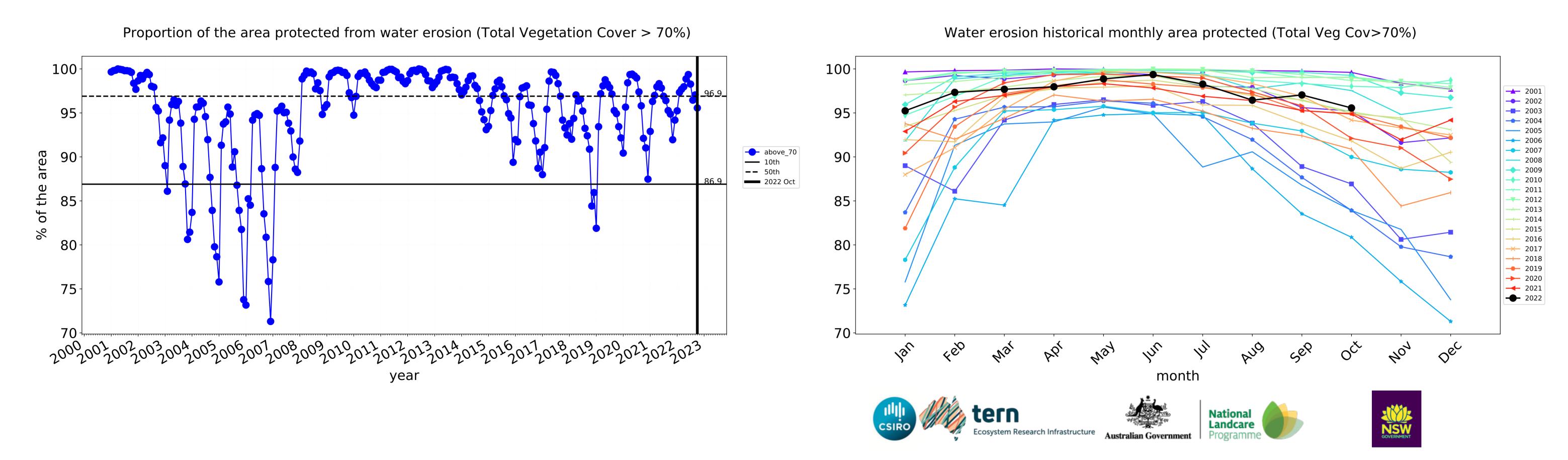






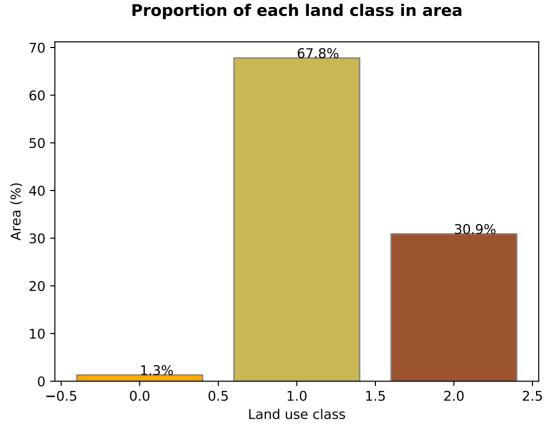


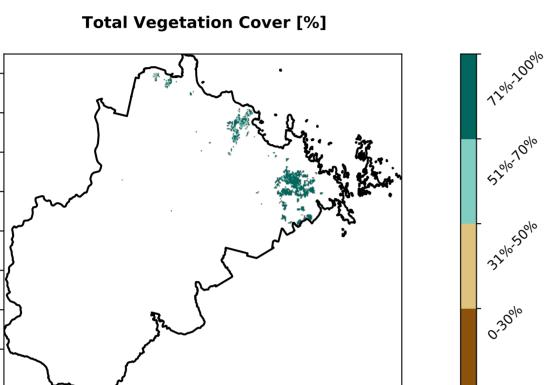


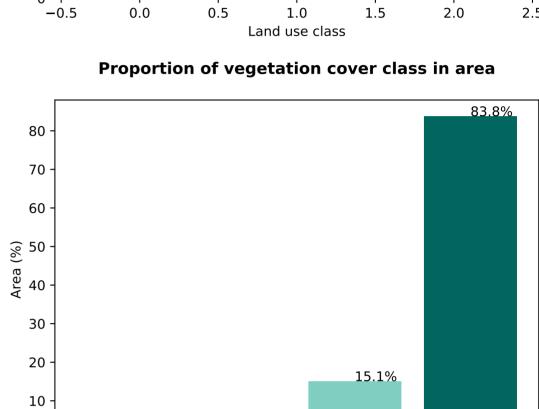


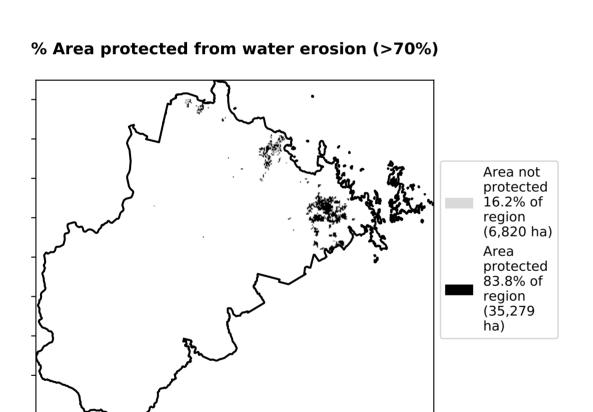
Irrigation

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





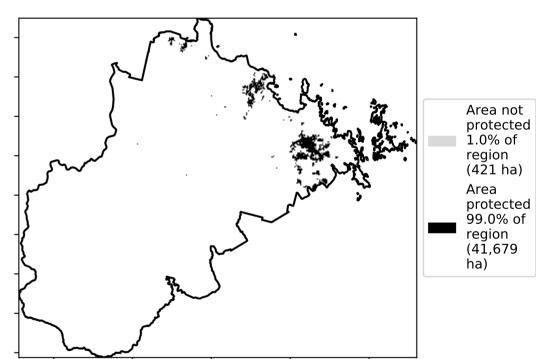




% Area protected from wind erosion (>50%)

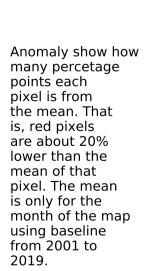
Total Vegetation Cover class

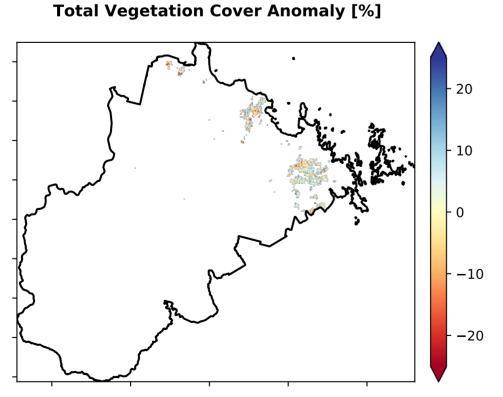
31%-50%



51%-70%

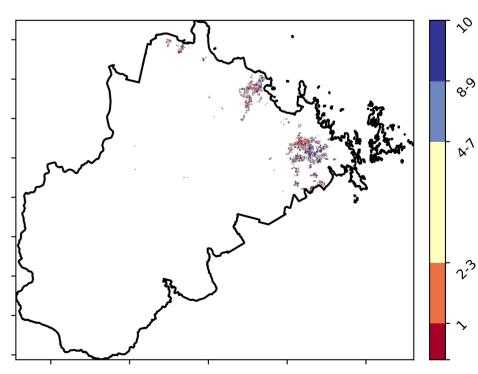
71%-100%





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 [%]







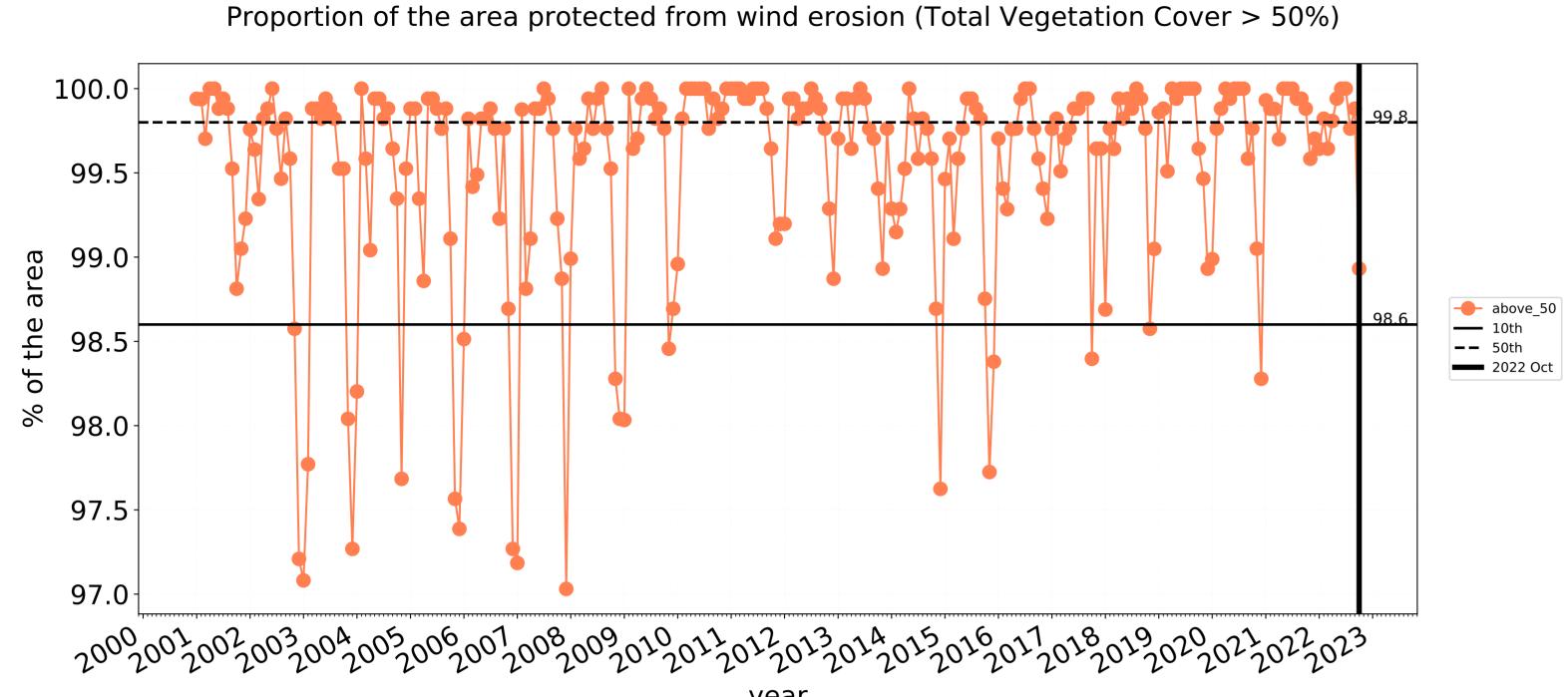


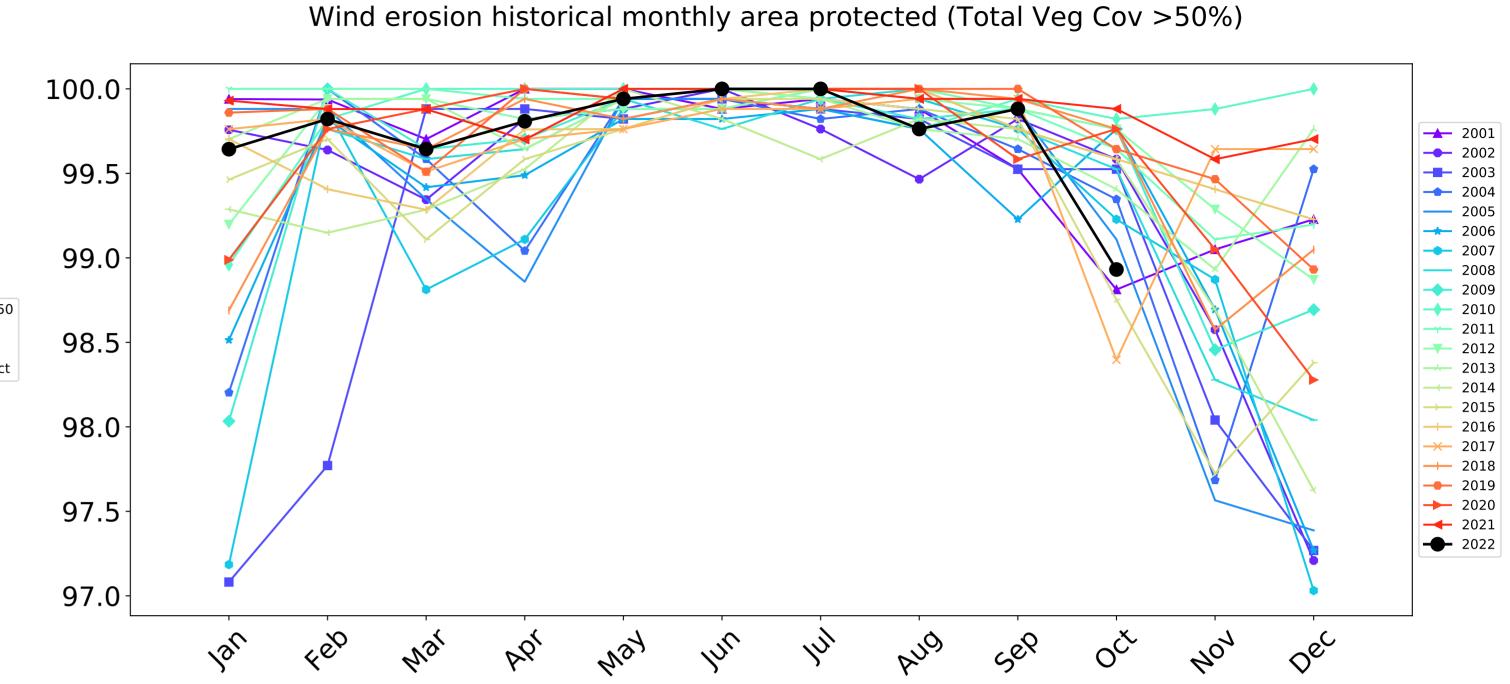
0

0-30%

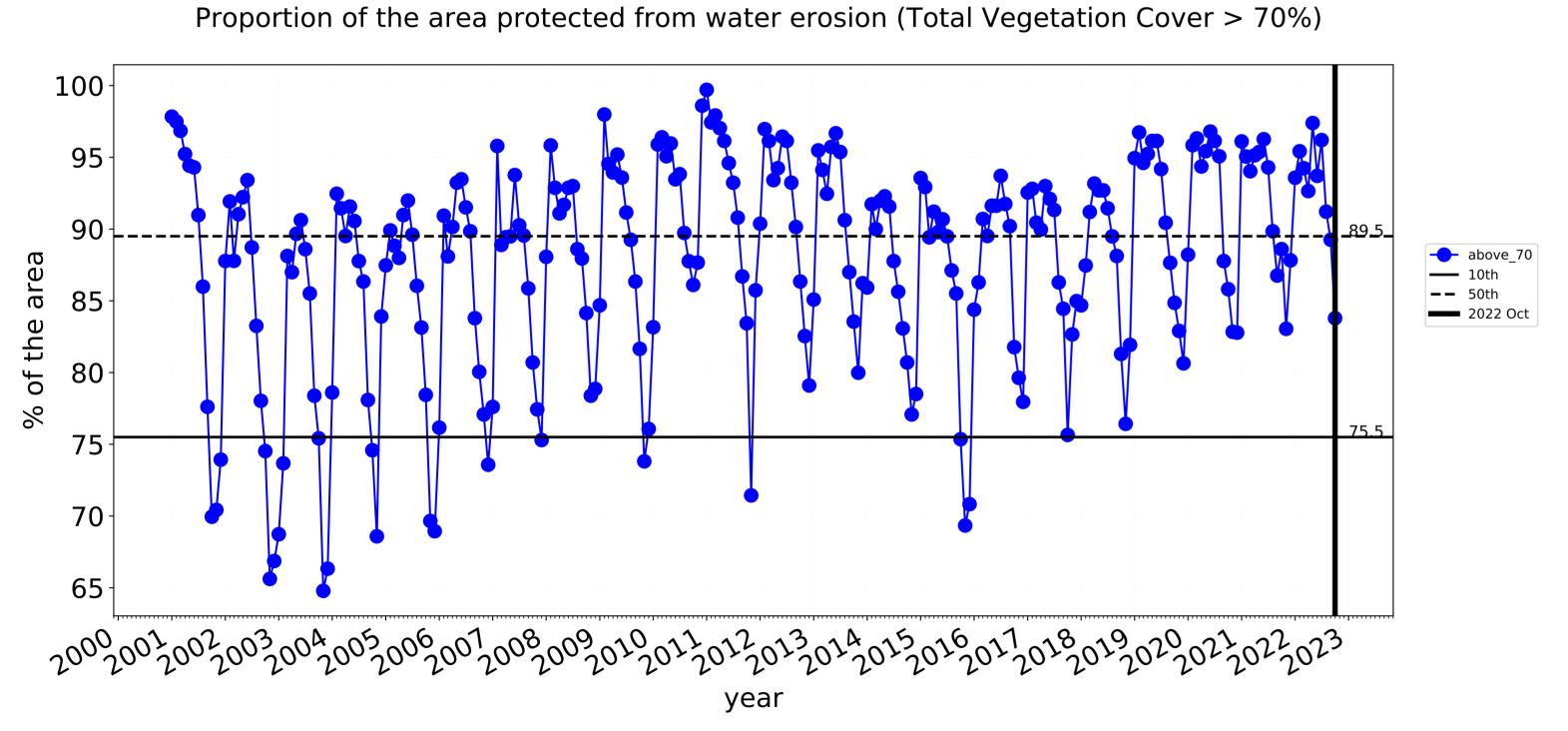


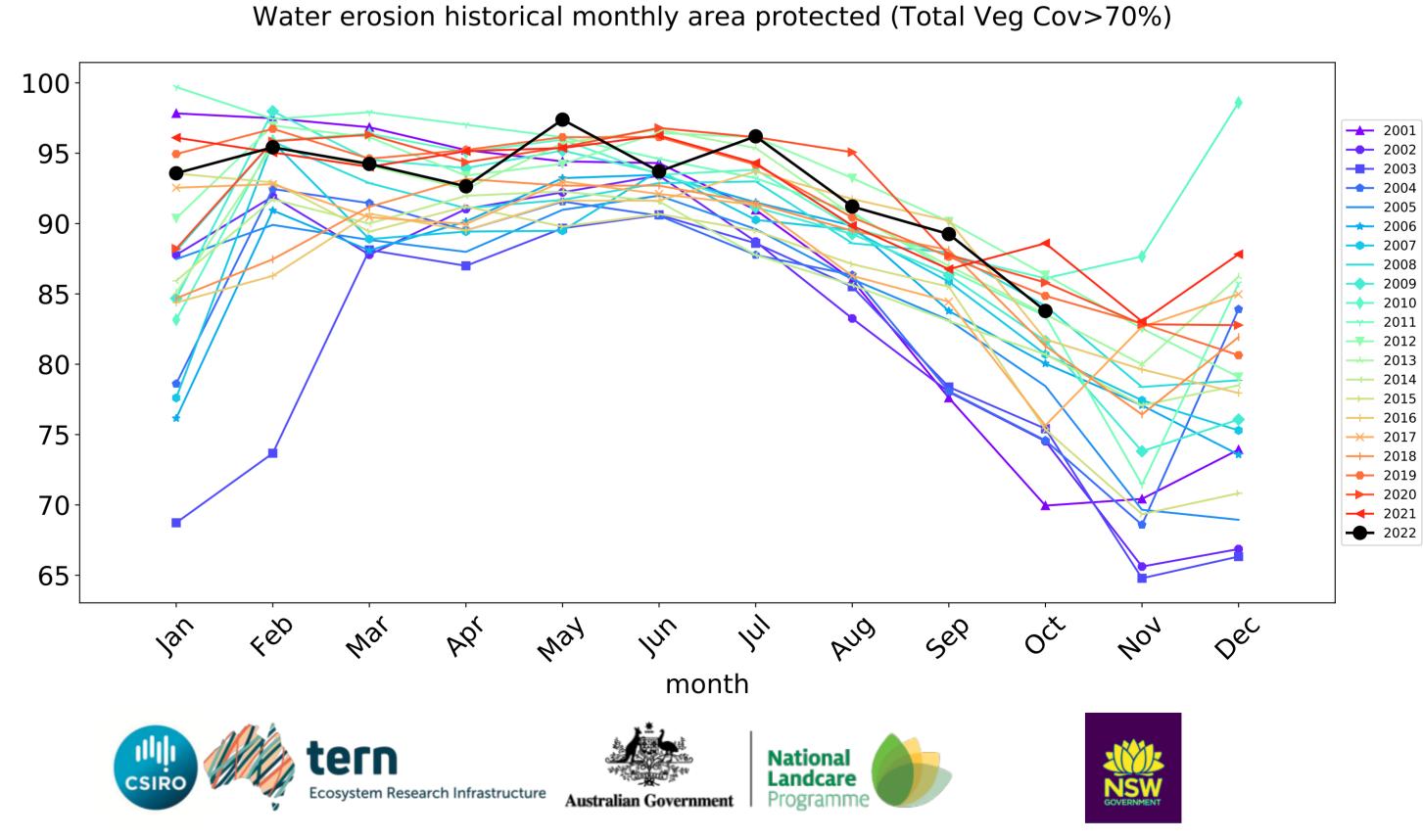
Irrigation timeseries





month



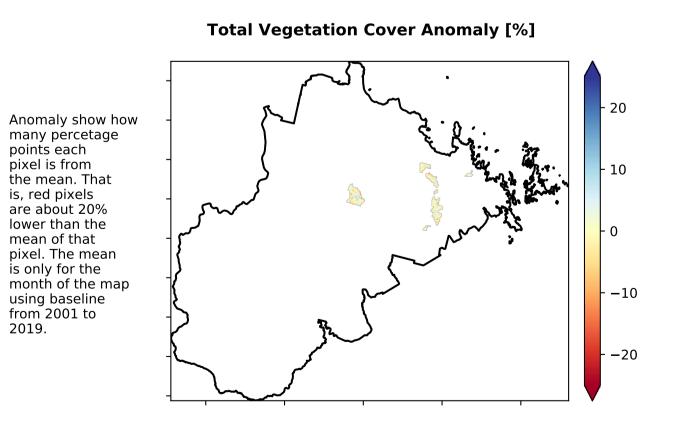


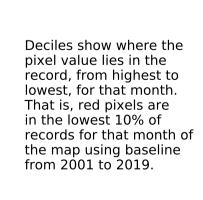
Production native forests and plantation forests

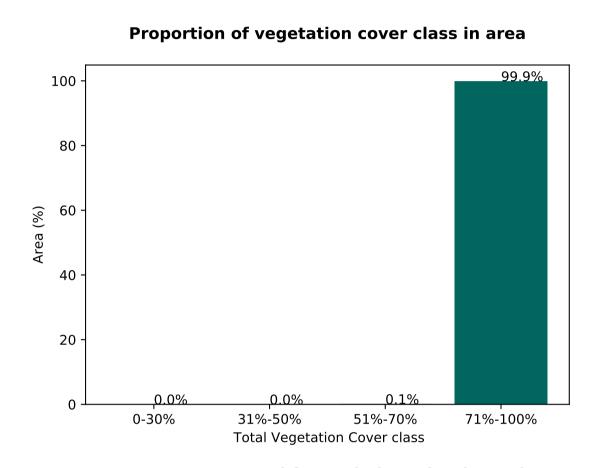
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

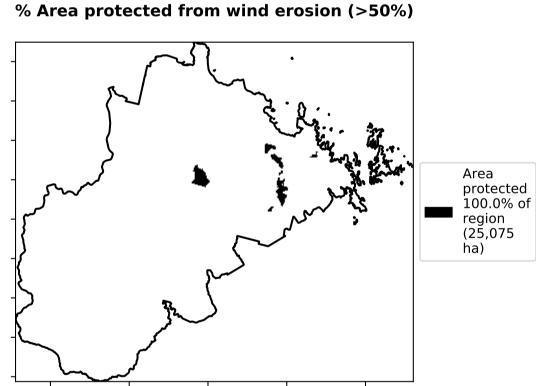
Total Vegetation Cover [%]

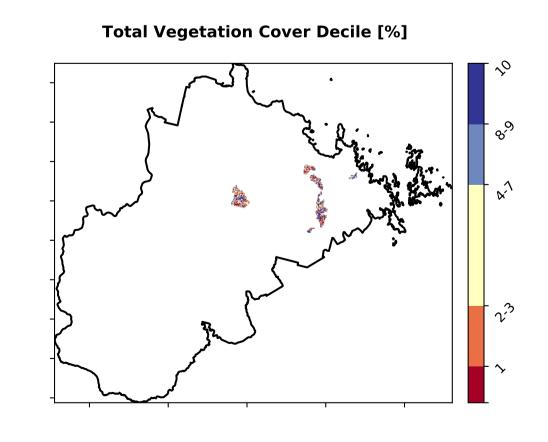
Area protected from water erosion (>70%) Area protected 99.9% of region (25,049 ha)











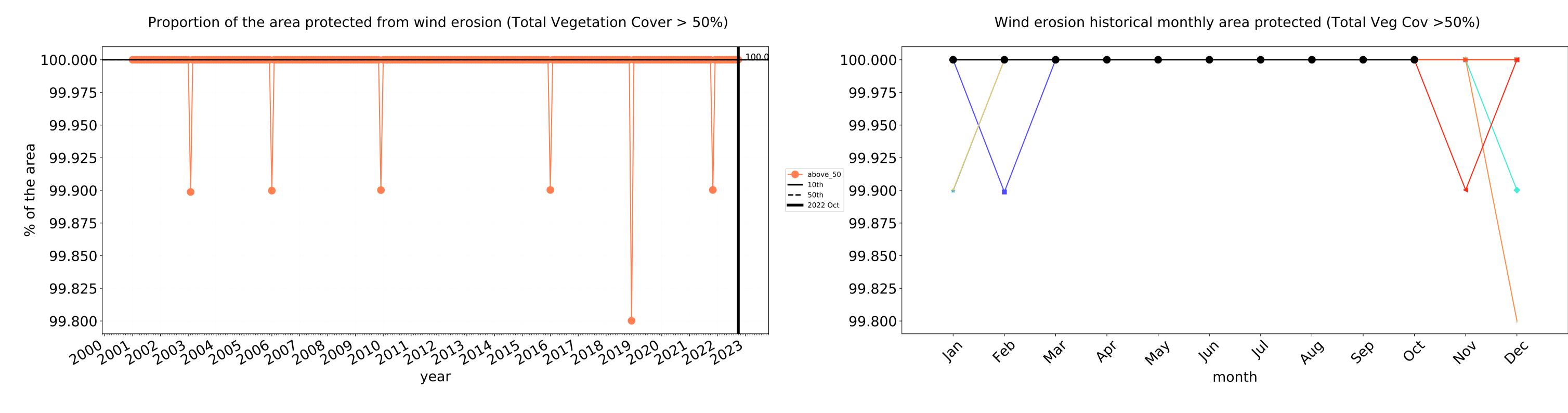


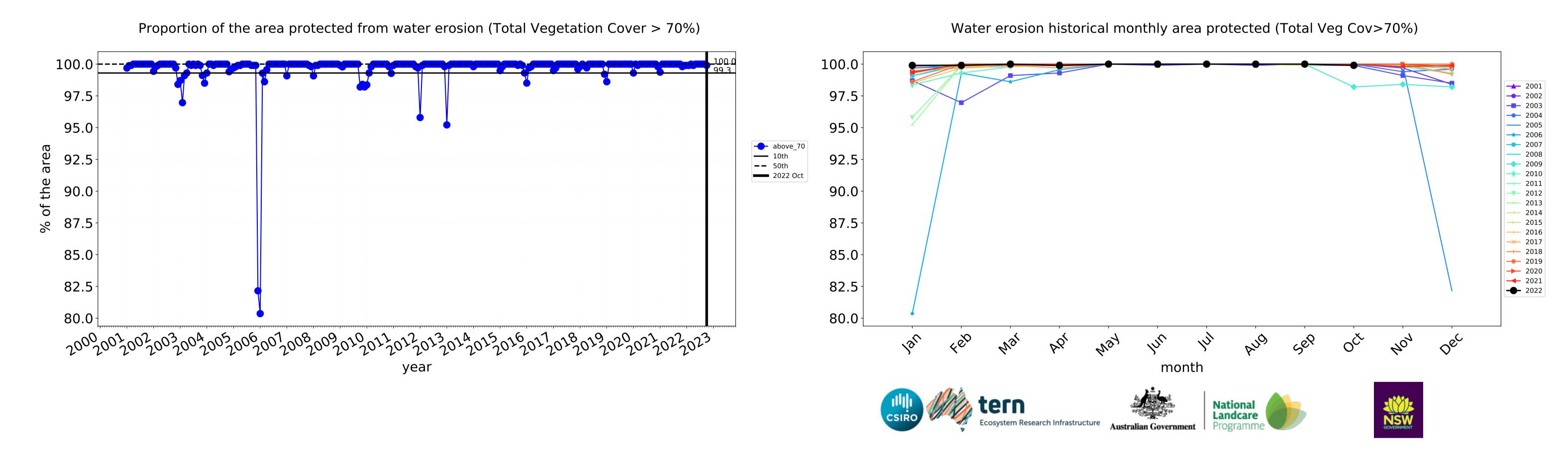






Production native forests and plantation forests timeseries





→ 2001

---- 2007

---- 2011

→ 2016 → 2017

Whitsunday_(R) (2,337,250 ha and no data 44,626 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	2,337,250	99.9% 2,335,825	99.6% 2,327,475	92.5% 2,161,300	74.8% 1,749,225	35.0% 817,150	13.5% 316,300
Conservation and natural environments	163,450	99.6% 162,800	99.0% 161,825	93.7% 153,150	81.6% 133,425	53.6% 87,675	27.6% 45,175
Conservation and natural environments non forest	28,350	99.2% 28,125	97.4% 27,625	75.9% 21,525	35.9% 10,175	5.8% 1,650	2.2% 625
Conservation and natural environments Woodland forest	55,900	99.9% 55,825	99.6% 55,675	97.5% 54,475	88.9% 49,700	56.8% 31,725	25.4% 14,200
Conservation and natural environments Forest (non woodland)	79,200	99.6% 78,850	99.1% 78,525	97.4% 77,150	92.9% 73,550	68.6% 54,300	38.3% 30,350
Agriculture	2,071,600	100.0% 2,071,425	99.7% 2,066,025	92.7% 1,920,725	74.8% 1,548,600	33.5% 694,825	12.3% 254,925
Grazing	2,029,200	100.0% 2,029,050	99.7% 2,024,075	92.9% 1,885,150	75.1% 1,523,700	33.7% 684,650	12.3% 250,600
Grazing non forest	1,165,250	100.0% 1,165,100	99.6% 1,160,825	89.2% 1,039,275	66.0% 768,500	25.1% 293,025	8.8% 102,725
Grazing Woodland forest	813,250	100.0% 813,250	99.9% 812,550	98.1% 797,425	87.9% 715,150	45.6% 370,500	17.1% 138,725
Grazing - Forest (non woodland)	50,700	100.0% 50,700	100.0% 50,700	95.6% 48,450	79.0% 40,050	41.7% 21,125	18.0% 9,150
Irrigation	42,100	99.9% 42,075	98.9% 41,650	83.8% 35,275	58.7% 24,700	24.0% 10,125	10.2% 4,300
Production native forests and plantation forests	25,075	100.0% 25,075	100.0% 25,075	99.9% 25,050	98.2% 24,625	69.9% 17,525	33.9% 8,500







