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: February 2022

Vegetation Cover Feb 2022

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.

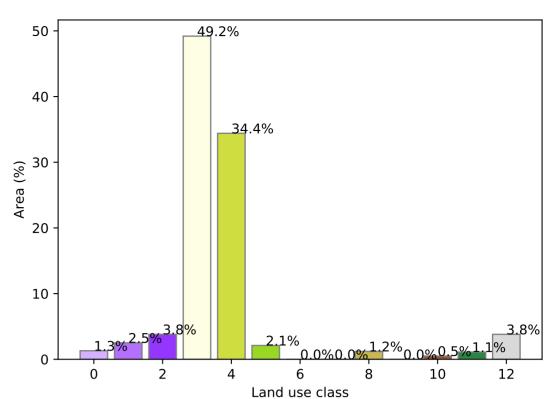
the mean. That is, red pixels are about 20% lower than the

Derived from

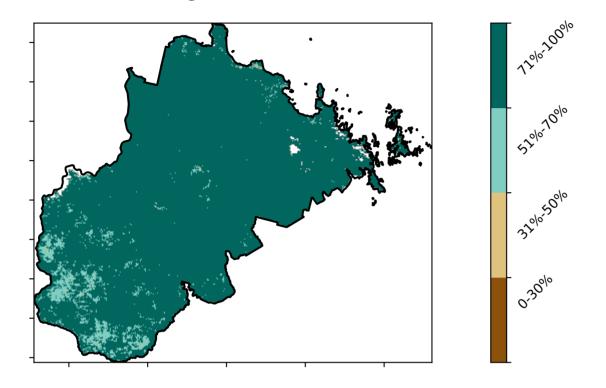
Use of Australia

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 - Non-Woodland forest Land Use and Forests 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

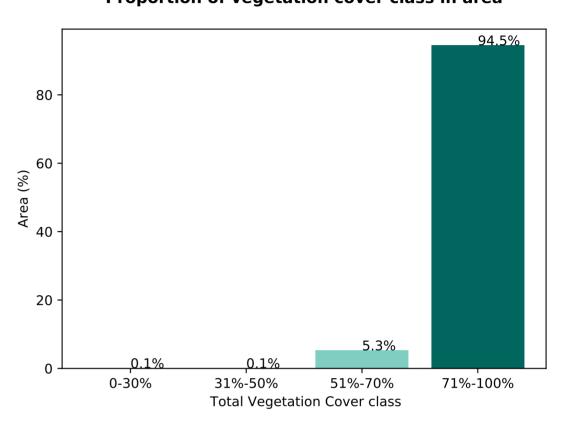
Proportion of each land class in area

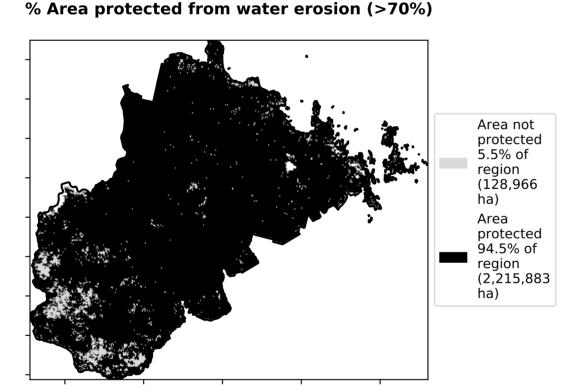


Total Vegetation Cover [%]

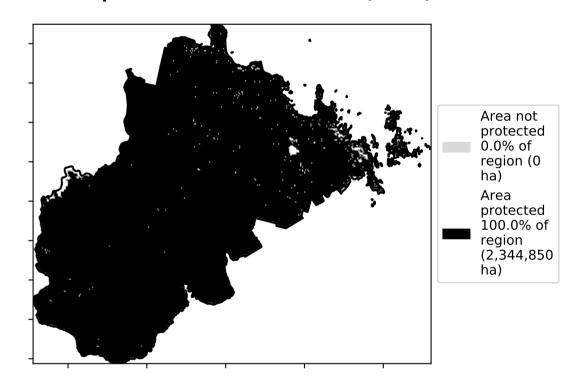


Proportion of vegetation cover class in area

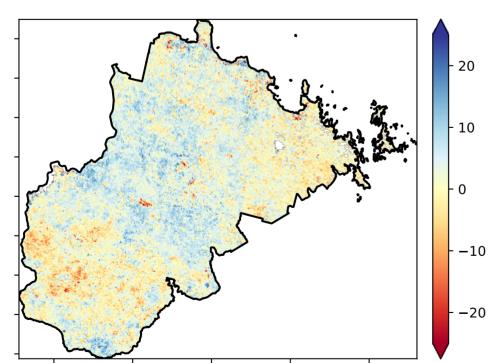




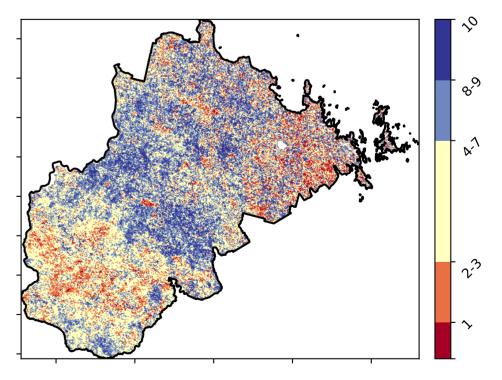
% Area protected from wind erosion (>50%)



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.

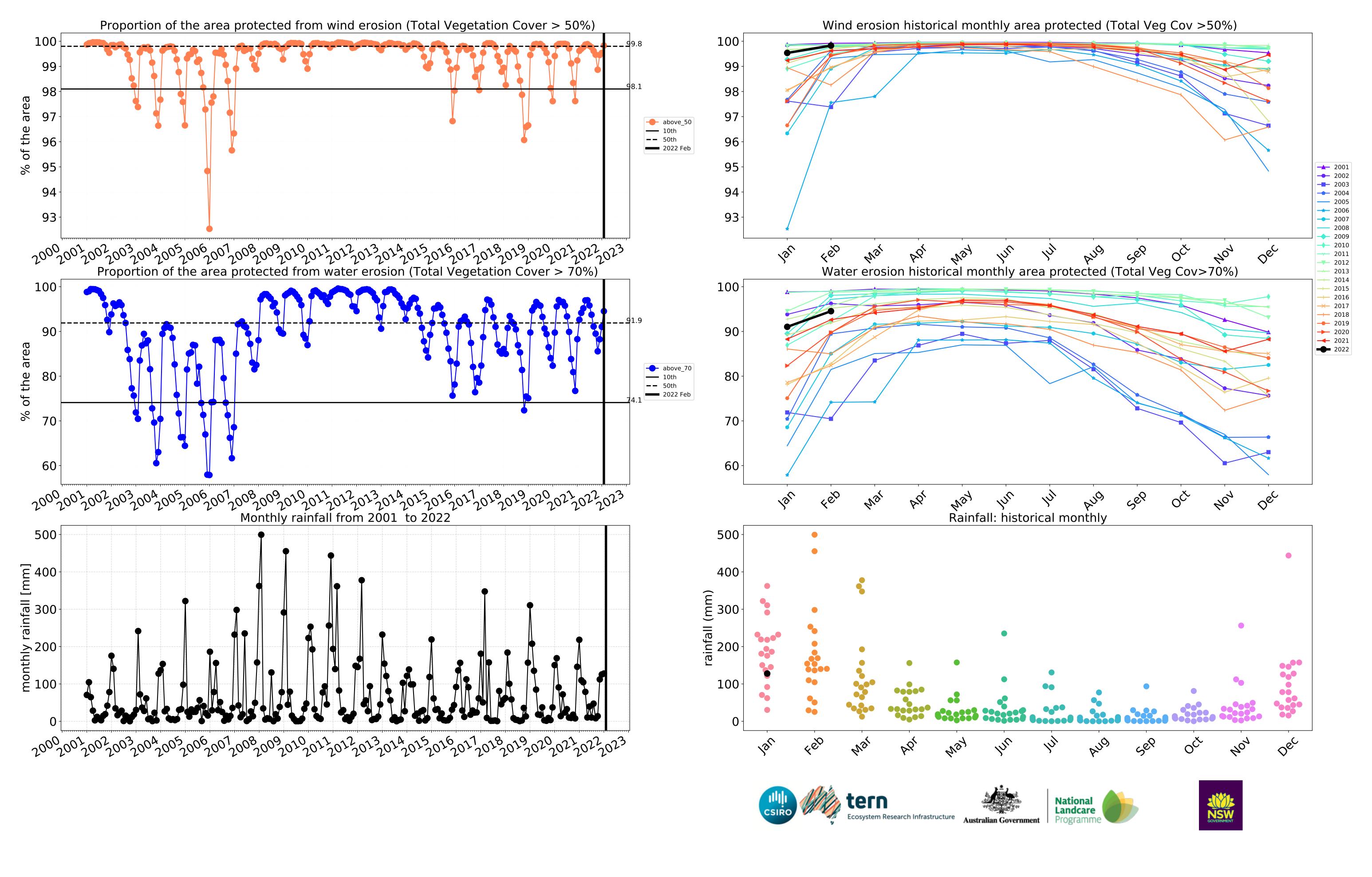












Conservation and natural environments

Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) 3 Conservation and natural environments - Woodland forest 3 Conservation and natural environments - Woodland forest 4 Conservation and natural environments - Woodland forest 5 Conservation and natural environments - Woodland forest 7 Conservation and natural environments - Woodland forest 8 Conservation and natural environments - Woodland forest 9 Conservation and natural environments - Woodland forest

32.8%

Proportion of each land class in area

50

40

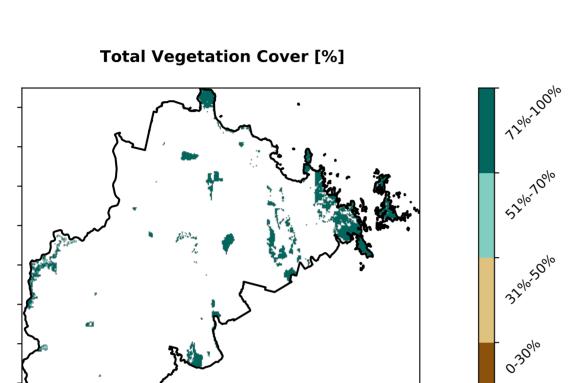
Area (%) 08

20

10

-0.5

0.0



Proportion of vegetation cover class in area

1.0

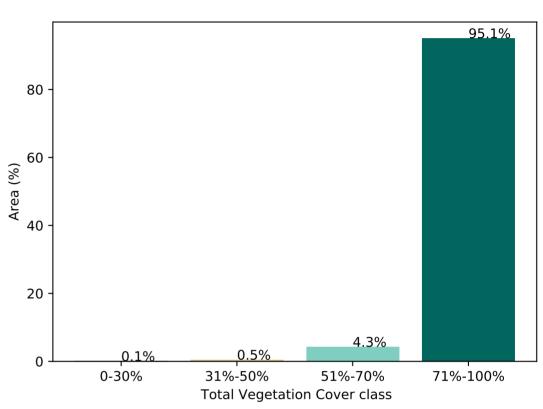
Land use class

1.5

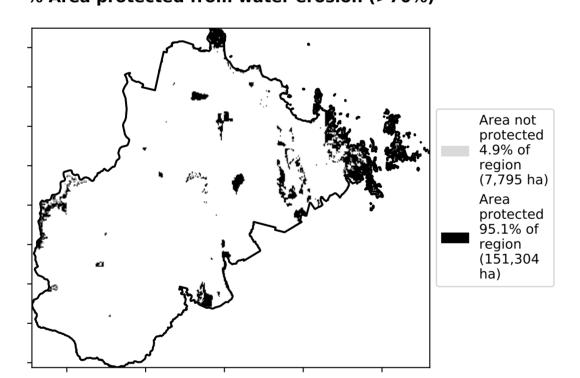
2.0

2.5

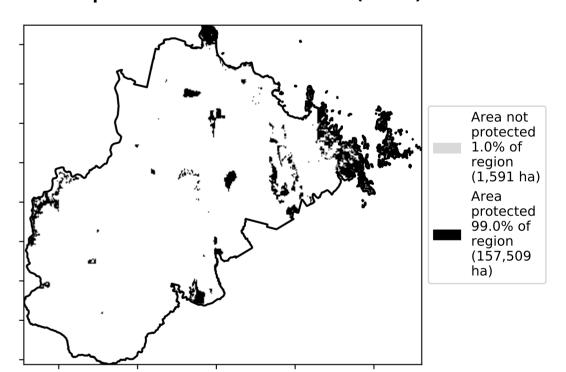
0.5



% 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

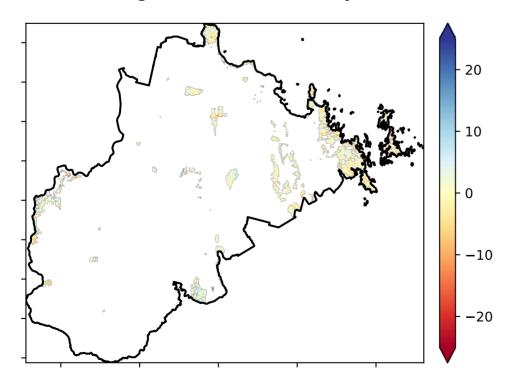
the mean. That

pixel. The mean

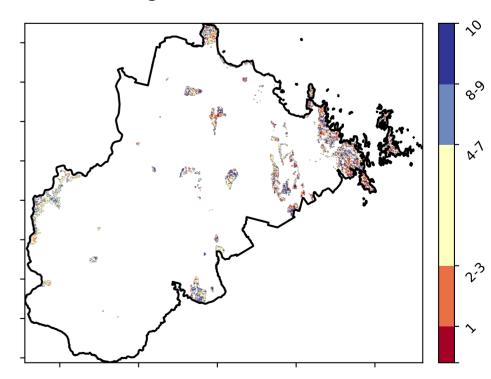
using baseline from 2001 to 2019.

is only for the month of the map

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



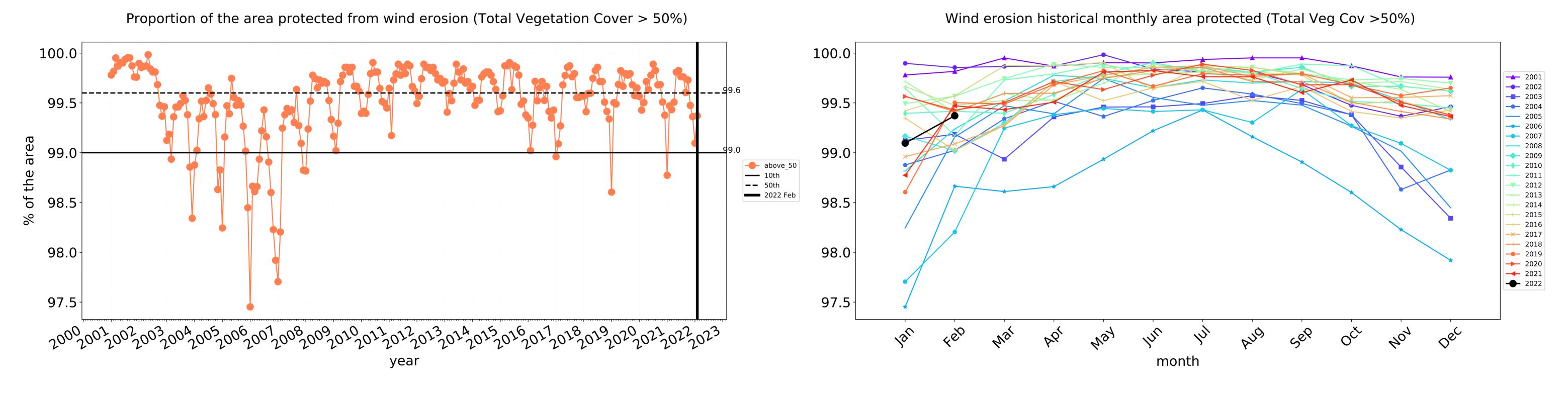


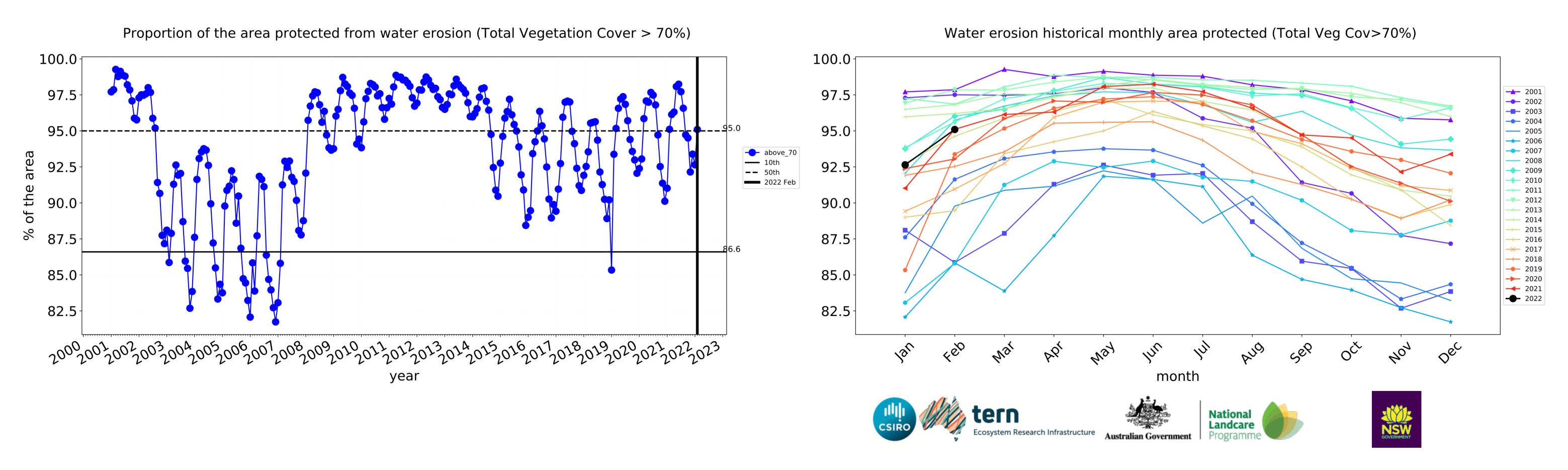






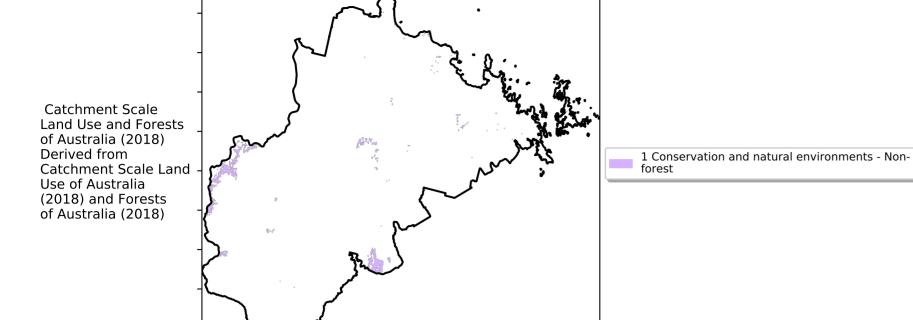
Conservation and natural environments timeseries



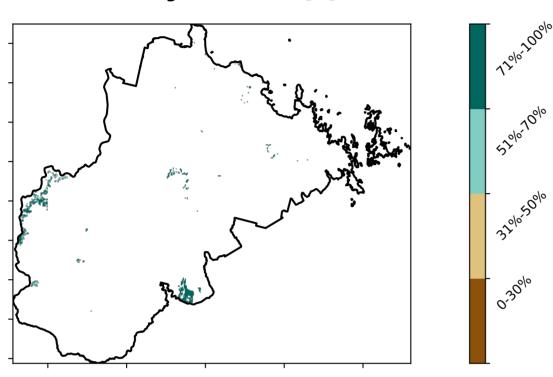


Conservation and natural environments non forest

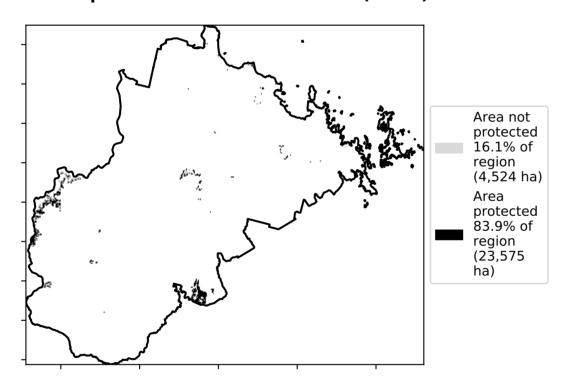
Land use and forest cover



Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



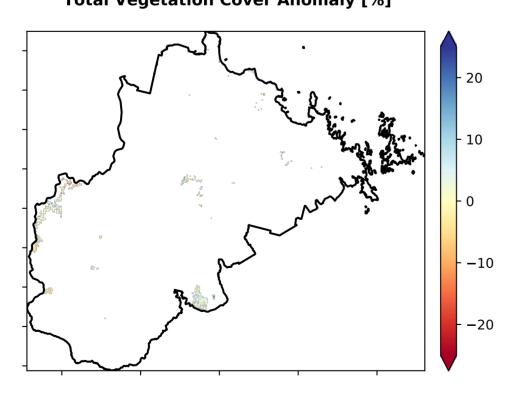
Total Vegetation Cover Anomaly [%]

Anomaly show how many percetage points each pixel is from

the mean. That

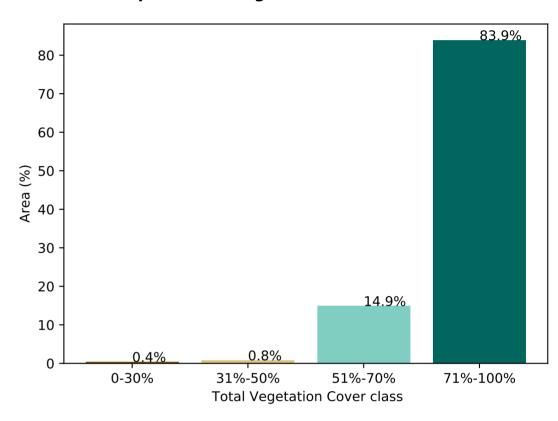
is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map

using baseline from 2001 to 2019.

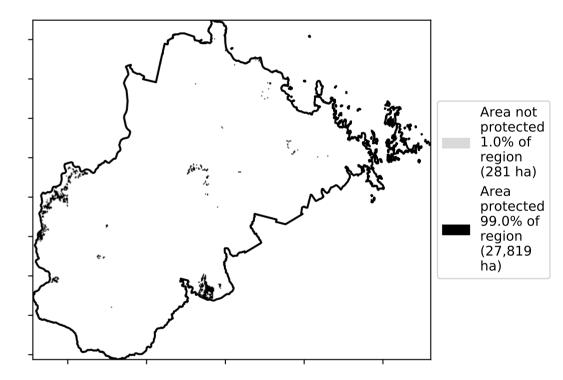


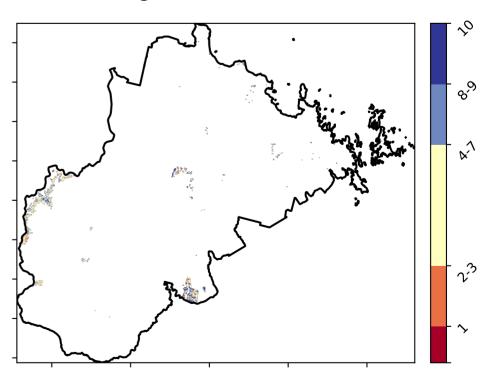
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





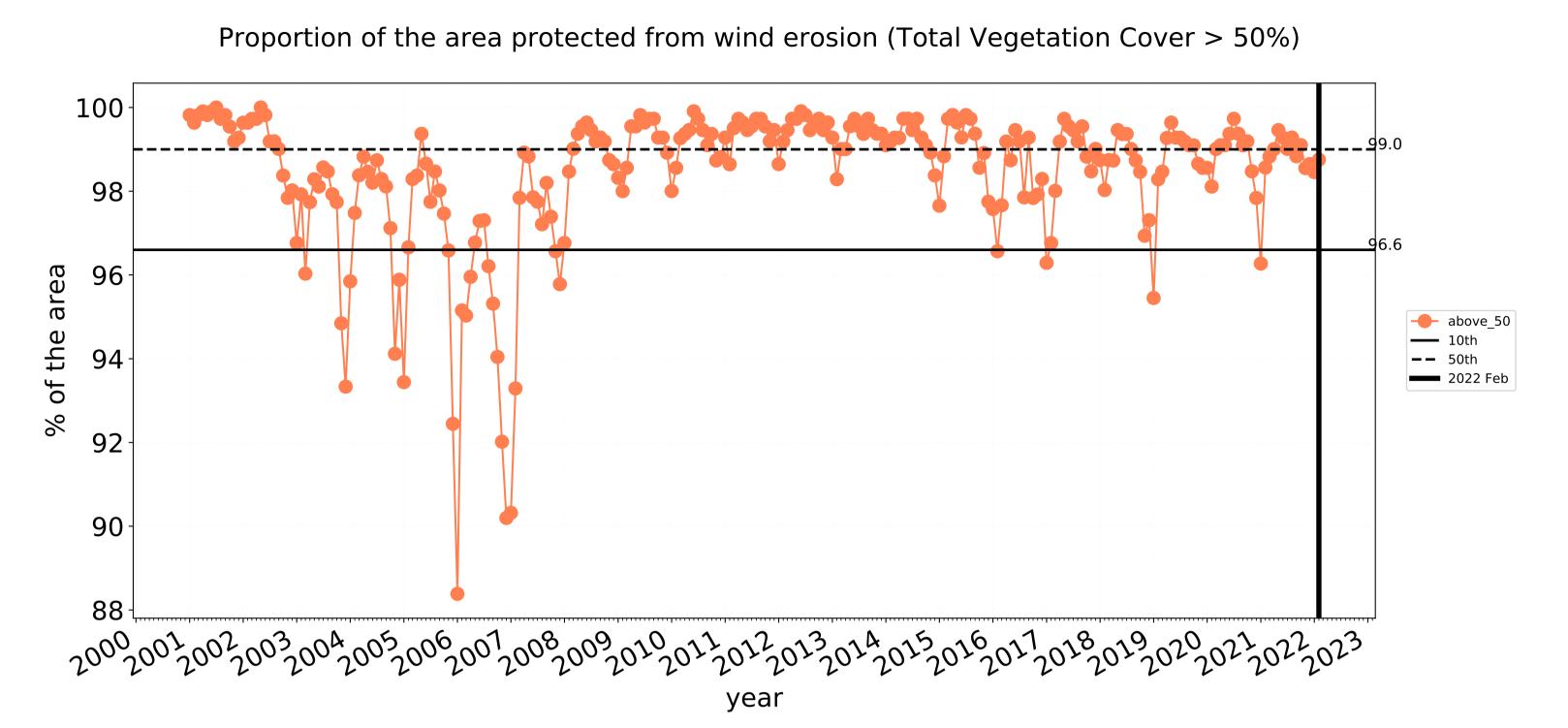


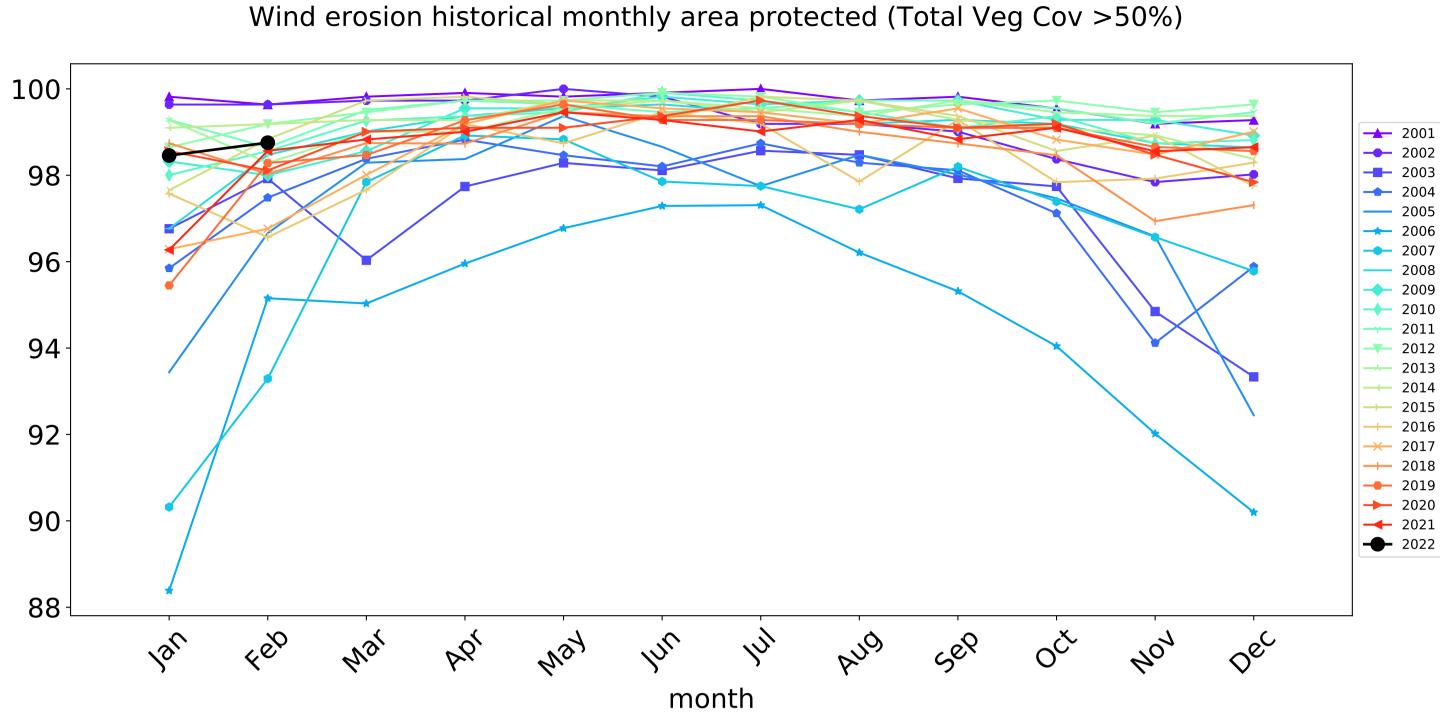


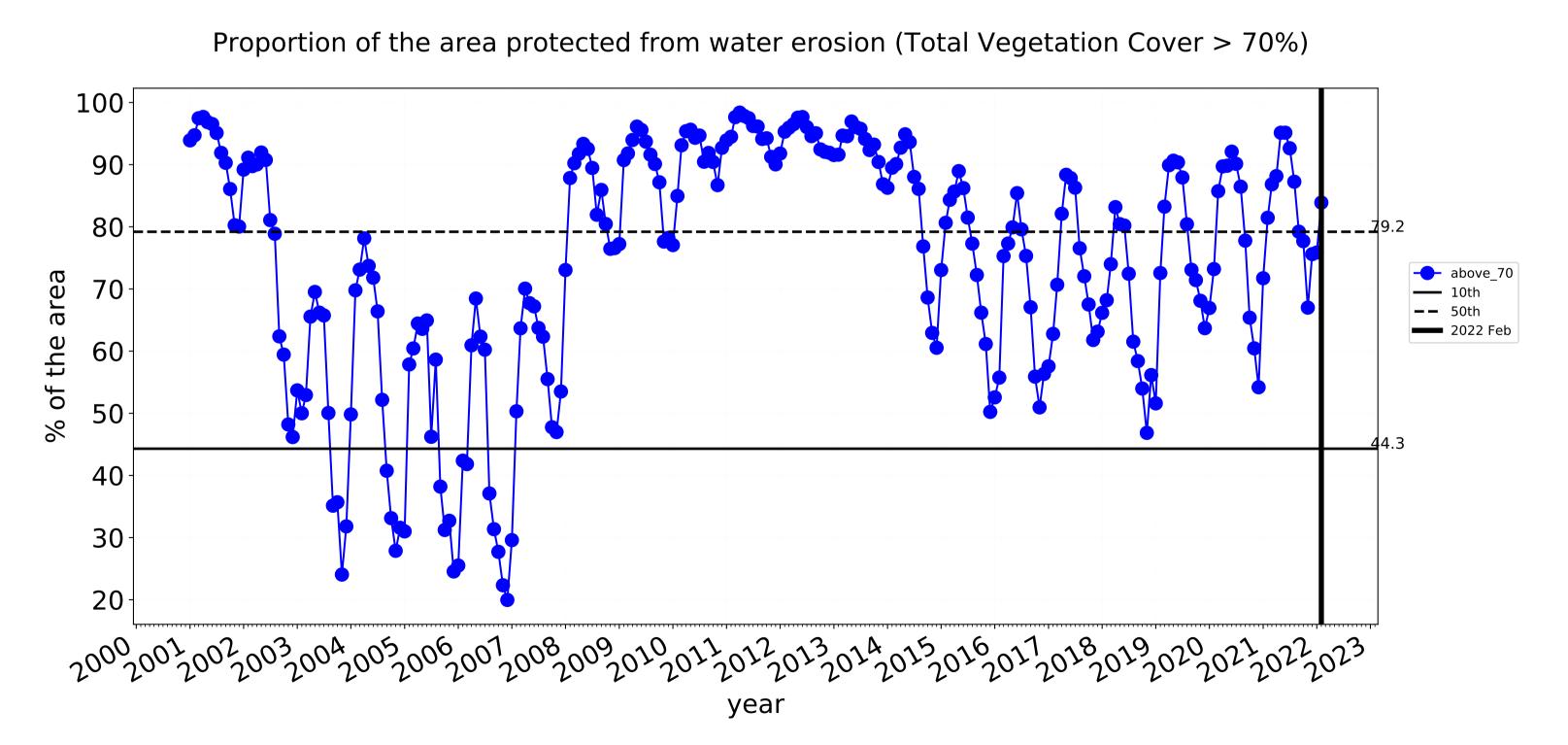


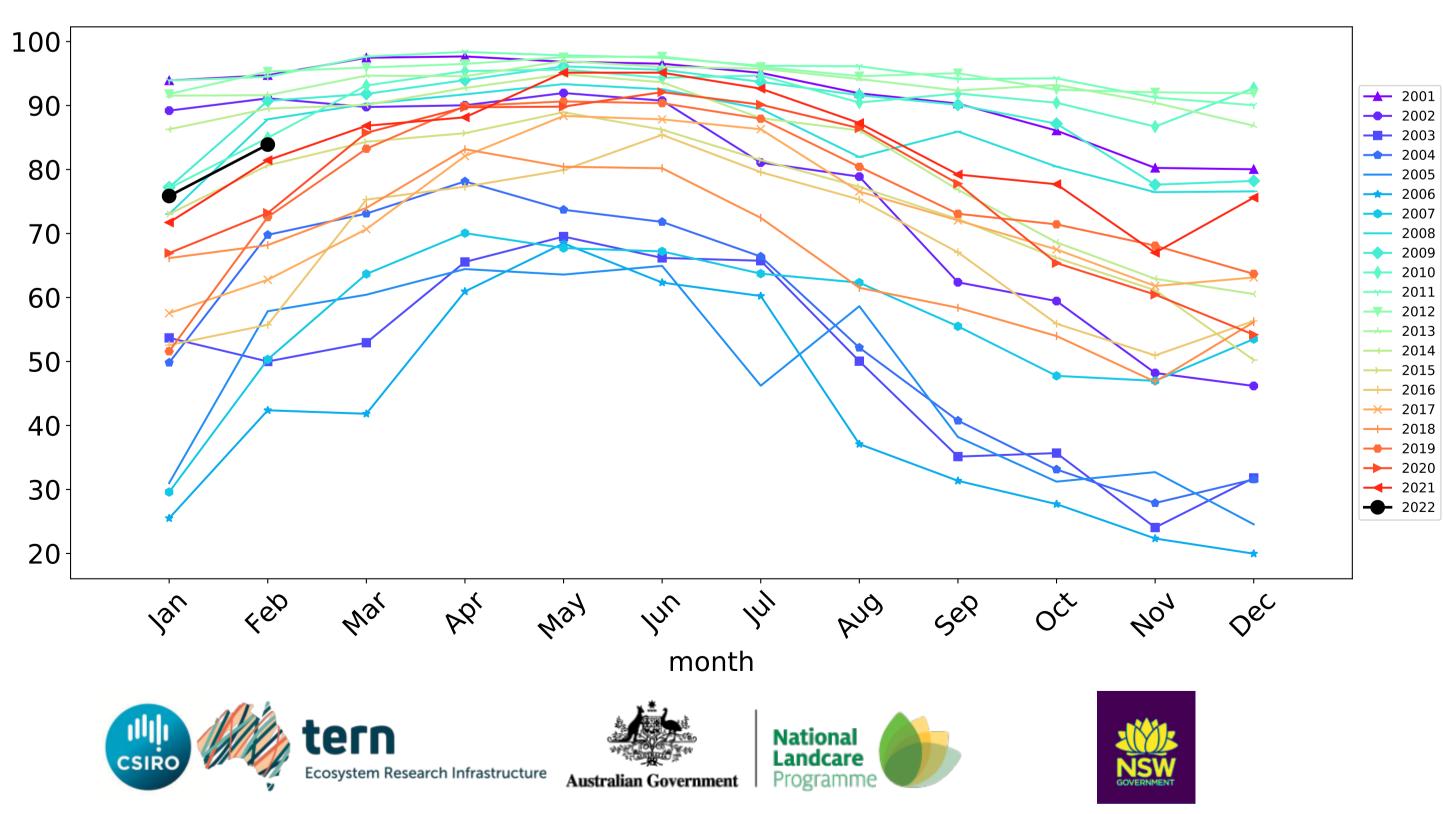


Conservation and natural environments non forest timeseries







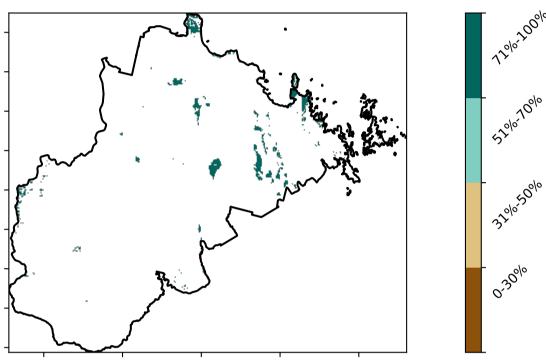


Water erosion historical monthly area protected (Total Veg Cov>70%)

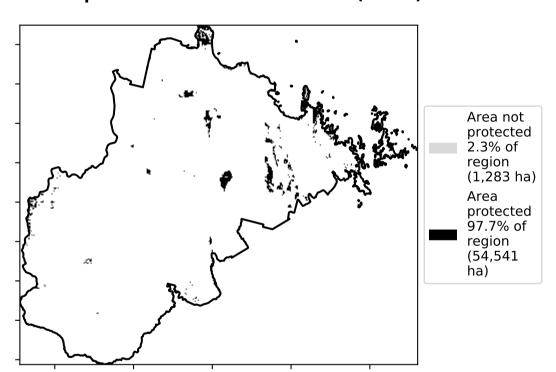
Conservation and natural environments Woodland forest

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

Total Vegetation Cover [%]



% Area protected from water erosion (>70%)



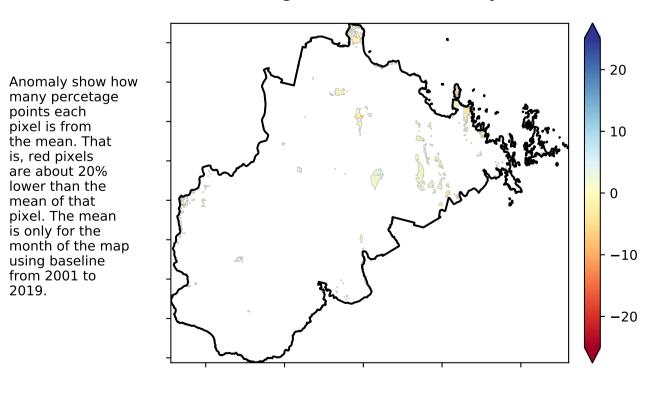
Total Vegetation Cover Anomaly [%]

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

pixel. The mean

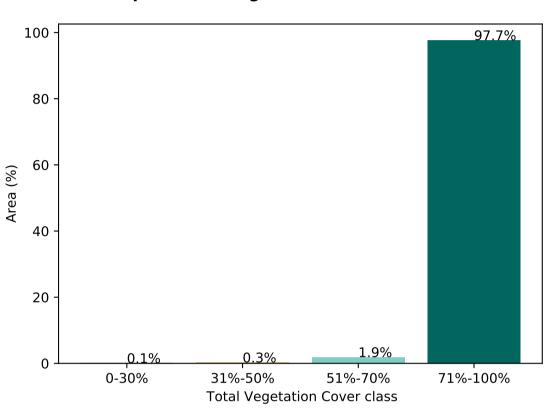
using baseline from 2001 to 2019.

is only for the month of the map

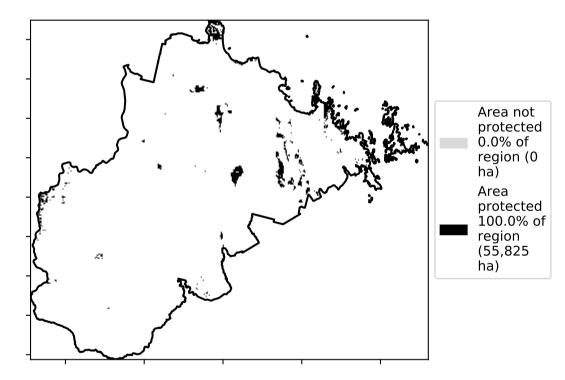


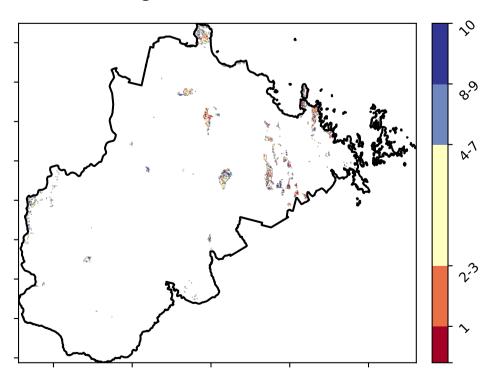
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





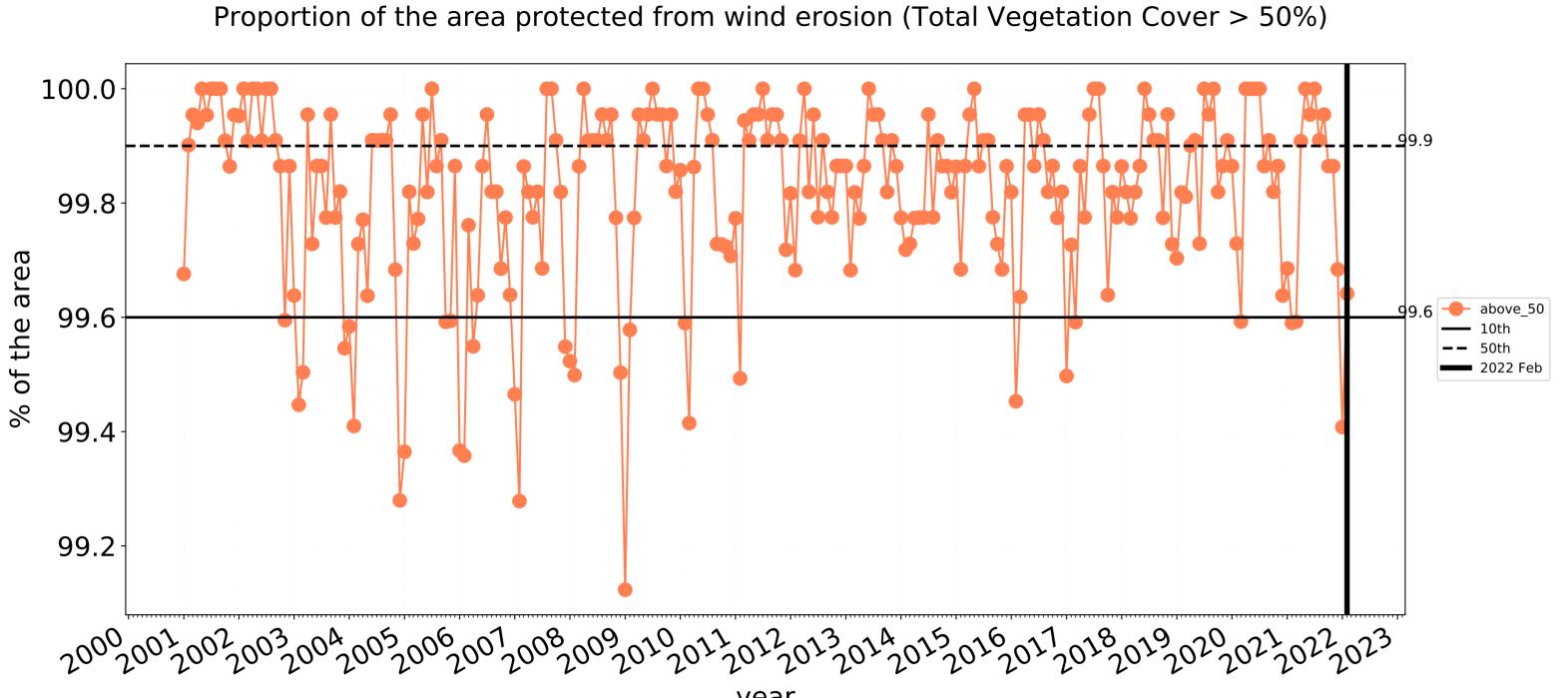


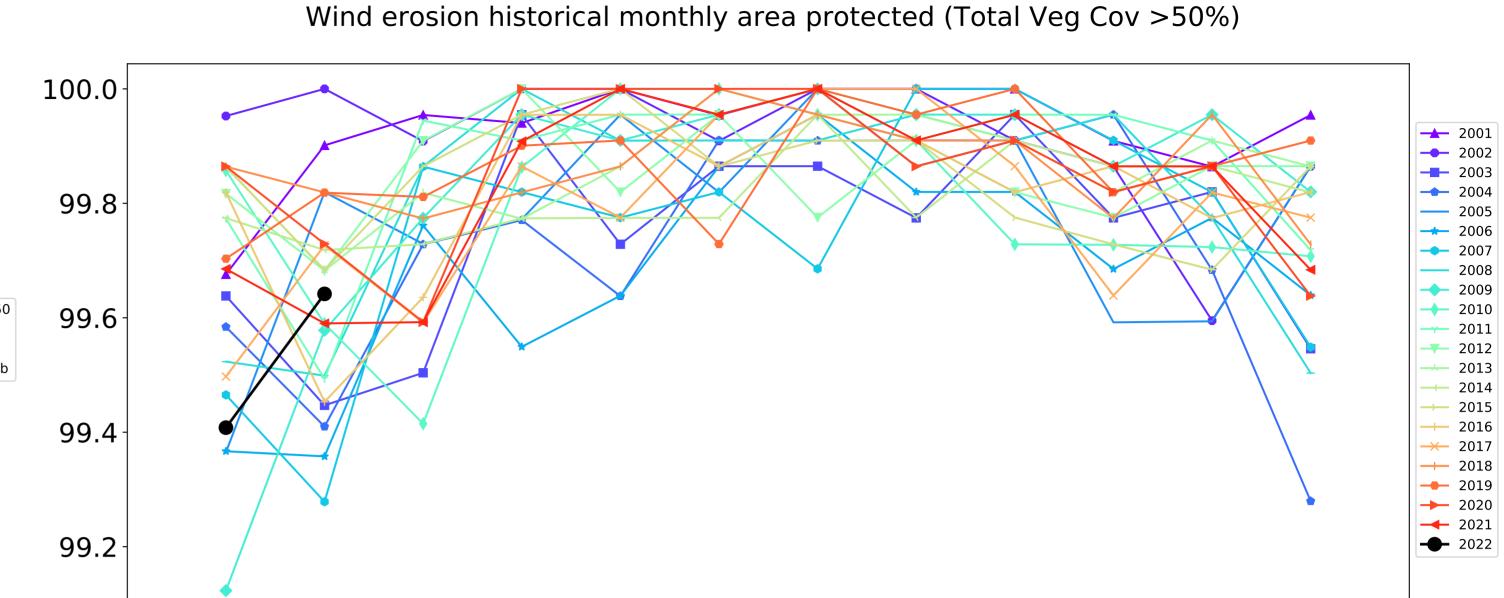




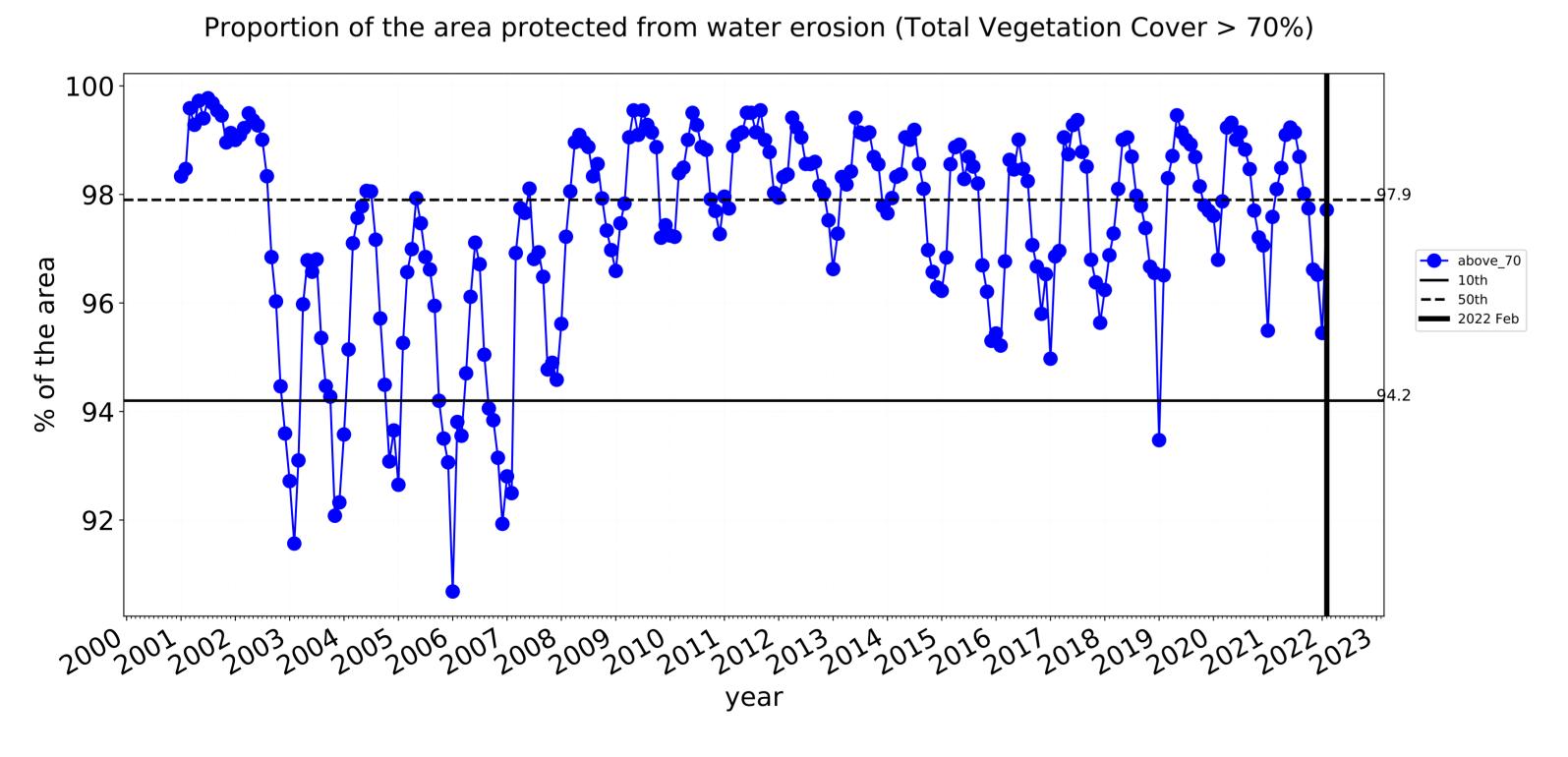


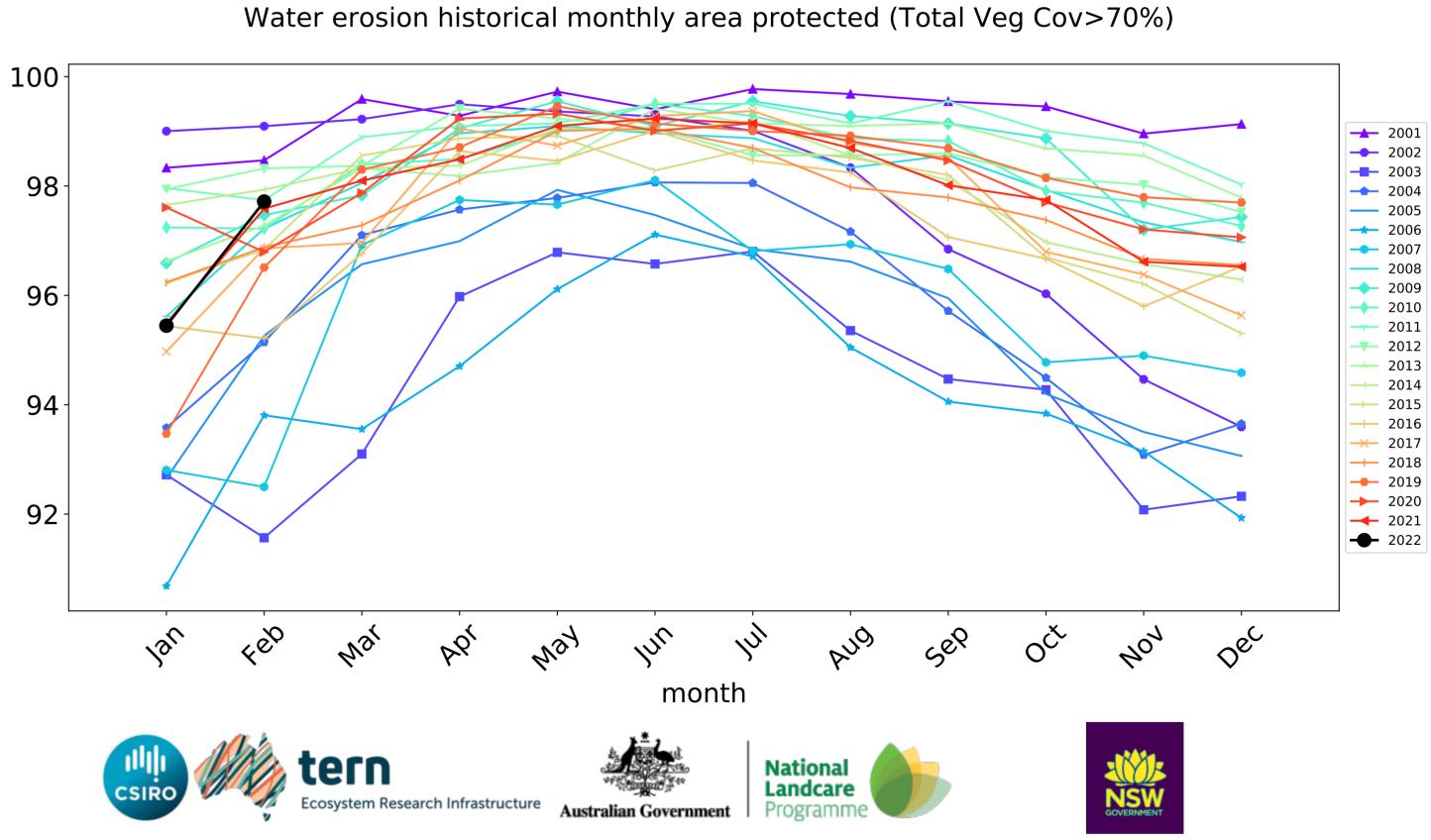
Conservation and natural environments Woodland forest timeseries





month

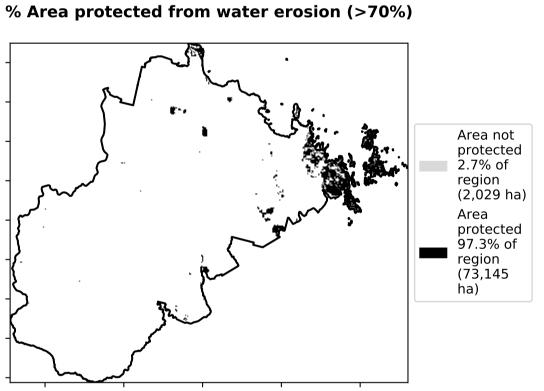


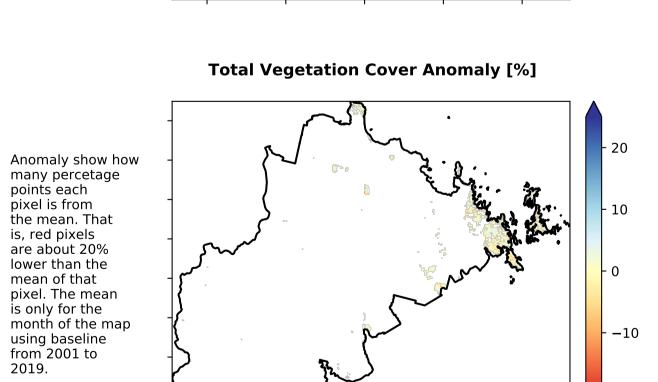


Conservation and natural environments Forest (non woodland)

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)

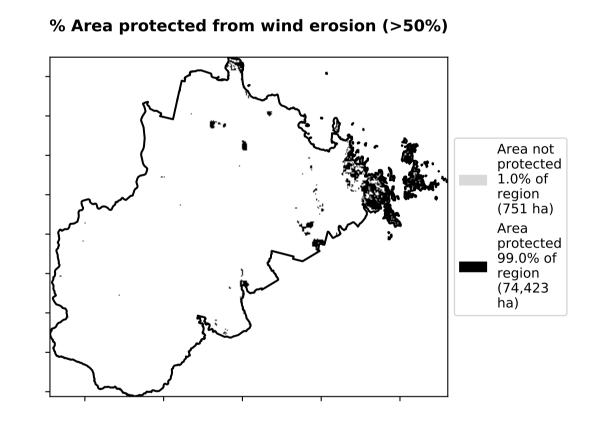
Total Vegetation Cover [%]

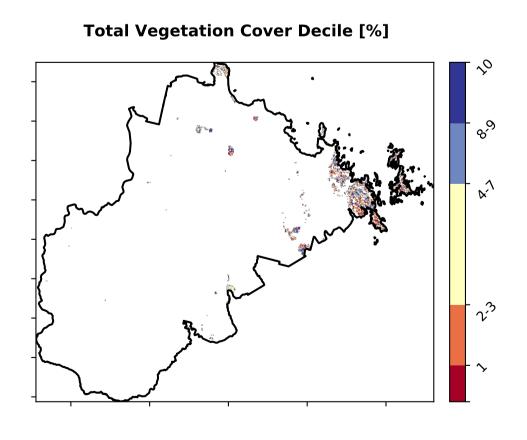




Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area 100 97.3% 80 20 2.1% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**





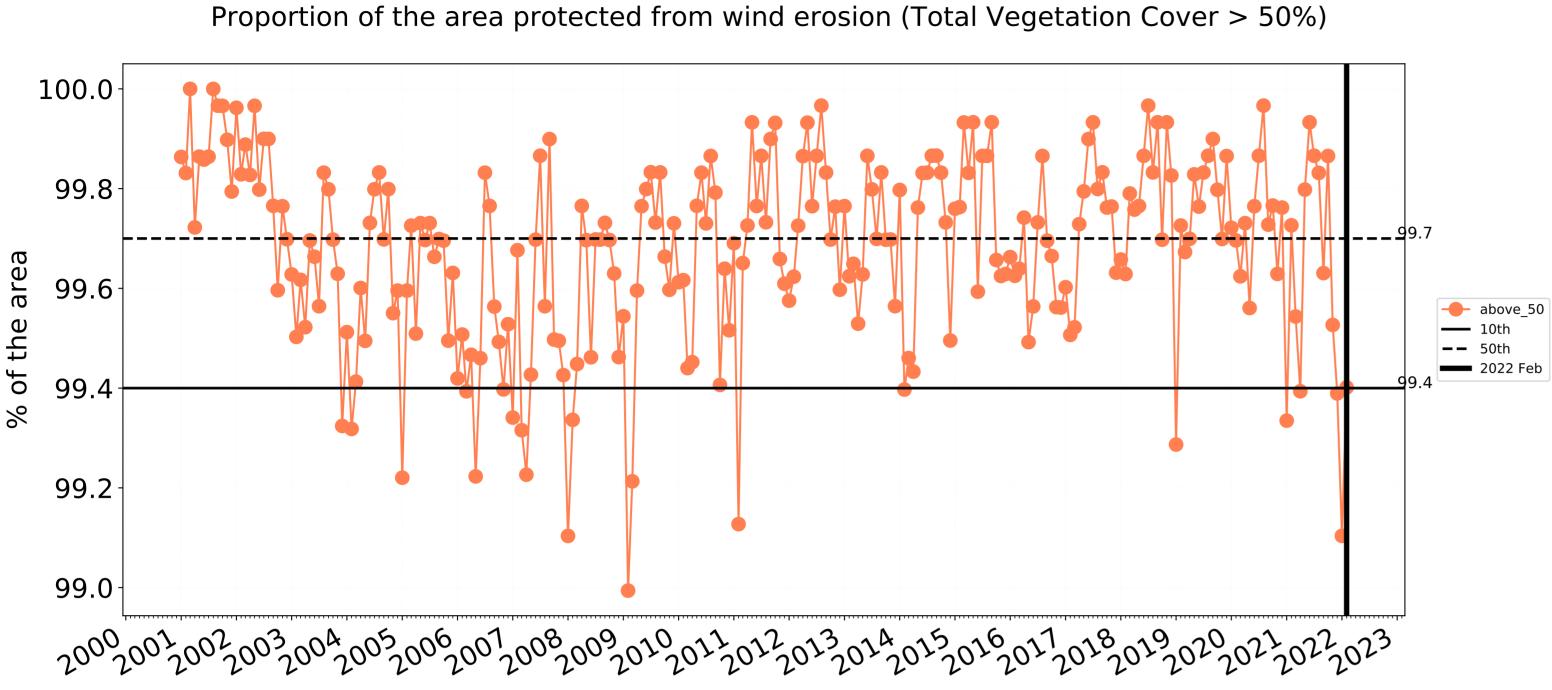




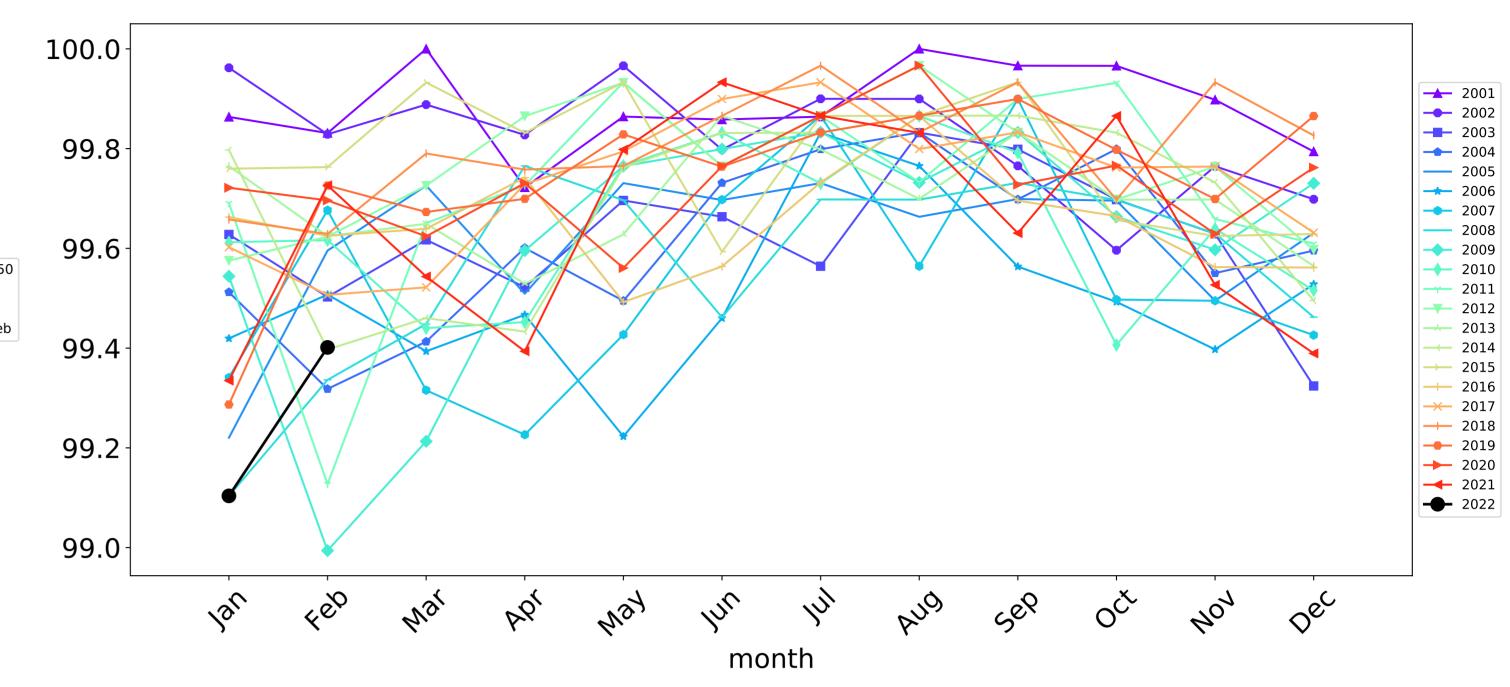


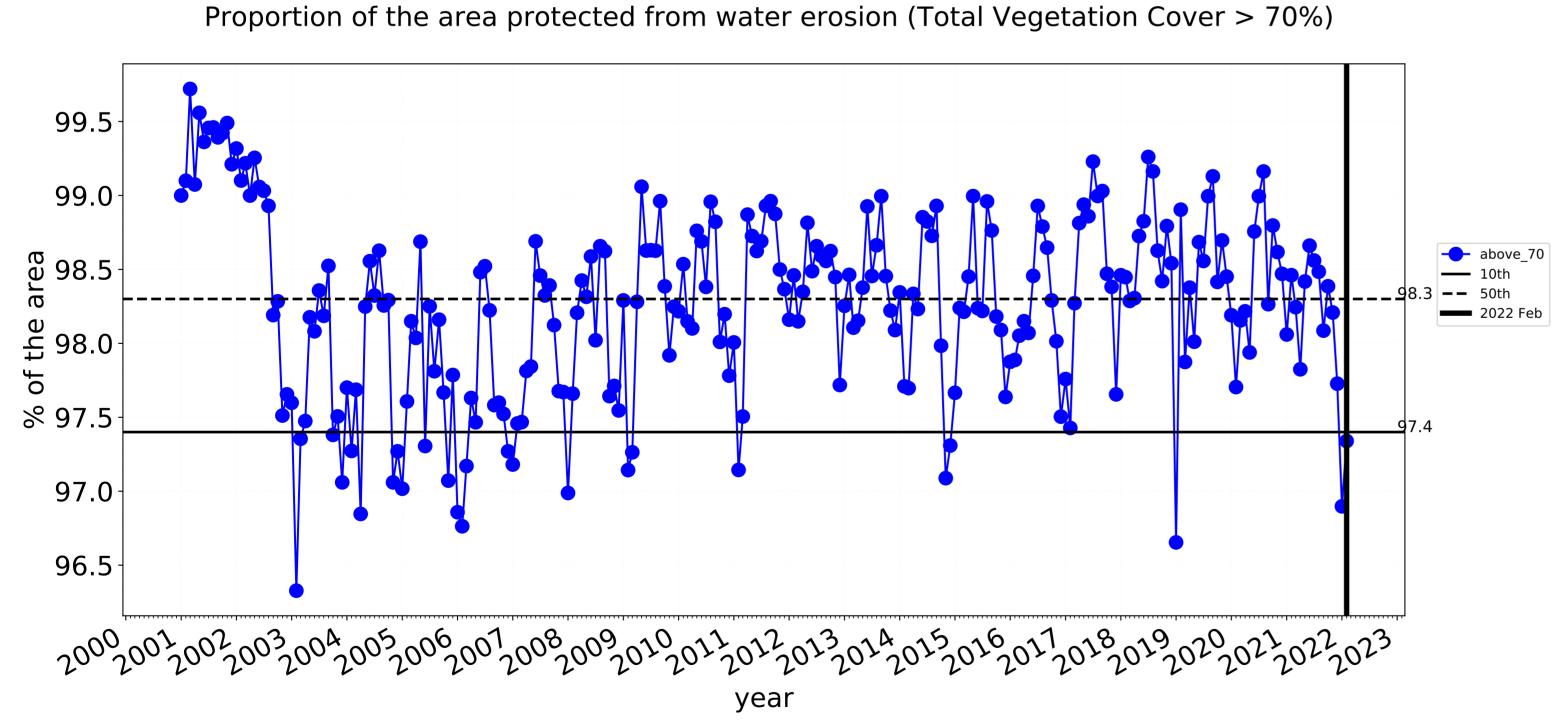


-20

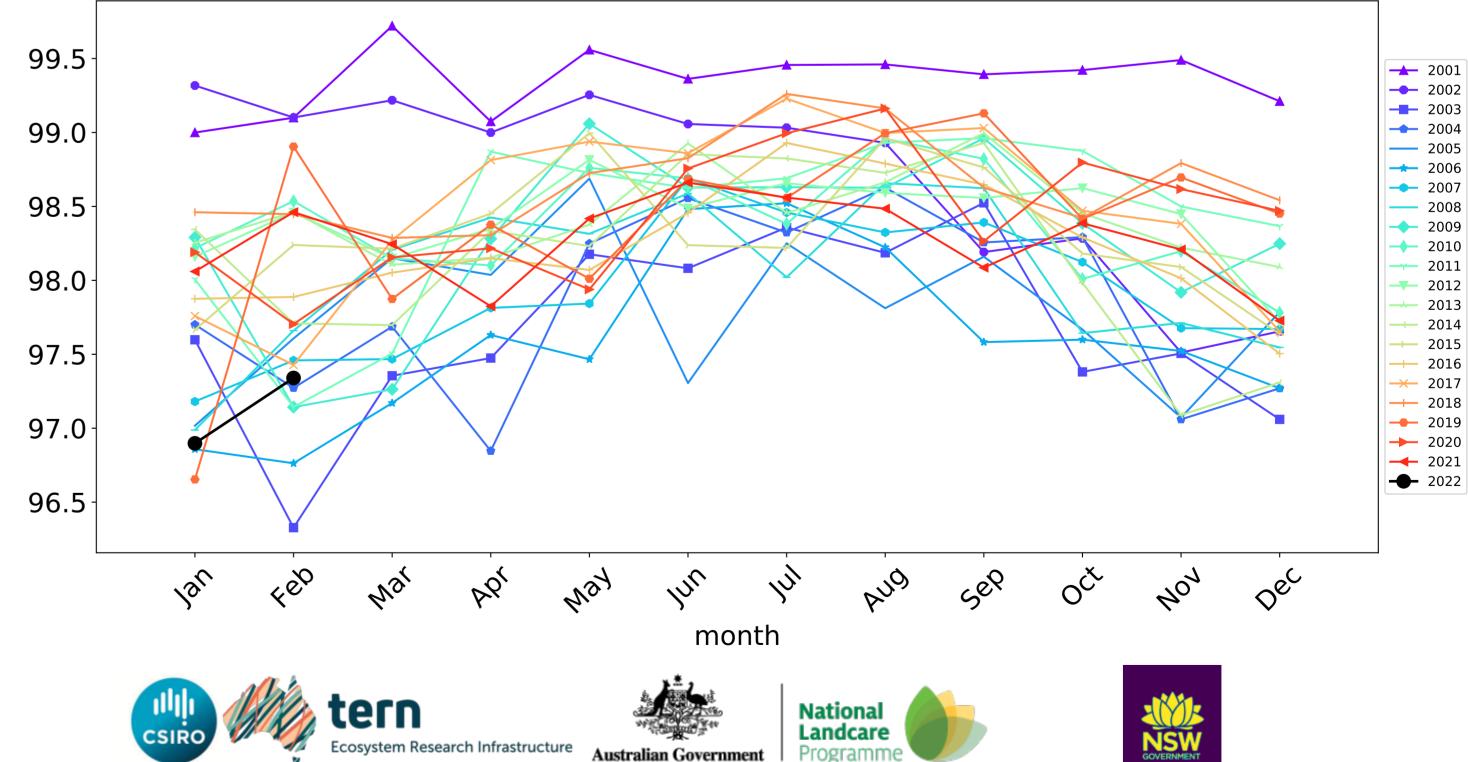


Wind erosion historical monthly area protected (Total Veg Cov >50%)





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



Agriculture

Land use and forest cover

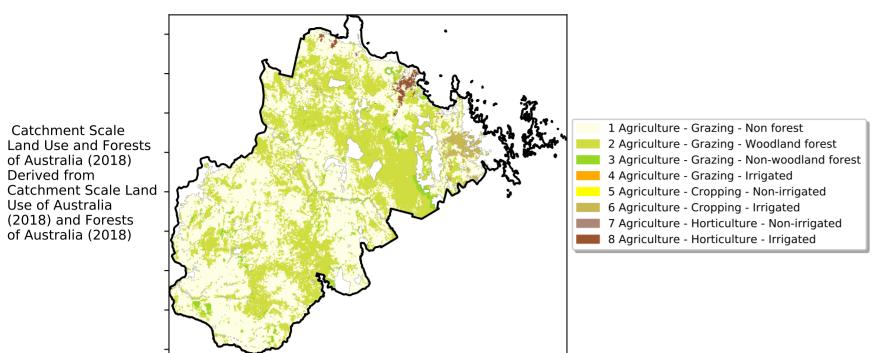
Derived from

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

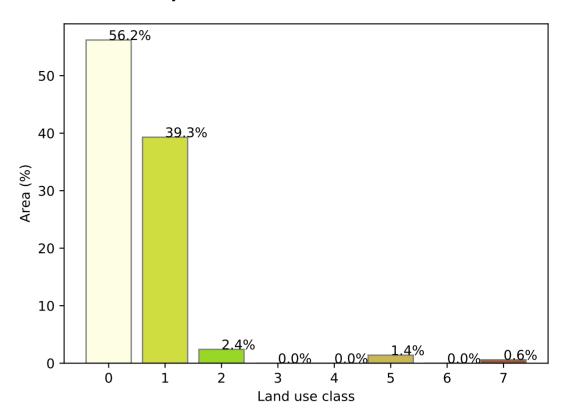
pixel. The mean

using baseline from 2001 to 2019.

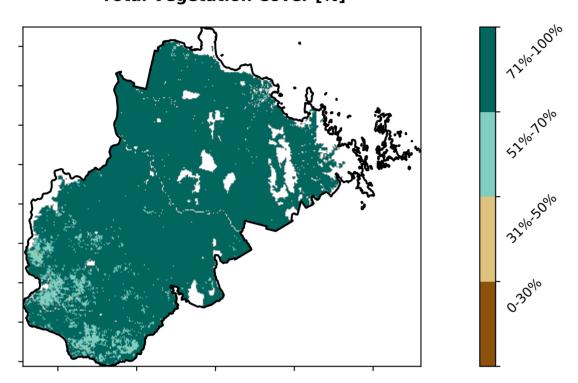
Use of Australia



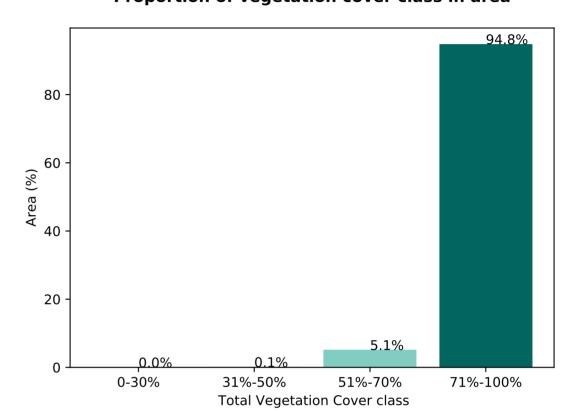
Proportion of each land class in area



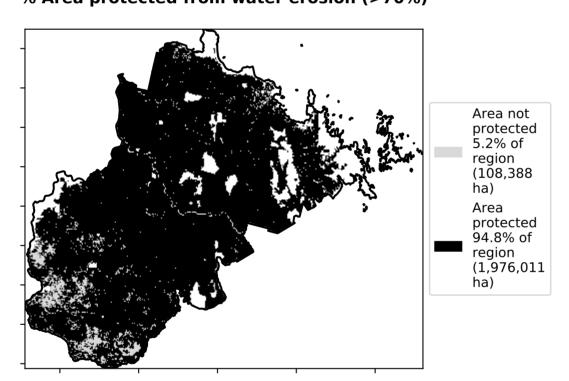
Total Vegetation Cover [%]



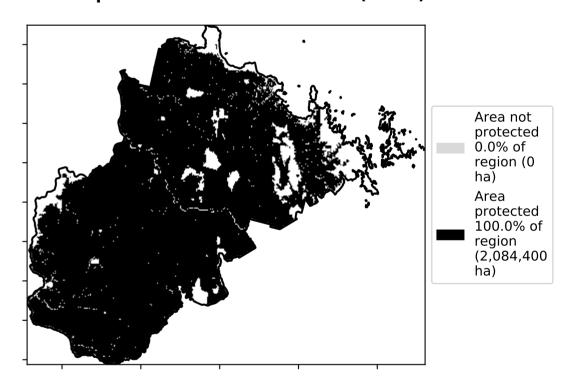
Proportion of vegetation cover class in area



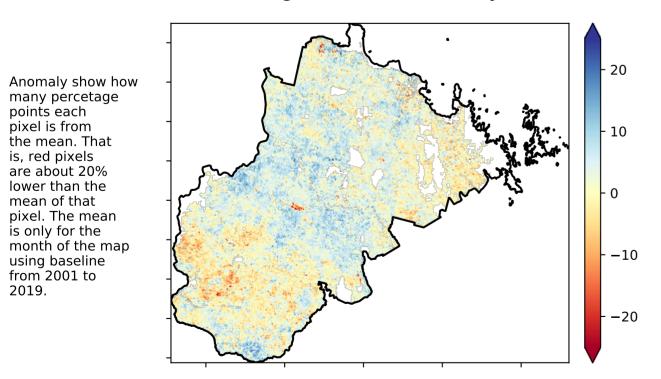
% Area protected from water erosion (>70%)



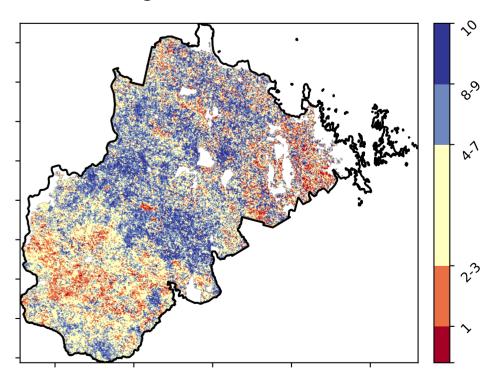
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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.



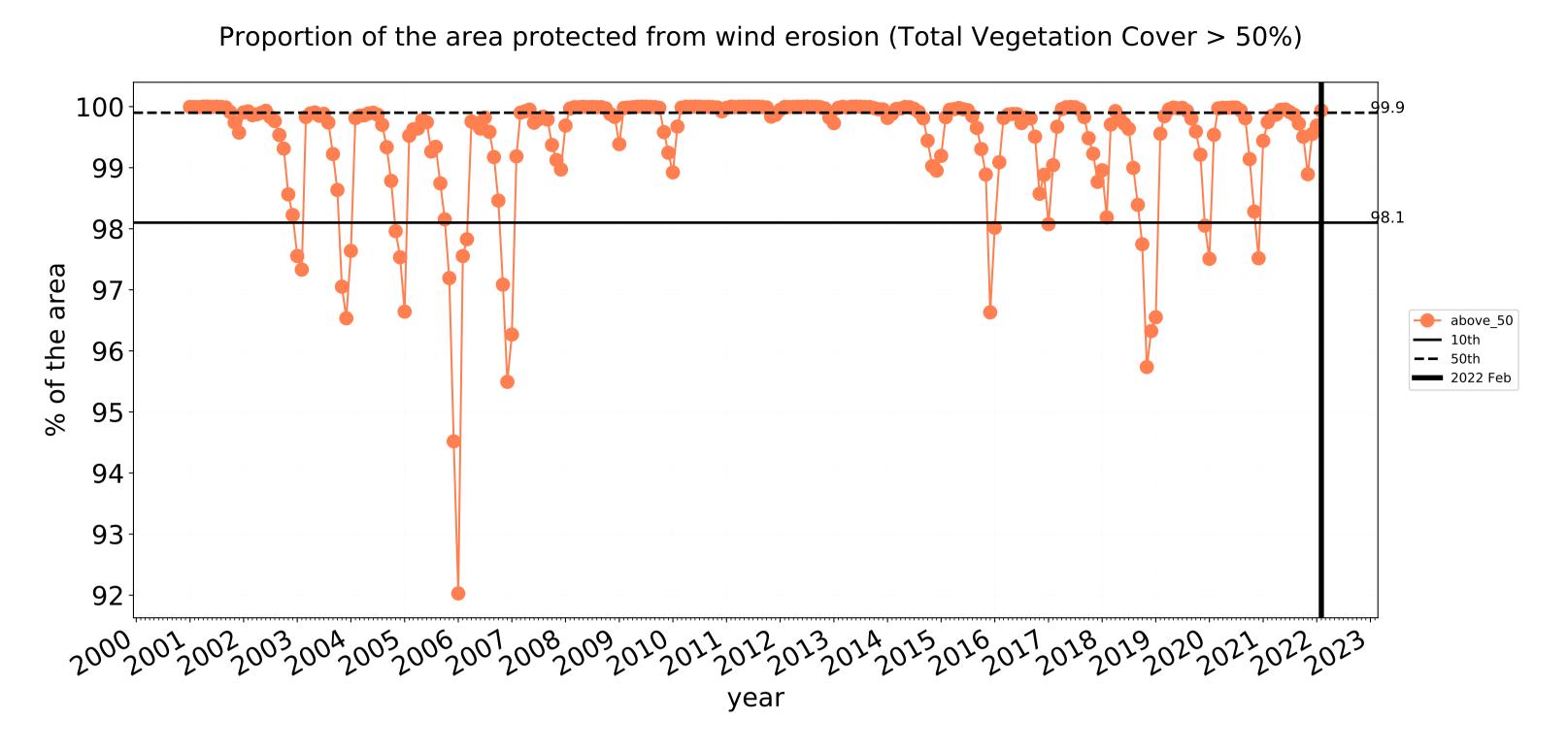


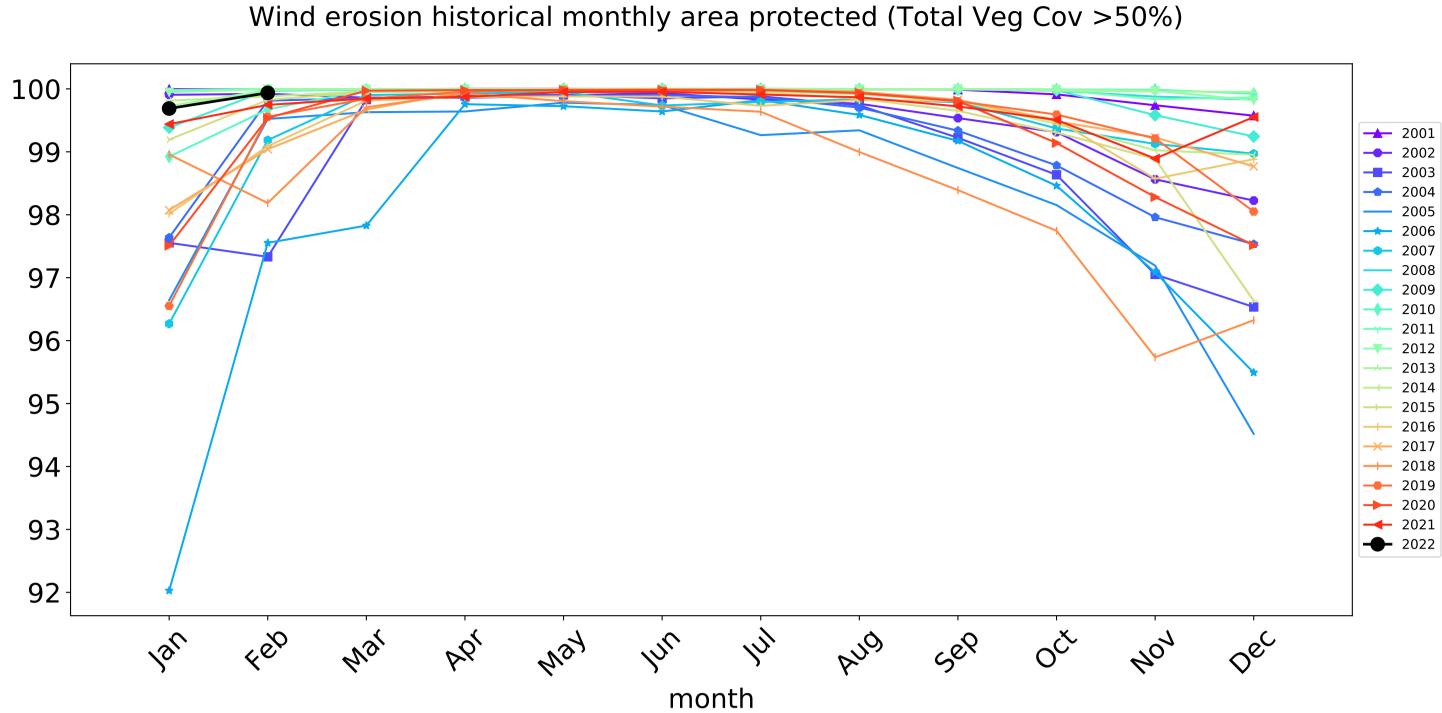


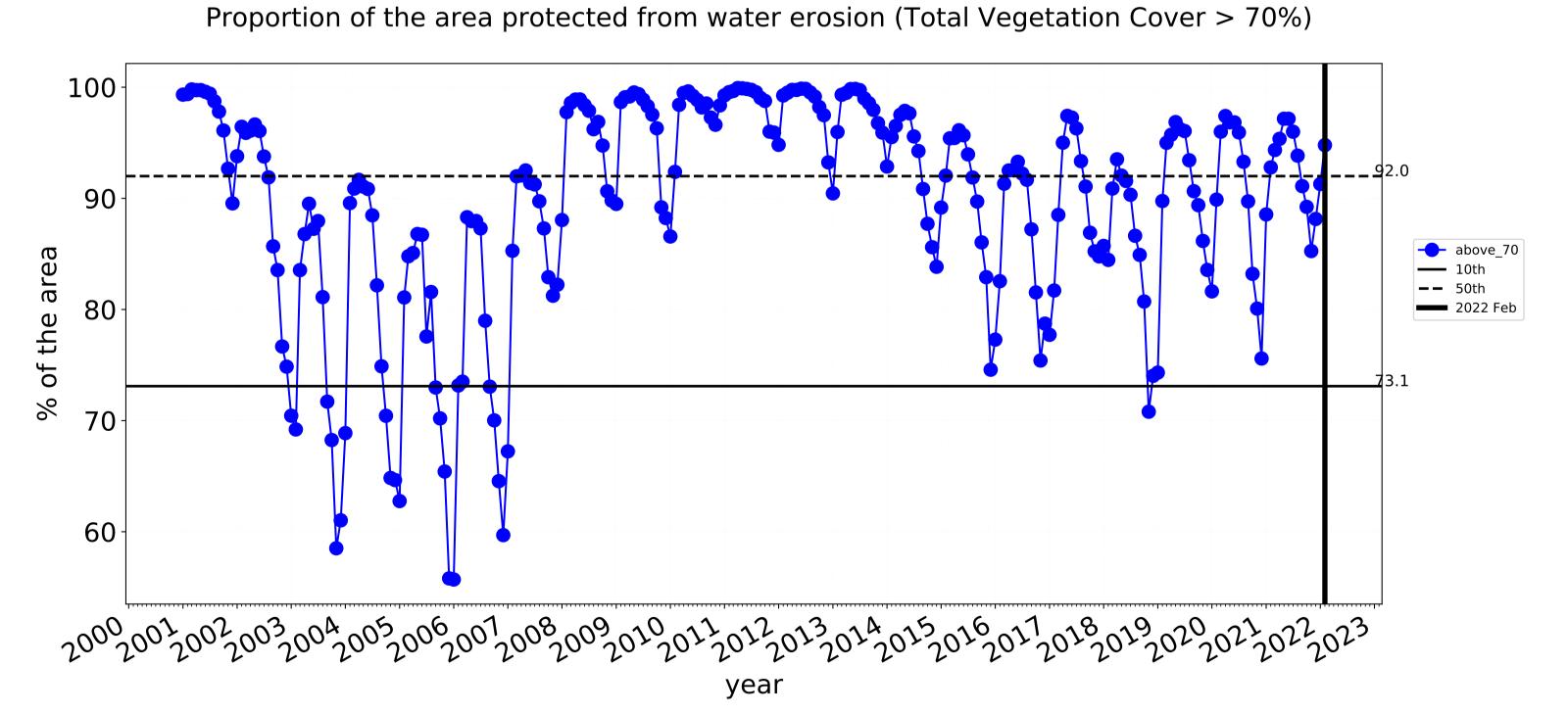


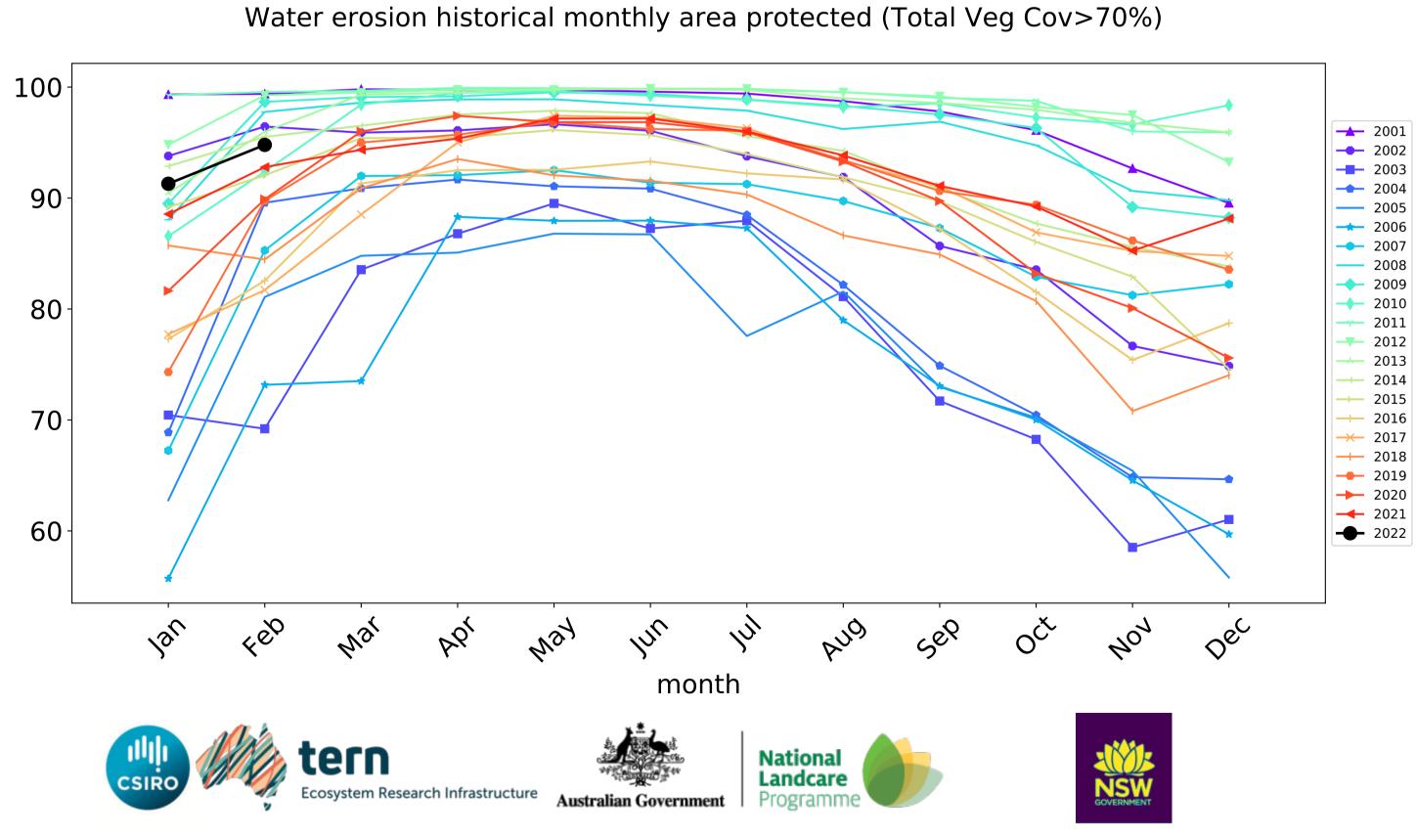


Agriculture timeseries









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 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 Land use class

3 Agriculture - Grazing - Non-woodland forest

Proportion of vegetation cover class in area

2.0

2.5

Area not protected 0.0% of

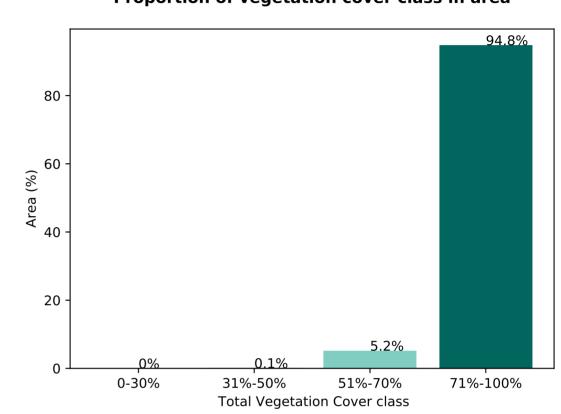
Area

ha)

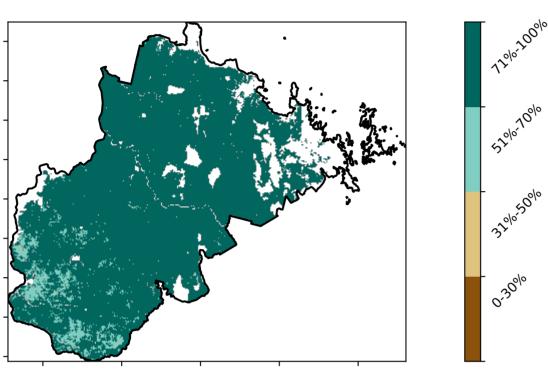
region (0 ha)

protected 100.0% of

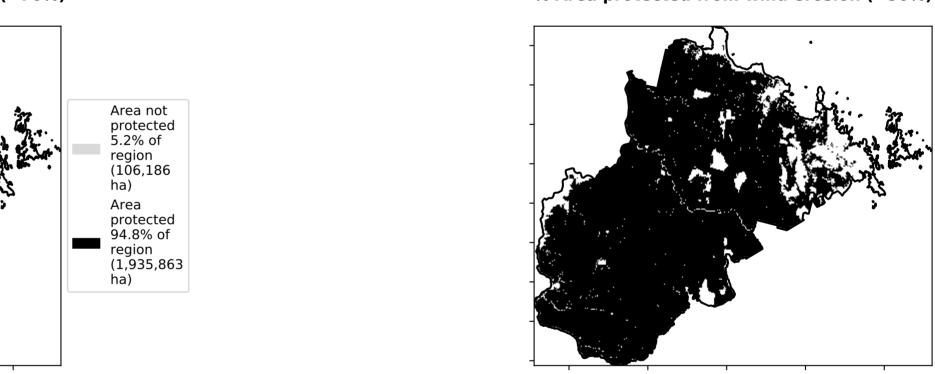
region (2,042,050



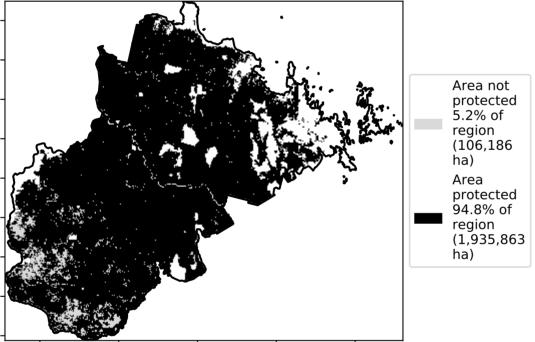
Total Vegetation Cover [%]



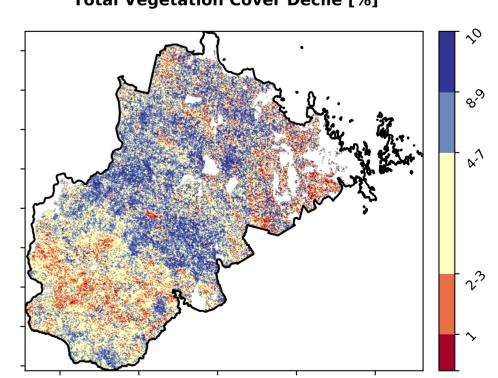
% Area protected from wind erosion (>50%)



% Area protected from water erosion (>70%)



Total Vegetation Cover Decile [%]

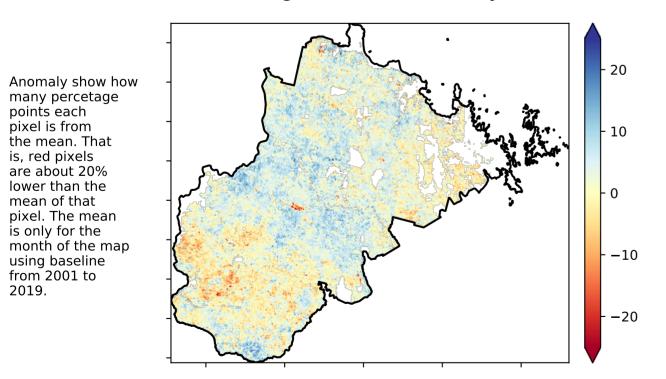


Total Vegetation Cover Anomaly [%]

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

is only for the month of the map

using baseline from 2001 to 2019.



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

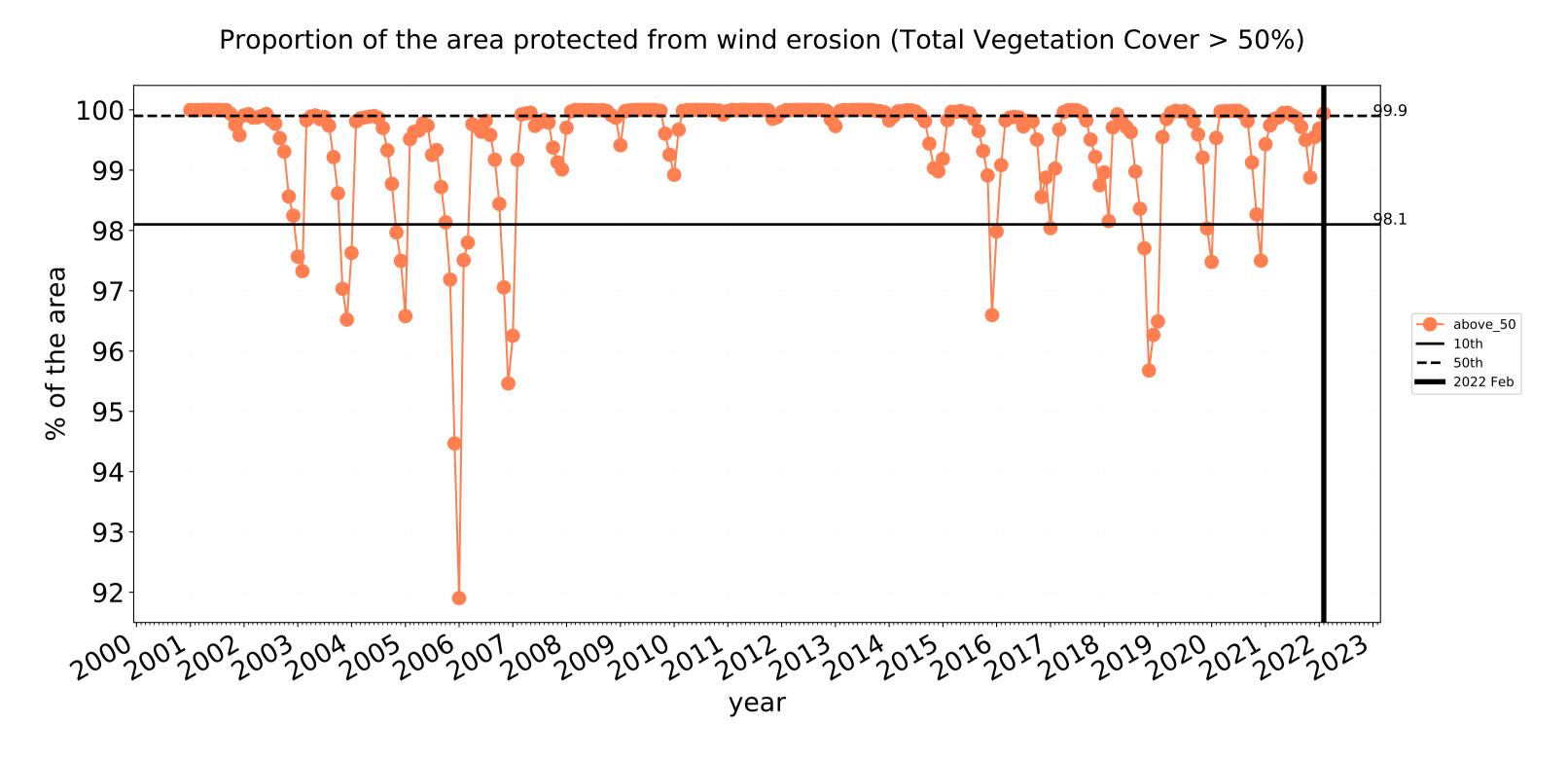


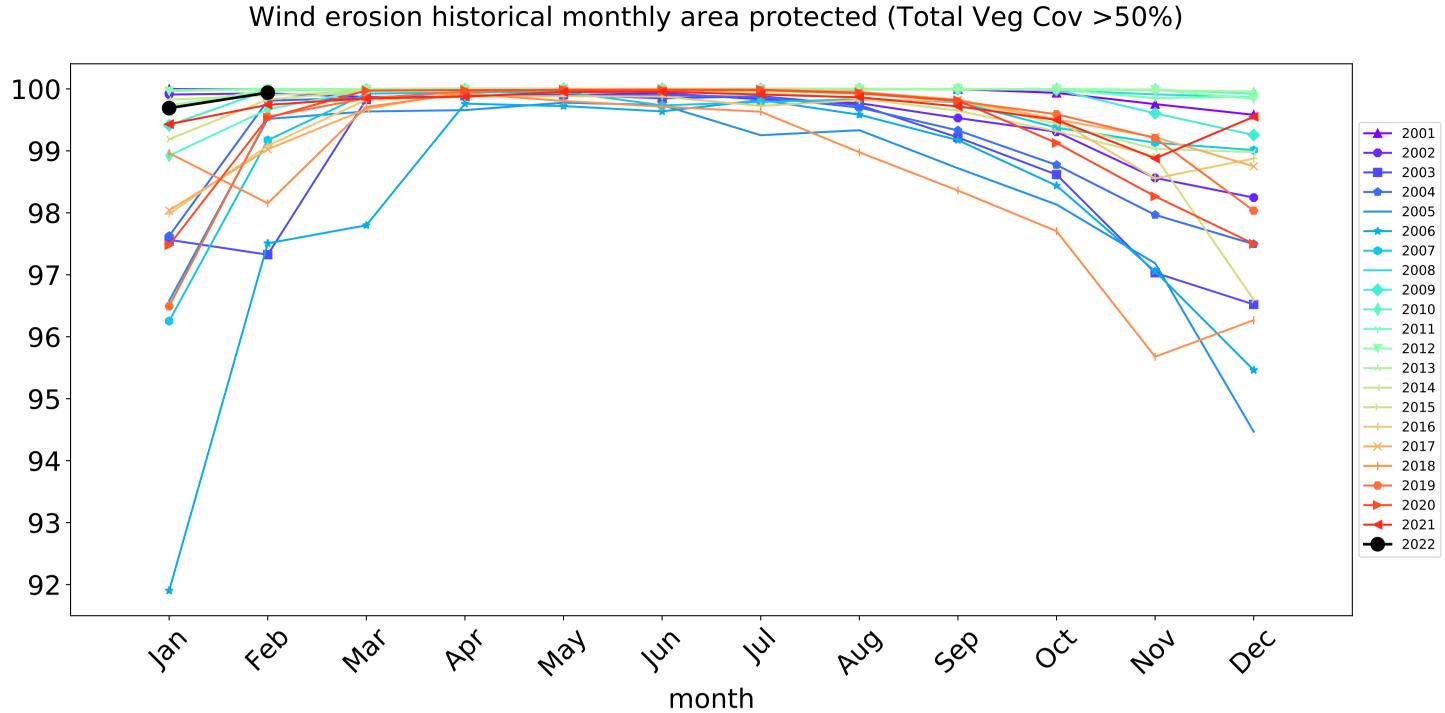


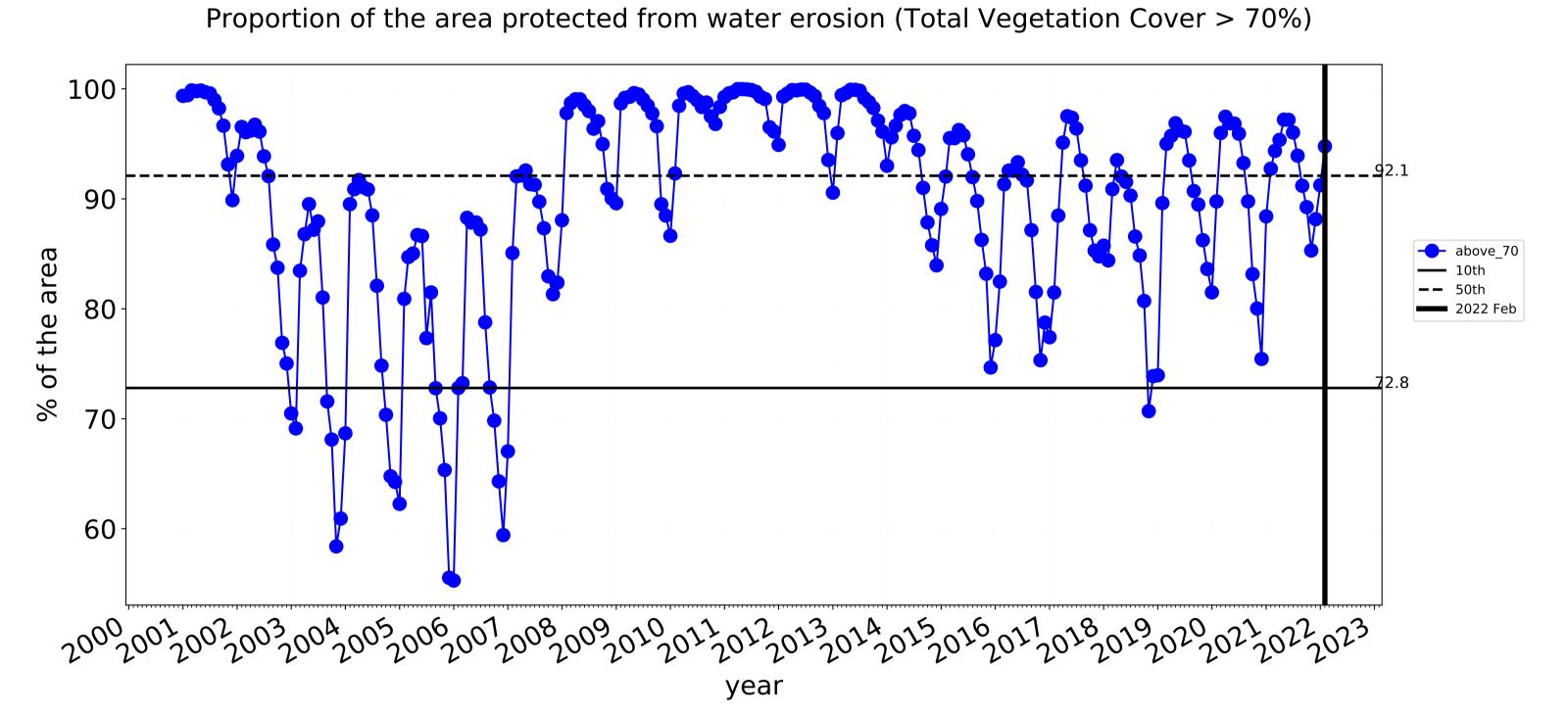


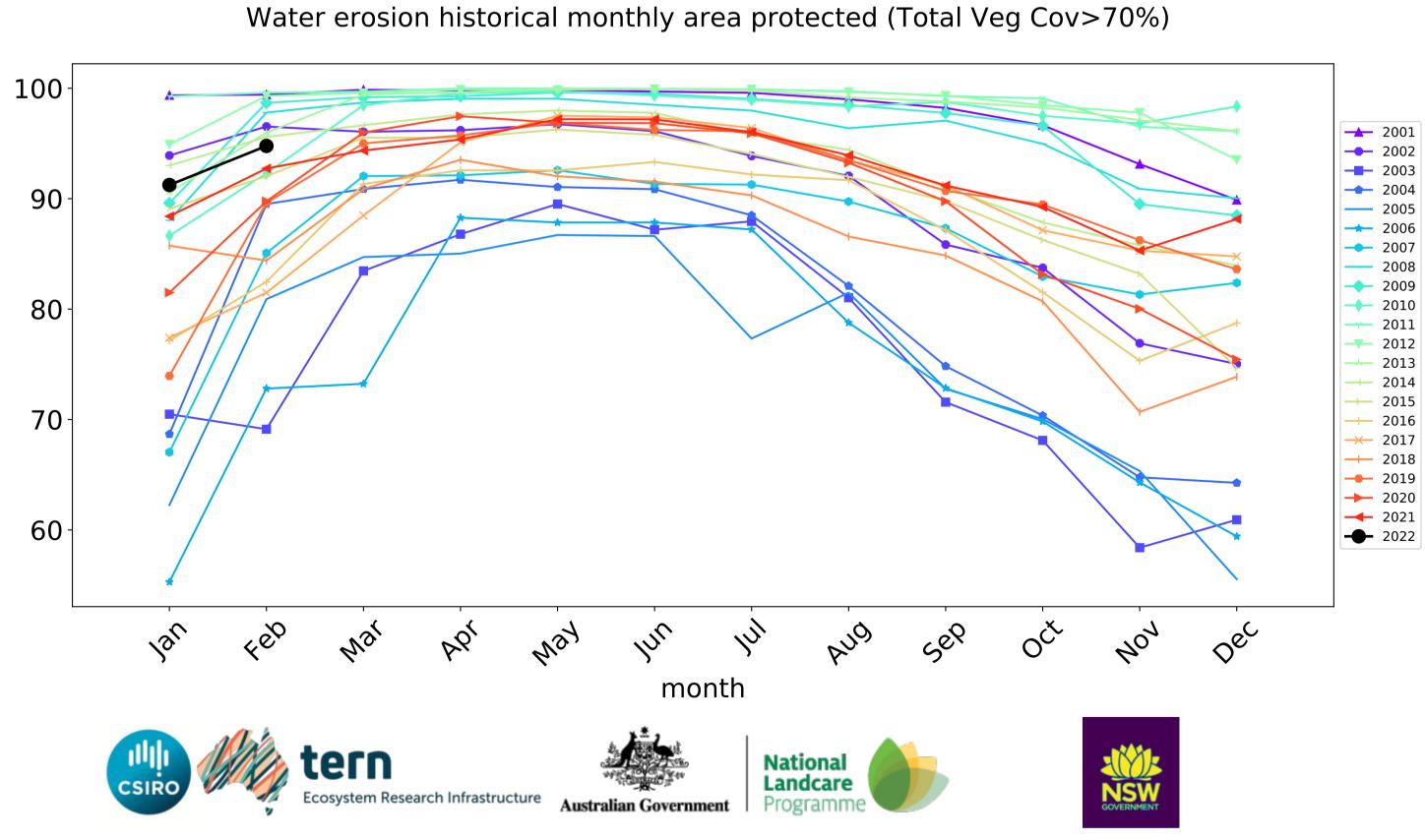


Grazing timeseries







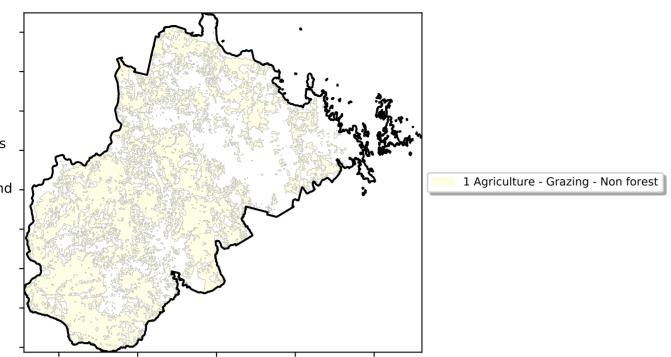


Grazing non forest

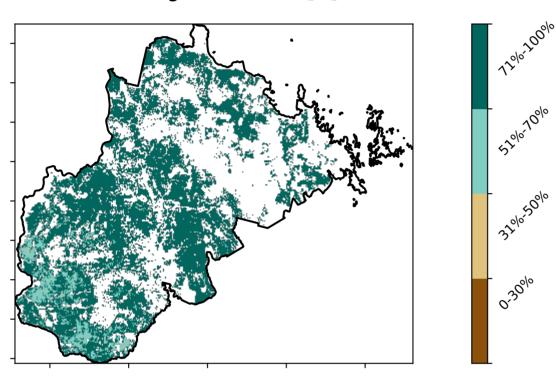
Land use and forest cover

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

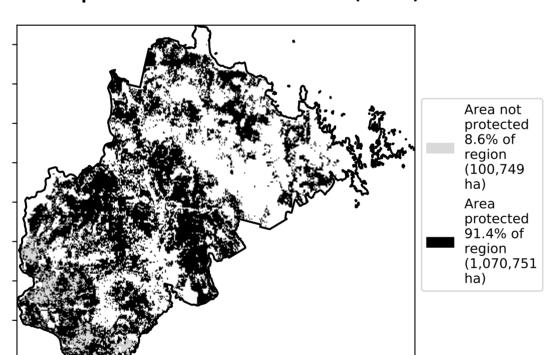
using baseline from 2001 to 2019.



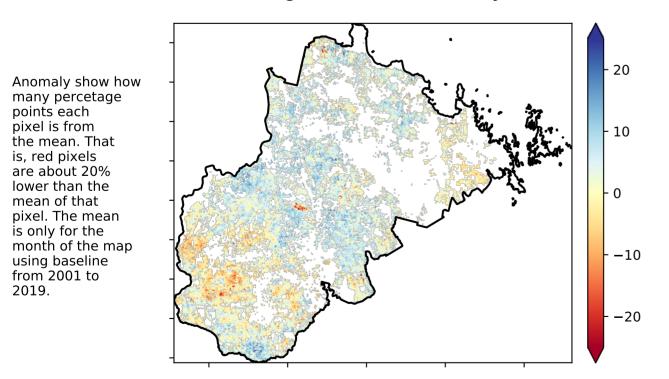
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

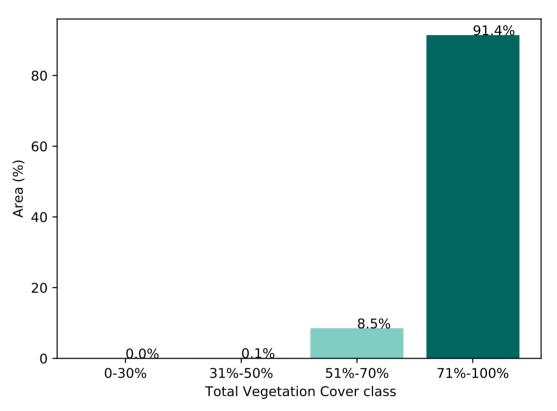


Total Vegetation Cover Anomaly [%]

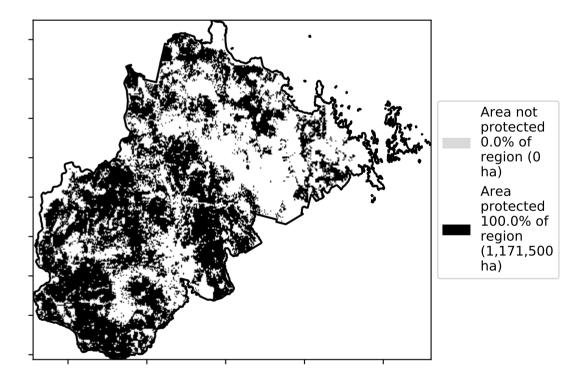


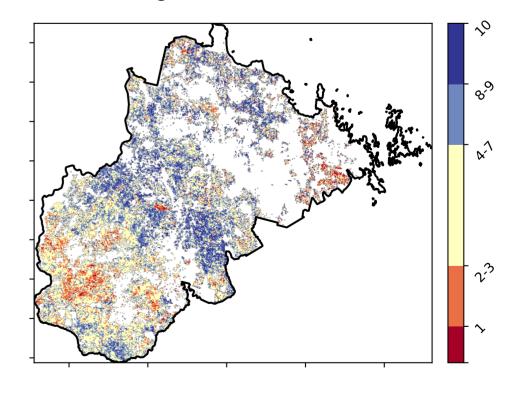
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseline. the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





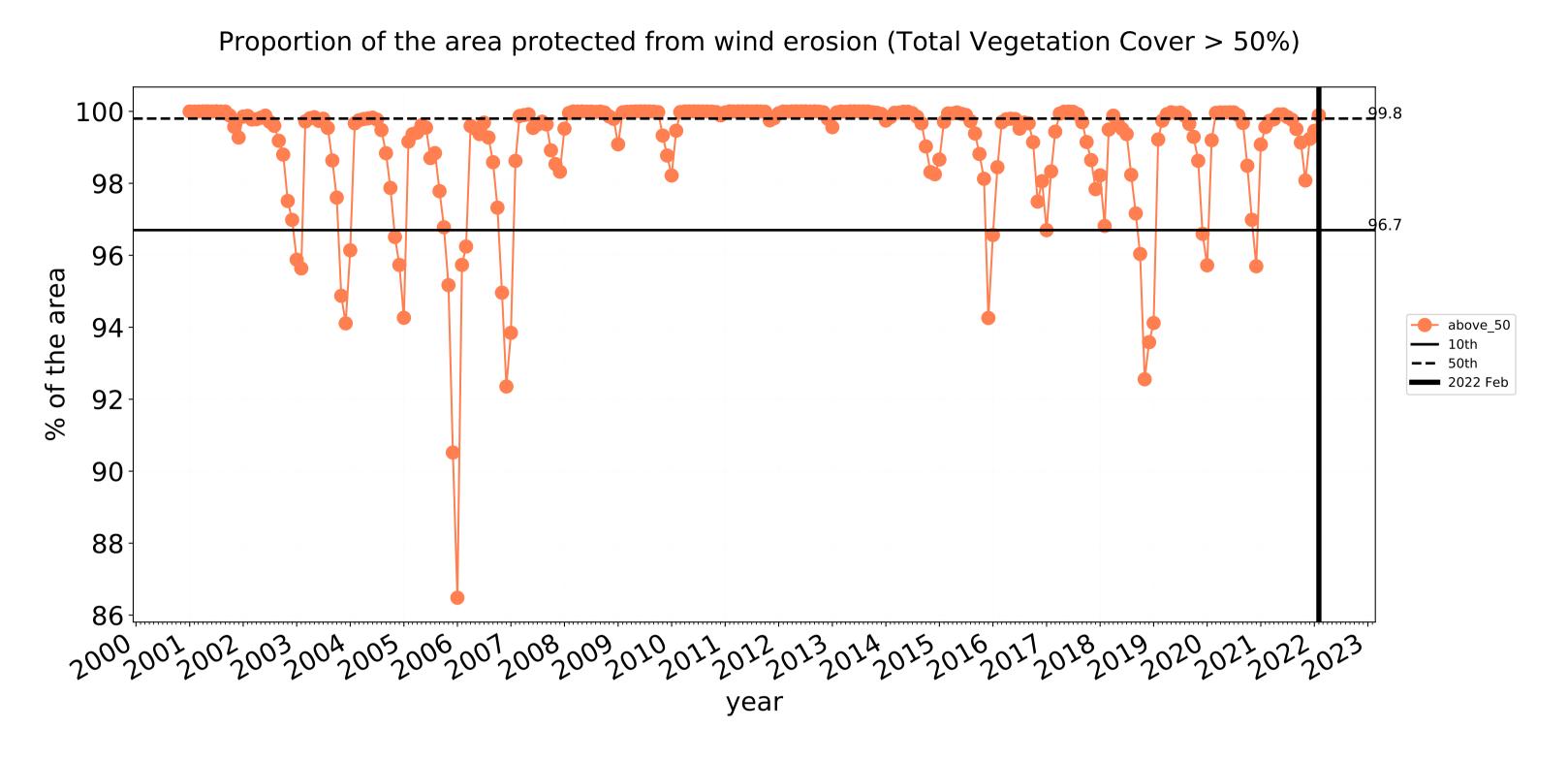


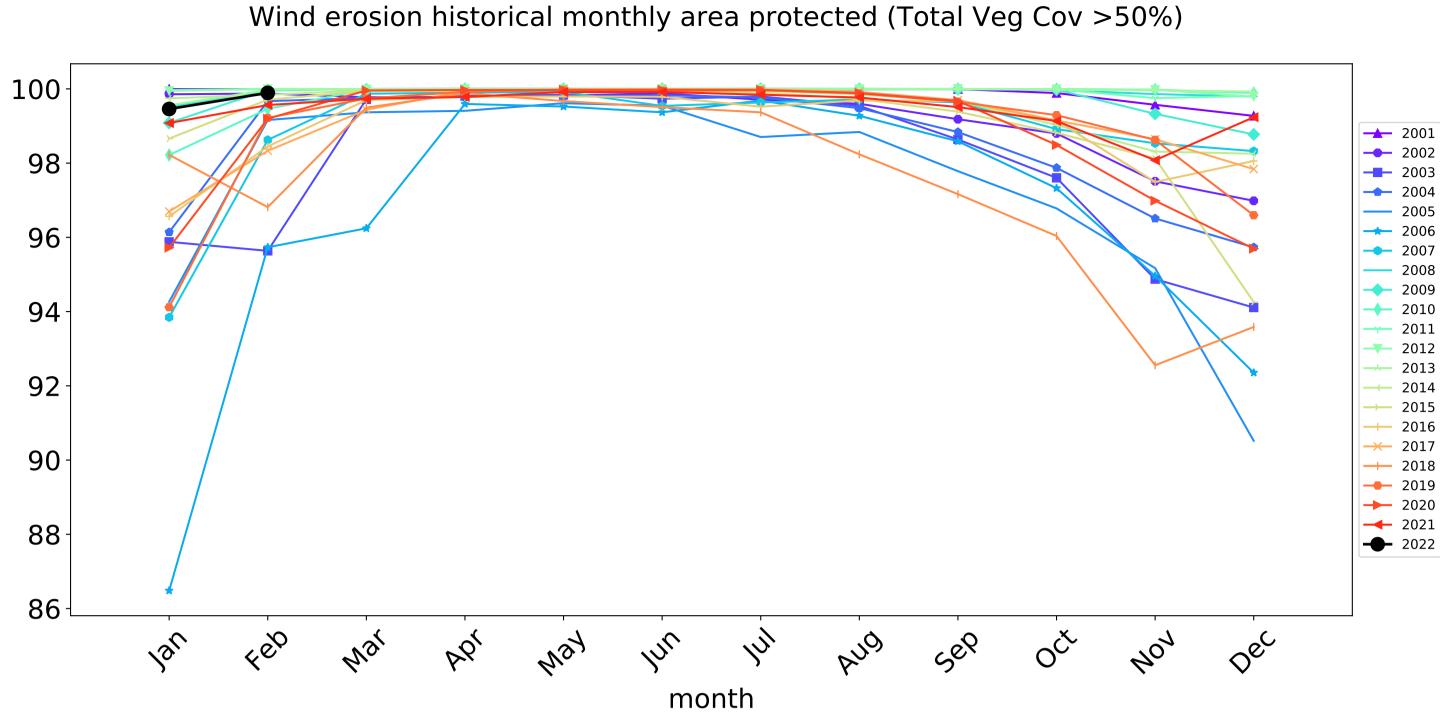


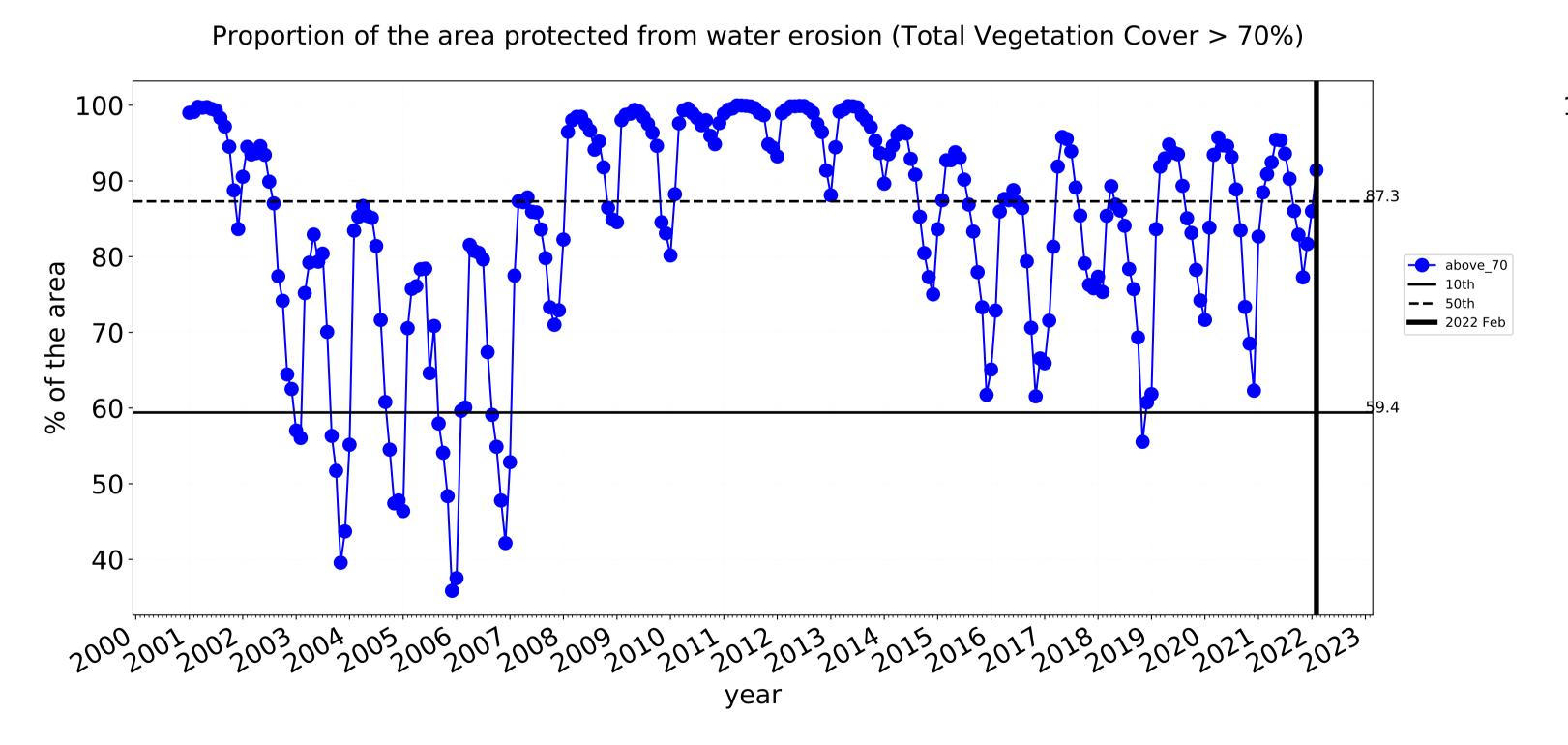


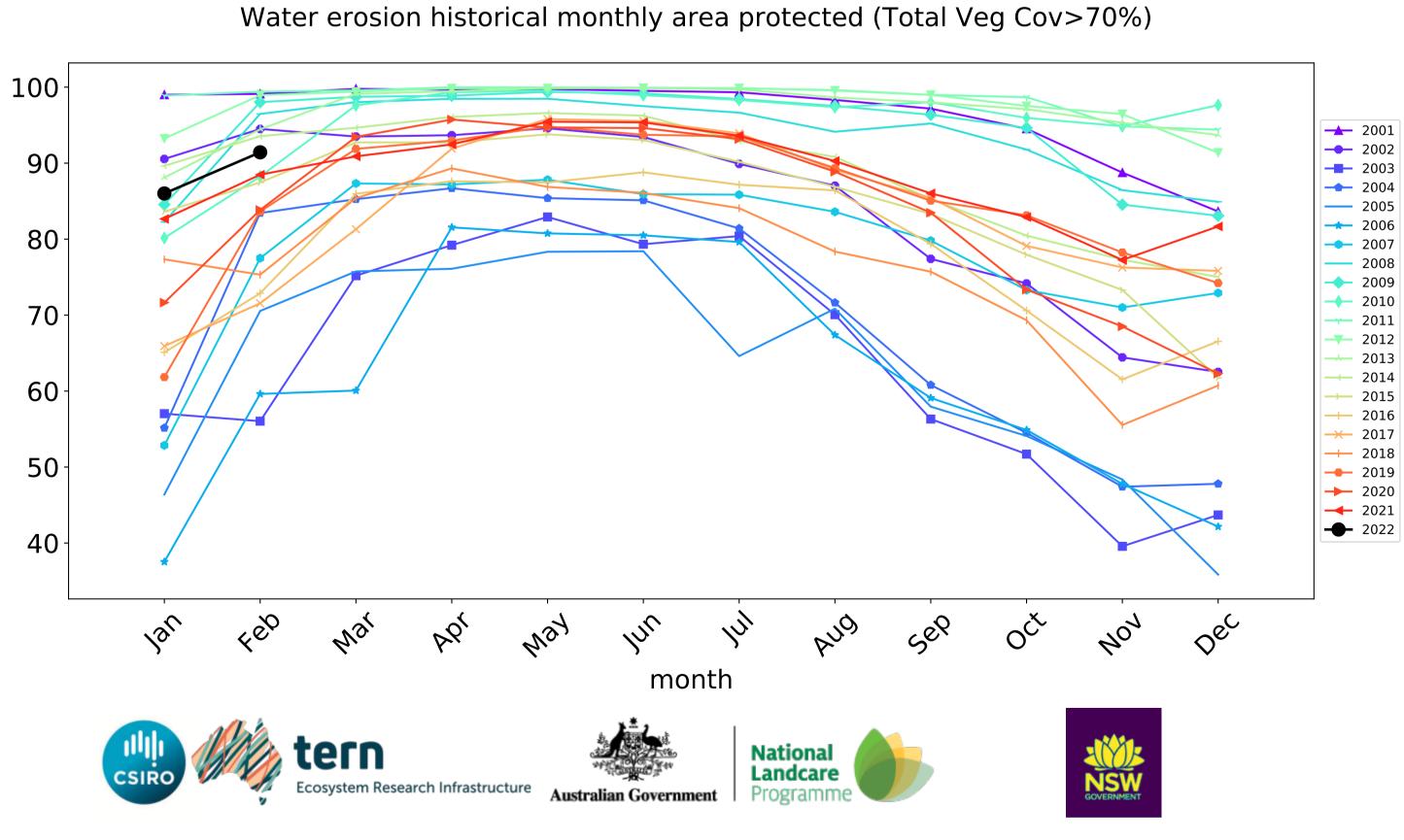


Grazing non forest timeseries





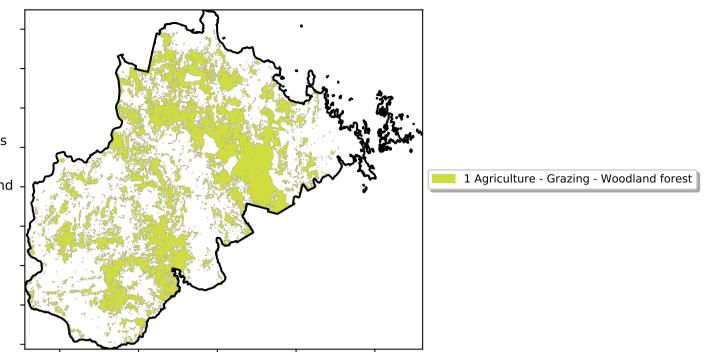




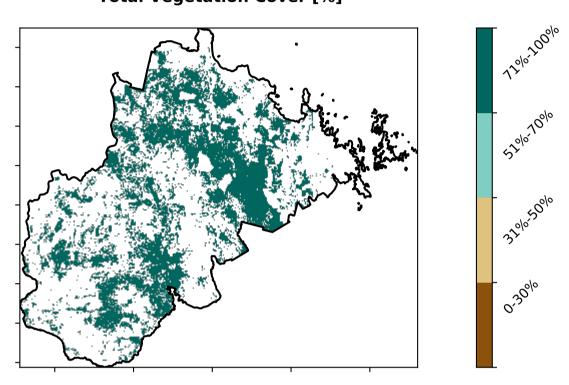
Grazing Woodland forest

Land use and forest cover

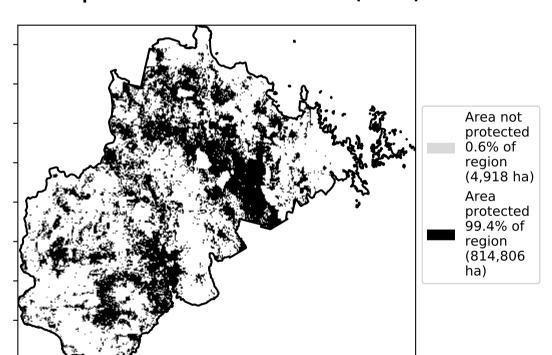




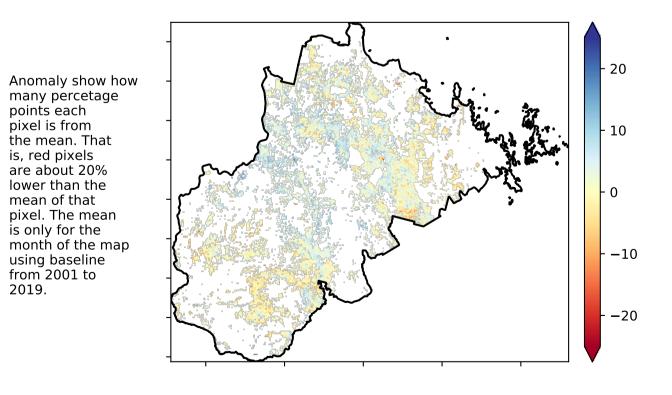
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

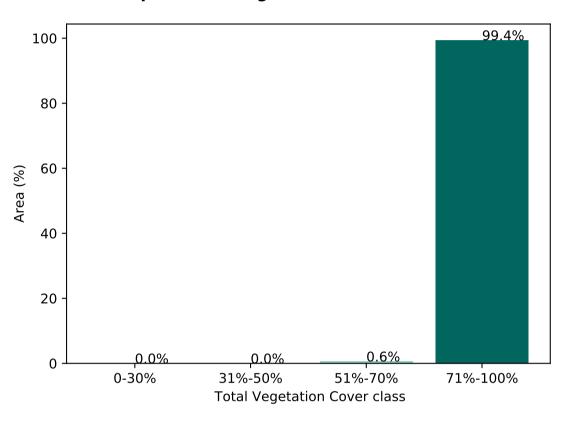


Total Vegetation Cover Anomaly [%]

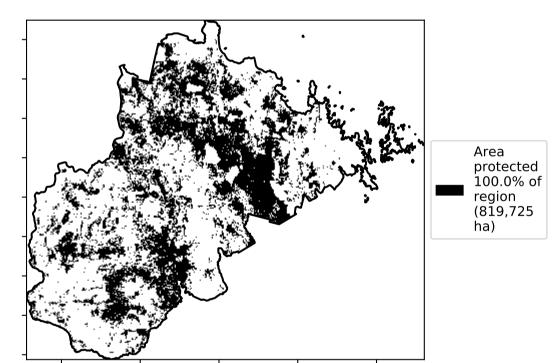


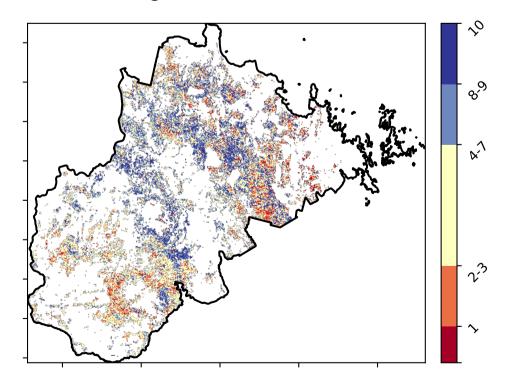
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





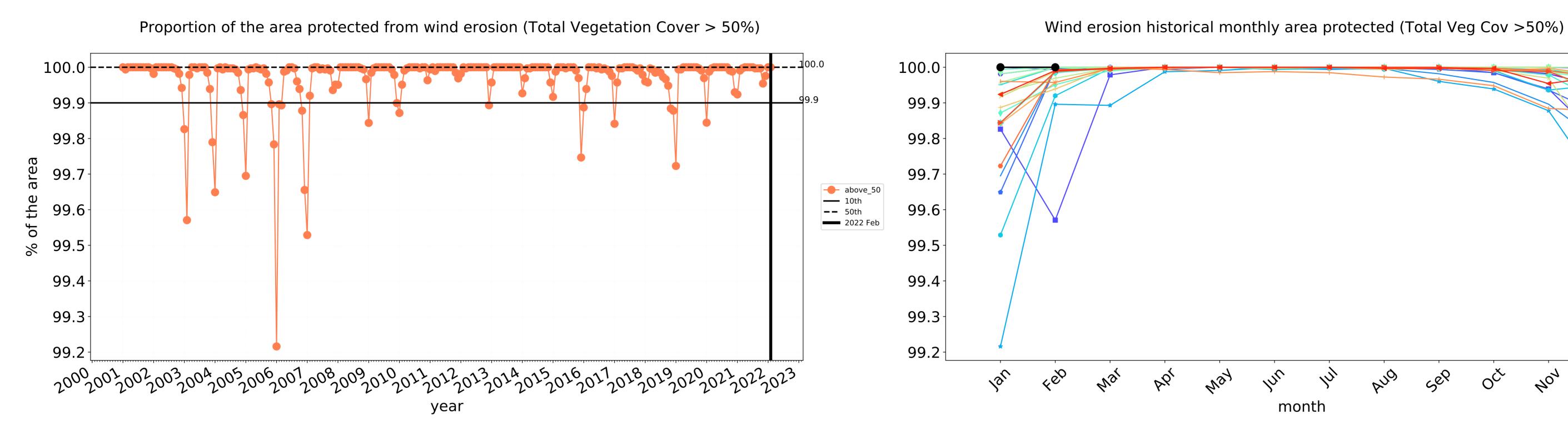


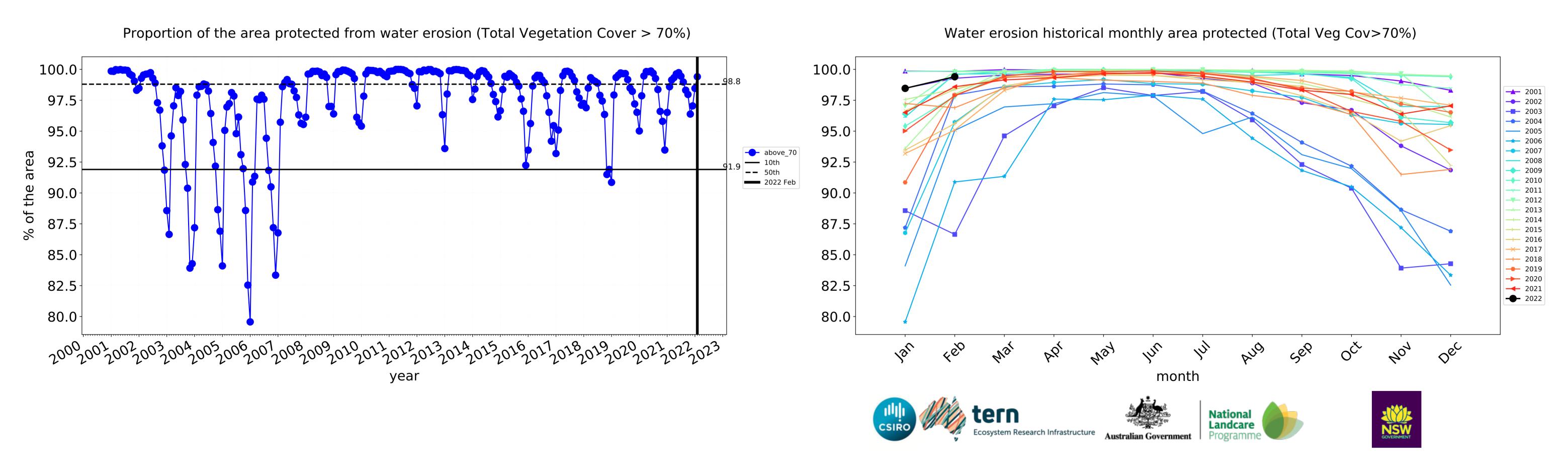






Grazing Woodland forest timeseries





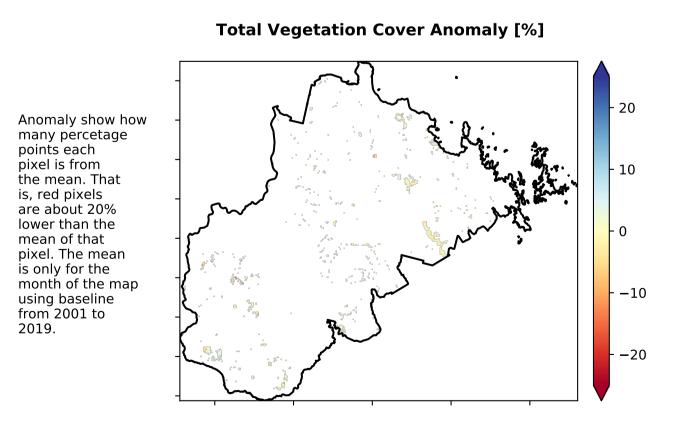
→ 2015 → 2016 → 2017 → 2018

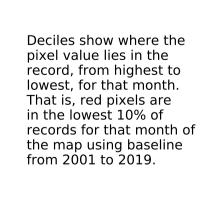
Grazing - Forest (non woodland)

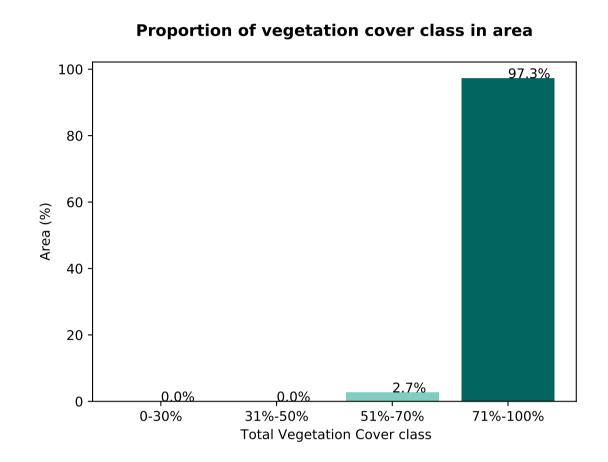
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Total Vegetation Cover [%]

Area not protected 2.7% of region (1,372 ha) Area protected 97.3% of region (49,452 ha)

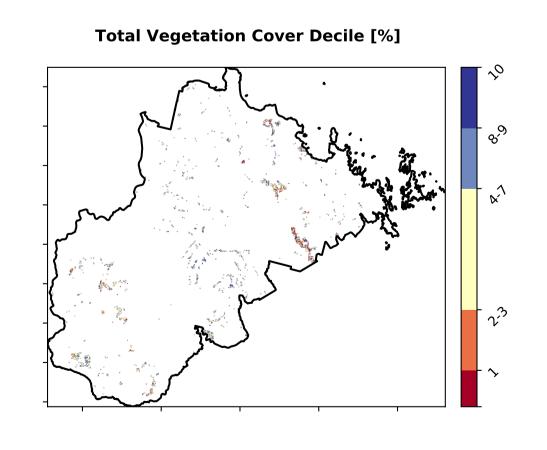






Area protected from wind erosion (>50%)

Area protected 100.0% of region (50,825 ha)

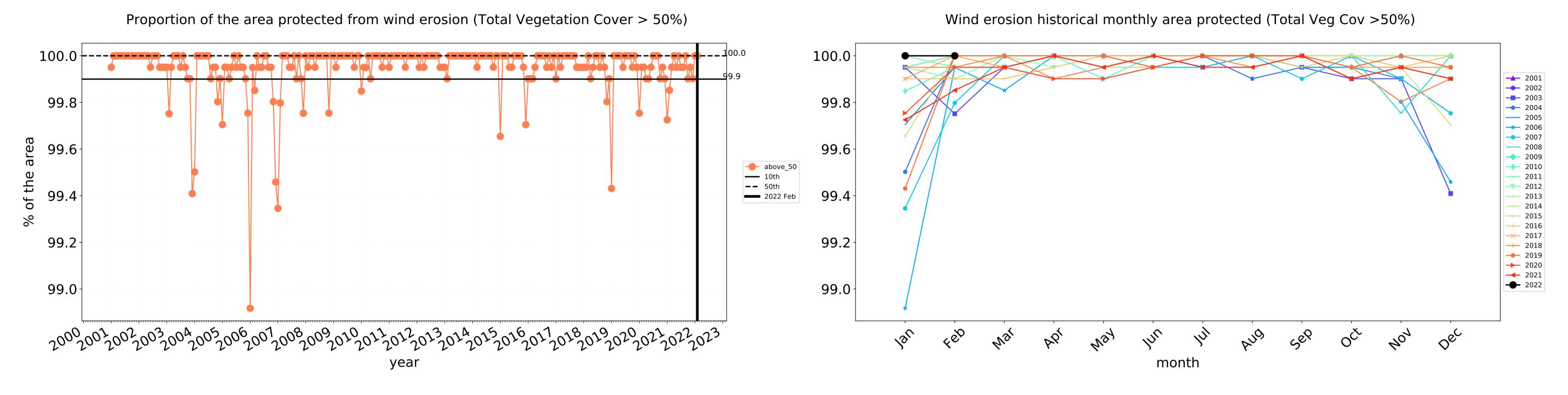


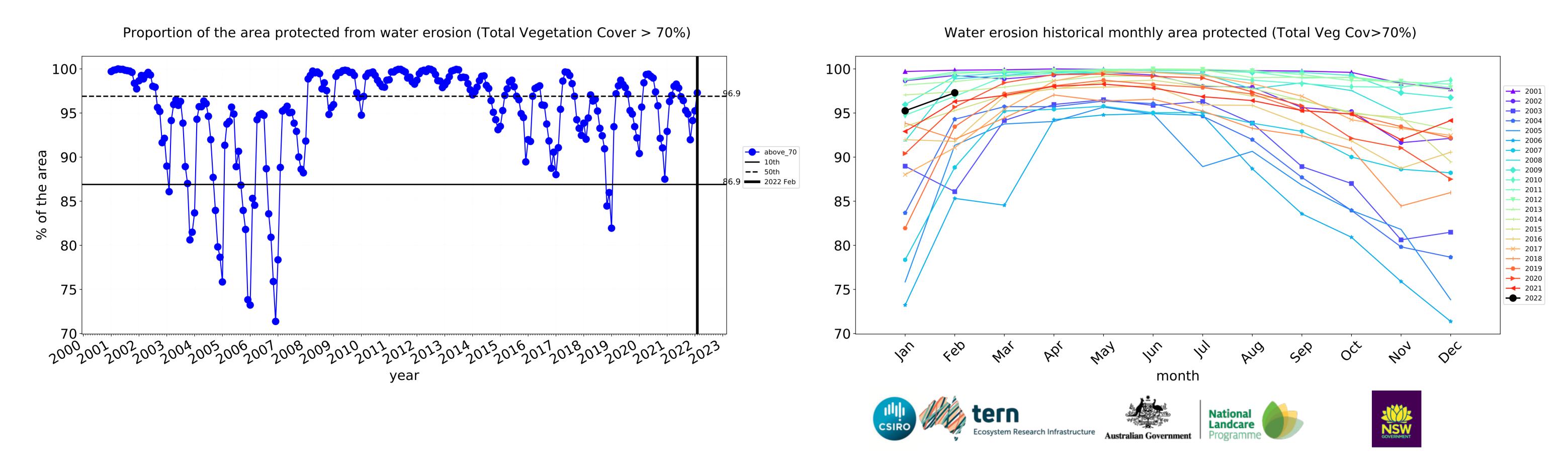






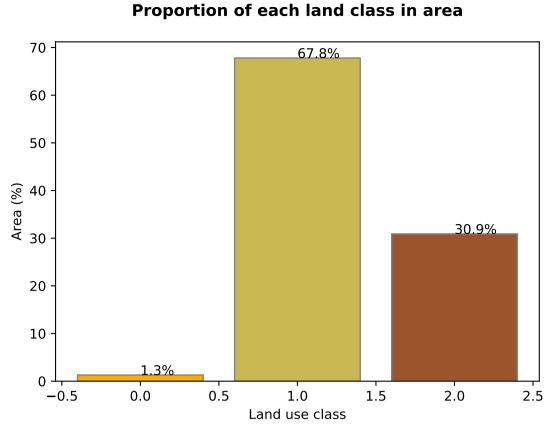


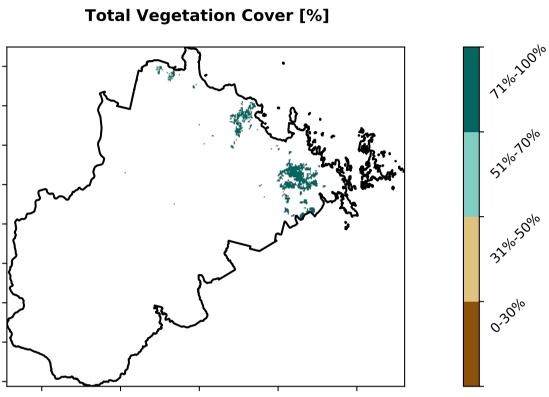


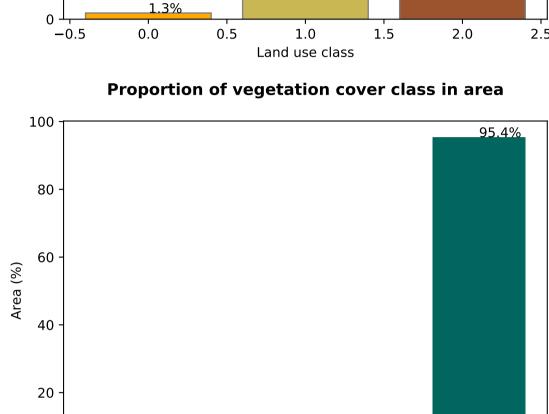


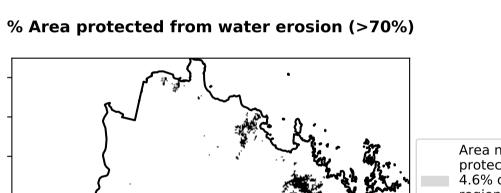
Irrigation

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







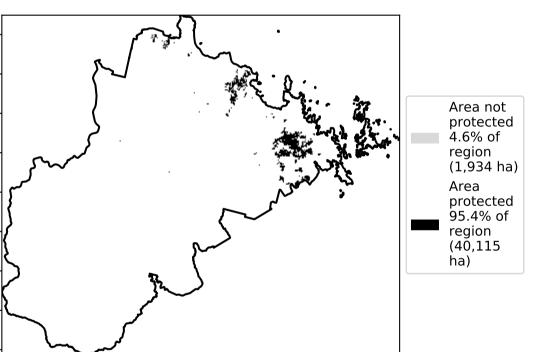


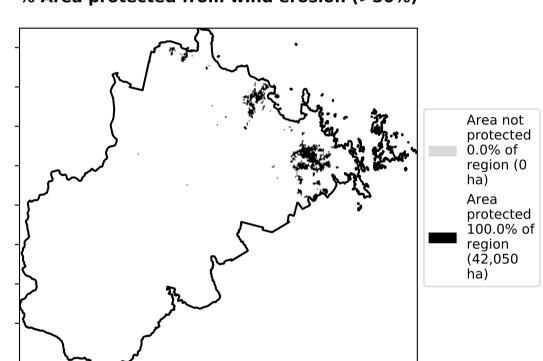
% Area protected from wind erosion (>50%)

Total Vegetation Cover class

31%-50%

0-30%





4.4%

71%-100%

51%-70%

Total Vegetation Cover Anomaly [%]

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

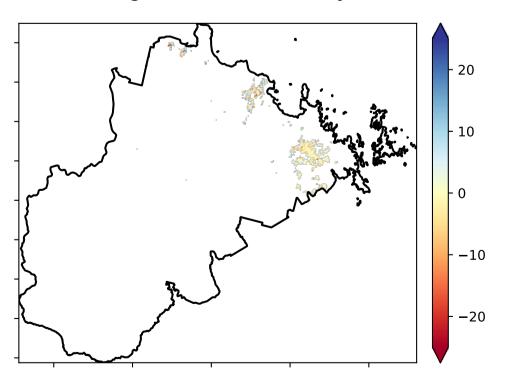
is, red pixels are about 20% lower than the mean of that

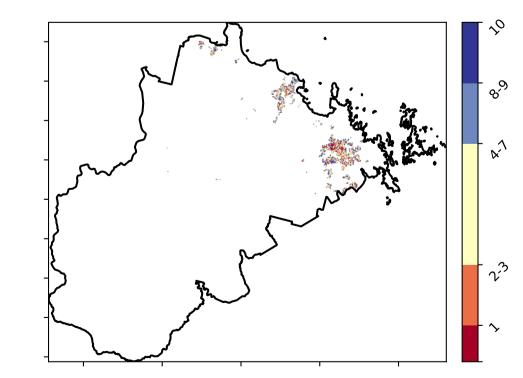
pixel. The mean

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.

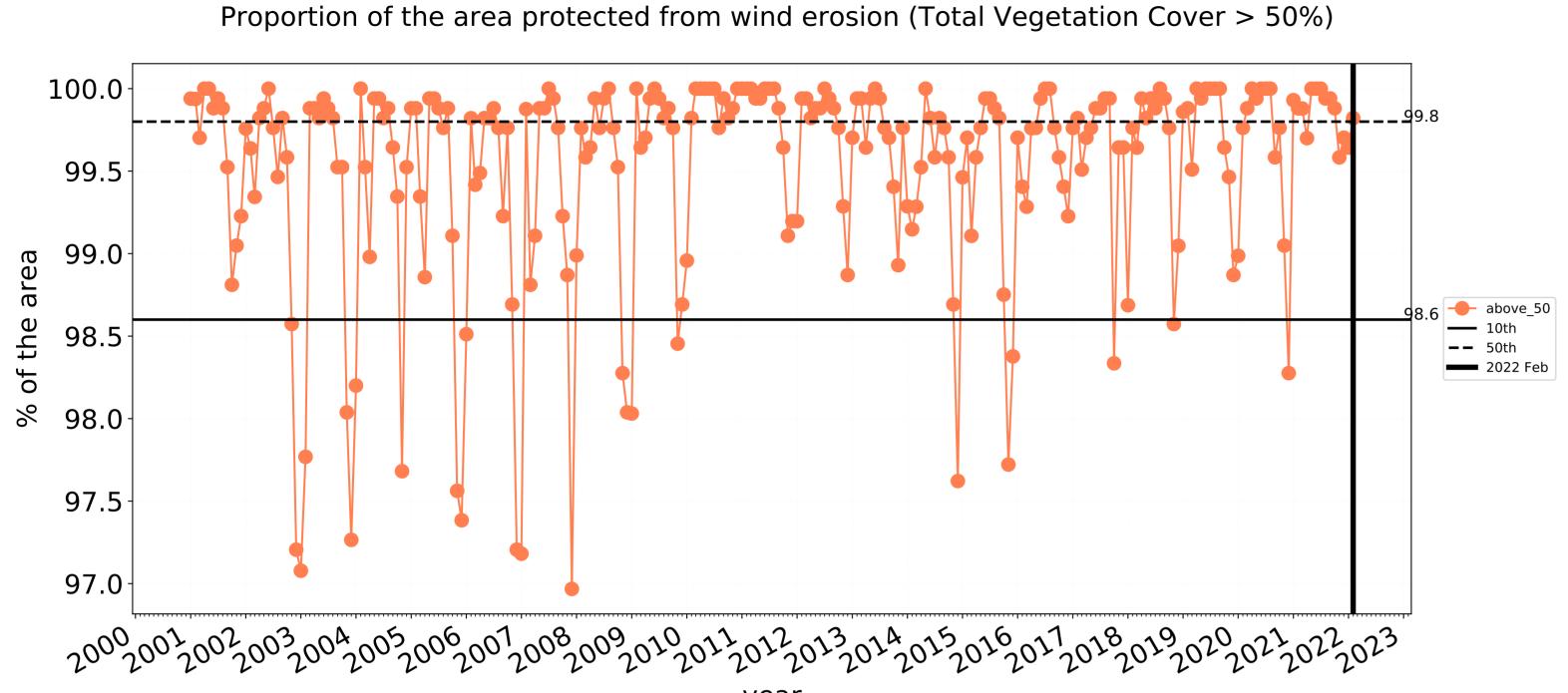


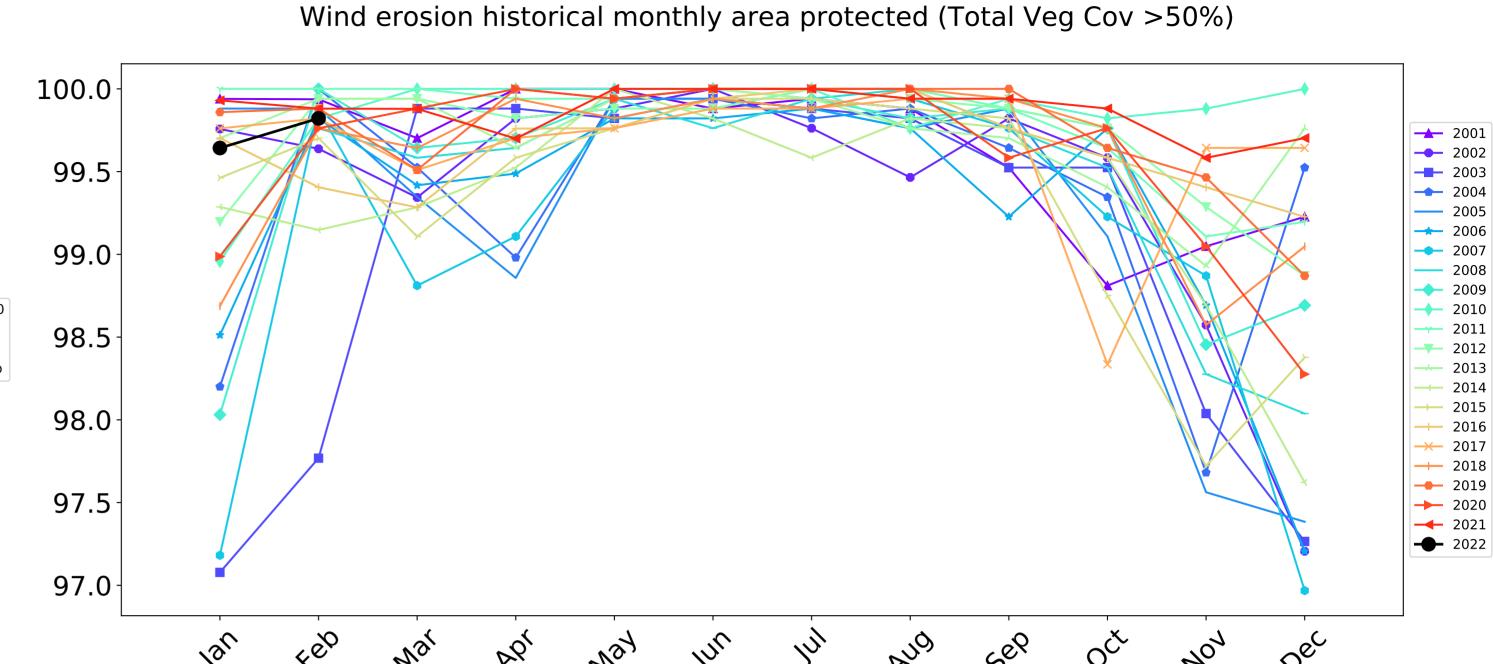




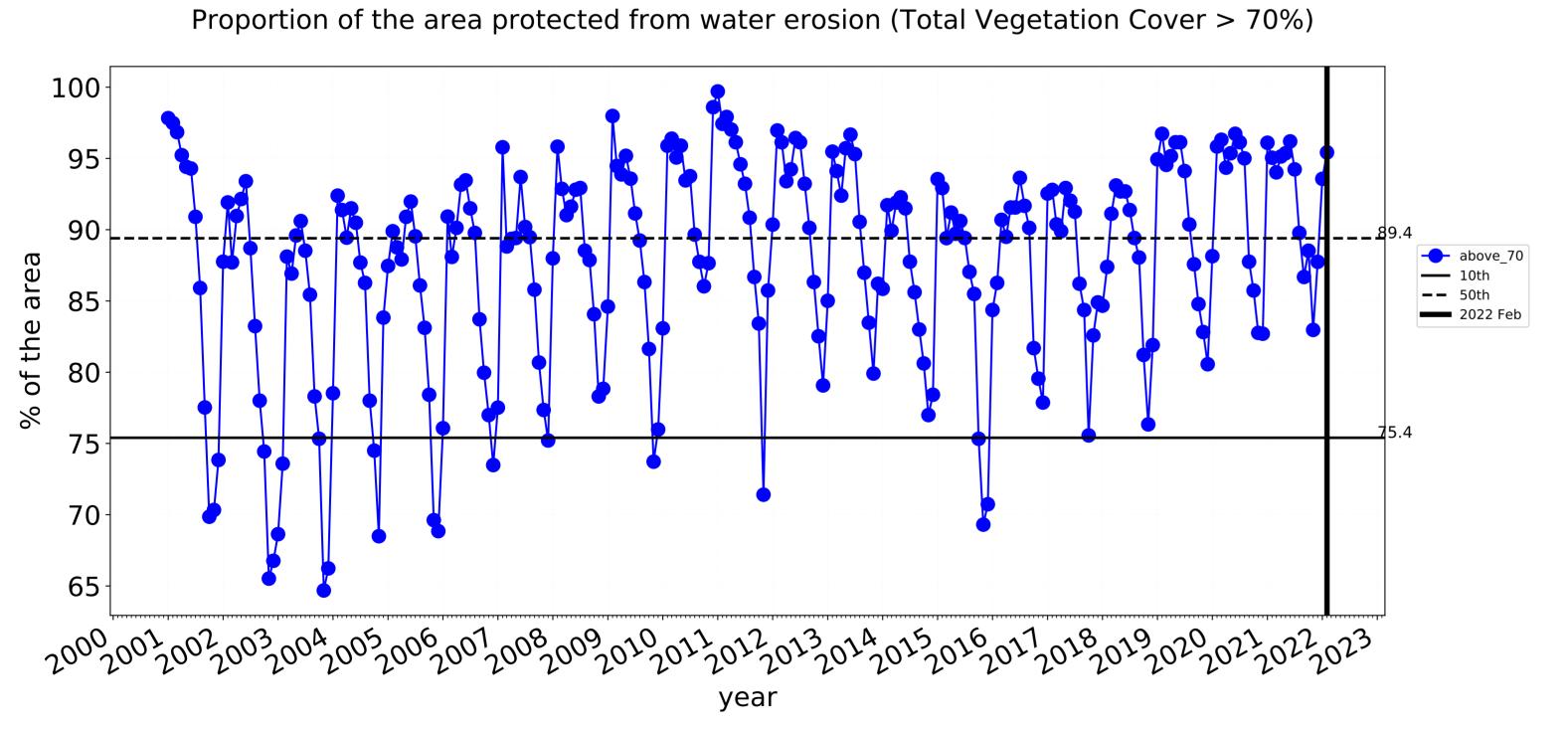


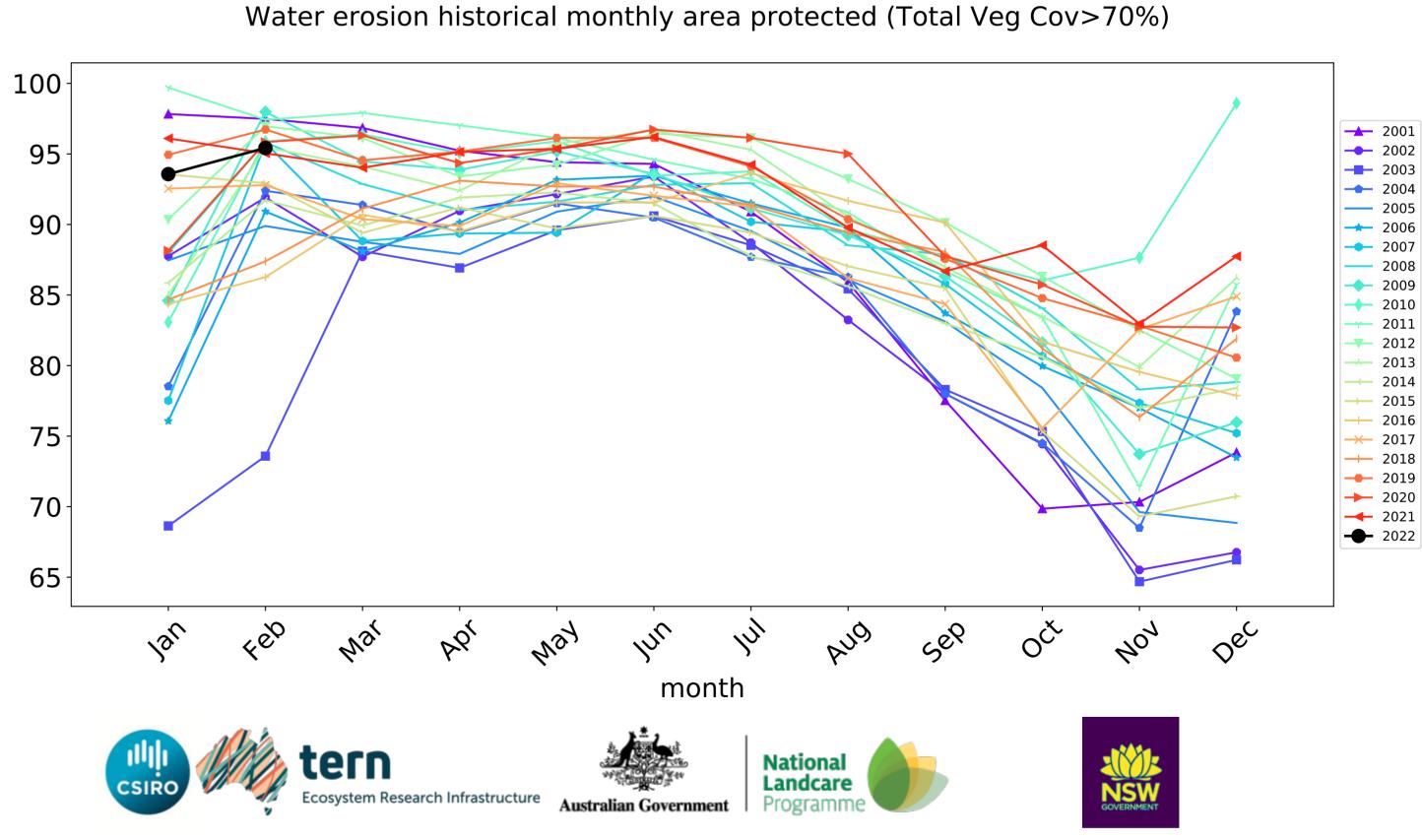
Irrigation timeseries





month



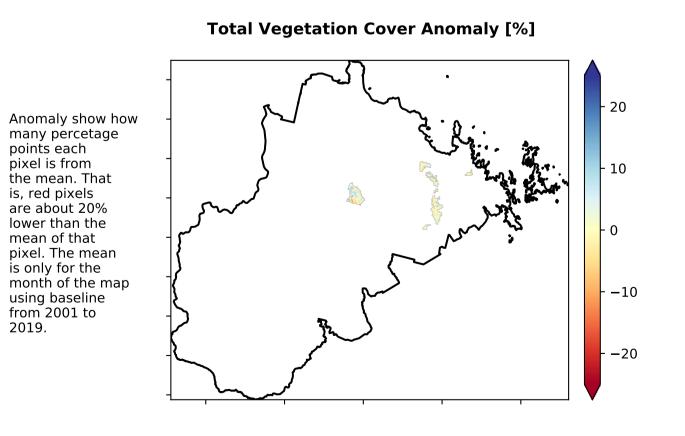


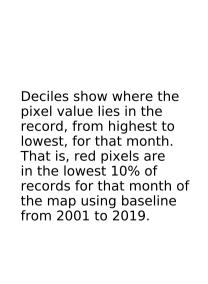
Production native forests and plantation forests

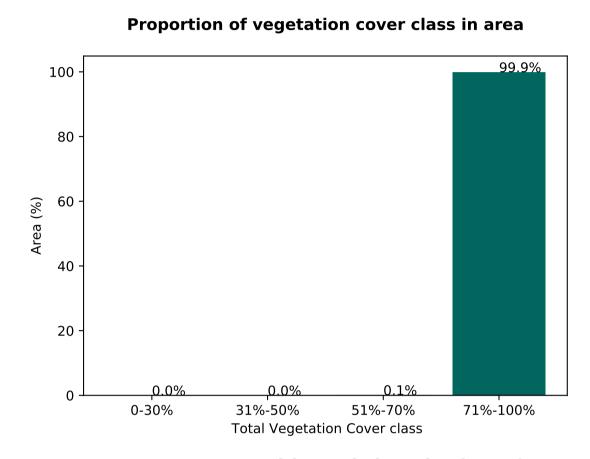
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) Of Australia (2018) 1 Production native forests and plantation forests 1 Production native forests and plantation forests

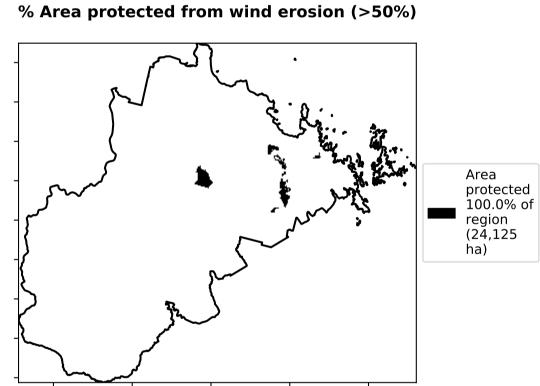
Total Vegetation Cover [%]

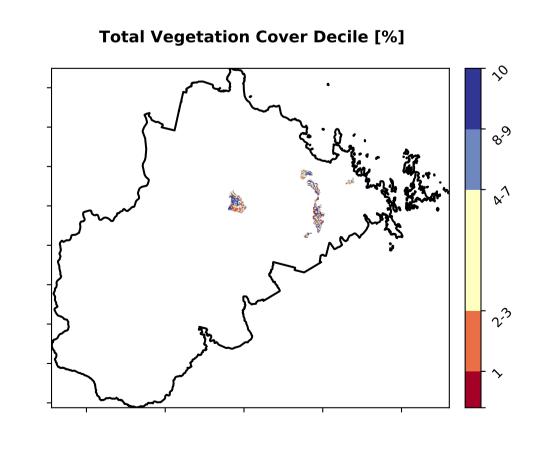
Area not protected 0.1% of region (24 ha) Area protected 99.9% of region (24,100 ha)











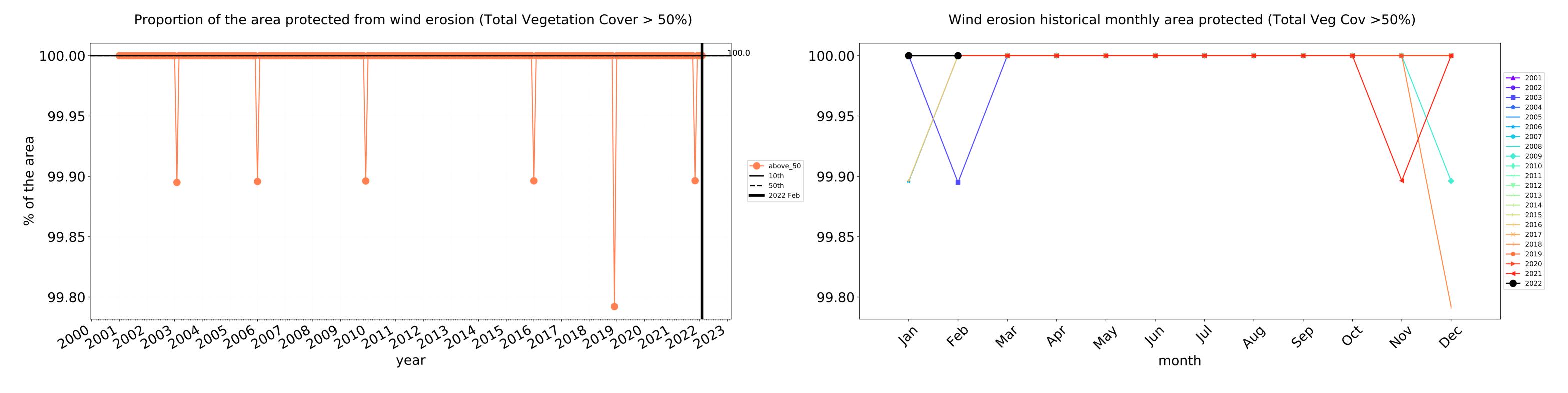


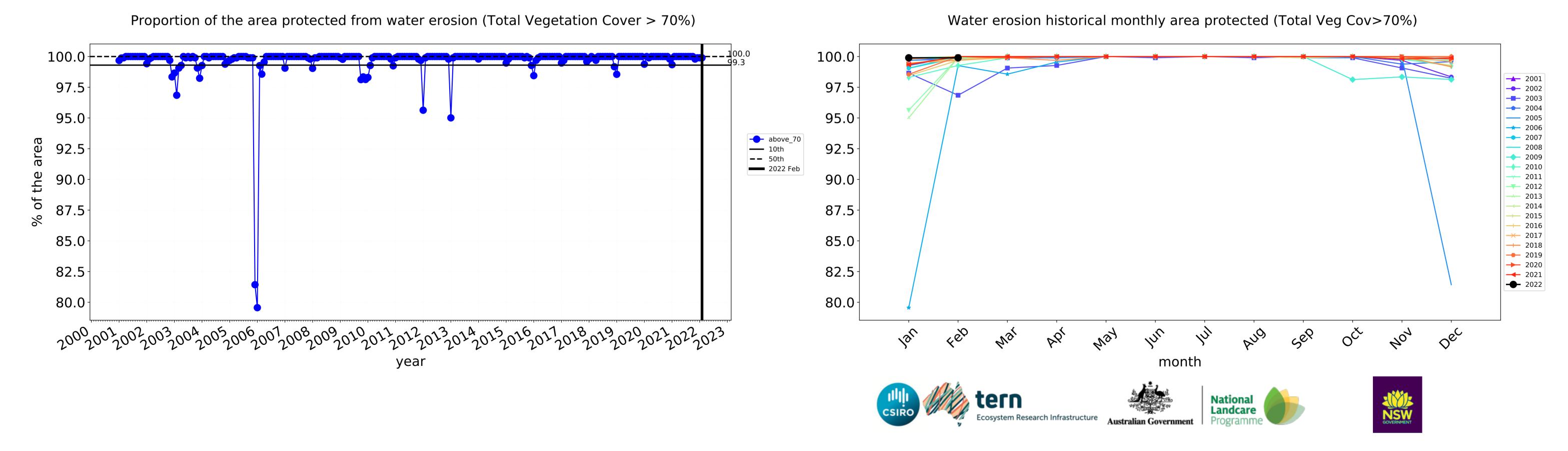






Production native forests and plantation forests timeseries





Whitsunday_(R) (2,344,850 ha and no data 37,026 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	2,344,850	100.0% 2,344,250	99.8% 2,340,800	94.5% 2,216,625	80.2% 1,880,400	41.5% 973,775	15.5% 363,375
Conservation and natural environments	159,100	99.9% 158,875	99.4% 158,100	95.1% 151,300	85.0% 135,200	55.9% 88,925	27.5% 43,825
Conservation and natural environments non forest	28,100	99.6% 27,975	98.8% 27,750	83.9% 23,575	50.3% 14,125	11.7% 3,300	4.4% 1,225
Conservation and natural environments Woodland forest	55,825	100.0% 55,800	99.6% 55,625	97.7% 54,550	91.4% 51,050	56.1% 31,300	18.1% 10,100
Conservation and natural environments Forest (non woodland)	75,175	99.9% 75,100	99.4% 74,725	97.3% 73,175	93.1% 70,025	72.3% 54,325	43.2% 32,500
Agriculture	2,084,400	100.0% 2,084,350	99.9% 2,083,075	94.8% 1,975,800	80.4% 1,675,300	40.8% 850,825	14.6% 303,800
Grazing	2,042,050	100.0% 2,042,000	99.9% 2,040,800	94.8% 1,935,375	80.4% 1,641,850	41.3% 842,675	14.8% 301,700
Grazing non forest	1,171,500	100.0% 1,171,450	99.9% 1,170,250	91.4% 1,071,075	71.2% 834,675	32.0% 374,850	10.4% 122,025
Grazing Woodland forest	819,725	100.0% 819,725	100.0% 819,725	99.4% 814,850	93.1% 763,475	54.6% 447,225	21.1% 173,250
Grazing - Forest (non woodland)	50,825	100.0% 50,825	100.0% 50,825	97.3% 49,450	86.0% 43,700	40.5% 20,600	12.6% 6,425
Irrigation	42,050	100.0% 42,050	99.8% 41,975	95.4% 40,125	78.9% 33,175	19.3% 8,100	5.0% 2,100
Production native forests and plantation forests	24,125	100.0% 24,125	100.0% 24,125	99.9% 24,100	99.0% 23,875	72.2% 17,425	35.3% 8,525







