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

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

Land use forest cover:

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 2021

Vegetation Cover Feb 2021

Land use and forest cover

Catchment Scale

Derived from

Use of Australia

(2018) and Forests

of Australia (2018)

Anomaly show how many percetage points each pixel is from

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

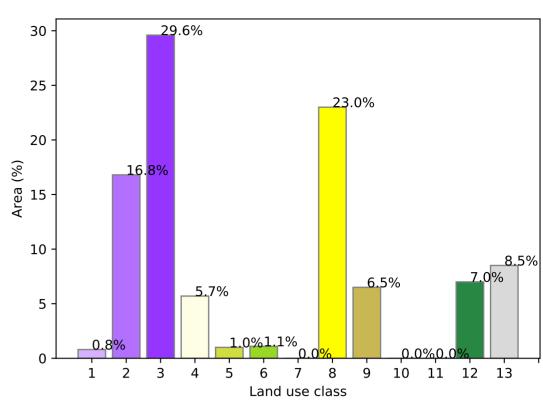
using baseline from 2001 to

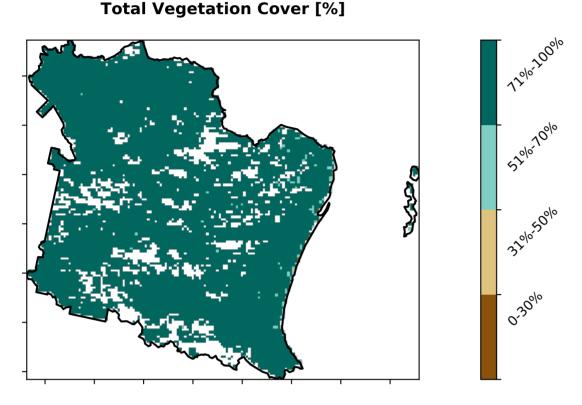
2019.

Land Use and Forests of Australia (2018)

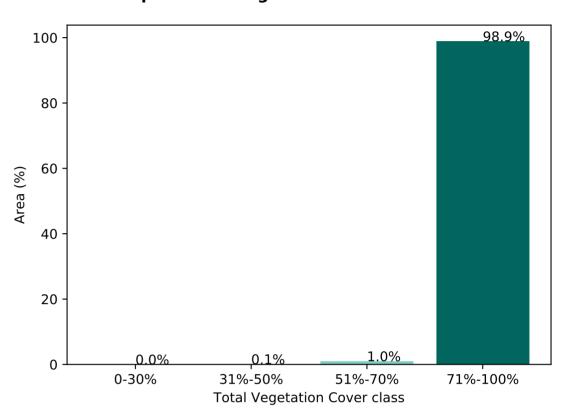
Legend with land class forest cover and number, i.e. Forests is 12 1 Conservation and natural environments - Non-forest 2 Conservation and natural environments - Woodland forest 3 Conservation and natural environments - Non-Woodland forest 4 Agriculture - Grazing - Non-forest 5 Agriculture - Grazing - Woodland forest 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

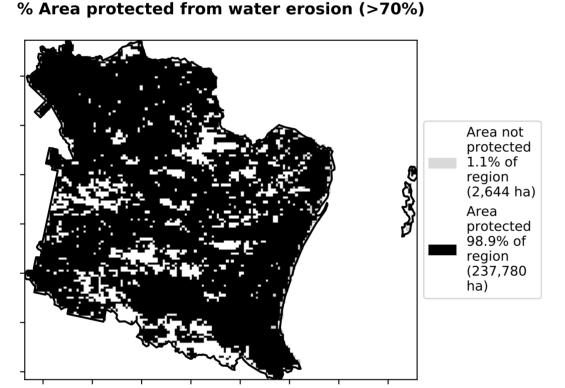
Proportion of each land class in area



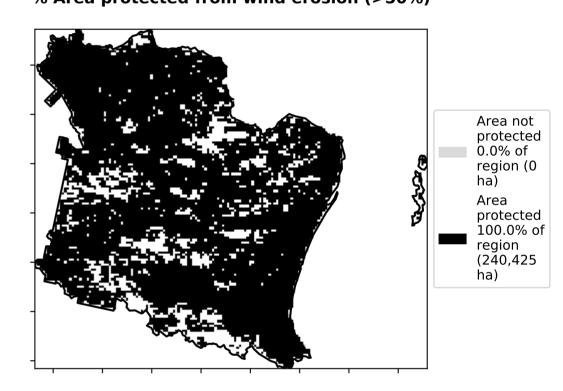


Proportion of vegetation cover class in area

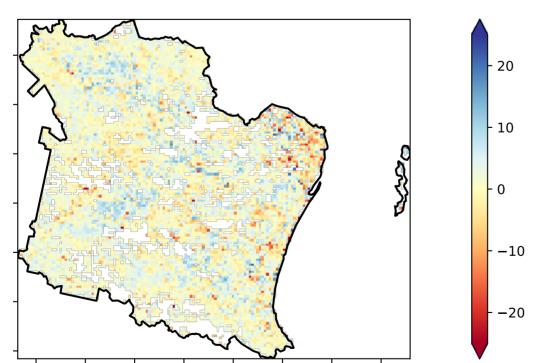




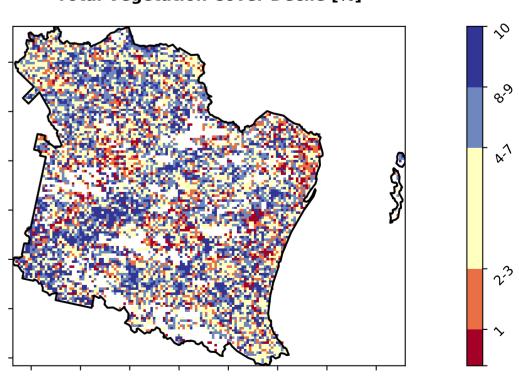
% Area protected from wind erosion (>50%)



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.

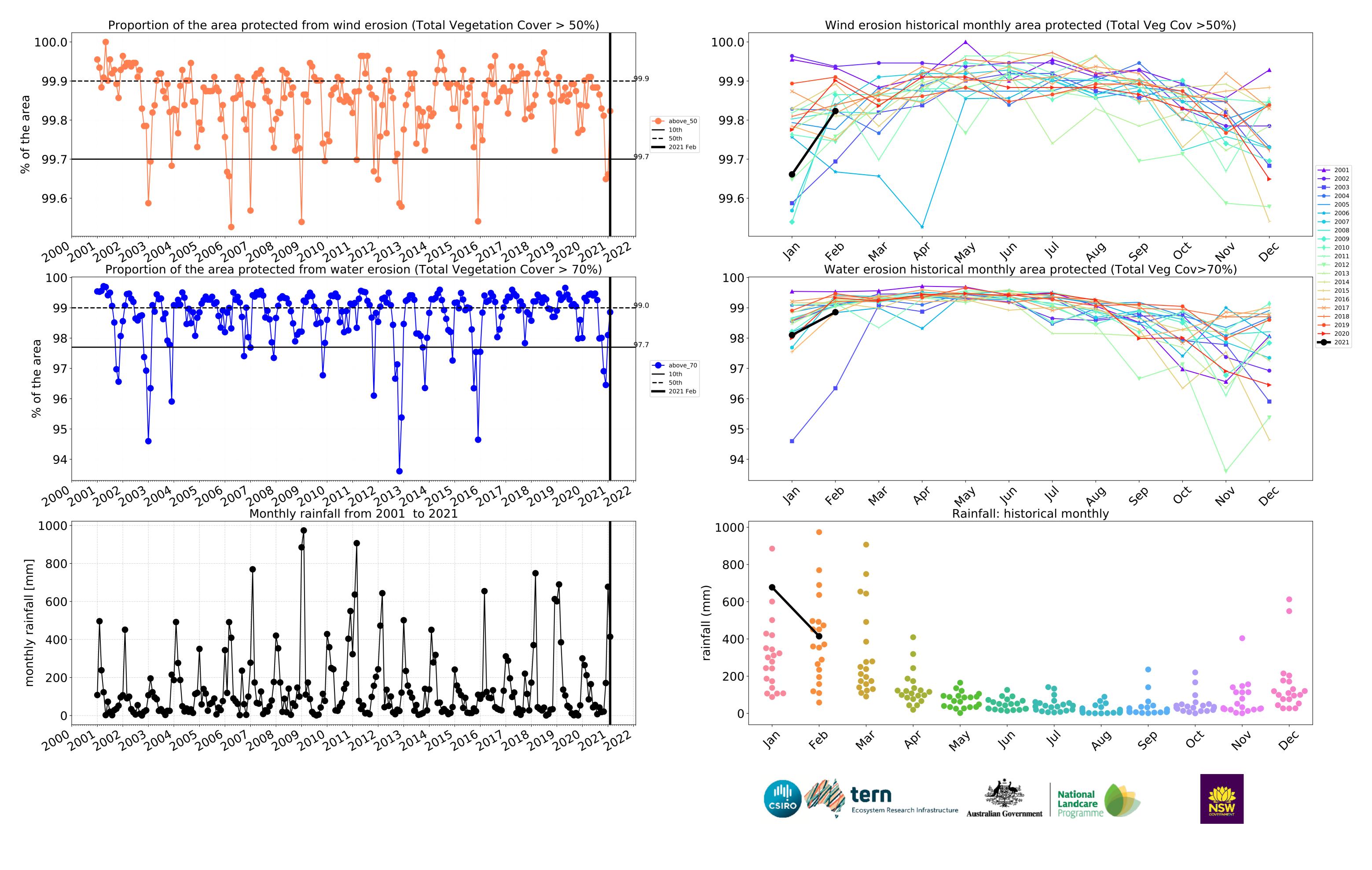


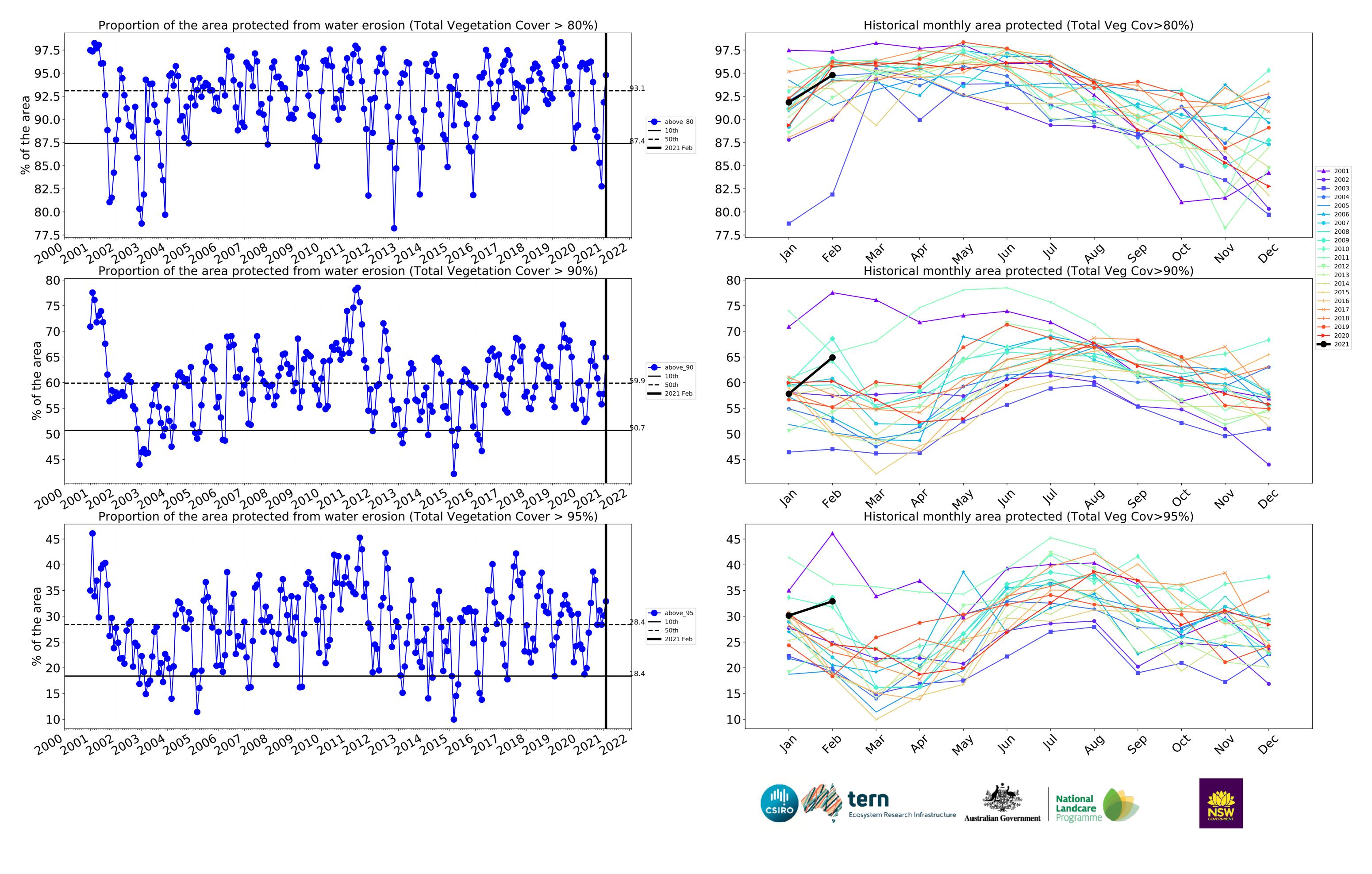










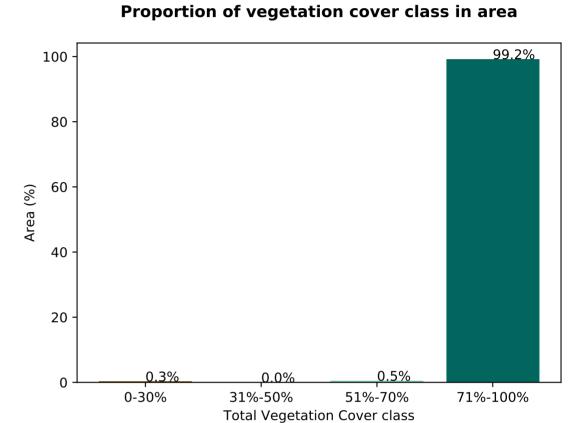


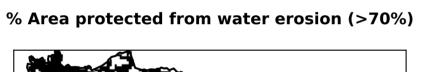
Conservation and natural environments

Land use and forest cover Catchment Scale Land Use and Forests of Australia (2018) 1 Conservation and natural environments - Nonforest Derived from 2 Conservation and natural environments - Woodland Catchment Scale Land Use of Australia 3 Conservation and natural environments - Non-(2018) and Forests of Australia (2018) **Total Vegetation Cover [%]**

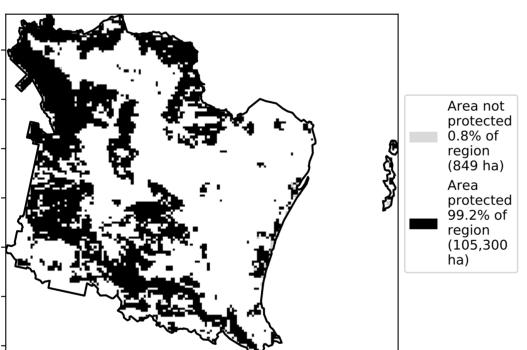
62.8% 60 50 40 35.6% 20 10 3 Land use class

Proportion of each land class in area

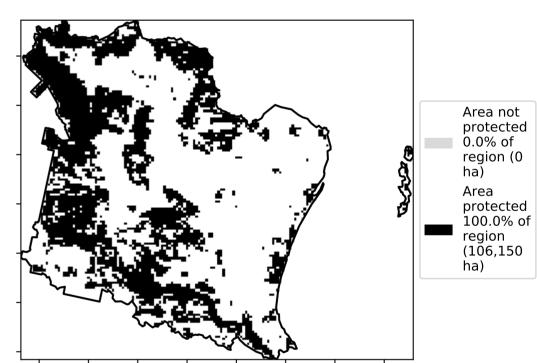




Total Vegetation Cover Anomaly [%]



% Area protected from wind erosion (>50%)



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.

- 20 - 10 -10**-**20

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.

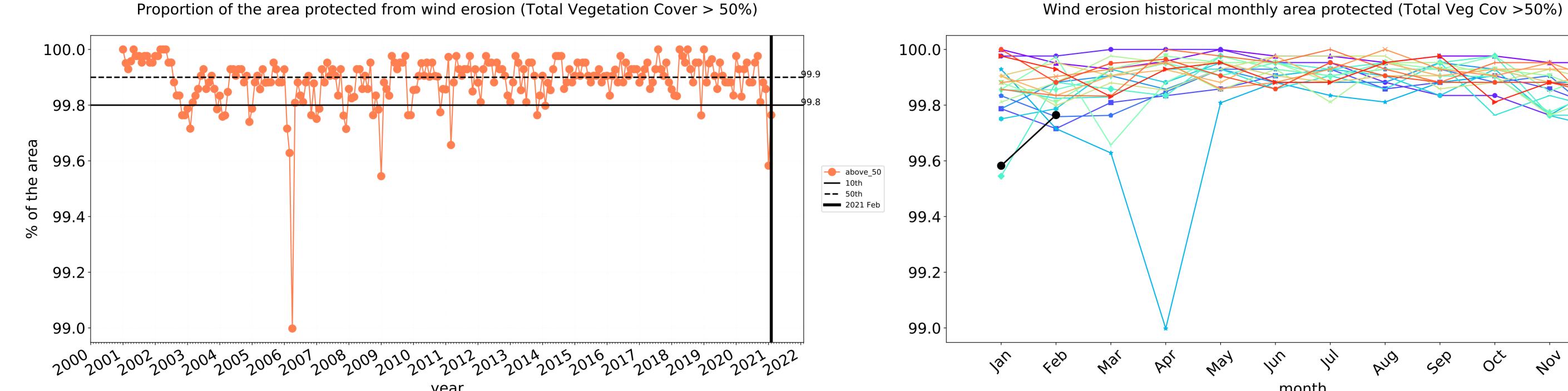
Total Vegetation Cover Decile [%]

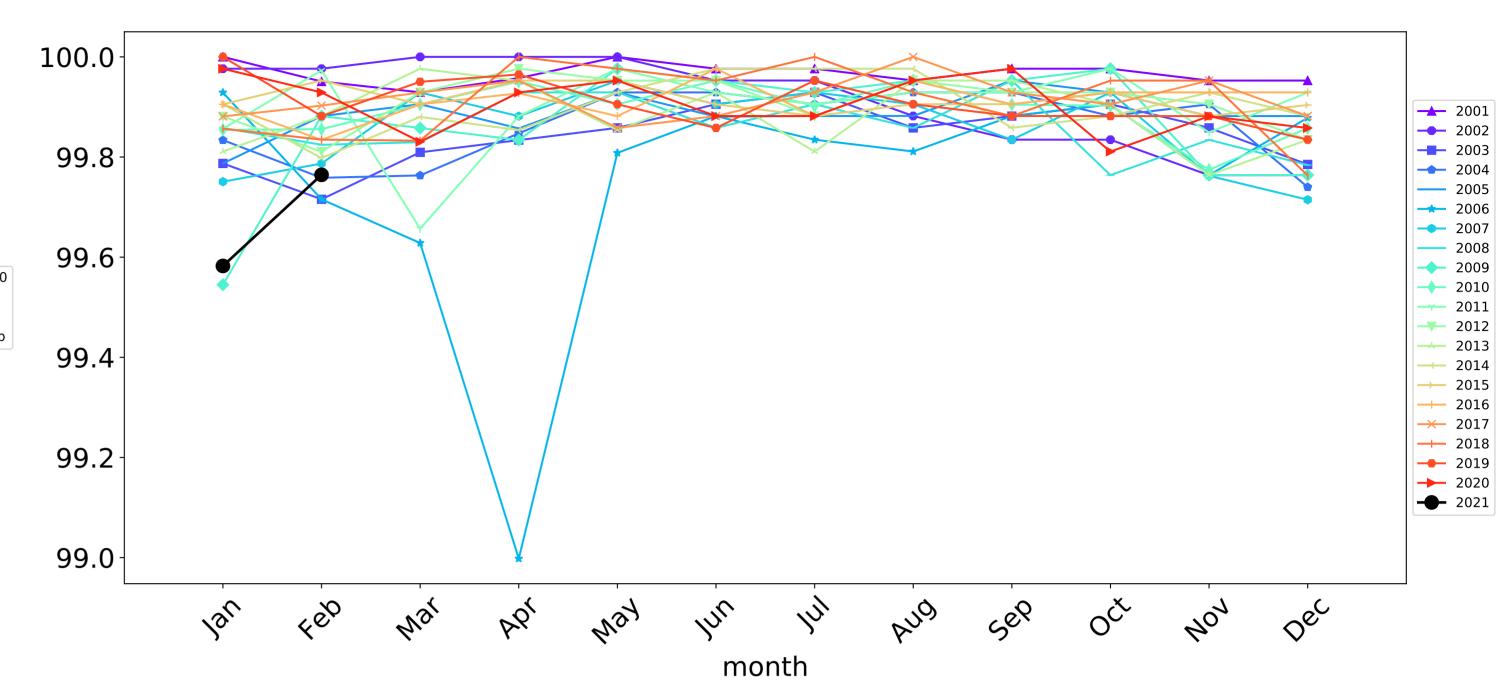


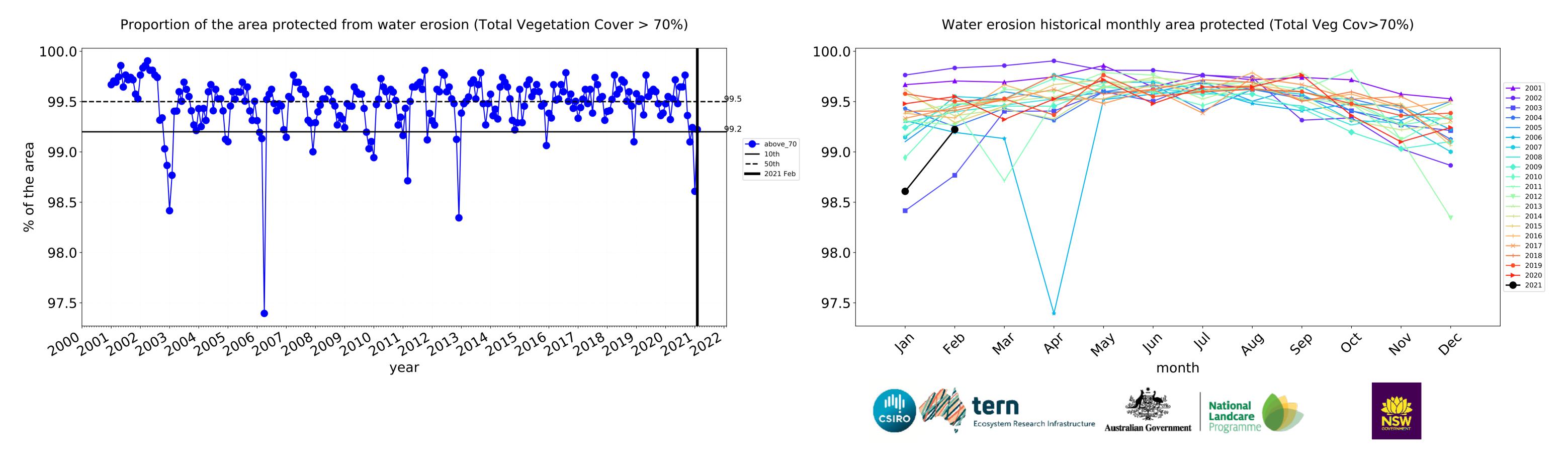


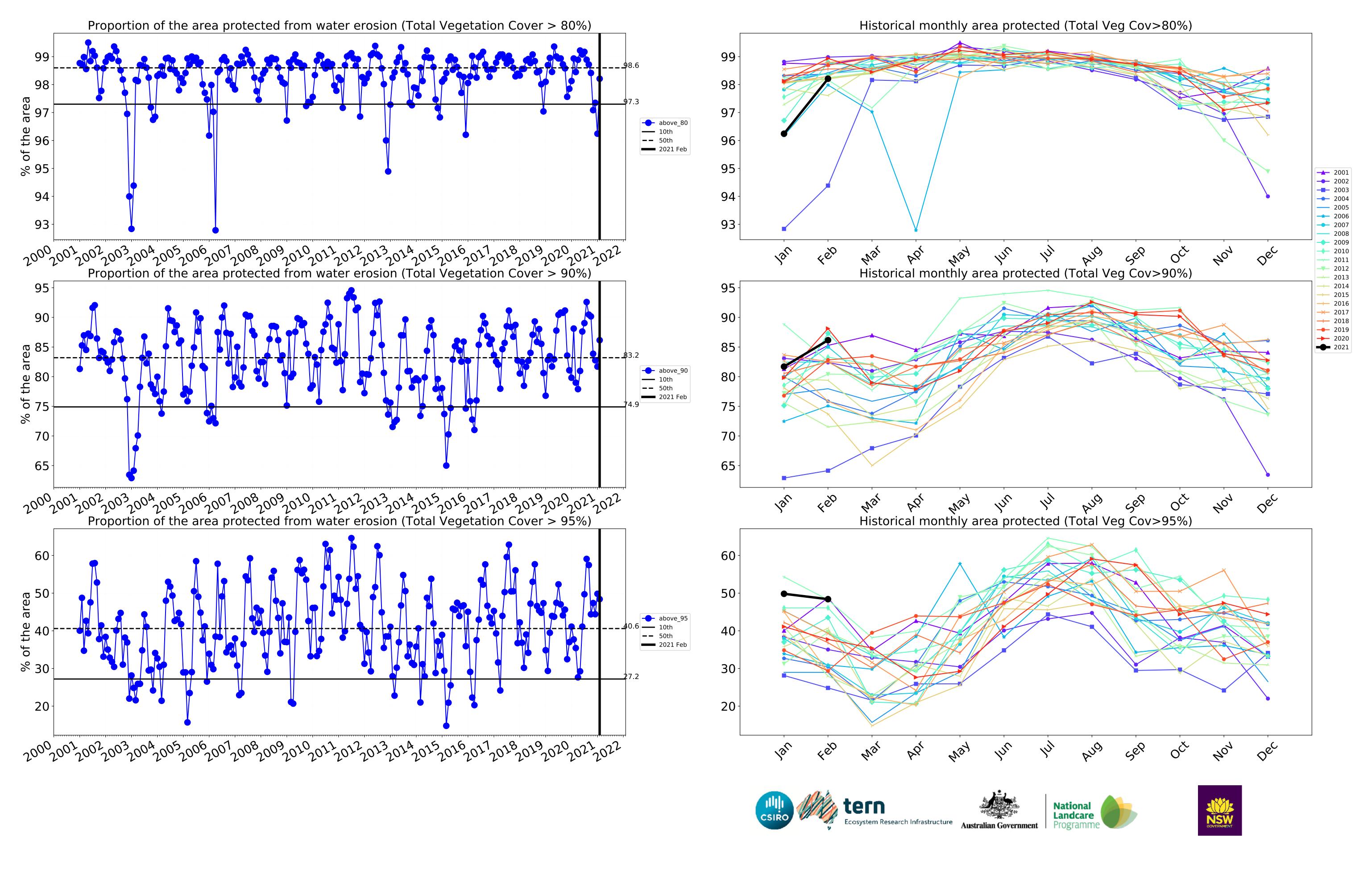


Conservation and natural environments timeseries









Conservation and natural environments Woodland forest

Catchment Scale Land Use and Forests of Australia (2018)

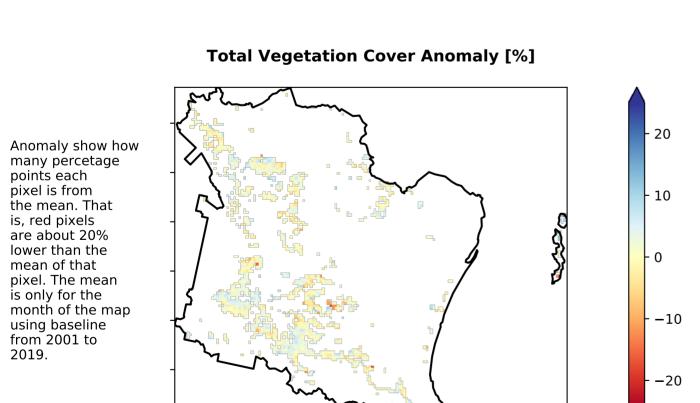
Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

Derived from

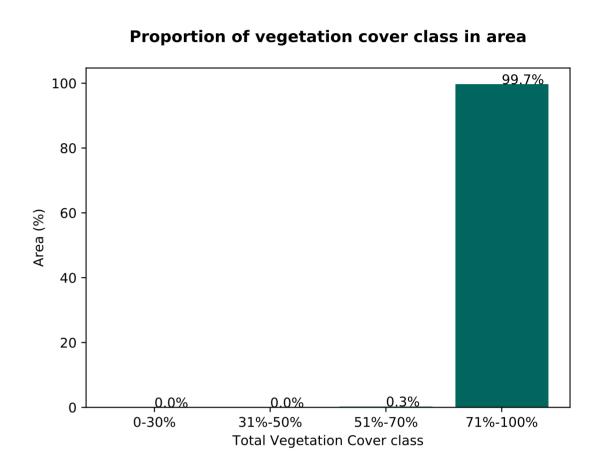
Land use and forest cover 1 Conservation and natural environments – Woodland forest

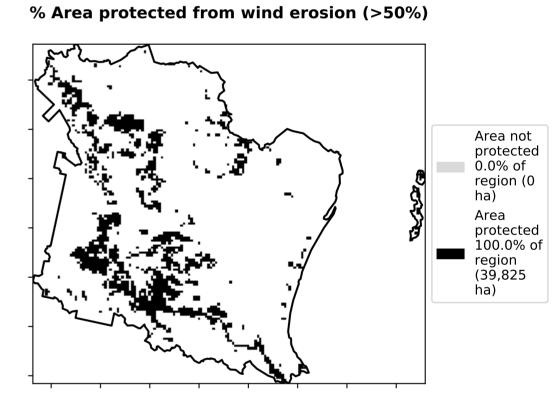
Total Vegetation Cover [%]

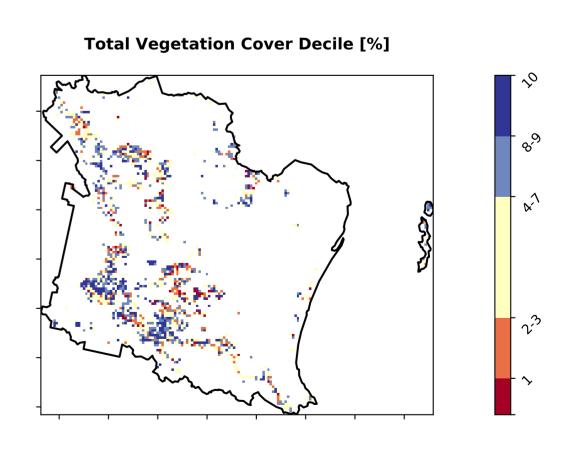
% Area protected from water erosion (>70%) Area not protected 0.3% of region (119 ha) Area protected 99.7% of region (39,705 ha)



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.







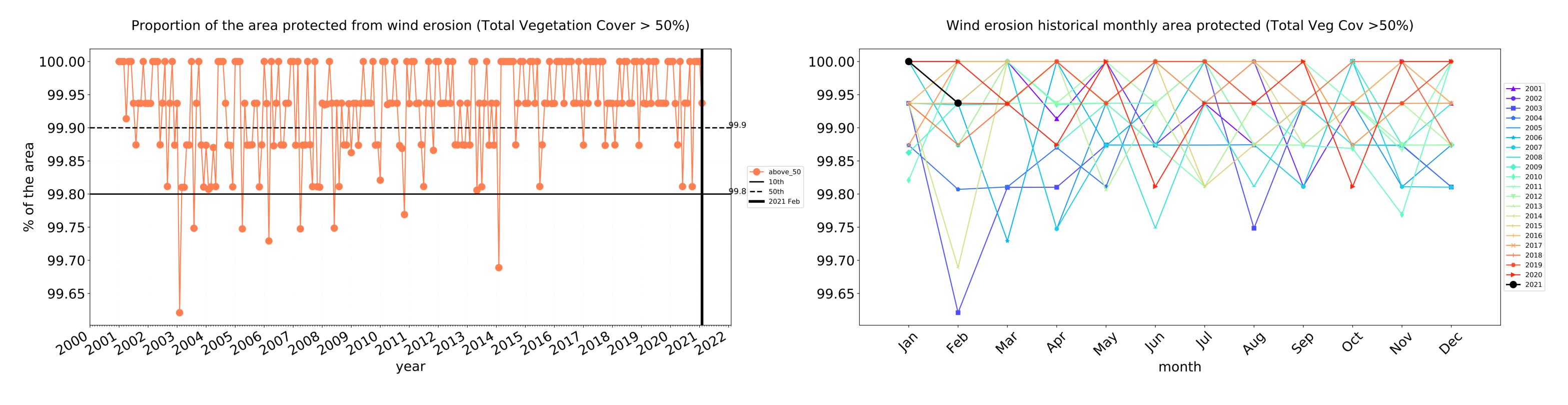


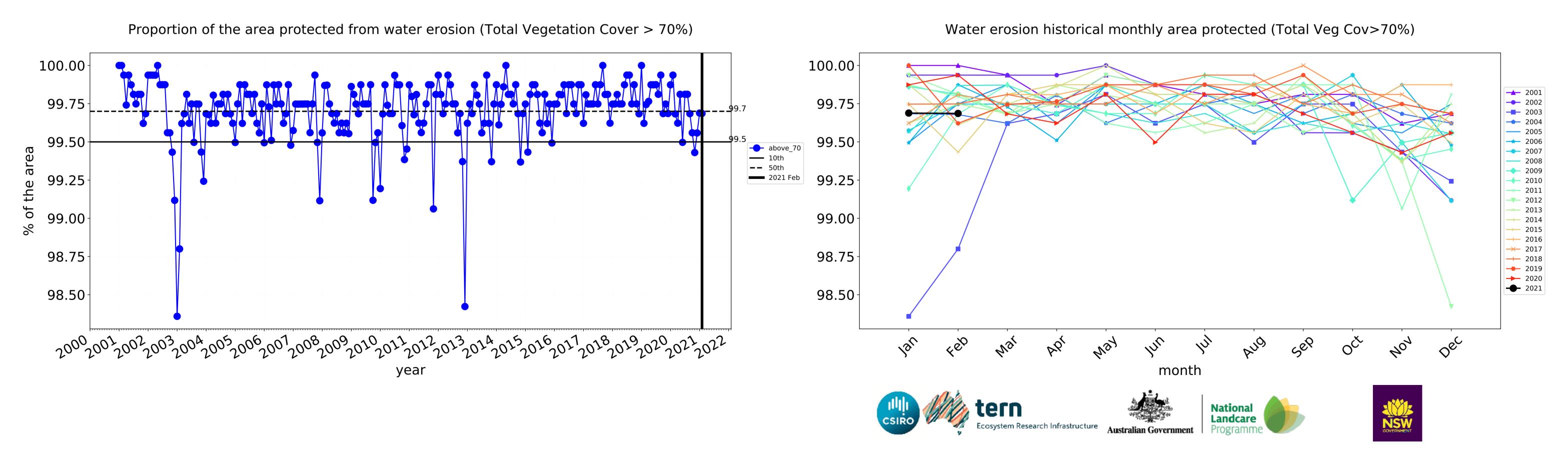


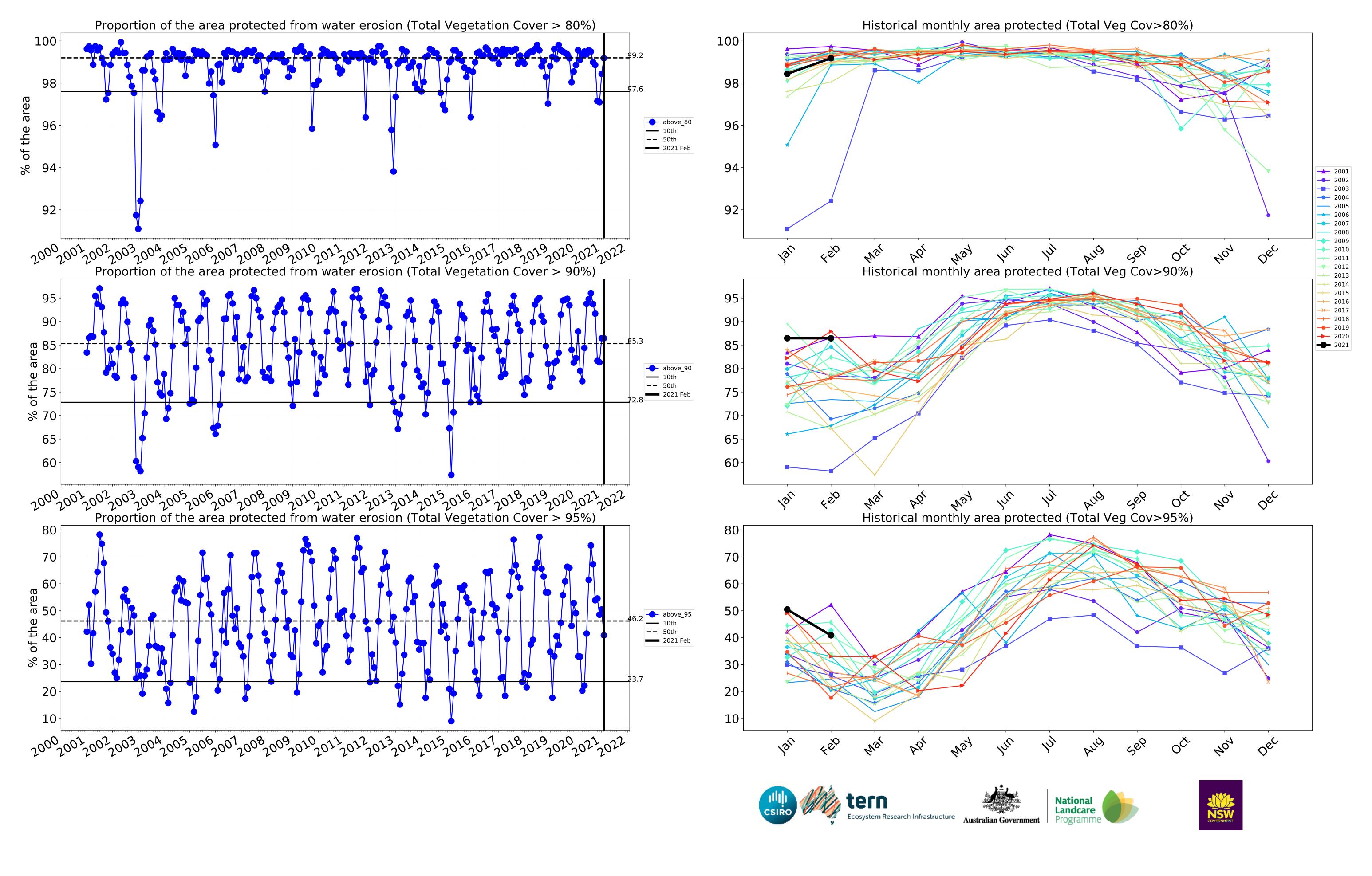




Conservation and natural environments Woodland forest timeseries





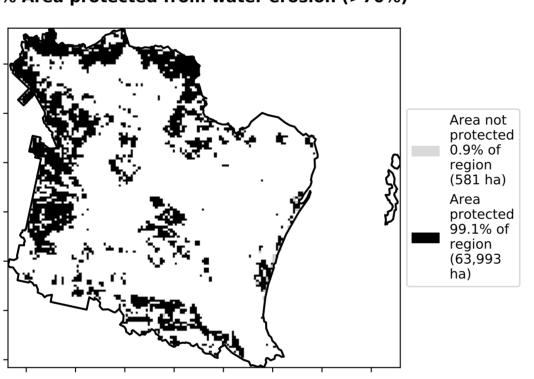


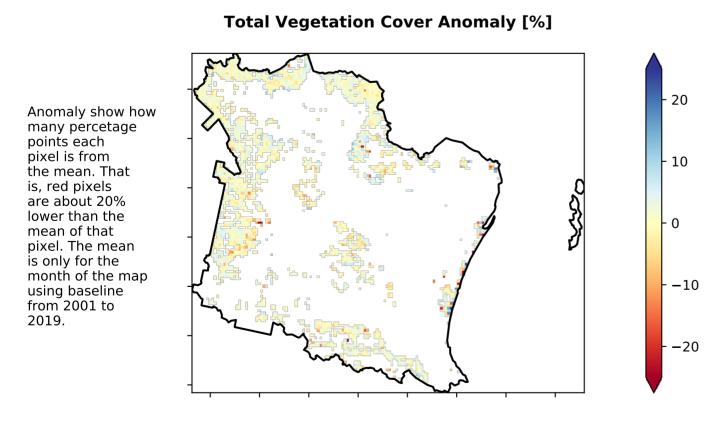
Conservation and natural environments Forest (non woodland)

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)

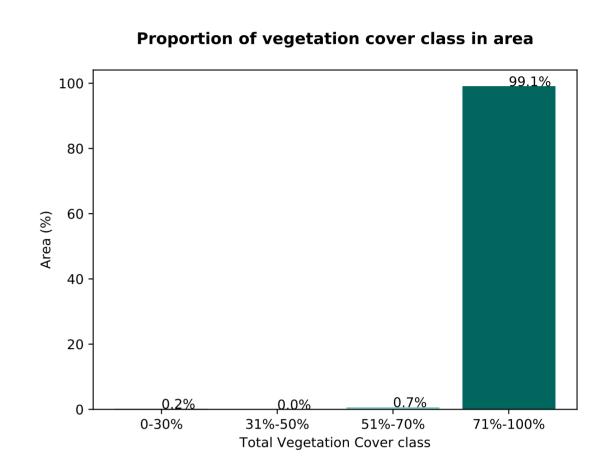
Total Vegetation Cover [%]

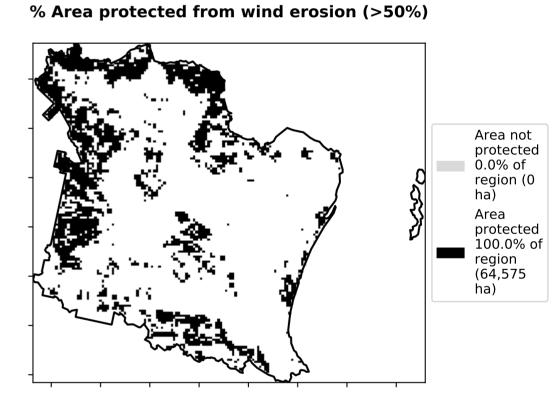
% Area protected from water erosion (>70%)

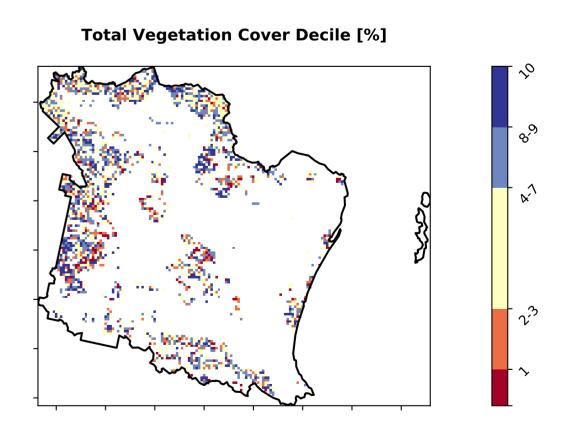




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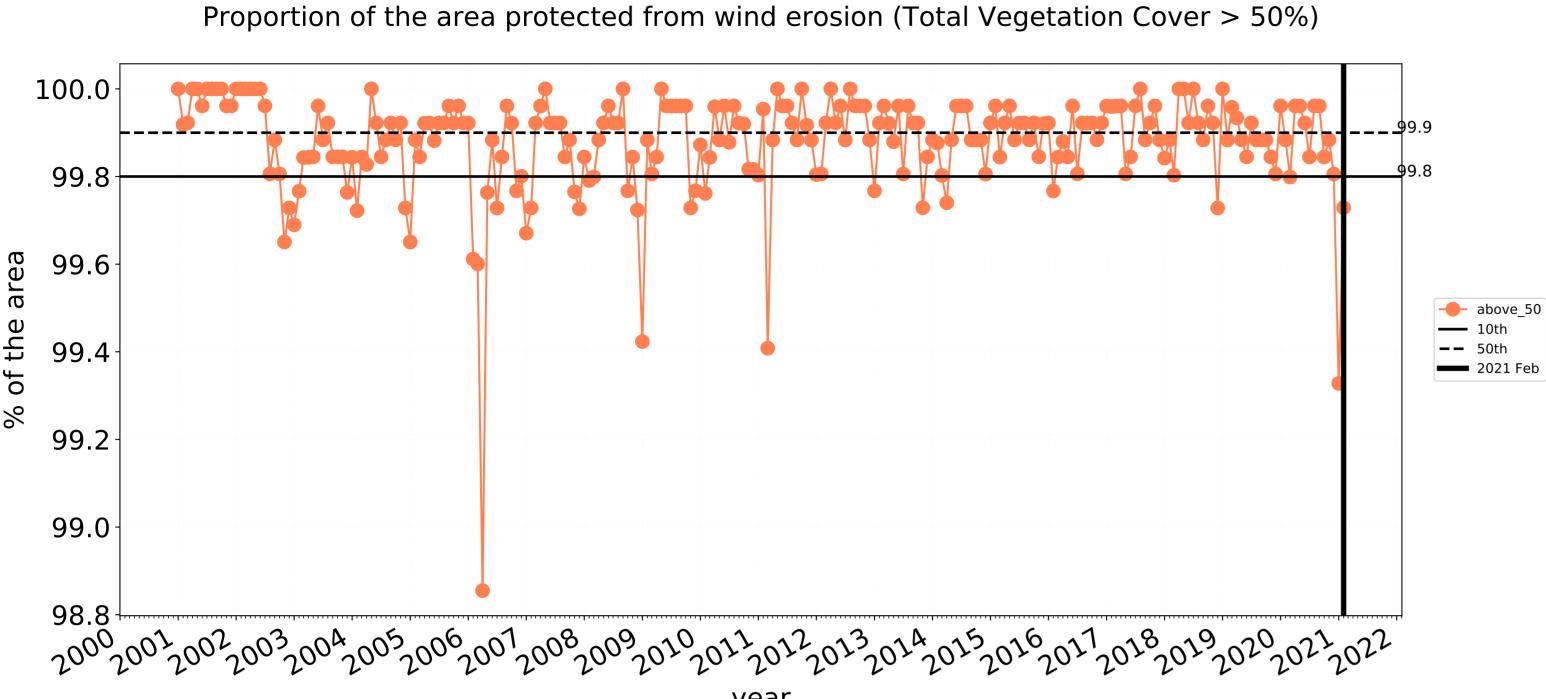




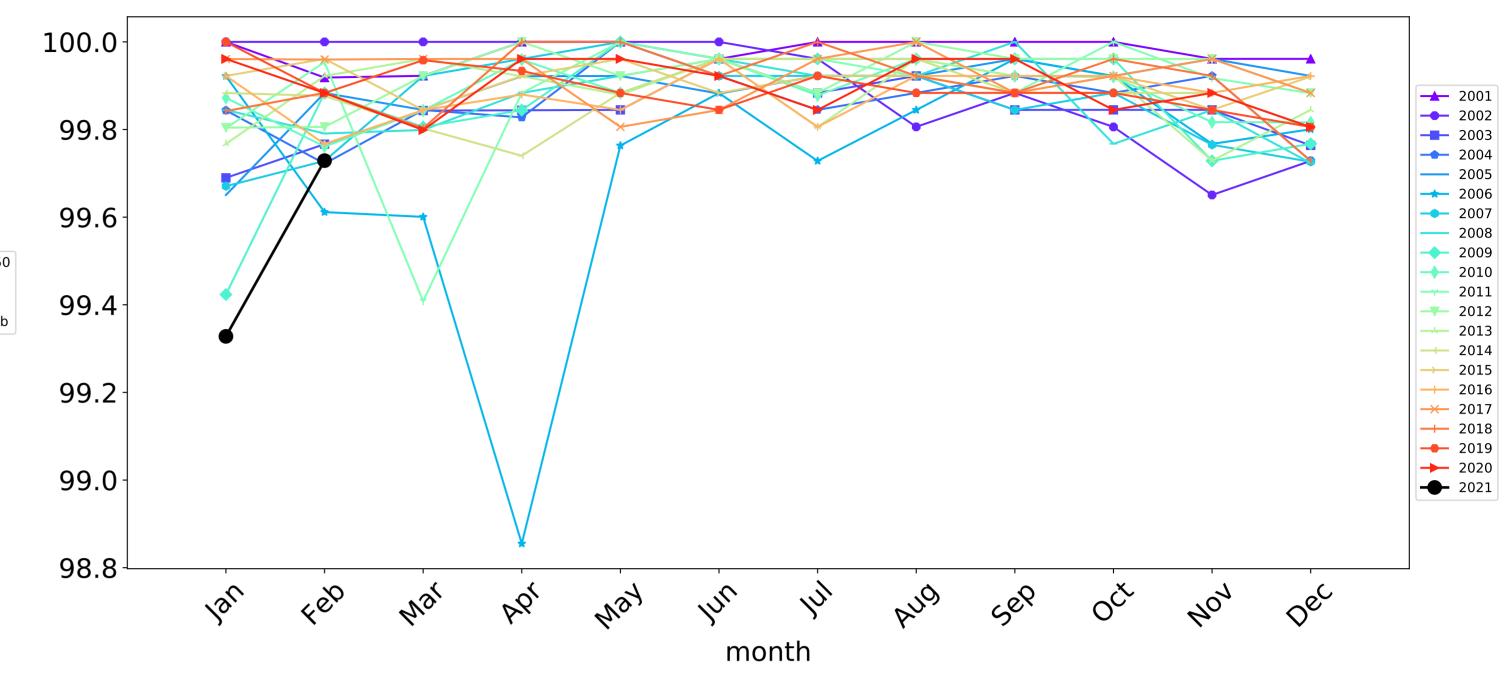


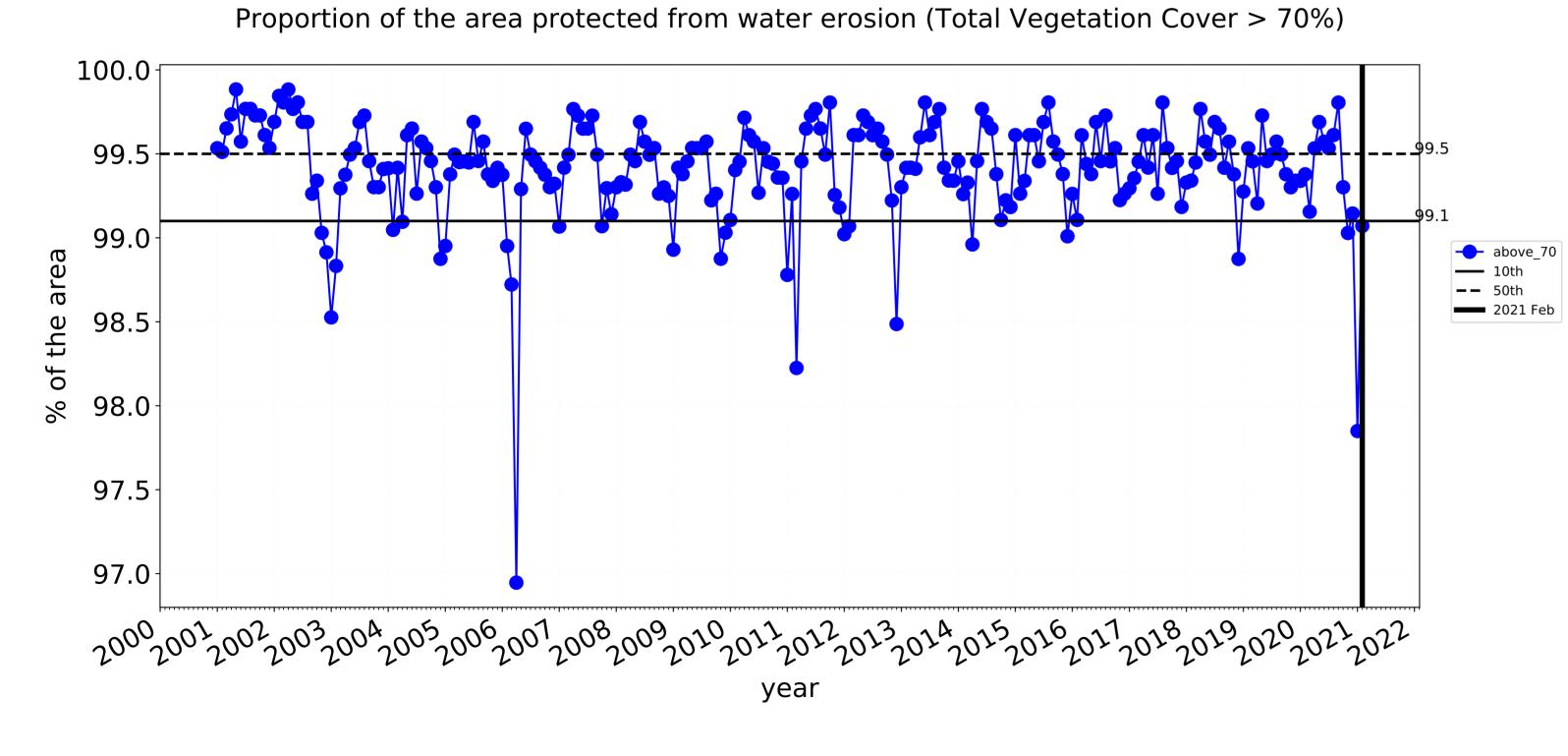


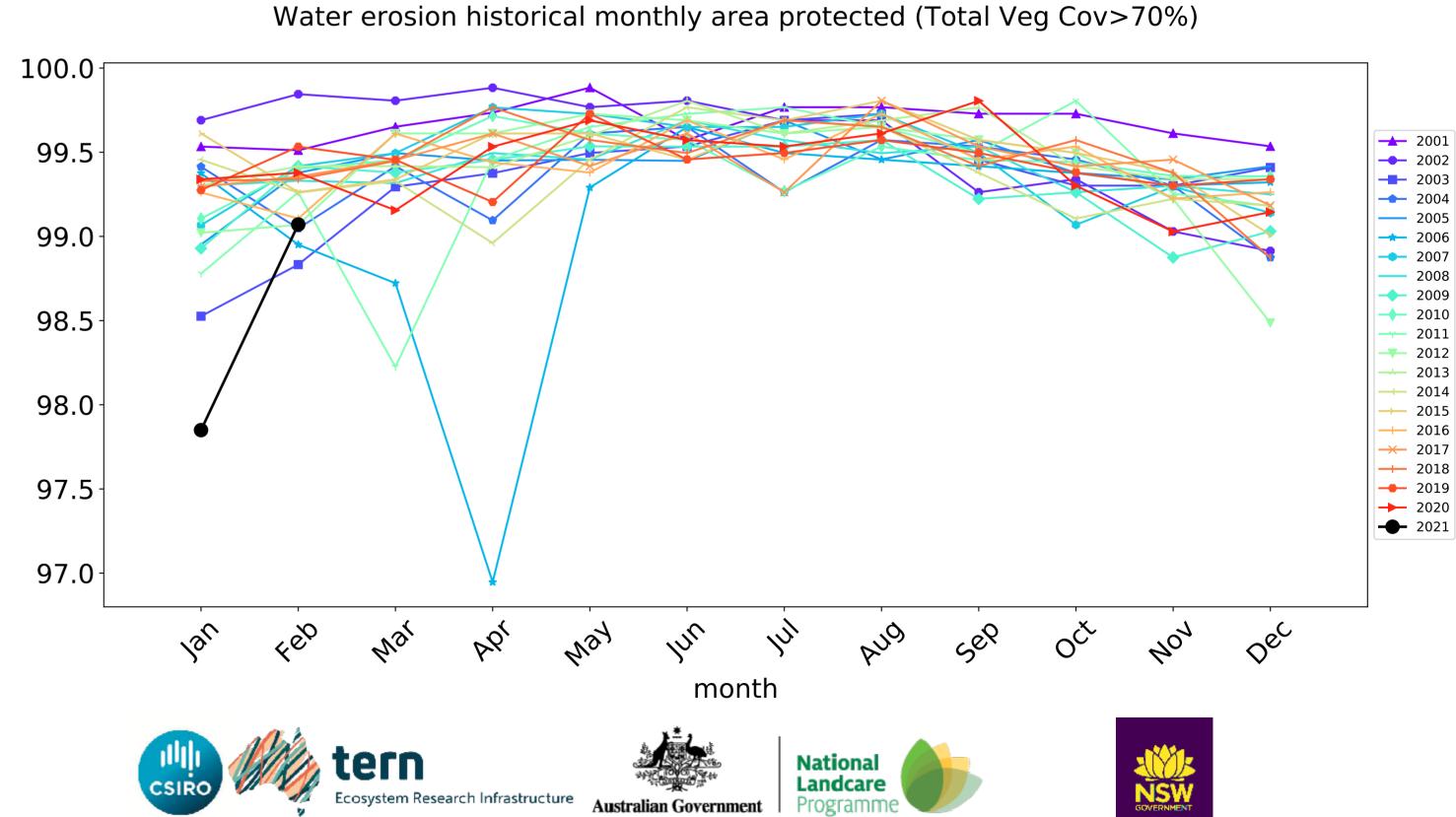


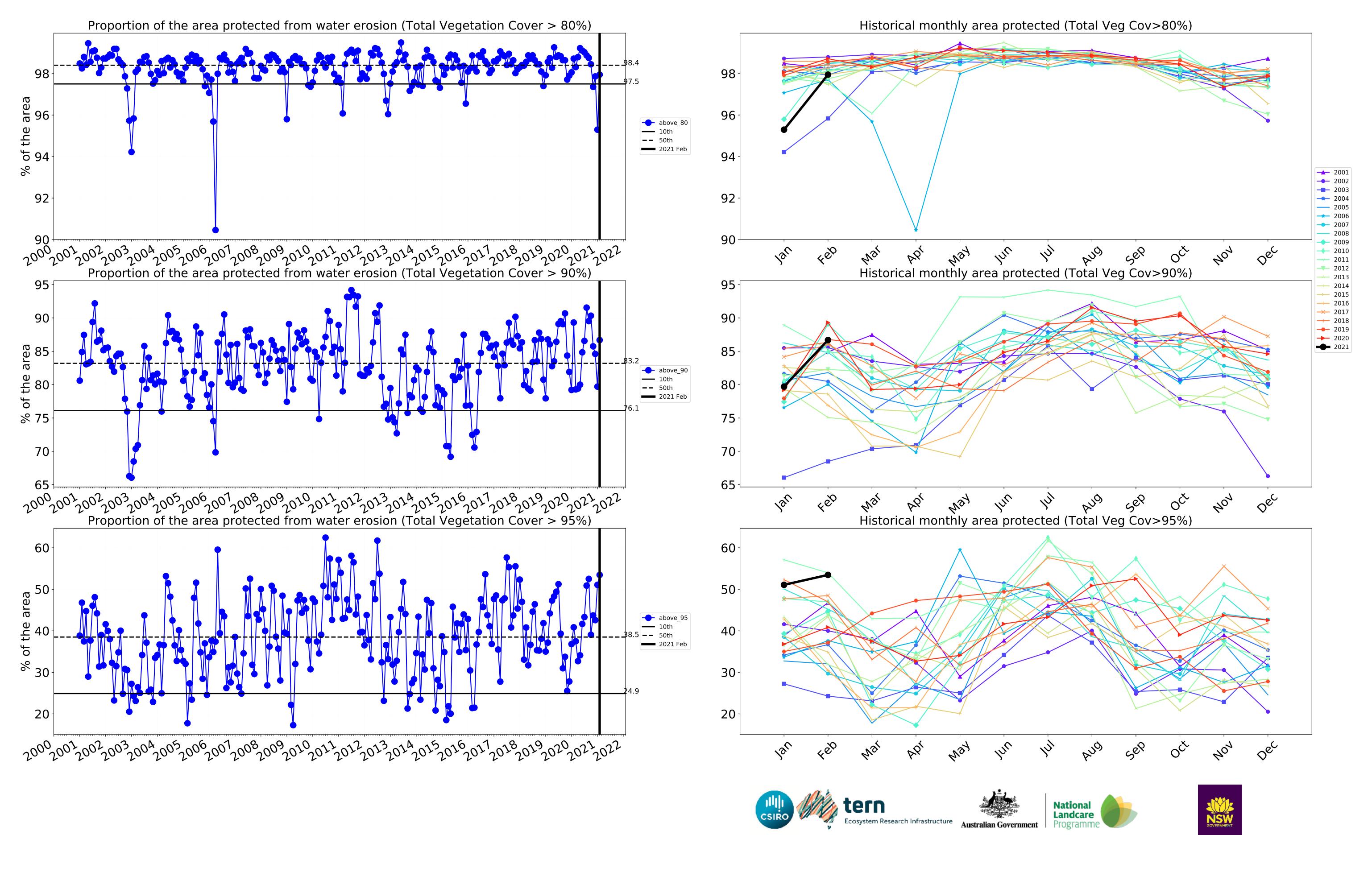


Wind erosion historical monthly area protected (Total Veg Cov >50%)





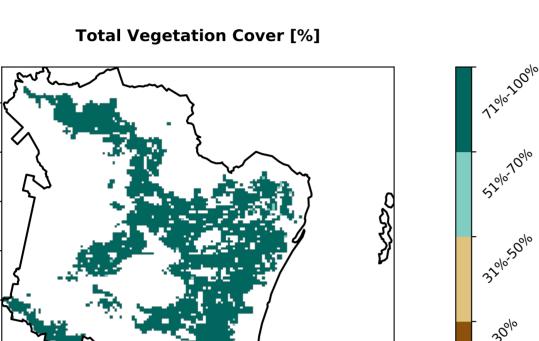




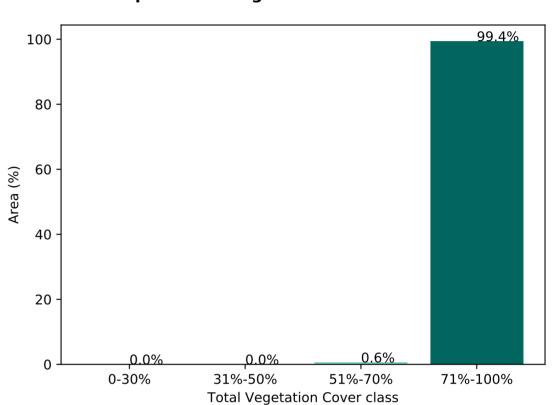
Agriculture

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

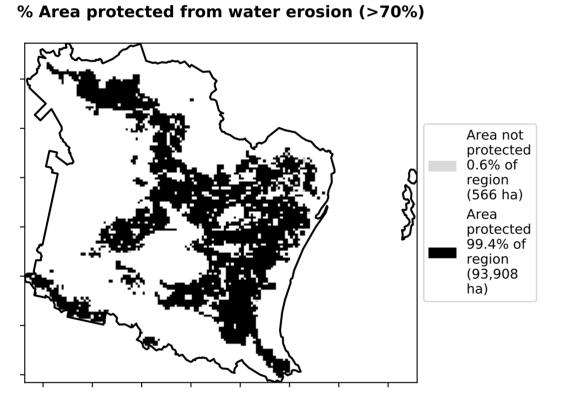
Proportion of each land class in area 61.7% 60 50 40 Area (%) 0 20 15.4% 10 0.0% 3 Land use class

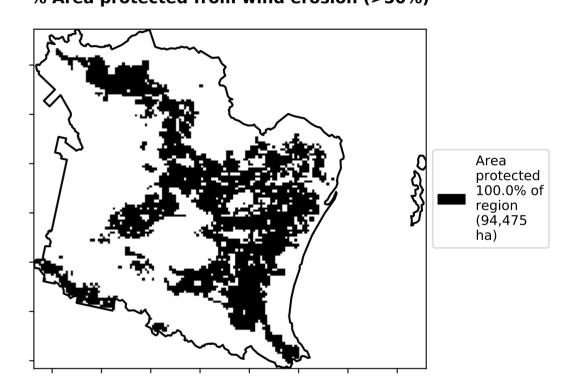


Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)

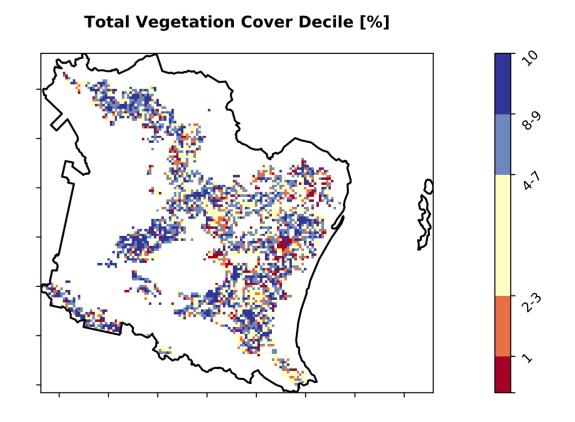




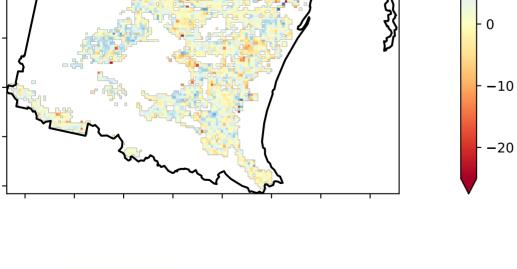
Total Vegetation Cover Anomaly [%]

- 20 - 10

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.



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.



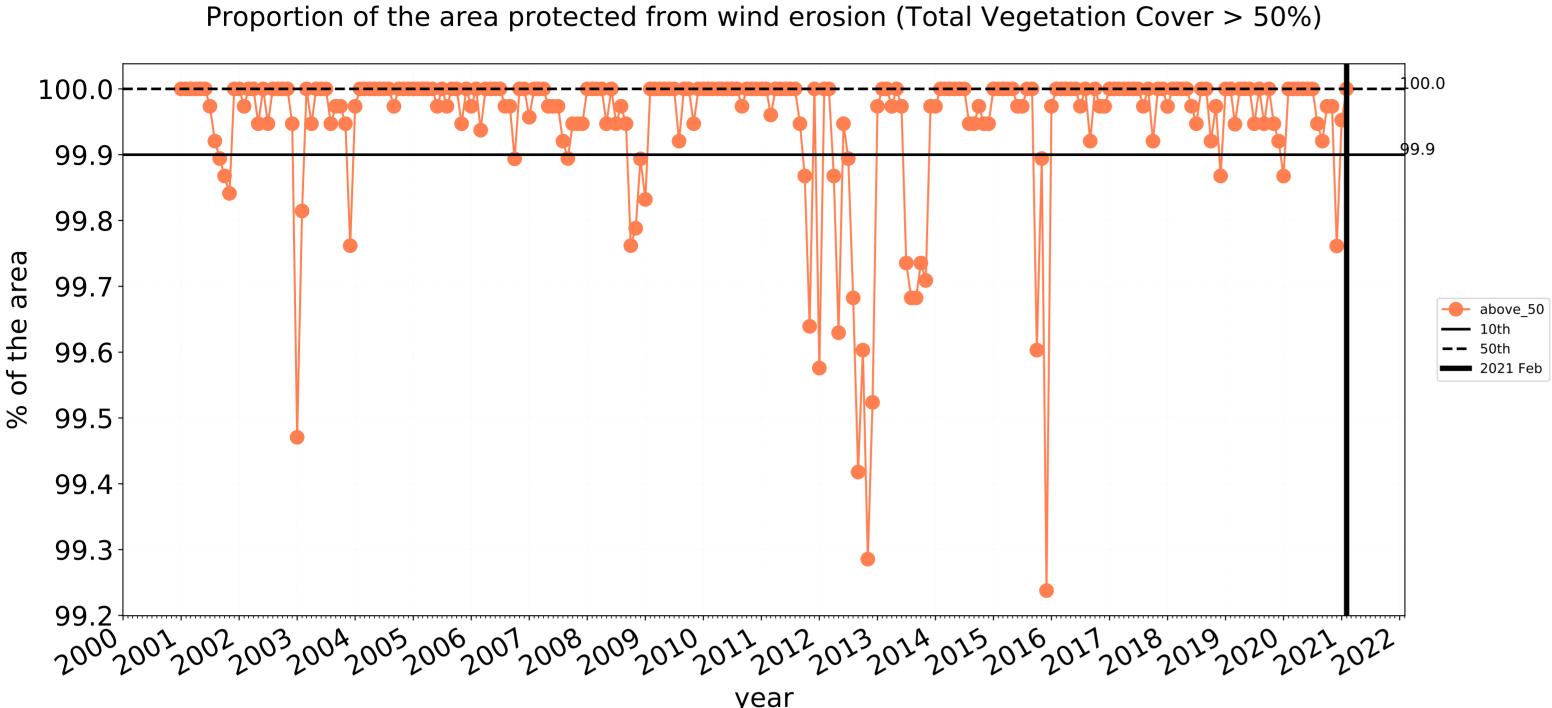




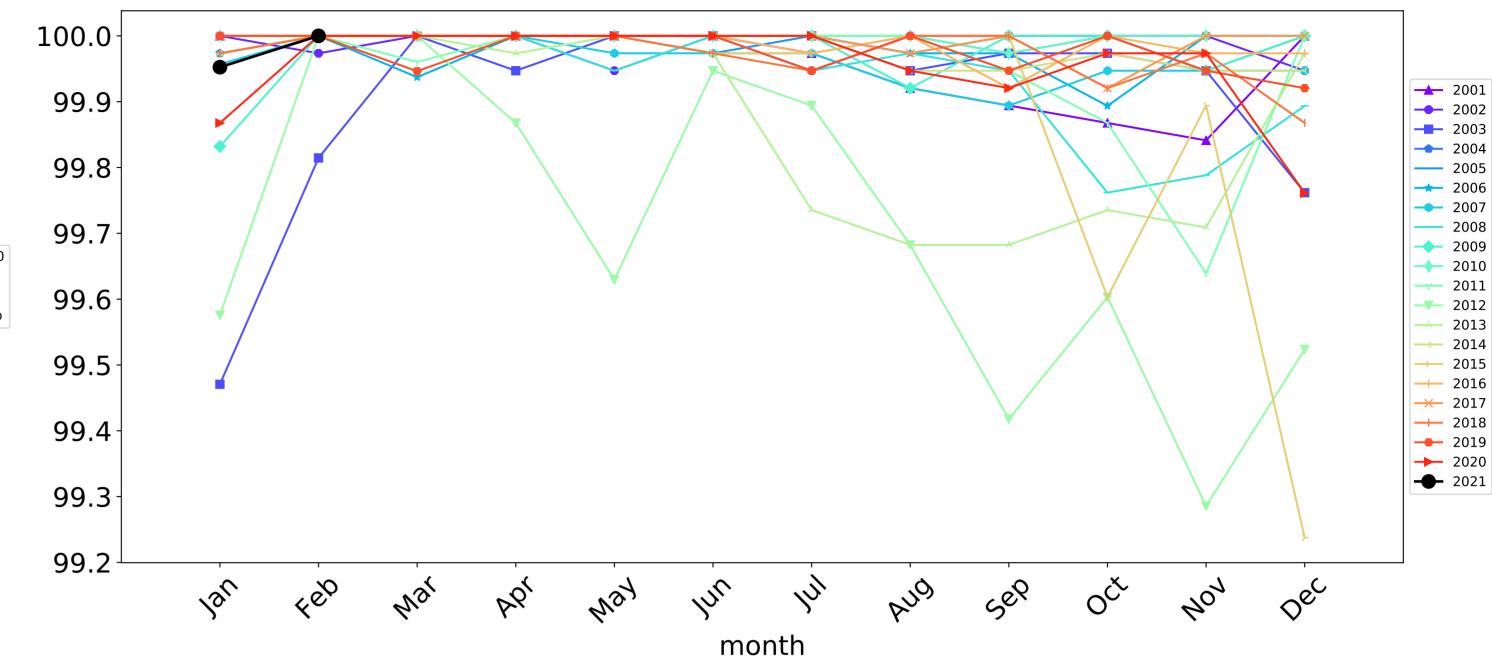


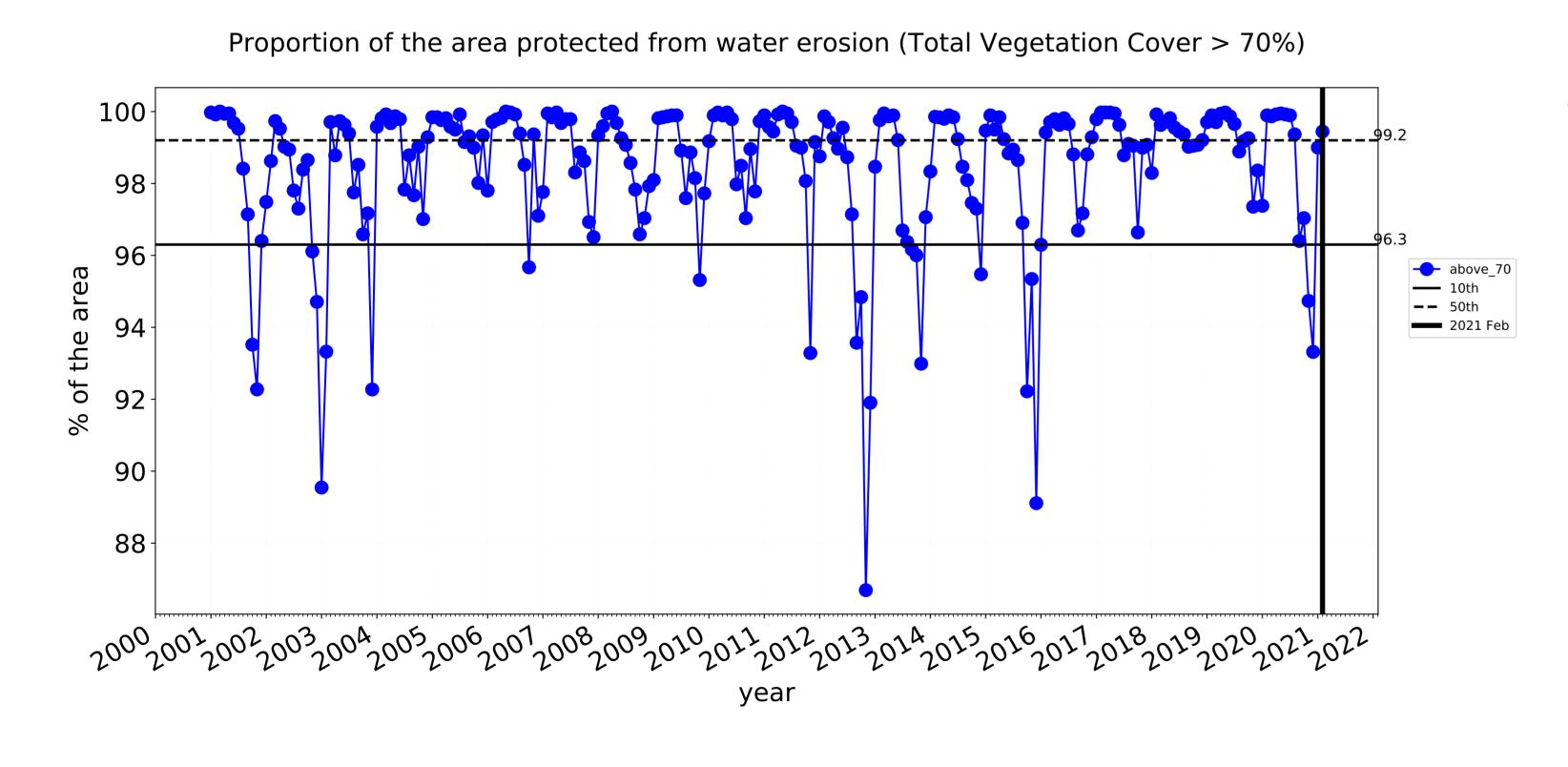


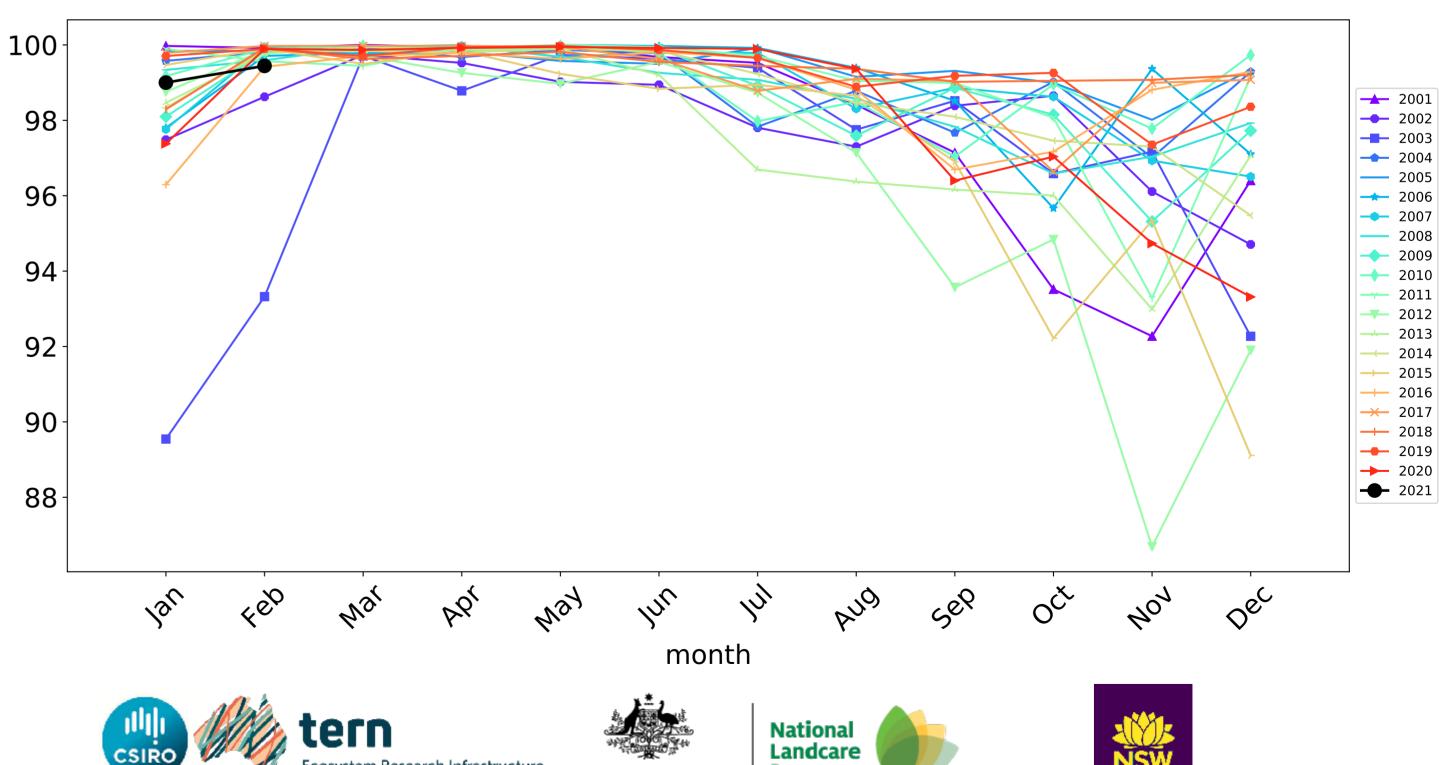
Agriculture timeseries



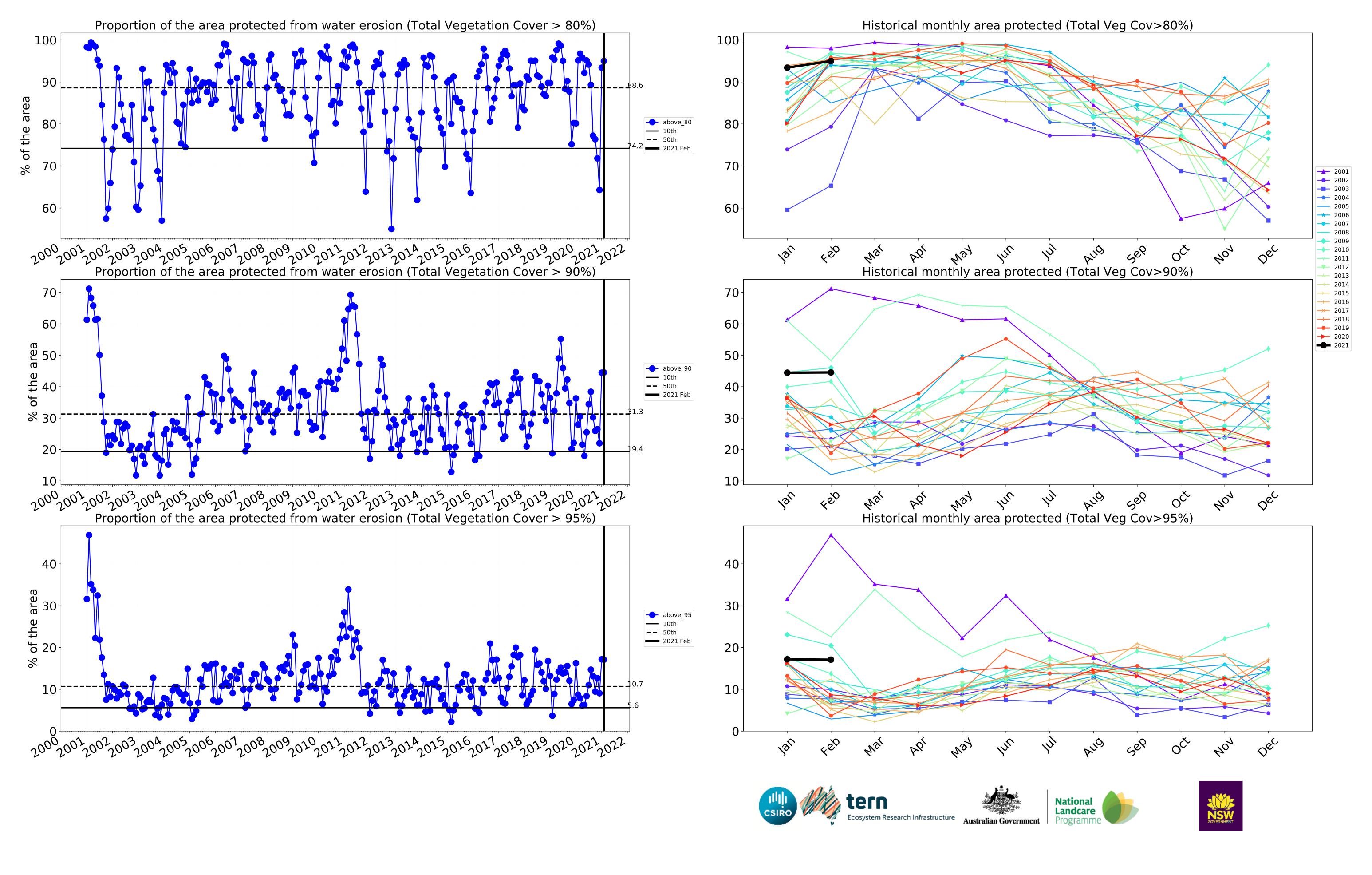
Wind erosion historical monthly area protected (Total Veg Cov >50%)







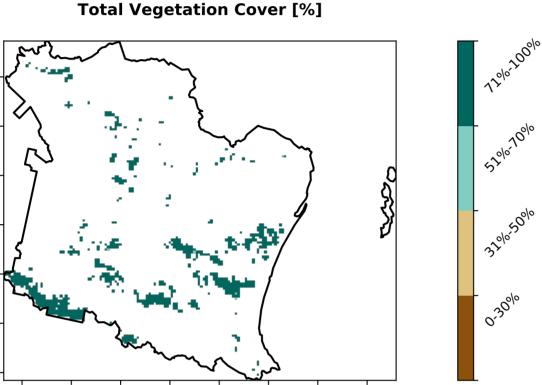
Water erosion historical monthly area protected (Total Veg Cov>70%)

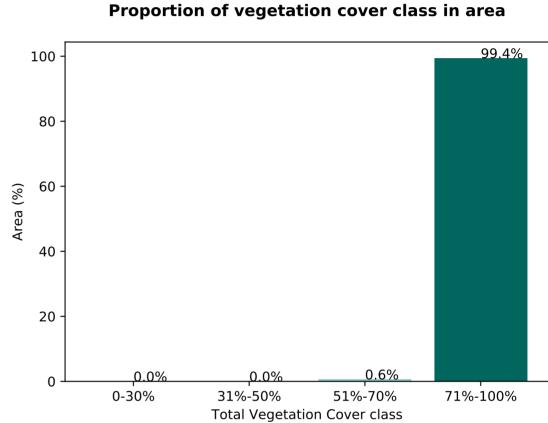


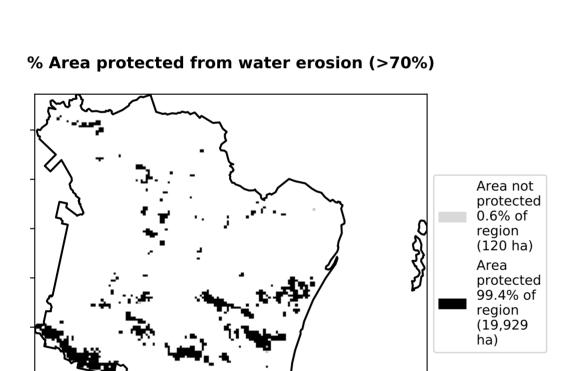
Grazing

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 [%]

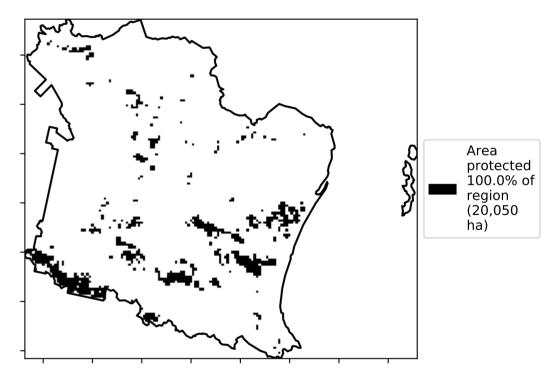
Proportion of each land class in area







% Area protected from wind erosion (>50%)





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

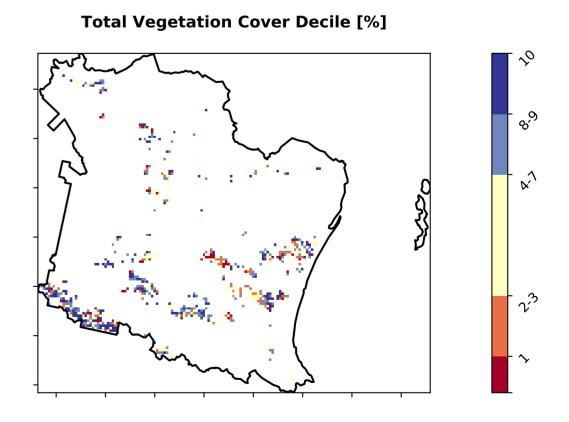
pixel. The mean

is only for the month of the map

using baseline from 2001 to 2019.

- 20 - 10 - -10 - -20

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.



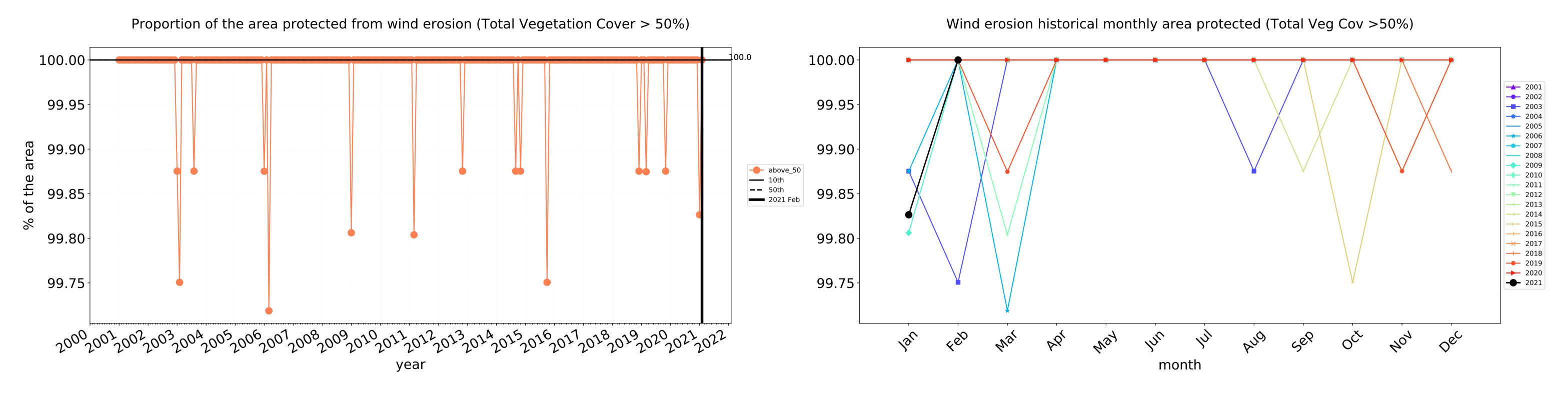


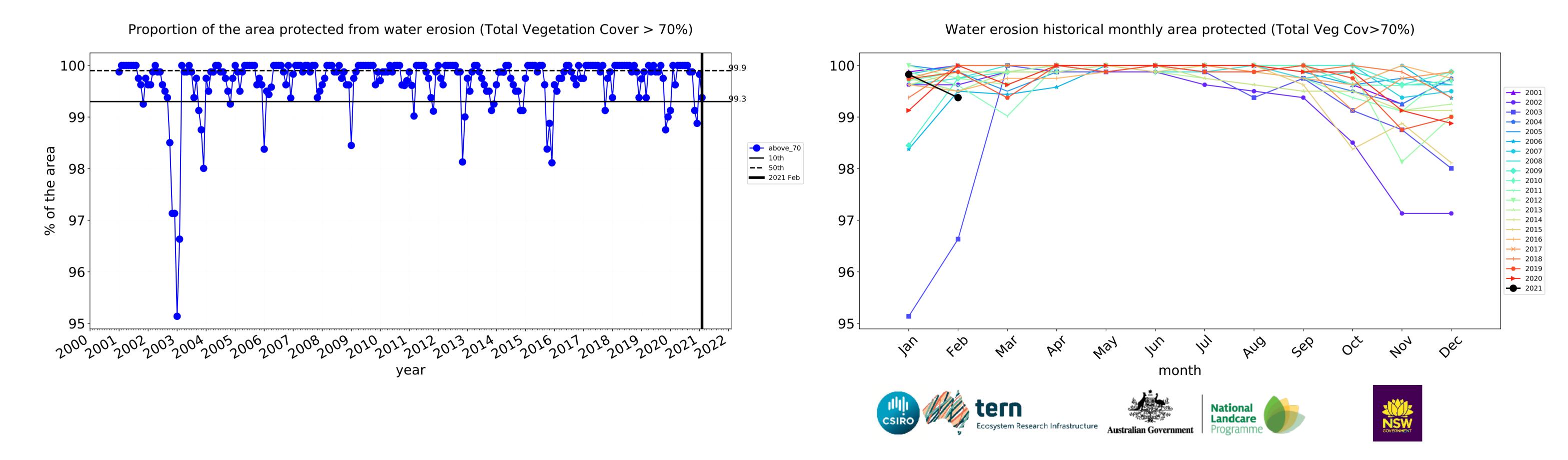


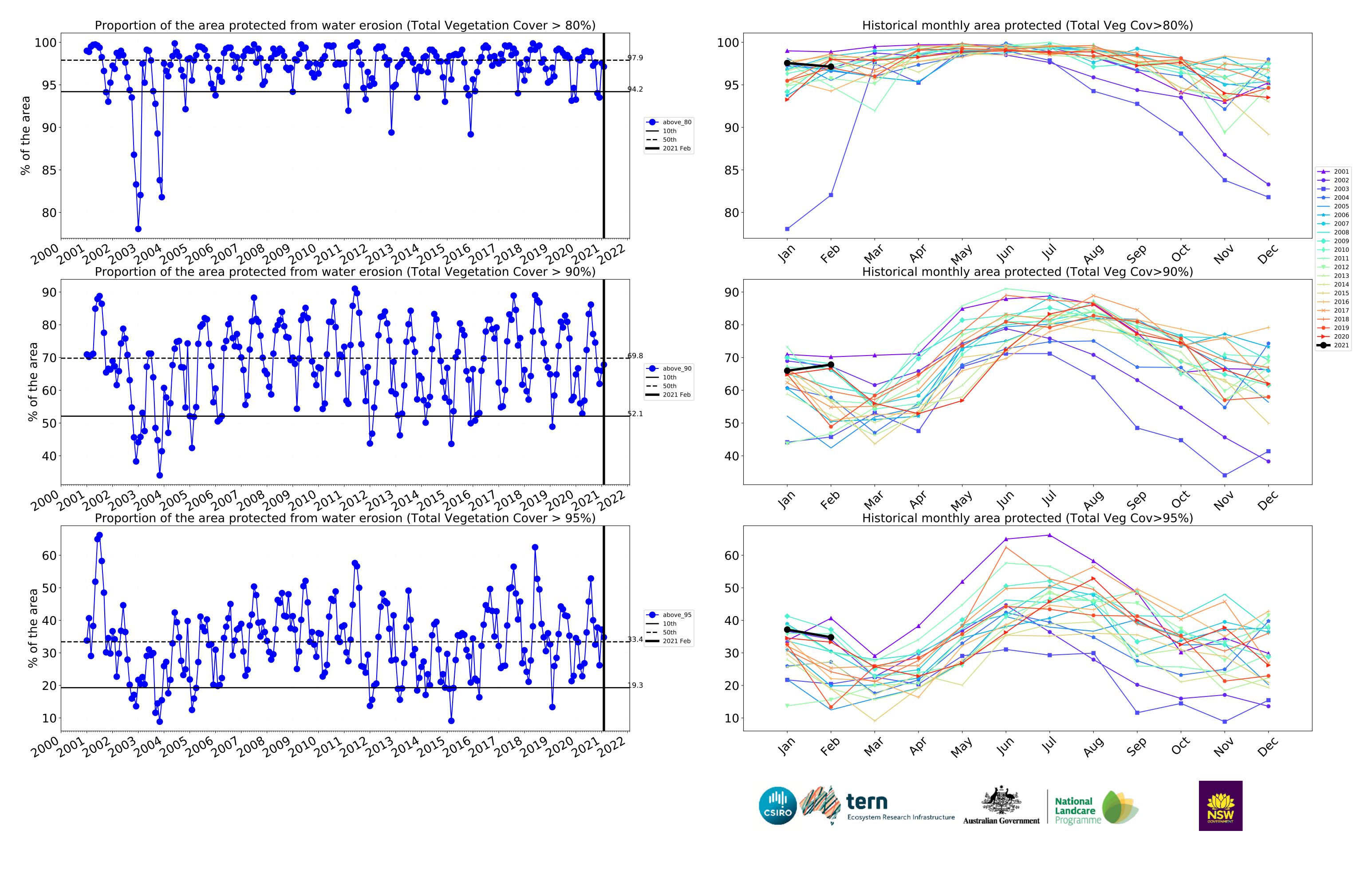




Grazing timeseries







Grazing non forest

Land use and forest cover



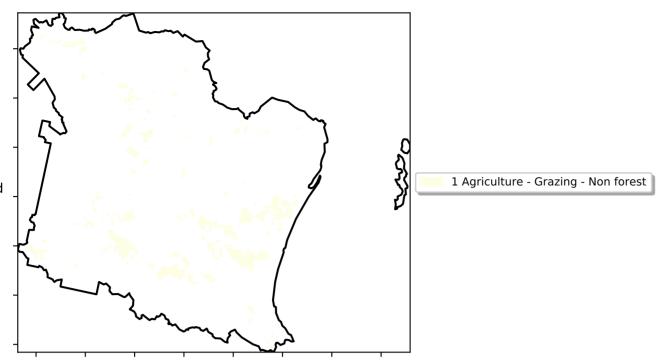
Anomaly show how many percetage points each pixel is from

the mean. That is, red pixels

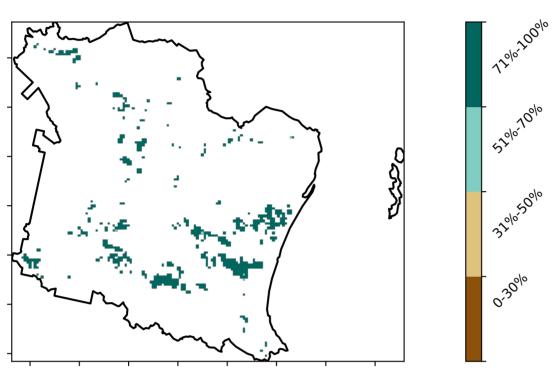
are about 20% lower than the

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

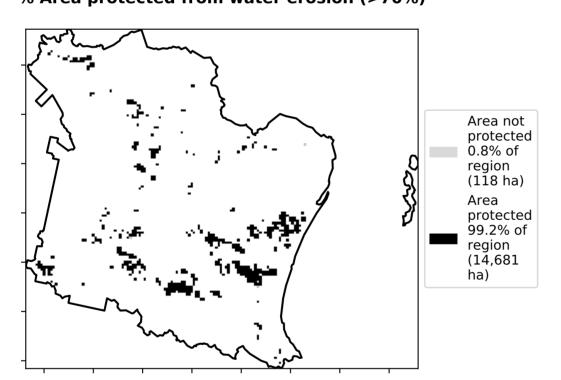
using baseline from 2001 to 2019.



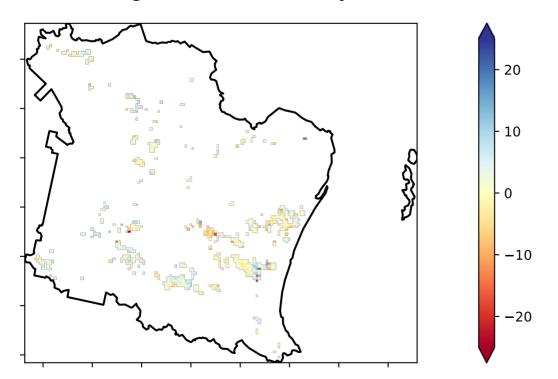
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

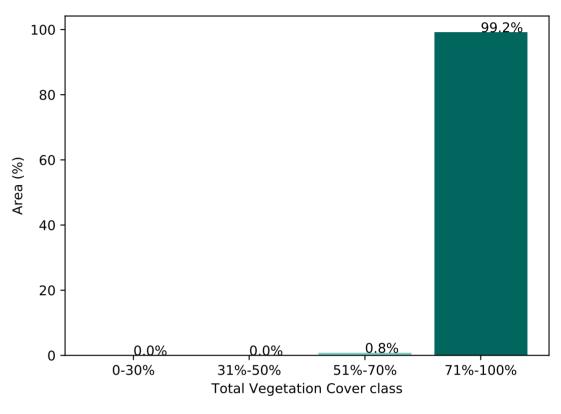


Total Vegetation Cover Anomaly [%]

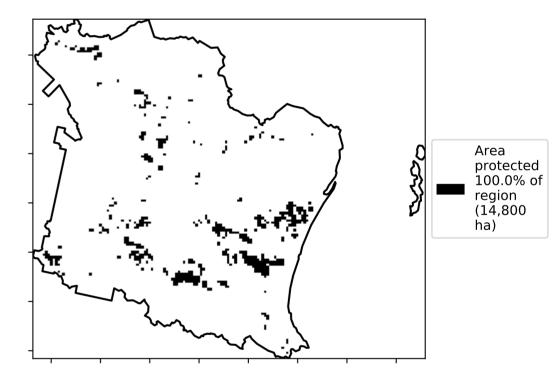


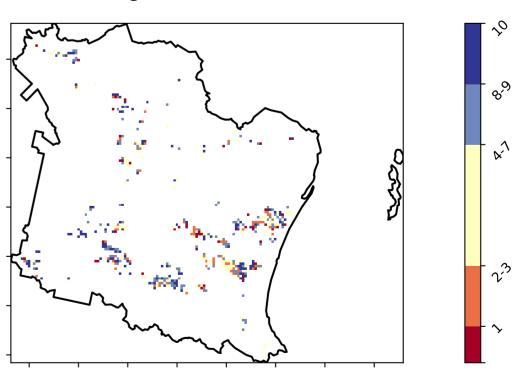
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)





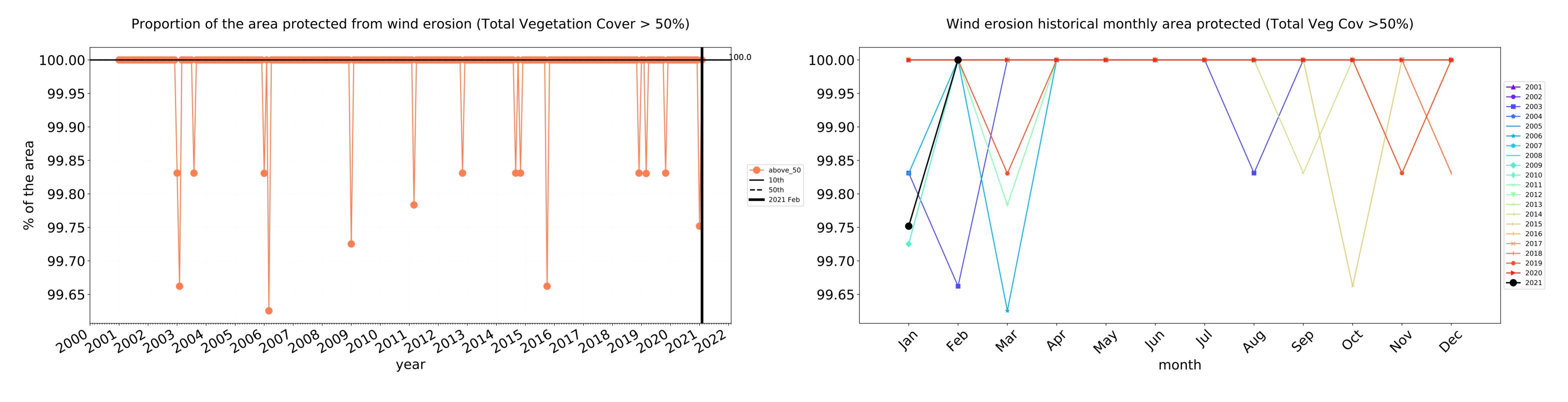


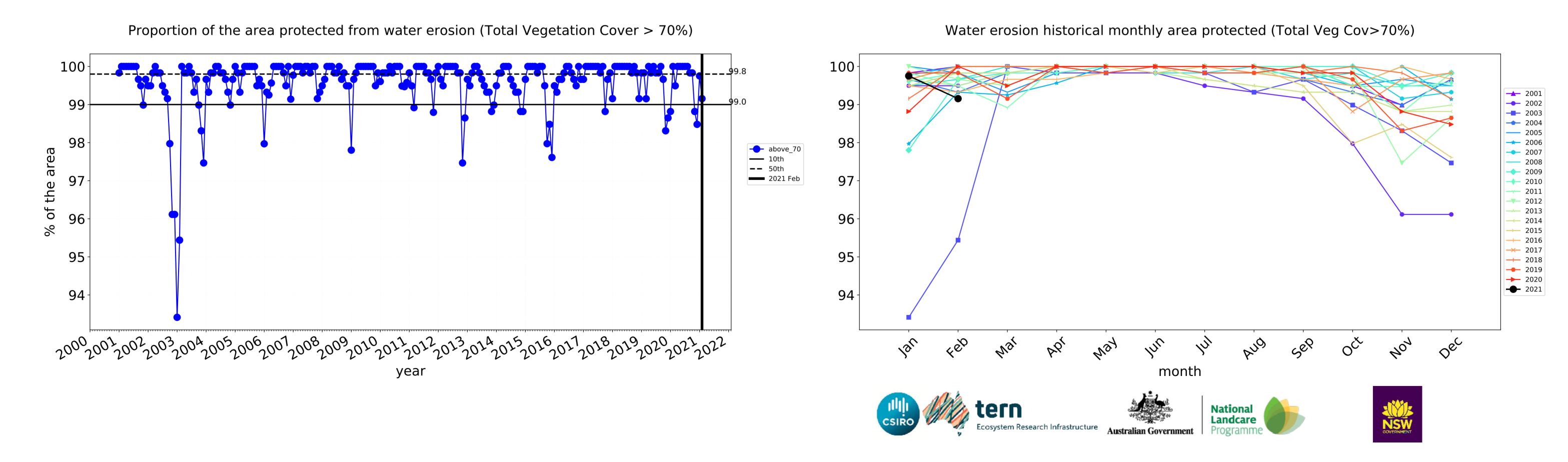


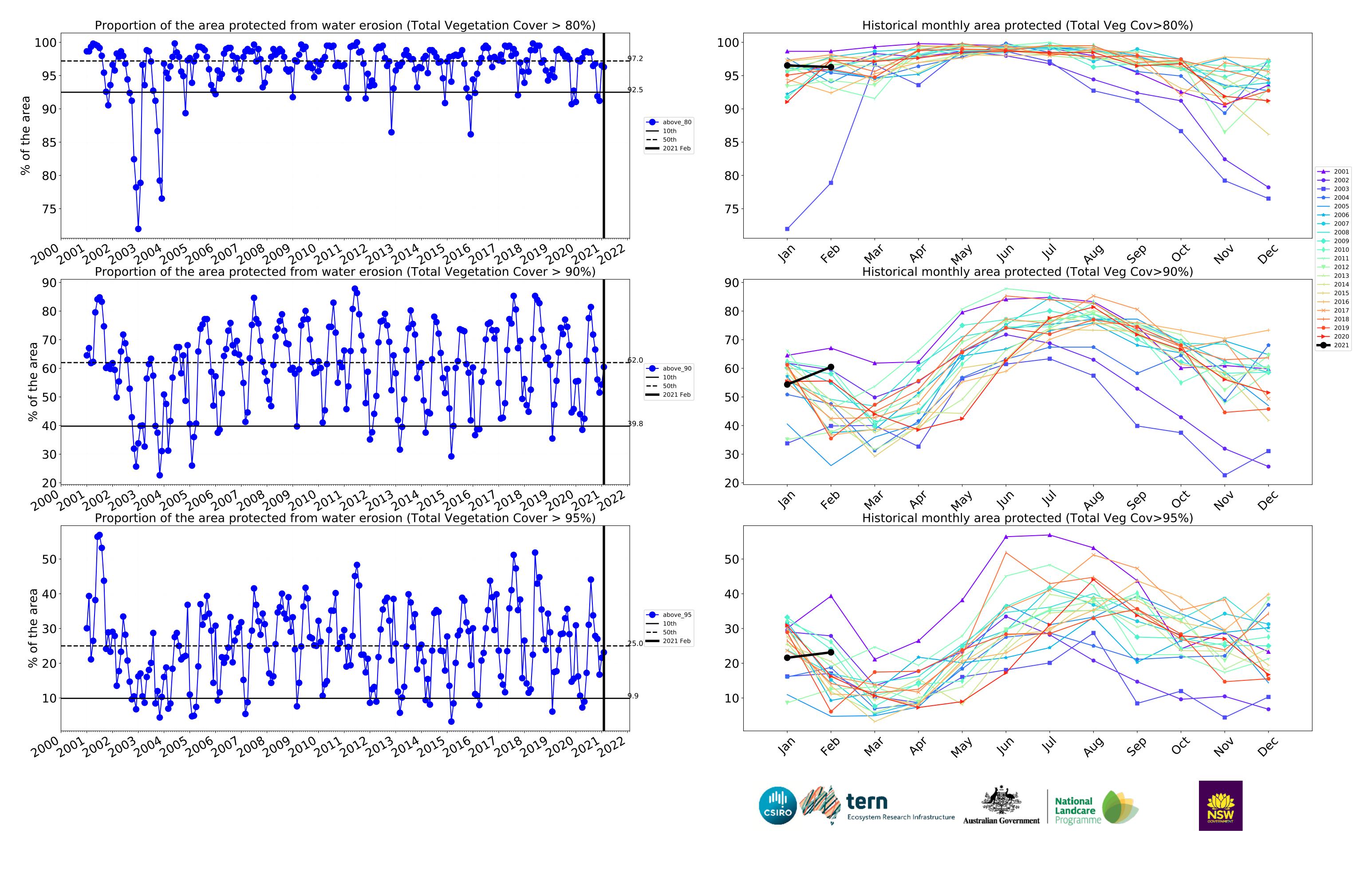




Grazing non forest timeseries







Grazing Woodland forest

Land use and forest cover

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

Anomaly show how many percetage points each pixel is from

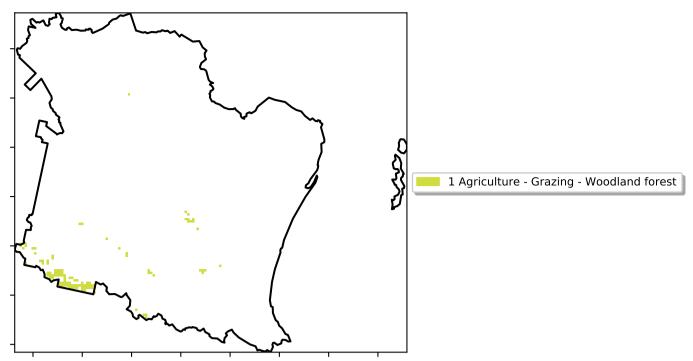
the mean. That is, red pixels

are about 20% lower than the mean of that

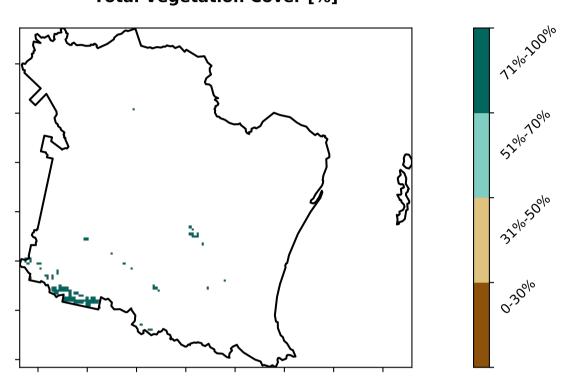
pixel. The mean

is only for the month of the map

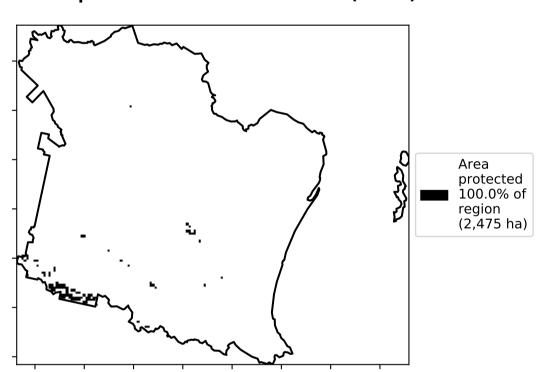
using baseline from 2001 to 2019.



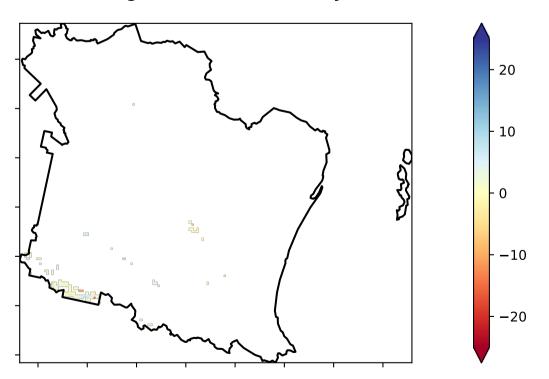
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

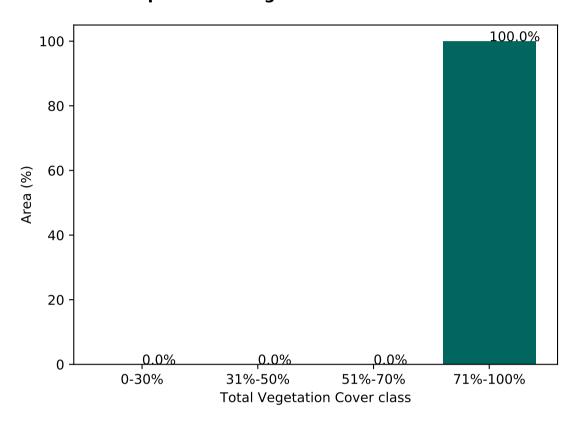


Total Vegetation Cover Anomaly [%]

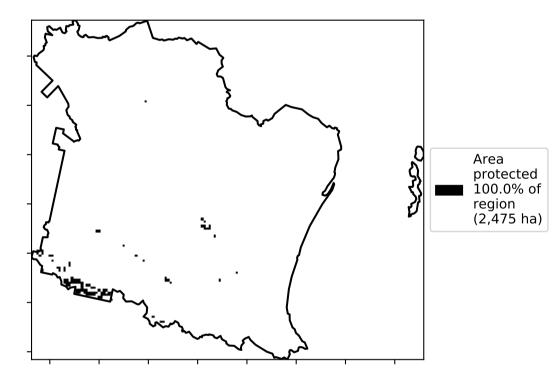


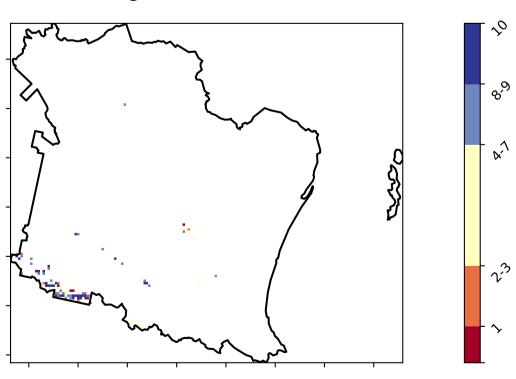
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









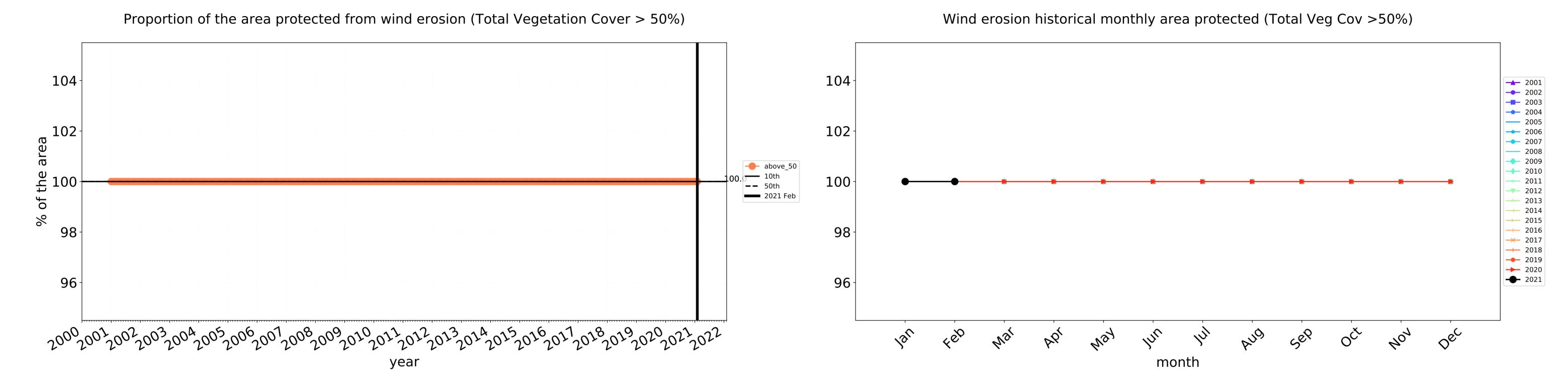


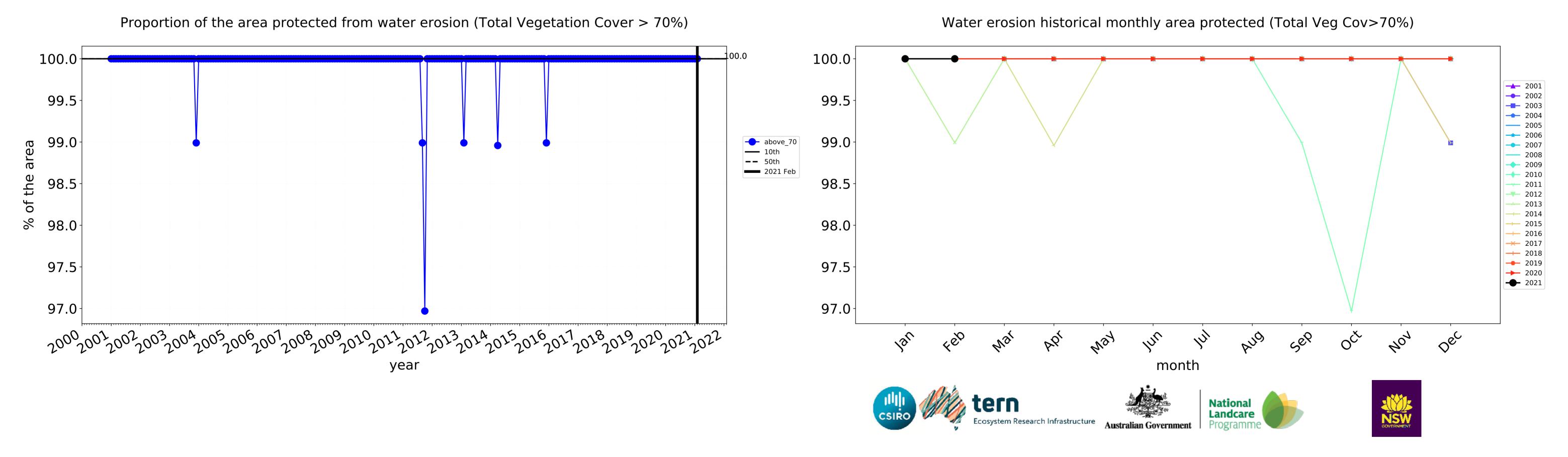


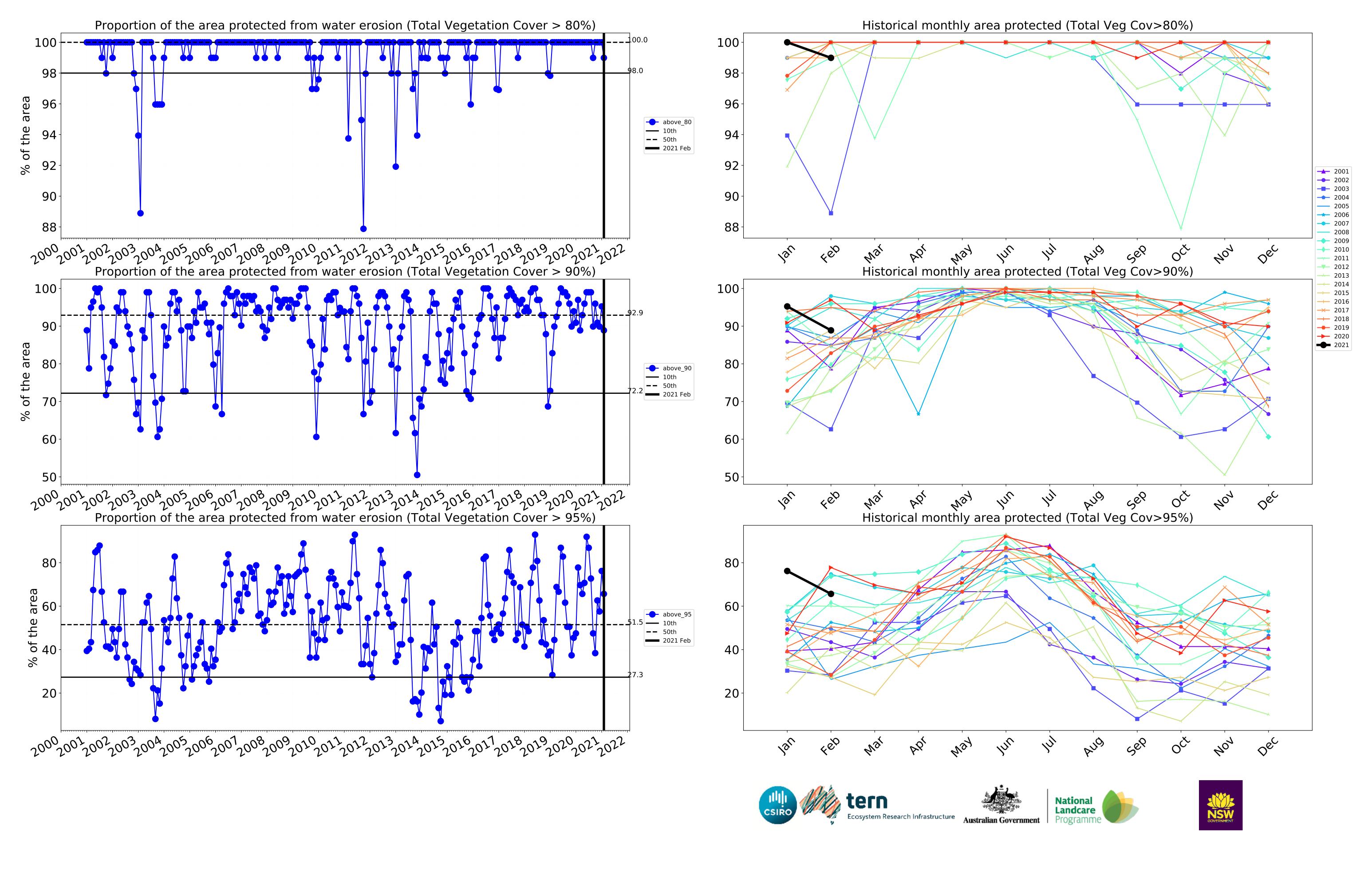




Grazing Woodland forest timeseries







Grazing - Forest (non woodland)

Land use and forest cover

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

Anomaly show how many percetage points each pixel is from

the mean. That is, red pixels

are about 20% lower than the mean of that

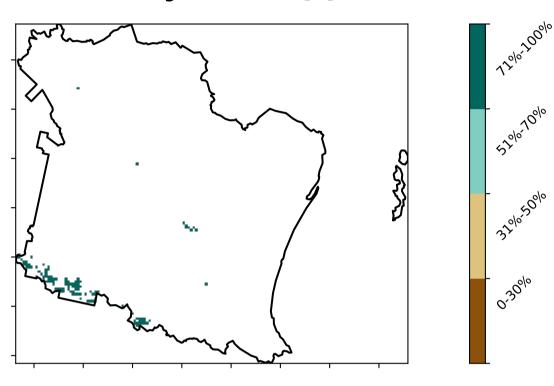
pixel. The mean

using baseline from 2001 to 2019.

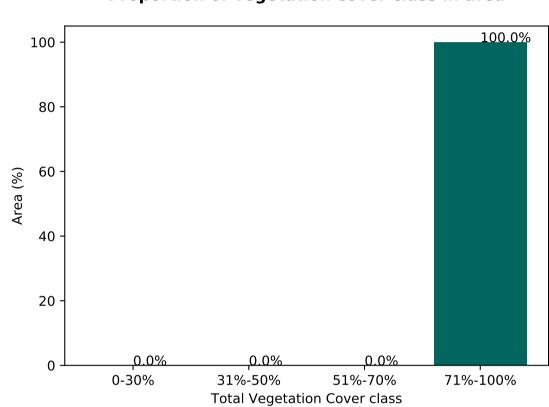
is only for the month of the map



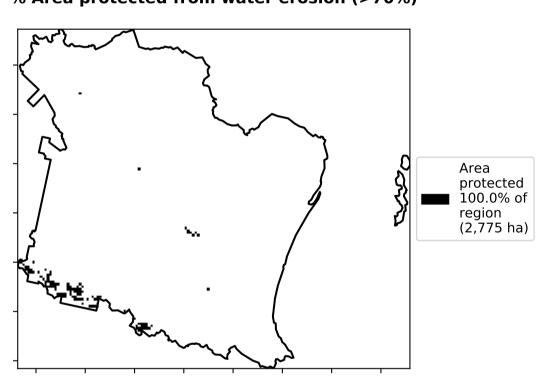
Total Vegetation Cover [%]



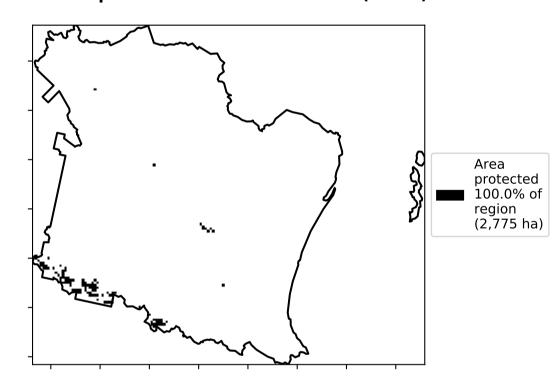
Proportion of vegetation cover class in area



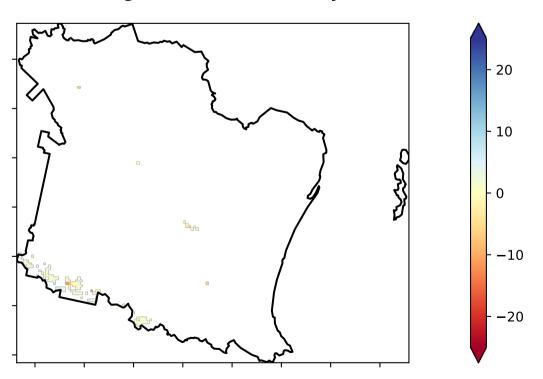
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

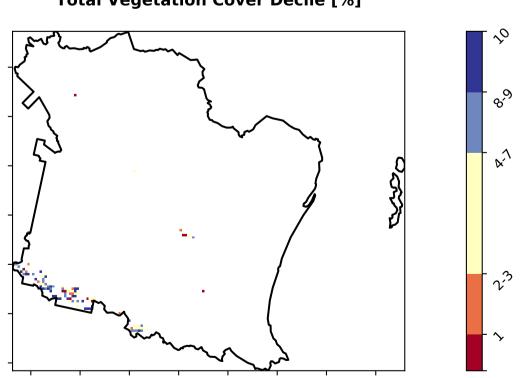


Total Vegetation Cover Anomaly [%]



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 [%]



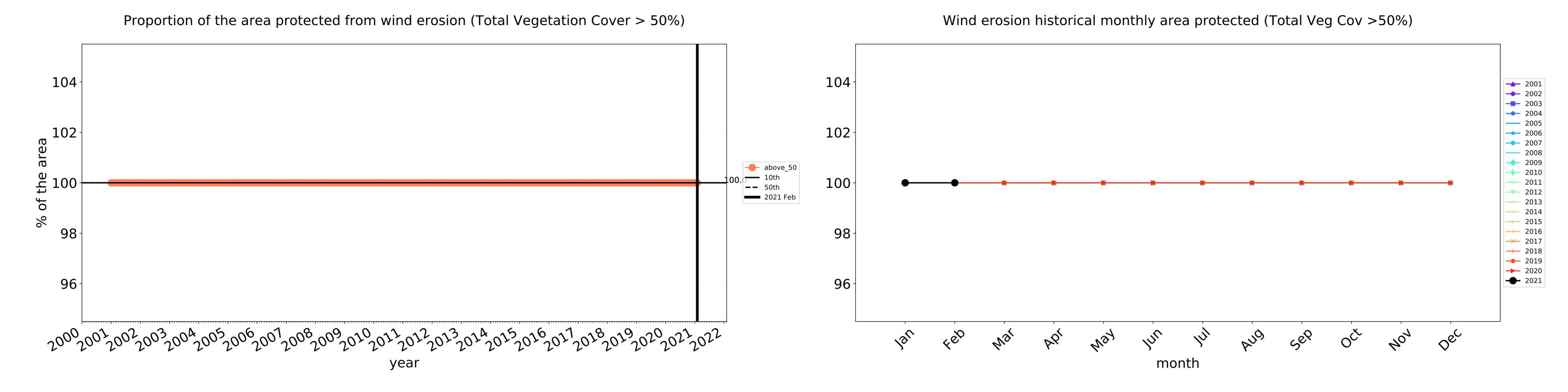


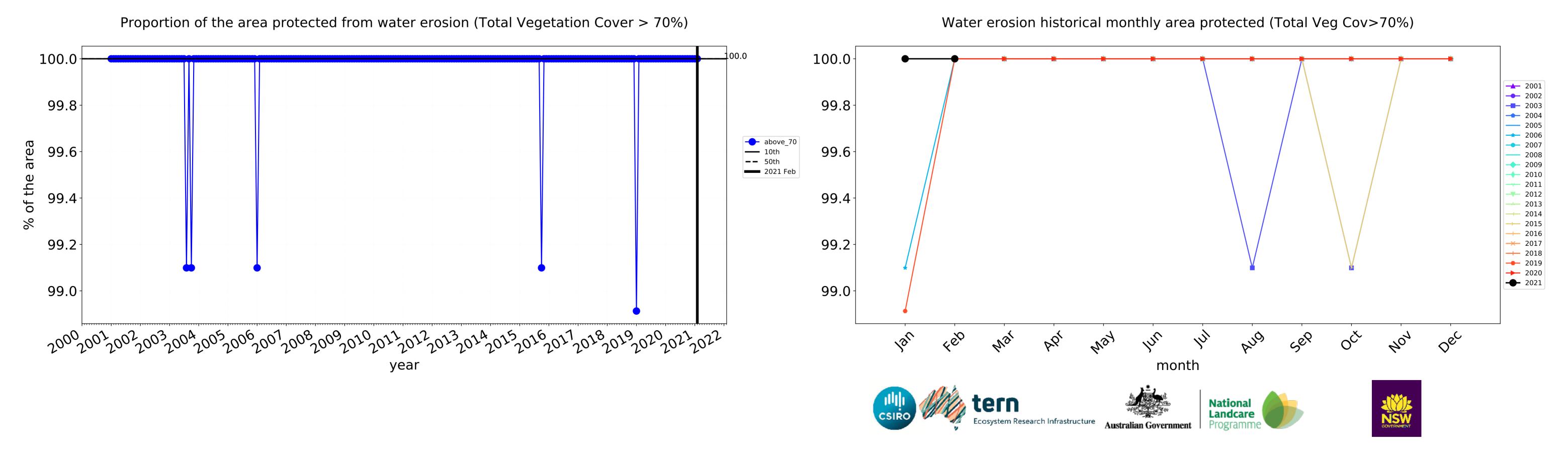


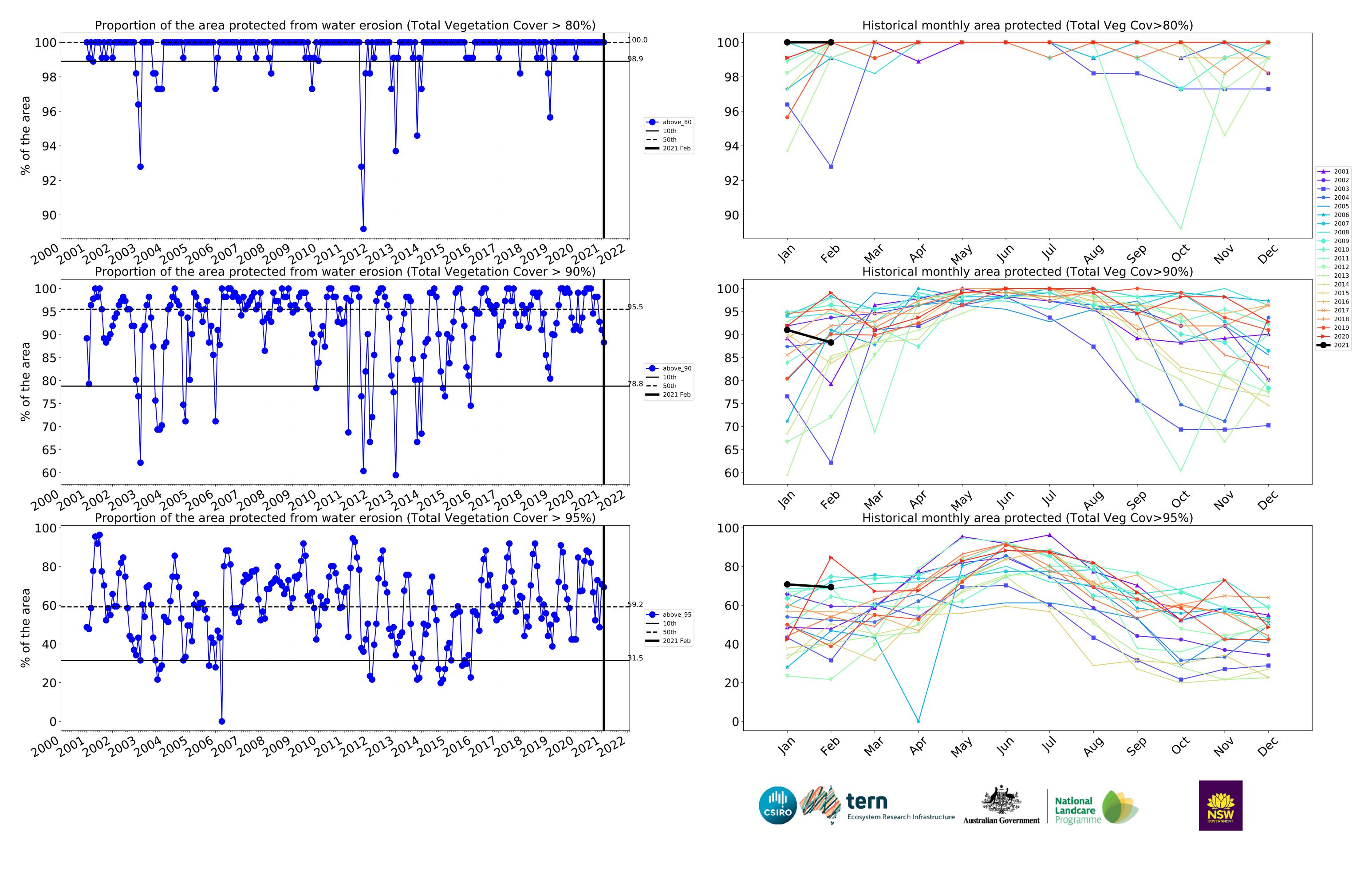










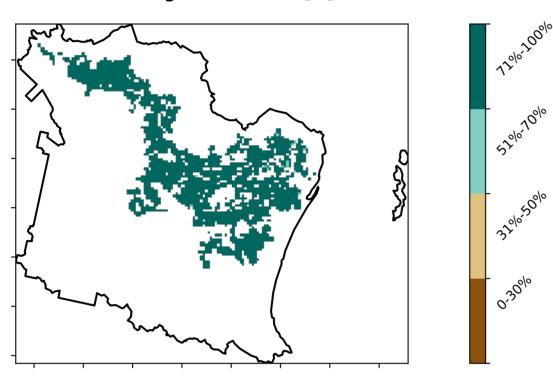


Cropping

Land use and forest cover

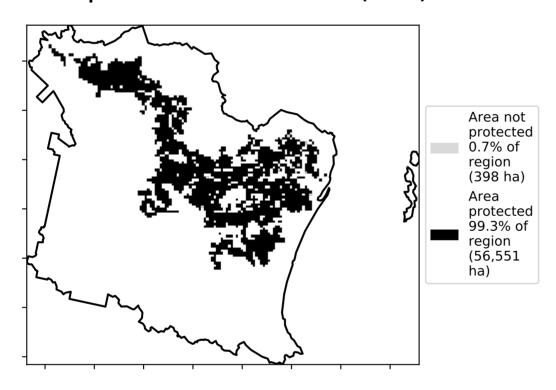


Total Vegetation Cover [%]



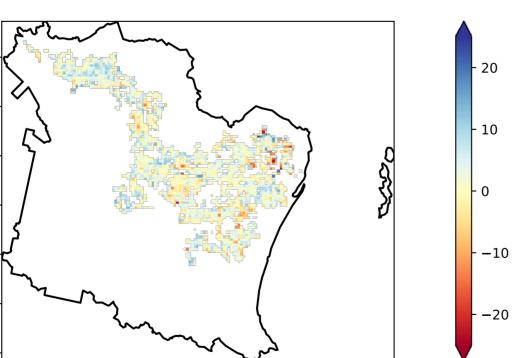
% Area protected from water erosion (>70%)

Total Vegetation Cover Anomaly [%]



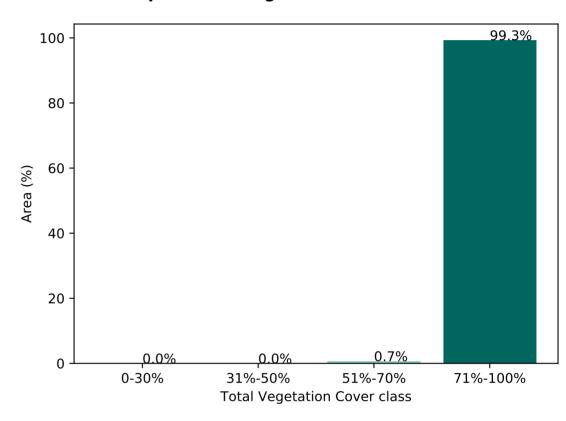
Anomaly show how many percetage points each pixel is from

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.

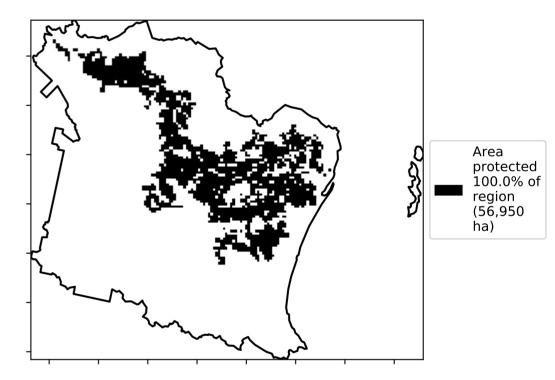


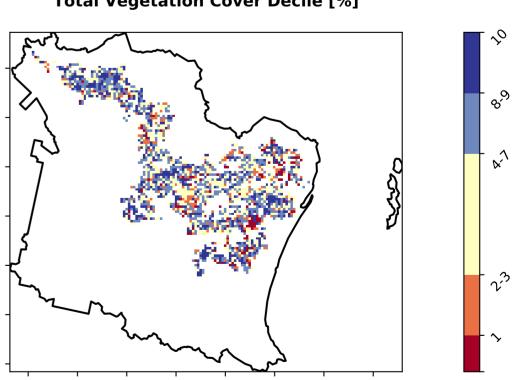
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseling. the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









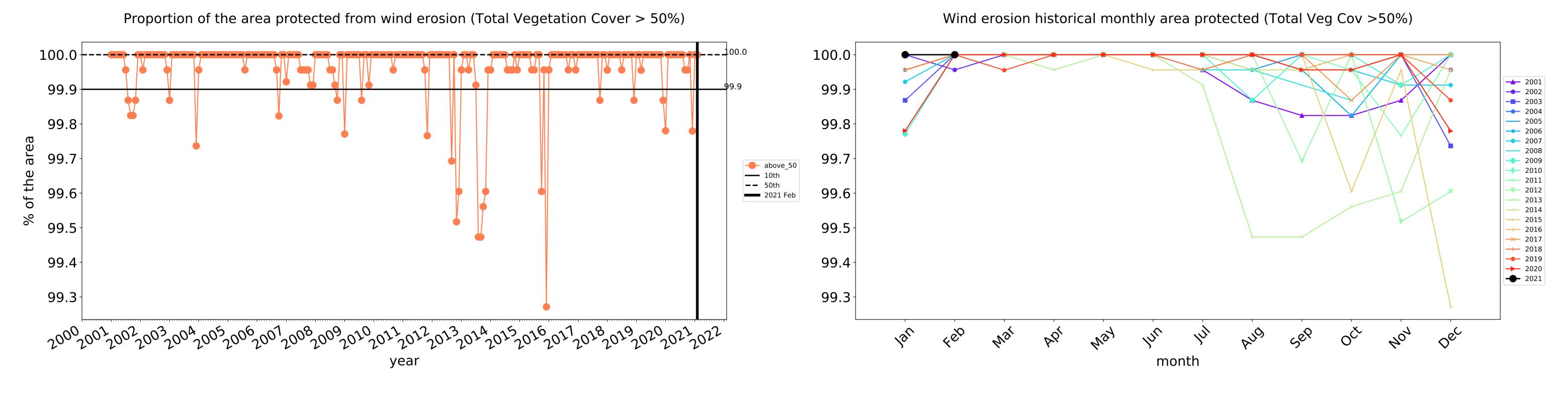


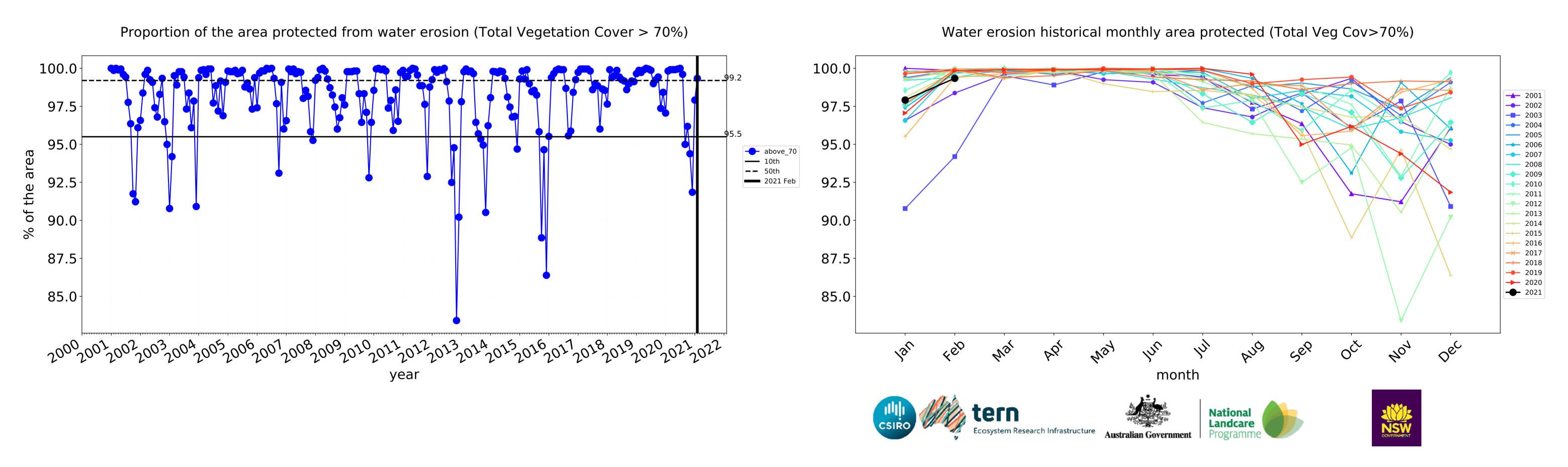


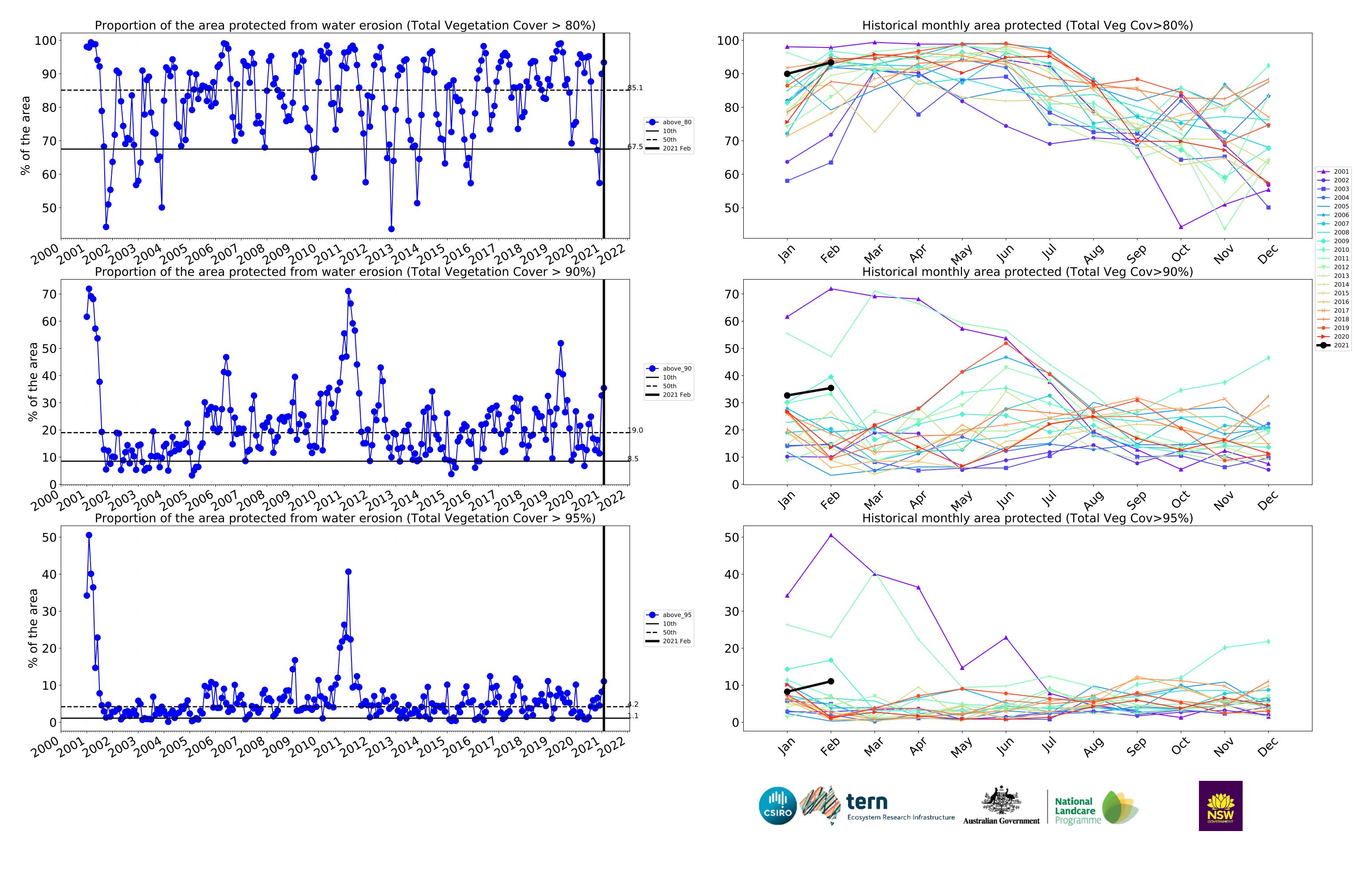




Cropping timeseries



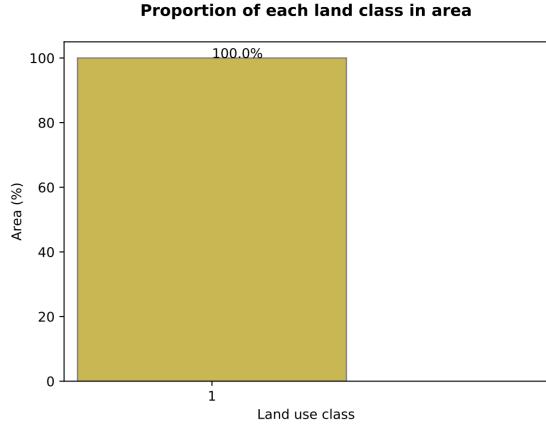


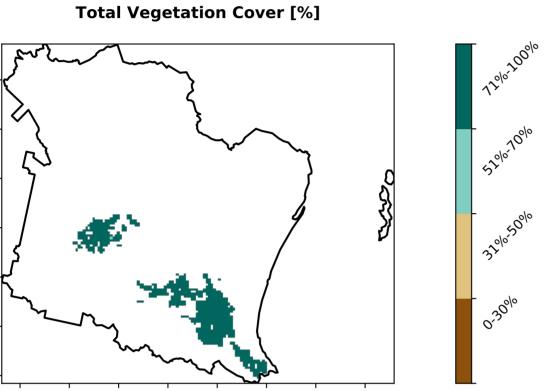


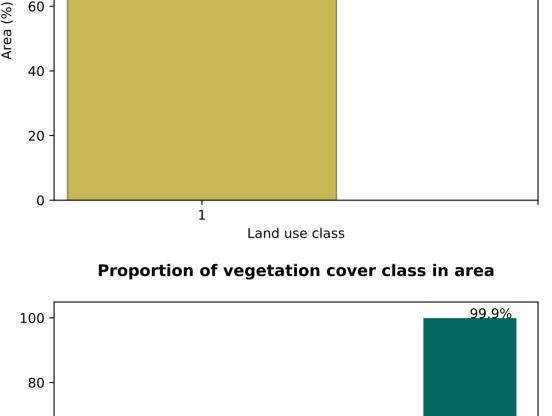
Irrigation

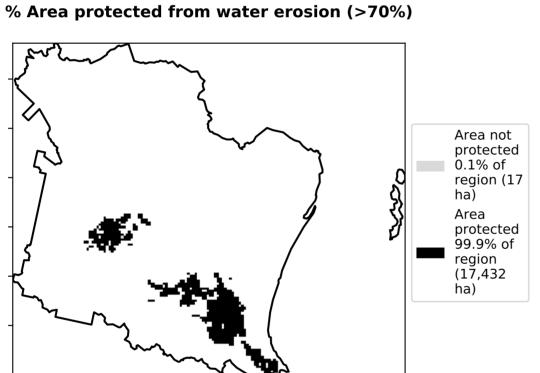
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) 1 Agriculture - Cropping - Irrigated

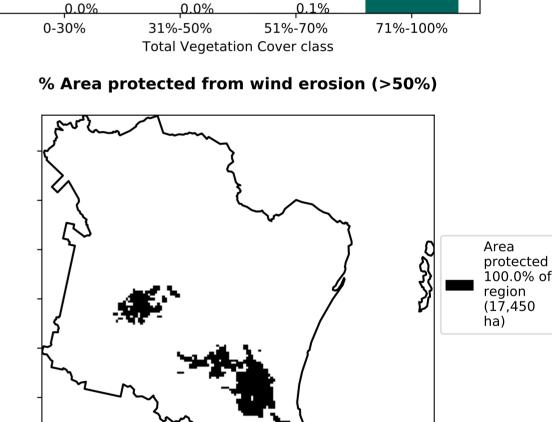
Land use and forest cover

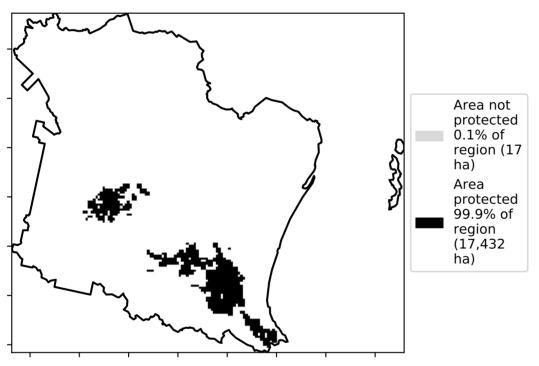


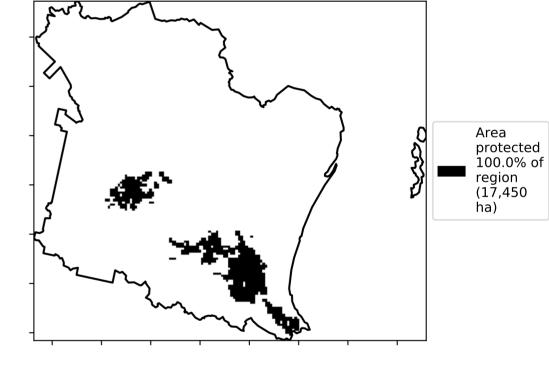


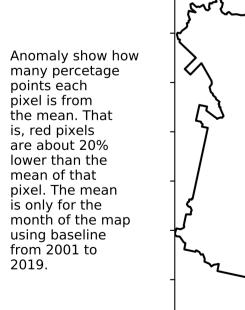


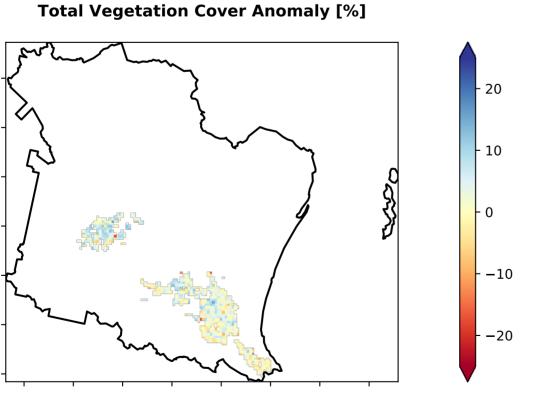




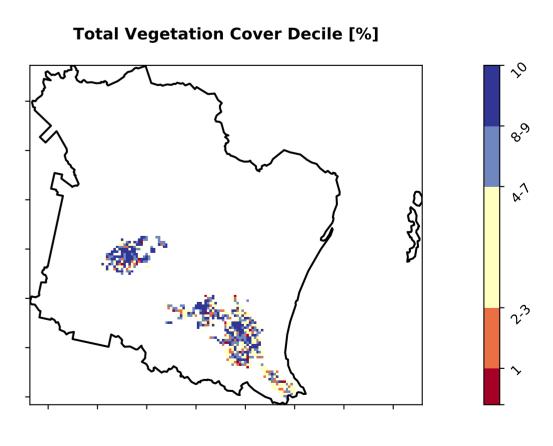








Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the man using baseling. the map using baseline from 2001 to 2019.









Area (%)

60

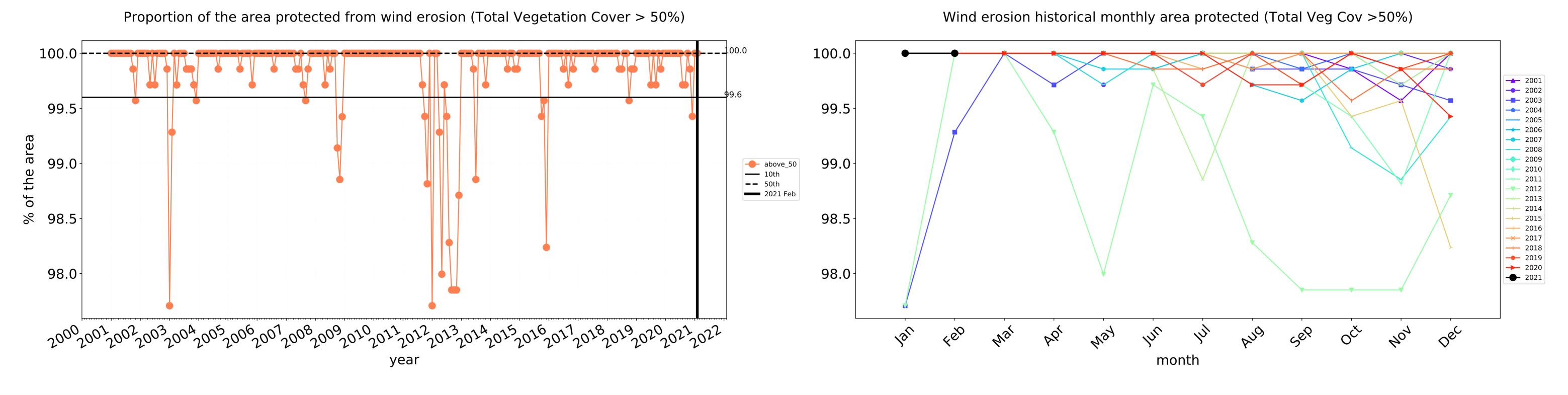
40

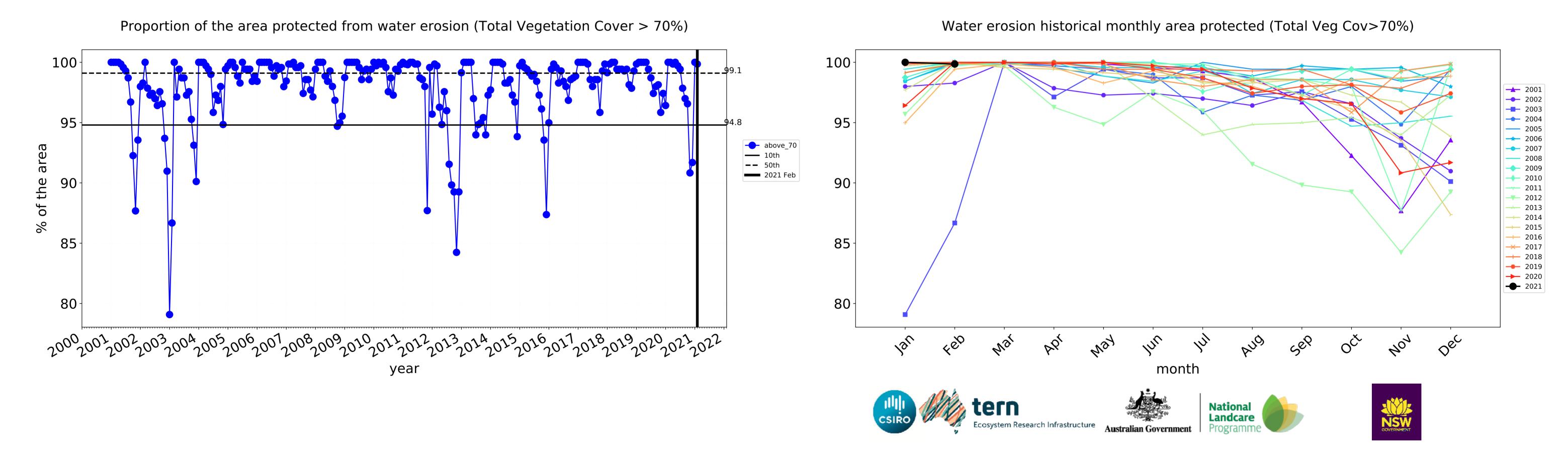
20

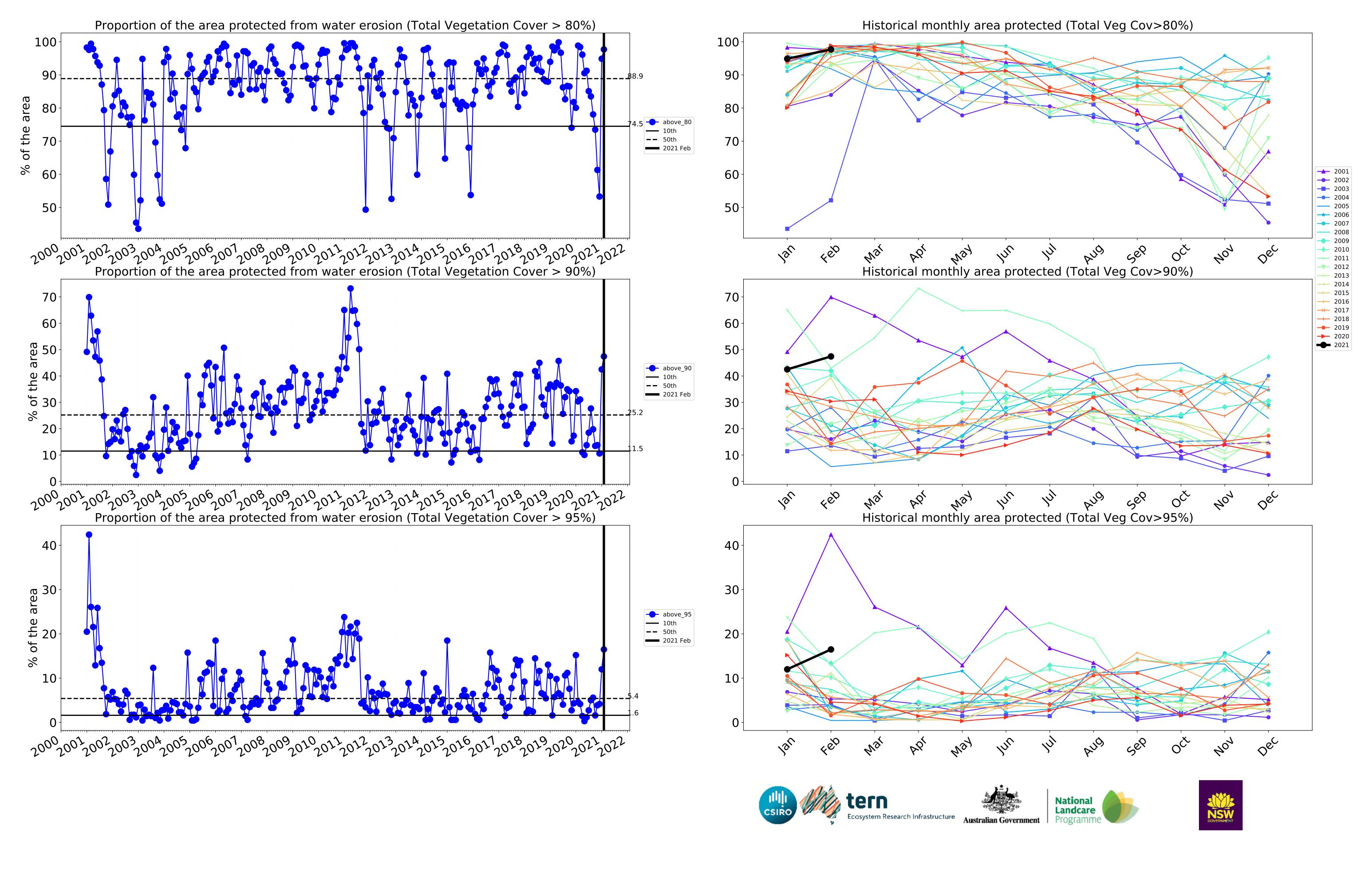
0



Irrigation timeseries

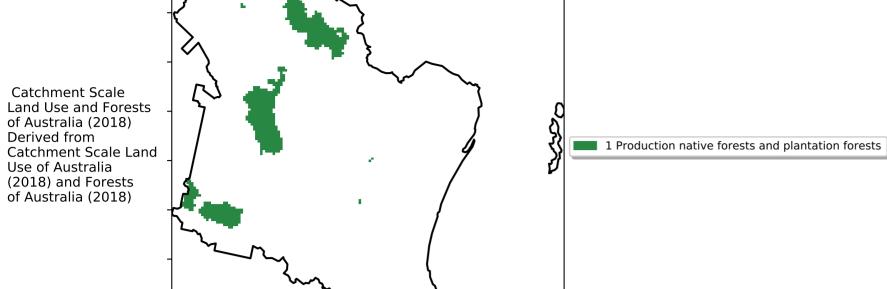






Production native forests and plantation forests

Land use and forest cover



Derived from

Anomaly show how many percetage points each pixel is from

the mean. That is, red pixels

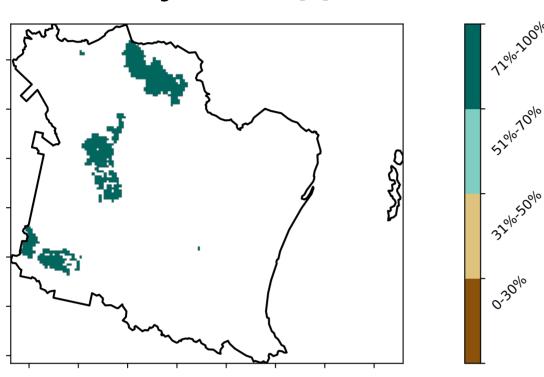
are about 20% lower than the mean of that

pixel. The mean

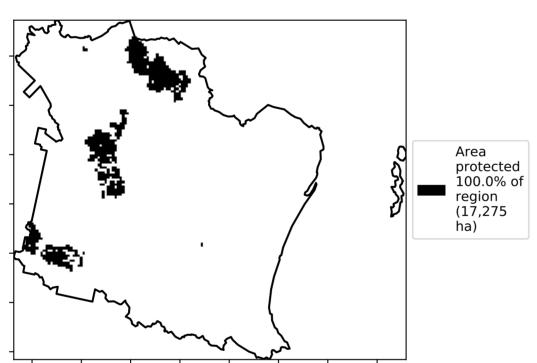
using baseline from 2001 to 2019.

is only for the month of the map

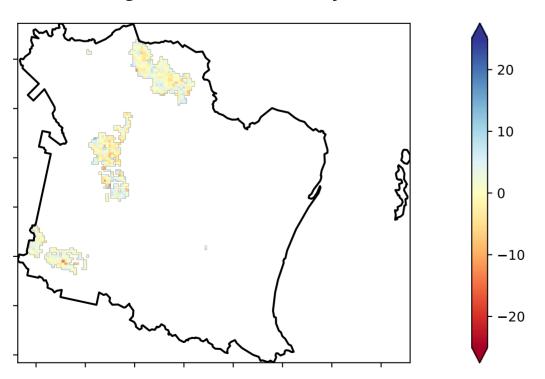
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

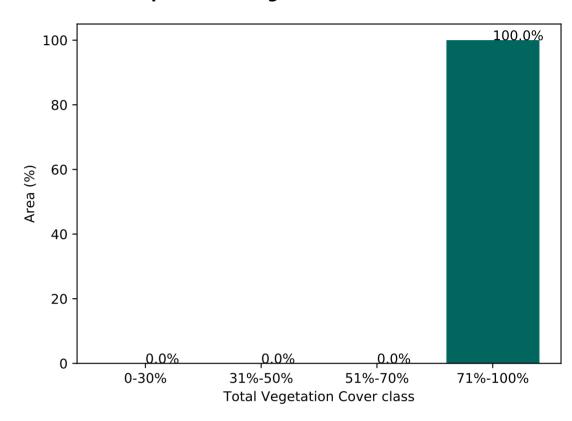


Total Vegetation Cover Anomaly [%]

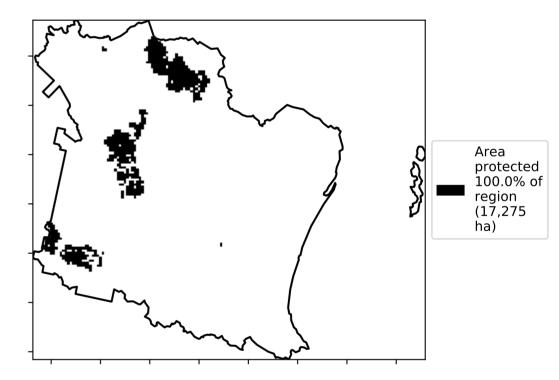


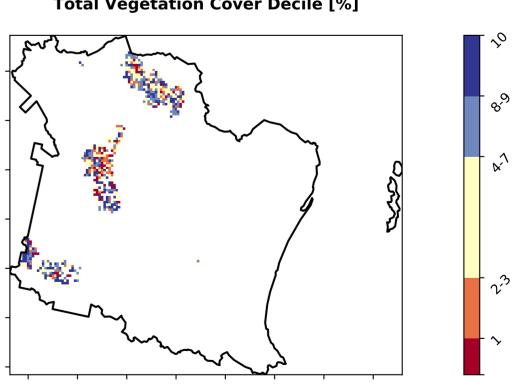
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)







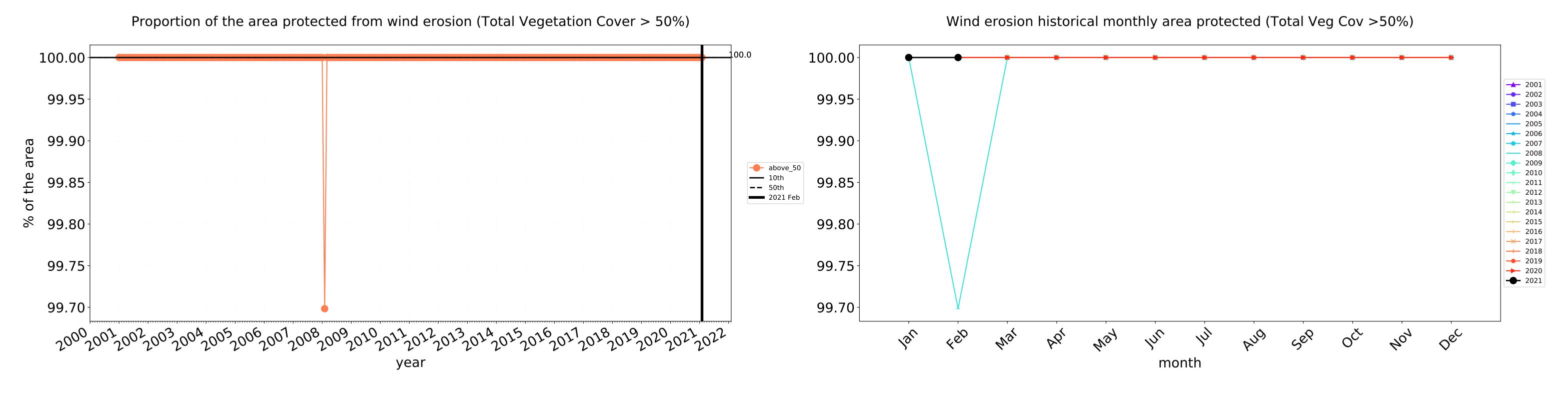


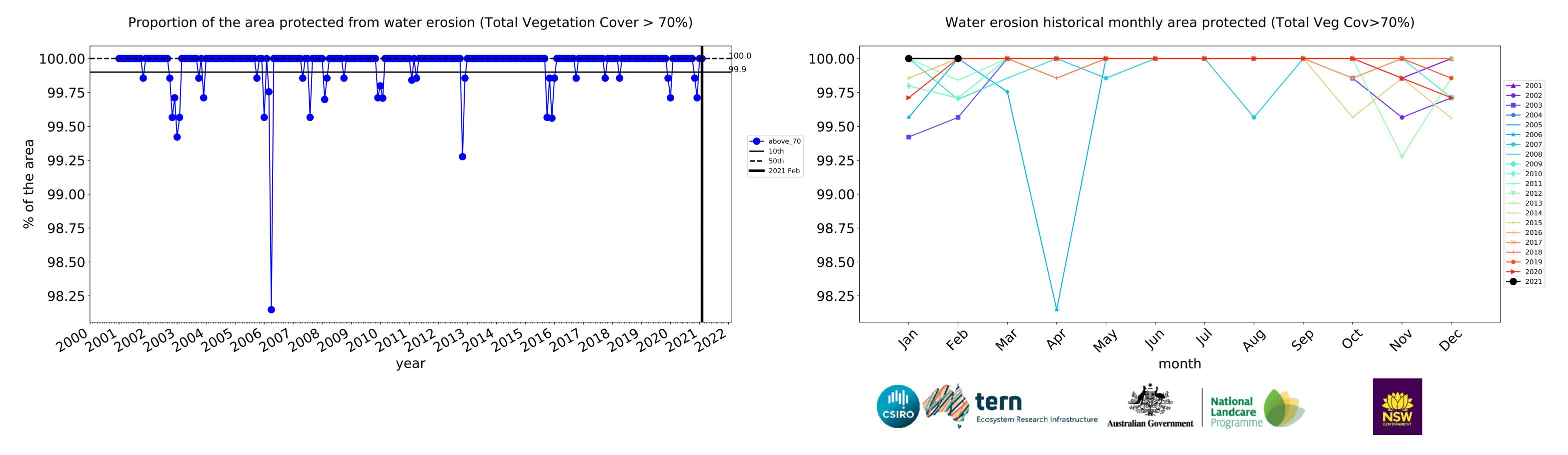


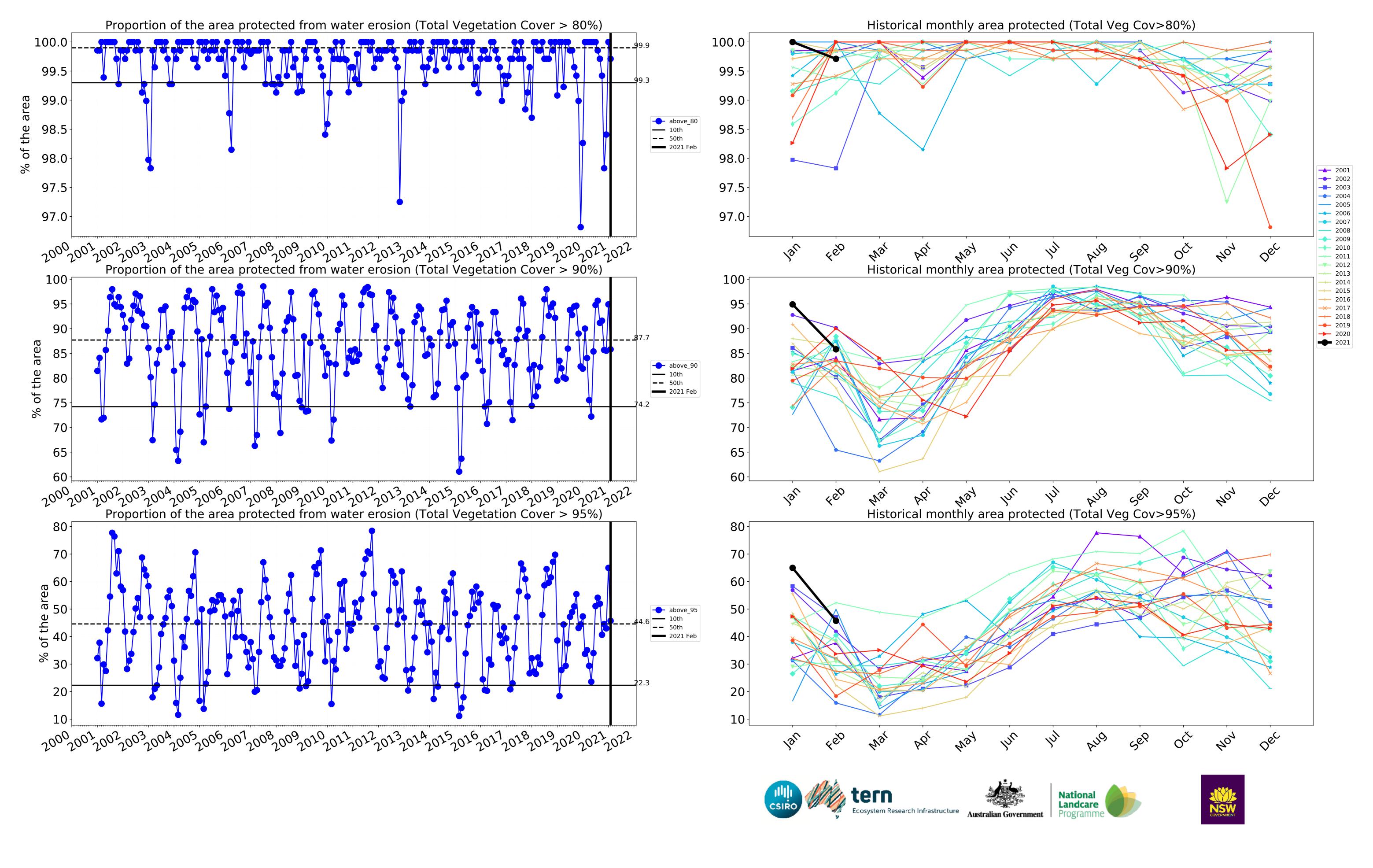




Production native forests and plantation forests timeseries







Hinchinbrook_(S) (240,425 ha and no data 40,237 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	240,425	99.9% 240,225	99.8% 240,000	98.9% 237,675	94.8% 227,900	64.9% 156,075	32.9% 79,125
Conservation and natural environments	106,150	99.8% 105,950	99.8% 105,900	99.2% 105,325	98.2% 104,250	86.2% 91,450	48.4% 51,375
Conservation and natural environments Woodland forest	39,825	99.9% 39,800	99.9% 39,800	99.7% 39,700	99.2% 39,500	86.4% 34,425	40.9% 16,275
Conservation and natural environments Forest (non woodland)	64,575	99.8% 64,425	99.7% 64,400	99.1% 63,975	97.9% 63,250	86.7% 55,975	53.5% 34,525
Agriculture	94,475	100.0% 94,475	100.0% 94,475	99.4% 93,950	95.0% 89,725	44.5% 42,075	17.1% 16,150
Grazing	20,050	100.0% 20,050	100.0% 20,050	99.4% 19,925	97.1% 19,475	67.8% 13,600	34.8% 6,975
Grazing non forest	14,800	100.0% 14,800	100.0% 14,800	99.2% 14,675	96.3% 14,250	60.5% 8,950	23.1% 3,425
Grazing Woodland forest	2,475	100.0% 2,475	100.0% 2,475	100.0% 2,475	99.0% 2,450	88.9% 2,200	65.7% 1,625
Grazing - Forest (non woodland)	2,775	100.0% 2,775	100.0% 2,775	100.0% 2,775	100.0% 2,775	88.3% 2,450	69.4% 1,925
Cropping	56,950	100.0% 56,950	100.0% 56,950	99.3% 56,575	93.4% 53,175	35.4% 20,175	11.1% 6,300
Irrigation	17,450	100.0% 17,450	100.0% 17,450	99.9% 17,425	97.7% 17,050	47.4% 8,275	16.5% 2,875
Production native forests and plantation forests	17,275	100.0% 17,275	100.0% 17,275	100.0% 17,275	99.7% 17,225	85.8% 14,825	45.7% 7,900







