Total vegetation cover soil protection Region:NRM Riverina NSW

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

Land use forest cover:

Date: April 2020

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

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

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

Erosion protection: Wind erosion 50% total vegetation cover

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

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

Comparison with previous years:

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

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

Erosion protection

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

Rainfall

• Millimetres rainfall each month (black line).

Each time series is also stacked by year. The black line shows the current year of data. Water erosion protection for higher rainfall and steeper slopes:

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

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

Acknowledgment of data:

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

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



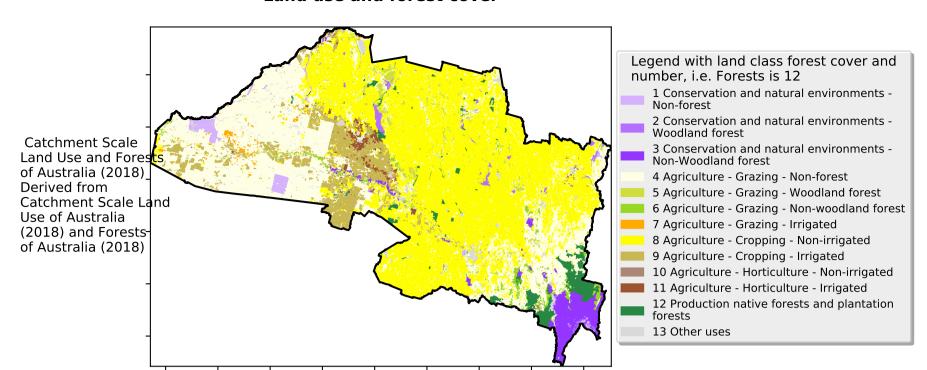




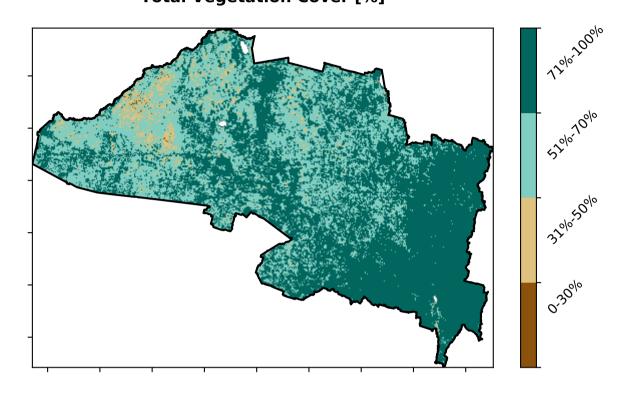


Vegetation Cover Apr 2020

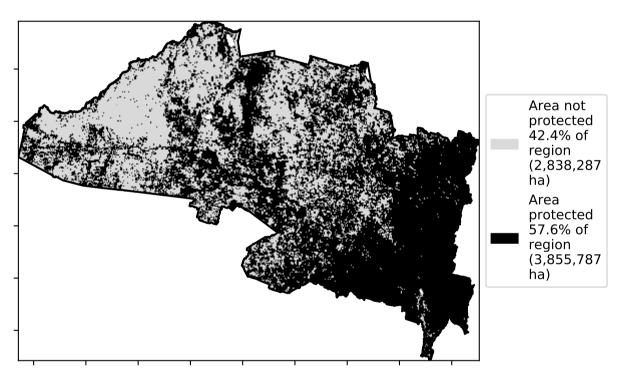
Land use and forest cover



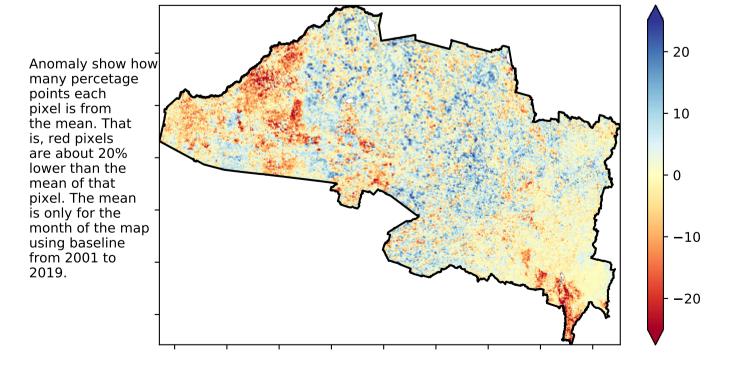
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

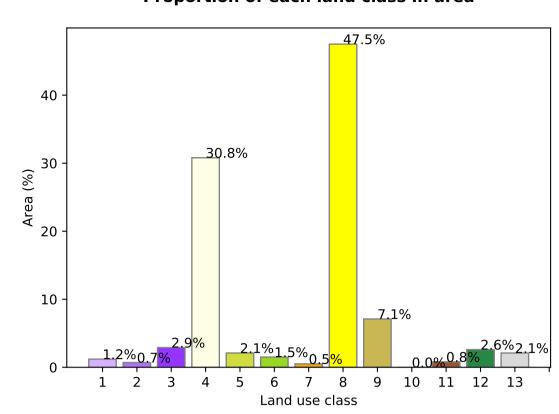


Total Vegetation Cover Anomaly [%]

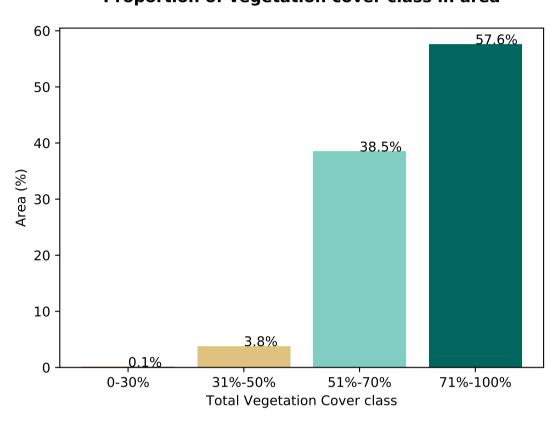


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

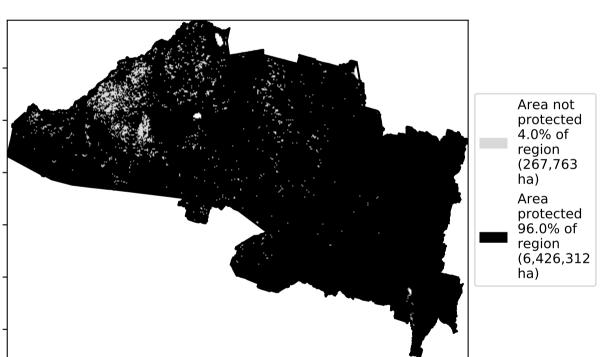
Proportion of each land class in area



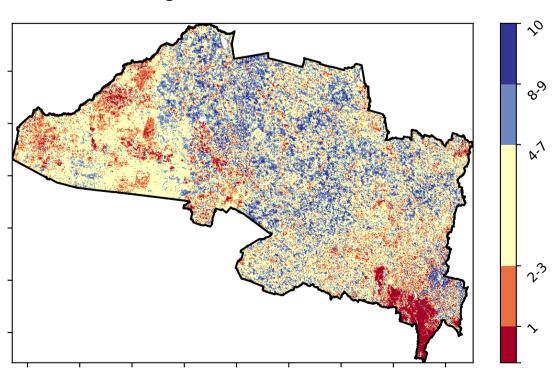
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]

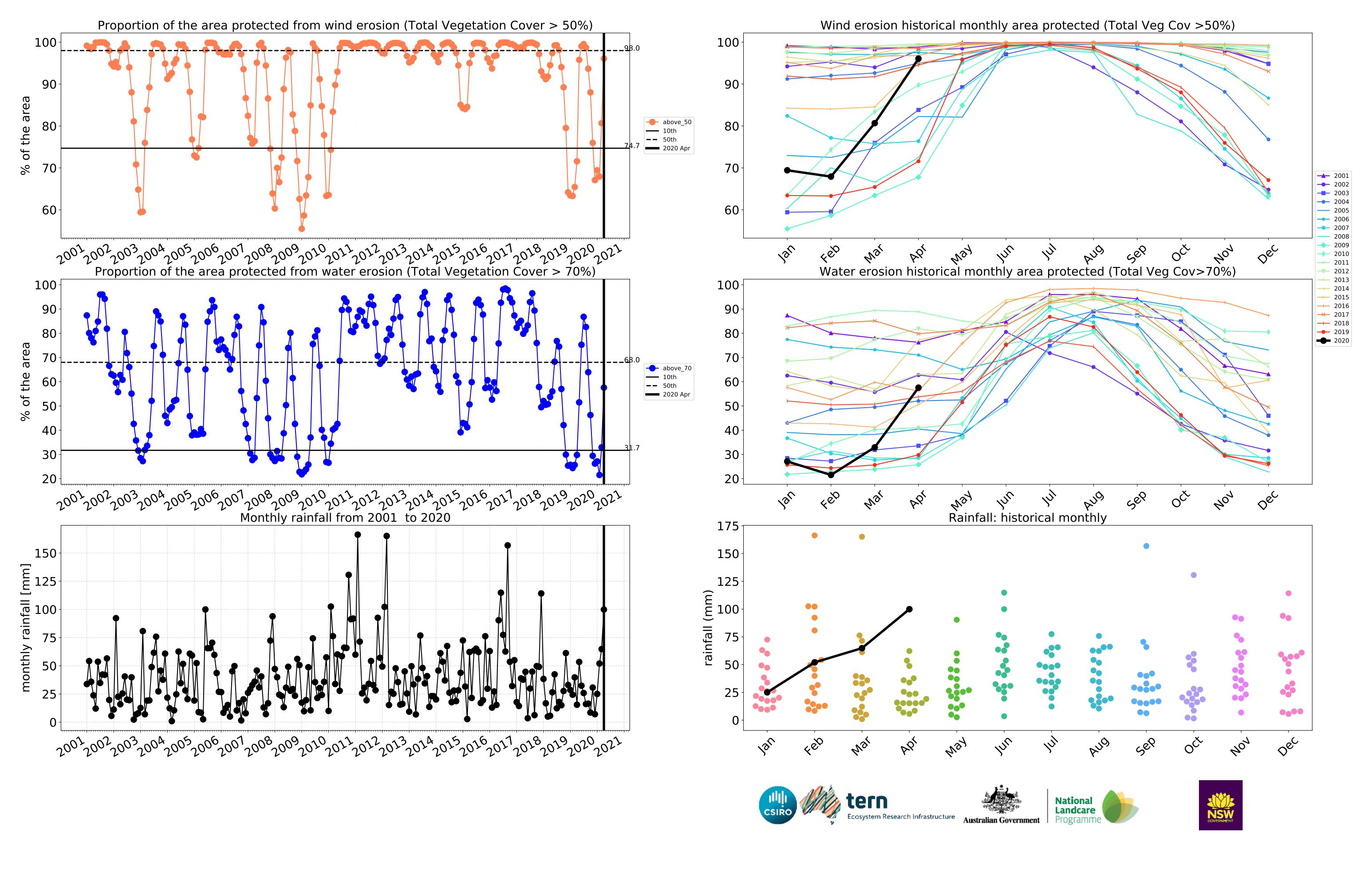




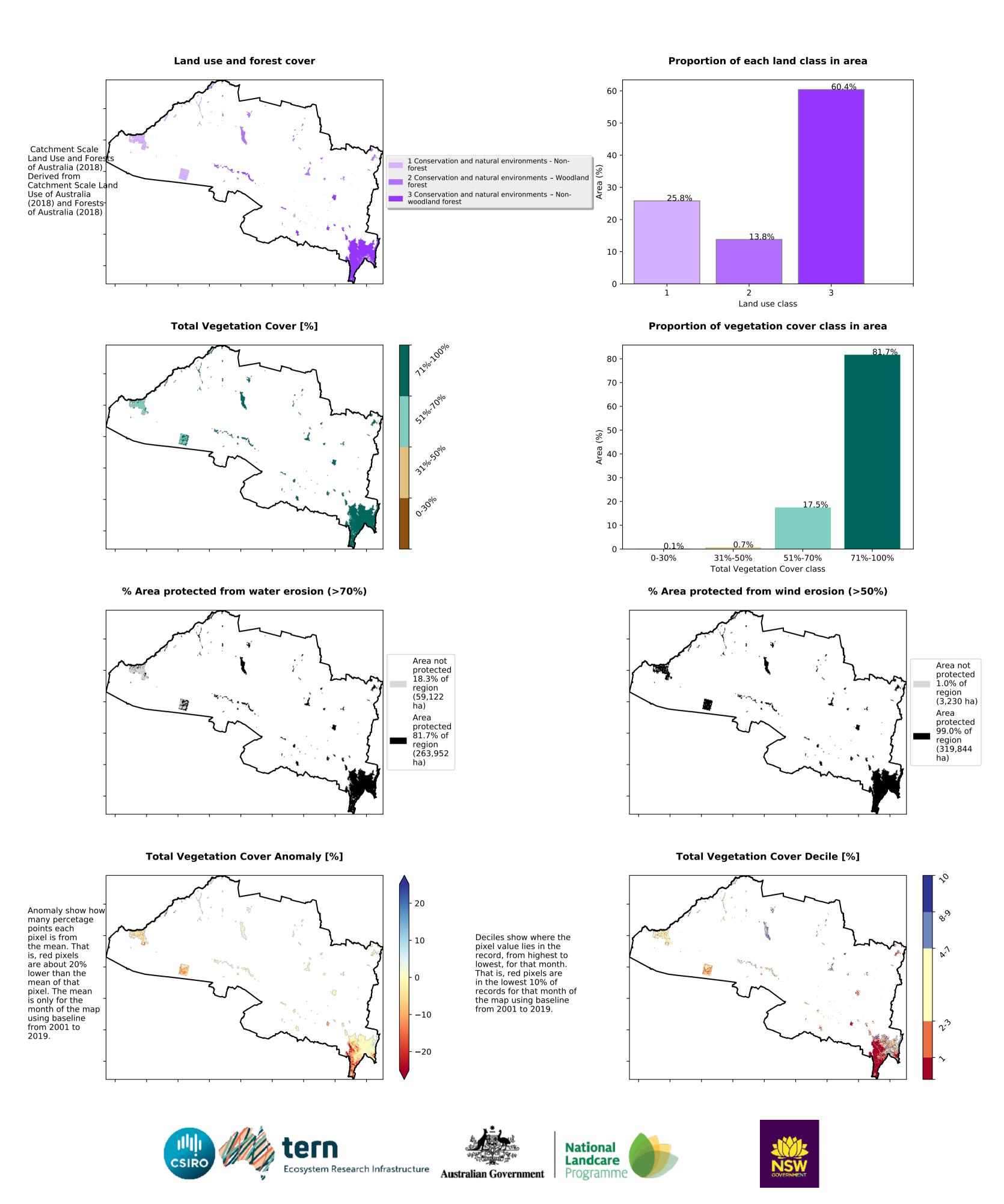




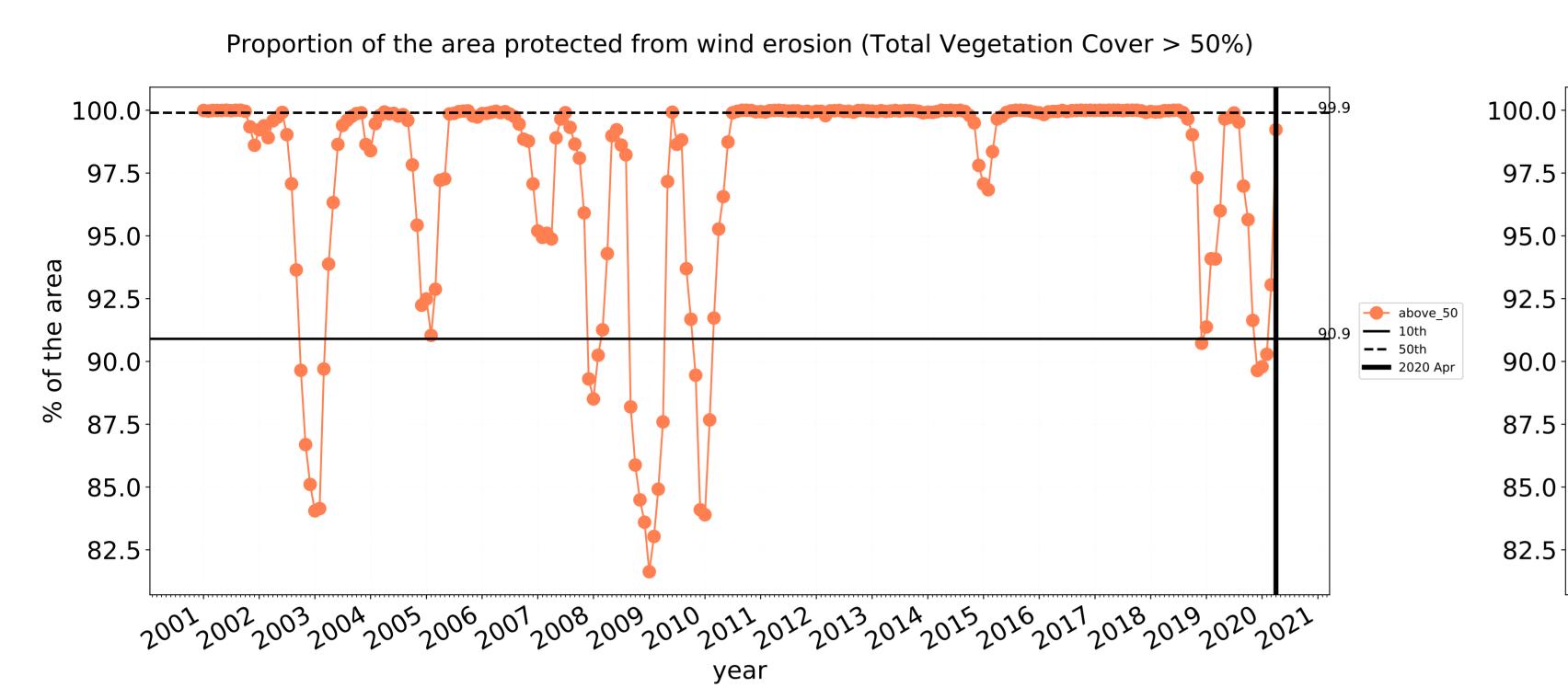


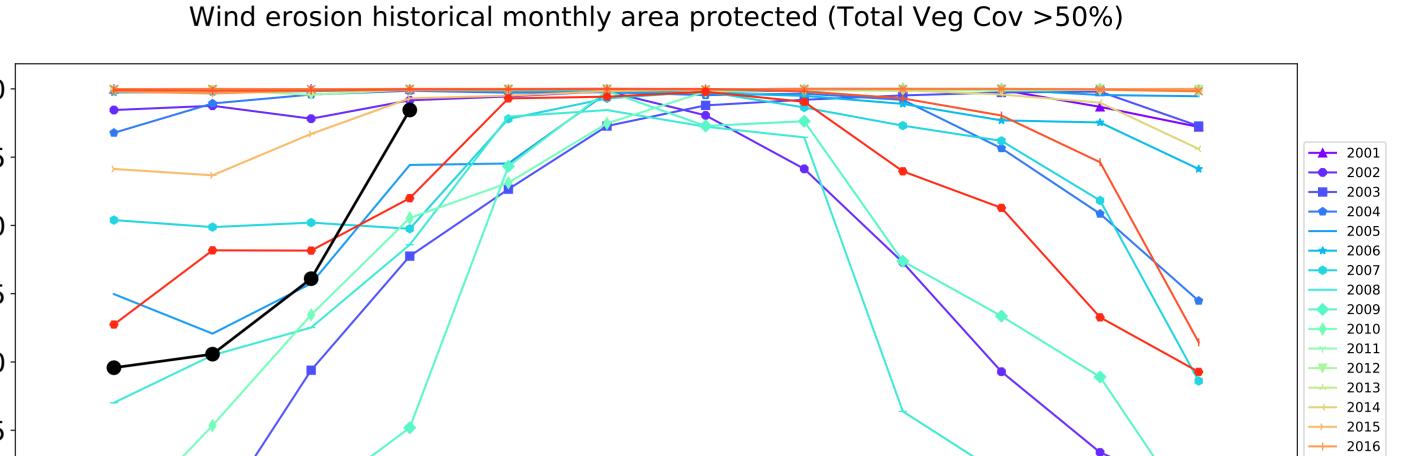


Conservation and natural environments



Conservation and natural environments timeseries

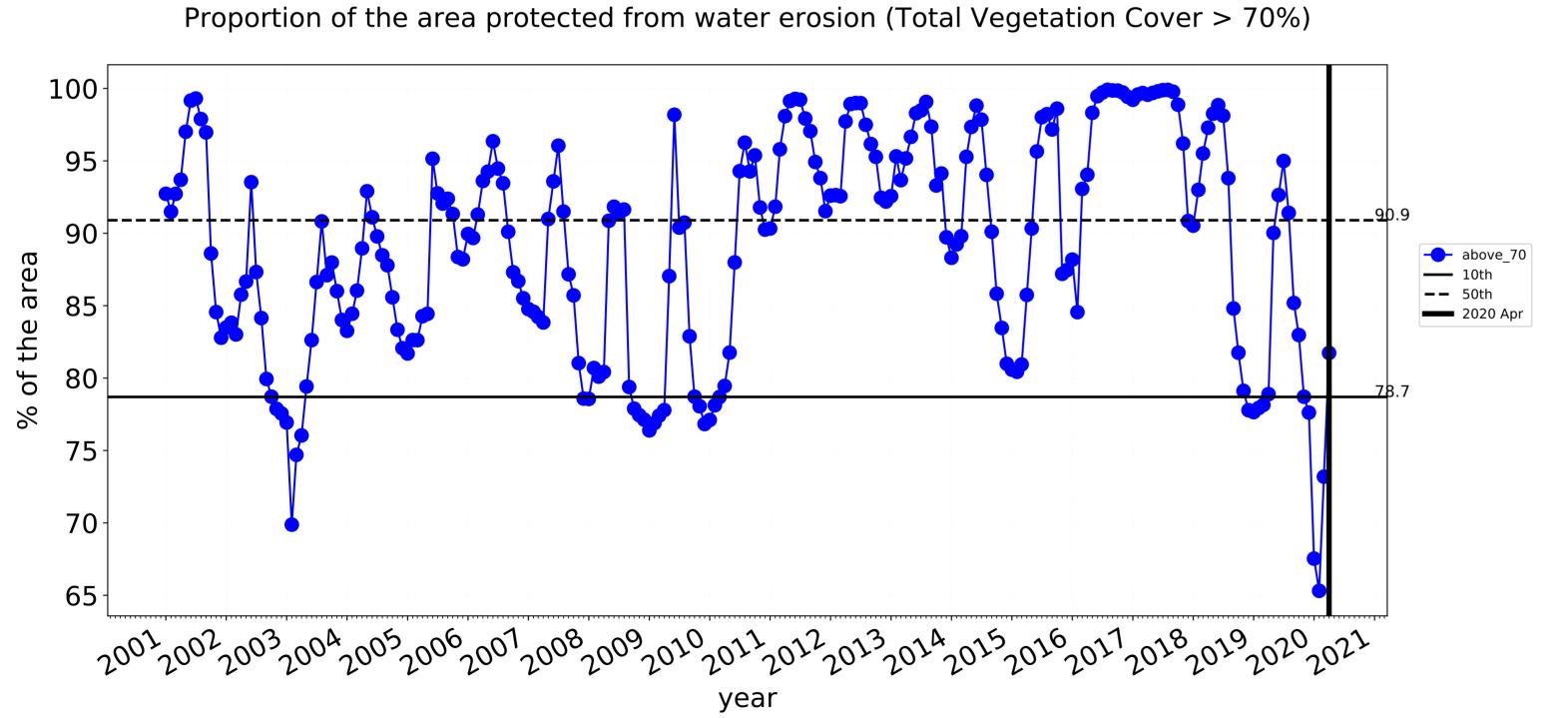


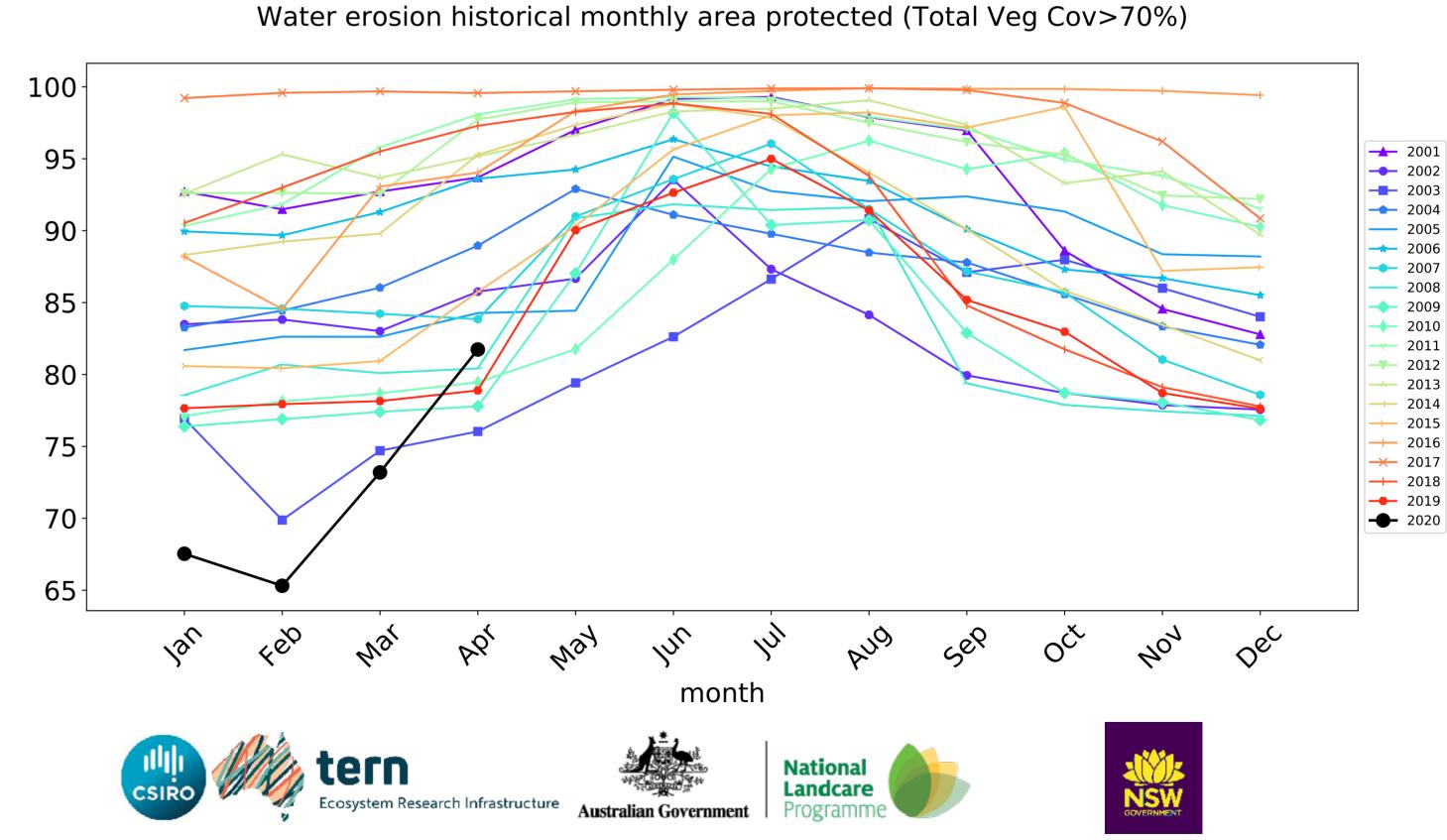


month

→ 2017
→ 2018

2019 2020



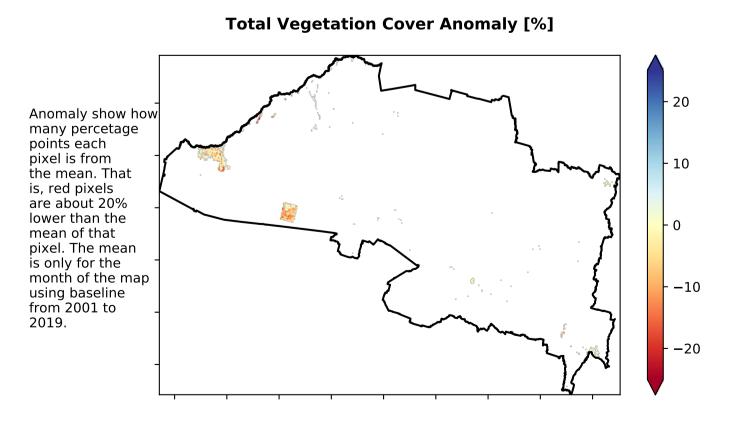


Conservation and natural environments non forest

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

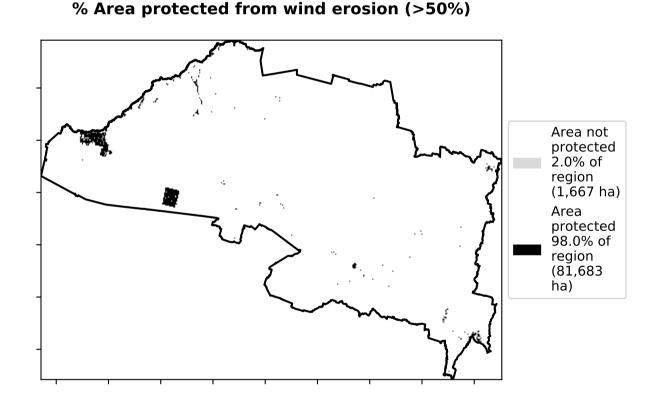
Total Vegetation Cover [%]

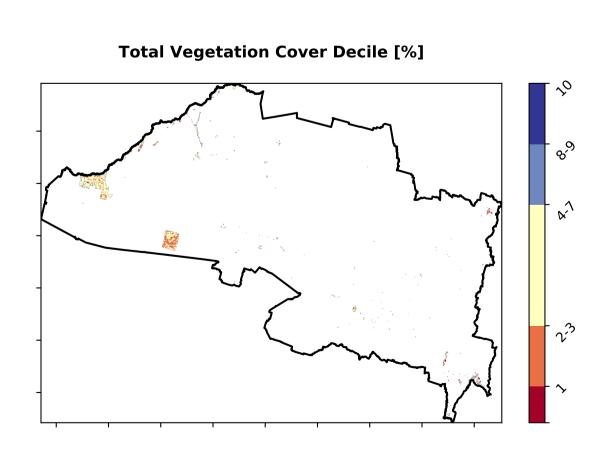
% Area protected from water erosion (>70%) Area not protected 58.7% of region (48,926 ha) Area protected 41.3% of region (34,423 ha)



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.

Proportion of vegetation cover class in area 50404020100-30% 31%-50% Total Vegetation Cover class 71%-100% Total Vegetation Cover class





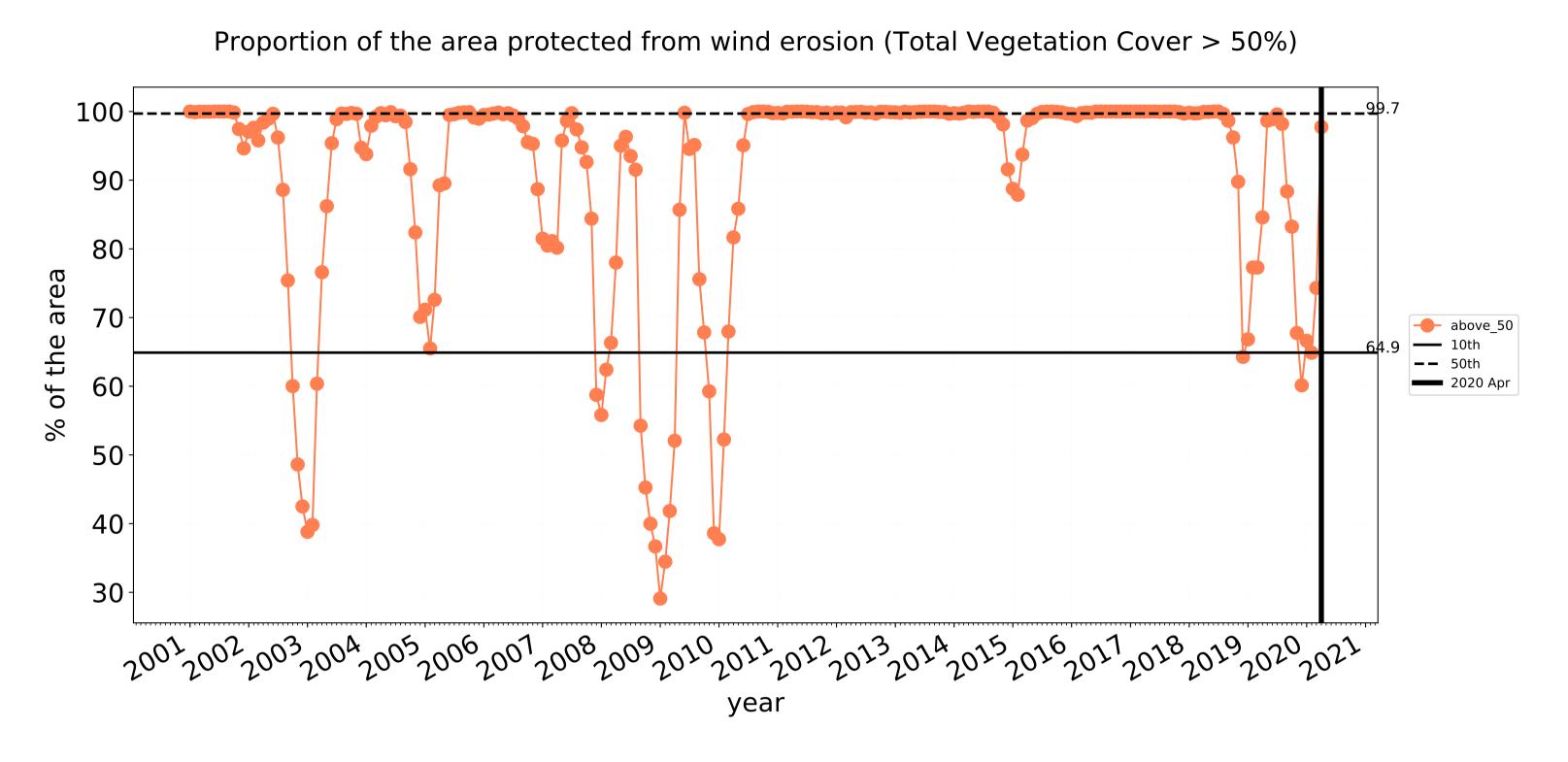


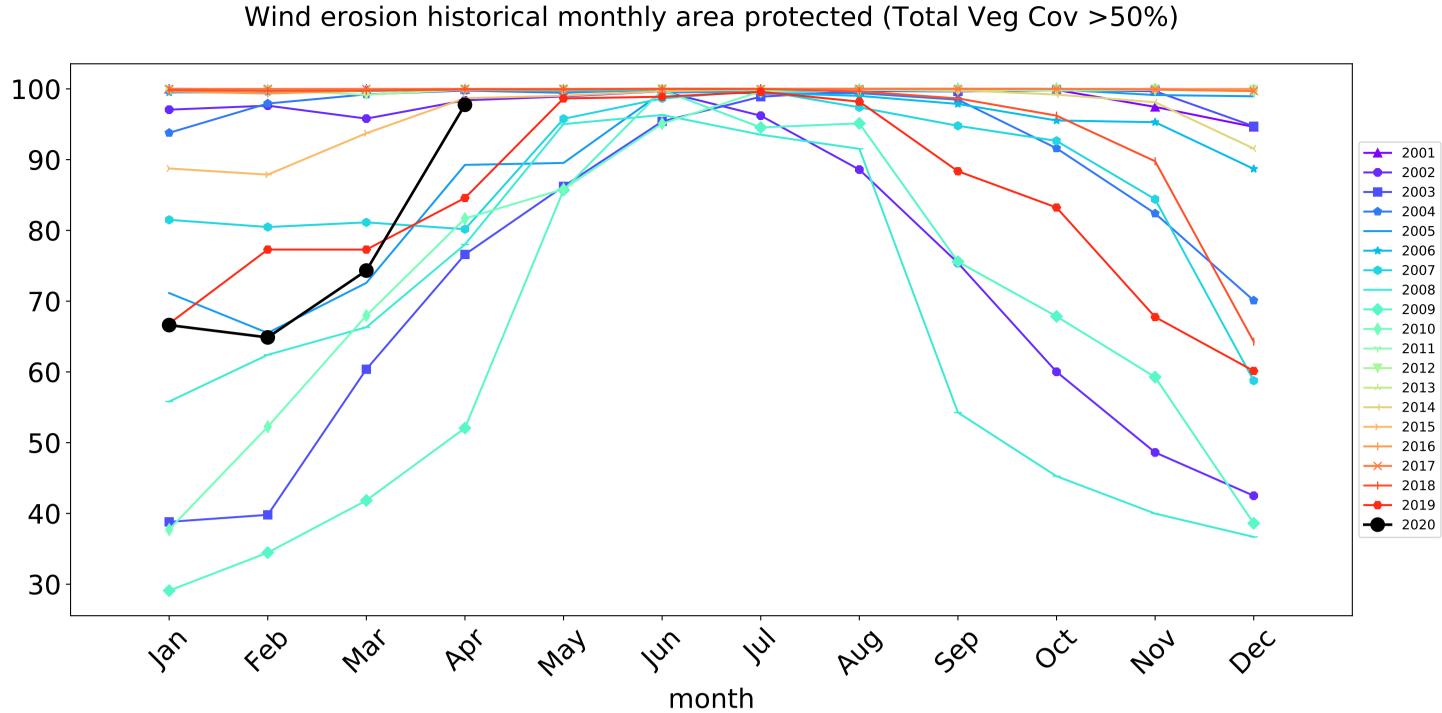


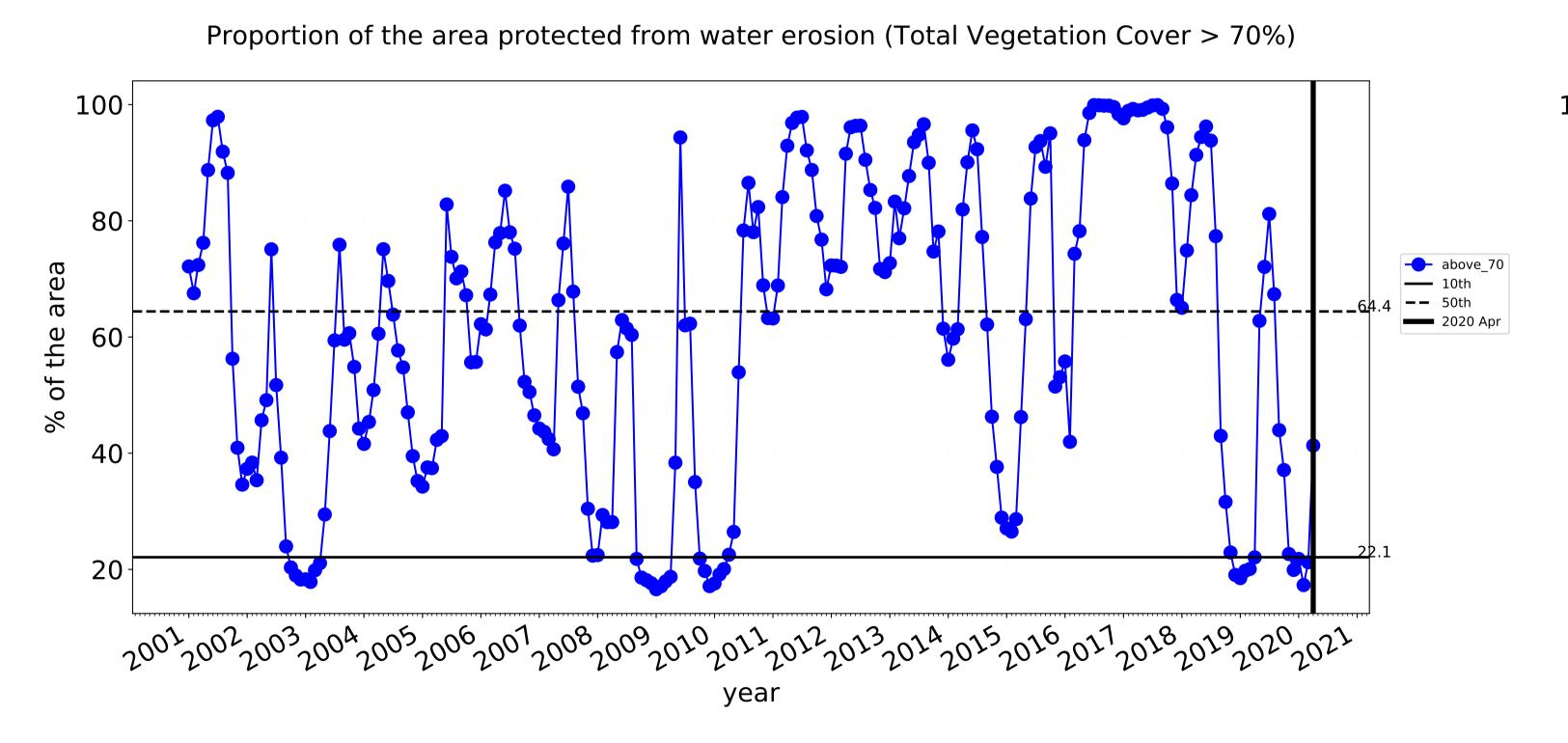


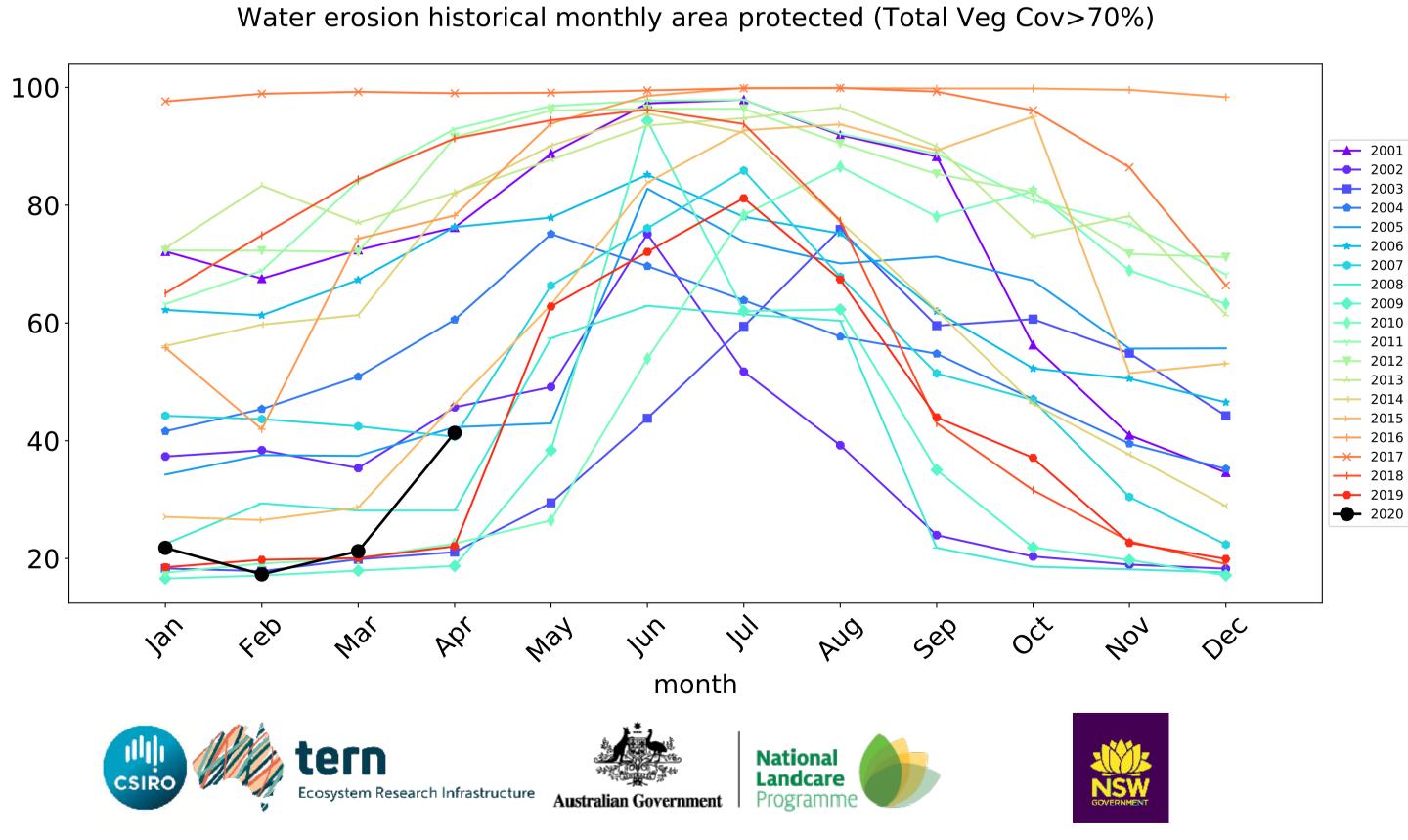


Conservation and natural environments non forest timeseries

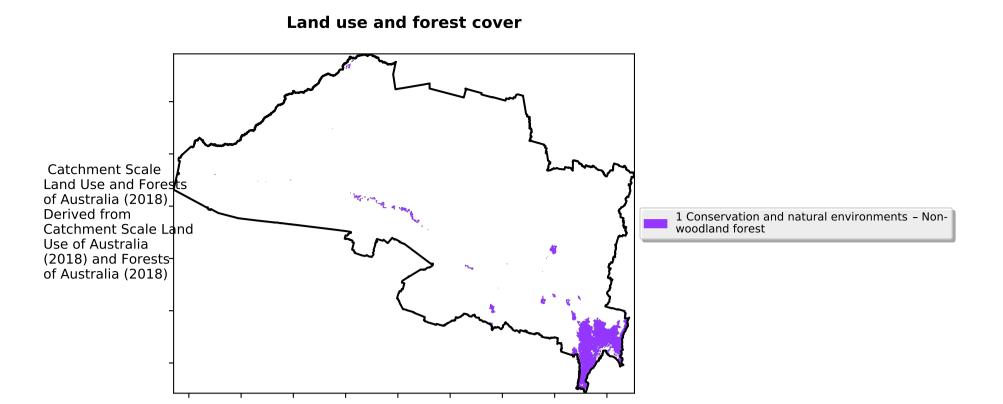




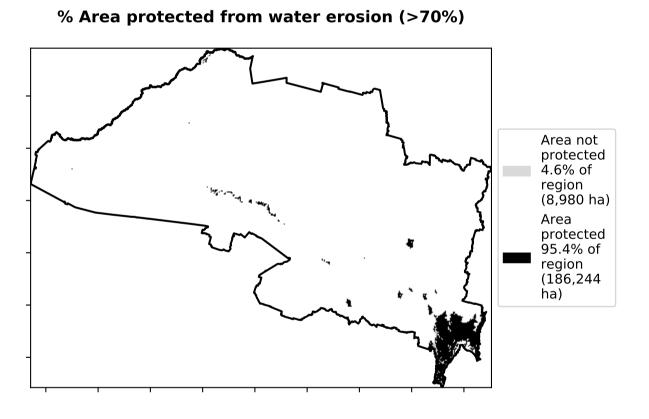


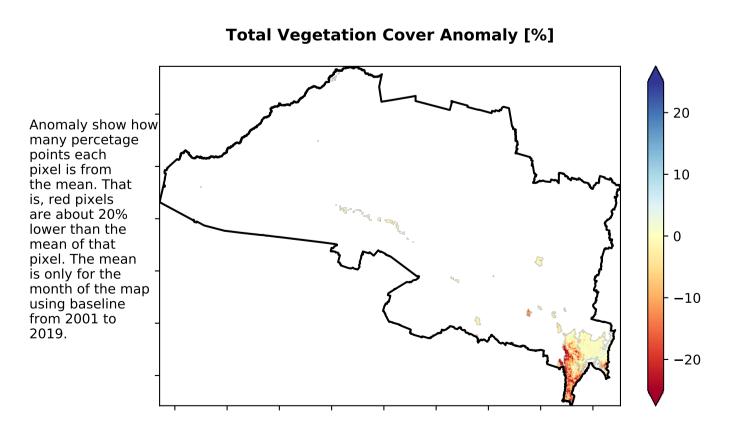


Conservation and natural environments Forest (non woodland)

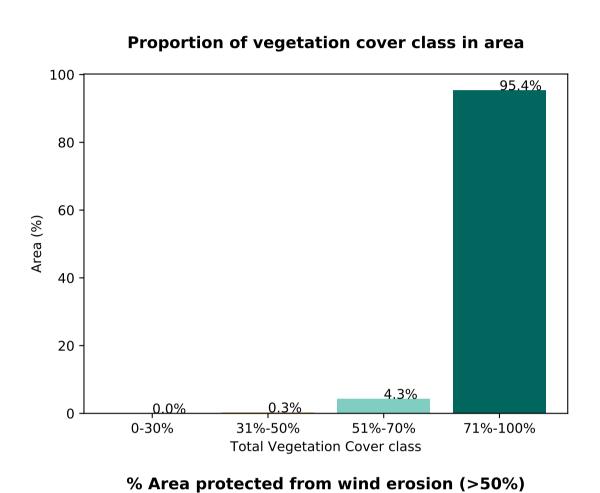


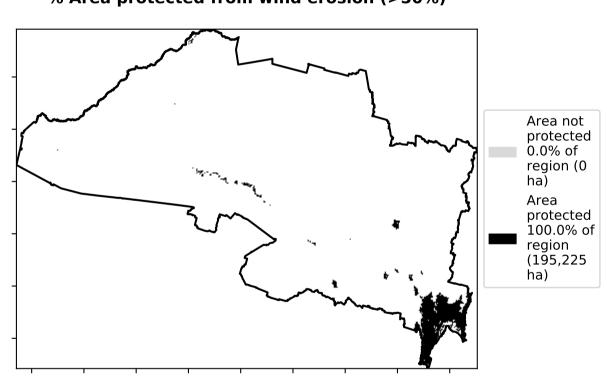
Total Vegetation Cover [%]

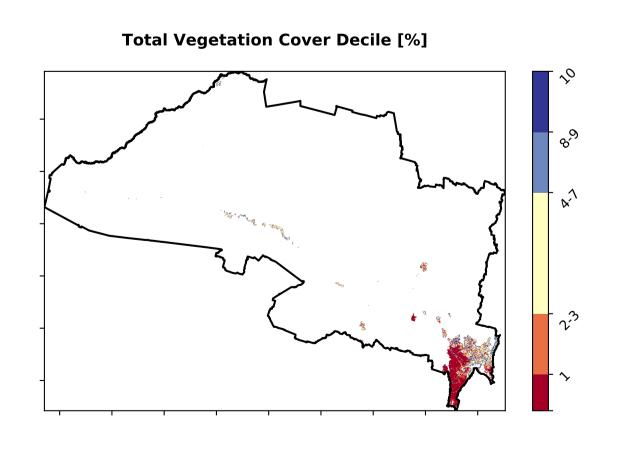




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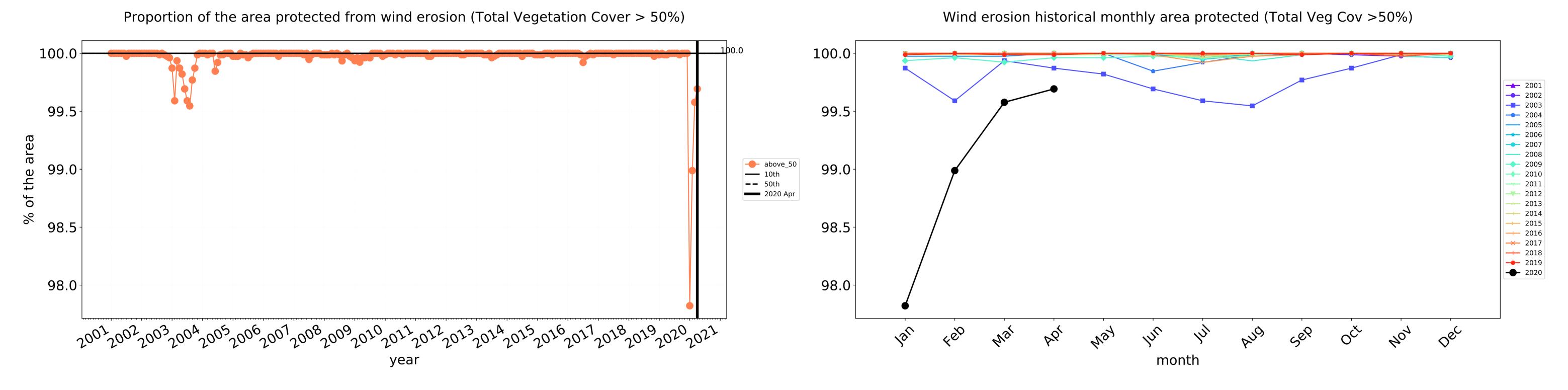


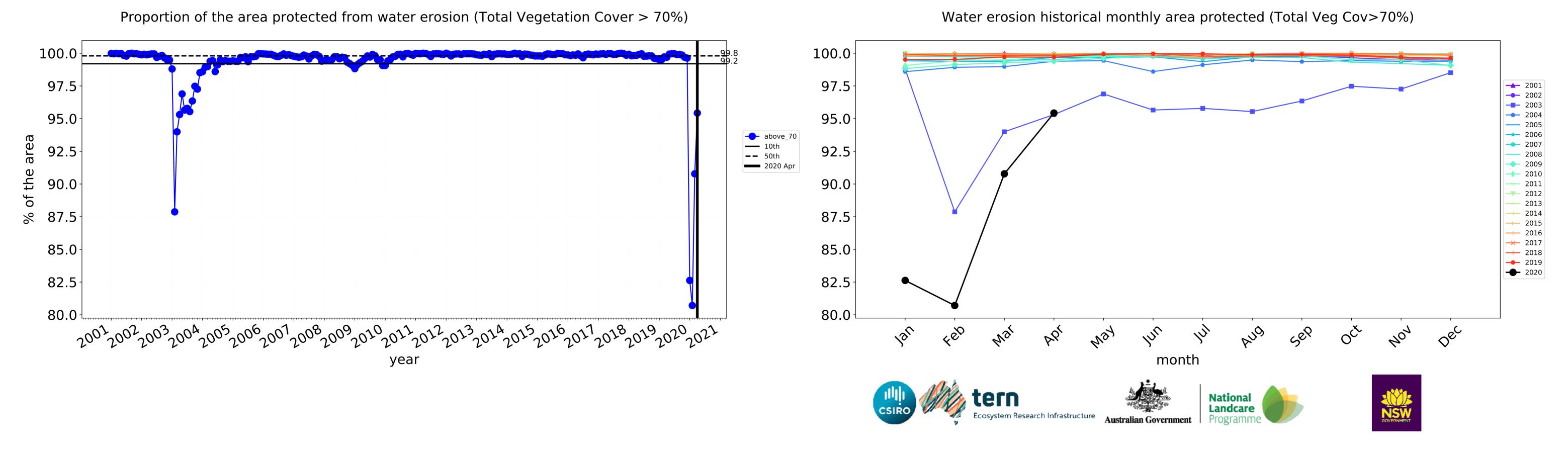








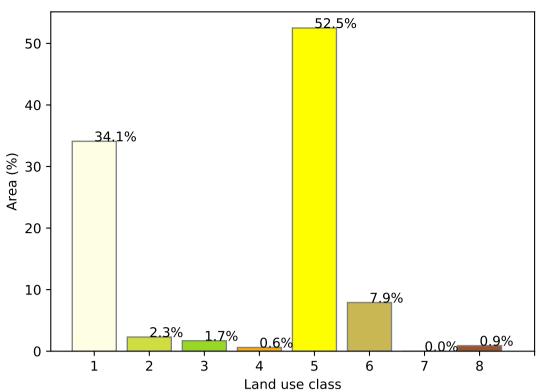




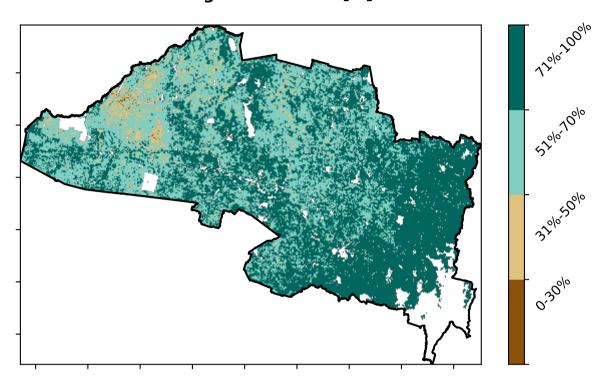
Agriculture

rest od forest % 3 ed 4

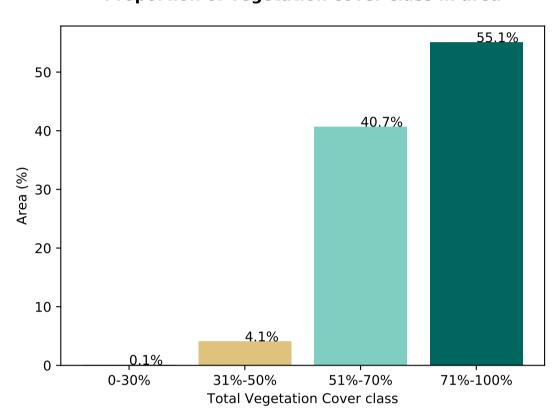
Proportion of each land class in area



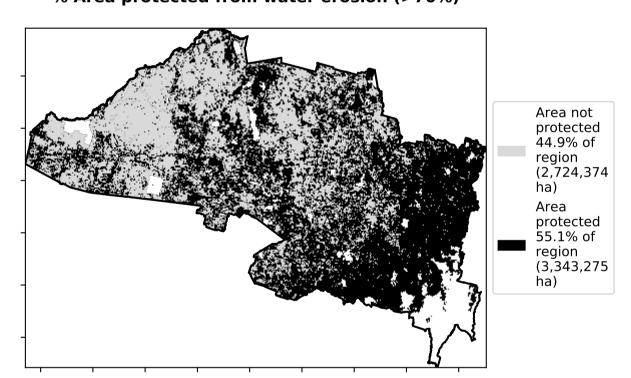




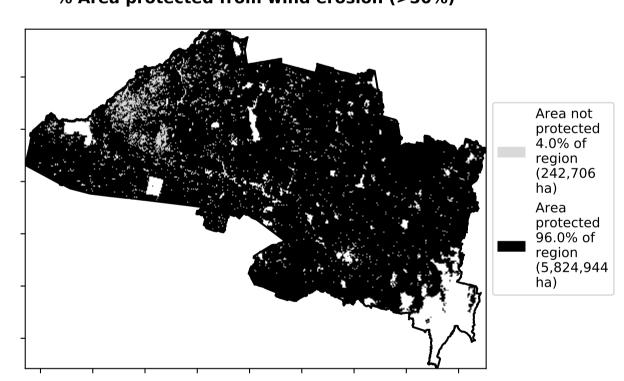
Proportion of vegetation cover class in area



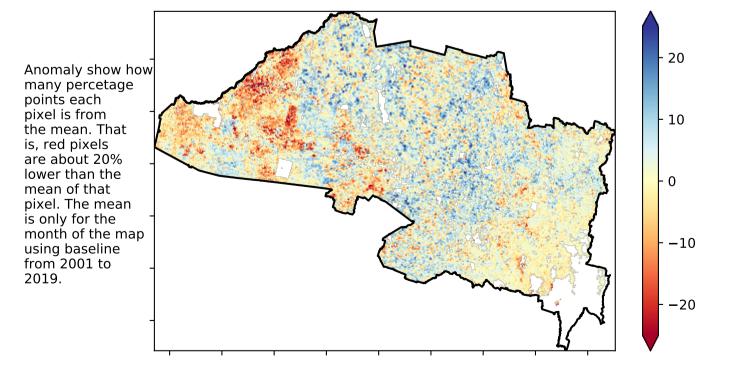
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

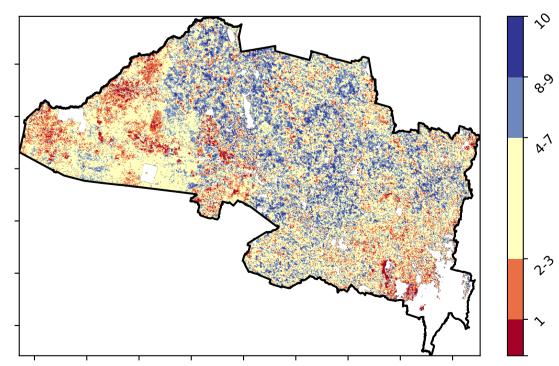


Total Vegetation Cover Anomaly [%]



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Total Vegetation Cover Decile [%]



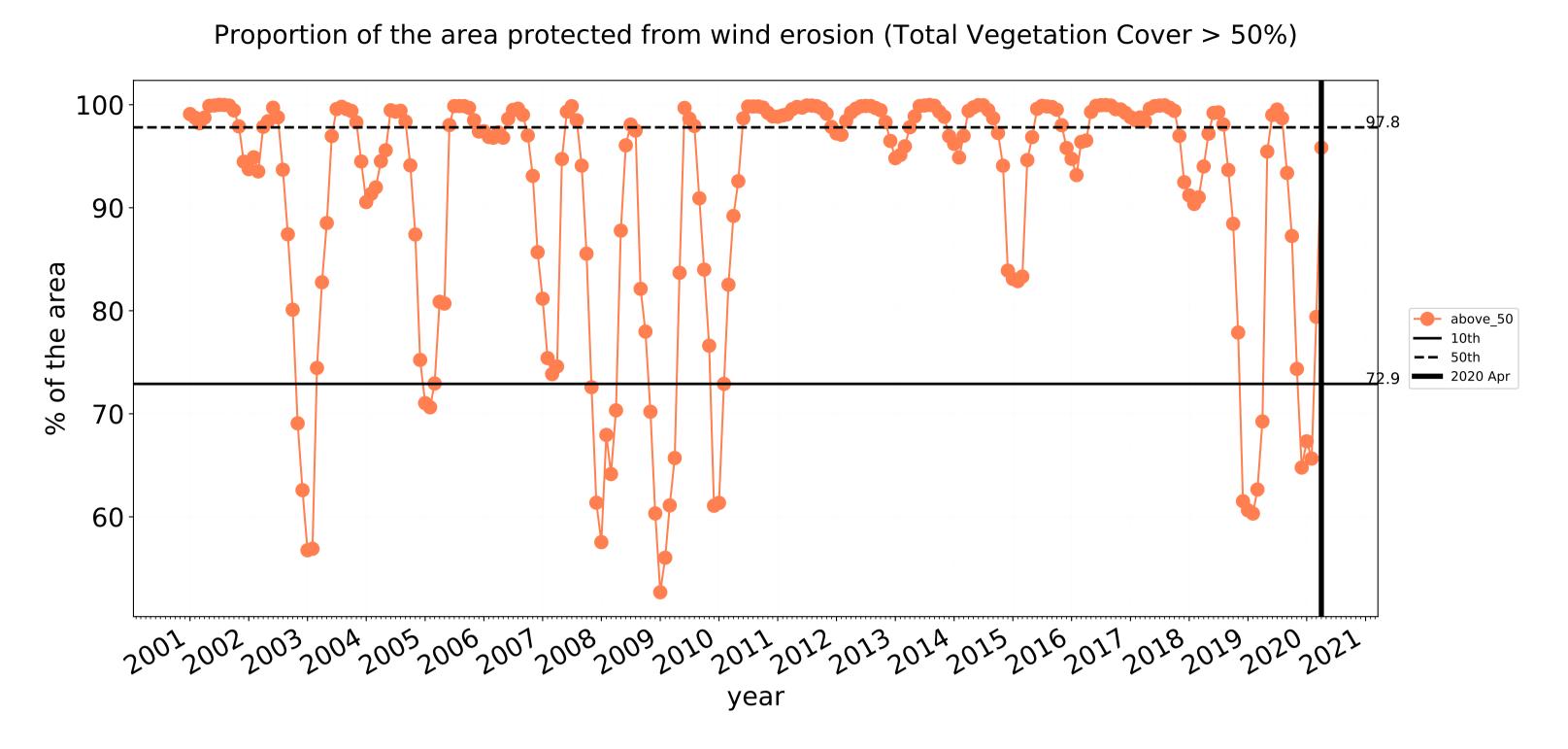


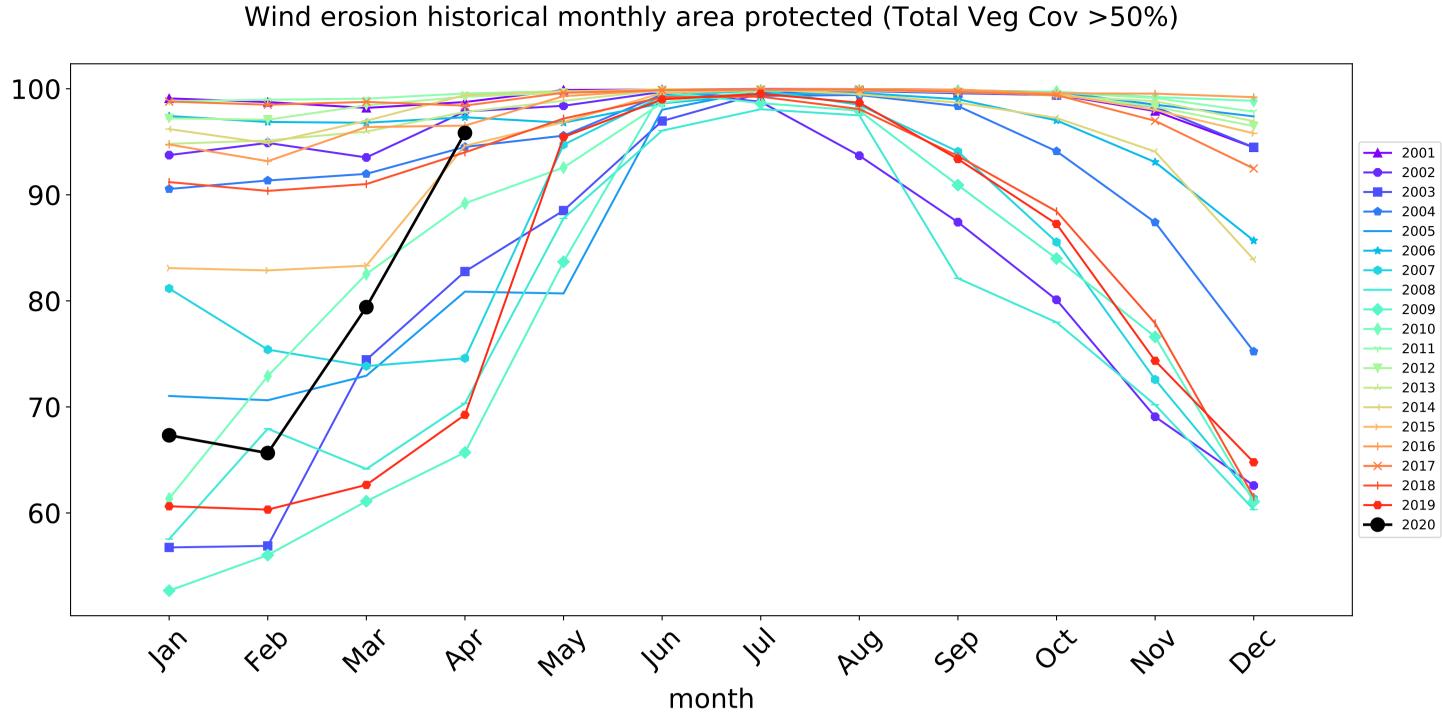


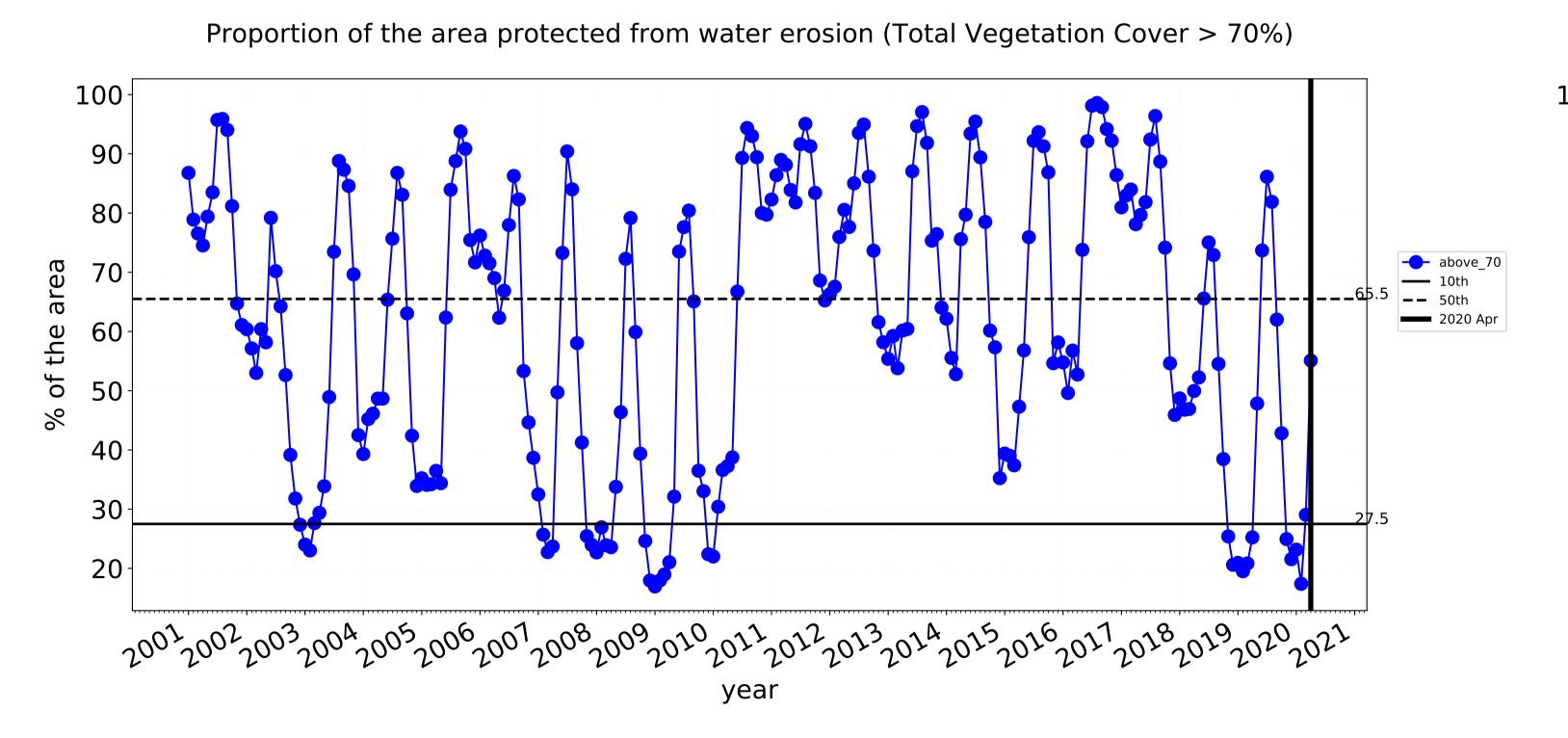


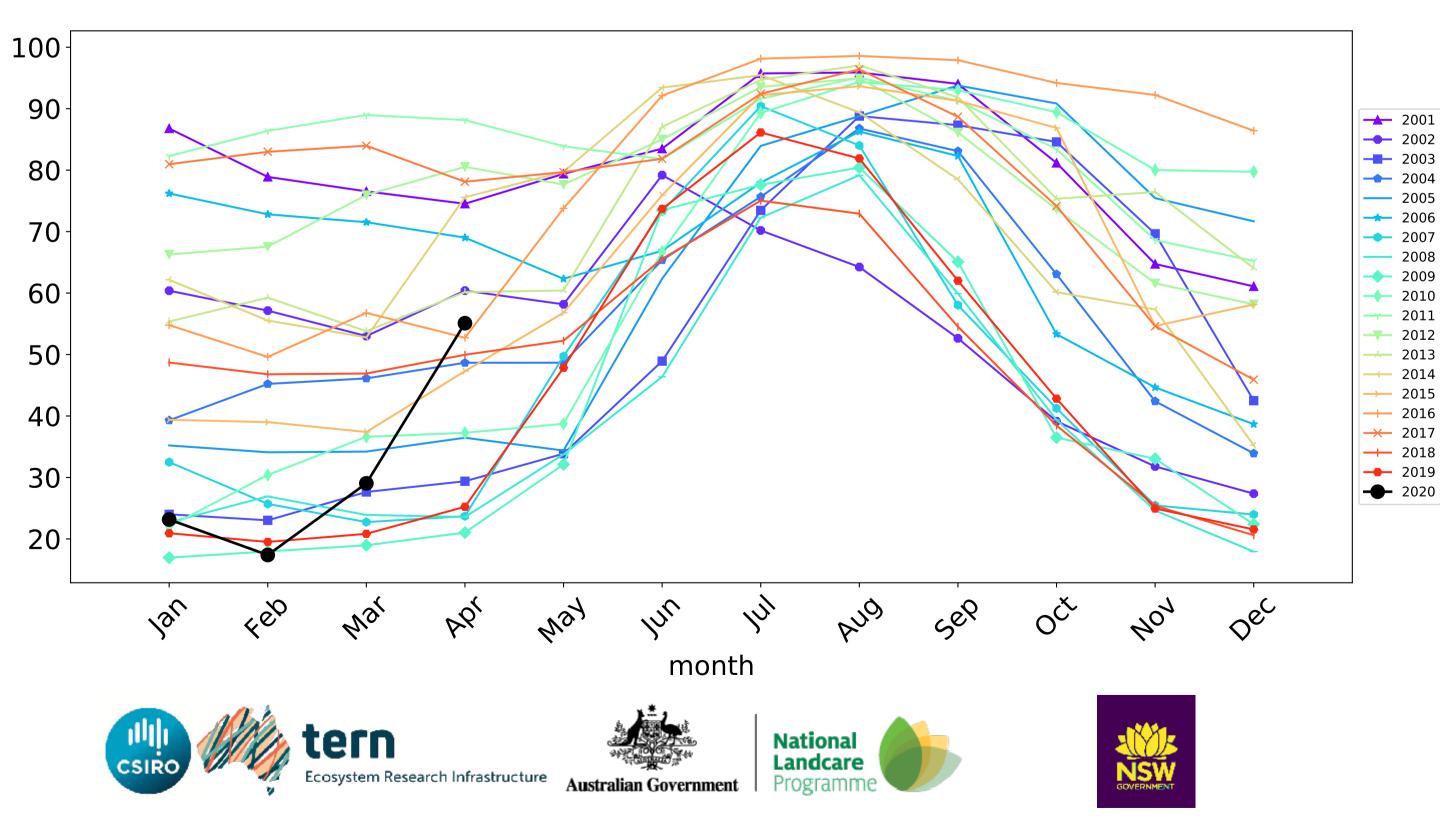


Agriculture timeseries



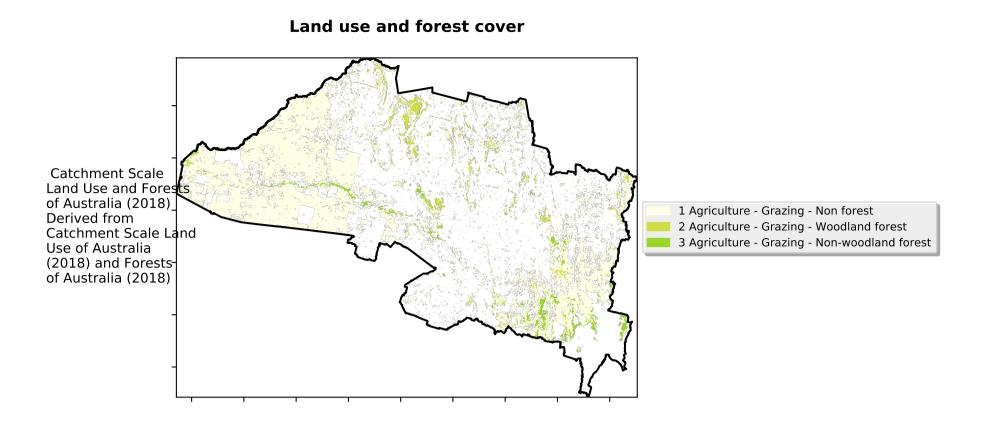




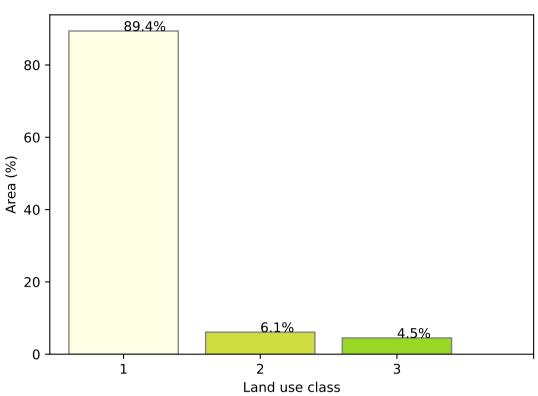


Water erosion historical monthly area protected (Total Veg Cov>70%)

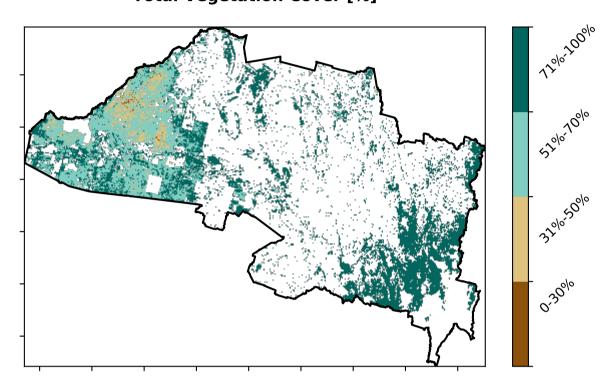
Grazing



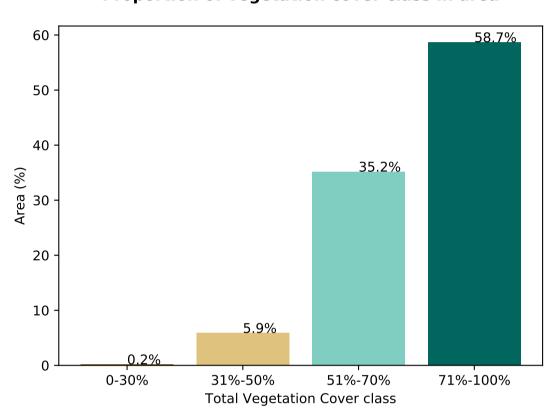
Proportion of each land class in area



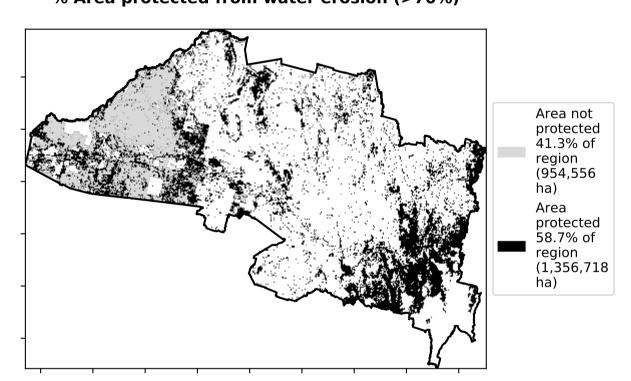
Total Vegetation Cover [%]



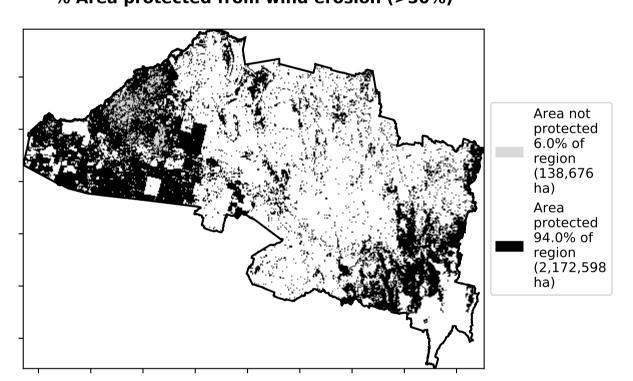
Proportion of vegetation cover class in area



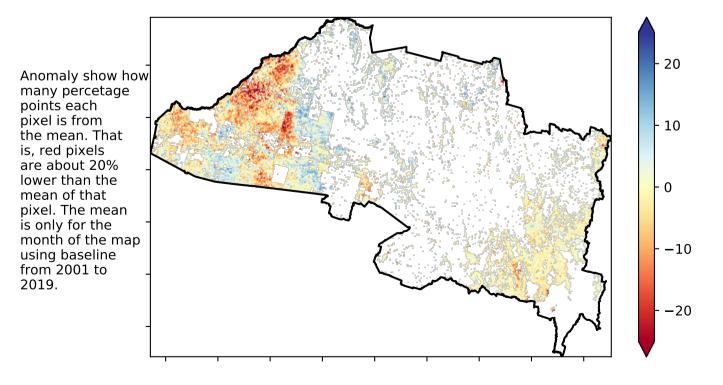
% Area protected from water erosion (>70%)



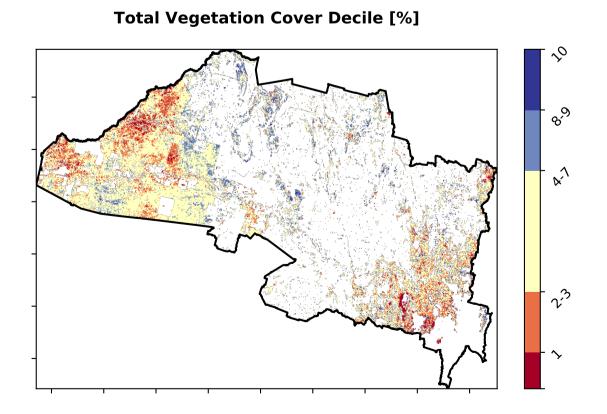
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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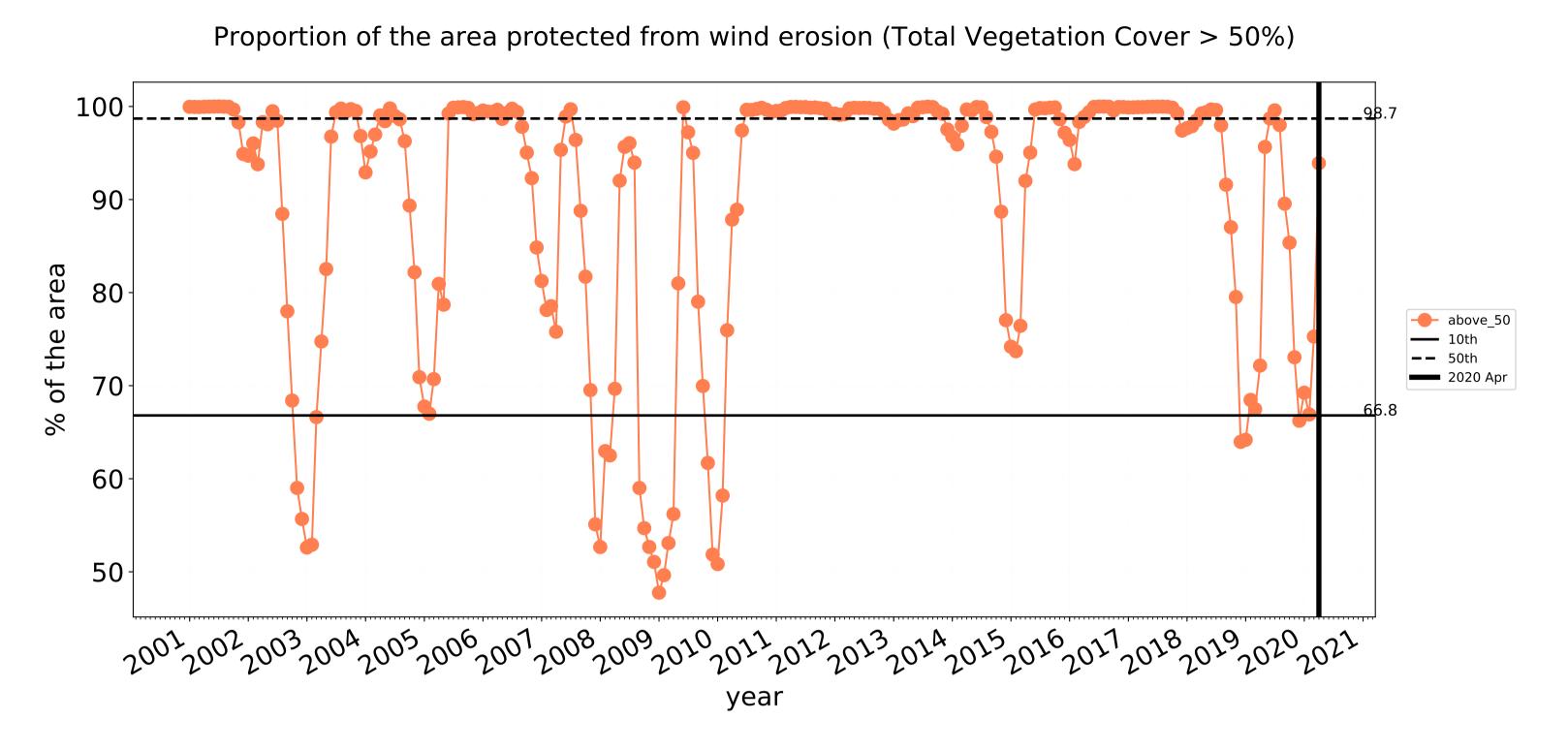


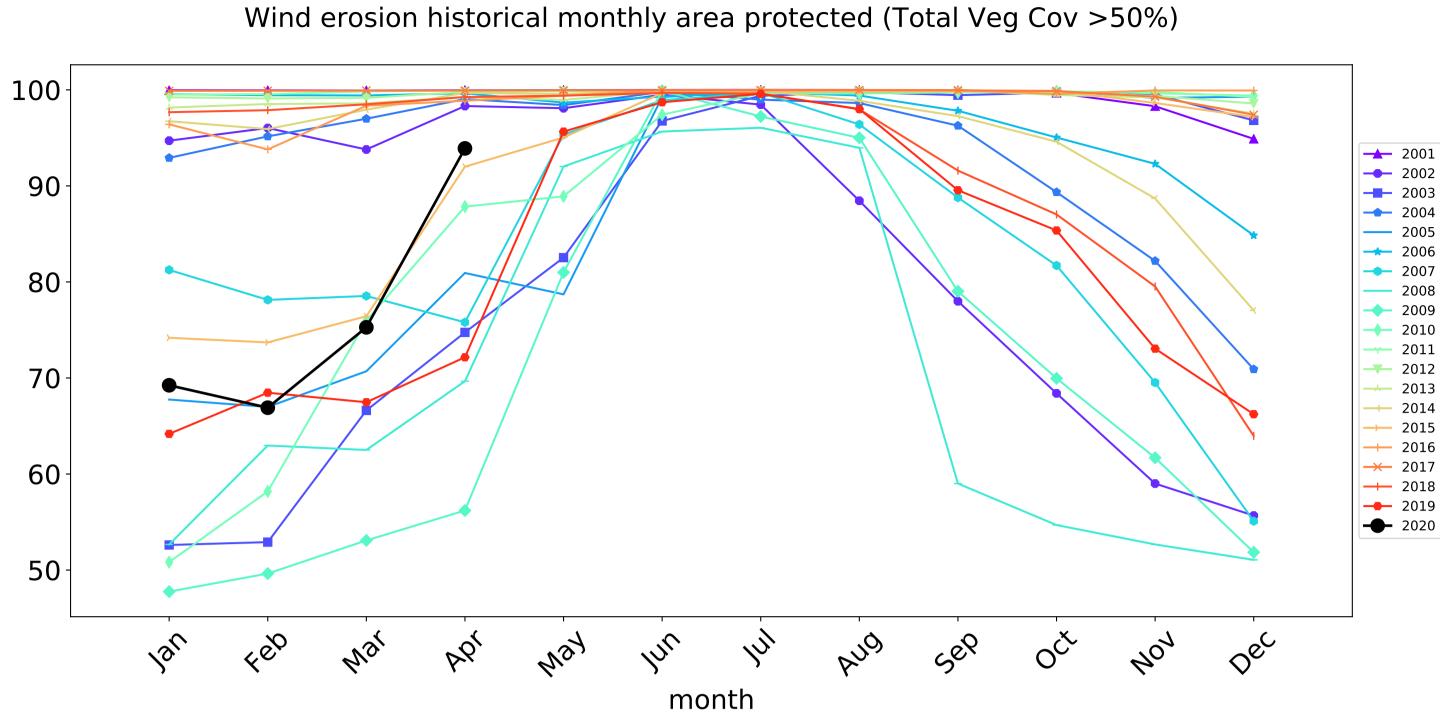


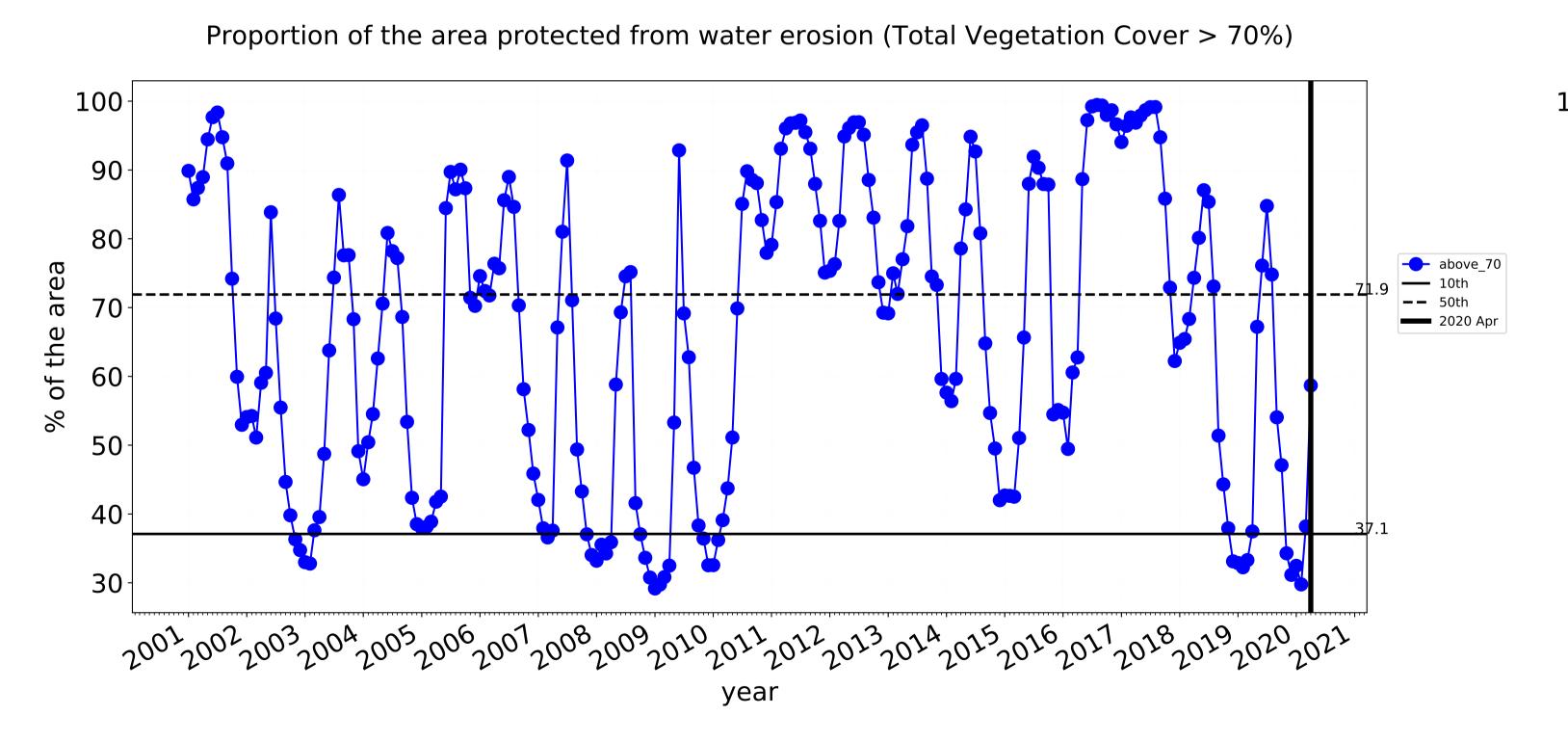


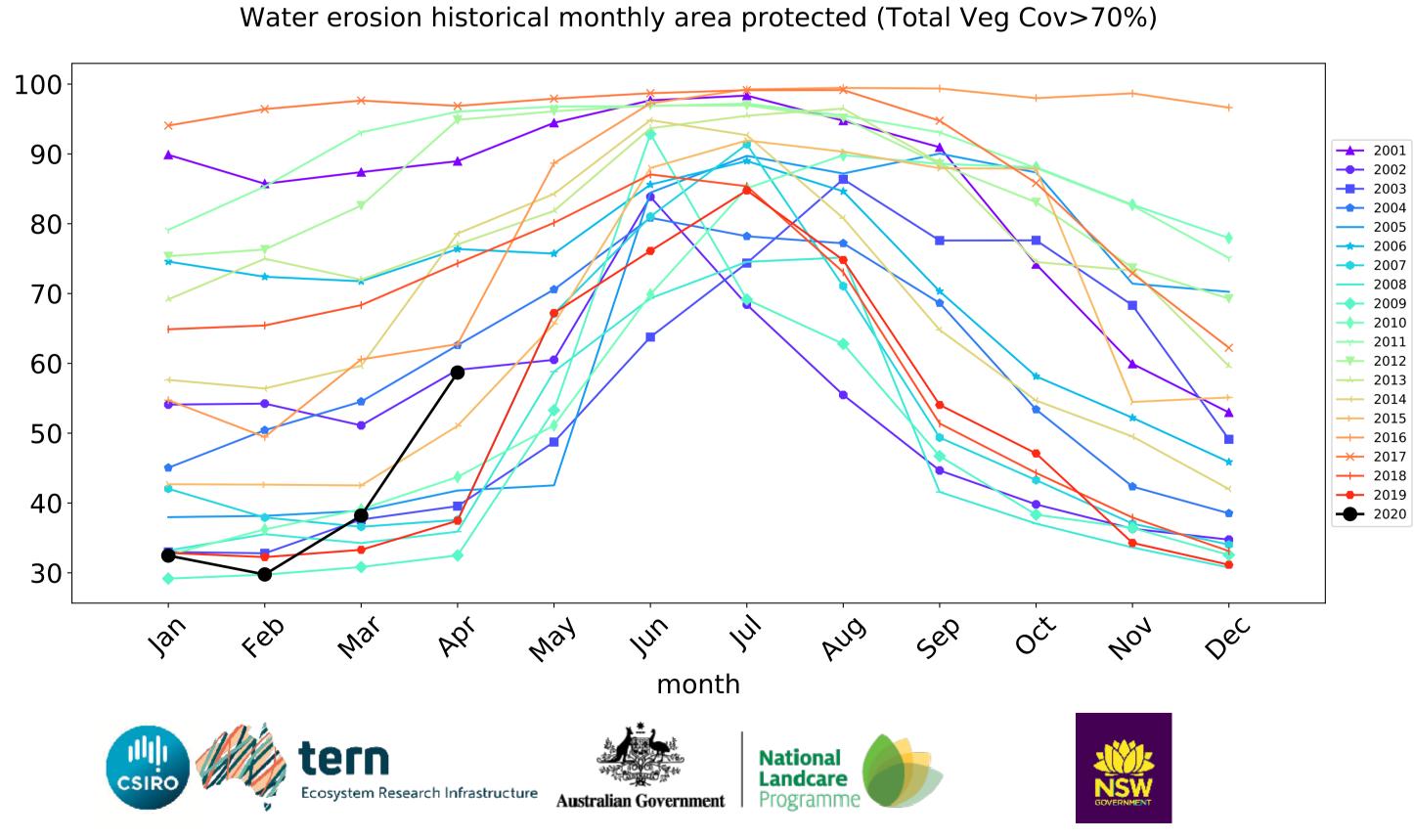


Grazing timeseries



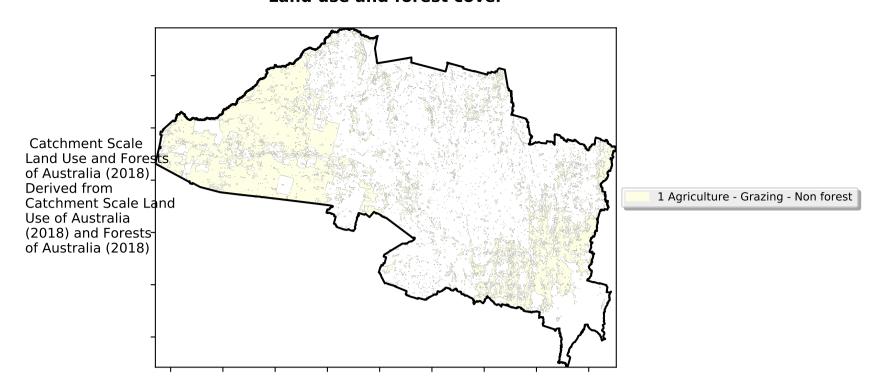




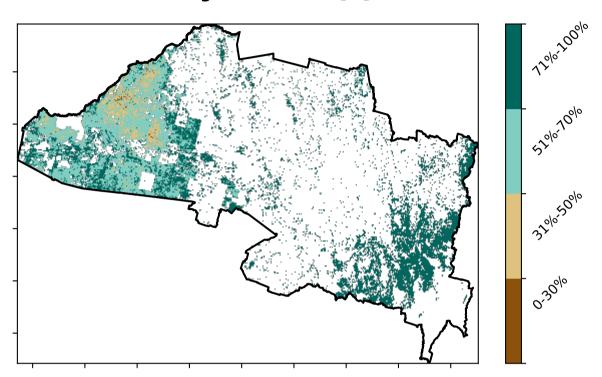


Grazing non forest

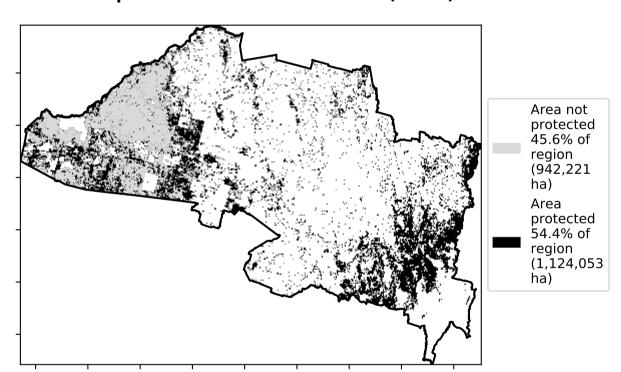
Land use and forest cover



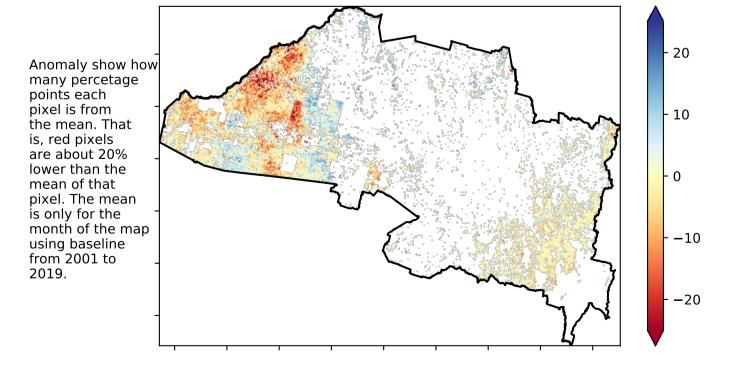
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

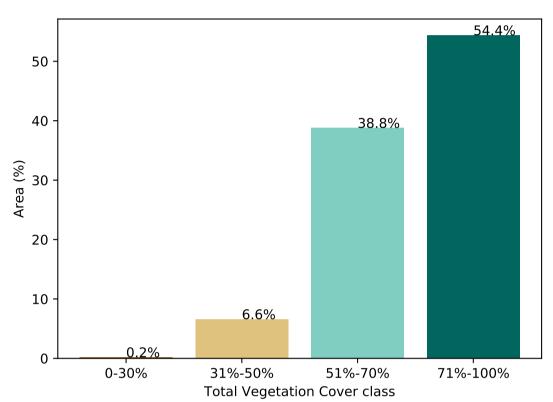


Total Vegetation Cover Anomaly [%]

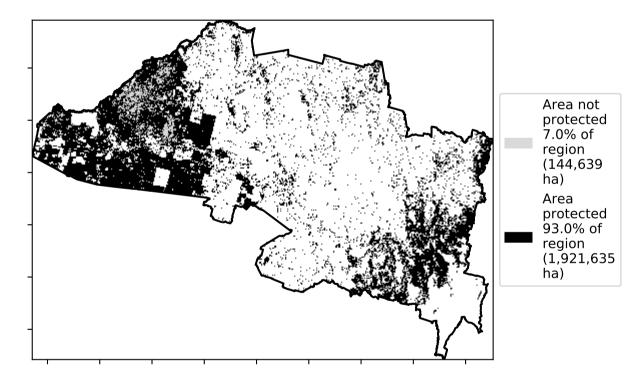


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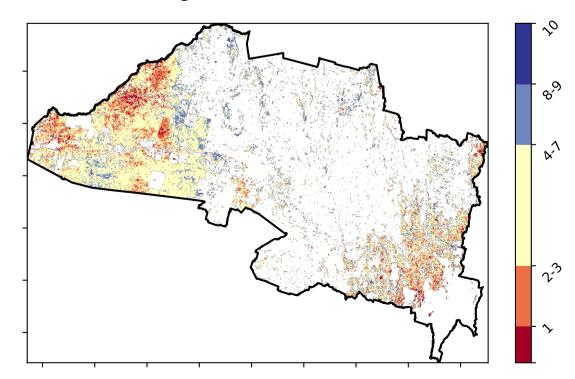
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]



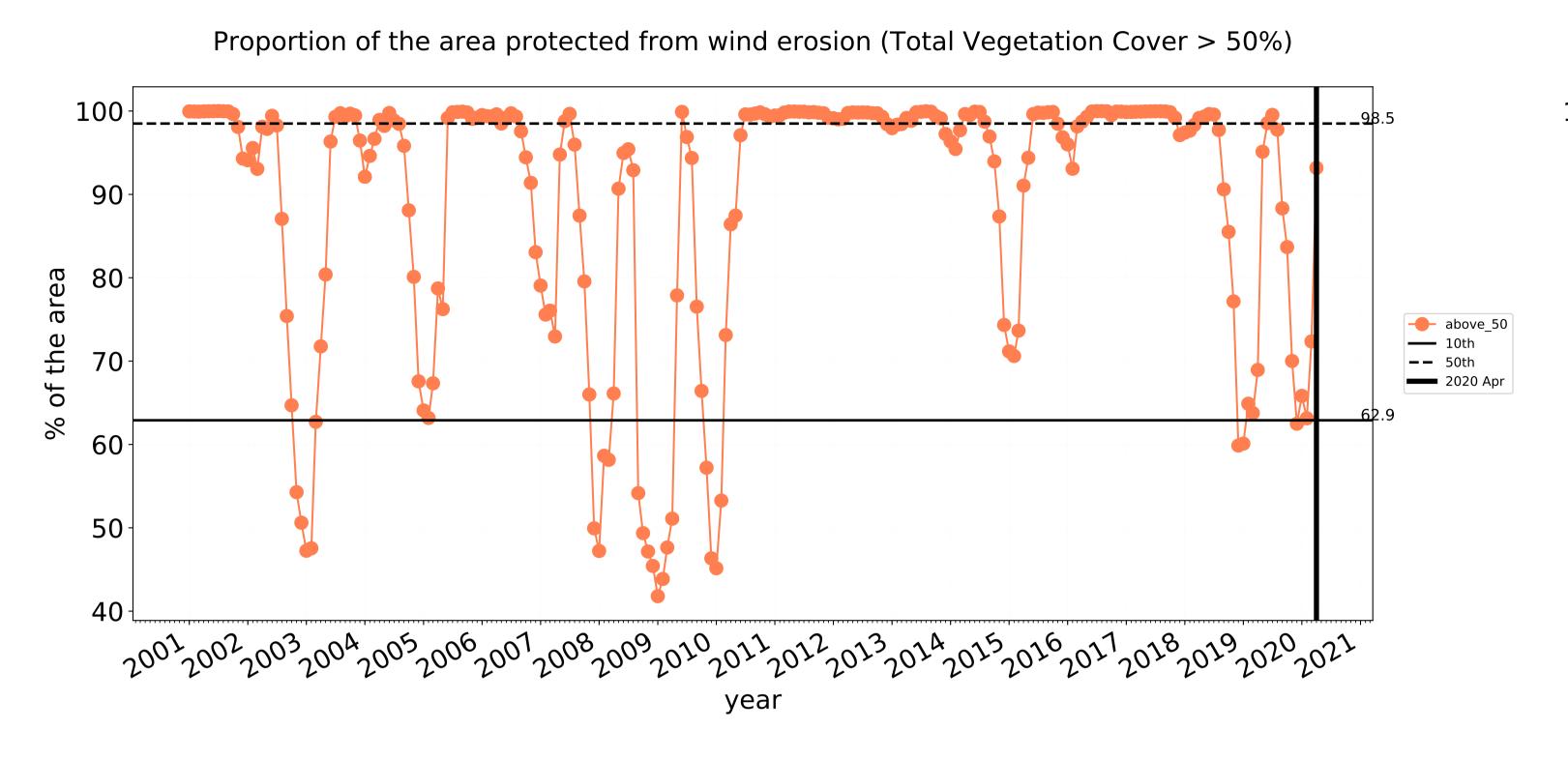


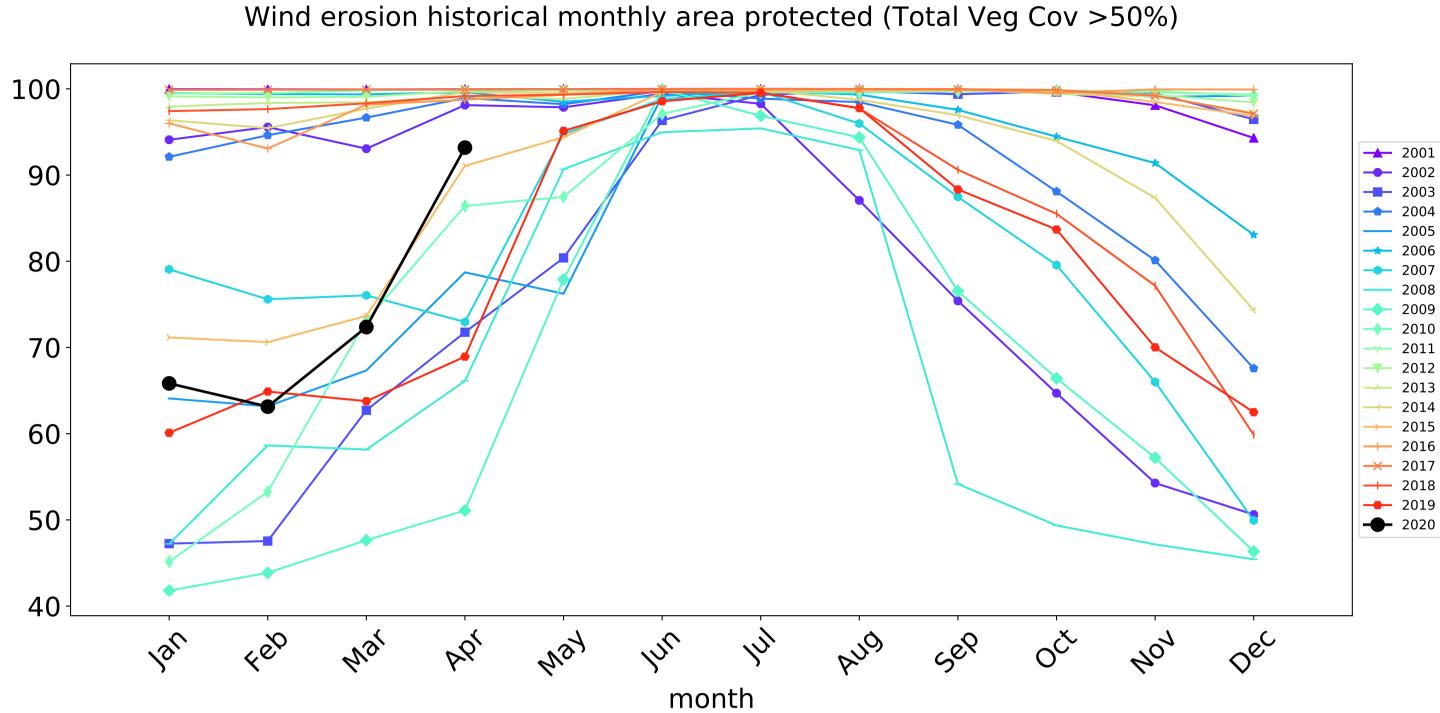


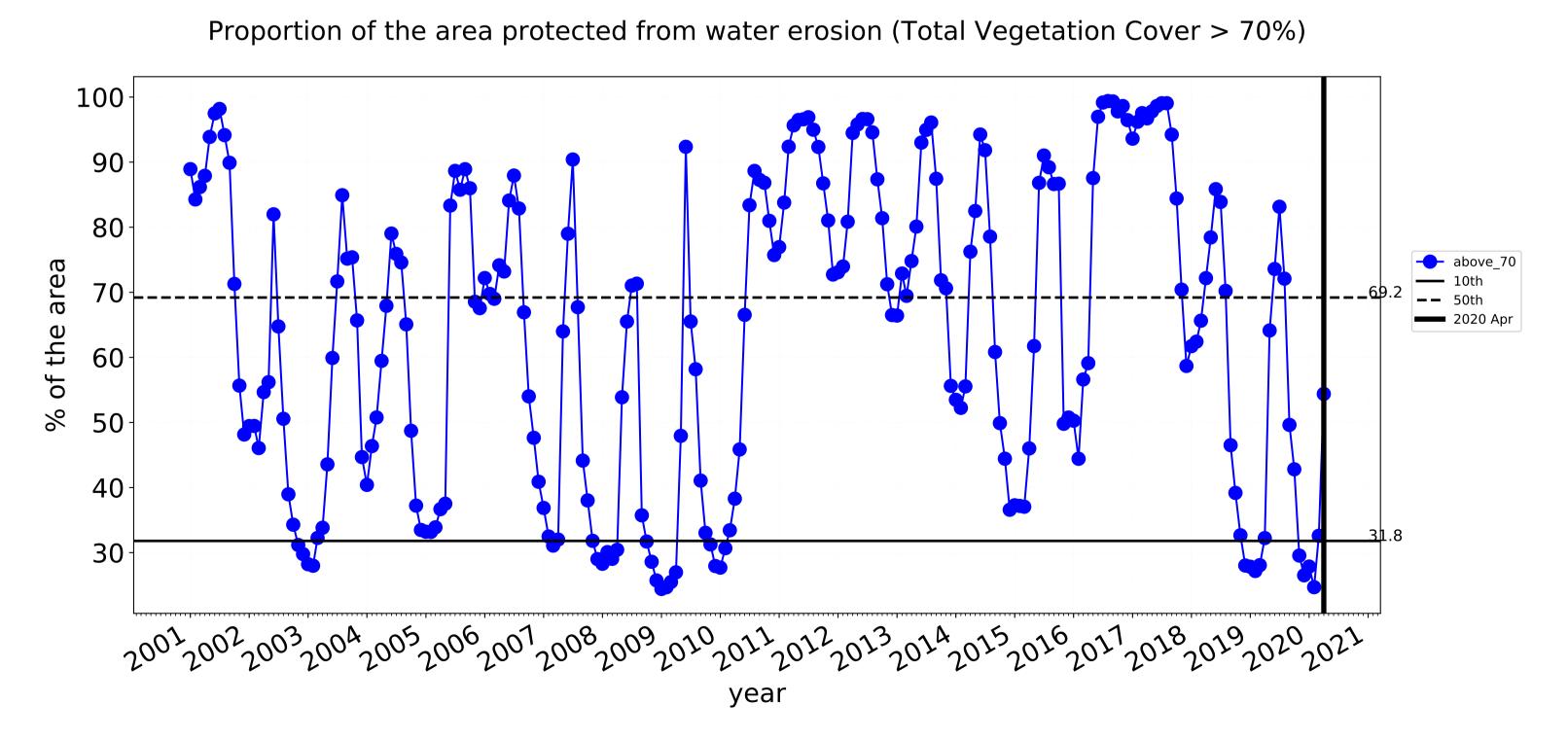


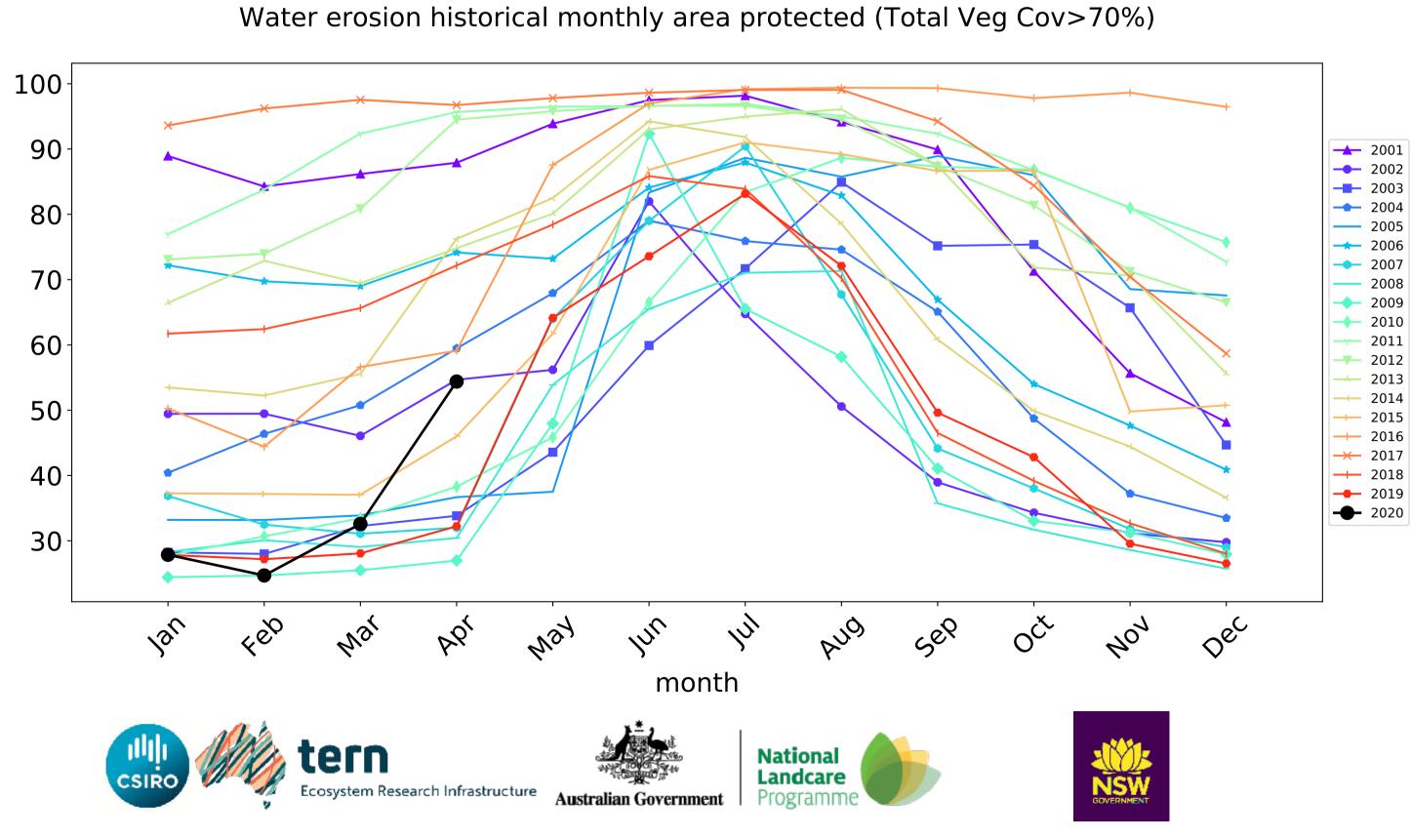


Grazing non forest timeseries







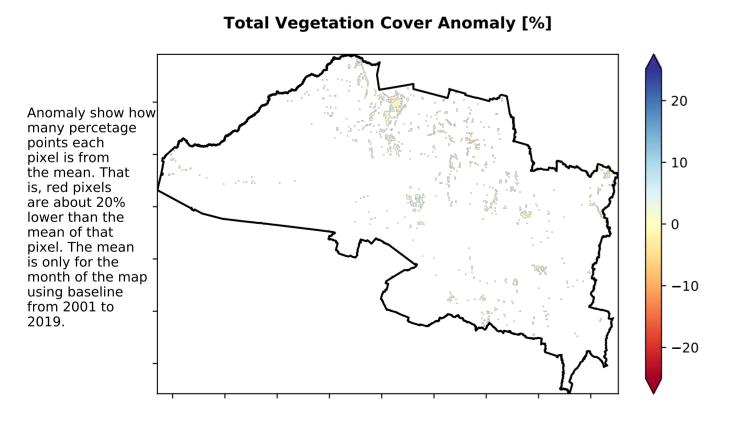


Grazing Woodland forest

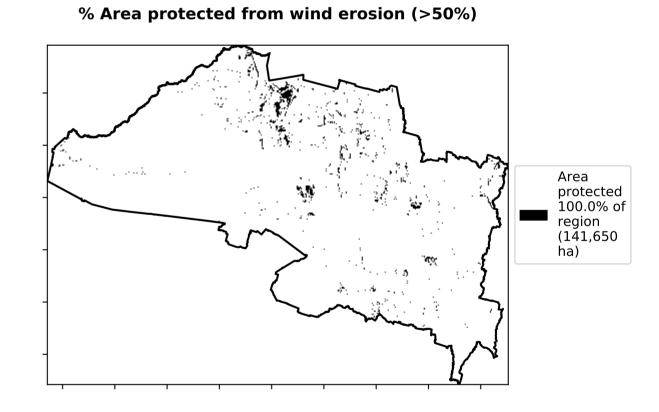
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) 1 Agriculture - Grazing - Woodland forest 1 Agriculture - Grazing - Woodland forest

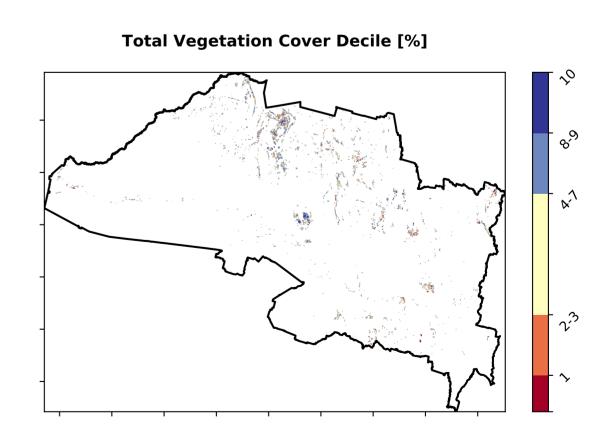
Total Vegetation Cover [%]

% Area protected from water erosion (>70%) Area not protected 7.0% of region (9,915 ha) Area protected 93.0% of region (131,734 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.





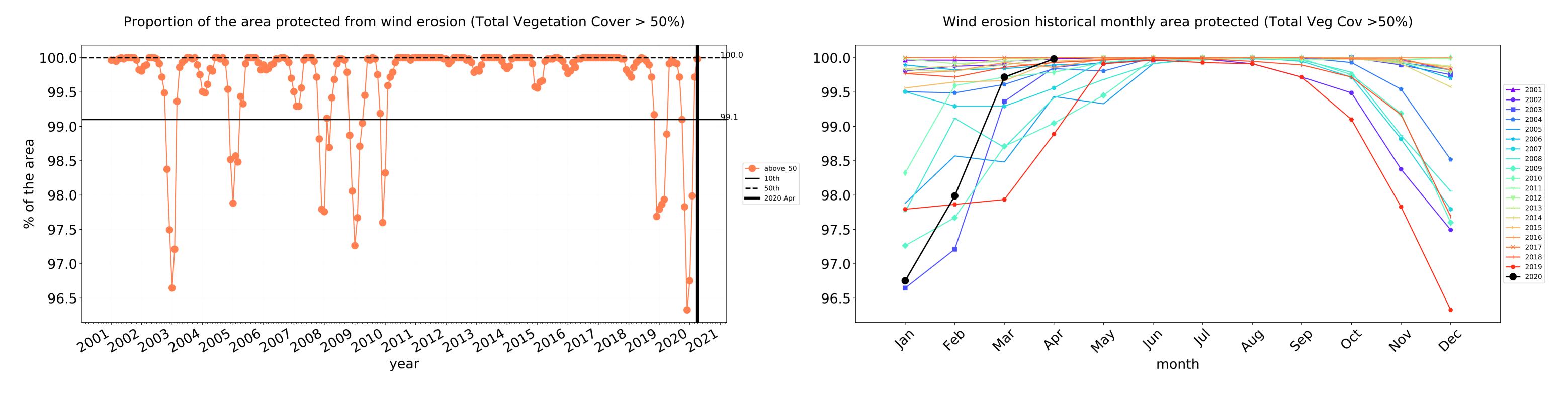


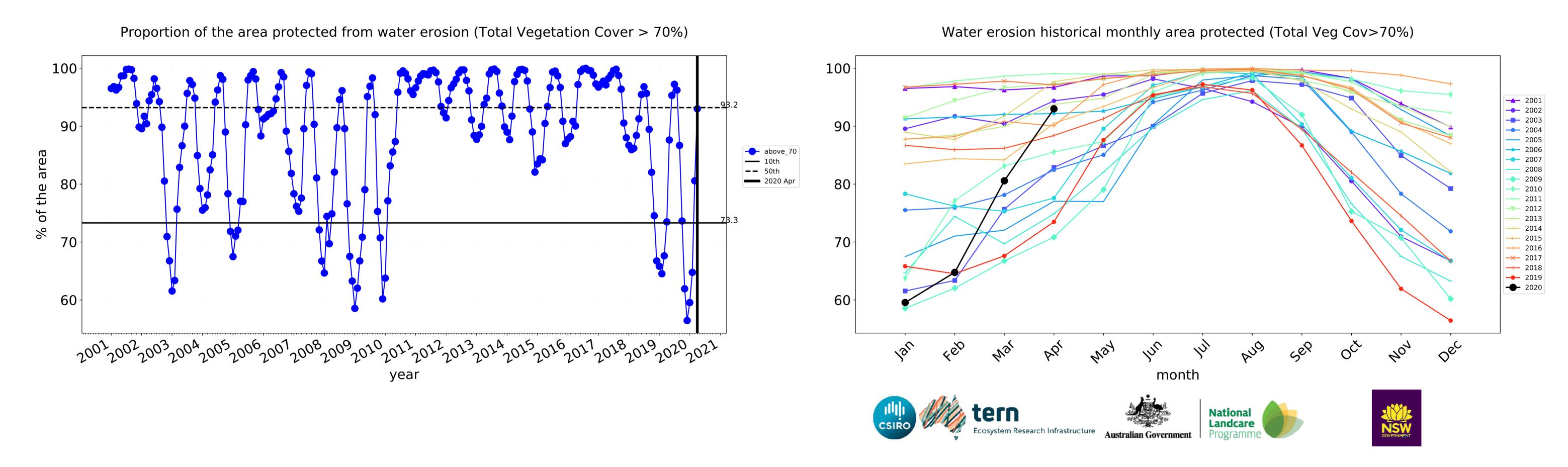






Grazing Woodland forest timeseries



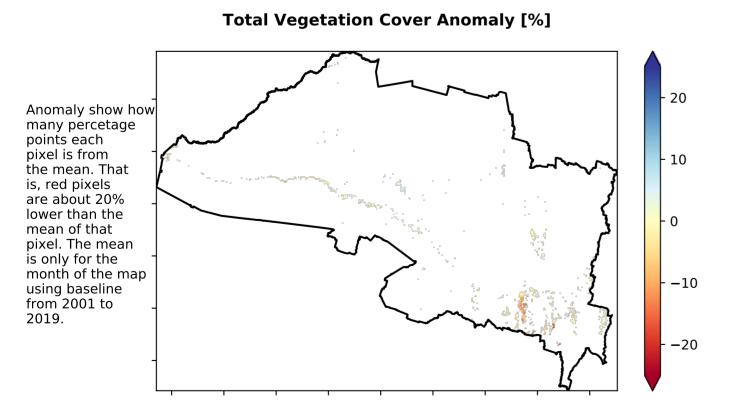


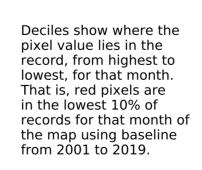
Grazing - Forest (non woodland)

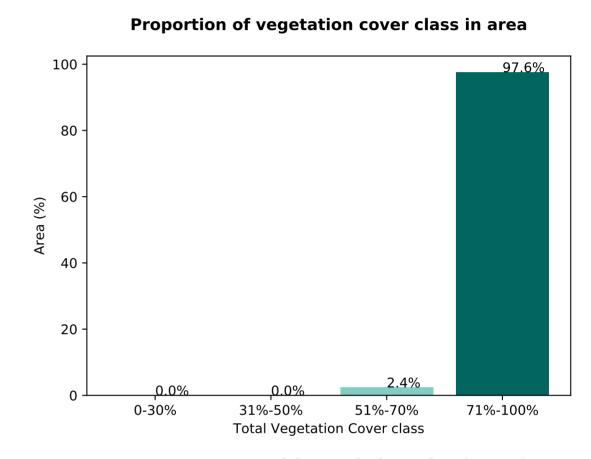
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) Australia (2018) and Forests of Australia (2018)

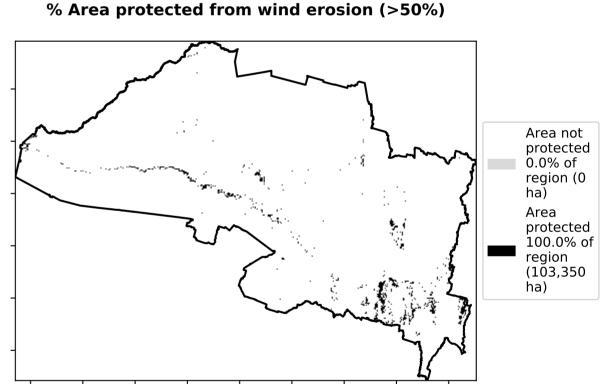
Total Vegetation Cover [%]

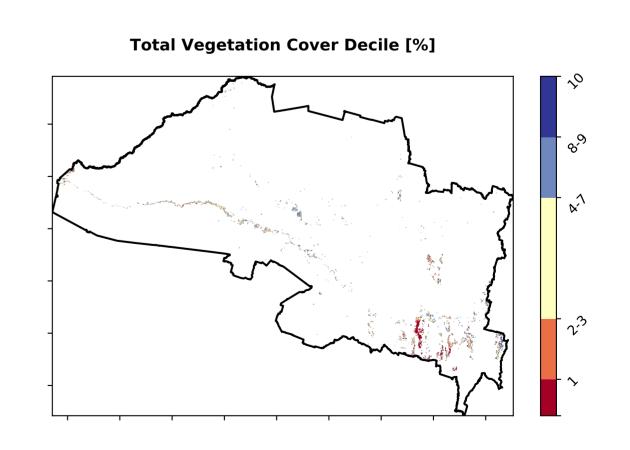
Area not protected 2.4% of region (2,480 ha) Area protected 2.4% of region (100,869 ha)









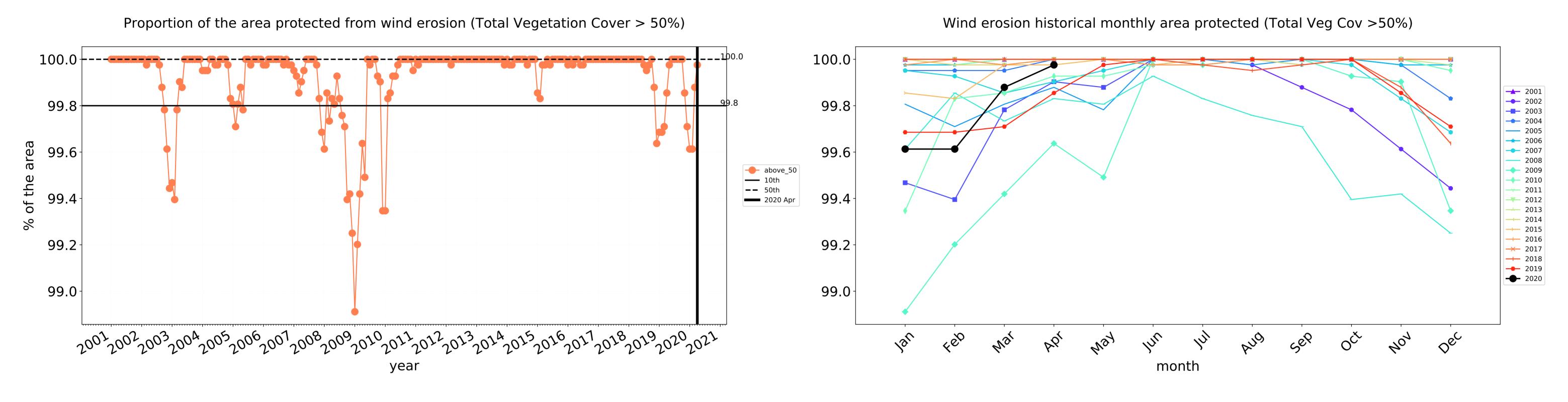


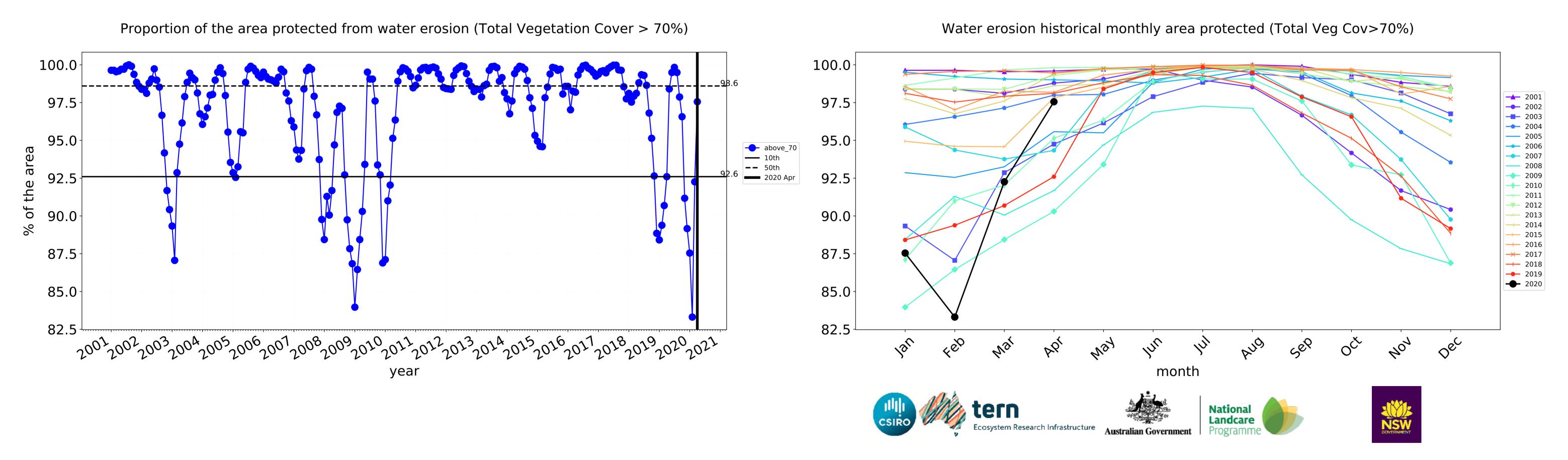






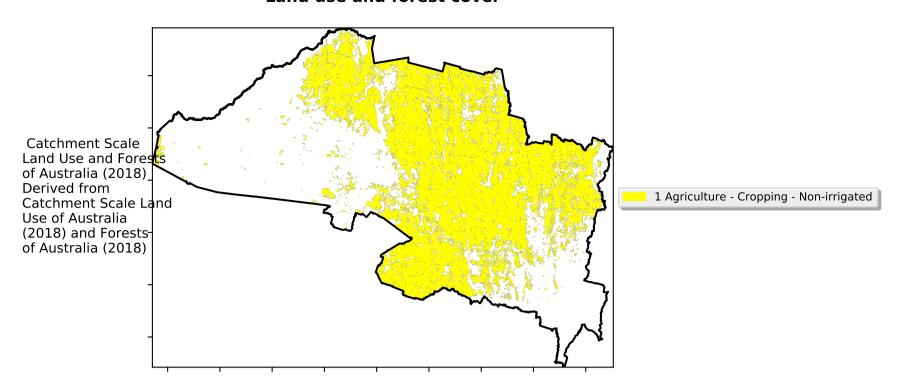




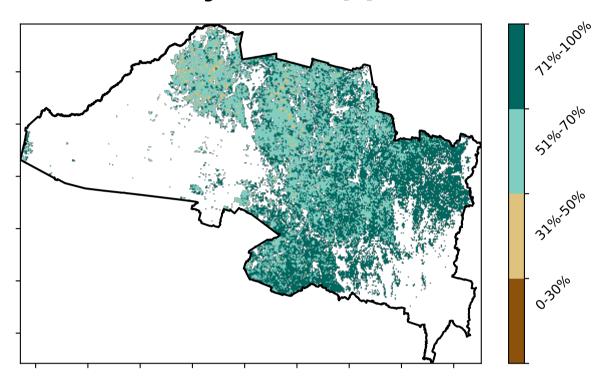


Cropping

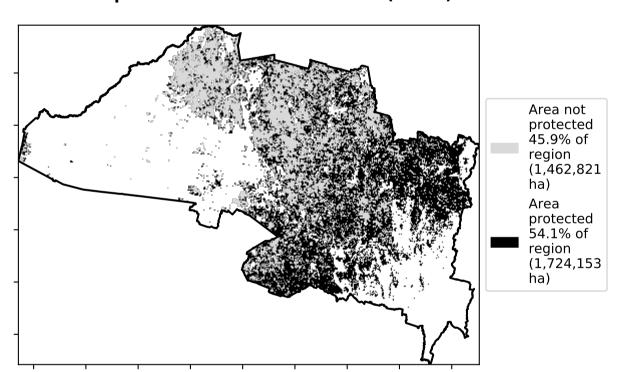
Land use and forest cover



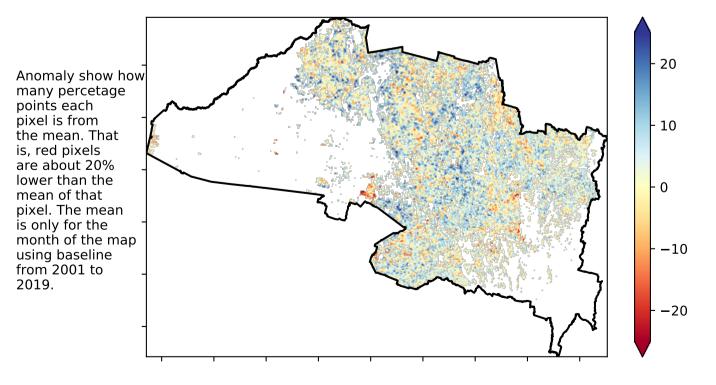
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

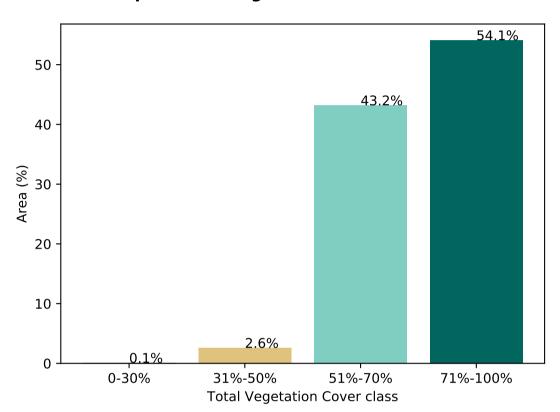


Total Vegetation Cover Anomaly [%]

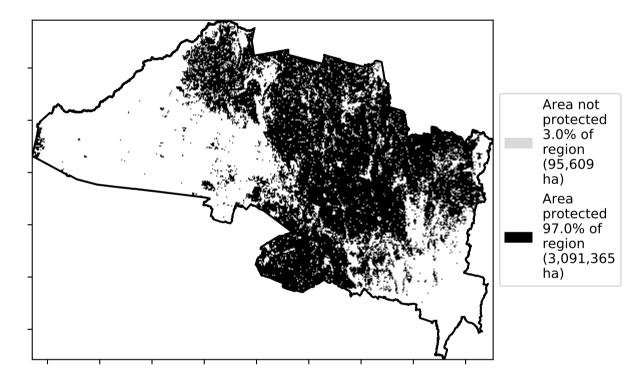


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

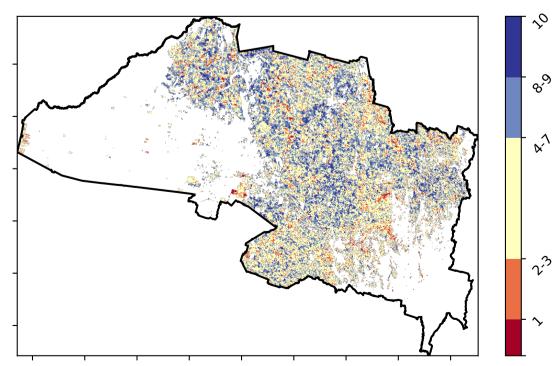
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]



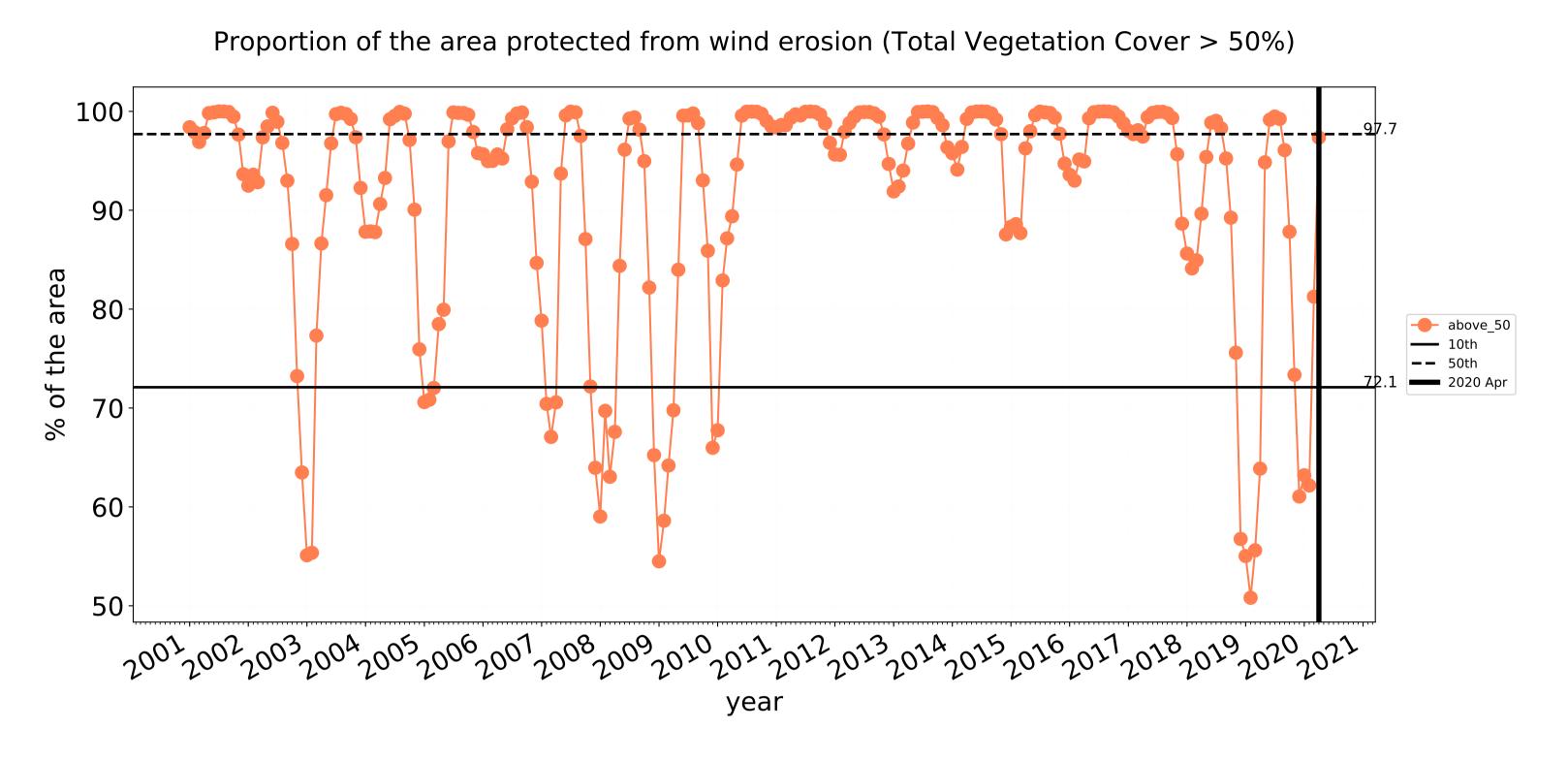


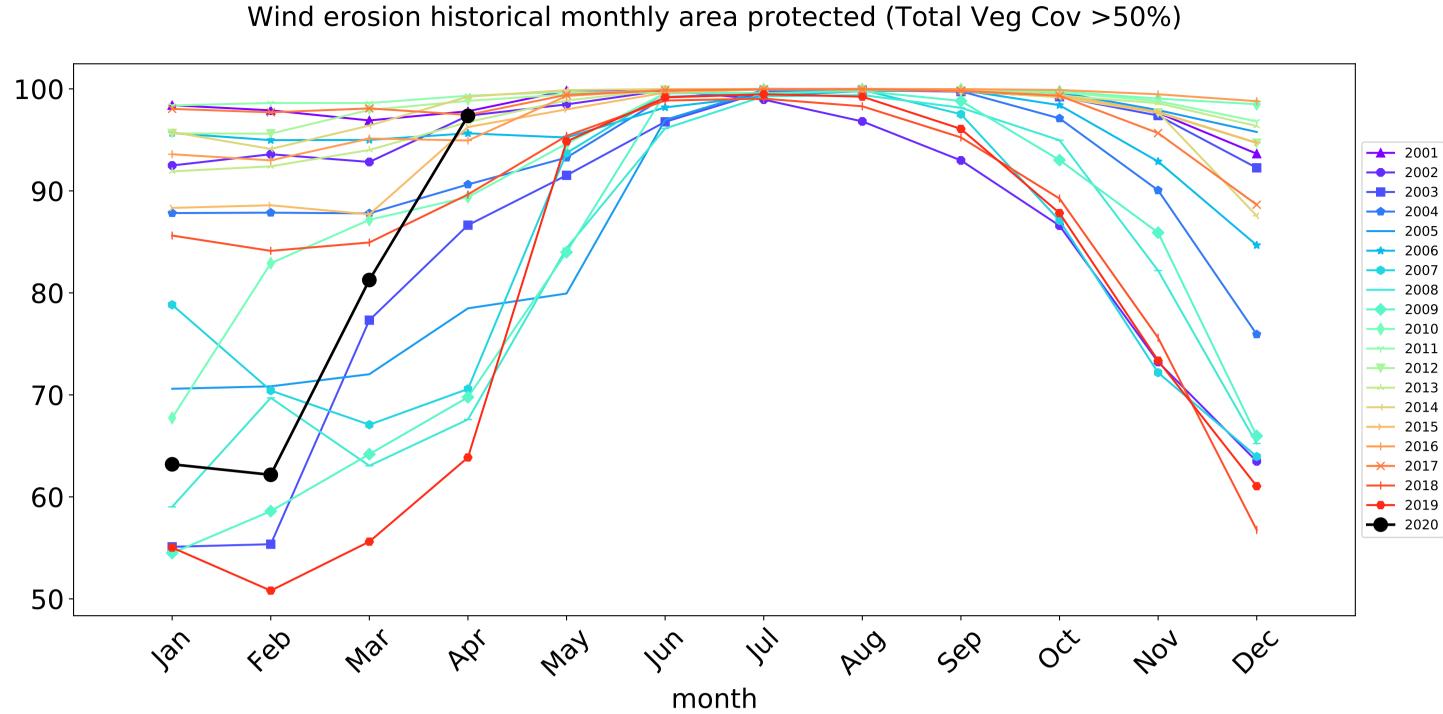


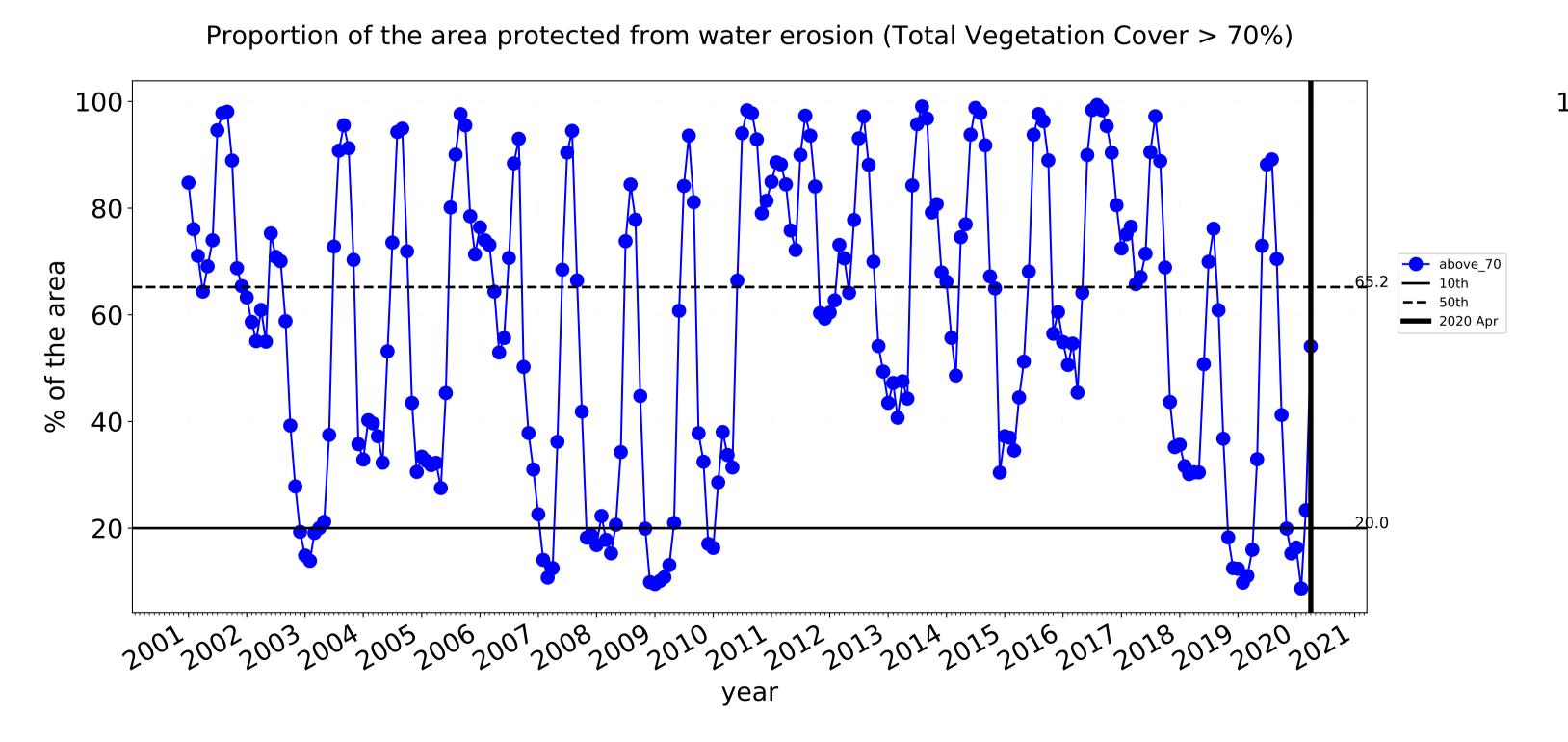


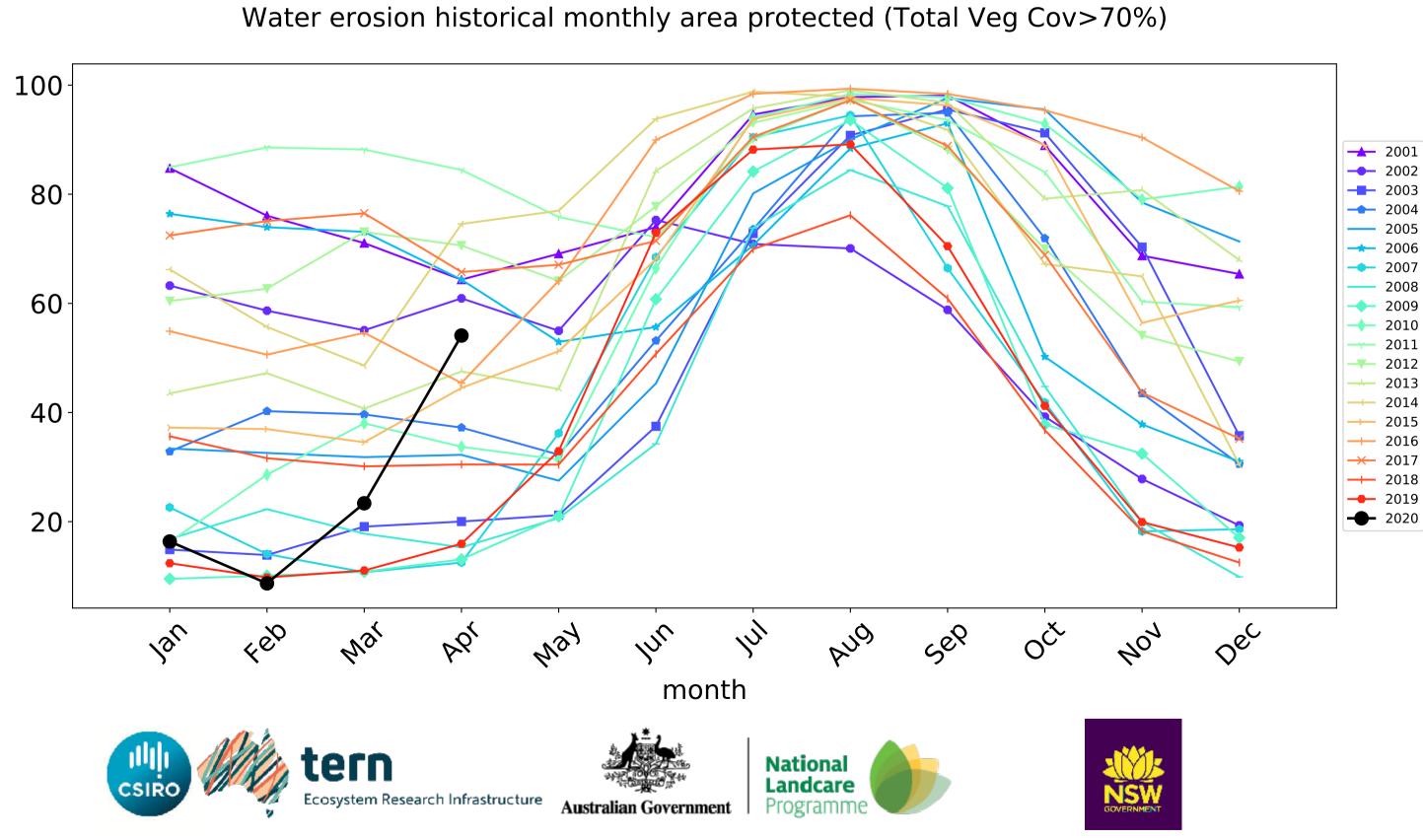


Cropping timeseries

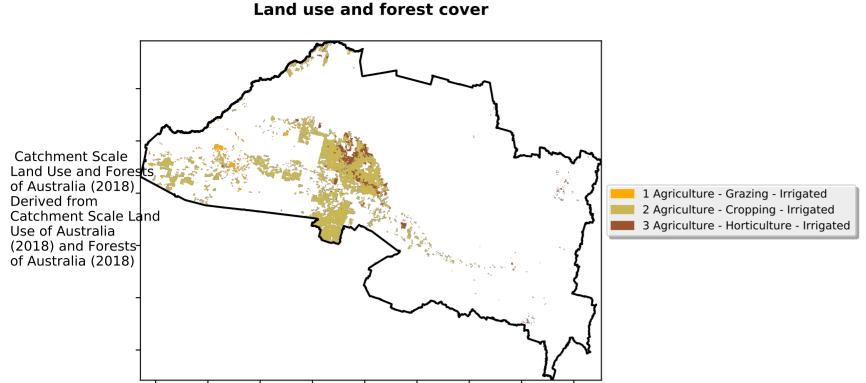


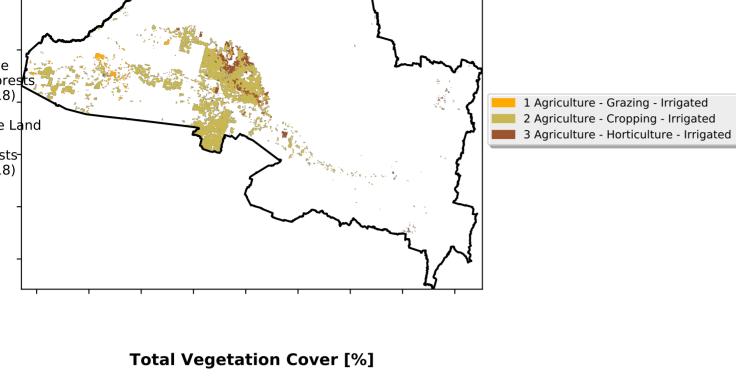


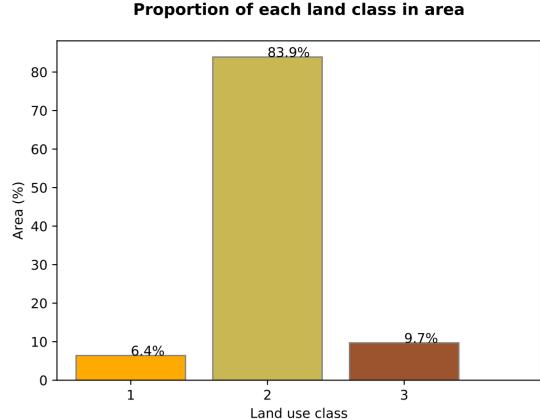


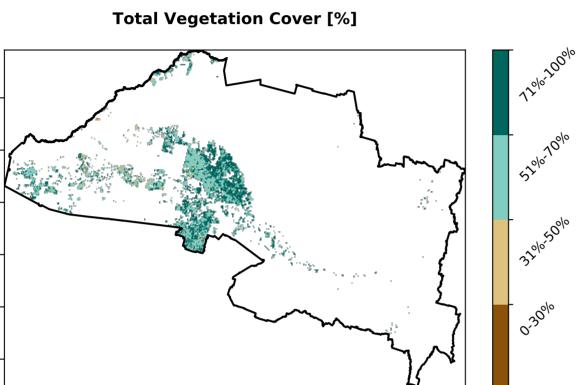


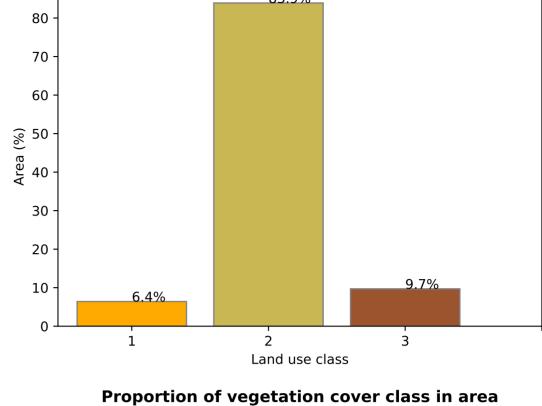
Irrigation



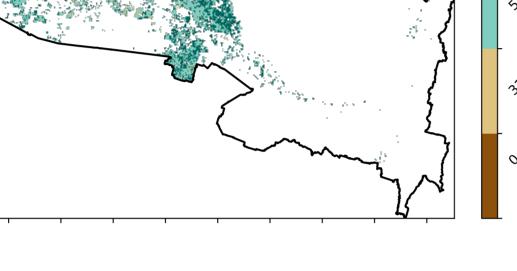




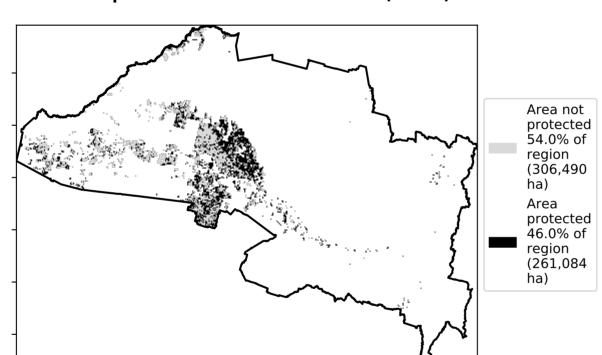




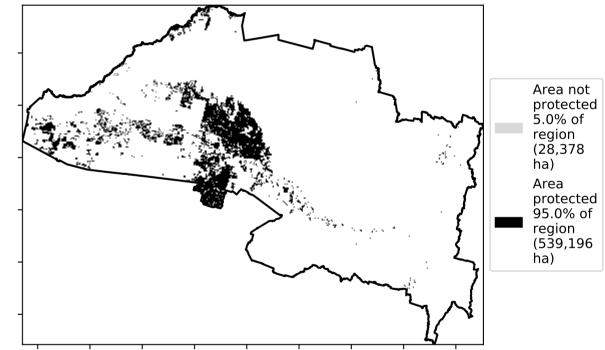
50 49.1% 46.0% 40 20 10 -4.7% 51%-70% 71%-100% 0-30% 31%-50% **Total Vegetation Cover class**

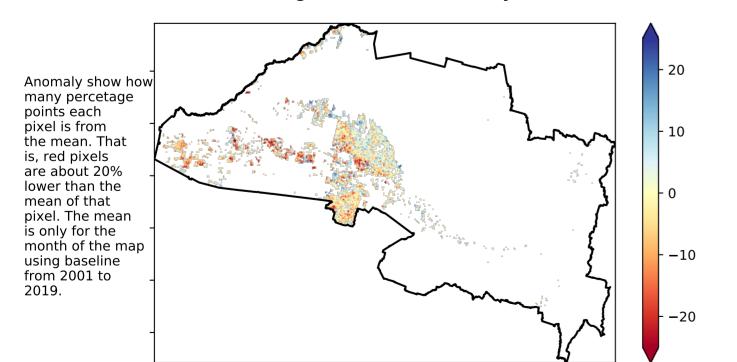


% Area protected from water erosion (>70%)



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

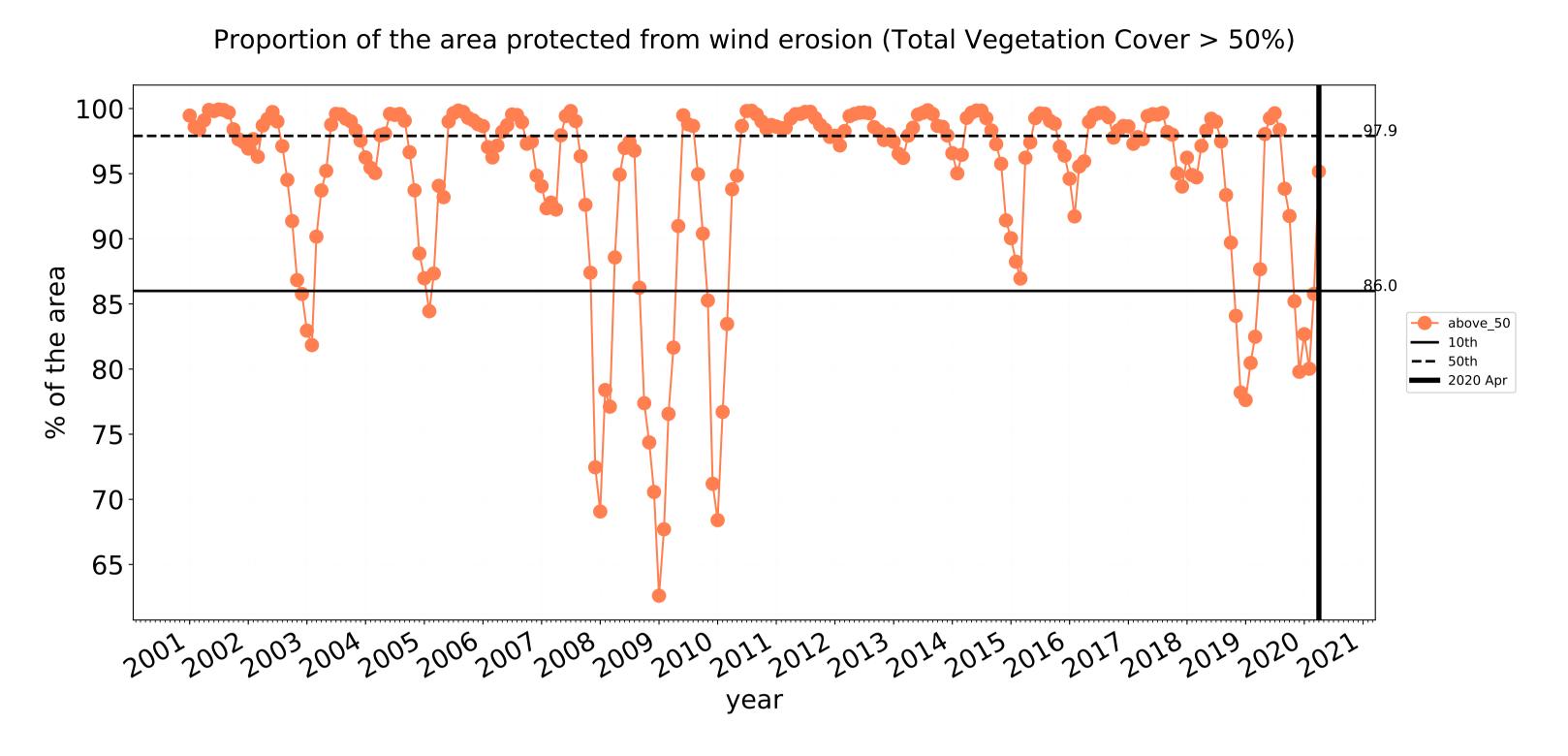
Total Vegetation Cover Decile [%]

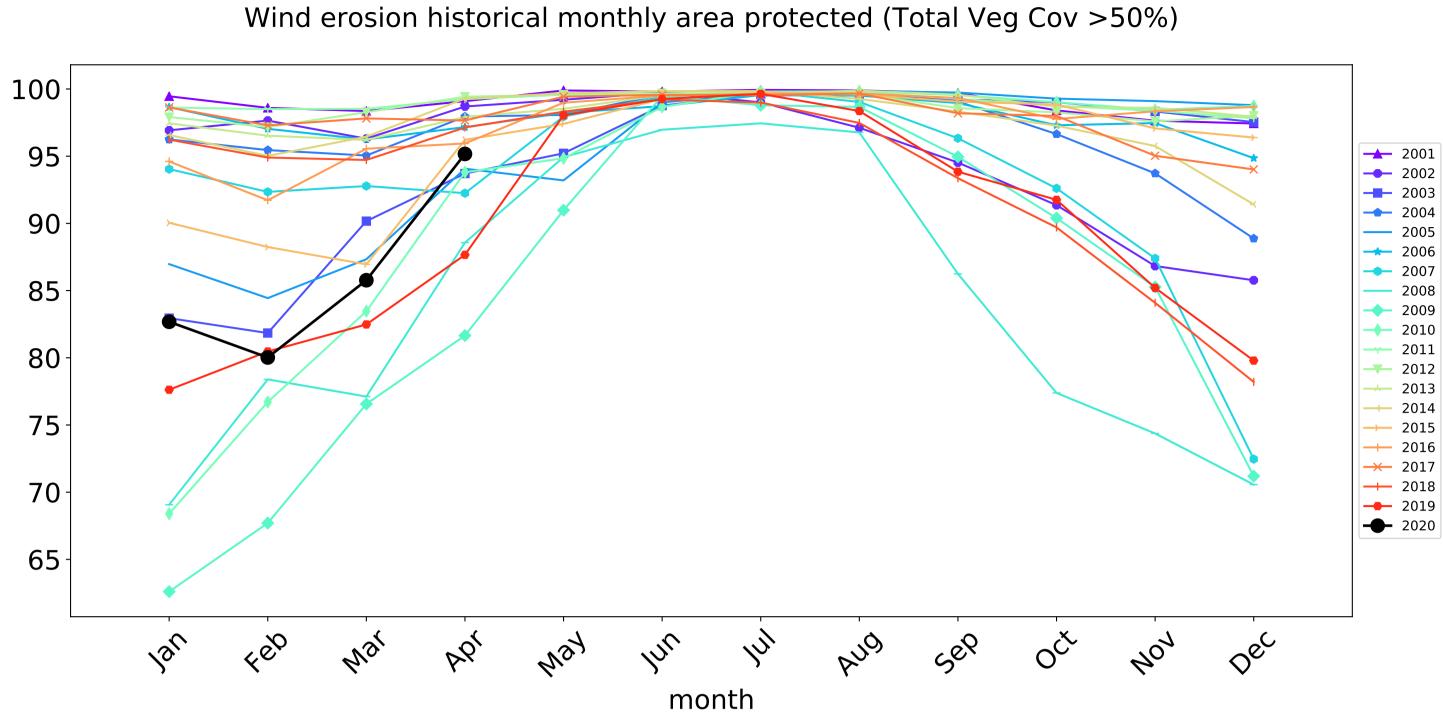


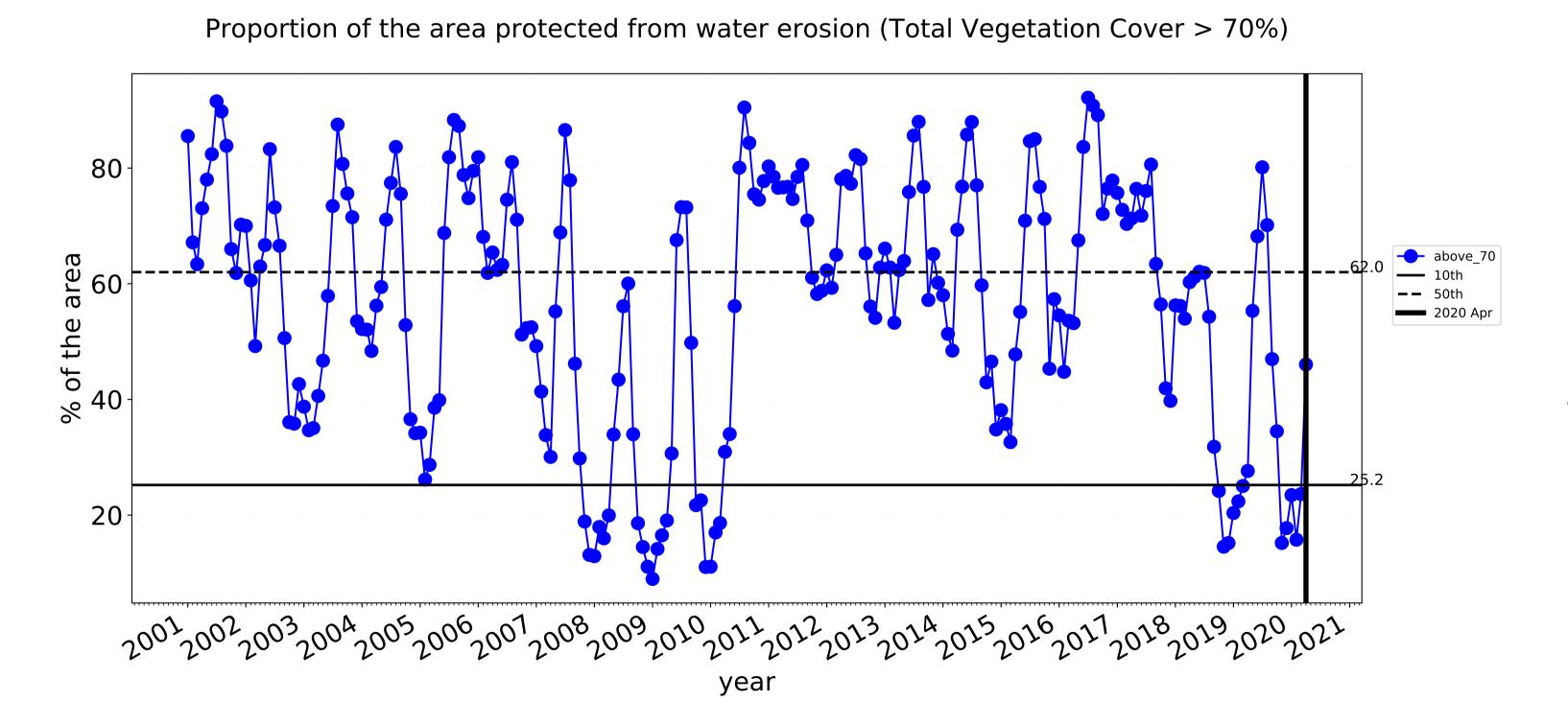


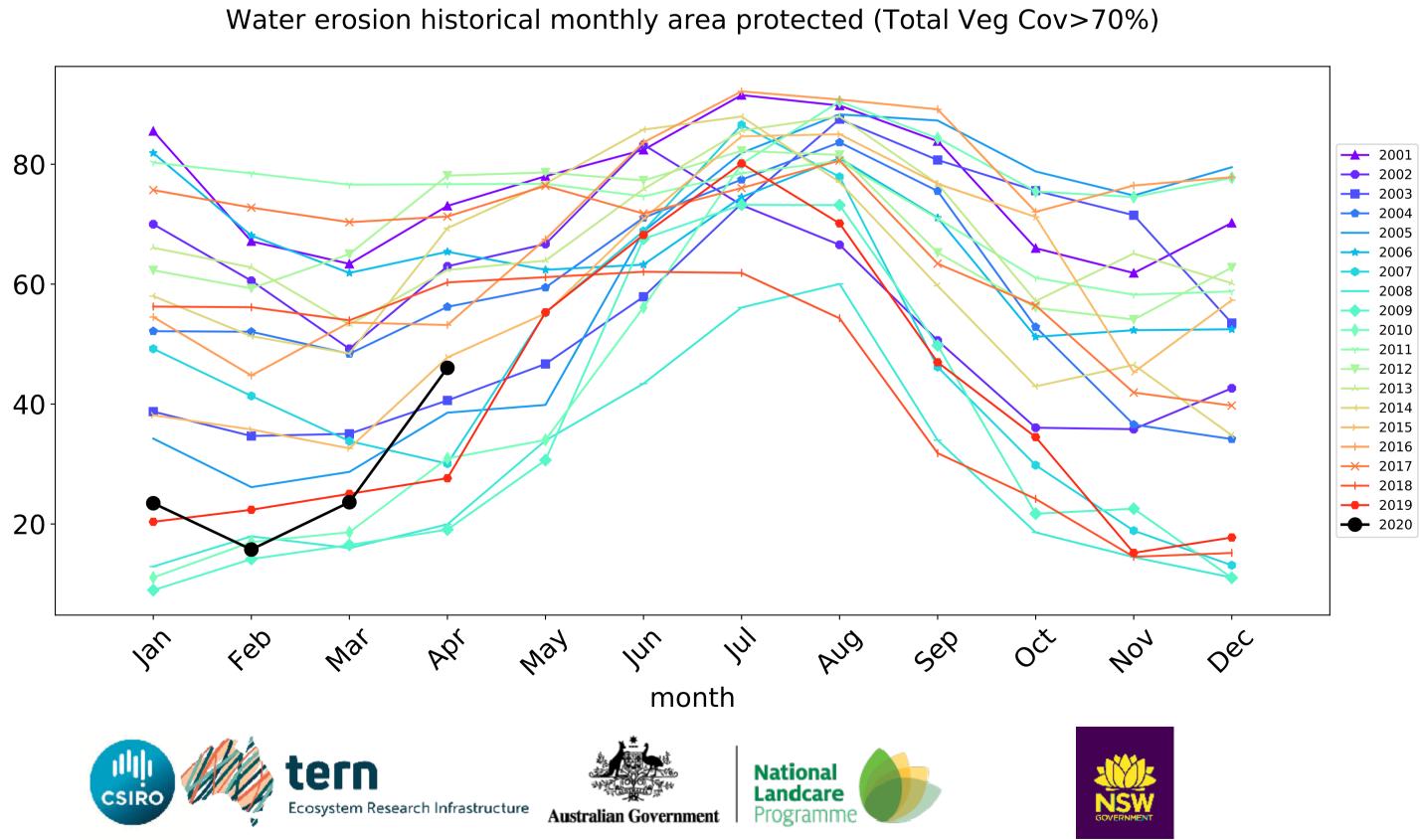




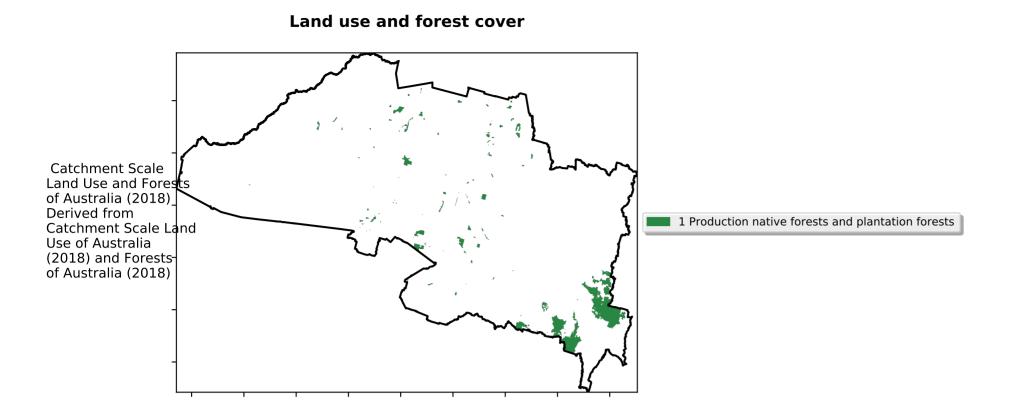






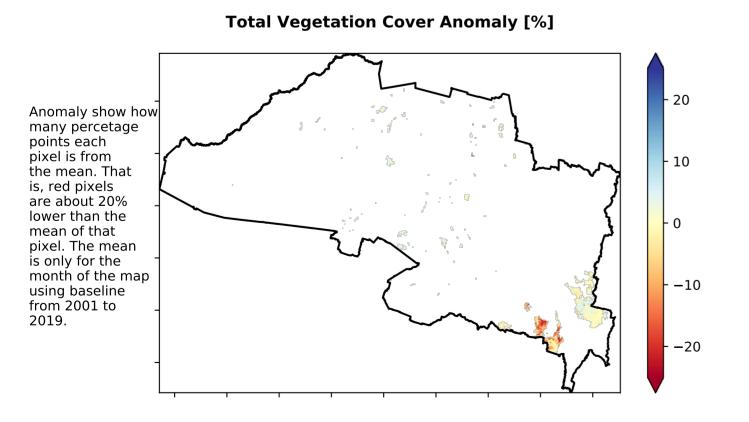


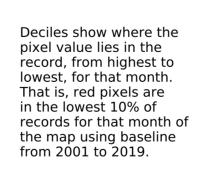
Production native forests and plantation forests

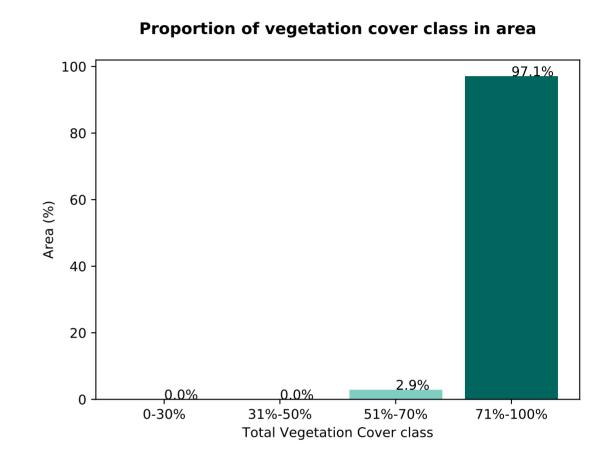


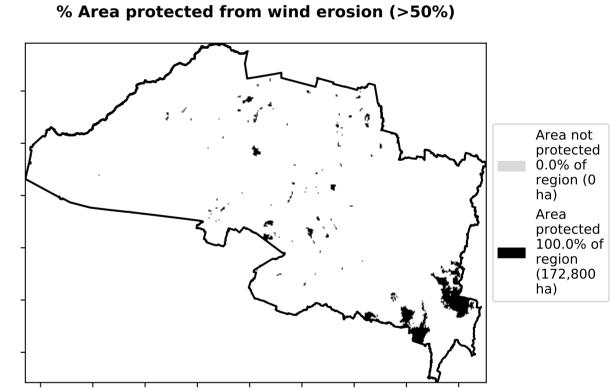
Total Vegetation Cover [%]

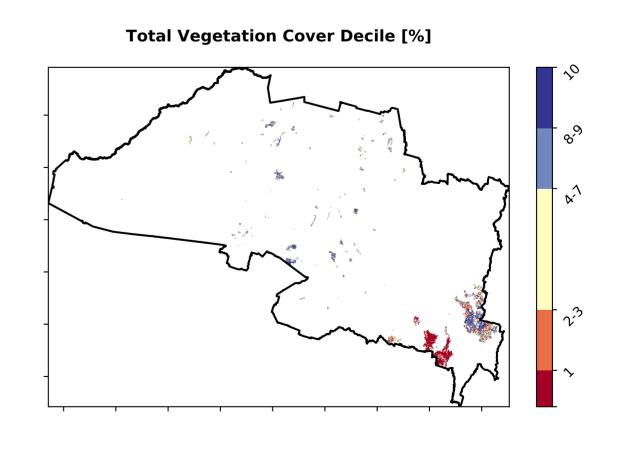
% Area protected from water erosion (>70%) Area not protected 2.9% of region (5,011 ha) Area protected 97.1% of region (167,788 ha)











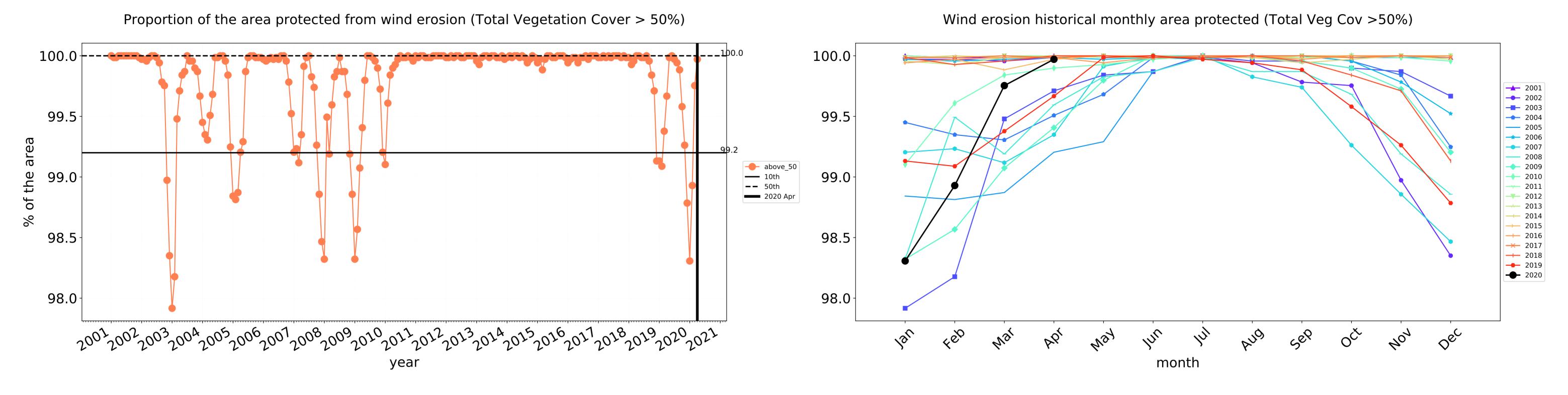


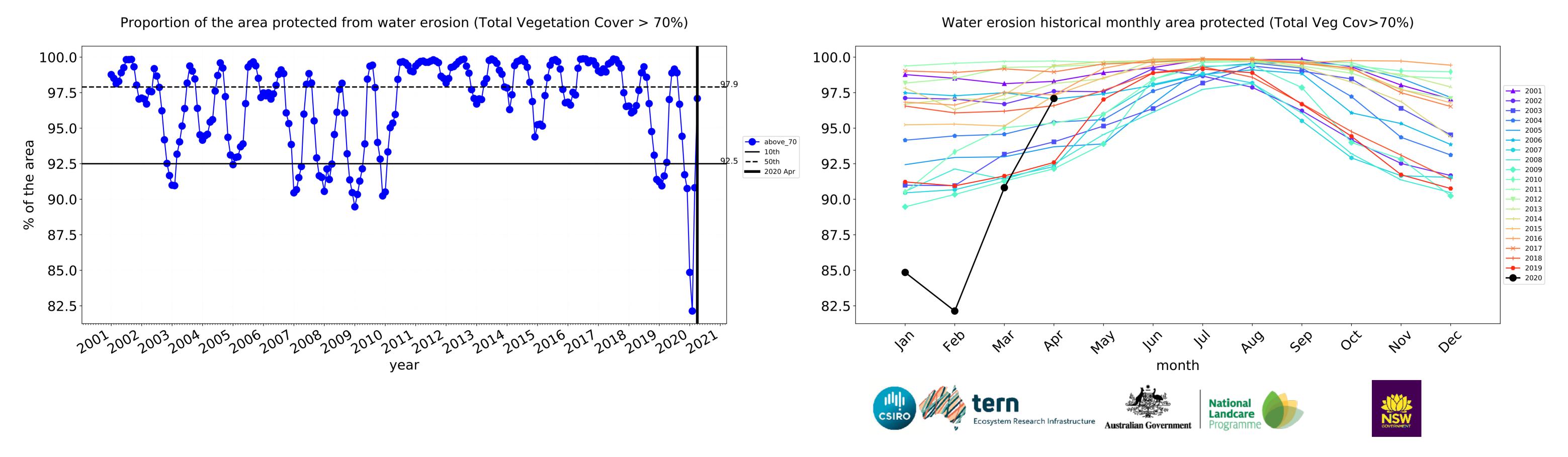






Production native forests and plantation forests timeseries





Riverina (6,694,075 ha and no data 14,260 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	6,694,075	99.9% 6,687,525	96.1% 6,431,500	57.6% 3,853,025	30.9% 2,070,375	8.5% 568,475	2.8% 188,400
Conservation and natural environments	323,075	100.0% 322,925	99.2% 320,575	81.7% 264,075	68.3% 220,750	43.0% 138,875	24.4% 78,850
Conservation and natural environments non forest	83,350	99.9% 83,250	97.8% 81,475	41.3% 34,450	19.7% 16,400	8.8% 7,300	5.1% 4,275
Conservation and natural environments Forest (non woodland)	195,225	100.0% 195,175	99.7% 194,625	95.4% 186,300	84.2% 164,475	57.5% 112,250	35.8% 69,975
Agriculture	6,067,650	99.9% 6,061,700	95.8% 5,814,850	55.1% 3,343,150	27.4% 1,664,950	5.3% 320,750	0.7% 40,350
Grazing	2,311,275	99.8% 2,306,325	93.9% 2,170,375	58.7% 1,356,375	36.1% 834,825	10.0% 231,500	1.4% 31,700
Grazing non forest	2,066,275	99.8% 2,061,325	93.2% 1,925,425	54.4% 1,123,825	31.5% 650,650	8.0% 165,625	0.8% 15,800
Grazing Woodland forest	141,650	100.0% 141,650	100.0% 141,625	93.0% 131,725	68.7% 97,350	17.1% 24,250	1.8% 2,500
Grazing - Forest (non woodland)	103,350	100.0% 103,350	100.0% 103,325	97.6% 100,825	84.0% 86,825	40.3% 41,625	13.0% 13,400
Cropping	3,186,975	100.0% 3,186,875	97.3% 3,102,500	54.1% 1,724,275	23.4% 747,250	2.5% 79,950	0.2% 5,425
Irrigation	567,575	99.8% 566,675	95.2% 540,150	46.0% 261,300	14.5% 82,525	1.6% 9,300	0.6% 3,225
Production native forests and plantation forests	172,800	100.0% 172,800	100.0% 172,750	97.1% 167,775	86.6% 149,725	61.2% 105,750	39.8% 68,775







