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: March 2002

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







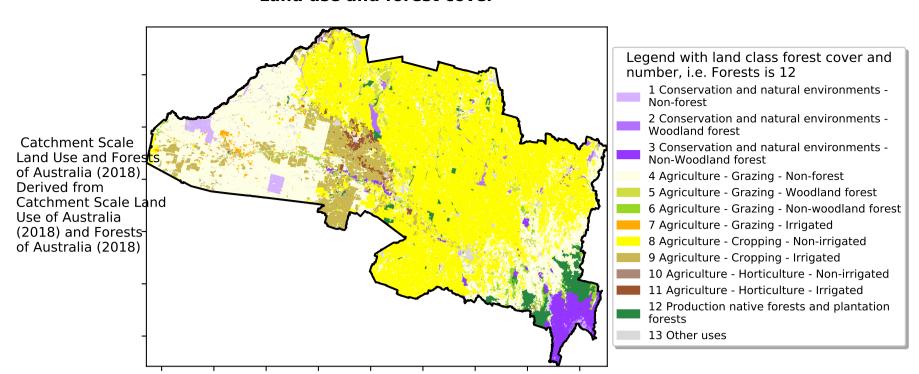




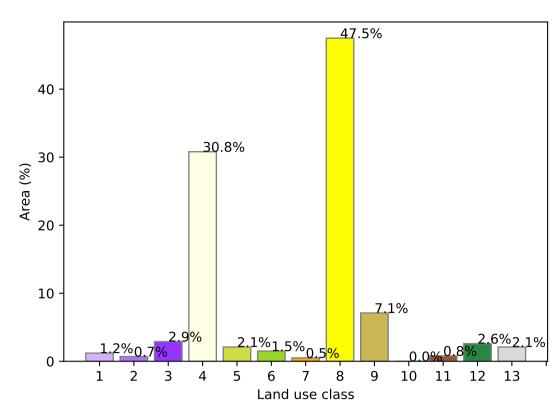


Vegetation Cover Mar 2002

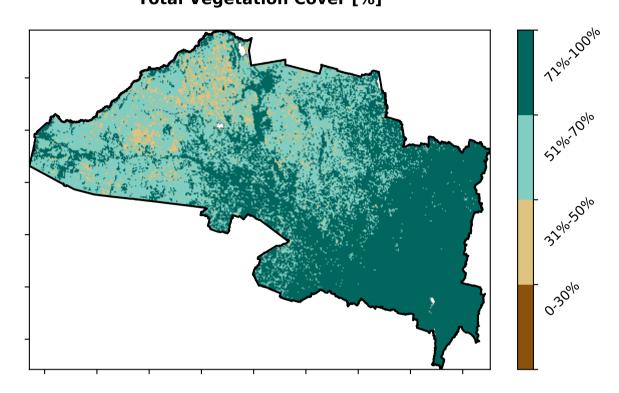
Land use and forest cover



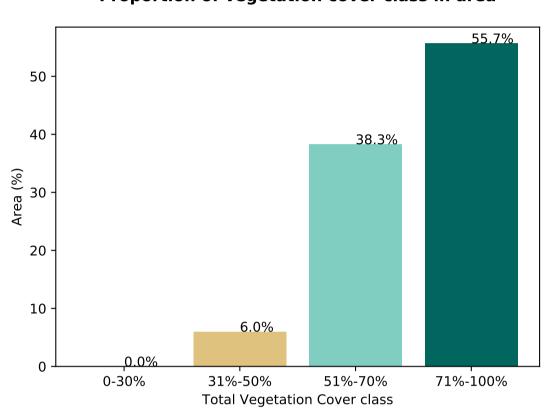
Proportion of each land class in area



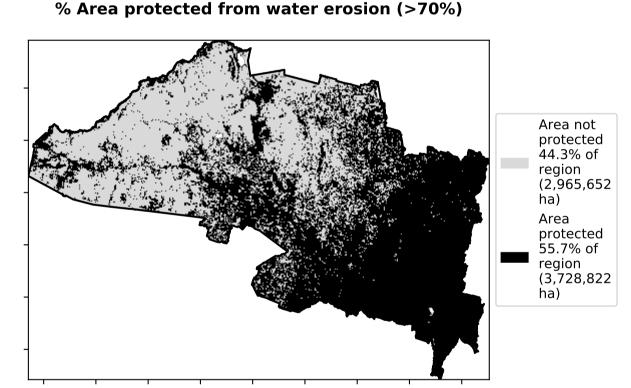
Total Vegetation Cover [%]



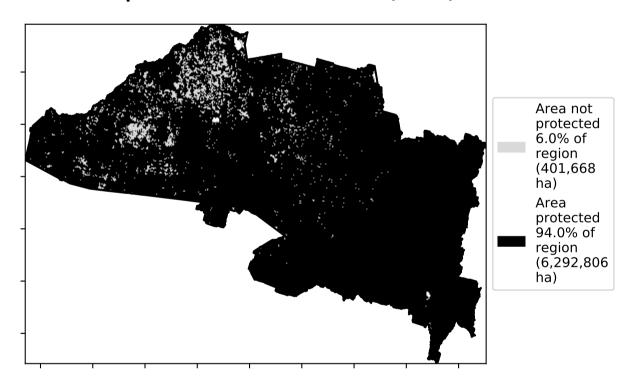
Proportion of vegetation cover class in area



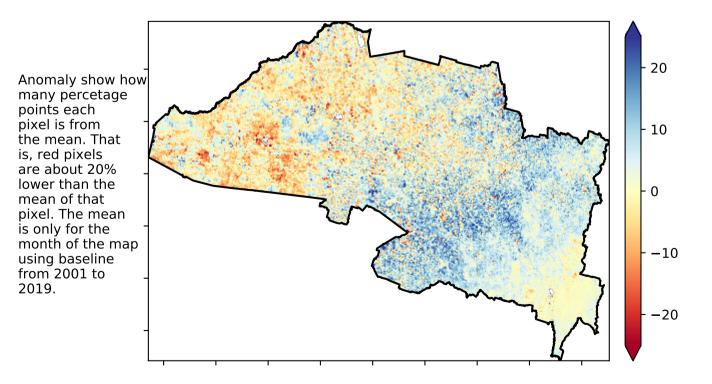
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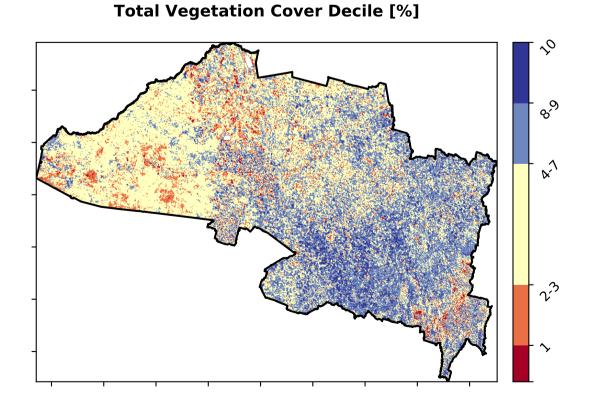
% Area protected from wind erosion (>50%)



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.





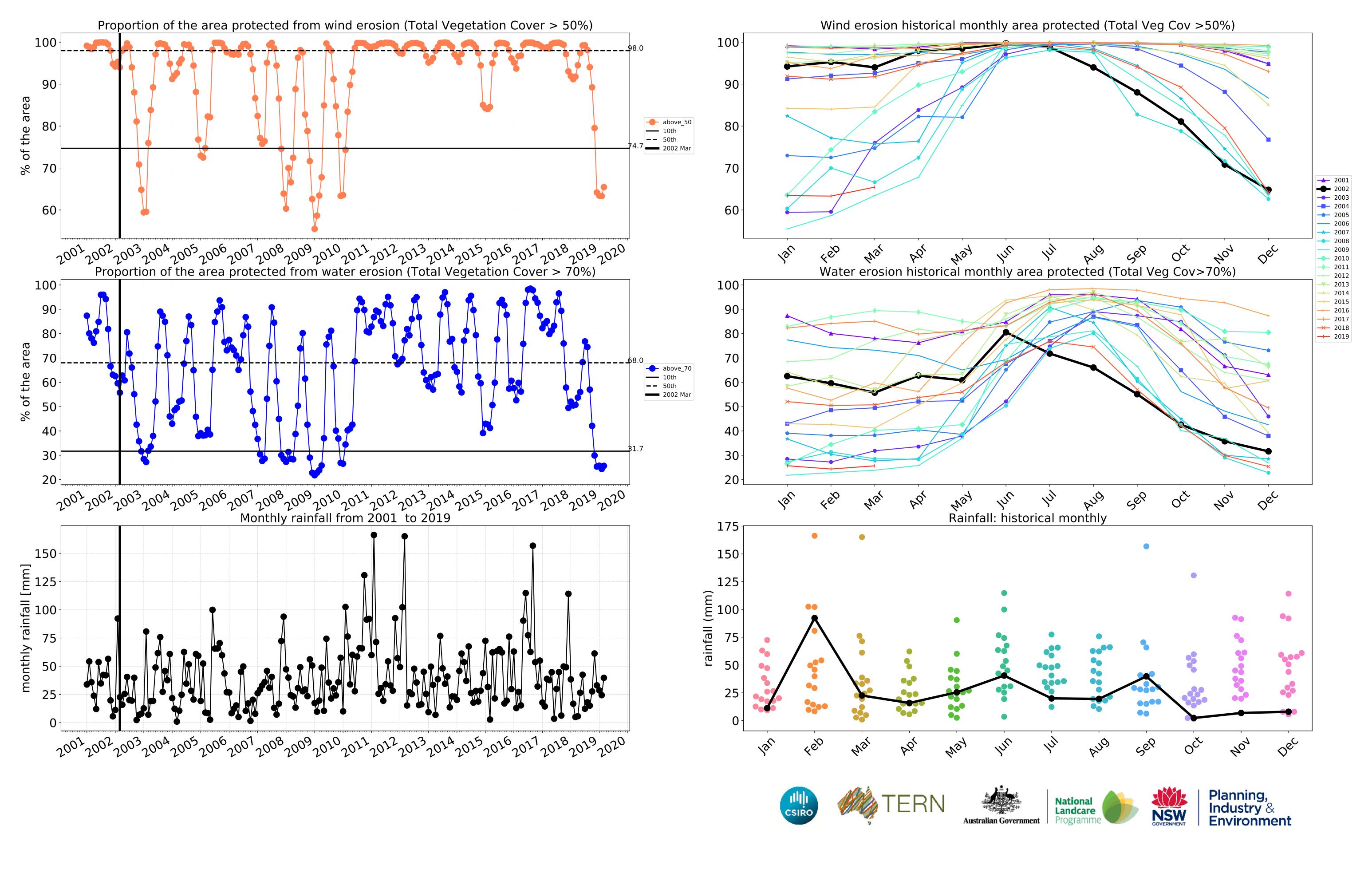




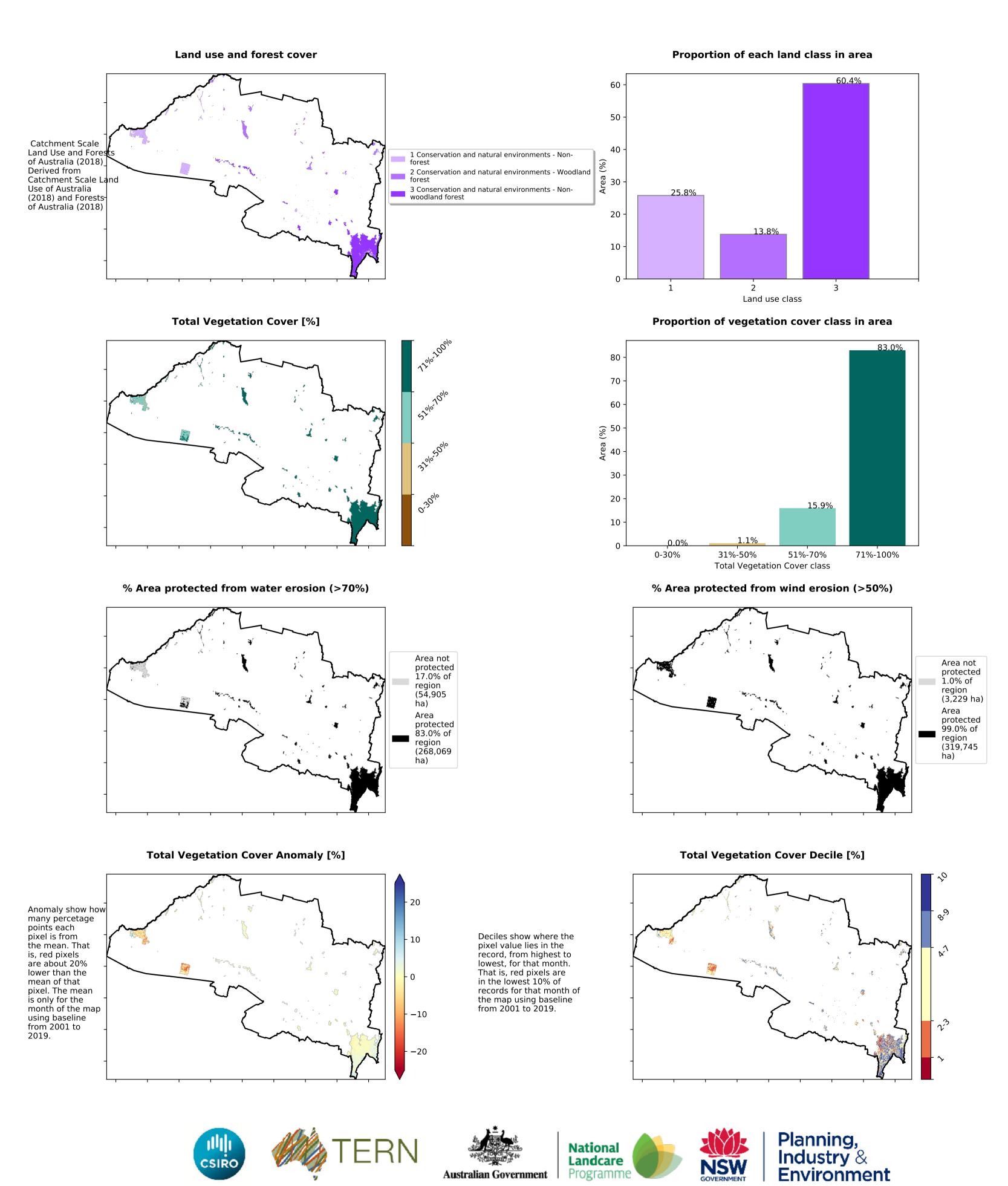




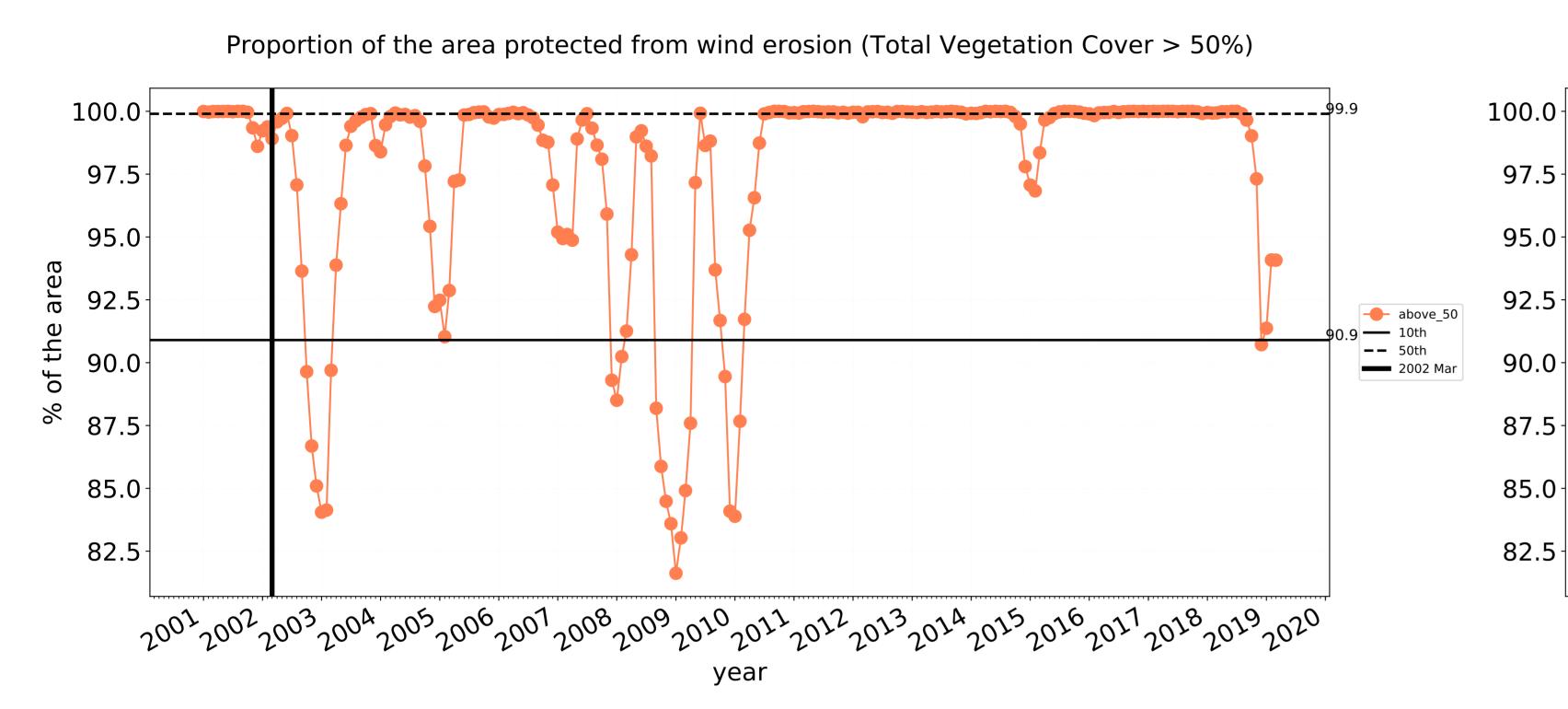


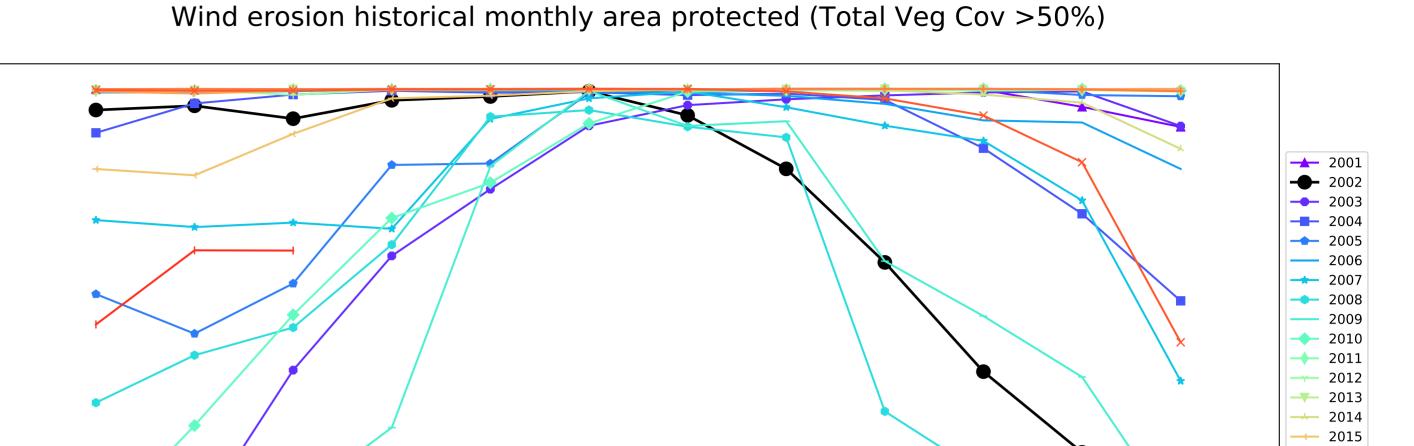


Conservation and natural environments



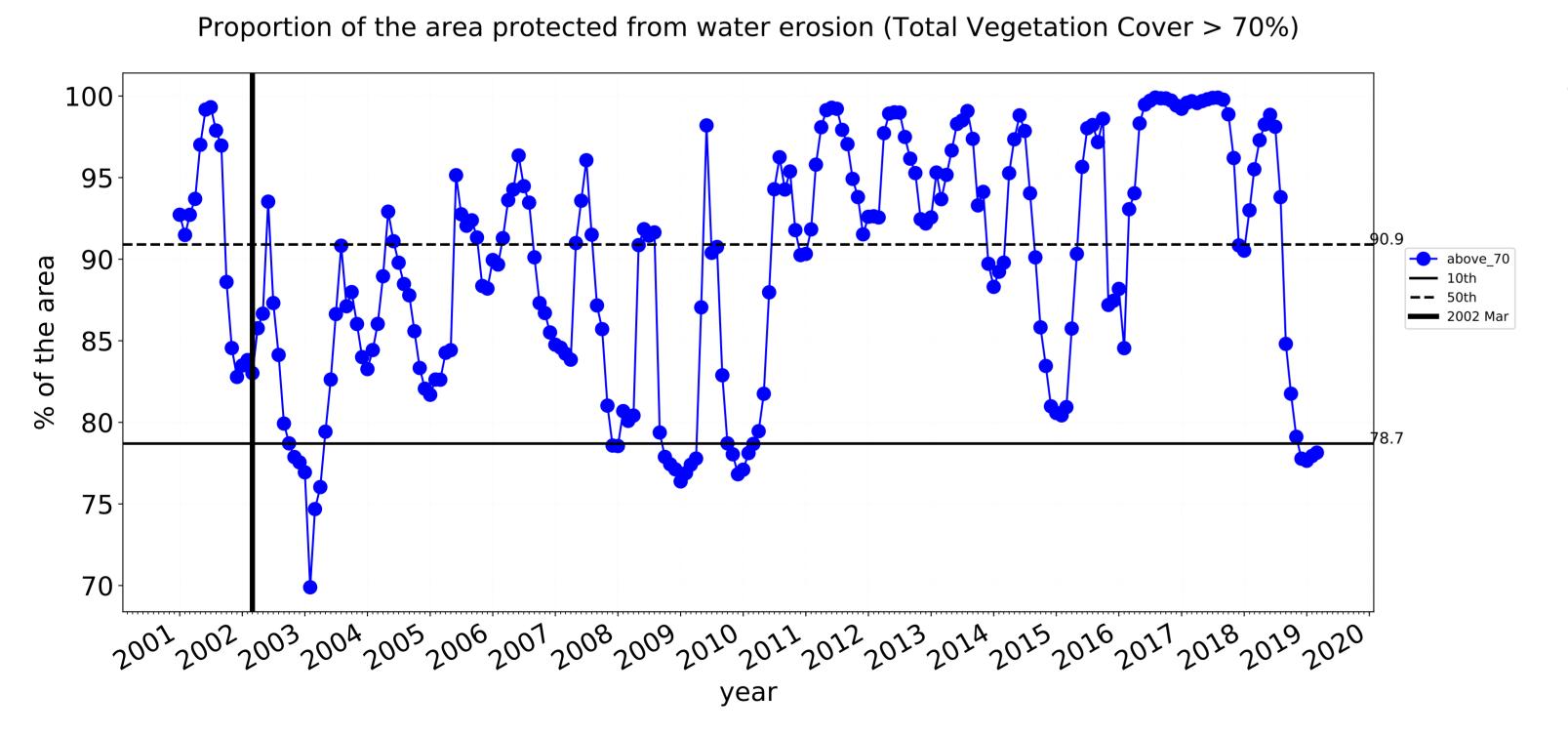
Conservation and natural environments timeseries

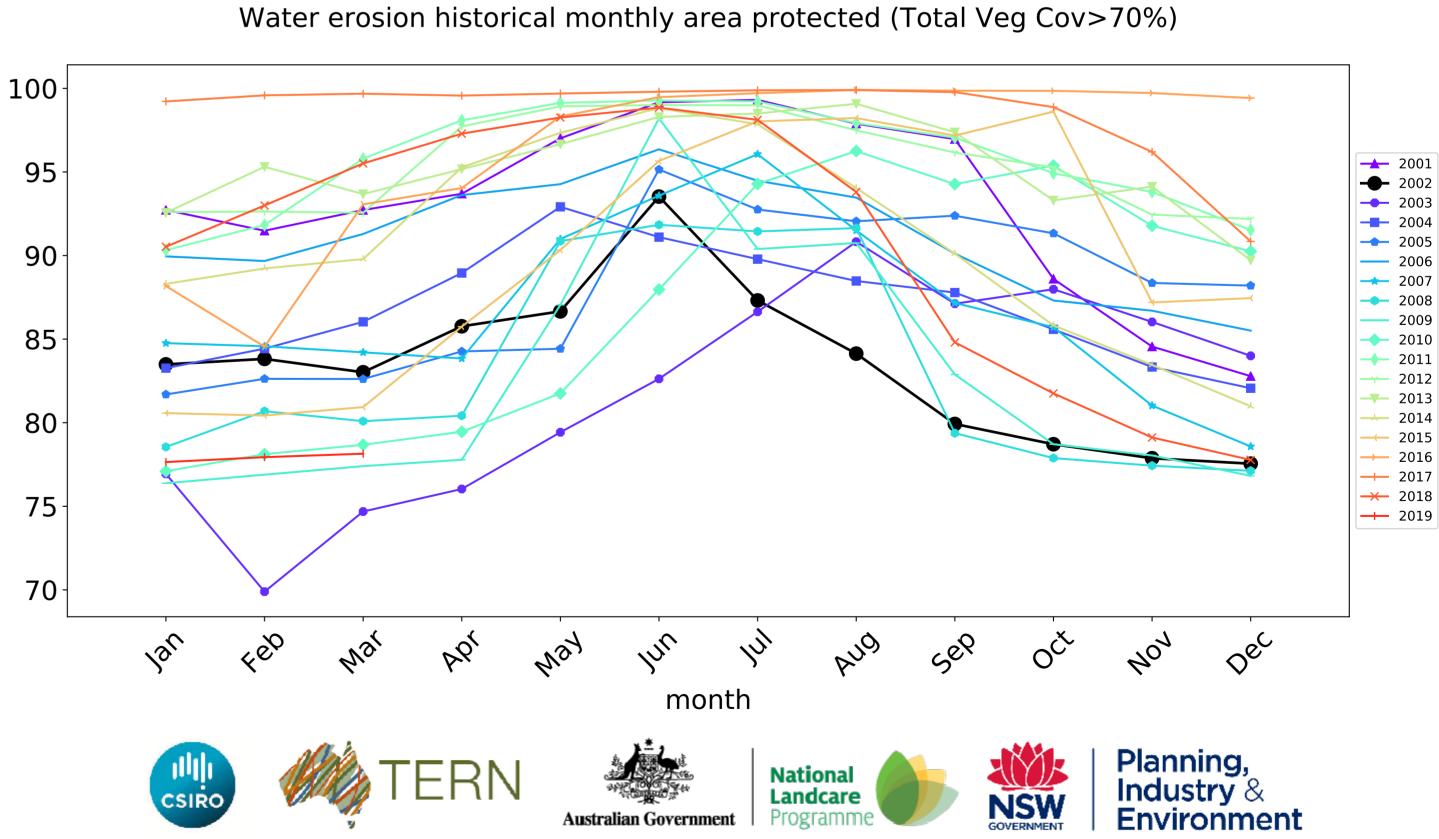




→ 2016 → 2017

→ 2018
→ 2019

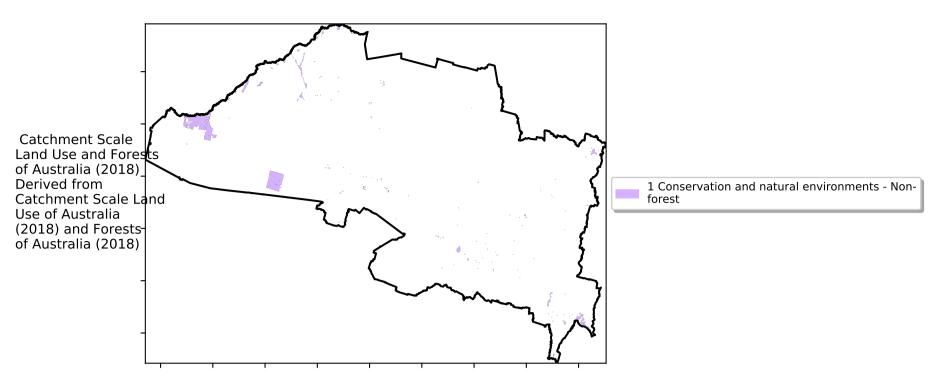




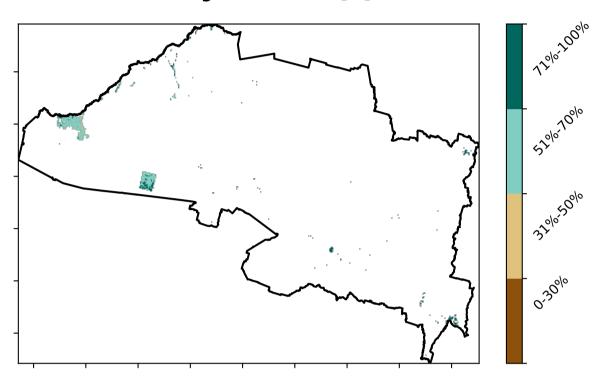
month

Conservation and natural environments non forest

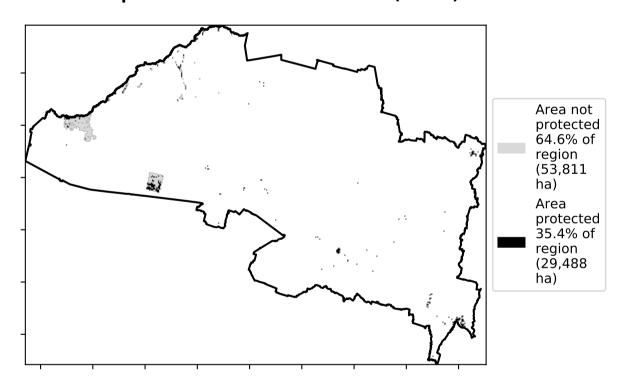
Land use and forest cover



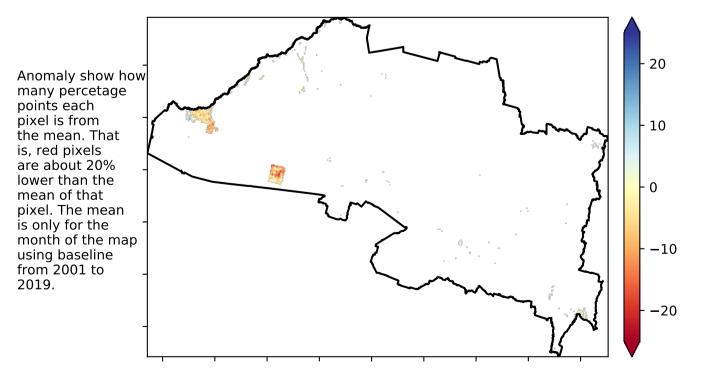
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

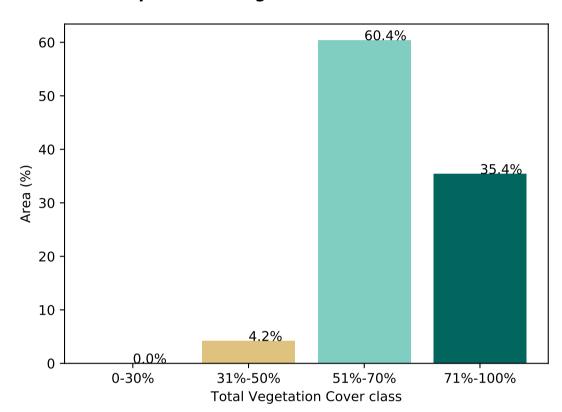


Total Vegetation Cover Anomaly [%]

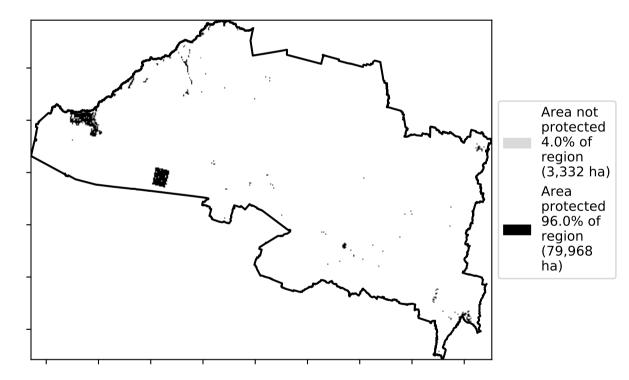


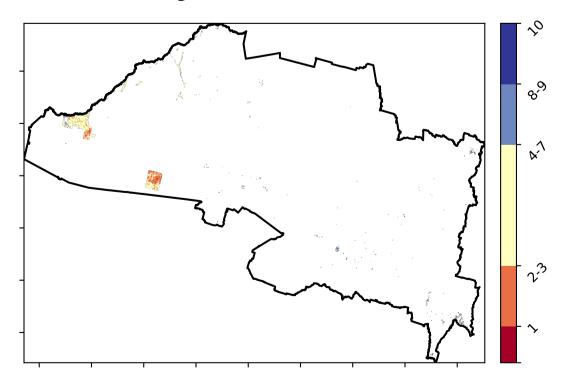
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









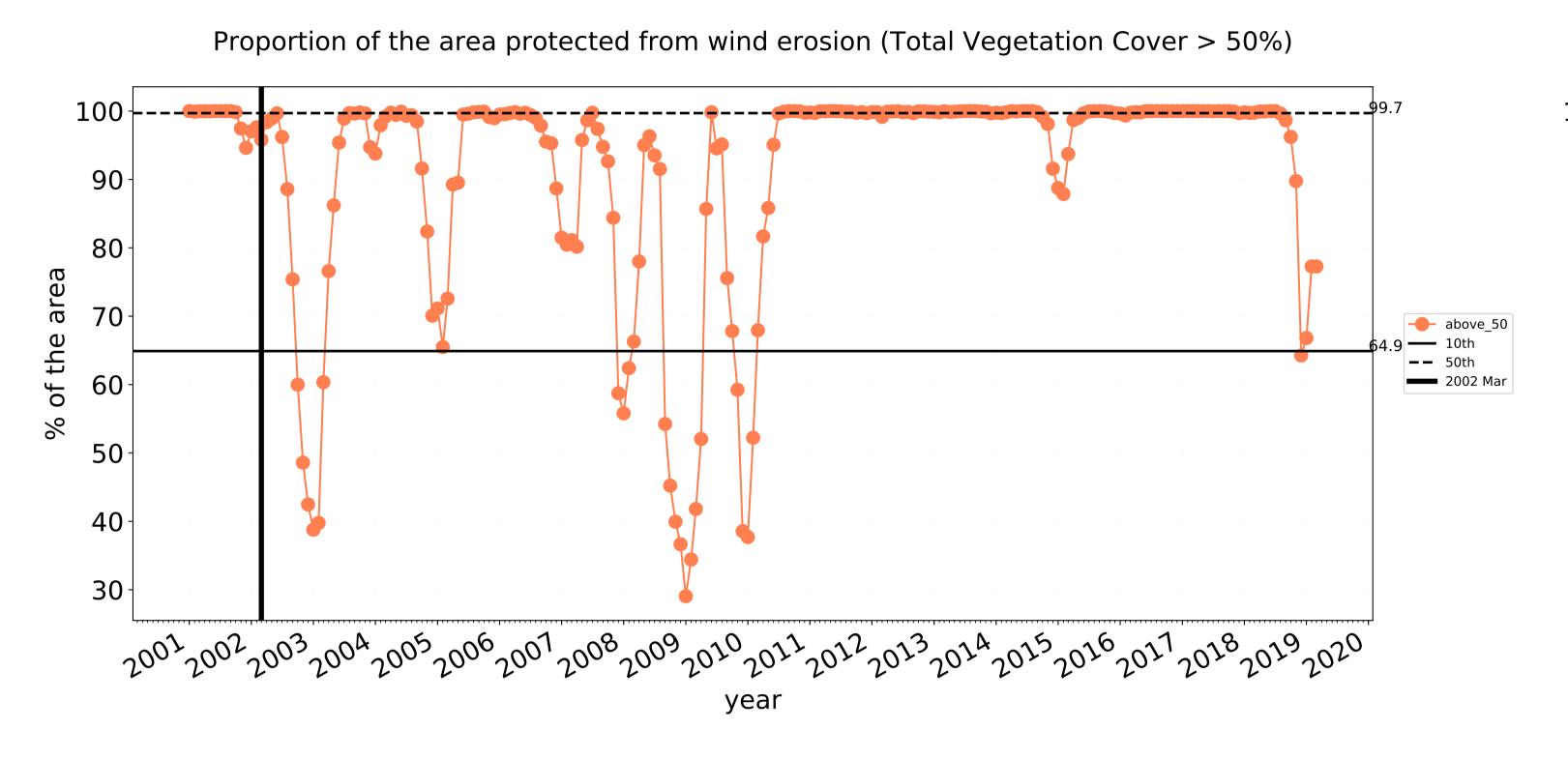


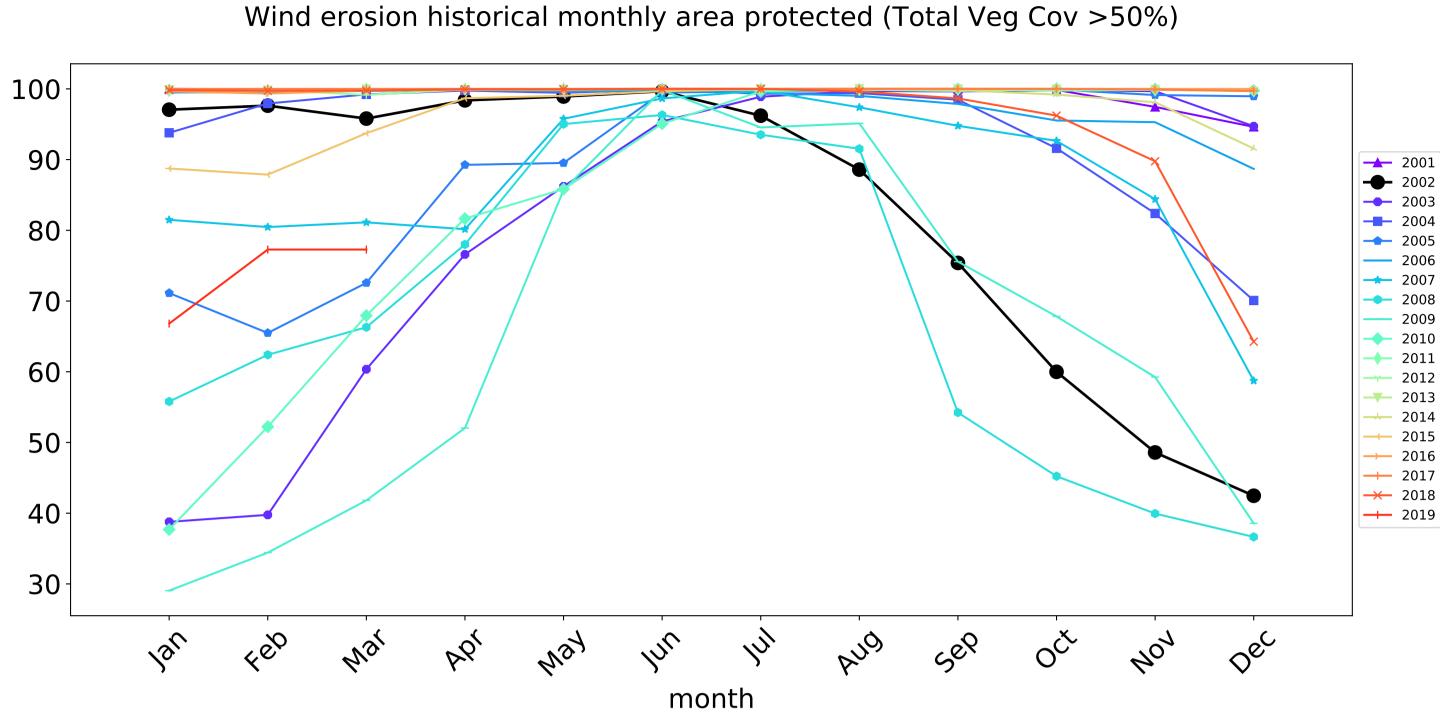


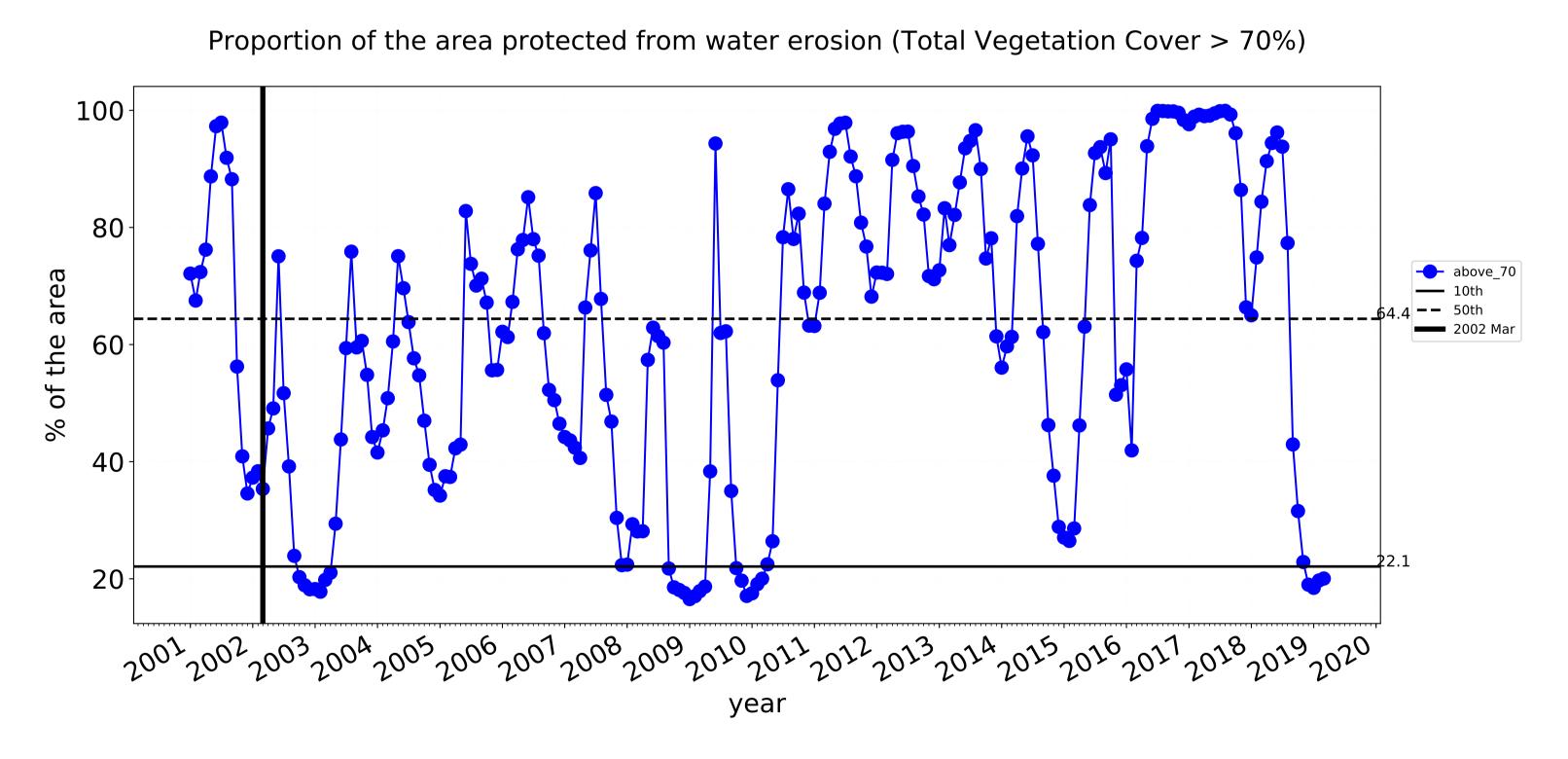


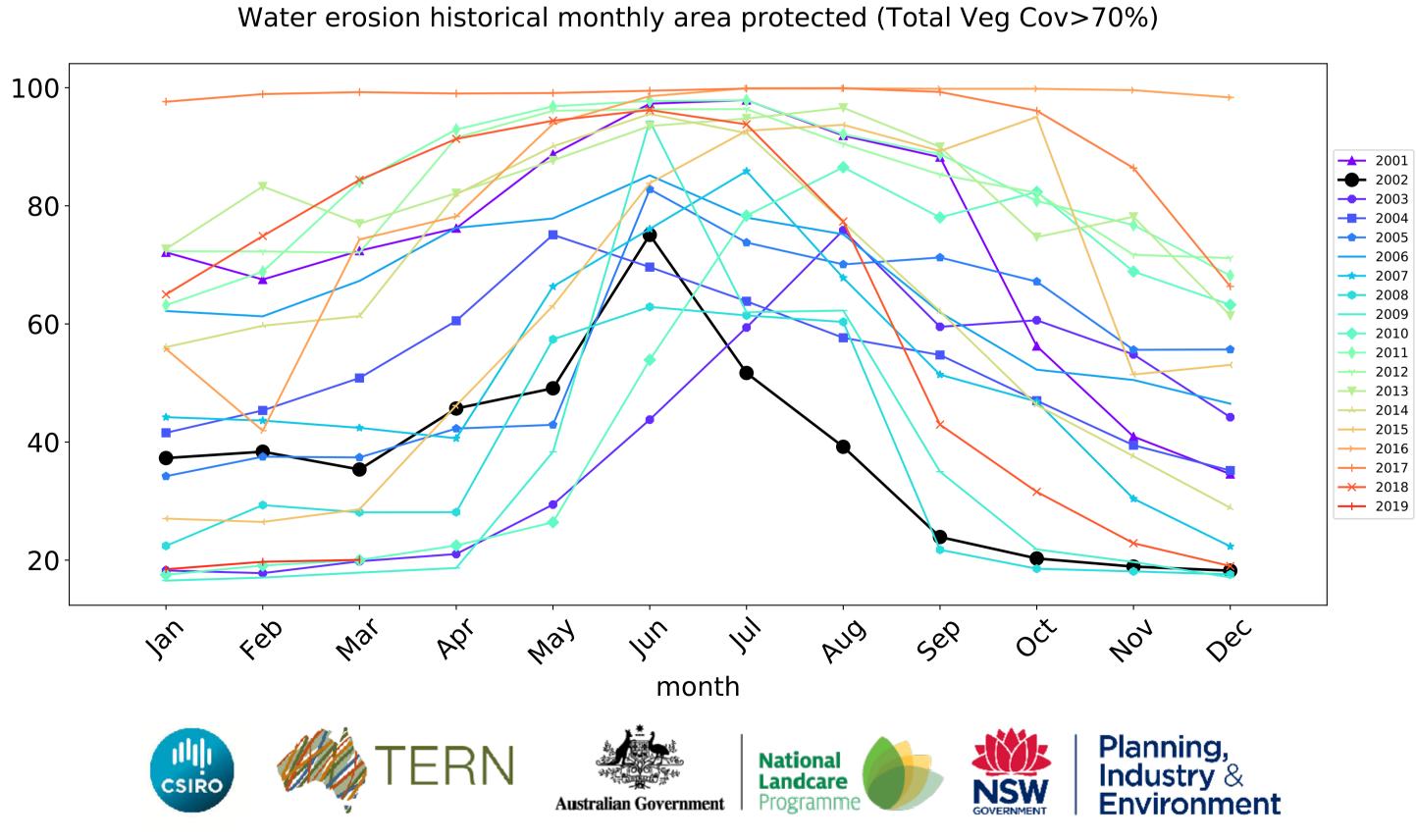


Conservation and natural environments non forest timeseries

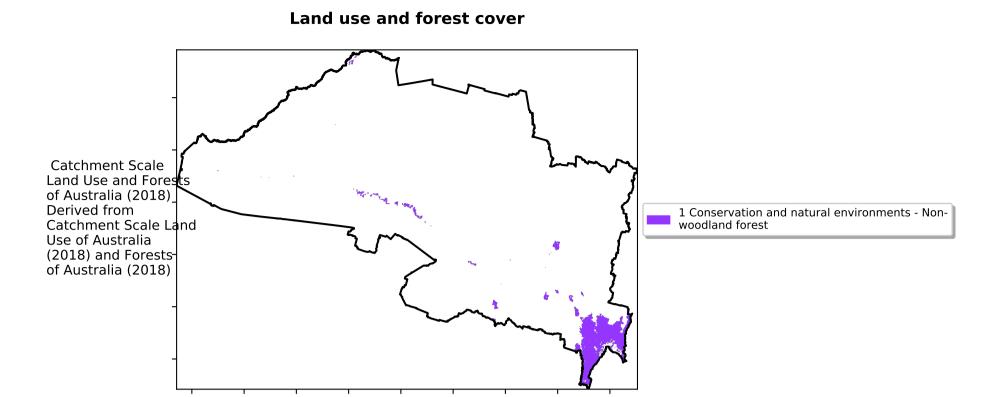




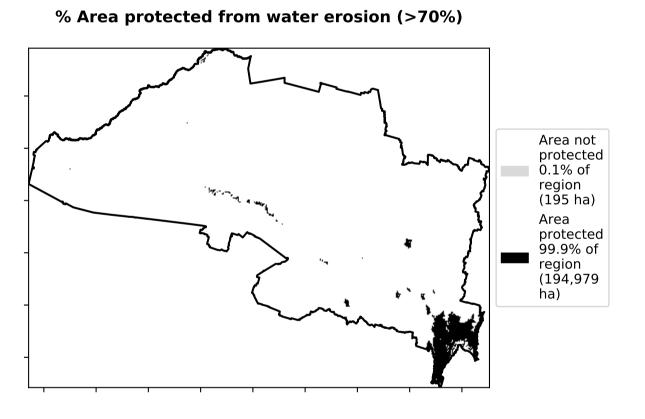


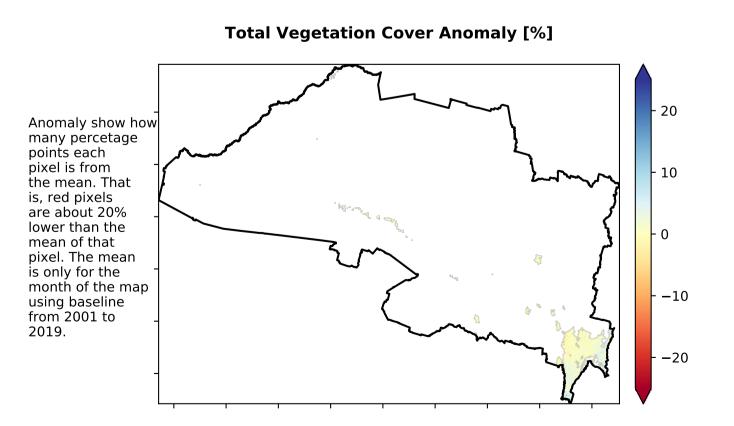


Conservation and natural environments Forest (non woodland)

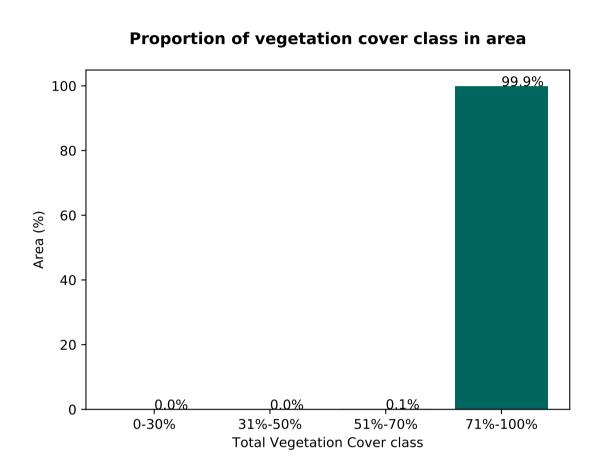


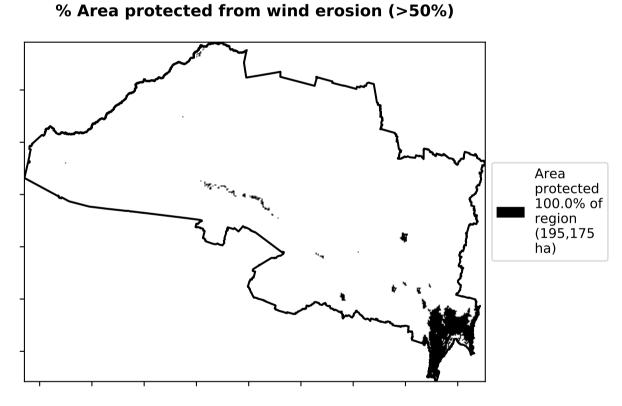
Total Vegetation Cover [%] Trolo Indolo Tr

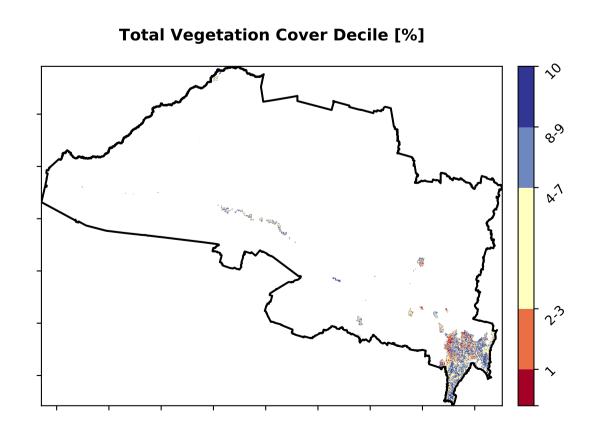




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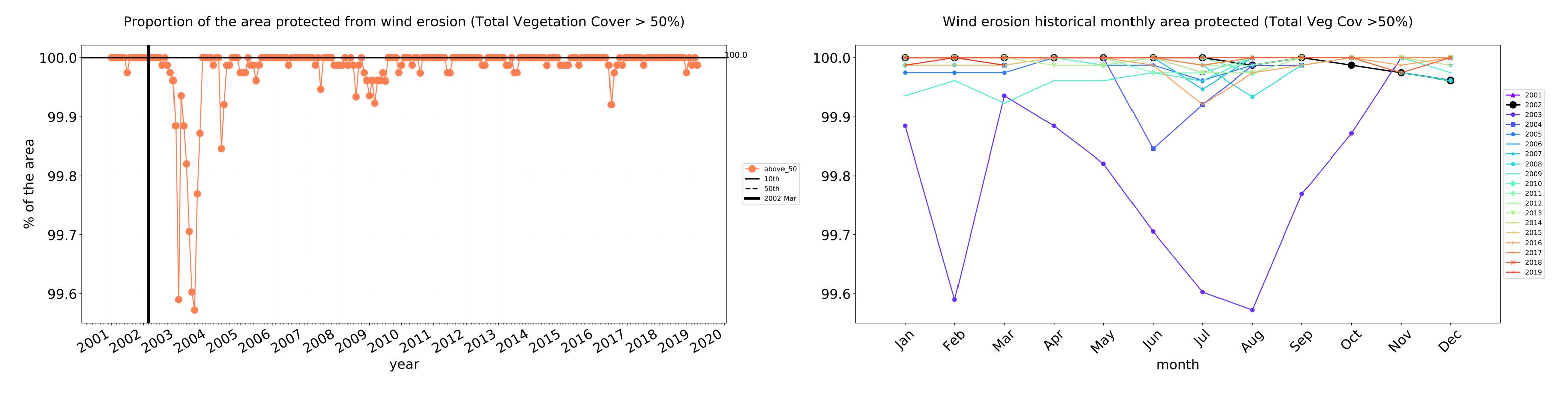


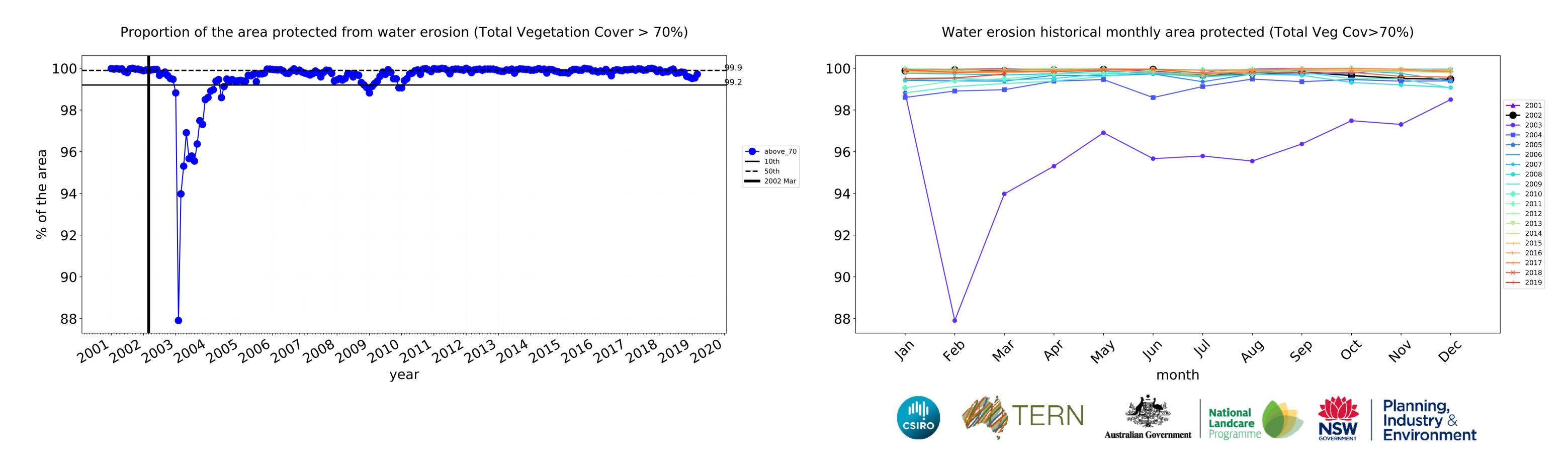








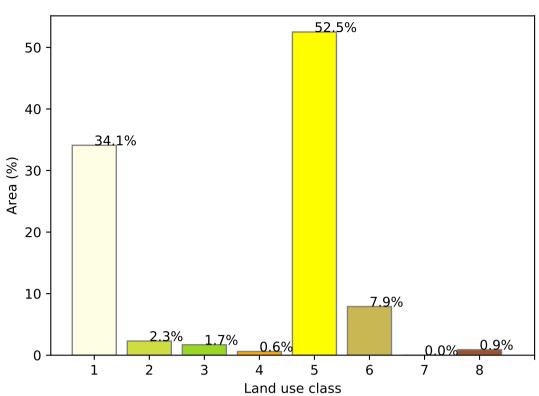




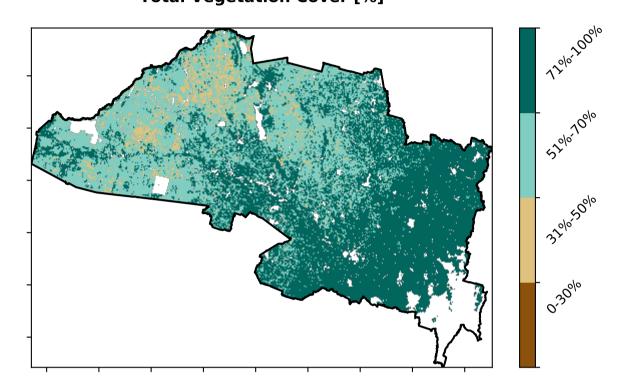
Agriculture

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

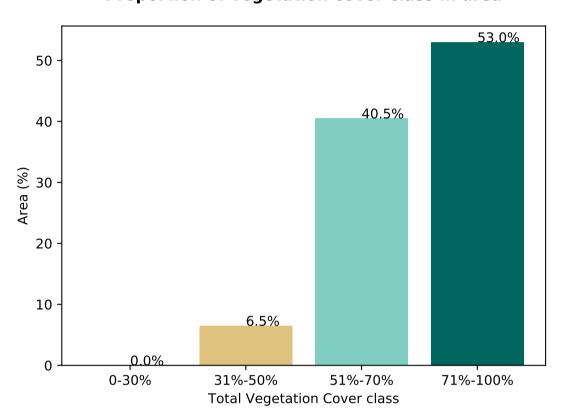
Proportion of each land class in area



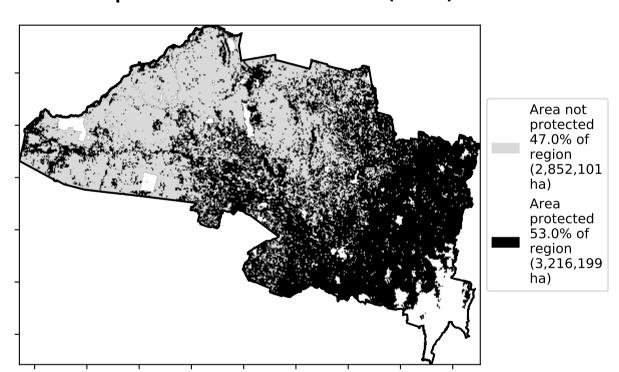
Total Vegetation Cover [%]



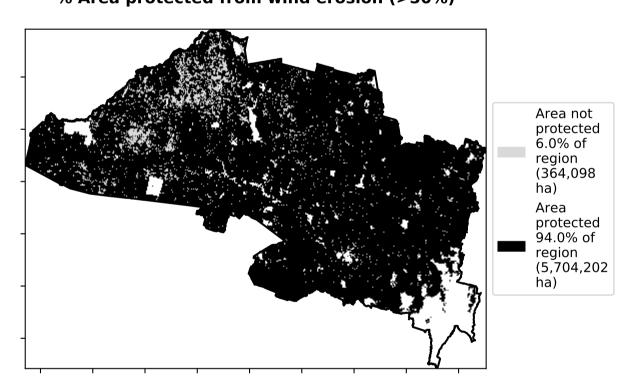
Proportion of vegetation cover class in area



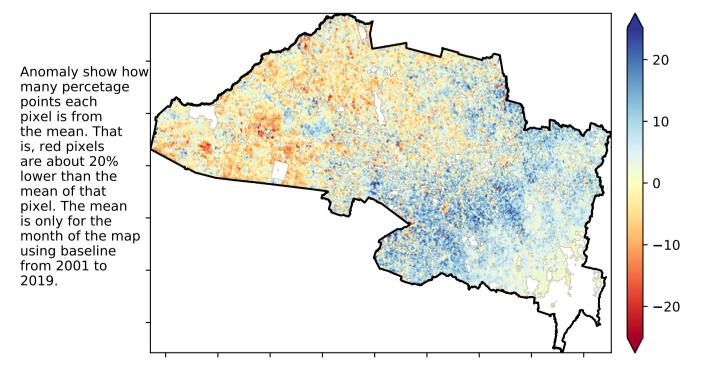
% Area protected from water erosion (>70%)



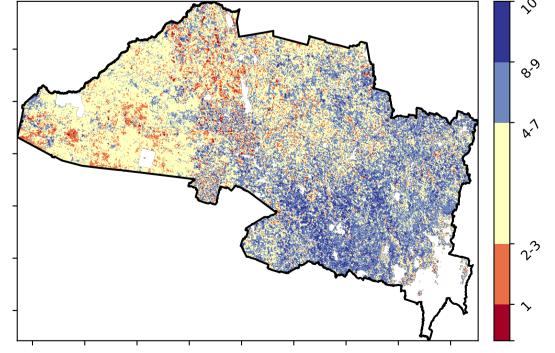
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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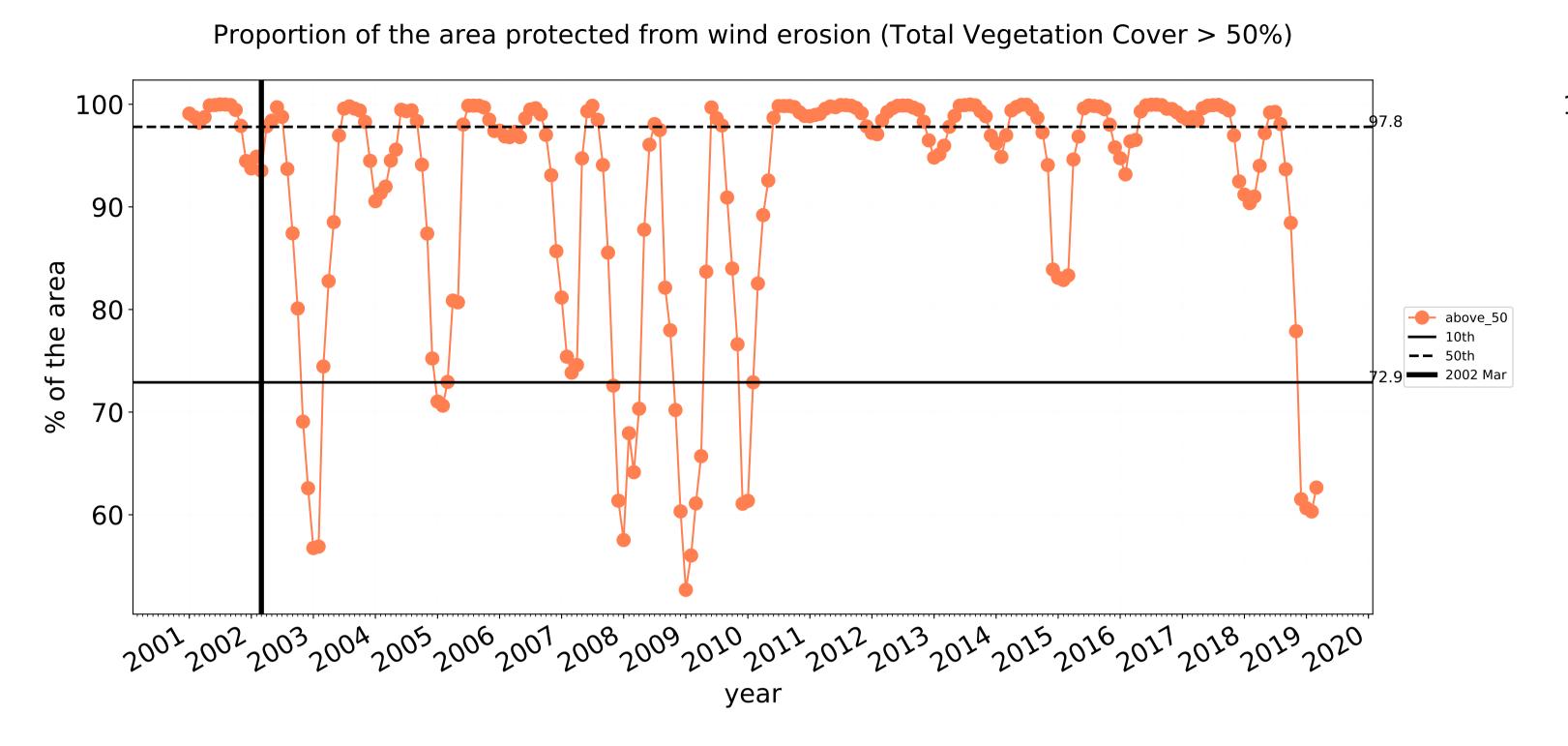


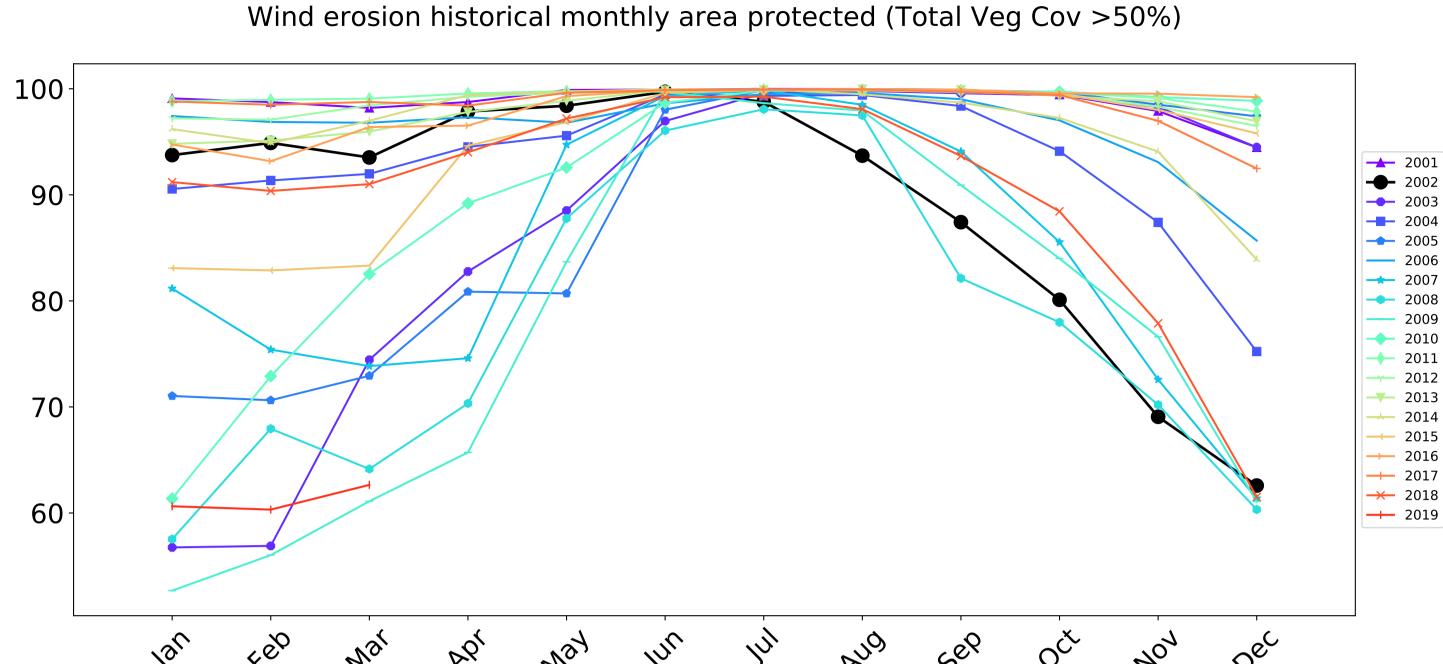




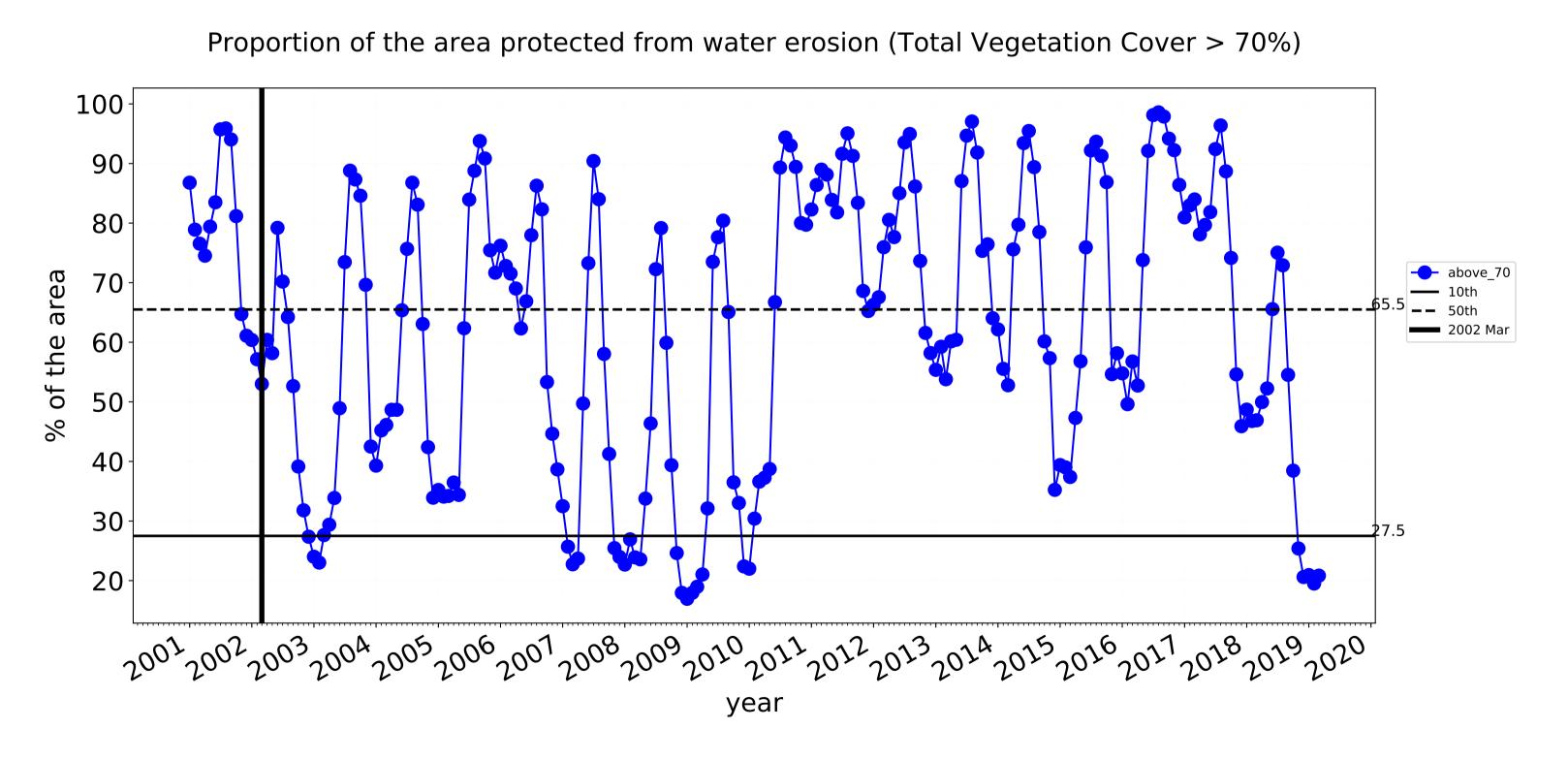


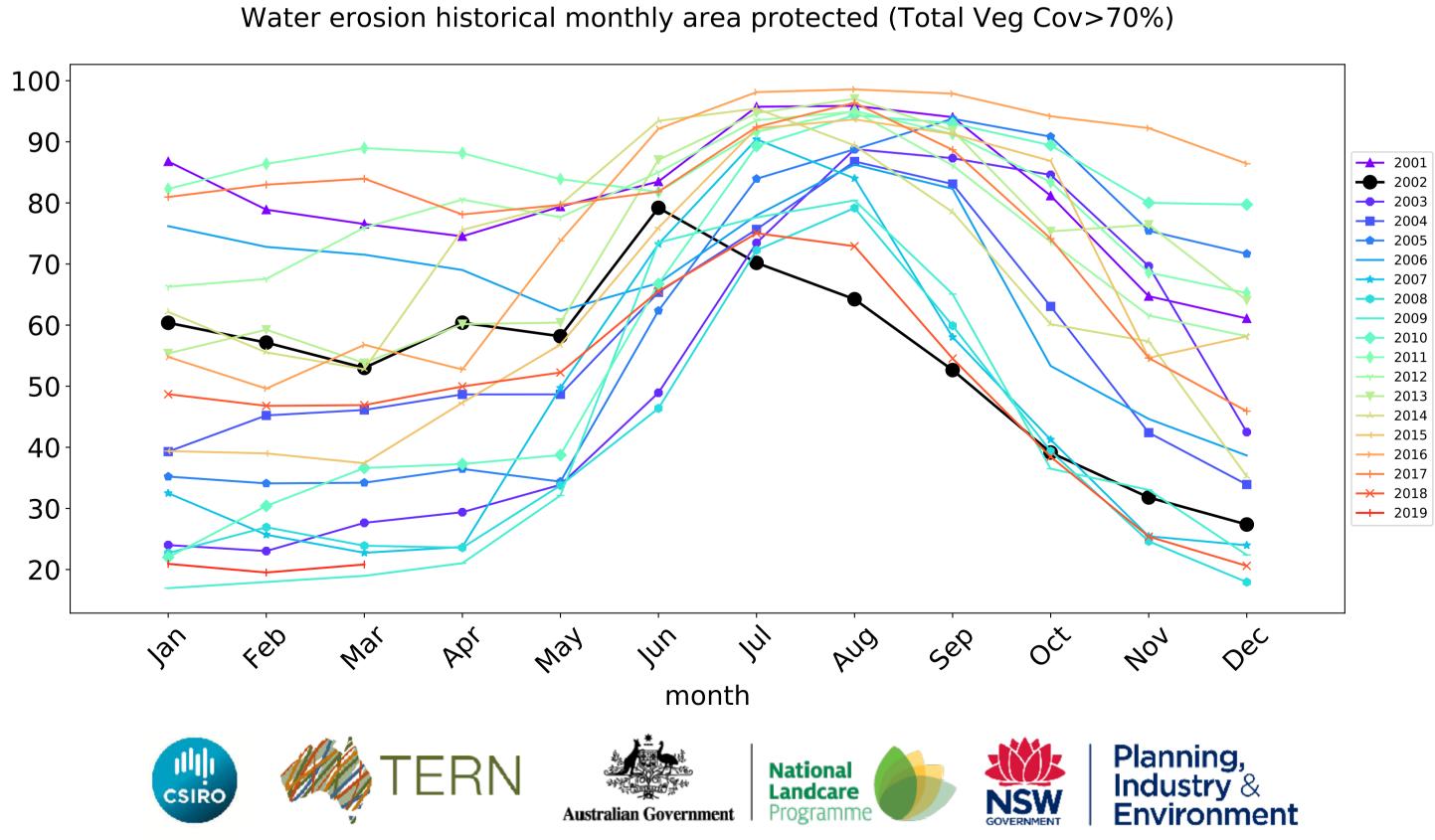
Agriculture timeseries





month

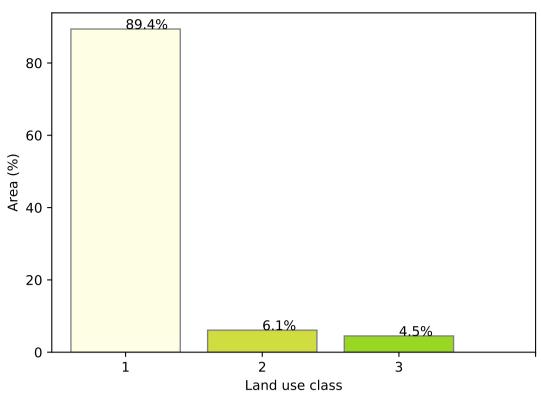




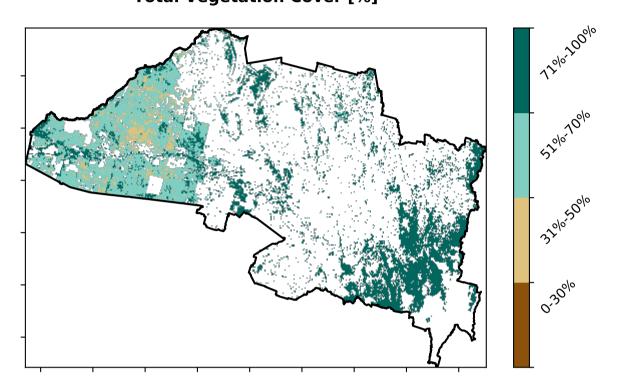
Grazing

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

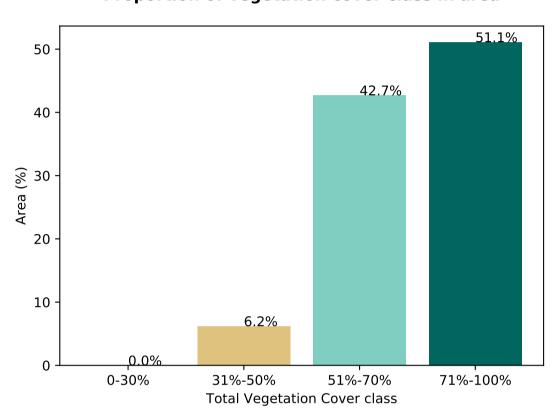
Proportion of each land class in area



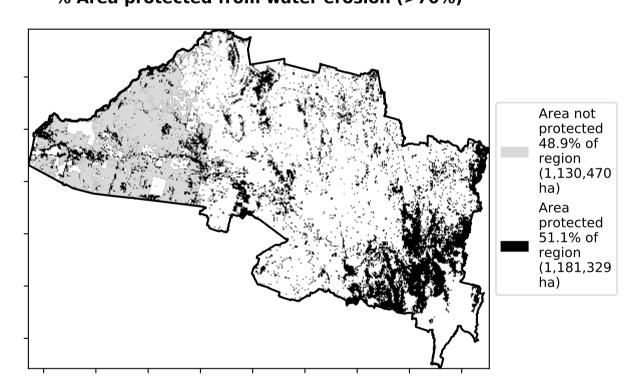
Total Vegetation Cover [%]



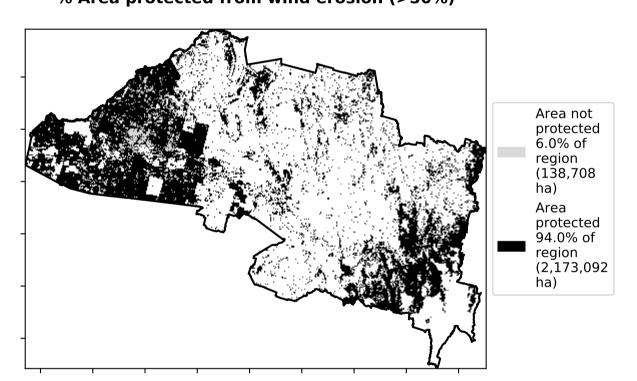
Proportion of vegetation cover class in area



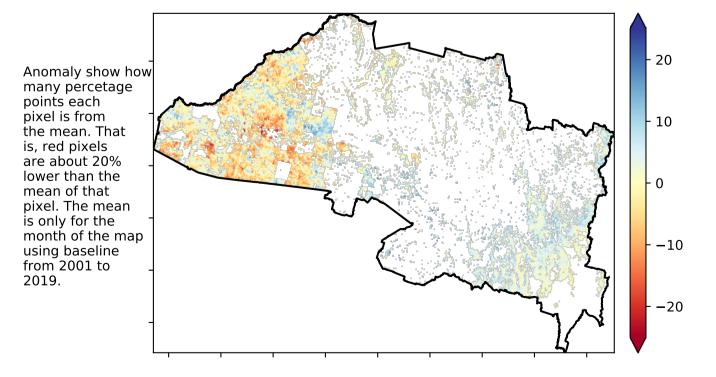
% Area protected from water erosion (>70%)



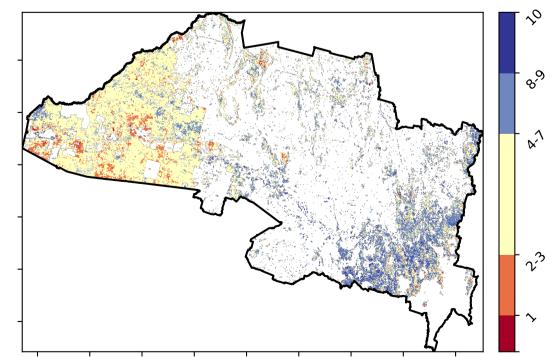
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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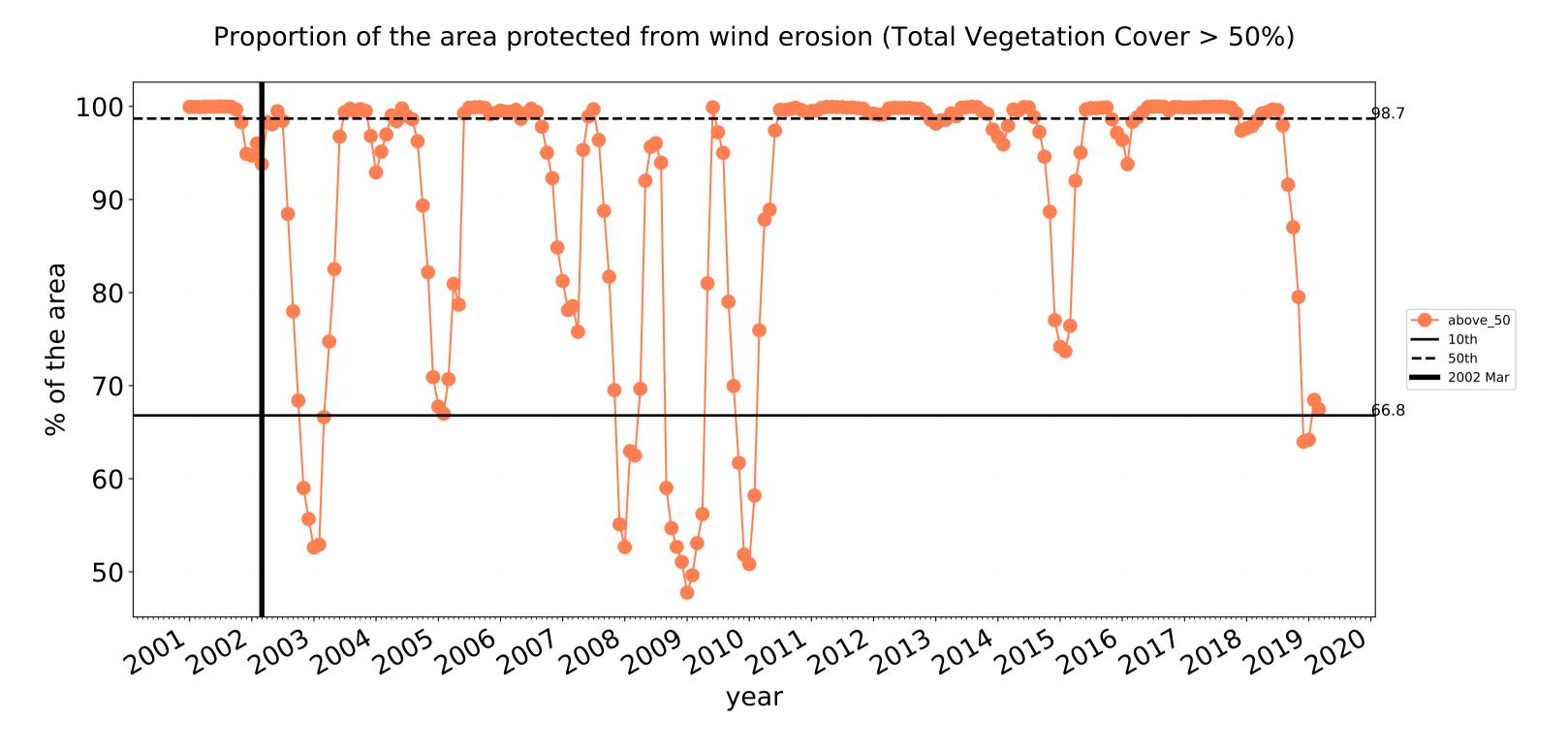


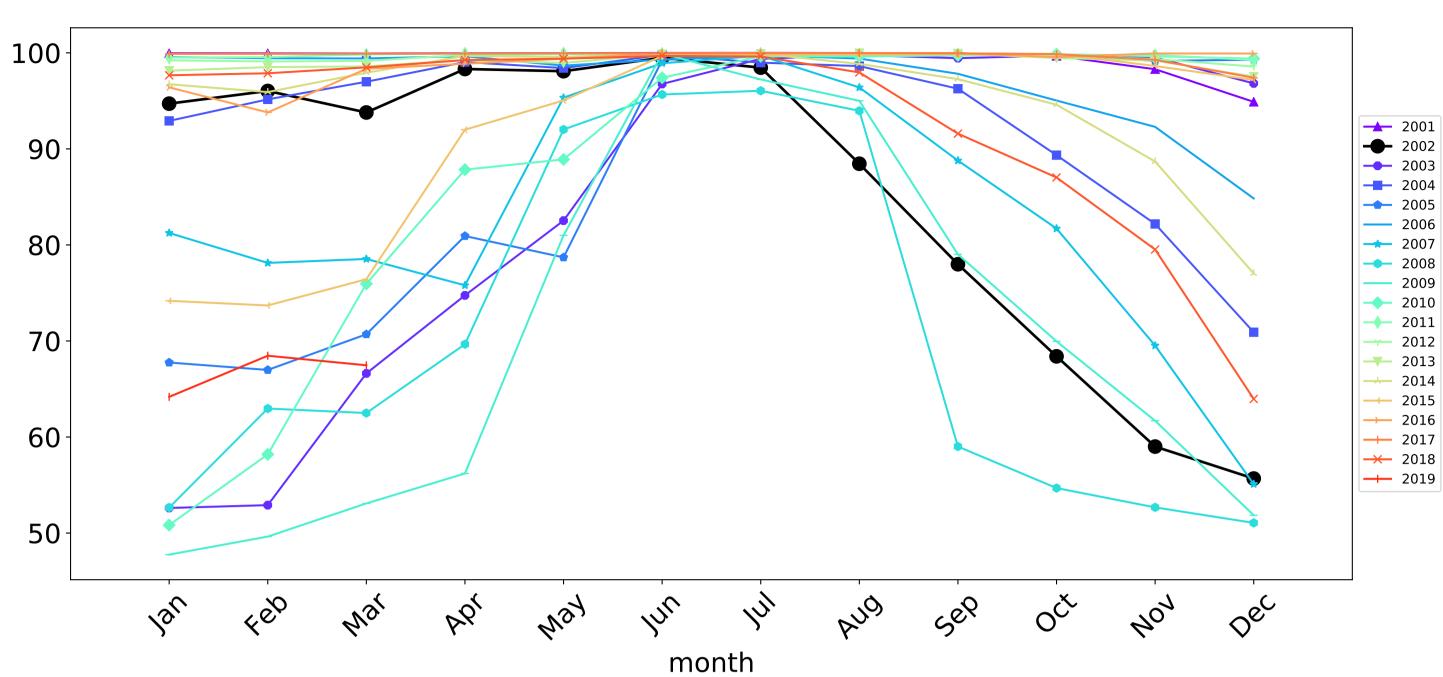




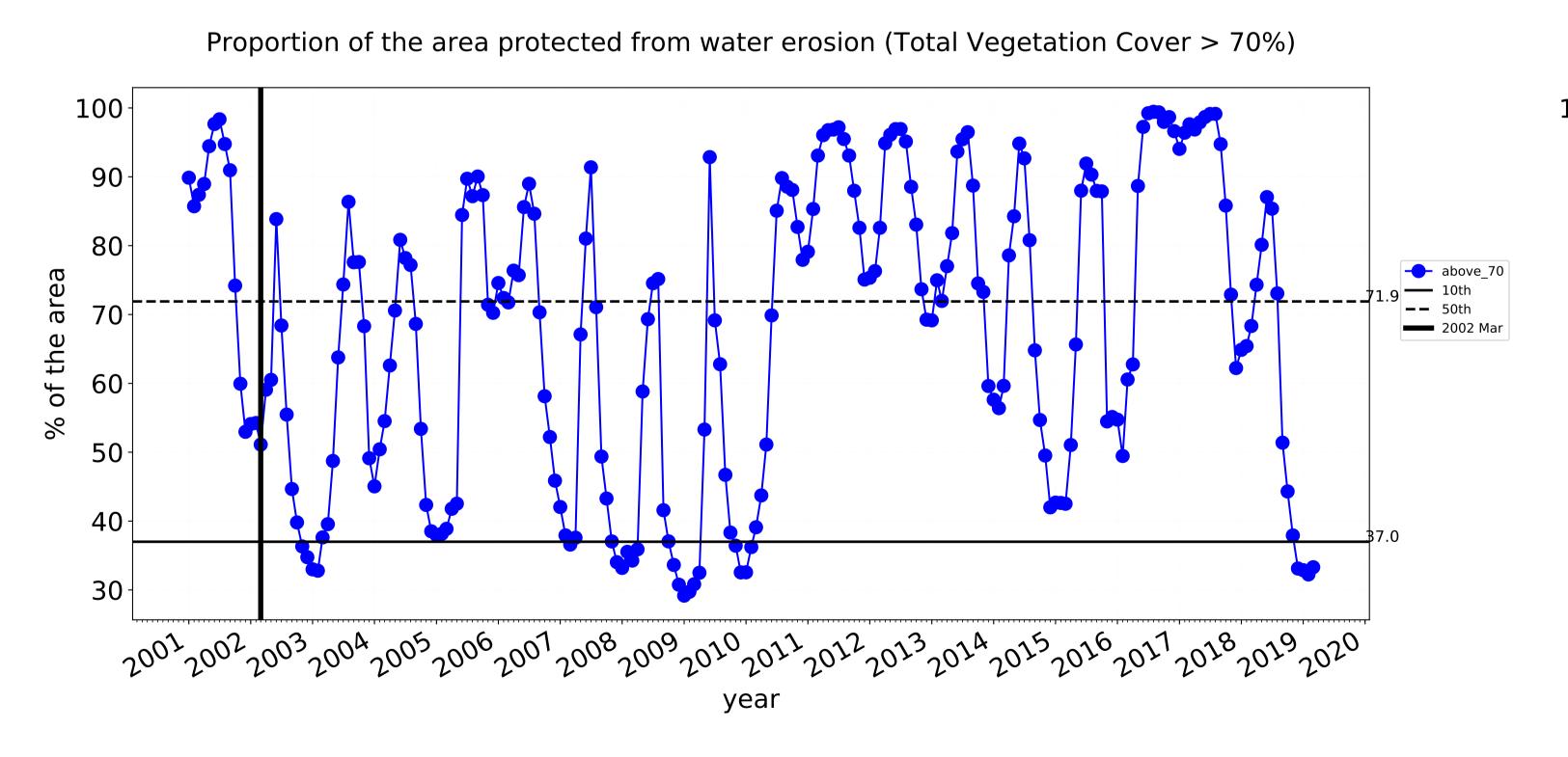


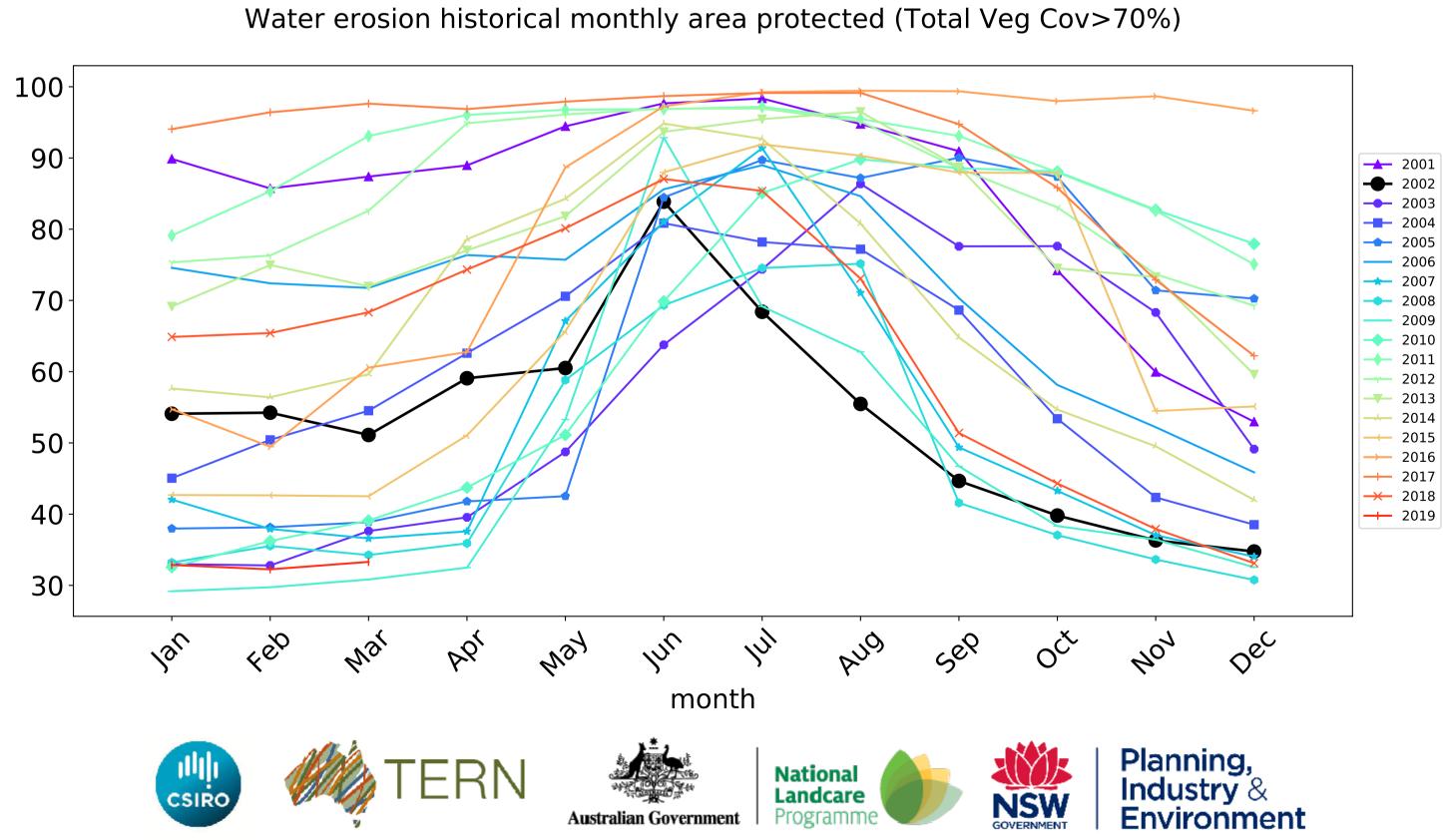
Grazing timeseries





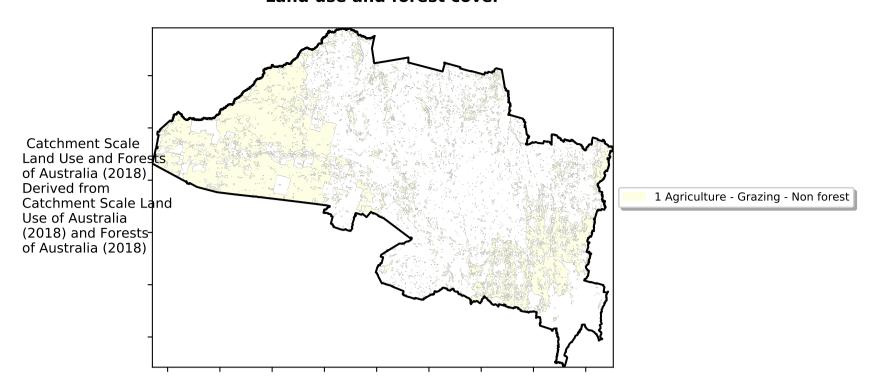
Wind erosion historical monthly area protected (Total Veg Cov >50%)



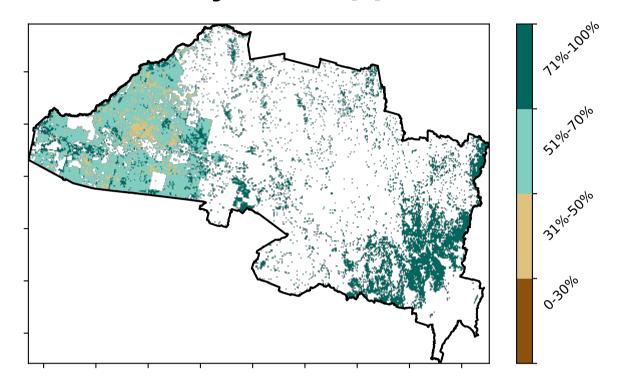


Grazing non forest

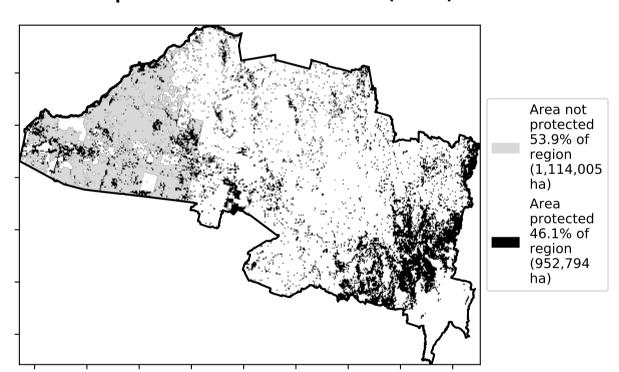
Land use and forest cover



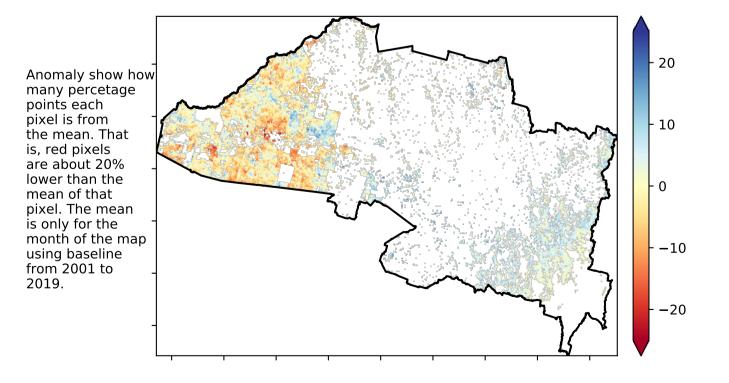
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

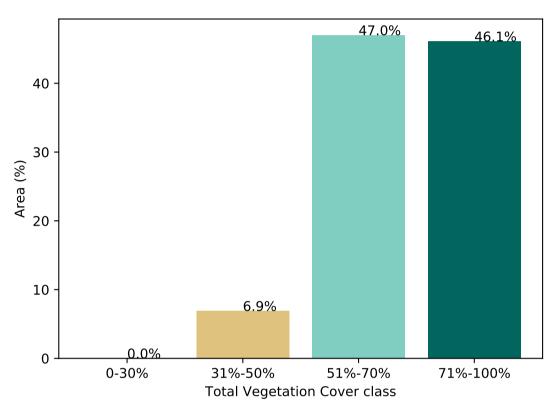


Total Vegetation Cover Anomaly [%]

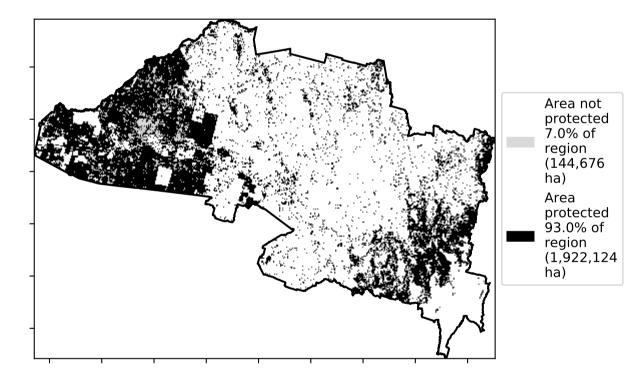


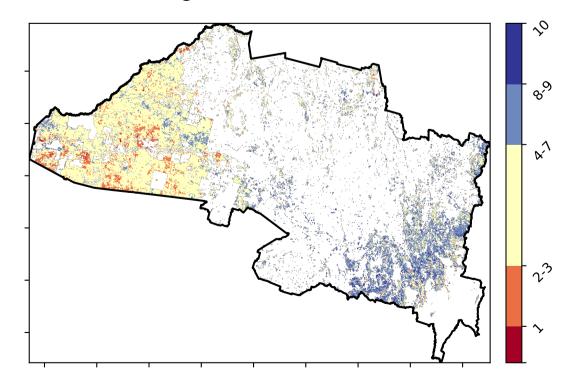
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Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









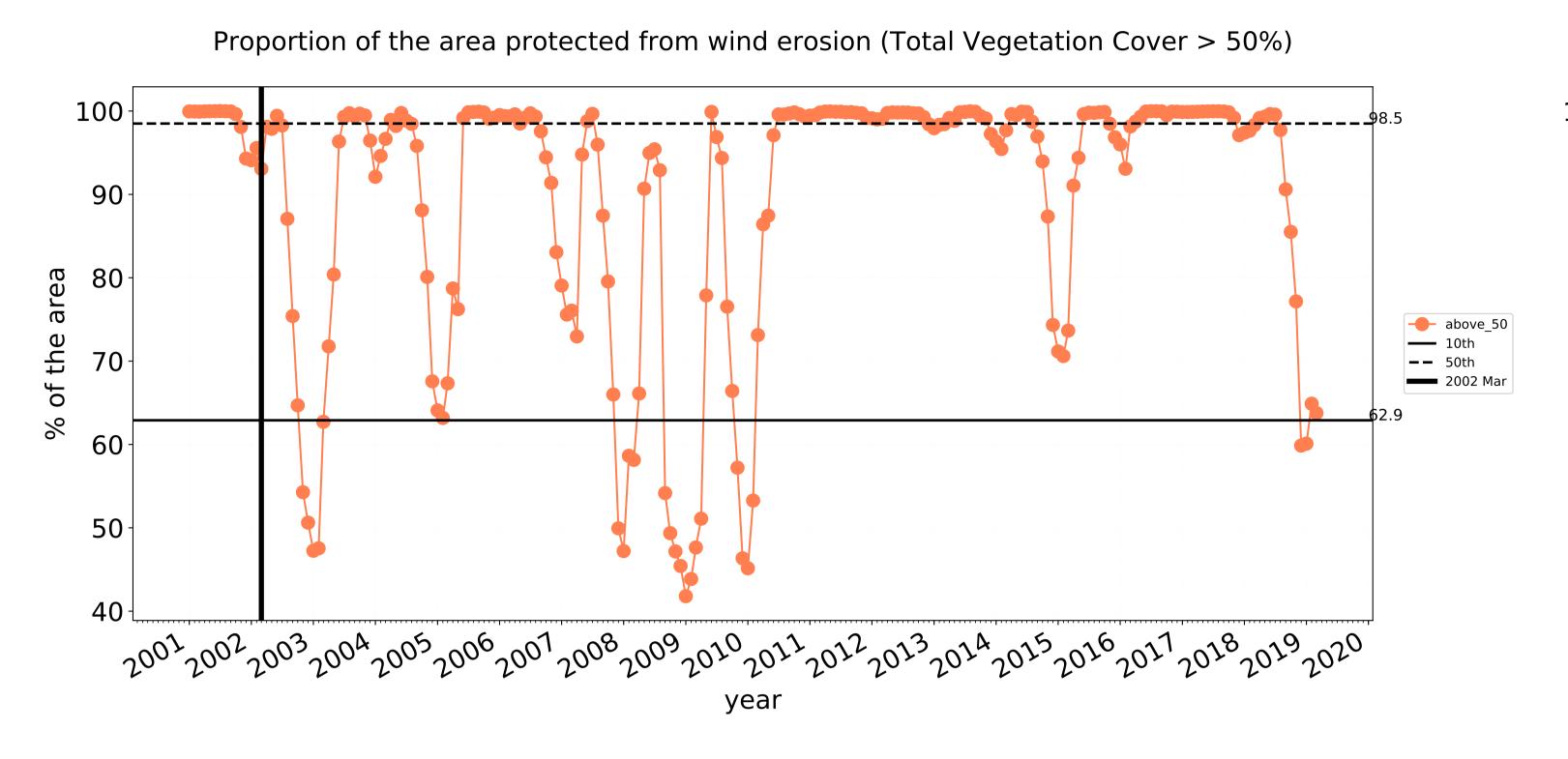


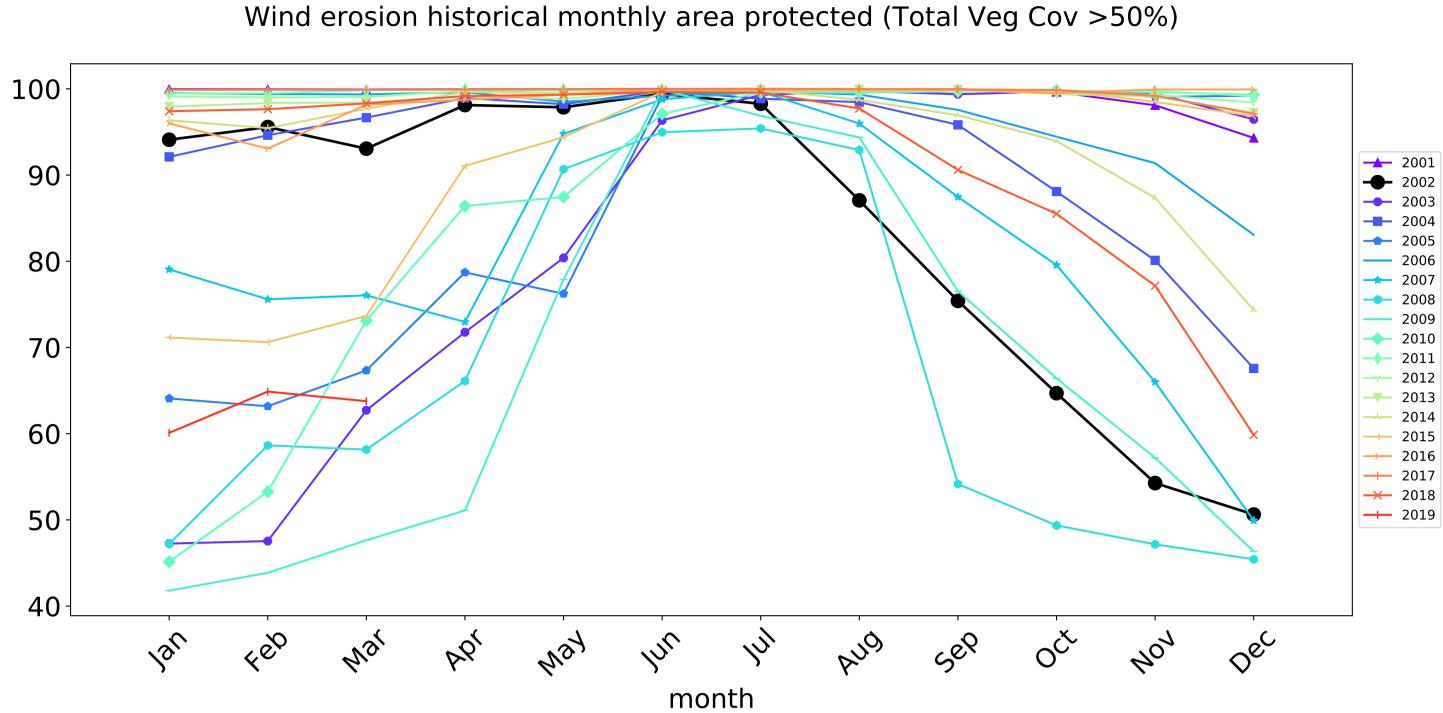


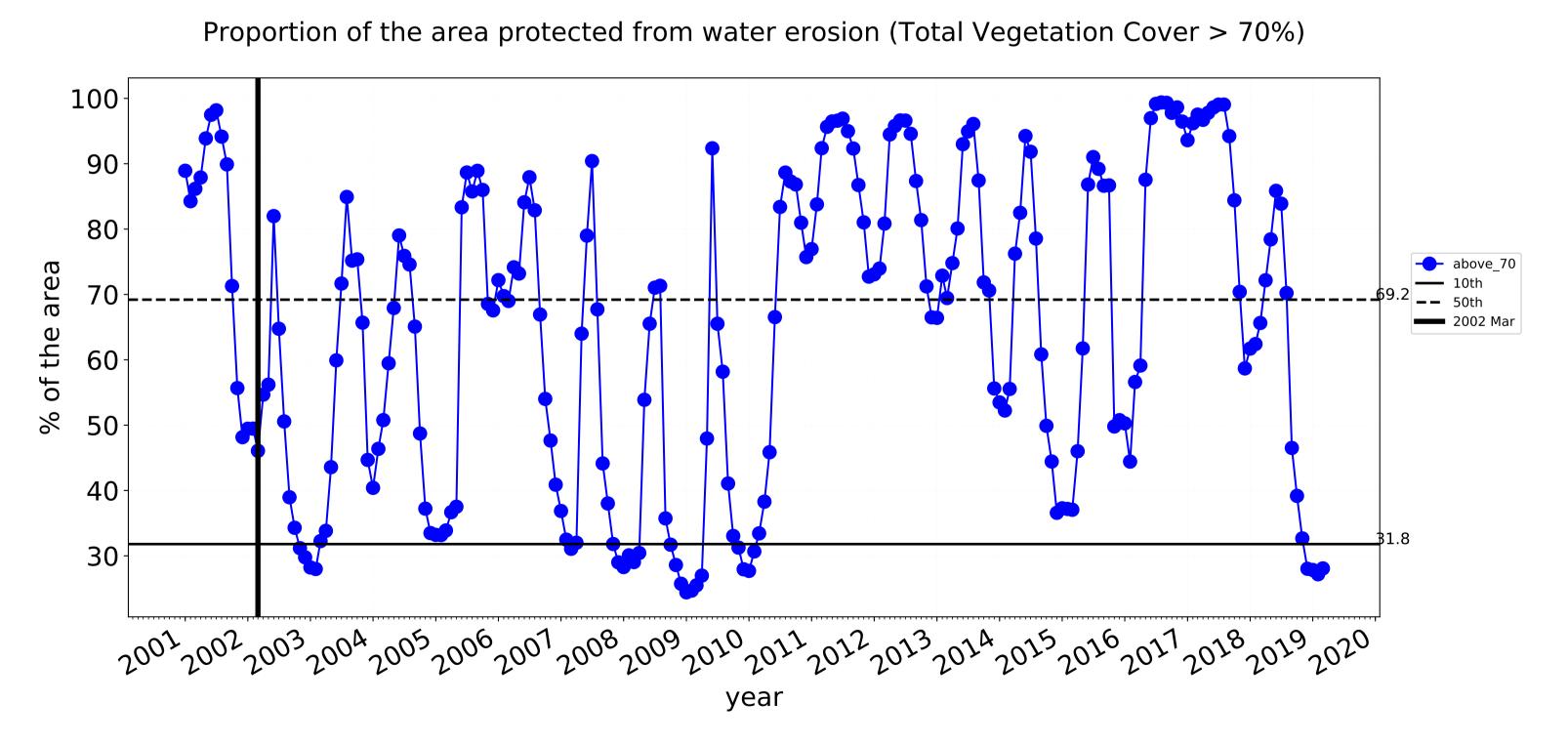


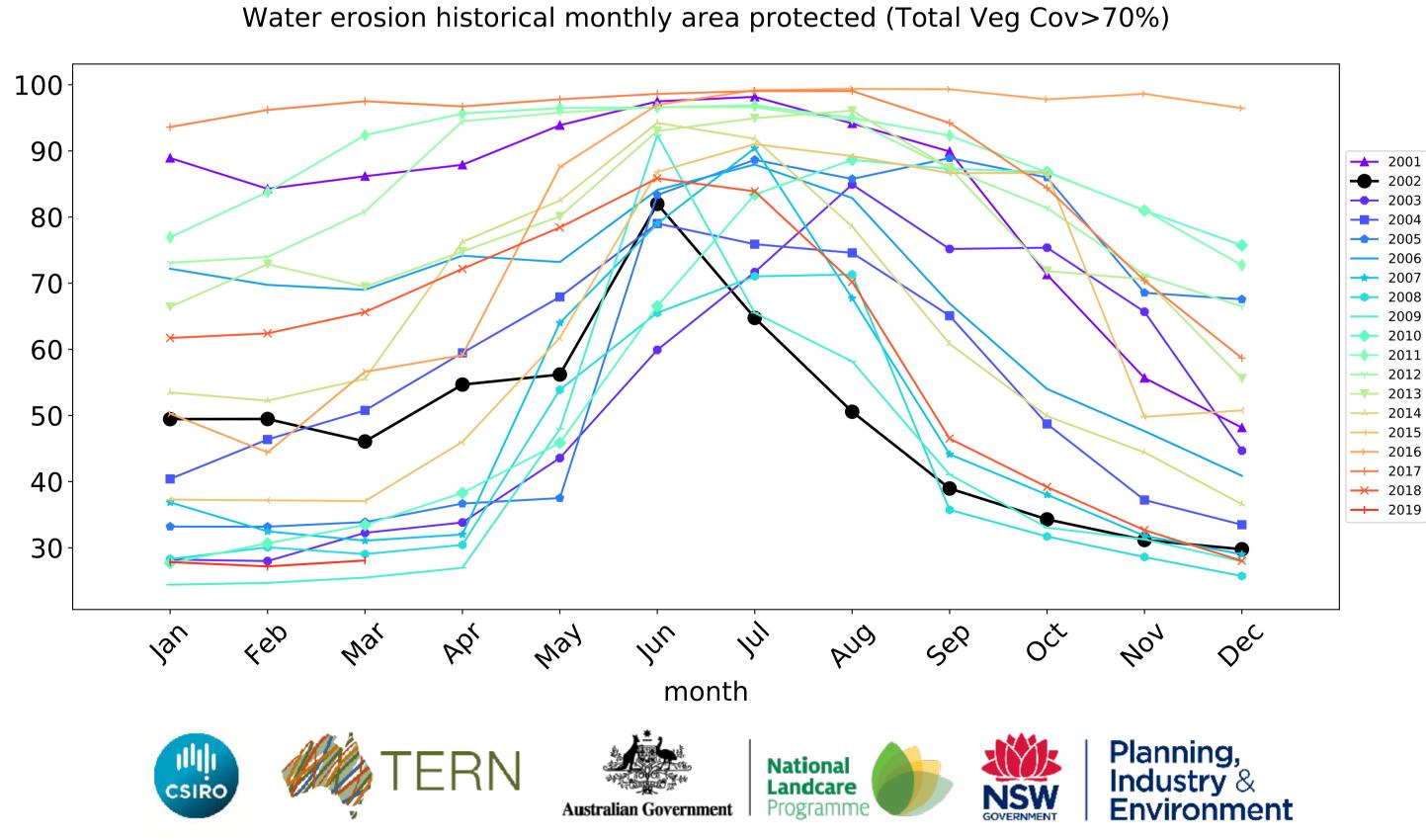


Grazing non forest timeseries



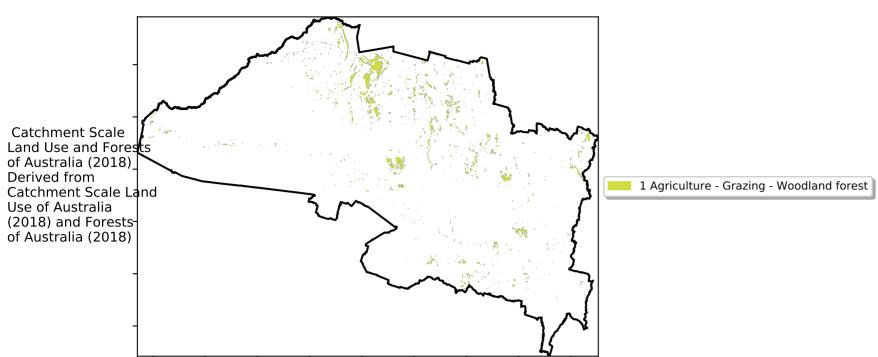




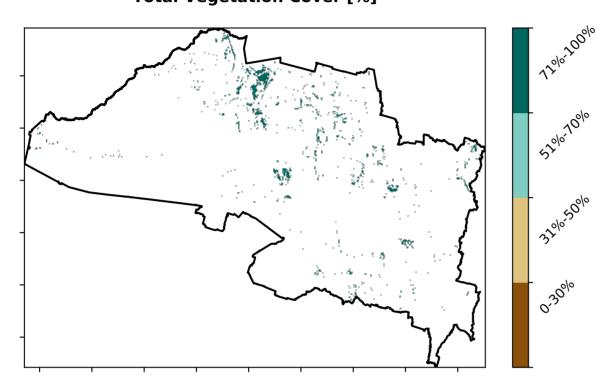


Grazing Woodland forest

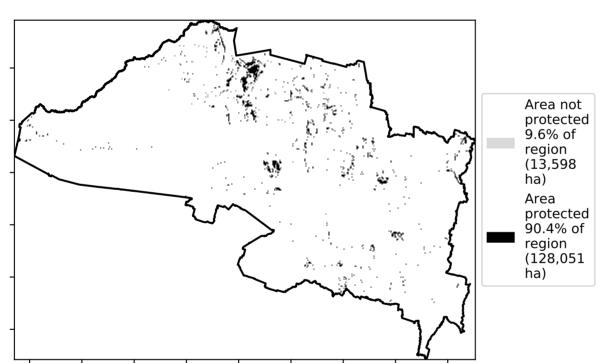
Land use and forest cover



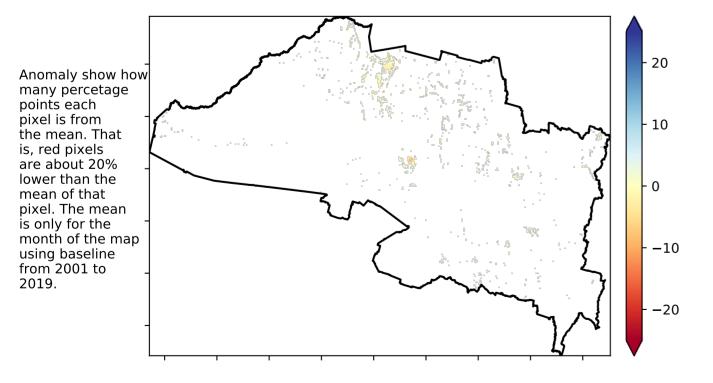
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

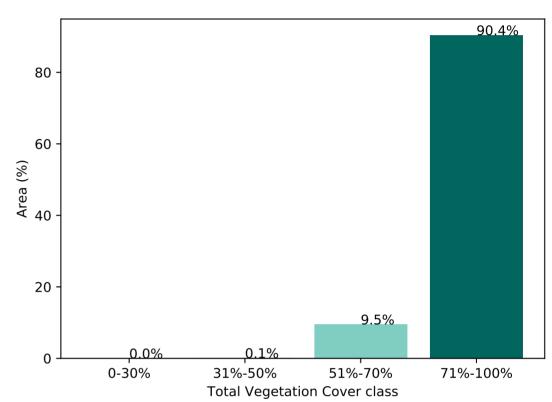


Total Vegetation Cover Anomaly [%]

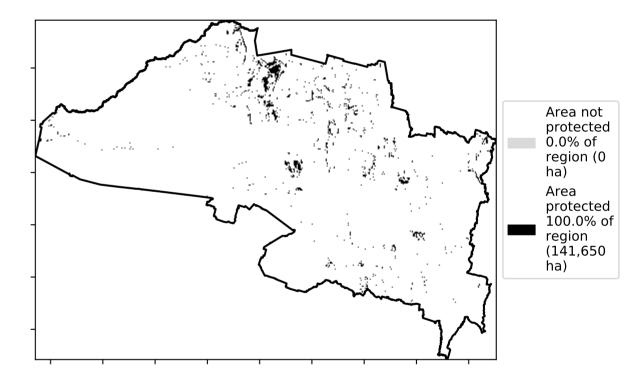


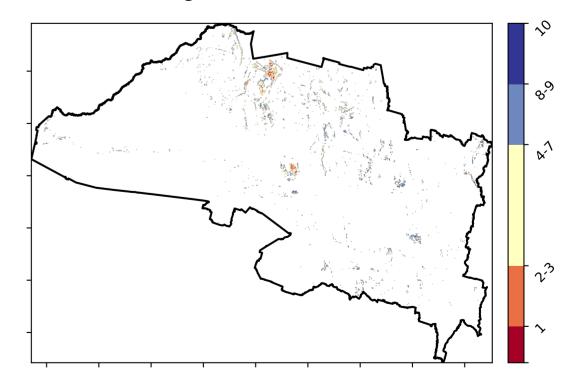
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Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









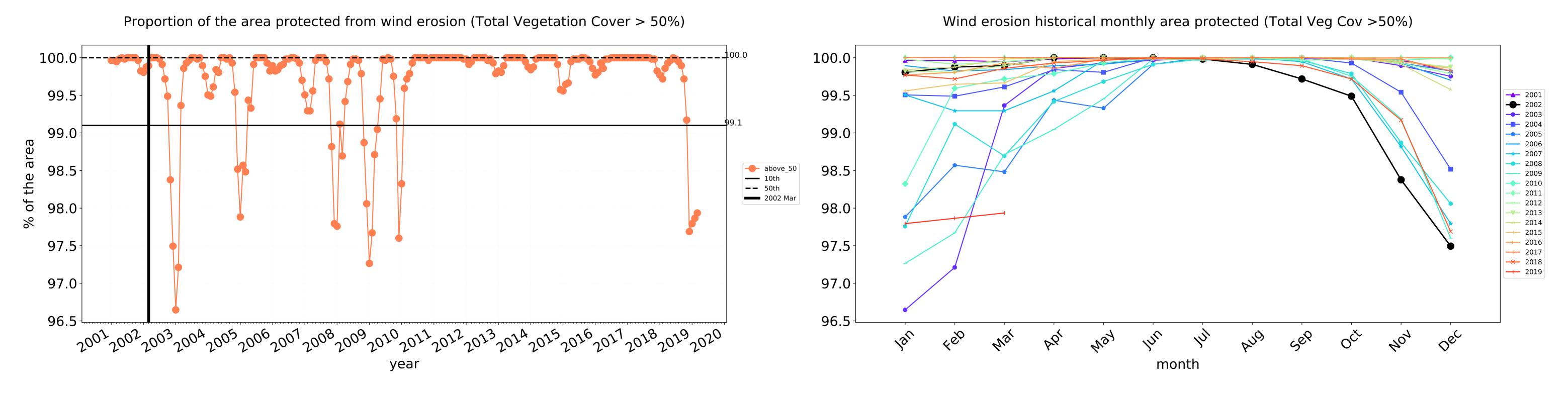


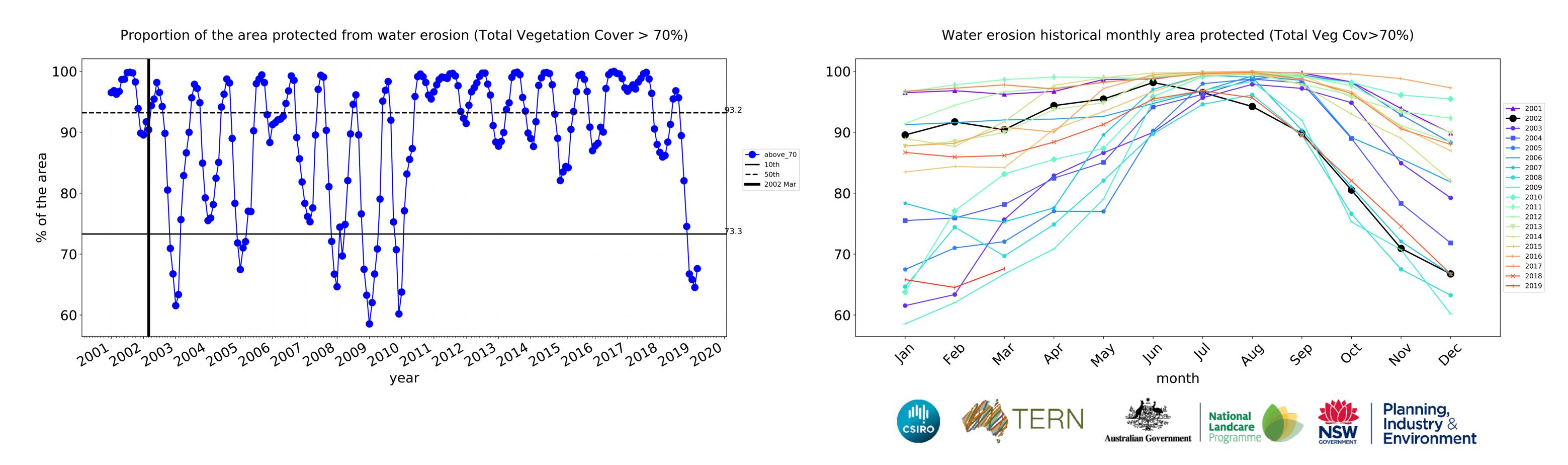






Grazing Woodland forest timeseries



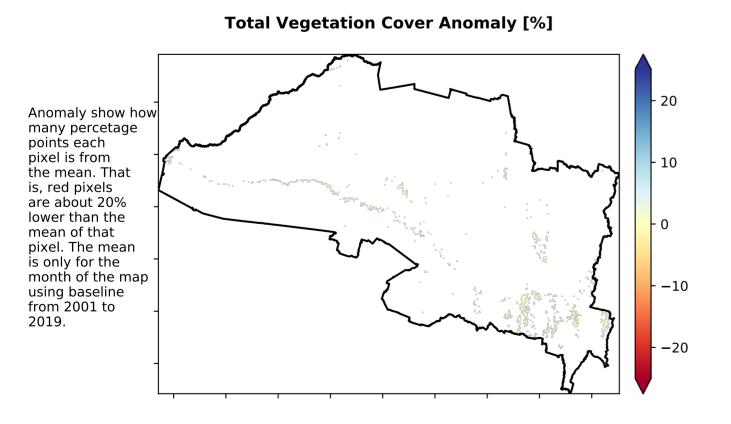


Grazing - Forest (non woodland)

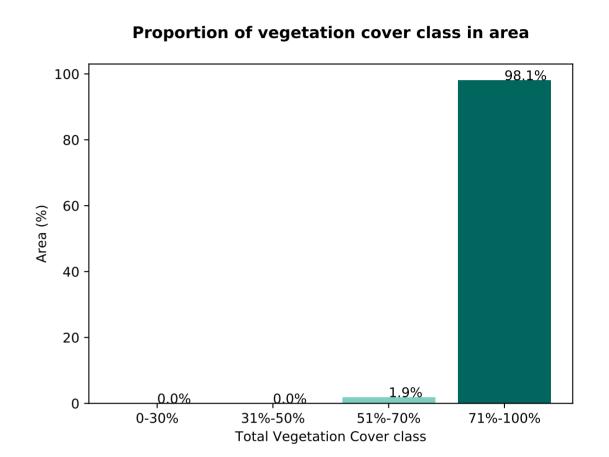
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) 1 Agriculture - Grazing - Non-woodland forest of Australia (2018)

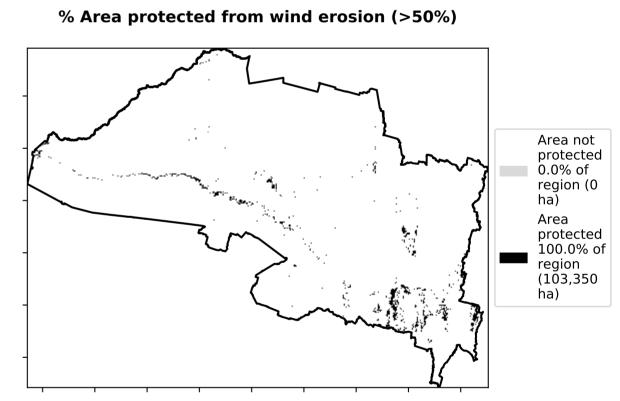
Total Vegetation Cover [%]

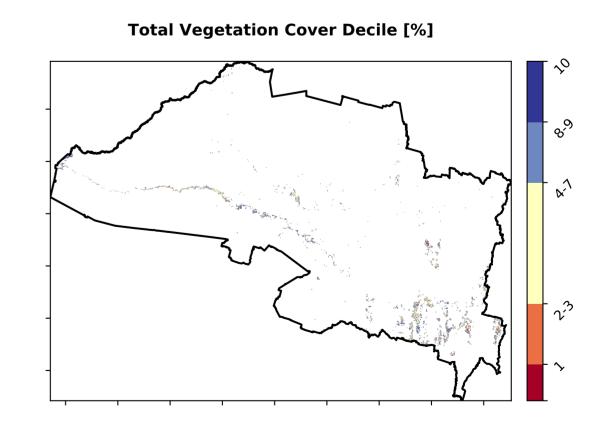
Area not protected from water erosion (>70%) Area not protected 1.9% of region (1,963 ha) Area protected 98.1% of region (101,386 ha)



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.









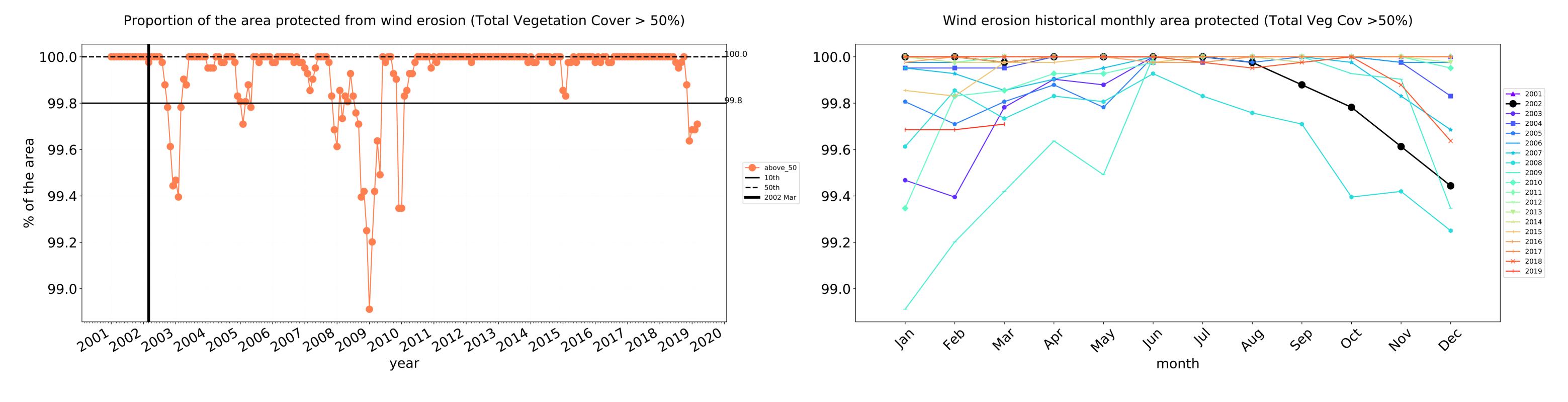


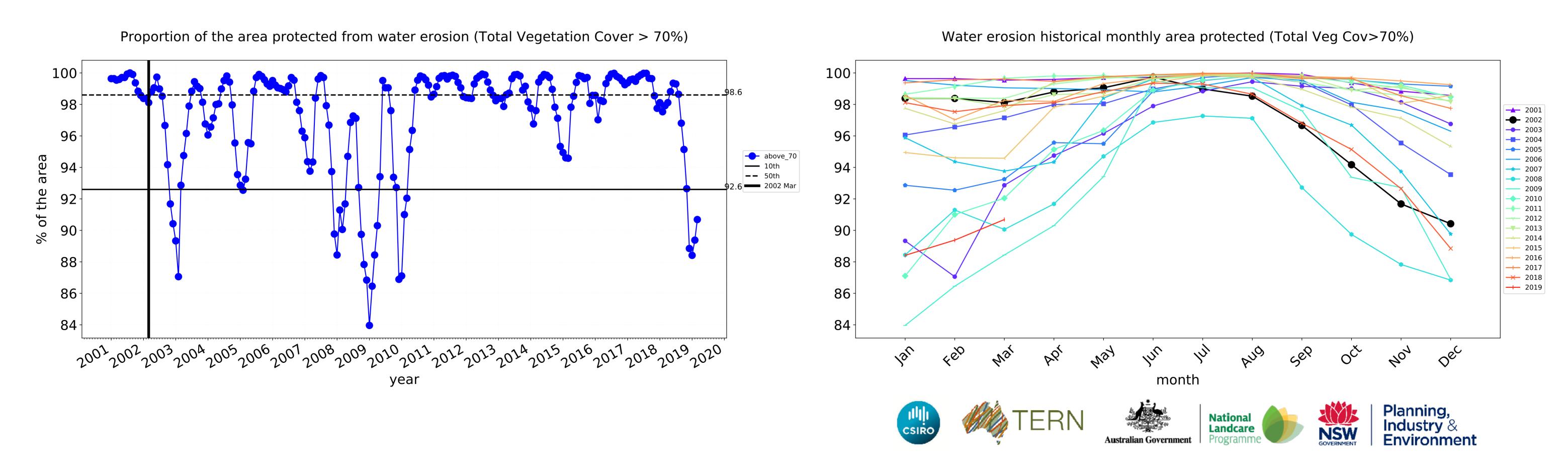






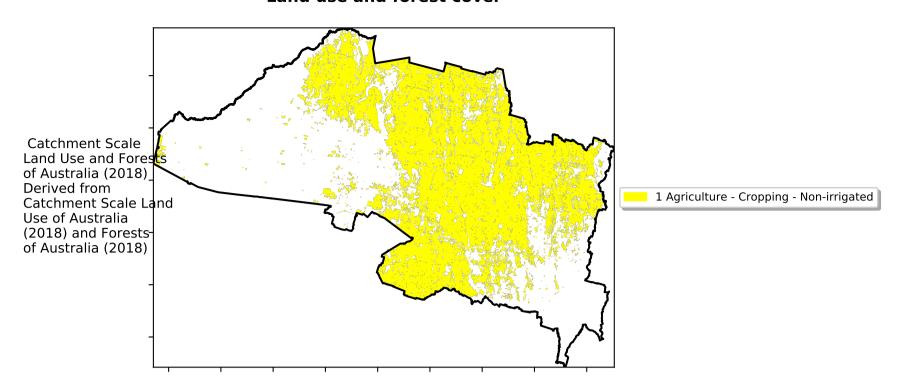




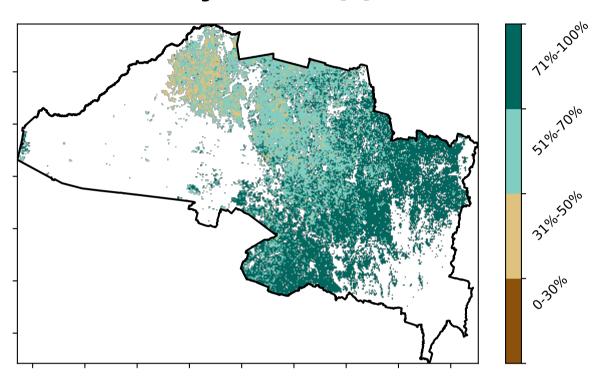


Cropping

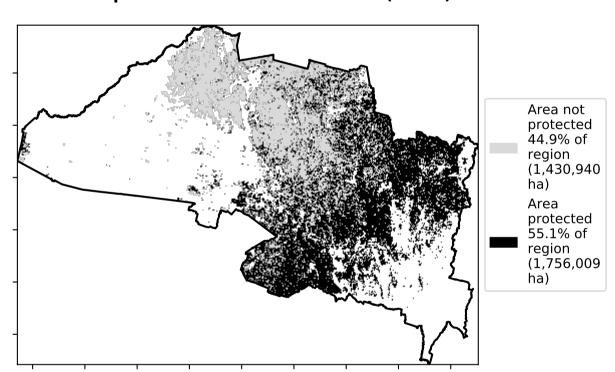
Land use and forest cover



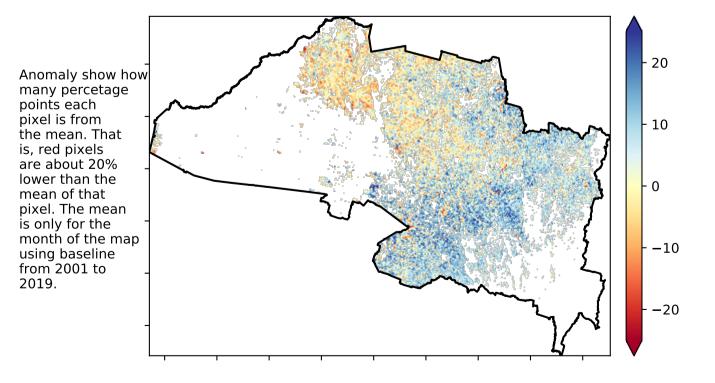
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

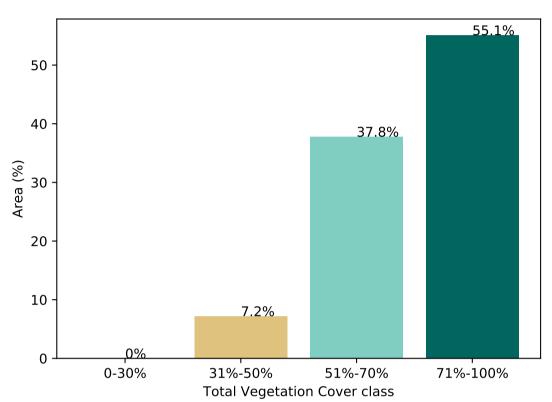


Total Vegetation Cover Anomaly [%]

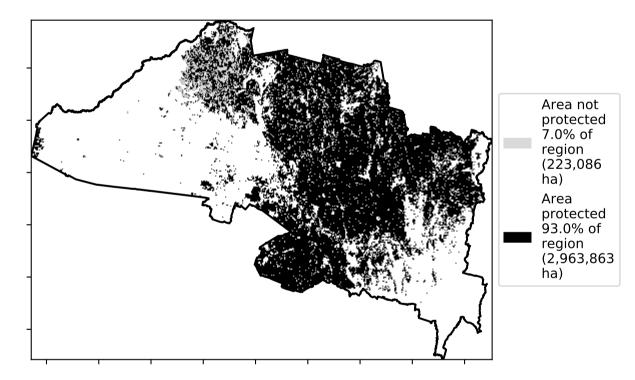


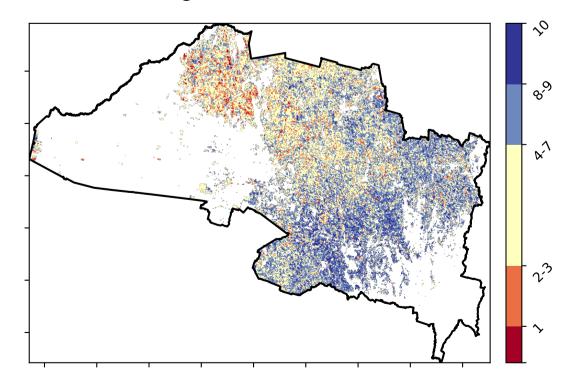
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









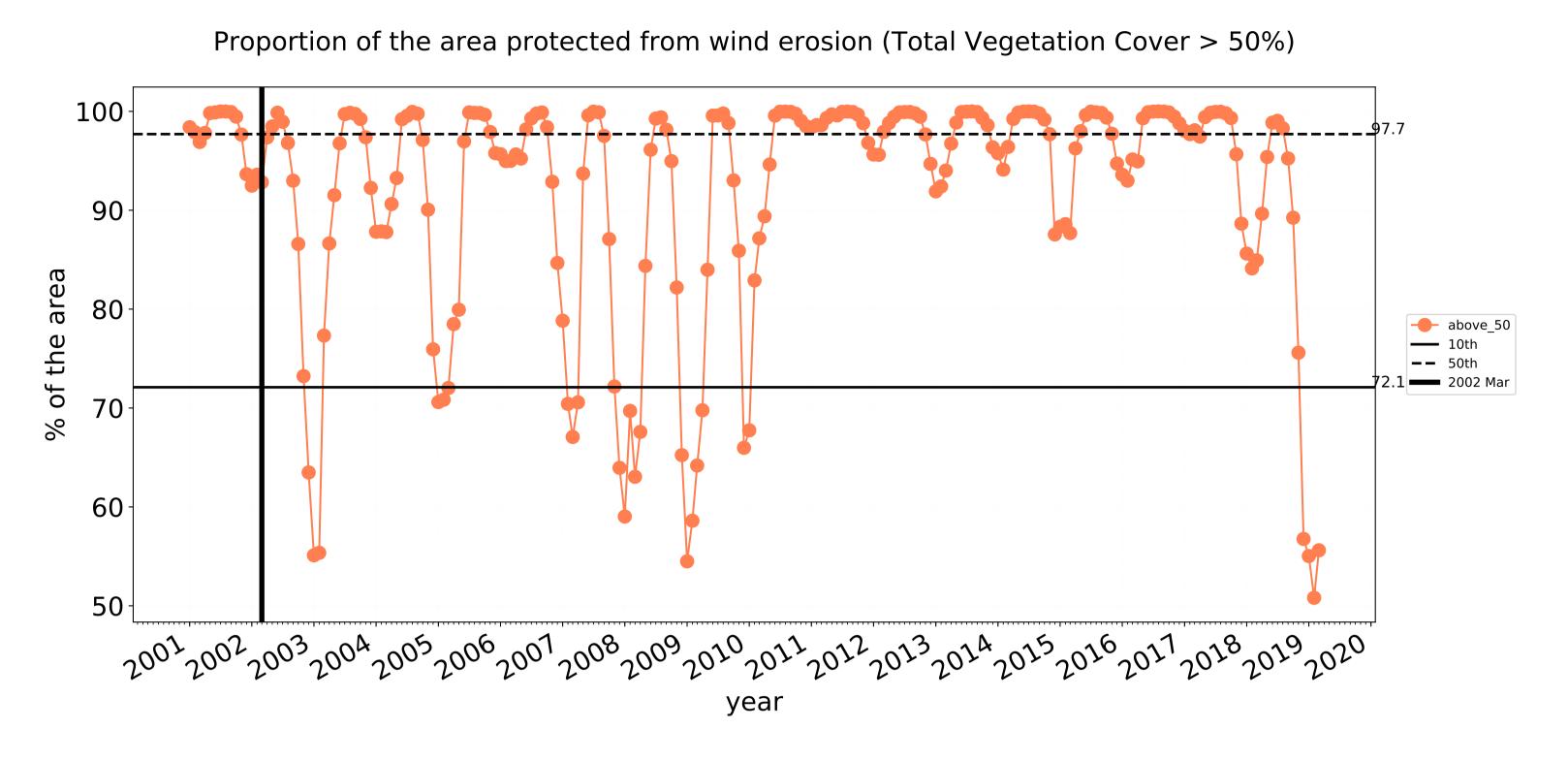


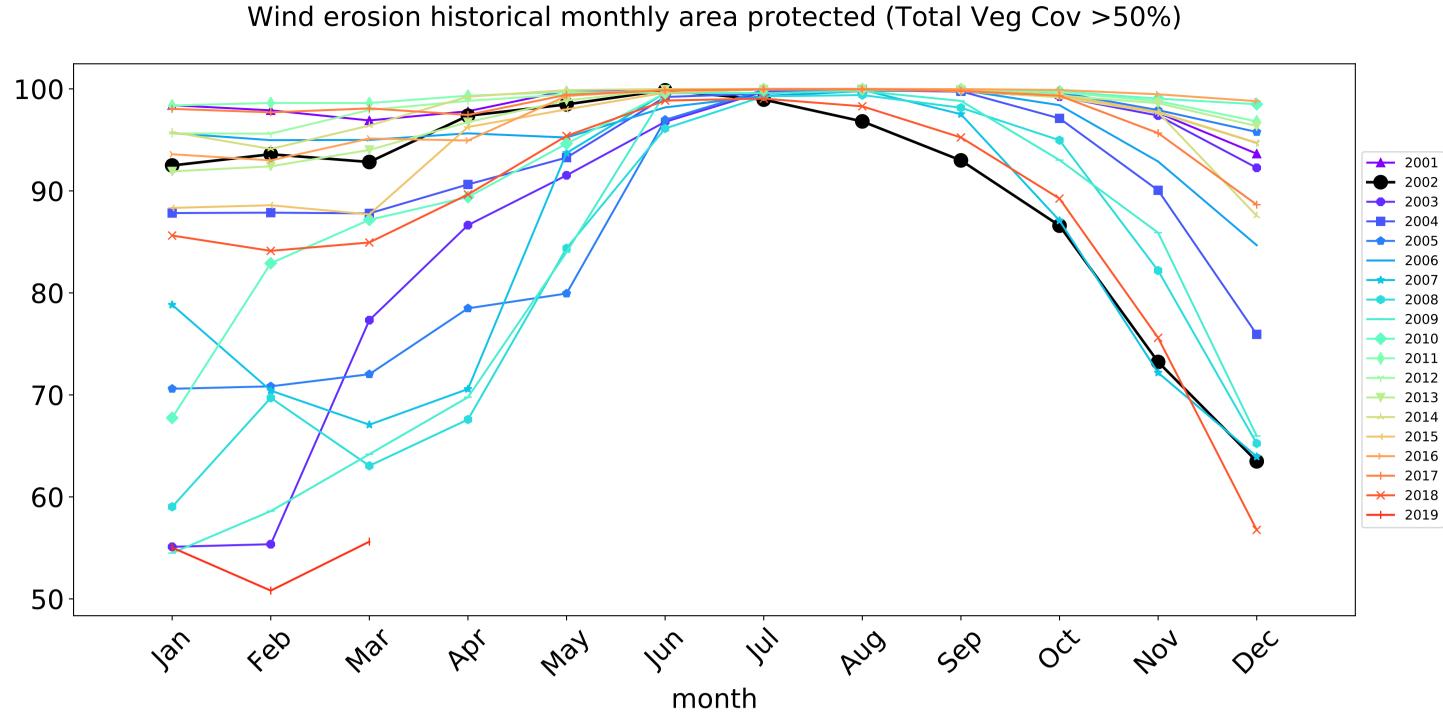


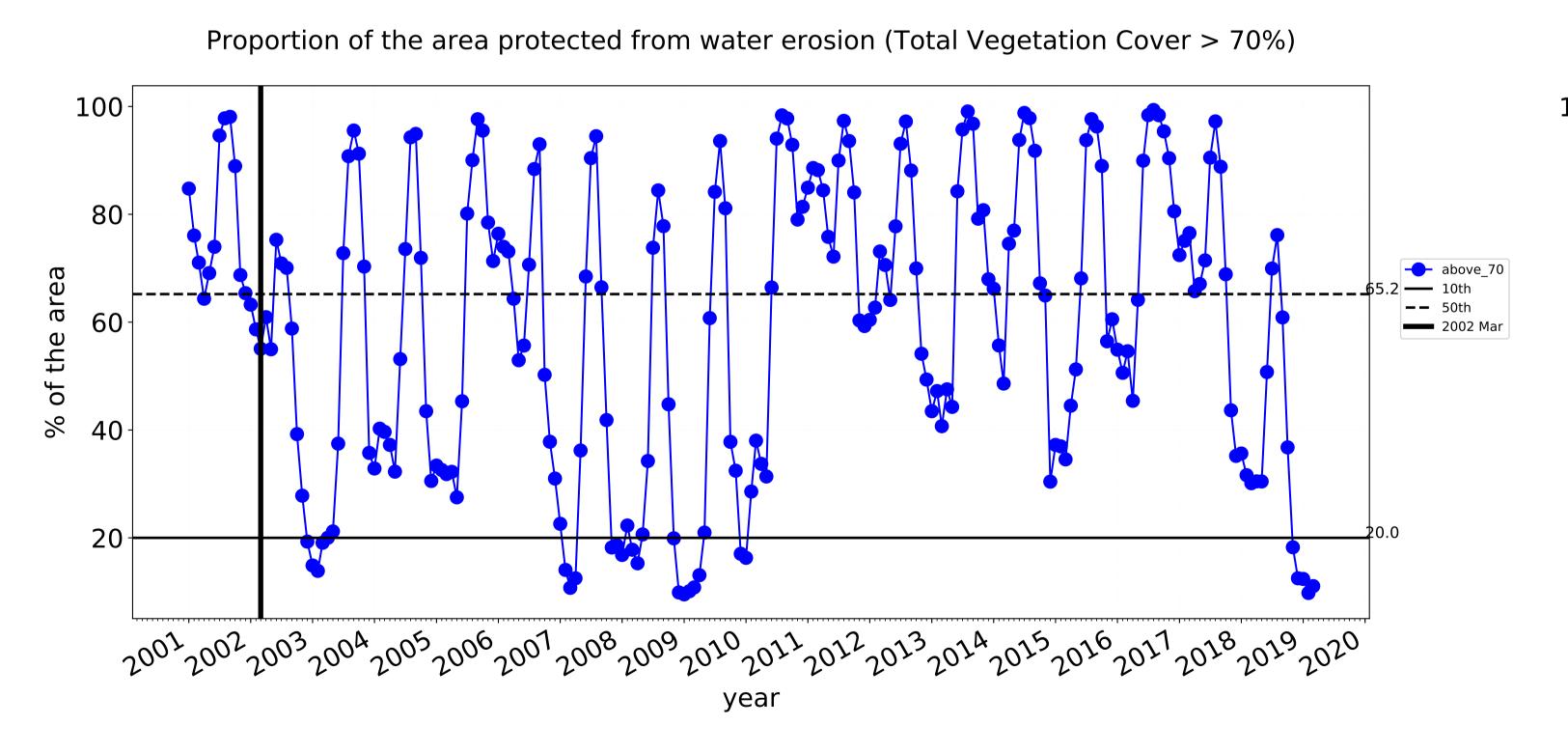


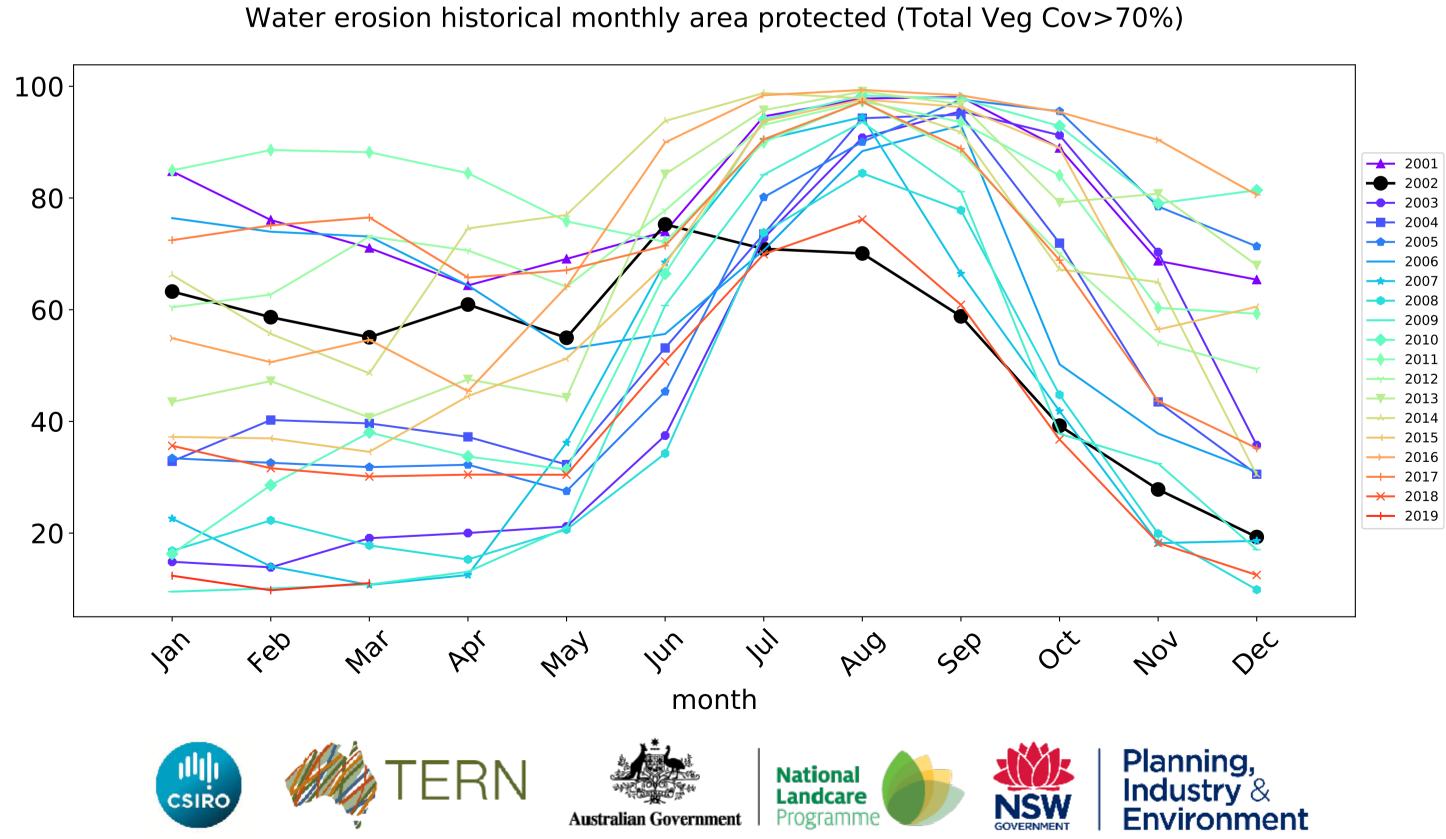


Cropping timeseries

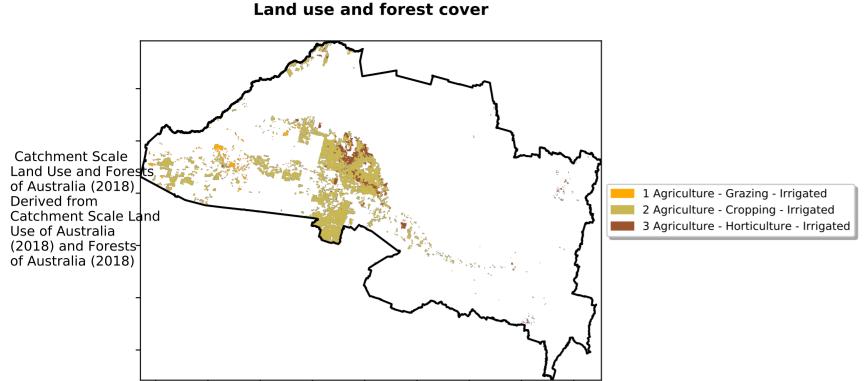


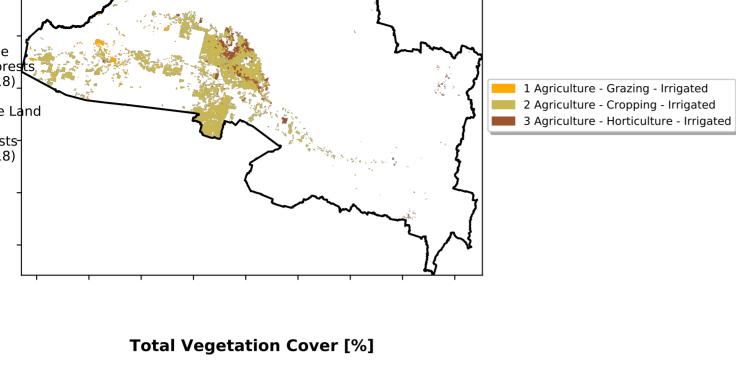


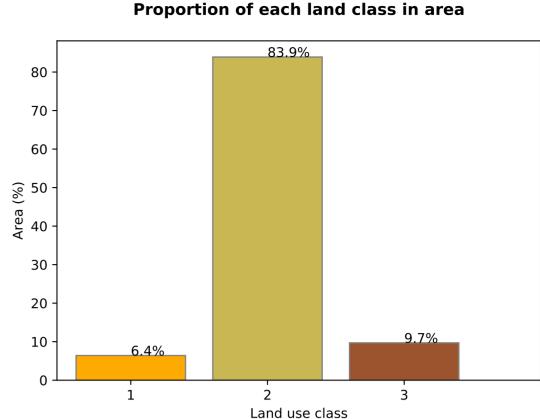


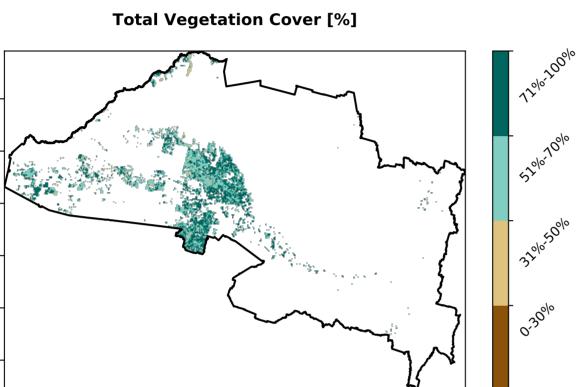


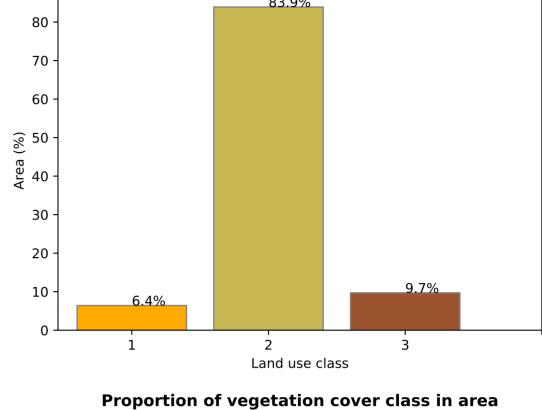
Irrigation



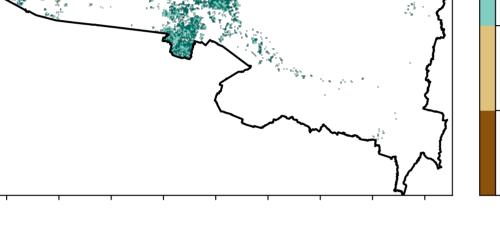


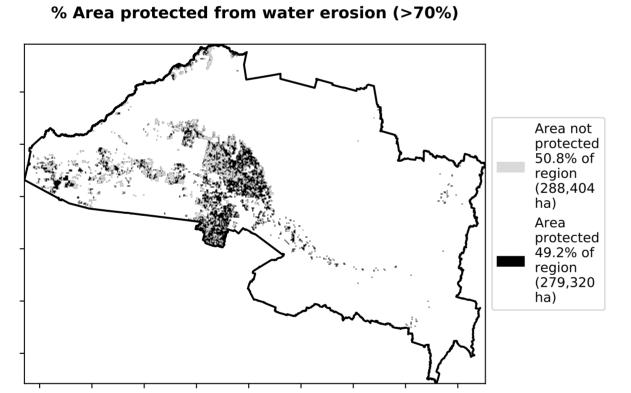


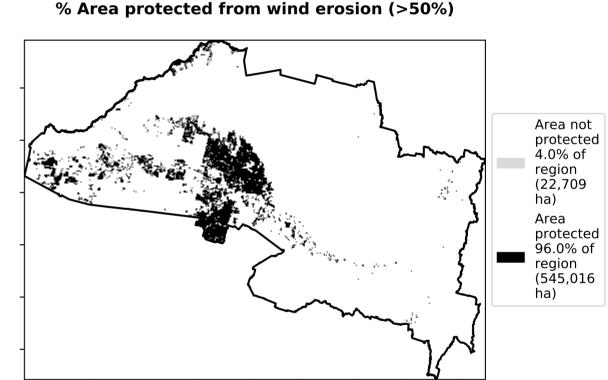


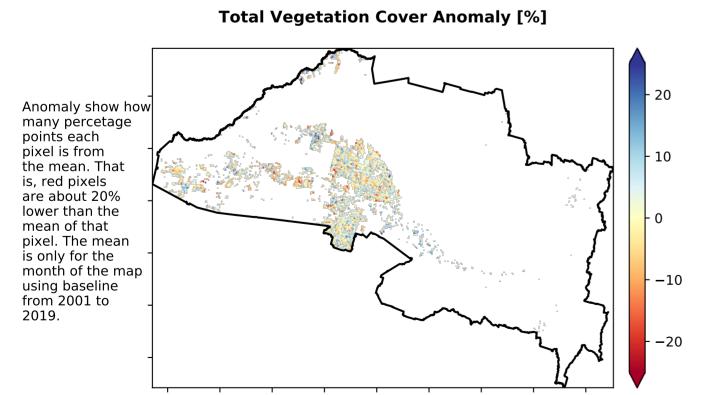


49.2% 50 47.1% 40 20 10 3.7% 31%-50% 51%-70% 71%-100% 0-30% **Total Vegetation Cover class**

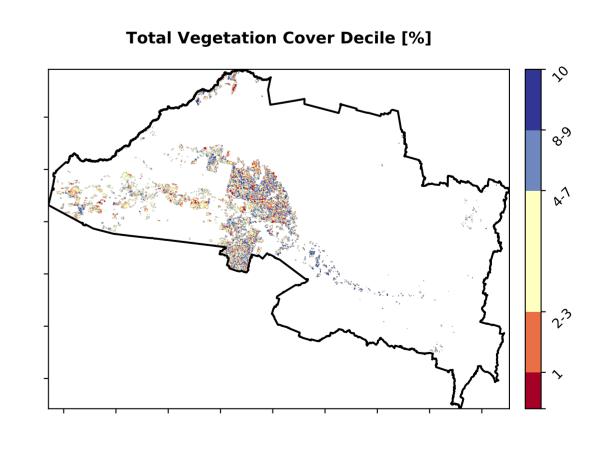








Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.



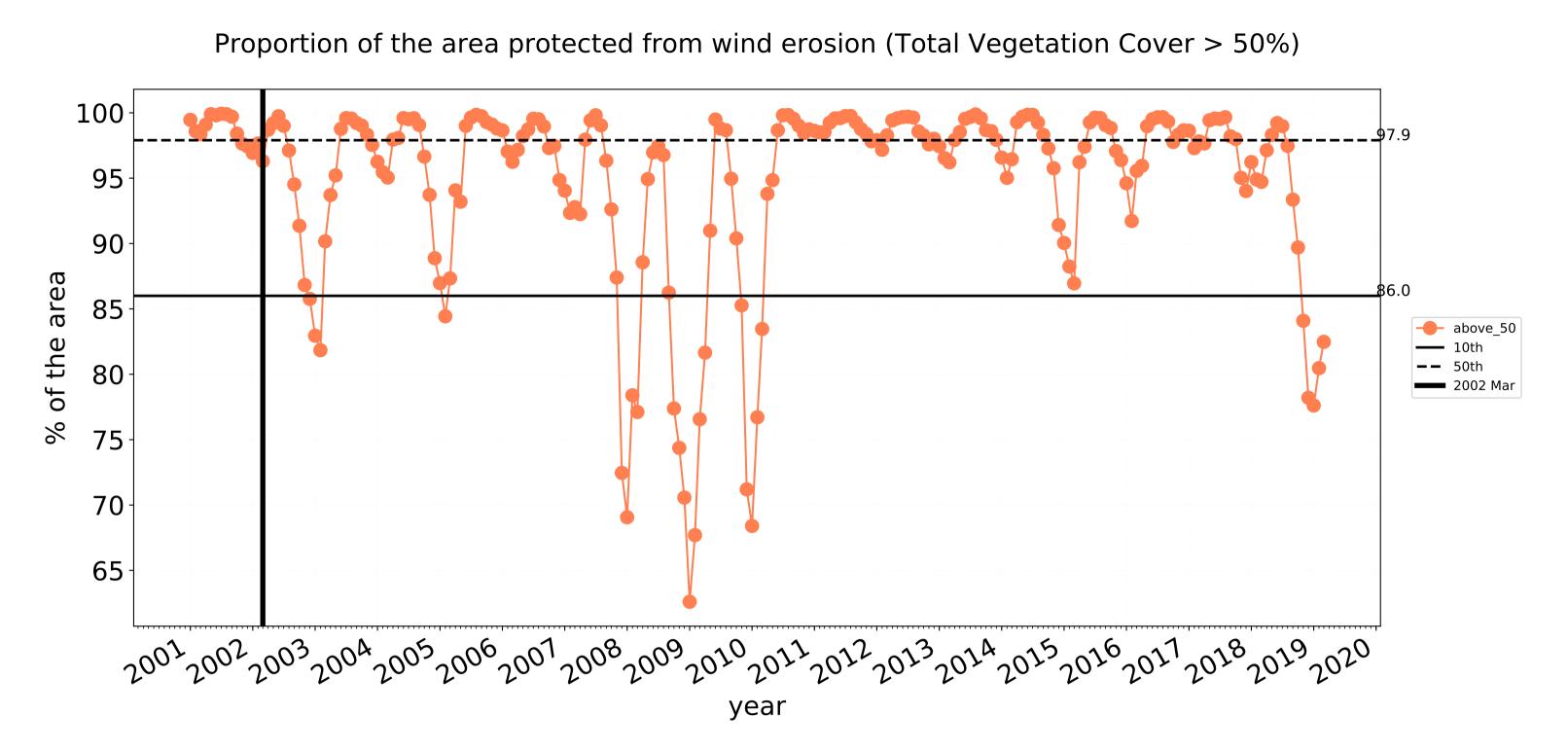


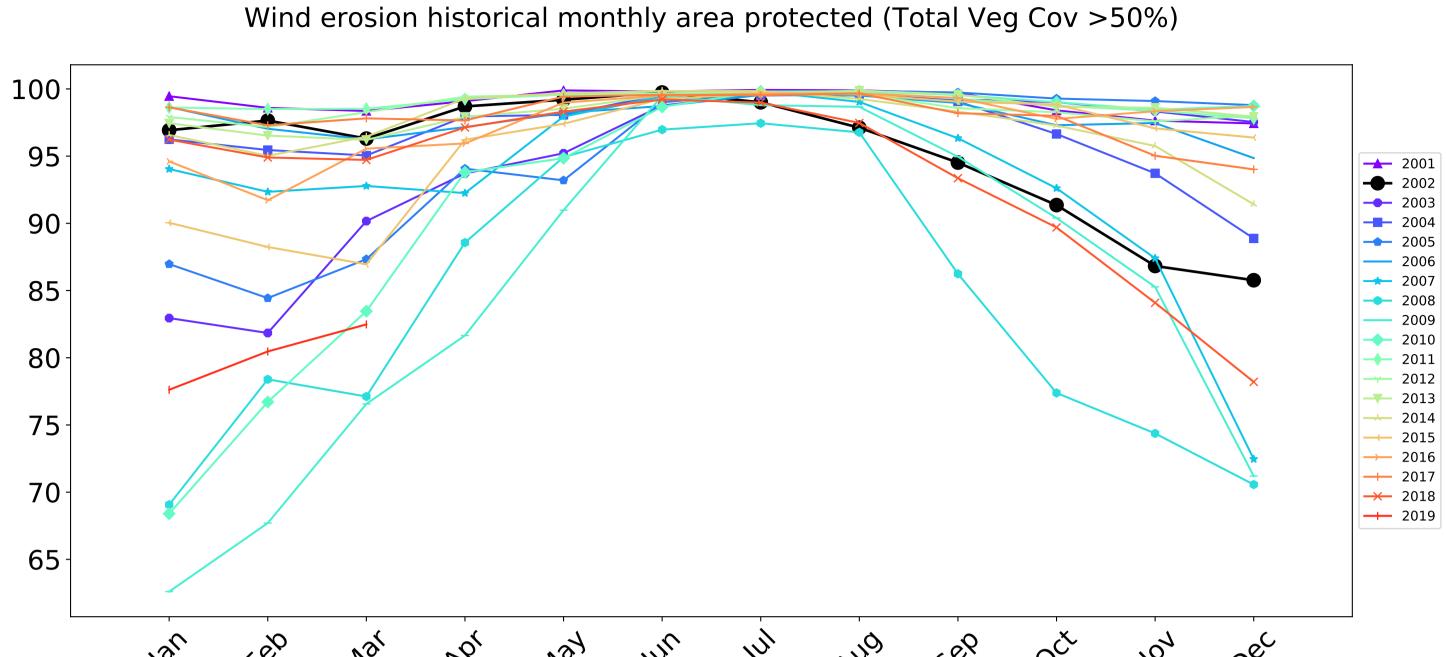




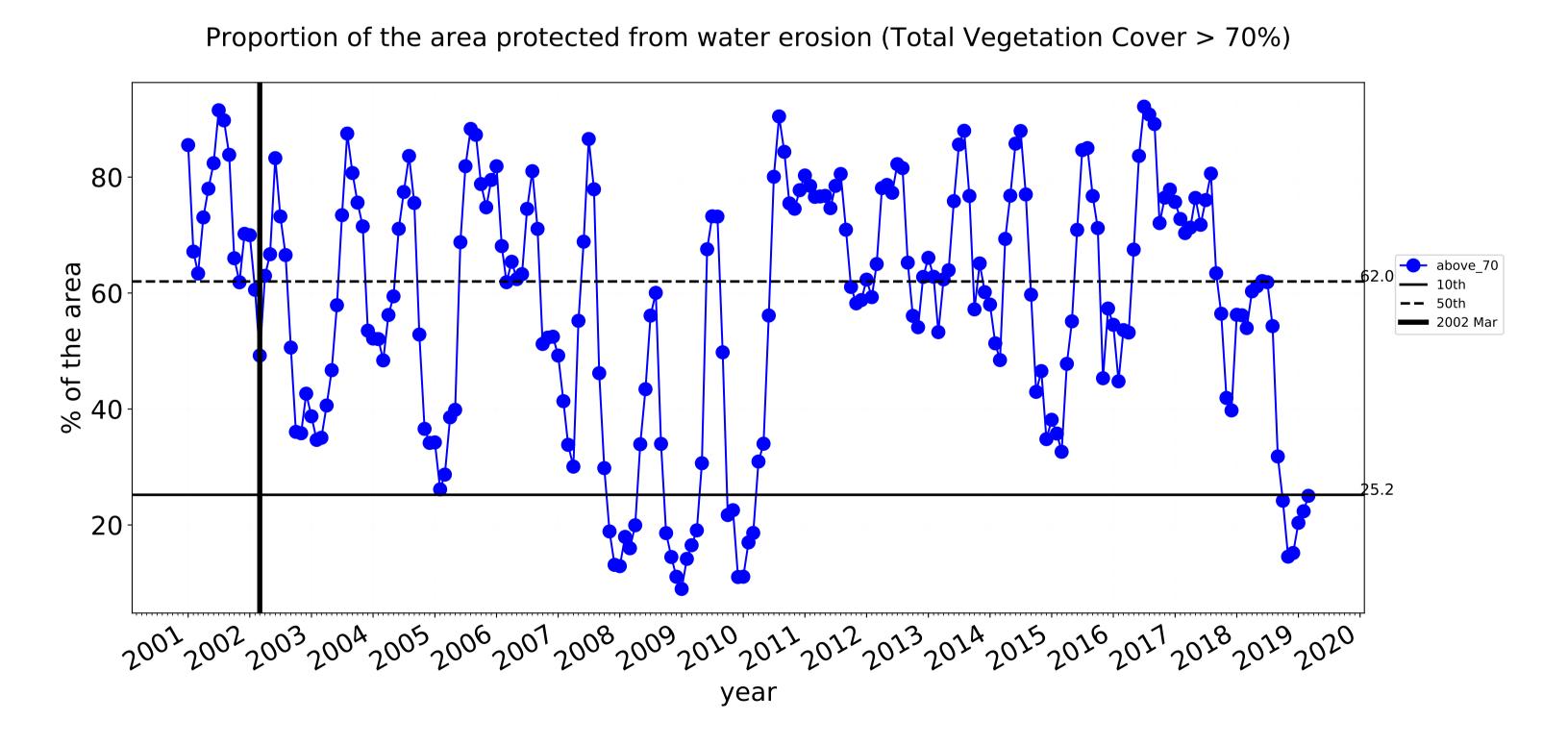


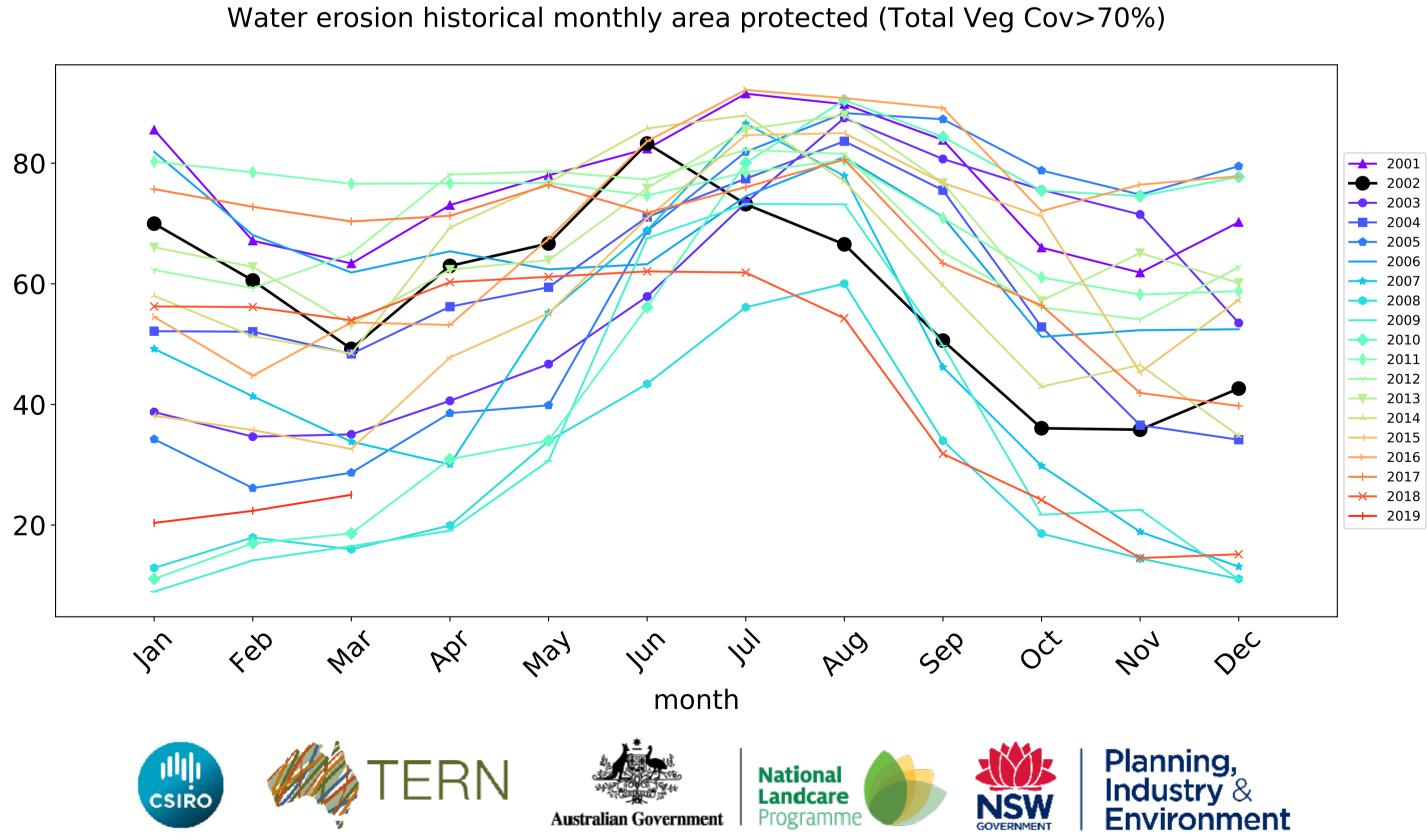






month



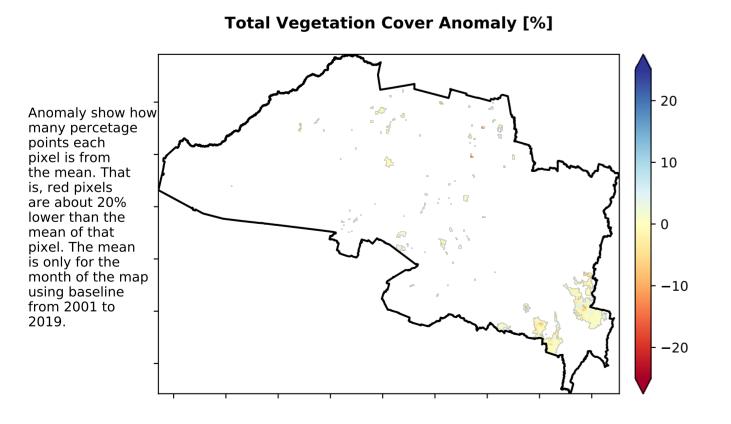


Production native forests and plantation forests

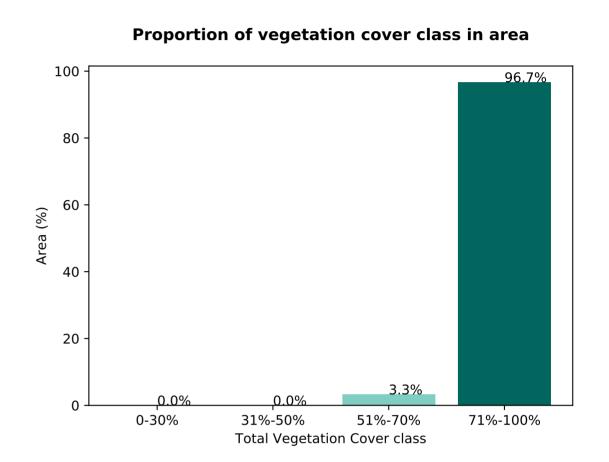
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

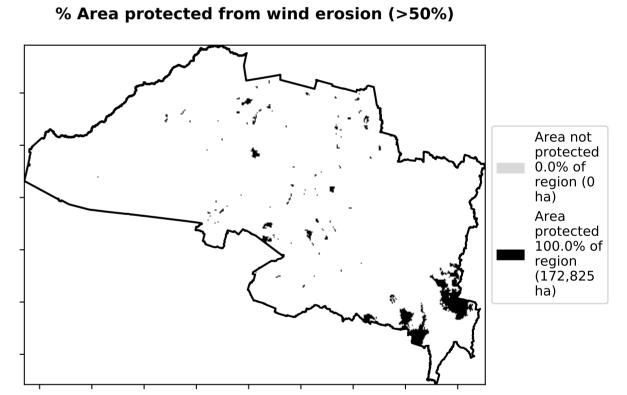
Total Vegetation Cover [%]

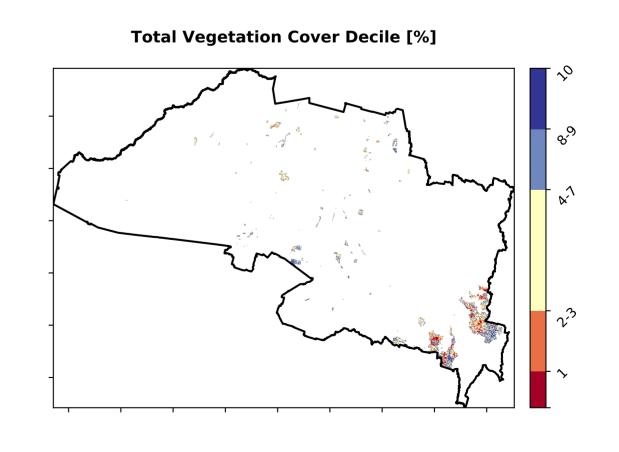
Area not protected 3.3% of region (5,703 ha) Area protected 96.7% of region (167,121 ha)



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.











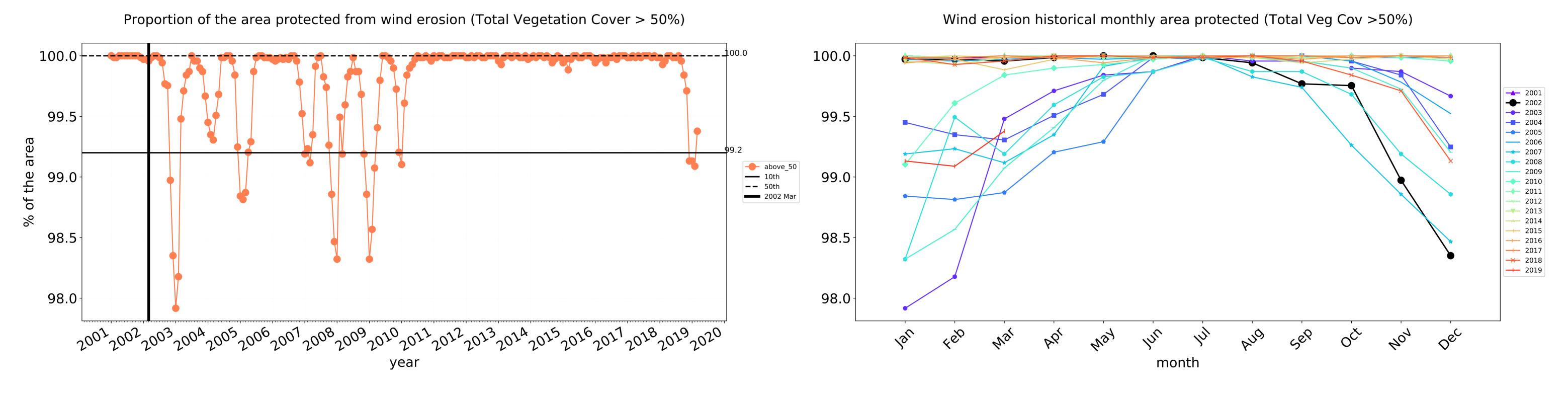


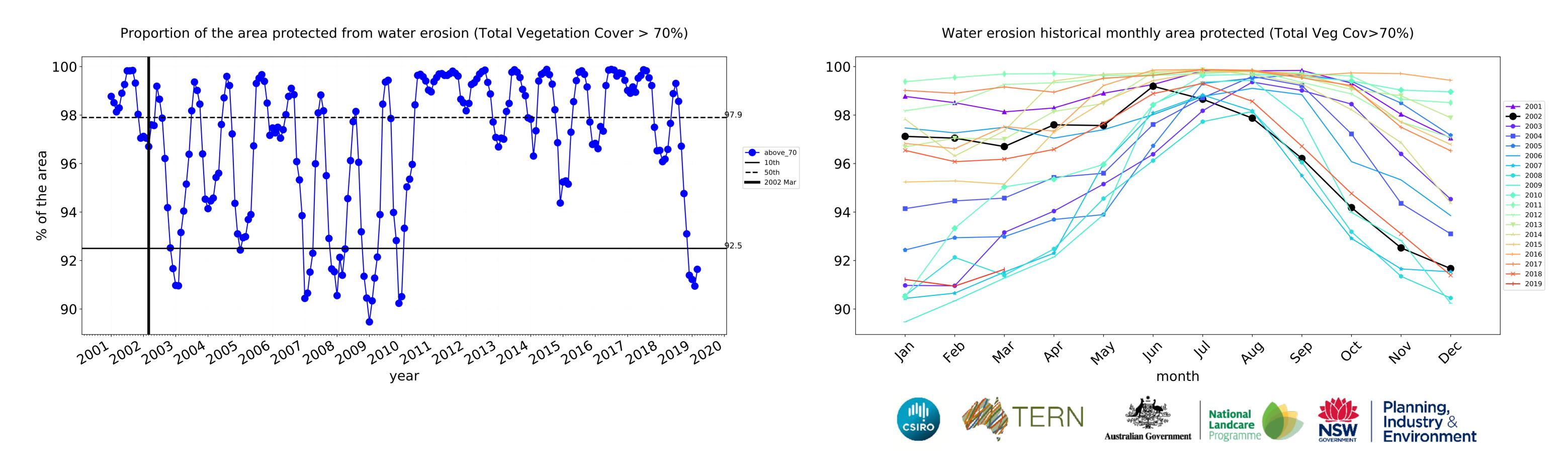






Production native forests and plantation forests timeseries





Riverina (6,694,475 ha and no data 13,860 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	6,694,475	100.0% 6,693,650	94.0% 6,292,696	55.7% 3,731,283	37.0% 2,480,257	17.0% 1,137,553	5.0% 332,945
Conservation and natural environments	322,975	100.0% 322,975	98.9% 319,450	83.0% 268,125	77.7% 250,825	63.8% 205,950	43.7% 141,050
Conservation and natural environments non forest	83,300	100.0% 83,300	95.8% 79,800	35.4% 29,450	19.3% 16,075	13.8% 11,475	8.3% 6,875
Conservation and natural environments Forest (non woodland)	195,175	100.0% 195,175	100.0% 195,175	99.9% 194,950	99.4% 193,950	91.8% 179,125	65.7% 128,175
Agriculture	6,068,300	100.0% 6,067,800	93.5% 5,675,250	53.0% 3,216,275	33.3% 2,022,625	13.2% 801,725	2.0% 119,925
Grazing	2,311,800	100.0% 2,311,575	93.8% 2,168,275	51.1% 1,181,650	37.3% 862,250	21.7% 501,275	3.5% 80,975
Grazing non forest	2,066,800	100.0% 2,066,575	93.1% 1,923,450	46.1% 952,175	32.8% 677,700	20.5% 423,525	3.3% 67,675
Grazing Woodland forest	141,650	100.0% 141,650	99.9% 141,500	90.4% 128,075	64.5% 91,375	15.5% 21,975	1.1% 1,550
Grazing - Forest (non woodland)	103,350	100.0% 103,350	100.0% 103,325	98.1% 101,400	90.2% 93,175	54.0% 55,775	11.4% 11,750
Cropping	3,186,950	100.0% 3,186,675	92.8% 2,958,500	55.1% 1,754,775	33.4% 1,065,925	9.1% 289,225	1.1% 36,600
Irrigation	567,725	100.0% 567,725	96.3% 546,750	49.2% 279,425	16.6% 94,300	2.0% 11,200	0.4% 2,350
Production native forests and plantation forests	172,825	100.0% 172,825	100.0% 172,750	96.7% 167,125	92.1% 159,200	69.0% 119,175	41.0% 70,875











