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 2001

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







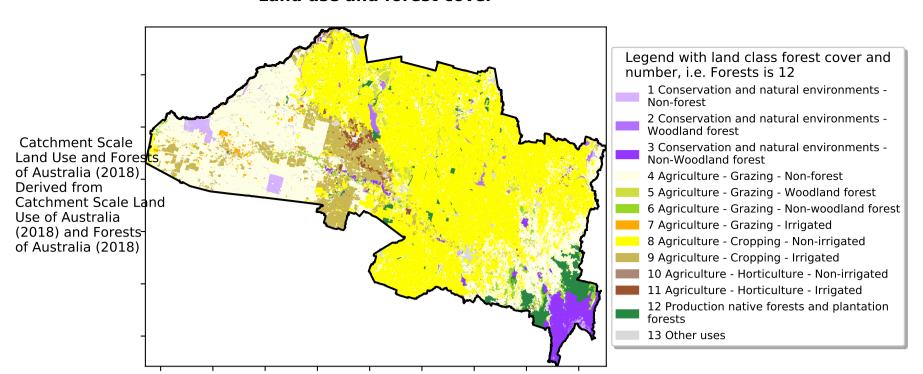




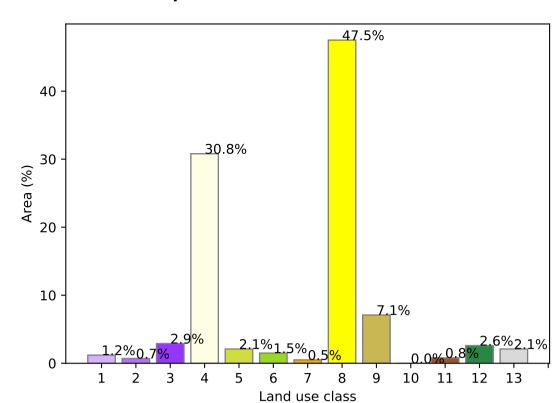


Vegetation Cover Mar 2001

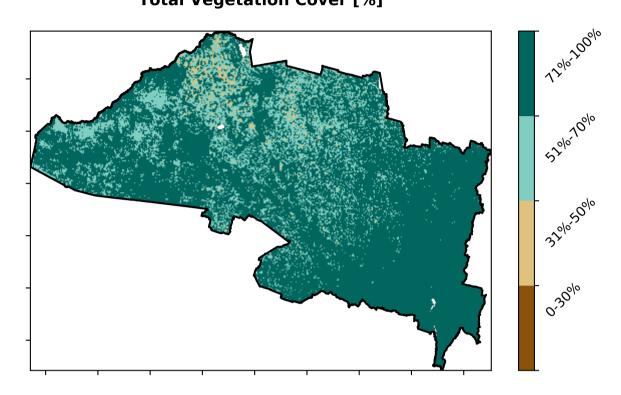
Land use and forest cover



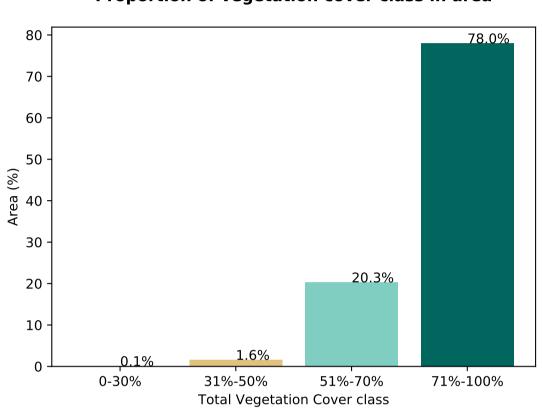
Proportion of each land class in area



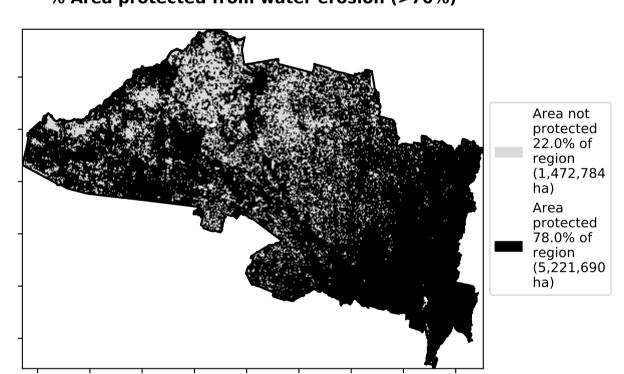
Total Vegetation Cover [%]



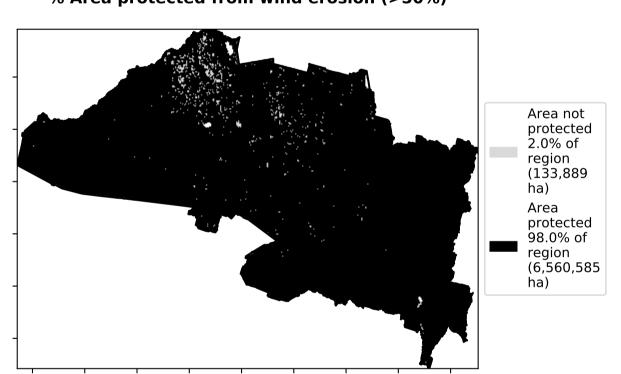
Proportion of vegetation cover class in area



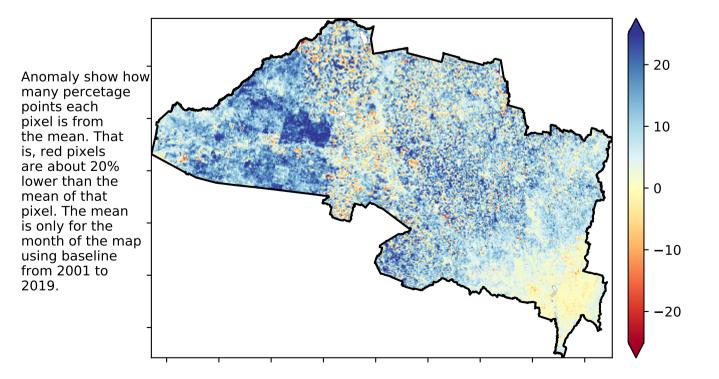
% Area protected from water erosion (>70%)



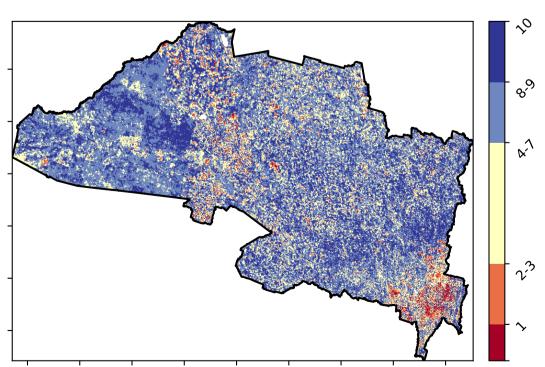
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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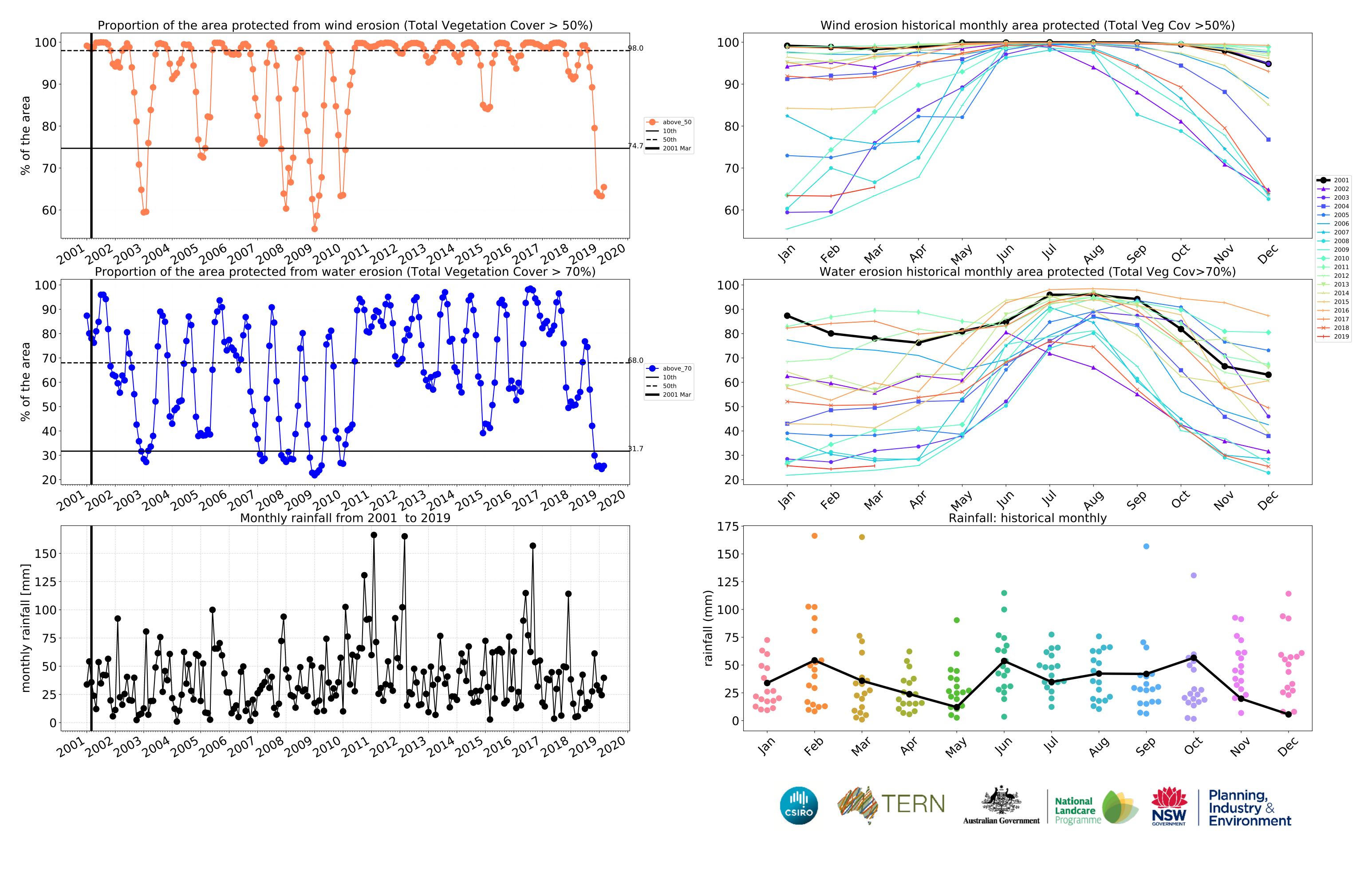






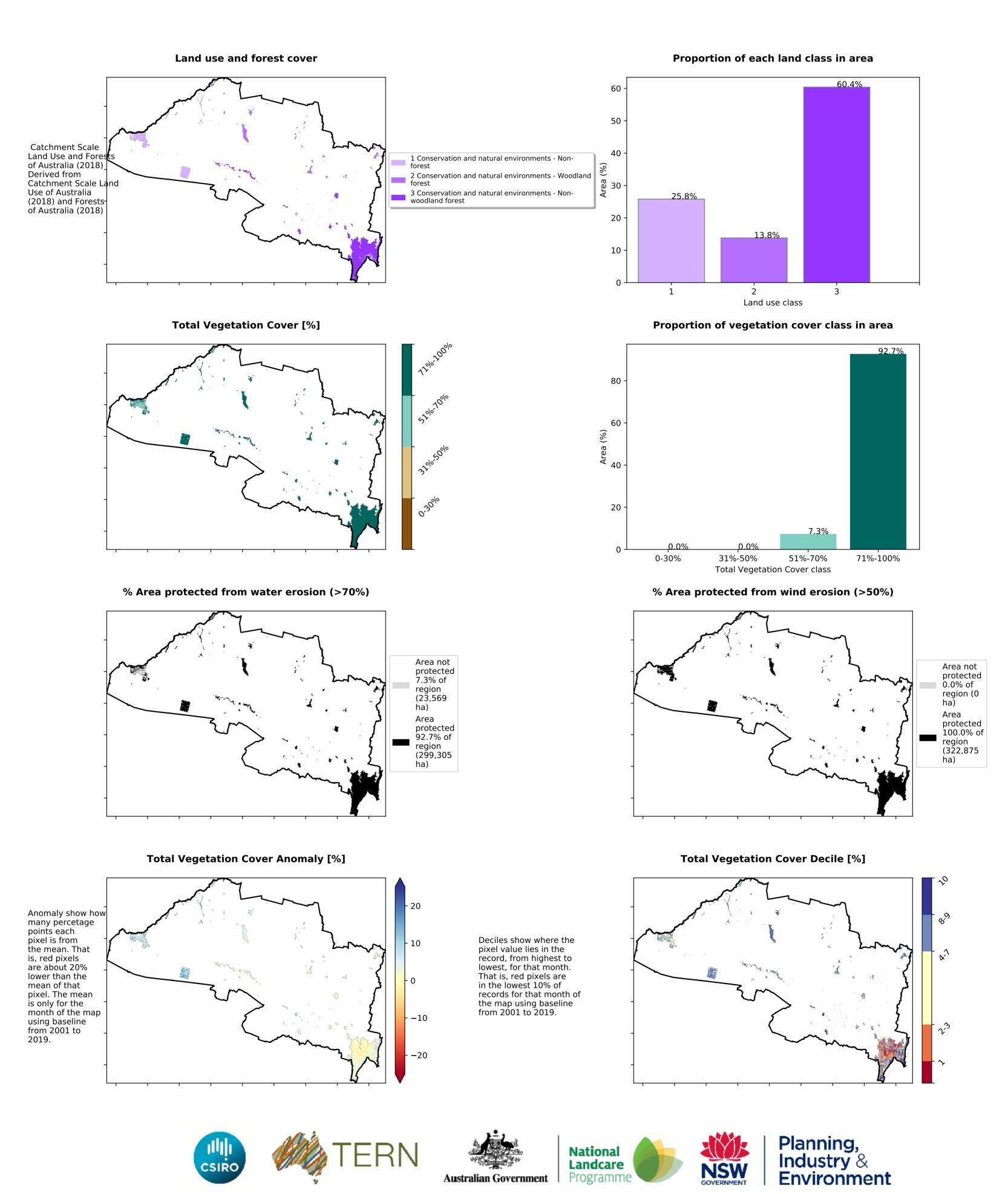






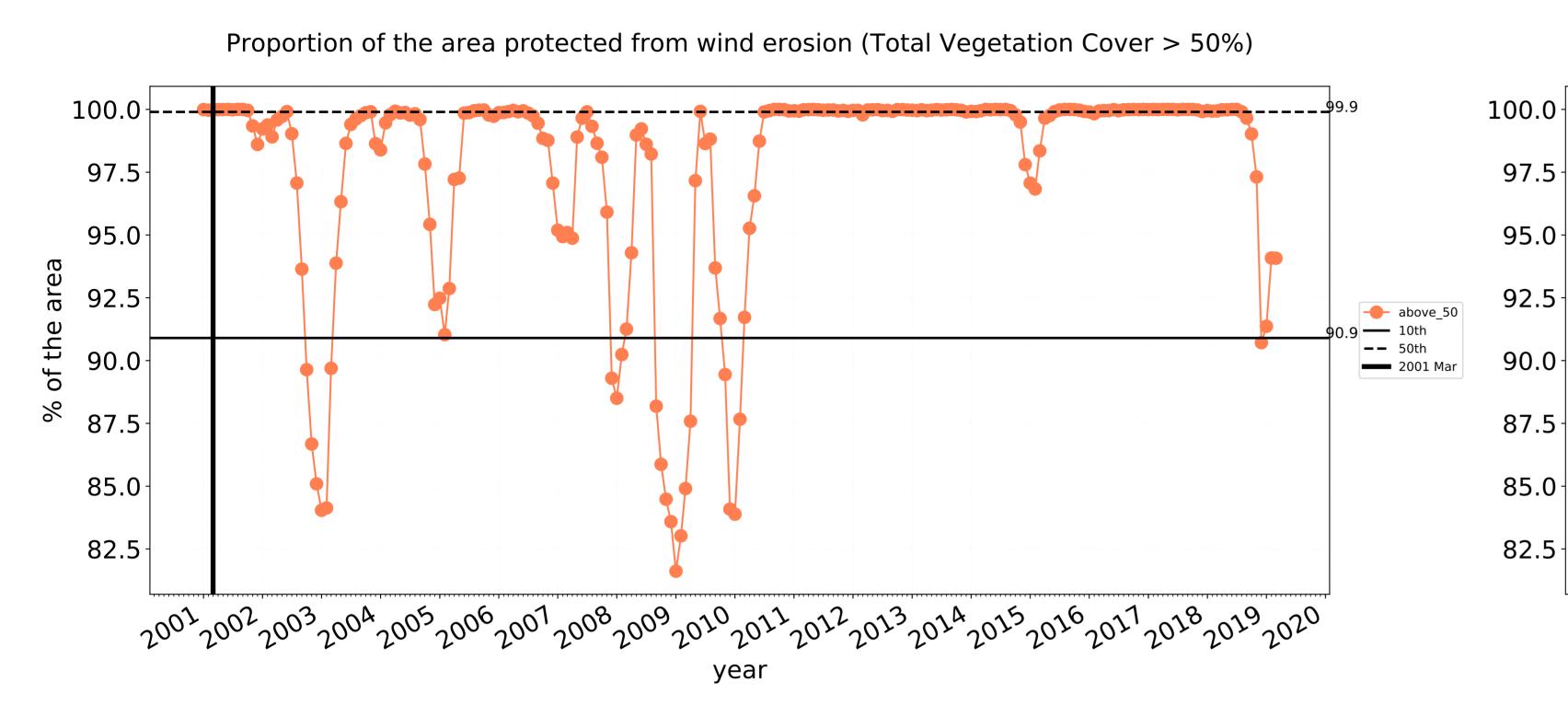
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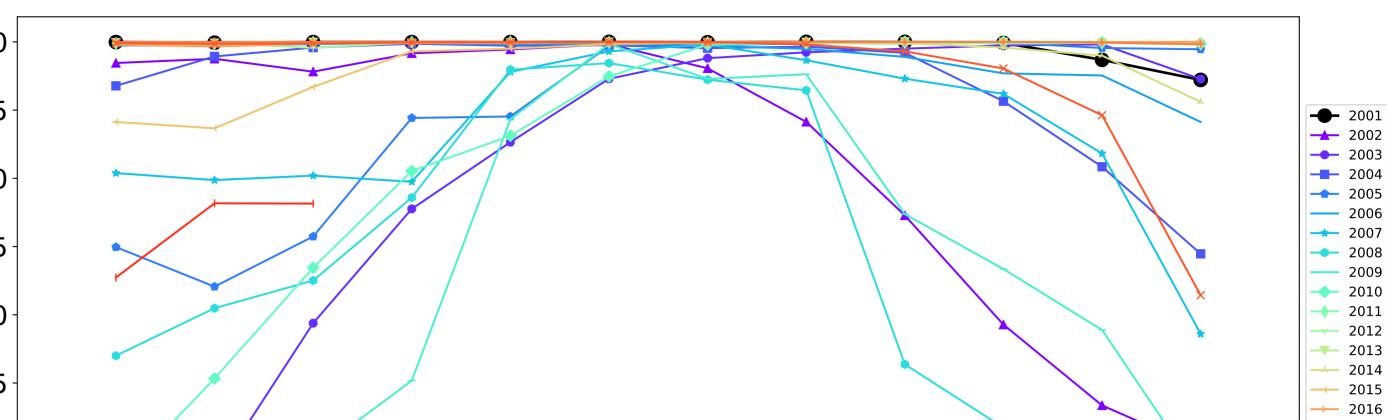
Conservation and natural environments





Conservation and natural environments timeseries

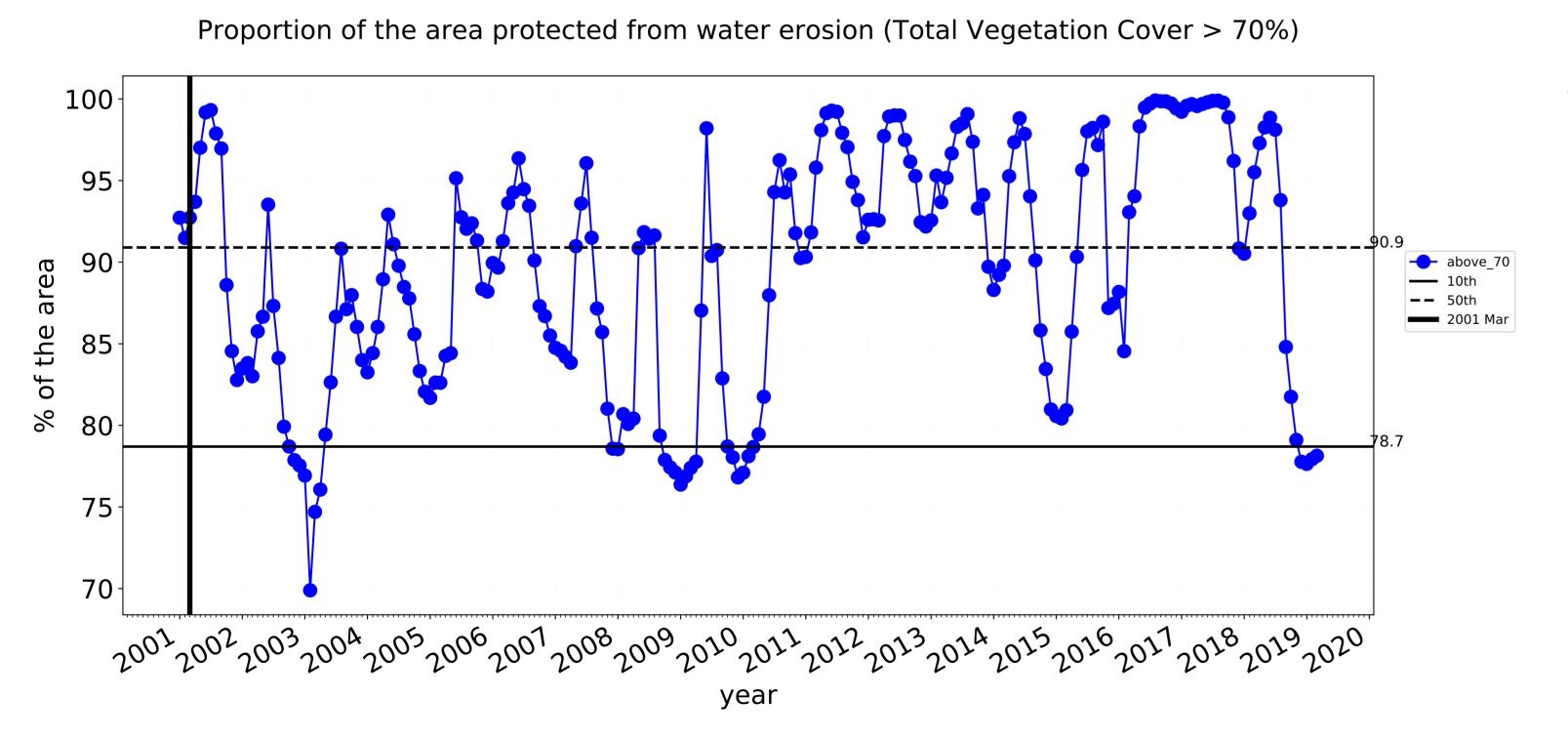


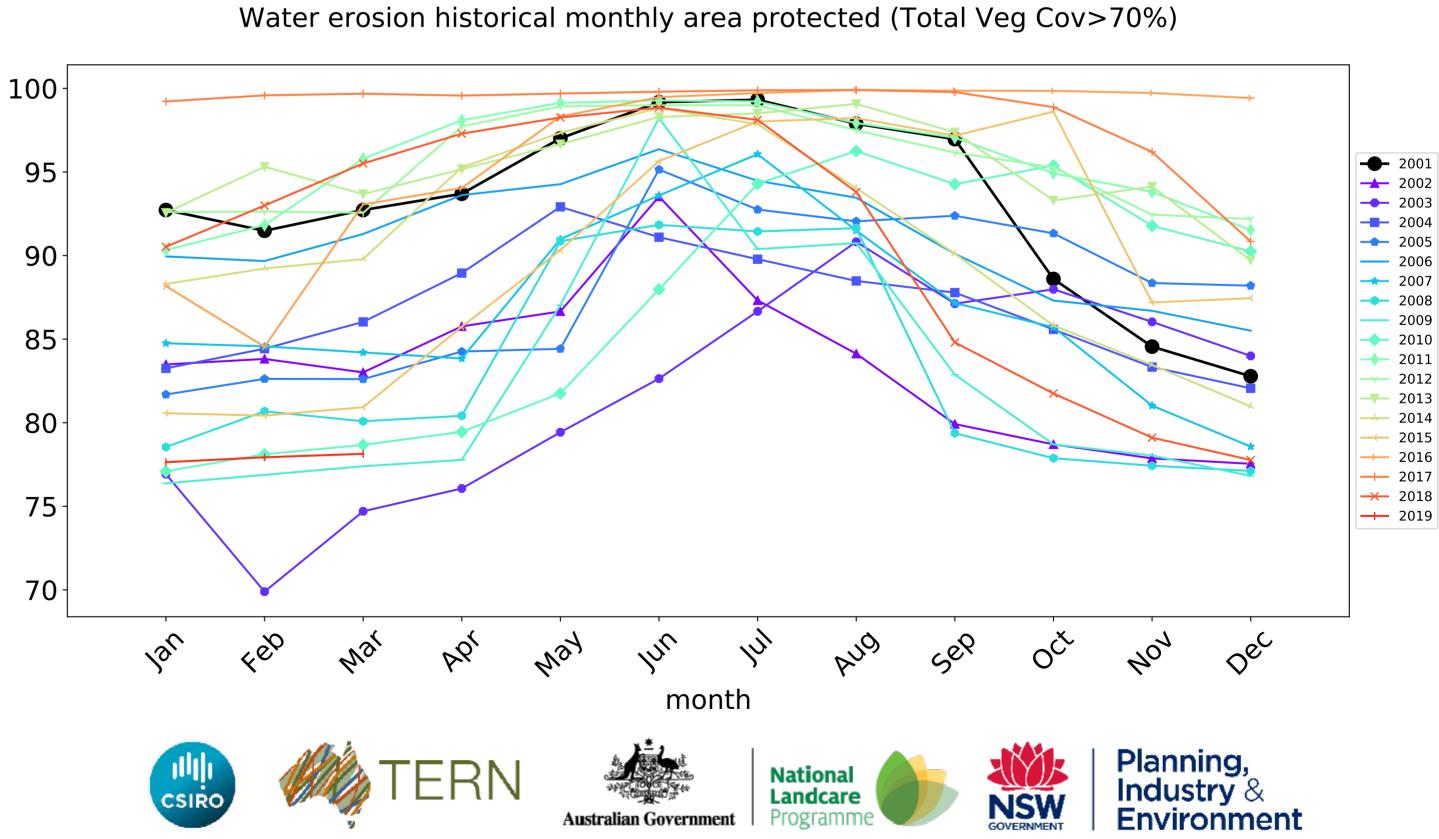


month

---- 2017

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



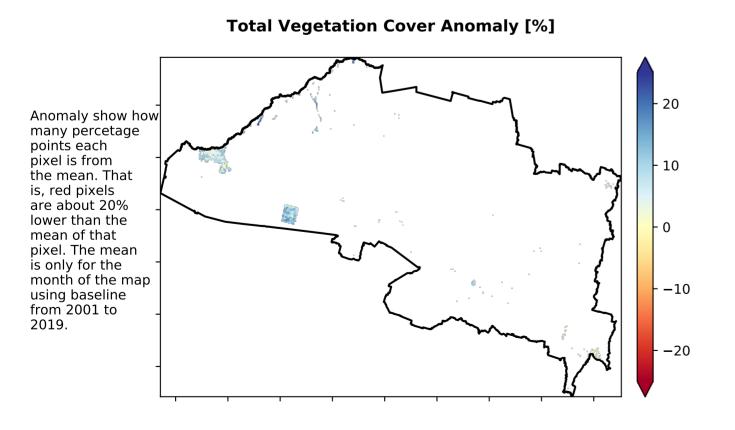


Conservation and natural environments non forest

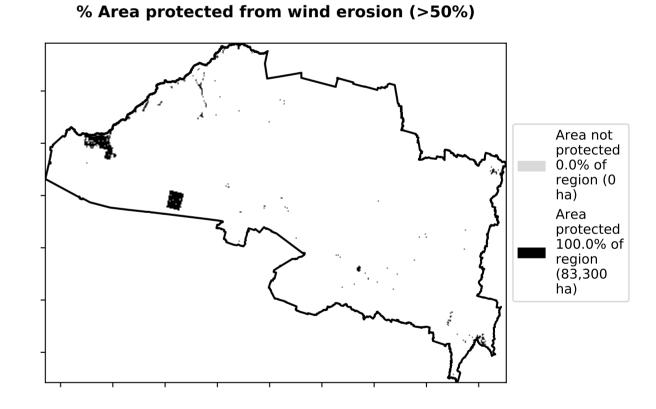
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)

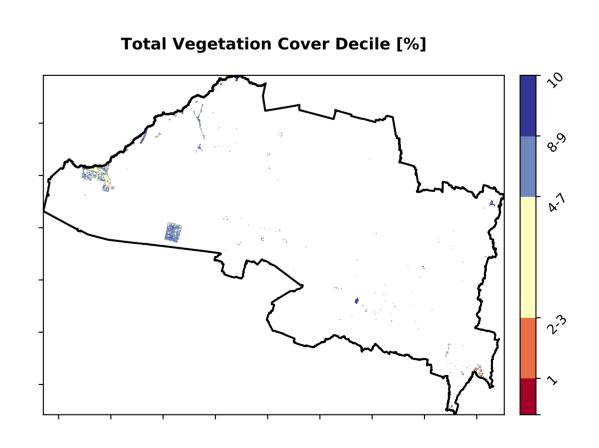
Total Vegetation Cover [%]

% Area protected from water erosion (>70%) Area not protected 27.6% of region (22,990 ha) Area protected 72.4% of region (60,309 ha)



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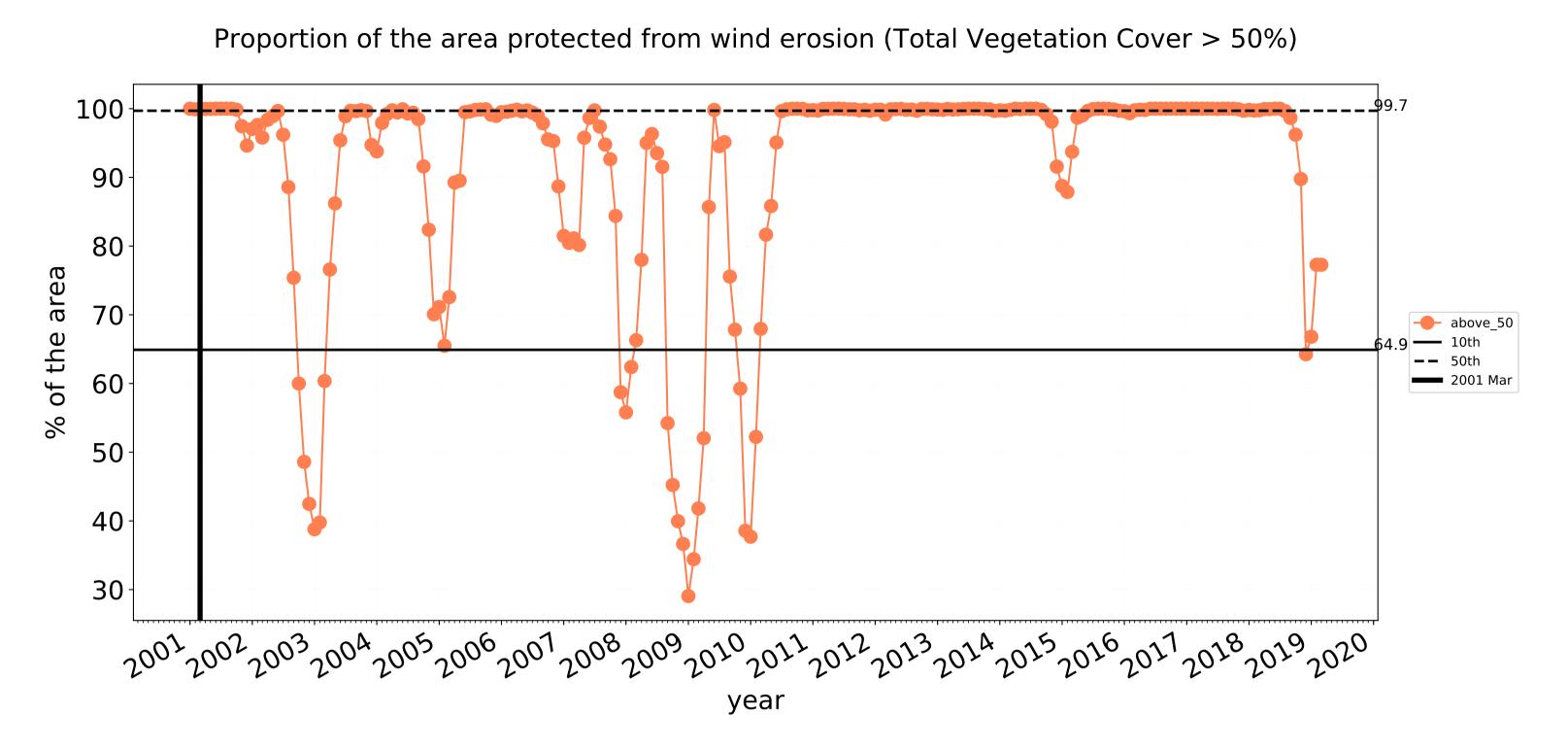


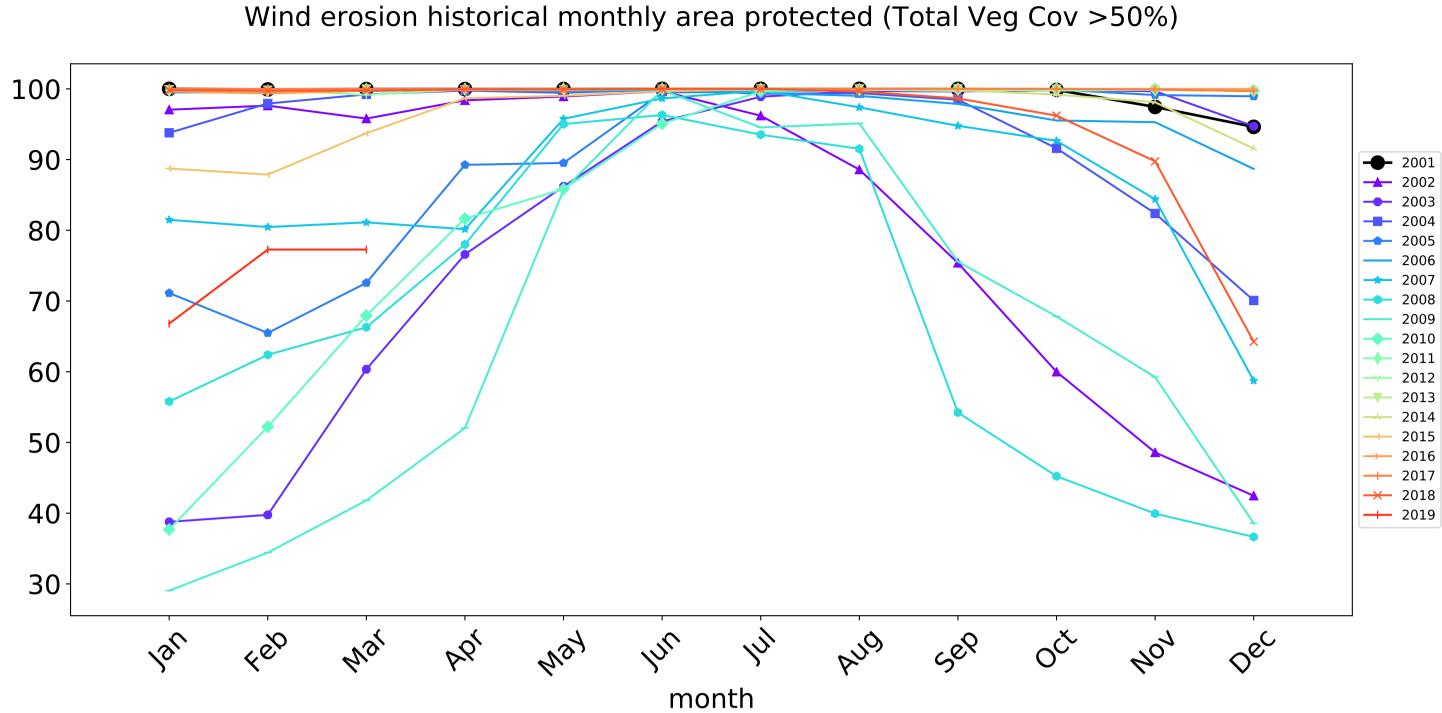


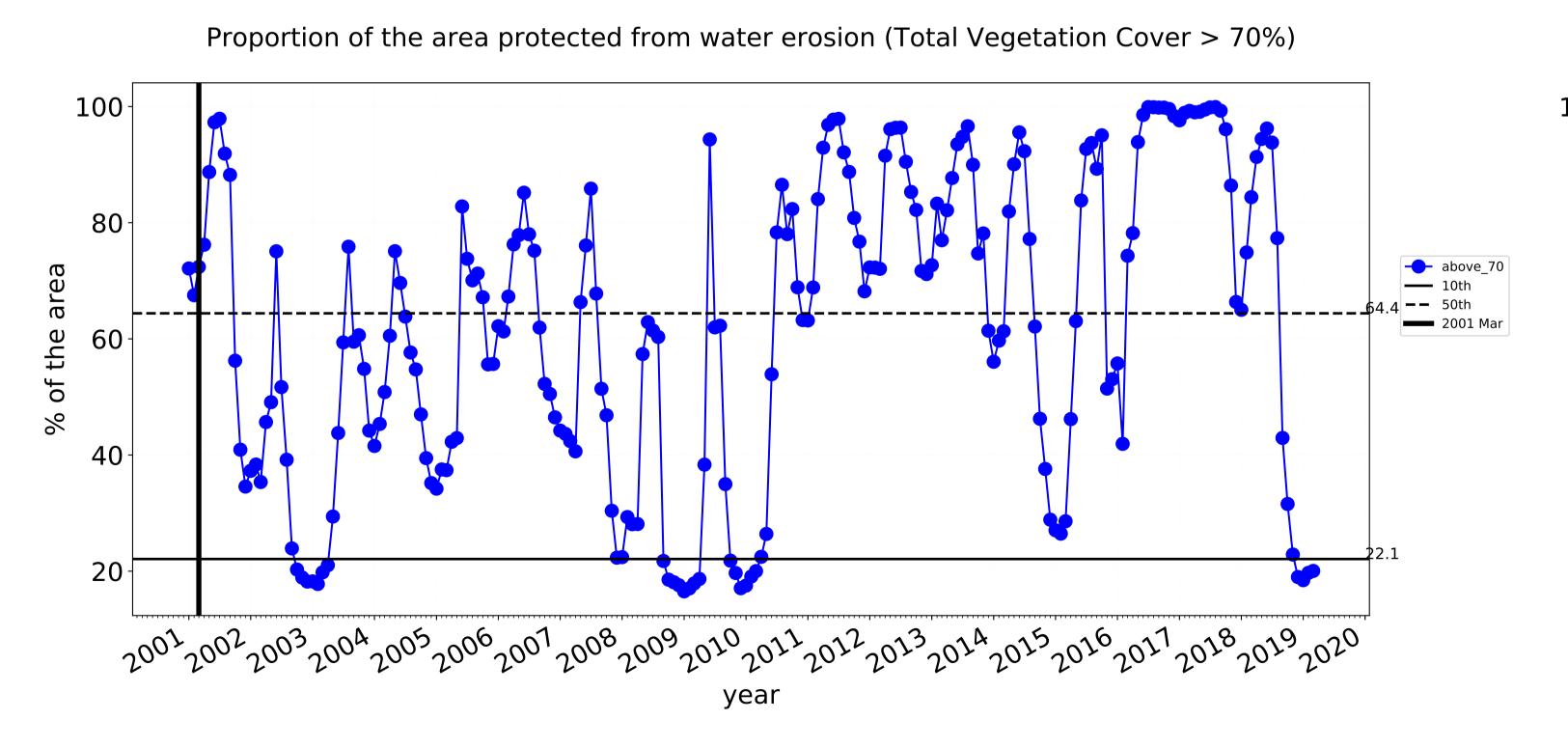


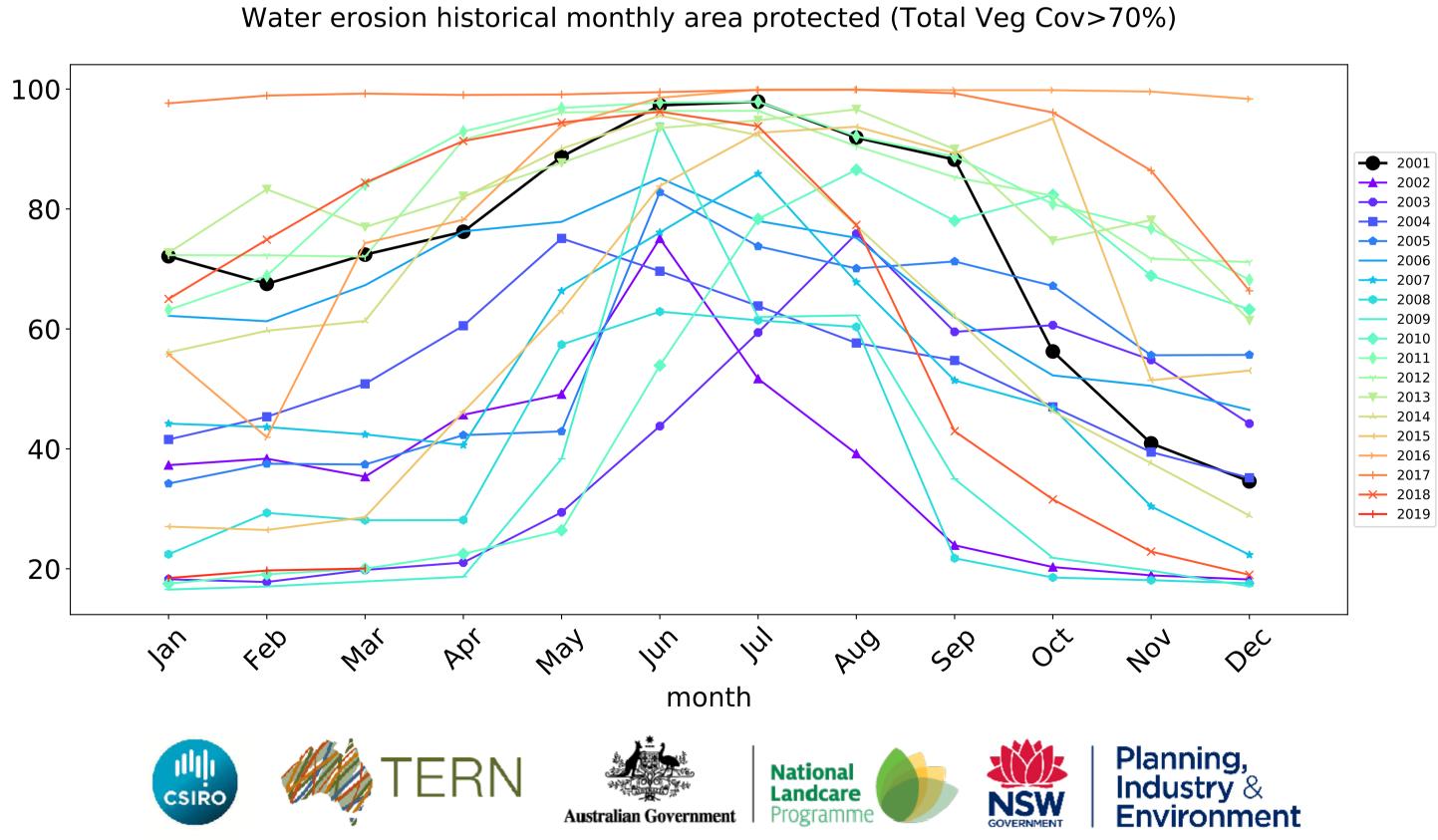


Conservation and natural environments non forest timeseries

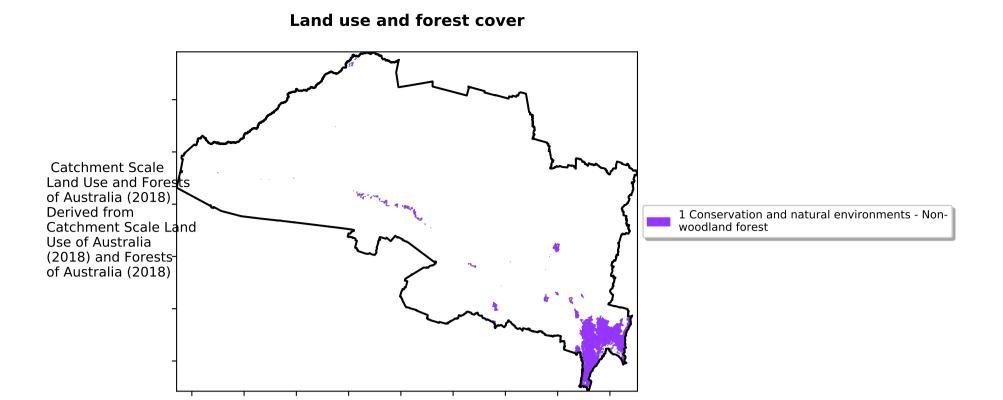




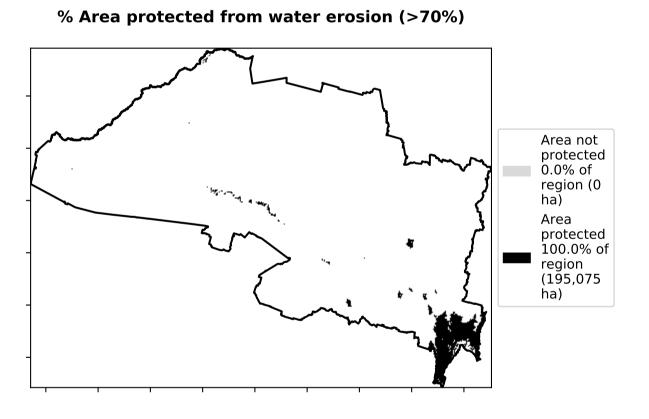


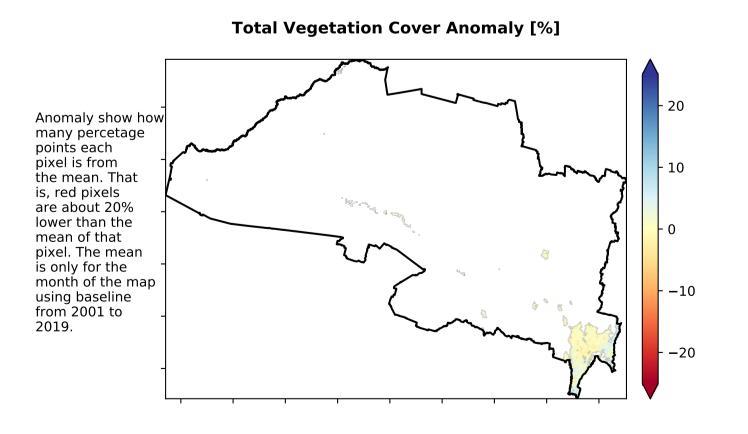


Conservation and natural environments Forest (non woodland)

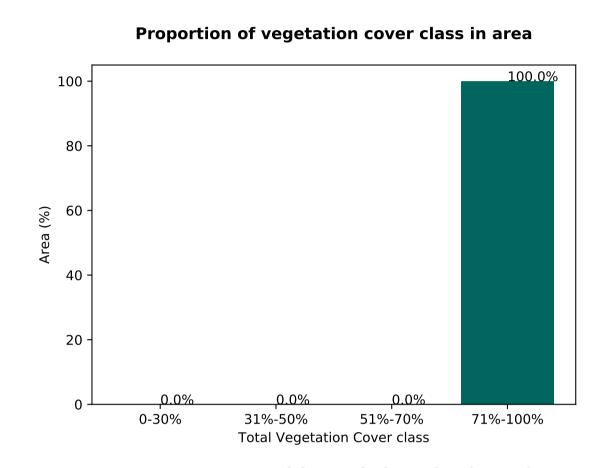


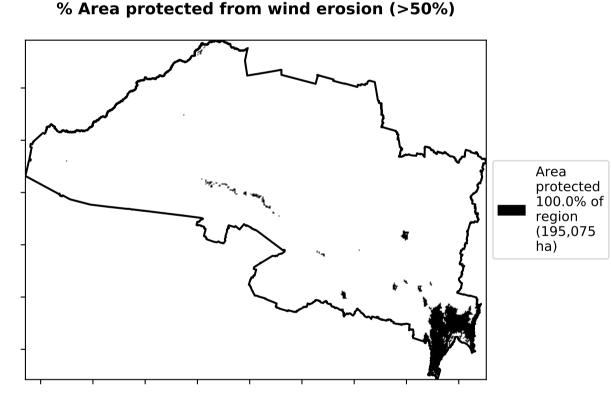
Total Vegetation Cover [%] Trolo Indolo Trol Indolo Trolo Indolo Trol Indolo Trolo Indolo Trolo Indolo Trolo Indolo Trol

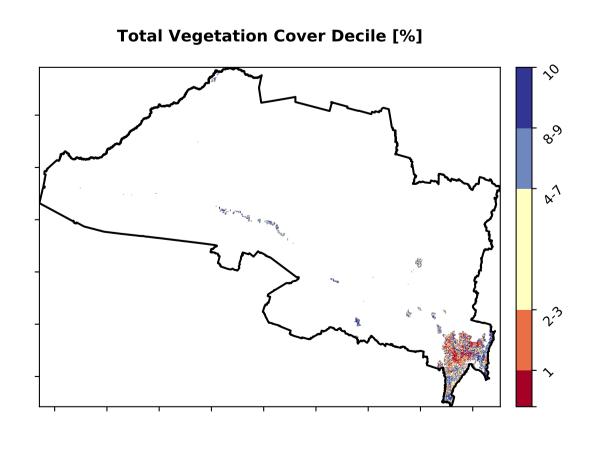




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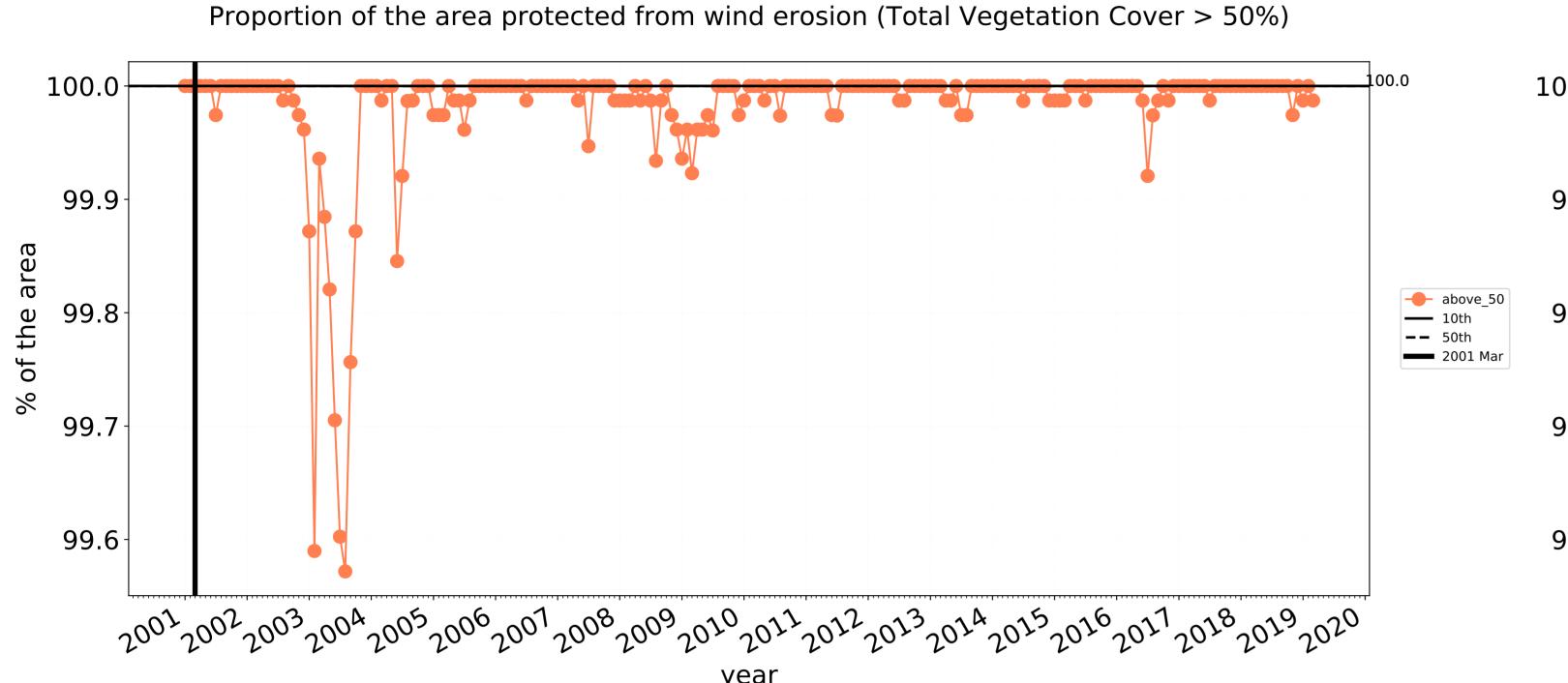


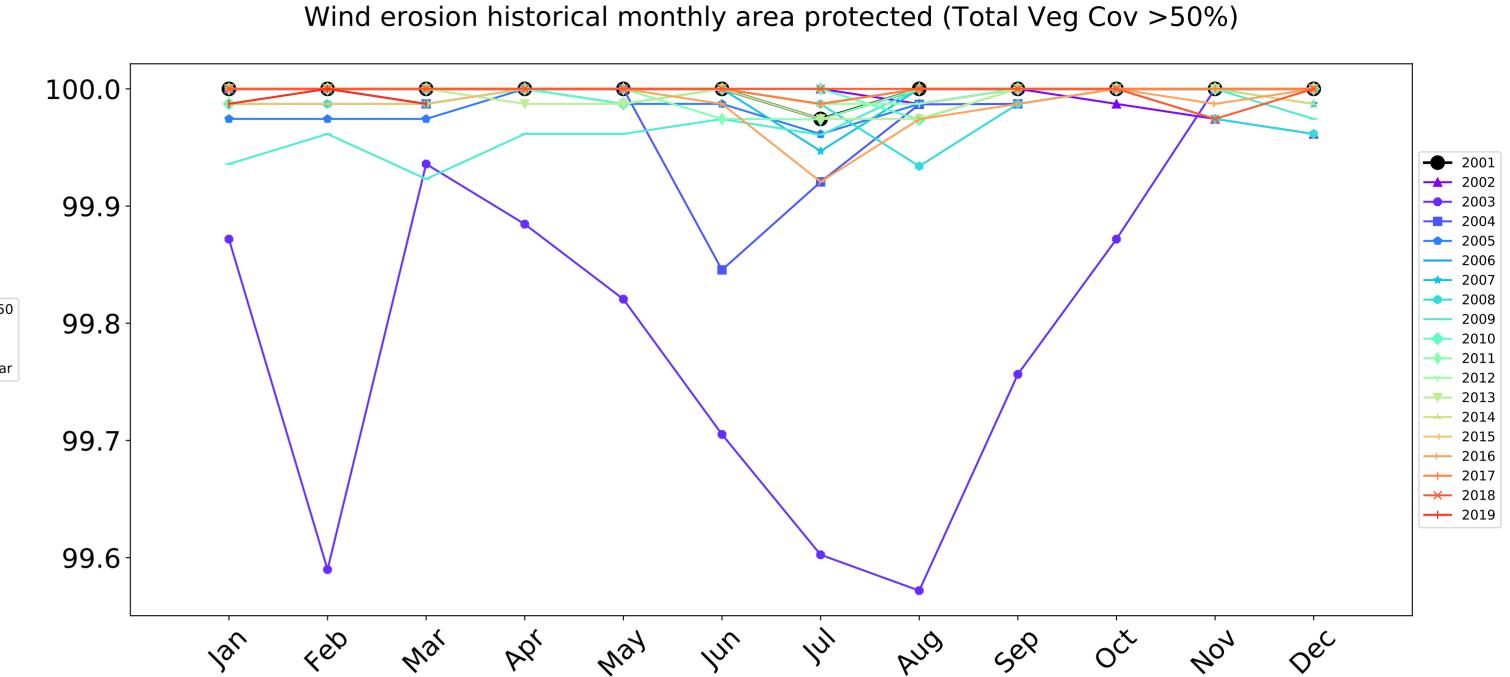




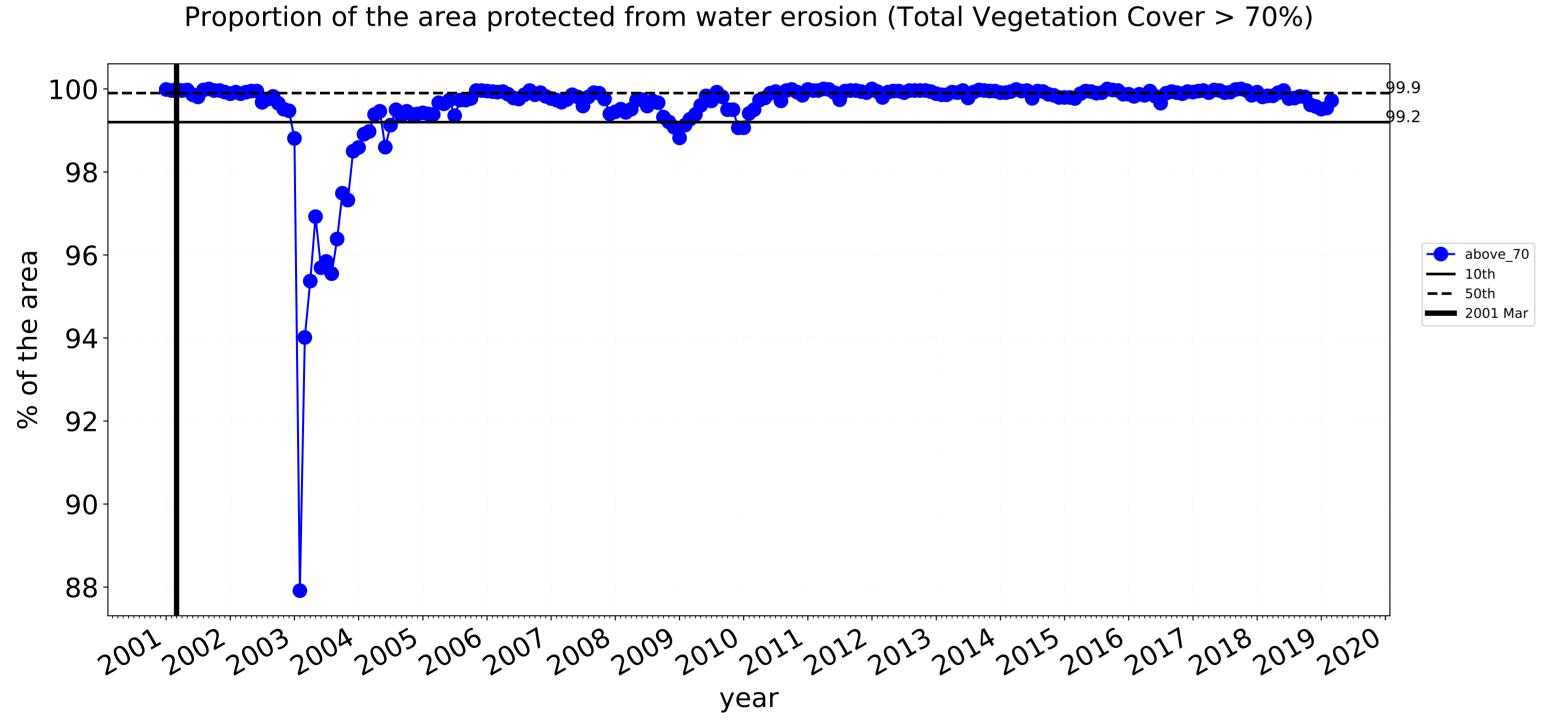


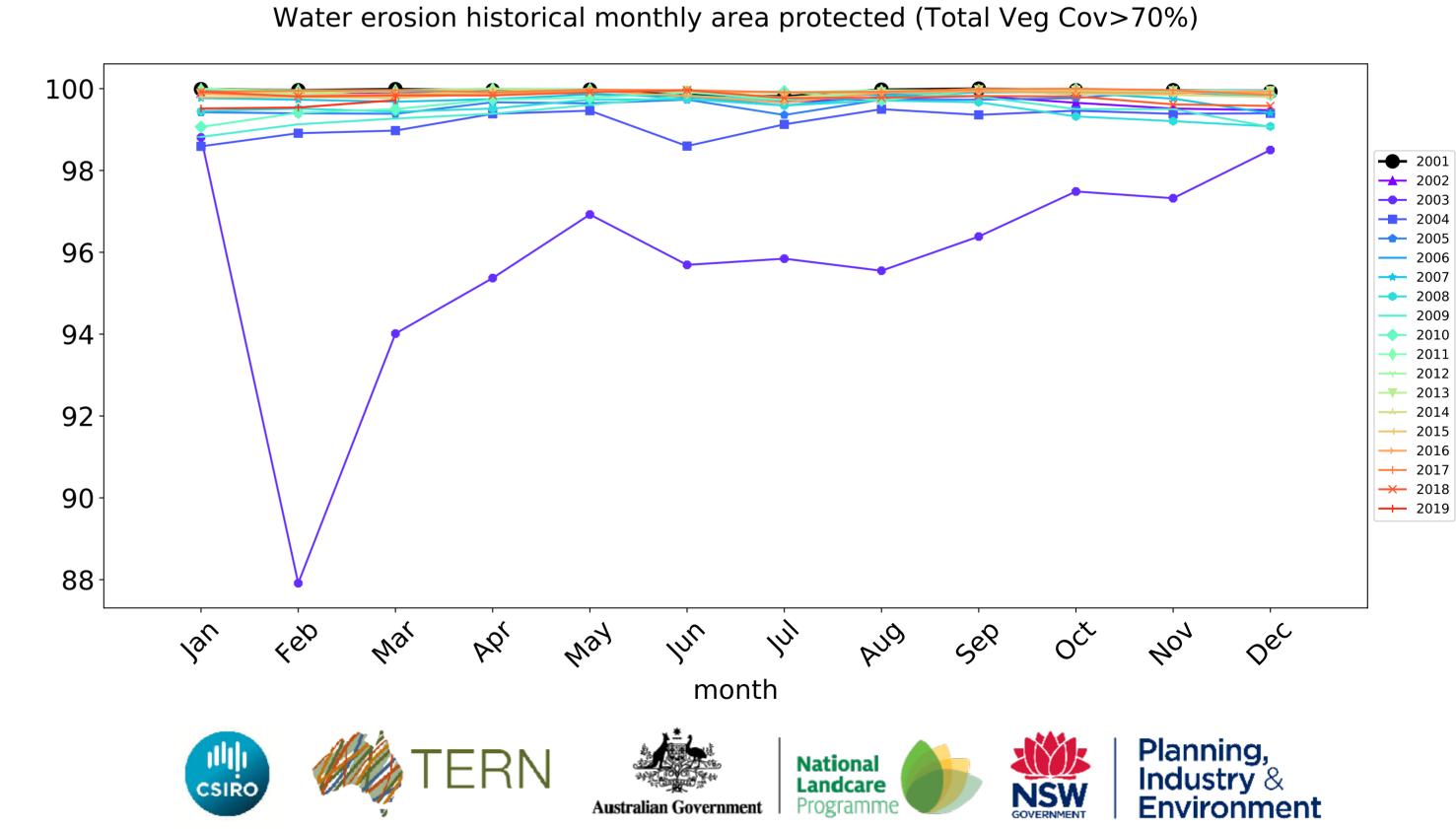






month



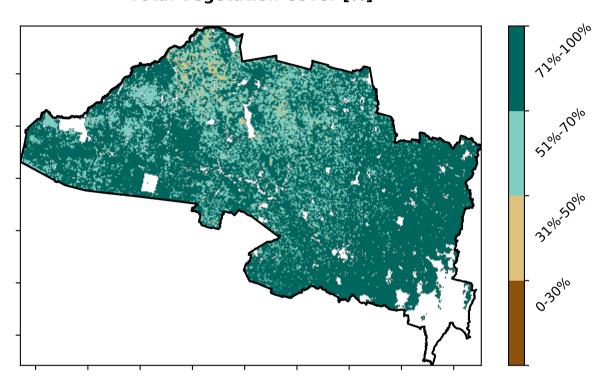


Agriculture

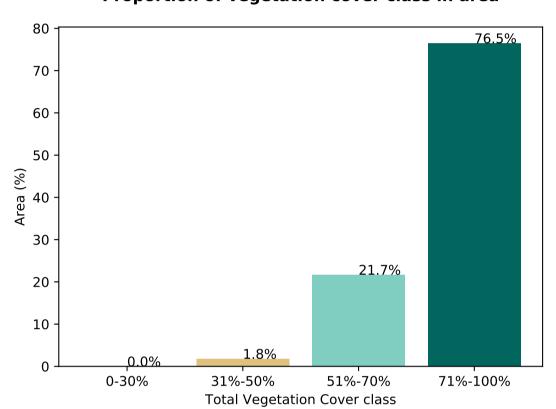
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) Australia (2018) Australia (2018) A Agriculture - Grazing - Non forest 2 Agriculture - Grazing - Woodland forest 3 Agriculture - Grazing - Non-woodland forest 4 Agriculture - Grazing - Non-woodland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

Proportion of each land class in area 504040201010102.3% 1.7% 0.6% 52.5% 7.9% 1.2 3 4 5 6 7 8 Land use class

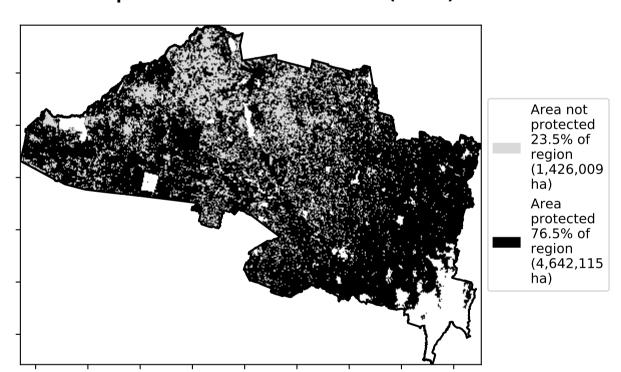




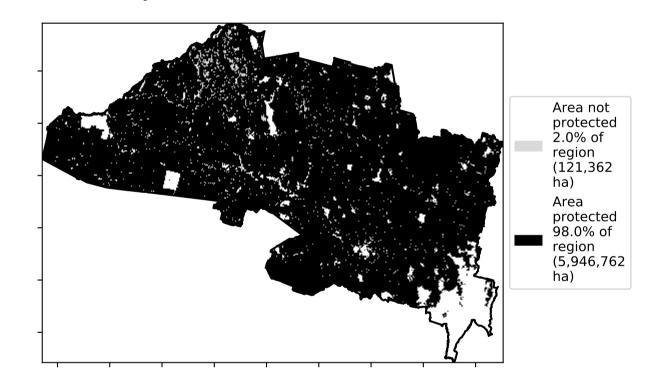
Proportion of vegetation cover class in area



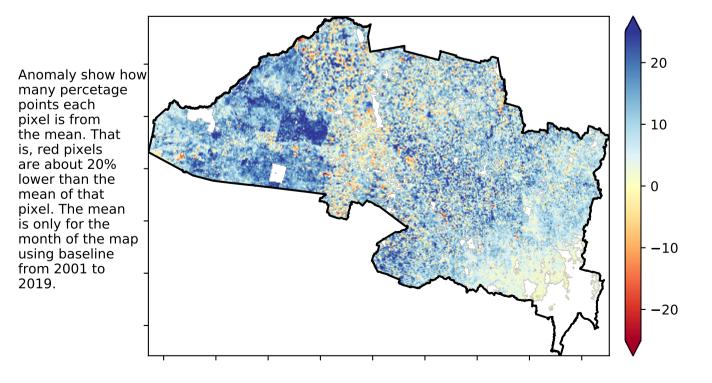
% Area protected from water erosion (>70%)



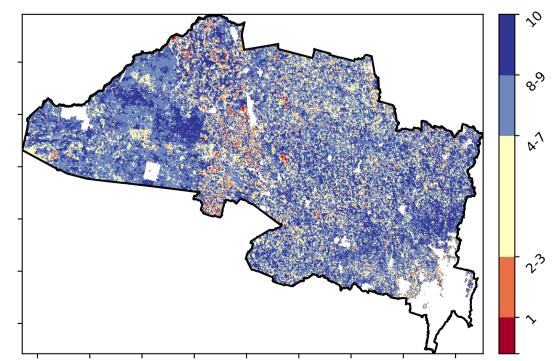
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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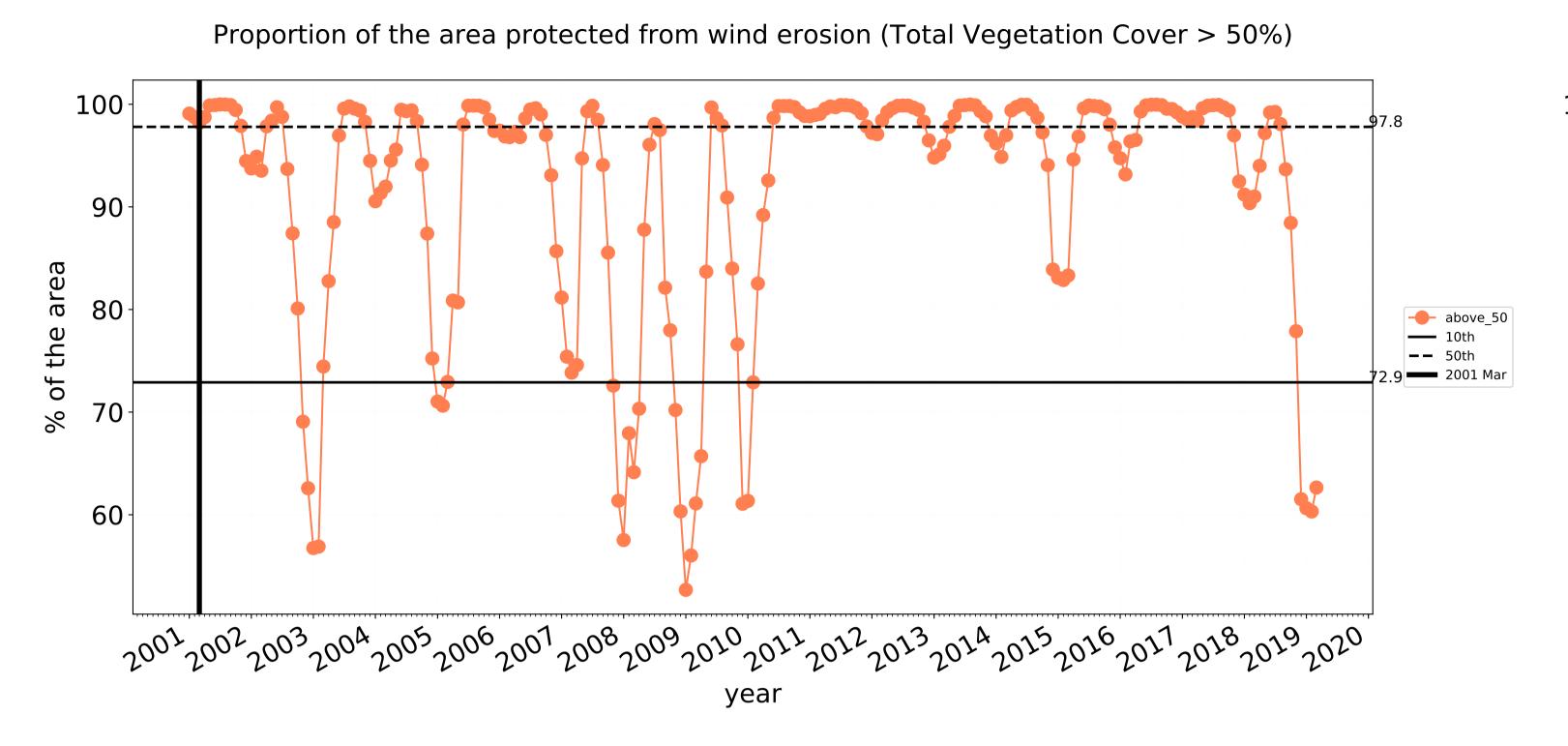


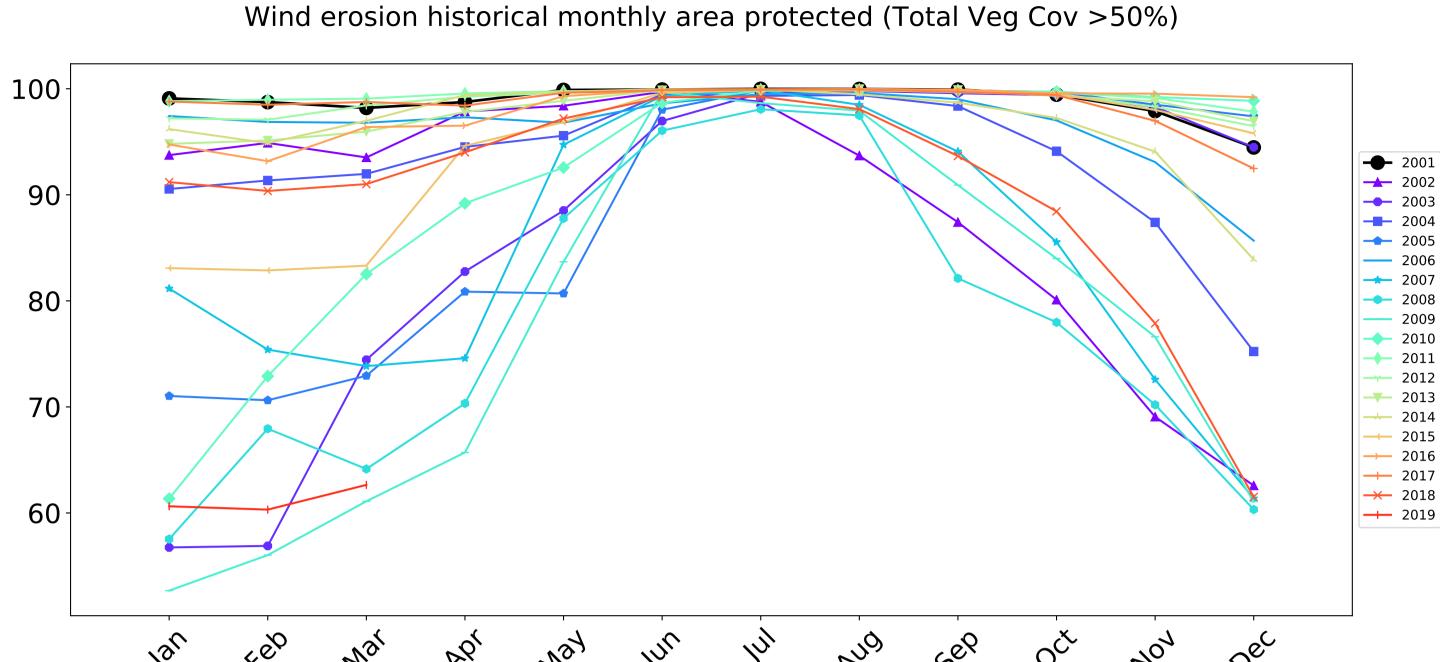




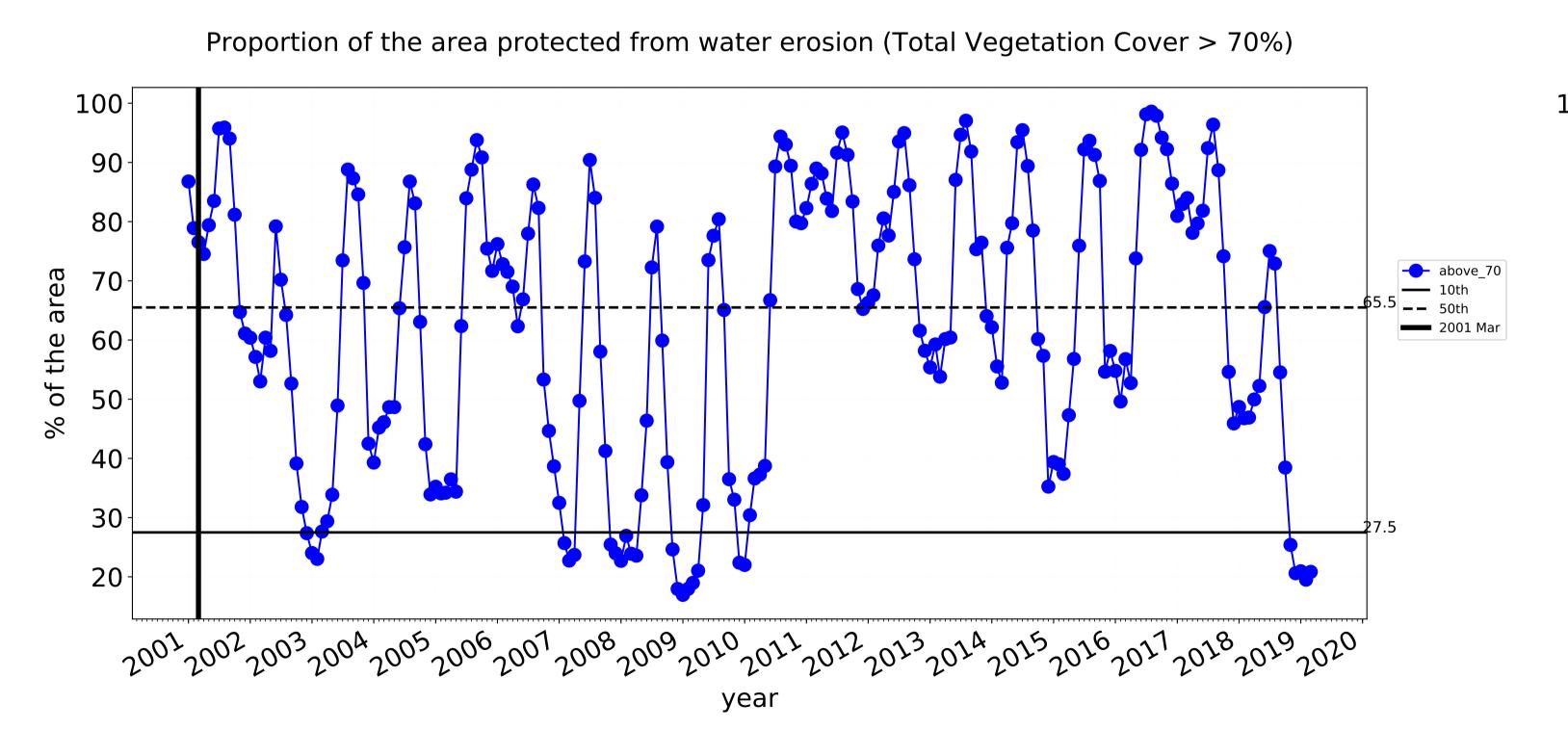


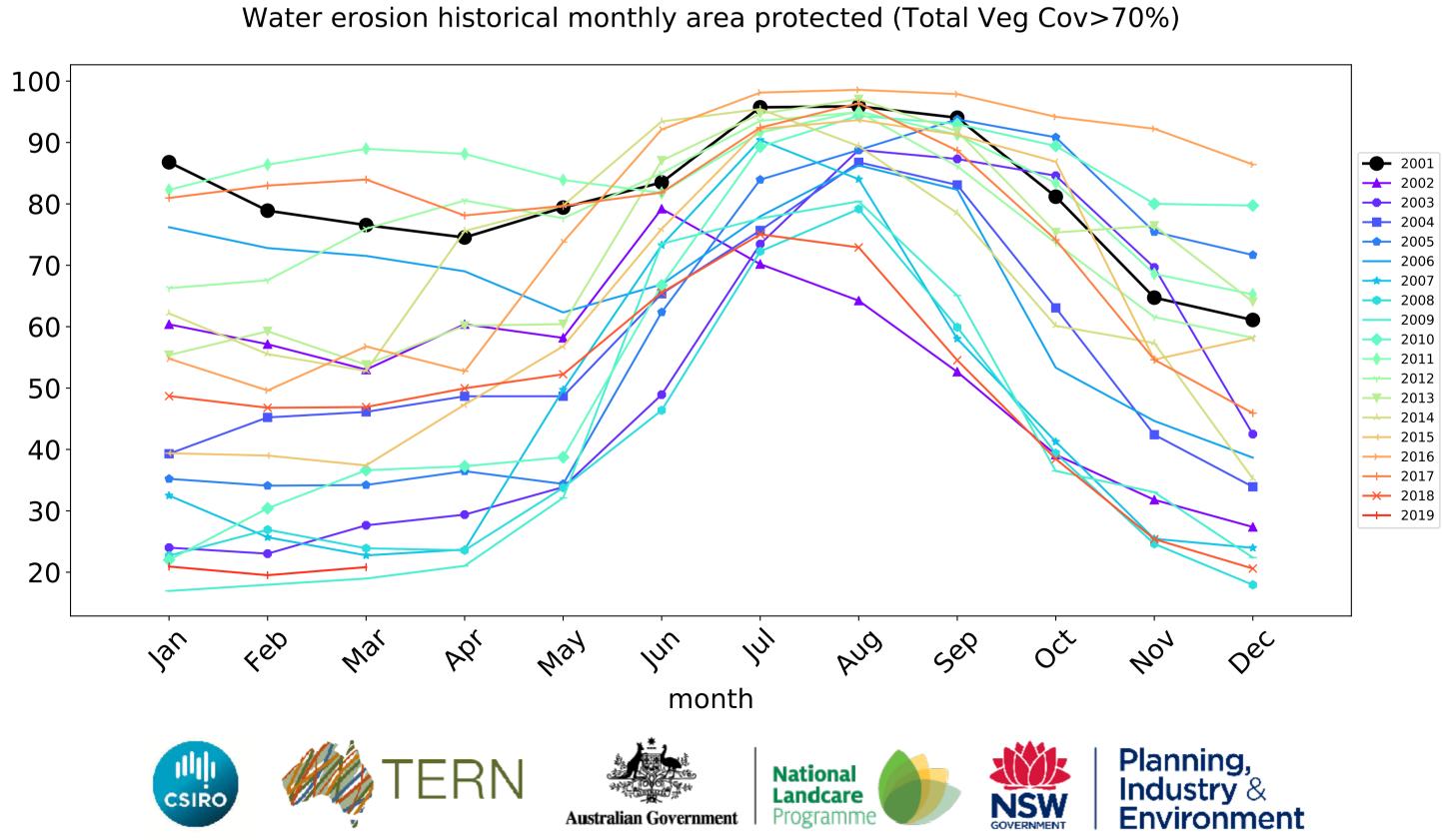
Agriculture timeseries



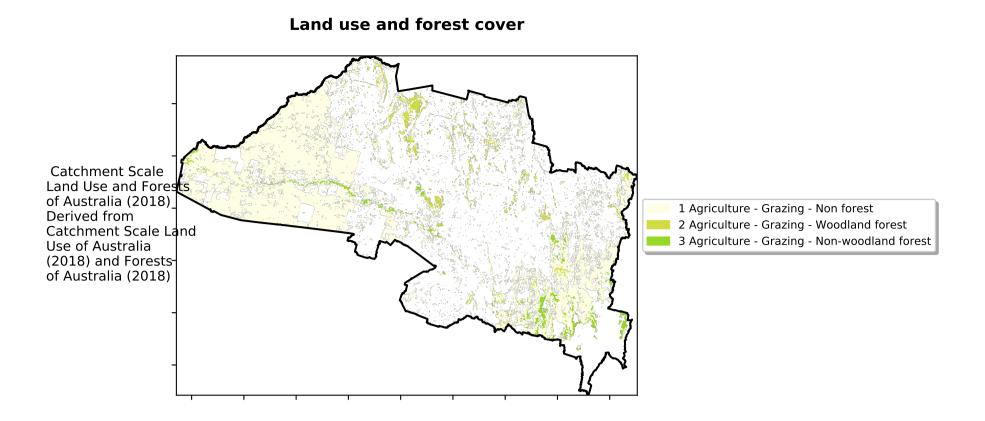


month

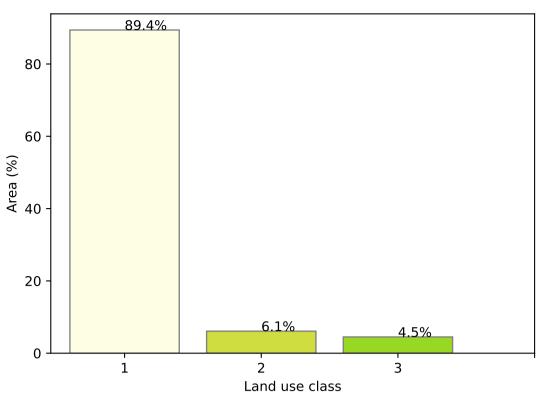




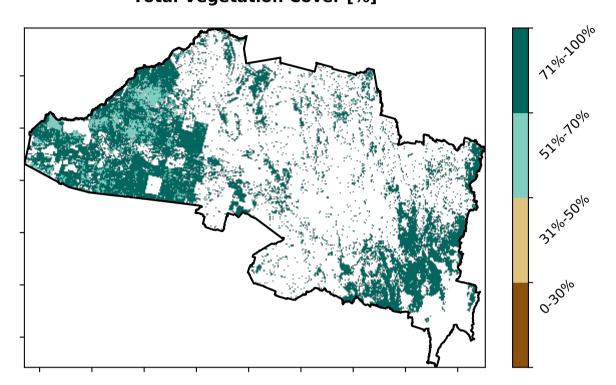
Grazing



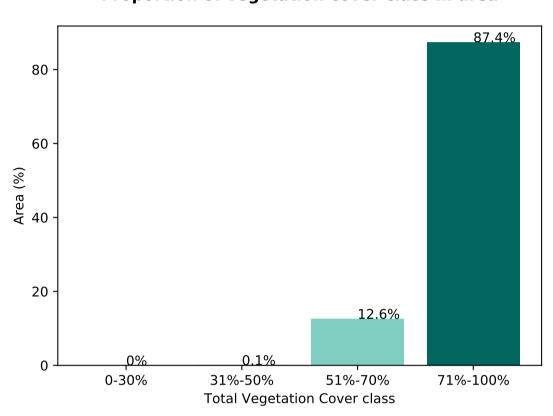
Proportion of each land class in area



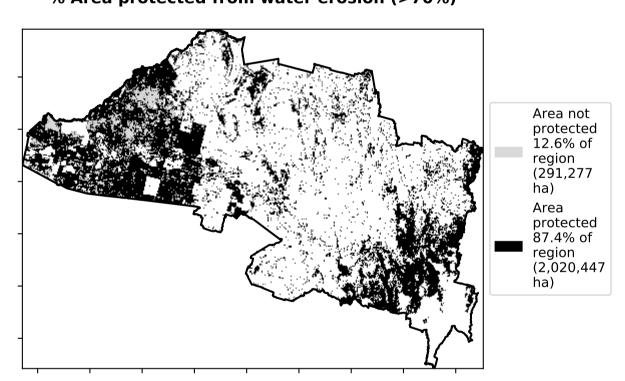
Total Vegetation Cover [%]



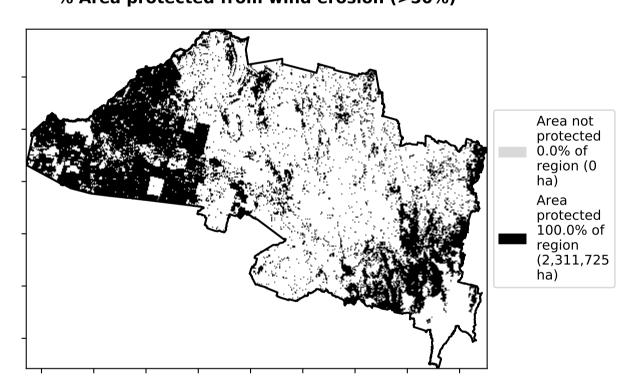
Proportion of vegetation cover class in area



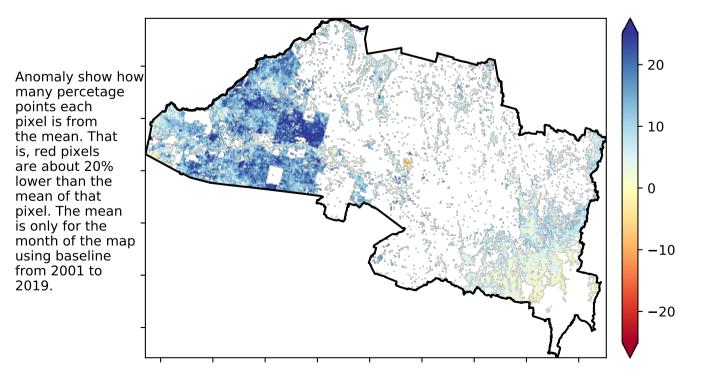
% Area protected from water erosion (>70%)



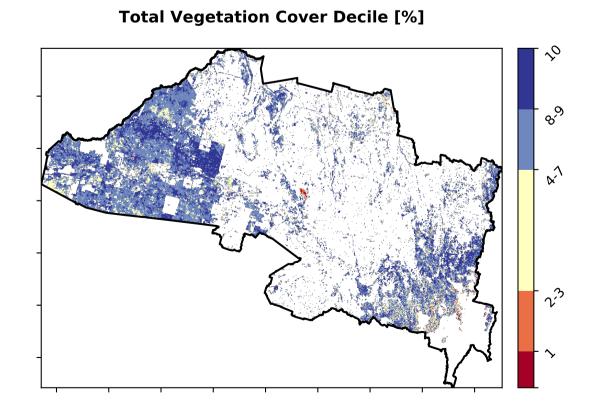
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Total Vegetation Cover Anomaly [%]



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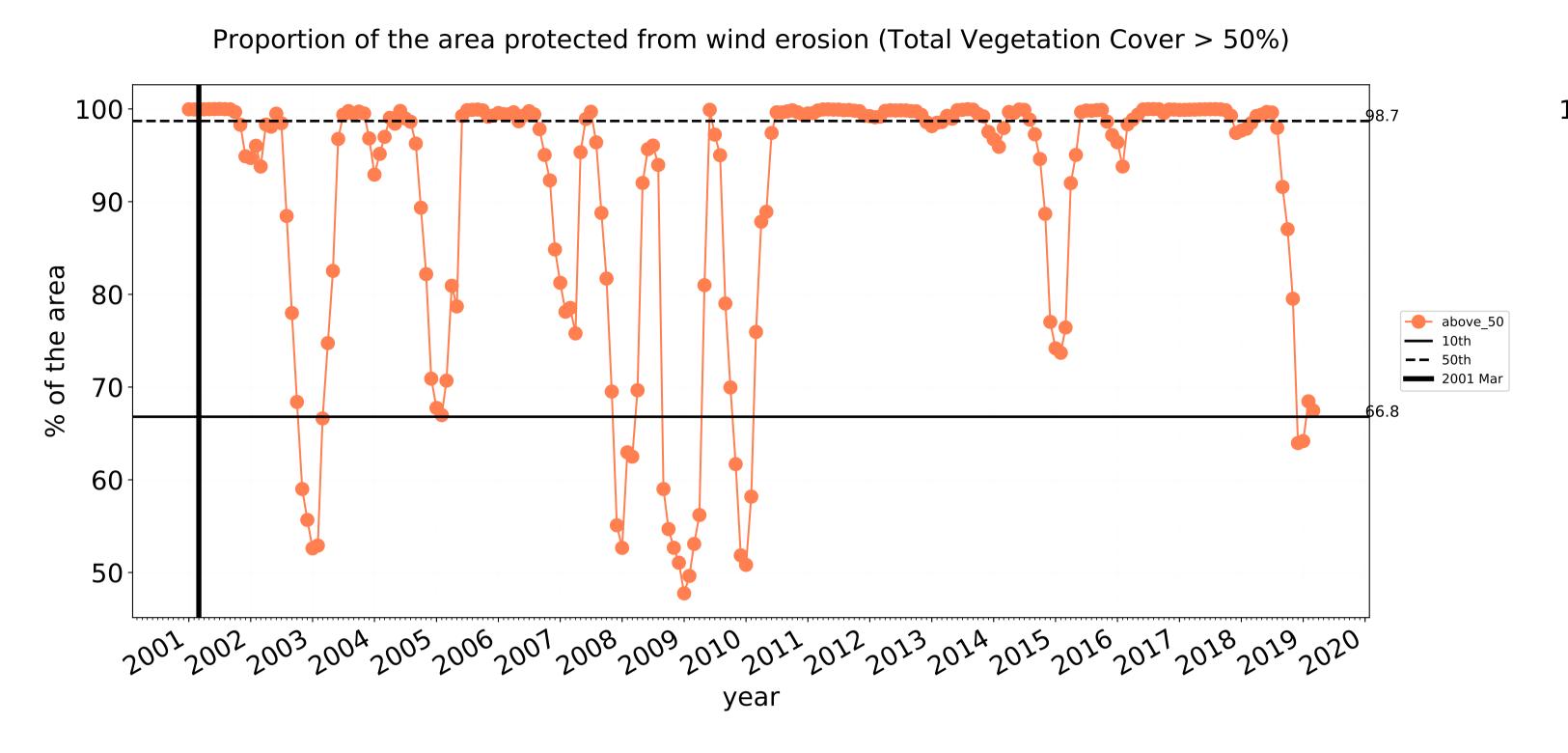


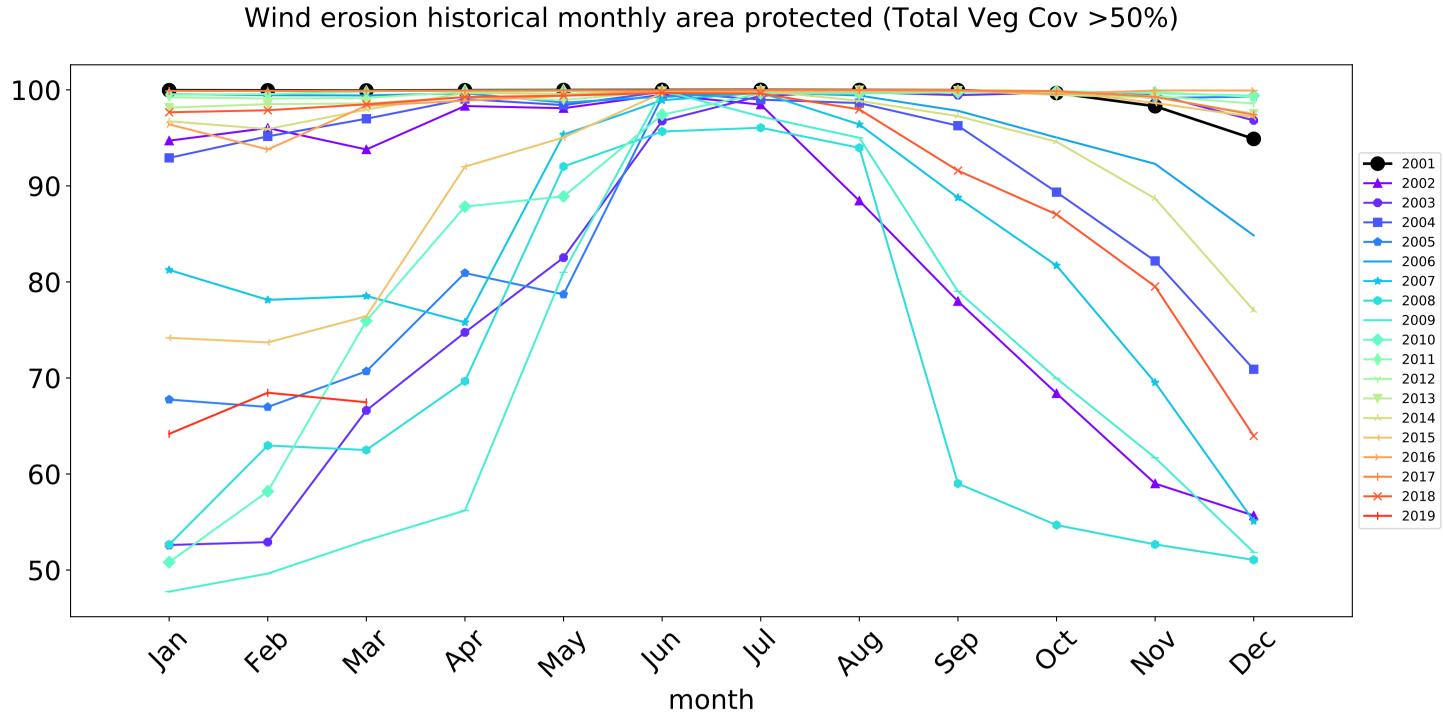


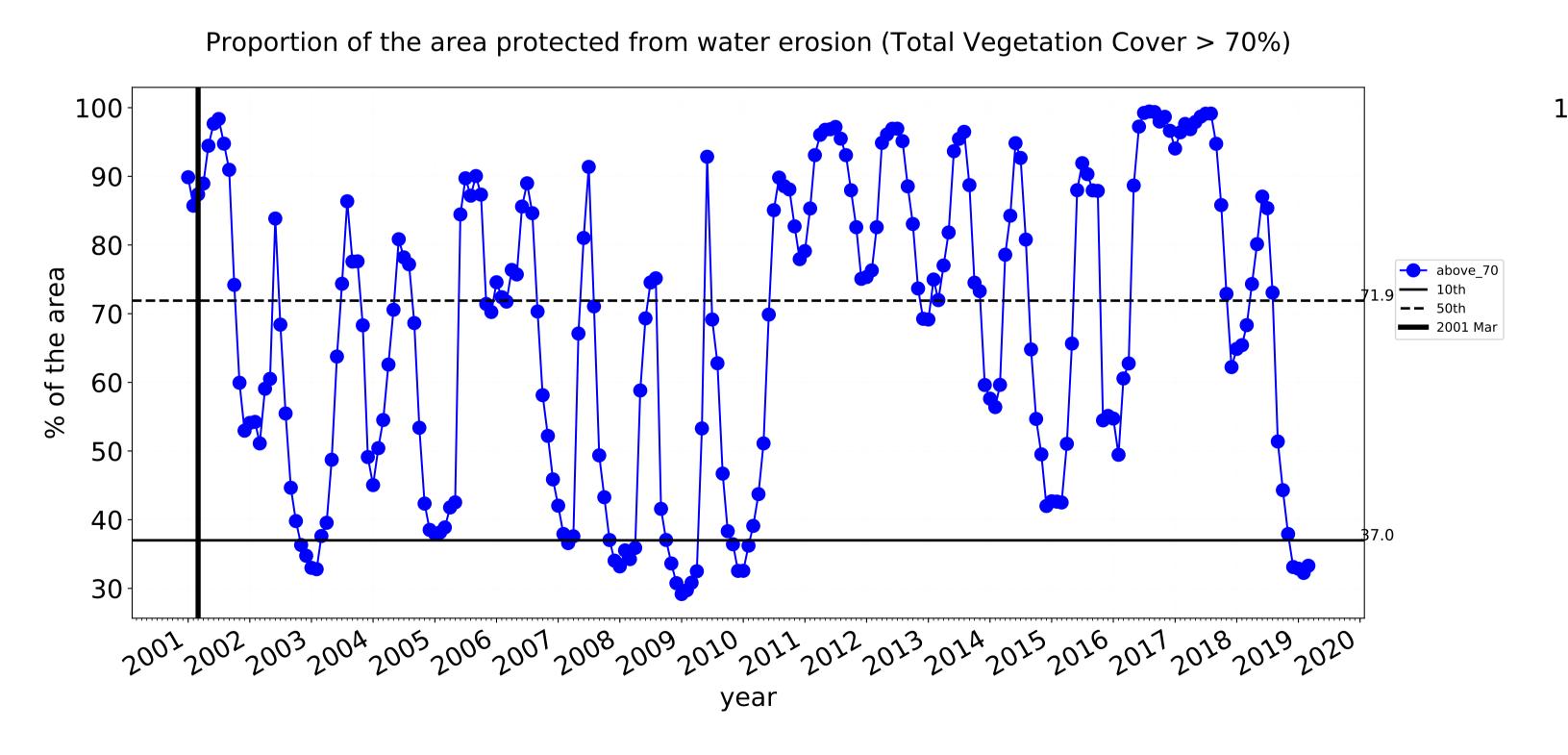


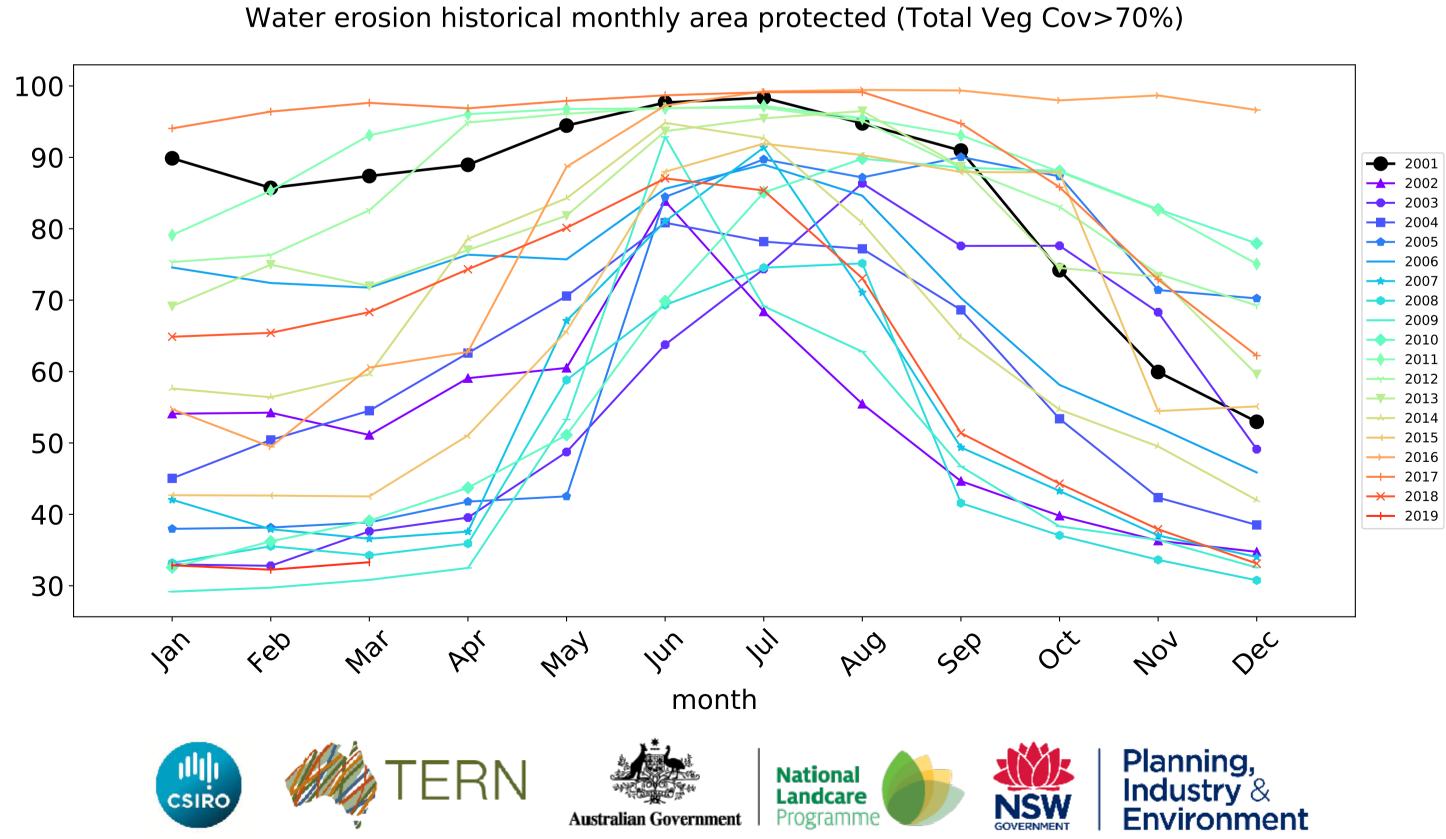


Grazing timeseries



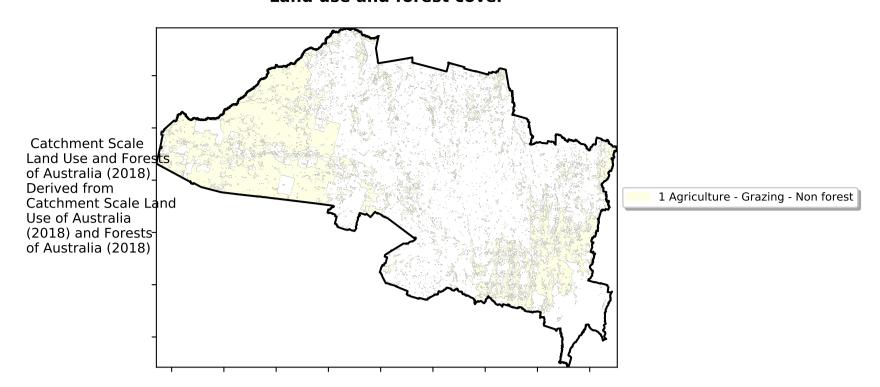




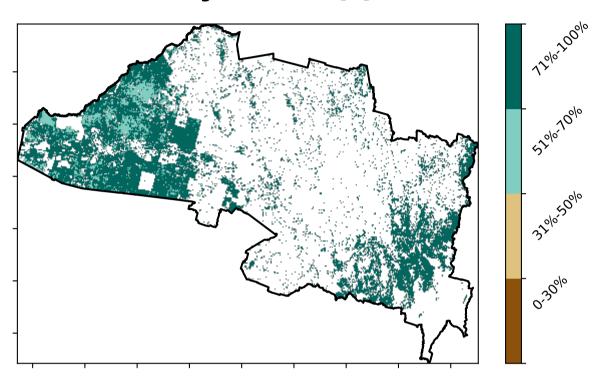


Grazing non forest

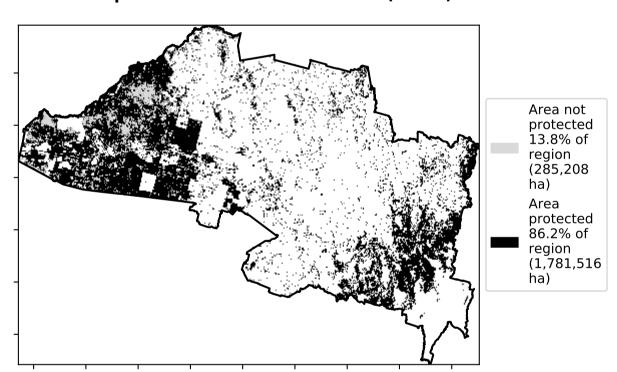
Land use and forest cover



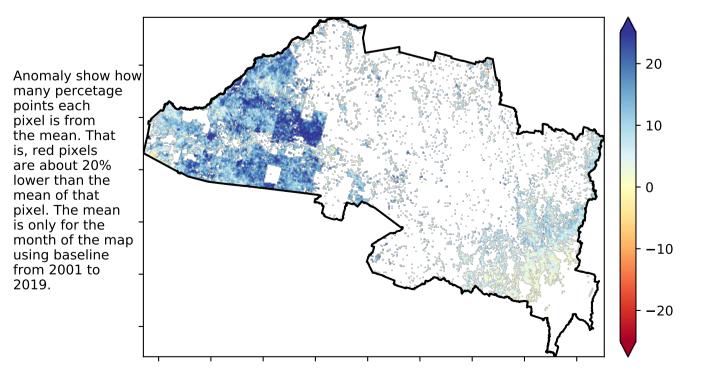
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

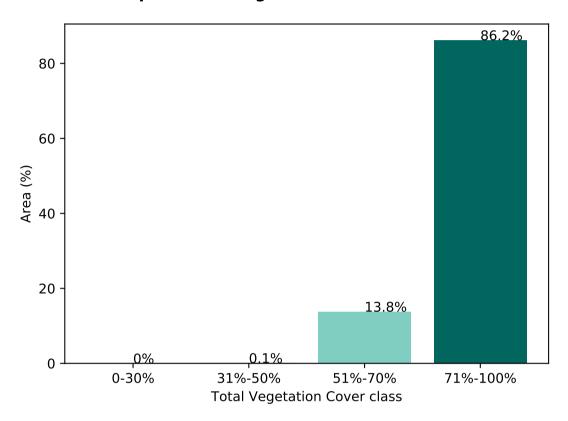


Total Vegetation Cover Anomaly [%]

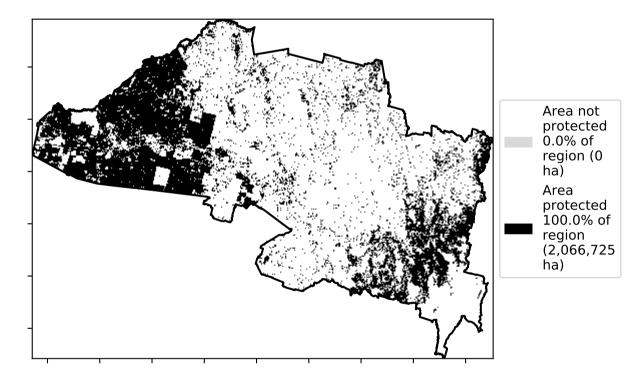


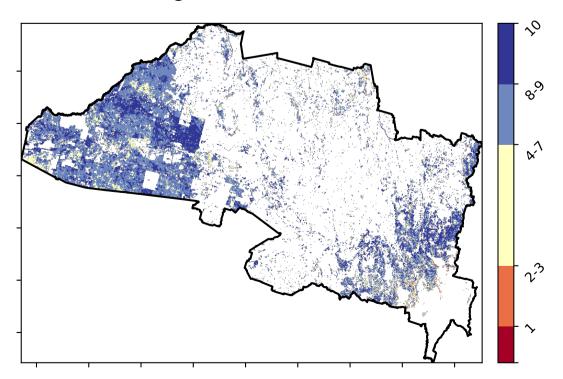
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Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









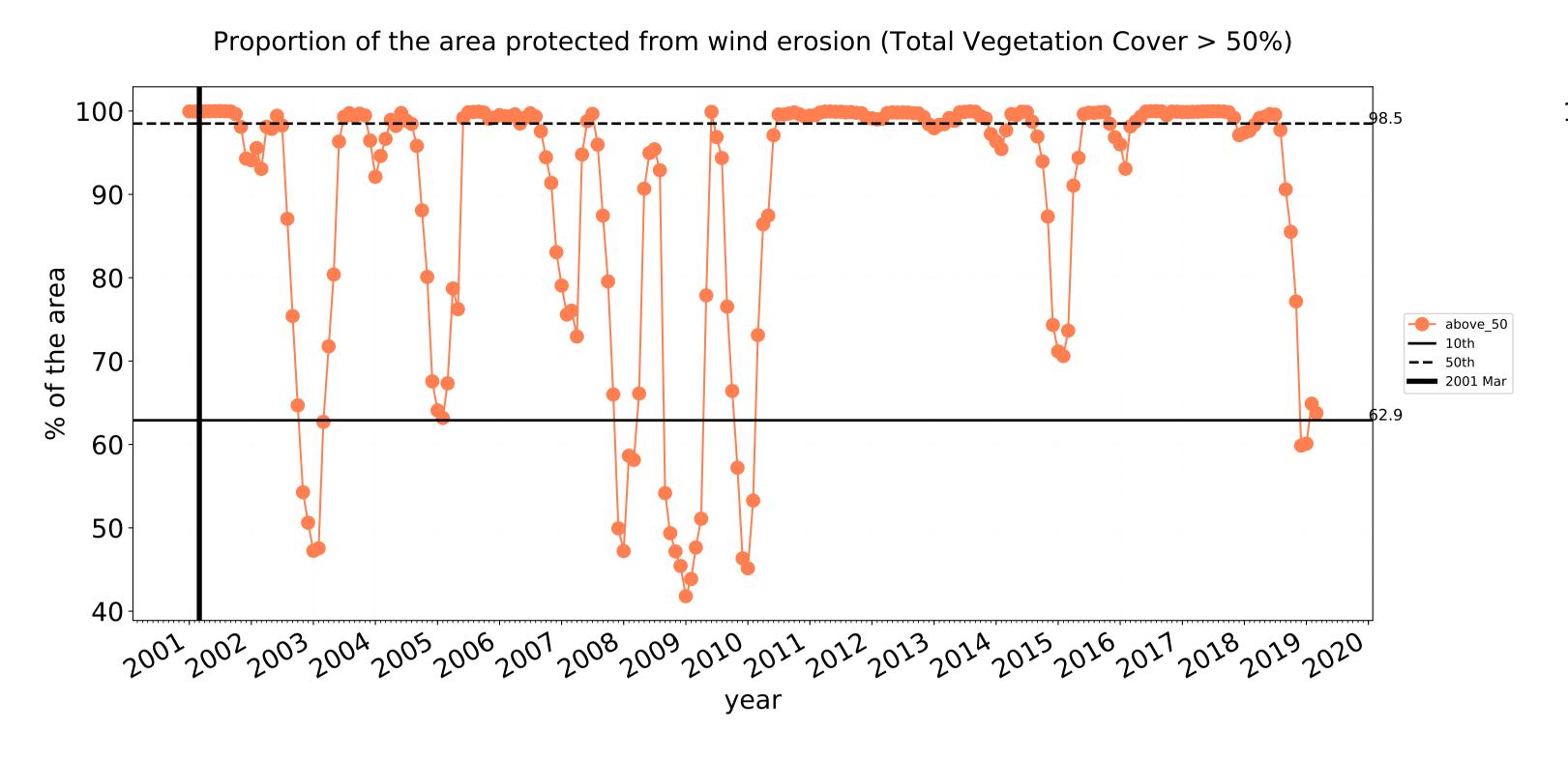


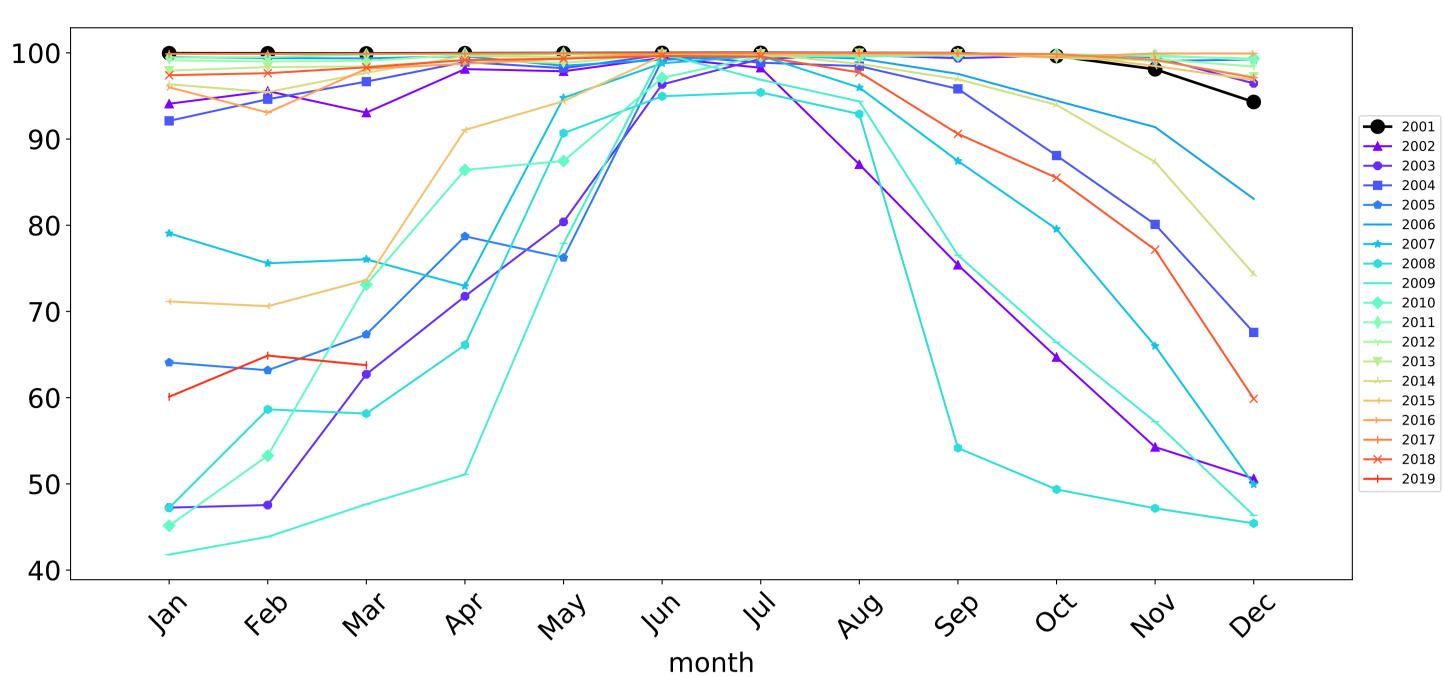




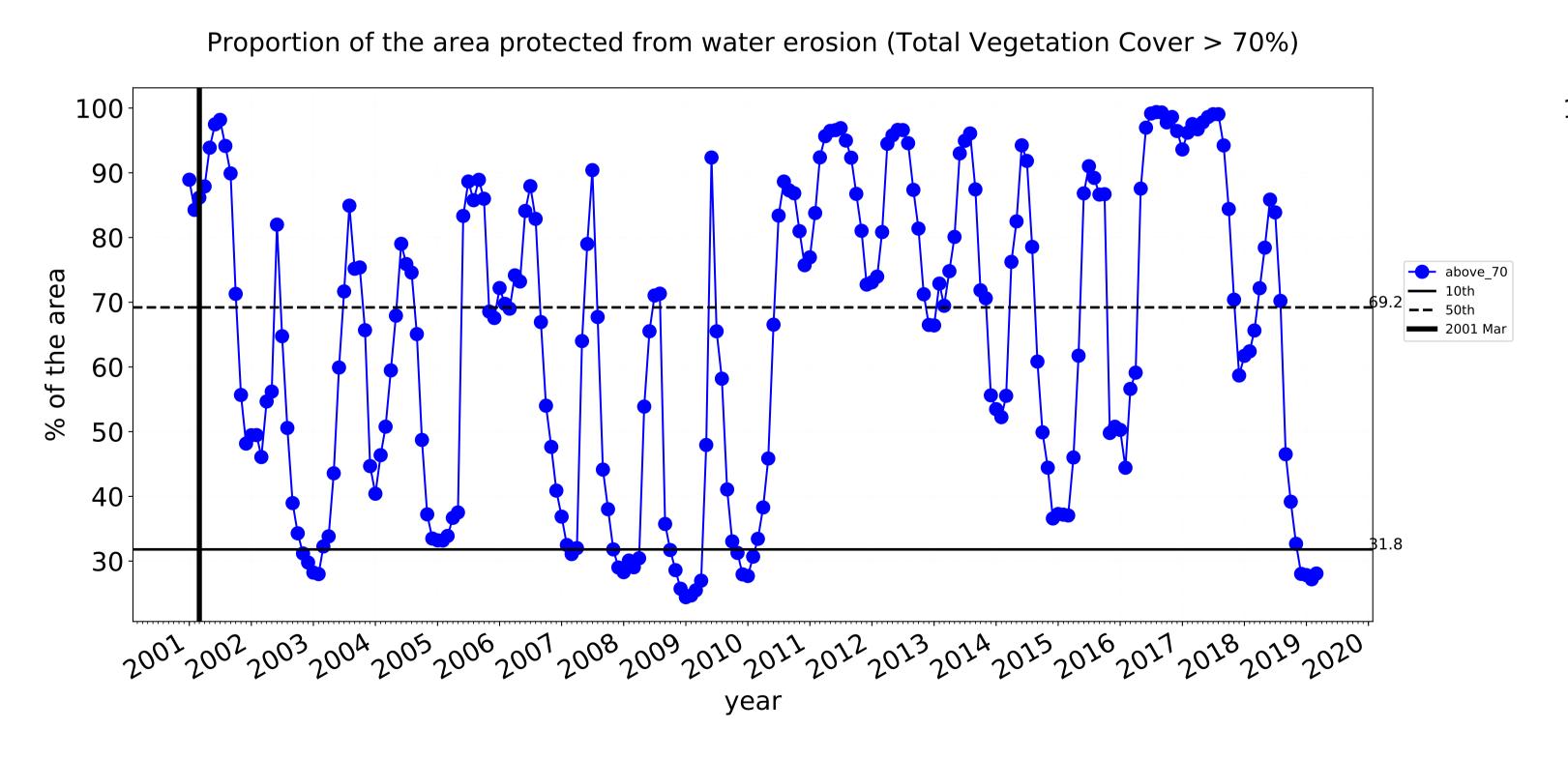


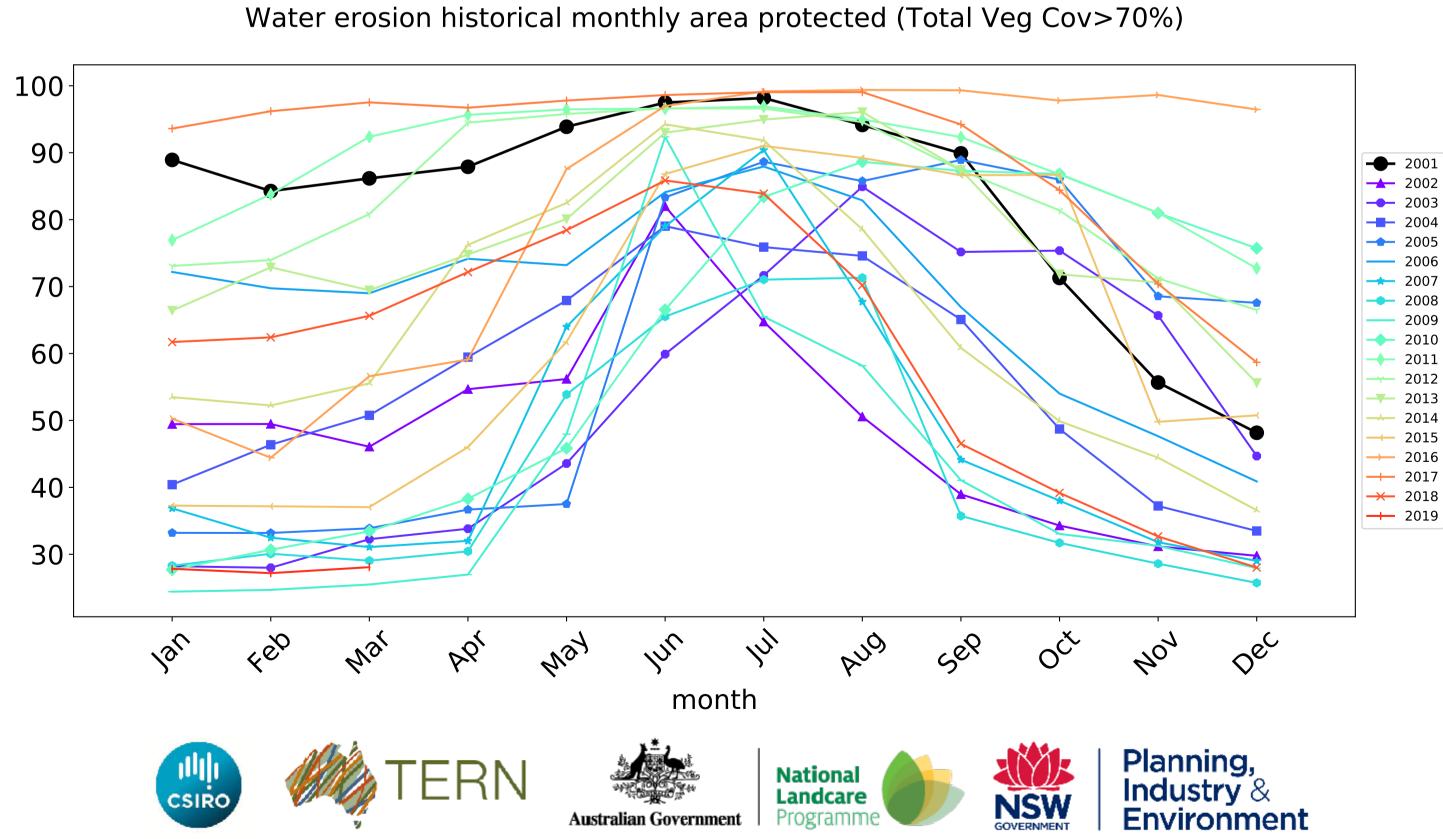
Grazing non forest timeseries





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



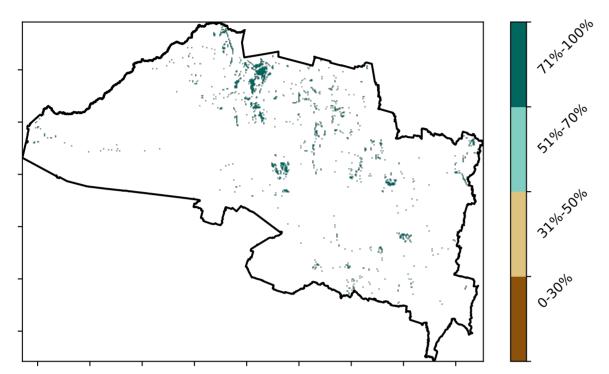


Grazing Woodland forest

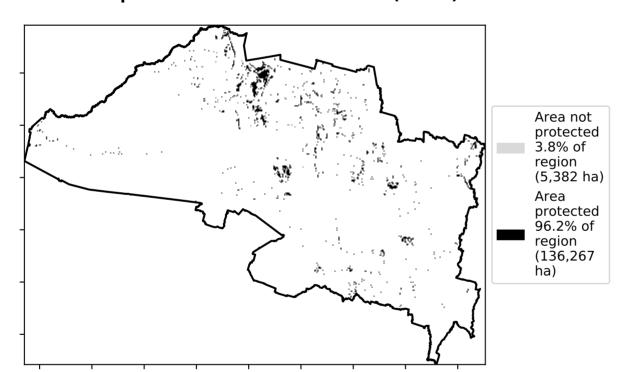
Catchment Scale
Land Use and Forests
of Australia (2018)
Derived from 1 Agriculture - Grazing - Woodland forest Catchment Scale Land Use of Australia (2018) and Forests-of Australia (2018)

Total Vegetation Cover [%]

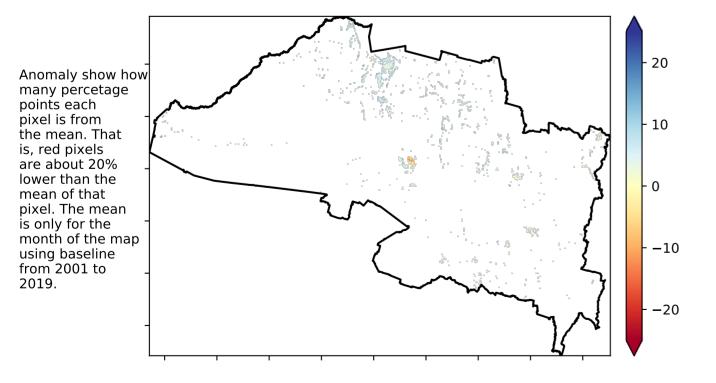
Land use and forest cover



% Area protected from water erosion (>70%)

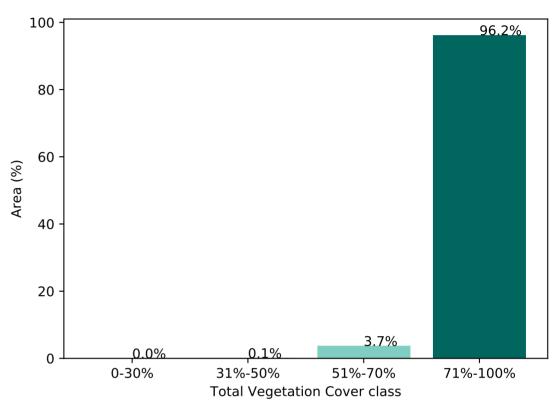


Total Vegetation Cover Anomaly [%]

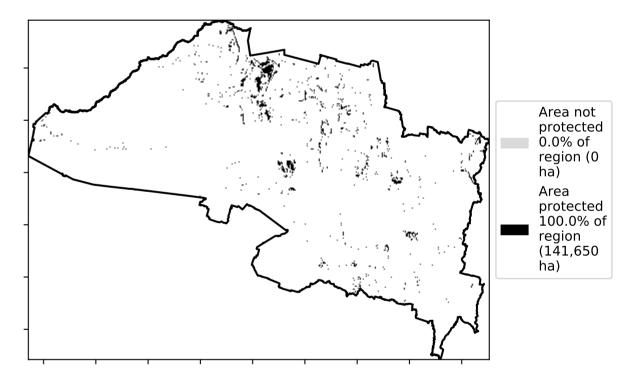


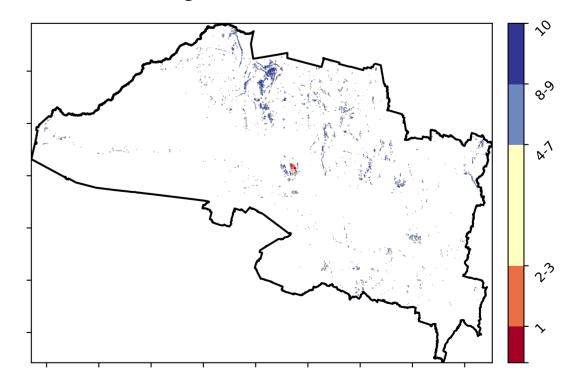
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Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









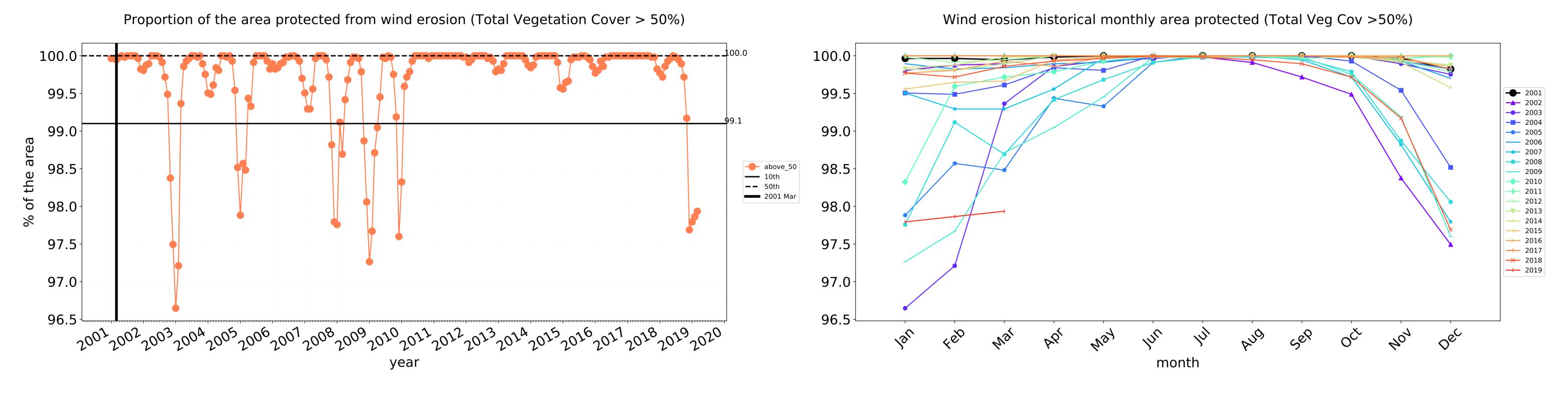


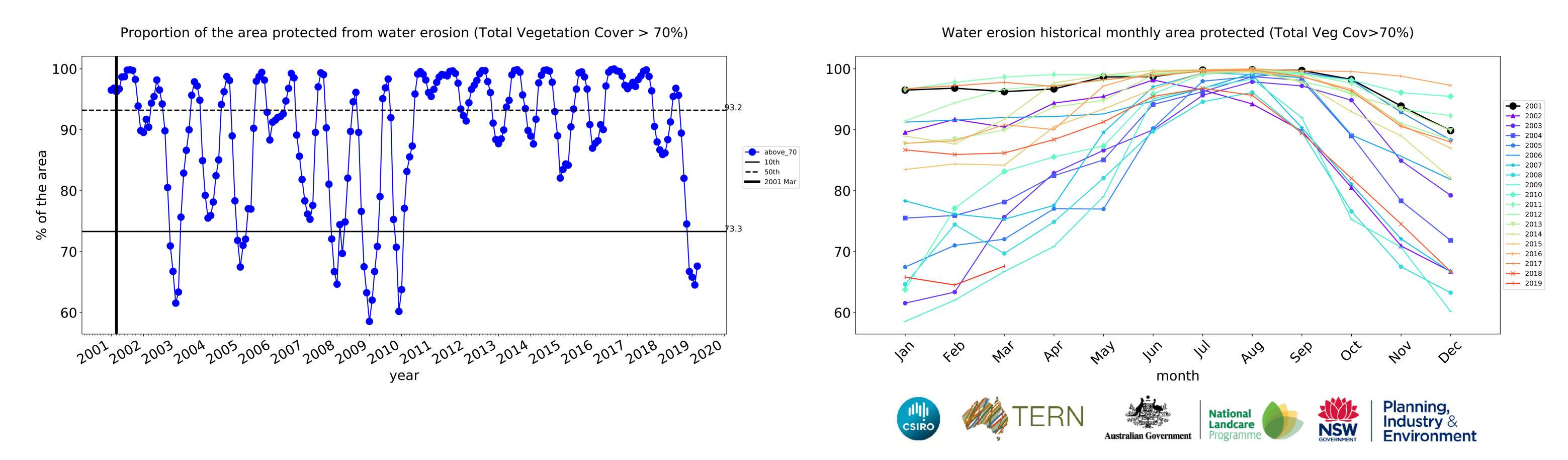






Grazing Woodland forest timeseries



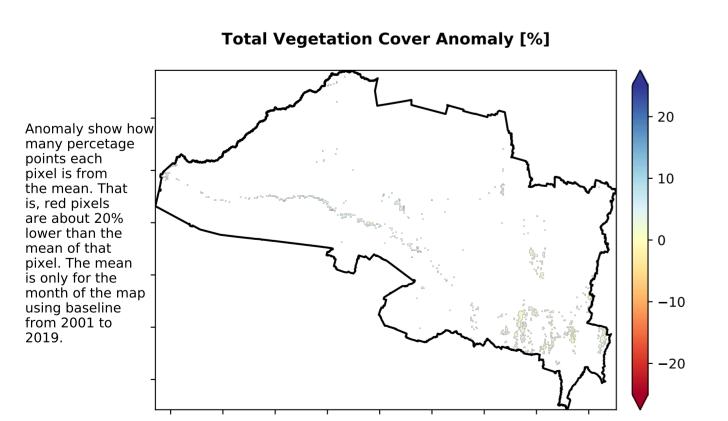


Grazing - Forest (non woodland)

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

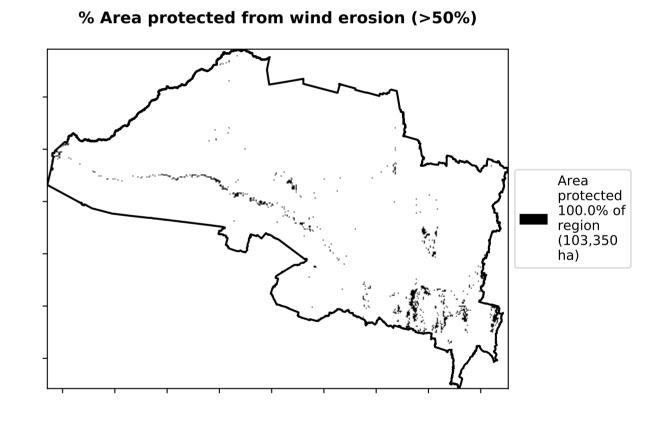
Total Vegetation Cover [%]

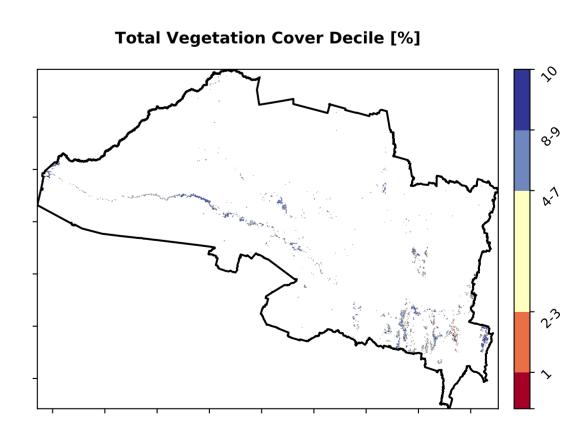
% Area protected from water erosion (>70%) Area not protected 0.5% of region (516 ha) Area protected 99.5% of region (102,833 ha)



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 100 - 99.5% 80 - 99.5% 40 - 20 - 0.0% 0.5% 0-30% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class







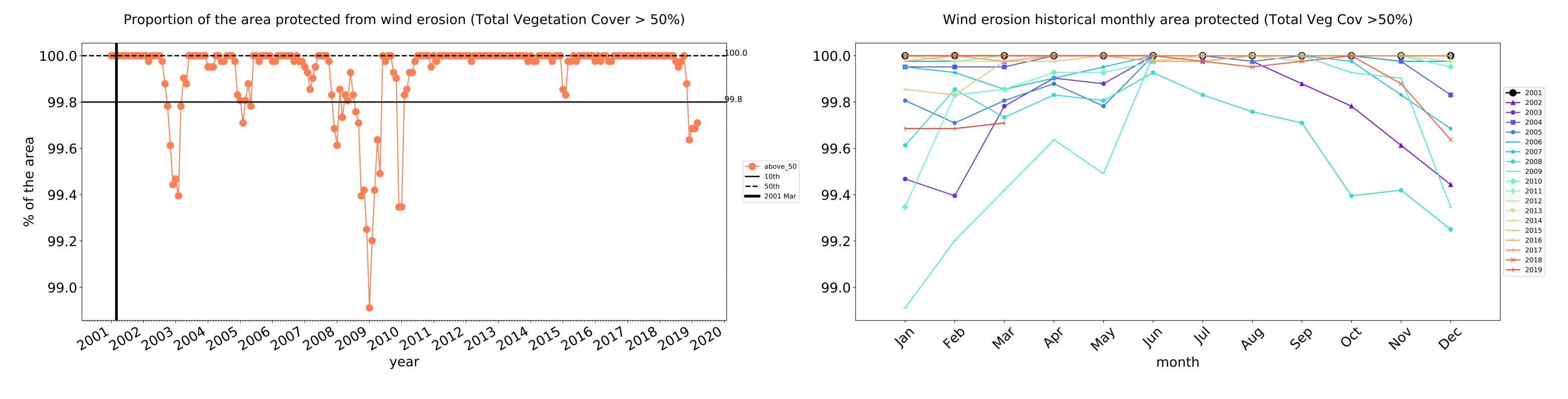


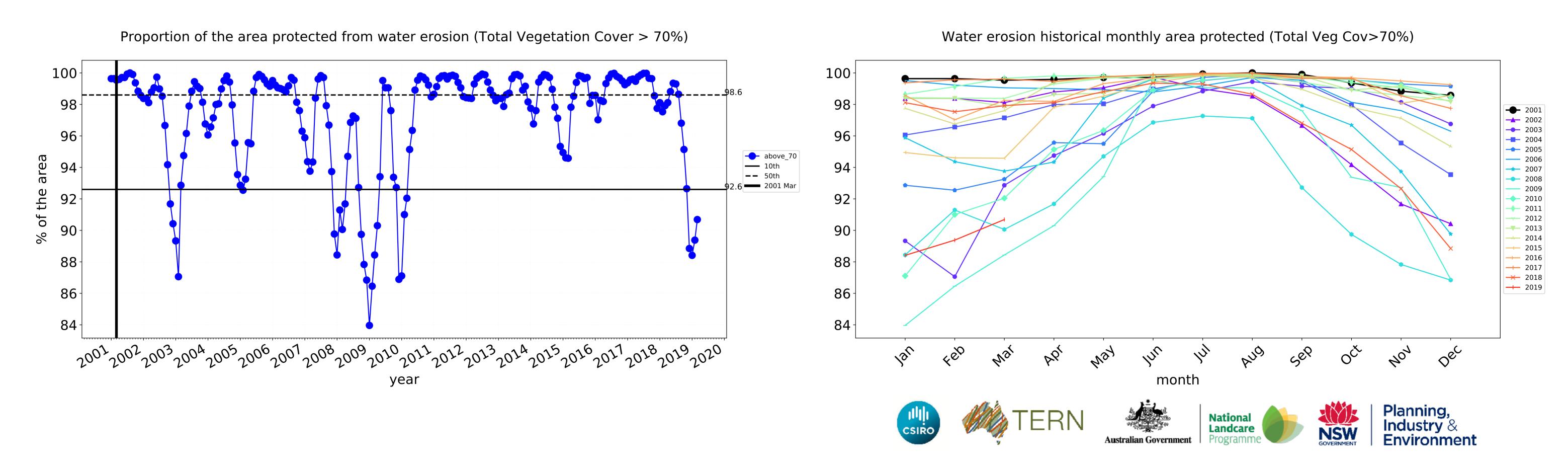






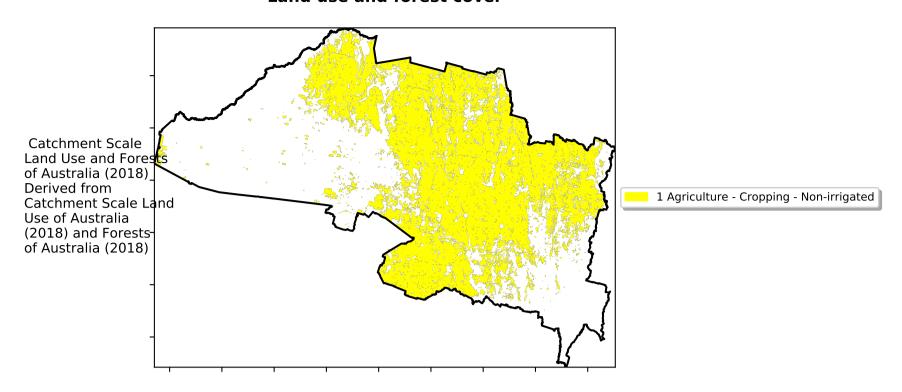




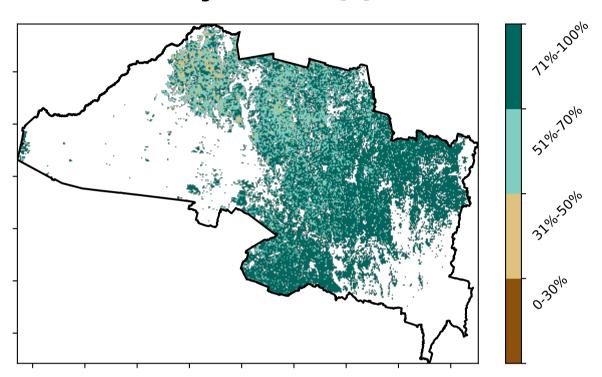


Cropping

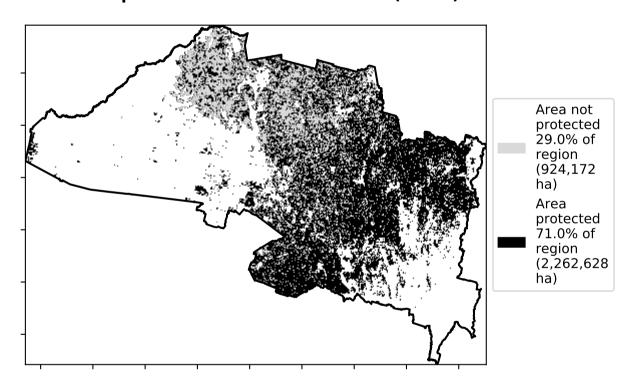
Land use and forest cover



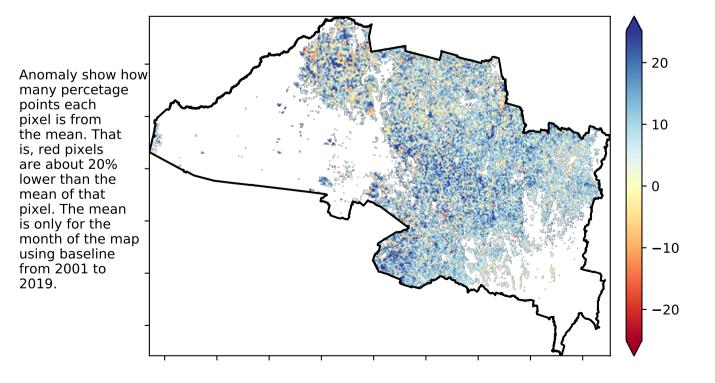
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

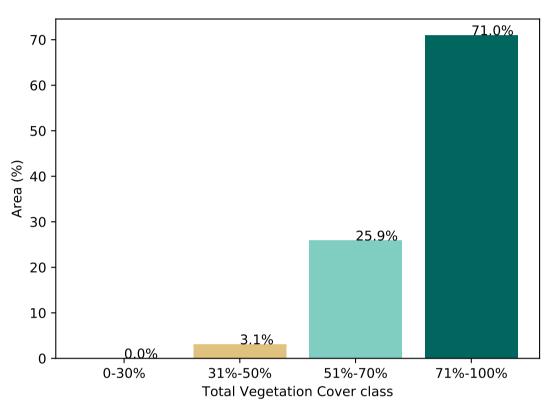


Total Vegetation Cover Anomaly [%]

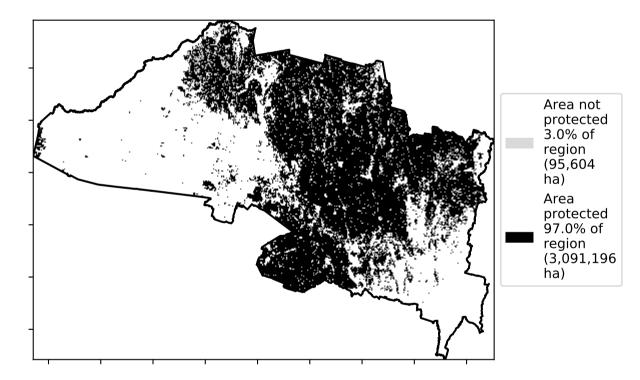


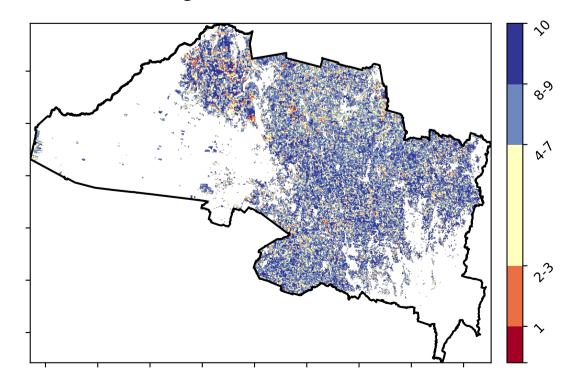
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)









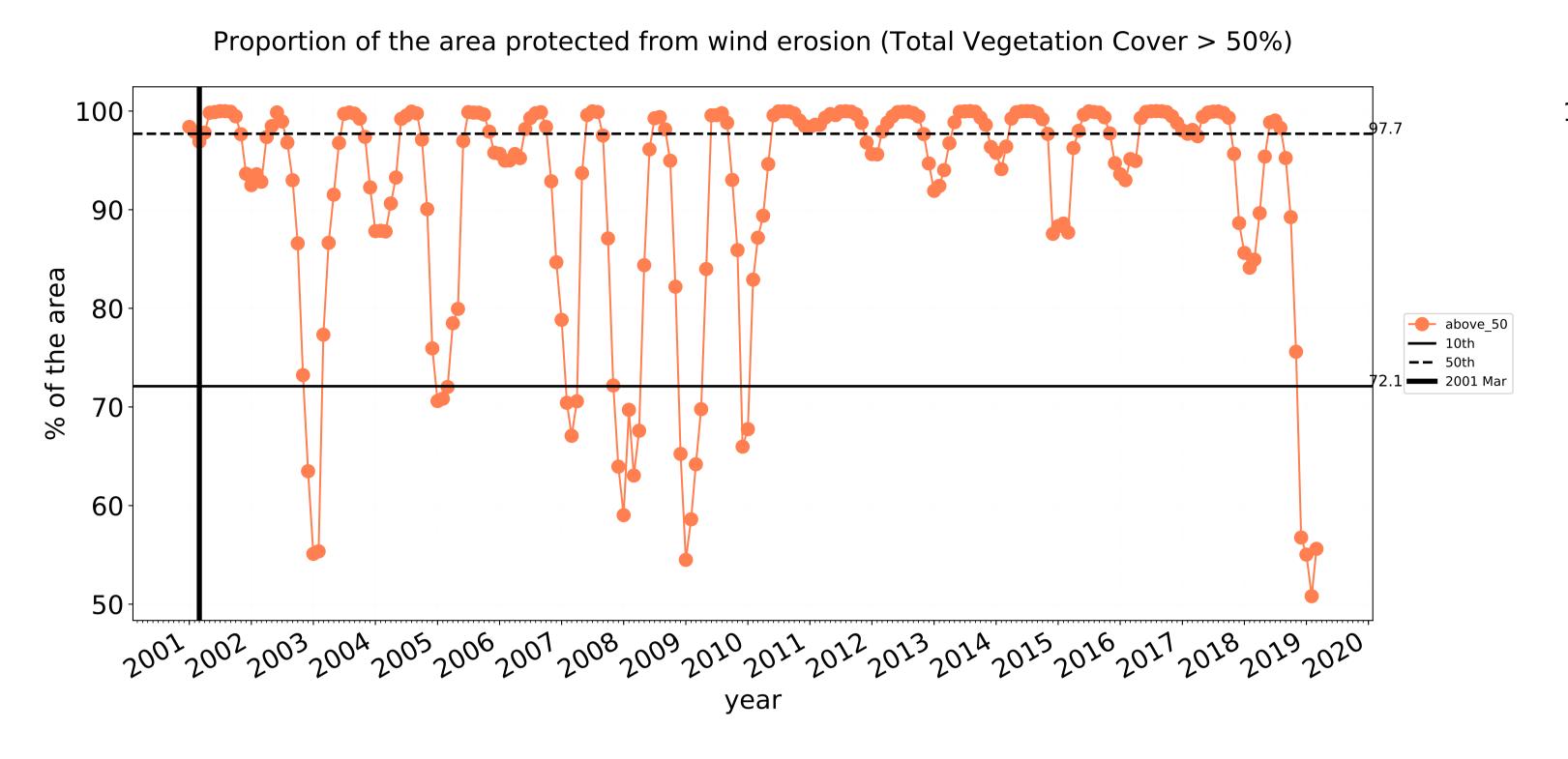


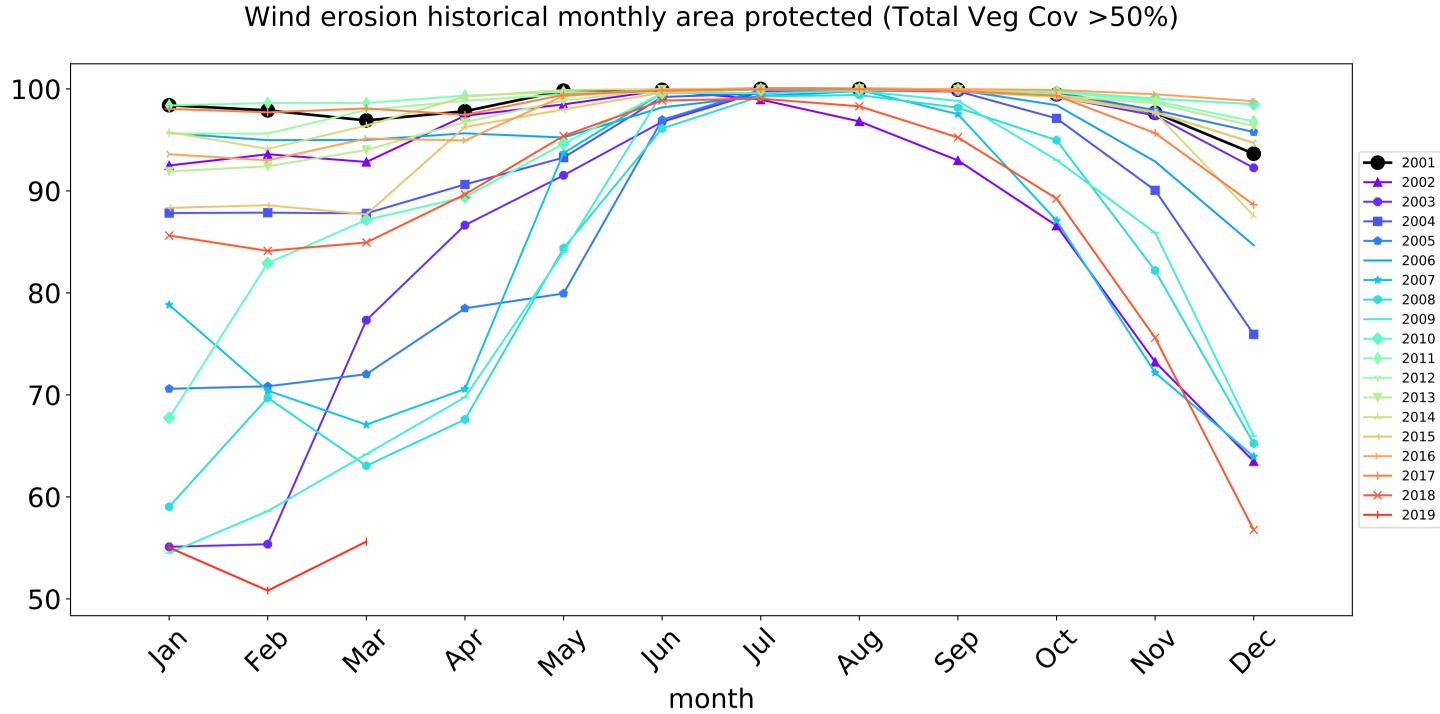


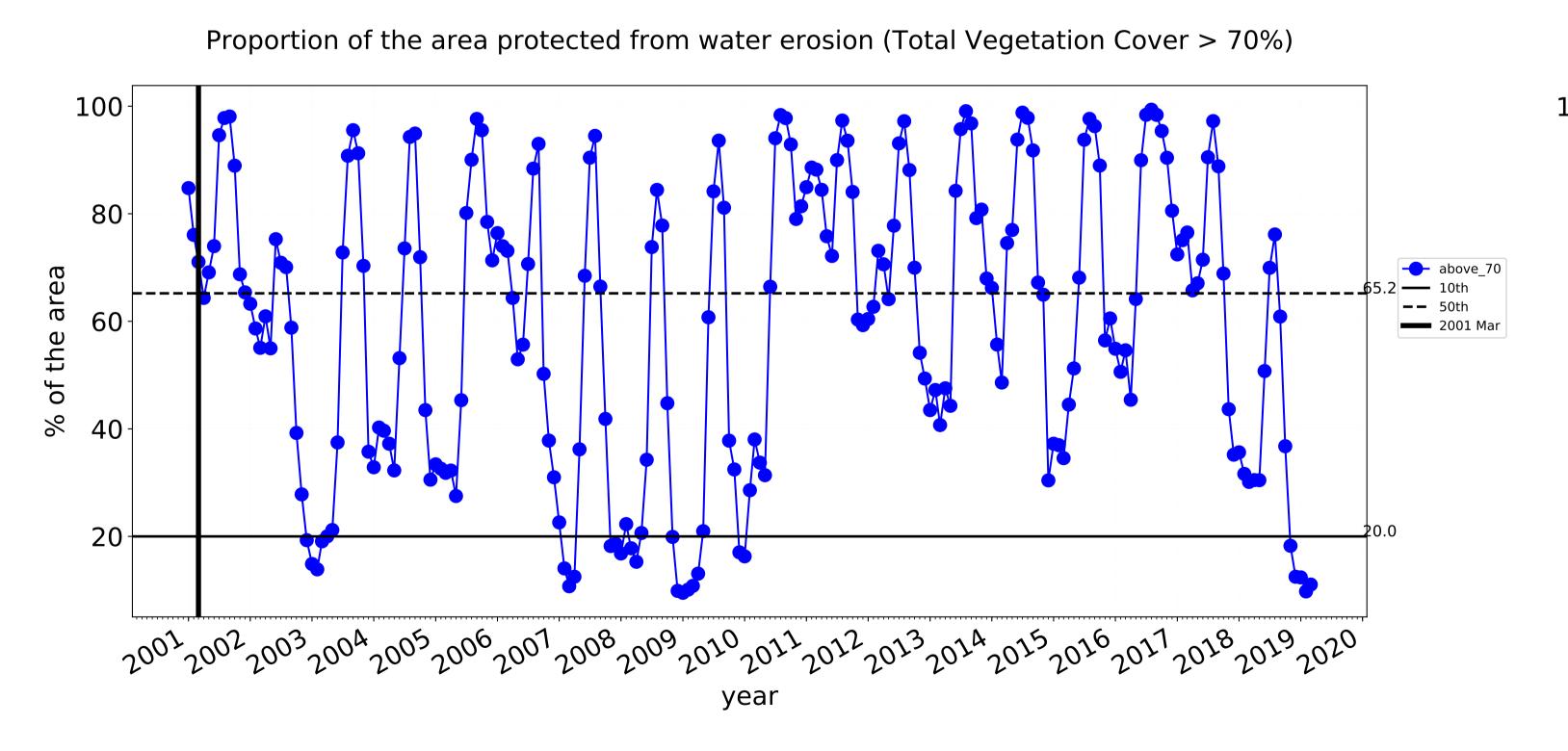


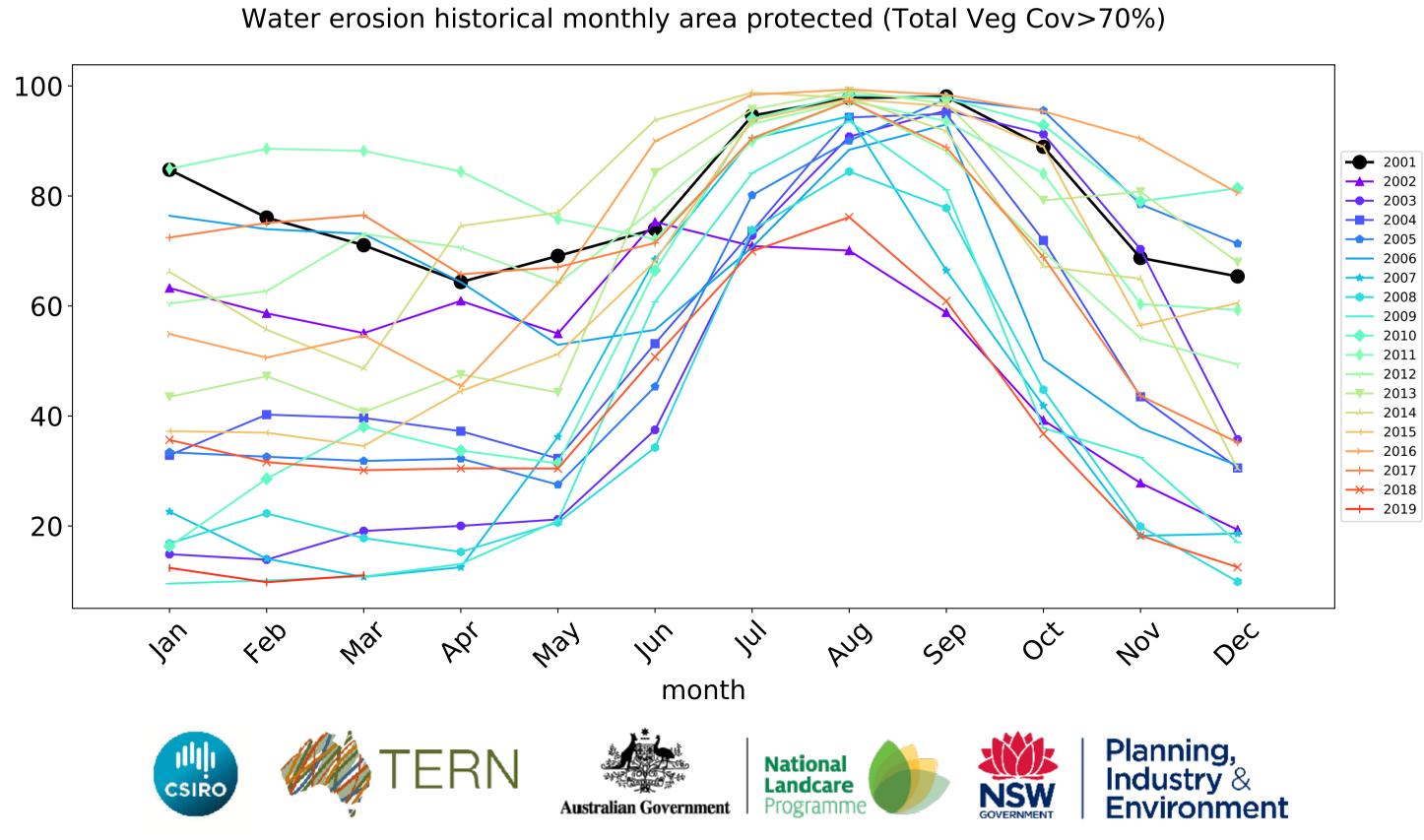


Cropping timeseries

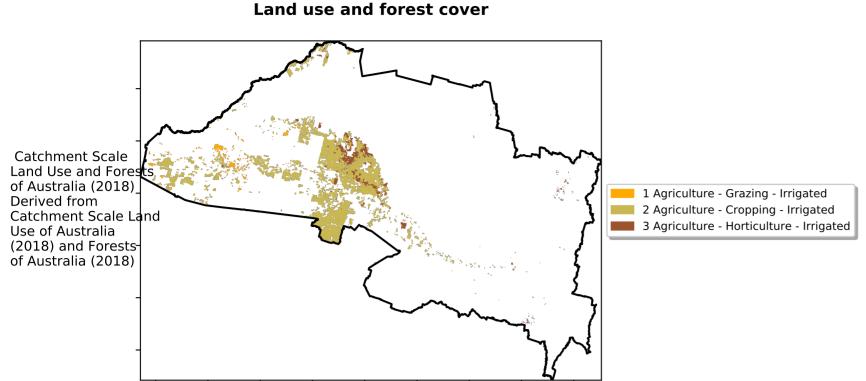


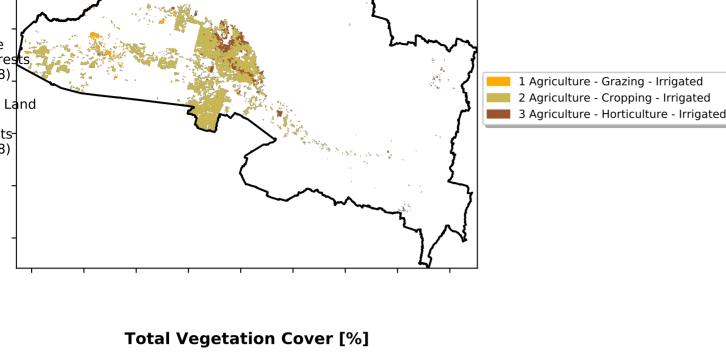


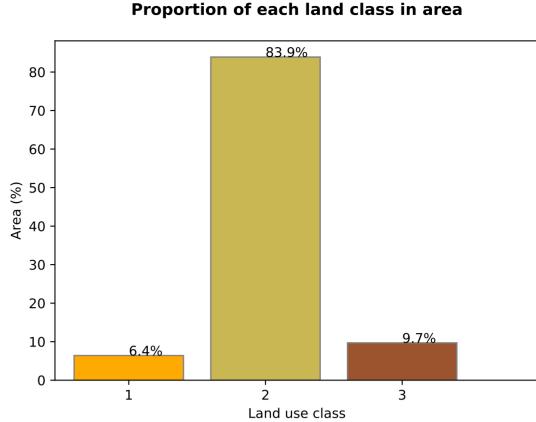


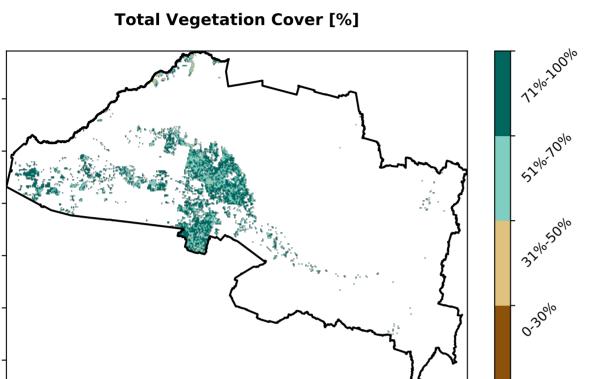


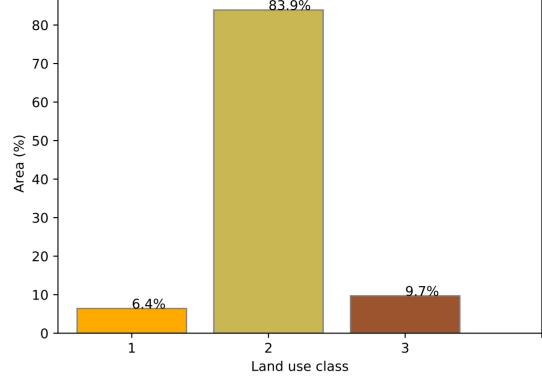
Irrigation





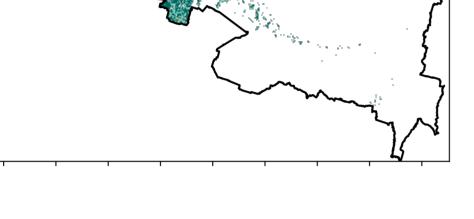






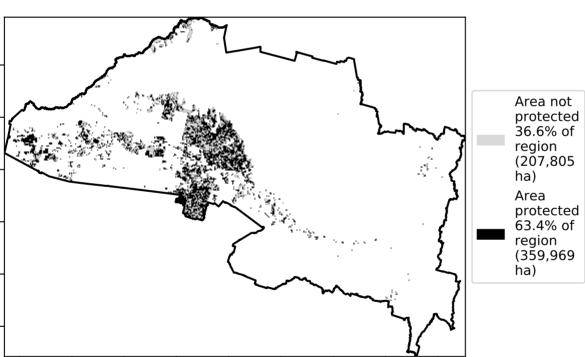
Proportion of vegetation cover class in area

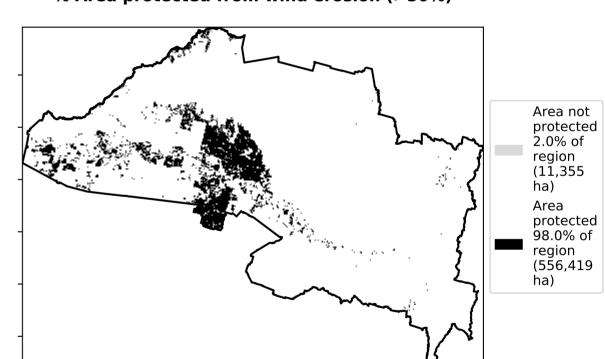
63.4% 60 50 Area (%) 35.0% 20 10 1.6% 31%-50% 51%-70% 71%-100% 0-30% **Total Vegetation Cover class**

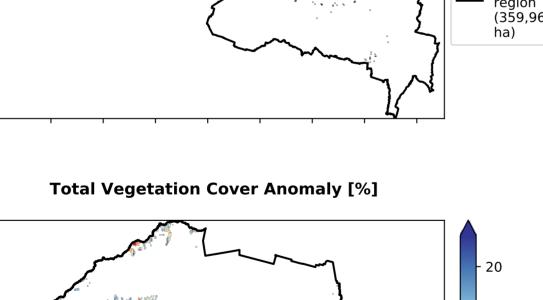


% Area protected from water erosion (>70%)

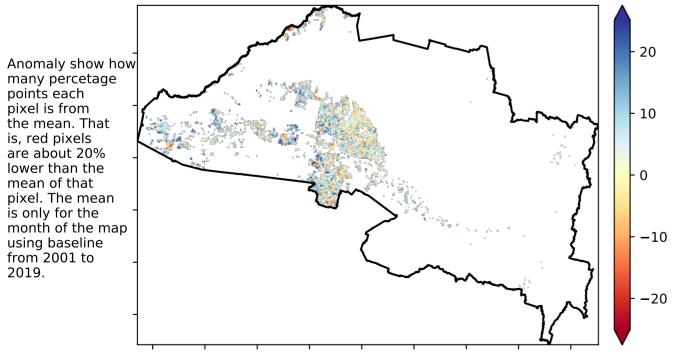
% Area protected from wind erosion (>50%)

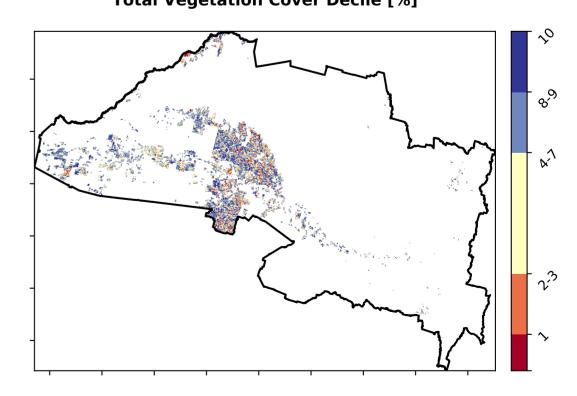






Total Vegetation Cover Decile [%]





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



pixel is from

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

using baseline from 2001 to 2019.

the mean. That

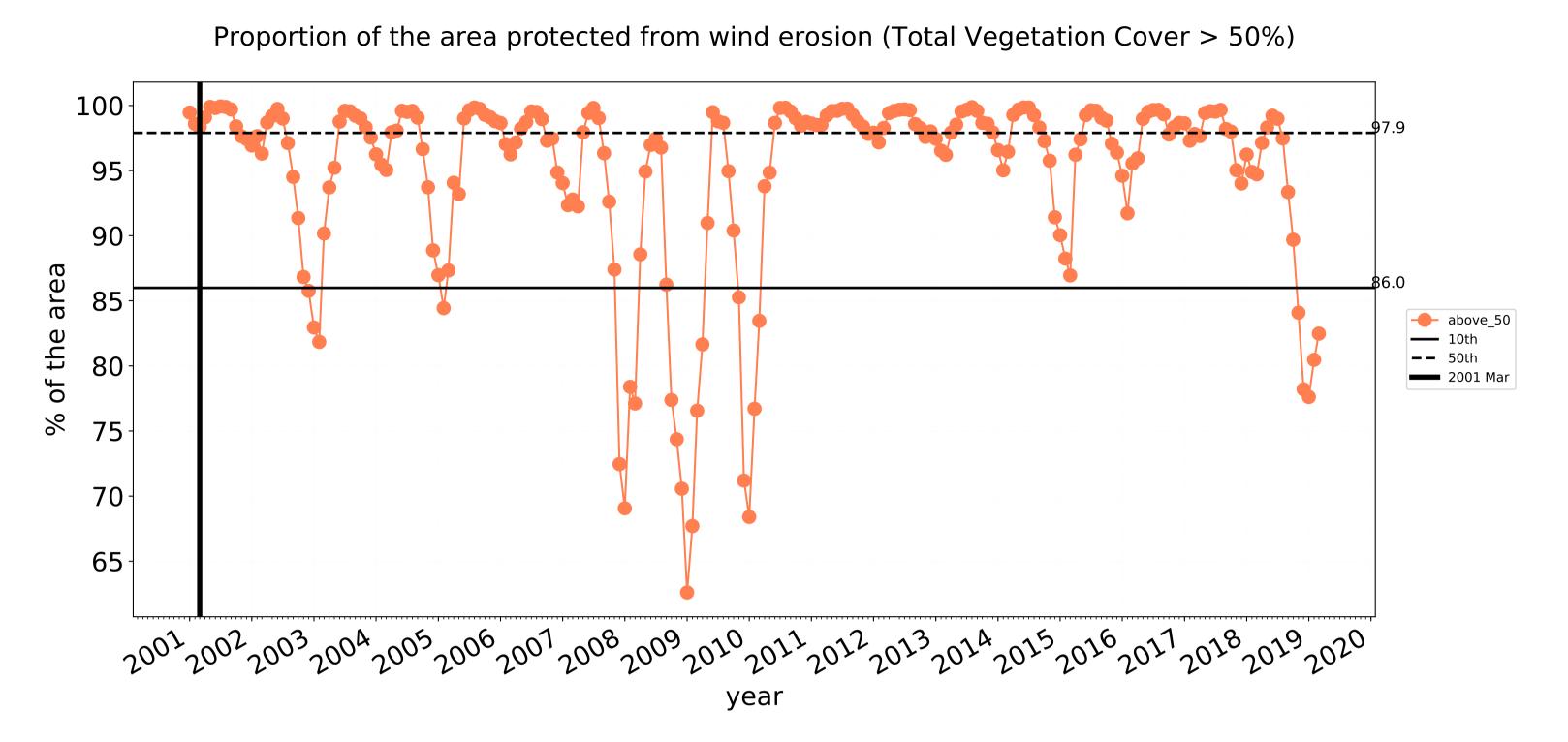


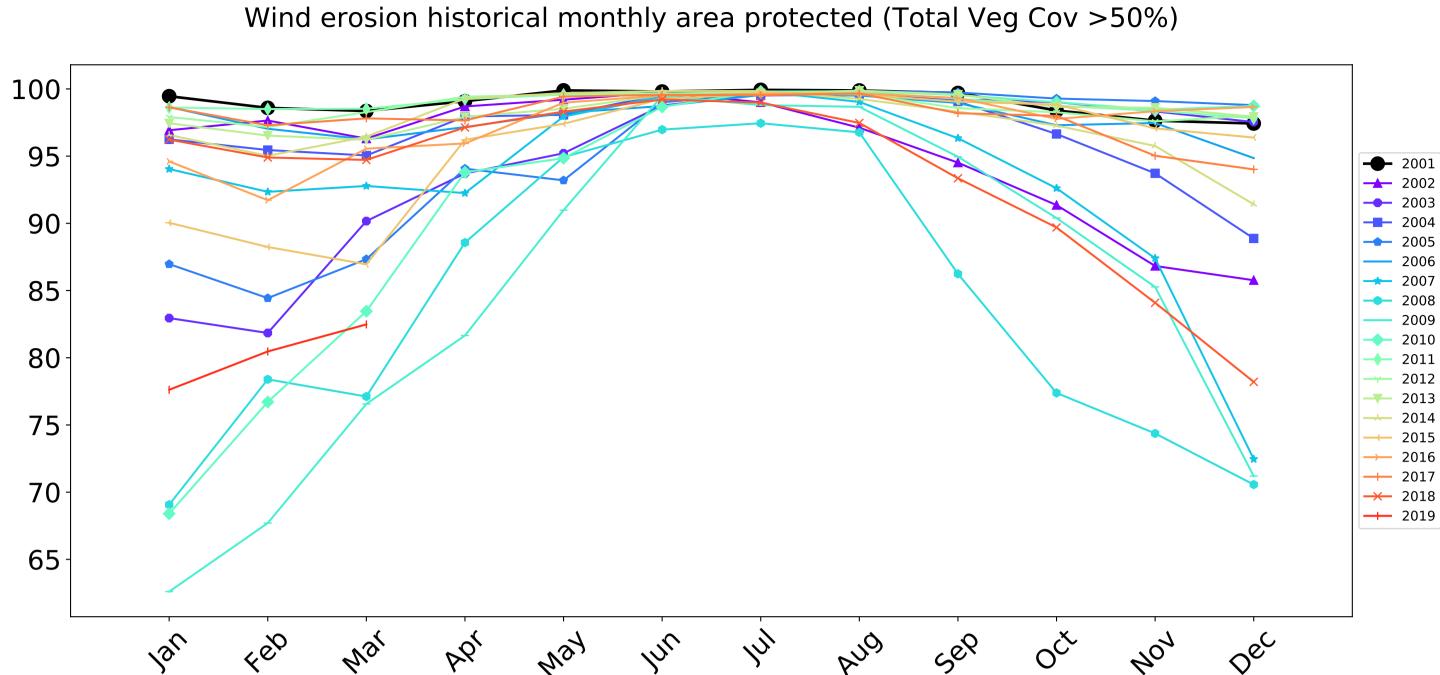




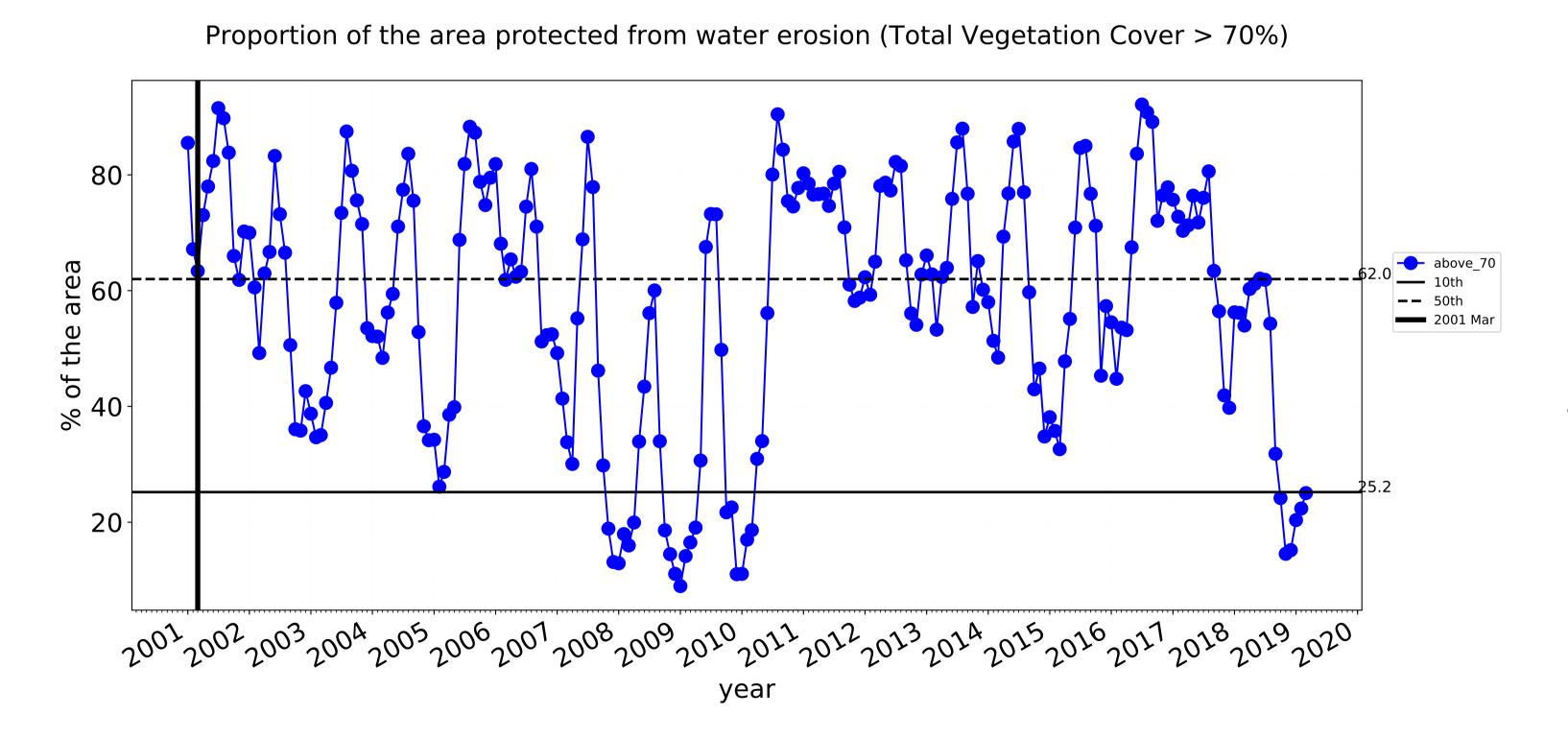


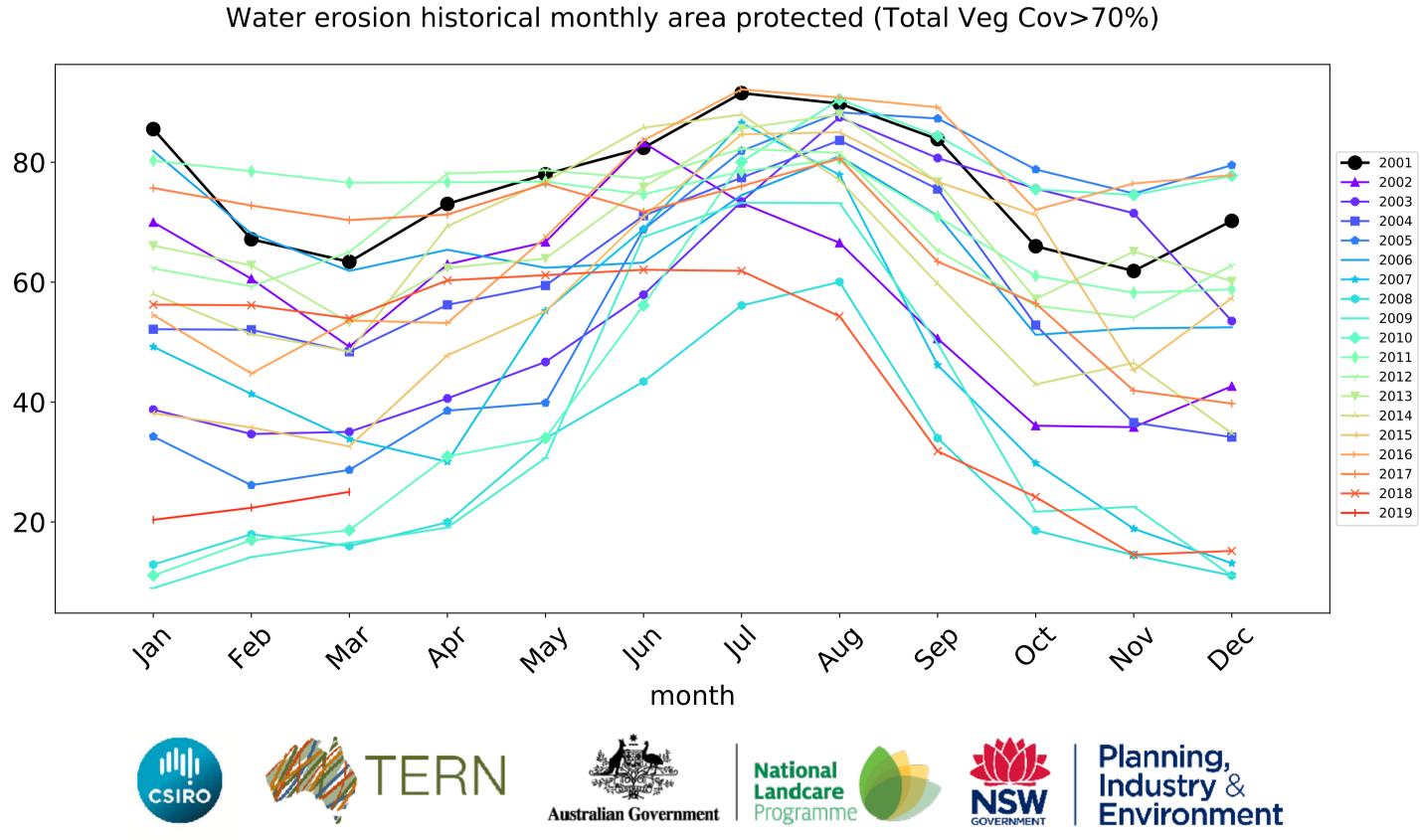






month



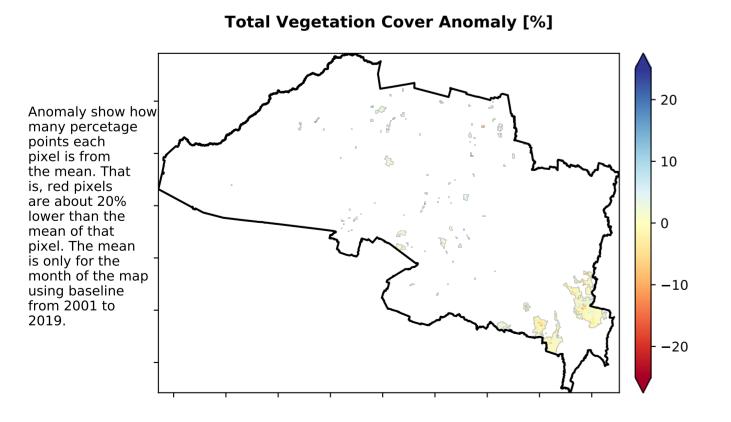


Production native forests and plantation forests

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

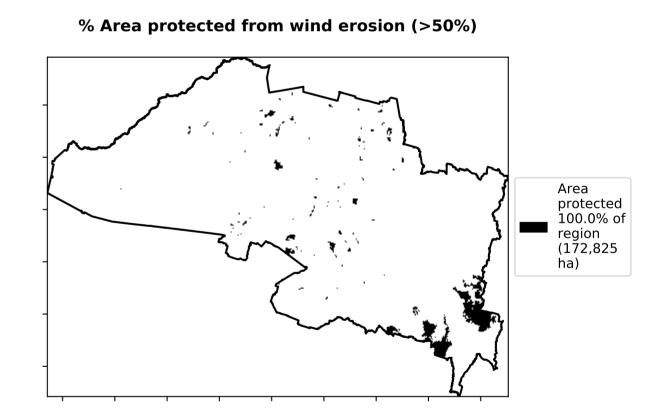
Total Vegetation Cover [%]

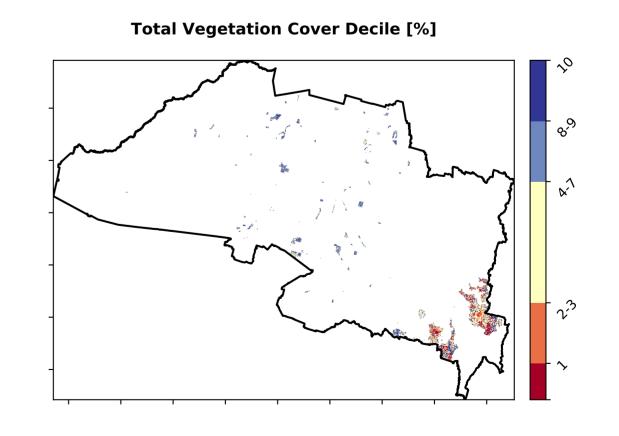
% Area protected from water erosion (>70%) Area not protected 1.9% of region (3,283 ha) Area protected 98.1% of region (169,541 ha)



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 100 - 98.1% 80 - 60 - 98.1% 40 - 20 - 0.0% 0.0% 1.9% O-30% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class









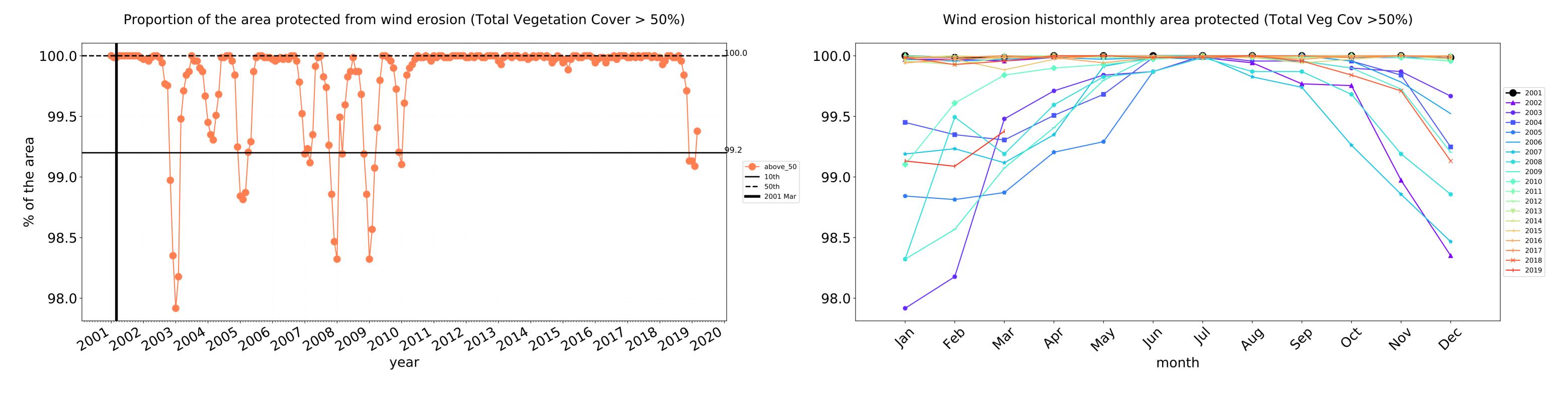


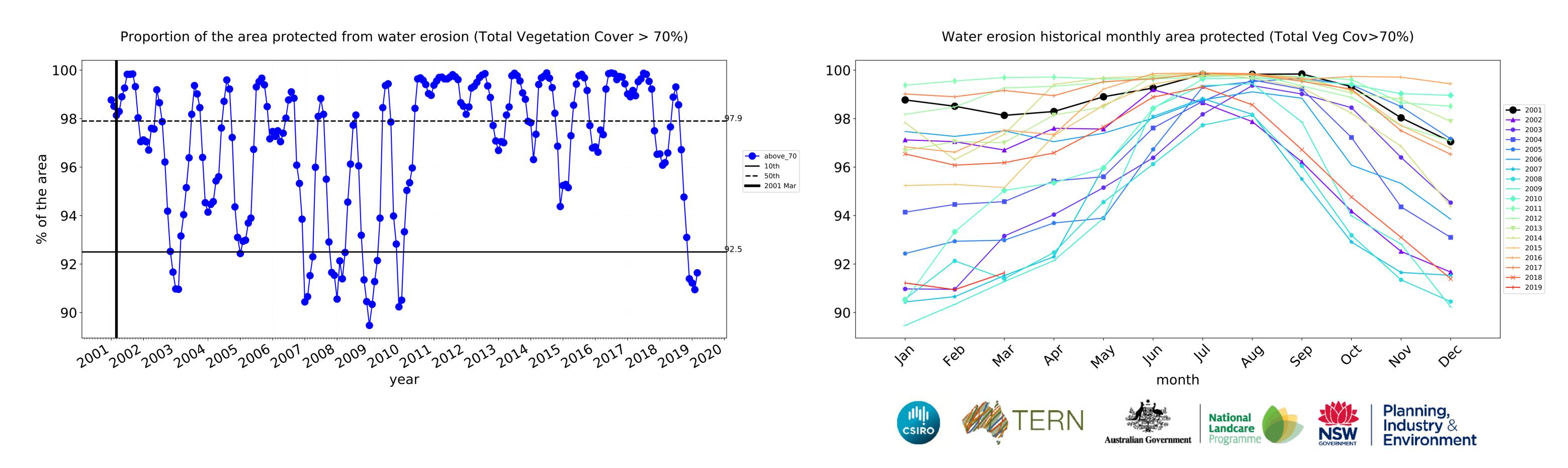






Production native forests and plantation forests timeseries





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% 6,694,150	98.3% 6,583,929	78.0% 5,223,035	50.9% 3,407,335	21.6% 1,448,790	7.1% 478,330
Conservation and natural environments	322,875	100.0% 322,875	100.0% 322,850	92.7% 299,375	85.4% 275,850	70.0% 225,950	42.0% 135,750
Conservation and natural environments non forest	83,300	100.0% 83,300	100.0% 83,275	72.4% 60,300	46.6% 38,825	18.9% 15,725	8.7% 7,250
Conservation and natural environments Forest (non woodland)	195,075	100.0% 195,075	100.0% 195,075	100.0% 195,050	99.7% 194,500	94.0% 183,350	62.5% 121,975
Agriculture	6,068,125	100.0% 6,068,125	98.2% 5,958,625	76.5% 4,644,875	47.8% 2,900,425	17.9% 1,083,450	4.5% 270,150
Grazing	2,311,725	100.0% 2,311,725	99.9% 2,310,225	87.4% 2,020,050	59.0% 1,363,825	27.6% 637,300	7.5% 174,200
Grazing non forest	2,066,725	100.0% 2,066,725	99.9% 2,065,300	86.2% 1,780,850	55.7% 1,151,800	25.6% 529,200	7.6% 156,425
Grazing Woodland forest	141,650	100.0% 141,650	99.9% 141,575	96.2% 136,325	80.1% 113,400	29.7% 42,125	1.9% 2,700
Grazing - Forest (non woodland)	103,350	100.0% 103,350	100.0% 103,350	99.5% 102,875	95.4% 98,625	63.8% 65,975	14.6% 15,075
Cropping	3,186,800	100.0% 3,186,800	96.9% 3,088,175	71.0% 2,264,075	43.2% 1,378,025	13.4% 426,125	2.9% 92,475
Irrigation	567,775	100.0% 567,775	98.4% 558,450	63.4% 359,875	27.9% 158,325	3.5% 20,000	0.6% 3,475
Production native forests and plantation forests	172,825	100.0% 172,825	100.0% 172,800	98.1% 169,600	94.2% 162,800	70.9% 122,600	40.6% 70,100











