Total vegetation cover soil protection **Region:NRM Hunter 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: June 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







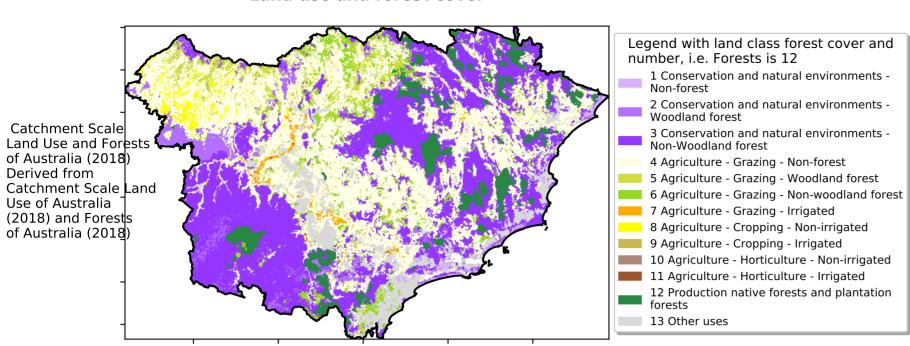




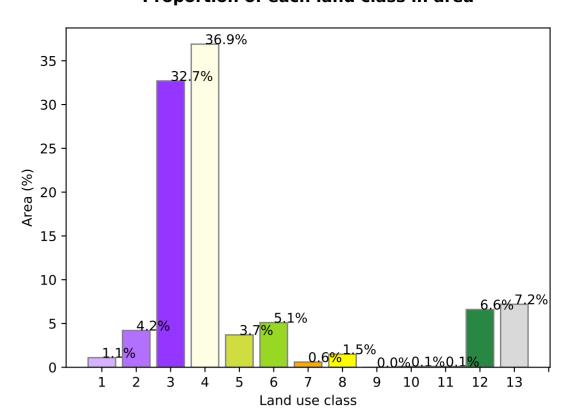


Vegetation Cover Jun 2002

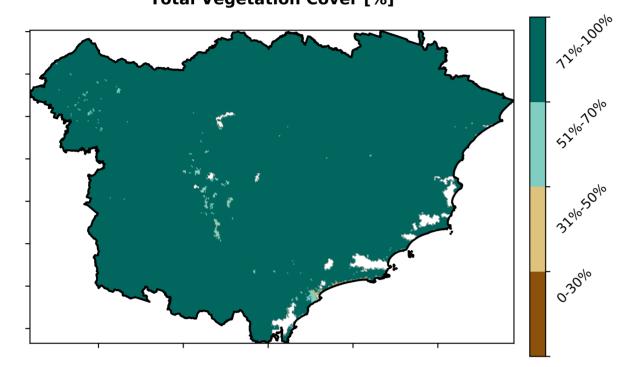
Land use and forest cover



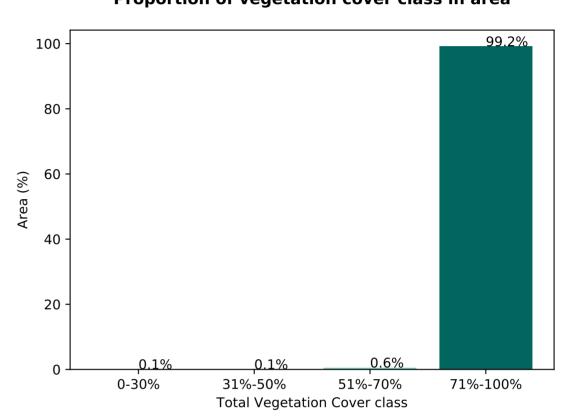
Proportion of each land class in area



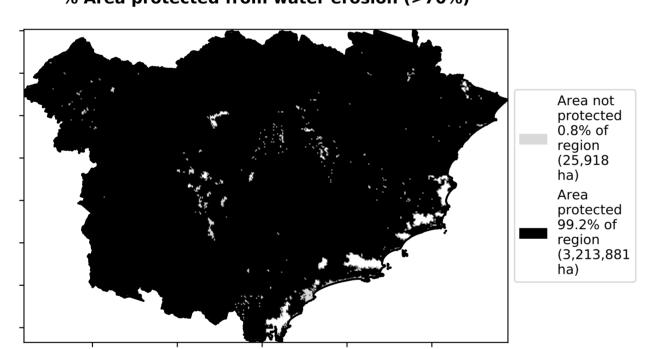
Total Vegetation Cover [%]



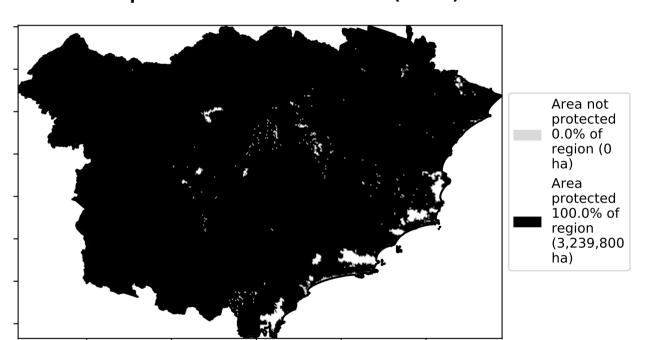
Proportion of vegetation cover class in area



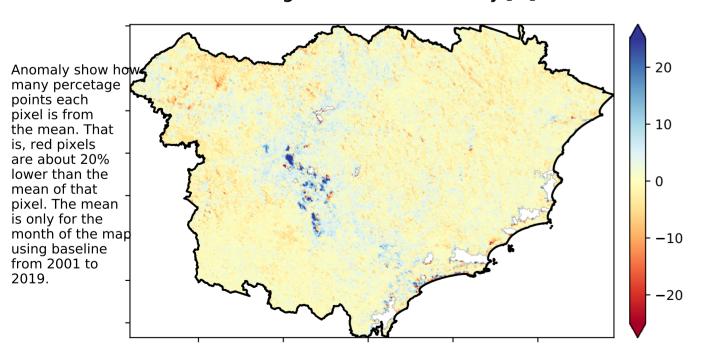
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

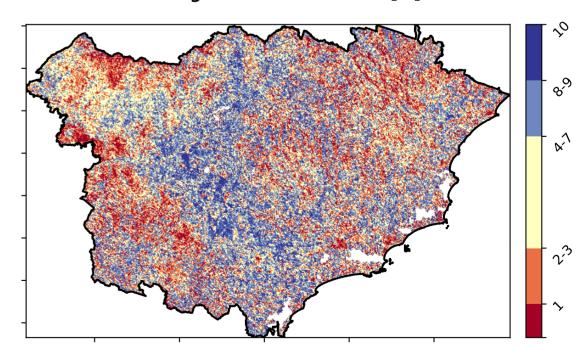


Total Vegetation Cover Anomaly [%]



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Total Vegetation Cover Decile [%]





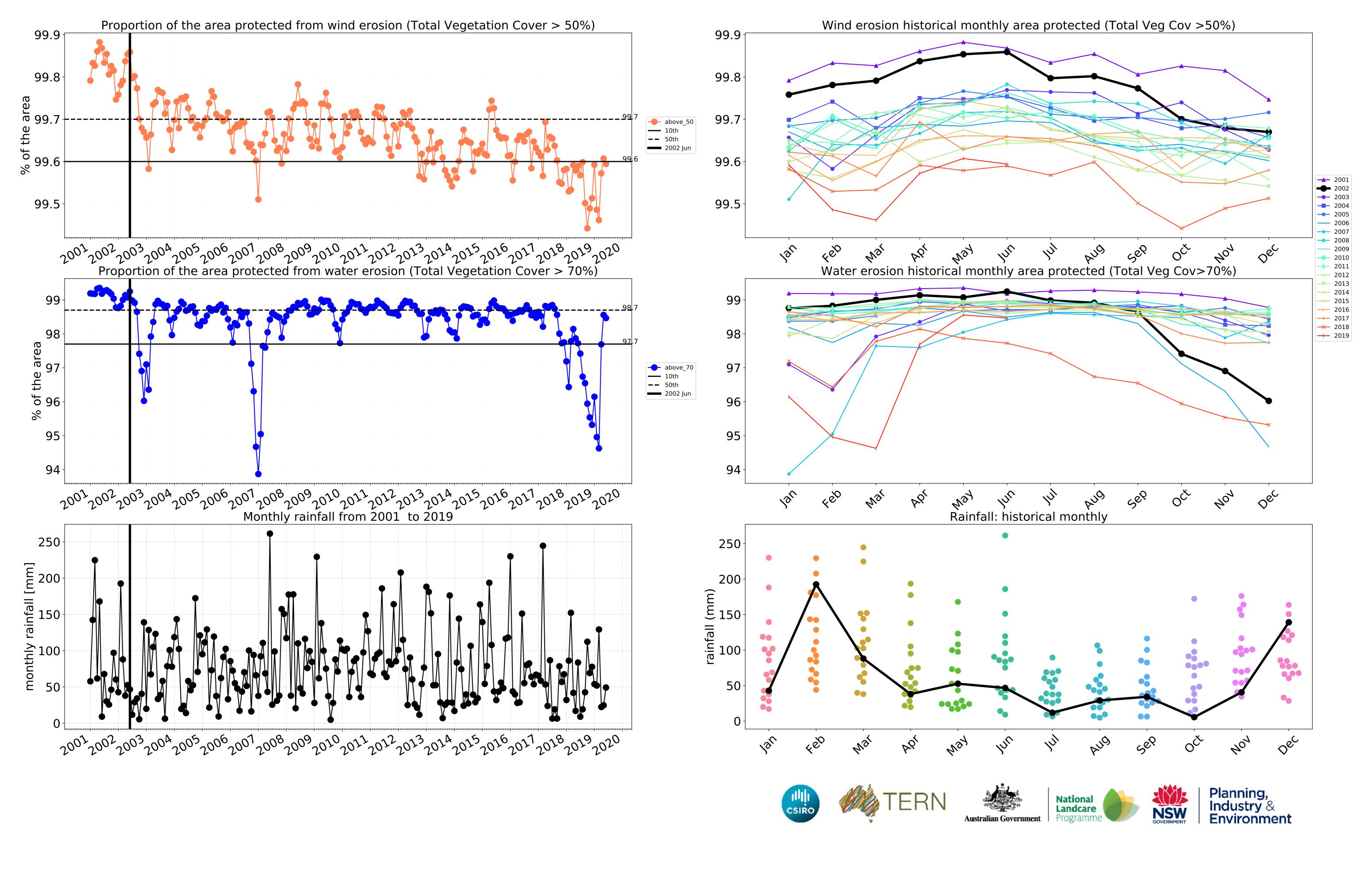


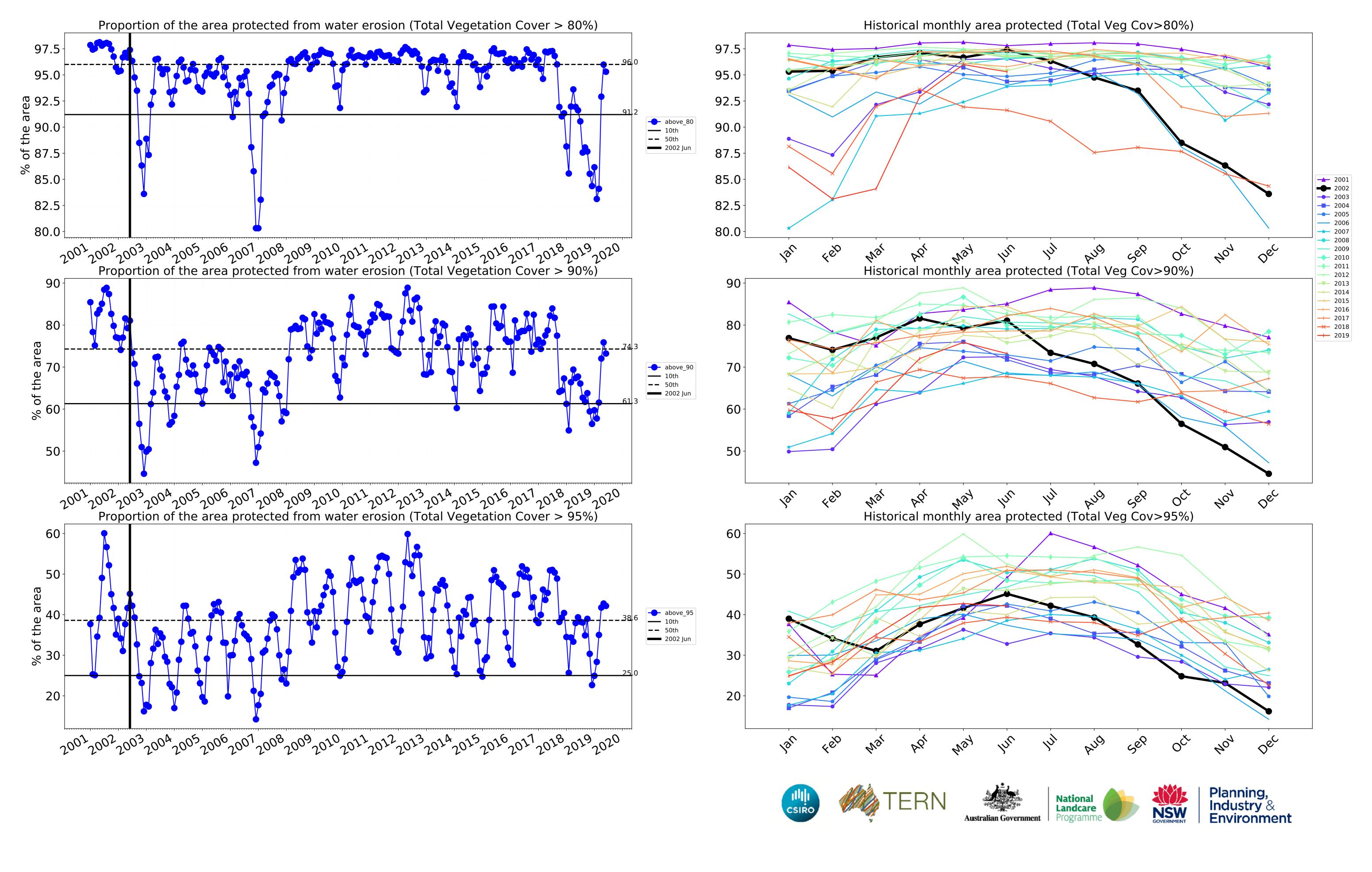




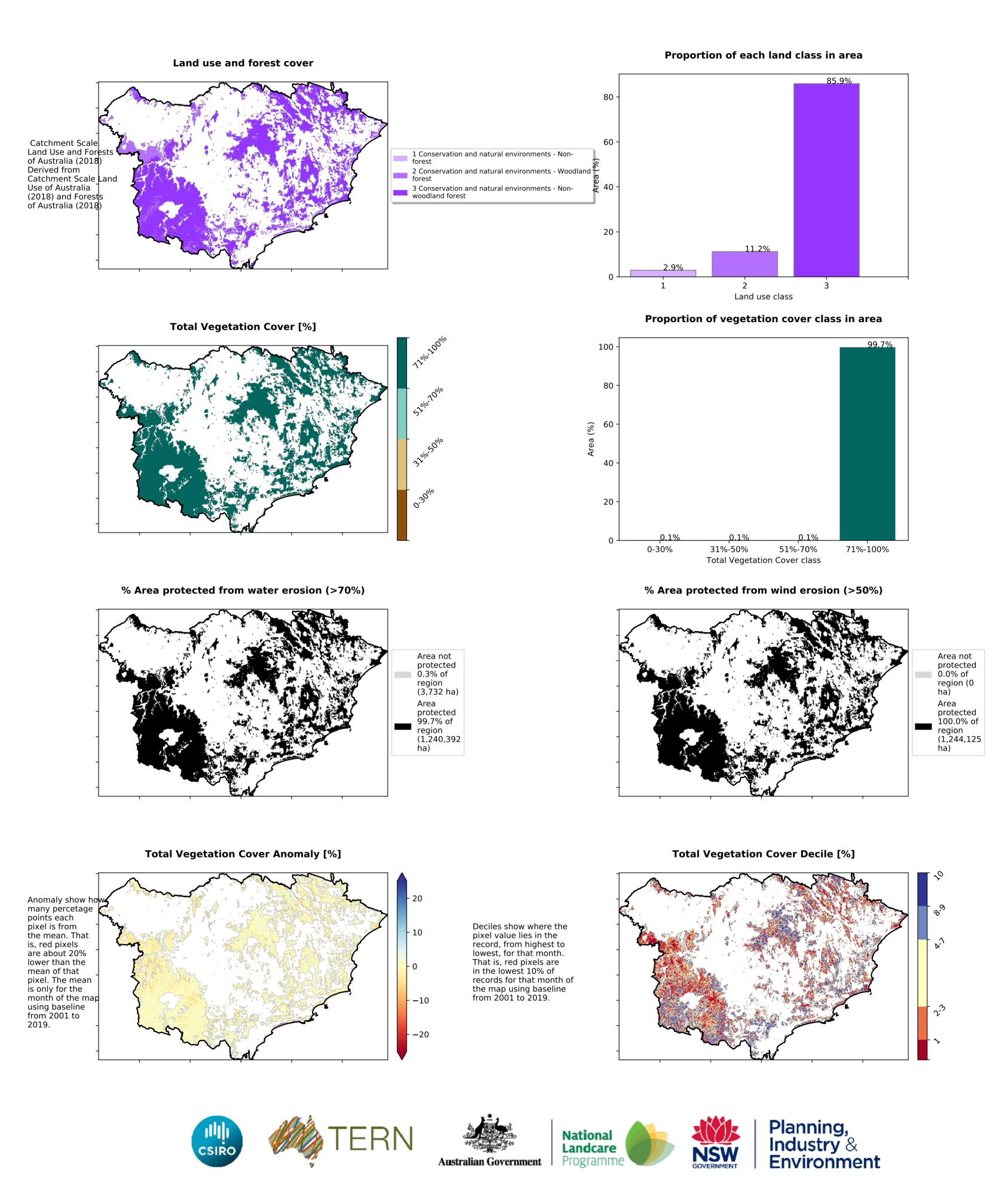




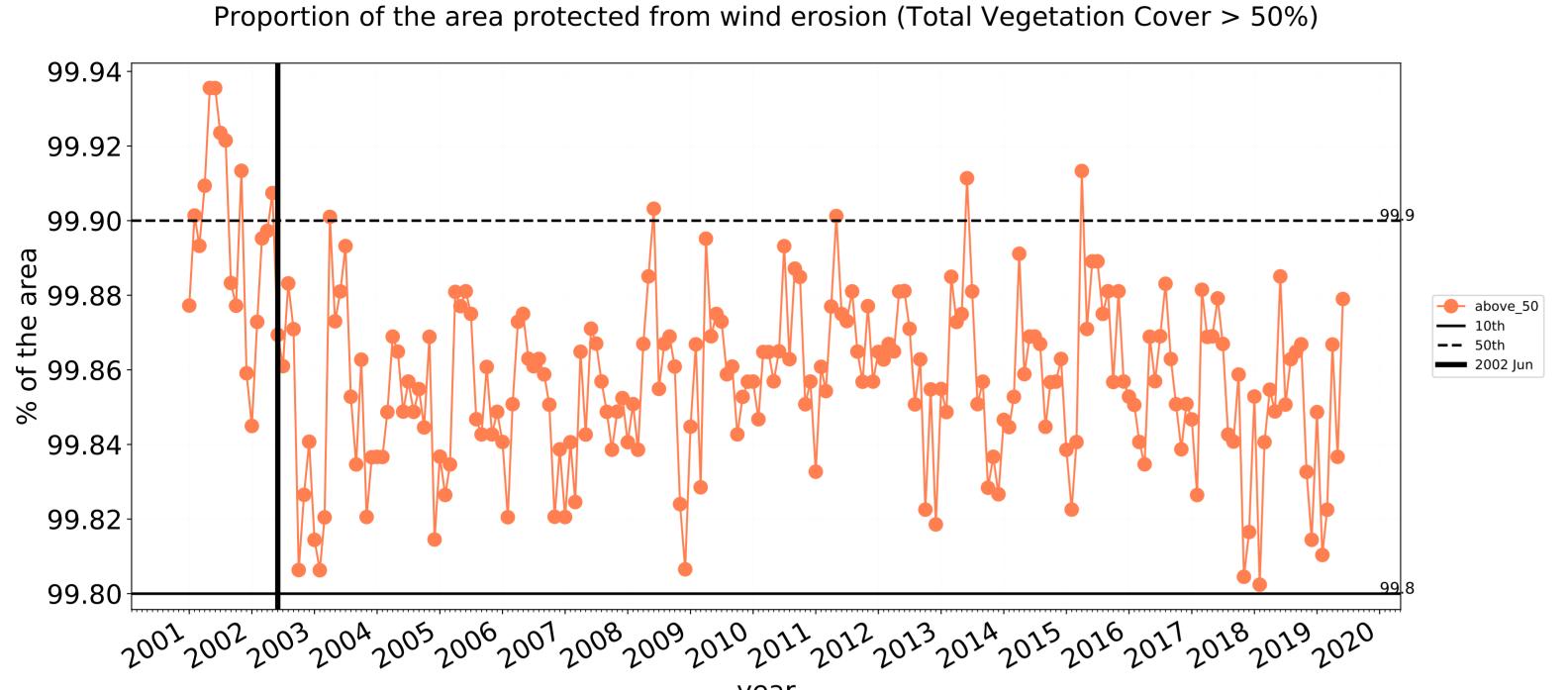


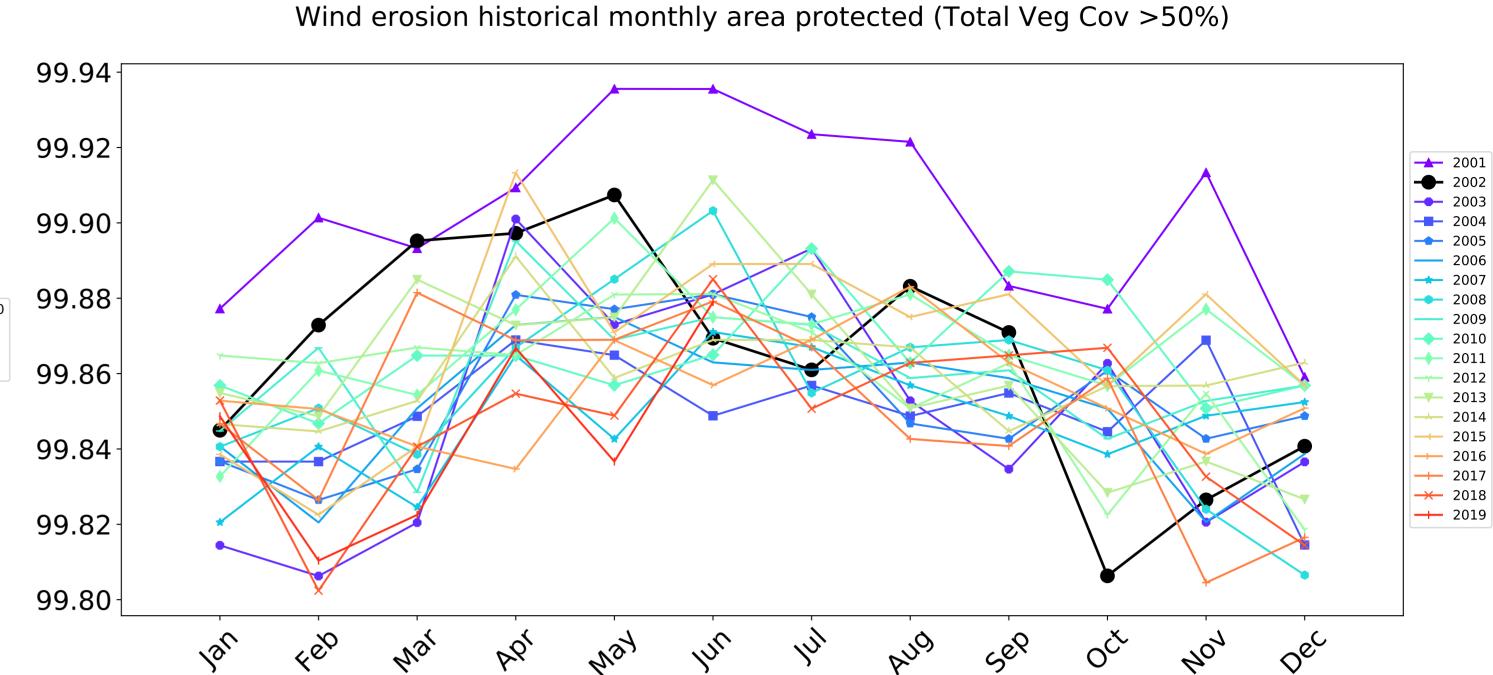


Conservation and natural environments

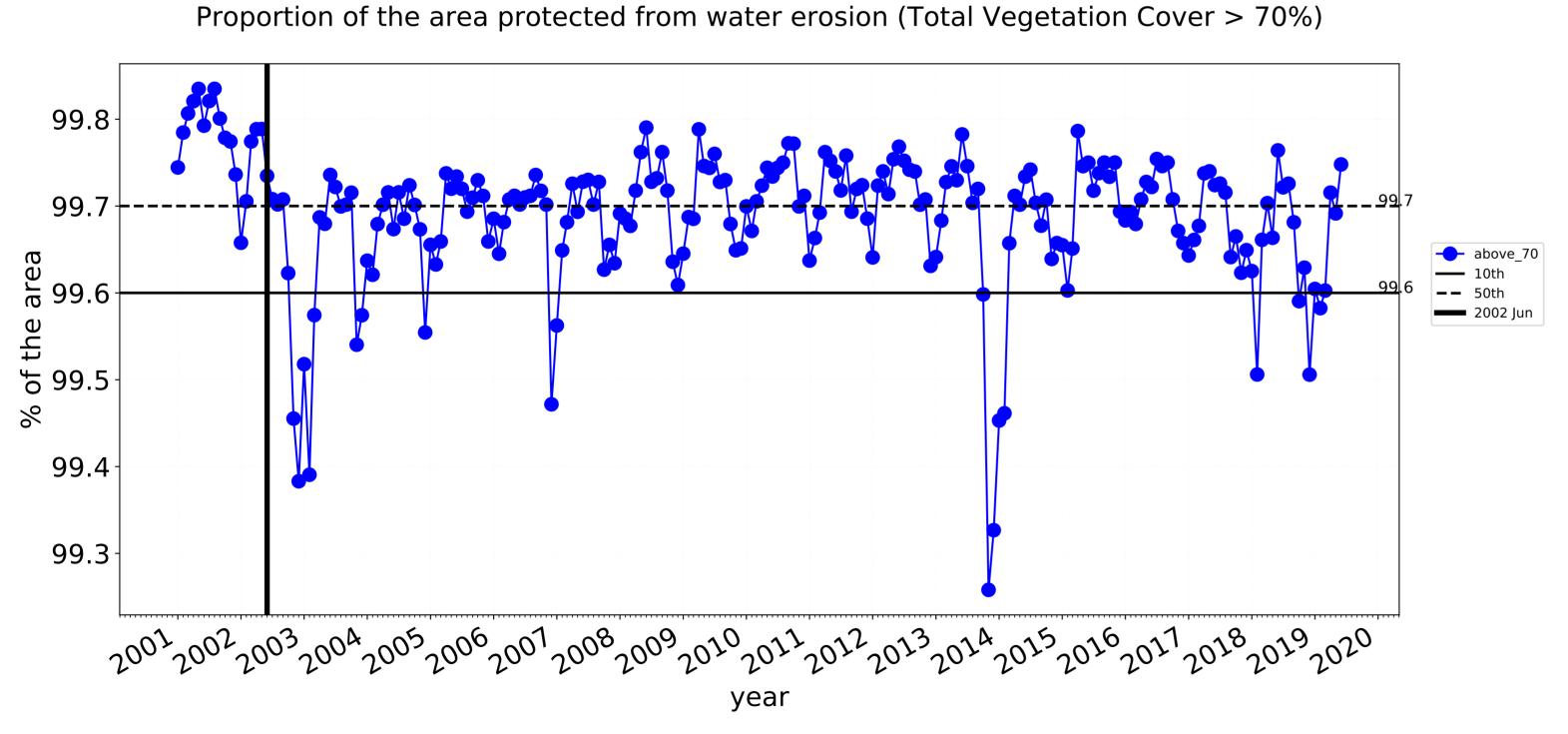


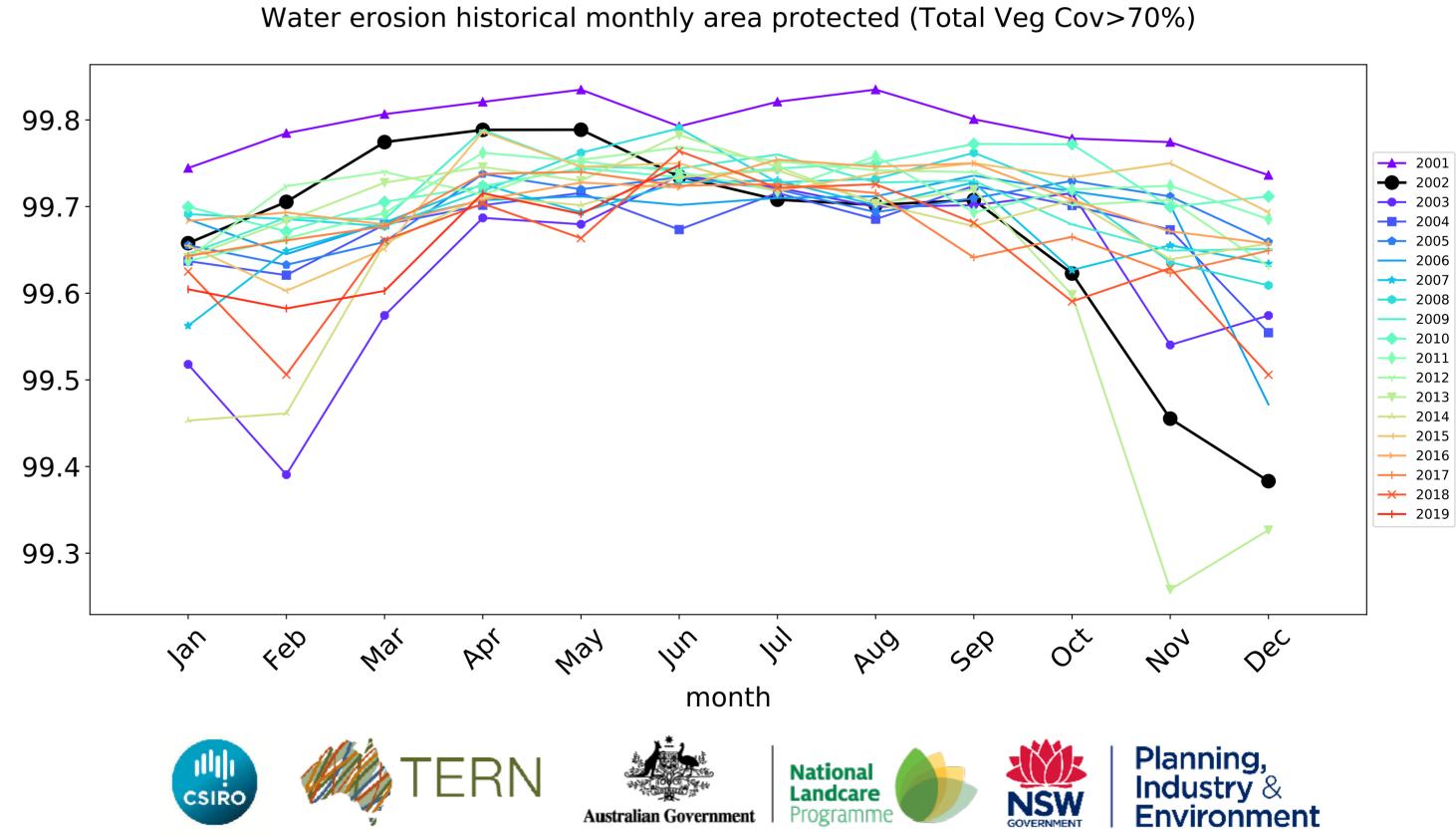
Conservation and natural environments timeseries

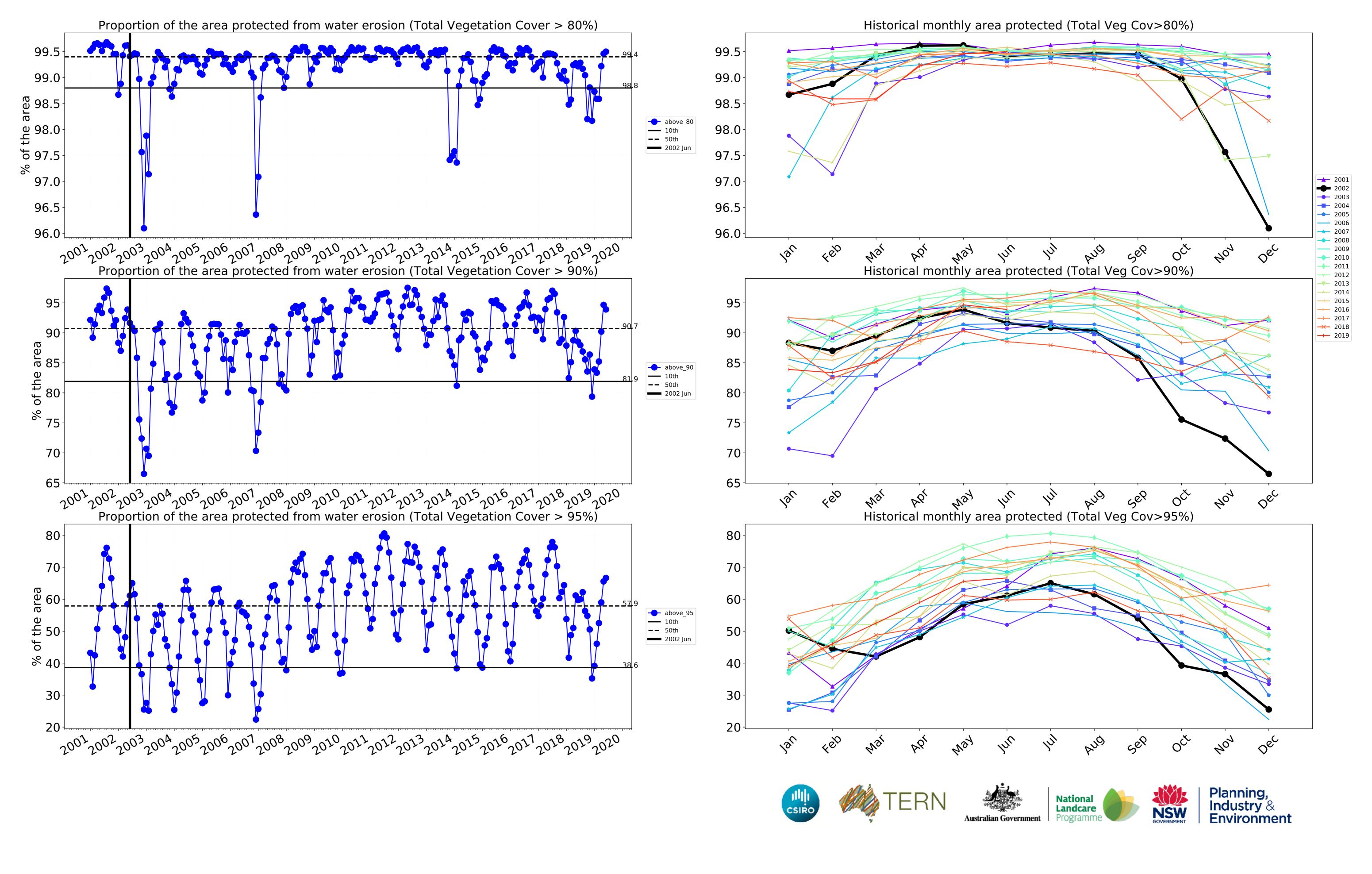




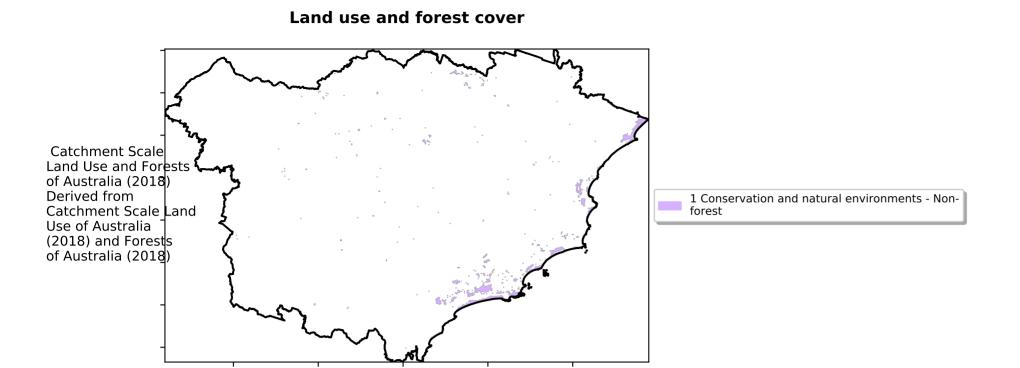
month





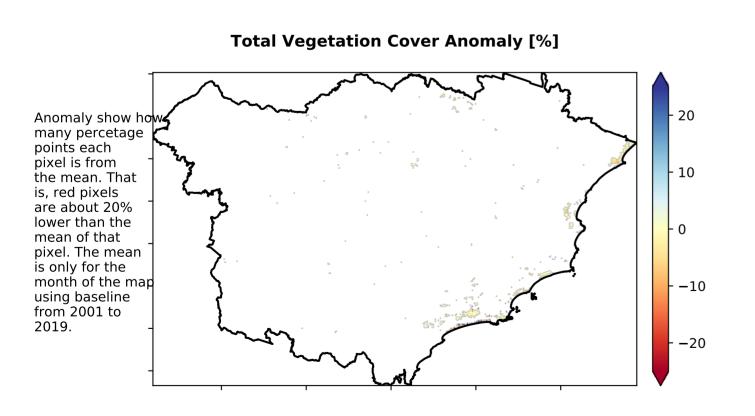


Conservation and natural environments non forest



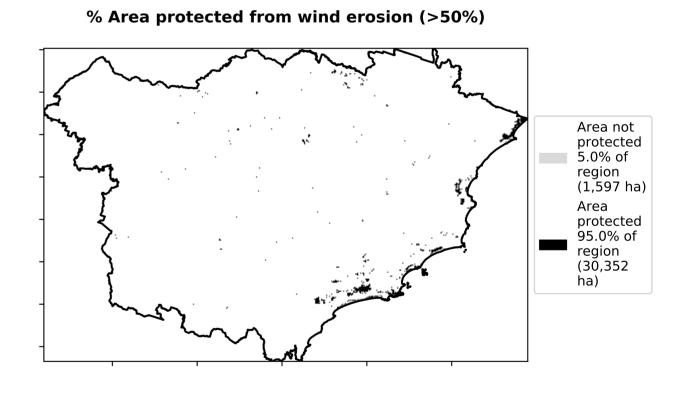
Total Vegetation Cover [%]

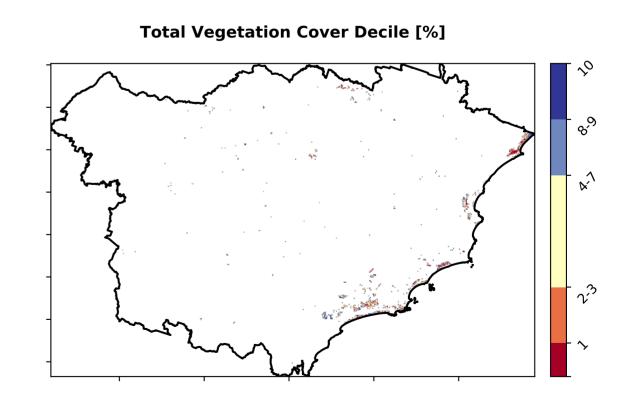
Area not protected 8.3% of region (2,651 ha) Area protected 91.7% of region (29,298 ha)



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 91.7% 80 - 60 - 60 - 20 - 20 - 20 - 20 - 31% - 50% 51% - 70% 71% - 100% Total Vegetation Cover class









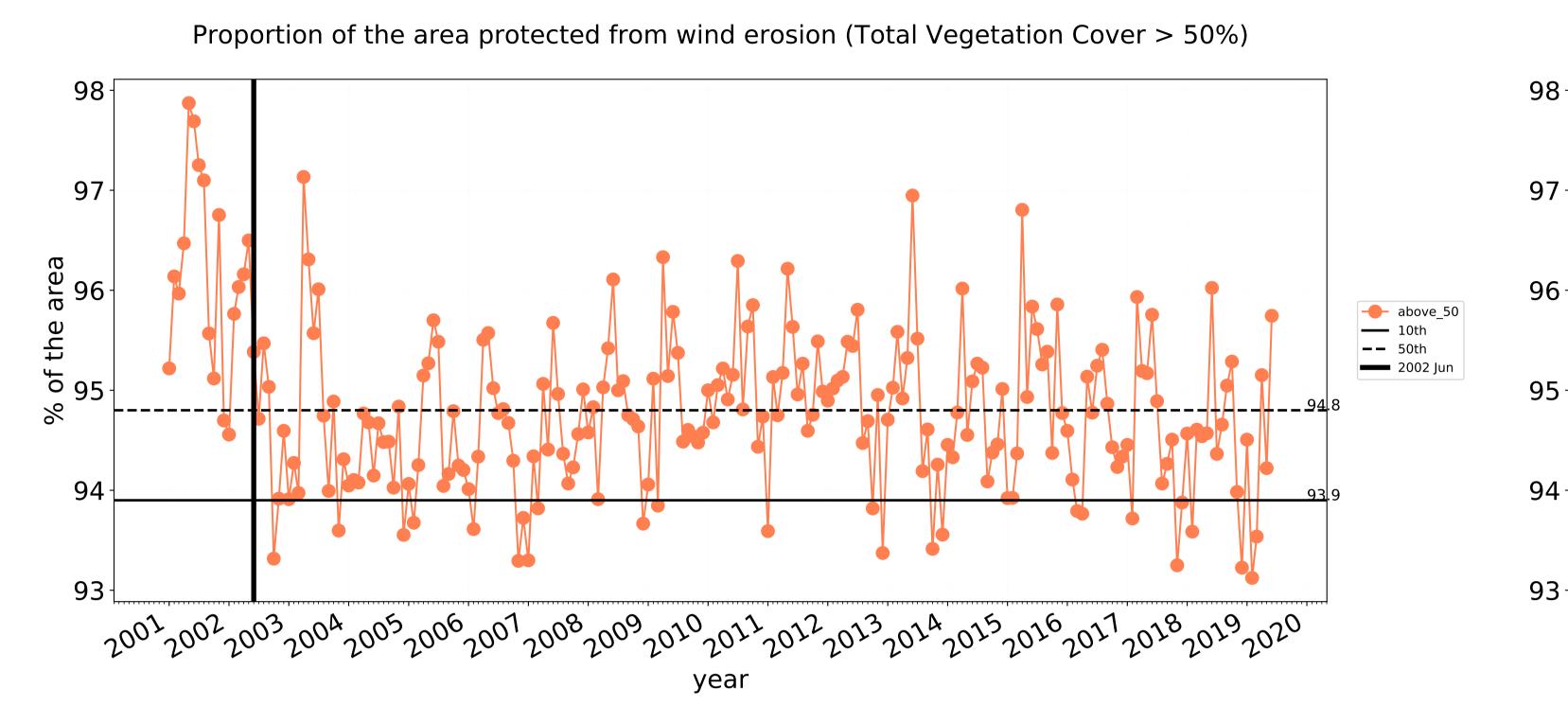


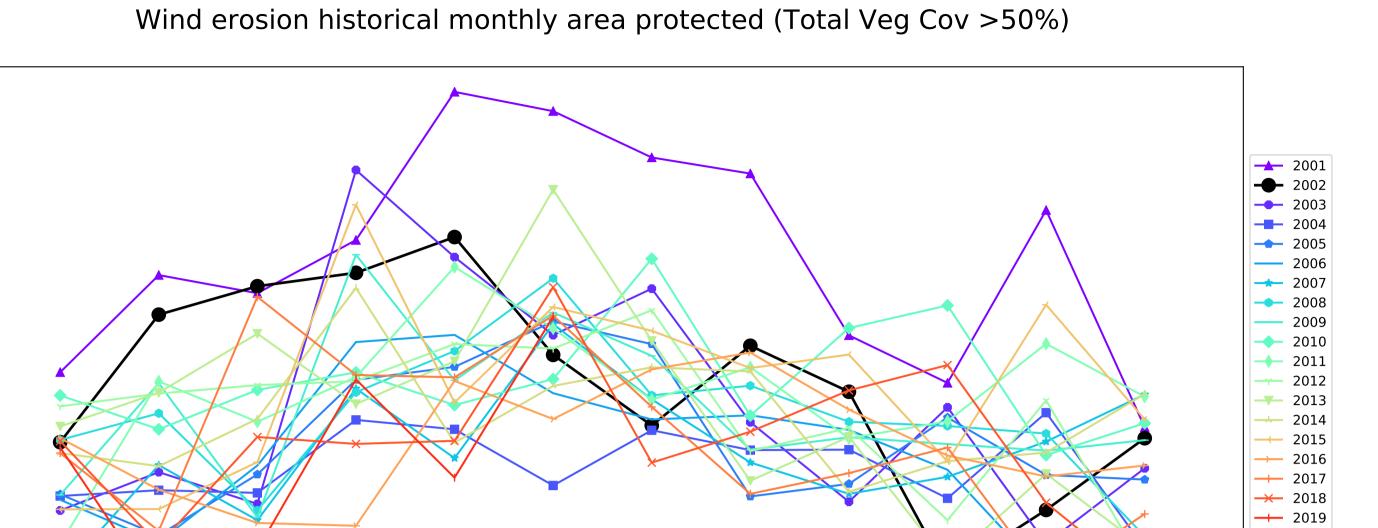


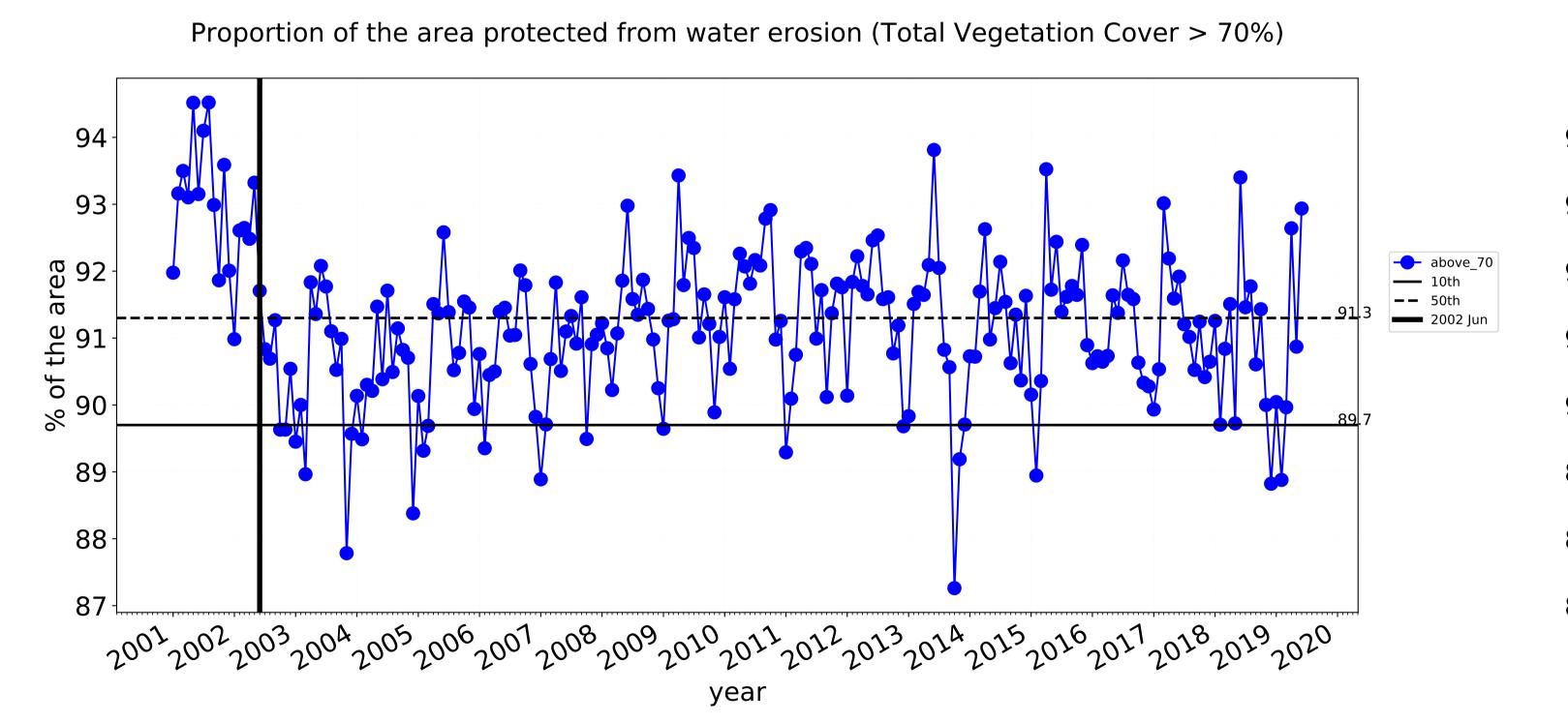


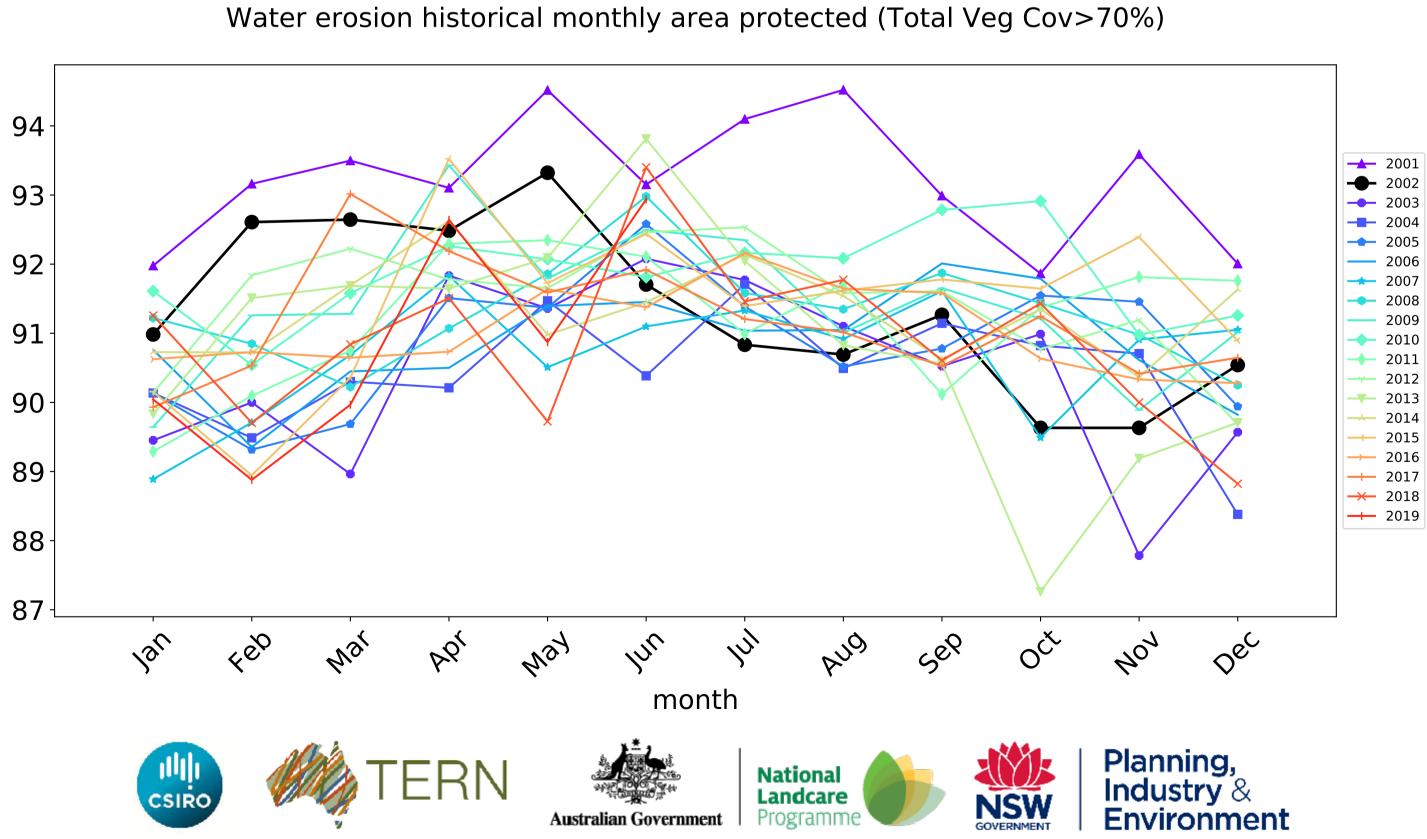


Conservation and natural environments non forest timeseries

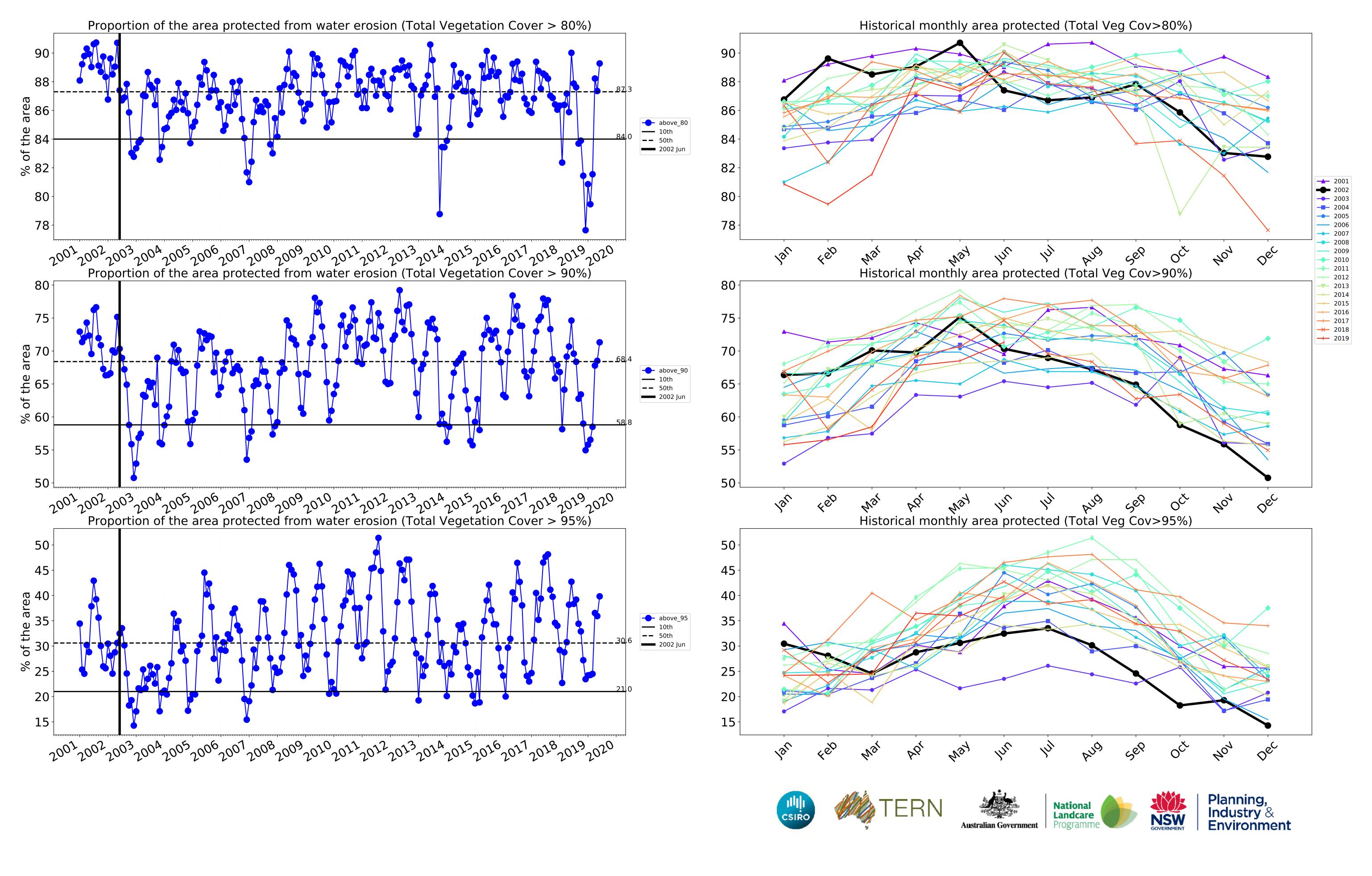




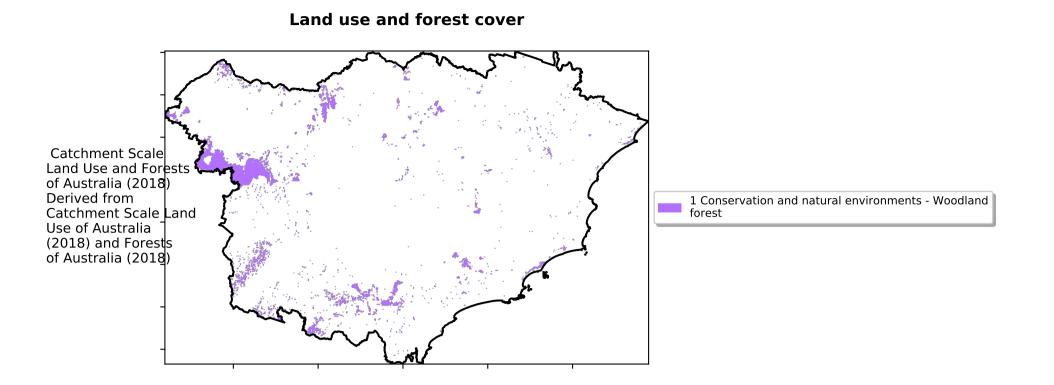


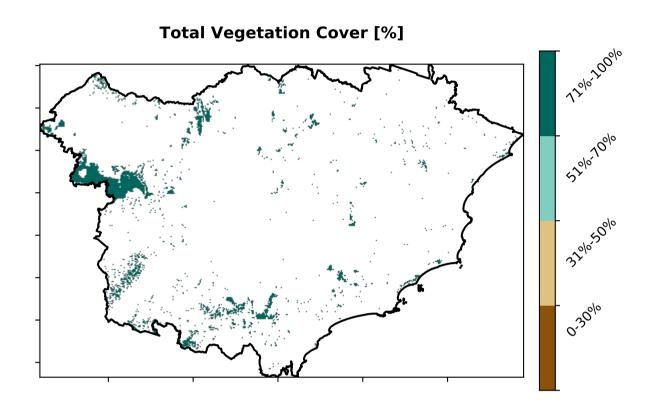


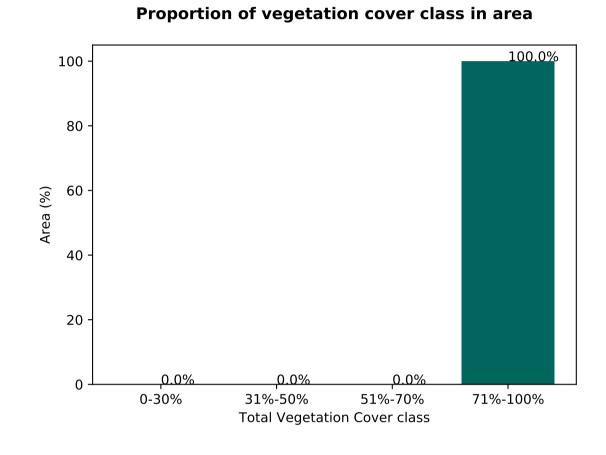
month

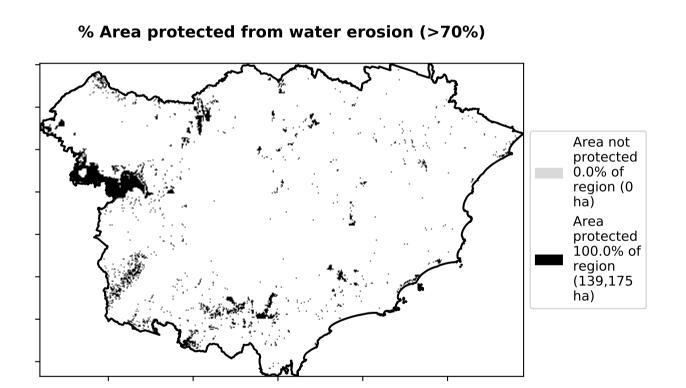


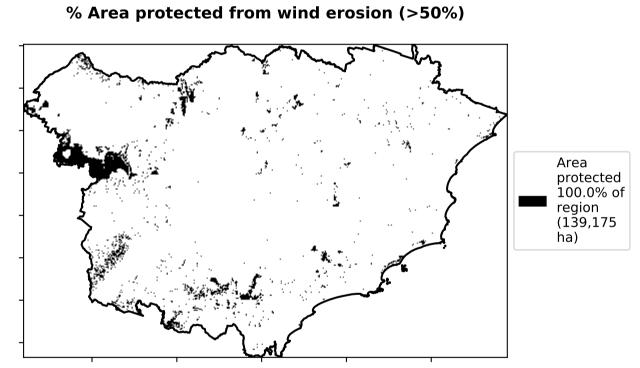
Conservation and natural environments Woodland forest

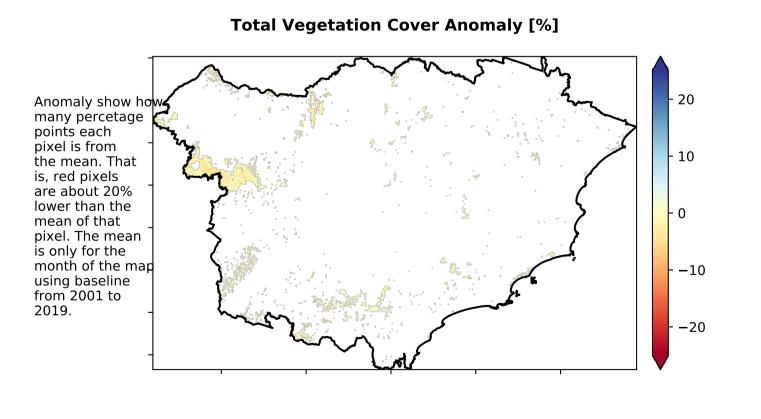




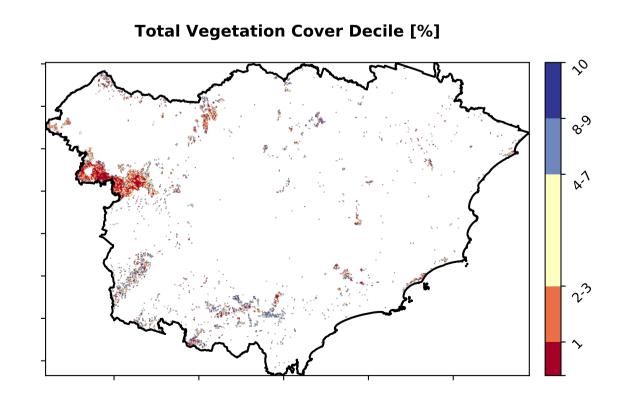








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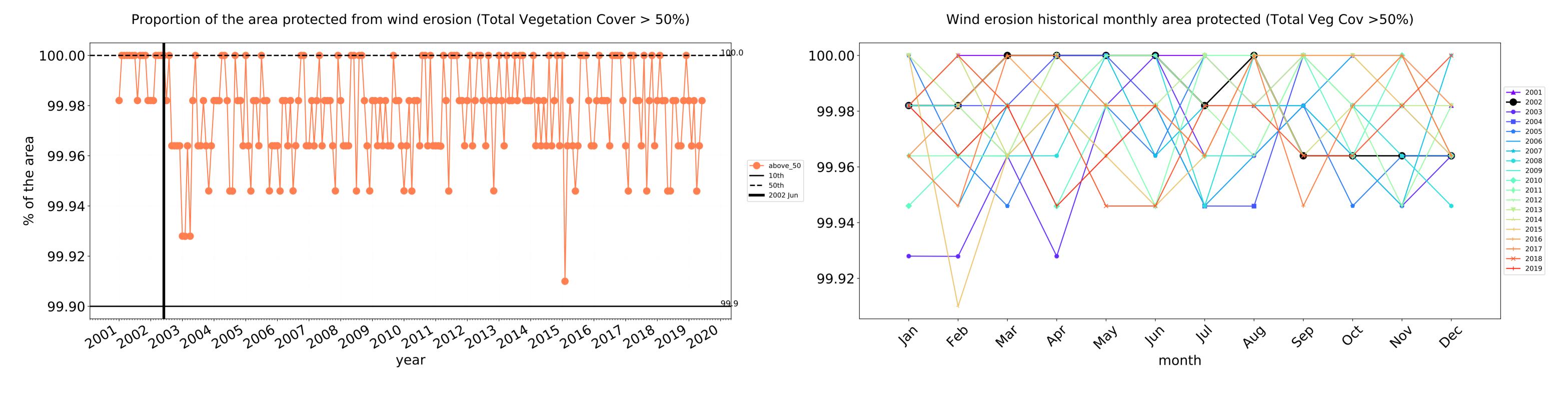


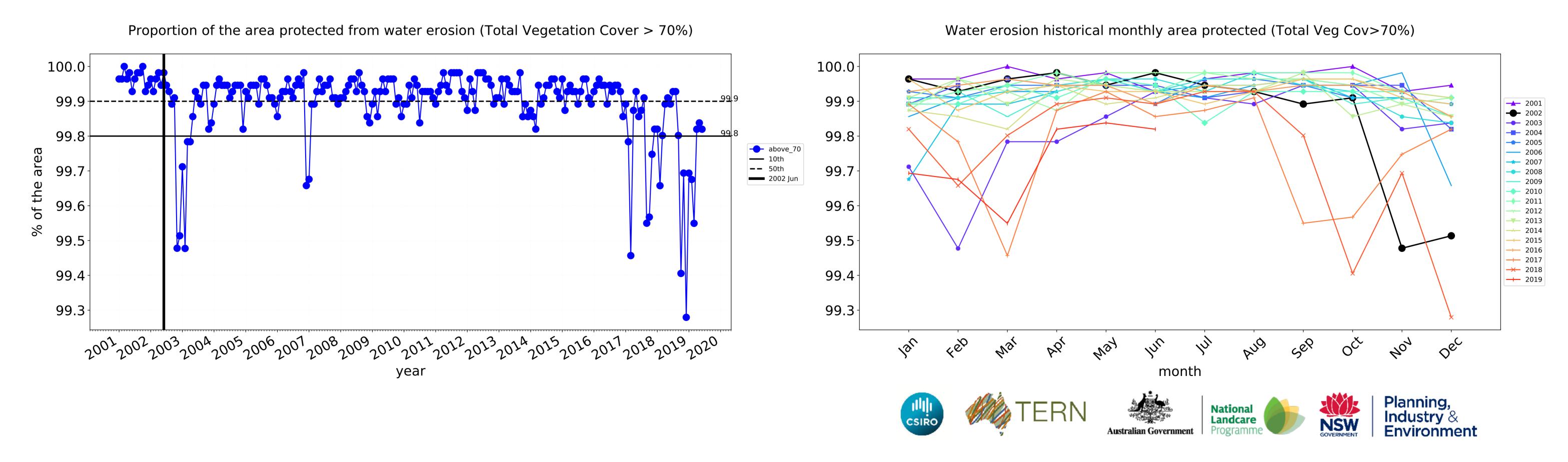


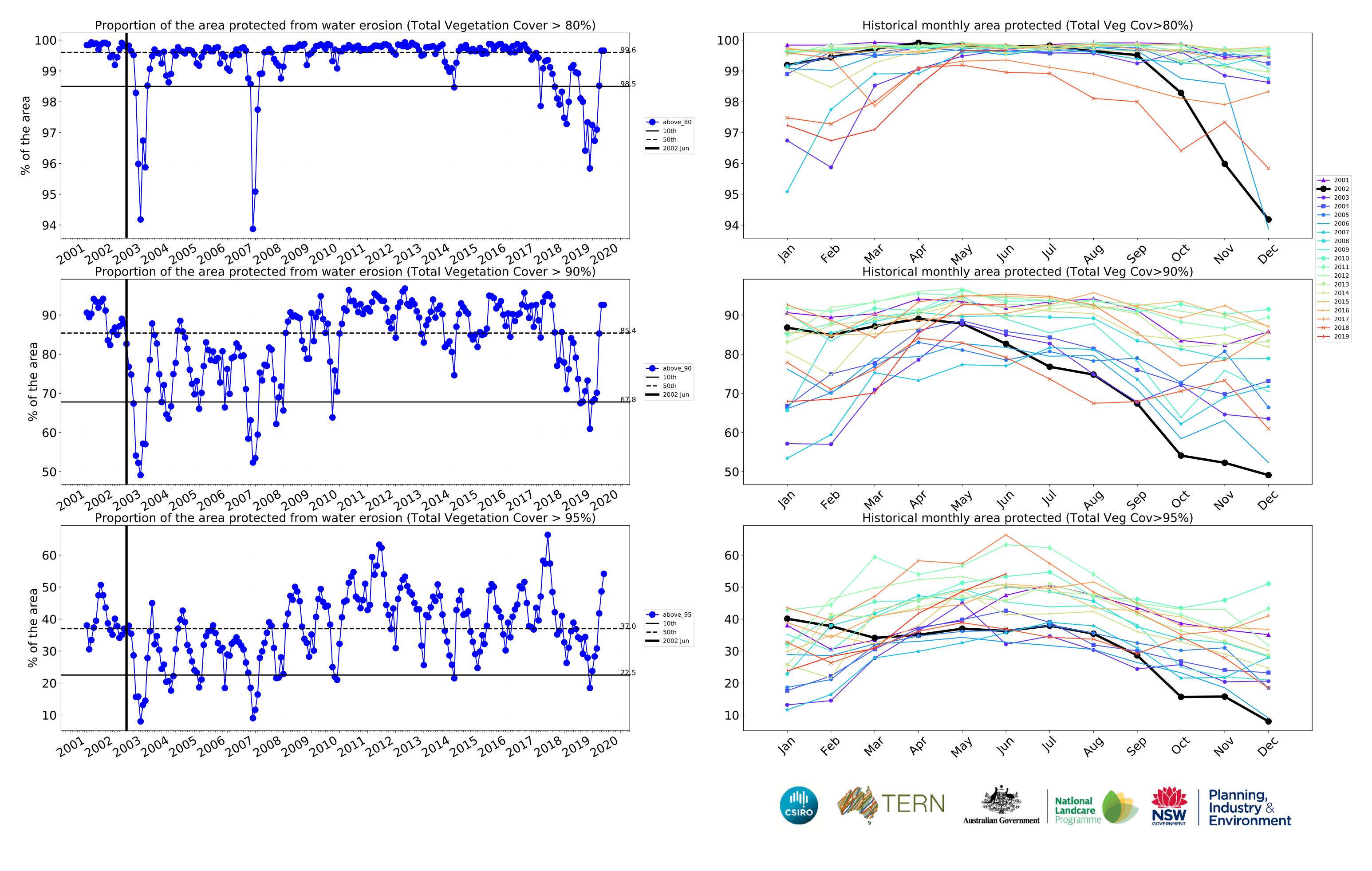




Conservation and natural environments Woodland forest timeseries



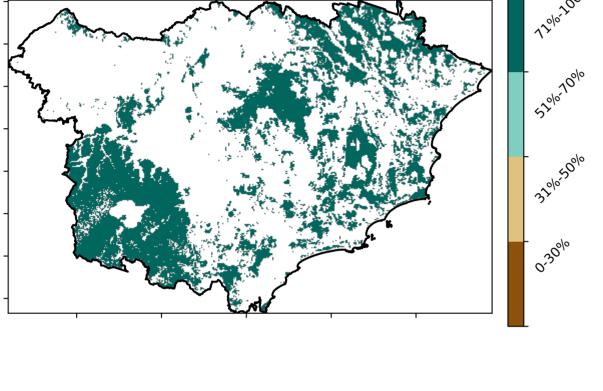


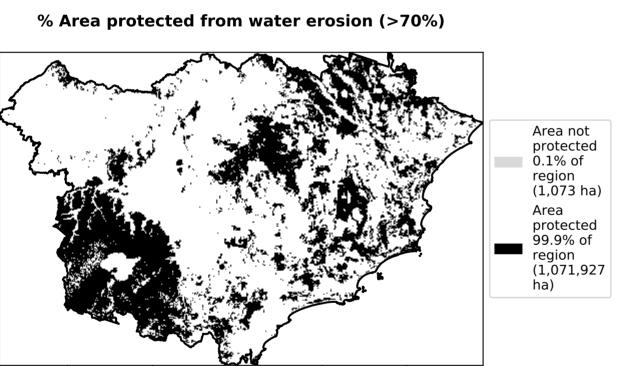


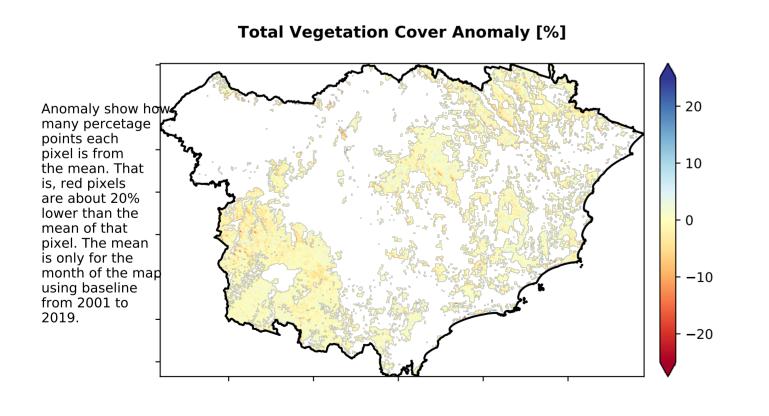
Conservation and natural environments Forest (non woodland)

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

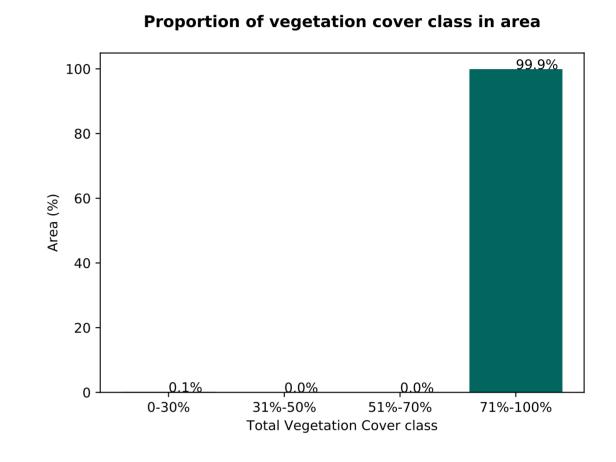
Total Vegetation Cover [%]

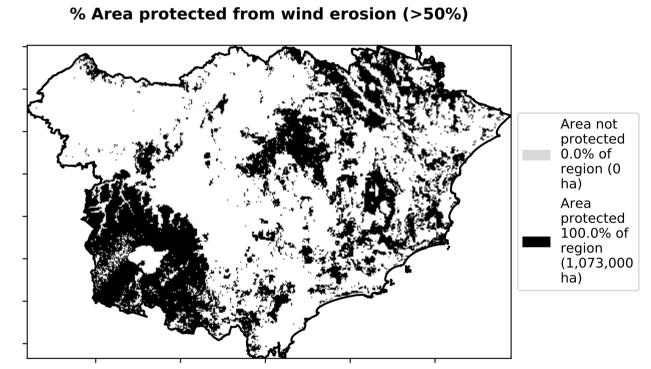


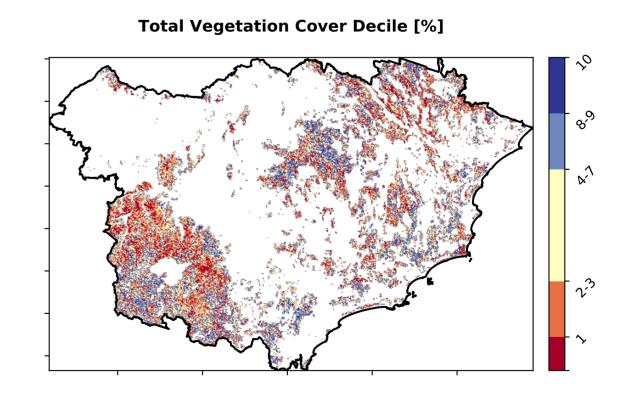




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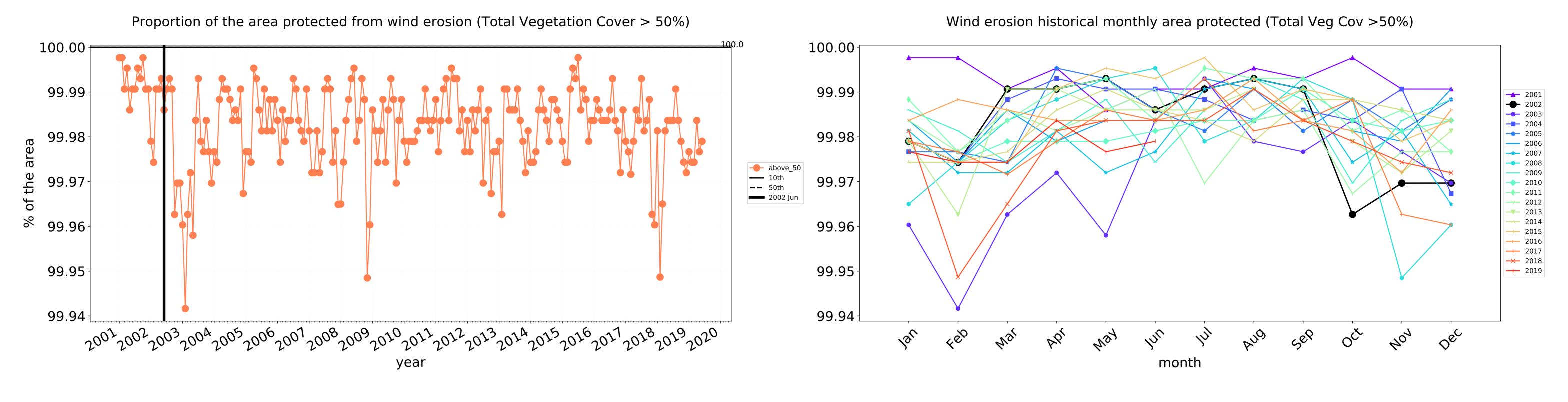


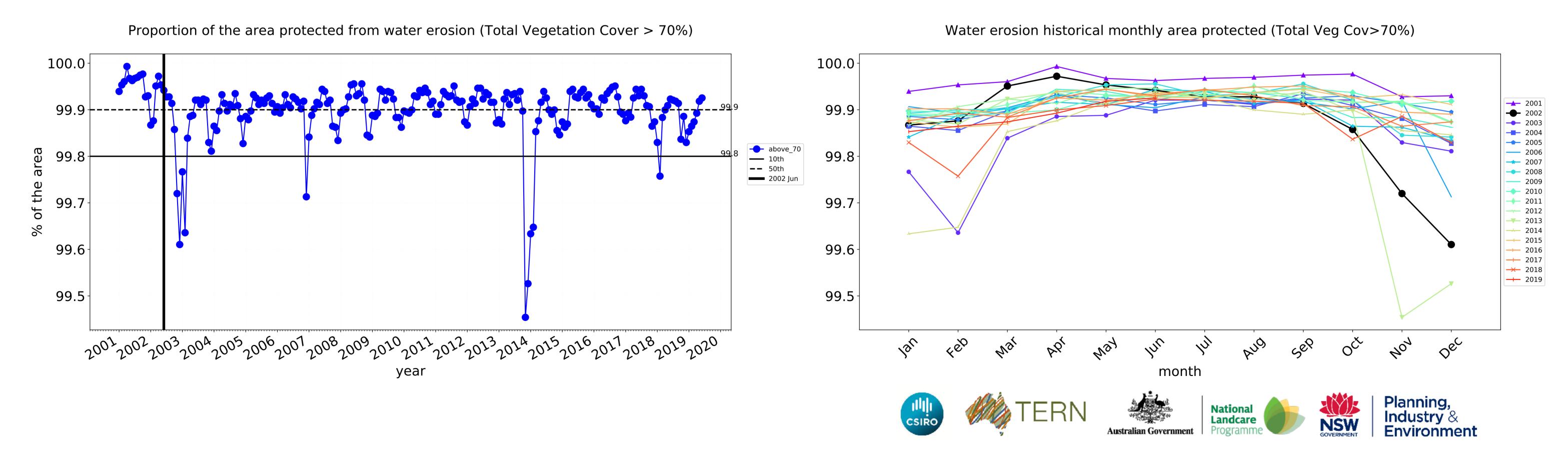


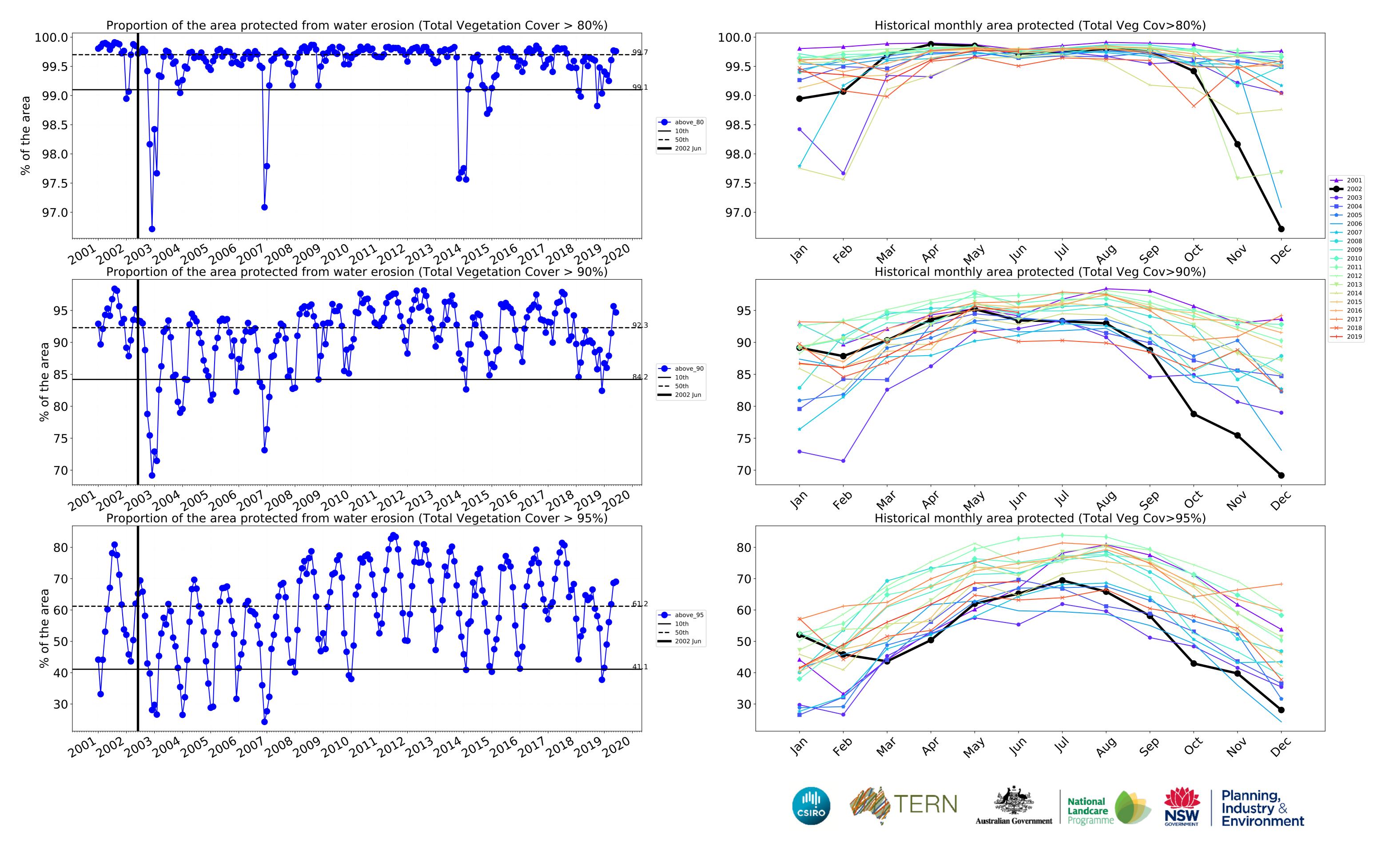




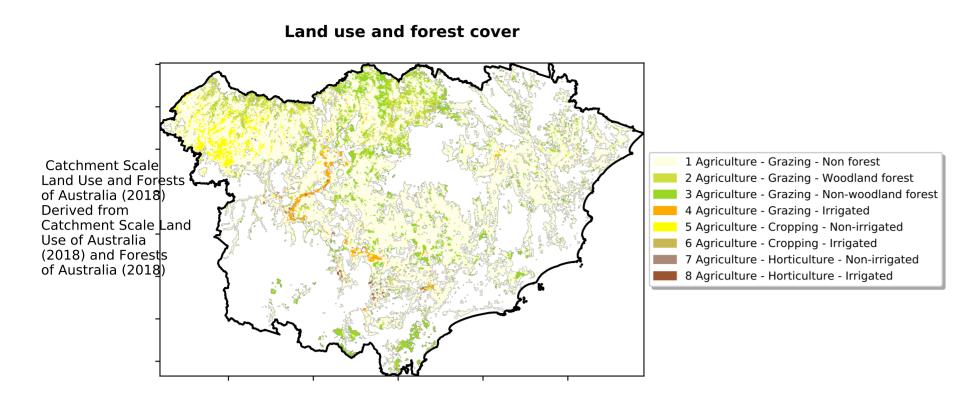


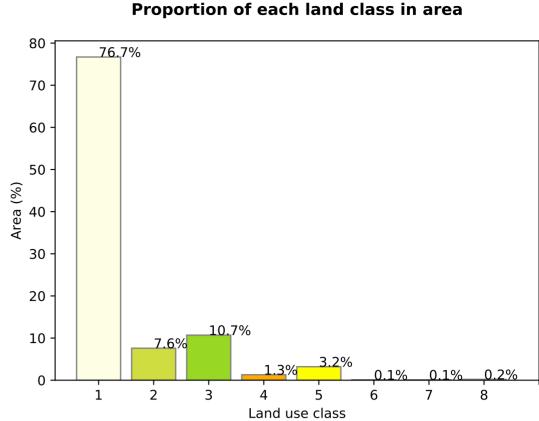




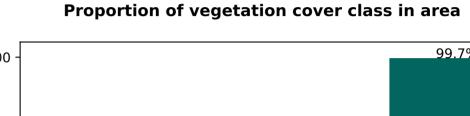


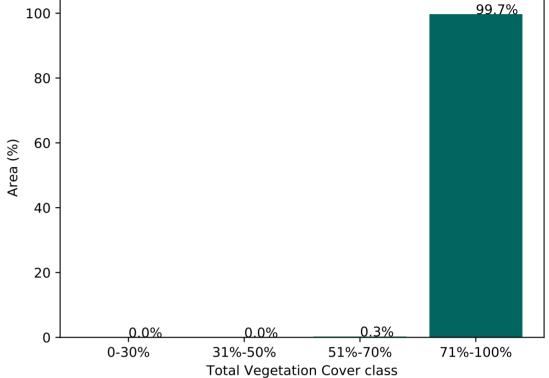
Agriculture

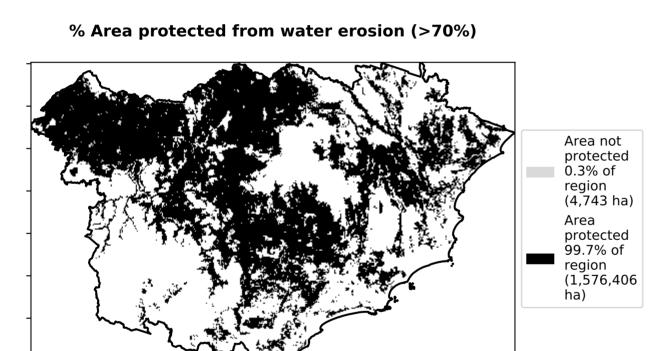




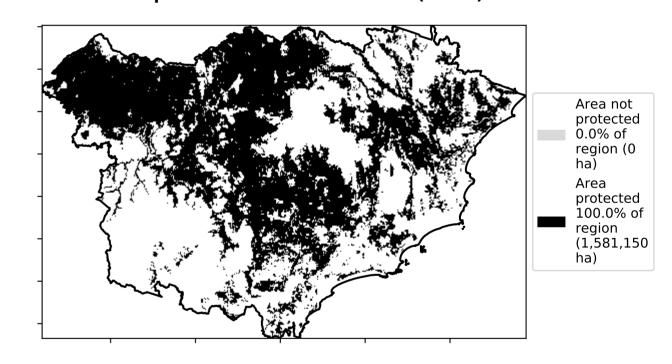
Total Vegetation Cover [%]

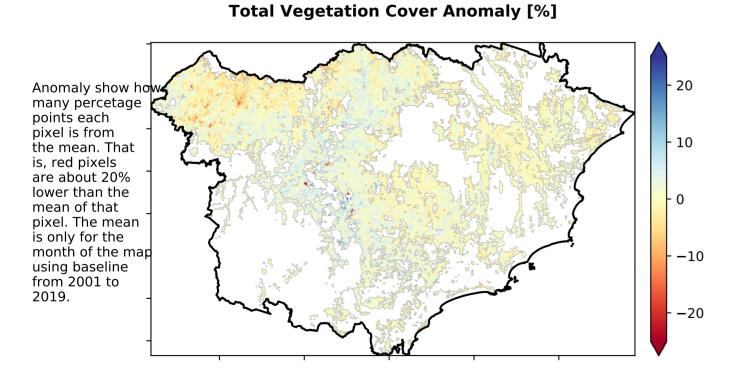




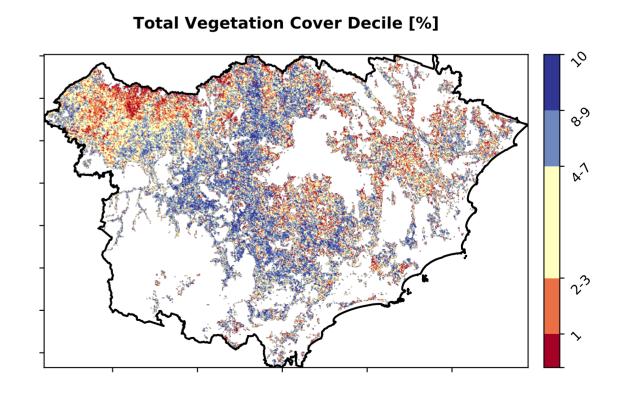


% Area protected from wind erosion (>50%)





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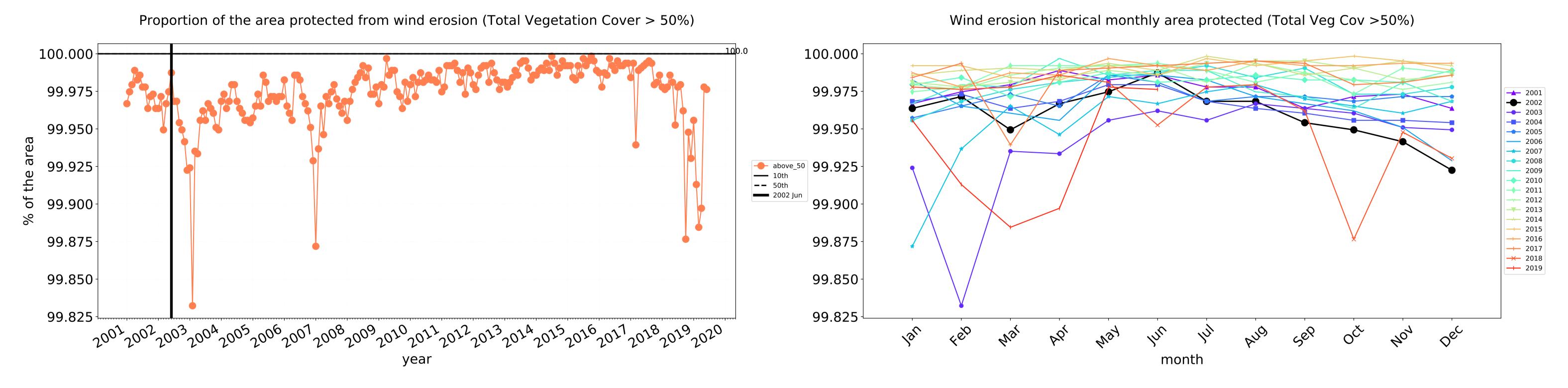


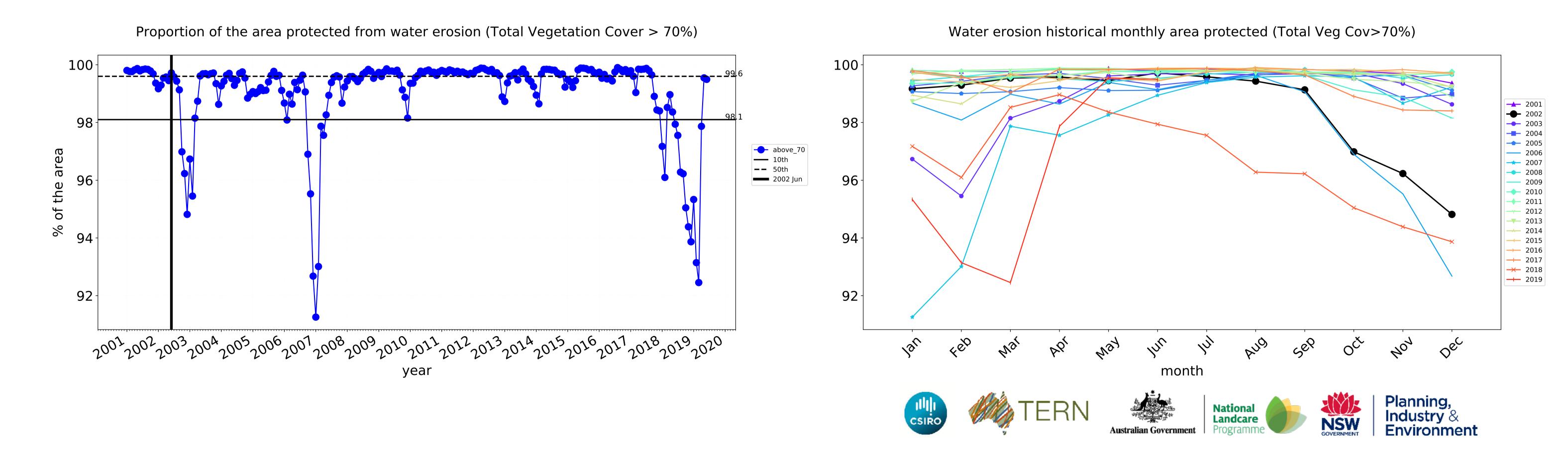


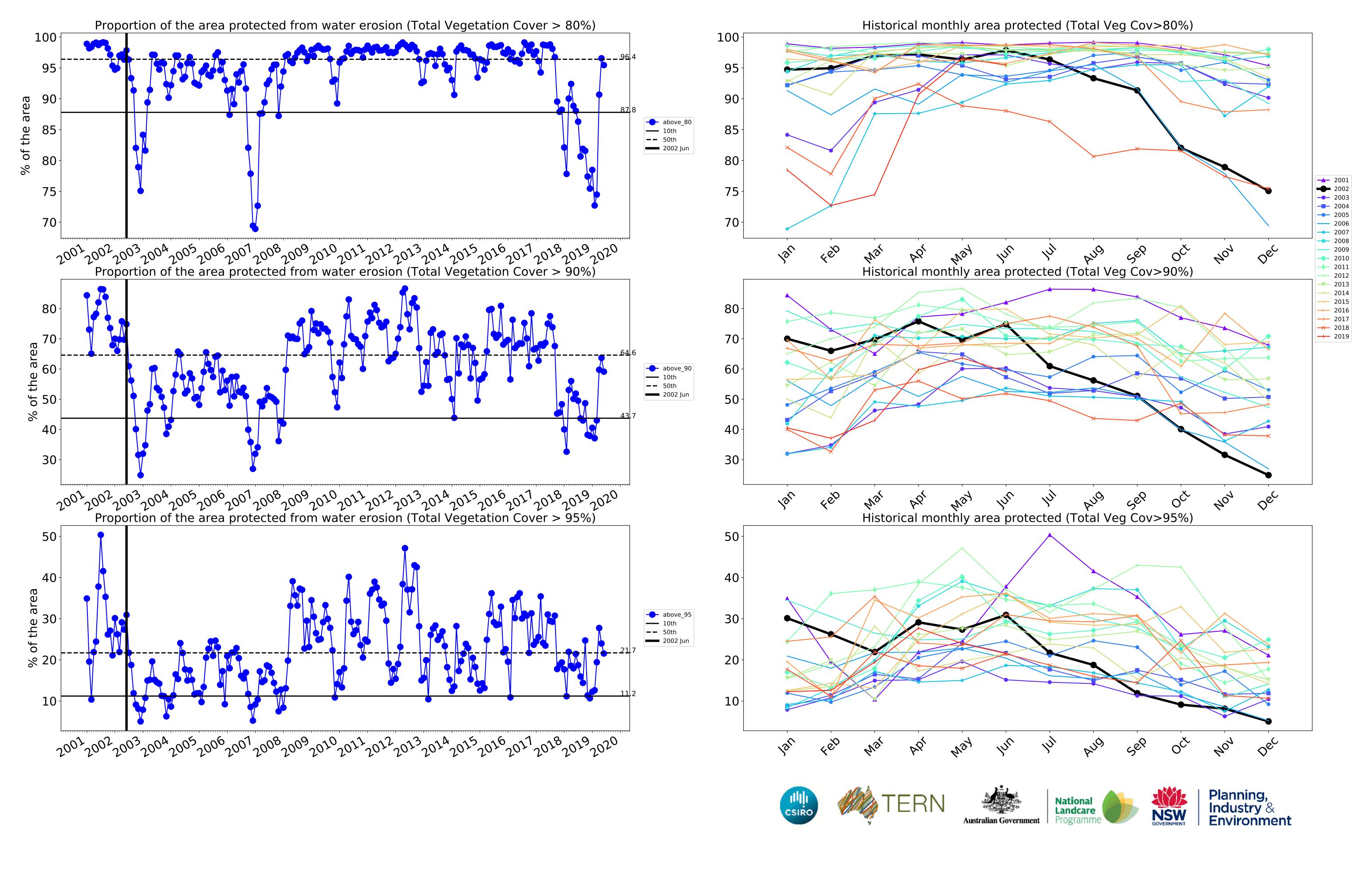




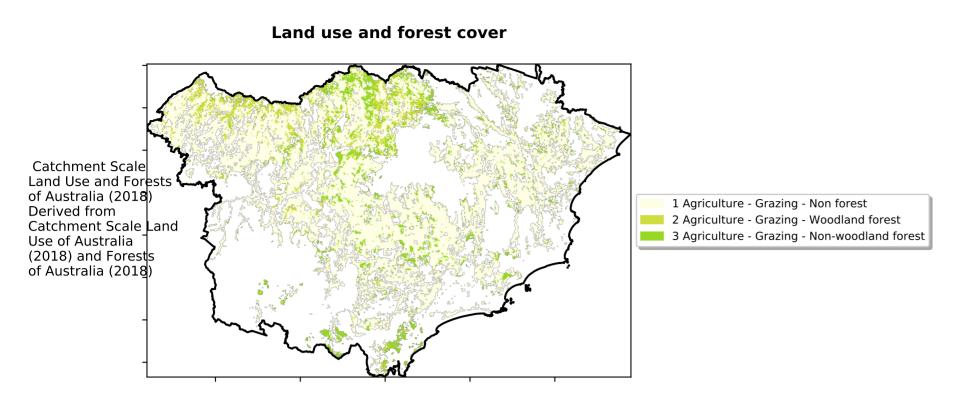
Agriculture timeseries



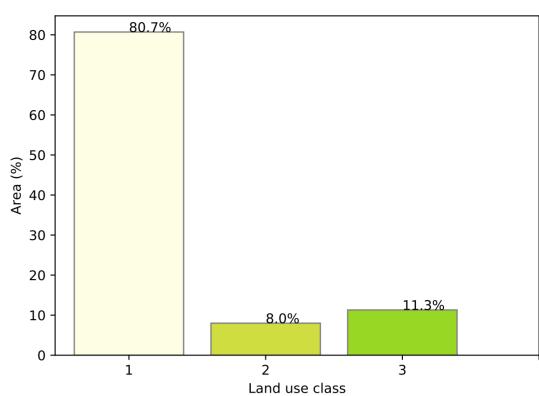




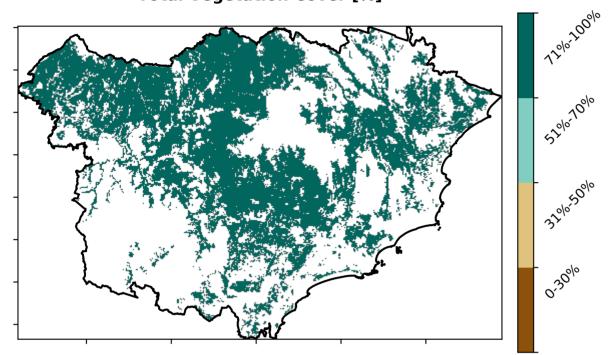
Grazing



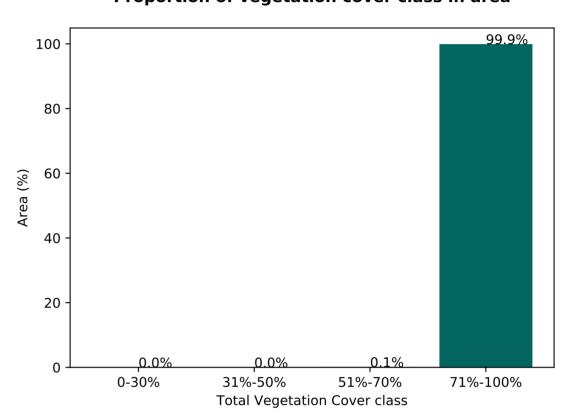
Proportion of each land class in area



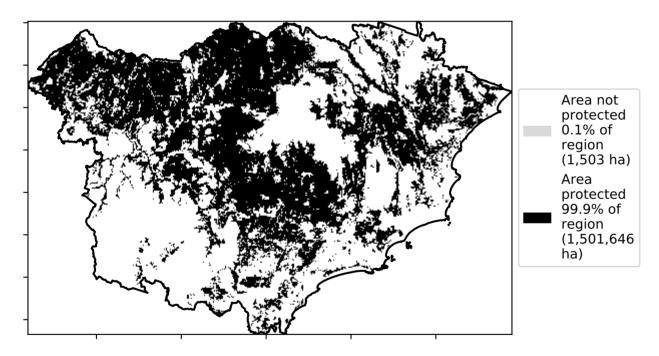




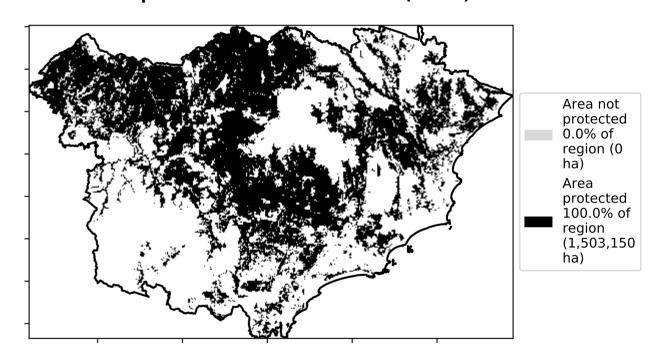
Proportion of vegetation cover class in area



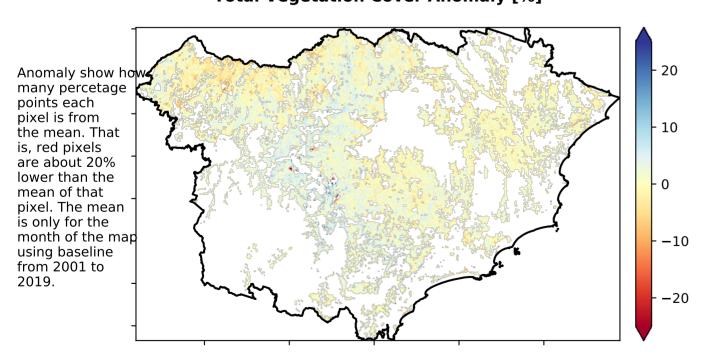
% Area protected from water erosion (>70%)



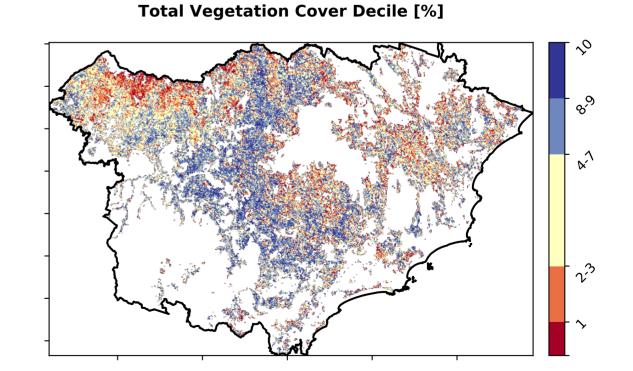
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



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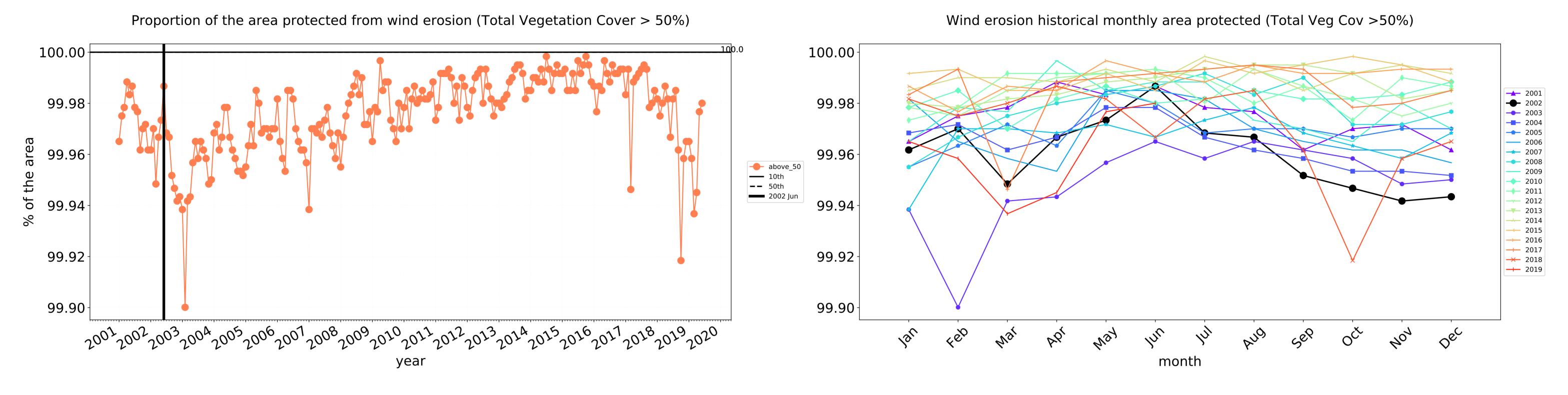


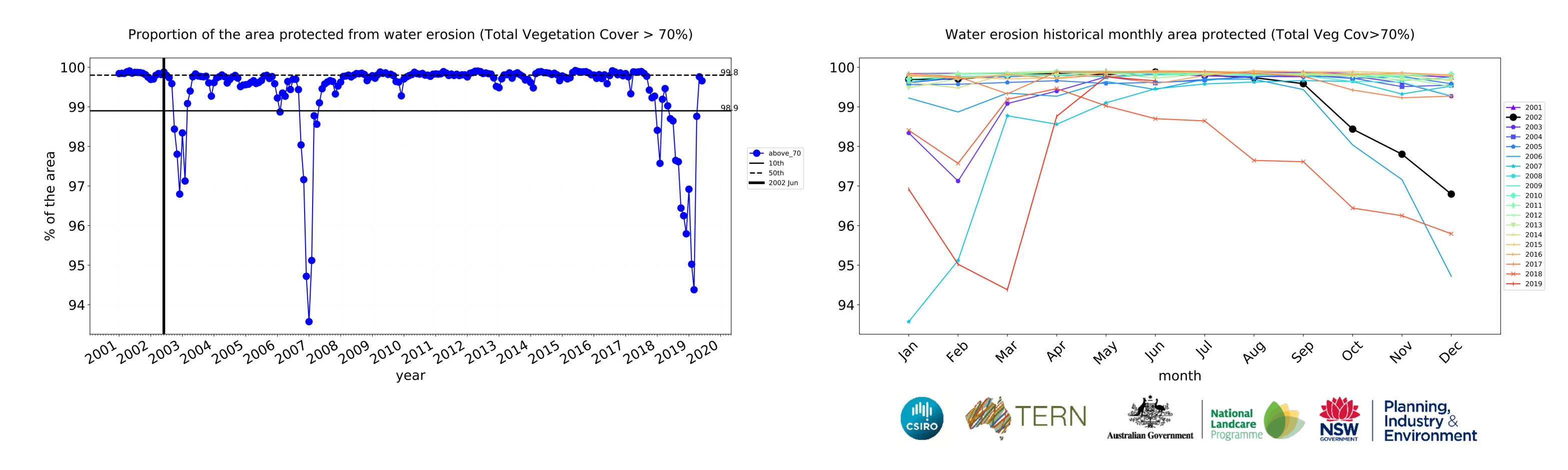


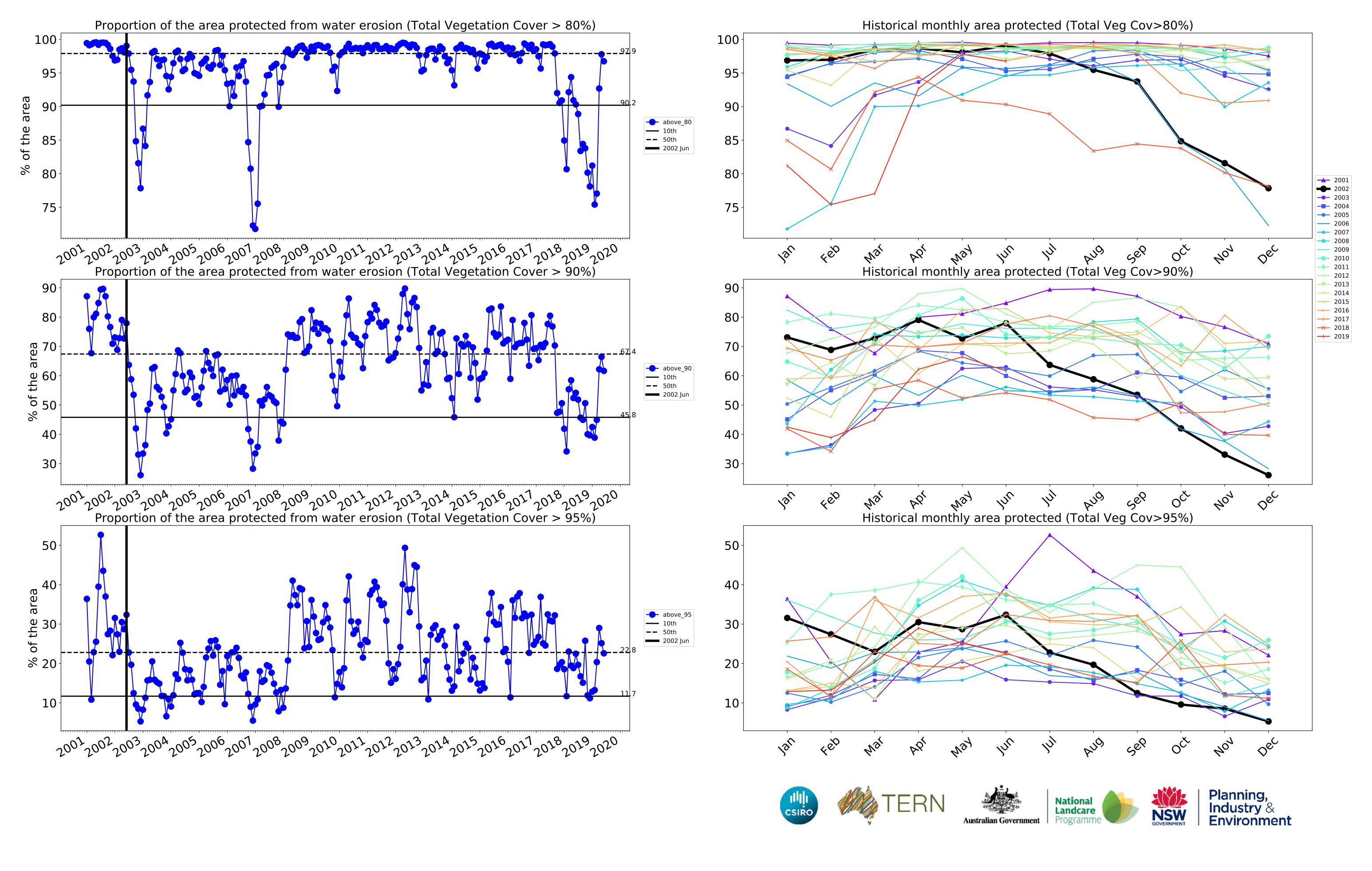




Grazing timeseries

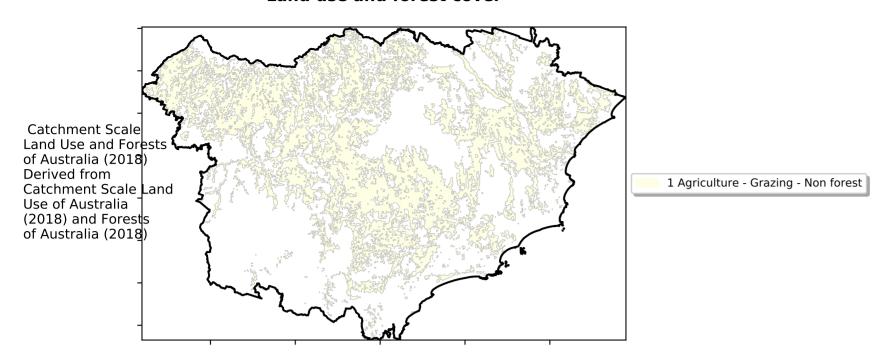




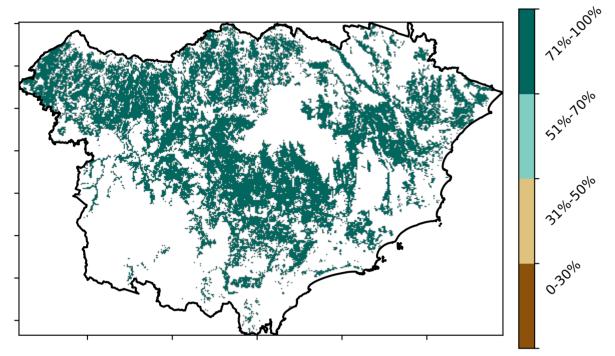


Grazing non forest

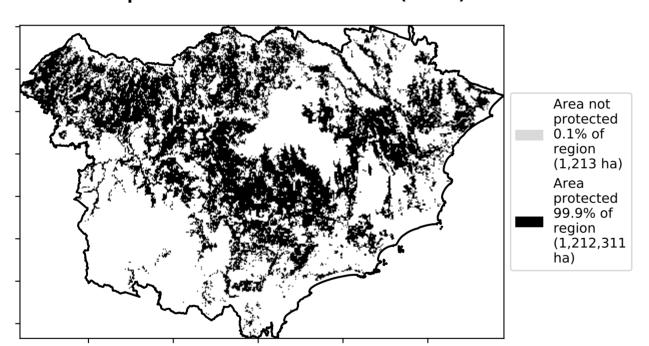
Land use and forest cover



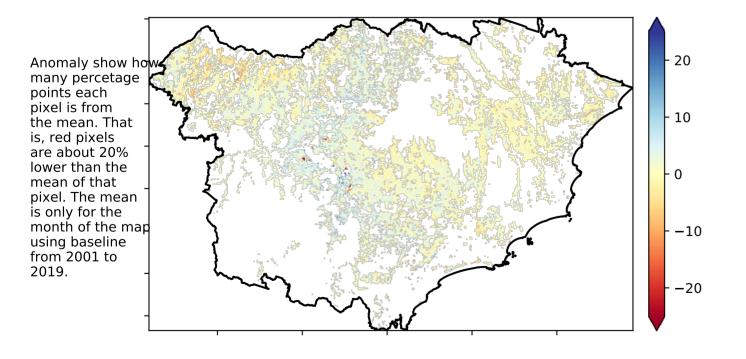
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

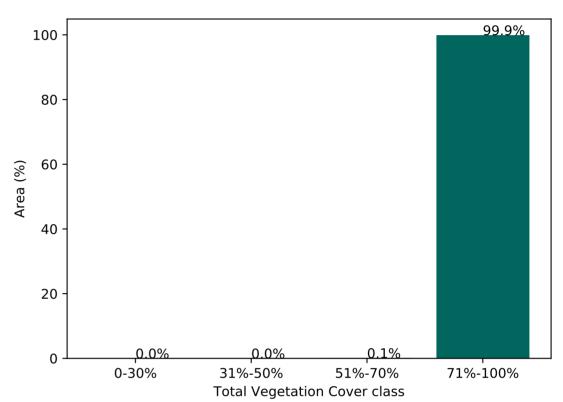


Total Vegetation Cover Anomaly [%]

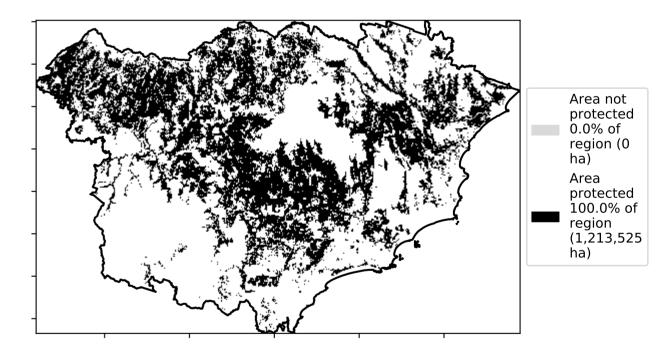


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

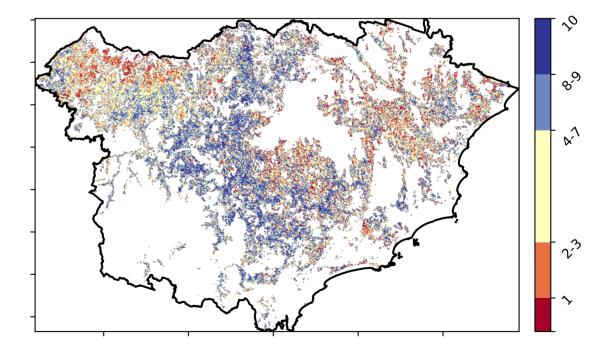
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







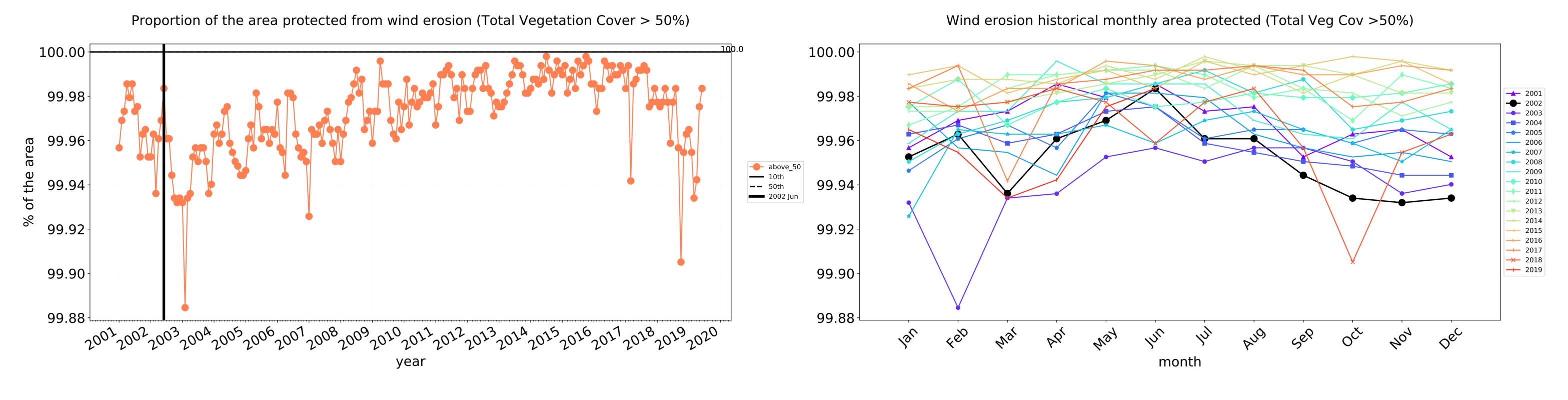


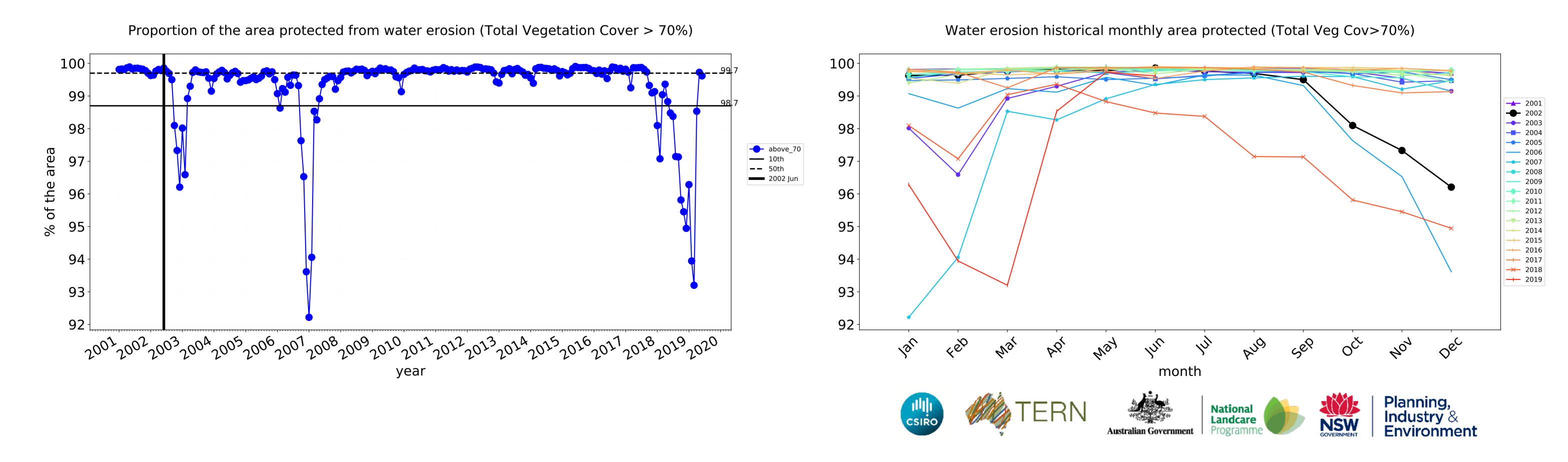


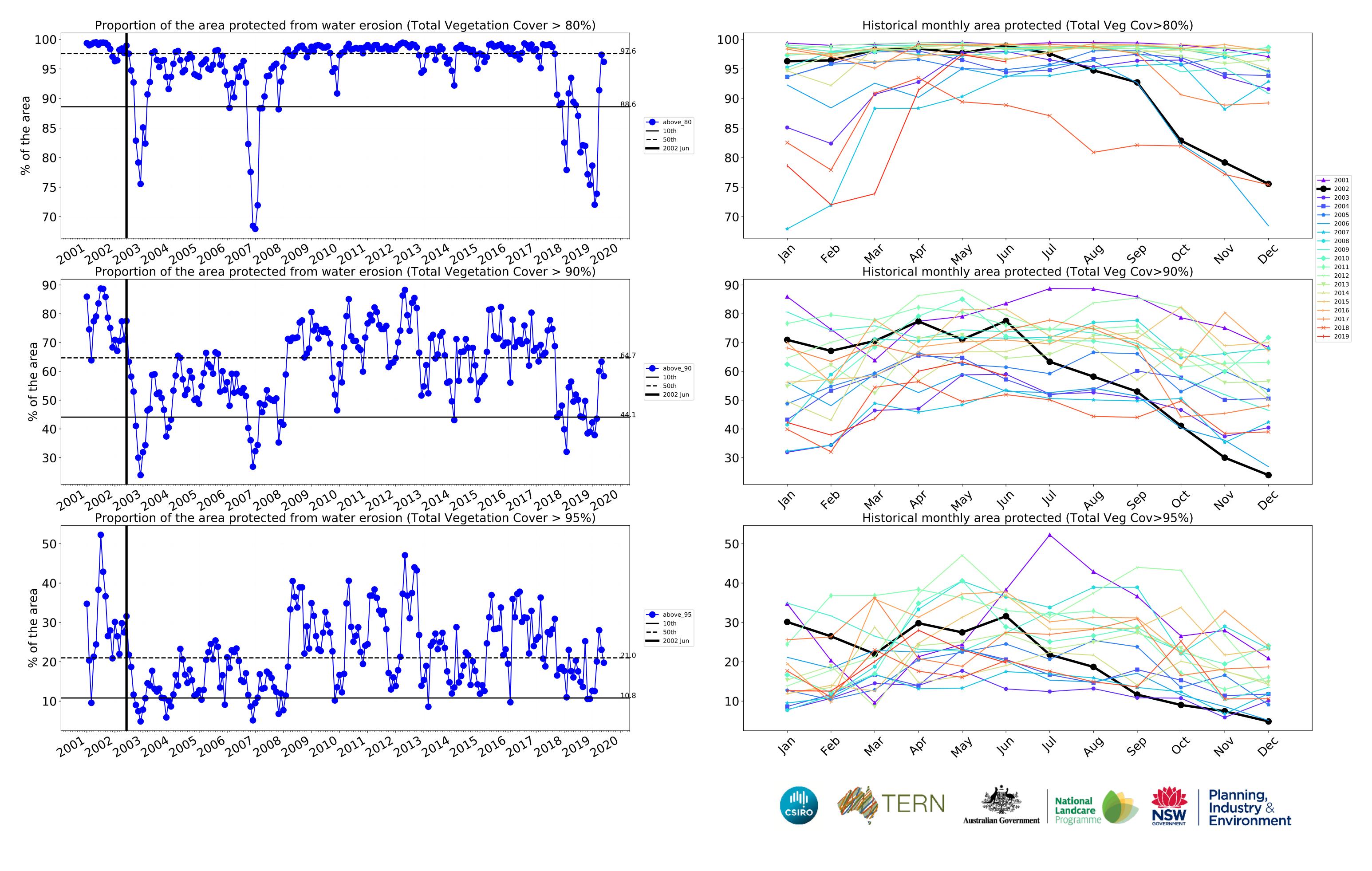




Grazing non forest timeseries





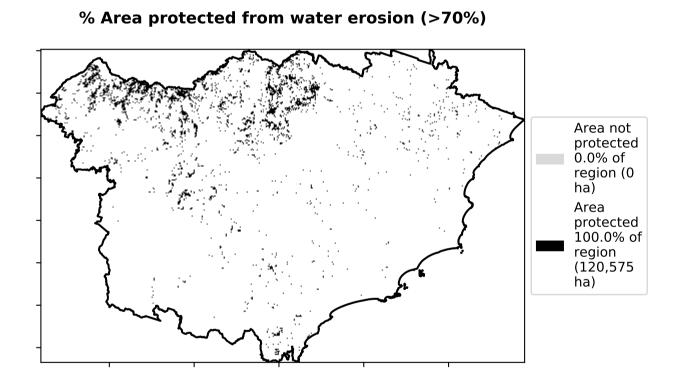


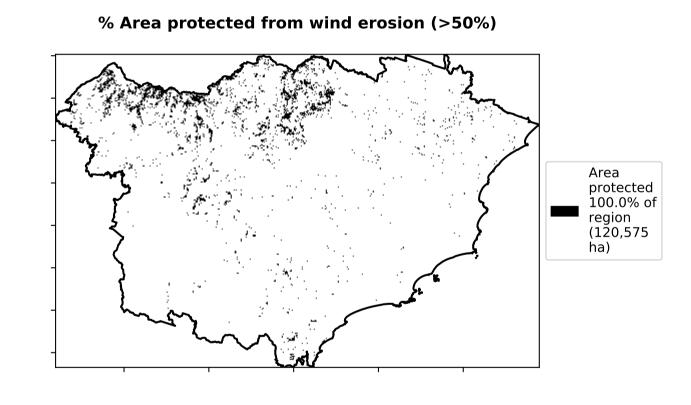
Grazing Woodland forest

Land use and forest cover 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)

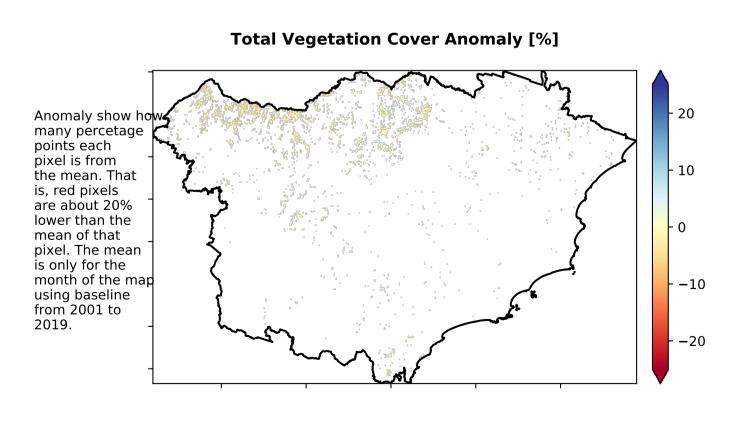
Total Vegetation Cover [%]

100.0% 100 Area (%) 60 40 20 -0.0% 0-30% 31%-50% 51%-70% 71%-100% **Total Vegetation Cover class**

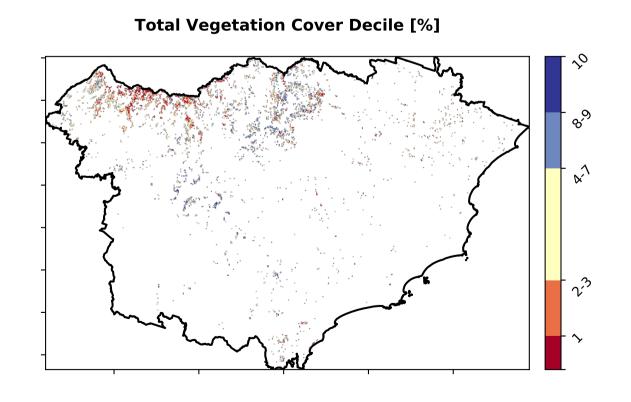




Proportion of vegetation cover class in area



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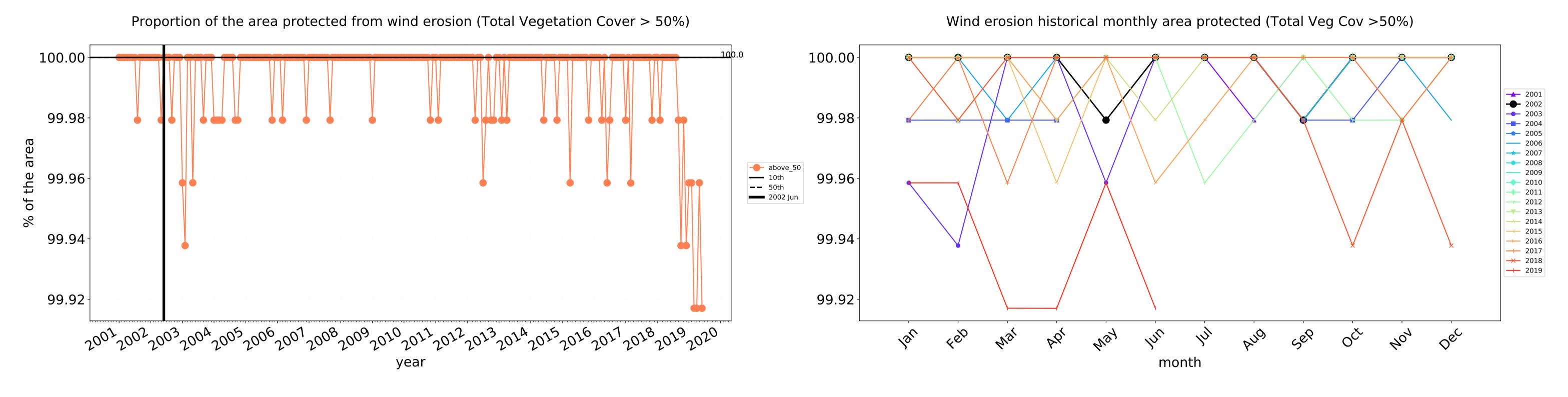


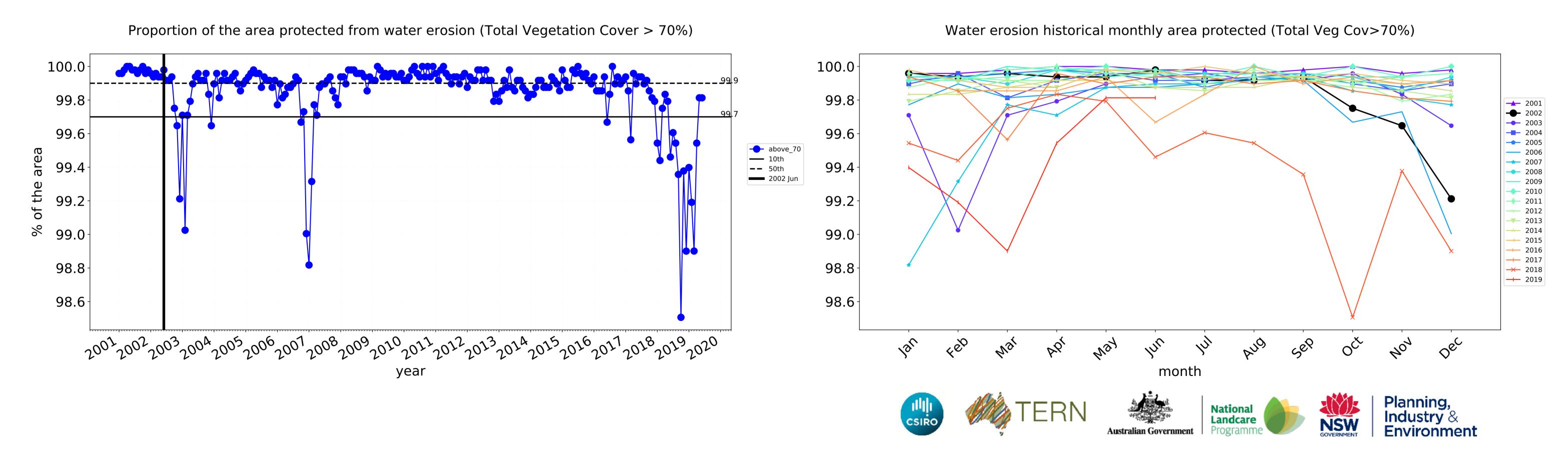


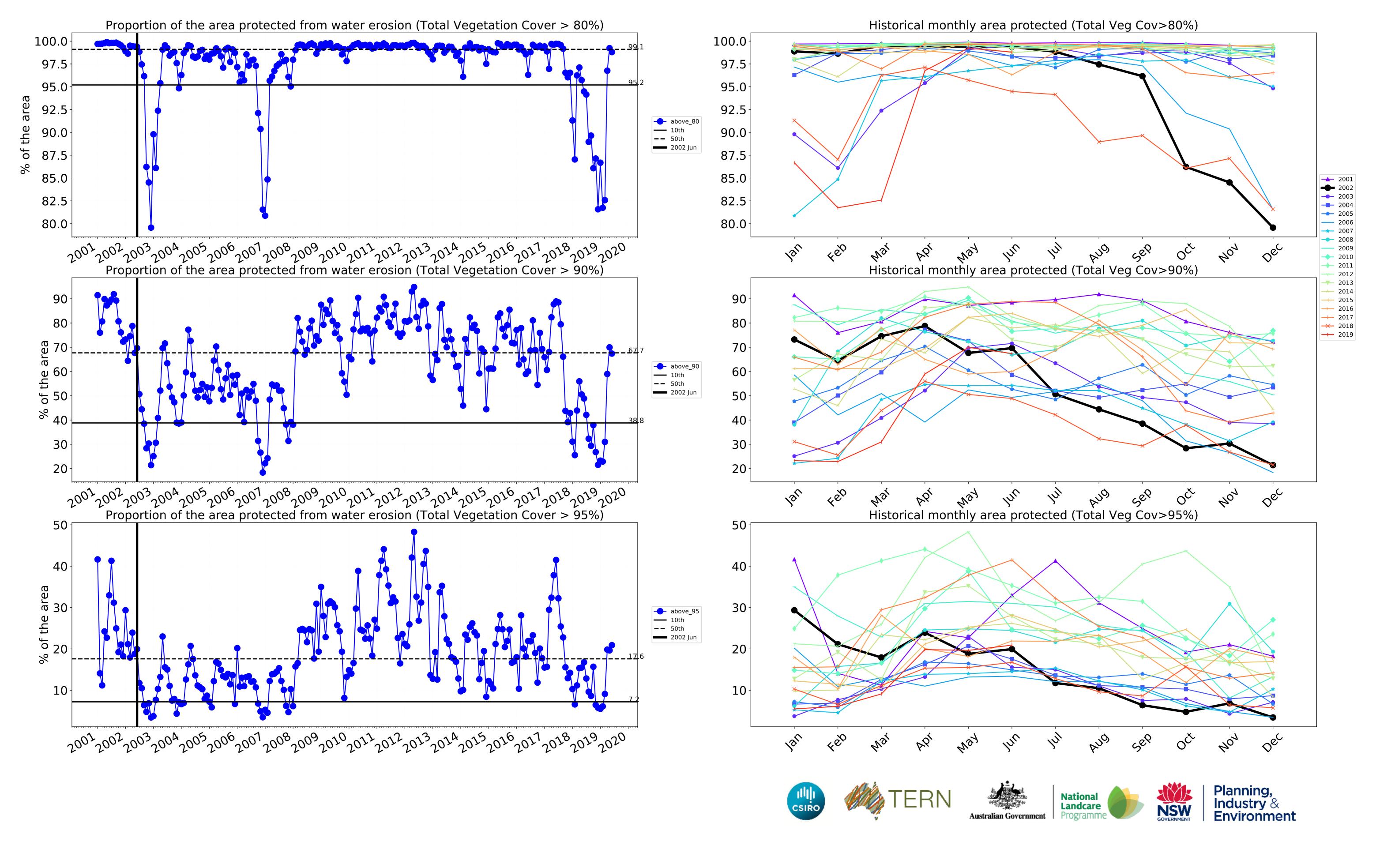




Grazing Woodland forest timeseries



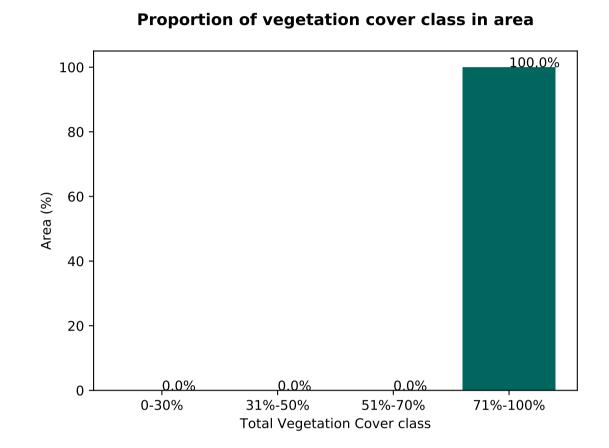


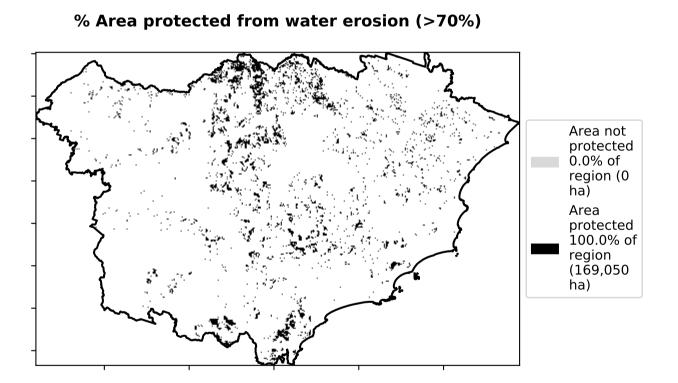


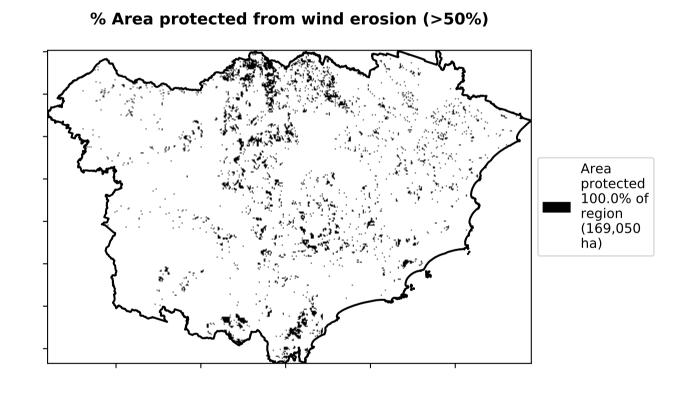
Grazing - Forest (non woodland)

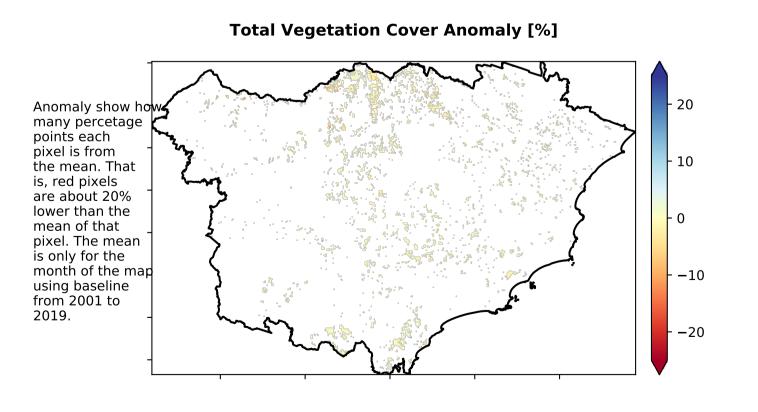
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) Australia (2018) Of Australia (2018) I Agriculture - Grazing - Non-woodland forest Of Australia (2018)

Total Vegetation Cover [%]

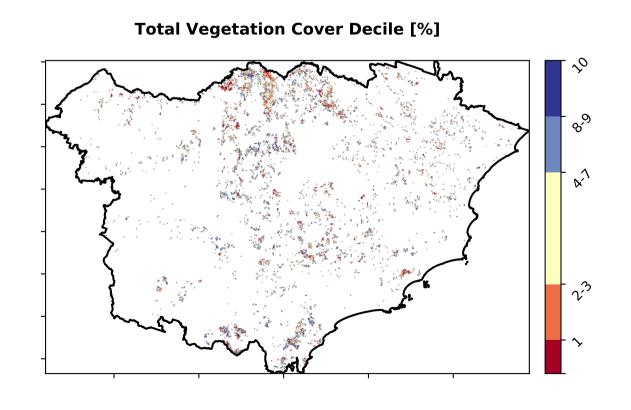








Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.





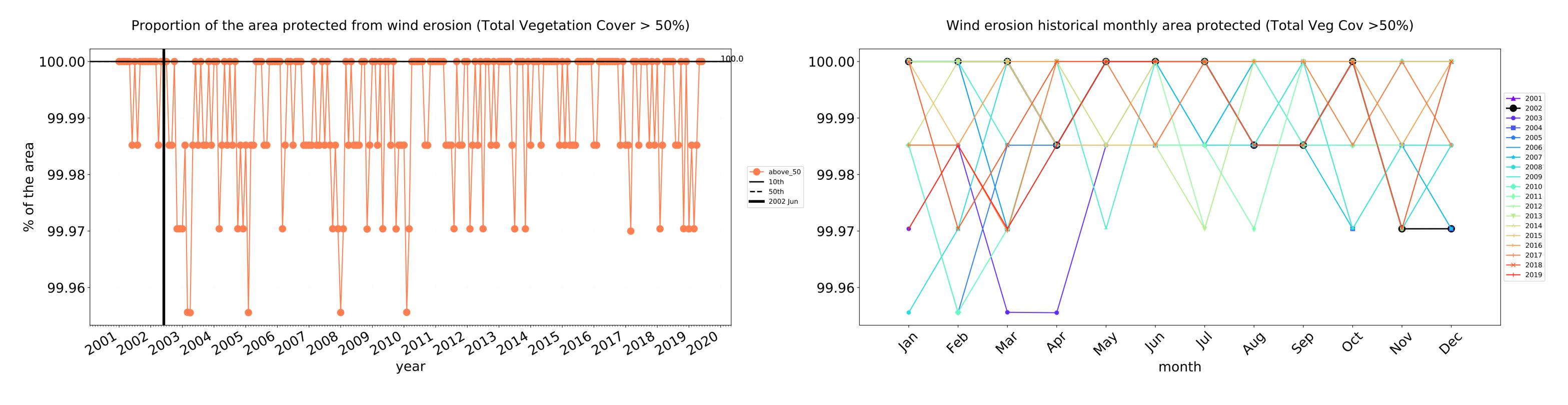


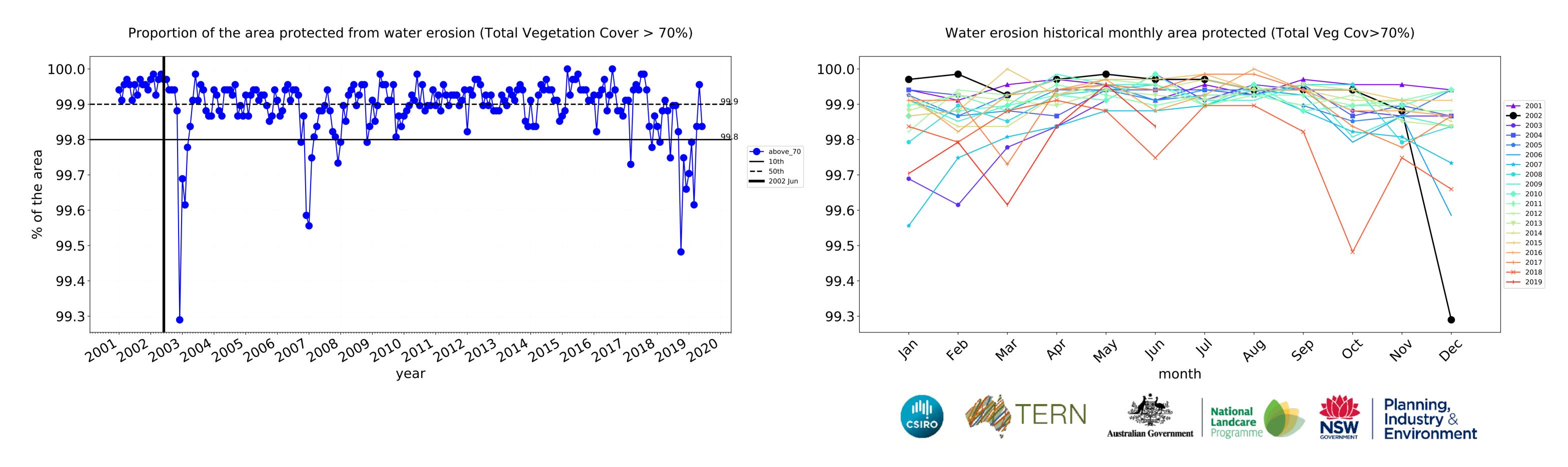


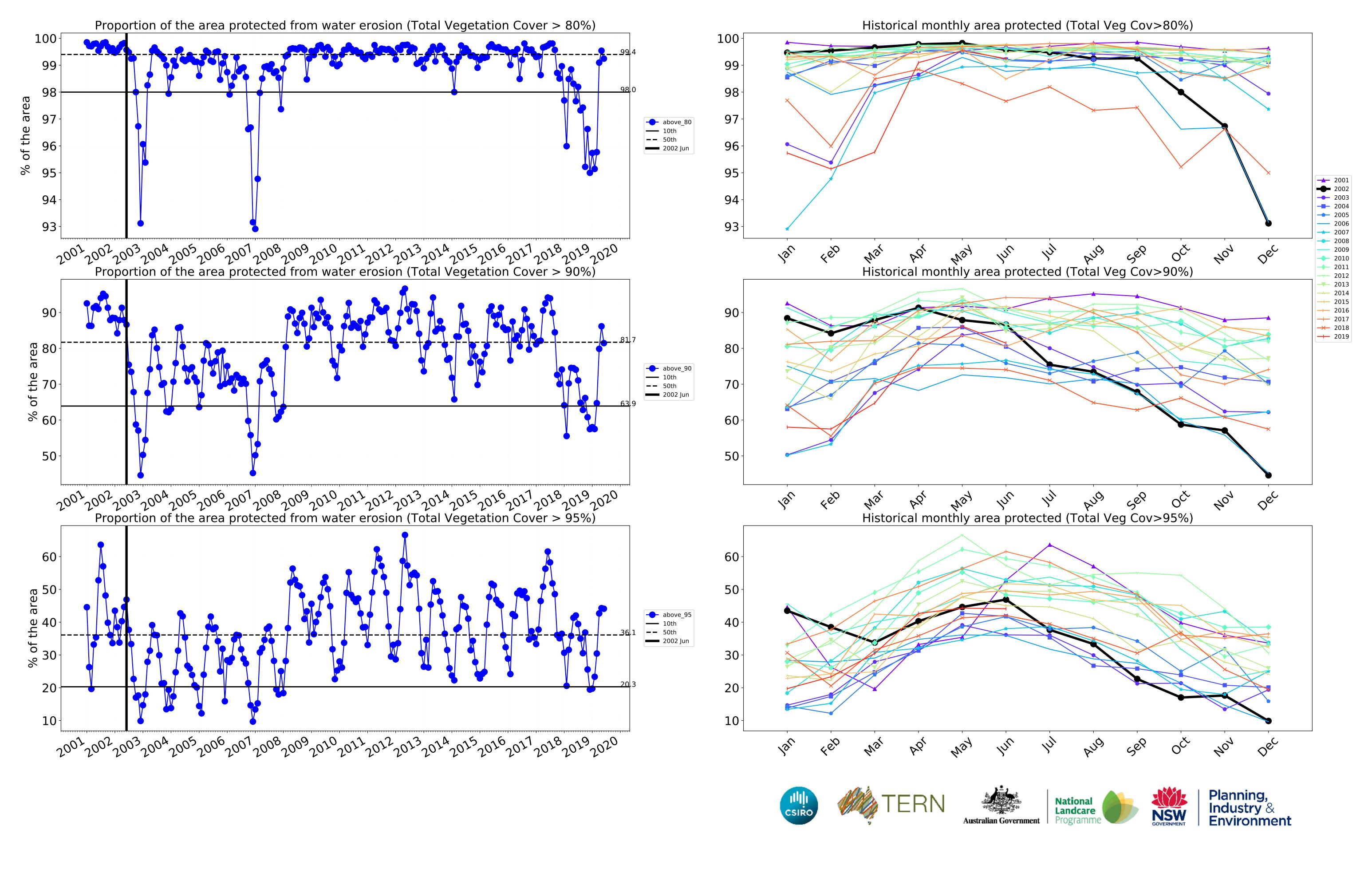






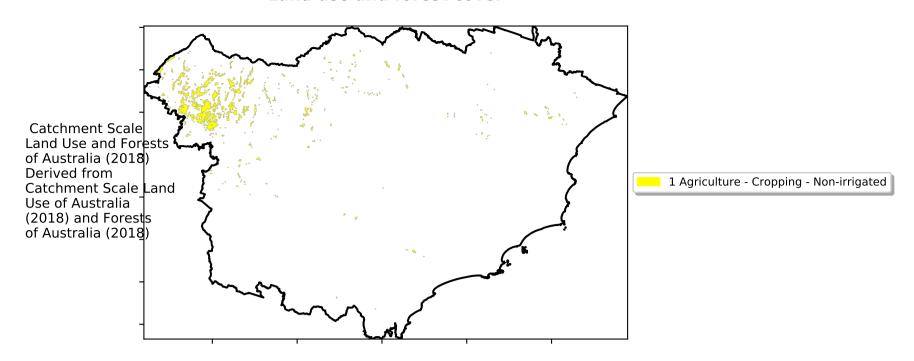




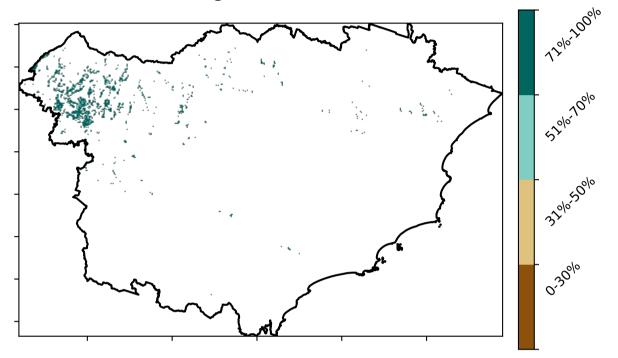


Cropping

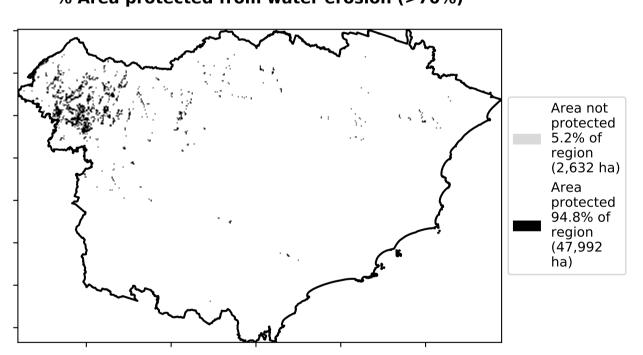
Land use and forest cover



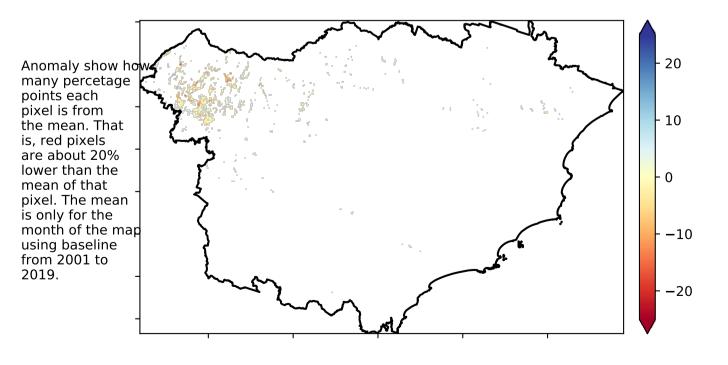
Total Vegetation Cover [%]



% Area protected from water erosion (>70%)

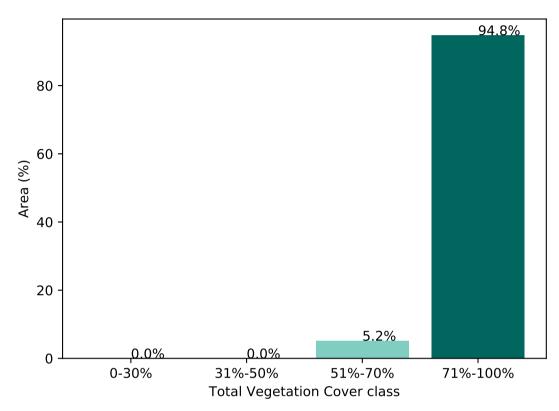


Total Vegetation Cover Anomaly [%]

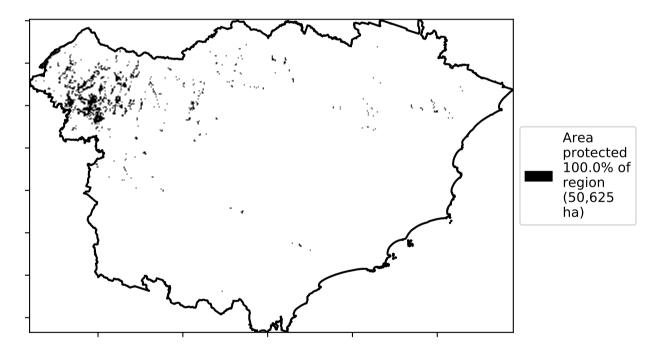


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

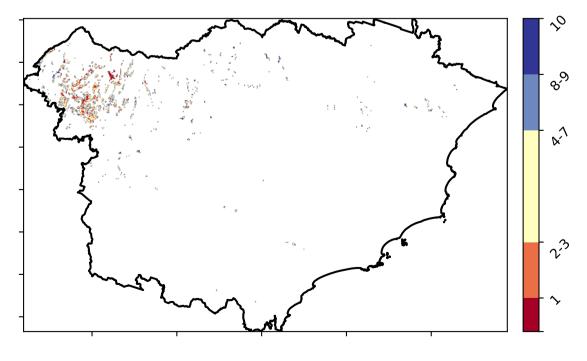
Proportion of vegetation cover class in area



% Area protected from wind erosion (>50%)



Total Vegetation Cover Decile [%]







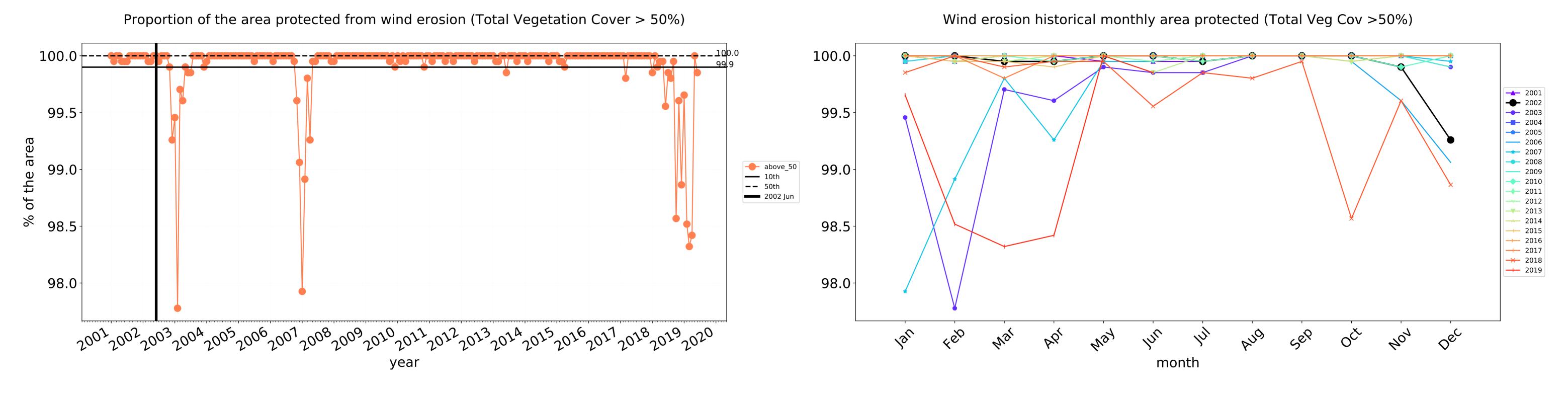


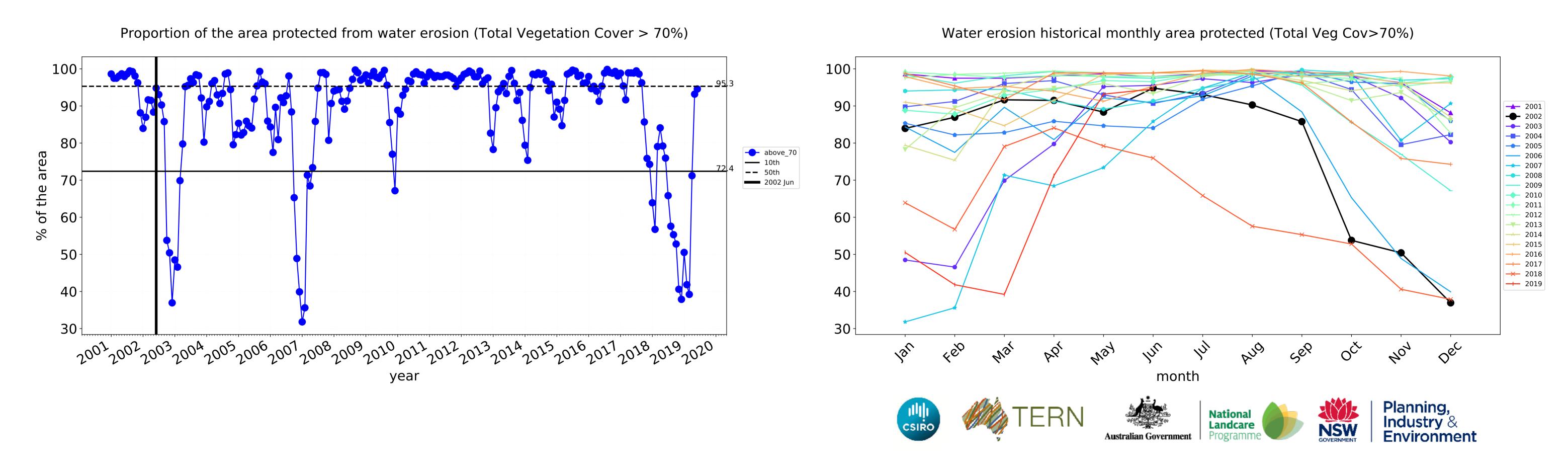


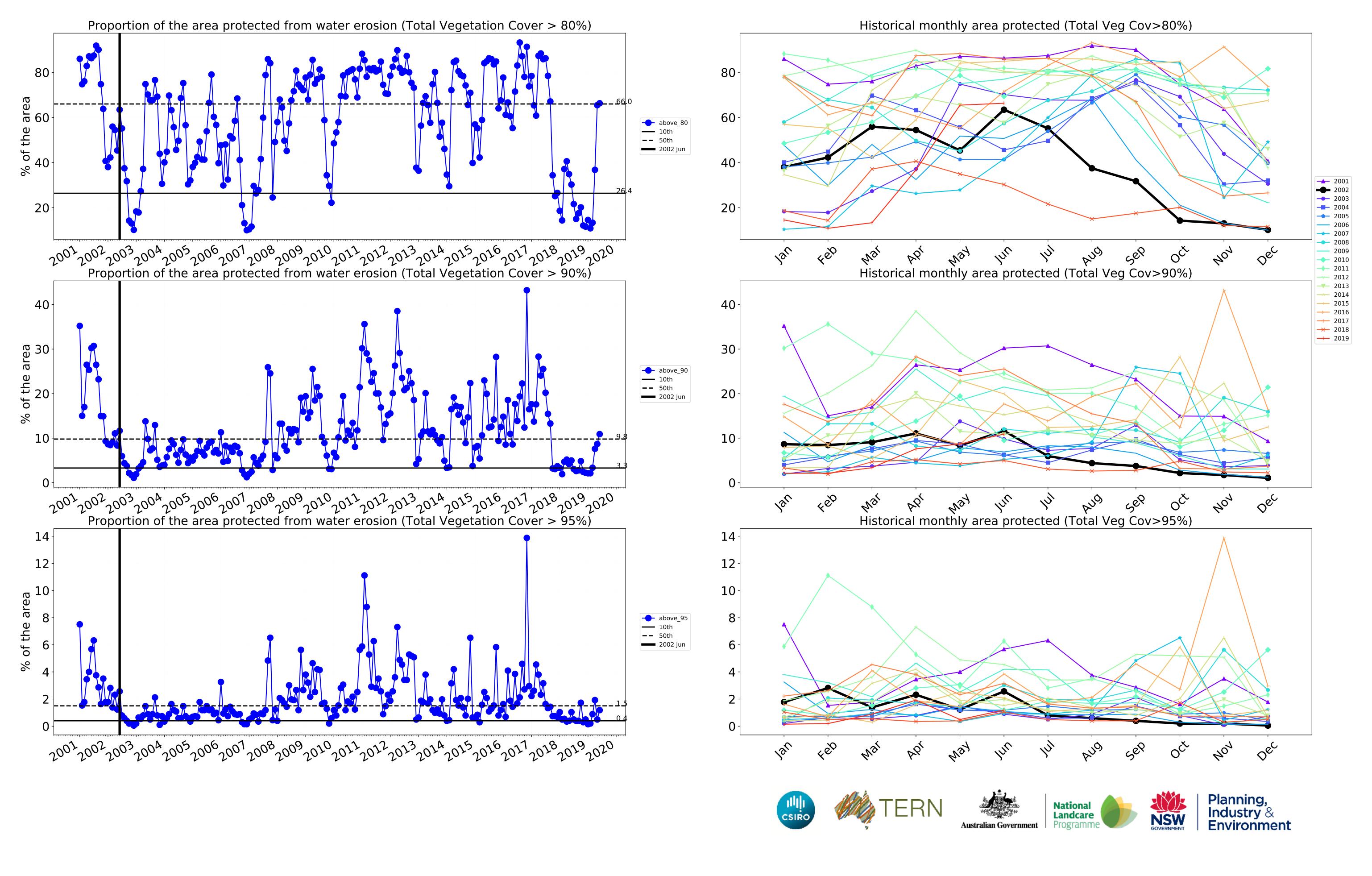




Cropping timeseries





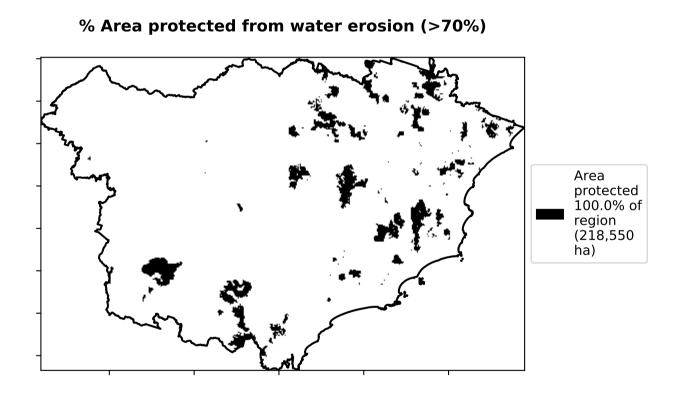


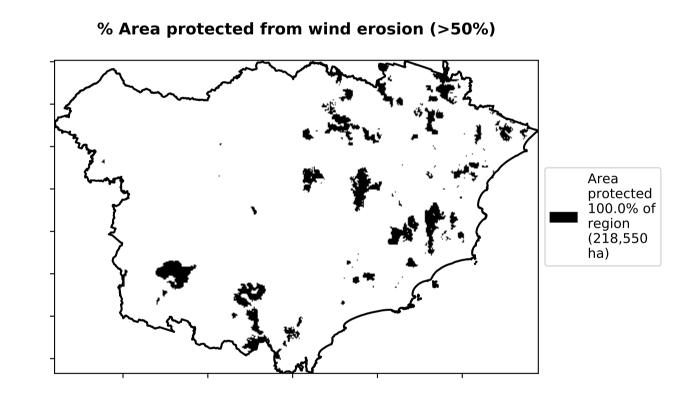
Production native forests and plantation forests

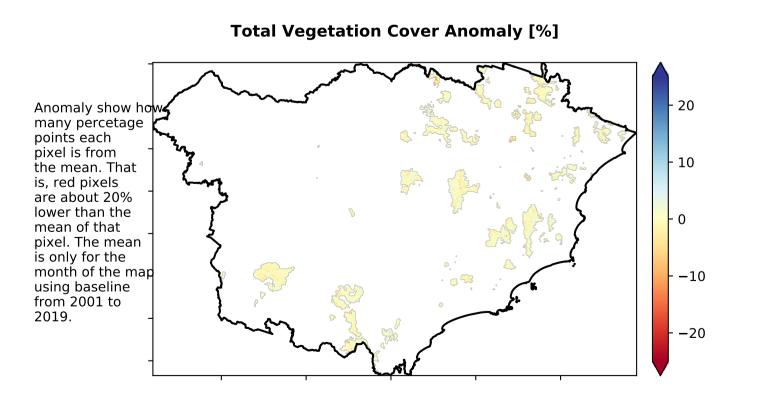
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018) See of Australia (2018) See of Australia (2018)

Total Vegetation Cover [%]

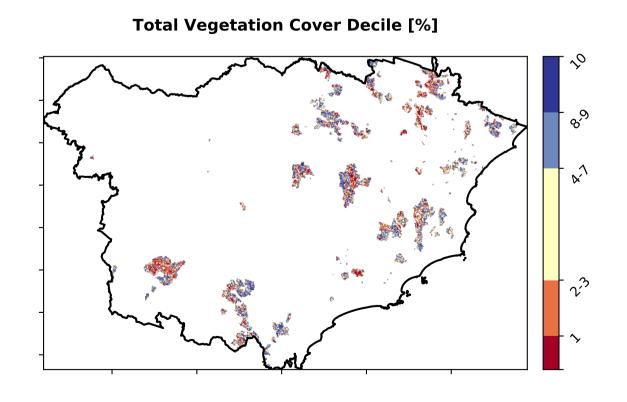
Proportion of vegetation cover class in area 100 - 100.0% 80 - 20 - 20 - 20 - 0.0% 0-30% 31%-50% 51%-70% 71%-100% Total Vegetation Cover class







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.







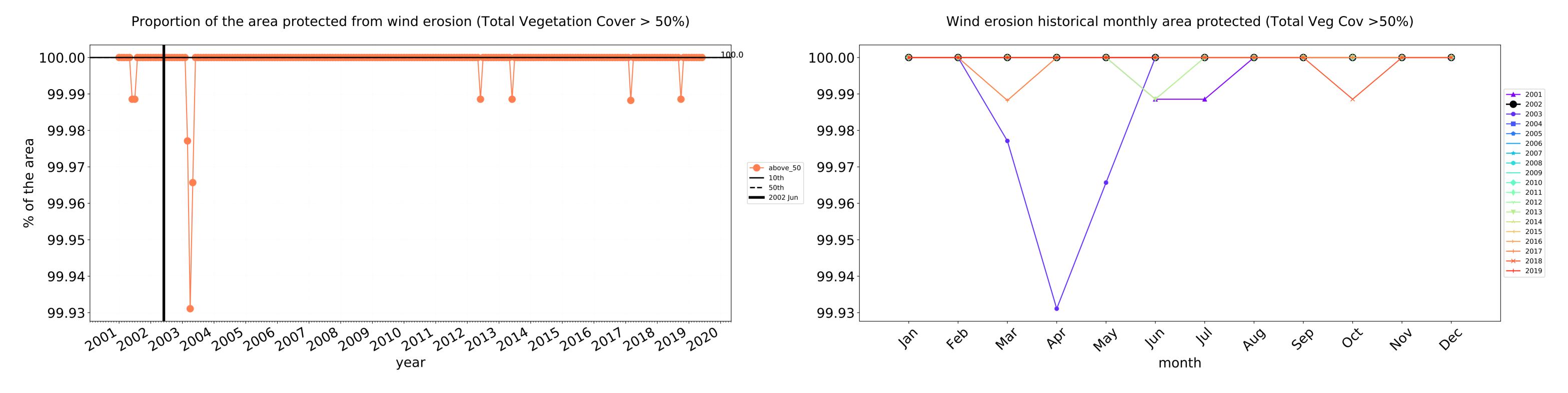


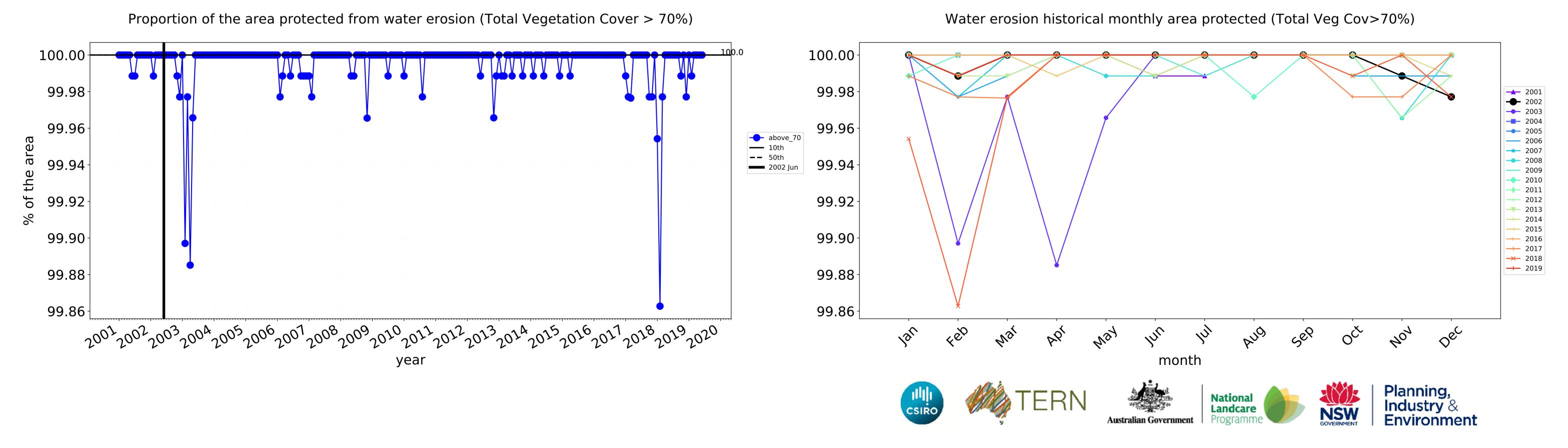


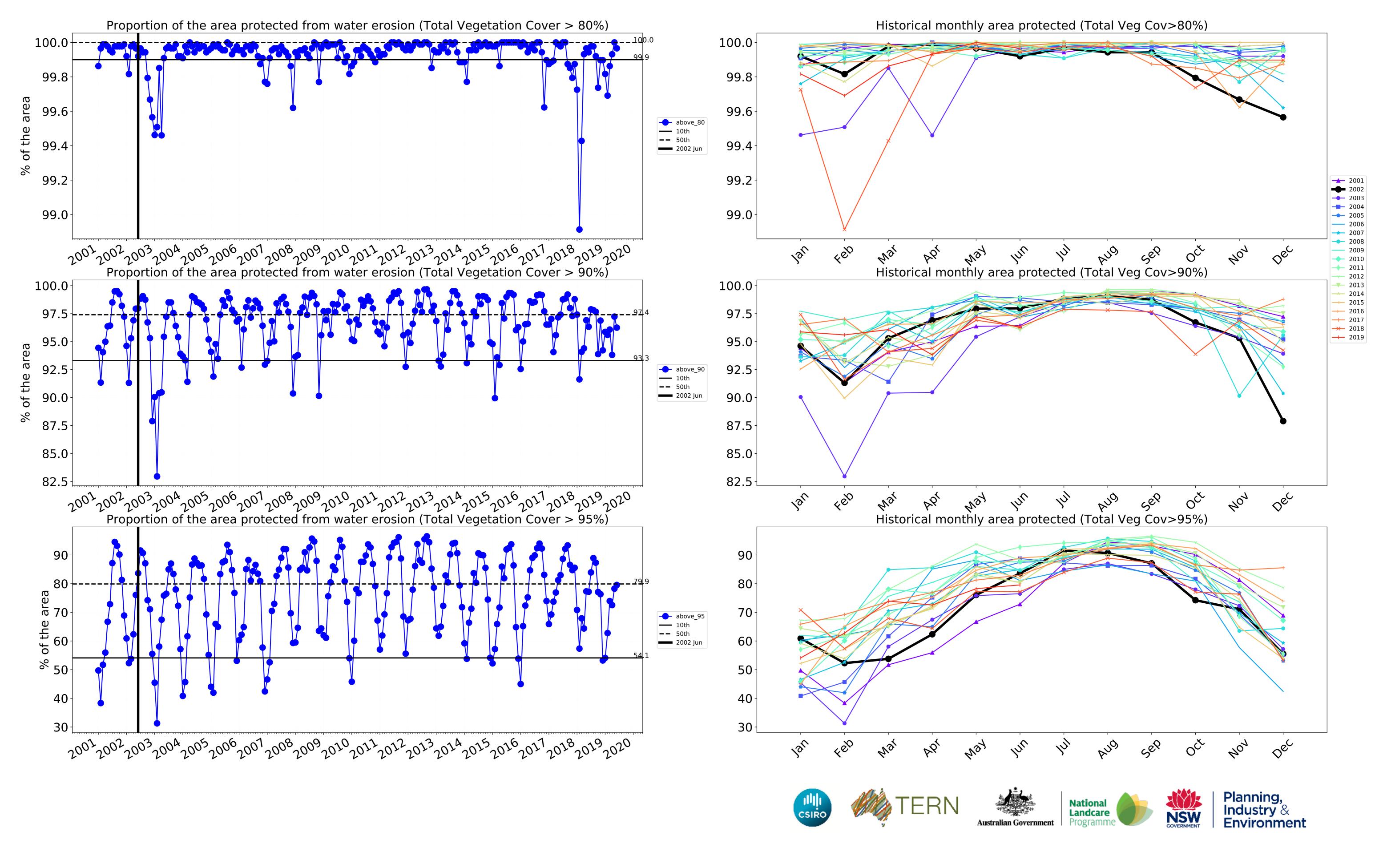




Production native forests and plantation forests timeseries







Hunter (3,239,800 ha and no data 60,625 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	3,239,800	100.0% 3,238,677	99.9% 3,235,233	99.2% 3,215,447	97.4% 3,155,366	81.1% 2,625,982	45.1% 1,462,172
Conservation and natural environments	1,244,125	99.9% 1,243,475	99.9% 1,242,500	99.7% 1,240,825	99.4% 1,236,775	91.6% 1,140,050	61.1% 760,550
Conservation and natural environments non forest	31,950	98.3% 31,400	95.4% 30,475	91.7% 29,300	87.4% 27,925	70.3% 22,475	32.5% 10,375
Conservation and natural environments Woodland forest	139,175	100.0% 139,175	100.0% 139,175	100.0% 139,150	99.8% 138,875	82.6% 115,025	36.3% 50,500
Conservation and natural environments Forest (non woodland)	1,073,000	100.0% 1,072,900	100.0% 1,072,850	99.9% 1,072,375	99.7% 1,069,975	93.4% 1,002,550	65.2% 699,675
Agriculture	1,581,150	100.0% 1,581,150	100.0% 1,580,950	99.7% 1,576,700	97.8% 1,547,050	74.8% 1,183,275	30.9% 488,725
Grazing	1,503,150	100.0% 1,503,150	100.0% 1,502,950	99.9% 1,501,350	99.0% 1,488,750	77.9% 1,171,250	32.4% 486,600
Grazing non forest	1,213,525	100.0% 1,213,525	100.0% 1,213,325	99.9% 1,211,800	98.9% 1,200,600	77.5% 940,825	31.6% 383,250
Grazing Woodland forest	120,575	100.0% 120,575	100.0% 120,575	100.0% 120,550	99.4% 119,825	69.7% 84,000	19.9% 24,050
Grazing - Forest (non woodland)	169,050	100.0% 169,050	100.0% 169,050	100.0% 169,000	99.6% 168,325	86.6% 146,425	46.9% 79,300
Cropping	50,625	100.0% 50,625	100.0% 50,625	94.8% 48,000	63.5% 32,125	11.7% 5,900	2.6% 1,300
Production native forests and plantation forests	218,550	100.0% 218,550	100.0% 218,550	100.0% 218,550	99.9% 218,375	98.0% 214,125	83.6% 182,775











