

Total vegetation cover soil protection

Region:LGA Ceduna_(DC) SA

Date: May 2023

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

Land use forest cover:

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

Total vegetation Cover:

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

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

Erosion protection: Wind erosion 50% total vegetation cover

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

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

Comparison with previous years:

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

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

Time series monthly from January 2001 to current:

Erosion protection

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

Rainfall

- Millimetres rainfall each month (black line).

Each time series is also stacked by year. The black line shows the current year of data.

Water erosion protection for higher rainfall and steeper slopes:

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

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

Acknowledgment of data:

1. <http://www.agriculture.gov.au/abares/aclump/land-use/alum-classification>
2. <http://www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2018>
3. <https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/establishment-mgmt/production-management2/groundcover>
4. MODIS Fractional cover algorithm:
<https://doi.org/10.4225/08/5848a3f19a7b3>



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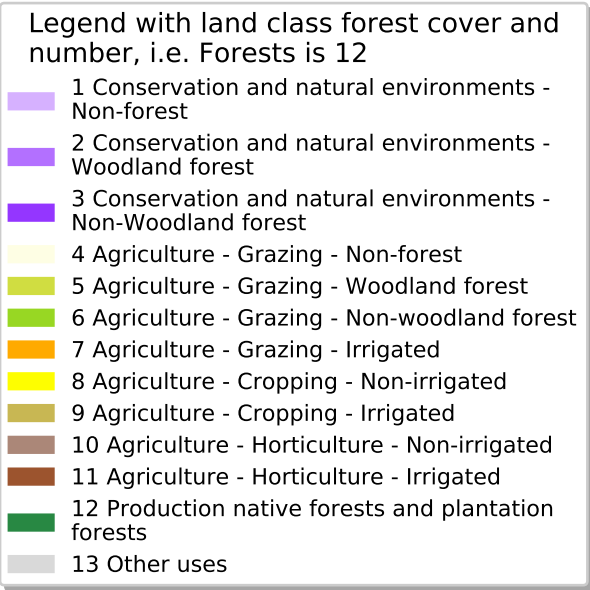
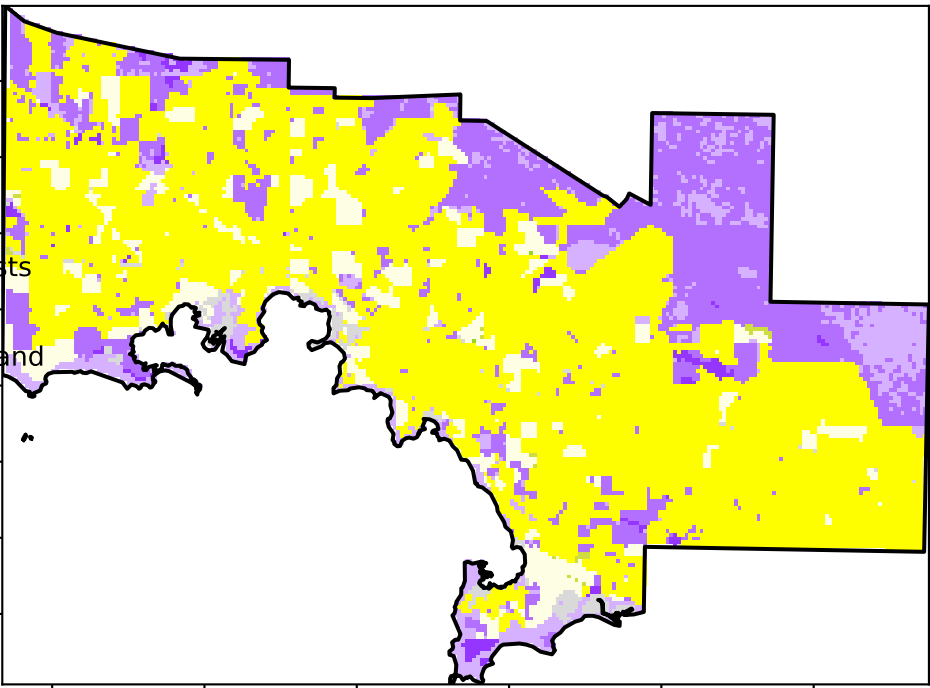
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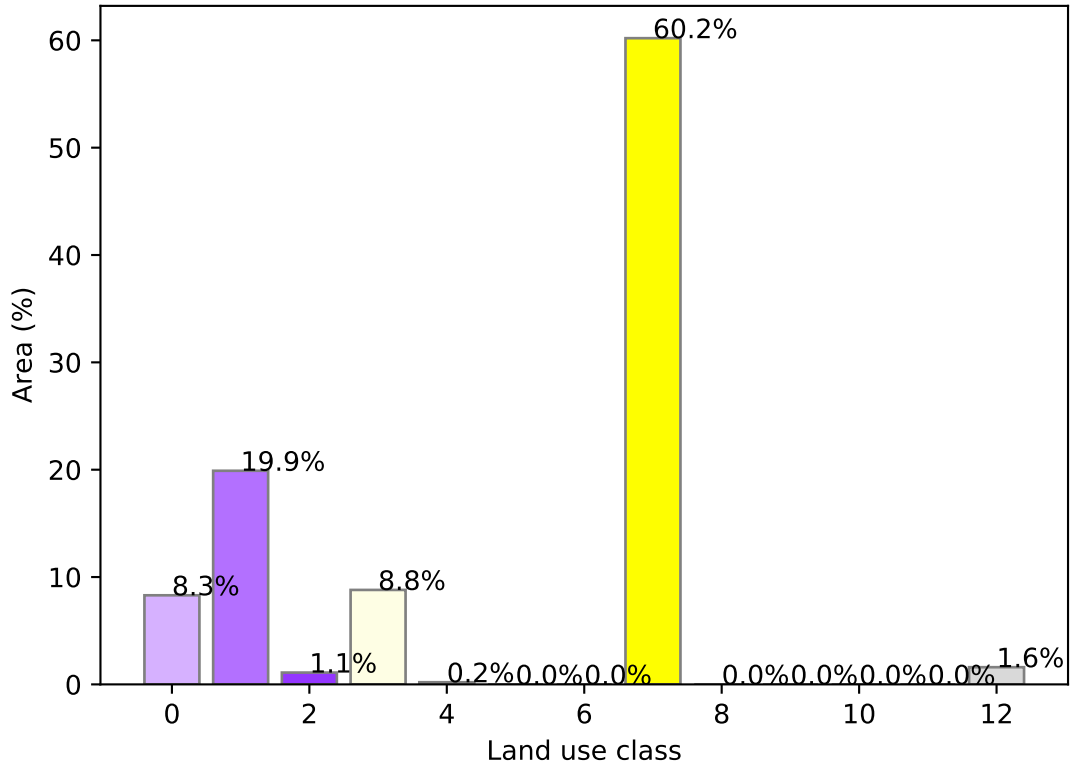
Vegetation Cover May 2023

Land use and forest cover

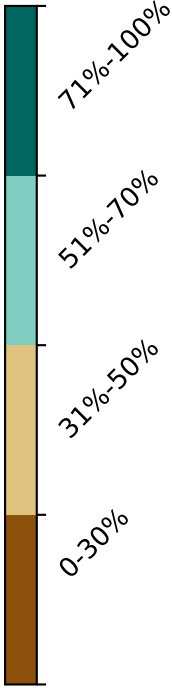
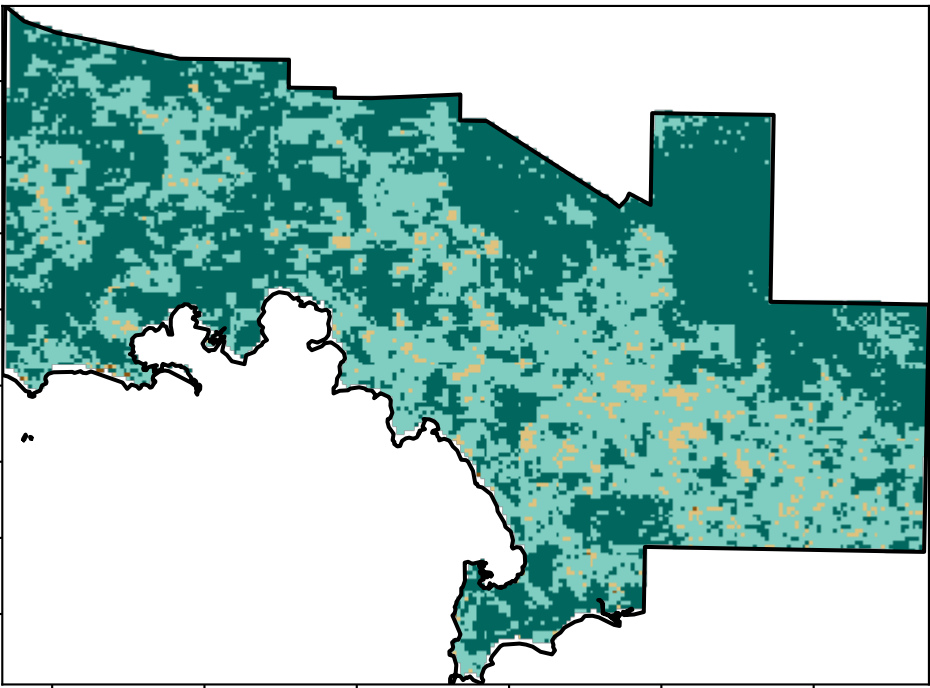
Catchment Scale
Land Use and Forests
of Australia (2018).
Derived from
Catchment Scale Land
Use of Australia
(2018) and Forests
of Australia (2018).



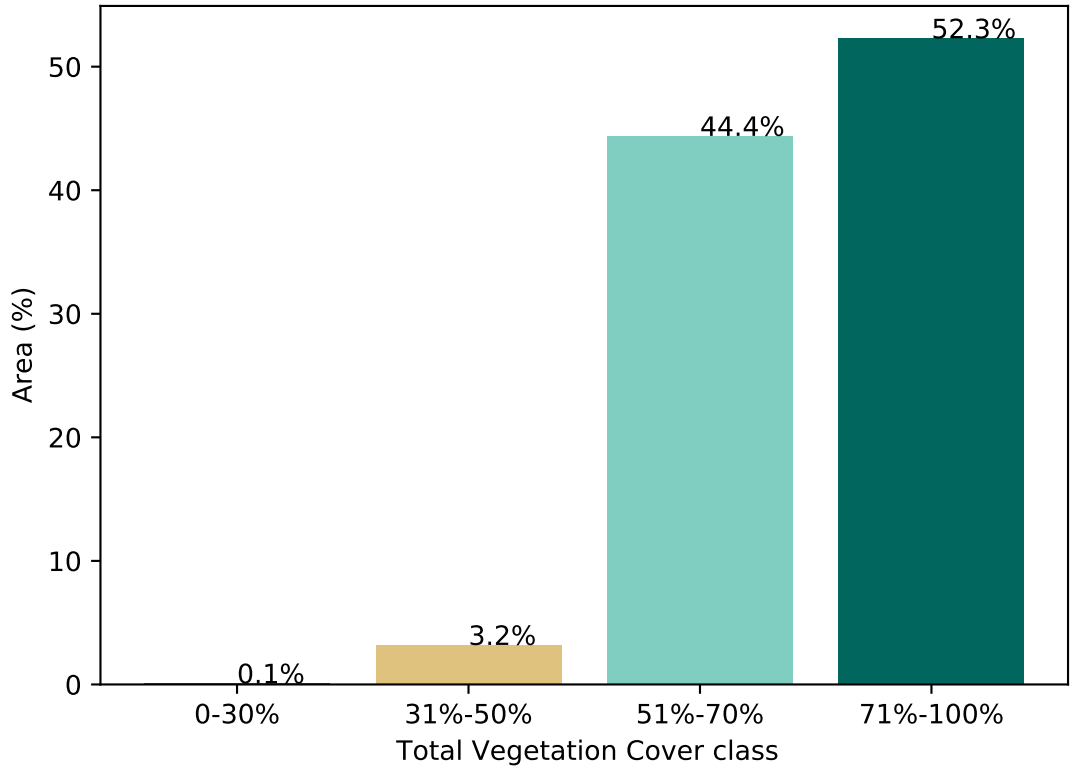
Proportion of each land class in area



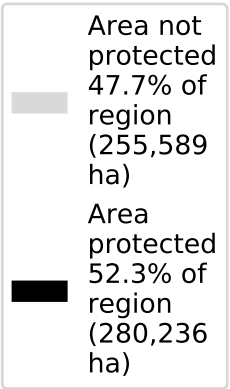
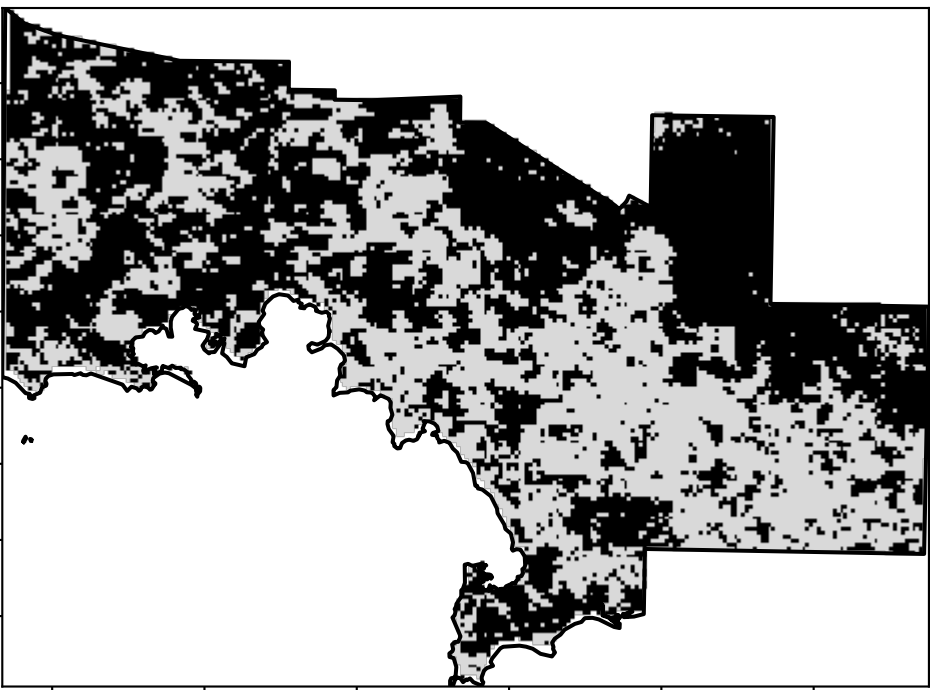
Total Vegetation Cover [%]



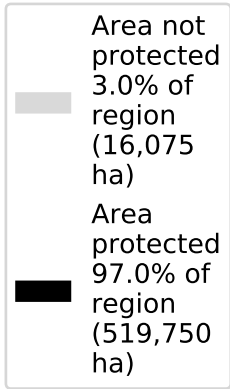
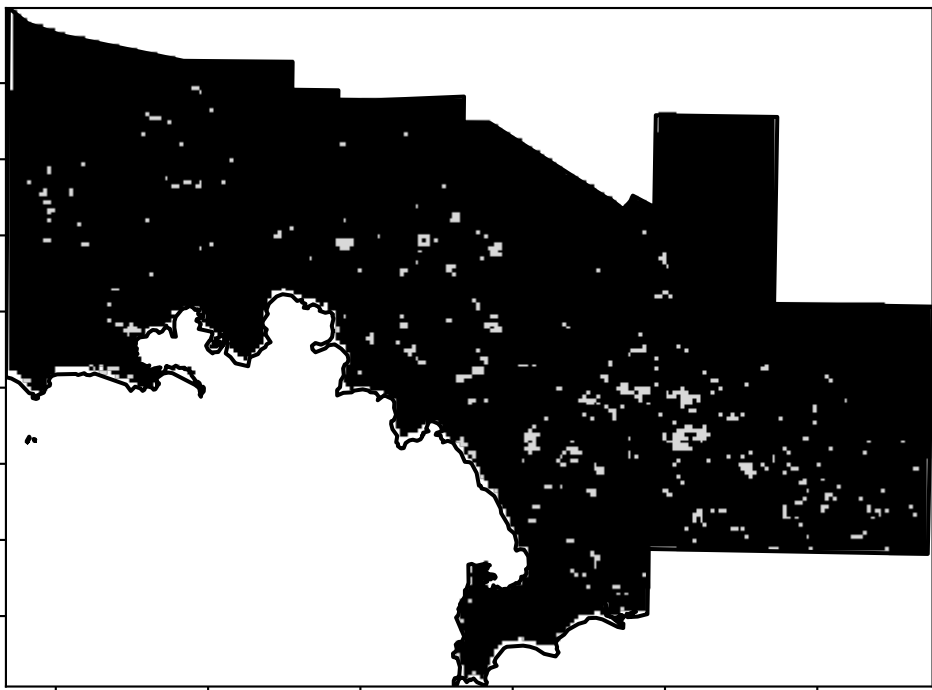
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

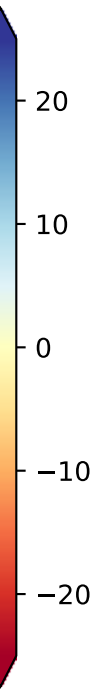
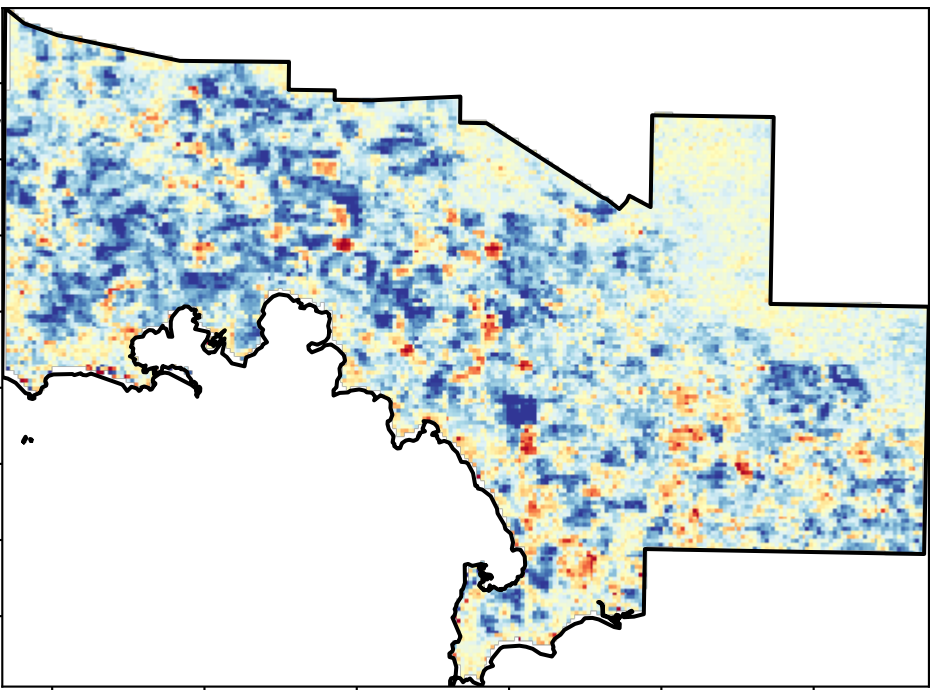


% Area protected from wind erosion (>50%)



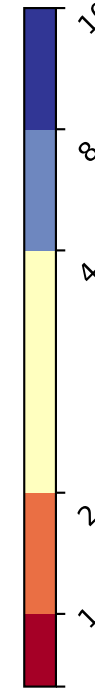
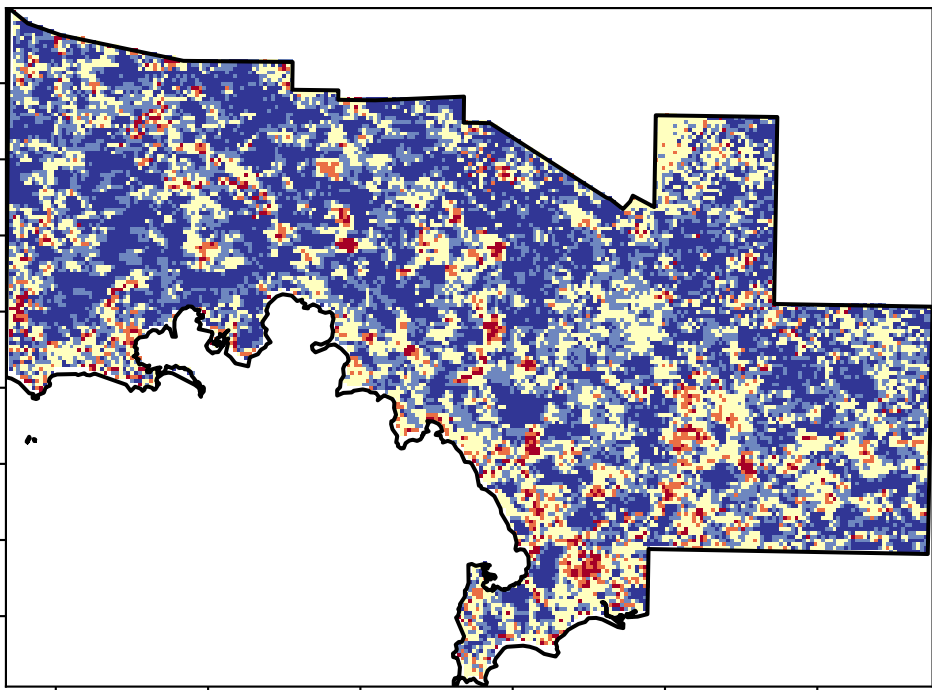
Total Vegetation Cover Anomaly [%]

Anomaly show how many percentage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



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

Total Vegetation Cover Decile [%]



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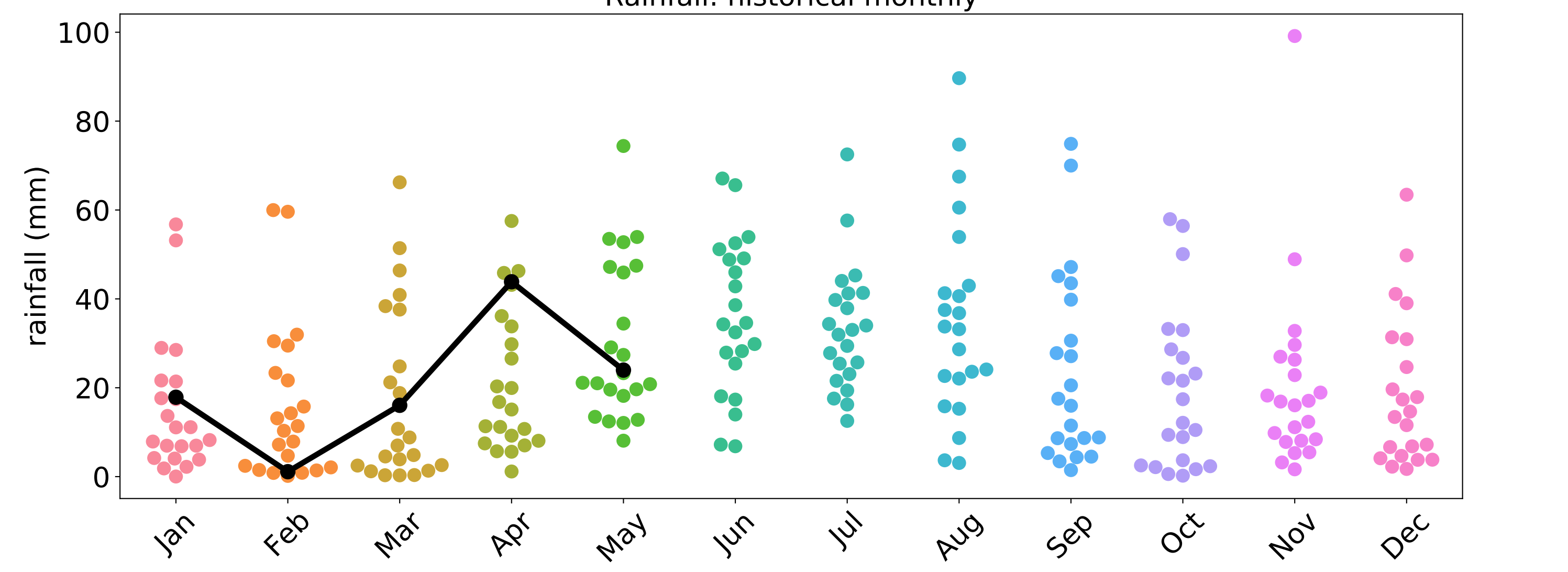
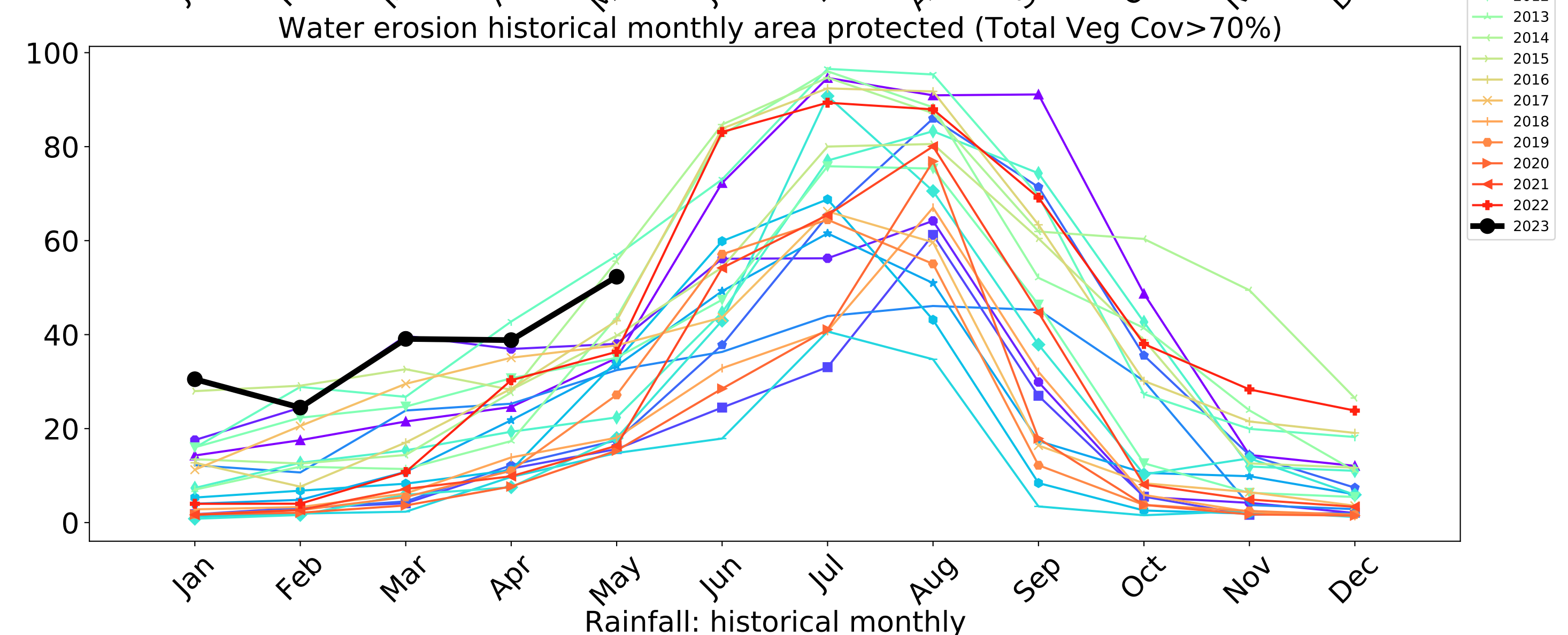
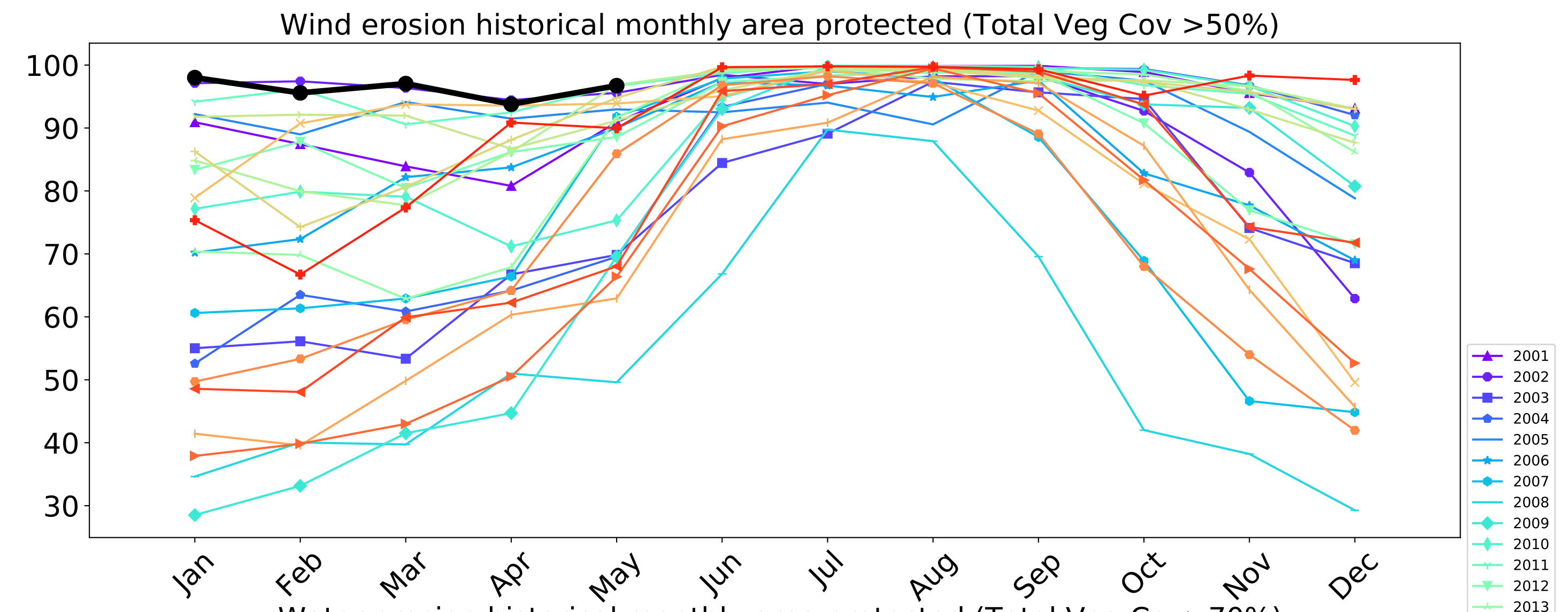
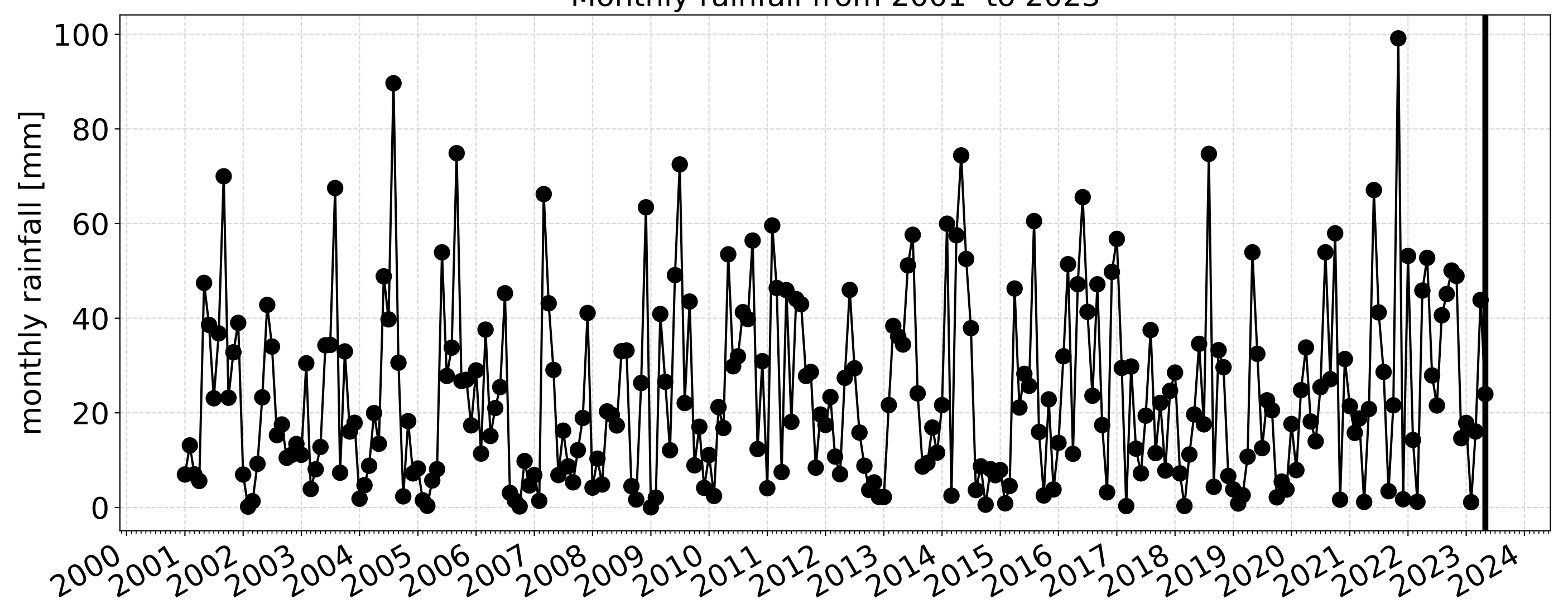
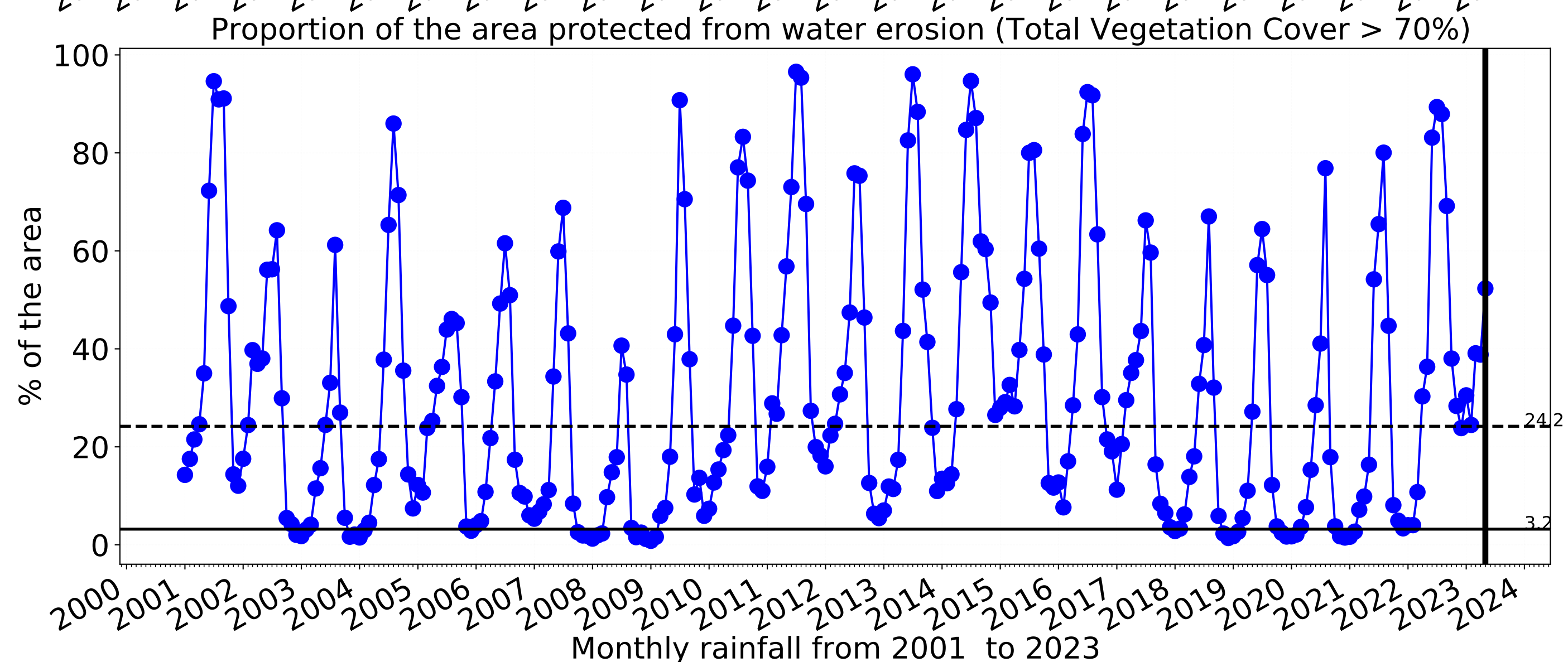
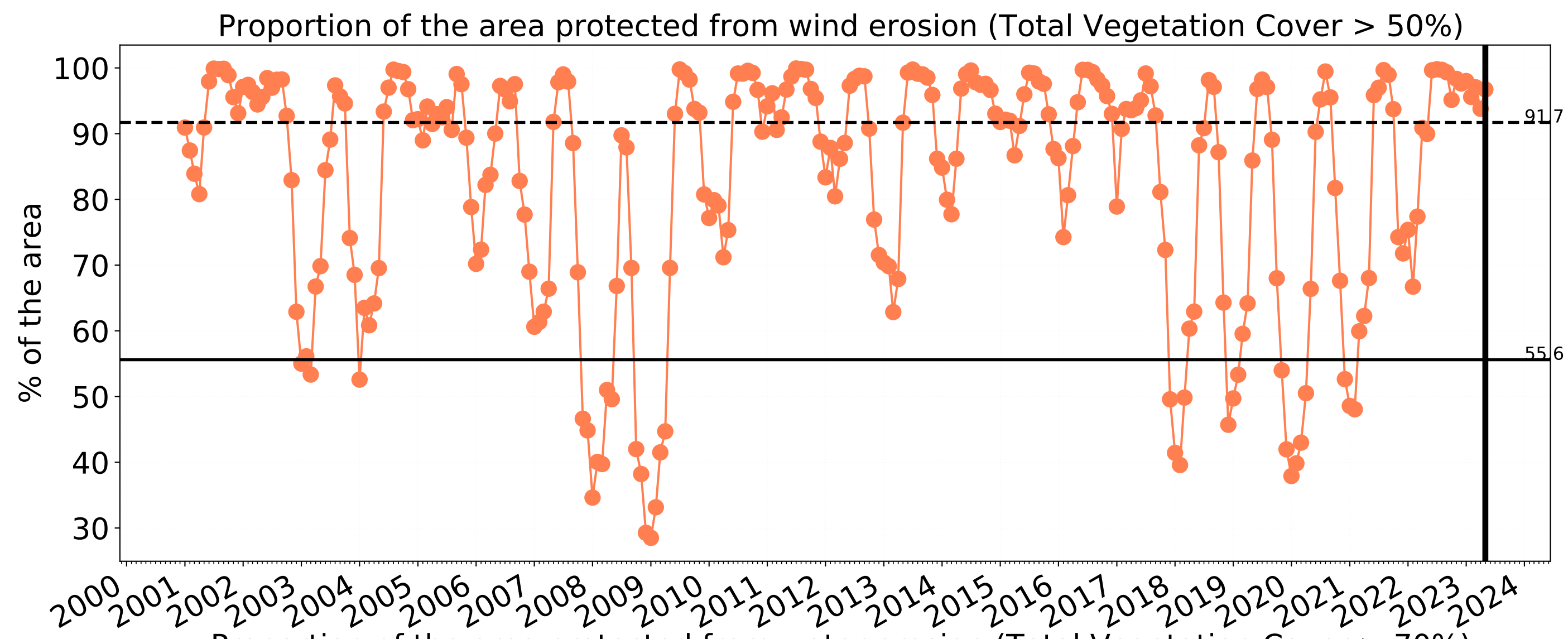
Ecosystem Research Infrastructure



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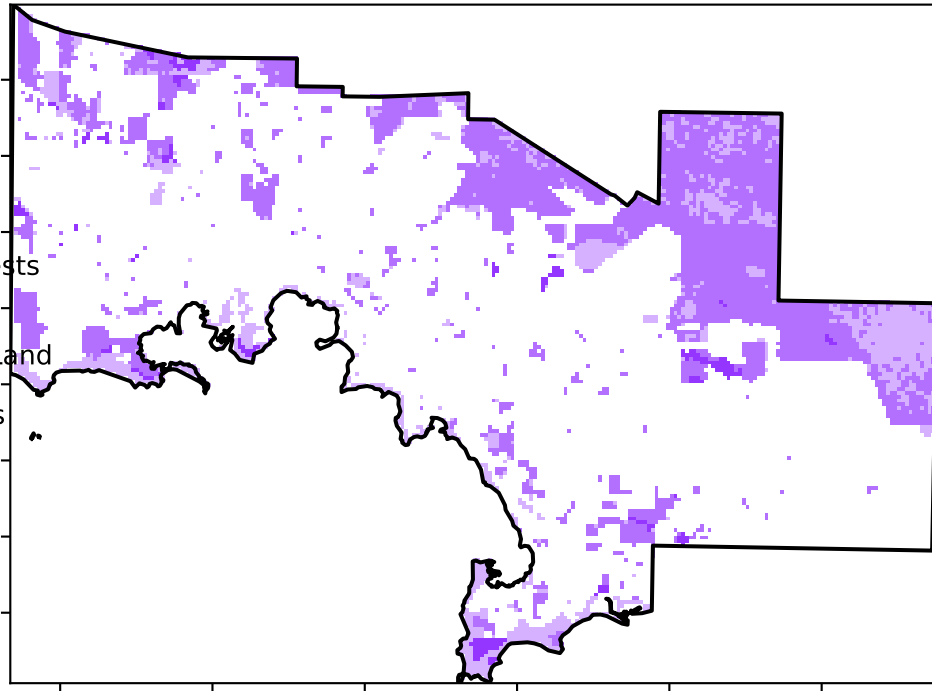




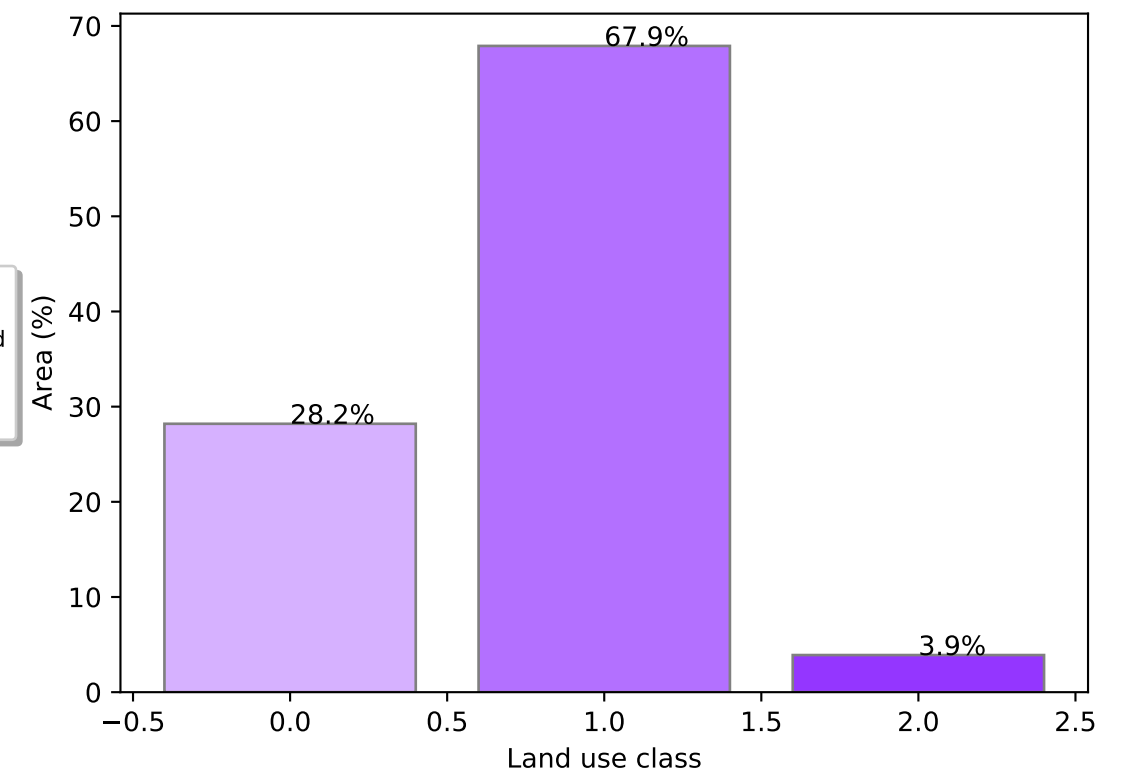
Conservation and natural environments

Land use and forest cover

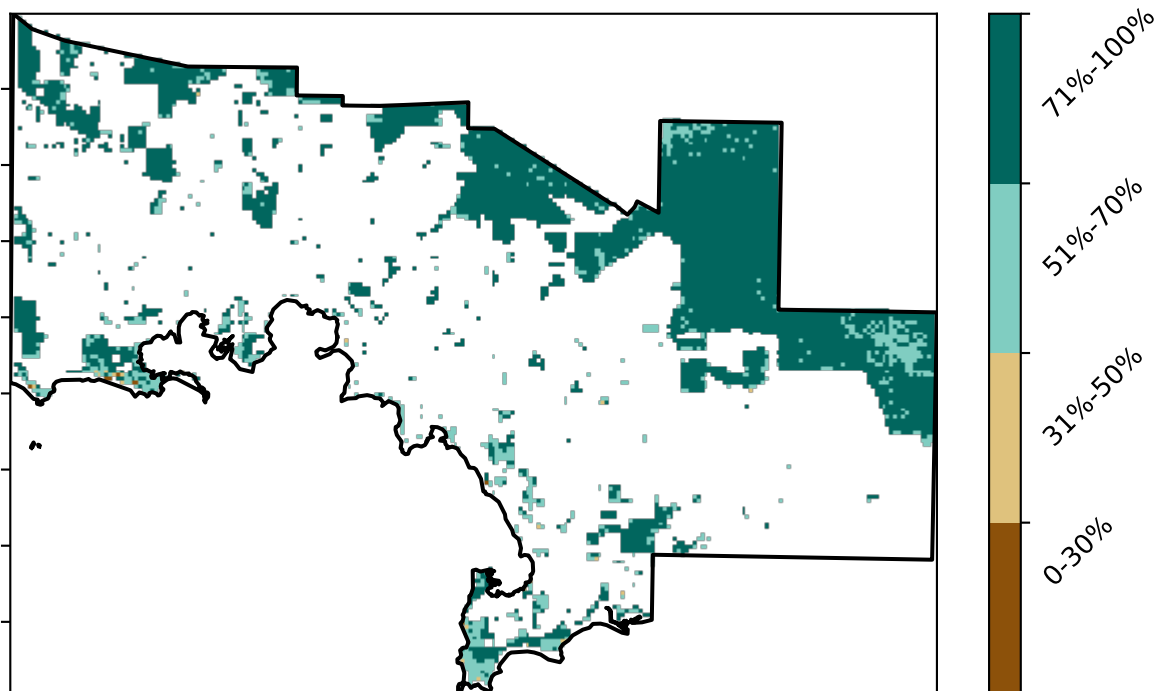
Catchment Scale Land Use and Forests of Australia (2018). Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018).



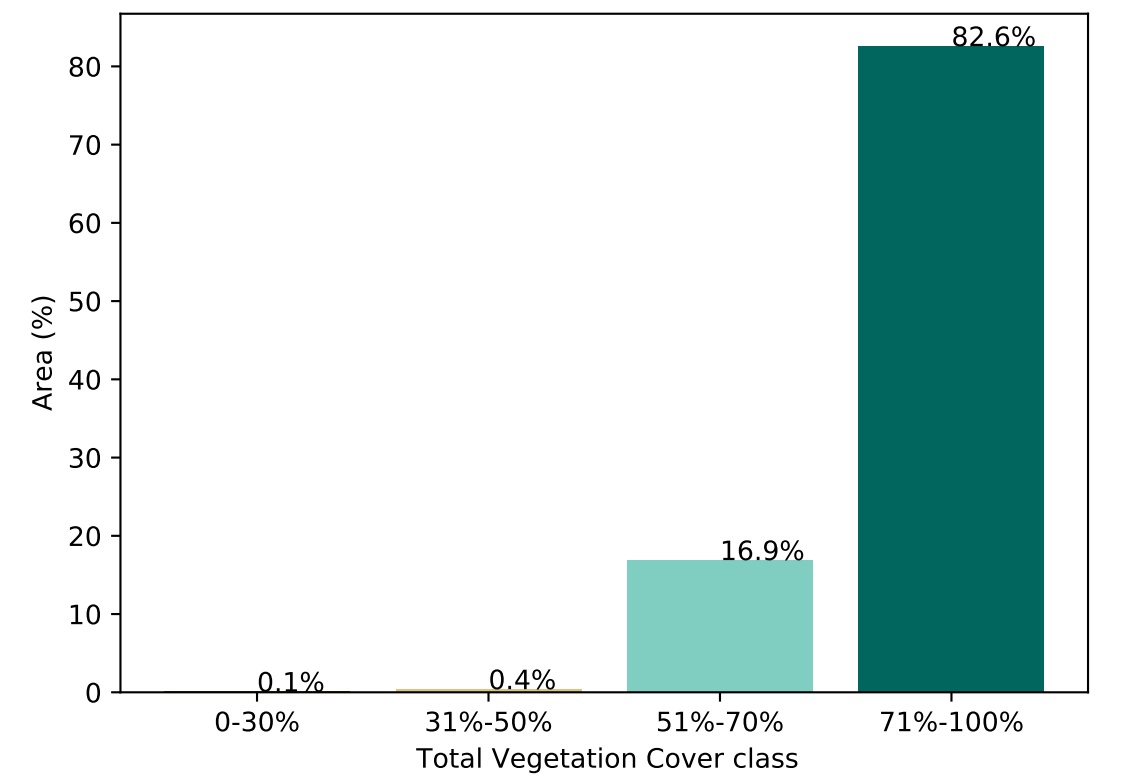
Proportion of each land class in area



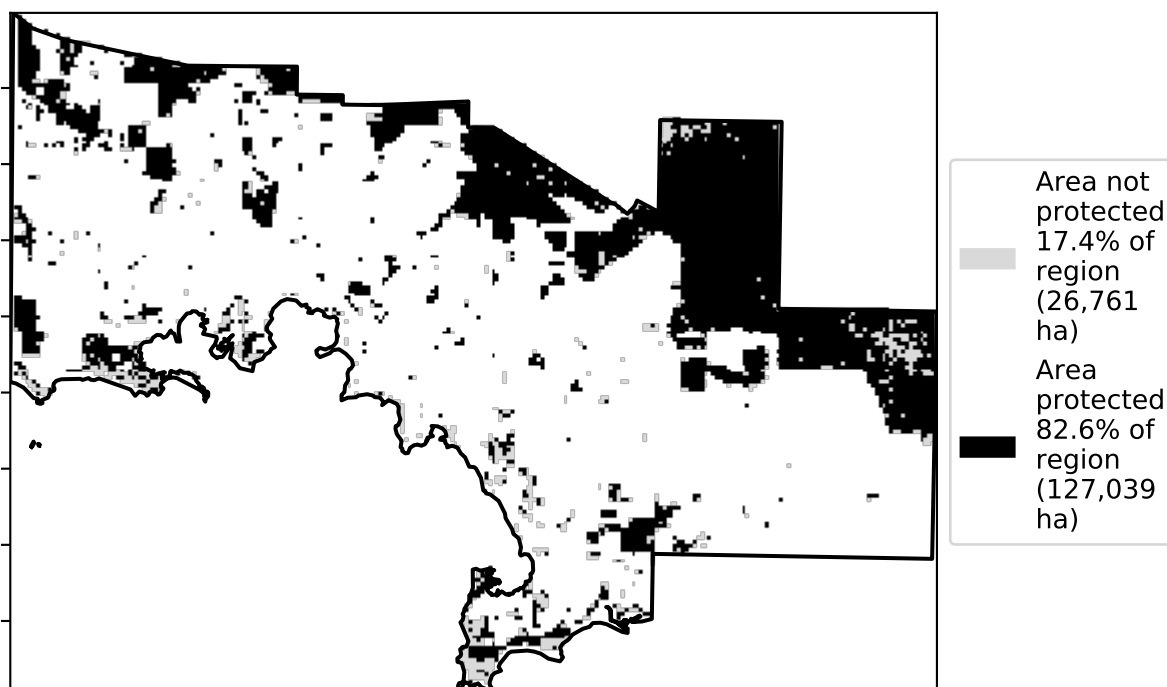
Total Vegetation Cover [%]



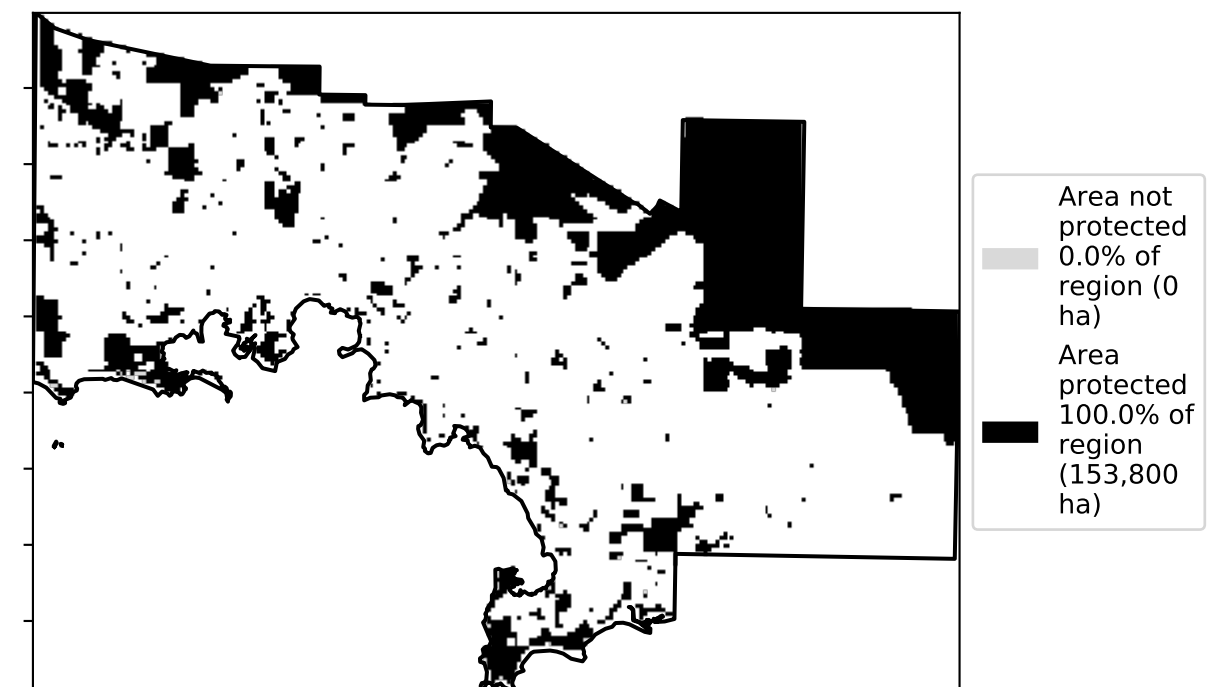
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

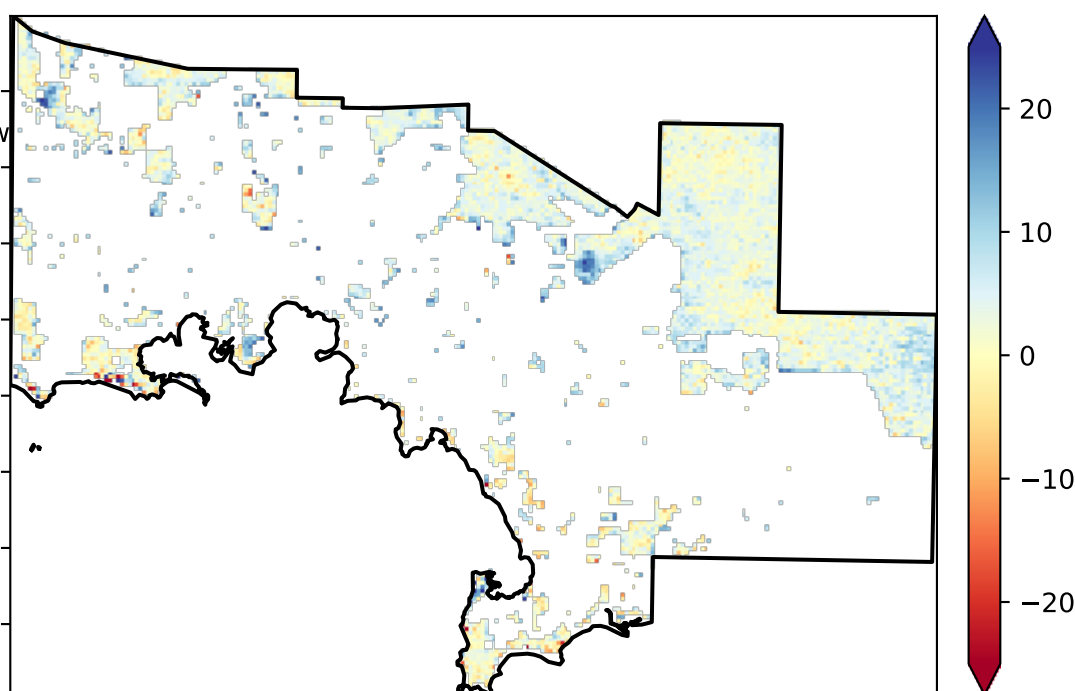


% Area protected from wind erosion (>50%)



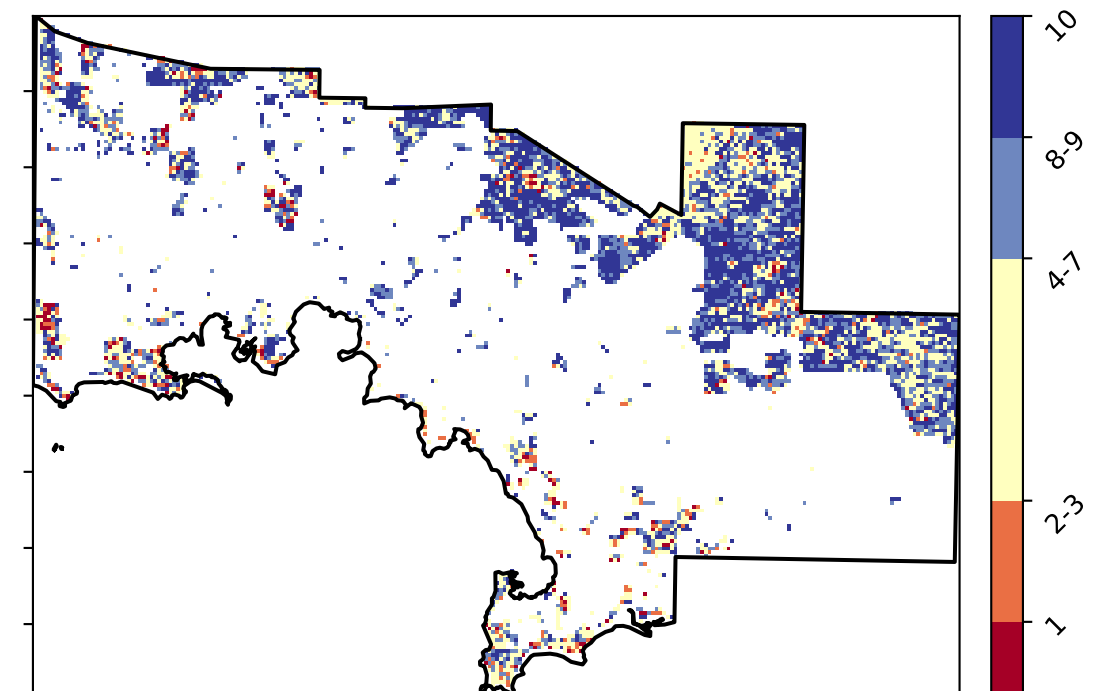
Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]



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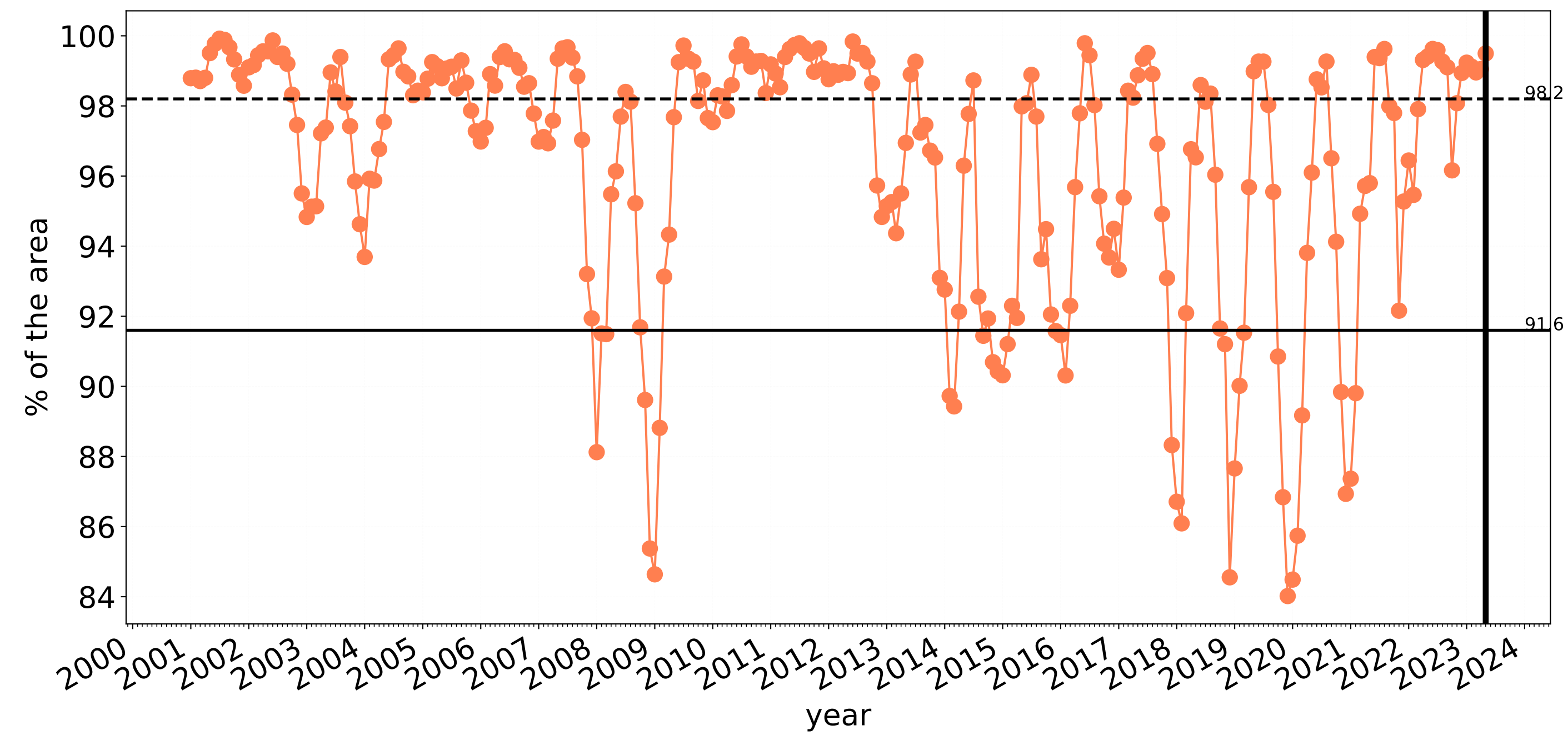
Australian Government

National Landcare Programme

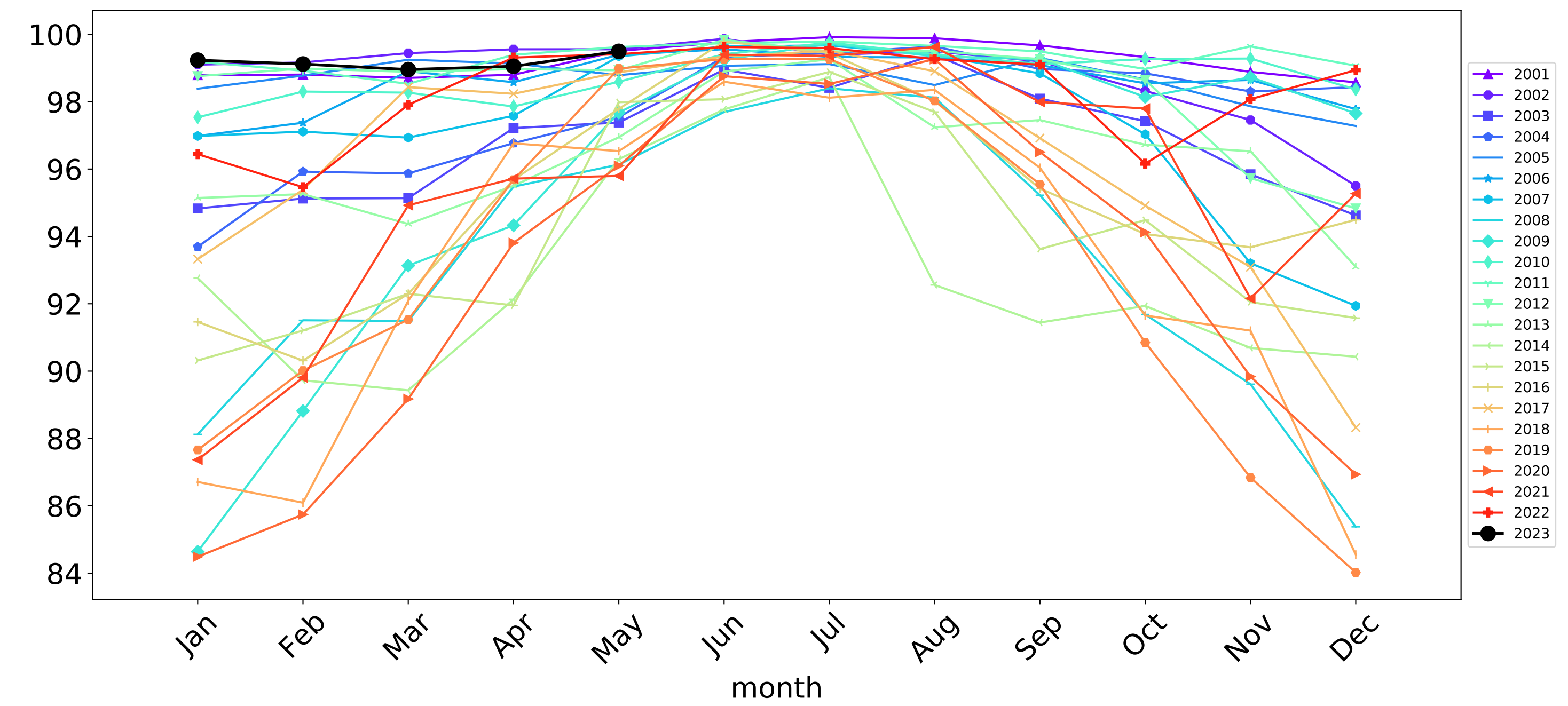


Conservation and natural environments timeseries

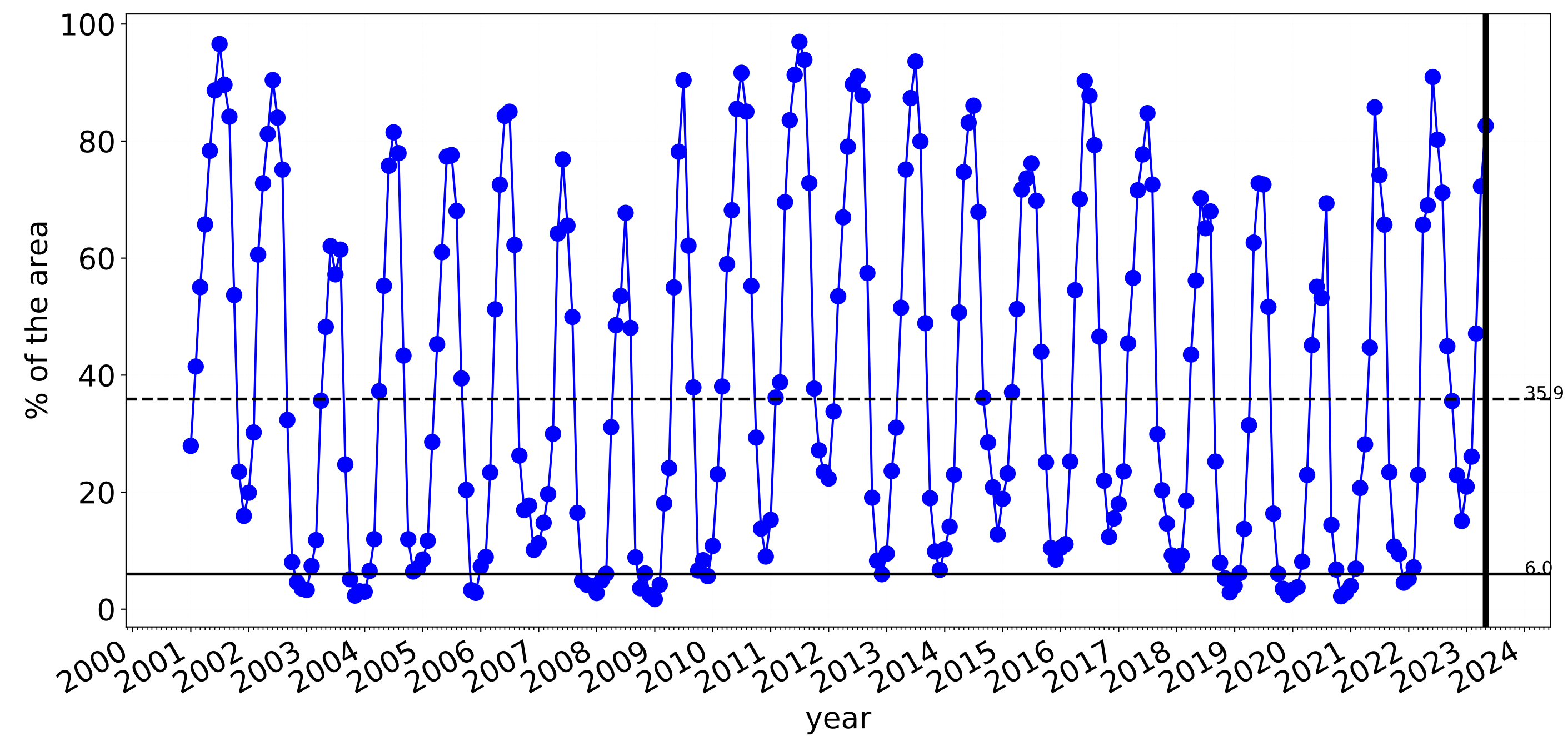
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



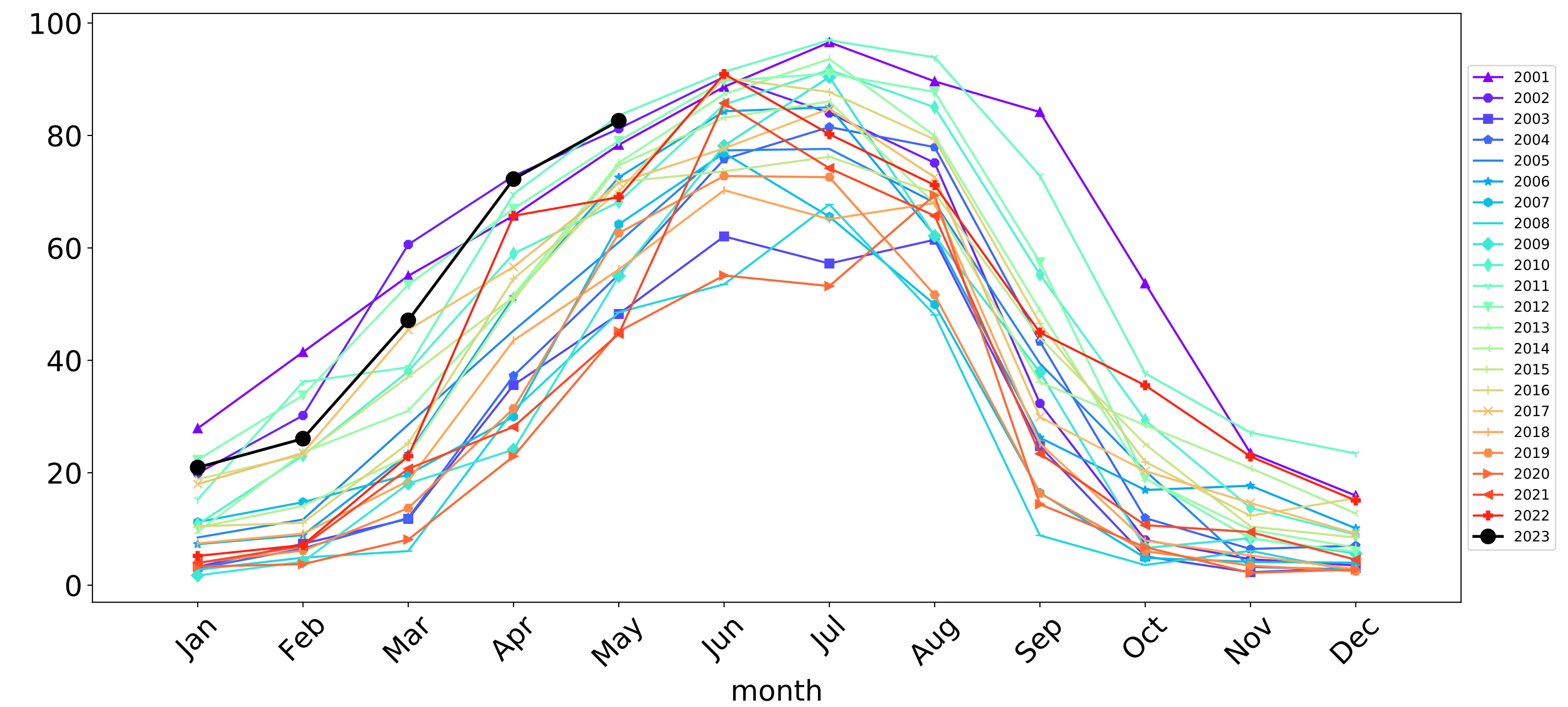
Wind erosion historical monthly area protected (Total Veg Cov >50%)



Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



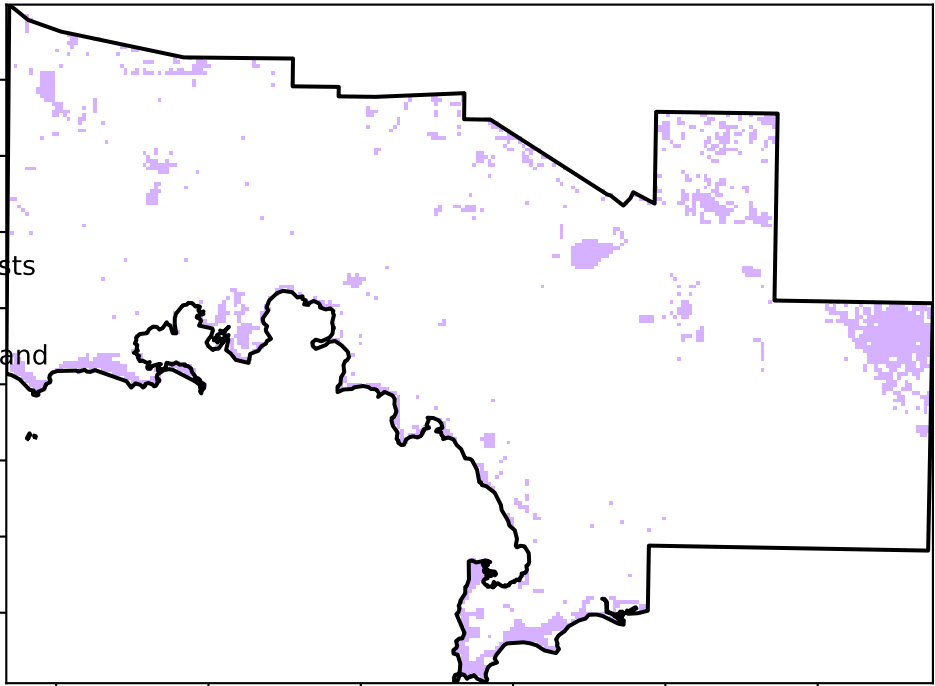
Water erosion historical monthly area protected (Total Veg Cov>70%)



Conservation and natural environments non forest

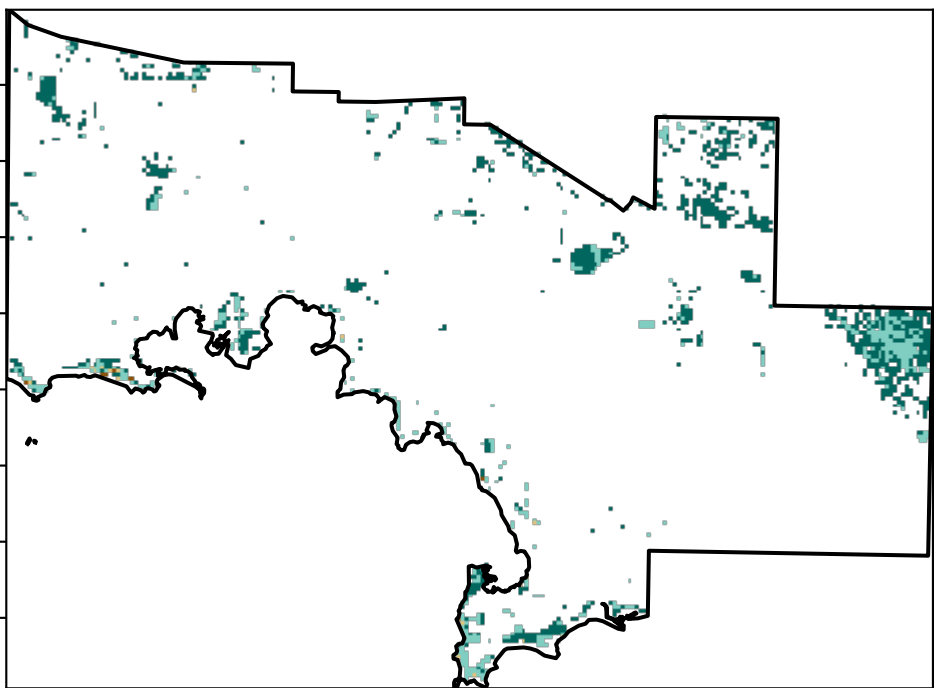
Land use and forest cover

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

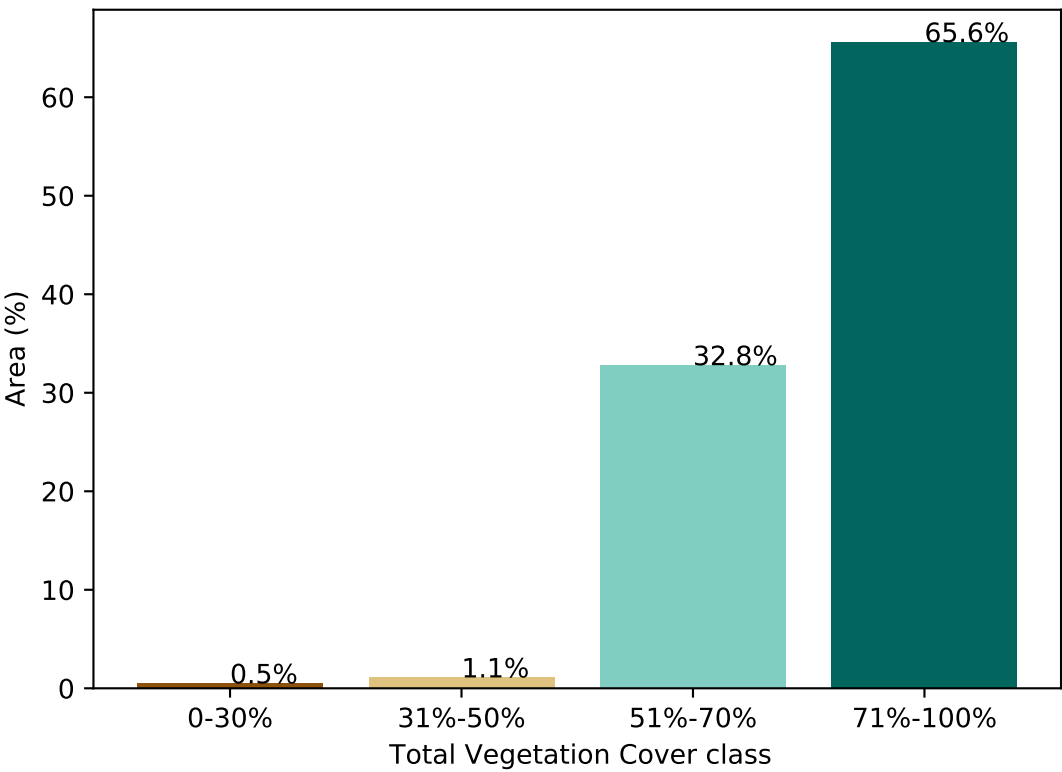


1 Conservation and natural environments - Non-forest

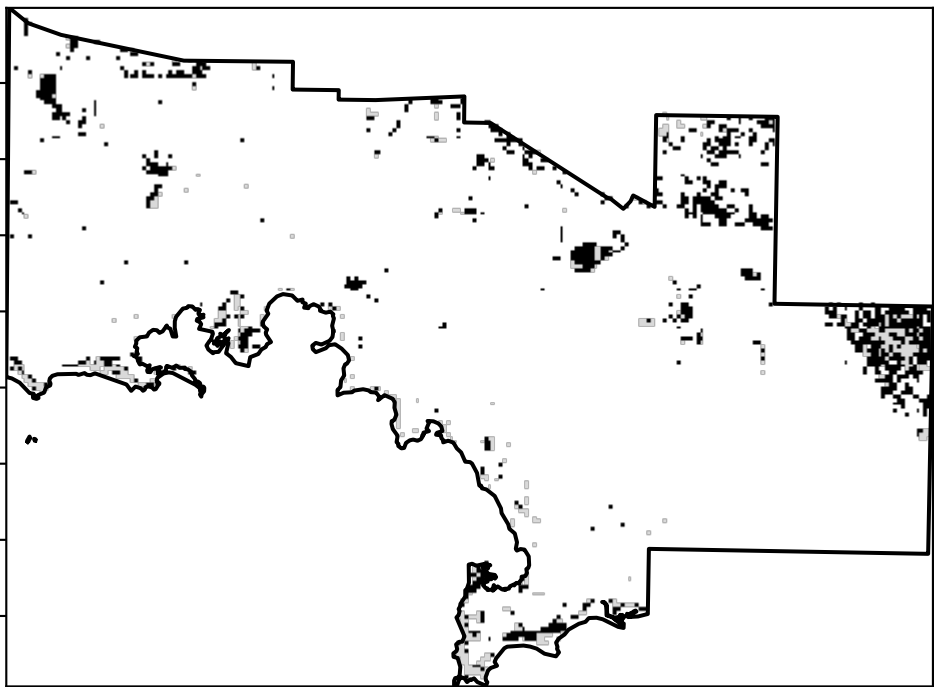
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

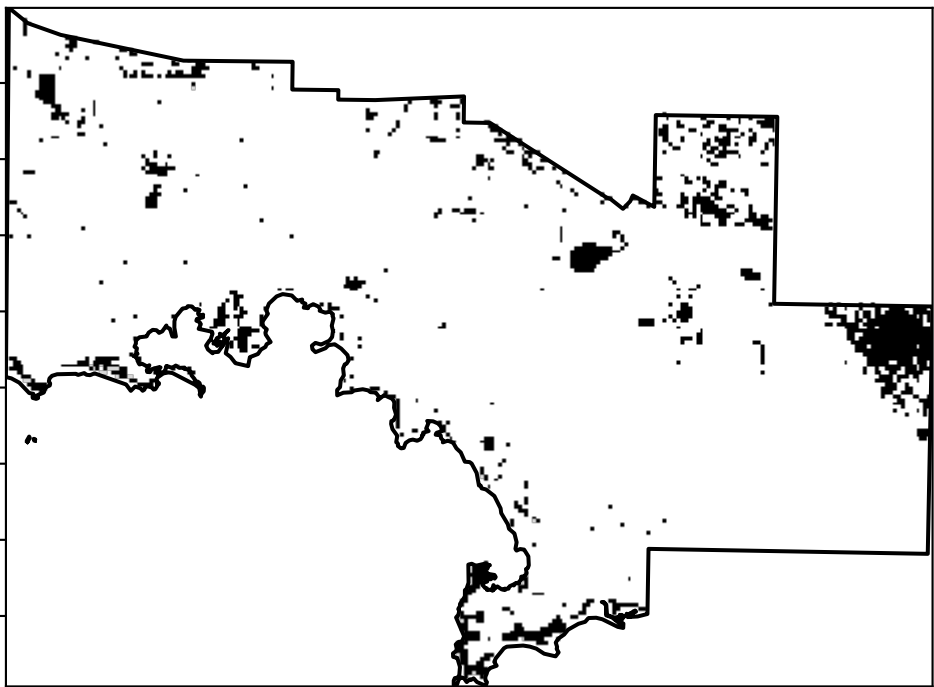


% Area protected from water erosion (>70%)



Area not protected 34.4% of region (13,812 ha)
Area protected 65.6% of region (26,338 ha)

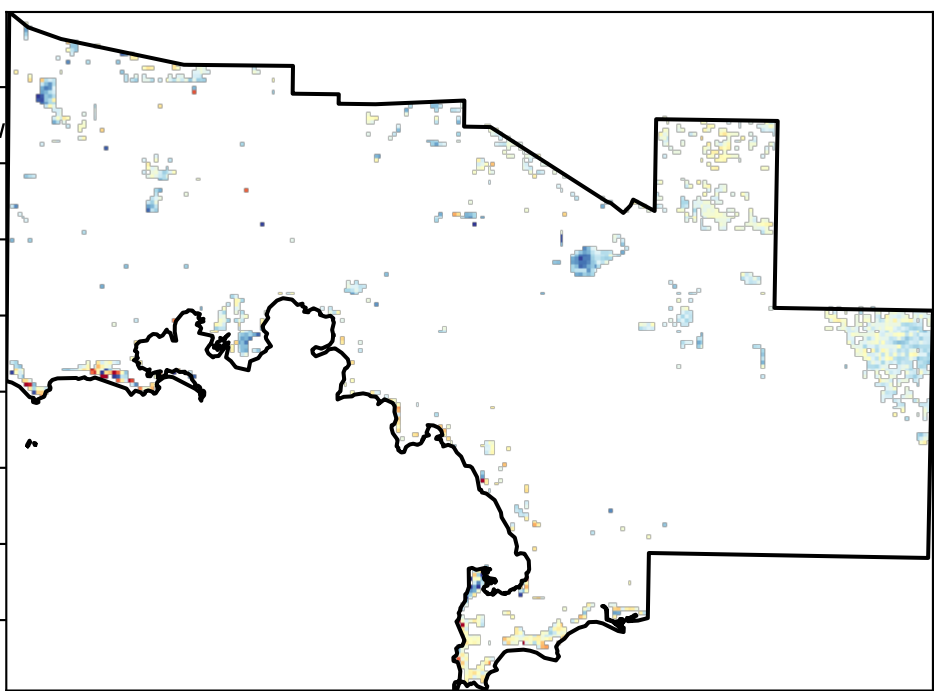
% Area protected from wind erosion (>50%)



Area not protected 2.0% of region (803 ha)
Area protected 98.0% of region (39,347 ha)

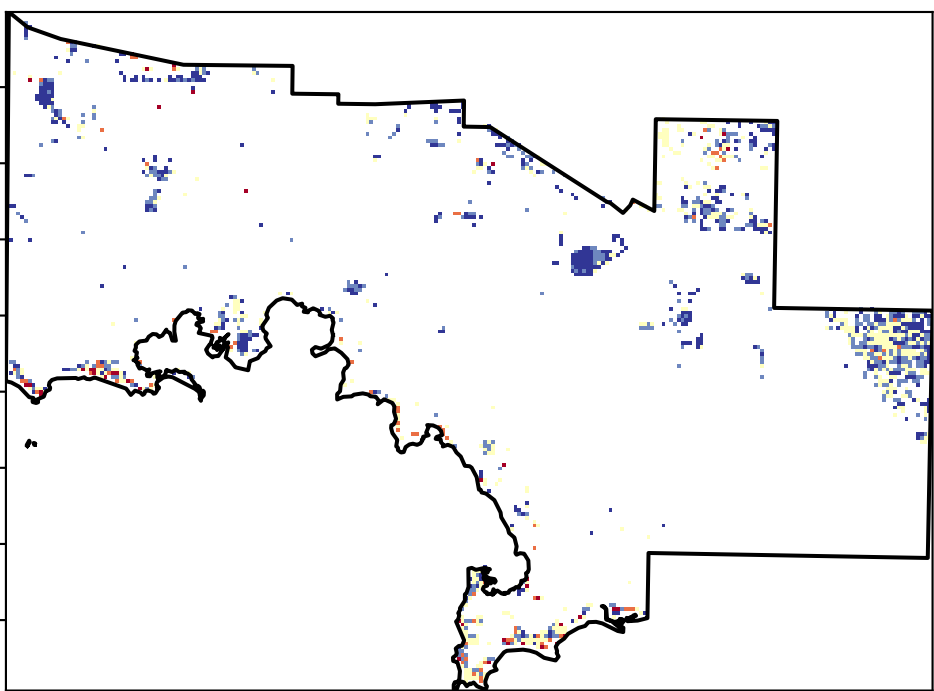
Total Vegetation Cover Anomaly [%]

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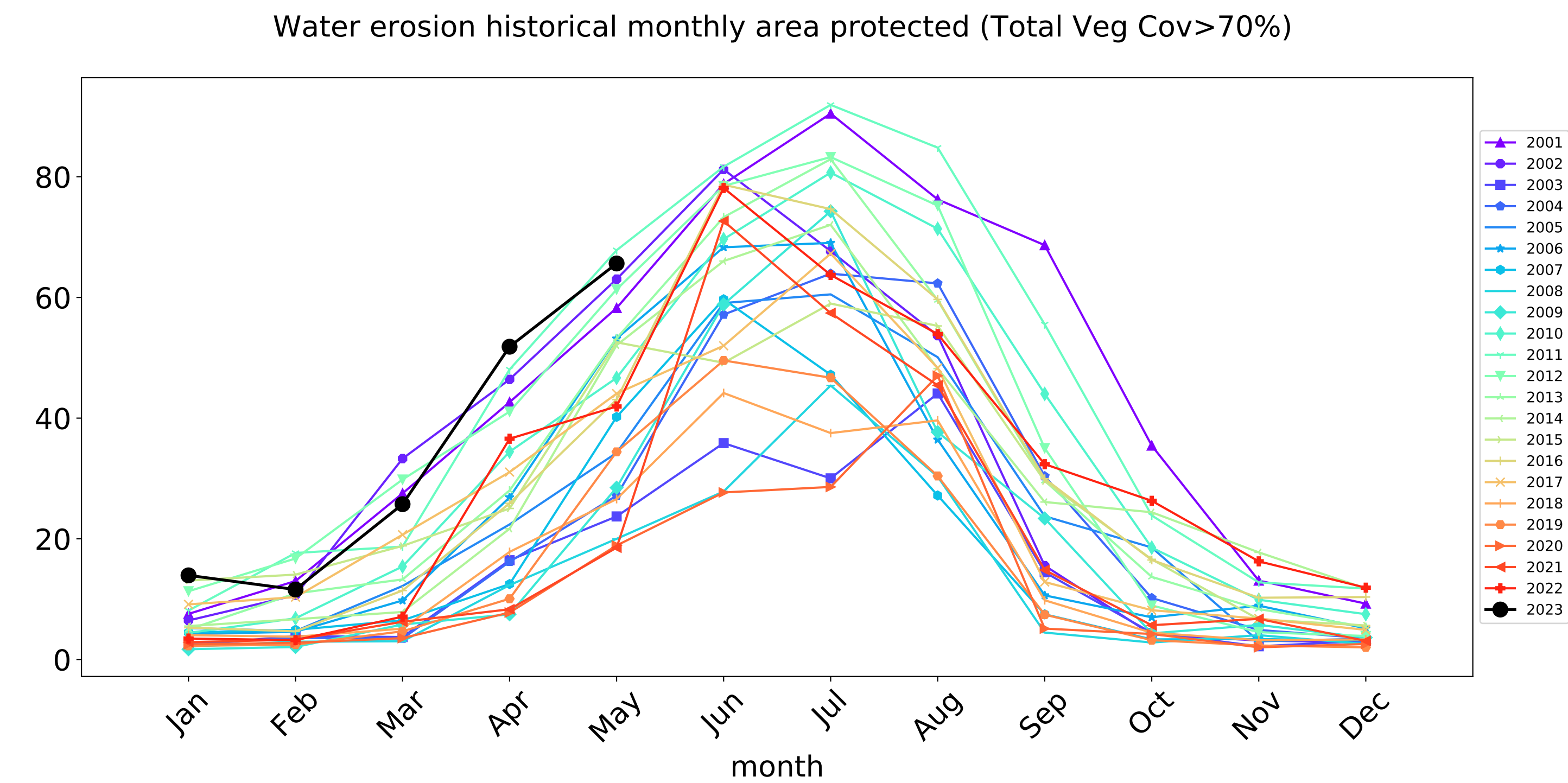
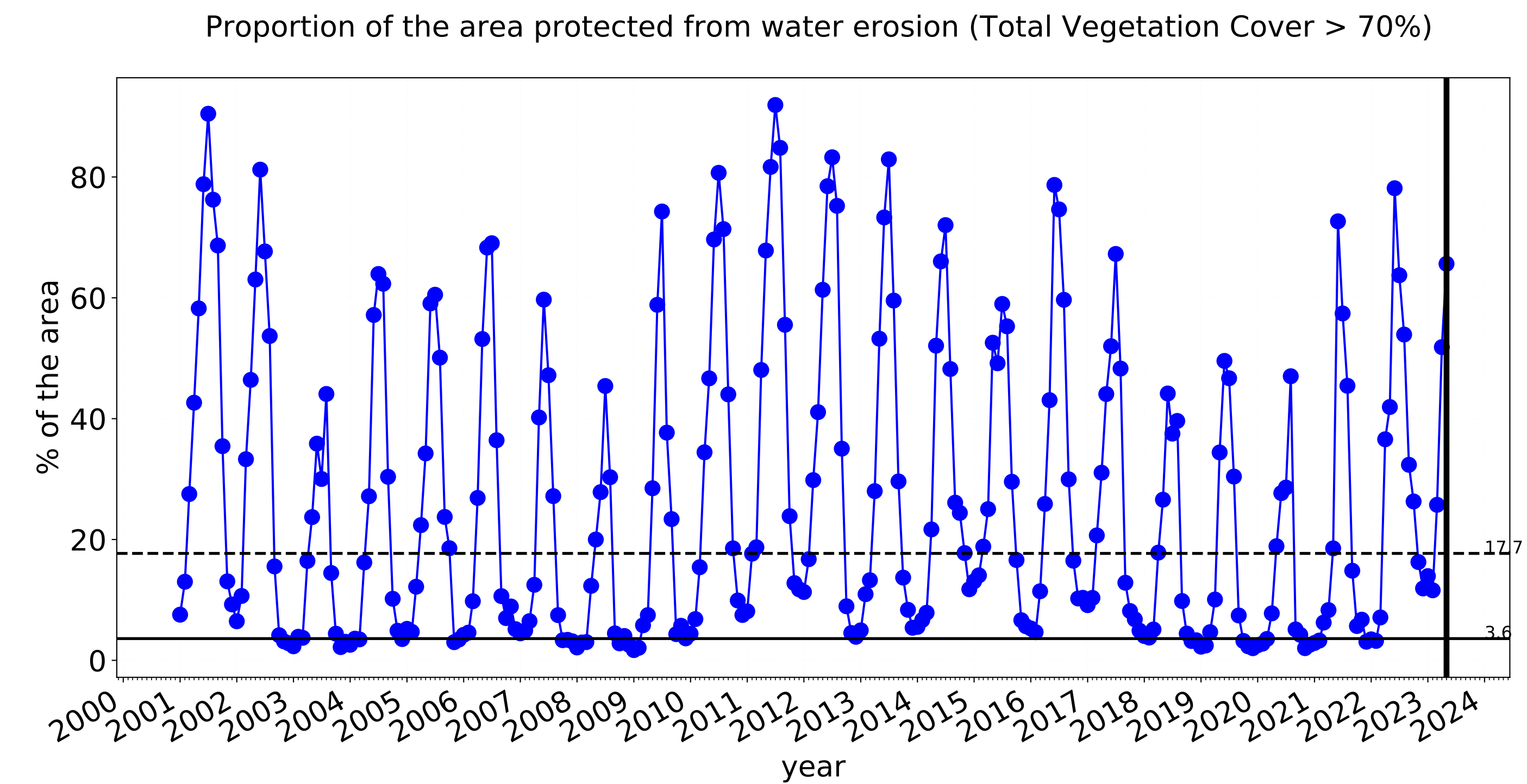
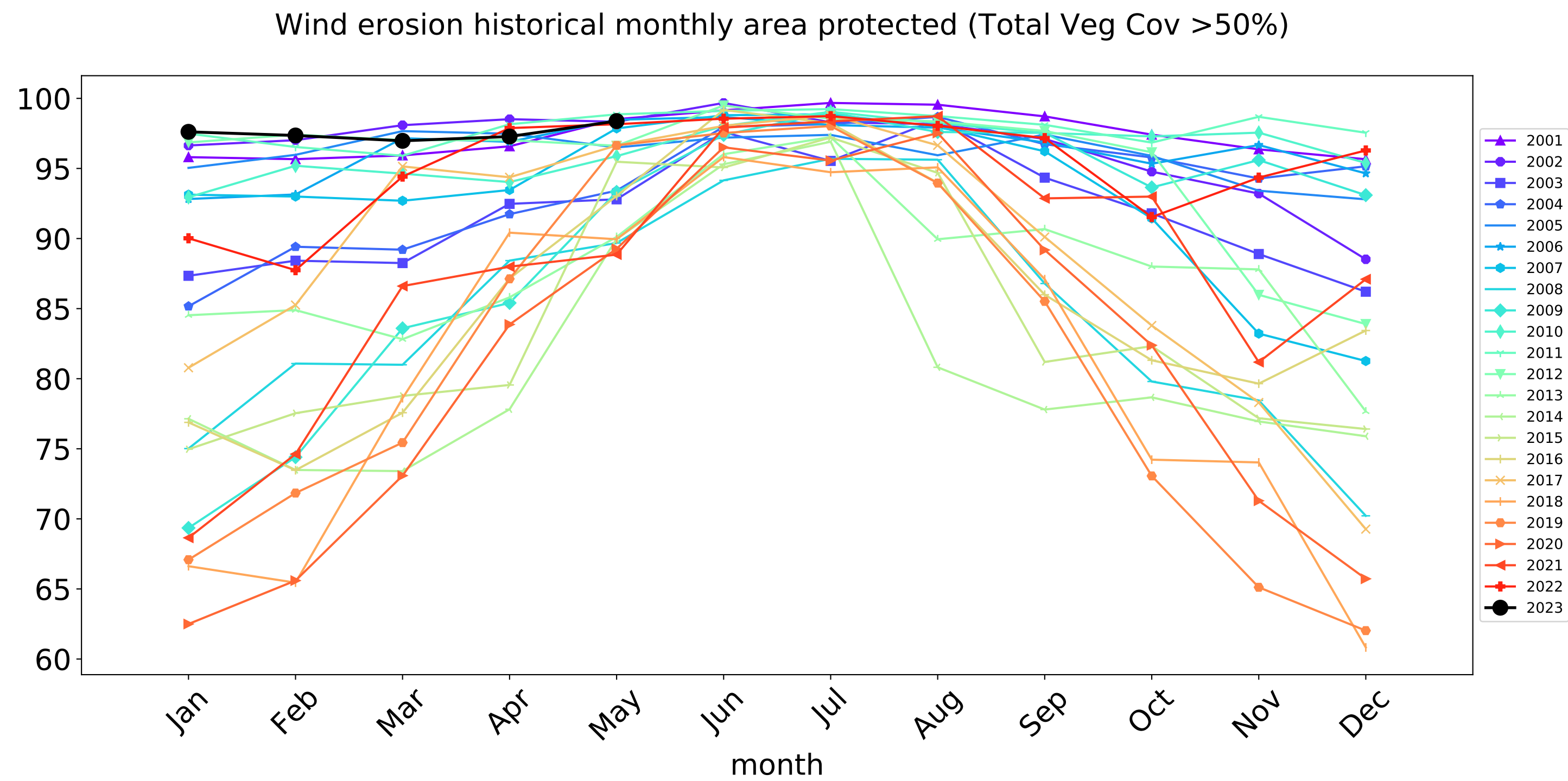
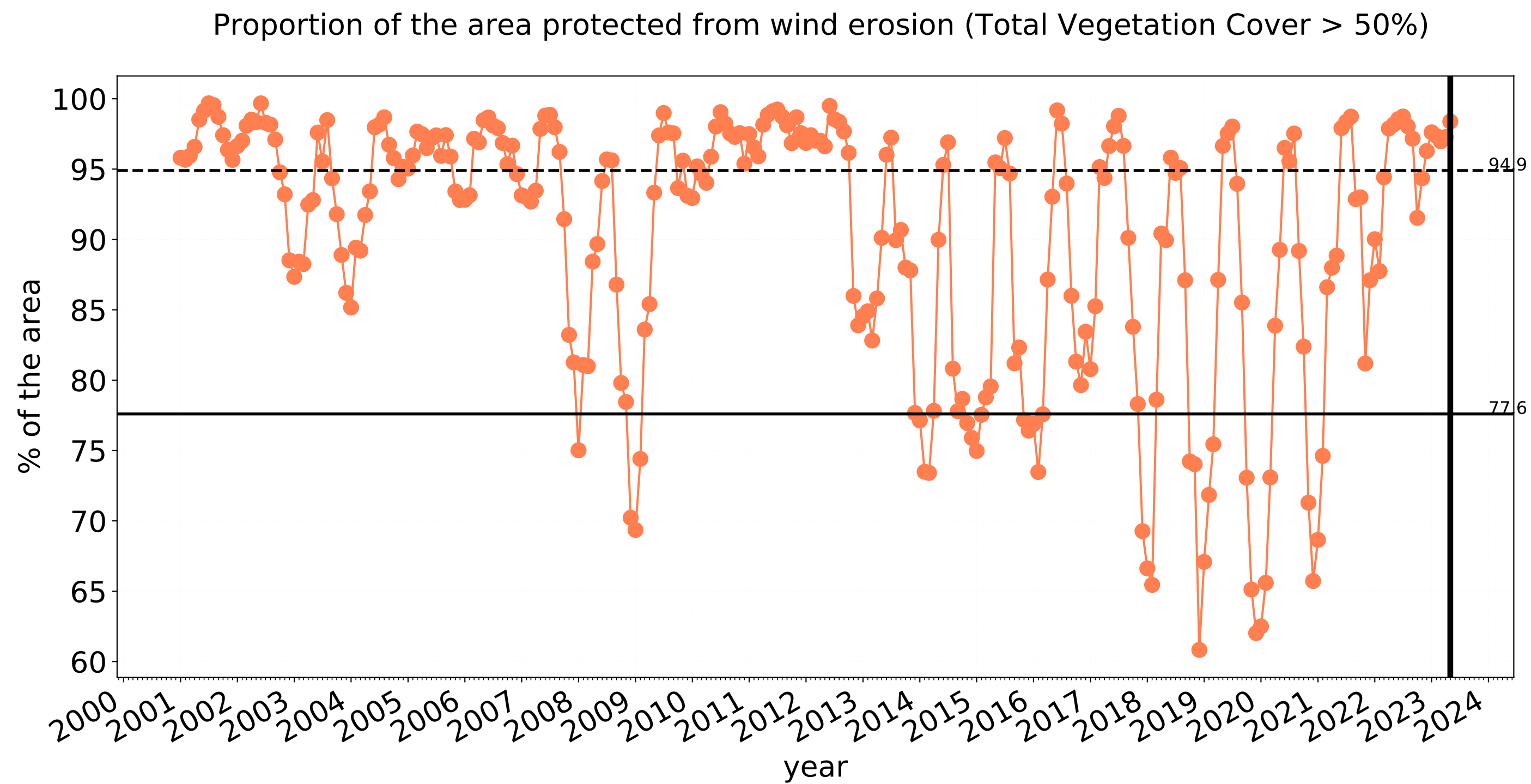


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Total Vegetation Cover Decile [%]



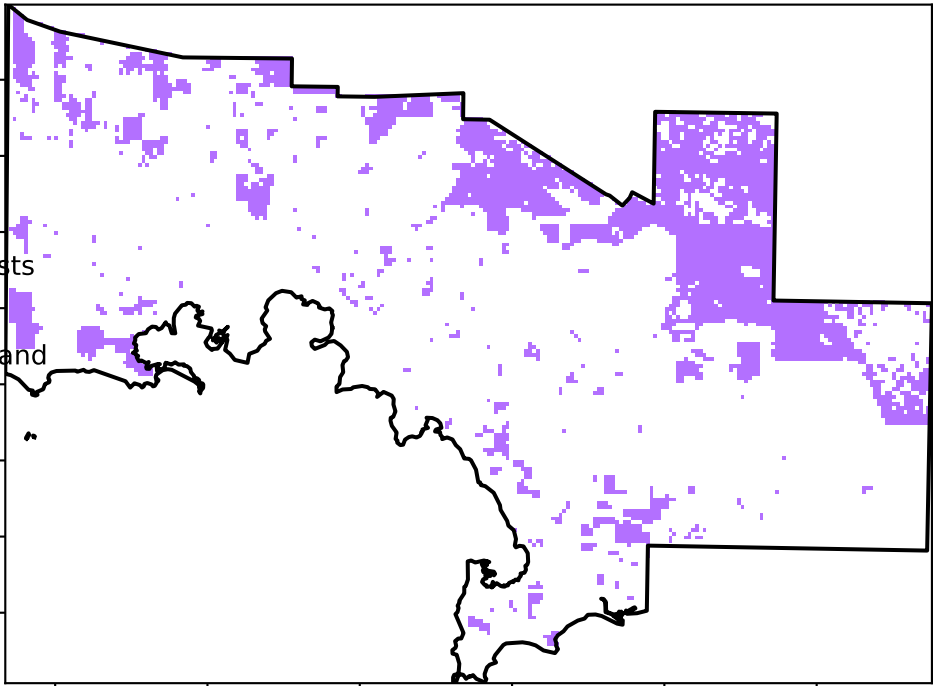
Conservation and natural environments non forest timeseries



Conservation and natural environments Woodland forest

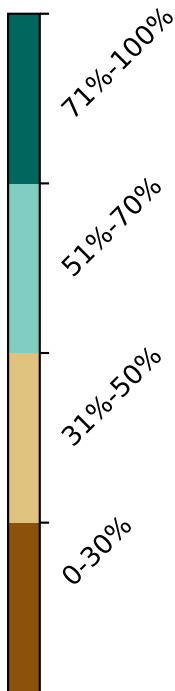
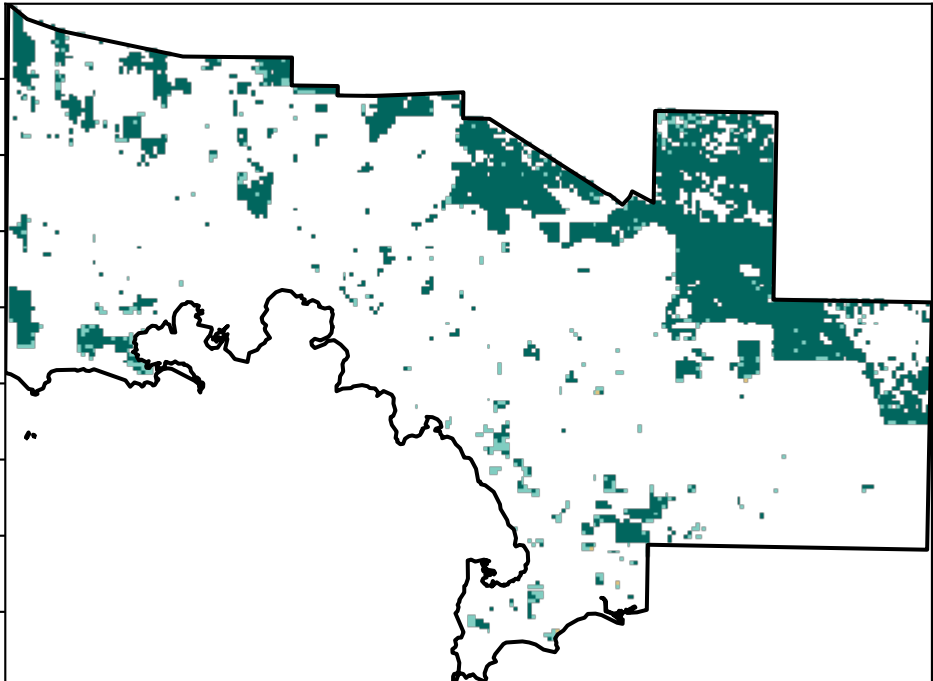
Land use and forest cover

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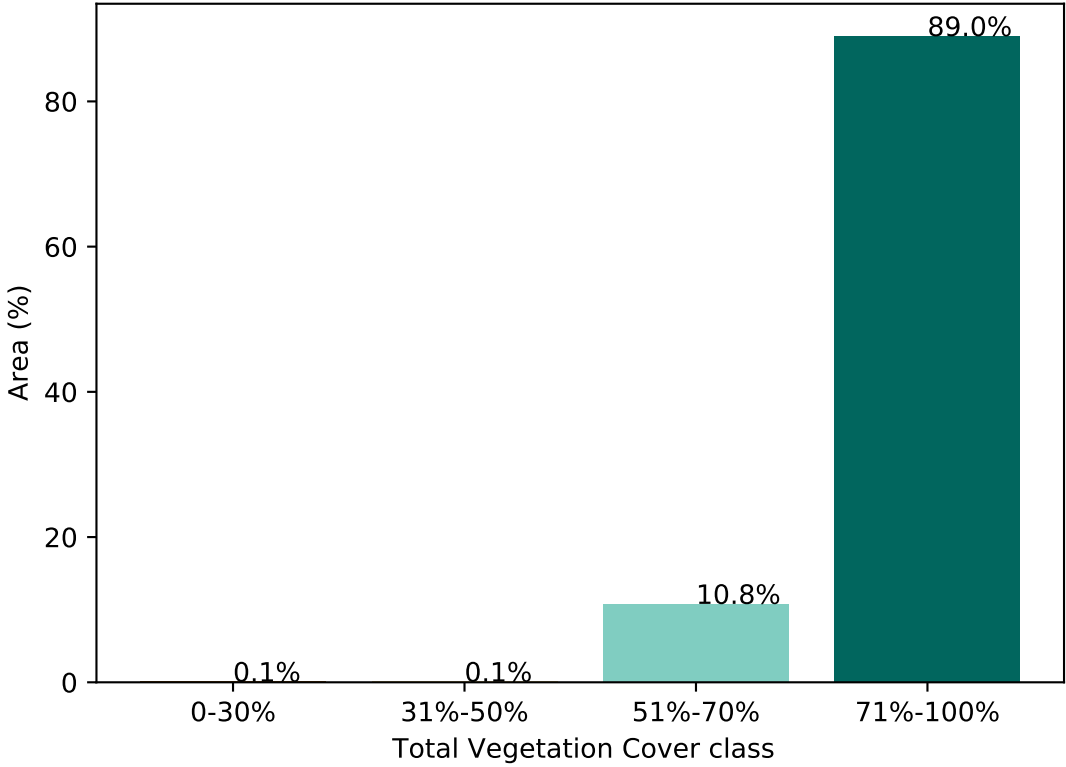


1 Conservation and natural environments - Woodland forest

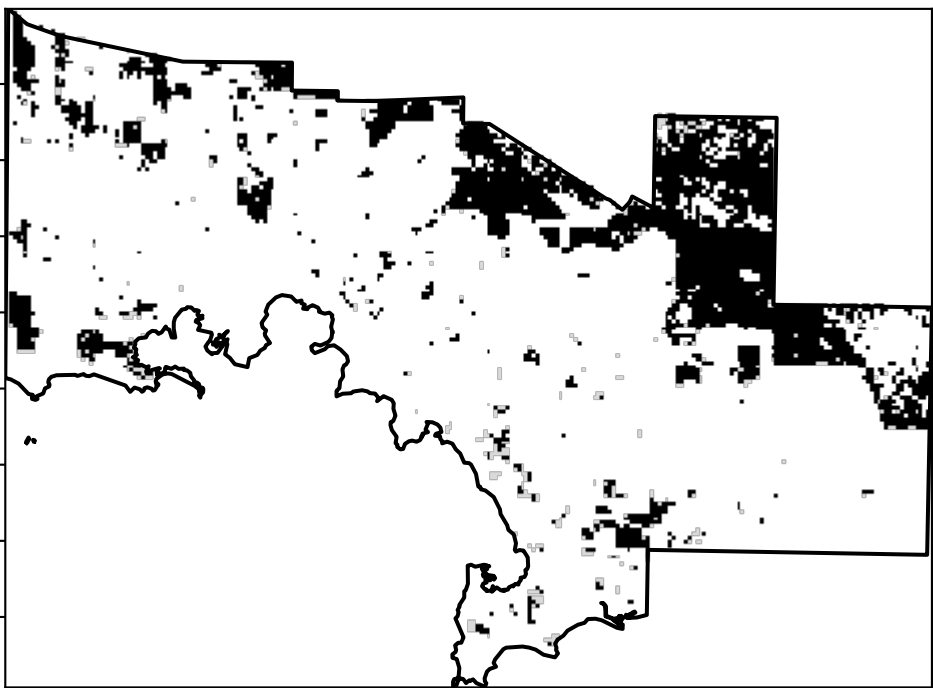
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

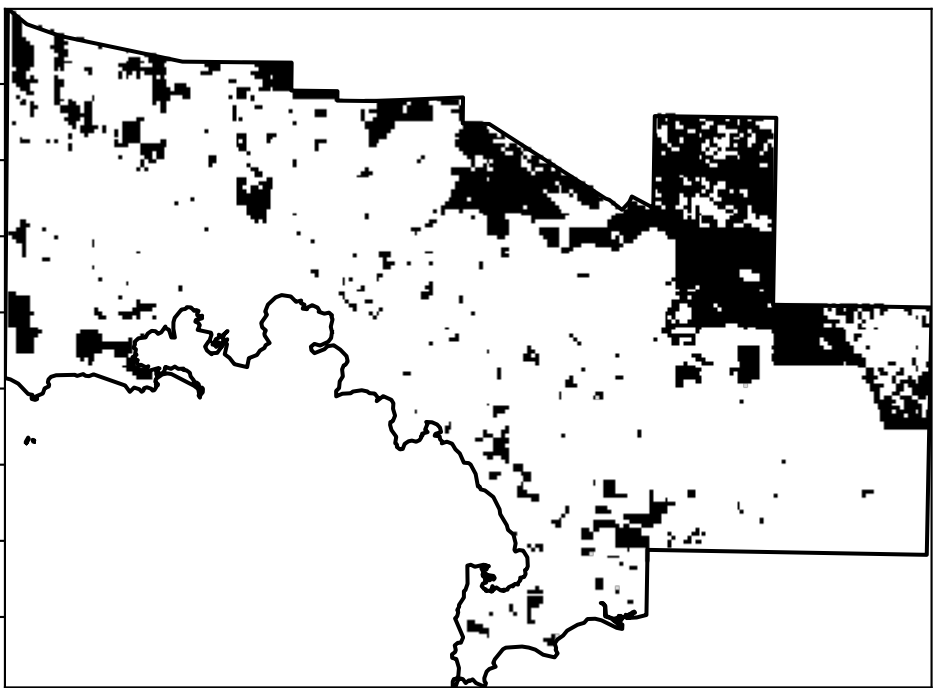


% Area protected from water erosion (>70%)



Area not protected
11.0% of region
(11,847 ha)
Area protected
89.0% of region
(95,853 ha)

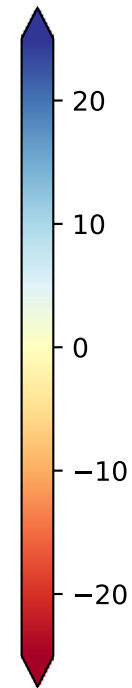
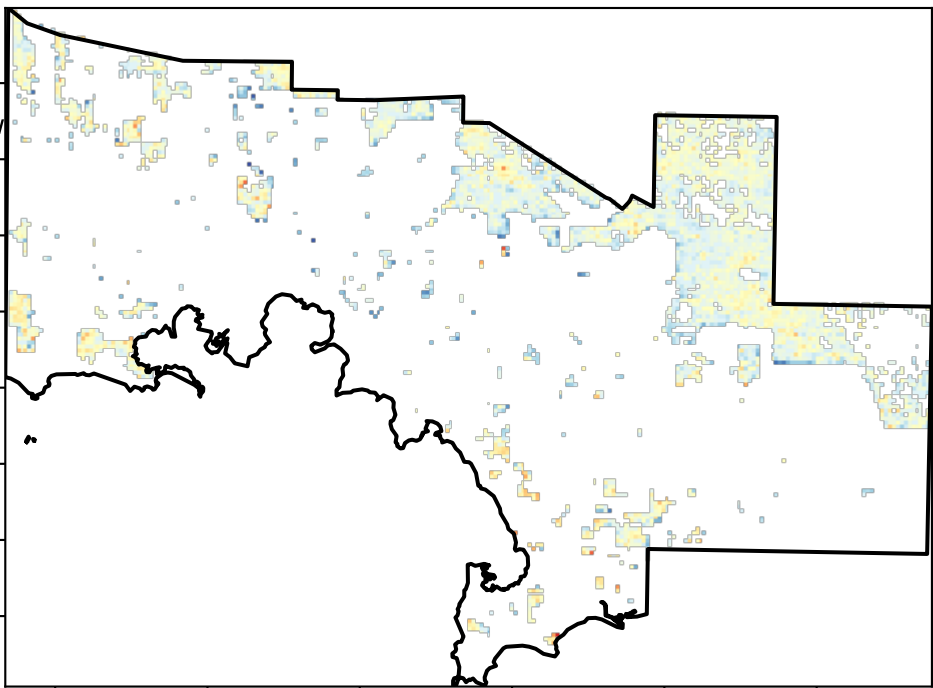
% Area protected from wind erosion (>50%)



Area not protected
0.0% of region
(0 ha)
Area protected
100.0% of region
(107,700 ha)

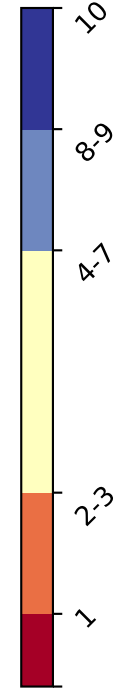
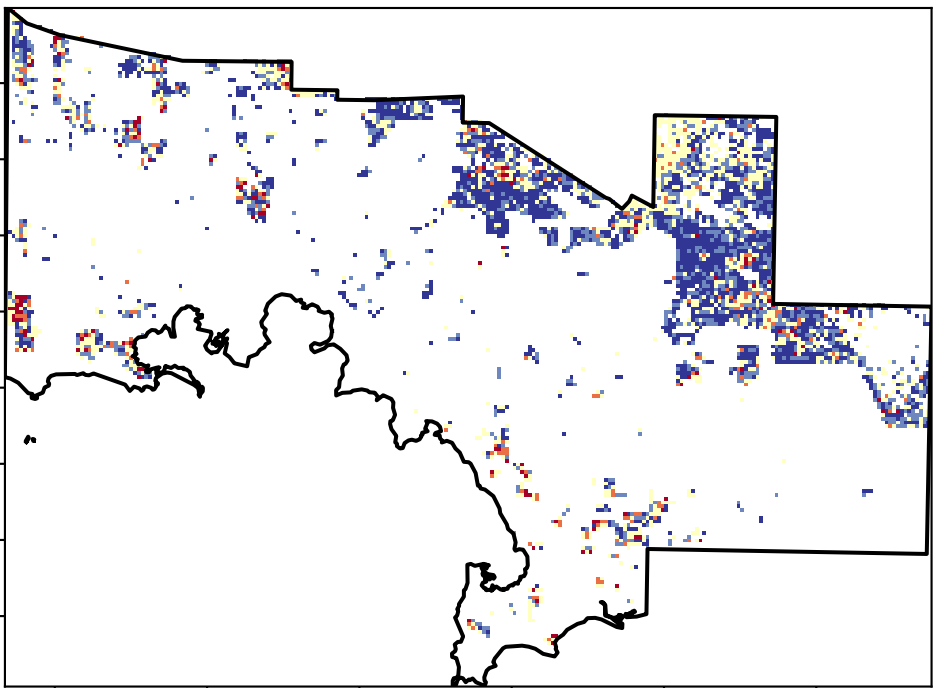
Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]



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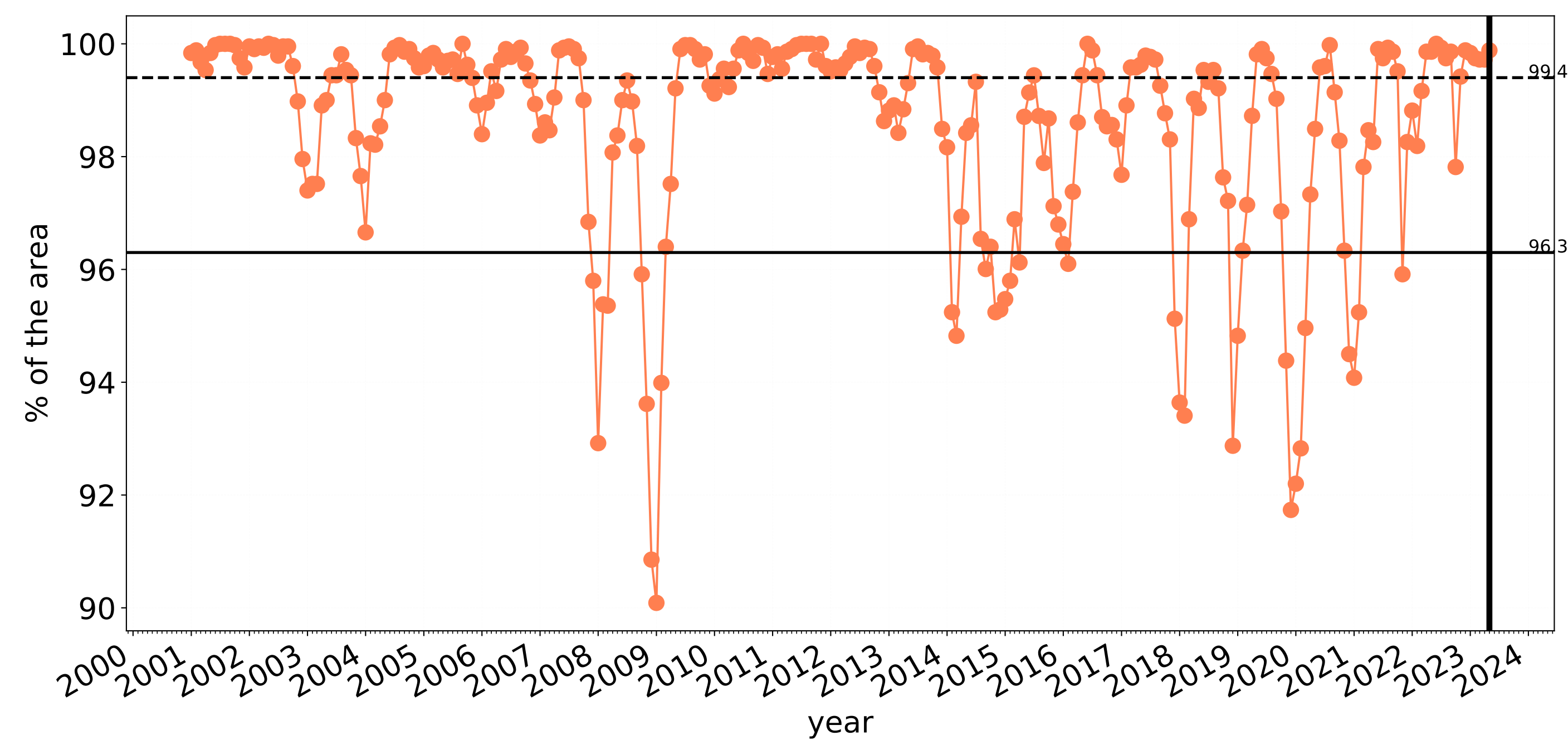
Australian Government

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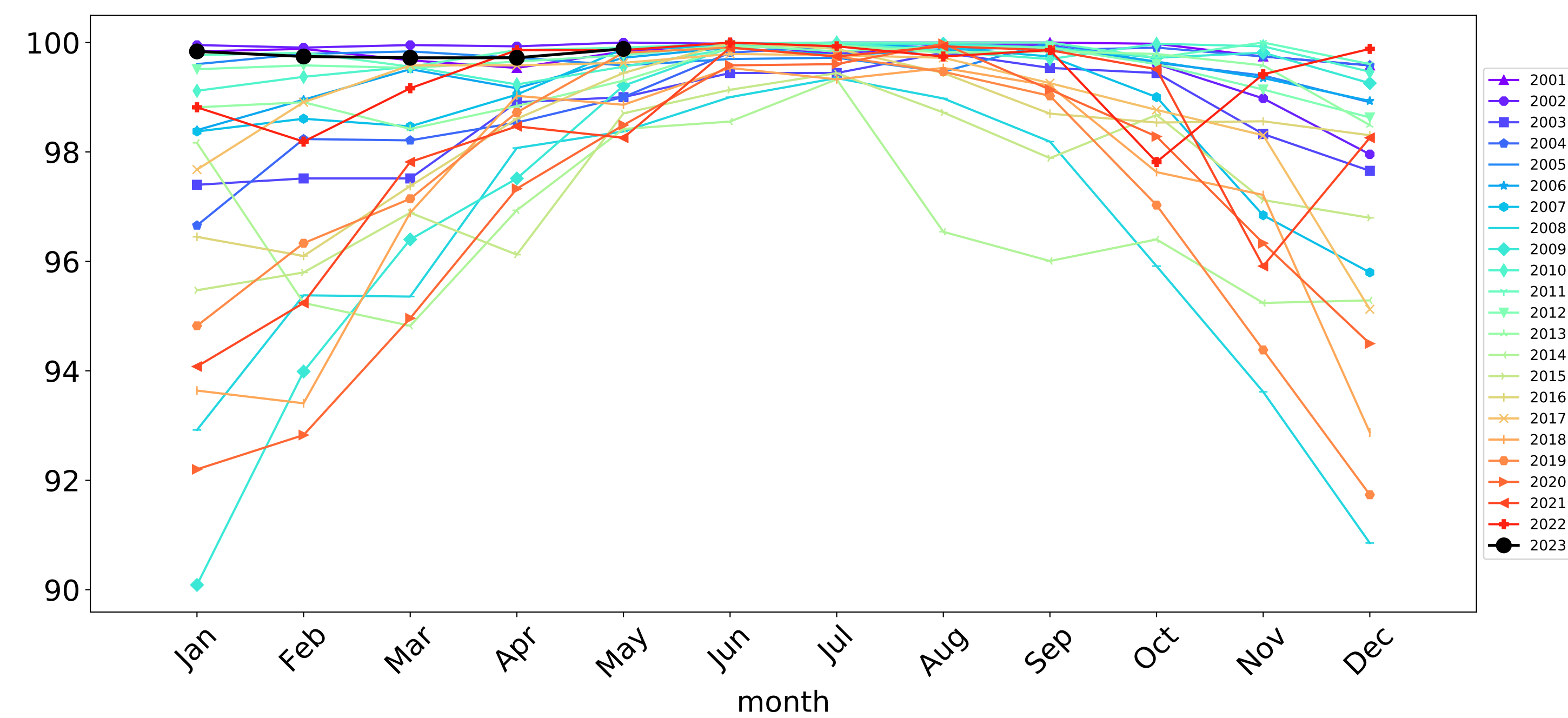


Conservation and natural environments Woodland forest timeseries

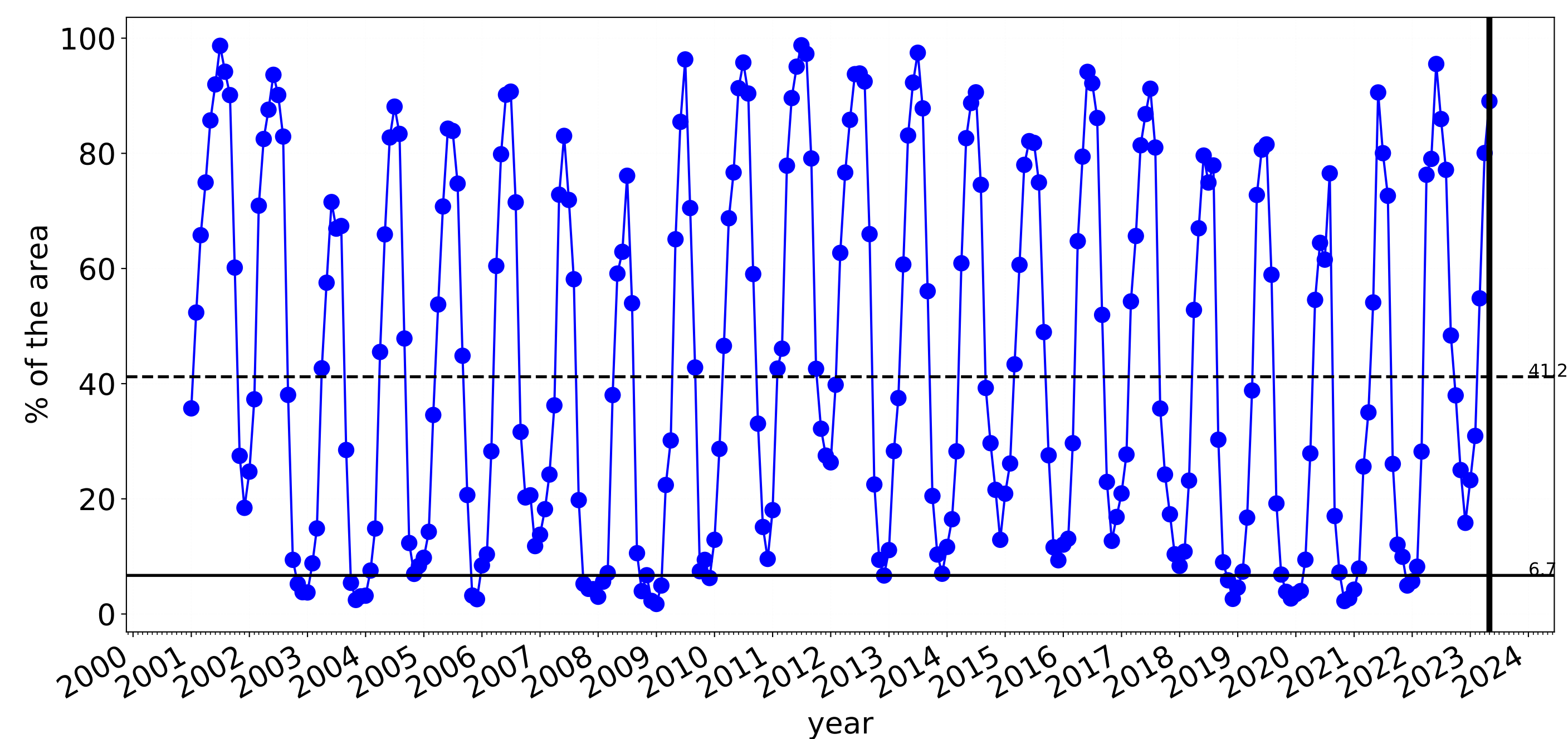
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



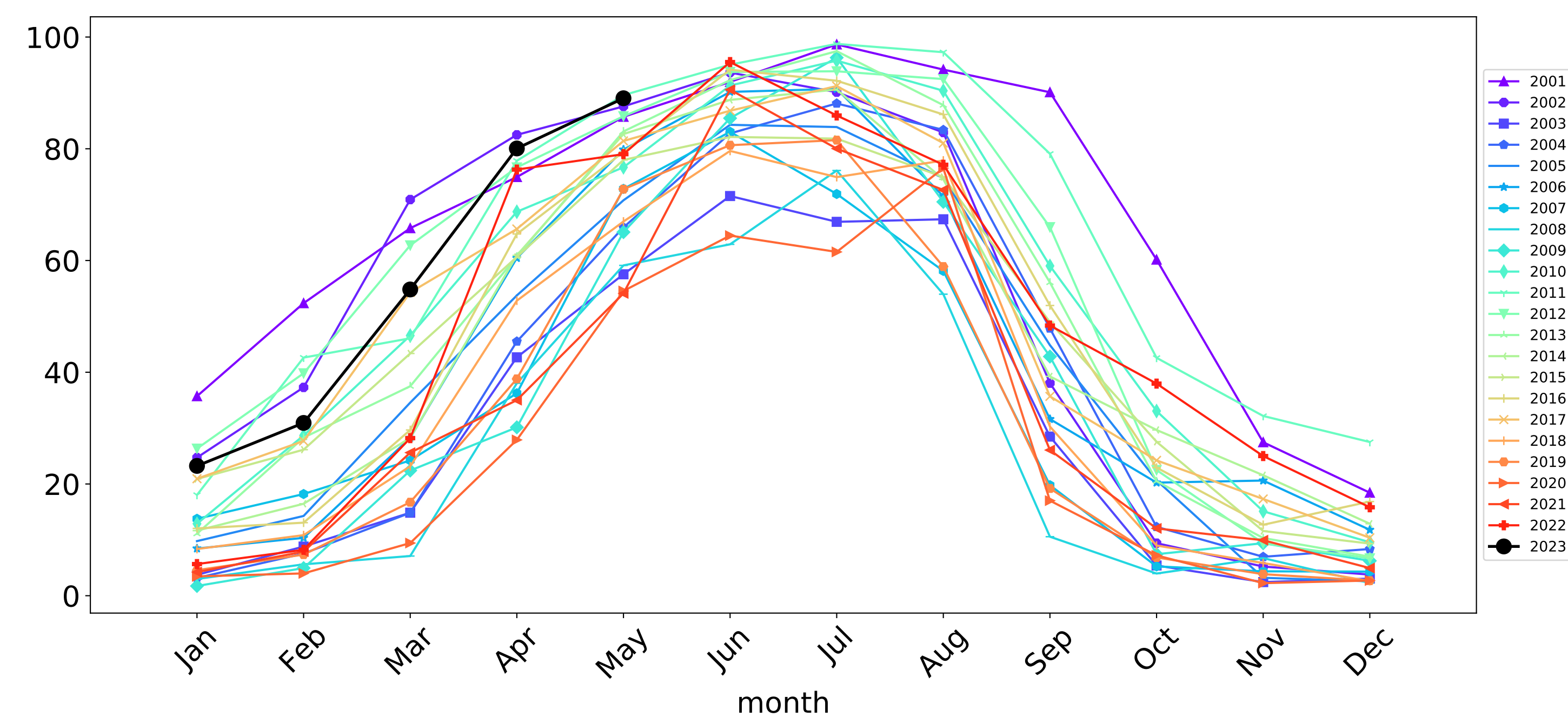
Wind erosion historical monthly area protected (Total Veg Cov >50%)



Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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



Conservation and natural environments Forest (non woodland)

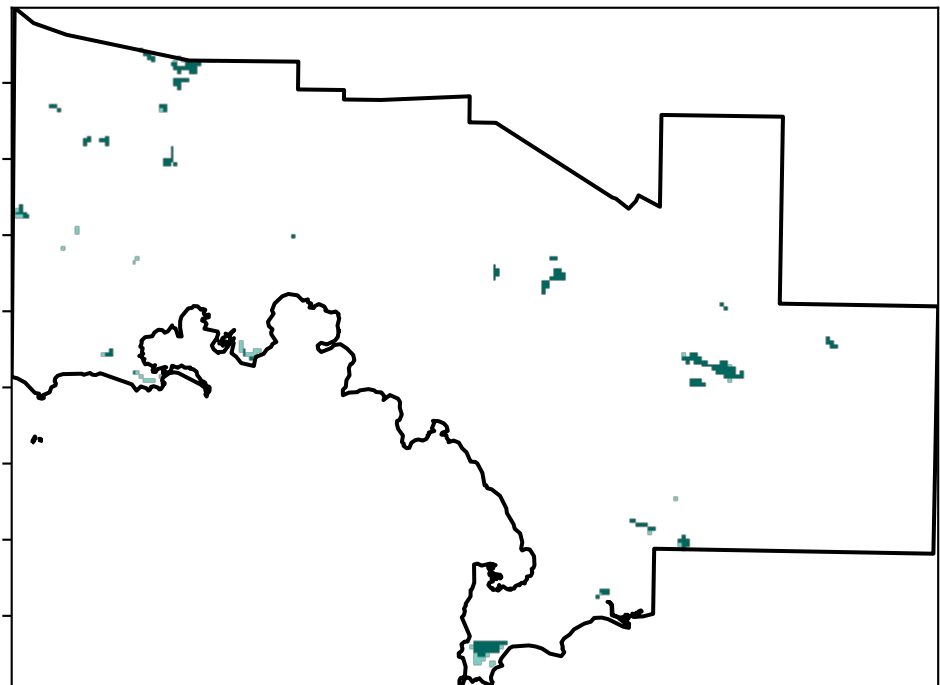
Land use and forest cover

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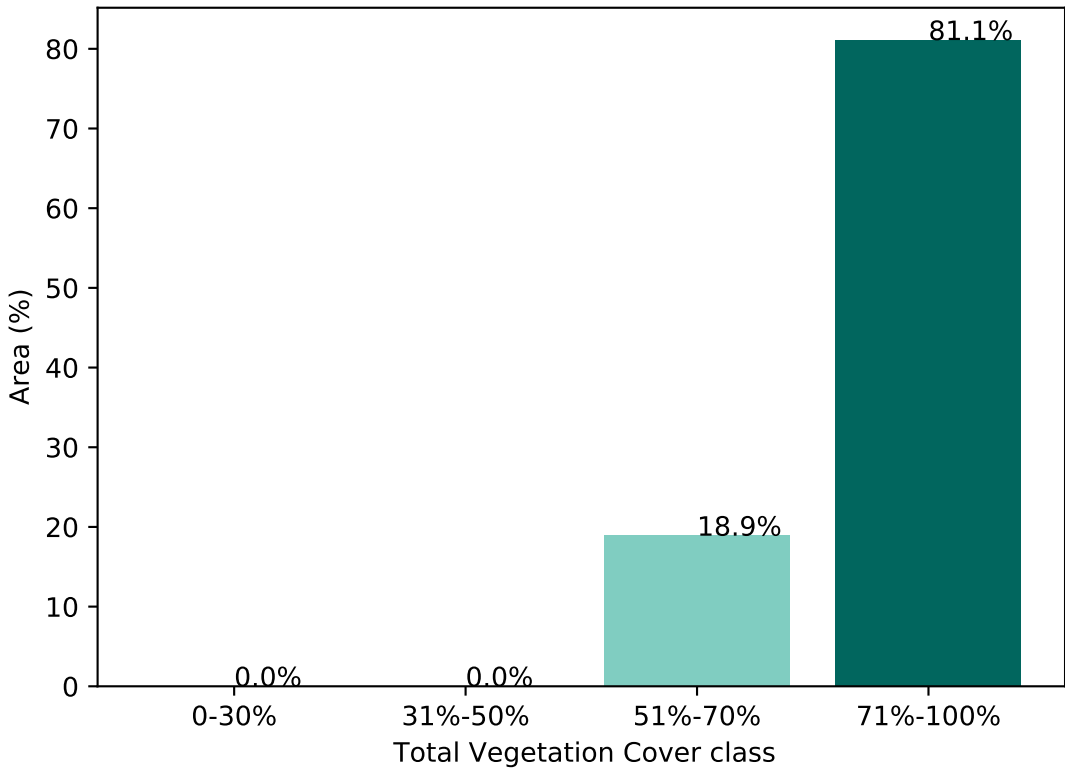


1 Conservation and natural environments - Non-woodland forest

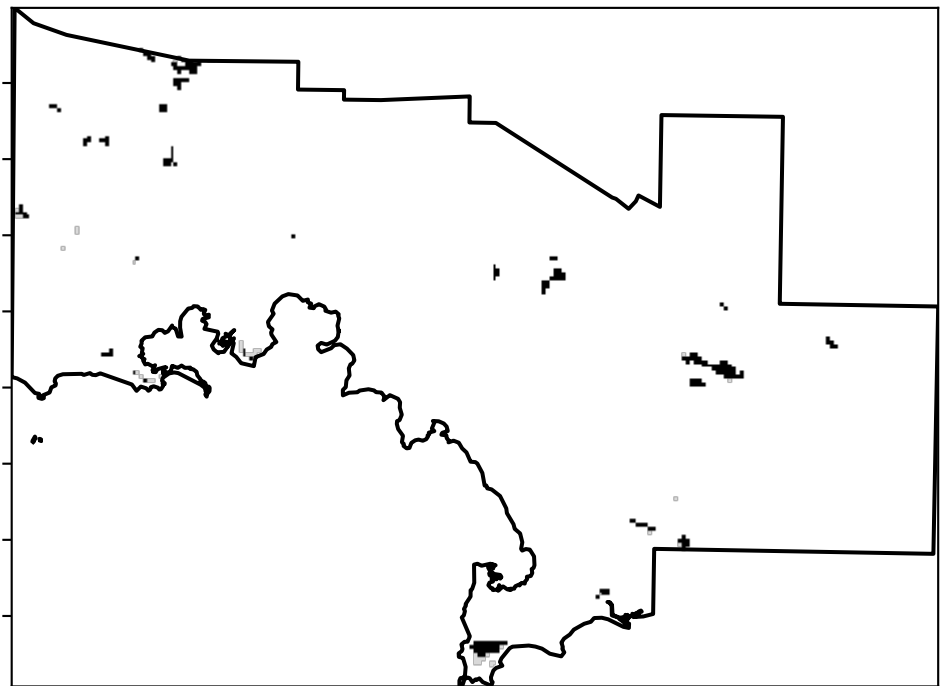
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

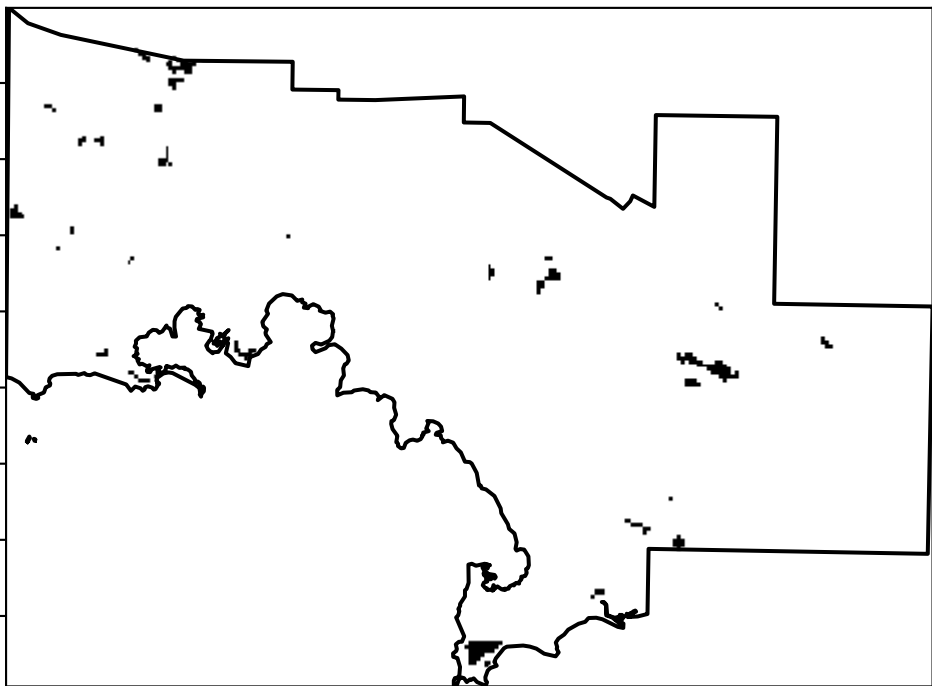


% Area protected from water erosion (>70%)



Area not protected
18.9% of region
(1,125 ha)
Area protected
81.1% of region
(4,825 ha)

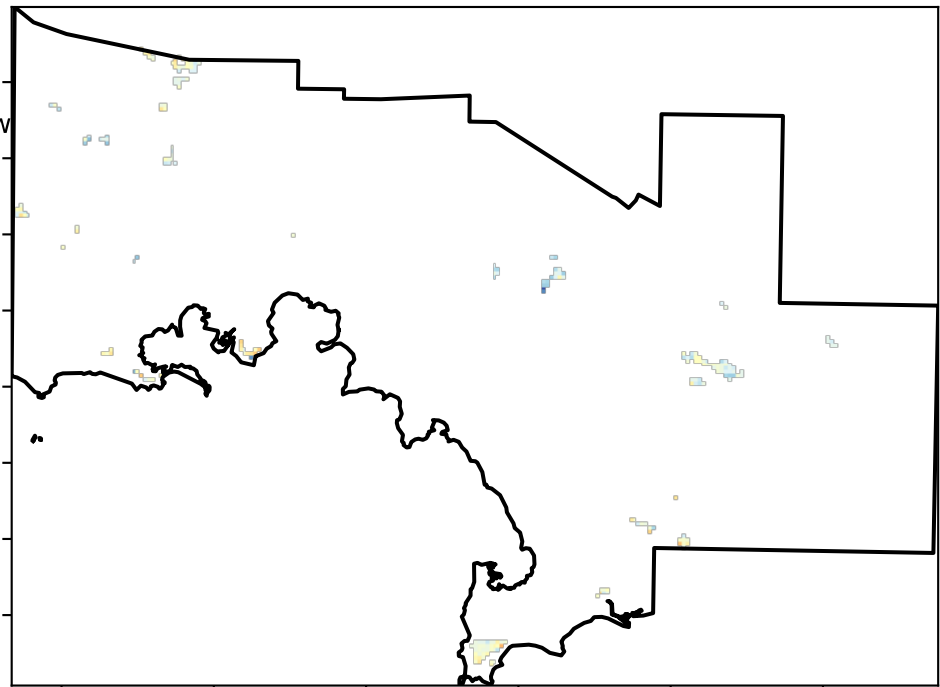
% Area protected from wind erosion (>50%)



Area protected
100.0% of region
(5,950 ha)

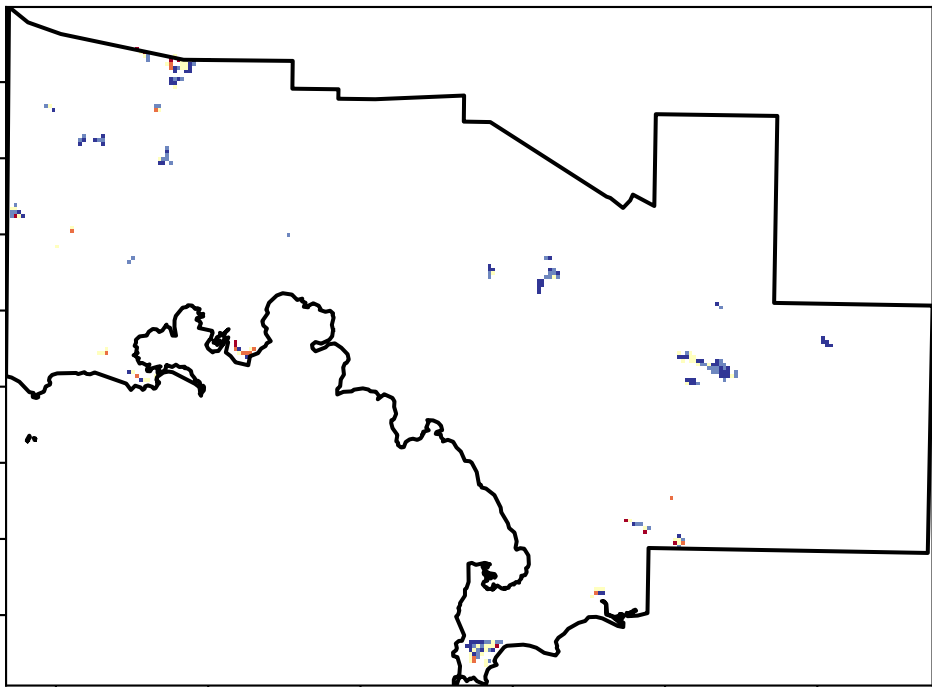
Total Vegetation Cover Anomaly [%]

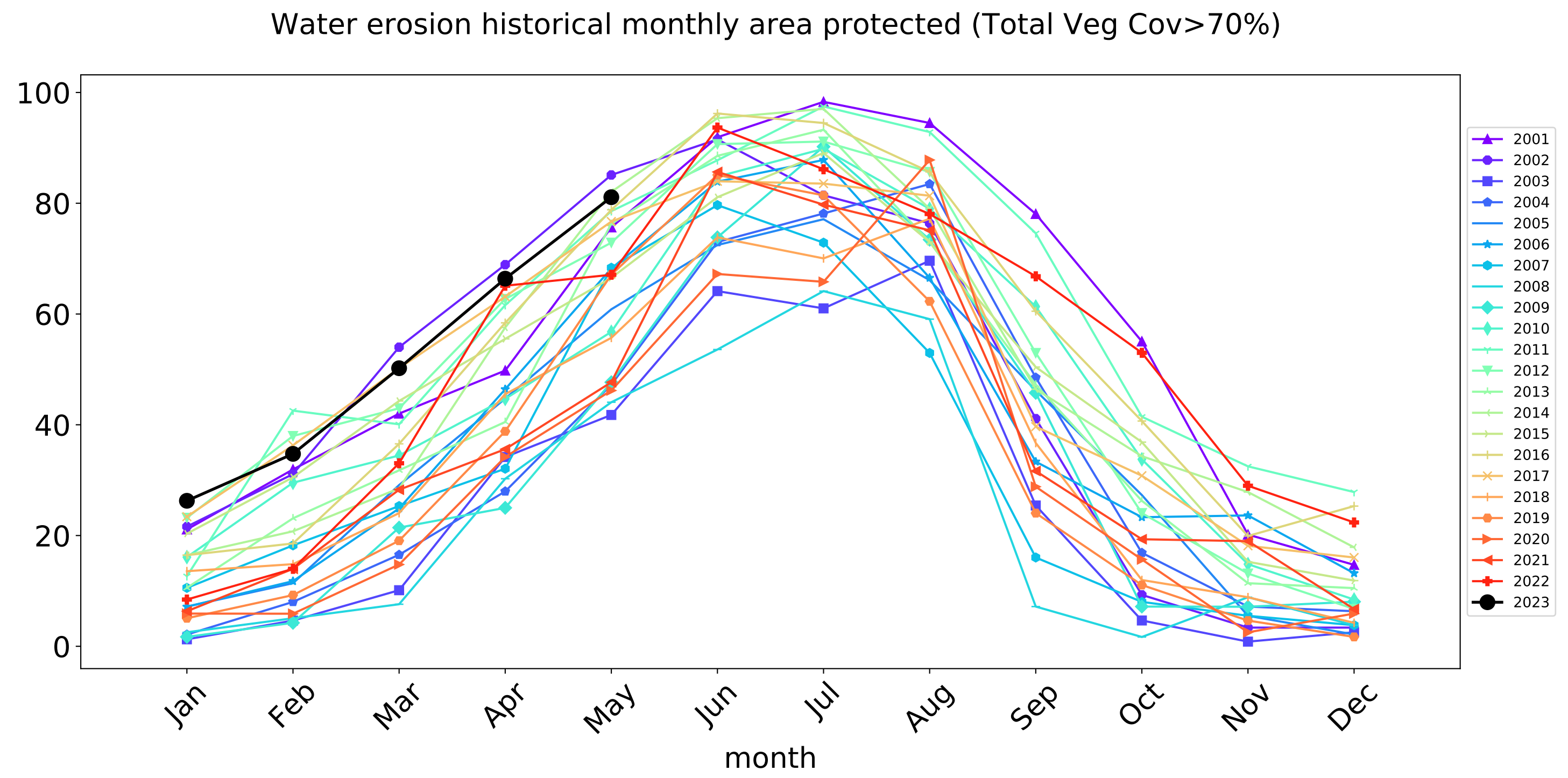
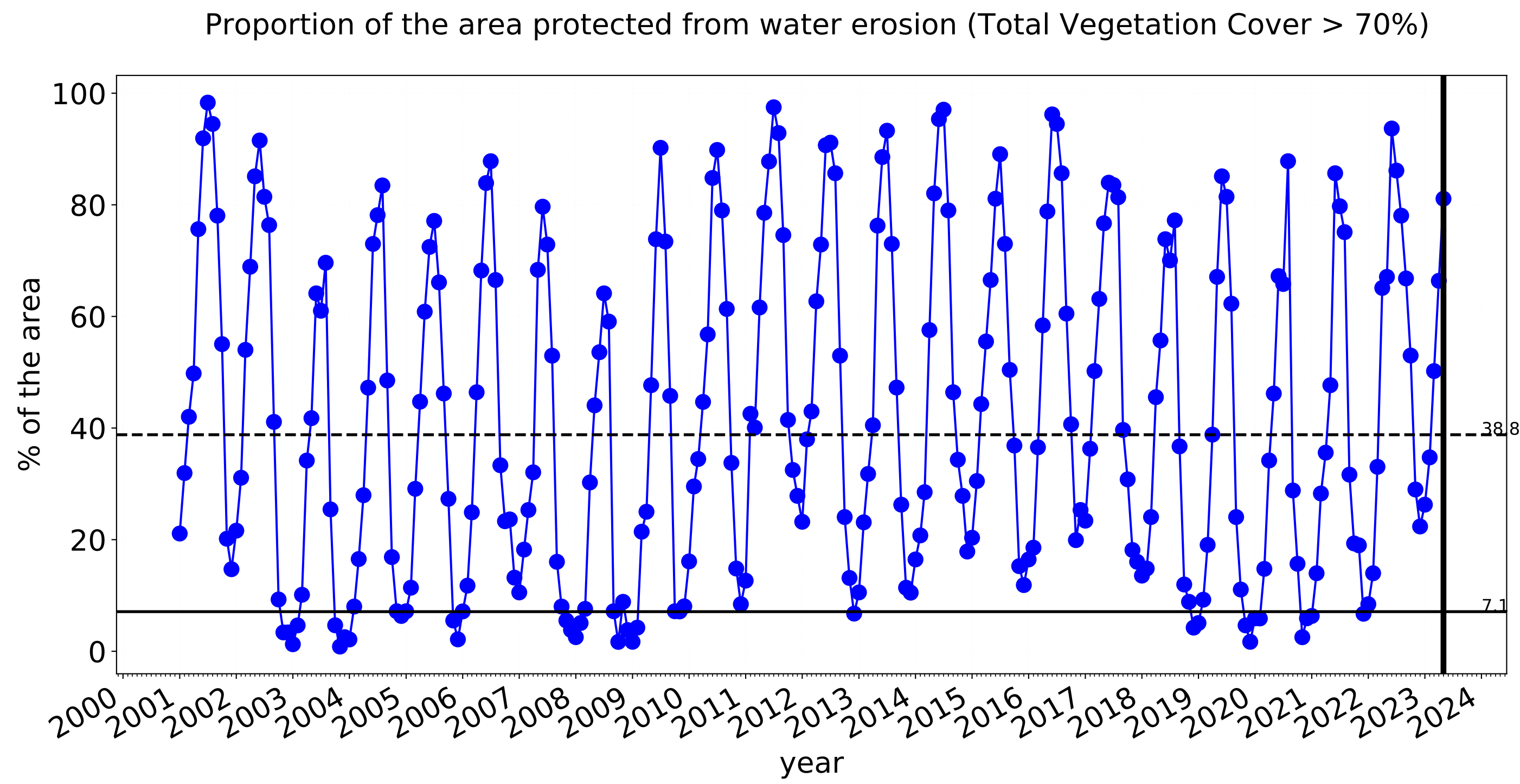
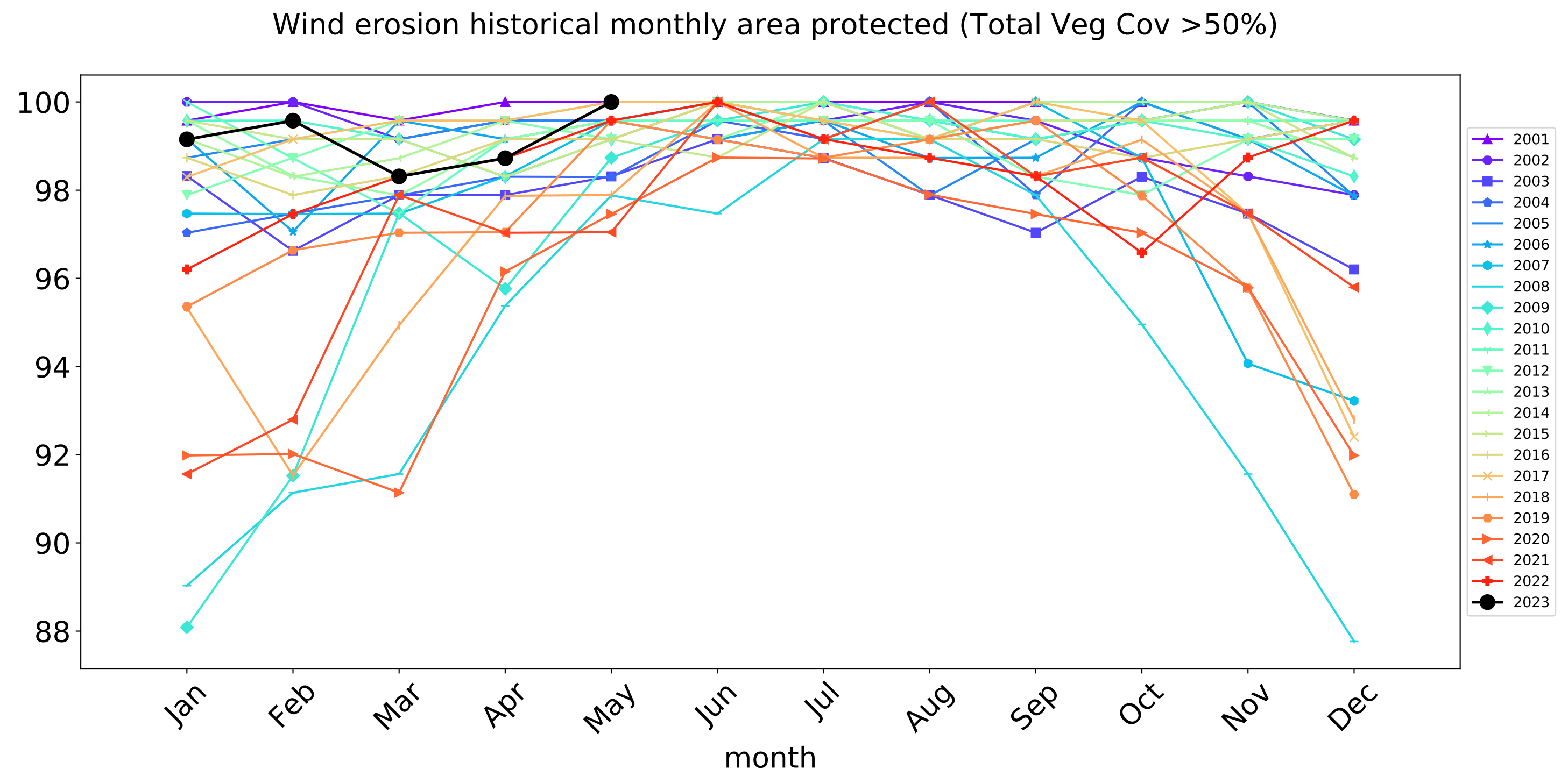
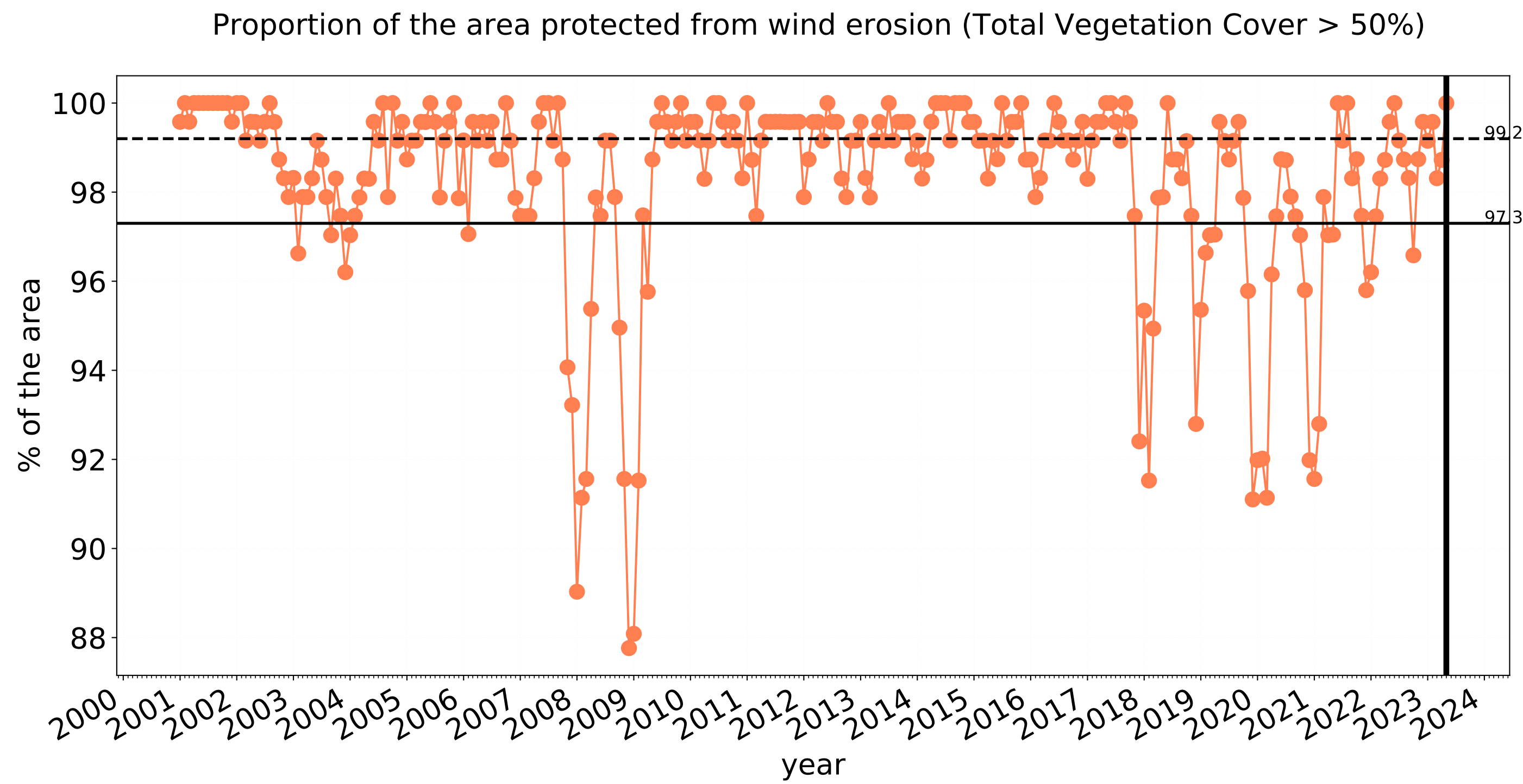
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Total Vegetation Cover Decile [%]

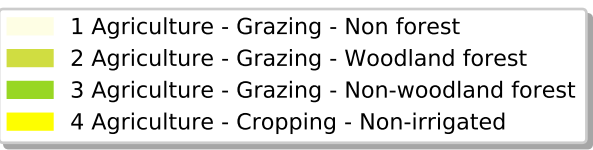
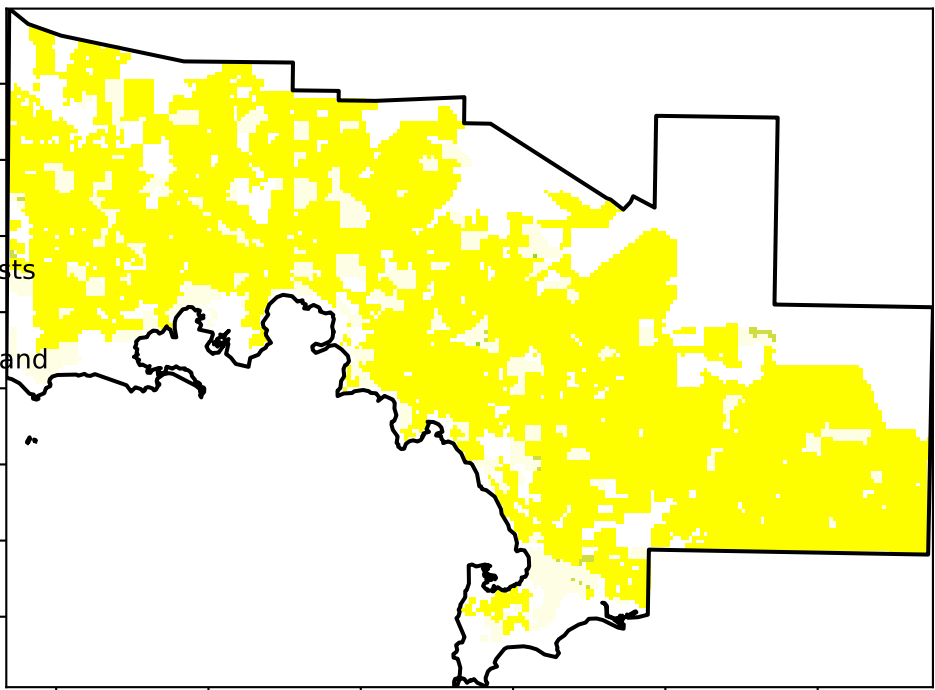




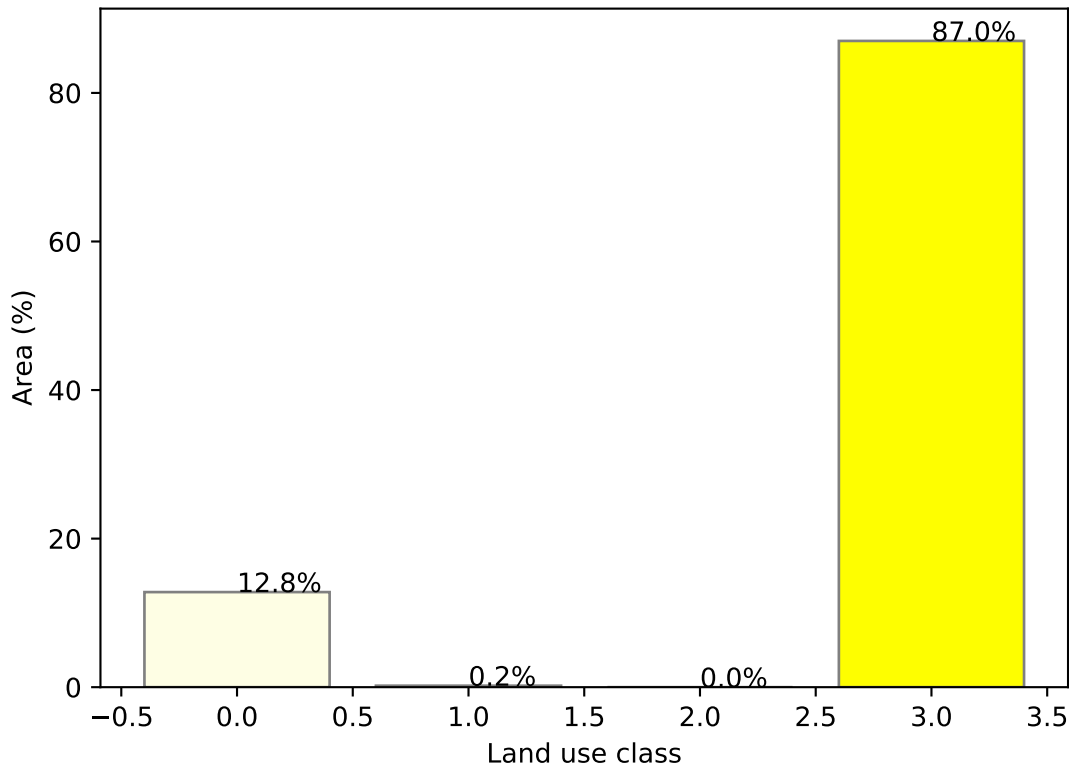
Agriculture

Land use and forest cover

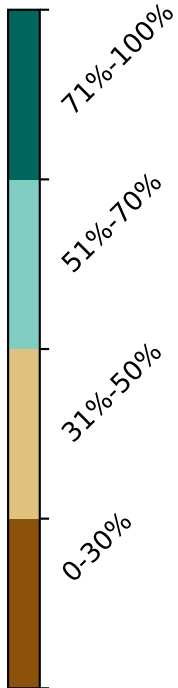
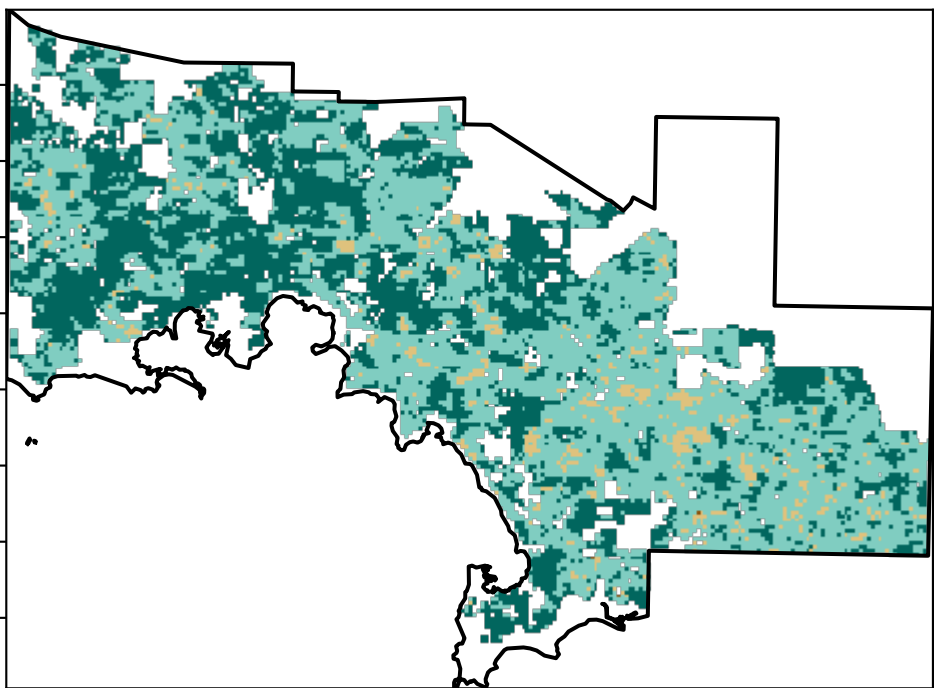
Catchment Scale Land Use and Forests of Australia (2018). Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018).



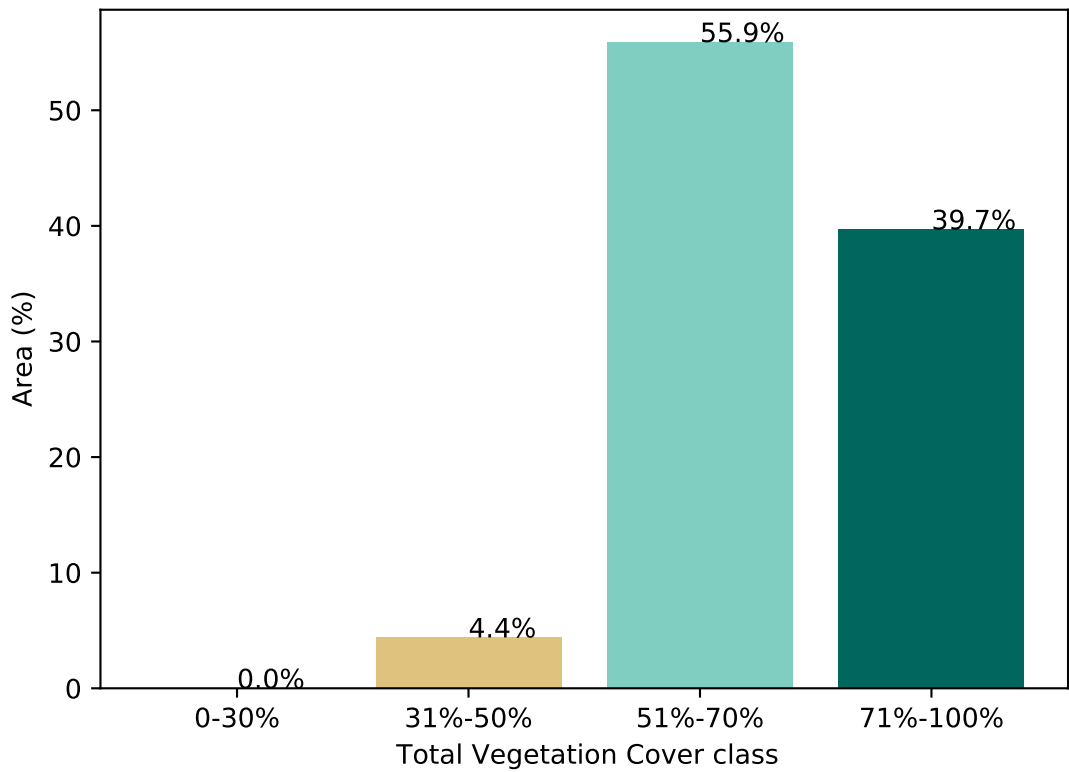
Proportion of each land class in area



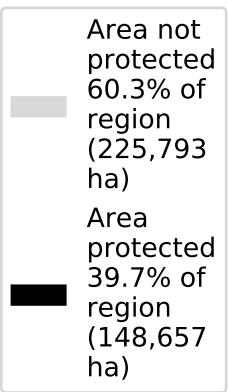
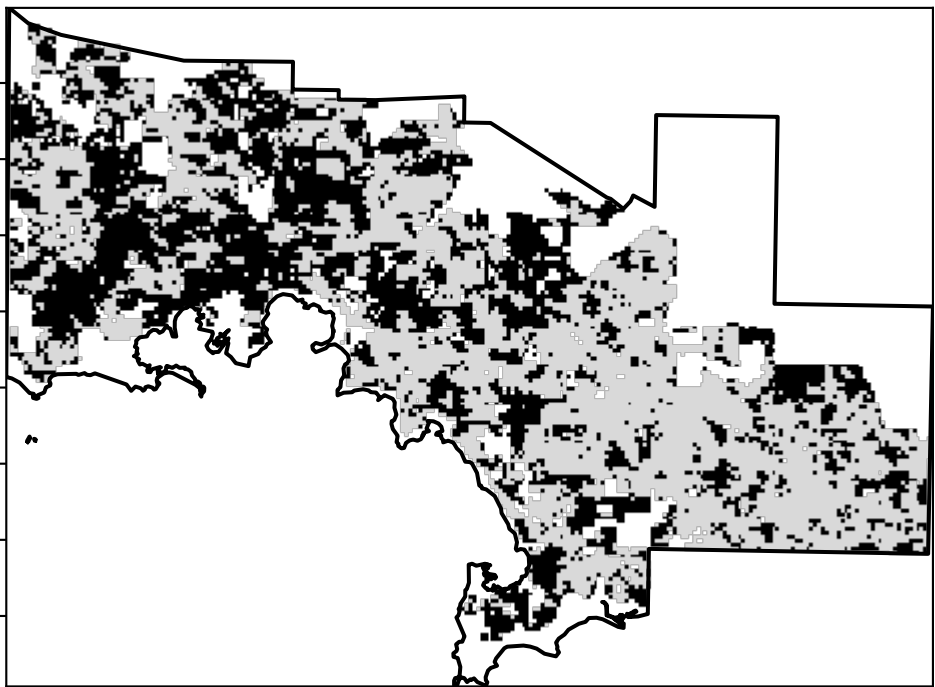
Total Vegetation Cover [%]



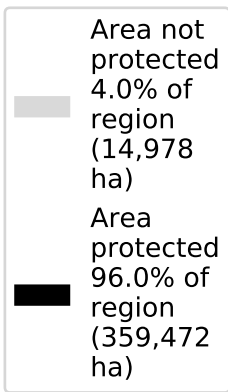
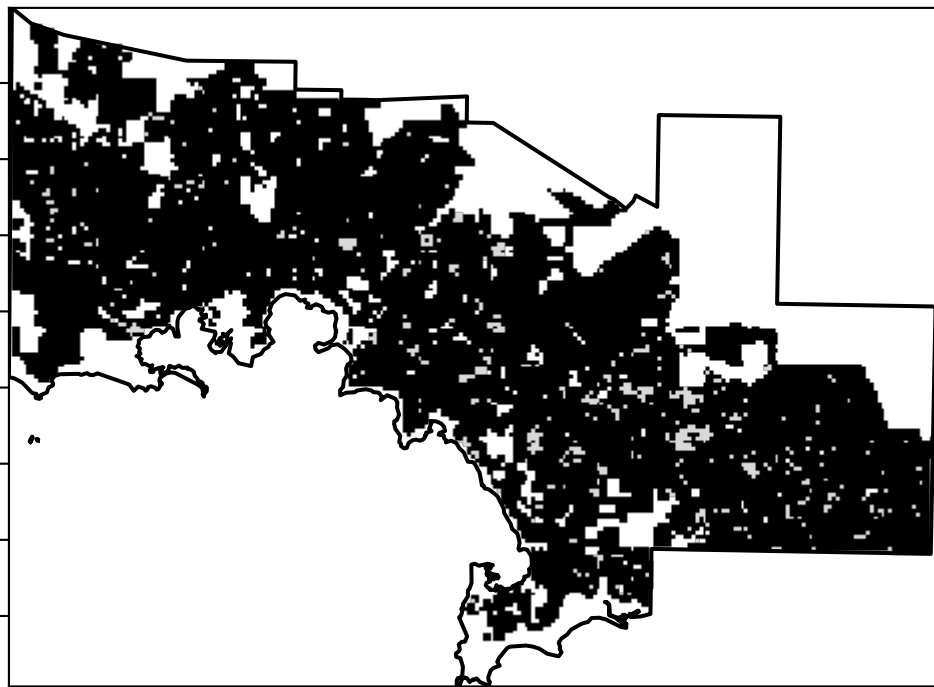
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

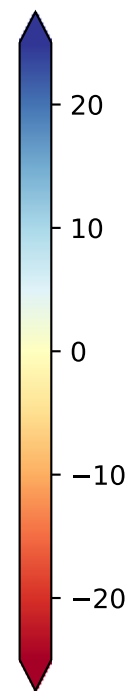
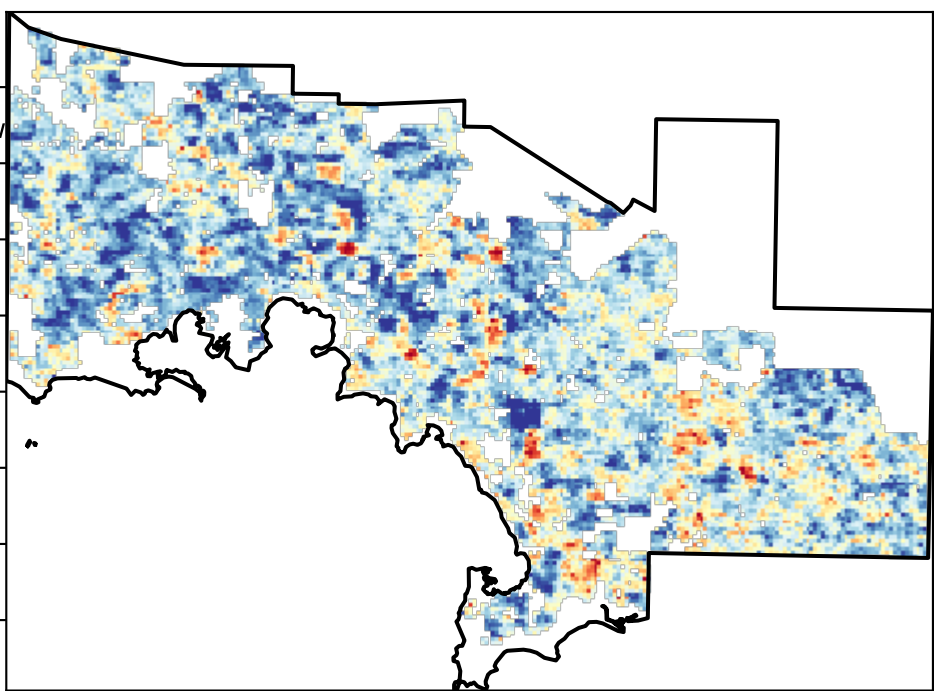


% Area protected from wind erosion (>50%)



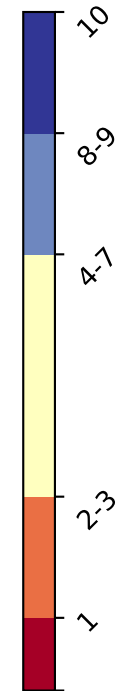
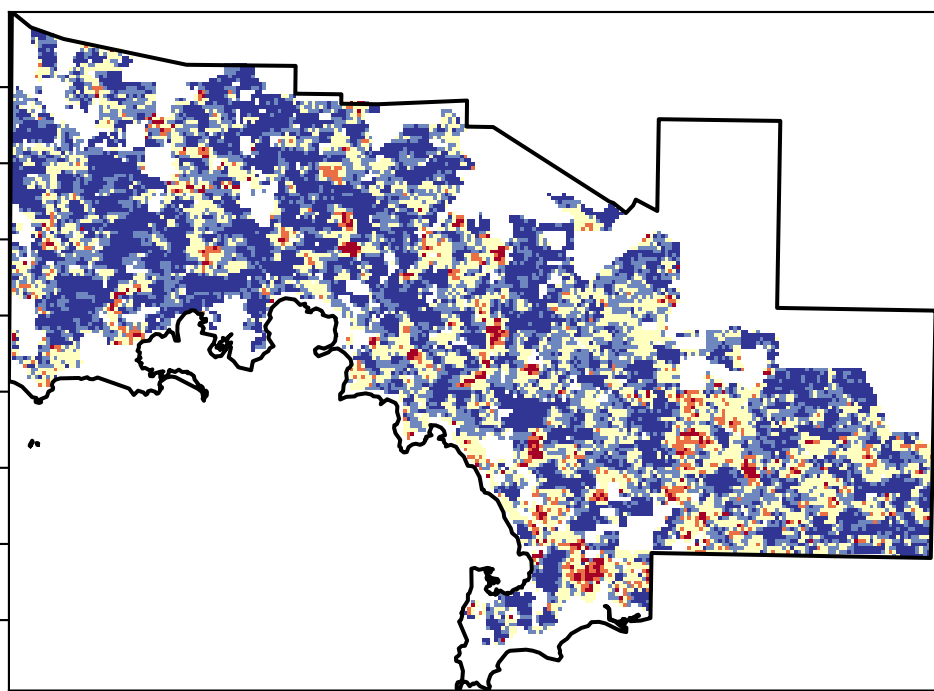
Total Vegetation Cover Anomaly [%]

Anomaly show how many percentage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



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

Total Vegetation Cover Decile [%]



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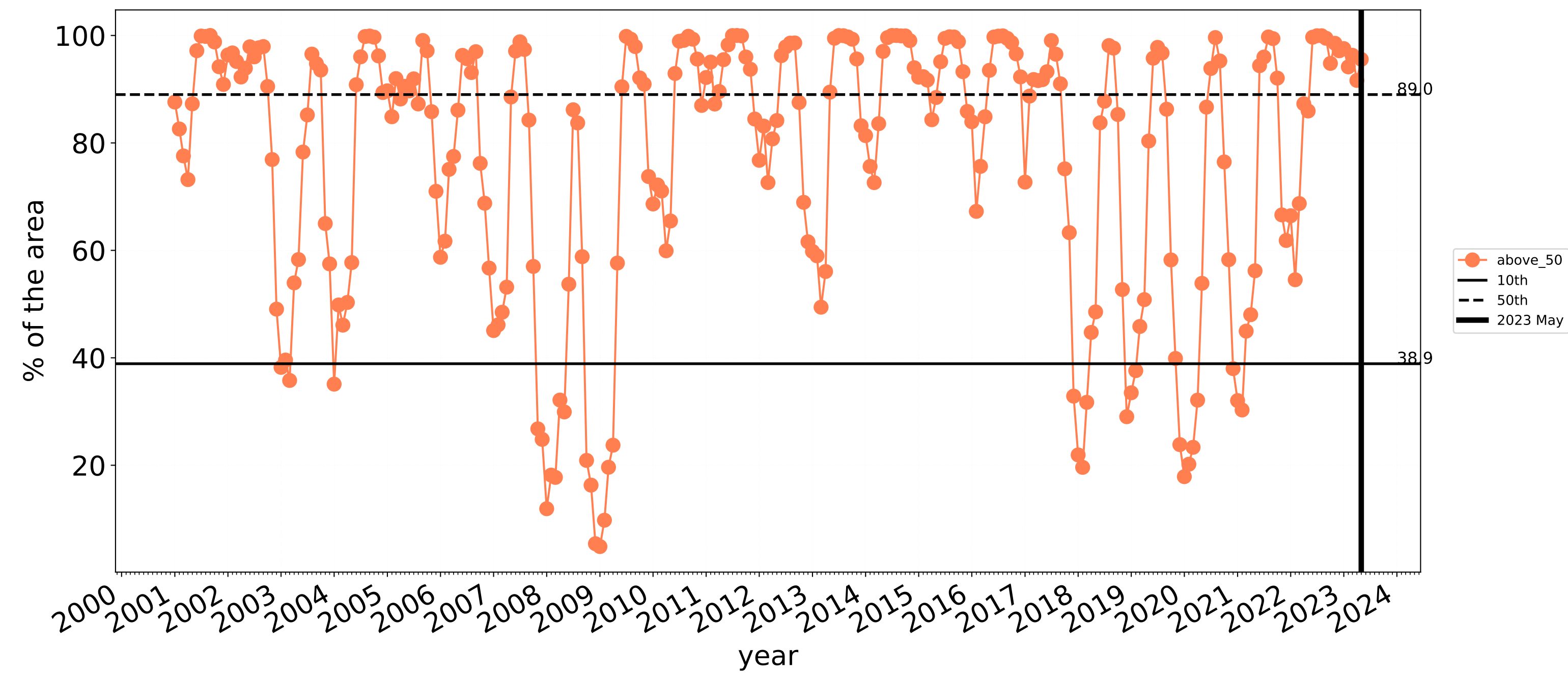


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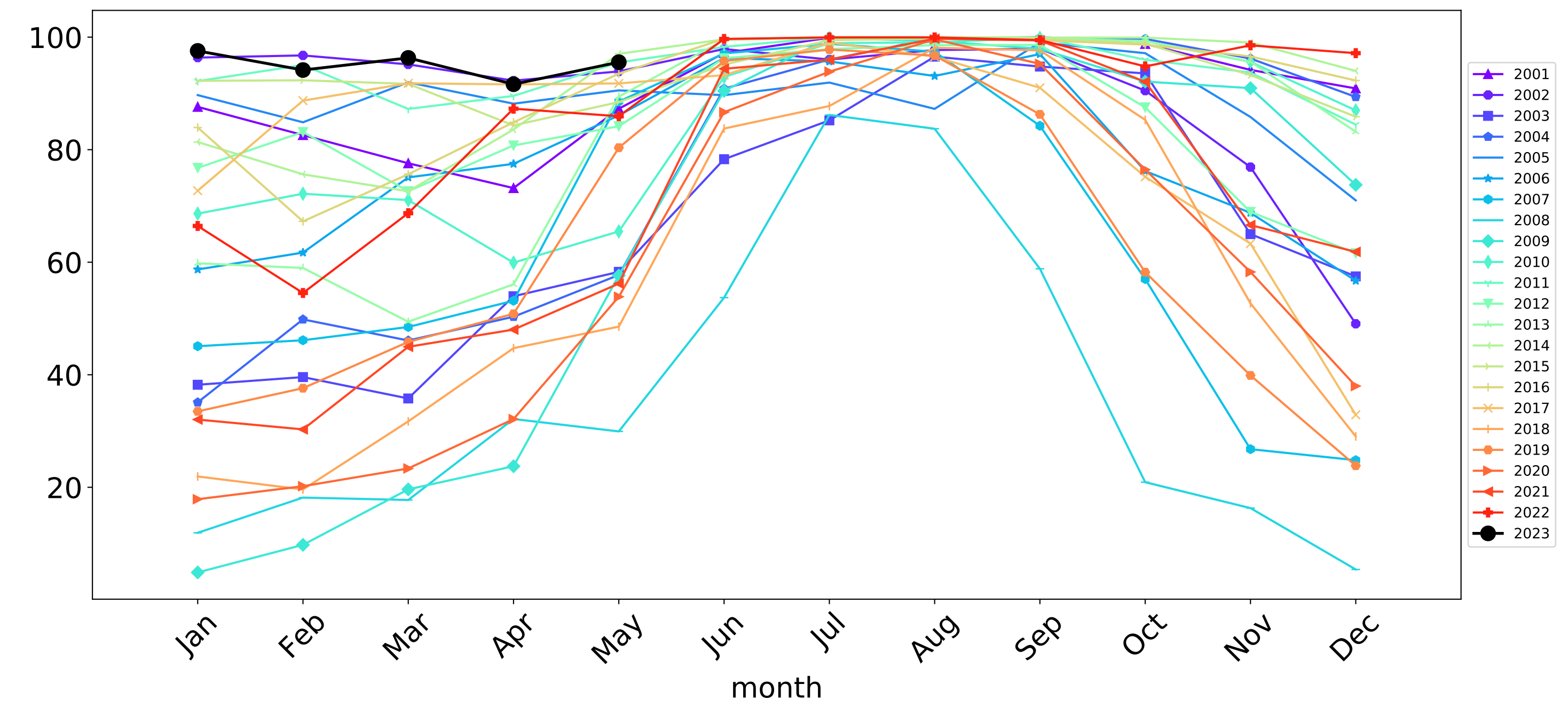


Agriculture timeseries

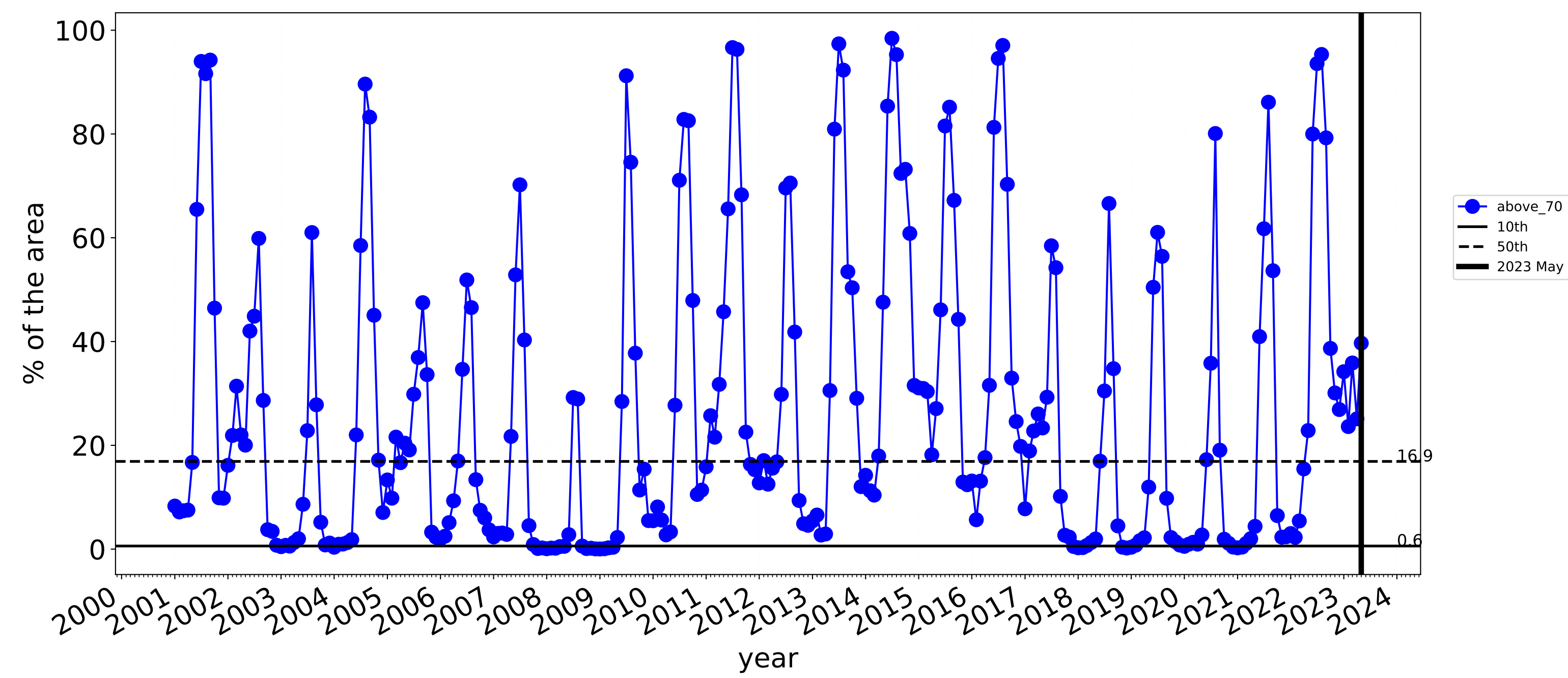
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



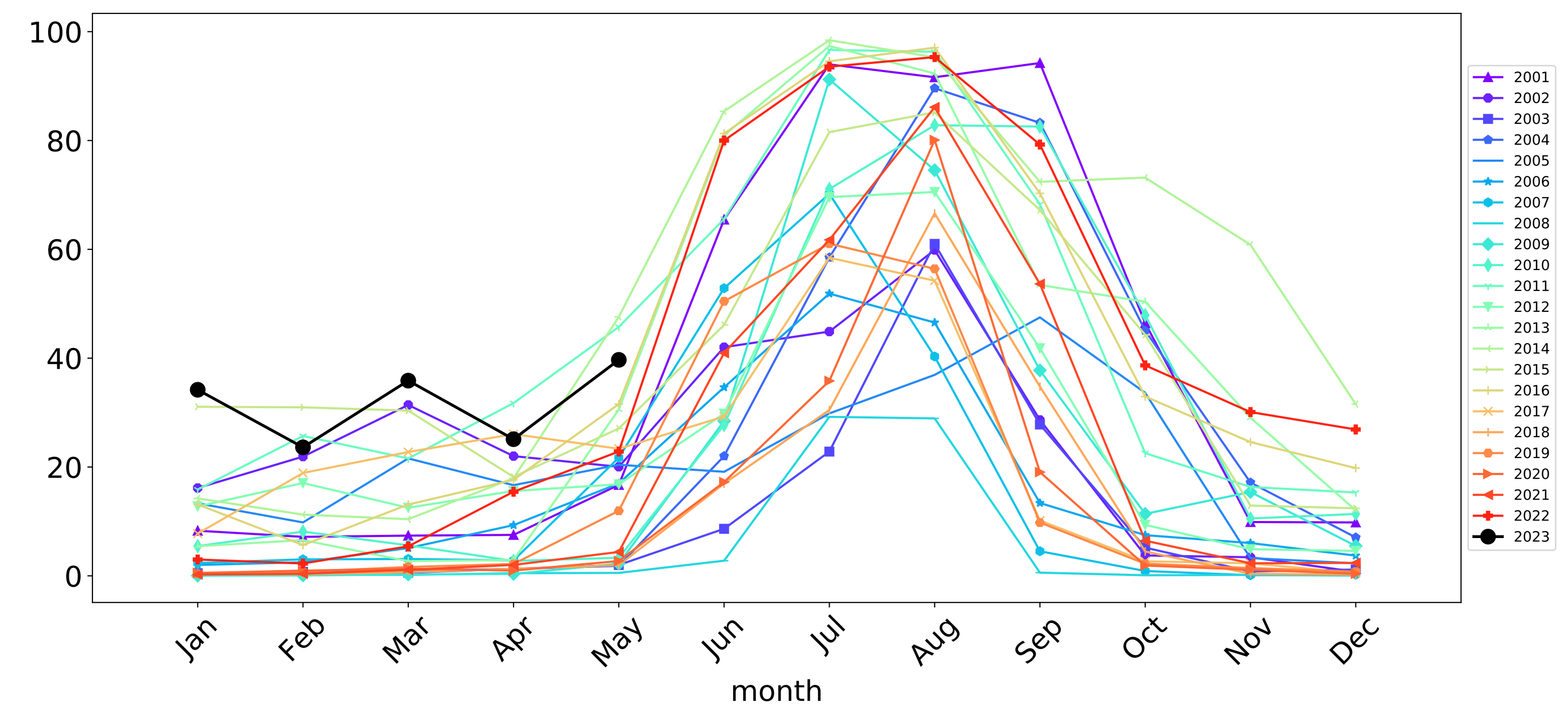
Wind erosion historical monthly area protected (Total Veg Cov >50%)



Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



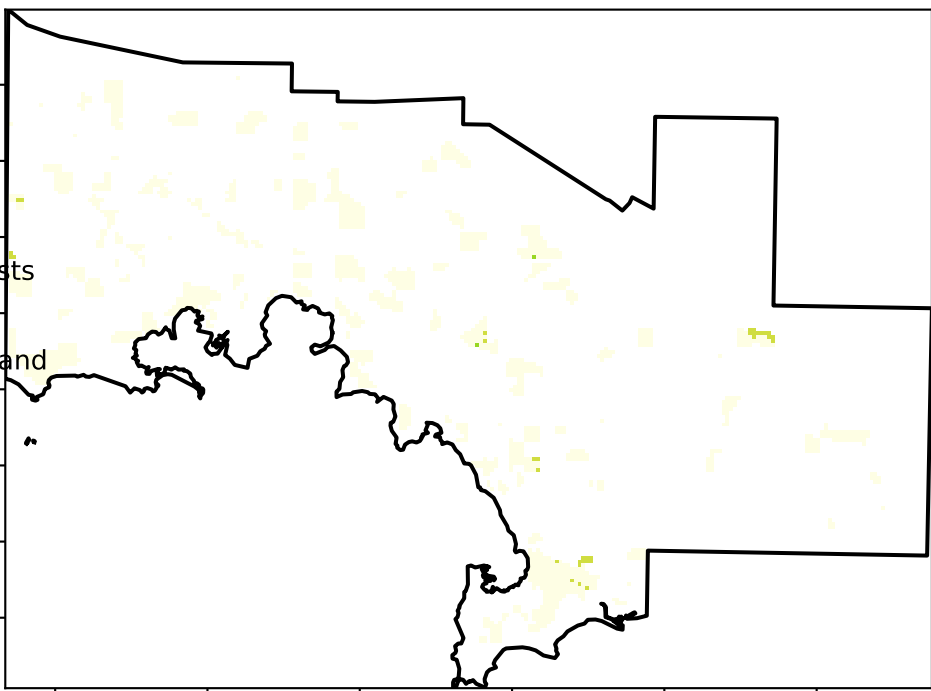
Water erosion historical monthly area protected (Total Veg Cov>70%)



Grazing

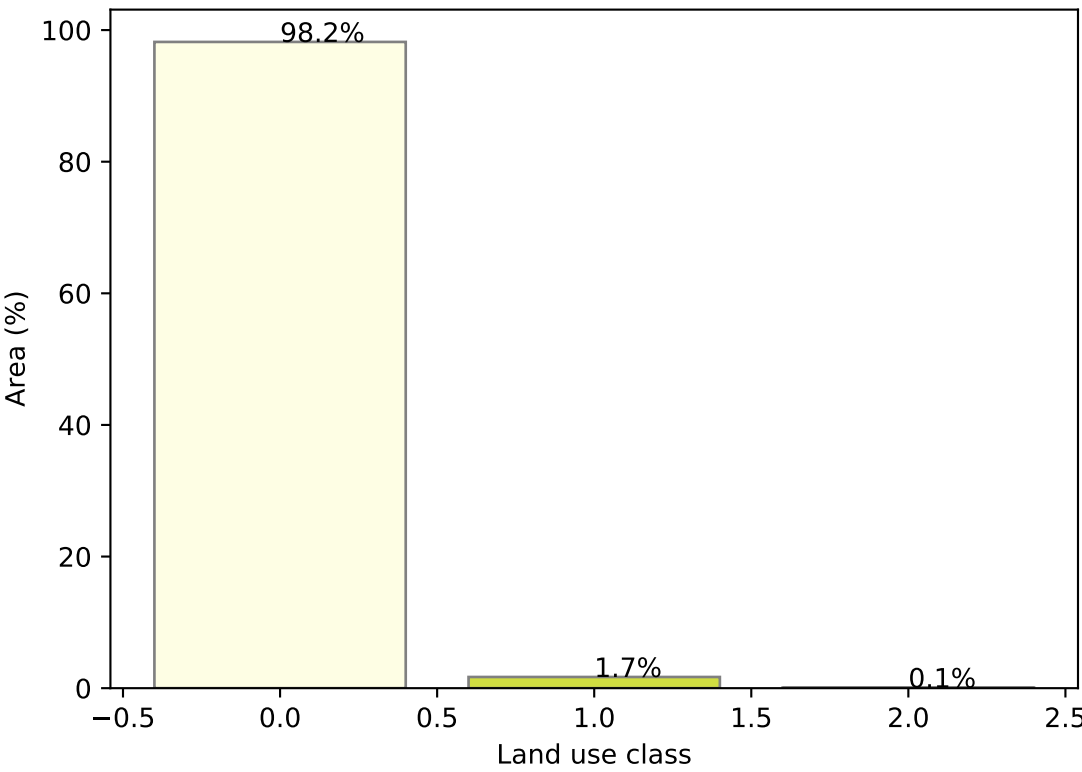
Land use and forest cover

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

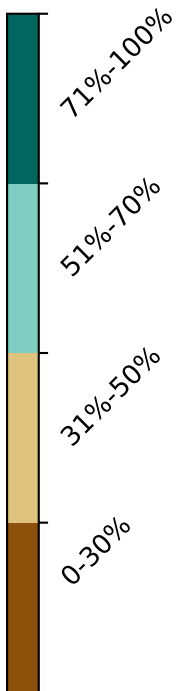
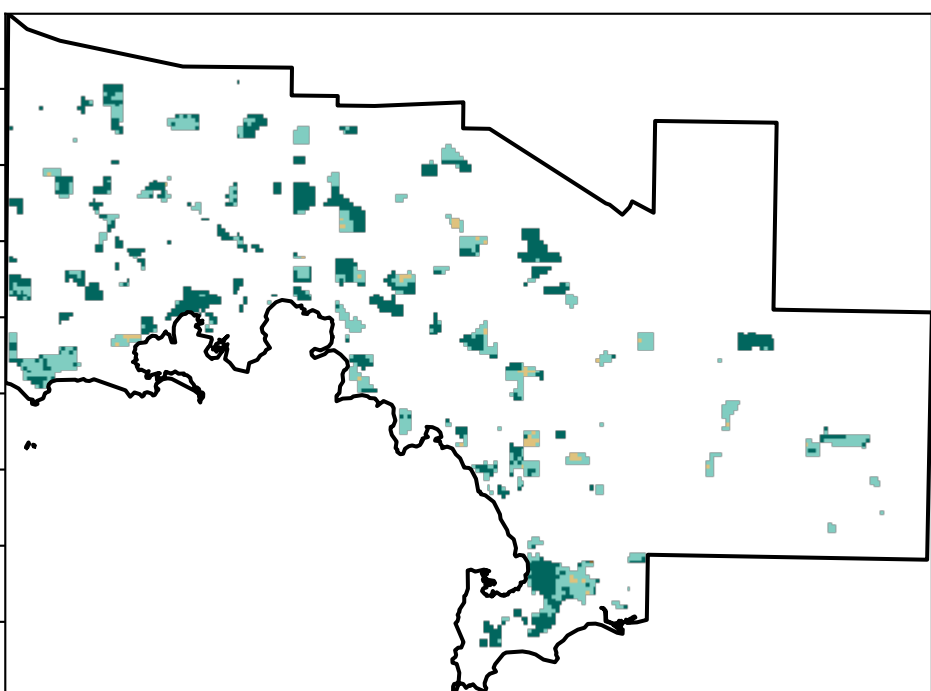


- 1 Agriculture - Grazing - Non forest
- 2 Agriculture - Grazing - Woodland forest
- 3 Agriculture - Grazing - Non-woodland forest

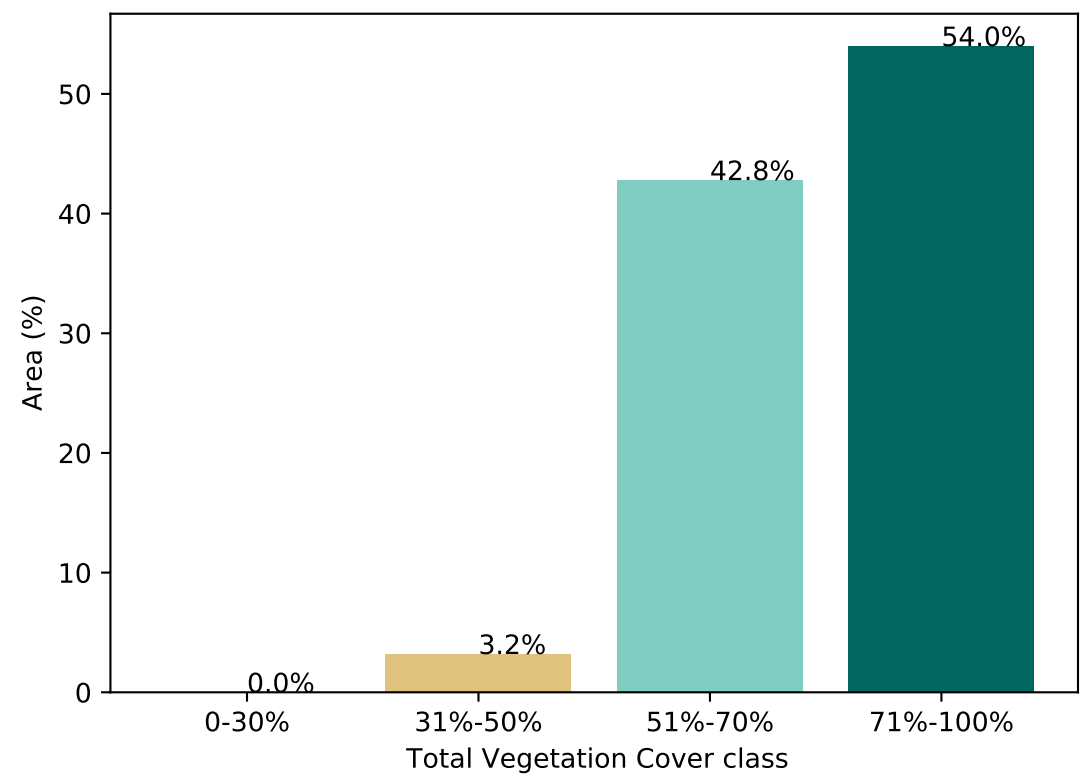
Proportion of each land class in area



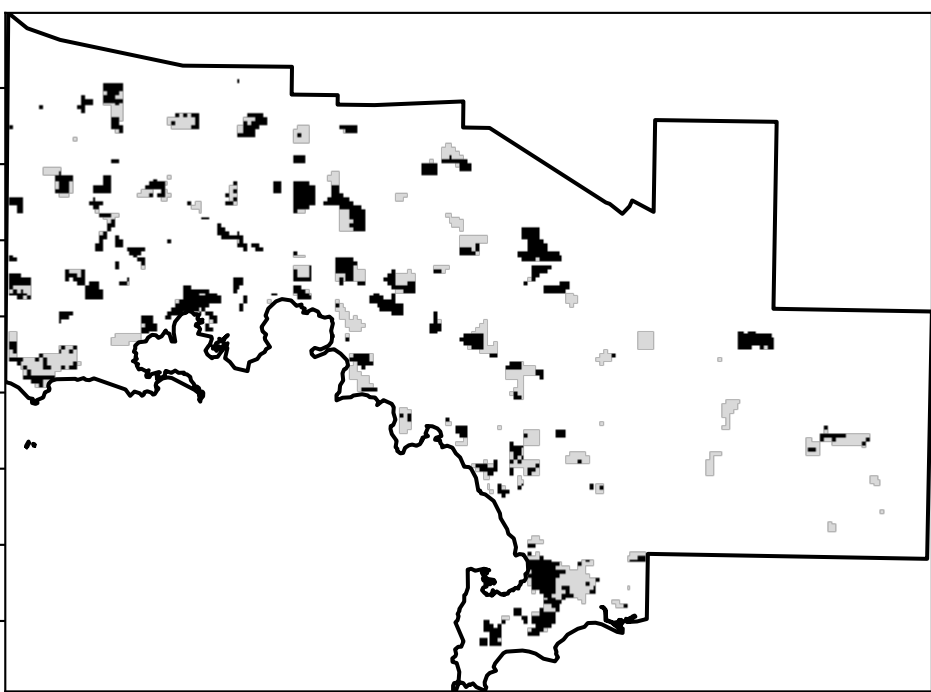
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

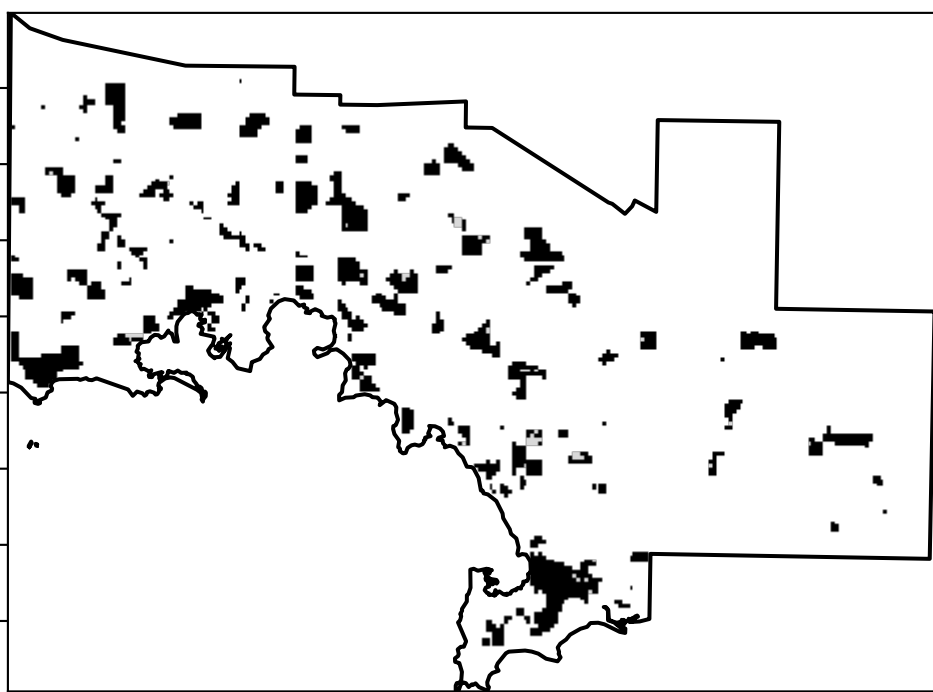


% Area protected from water erosion (>70%)



- Area not protected
46.0% of region
(22,322 ha)
- Area protected
54.0% of region
(26,204 ha)

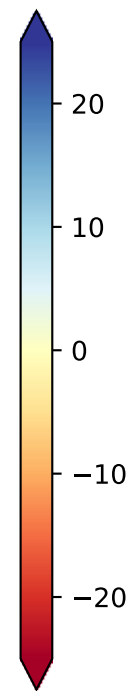
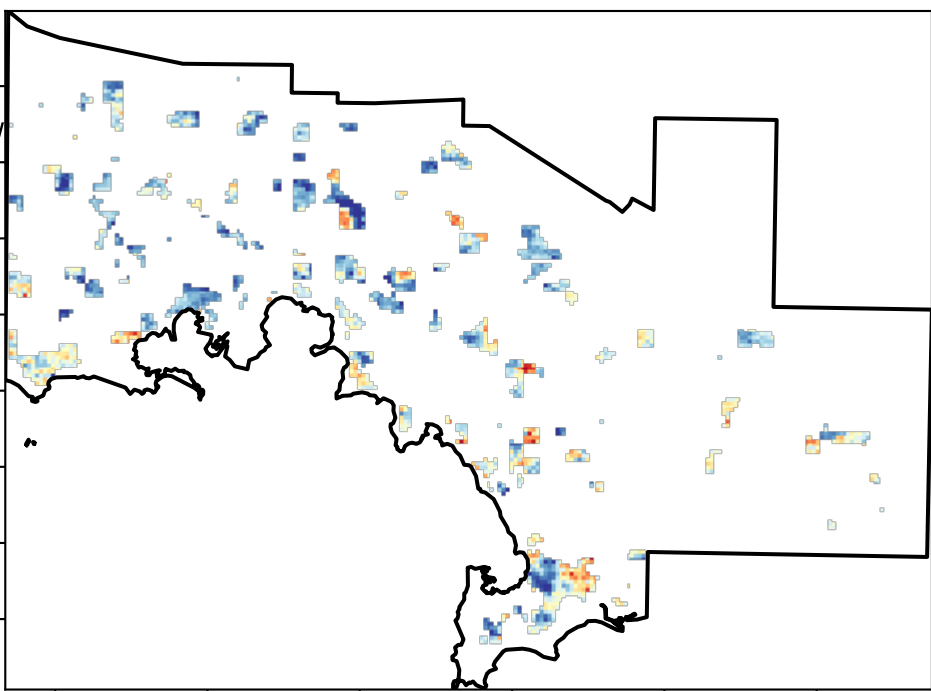
% Area protected from wind erosion (>50%)



- Area not protected
3.0% of region
(1,456 ha)
- Area protected
97.0% of region
(47,069 ha)

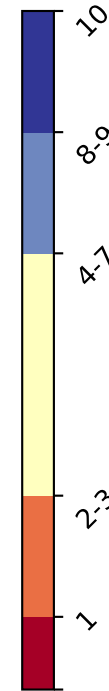
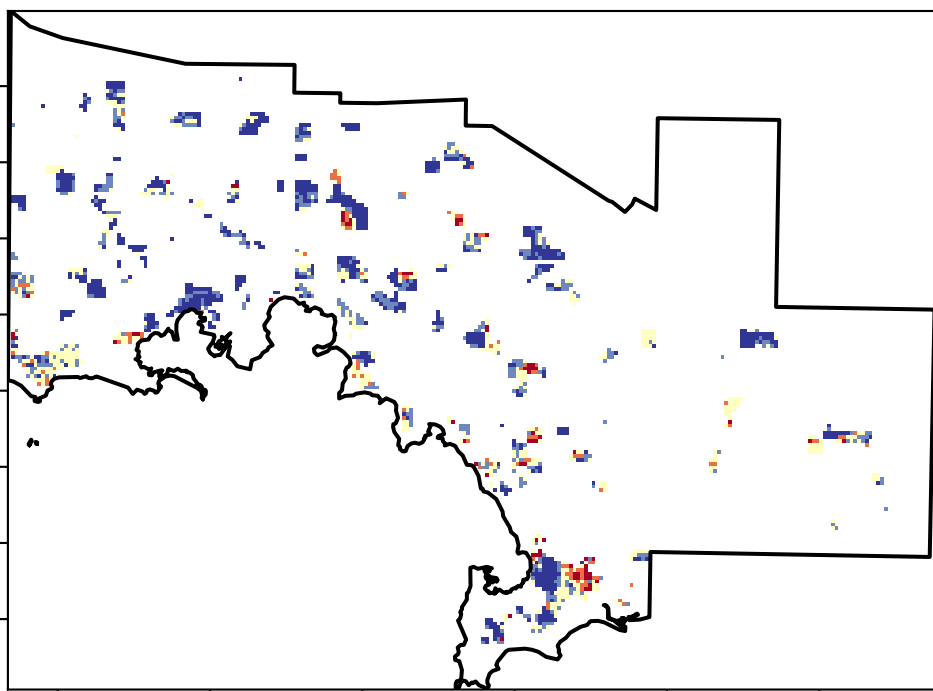
Total Vegetation Cover Anomaly [%]

Anomaly show how
many percentage
points each
pixel is from
the mean. That
is, red pixels
are about 20%
lower than the
mean of that
pixel. The mean
is only for the
month of the map
using baseline
from 2001 to
2019.



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

Total Vegetation Cover Decile [%]



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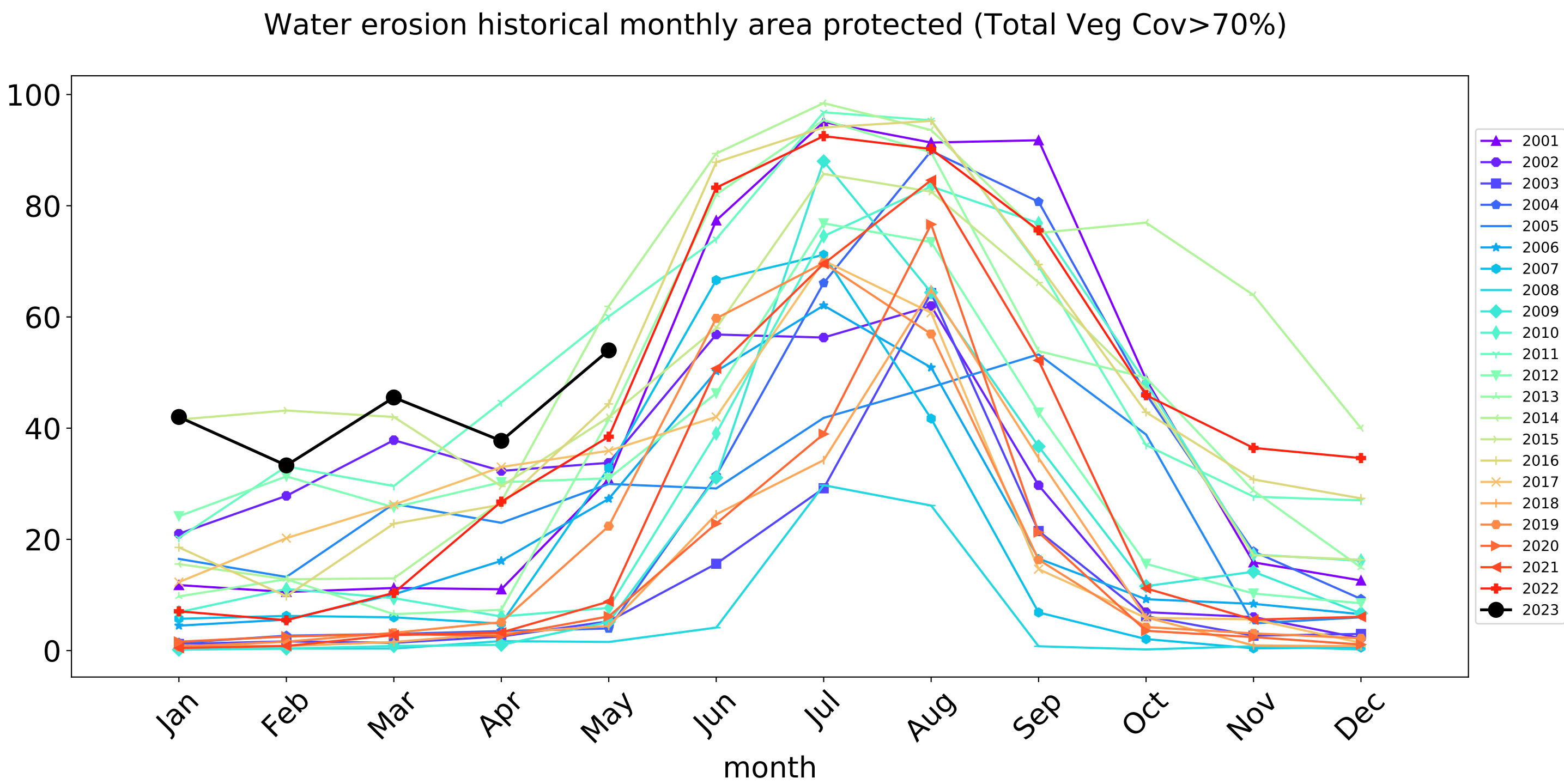
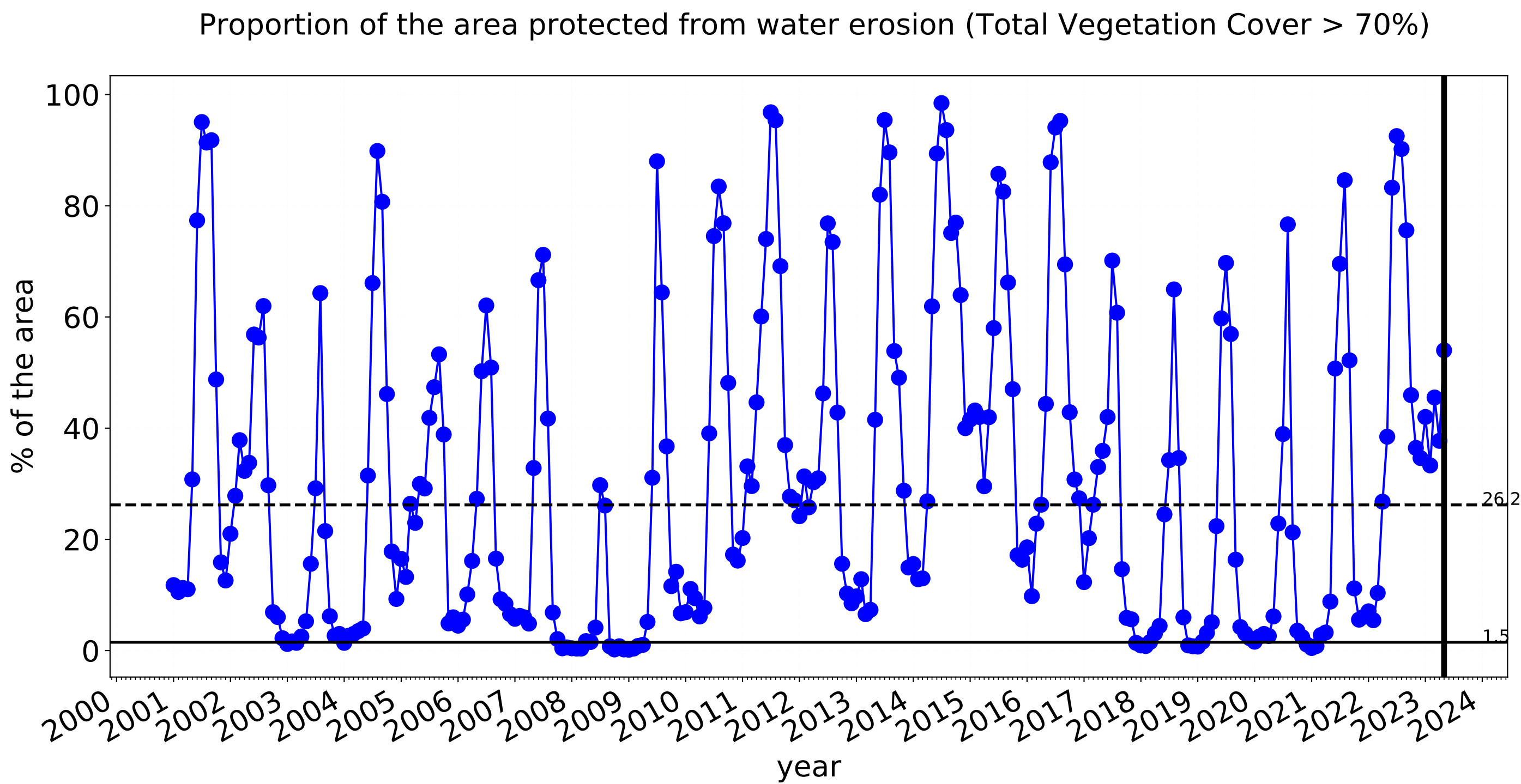
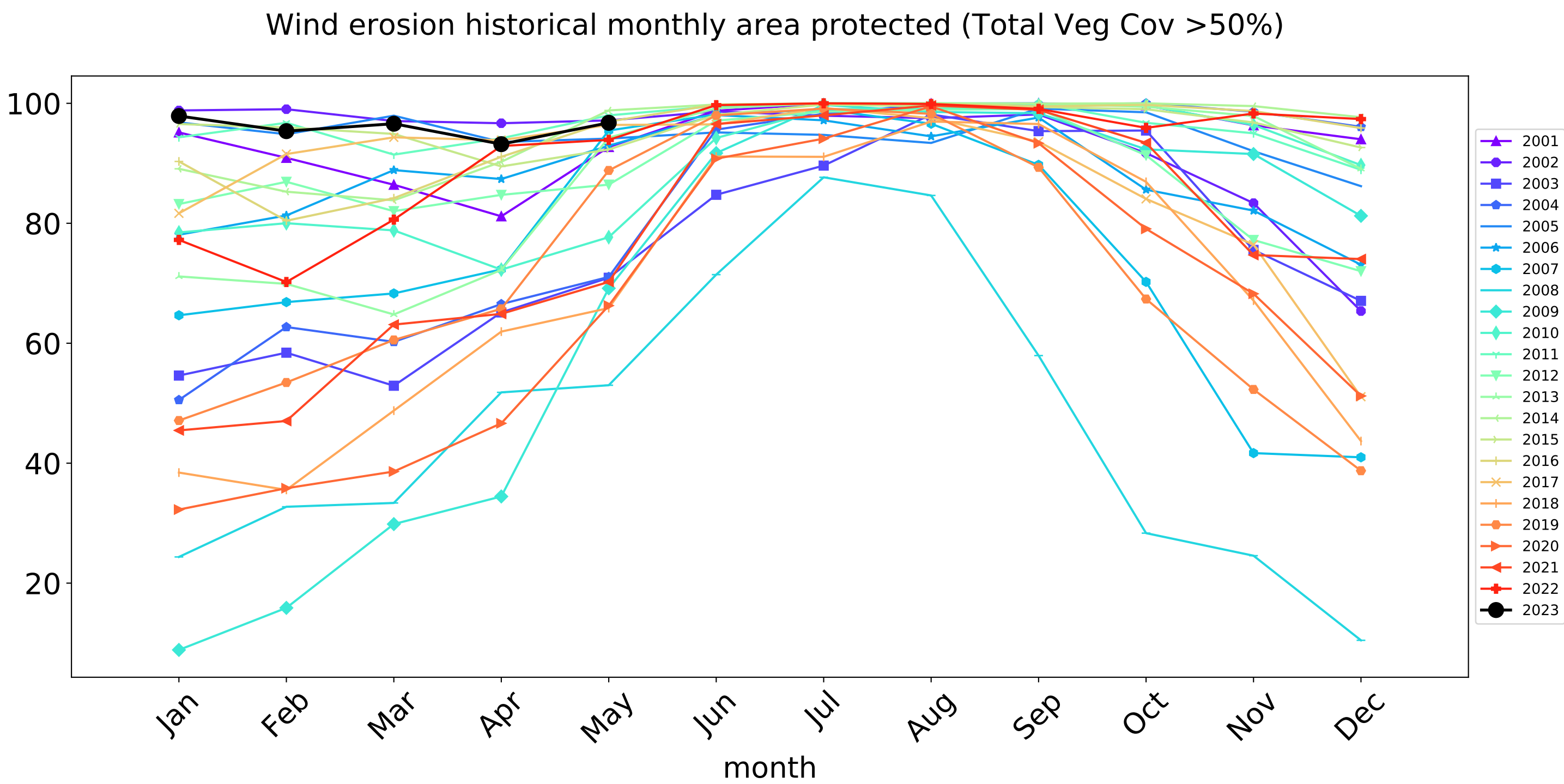
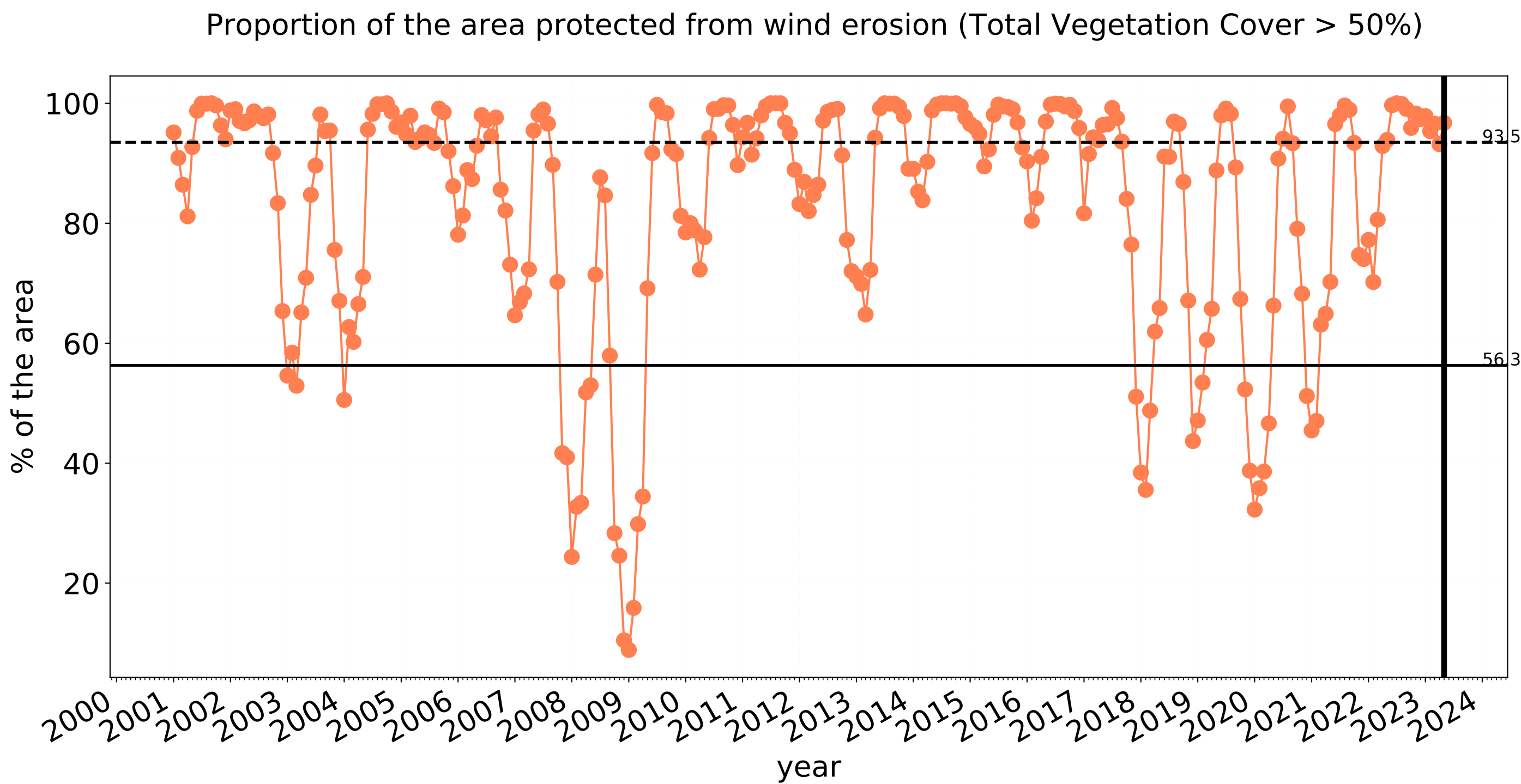


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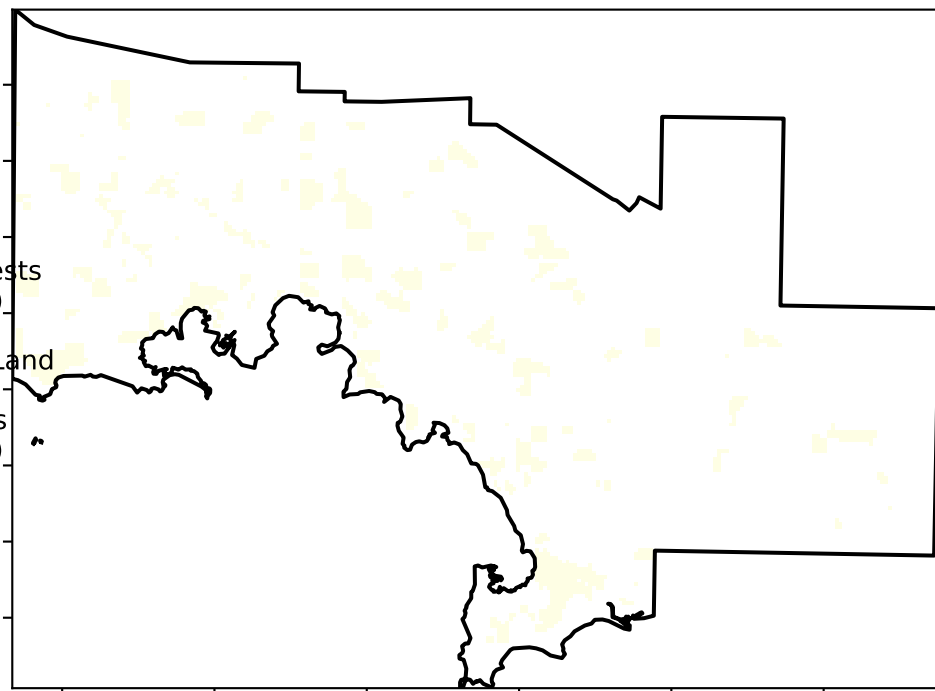
Grazing timeseries



Grazing non forest

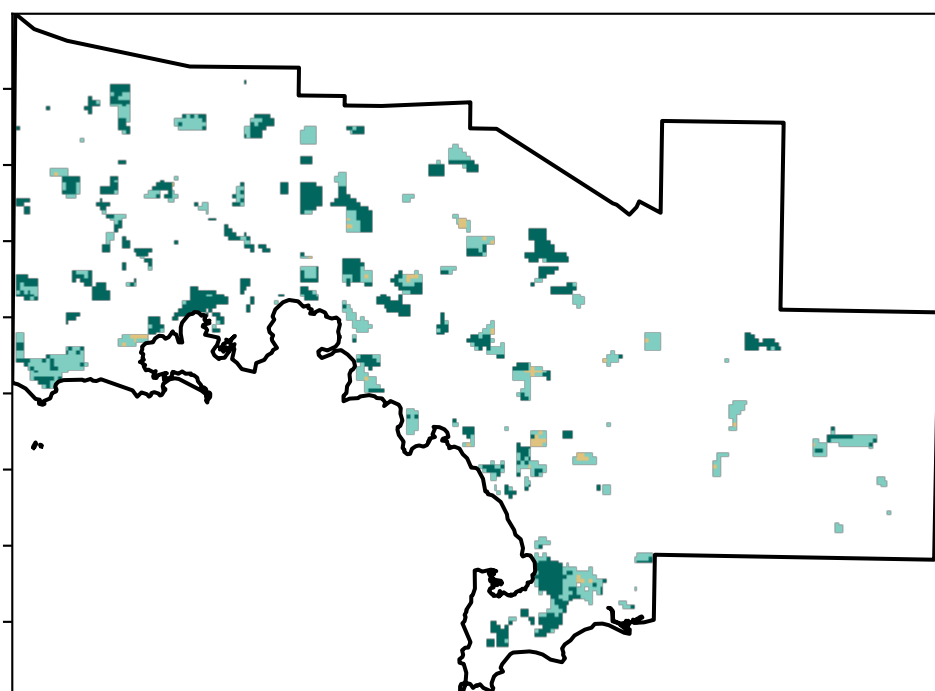
Land use and forest cover

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

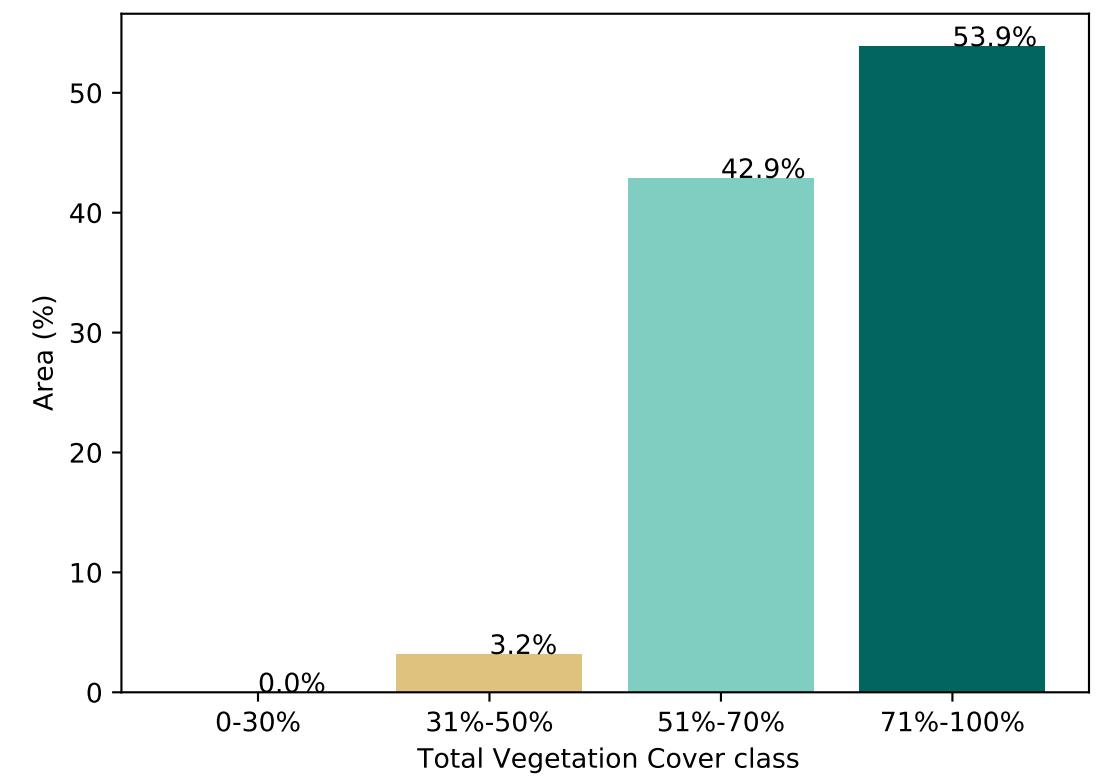


1 Agriculture - Grazing - Non forest

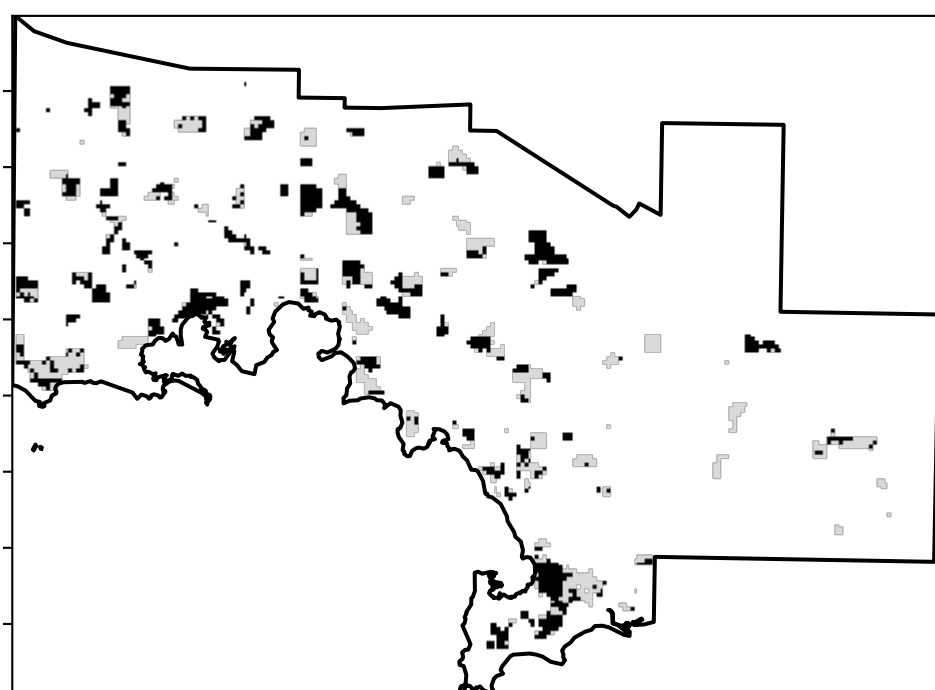
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

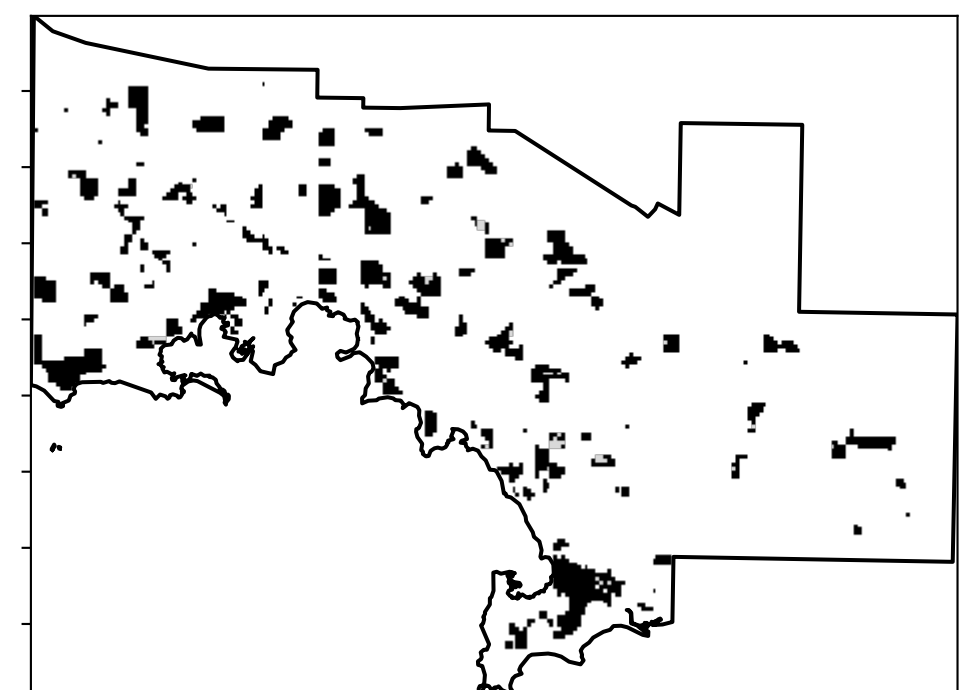


% Area protected from water erosion (>70%)



Area not
protected
46.1% of
region
(21,955
ha)
Area
protected
53.9% of
region
(25,670
ha)

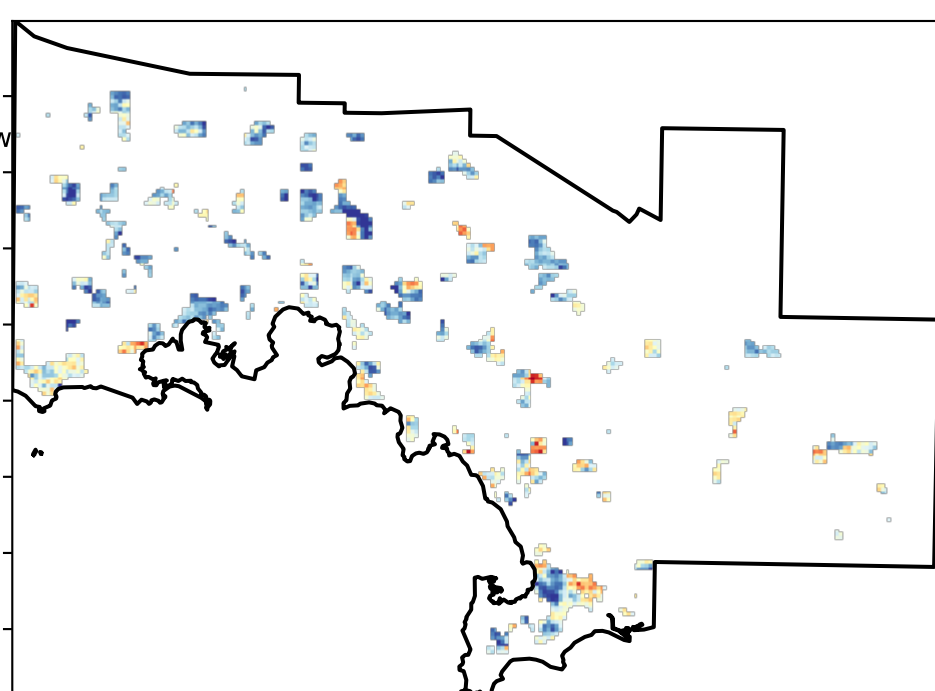
% Area protected from wind erosion (>50%)



Area not
protected
3.0% of
region
(1,429 ha)
Area
protected
97.0% of
region
(46,196
ha)

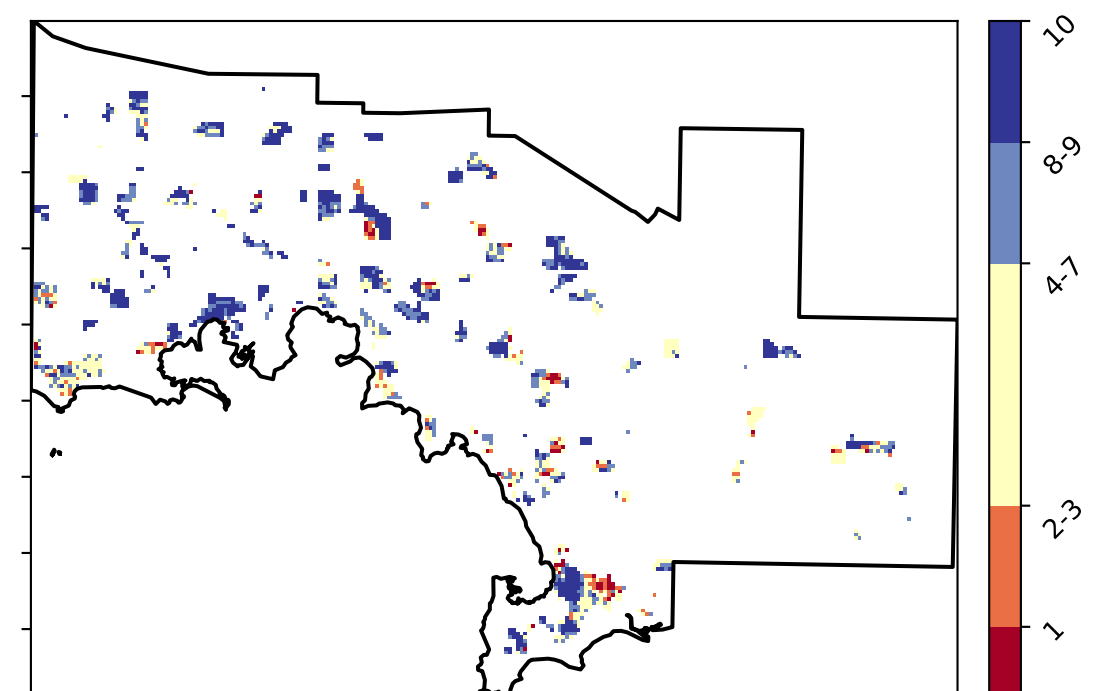
Total Vegetation Cover Anomaly [%]

Anomaly show how
many percentage
points each
pixel is from
the mean. That
is, red pixels
are about 20%
lower than the
mean of that
pixel. The mean
is only for the
month of the map
using baseline
from 2001 to
2019.



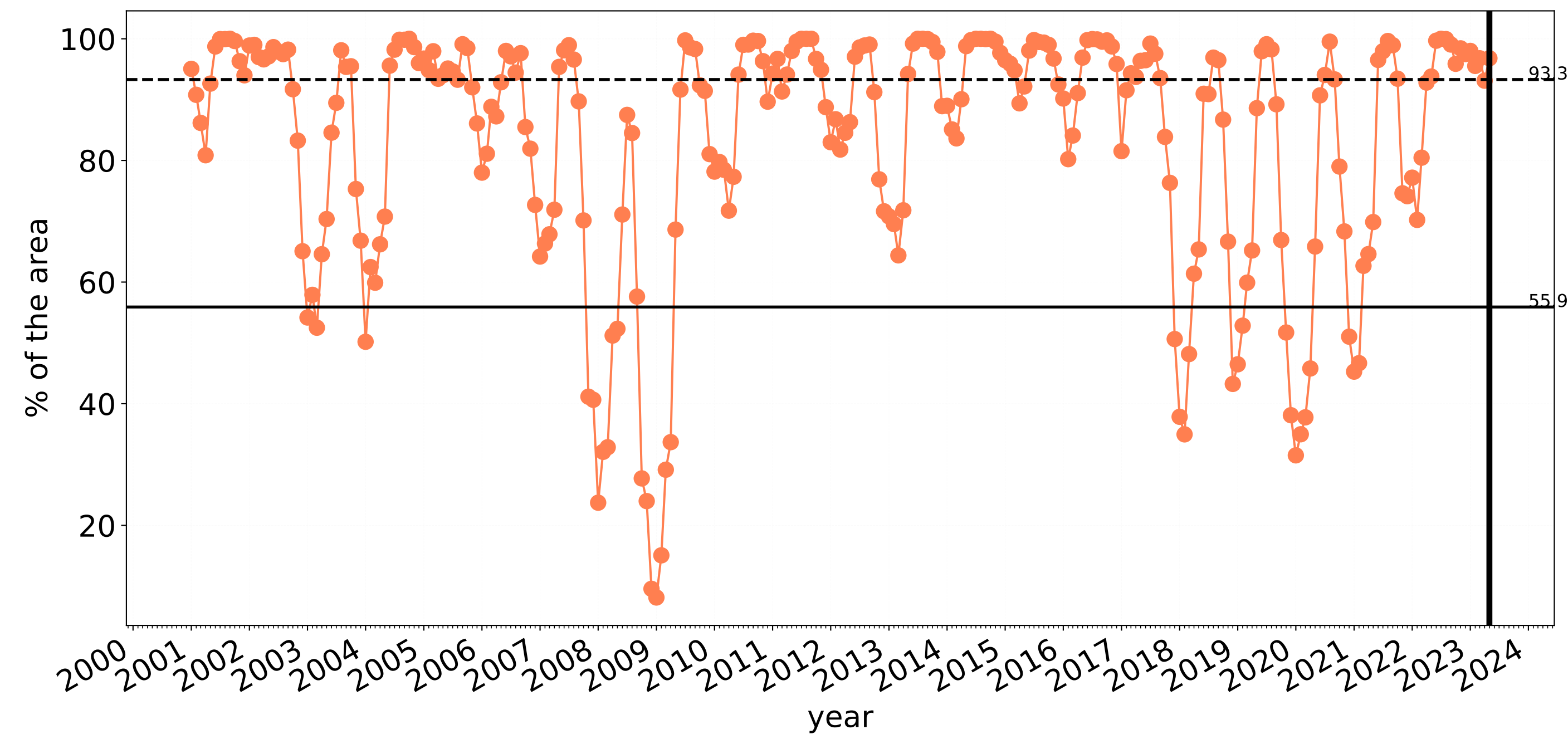
Deciles show where the
pixel value lies in the
record, from highest to
lowest, for that month.
That is, red pixels are
in the lowest 10% of
records for that month of
the map using baseline
from 2001 to 2019.

Total Vegetation Cover Decile [%]

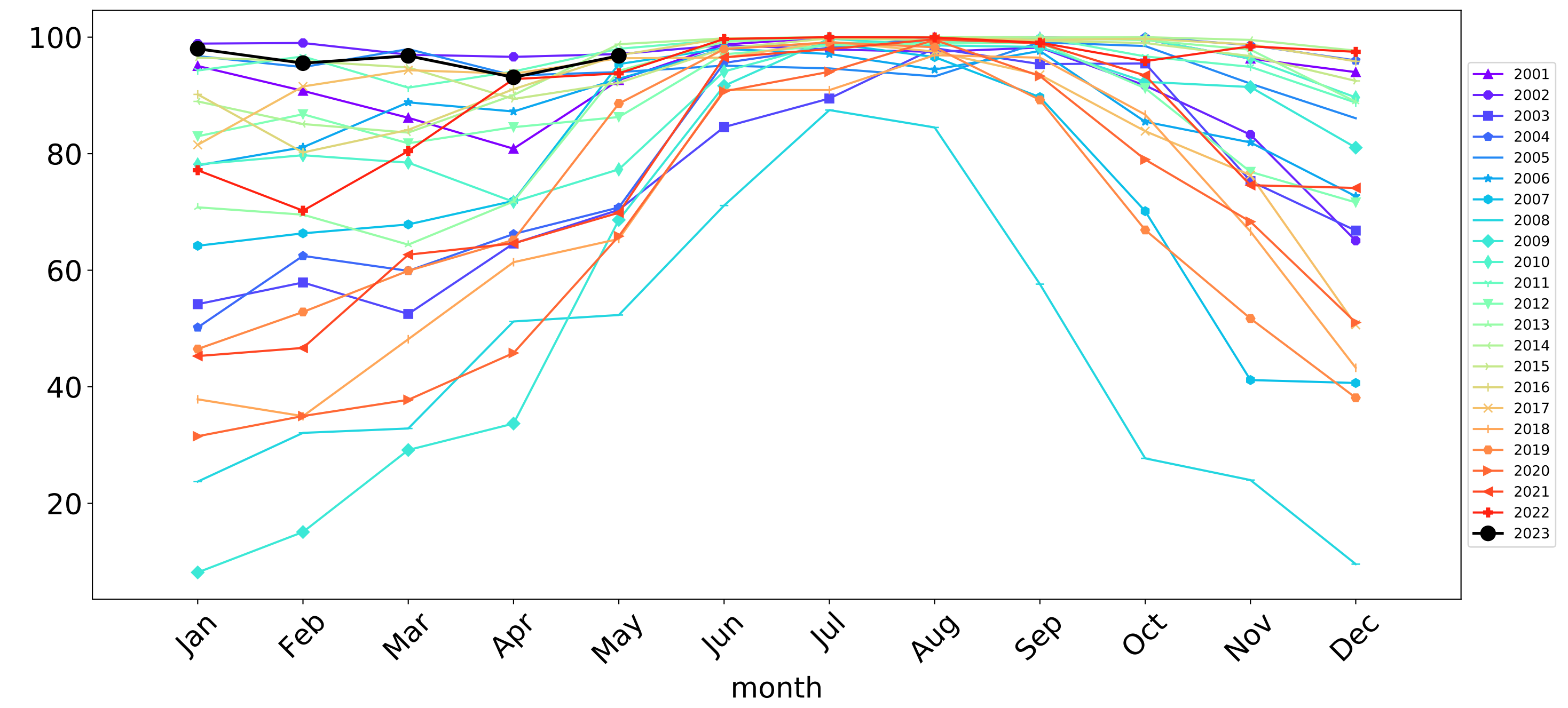


Grazing non forest timeseries

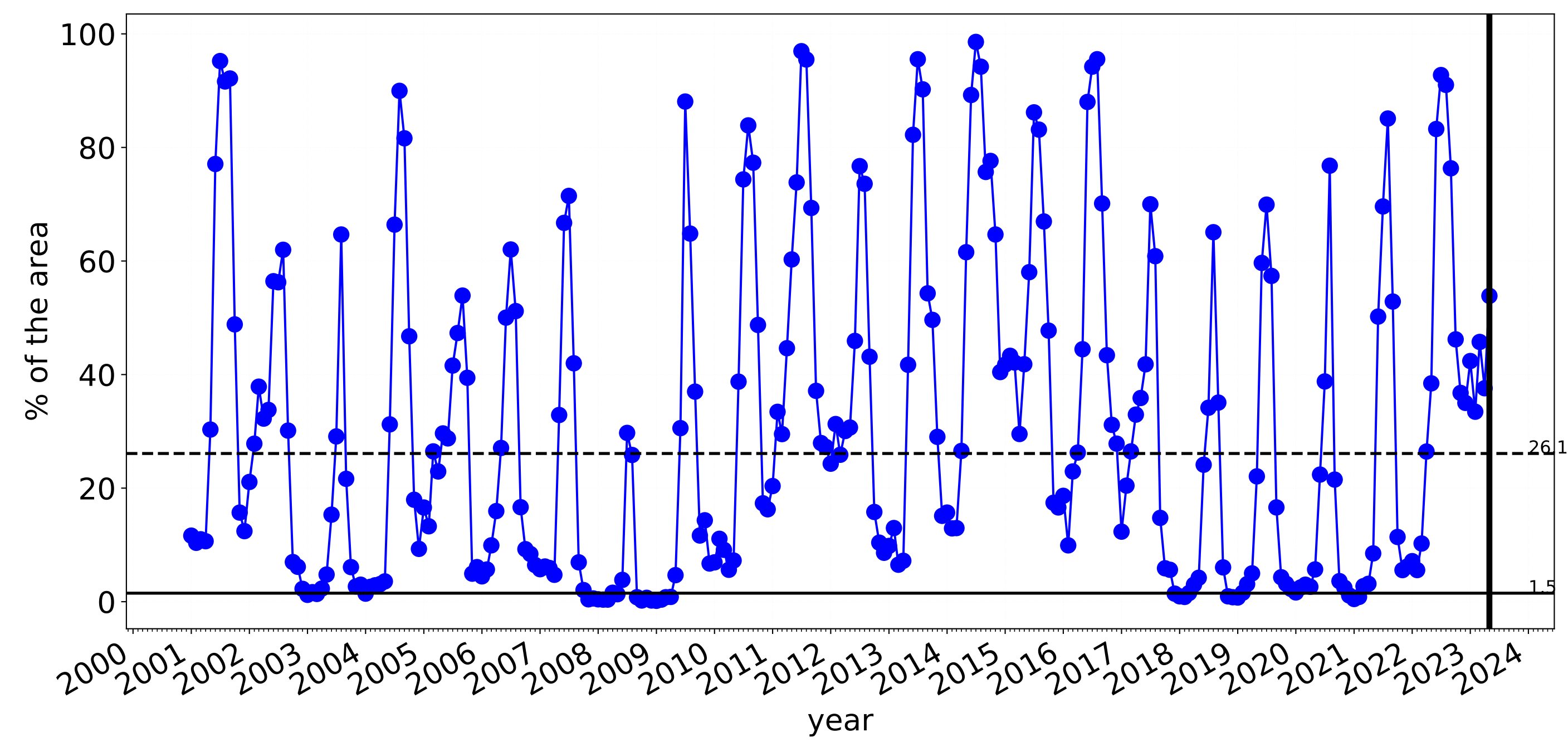
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



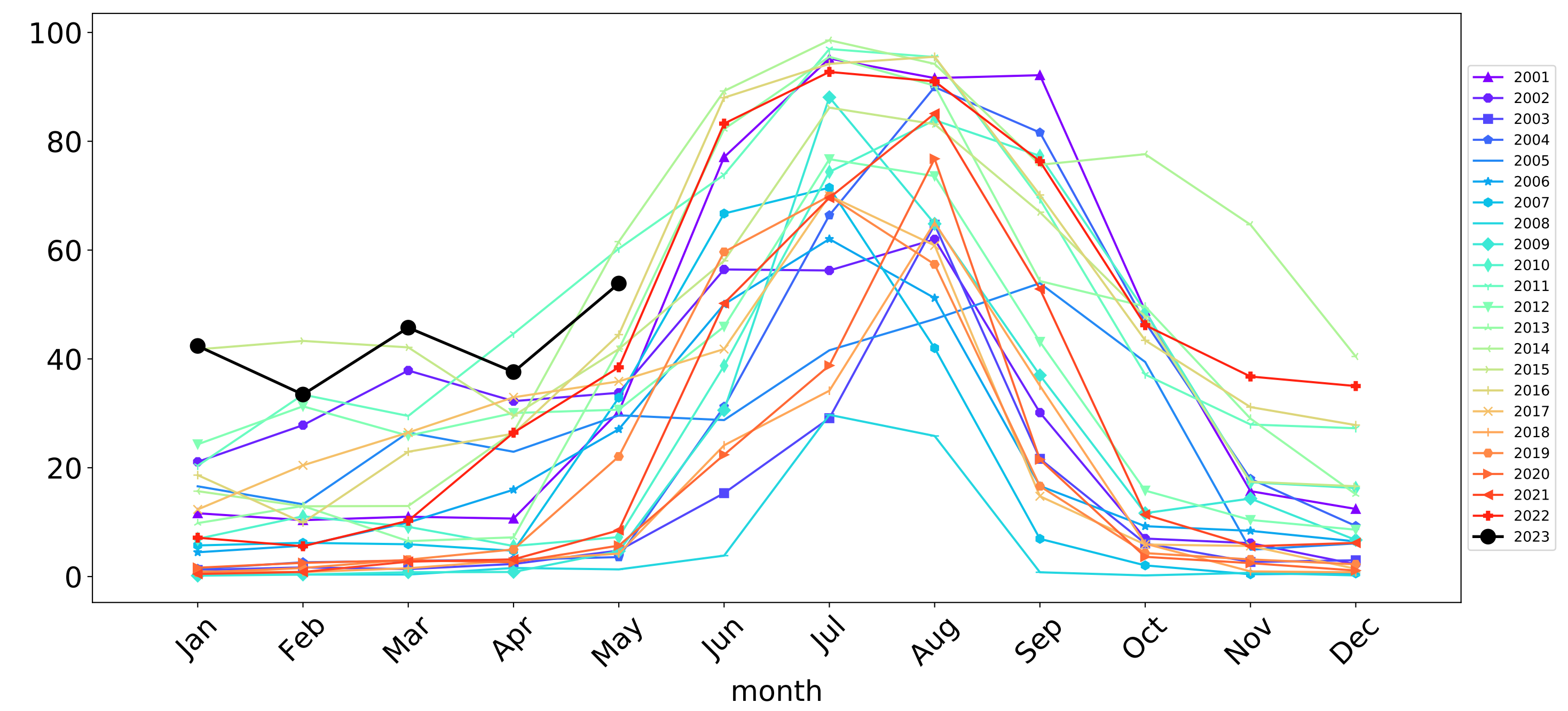
Wind erosion historical monthly area protected (Total Veg Cov >50%)



Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



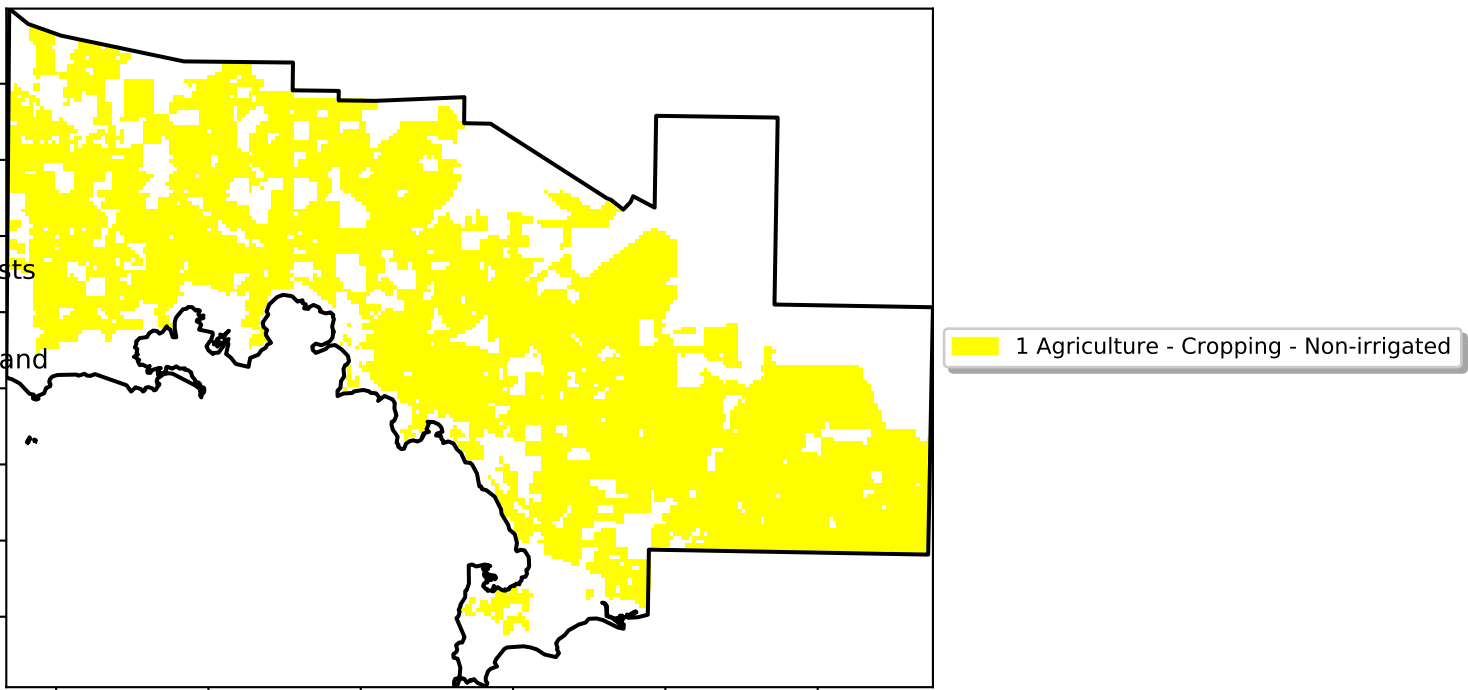
Water erosion historical monthly area protected (Total Veg Cov>70%)



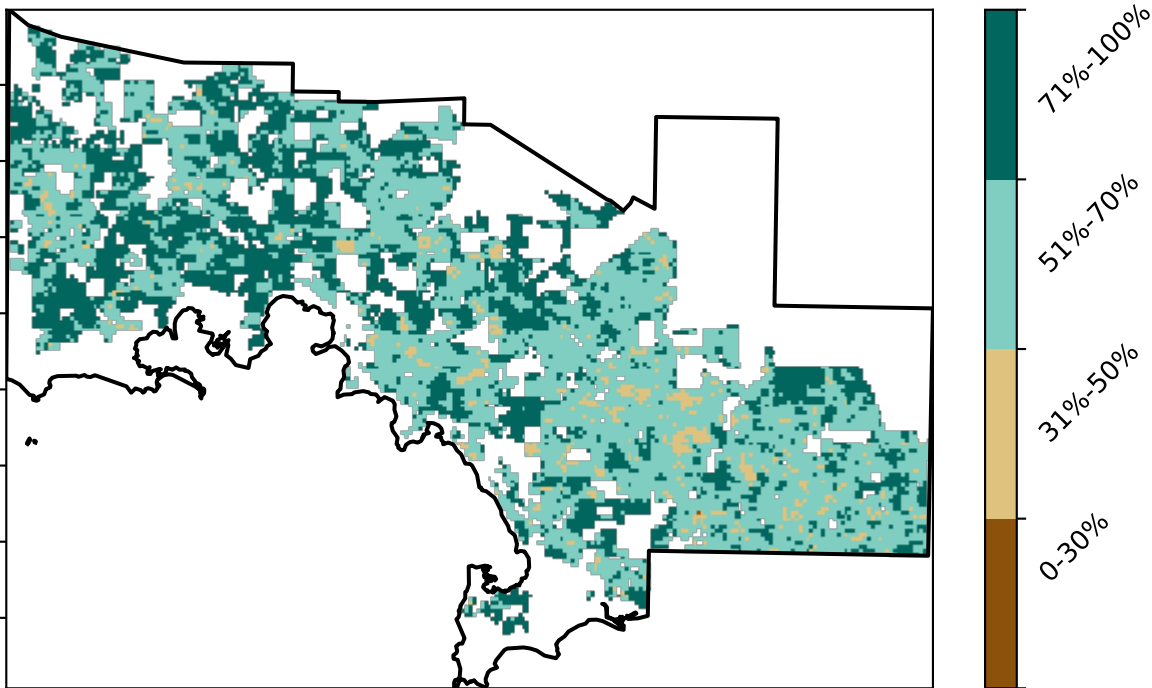
Cropping

Land use and forest cover

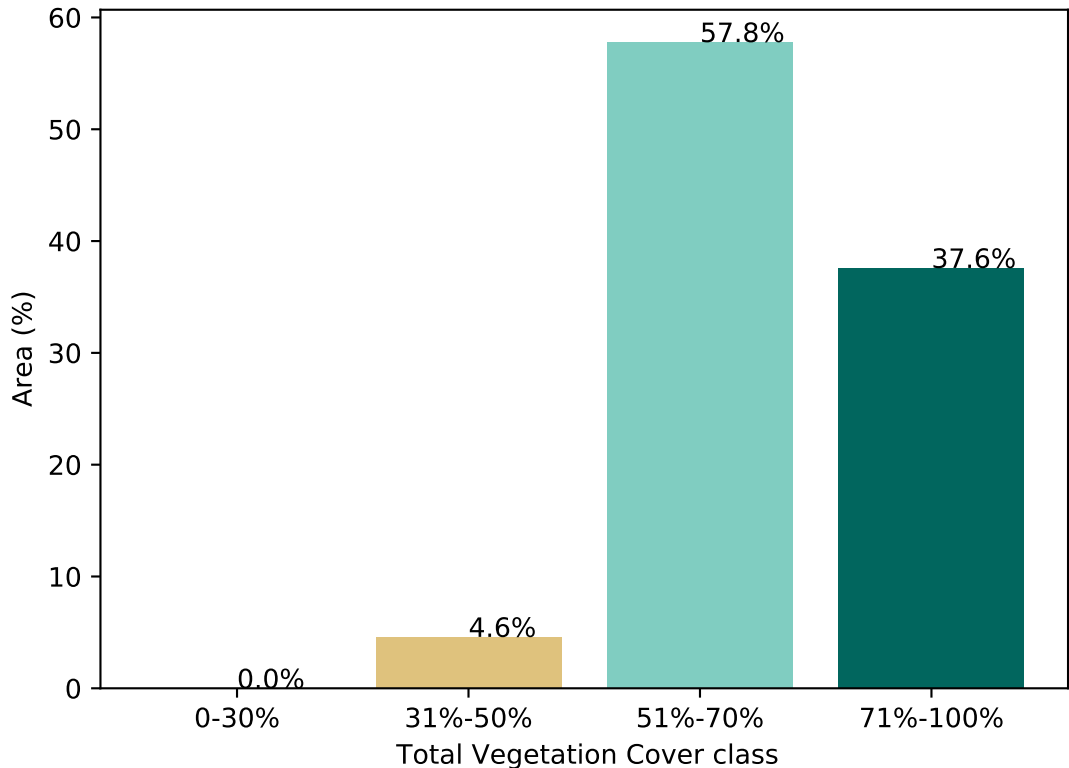
Catchment Scale Land Use and Forests of Australia (2018). Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018).



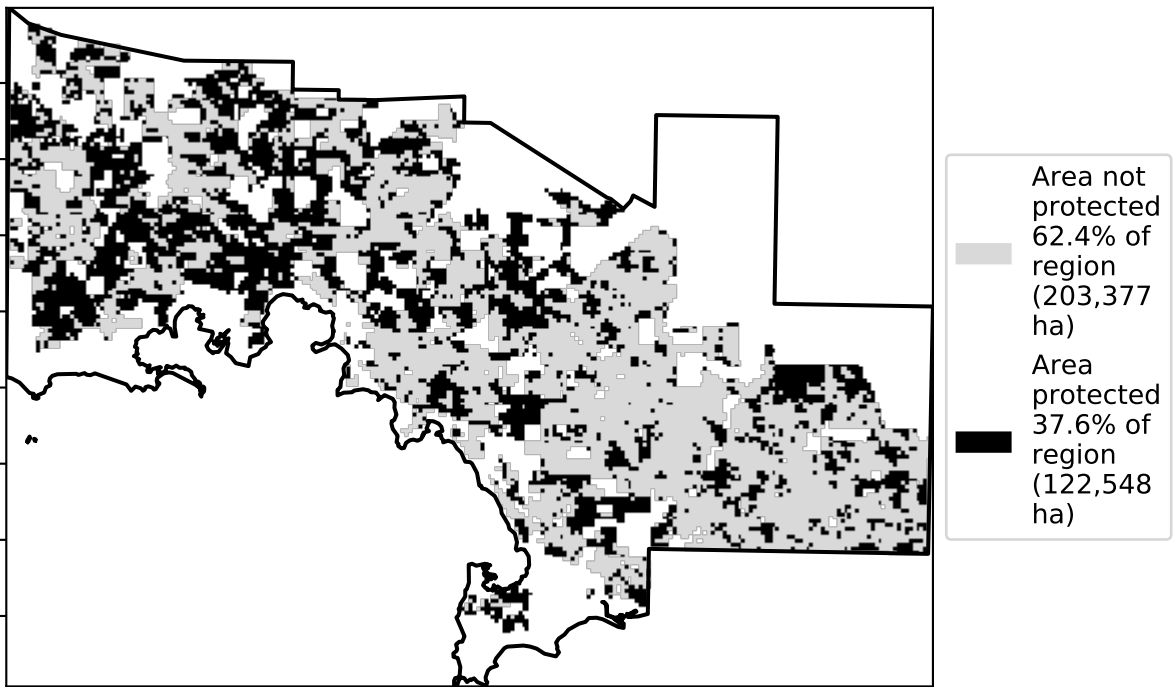
Total Vegetation Cover [%]



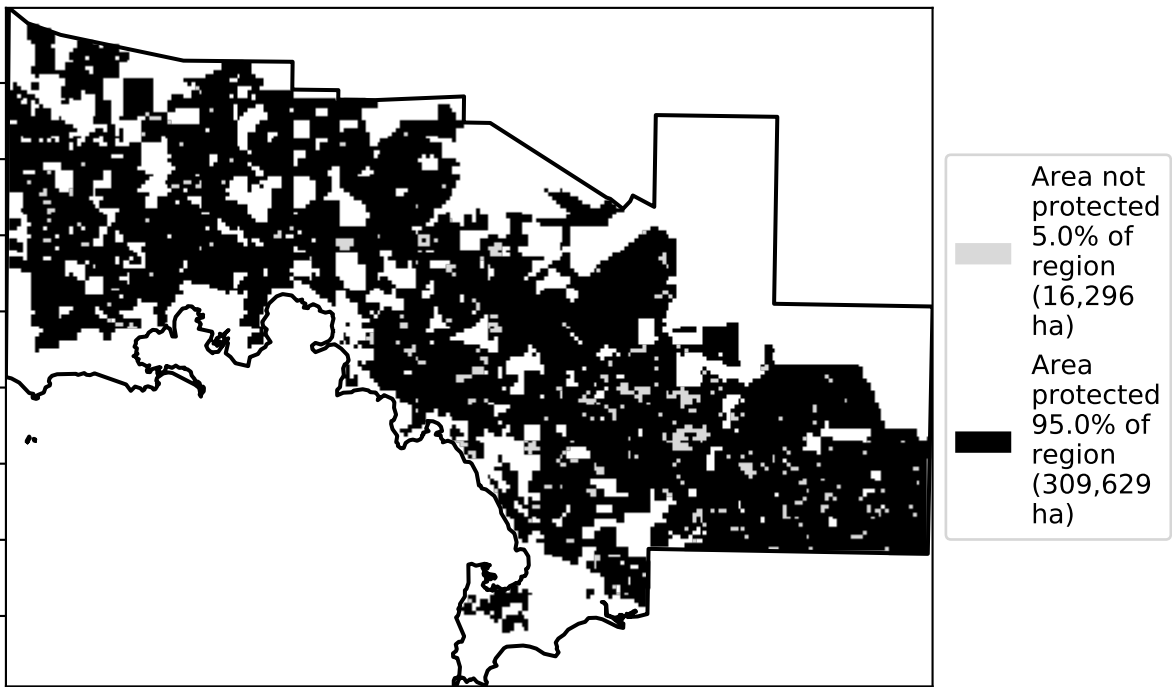
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

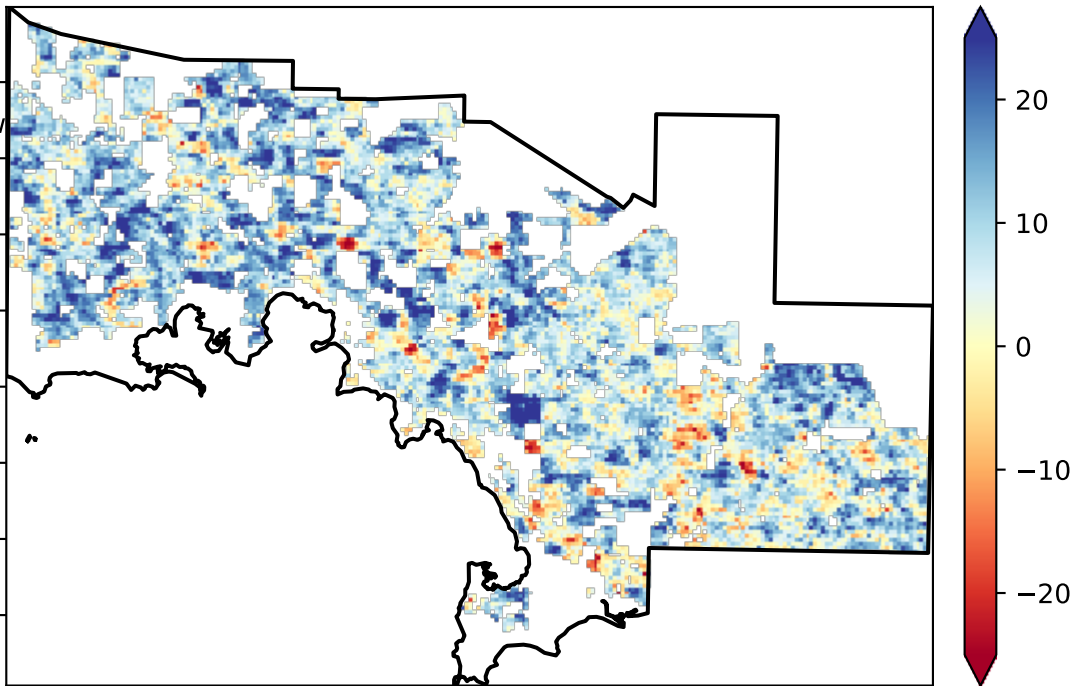


% Area protected from wind erosion (>50%)



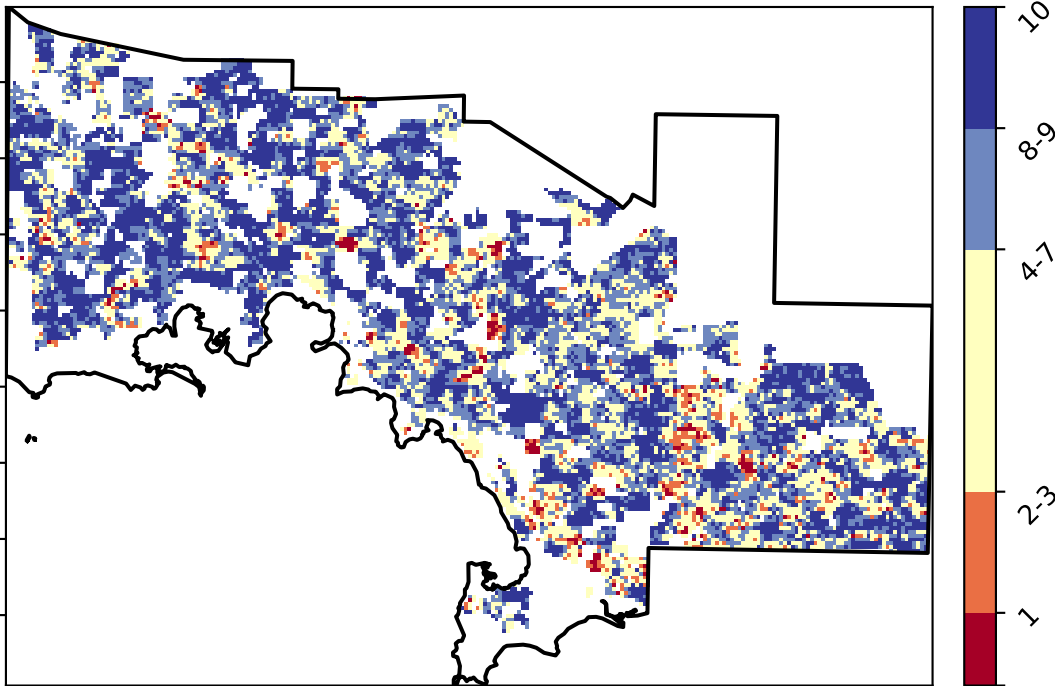
Total Vegetation Cover Anomaly [%]

Anomaly show how many percentage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

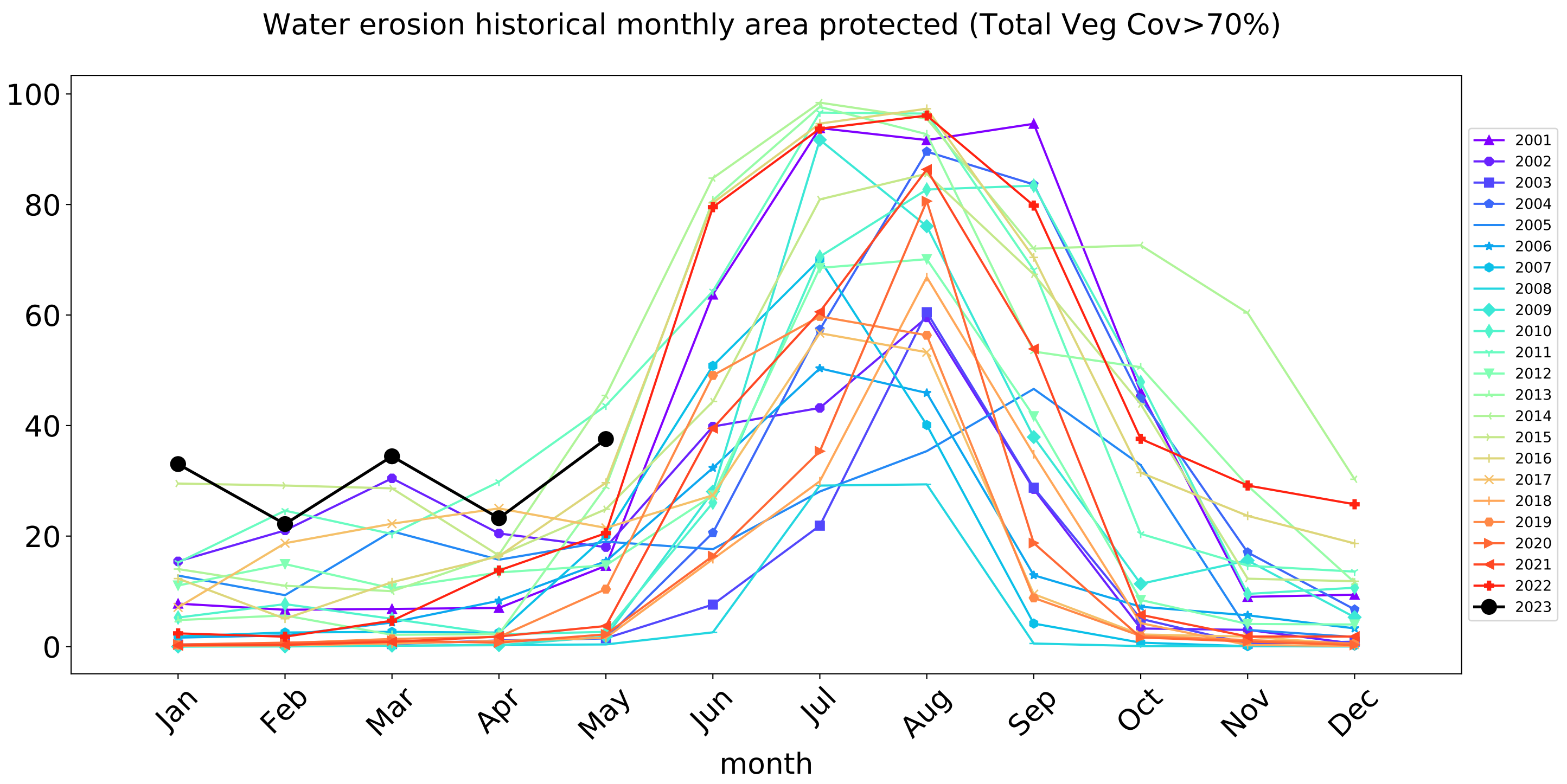
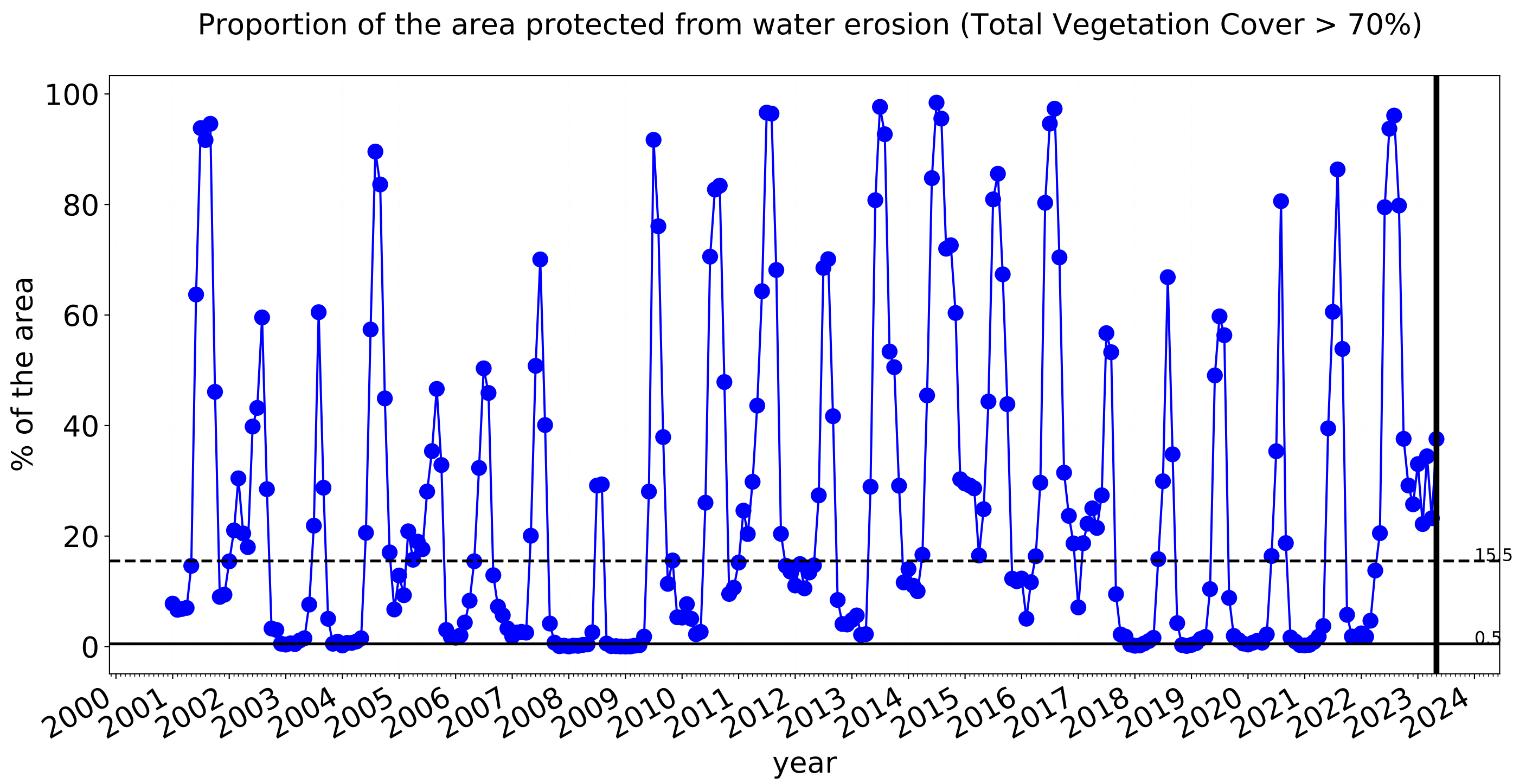
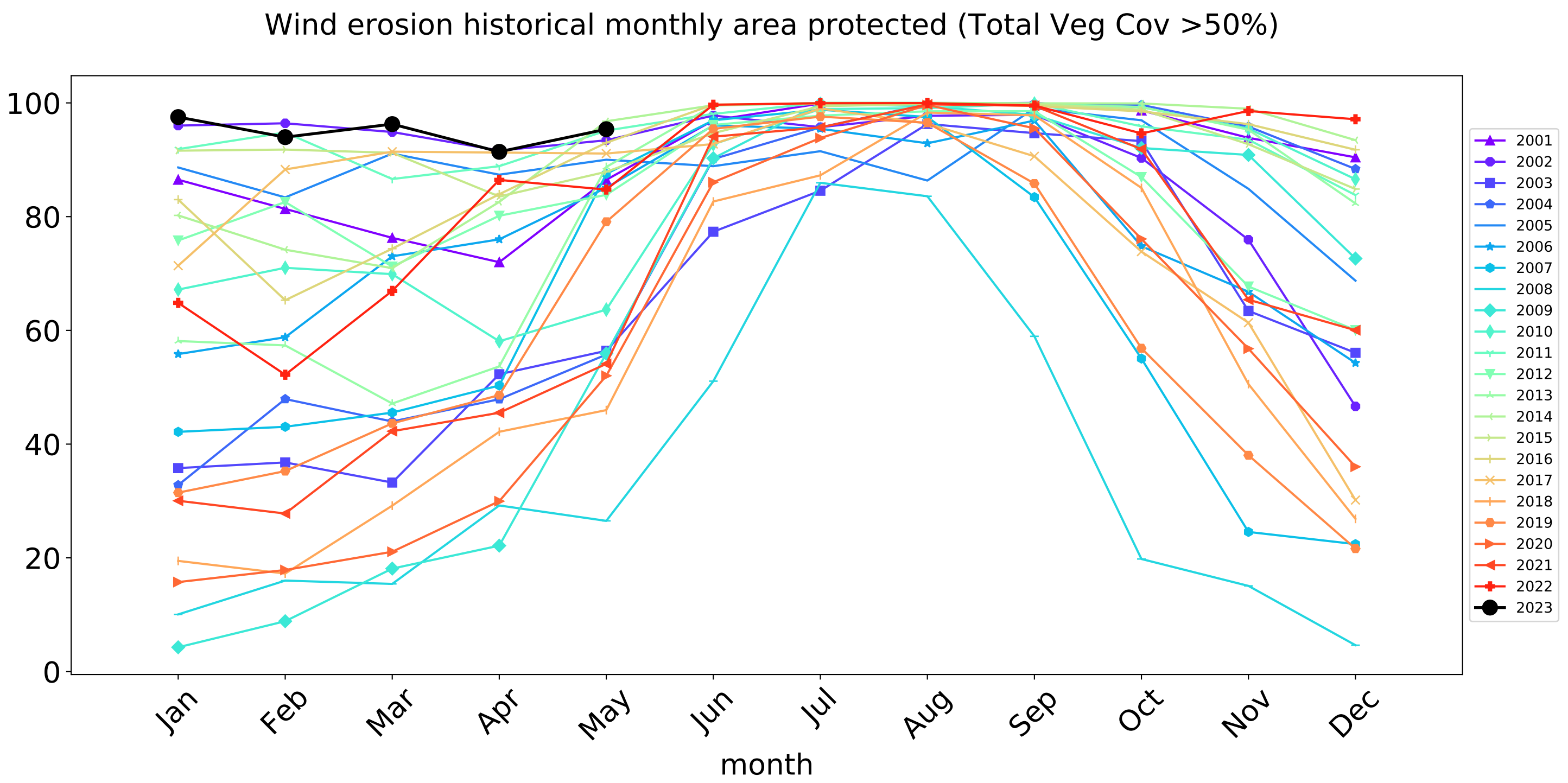
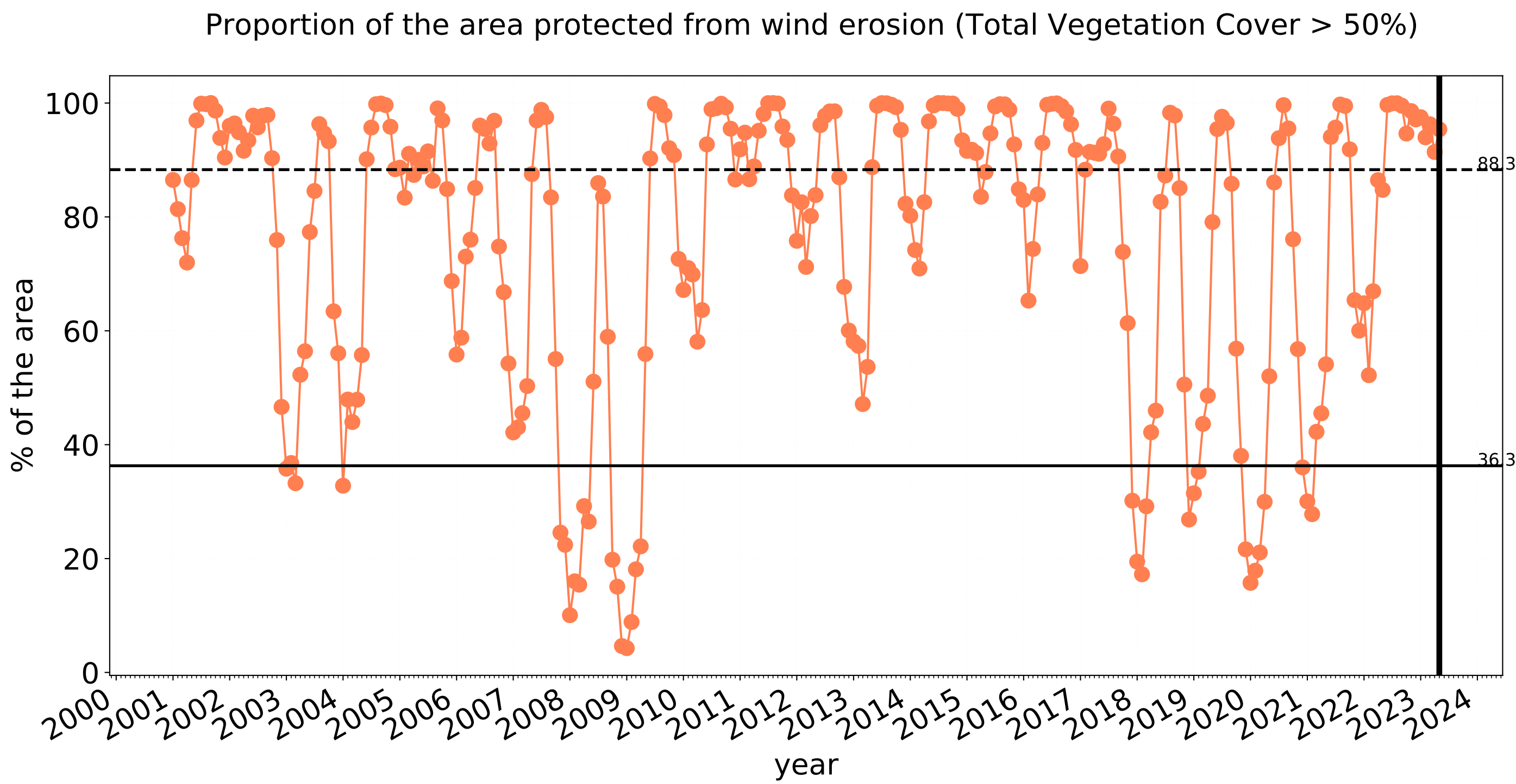


Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]



Cropping timeseries



Ceduna_(DC) (535,825 ha and no data 6,424 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	535,825	99.9% 535,525	96.7% 518,275	52.3% 280,350	13.7% 73,400	1.0% 5,400	0.2% 850
Conservation and natural environments	153,800	99.9% 153,575	99.5% 153,025	82.6% 127,075	14.7% 22,575	0.3% 475	0.1% 175
Conservation and natural environments non forest	40,150	99.4% 39,925	98.4% 39,500	65.6% 26,350	7.5% 3,000	1.0% 400	0.4% 175
Conservation and natural environments Woodland forest	107,700	100.0% 107,700	99.9% 107,575	89.0% 95,900	17.2% 18,575	0.0% 50	0.0% 0
Conservation and natural environments Forest (non woodland)	5,950	100.0% 5,950	100.0% 5,950	81.1% 4,825	16.8% 1,000	0.4% 25	0.0% 0
Agriculture	374,450	100.0% 374,375	95.6% 357,800	39.7% 148,625	13.1% 49,075	1.1% 4,300	0.1% 400
Grazing	48,525	99.9% 48,500	96.8% 46,950	54.0% 26,200	20.7% 10,050	1.8% 875	0.3% 150
Grazing non forest	47,625	100.0% 47,625	96.8% 46,100	53.9% 25,650	20.8% 9,925	1.8% 875	0.3% 150
Cropping	325,925	100.0% 325,875	95.4% 310,850	37.6% 122,425	12.0% 39,025	1.1% 3,425	0.1% 250