

Total vegetation cover soil protection

Region:LGA Broome_(S) WA

Date: June 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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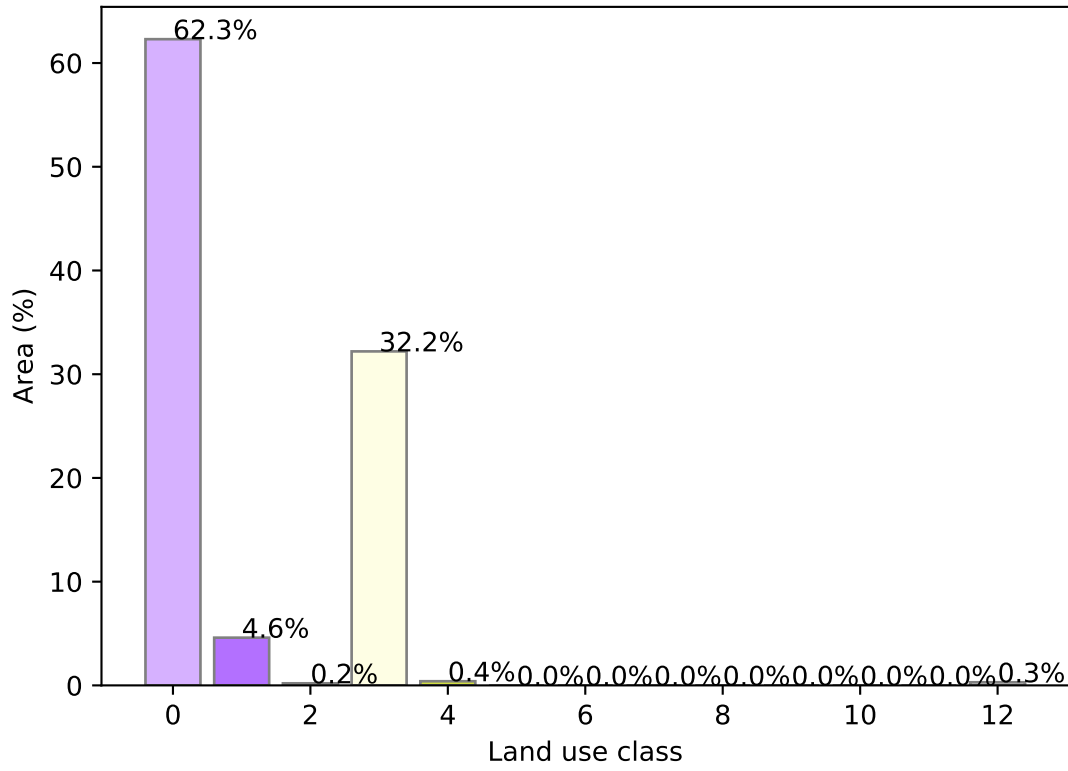


Vegetation Cover Jun 2023

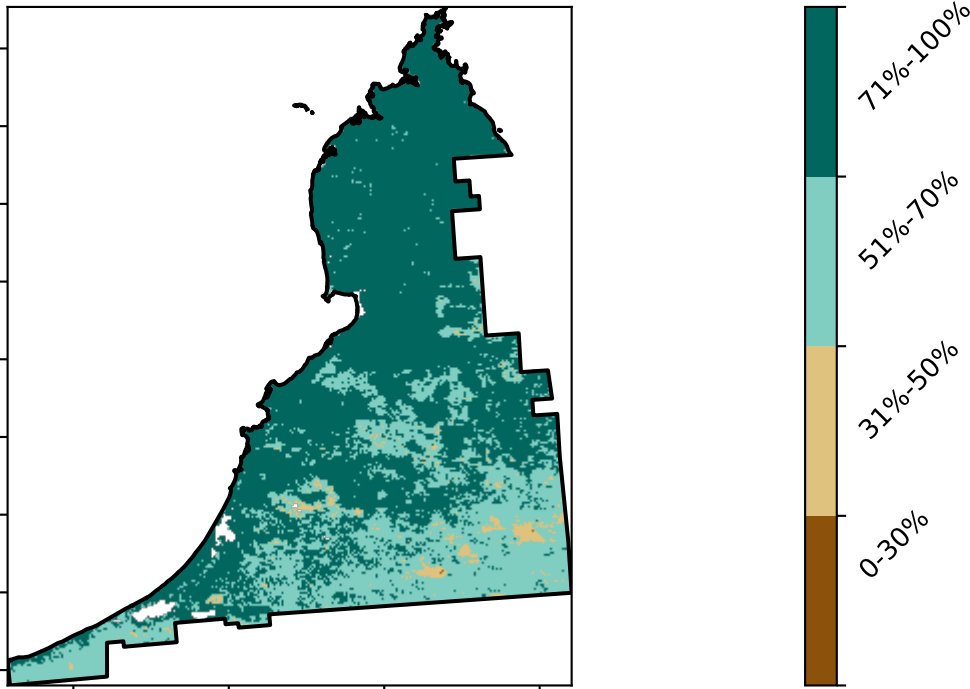
Land use and forest cover



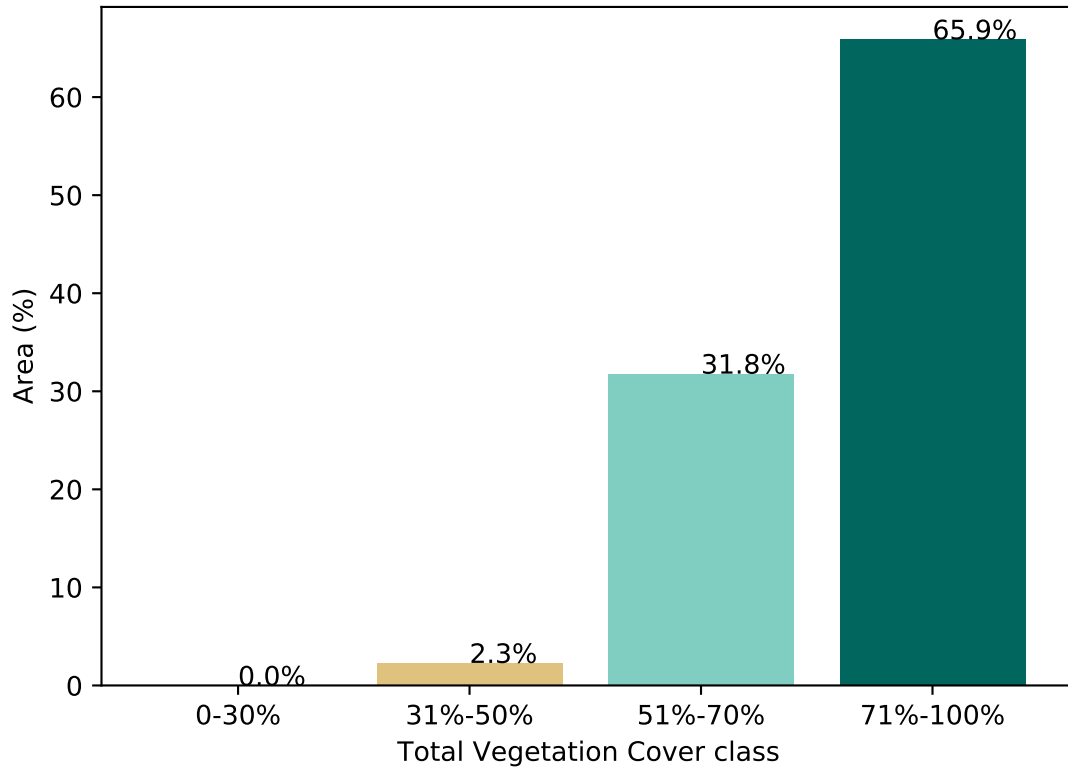
Proportion of each land class in area



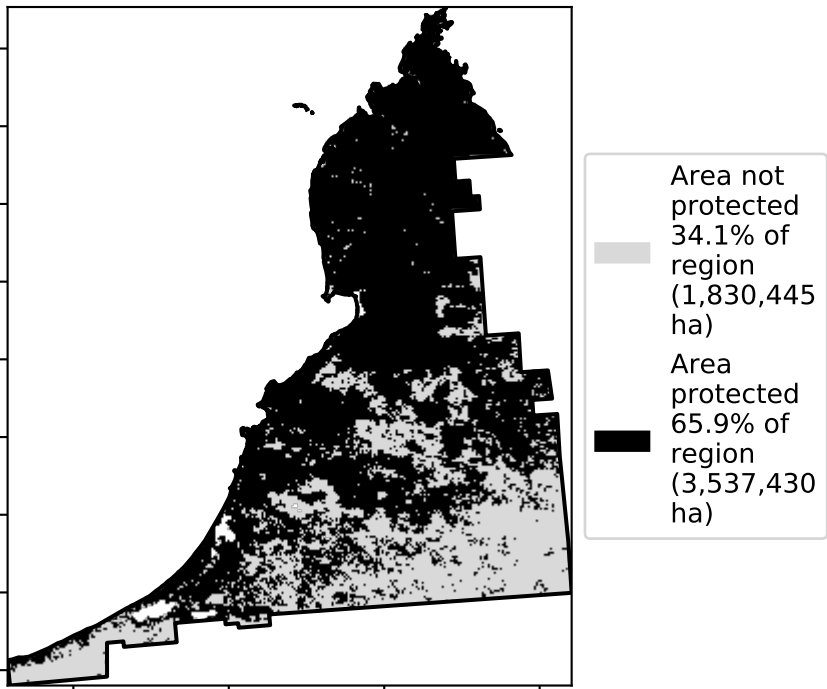
Total Vegetation Cover [%]



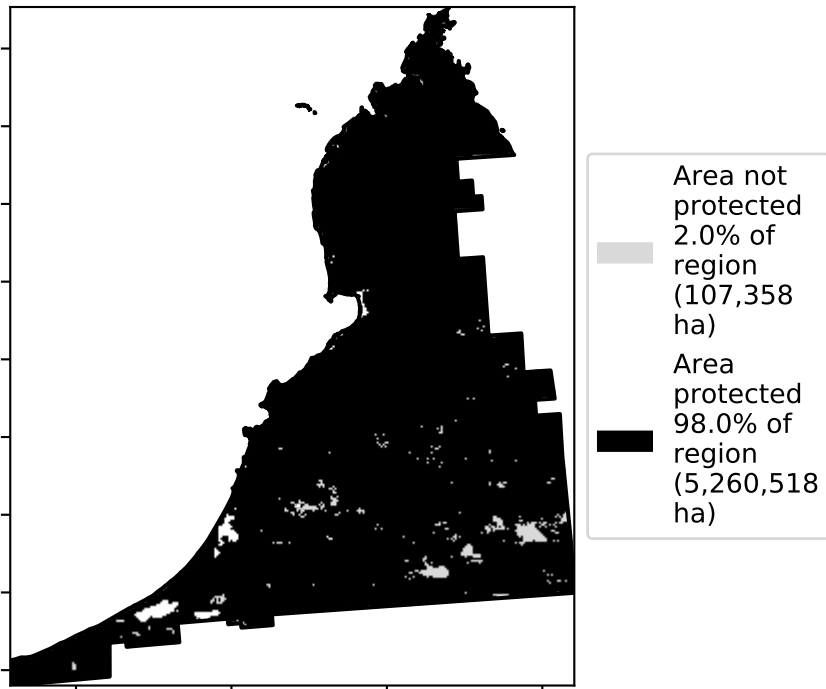
Proportion of vegetation cover class in area



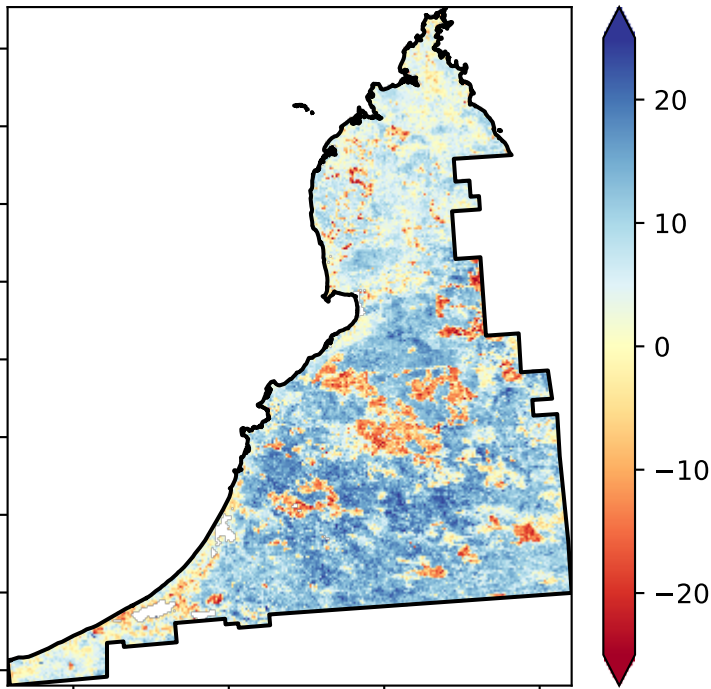
% Area protected from water erosion (>70%)



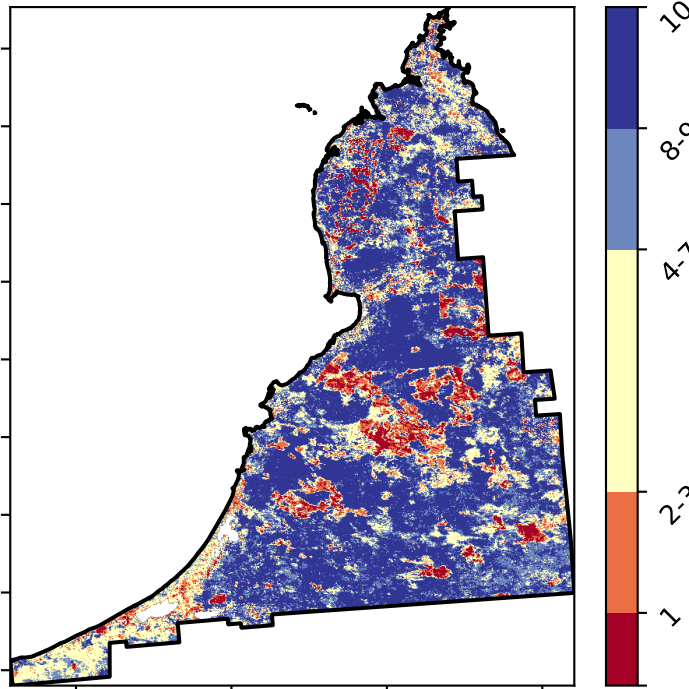
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



Total Vegetation Cover Decile [%]



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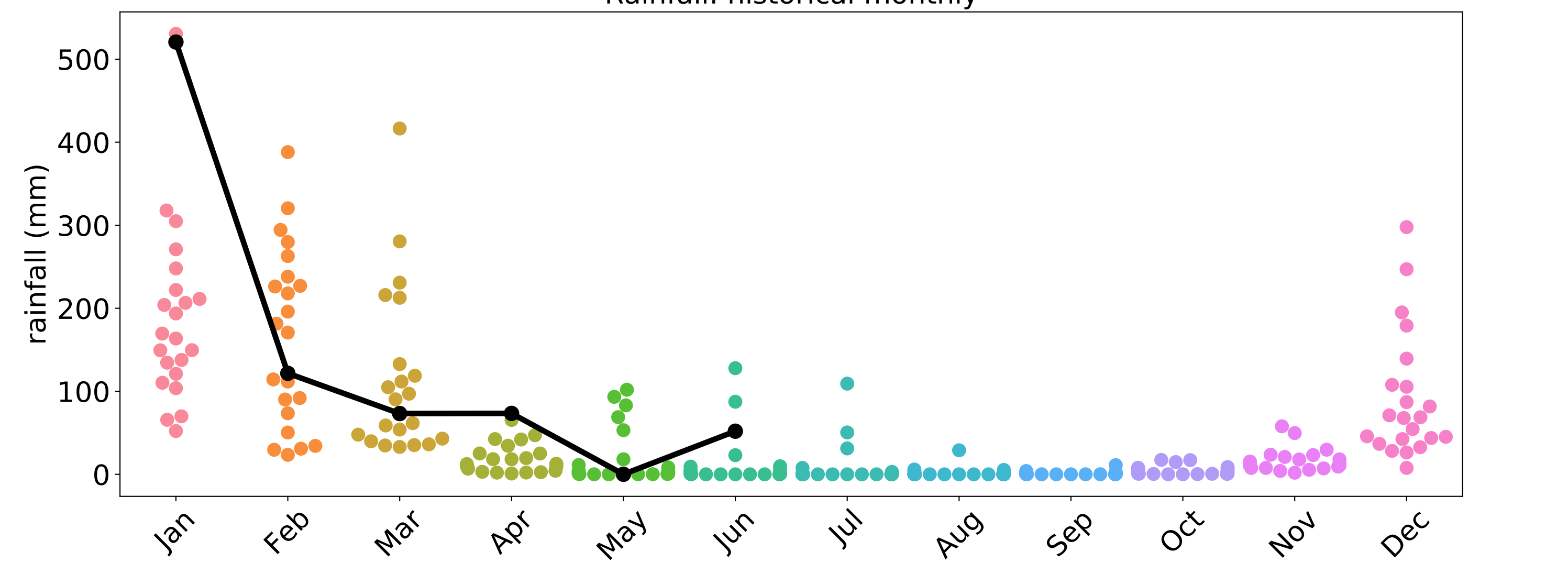
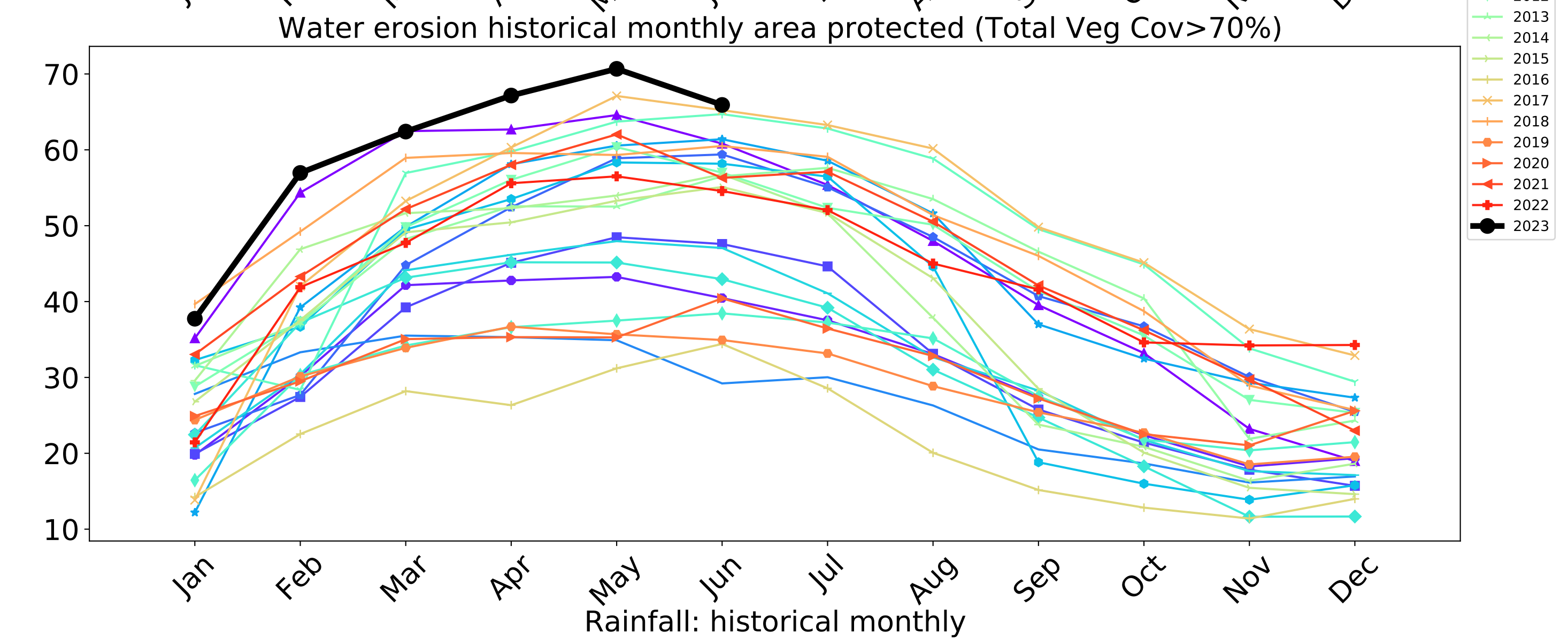
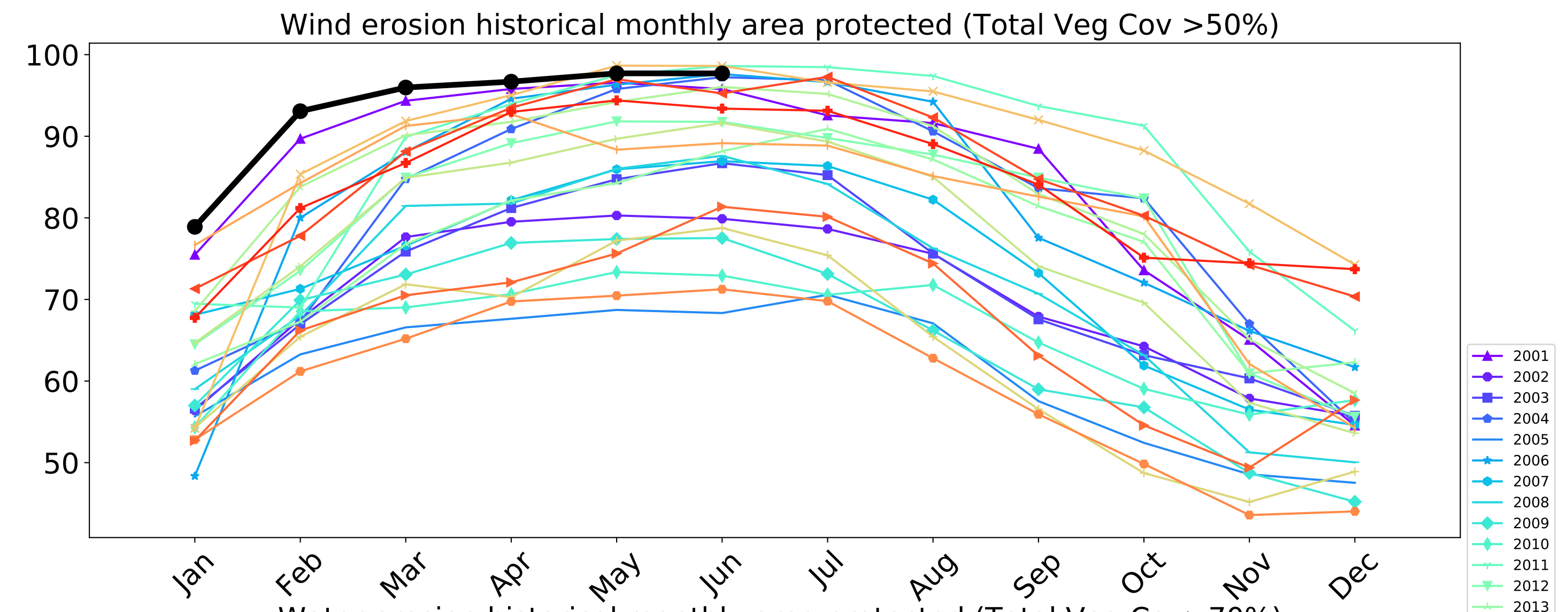
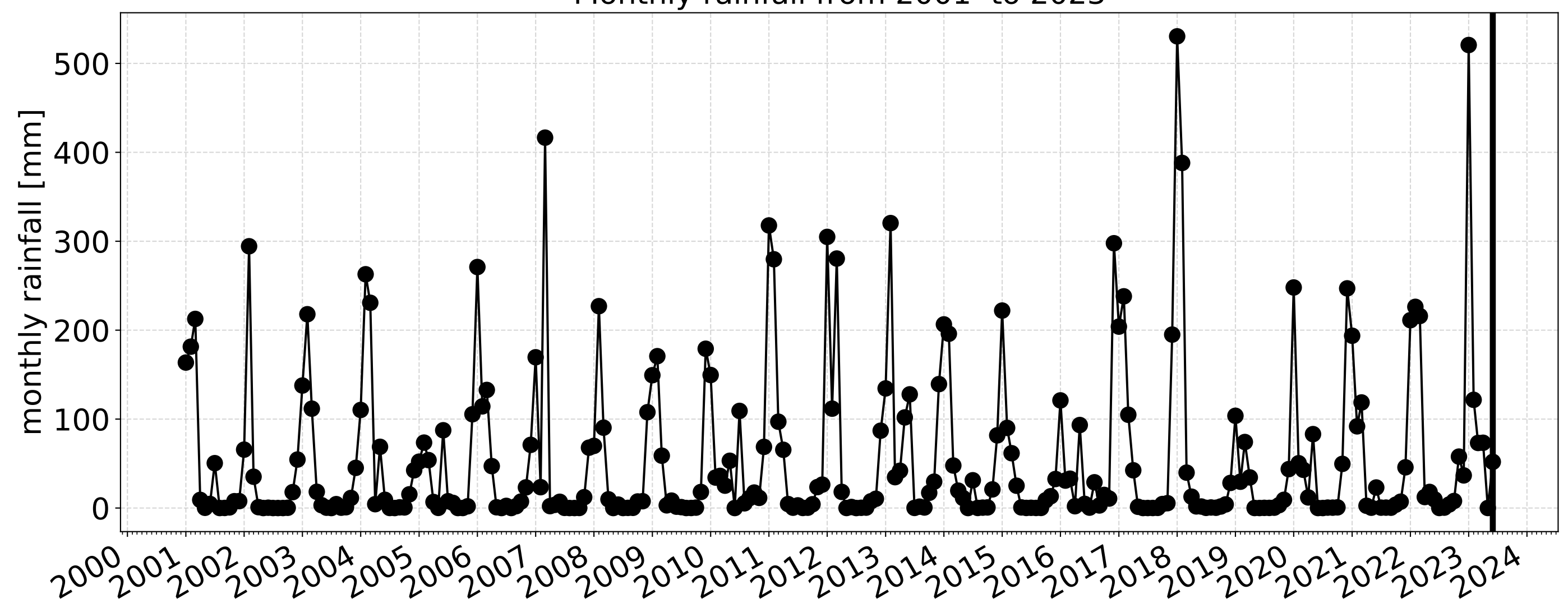
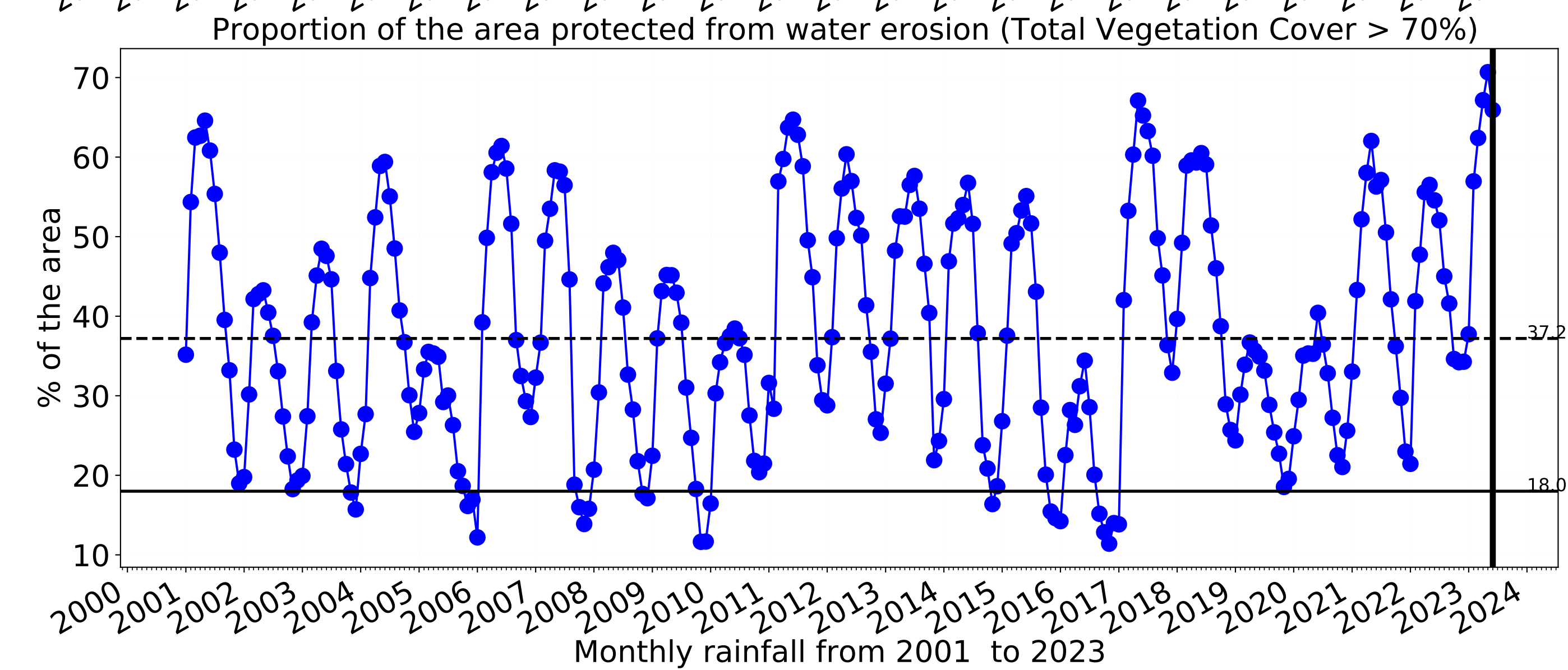
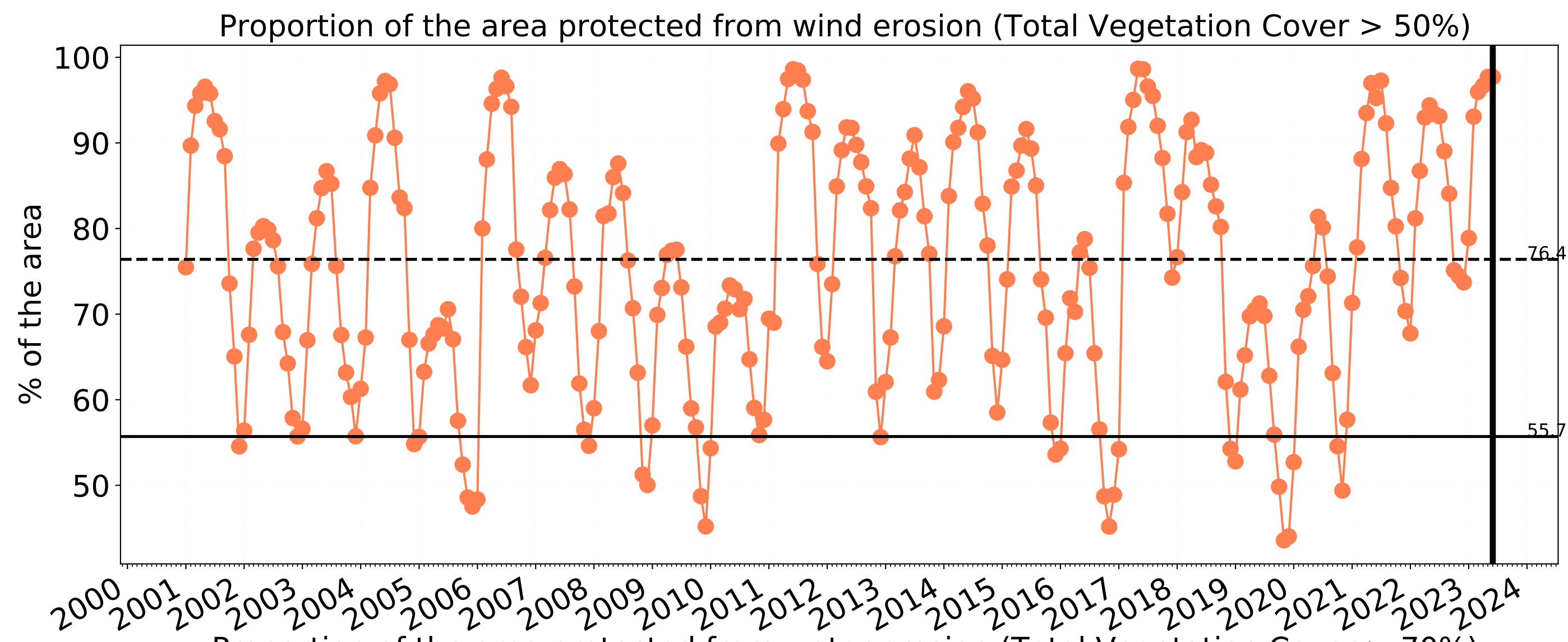
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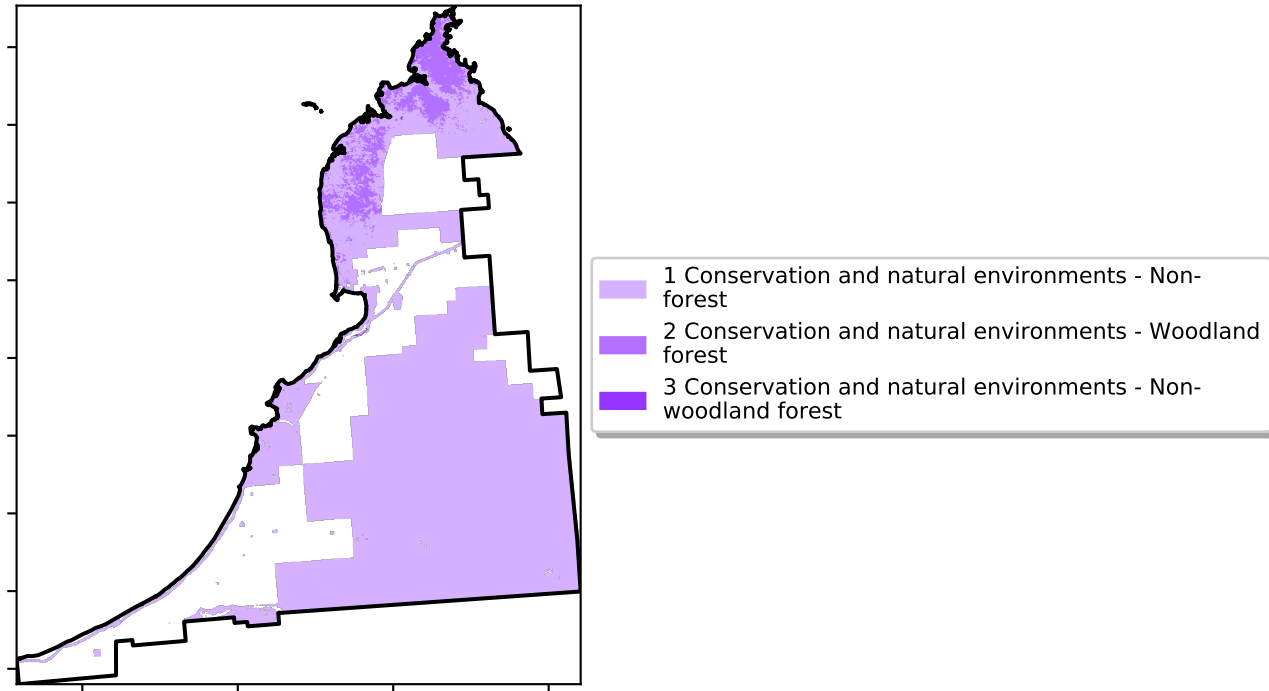
National Landcare Programme



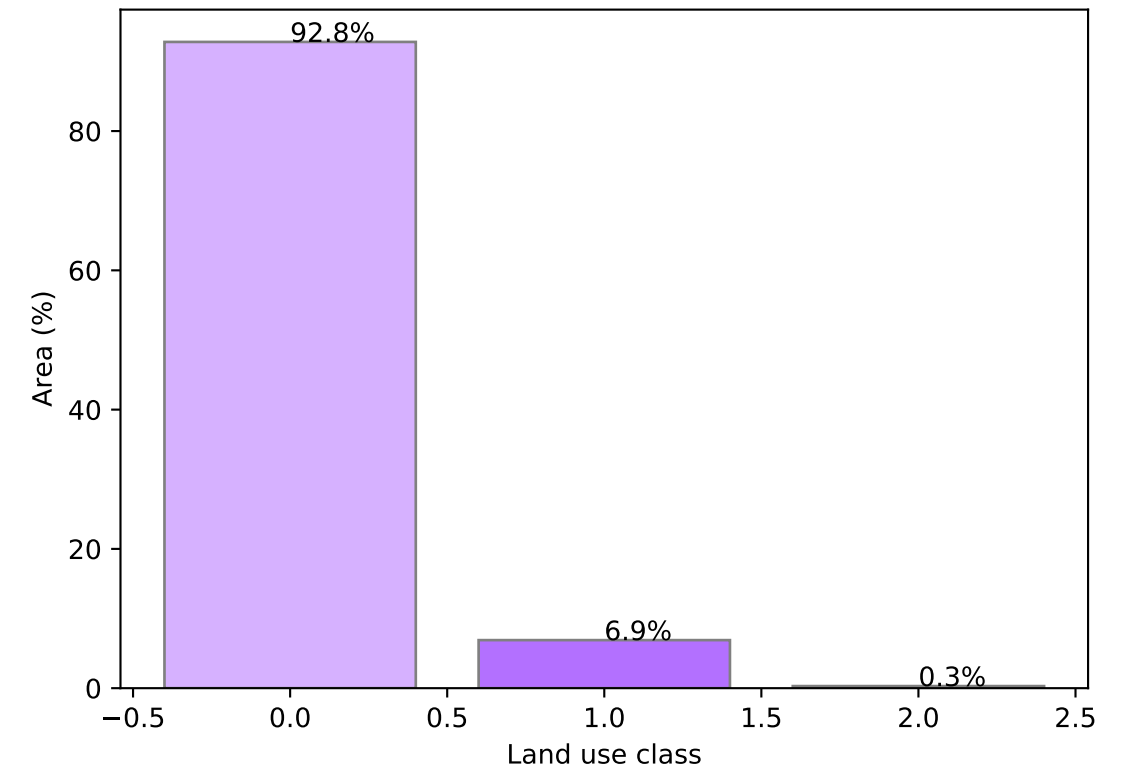


Conservation and natural environments

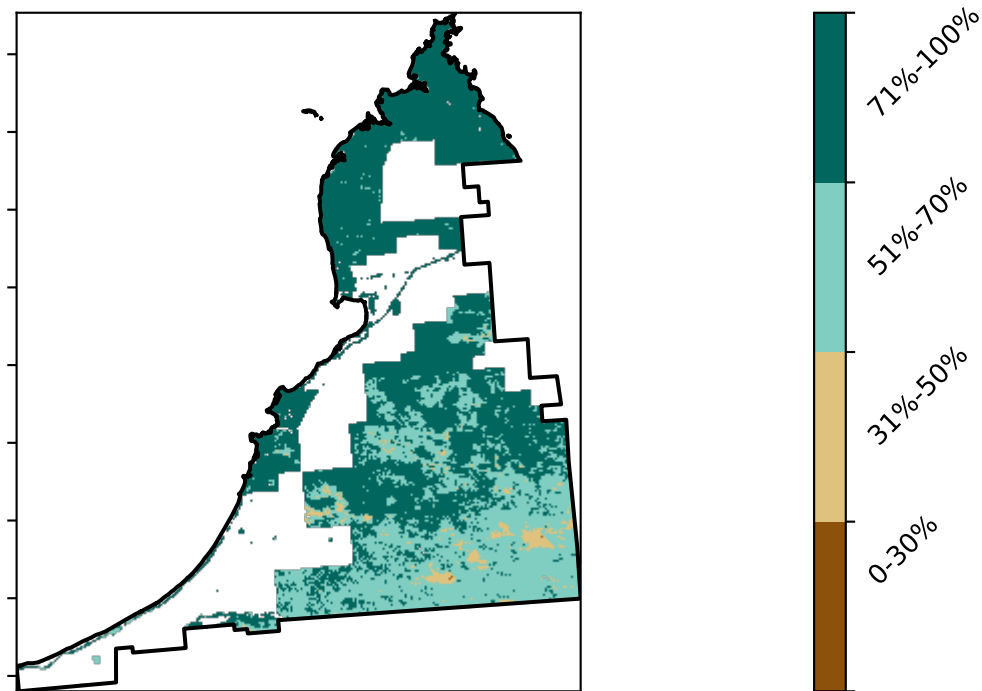
Land use and forest cover



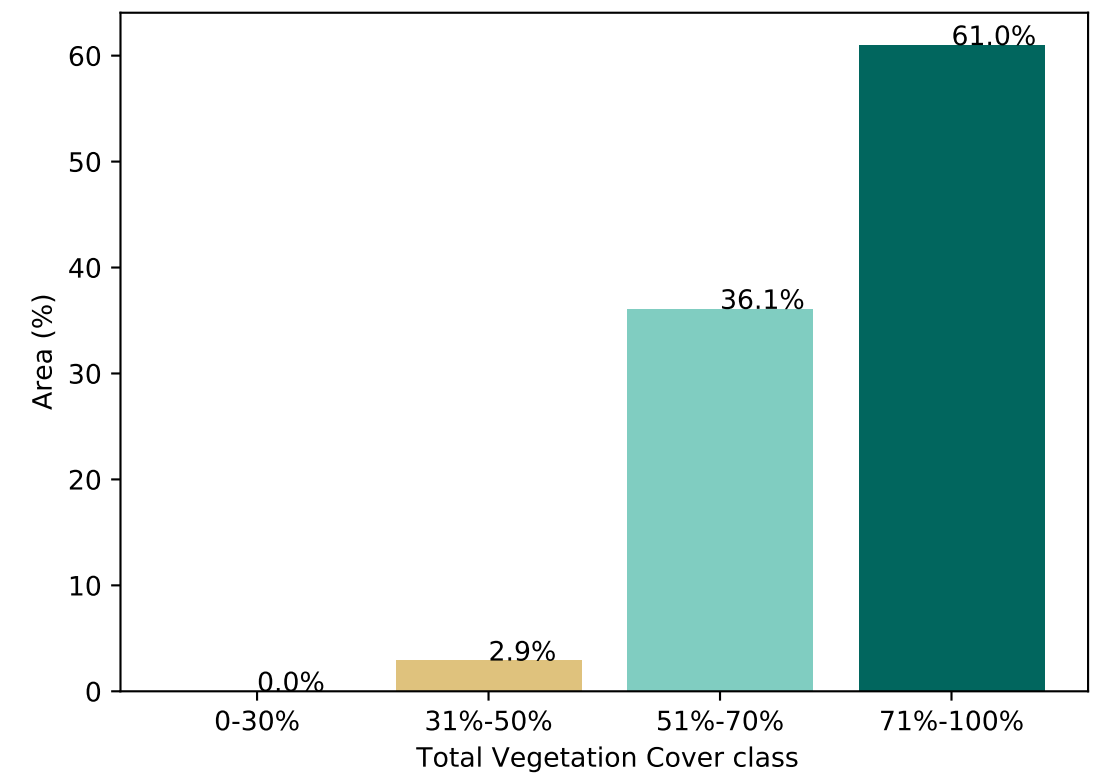
Proportion of each land class in area



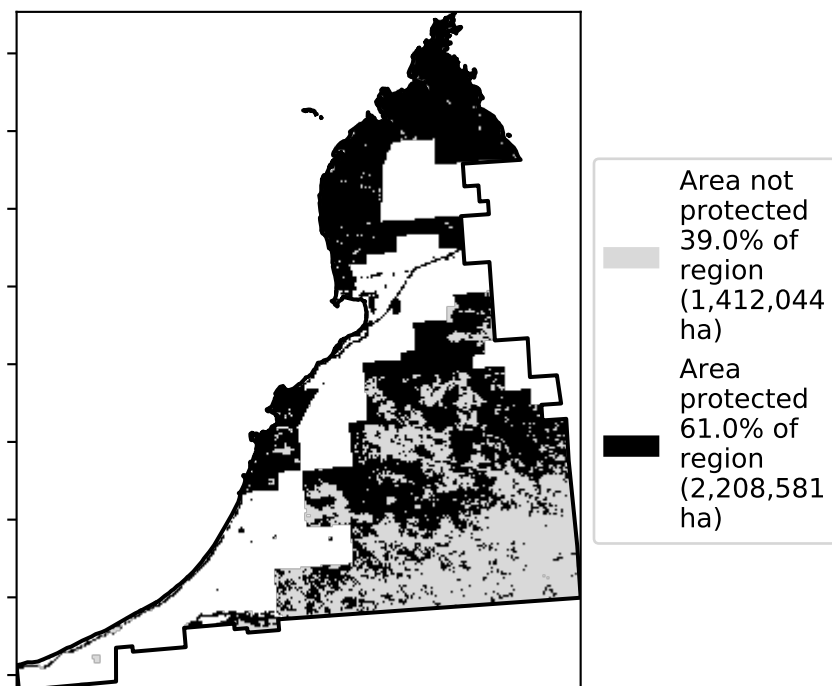
Total Vegetation Cover [%]



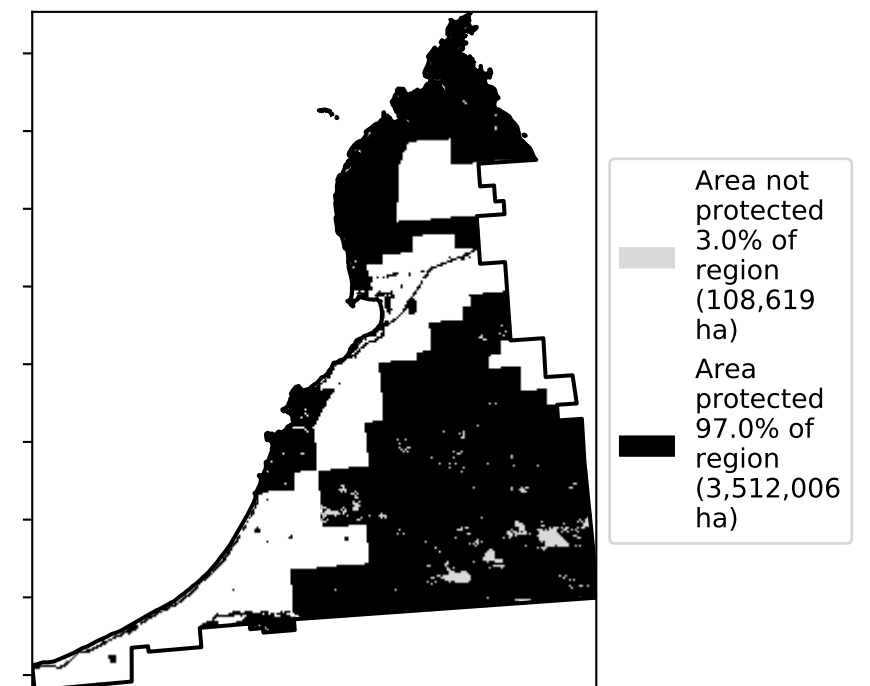
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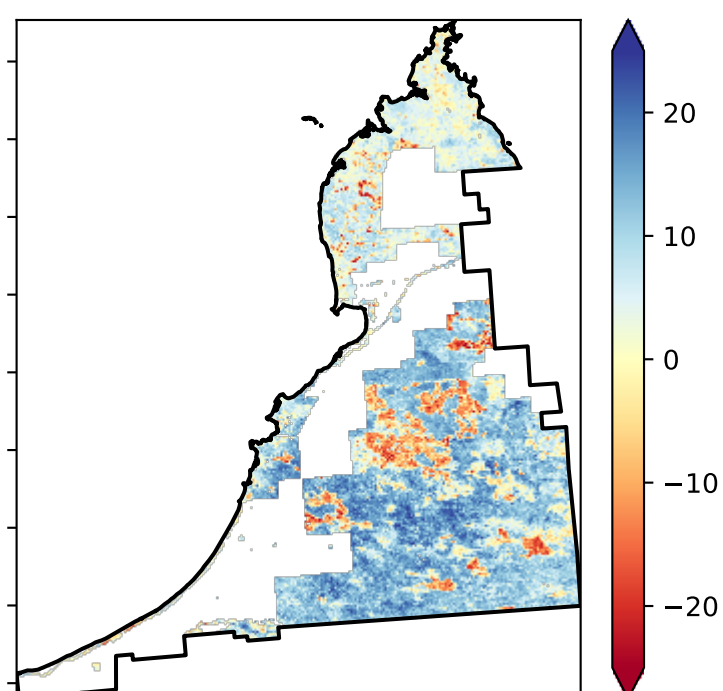
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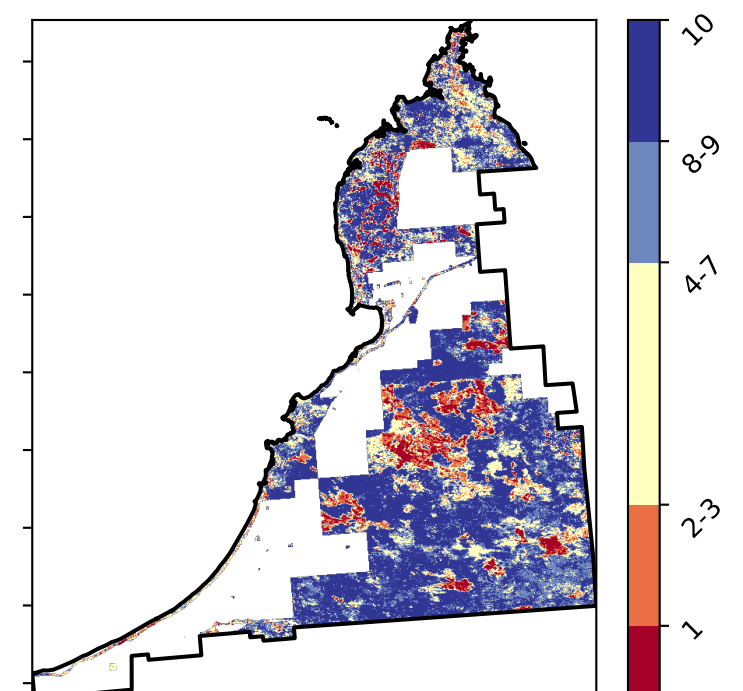
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Total Vegetation Cover Decile [%]



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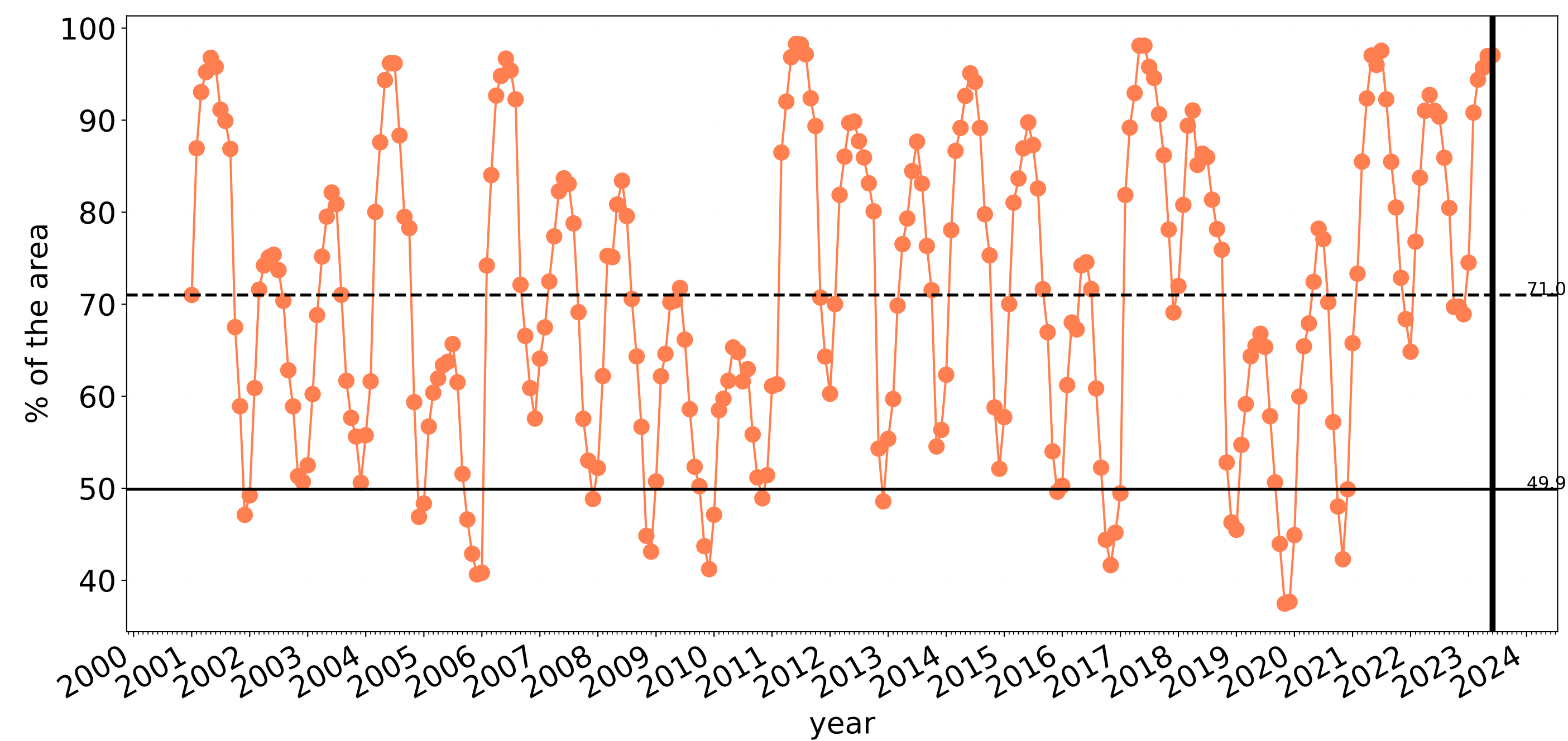
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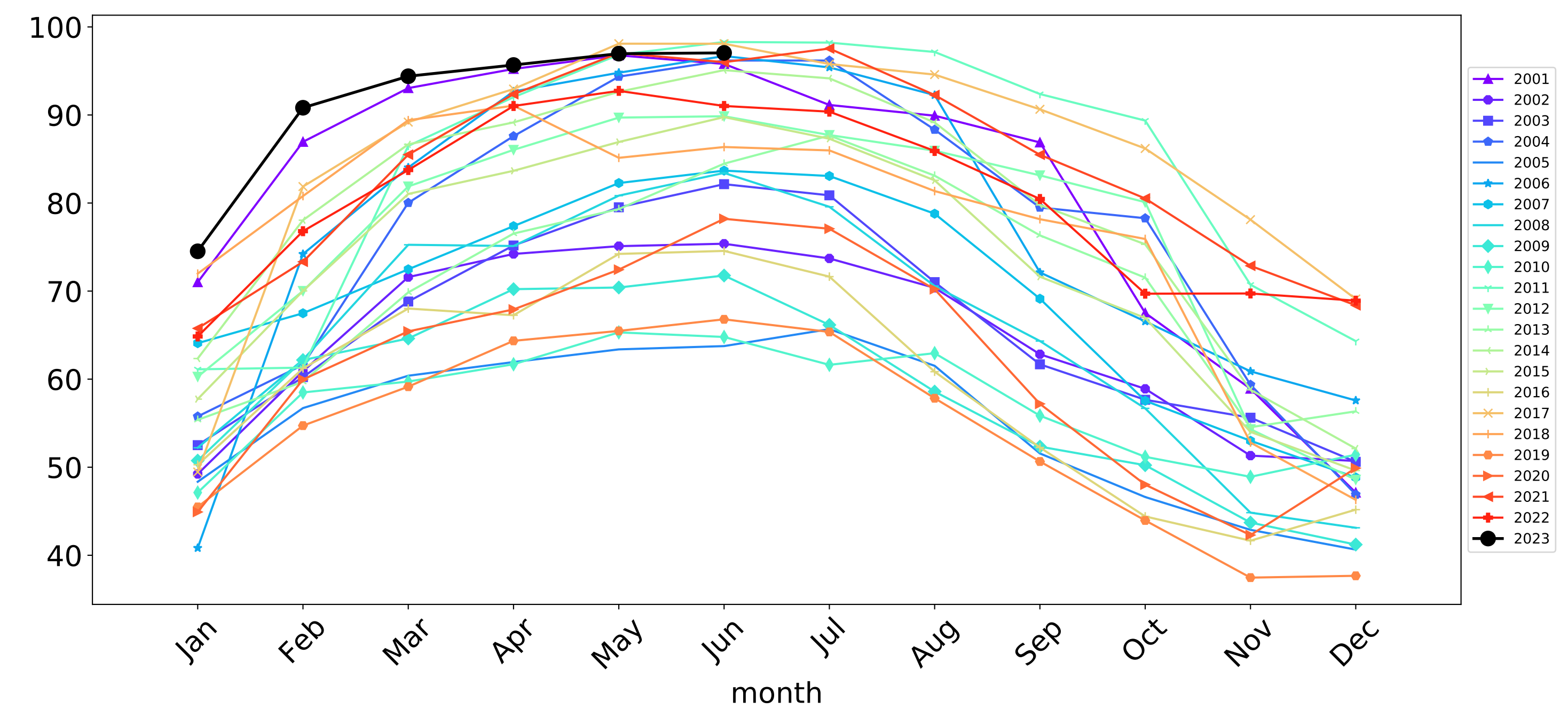


Conservation and natural environments timeseries

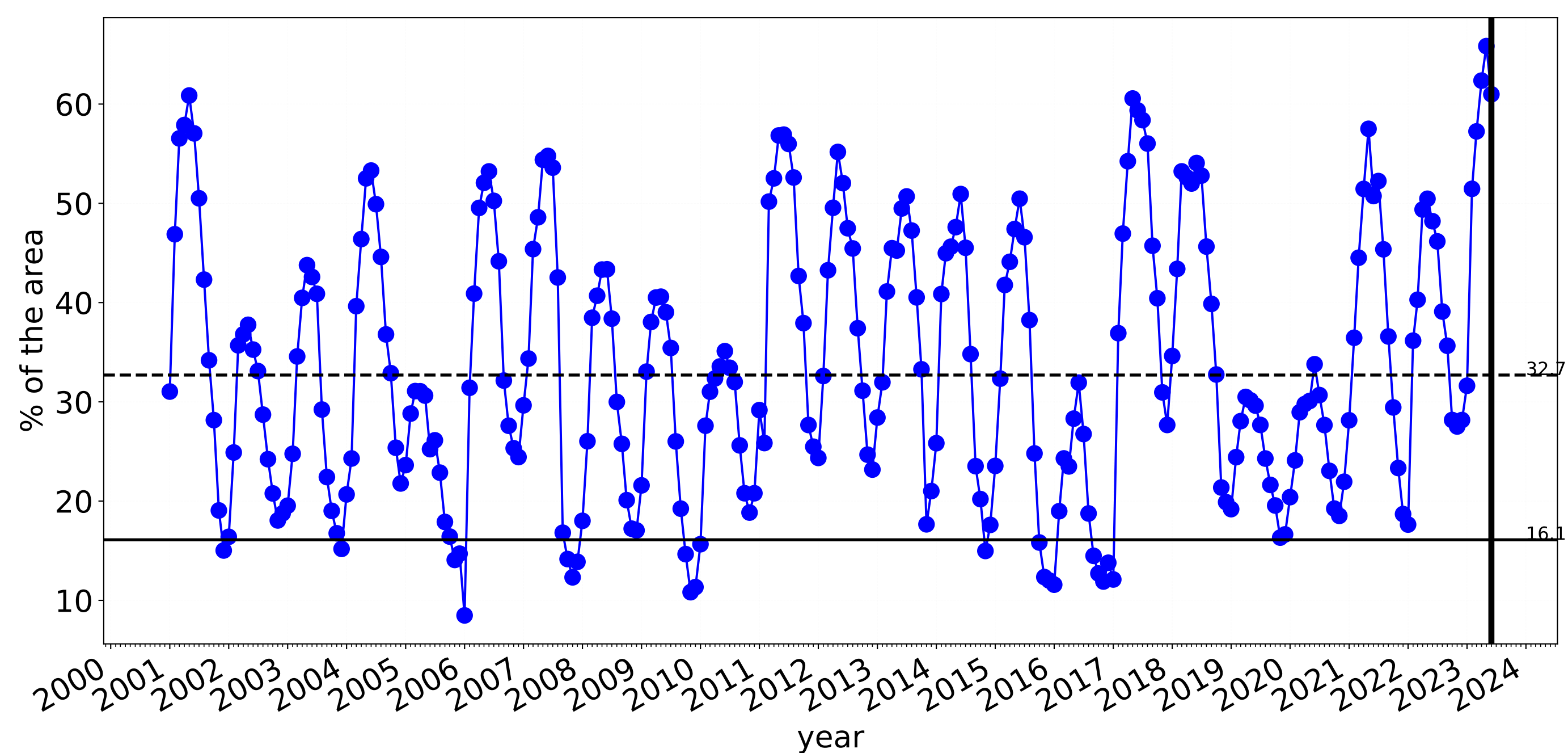
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



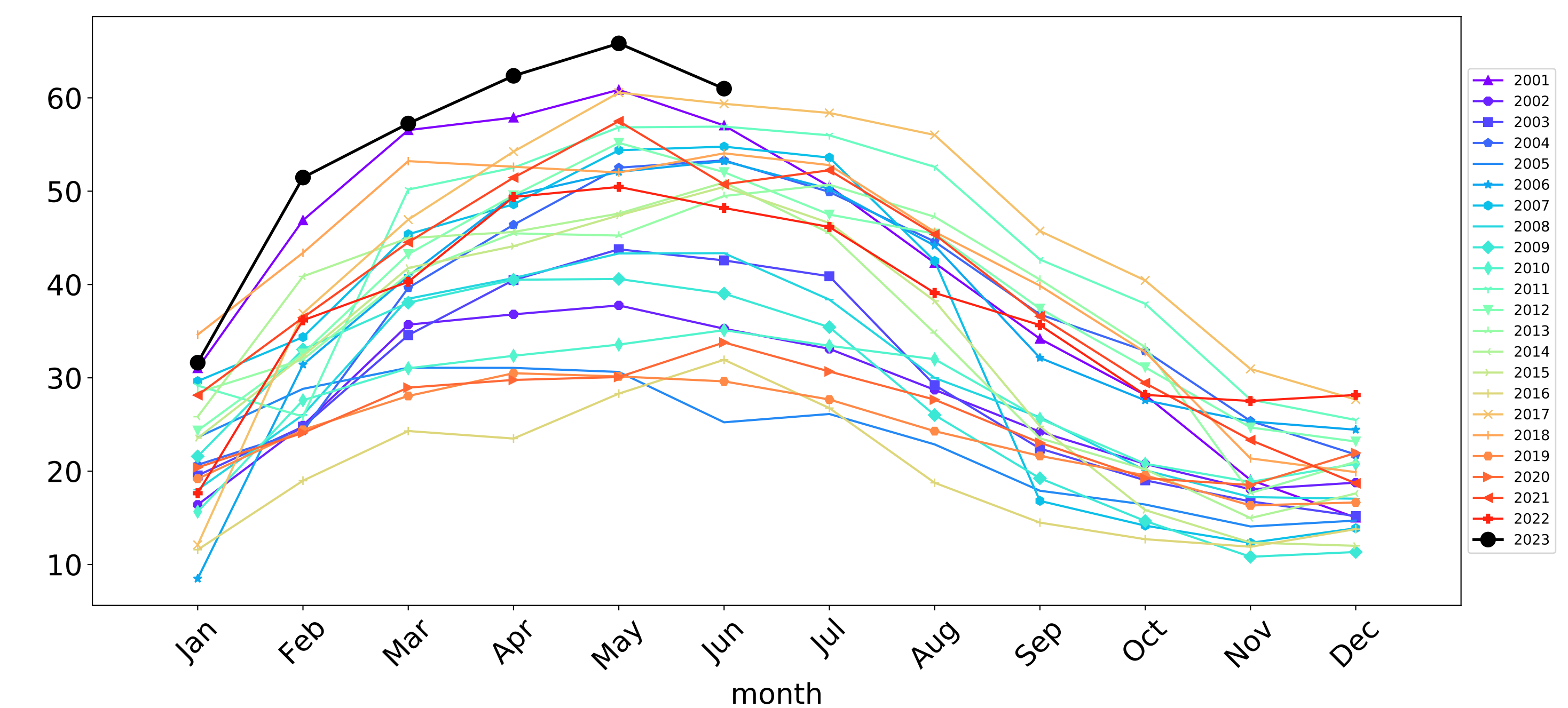
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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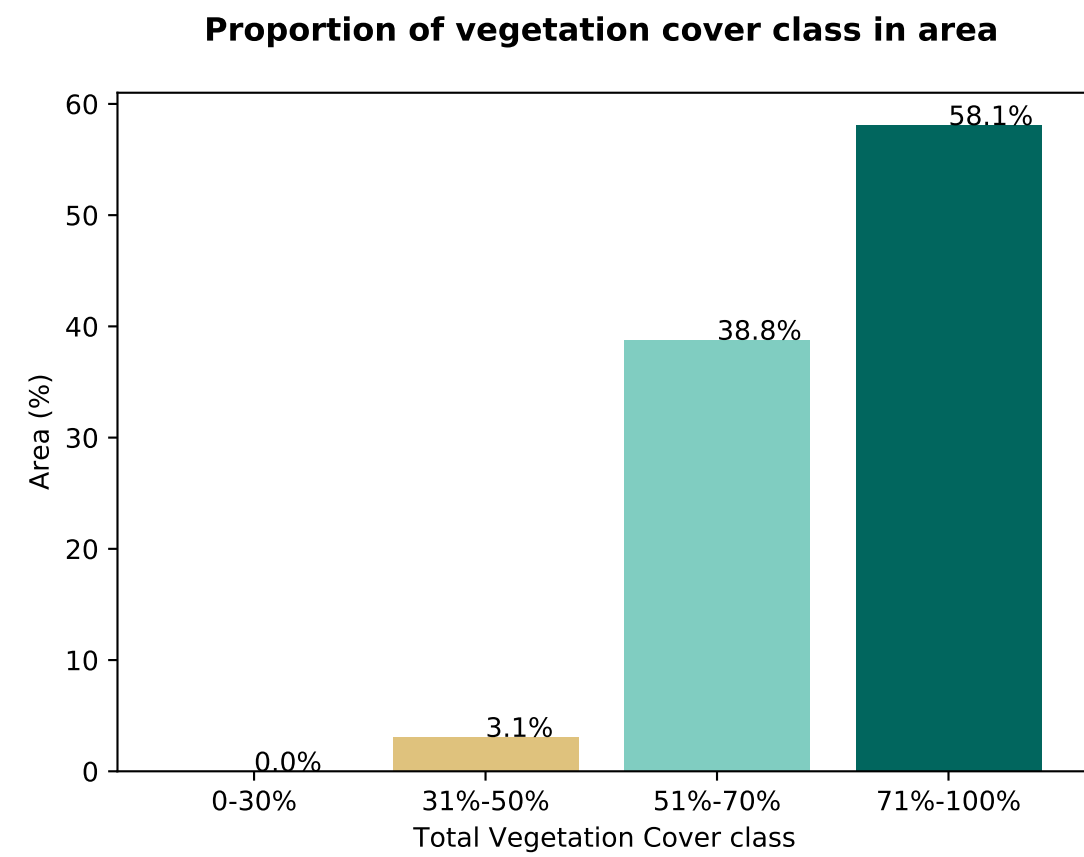
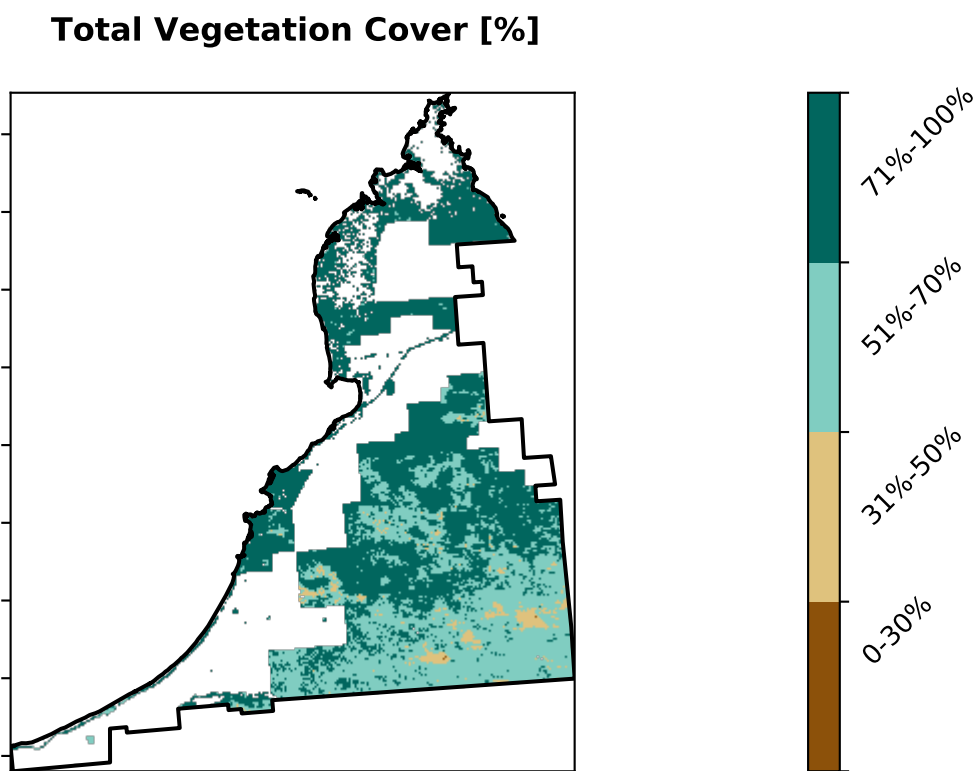
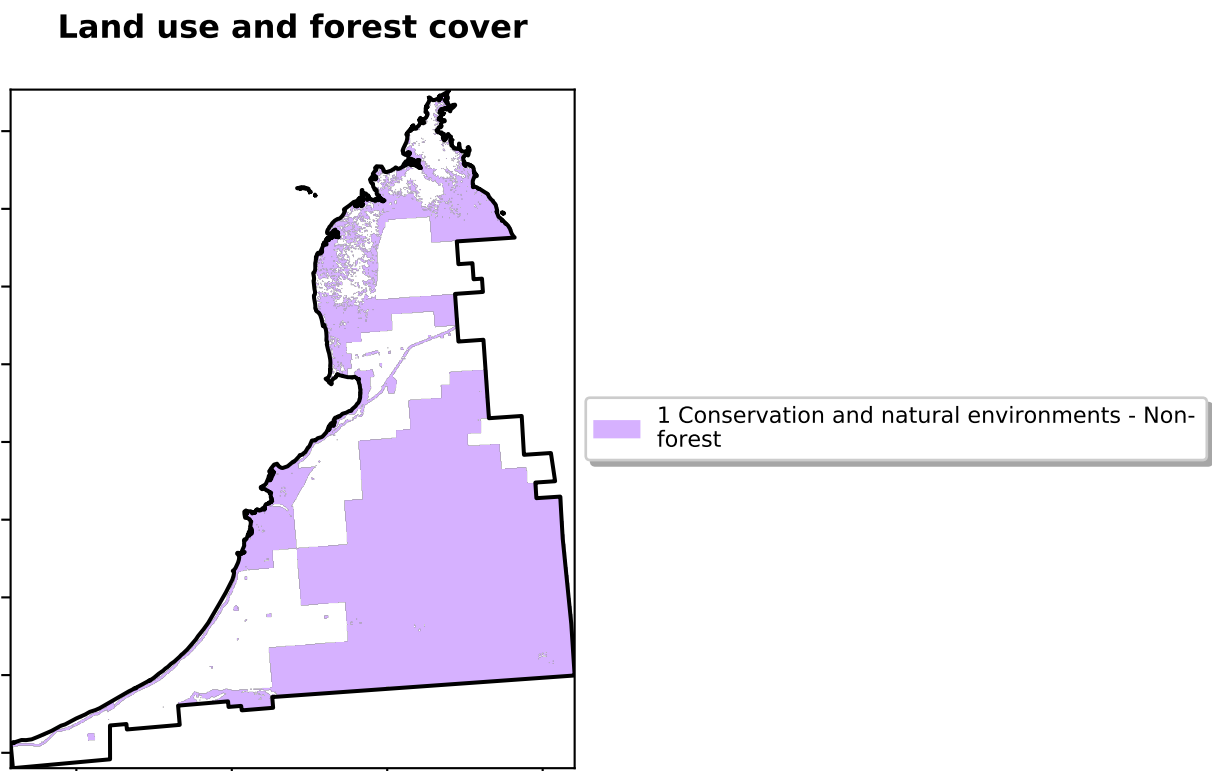


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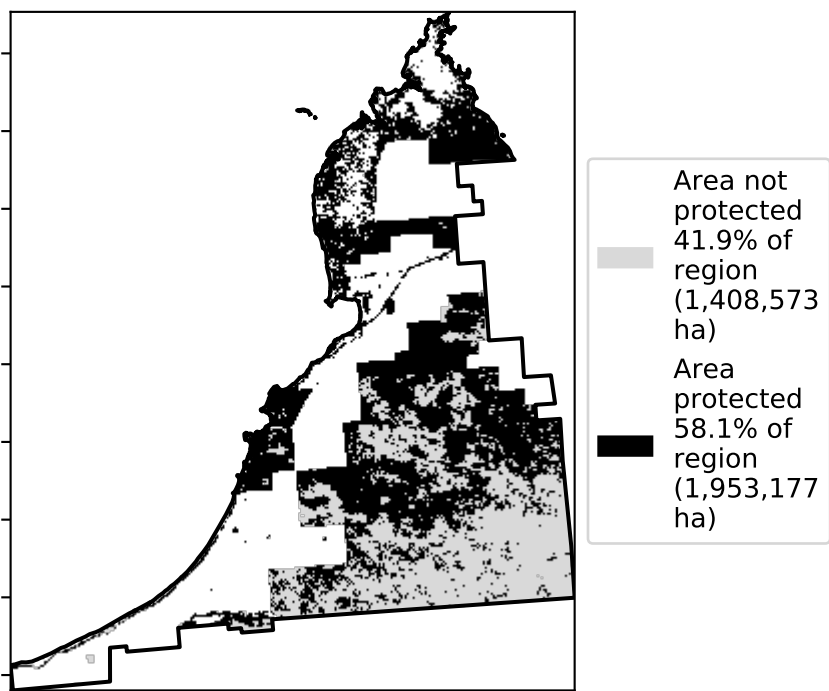


Conservation and natural environments non forest

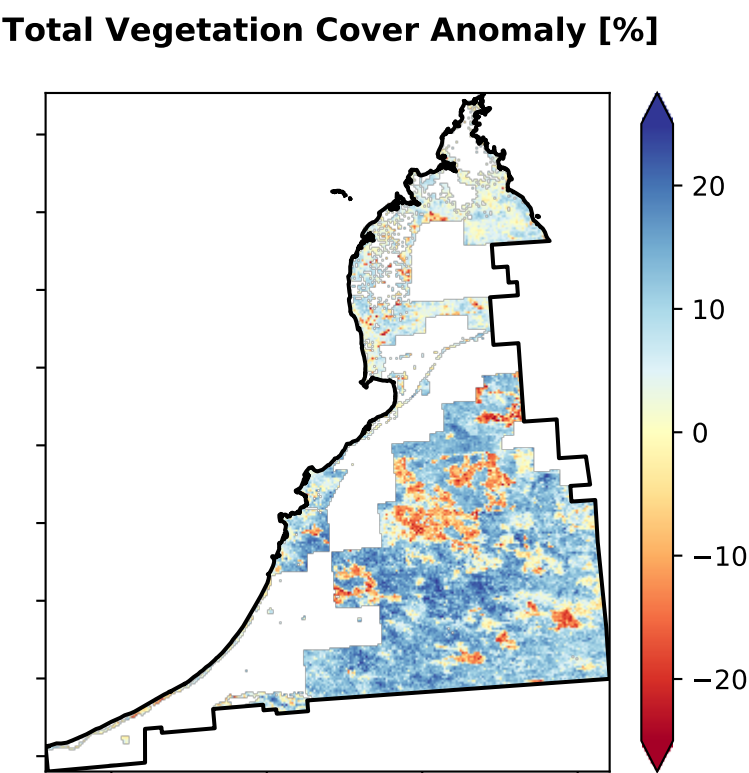
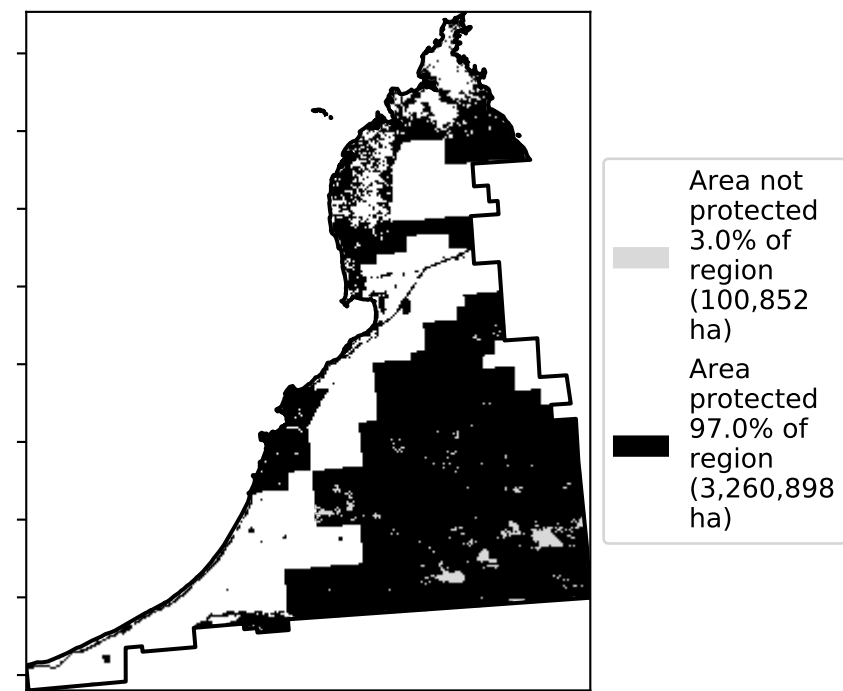
Catchment Scale
Land Use and Forests
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Derived from
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% Area protected from water erosion (>70%)

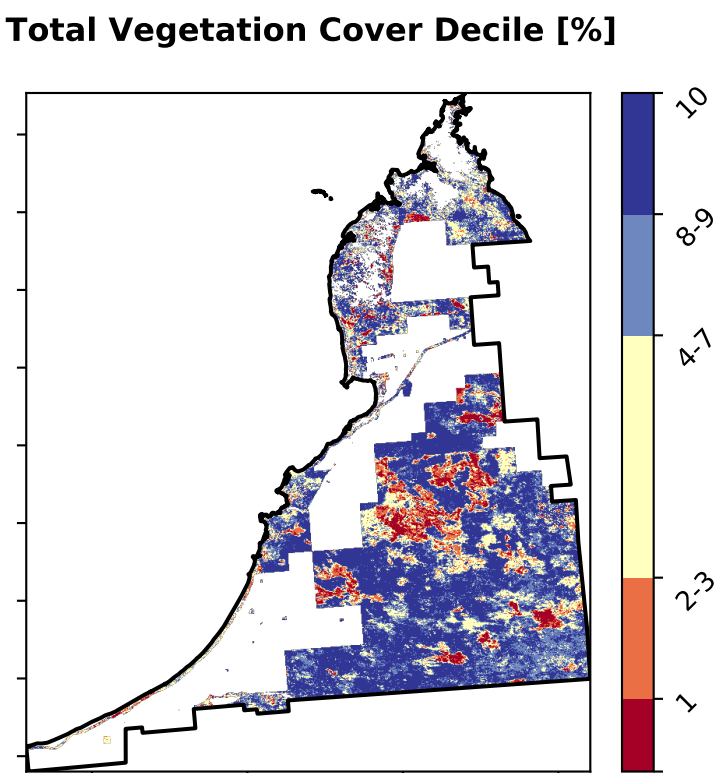


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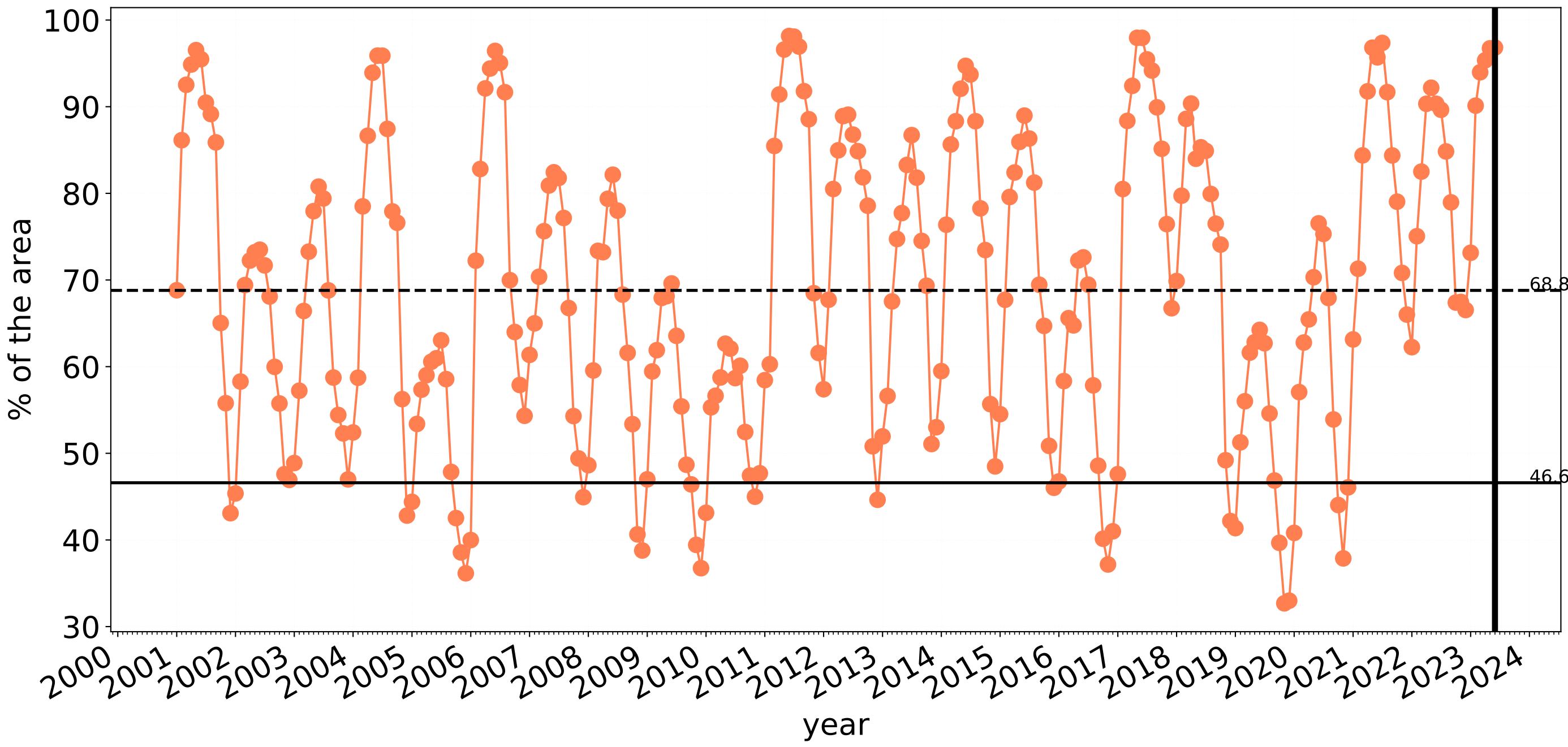
Anomaly show how many percentage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.

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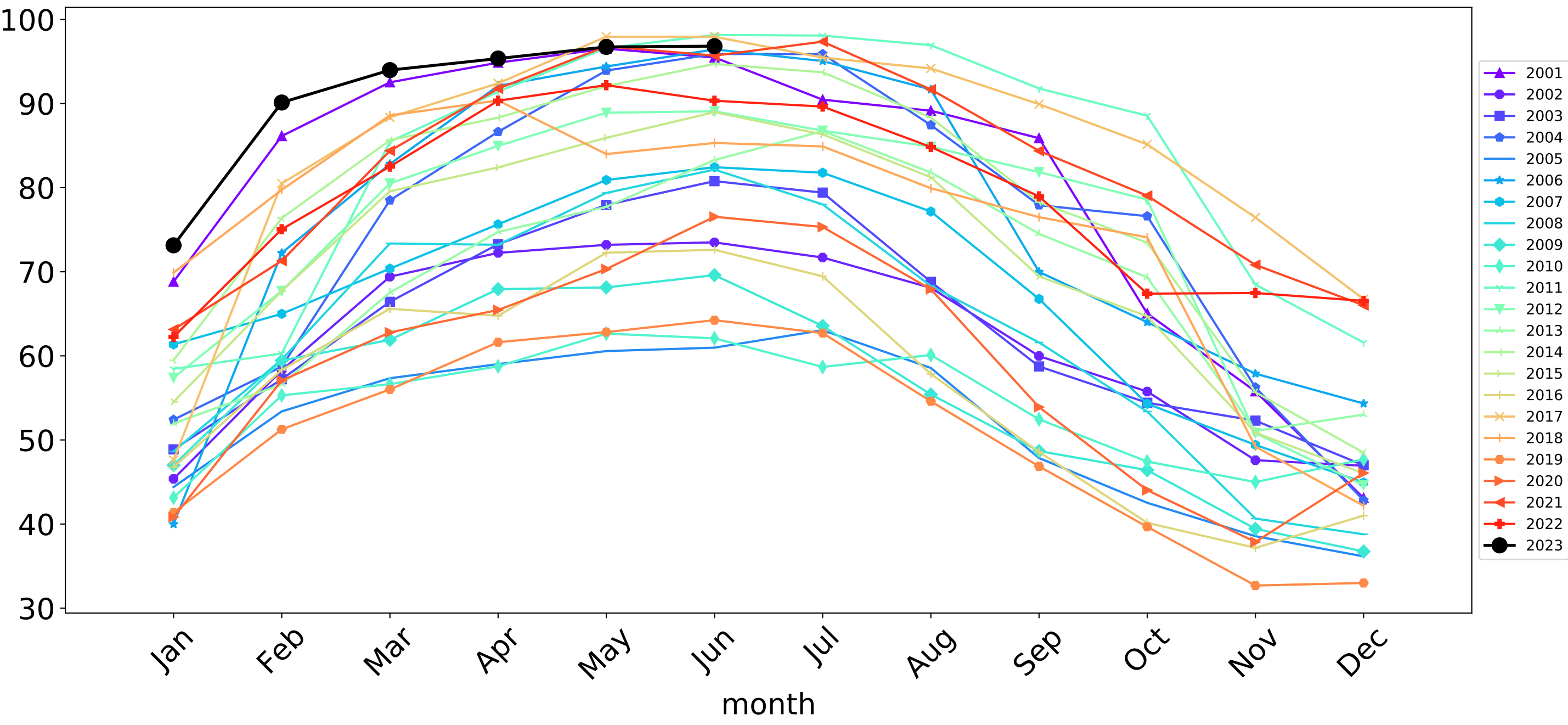


Conservation and natural environments non forest timeseries

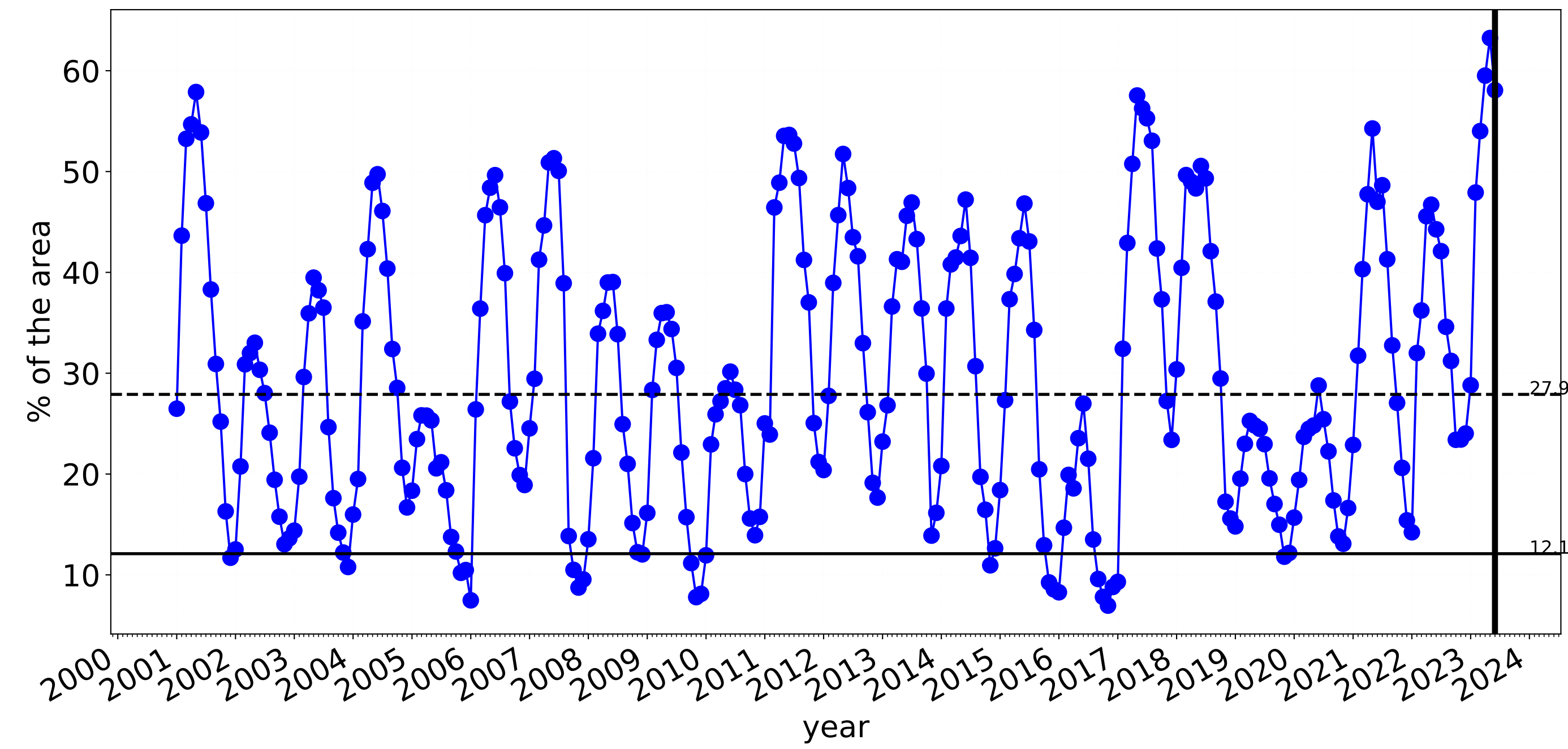
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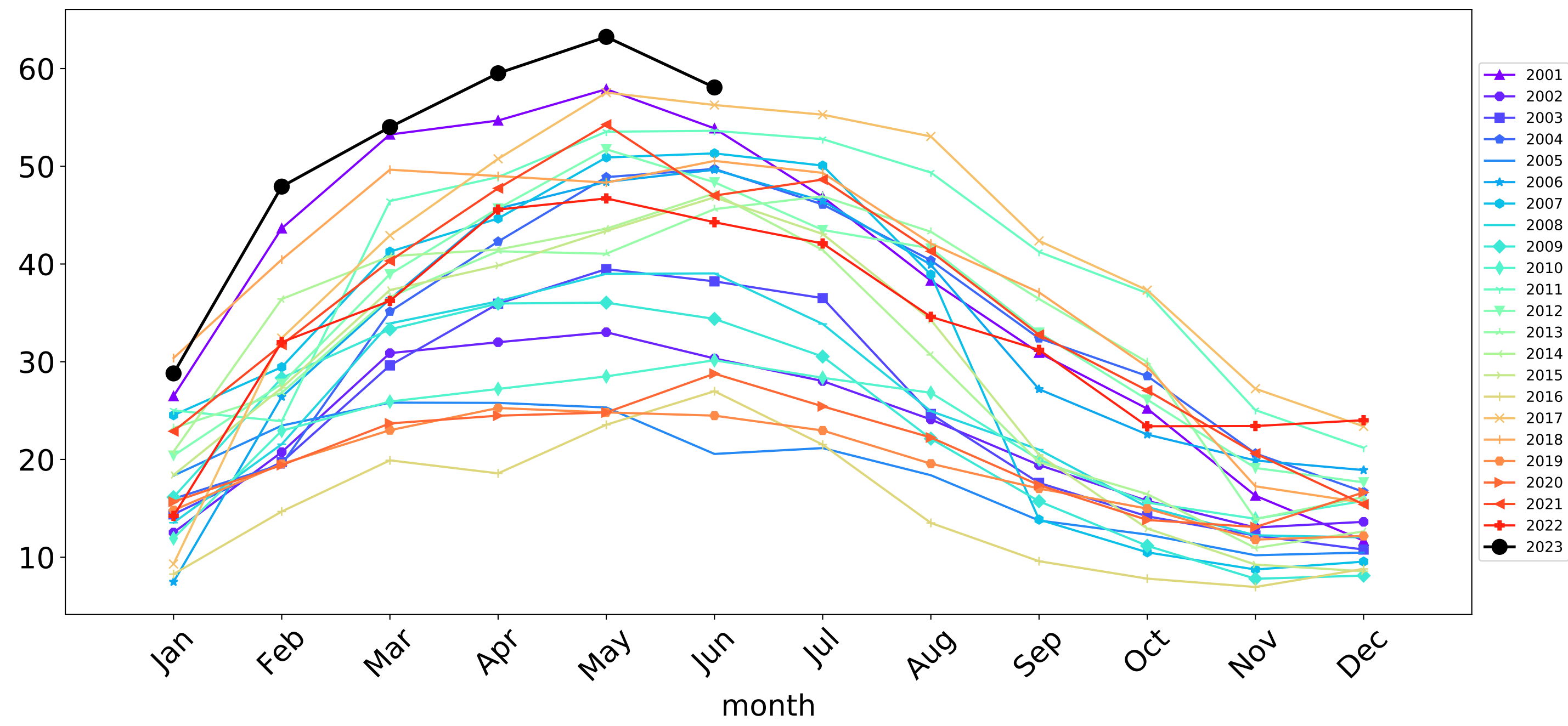
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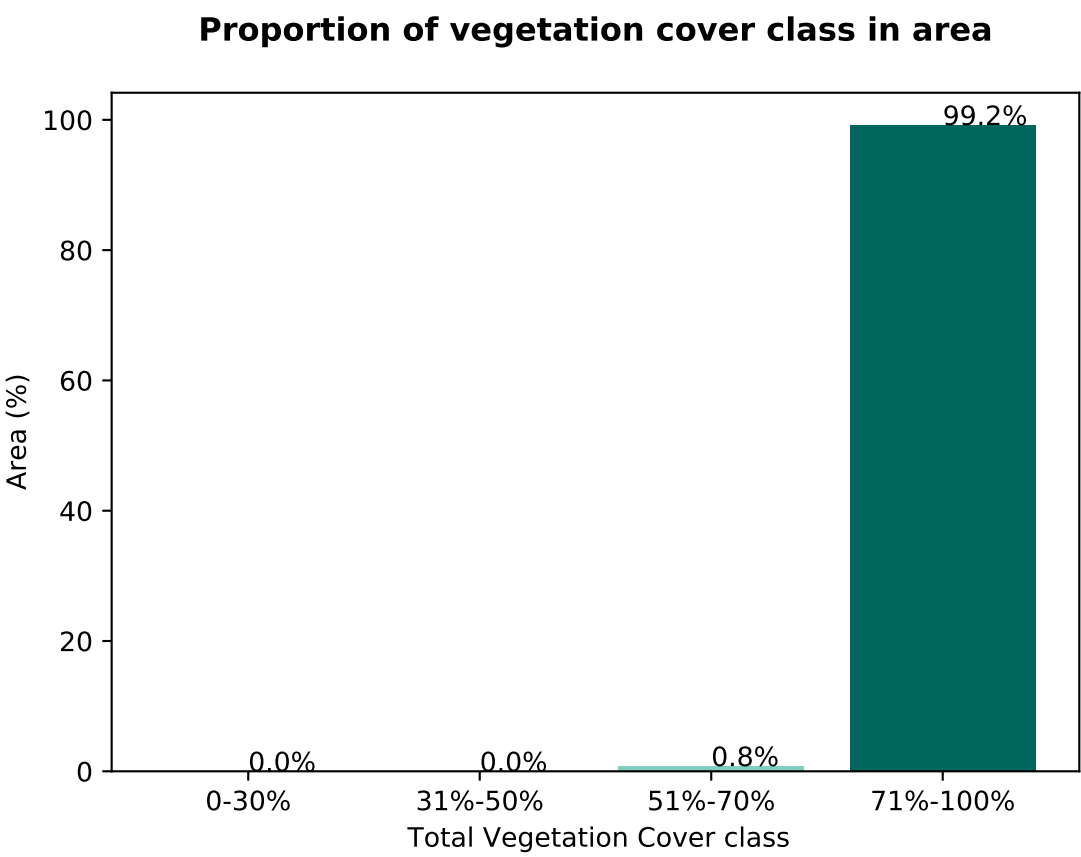
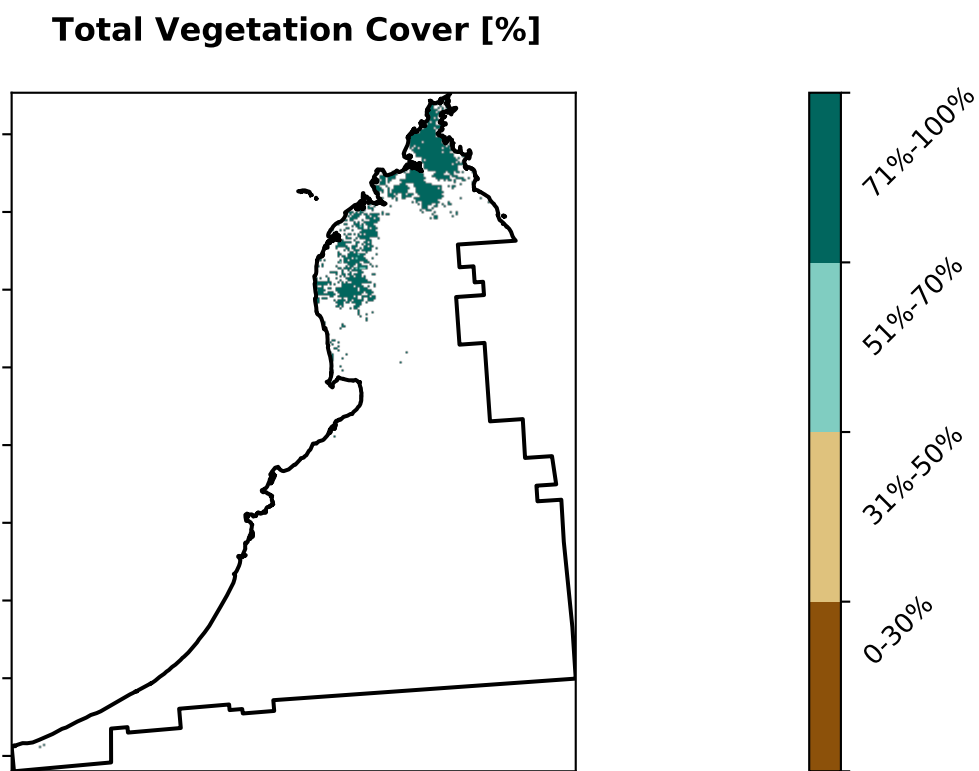


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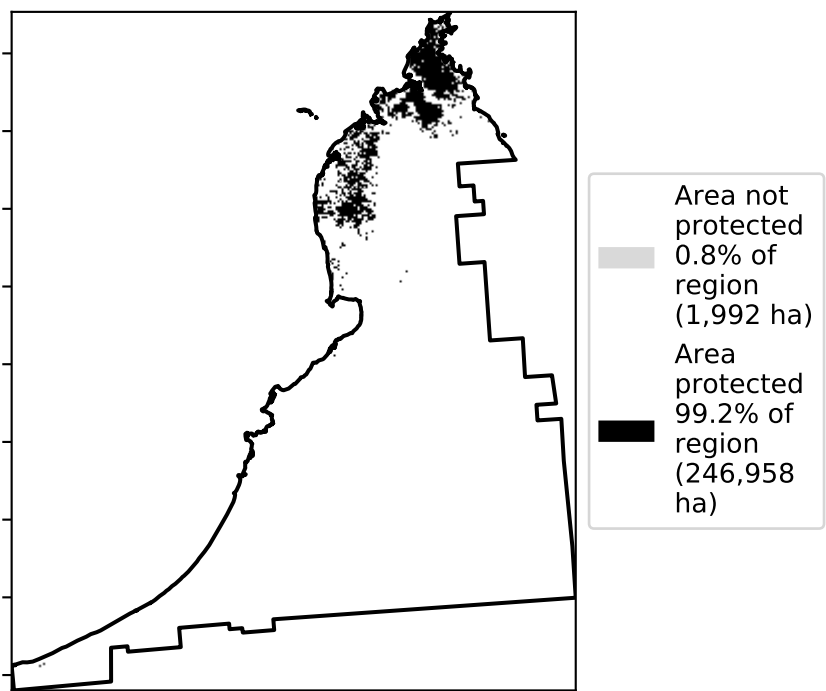


Conservation and natural environments Woodland forest

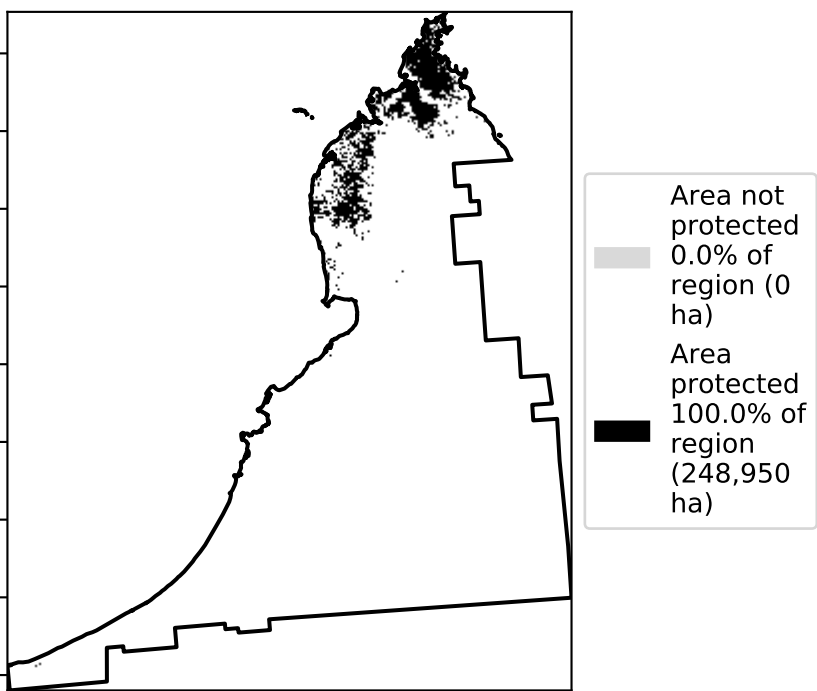
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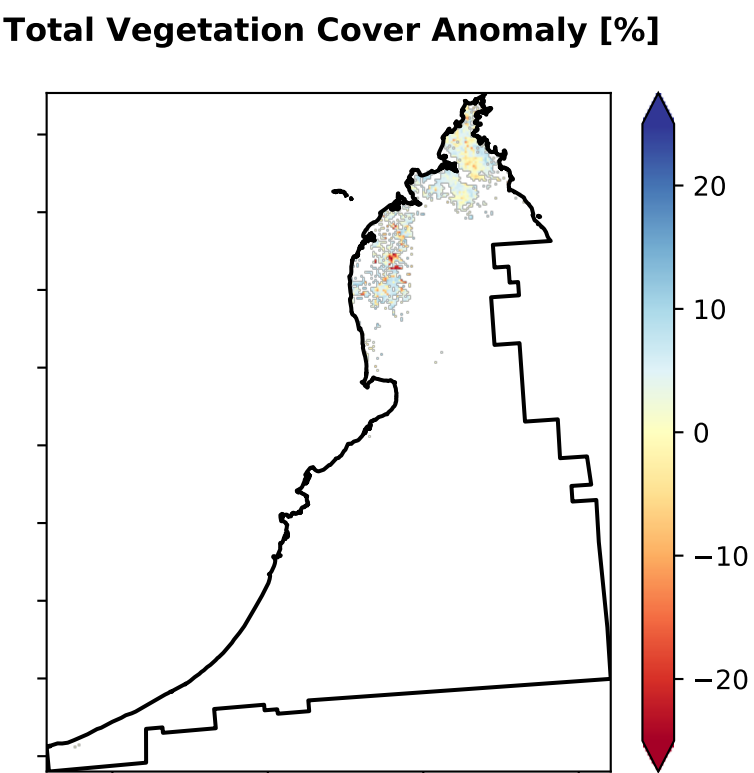
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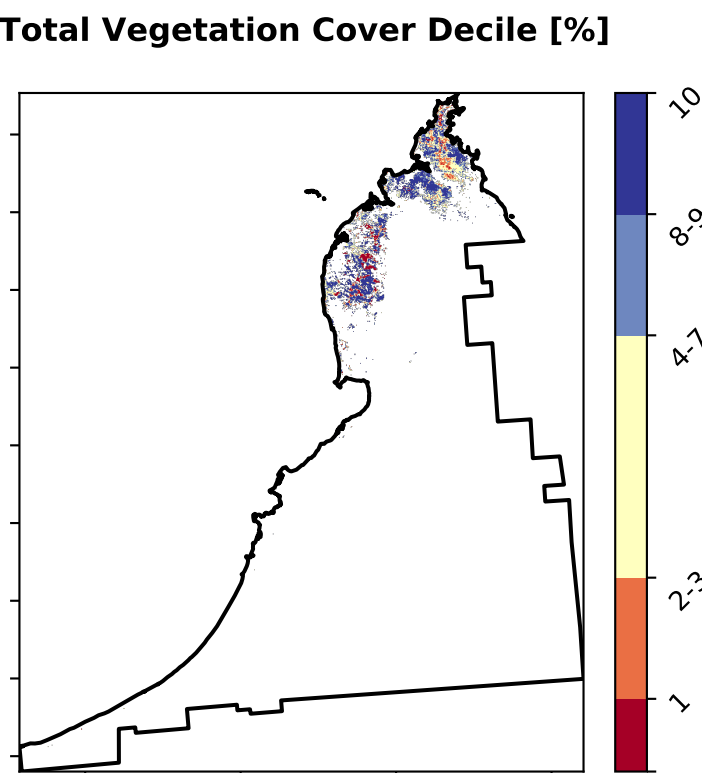
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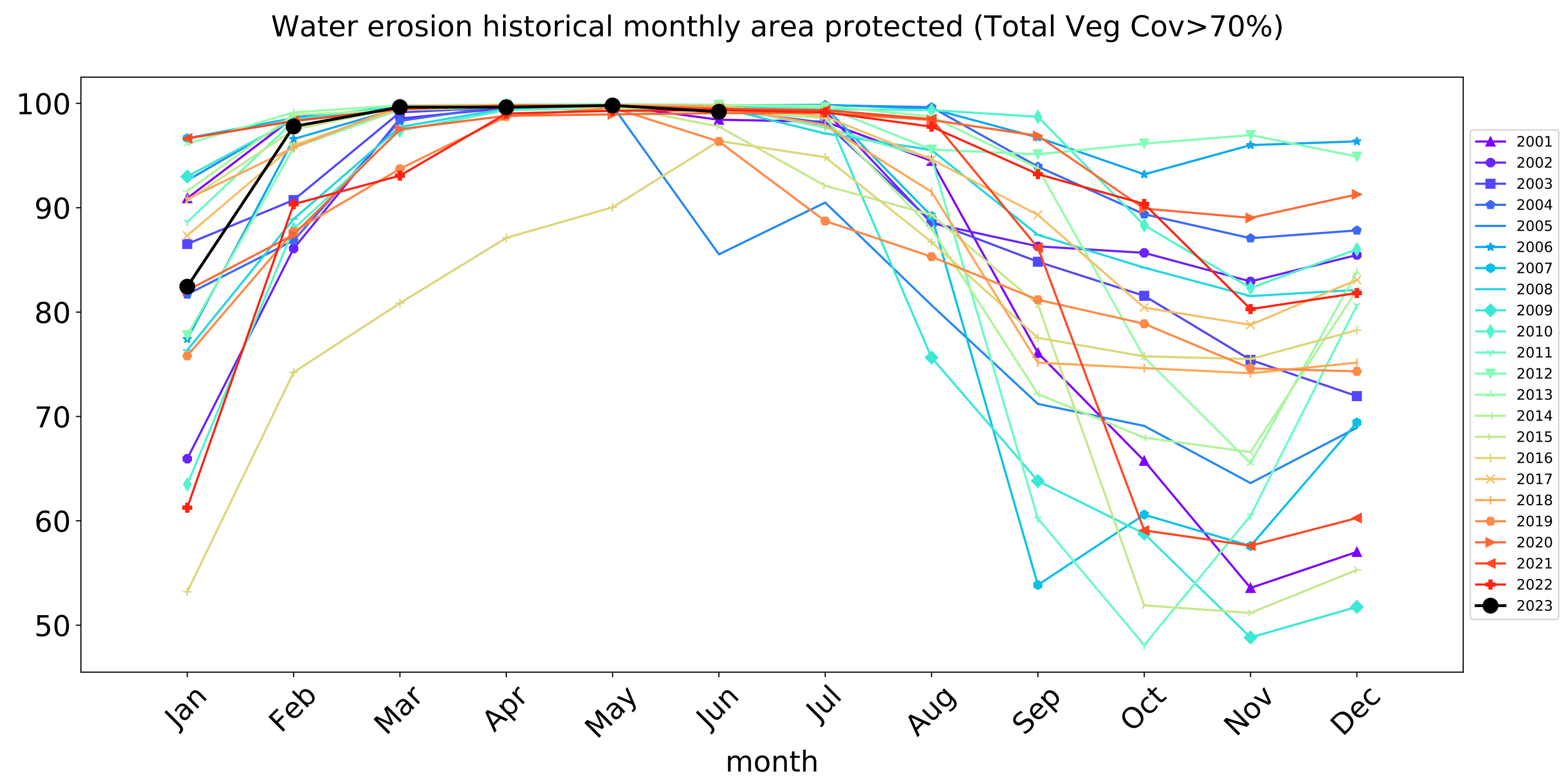
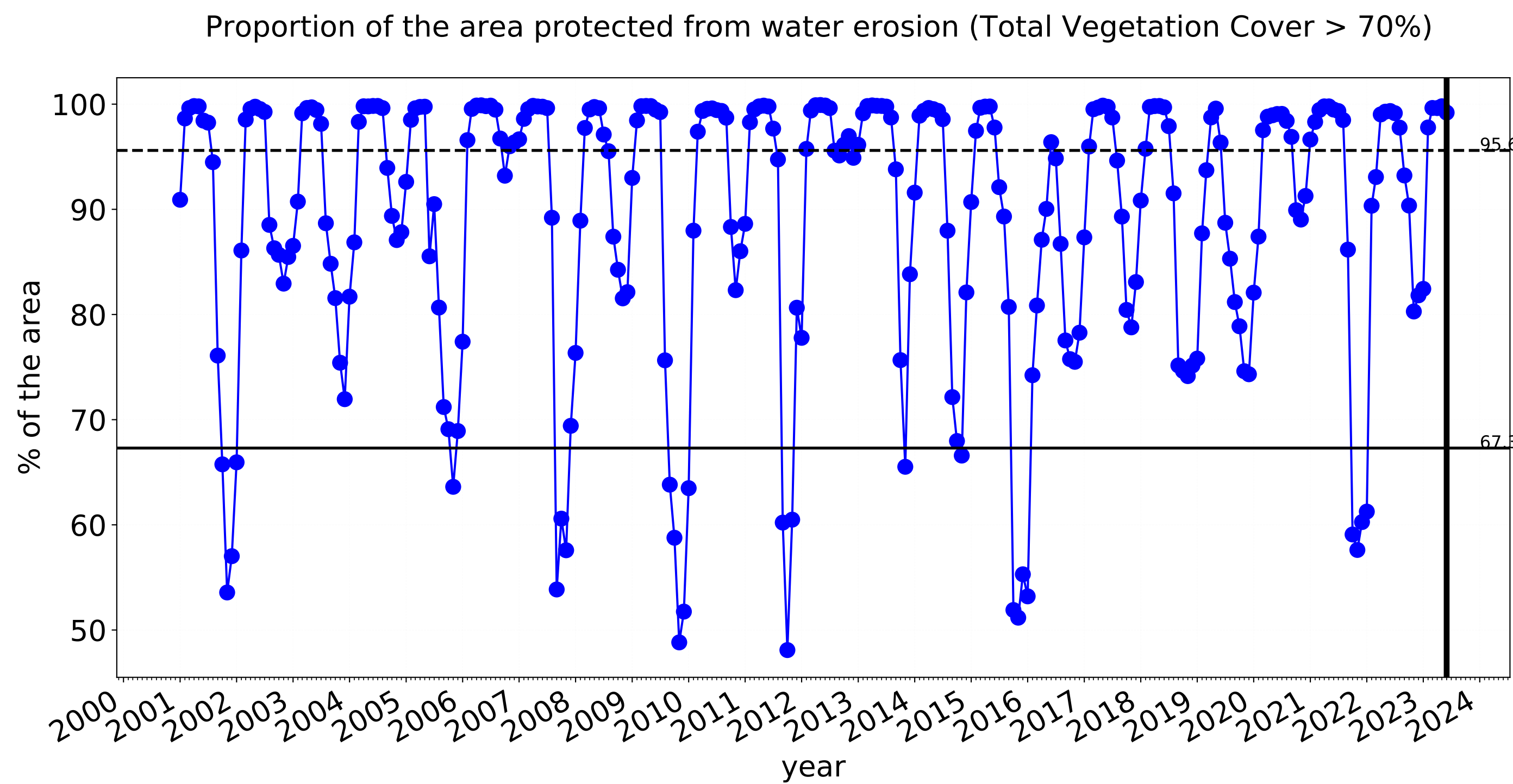
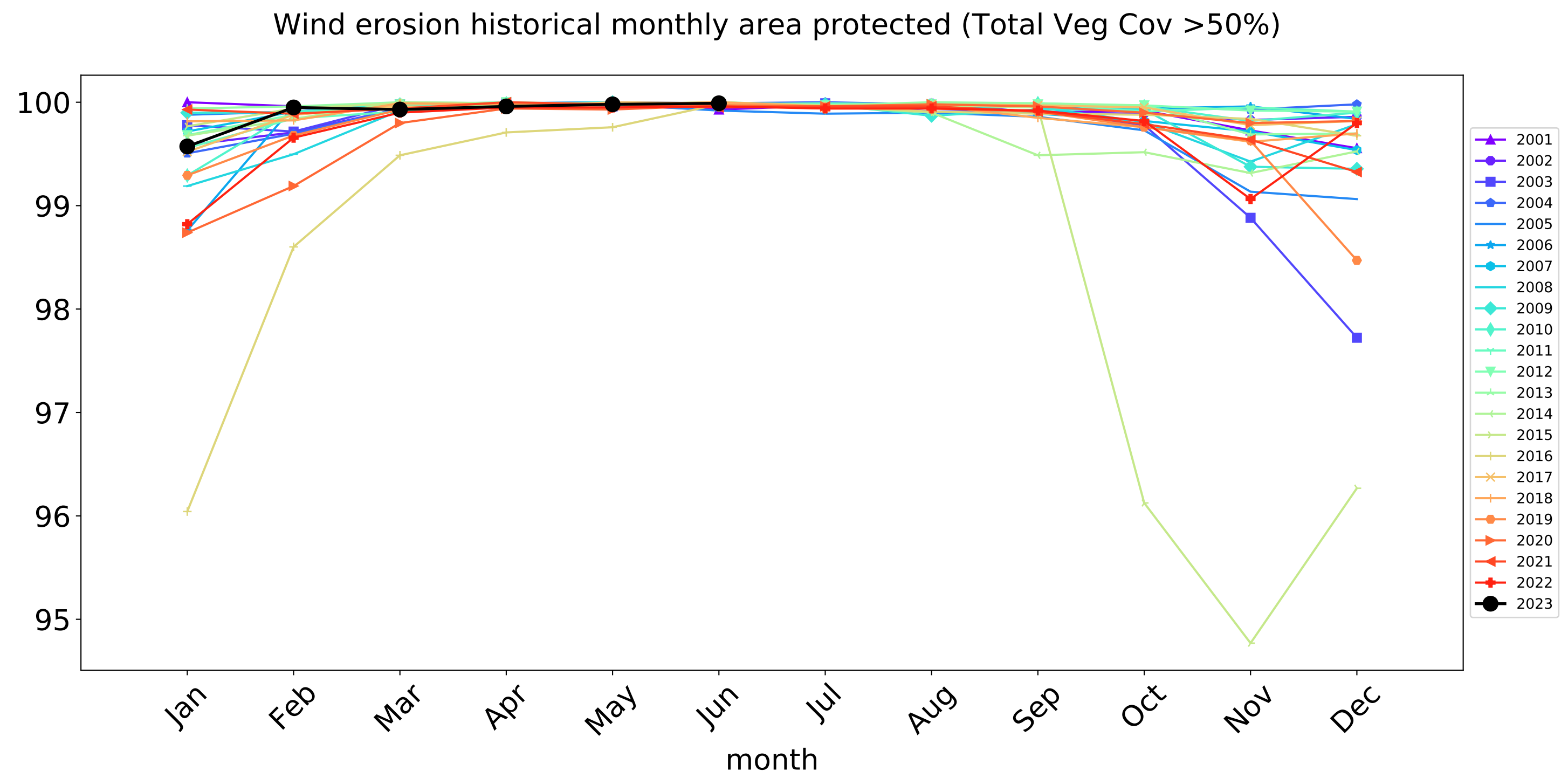
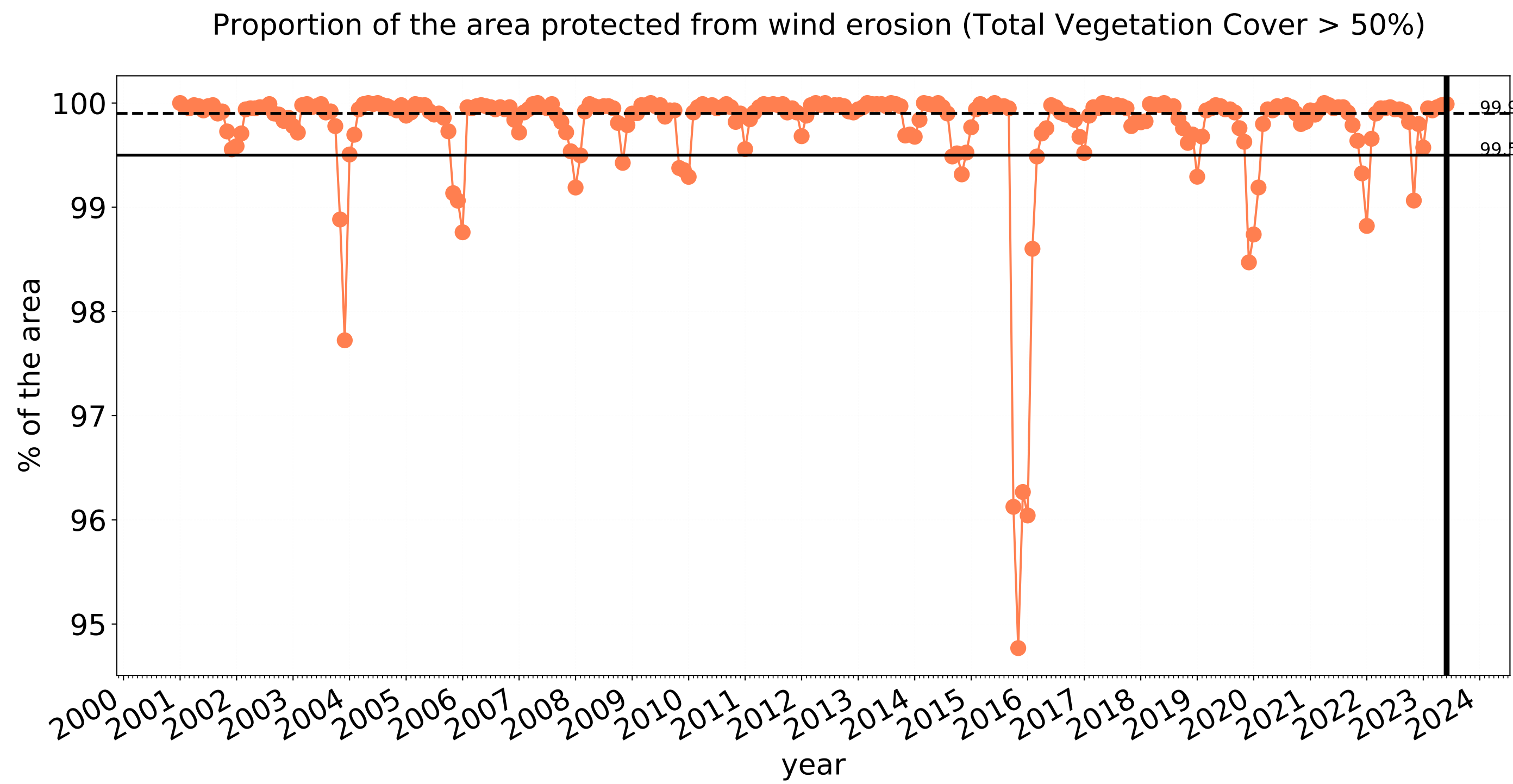
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Agriculture

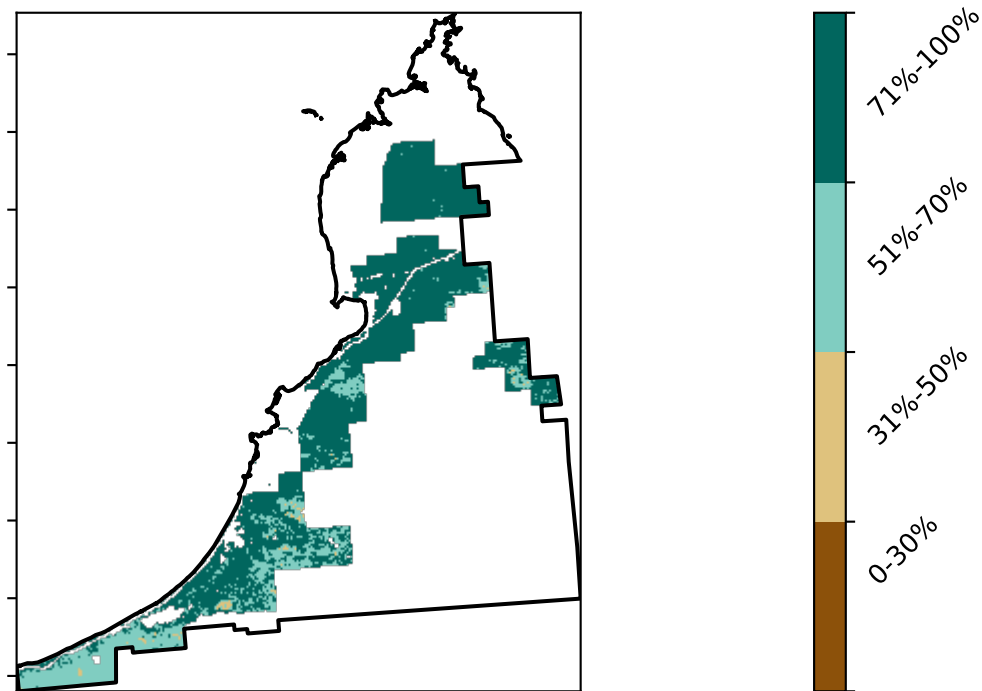
Land use and forest cover



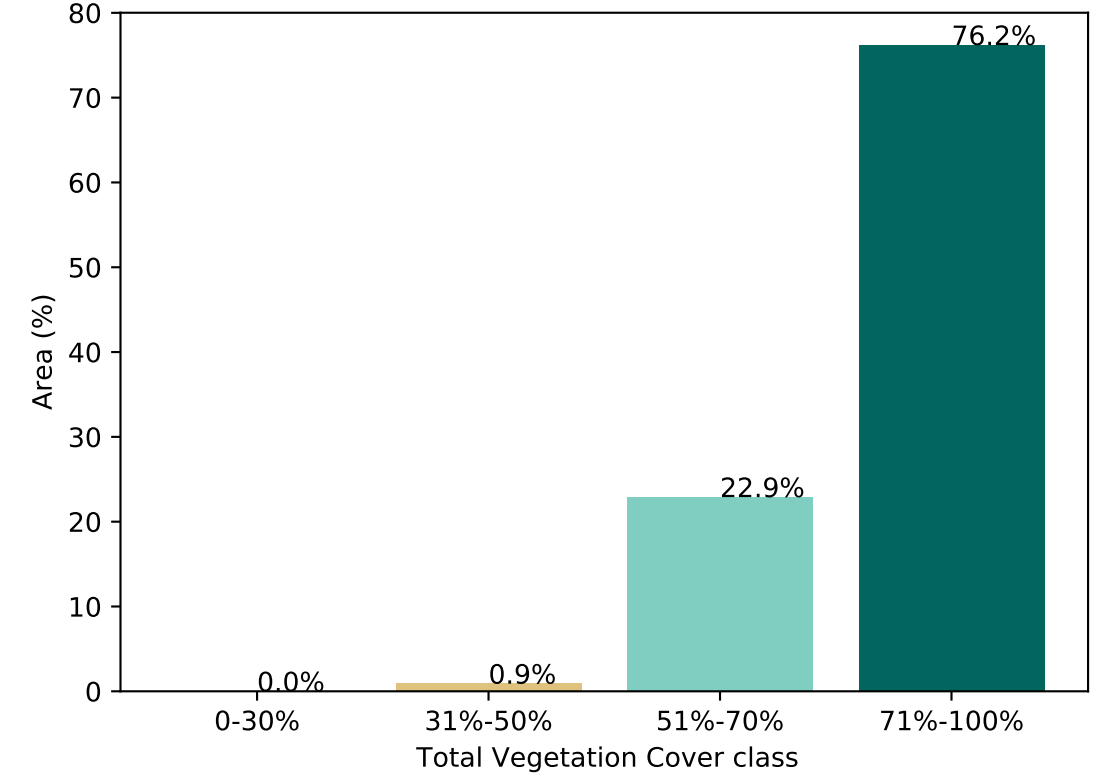
Proportion of each land class in area



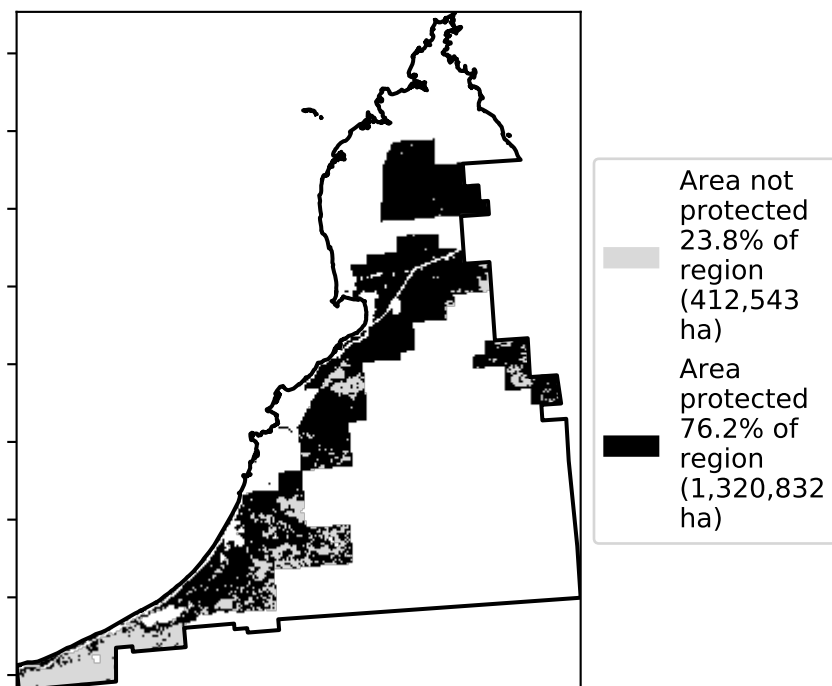
Total Vegetation Cover [%]



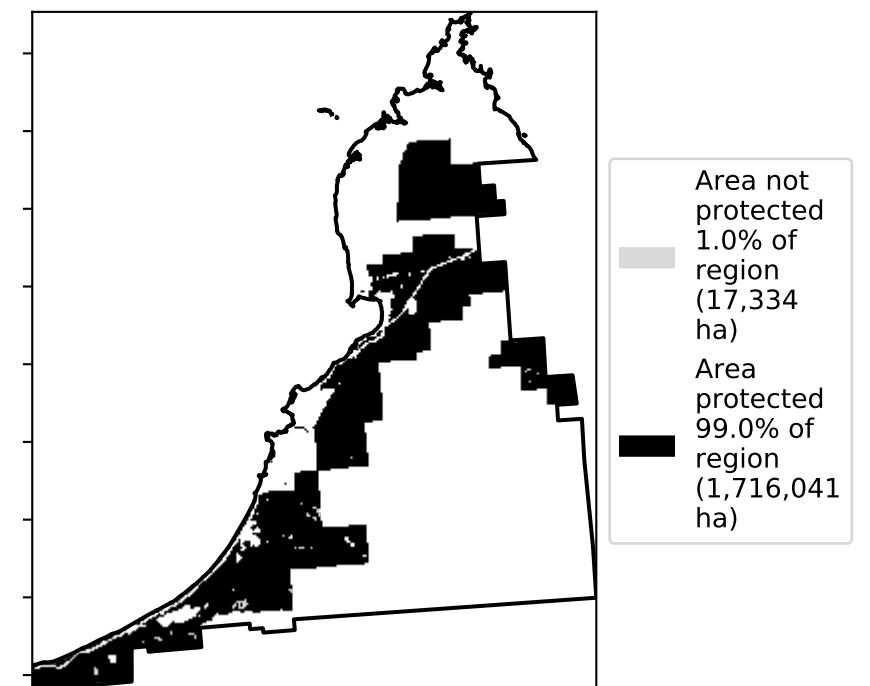
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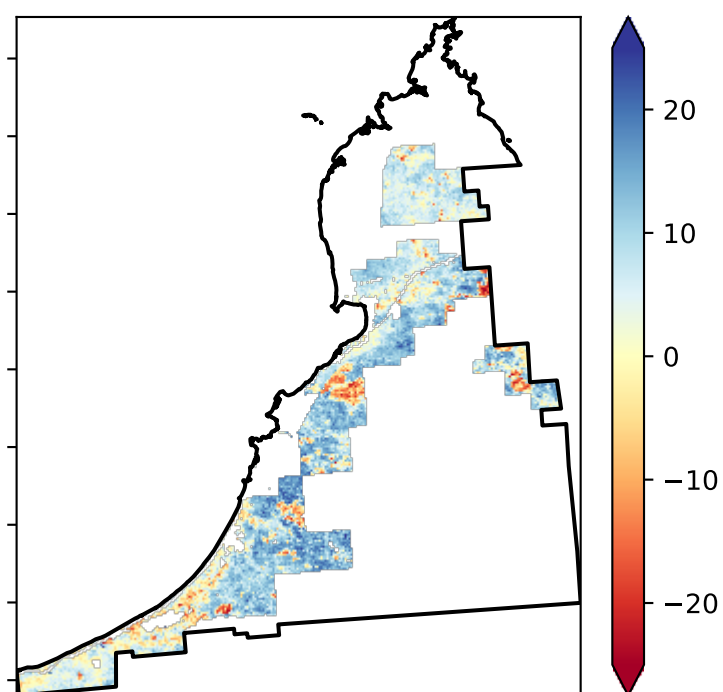
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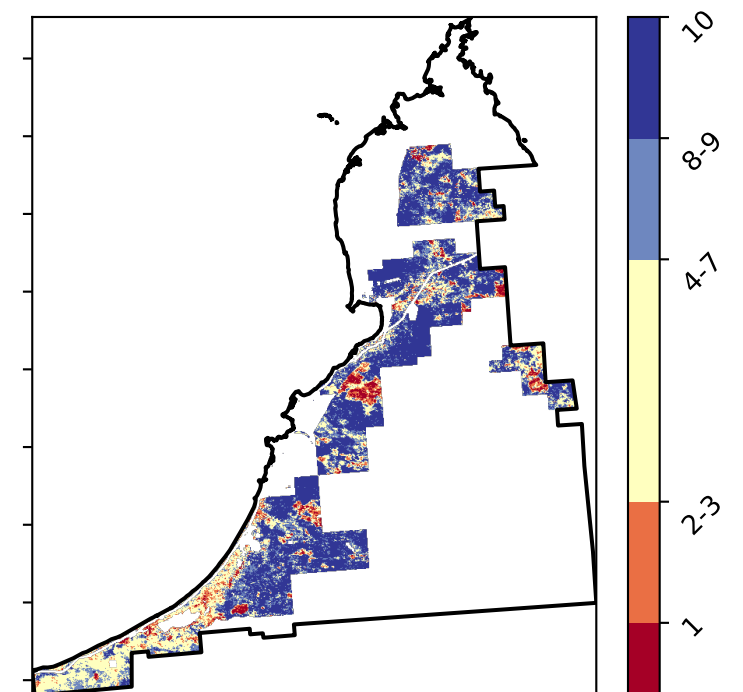
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Total Vegetation Cover Anomaly [%]



Total Vegetation Cover Decile [%]



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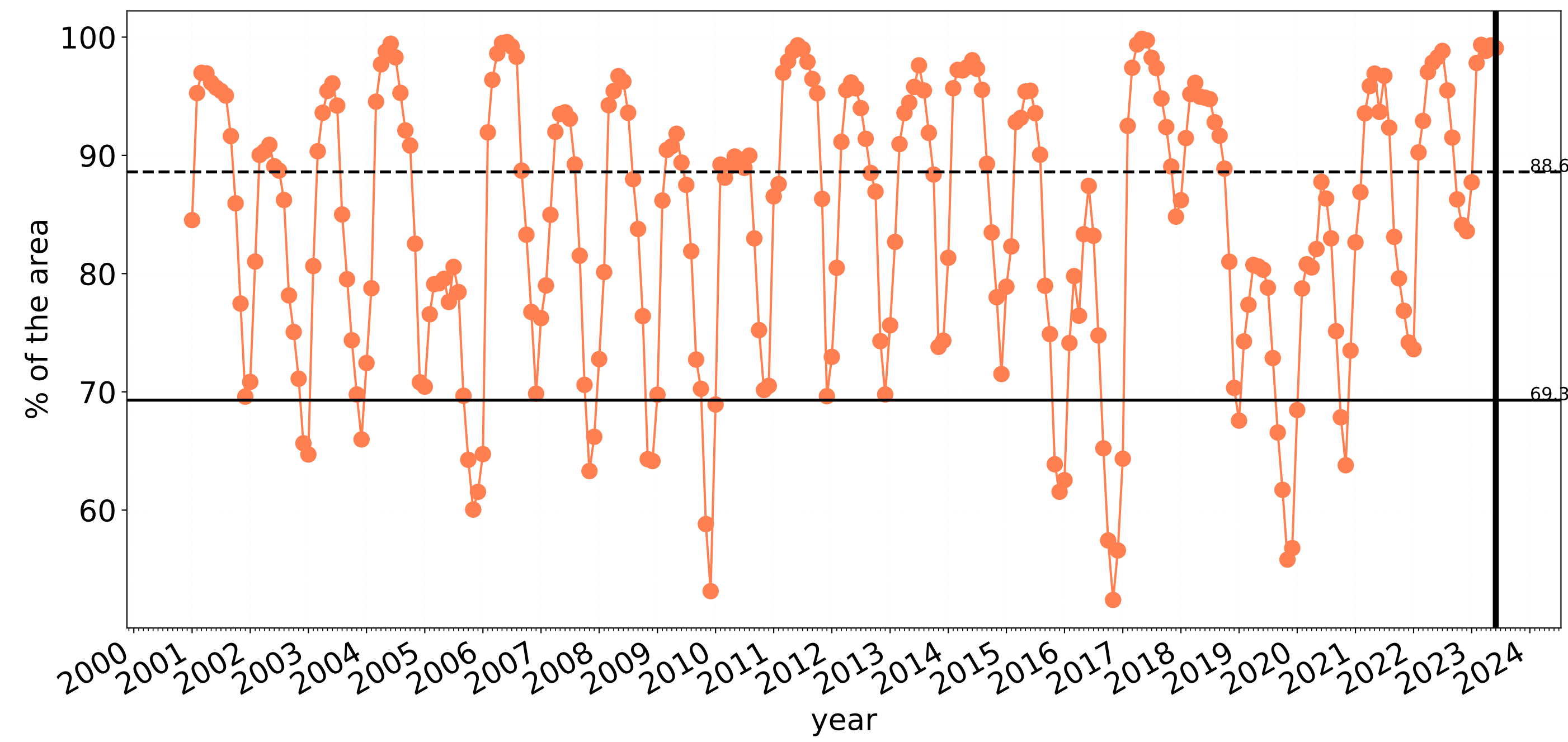
Australian Government

National Landcare Programme

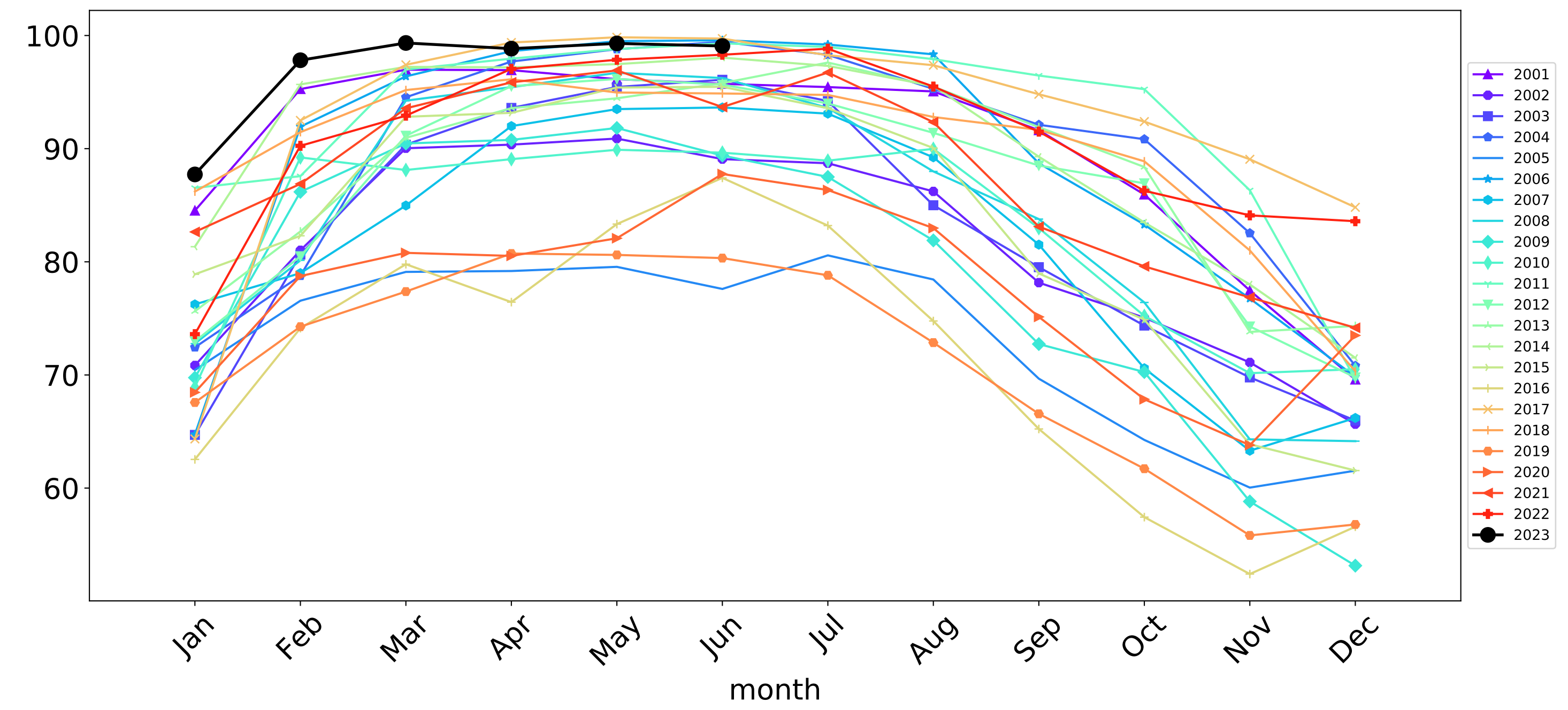


Agriculture timeseries

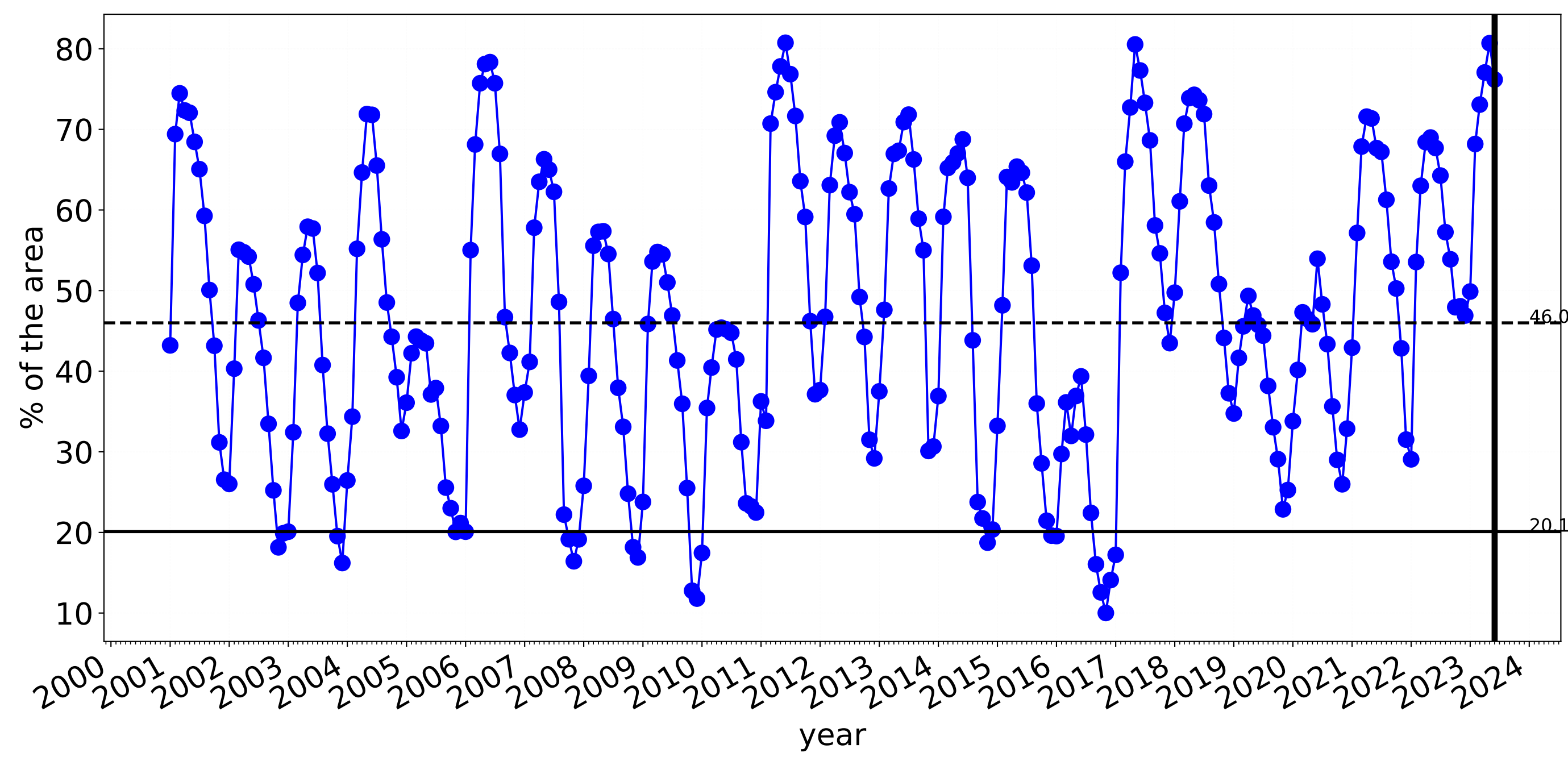
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



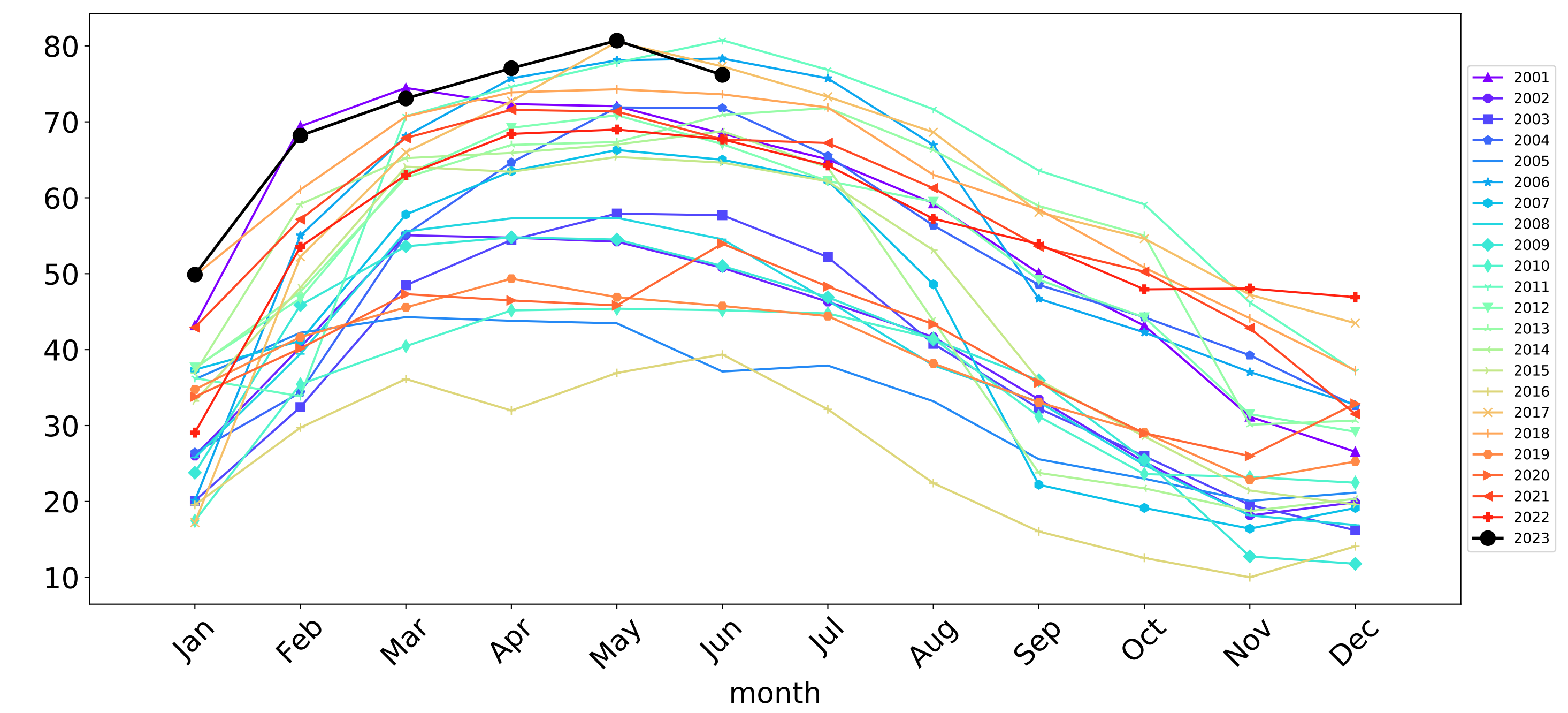
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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

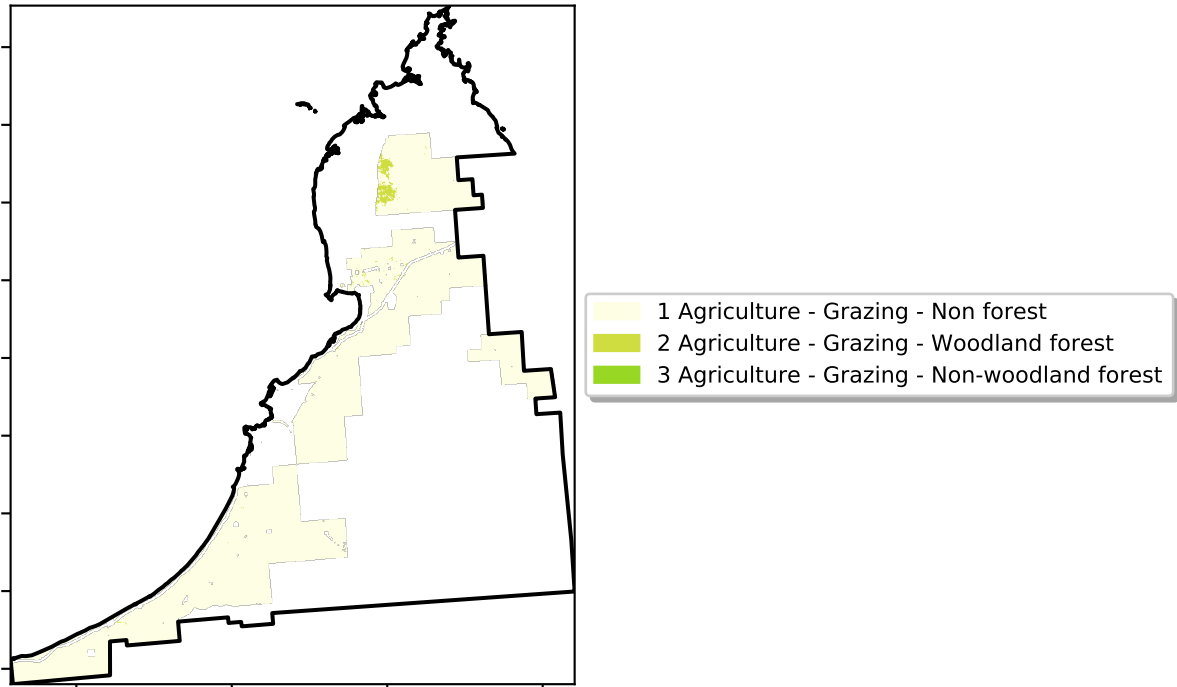


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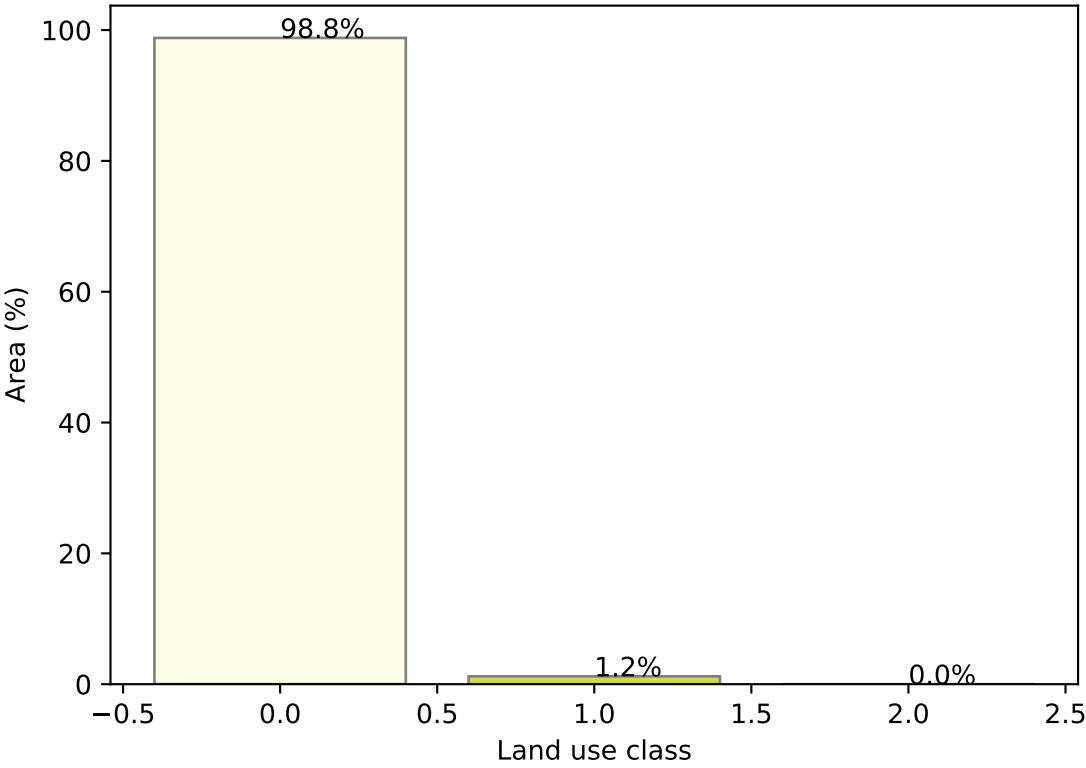


Grazing

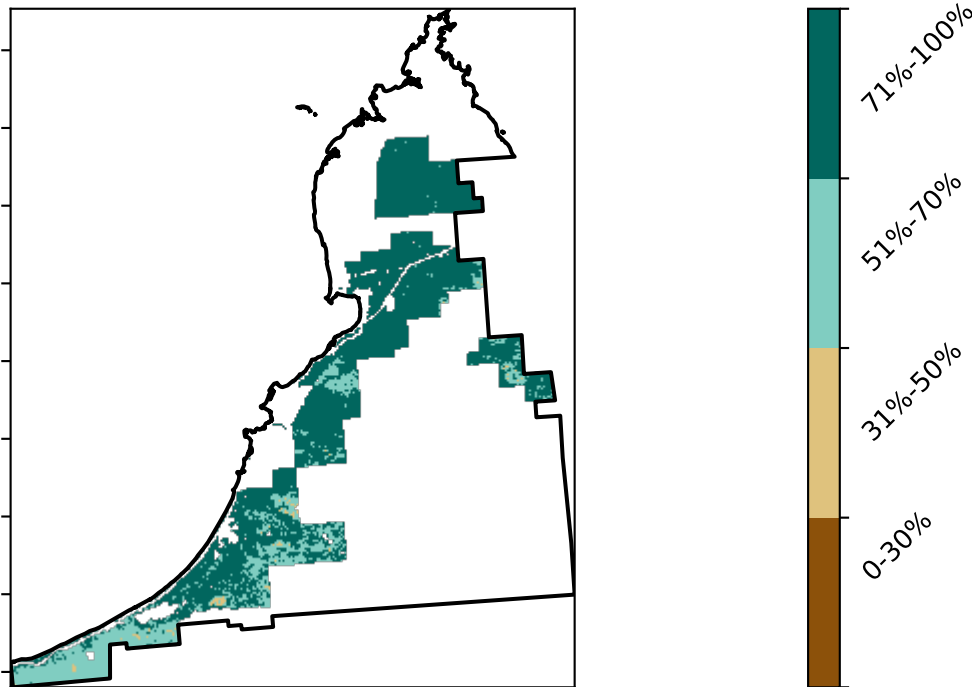
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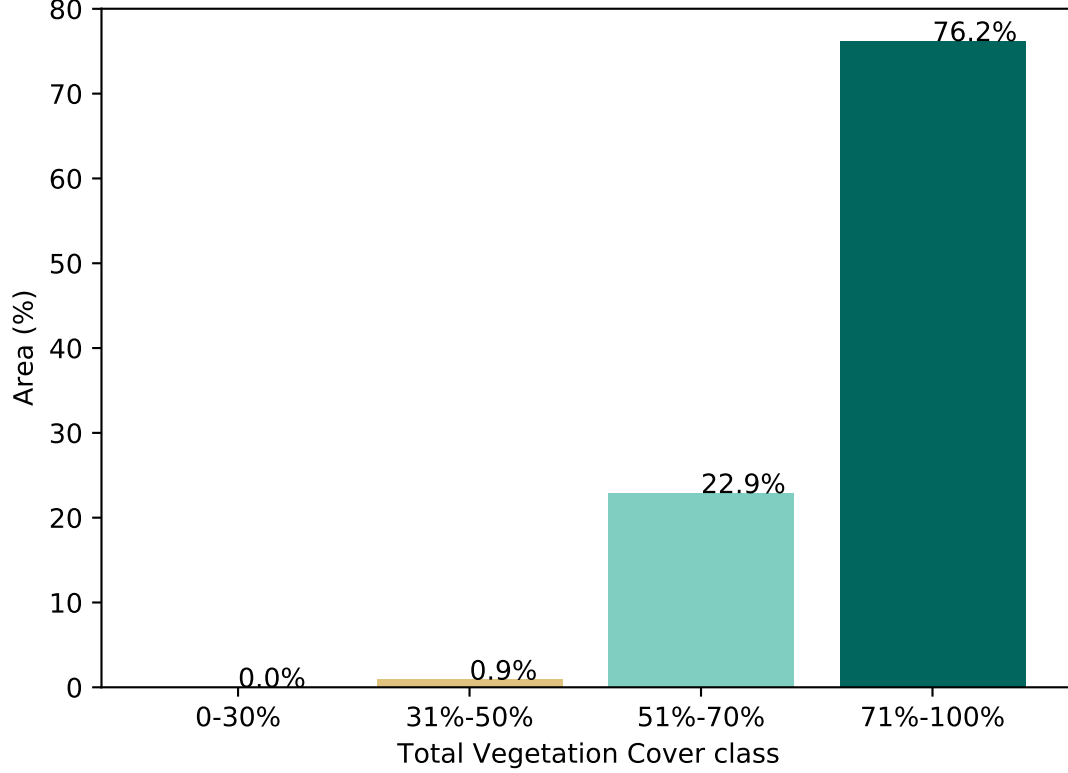
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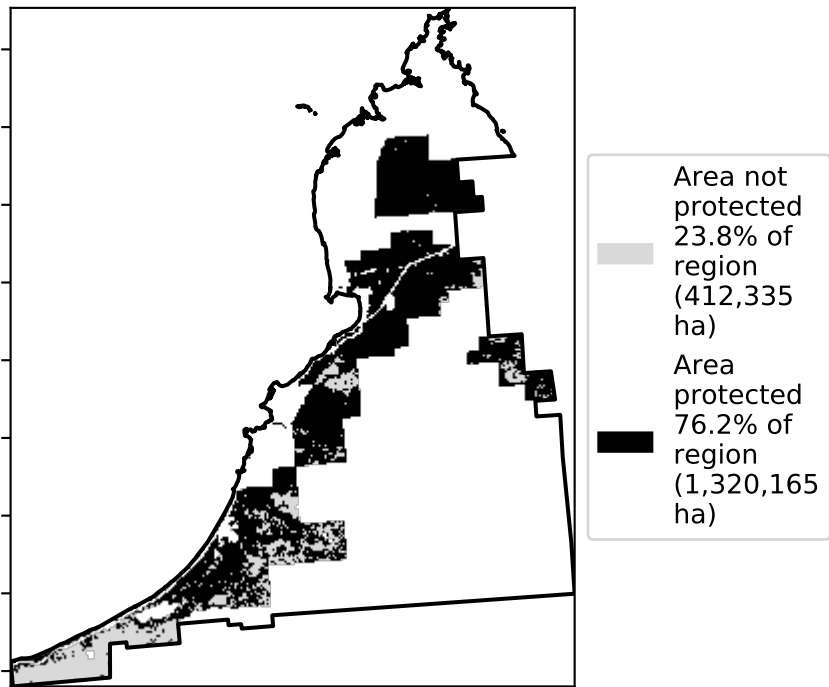
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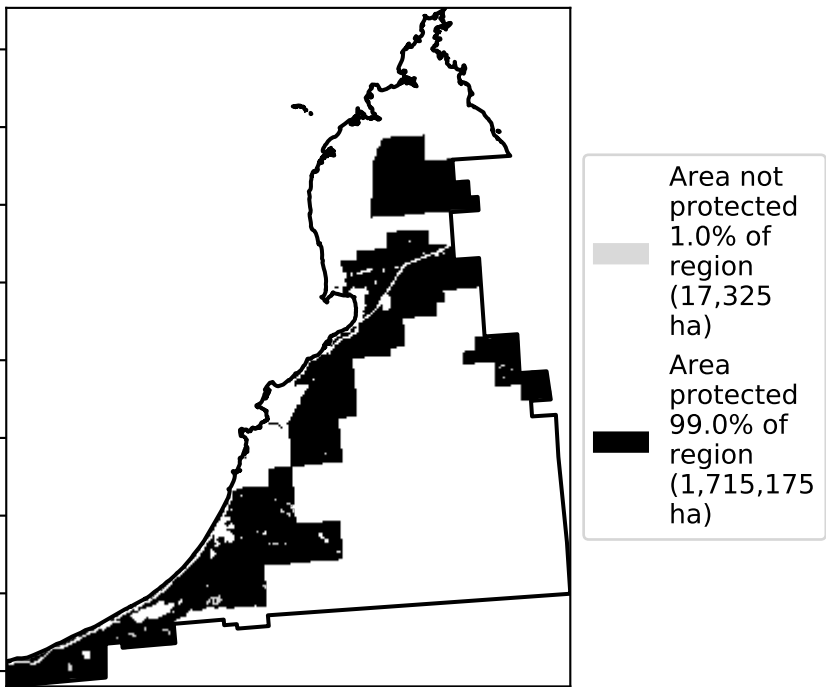
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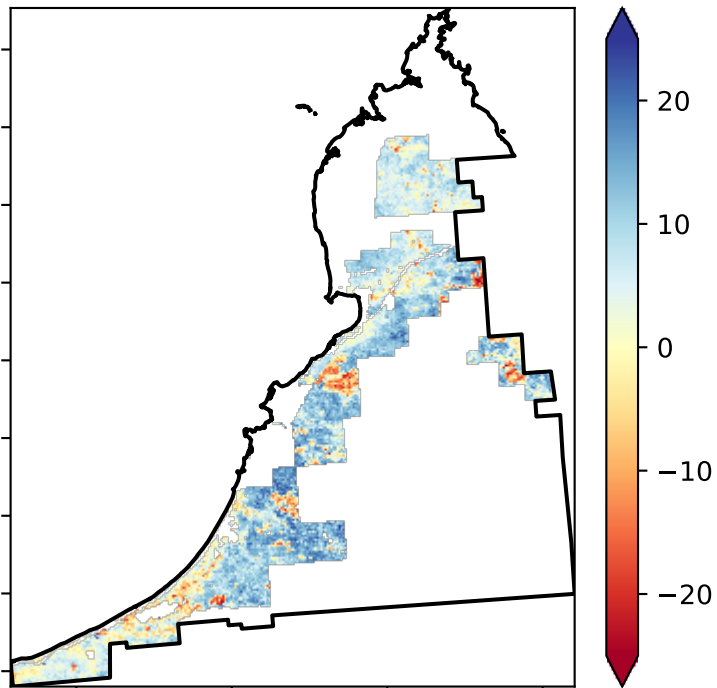
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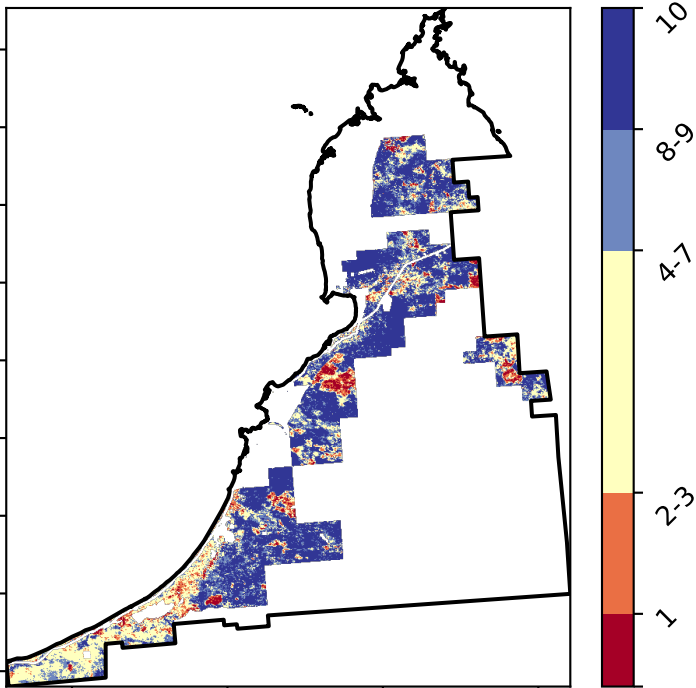
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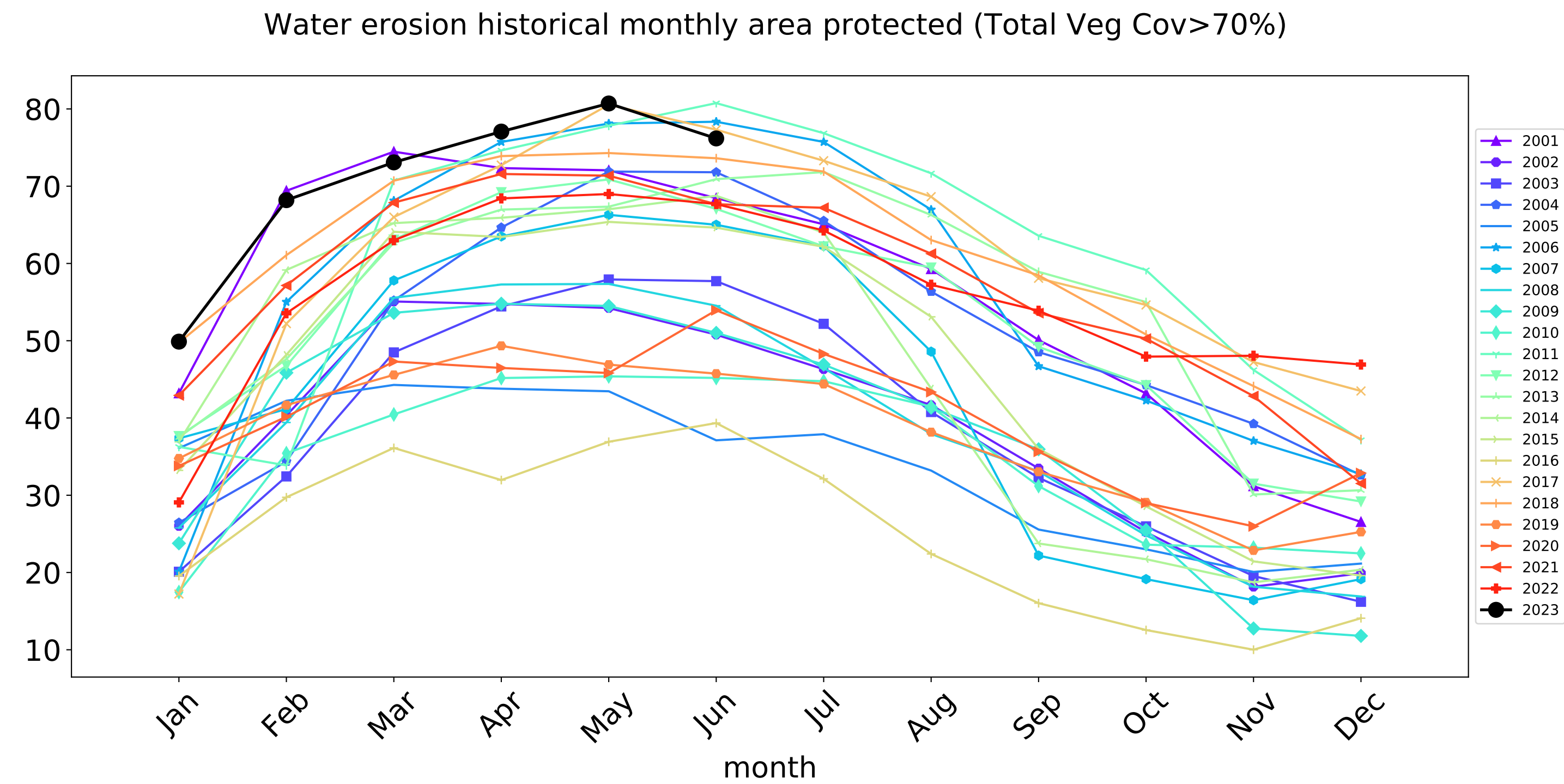
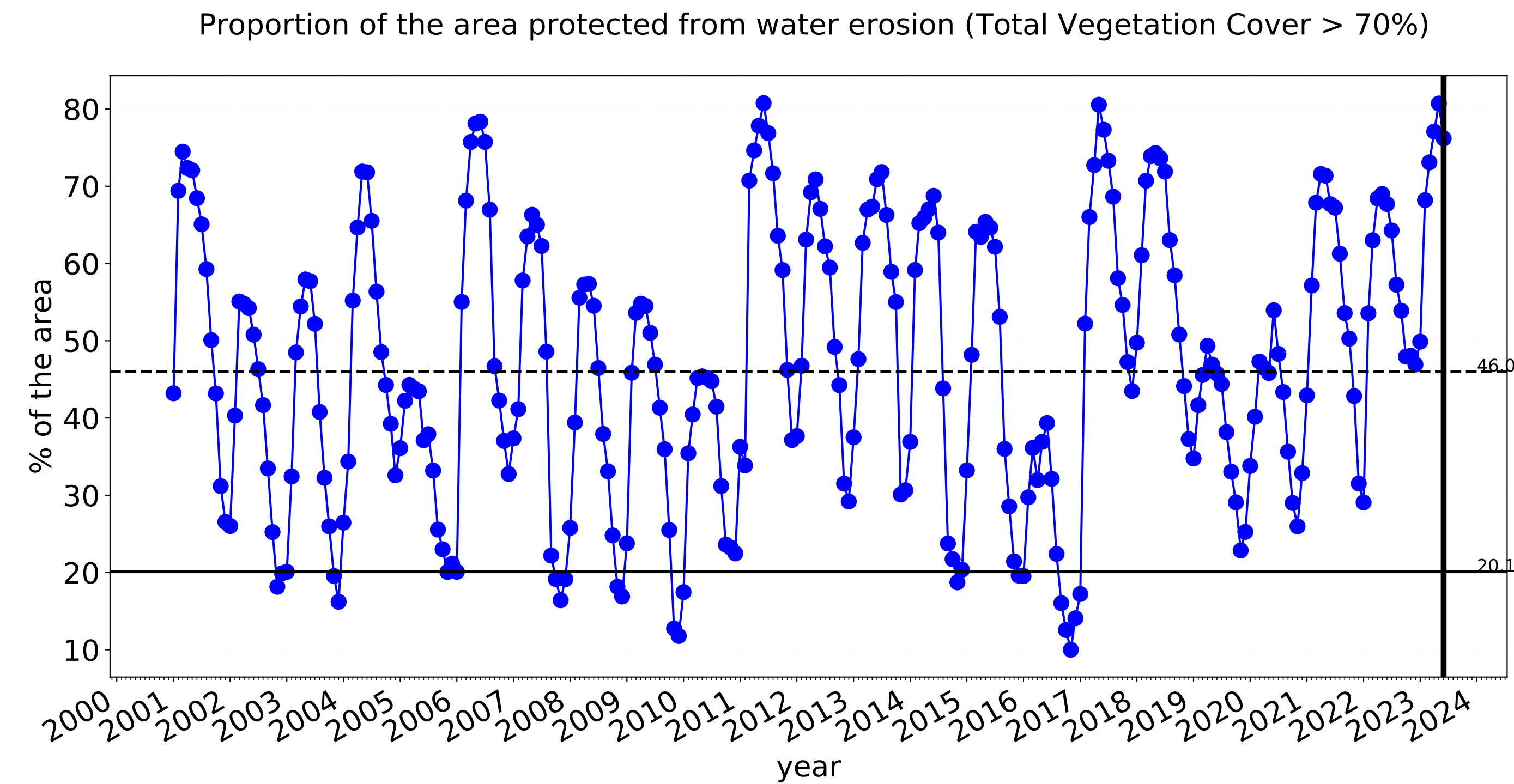
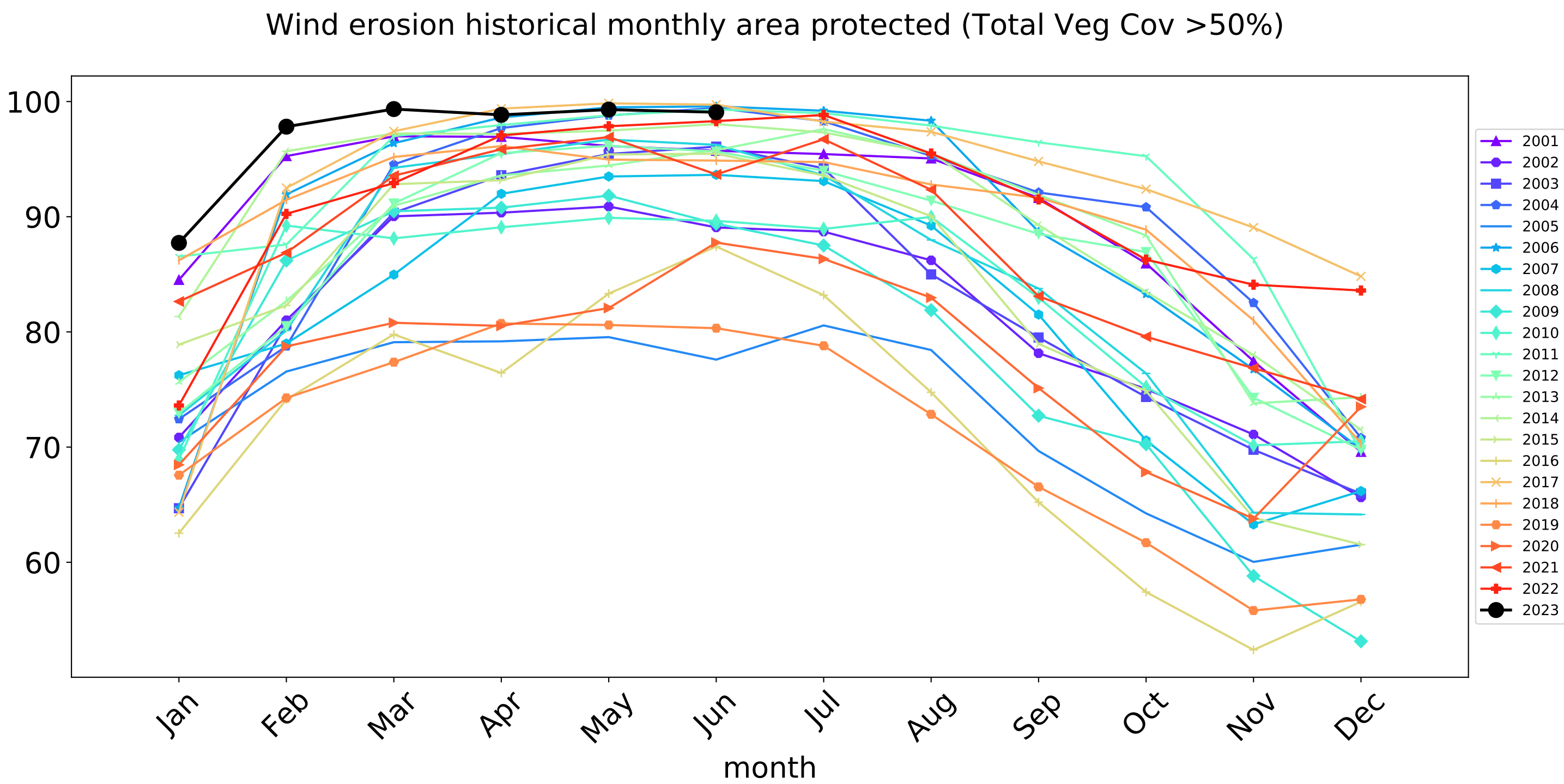
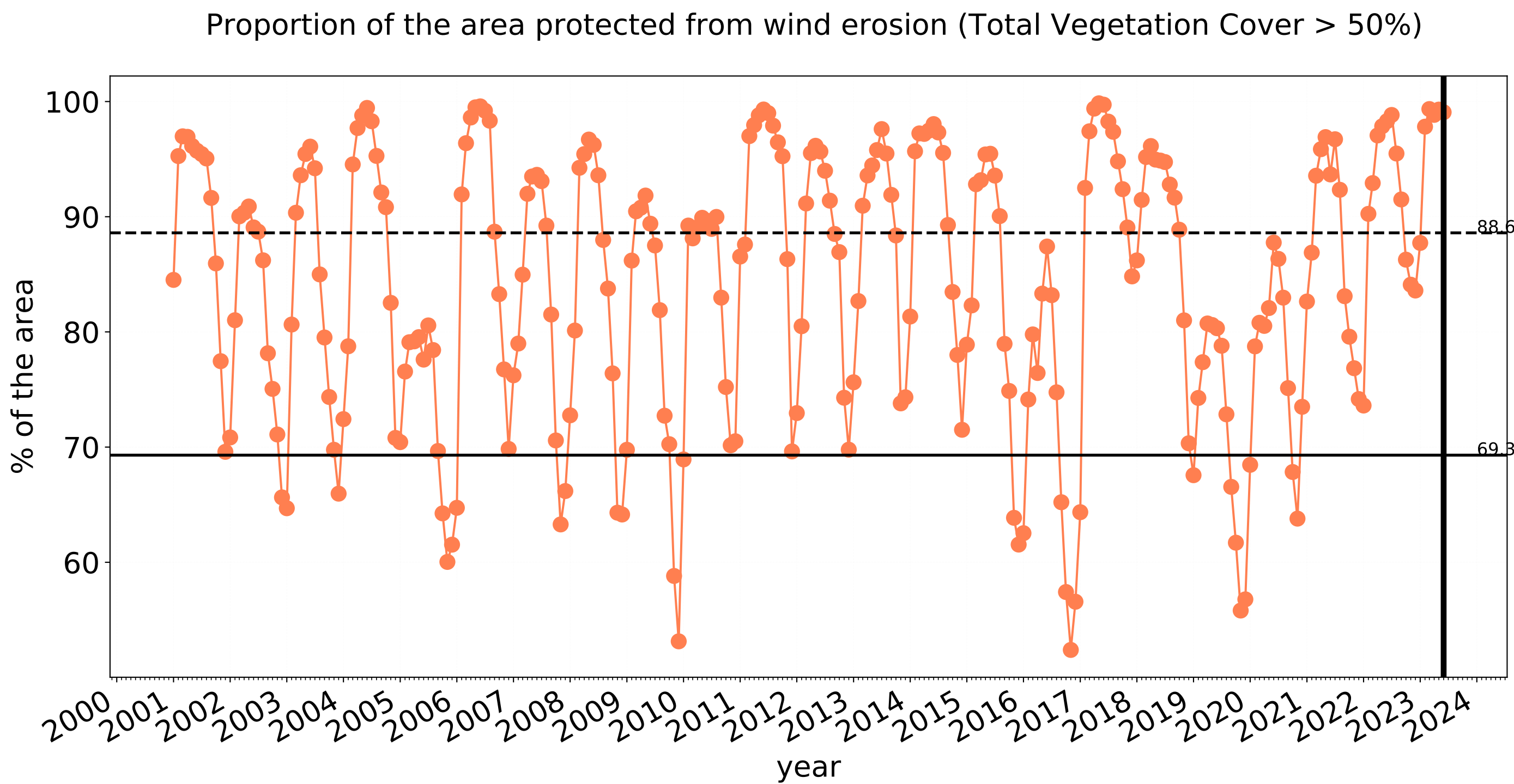


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Grazing timeseries



Grazing non forest

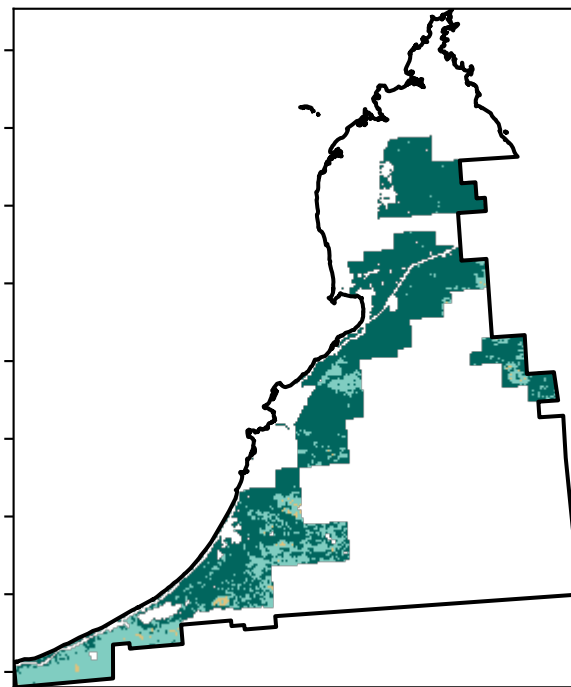
Land use and forest cover



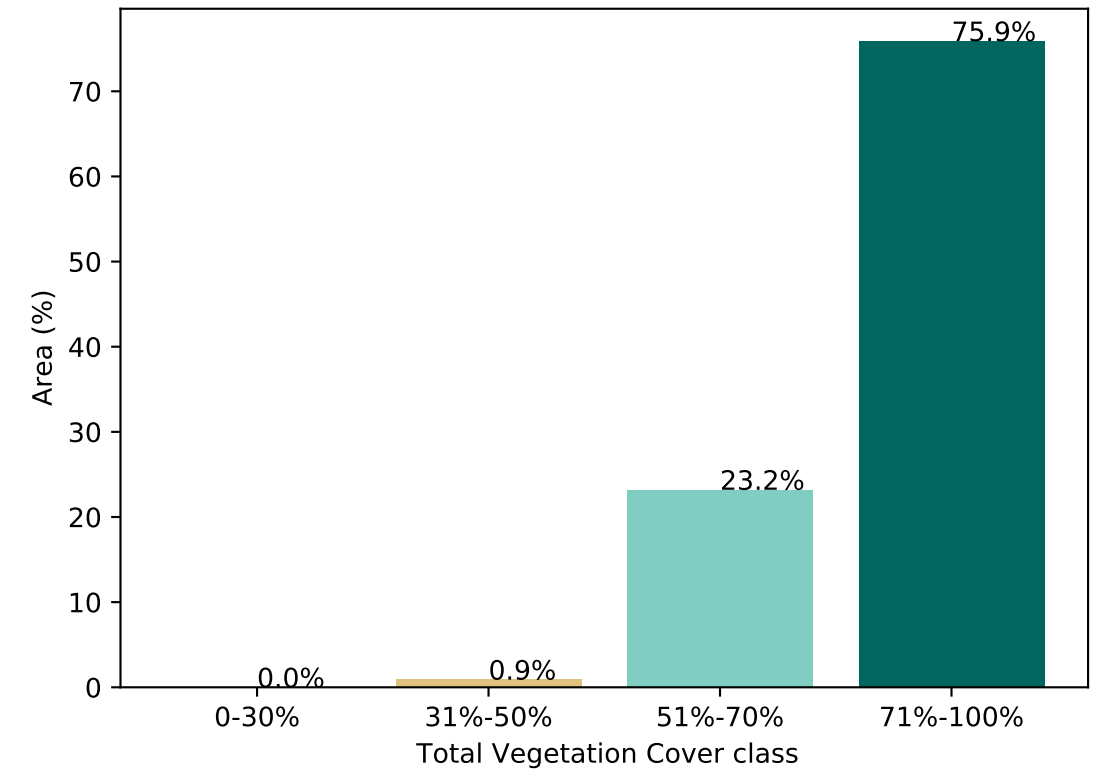
1 Agriculture - Grazing - Non forest

Catchment Scale
Land Use and Forests
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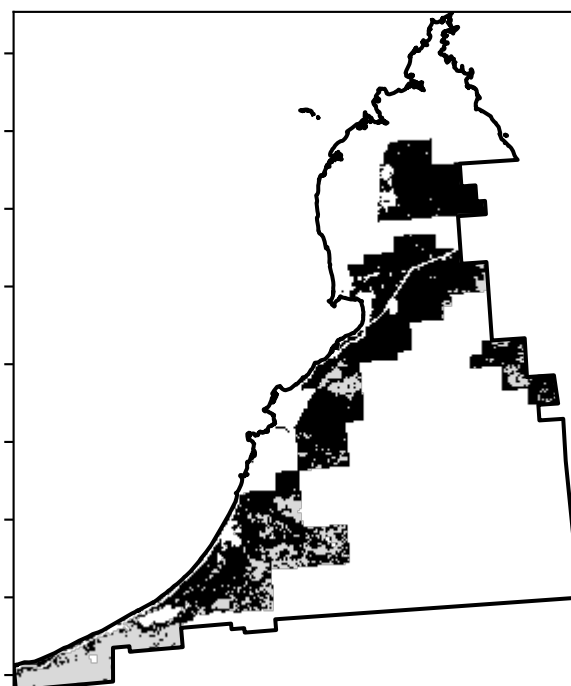
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Proportion of vegetation cover class in area

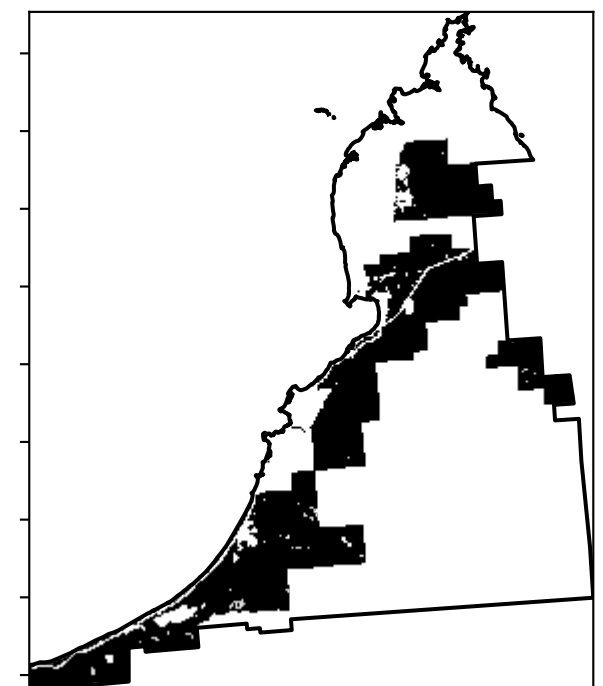


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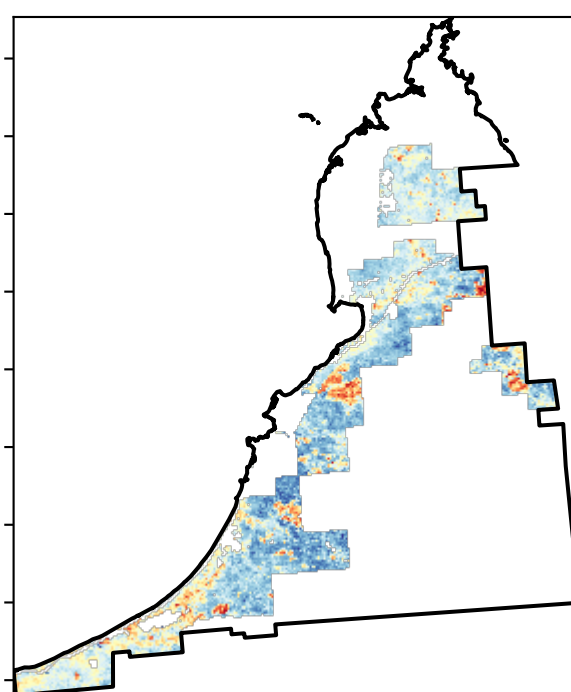
Area not protected
24.1% of region
(412,502 ha)
Area protected
75.9% of region
(1,299,123 ha)

% Area protected from wind erosion (>50%)



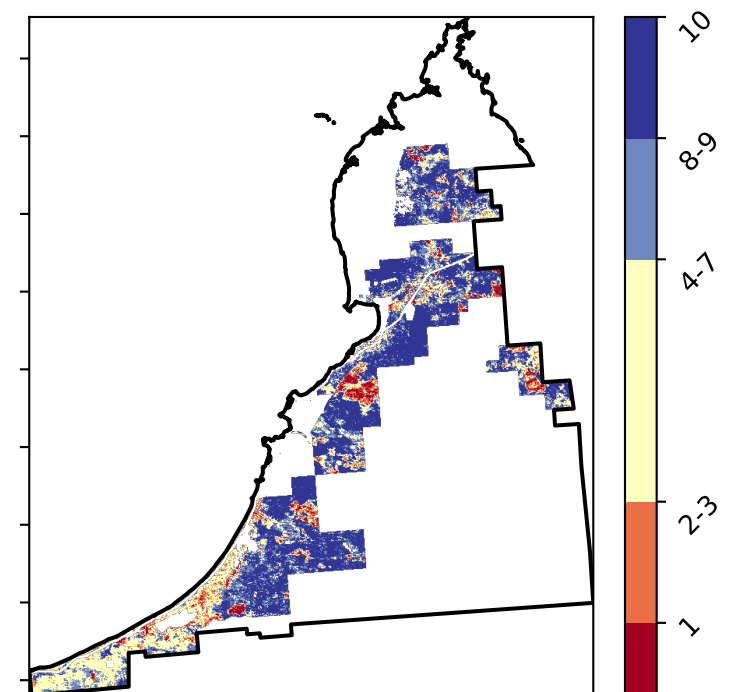
Area not protected
1.0% of region
(17,116 ha)
Area protected
99.0% of region
(1,694,509 ha)

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.

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.



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Ecosystem Research Infrastructure



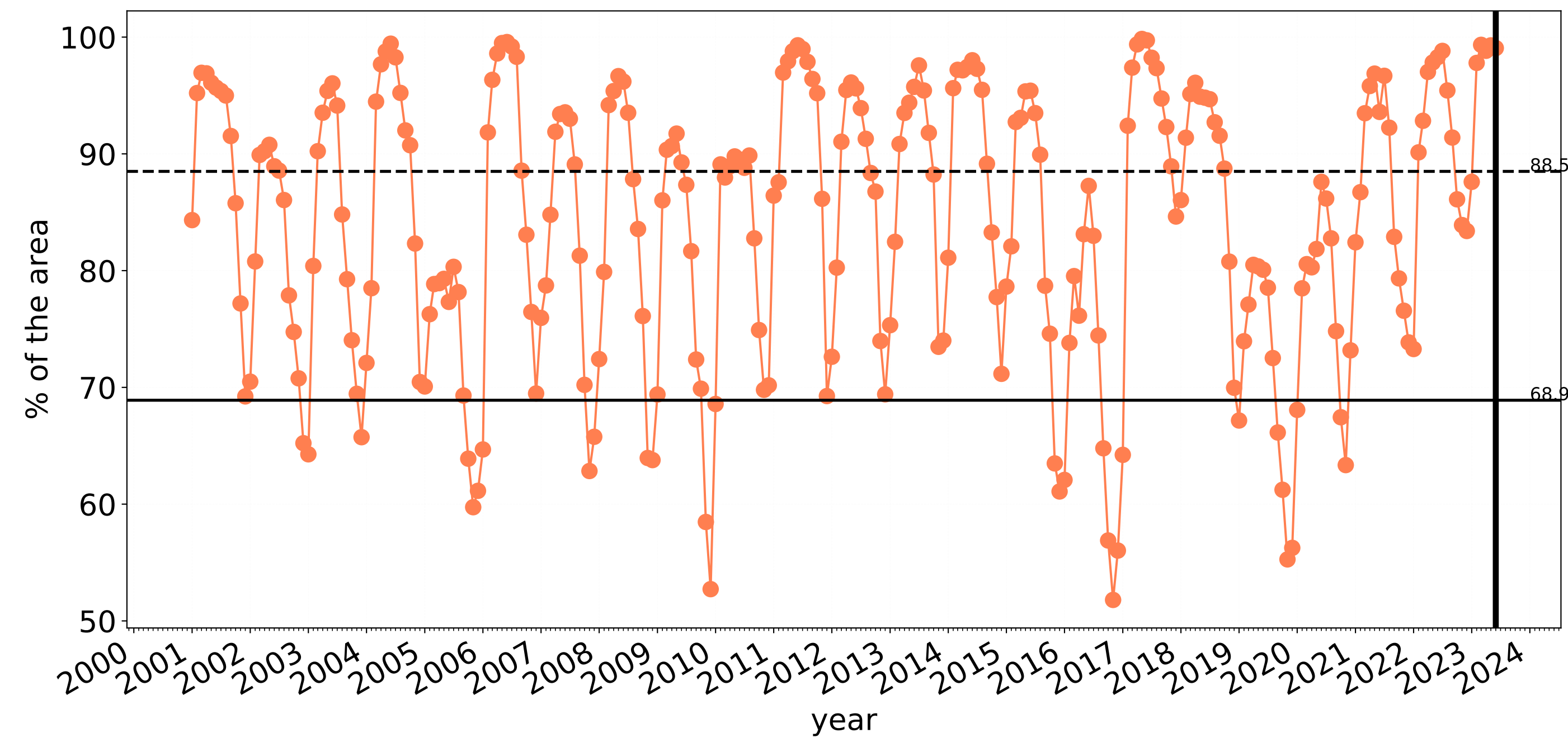
Australian Government

National
Landcare
Programme

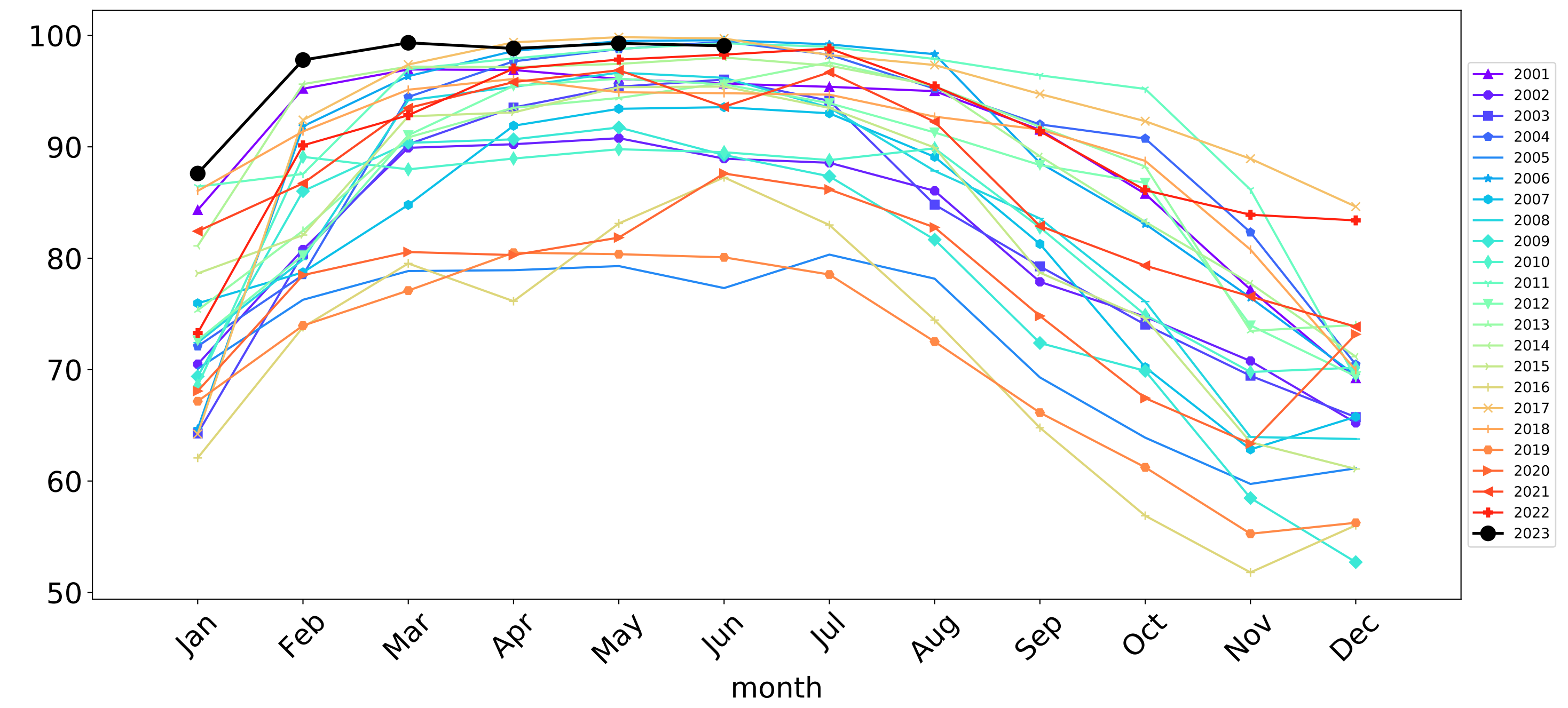


Grazing non forest timeseries

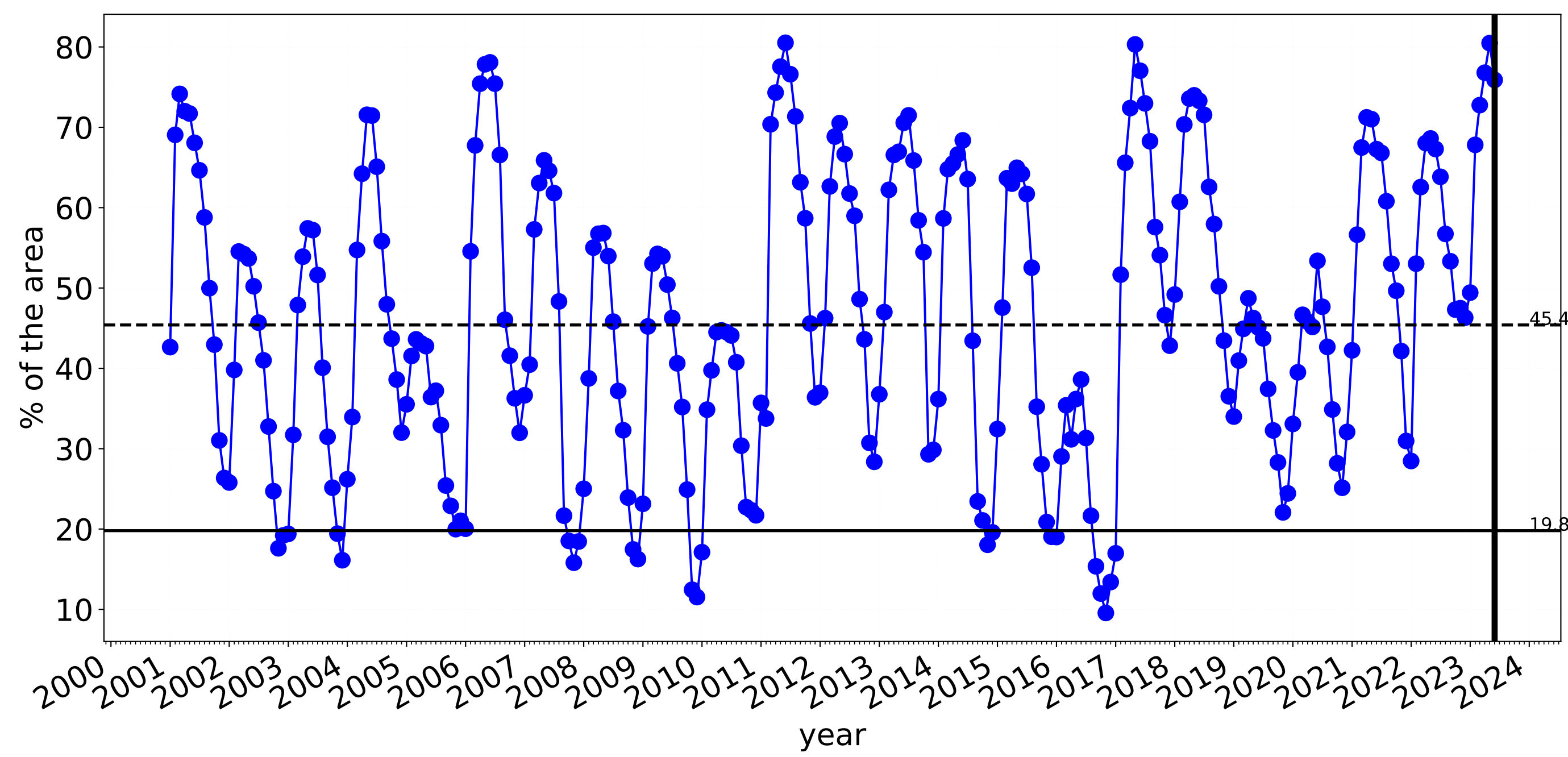
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



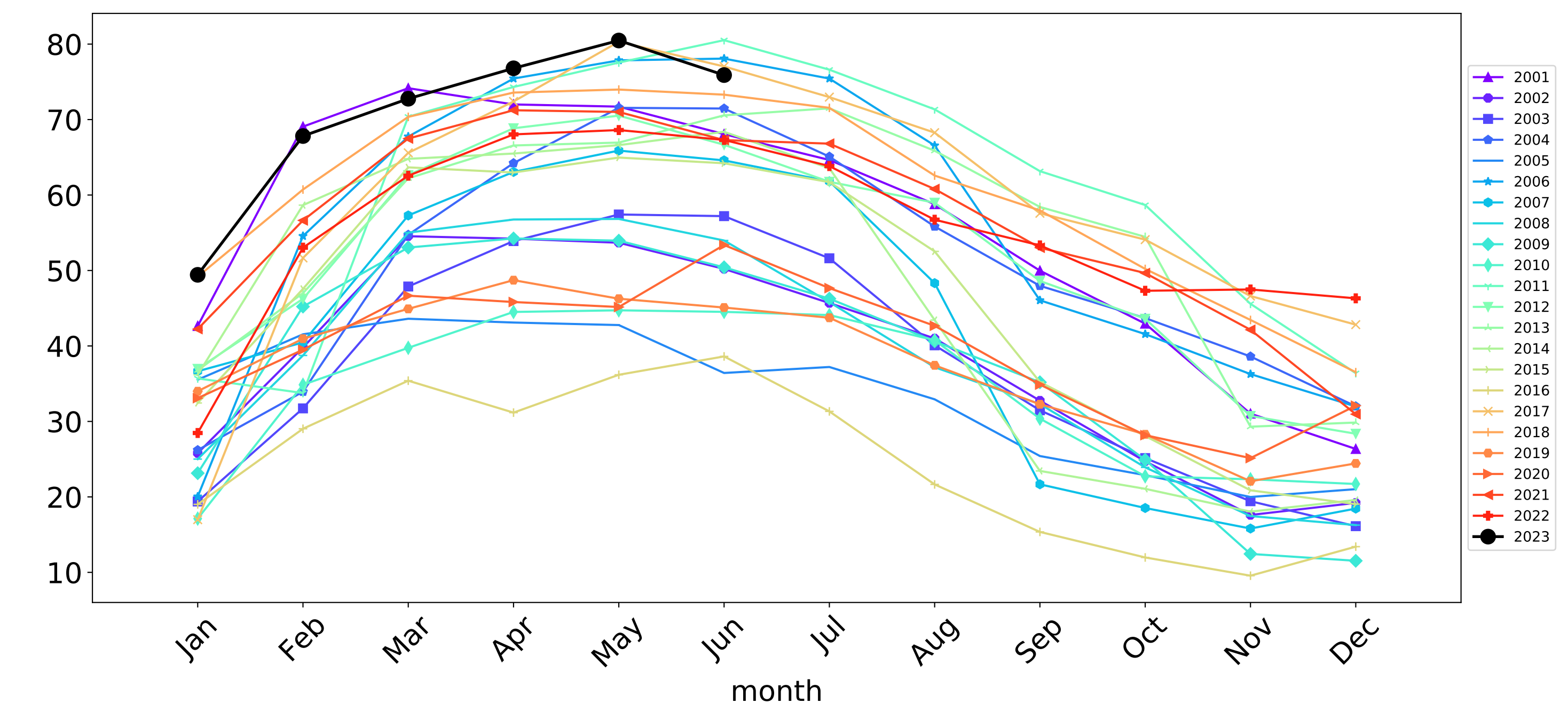
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



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



Broome_(S) (5,367,875 ha and no data 69,534 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	5,367,875	100.0% 5,365,650	97.7% 5,244,500	65.9% 3,538,350	44.9% 2,411,250	21.0% 1,129,050	6.4% 344,300
Conservation and natural environments	3,620,625	99.9% 3,618,750	97.1% 3,513,825	61.0% 2,208,075	40.1% 1,452,900	17.7% 641,775	6.2% 224,525
Conservation and natural environments non forest	3,361,750	99.9% 3,359,875	96.8% 3,255,050	58.1% 1,952,025	35.9% 1,207,175	13.1% 439,450	3.5% 116,575
Conservation and natural environments Woodland forest	248,950	100.0% 248,950	100.0% 248,925	99.2% 246,950	95.8% 238,425	79.7% 198,400	42.6% 106,150
Agriculture	1,733,375	100.0% 1,733,200	99.1% 1,717,300	76.2% 1,320,475	54.9% 951,800	27.9% 483,050	6.7% 116,675
Grazing	1,732,500	100.0% 1,732,325	99.1% 1,716,425	76.2% 1,319,875	54.9% 951,475	27.9% 483,025	6.7% 116,675
Grazing non forest	1,711,625	100.0% 1,711,450	99.1% 1,695,550	75.9% 1,299,050	54.4% 931,000	27.1% 464,250	6.3% 108,525