

Total vegetation cover soil protection

Region:LGA Isaac_(R) QLD

Date: March 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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Ecosystem Research Infrastructure

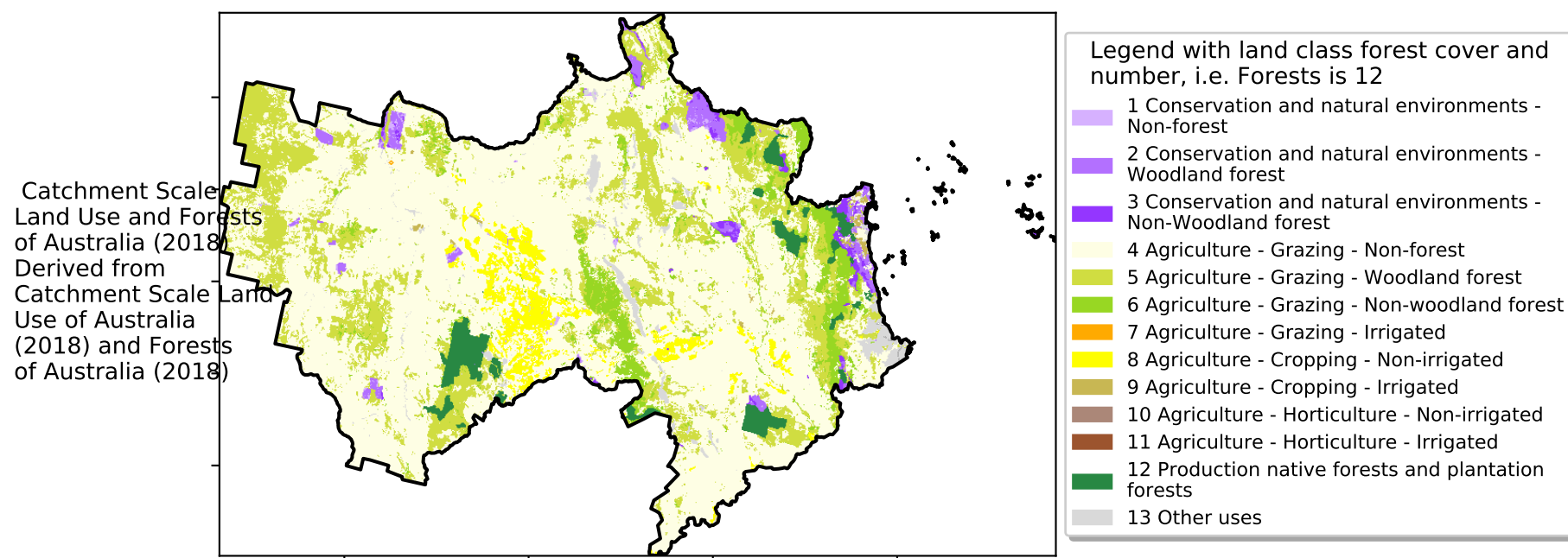


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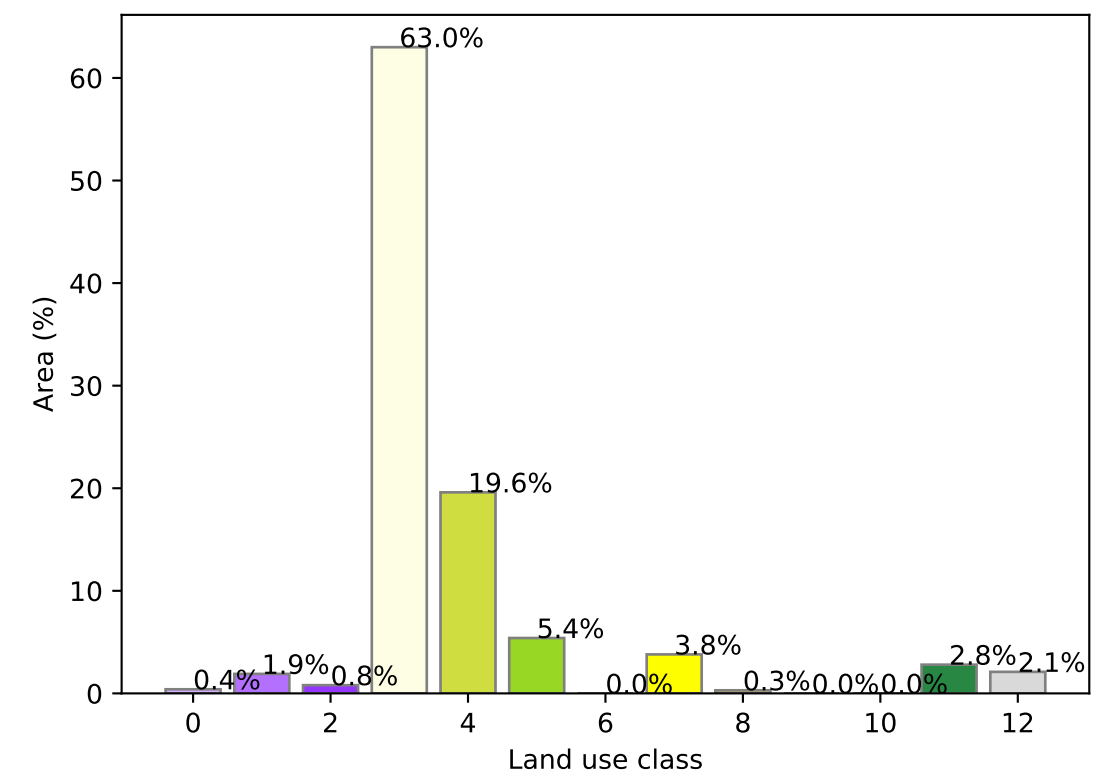


Vegetation Cover Mar 2023

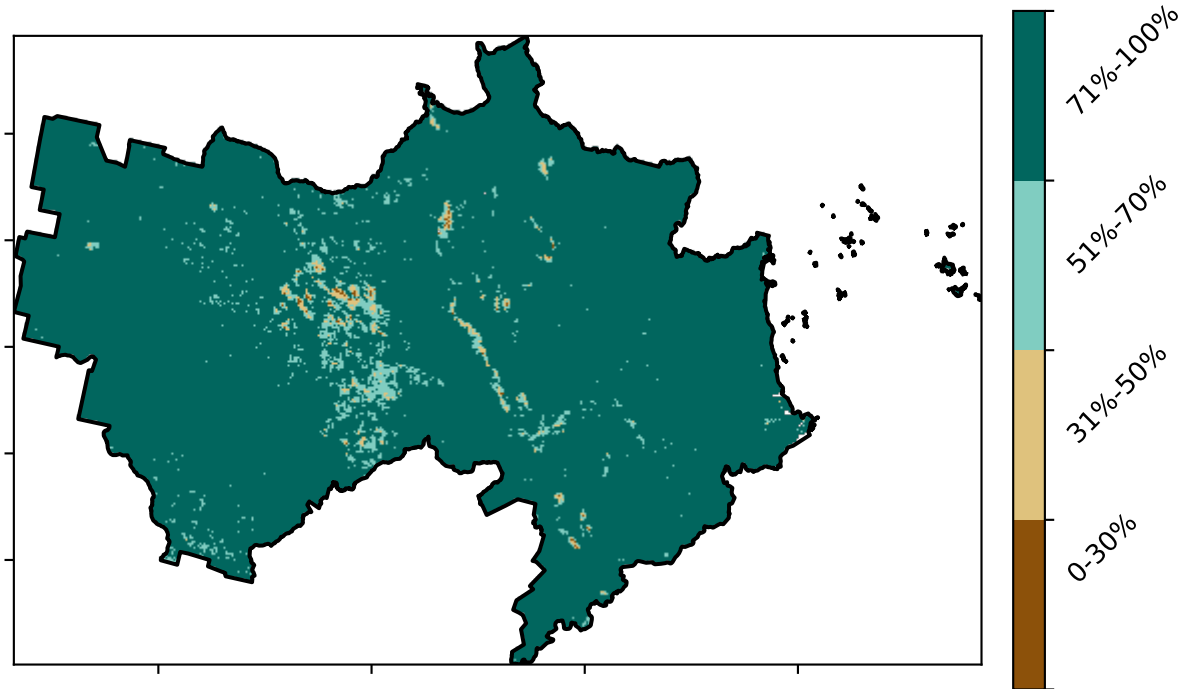
Land use and forest cover



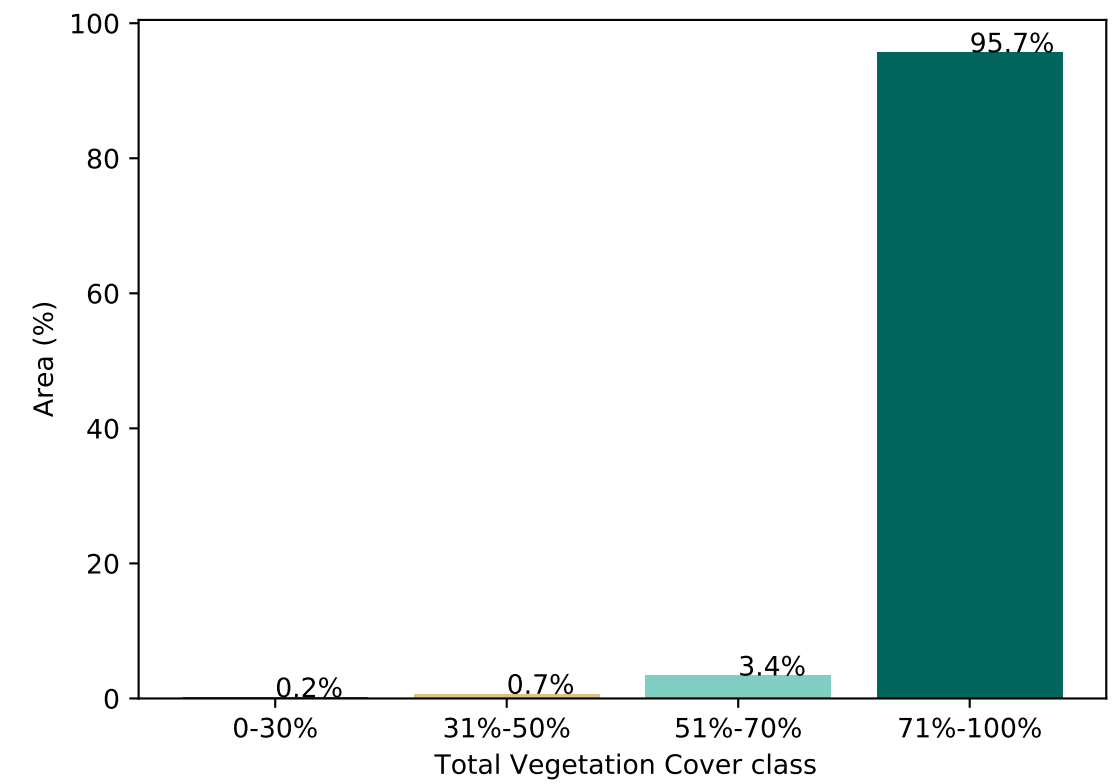
Proportion of each land class in area



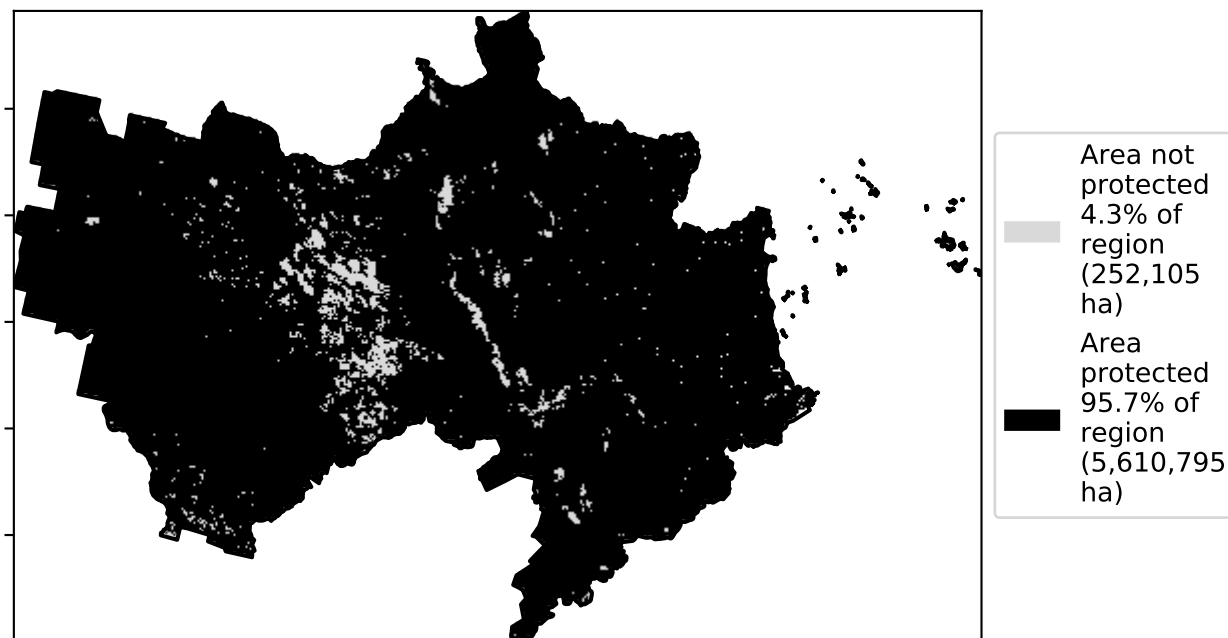
Total Vegetation Cover [%]



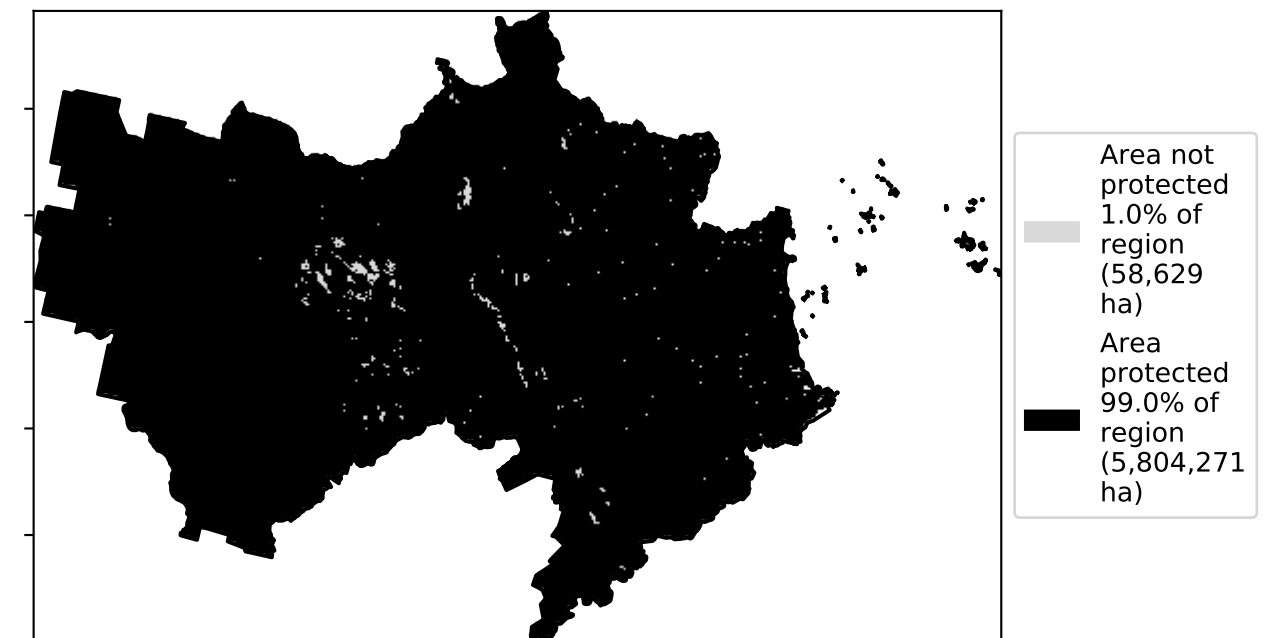
Proportion of vegetation cover class in area



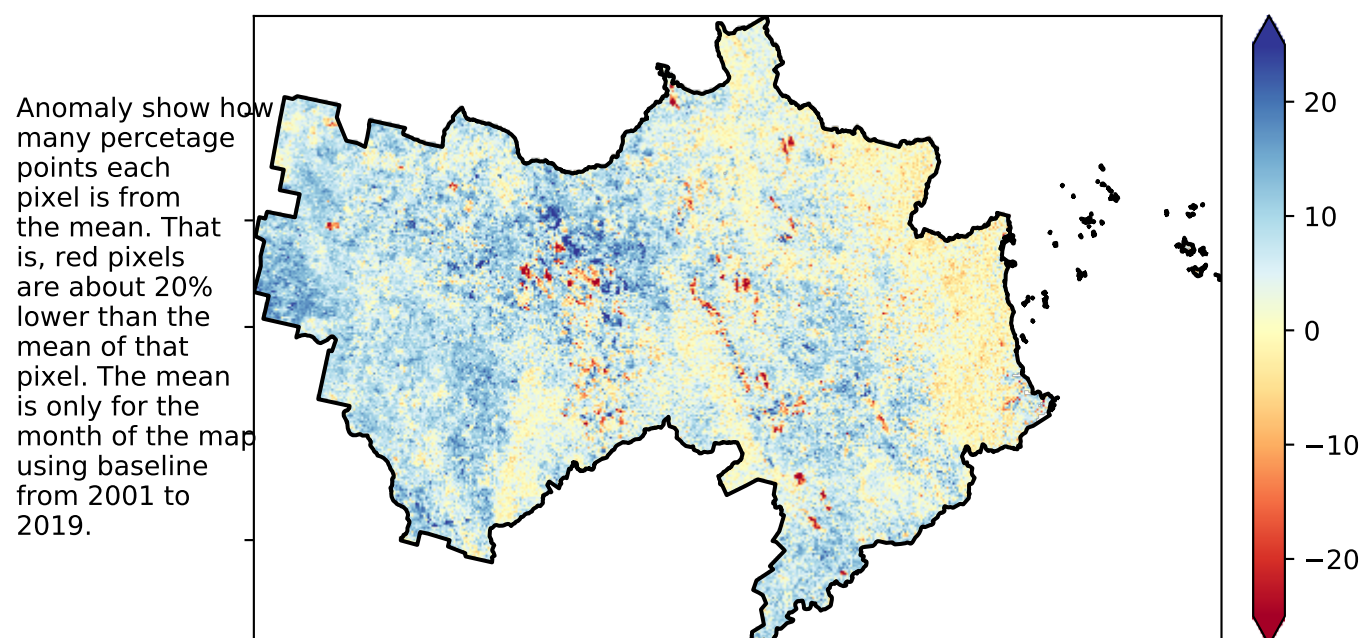
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

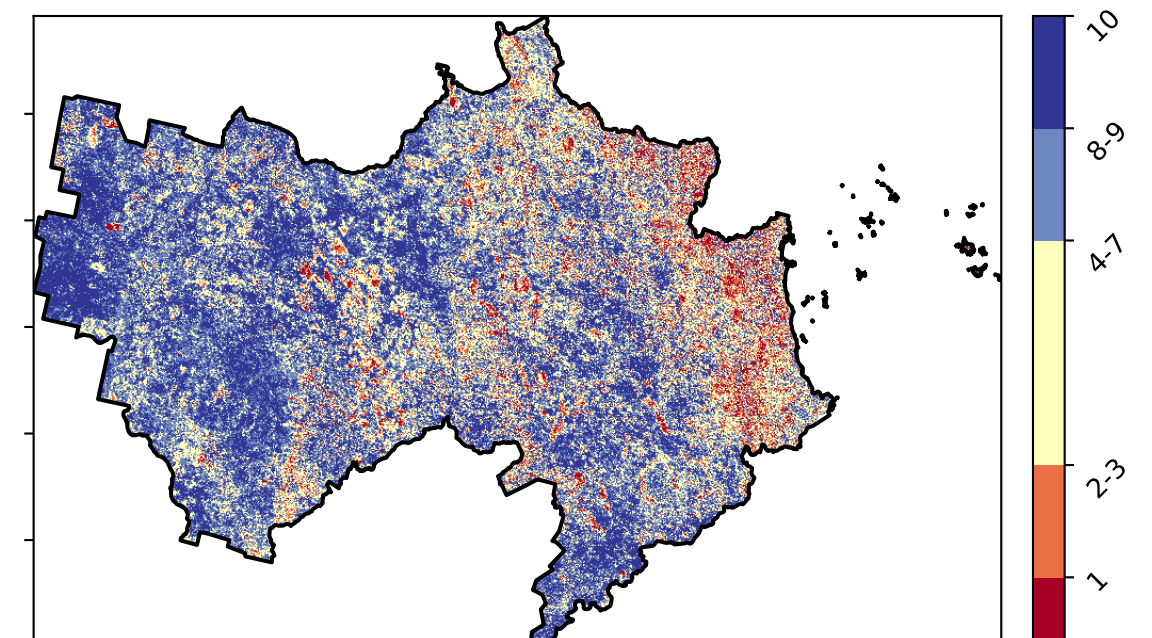


Total Vegetation Cover Anomaly [%]



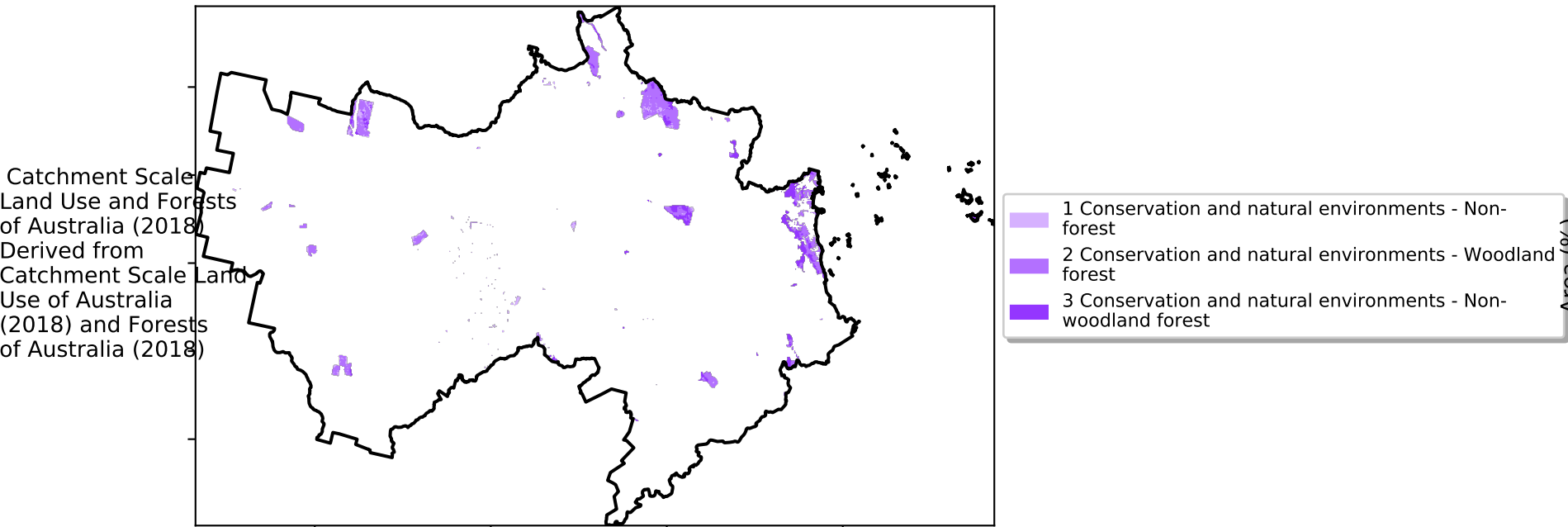
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Total Vegetation Cover Decile [%]



Conservation and natural environments

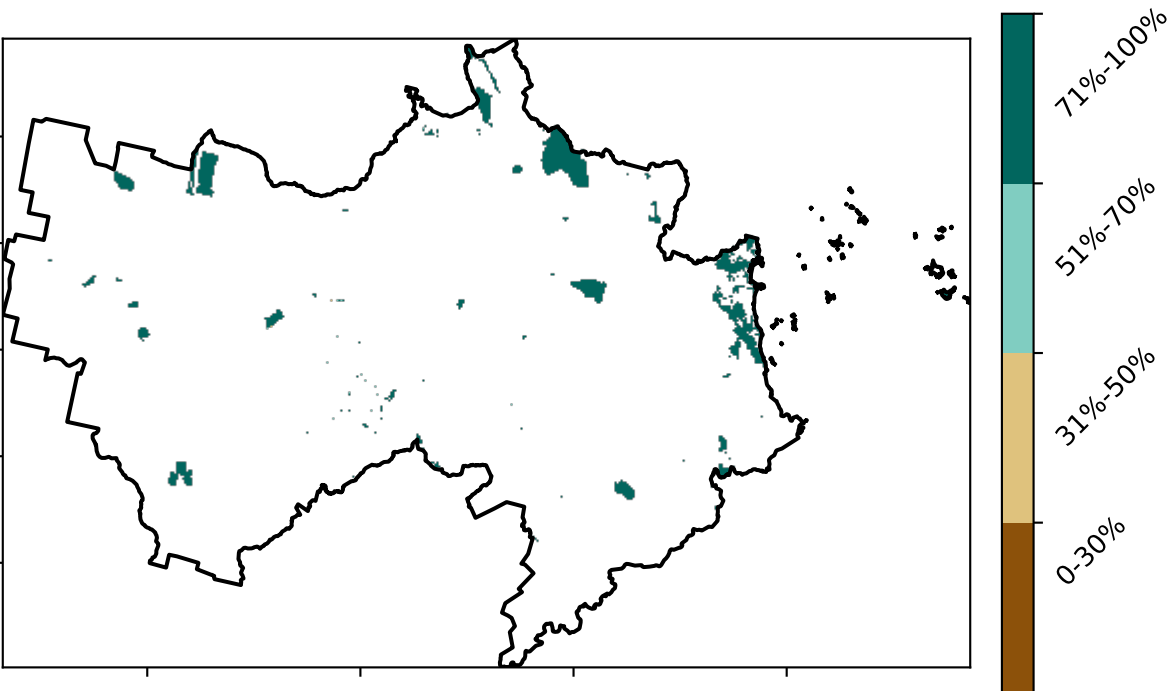
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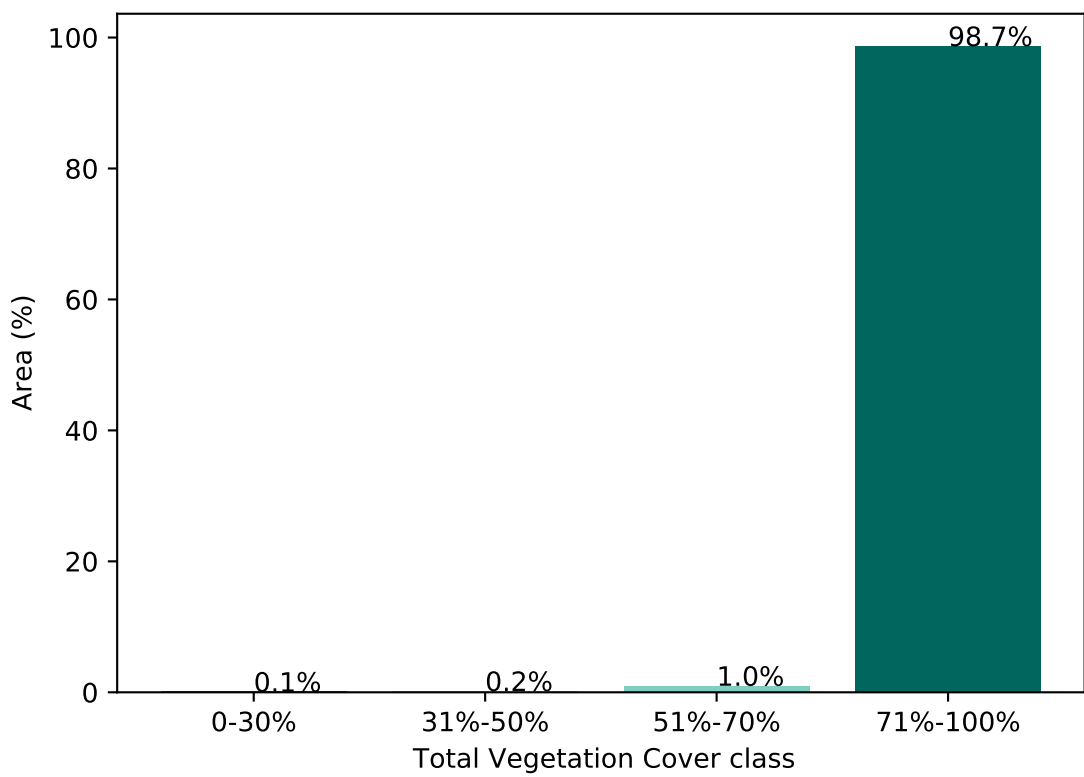
Proportion of each land class in area



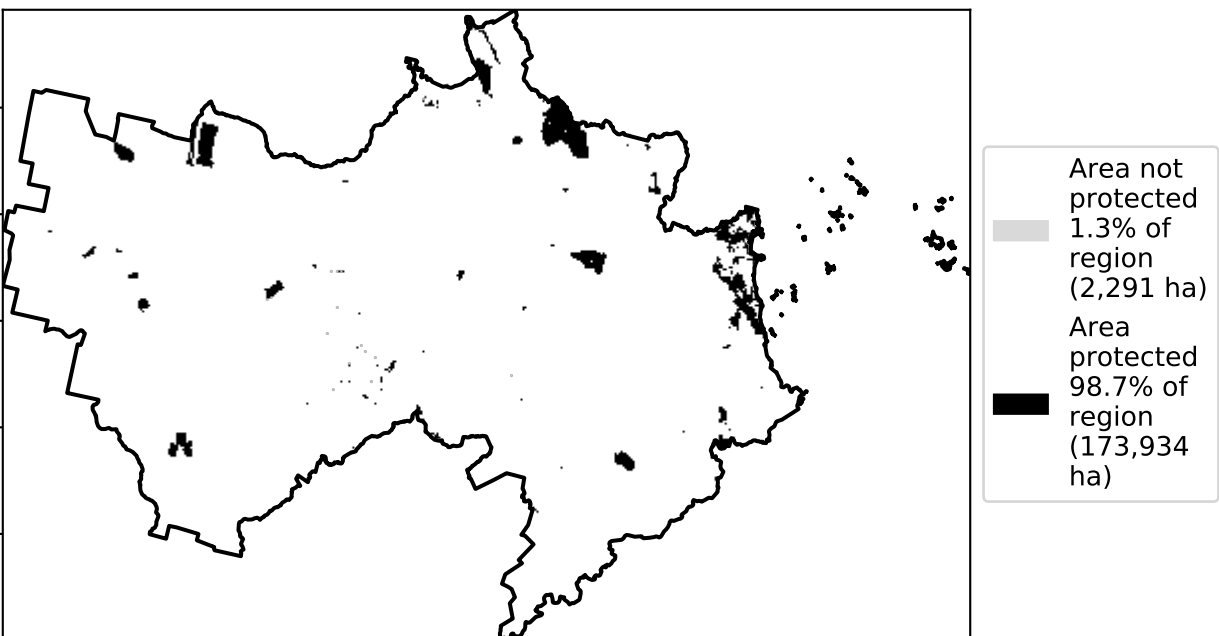
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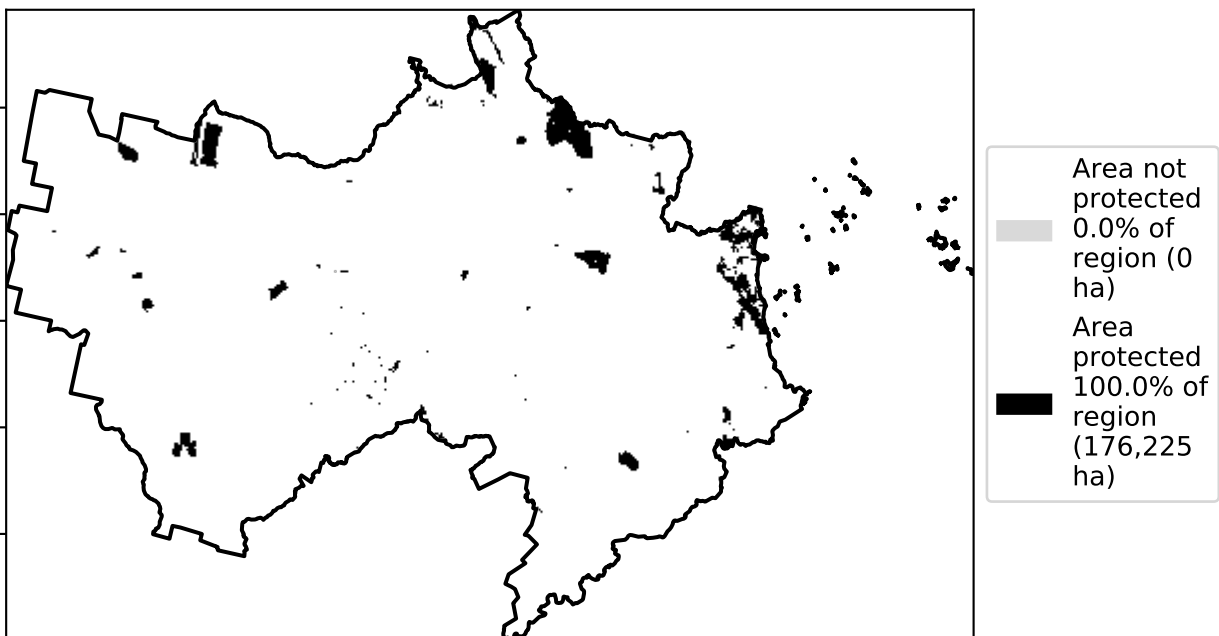
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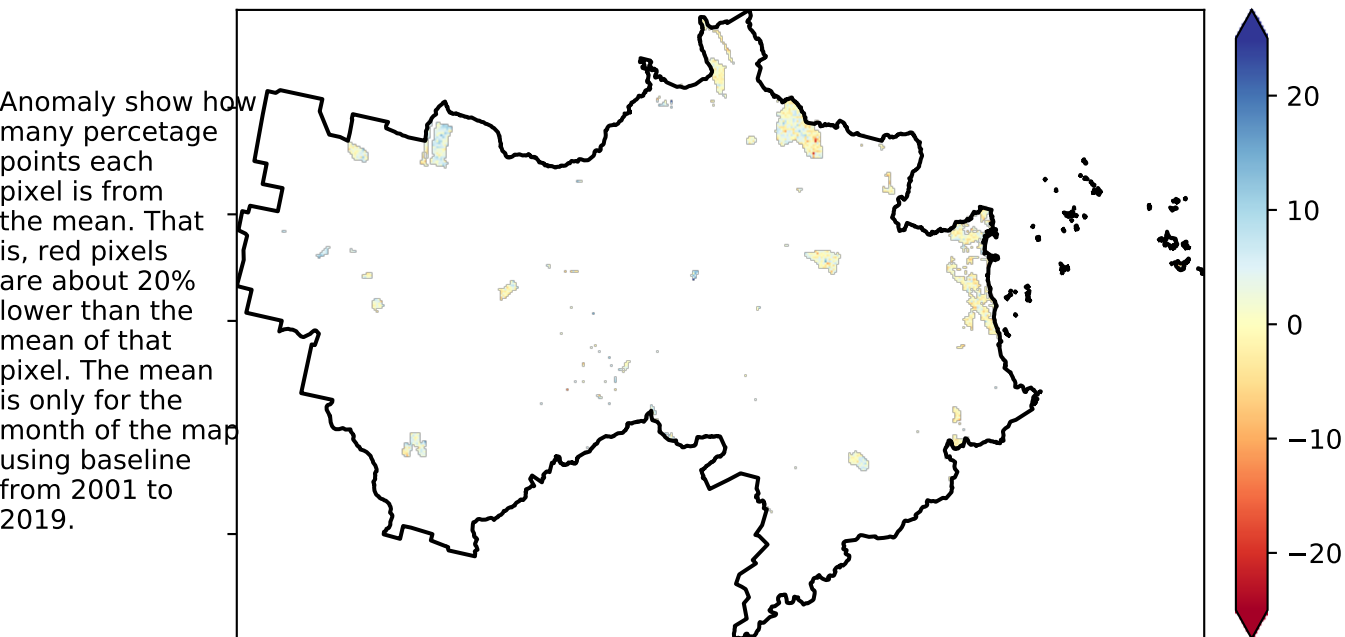
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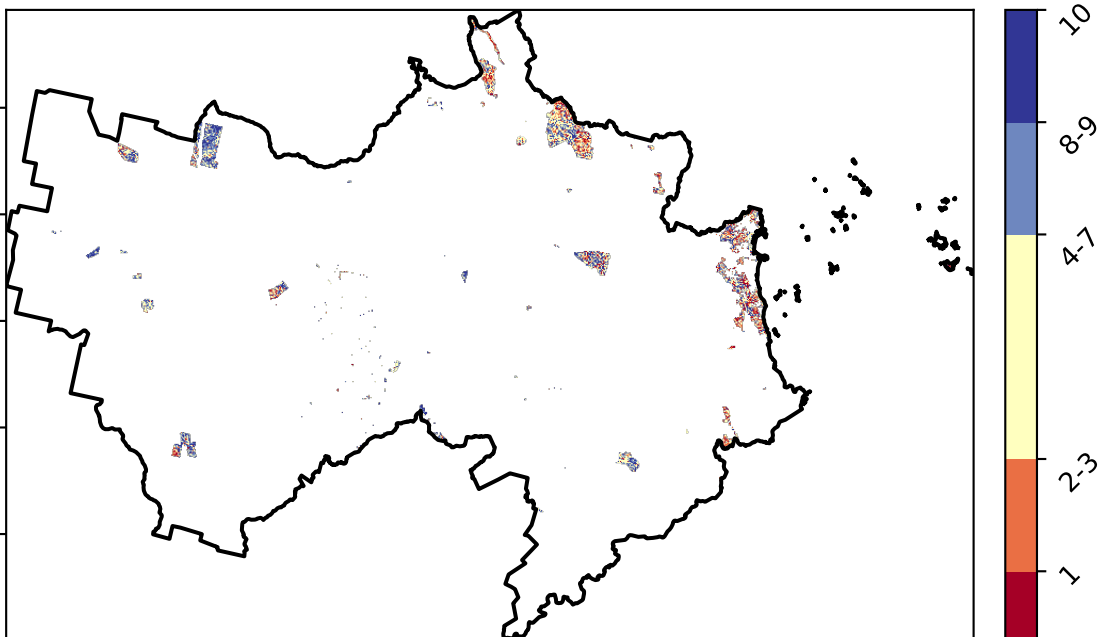


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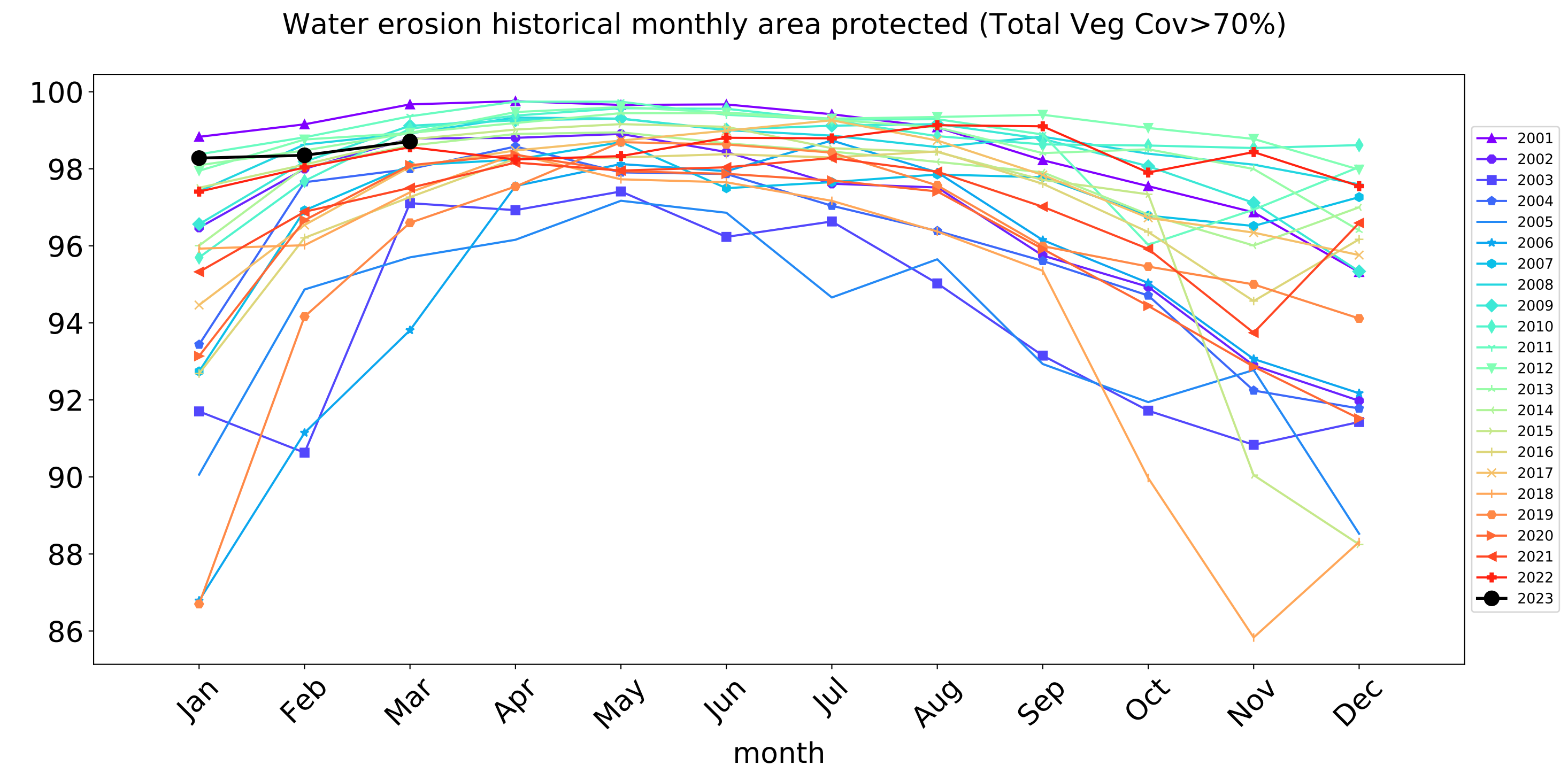
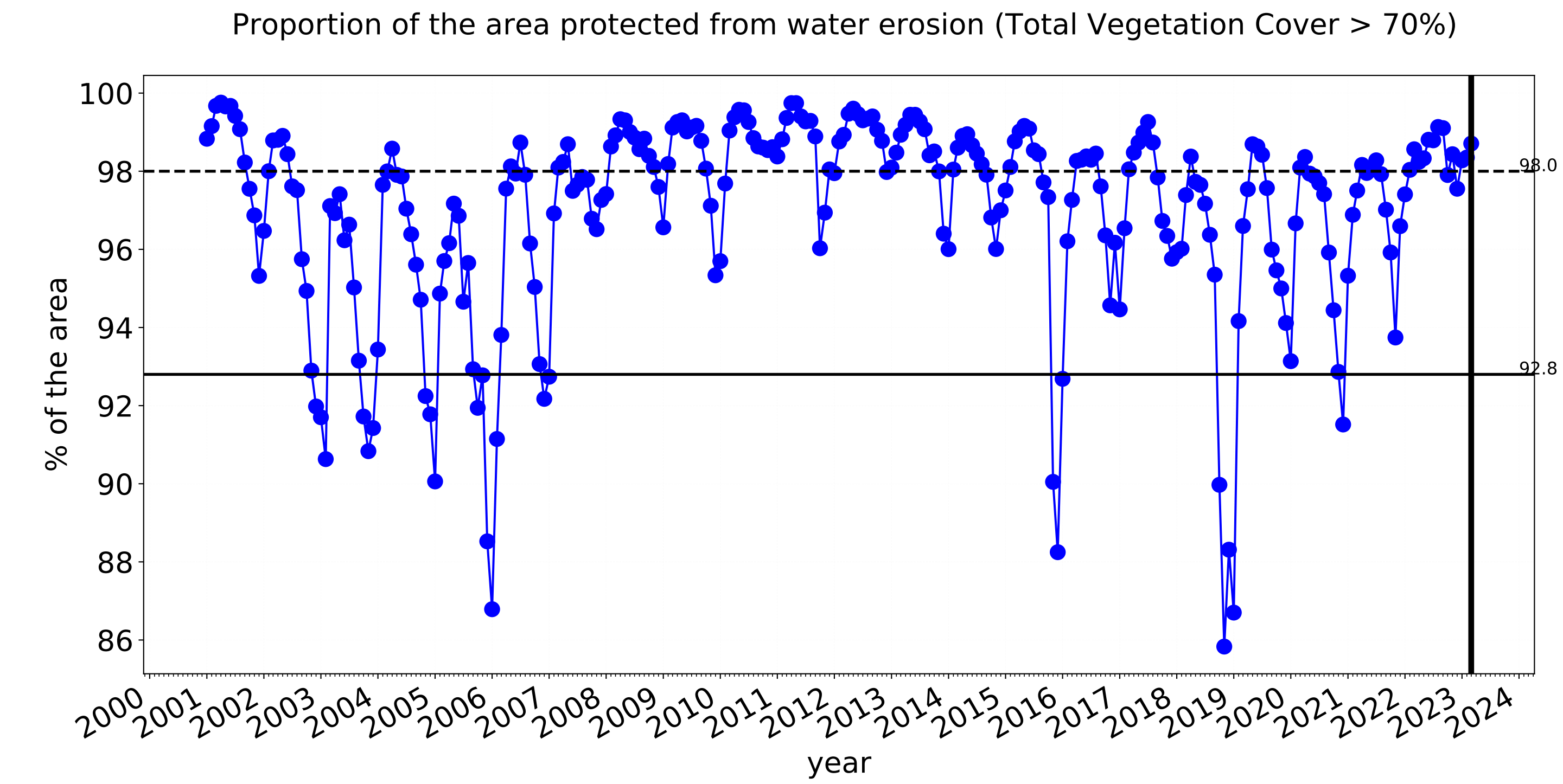
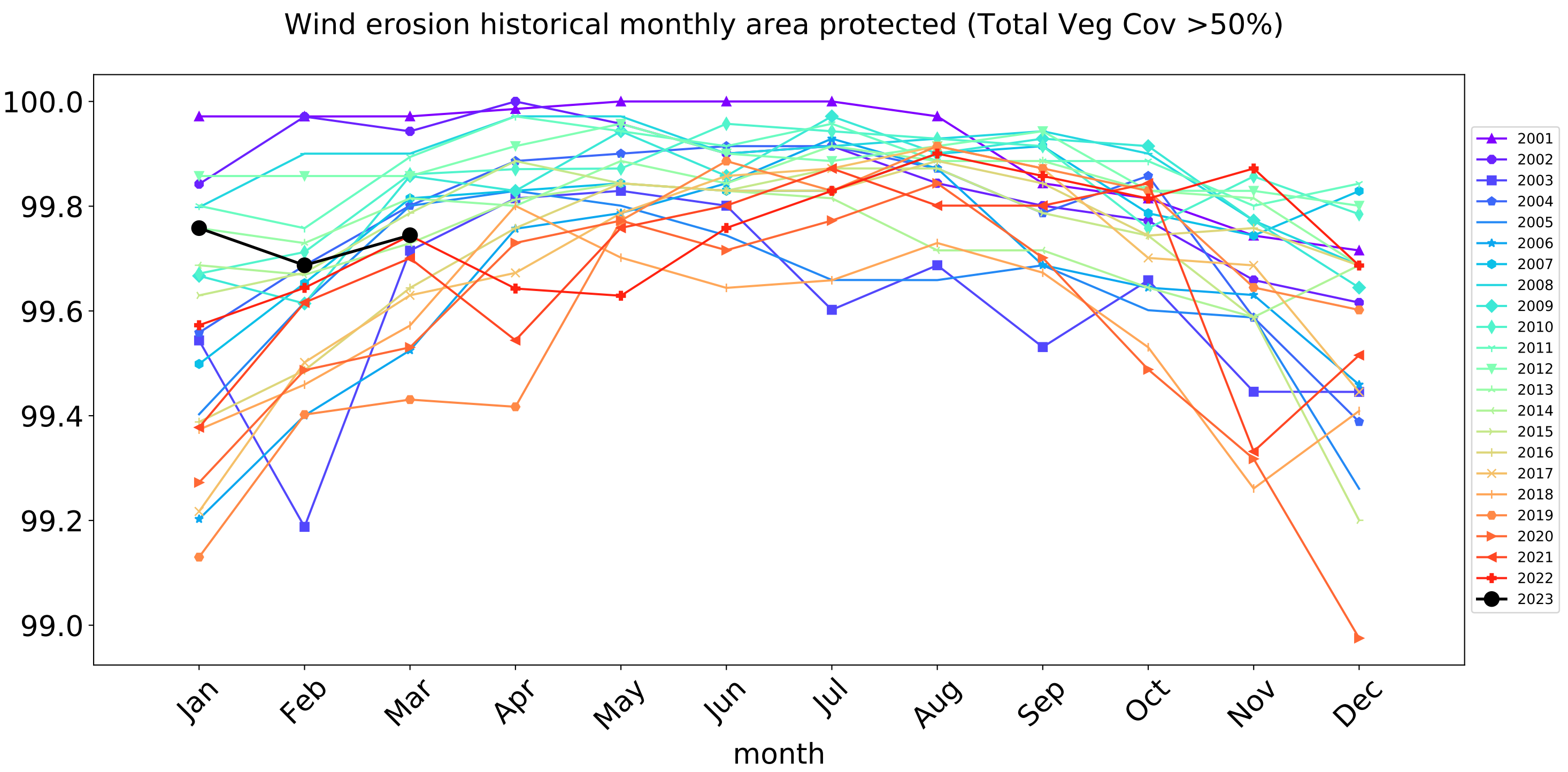
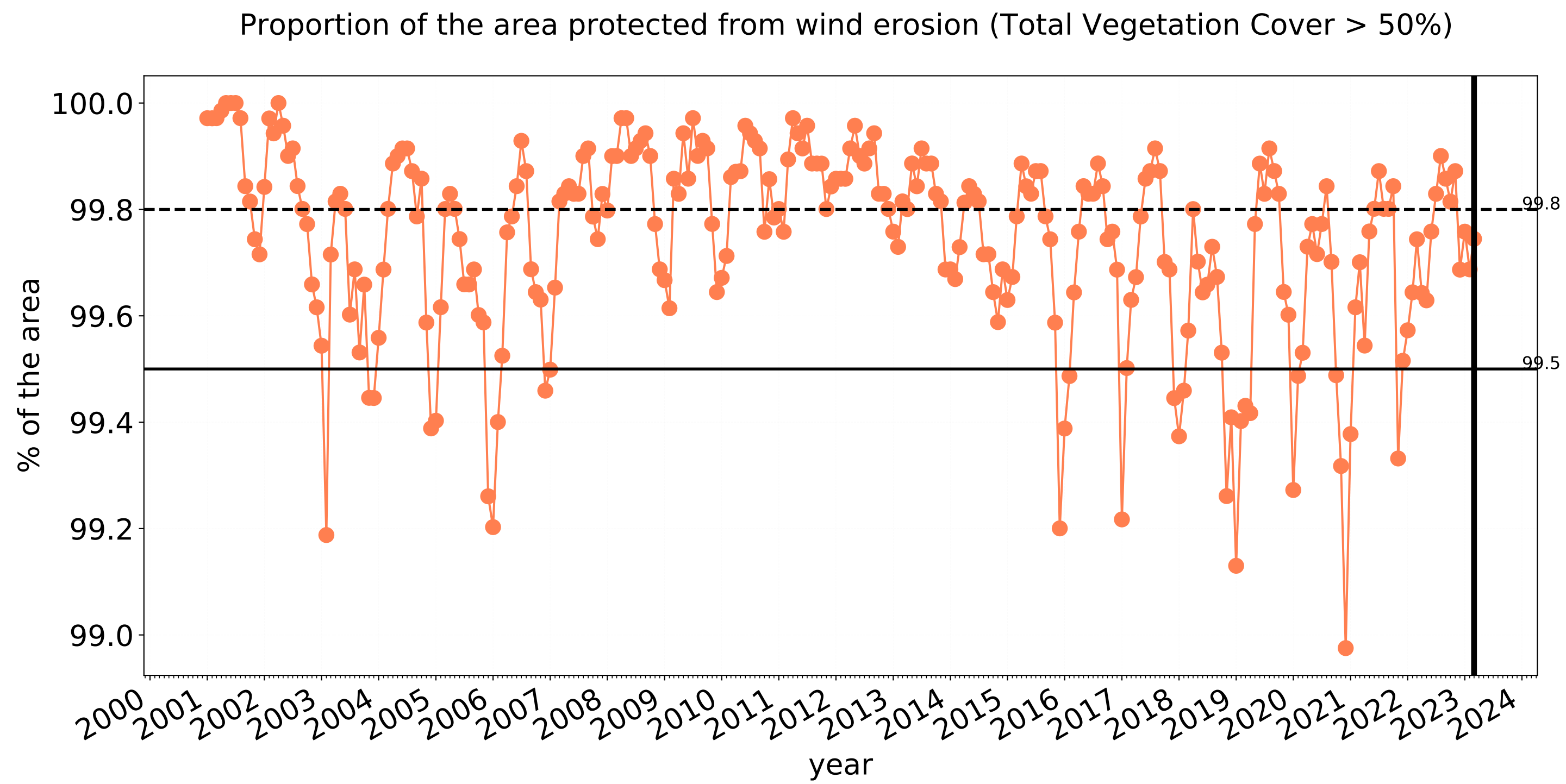


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Conservation and natural environments timeseries

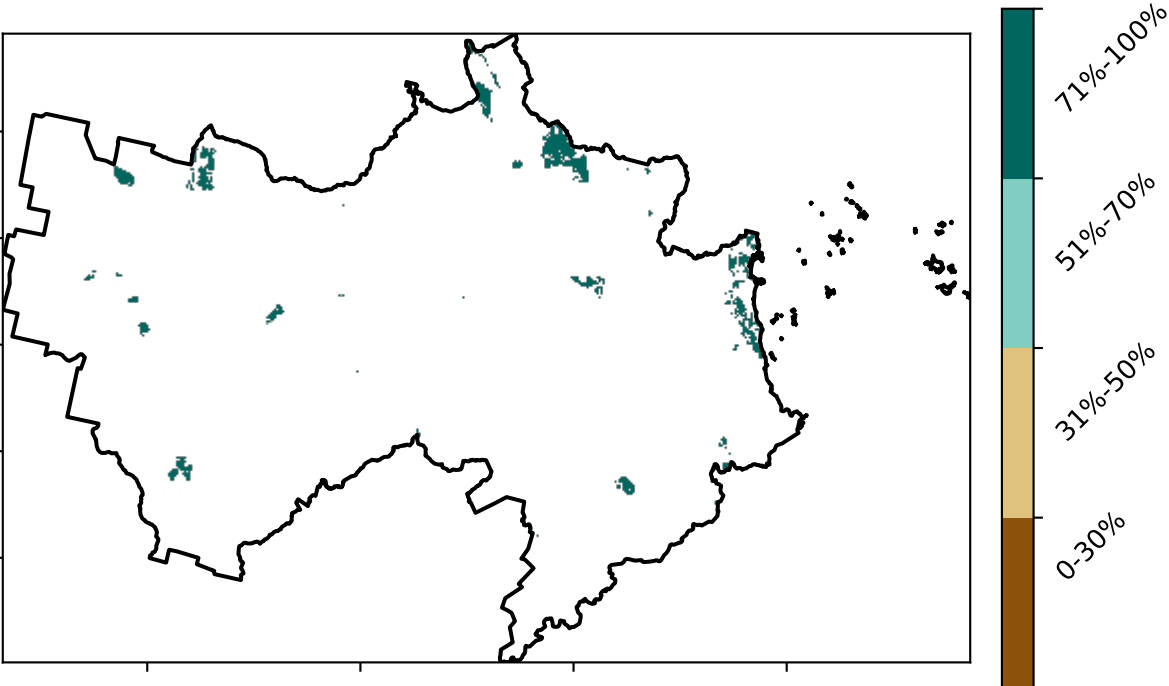


Conservation and natural environments Woodland forest

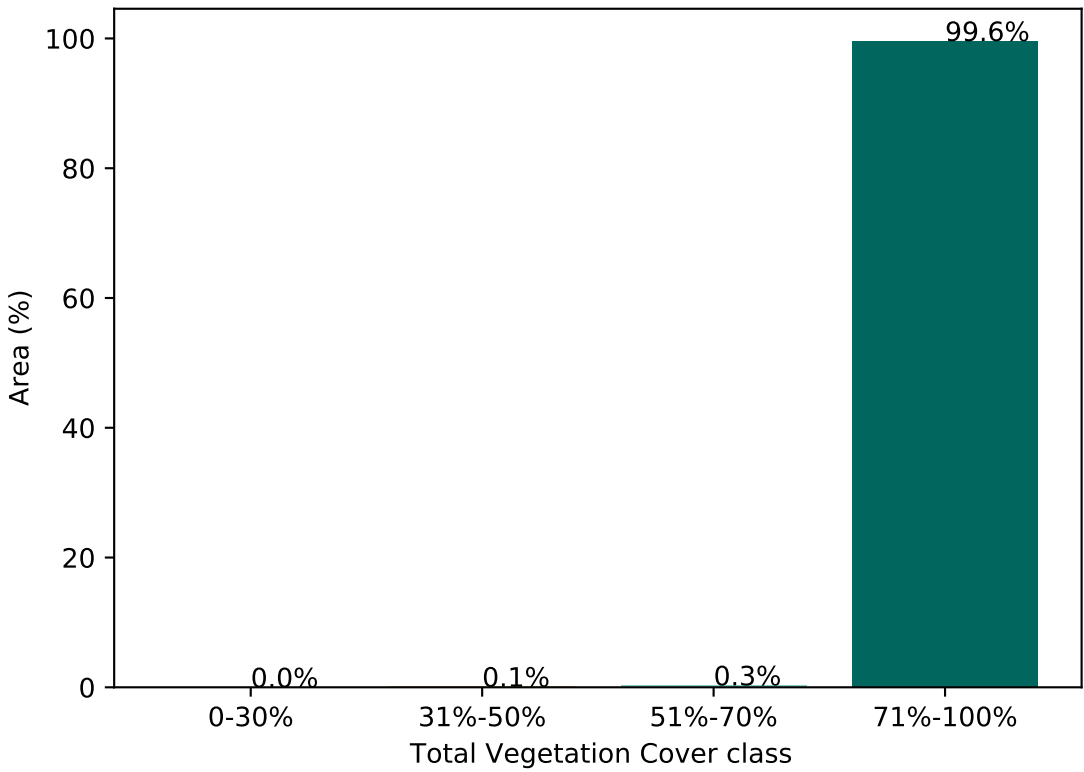
Land use and forest cover



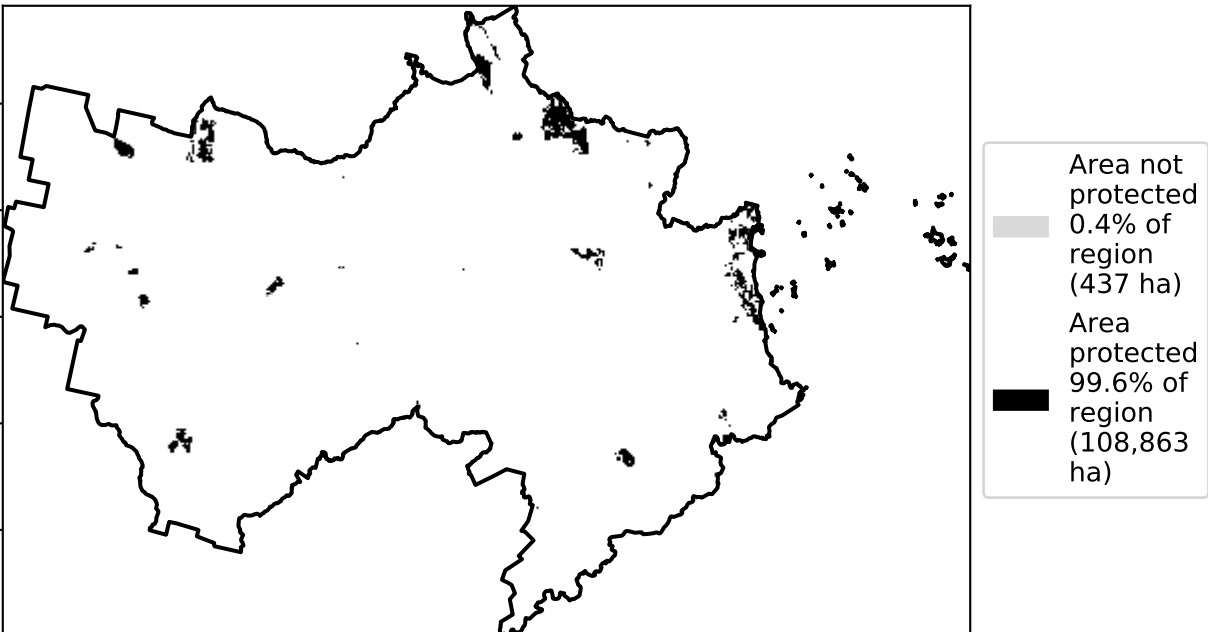
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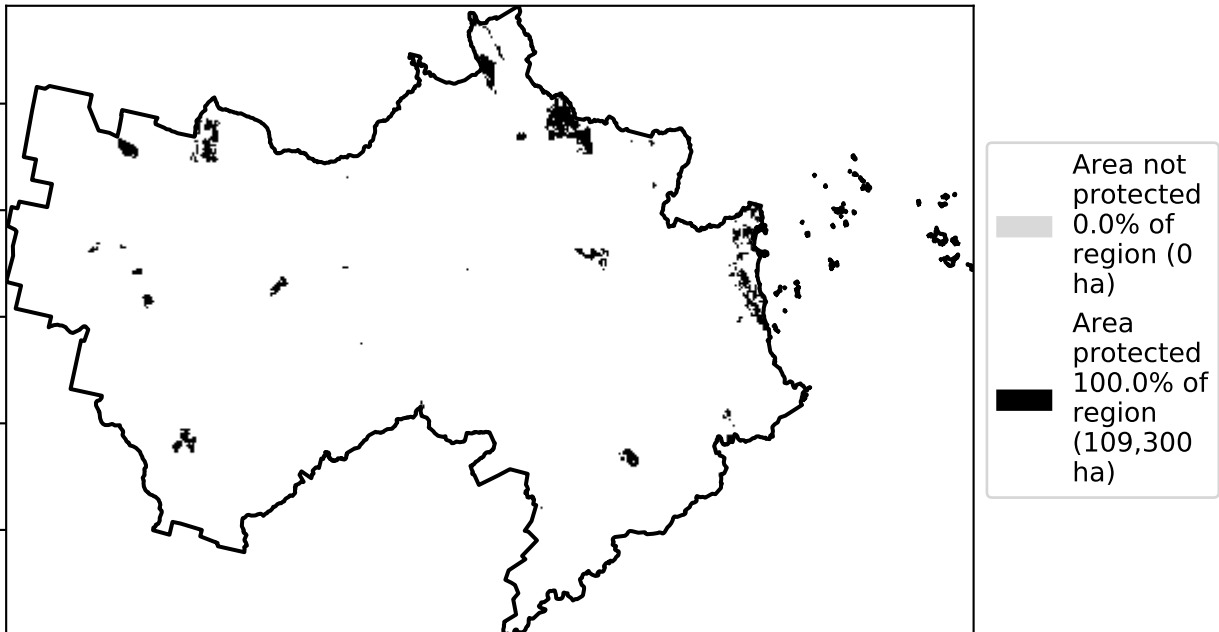
Proportion of vegetation cover class in area



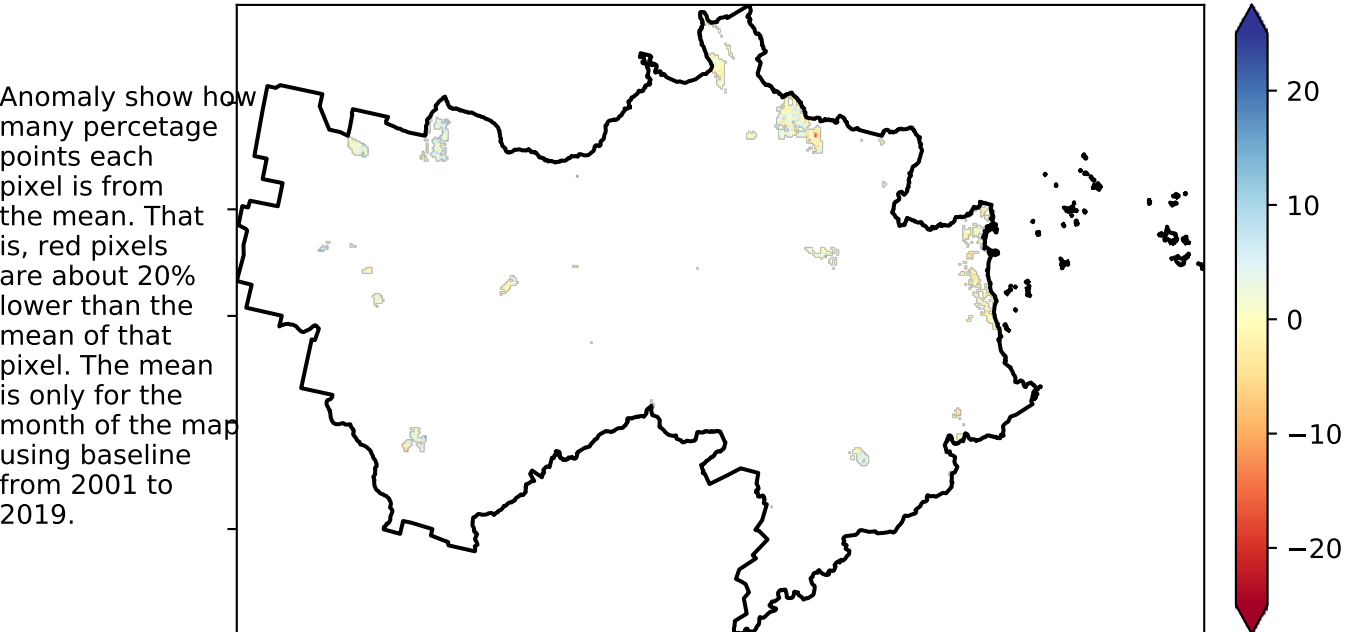
% Area protected from water erosion (>70%)



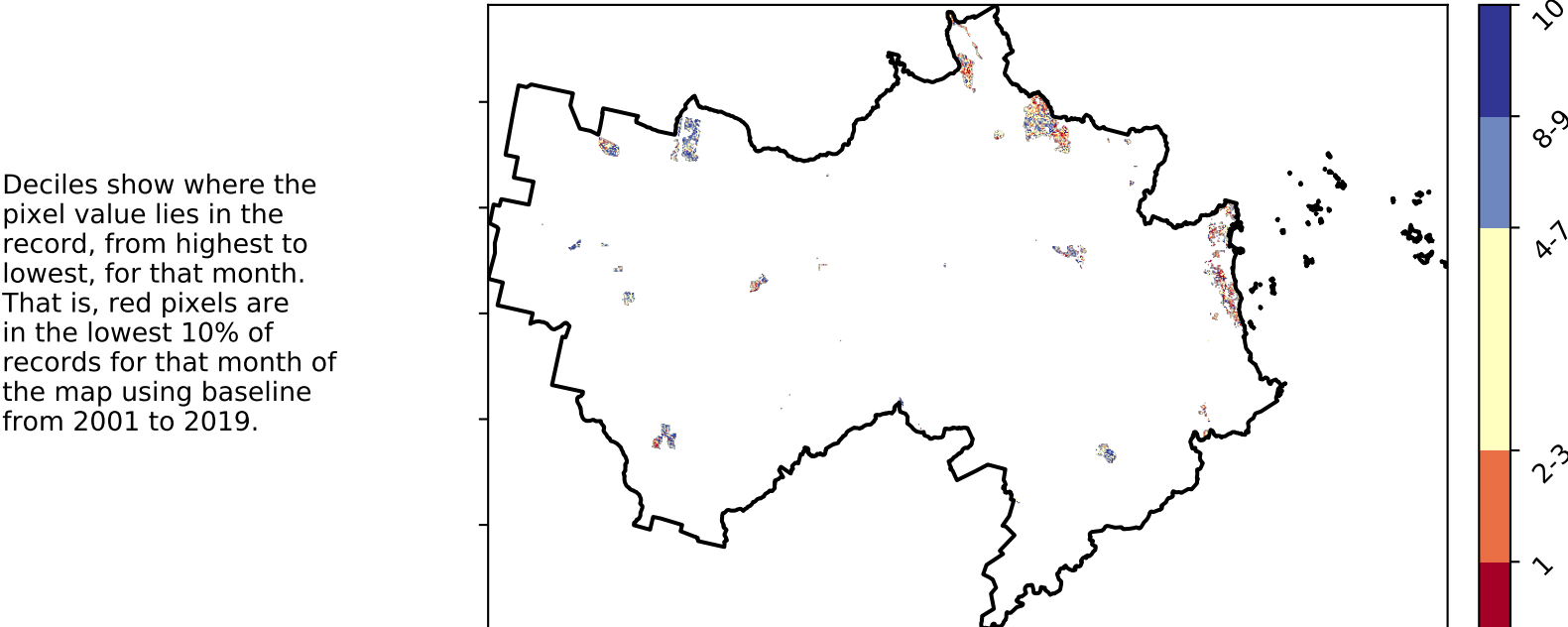
% Area protected from wind erosion (>50%)



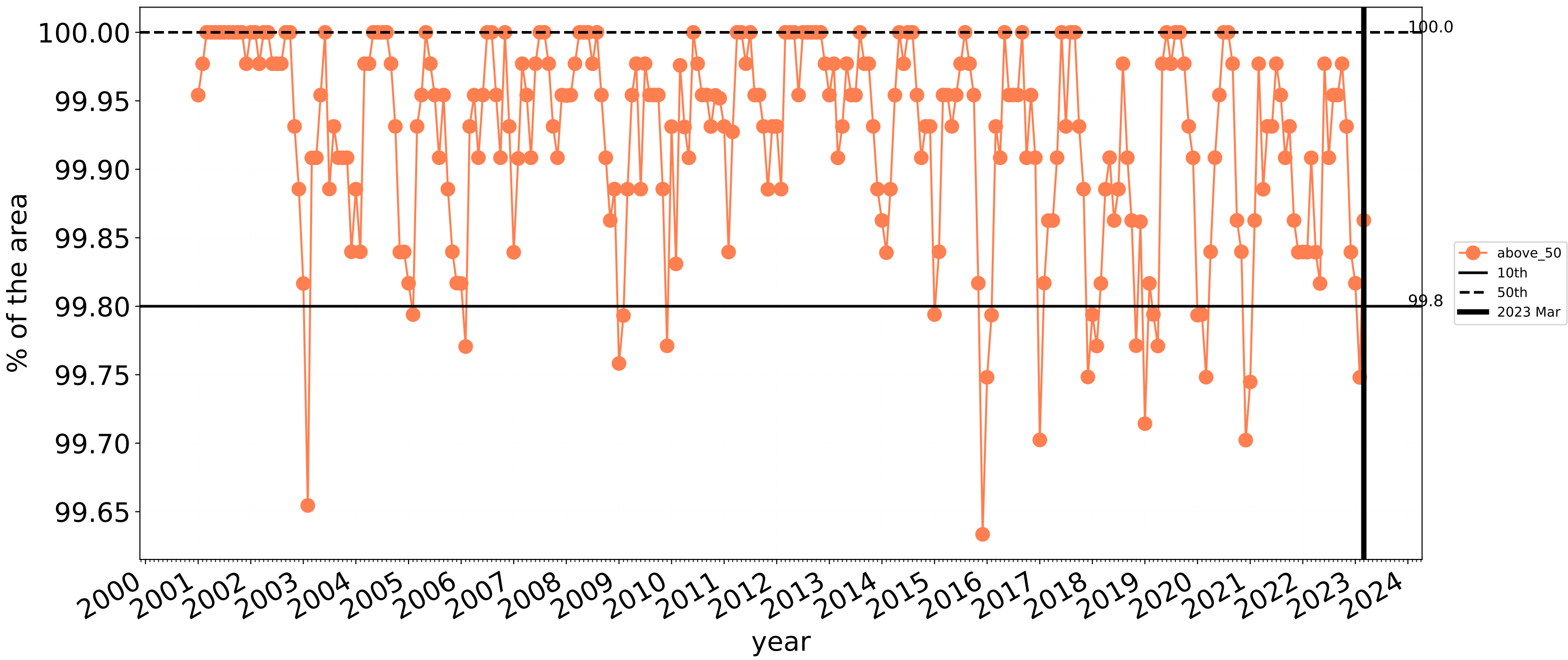
Total Vegetation Cover Anomaly [%]



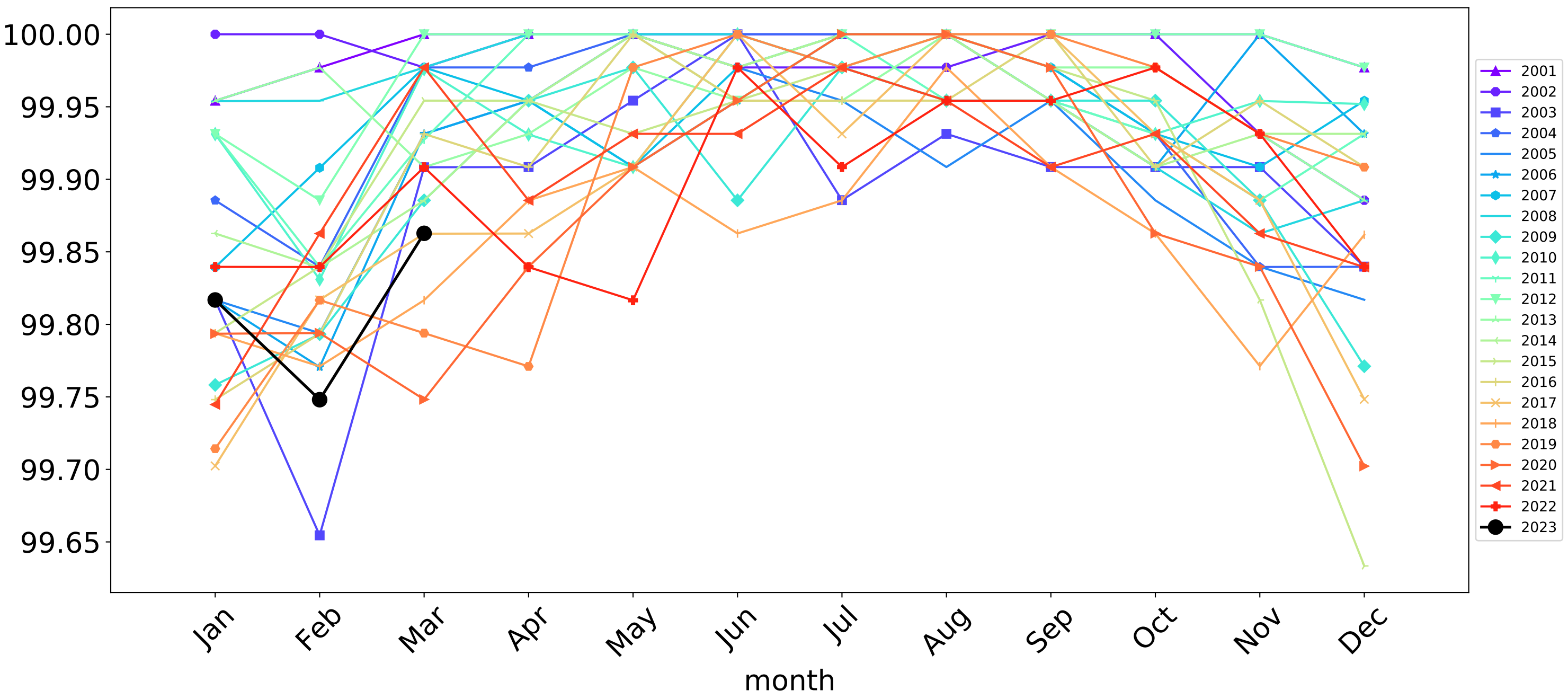
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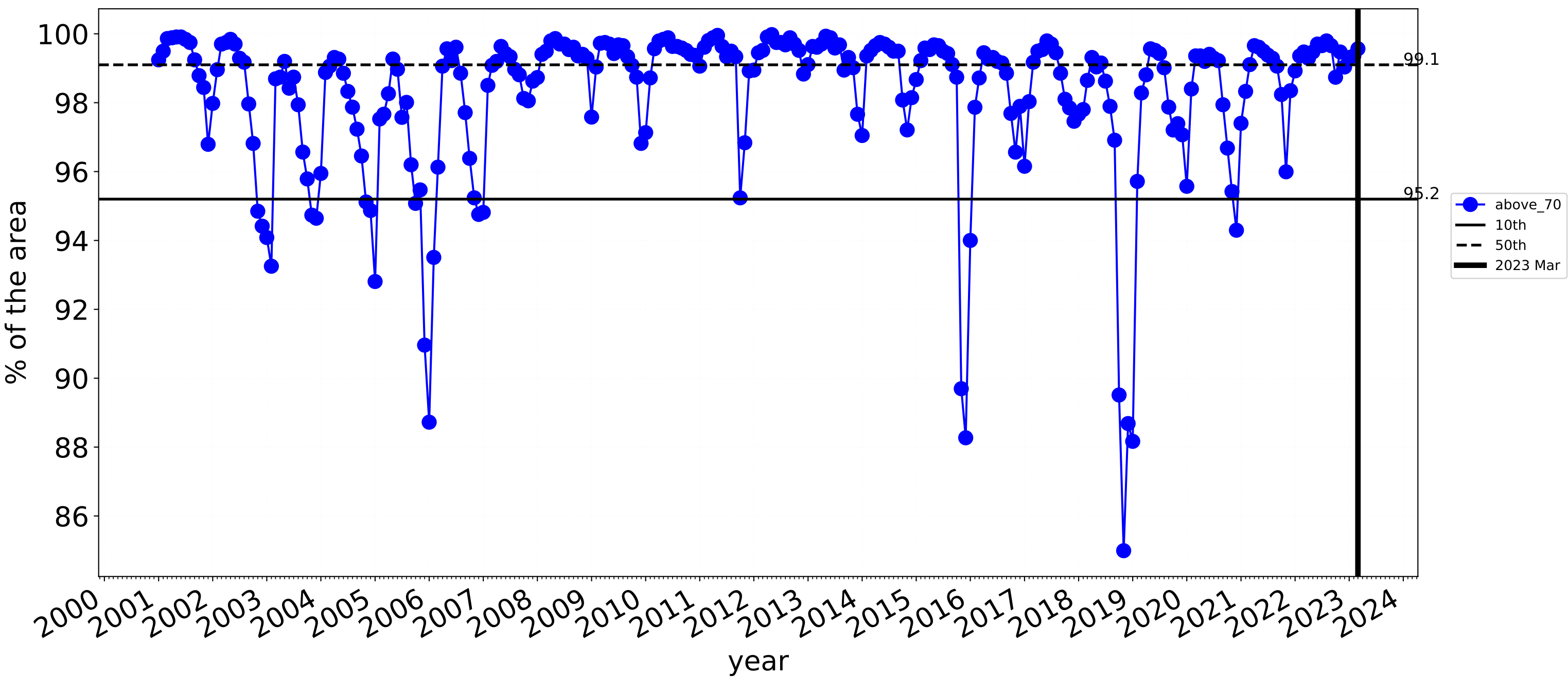
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



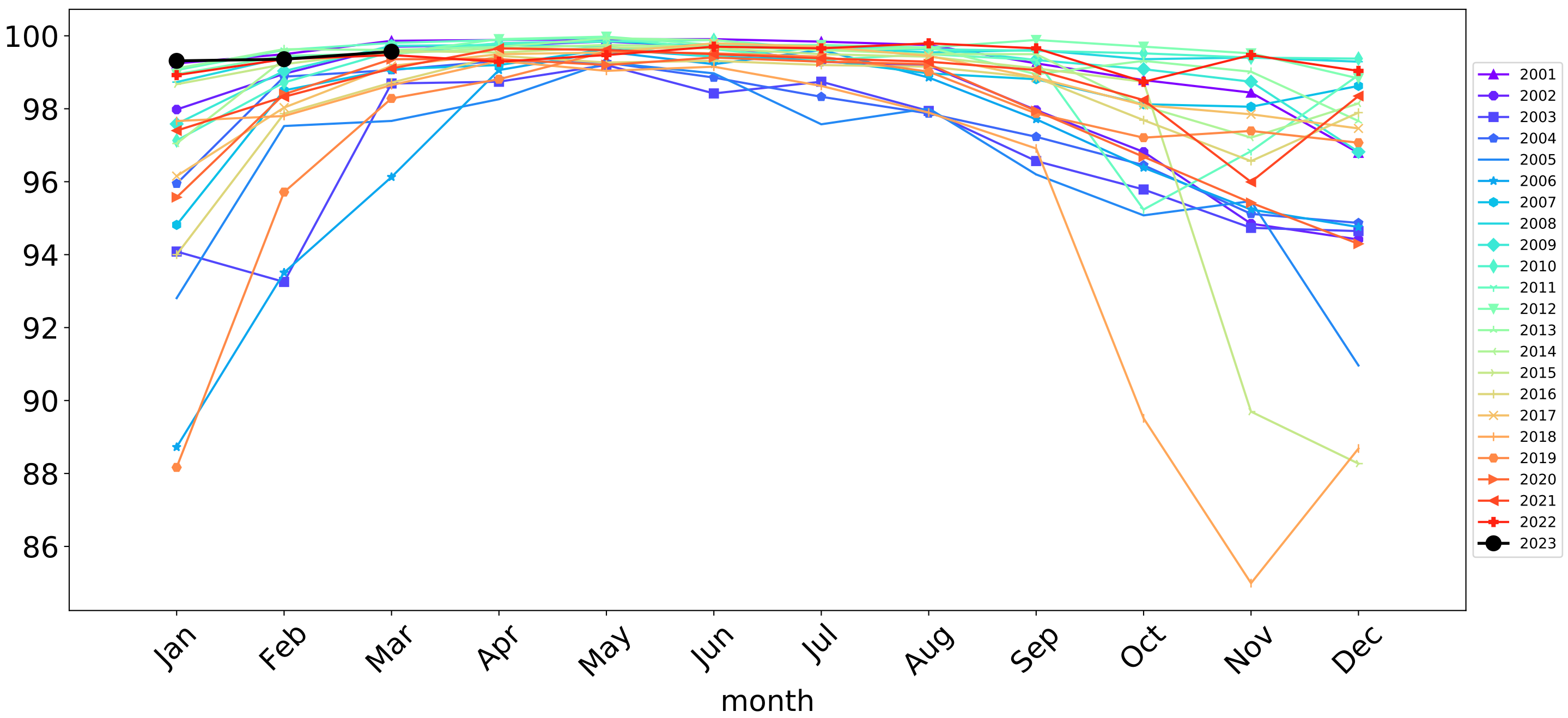
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



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

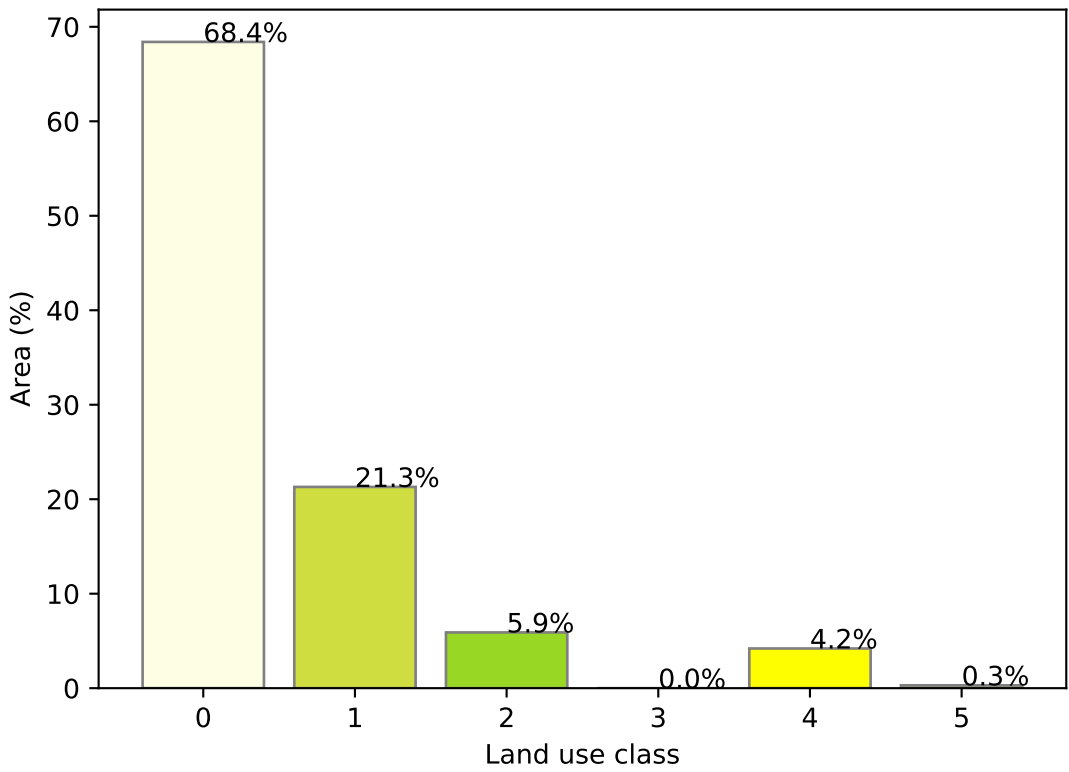


Agriculture

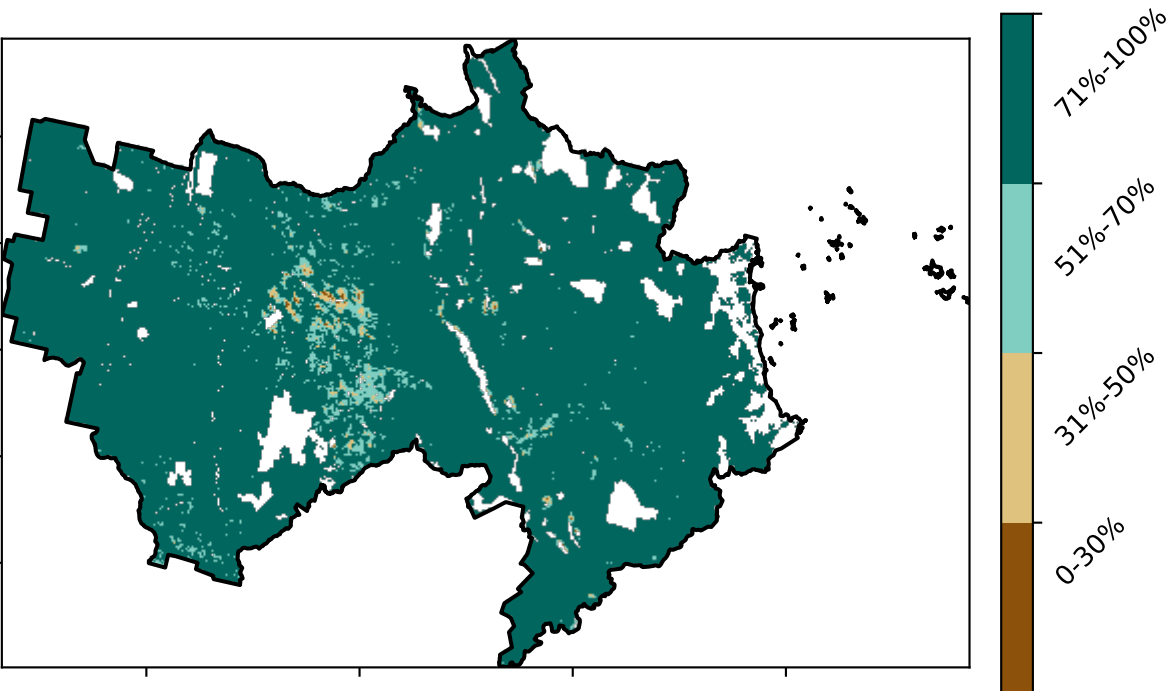
Land use and forest cover



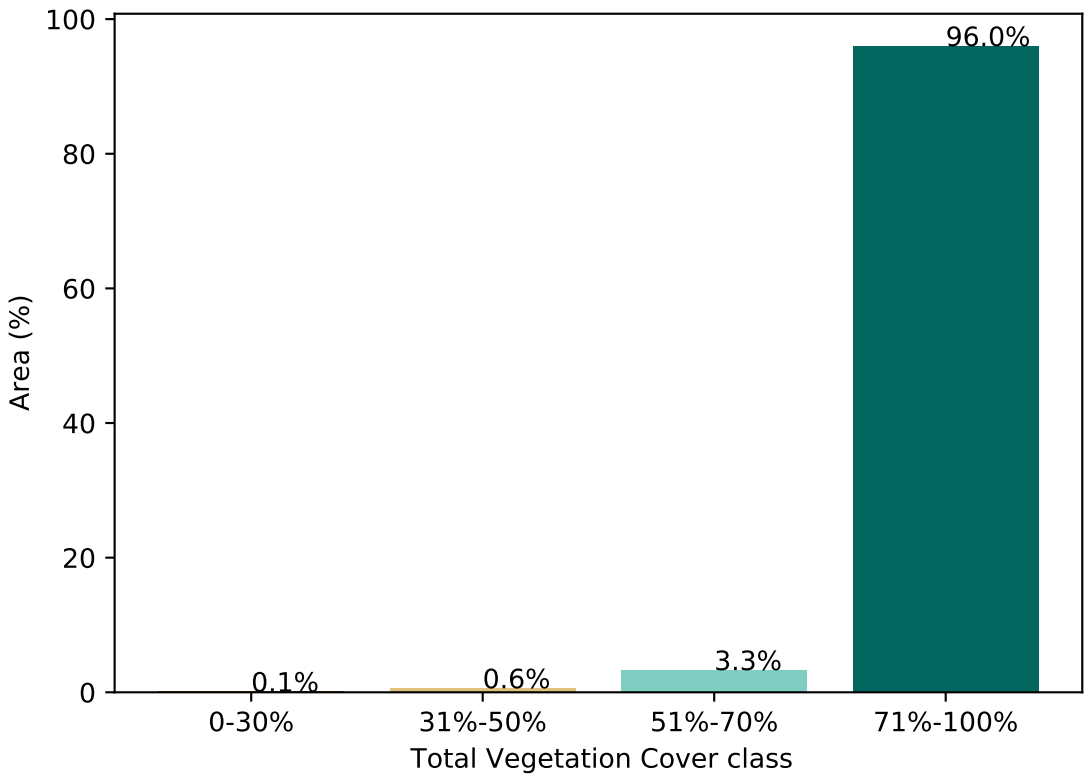
Proportion of each land class in area



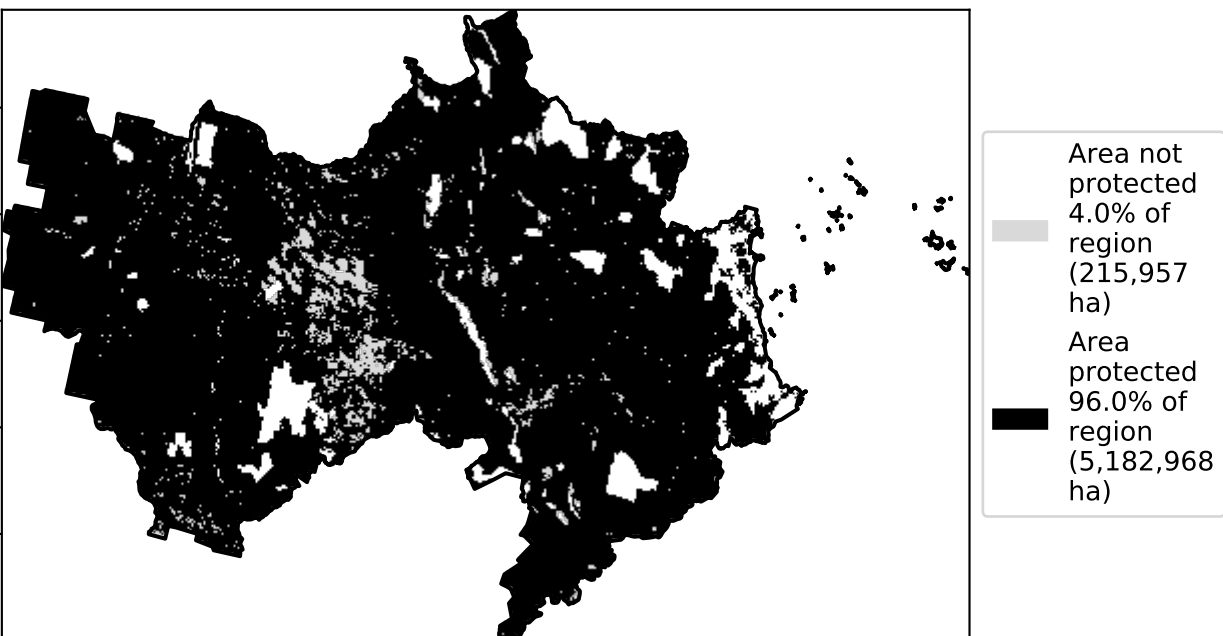
Total Vegetation Cover [%]



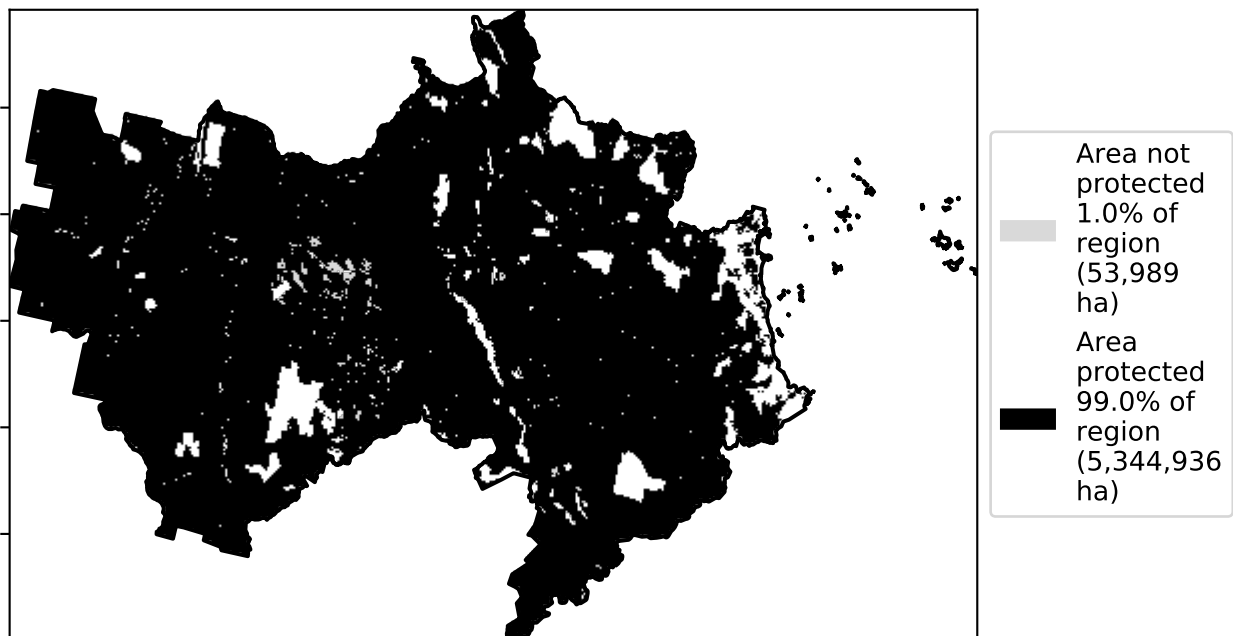
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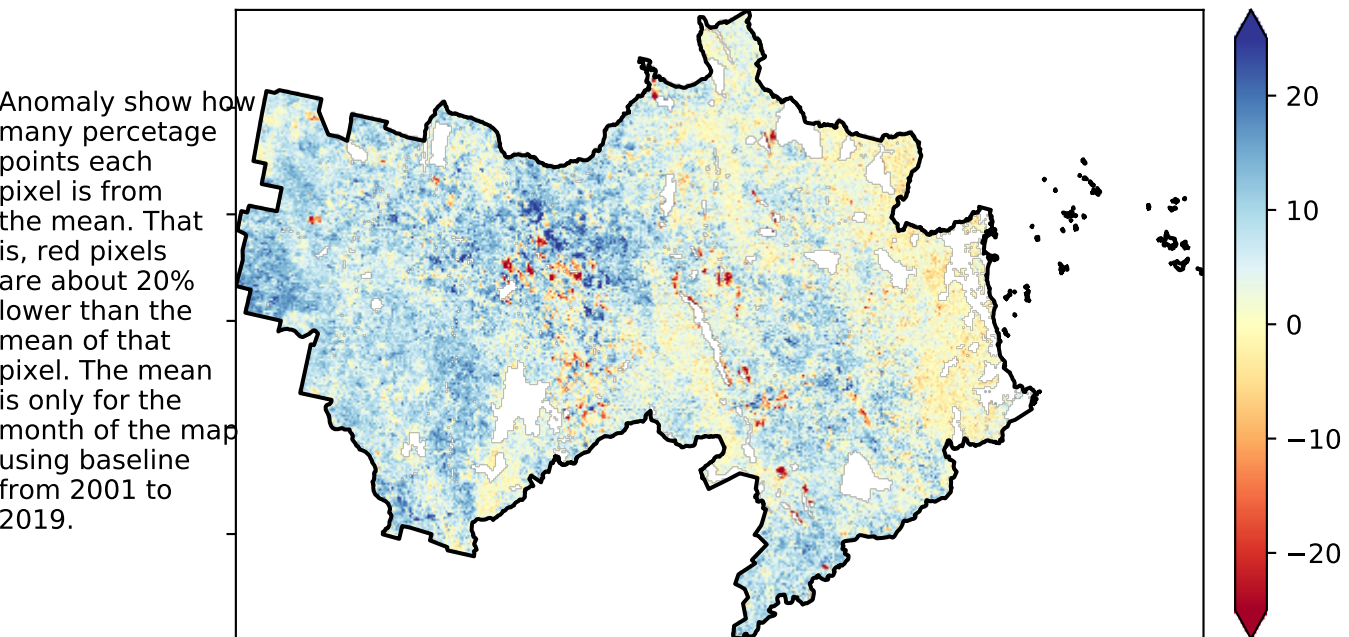
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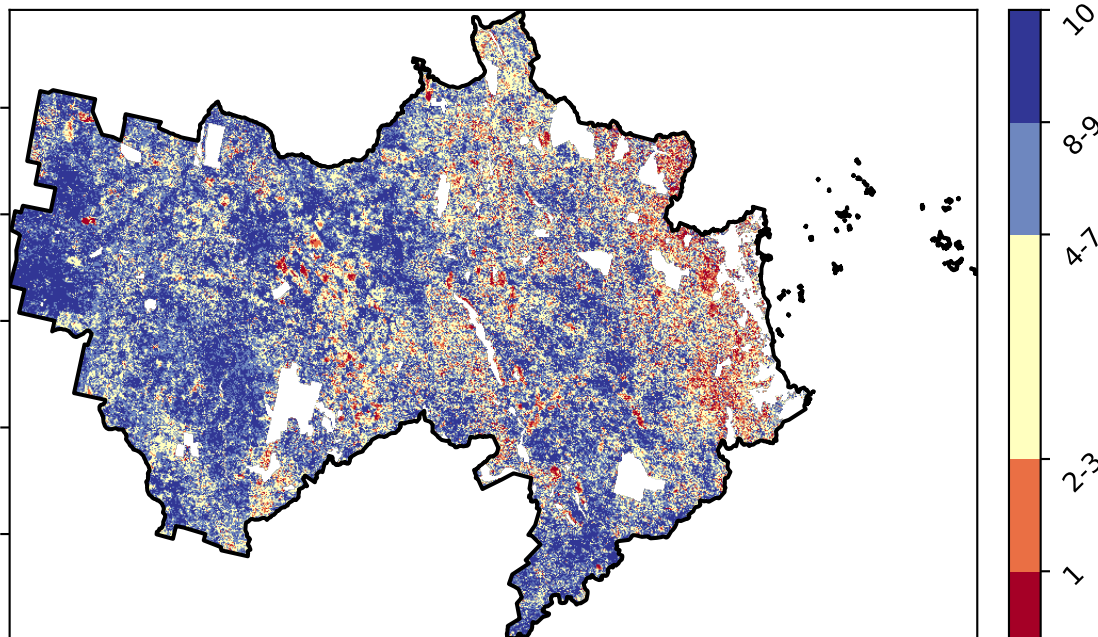


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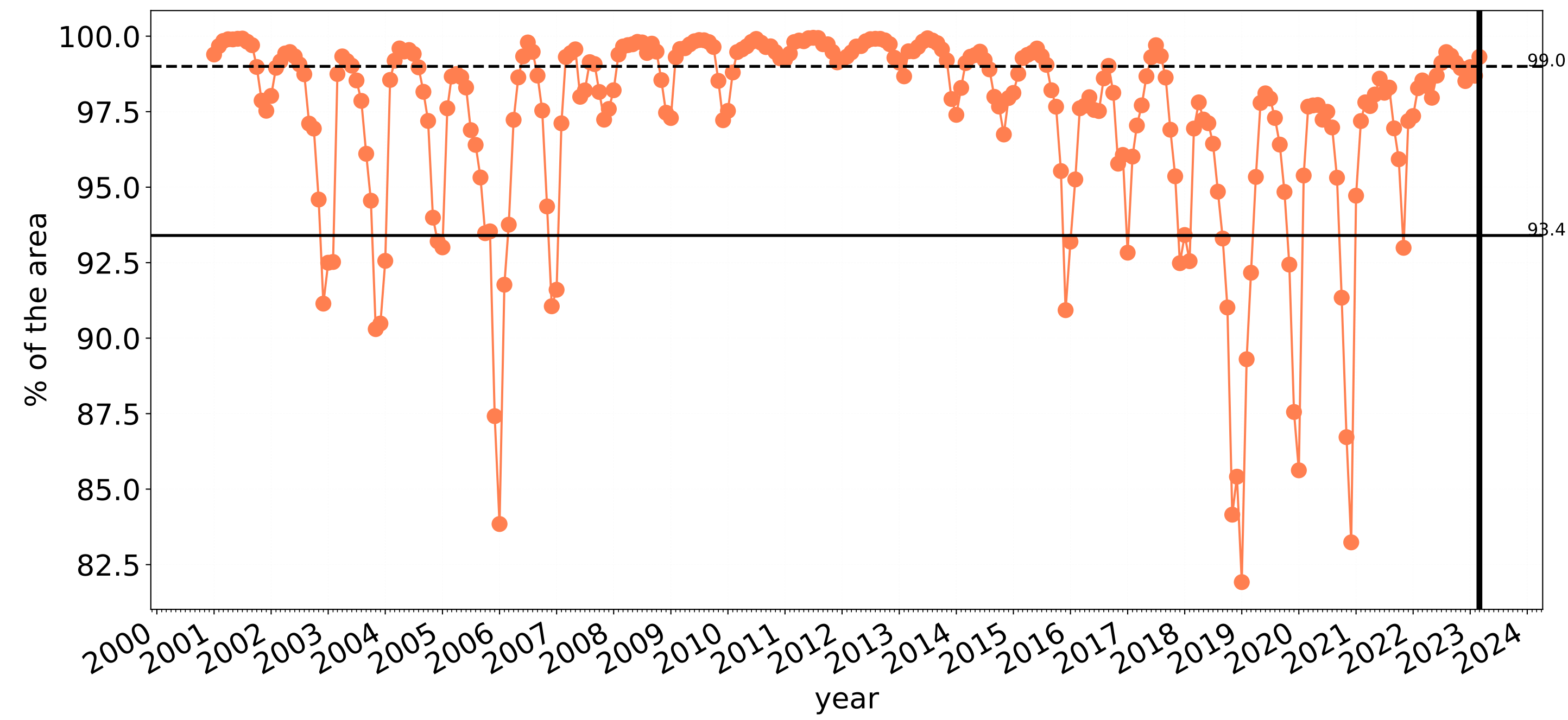
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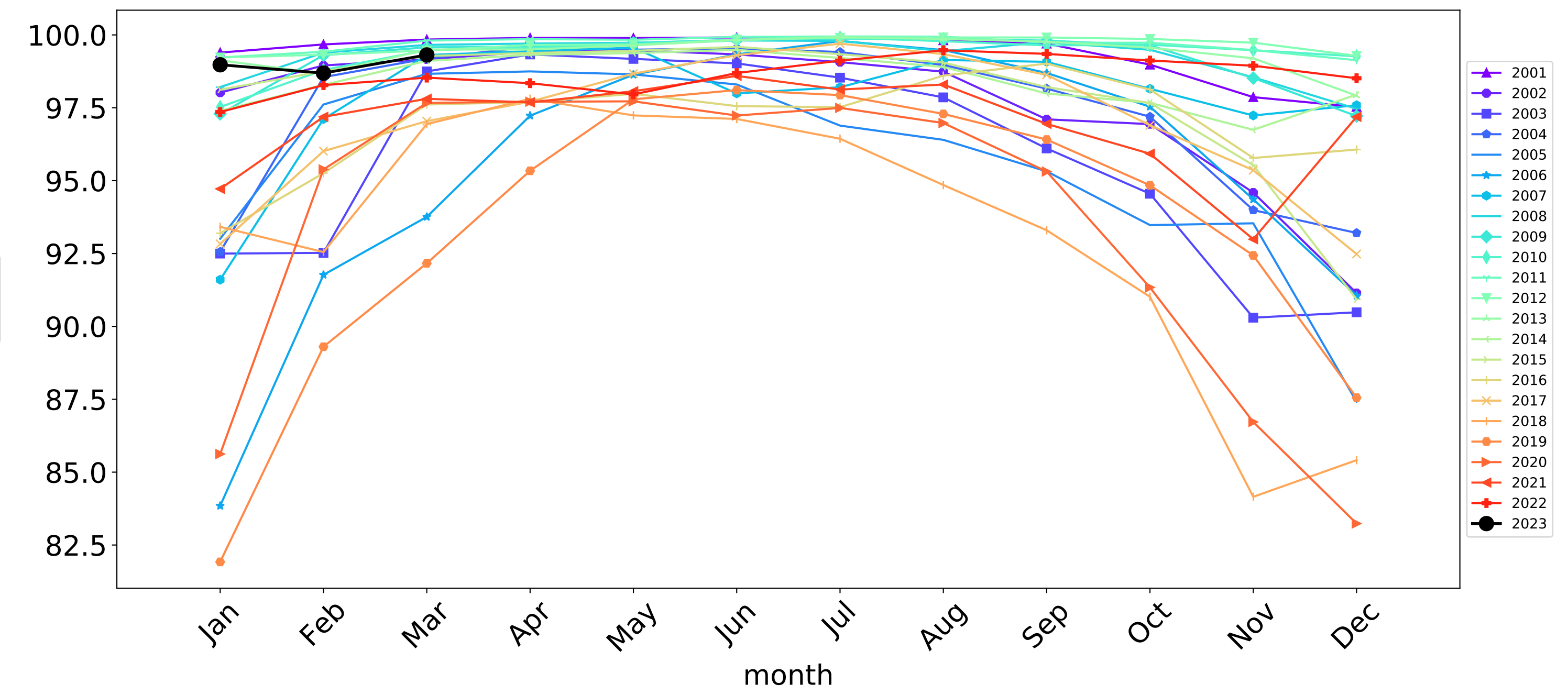


Agriculture timeseries

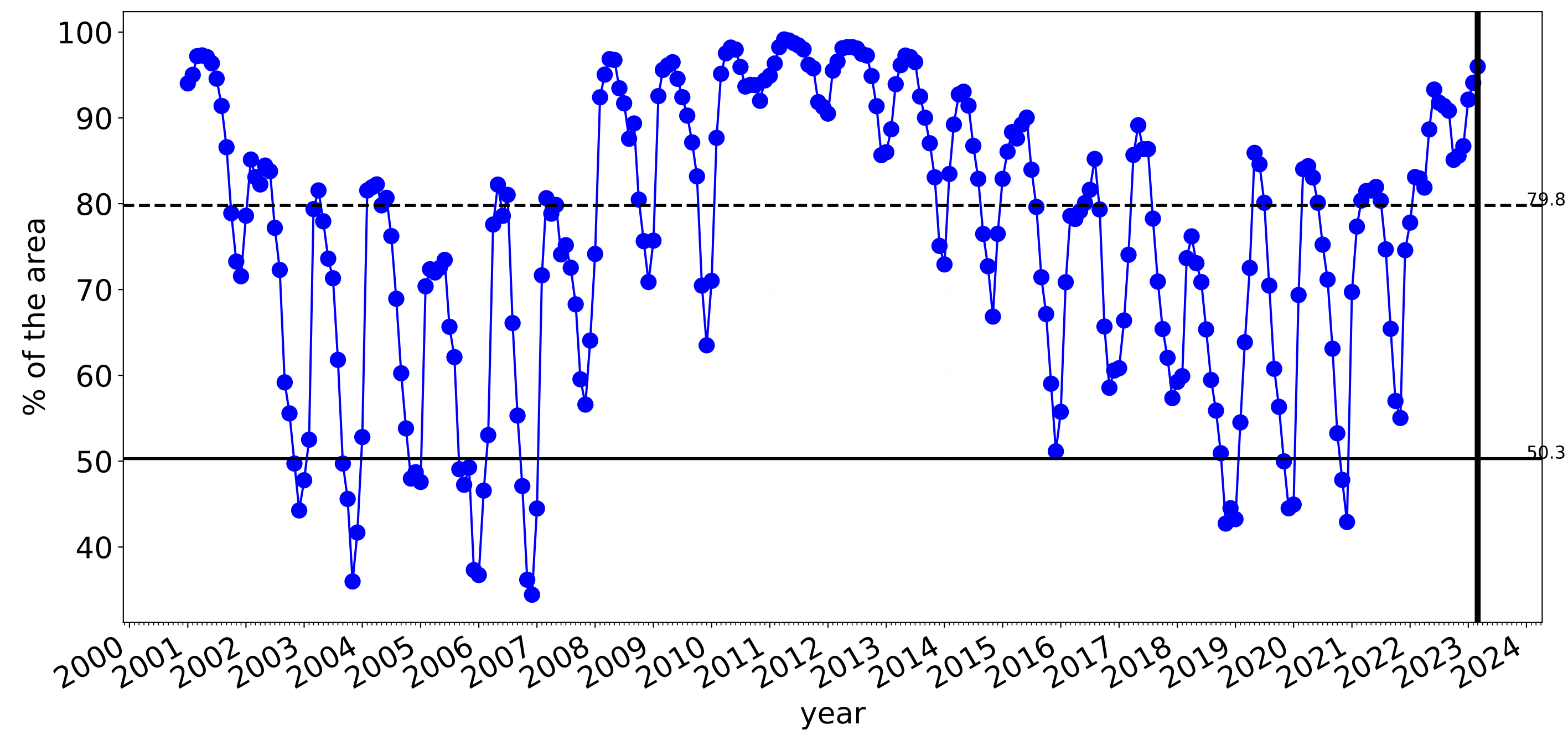
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



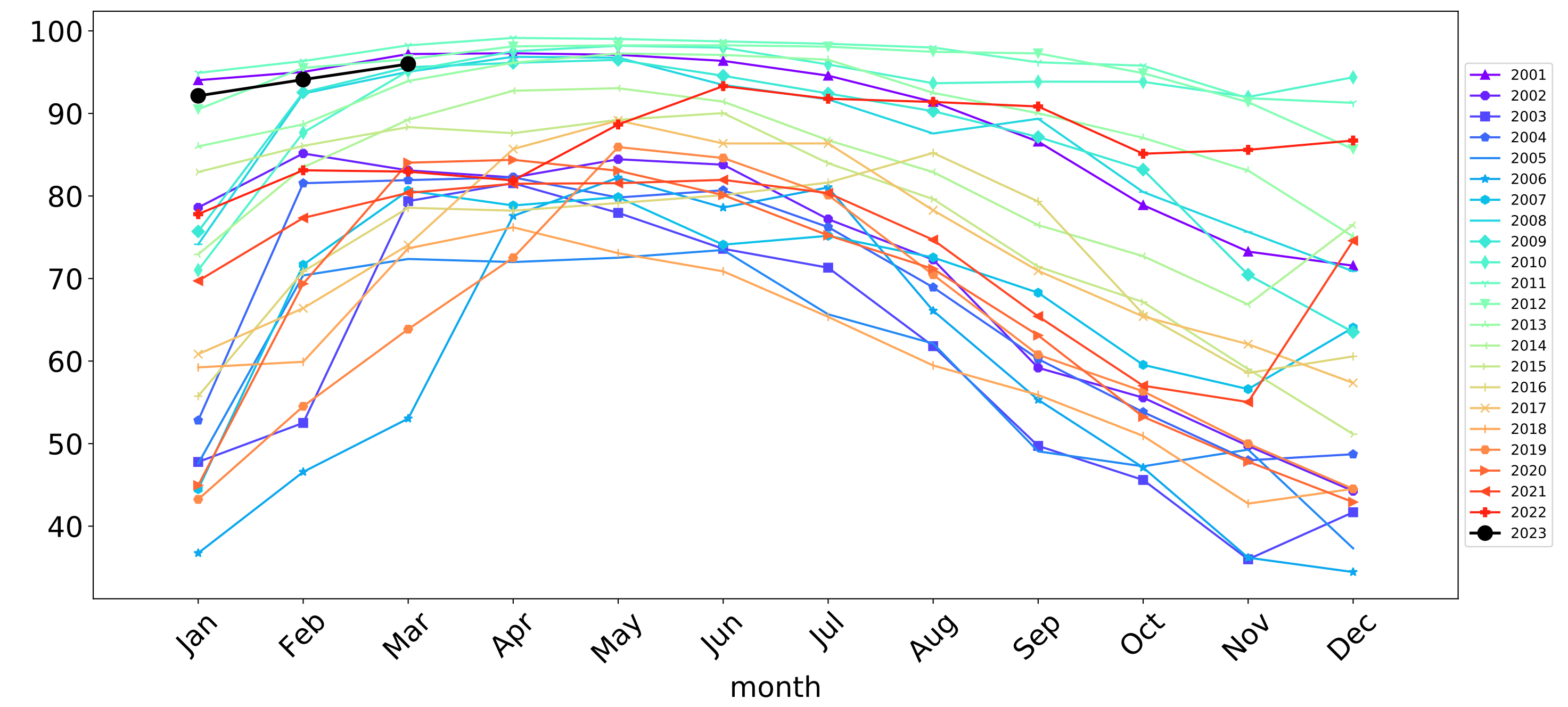
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



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



Grazing

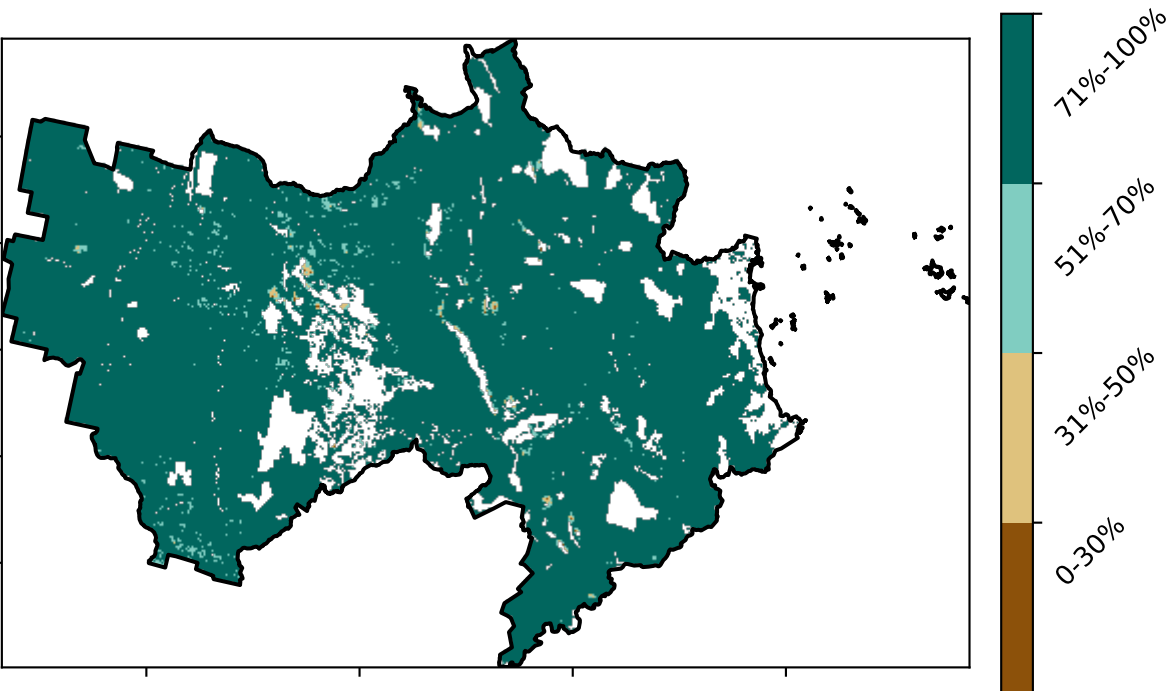
Land use and forest cover



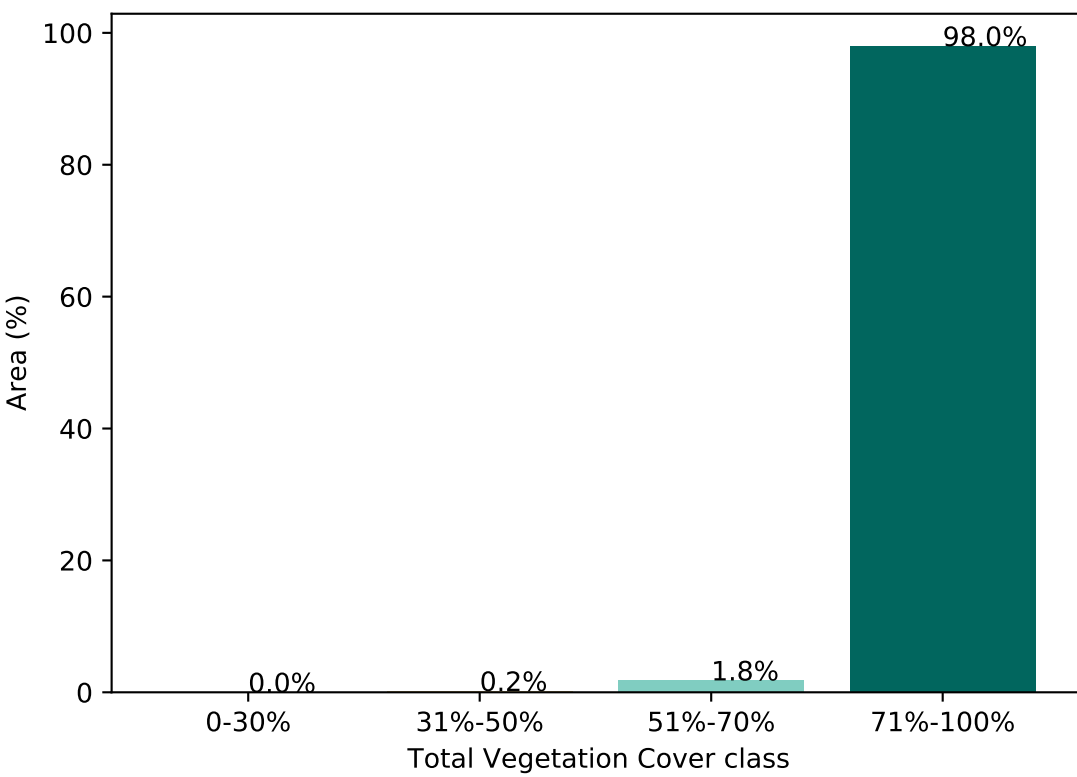
Proportion of each land class in area



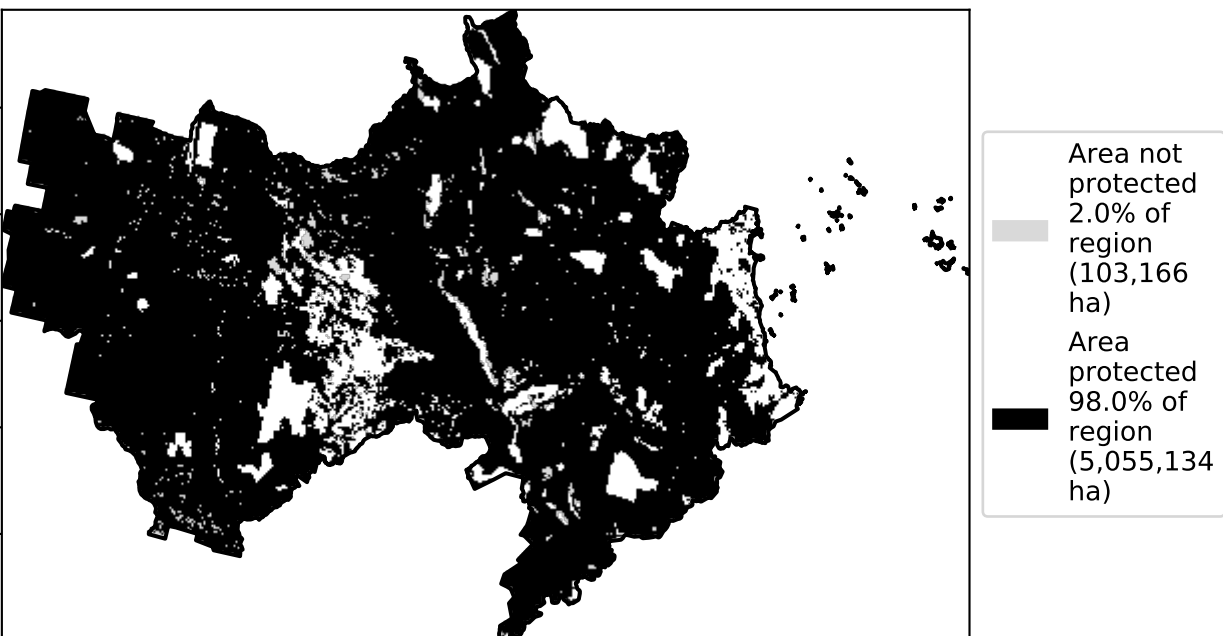
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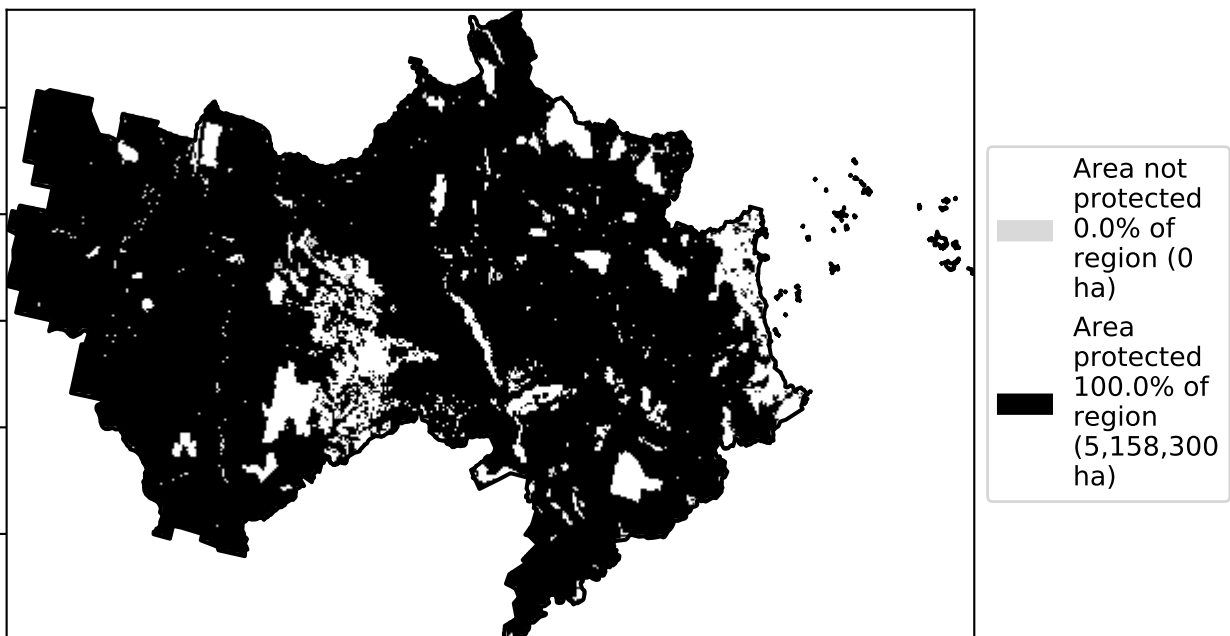
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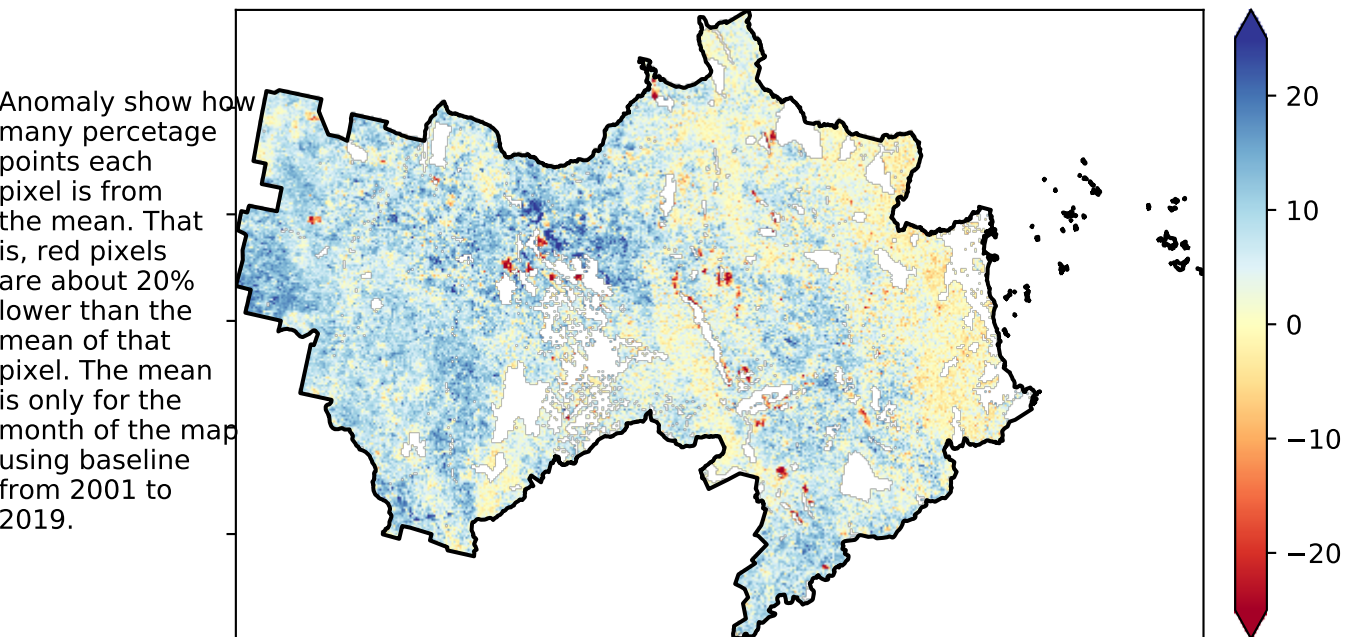
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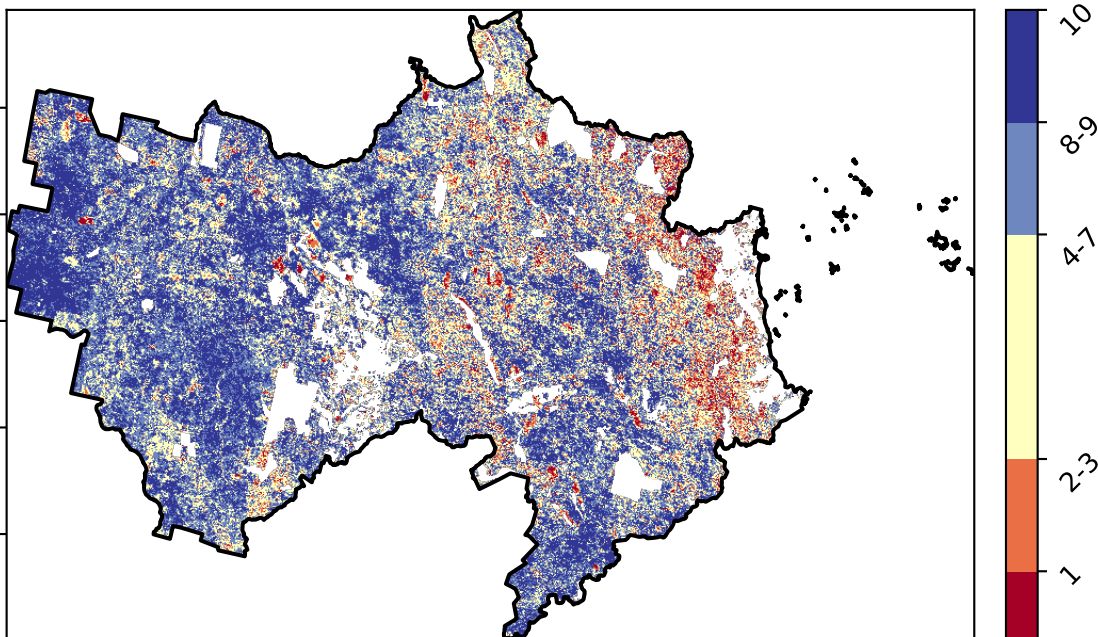


Total Vegetation Cover Anomaly [%]



Total Vegetation Cover Decile [%]

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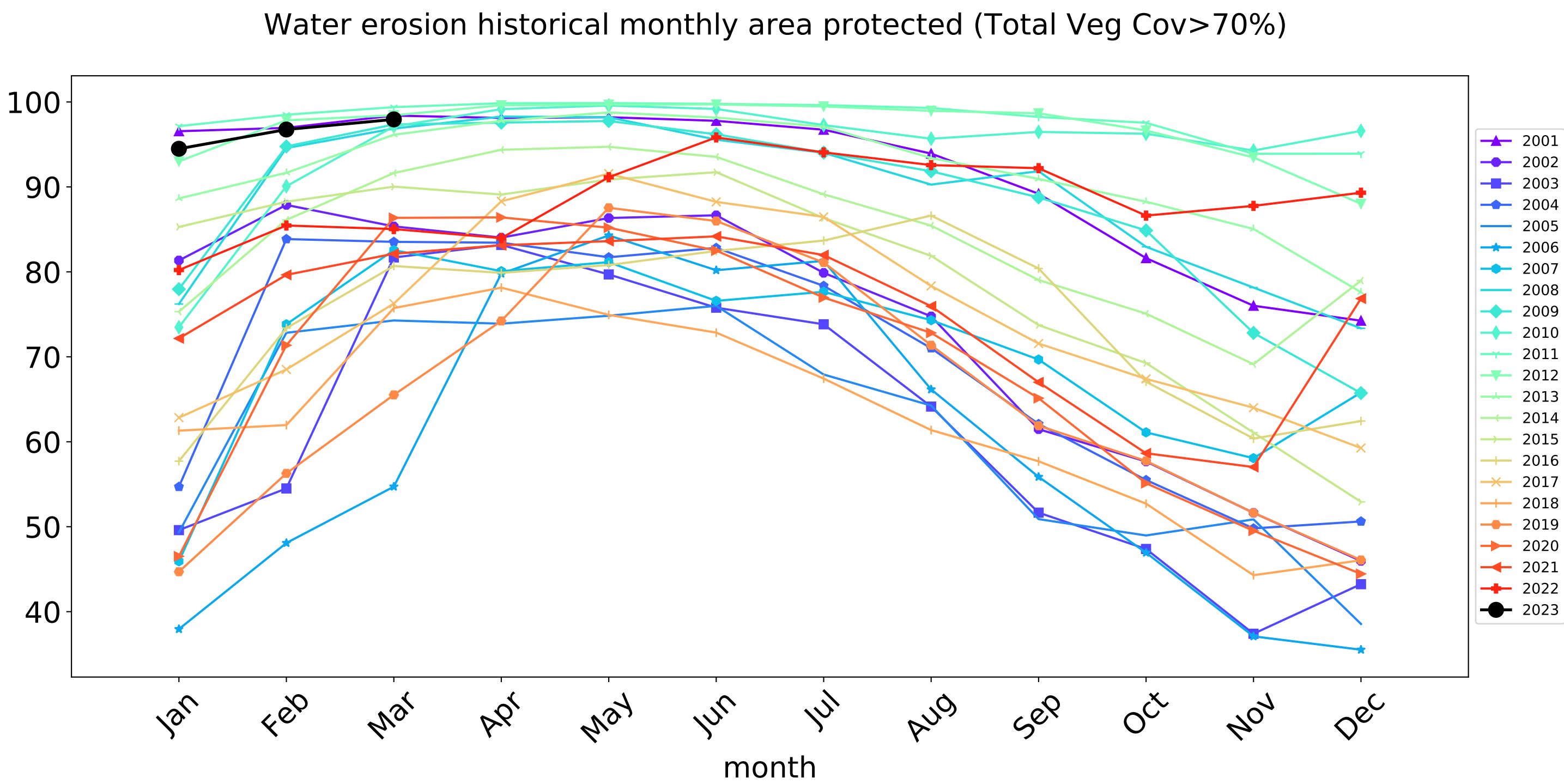
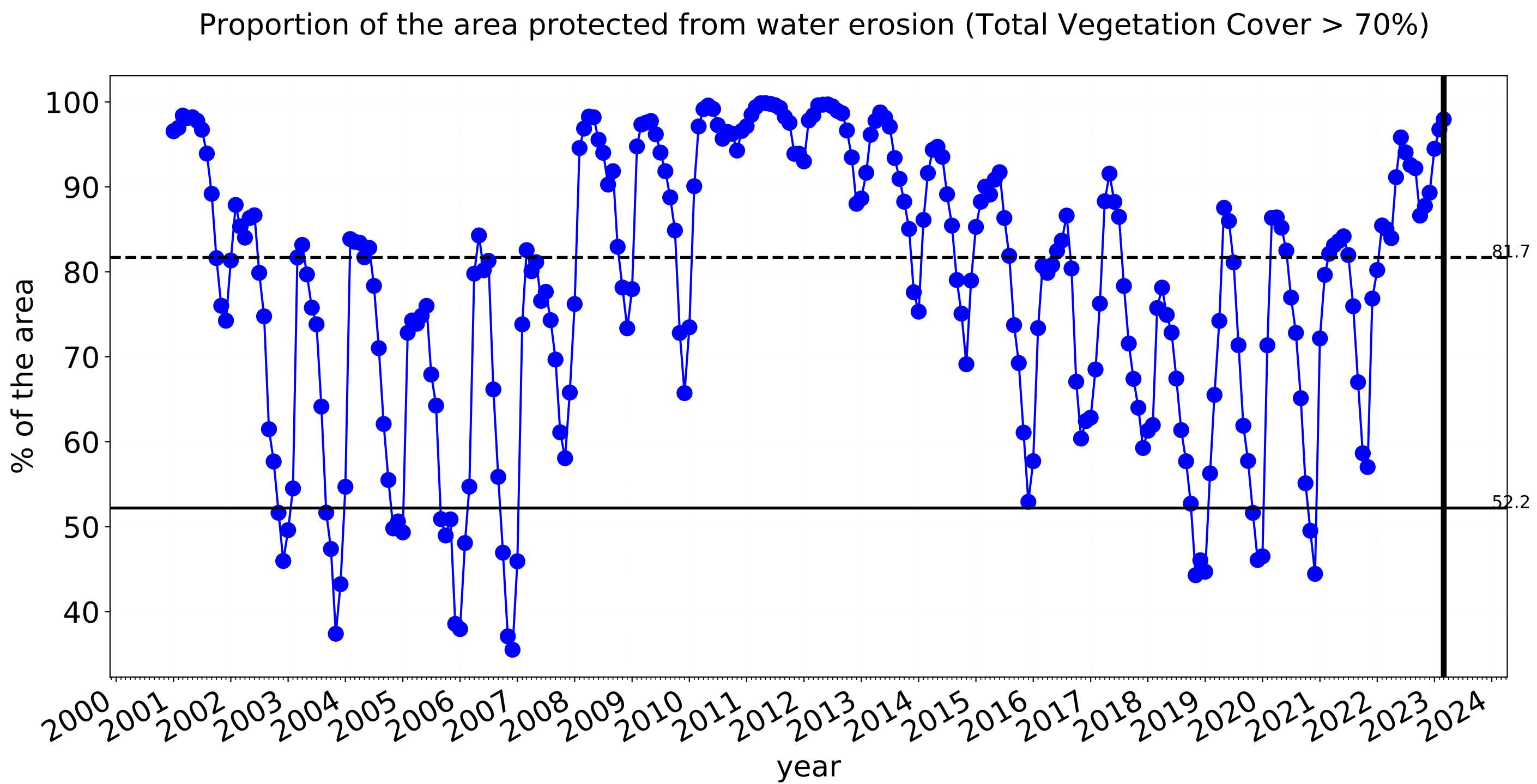
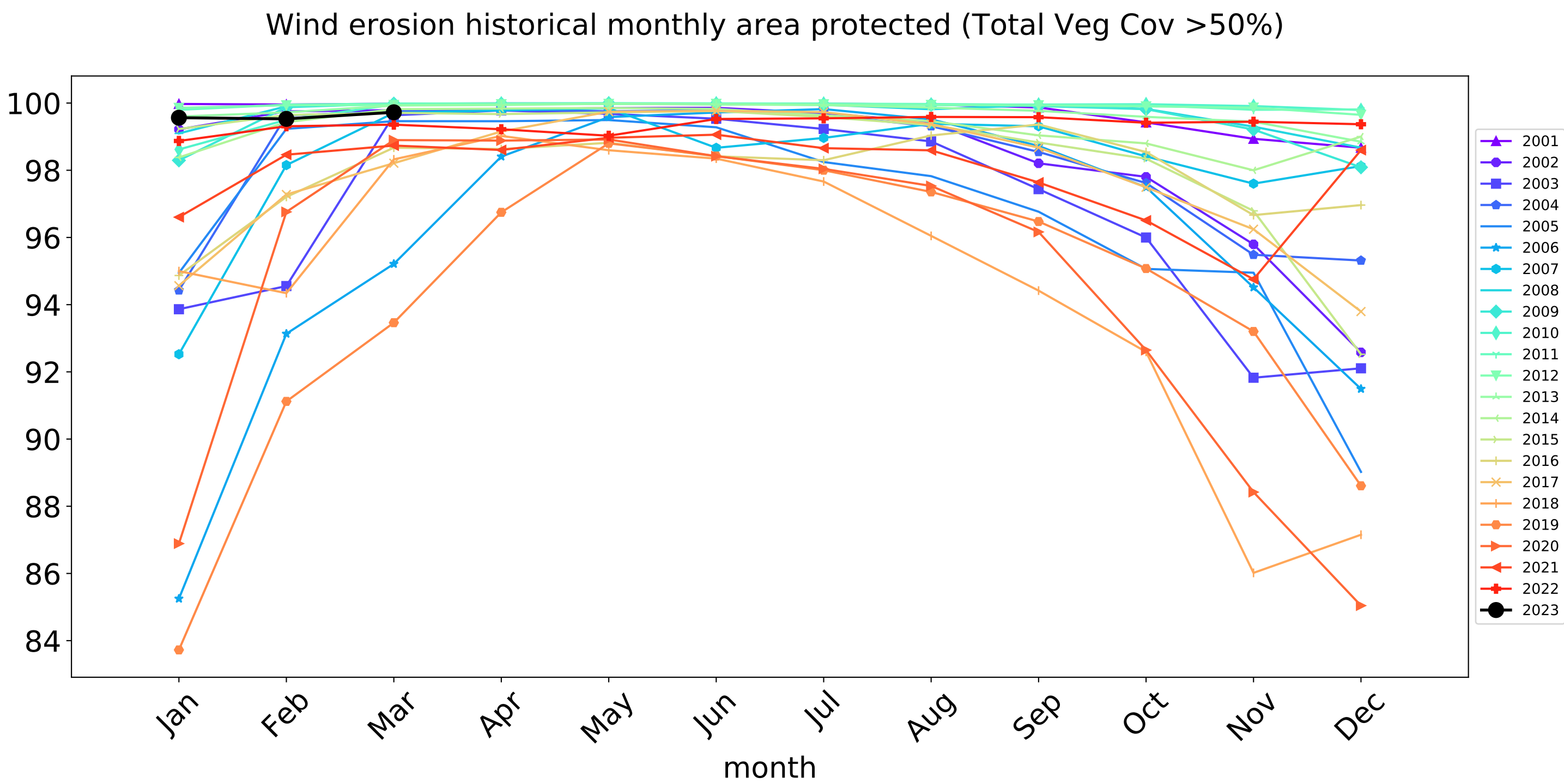
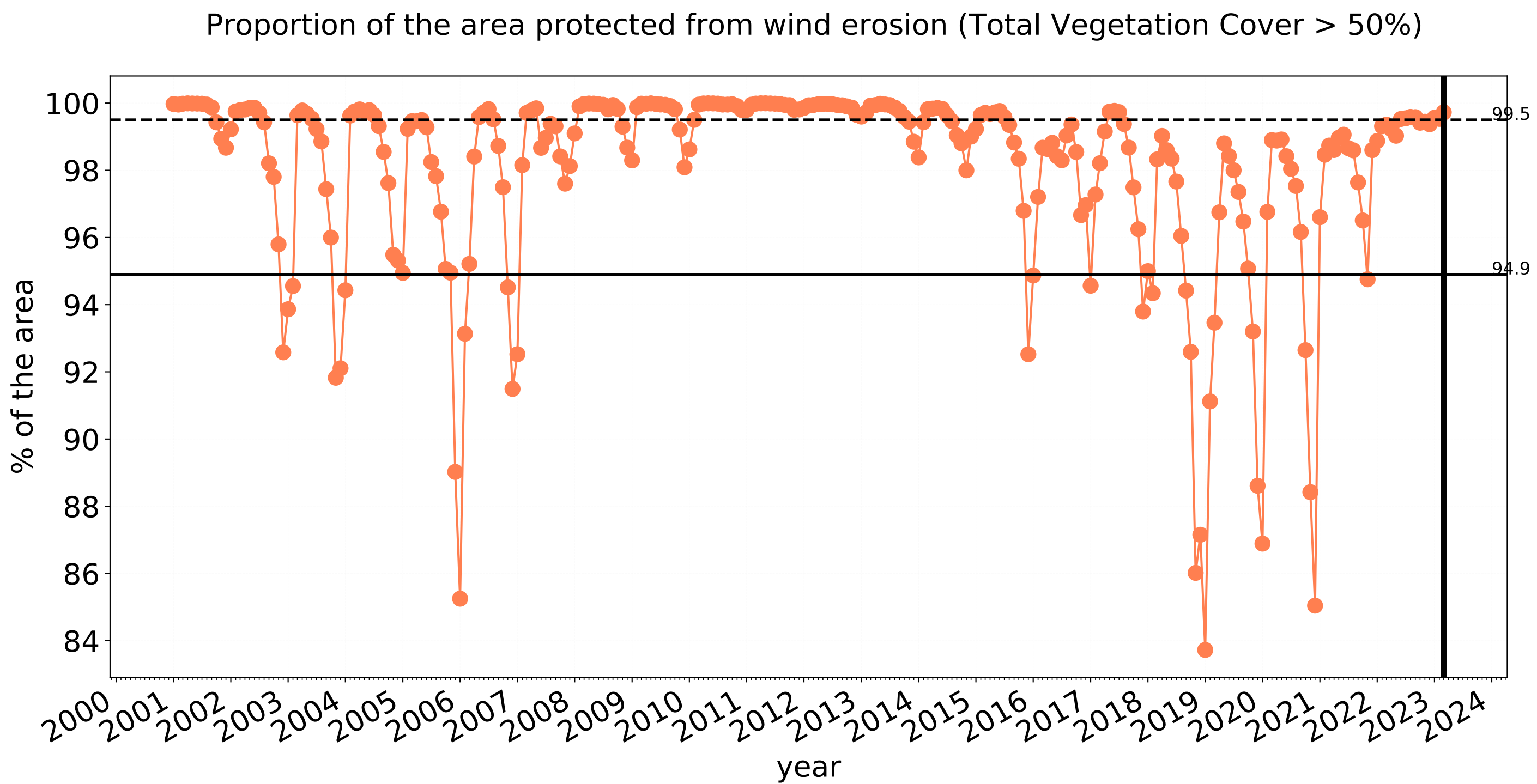


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Grazing timeseries

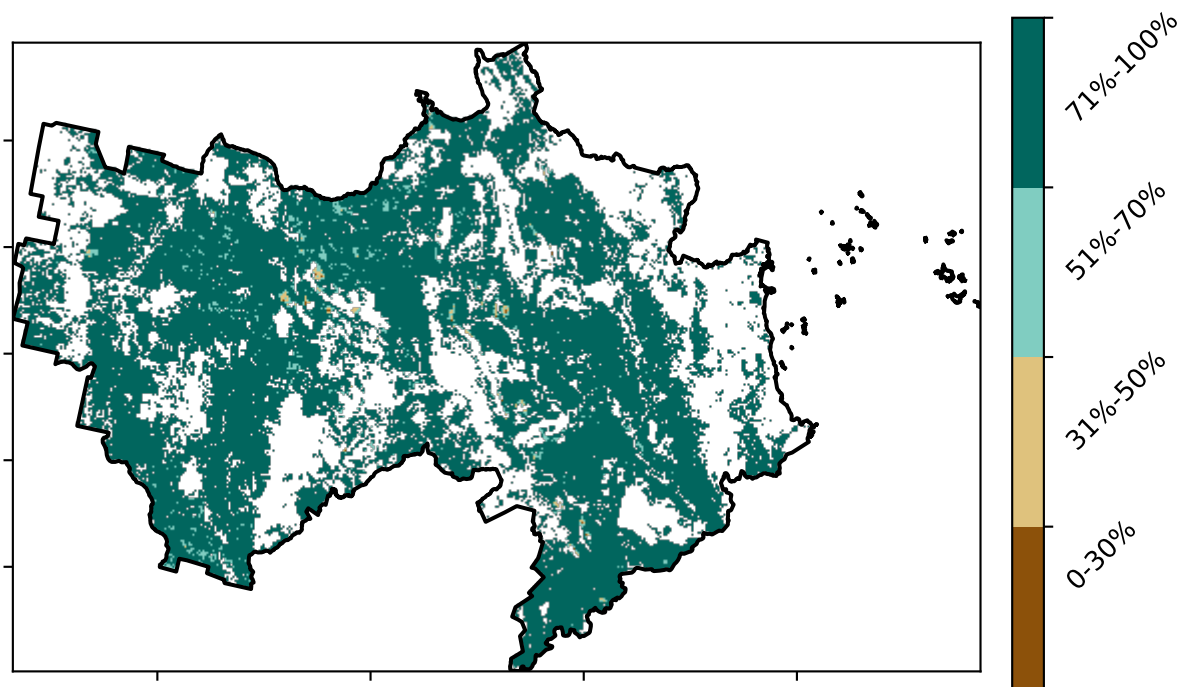


Grazing non forest

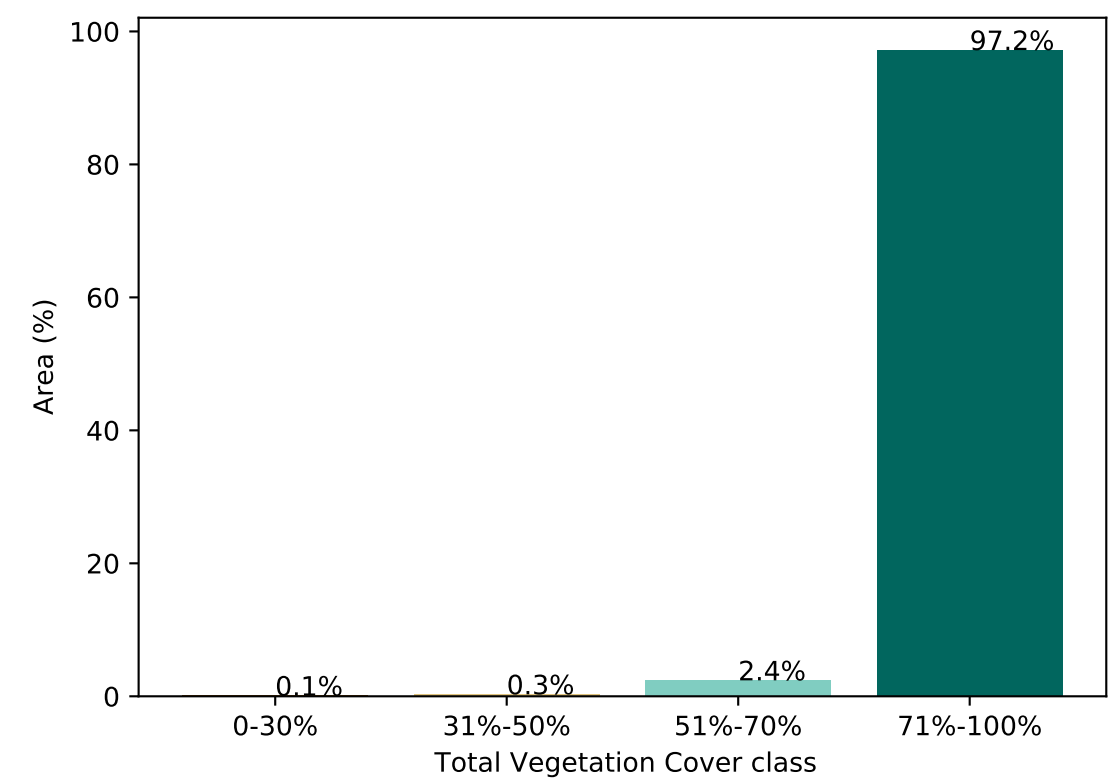
Land use and forest cover



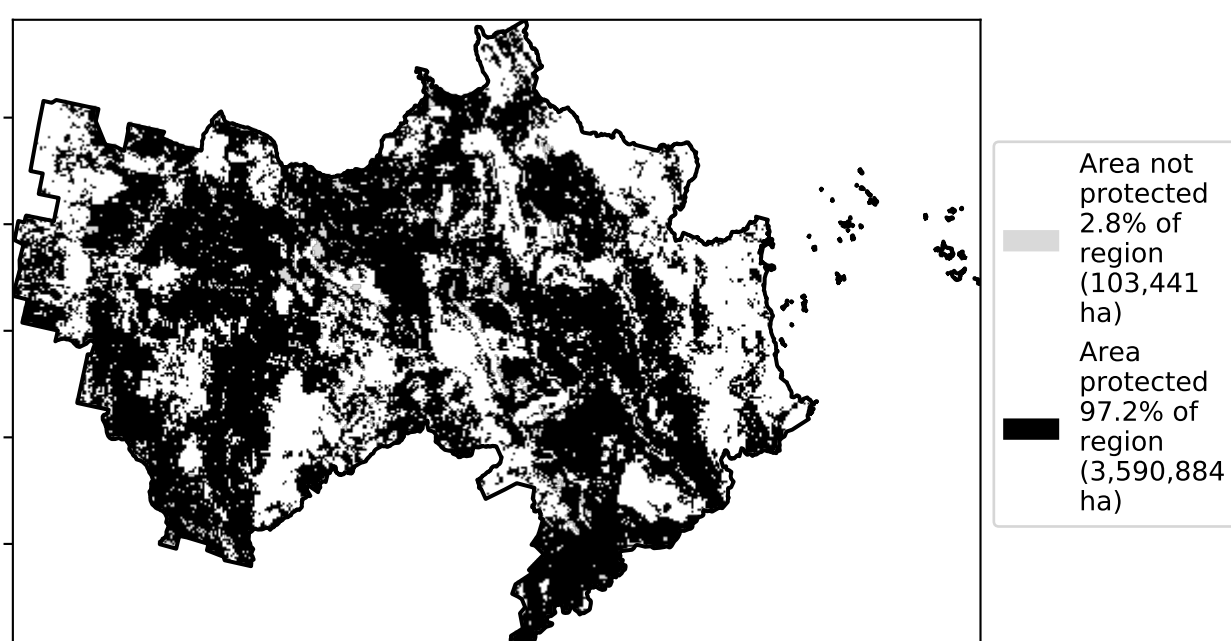
Total Vegetation Cover [%]



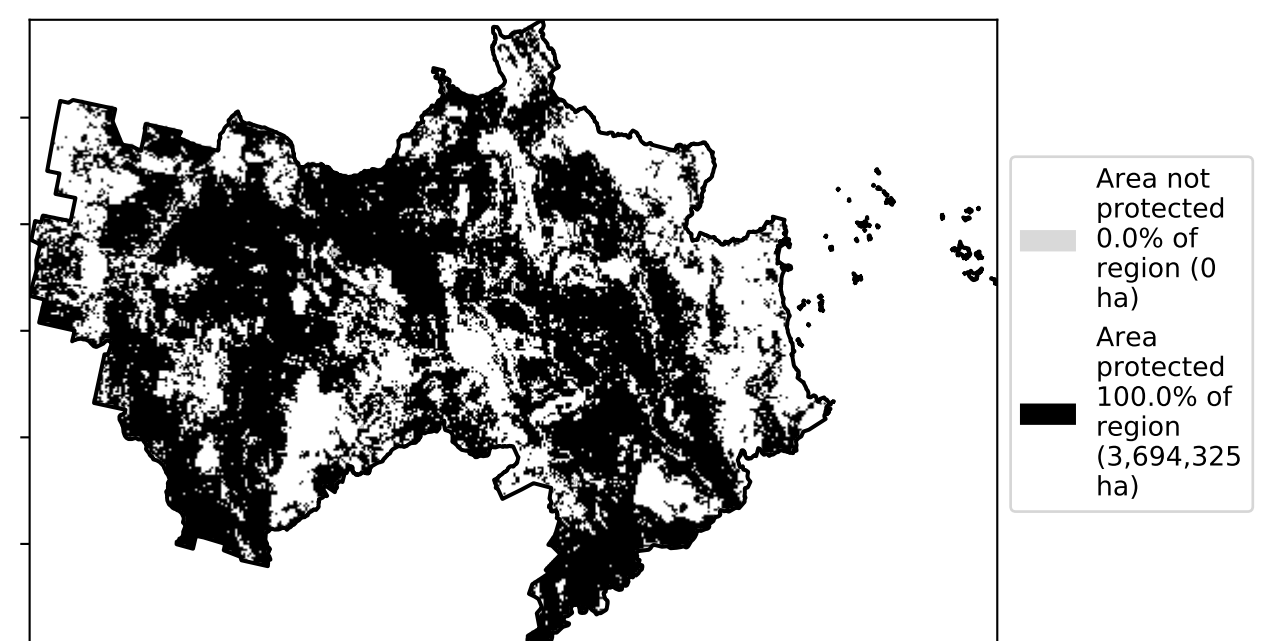
Proportion of vegetation cover class in area



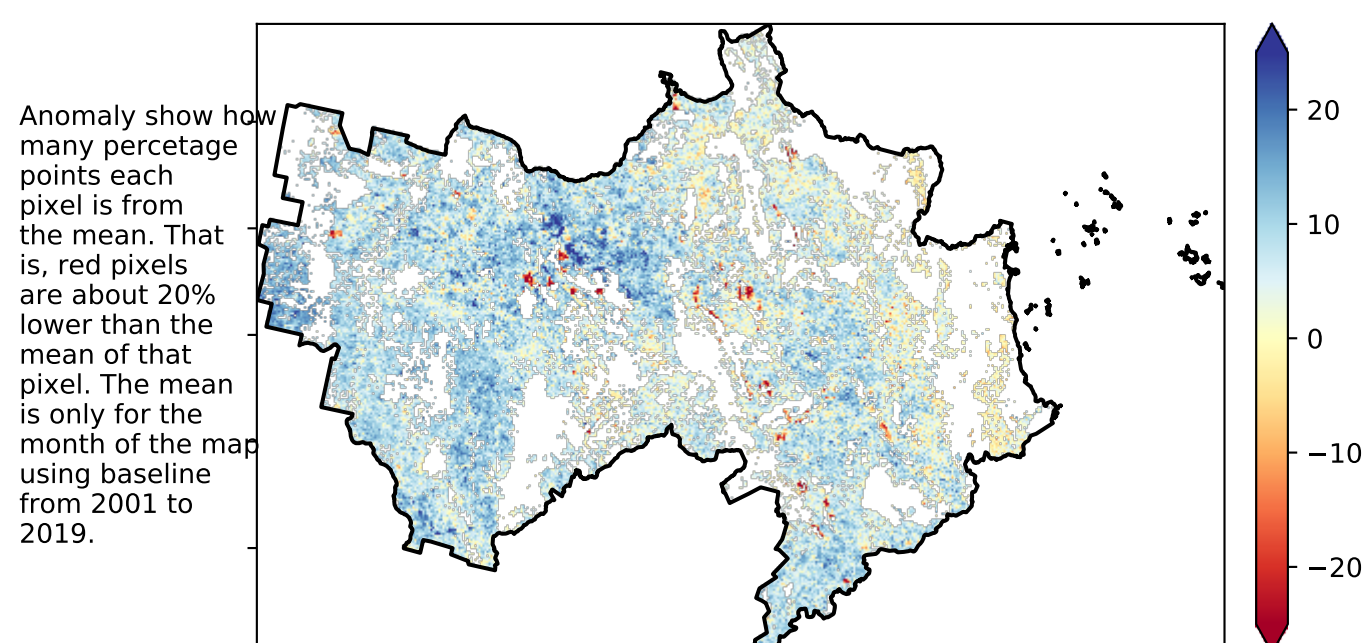
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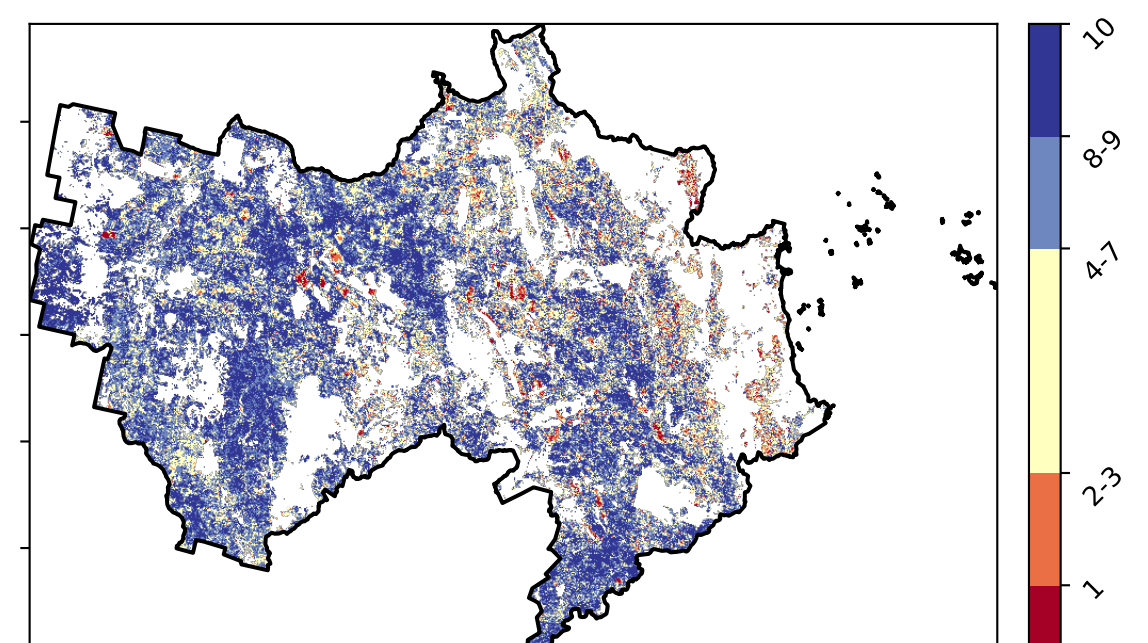


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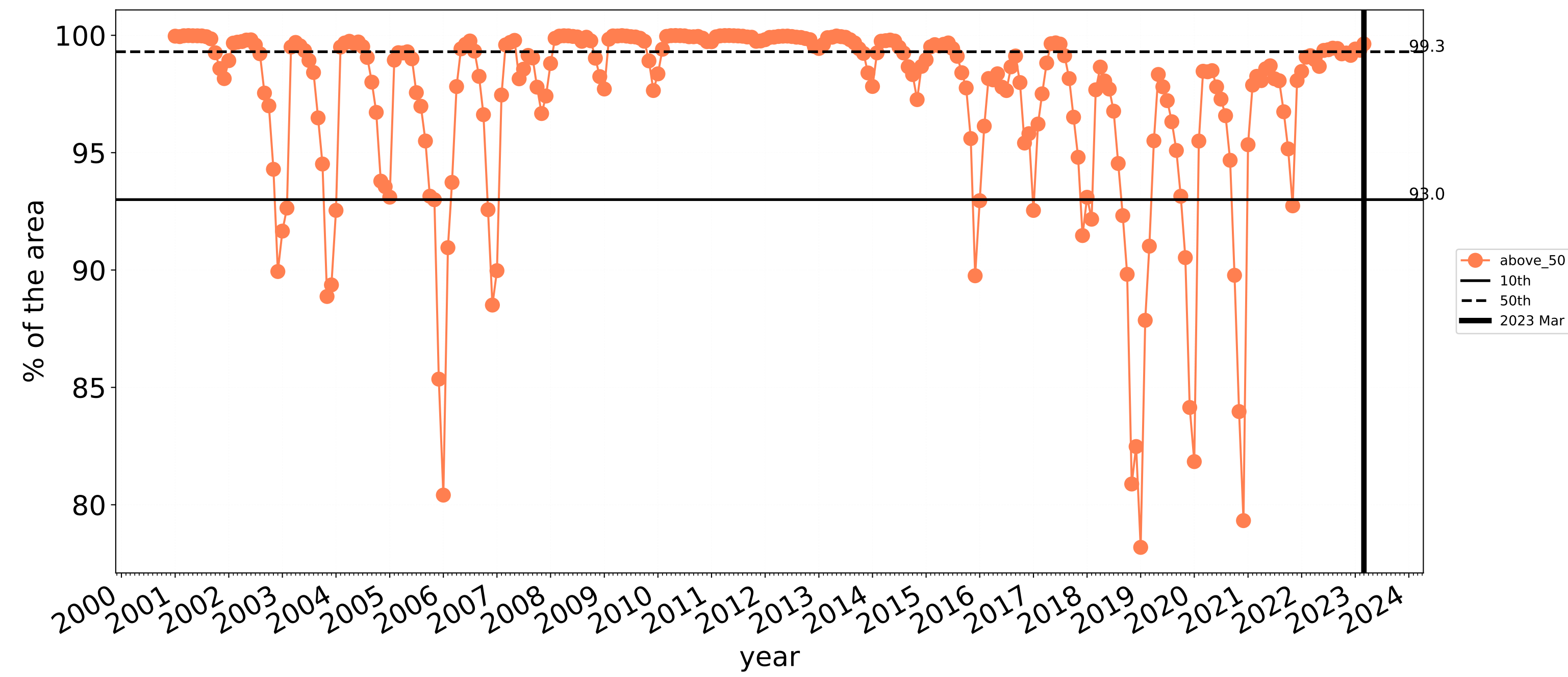


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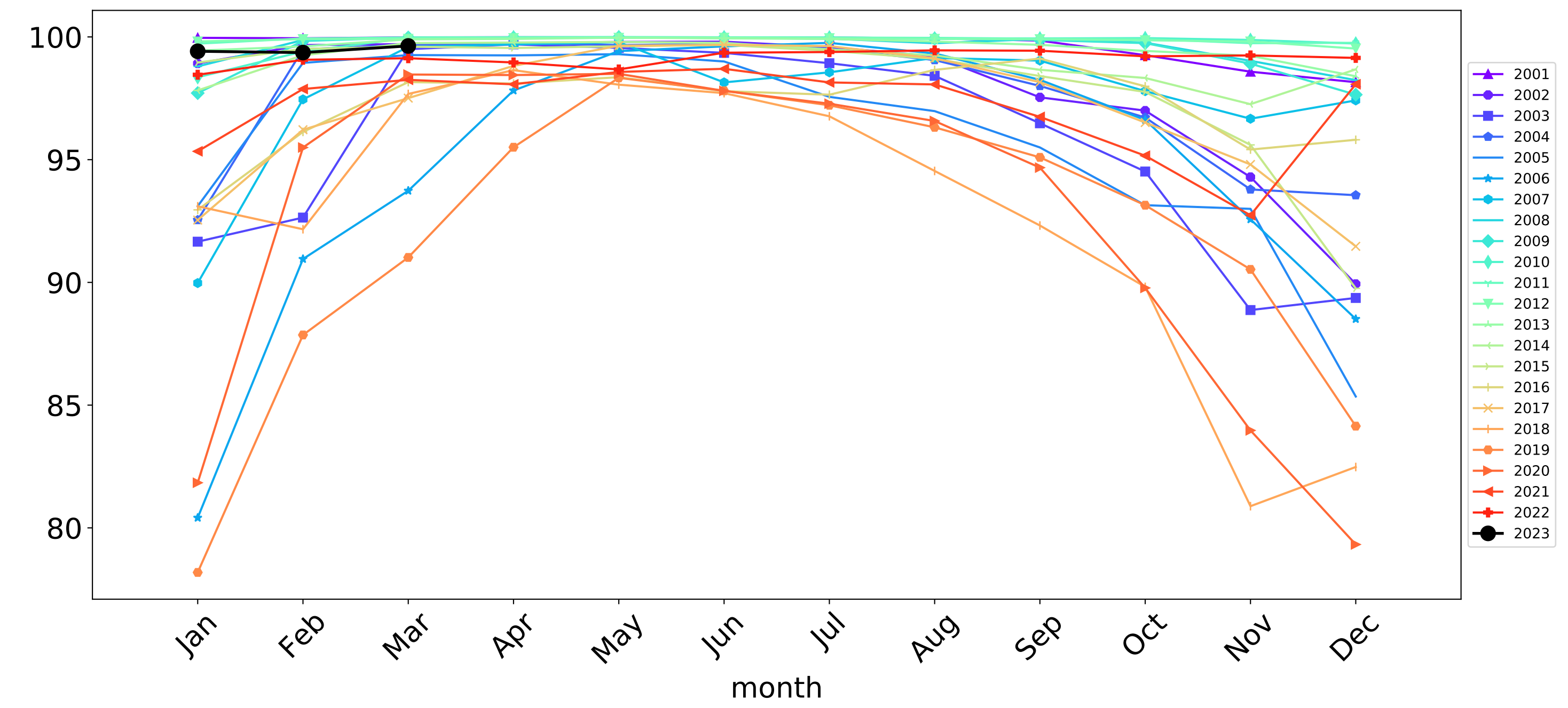


Grazing non forest timeseries

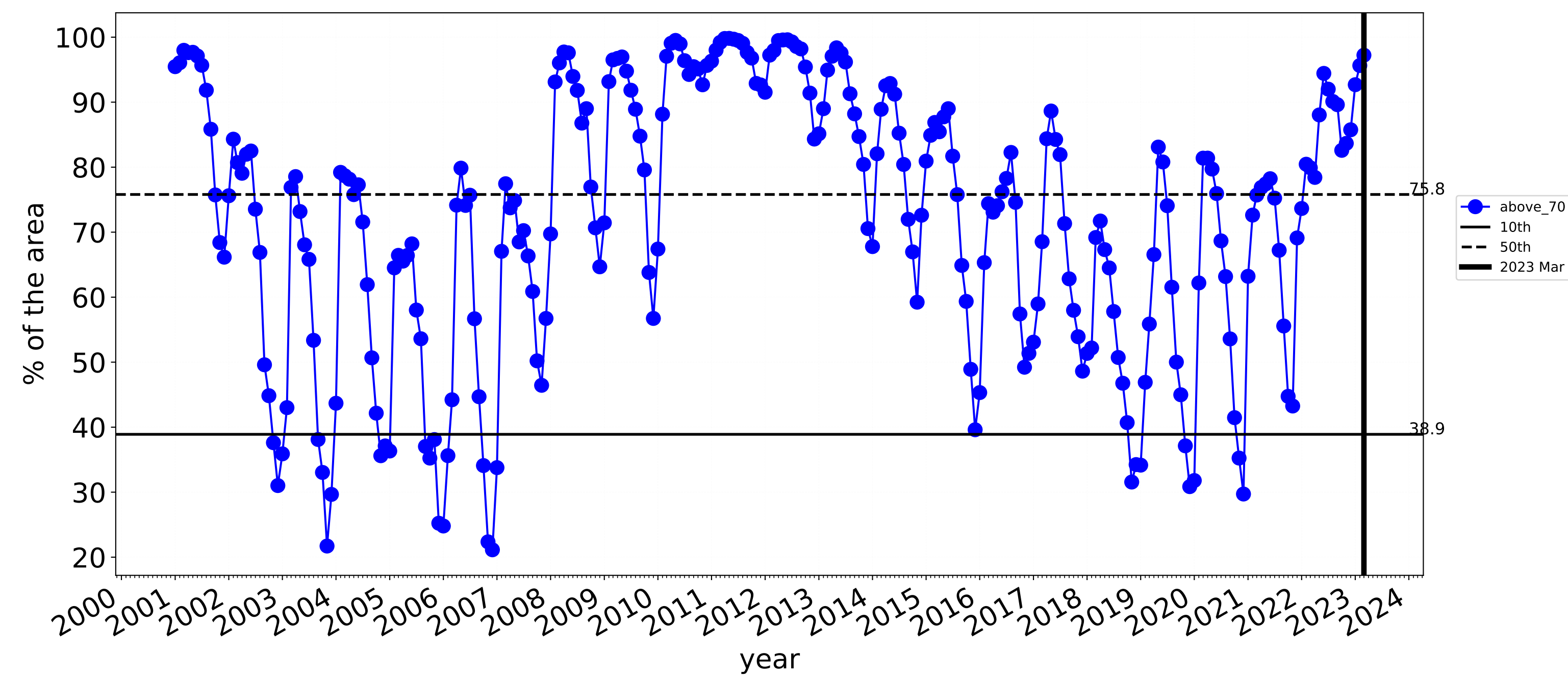
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



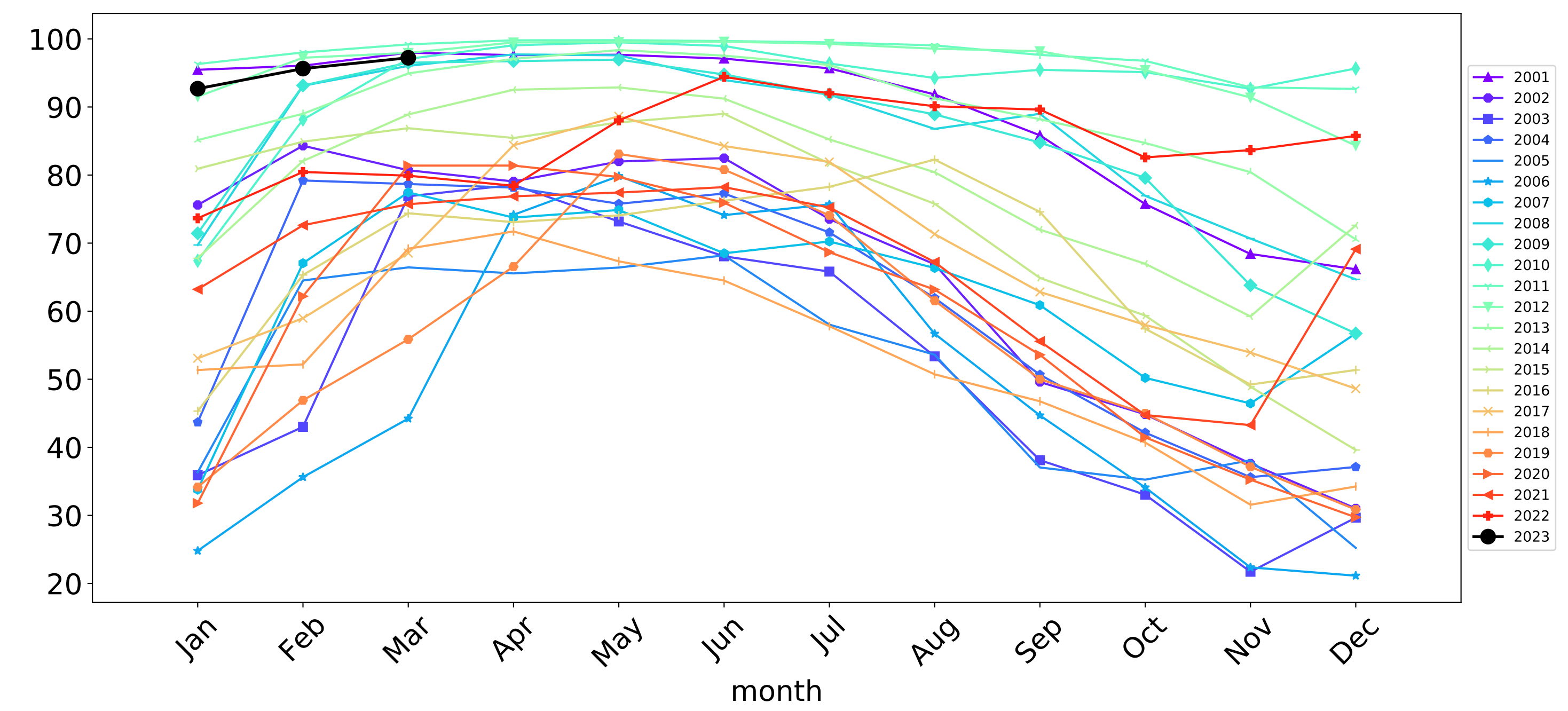
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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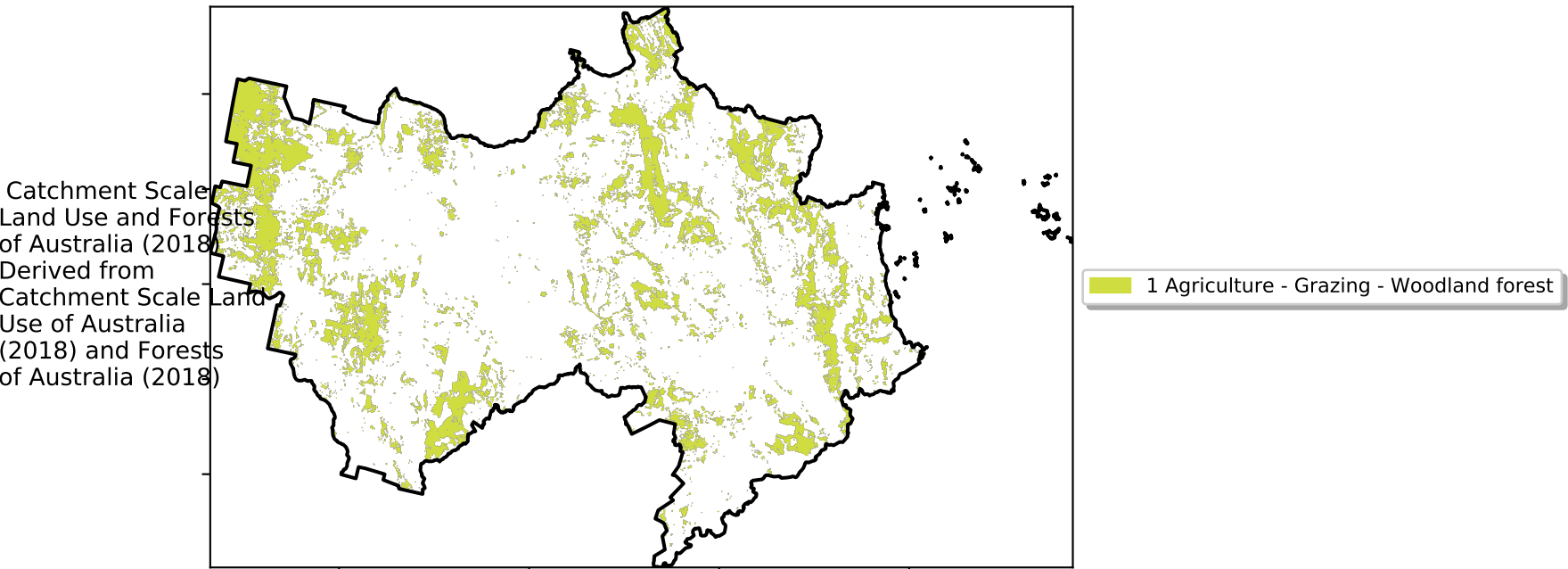


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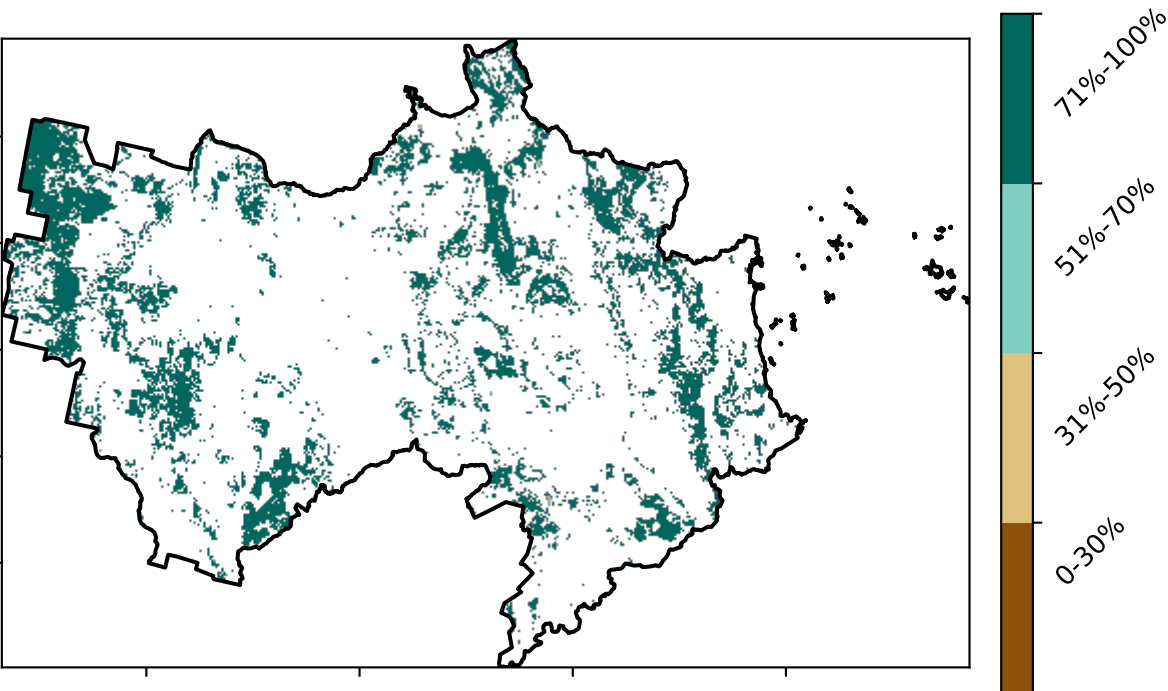


Grazing Woodland forest

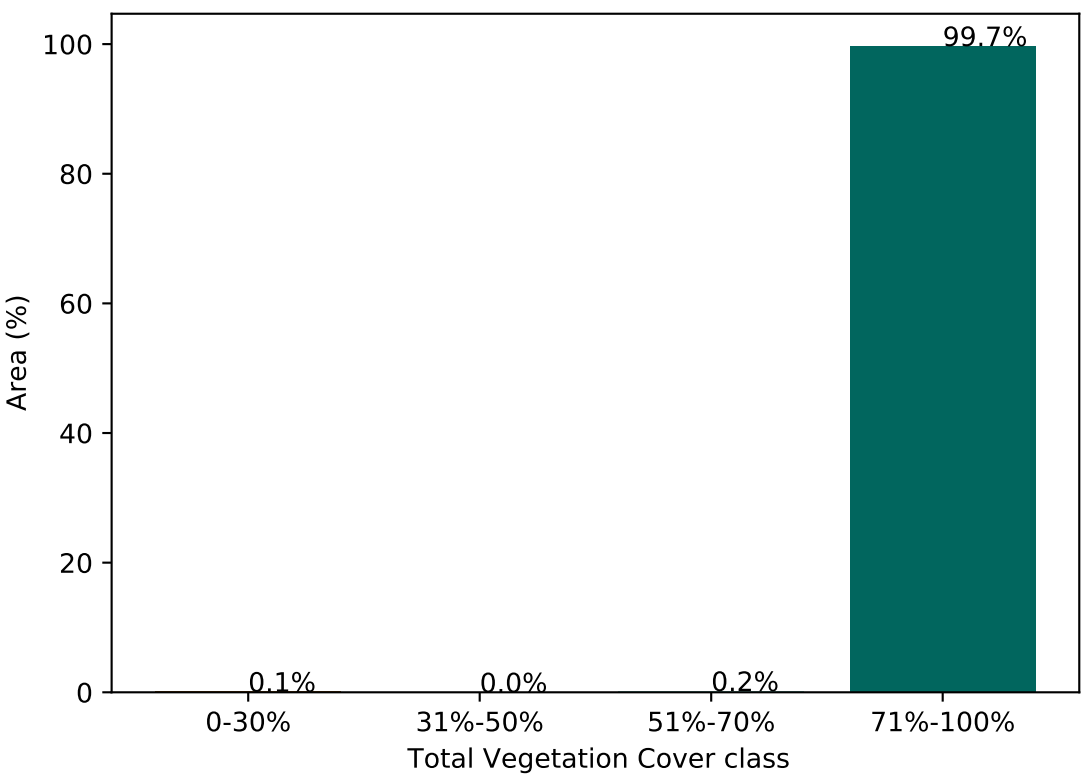
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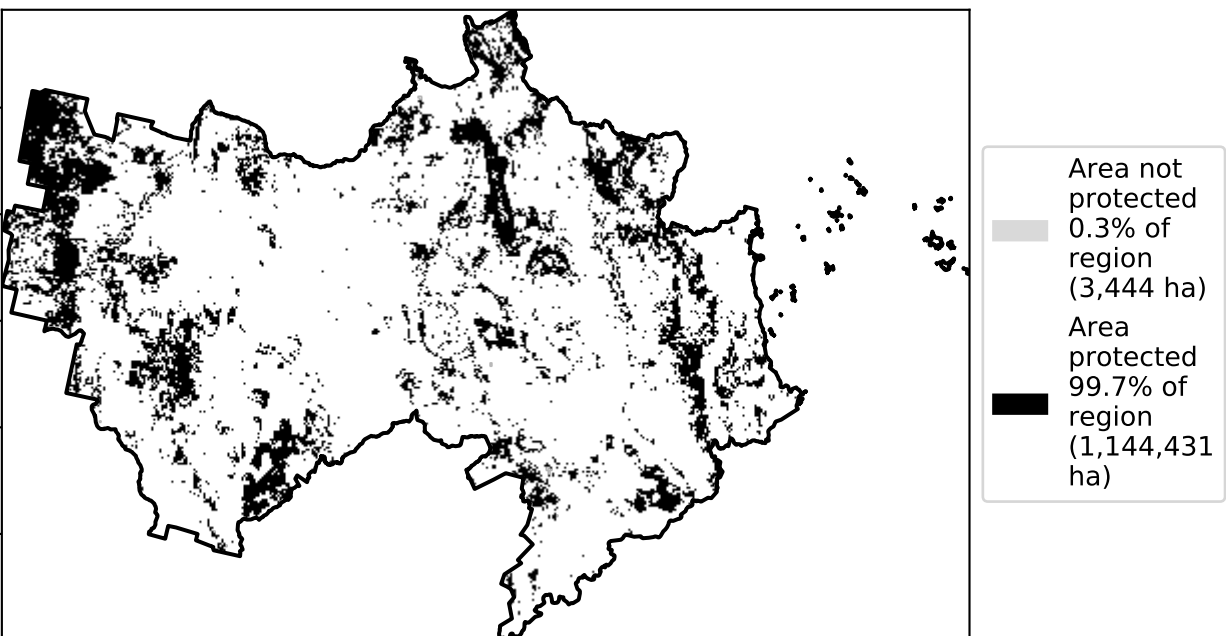
Total Vegetation Cover [%]



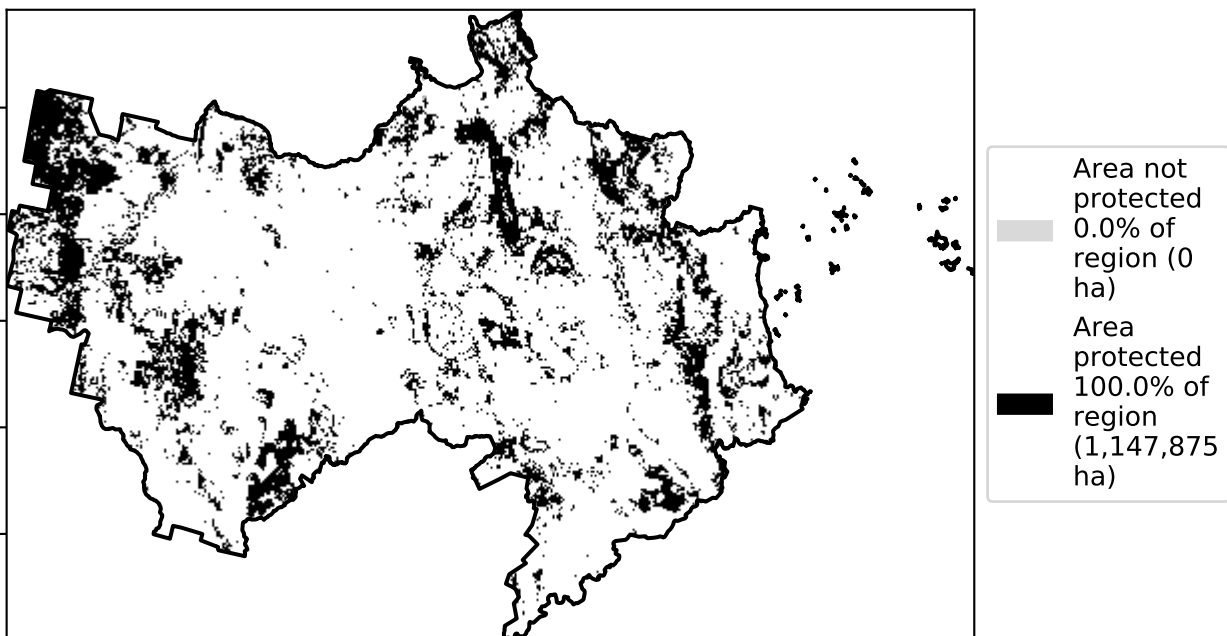
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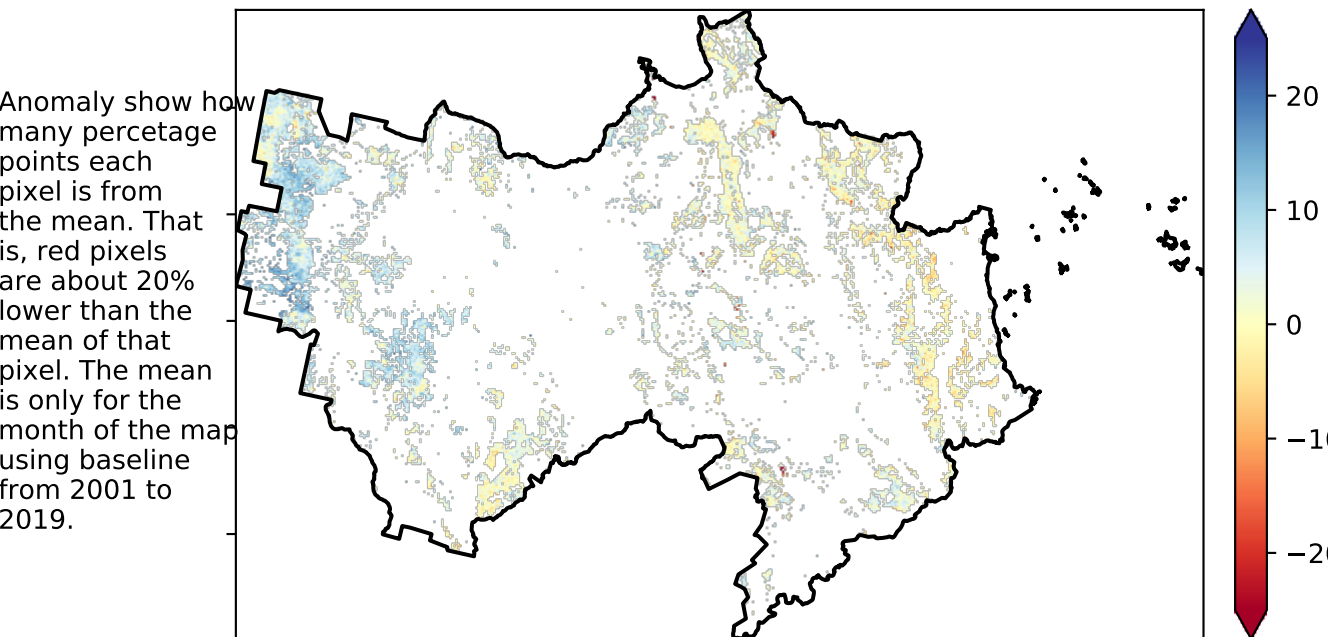
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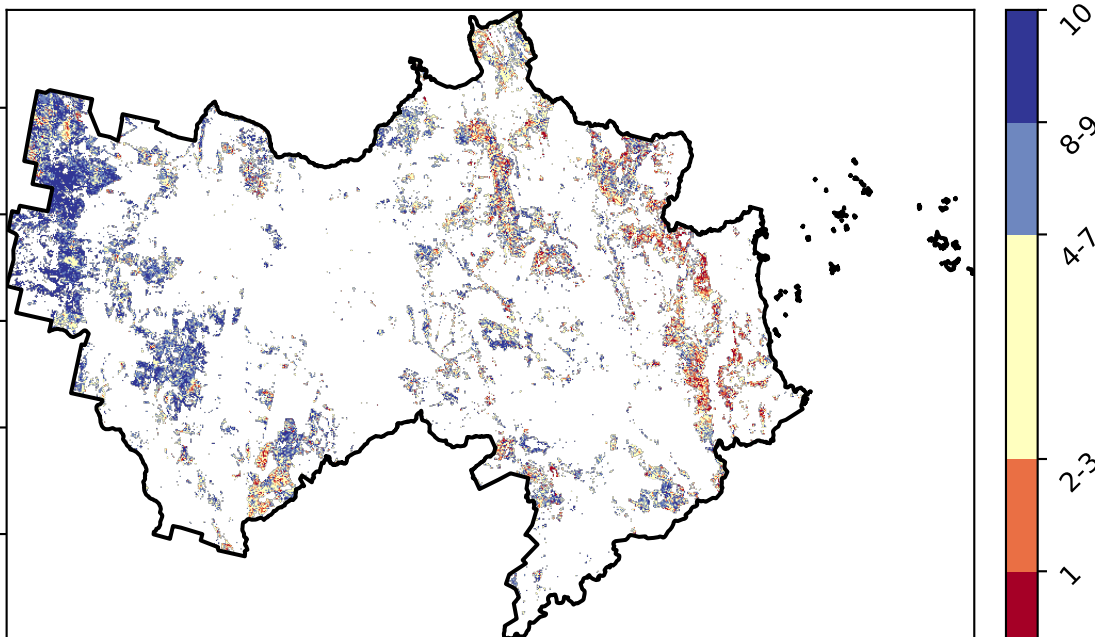


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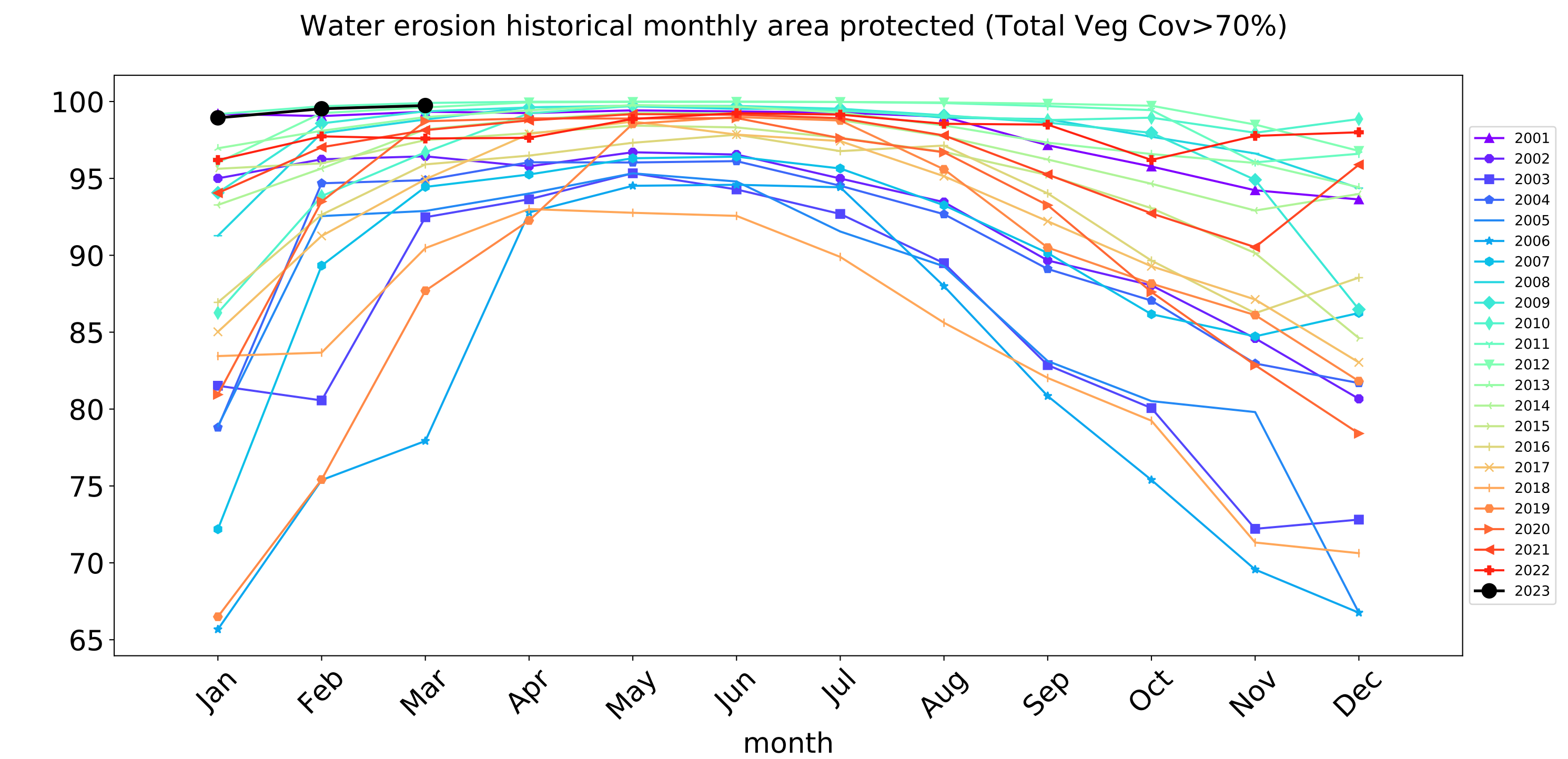
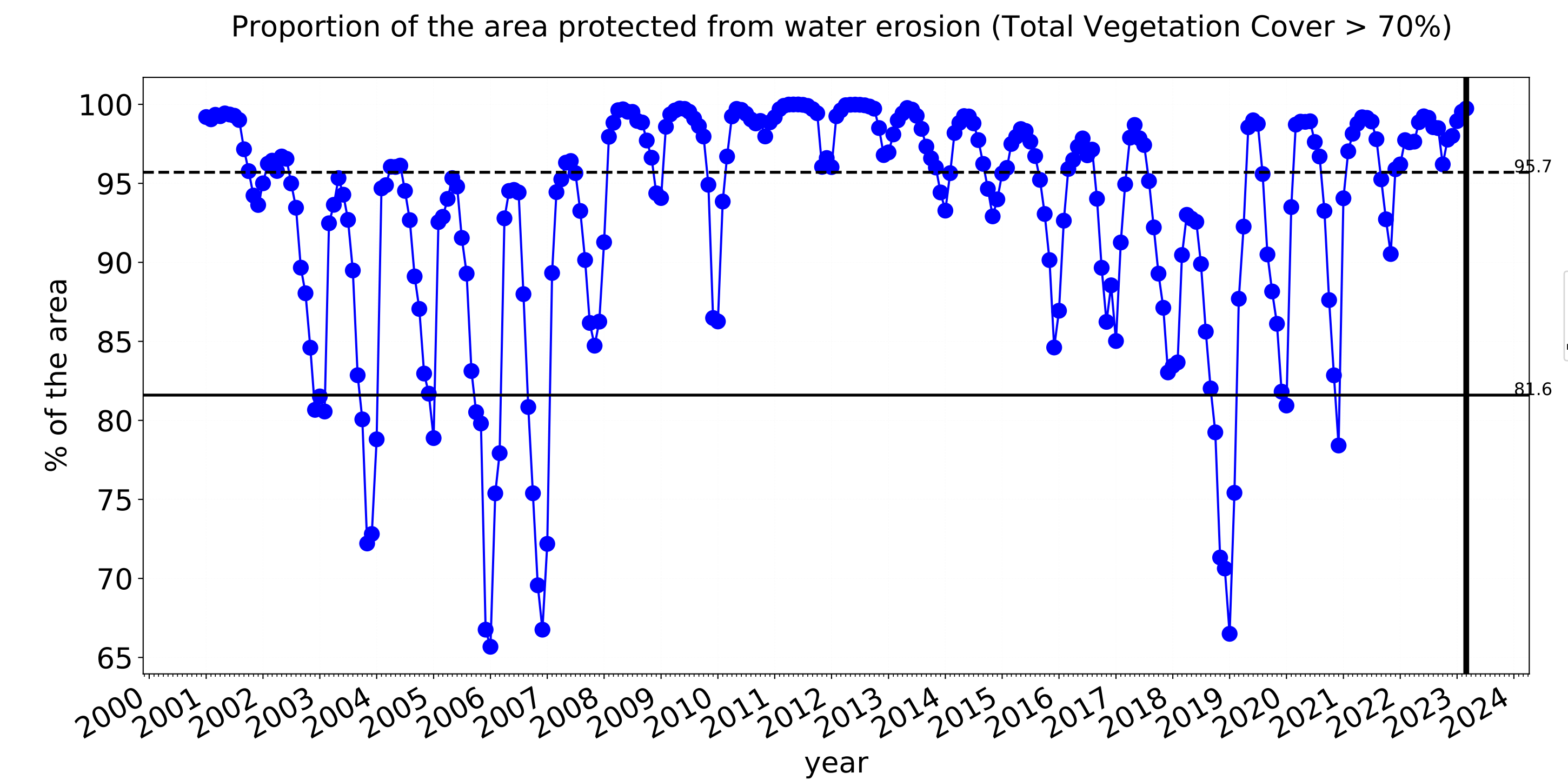
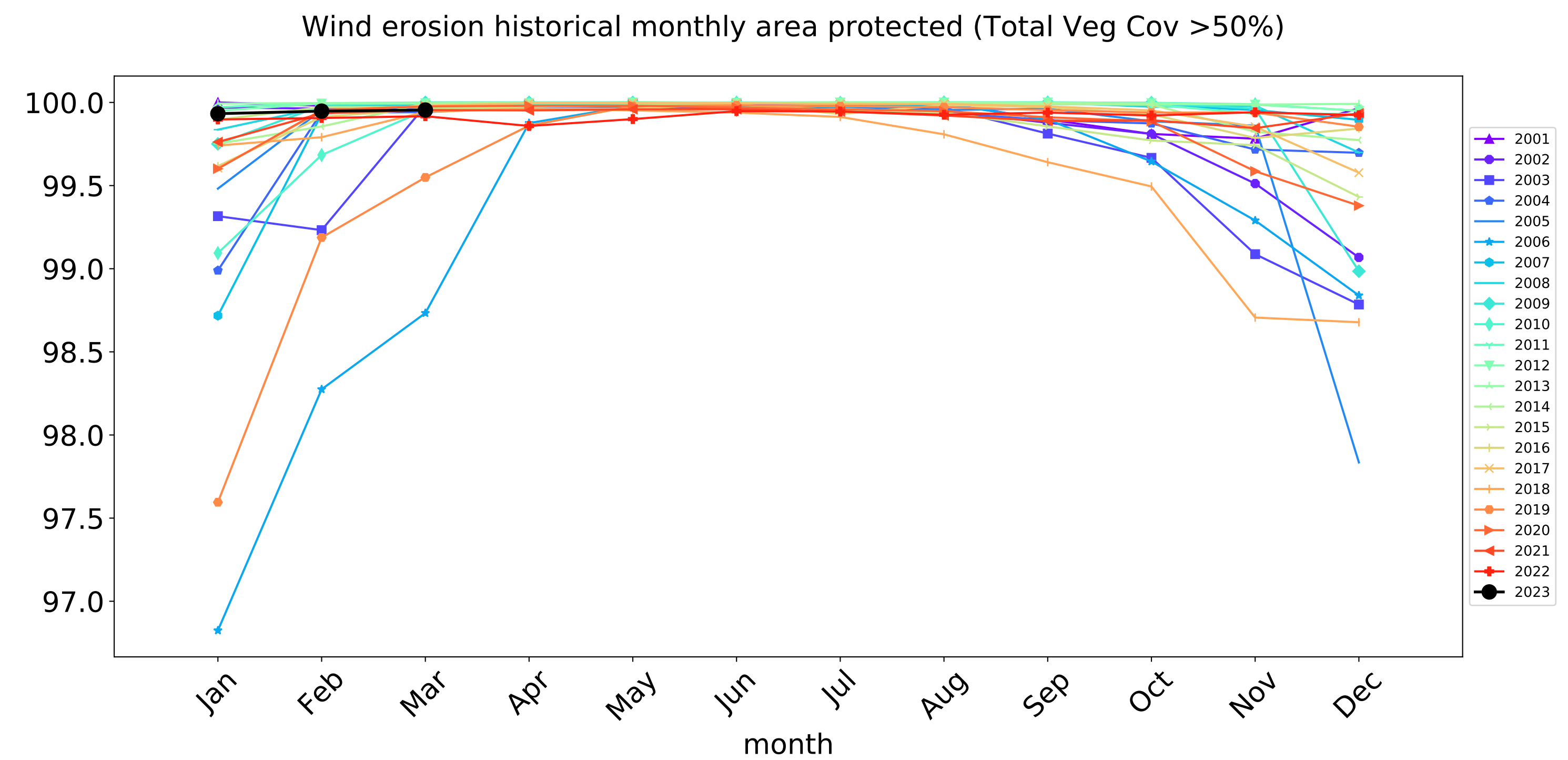
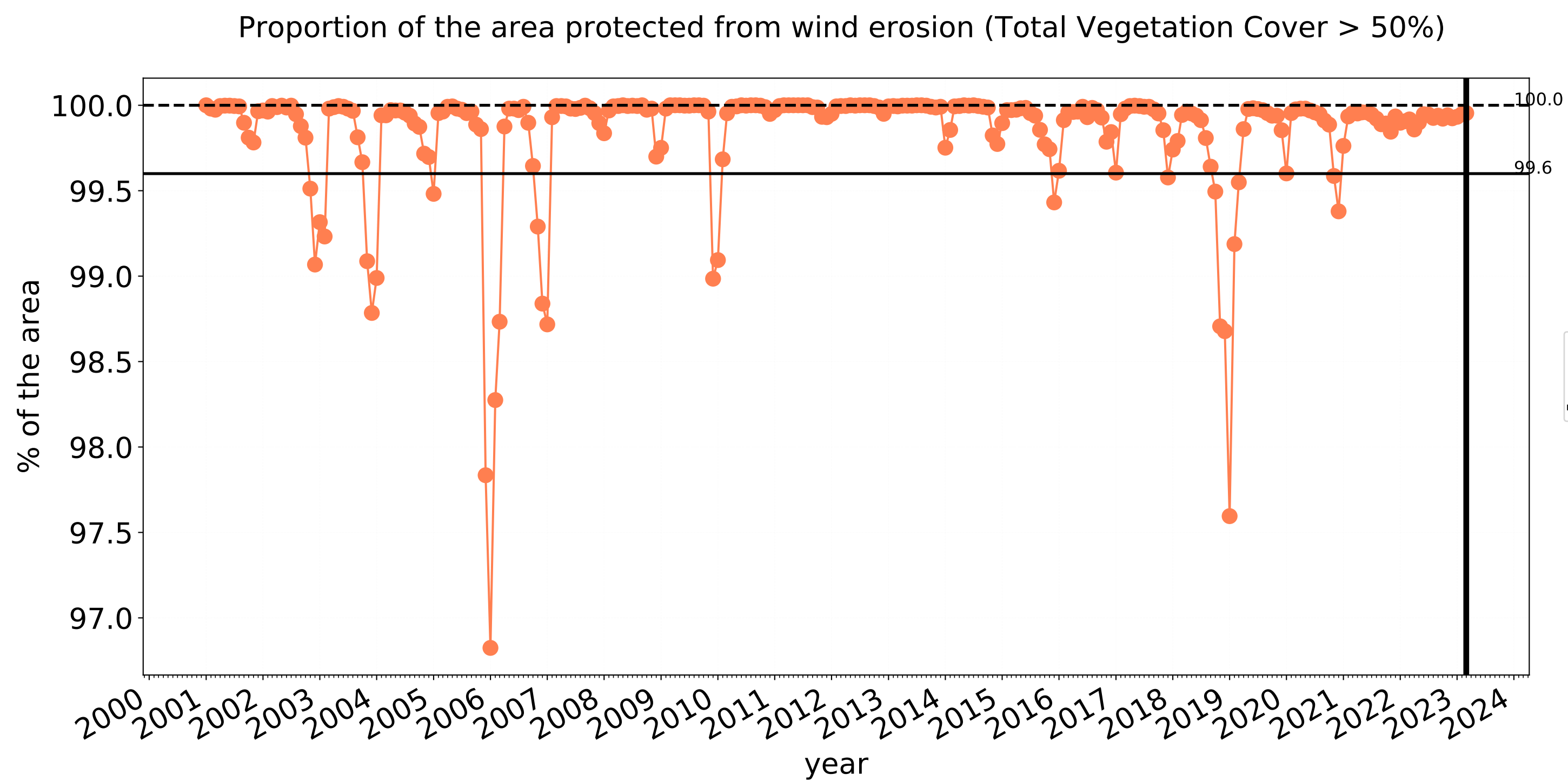


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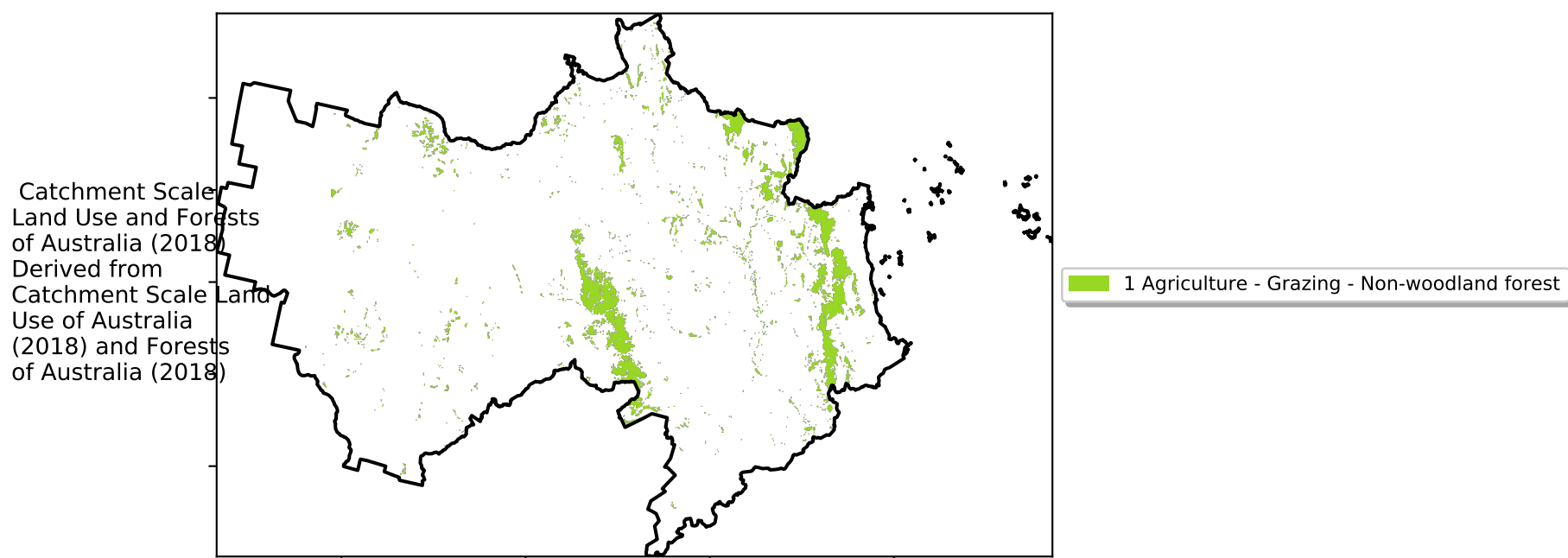


Grazing Woodland forest timeseries

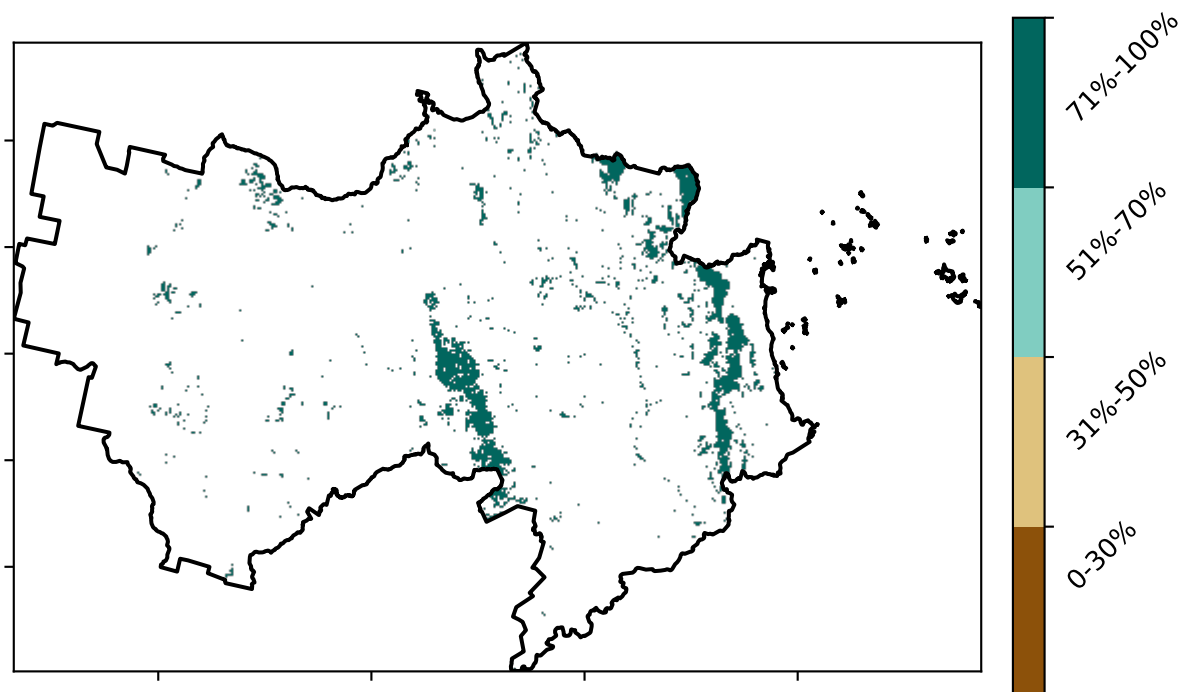


Grazing - Forest (non woodland)

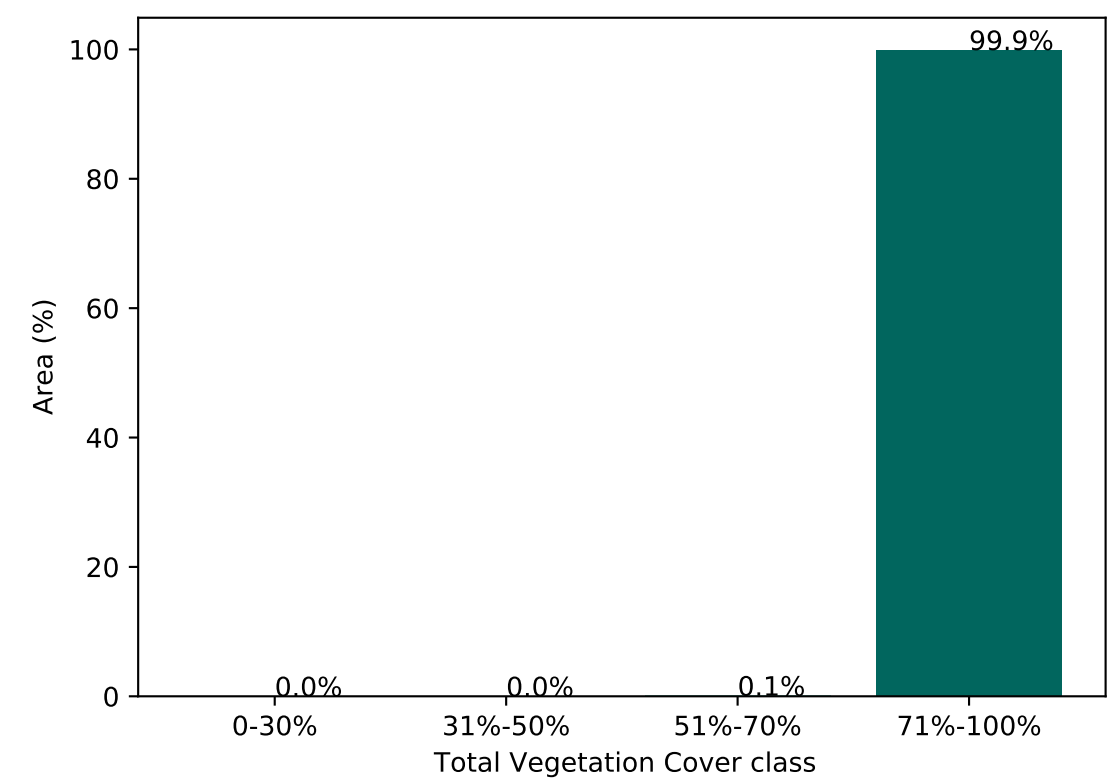
Land use and forest cover



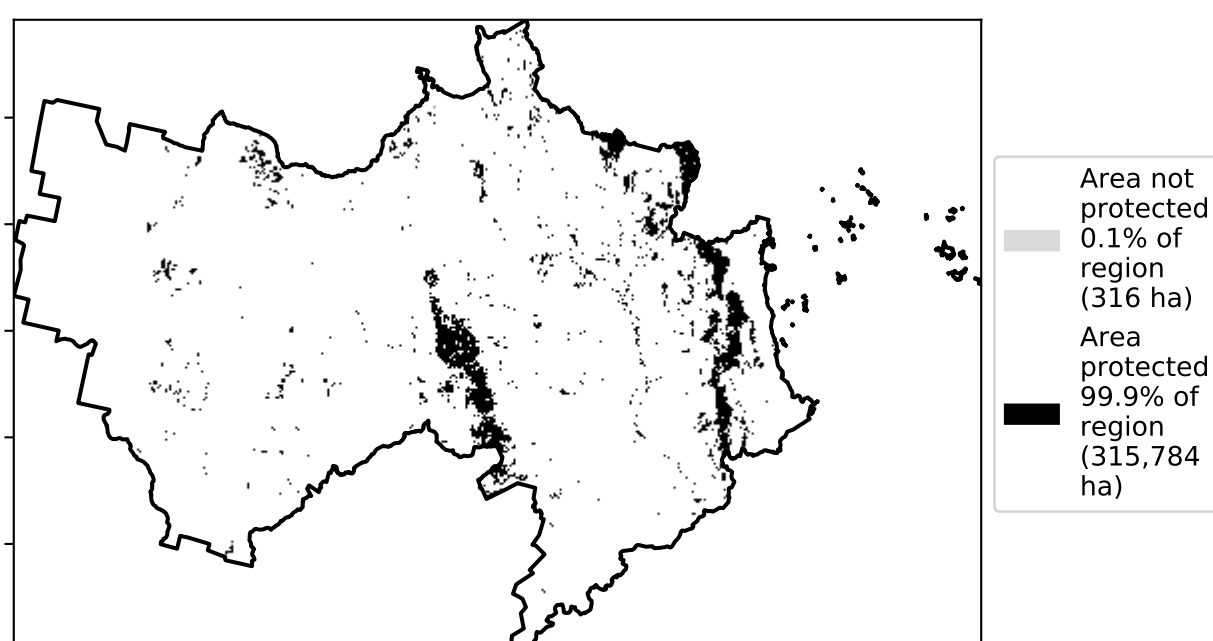
Total Vegetation Cover [%]



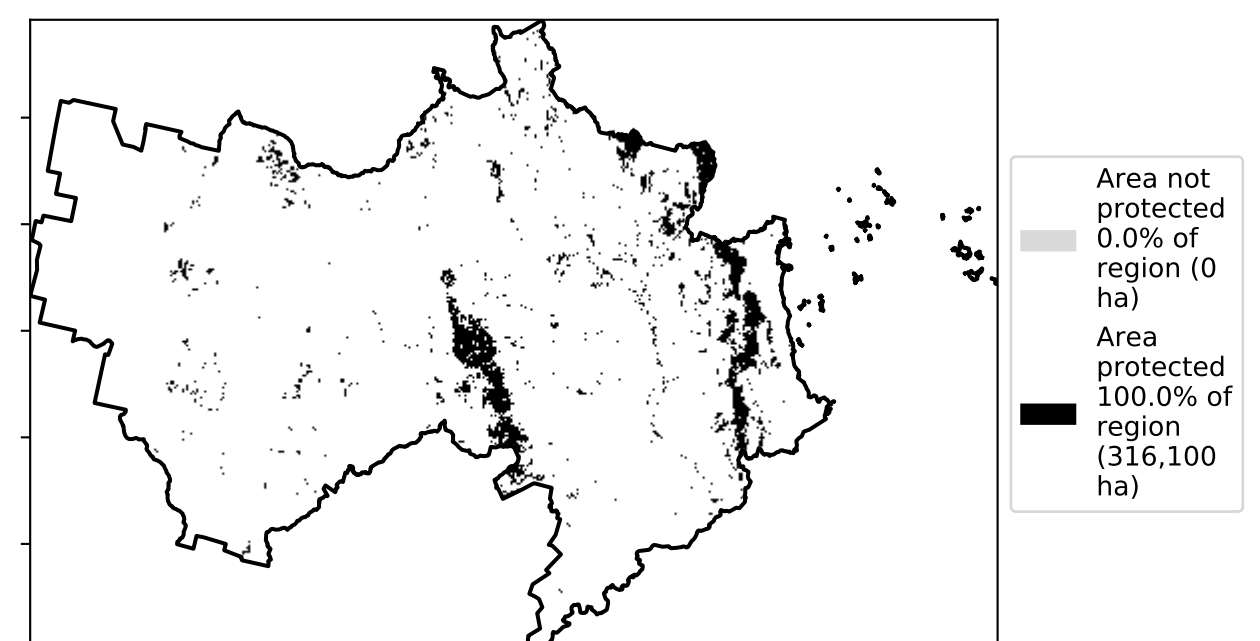
Proportion of vegetation cover class in area



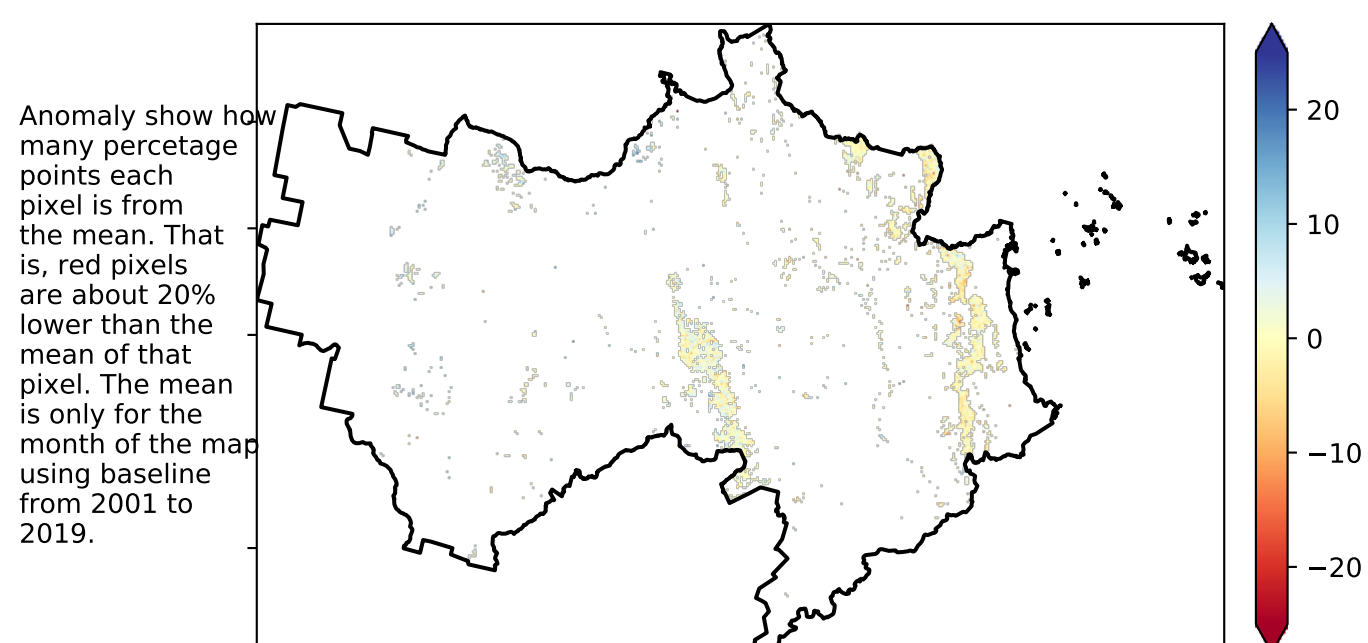
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

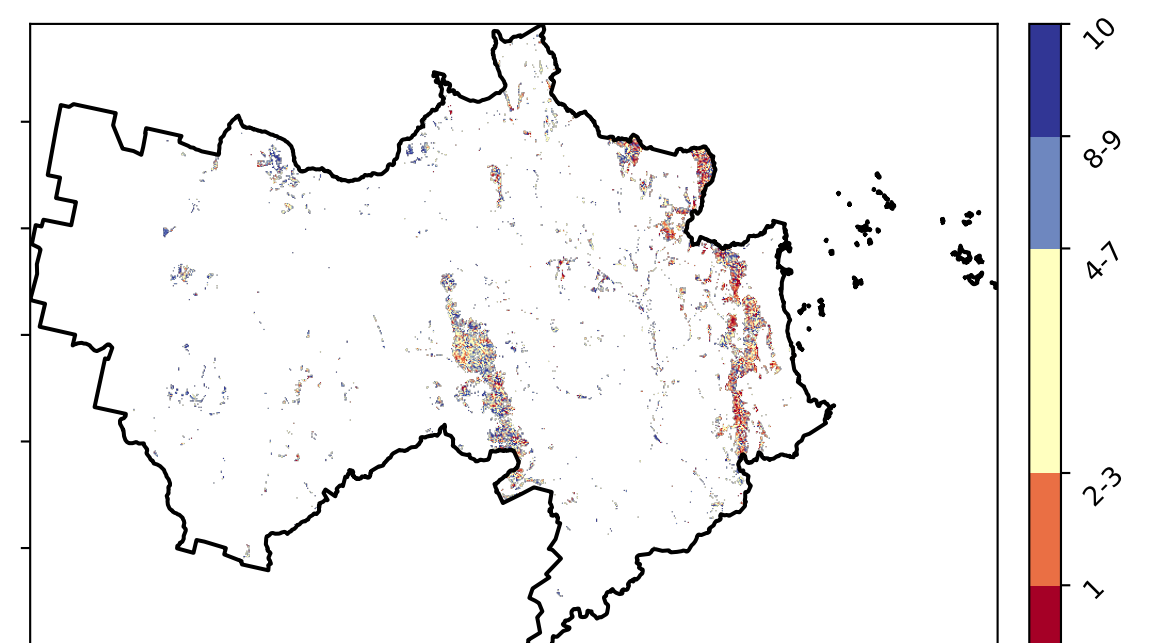


Total Vegetation Cover Anomaly [%]

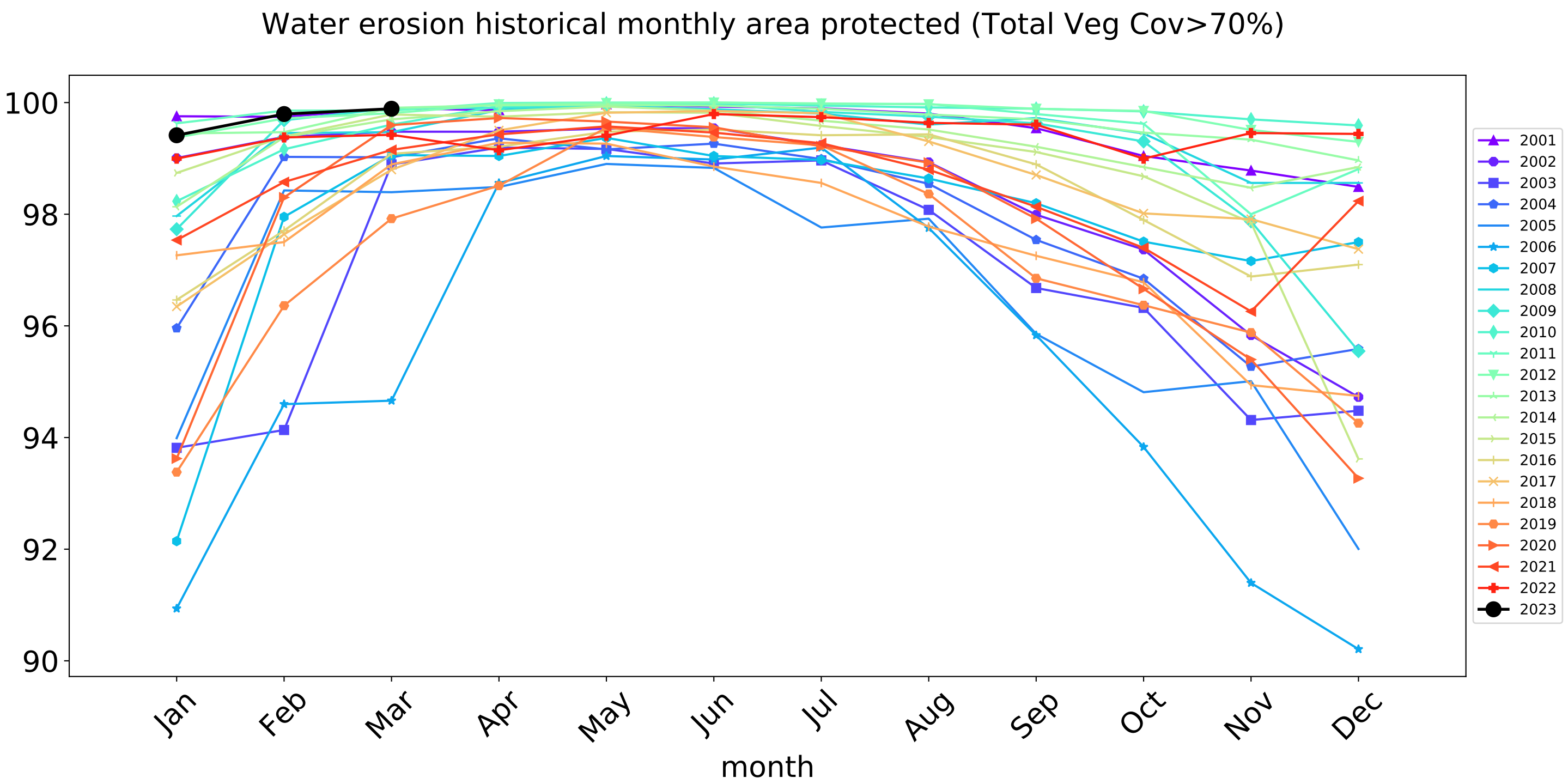
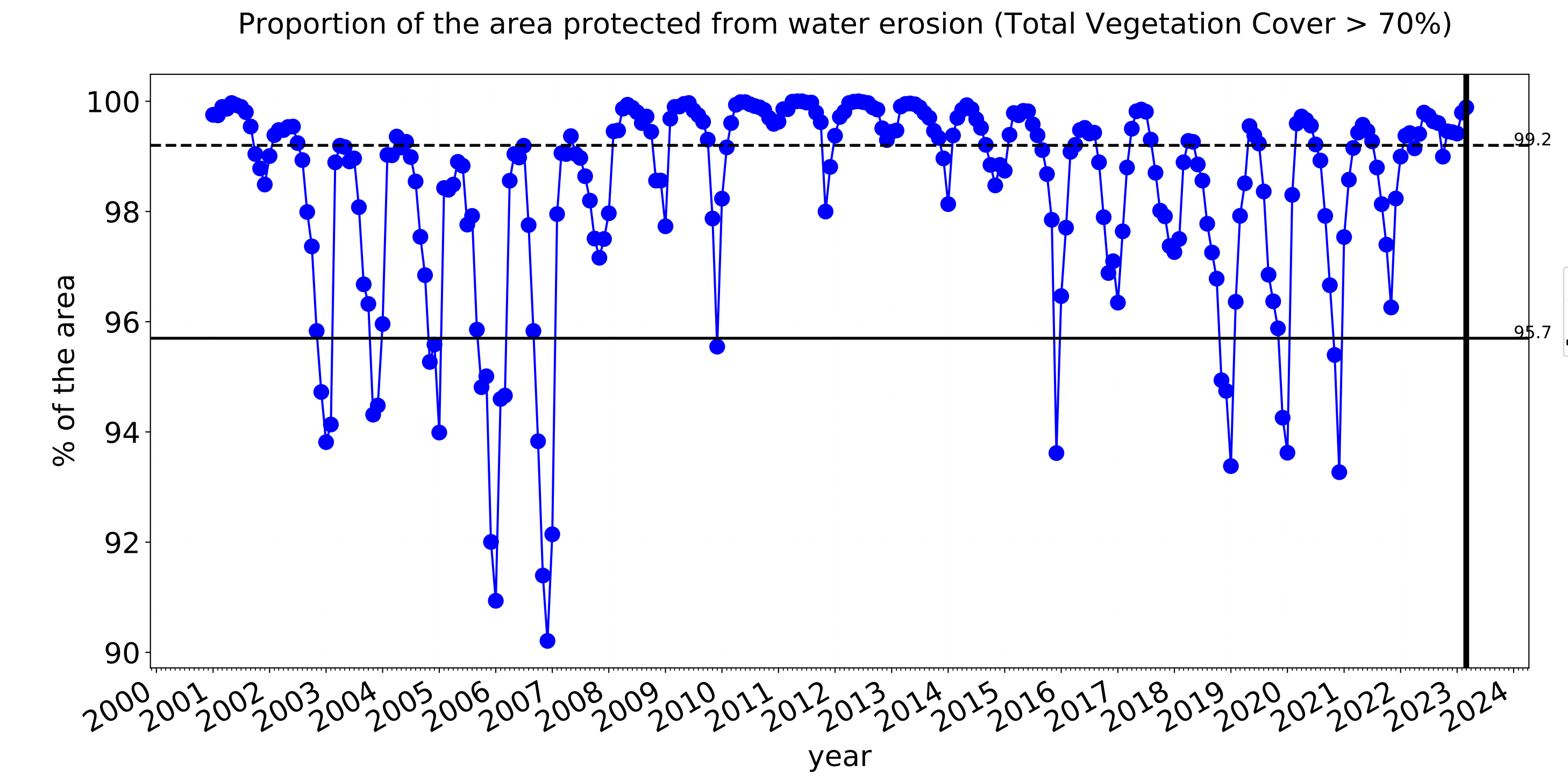
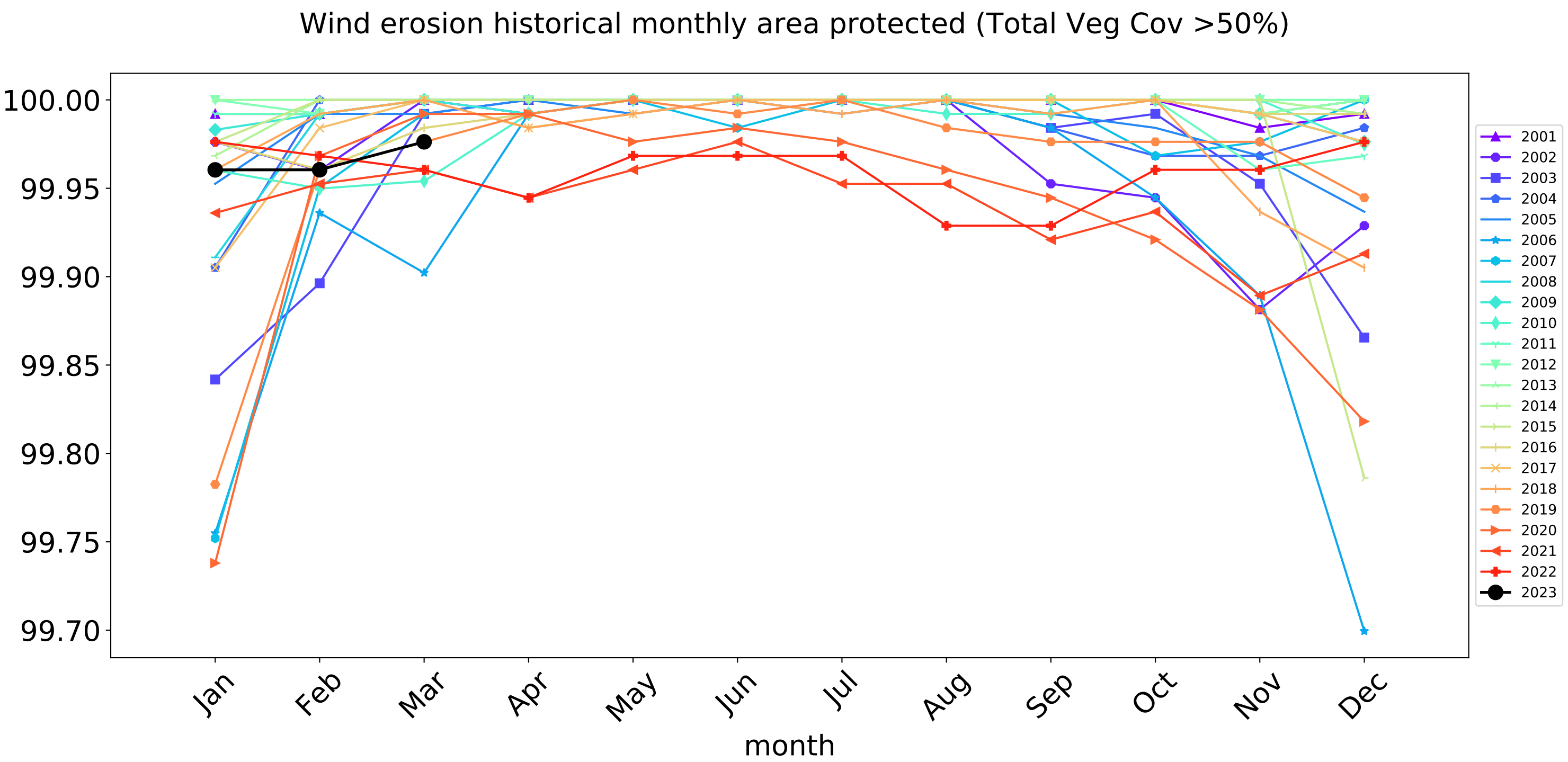
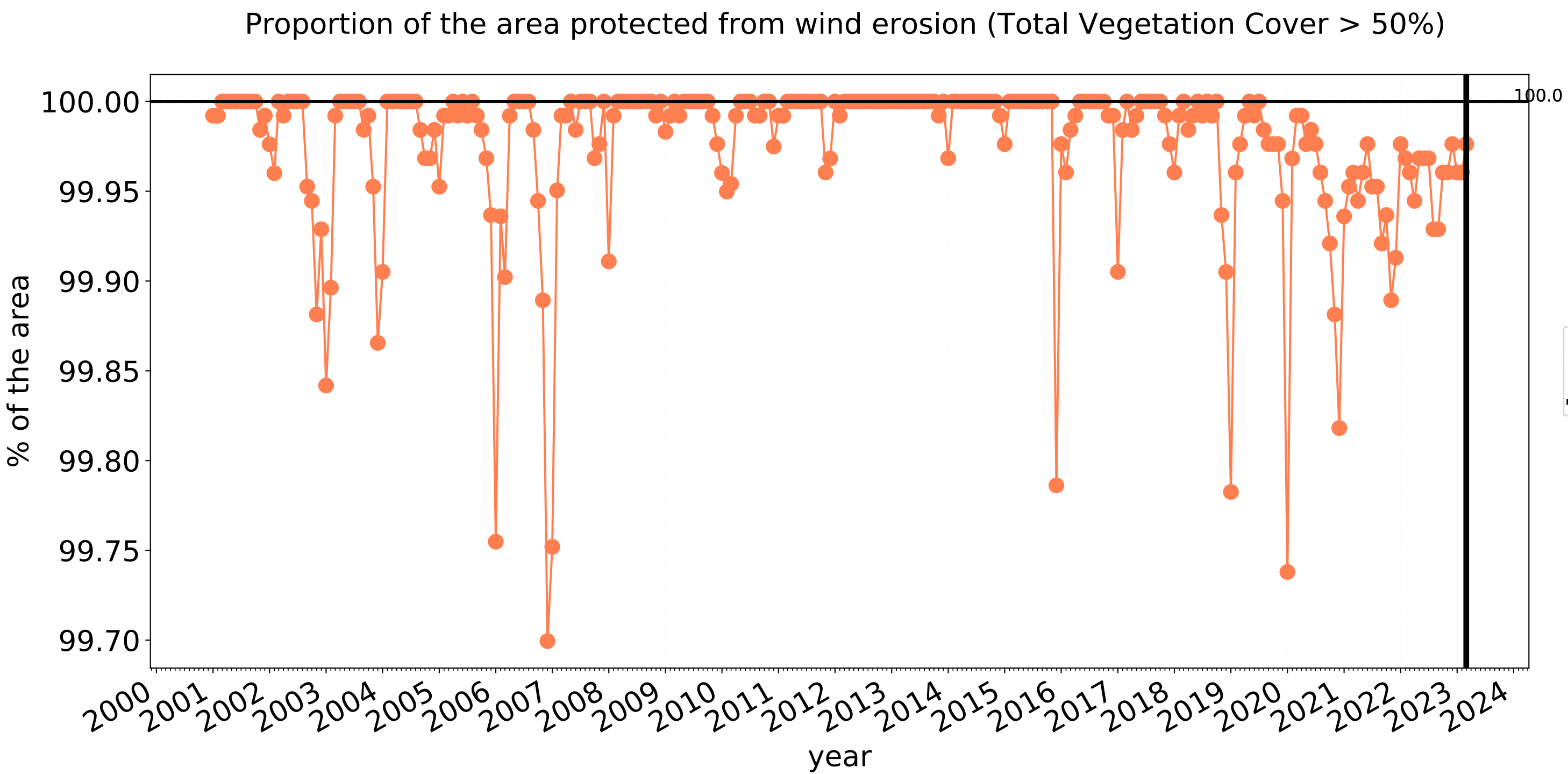


Total Vegetation Cover Decile [%]

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.



Grazing - Forest (non woodland) timeseries



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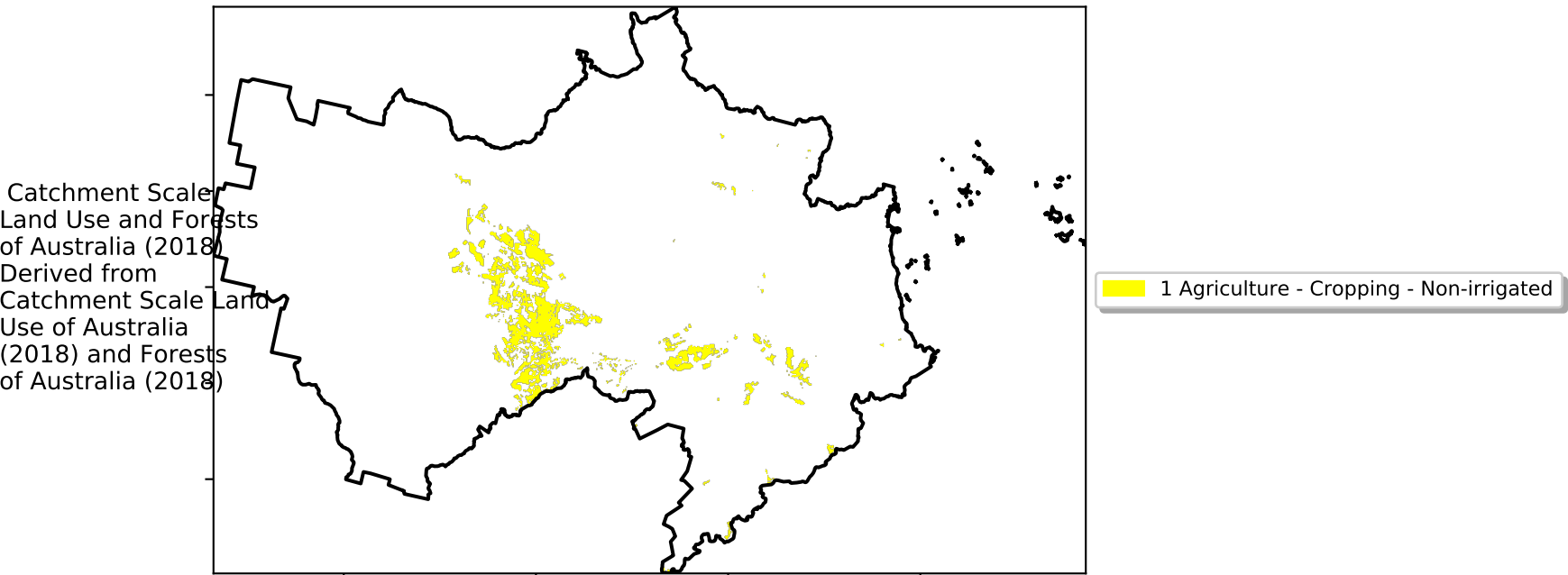


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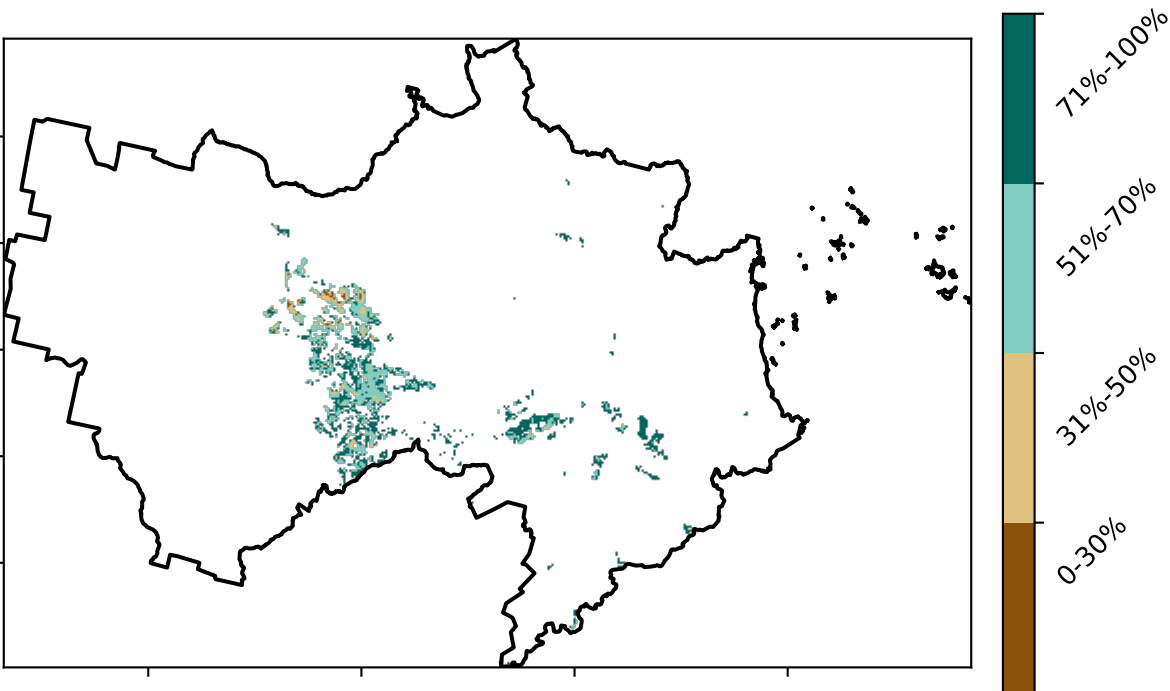


Cropping

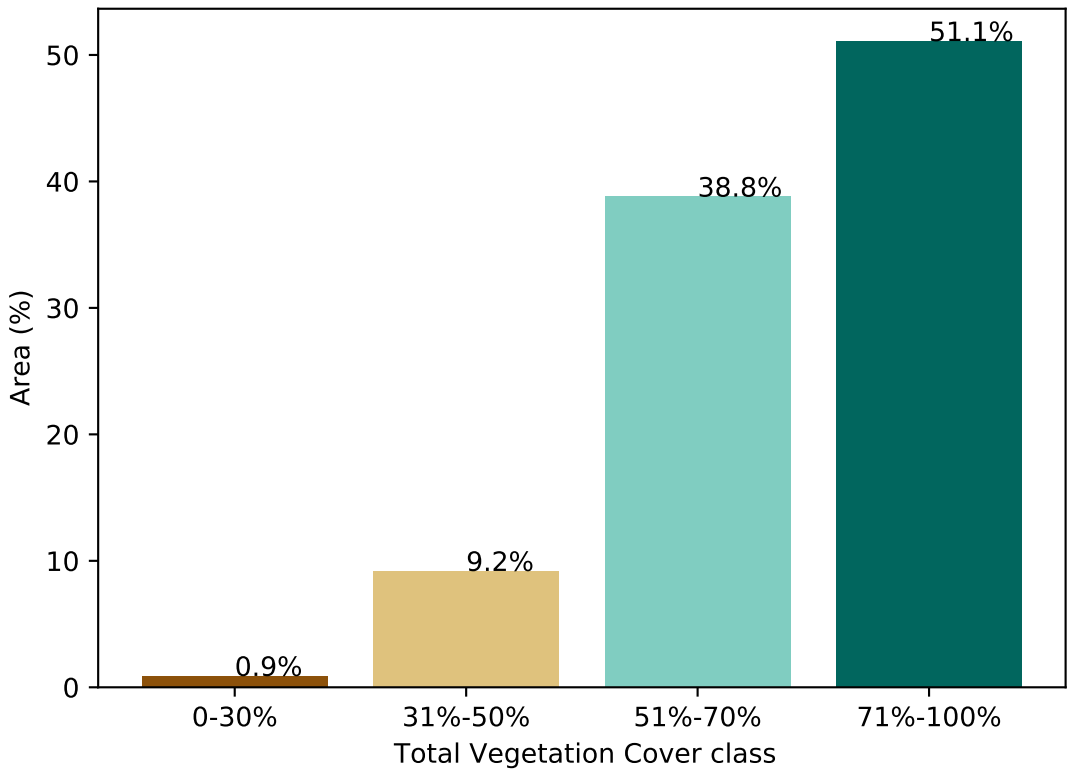
Land use and forest cover



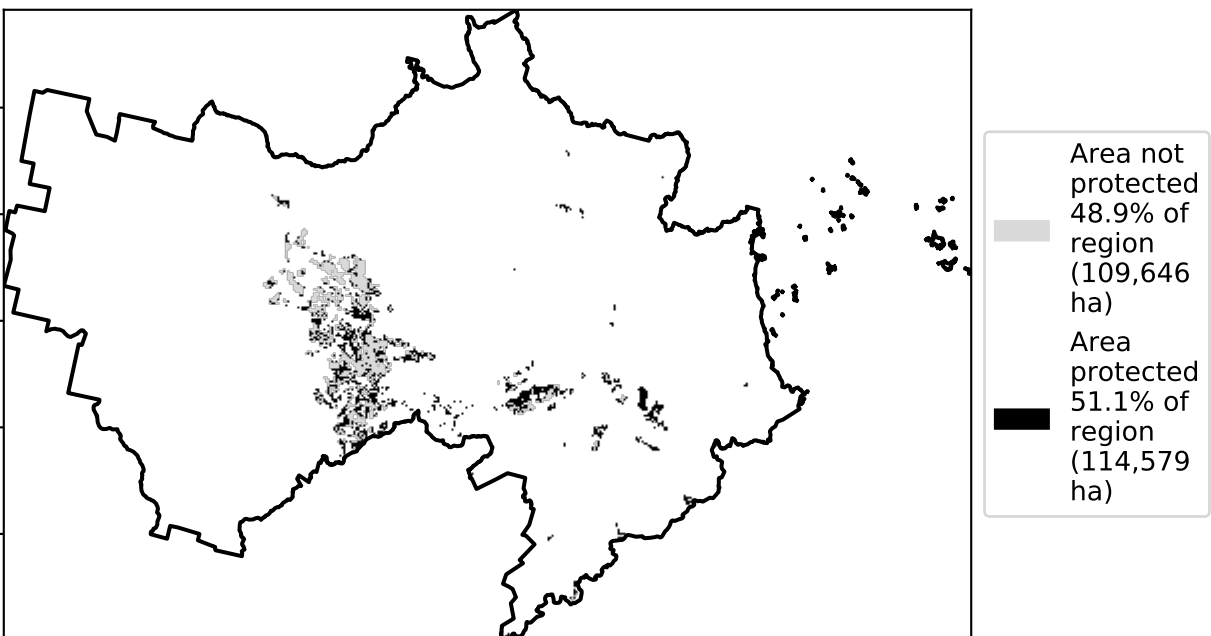
Total Vegetation Cover [%]



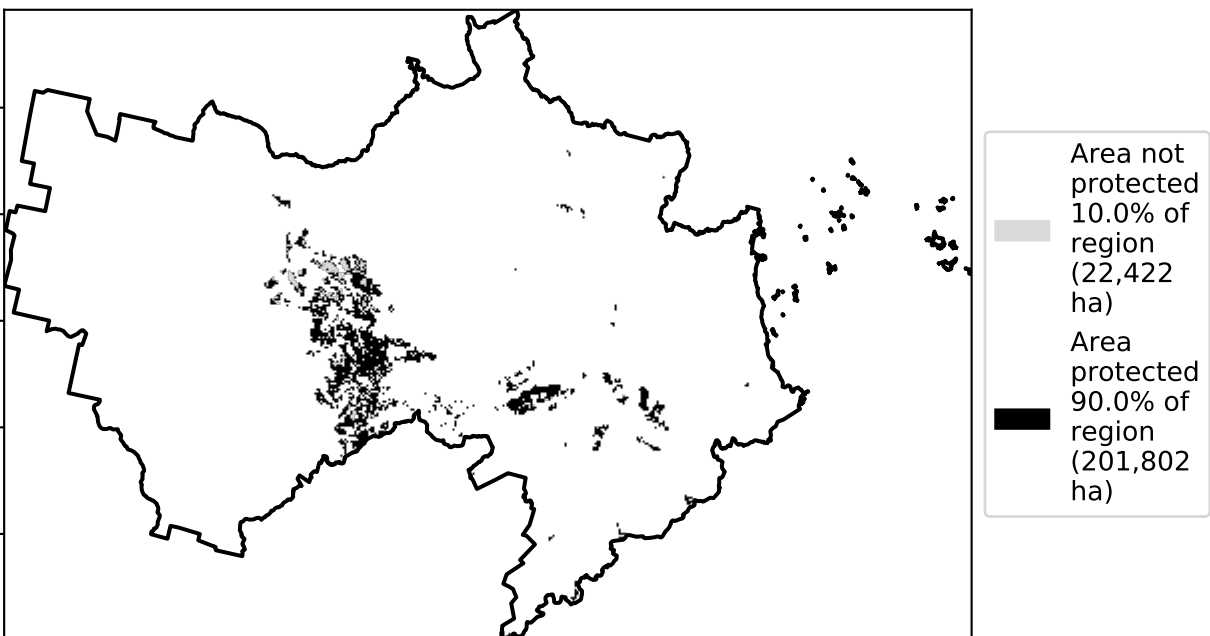
Proportion of vegetation cover class in area



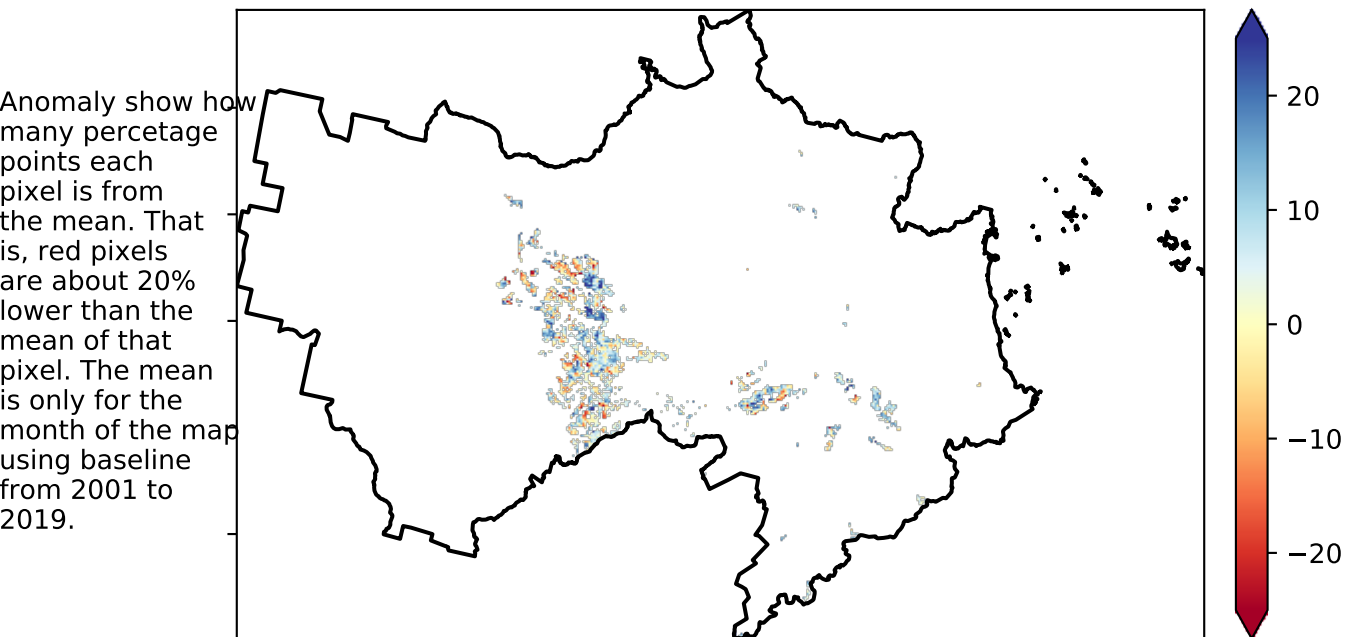
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

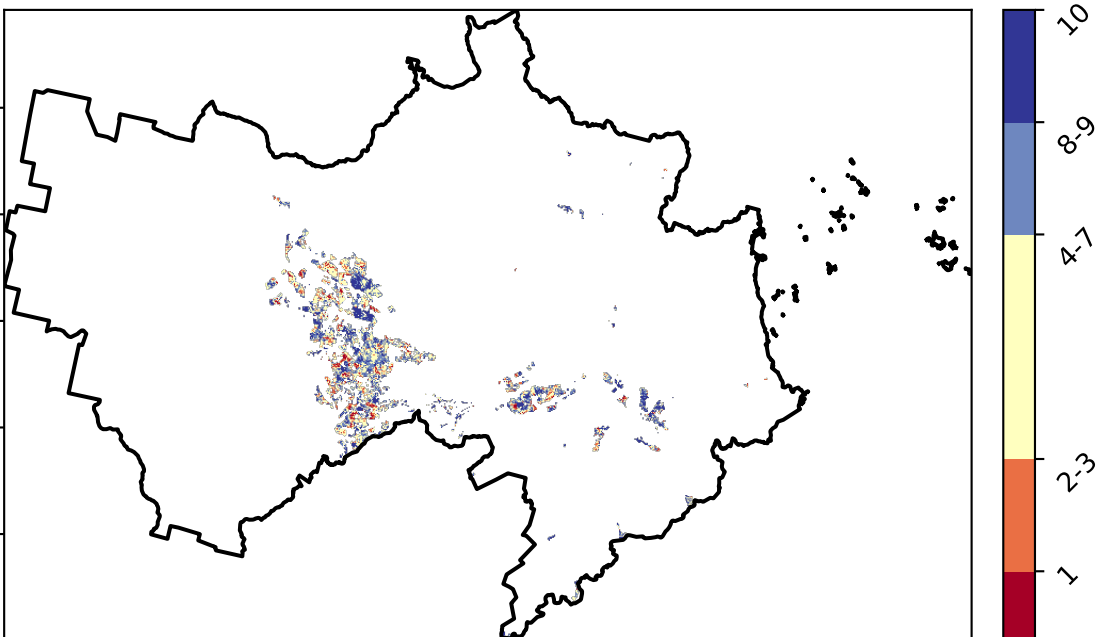


Total Vegetation Cover Anomaly [%]



Total Vegetation Cover Decile [%]

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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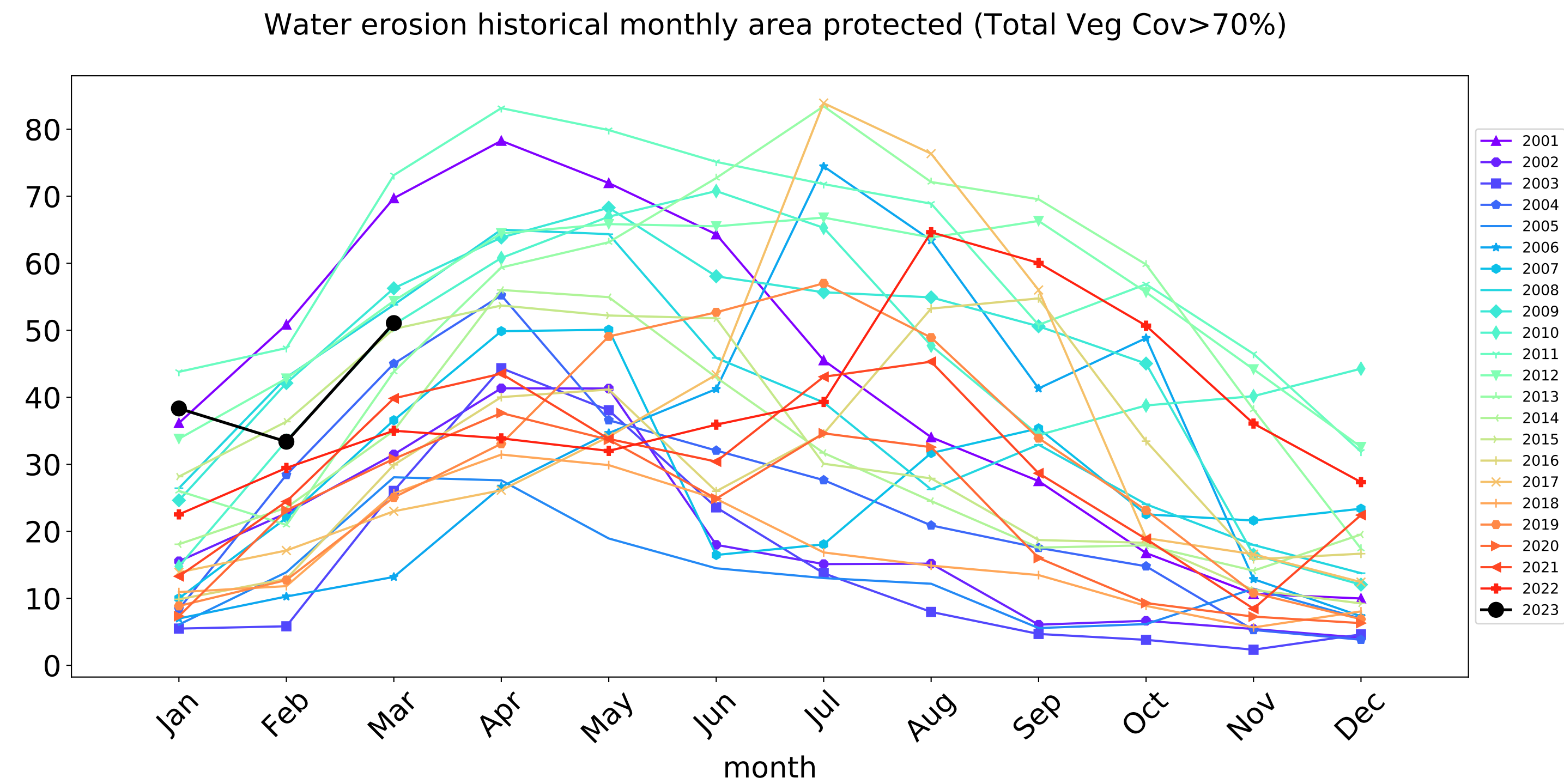
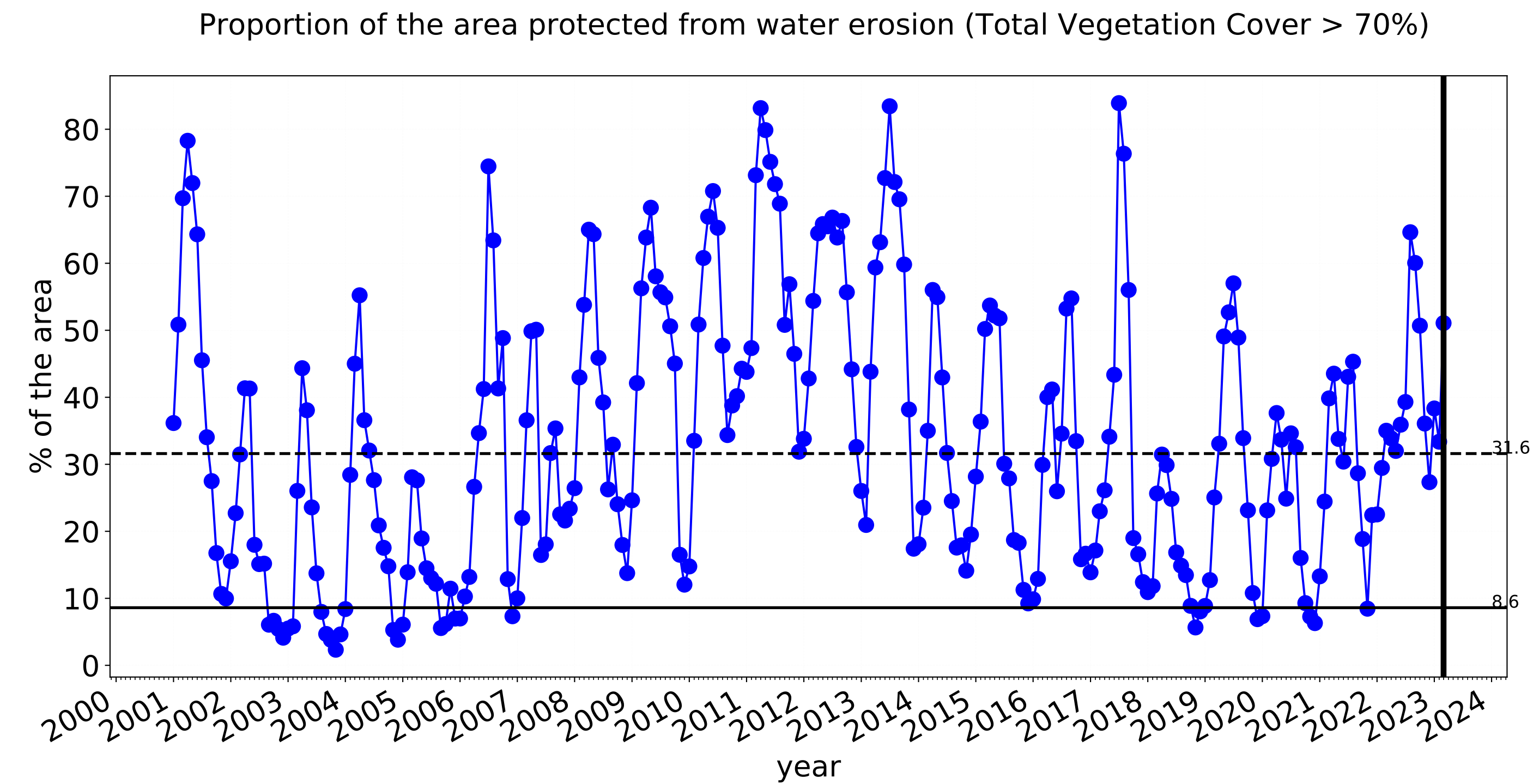
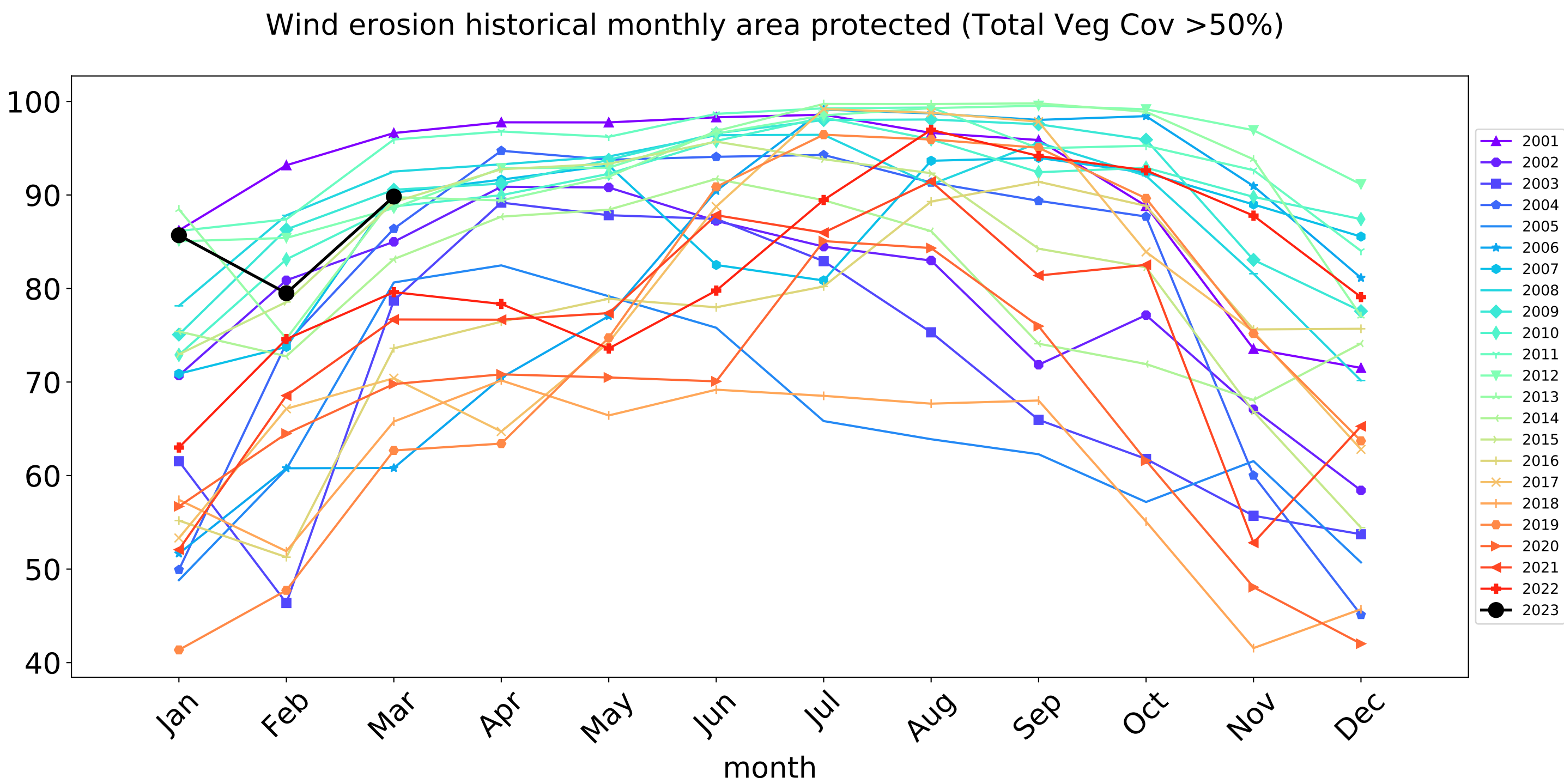
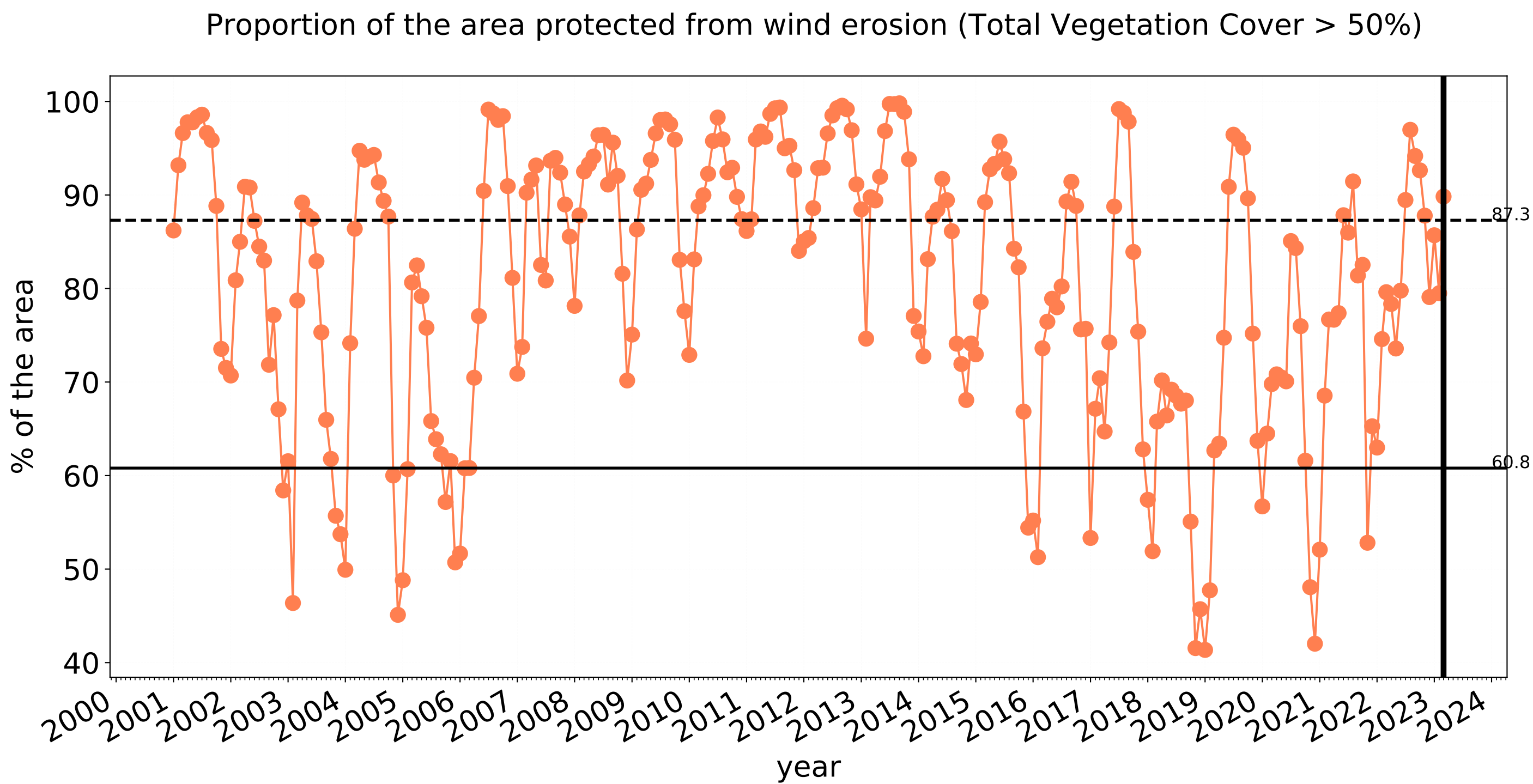


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Cropping timeseries

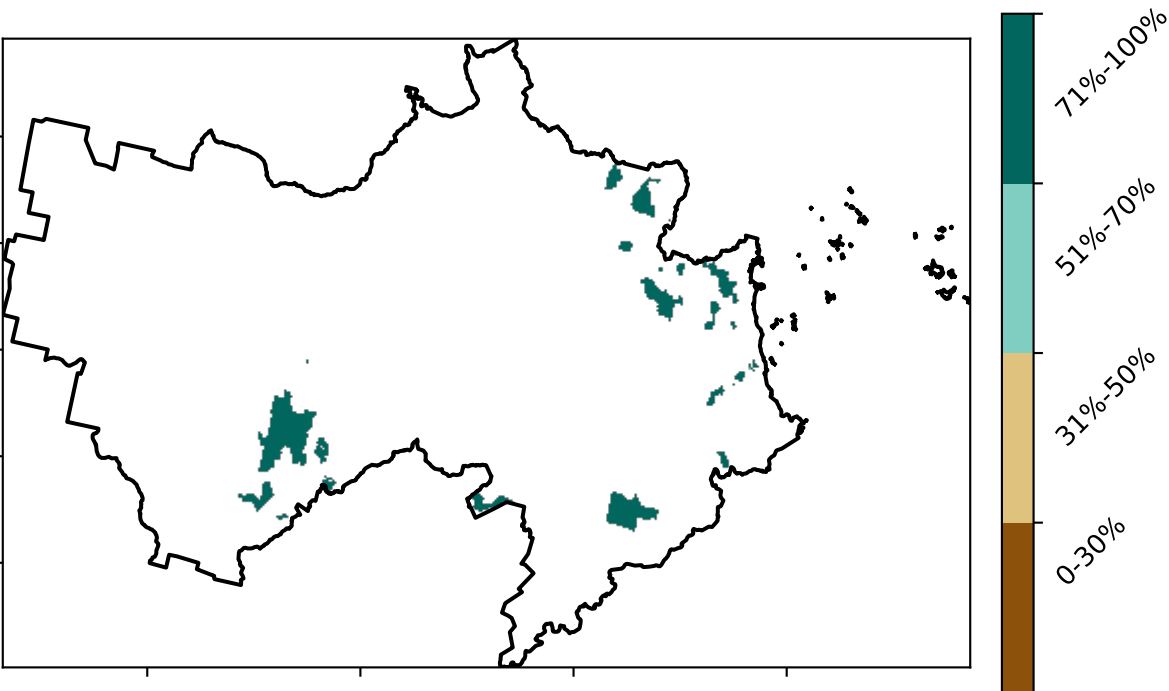


Production native forests and plantation forests

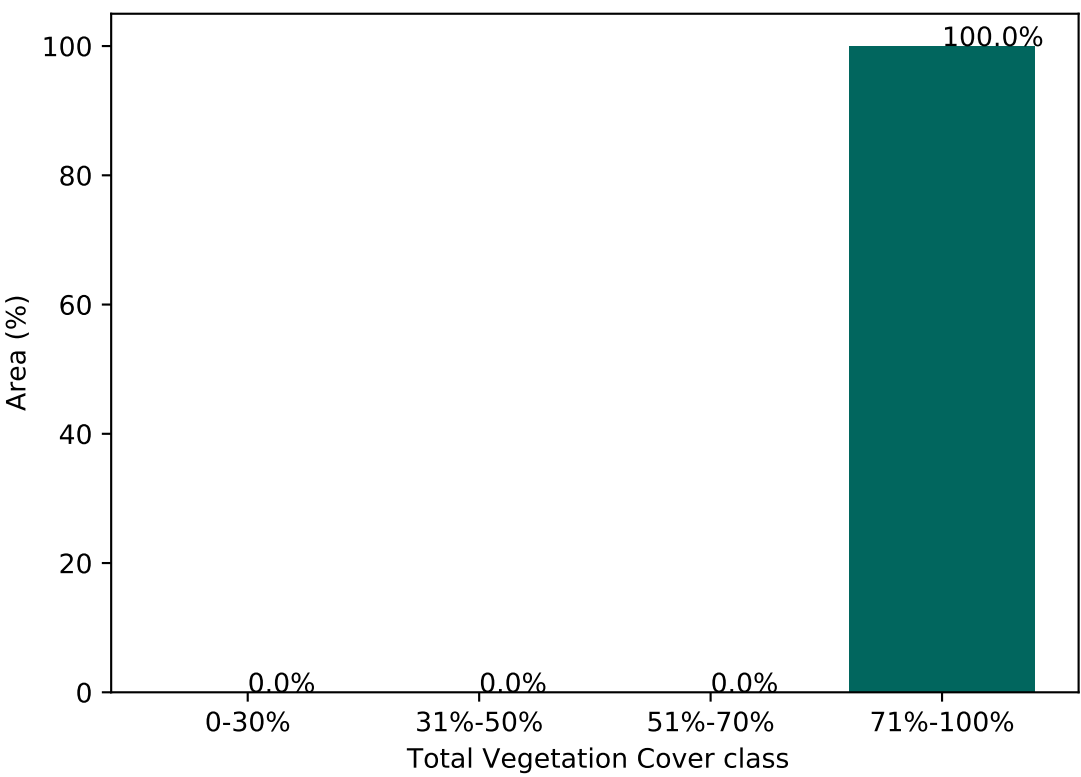
Land use and forest cover



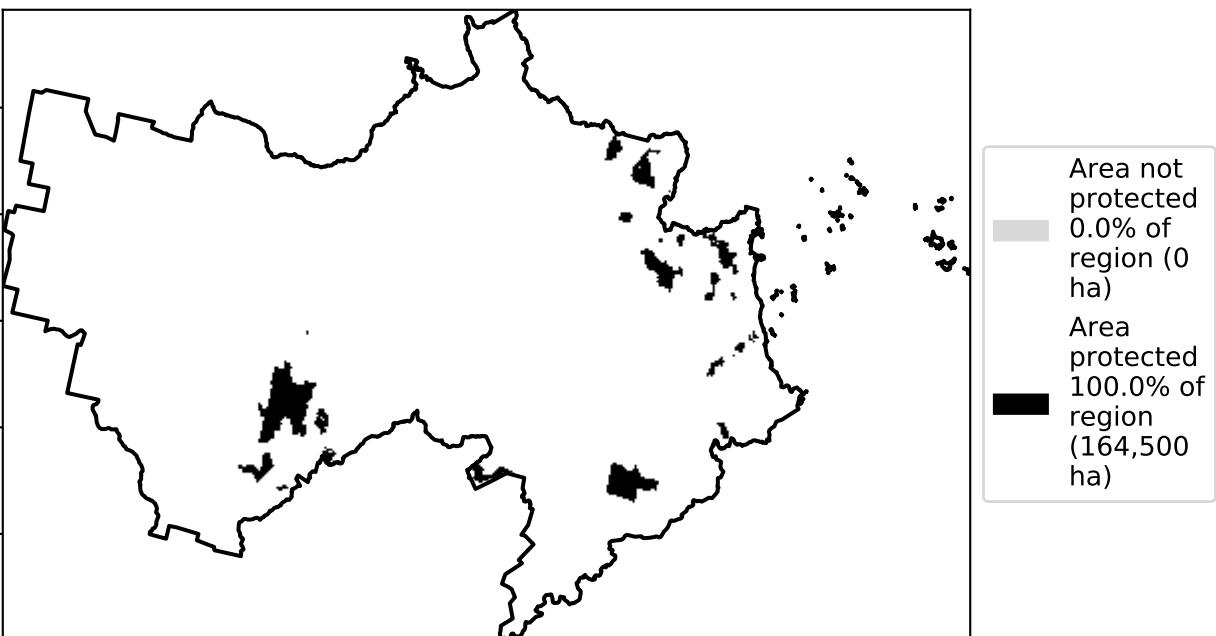
Total Vegetation Cover [%]



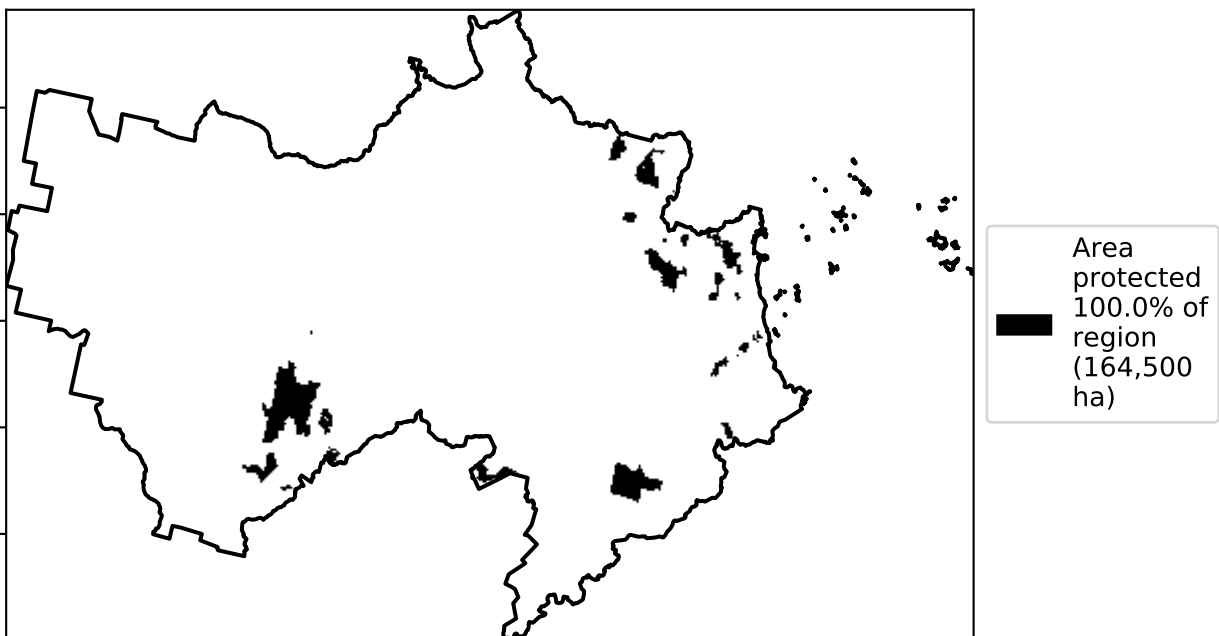
Proportion of vegetation cover class in area



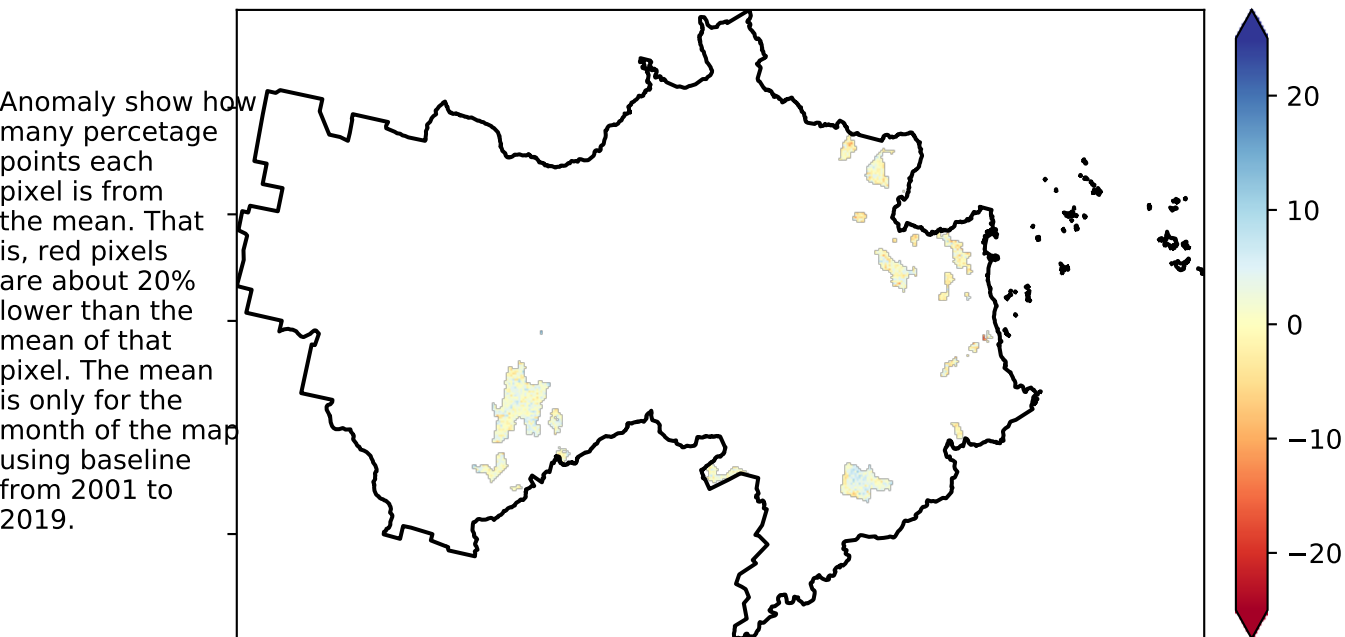
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

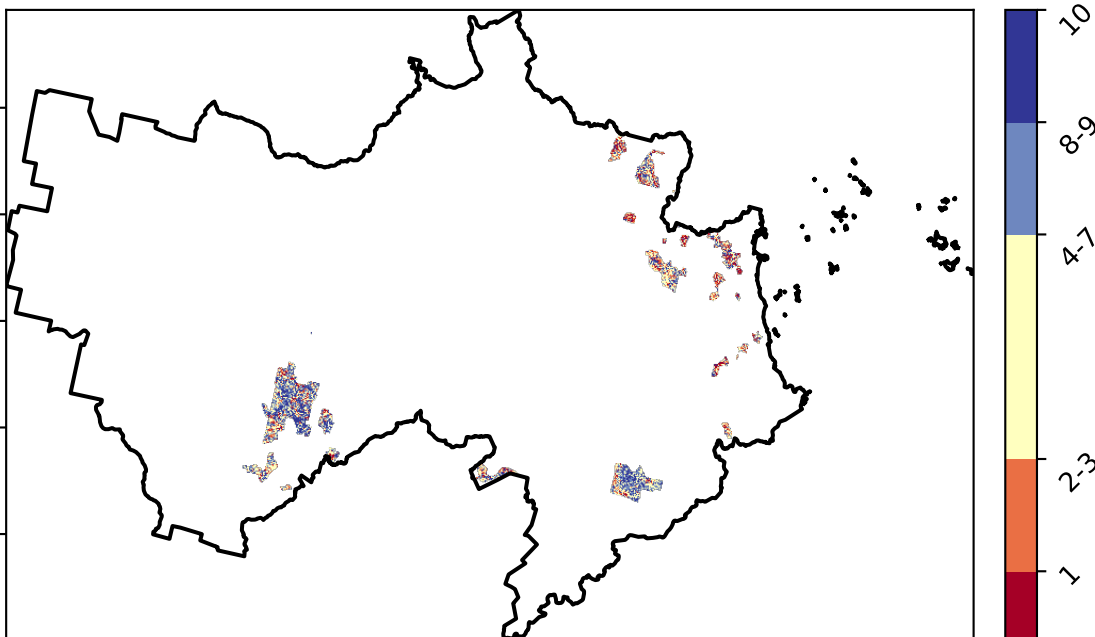


Total Vegetation Cover Anomaly [%]

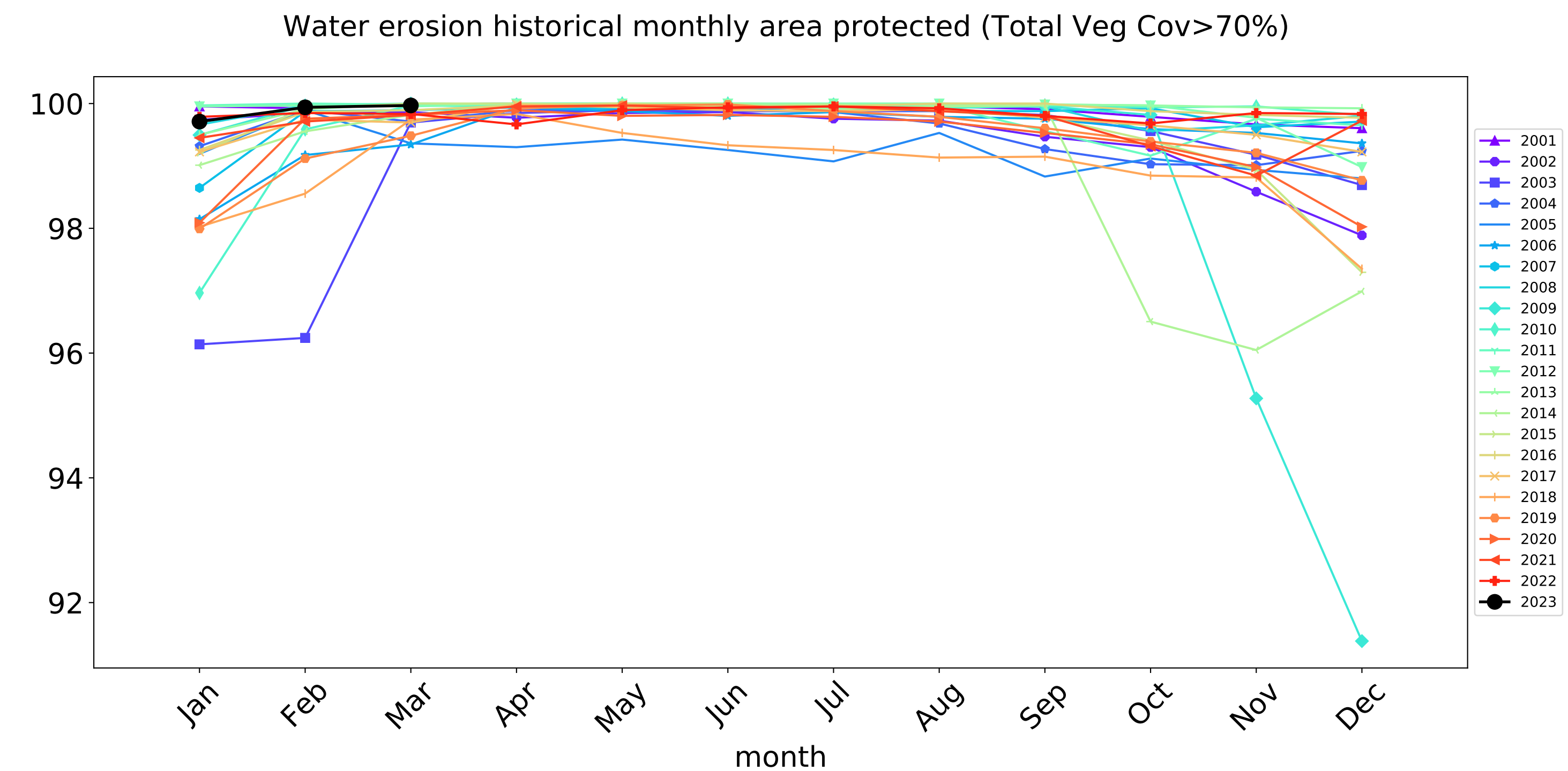
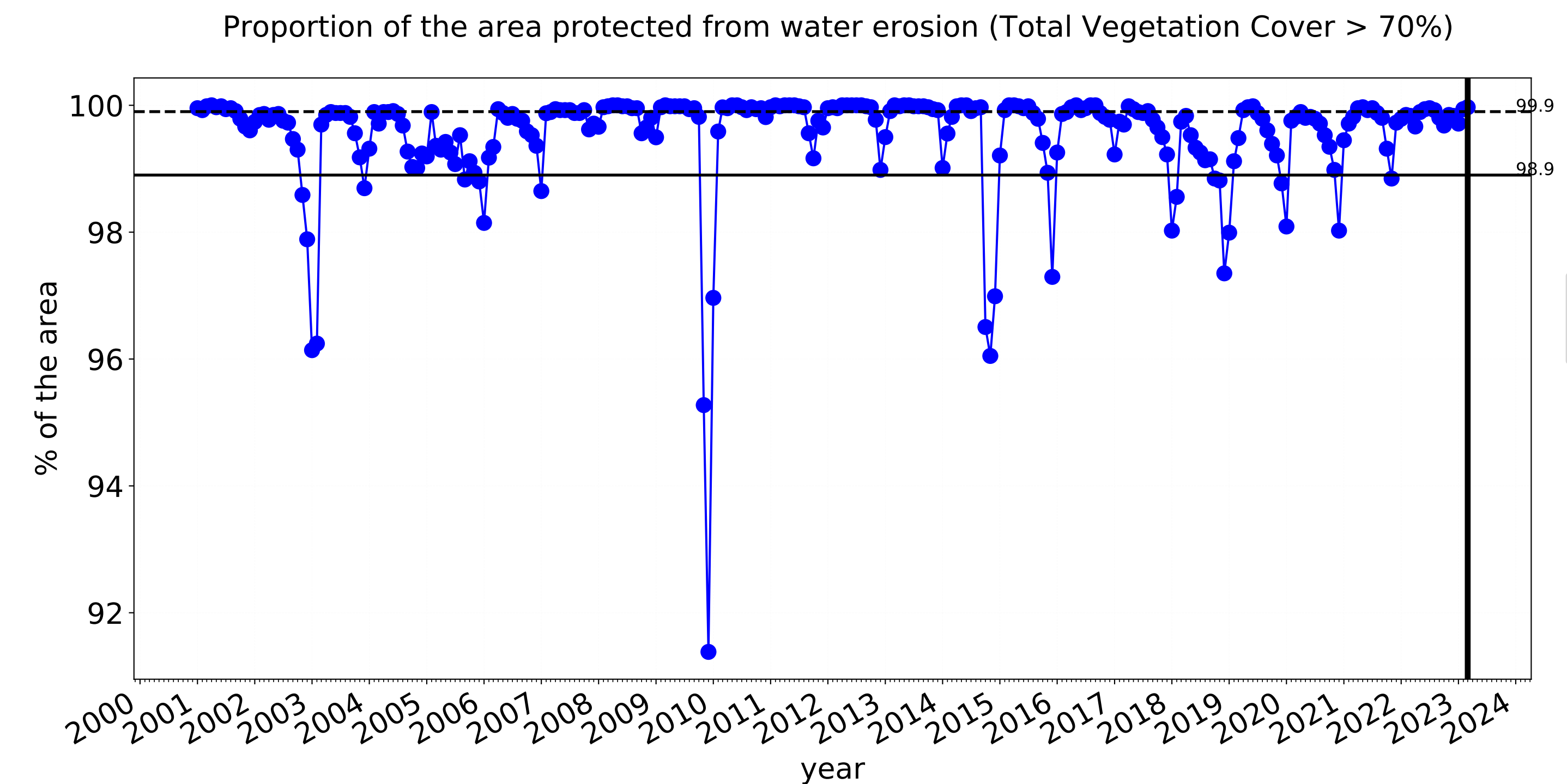
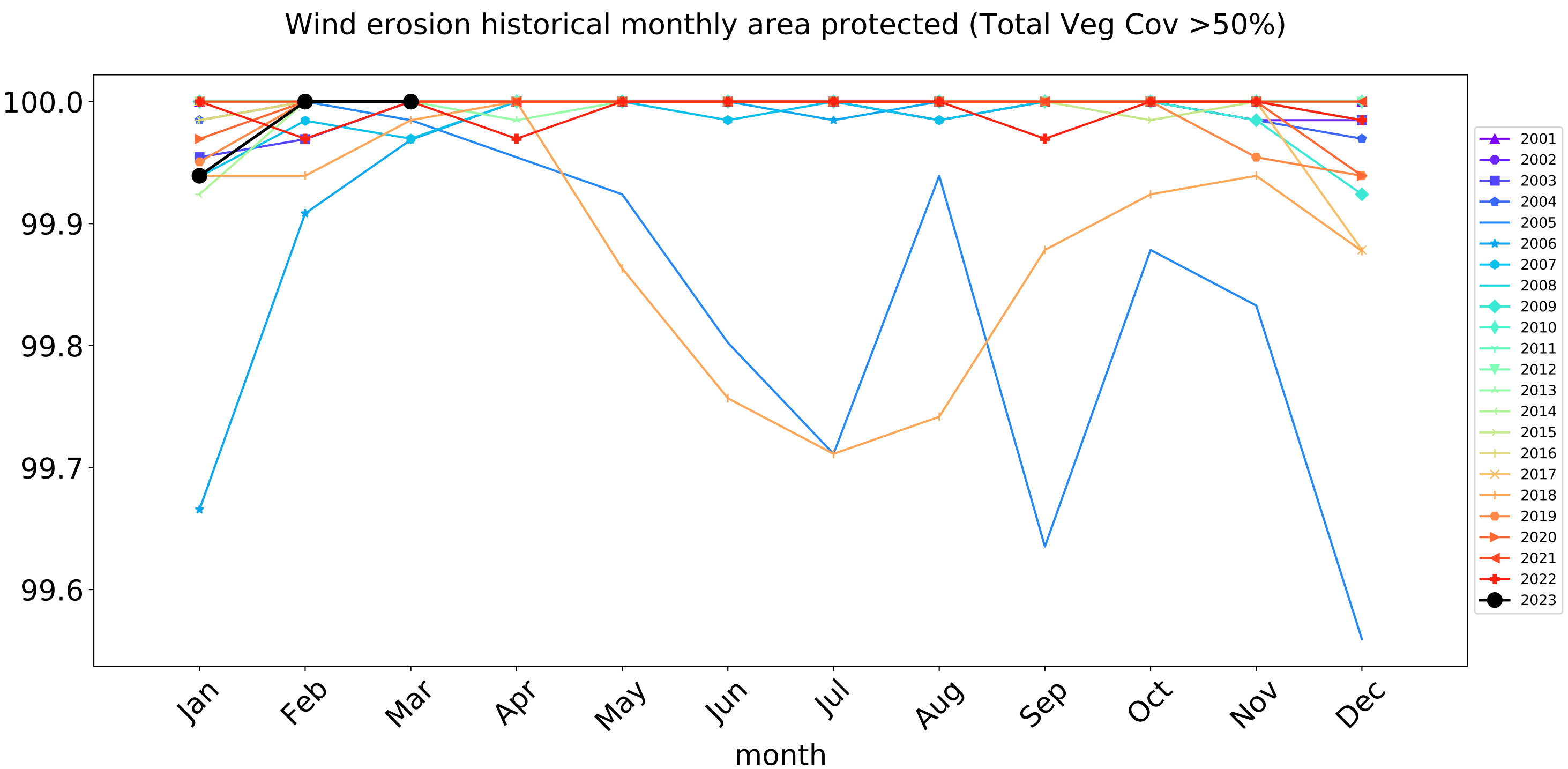
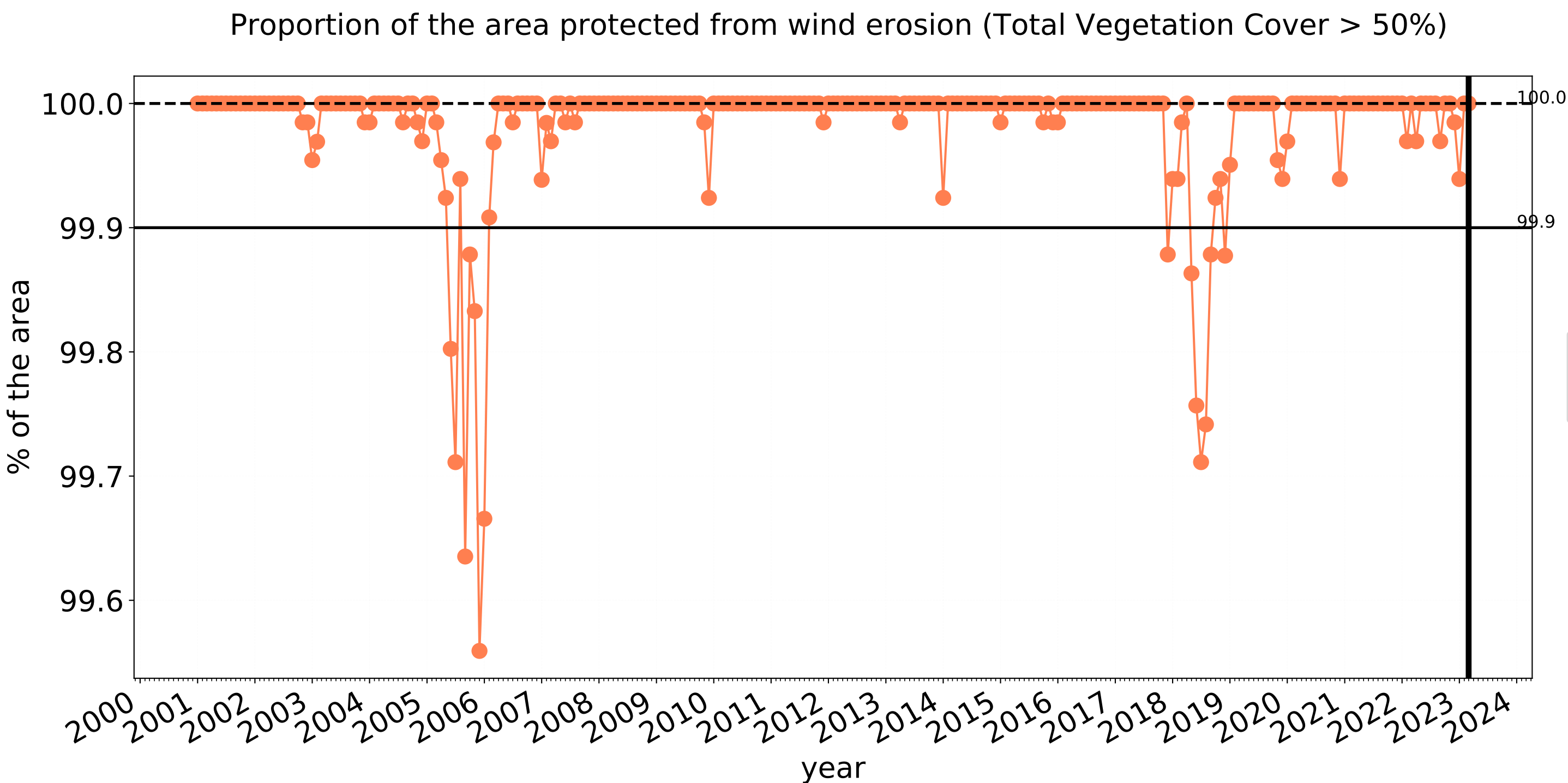


Total Vegetation Cover Decile [%]

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Production native forests and plantation forests timeseries



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Isaac_(R) (5,862,900 ha and no data7,718 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	5,862,900	99.9% 5,857,475	99.2% 5,814,425	95.7% 5,613,075	84.7% 4,965,900	36.1% 2,117,025	9.8% 576,650
Conservation and natural environments	176,225	99.9% 176,125	99.7% 175,775	98.7% 173,950	95.4% 168,075	58.3% 102,700	17.8% 31,450
Conservation and natural environments Woodland forest	109,300	100.0% 109,250	99.9% 109,150	99.6% 108,825	96.8% 105,775	57.9% 63,250	16.8% 18,325
Agriculture	5,398,925	99.9% 5,395,175	99.3% 5,361,850	96.0% 5,182,150	84.5% 4,564,225	34.5% 1,861,050	9.2% 496,375
Grazing	5,158,300	100.0% 5,156,750	99.7% 5,144,125	98.0% 5,052,600	87.2% 4,500,575	35.8% 1,844,725	9.5% 491,725
Grazing non forest	3,694,325	100.0% 3,692,850	99.6% 3,680,750	97.2% 3,591,975	83.5% 3,083,525	28.9% 1,067,875	7.6% 282,250
Grazing Woodland forest	1,147,875	100.0% 1,147,800	100.0% 1,147,350	99.7% 1,144,875	96.4% 1,106,150	48.9% 561,725	12.0% 137,175
Grazing - Forest (non woodland)	316,100	100.0% 316,100	100.0% 316,025	99.9% 315,750	98.4% 310,900	68.1% 215,125	22.9% 72,300
Cropping	224,225	99.0% 222,025	89.8% 201,425	51.1% 114,525	22.4% 50,225	5.3% 11,825	1.4% 3,150
Production native forests and plantation forests	164,500	100.0% 164,500	100.0% 164,500	100.0% 164,450	99.5% 163,650	74.4% 122,400	19.4% 31,950