

Total vegetation cover soil protection

Region:NRM Burdekin QLD

Date: July 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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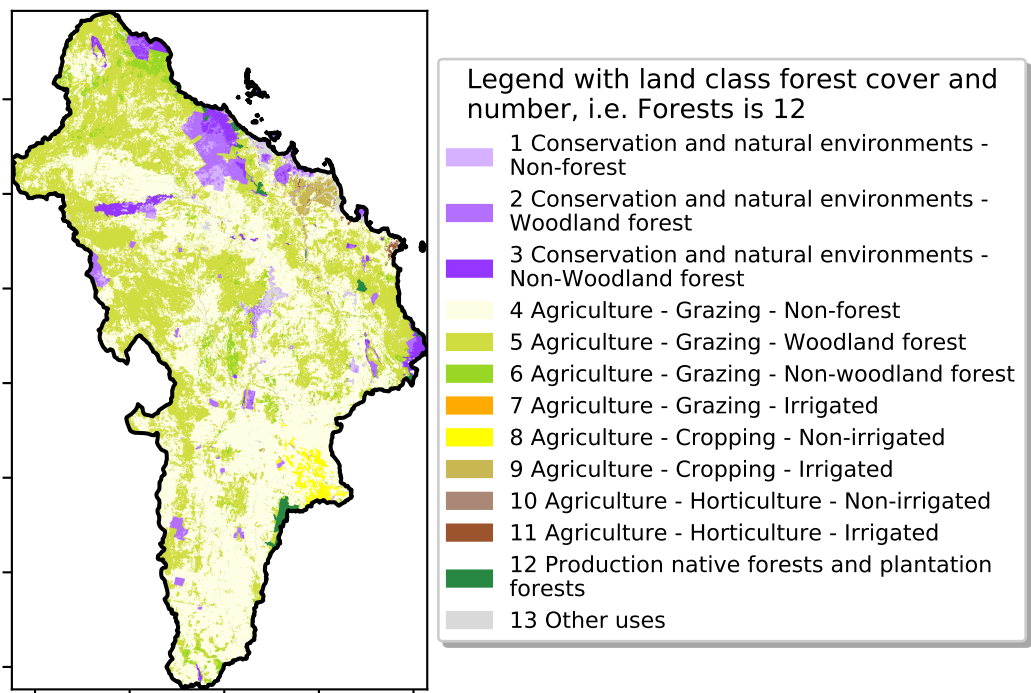


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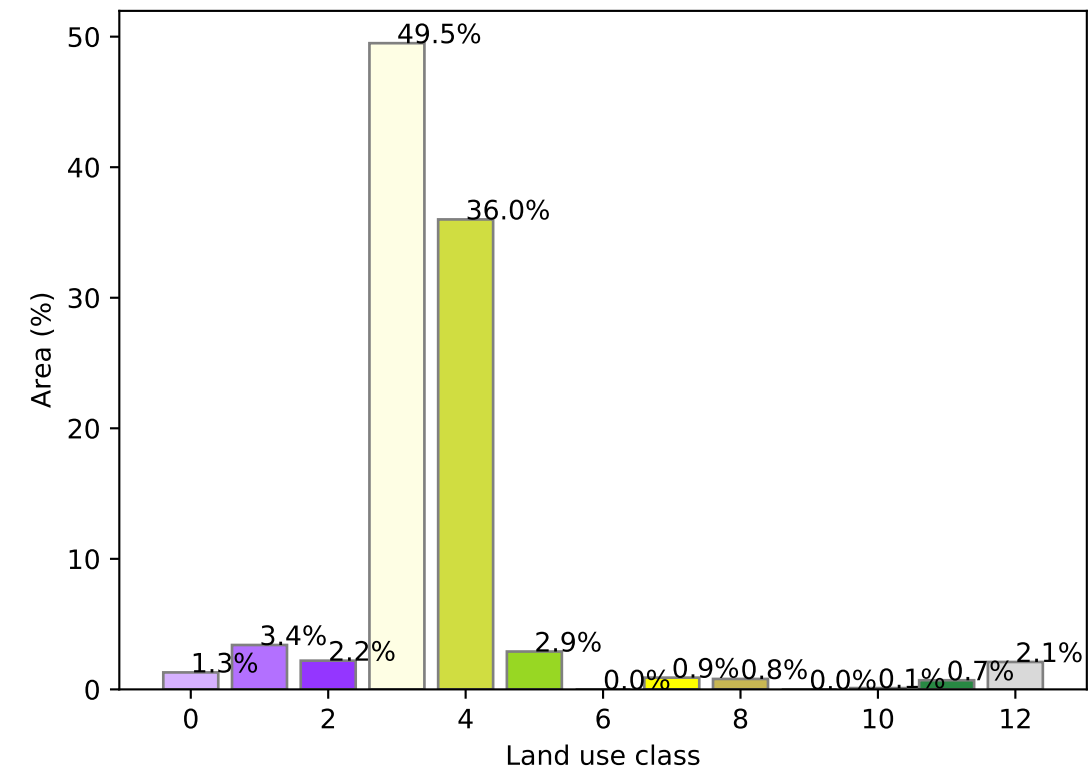


Vegetation Cover Jul 2023

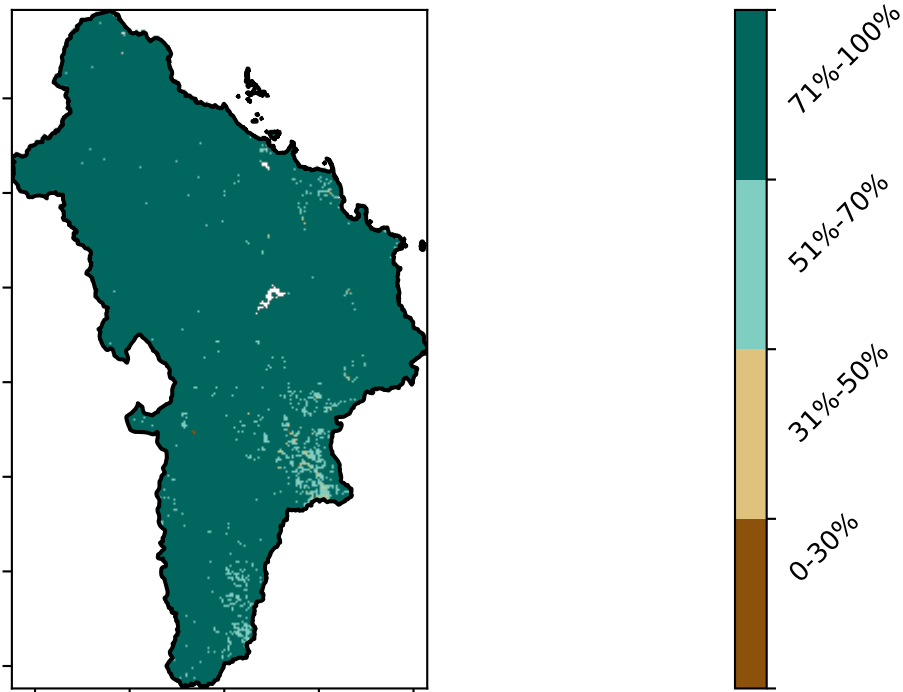
Land use and forest cover



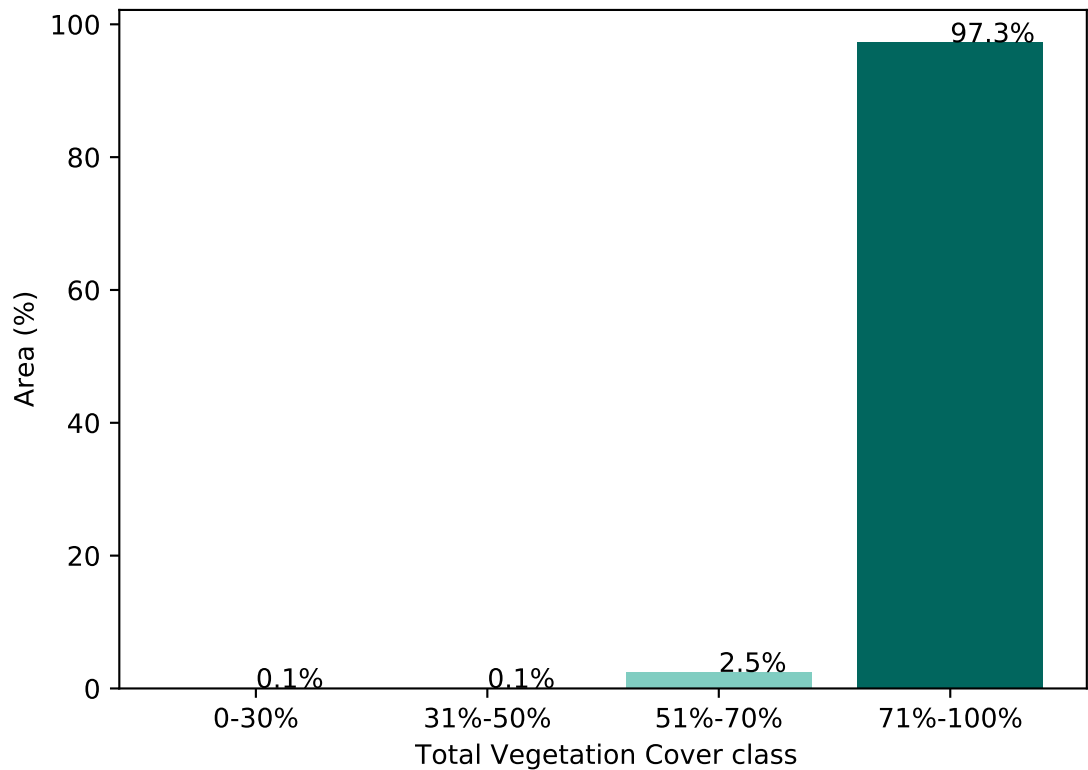
Proportion of each land class in area



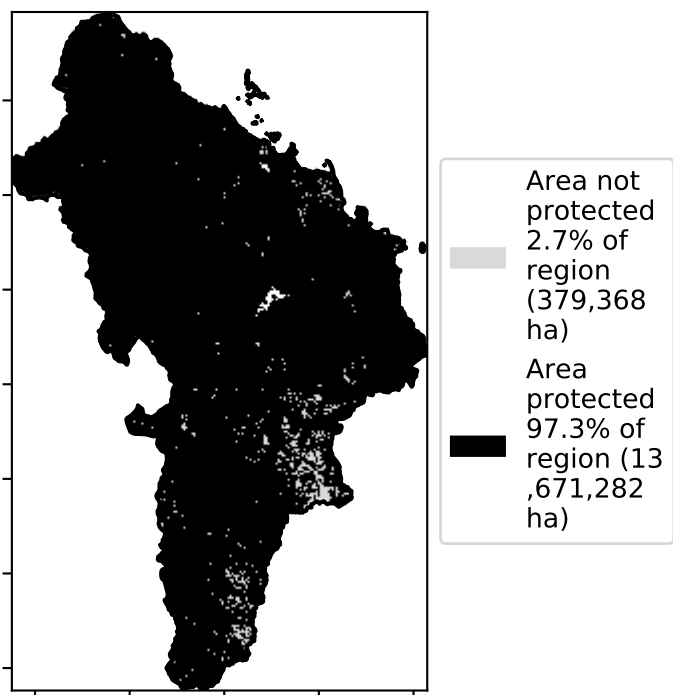
Total Vegetation Cover [%]



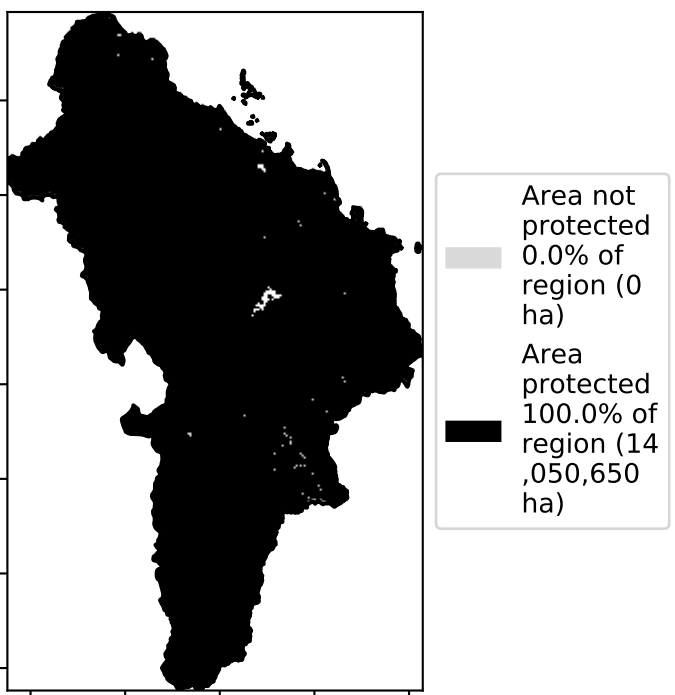
Proportion of vegetation cover class in area



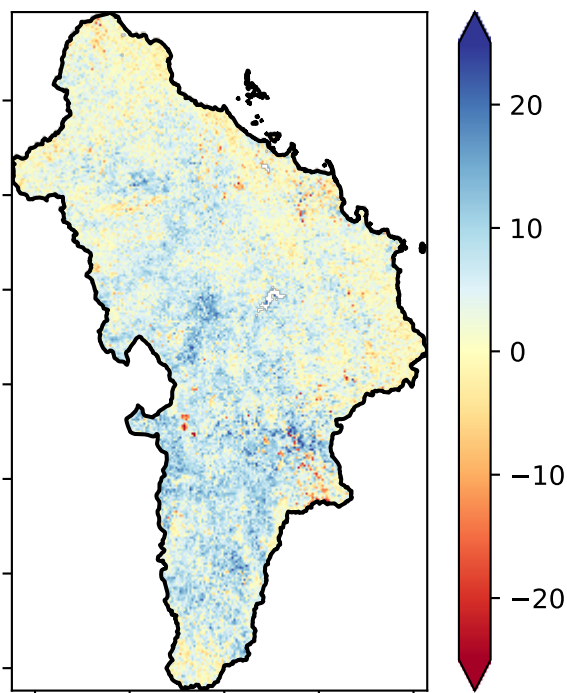
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

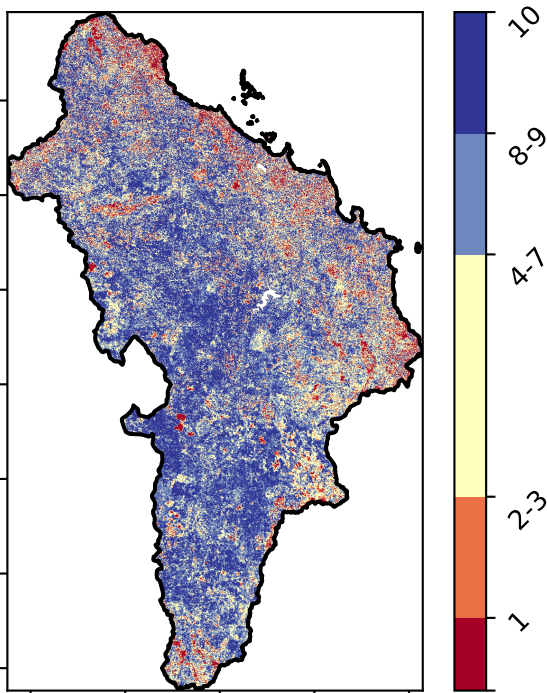


Total Vegetation Cover Anomaly [%]



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Total Vegetation Cover Decile [%]



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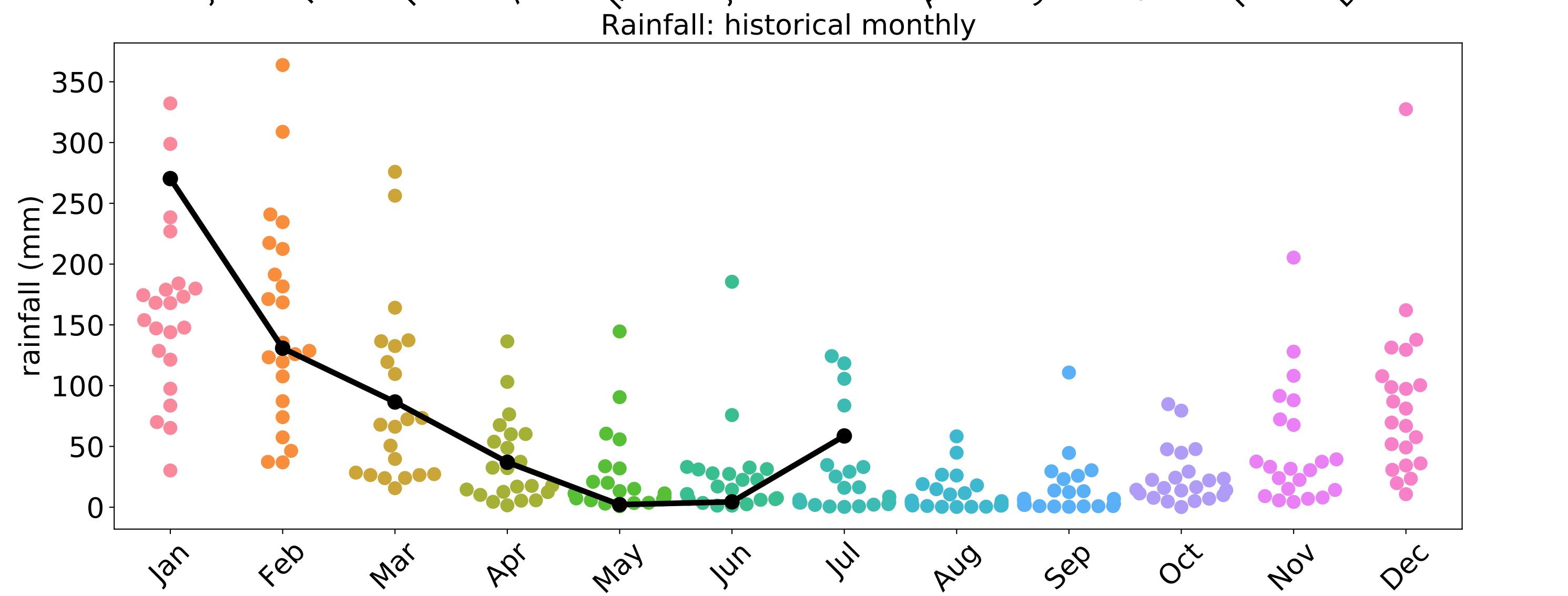
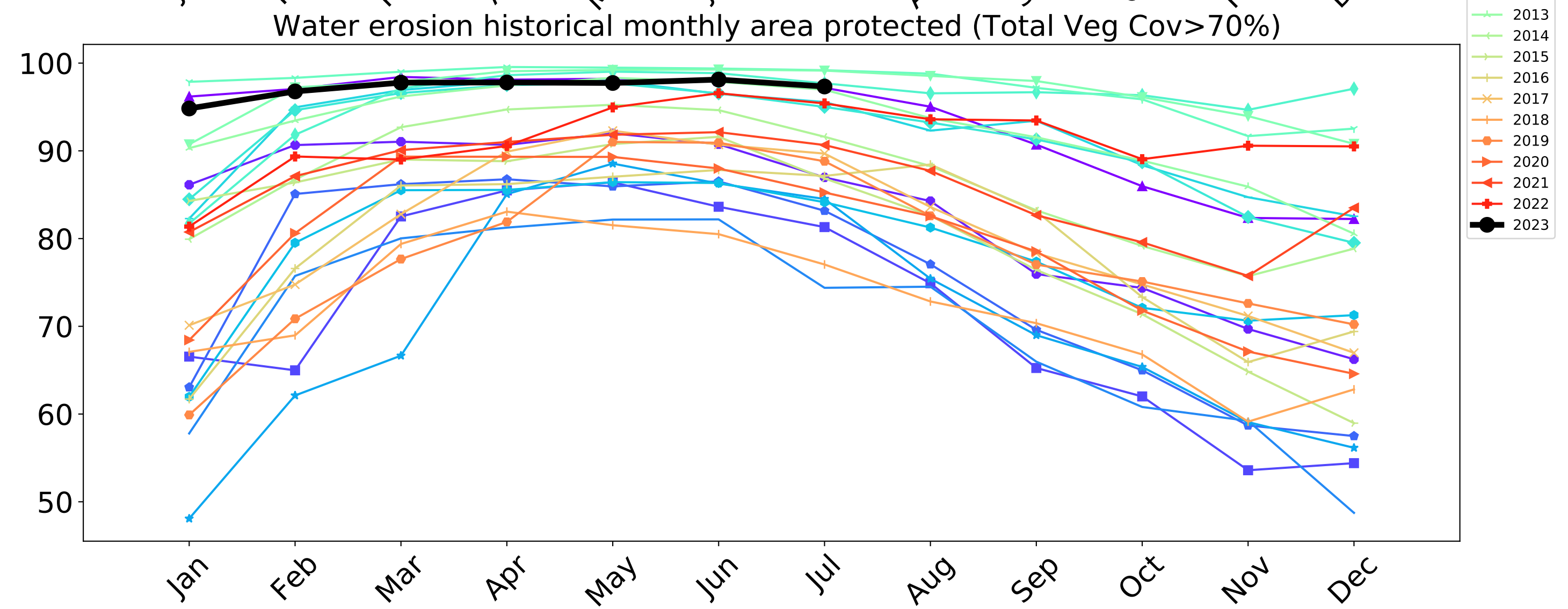
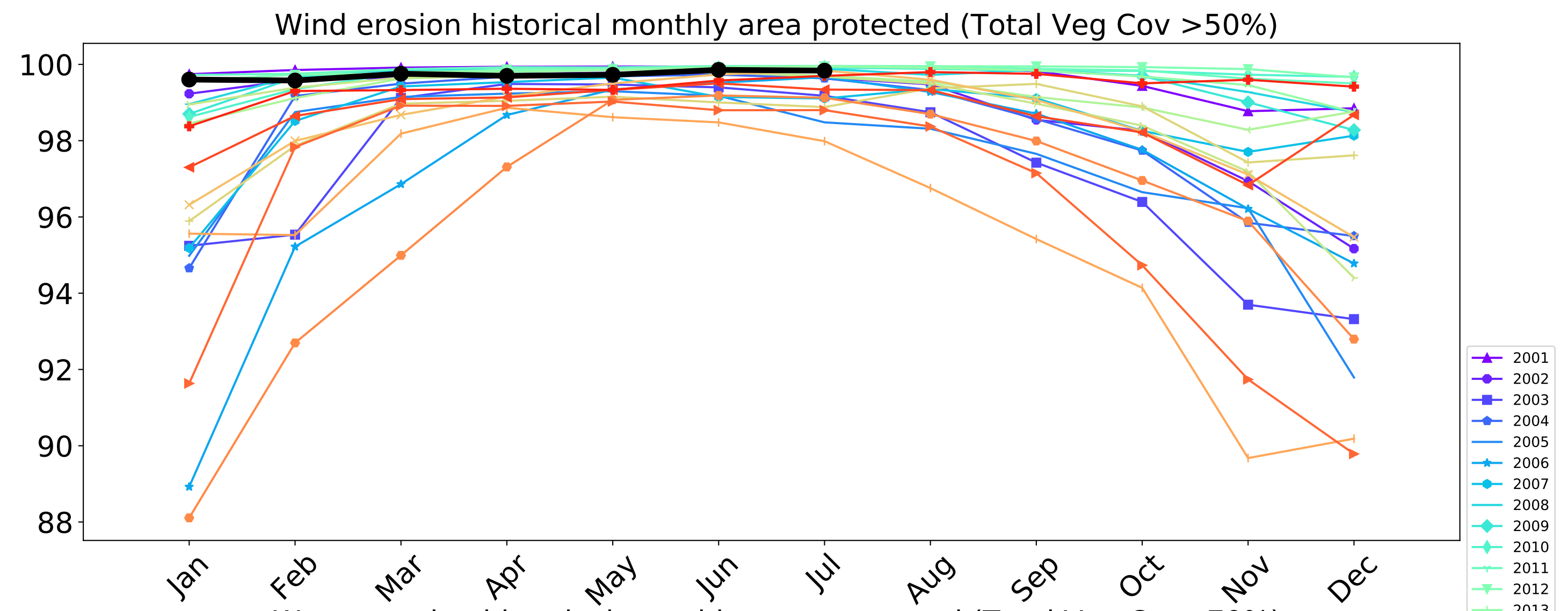
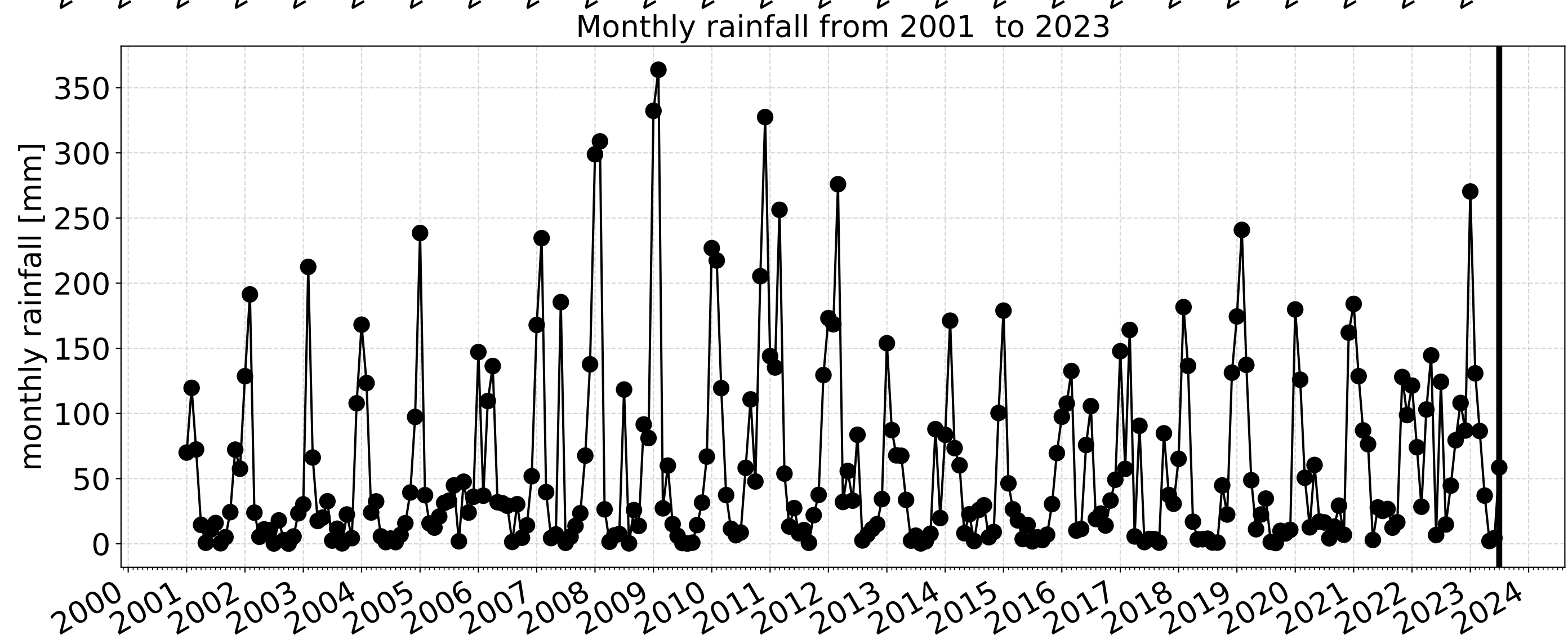
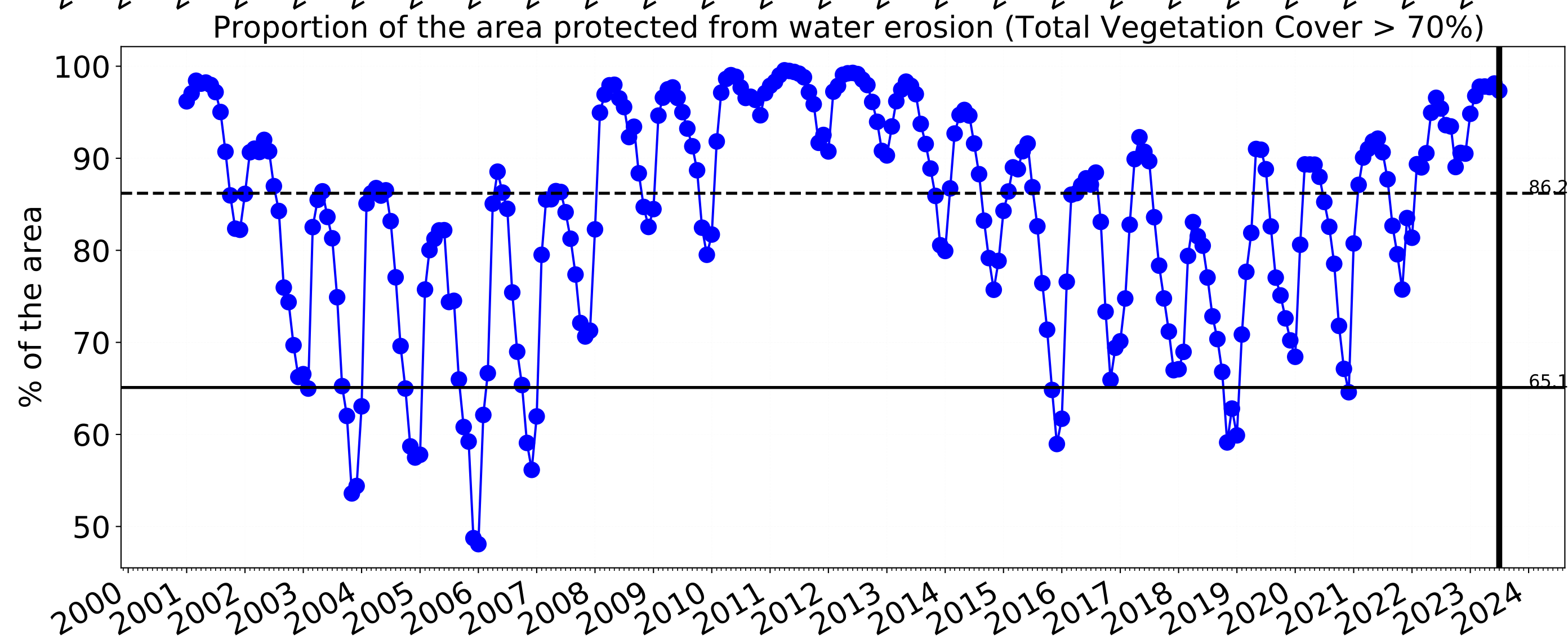
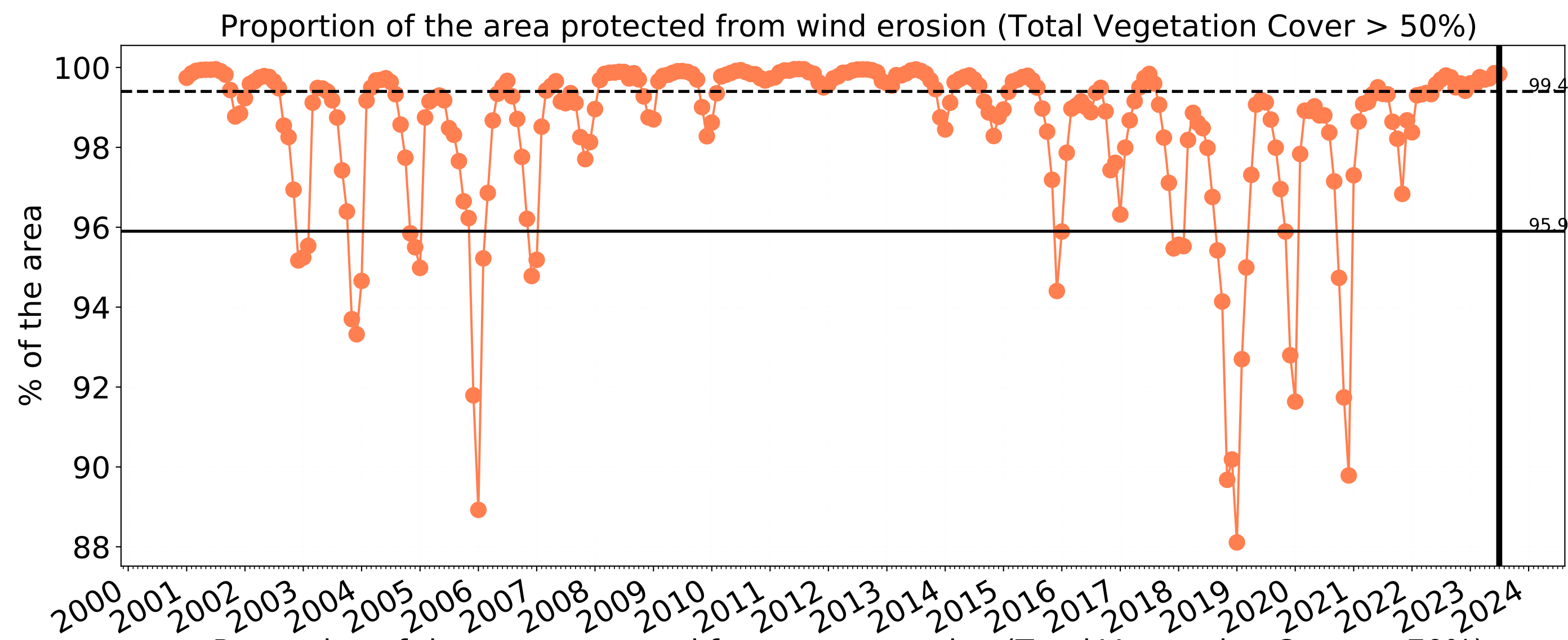
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Conservation and natural environments

Land use and forest cover

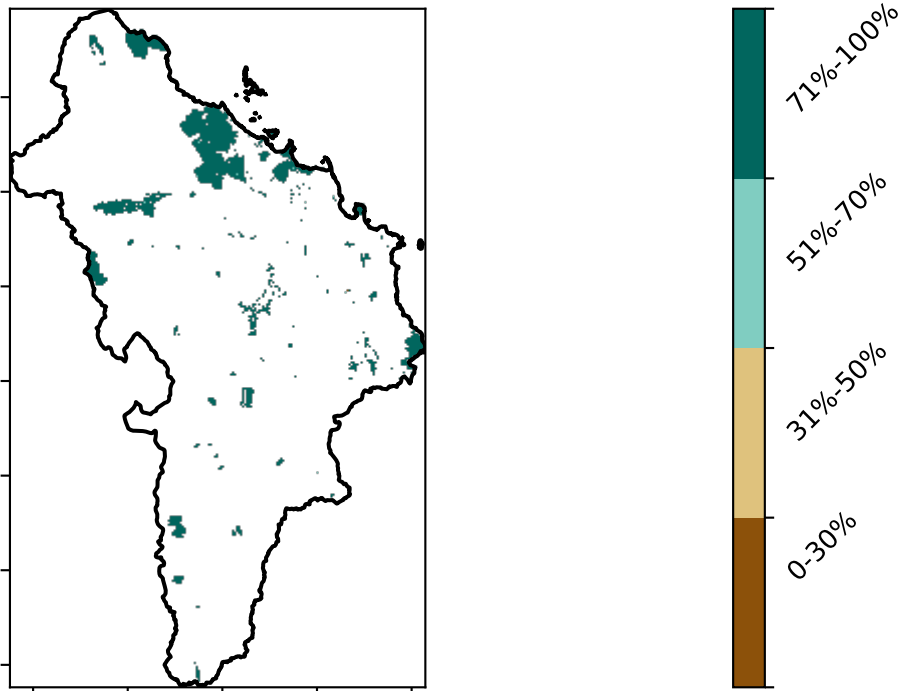
Catchment Scale
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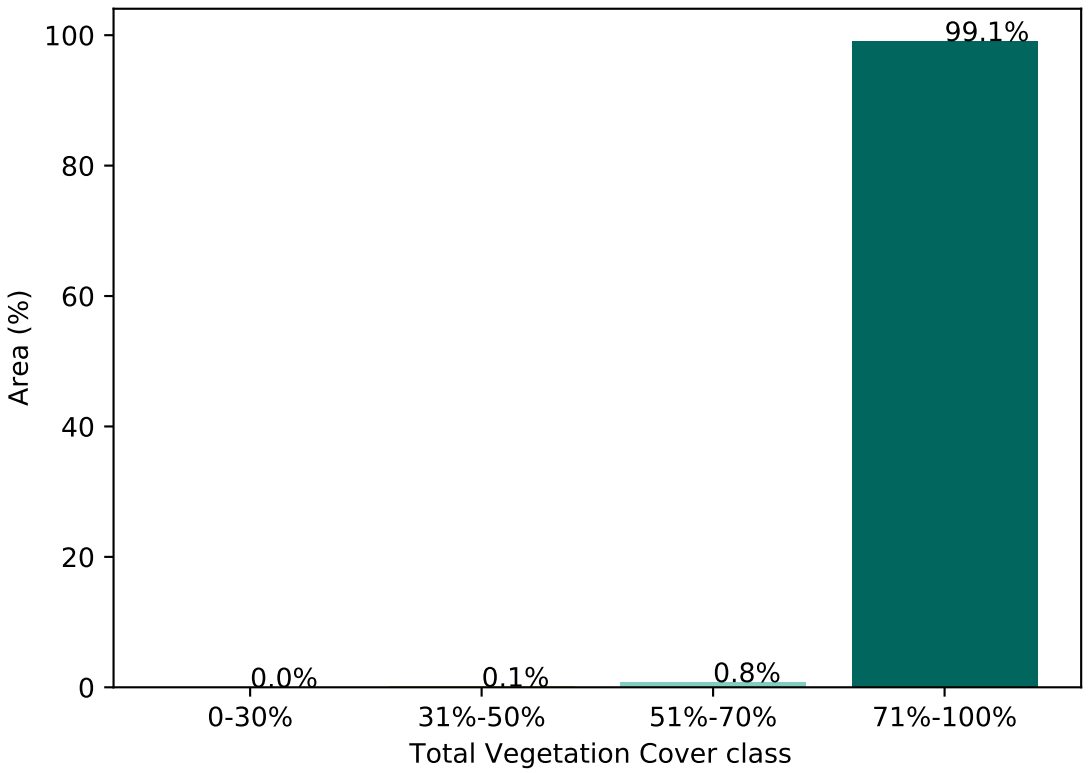
Proportion of each land class in area



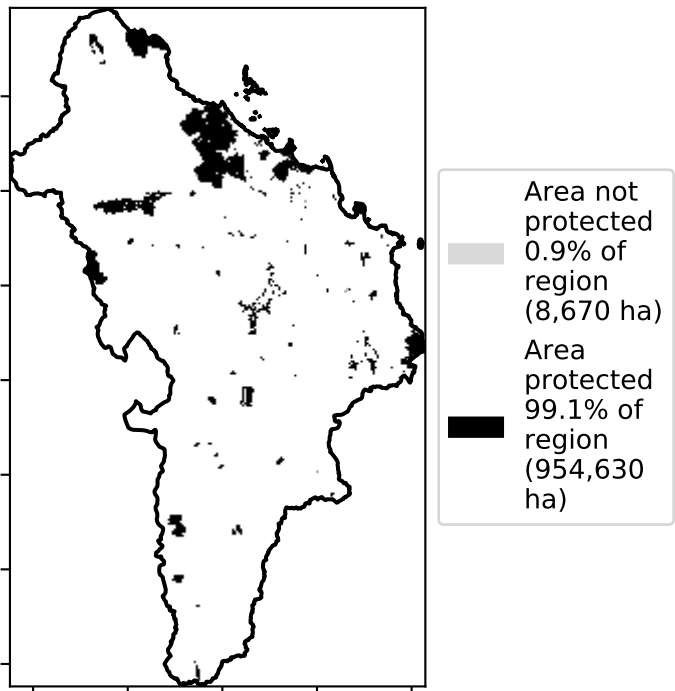
Total Vegetation Cover [%]



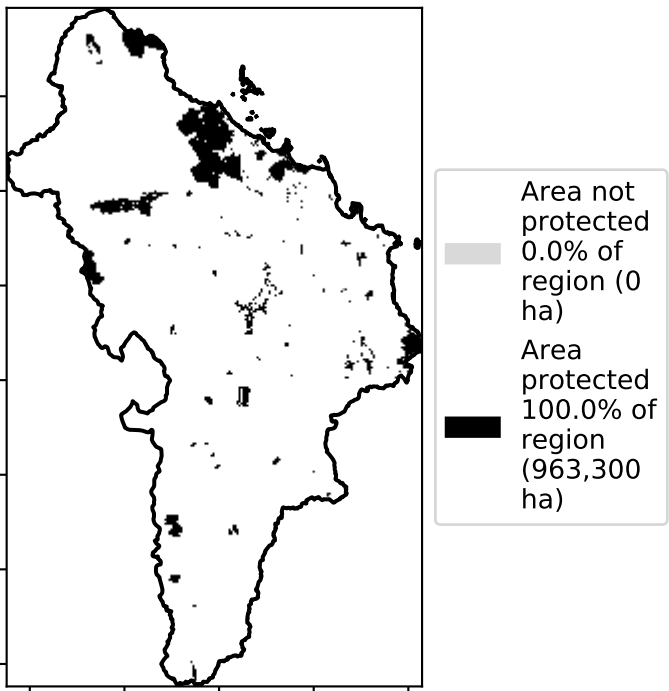
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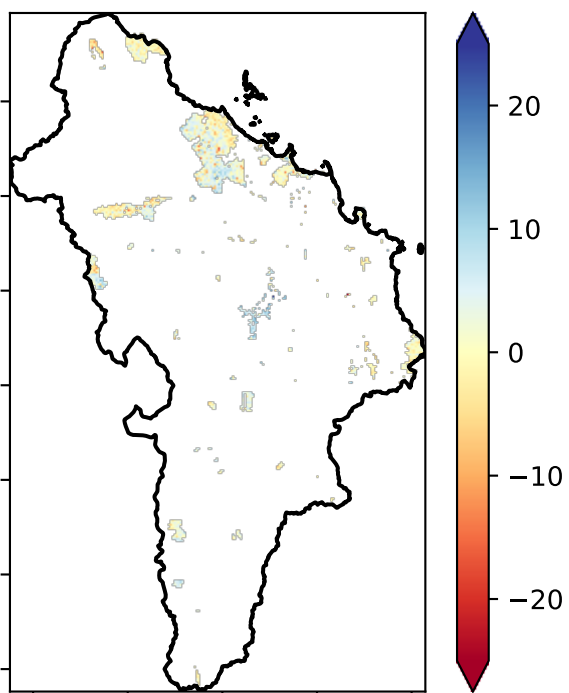


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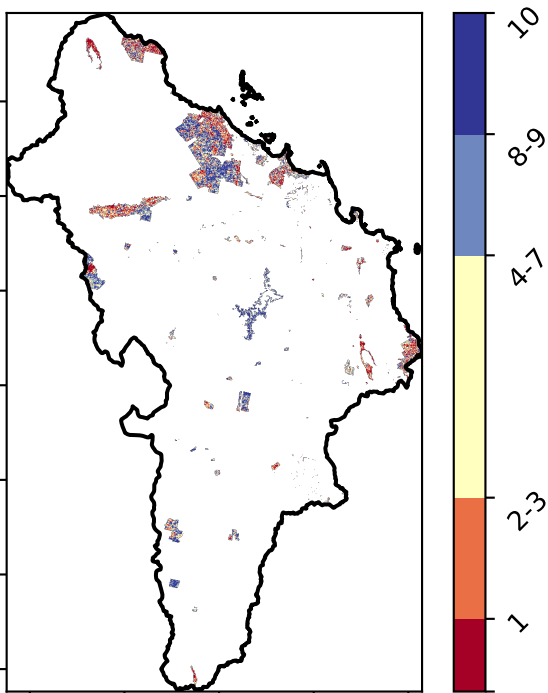
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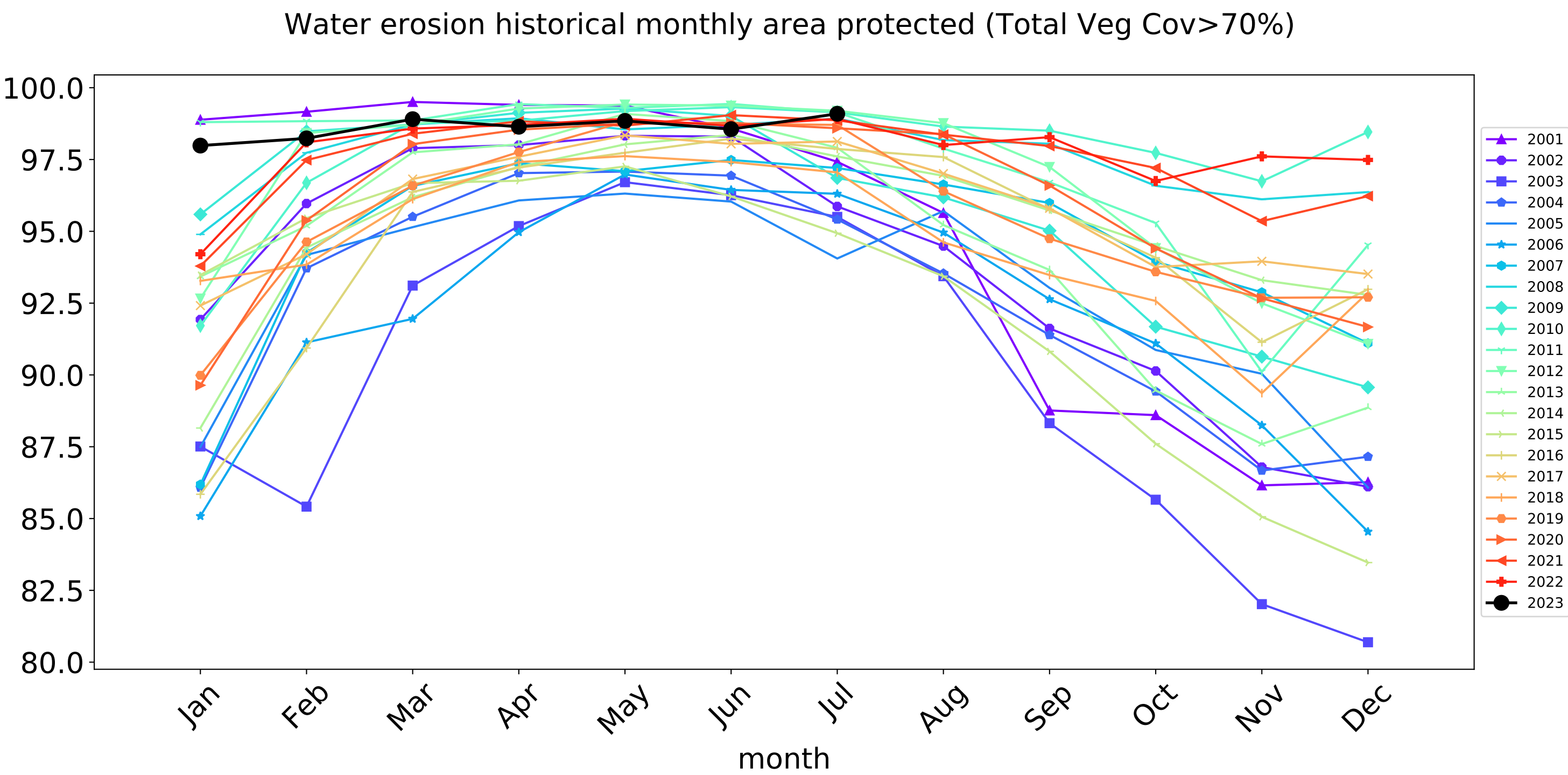
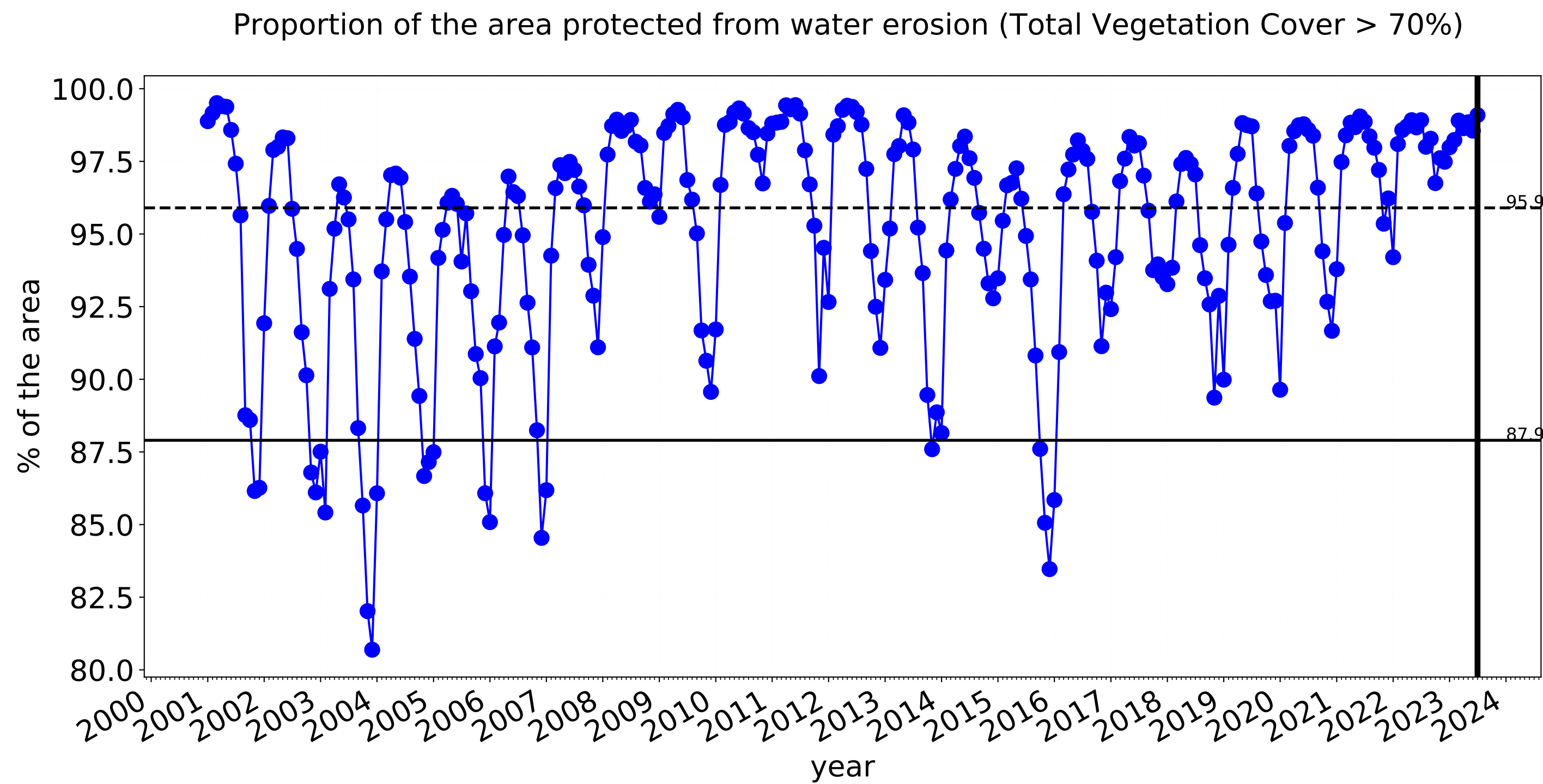
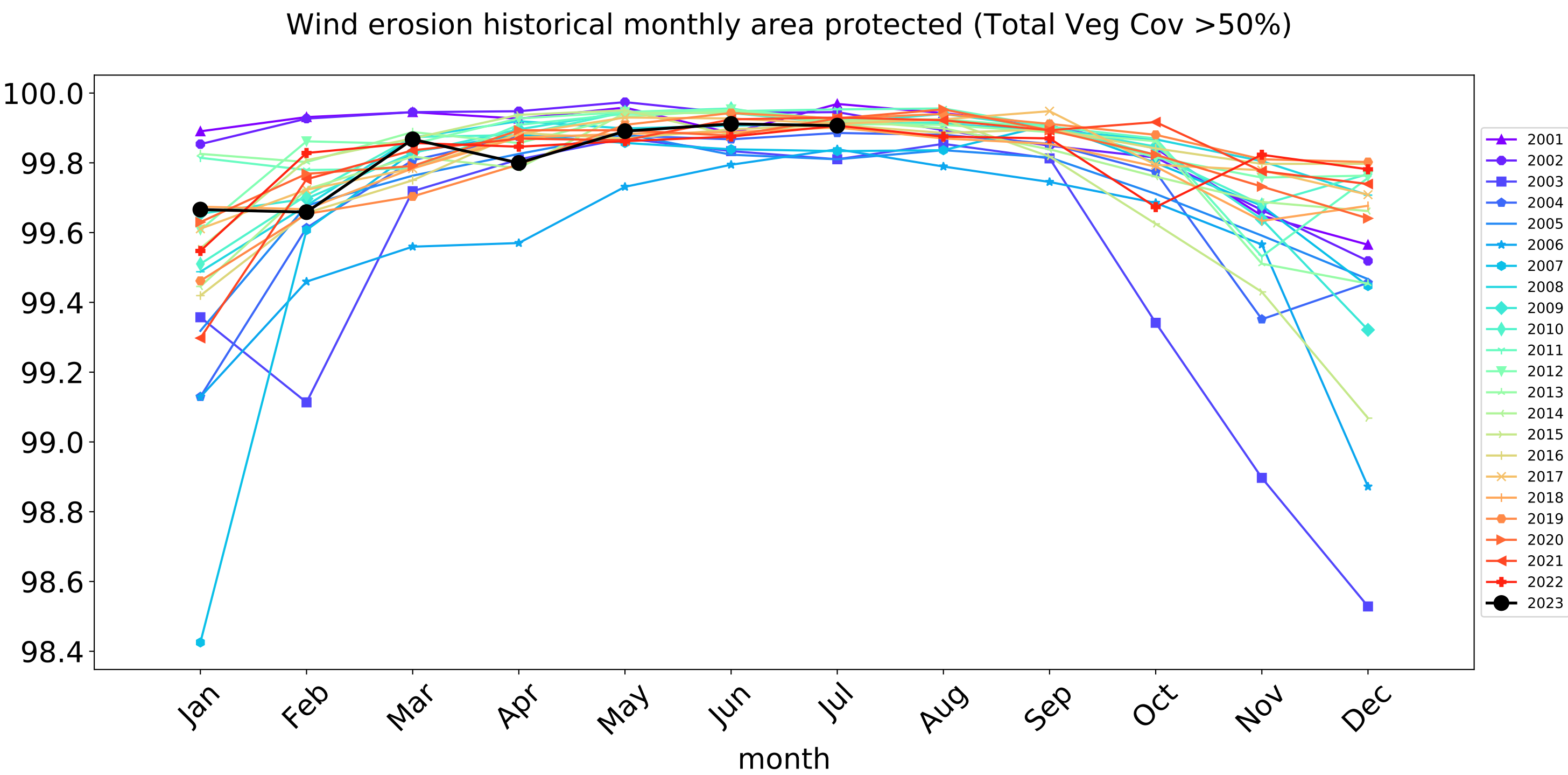
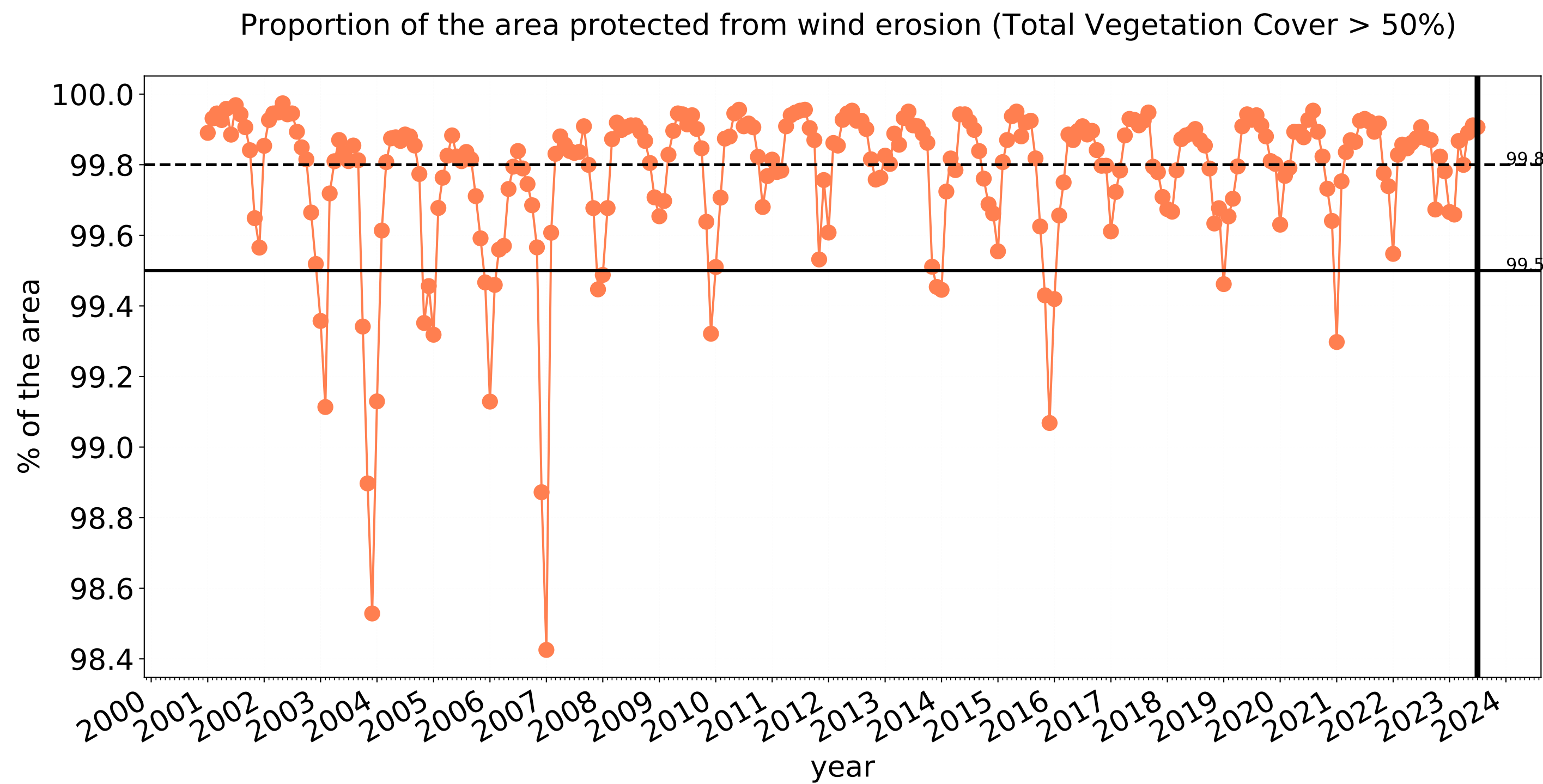


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Conservation and natural environments timeseries



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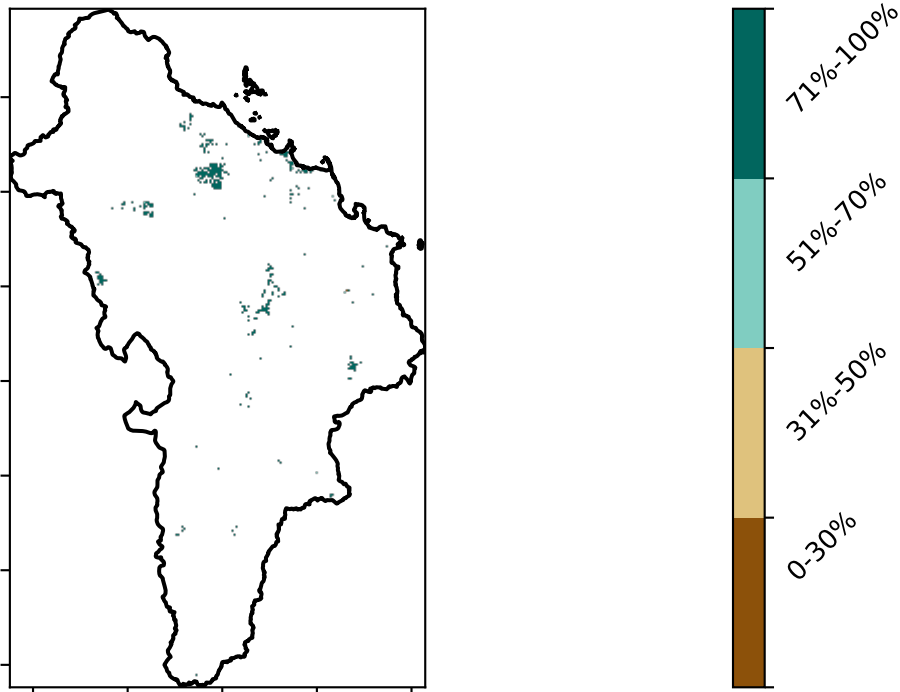


Conservation and natural environments non forest

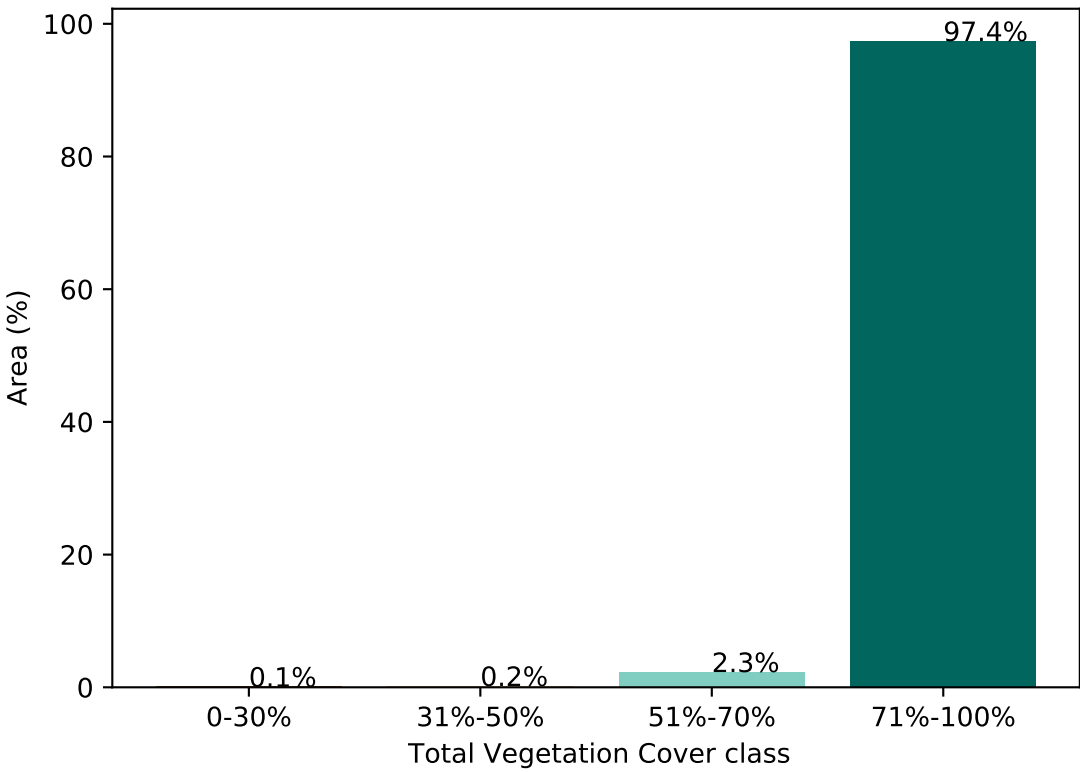
Land use and forest cover



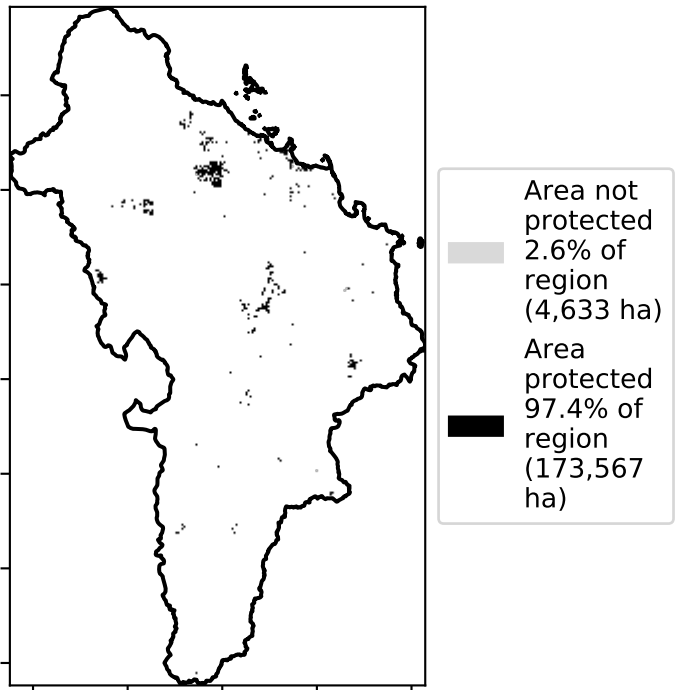
Total Vegetation Cover [%]



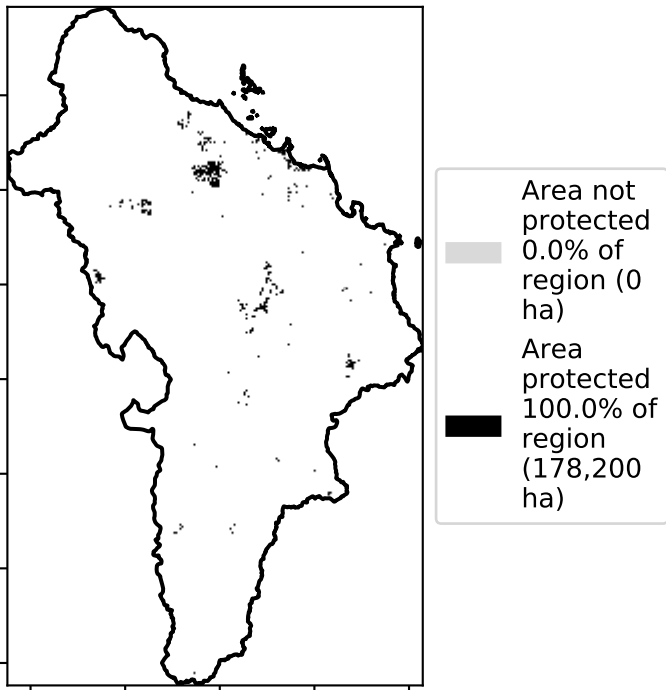
Proportion of vegetation cover class in area



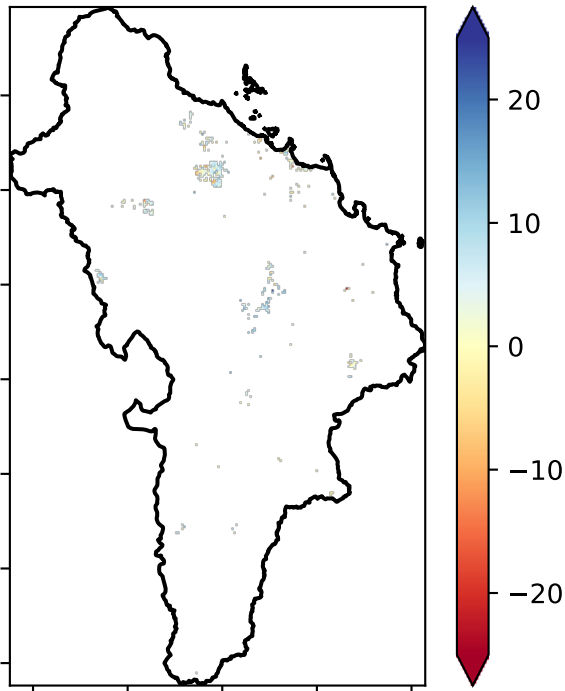
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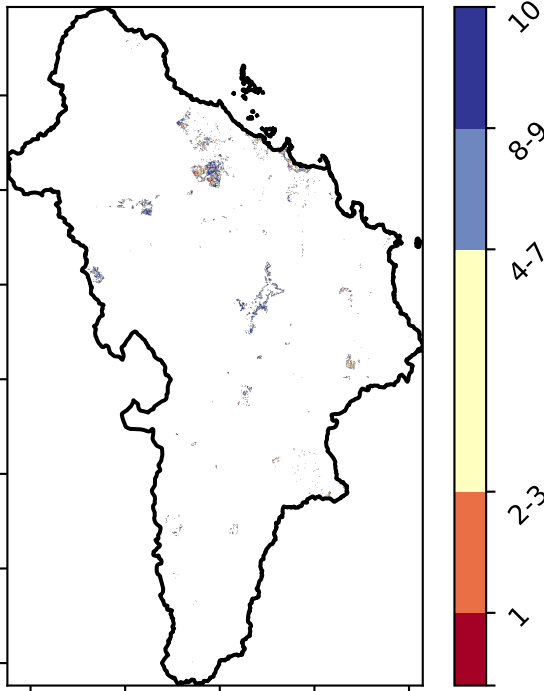


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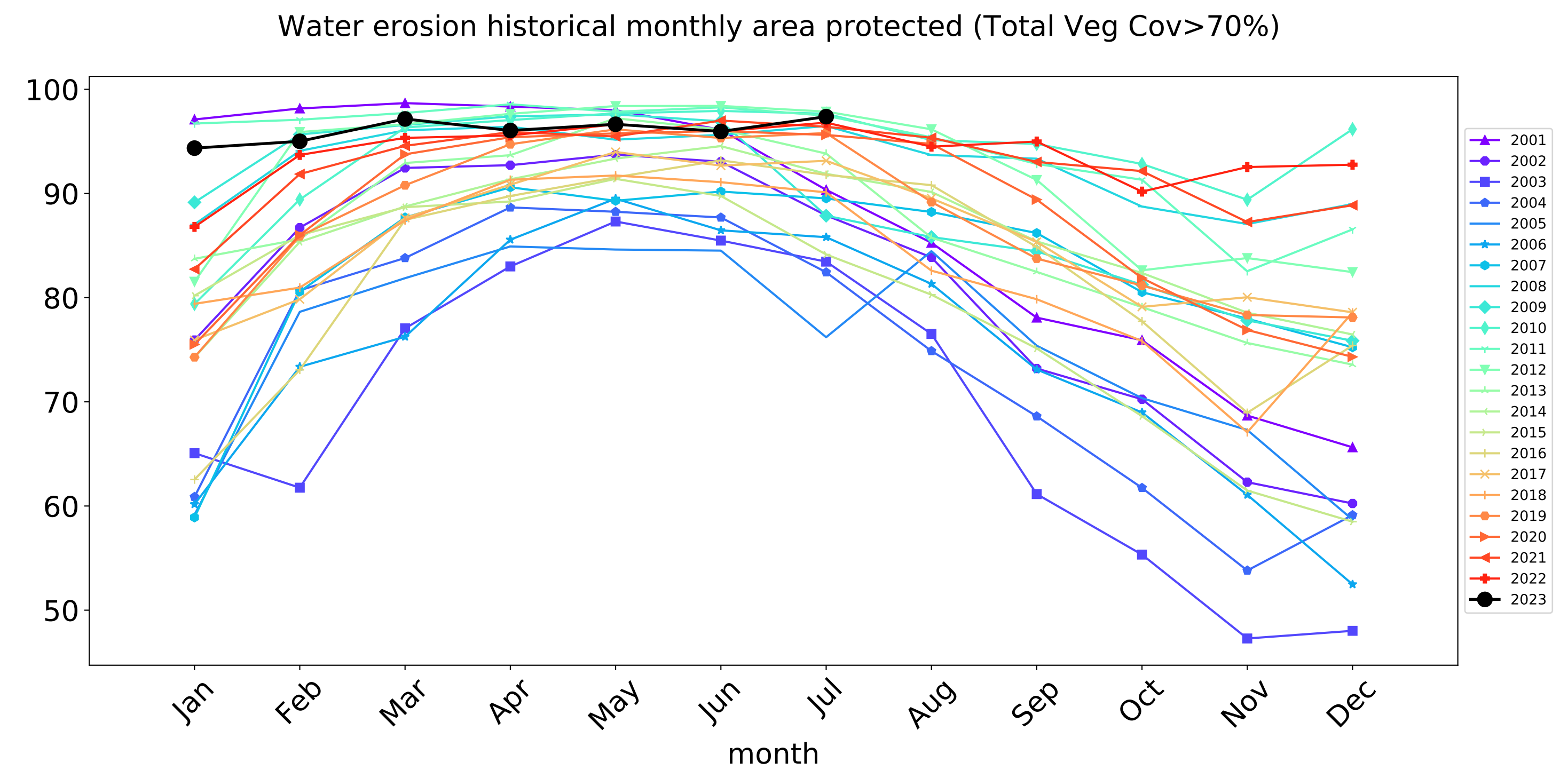
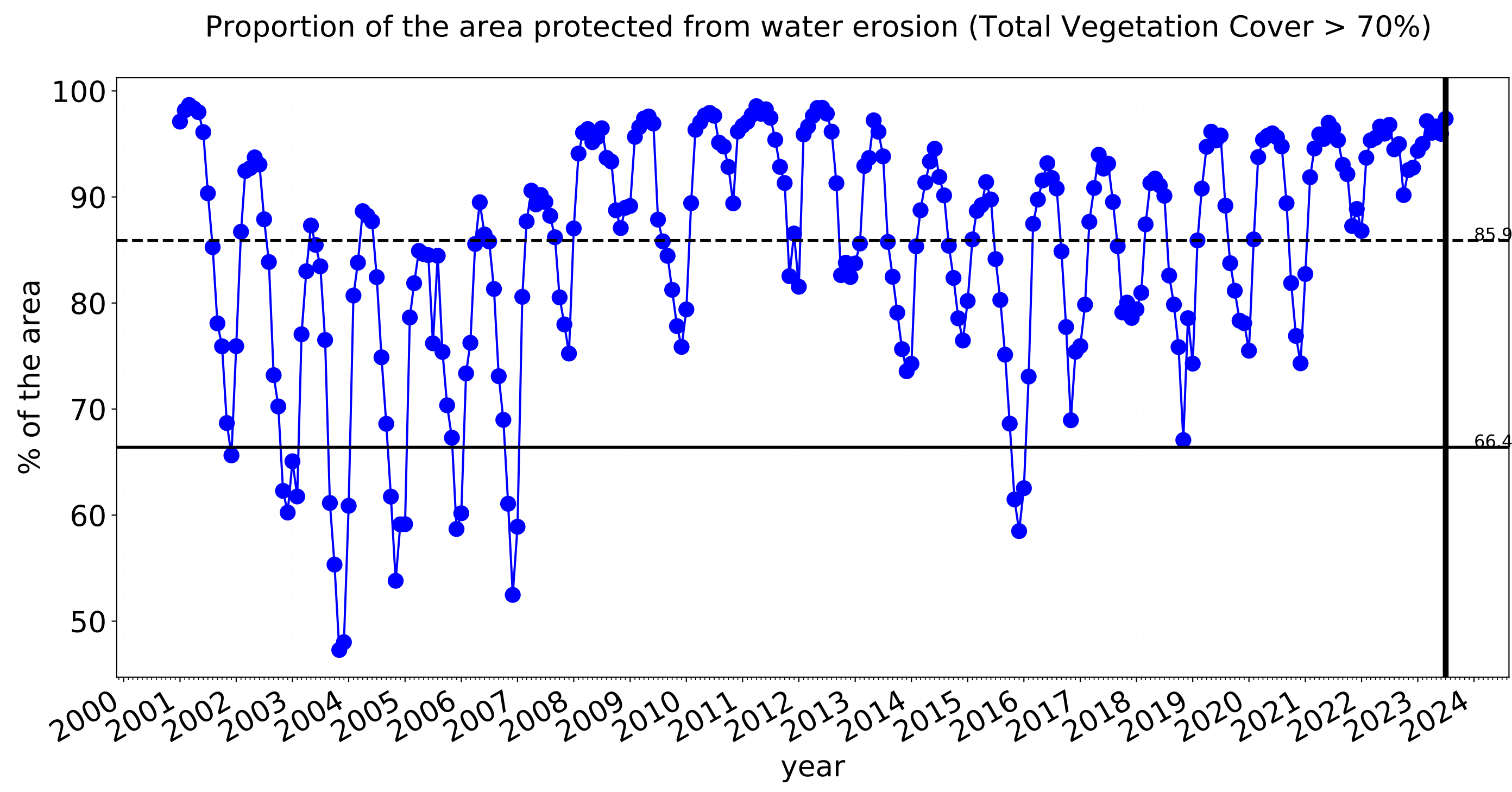
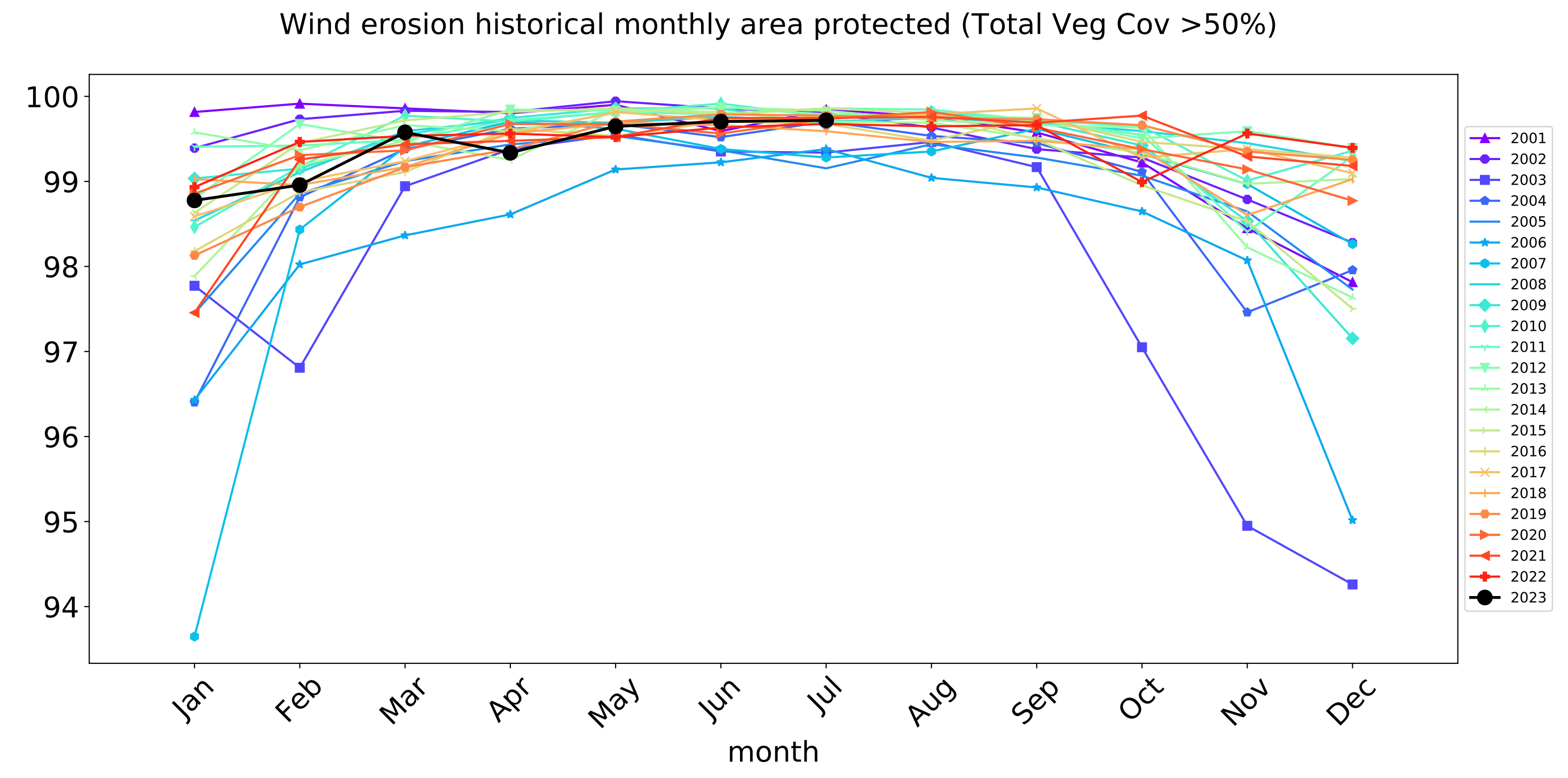
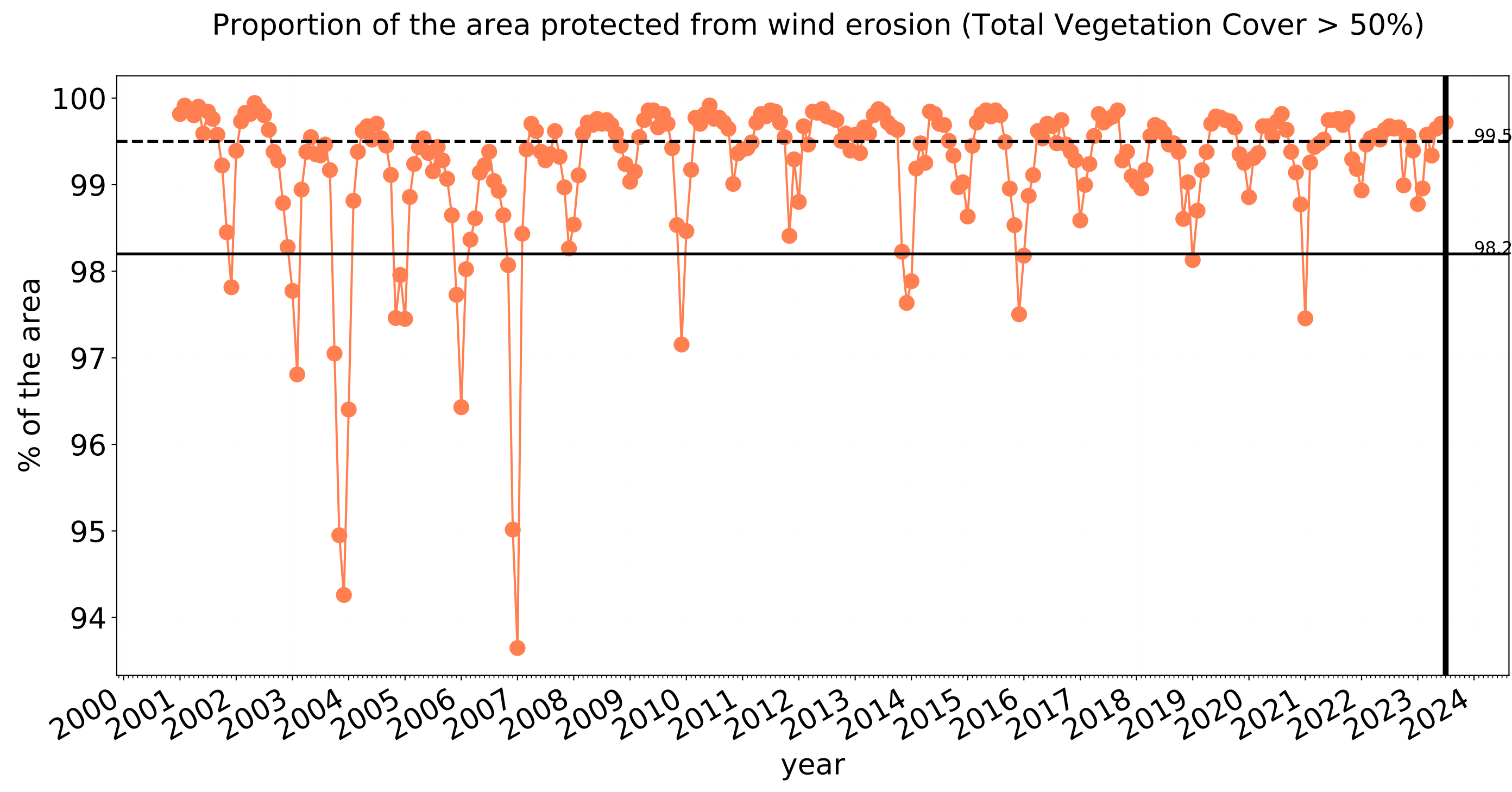


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Conservation and natural environments non forest timeseries



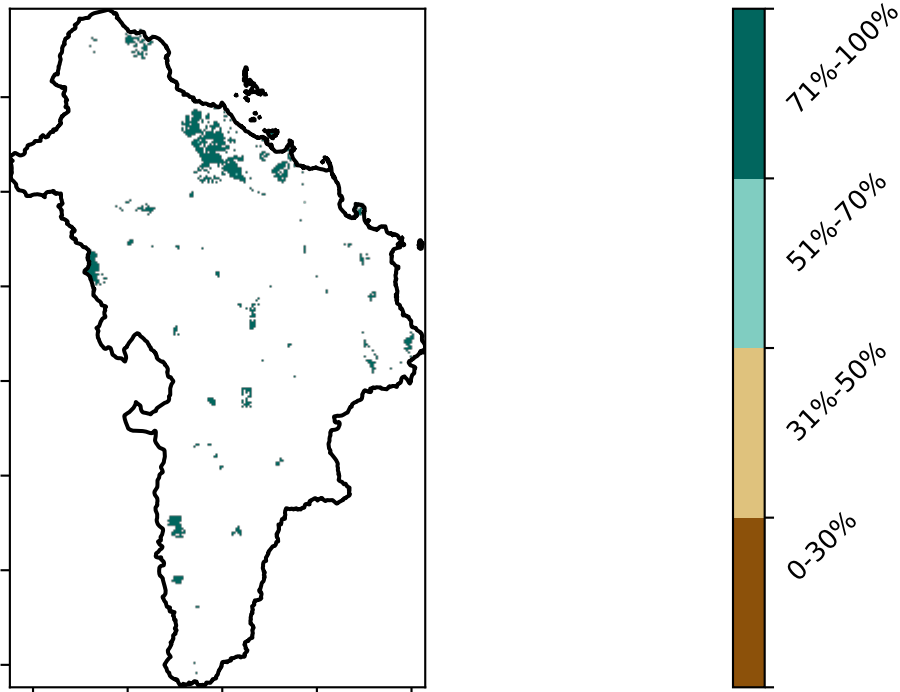
Conservation and natural environments Woodland forest

Land use and forest cover

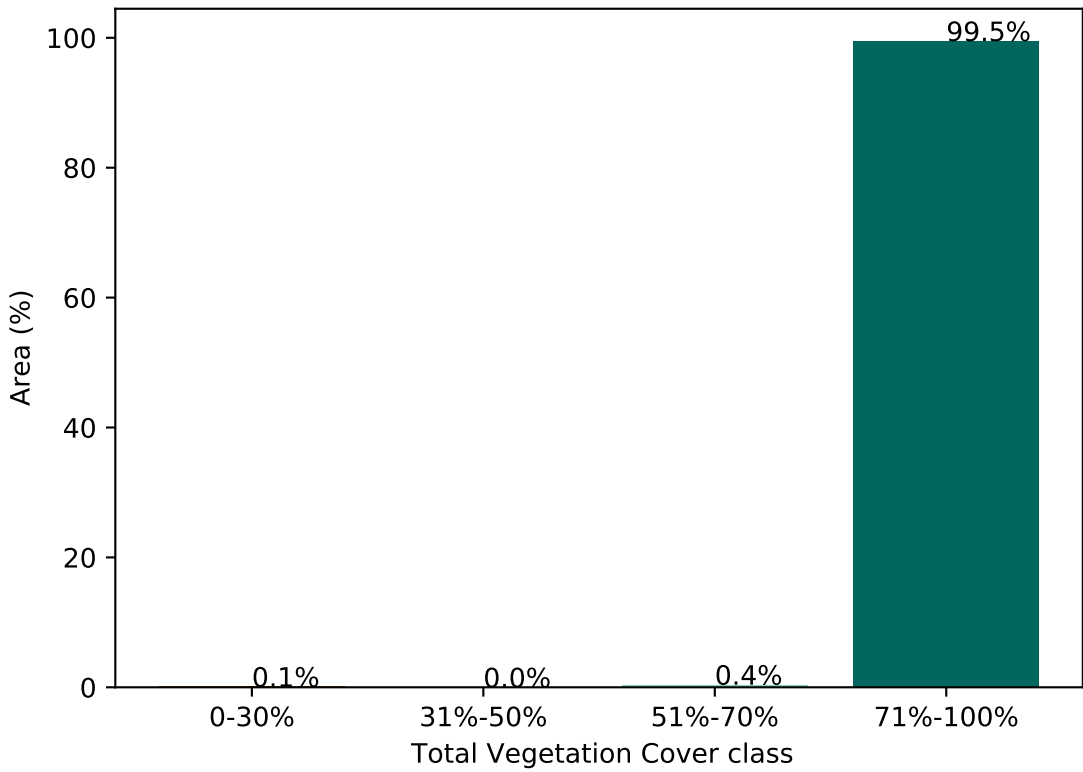
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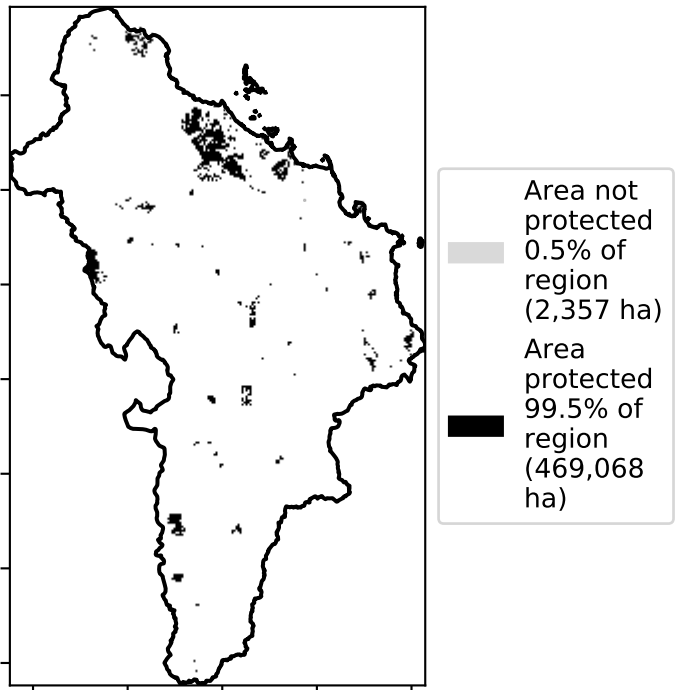
Total Vegetation Cover [%]



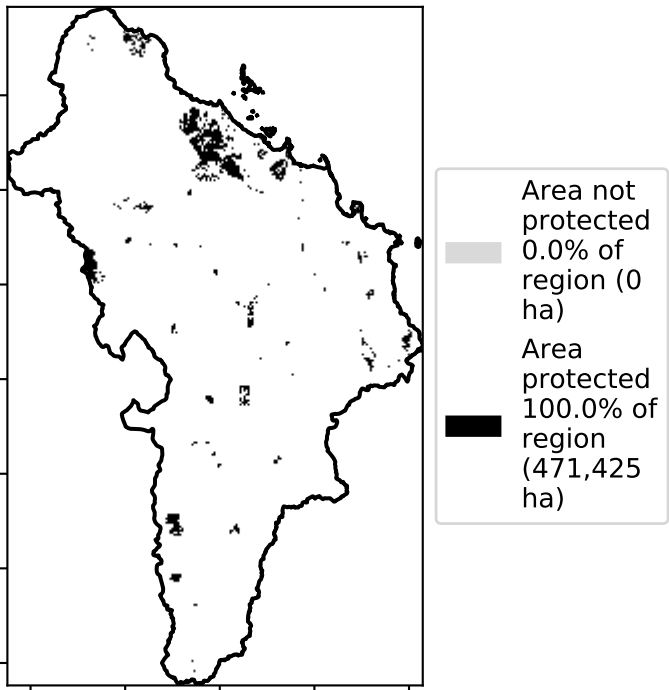
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

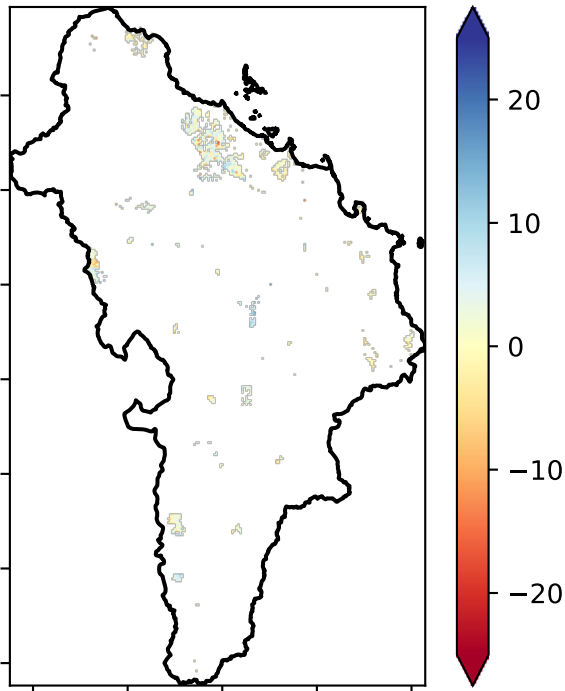


% Area protected from wind erosion (>50%)



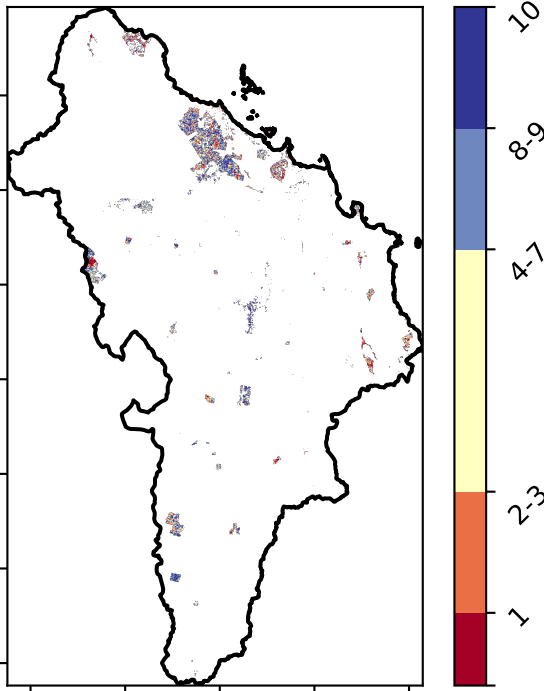
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Total Vegetation Cover Decile [%]



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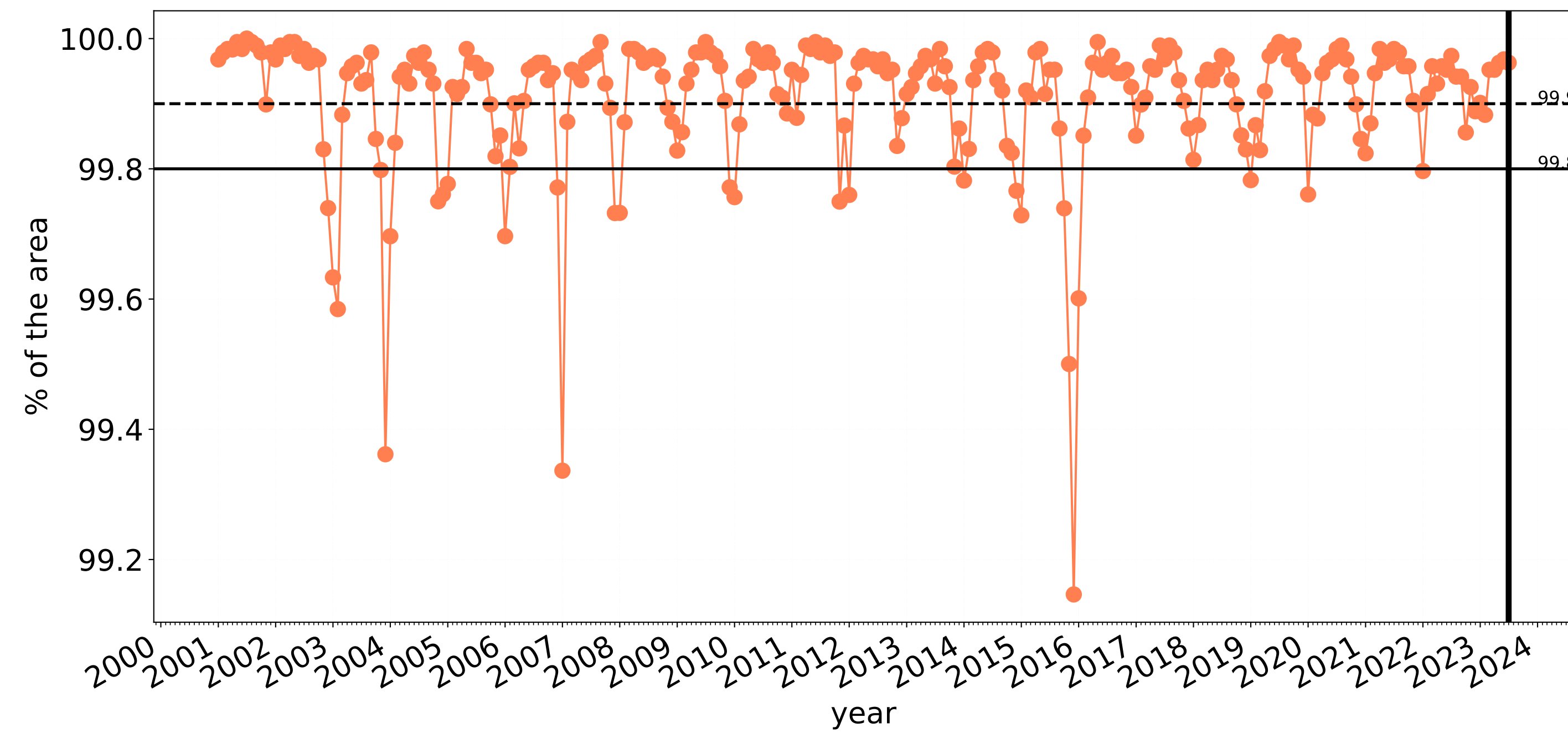
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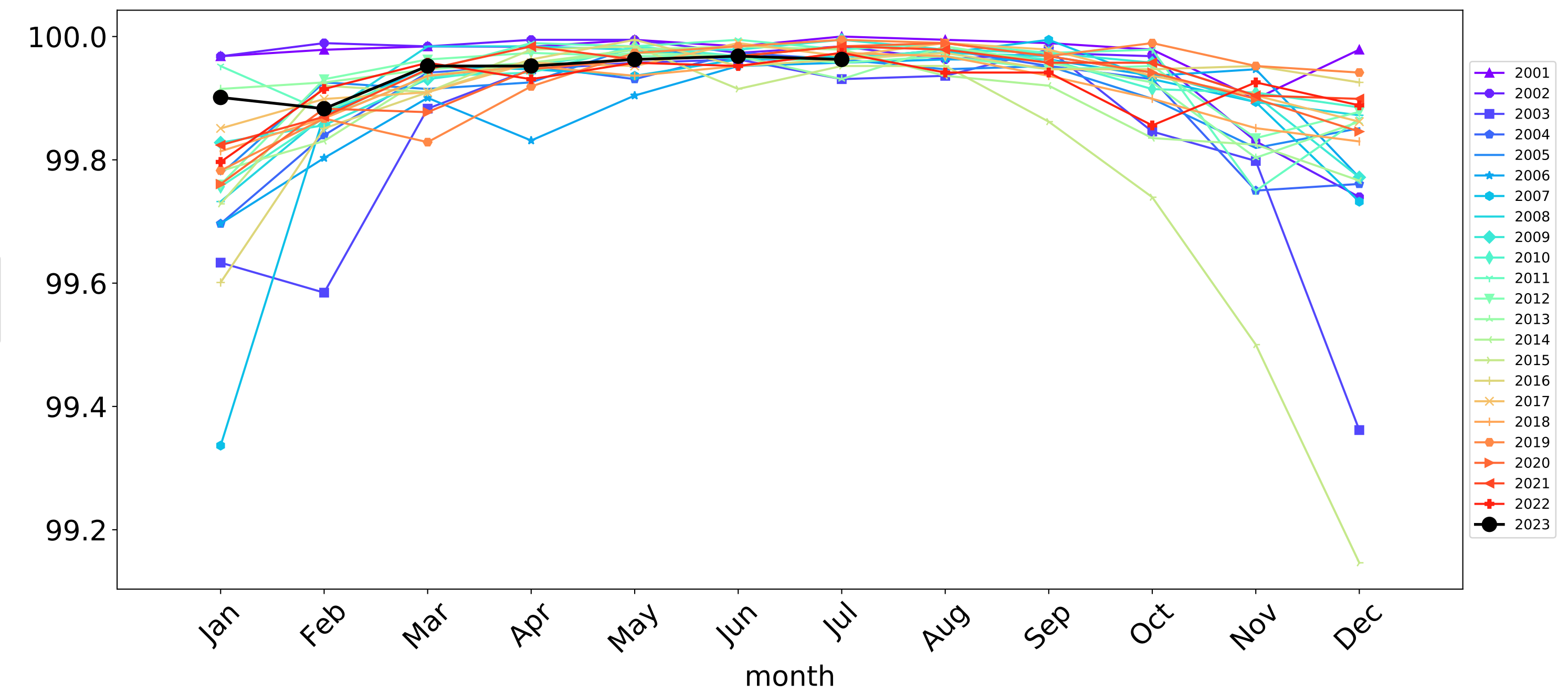


Conservation and natural environments Woodland forest timeseries

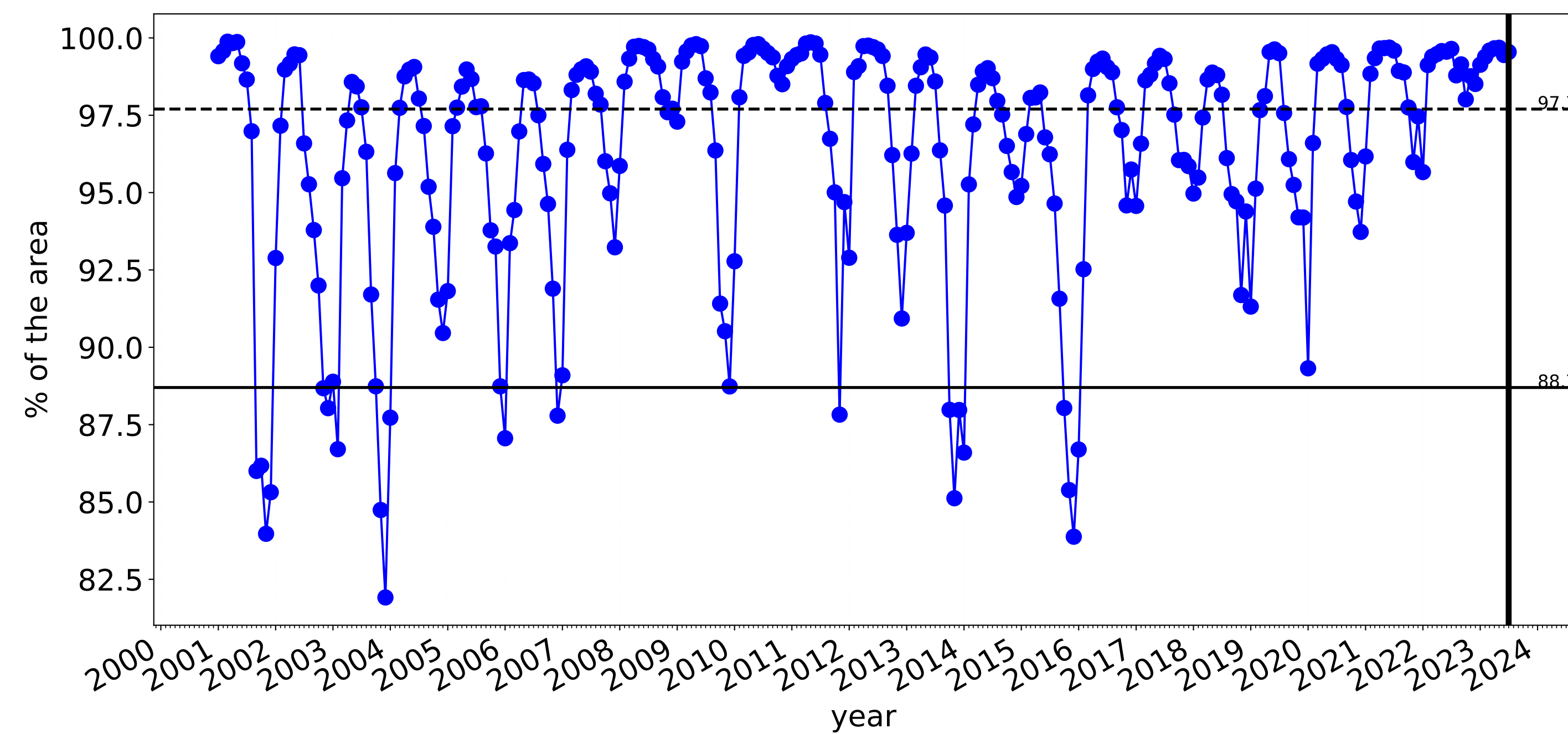
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



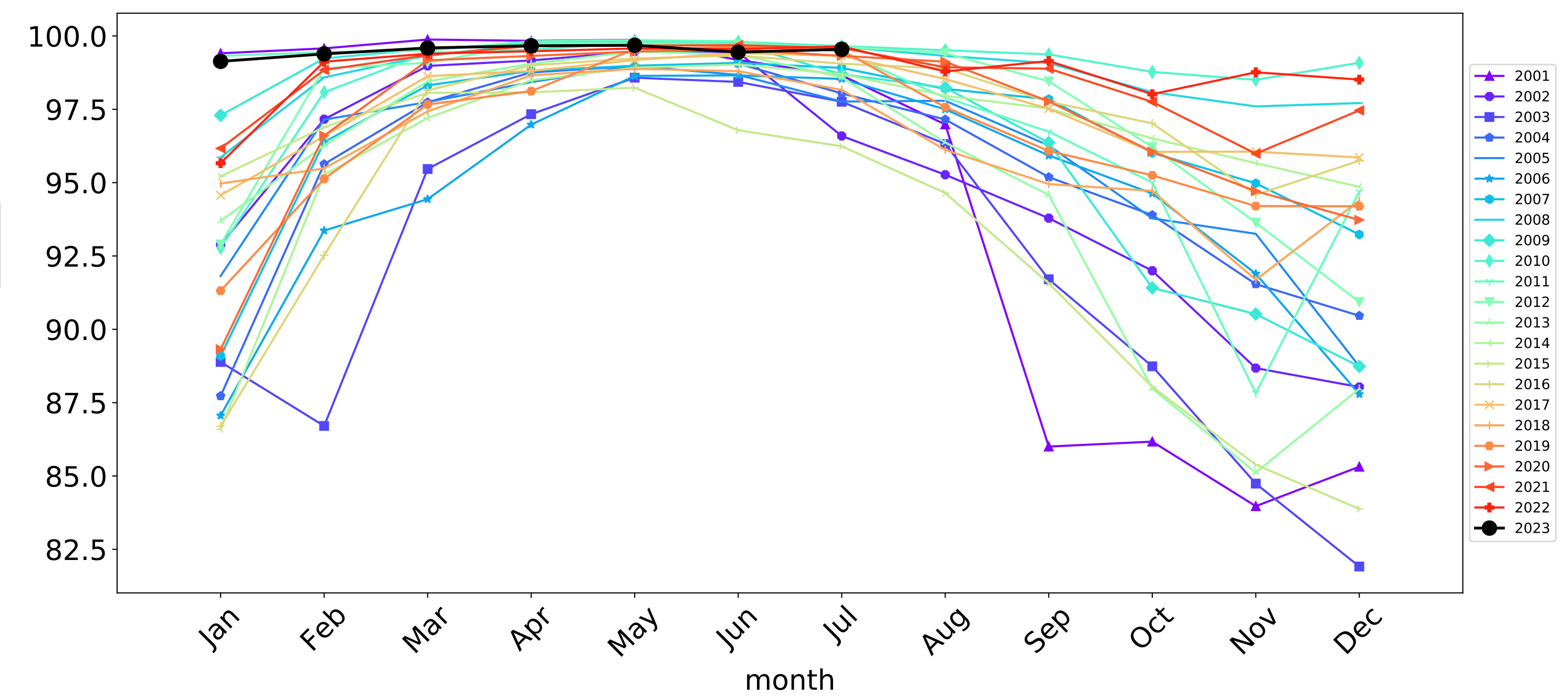
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



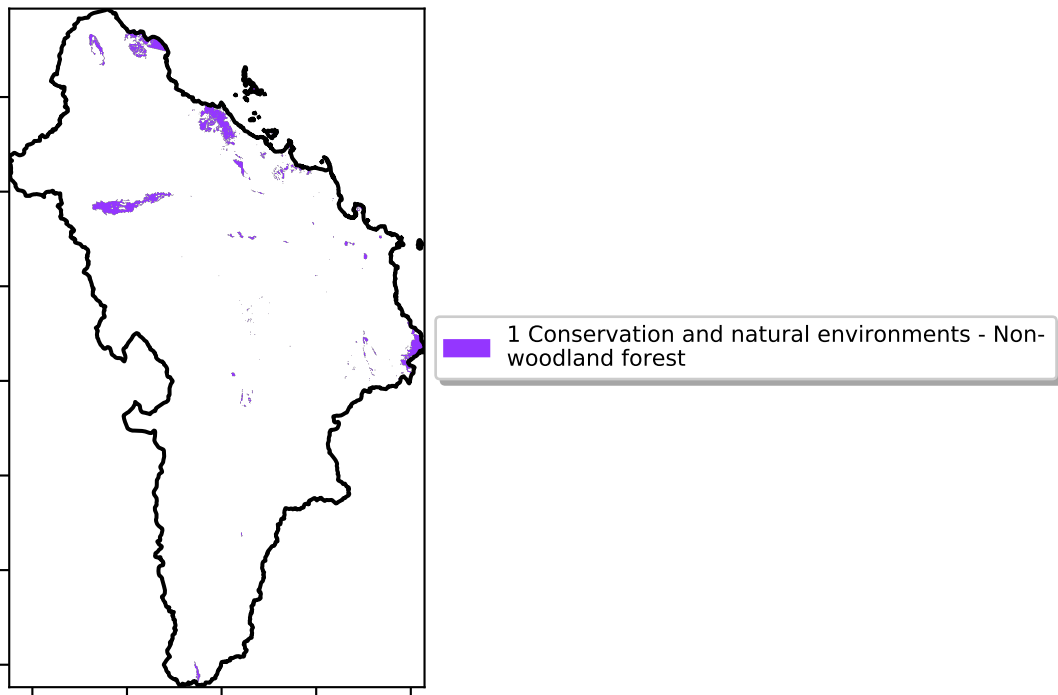
Water erosion historical monthly area protected (Total Veg Cov>70%)



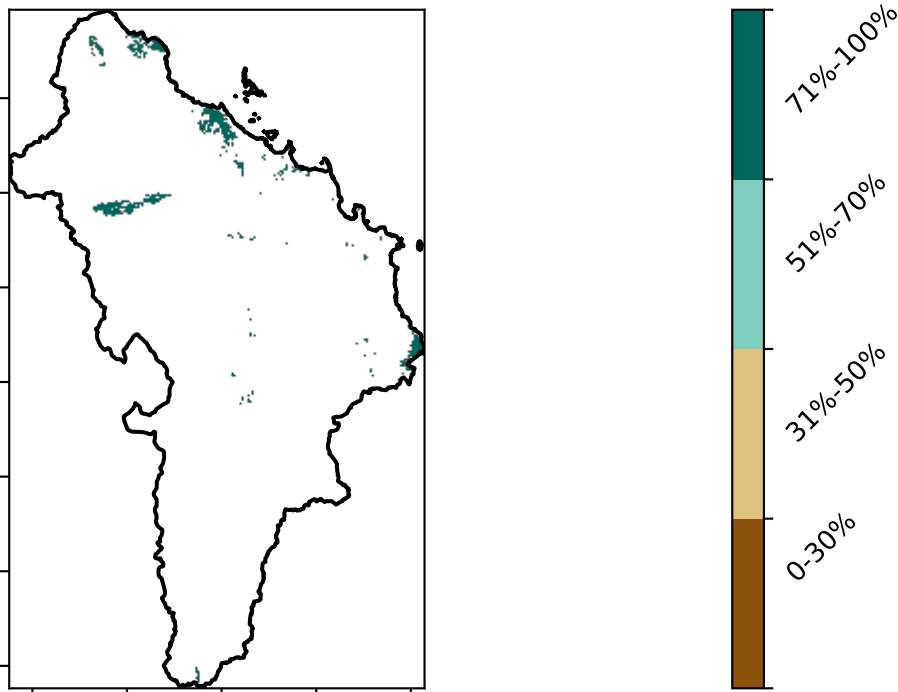
Conservation and natural environments Forest (non woodland)

Land use and forest cover

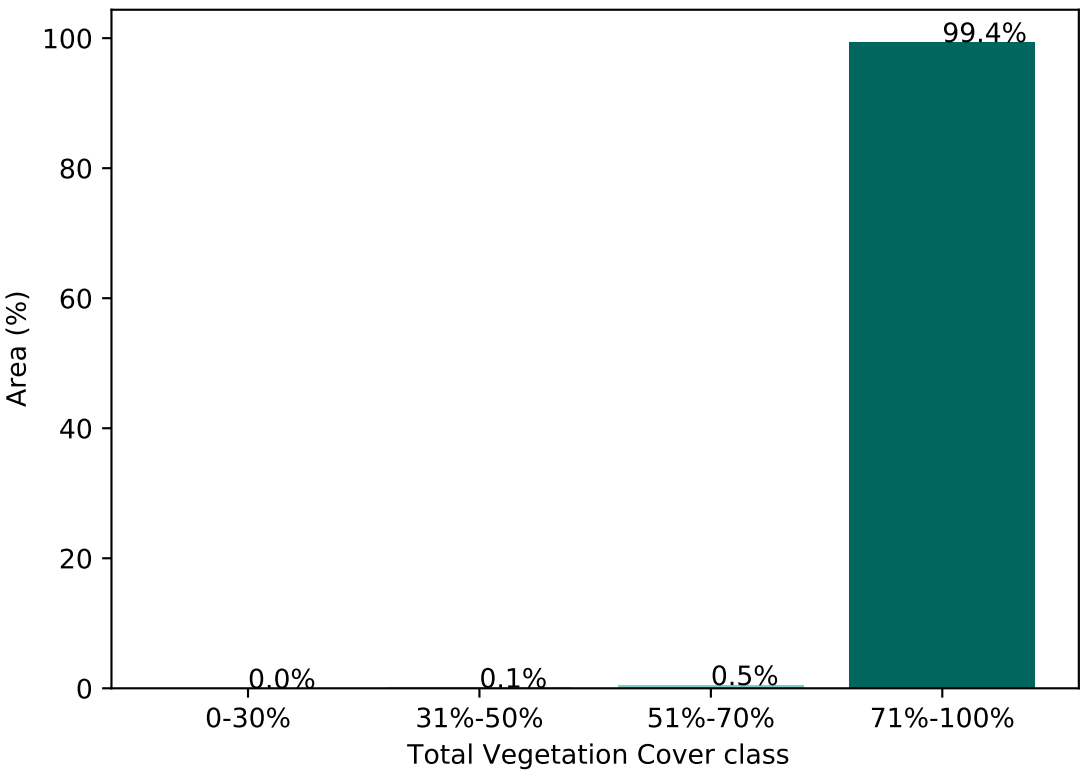
Catchment Scale
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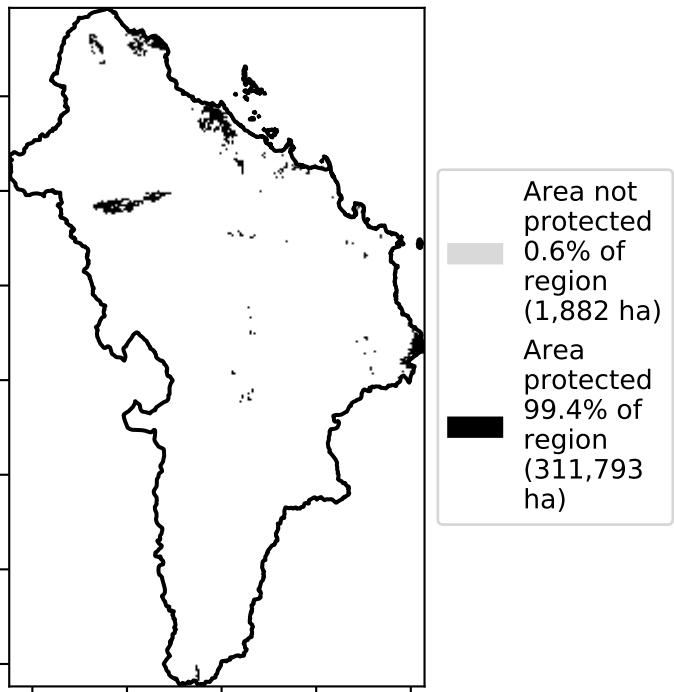
Total Vegetation Cover [%]



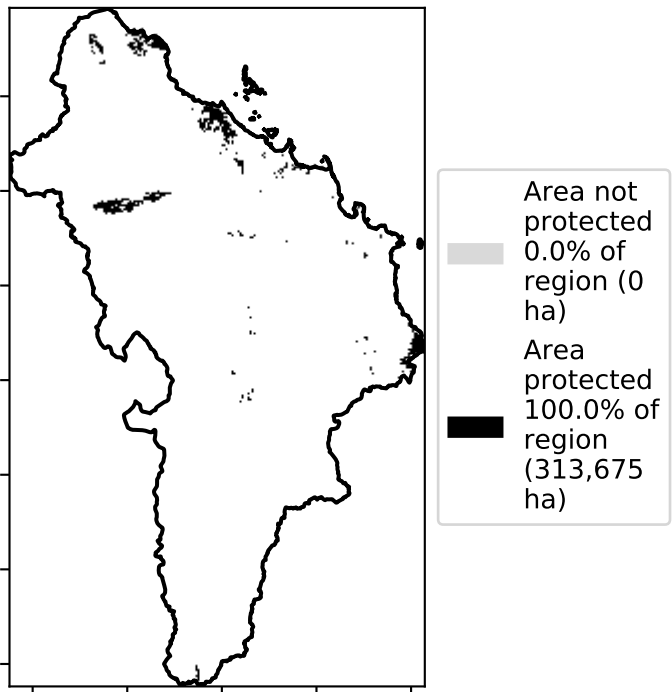
Proportion of vegetation cover class in area



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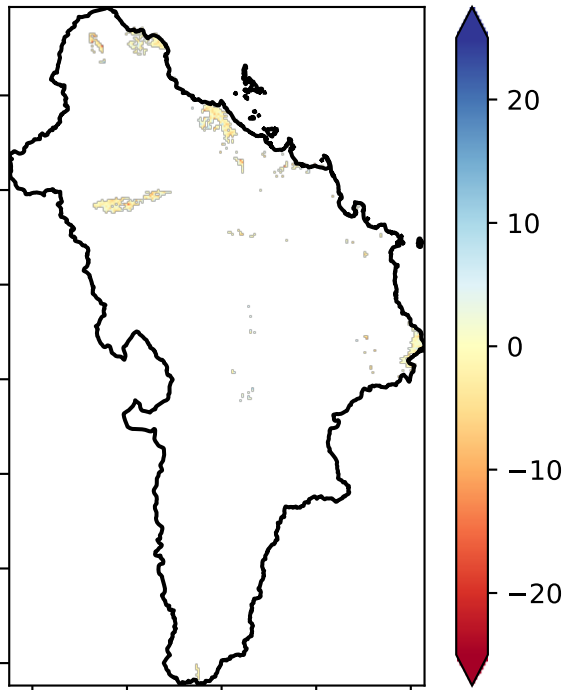


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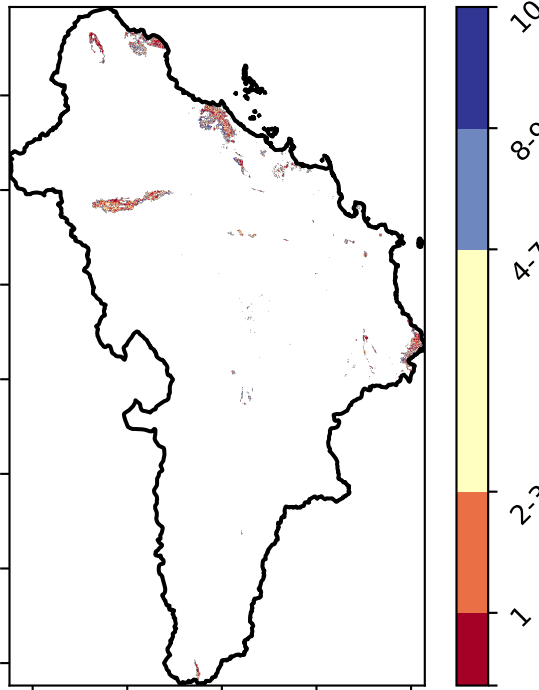
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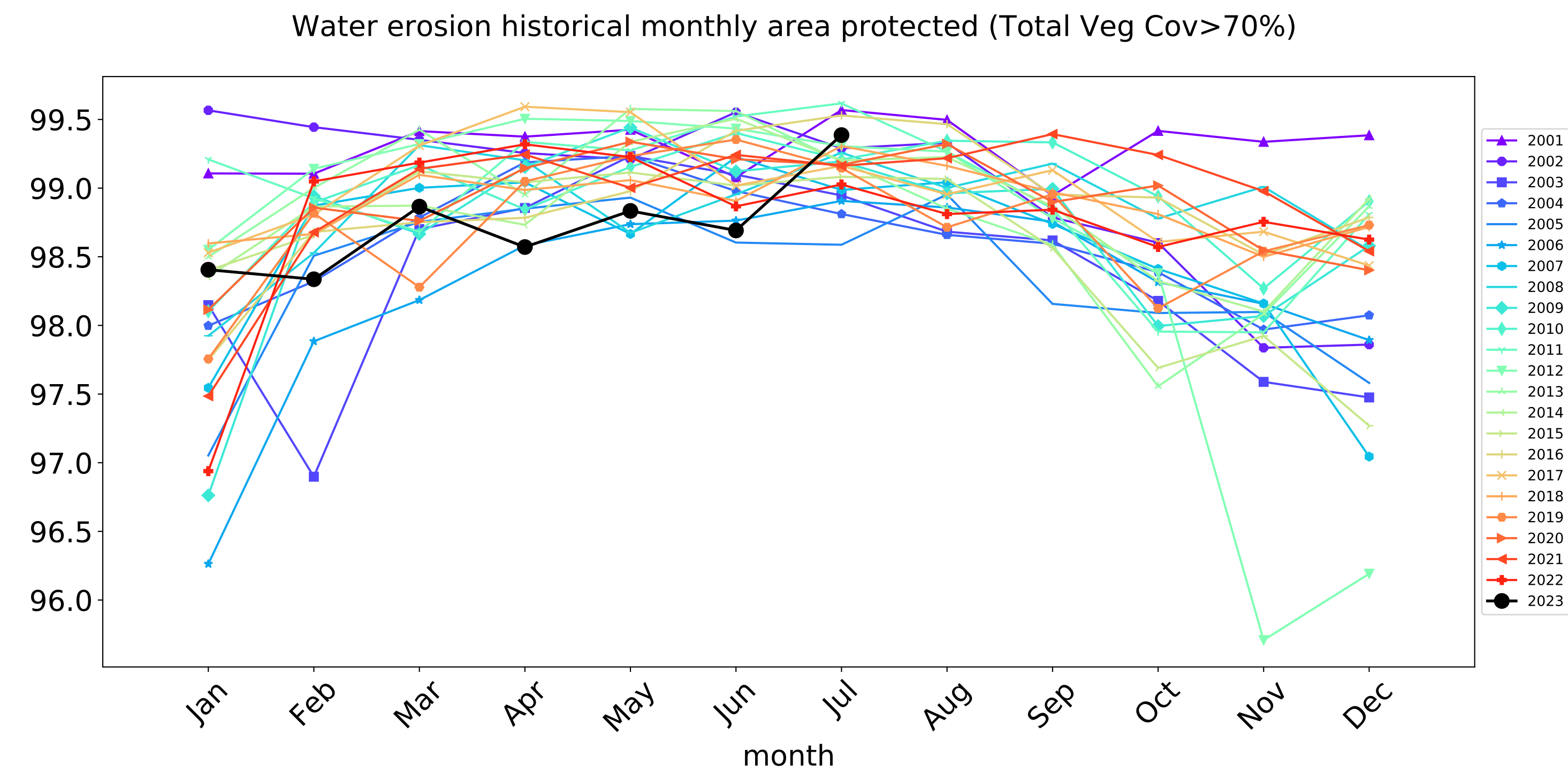
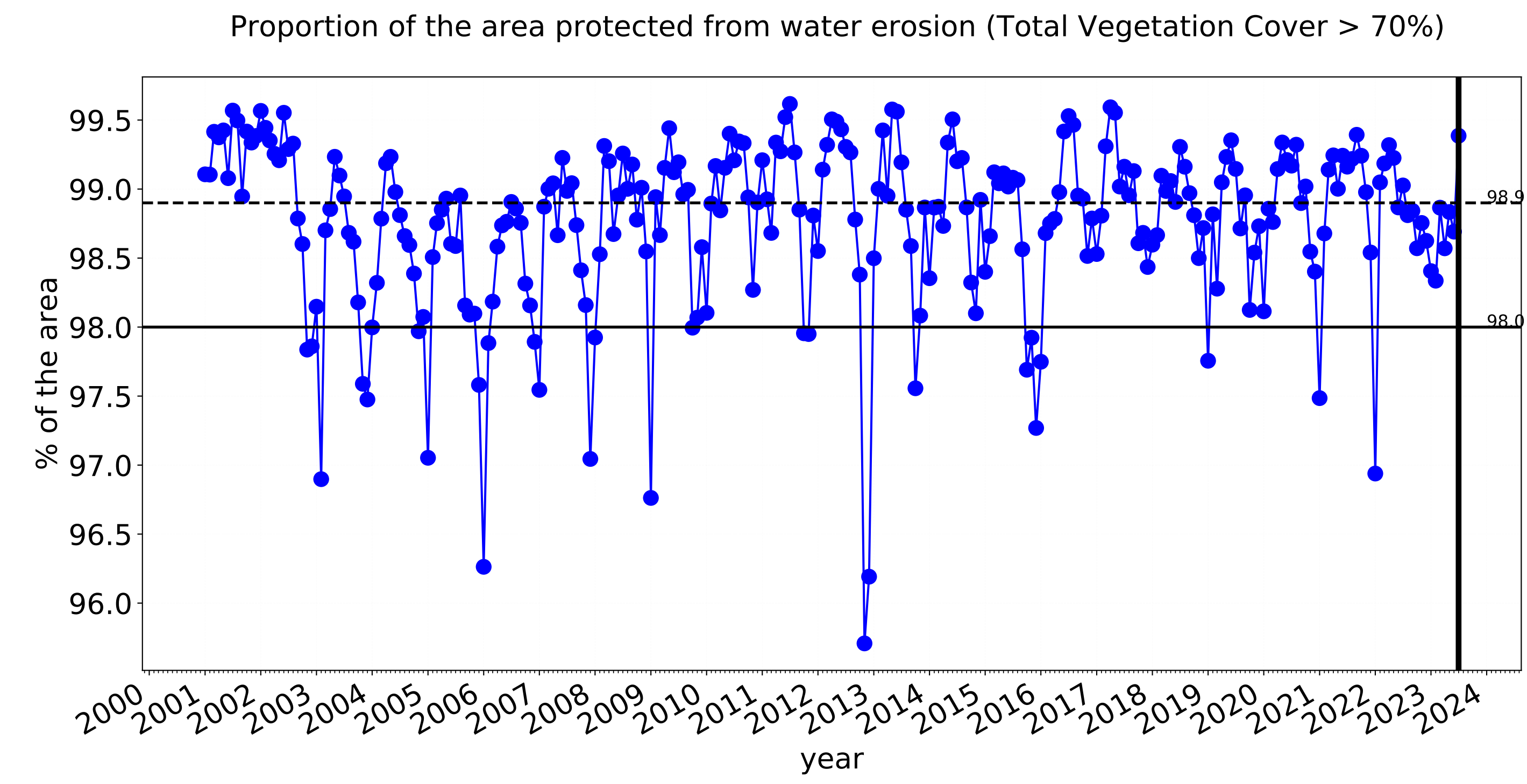
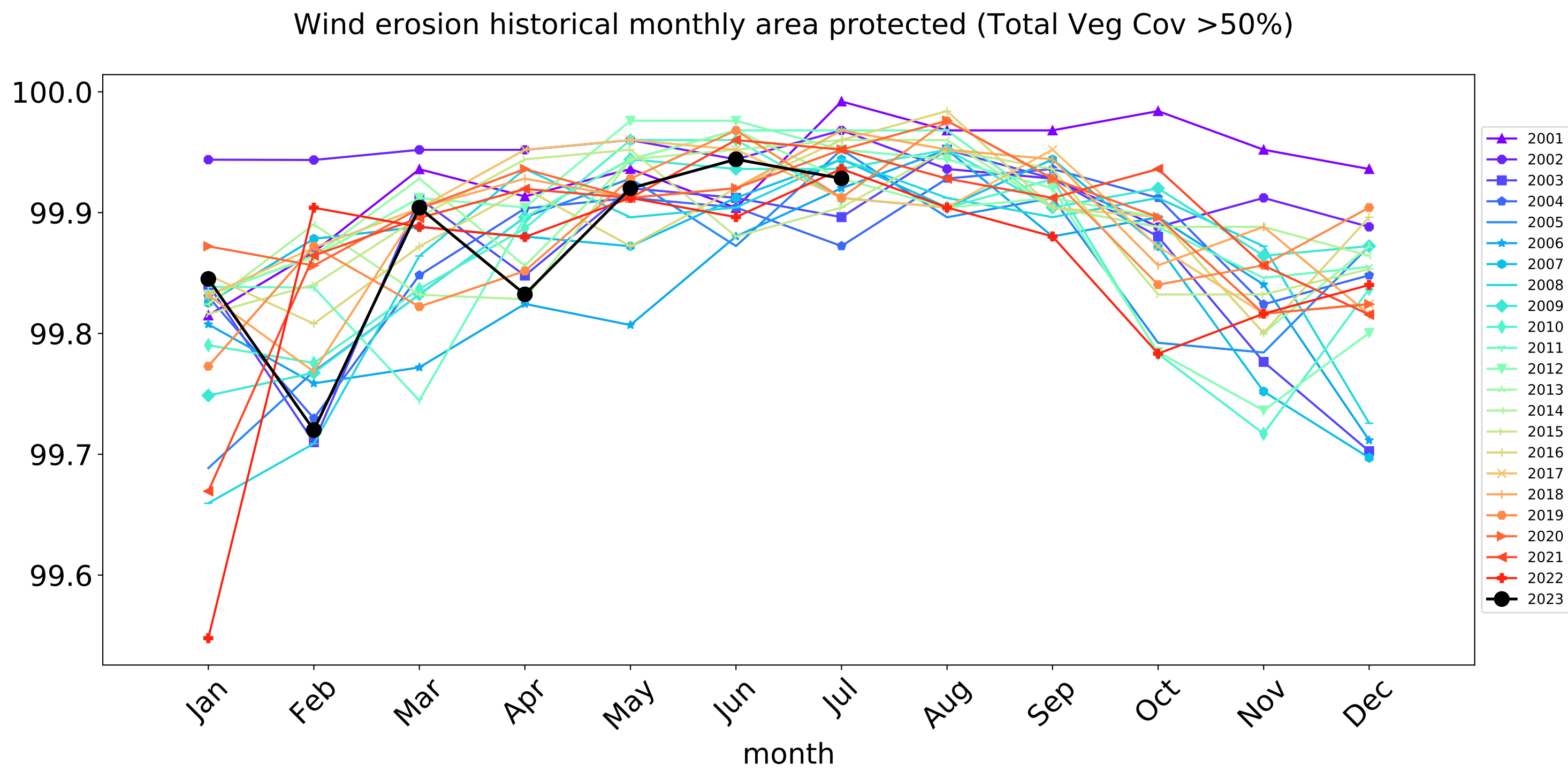
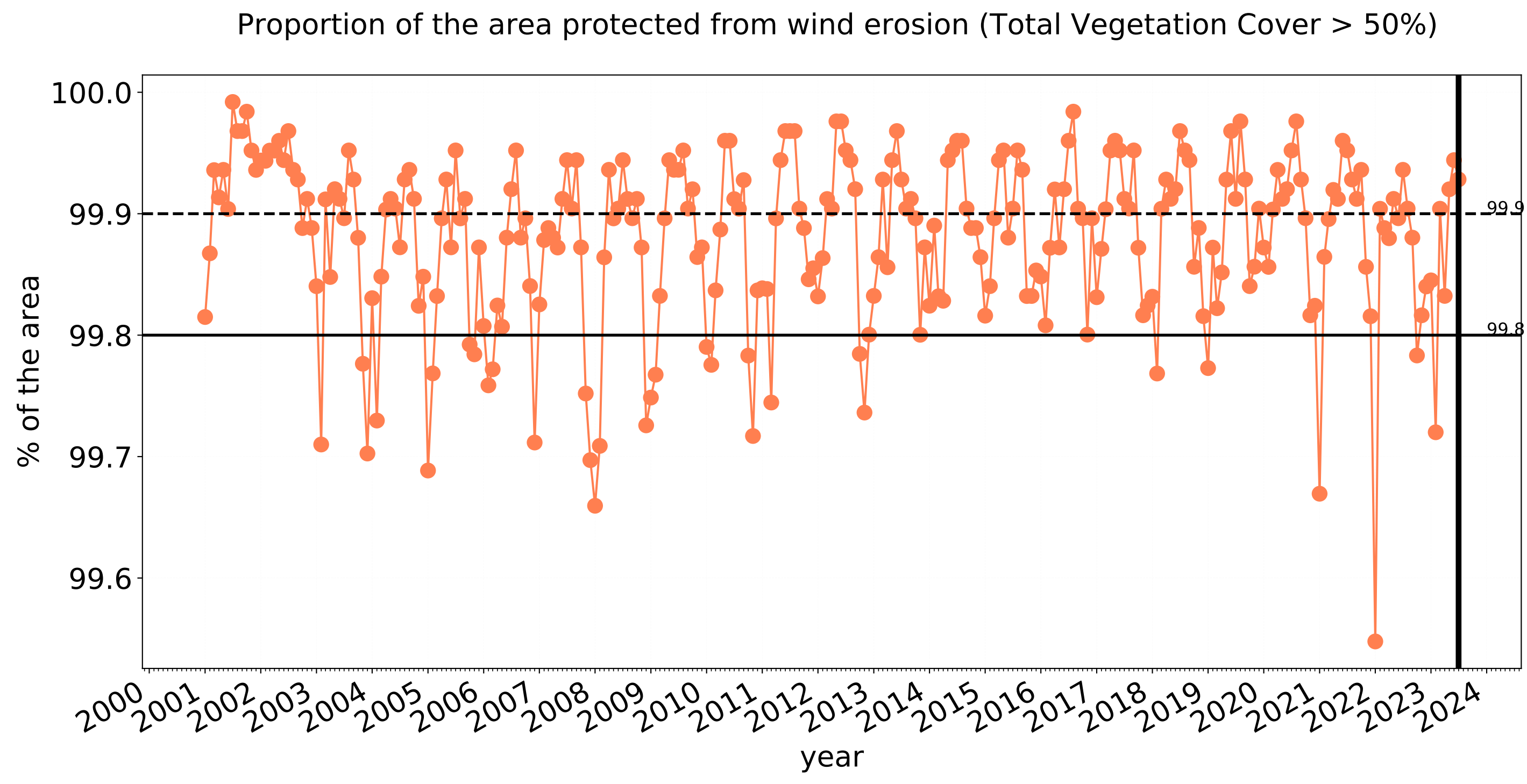


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Total Vegetation Cover Decile [%]



Conservation and natural environments Forest (non woodland) timeseries



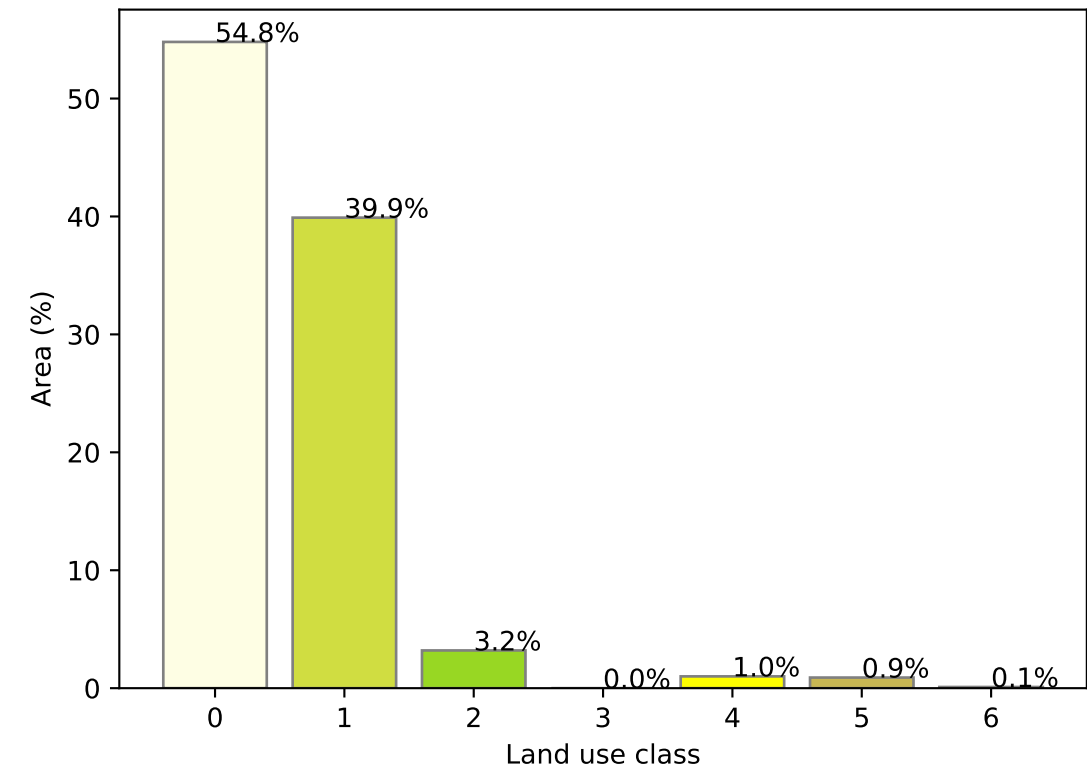
Agriculture

Land use and forest cover

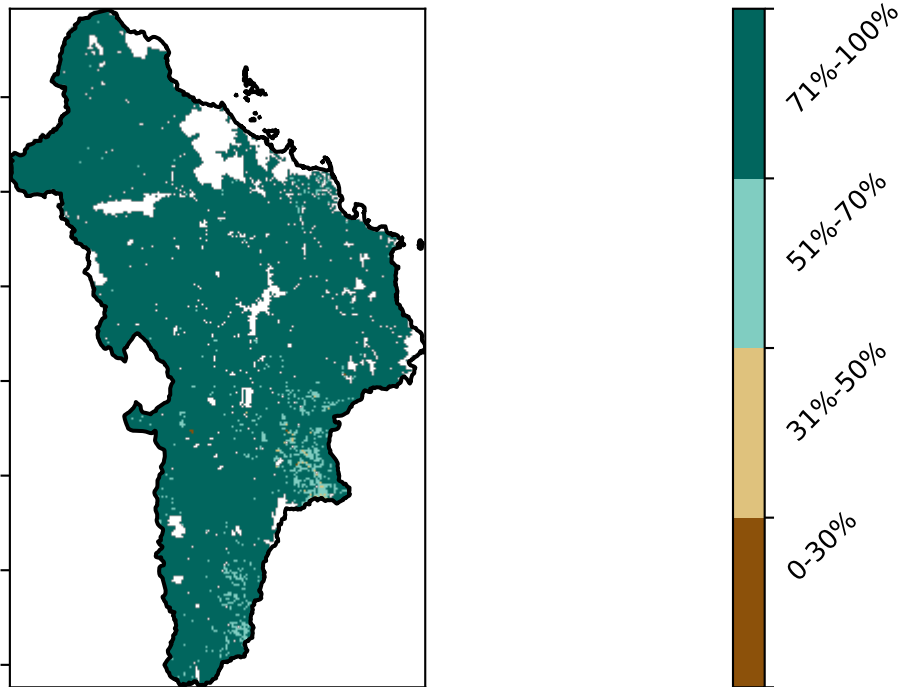
Catchment Scale Land Use and Forests of Australia (2018) Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



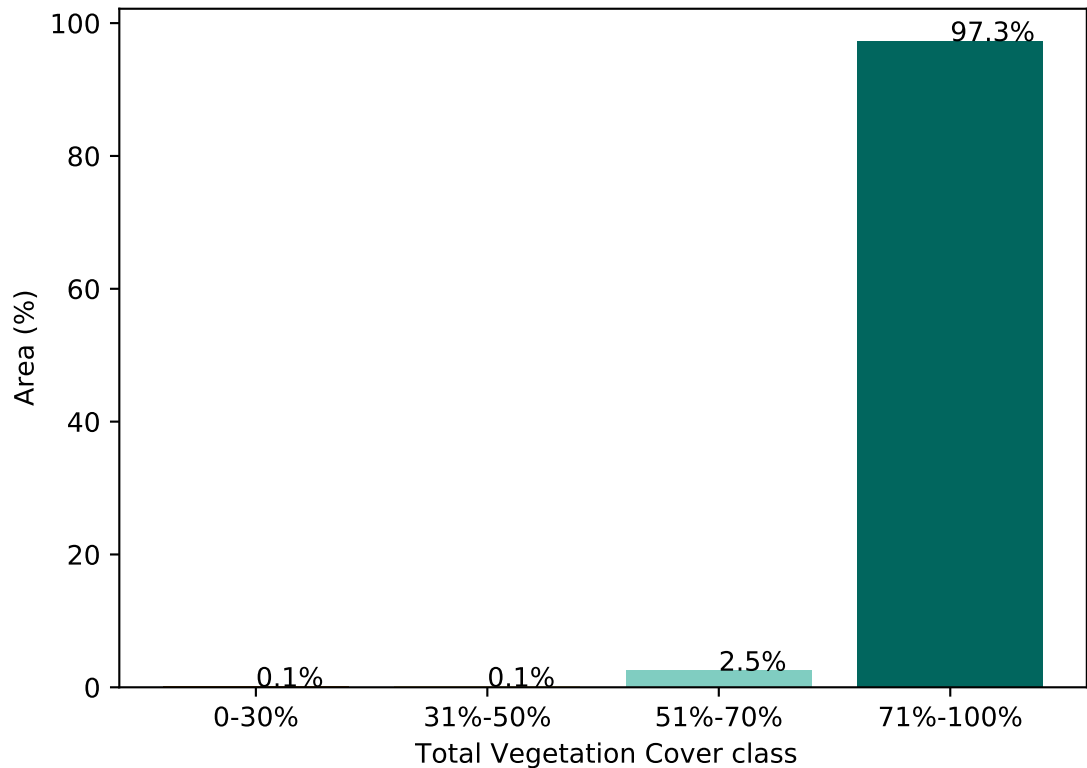
Proportion of each land class in area



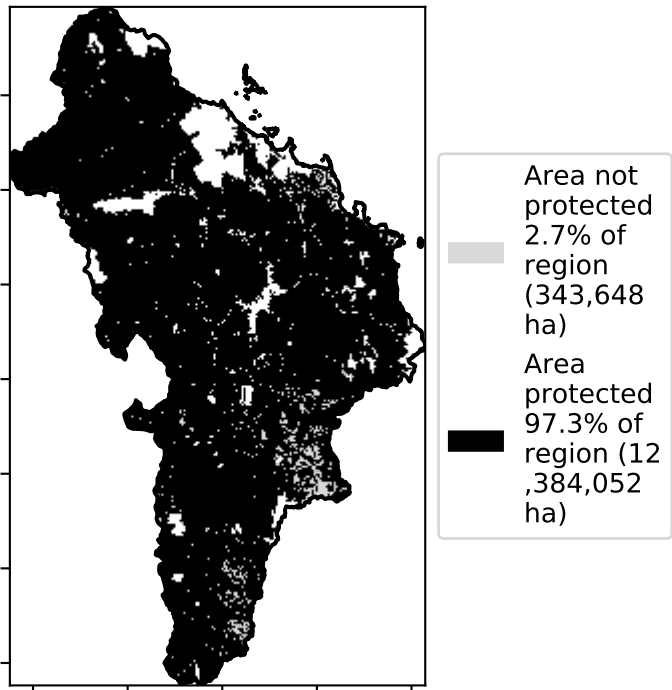
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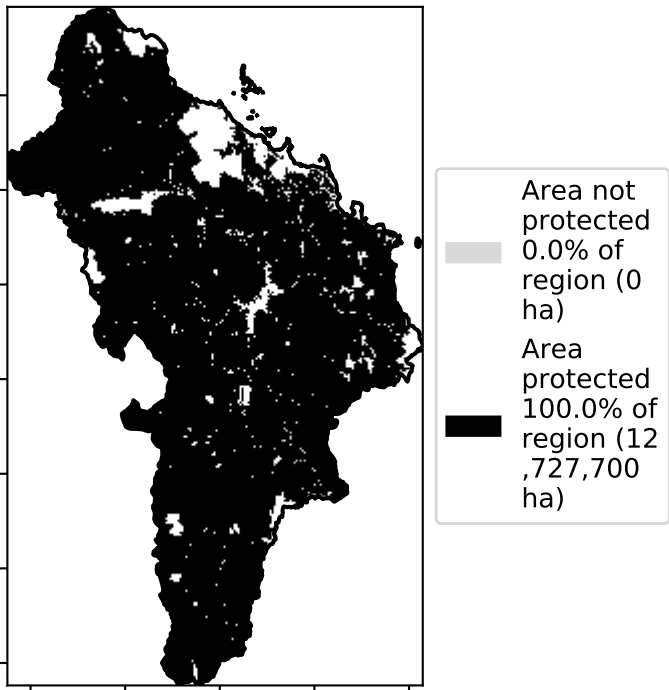
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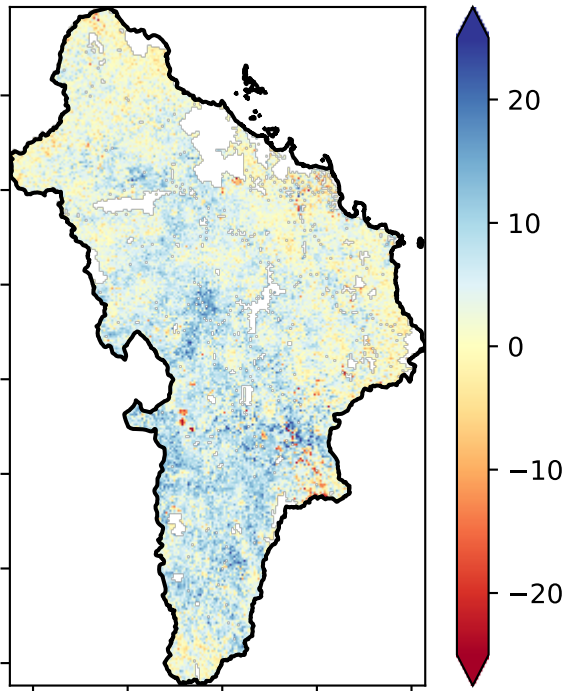


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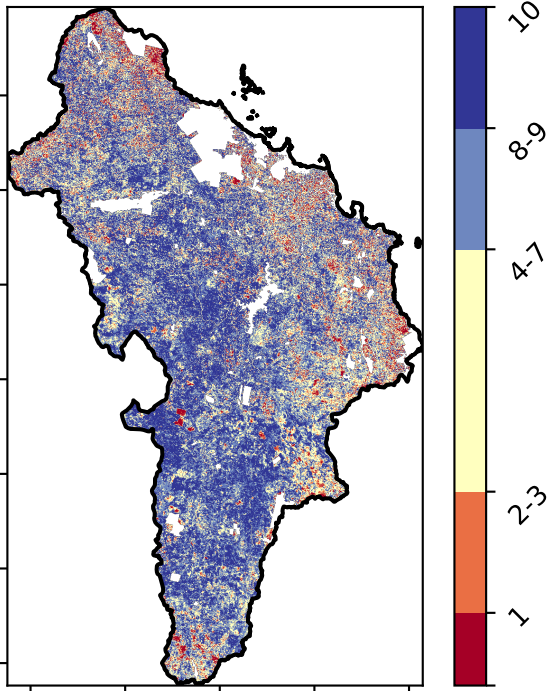
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Total Vegetation Cover Decile [%]



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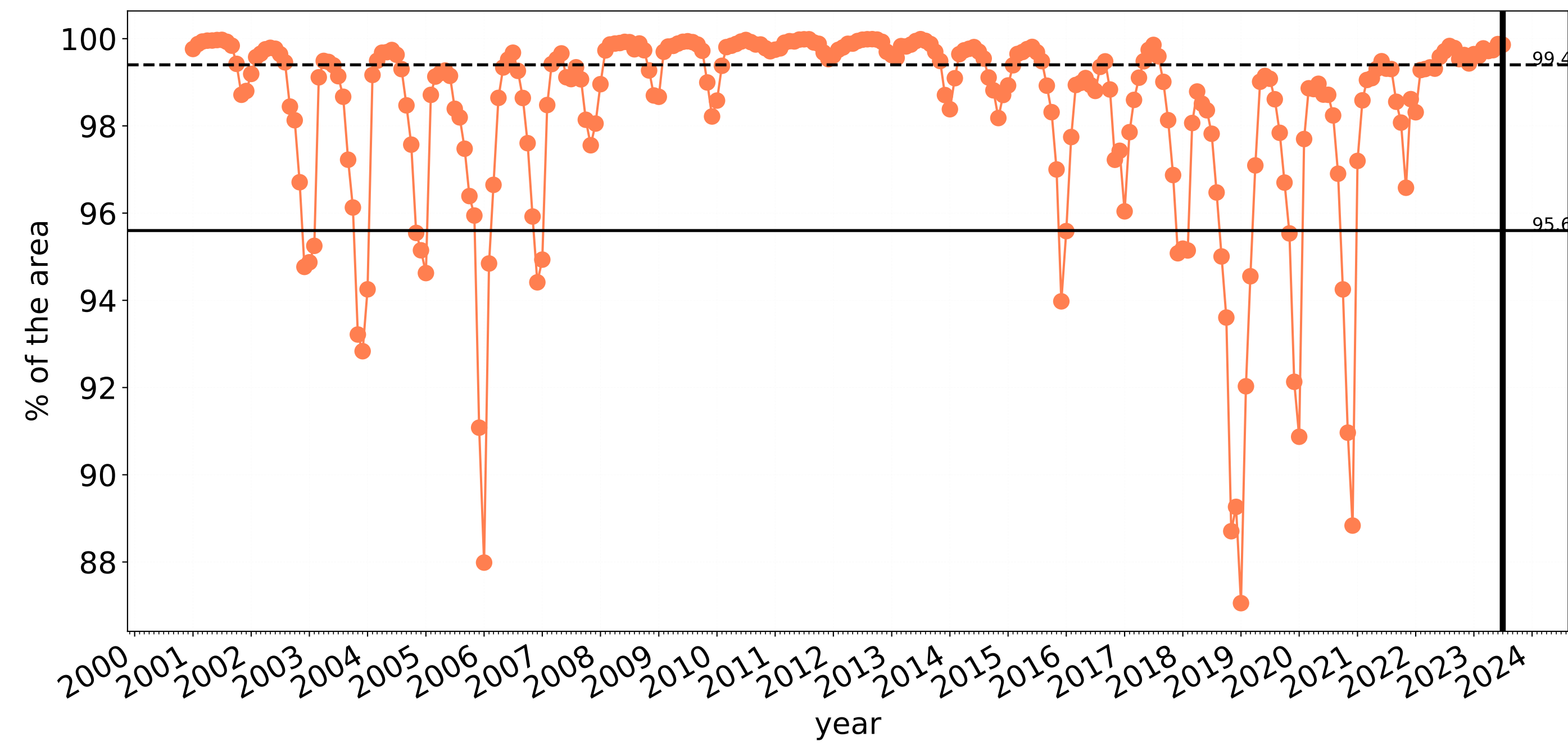
Australian Government

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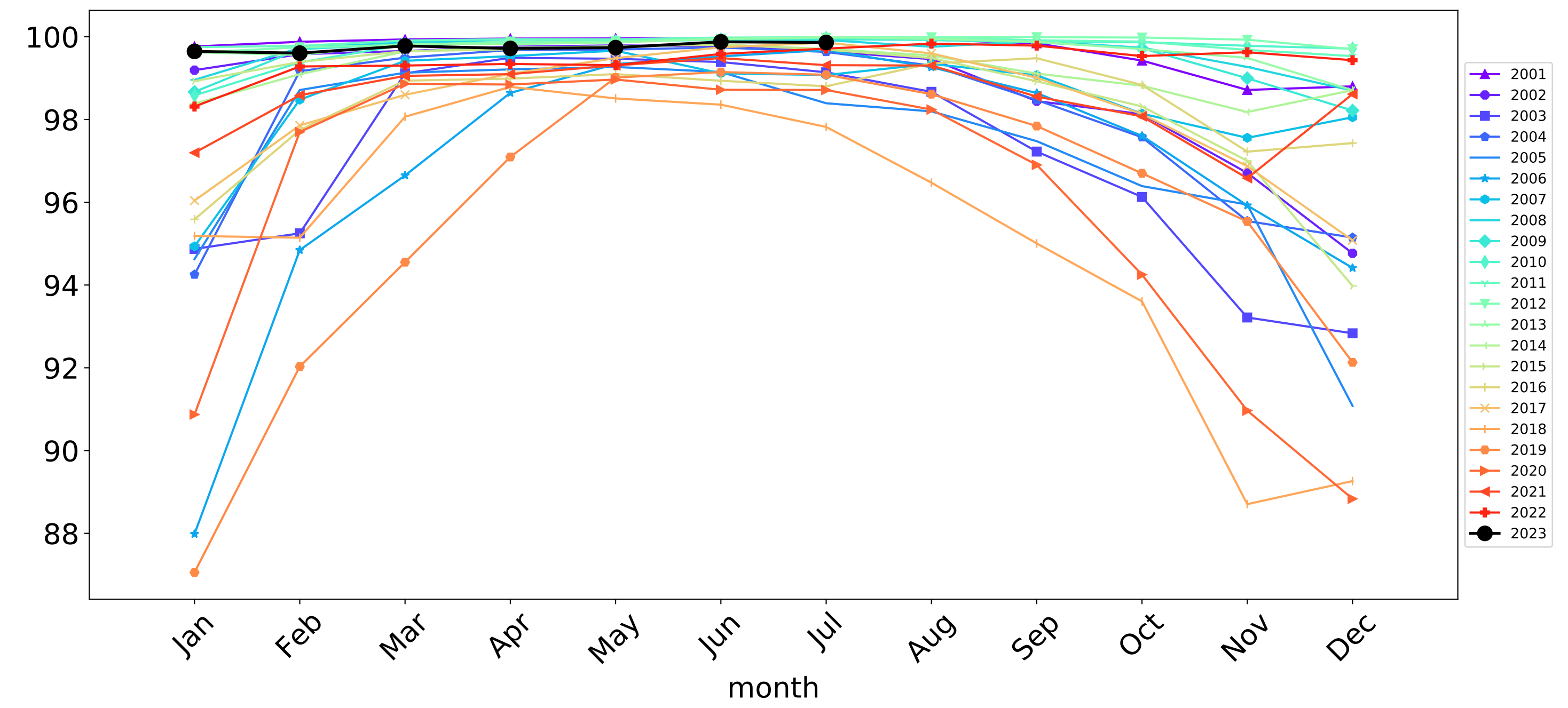


Agriculture timeseries

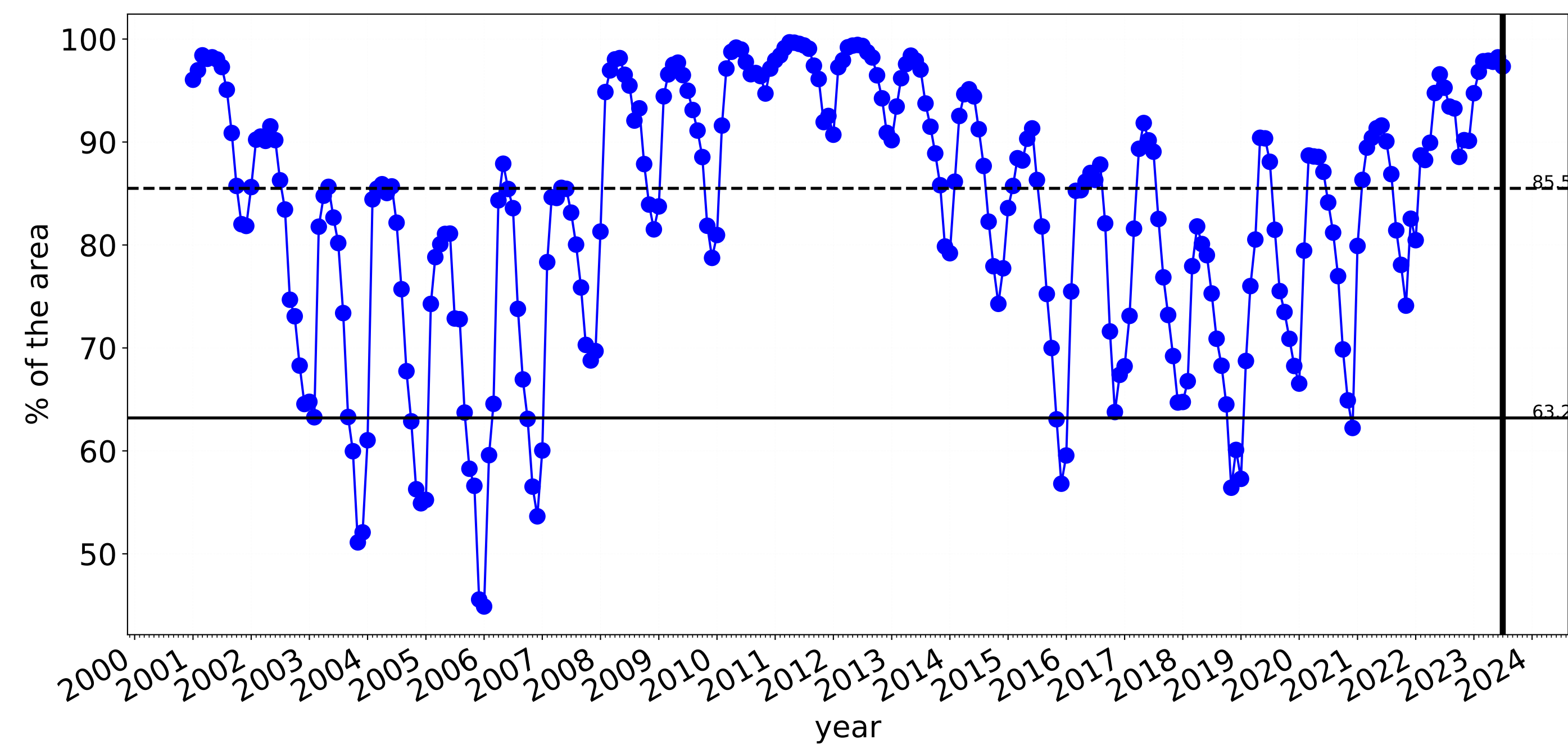
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



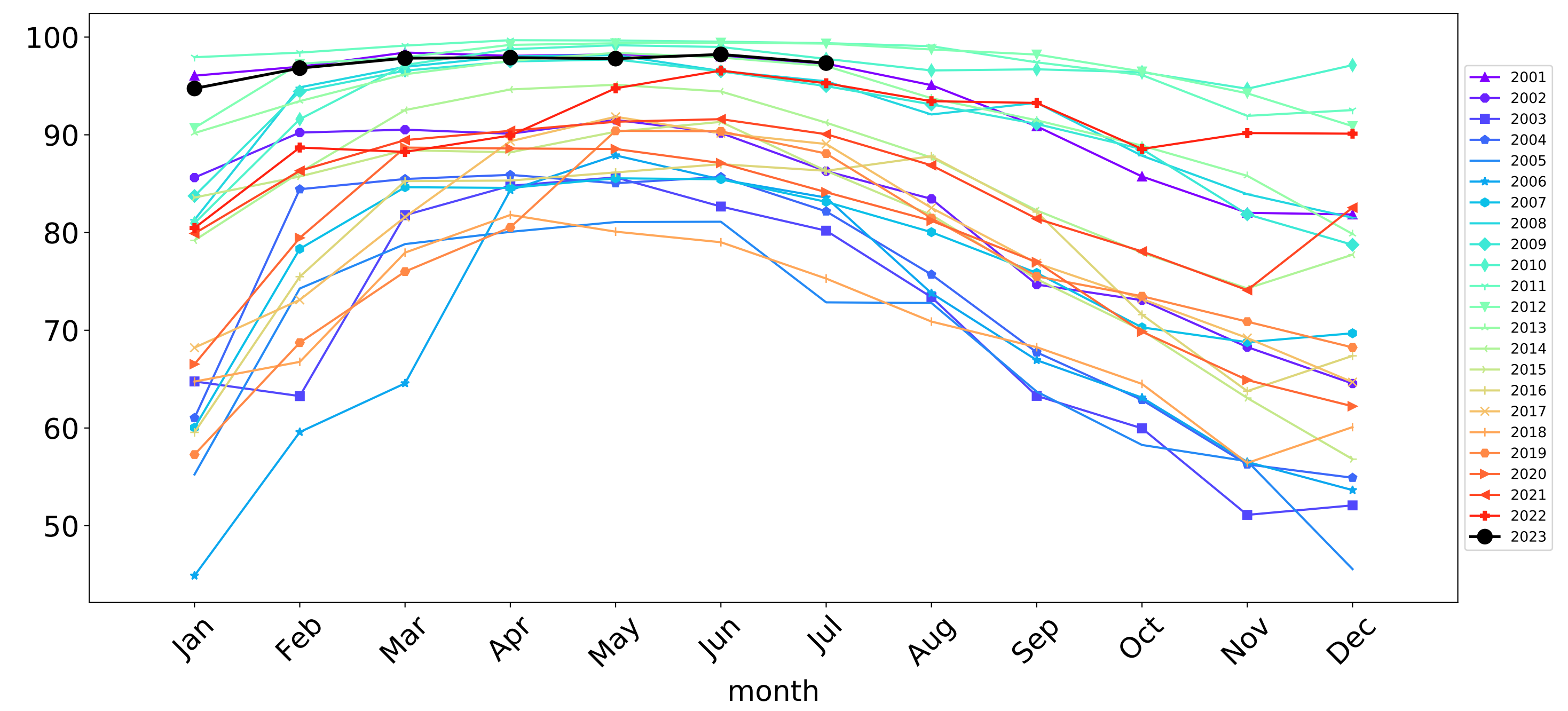
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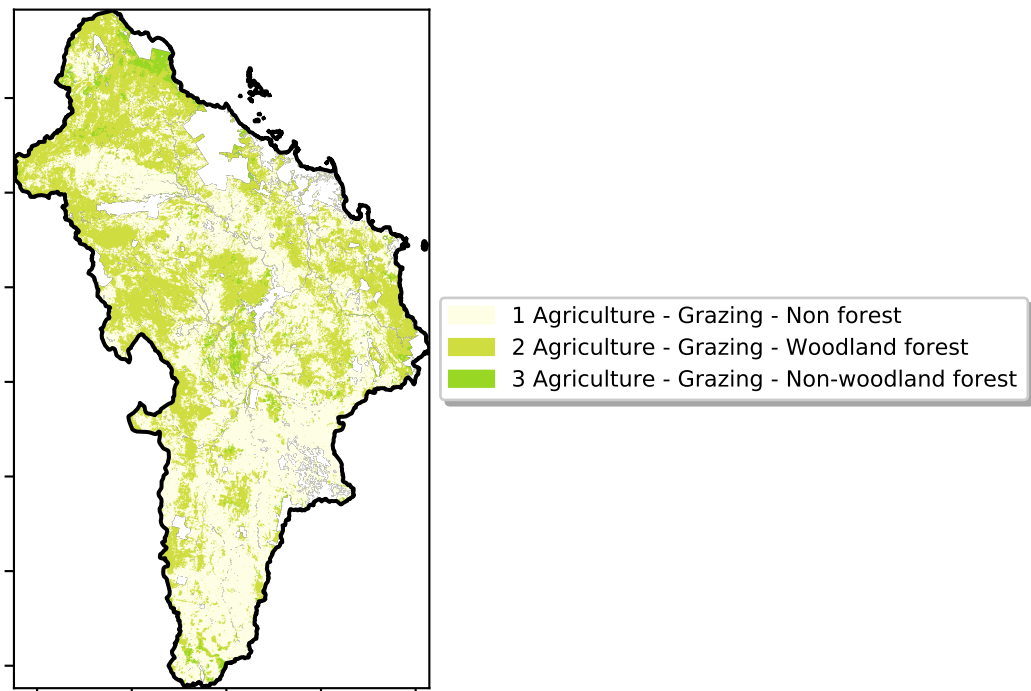
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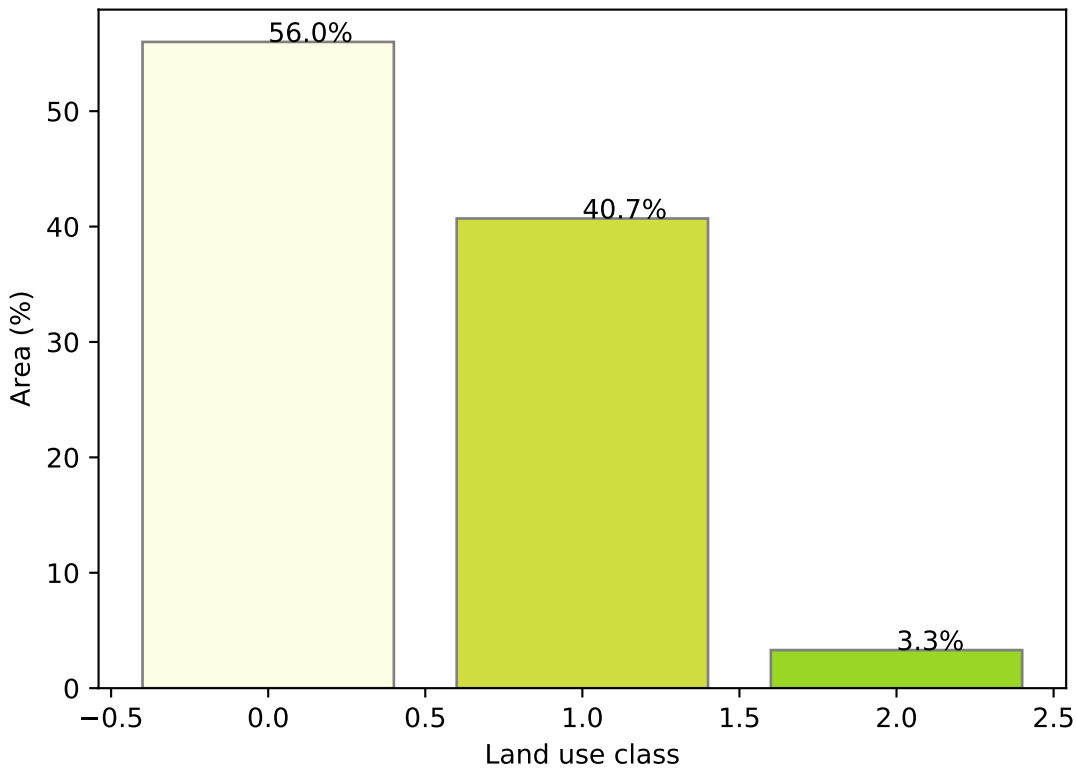
Grazing

Land use and forest cover

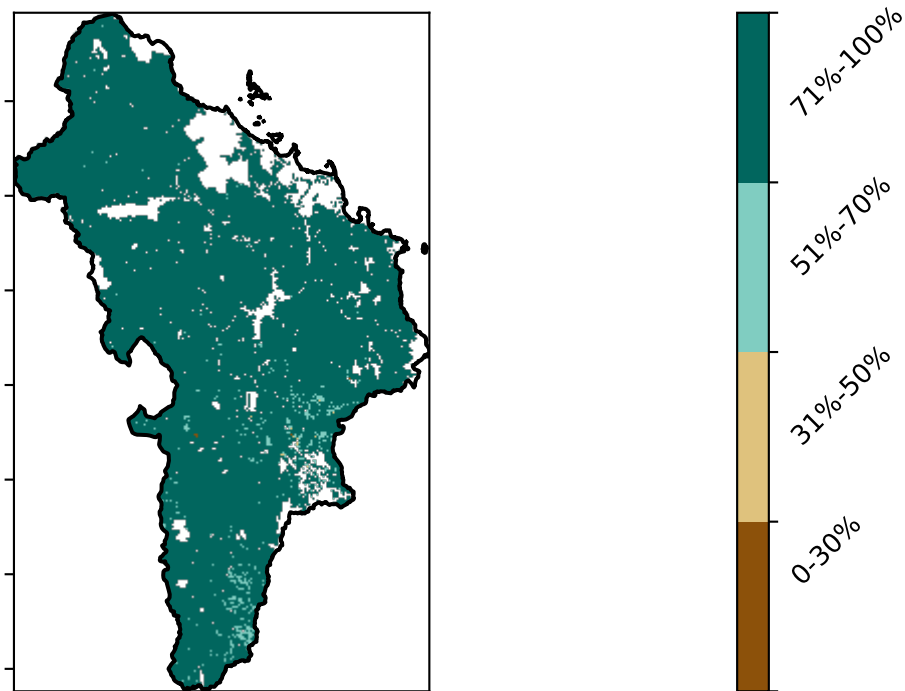
Catchment Scale Land Use and Forests of Australia (2018)
Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



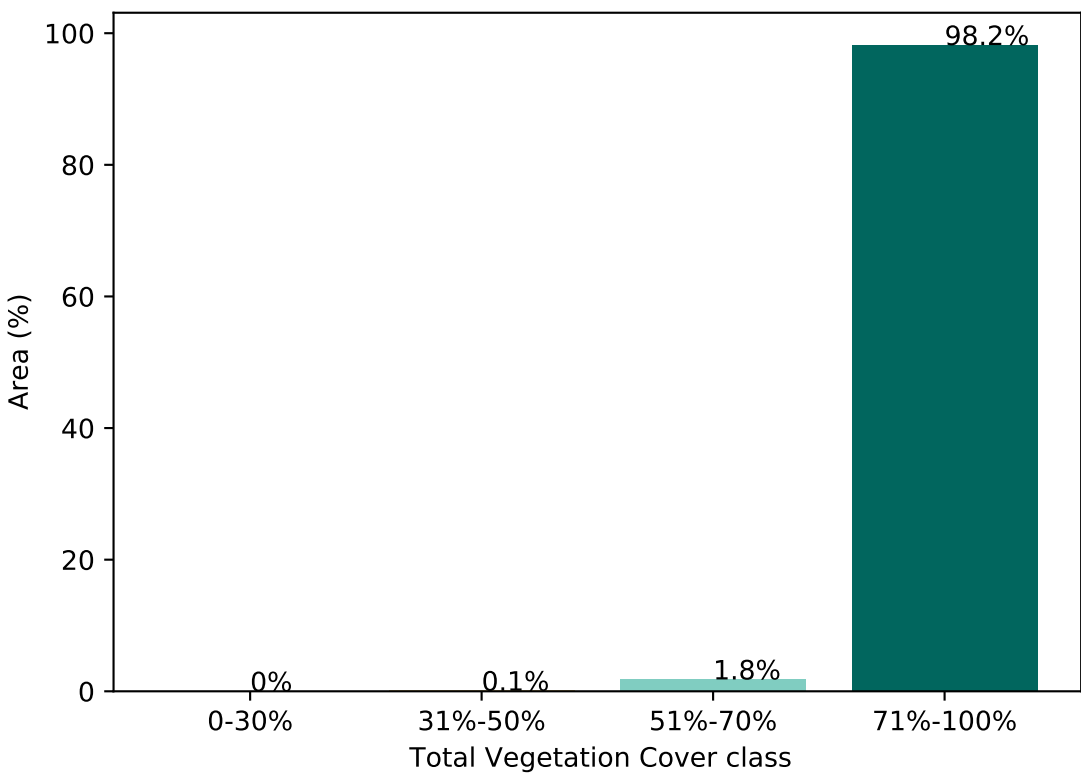
Proportion of each land class in area



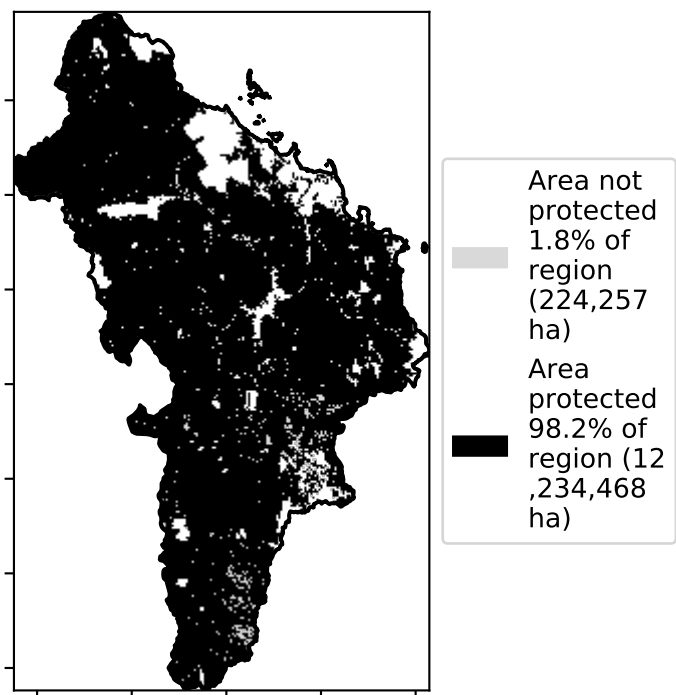
Total Vegetation Cover [%]



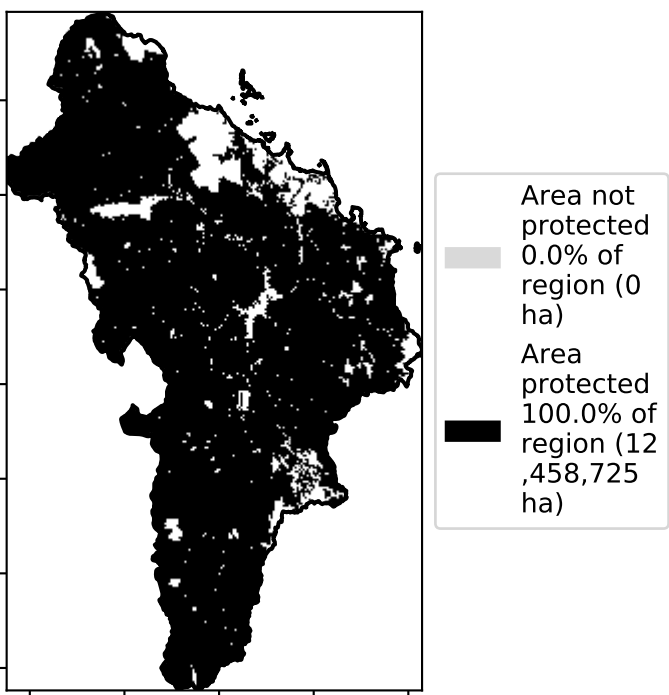
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

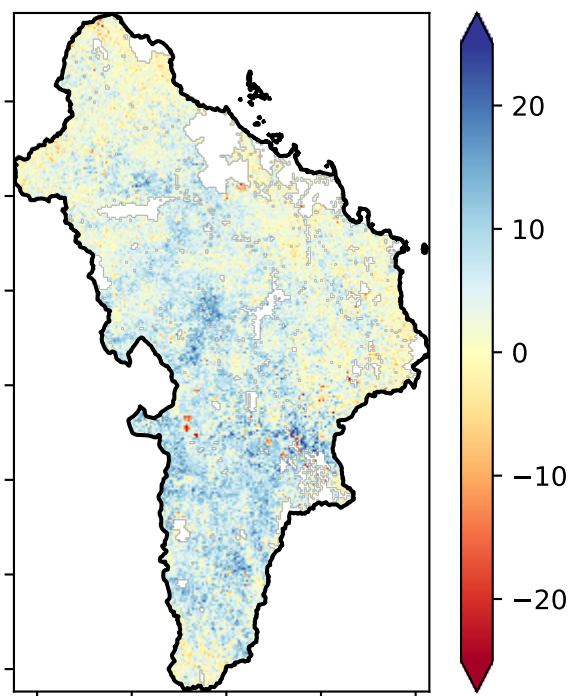


% Area protected from wind erosion (>50%)



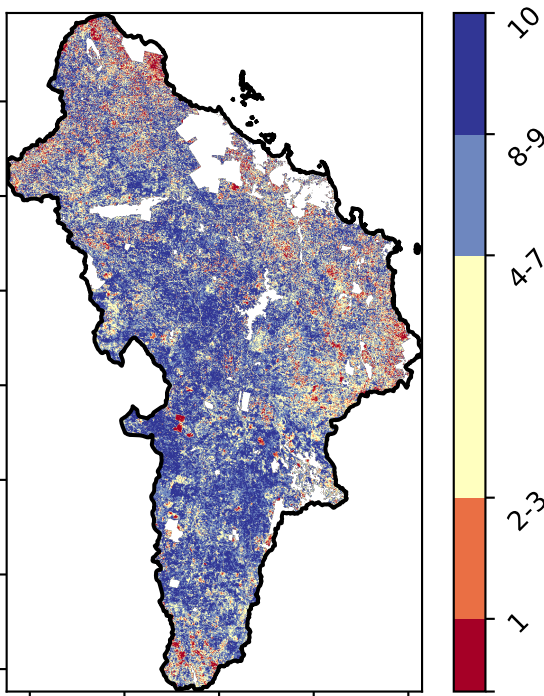
Total Vegetation Cover Anomaly [%]

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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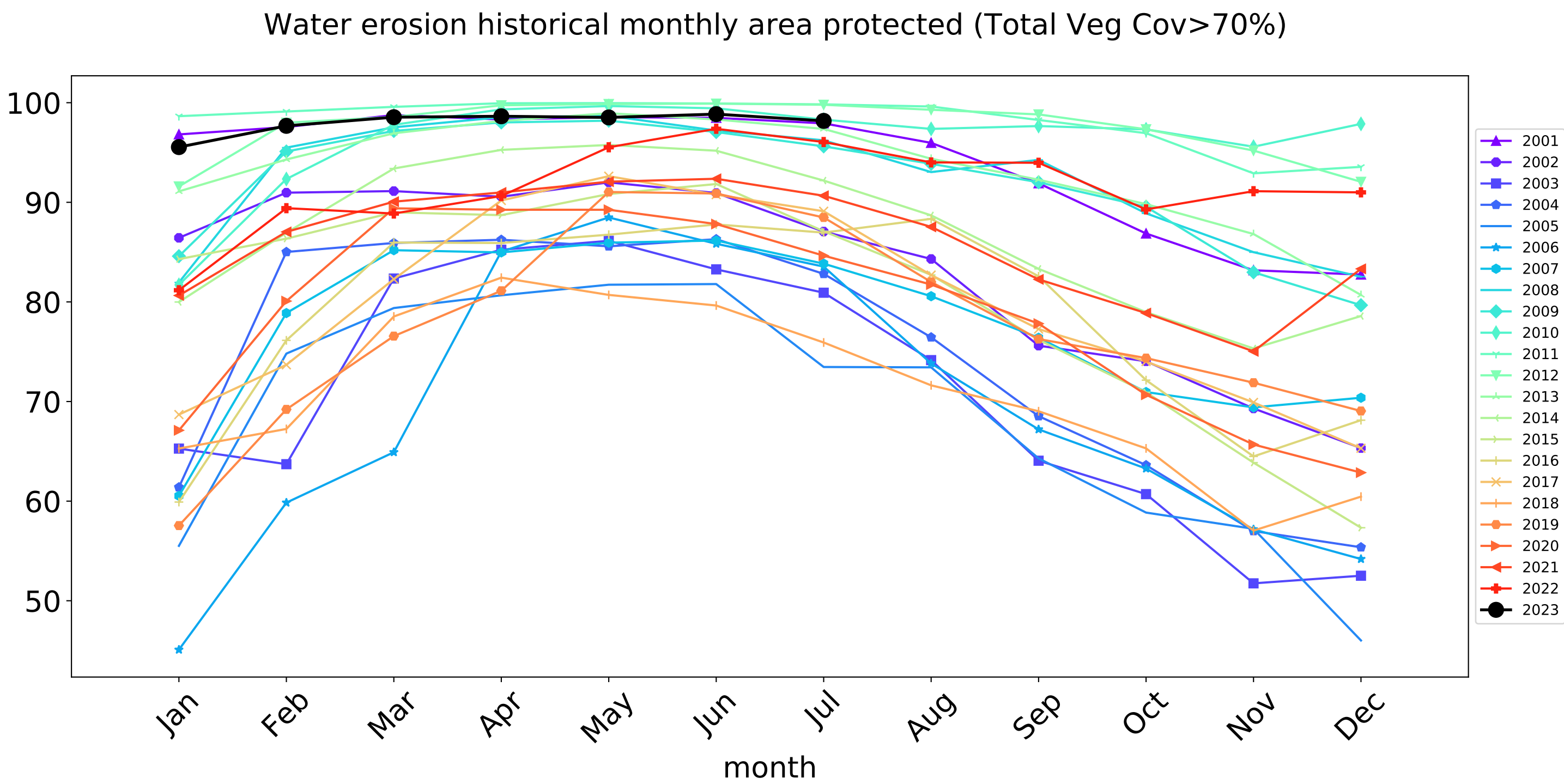
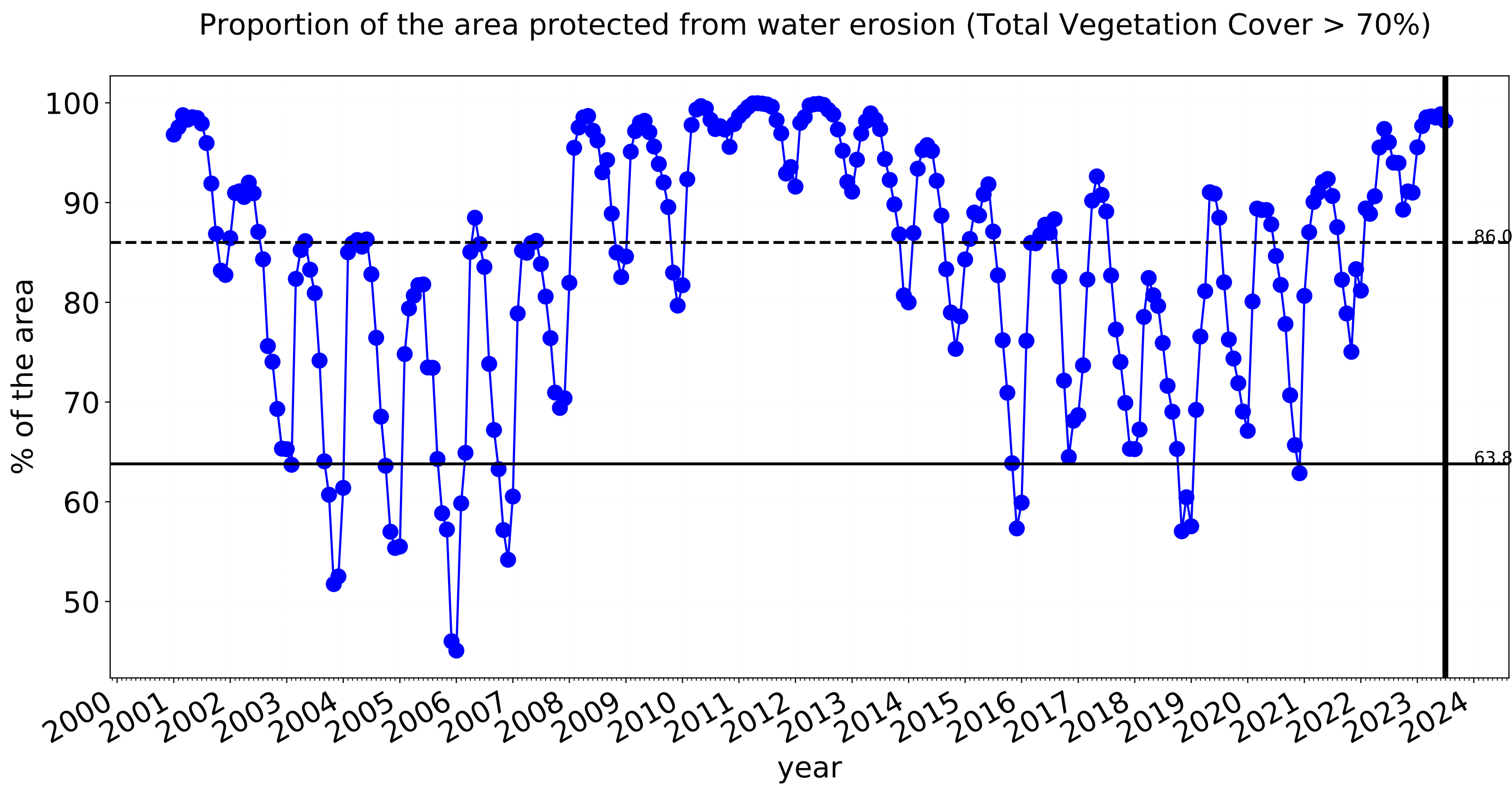
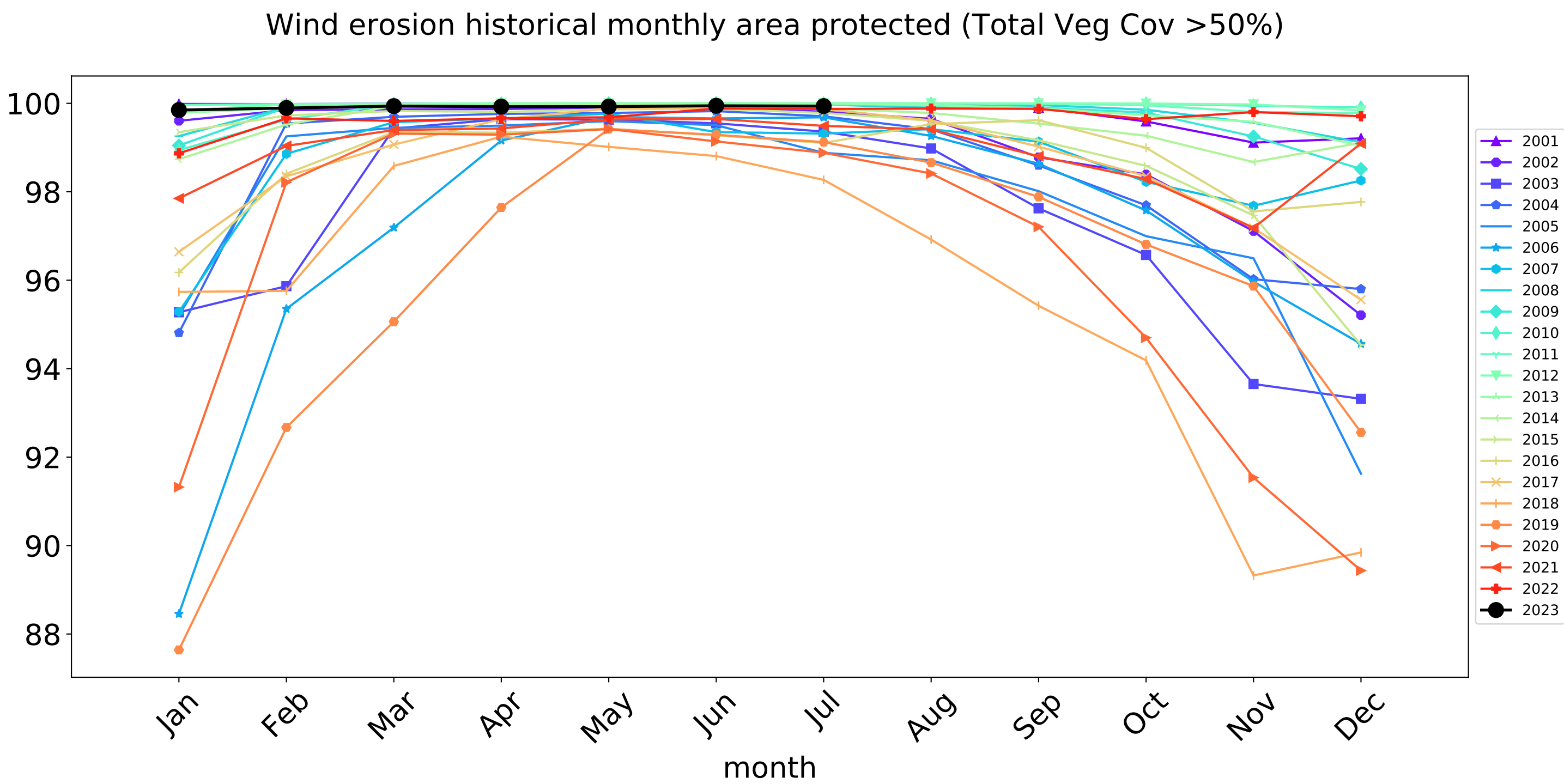
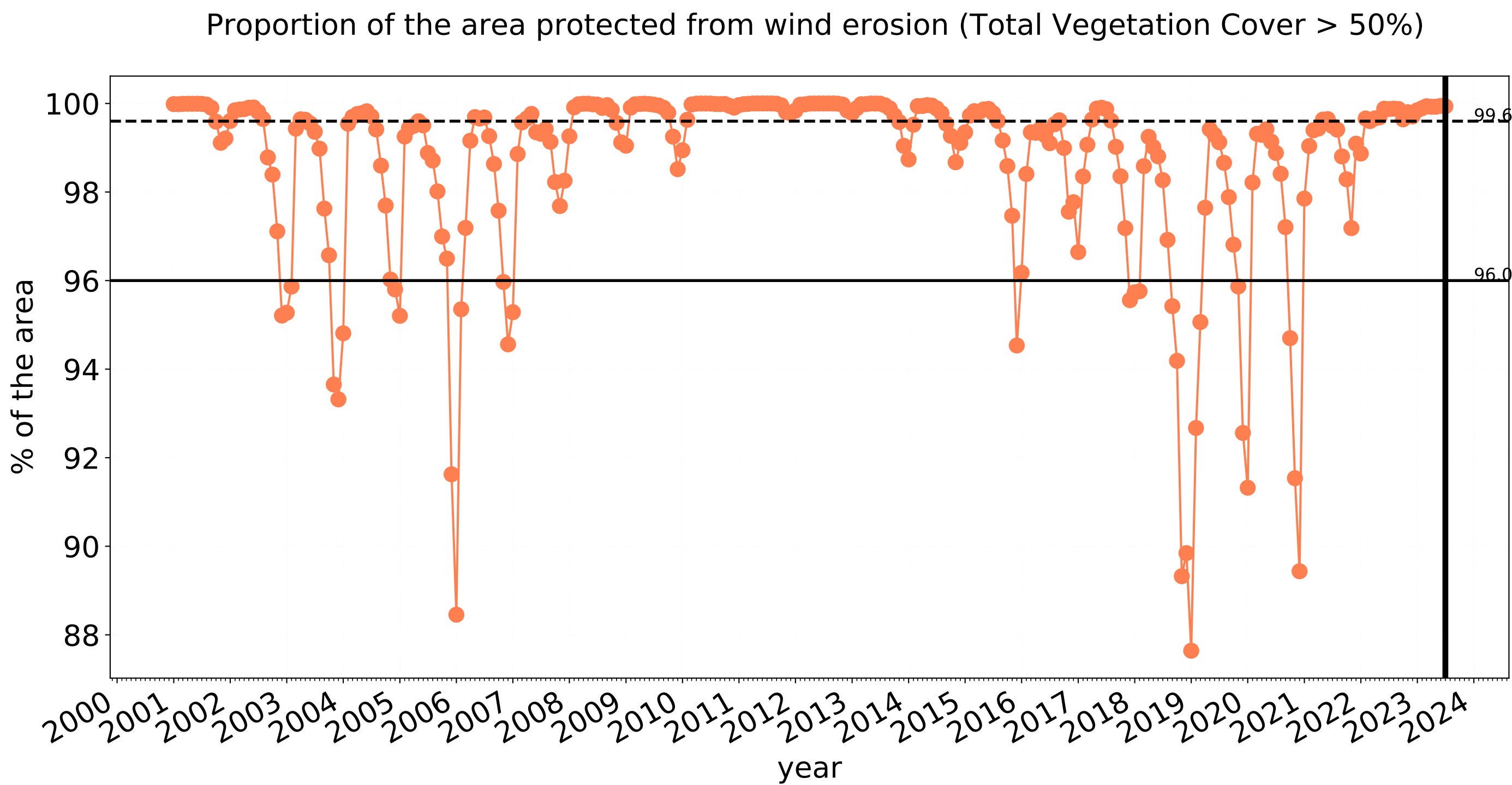


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Grazing timeseries



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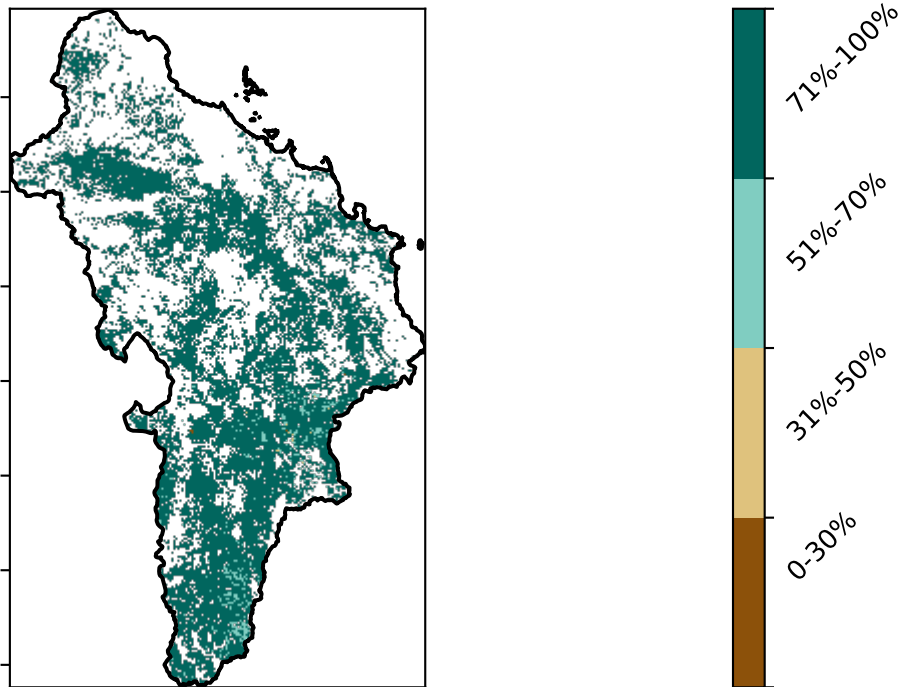
Grazing non forest

Land use and forest cover

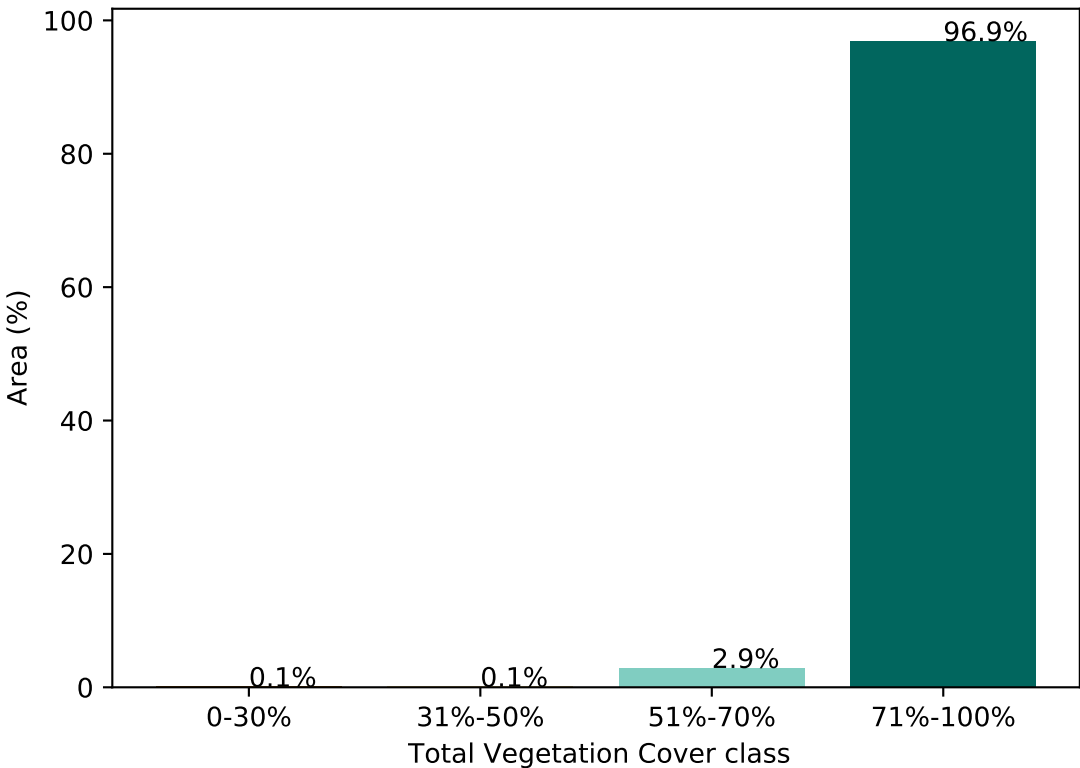
Catchment Scale
Land Use and Forests
of Australia (2018)
Derived from
Catchment Scale Land
Use of Australia
(2018) and Forests
of Australia (2018)



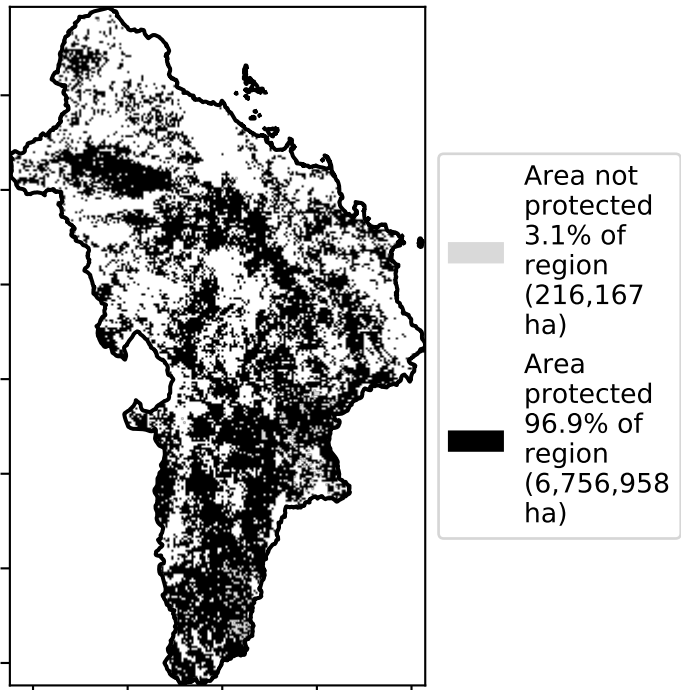
Total Vegetation Cover [%]



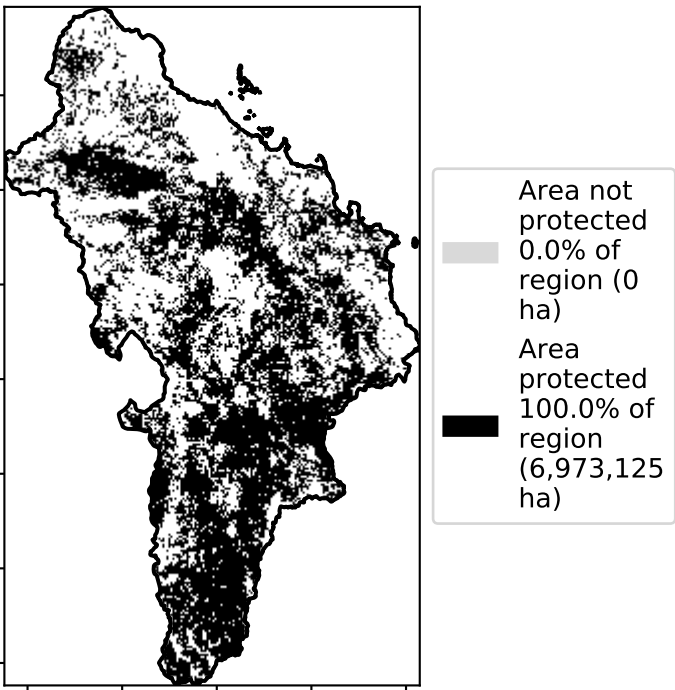
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

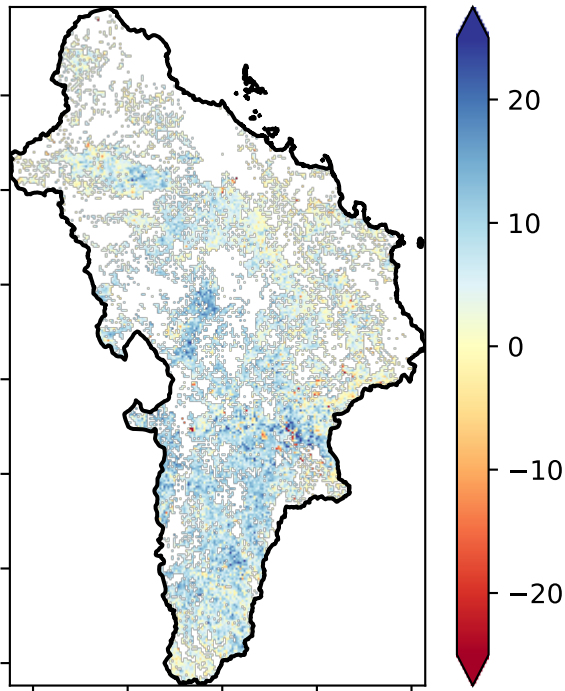


% Area protected from wind erosion (>50%)



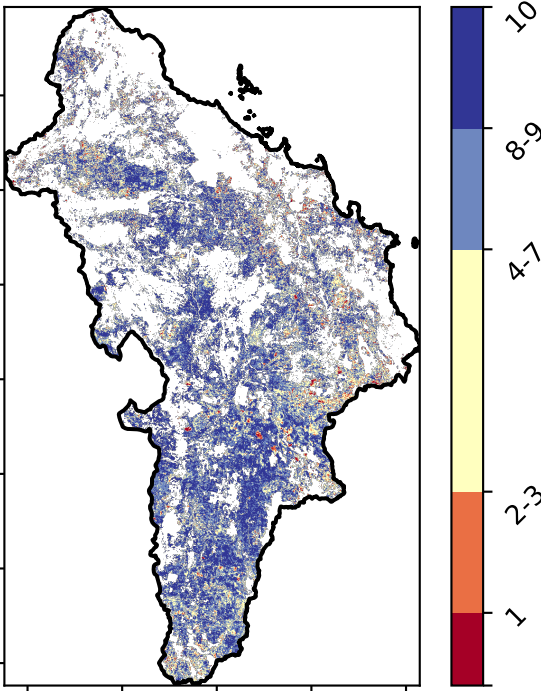
Total Vegetation Cover Anomaly [%]

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.



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Total Vegetation Cover Decile [%]



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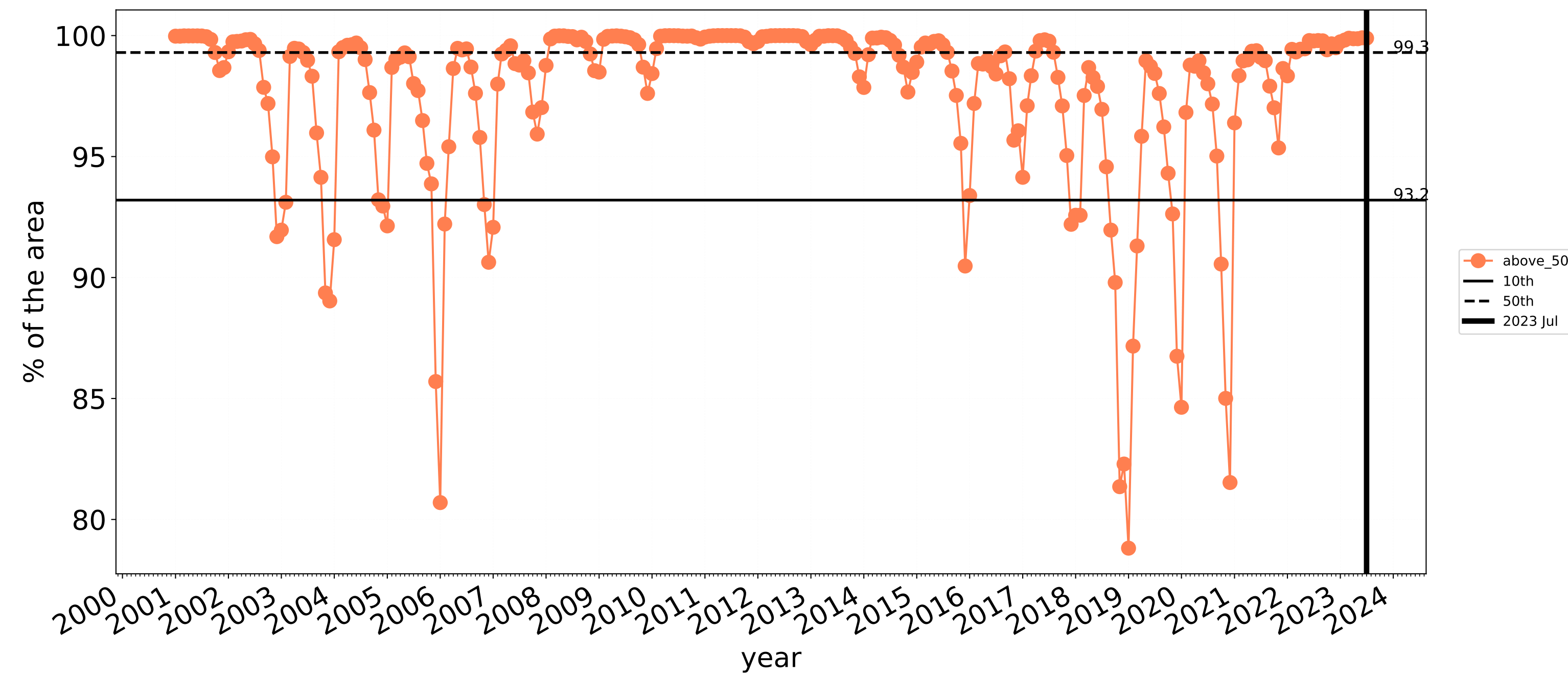
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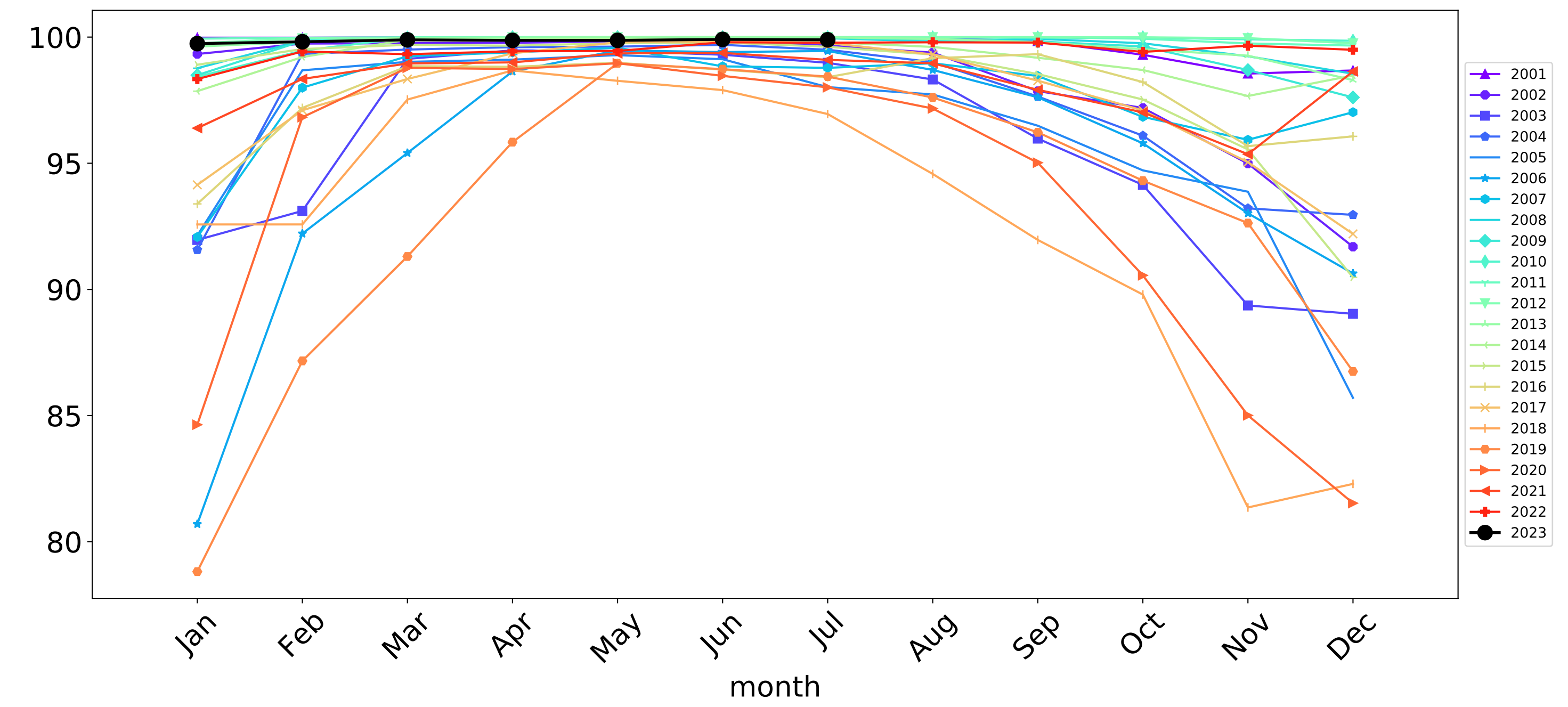


Grazing non forest timeseries

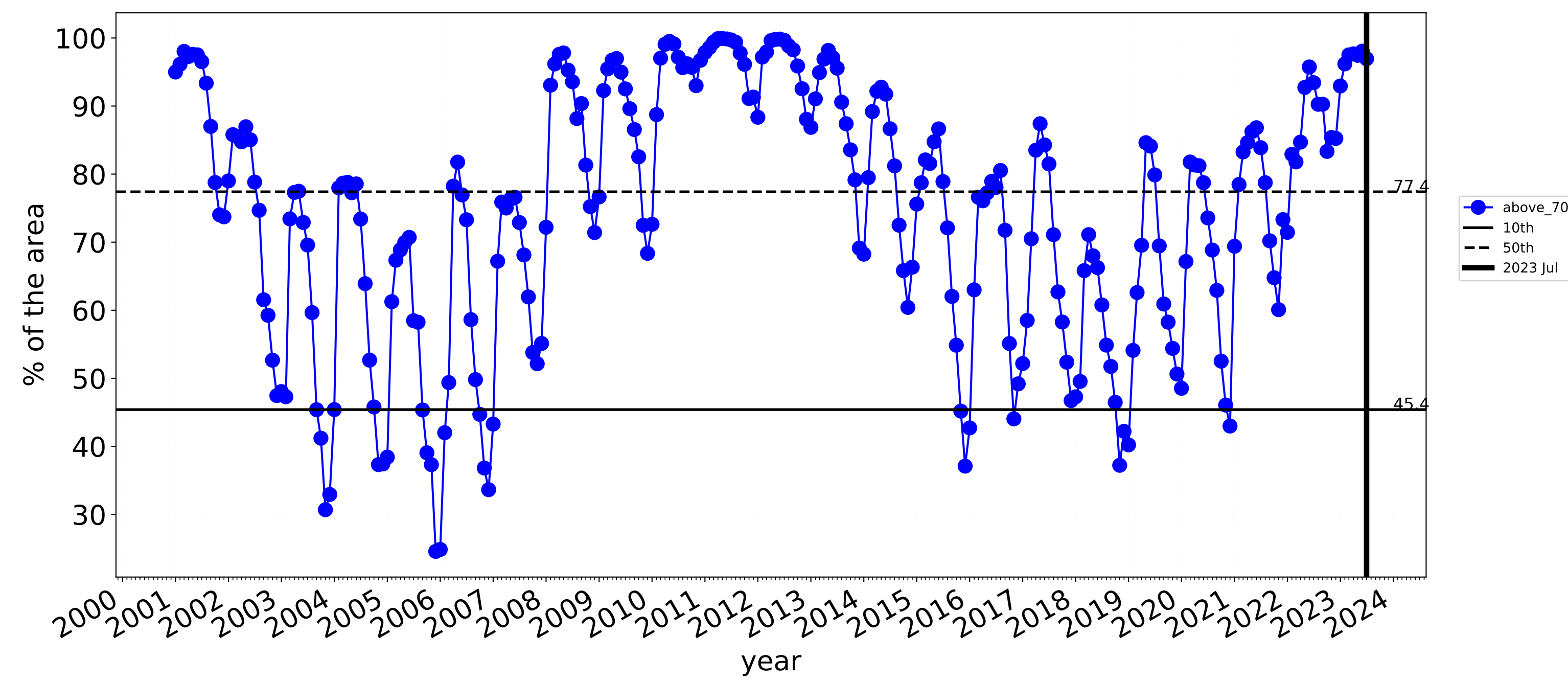
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



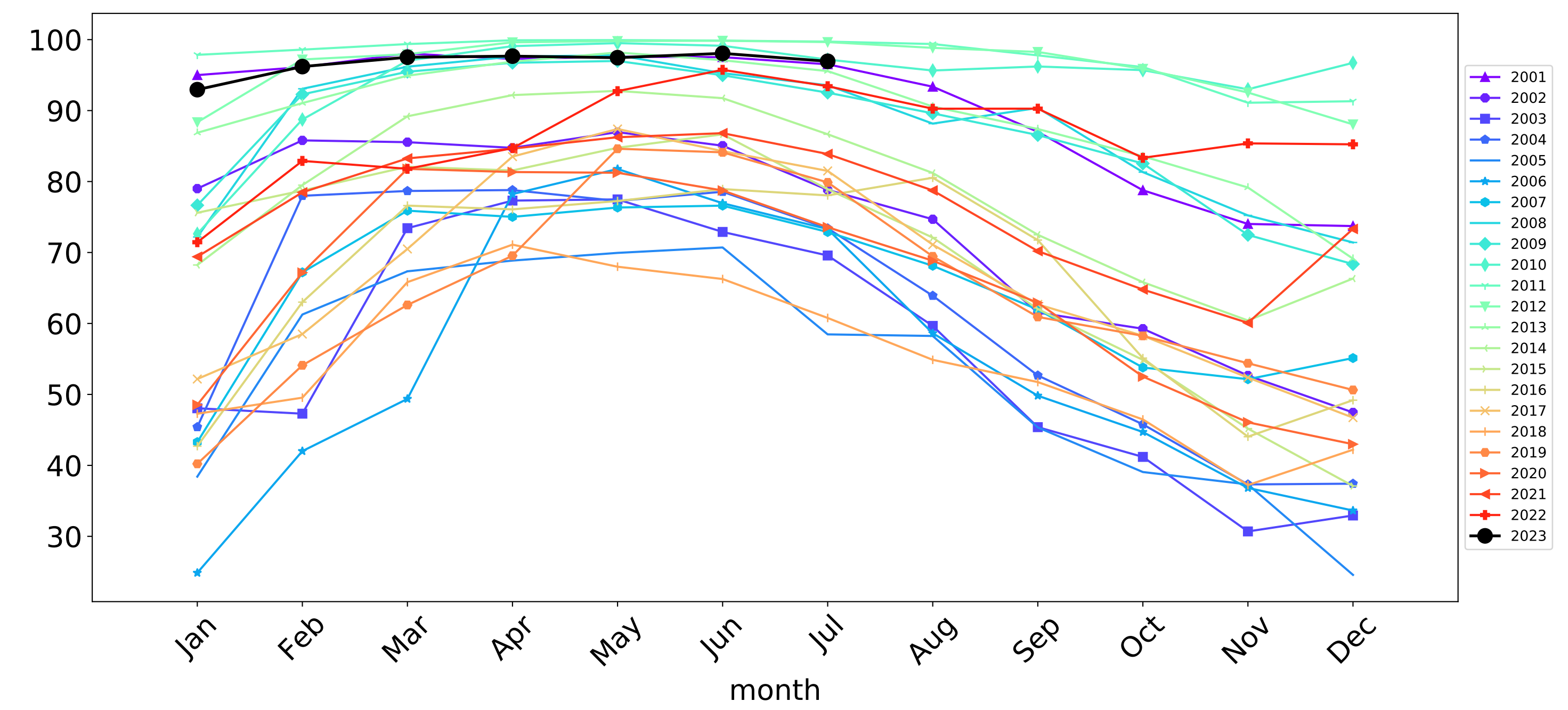
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



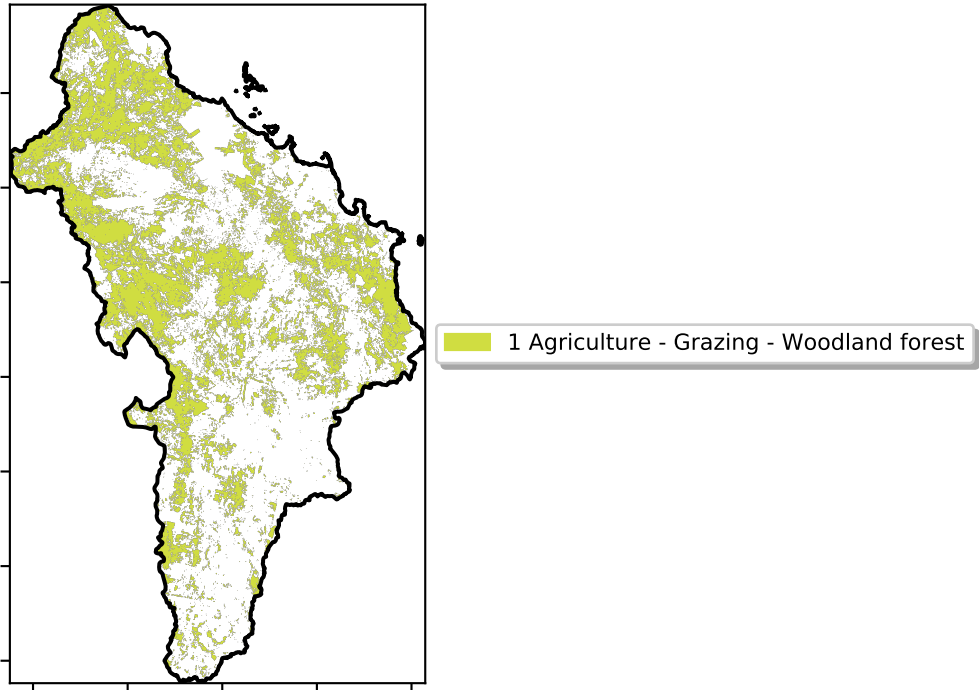
Water erosion historical monthly area protected (Total Veg Cov>70%)



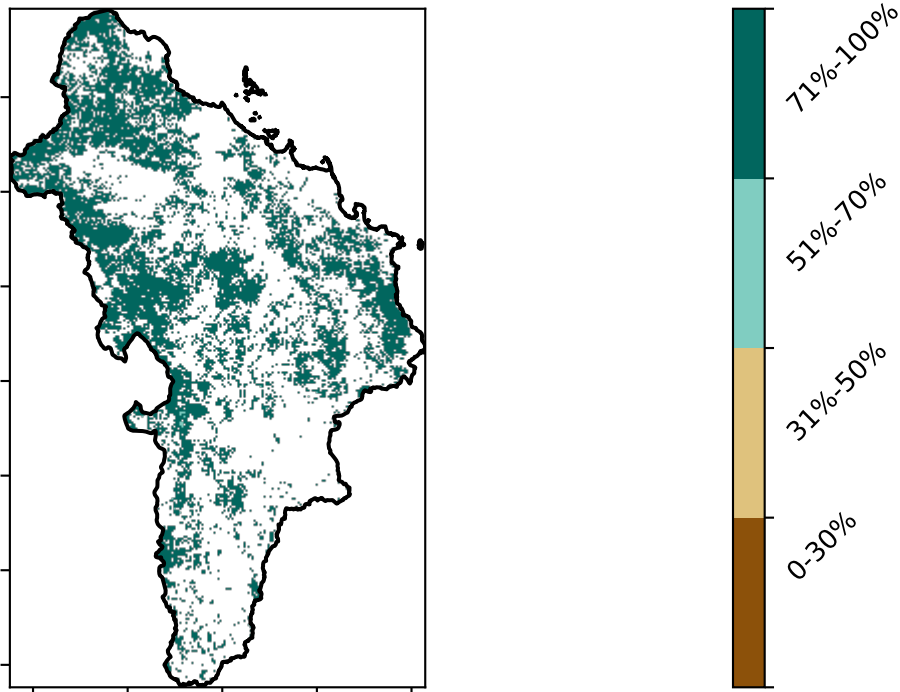
Grazing Woodland forest

Land use and forest cover

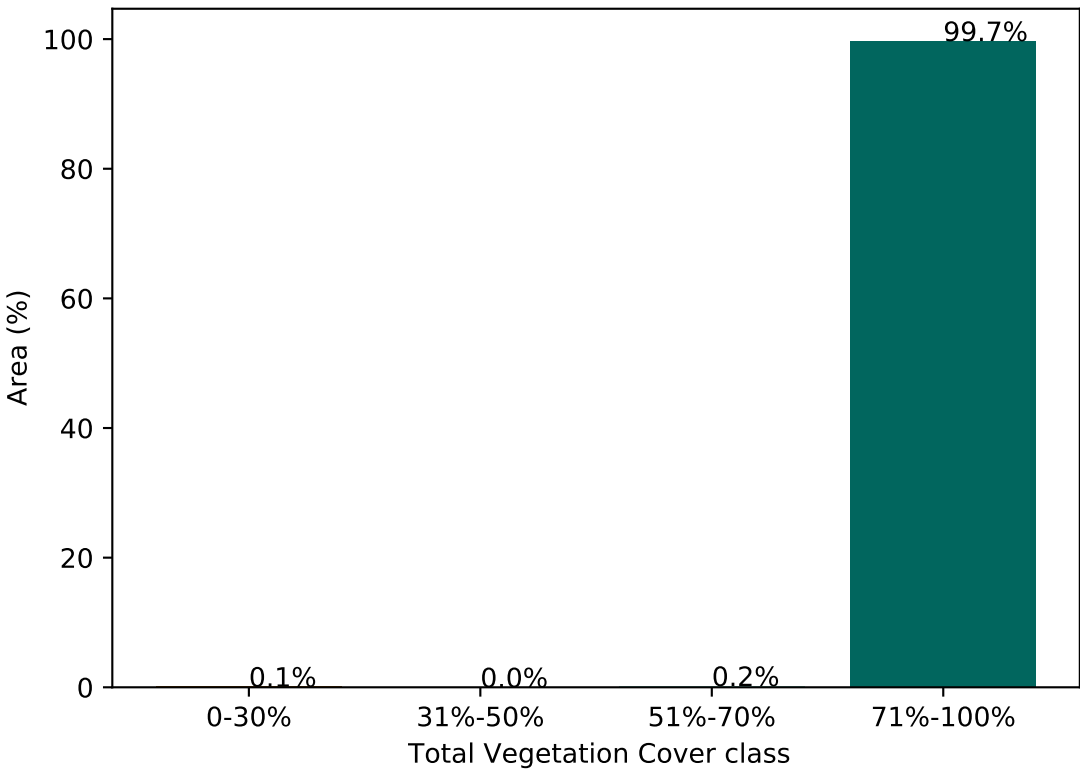
Catchment Scale
Land Use and Forests
of Australia (2018)
Derived from
Catchment Scale Land
Use of Australia
(2018) and Forests
of Australia (2018)



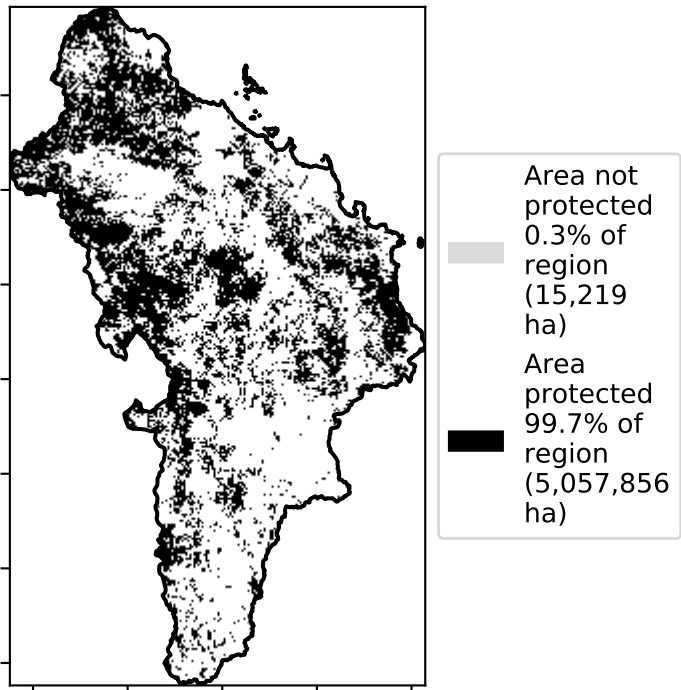
Total Vegetation Cover [%]



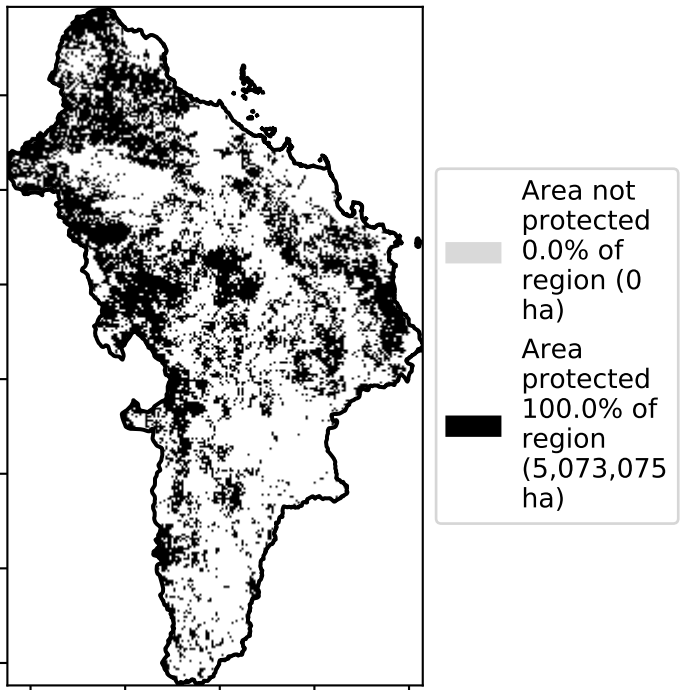
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

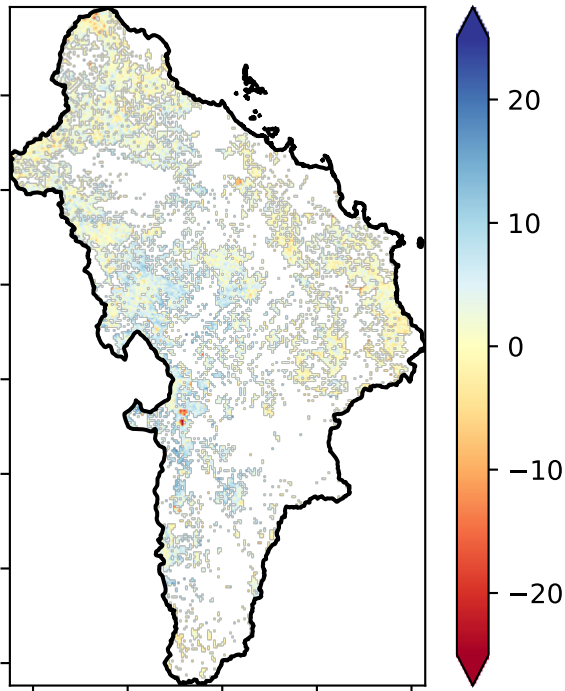


% Area protected from wind erosion (>50%)



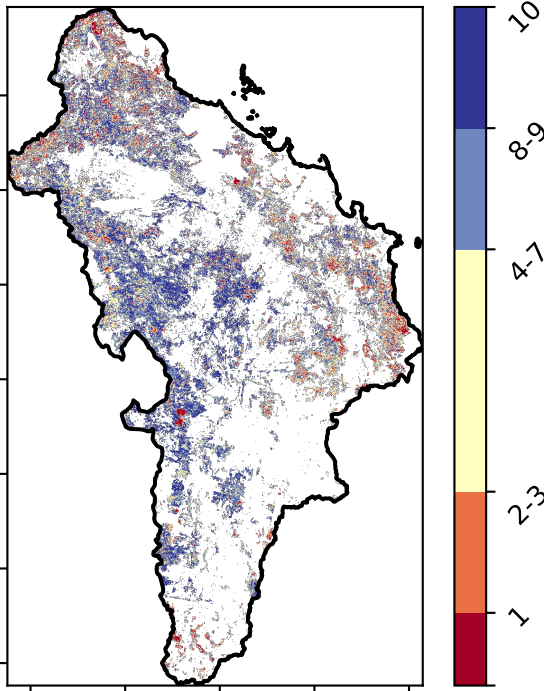
Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]



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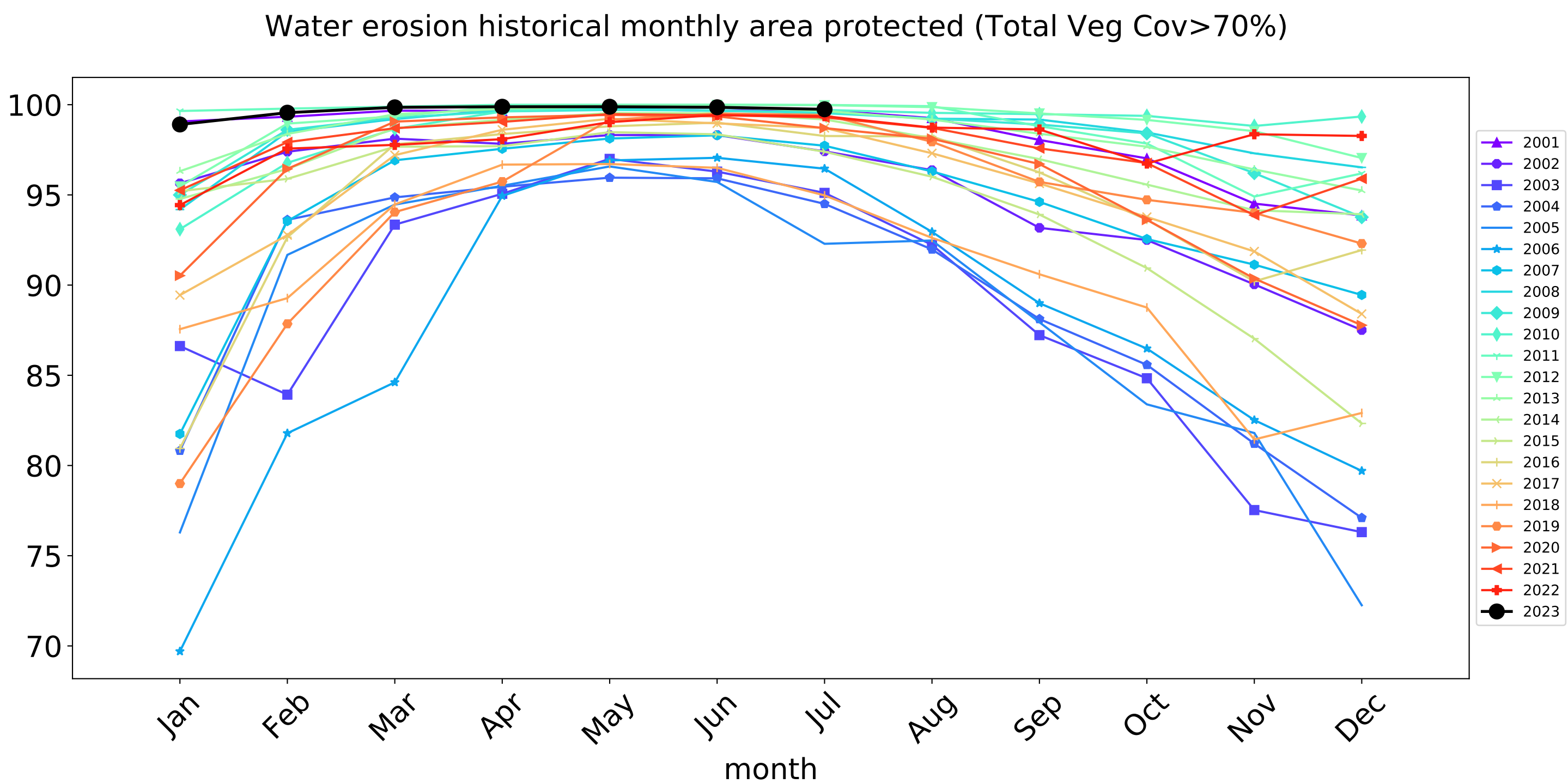
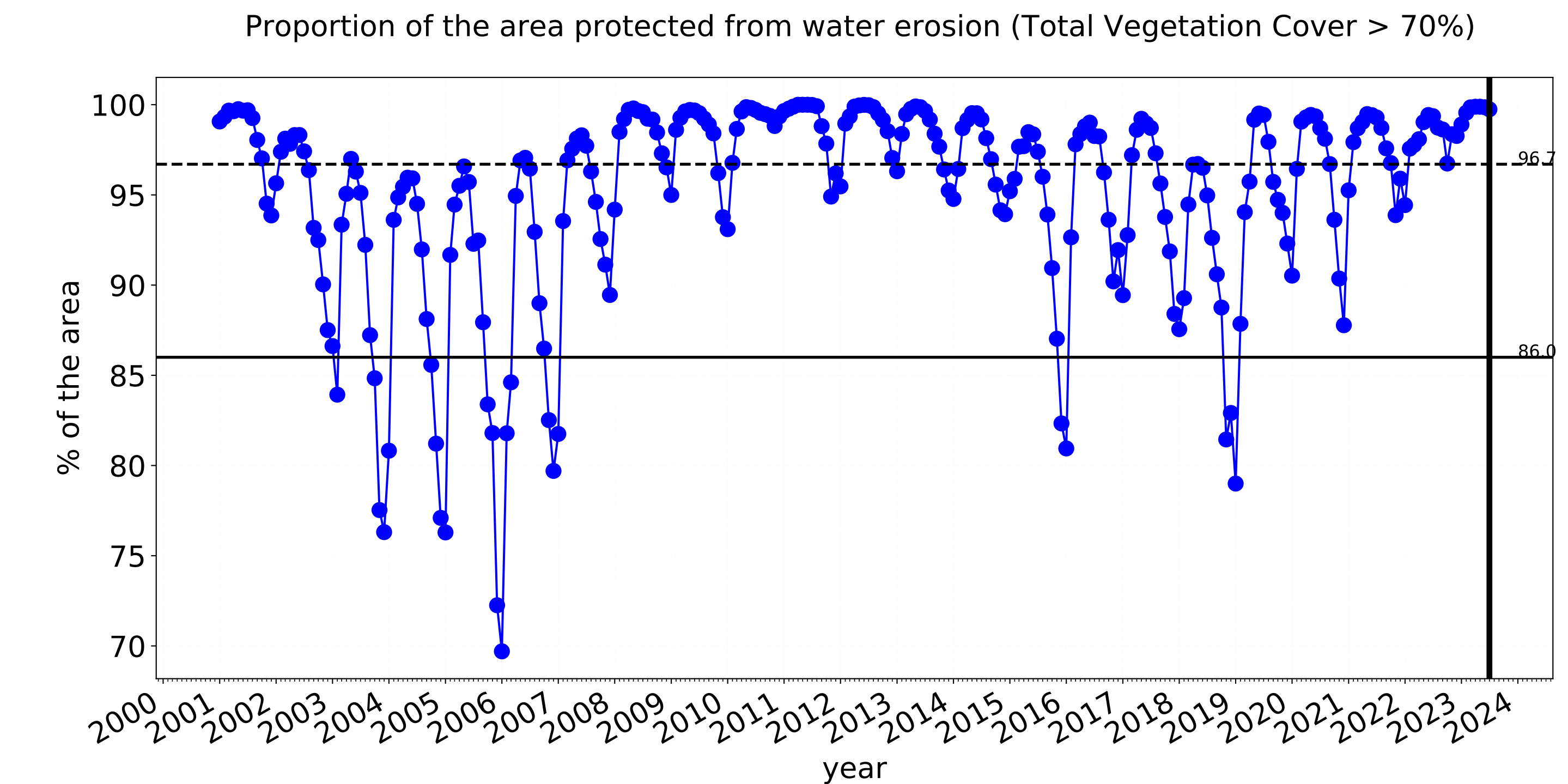
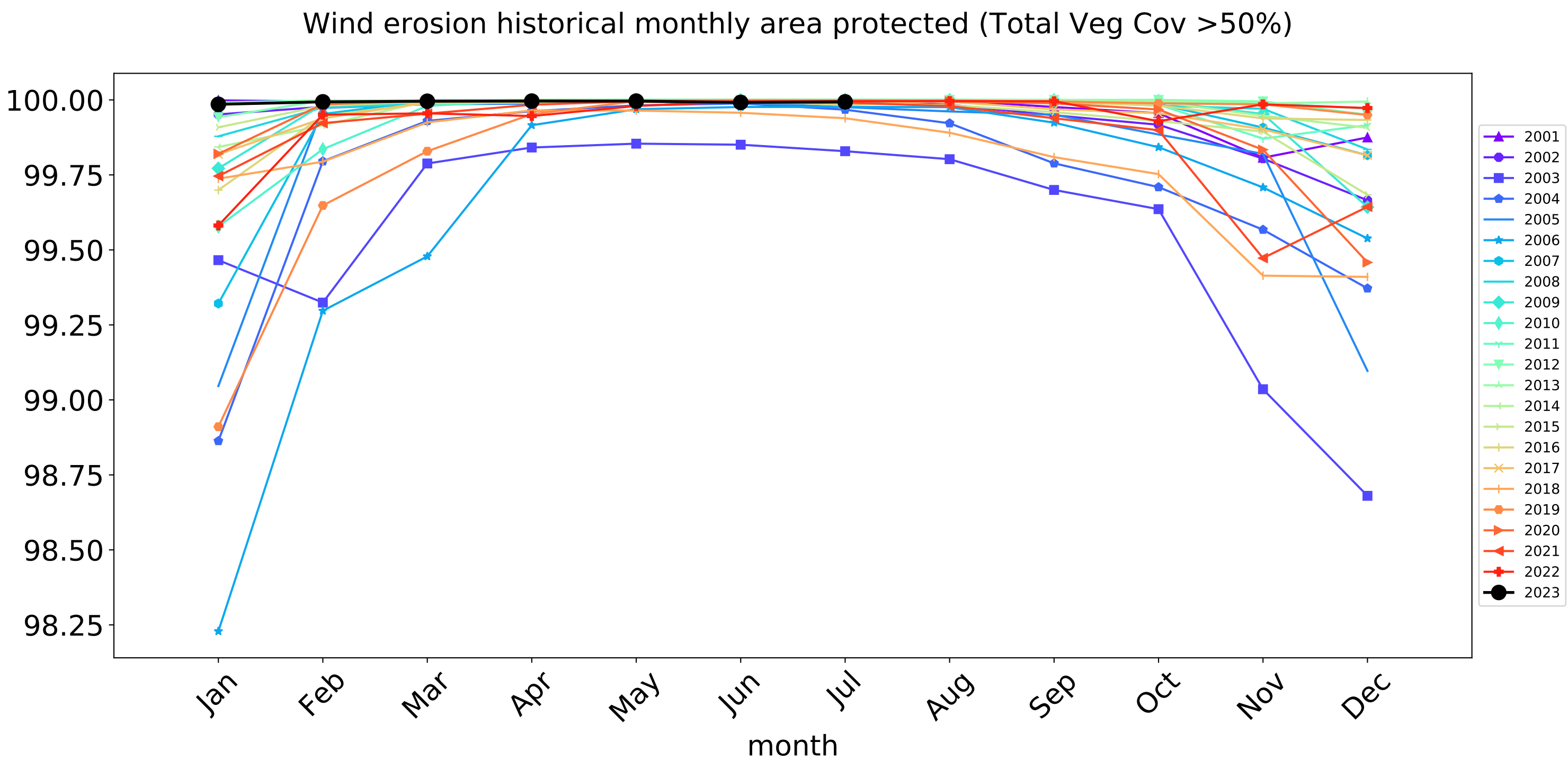
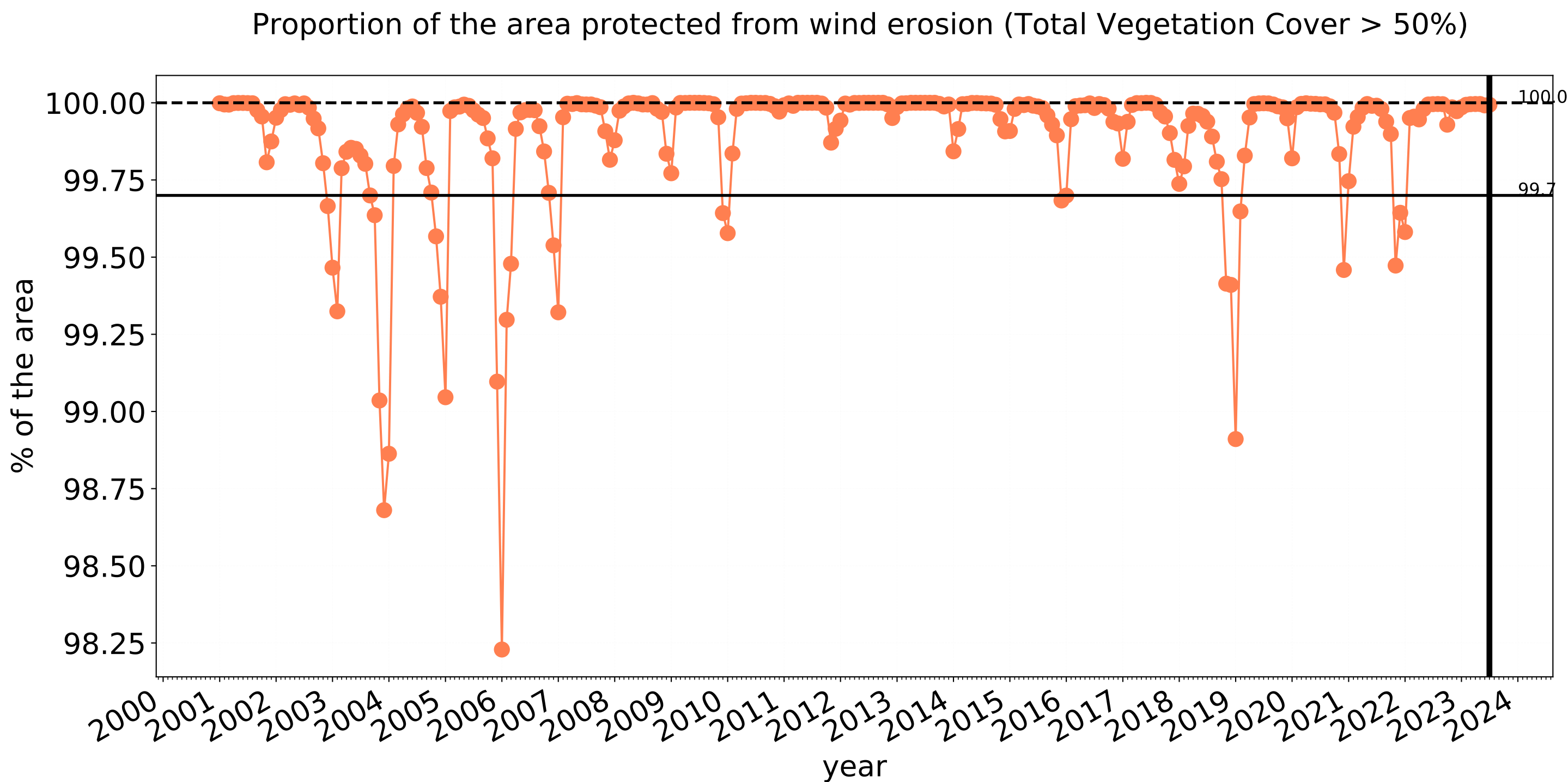


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Grazing Woodland forest timeseries



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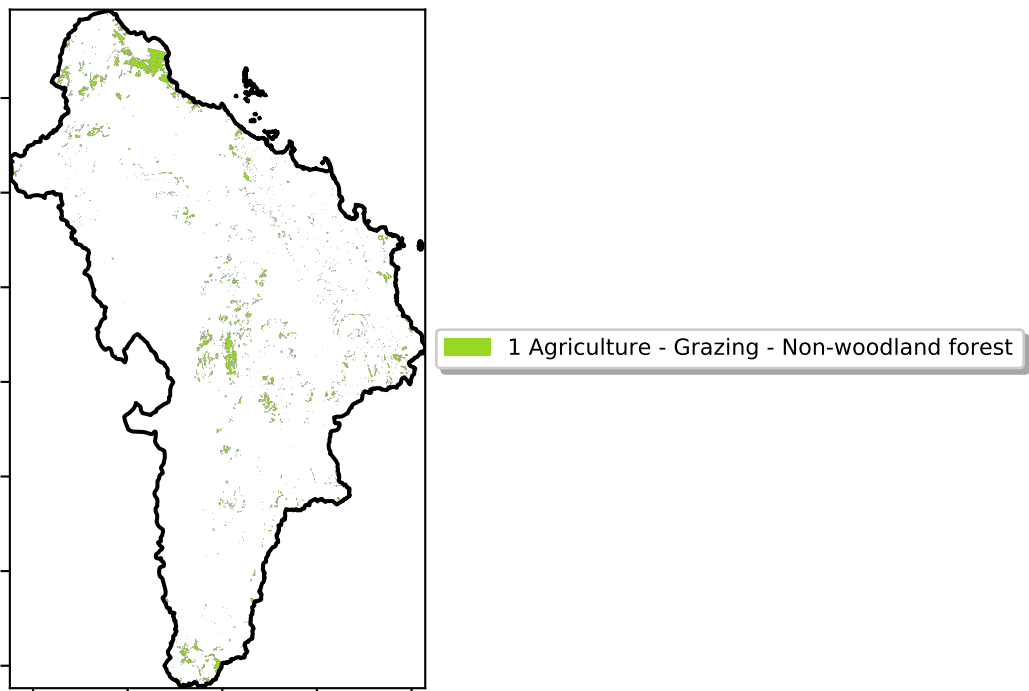


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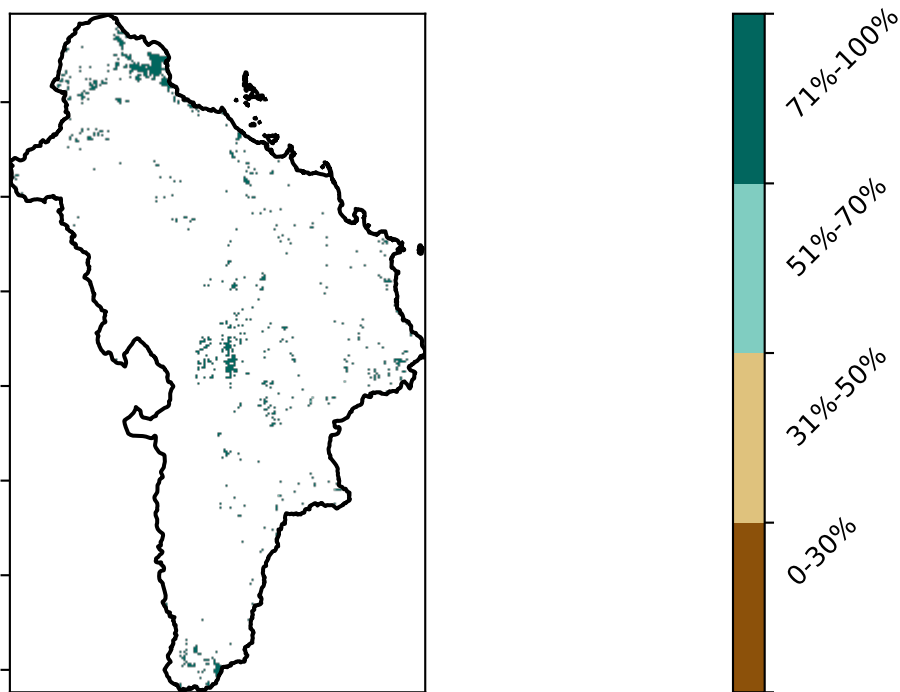


Grazing - Forest (non woodland)

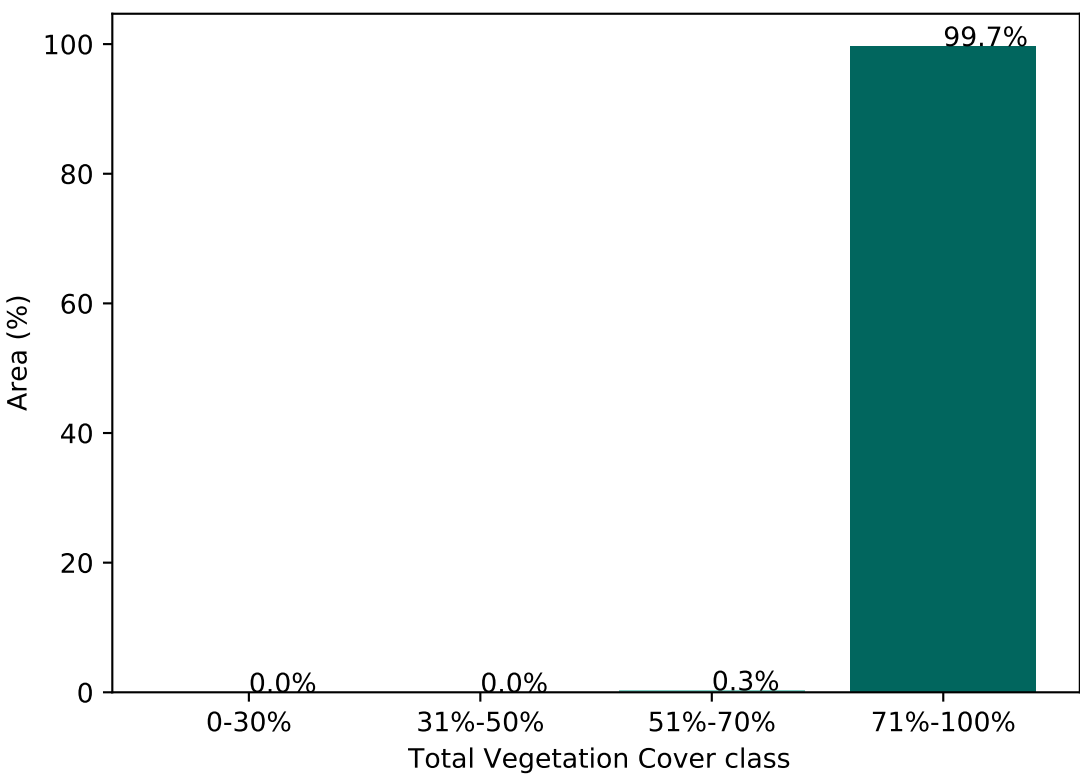
Land use and forest cover



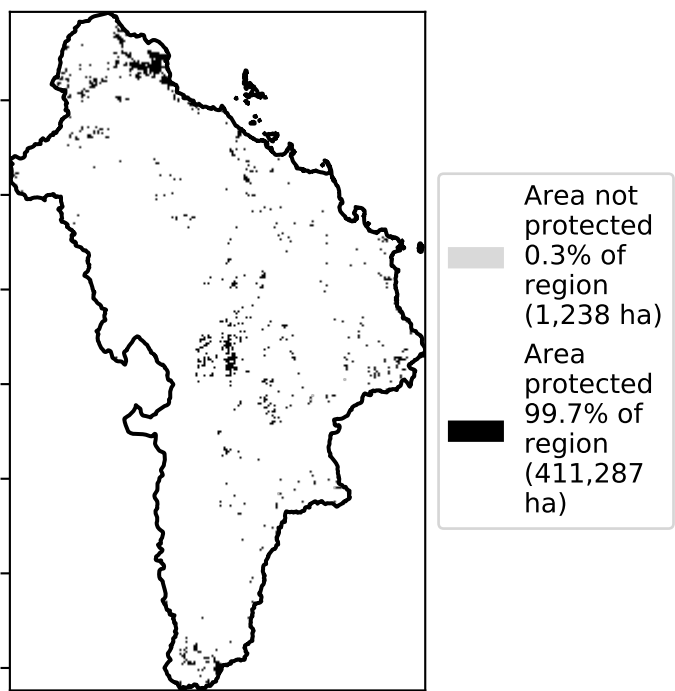
Total Vegetation Cover [%]



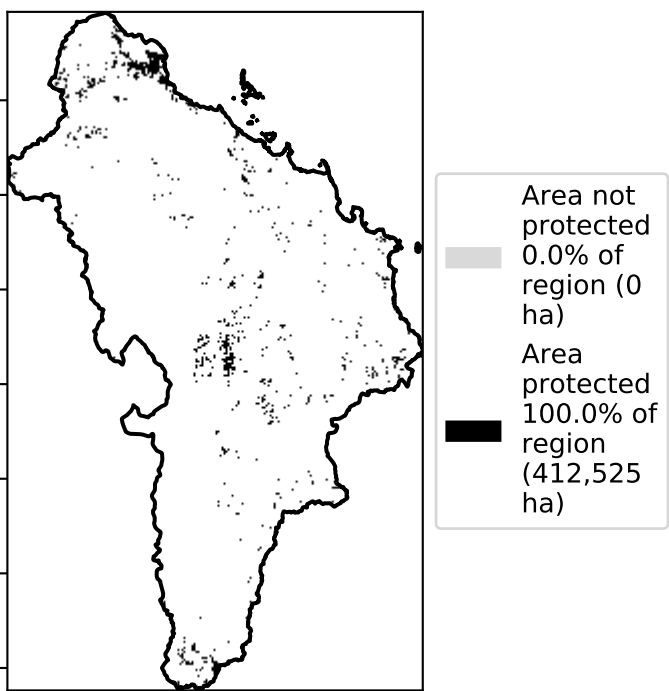
Proportion of vegetation cover class in area



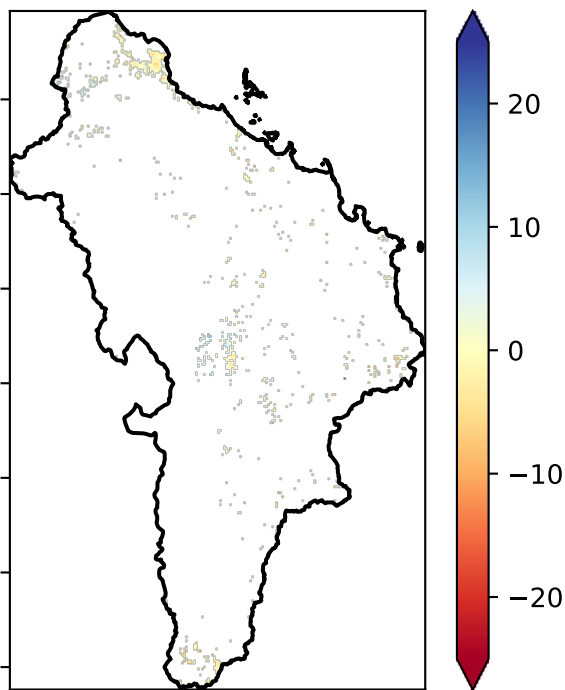
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

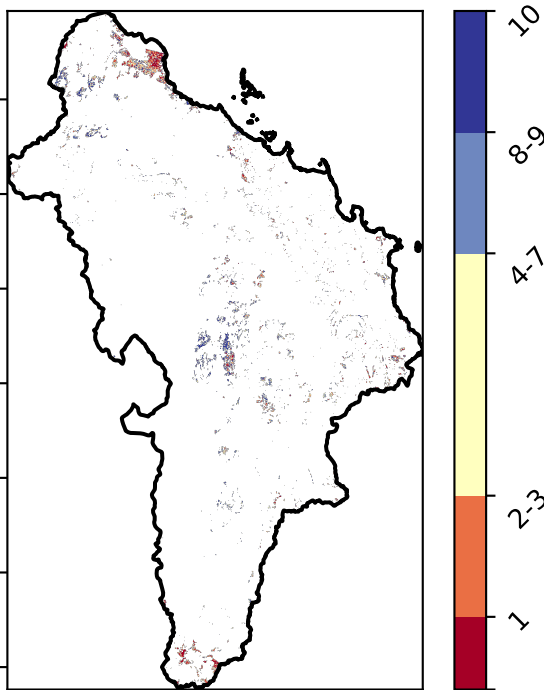


Total Vegetation Cover Anomaly [%]



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Total Vegetation Cover Decile [%]



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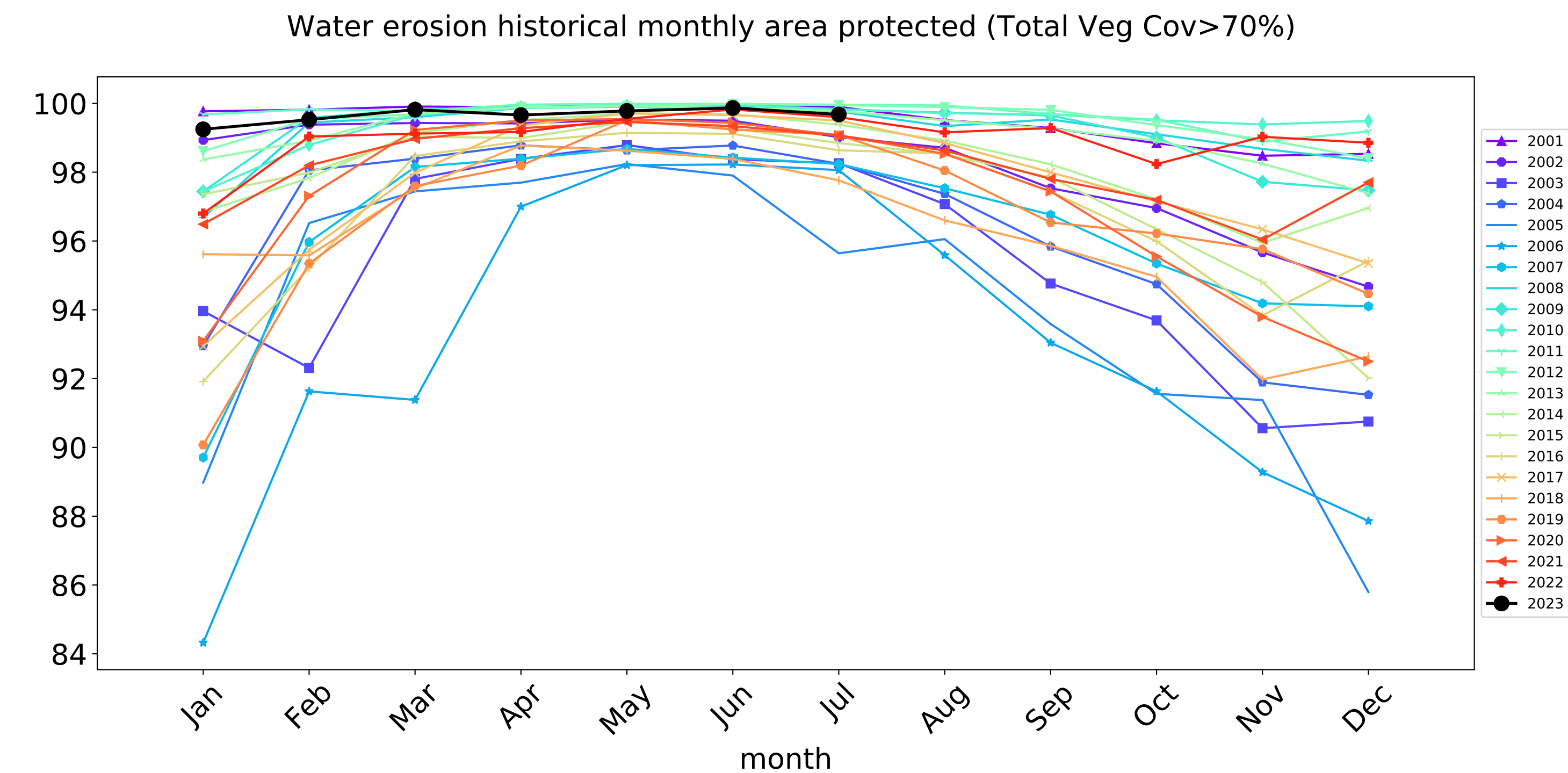
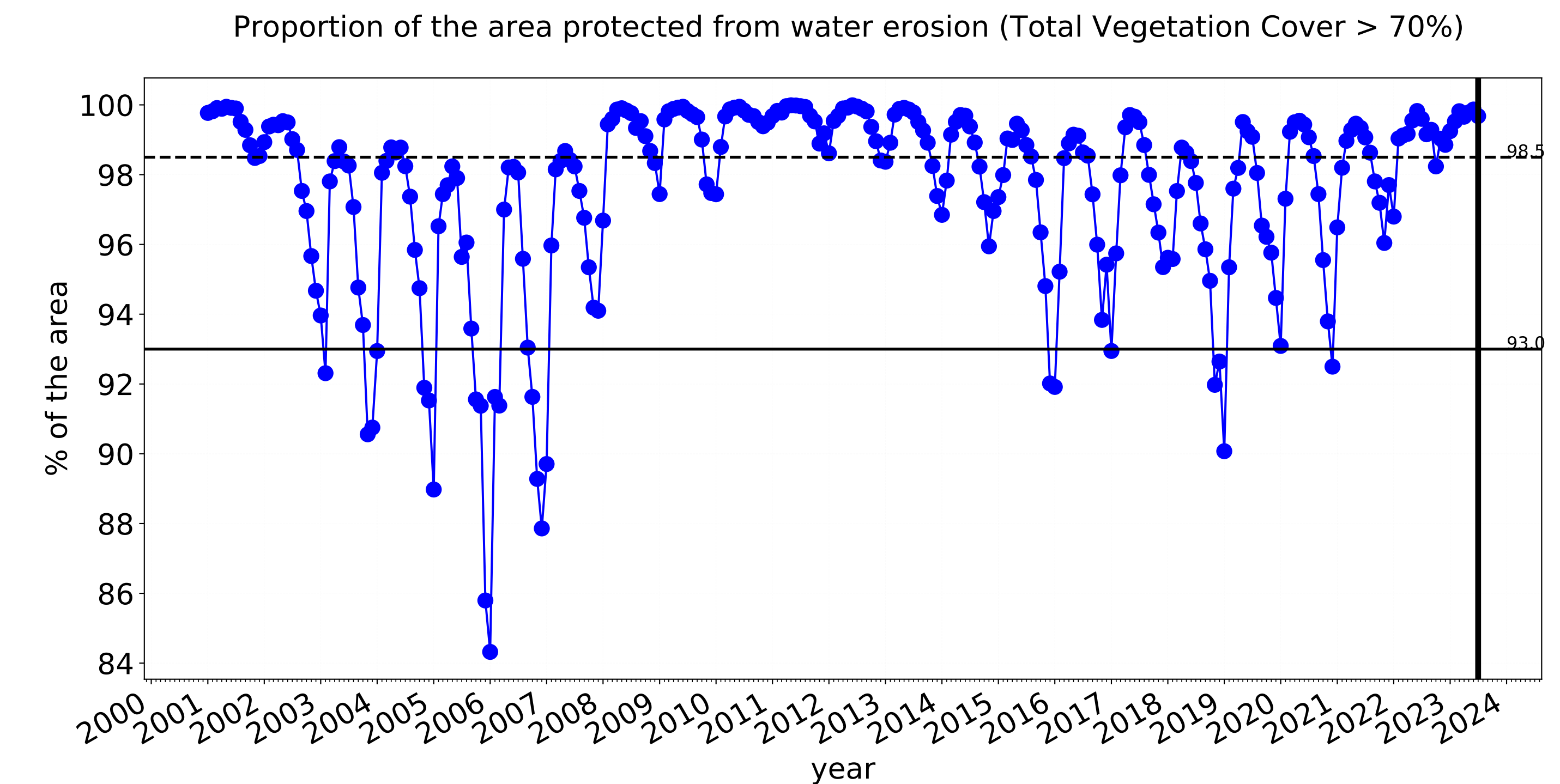
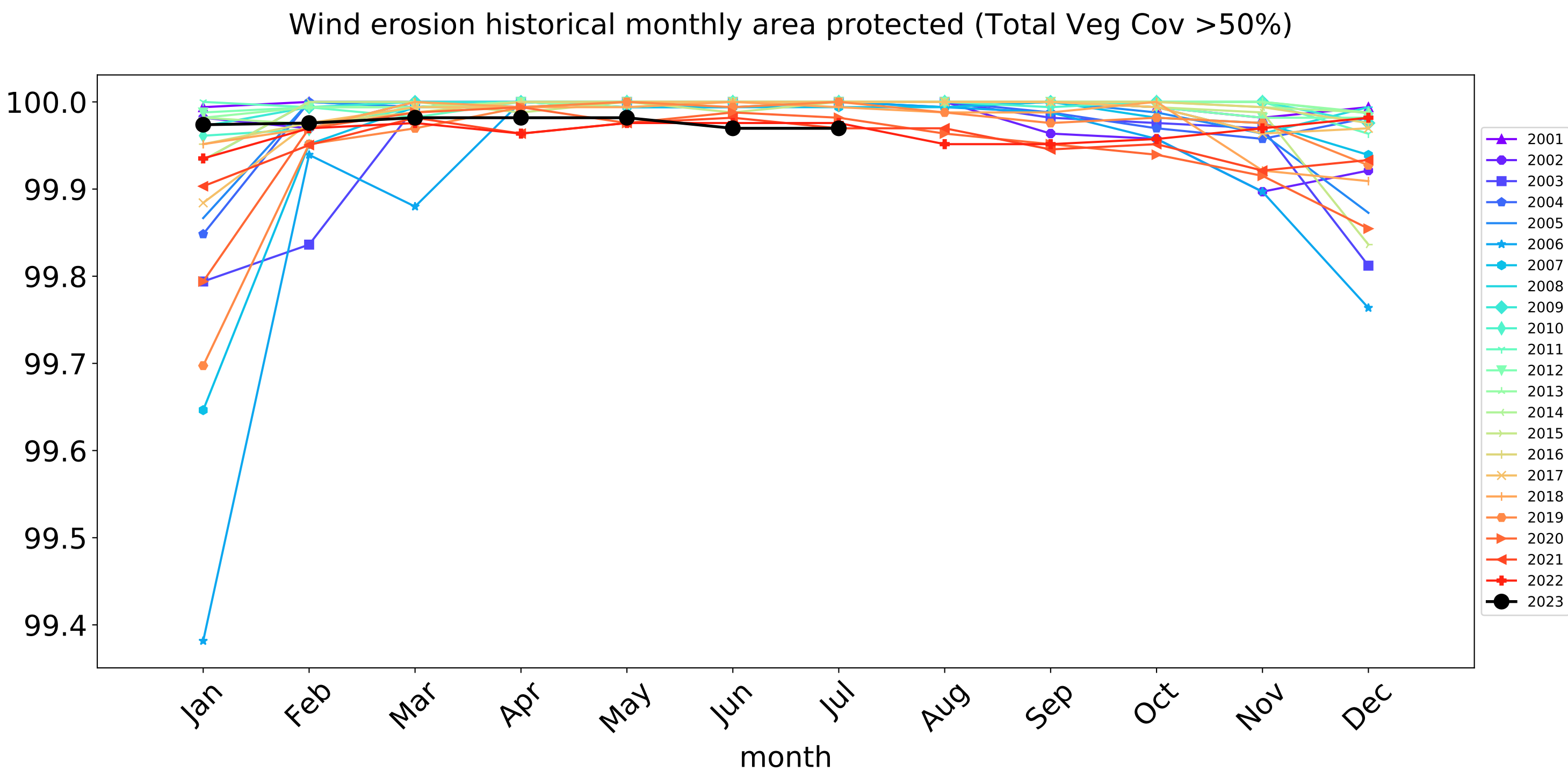
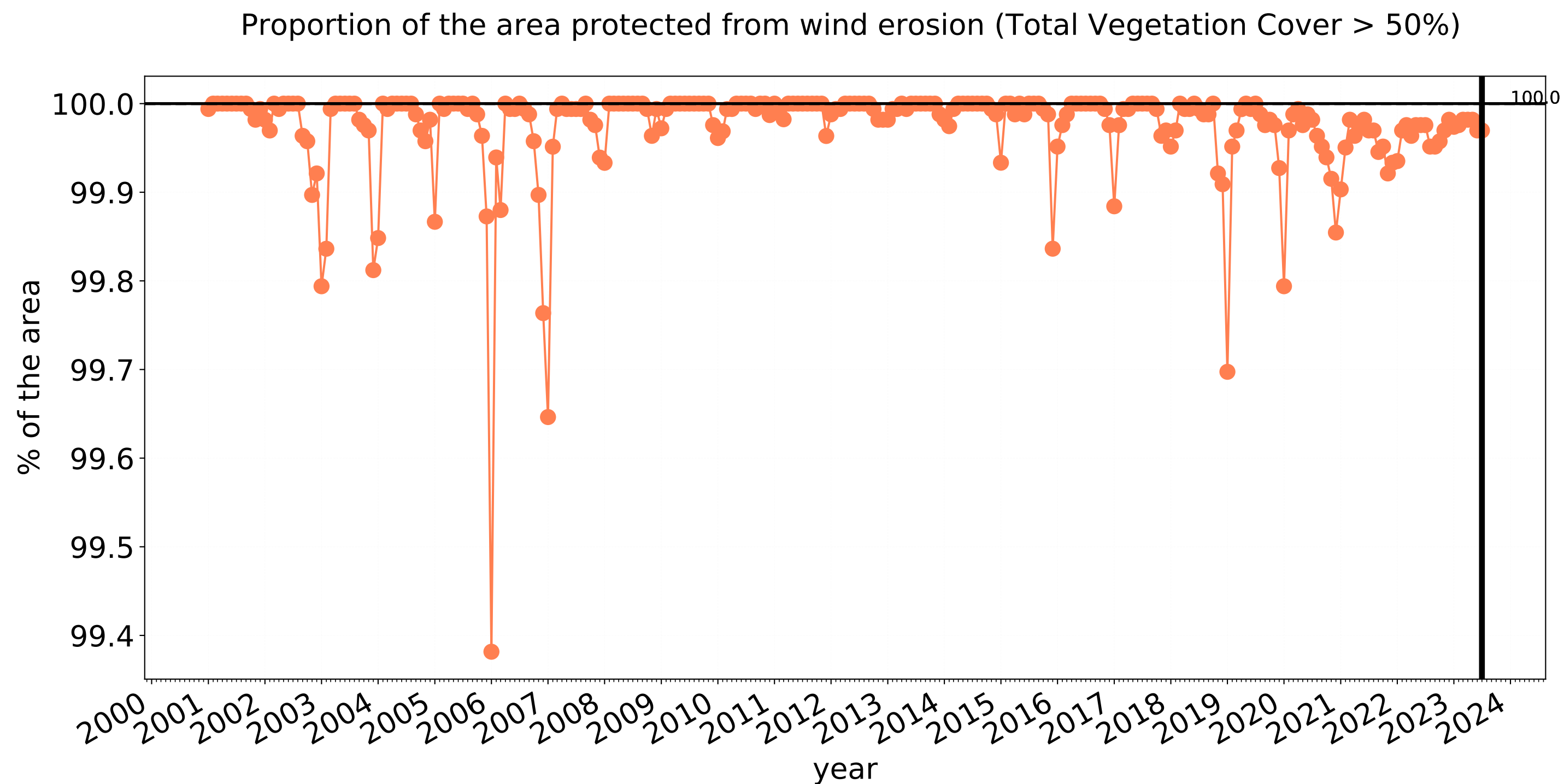


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Grazing - Forest (non woodland) timeseries



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Burdekin (14,050,650 ha and no data 39,679 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	14,050,650	100.0% 14,048,675	99.8% 14,027,675	97.3% 13,676,200	87.1% 12,239,850	39.5% 5,548,800	7.6% 1,068,575
Conservation and natural environments	963,300	100.0% 963,000	99.9% 962,400	99.1% 954,550	93.8% 903,850	55.6% 535,325	18.5% 178,500
Conservation and natural environments non forest	178,200	99.9% 177,975	99.7% 177,700	97.4% 173,525	85.8% 152,875	38.5% 68,650	9.1% 16,250
Conservation and natural environments Woodland forest	471,425	100.0% 471,350	100.0% 471,250	99.5% 469,275	95.4% 449,950	55.6% 262,275	16.4% 77,300
Conservation and natural environments Forest (non woodland)	313,675	100.0% 313,675	99.9% 313,450	99.4% 311,750	96.0% 301,025	65.2% 204,400	27.1% 84,950
Agriculture	12,727,700	100.0% 12,726,775	99.9% 12,709,975	97.3% 12,389,325	86.9% 11,058,825	38.5% 4,899,525	6.7% 857,550
Grazing	12,458,725	100.0% 12,457,950	99.9% 12,450,775	98.2% 12,231,400	88.2% 10,986,600	39.2% 4,881,950	6.8% 852,800
Grazing non forest	6,973,125	100.0% 6,972,425	99.9% 6,965,625	96.9% 6,760,075	81.3% 5,669,750	29.6% 2,061,700	5.2% 363,925
Grazing Woodland forest	5,073,075	100.0% 5,073,025	100.0% 5,072,750	99.7% 5,060,125	97.0% 4,918,400	51.2% 2,599,400	8.3% 421,000
Grazing - Forest (non woodland)	412,525	100.0% 412,500	100.0% 412,400	99.7% 411,200	96.6% 398,450	53.5% 220,850	16.5% 67,875