

Total vegetation cover soil protection

Region:LGA Mareeba_(S) QLD

Date: December 2025

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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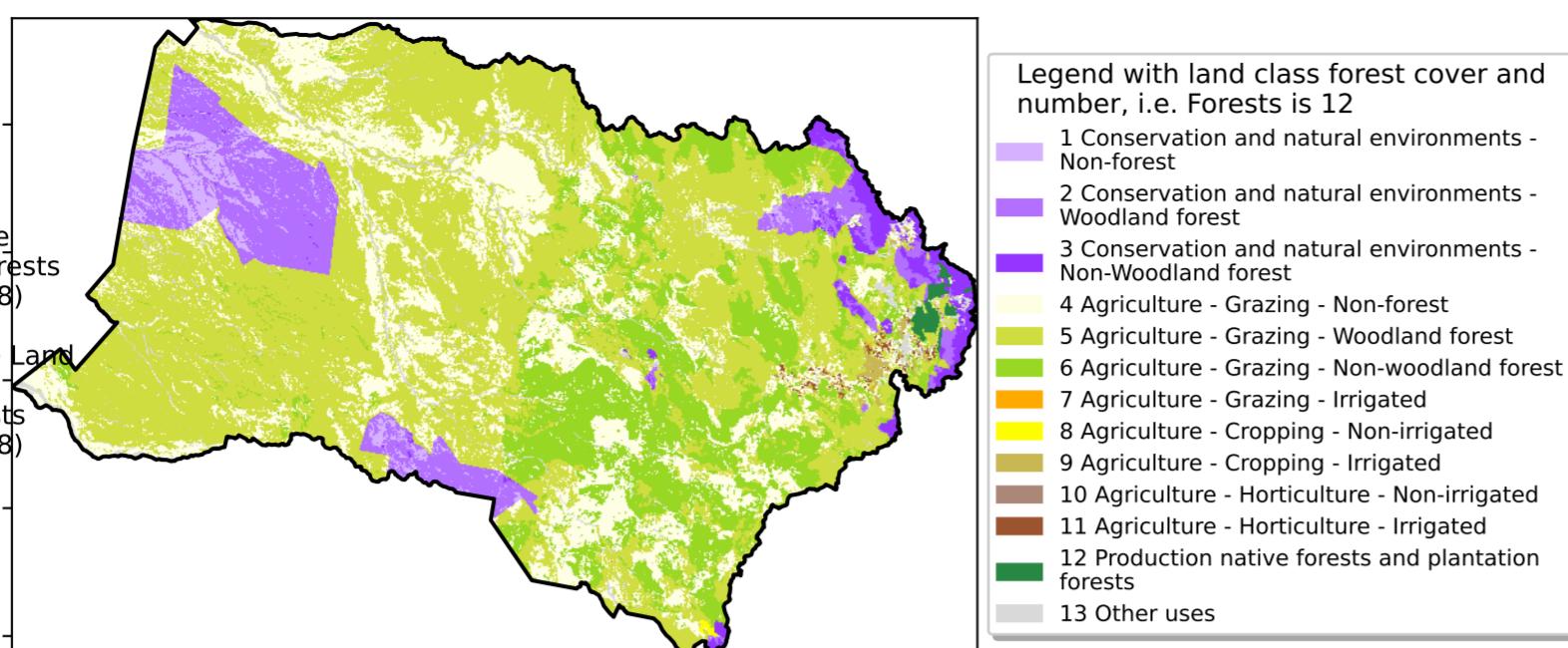
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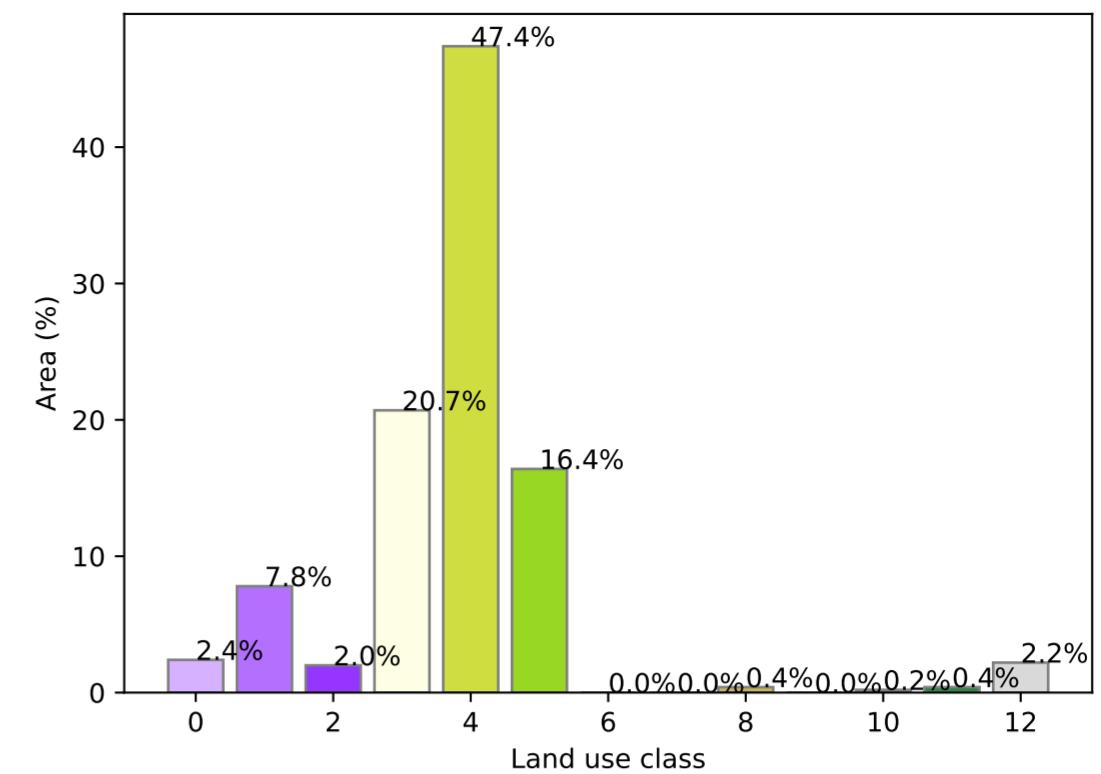
Vegetation Cover Dec 2025

Land use and forest cover

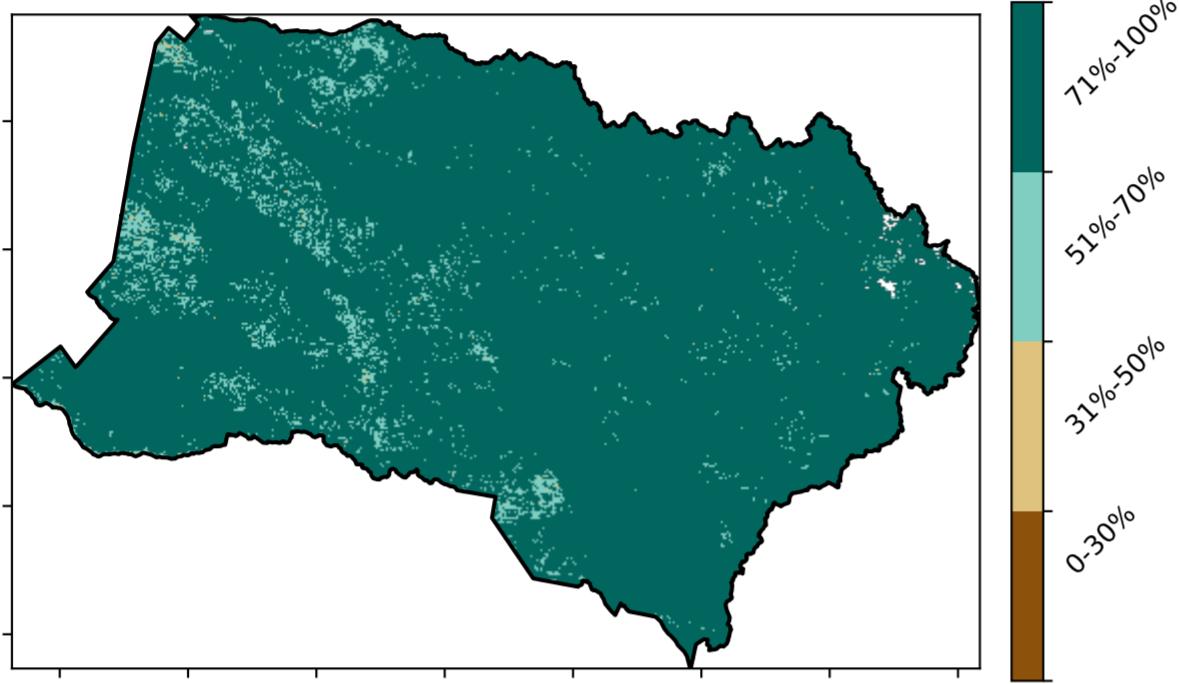
Catchment Scale
Land Use and Forests
of Australia (2018)
Derived from
Catchment Scale Land
Use of Australia
(2018) and Forests
of Australia (2018)



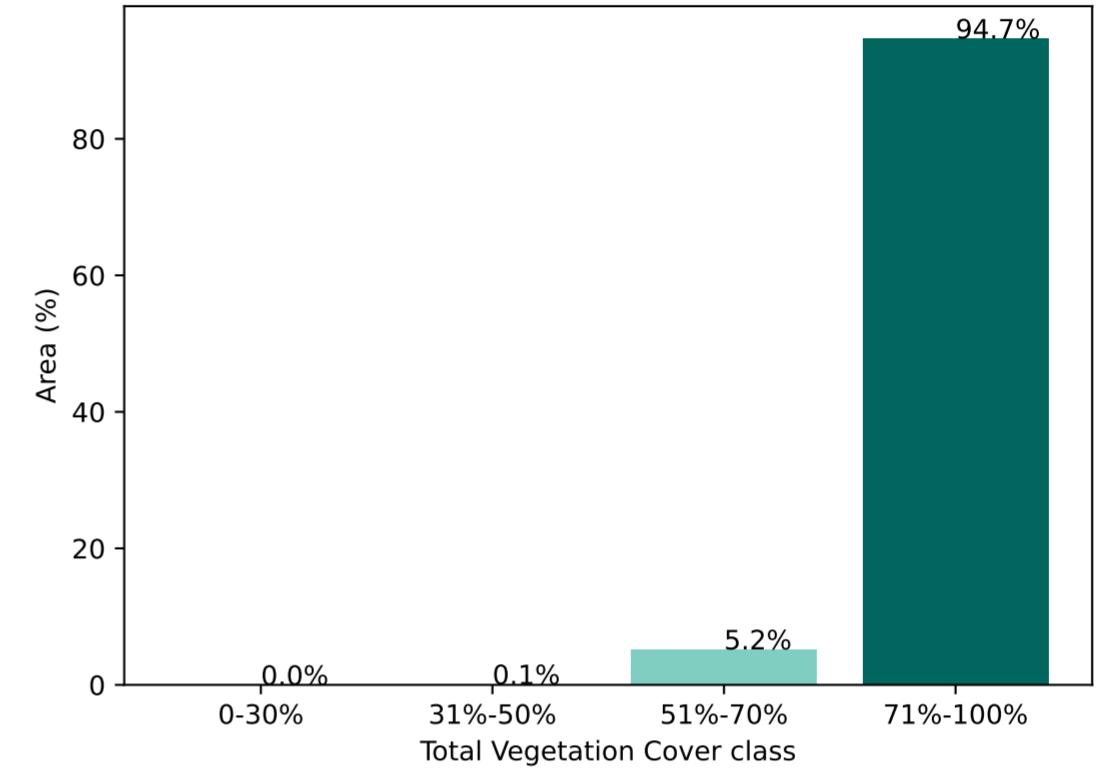
Proportion of each land class in area



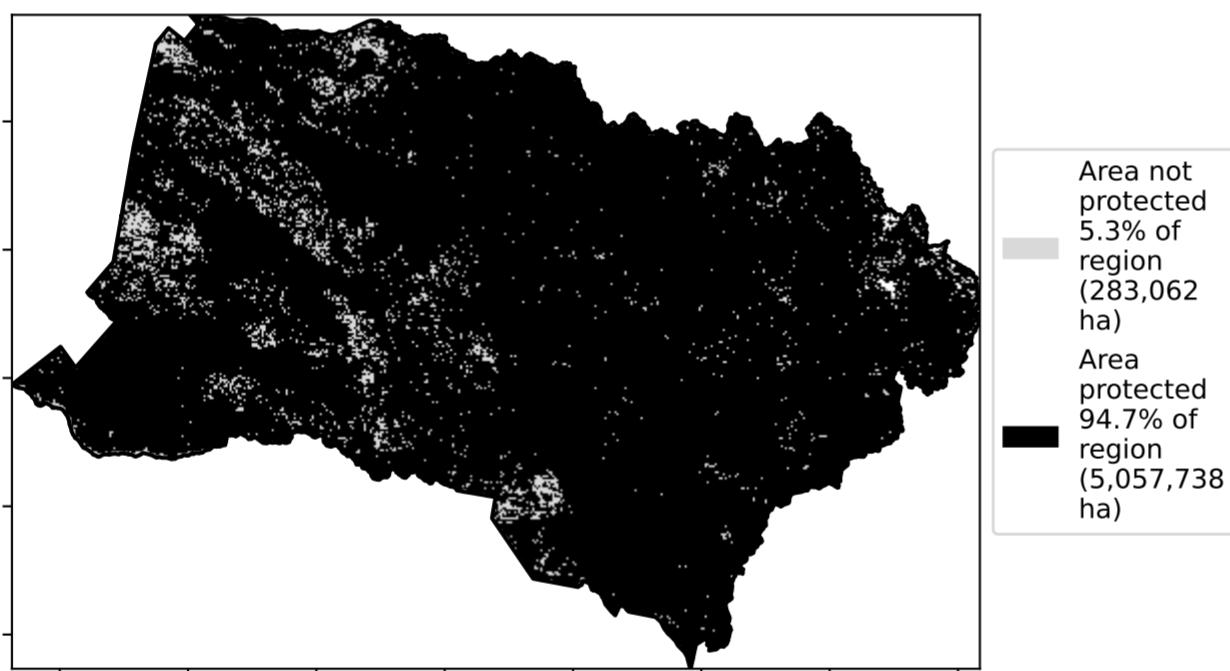
Total Vegetation Cover [%]



Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

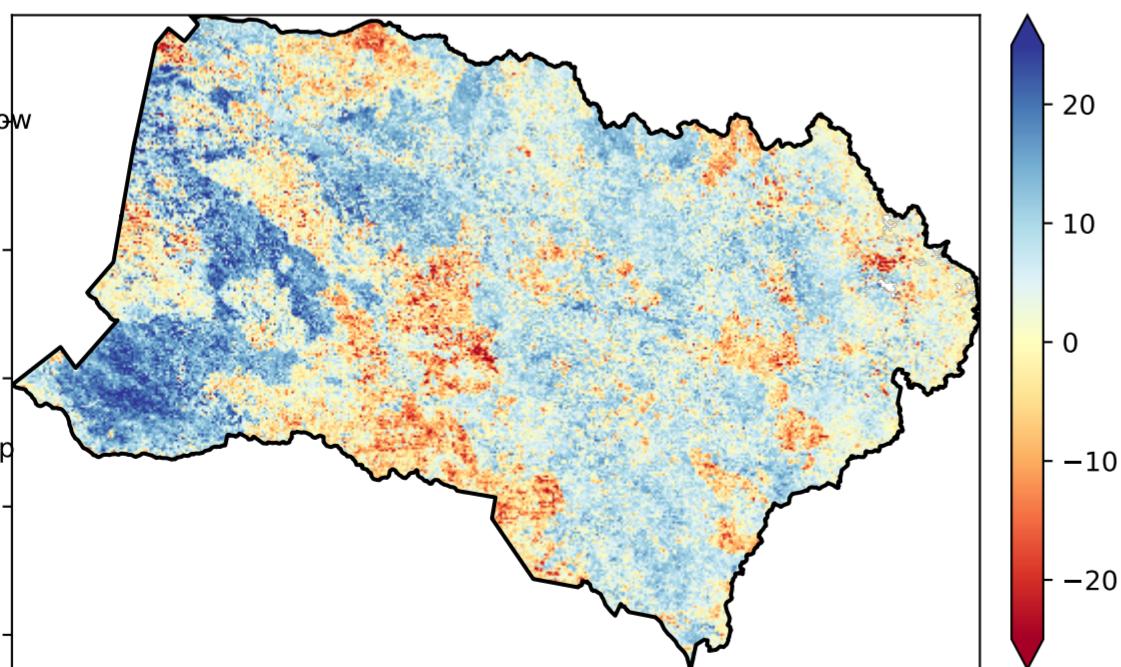


% Area protected from wind erosion (>50%)



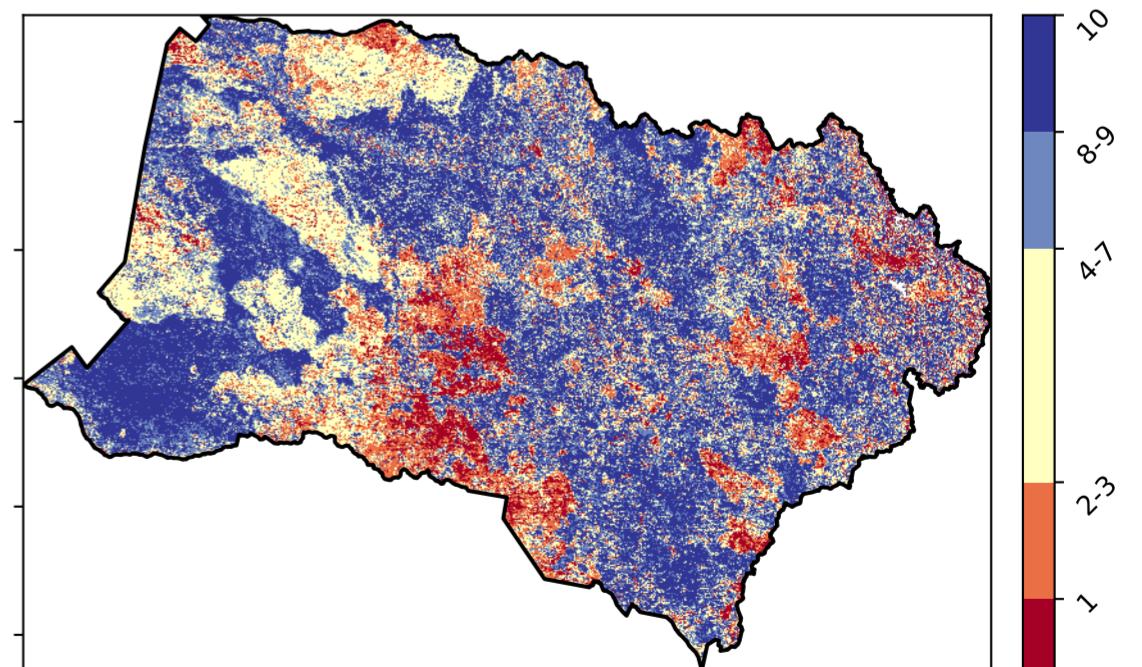
Total Vegetation Cover Anomaly [%]

Anomaly shows 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 [%]

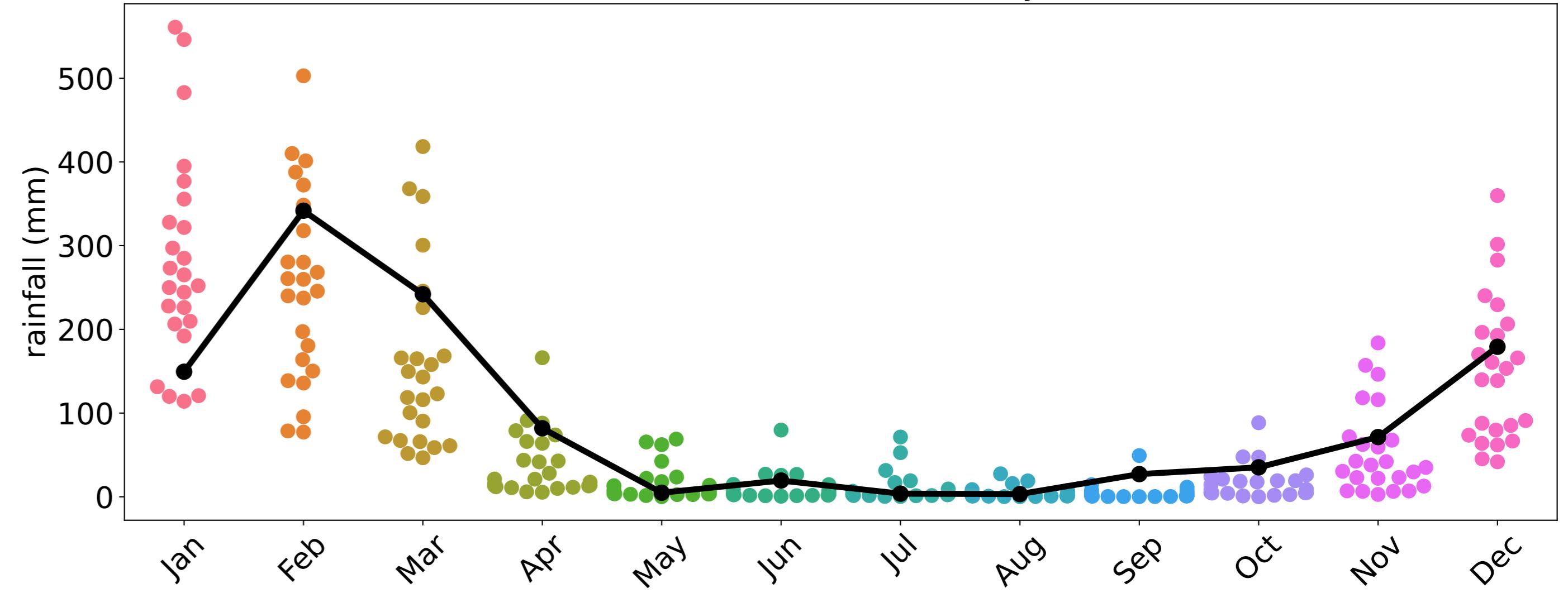
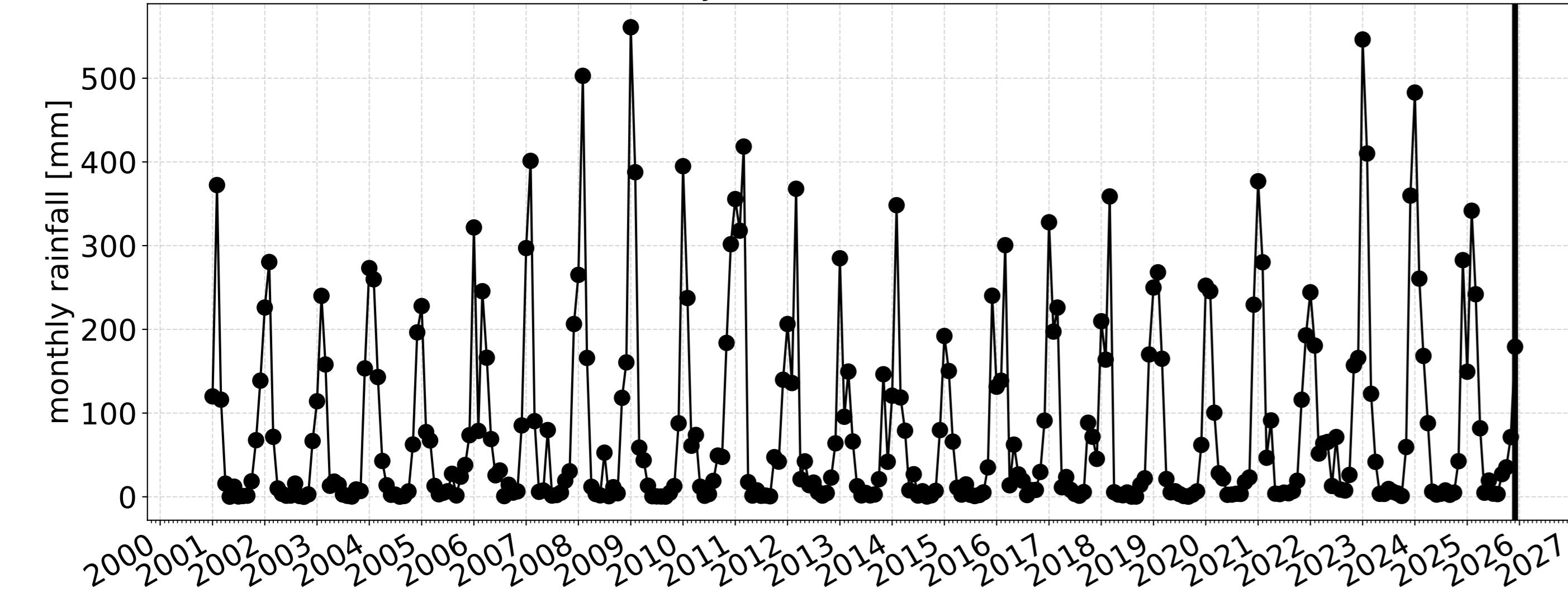
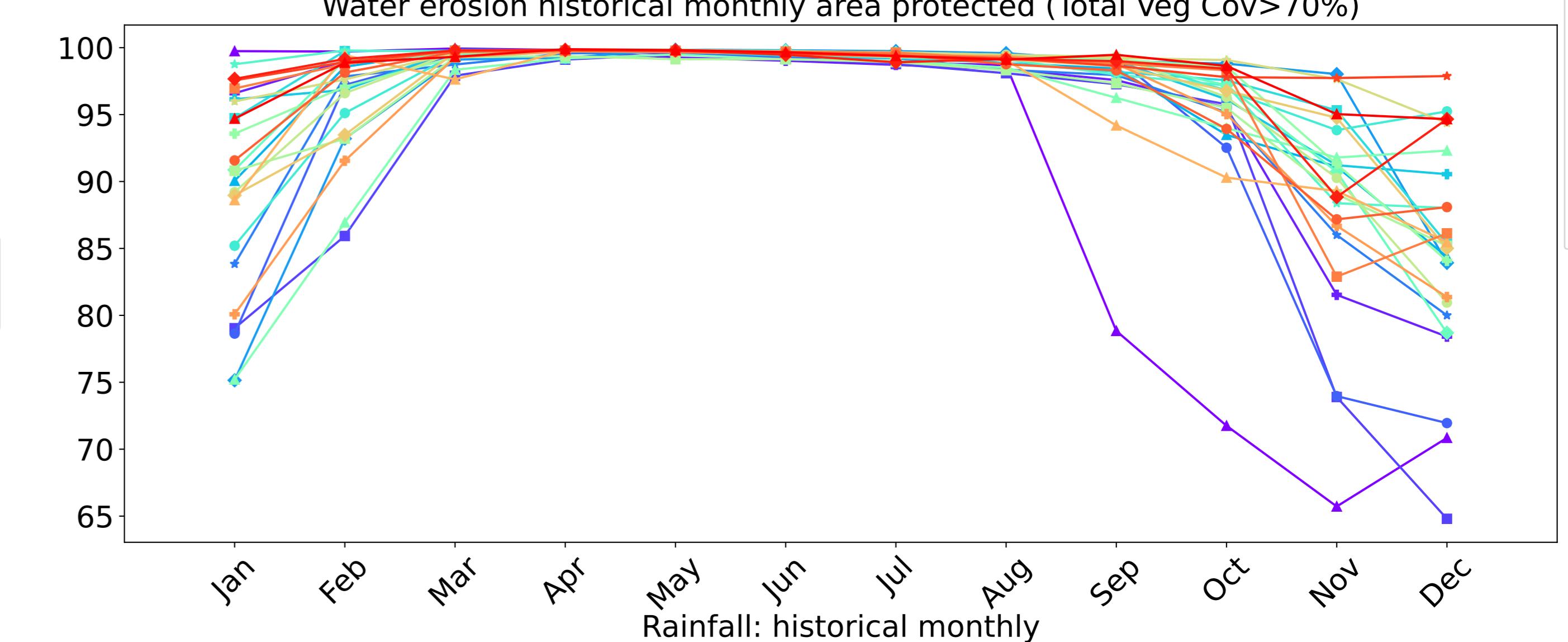
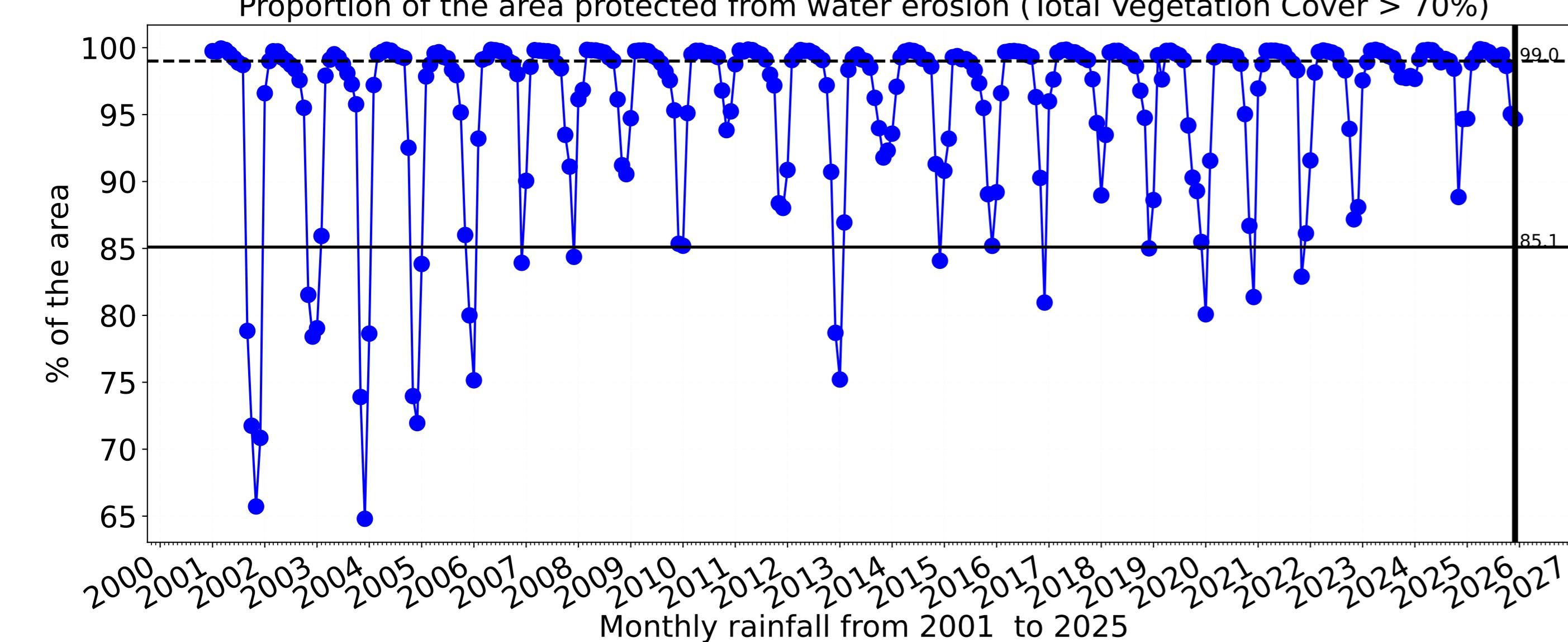
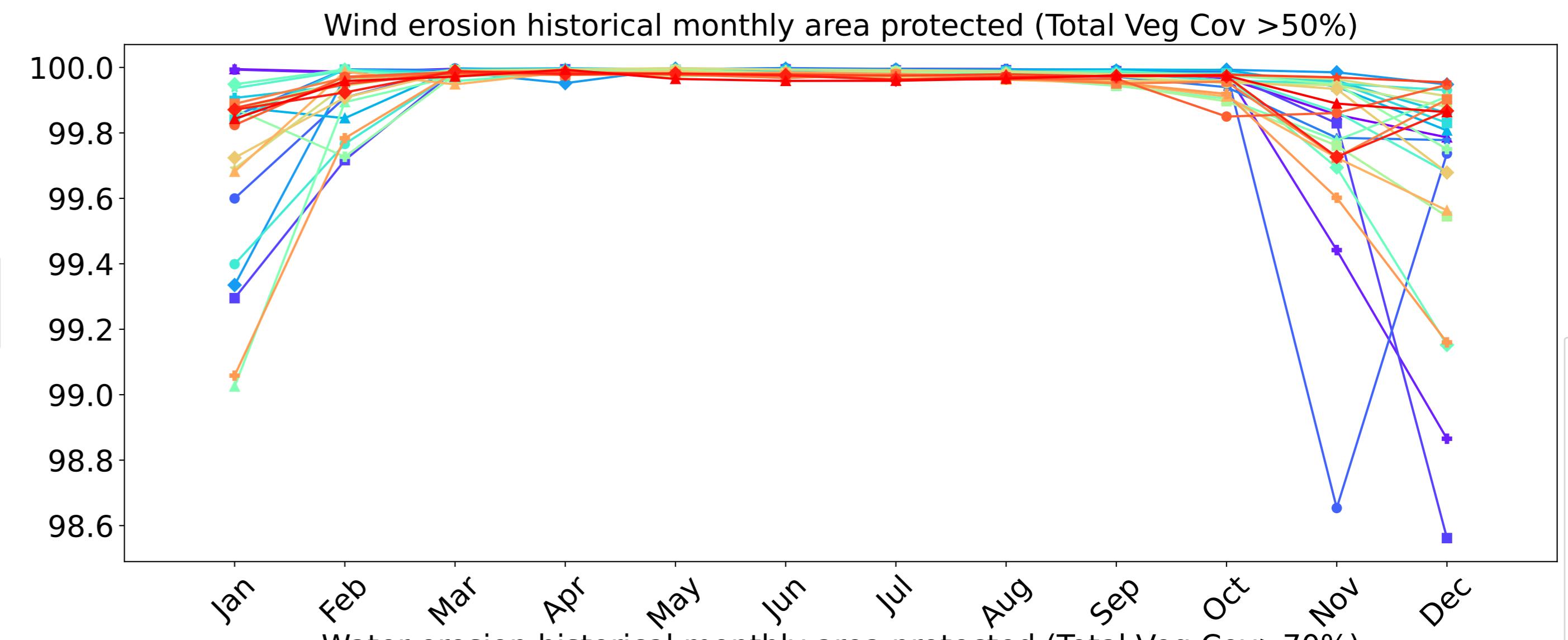
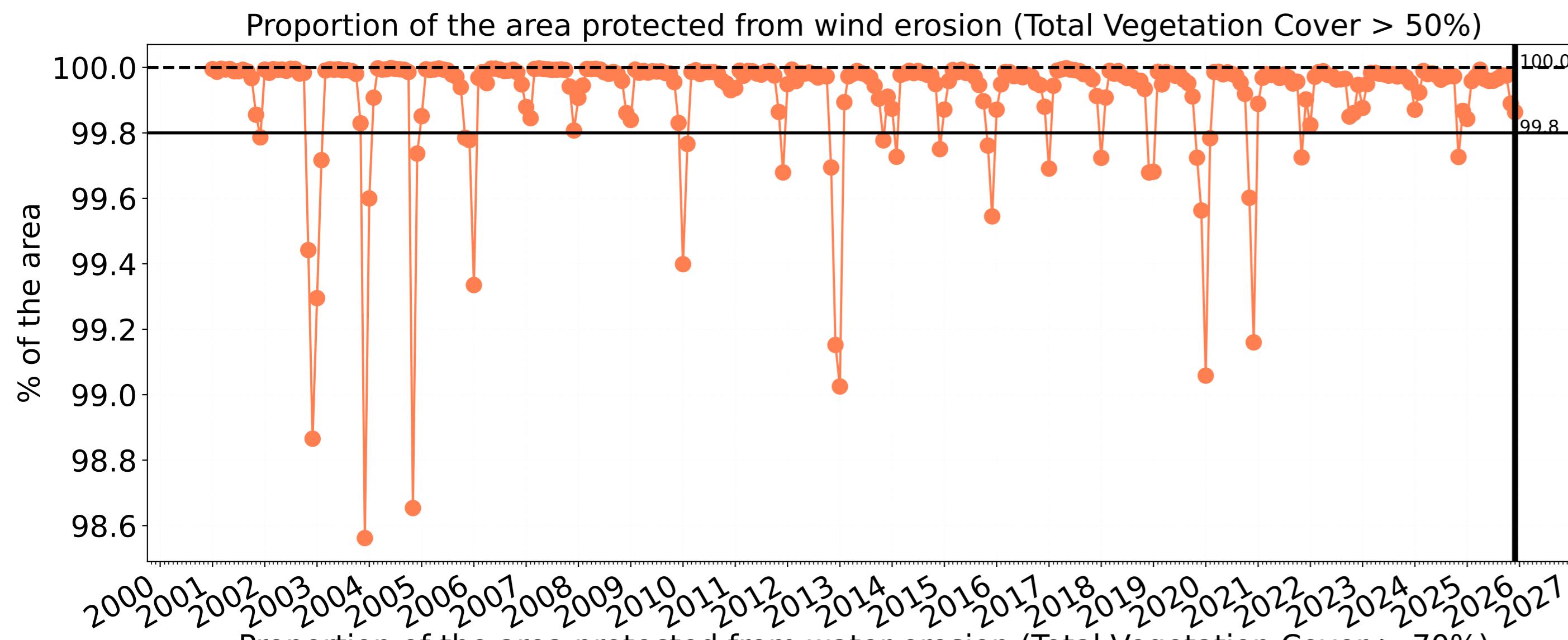


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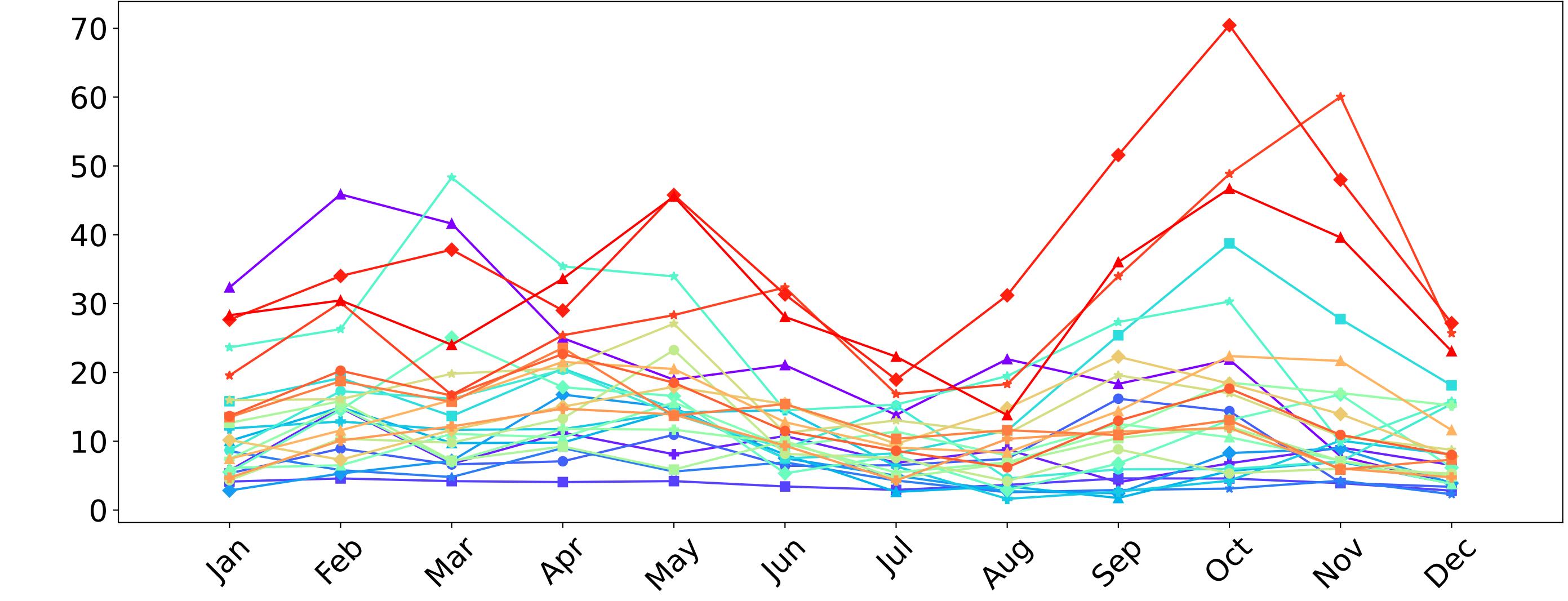
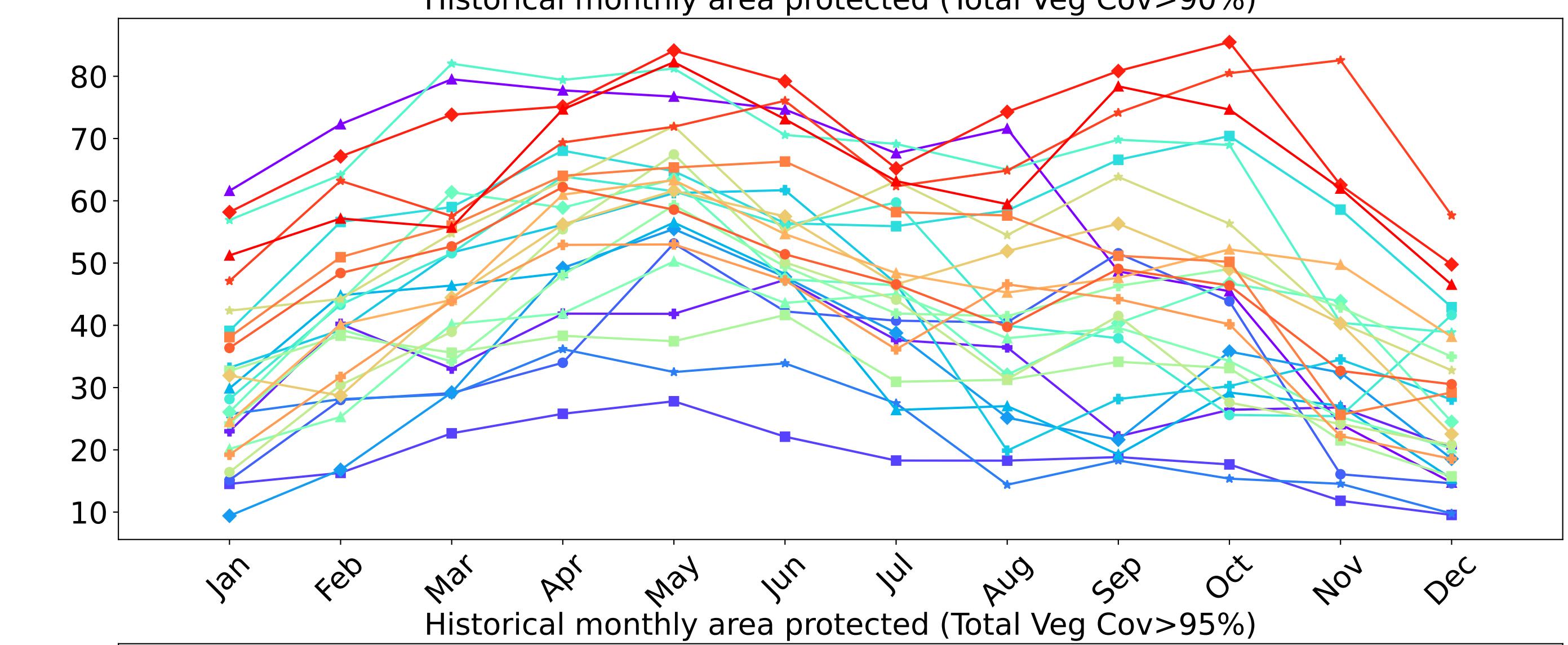
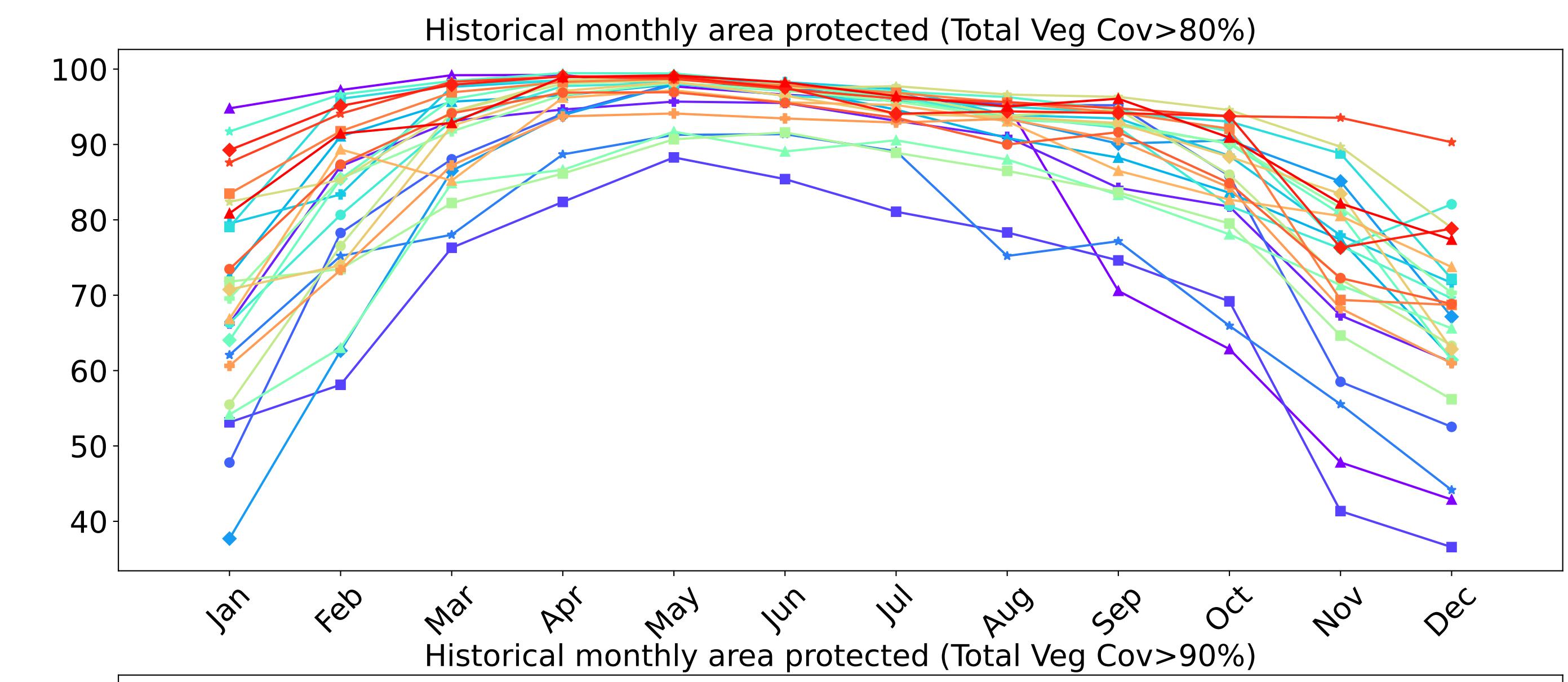
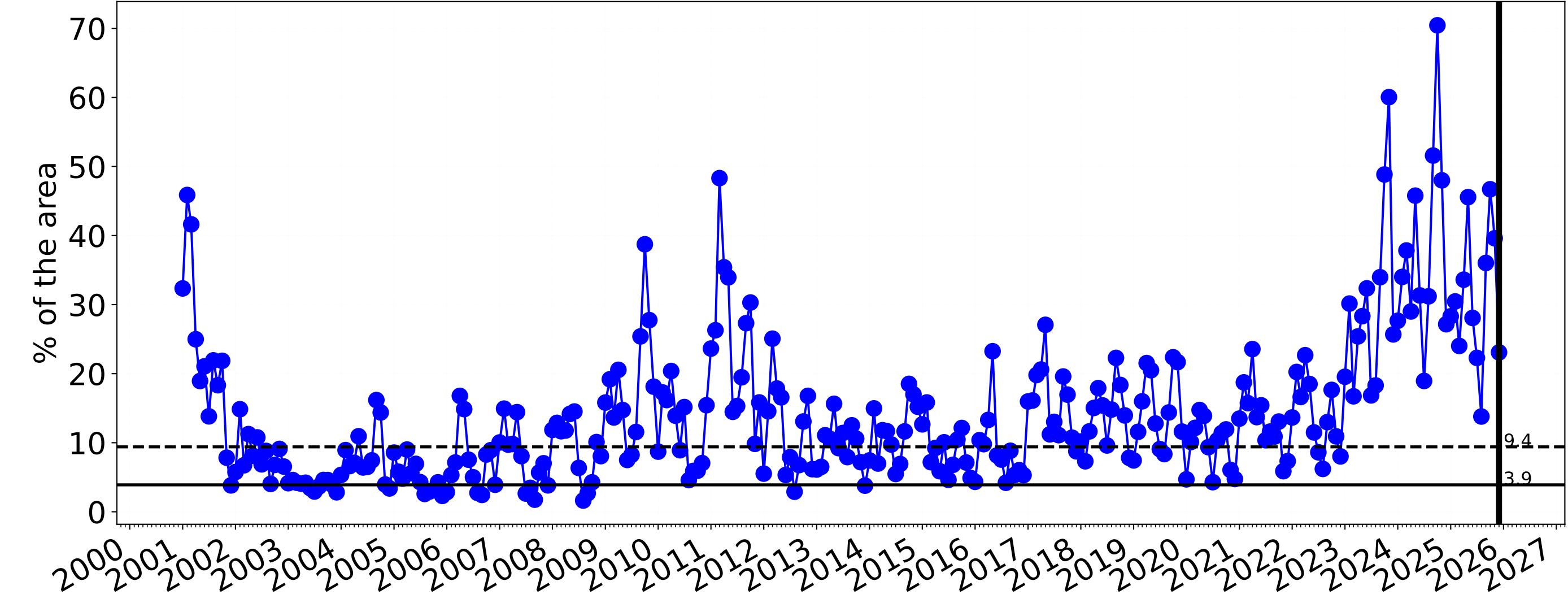
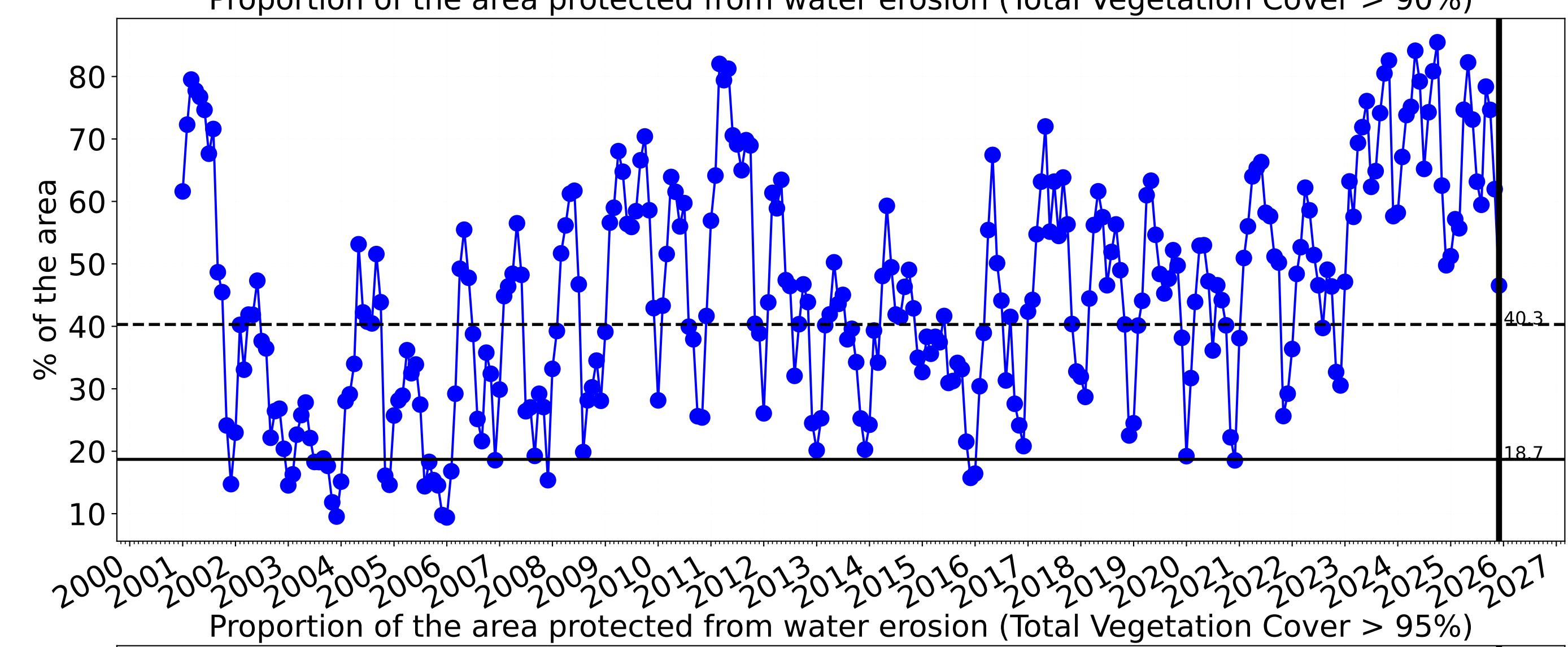
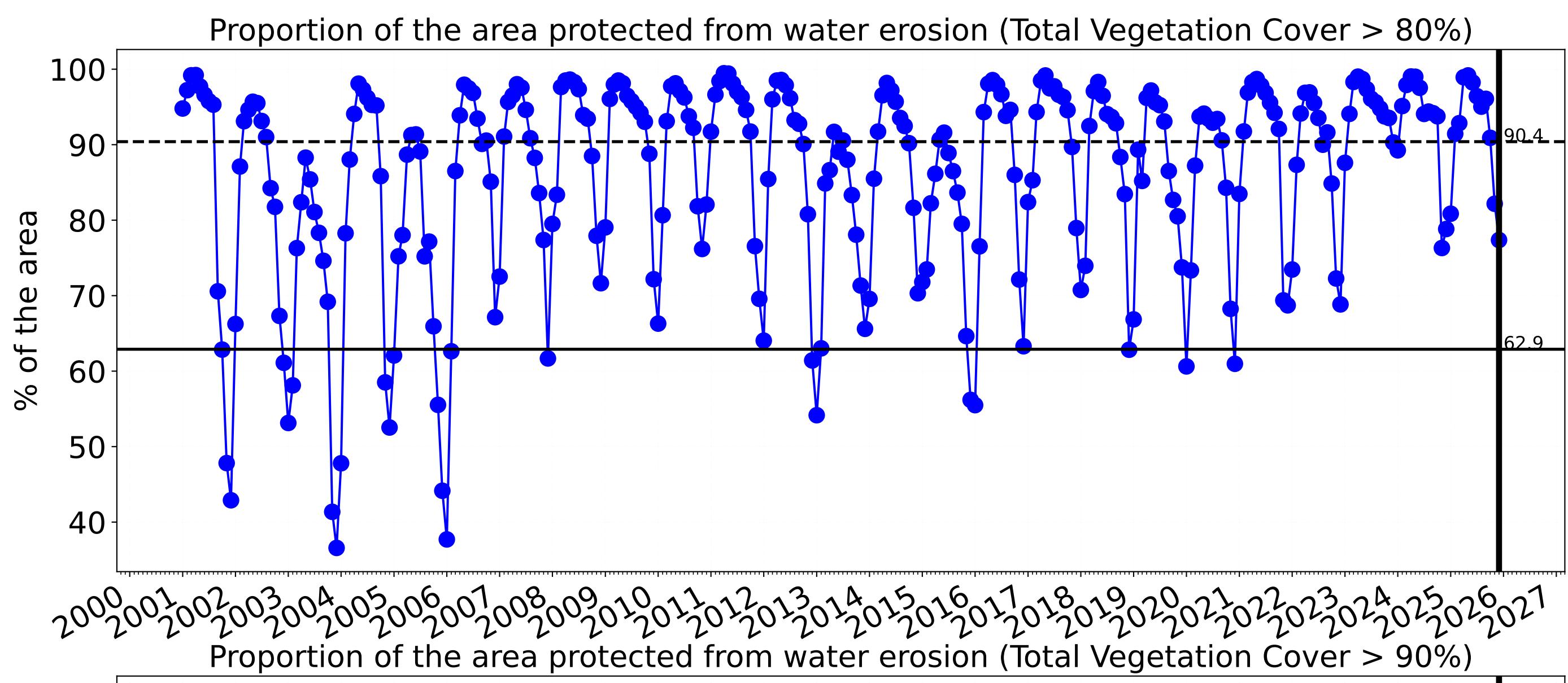


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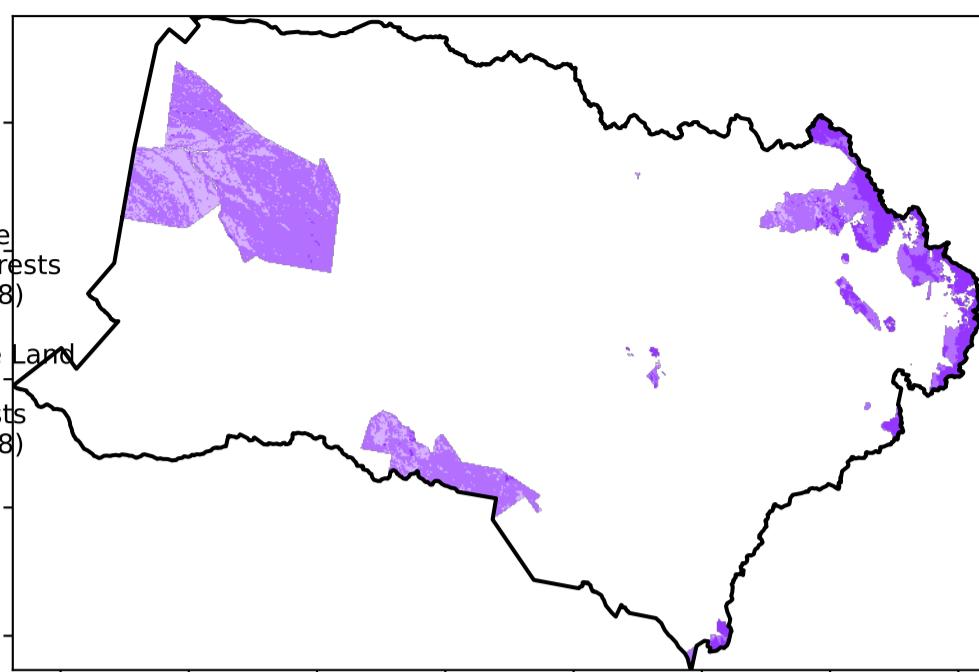




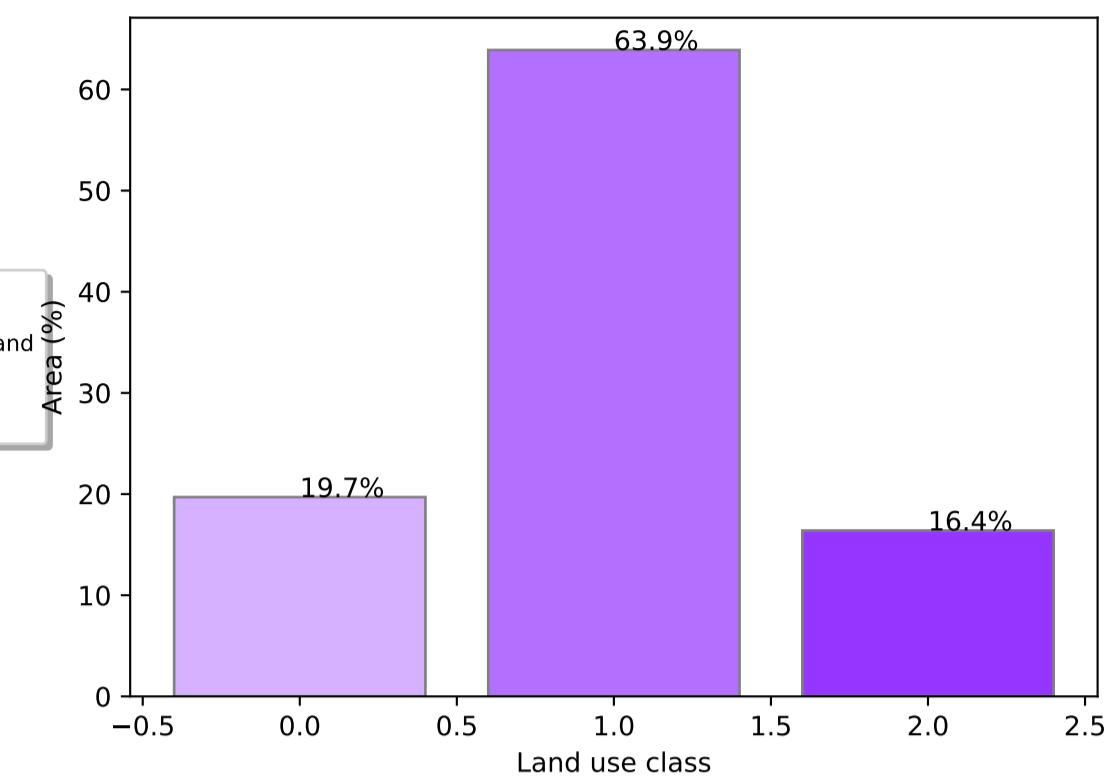
Conservation and natural environments

Land use and forest cover

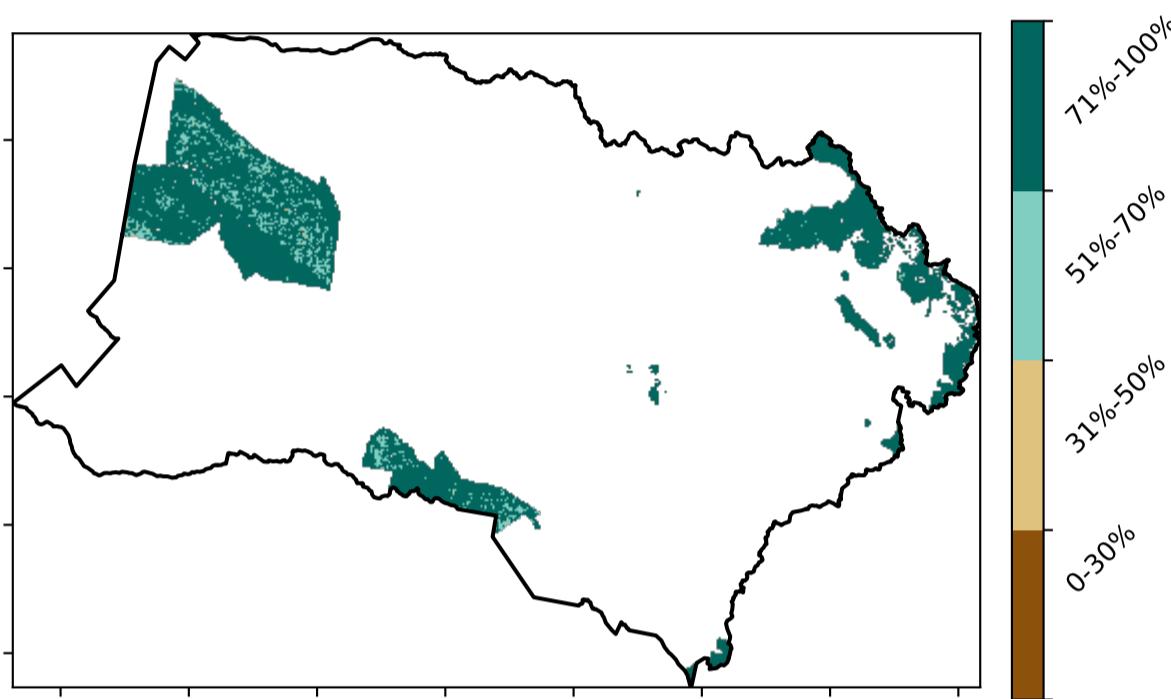
Catchment Scale Land Use and Forests of Australia (2018)
Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



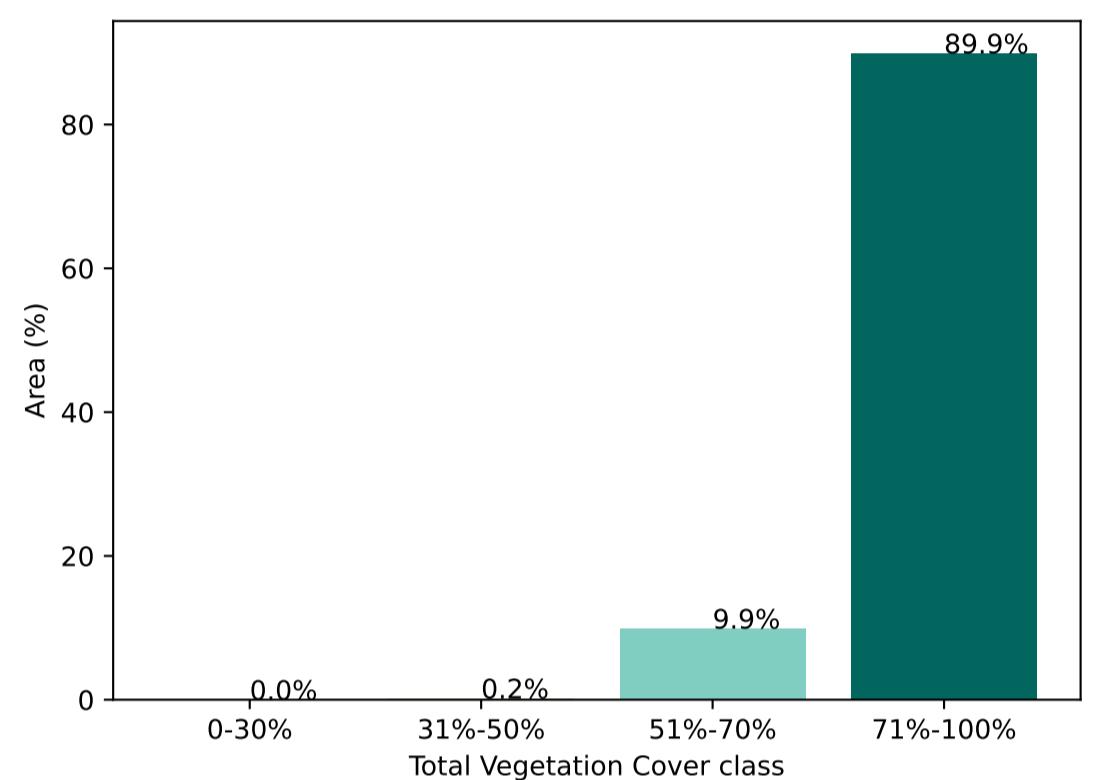
Proportion of each land class in area



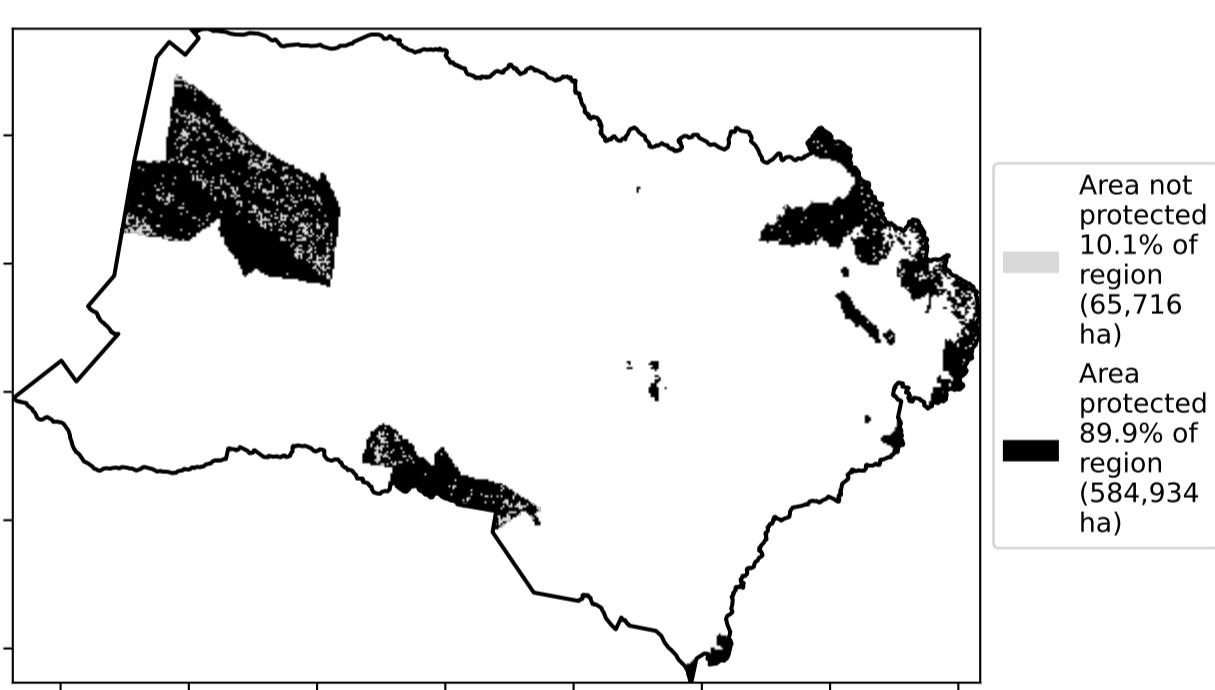
Total Vegetation Cover [%]



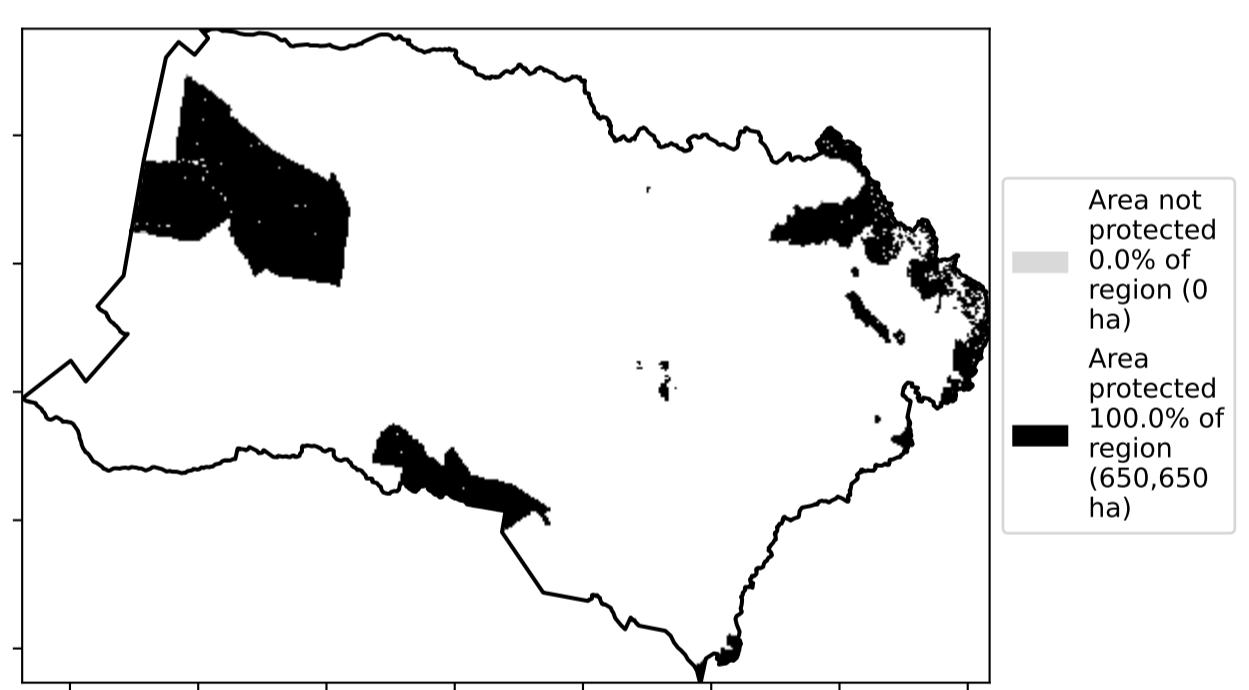
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

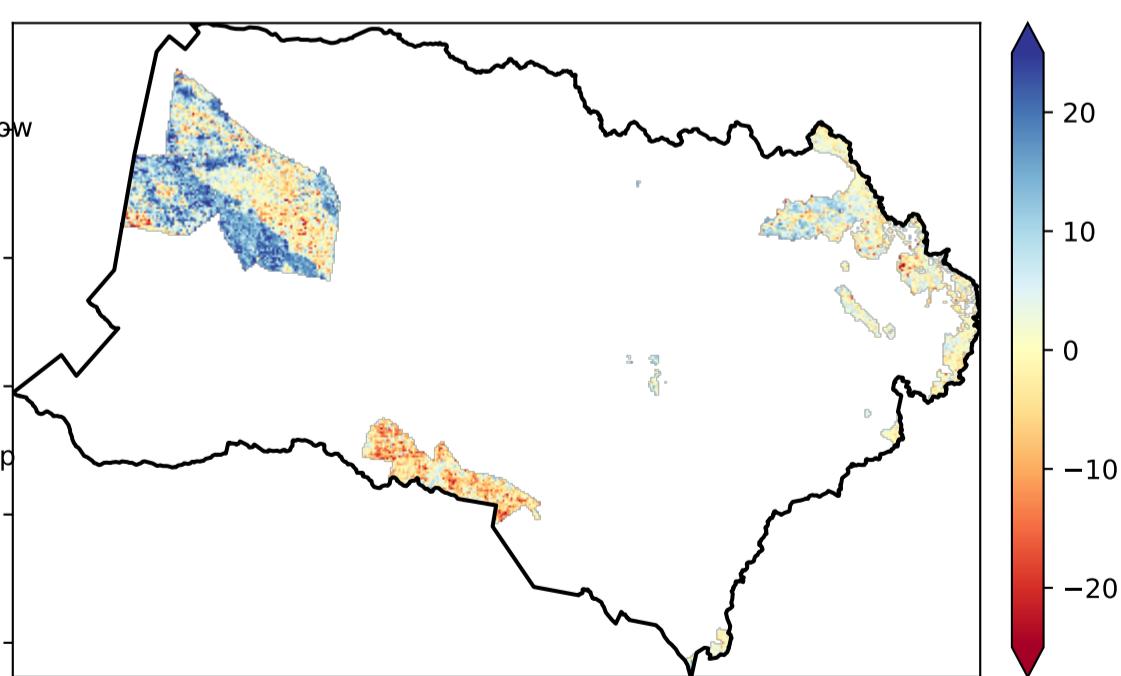


% Area protected from wind erosion (>50%)



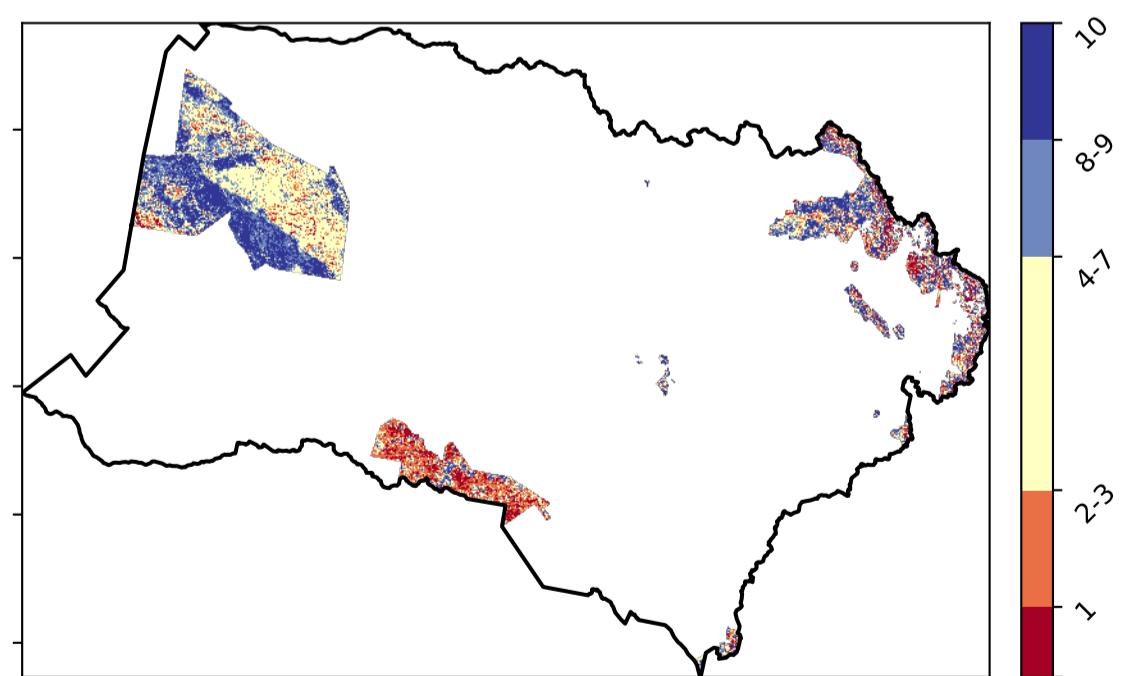
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Total Vegetation Cover Decile [%]



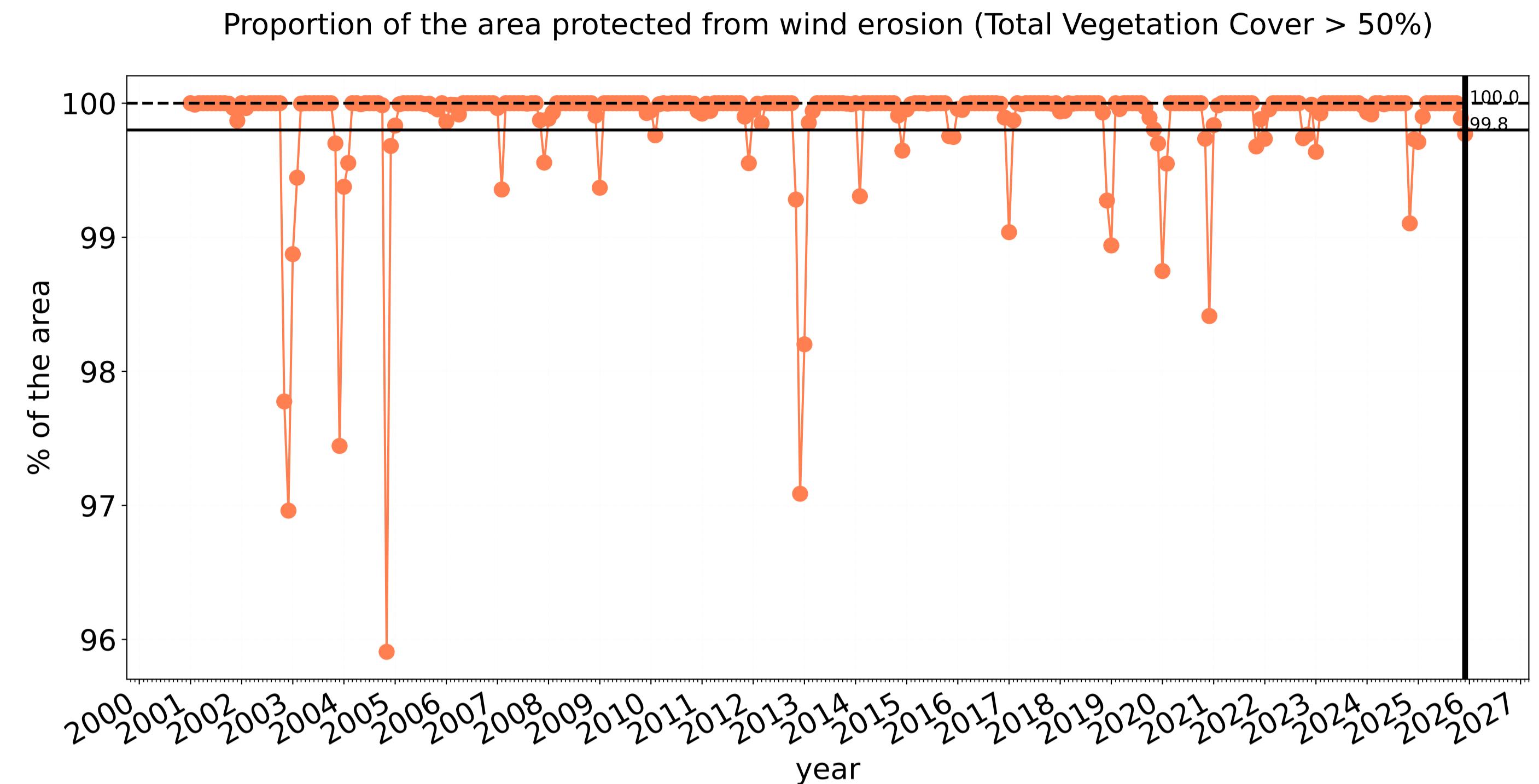
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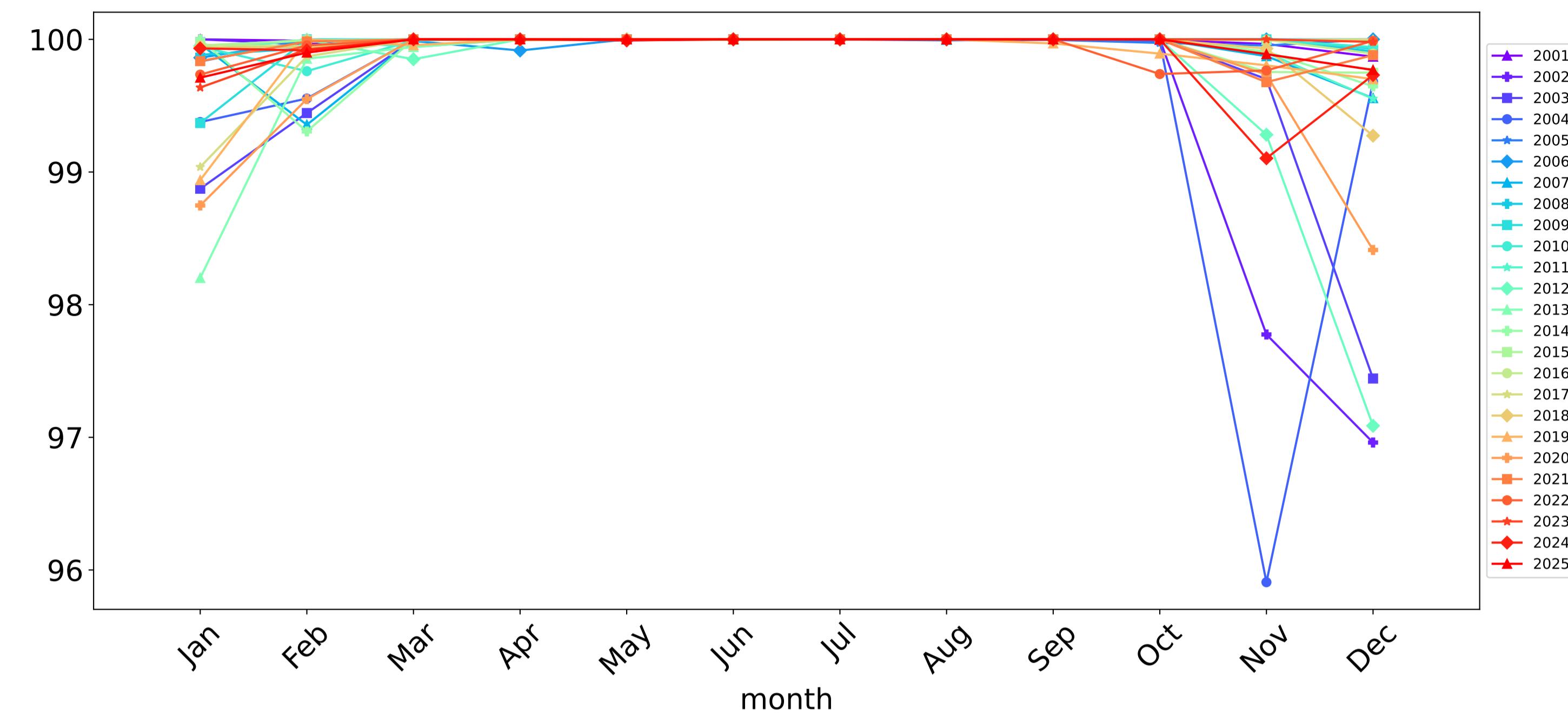
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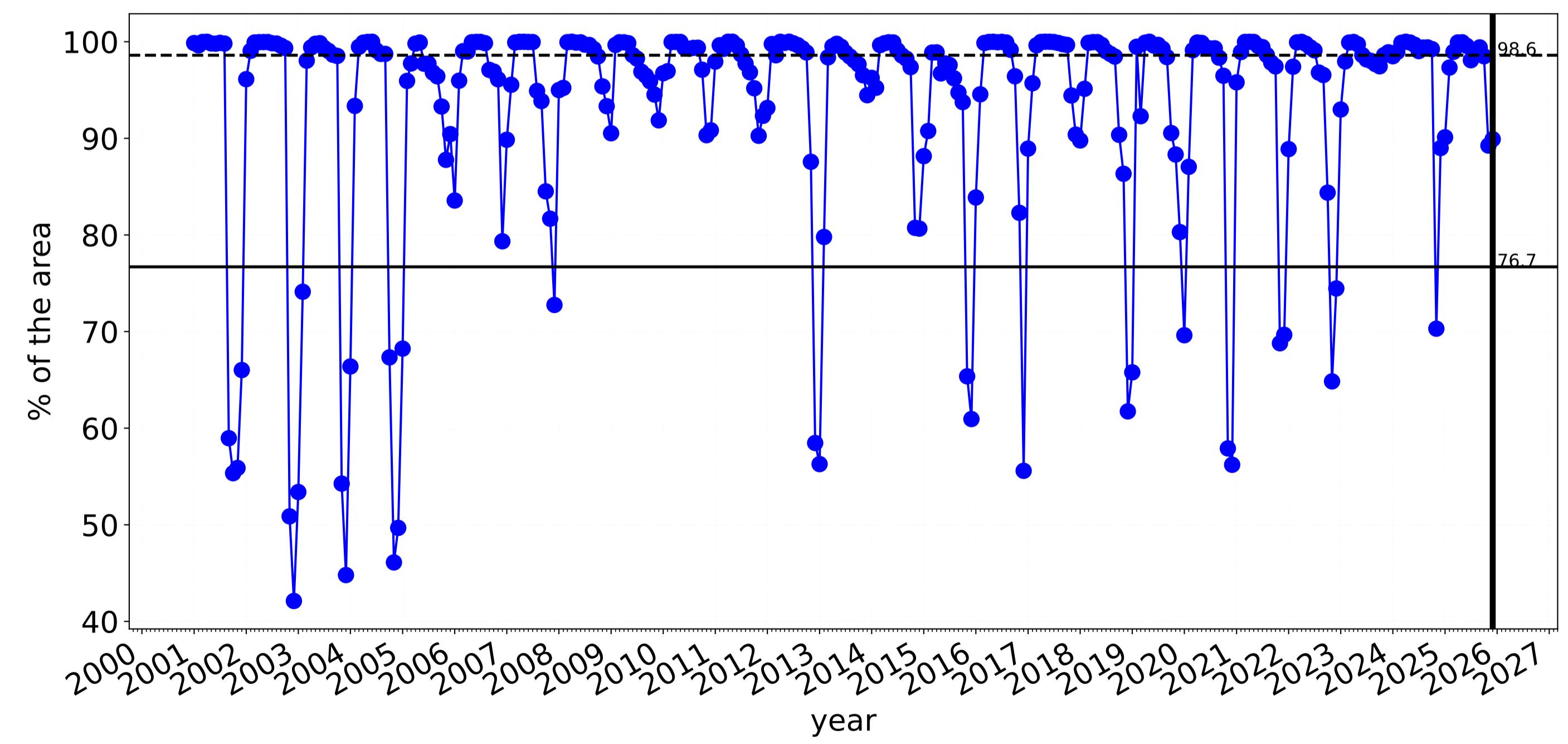
Conservation and natural environments timeseries



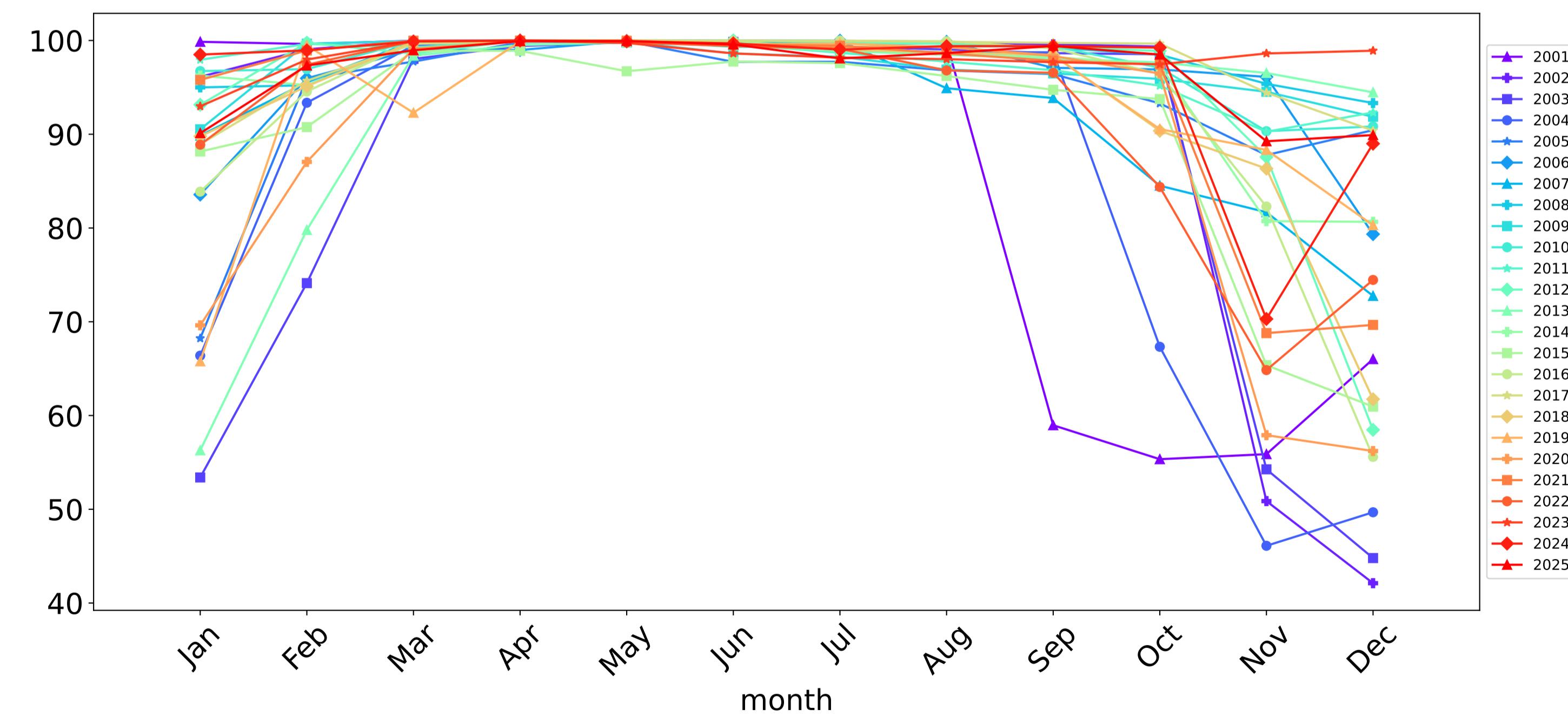
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



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

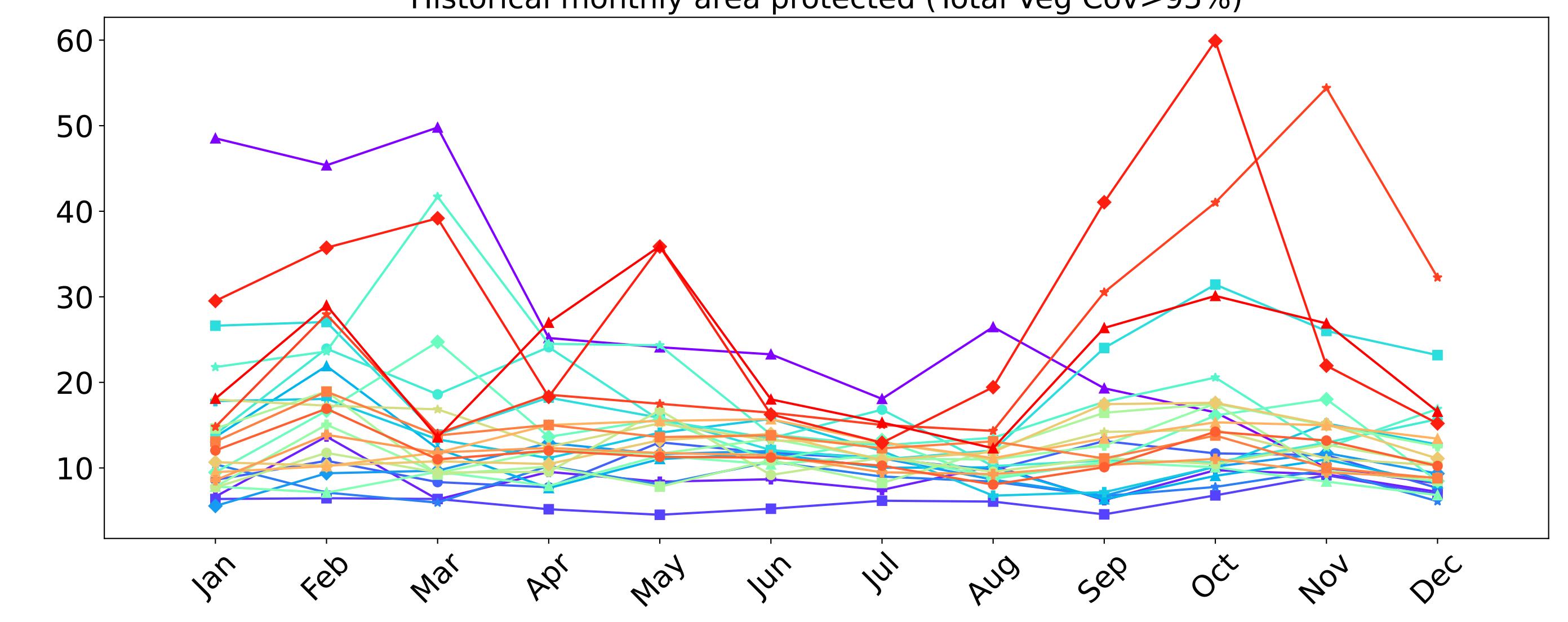
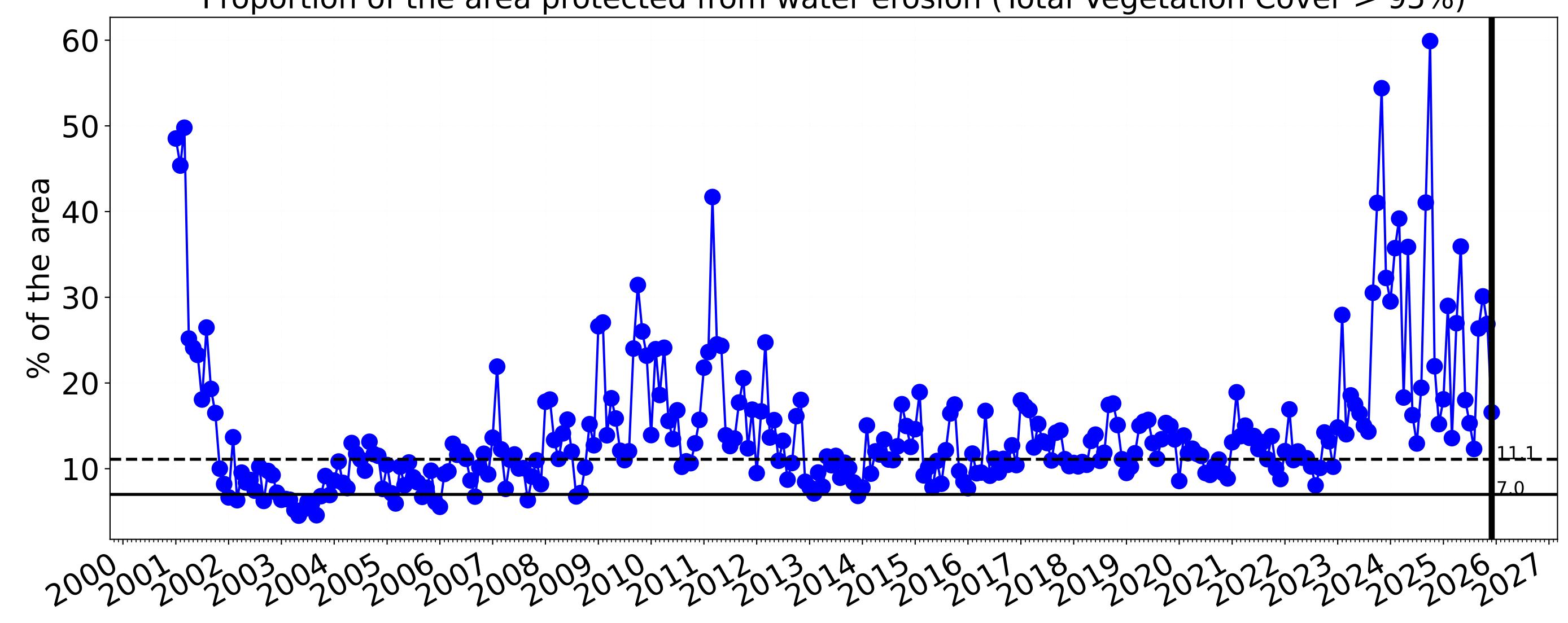
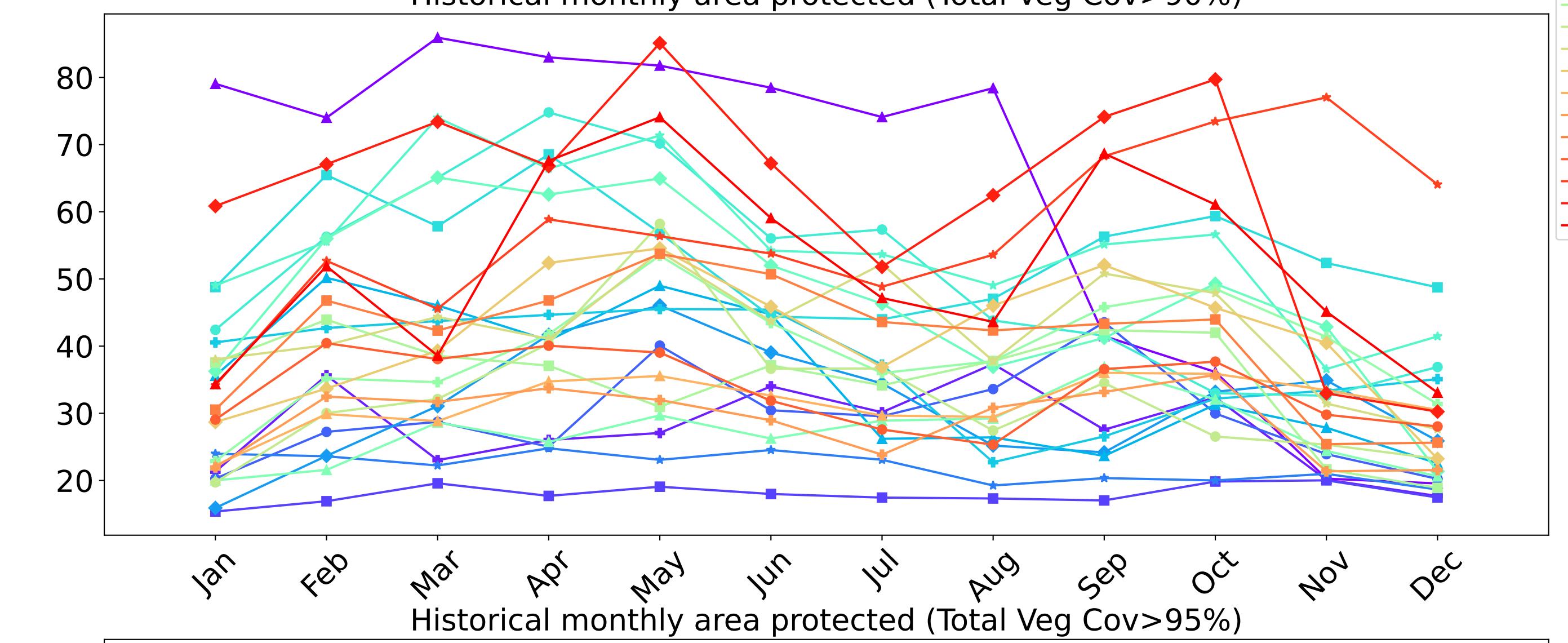
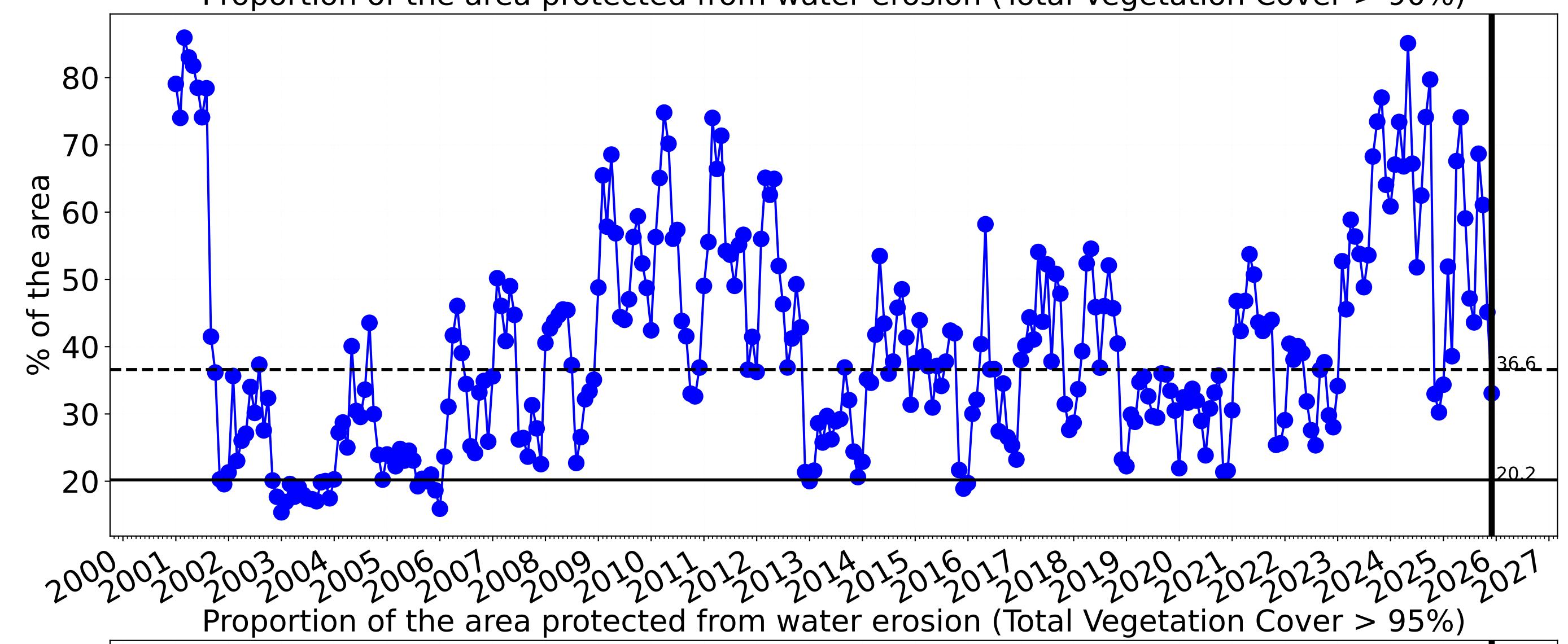
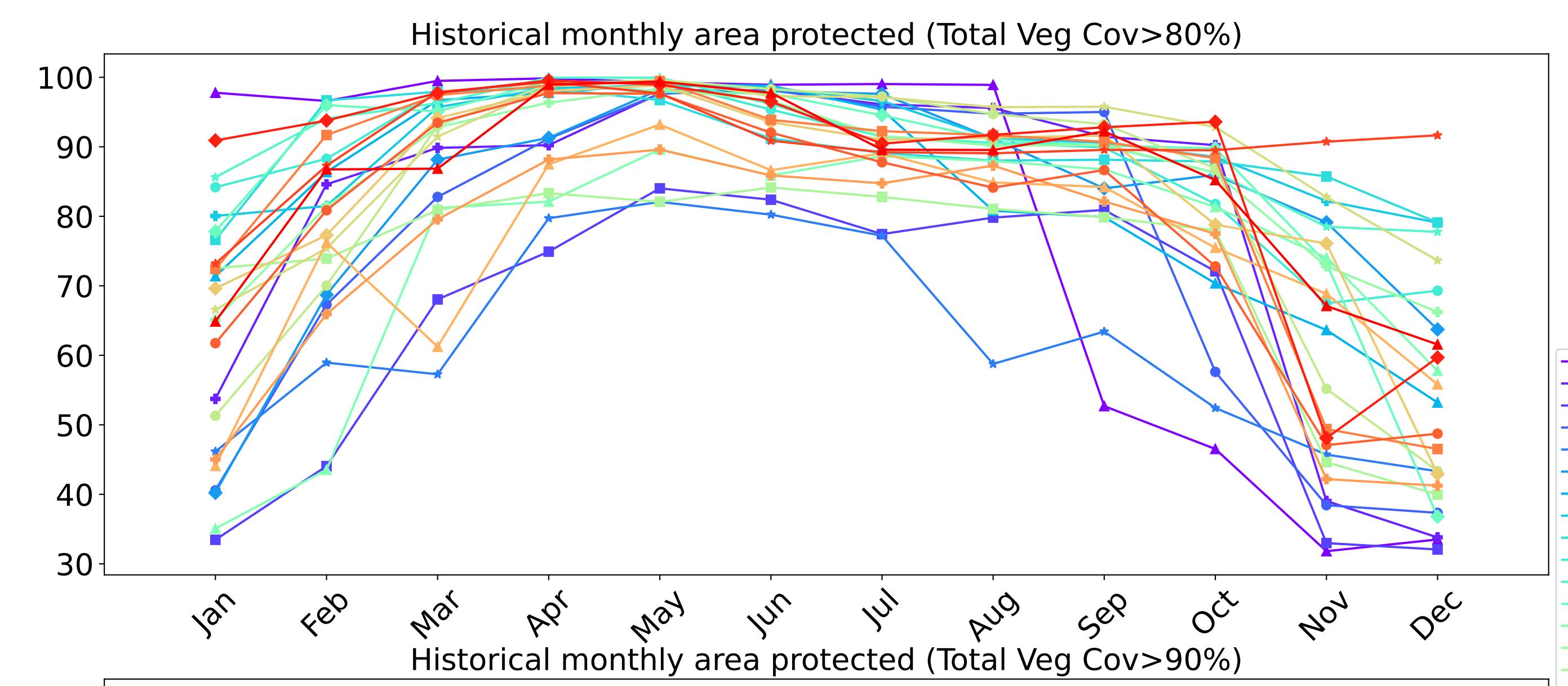
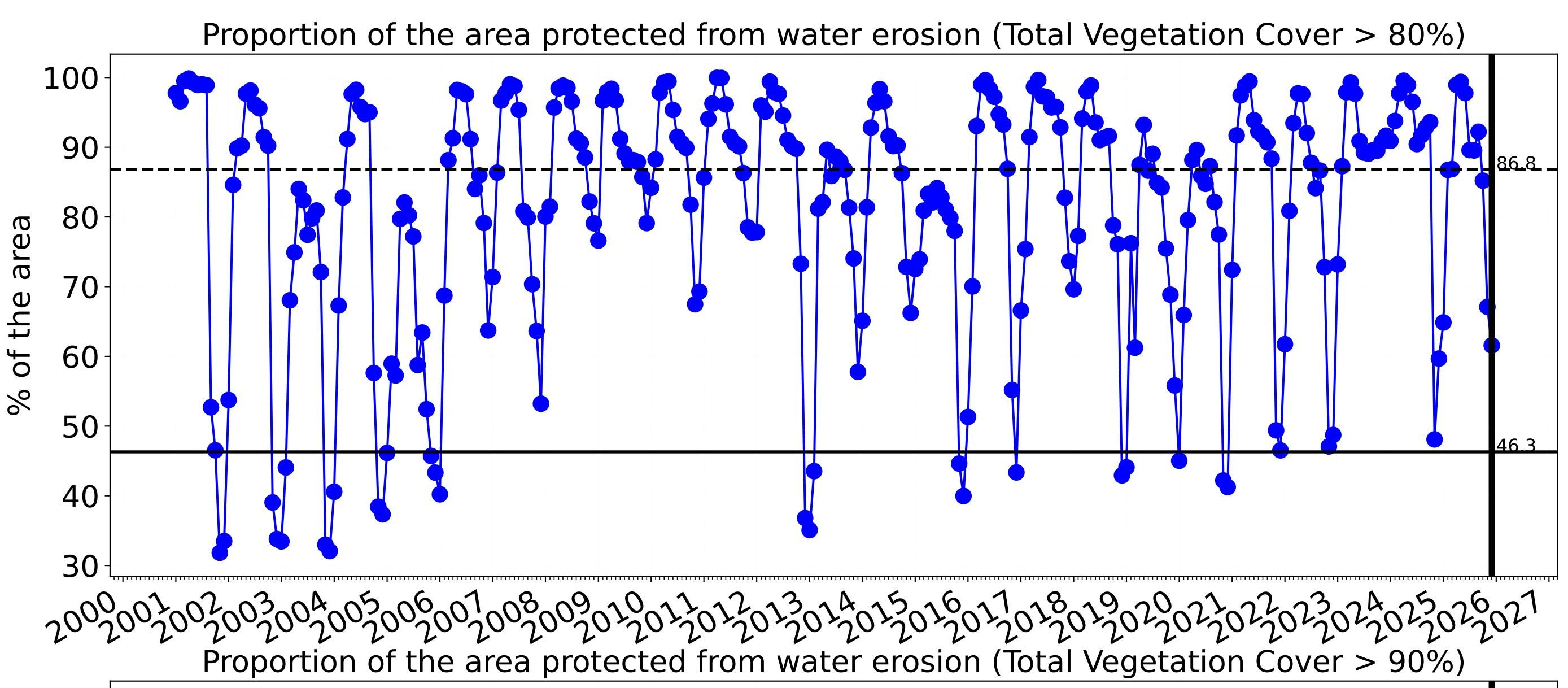


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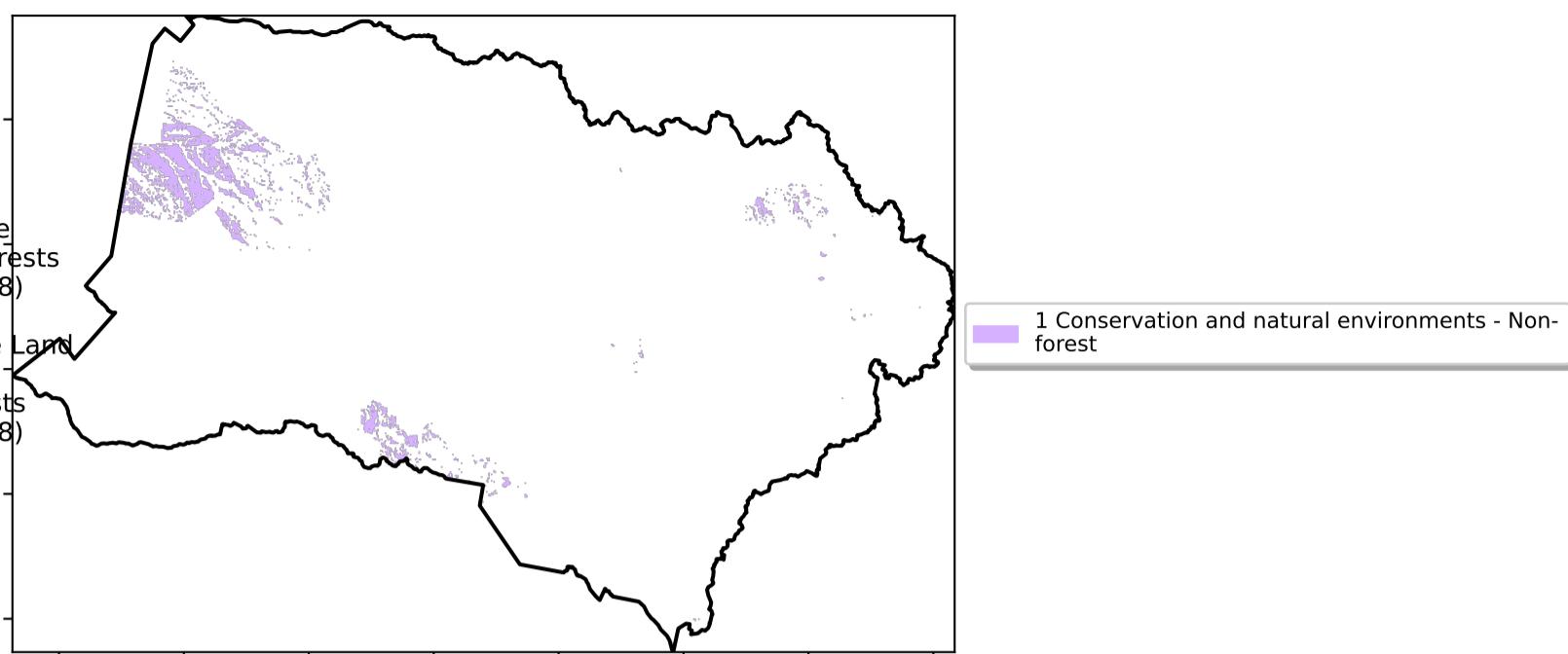




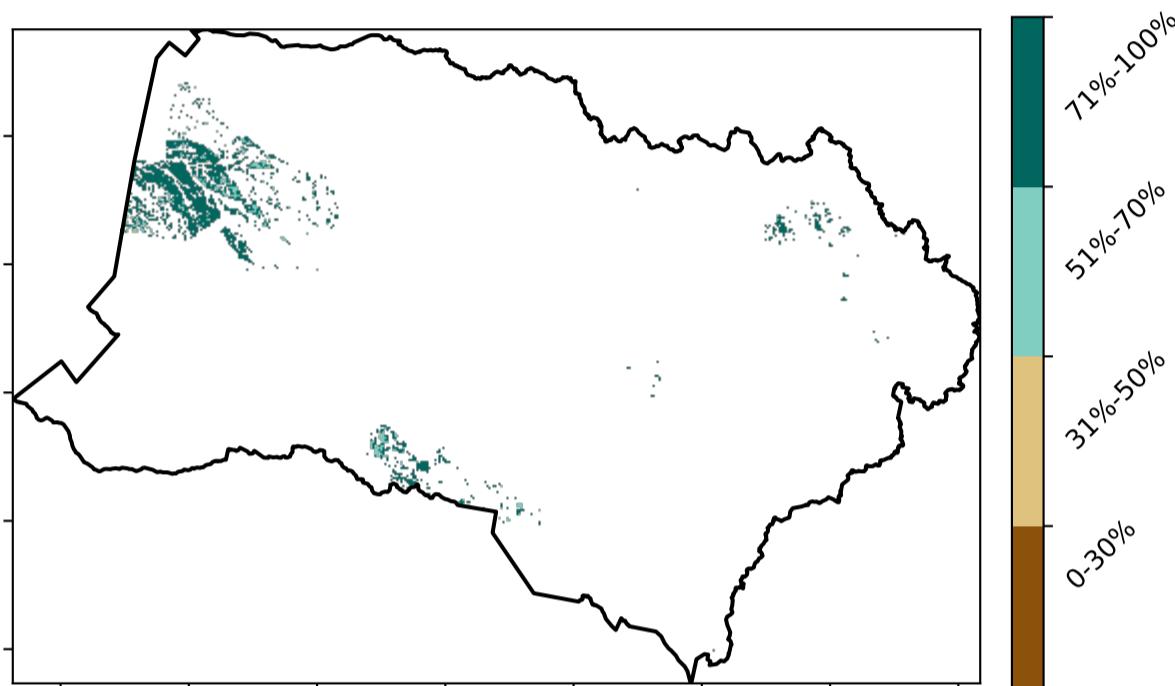
Conservation and natural environments non forest

Land use and forest cover

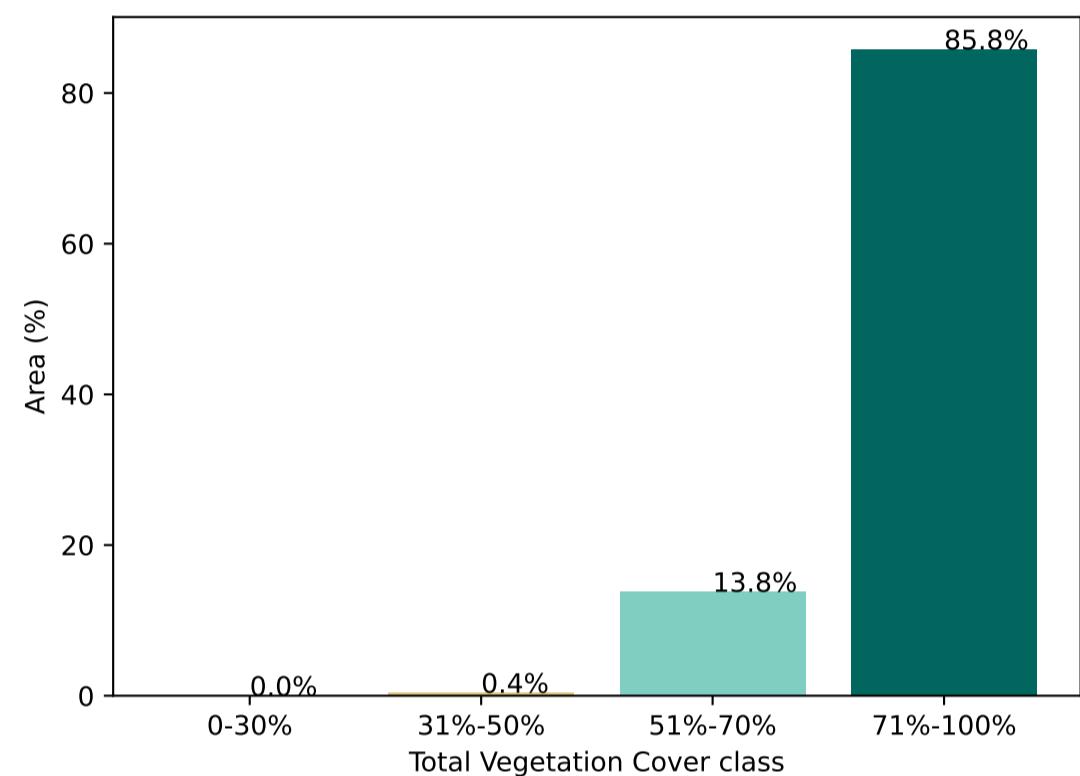
Catchment Scale
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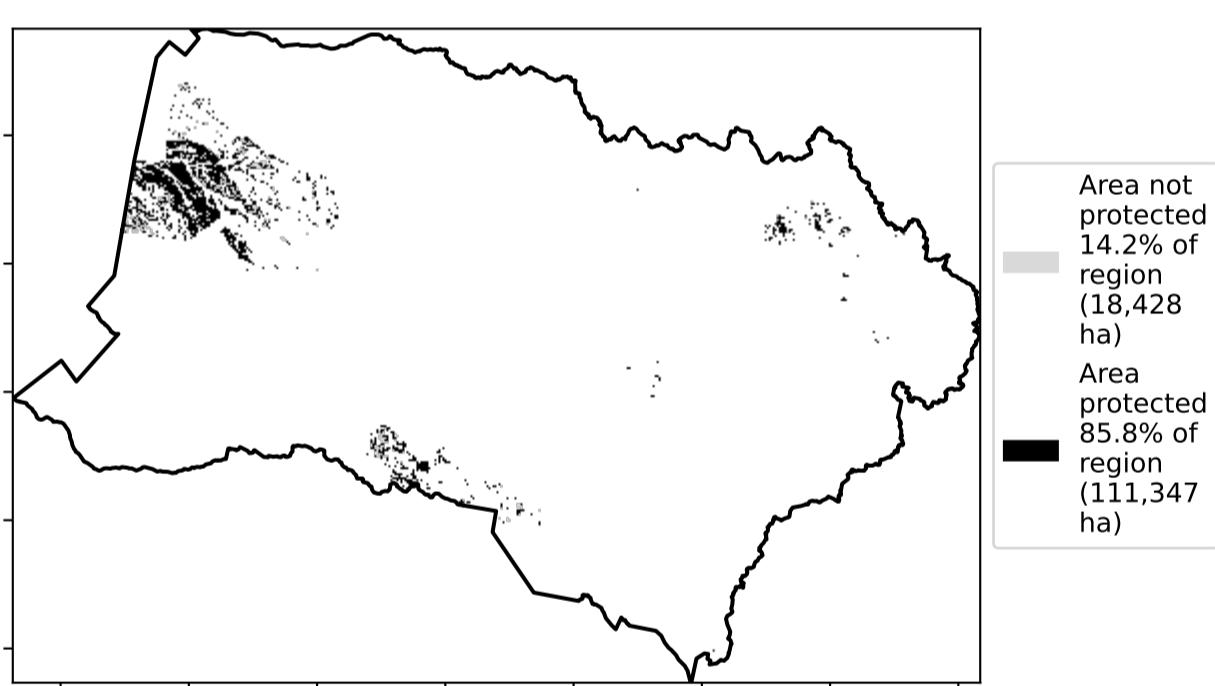
Total Vegetation Cover [%]



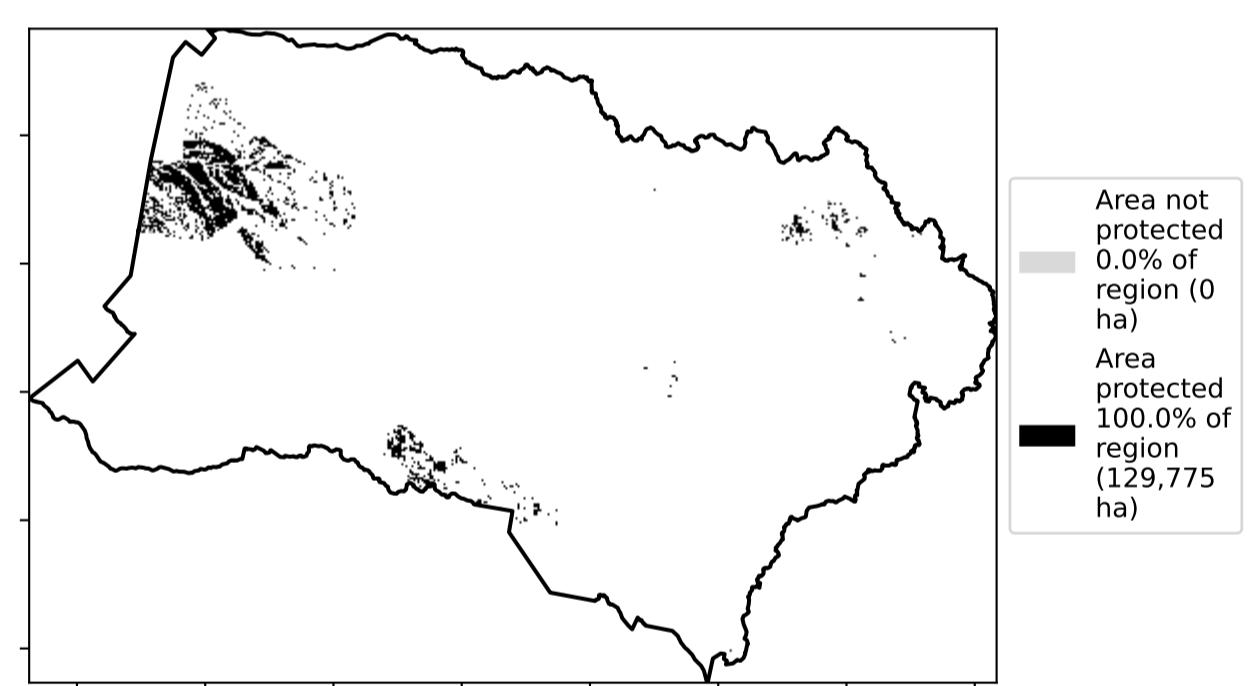
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

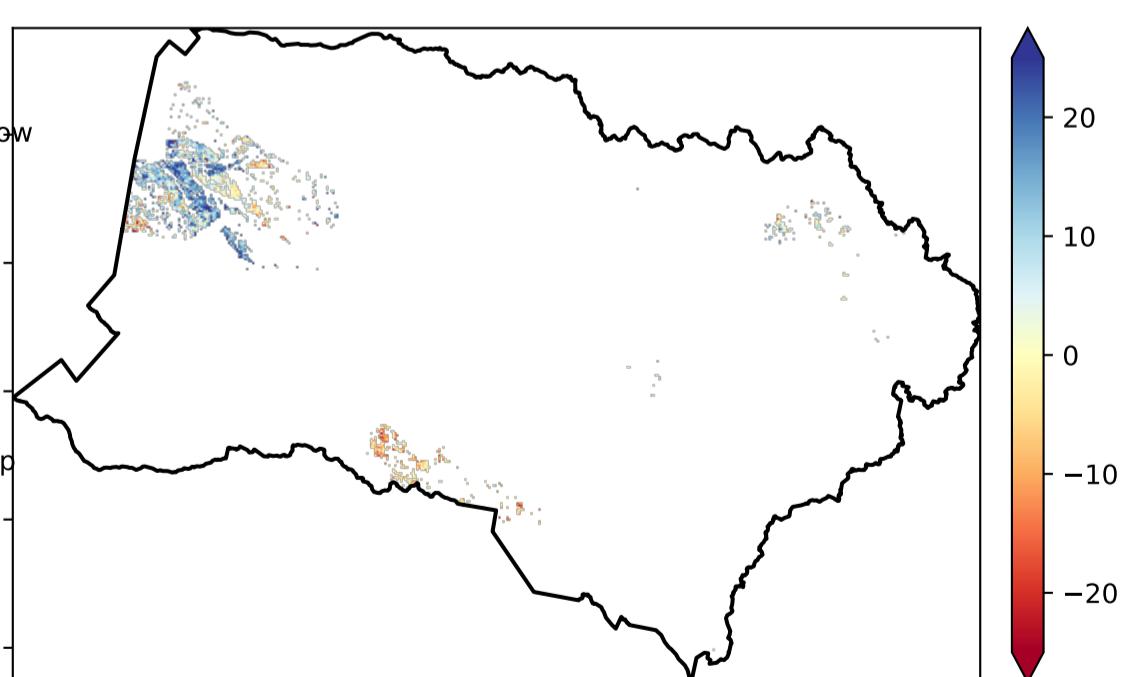


% Area protected from wind erosion (>50%)



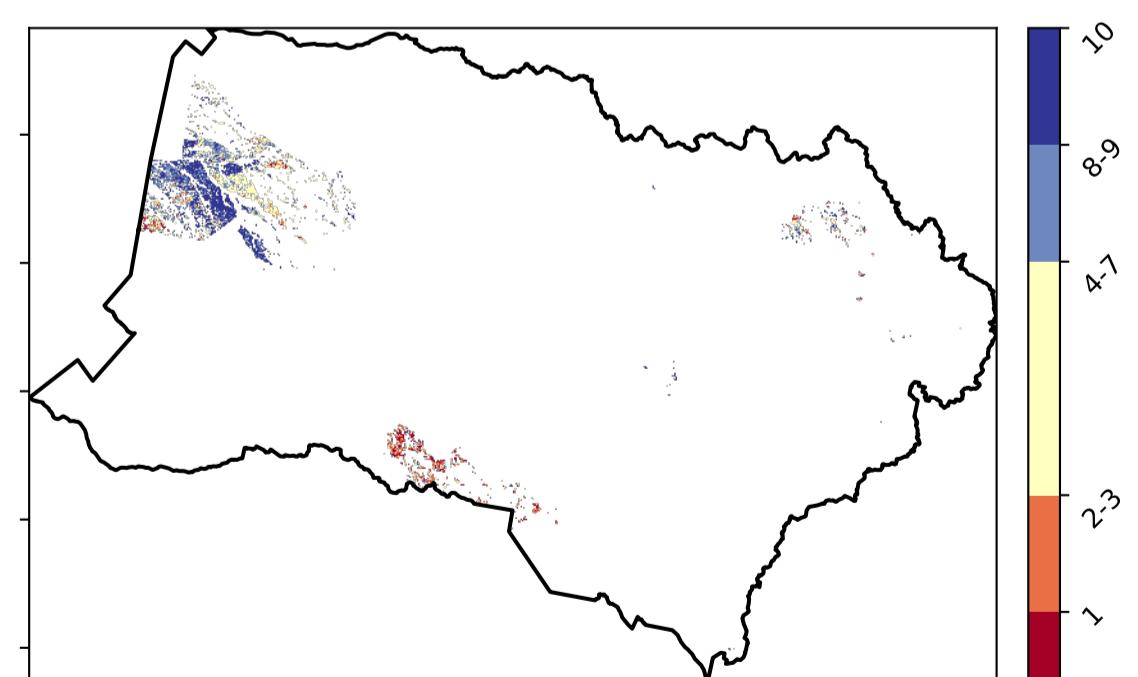
Total Vegetation Cover Anomaly [%]

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Total Vegetation Cover Decile [%]



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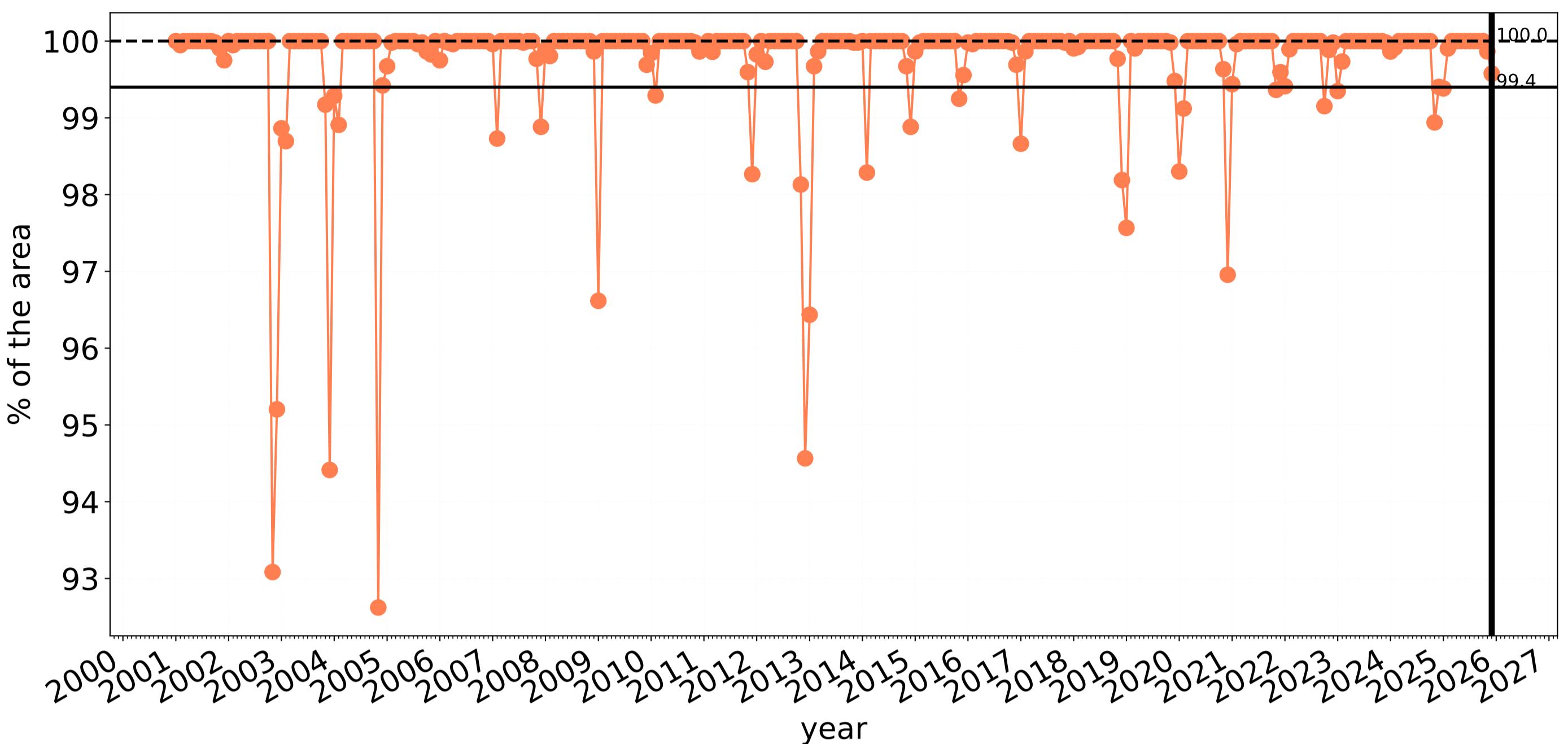


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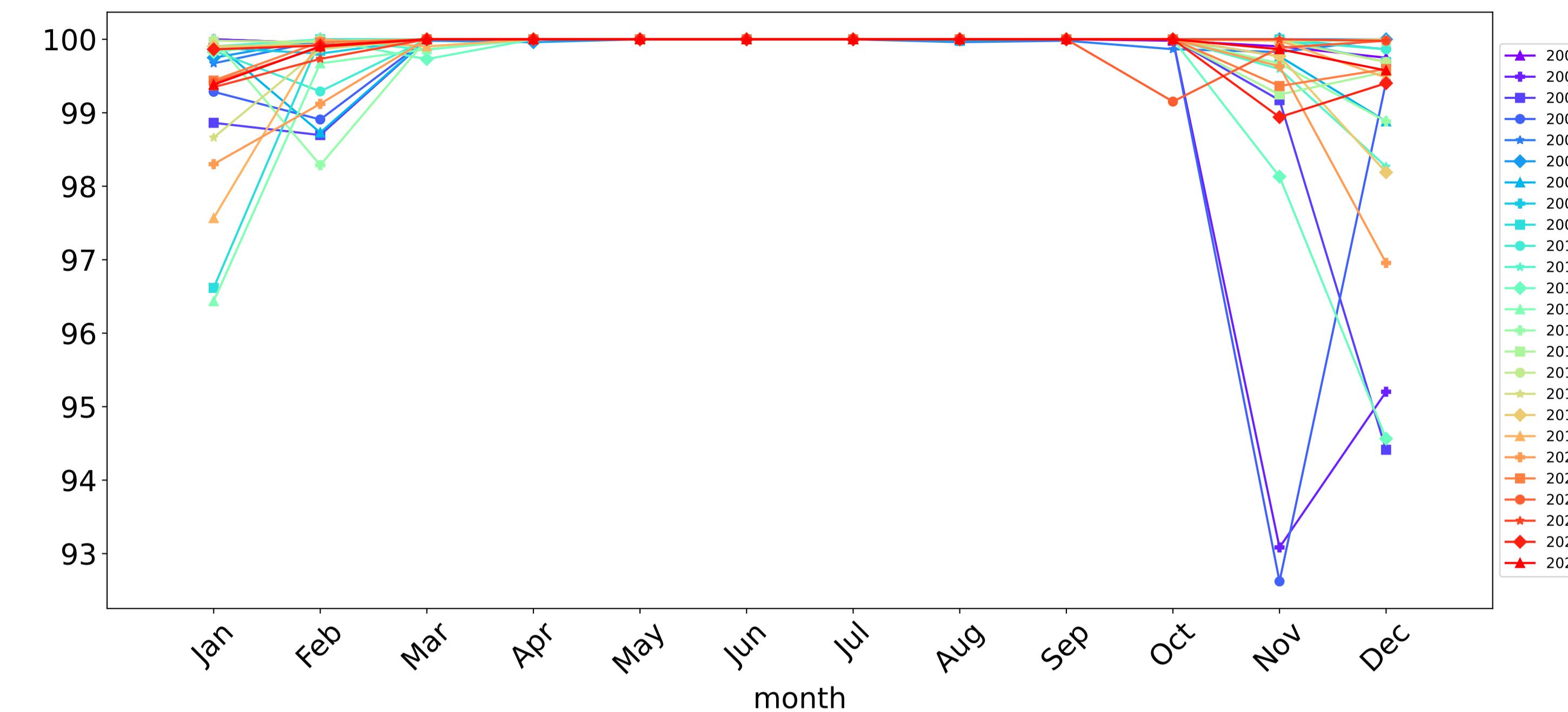


Conservation and natural environments non forest timeseries

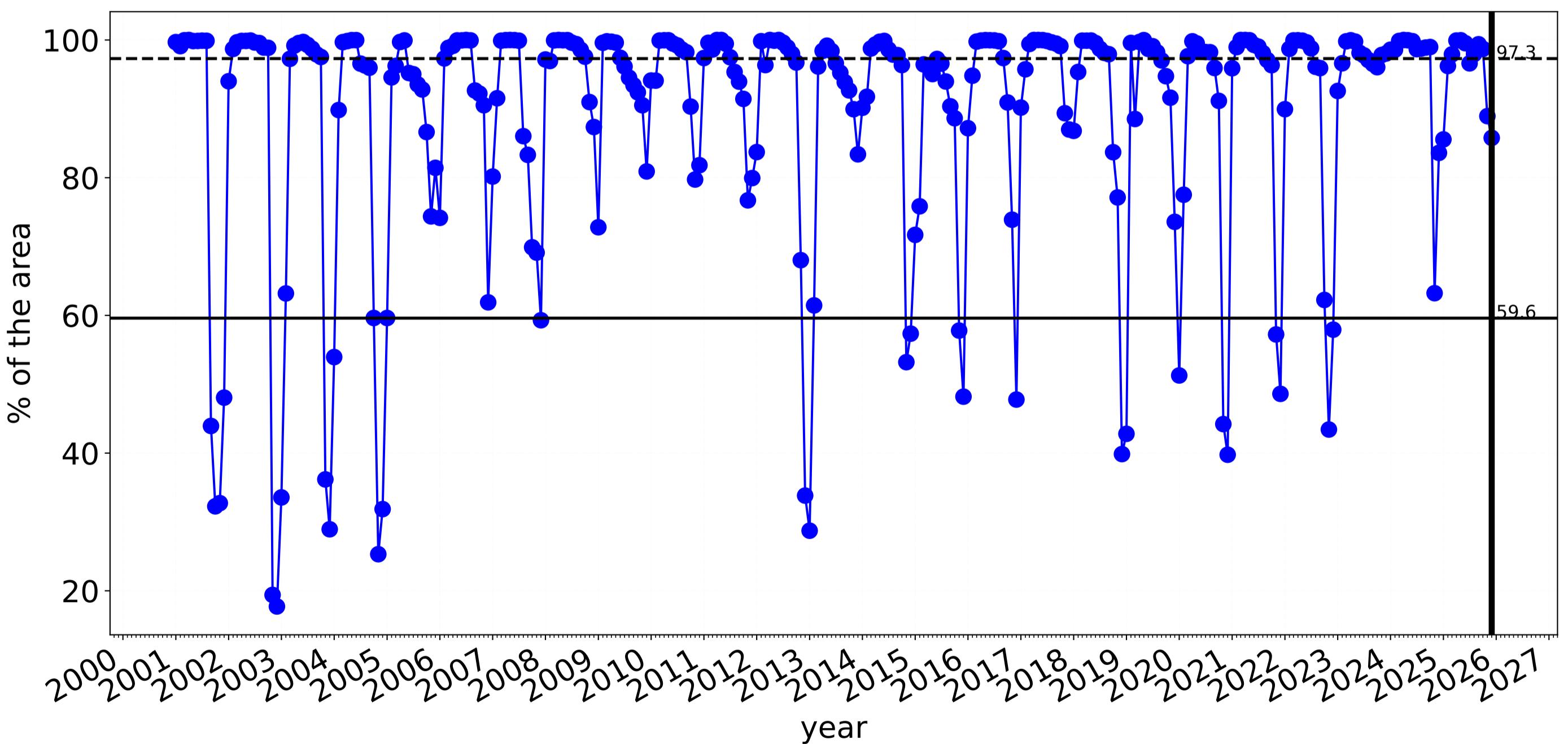
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



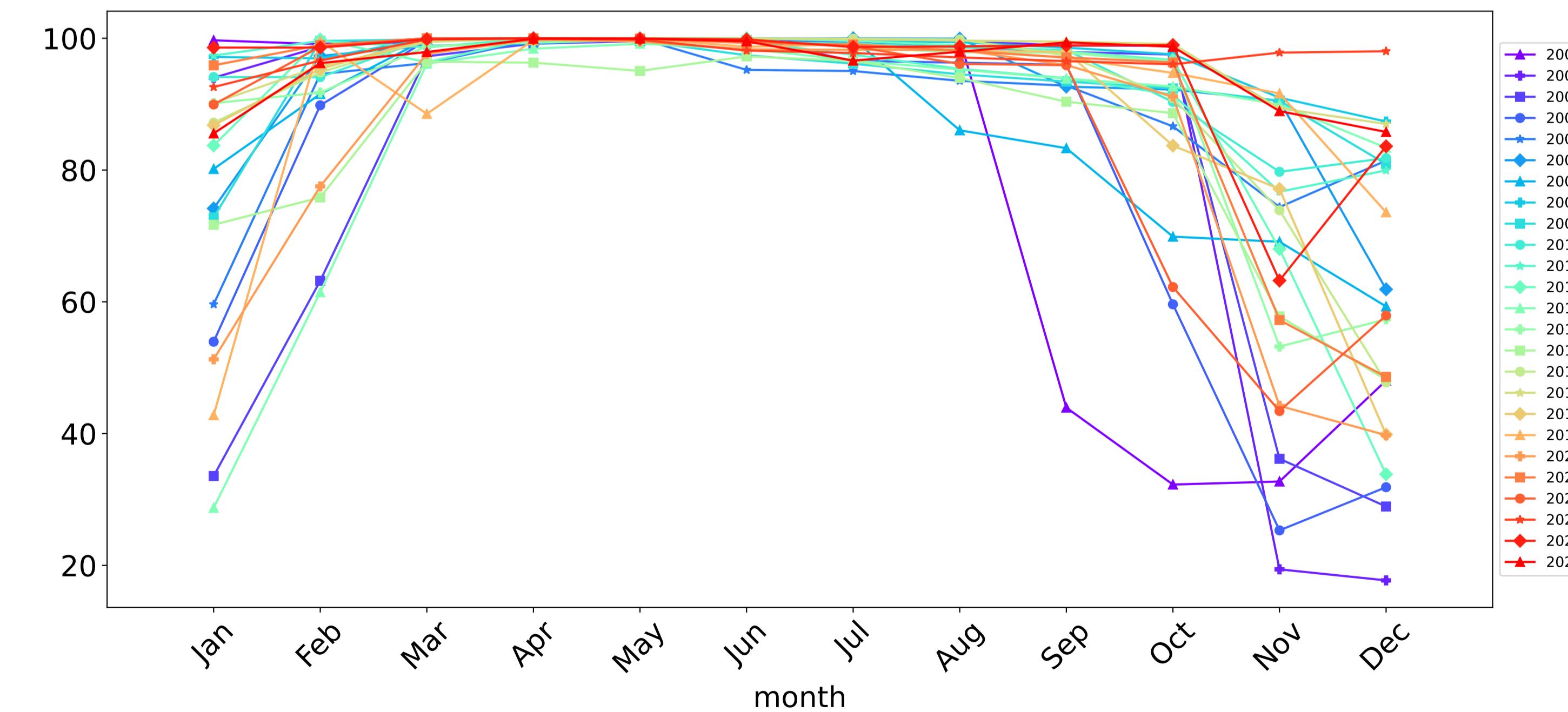
Wind erosion historical monthly area protected (Total Veg Cov >50%)



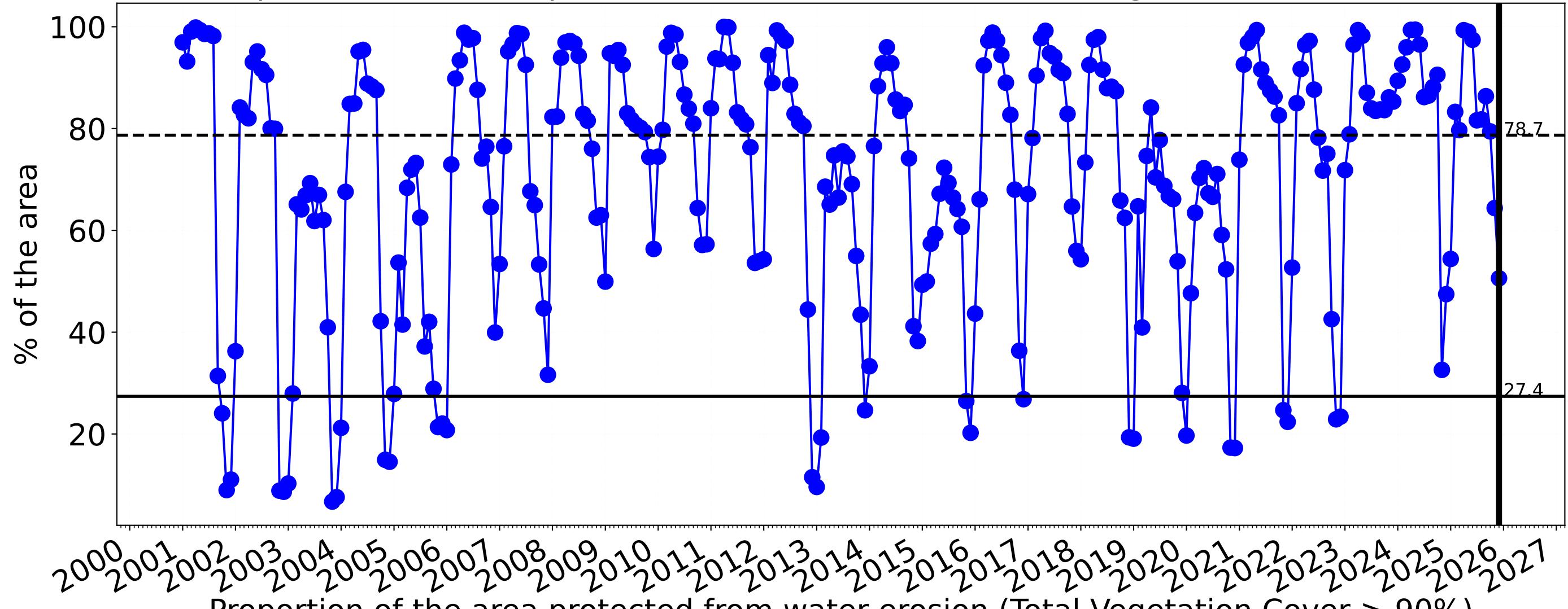
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



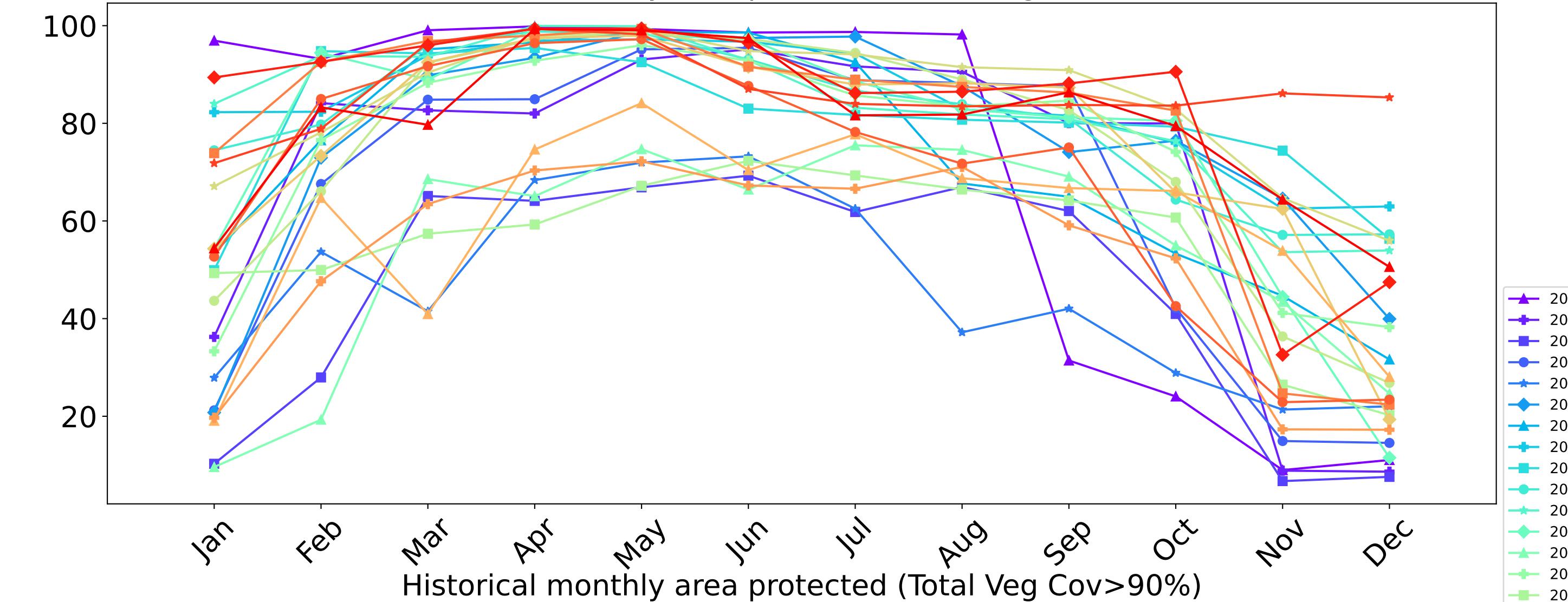
Water erosion historical monthly area protected (Total Veg Cov >70%)



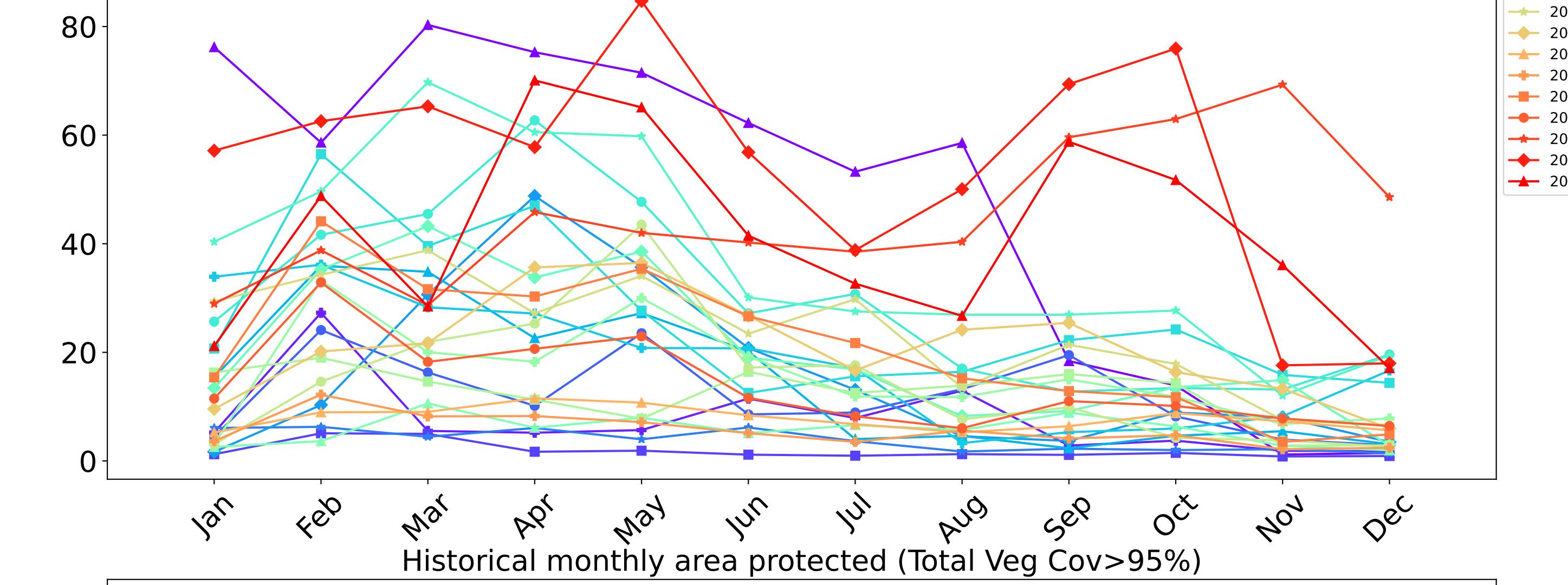
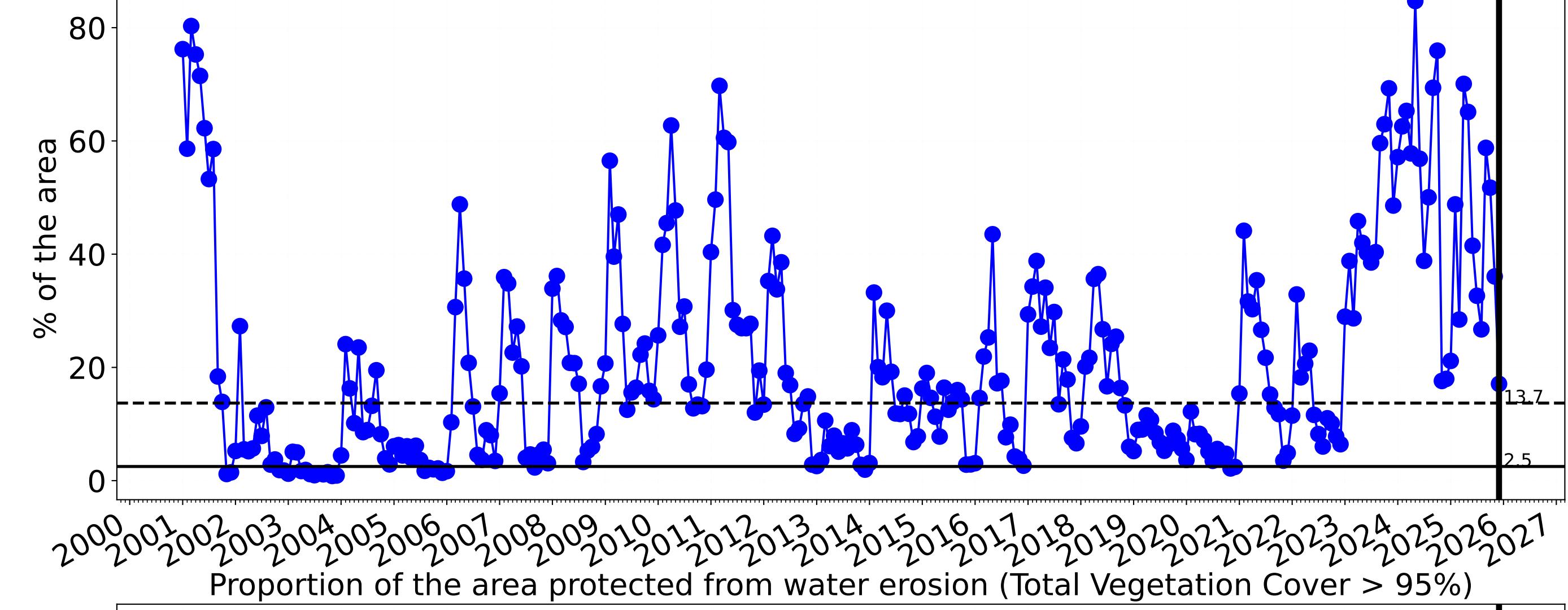
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



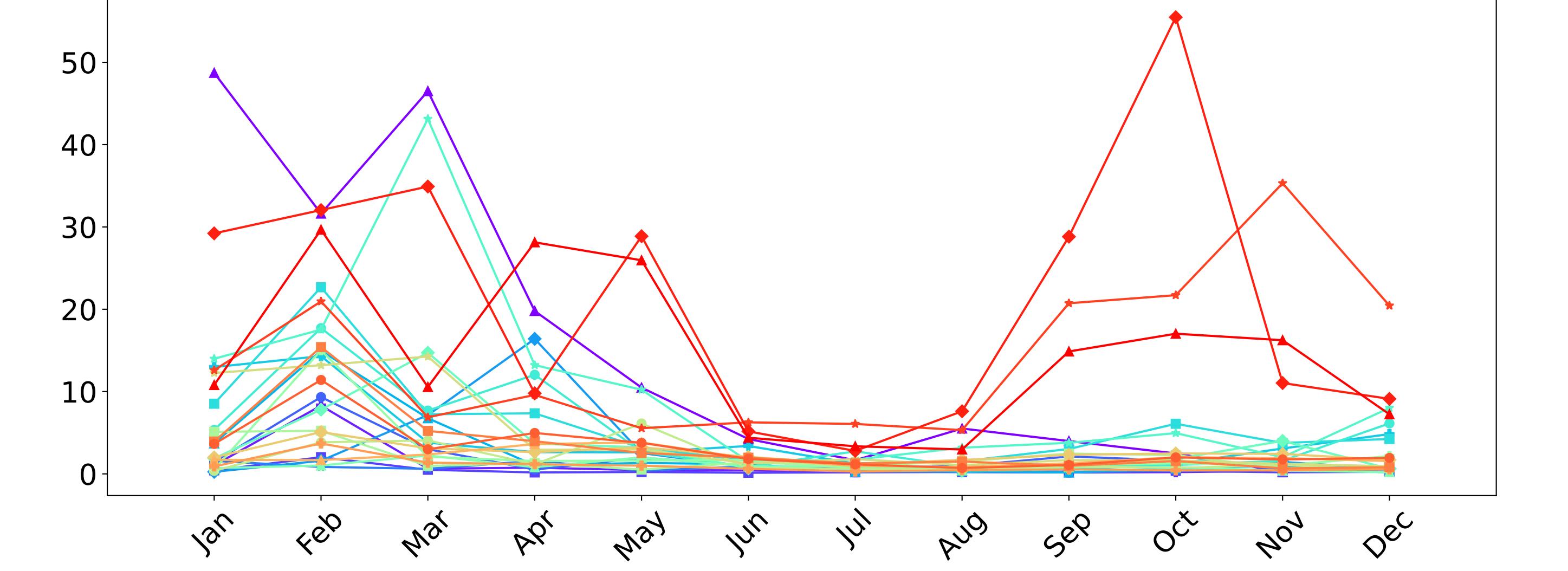
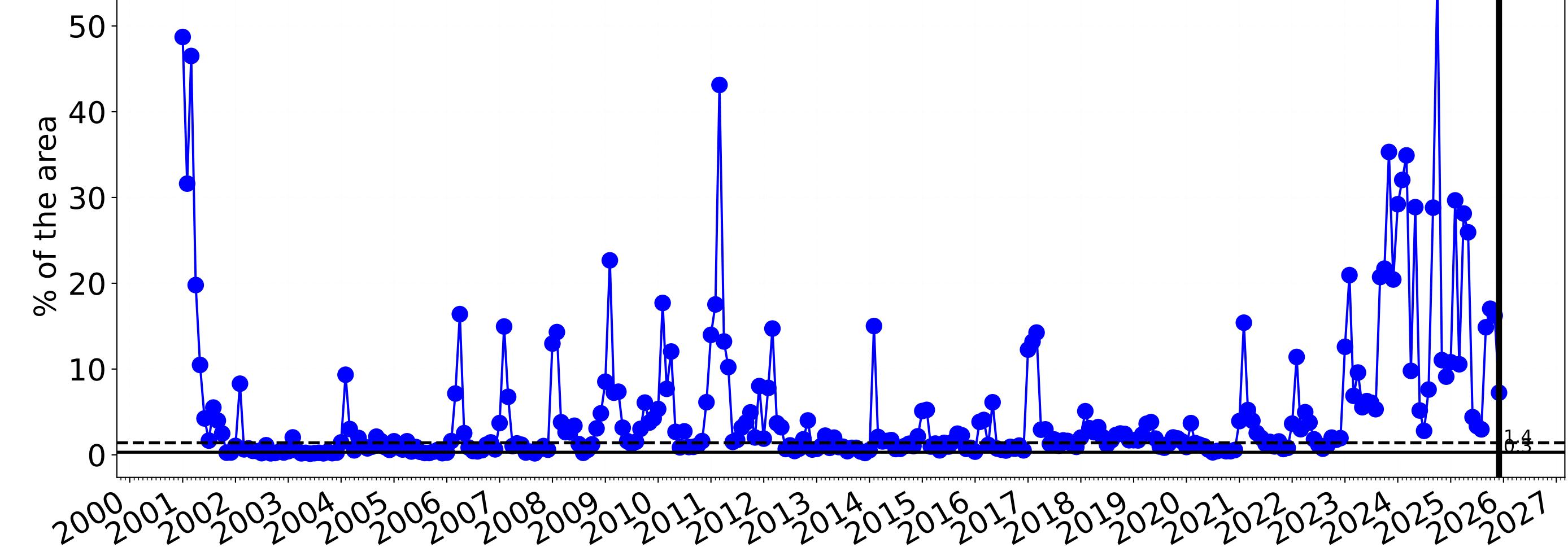
Historical monthly area protected (Total Veg Cov>80%)



Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)



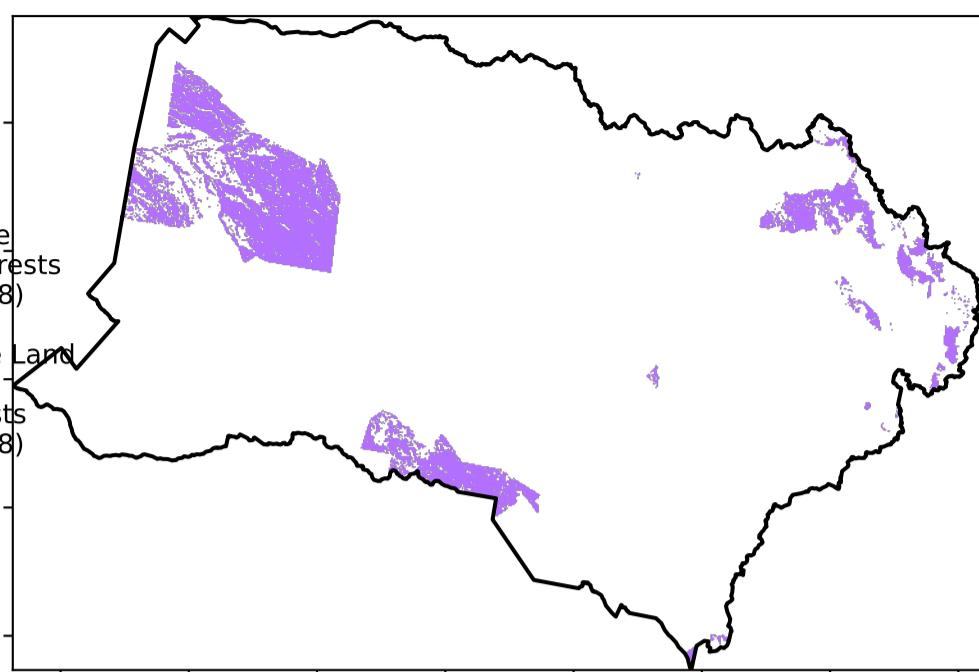
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)



Conservation and natural environments Woodland forest

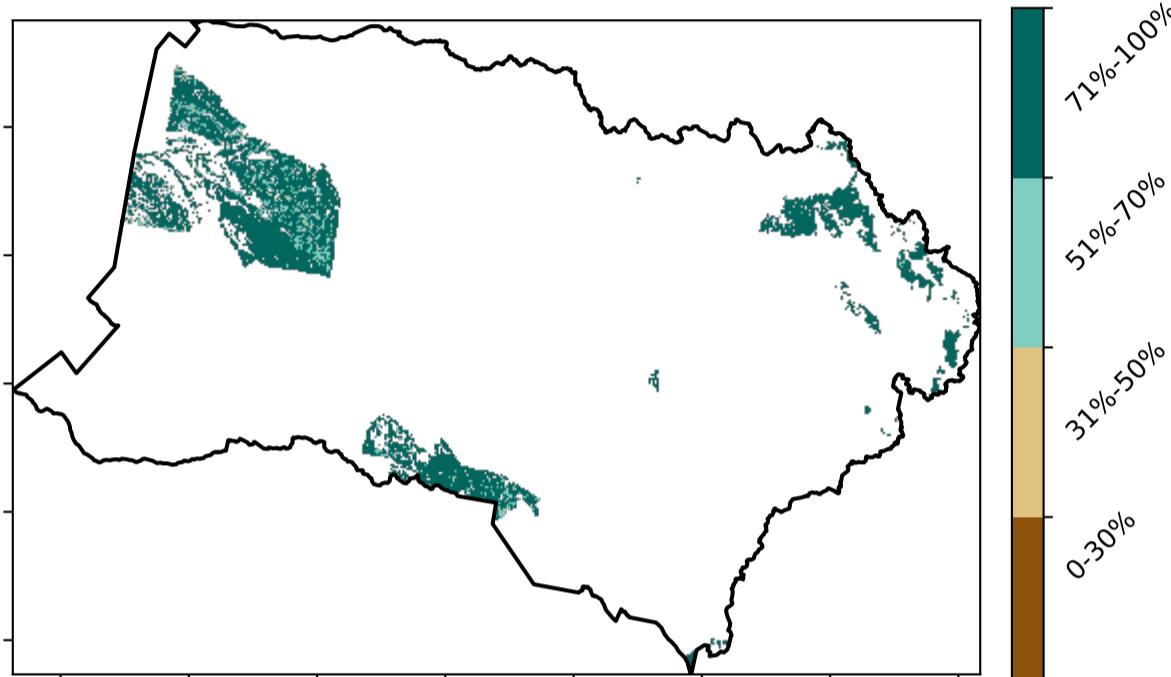
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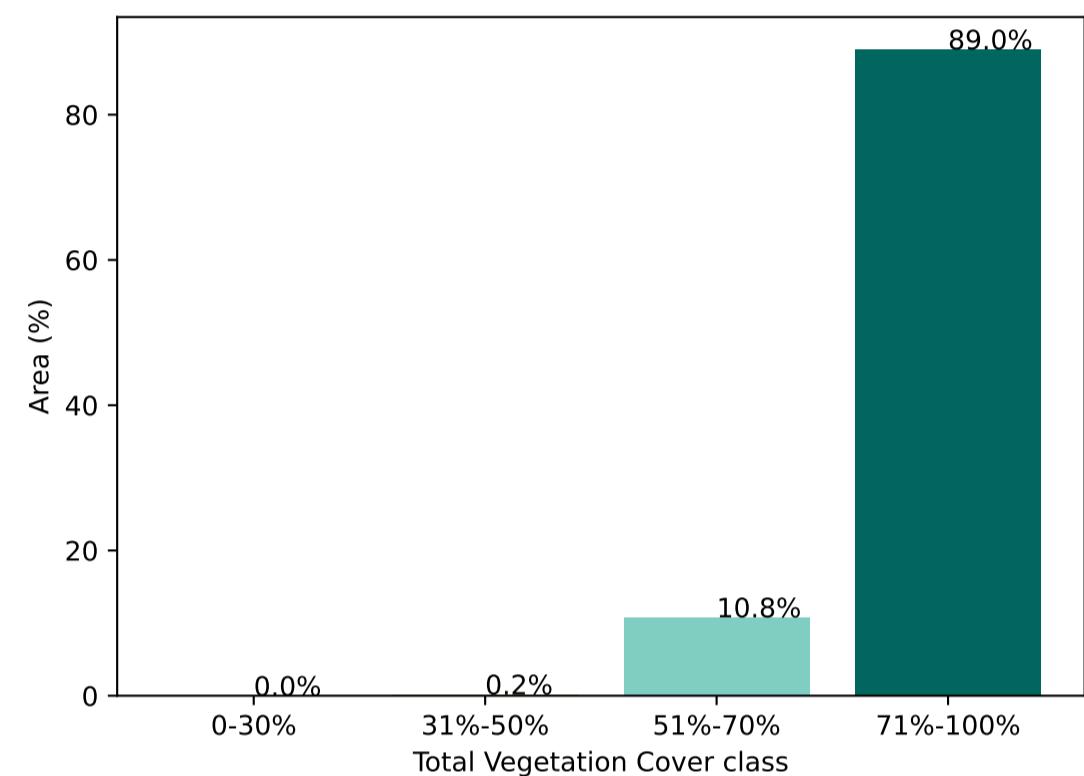
1 Conservation and natural environments - Woodland forest

Total Vegetation Cover [%]

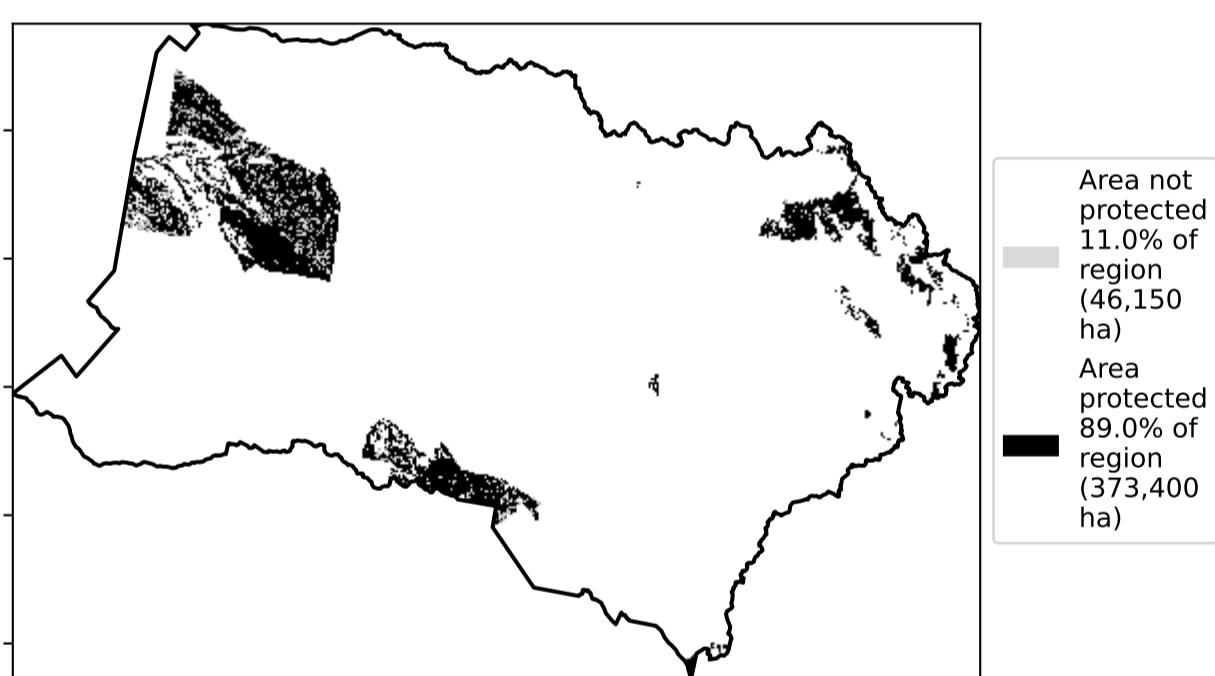


71-100%
51-70%
31-50%
0-30%

Proportion of vegetation cover class in area

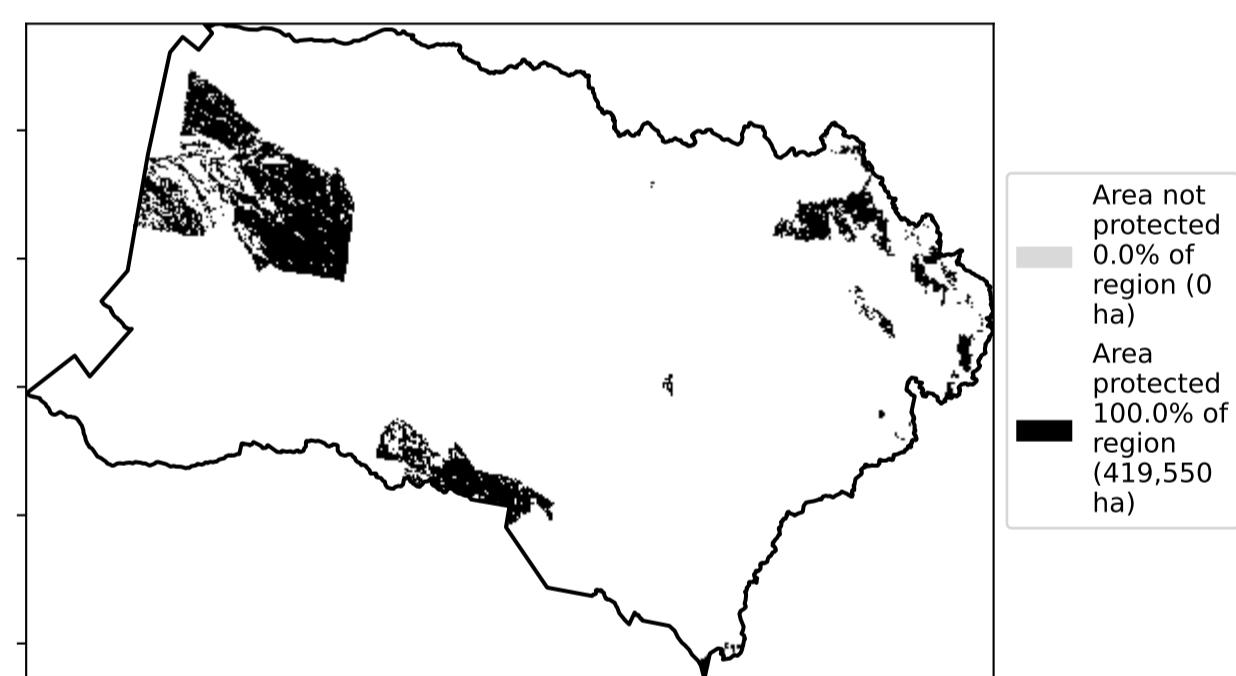


% Area protected from water erosion (>70%)



Area not protected
11.0% of region (46,150 ha)
Area protected
89.0% of region (373,400 ha)

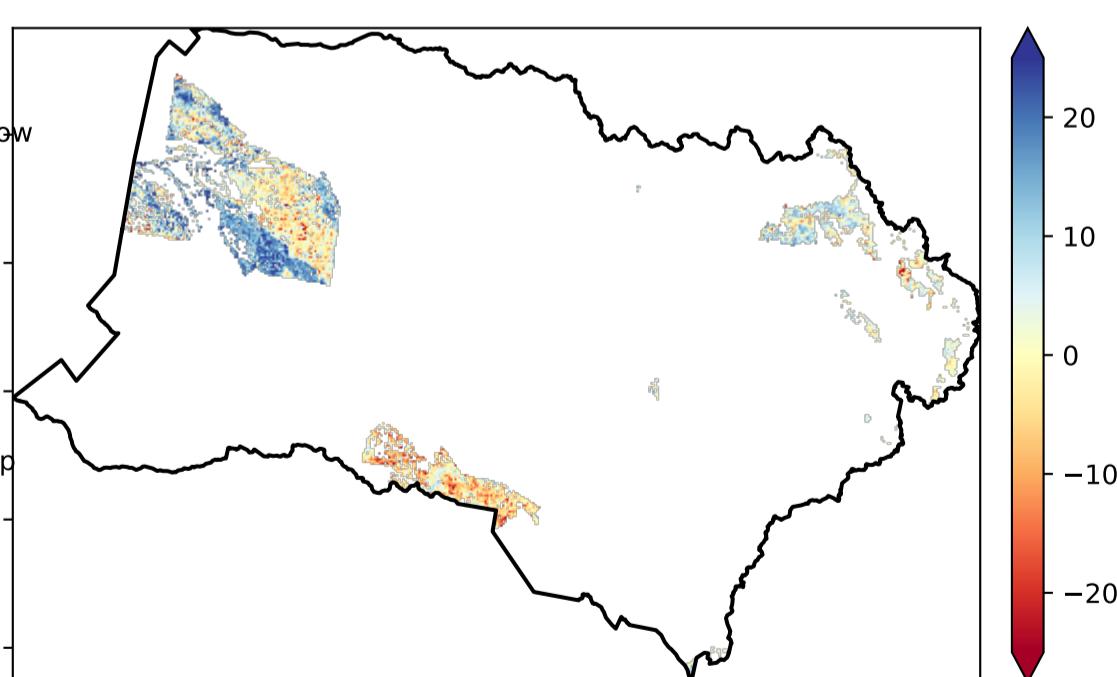
% Area protected from wind erosion (>50%)



Area not protected
0.0% of region (0 ha)
Area protected
100.0% of region (419,550 ha)

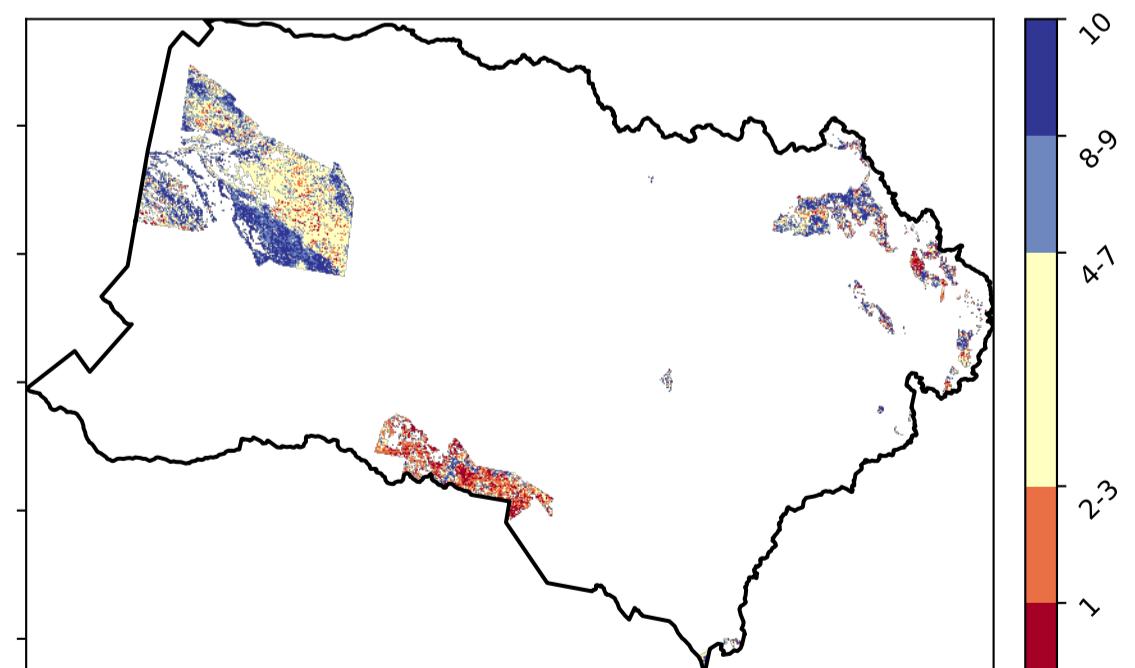
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Total Vegetation Cover Decile [%]



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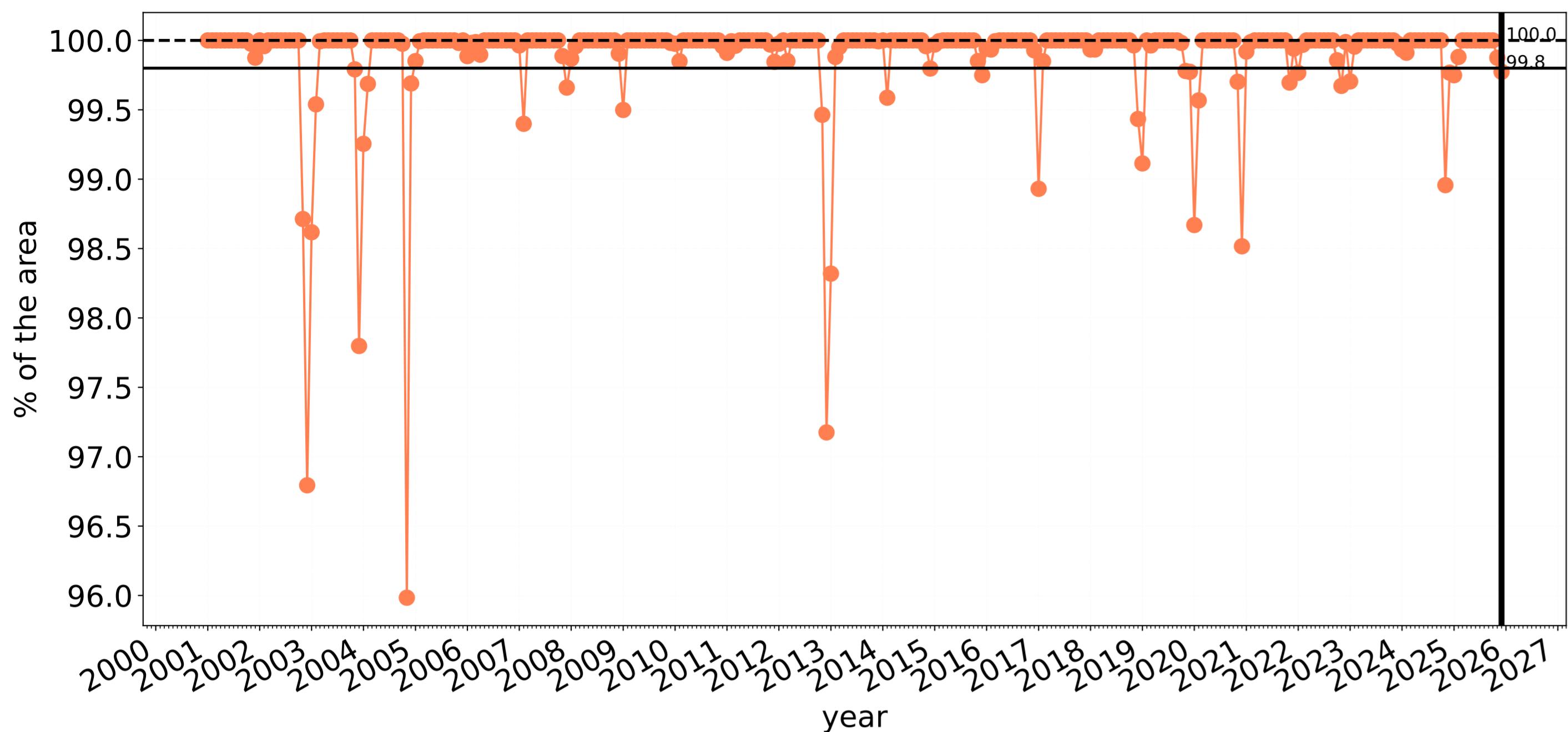


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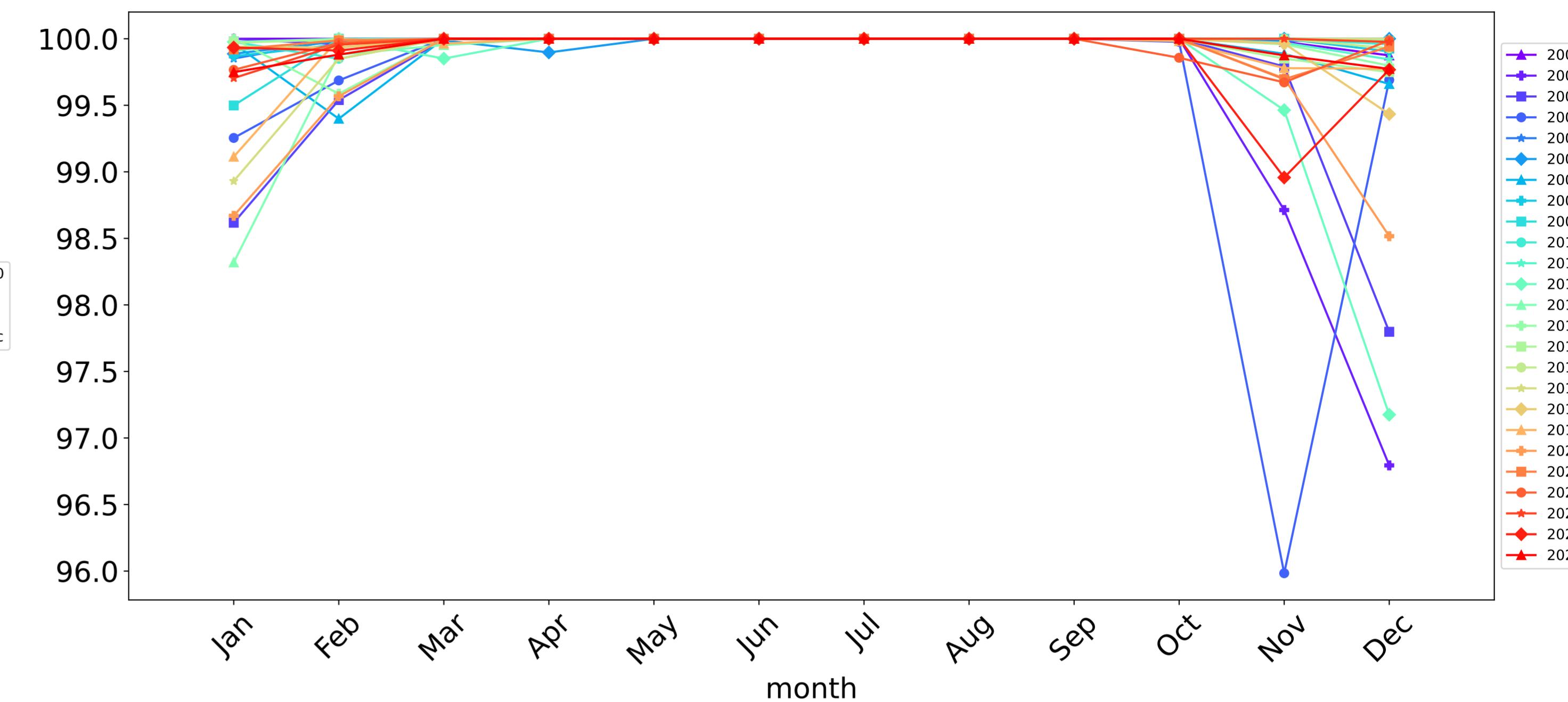


Conservation and natural environments Woodland forest timeseries

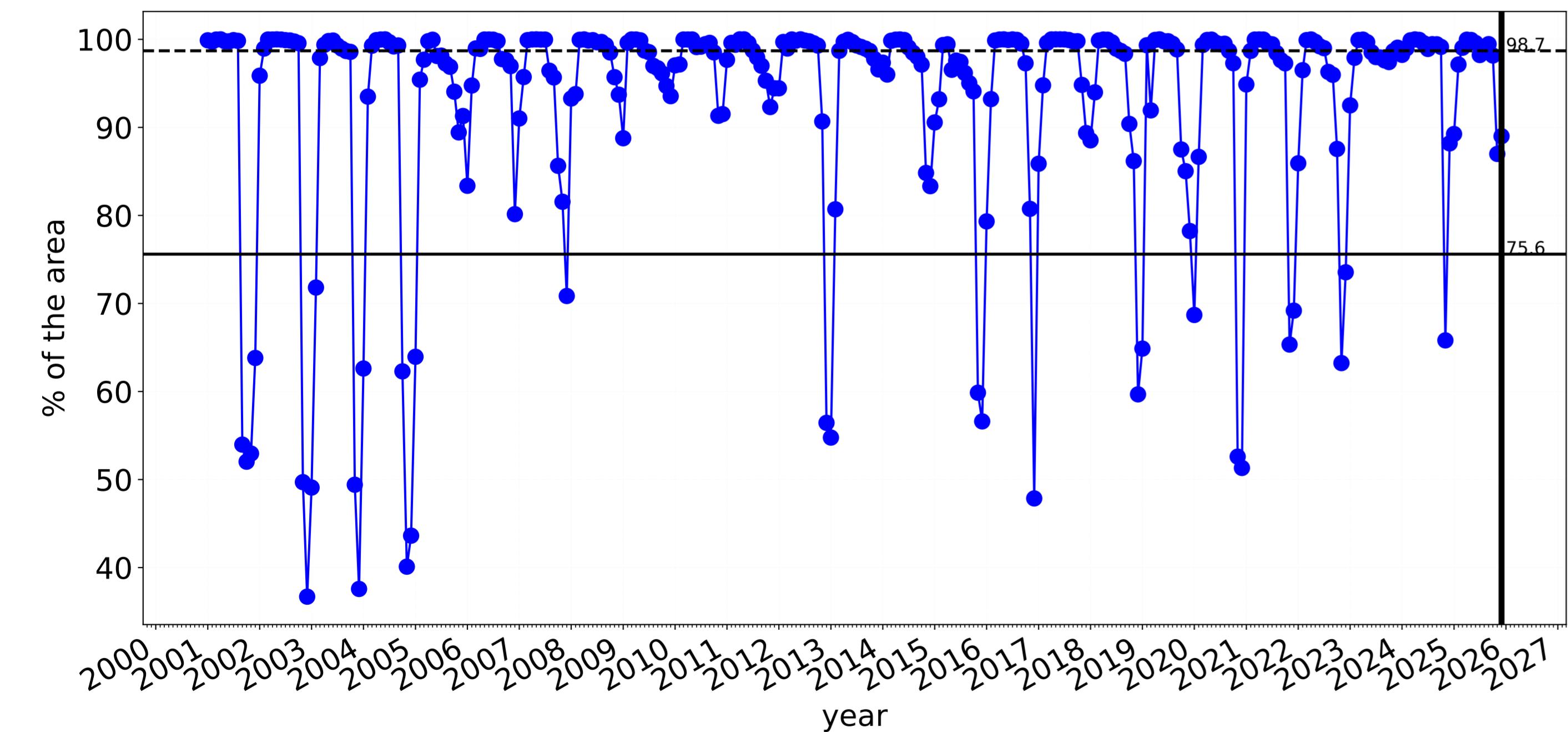
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



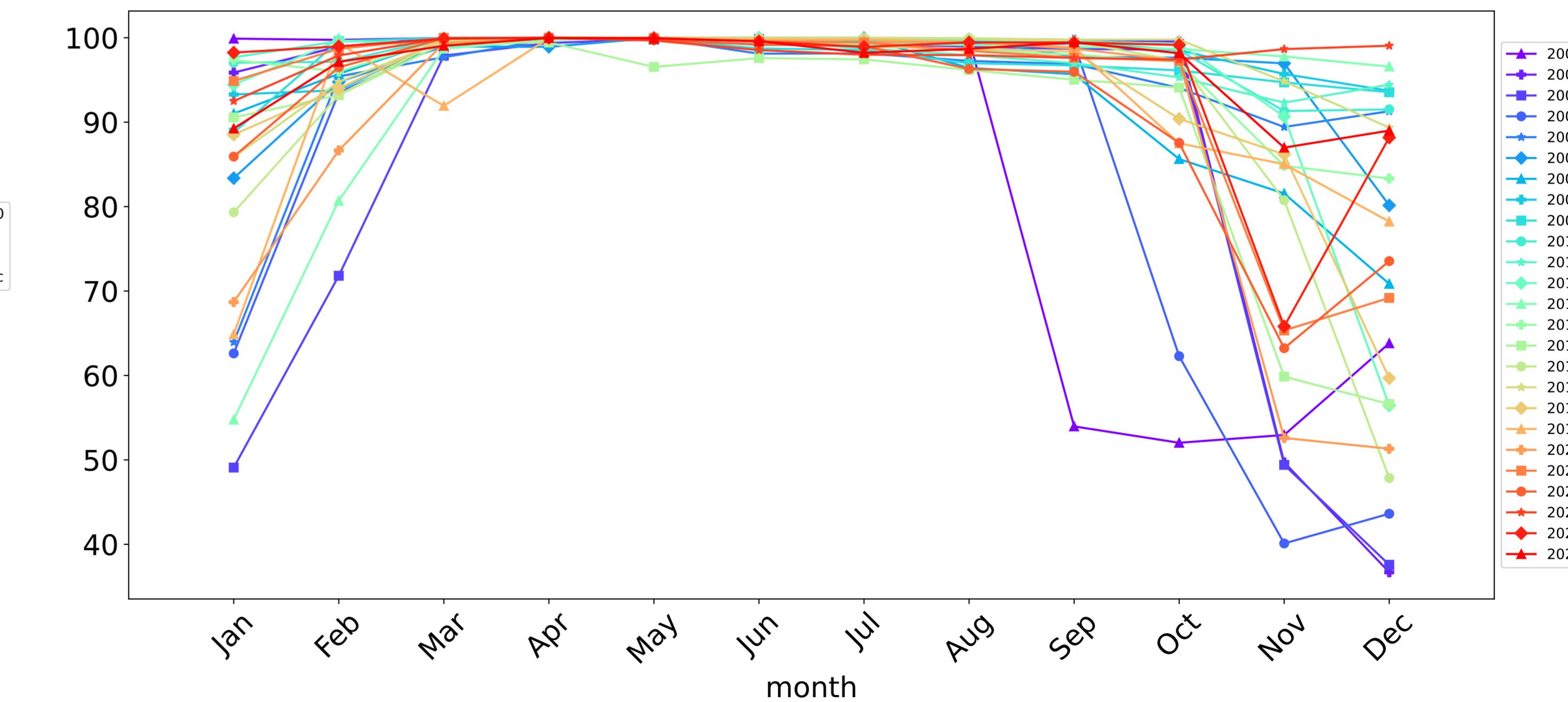
Wind erosion historical monthly area protected (Total Veg Cov >50%)



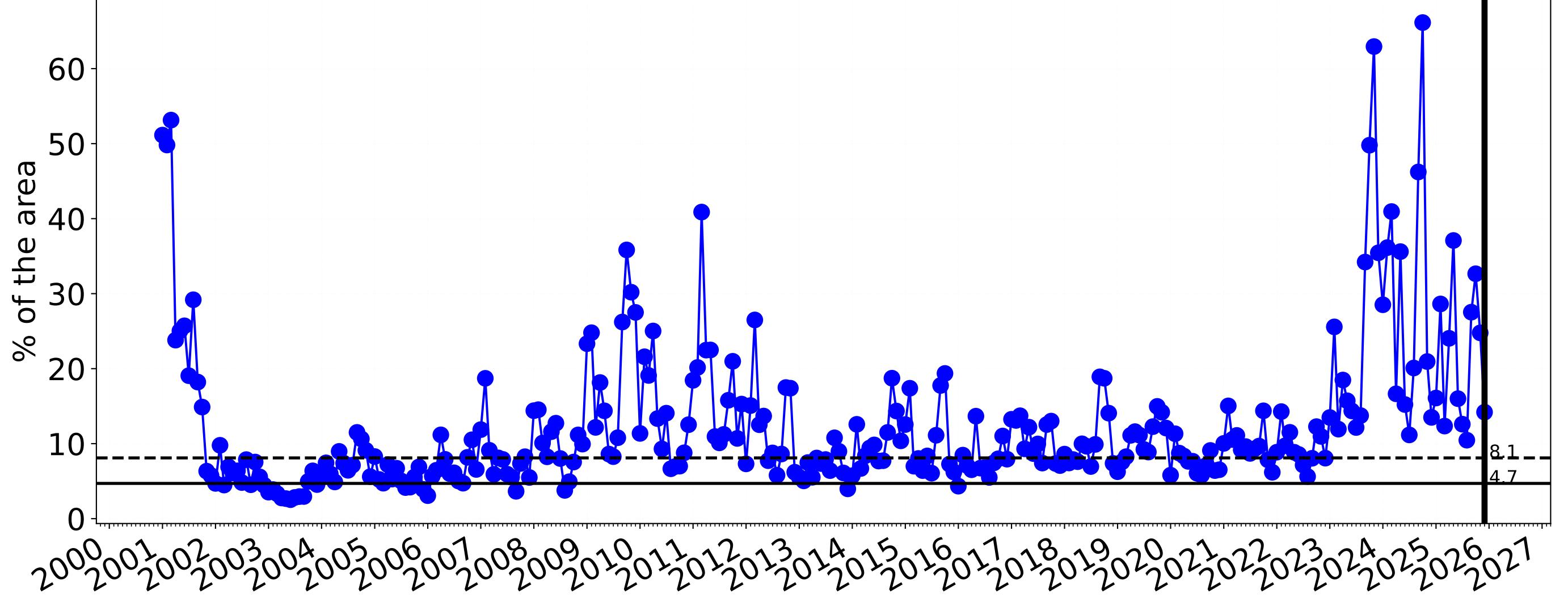
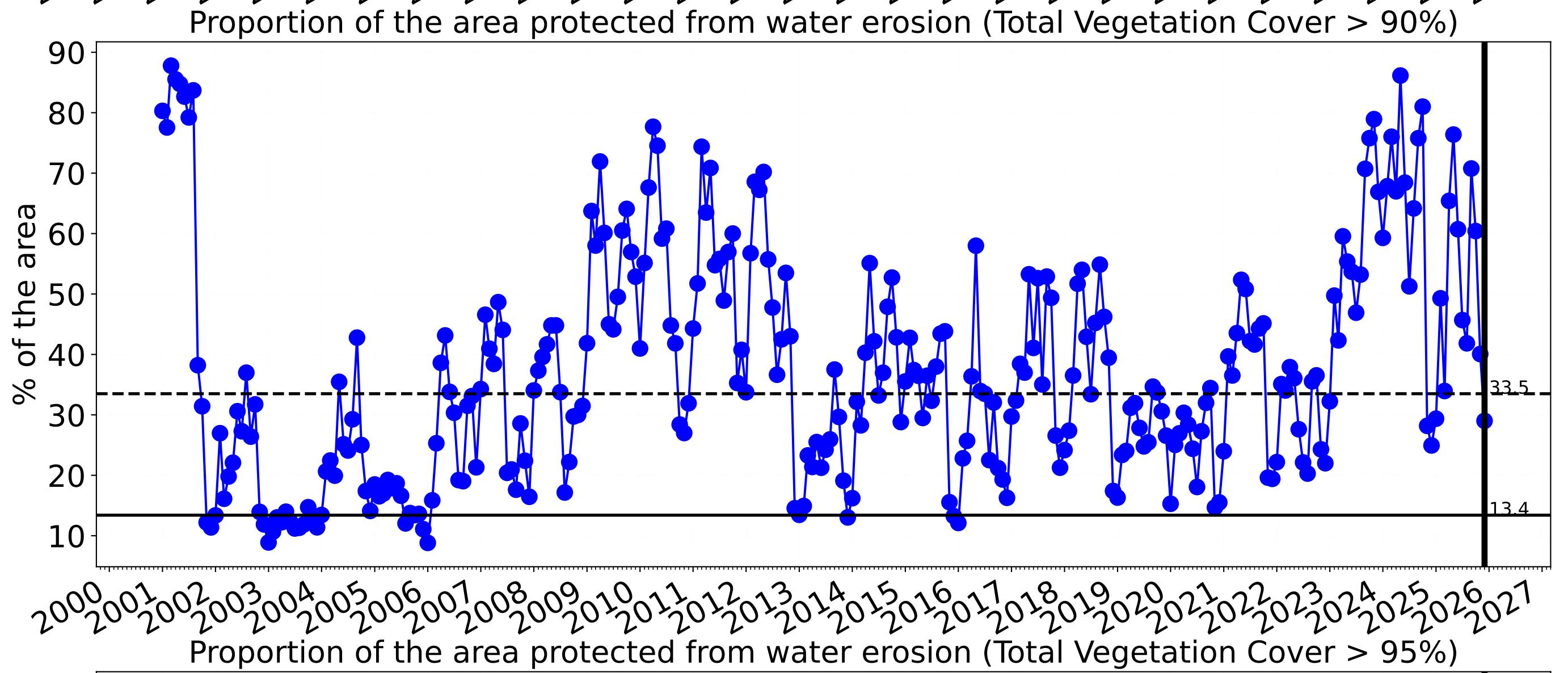
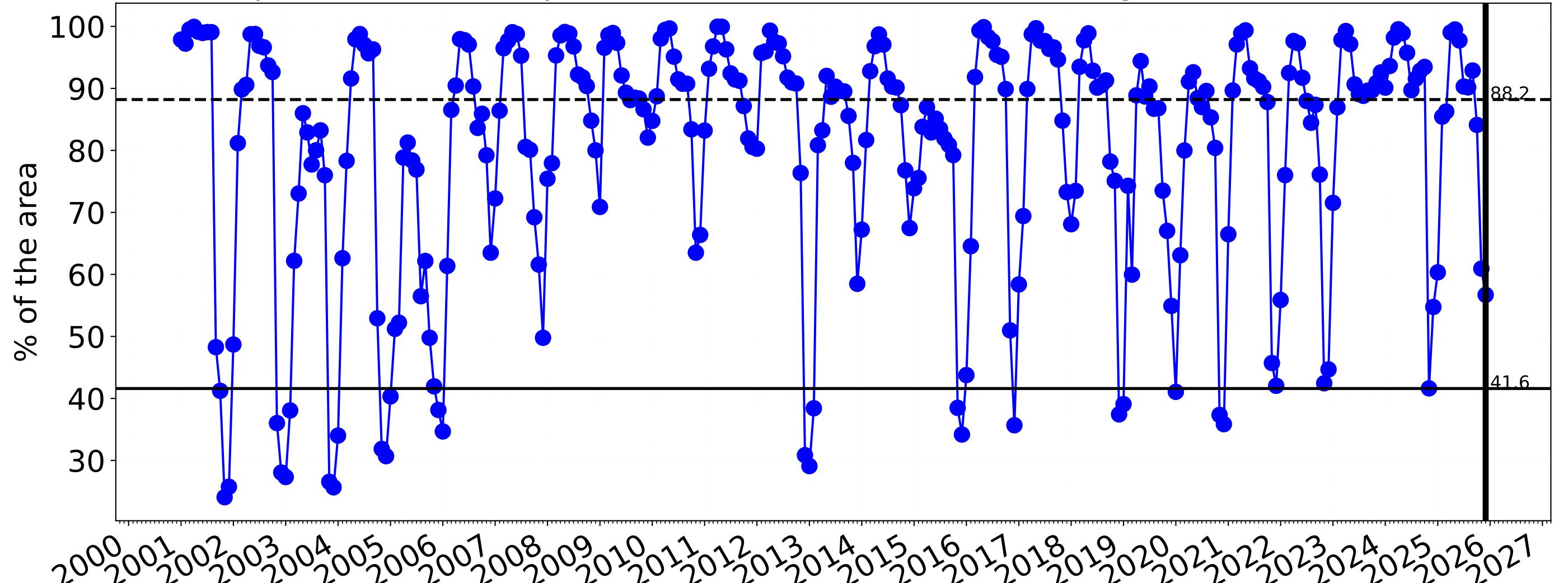
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



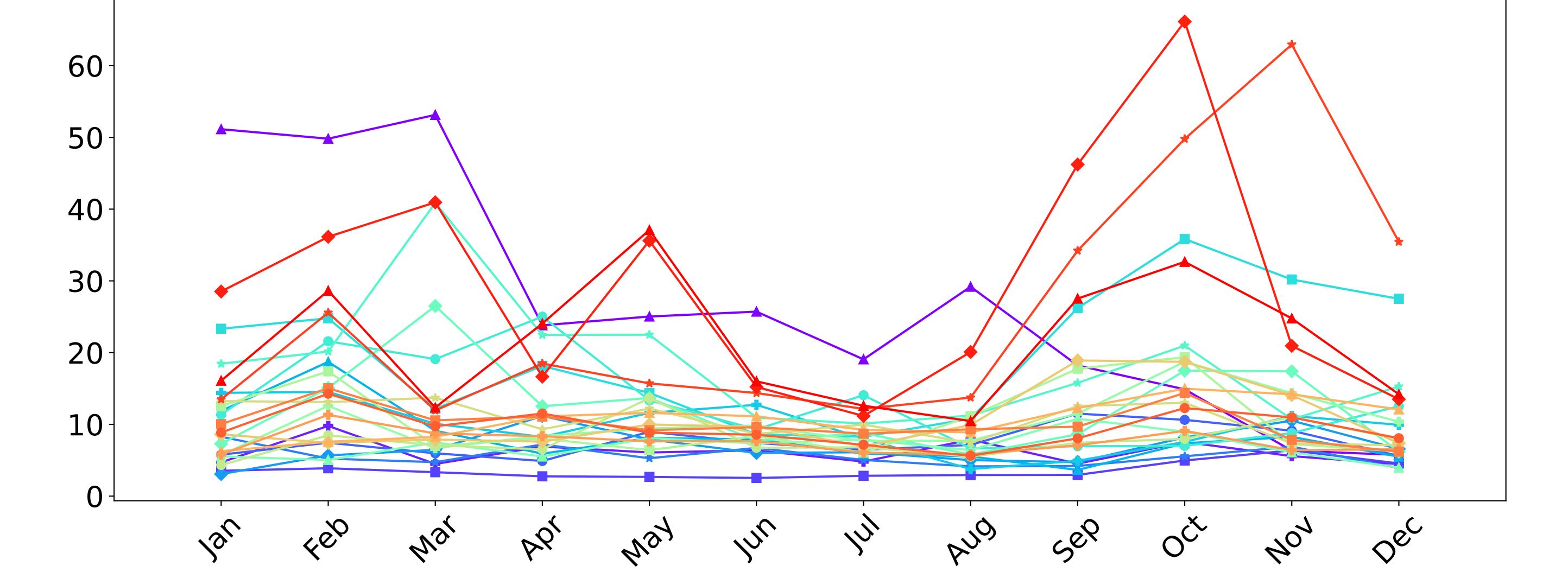
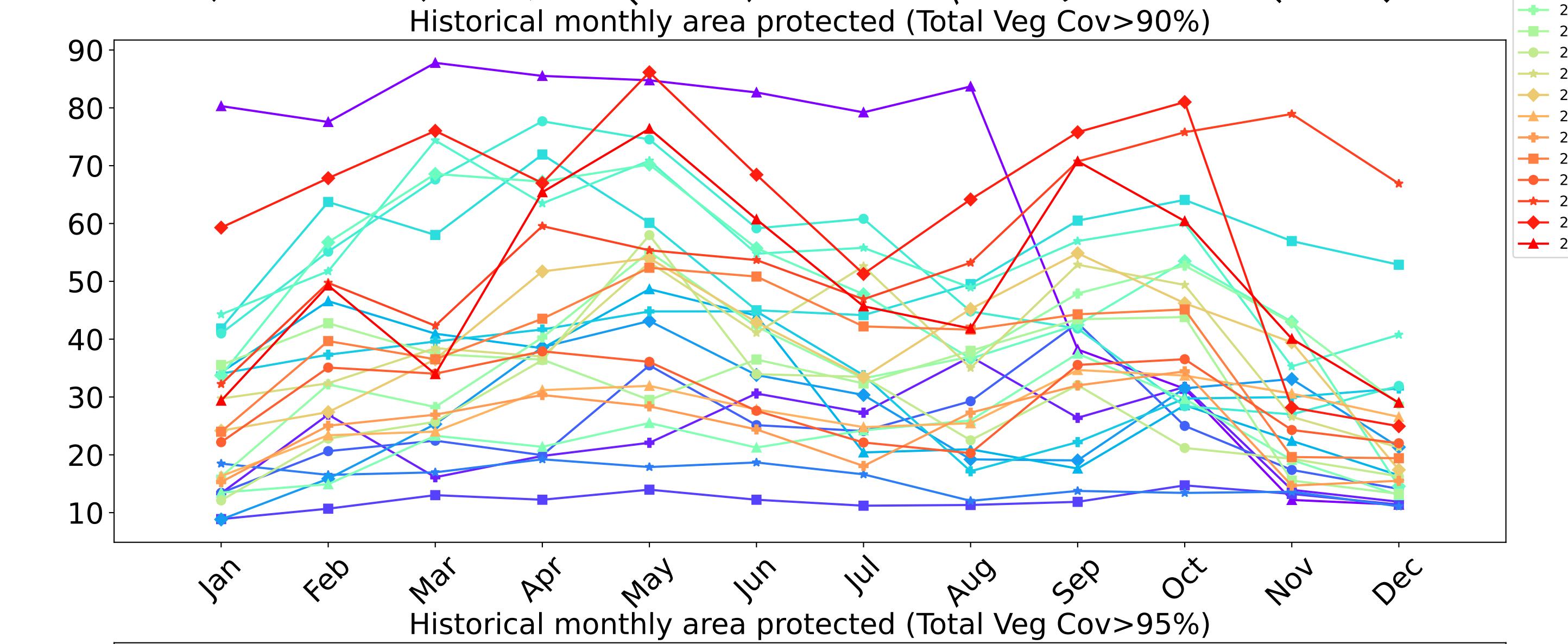
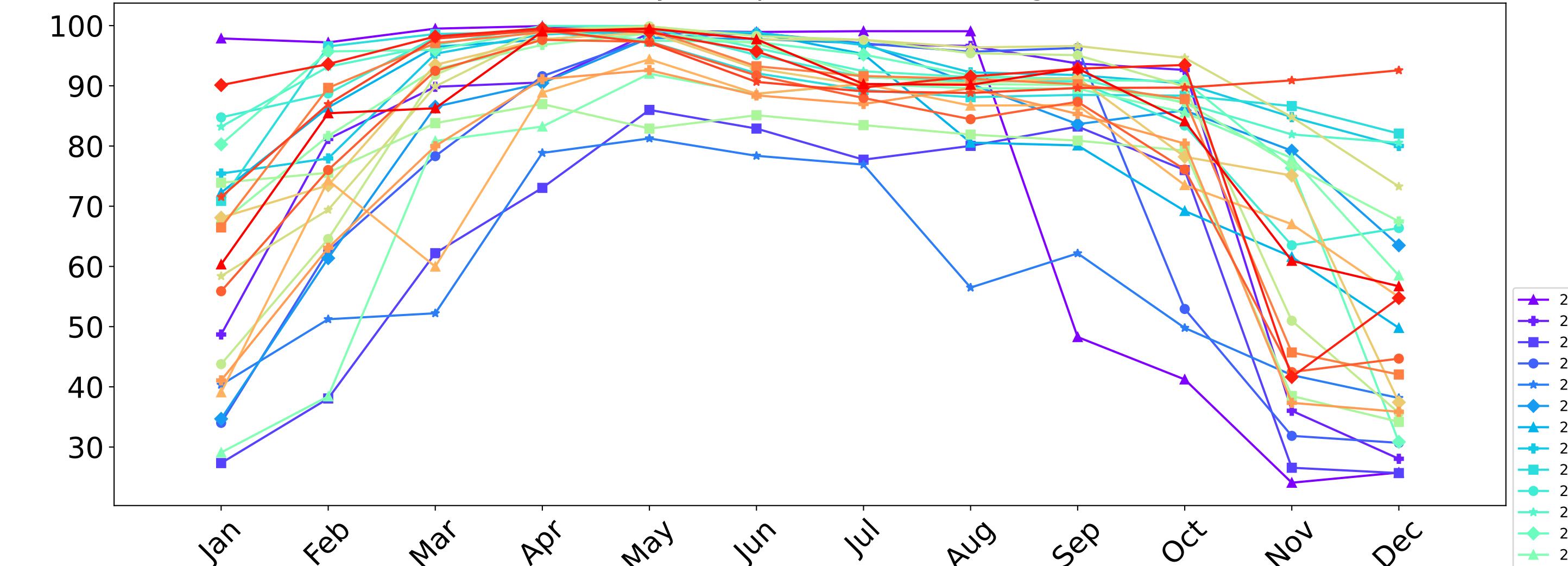
Water erosion historical monthly area protected (Total Veg Cov >70%)



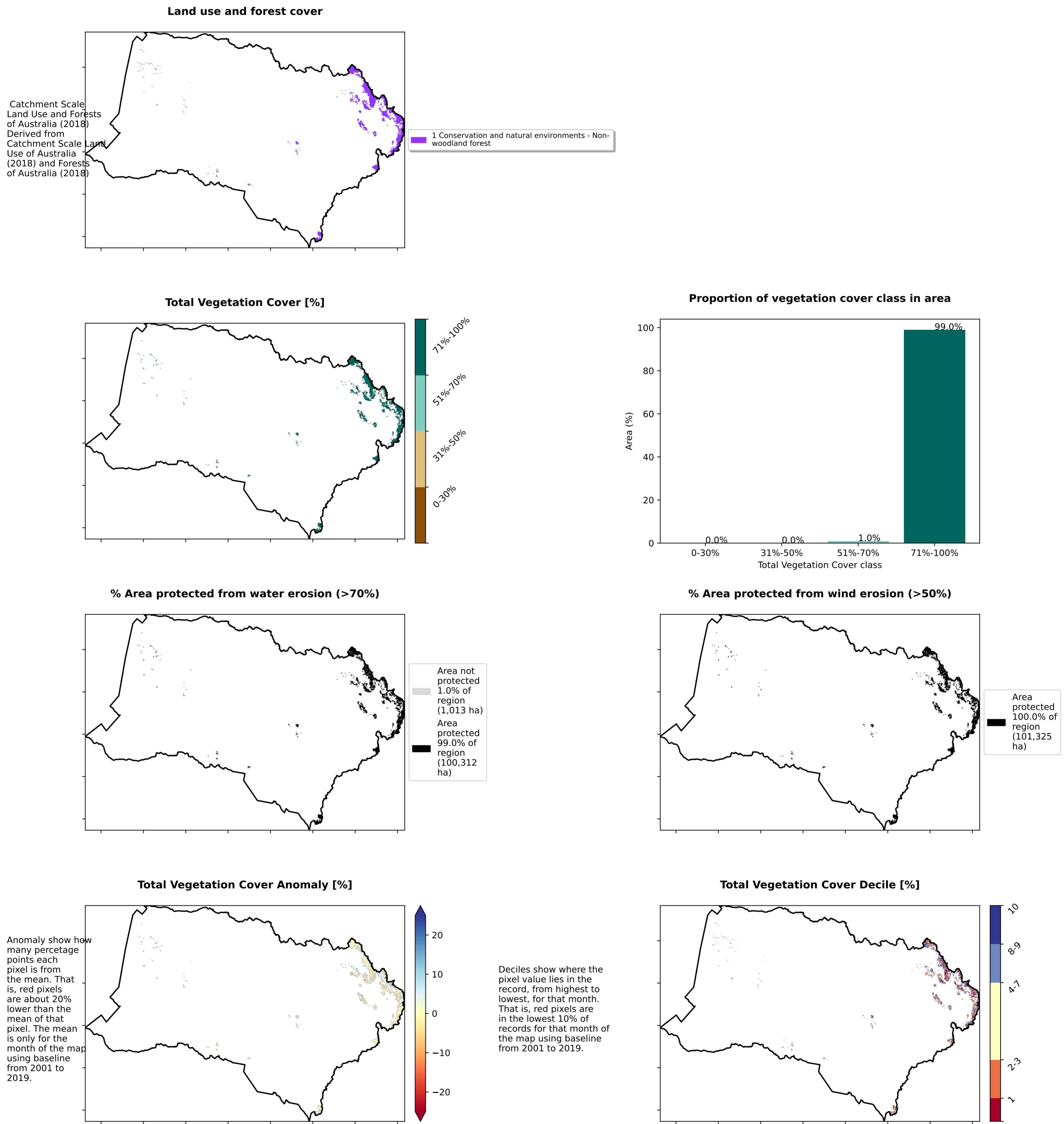
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



Historical monthly area protected (Total Veg Cov>80%)

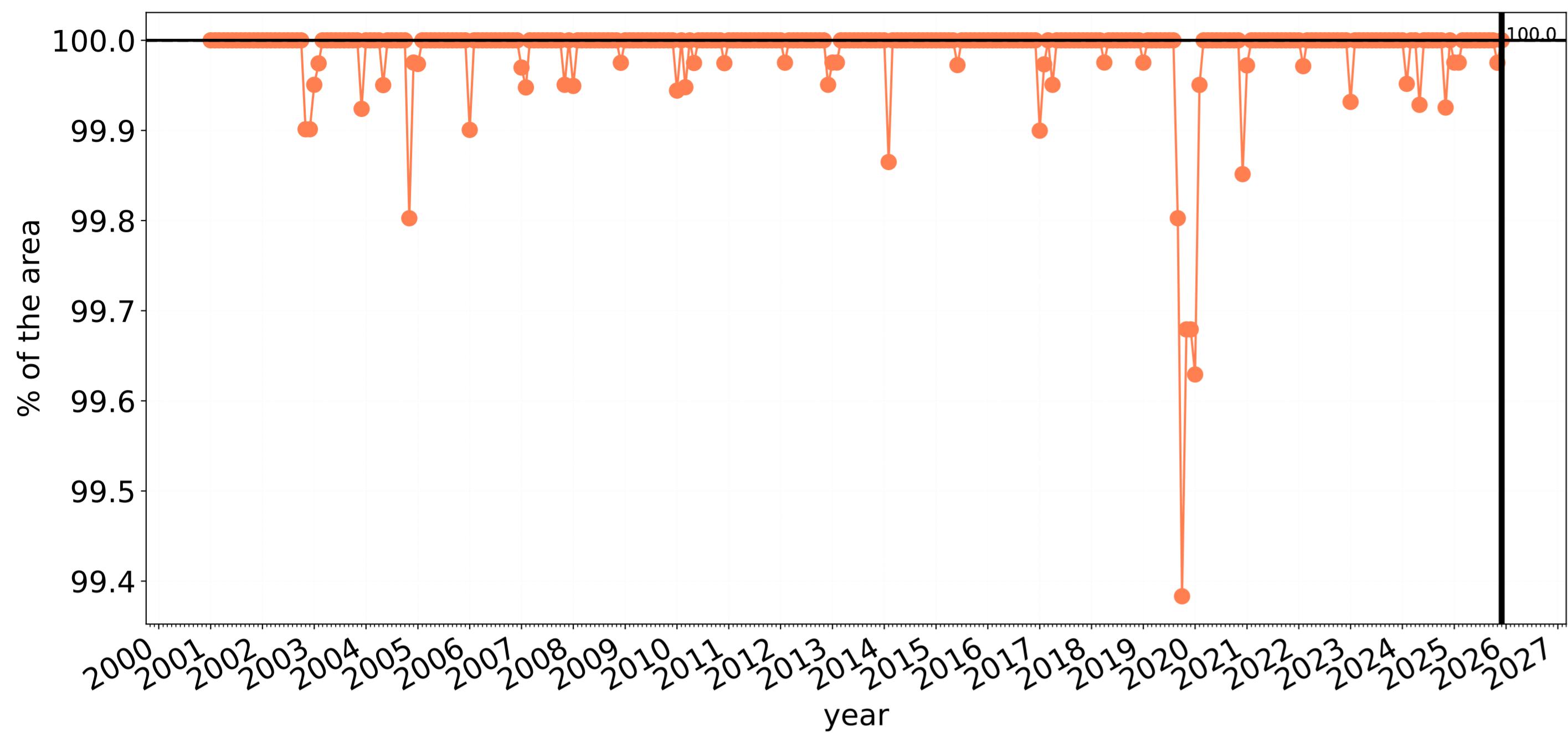


Conservation and natural environments Forest (non woodland)

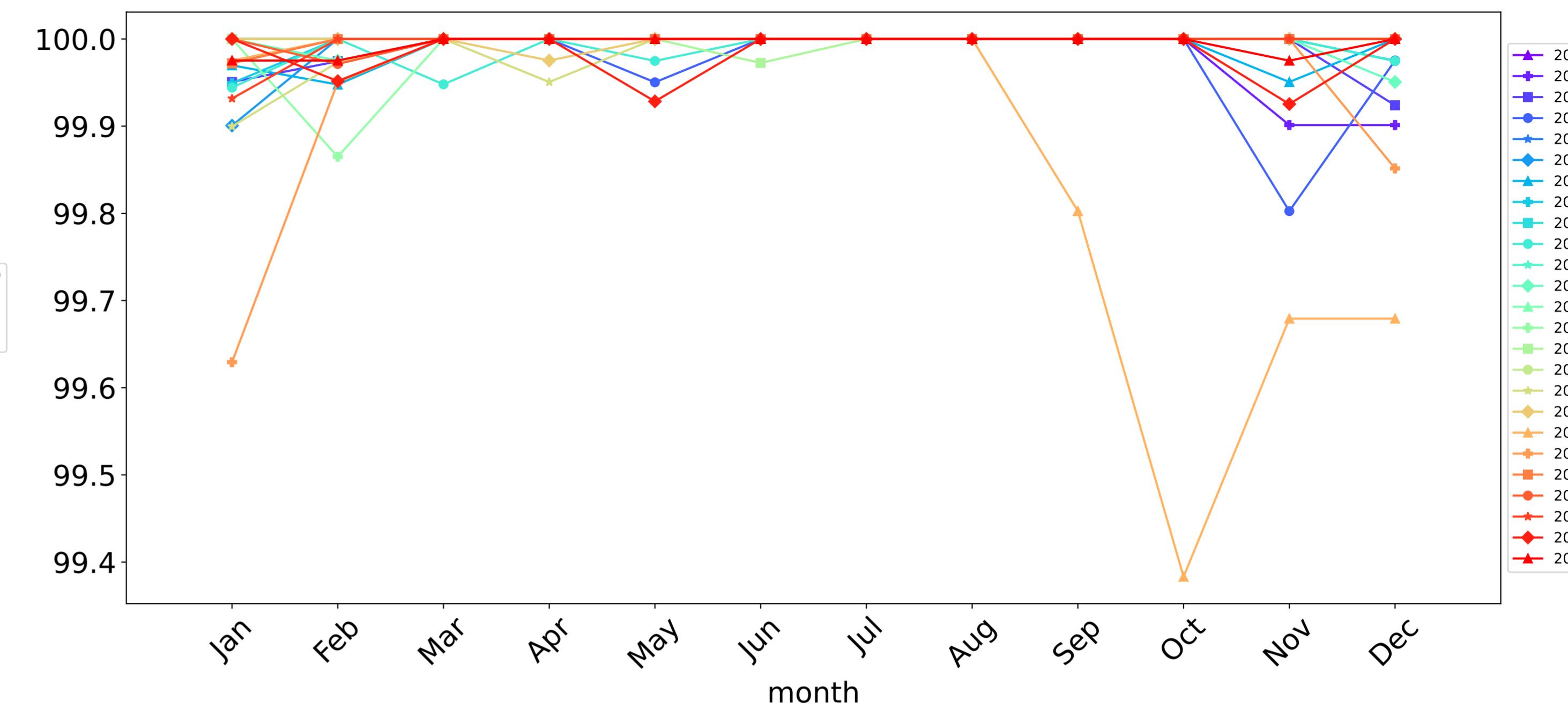


Conservation and natural environments Forest (non woodland) timeseries

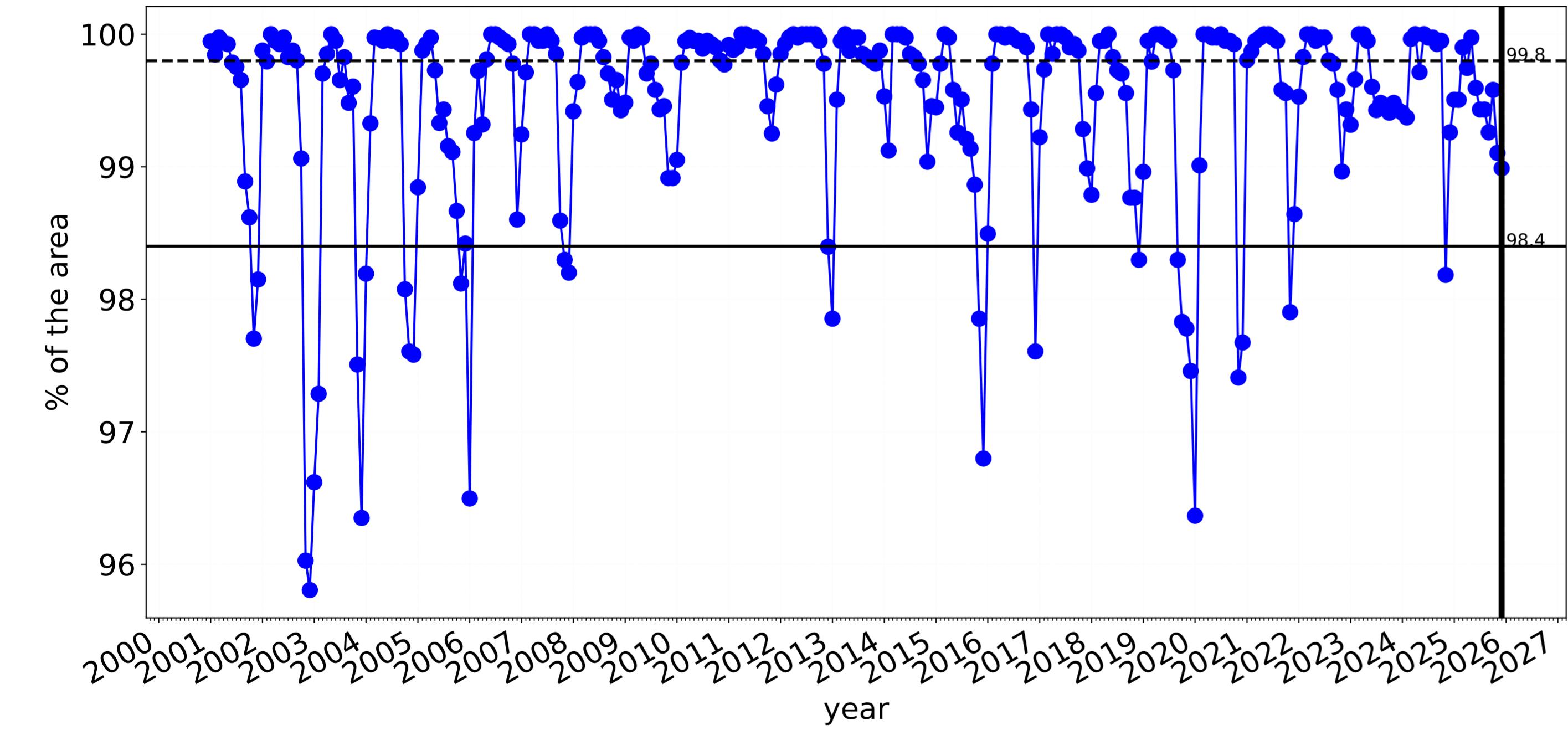
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



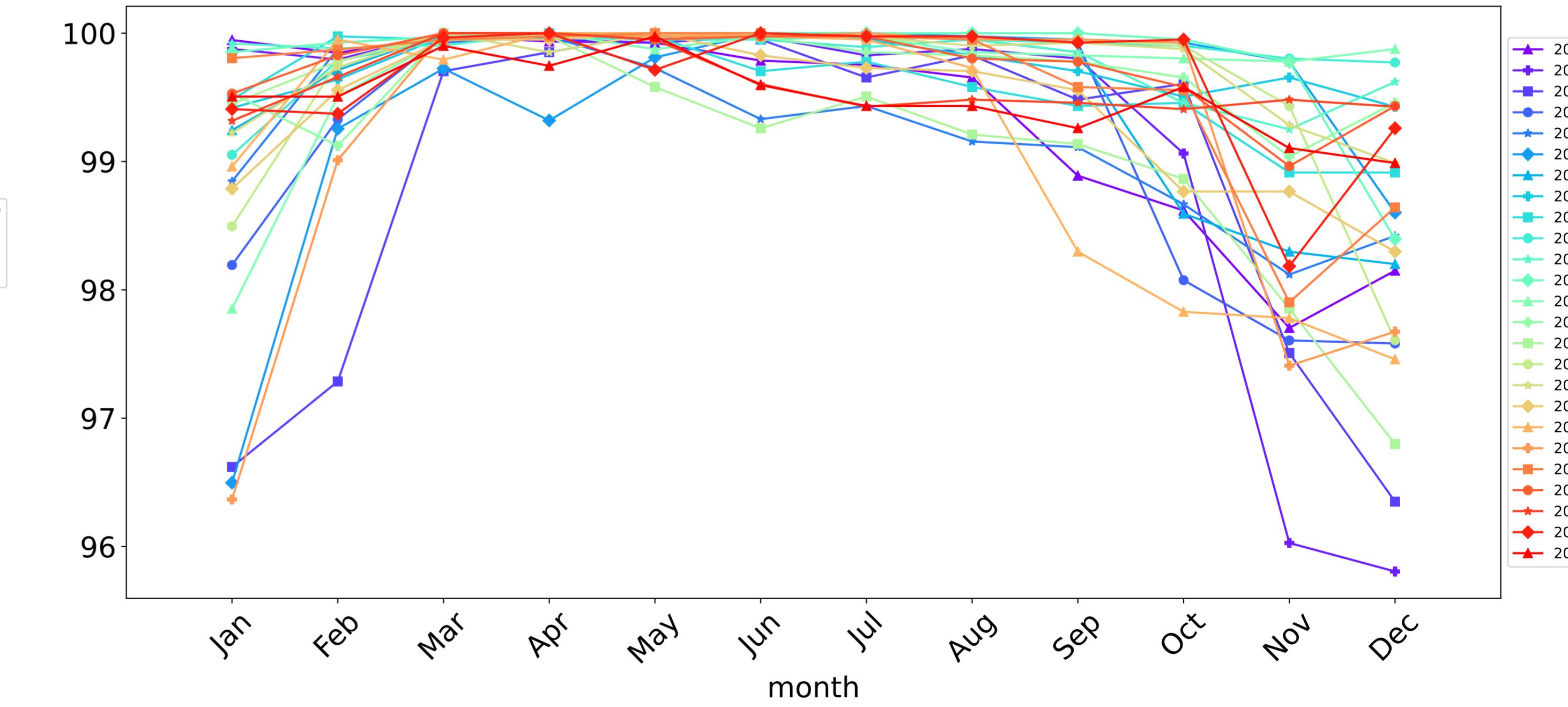
Wind erosion historical monthly area protected (Total Veg Cov >50%)

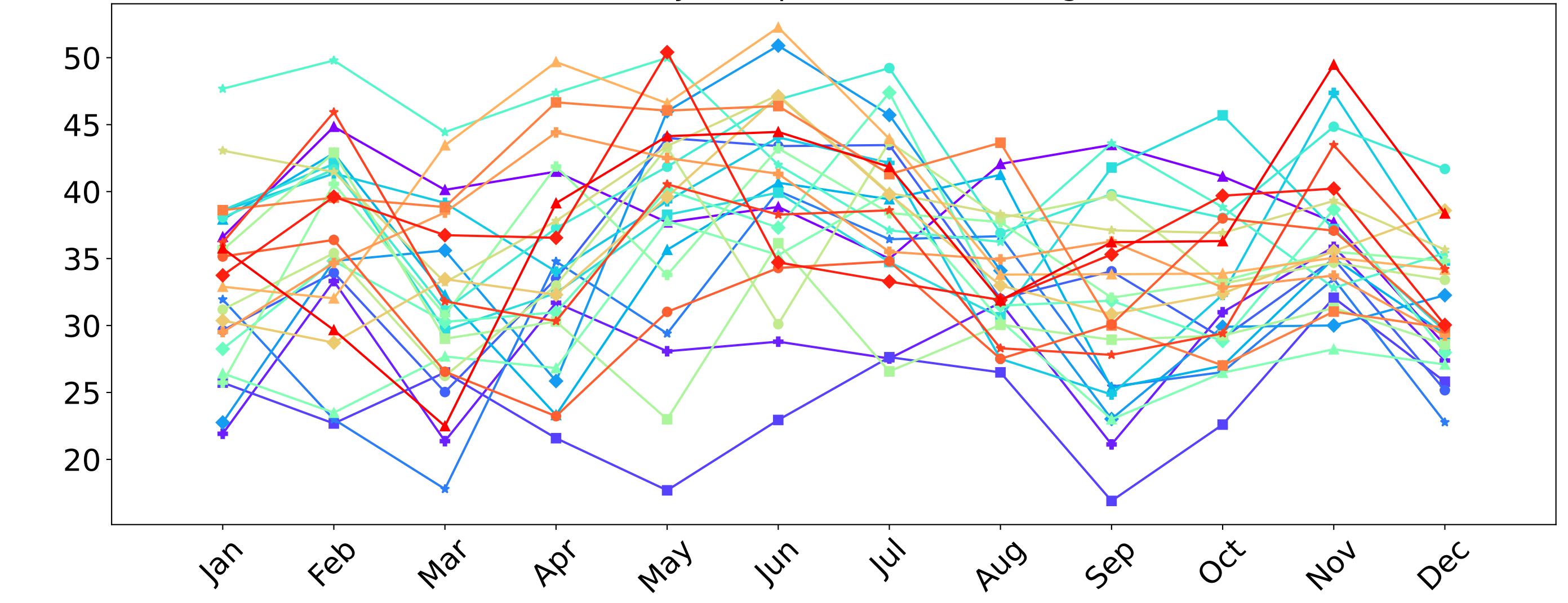
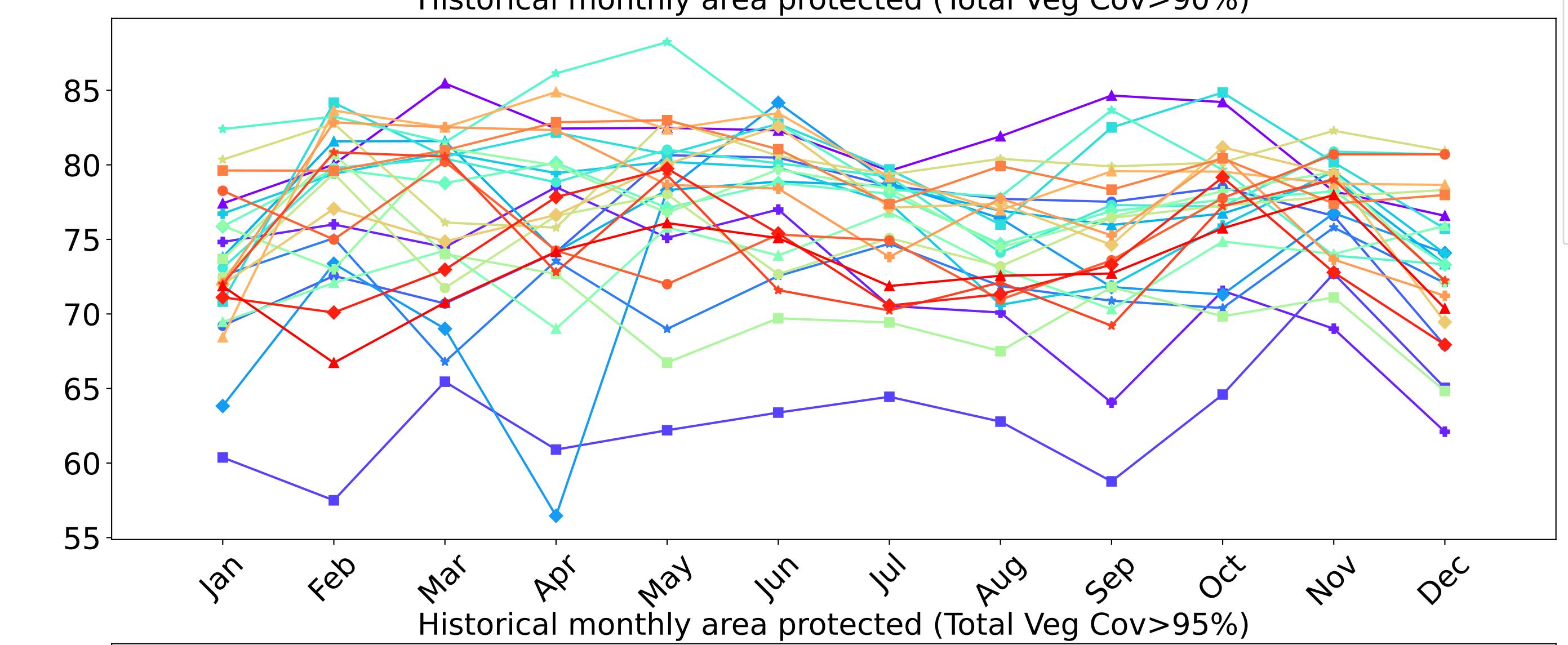
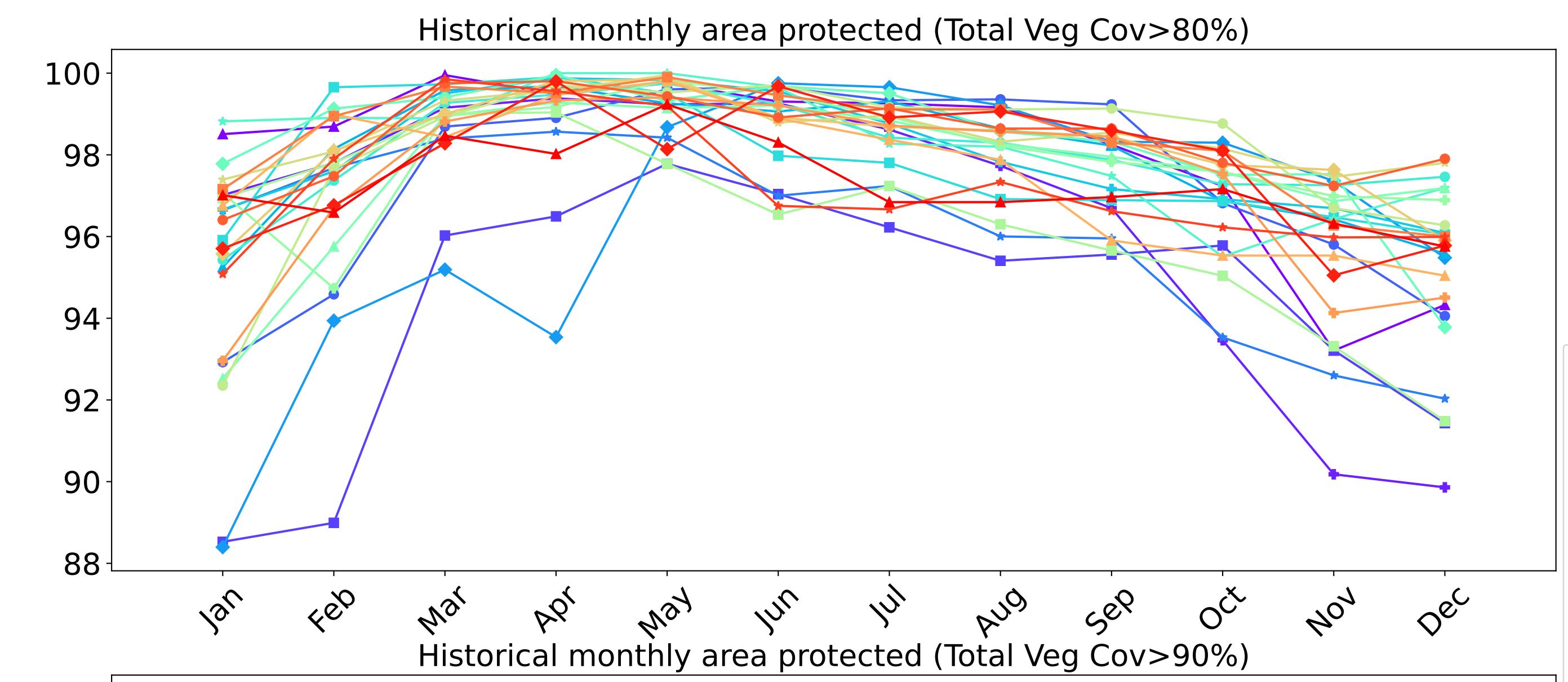
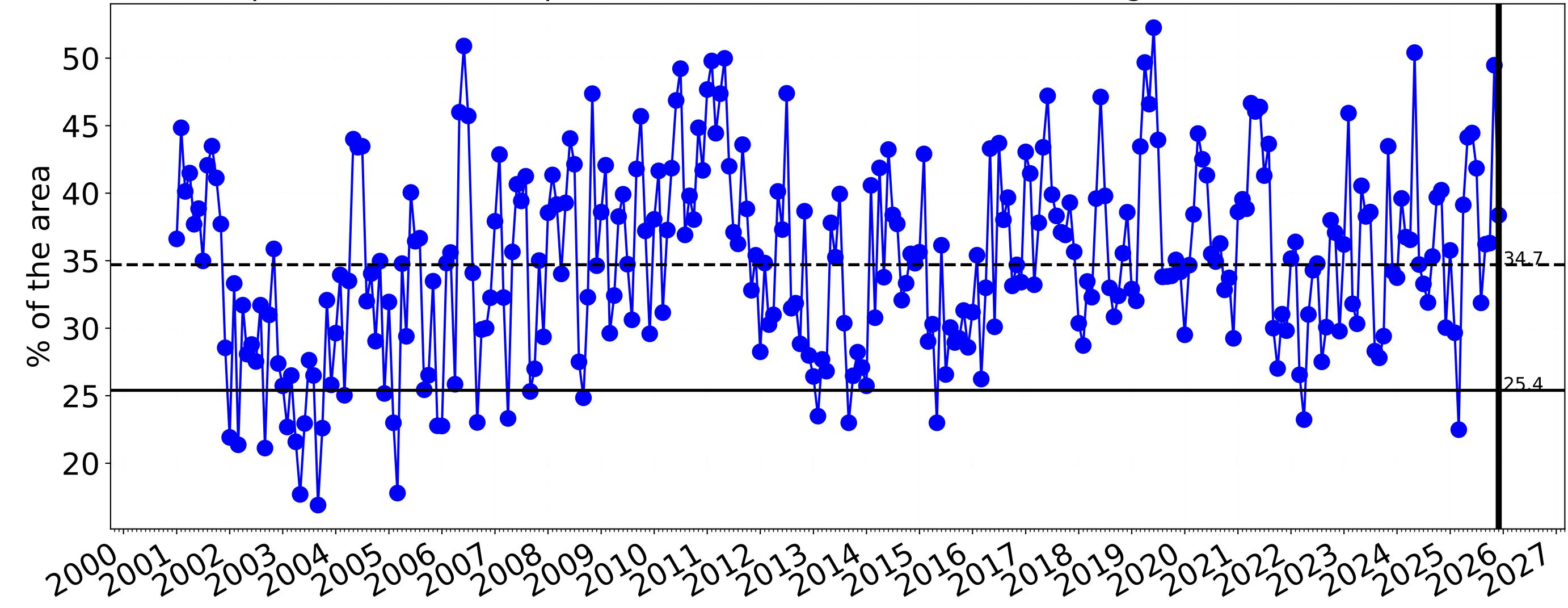
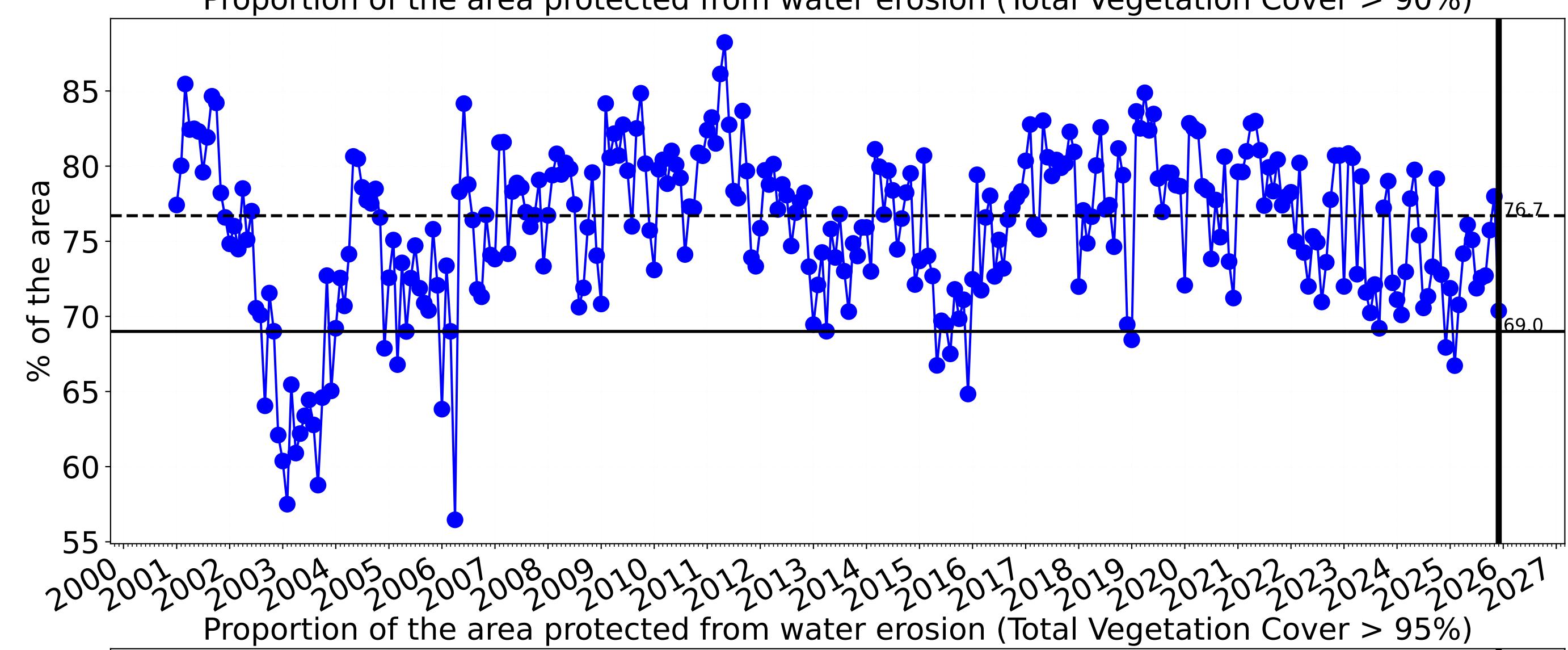
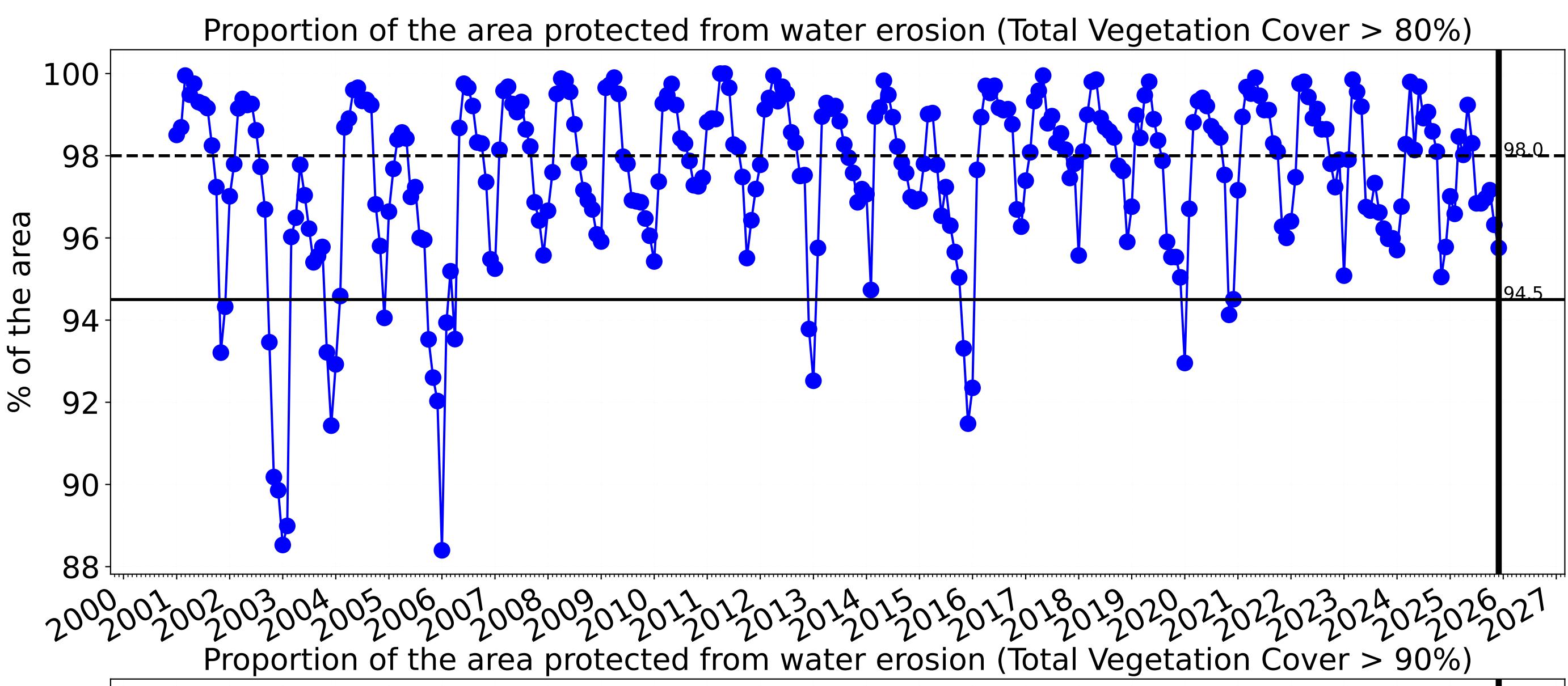


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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

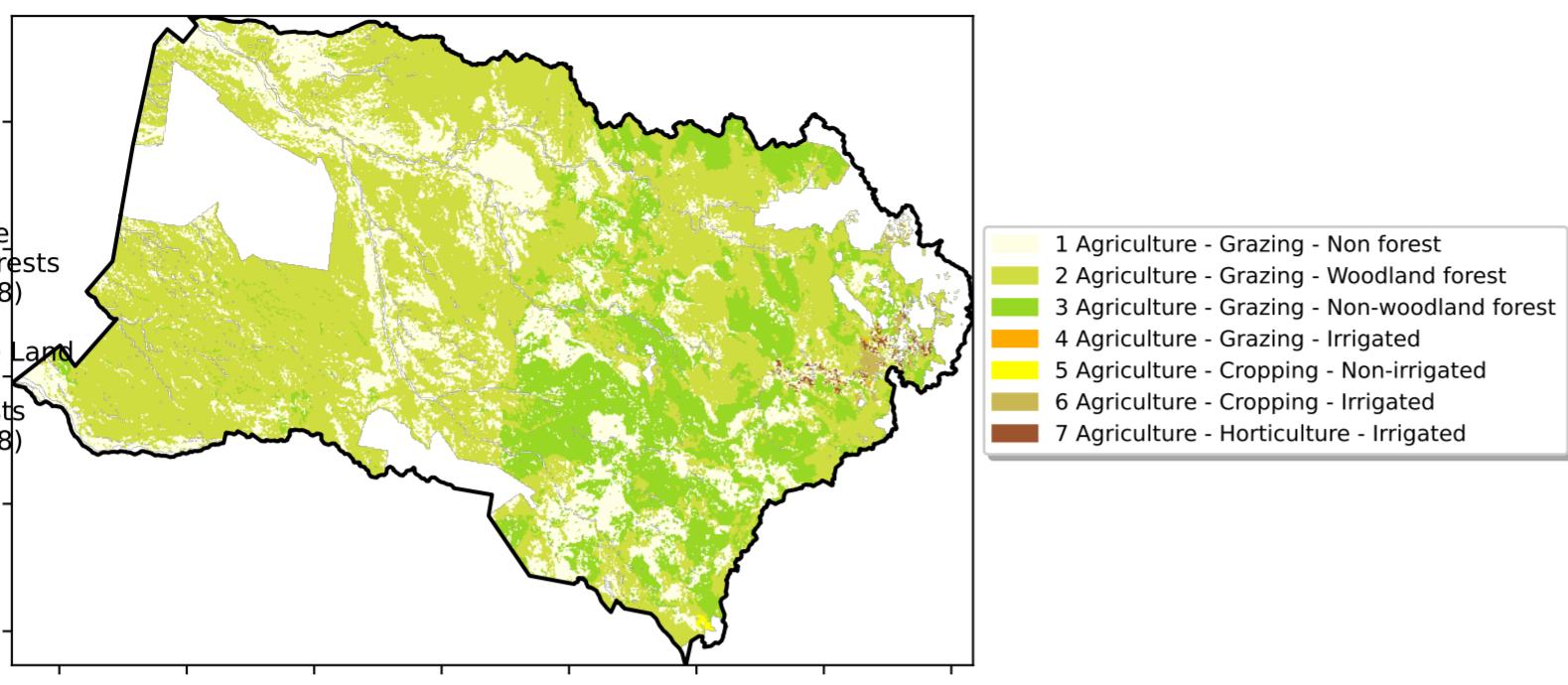




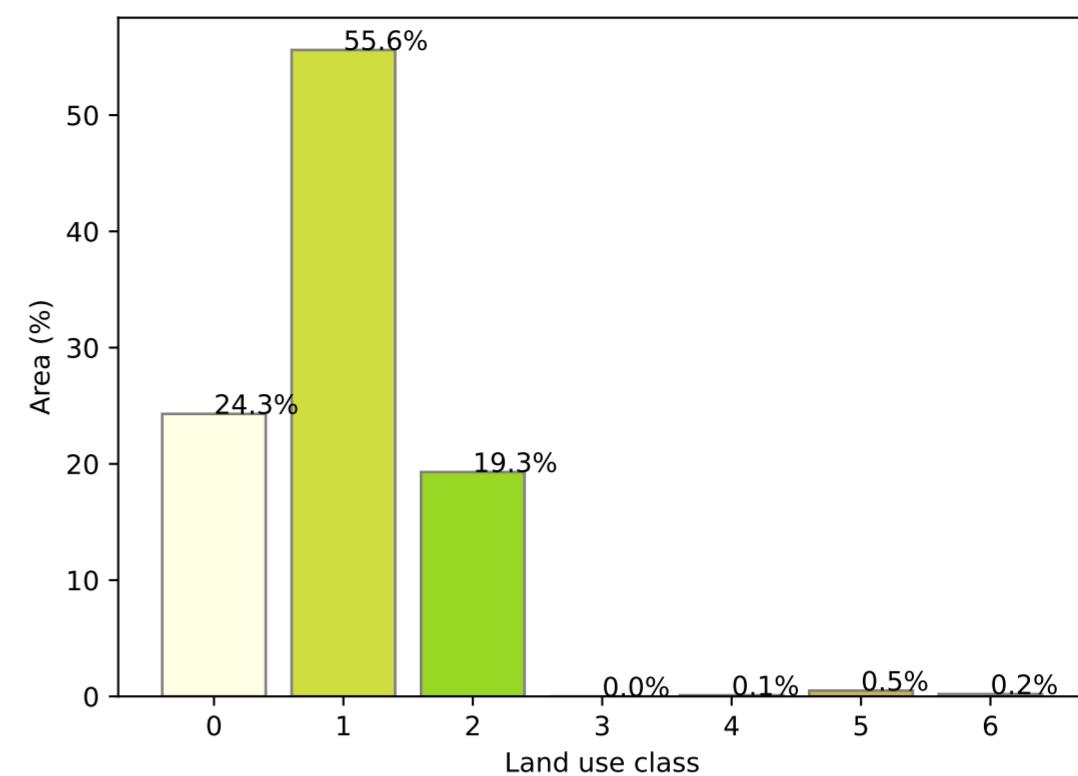
Agriculture

Land use and forest cover

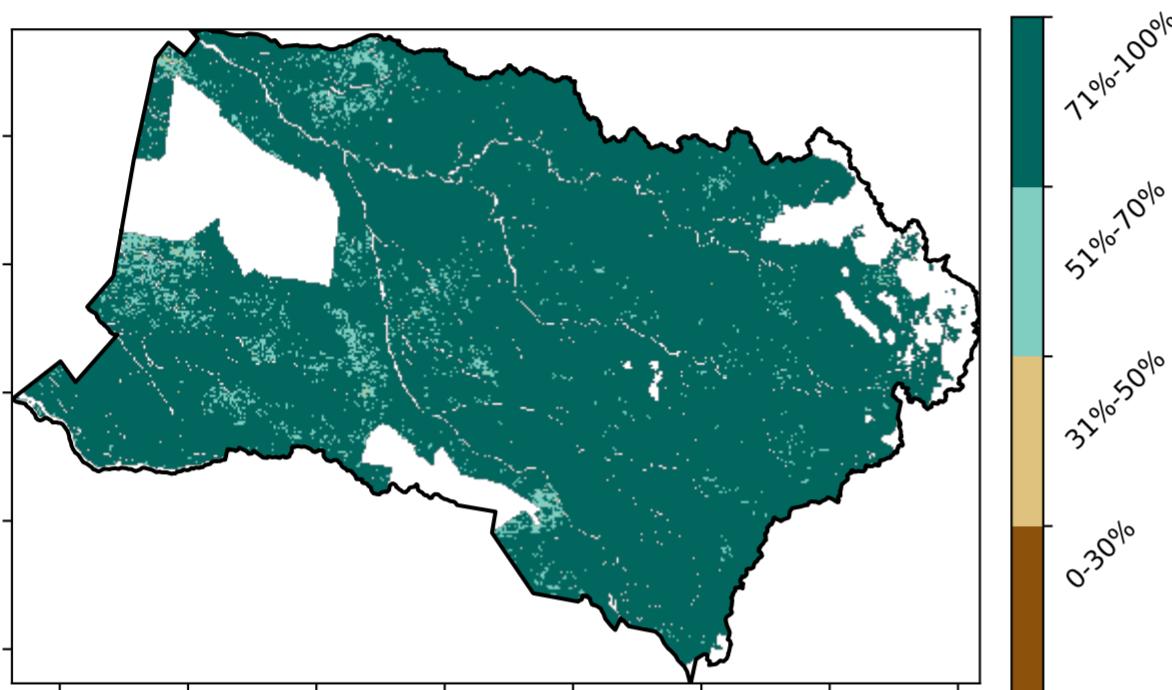
Catchment Scale Land Use and Forests of Australia (2018)
Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



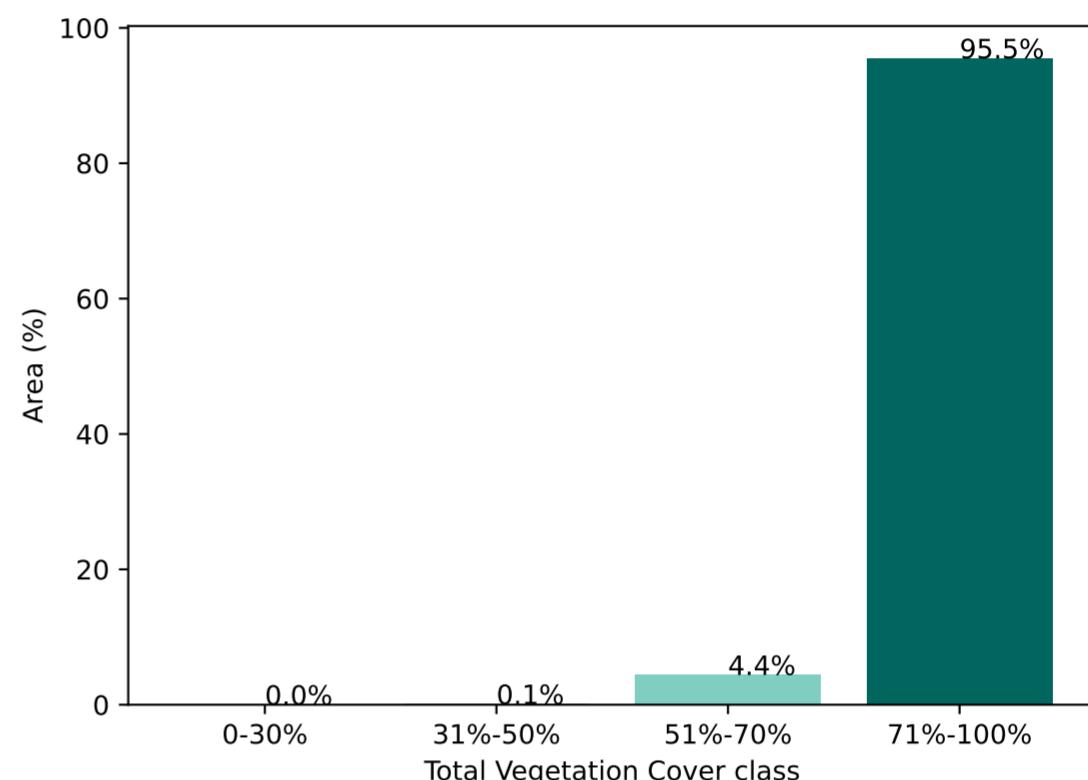
Proportion of each land class in area



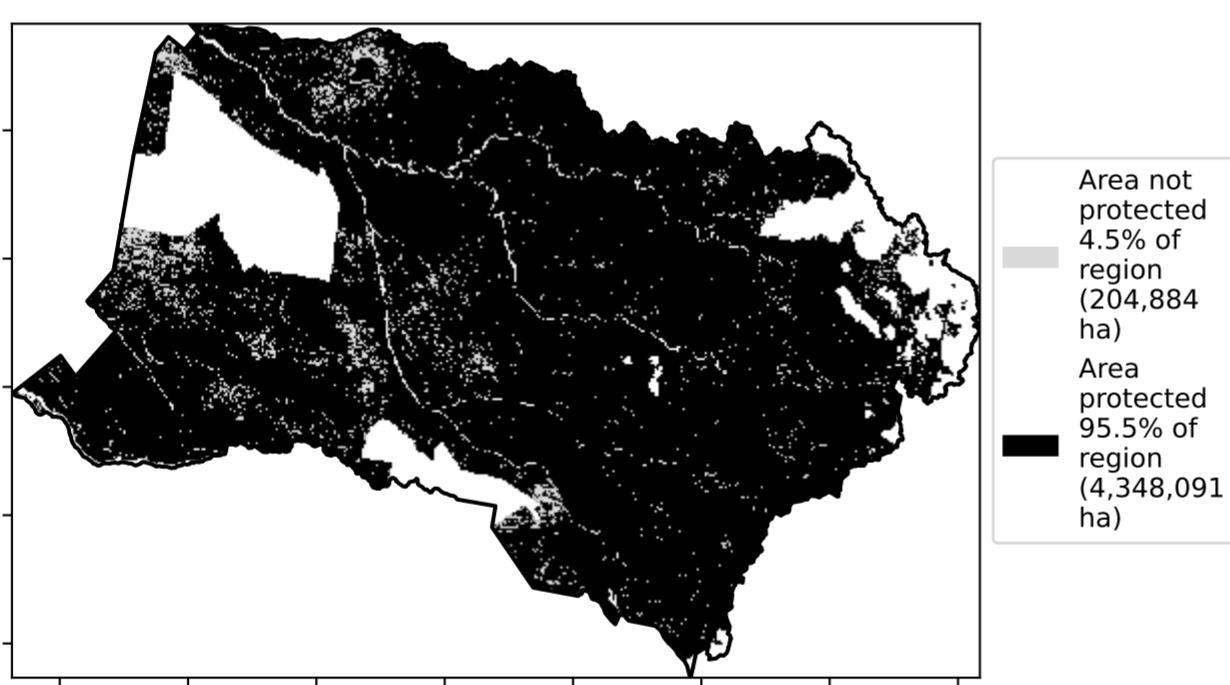
Total Vegetation Cover [%]



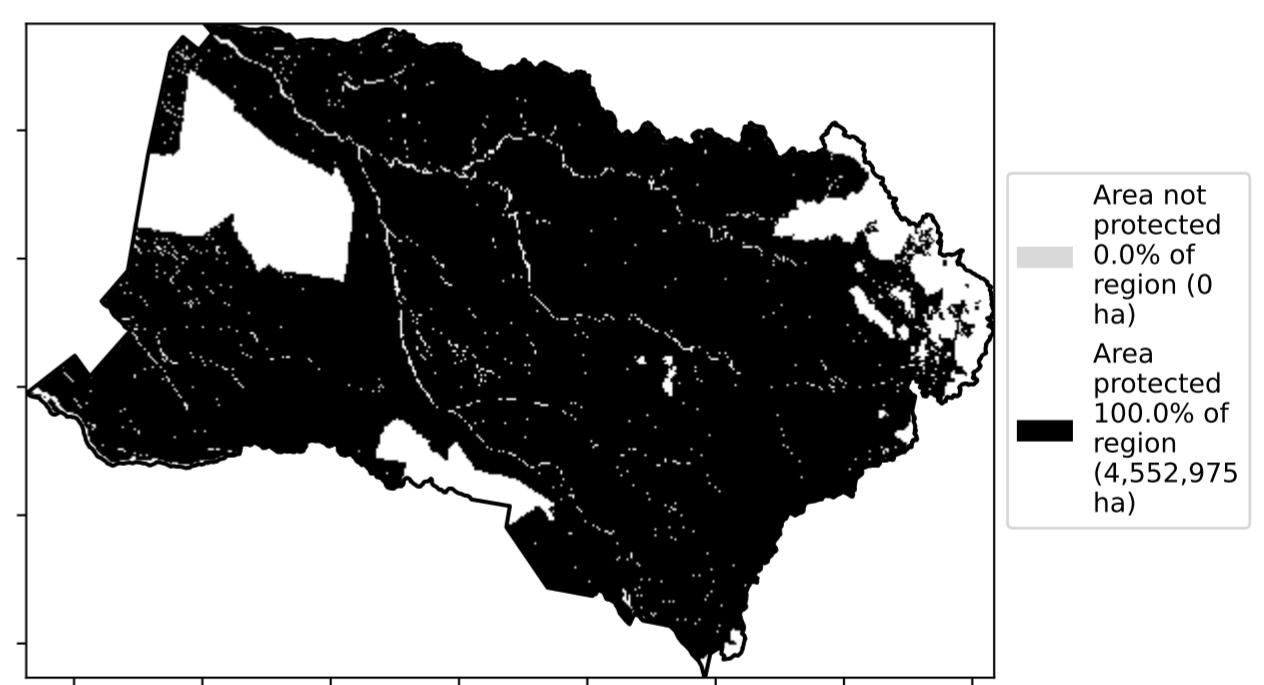
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

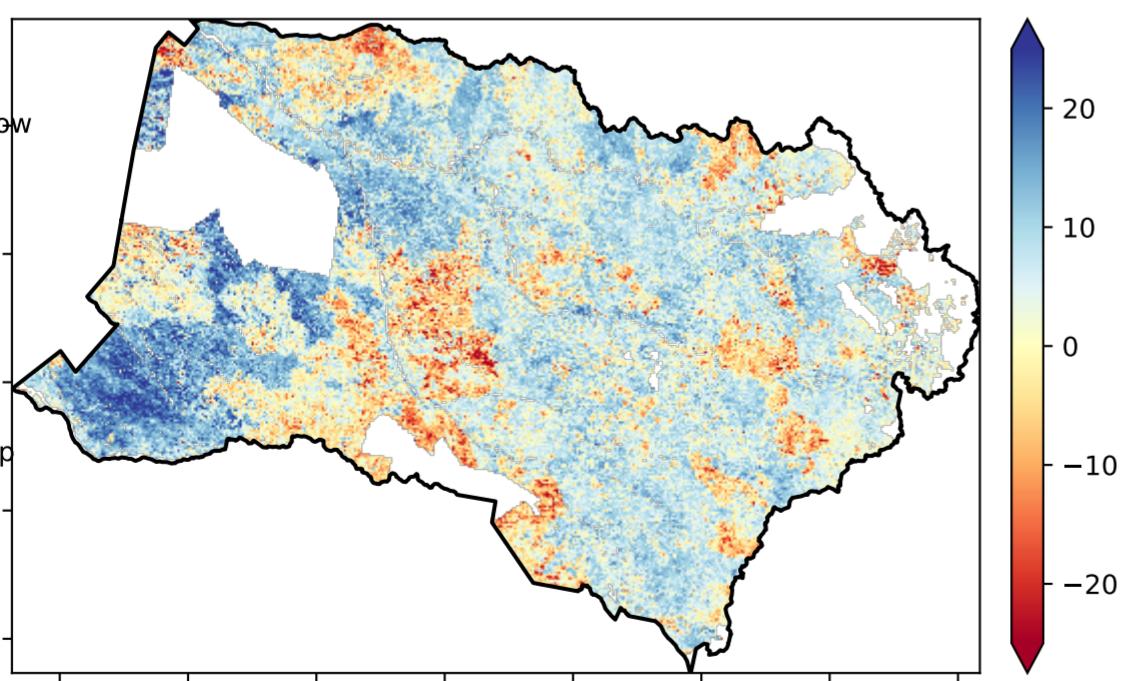


% Area protected from wind erosion (>50%)



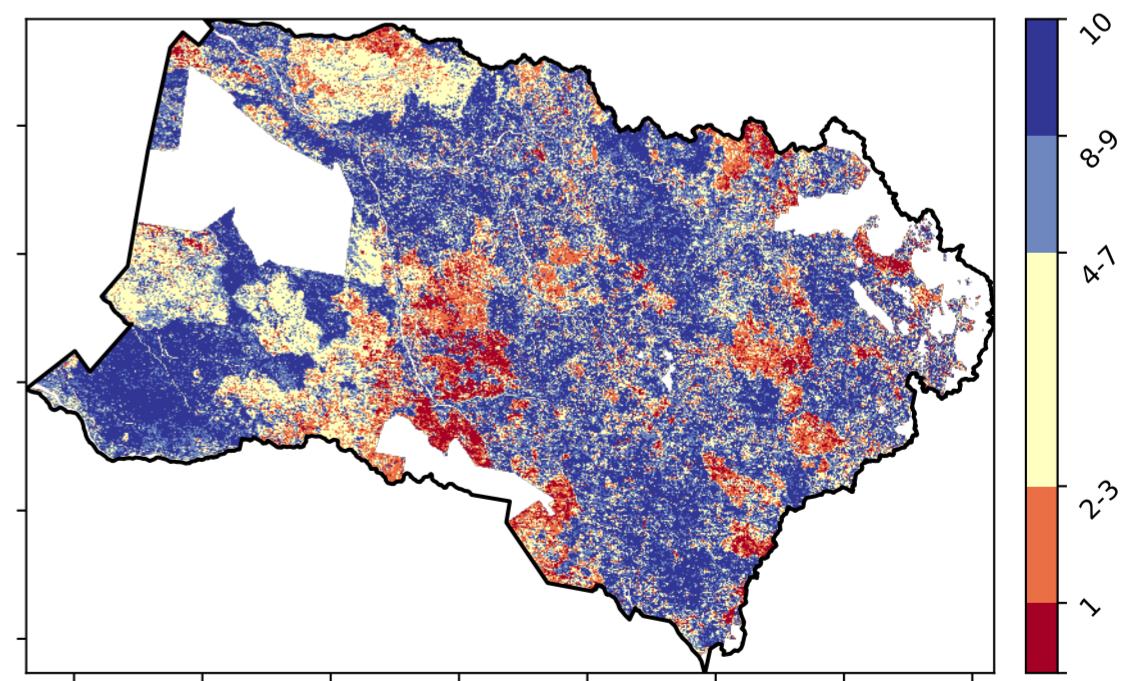
Total Vegetation Cover Anomaly [%]

Anomaly shows 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.



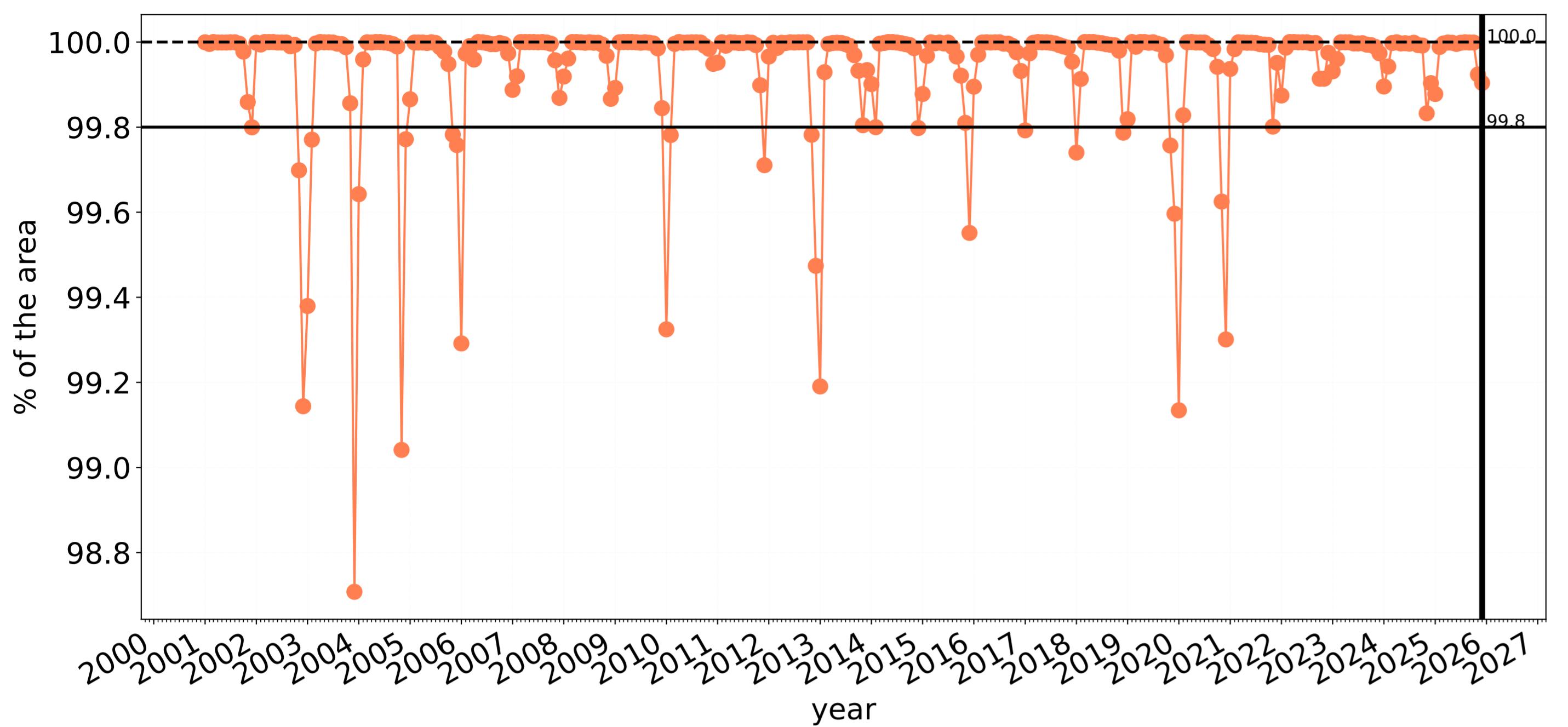
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]

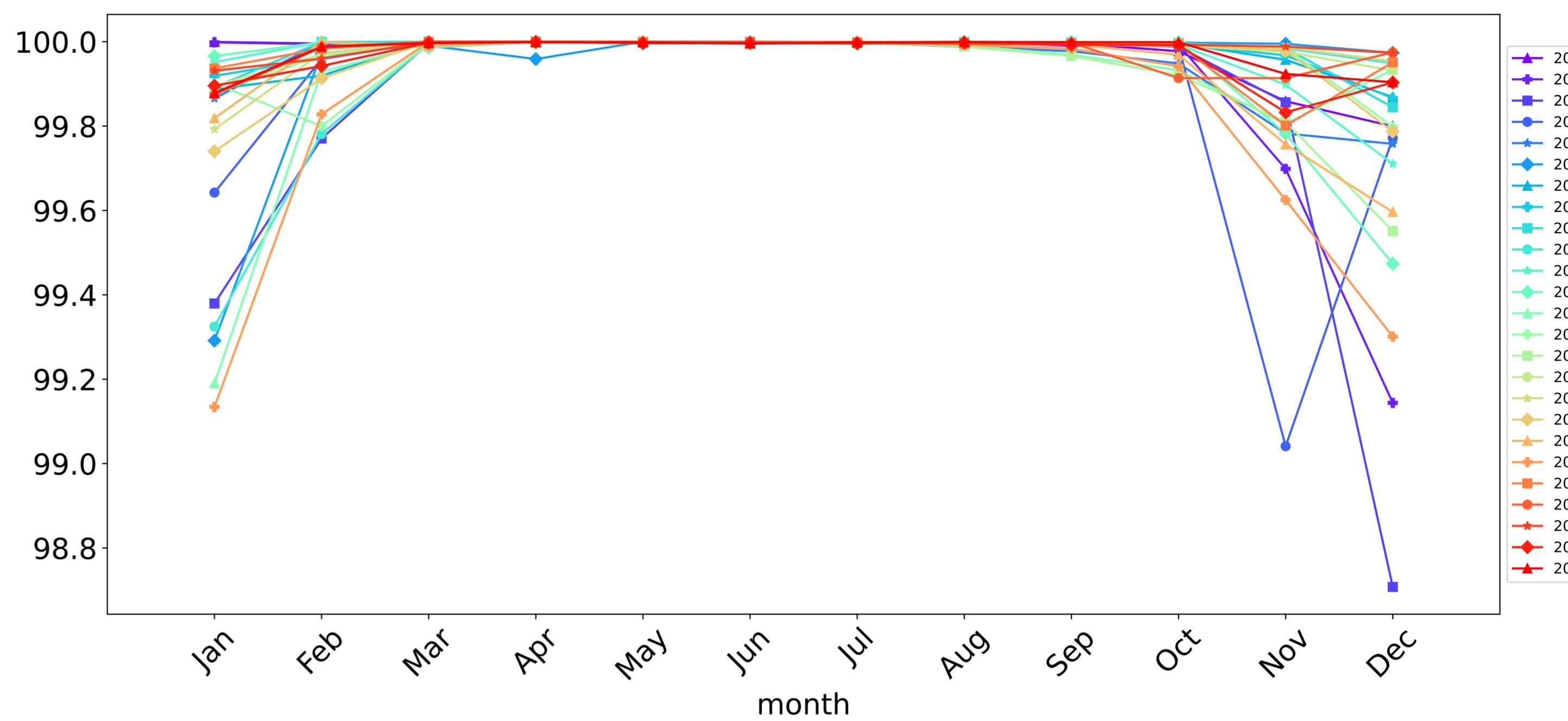


Agriculture timeseries

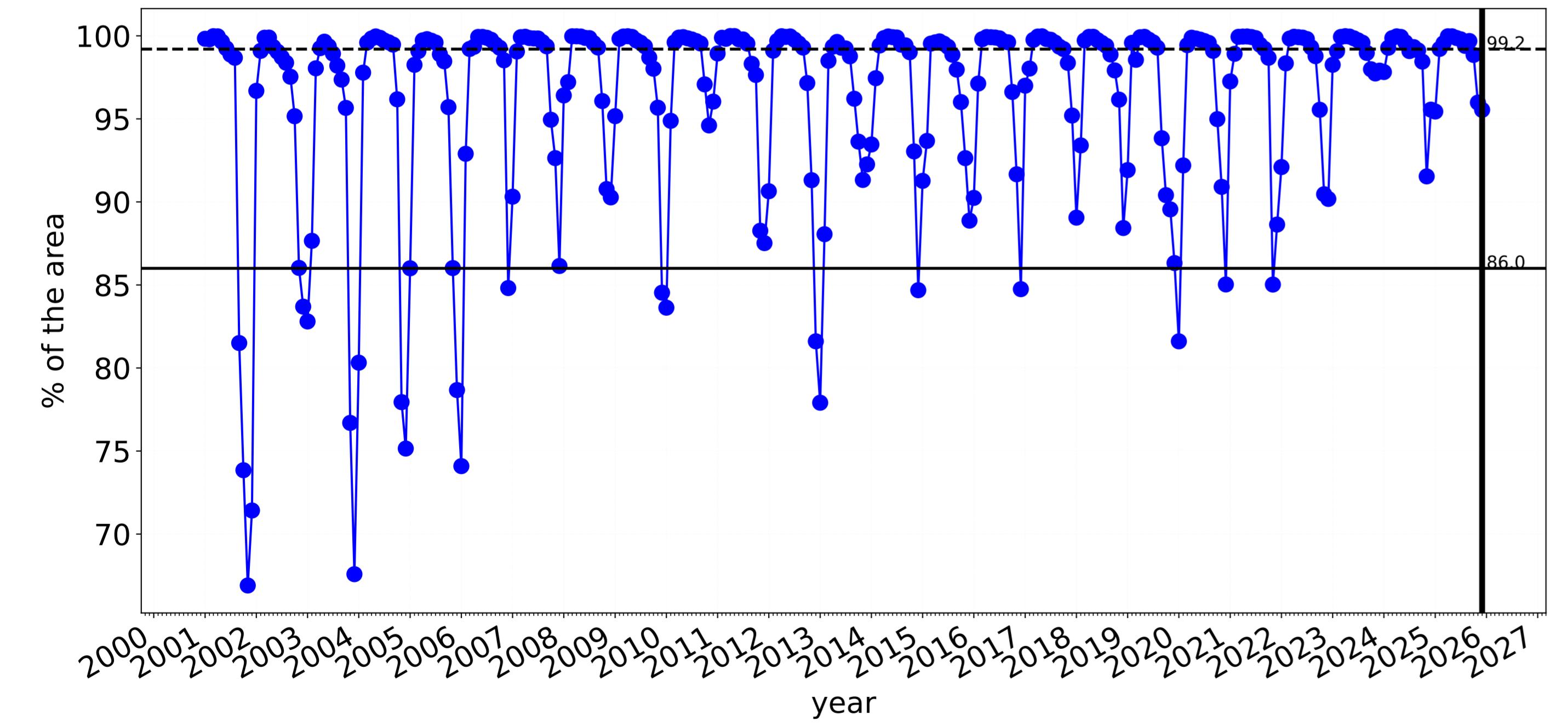
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



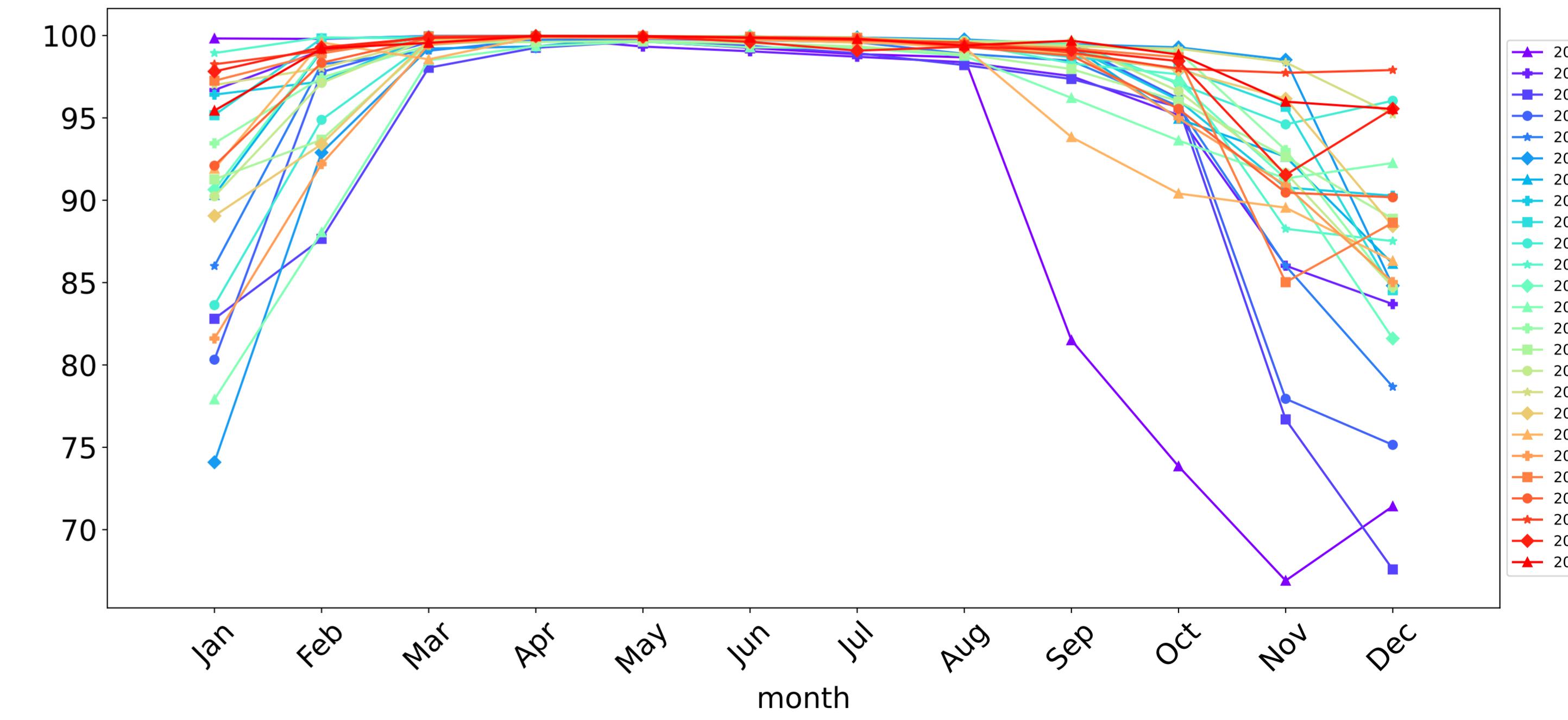
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



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



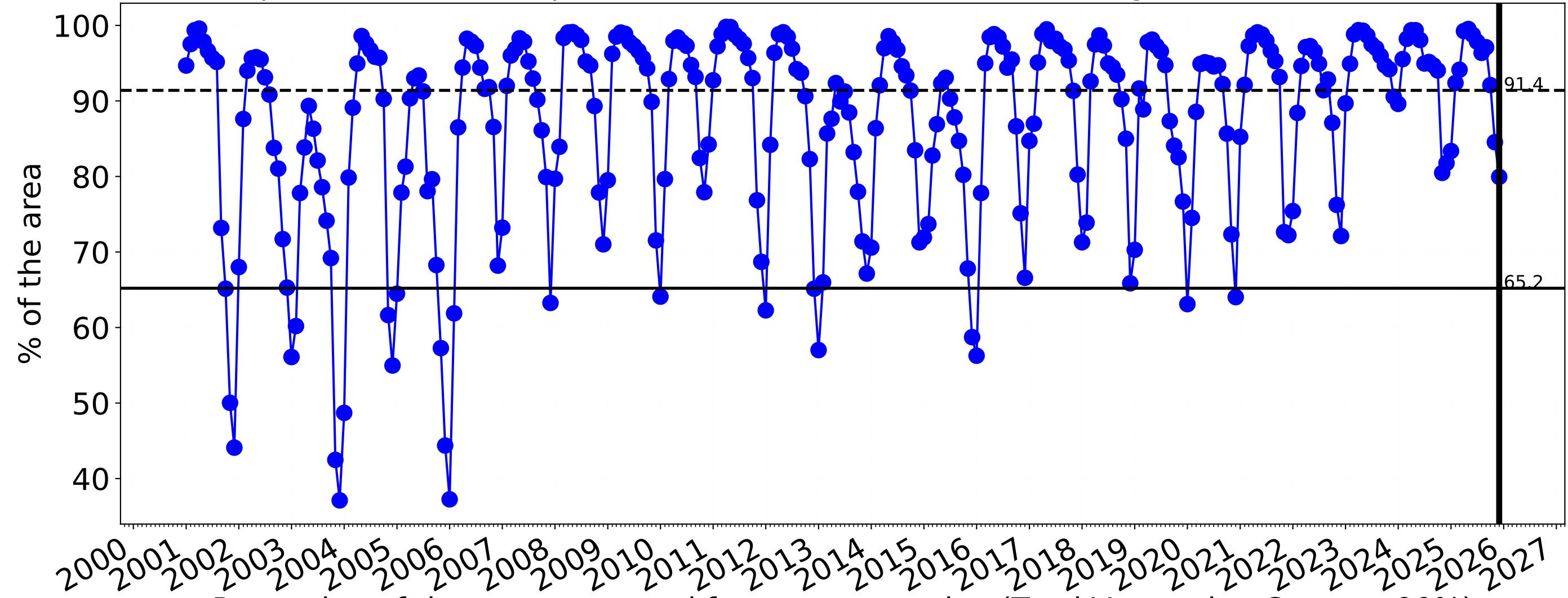
tern
Ecosystem Research Infrastructure



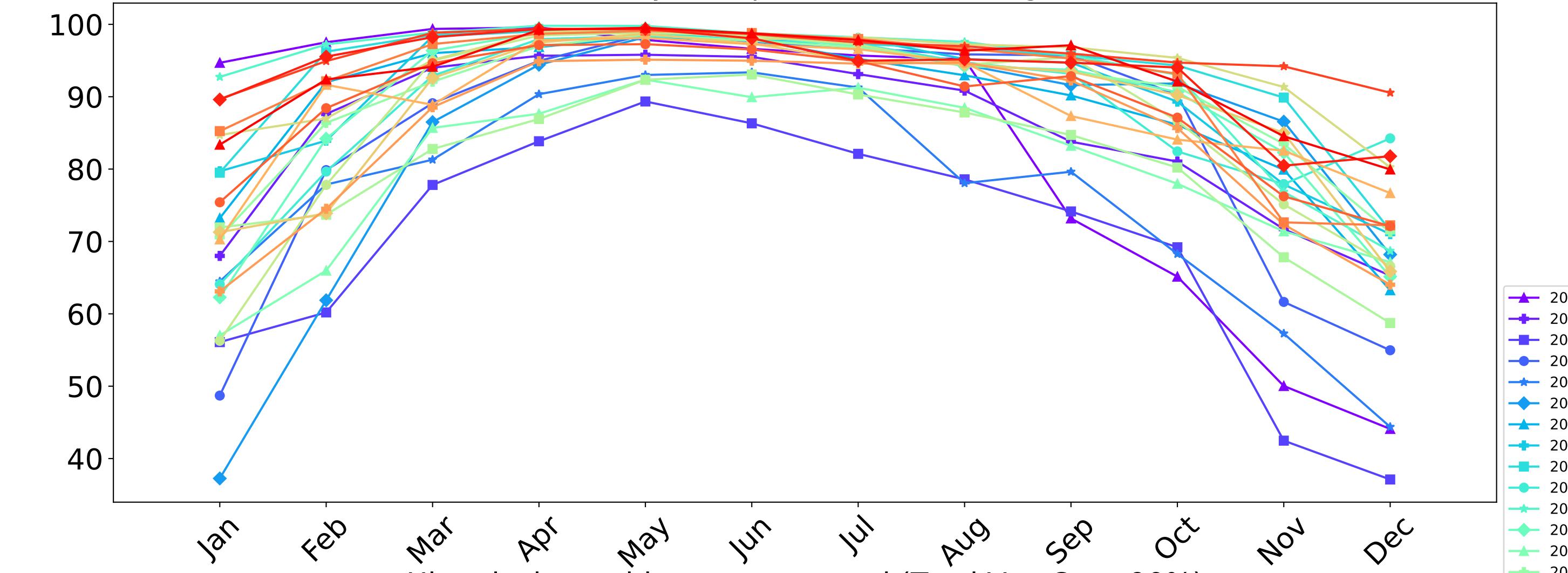
National
Landcare
Programme



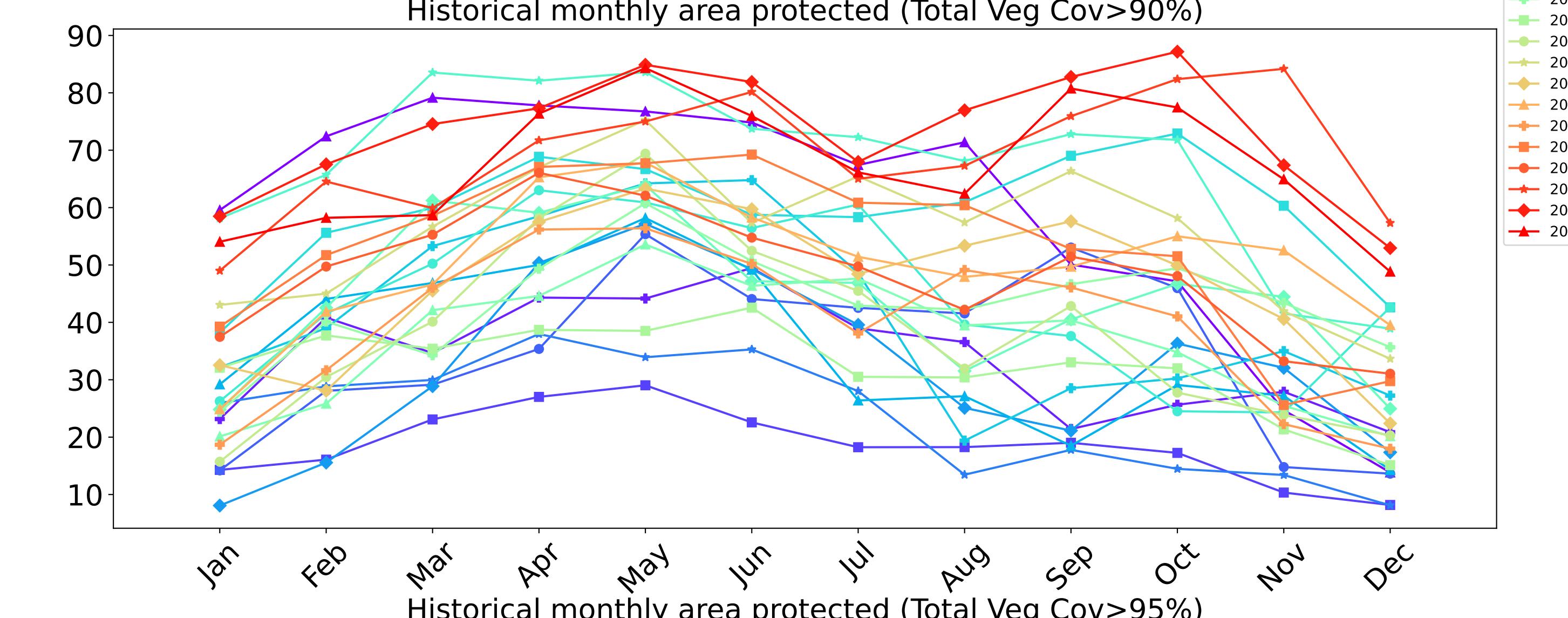
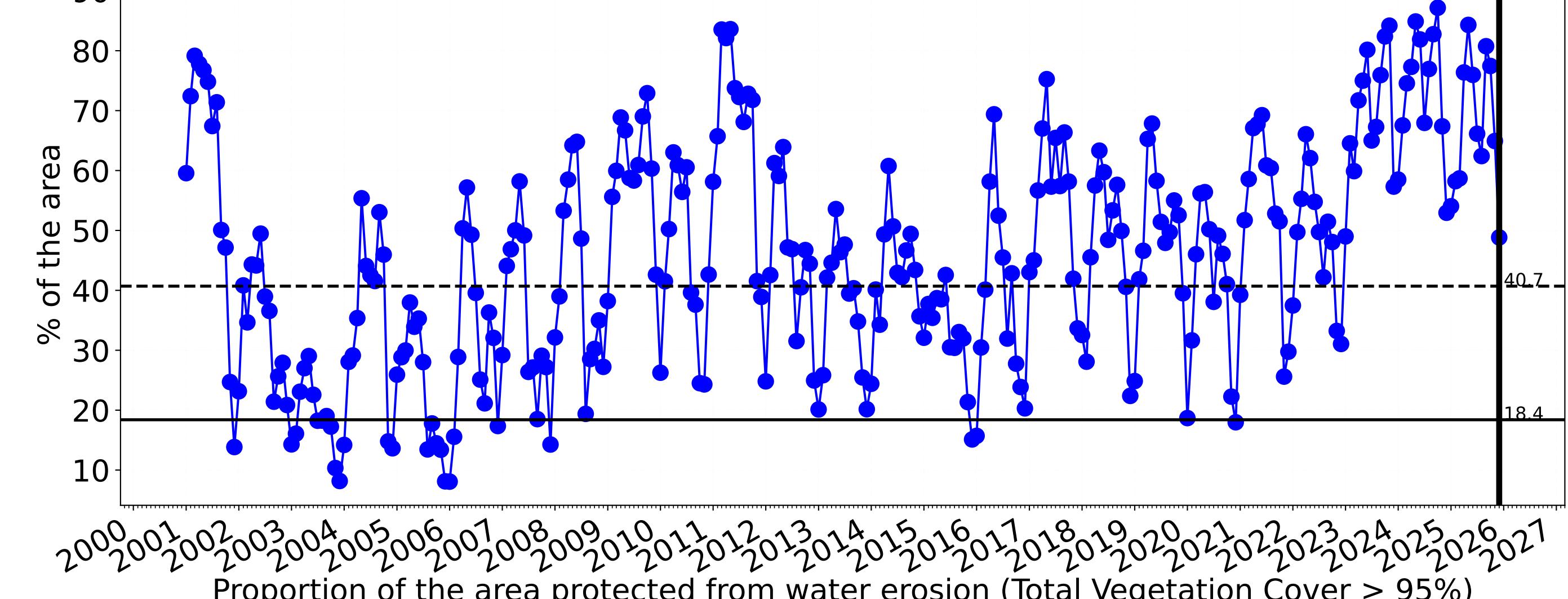
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



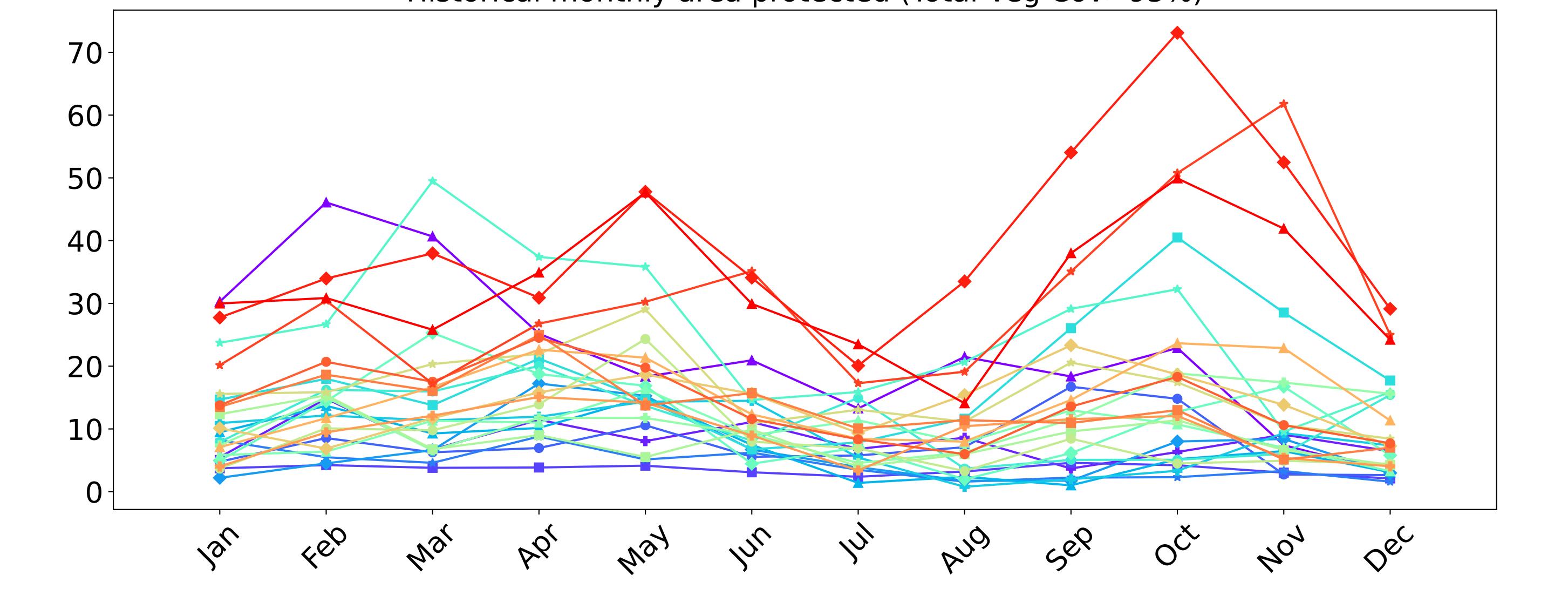
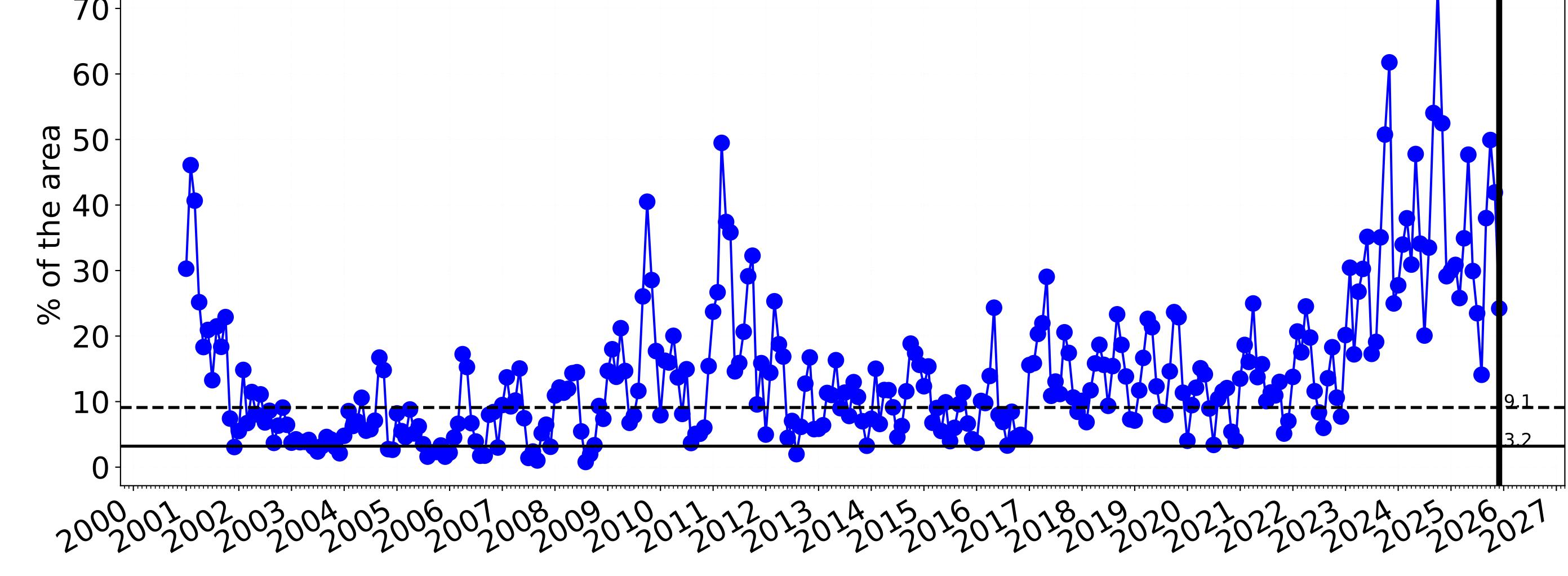
Historical monthly area protected (Total Veg Cov>80%)



Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)



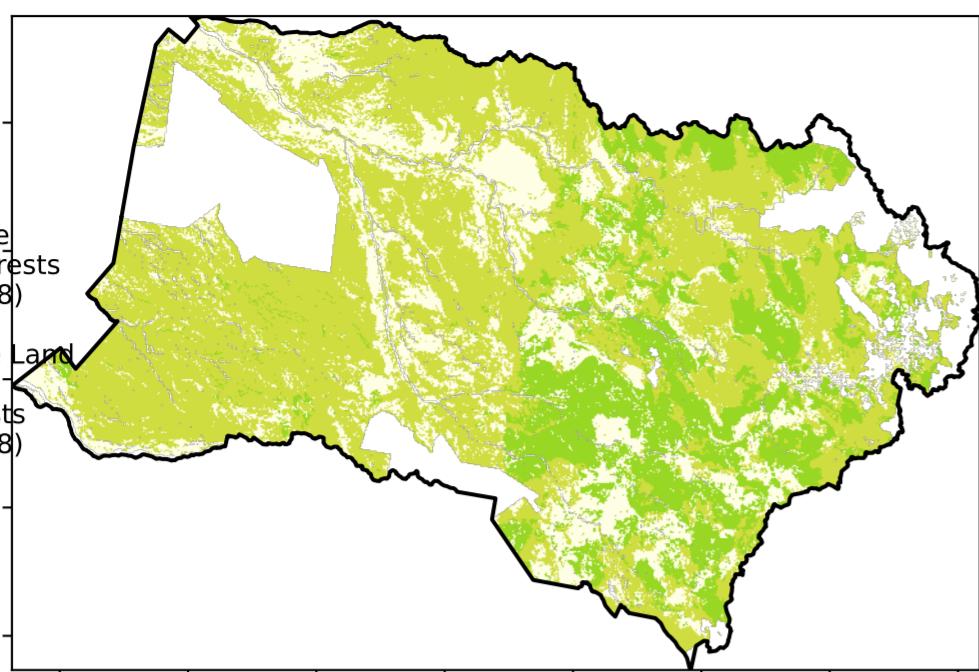
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)



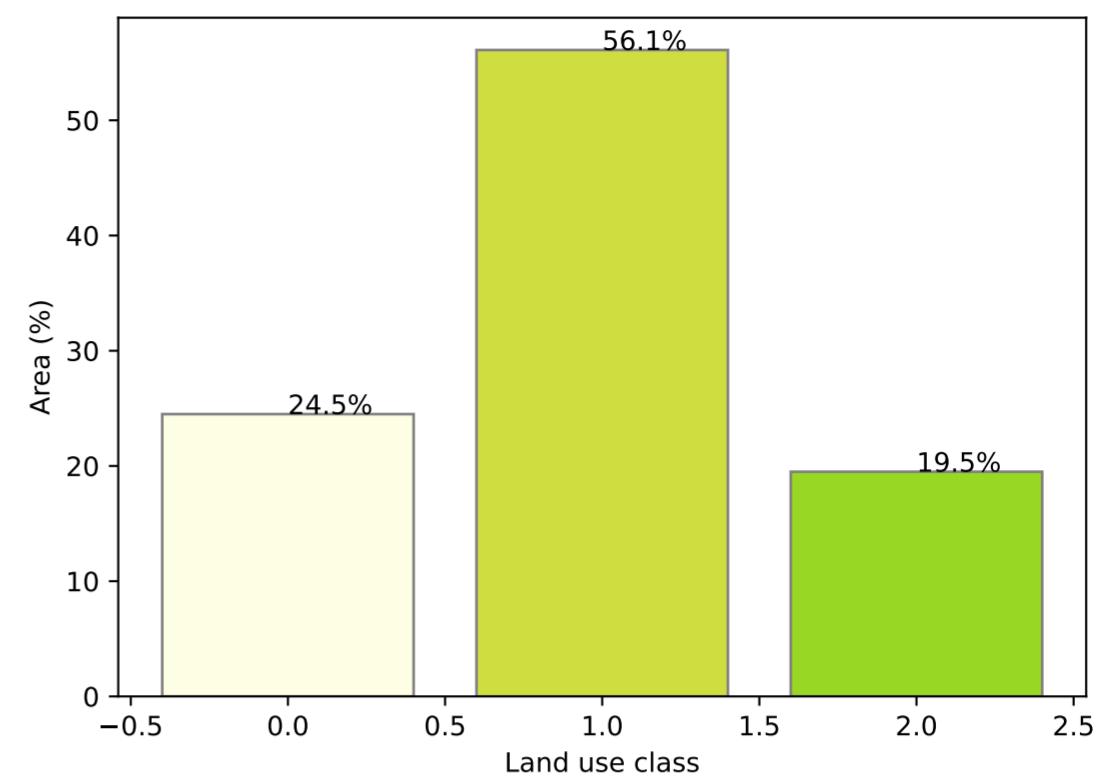
Grazing

Land use and forest cover

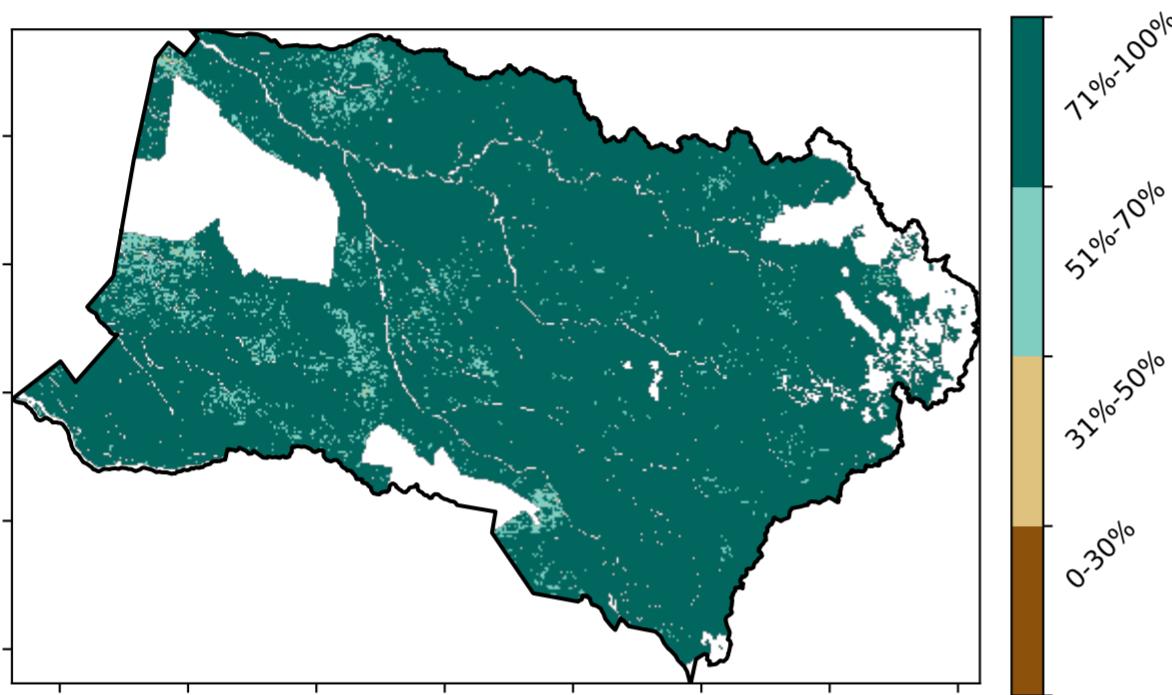
Catchment Scale Land Use and Forests of Australia (2018)
Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



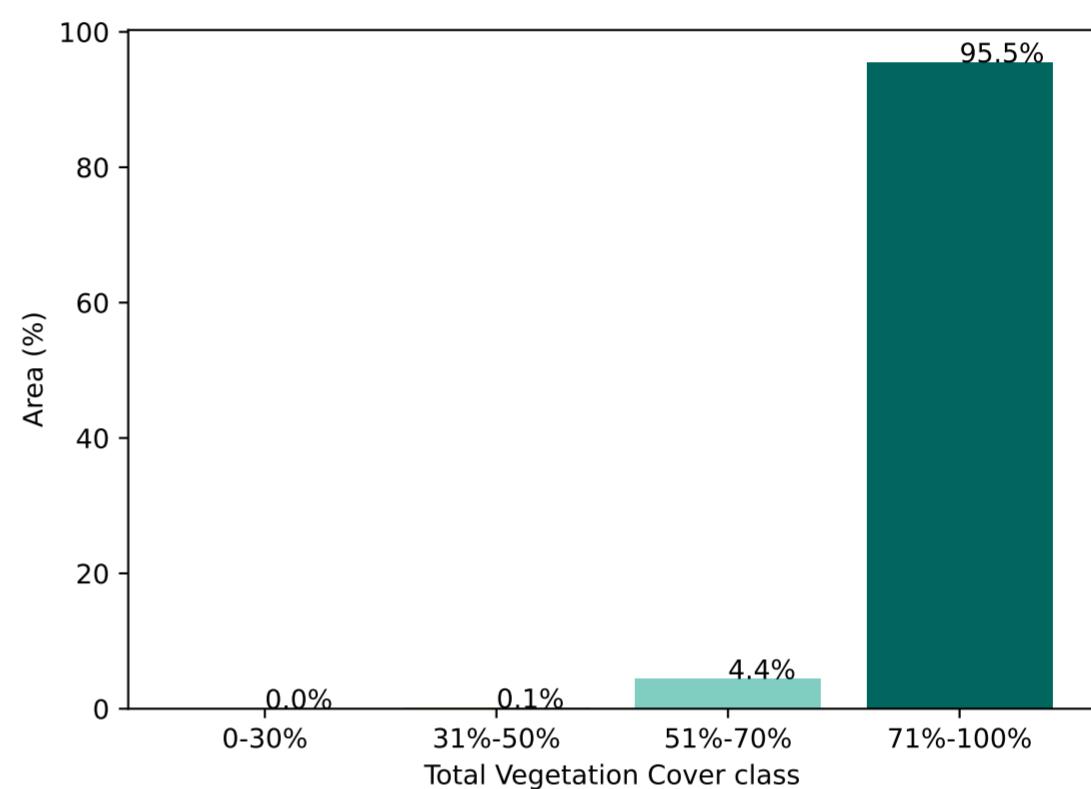
Proportion of each land class in area



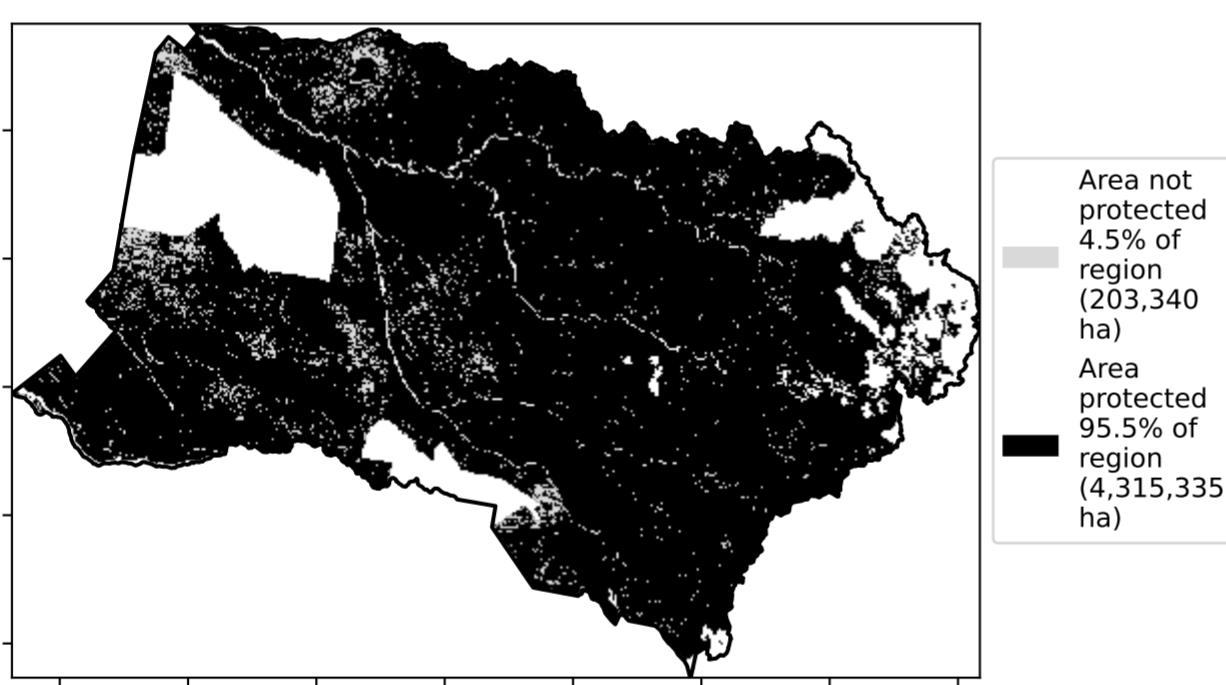
Total Vegetation Cover [%]



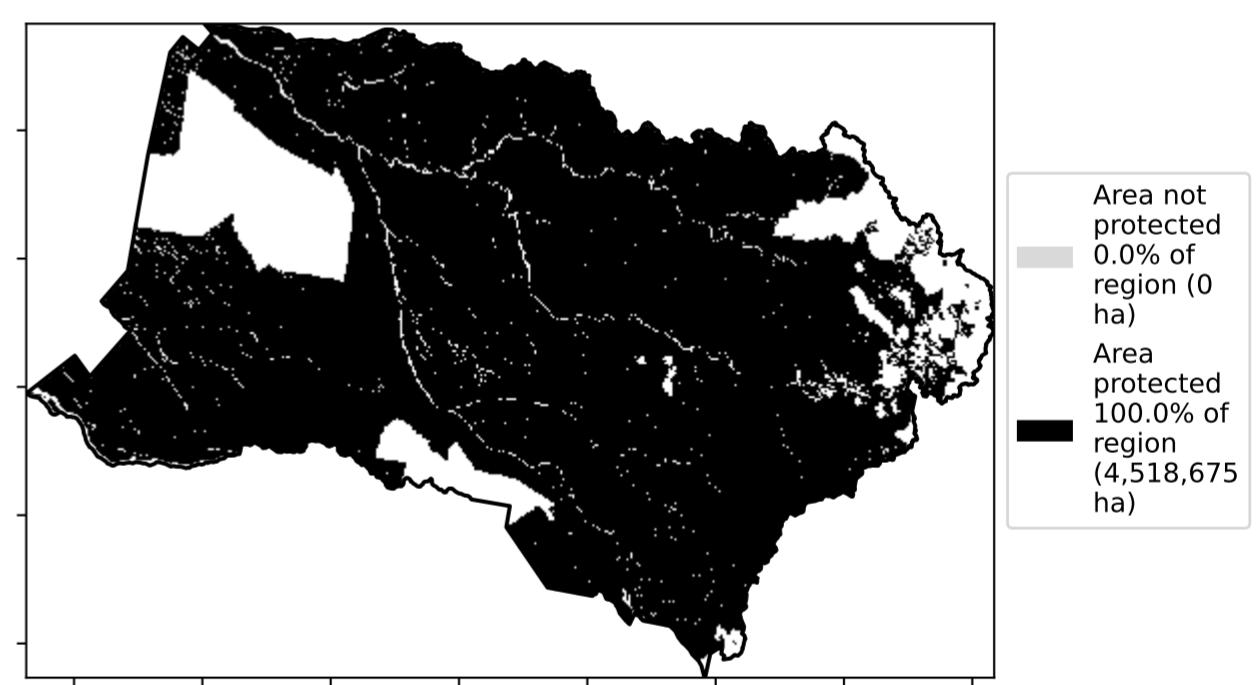
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

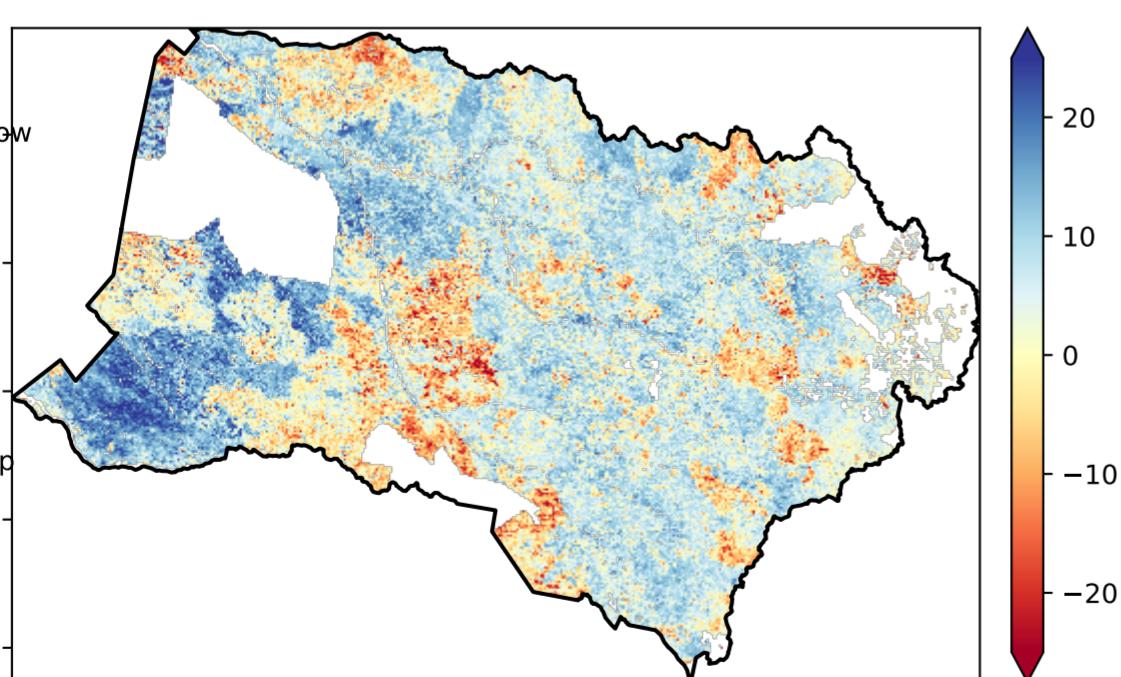


% Area protected from wind erosion (>50%)



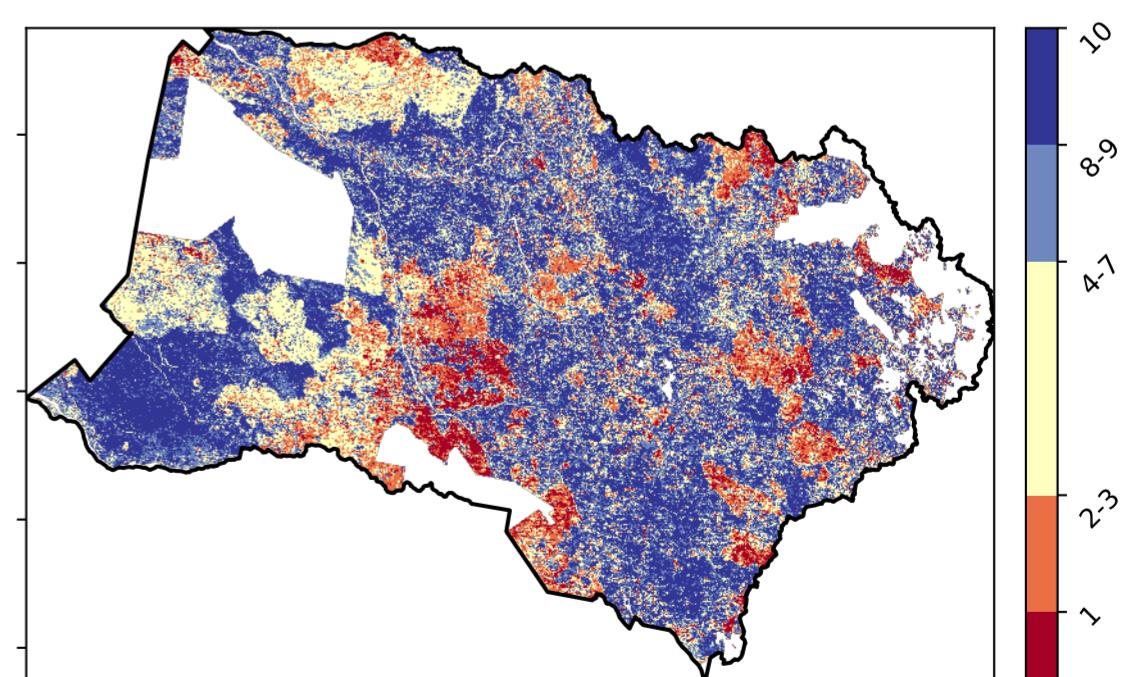
Total Vegetation Cover Anomaly [%]

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



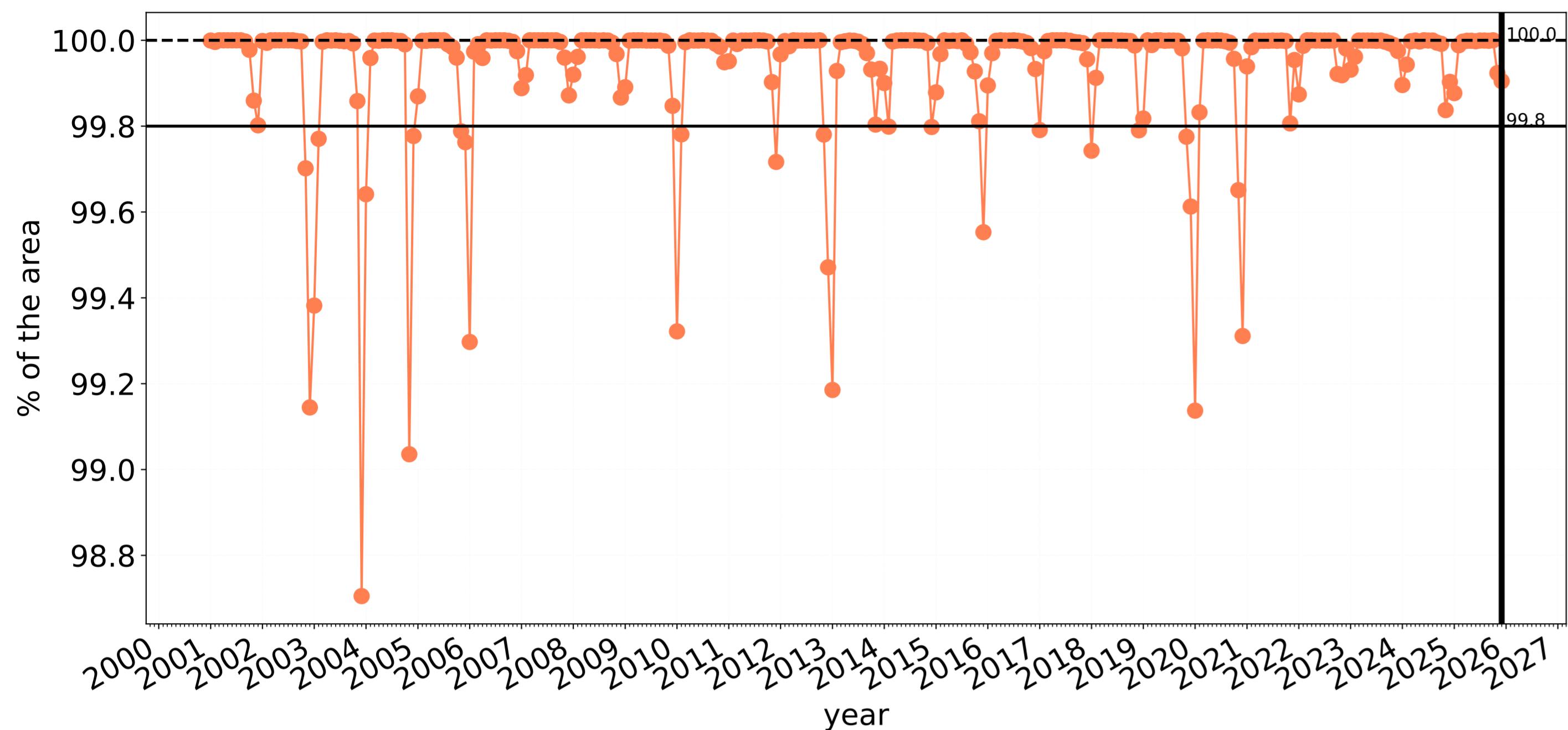
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]

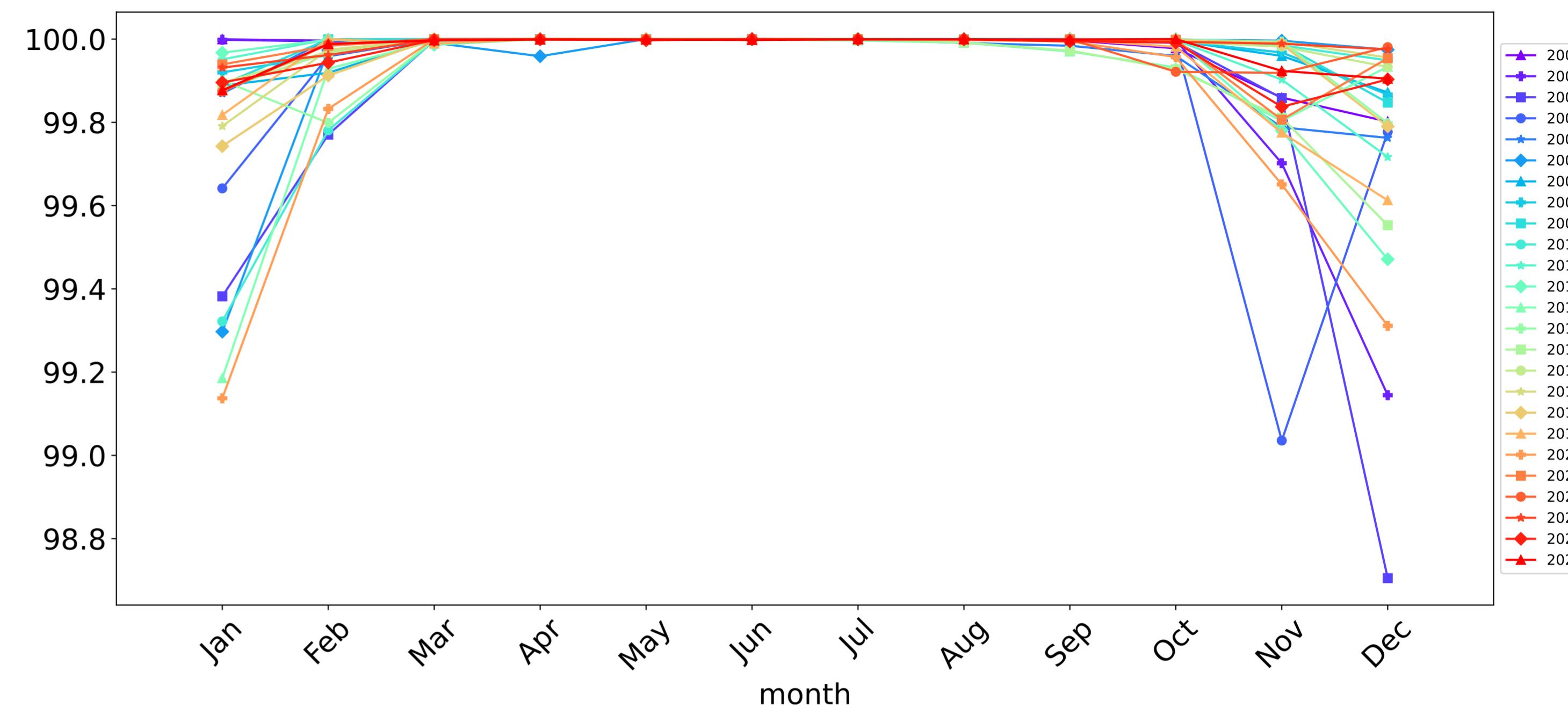


Grazing timeseries

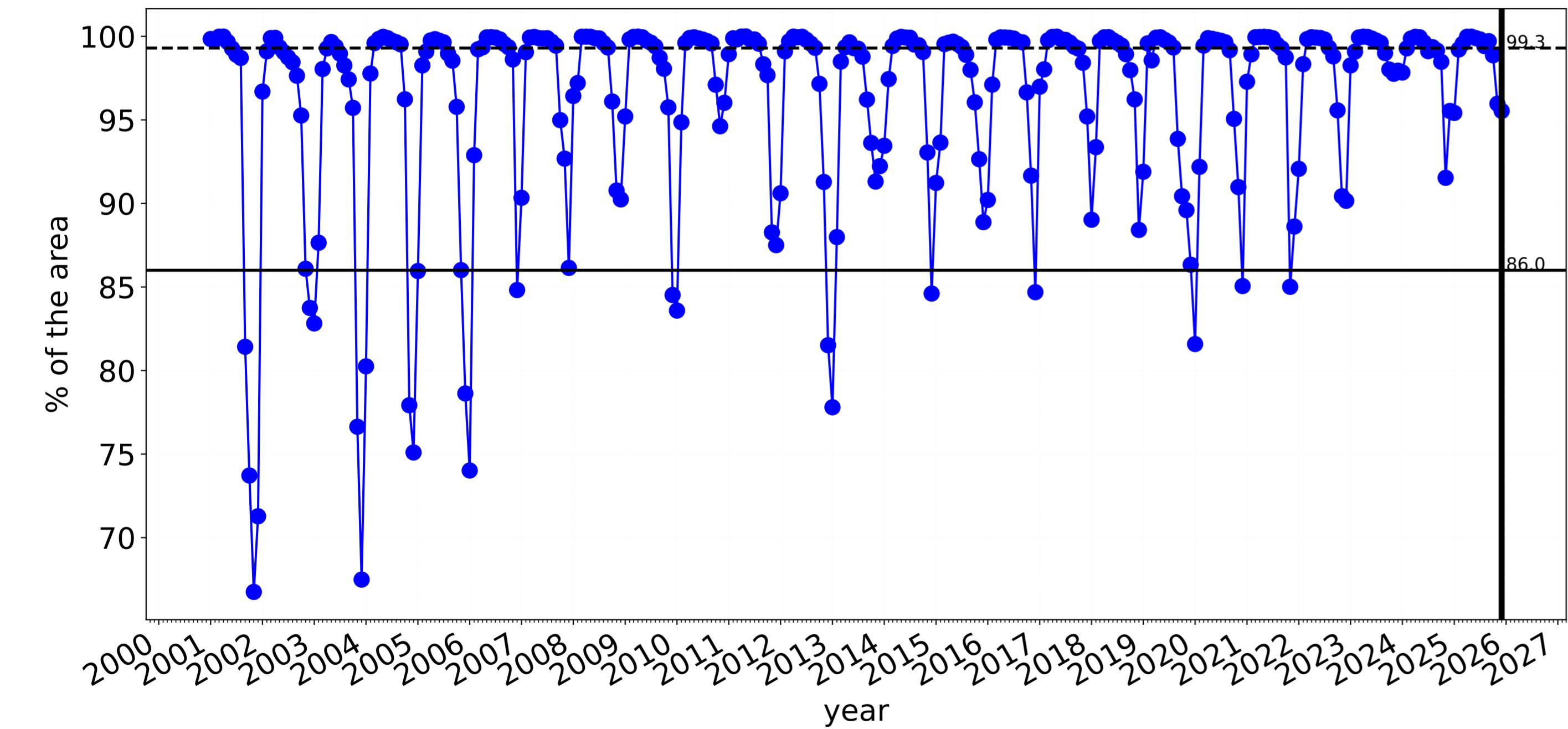
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



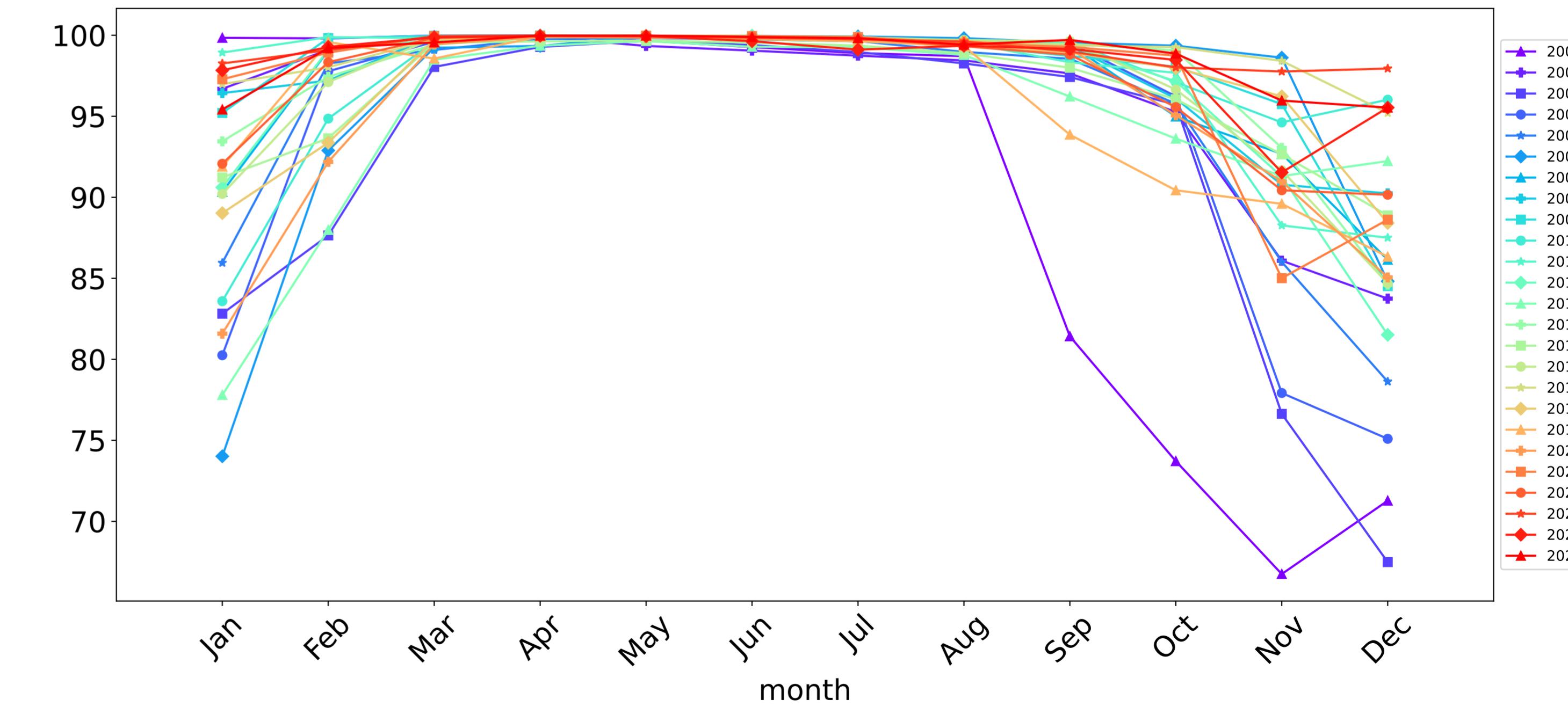
Wind erosion historical monthly area protected (Total Veg Cov >50%)



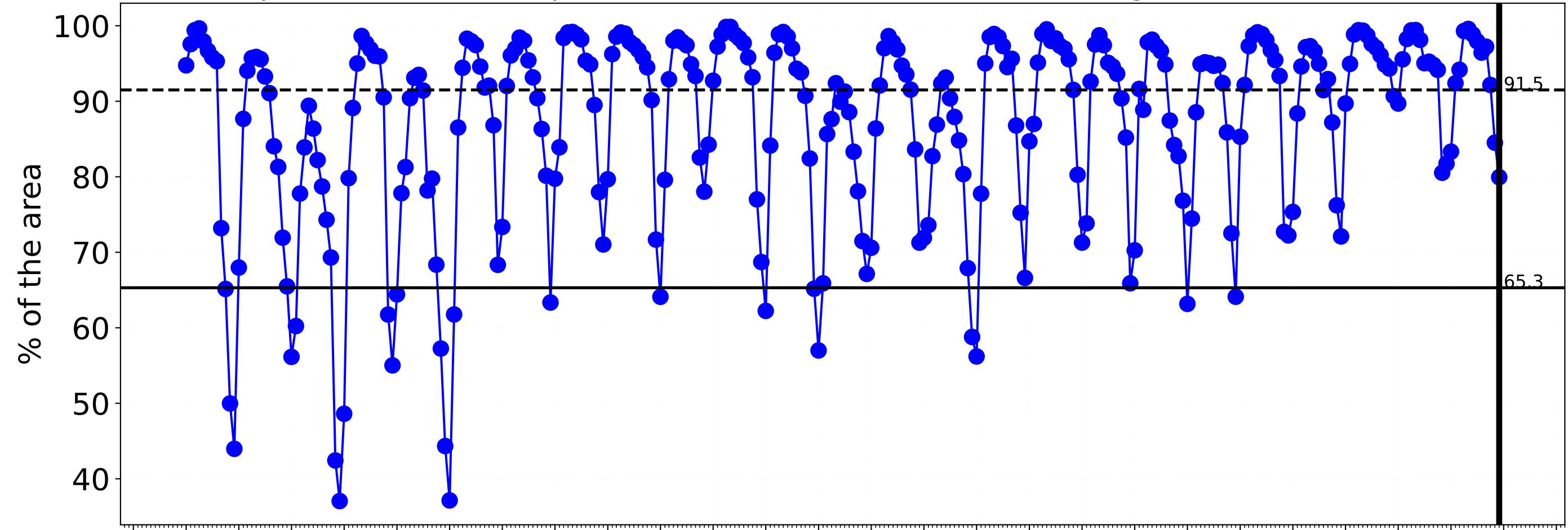
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



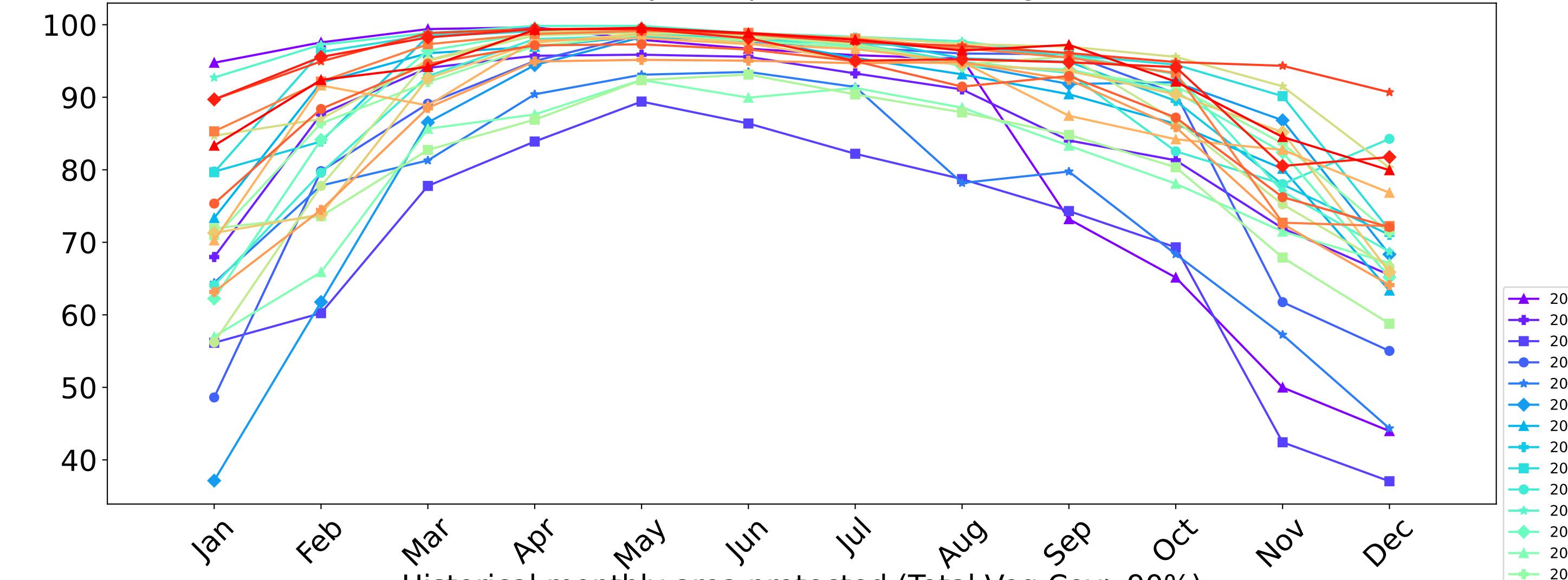
Water erosion historical monthly area protected (Total Veg Cov>70%)



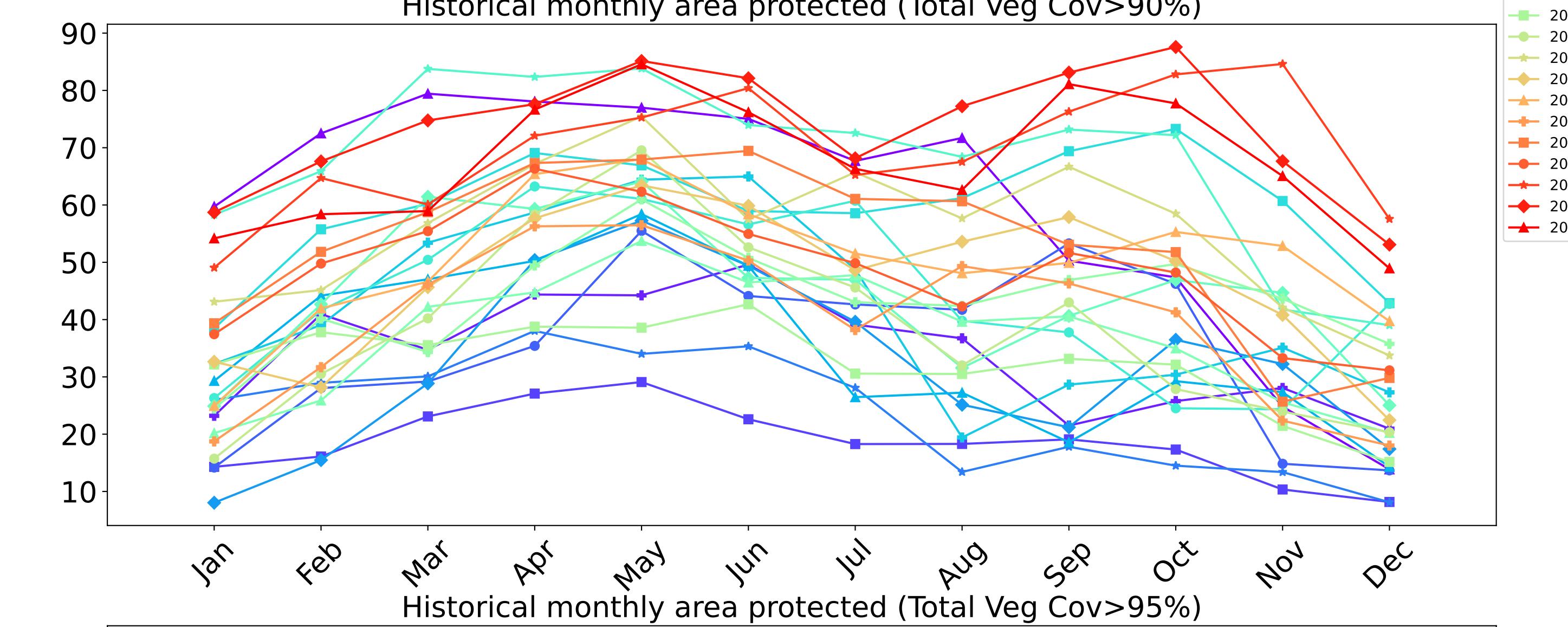
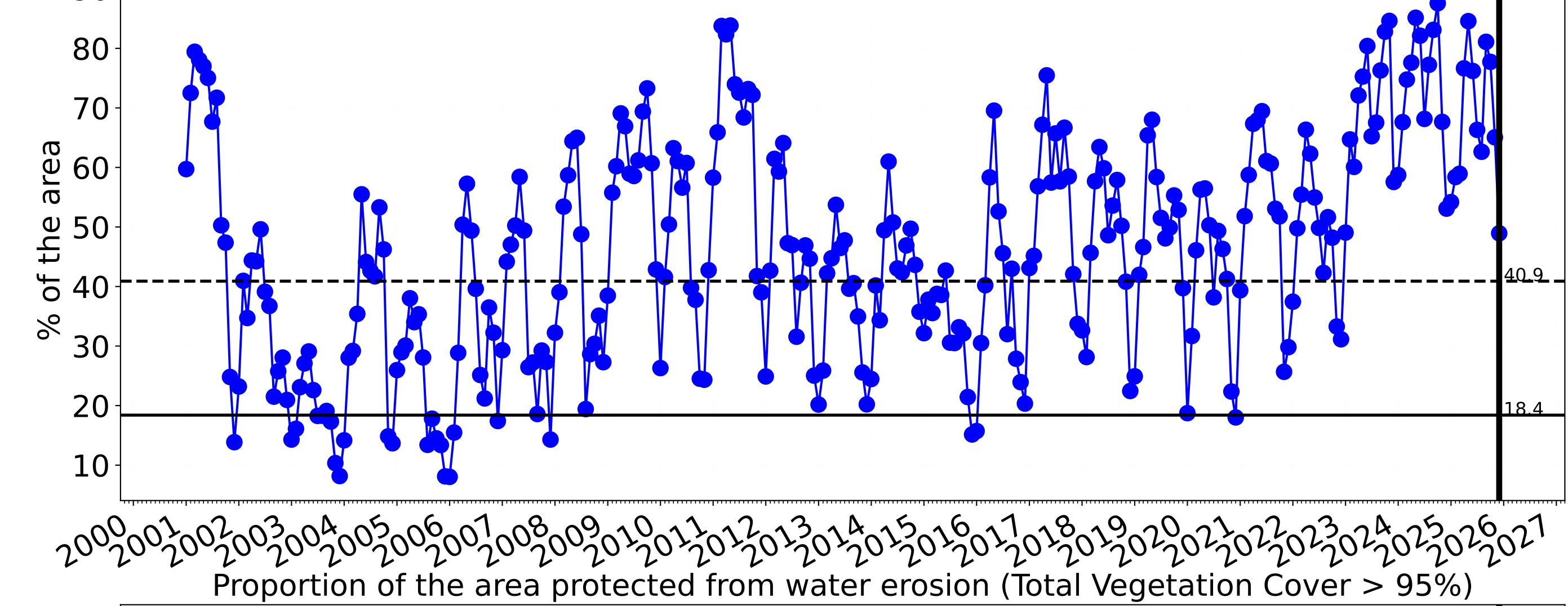
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



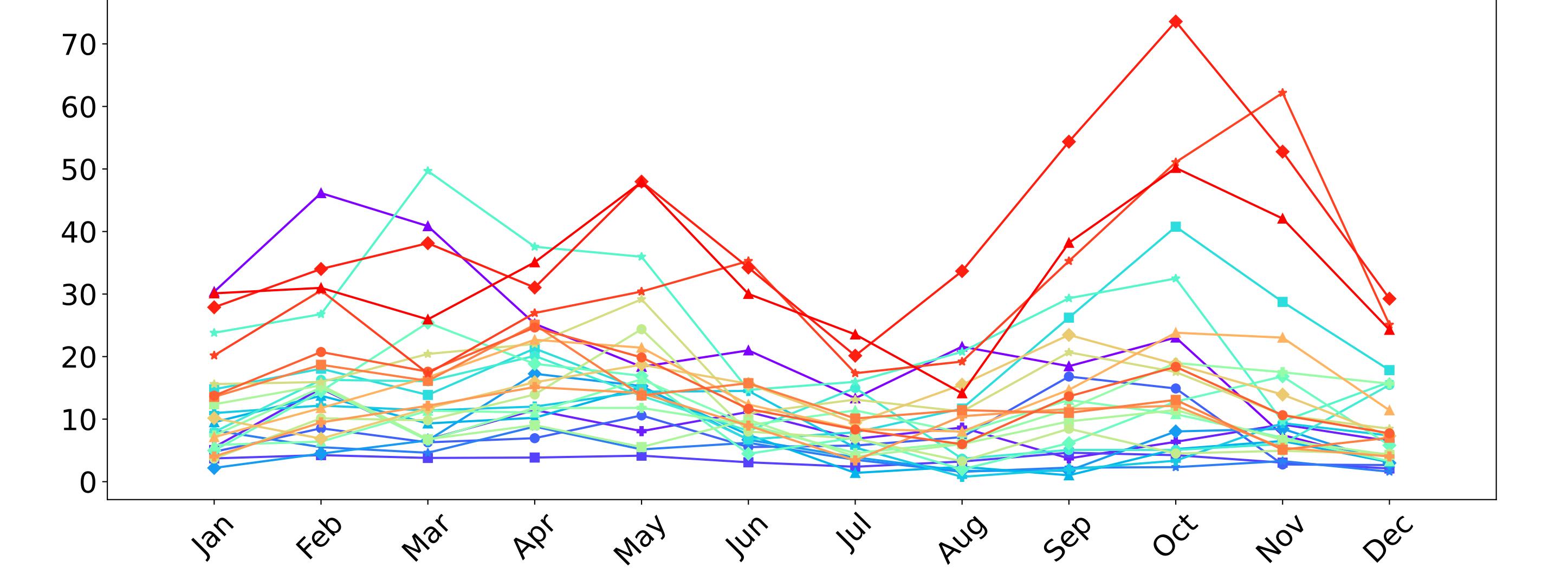
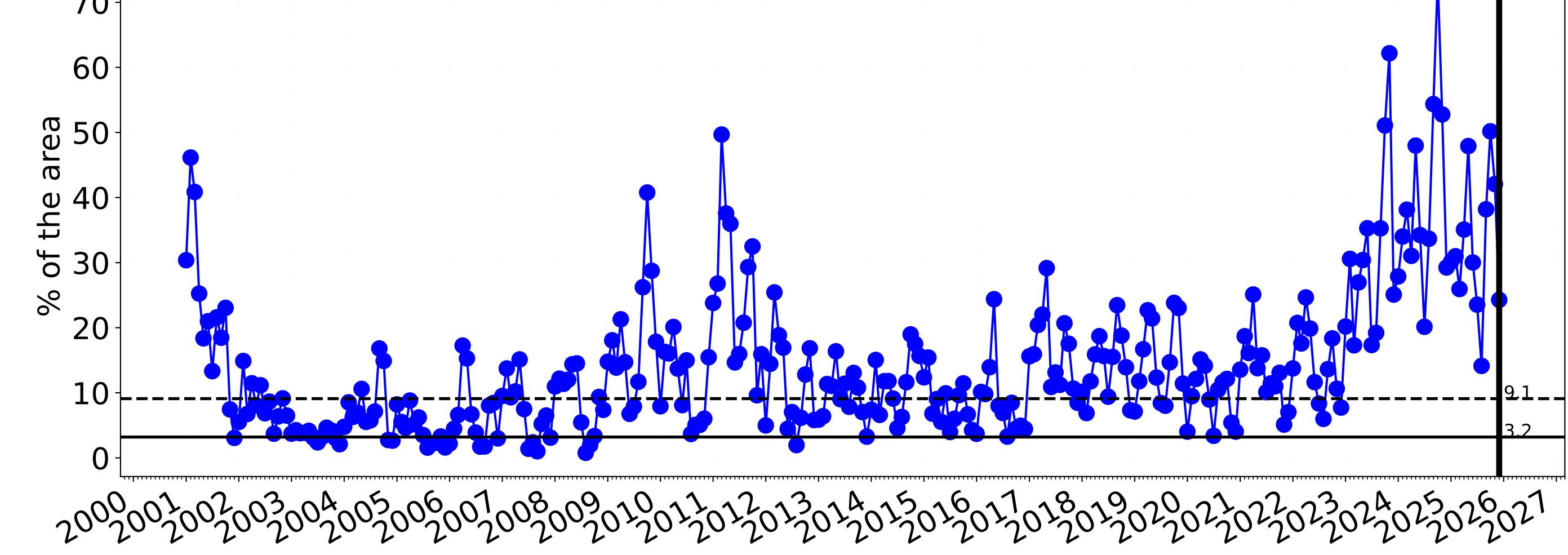
Historical monthly area protected (Total Veg Cov>80%)



Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)



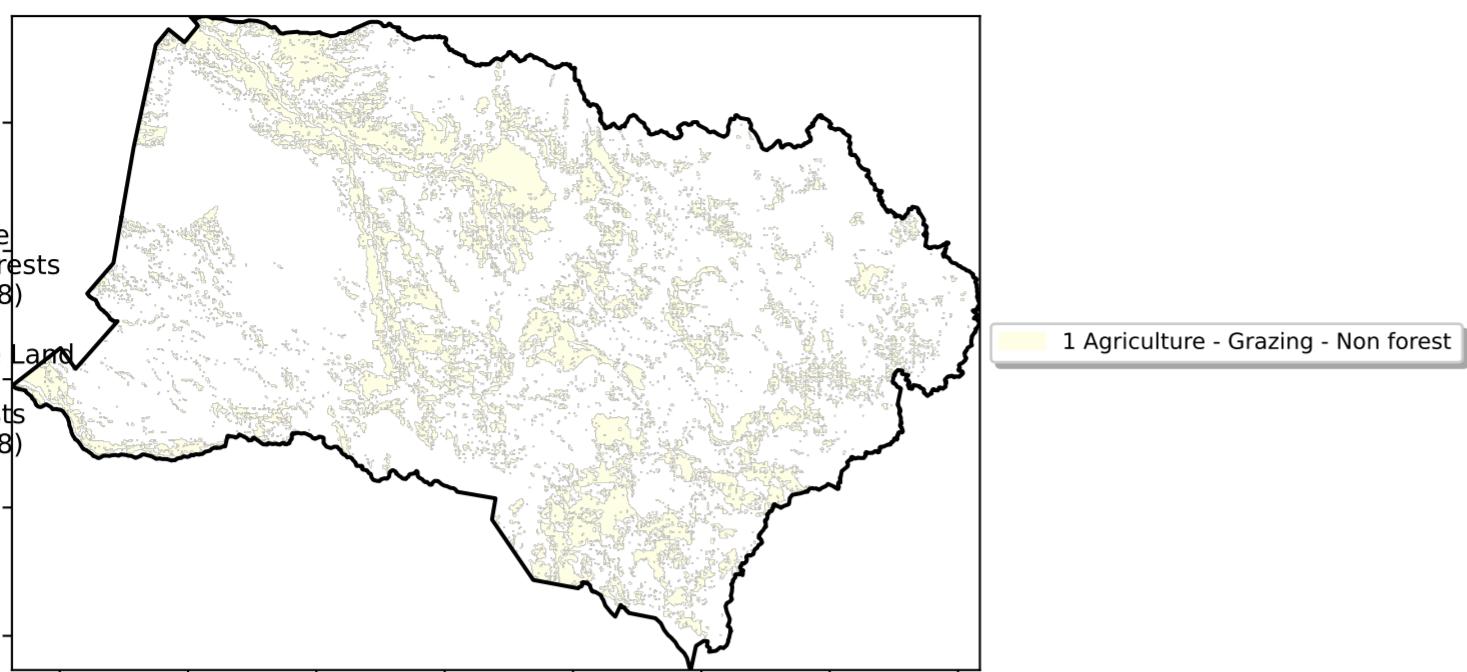
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)



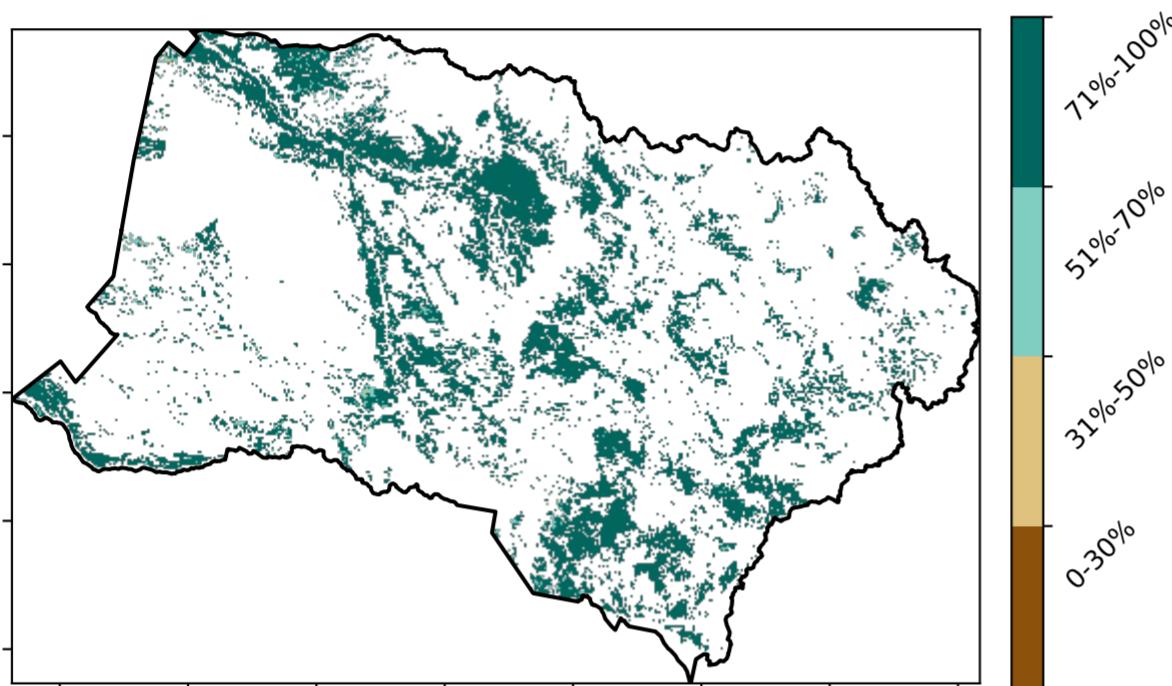
Grazing non forest

Land use and forest cover

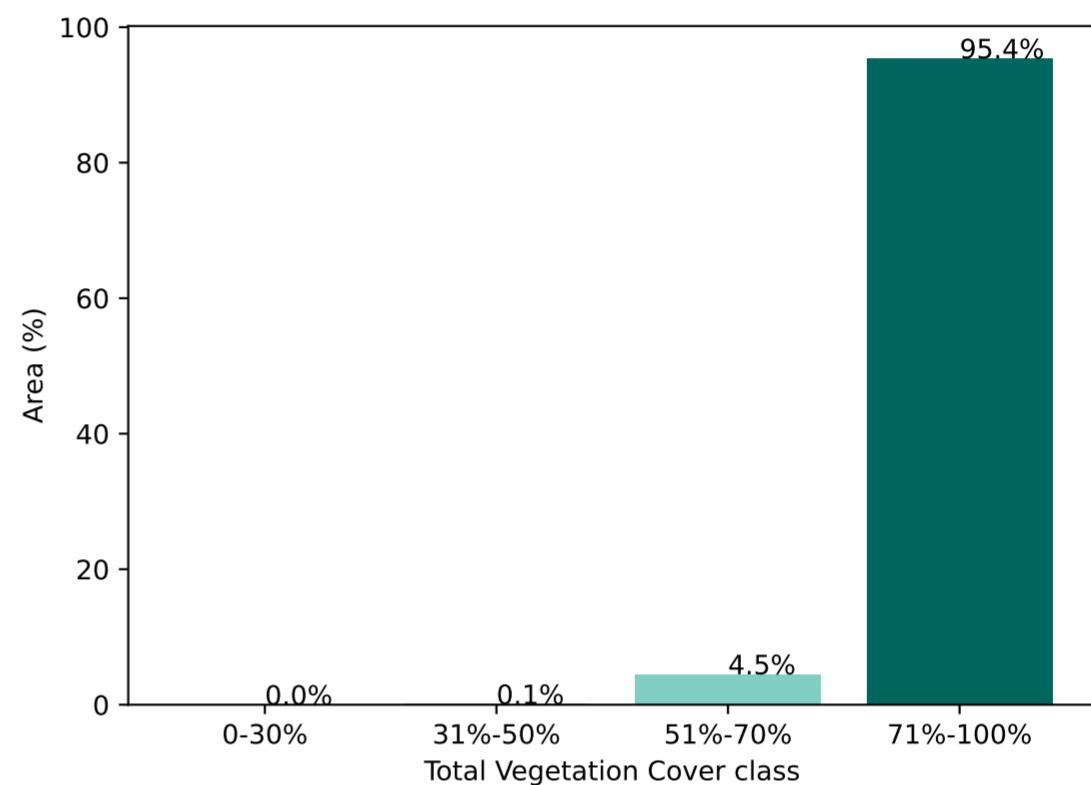
Catchment Scale
Land Use and Forests
of Australia (2018)
Derived from
Catchment Scale Land
Use of Australia
(2018) and Forests
of Australia (2018)



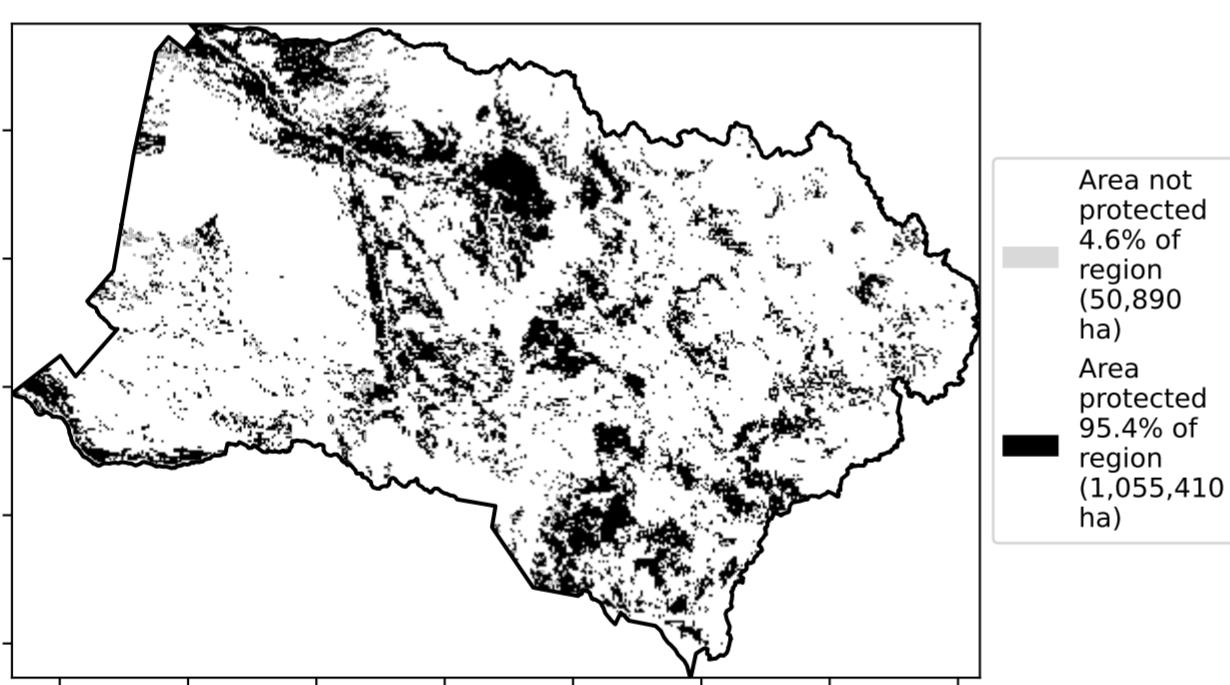
Total Vegetation Cover [%]



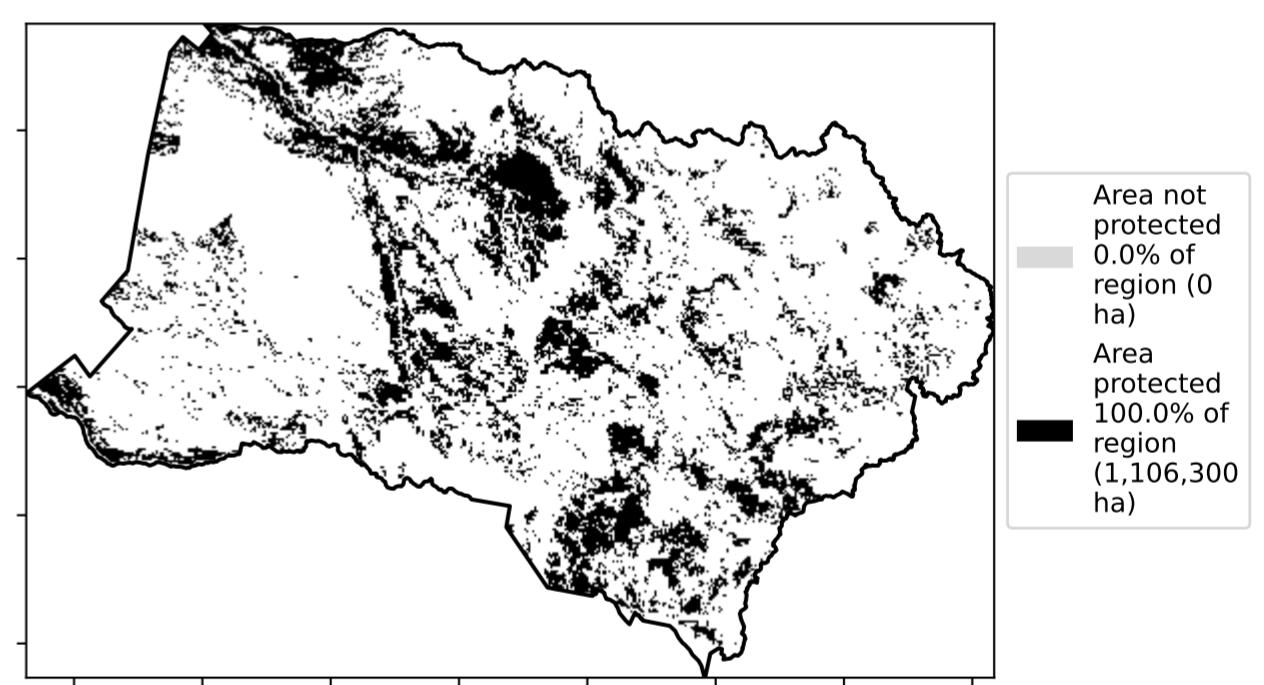
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

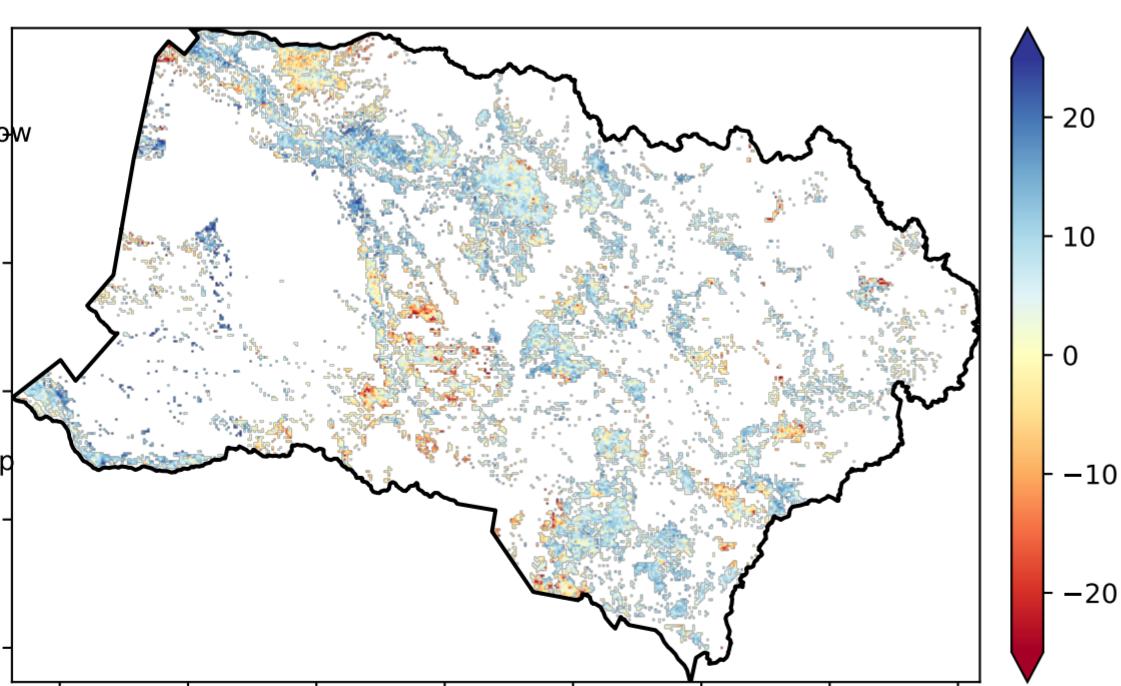


% Area protected from wind erosion (>50%)



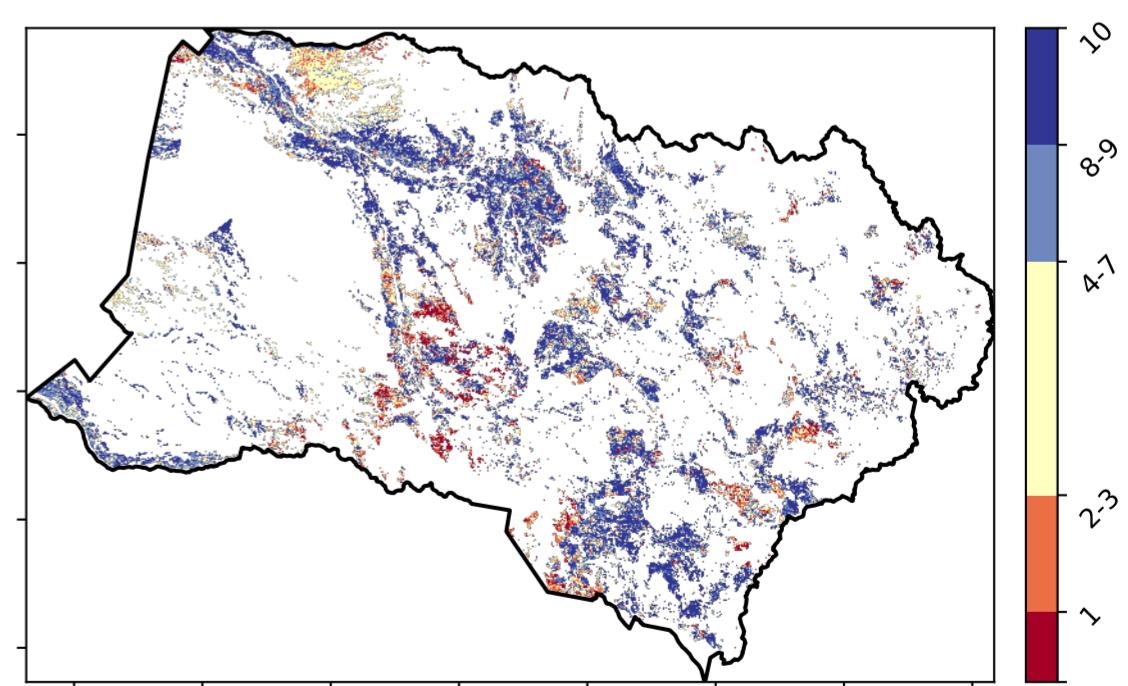
Total Vegetation Cover Anomaly [%]

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



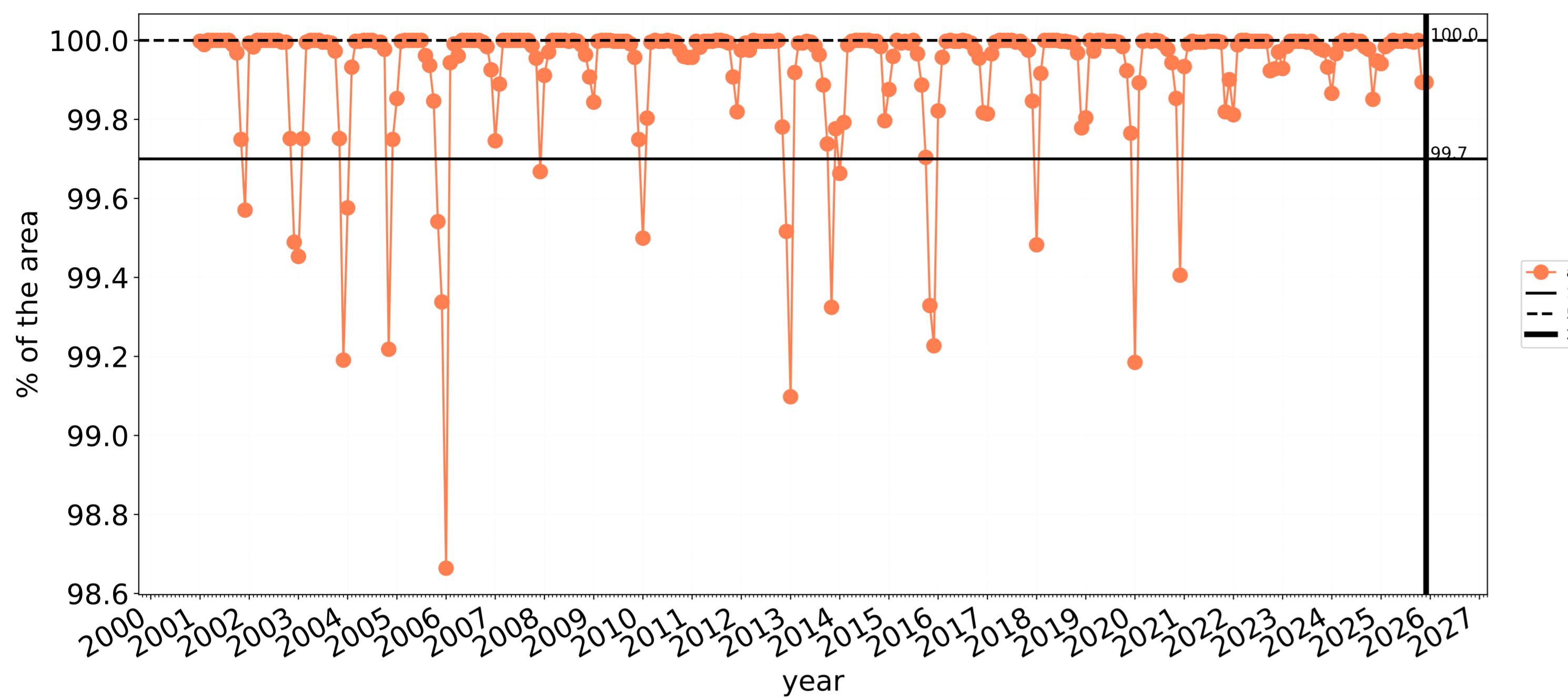
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]

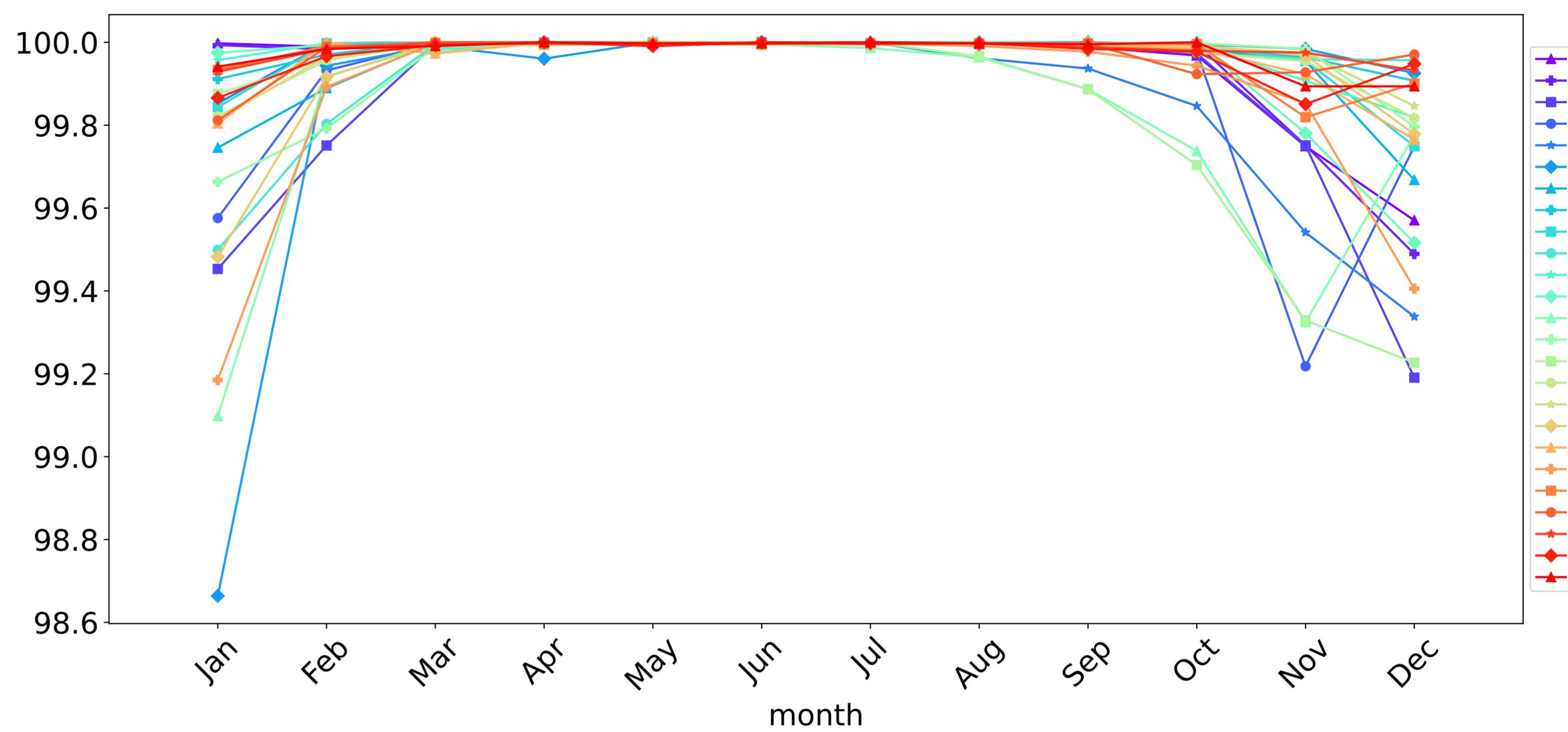


Grazing non forest timeseries

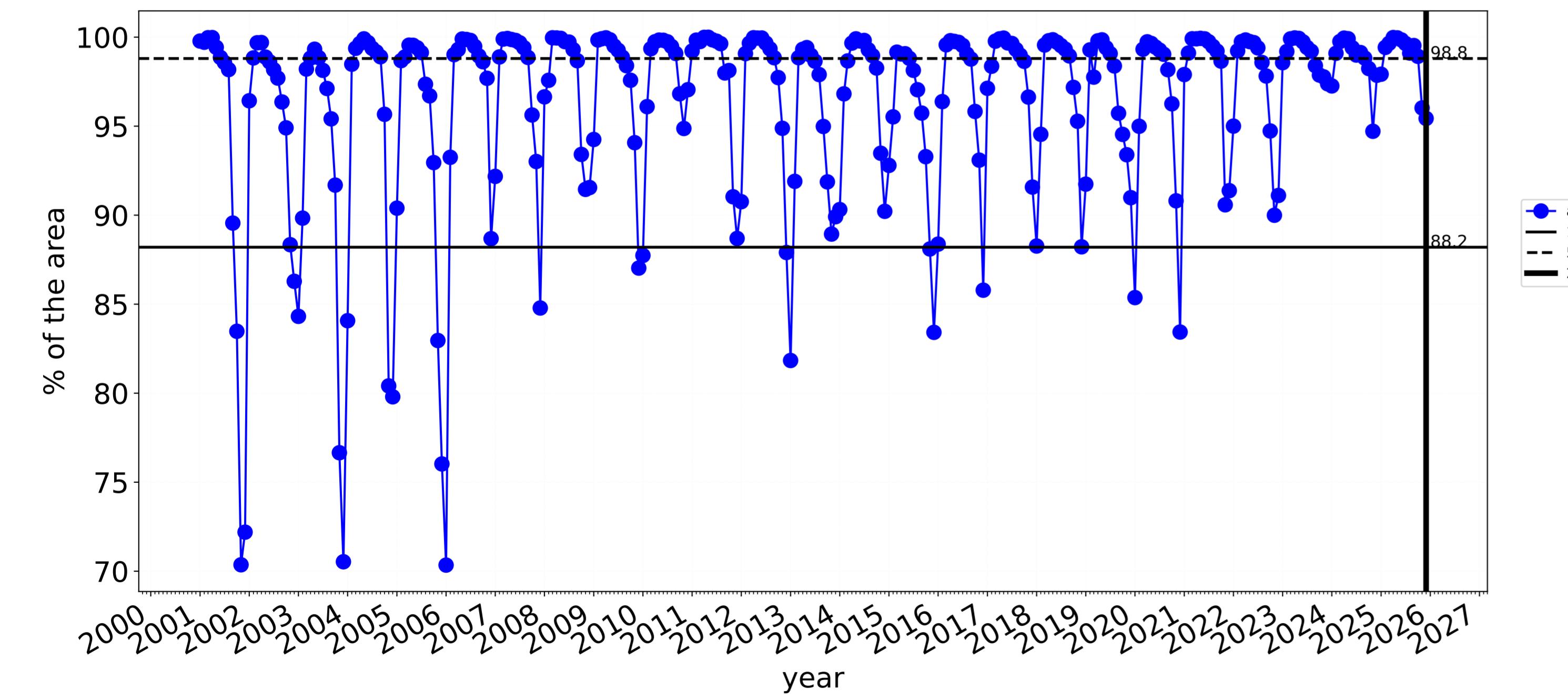
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



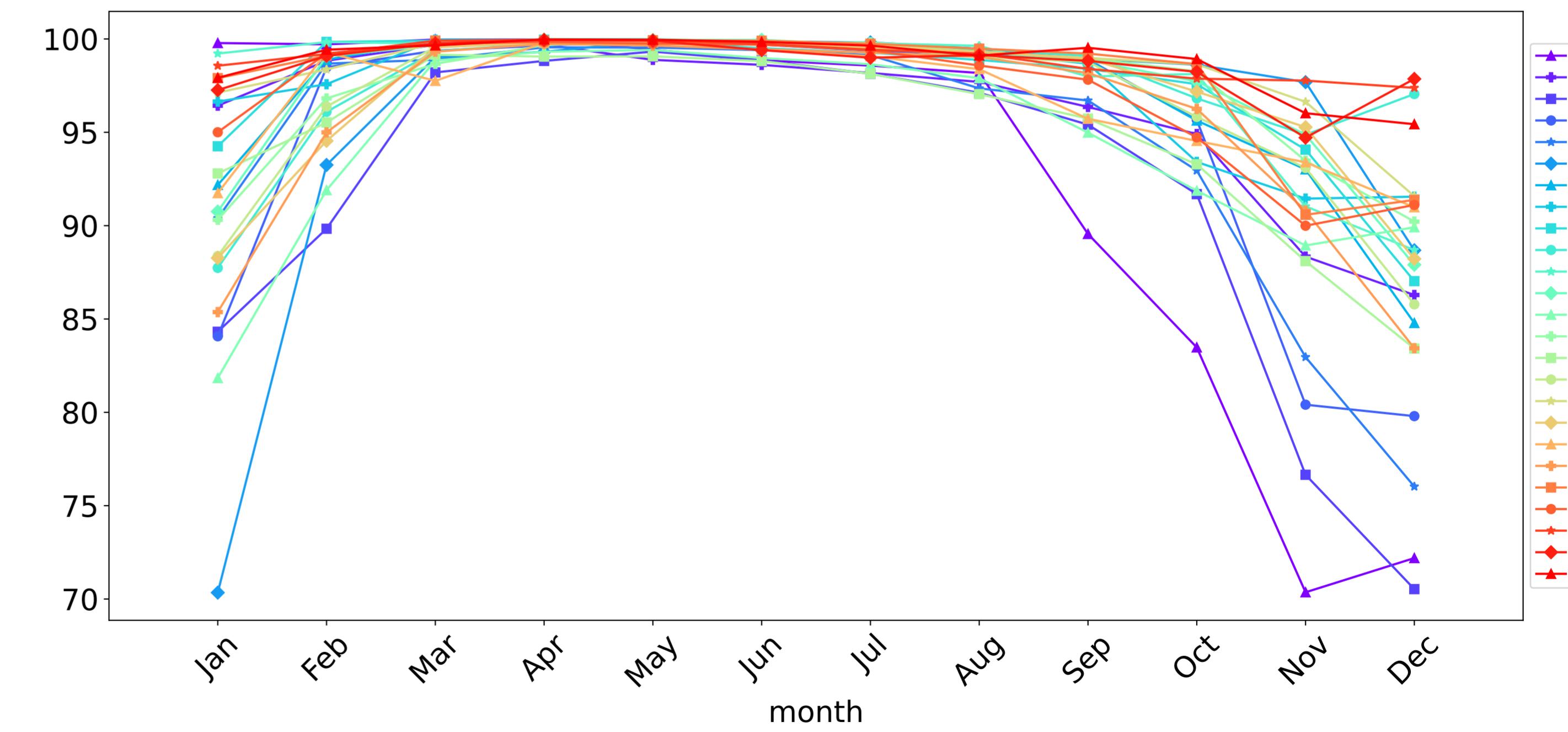
Wind erosion historical monthly area protected (Total Veg Cov >50%)

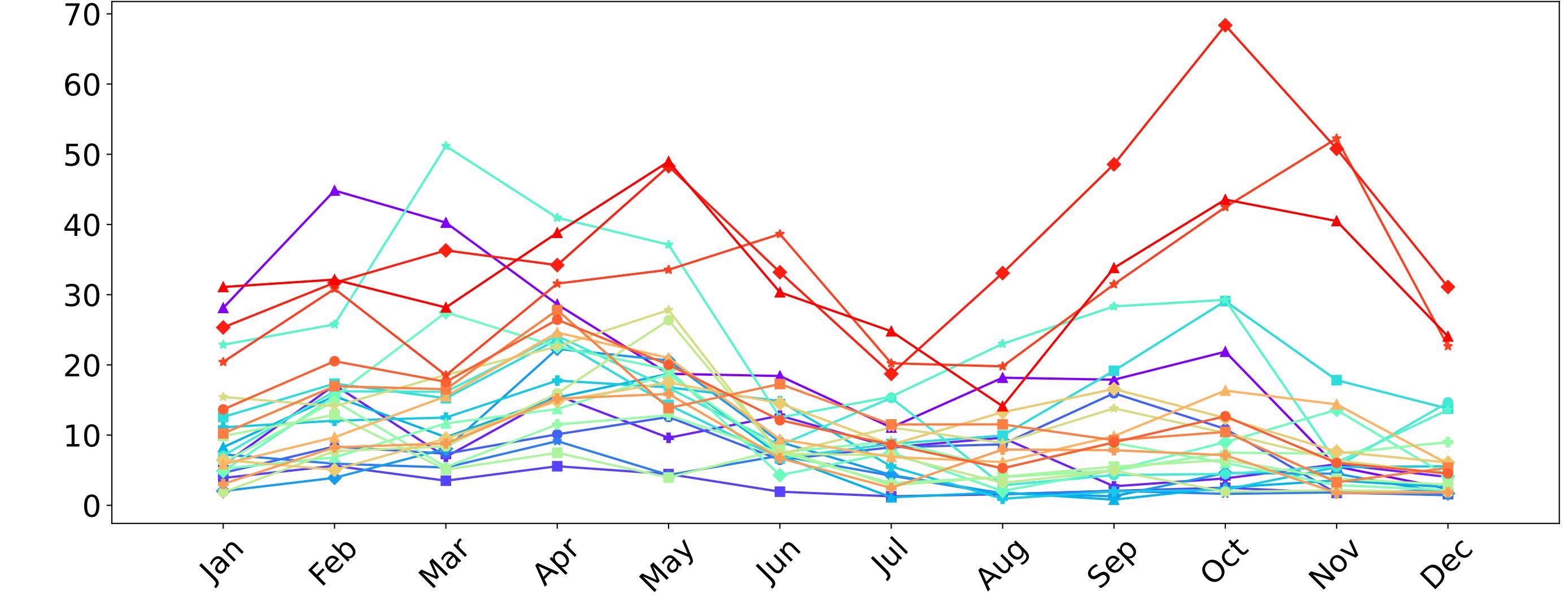
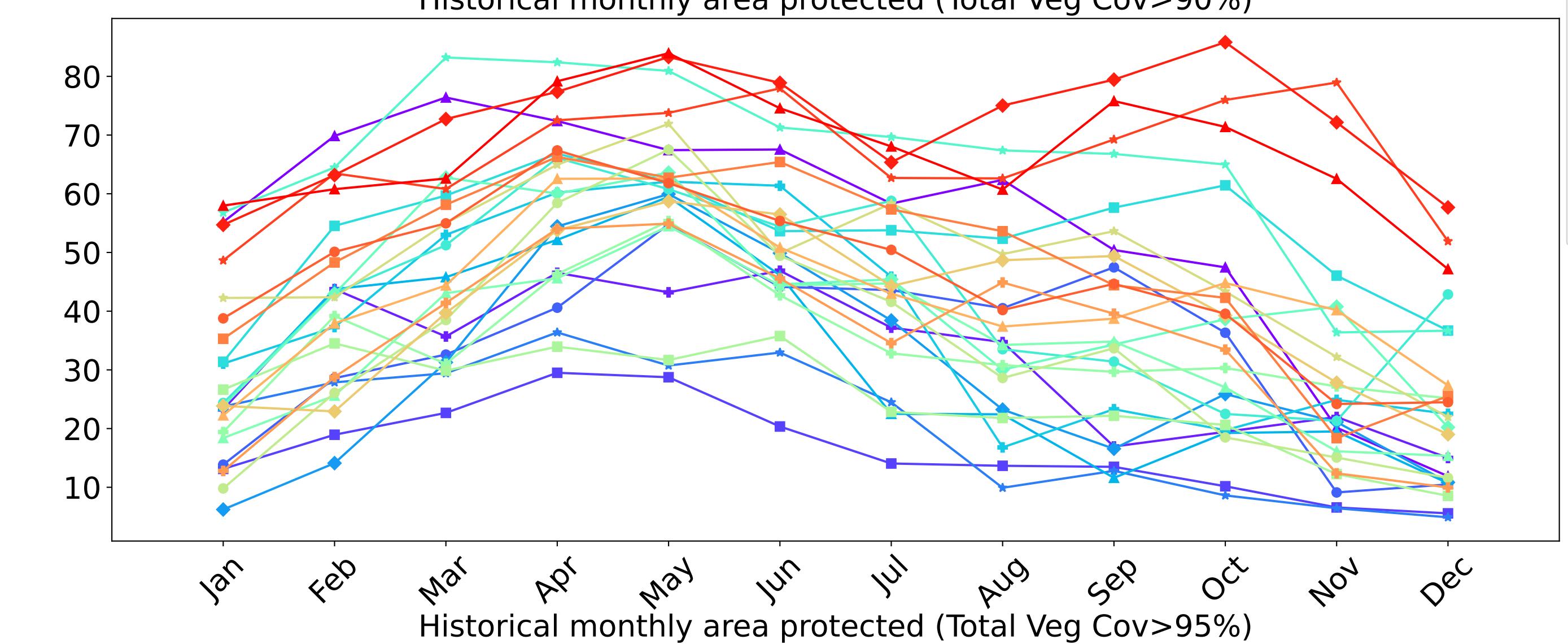
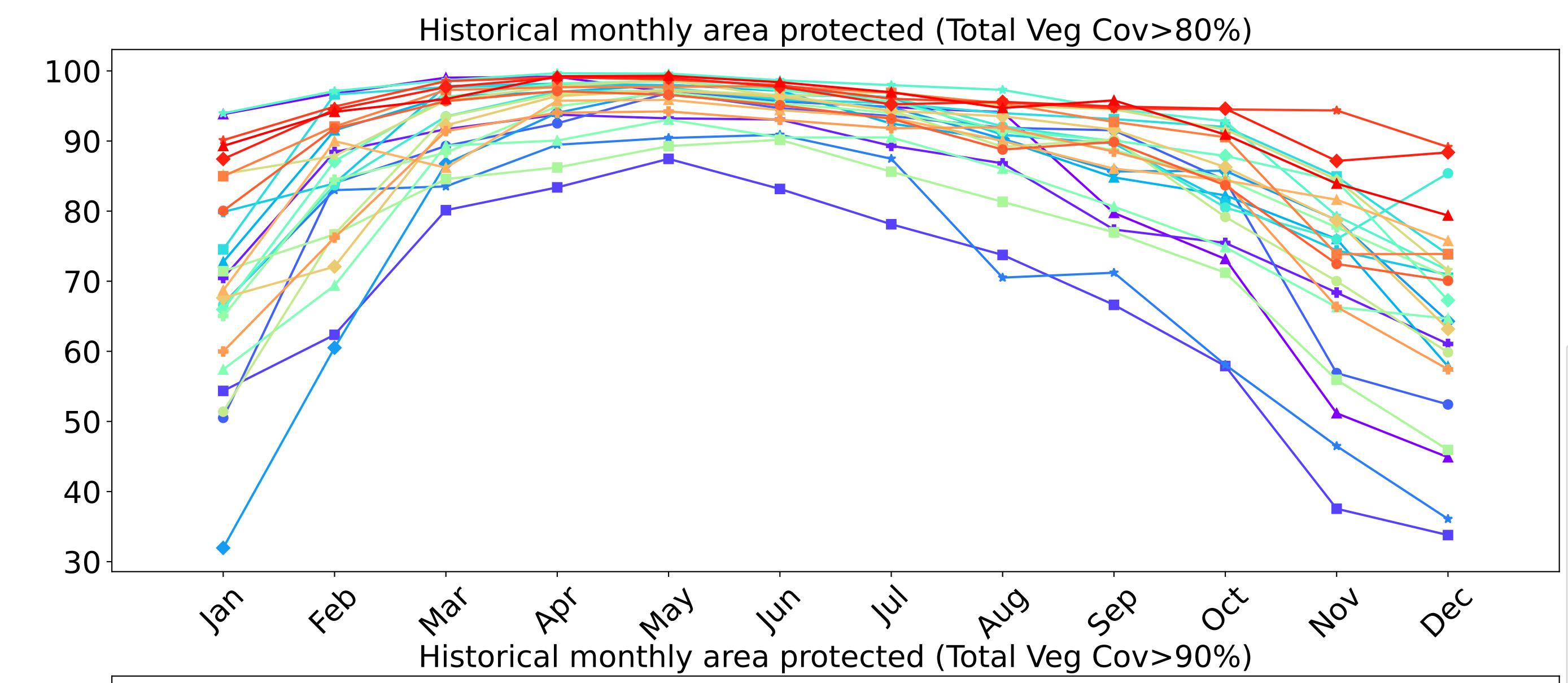
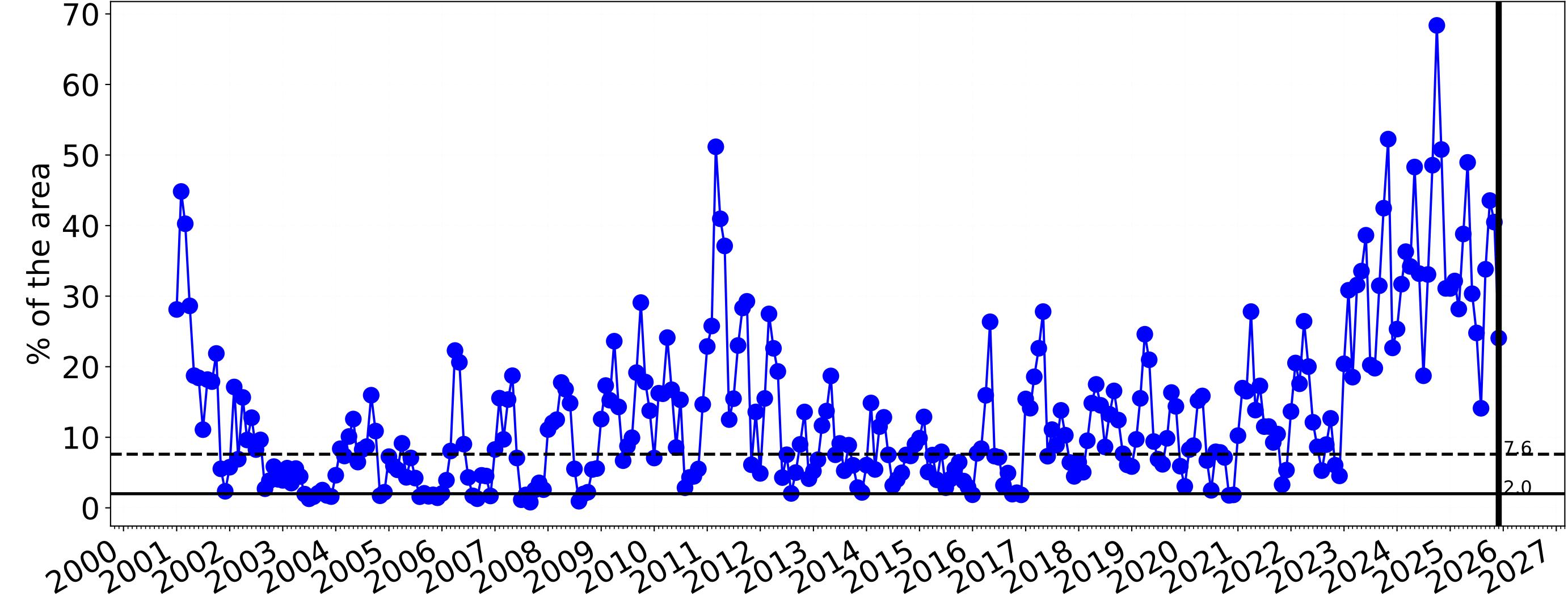
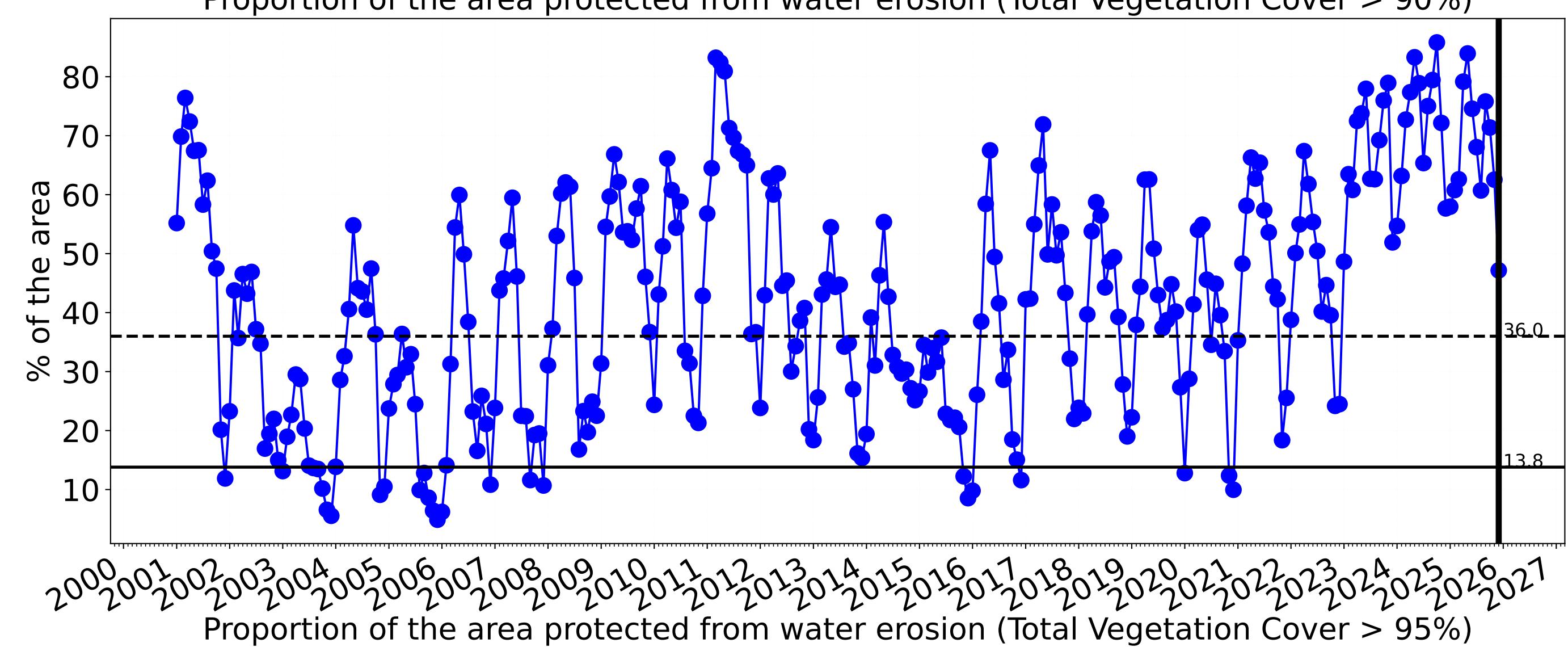
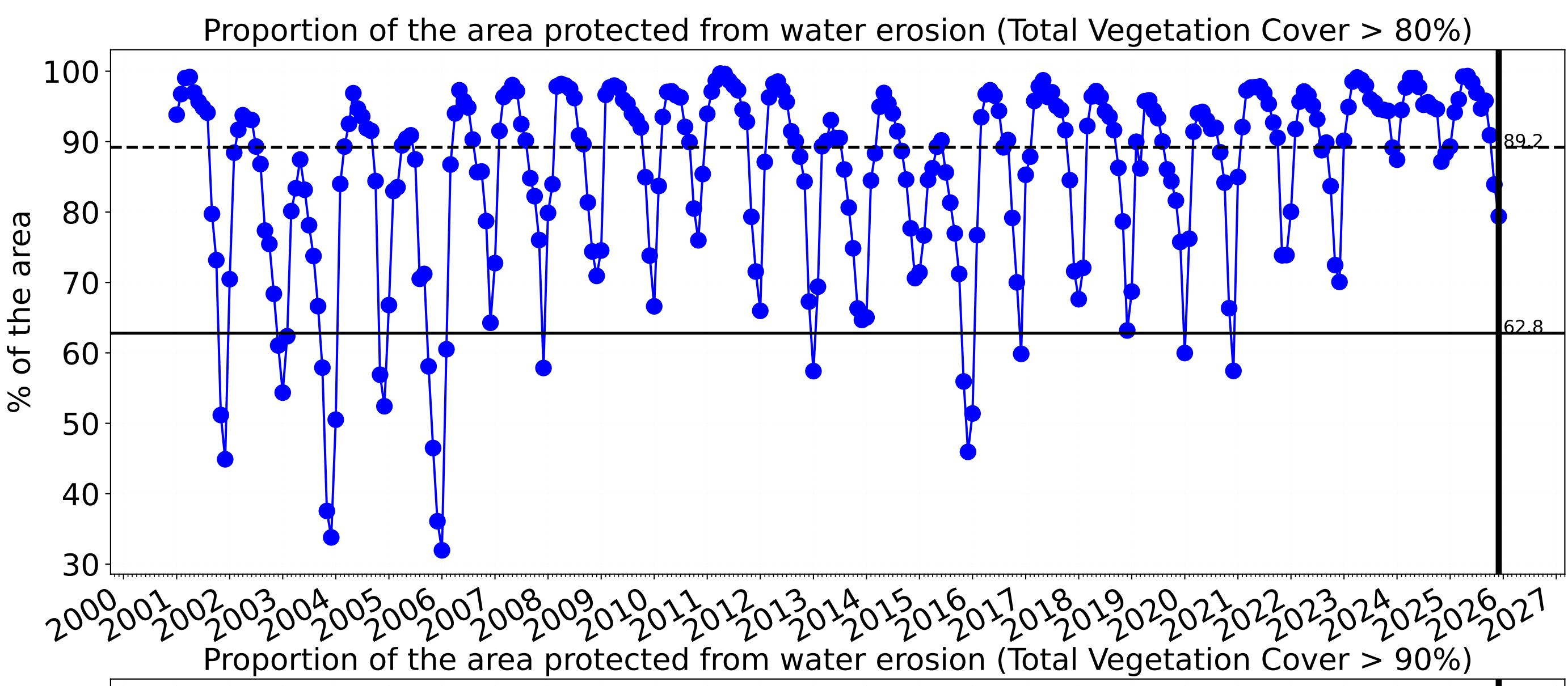


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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

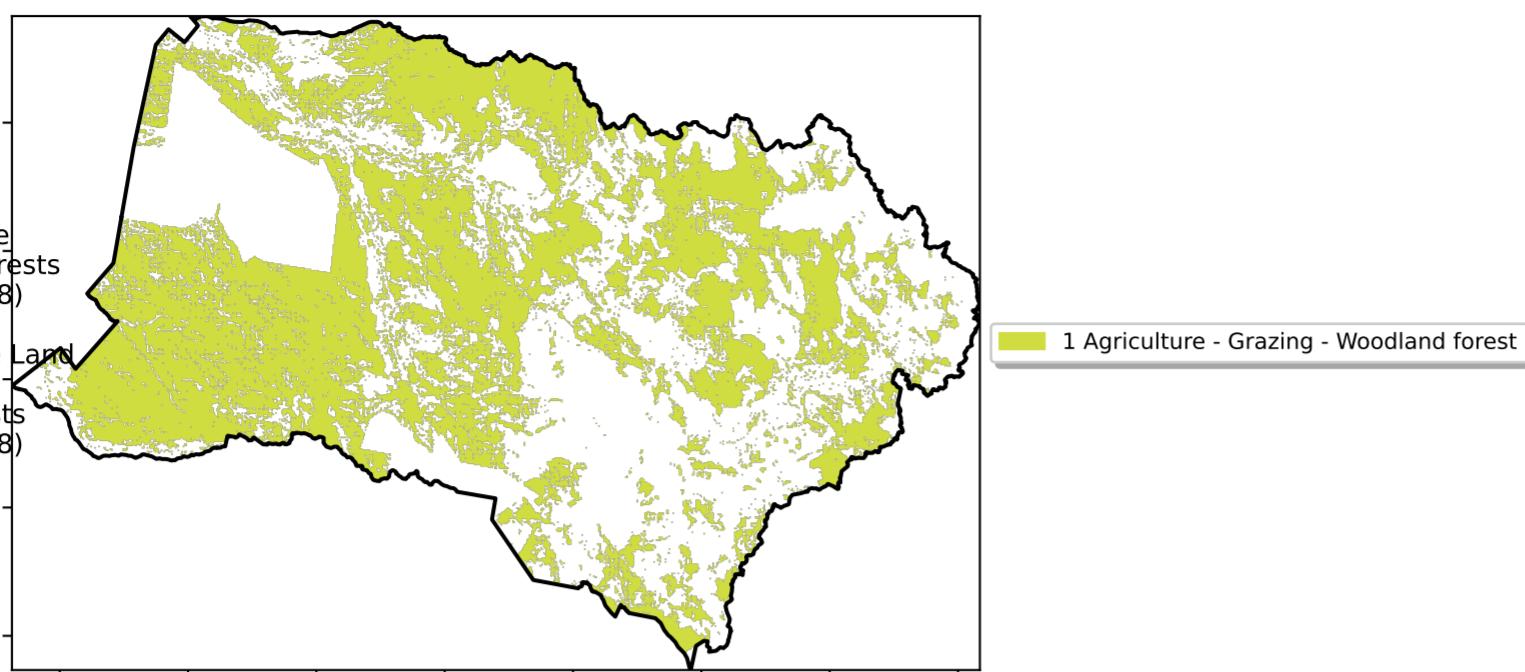




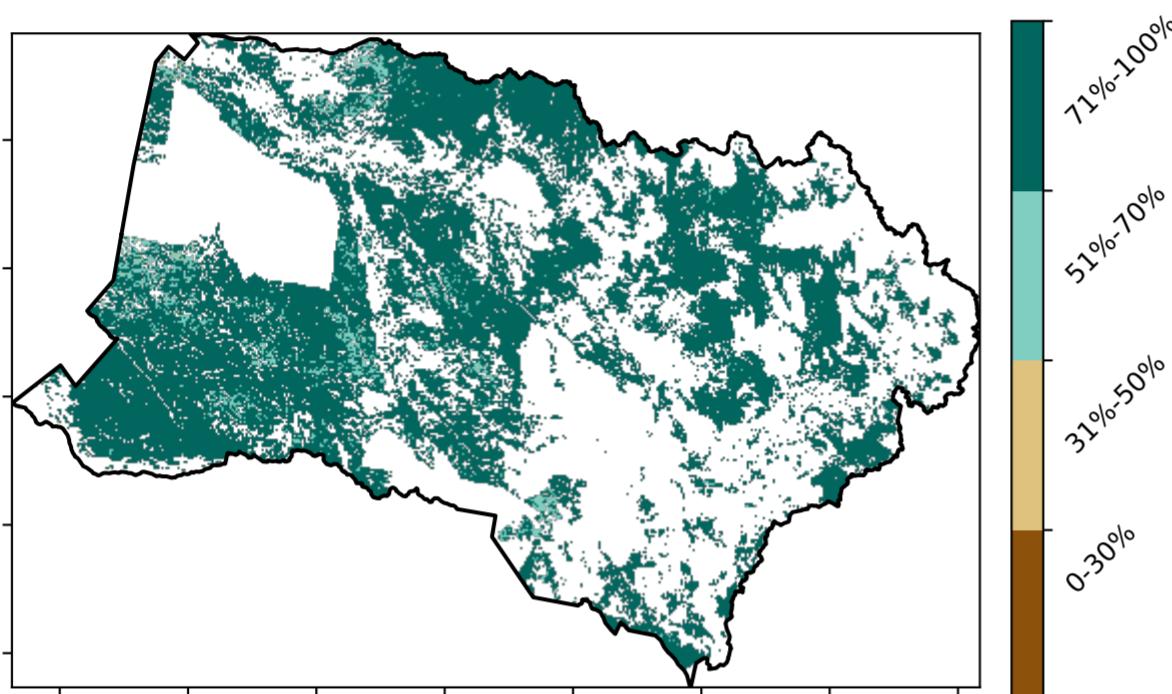
Grazing Woodland forest

Land use and forest cover

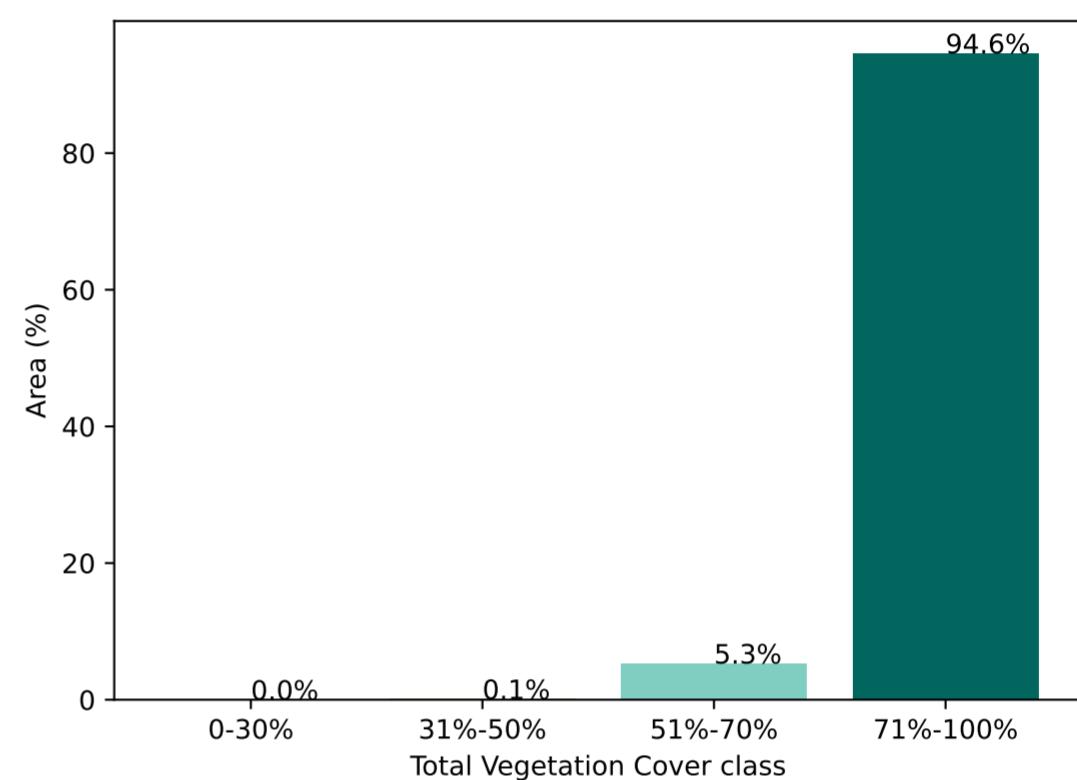
Catchment Scale
Land Use and Forests
of Australia (2018)
Derived from
Catchment Scale Land
Use of Australia
(2018) and Forests
of Australia (2018)



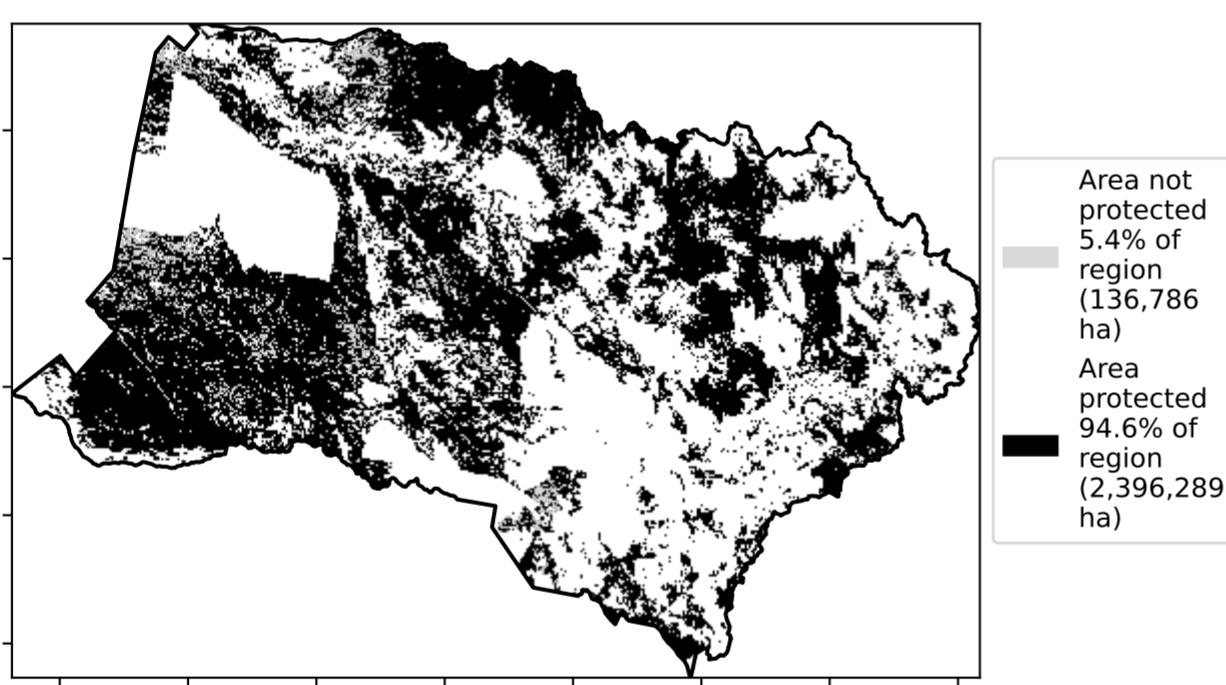
Total Vegetation Cover [%]



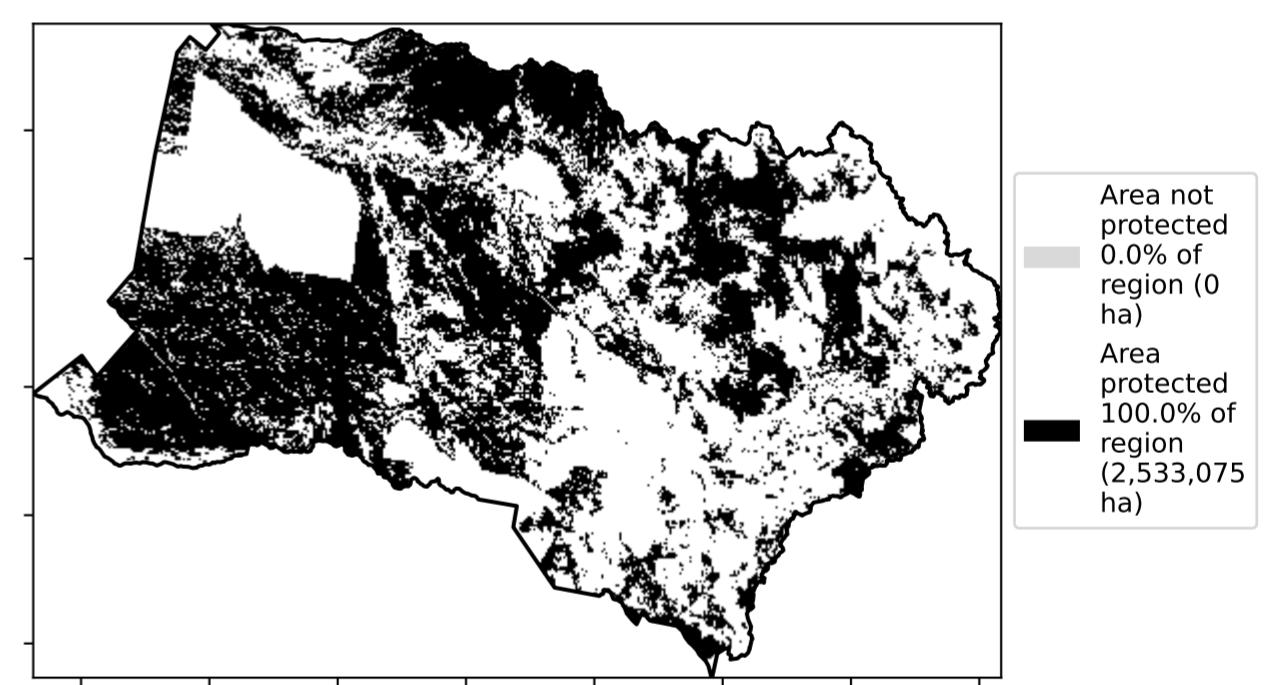
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

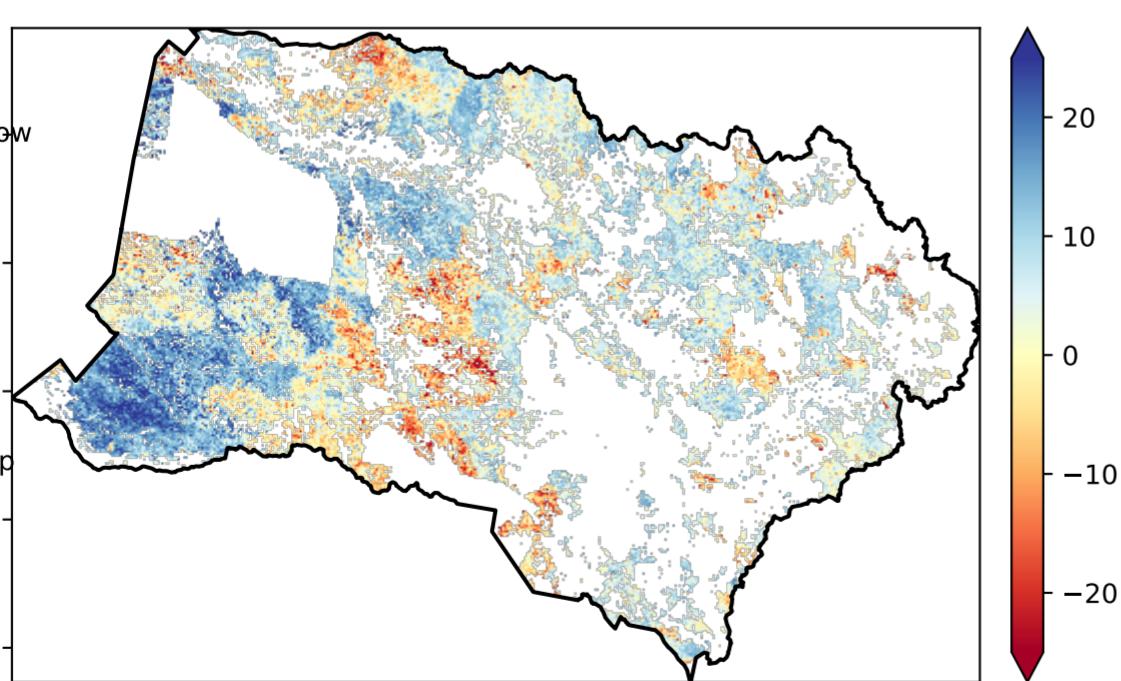


% Area protected from wind erosion (>50%)



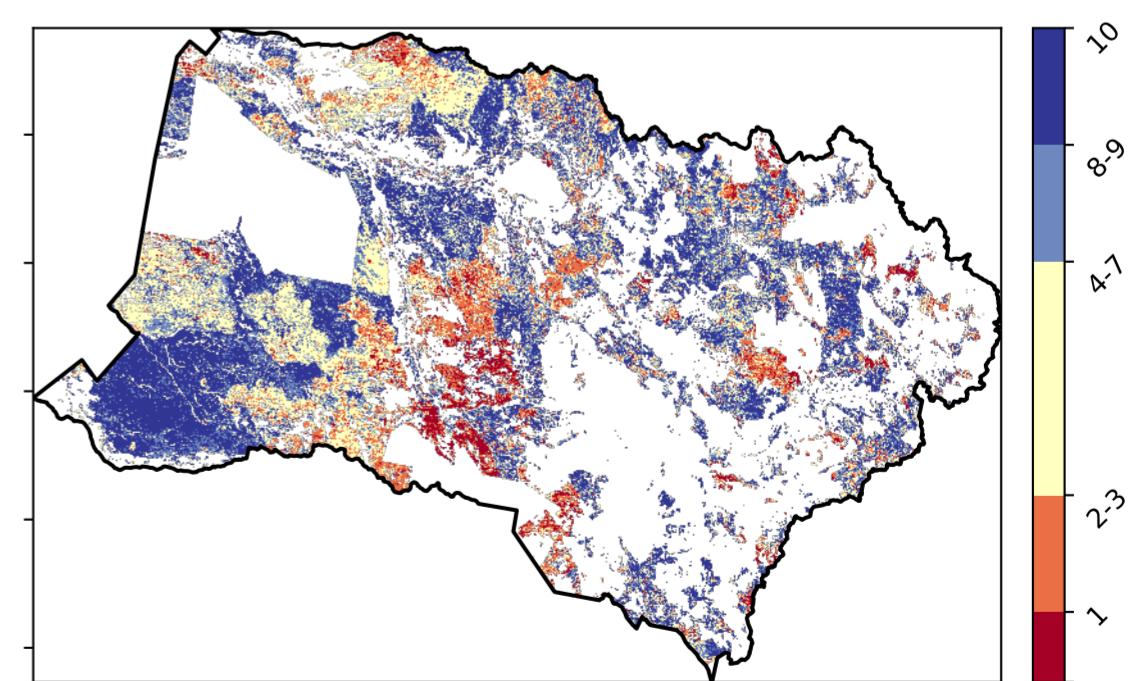
Total Vegetation Cover Anomaly [%]

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



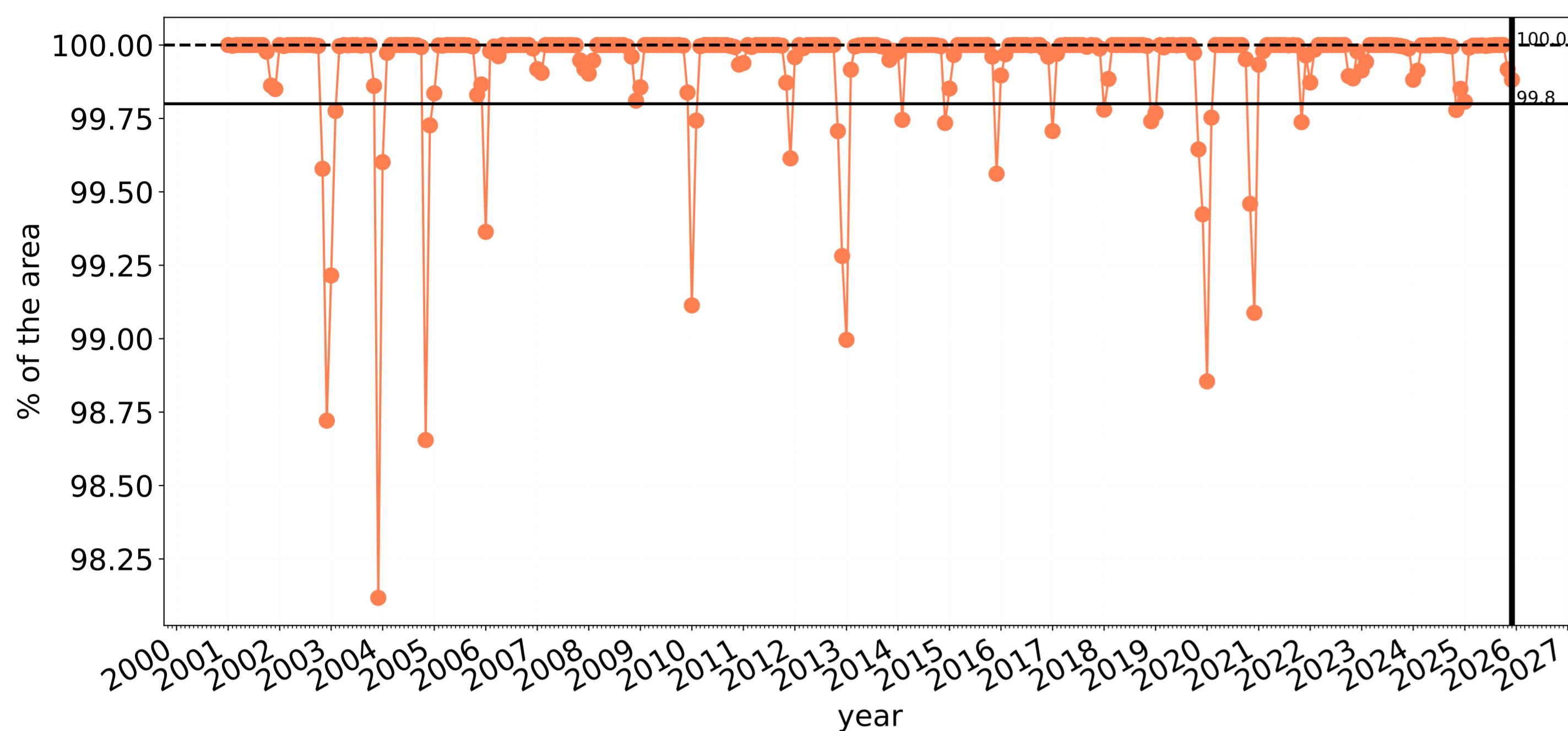
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]

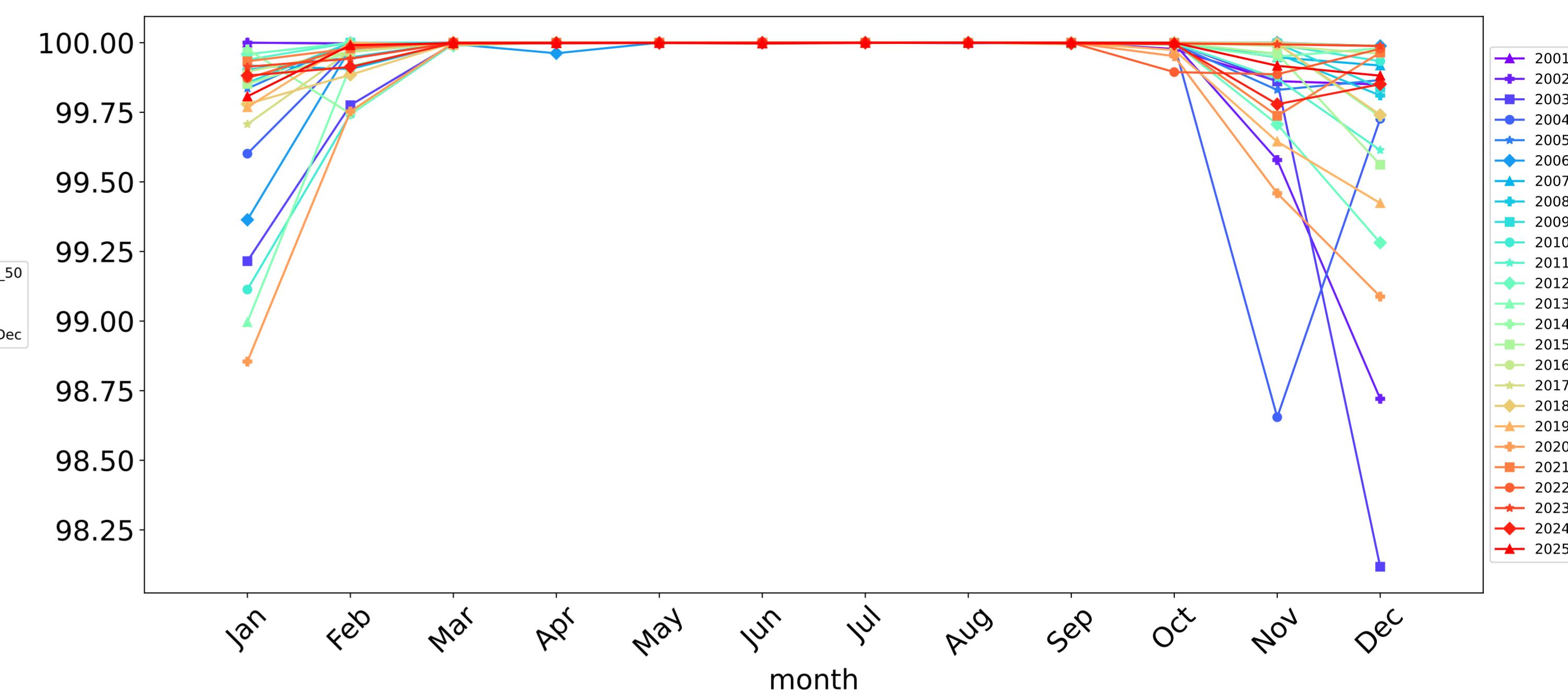


Grazing Woodland forest timeseries

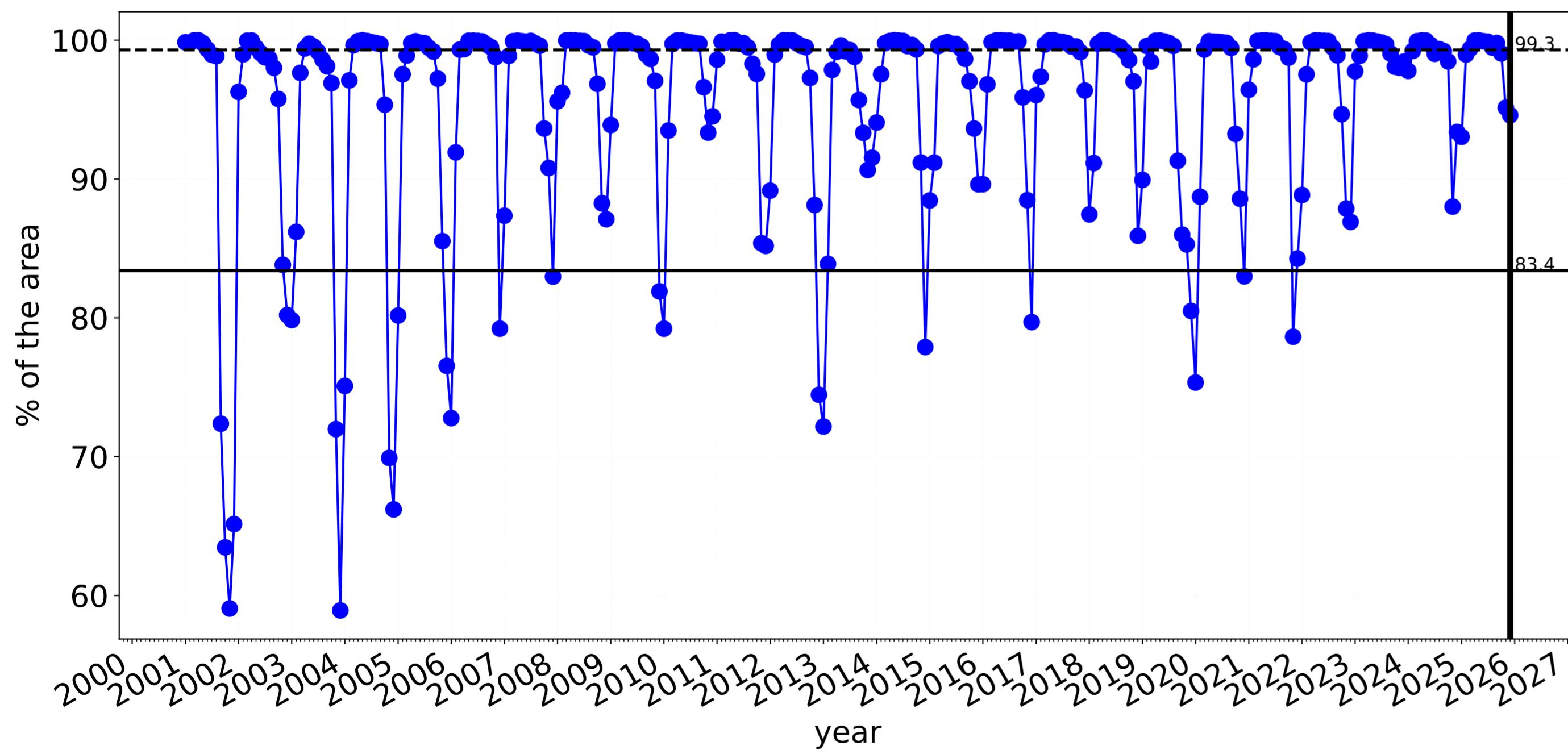
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



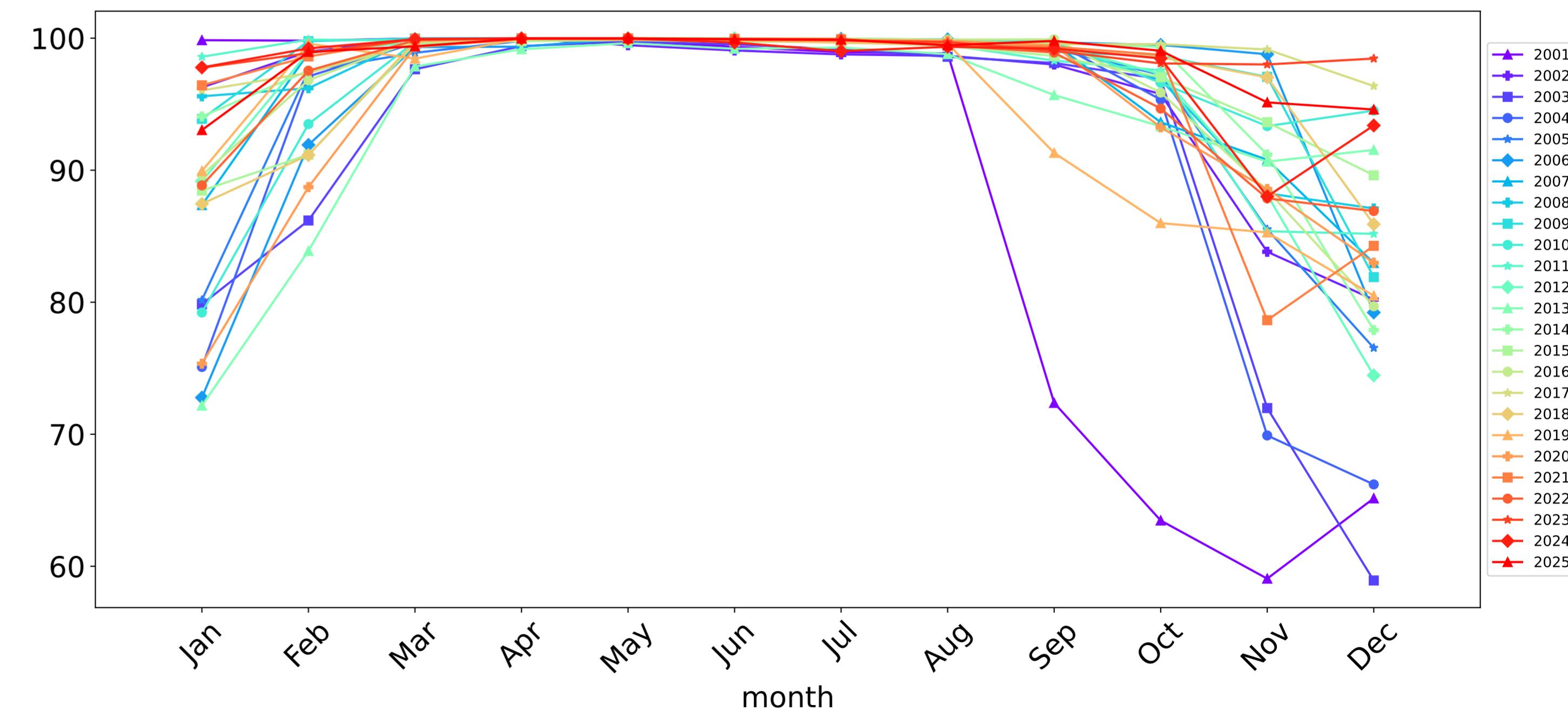
Wind erosion historical monthly area protected (Total Veg Cov >50%)



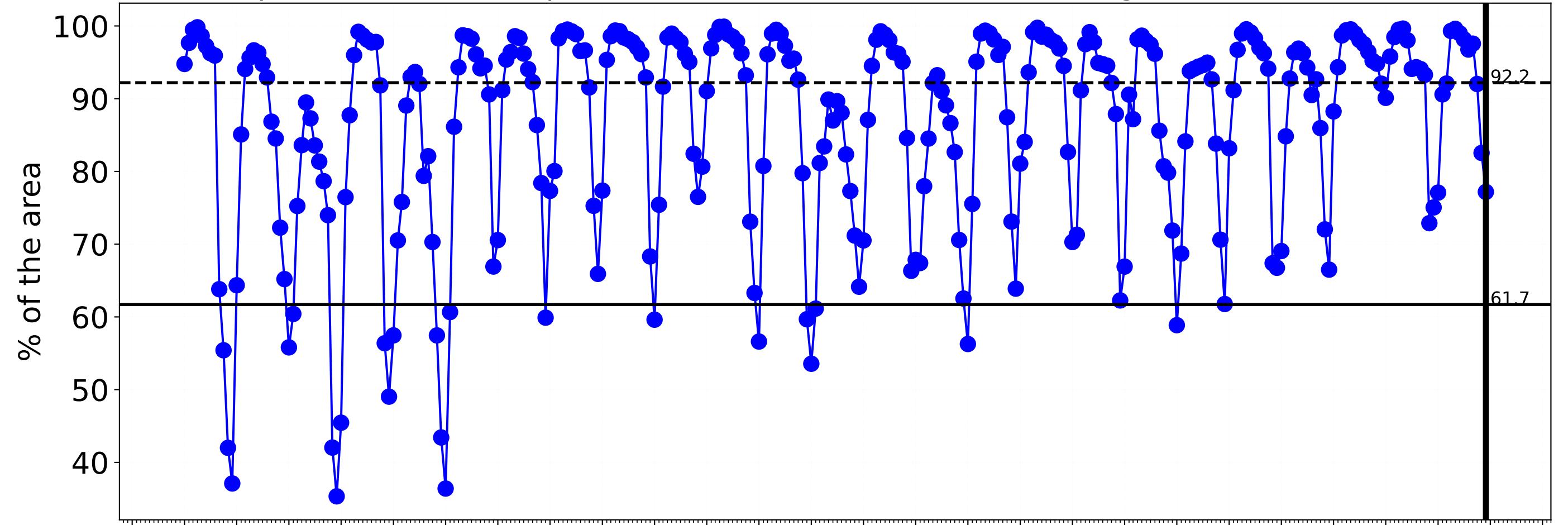
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



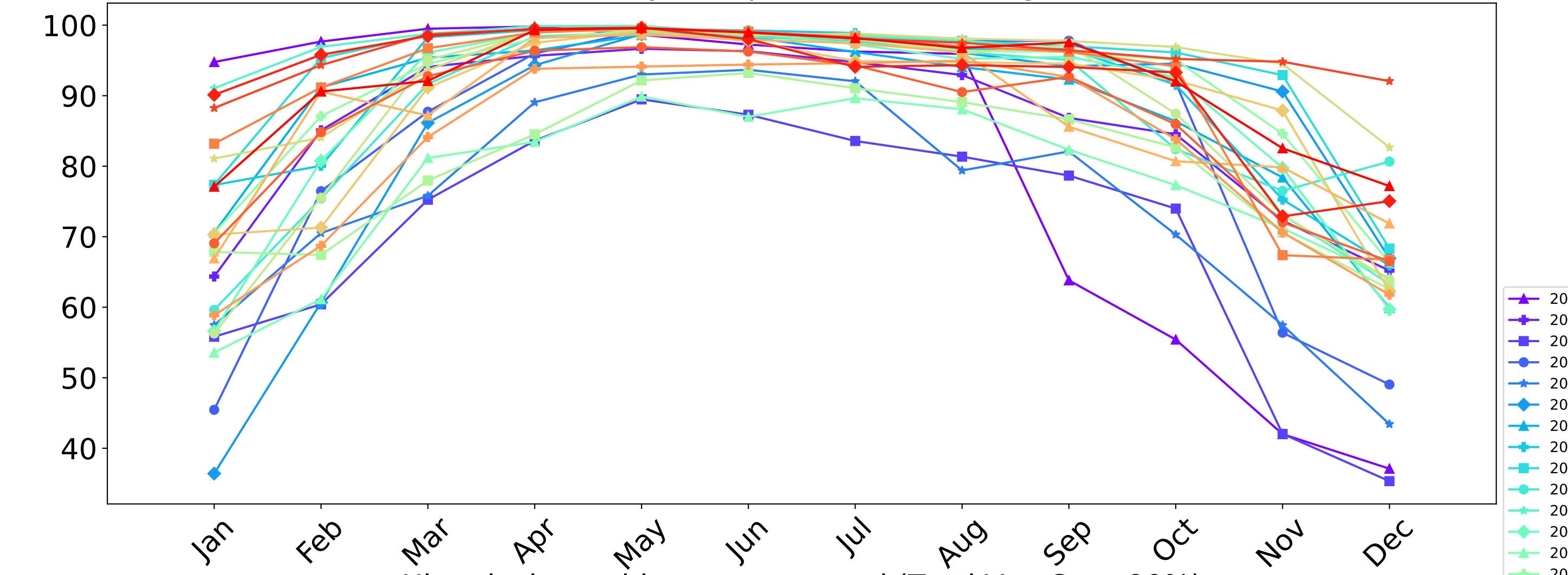
Water erosion historical monthly area protected (Total Veg Cov >70%)



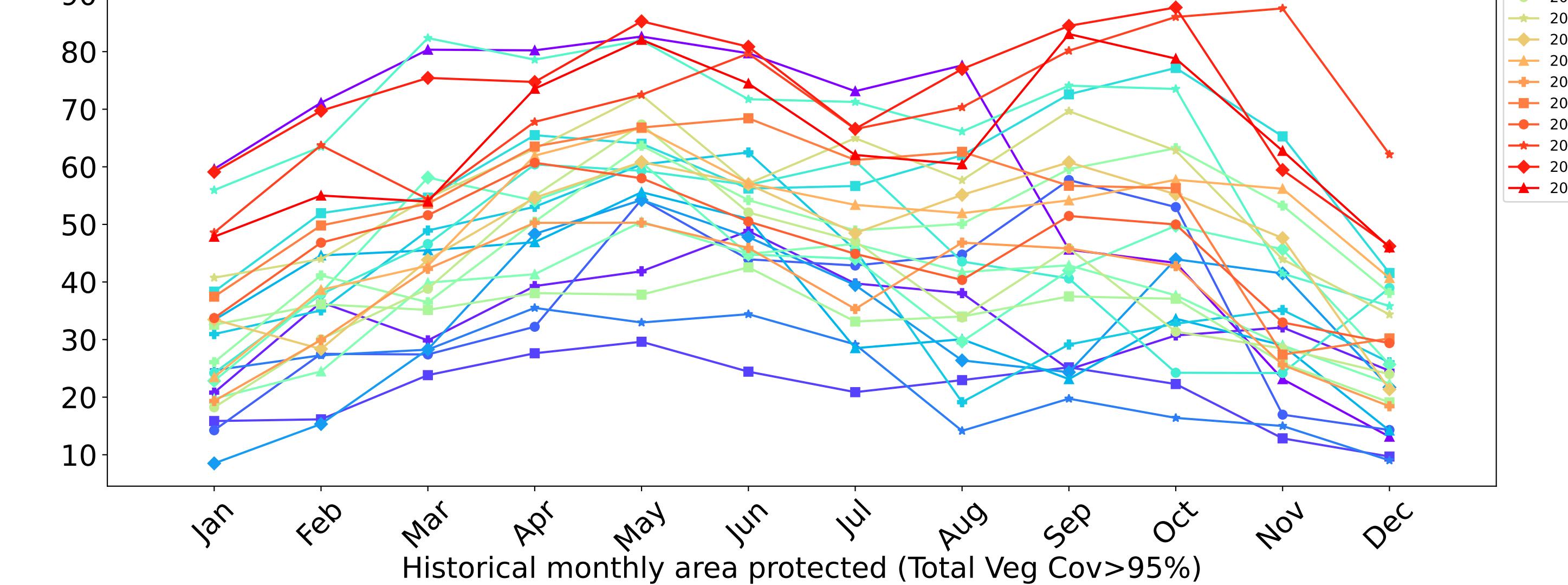
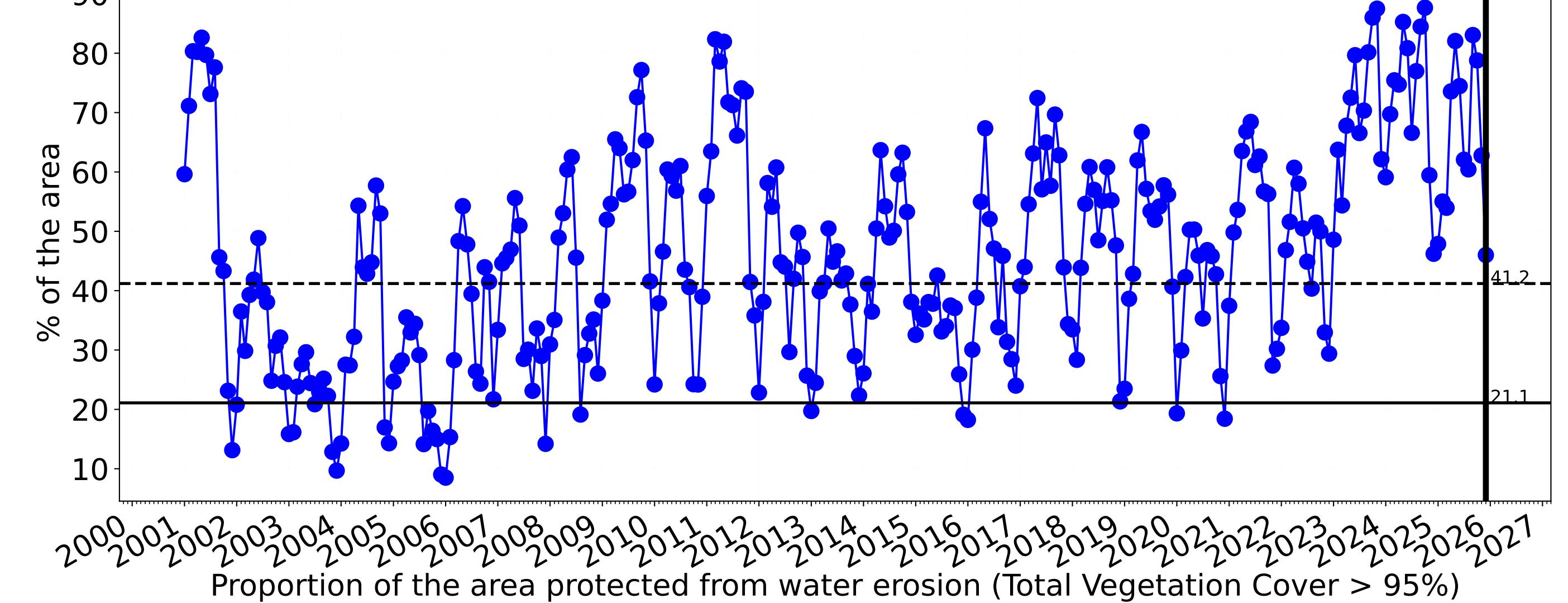
Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



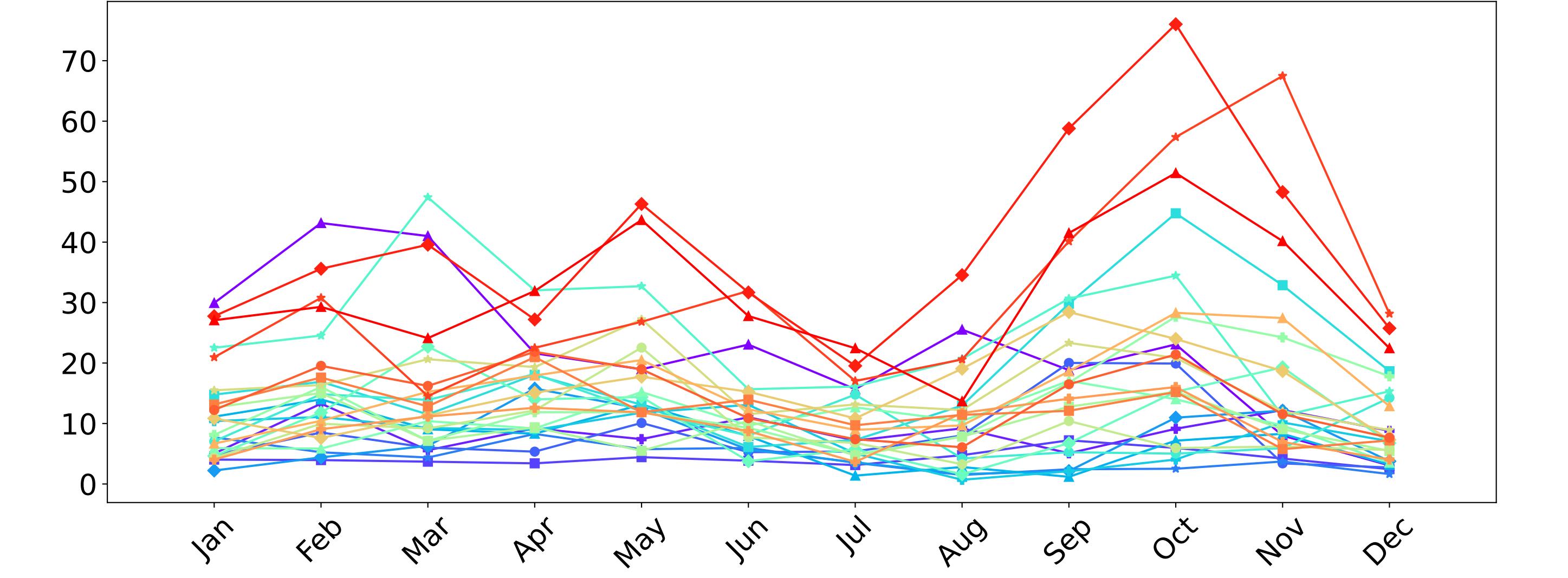
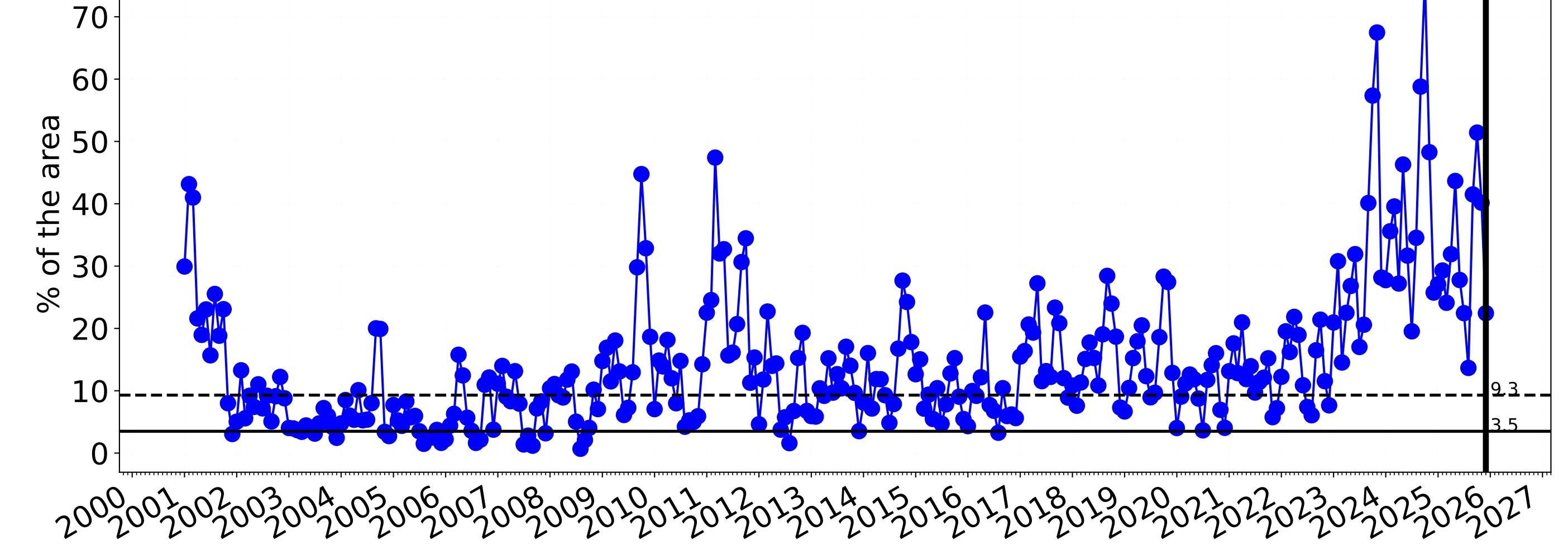
Historical monthly area protected (Total Veg Cov>80%)



Proportion of the area protected from water erosion (Total Vegetation Cover > 90%)



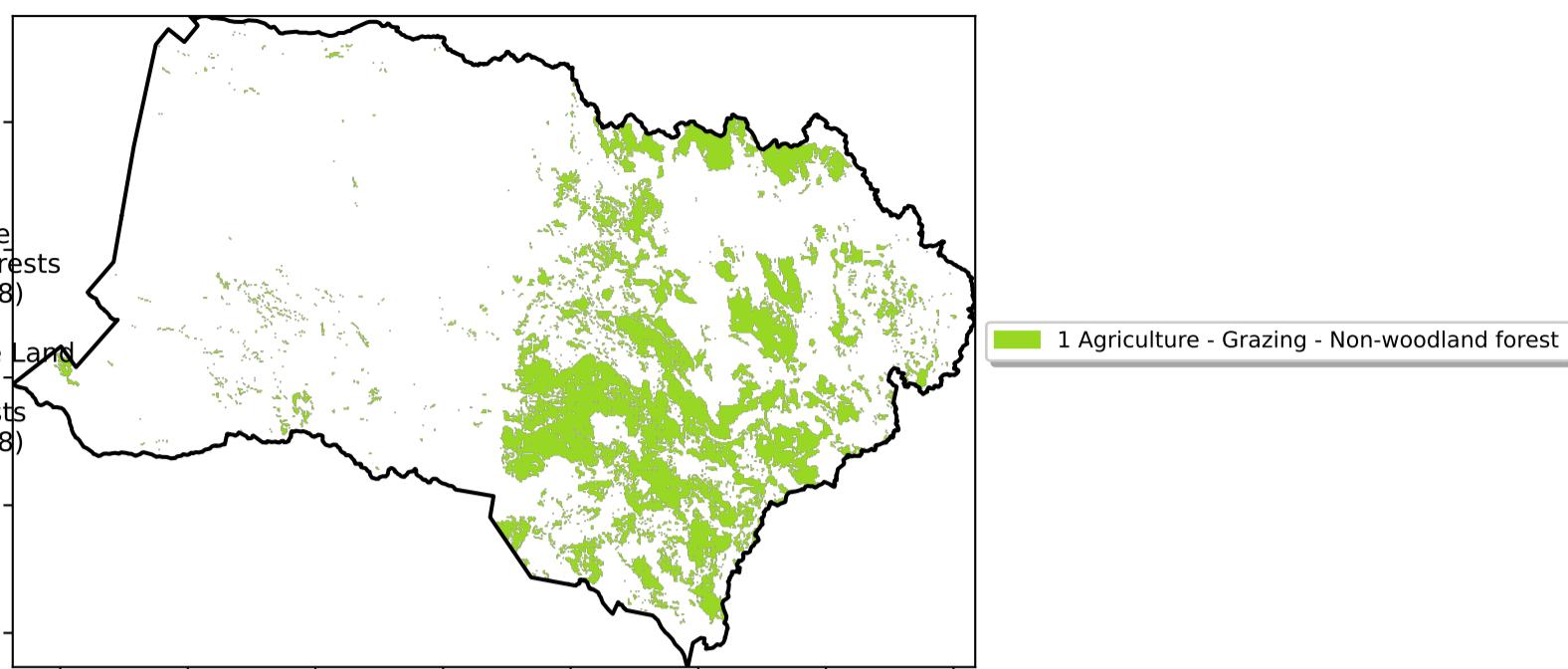
Proportion of the area protected from water erosion (Total Vegetation Cover > 95%)



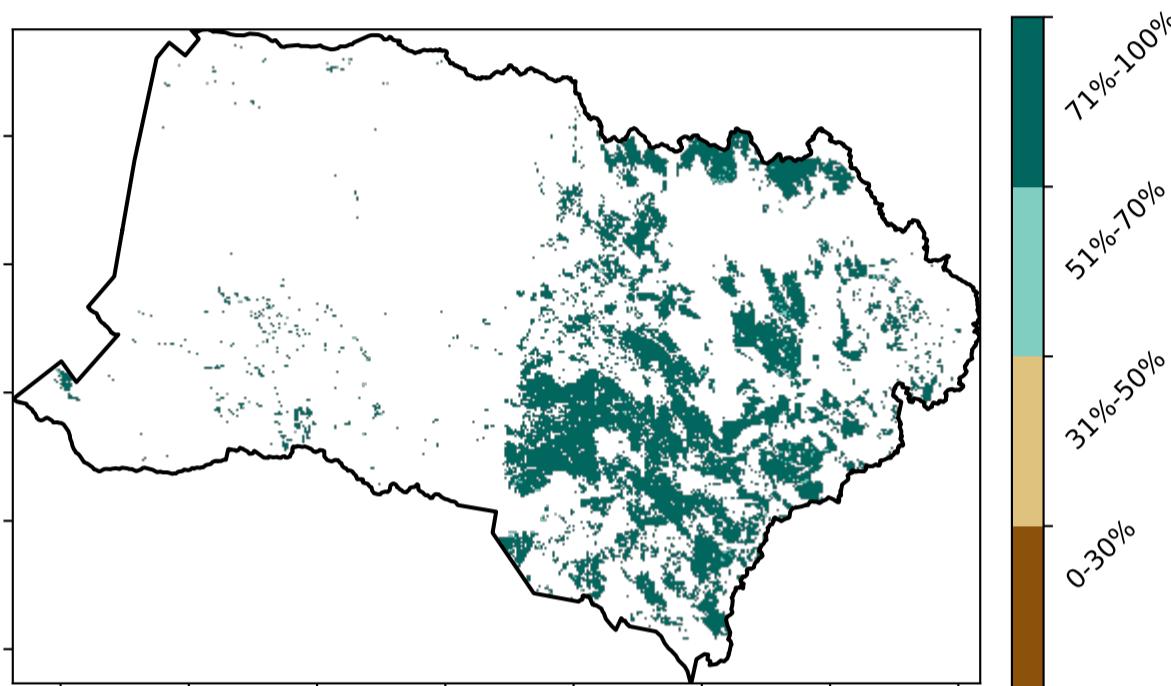
Grazing - Forest (non woodland)

Land use and forest cover

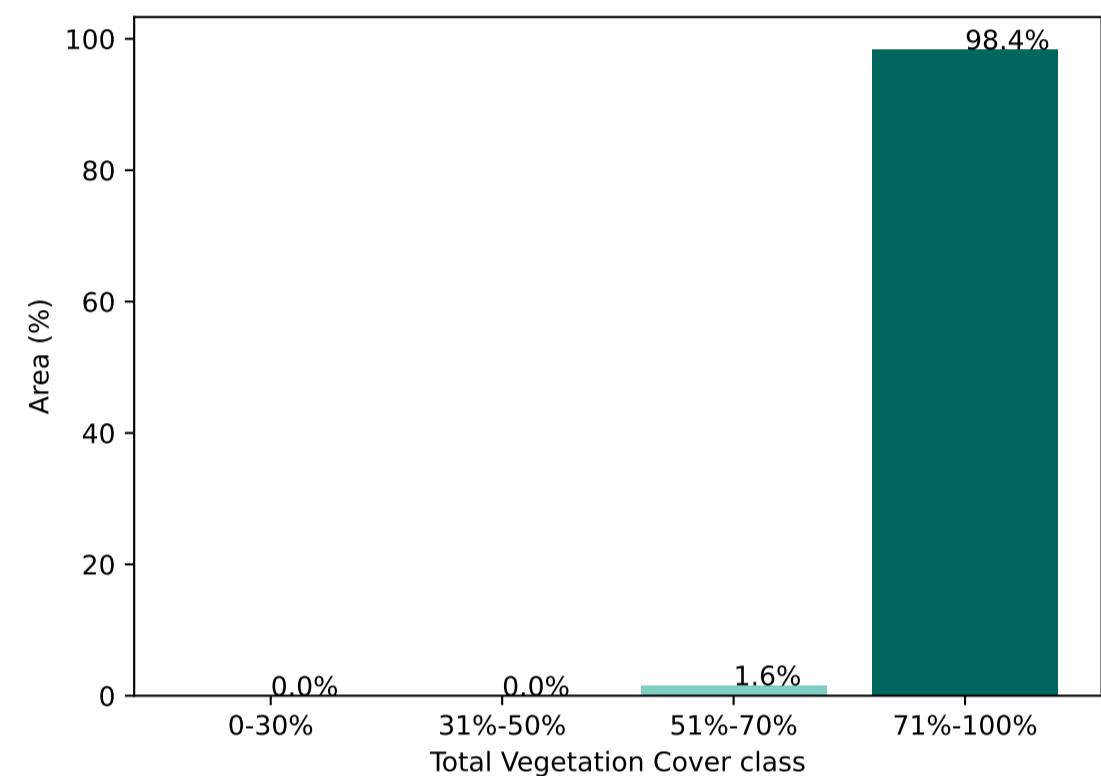
Catchment Scale Land Use and Forests of Australia (2018)
Derived from Catchment Scale Land Use of Australia (2018) and Forests of Australia (2018)



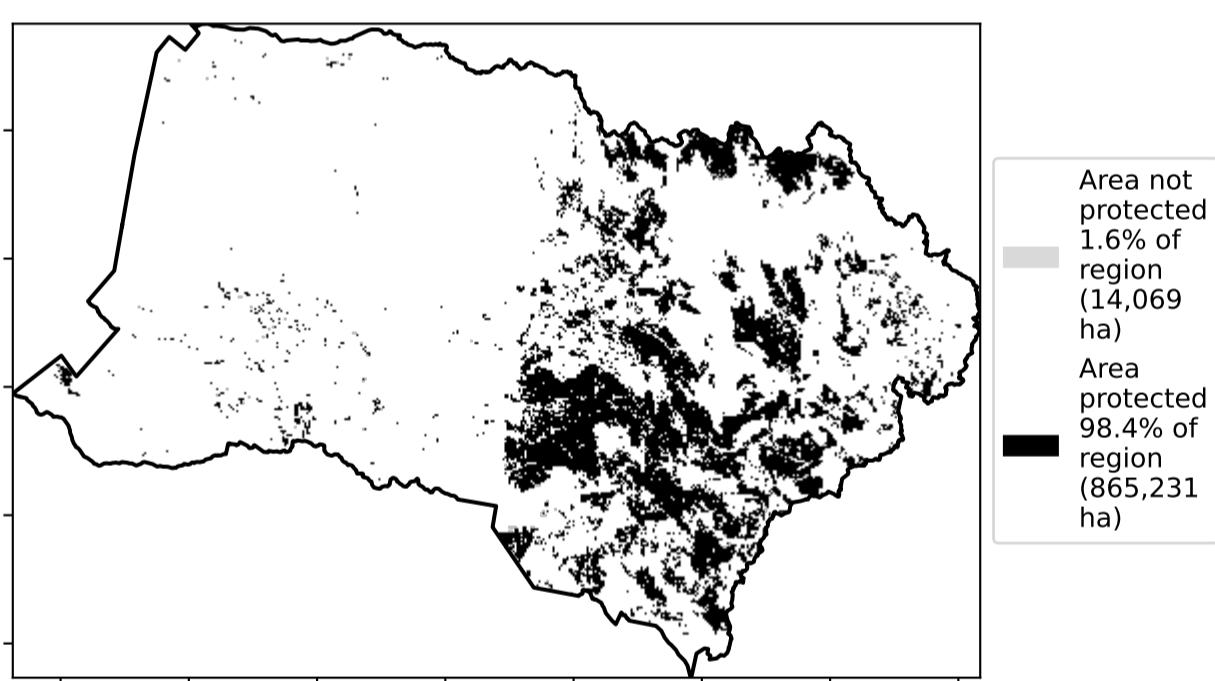
Total Vegetation Cover [%]



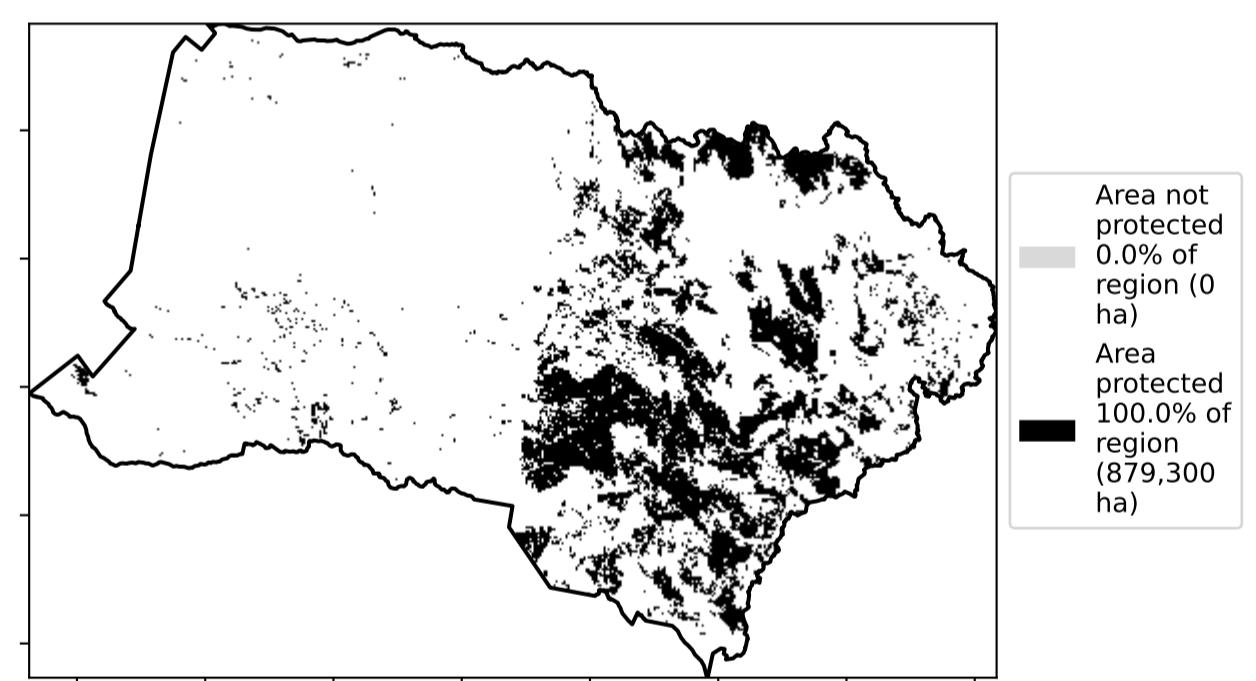
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

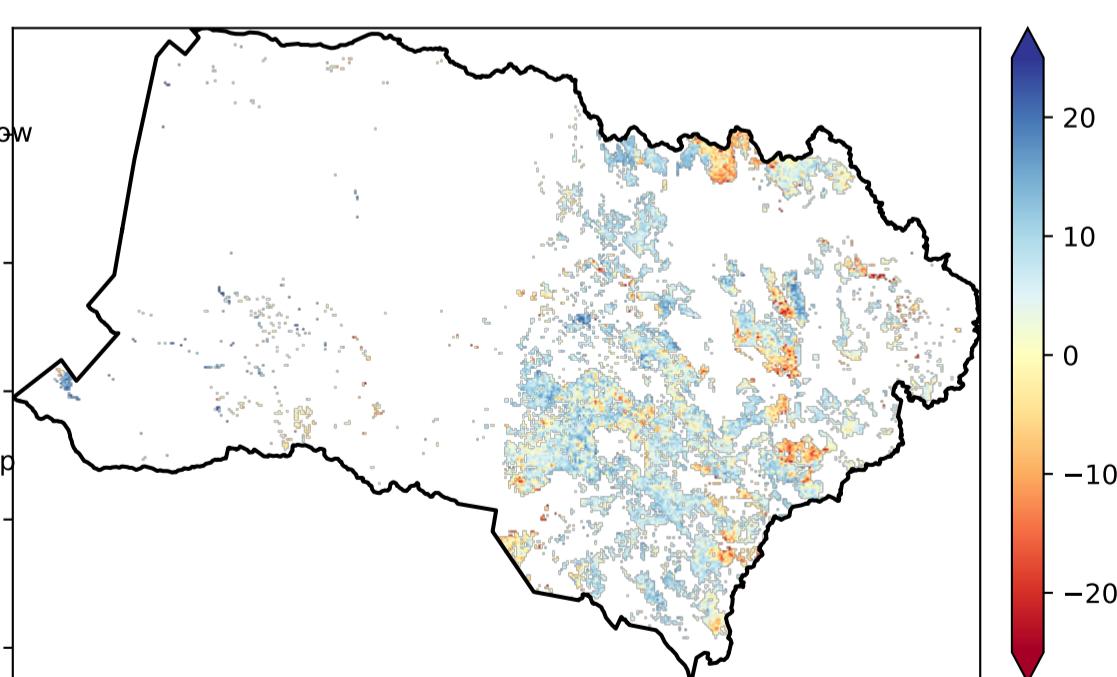


% Area protected from wind erosion (>50%)



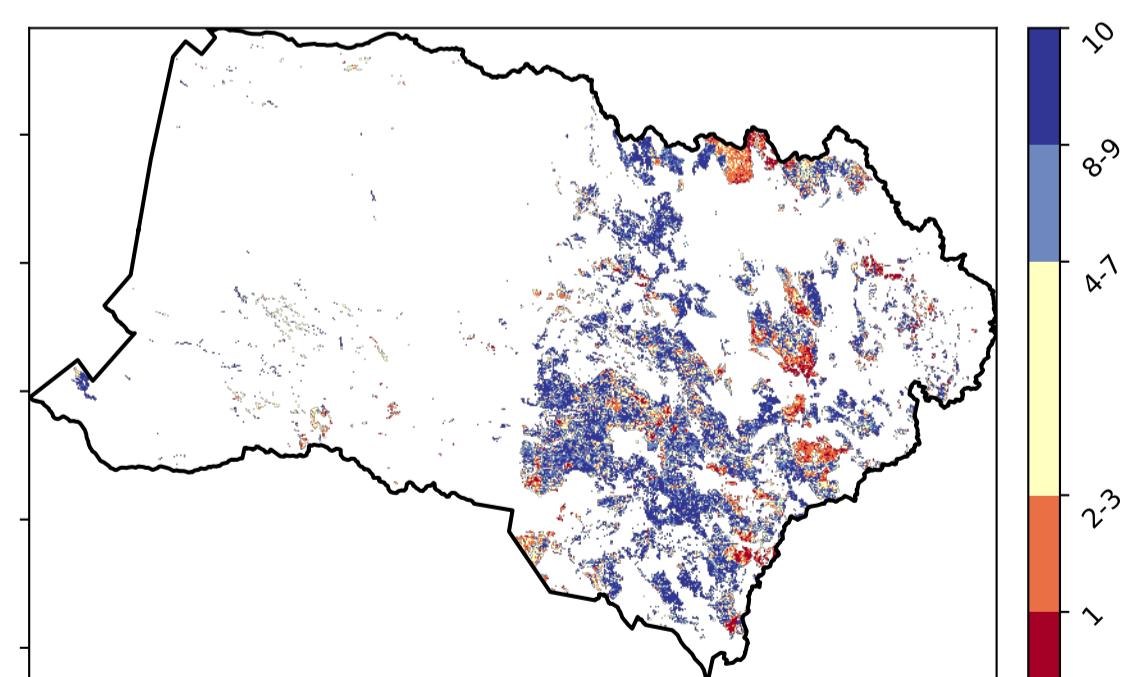
Total Vegetation Cover Anomaly [%]

Anomaly shows 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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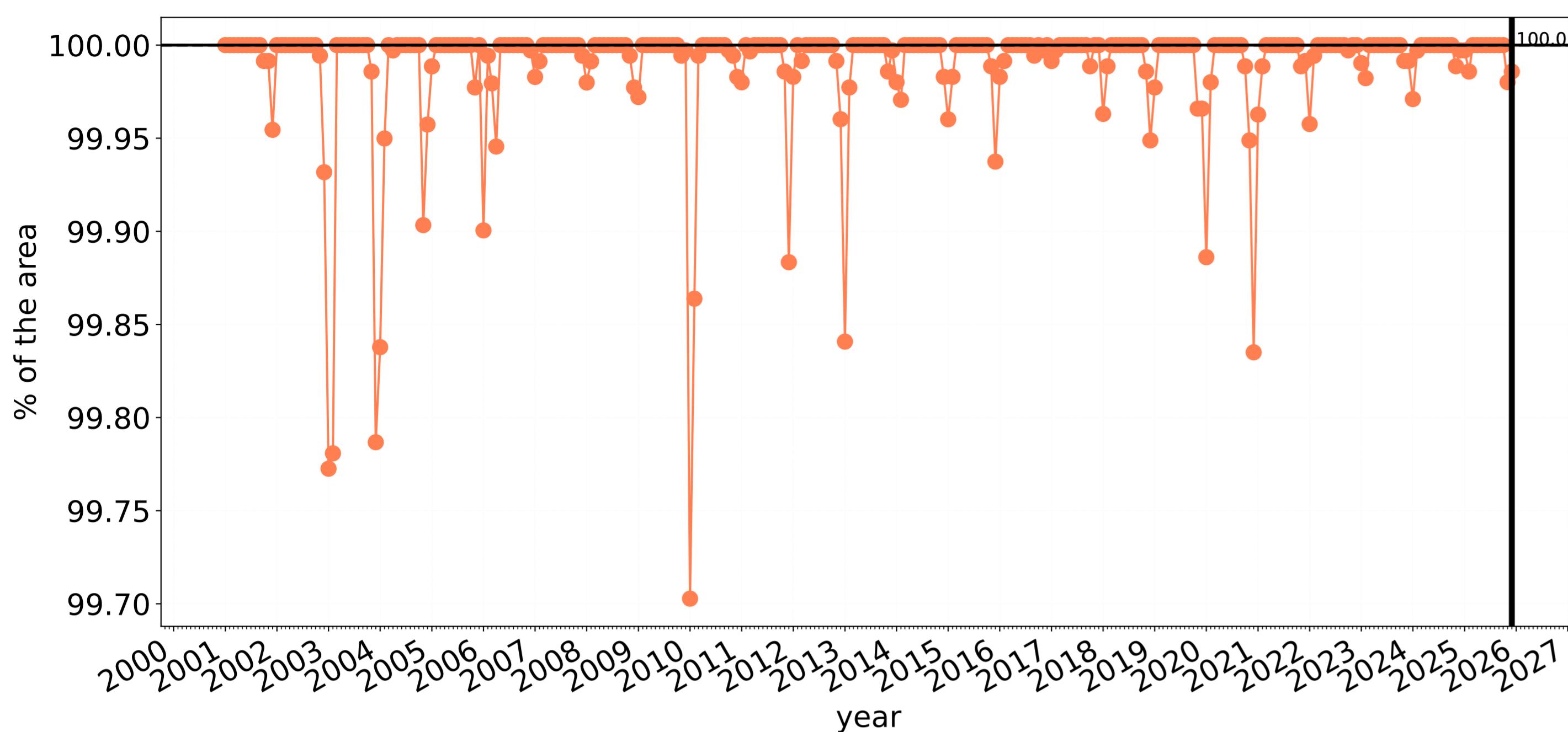


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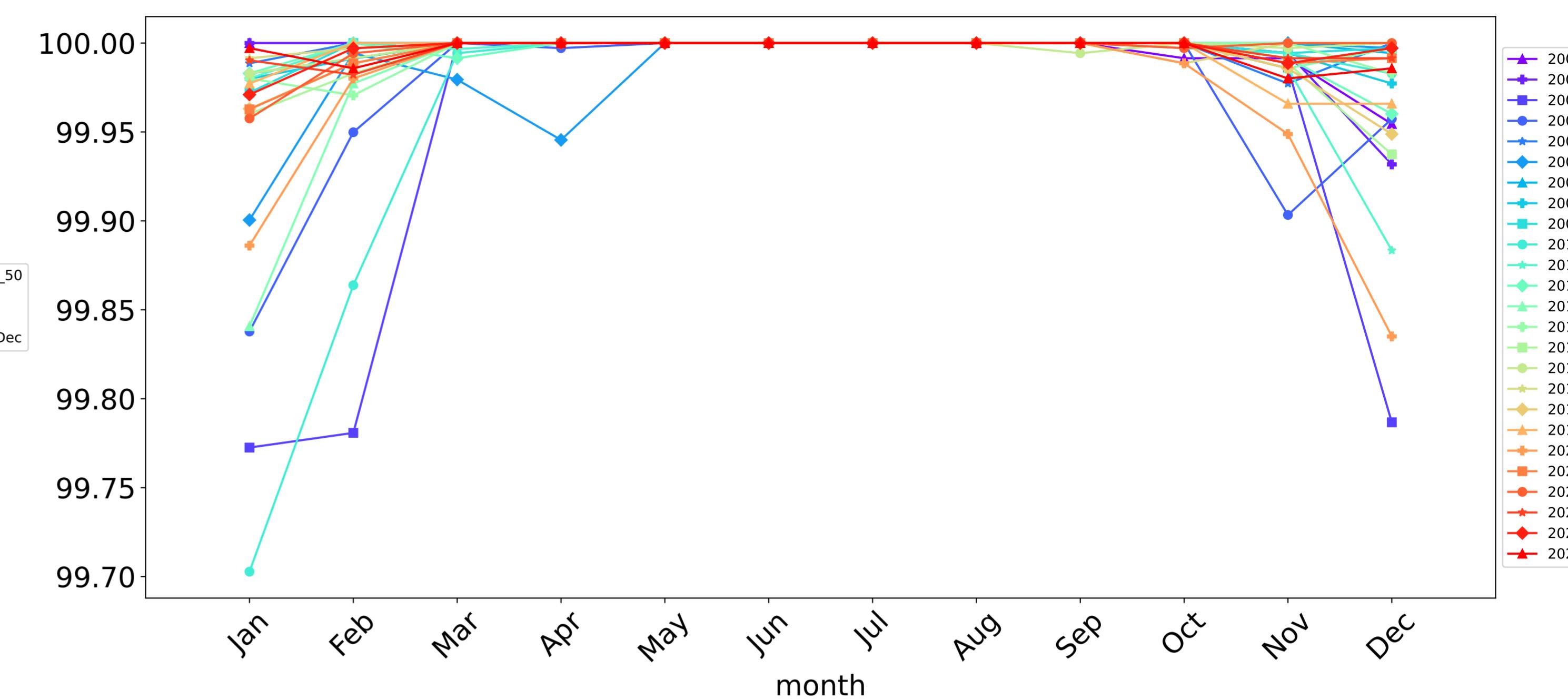


Grazing - Forest (non woodland) timeseries

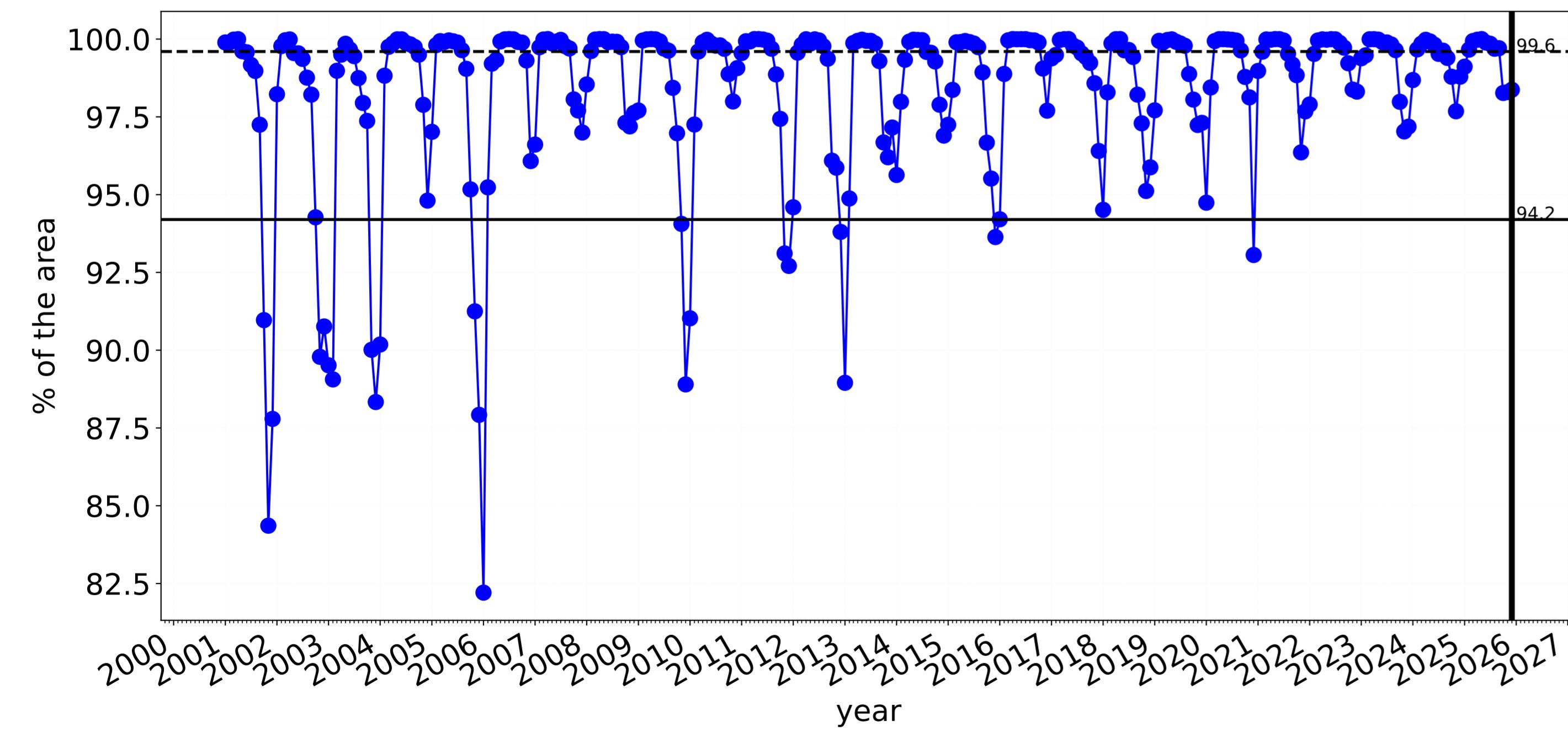
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



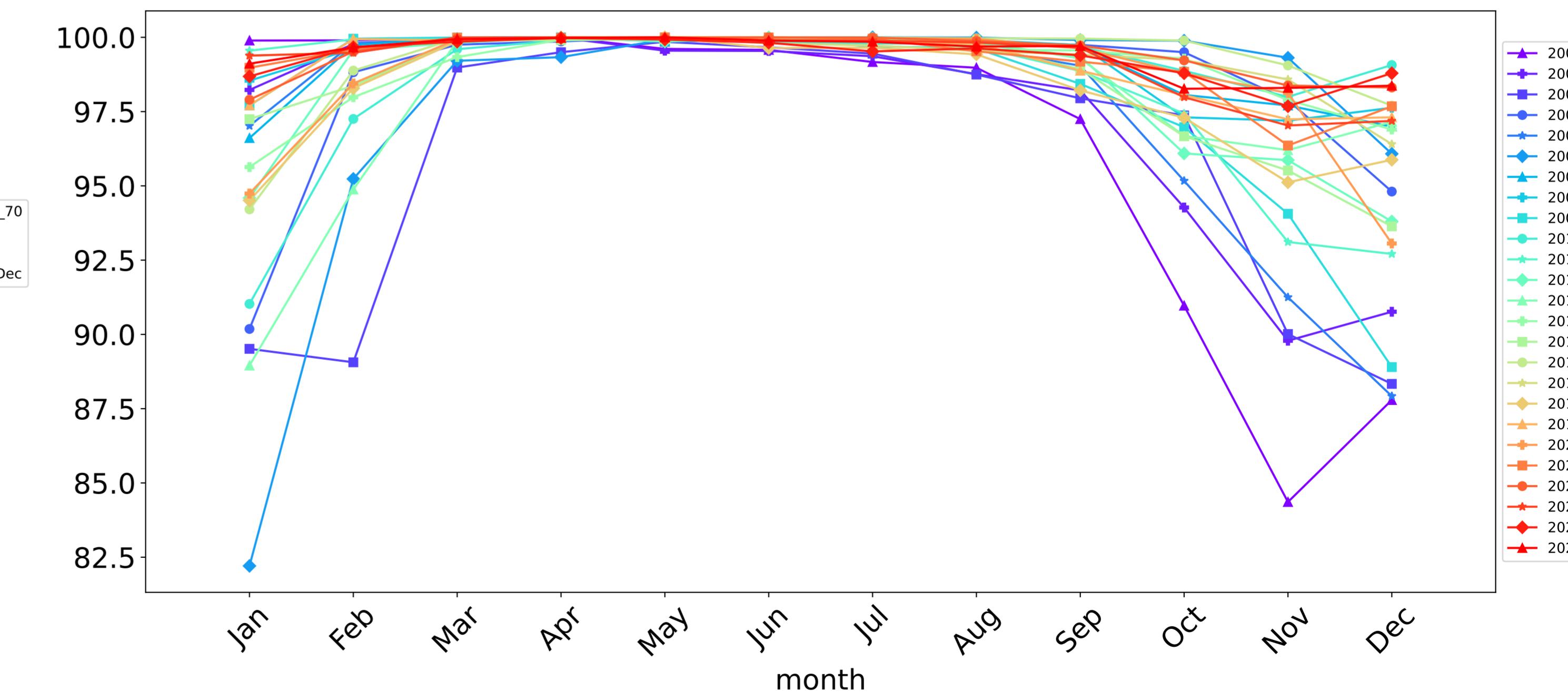
Wind erosion historical monthly area protected (Total Veg Cov >50%)



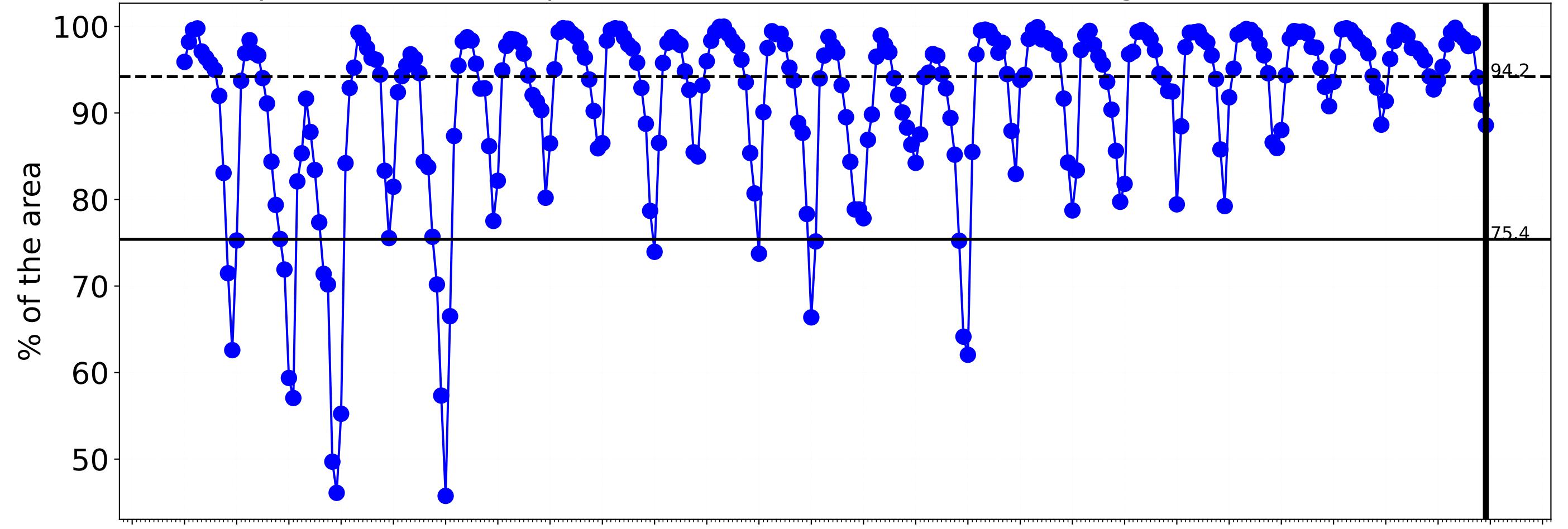
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



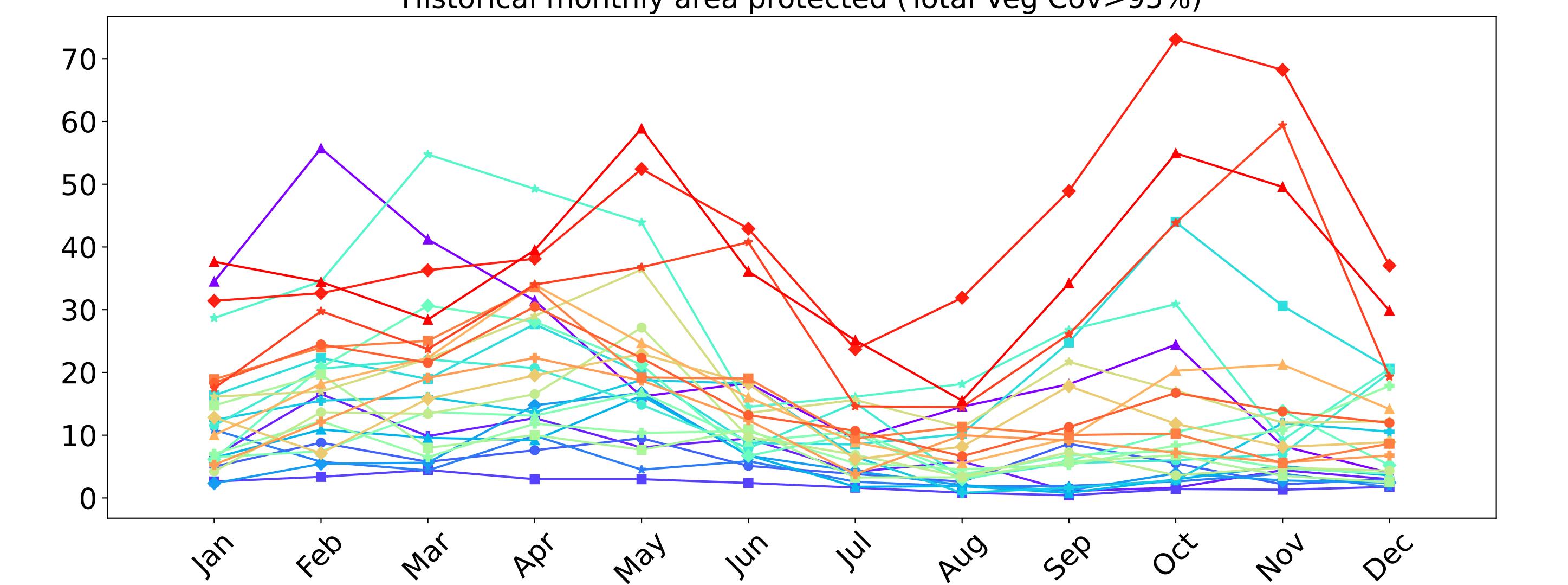
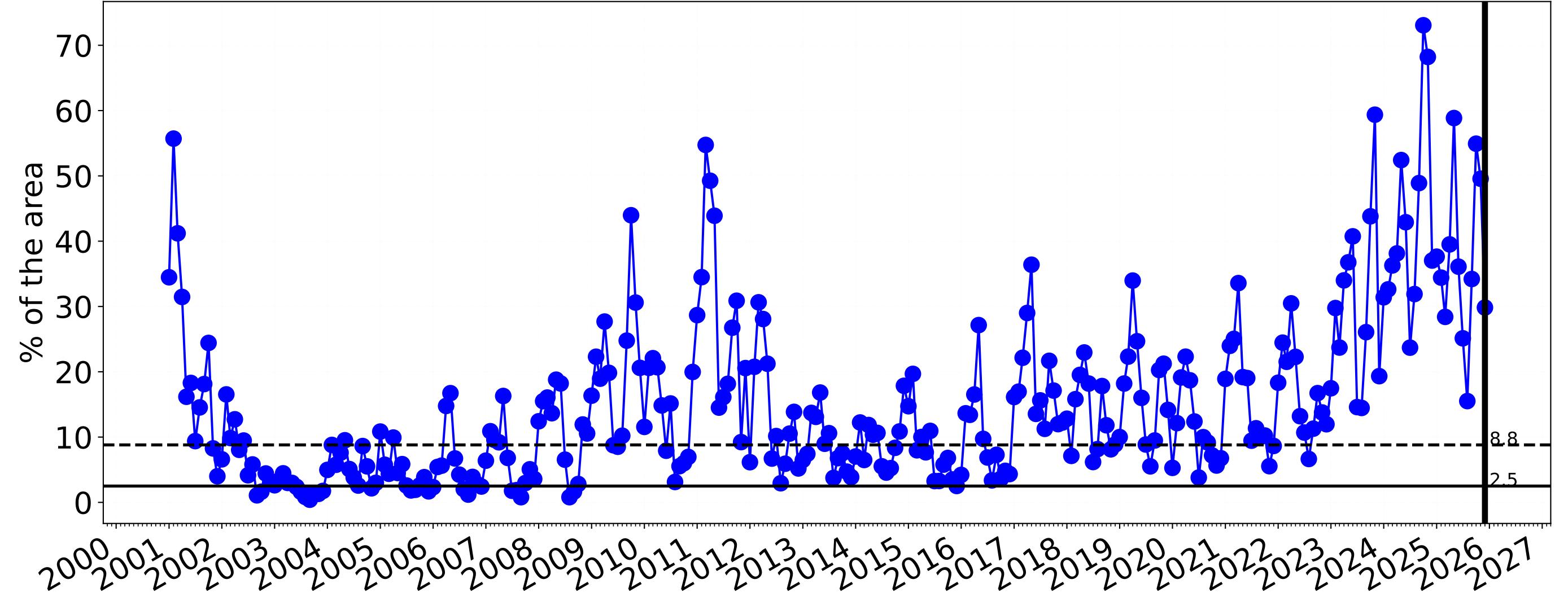
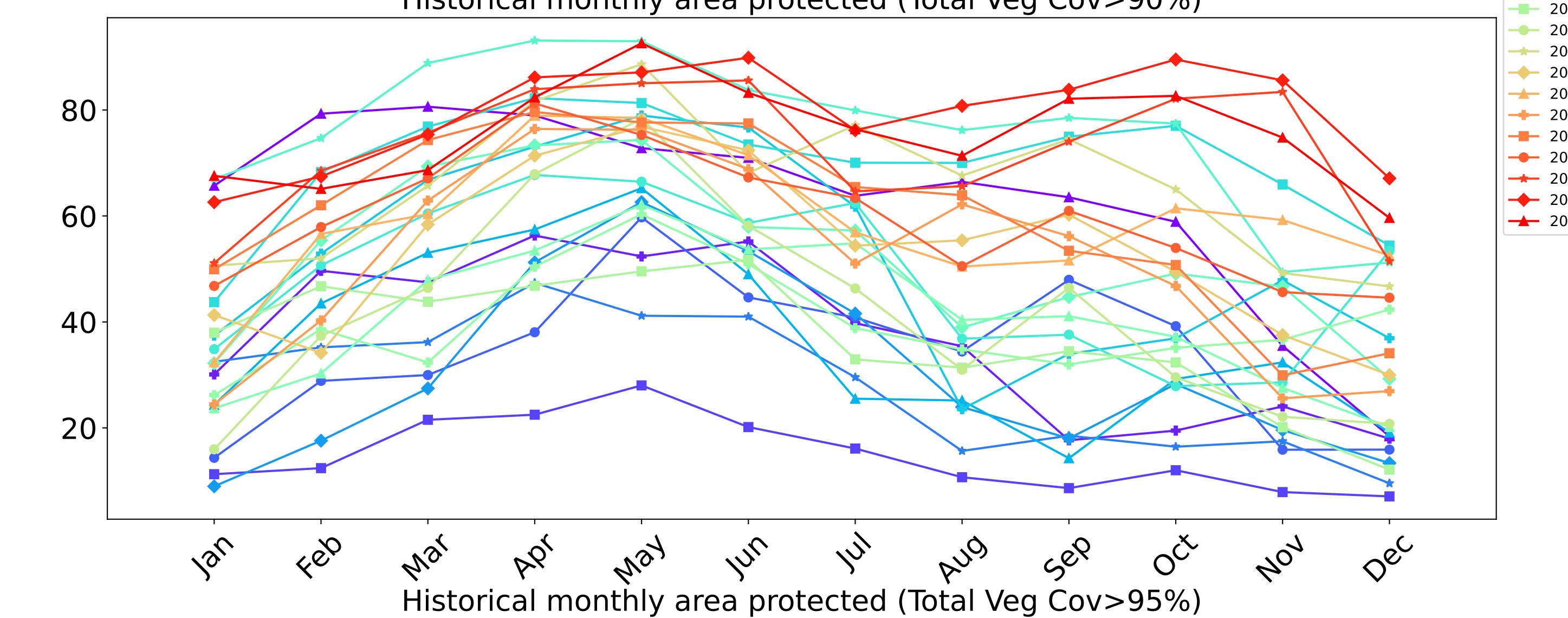
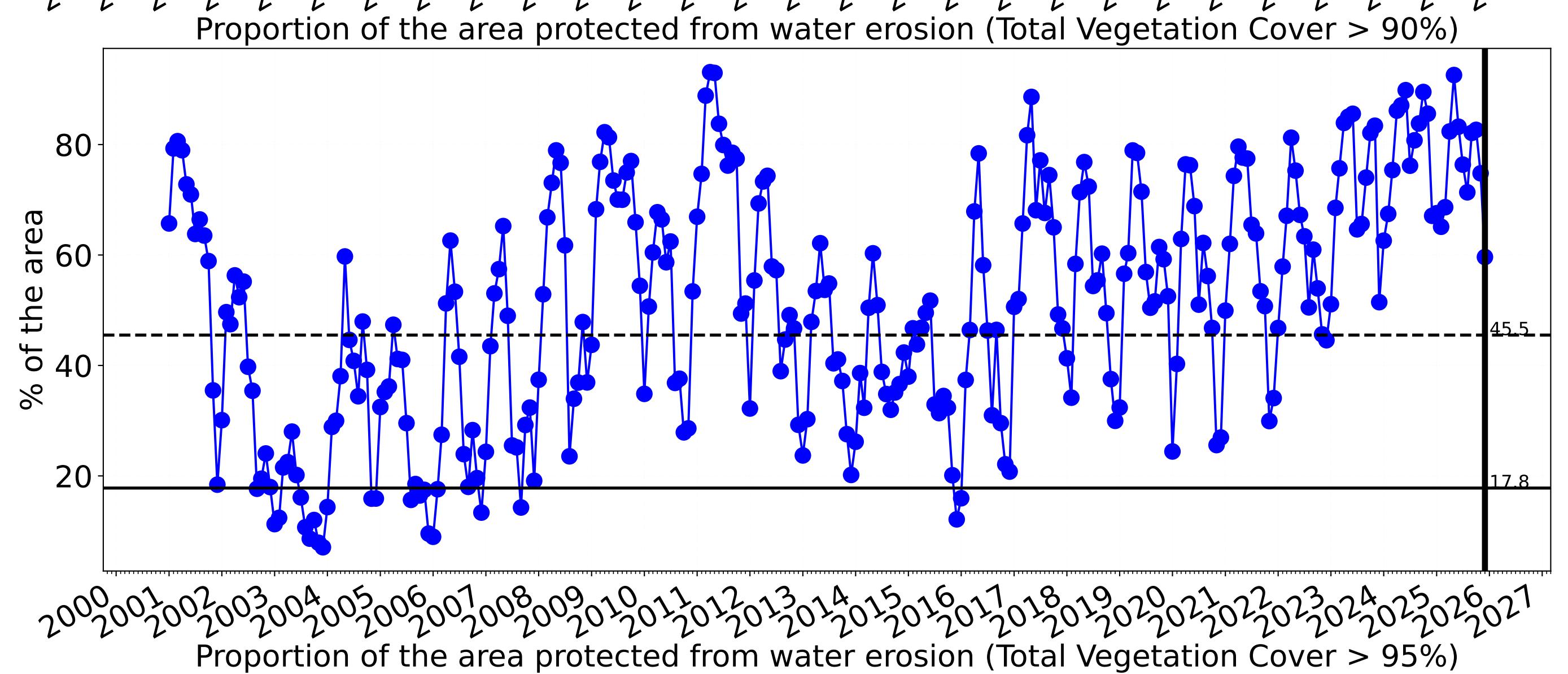
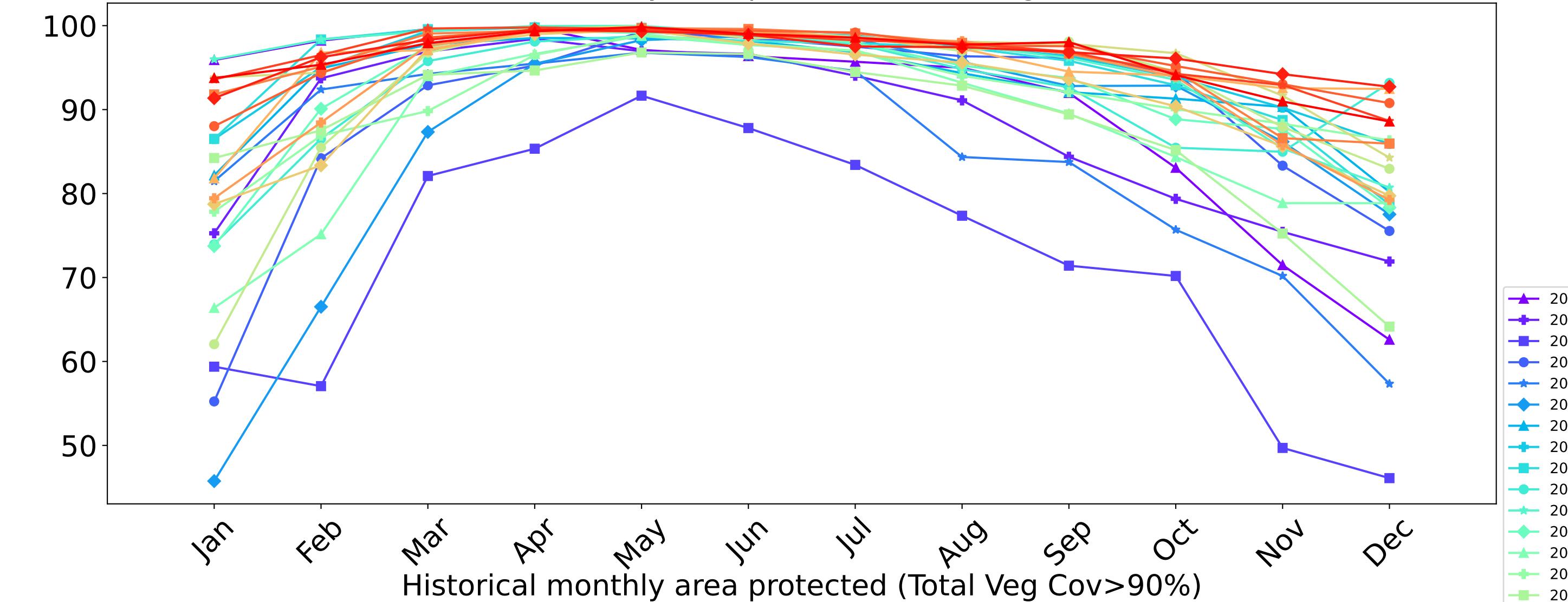
Water erosion historical monthly area protected (Total Veg Cov >70%)



Proportion of the area protected from water erosion (Total Vegetation Cover > 80%)



Historical monthly area protected (Total Veg Cov>80%)



Mareeba_(S) (5,340,800 ha and no data 9,392 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	5,340,800	100.0% 5,340,550	99.9% 5,333,500	94.7% 5,055,600	77.4% 4,132,175	46.5% 2,485,225	23.1% 1,232,825
Conservation and natural environments	650,650	100.0% 650,625	99.8% 649,150	89.9% 585,025	61.6% 400,575	33.1% 215,200	16.6% 107,850
Conservation and natural environments non forest	129,775	100.0% 129,775	99.6% 129,225	85.8% 111,325	50.6% 65,650	17.1% 22,175	7.2% 9,400
Conservation and natural environments Woodland forest	419,550	100.0% 419,525	99.8% 418,600	89.0% 373,400	56.7% 237,900	29.0% 121,725	14.2% 59,575
Conservation and natural environments Forest (non woodland)	101,325	100.0% 101,325	100.0% 101,325	99.0% 100,300	95.8% 97,025	70.4% 71,300	38.4% 38,875
Agriculture	4,552,975	100.0% 4,552,825	99.9% 4,548,600	95.5% 4,349,925	79.9% 3,639,925	48.8% 2,223,575	24.2% 1,102,525
Grazing	4,518,675	100.0% 4,518,525	99.9% 4,514,375	95.5% 4,316,925	79.9% 3,612,225	48.9% 2,211,575	24.3% 1,097,150
Grazing non forest	1,106,300	100.0% 1,106,225	99.9% 1,105,125	95.4% 1,055,775	79.4% 878,225	47.2% 521,775	24.1% 266,100
Grazing Woodland forest	2,533,075	100.0% 2,533,000	99.9% 2,530,075	94.6% 2,396,175	77.2% 1,955,100	46.0% 1,165,450	22.4% 568,675
Grazing - Forest (non woodland)	879,300	100.0% 879,300	100.0% 879,175	98.4% 864,975	88.6% 778,900	59.6% 524,350	29.8% 262,375



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