

Total vegetation cover soil protection

Region:NRM Murray NSW

Date: August 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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Ecosystem Research Infrastructure

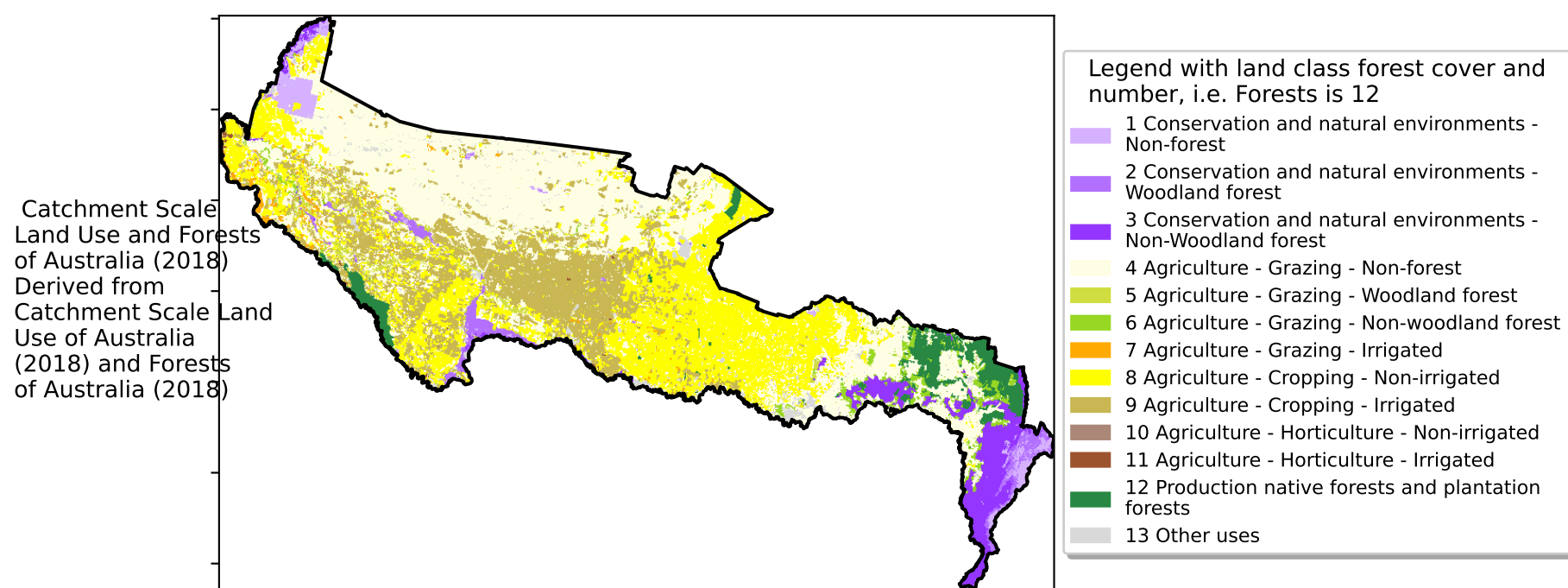


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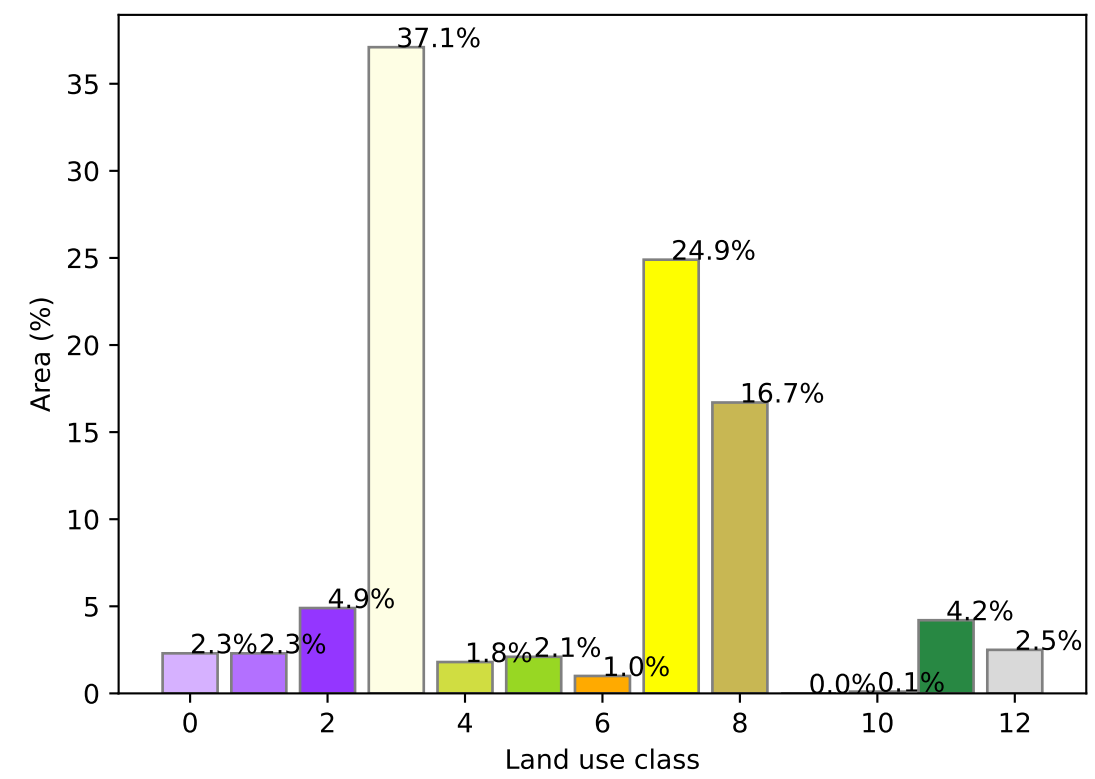


Vegetation Cover Aug 2025

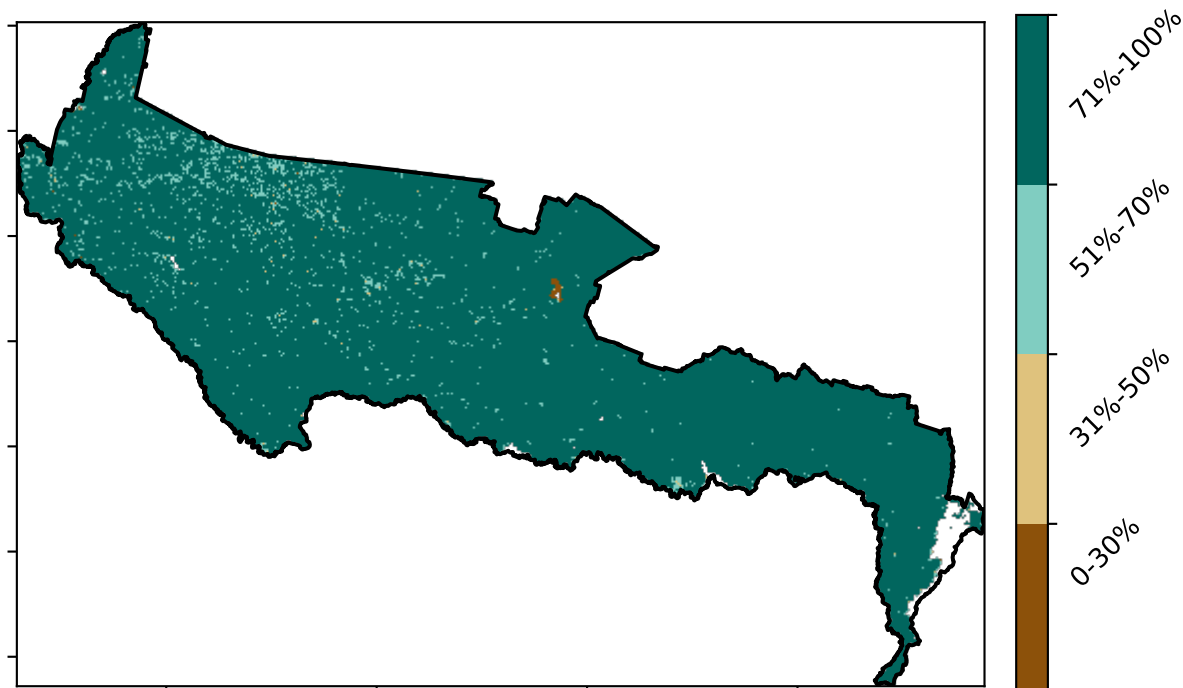
Land use and forest cover



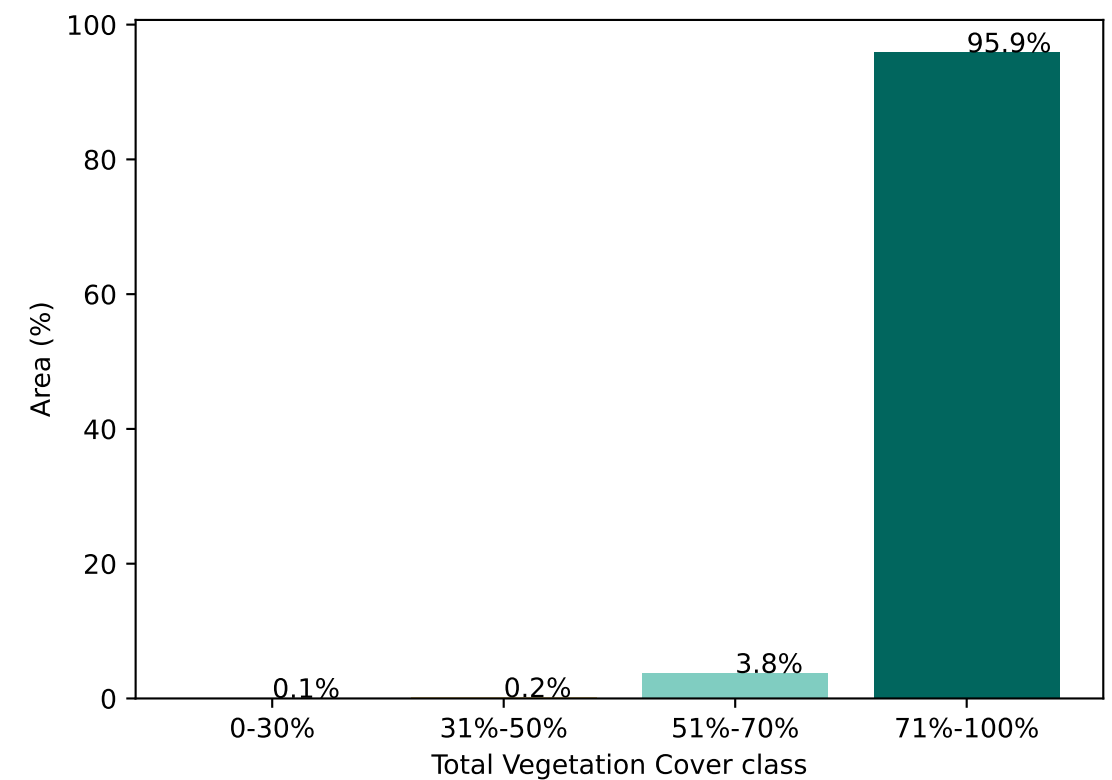
Proportion of each land class in area



Total Vegetation Cover [%]



Proportion of vegetation cover class in area



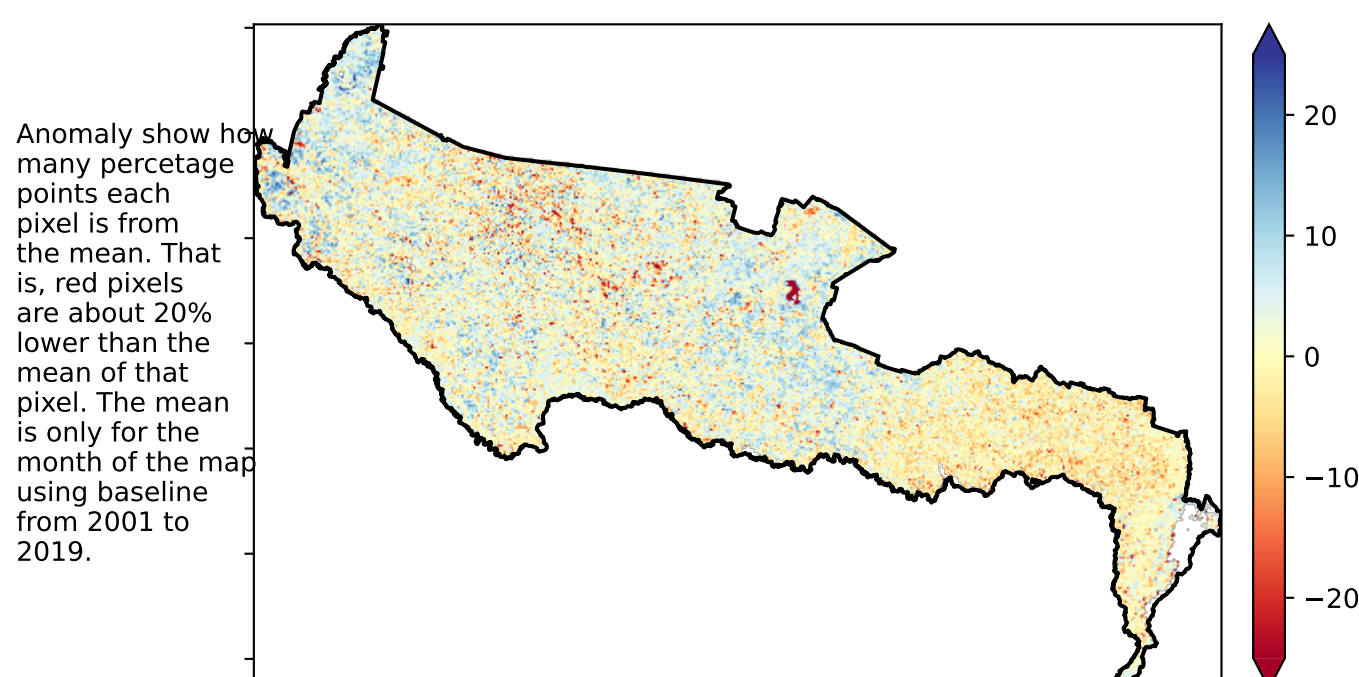
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

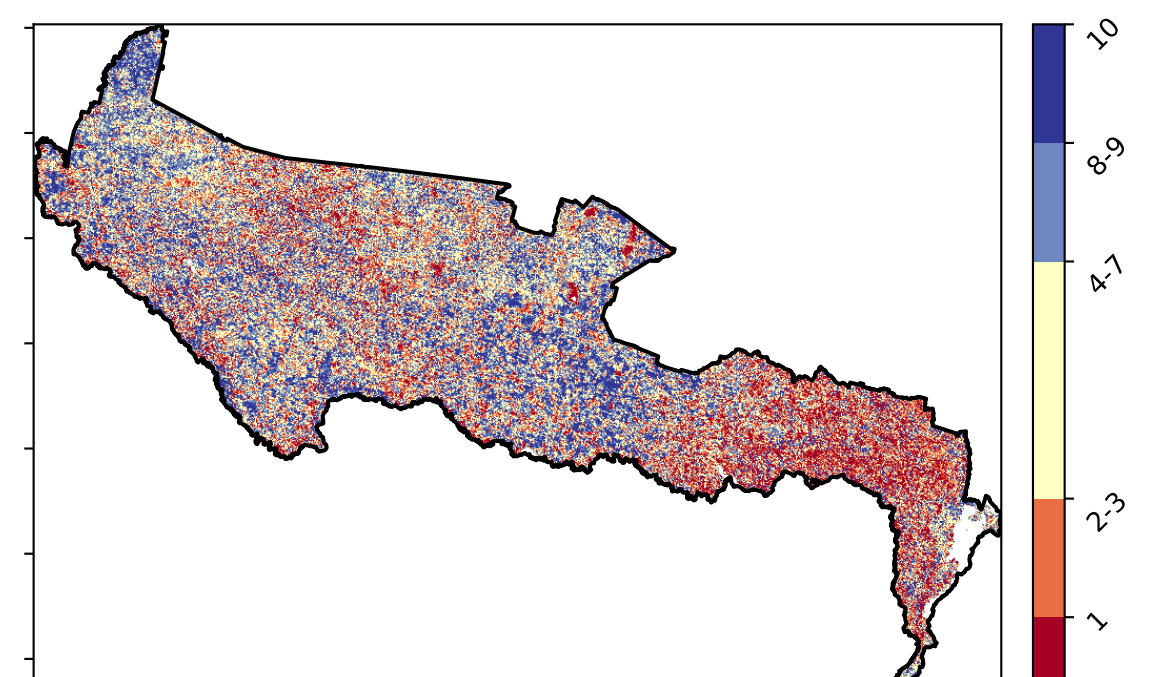


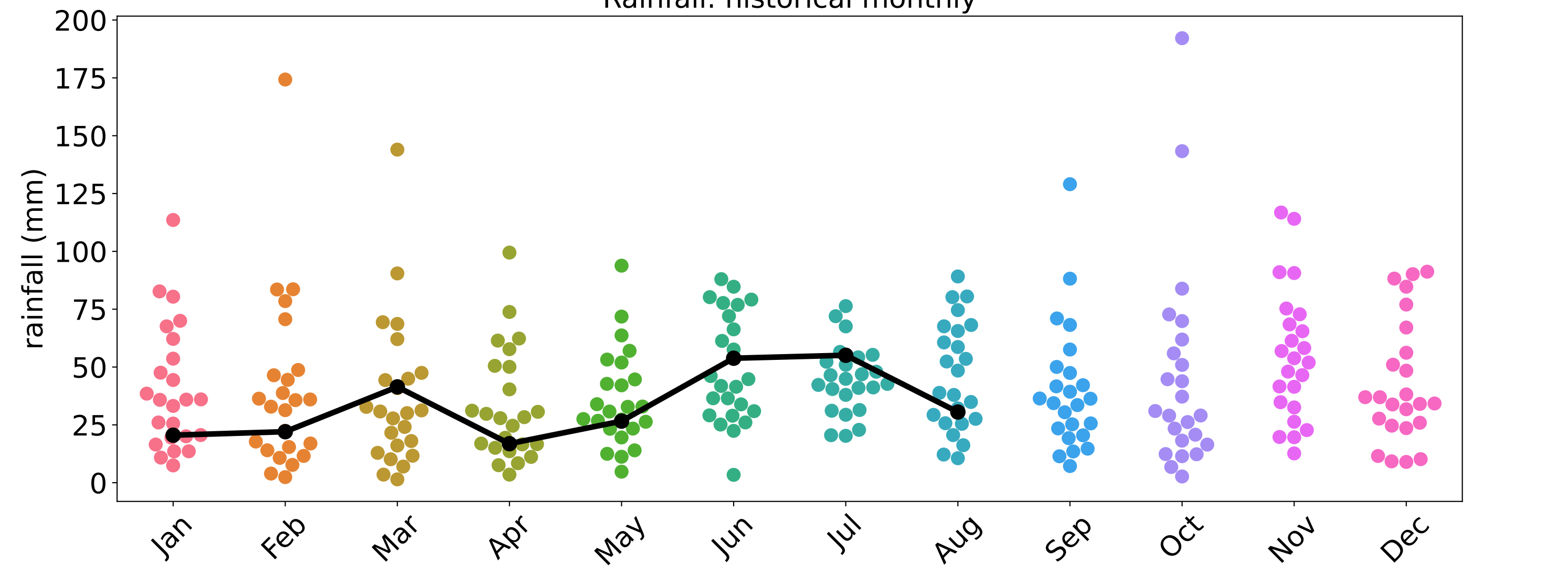
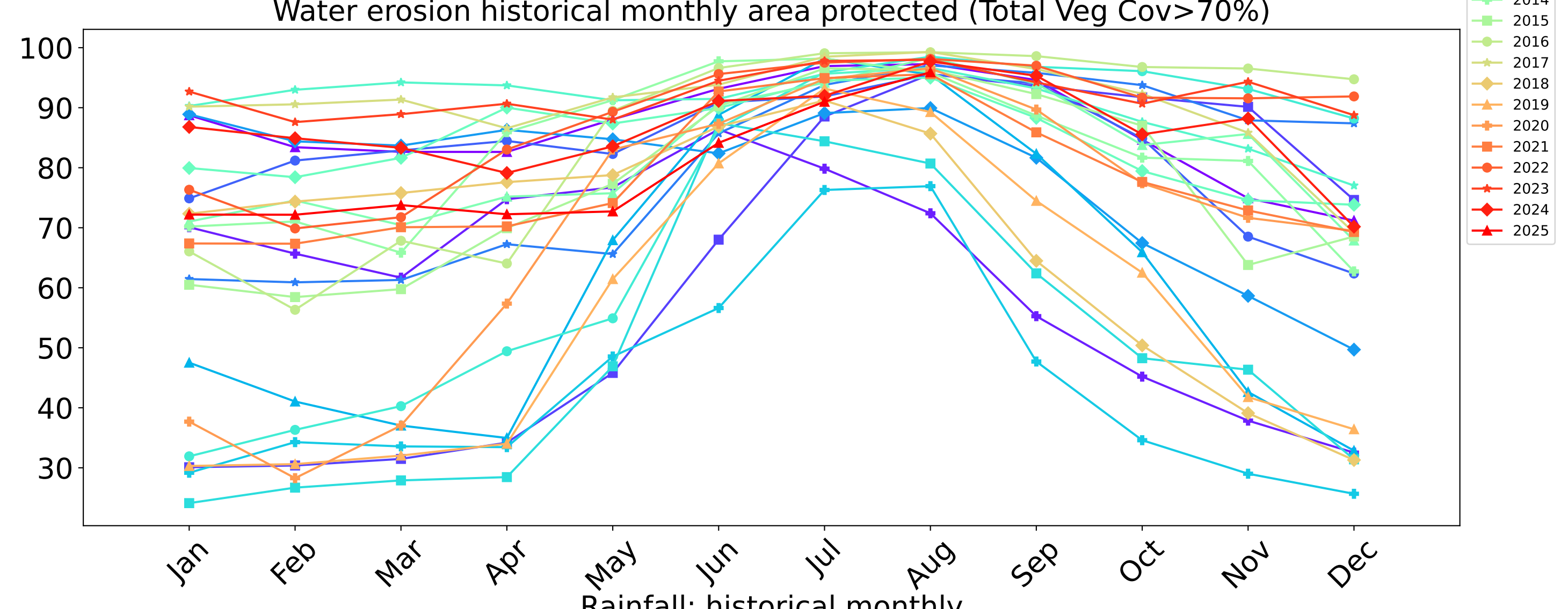
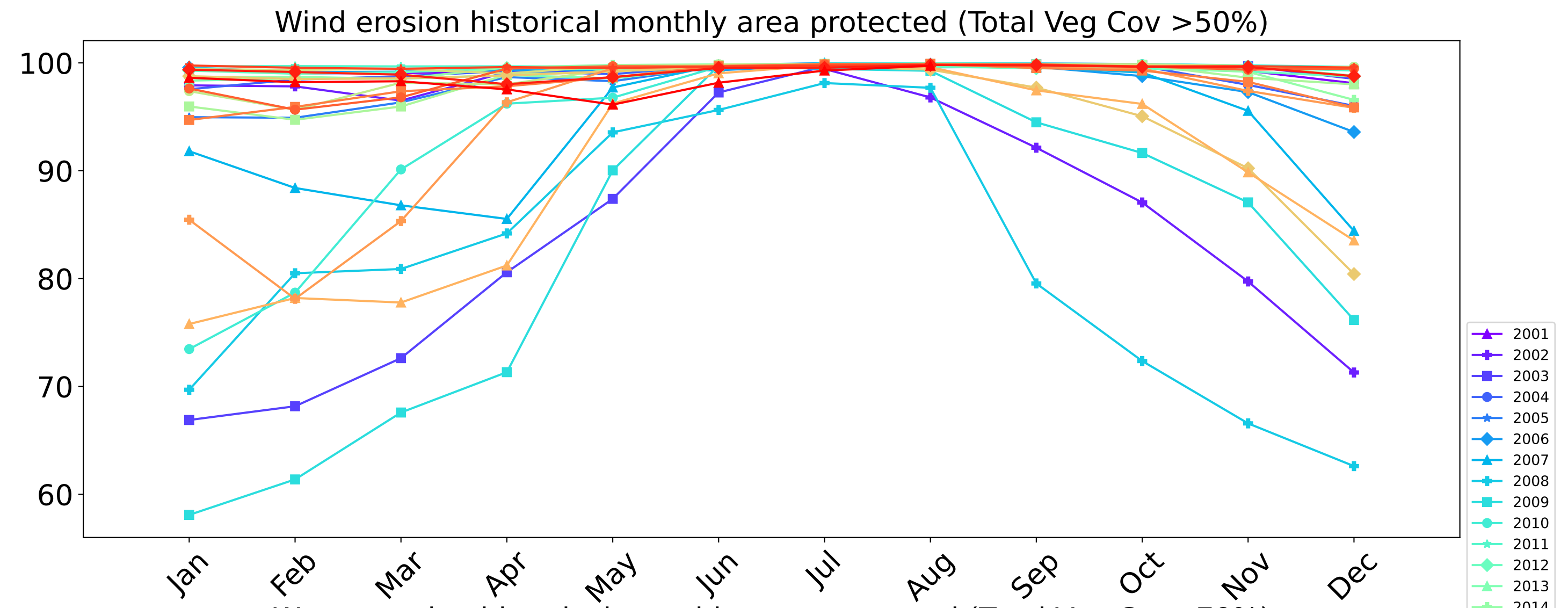
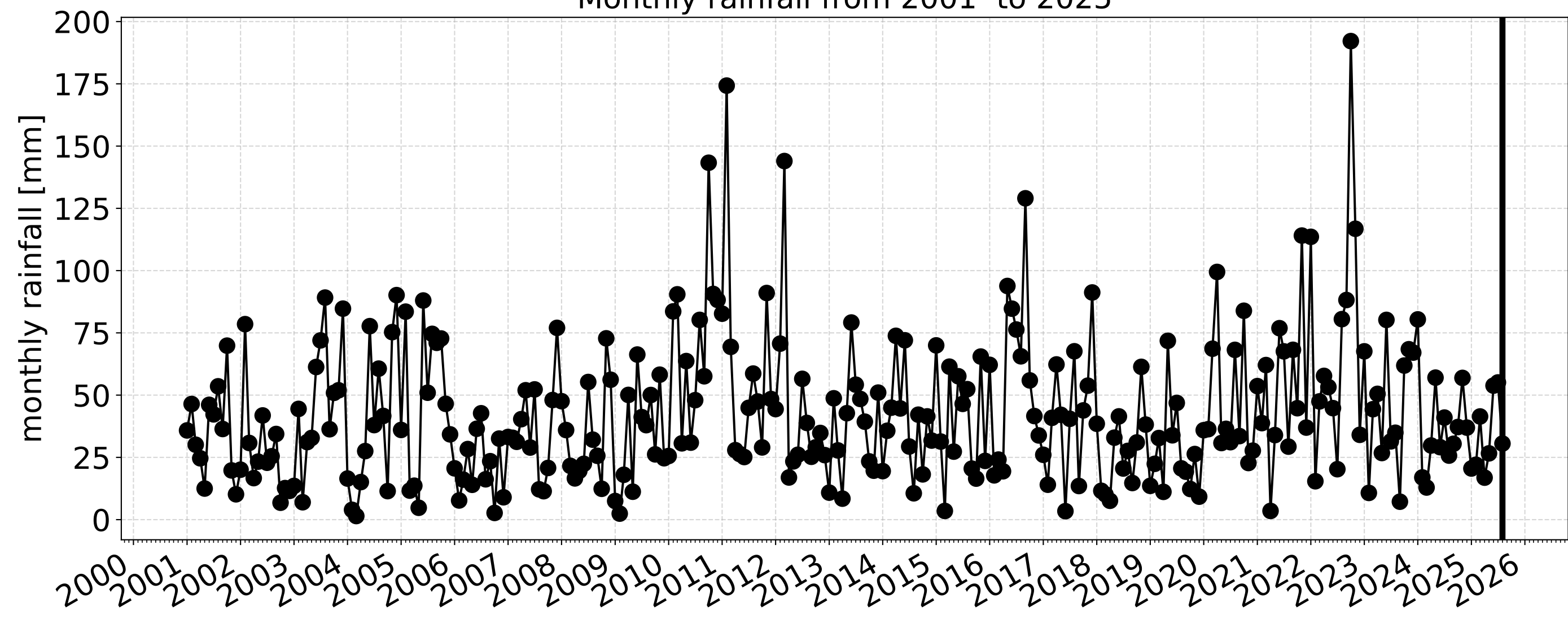
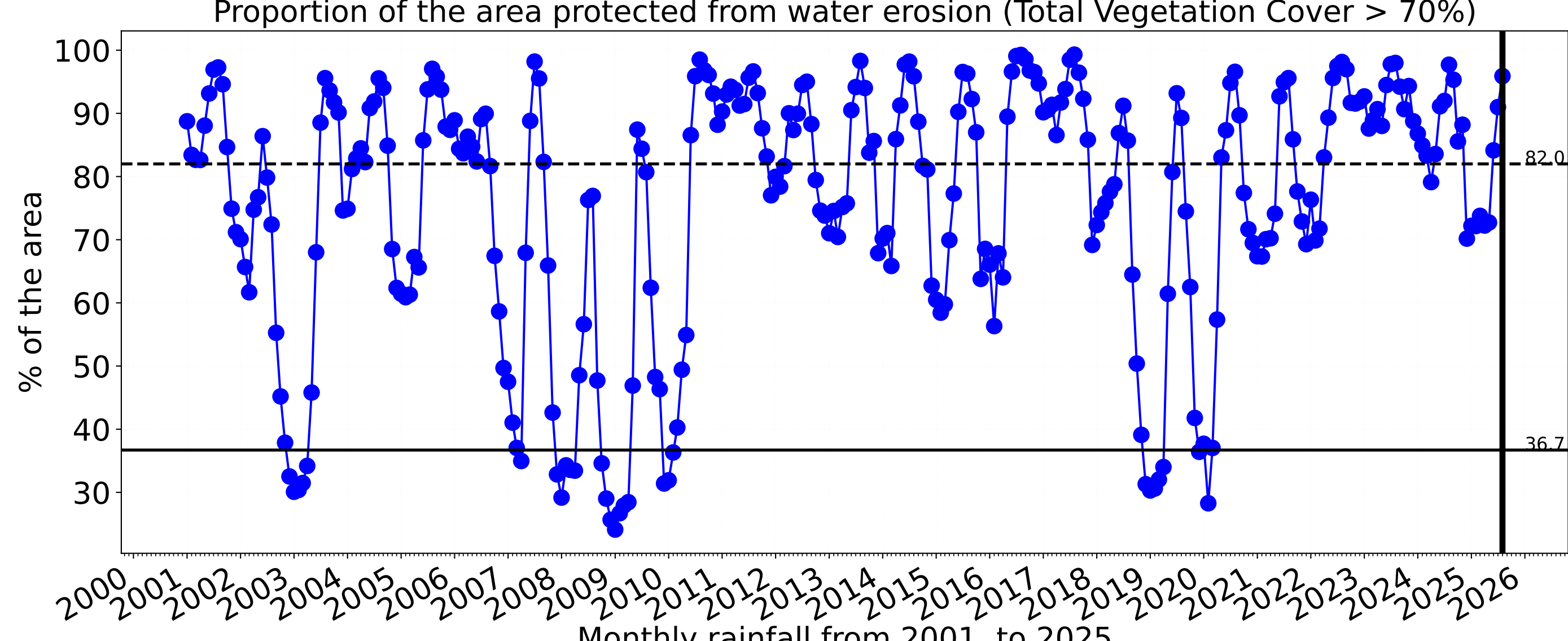
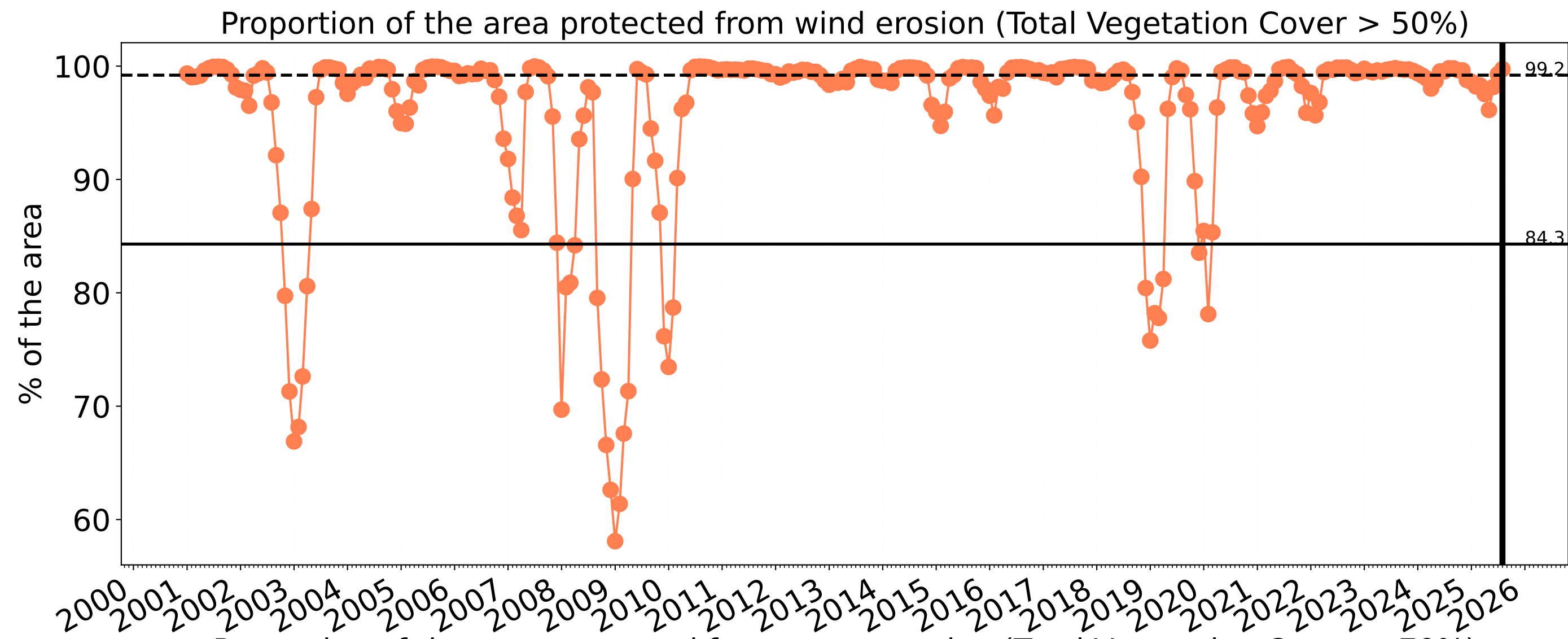
Total Vegetation Cover Anomaly [%]



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.

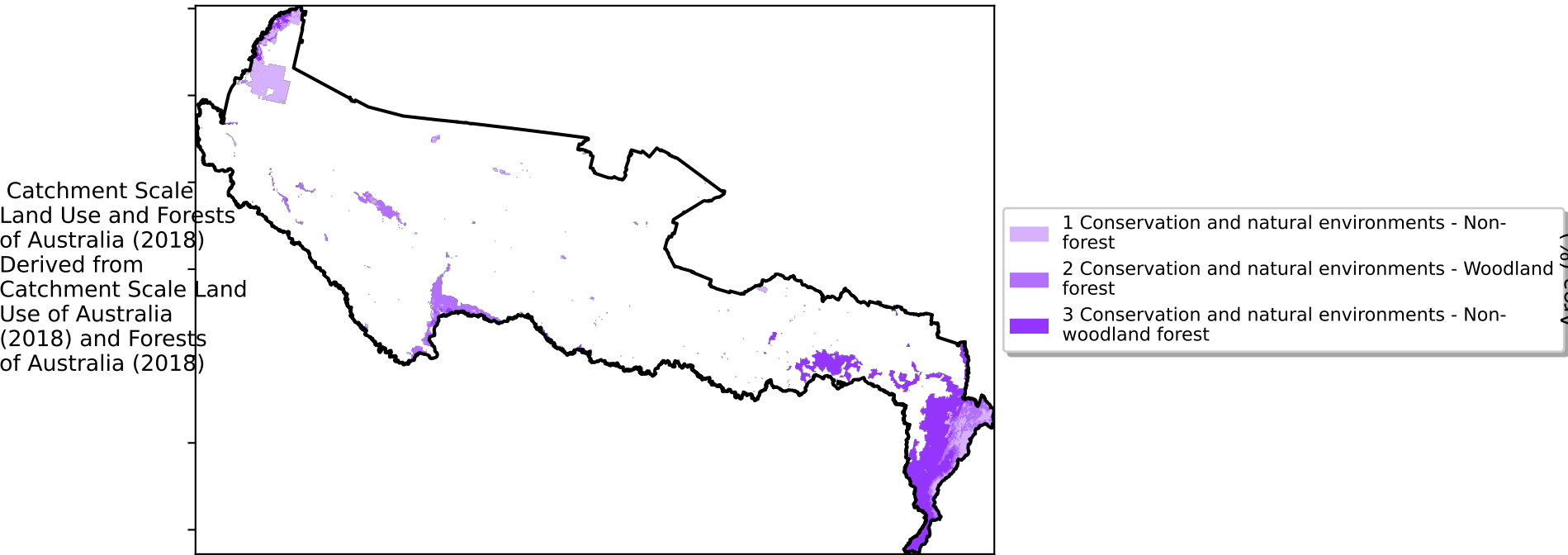
Total Vegetation Cover Decile [%]



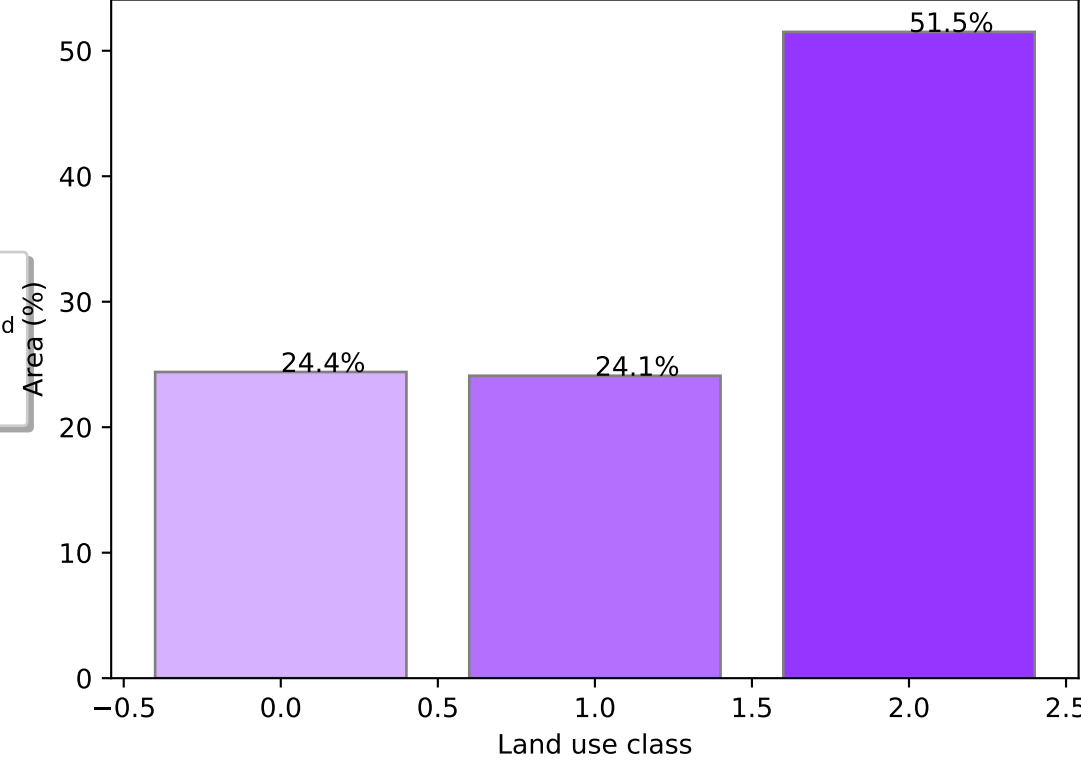


Conservation and natural environments

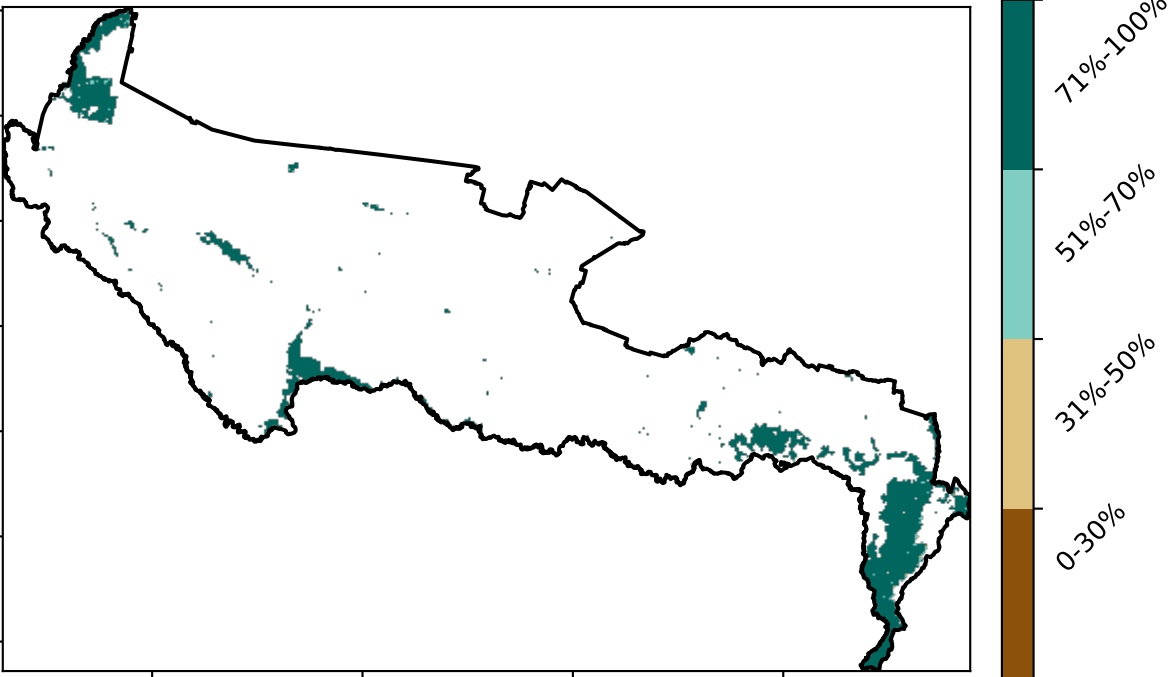
Land use and forest cover



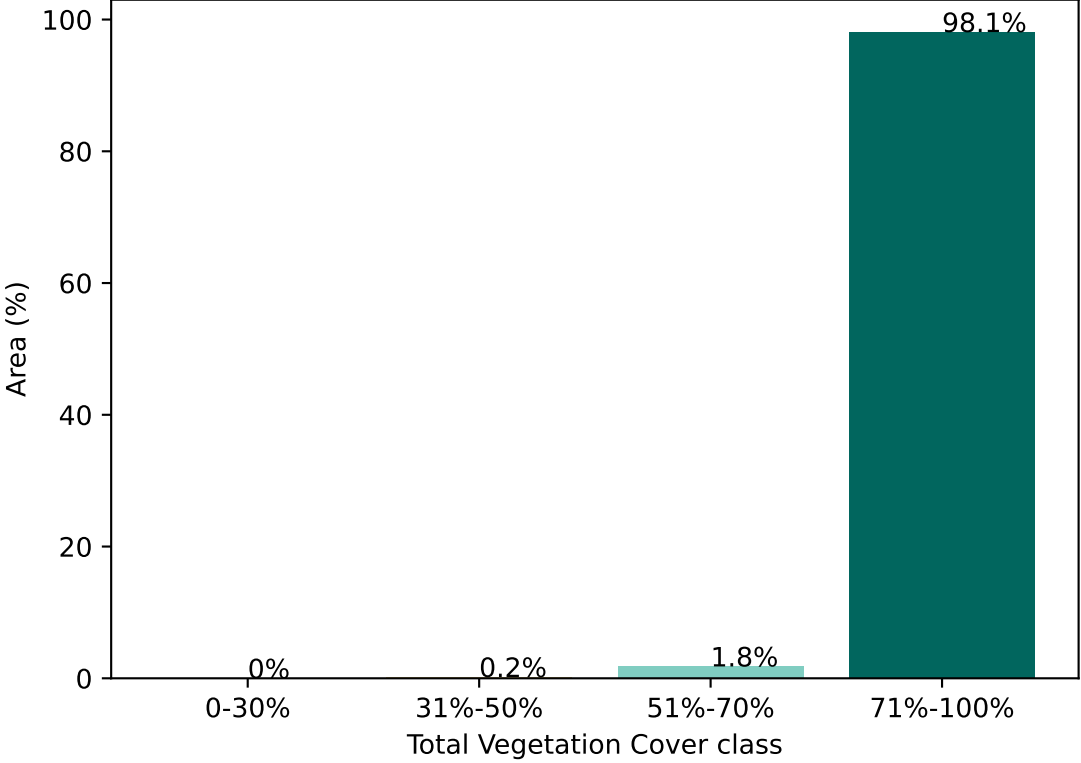
Proportion of each land class in area



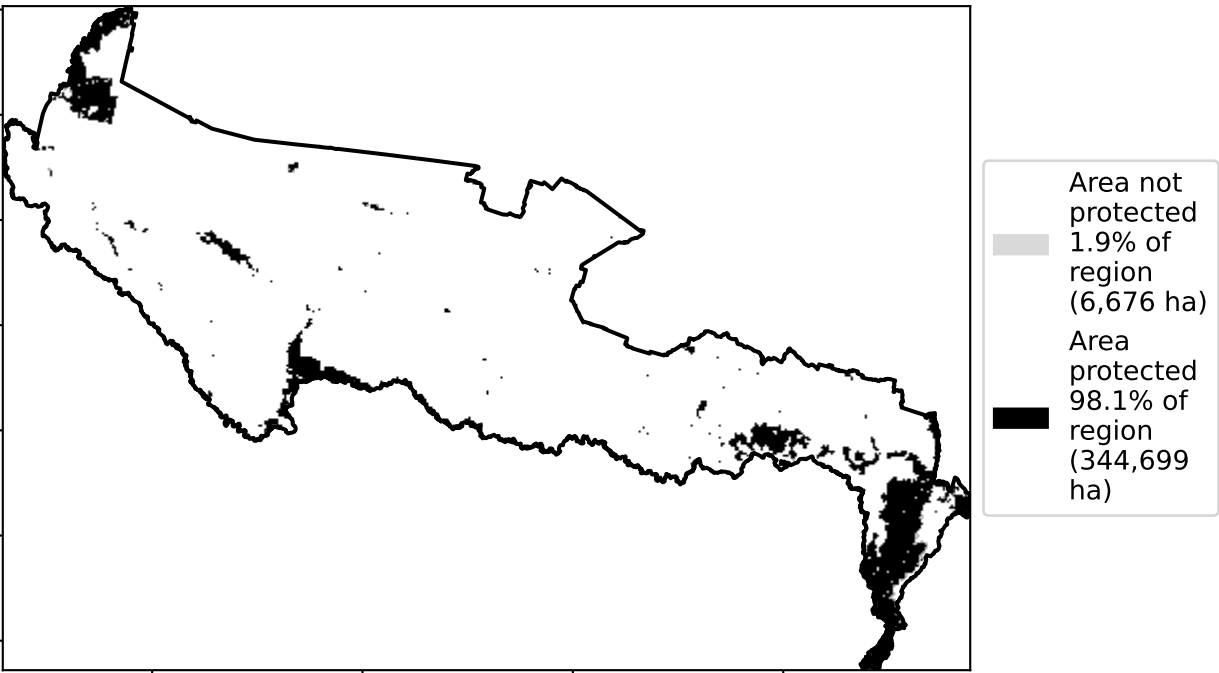
Total Vegetation Cover [%]



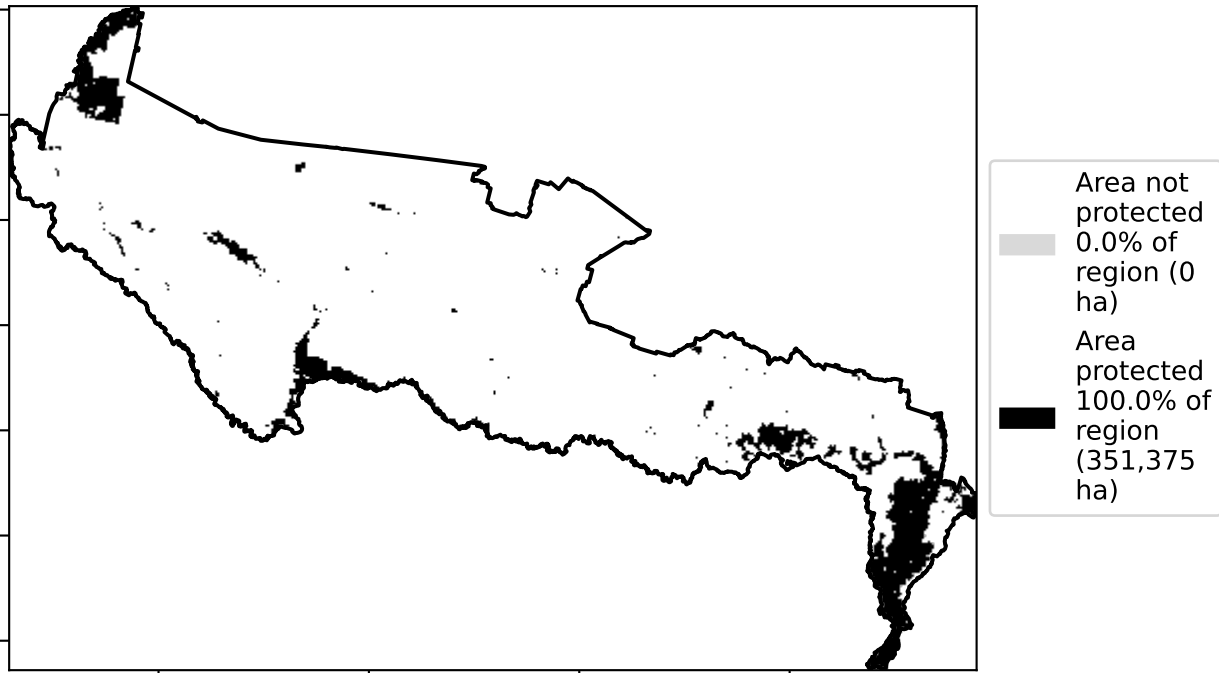
Proportion of vegetation cover class in area



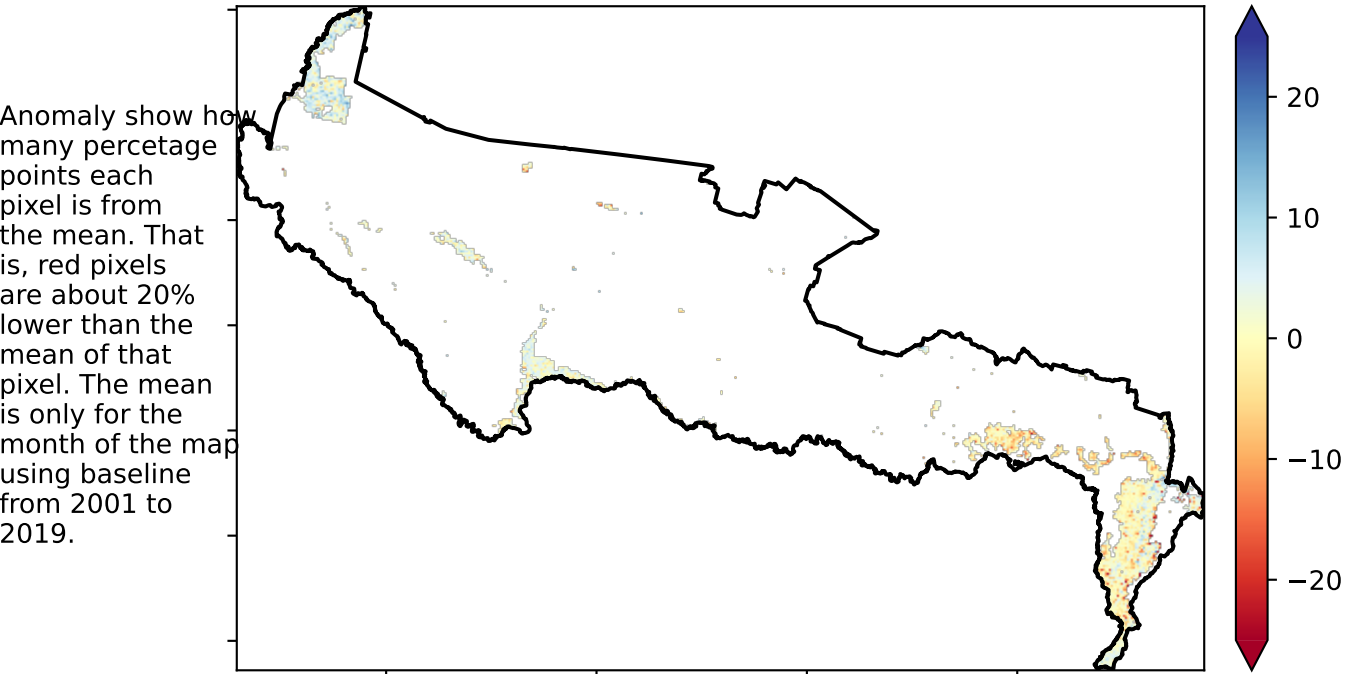
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

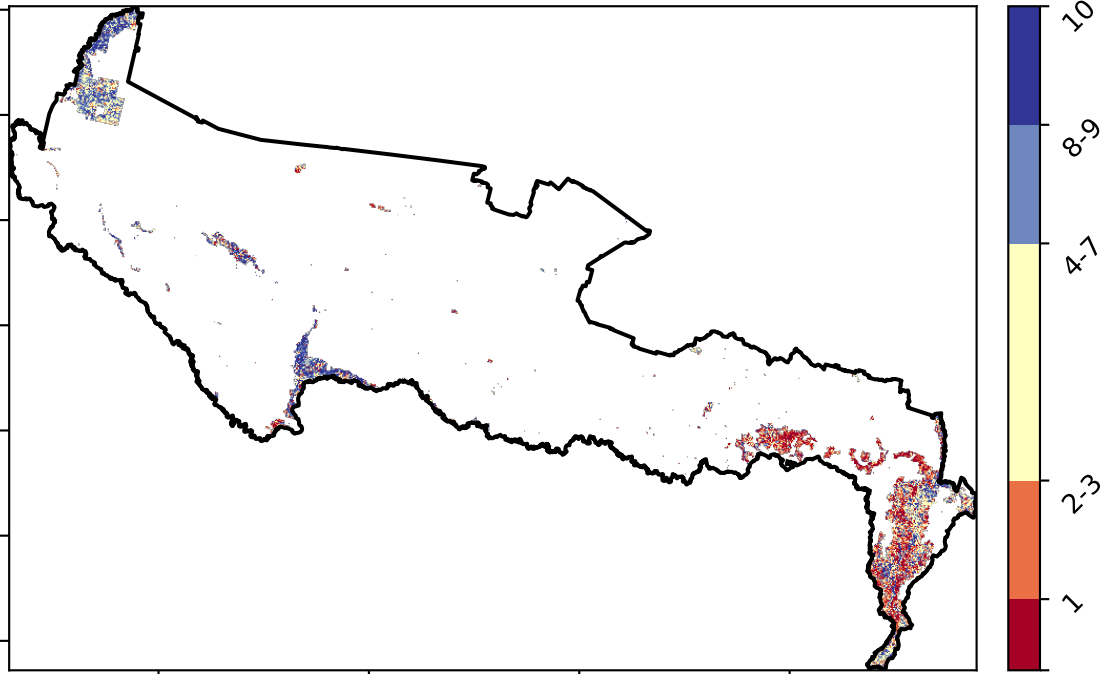


Total Vegetation Cover Anomaly [%]

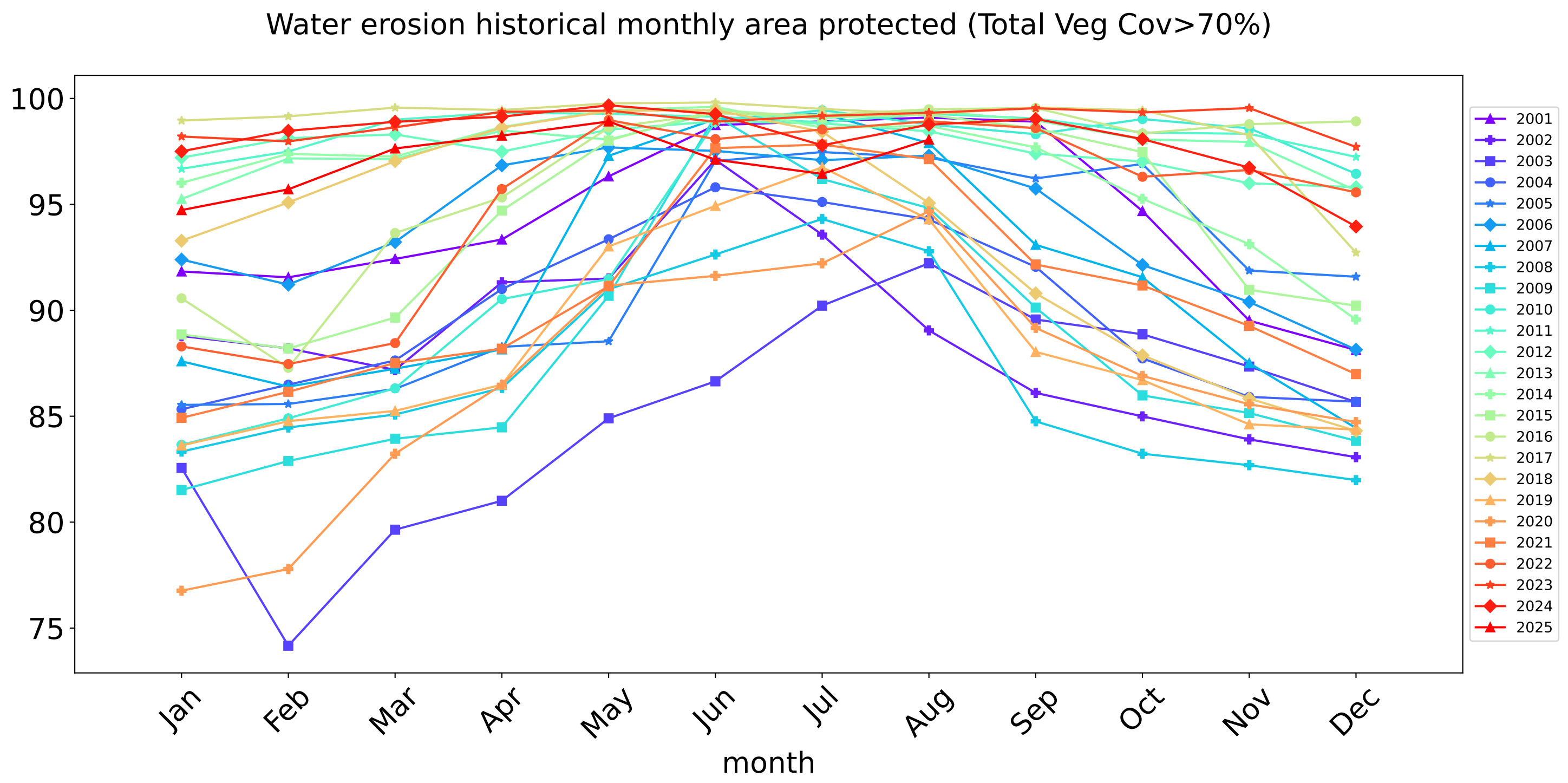
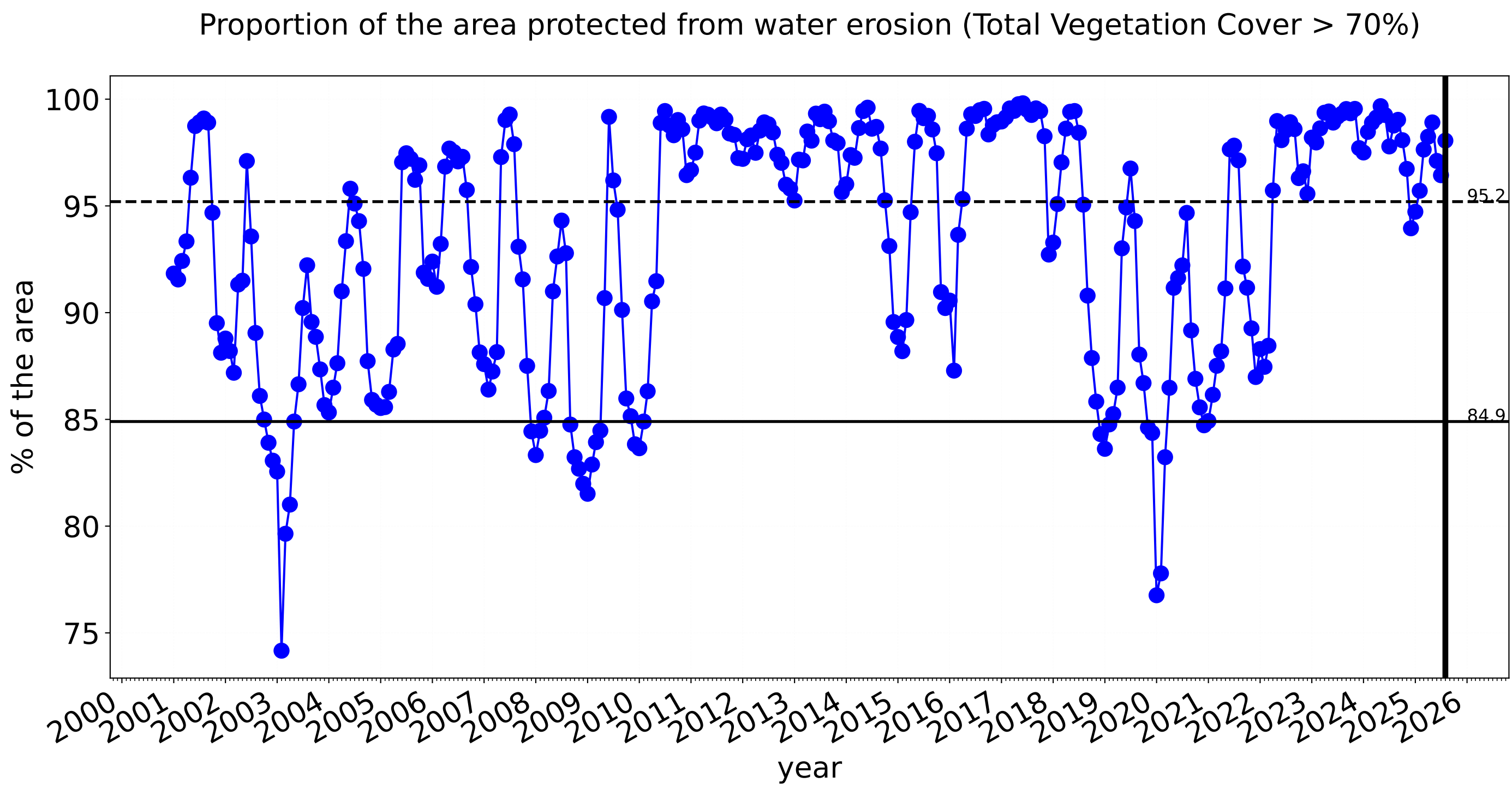
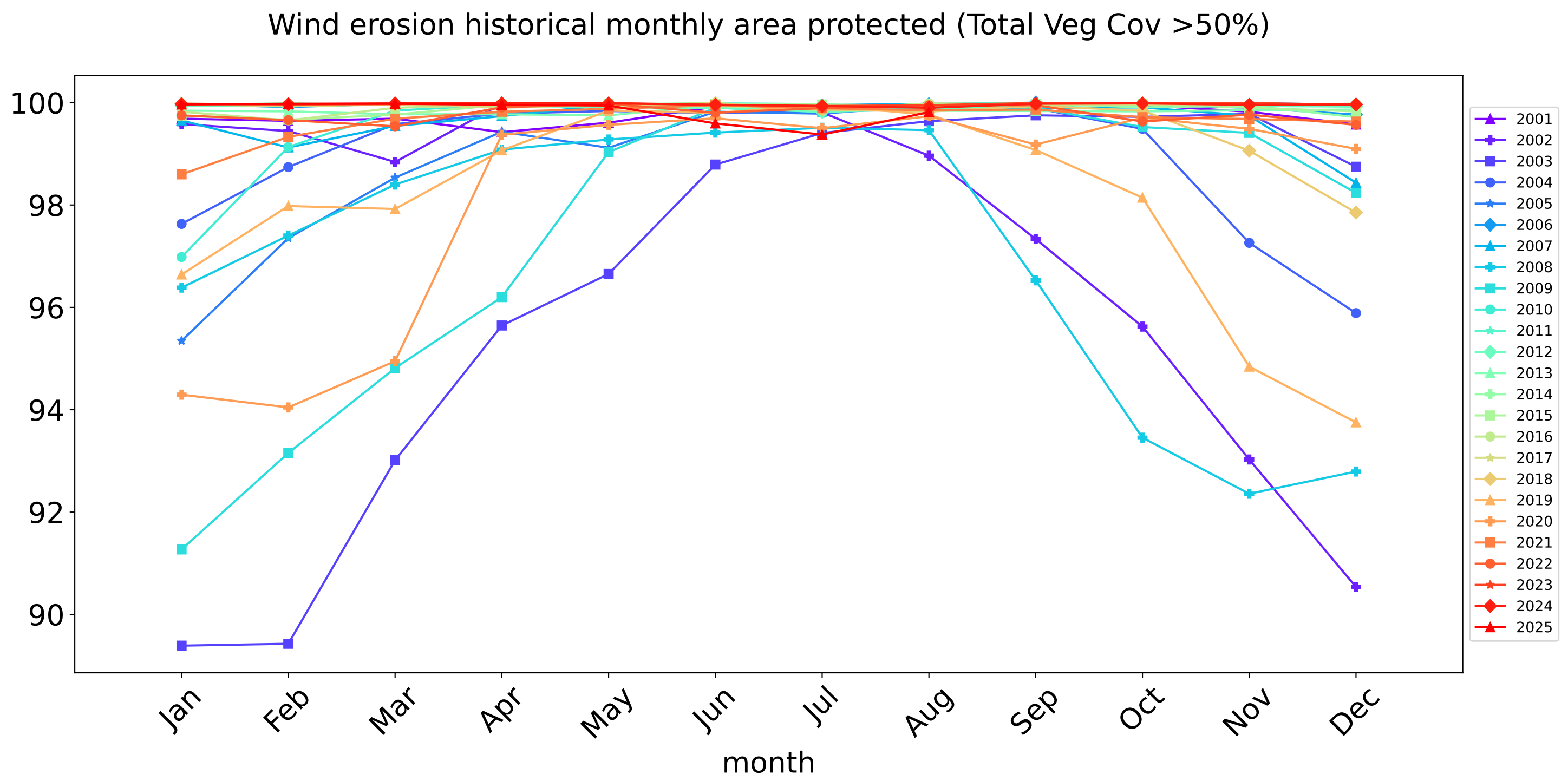
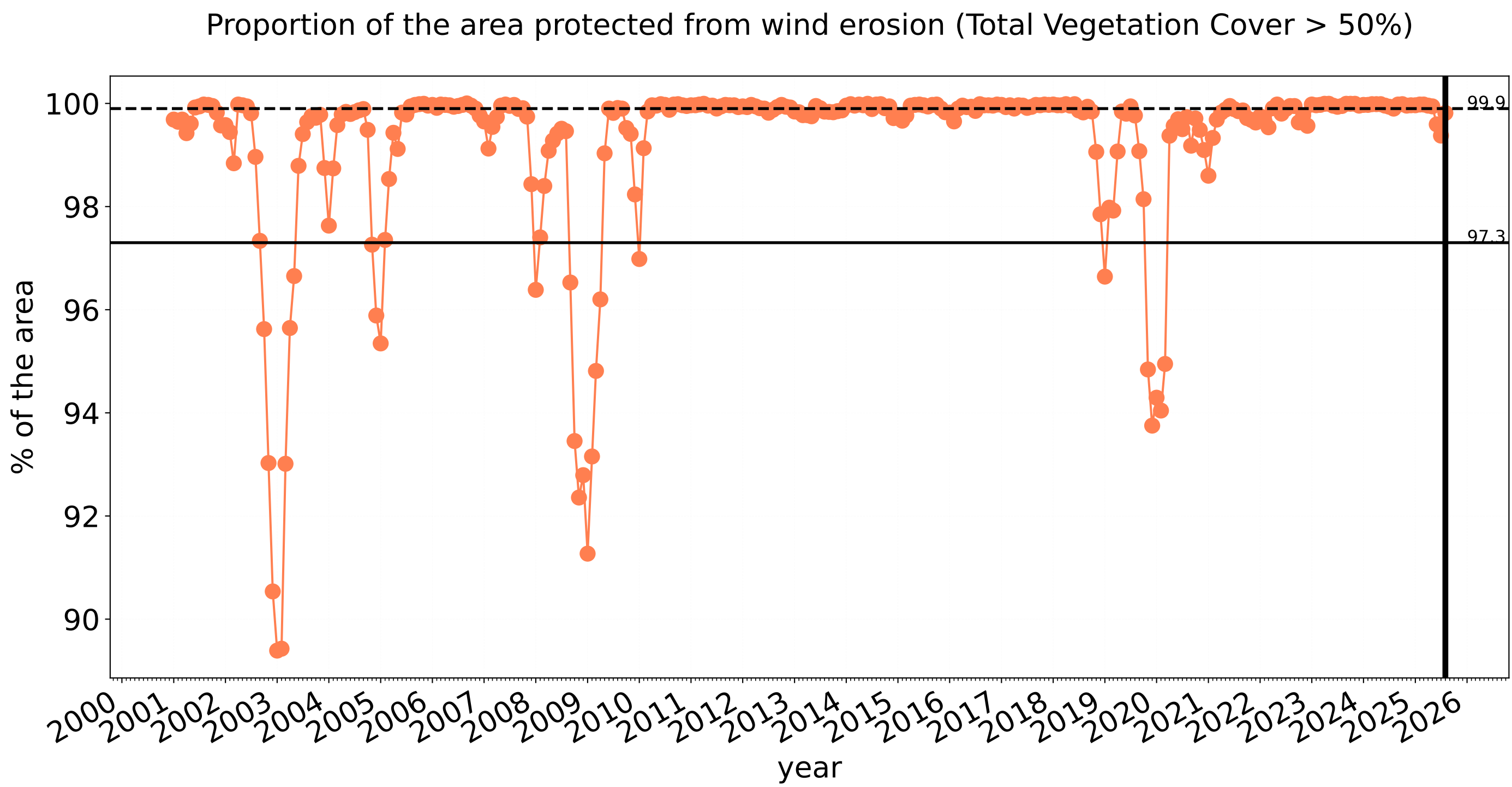


Total Vegetation Cover Decile [%]

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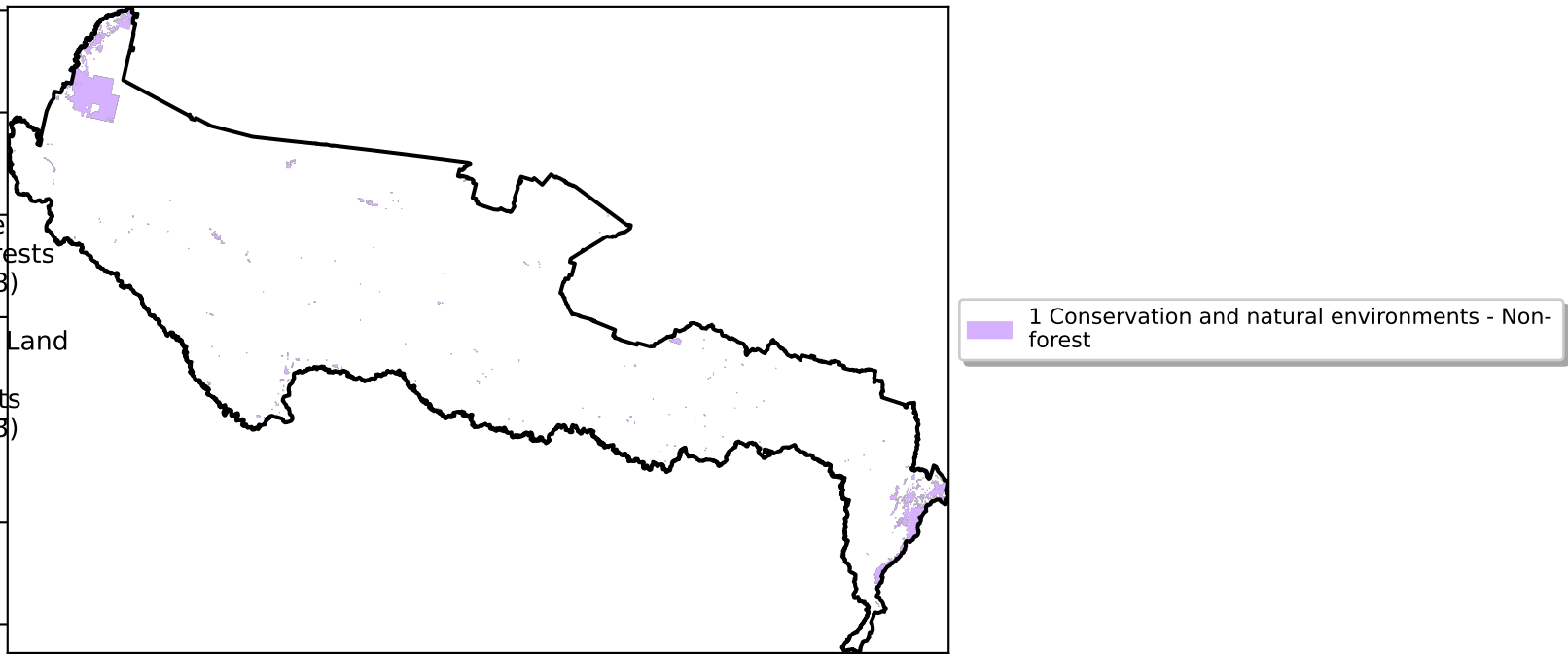
Conservation and natural environments timeseries



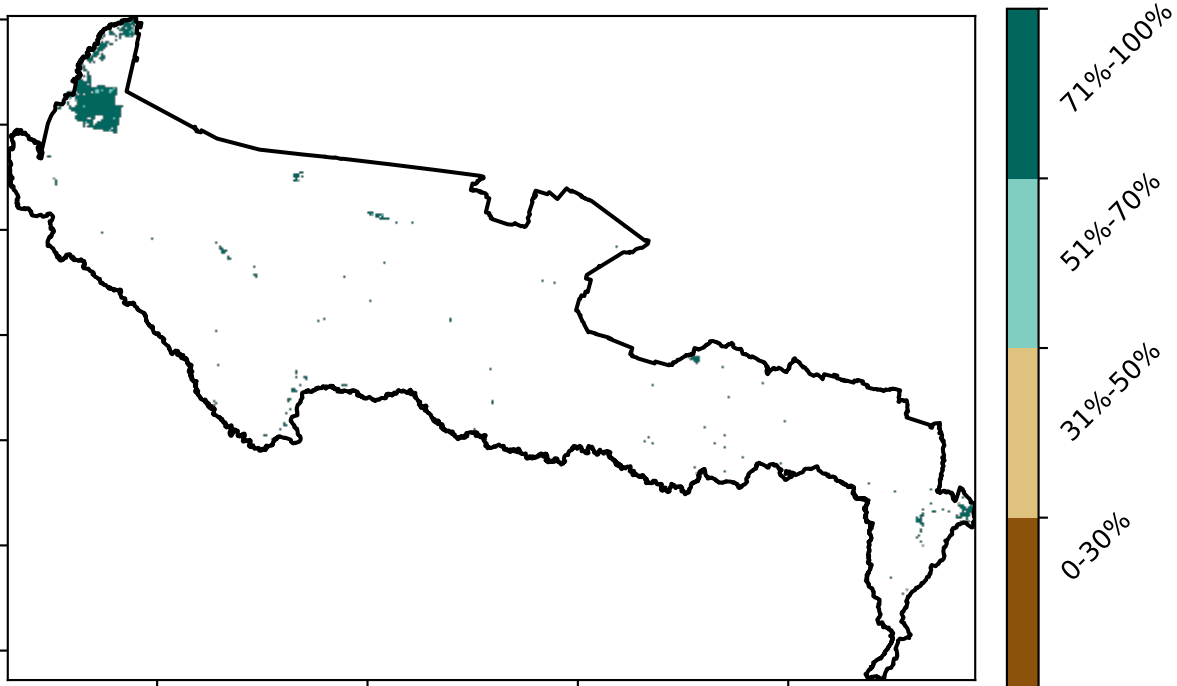
Conservation and natural environments non forest

Land use and forest cover

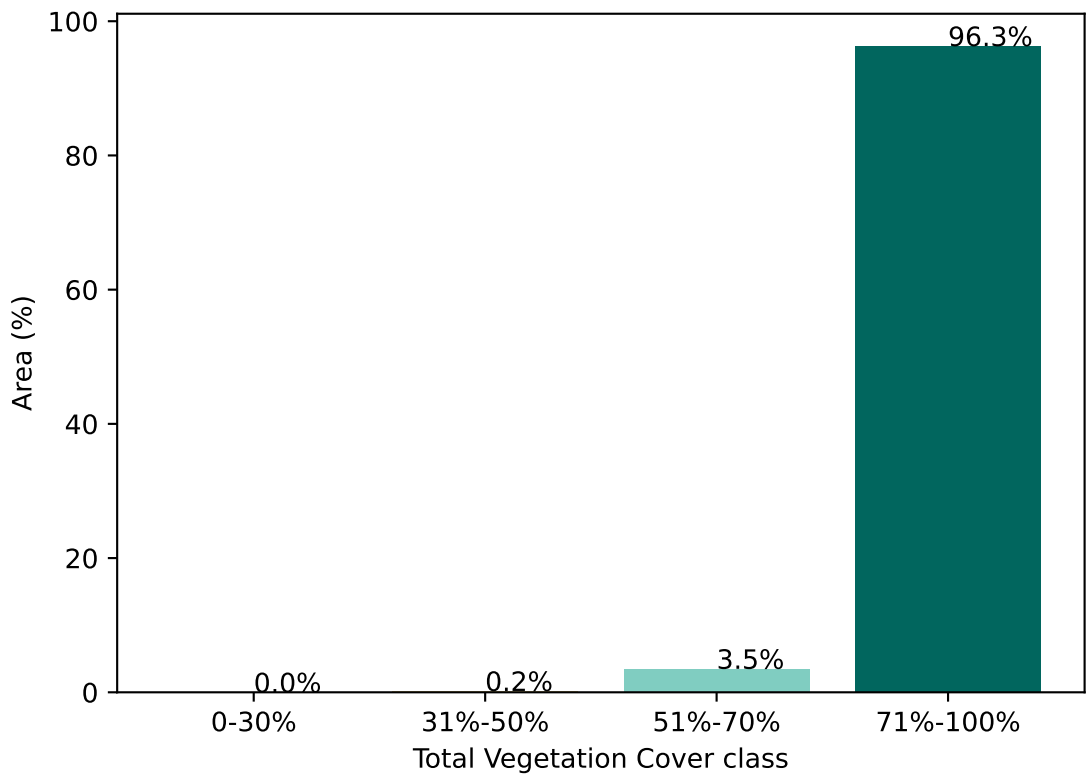
Catchment Scale
Land Use and Forests
of Australia (2018)
Derived from
Catchment Scale Land
Use of Australia
(2018) and Forests
of Australia (2018)



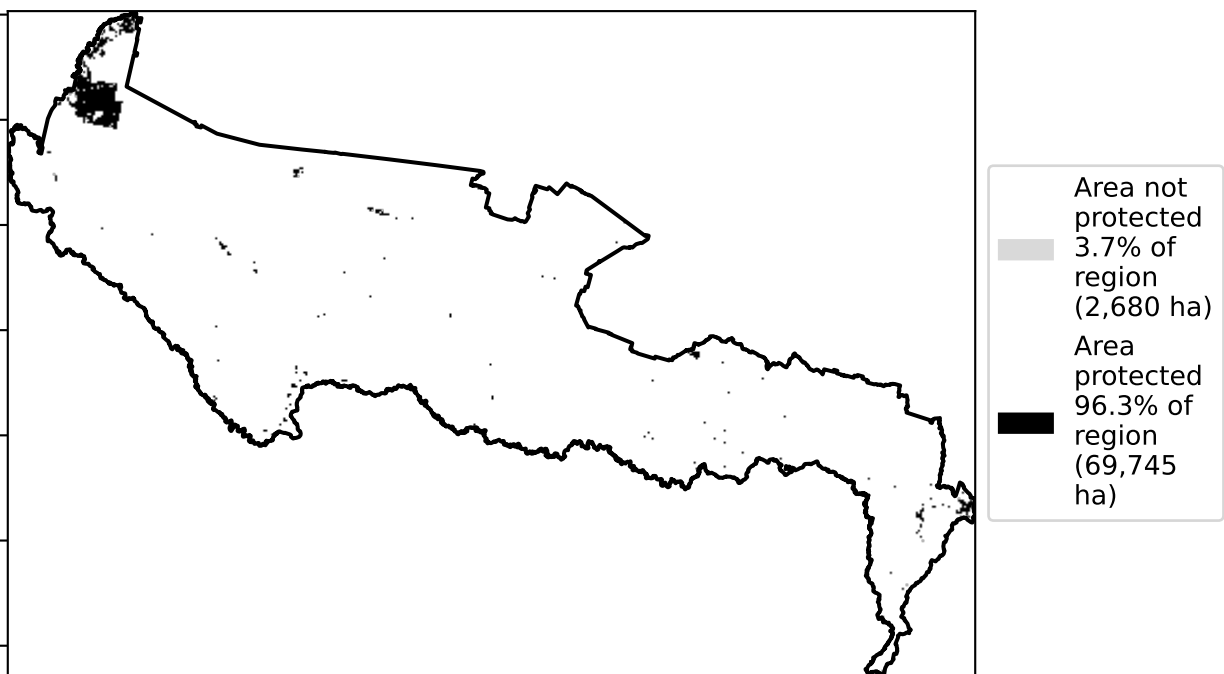
Total Vegetation Cover [%]



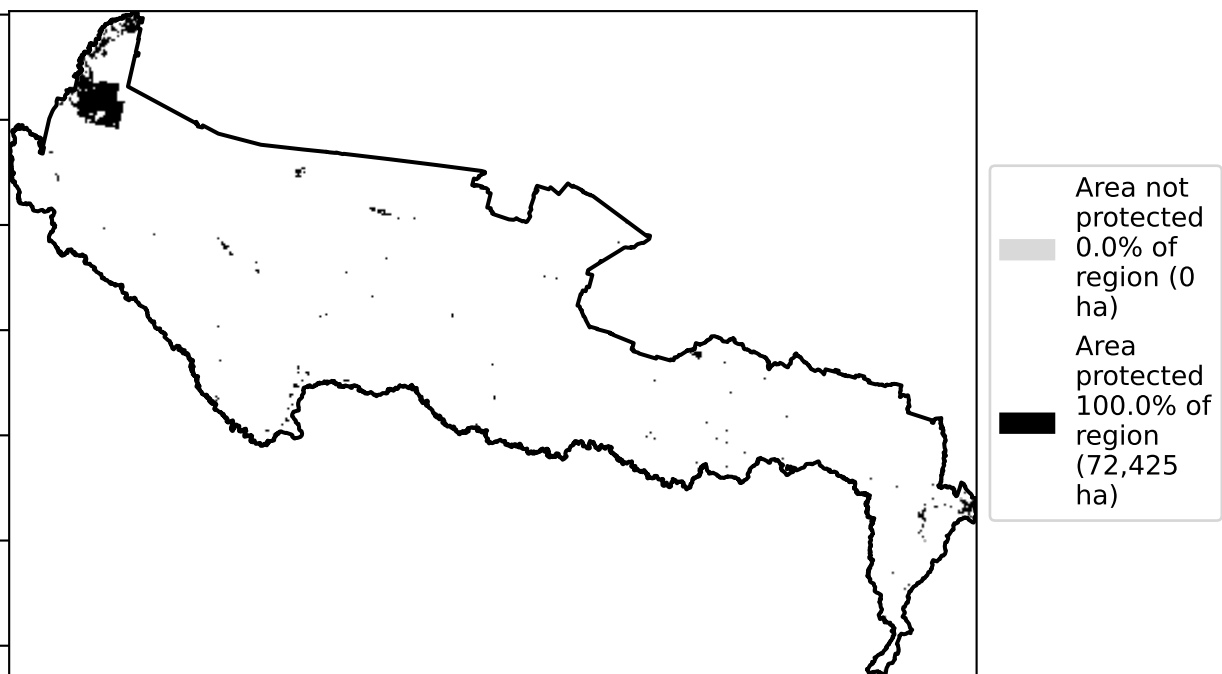
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

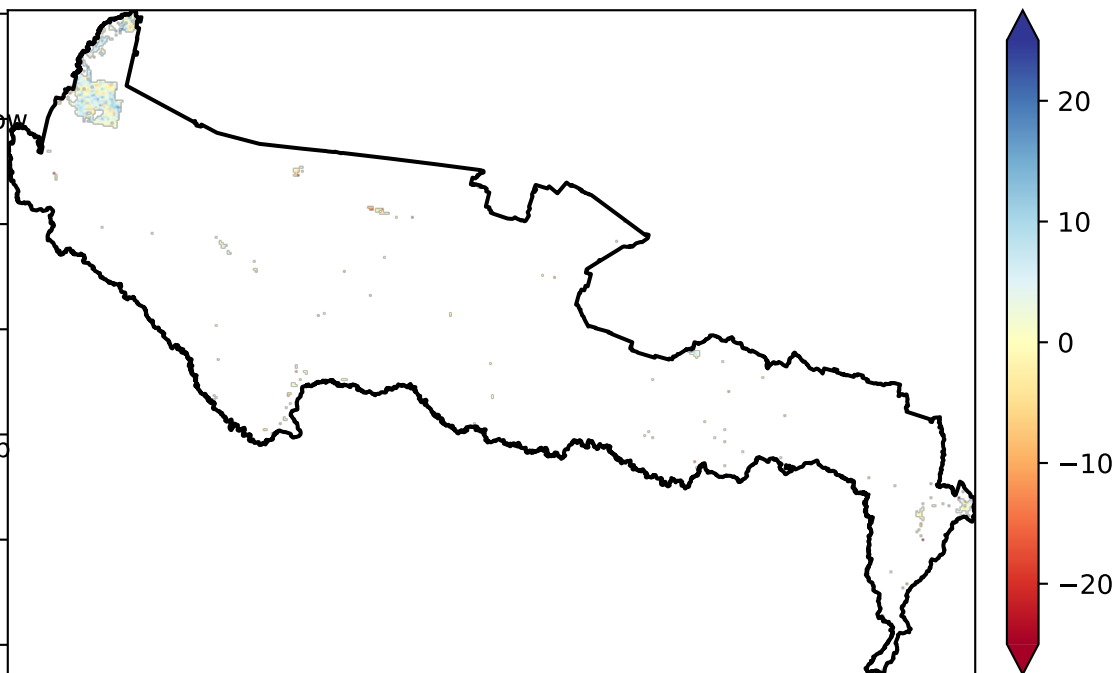


% Area protected from wind erosion (>50%)



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.



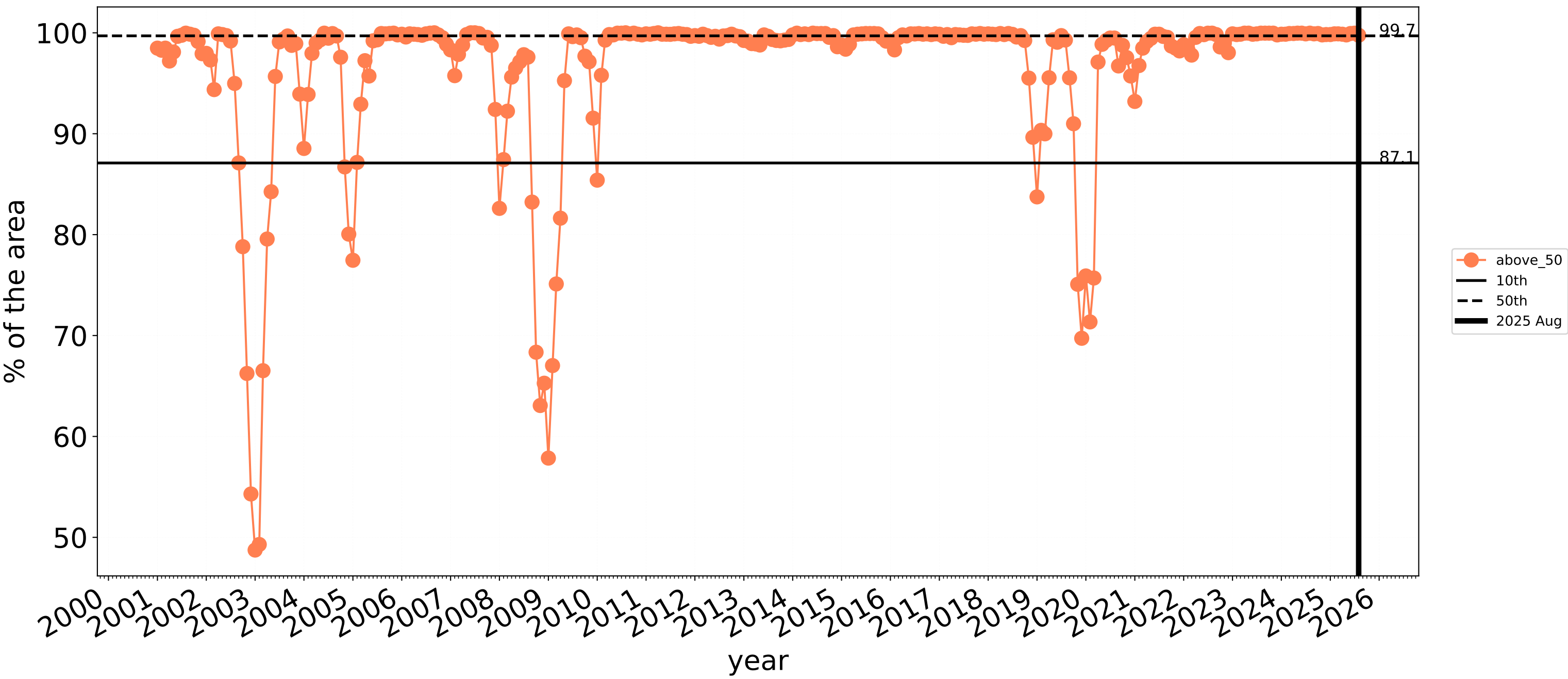
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Total Vegetation Cover Decile [%]

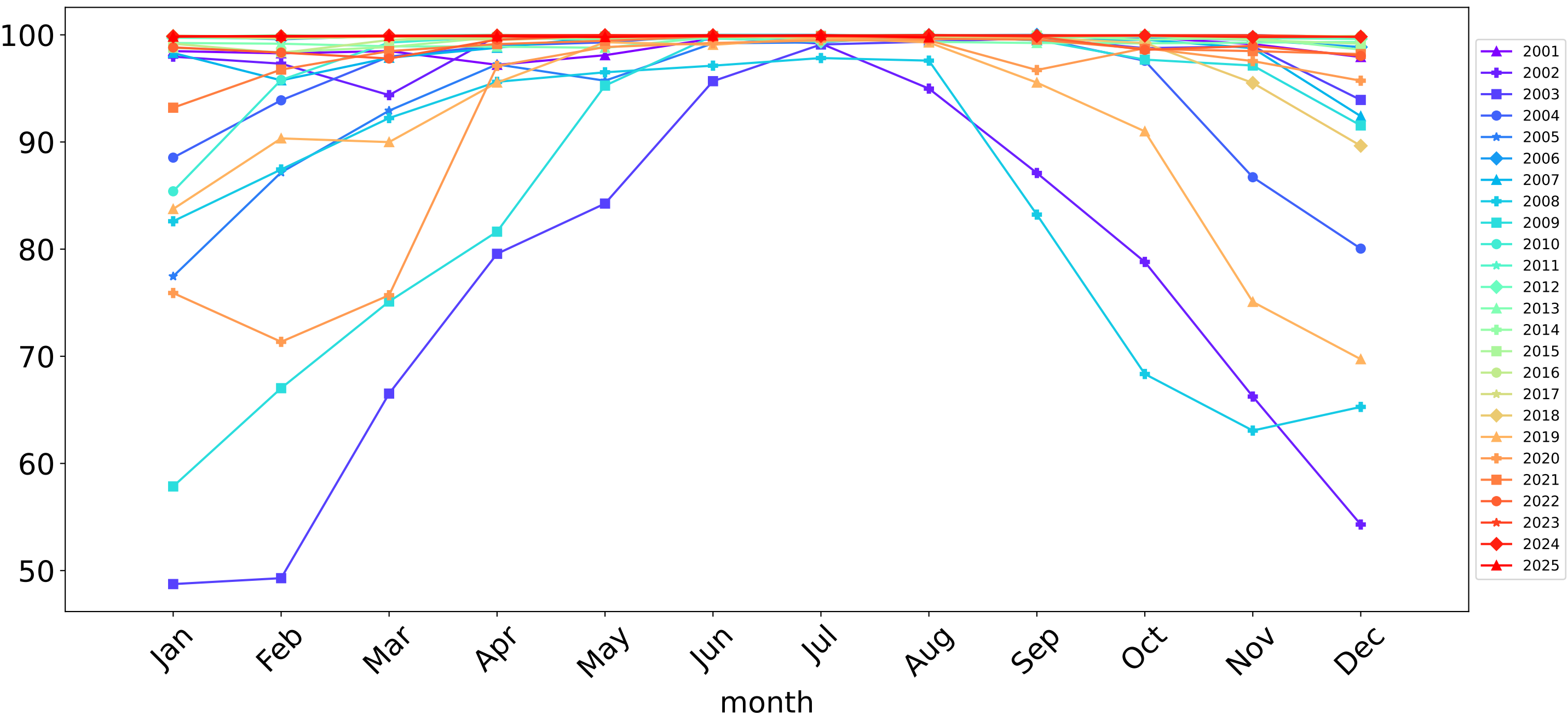


Conservation and natural environments non forest timeseries

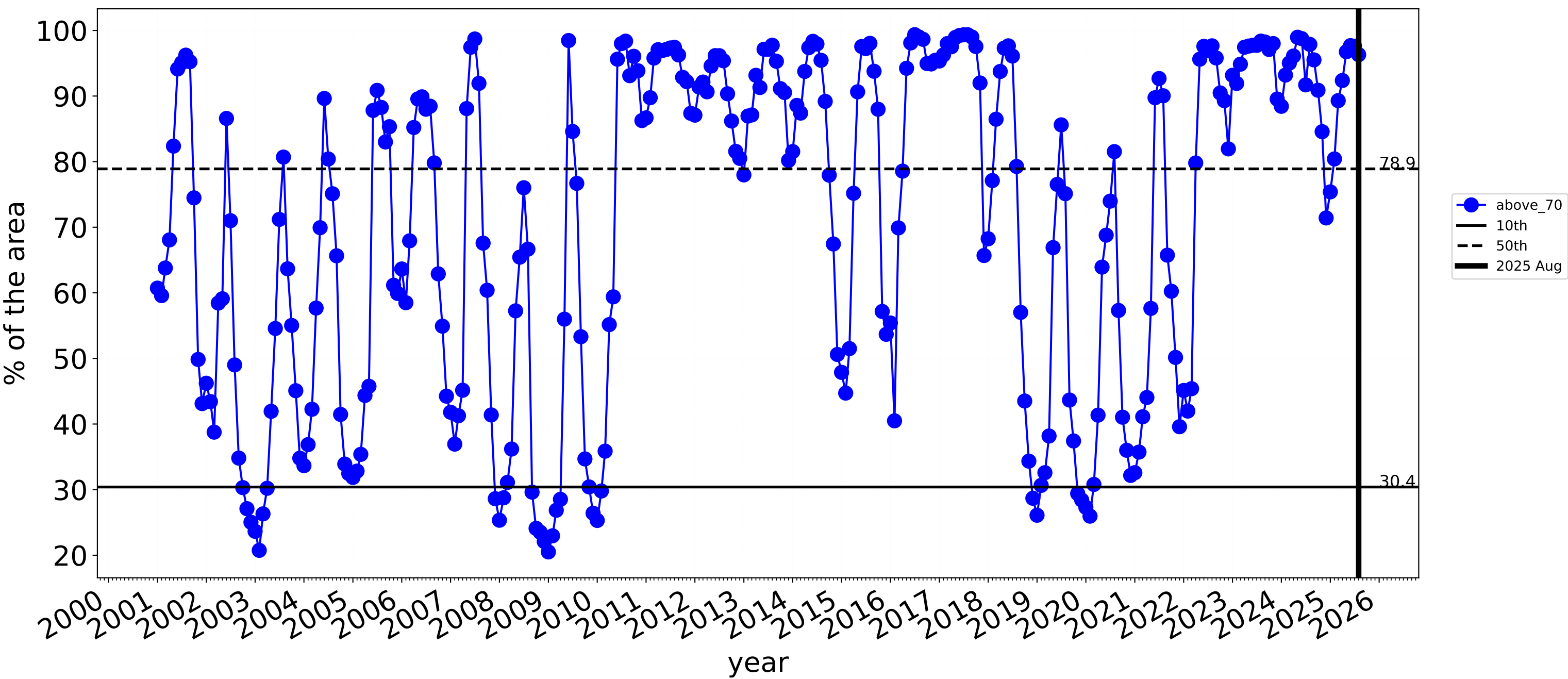
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



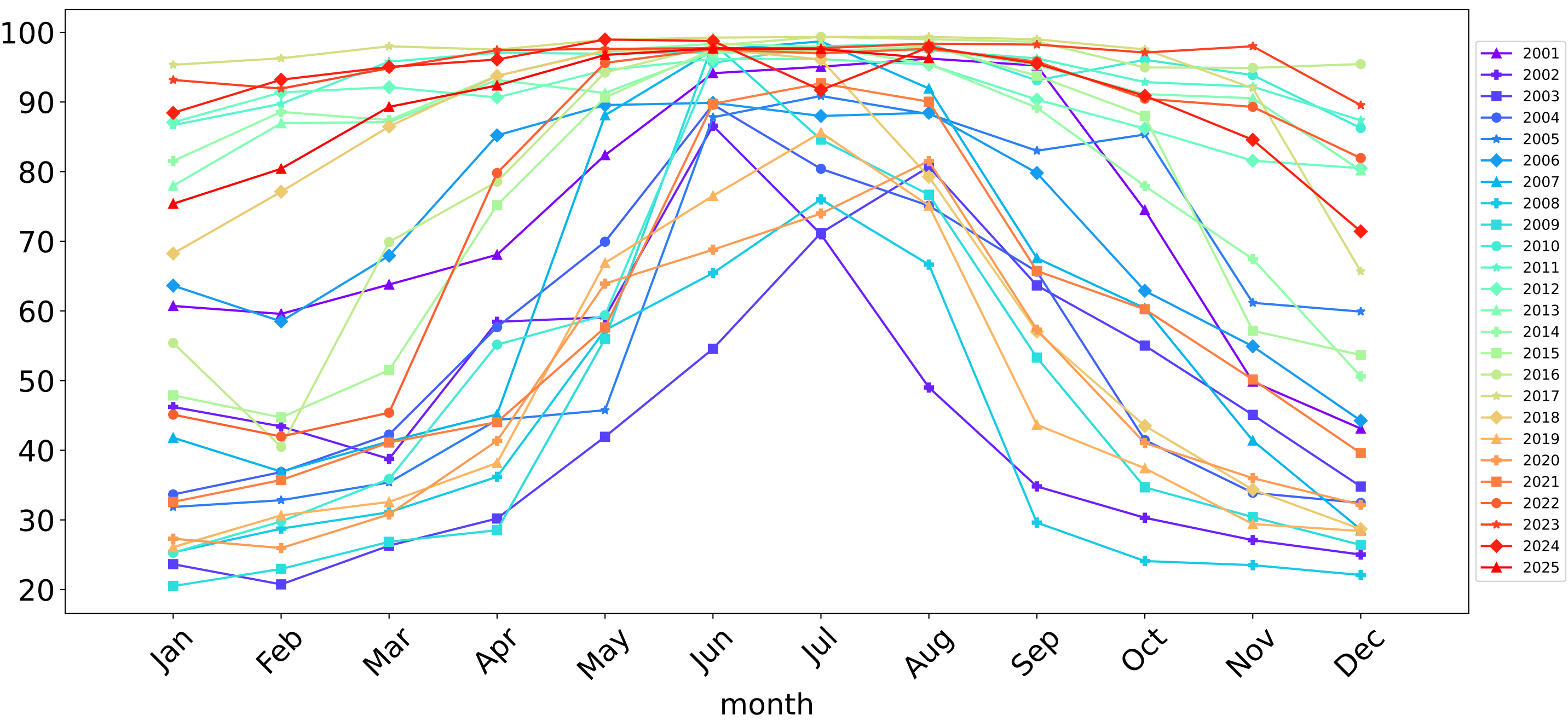
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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

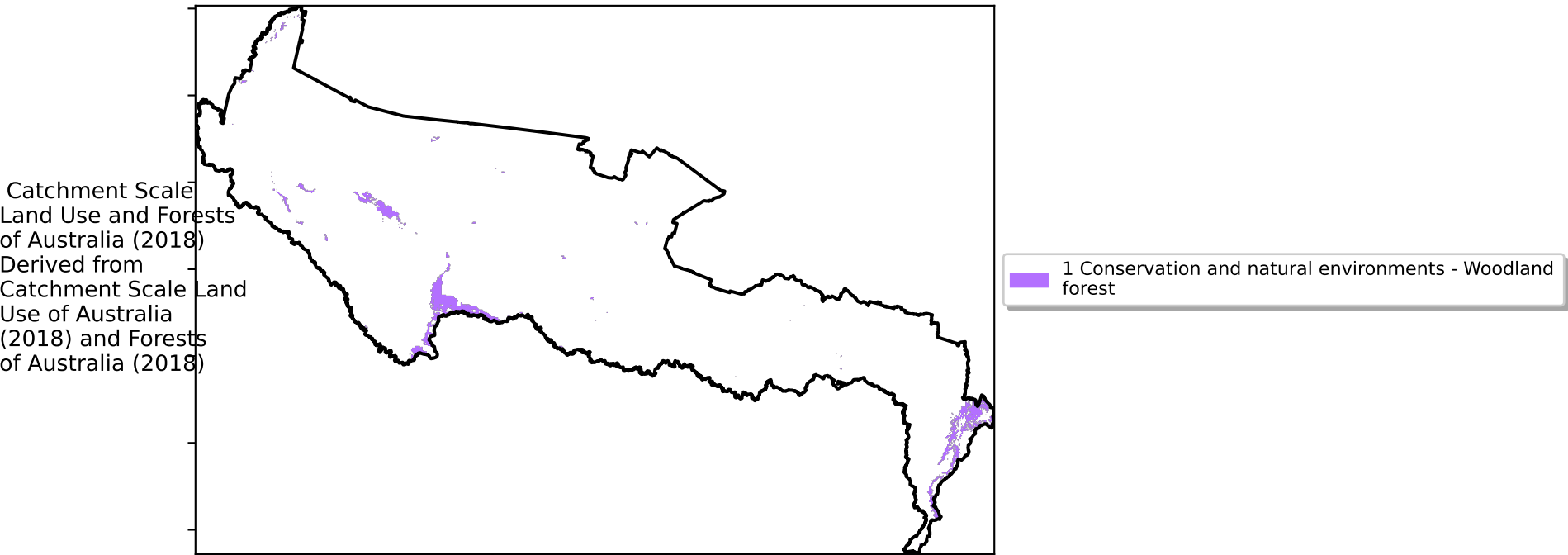


Water erosion historical monthly area protected (Total Veg Cov>70%)

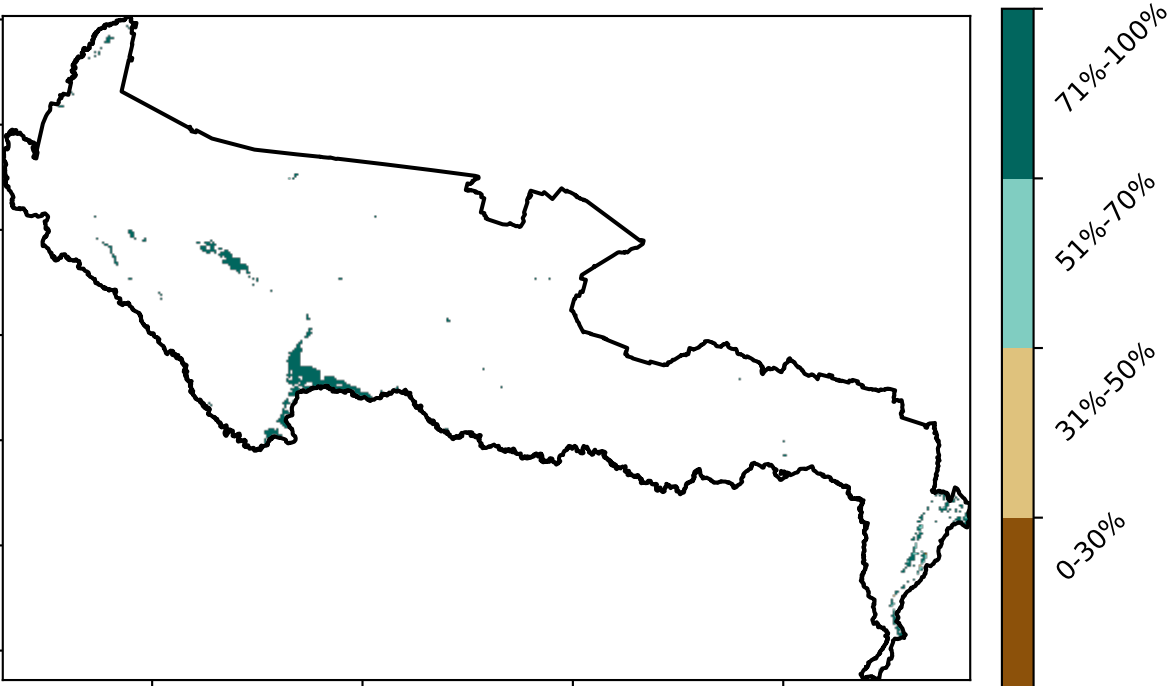


Conservation and natural environments Woodland forest

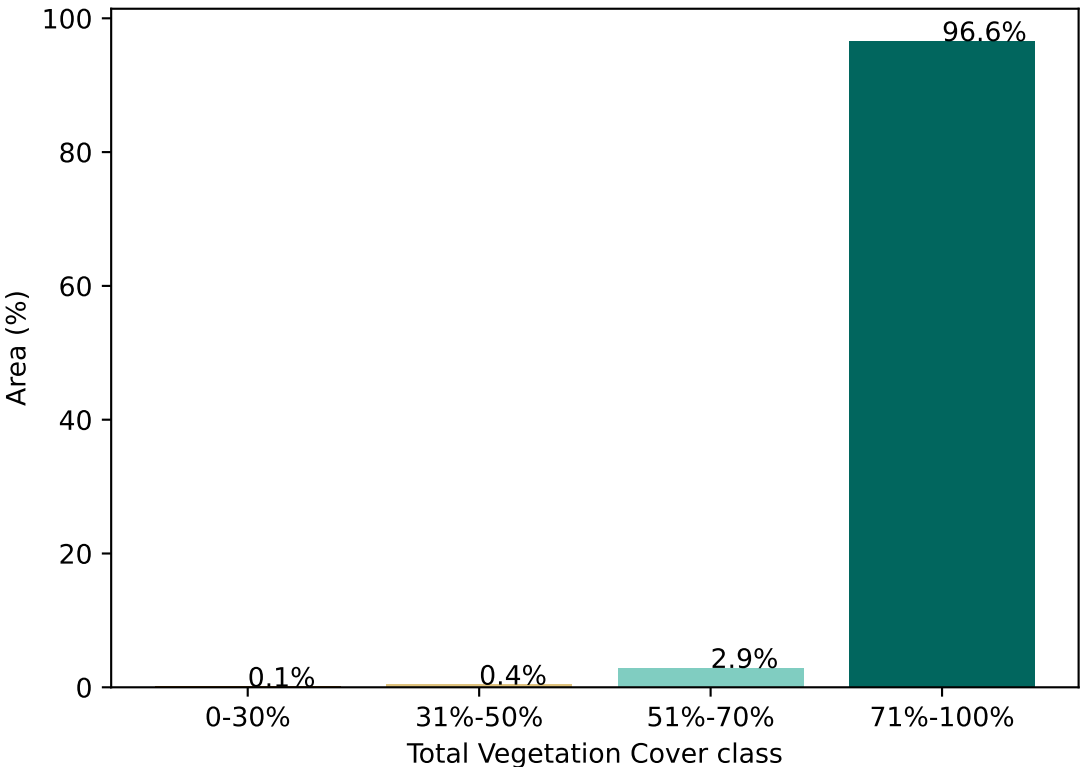
Land use and forest cover



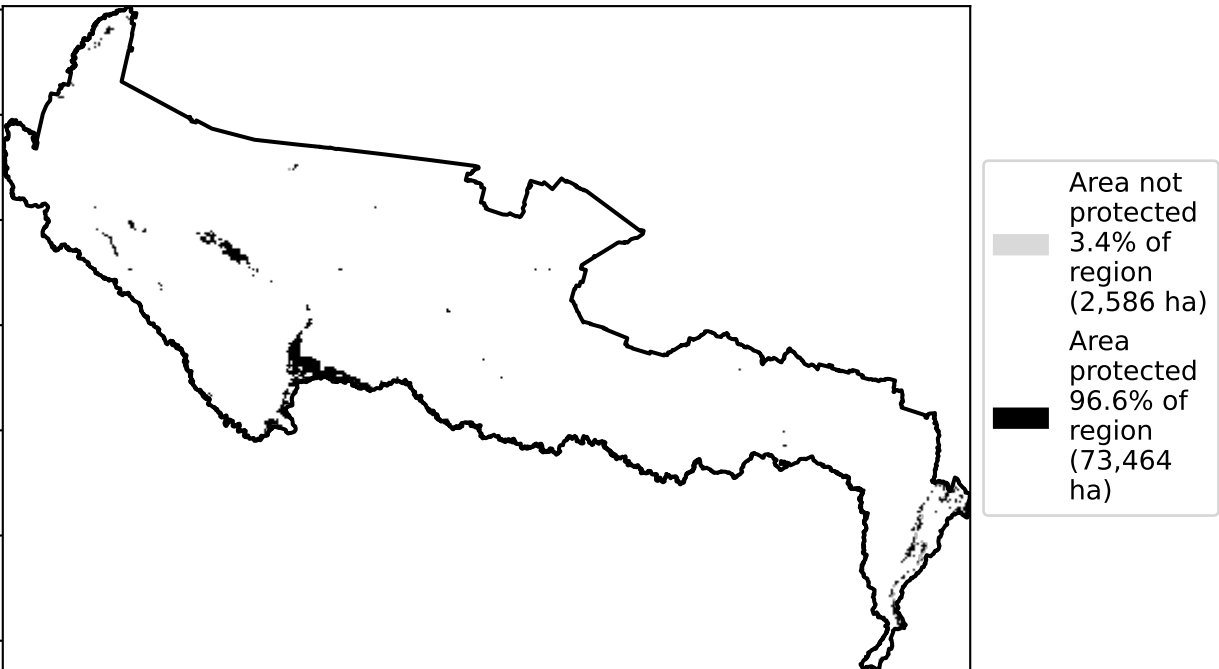
Total Vegetation Cover [%]



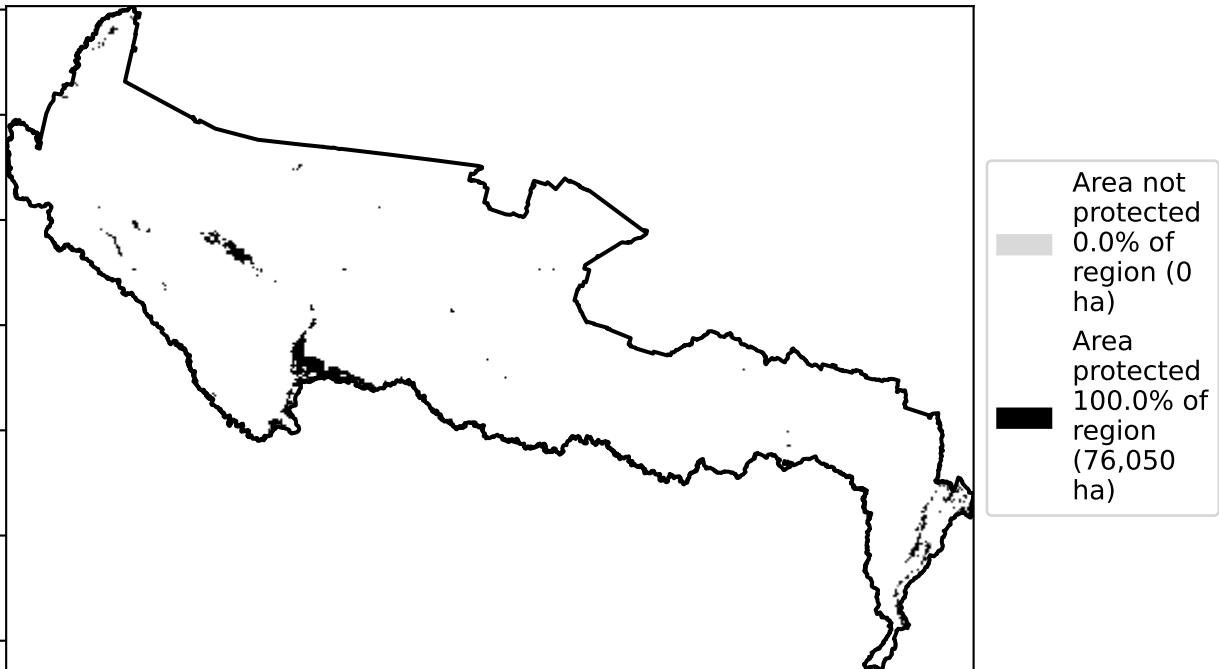
Proportion of vegetation cover class in area



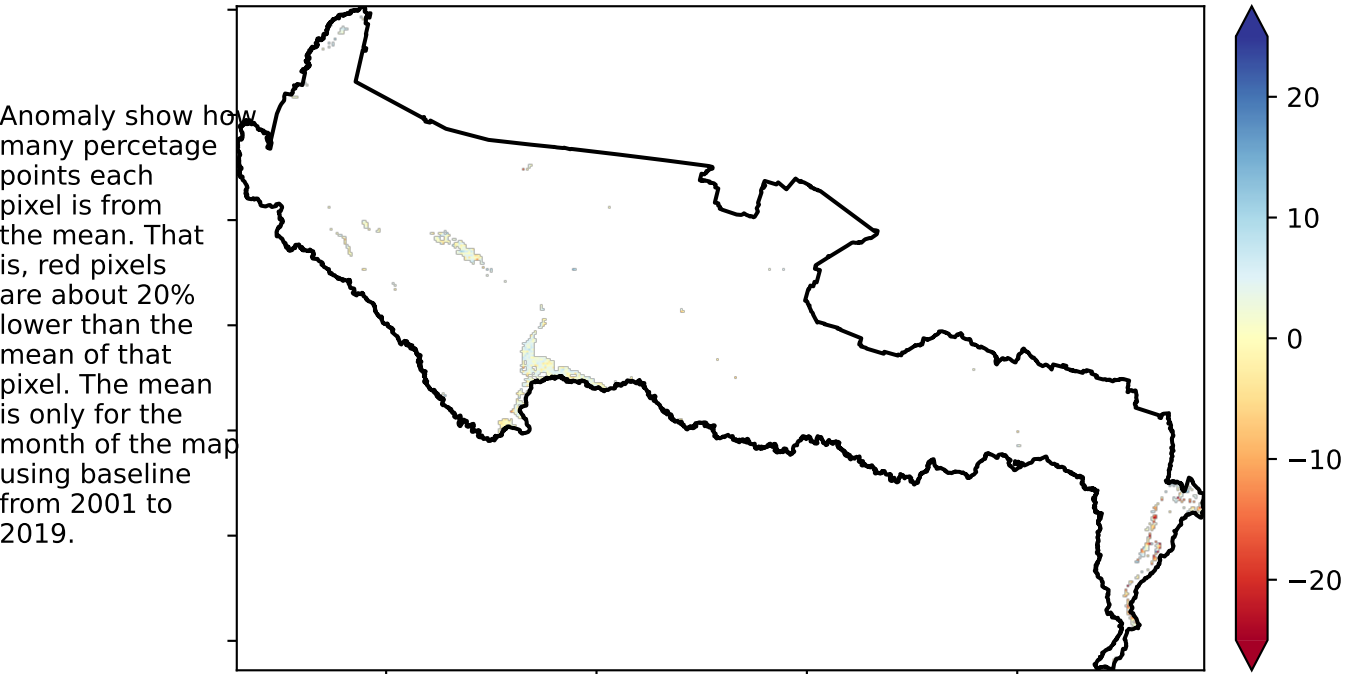
% Area protected from water erosion (>70%)



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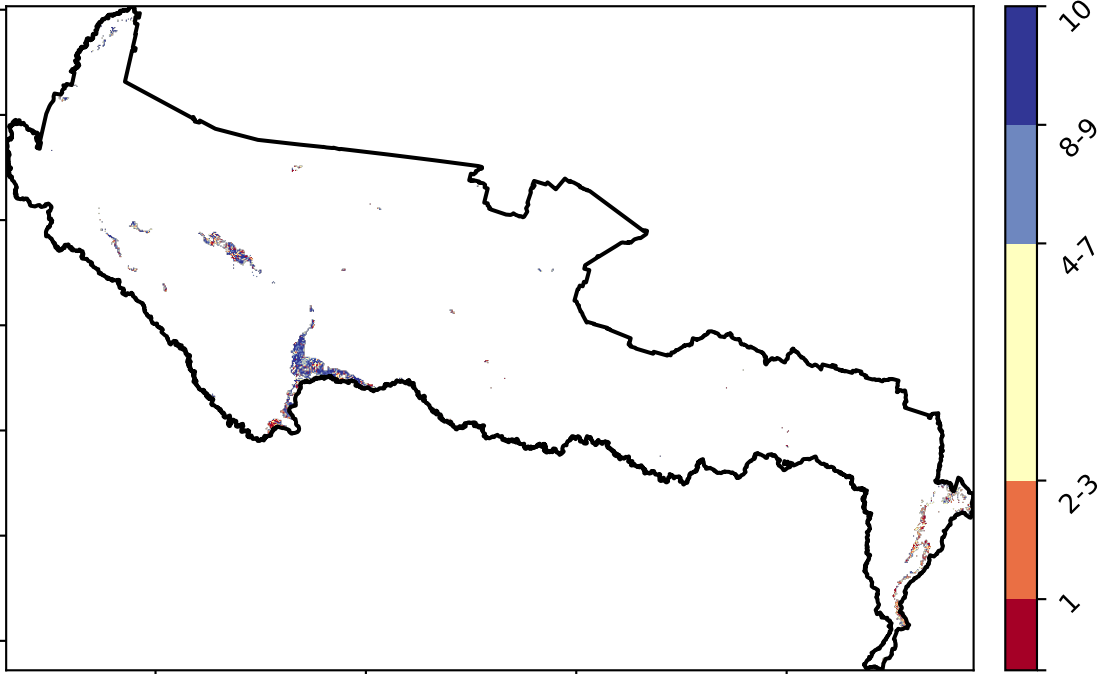


Total Vegetation Cover Anomaly [%]



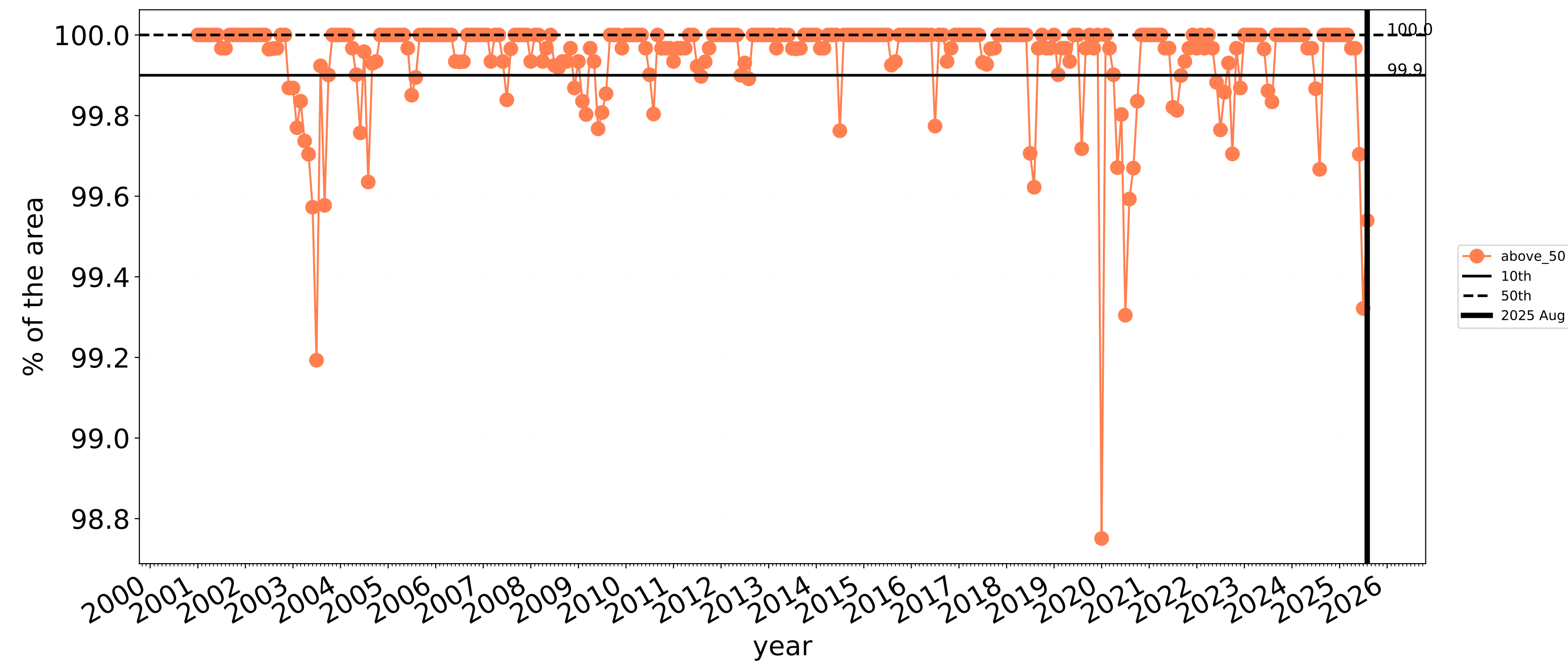
Total Vegetation Cover Decile [%]

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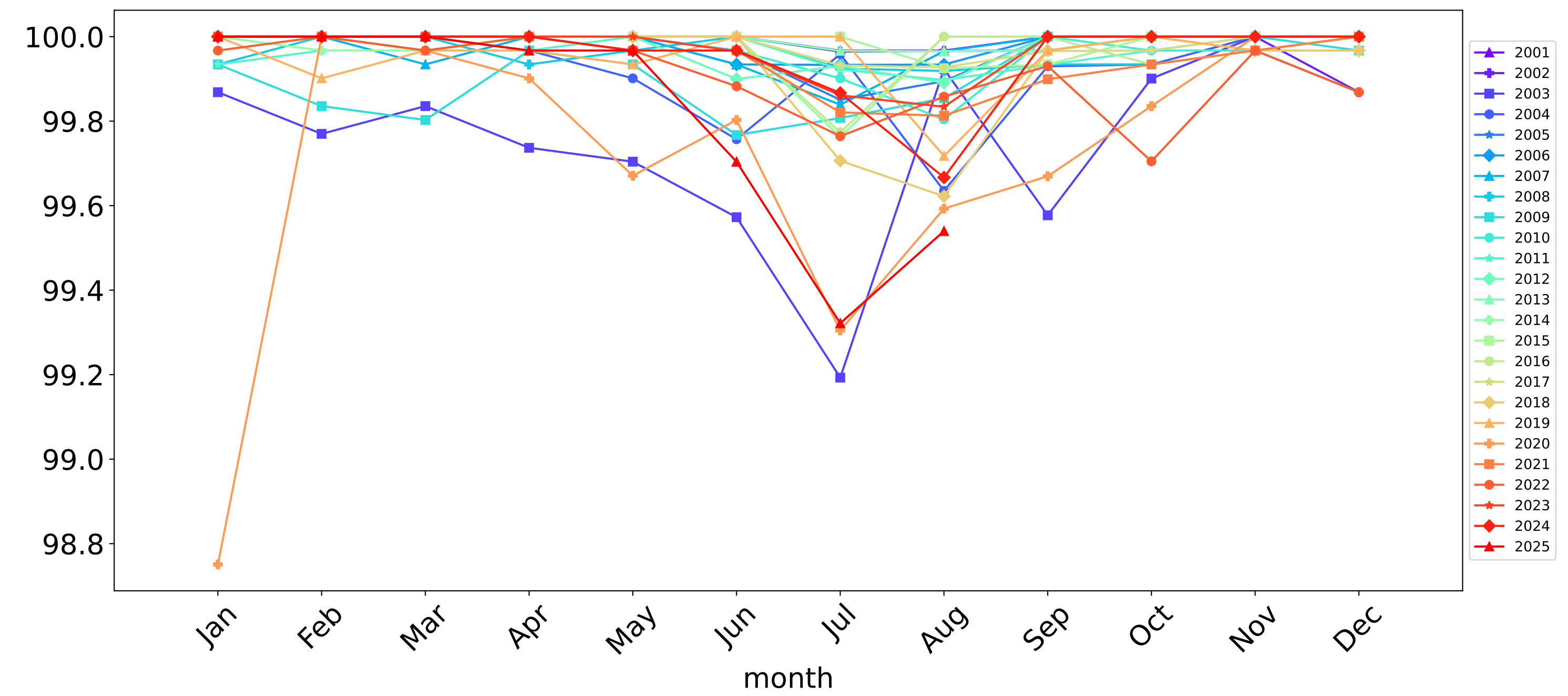


Conservation and natural environments Woodland forest timeseries

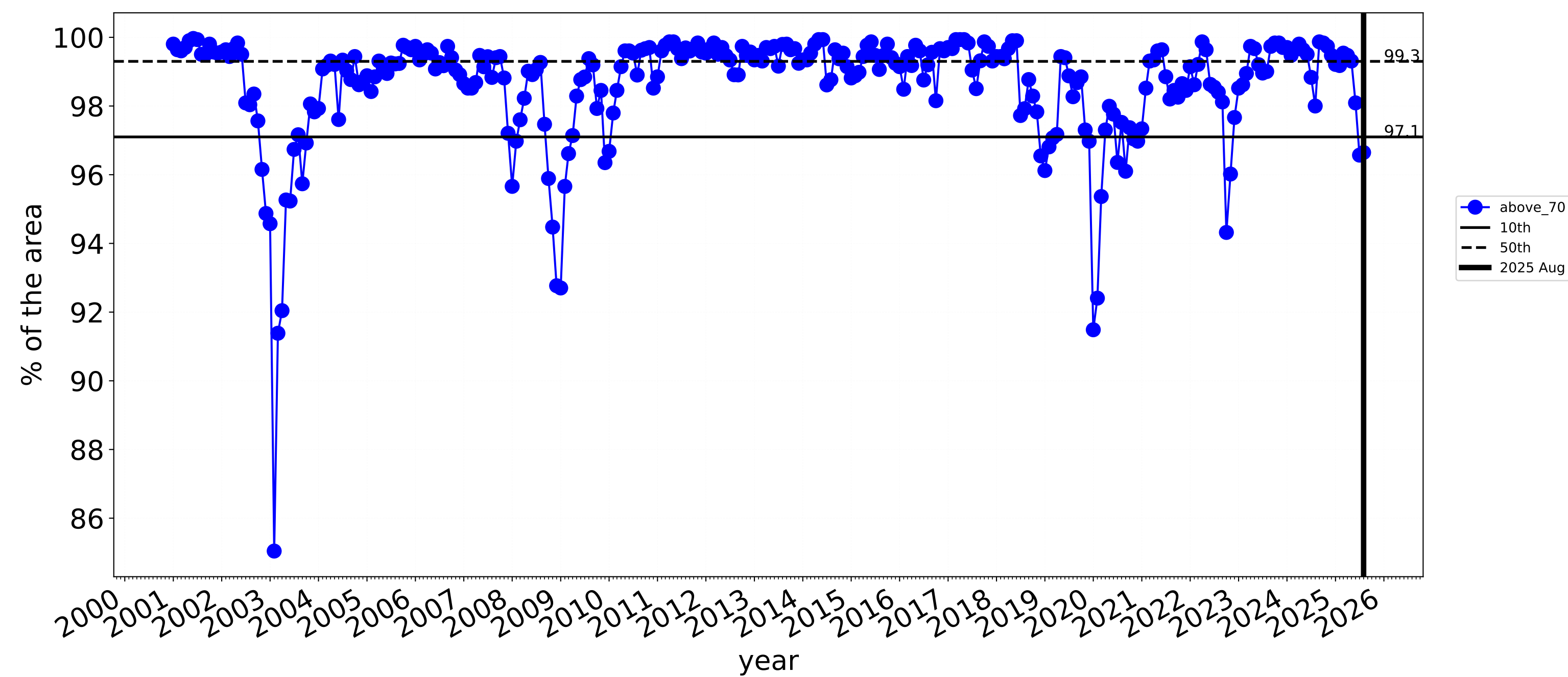
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



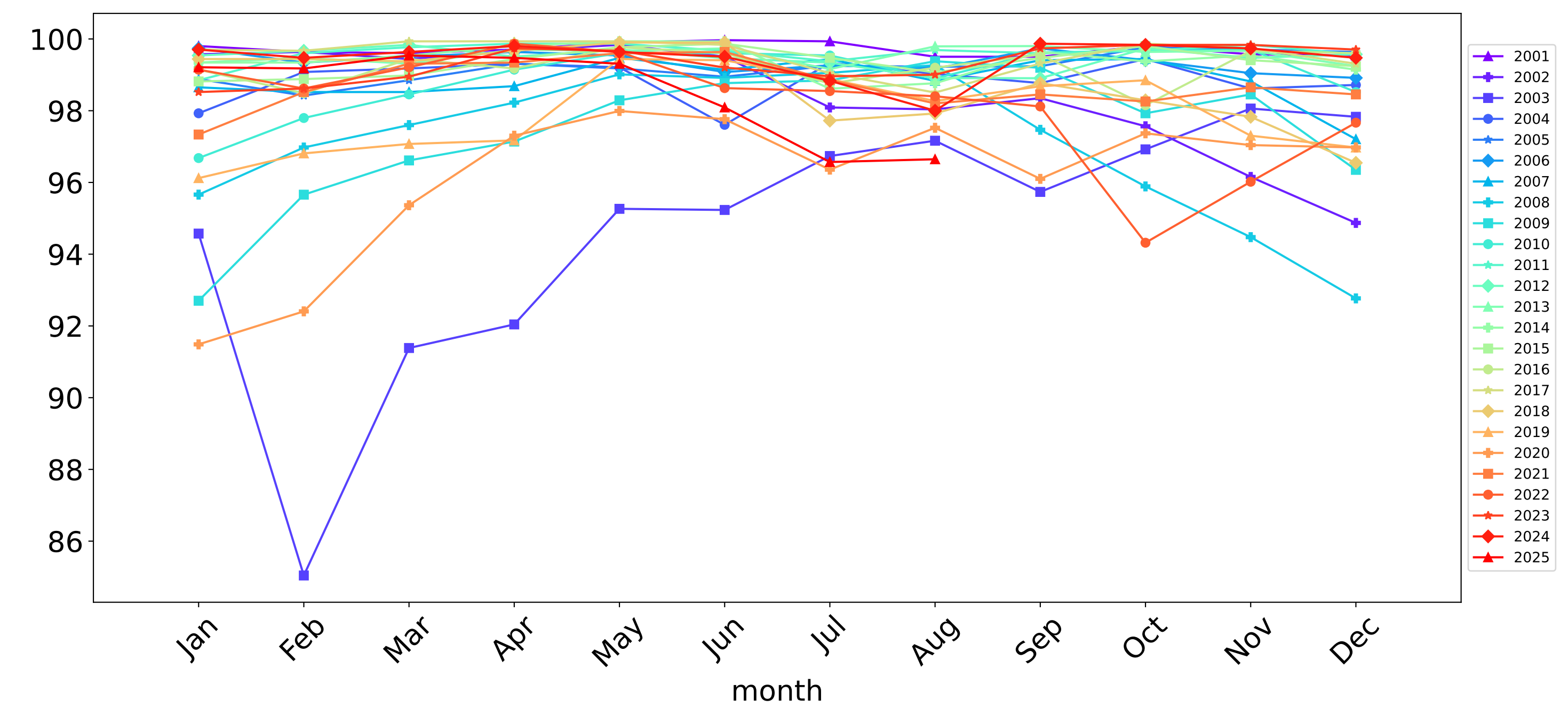
Wind erosion historical monthly area protected (Total Veg Cov >50%)



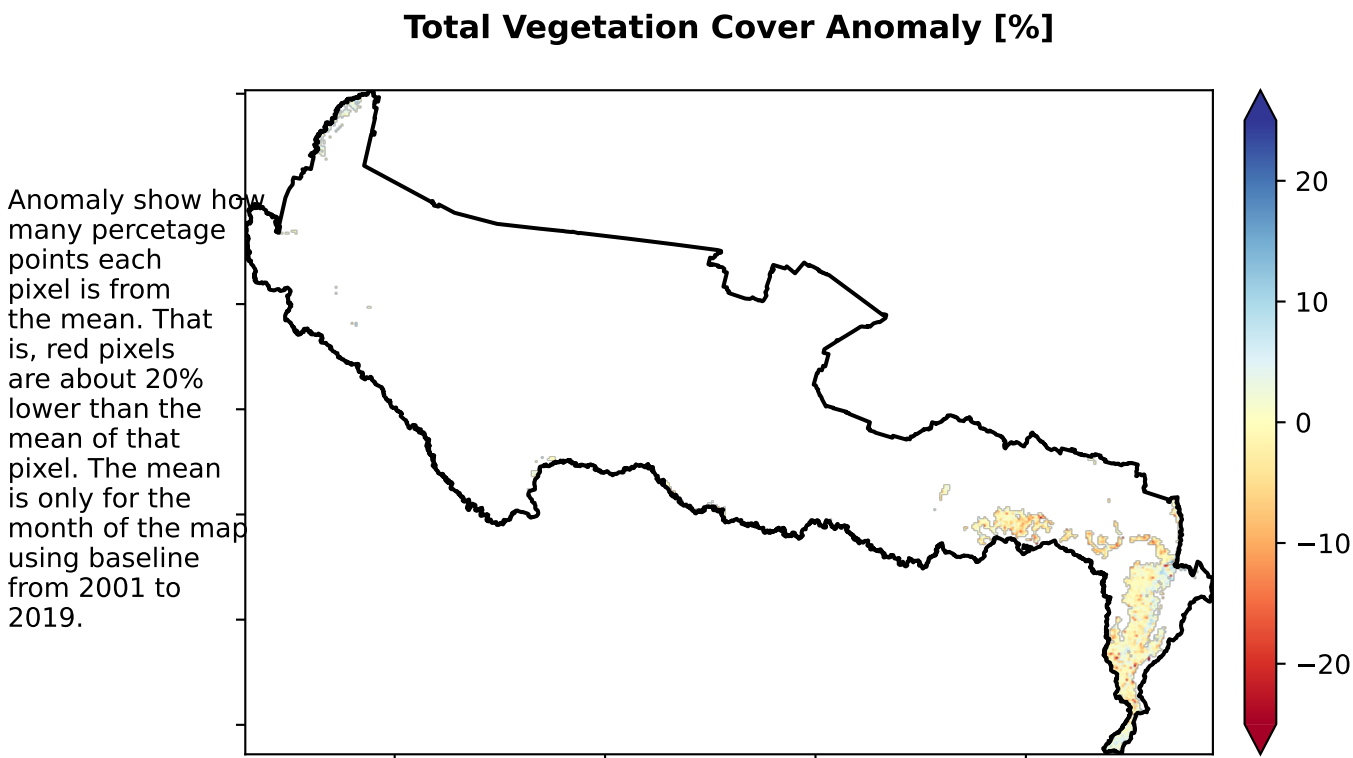
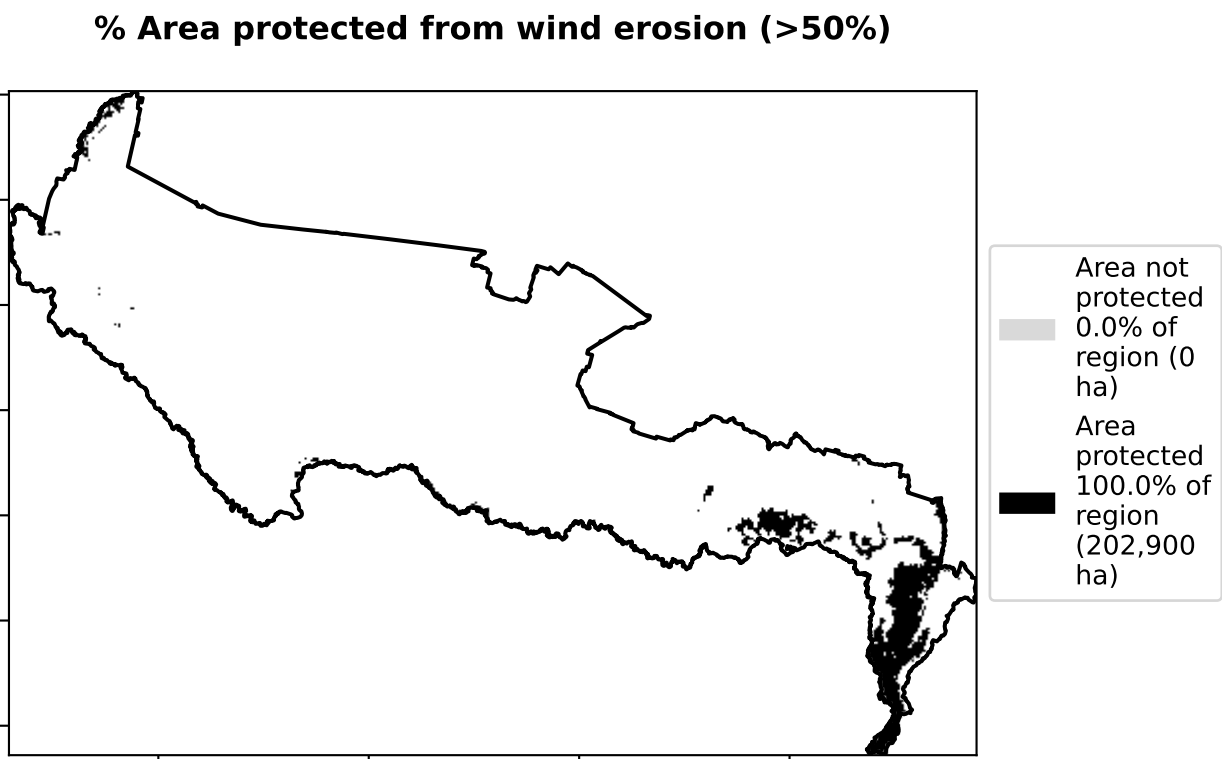
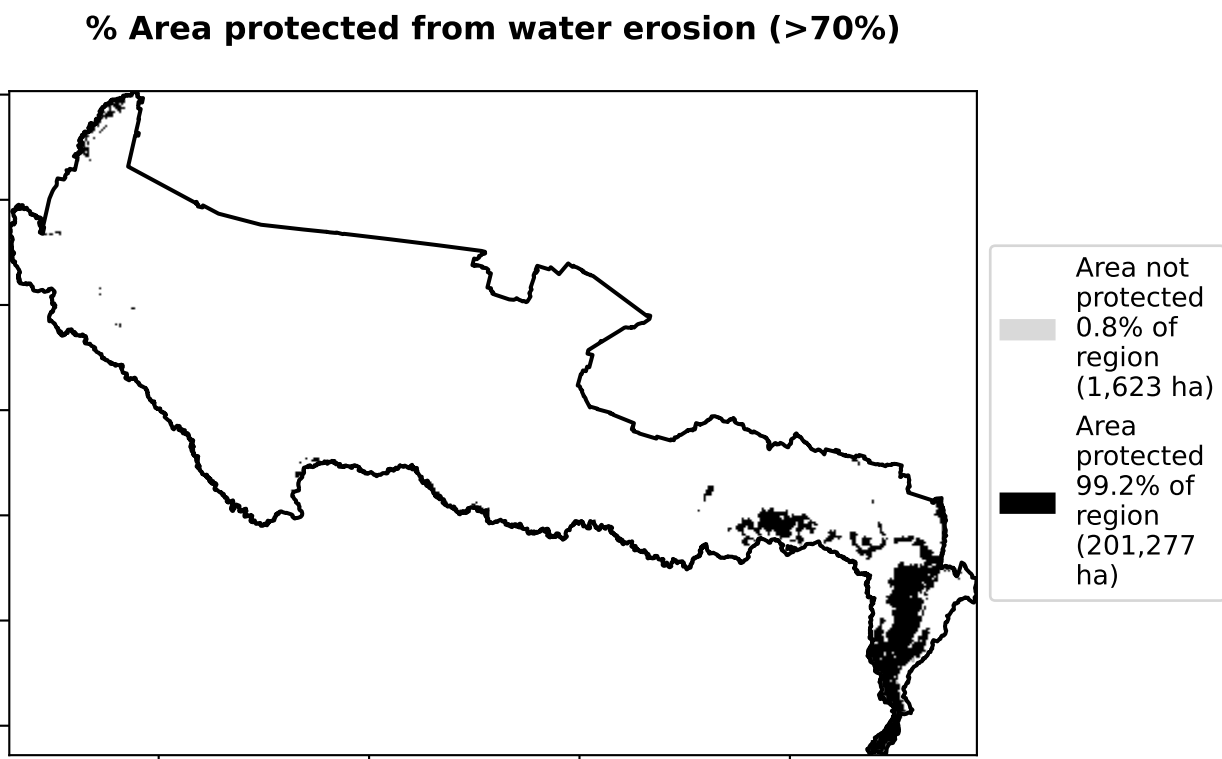
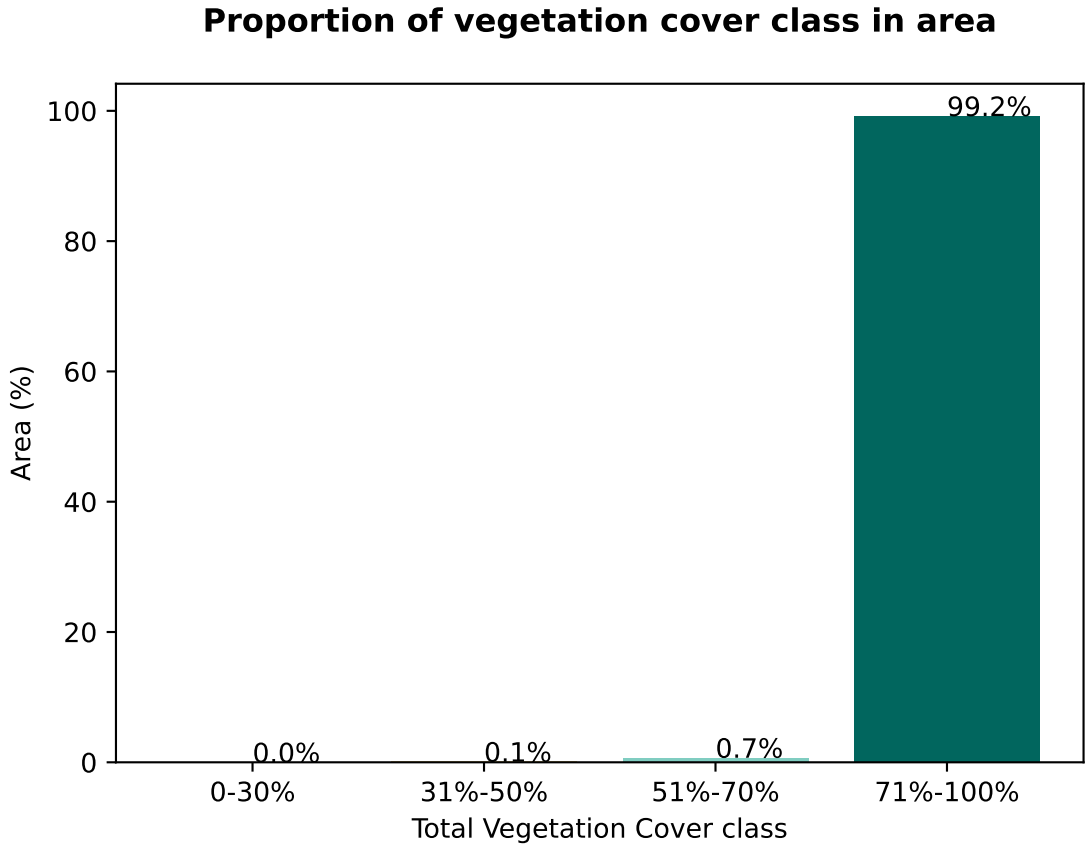
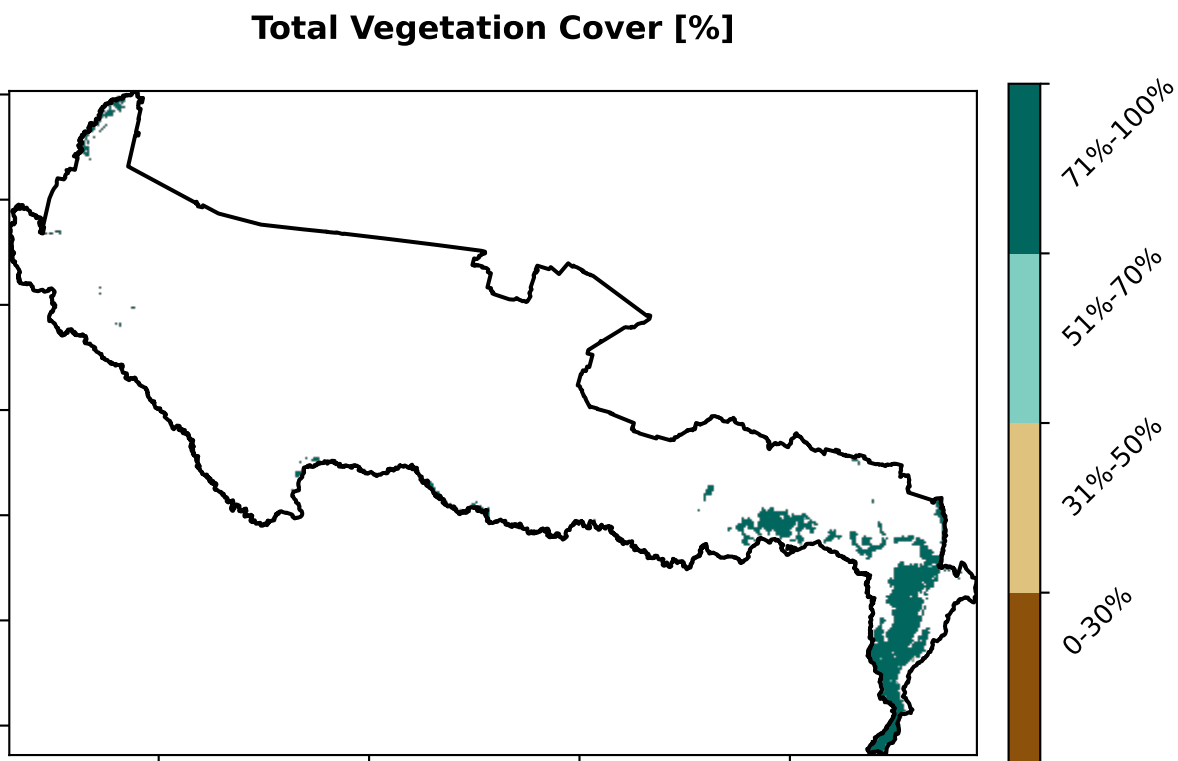
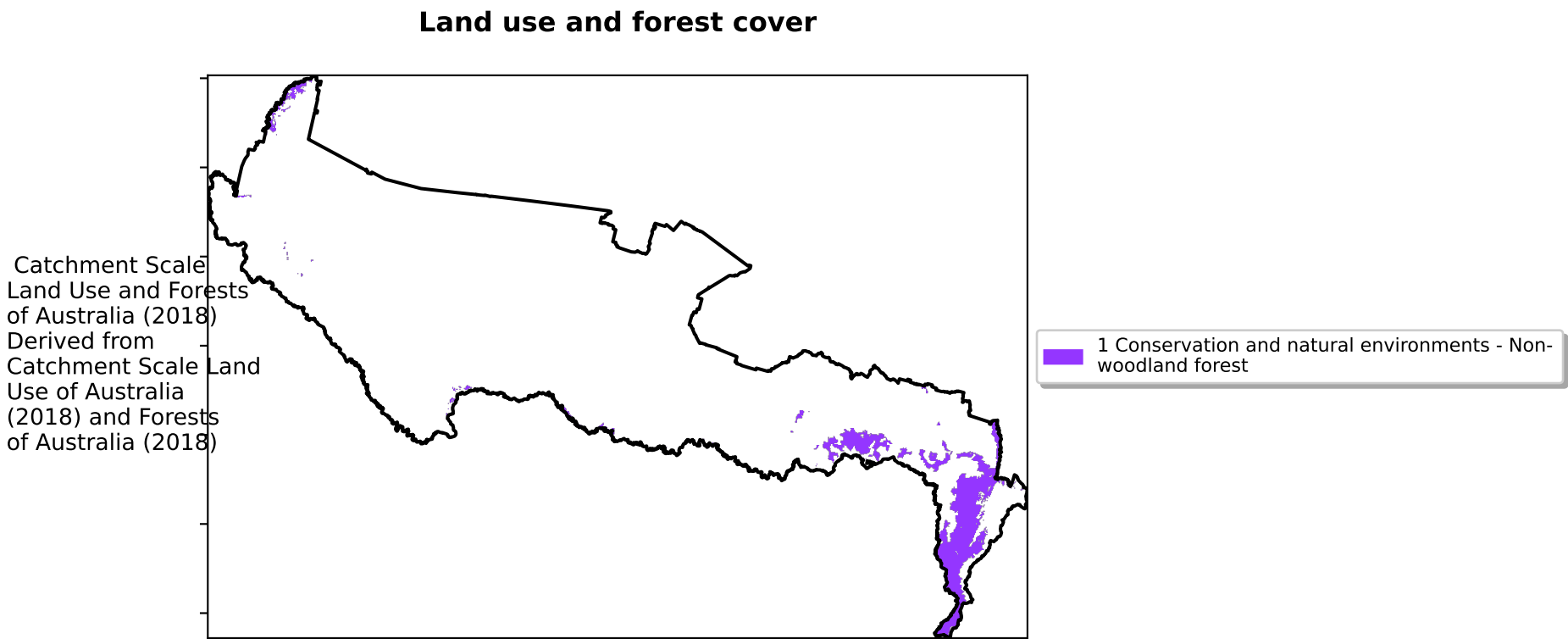
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



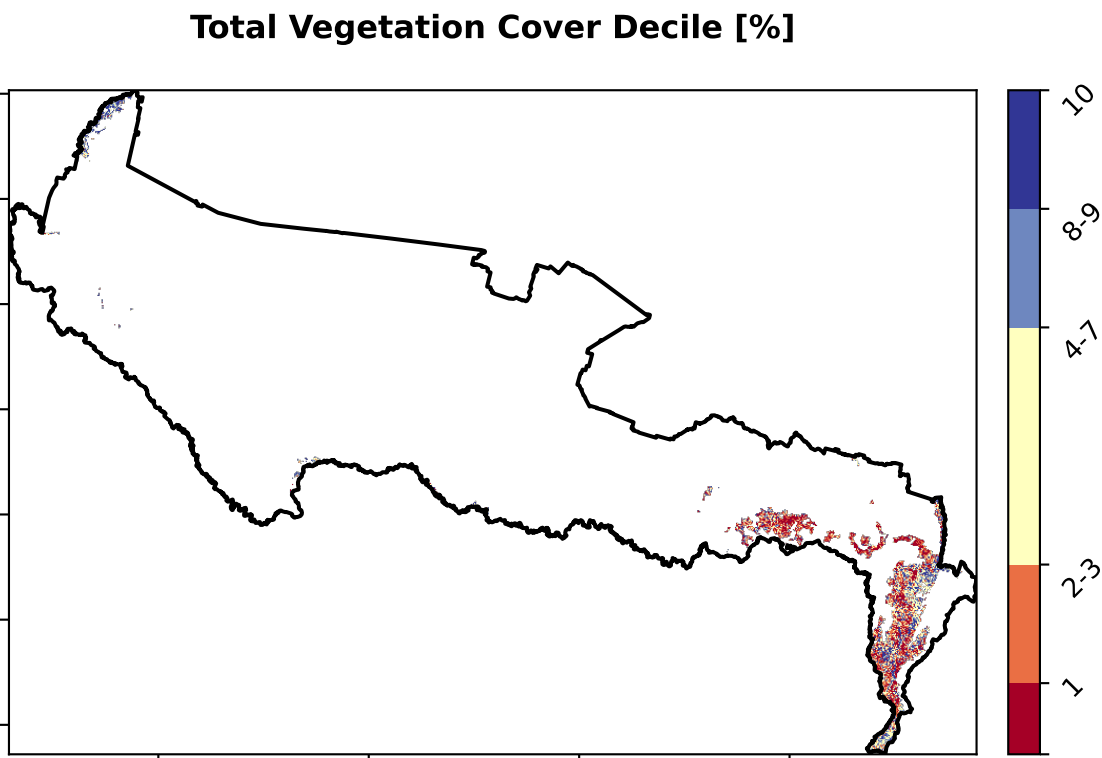
Water erosion historical monthly area protected (Total Veg Cov>70%)



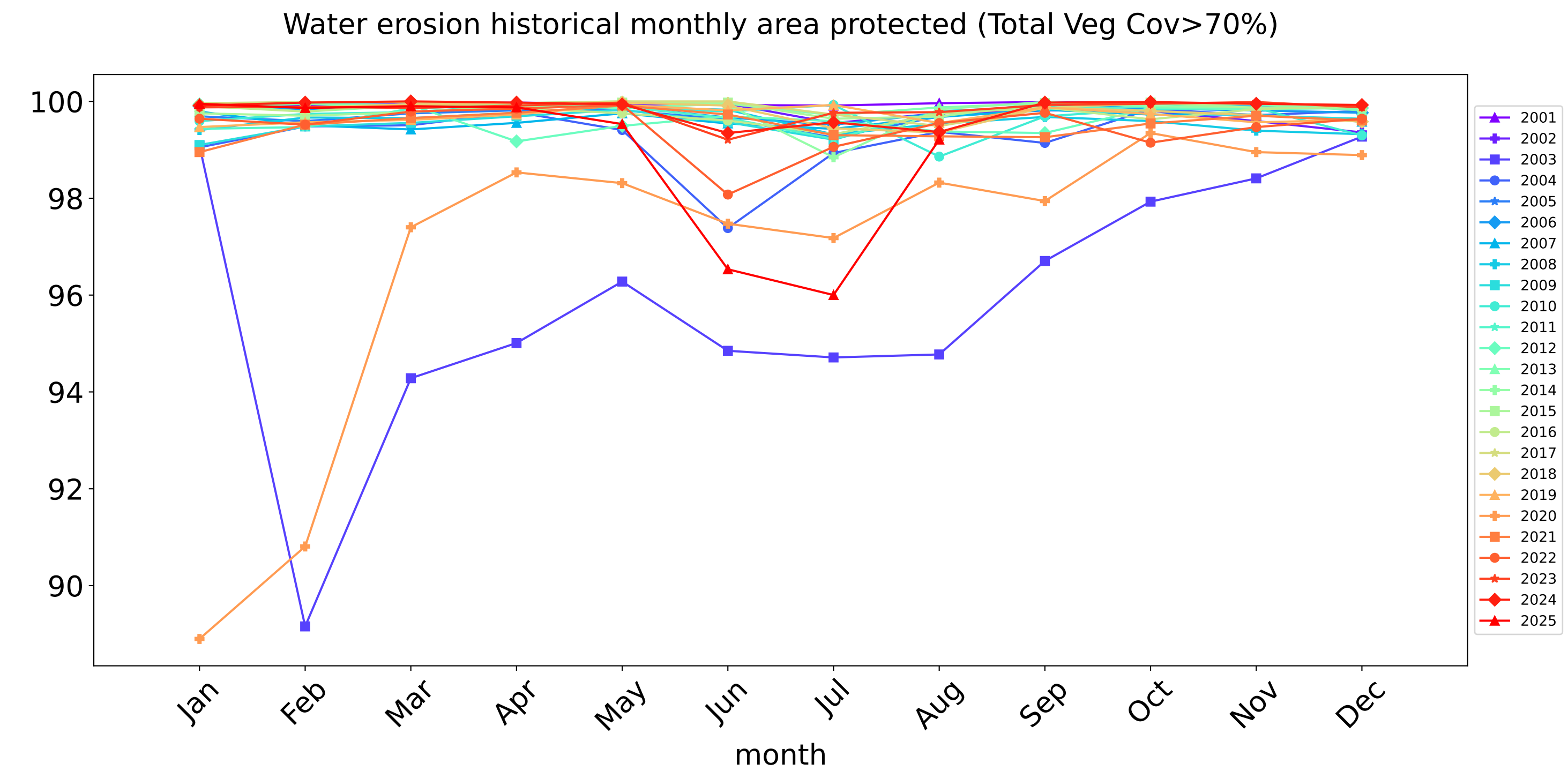
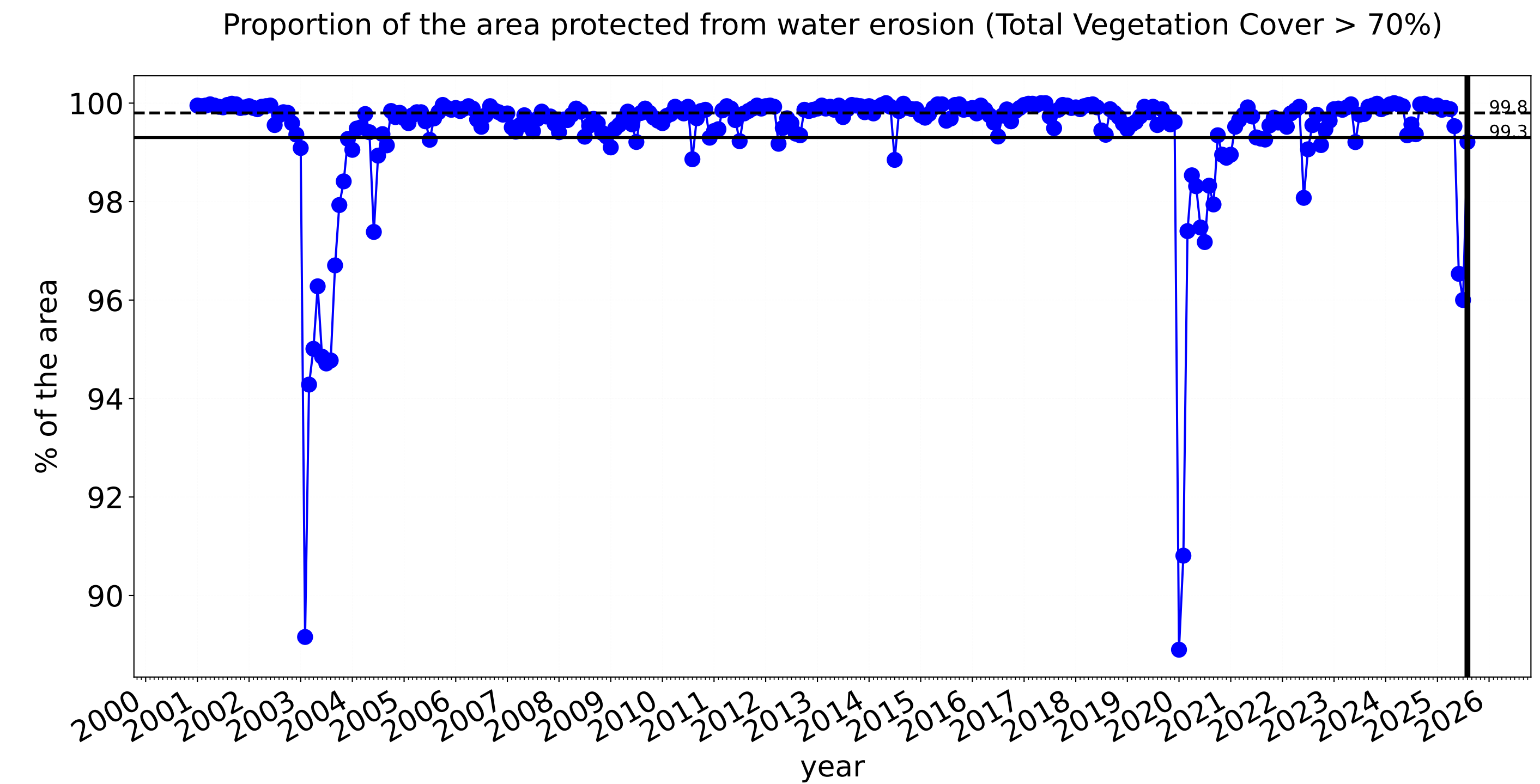
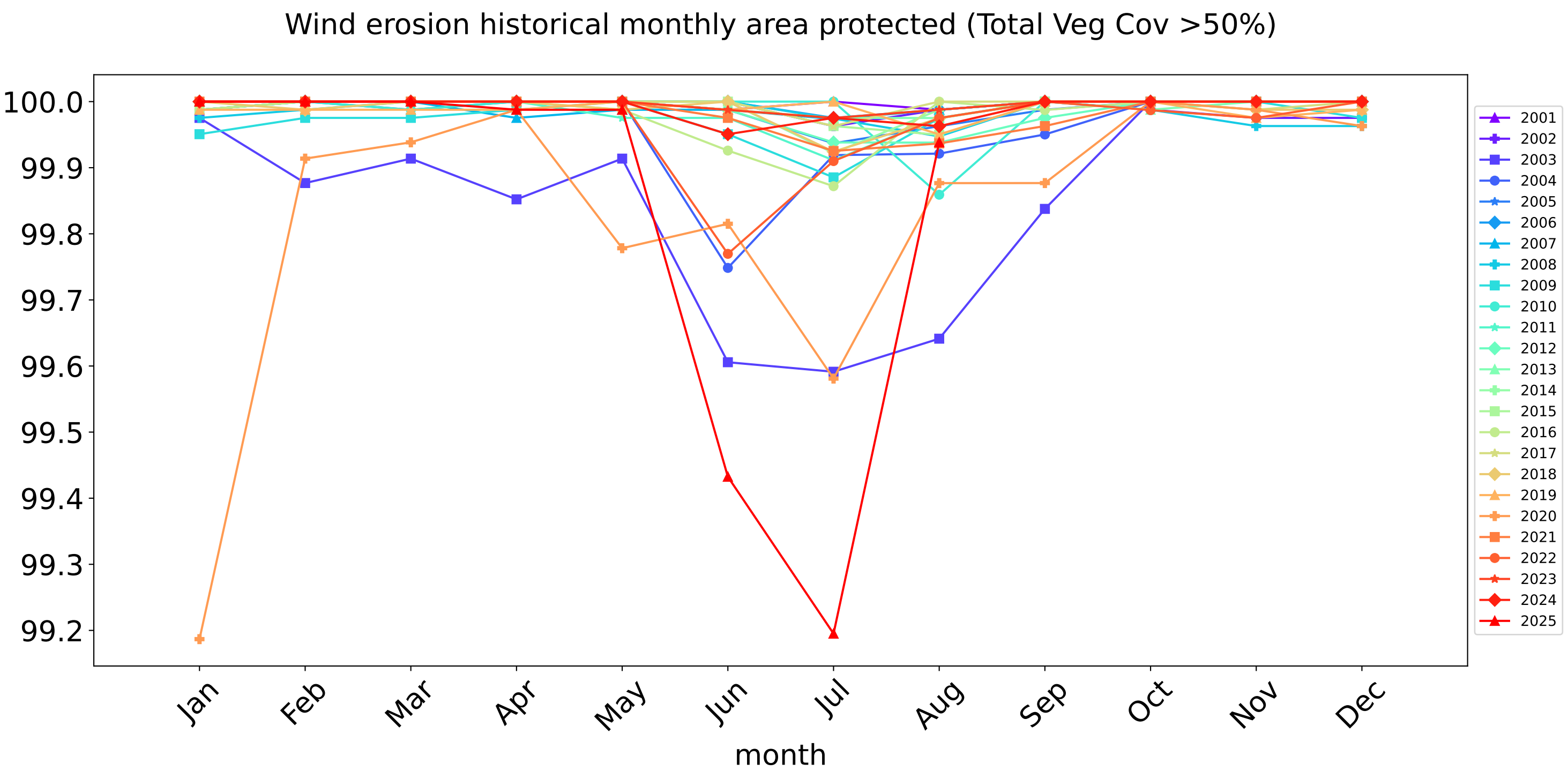
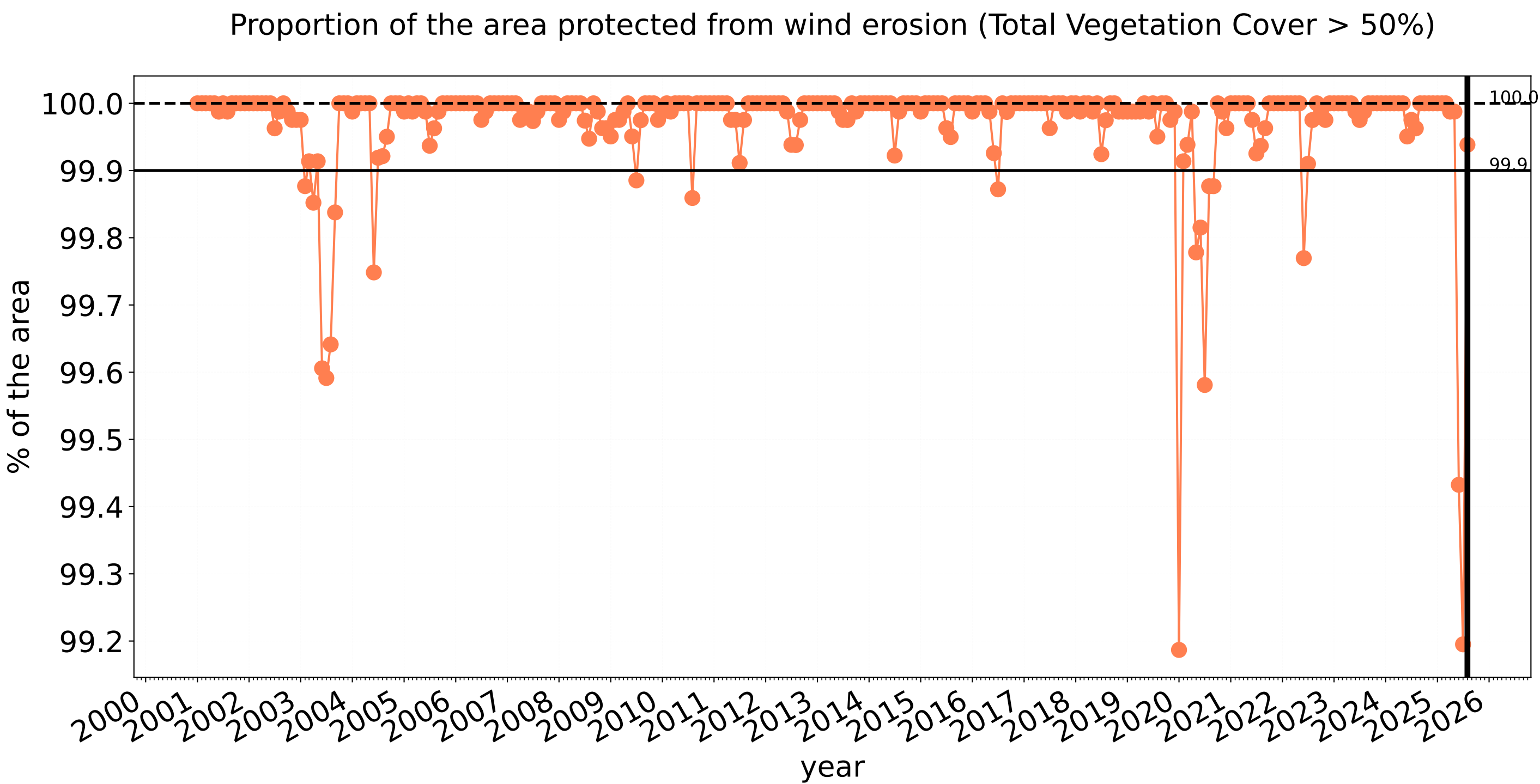
Conservation and natural environments Forest (non woodland)



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.



Conservation and natural environments Forest (non woodland) timeseries



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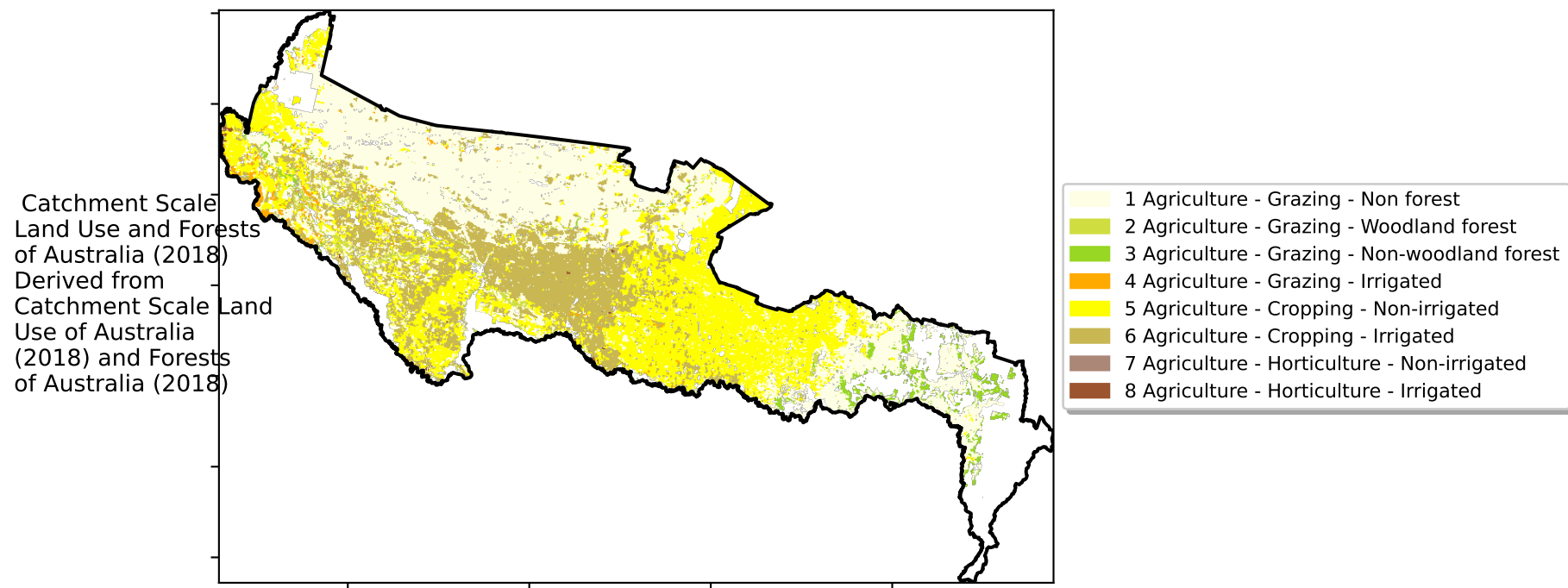


National Landcare Programme

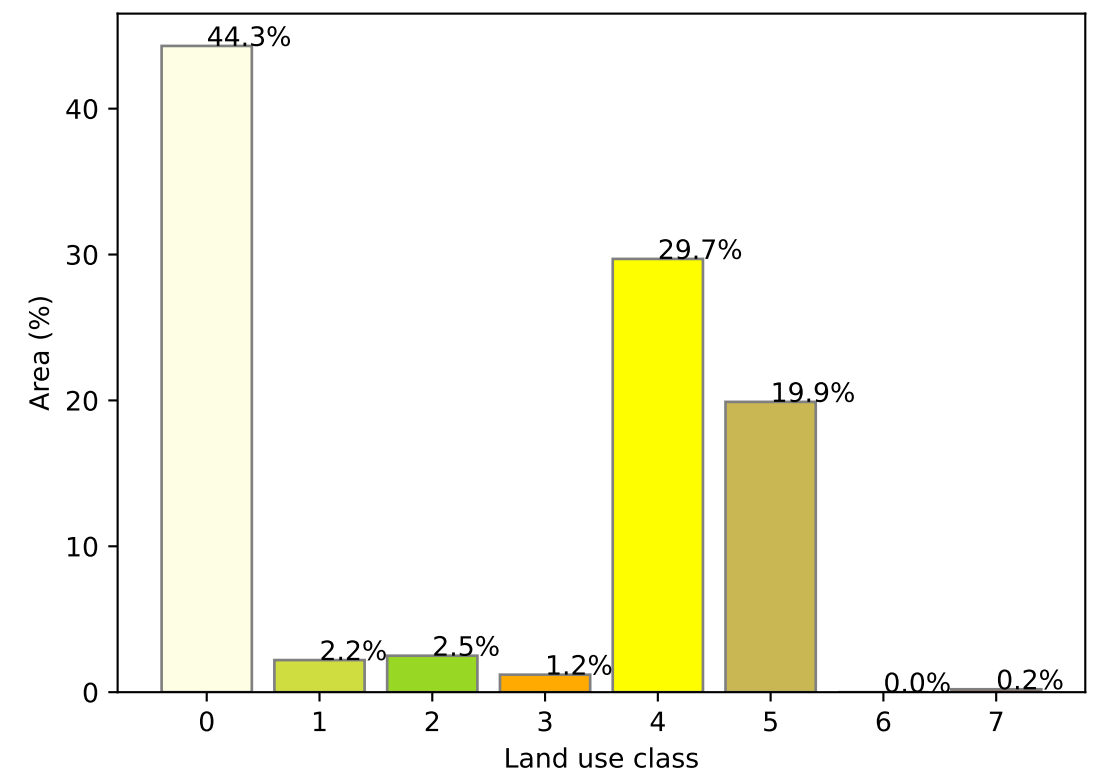


Agriculture

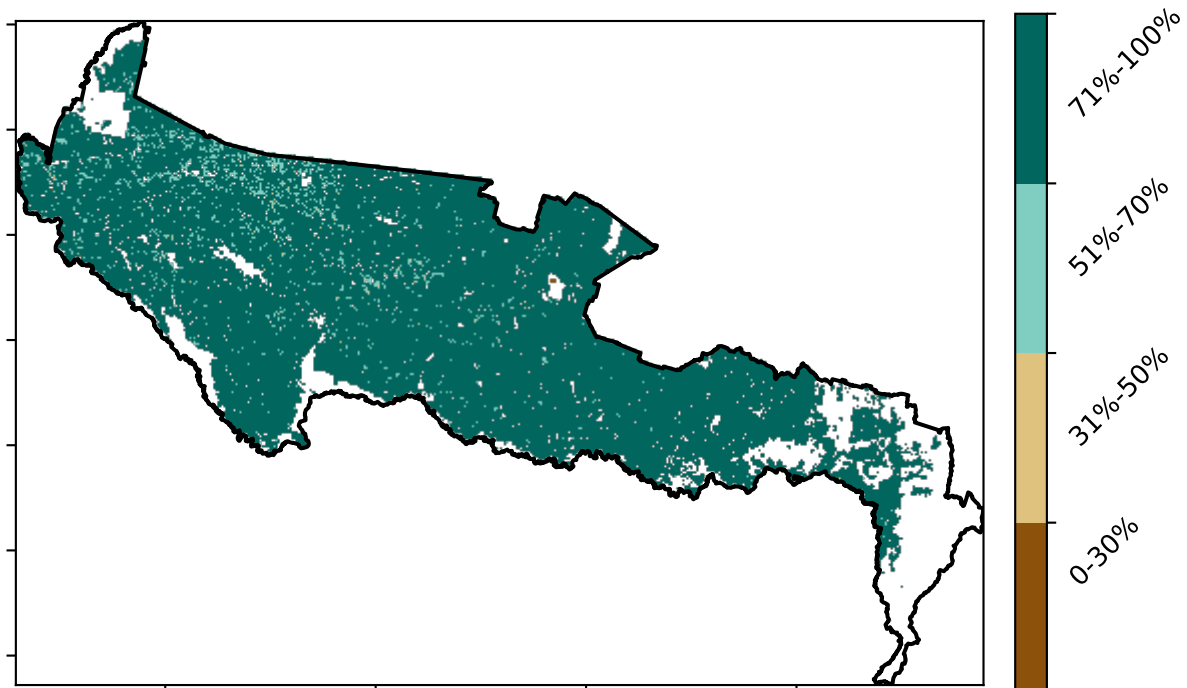
Land use and forest cover



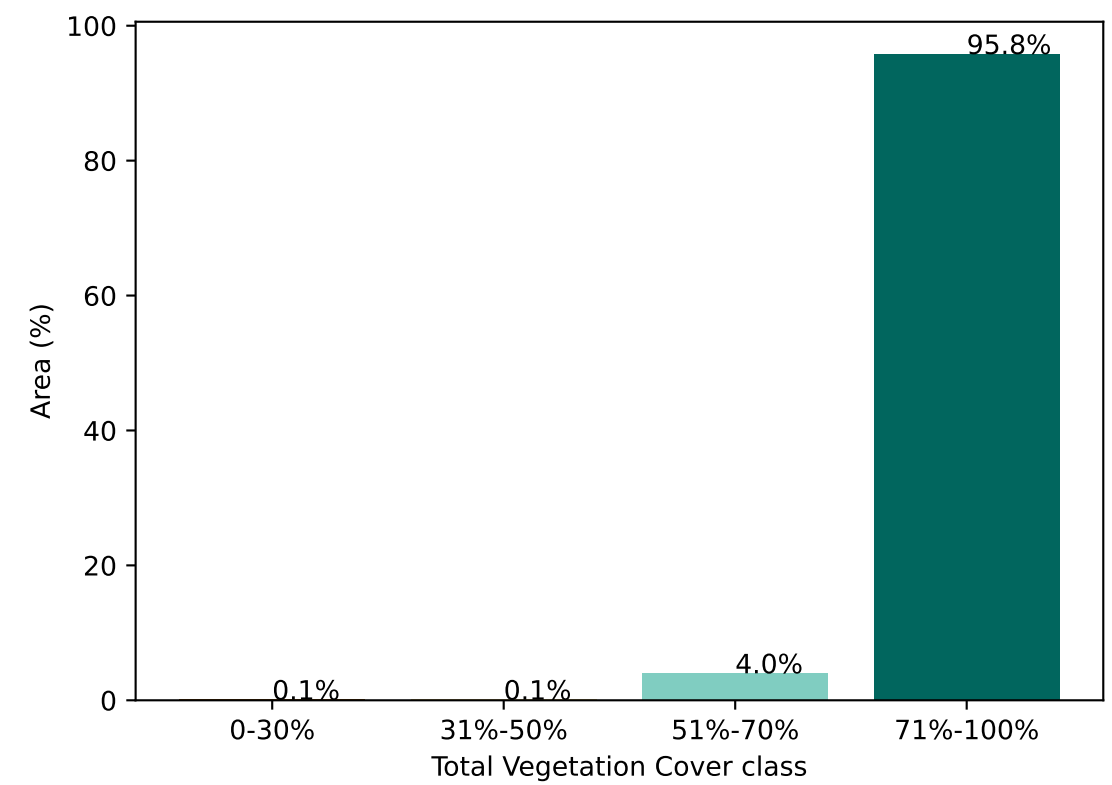
Proportion of each land class in area



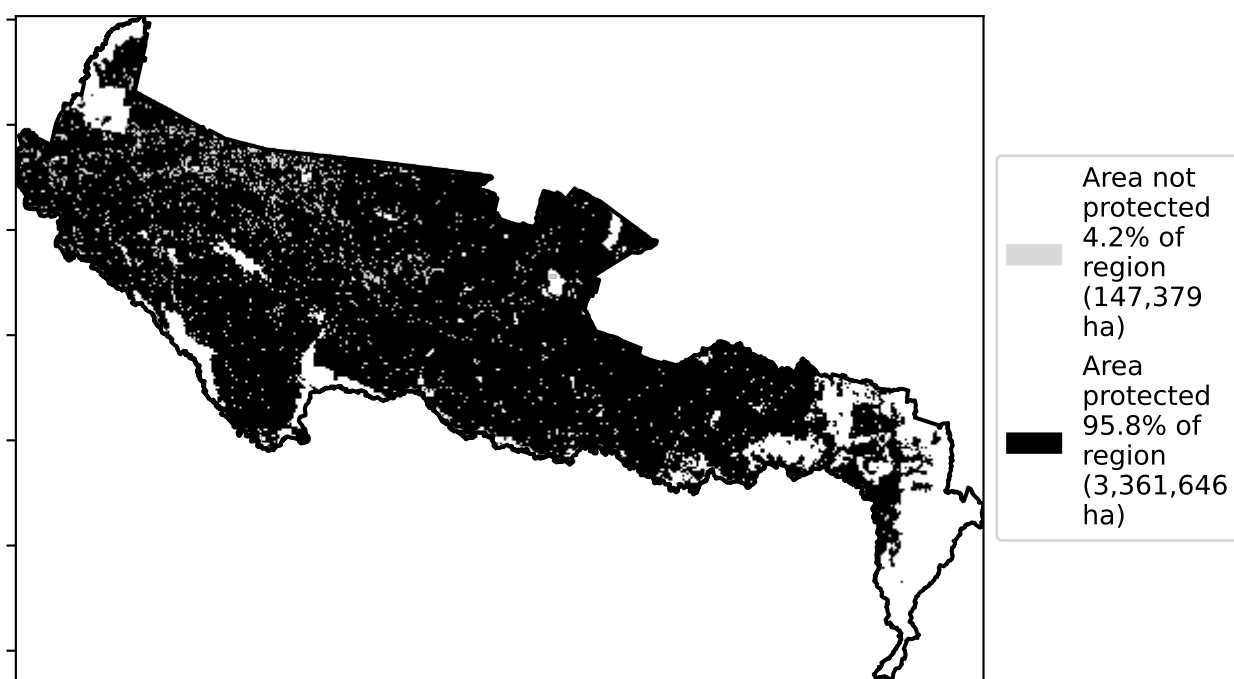
Total Vegetation Cover [%]



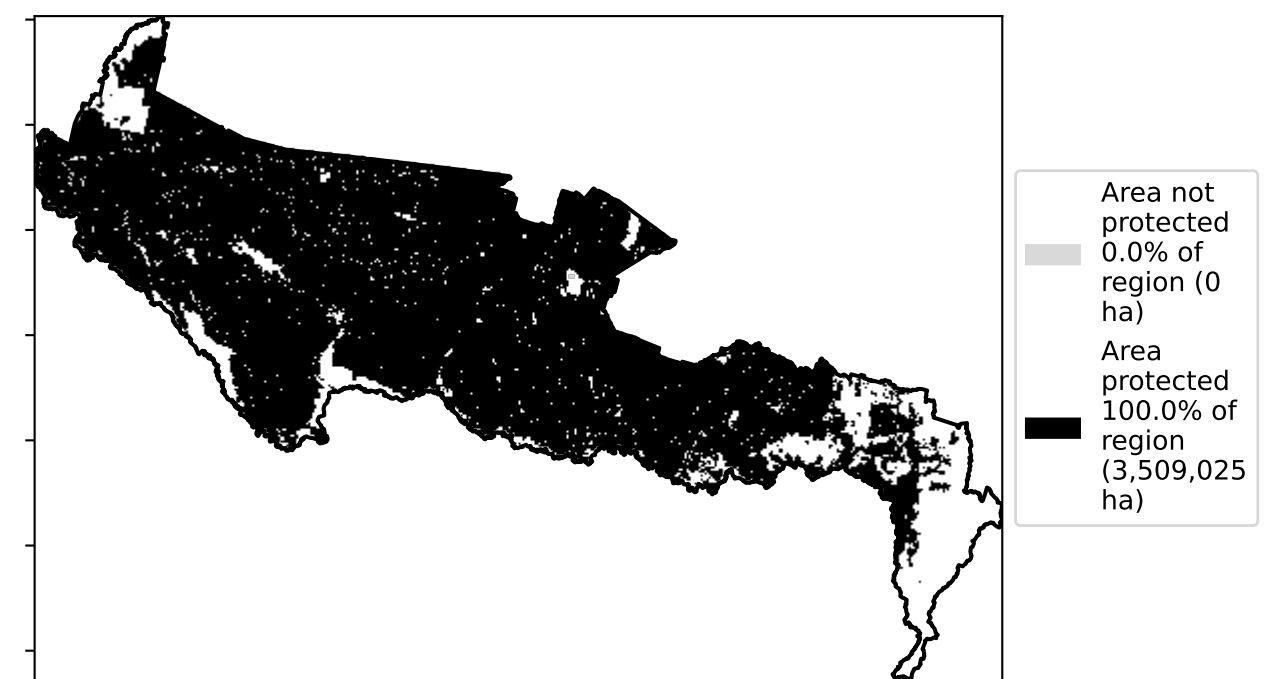
Proportion of vegetation cover class in area



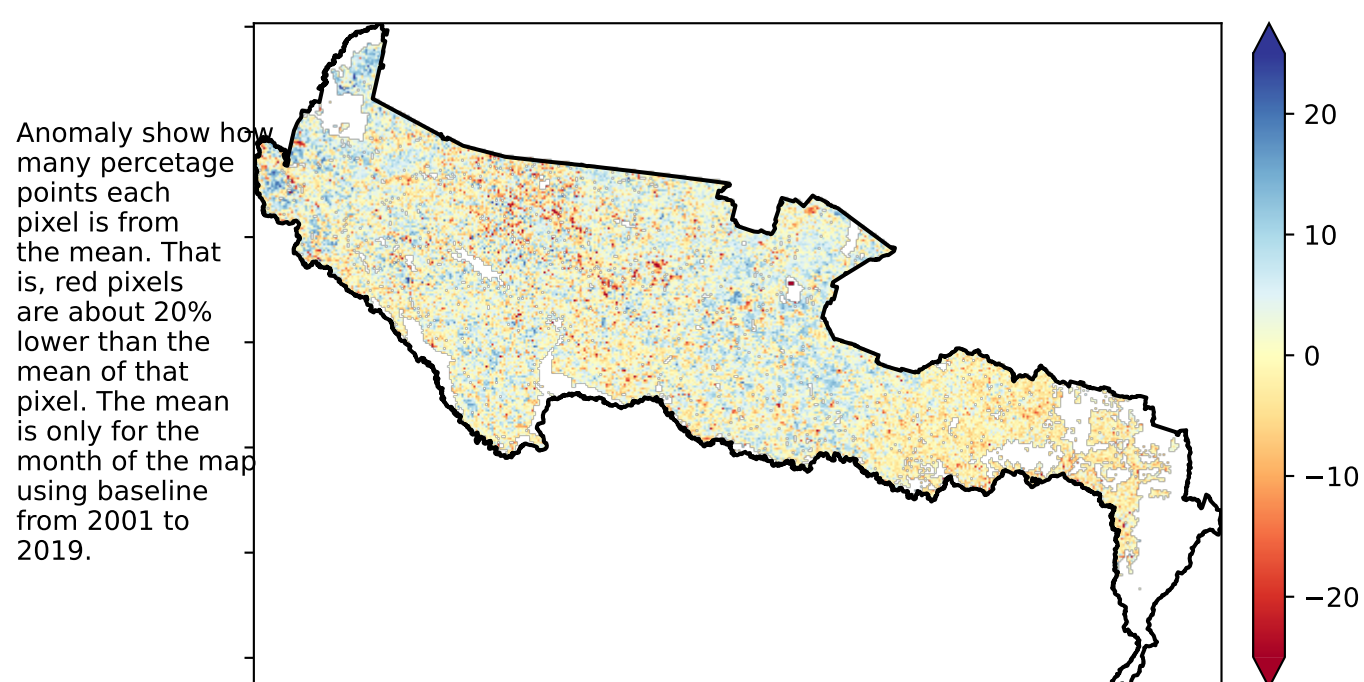
% Area protected from water erosion (>70%)



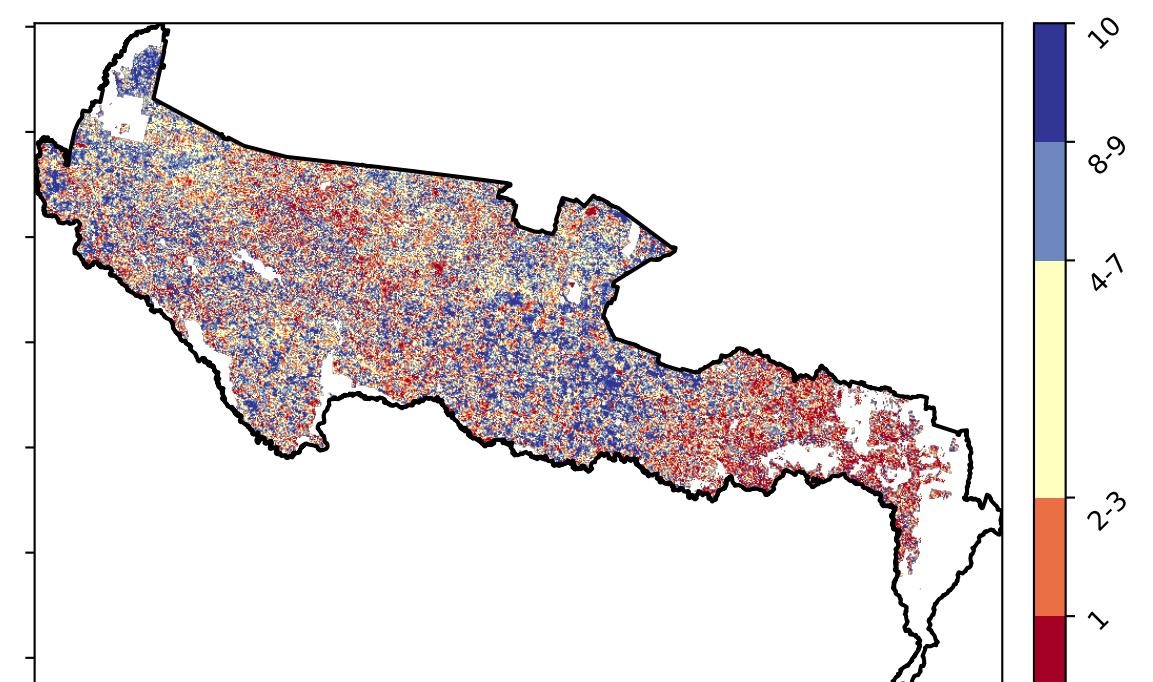
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



Total Vegetation Cover Decile [%]



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Ecosystem Research Infrastructure



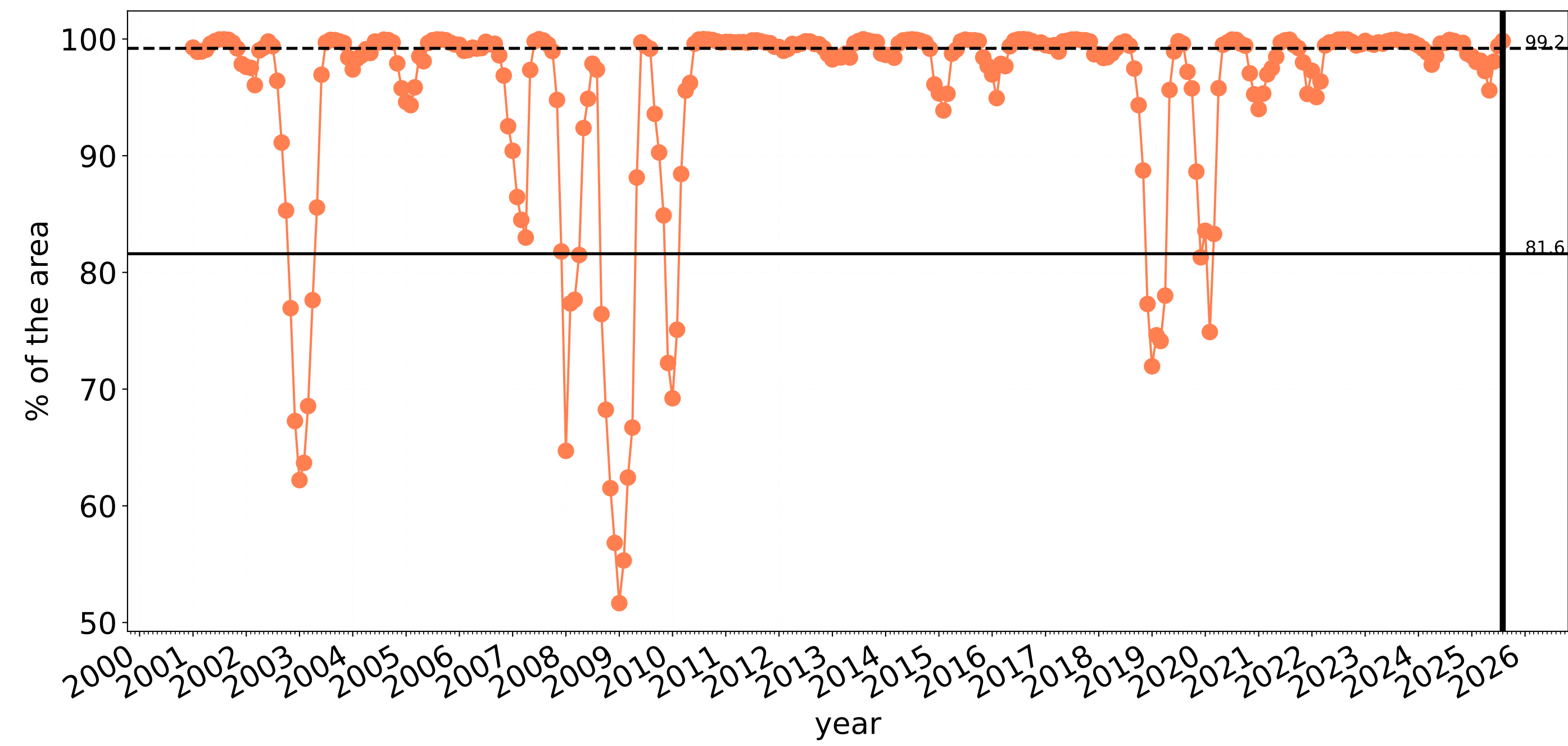
Australian Government

National
Landcare
Programme

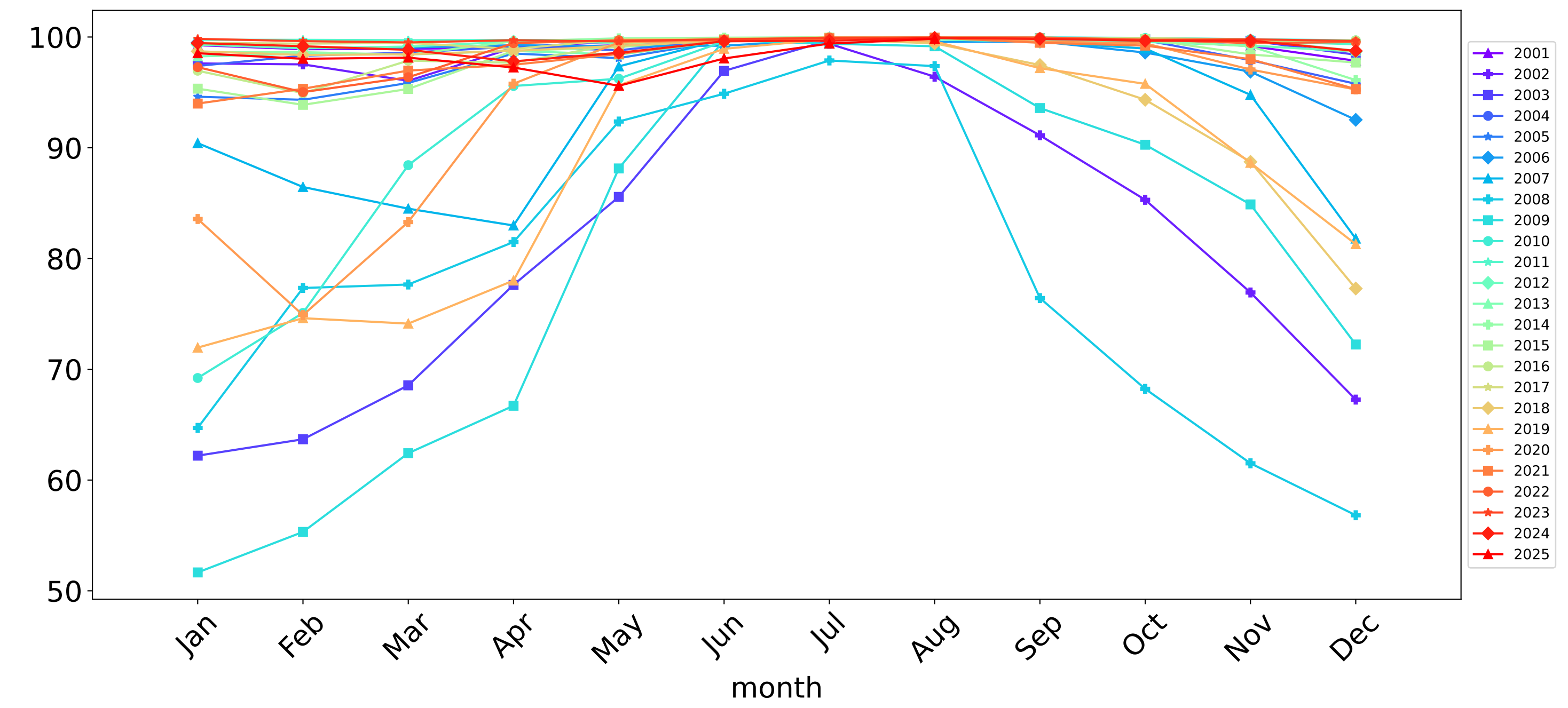


Agriculture timeseries

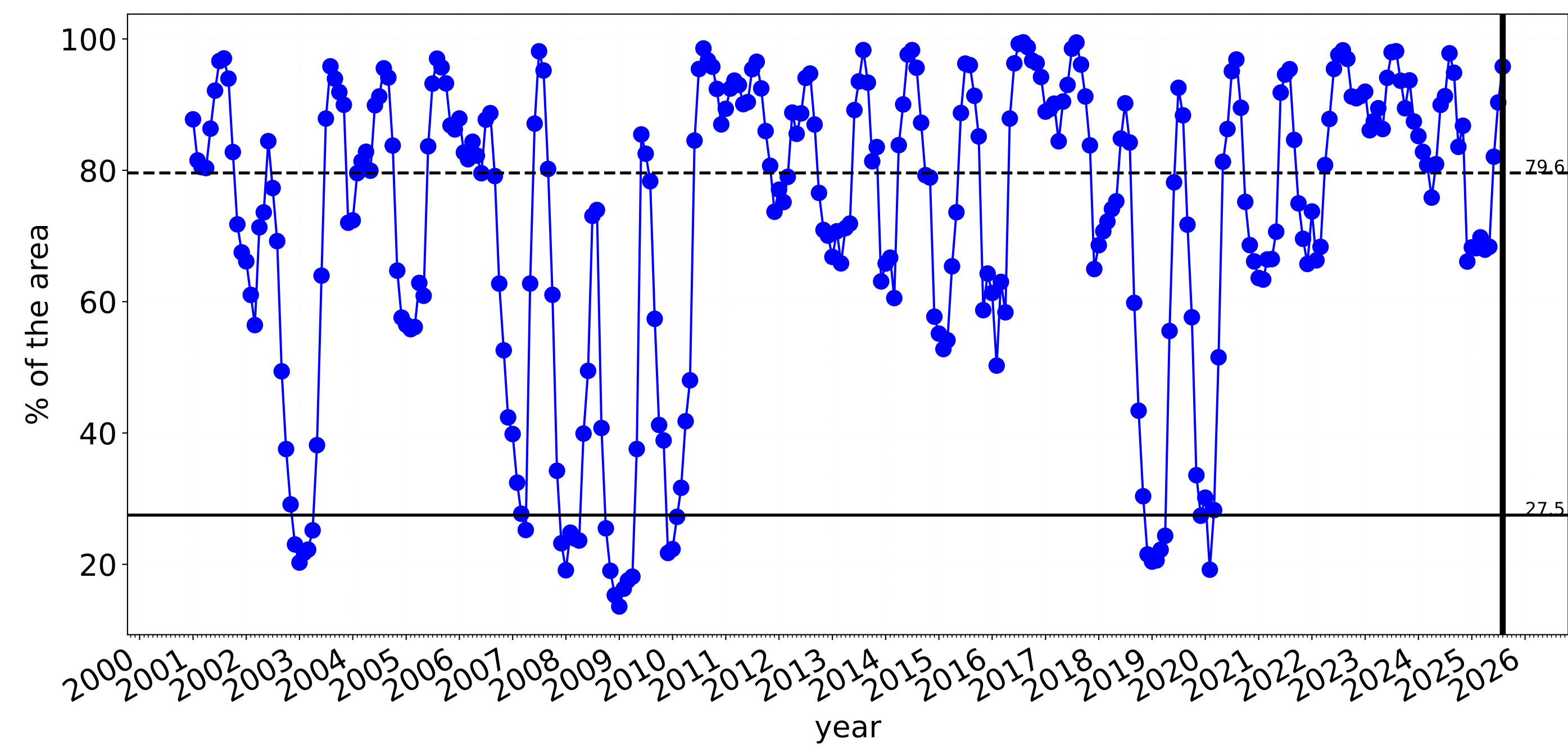
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



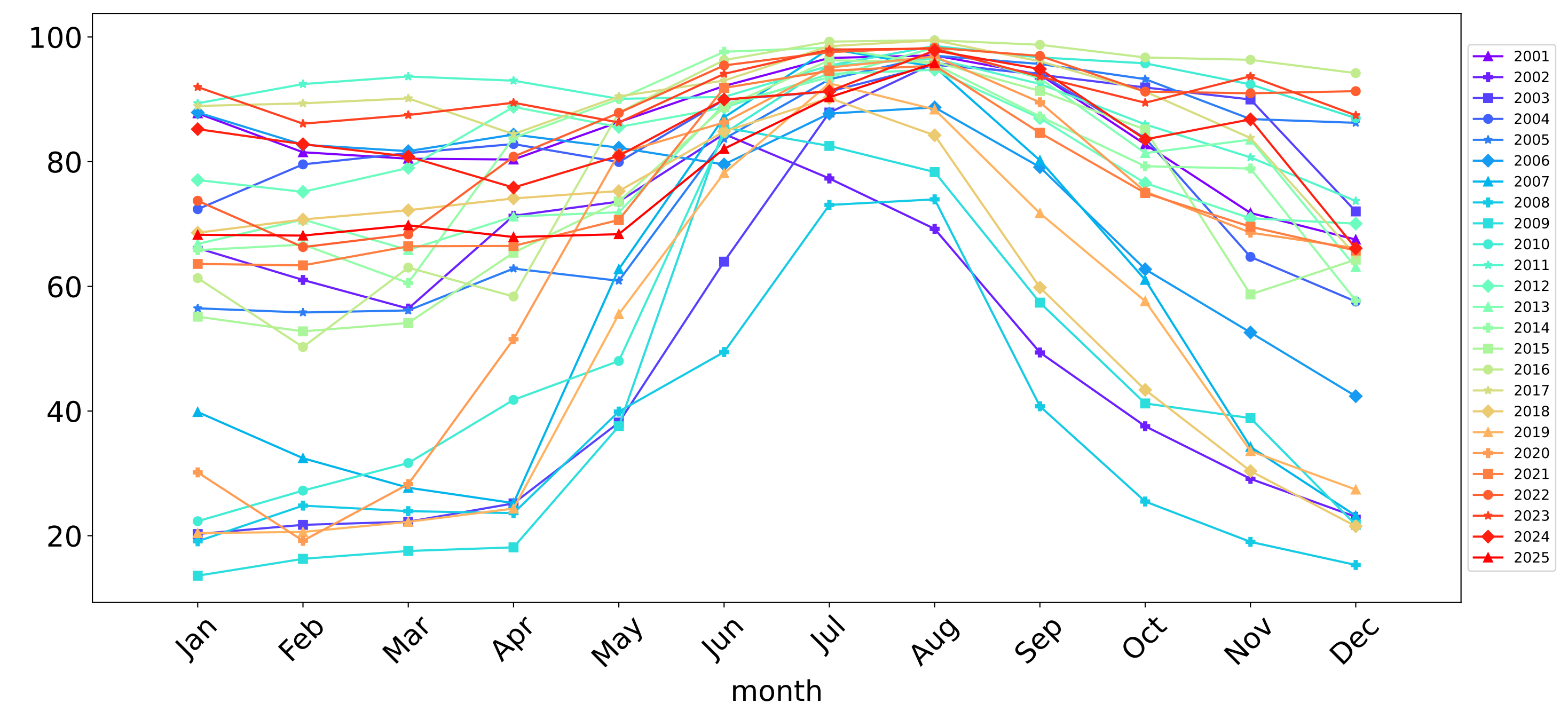
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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

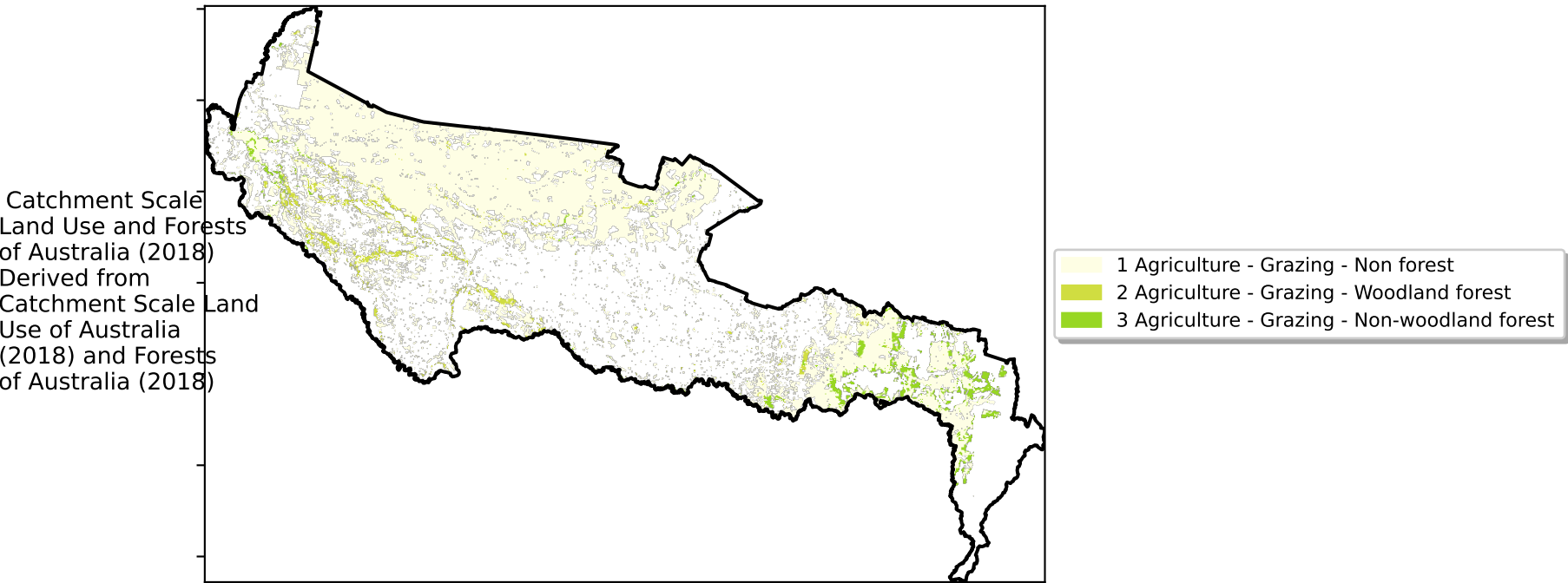


Water erosion historical monthly area protected (Total Veg Cov>70%)

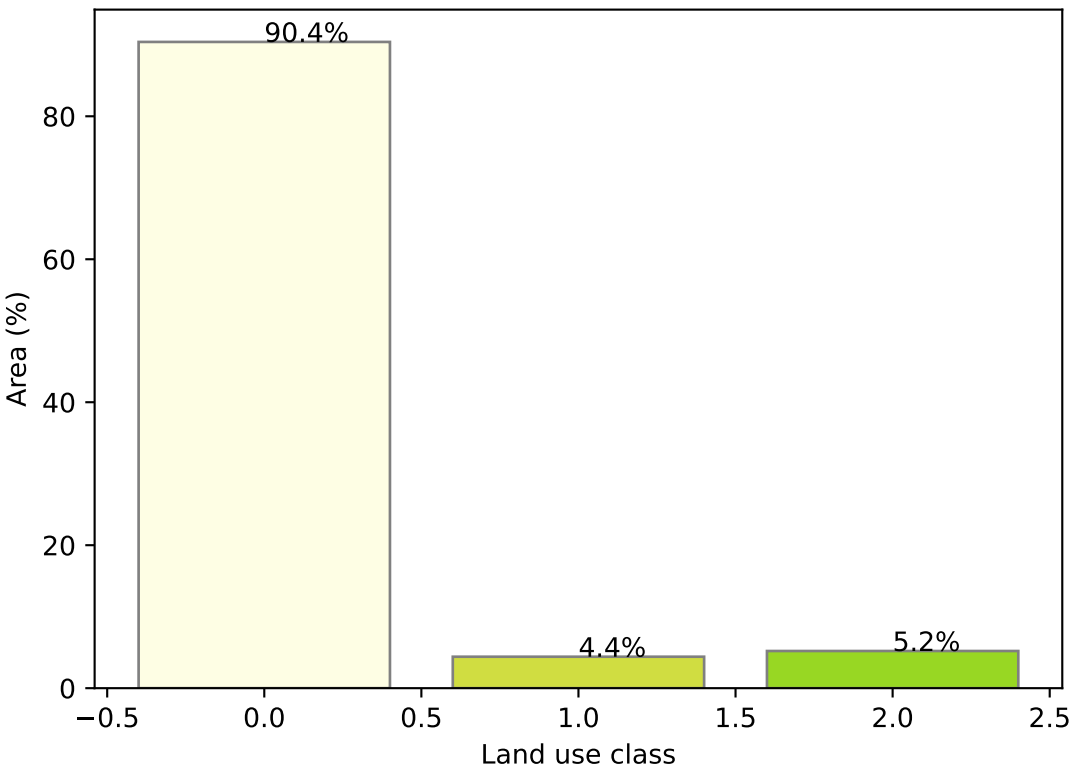


Grazing

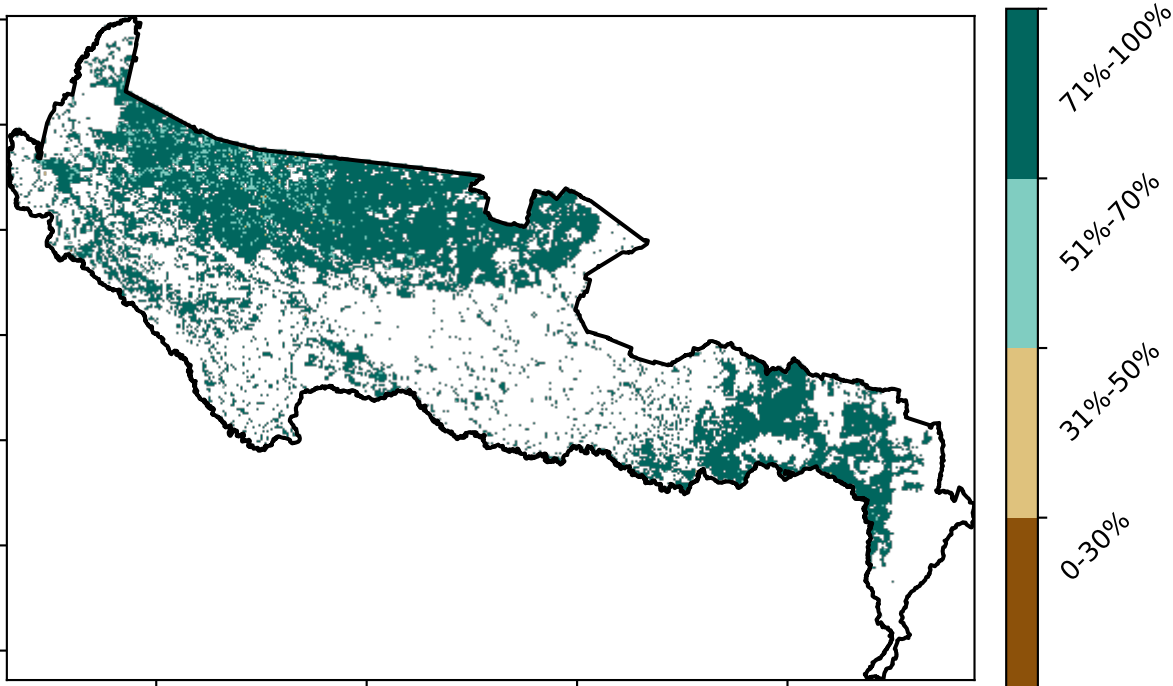
Land use and forest cover



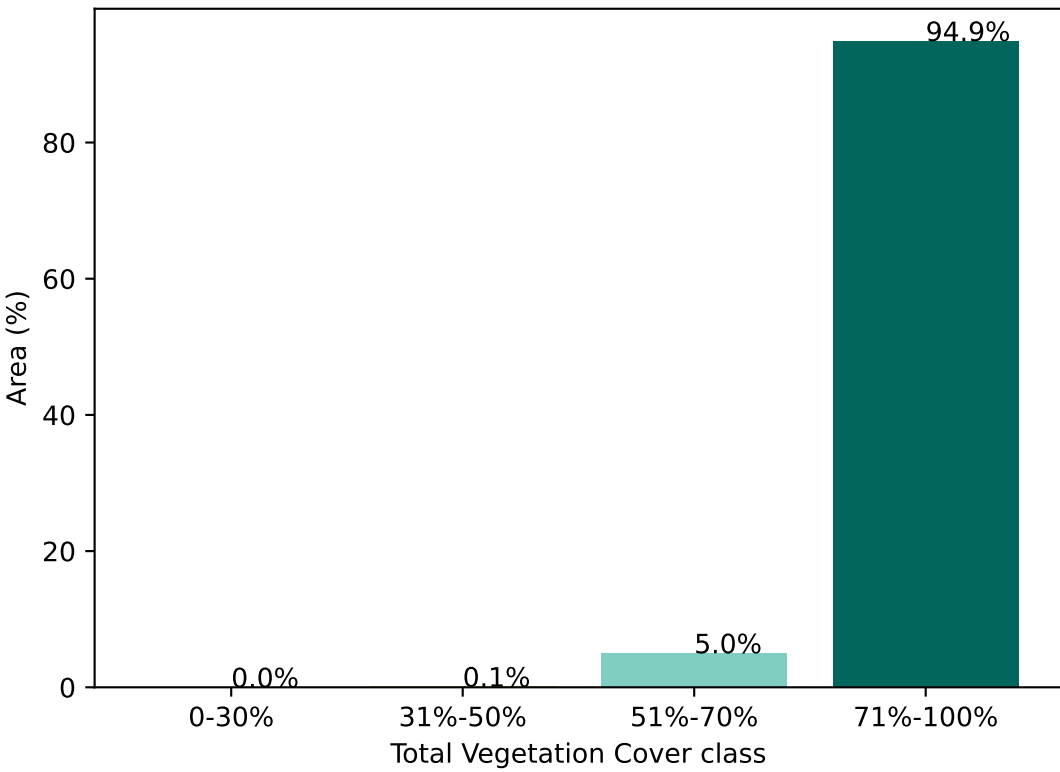
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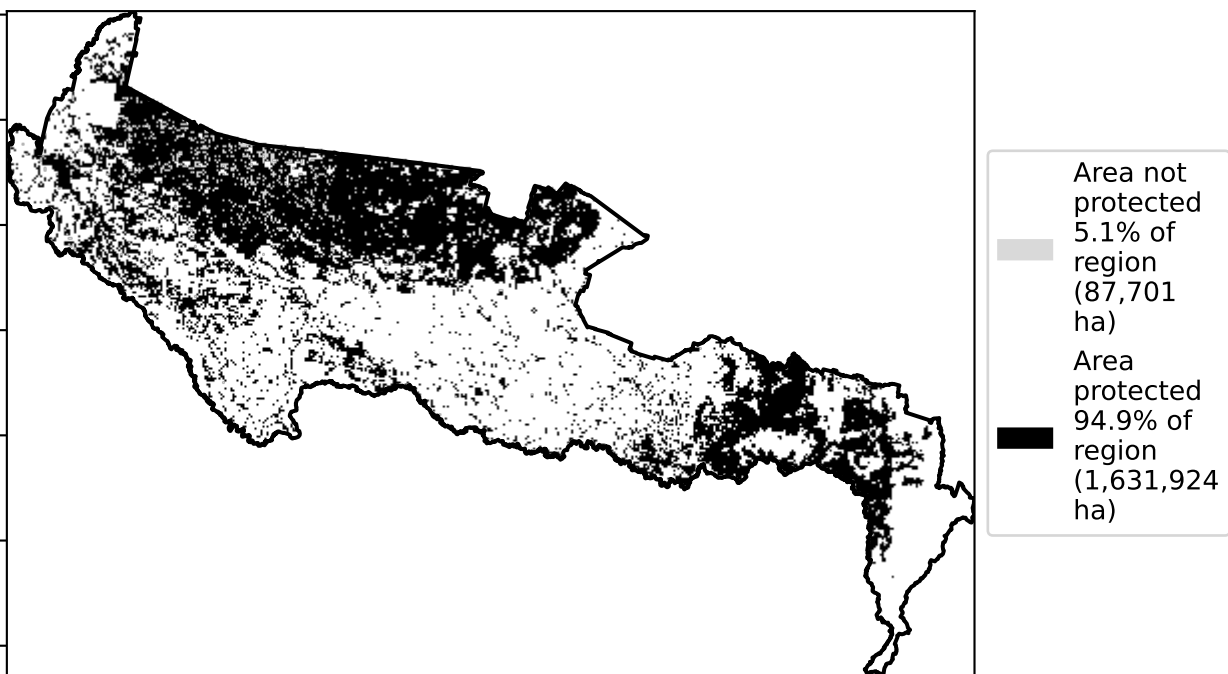
Total Vegetation Cover [%]



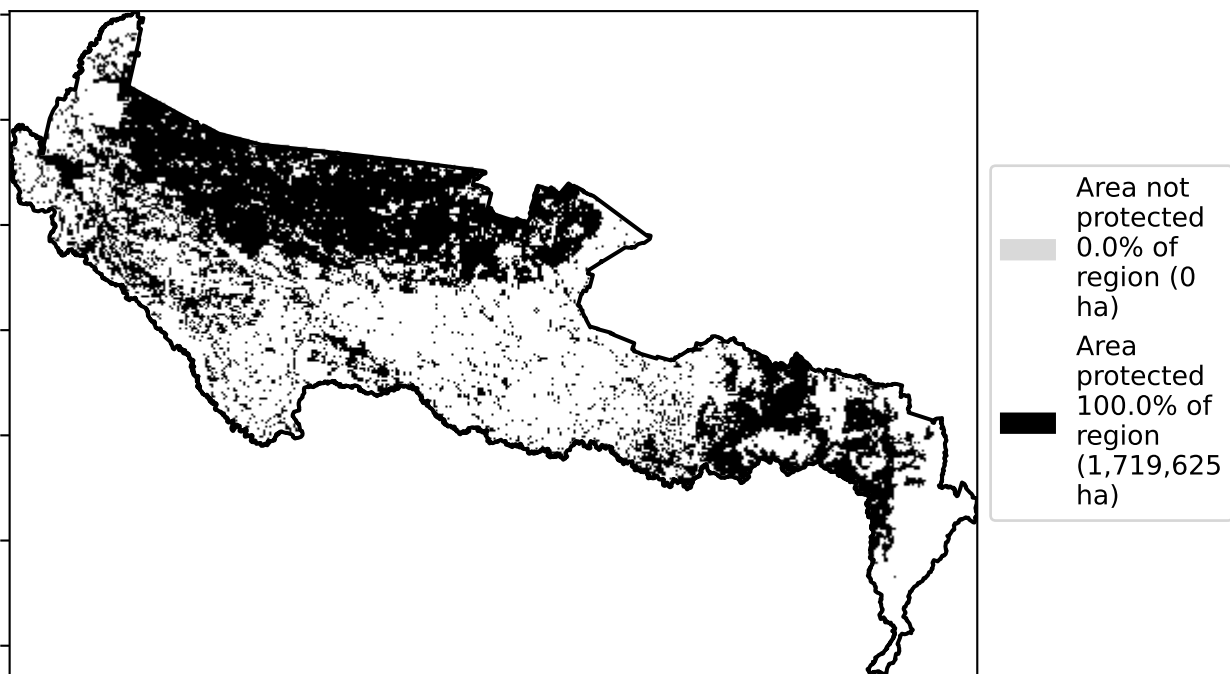
Proportion of vegetation cover class in area



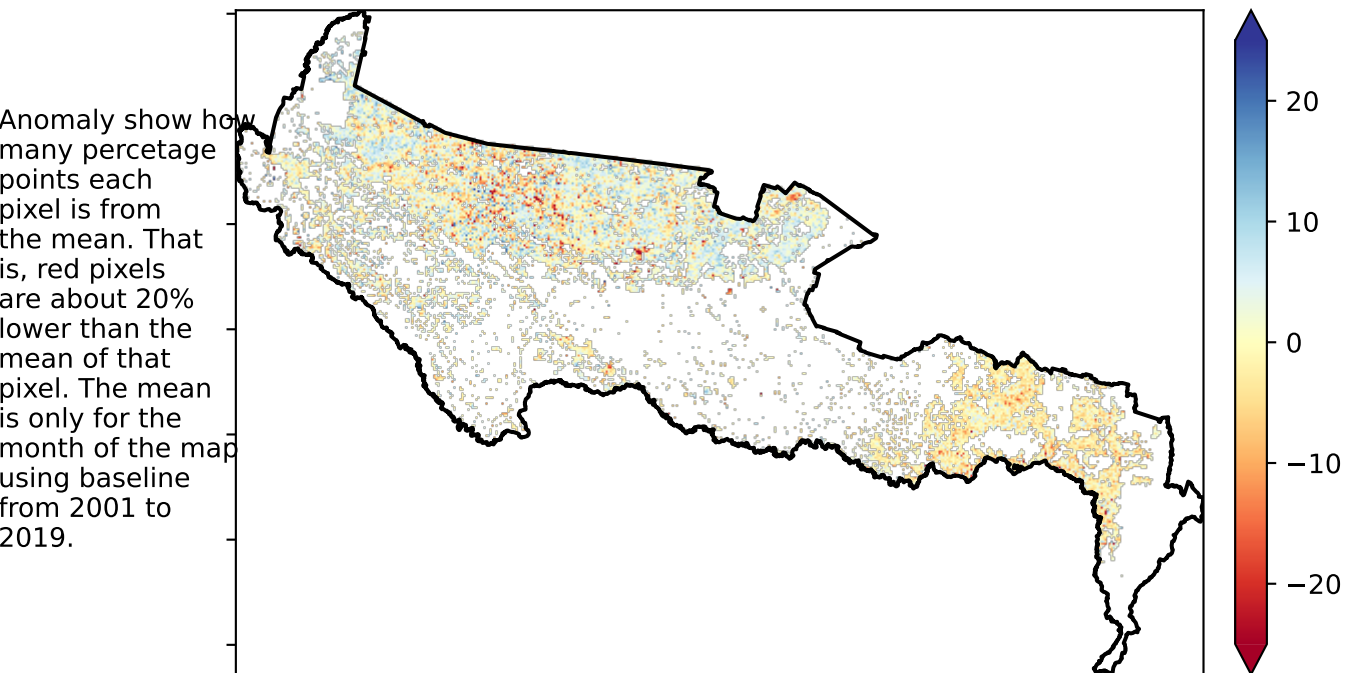
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

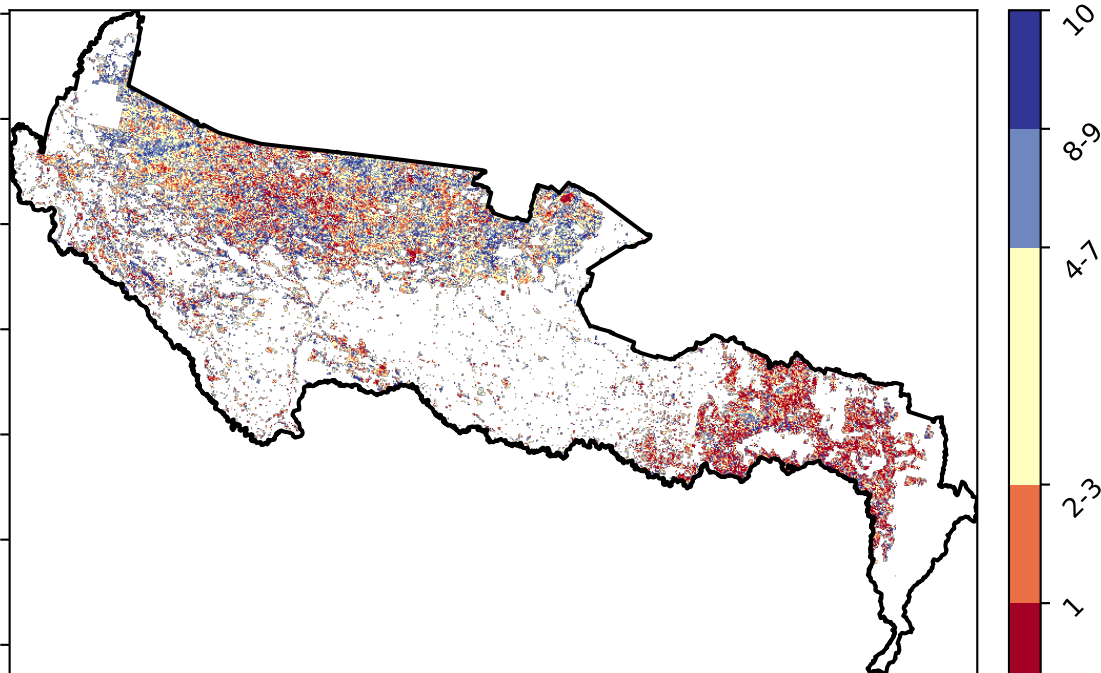


Total Vegetation Cover Anomaly [%]



Total Vegetation Cover Decile [%]

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



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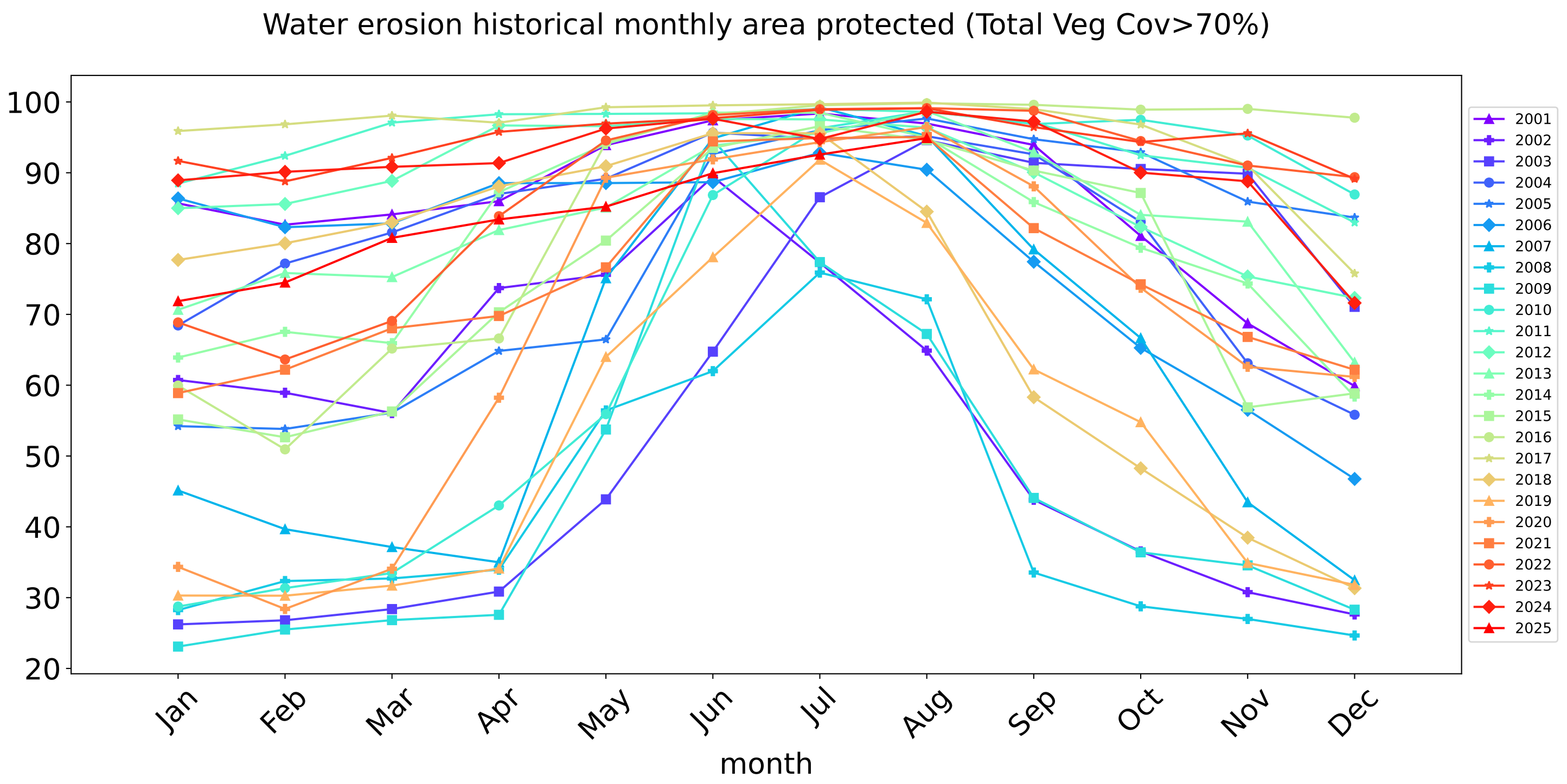
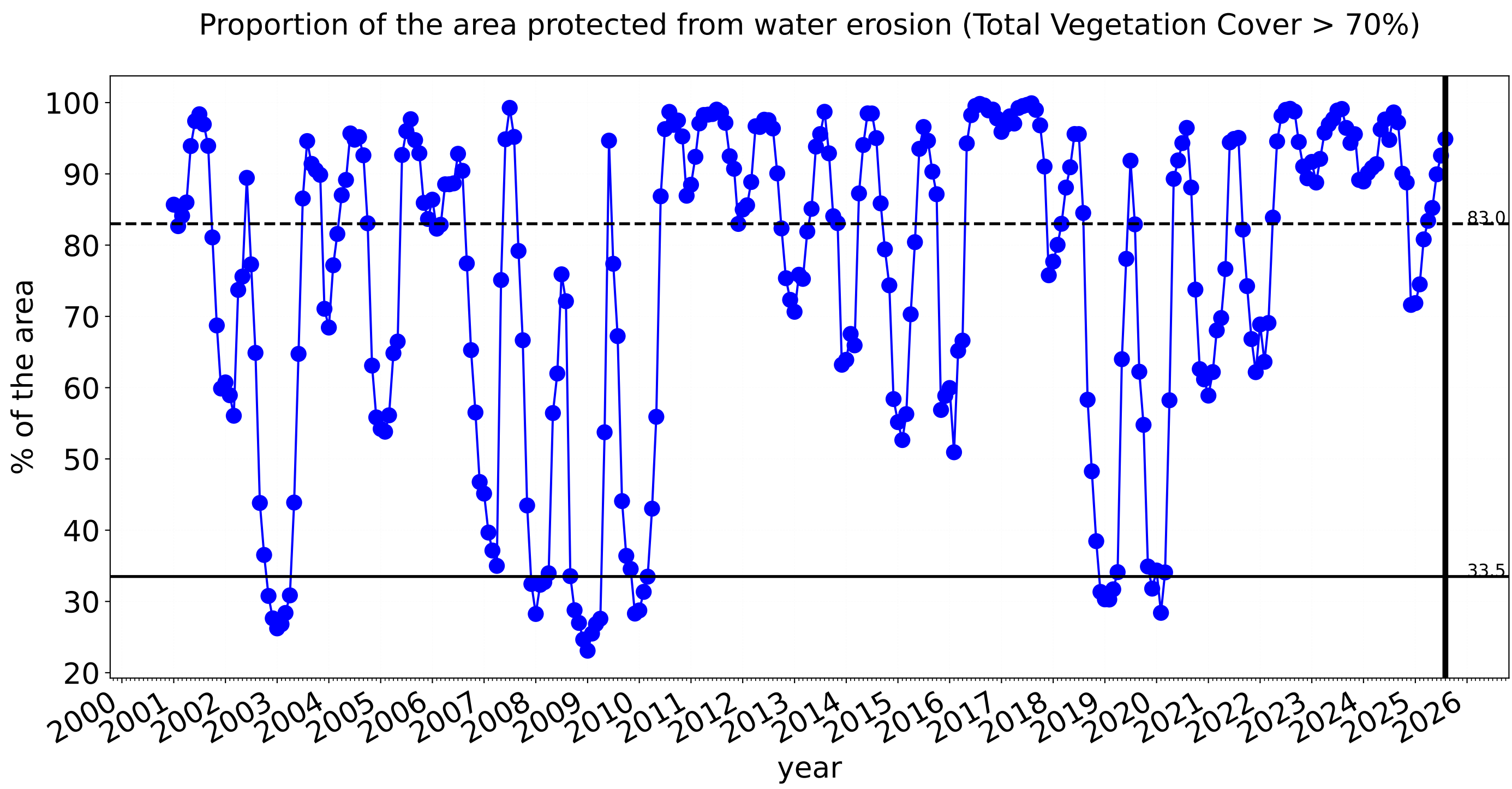
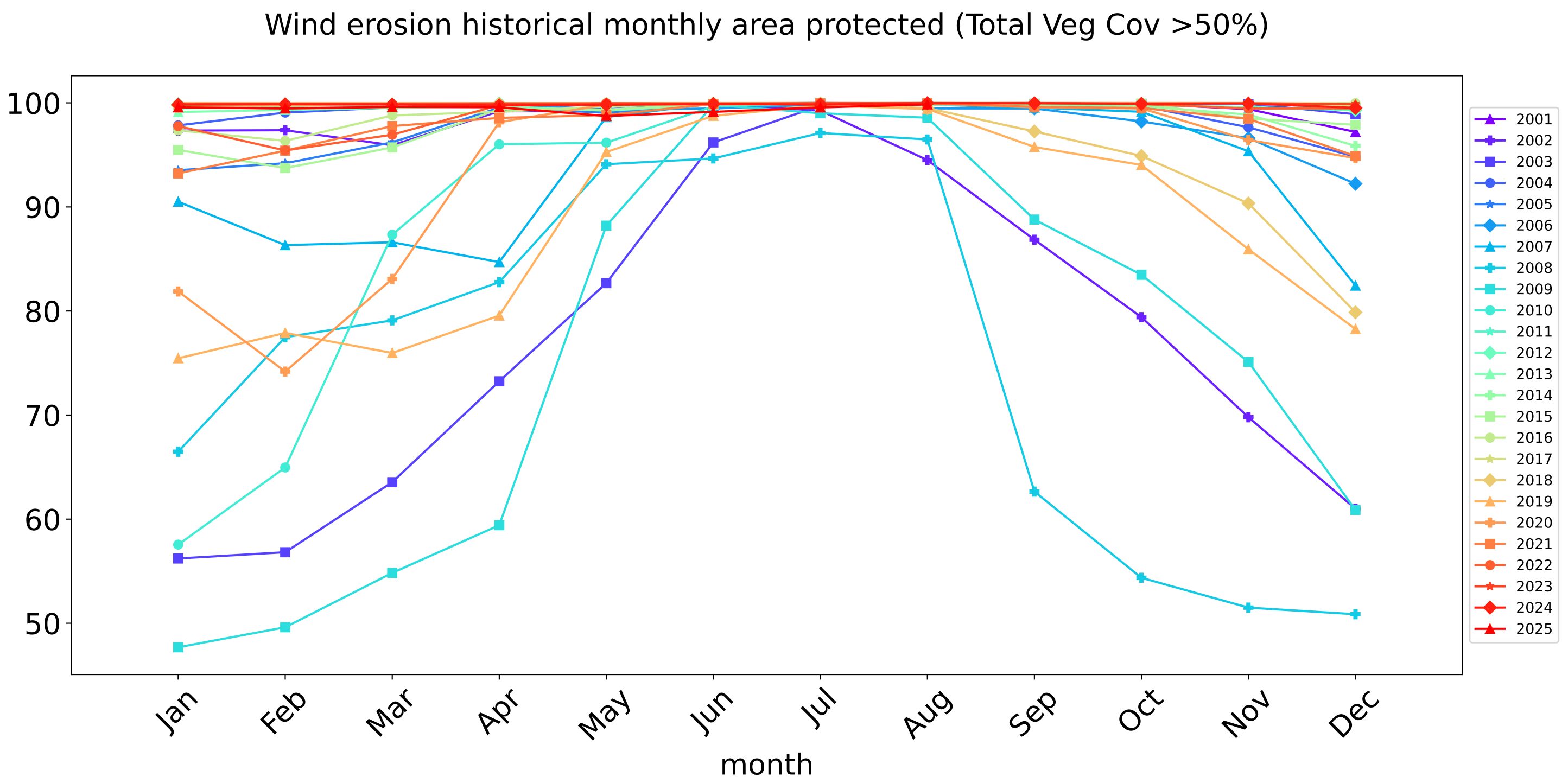
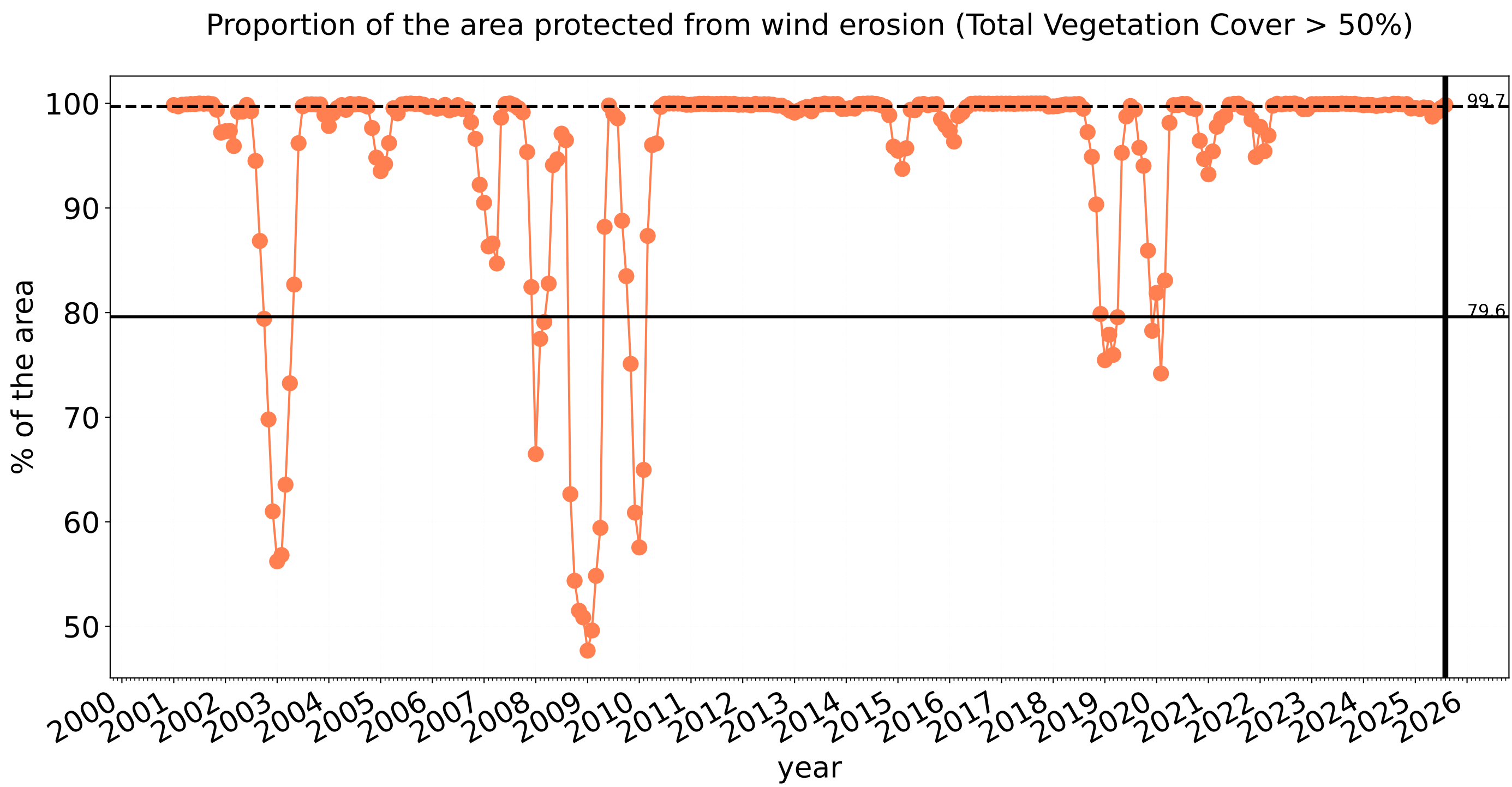


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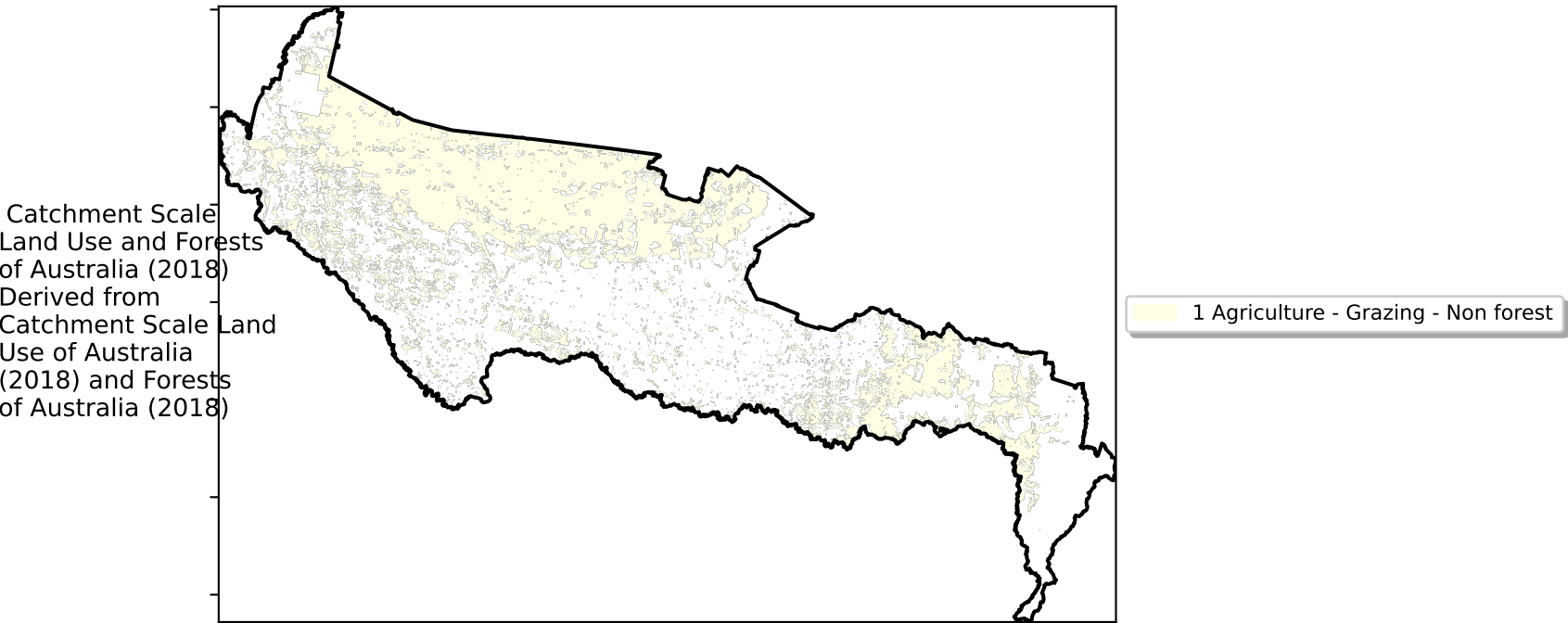


Grazing timeseries

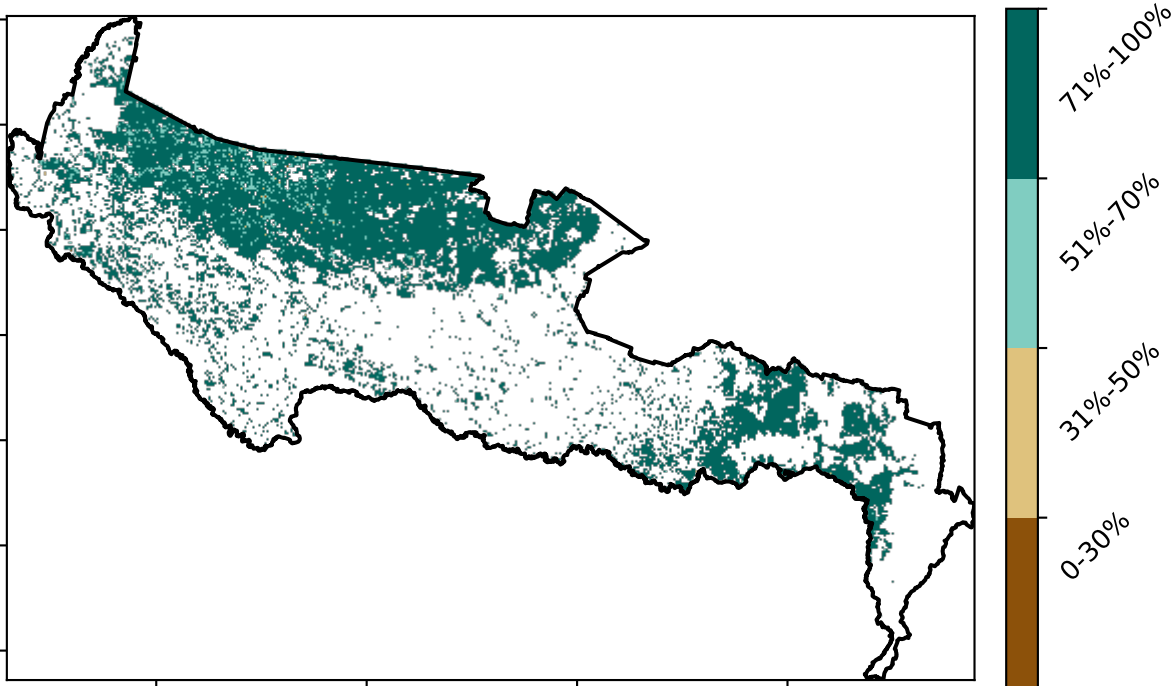


Grazing non forest

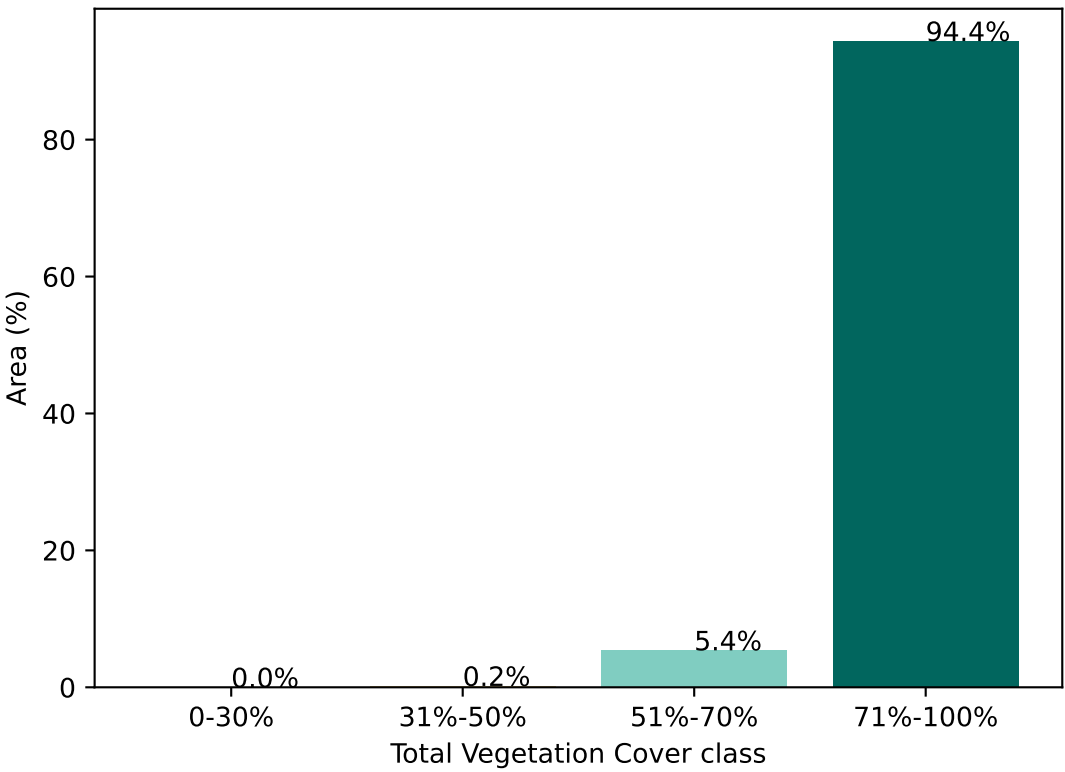
Land use and forest cover



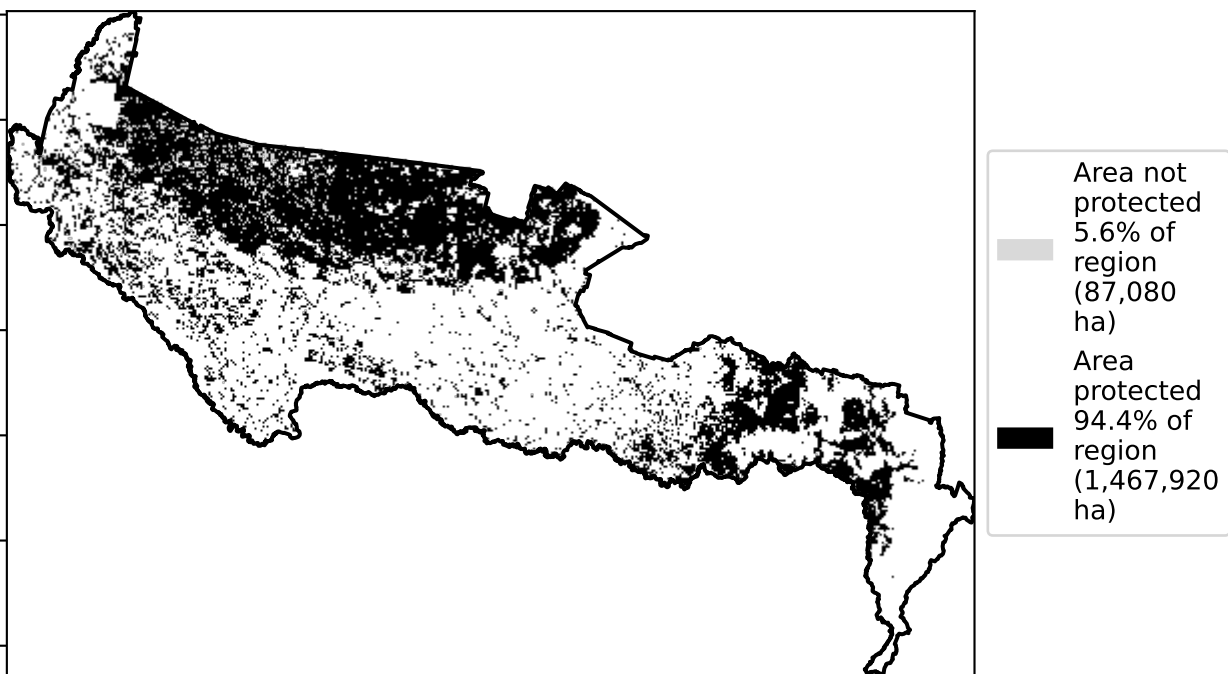
Total Vegetation Cover [%]



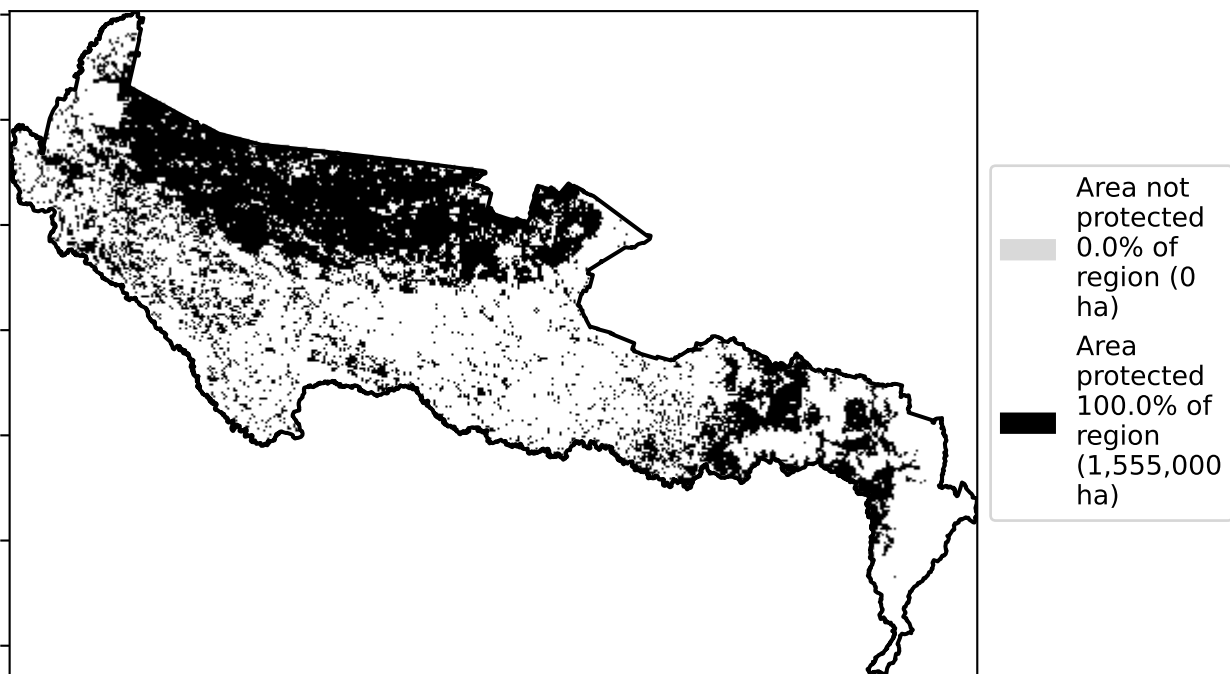
Proportion of vegetation cover class in area



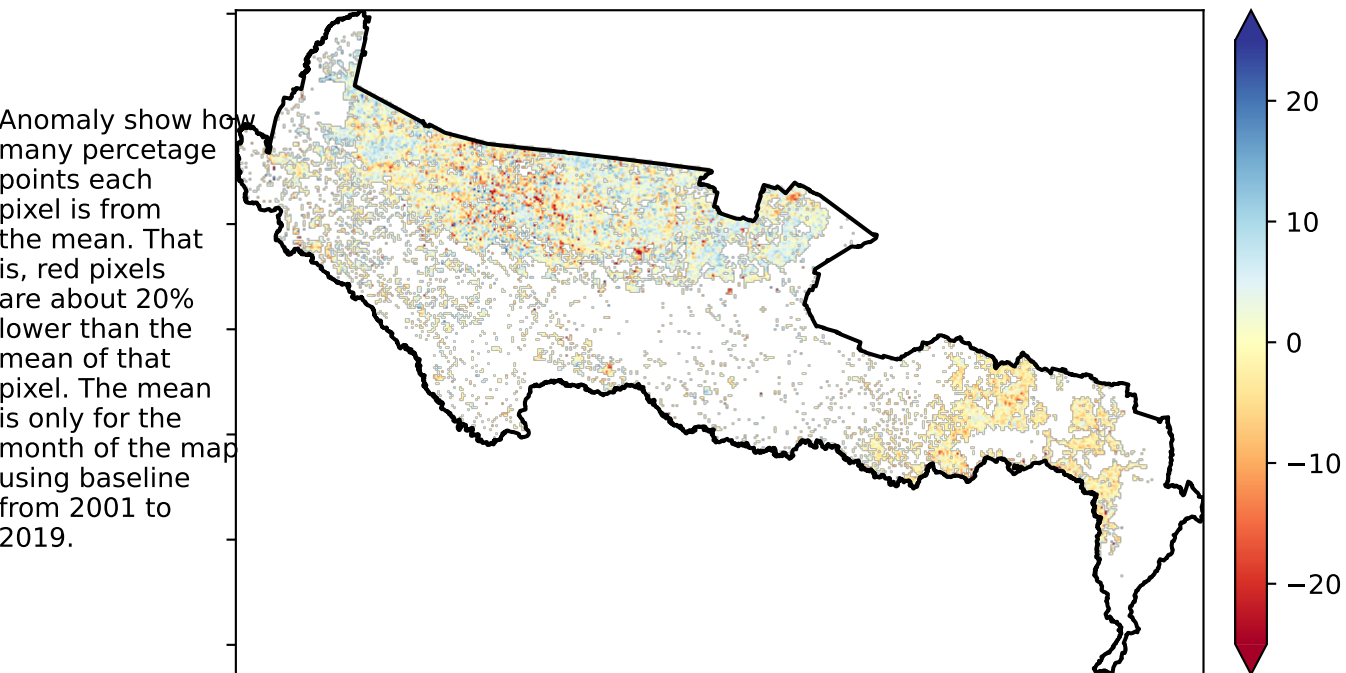
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

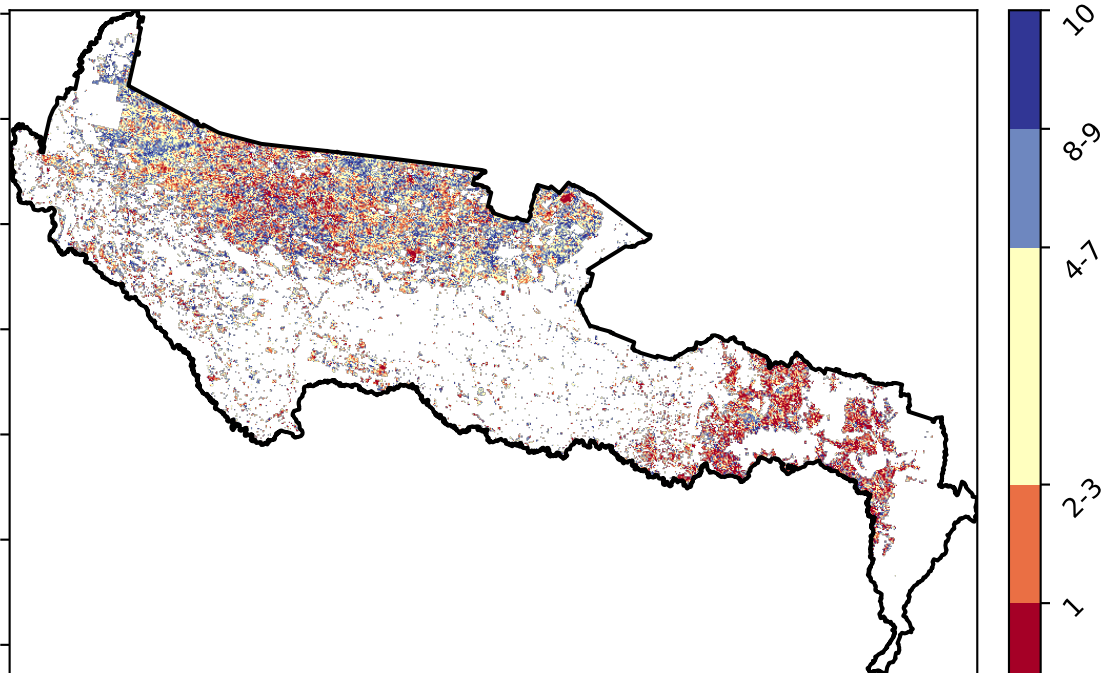


Total Vegetation Cover Anomaly [%]



Total Vegetation Cover Decile [%]

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



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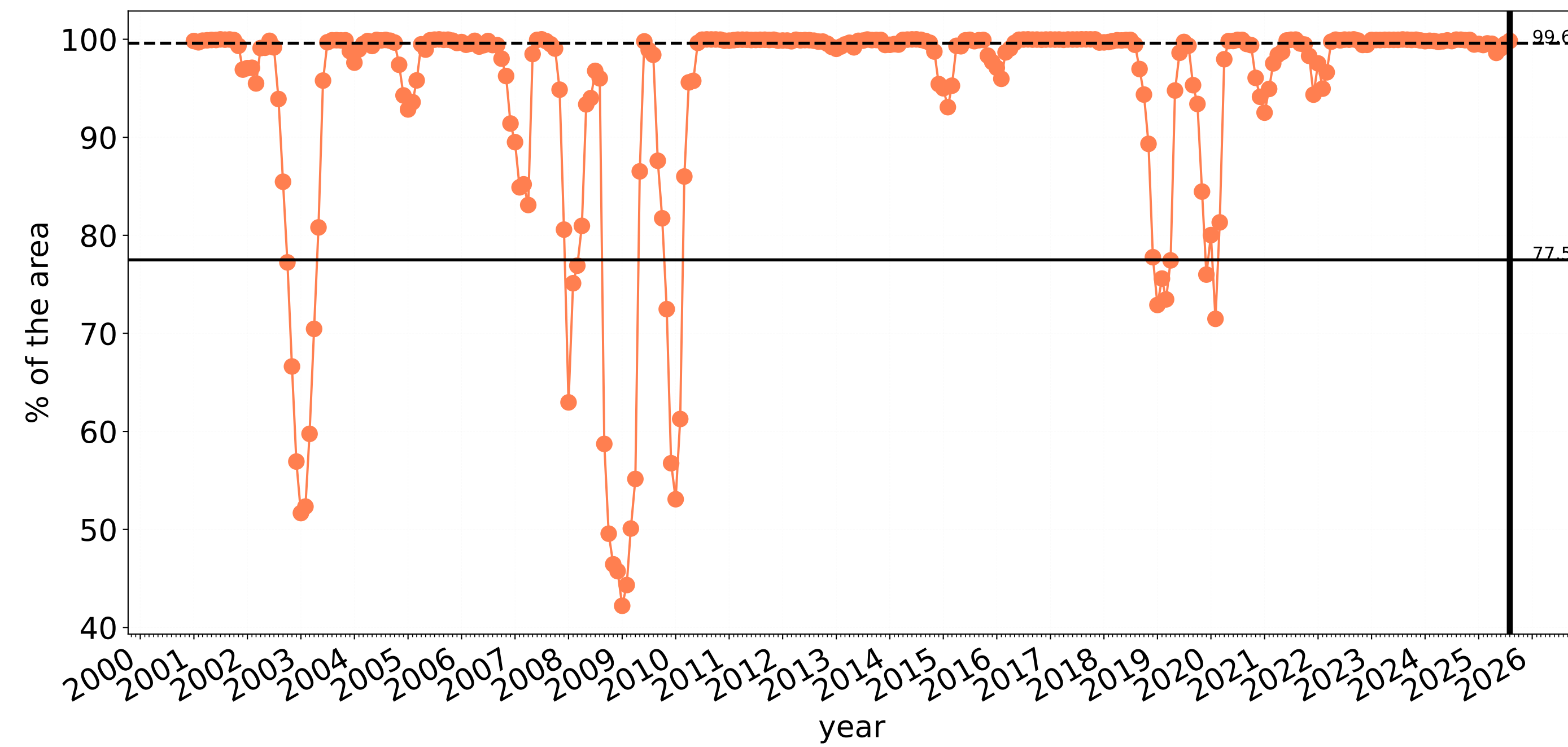
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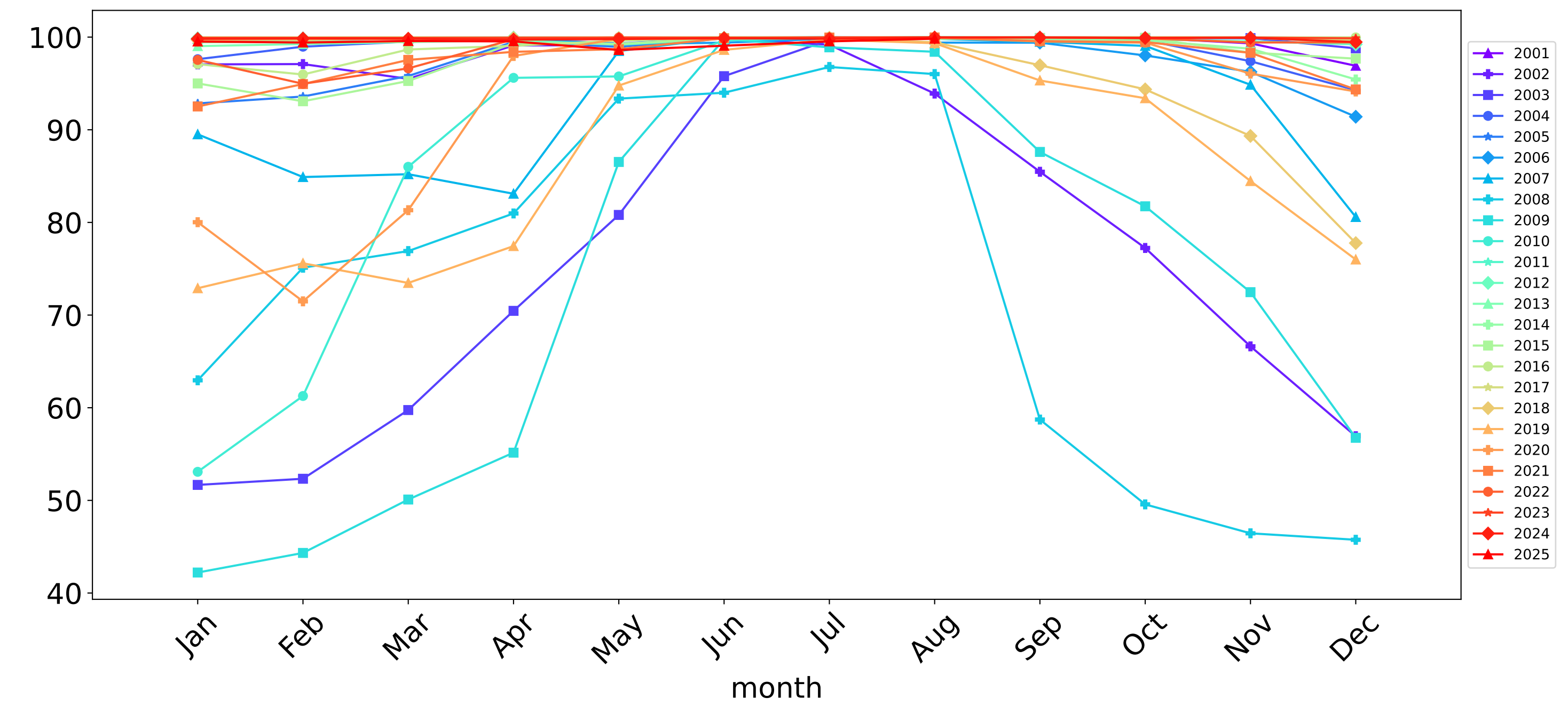


Grazing non forest timeseries

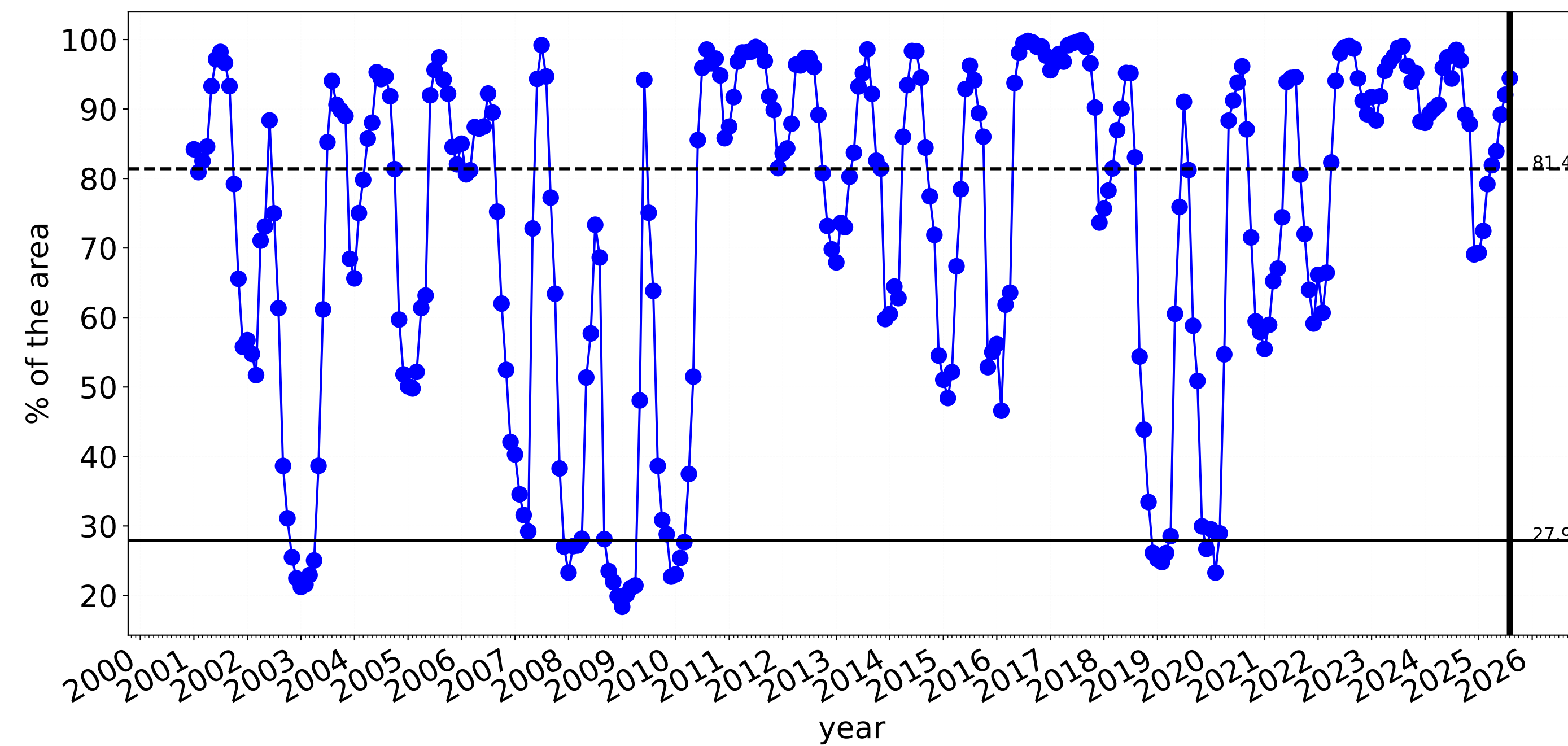
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



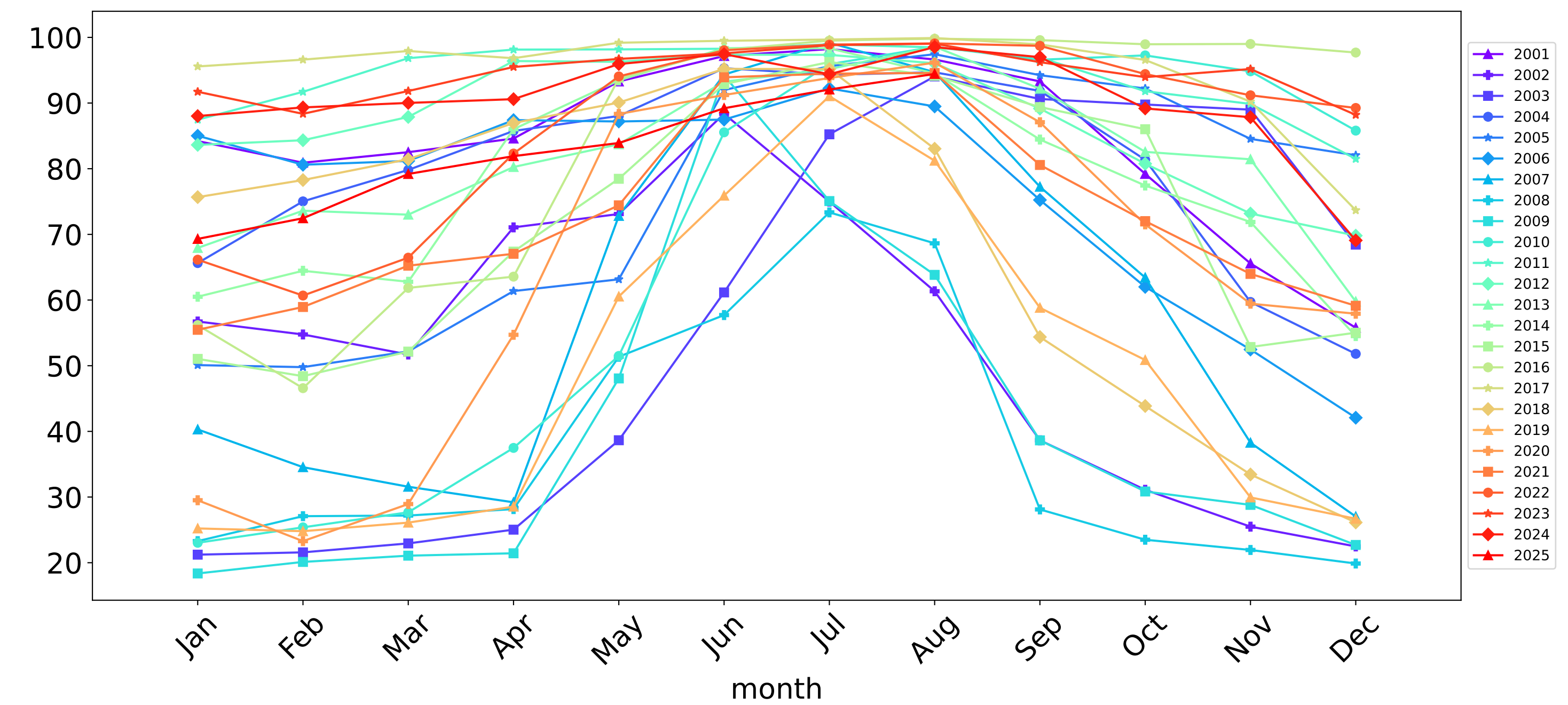
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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

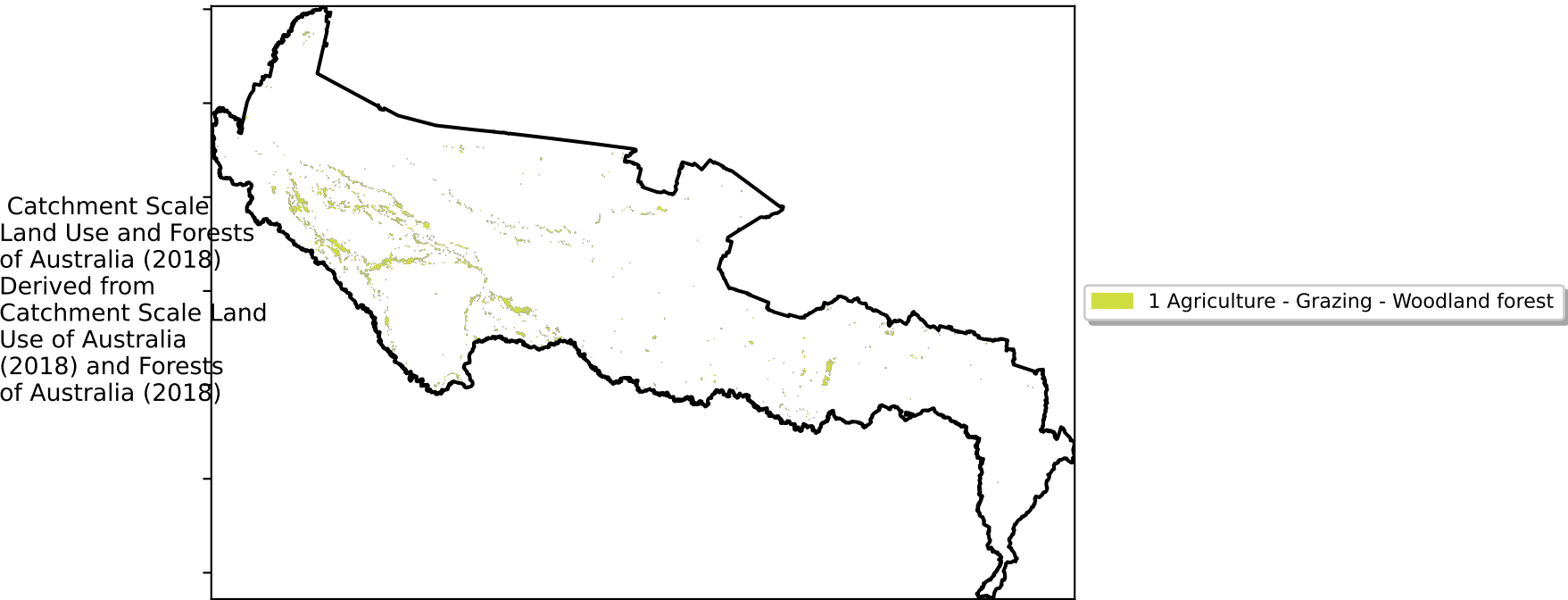


Water erosion historical monthly area protected (Total Veg Cov>70%)

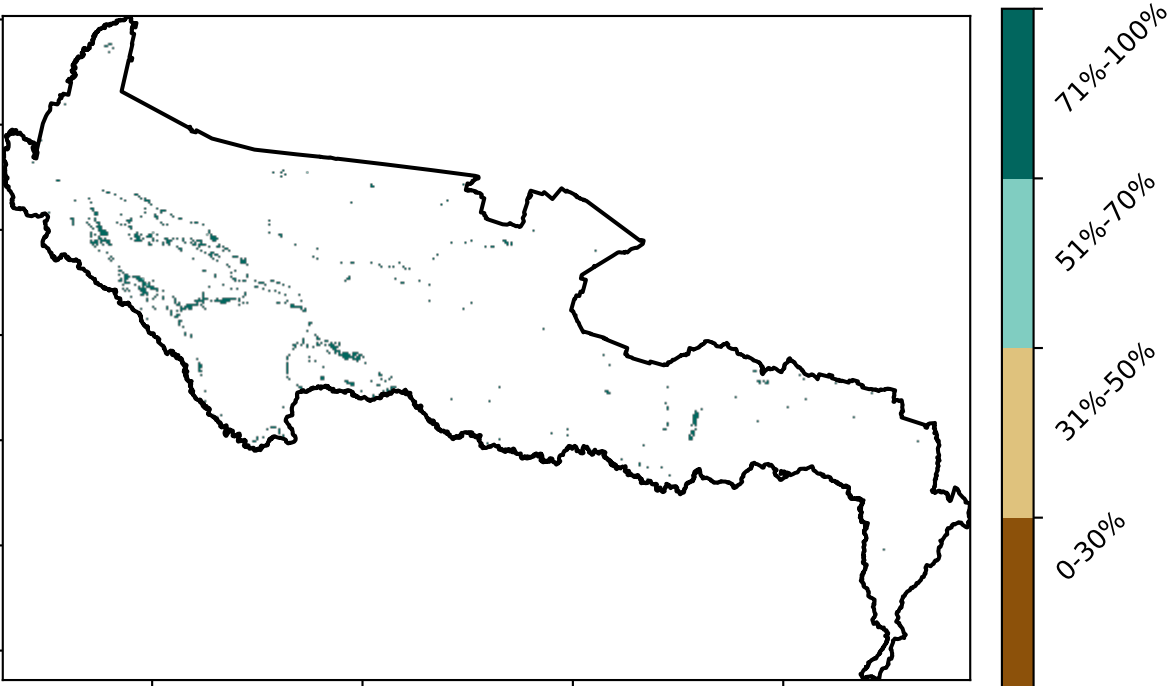


Grazing Woodland forest

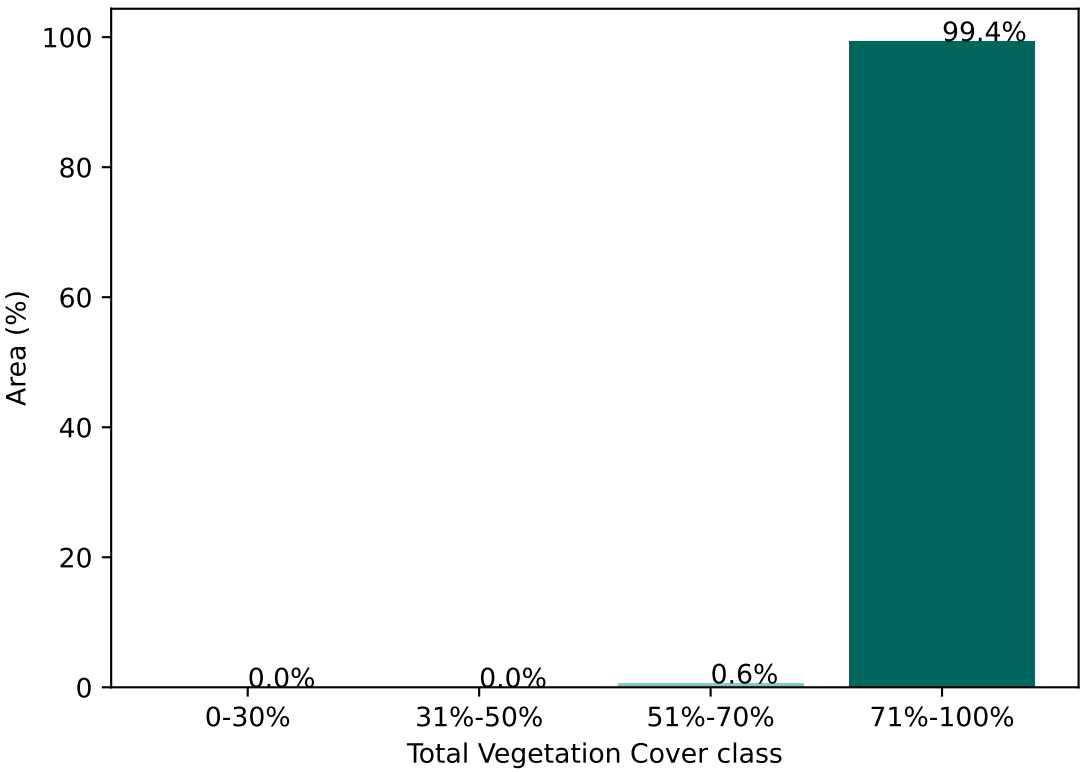
Land use and forest cover



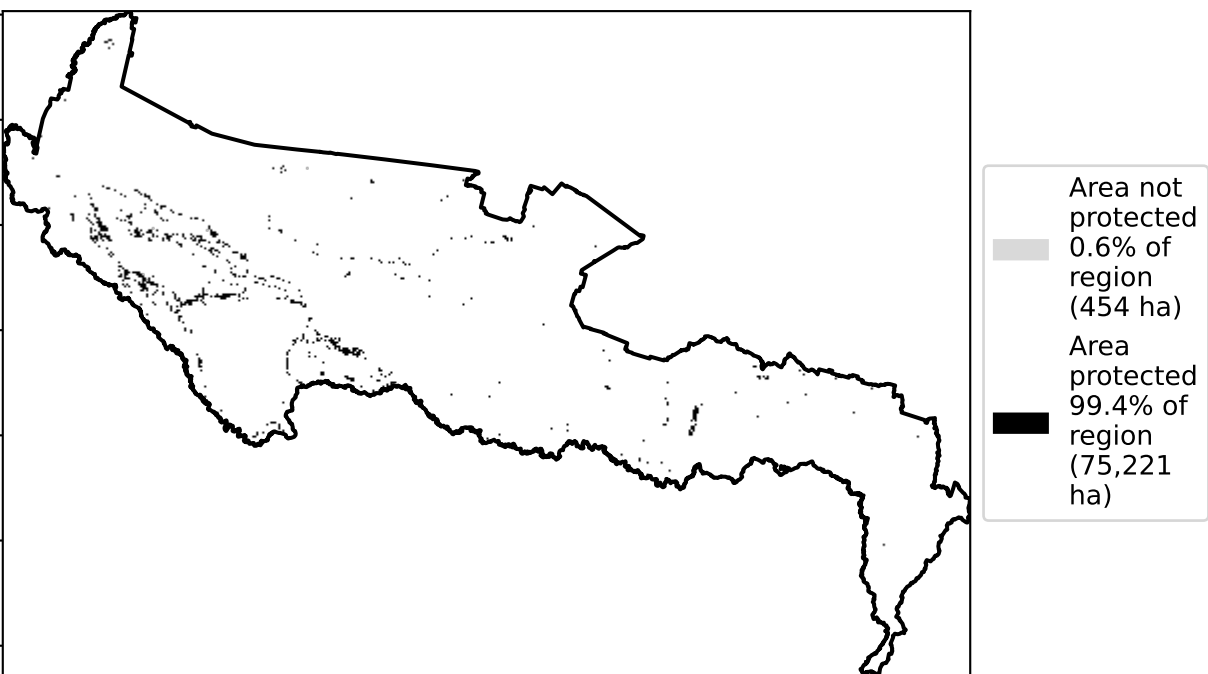
Total Vegetation Cover [%]



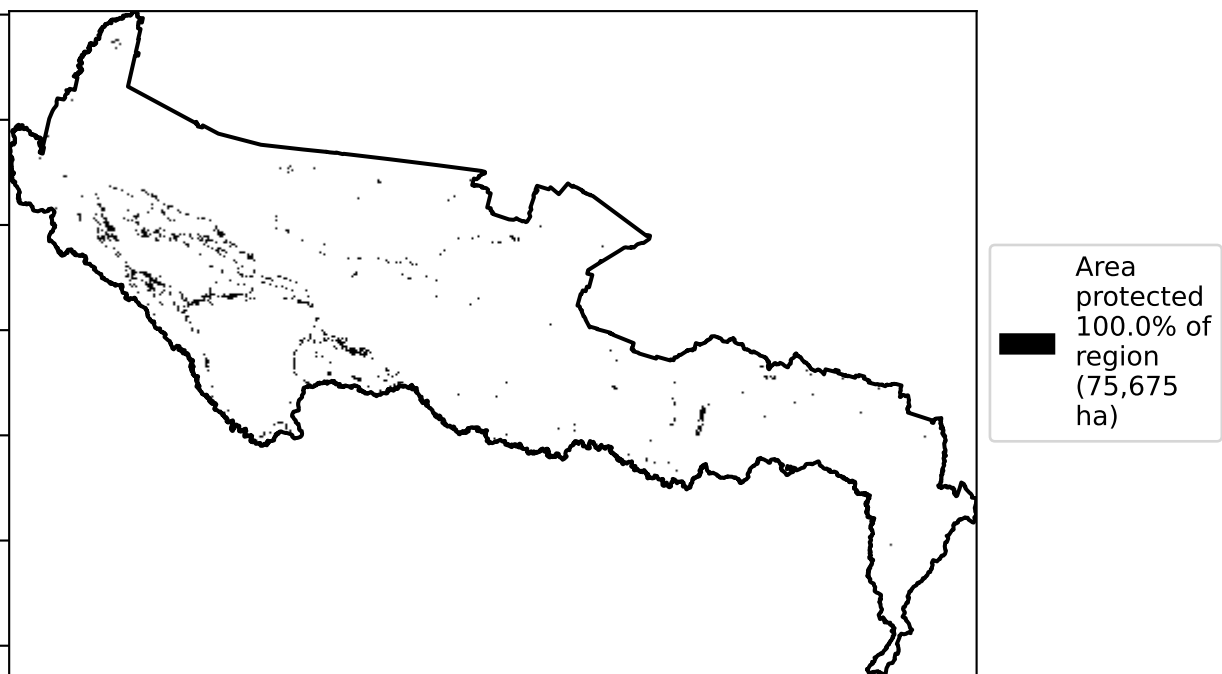
Proportion of vegetation cover class in area



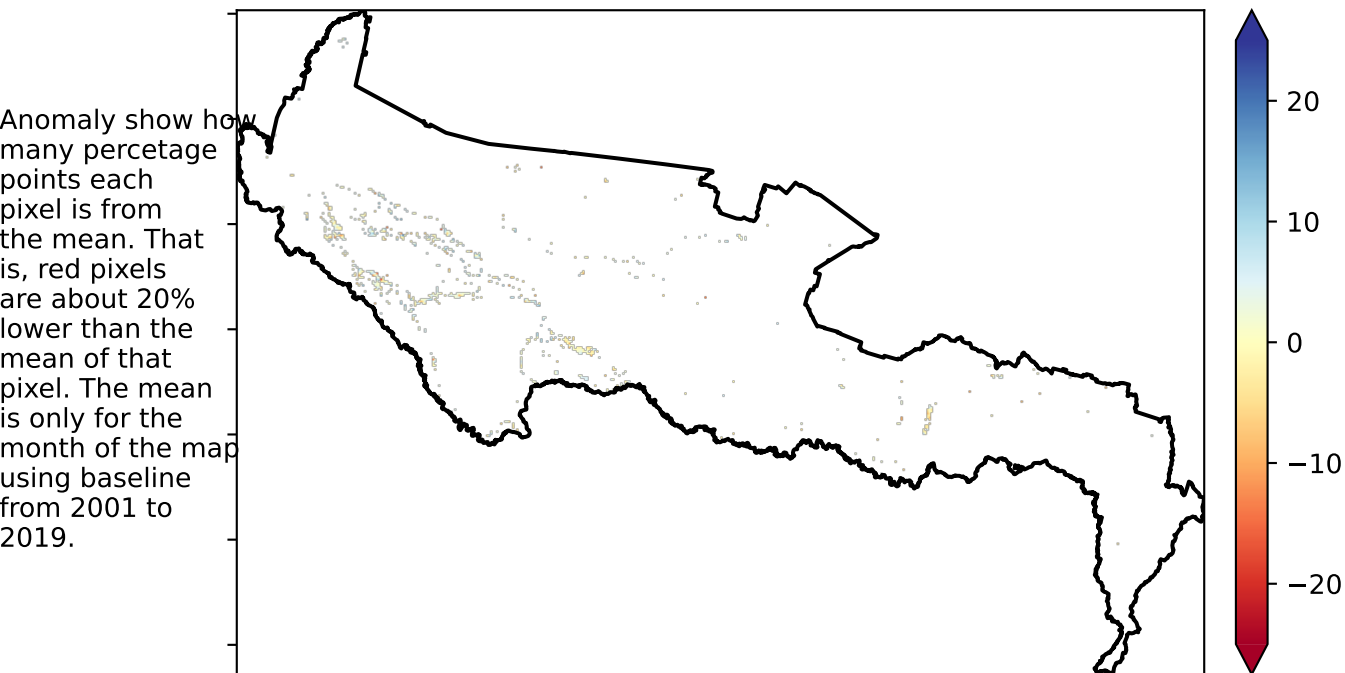
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

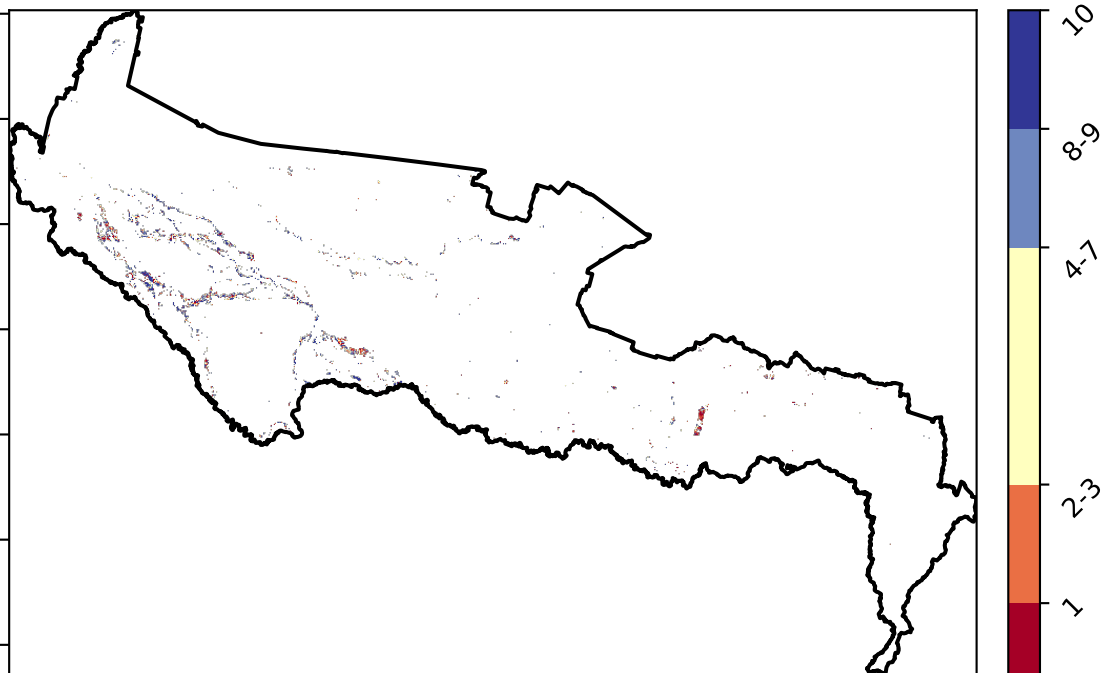


Total Vegetation Cover Anomaly [%]



Total Vegetation Cover Decile [%]

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



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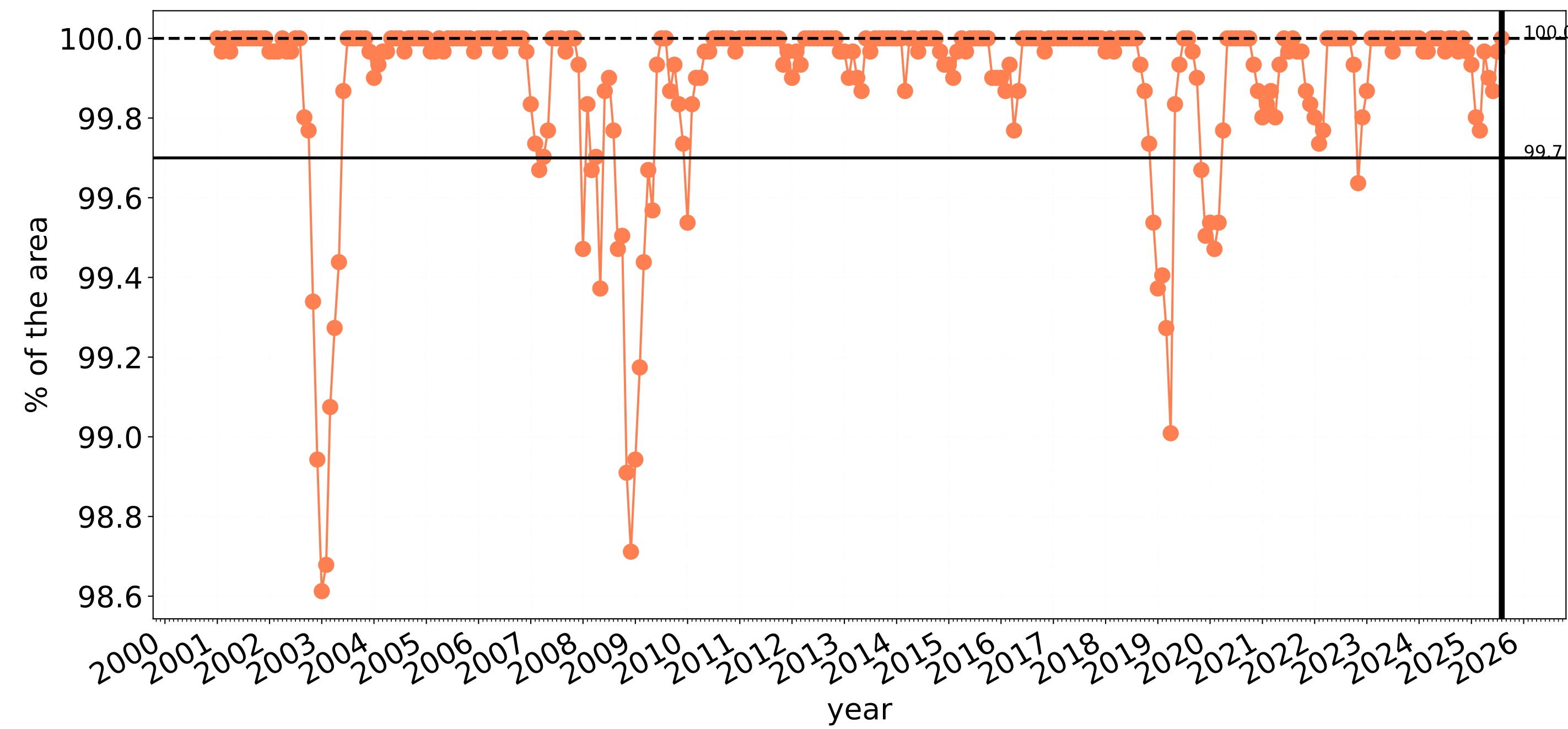
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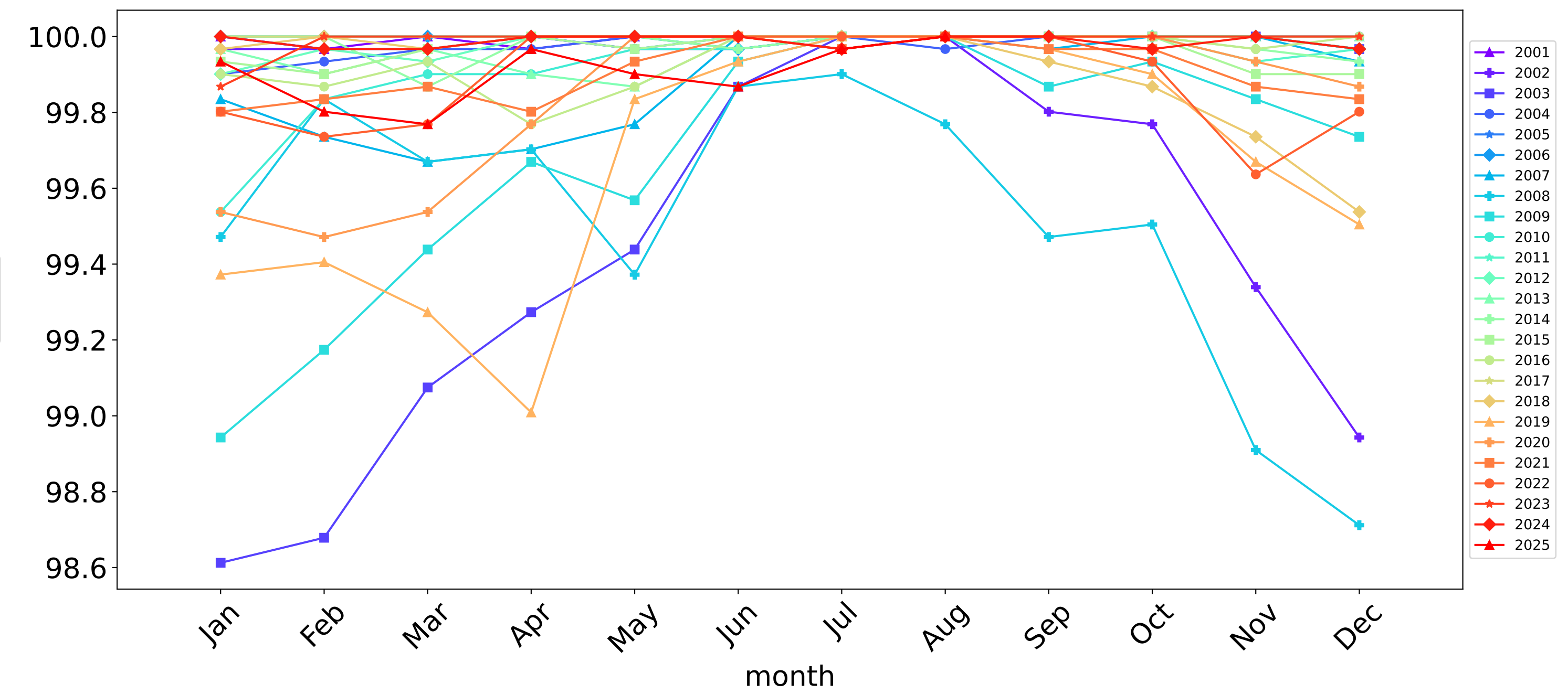


Grazing Woodland forest timeseries

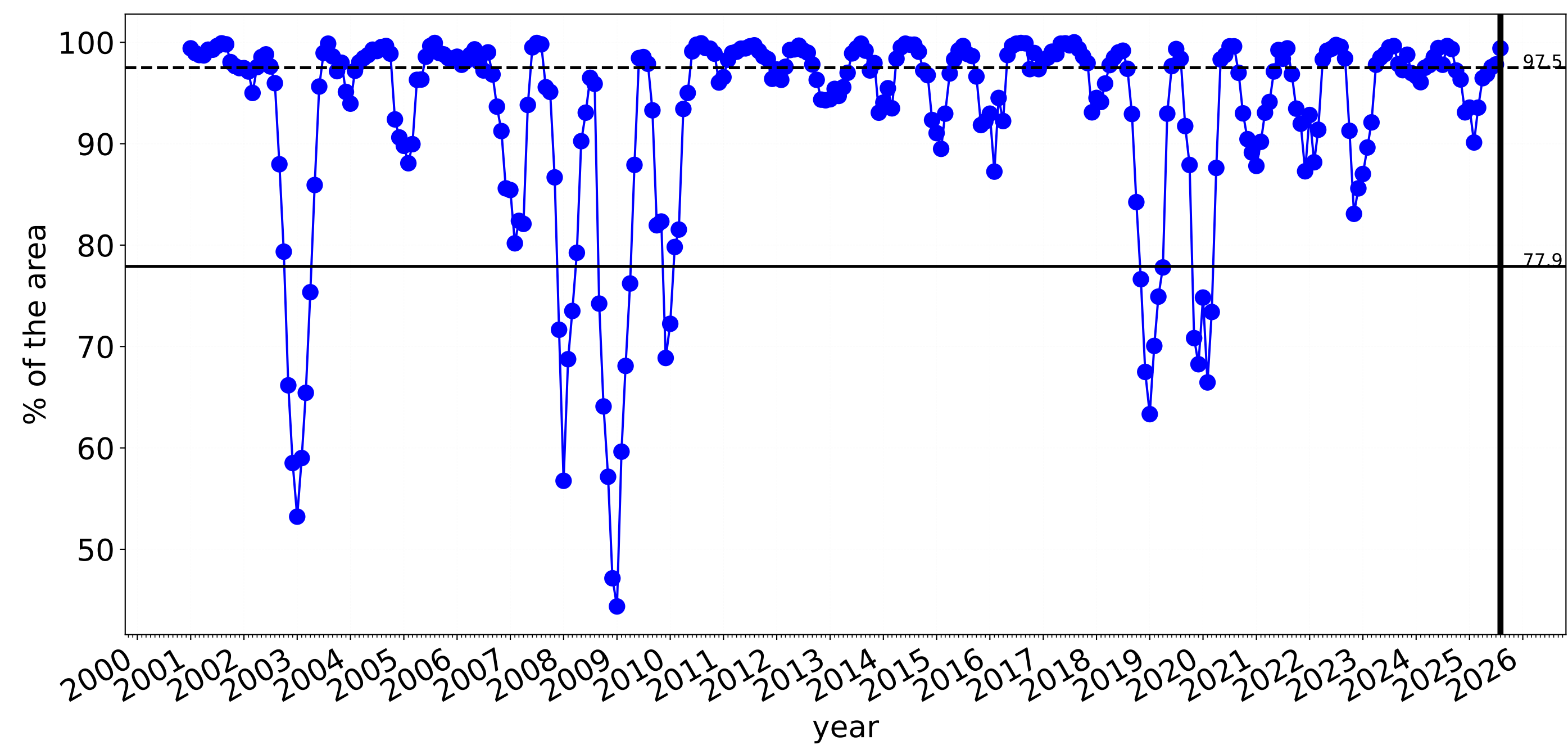
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



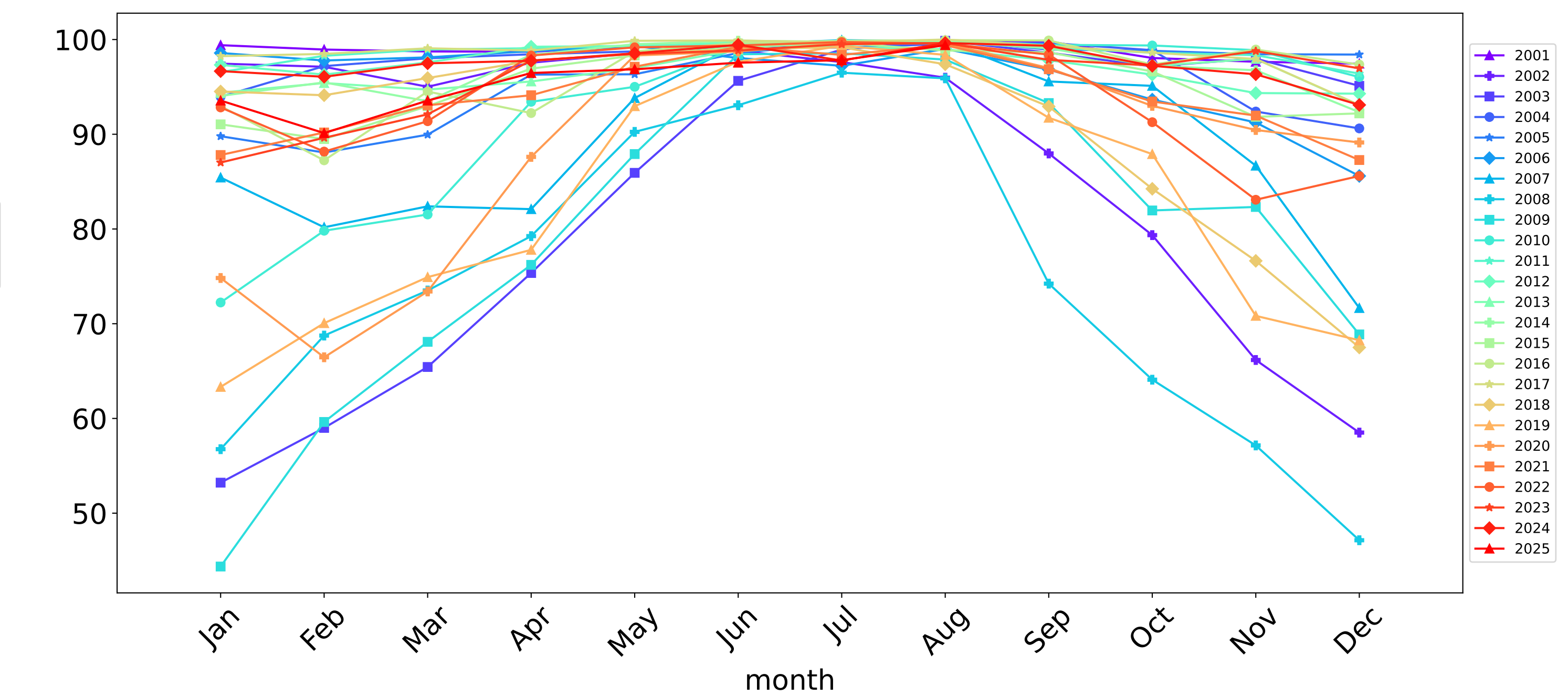
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



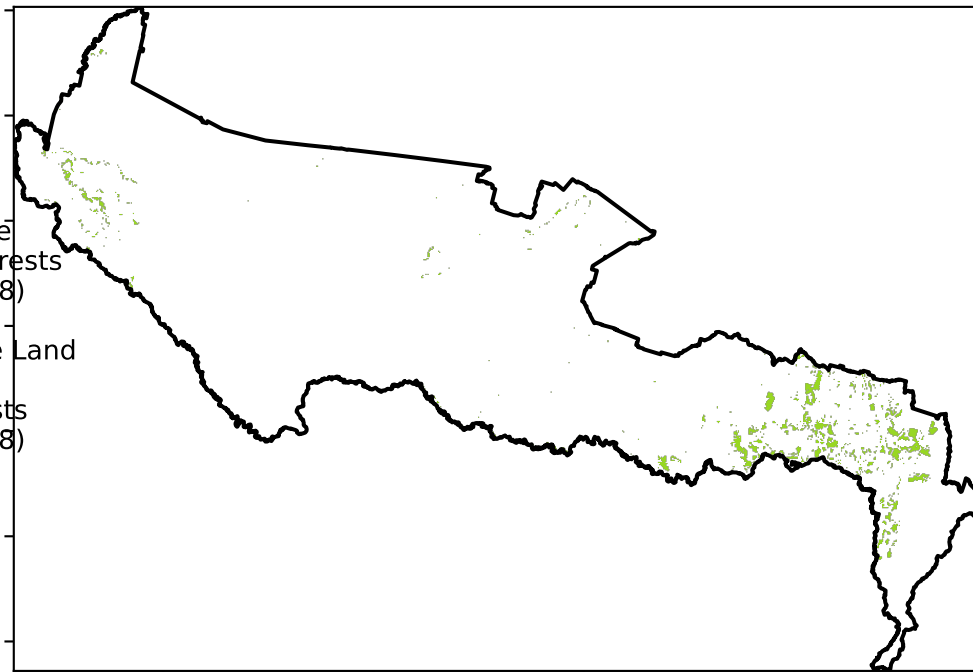
Water erosion historical monthly area protected (Total Veg Cov>70%)



Grazing - Forest (non woodland)

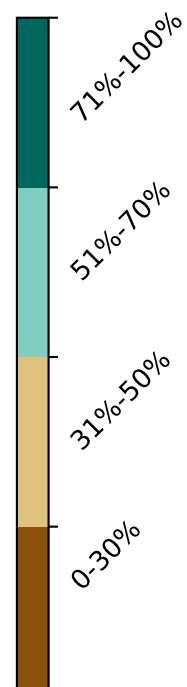
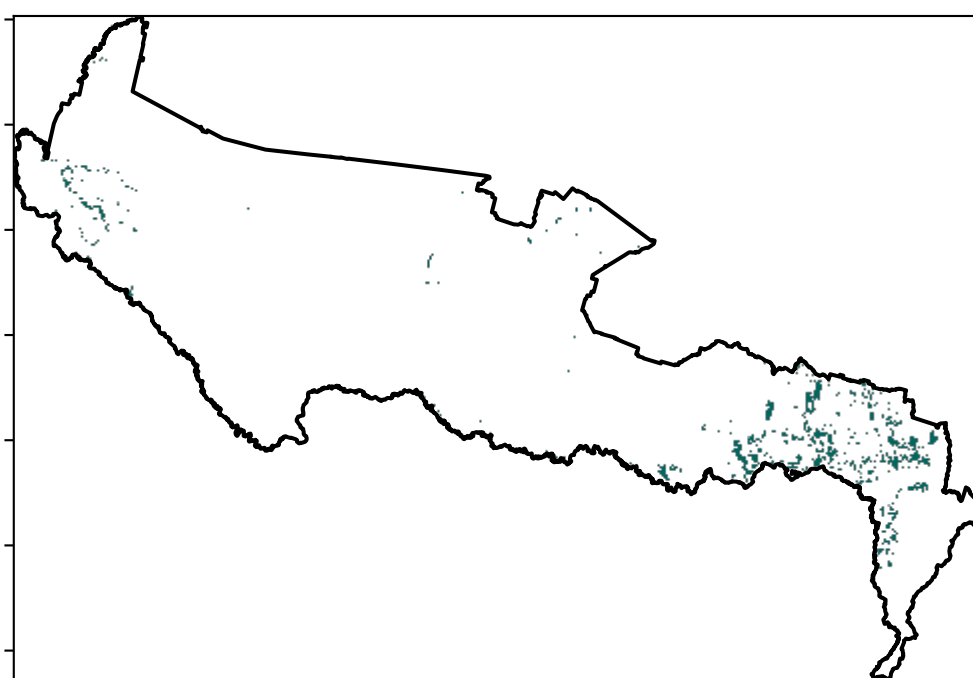
Land use and forest cover

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

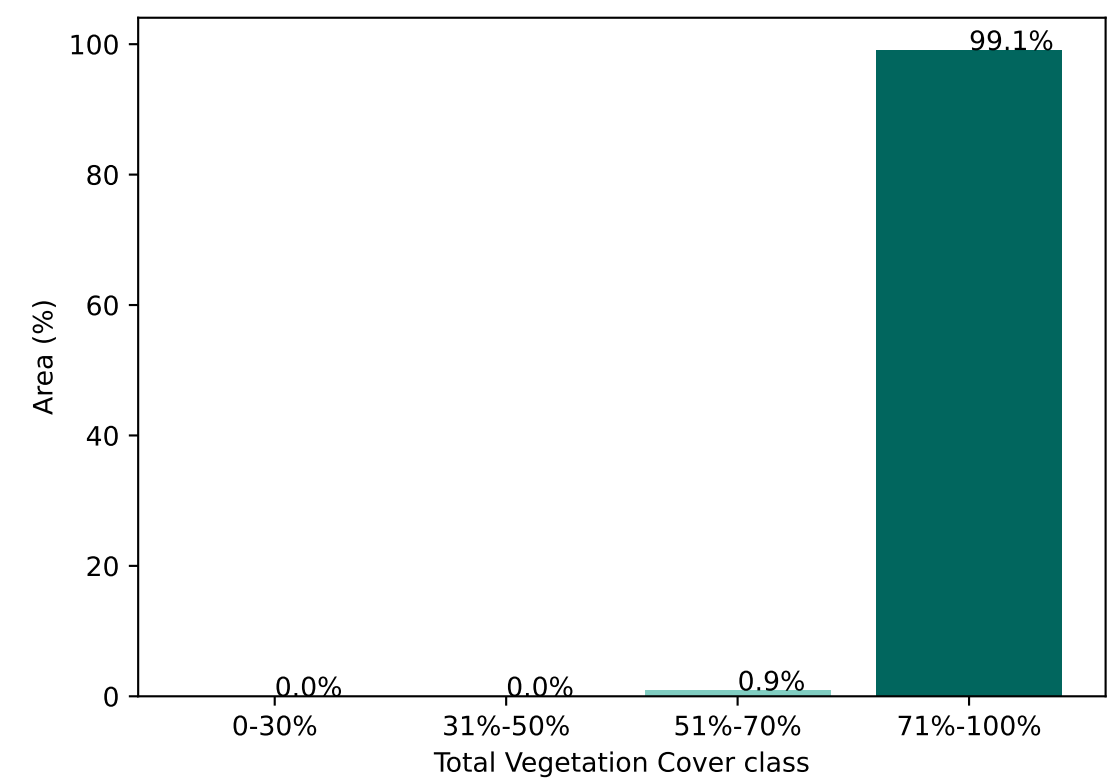


1 Agriculture - Grazing - Non-woodland forest

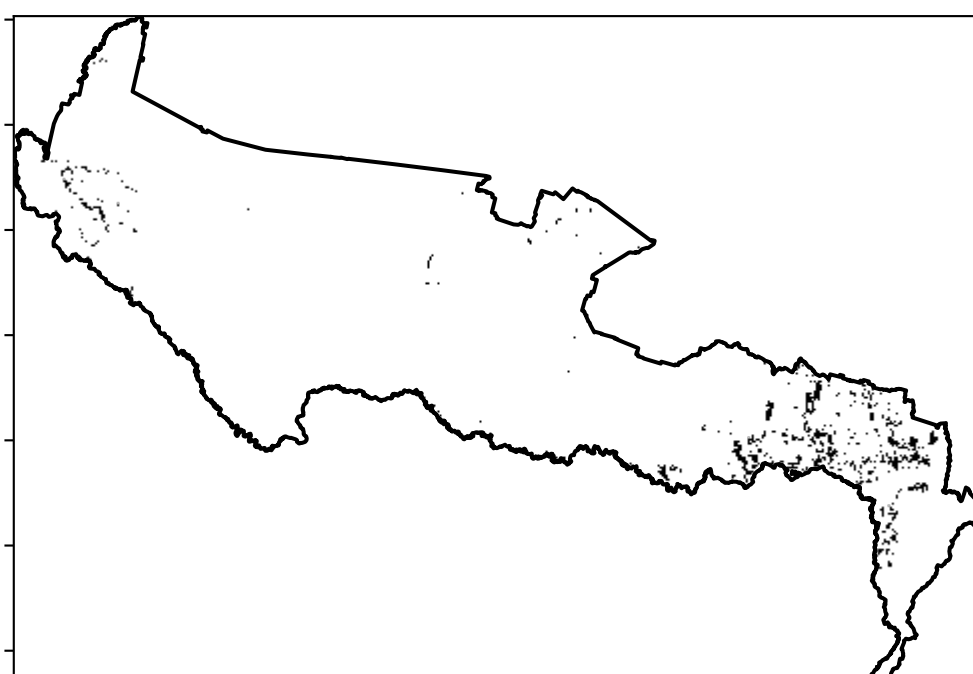
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

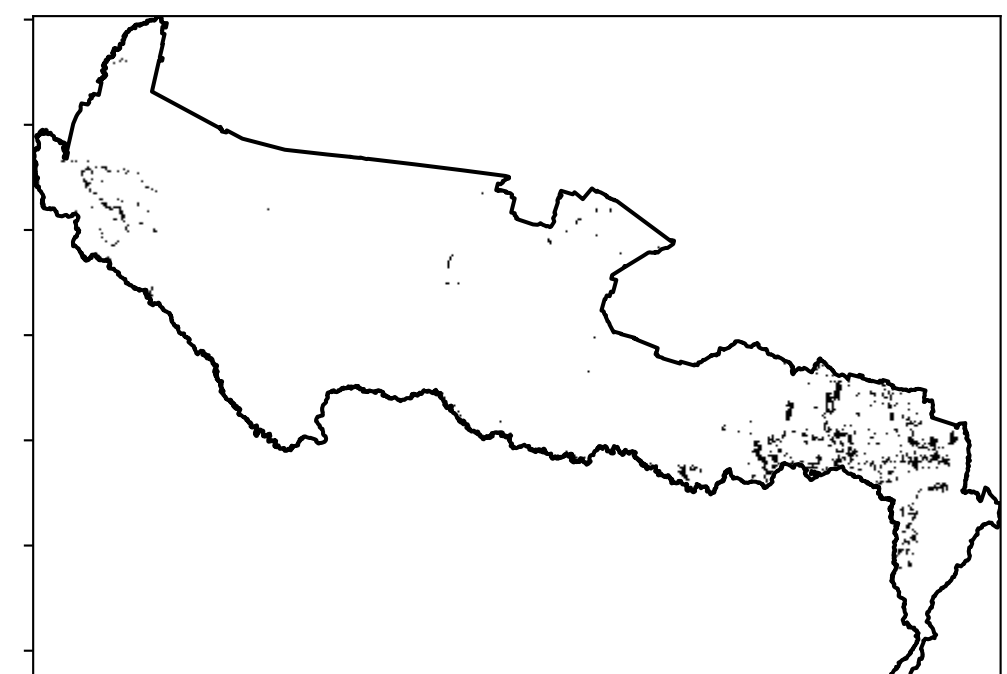


% Area protected from water erosion (>70%)



Area not protected
0.9% of region
(801 ha)
Area protected
99.1% of region
(88,149 ha)

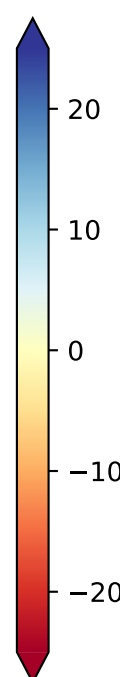
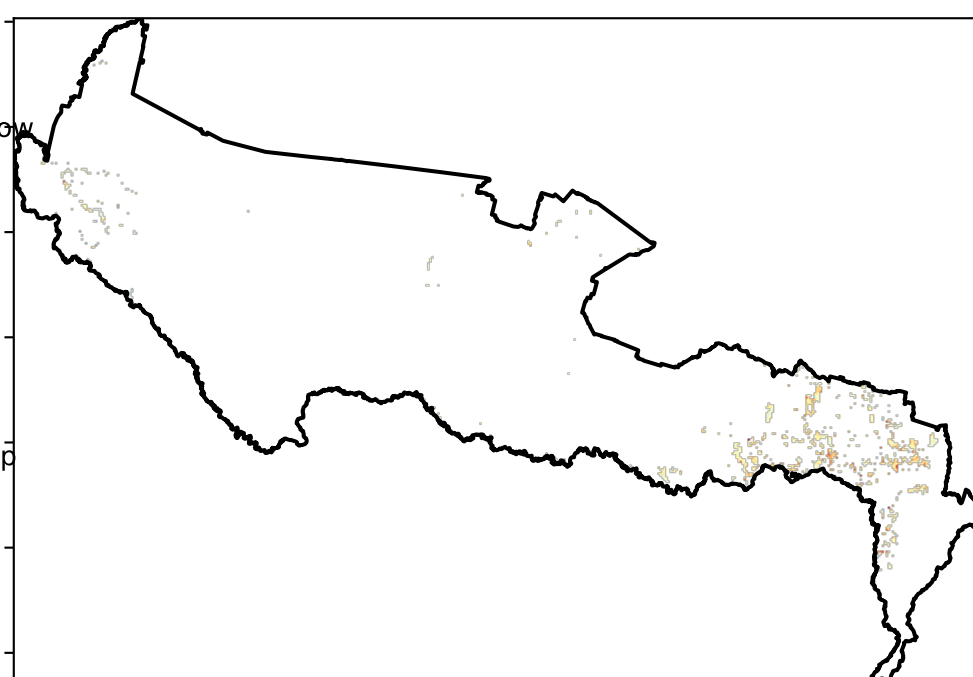
% Area protected from wind erosion (>50%)



Area protected
100.0% of region
(88,950 ha)

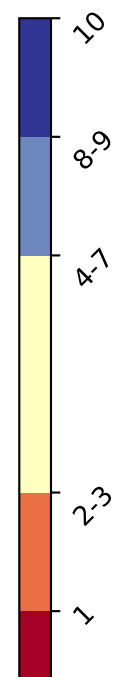
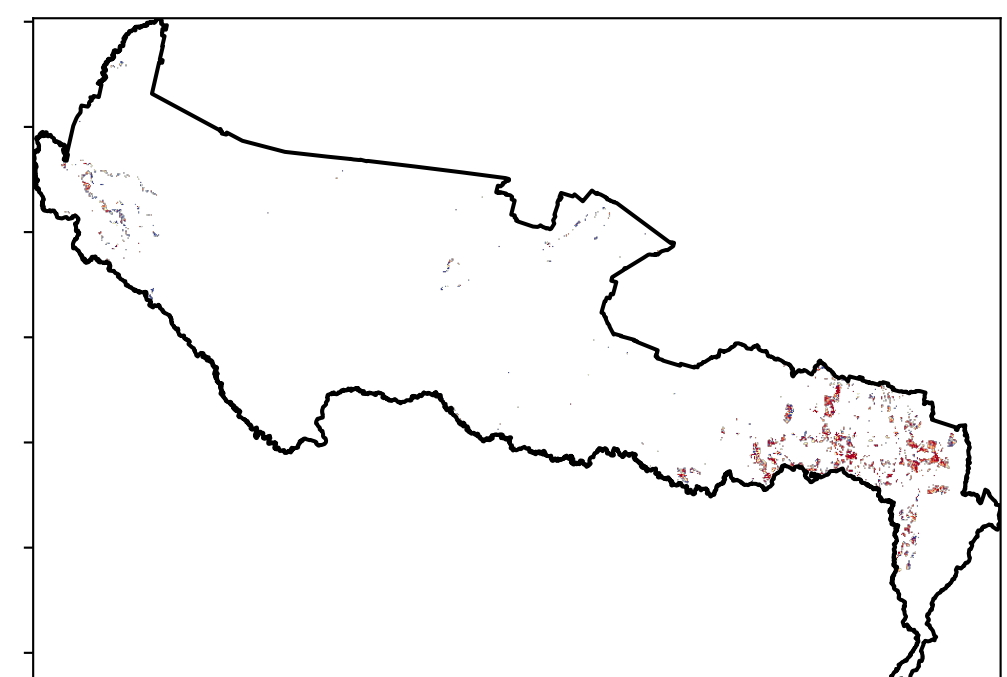
Total Vegetation Cover Anomaly [%]

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



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

Total Vegetation Cover Decile [%]



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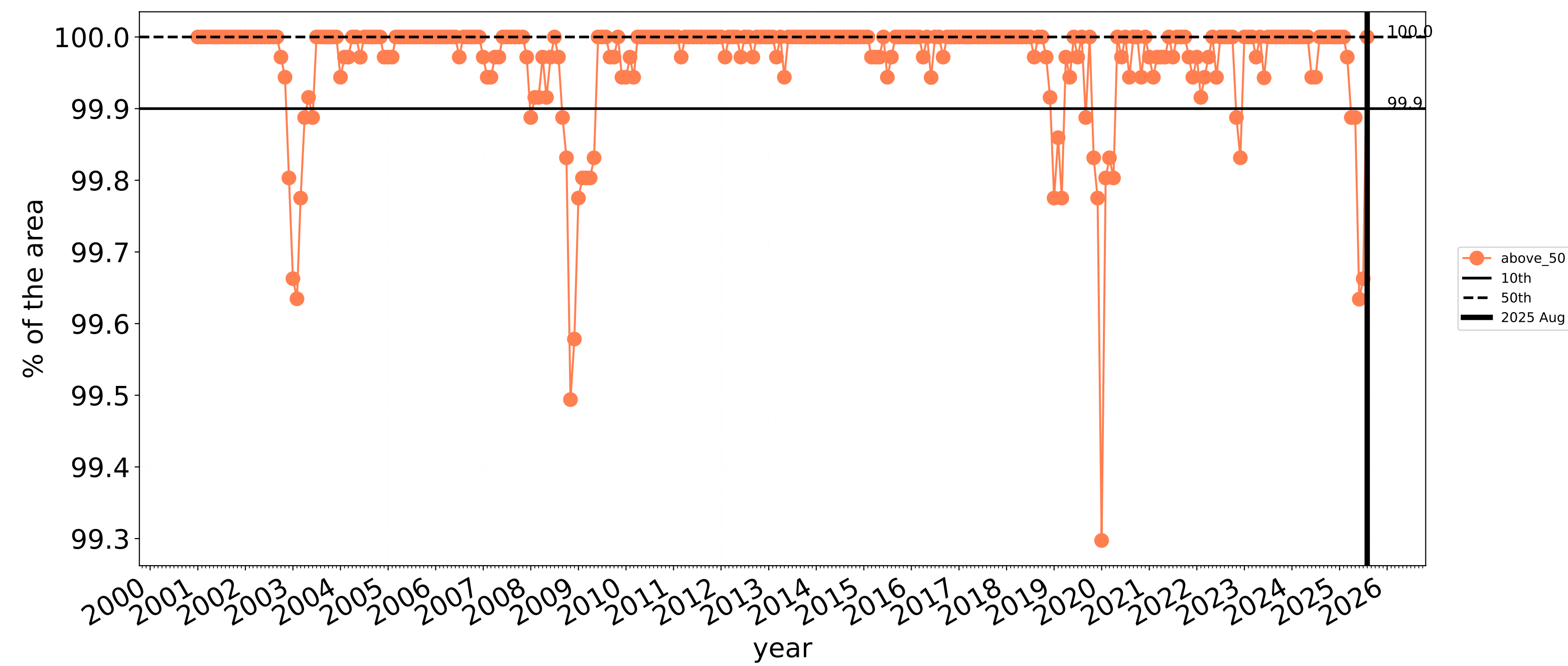


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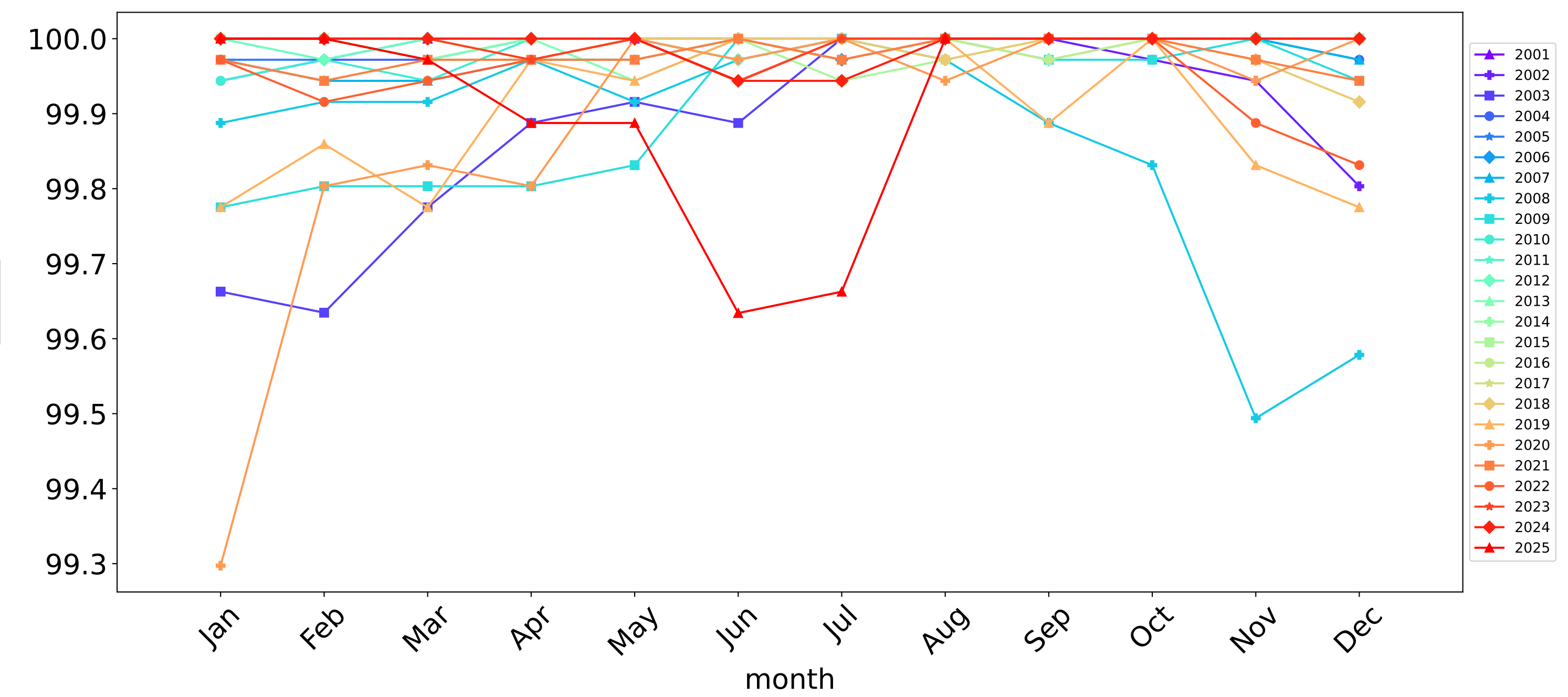


Grazing - Forest (non woodland) timeseries

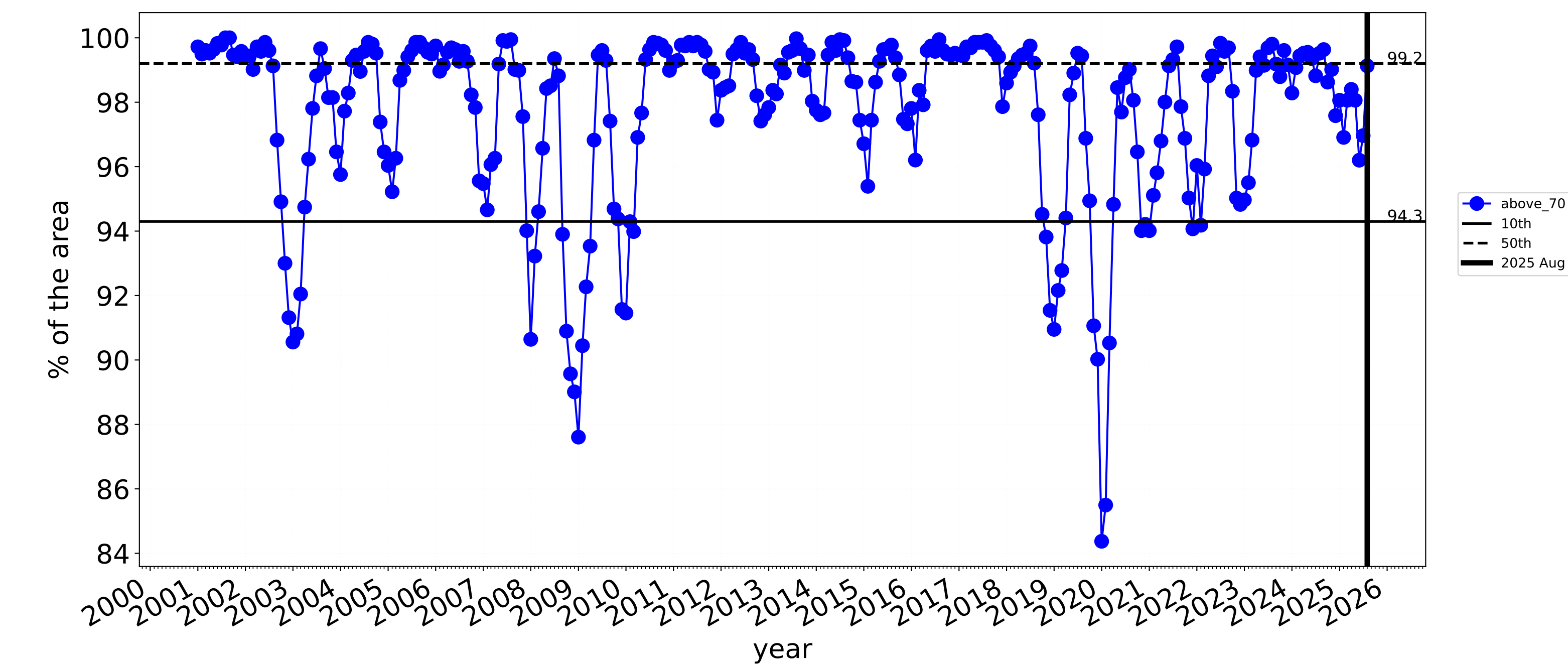
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



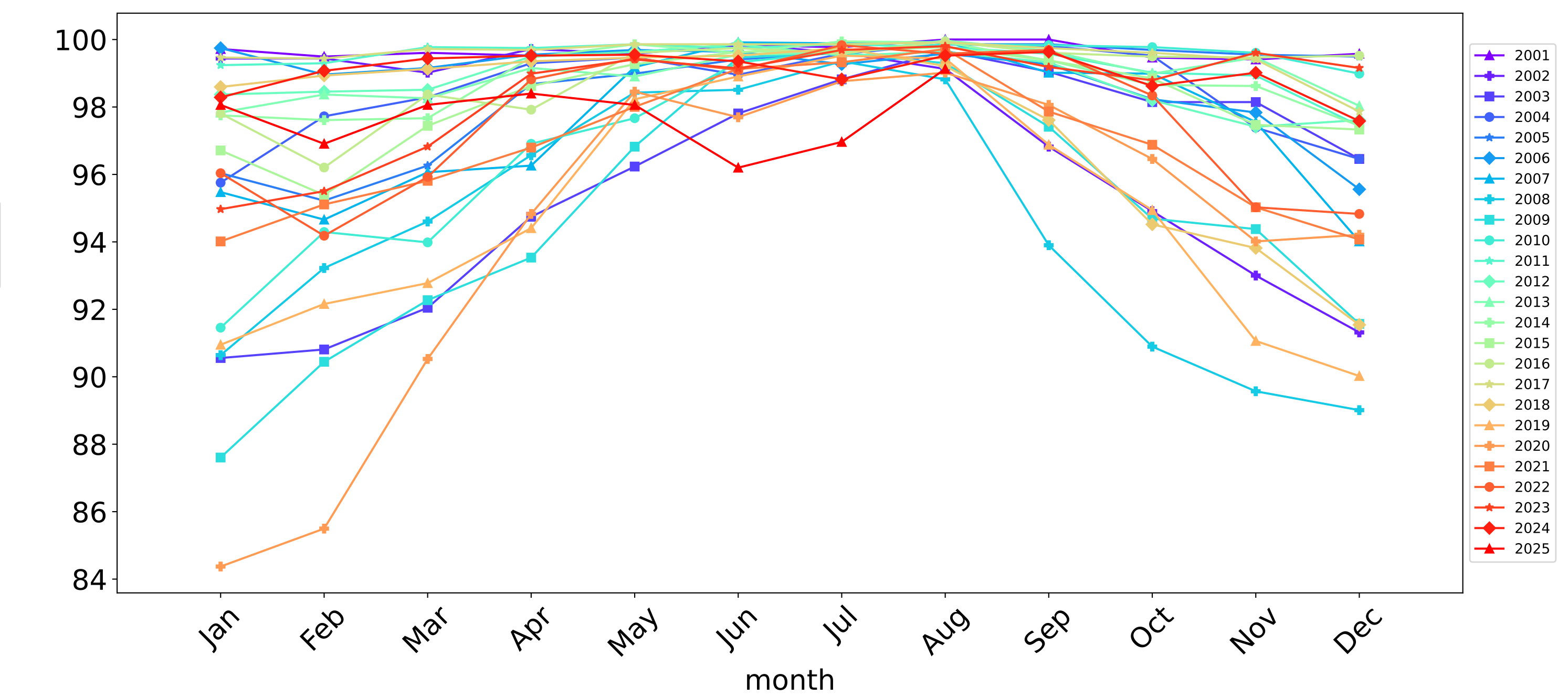
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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



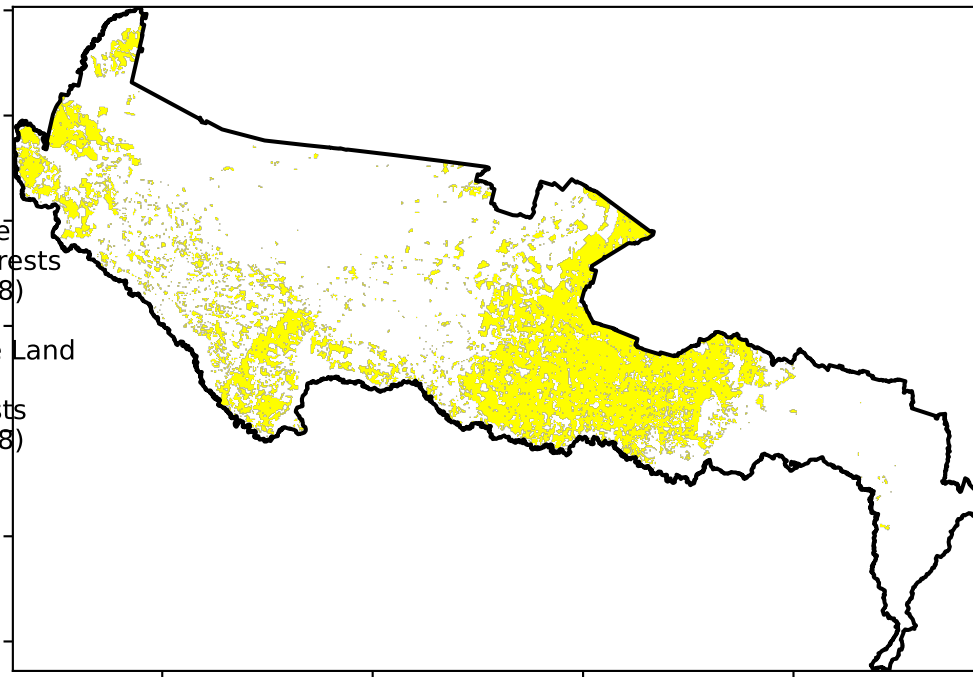
Water erosion historical monthly area protected (Total Veg Cov>70%)



Cropping

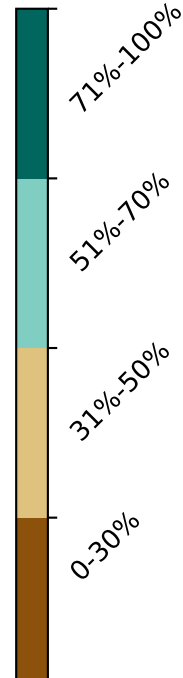
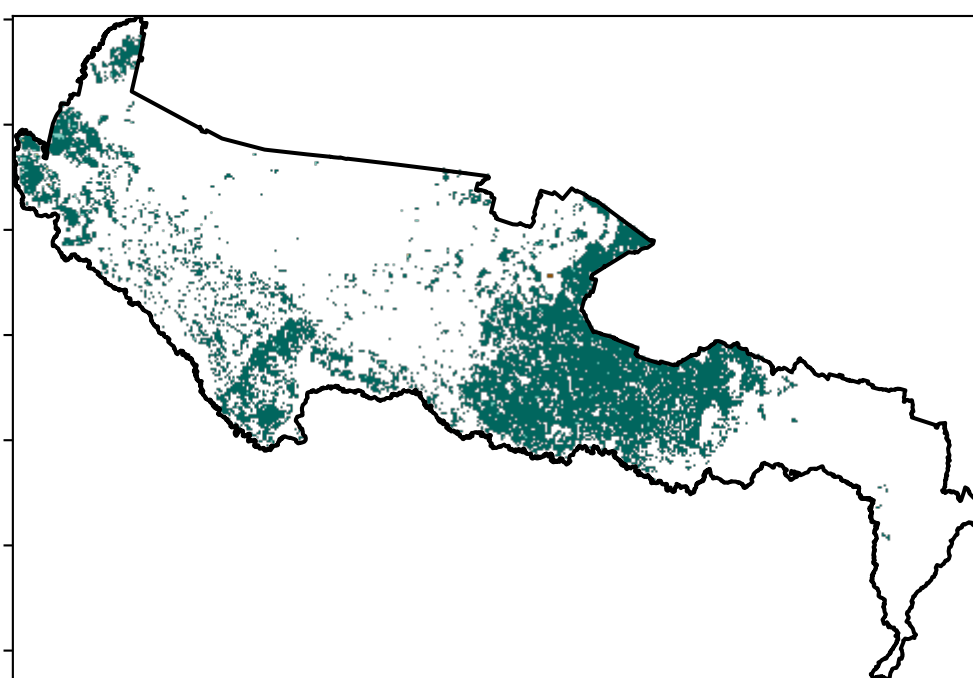
Land use and forest cover

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

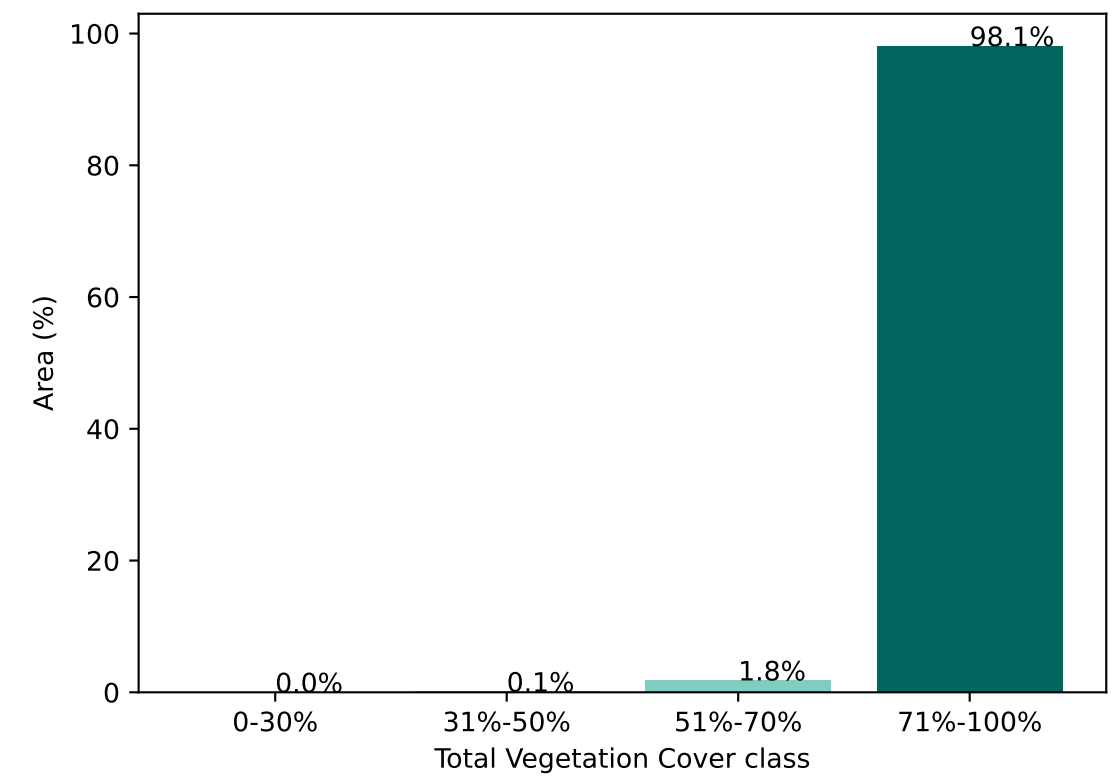


1 Agriculture - Cropping - Non-irrigated

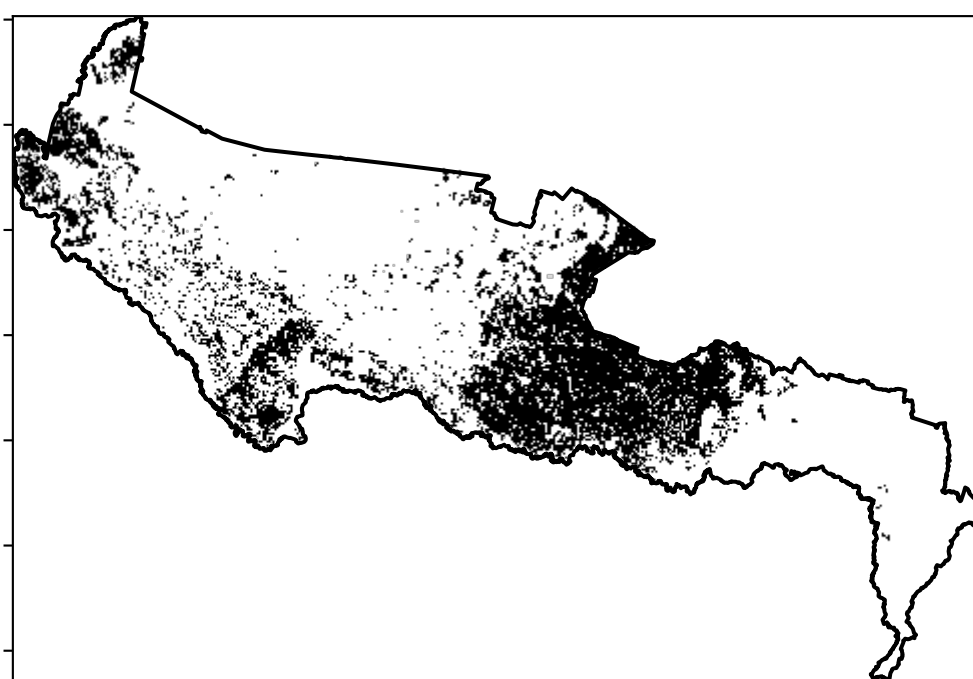
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

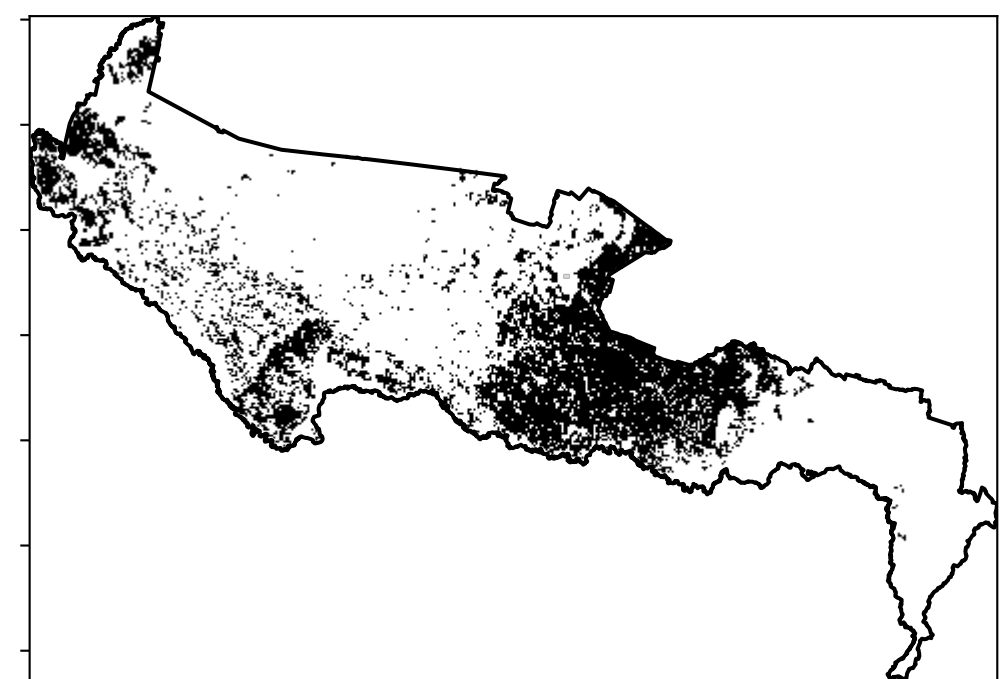


% Area protected from water erosion (>70%)



Area not protected
1.9% of region
(19,830 ha)
Area protected
98.1% of region
(1,023,845 ha)

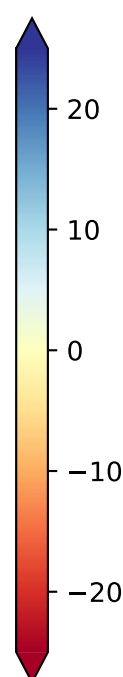
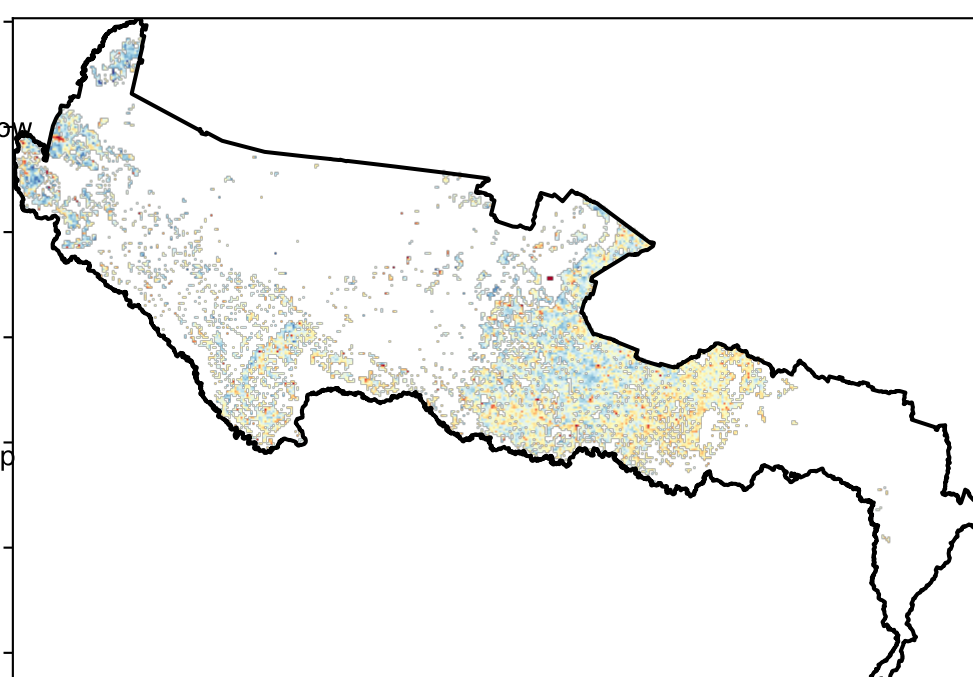
% Area protected from wind erosion (>50%)



Area not protected
0.0% of region
(0 ha)
Area protected
100.0% of region
(1,043,675 ha)

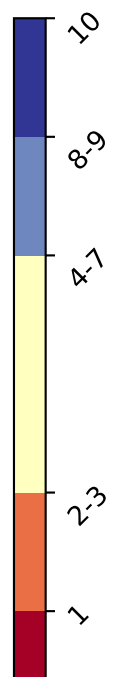
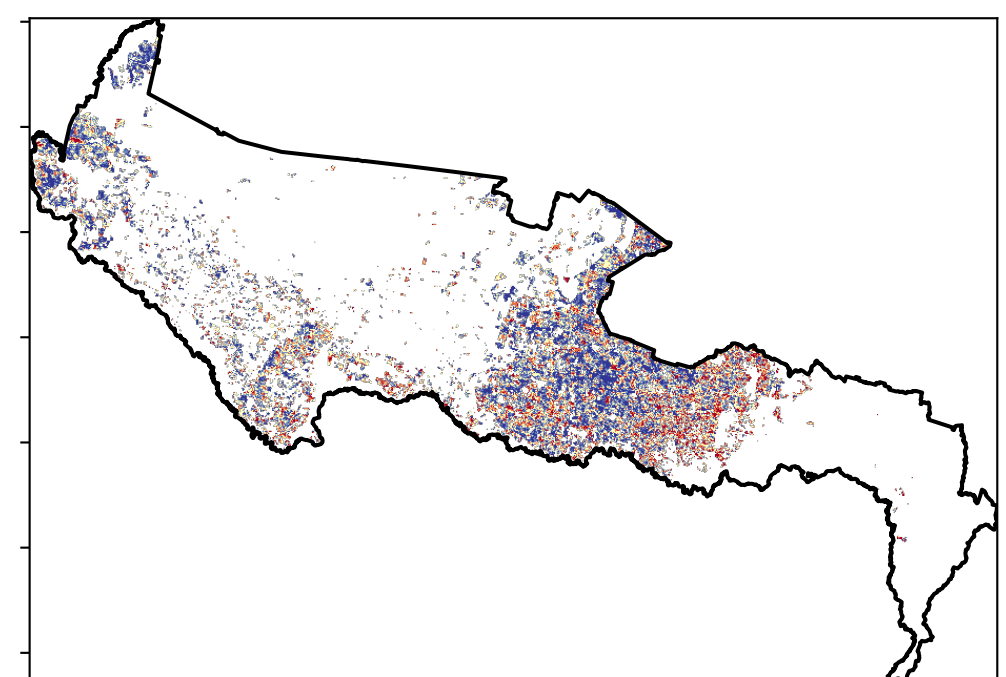
Total Vegetation Cover Anomaly [%]

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



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

Total Vegetation Cover Decile [%]



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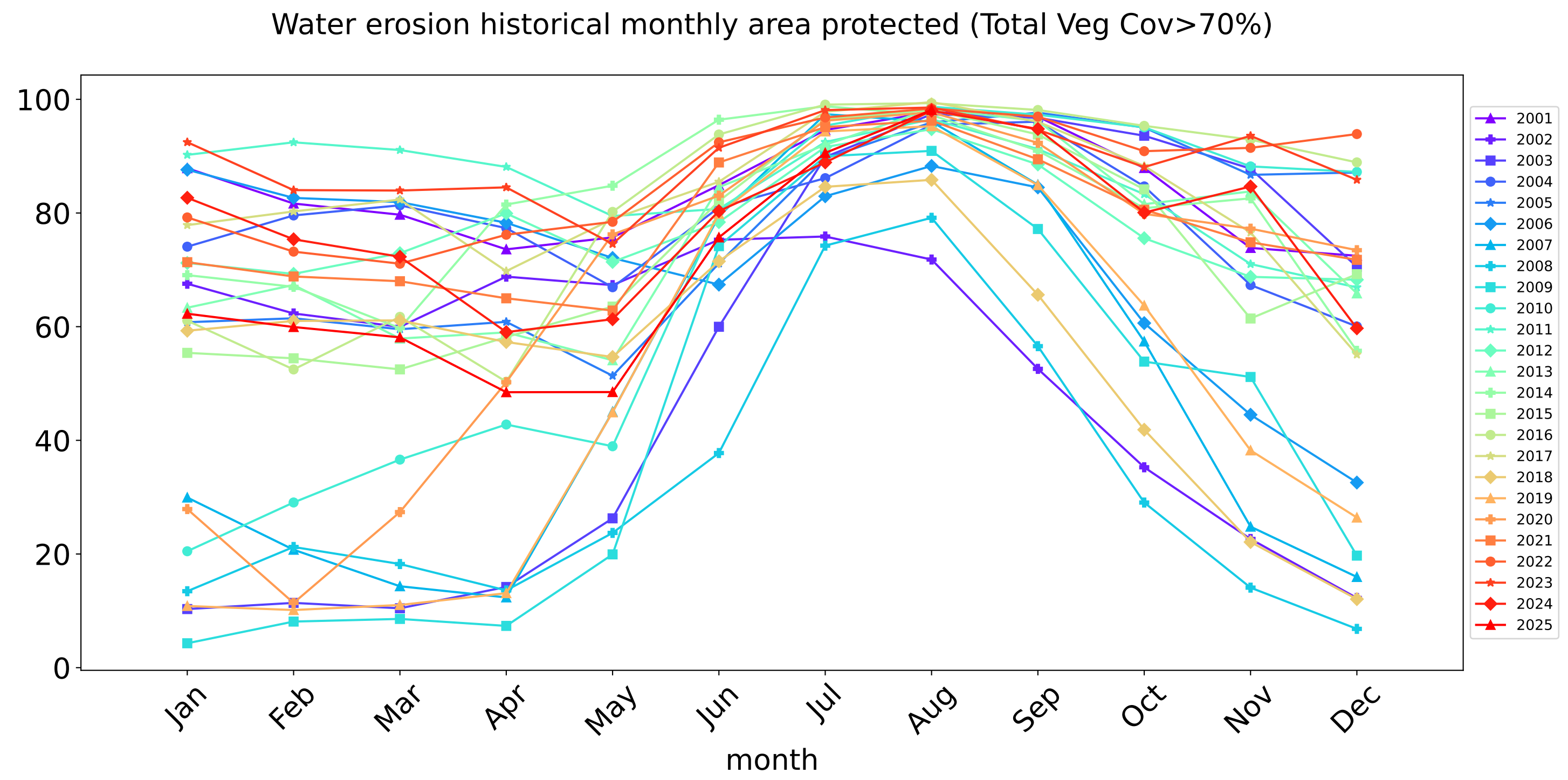
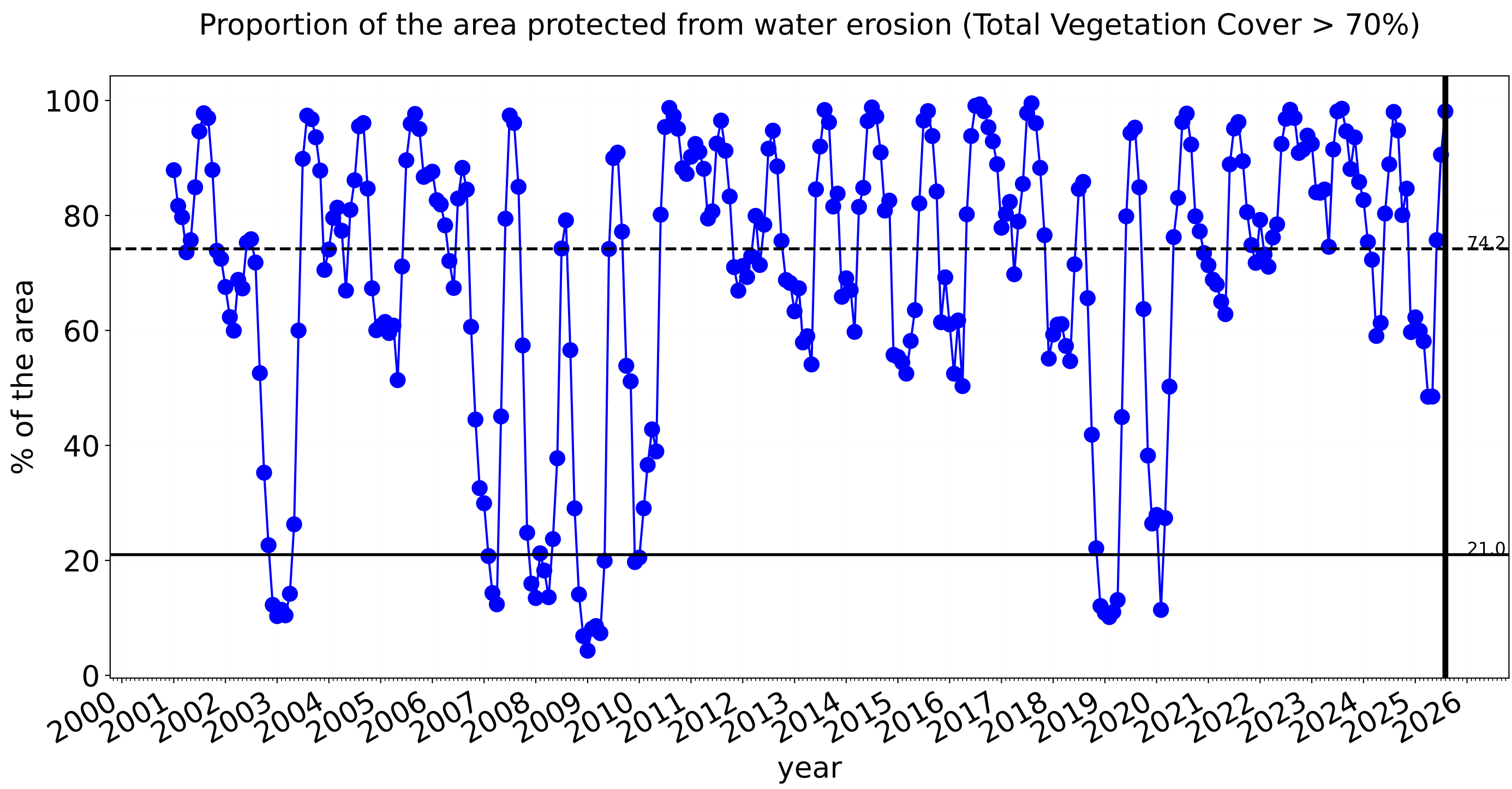
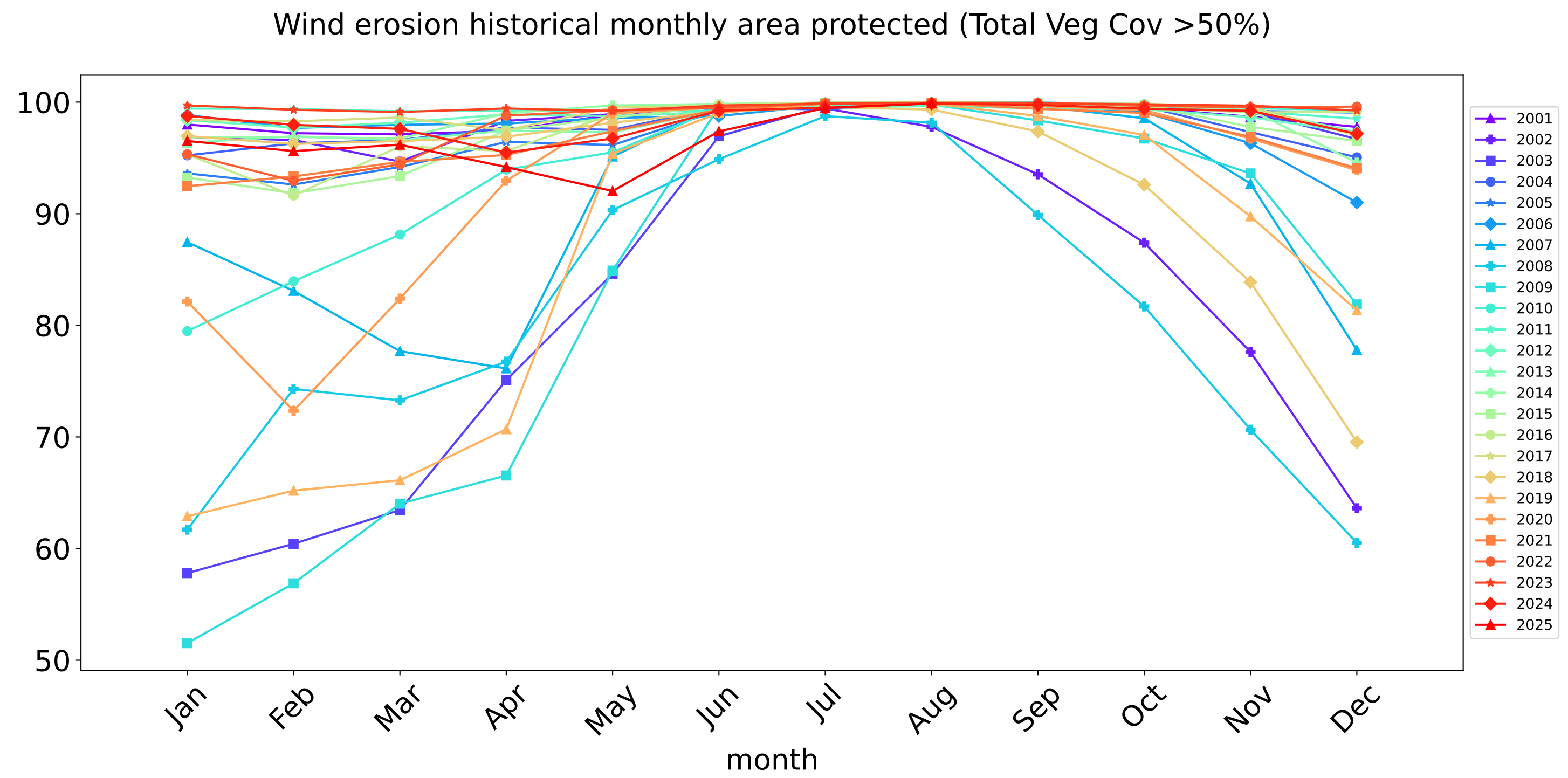
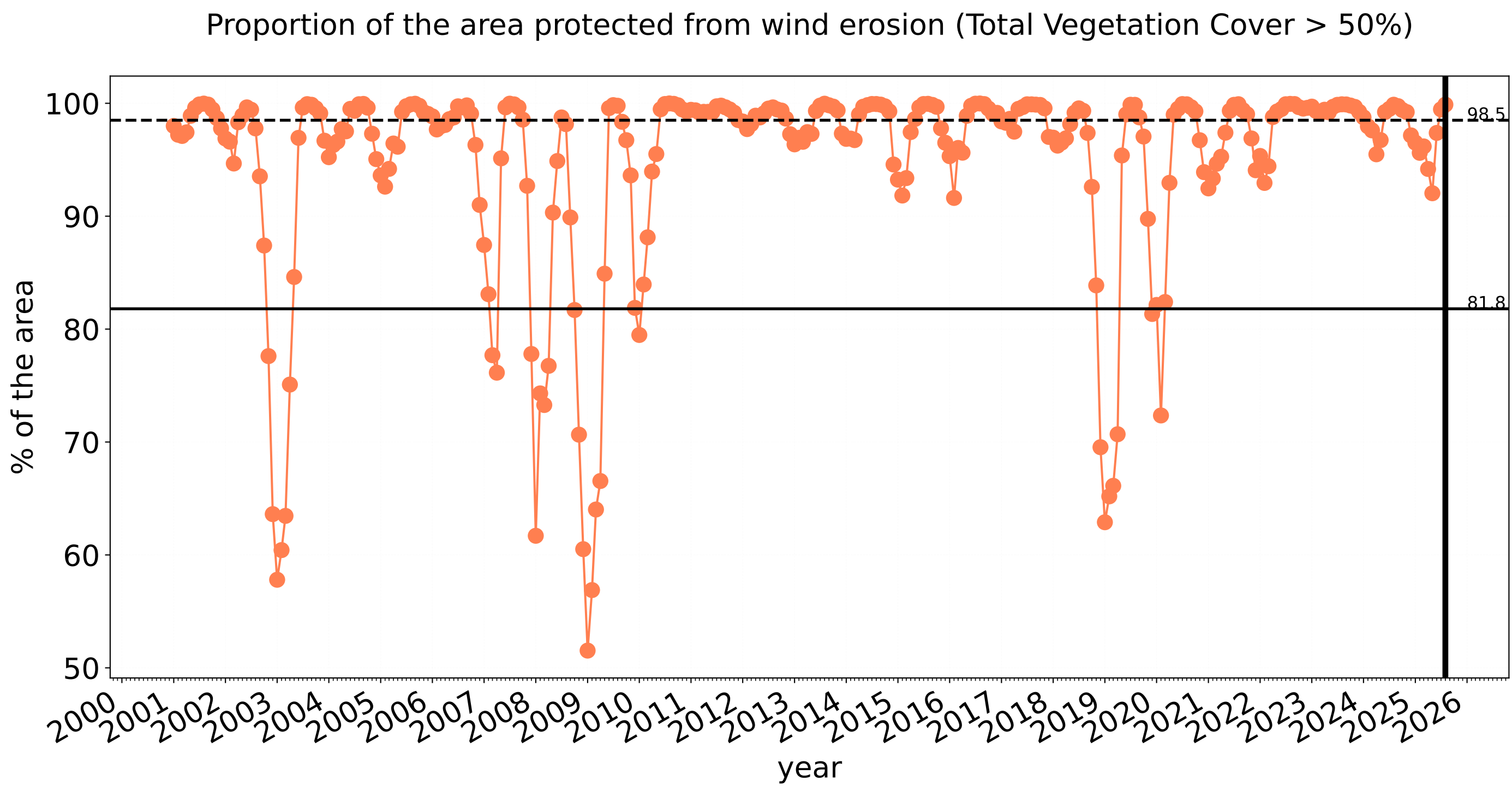


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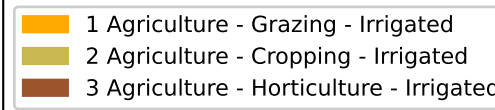
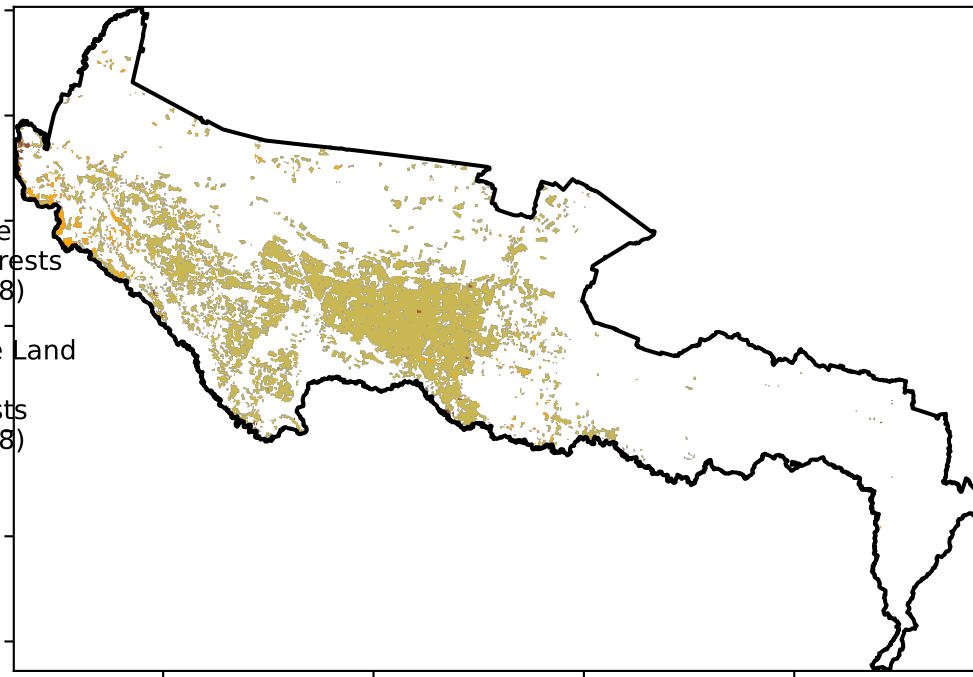
Cropping timeseries



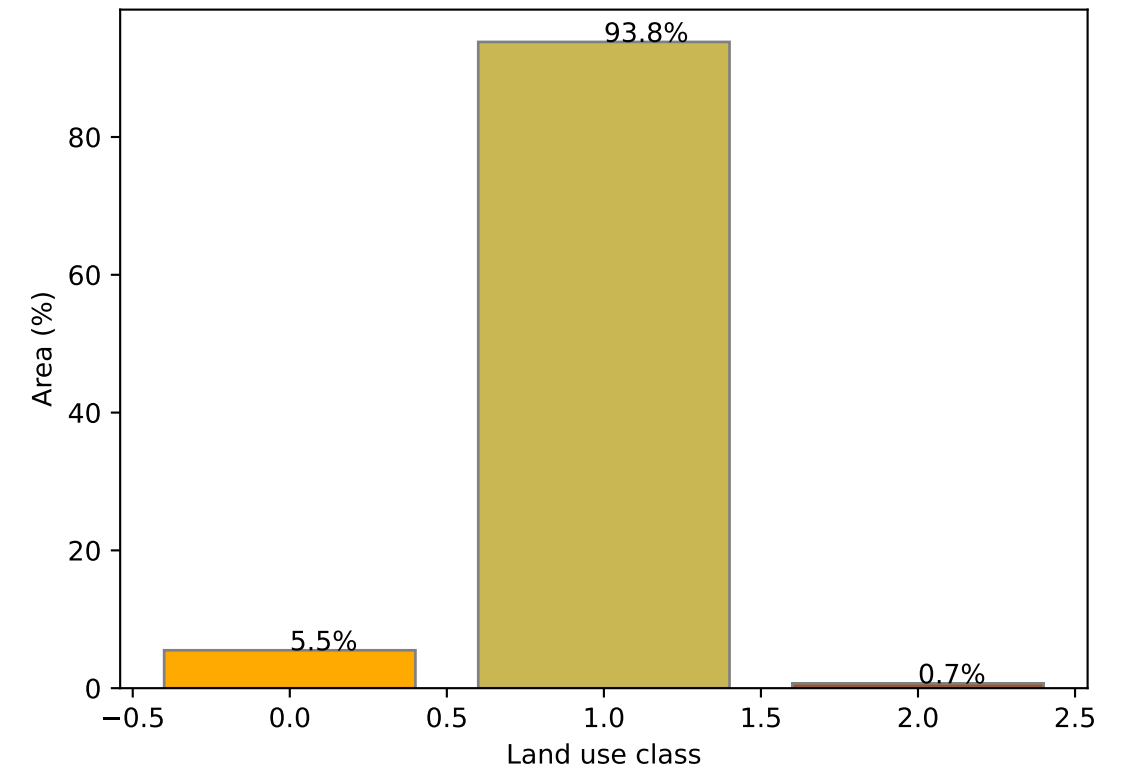
Irrigation

Land use and forest cover

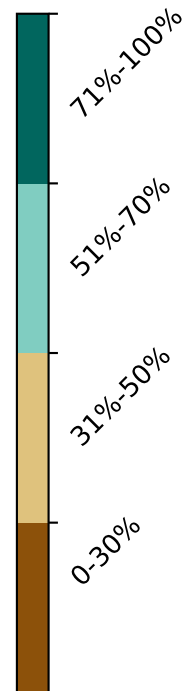
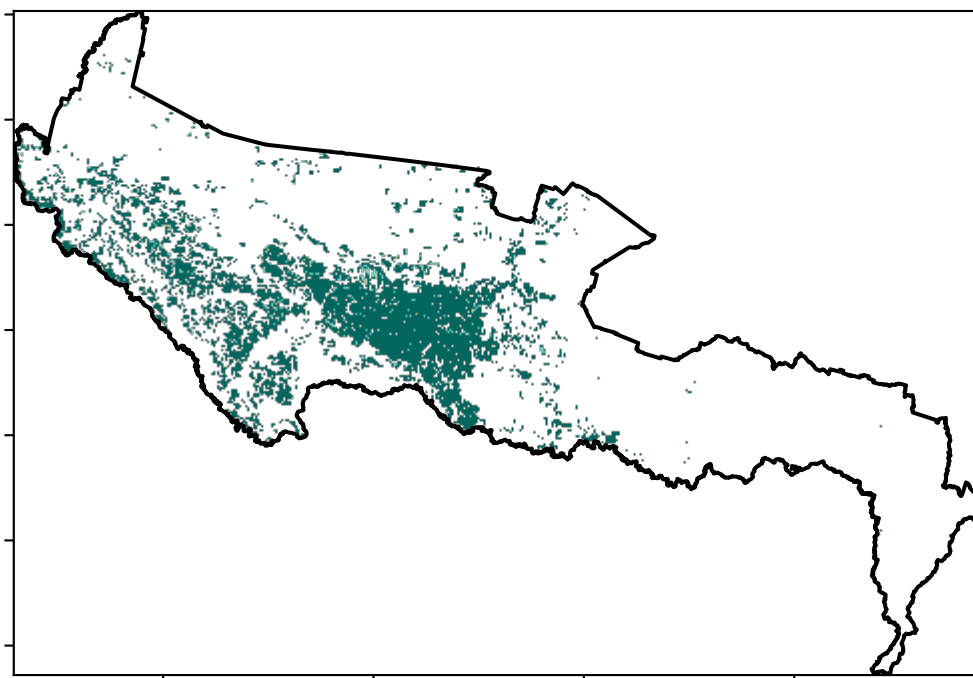
Catchment Scale
Land Use and Forests
of Australia (2018)
Derived from
Catchment Scale Land
Use of Australia
(2018) and Forests
of Australia (2018)



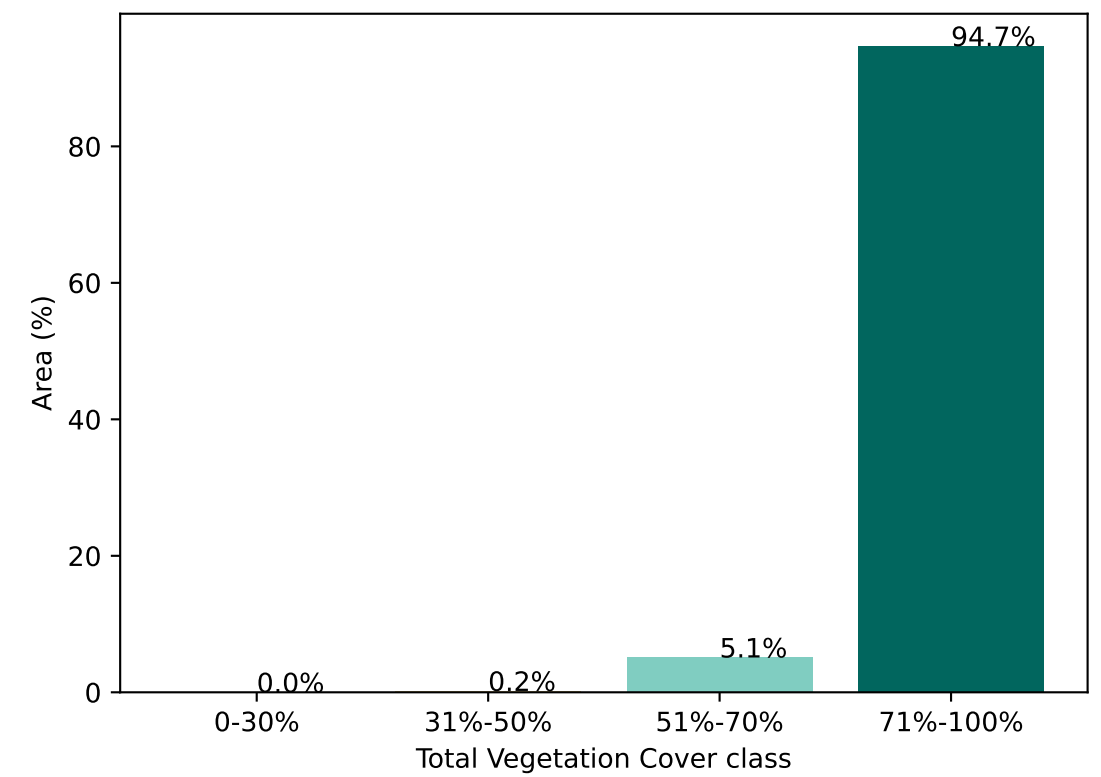
Proportion of each land class in area



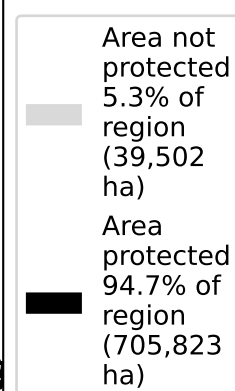
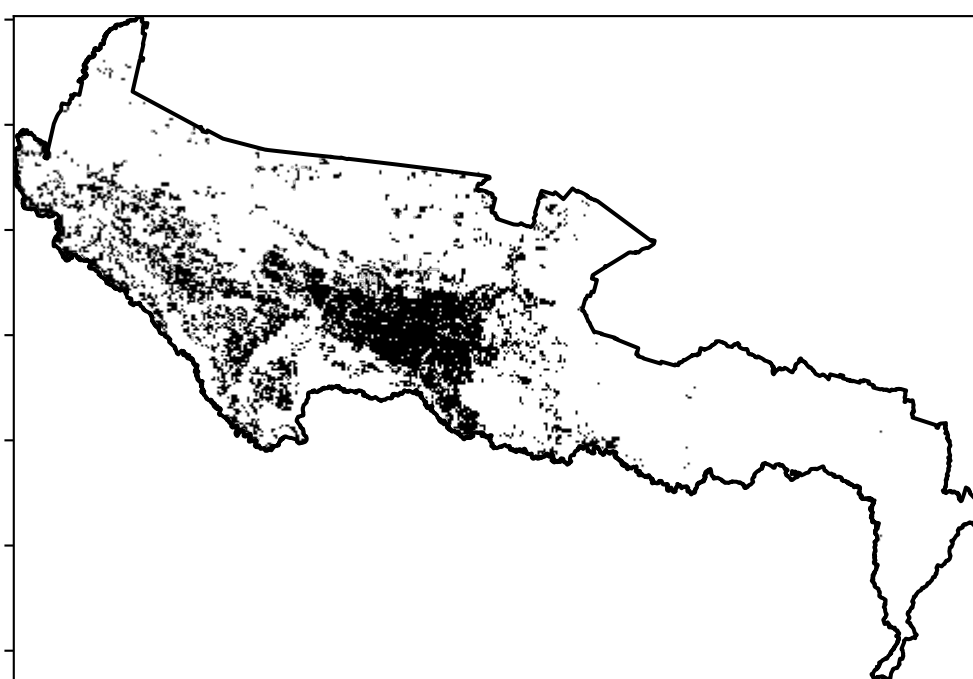
Total Vegetation Cover [%]



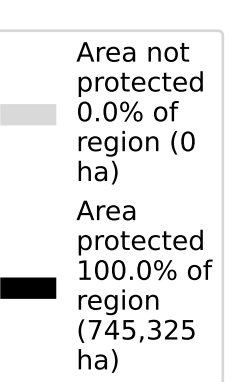
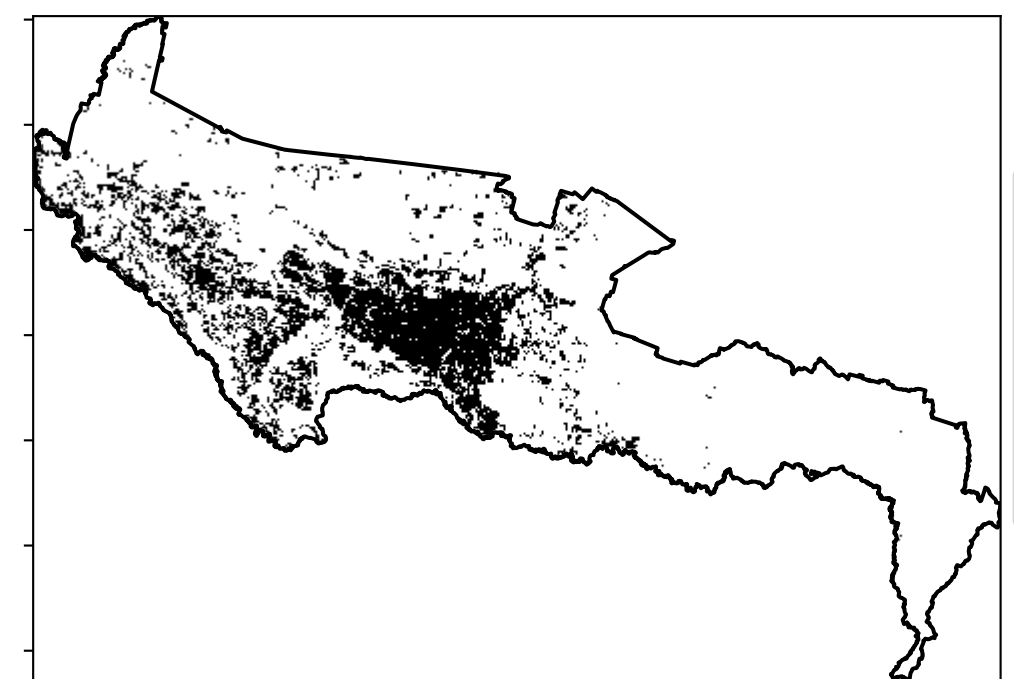
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

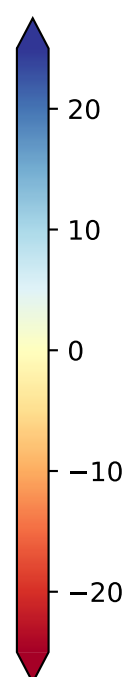
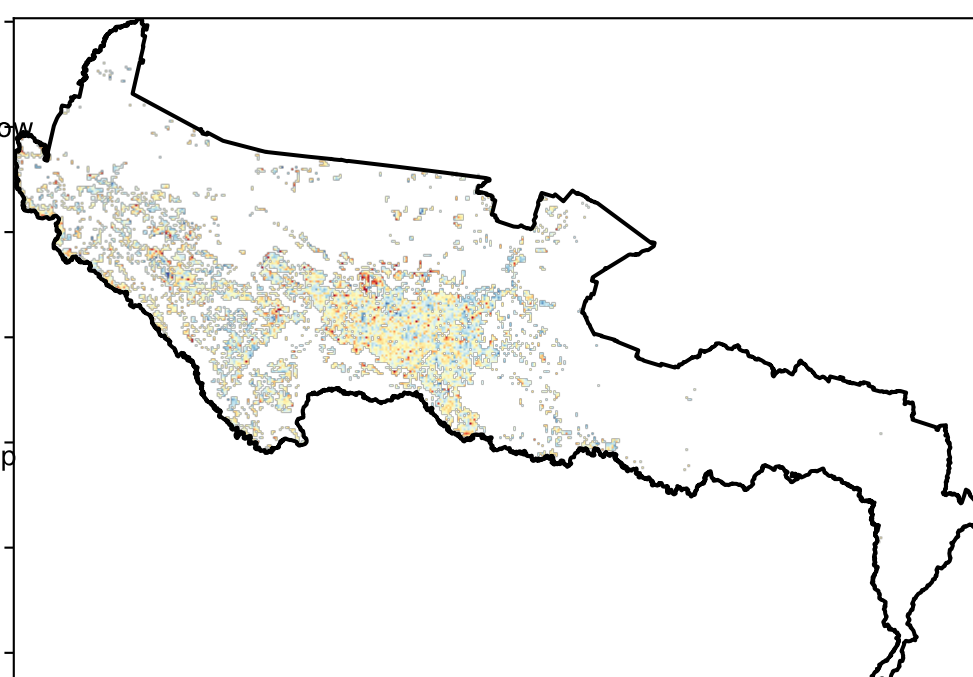


% Area protected from wind erosion (>50%)



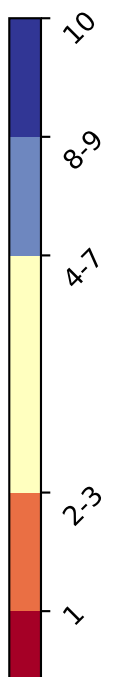
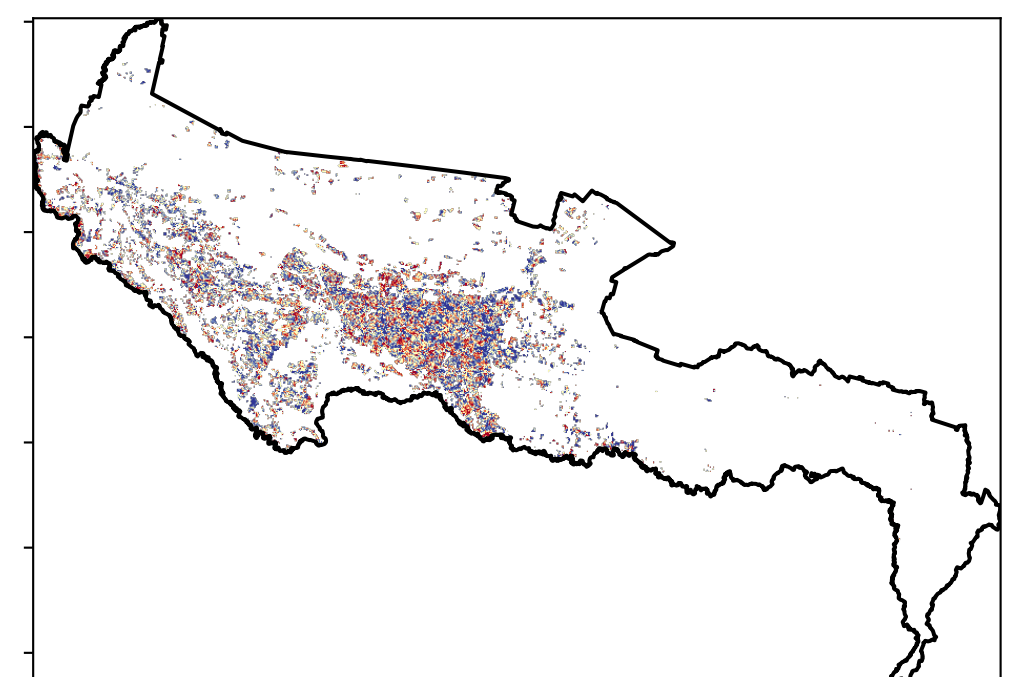
Total Vegetation Cover Anomaly [%]

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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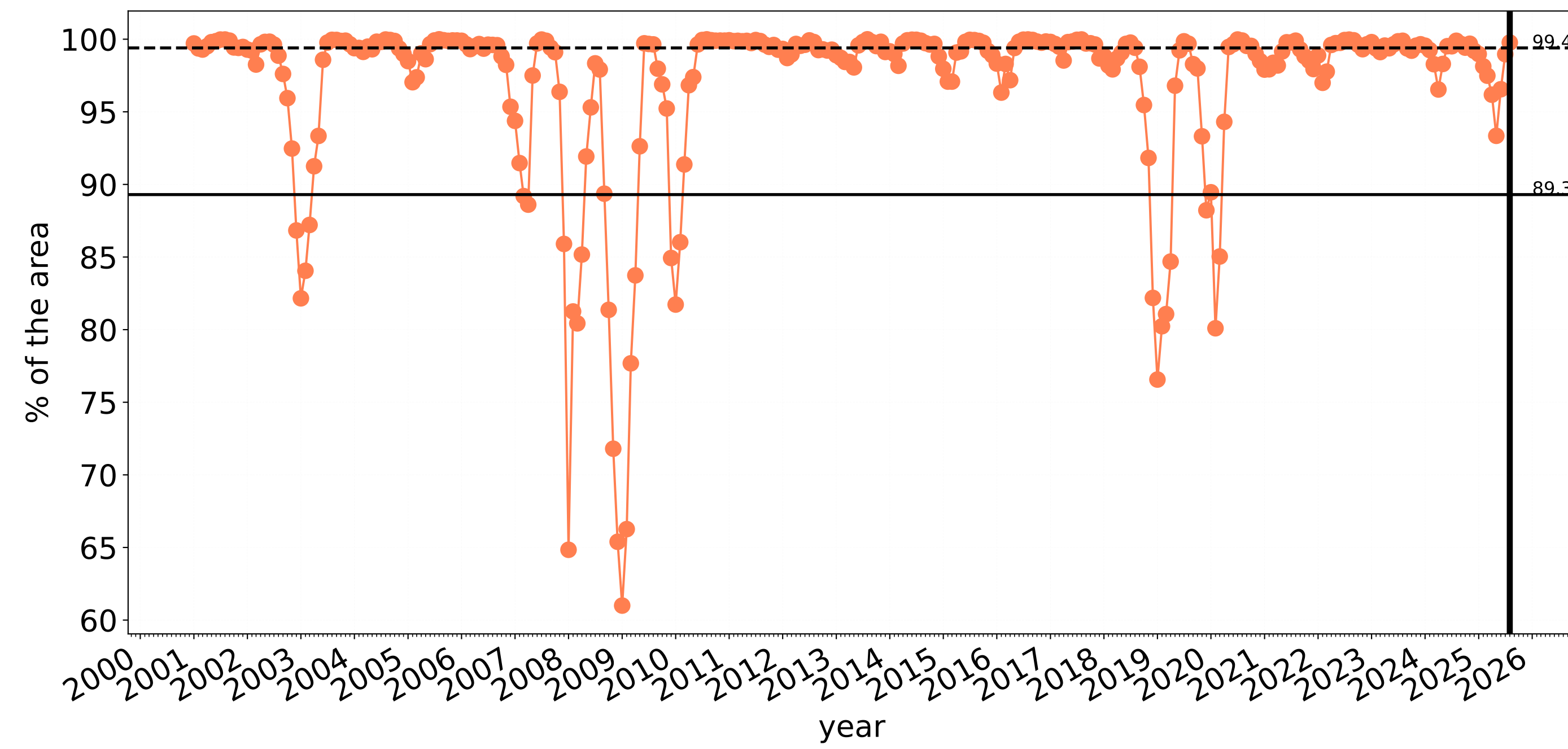


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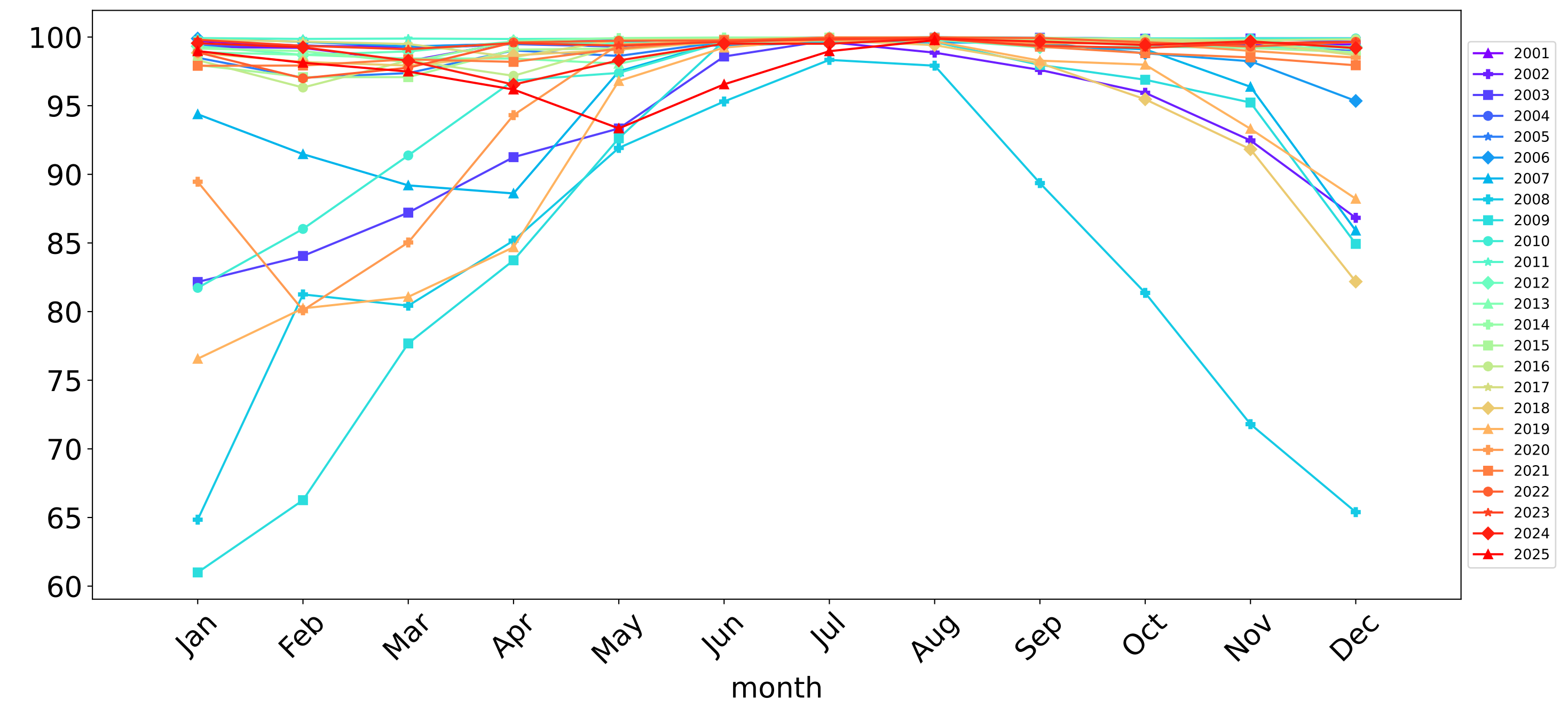


Irrigation timeseries

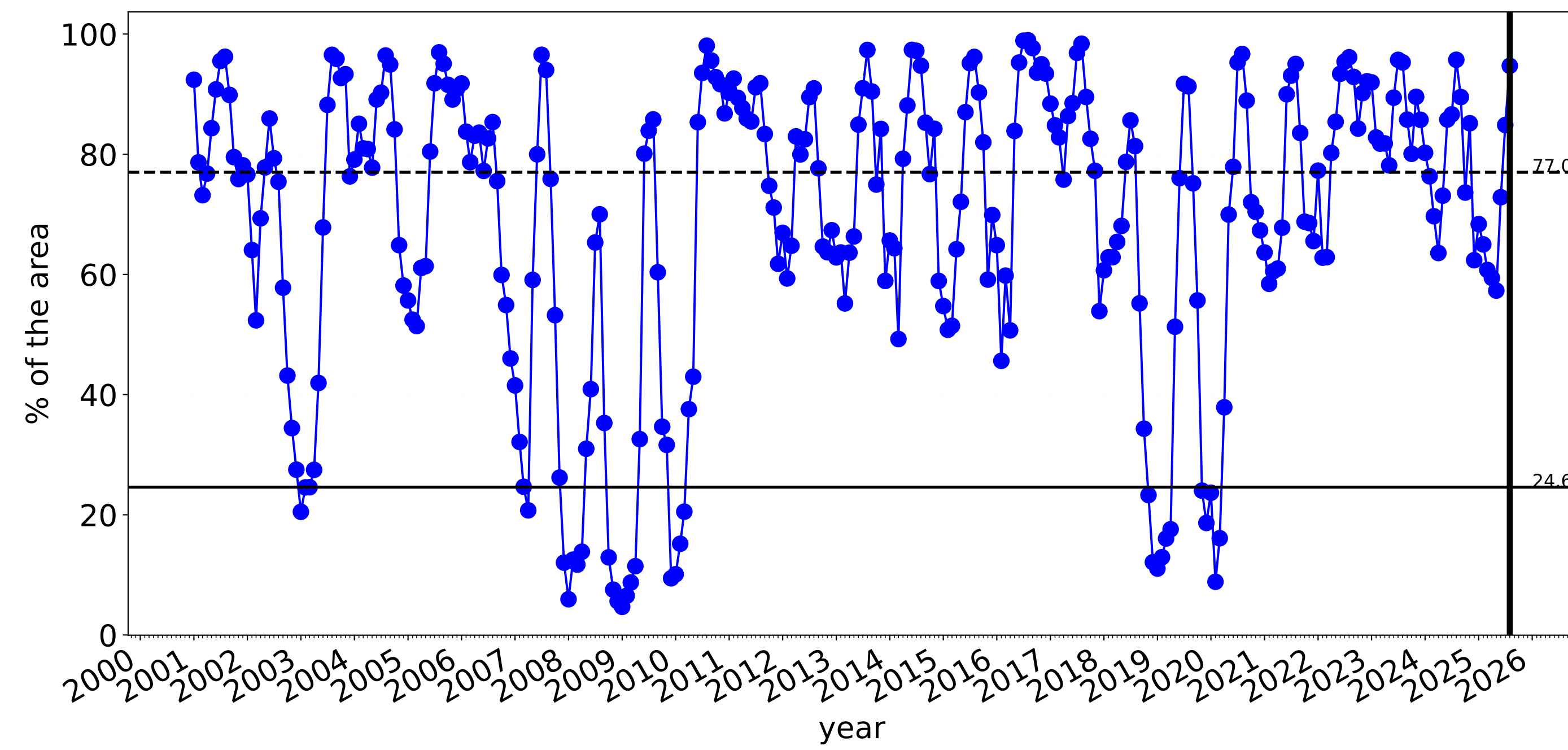
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



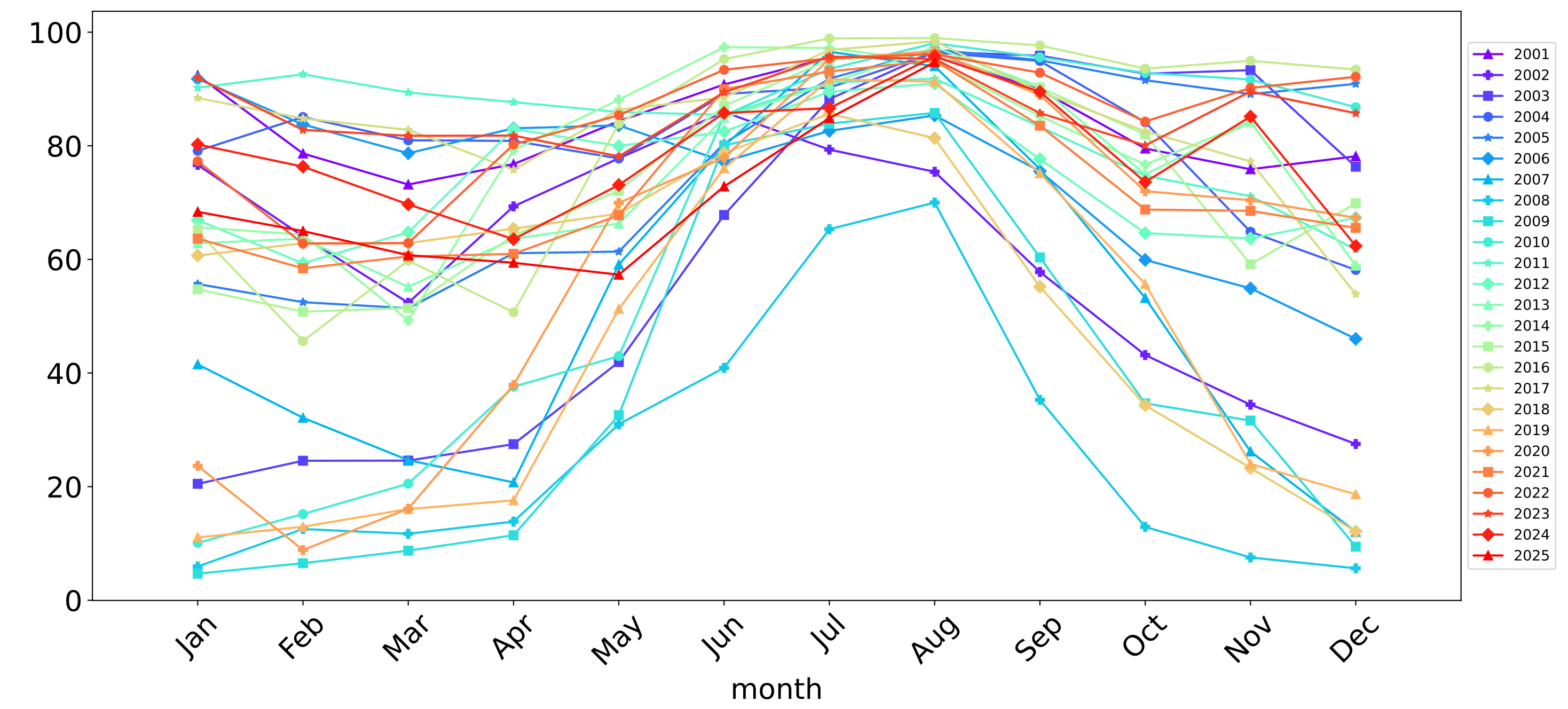
Wind erosion historical monthly area protected (Total Veg Cov >50%)



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

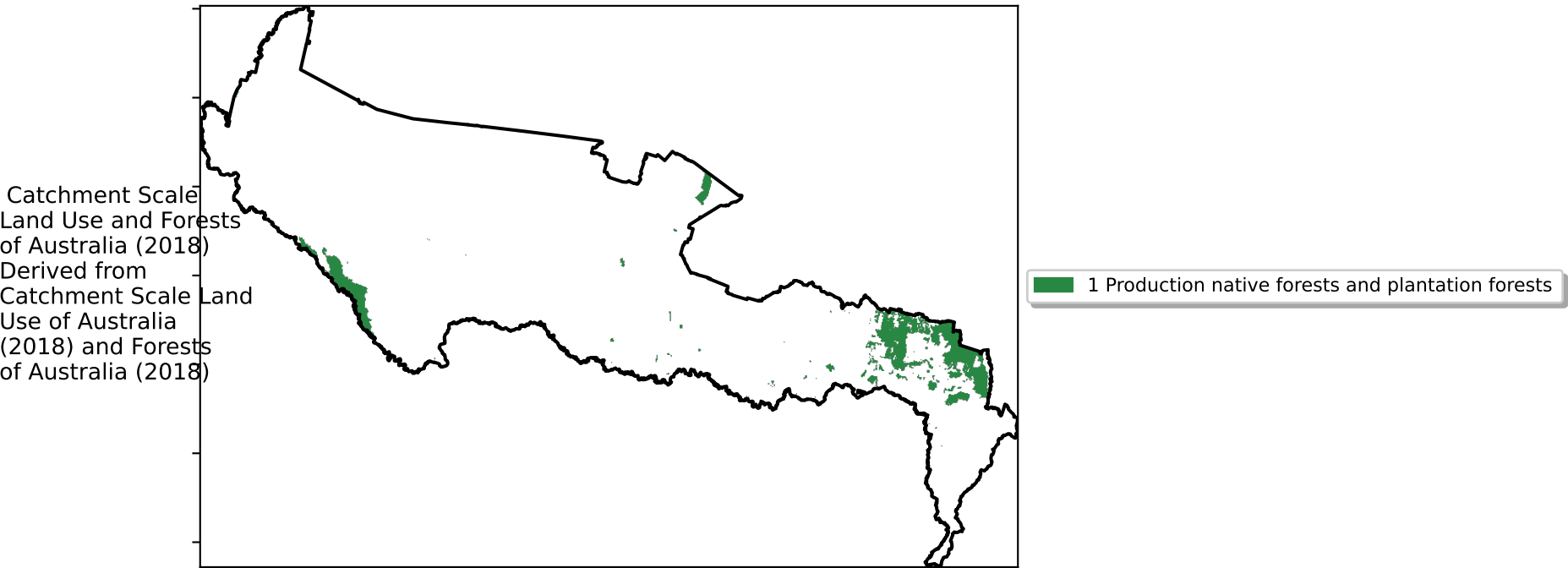


Water erosion historical monthly area protected (Total Veg Cov>70%)

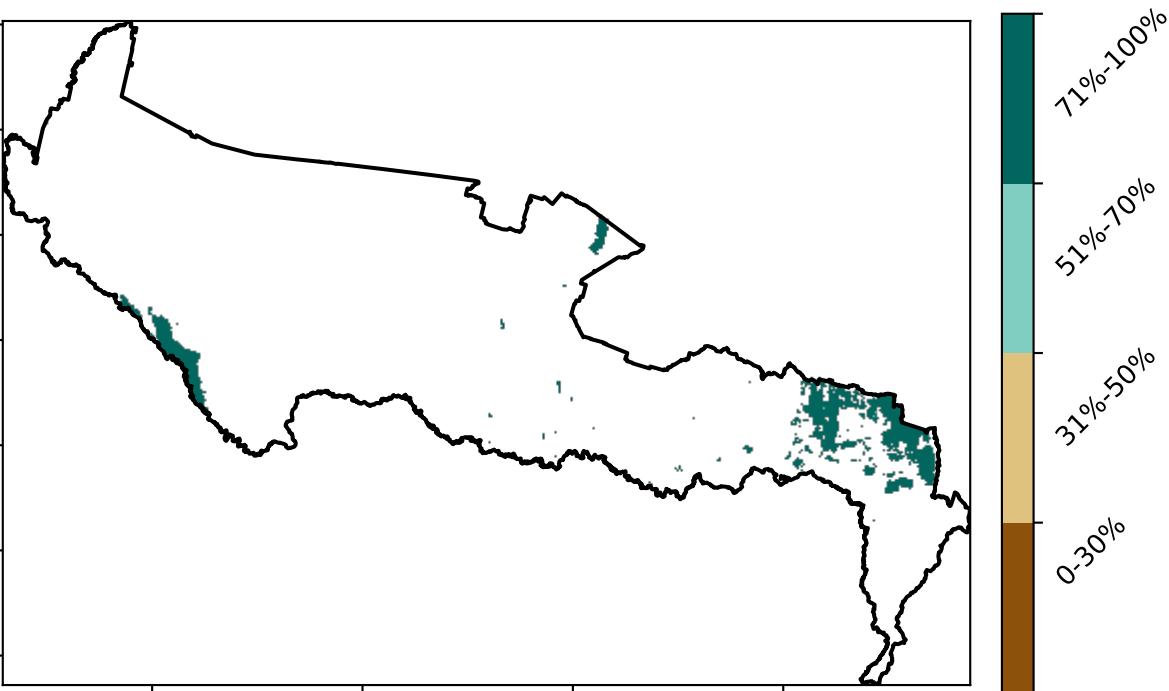


Production native forests and plantation forests

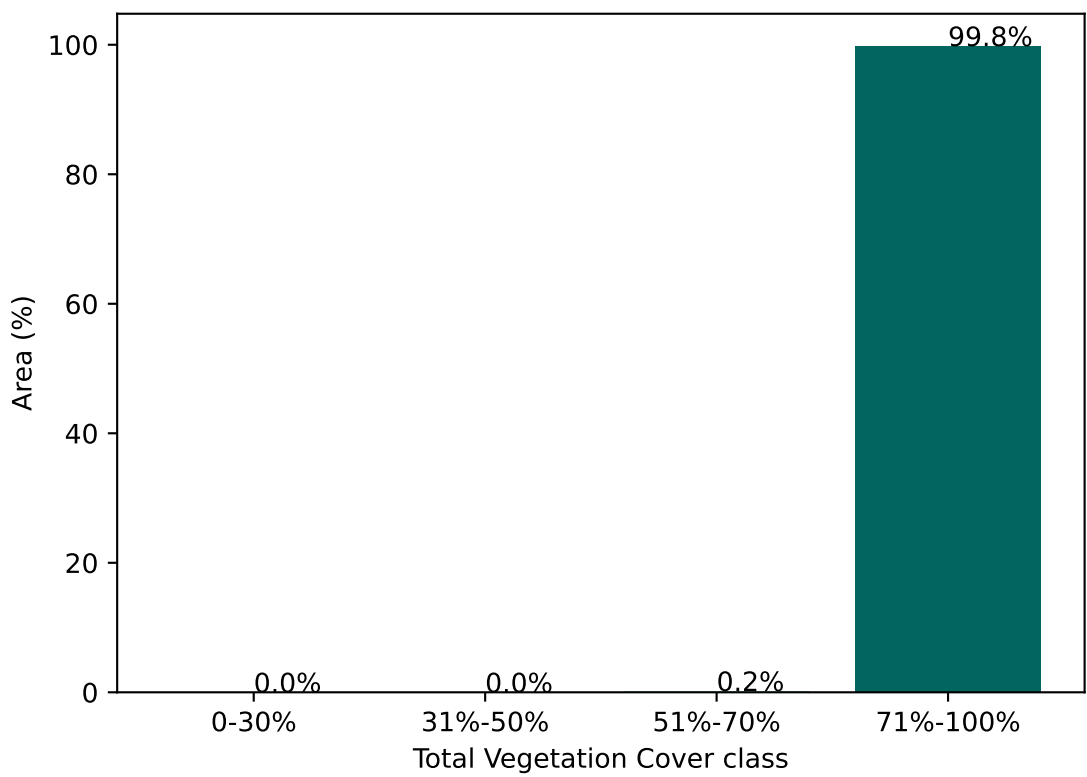
Land use and forest cover



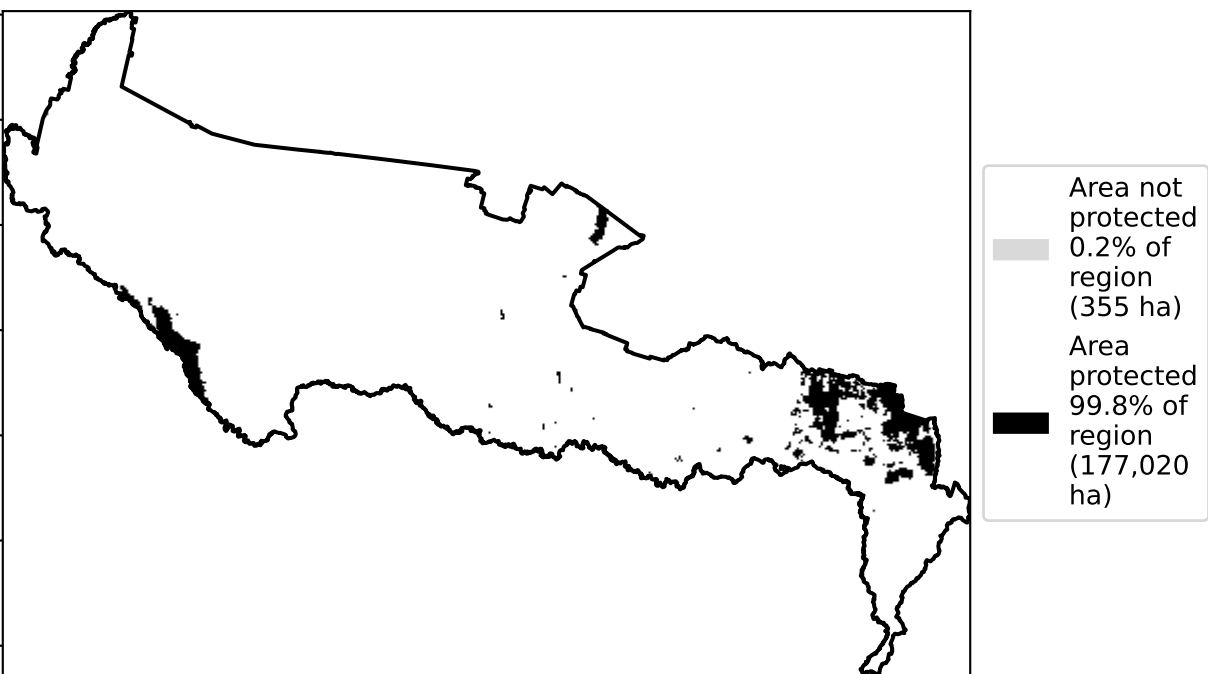
Total Vegetation Cover [%]



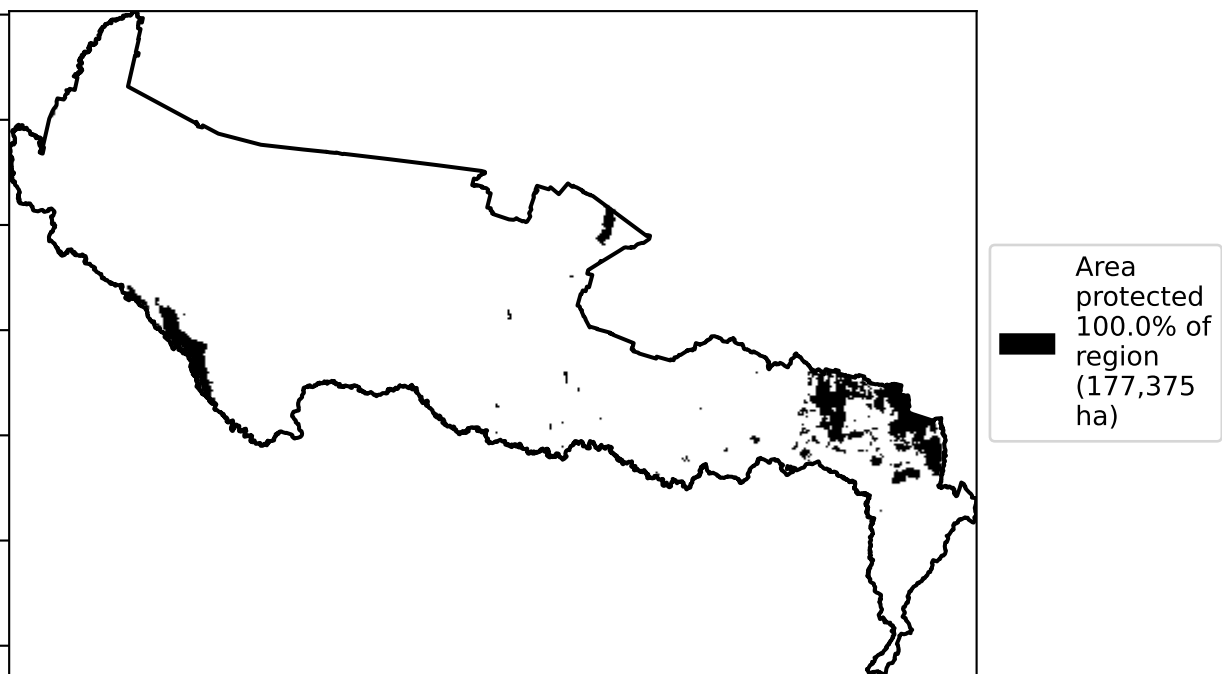
Proportion of vegetation cover class in area



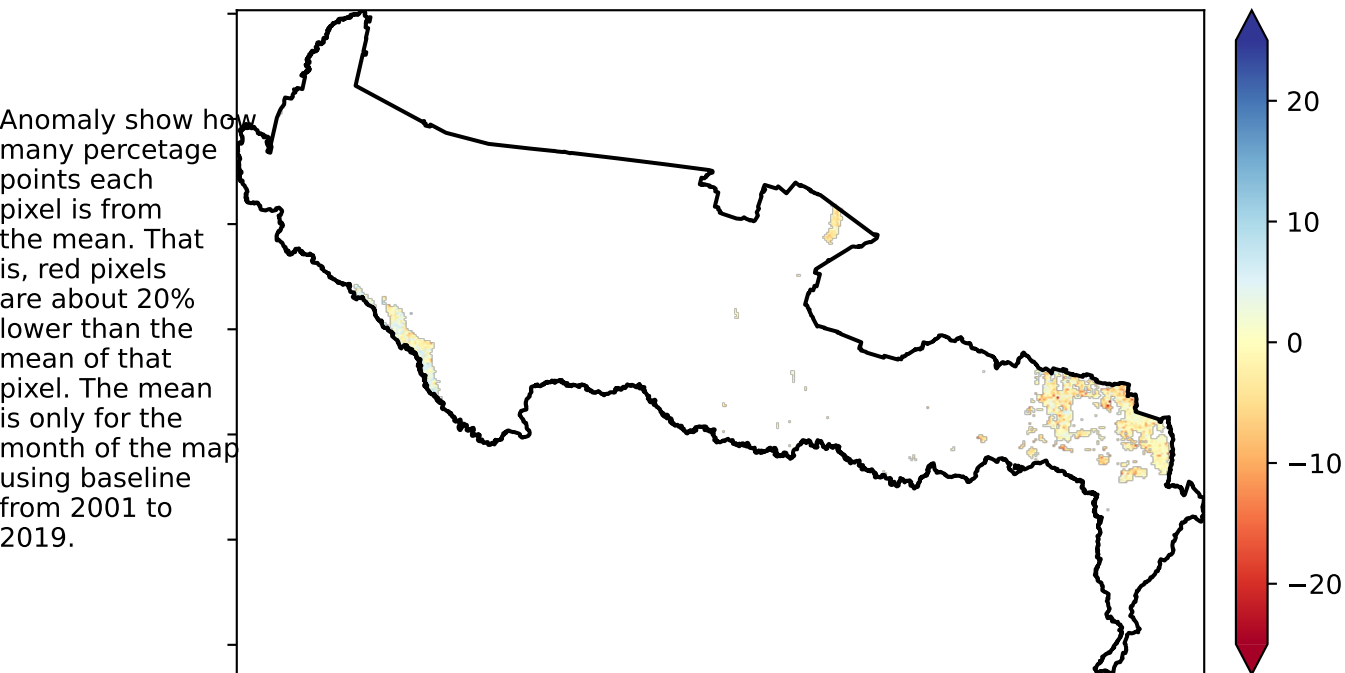
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

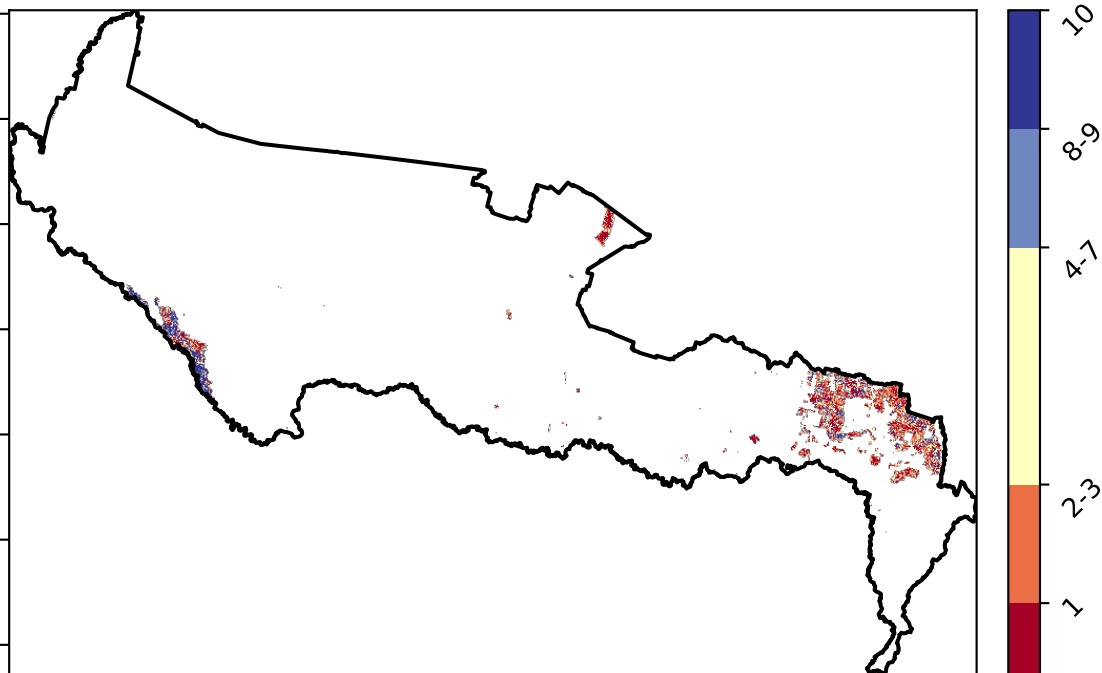


Total Vegetation Cover Anomaly [%]



Total Vegetation Cover Decile [%]

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



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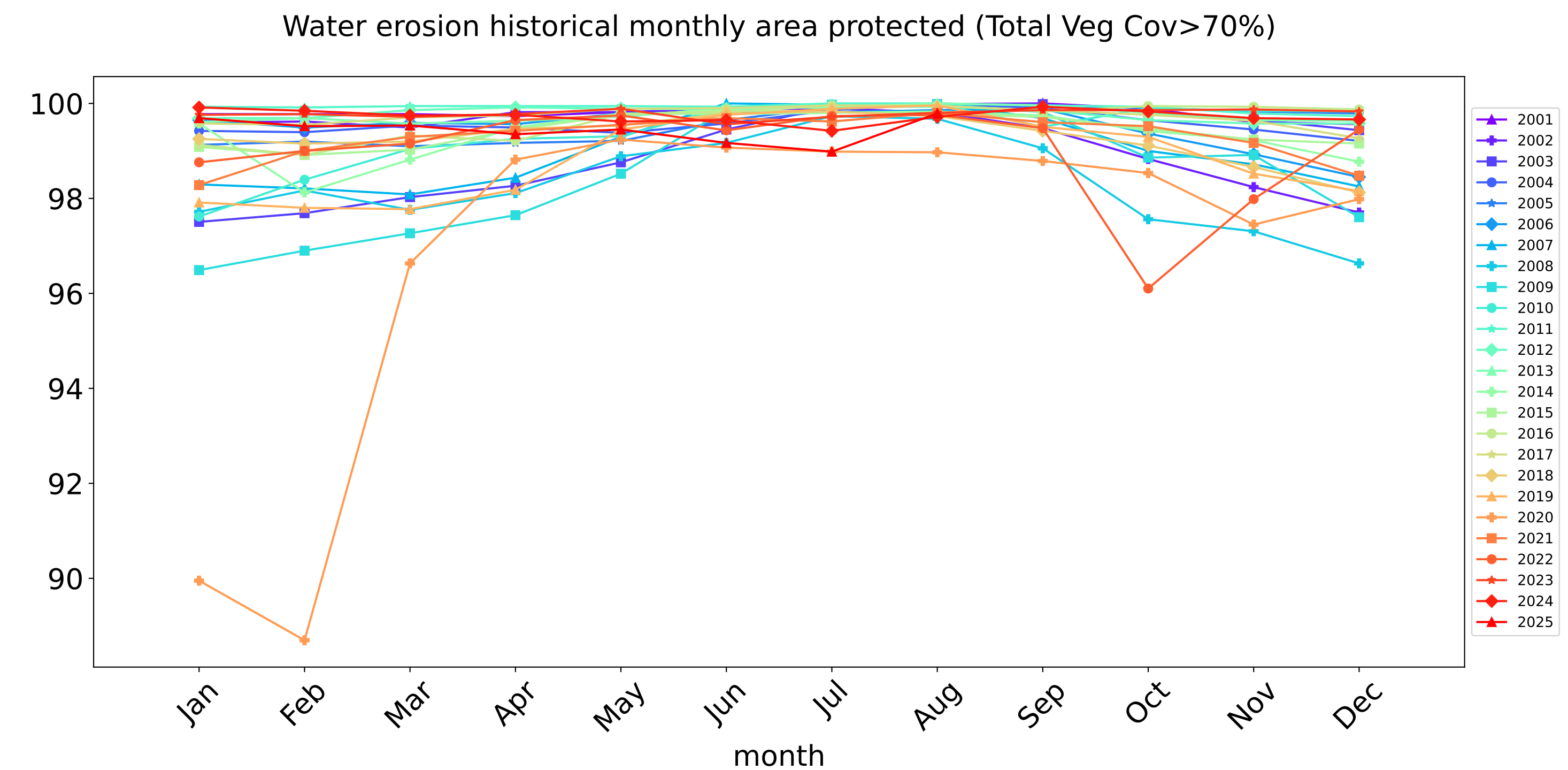
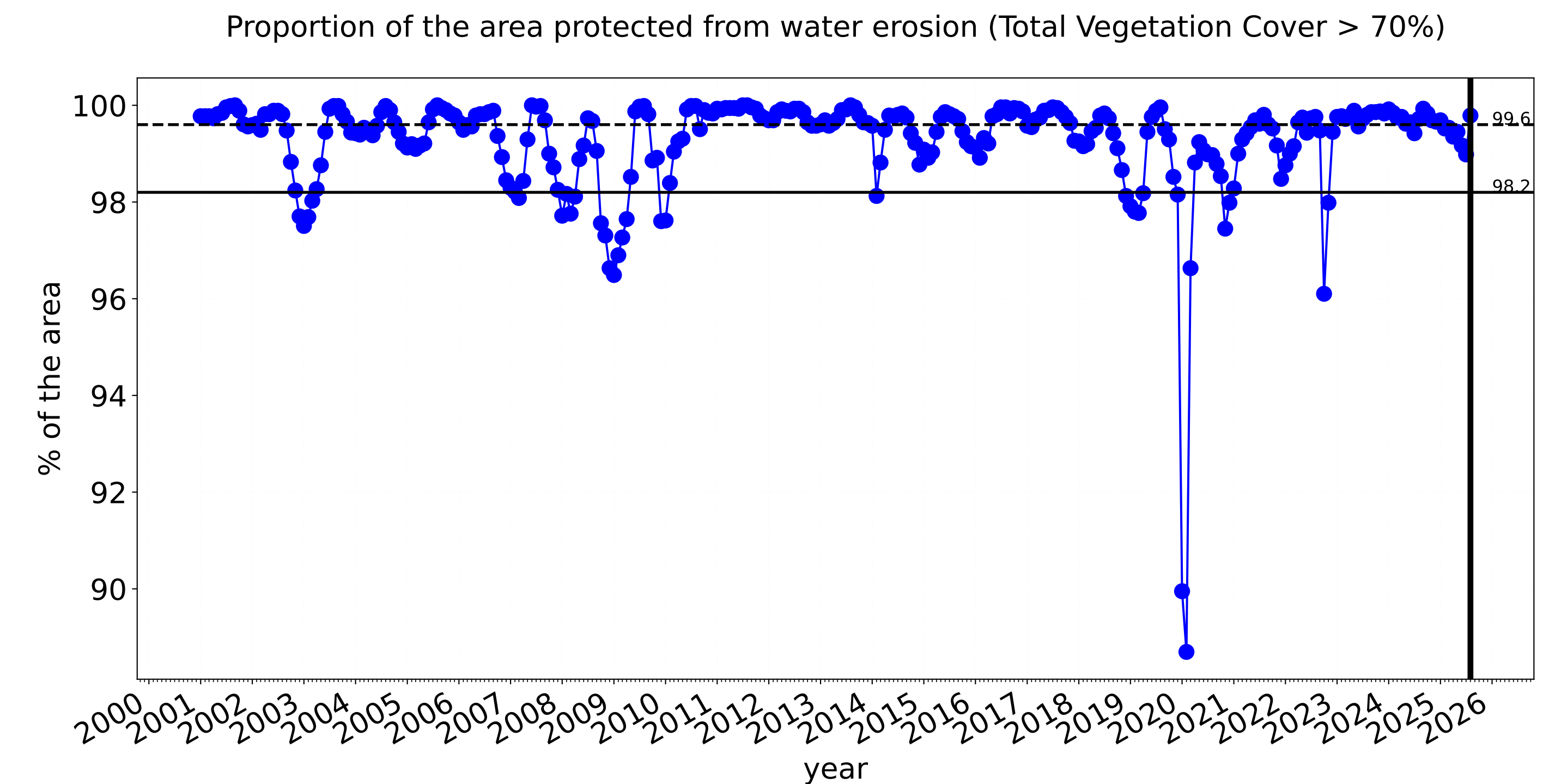
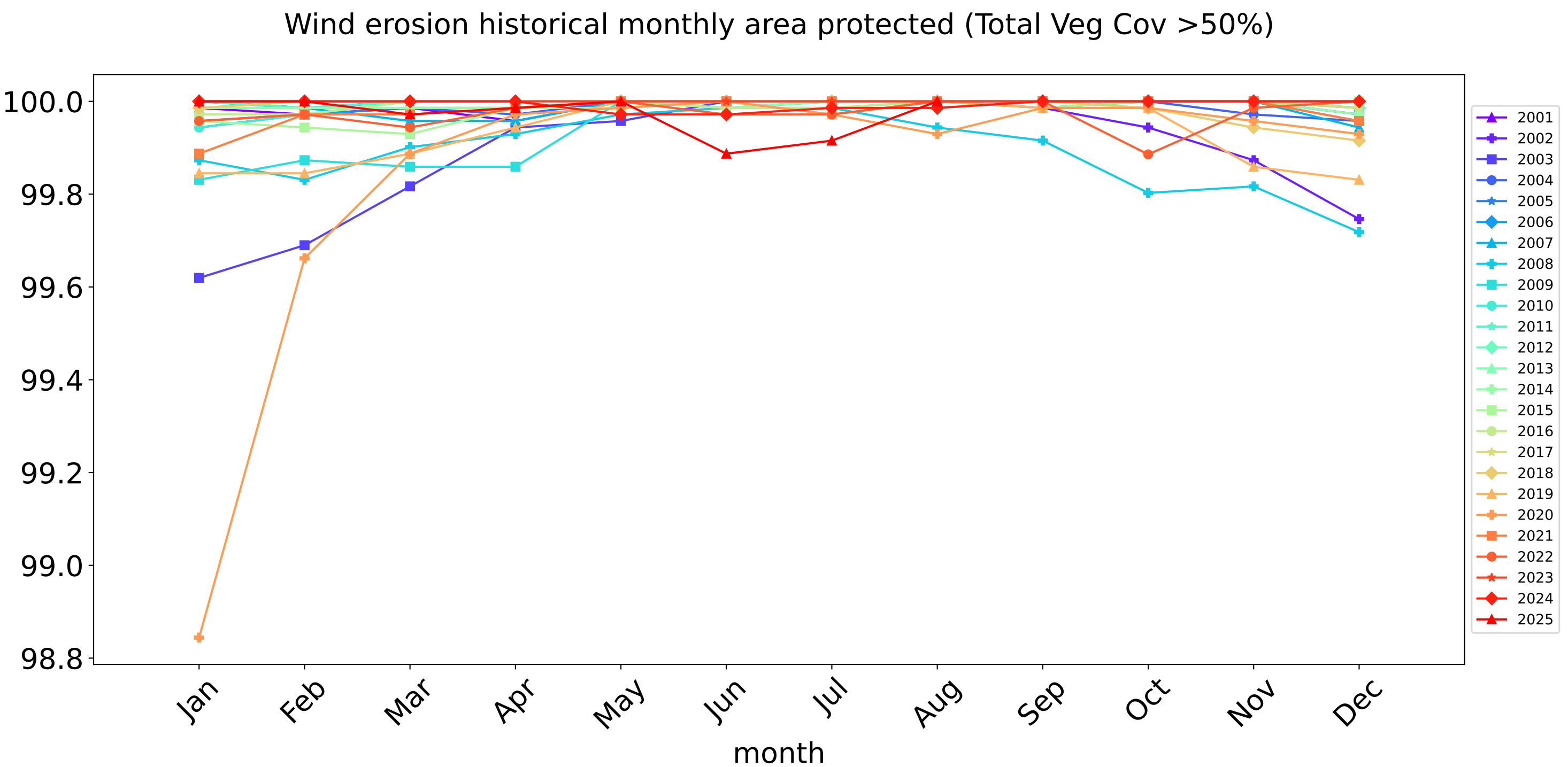
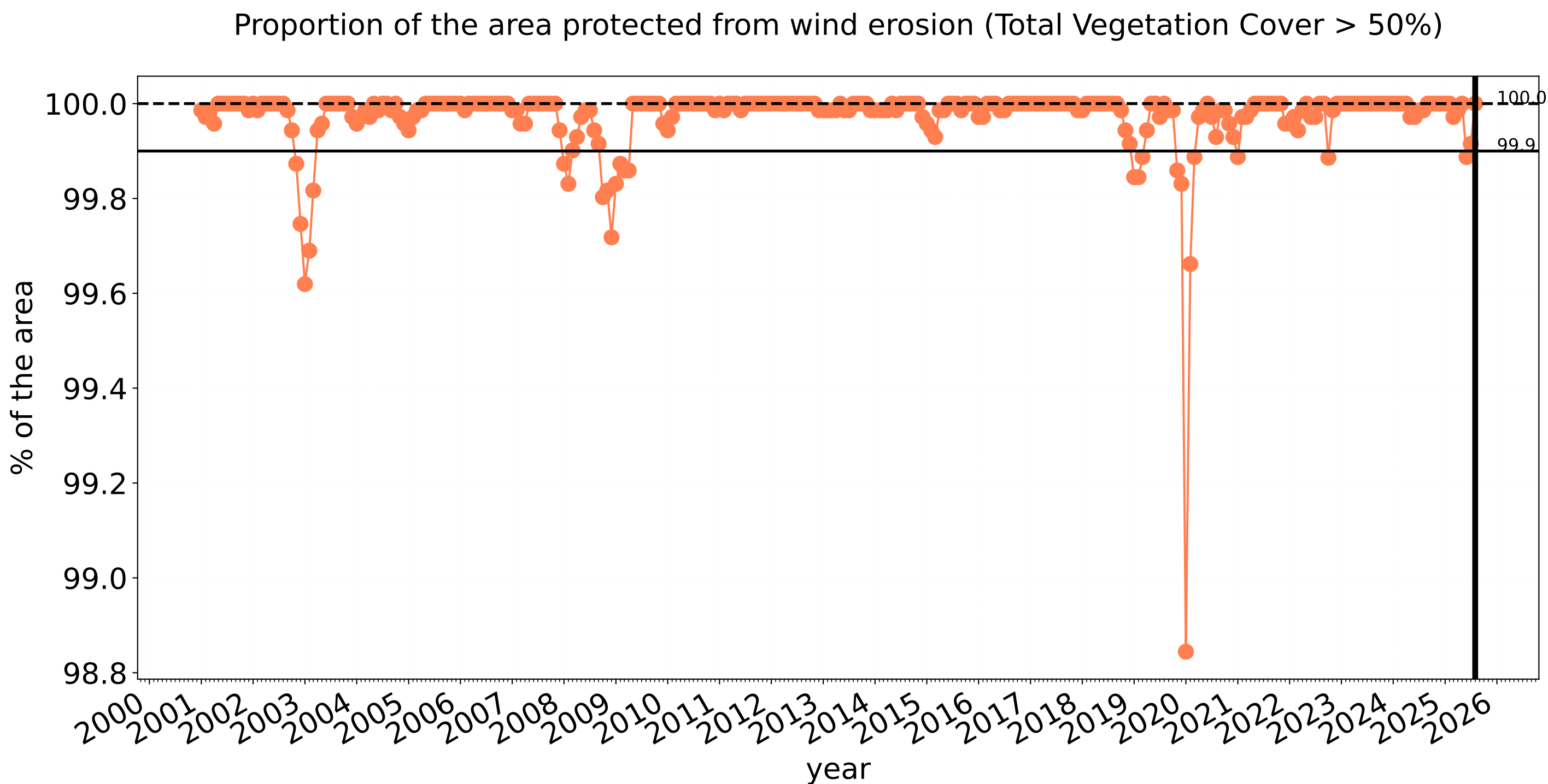


Australian Government

National
Landcare
Programme



Production native forests and plantation forests timeseries



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Murray (4,133,950 ha and no data 55,733 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	4,133,950	99.9% 4,129,650	99.7% 4,123,000	95.9% 3,964,475	79.0% 3,266,125	28.8% 1,189,275	9.5% 393,150
Conservation and natural environments	351,375	100.0% 351,275	99.8% 350,725	98.1% 344,550	90.6% 318,300	58.4% 205,375	27.3% 96,025
Conservation and natural environments non forest	72,425	100.0% 72,400	99.8% 72,250	96.3% 69,750	74.6% 54,025	21.6% 15,675	8.6% 6,250
Conservation and natural environments Woodland forest	76,050	99.9% 75,975	99.5% 75,700	96.6% 73,500	90.6% 68,900	61.0% 46,400	28.1% 21,375
Conservation and natural environments Forest (non woodland)	202,900	100.0% 202,900	99.9% 202,775	99.2% 201,300	96.3% 195,375	70.6% 143,300	33.7% 68,400
Agriculture	3,509,025	100.0% 3,508,250	99.8% 3,503,500	95.8% 3,362,075	77.4% 2,715,375	24.4% 857,400	7.0% 244,125
Grazing	1,719,625	100.0% 1,719,500	99.8% 1,717,025	94.9% 1,631,825	74.8% 1,285,525	24.3% 418,125	6.7% 115,750
Grazing non forest	1,555,000	100.0% 1,554,875	99.8% 1,552,400	94.4% 1,468,425	73.1% 1,136,625	22.5% 349,925	5.9% 91,400
Grazing Woodland forest	75,675	100.0% 75,675	100.0% 75,675	99.4% 75,225	88.2% 66,750	28.8% 21,800	8.4% 6,350
Grazing - Forest (non woodland)	88,950	100.0% 88,950	100.0% 88,950	99.1% 88,175	92.4% 82,150	52.2% 46,400	20.2% 18,000
Cropping	1,043,675	99.9% 1,043,125	99.9% 1,042,450	98.1% 1,023,950	86.1% 898,450	31.1% 324,775	9.5% 99,050
Irrigation	745,325	100.0% 745,225	99.8% 743,625	94.7% 705,900	71.3% 531,150	15.4% 114,450	3.9% 29,325
Production native forests and plantation forests	177,375	100.0% 177,375	100.0% 177,375	99.8% 177,000	97.7% 173,275	61.9% 109,725	27.1% 48,150