

Total vegetation cover soil protection

Region:LGA Hepburn_(S) VIC

Date: April 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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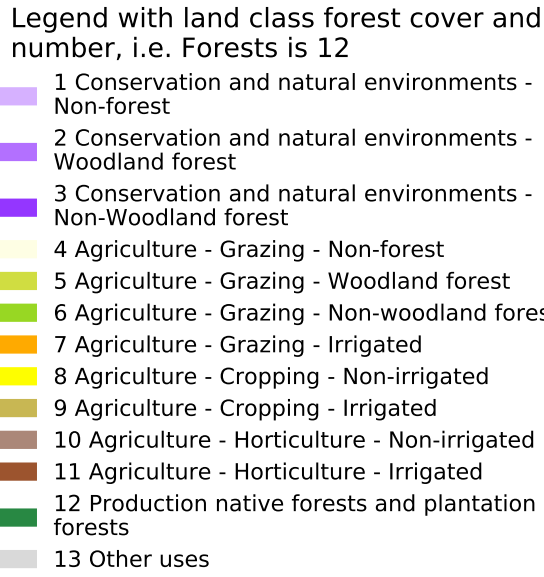
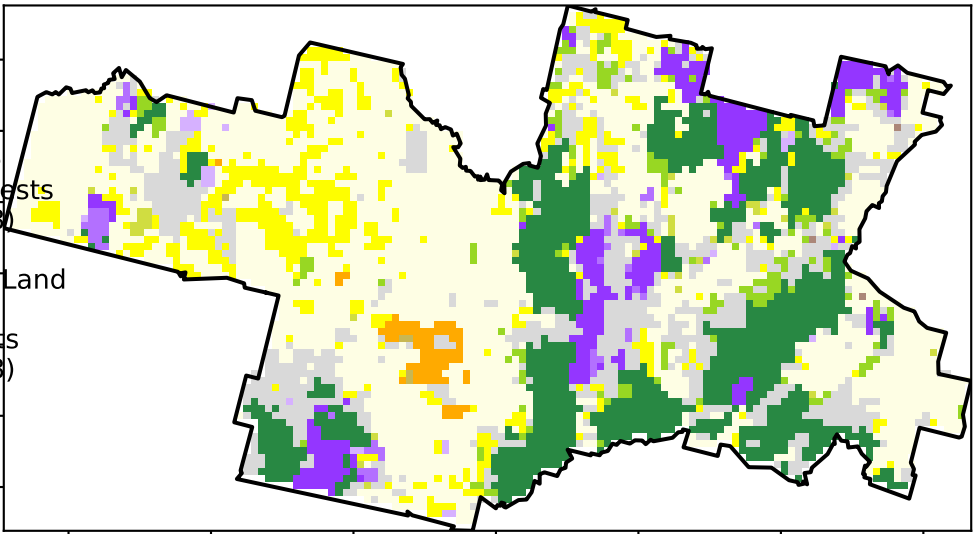
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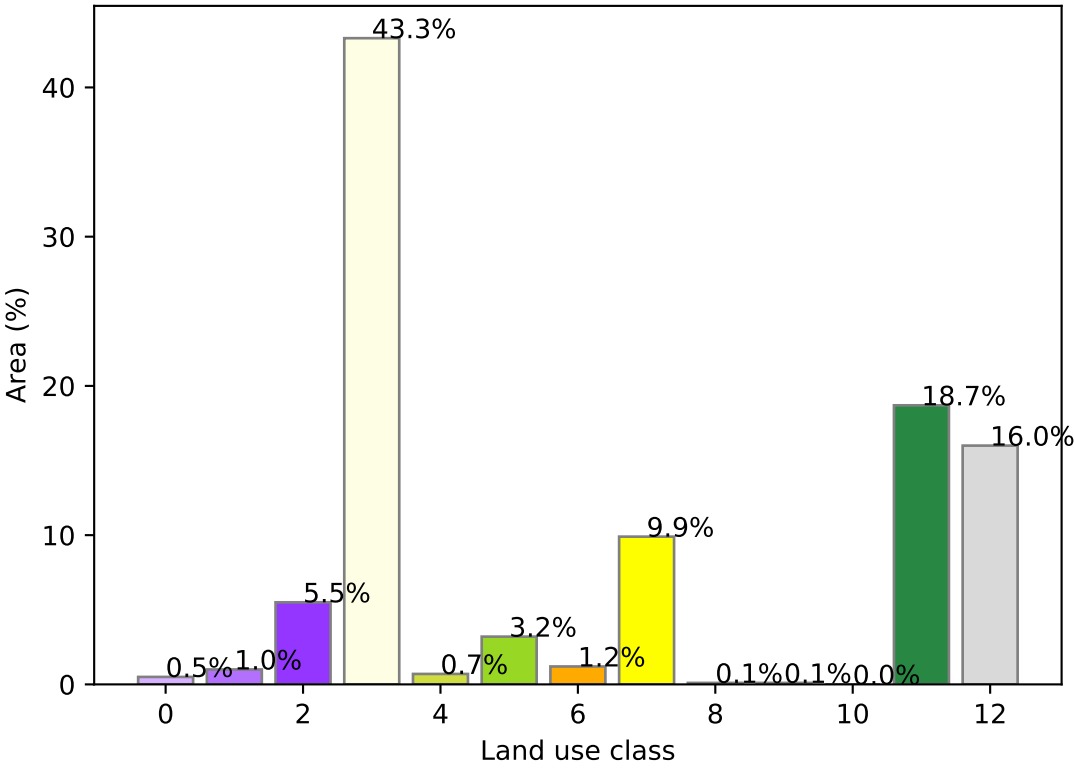
Vegetation Cover Apr 2025

Land use and forest cover

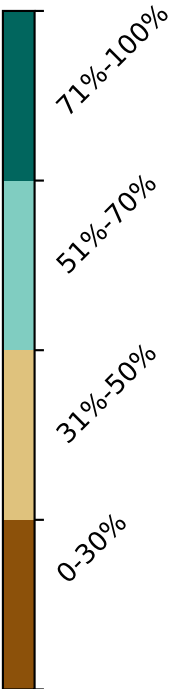
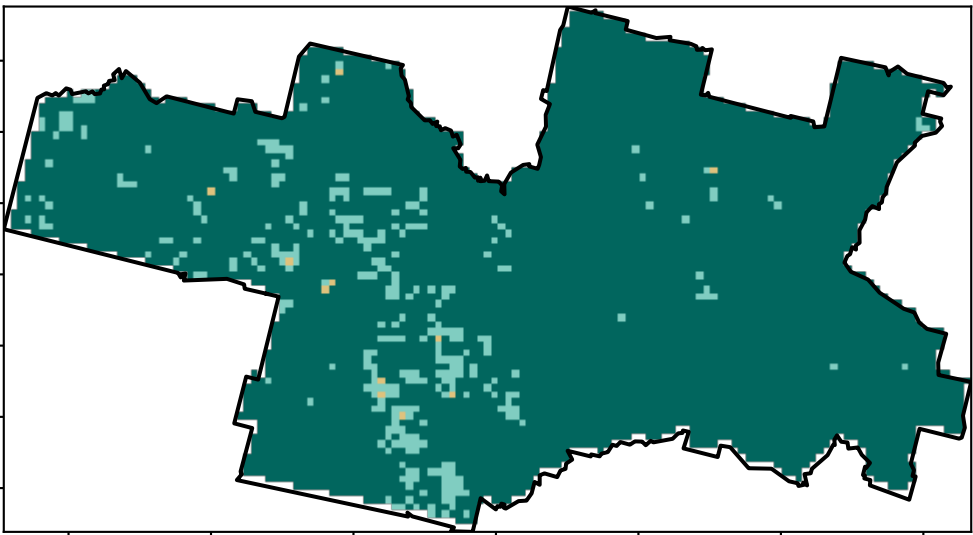
Catchment Scale
Land Use and Forests
of Australia (2018)
Derived from
Catchment Scale Land
Use of Australia
(2018) and Forests
of Australia (2018)



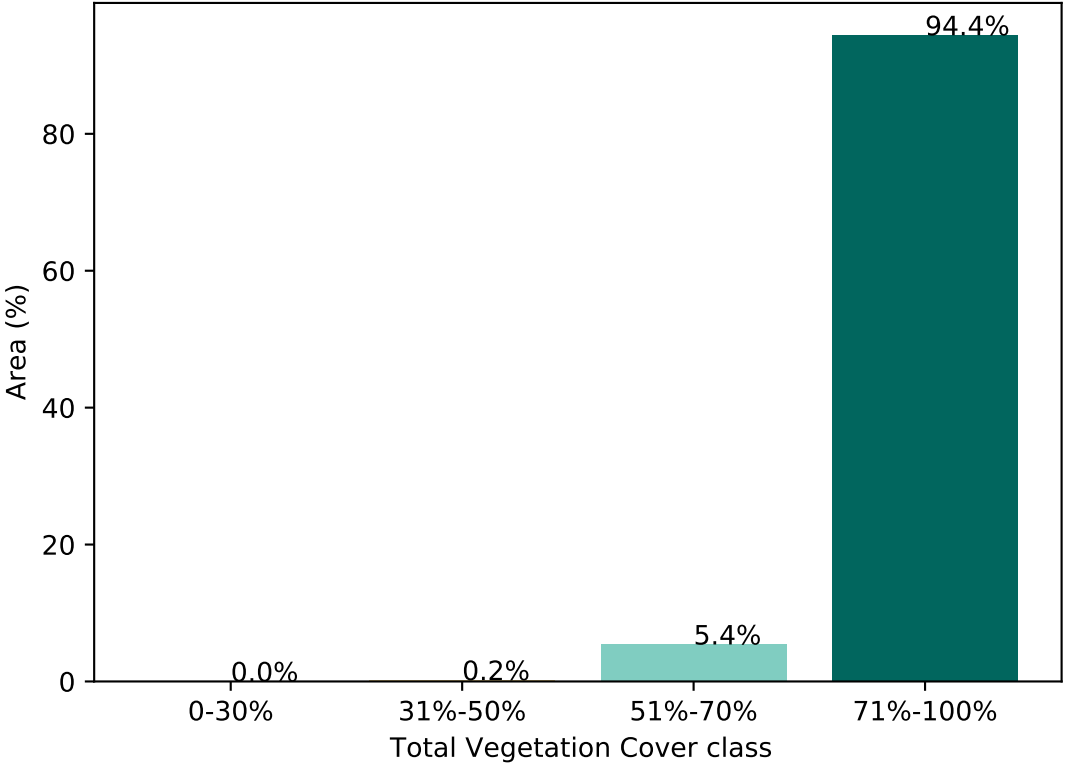
Proportion of each land class in area



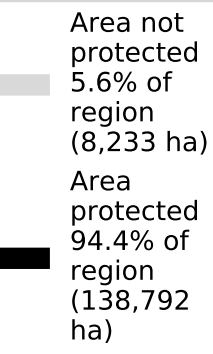
Total Vegetation Cover [%]



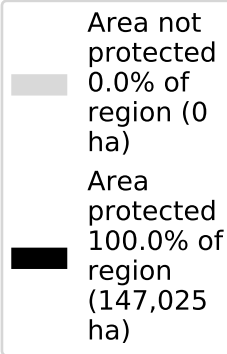
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

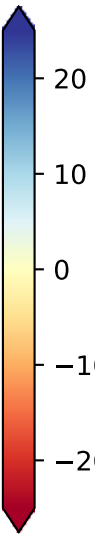
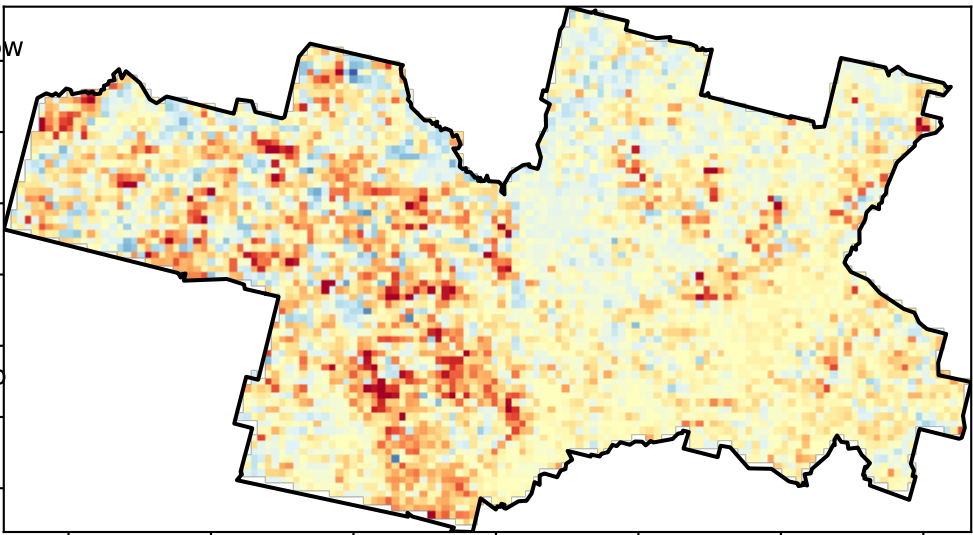


% Area protected from wind erosion (>50%)



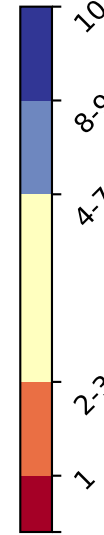
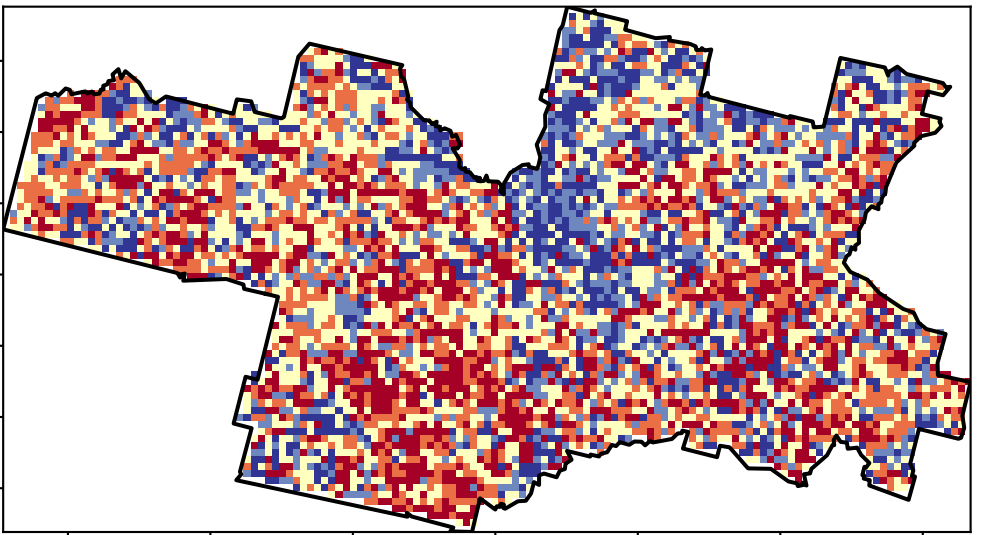
Total Vegetation Cover Anomaly [%]

Anomaly 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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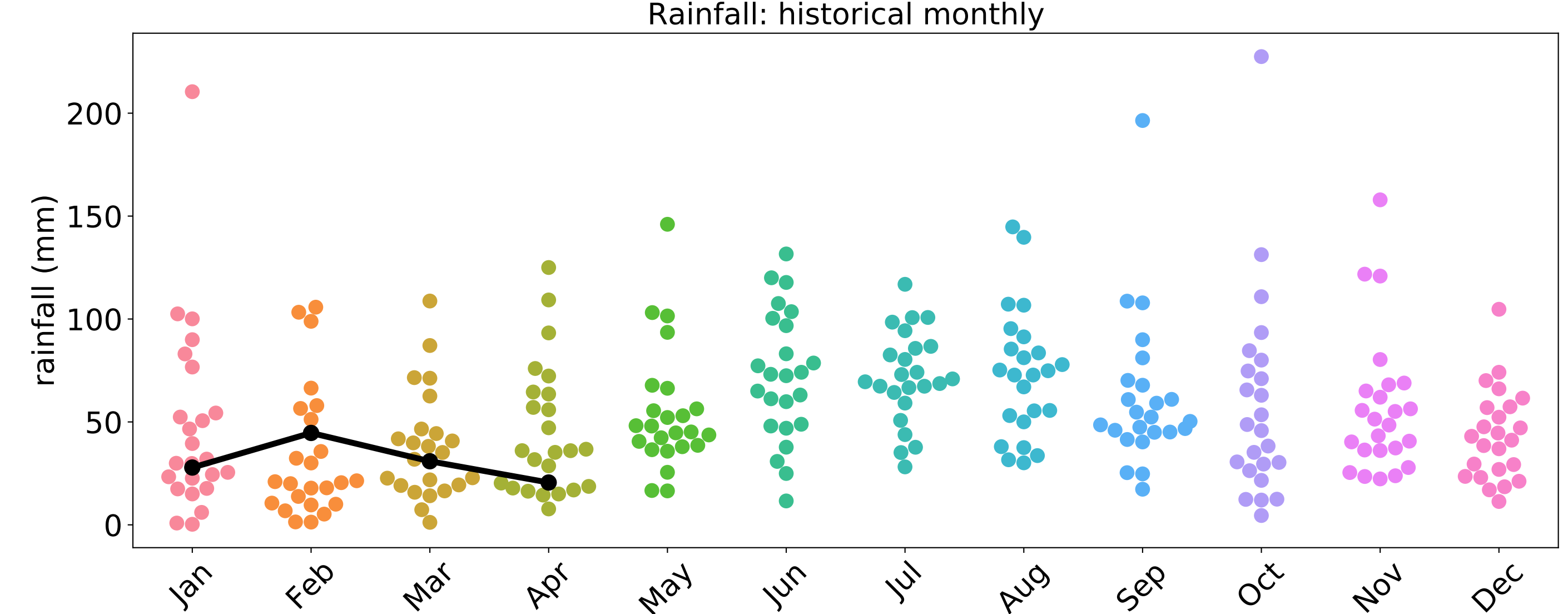
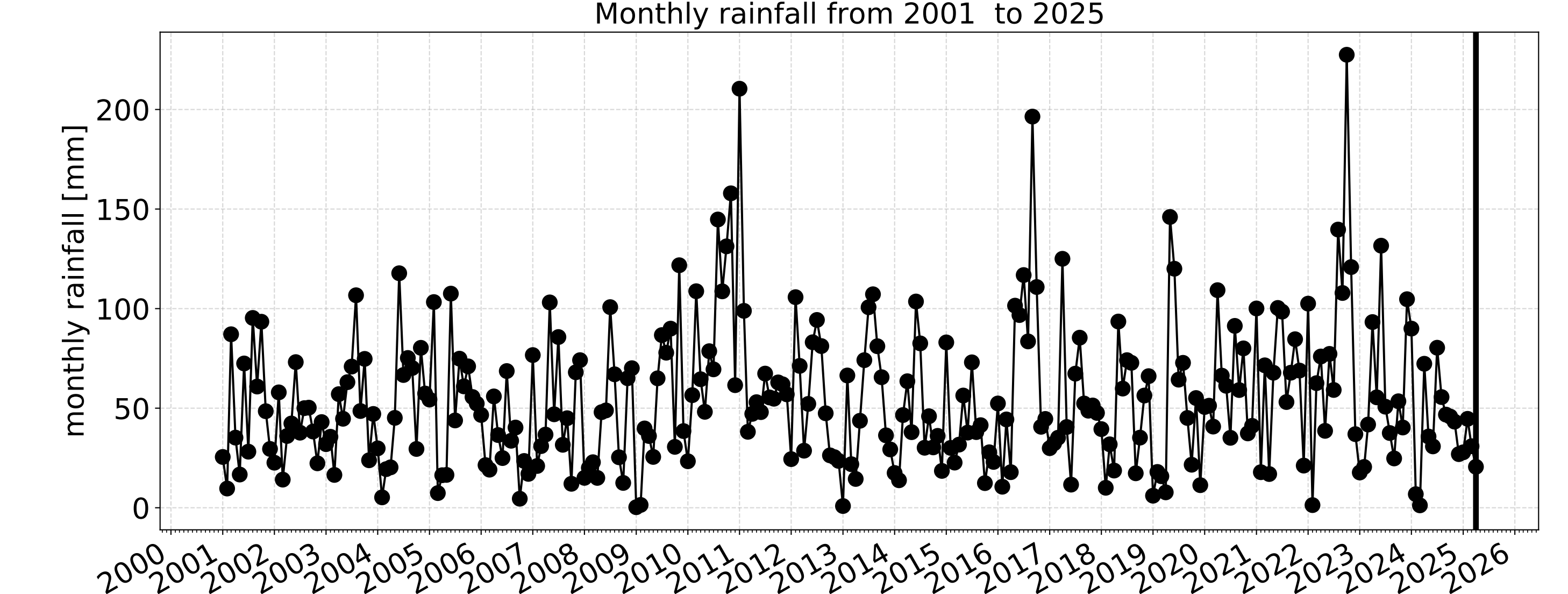
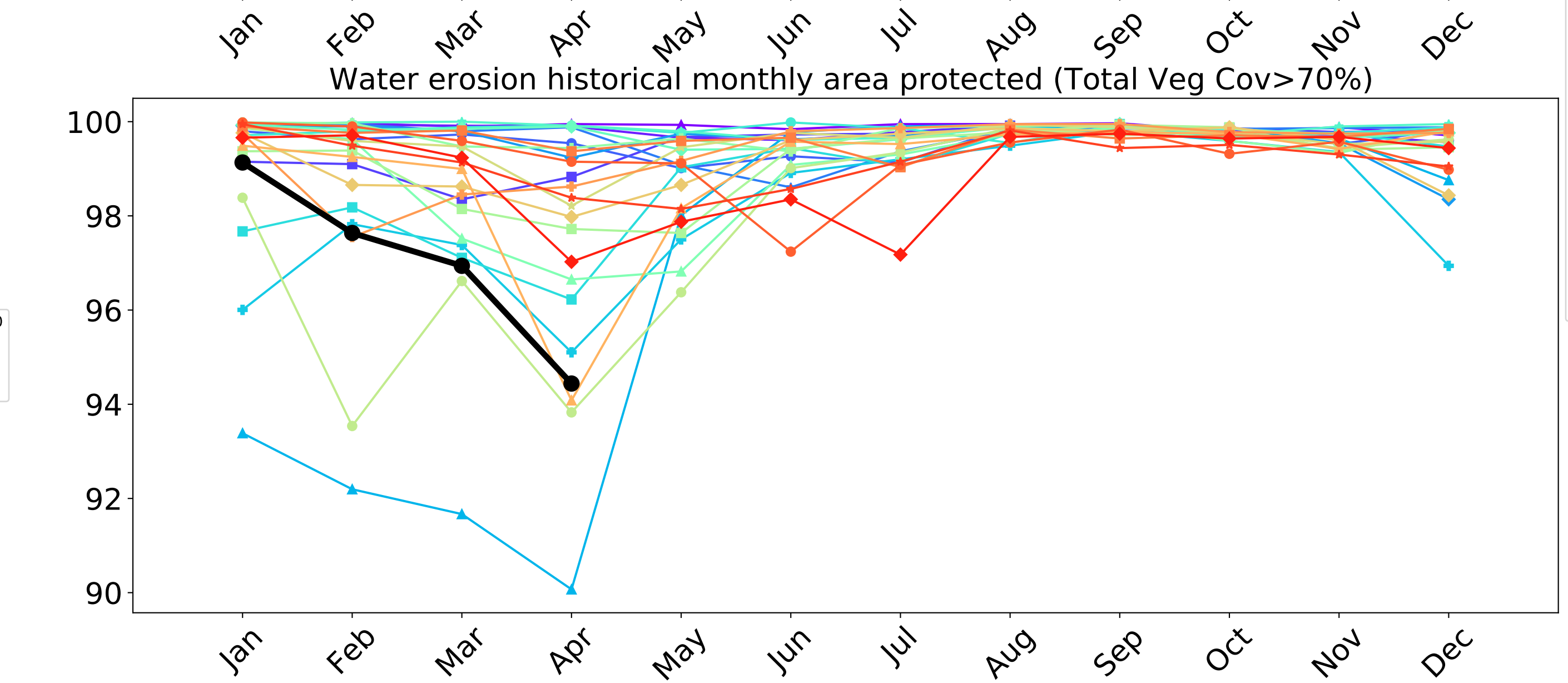
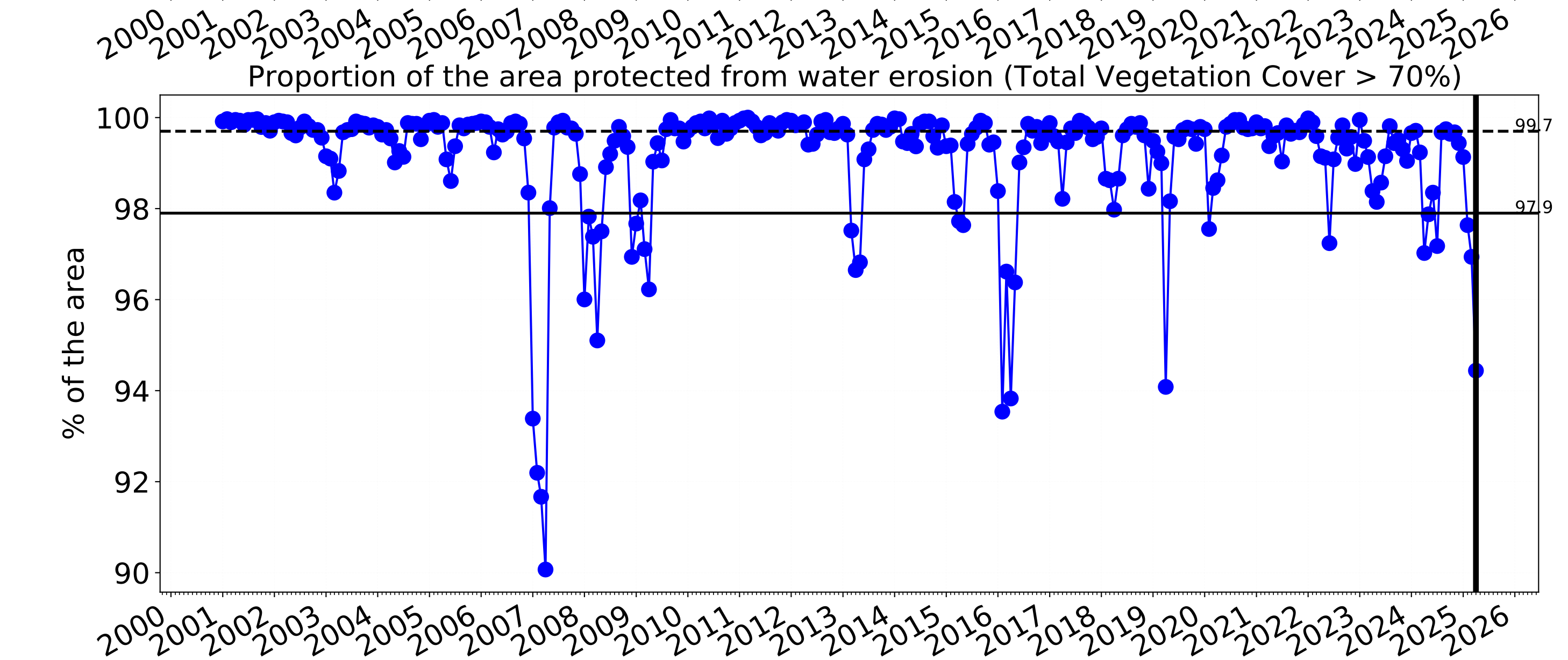
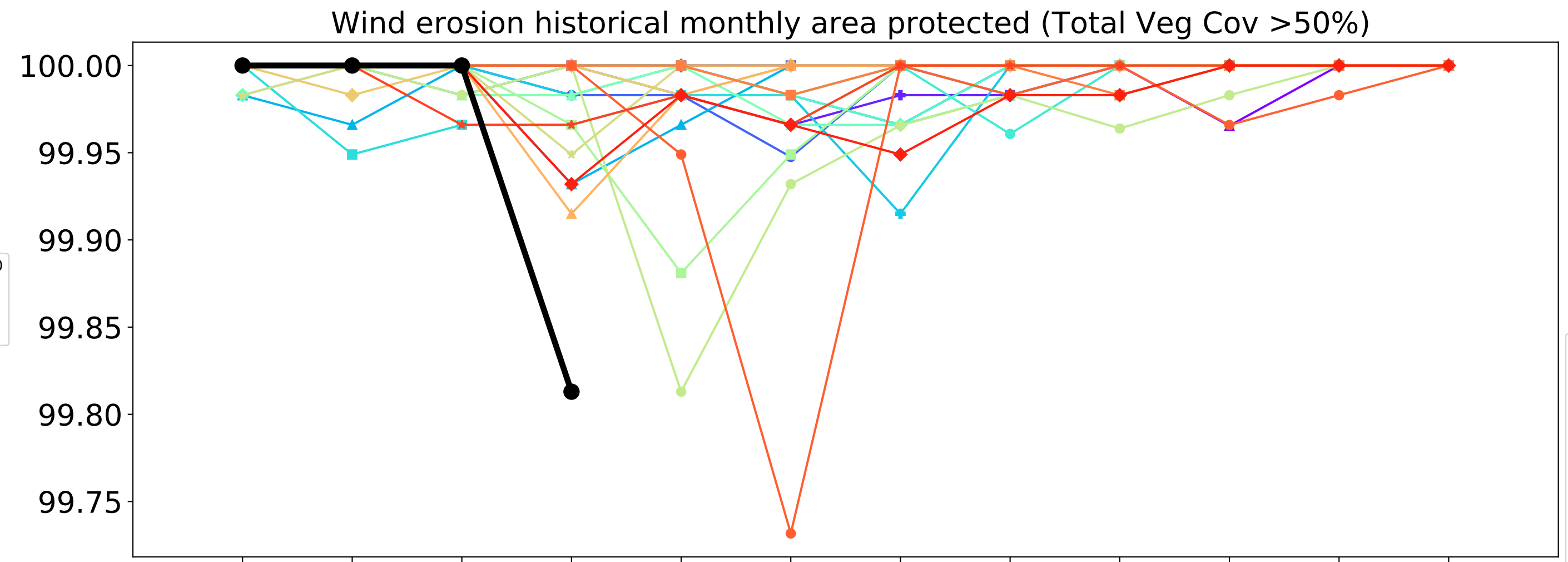
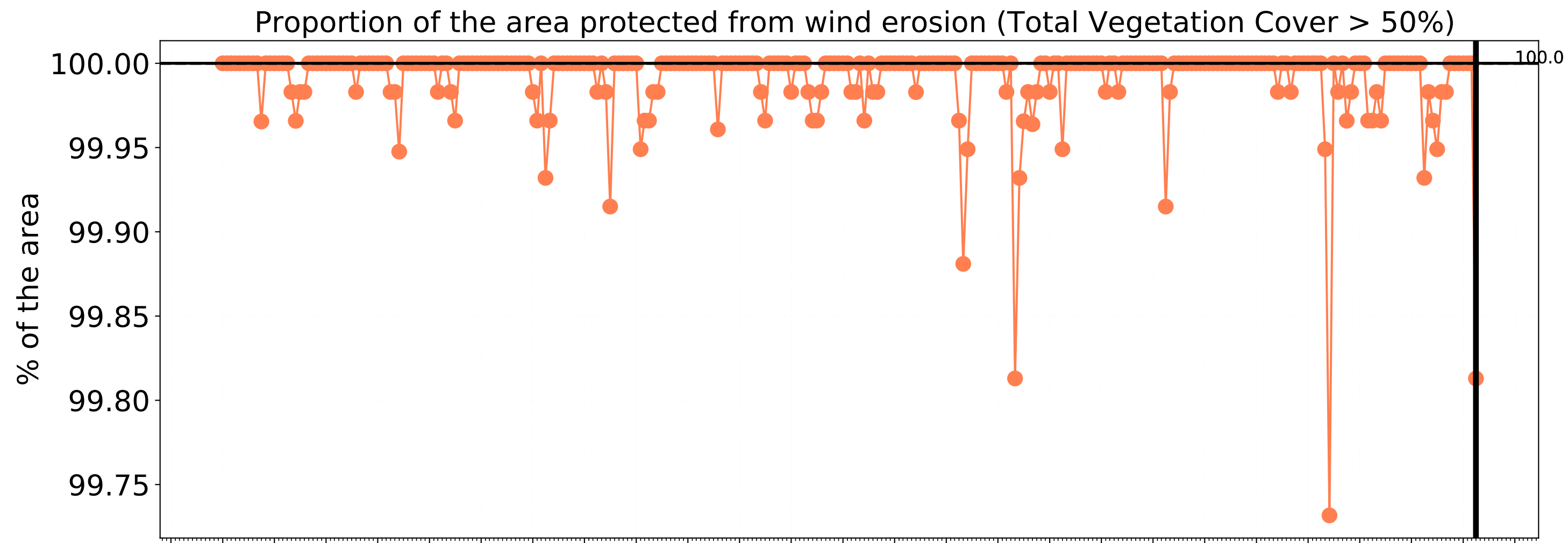
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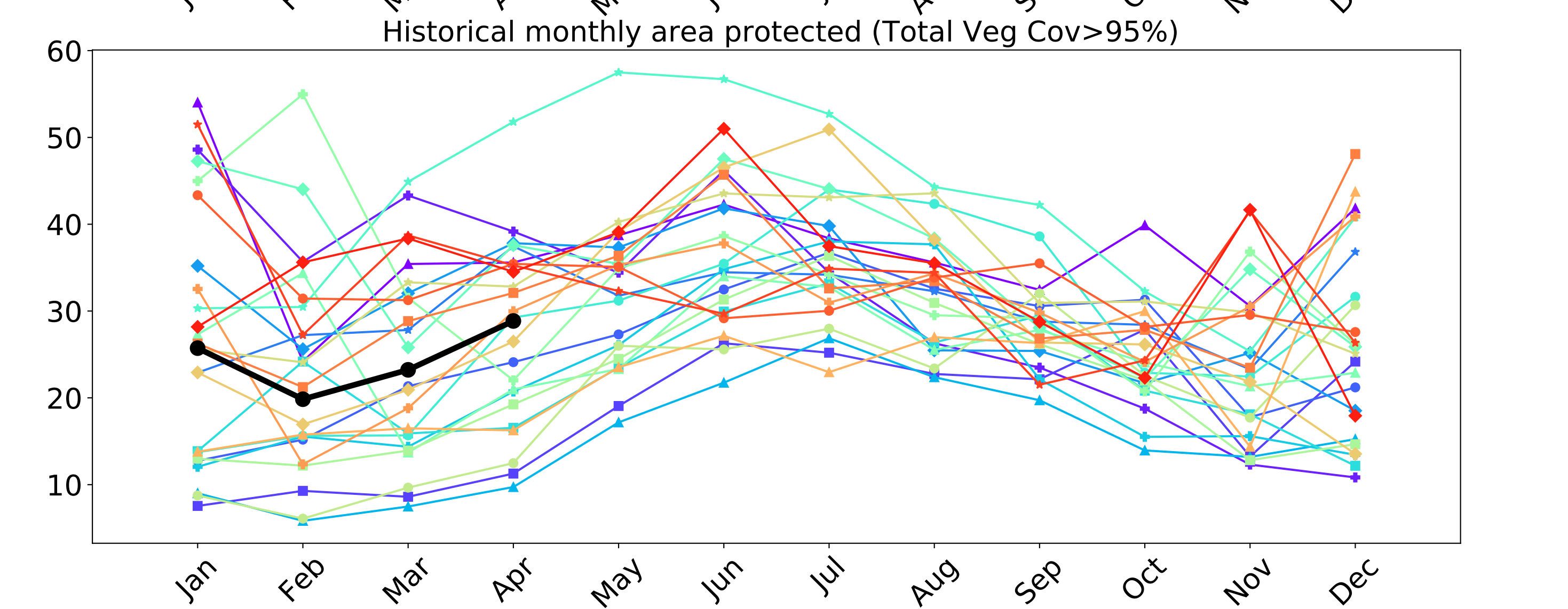
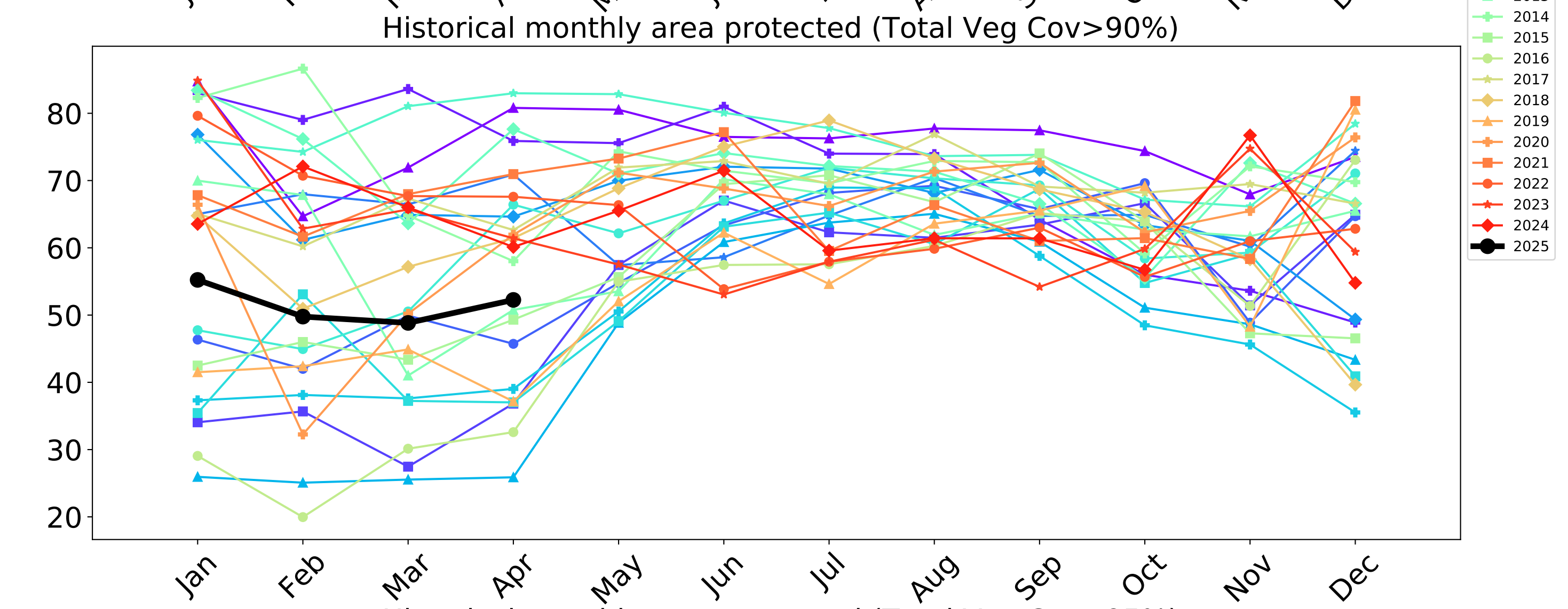
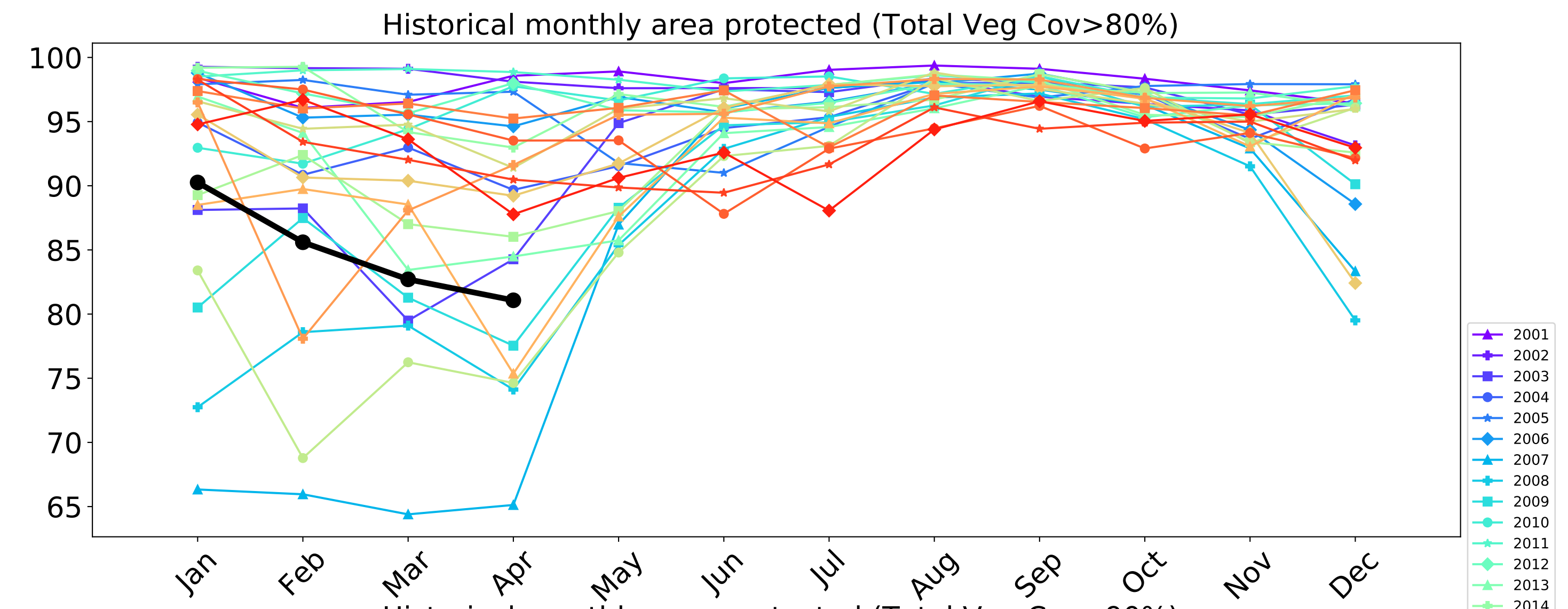
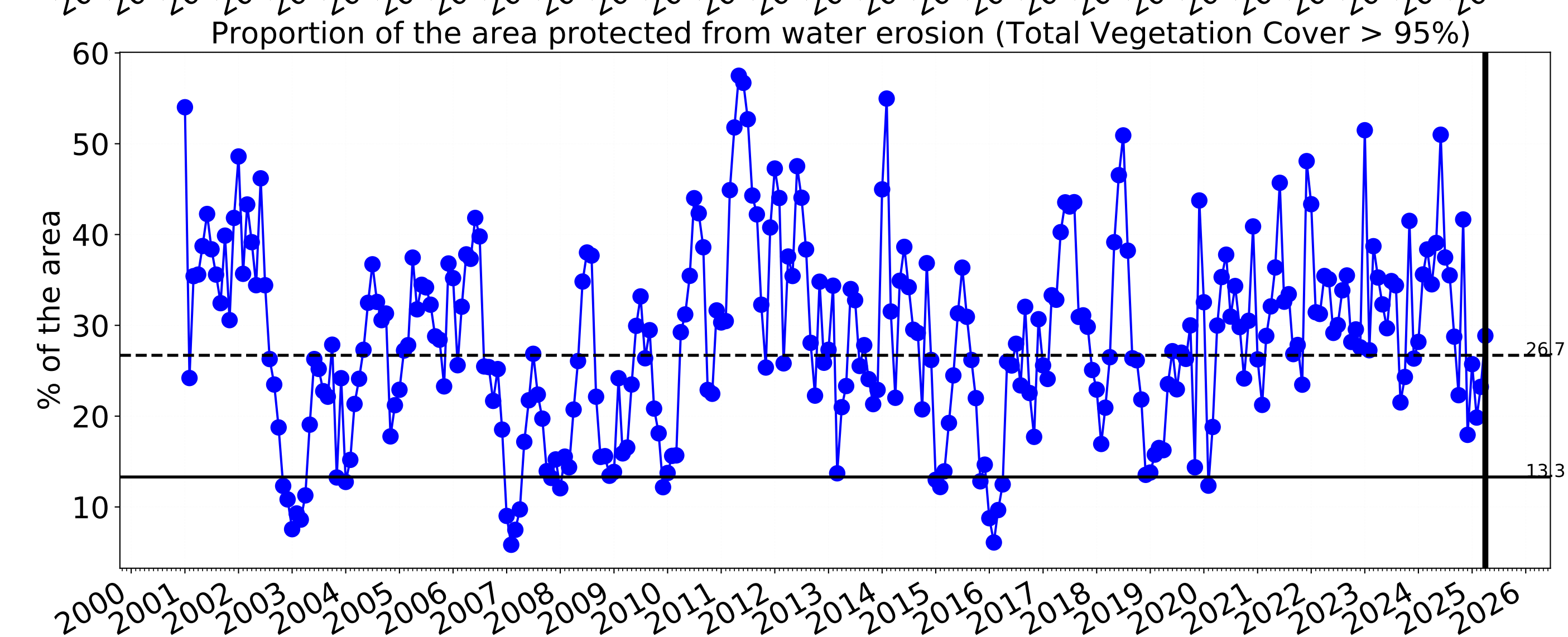
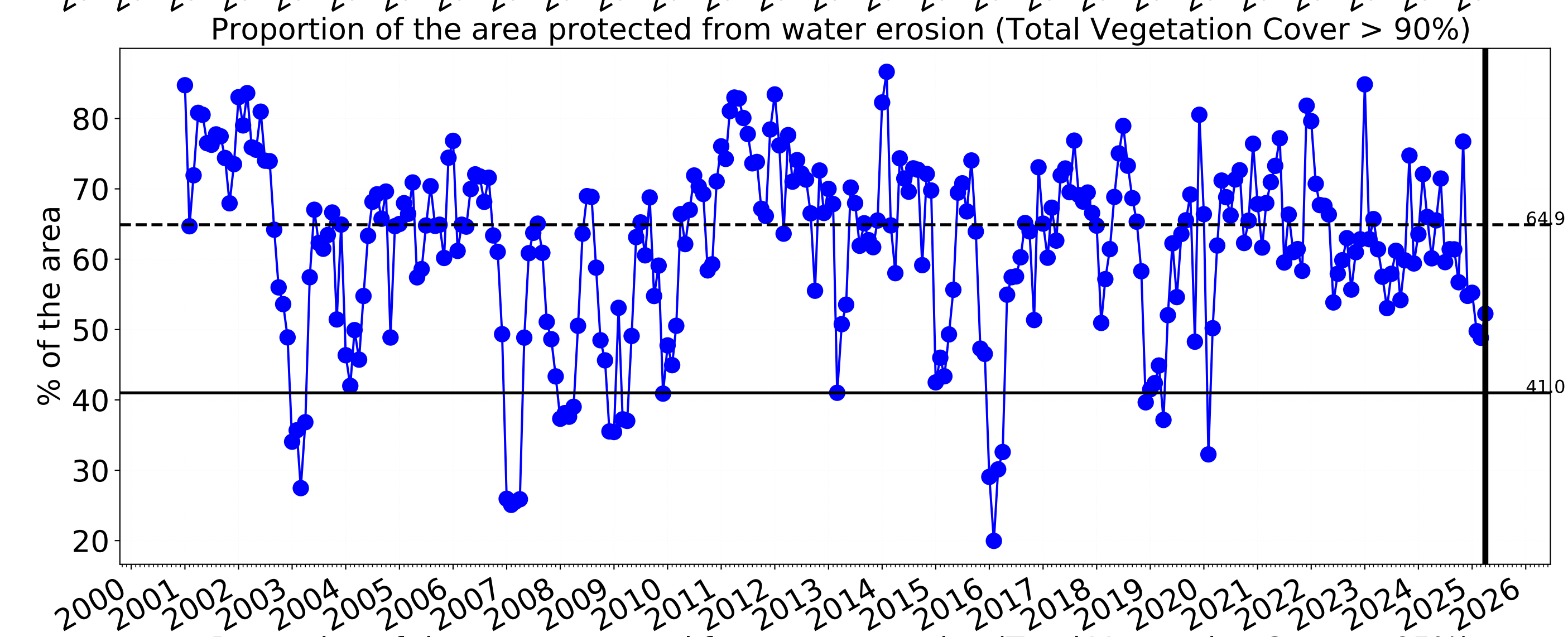
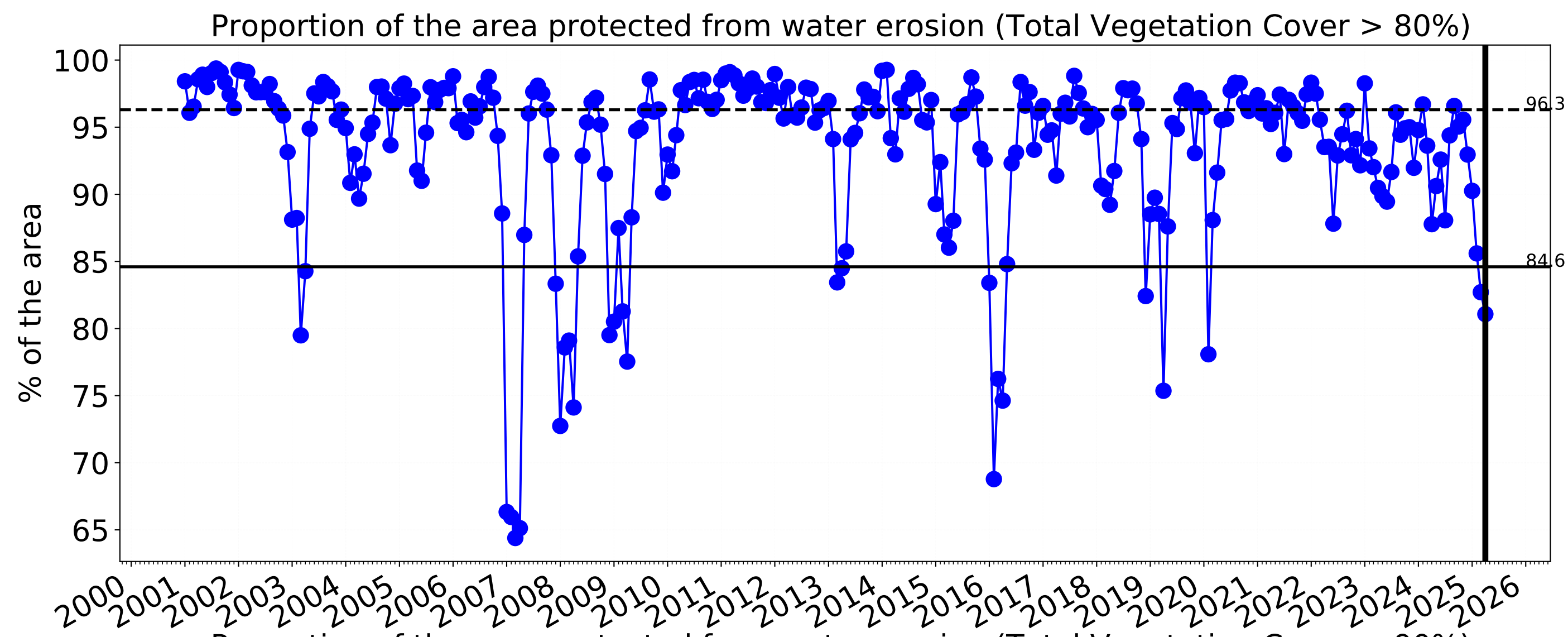


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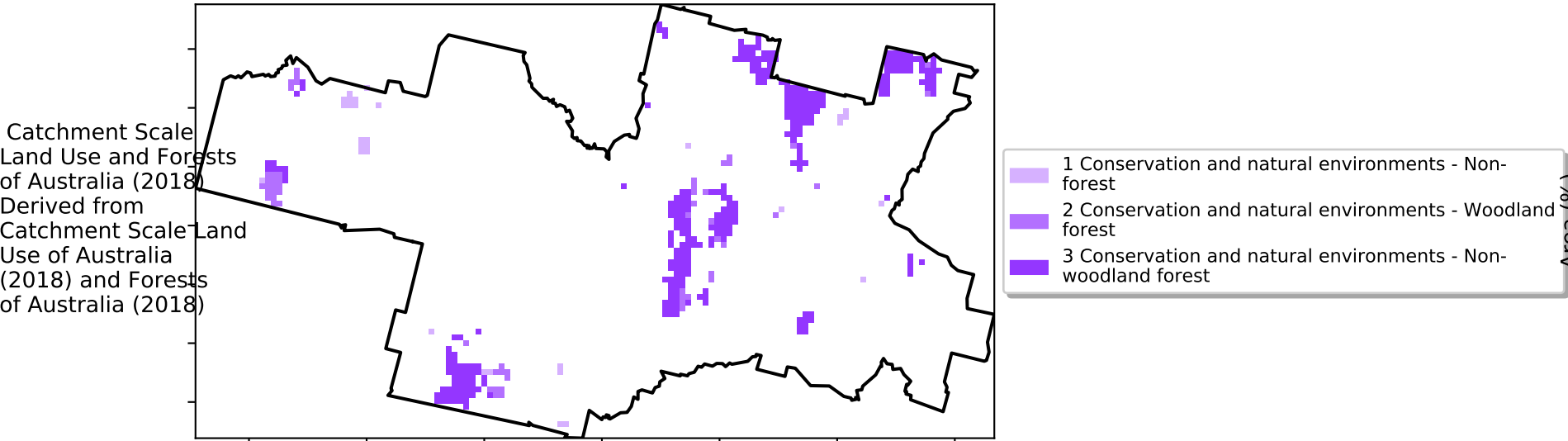




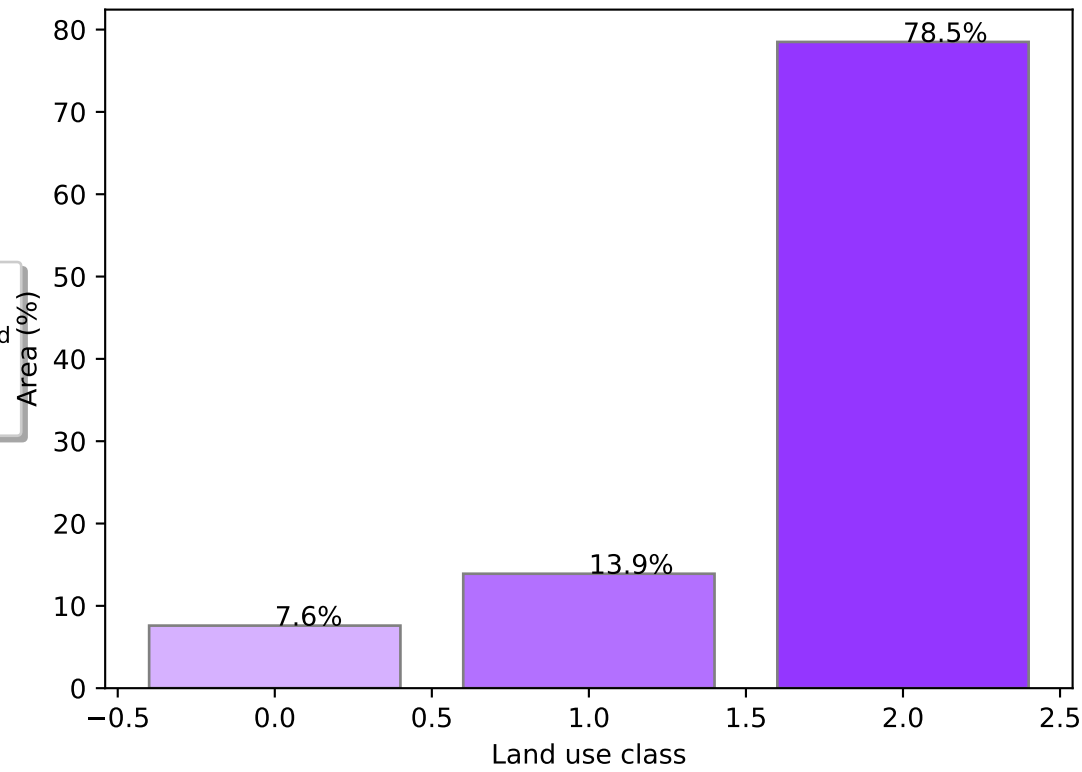


Conservation and natural environments

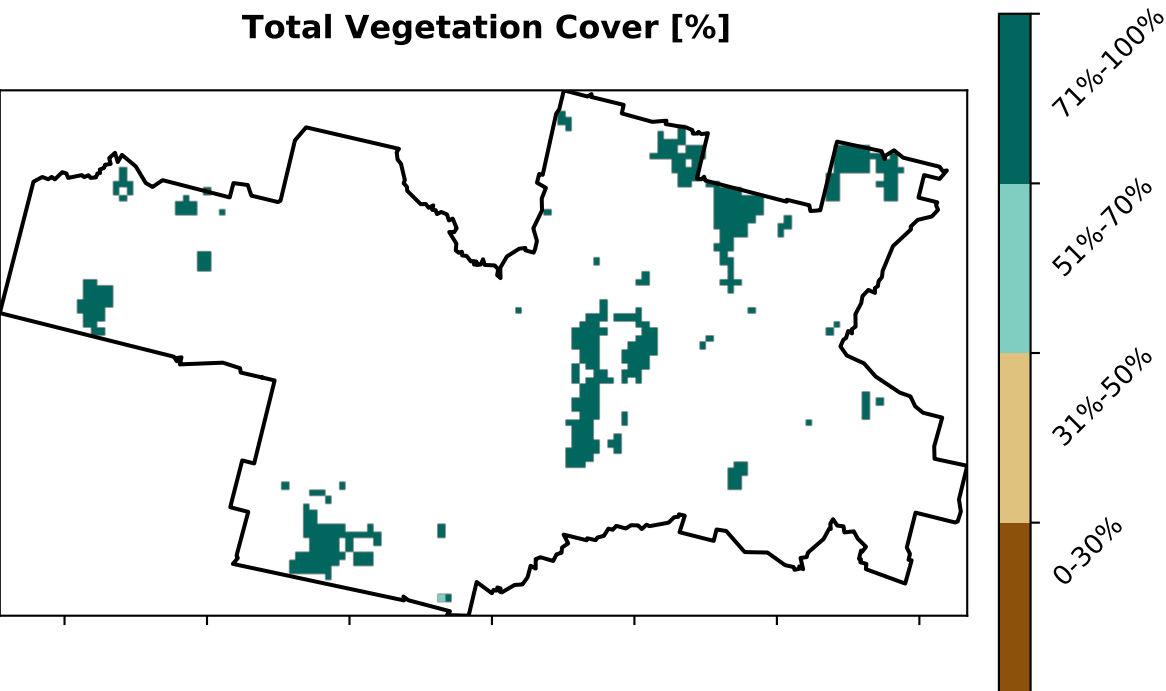
Land use and forest cover



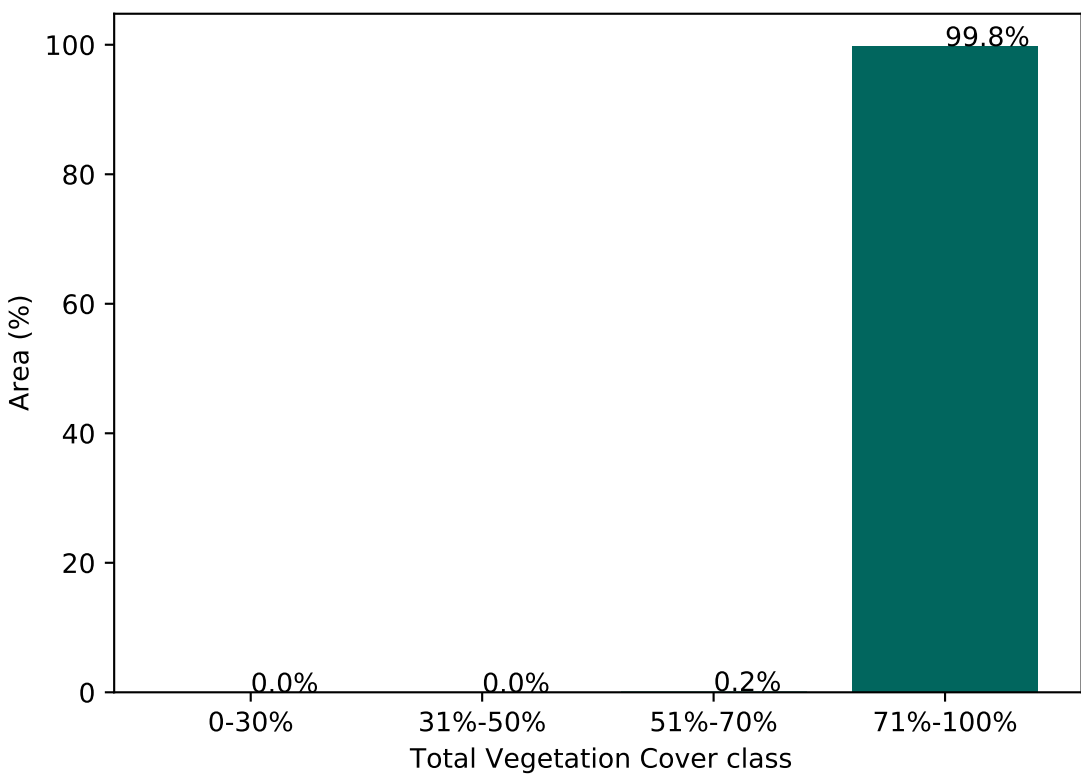
Proportion of each land class in area



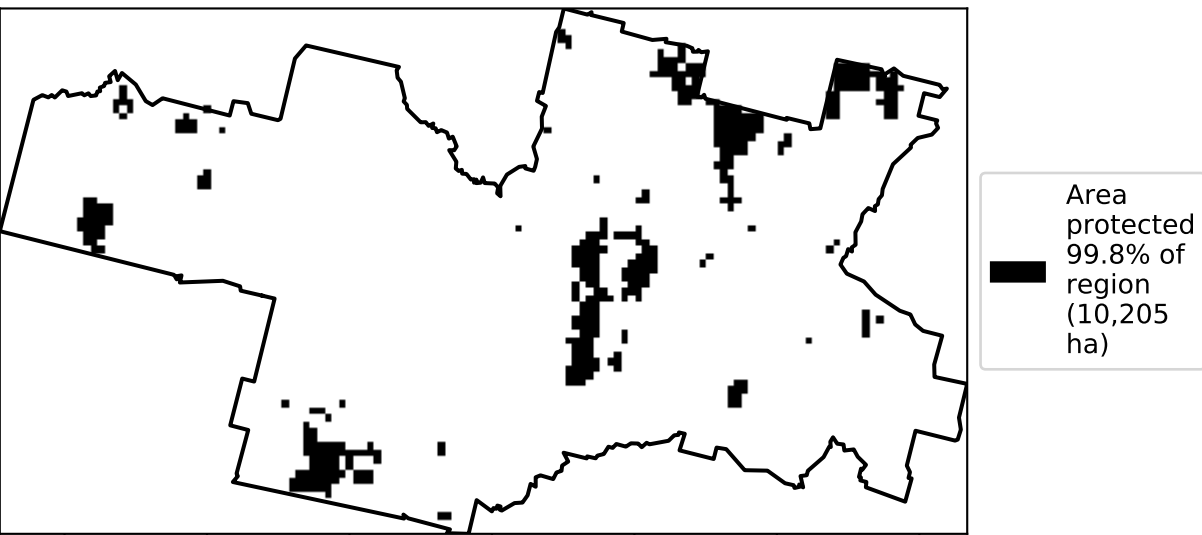
Total Vegetation Cover [%]



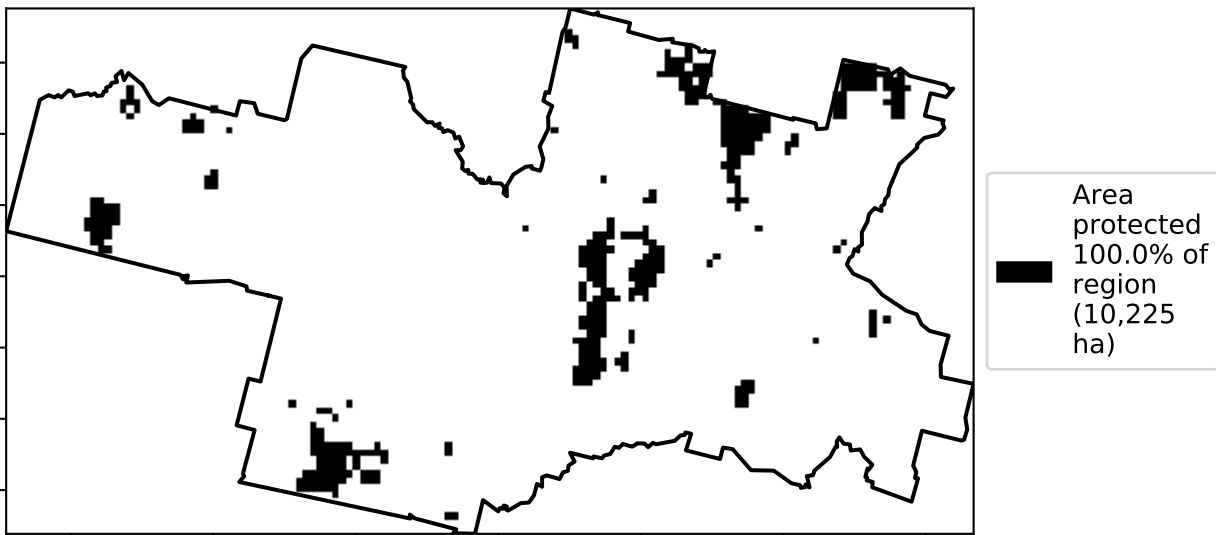
Proportion of vegetation cover class in area



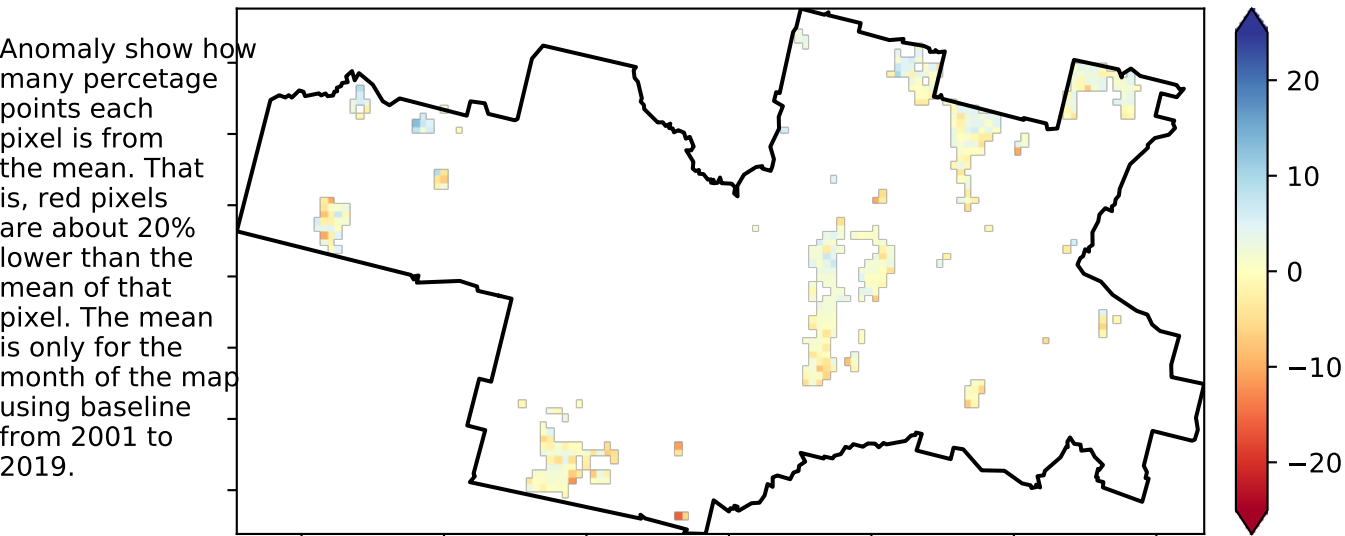
% Area protected from water erosion (>70%)



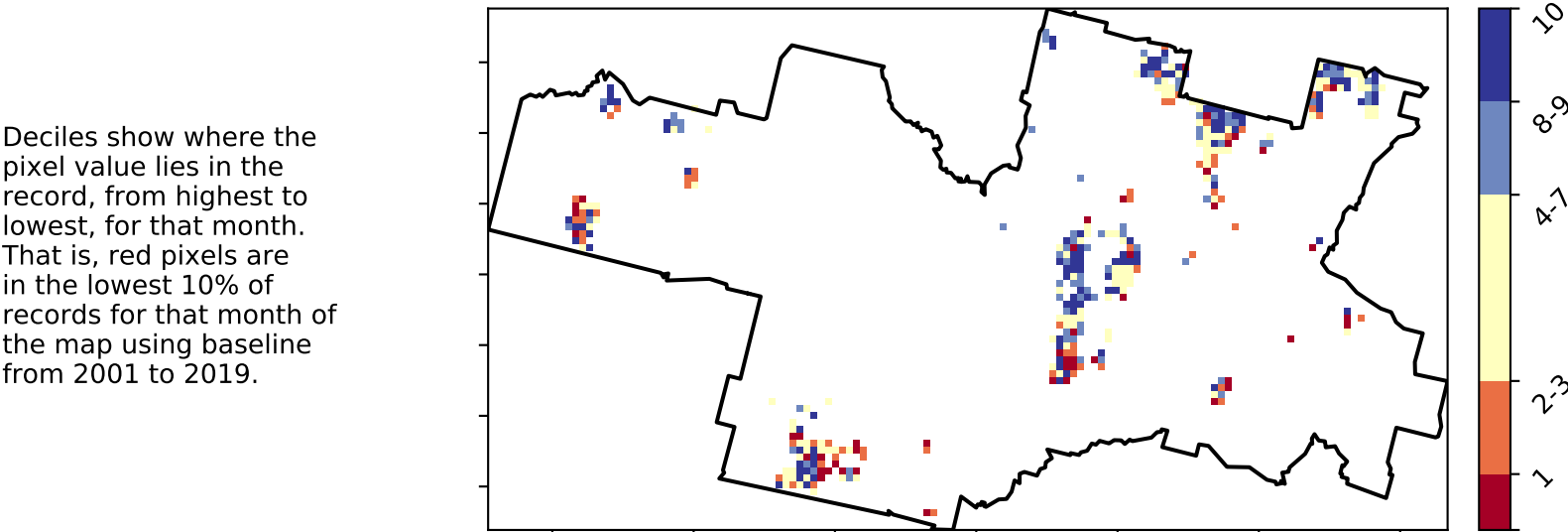
% Area protected from wind erosion (>50%)



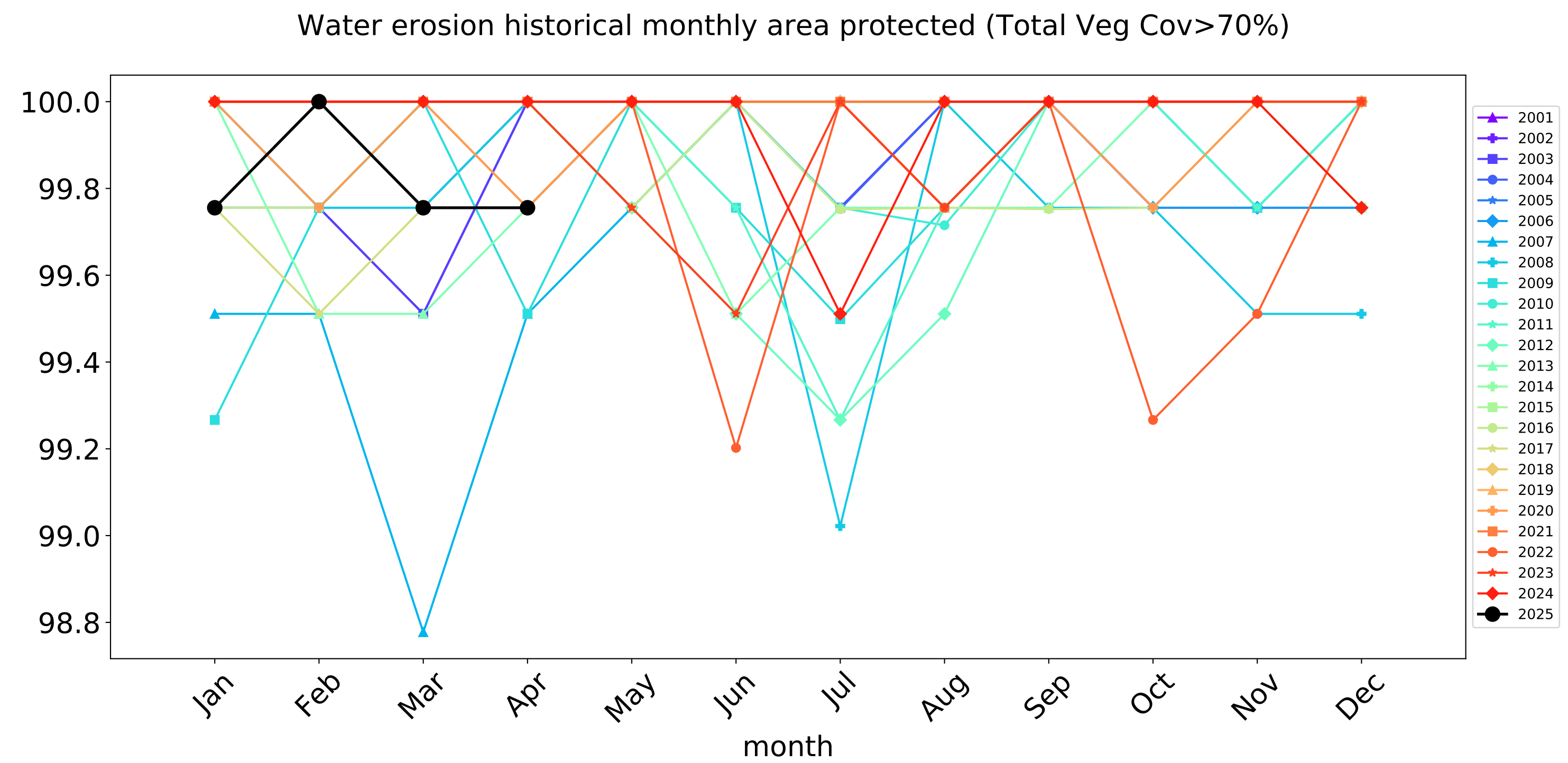
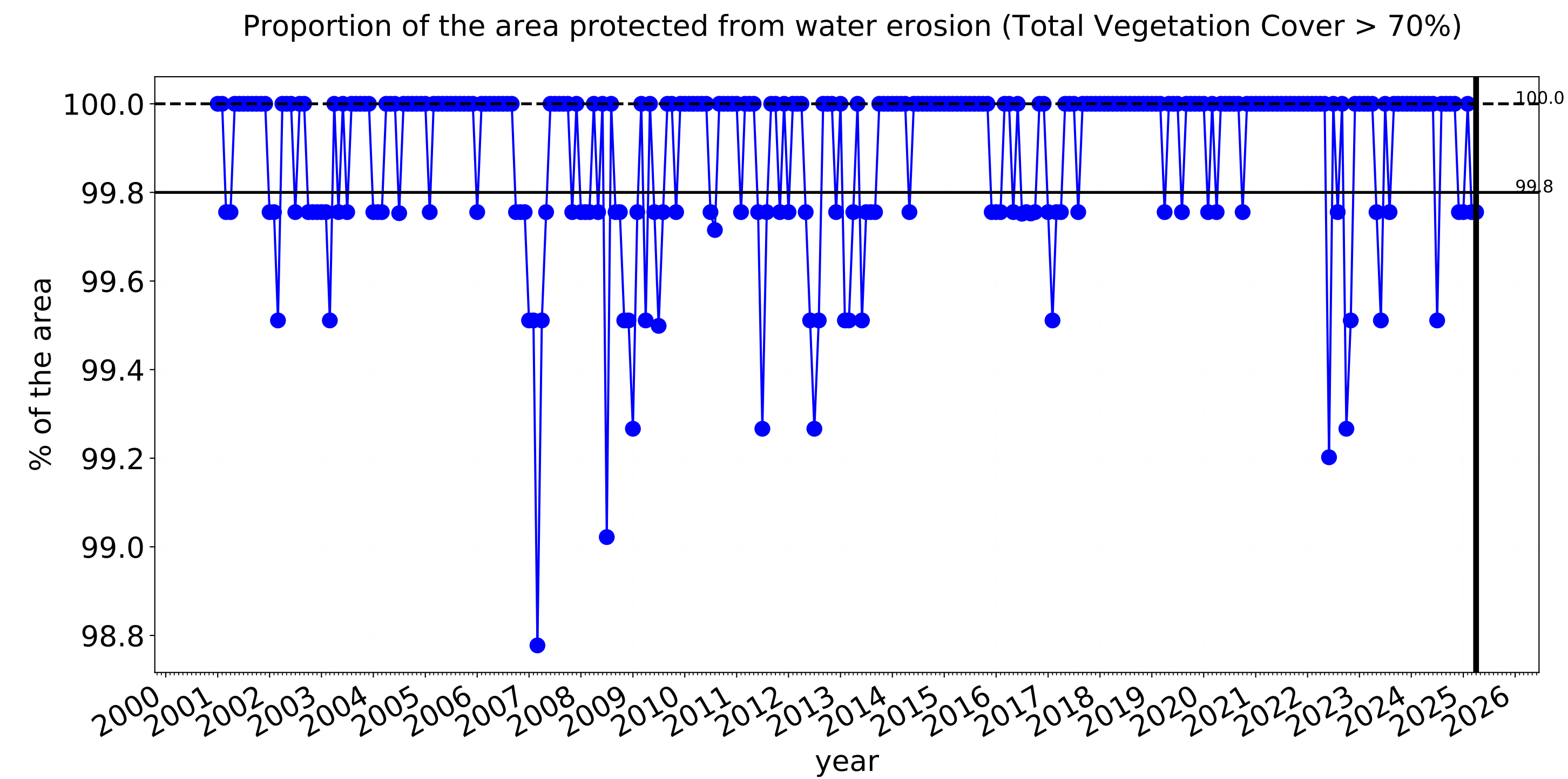
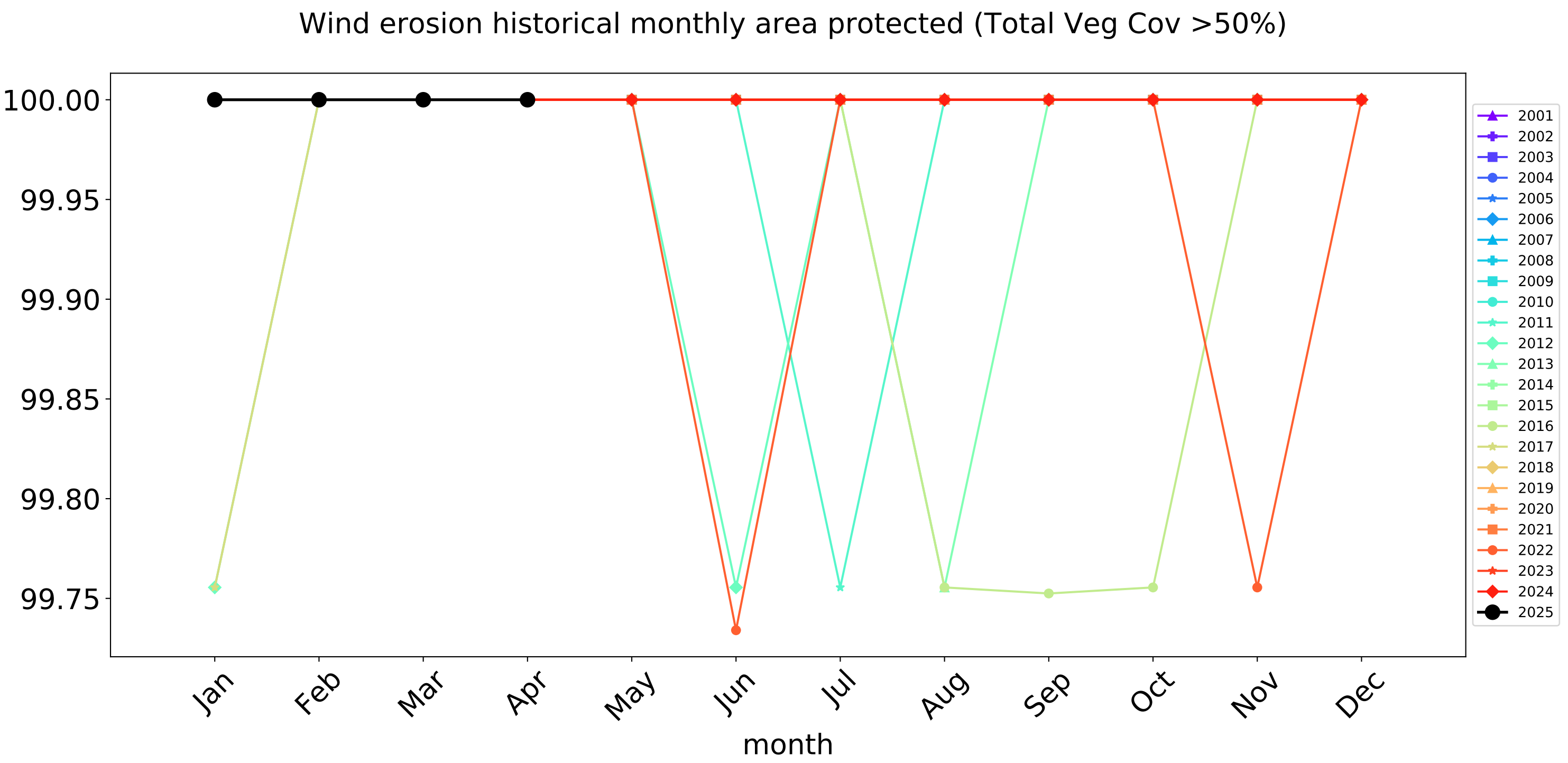
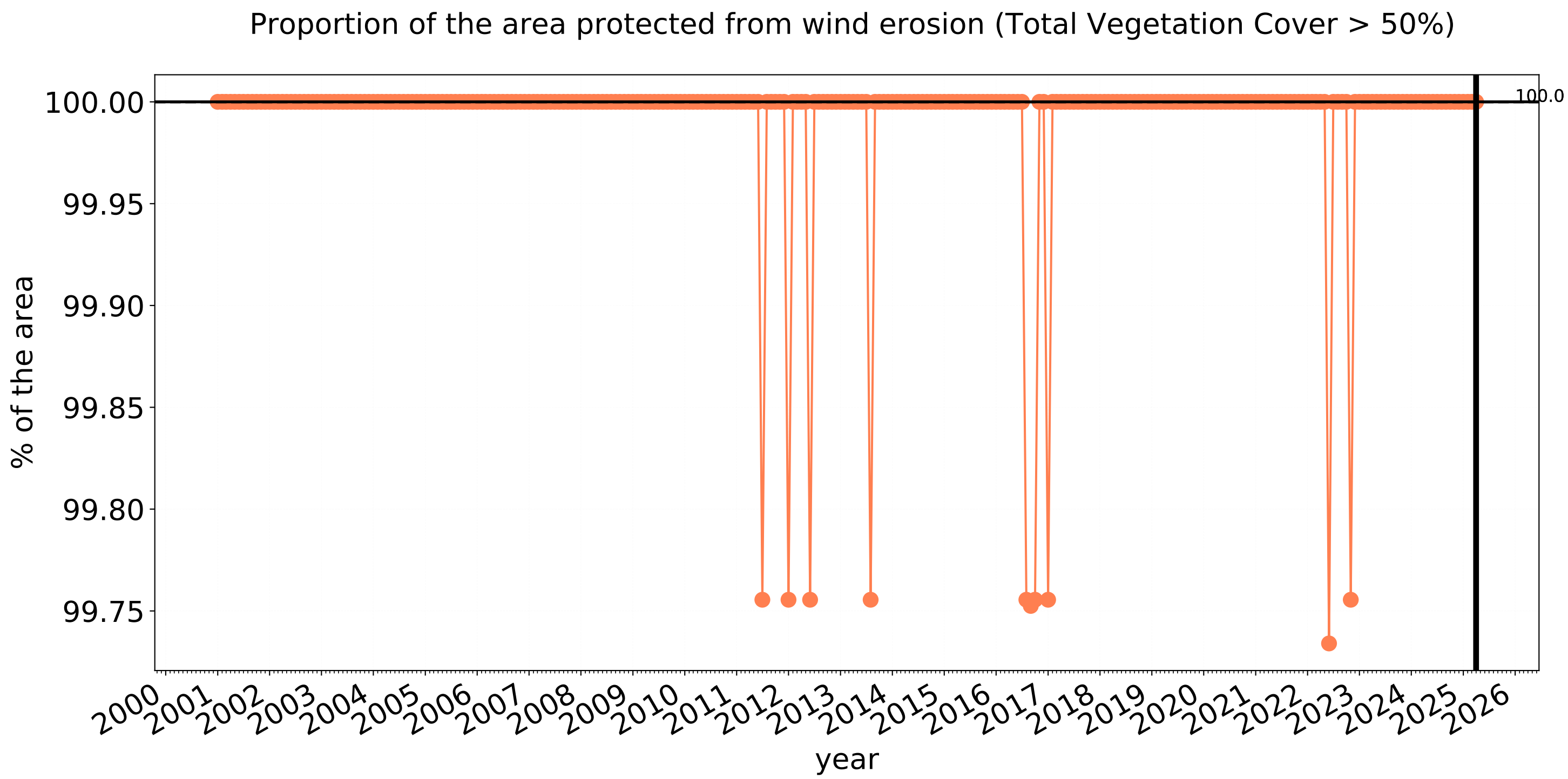
Total Vegetation Cover Anomaly [%]



Total Vegetation Cover Decile [%]



Conservation and natural environments timeseries

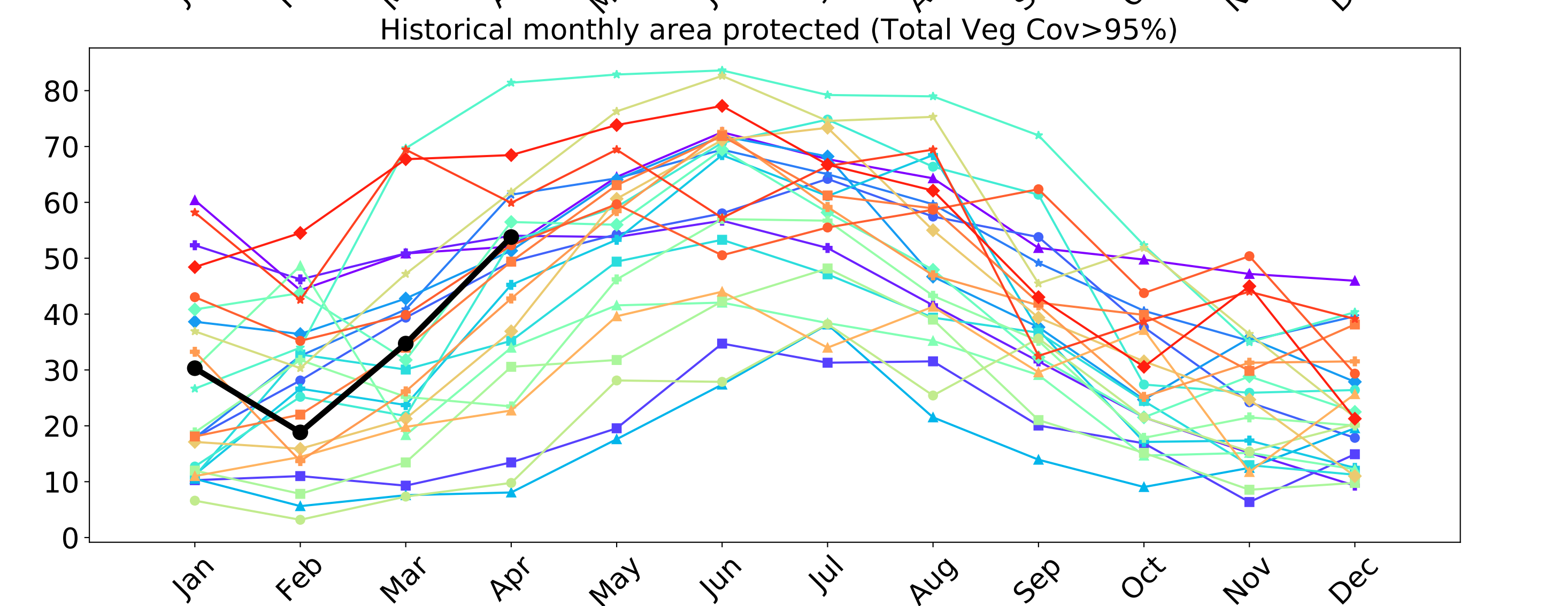
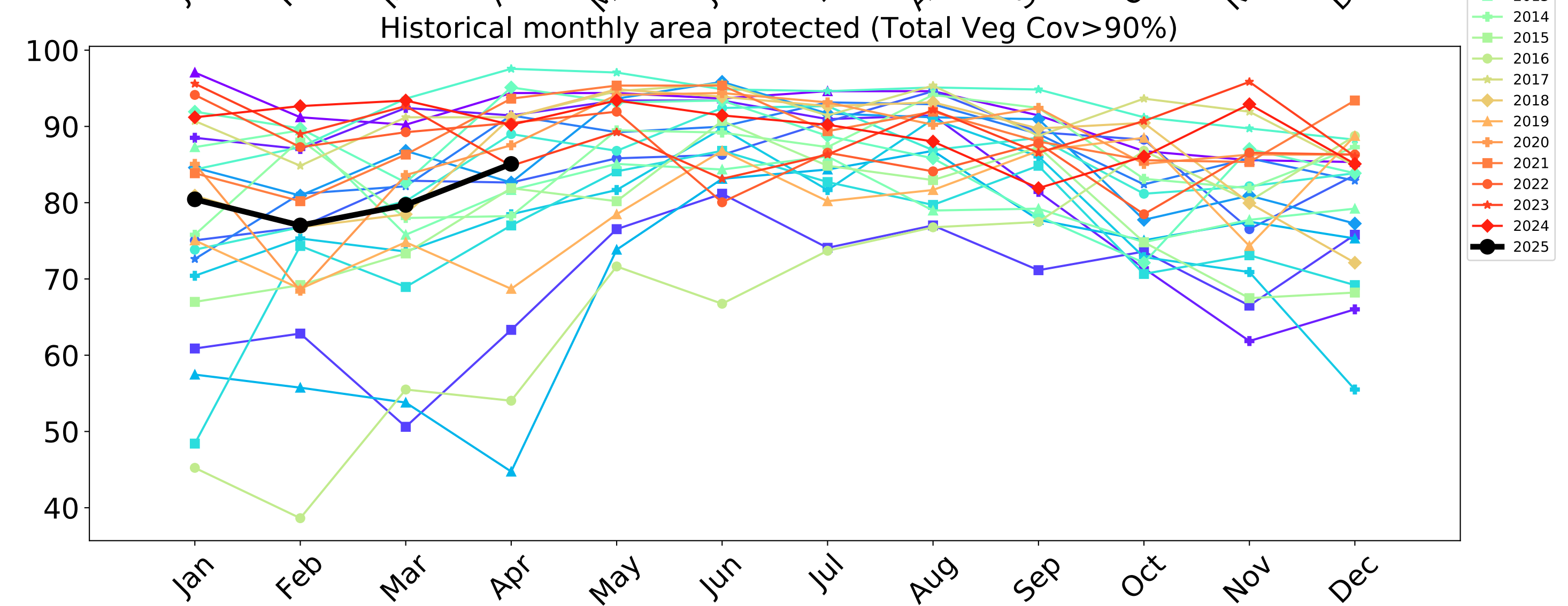
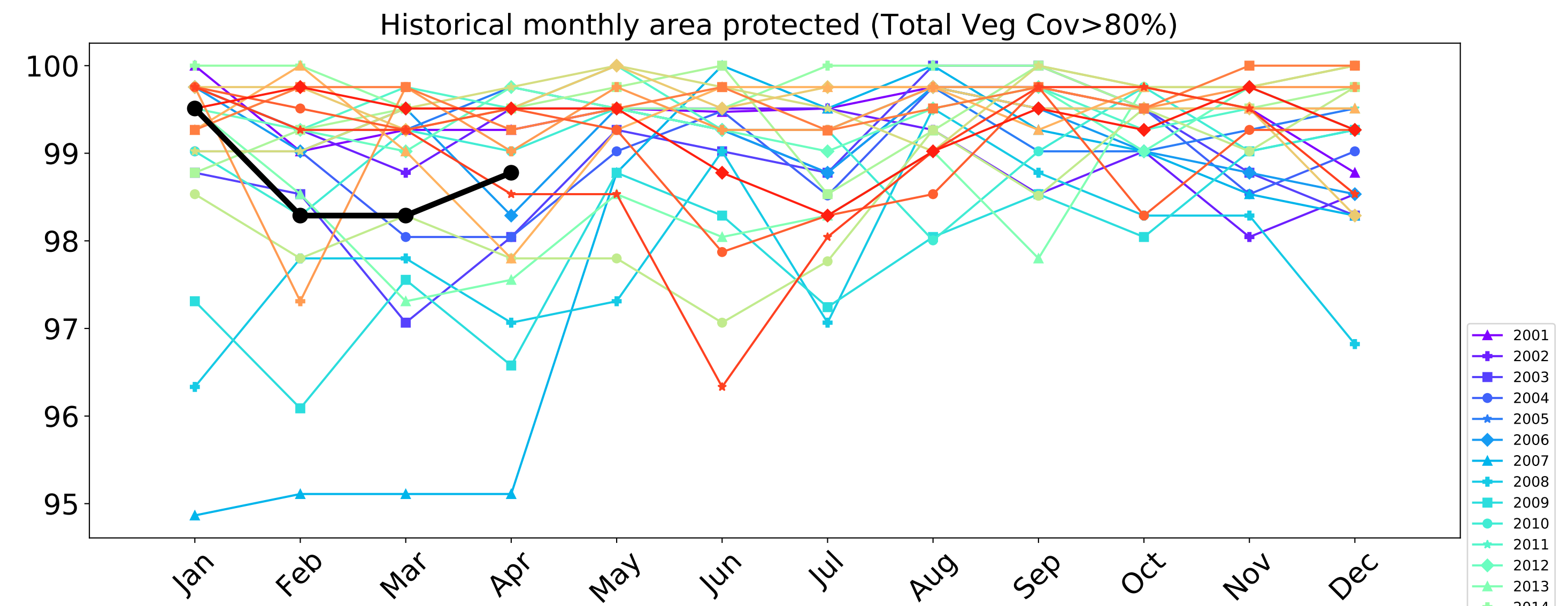
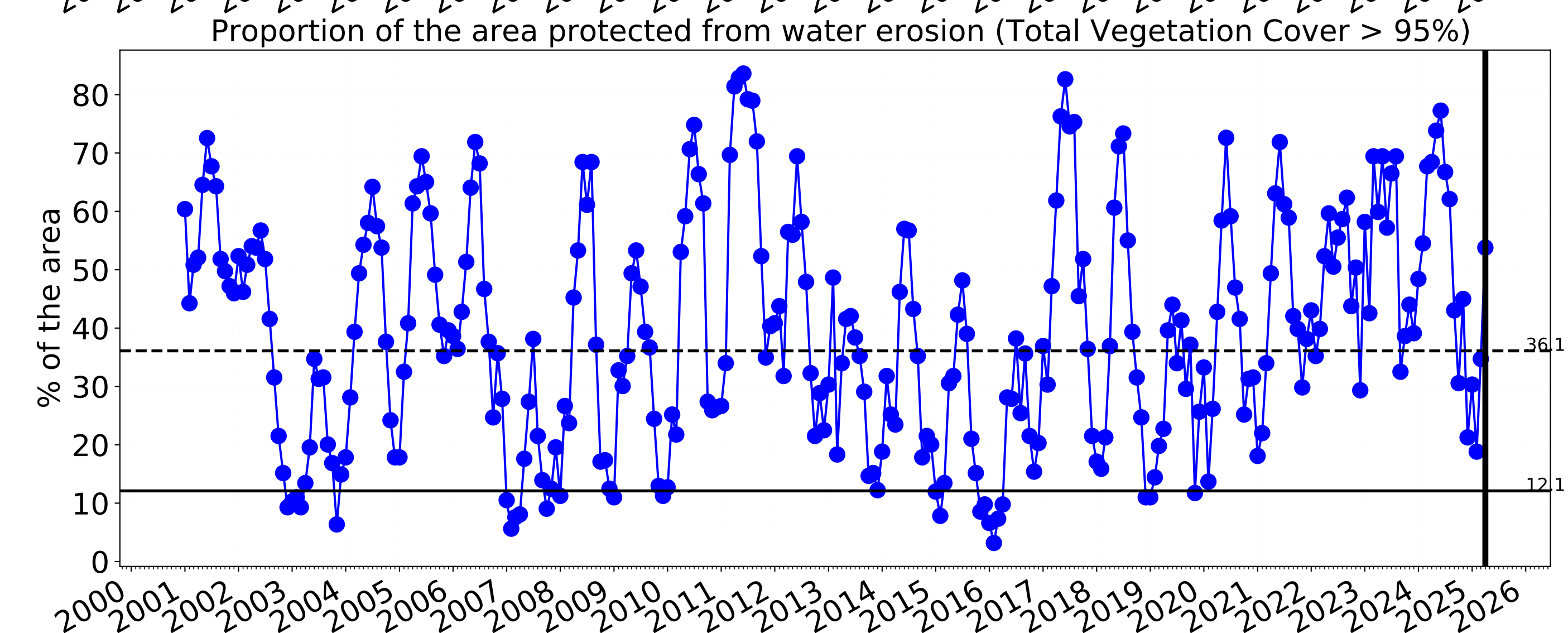
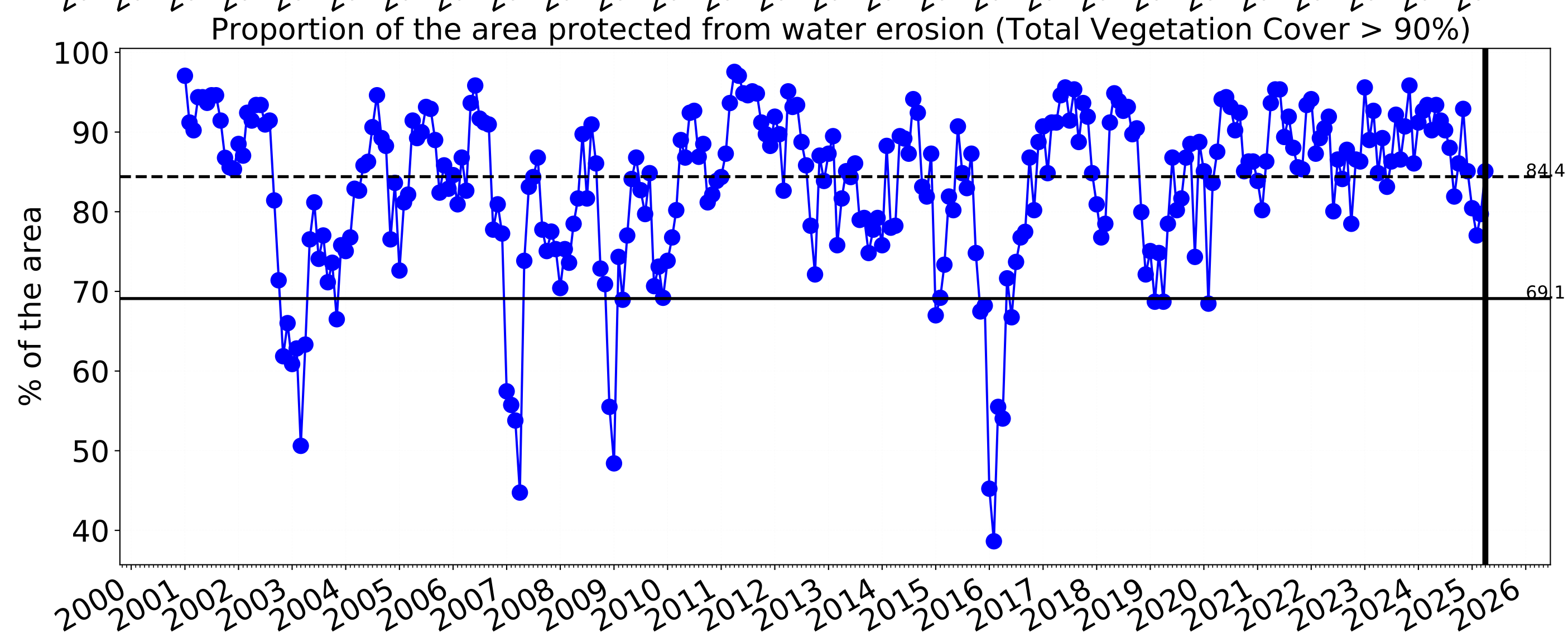
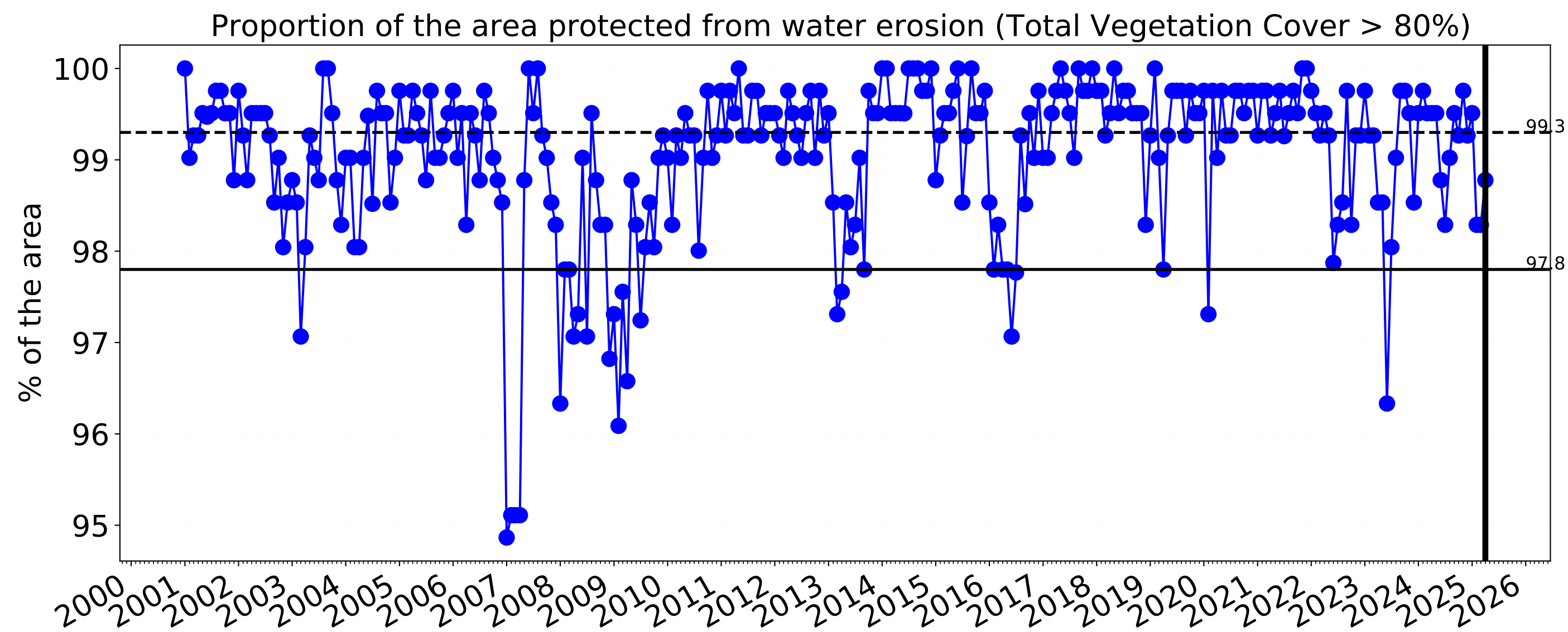


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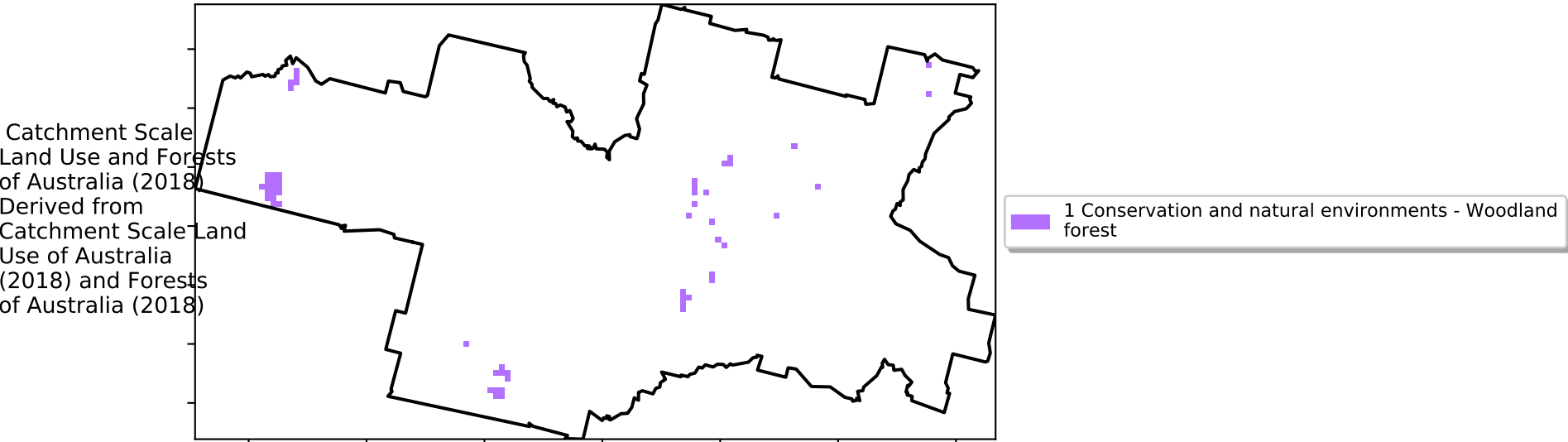
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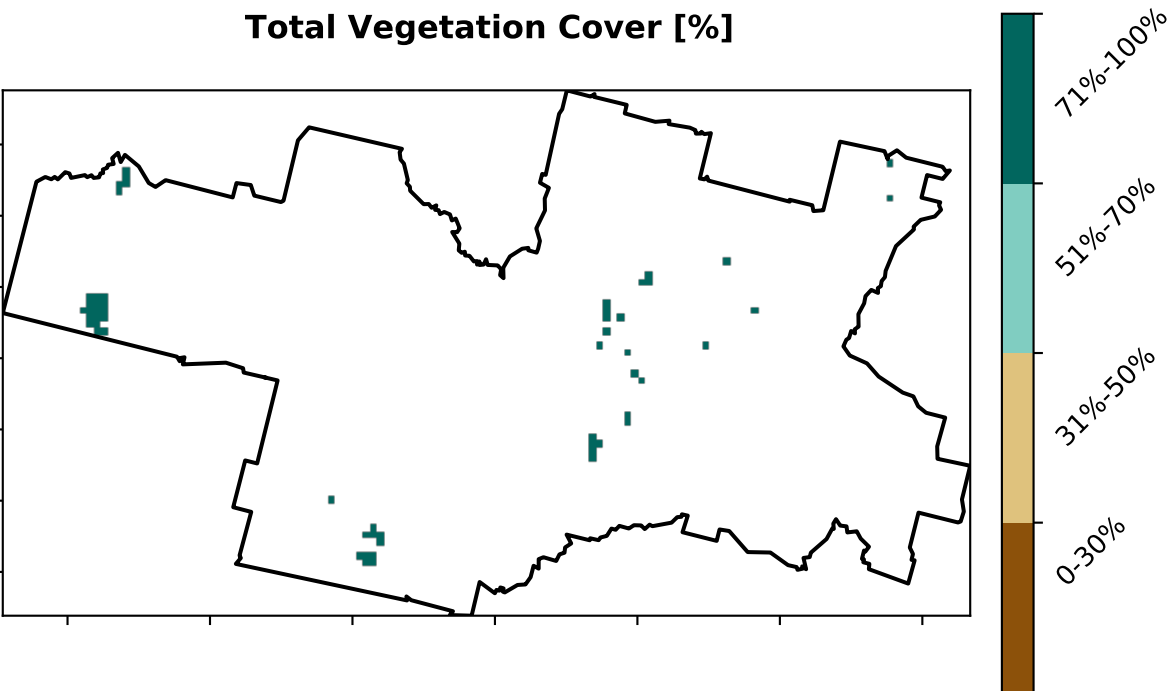


Conservation and natural environments Woodland forest

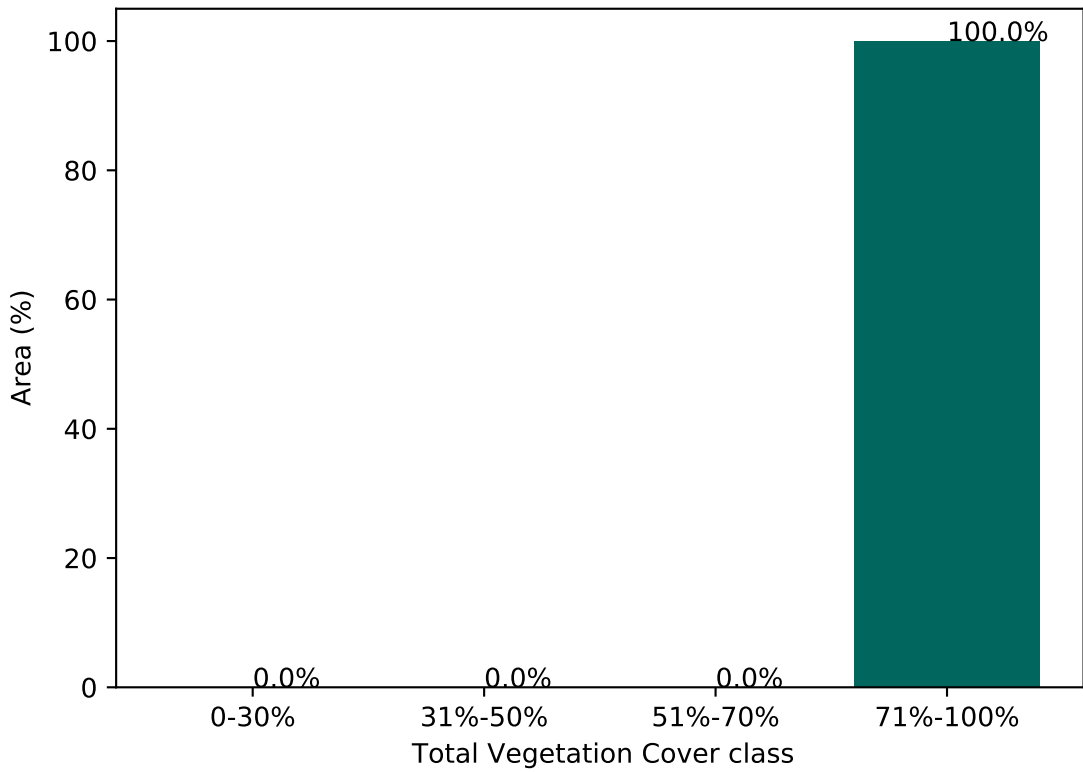
Land use and forest cover



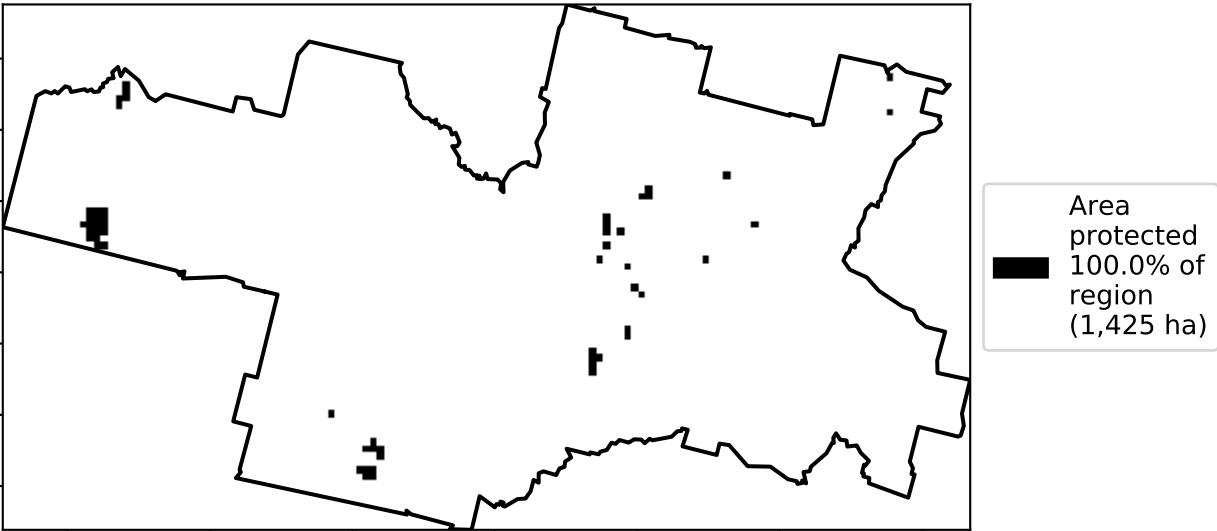
Total Vegetation Cover [%]



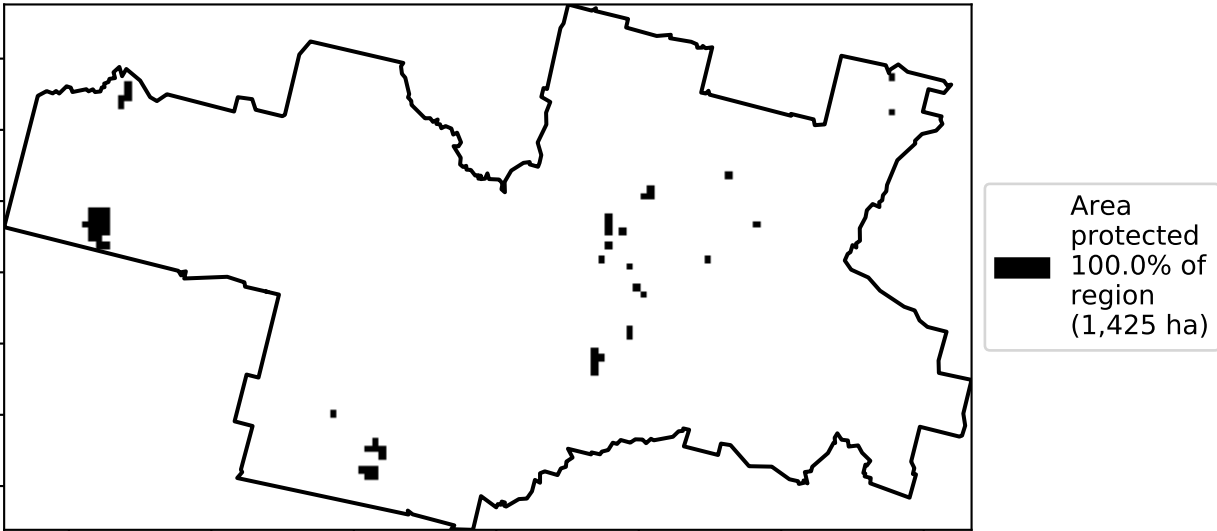
Proportion of vegetation cover class in area



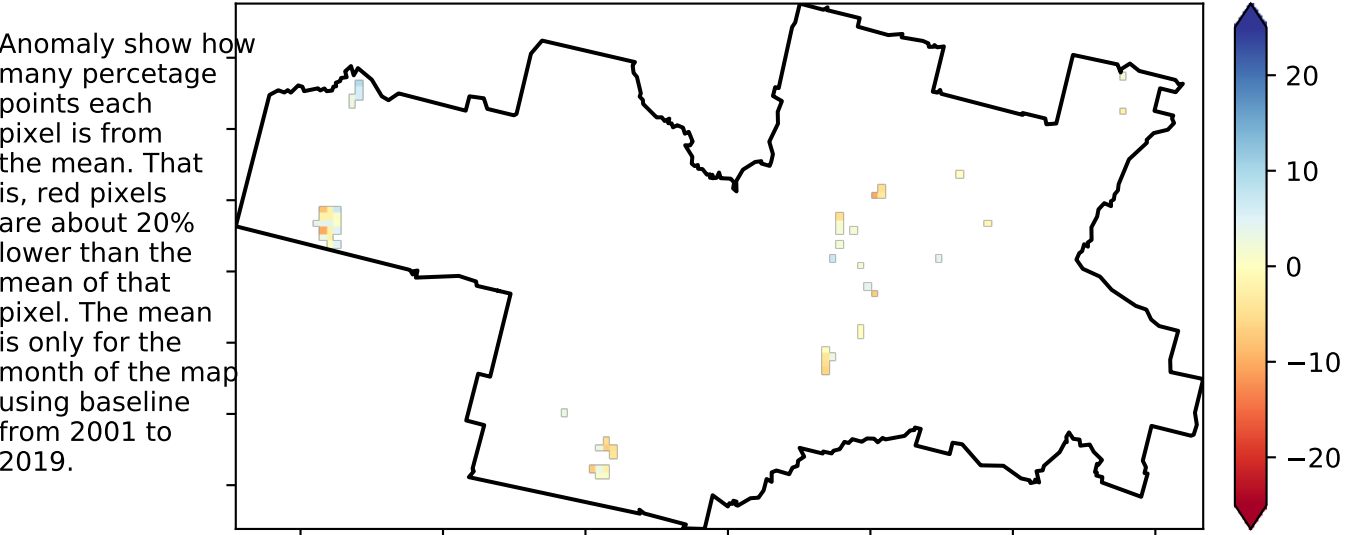
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

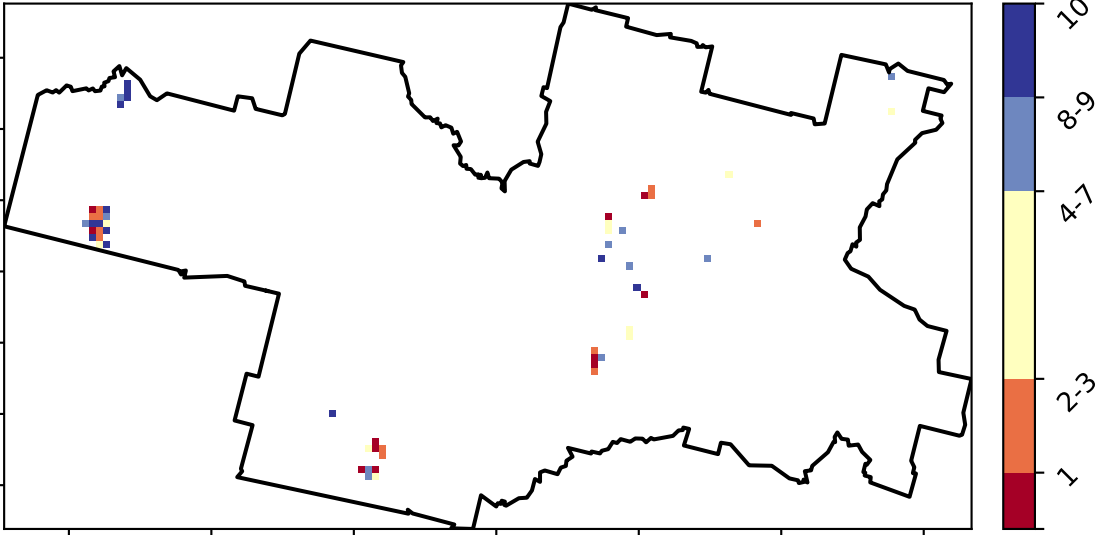


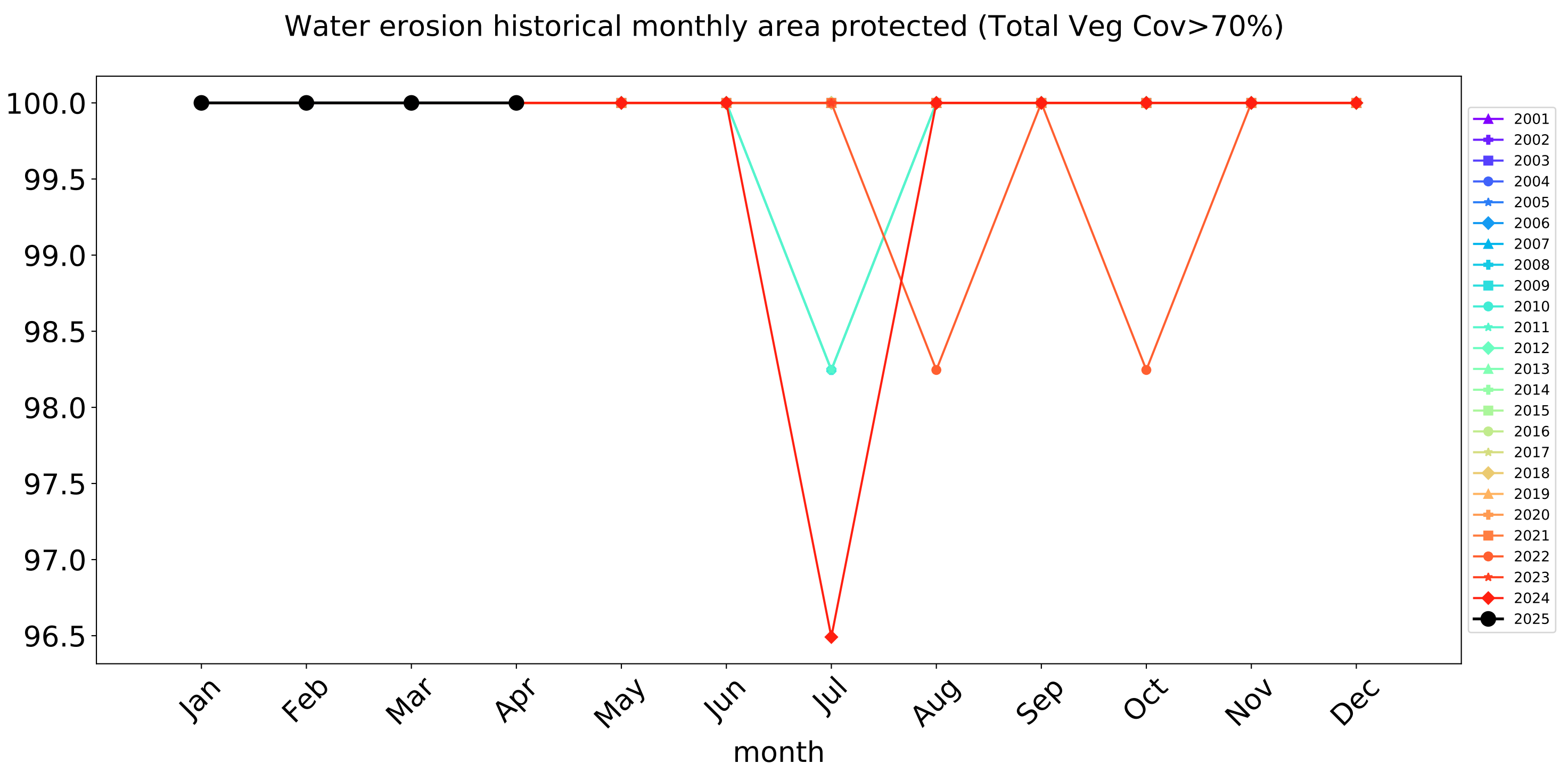
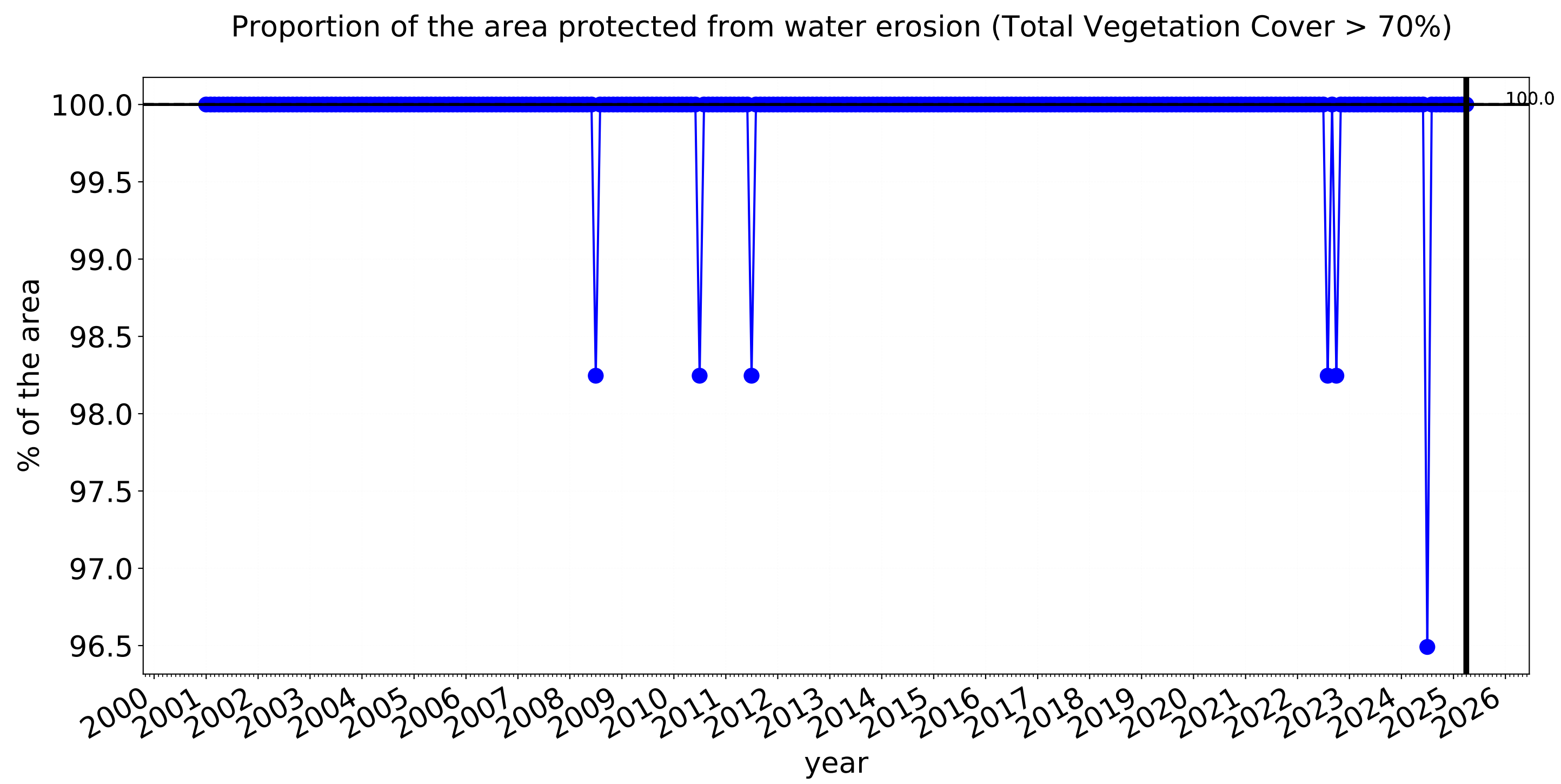
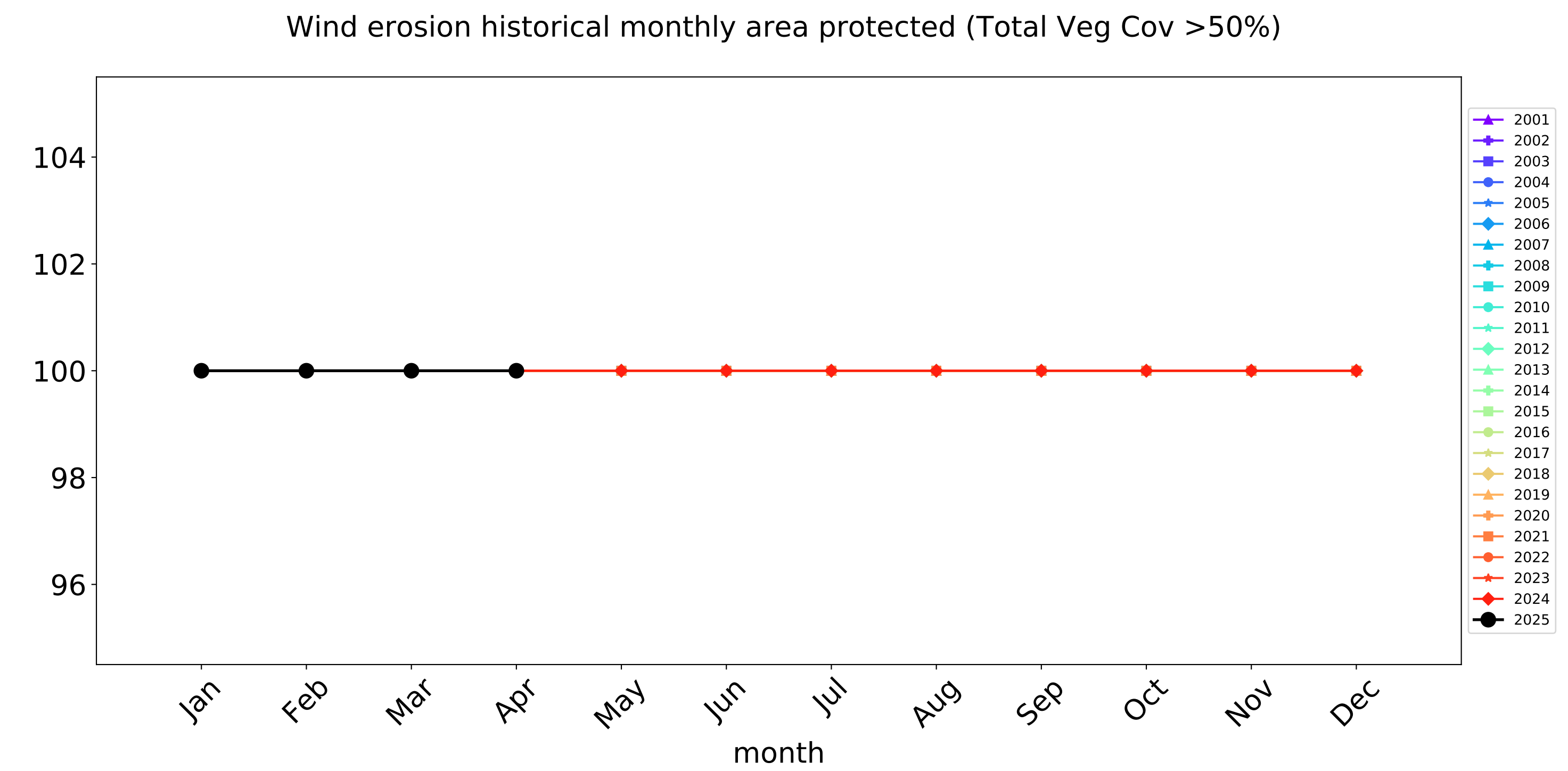
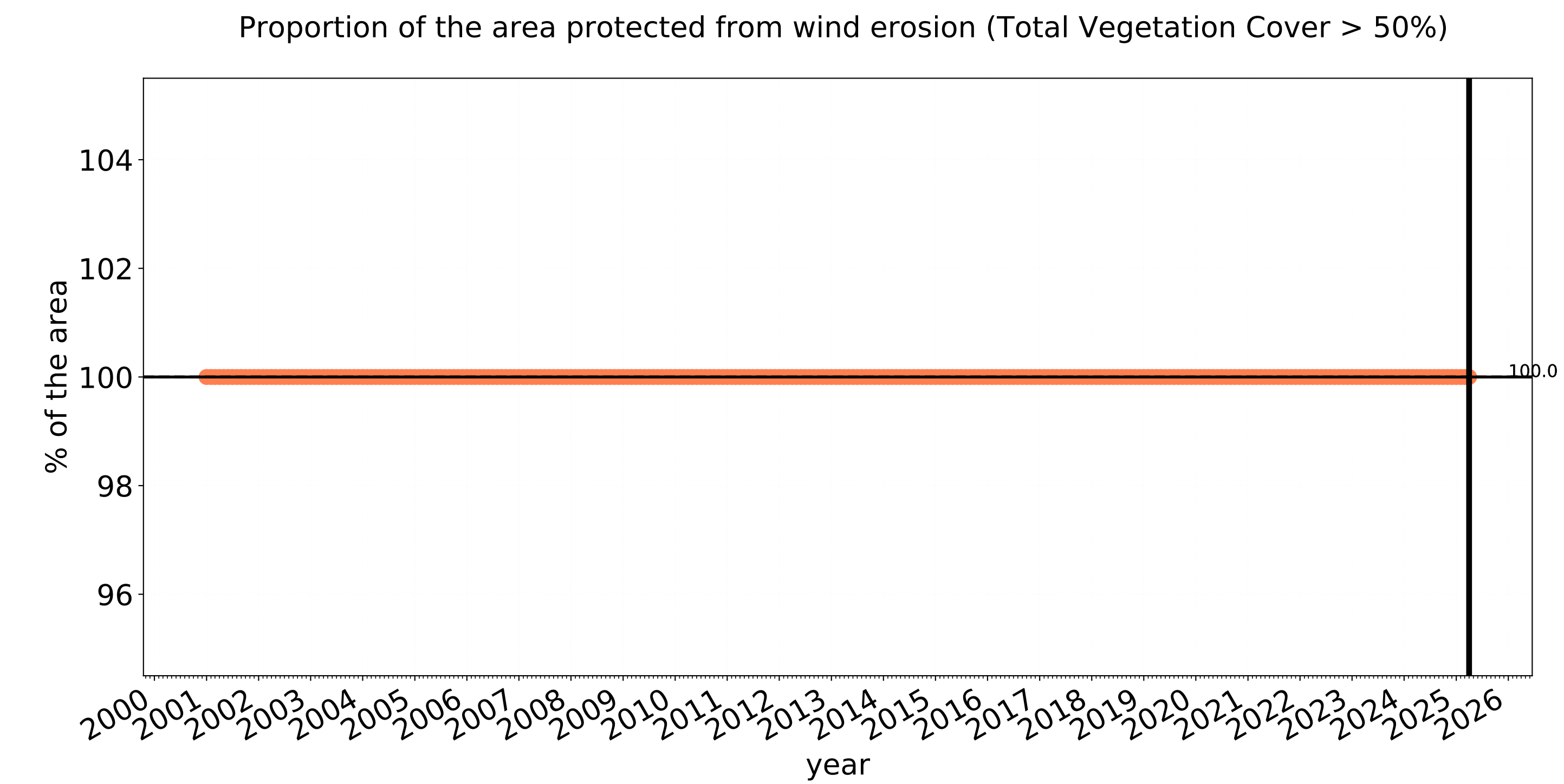
Total Vegetation Cover Anomaly [%]

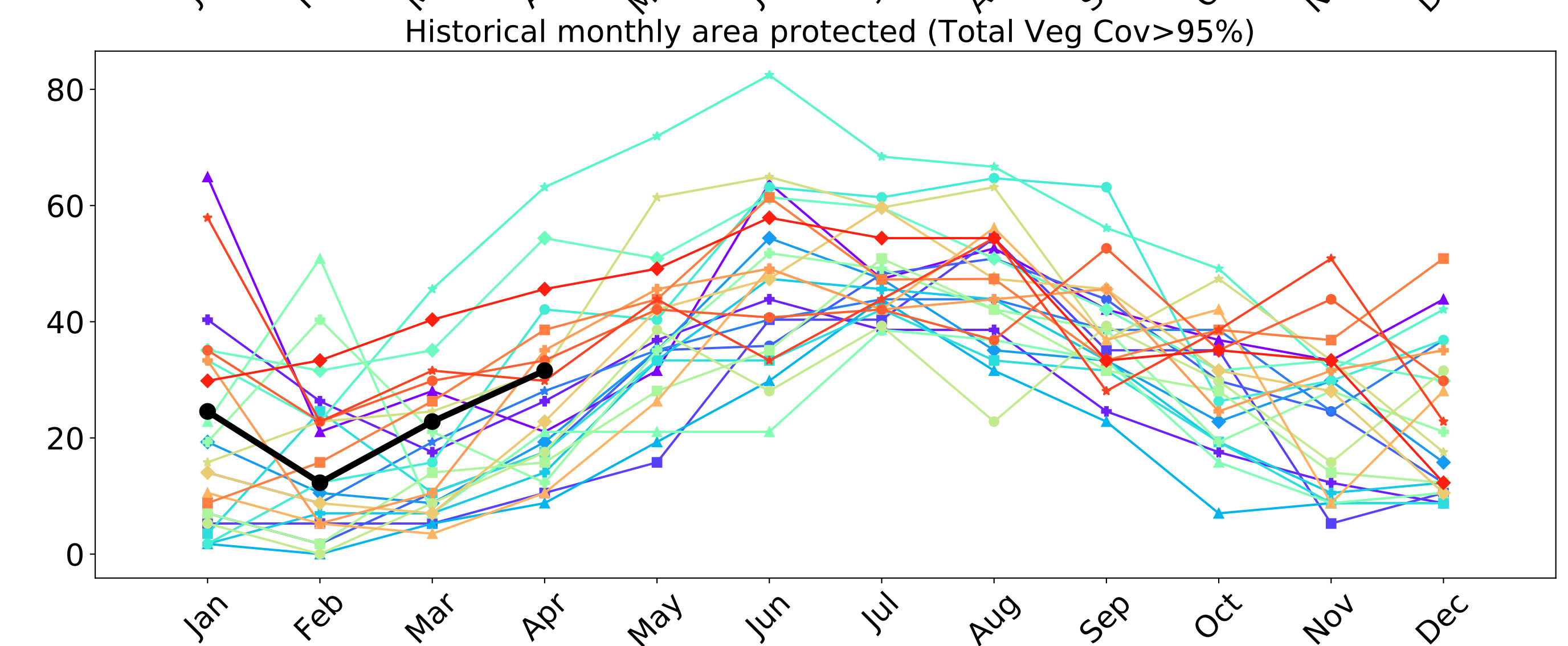
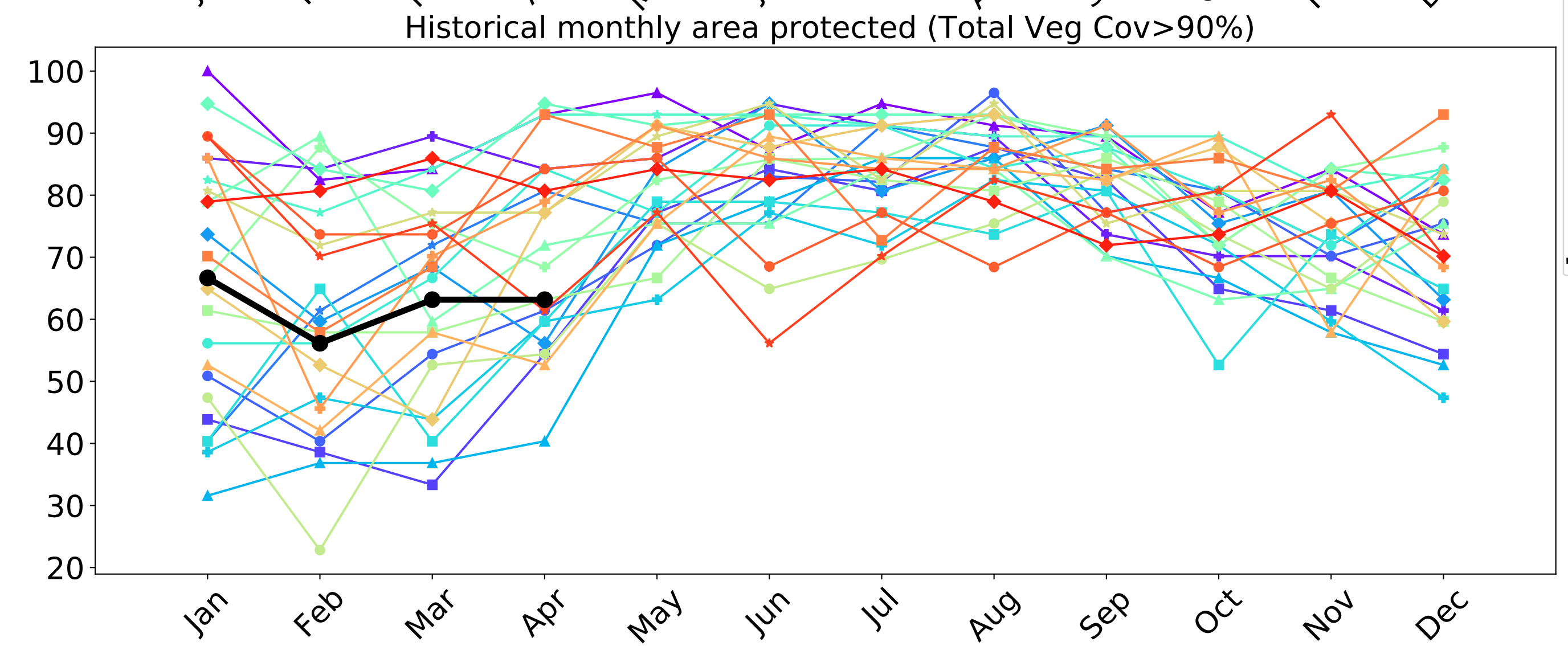
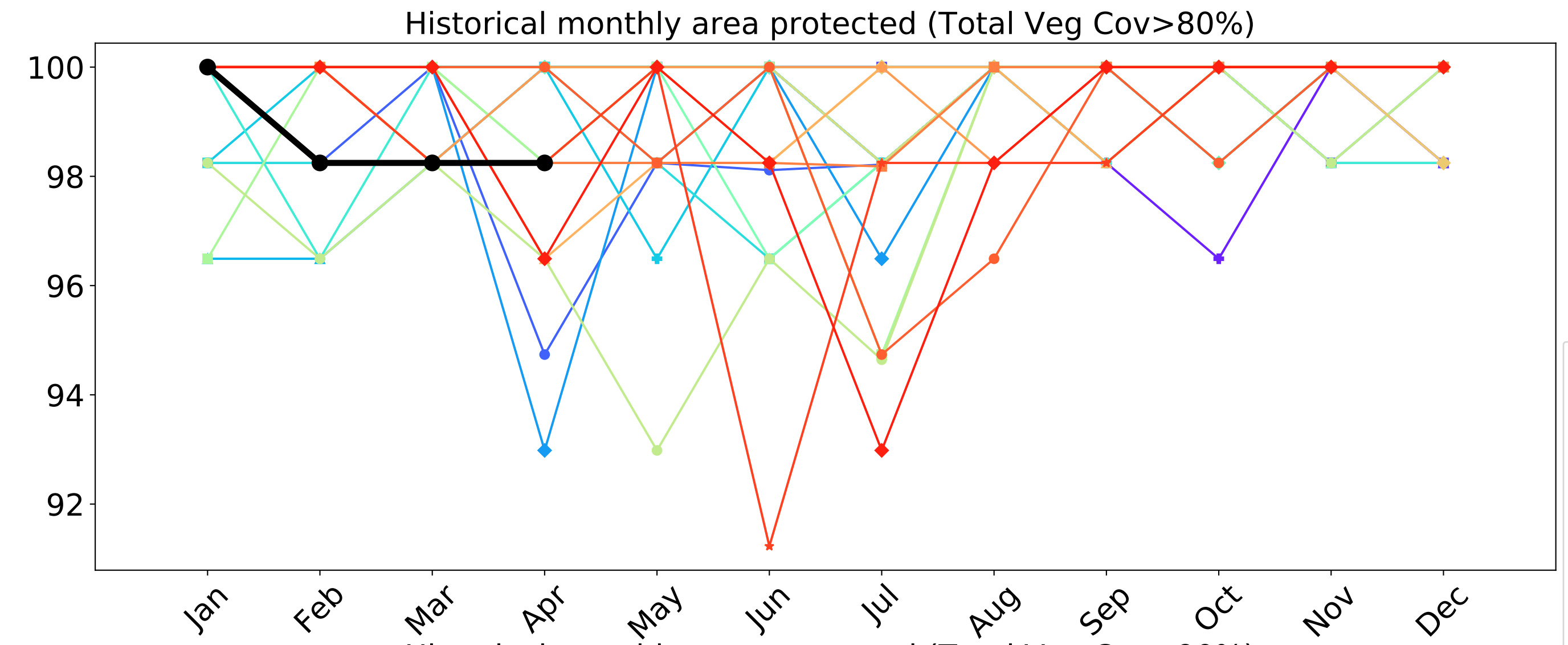
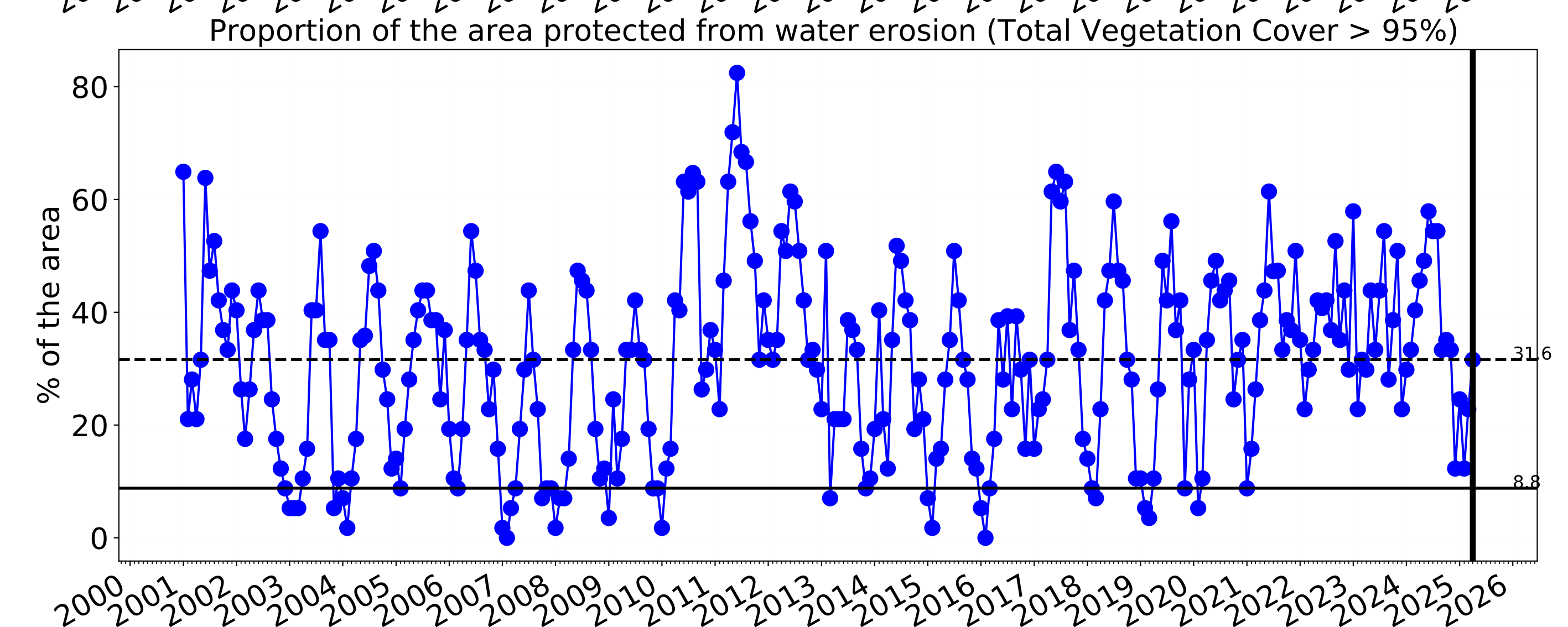
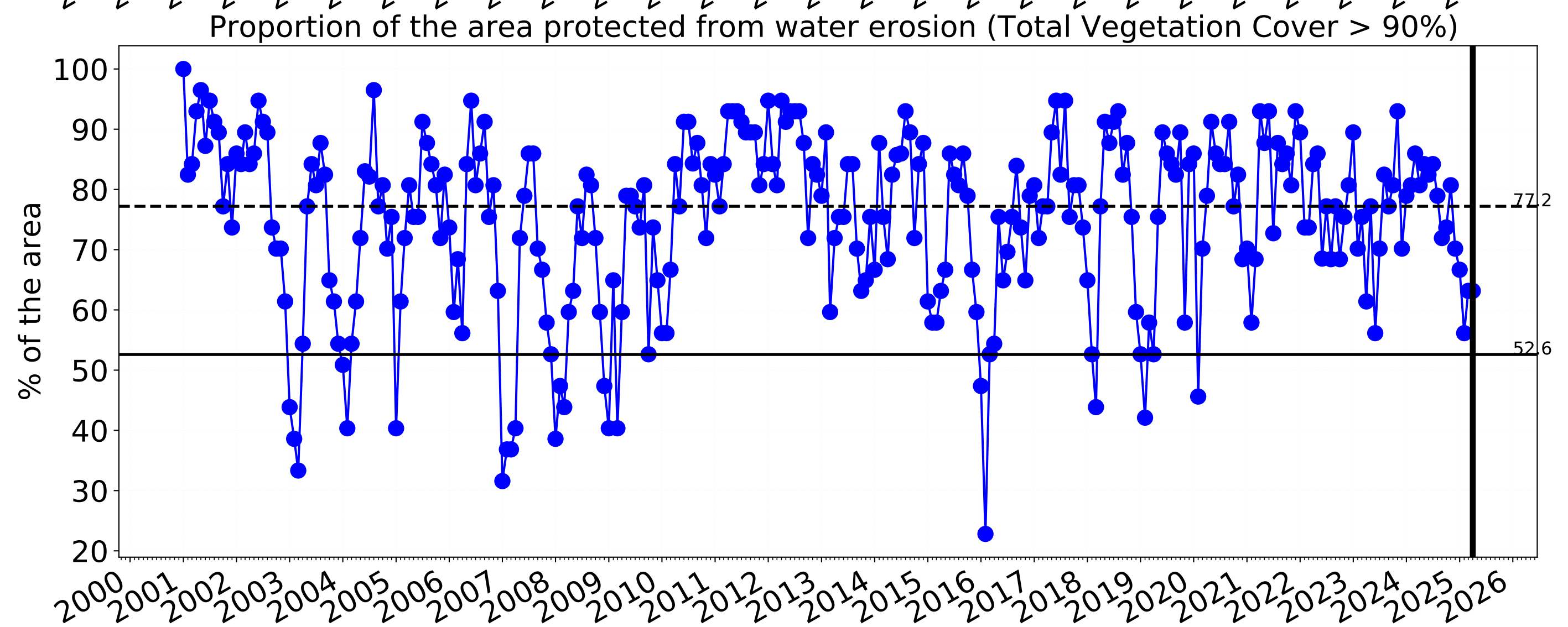
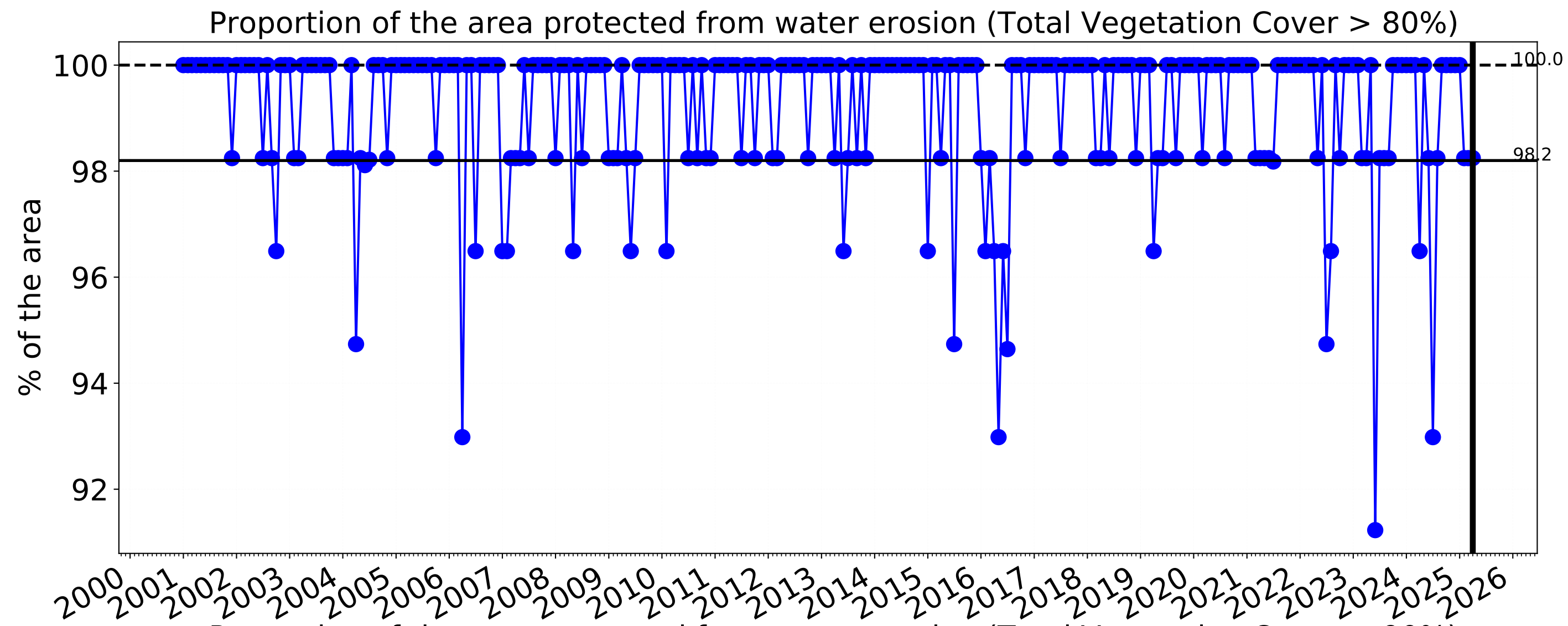


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Total Vegetation Cover Decile [%]

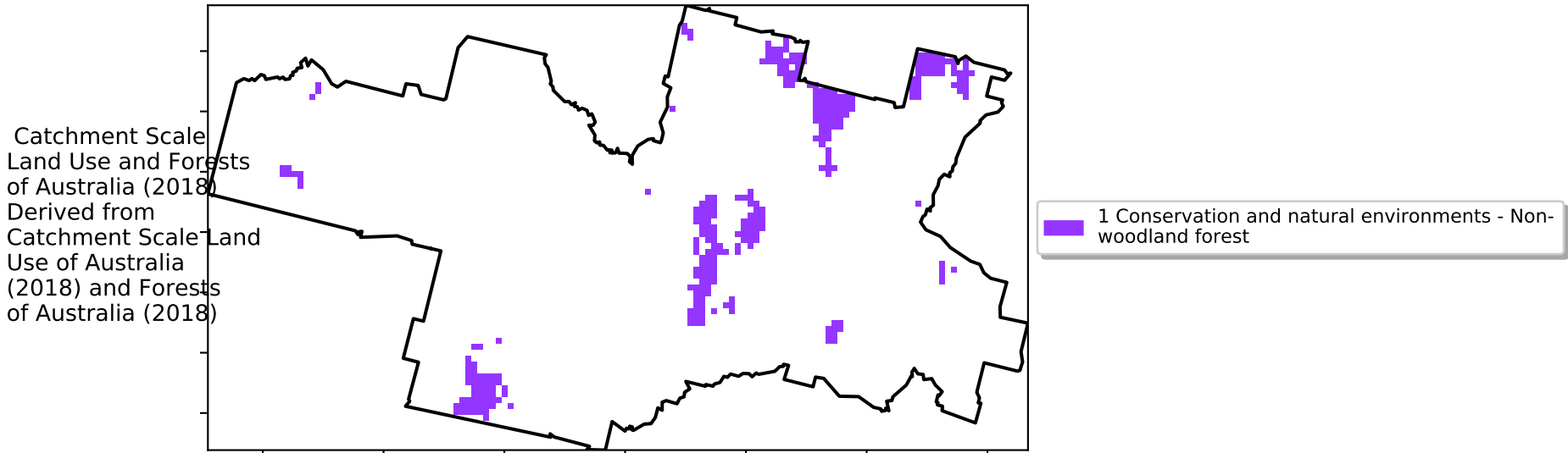




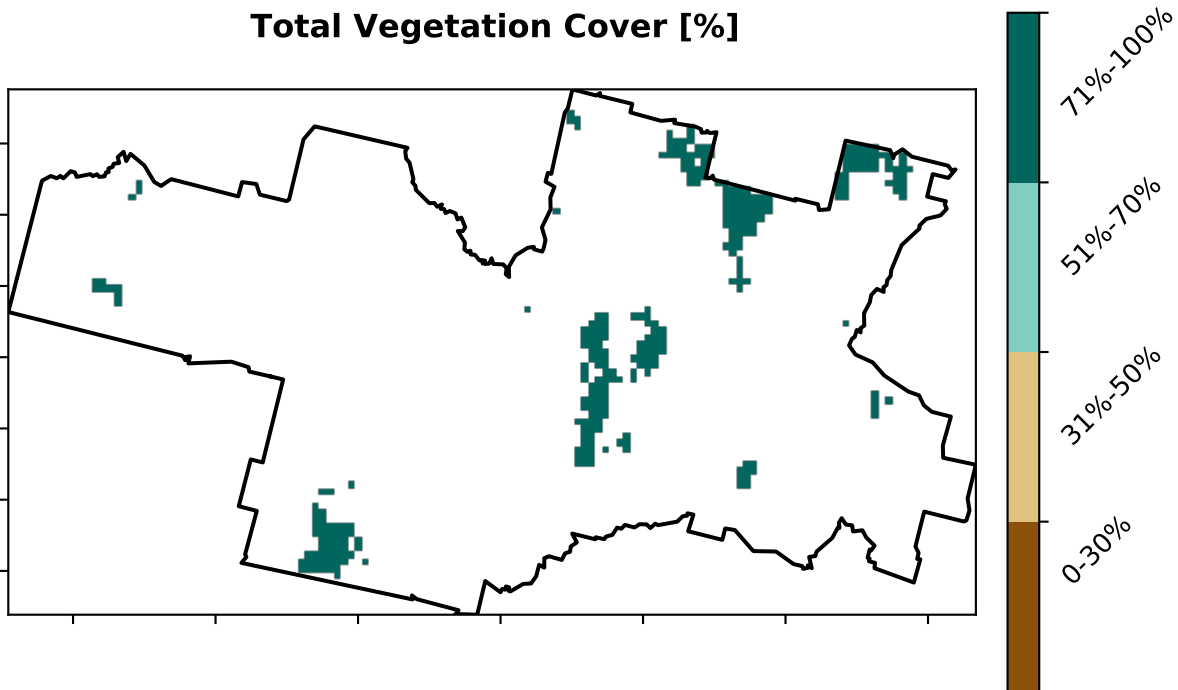


Conservation and natural environments Forest (non woodland)

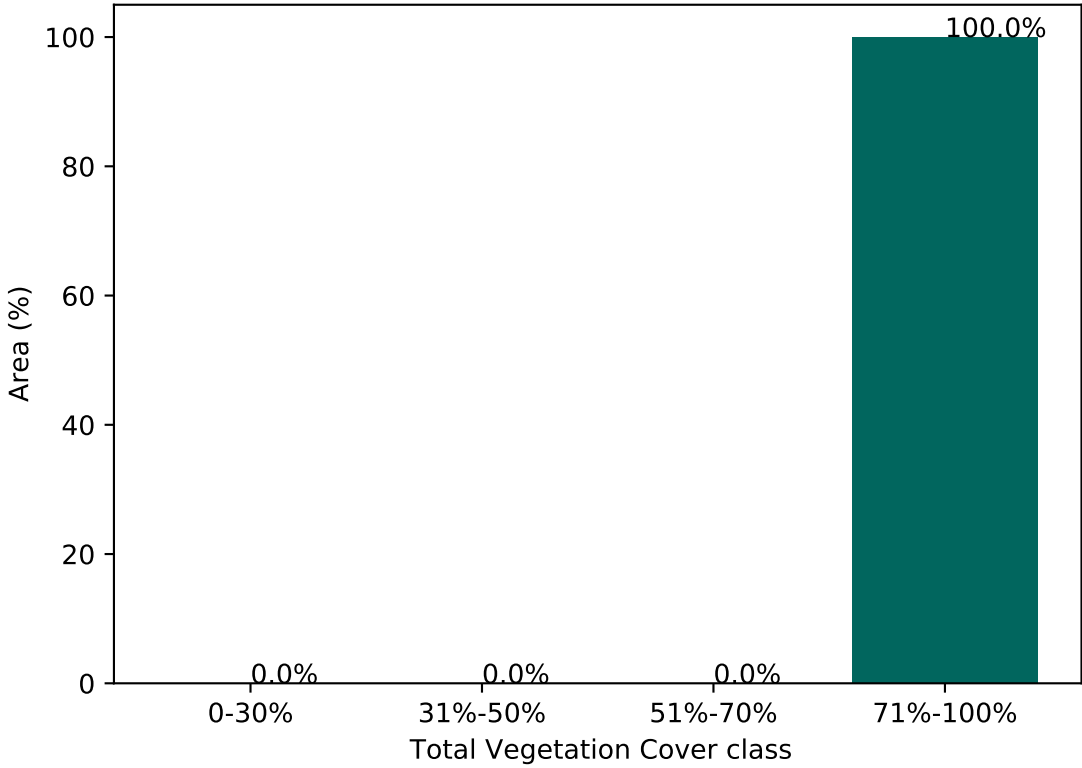
Land use and forest cover



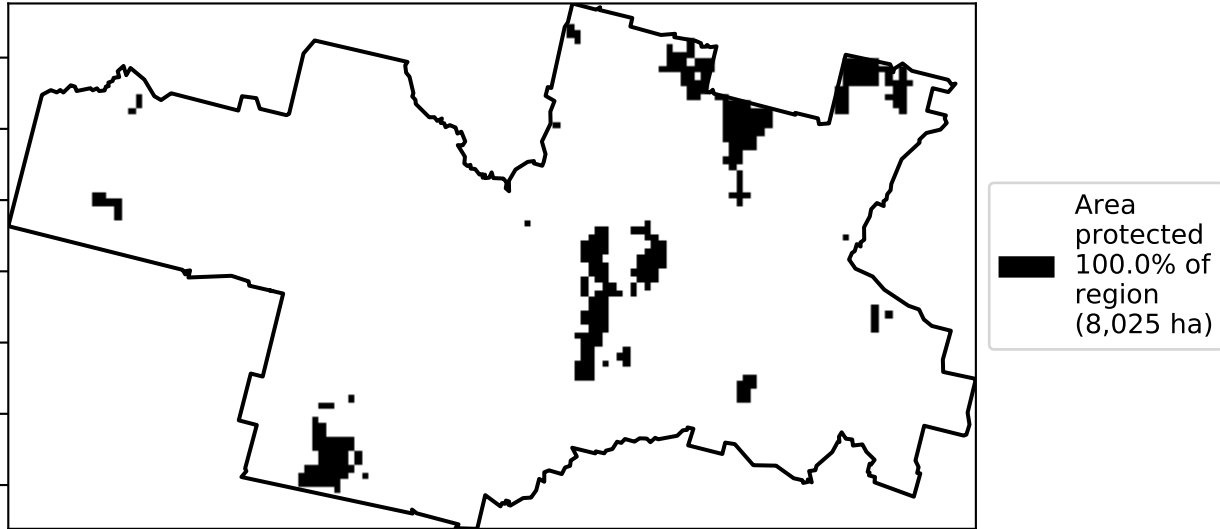
Total Vegetation Cover [%]



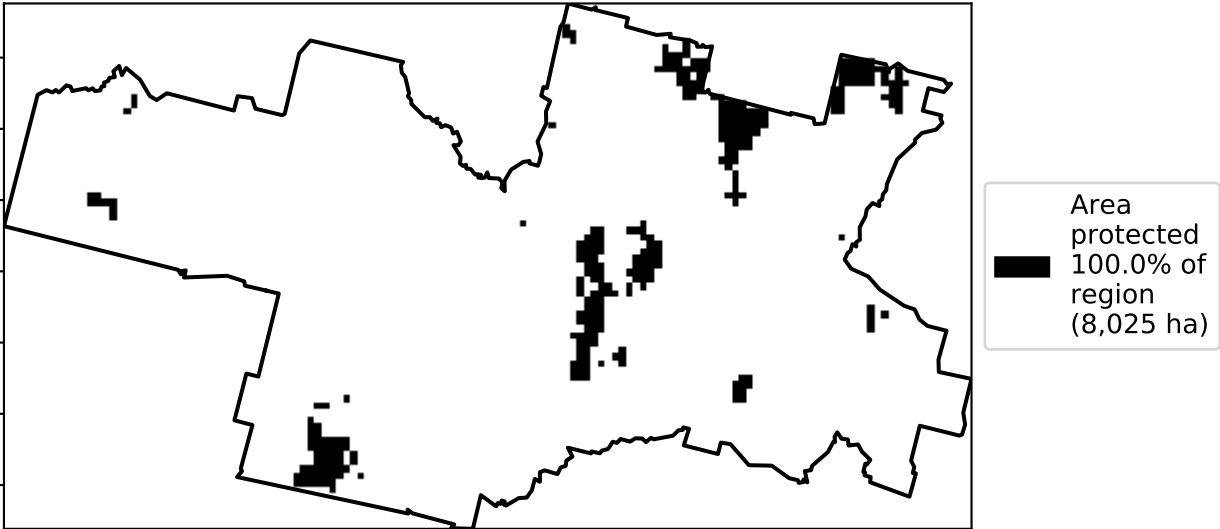
Proportion of vegetation cover class in area



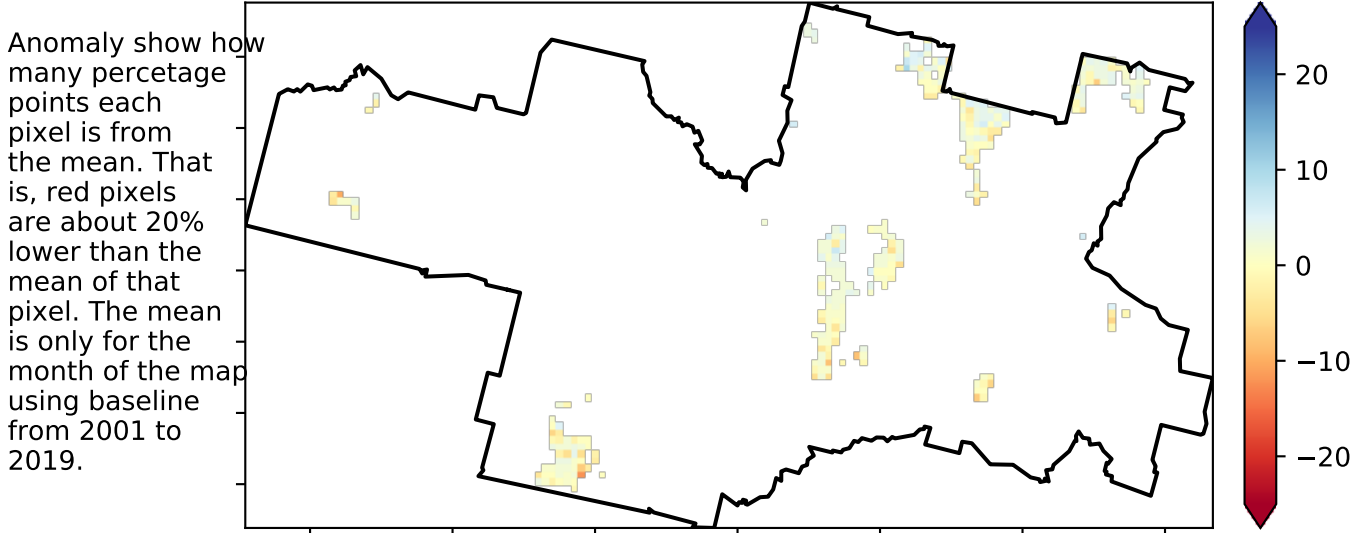
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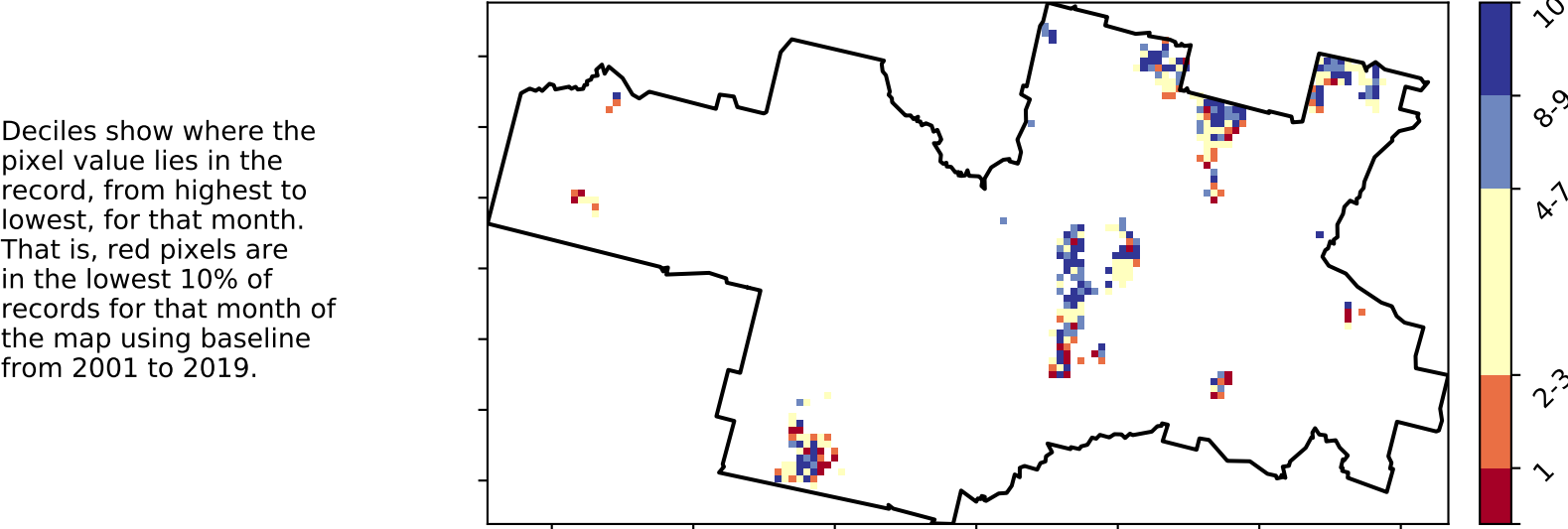
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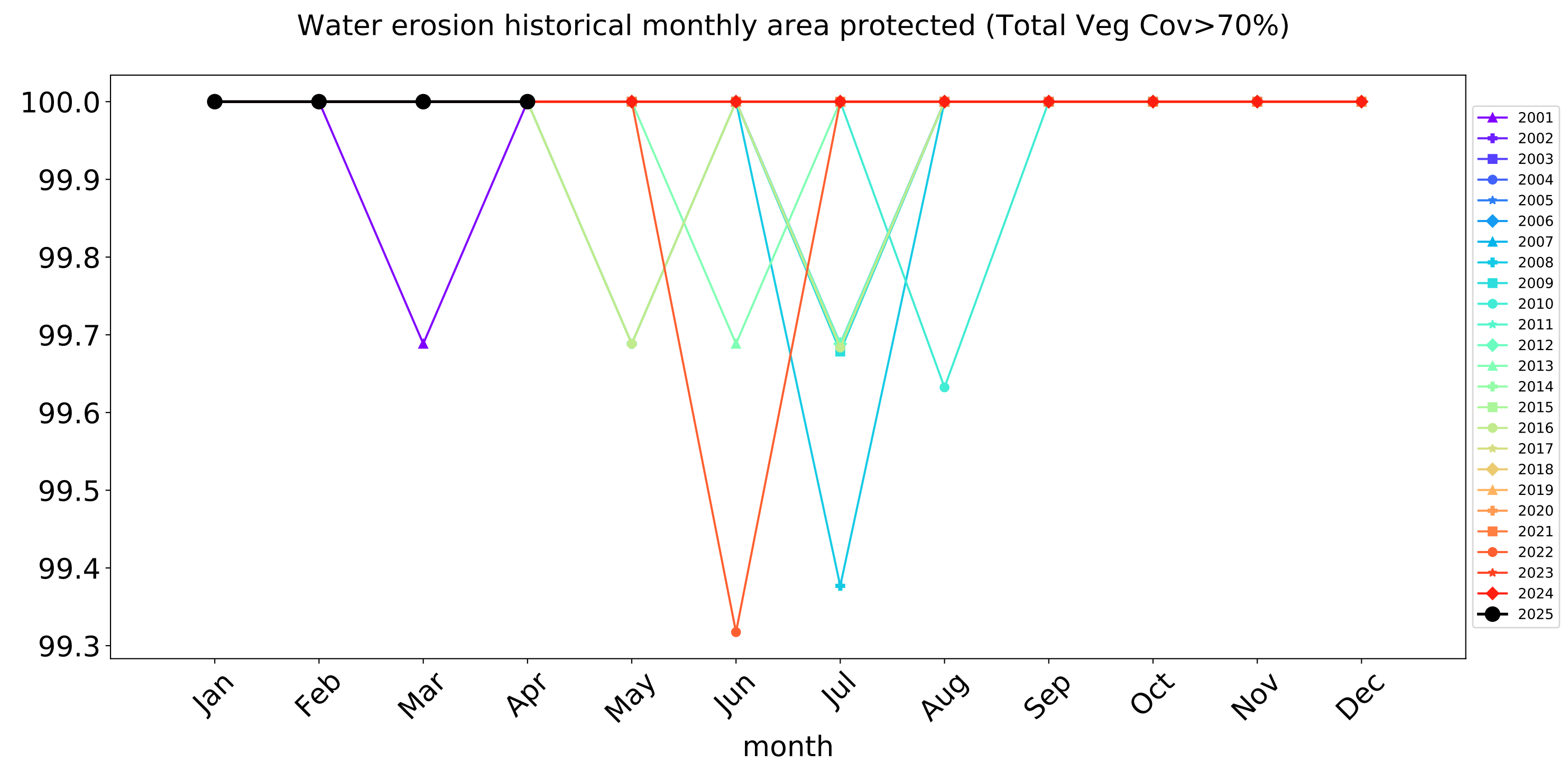
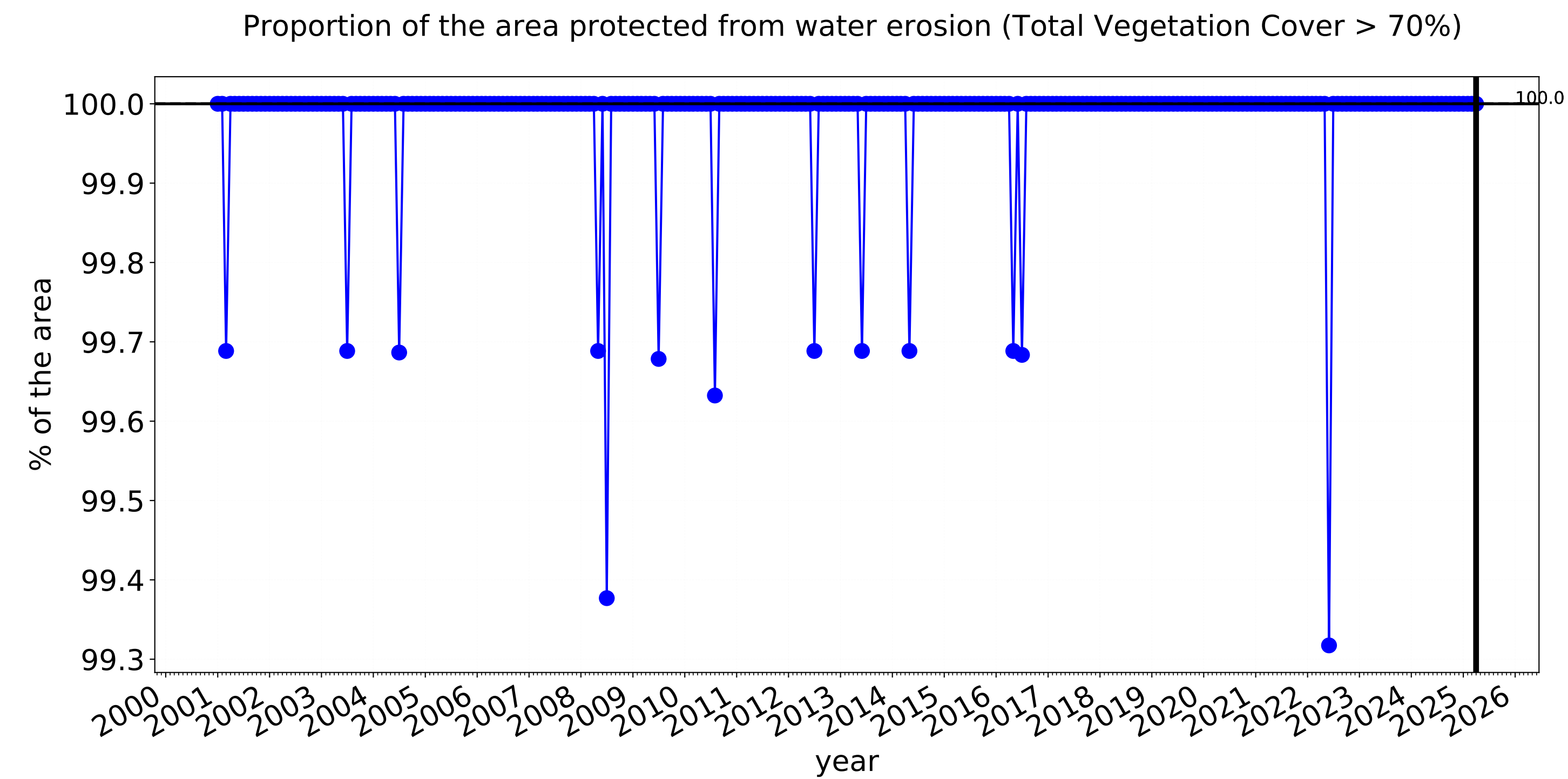
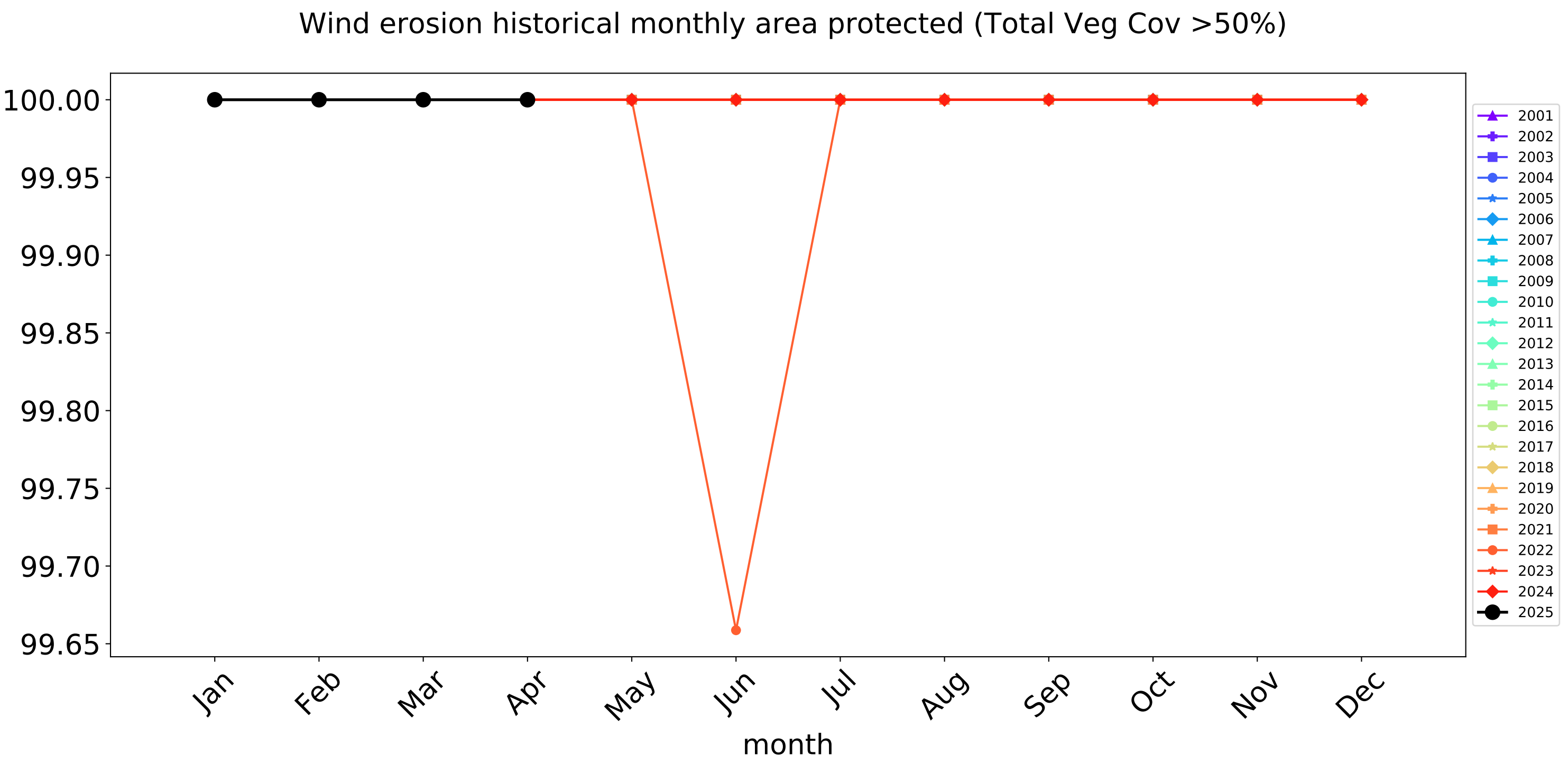
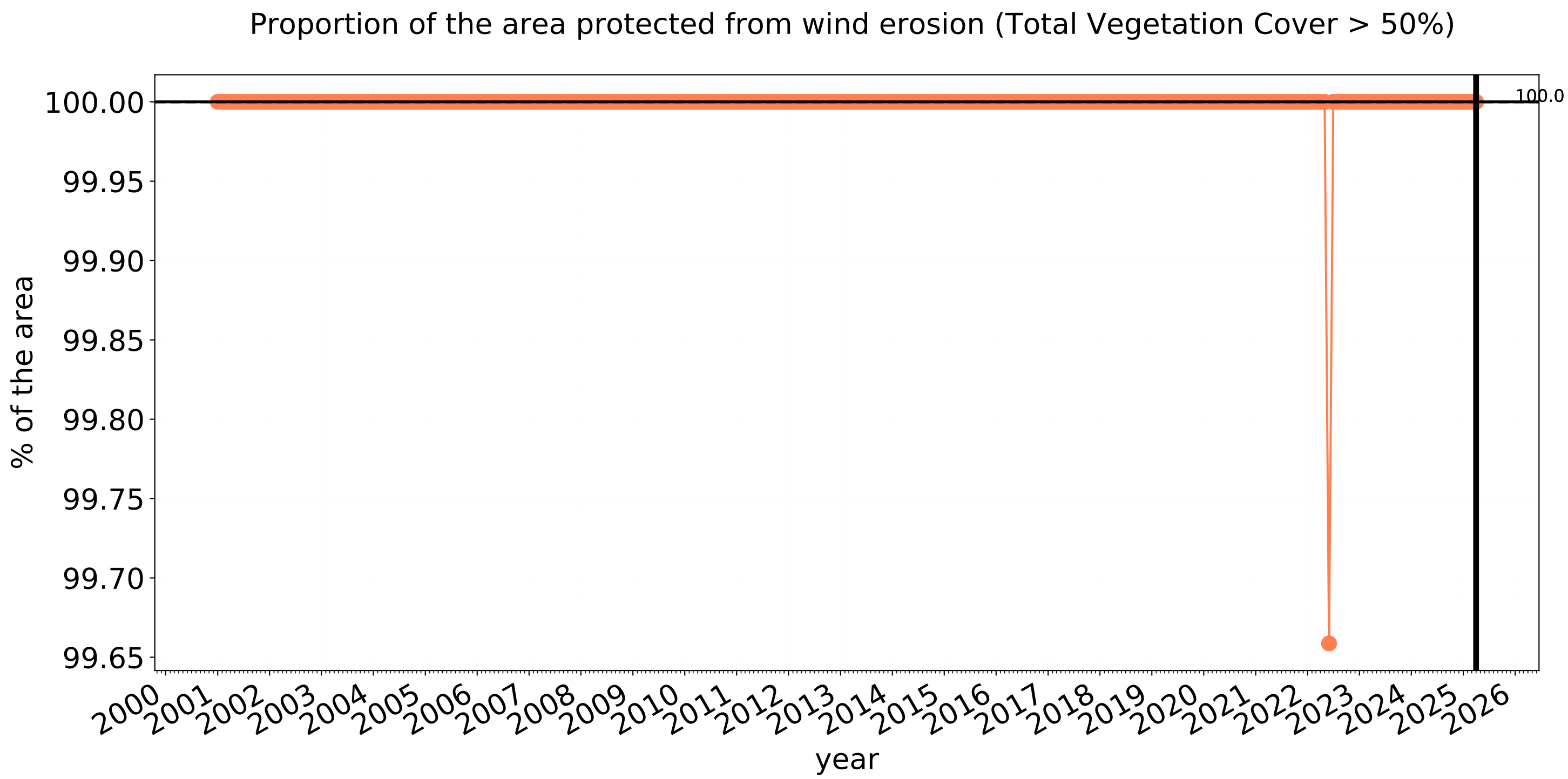
Total Vegetation Cover Anomaly [%]

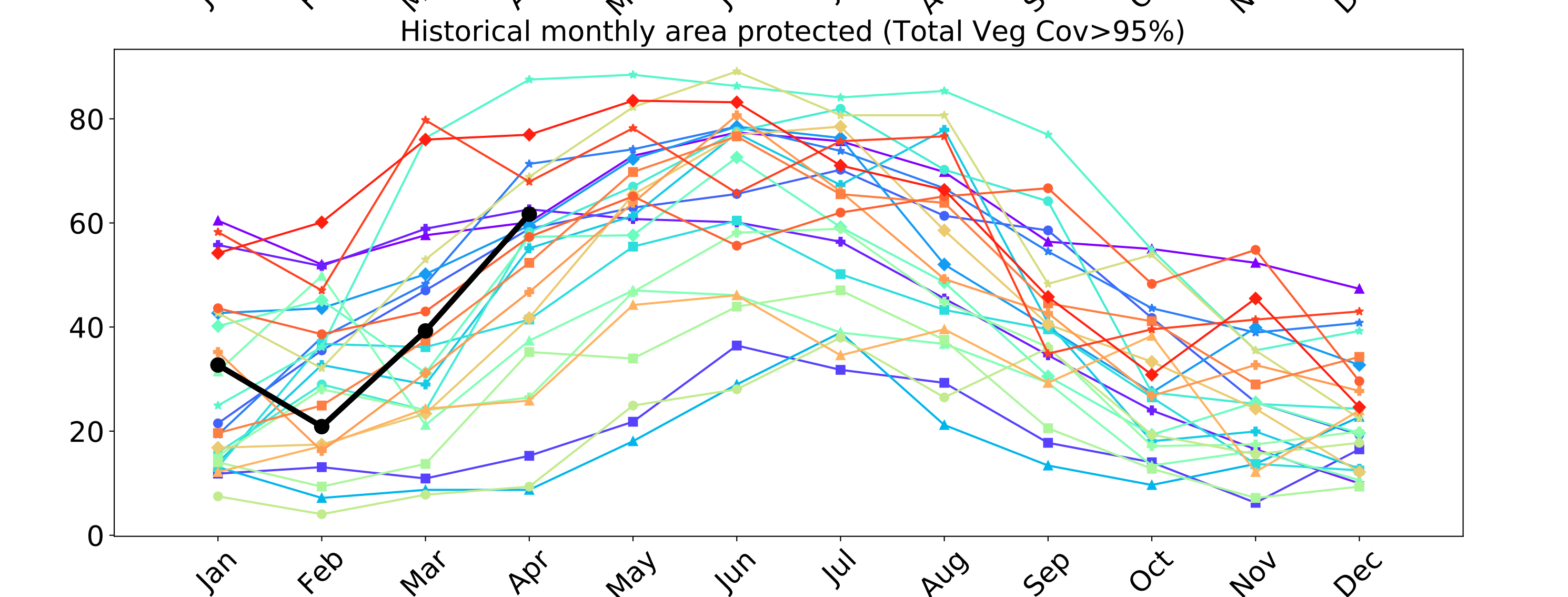
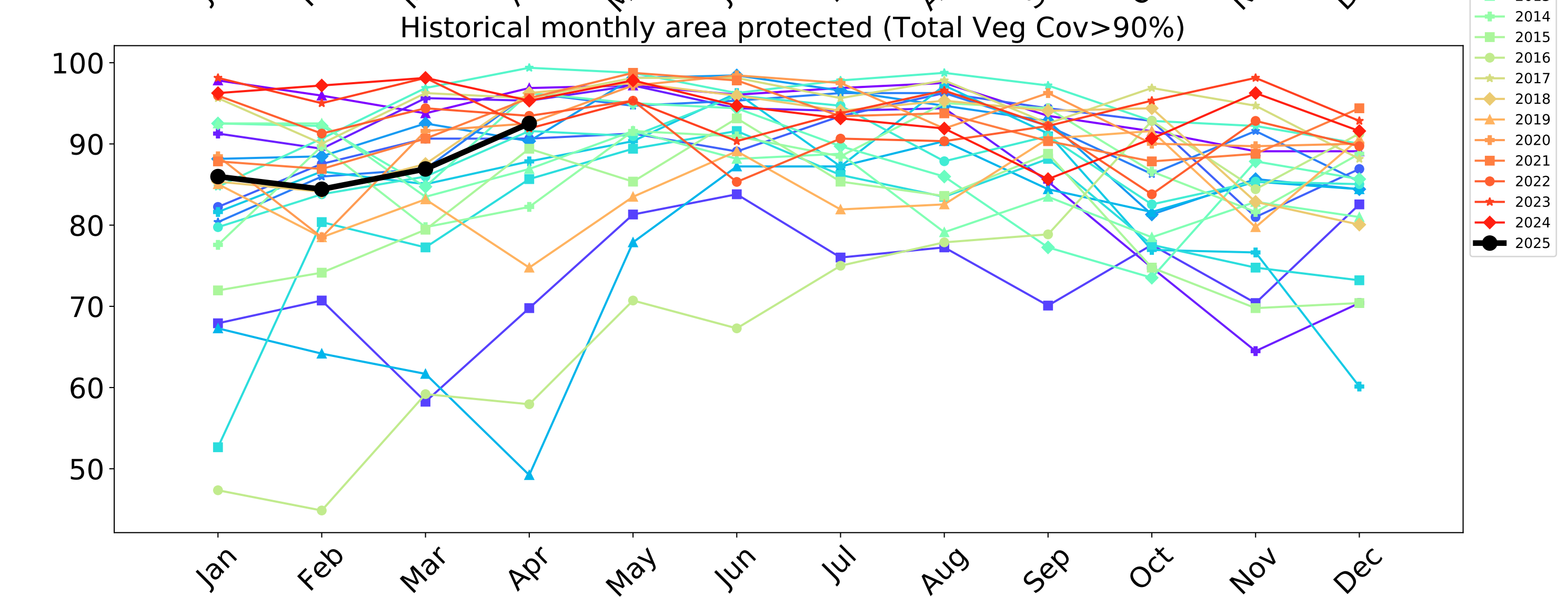
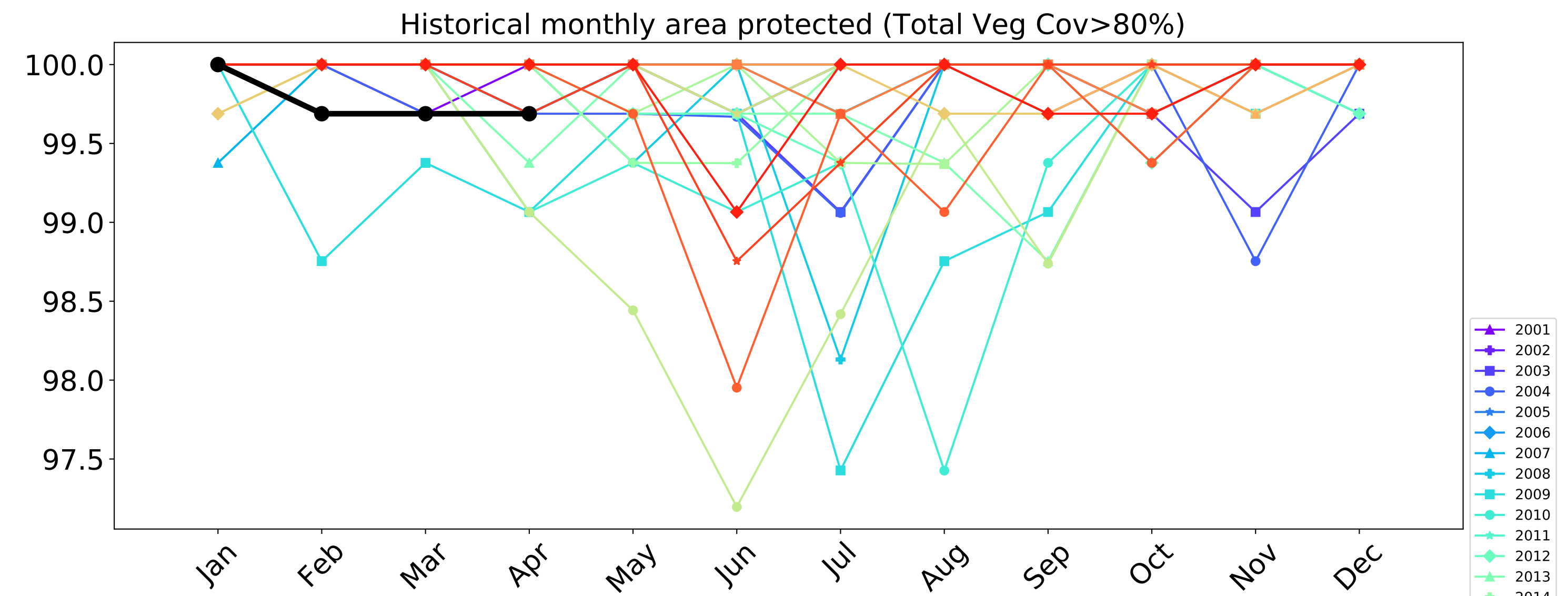
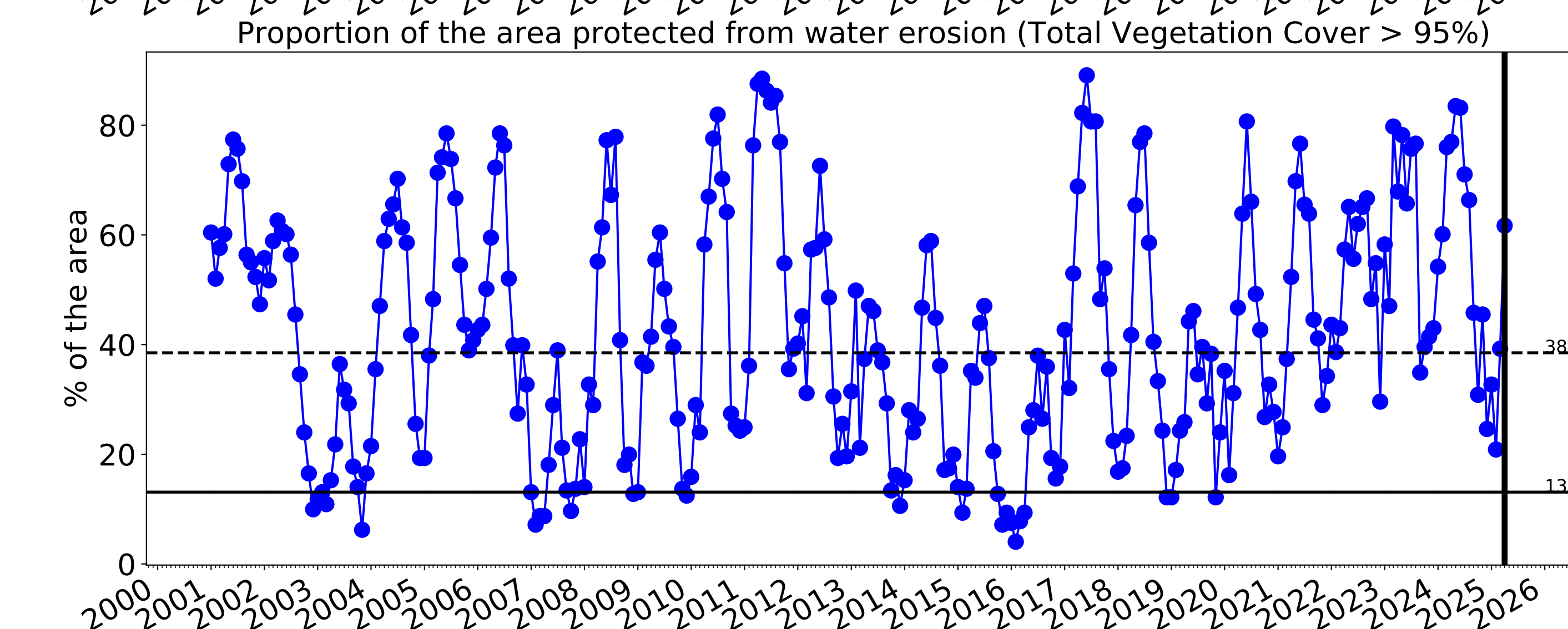
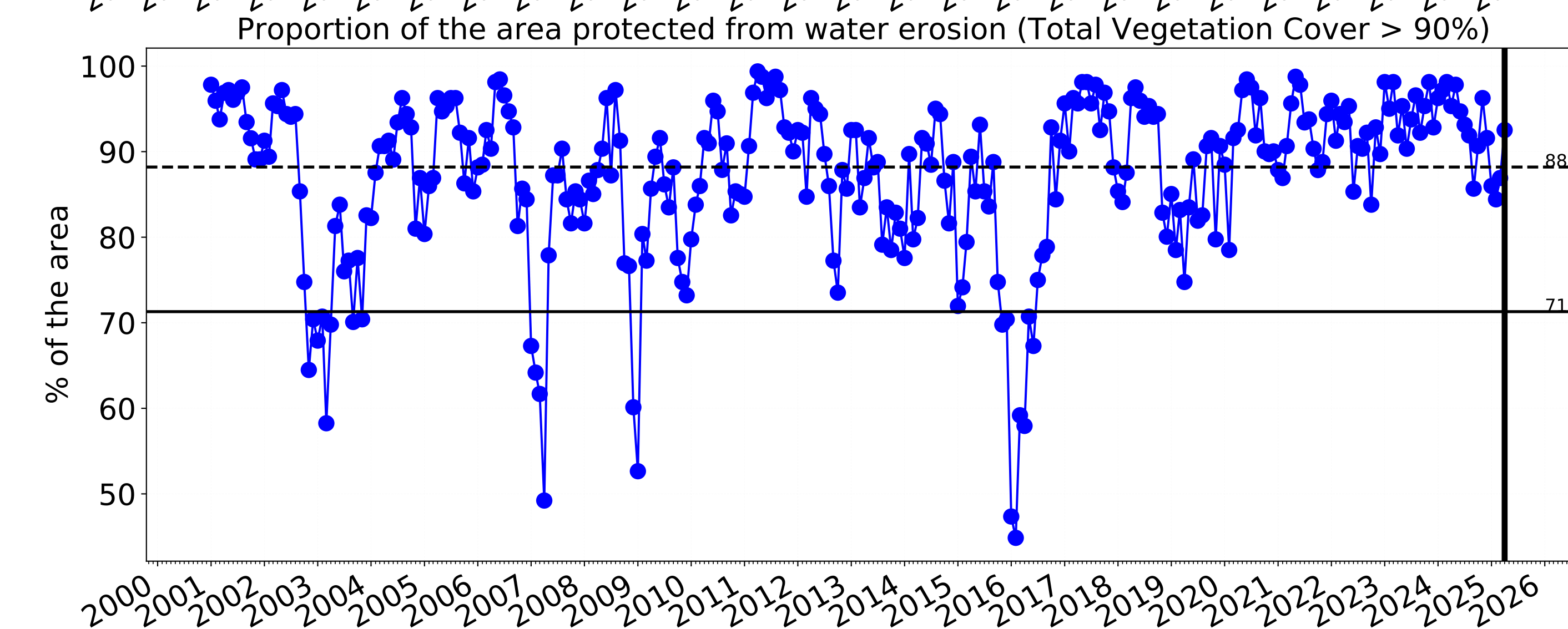
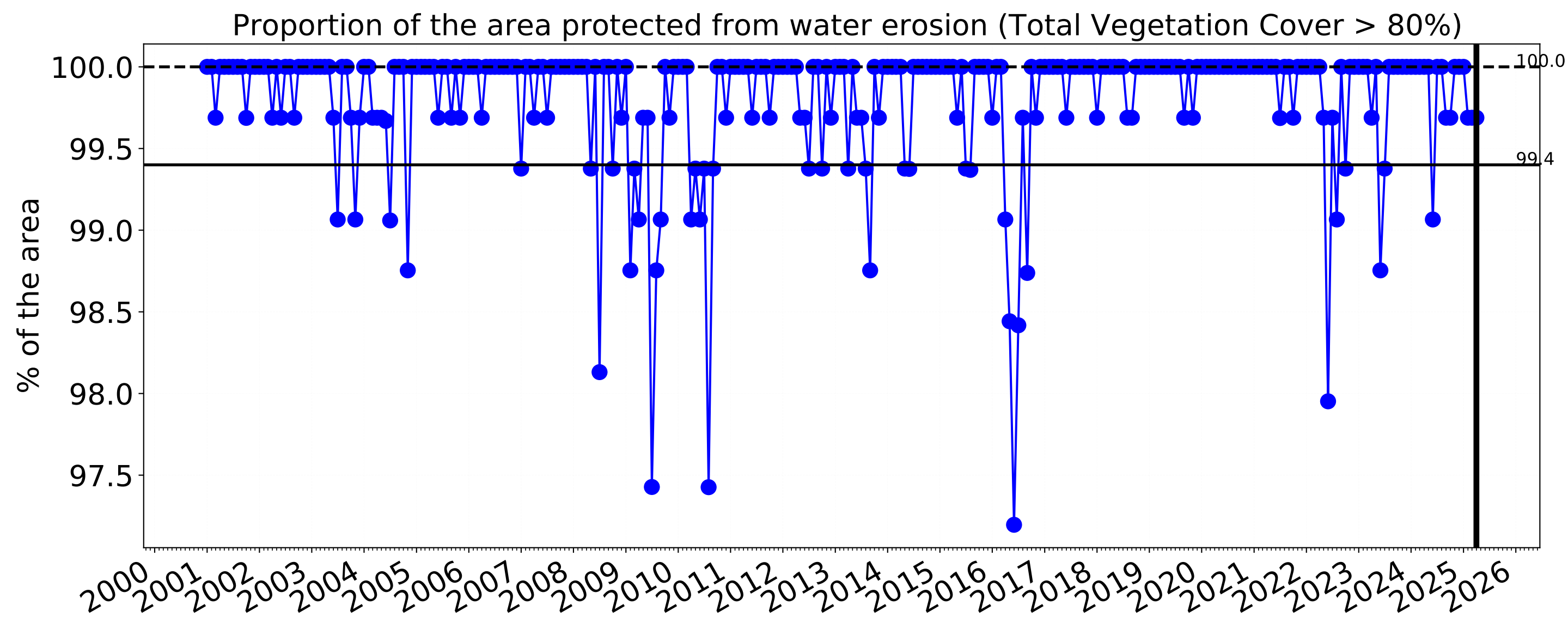


Total Vegetation Cover Decile [%]



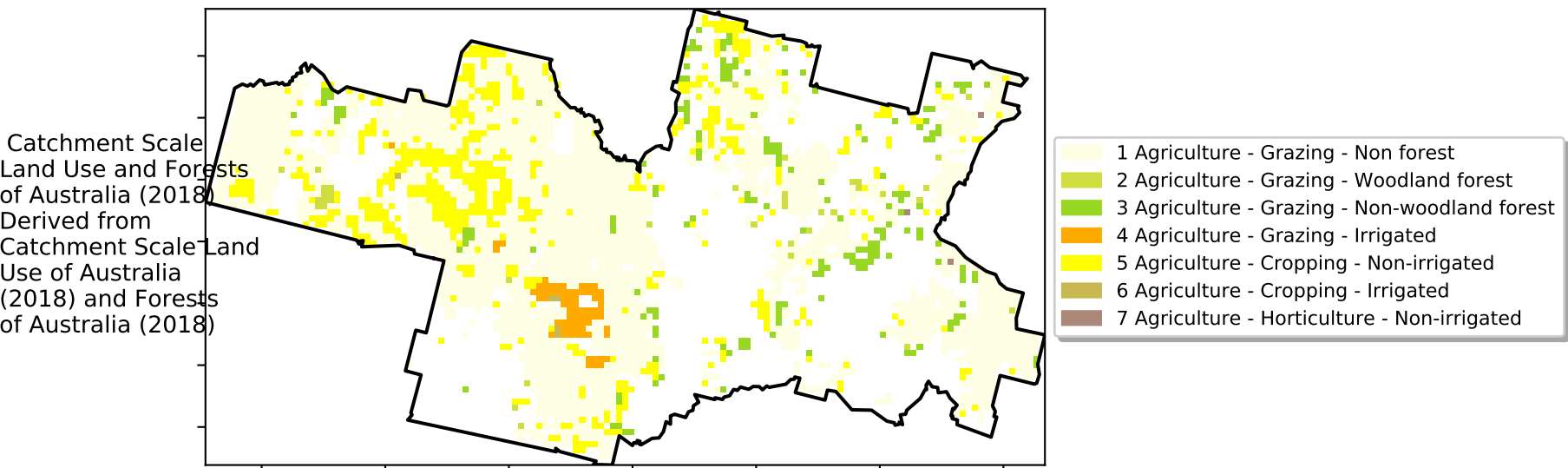
Conservation and natural environments Forest (non woodland) timeseries



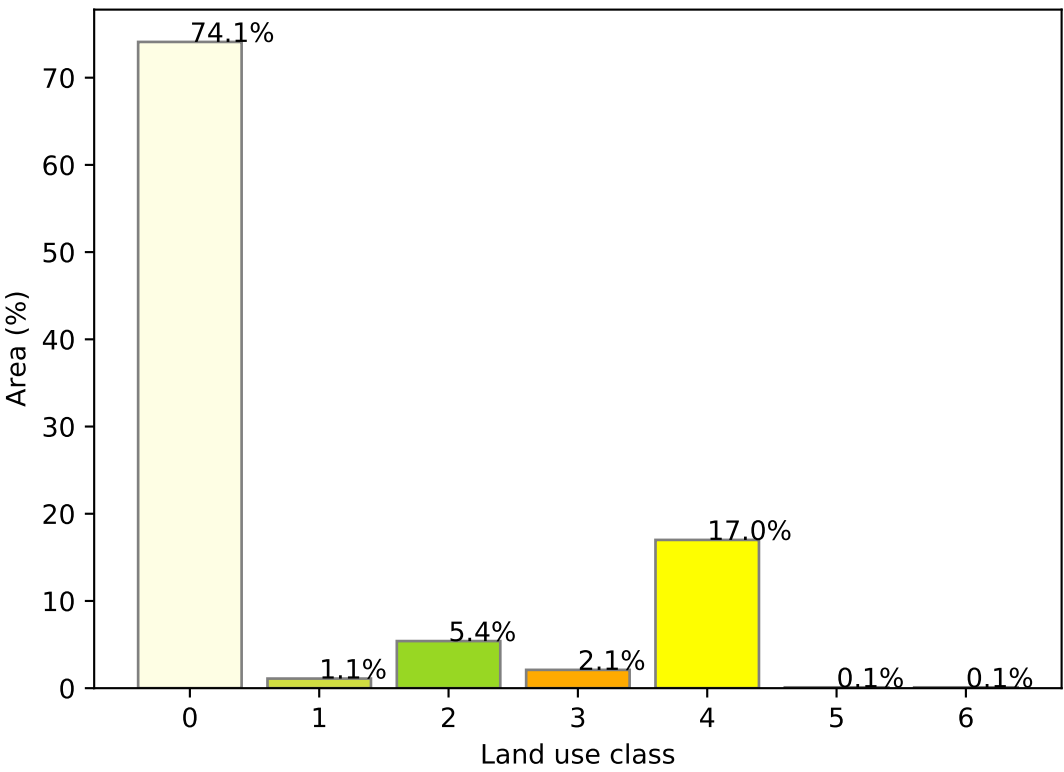


Agriculture

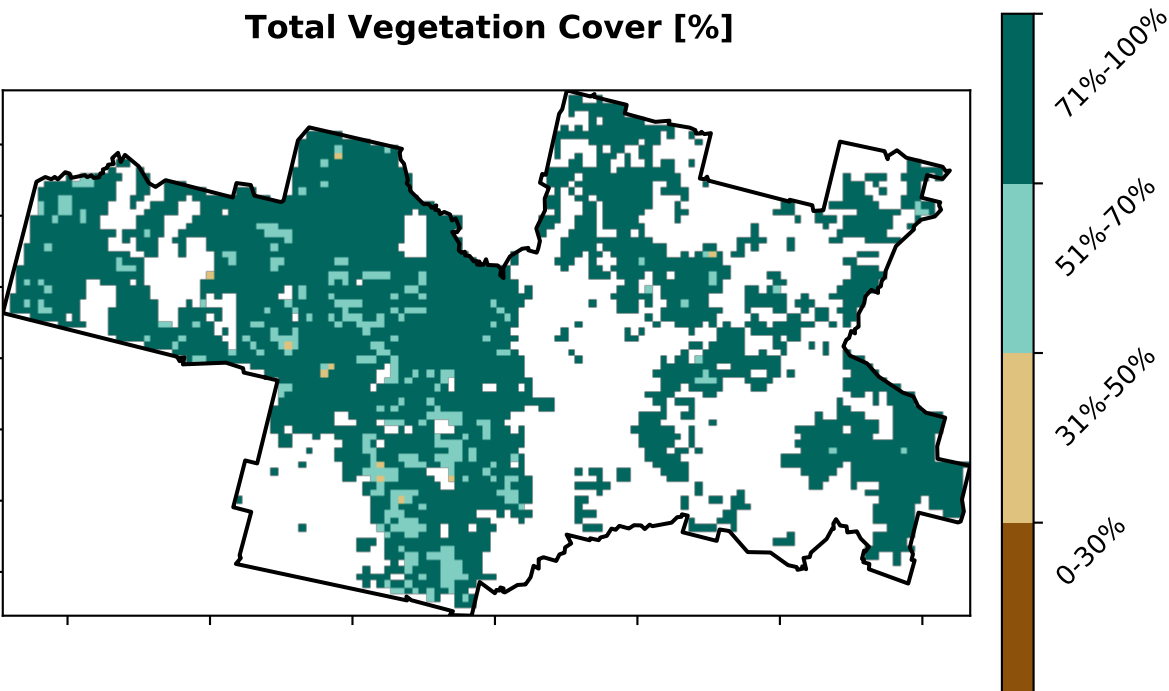
Land use and forest cover



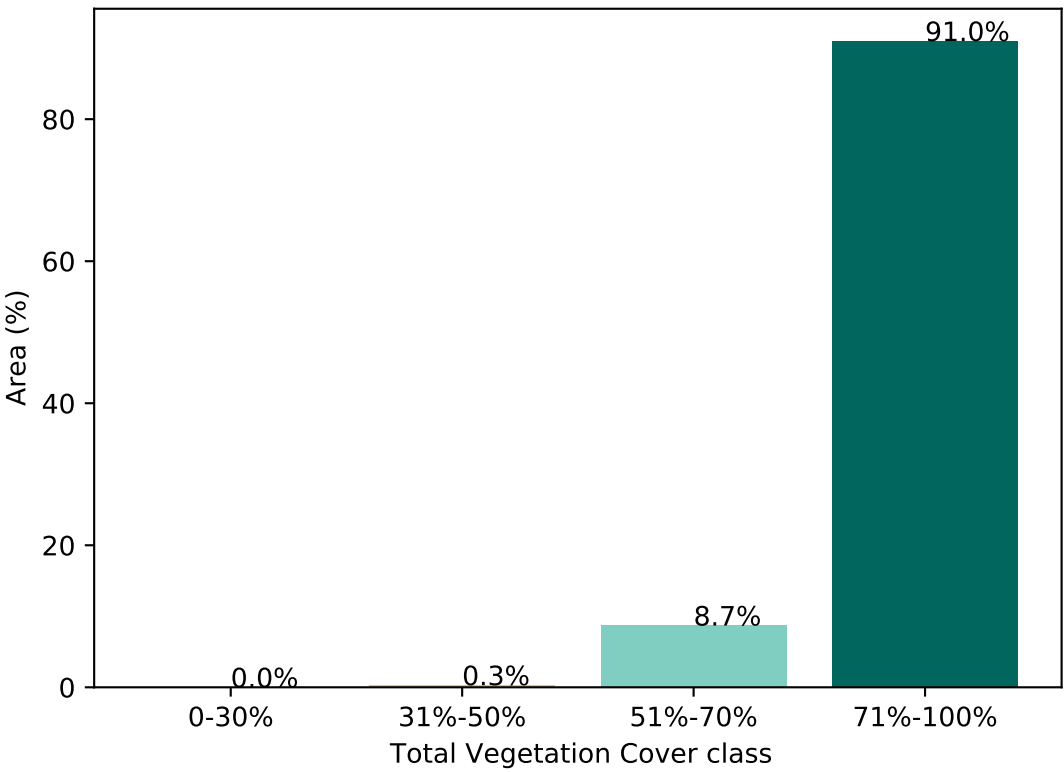
Proportion of each land class in area



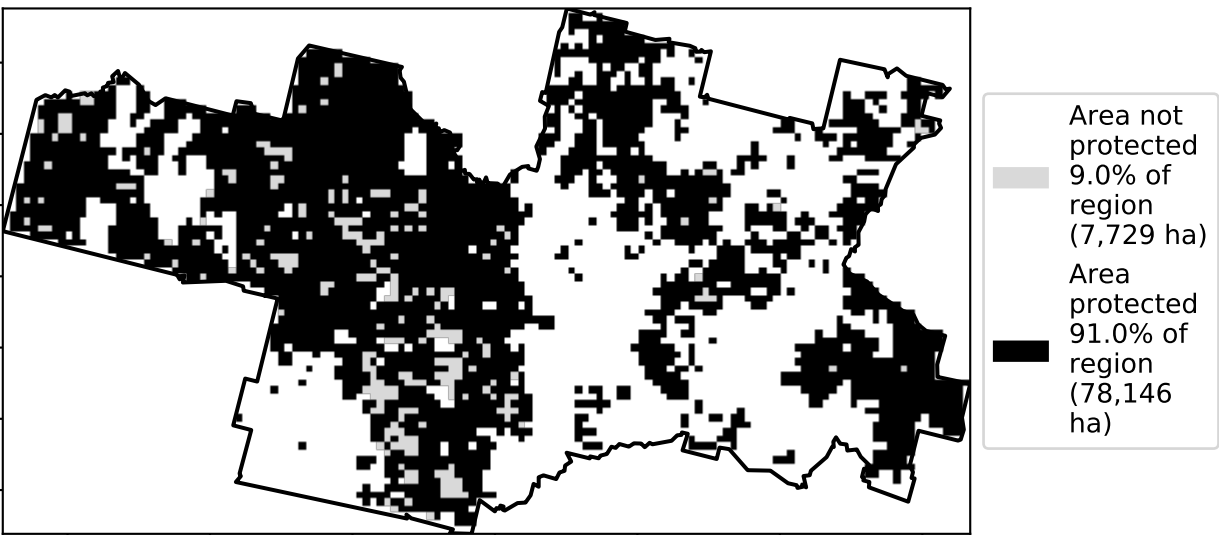
Total Vegetation Cover [%]



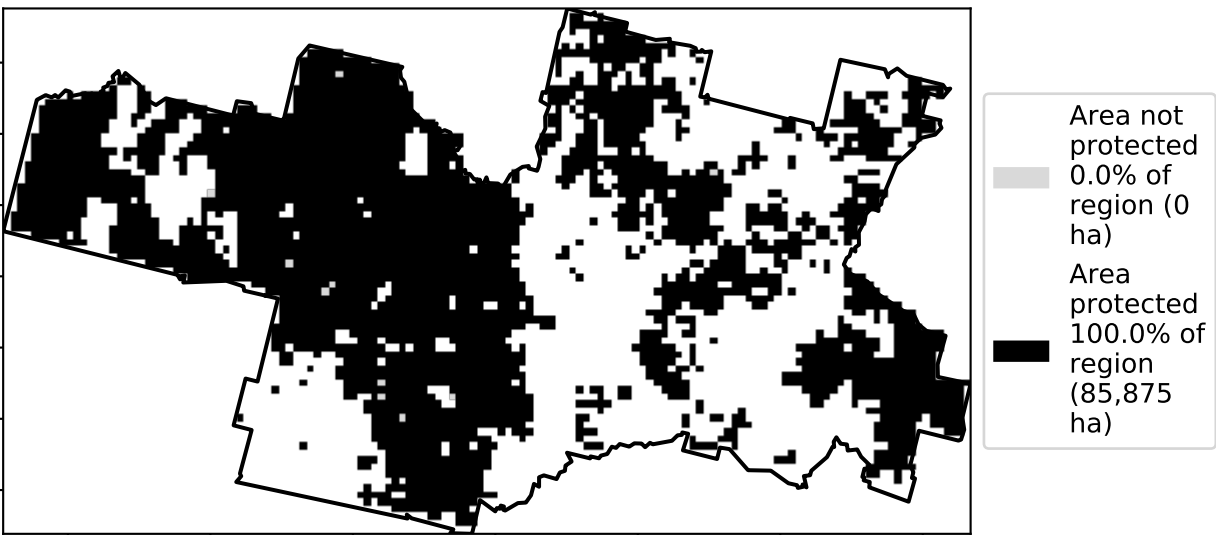
Proportion of vegetation cover class in area



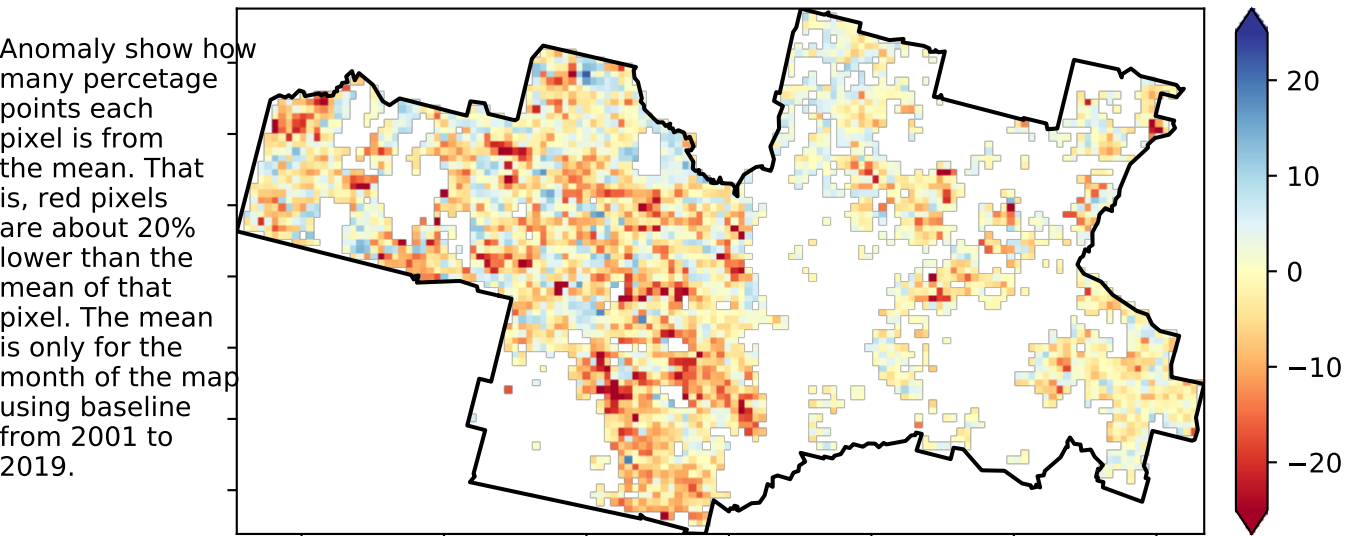
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

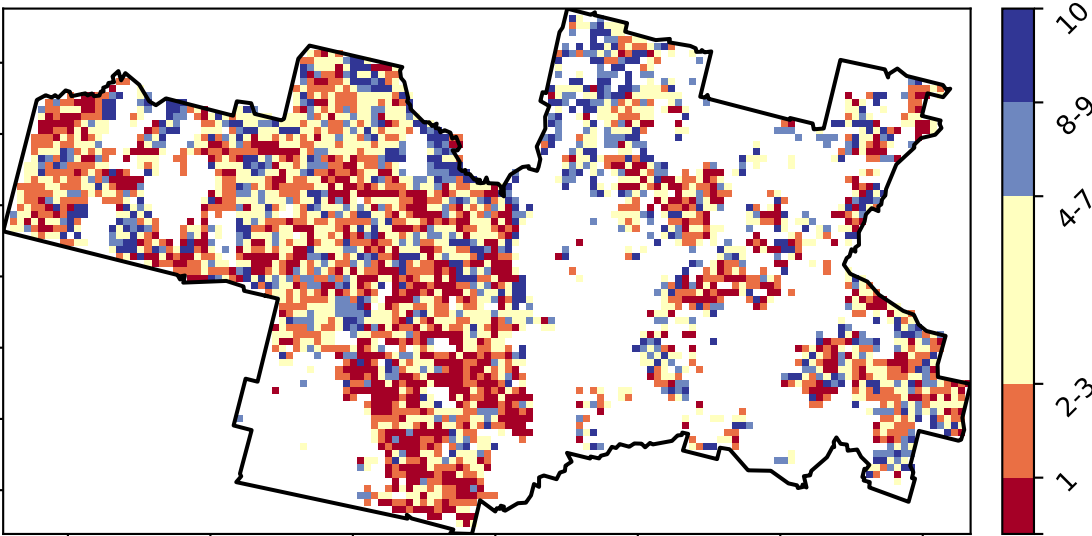


Total Vegetation Cover Anomaly [%]



Total Vegetation Cover Decile [%]

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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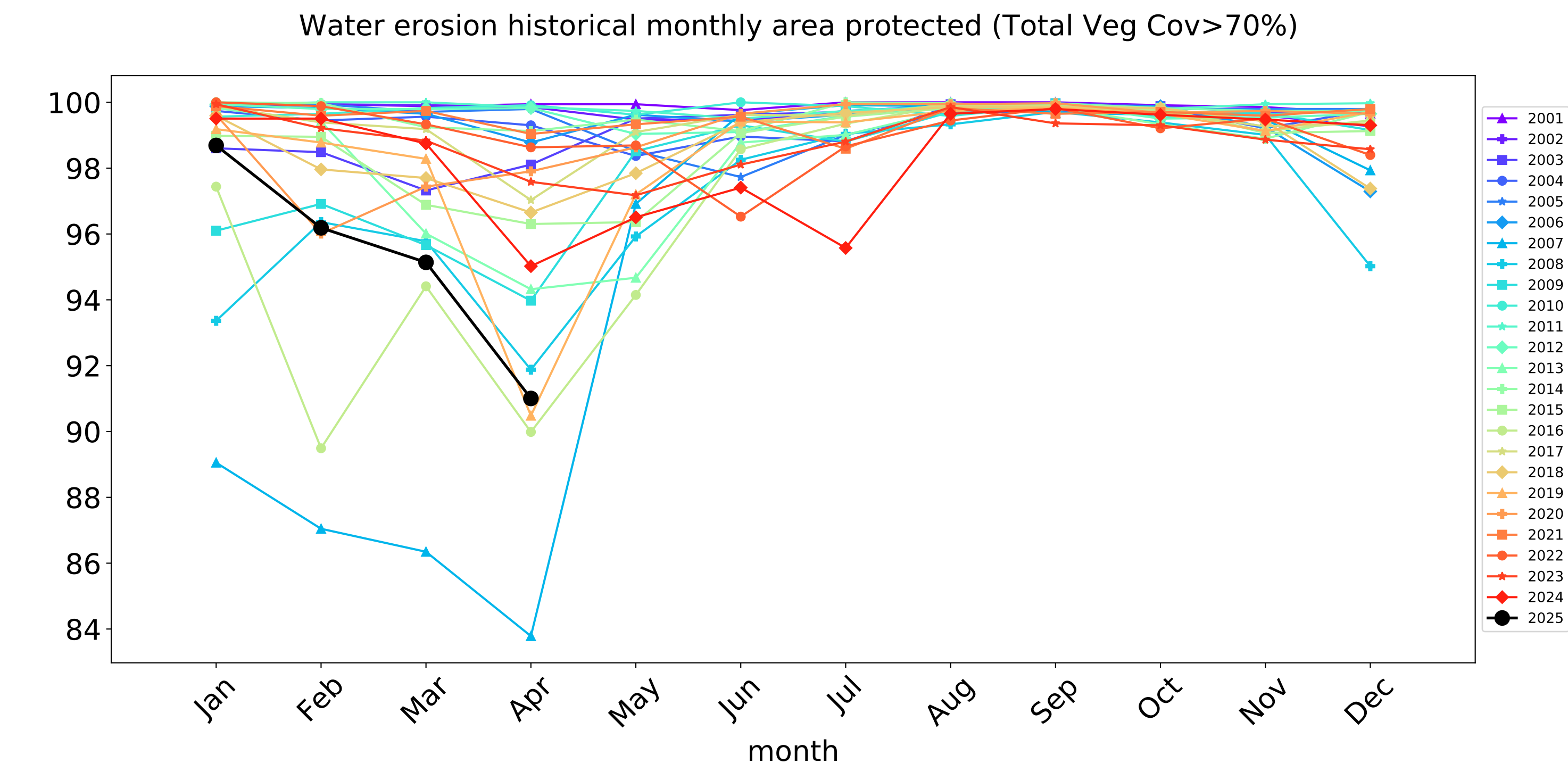
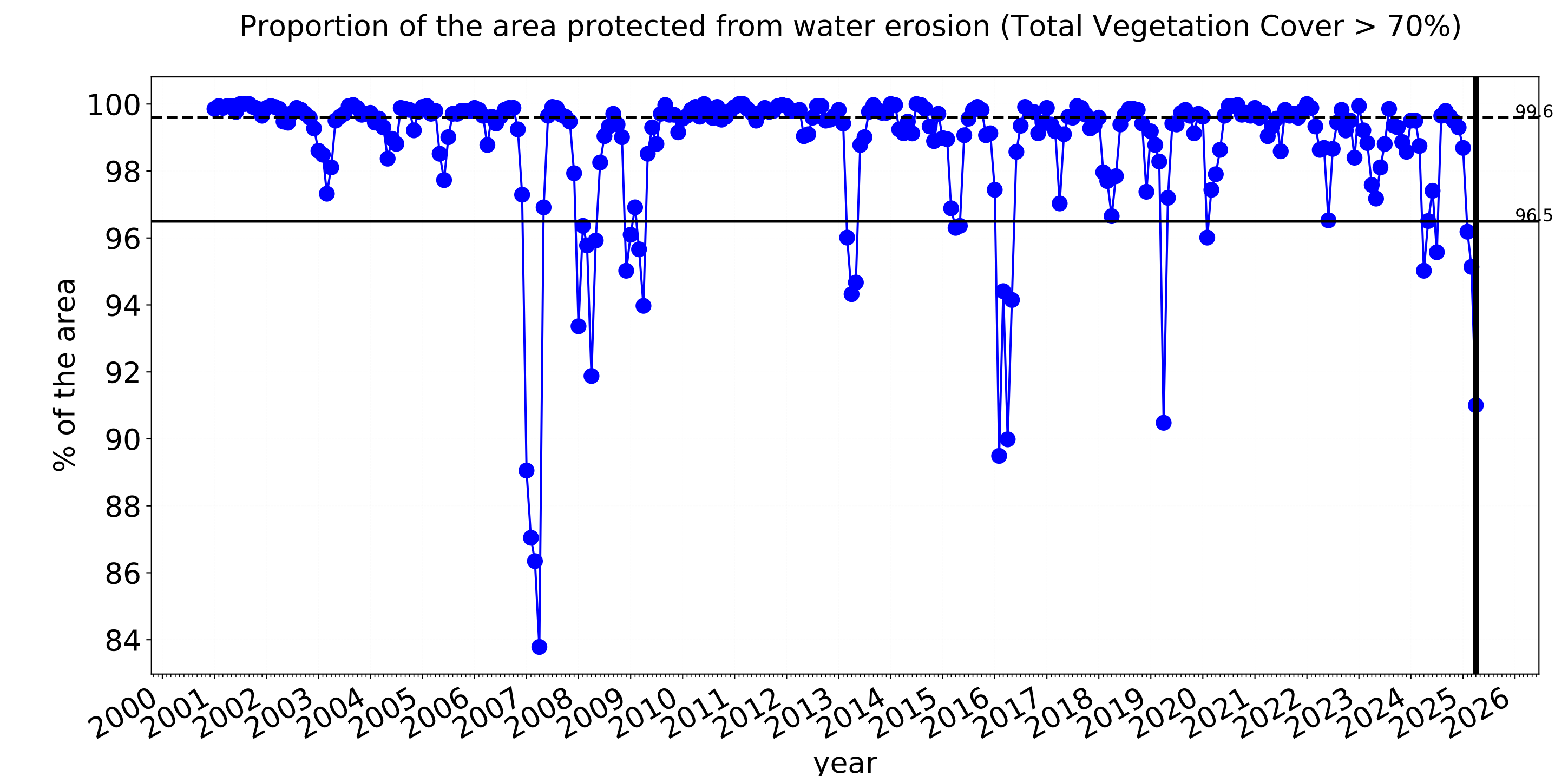
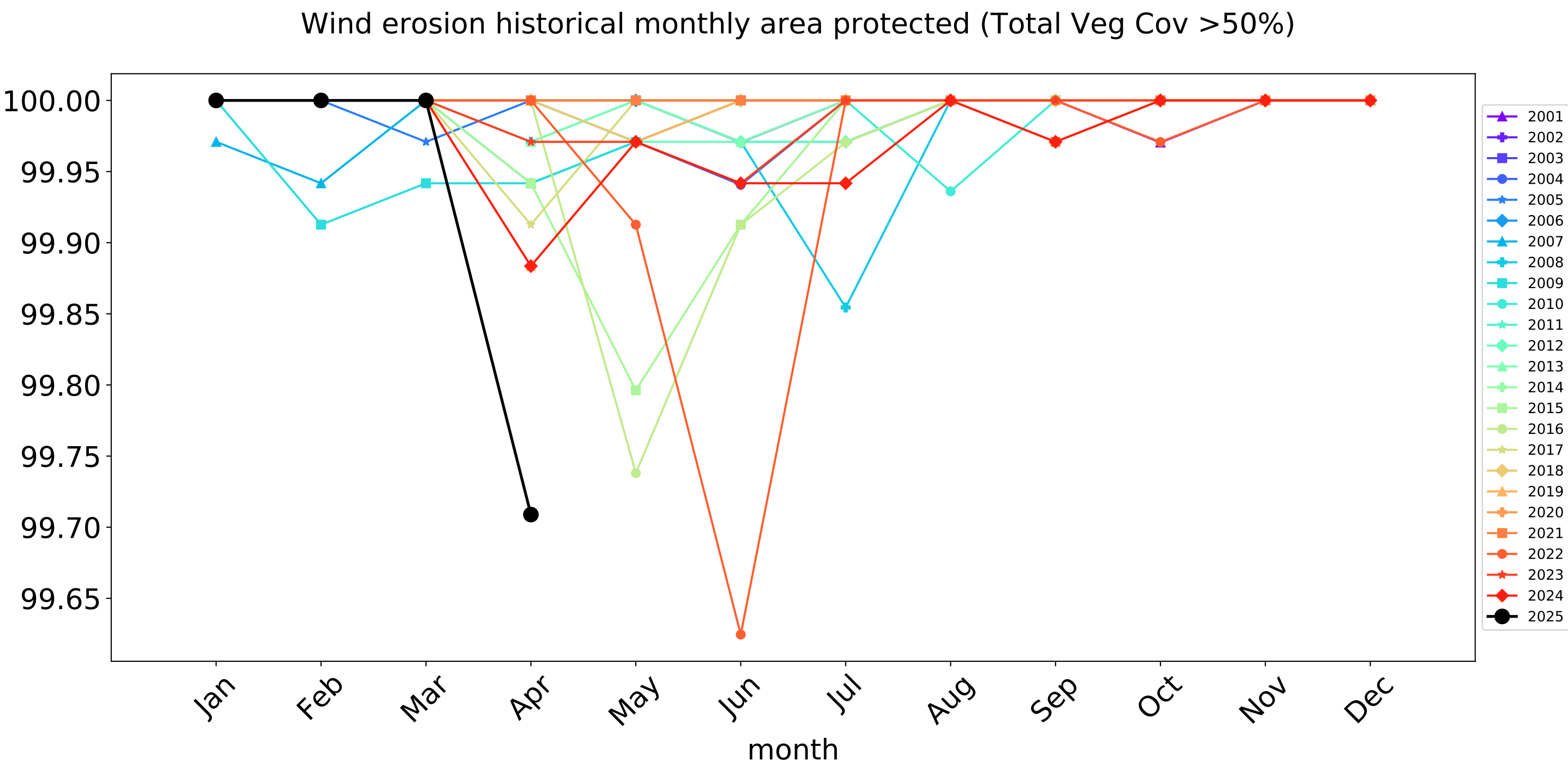
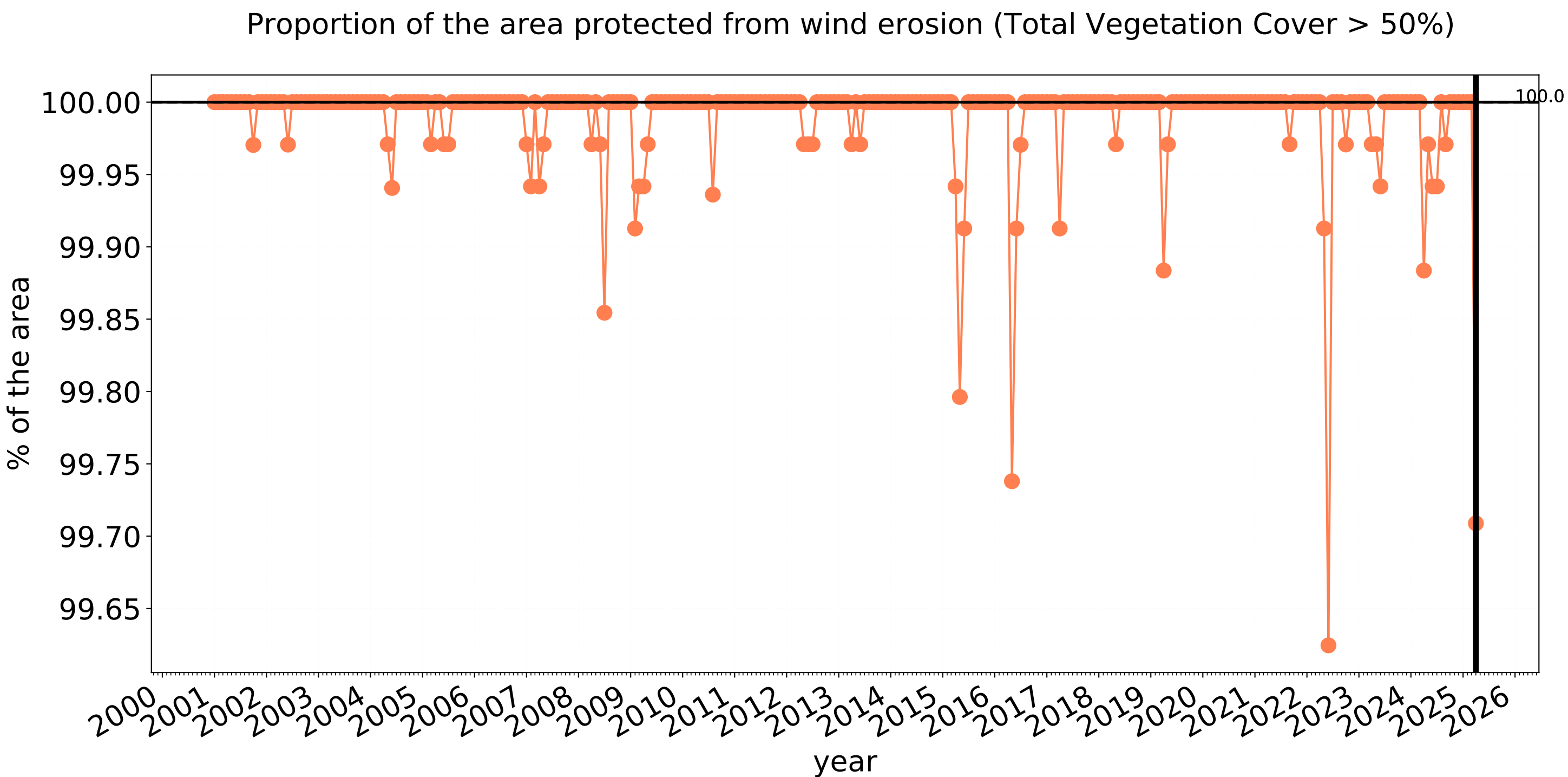


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Agriculture timeseries

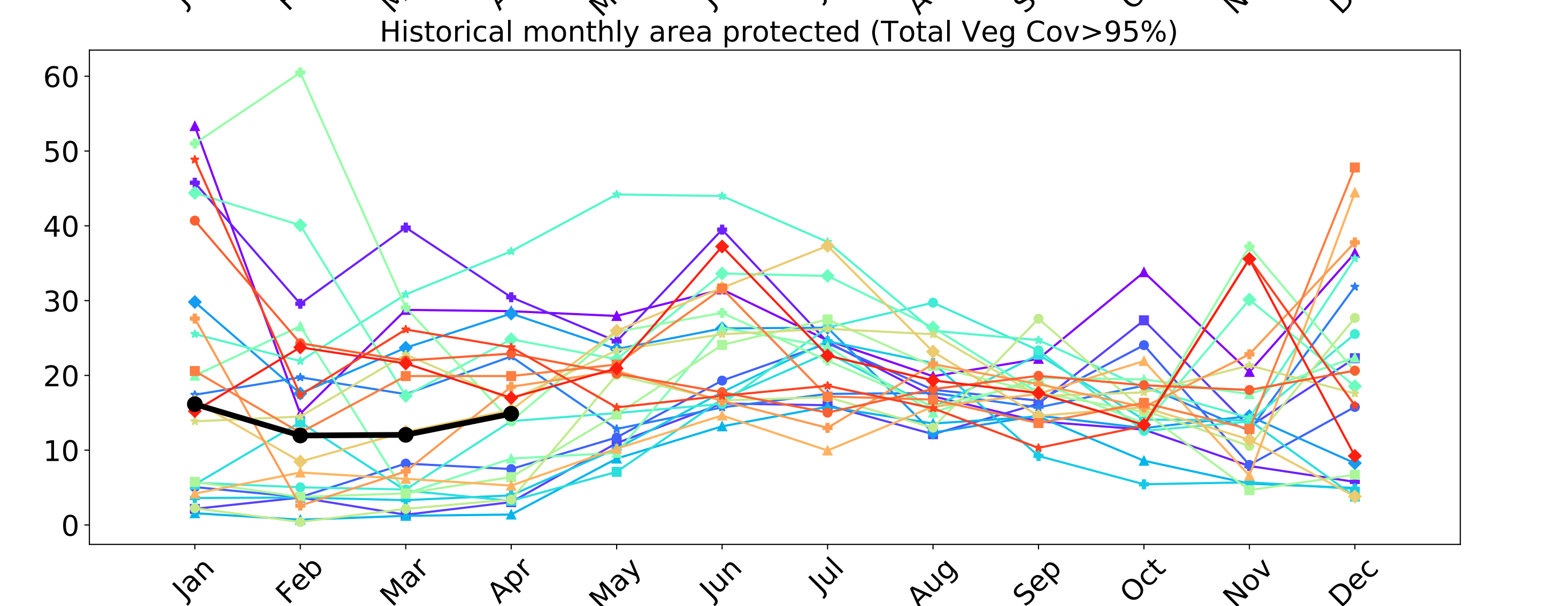
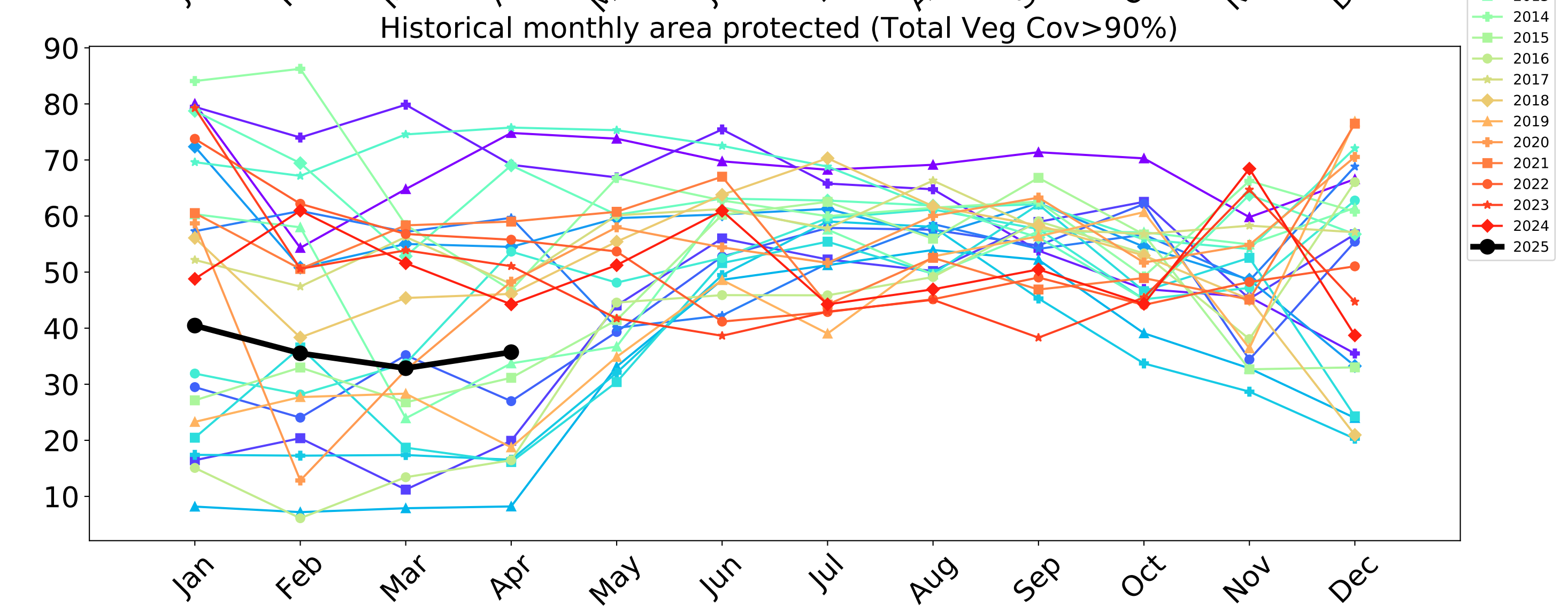
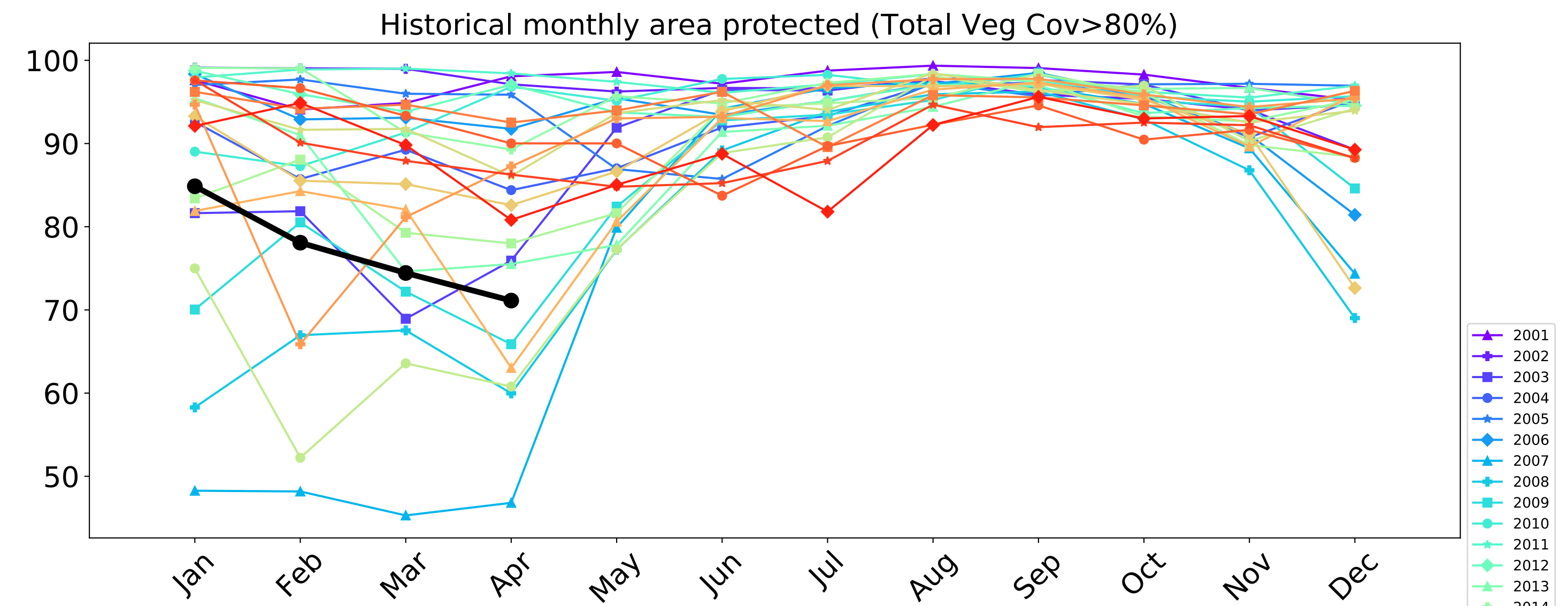
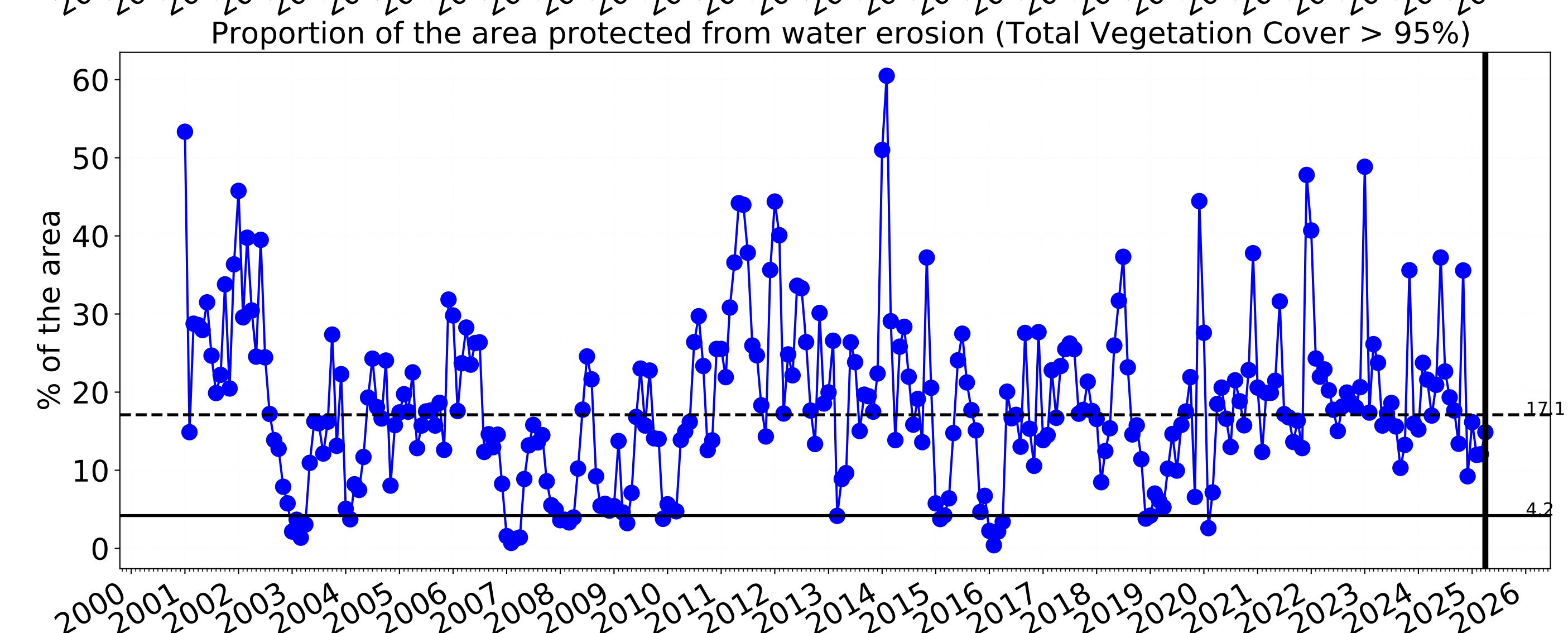
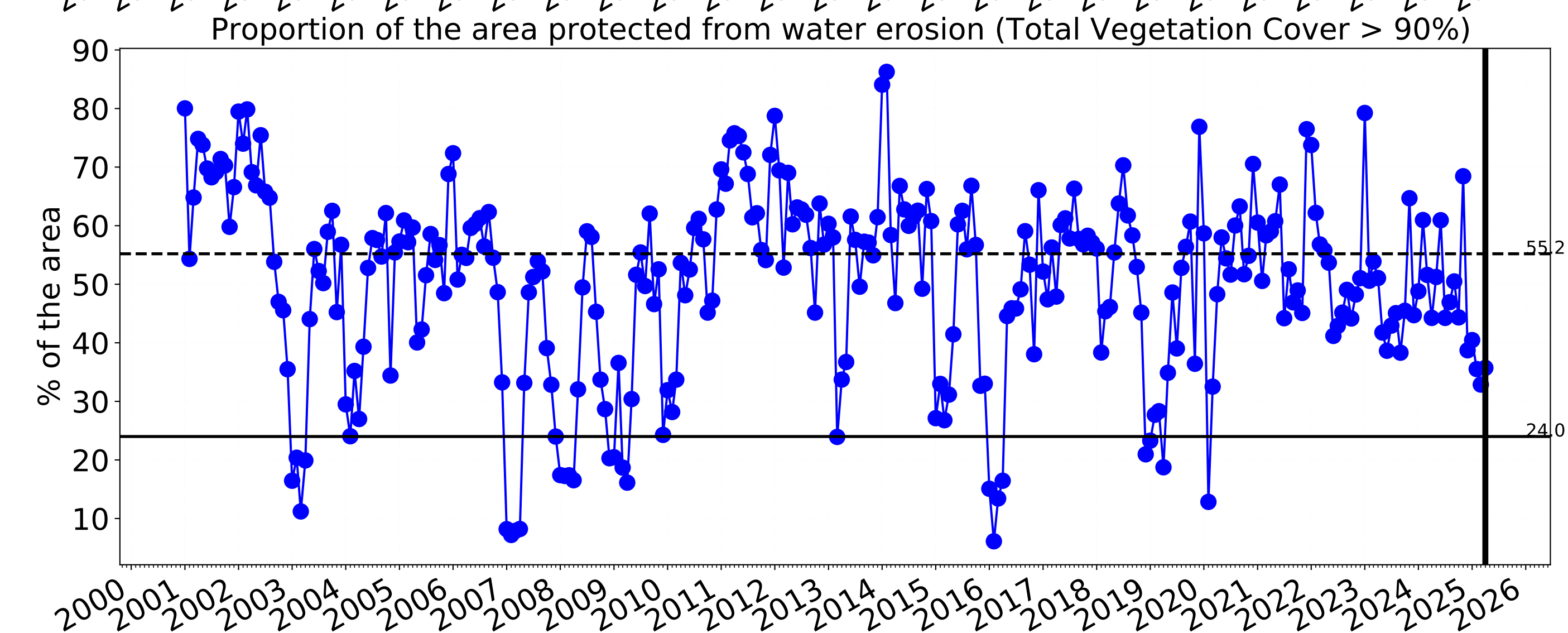
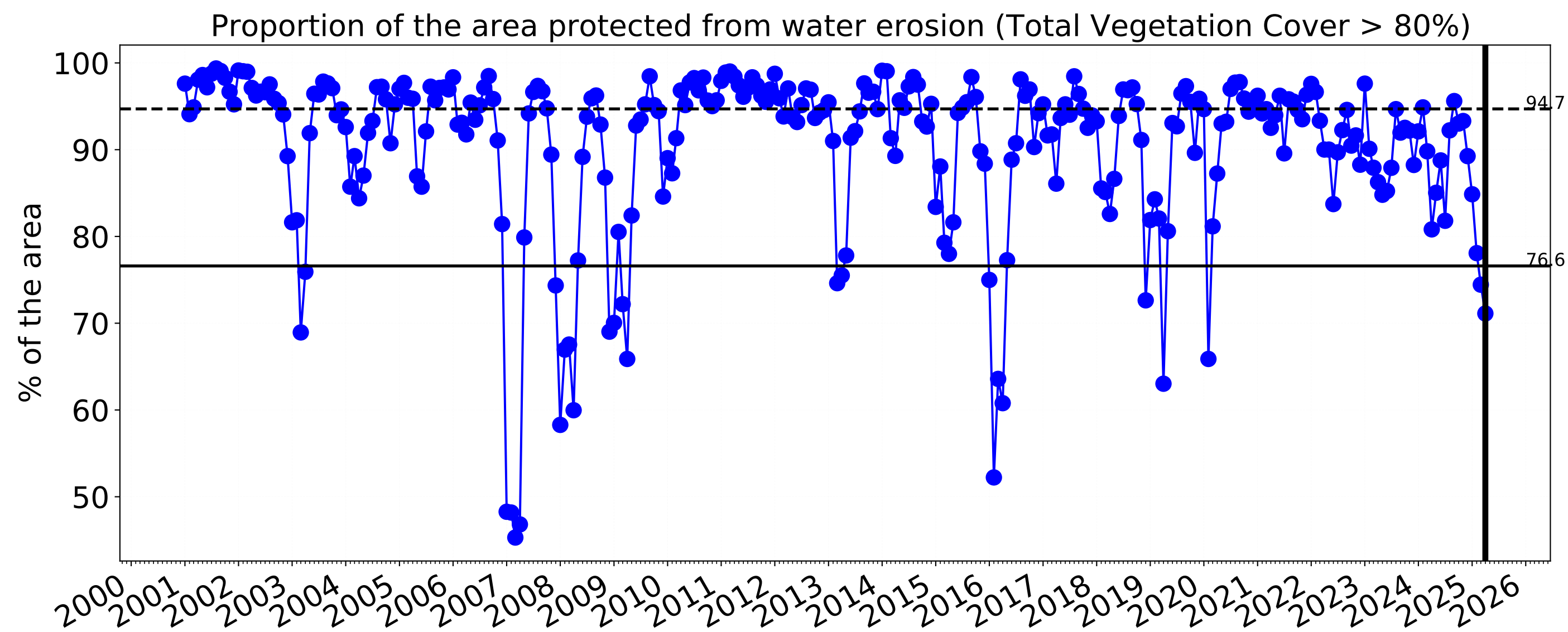


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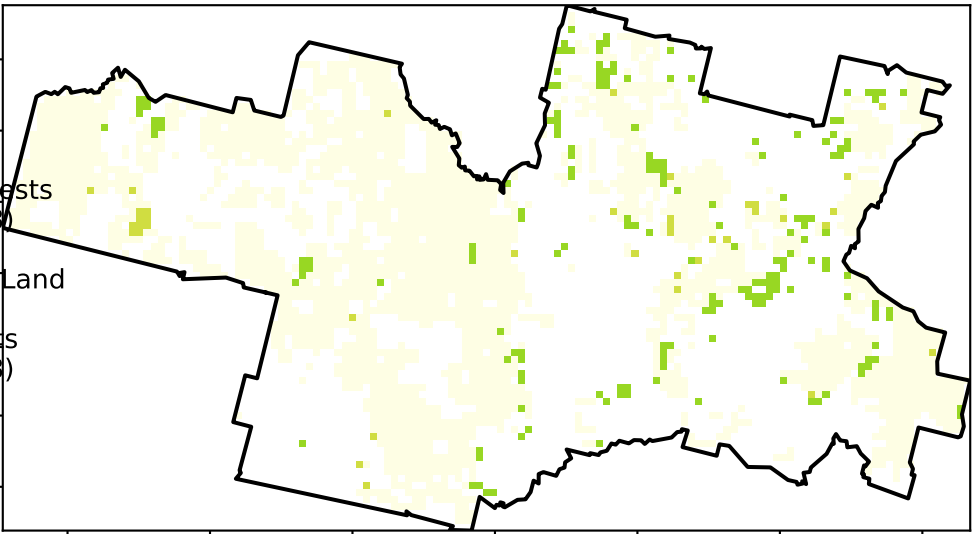




Grazing

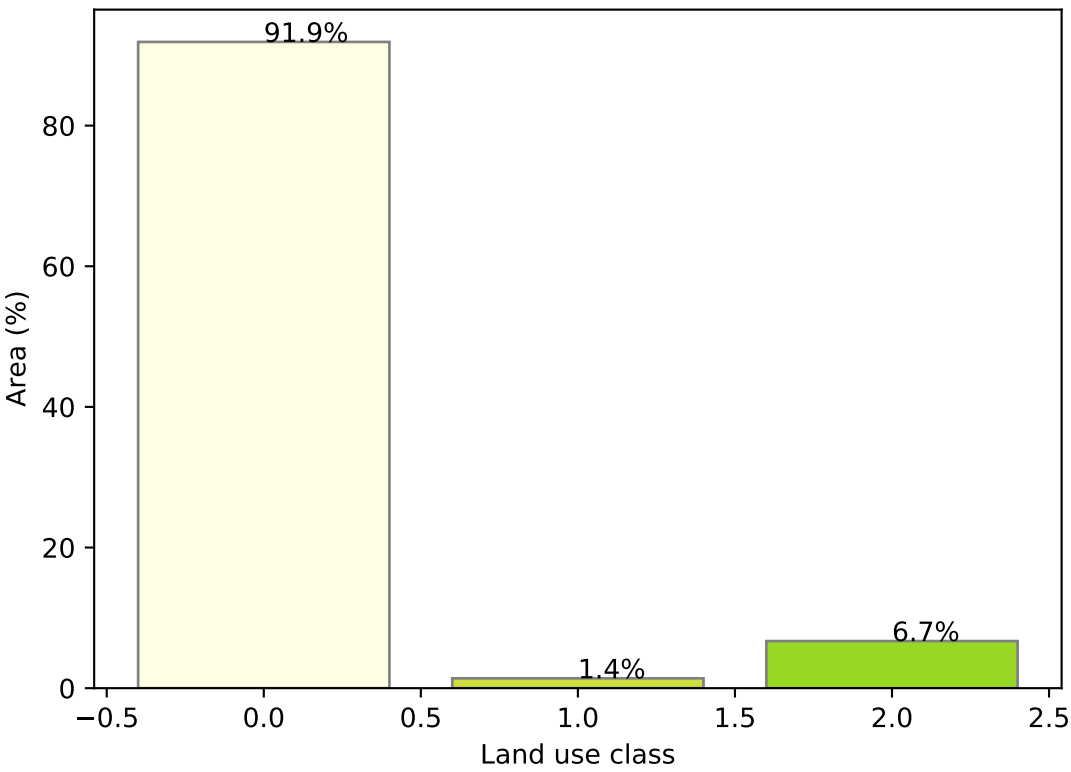
Land use and forest cover

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

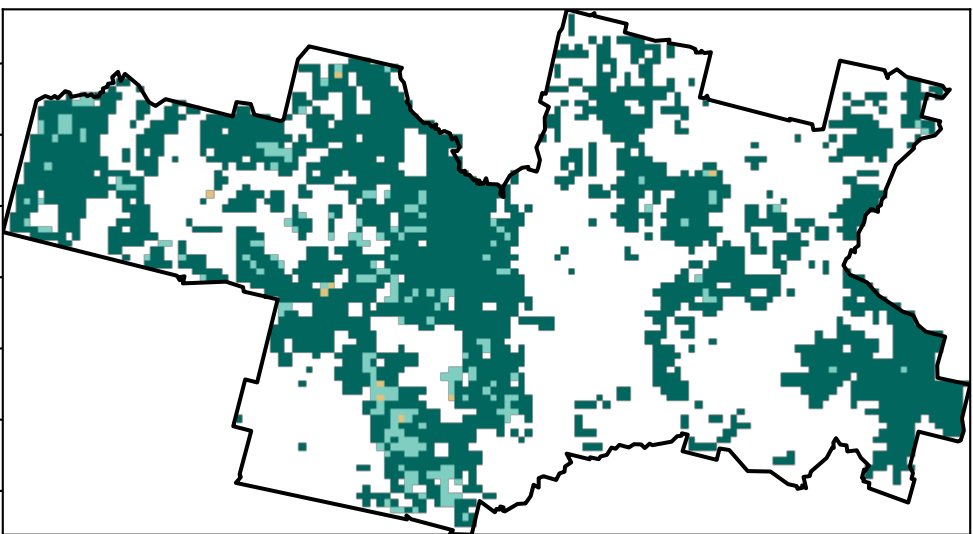


- 1 Agriculture - Grazing - Non forest
- 2 Agriculture - Grazing - Woodland forest
- 3 Agriculture - Grazing - Non-woodland forest

Proportion of each land class in area

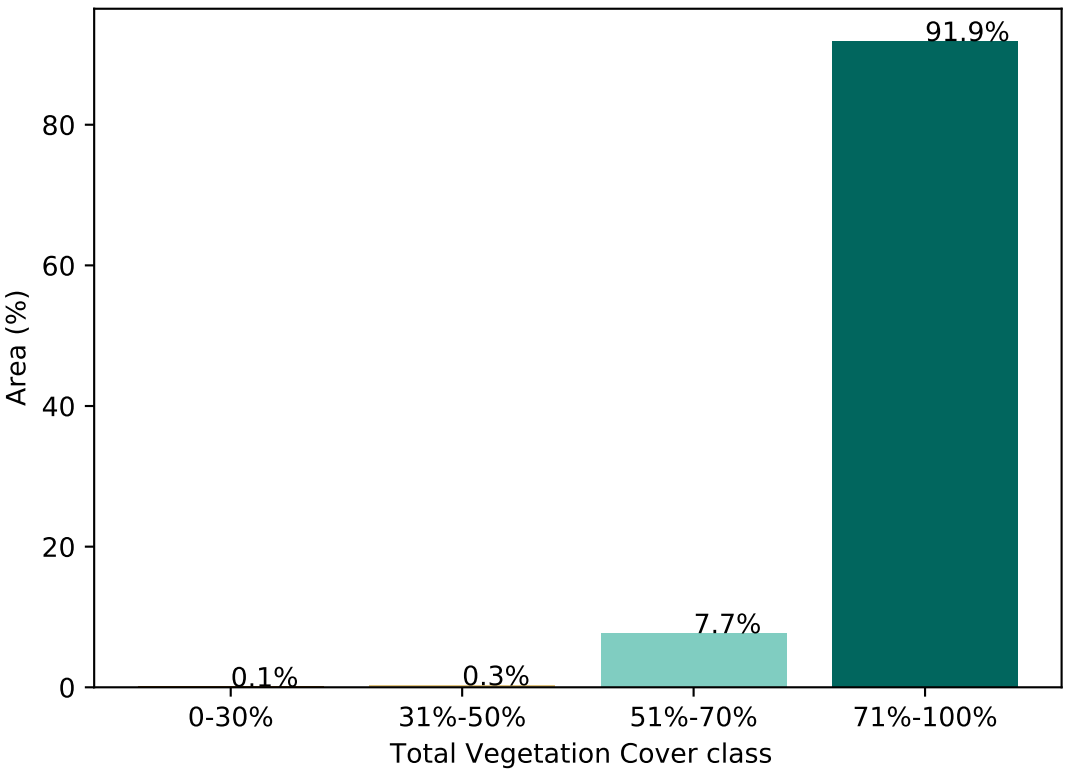


Total Vegetation Cover [%]

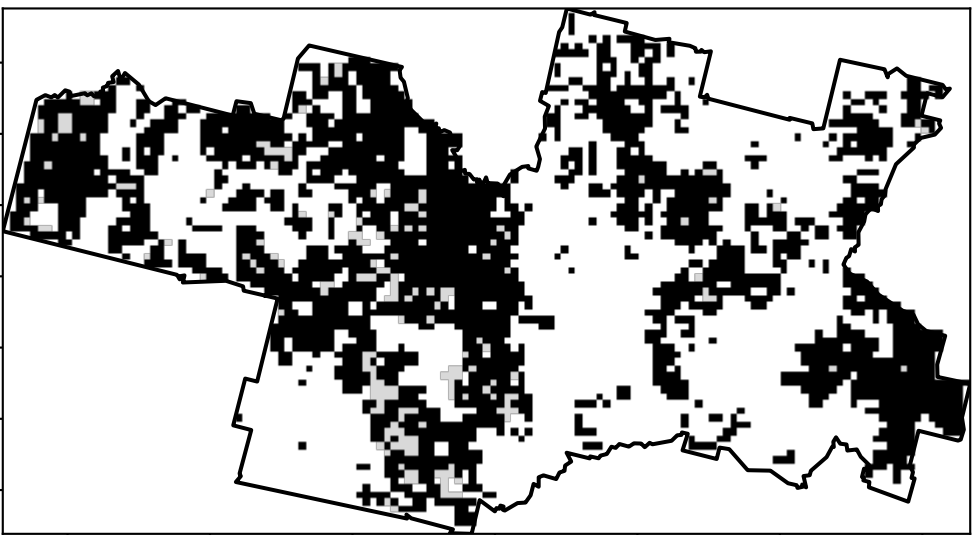


- 71%-100%
- 51%-70%
- 31%-50%
- 0-30%

Proportion of vegetation cover class in area

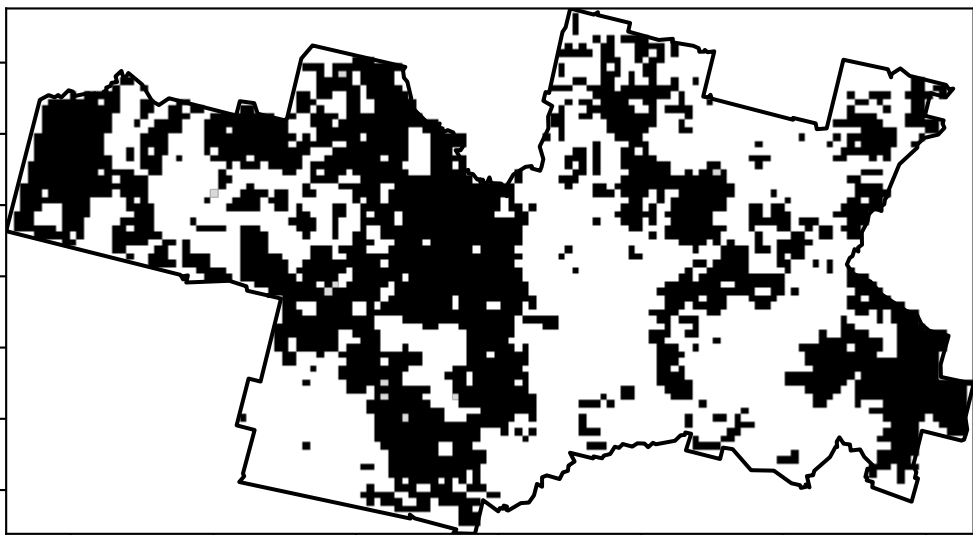


% Area protected from water erosion (>70%)



- Area not protected
8.1% of region
(5,609 ha)
- Area protected
91.9% of region
(63,641 ha)

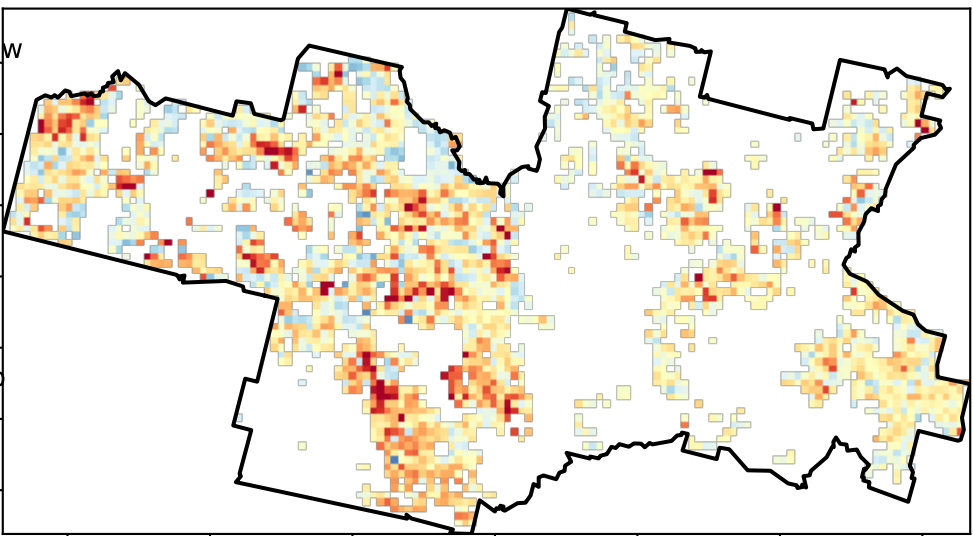
% Area protected from wind erosion (>50%)



- Area not protected
0.0% of region
(0 ha)
- Area protected
100.0% of region
(69,250 ha)

Total Vegetation Cover Anomaly [%]

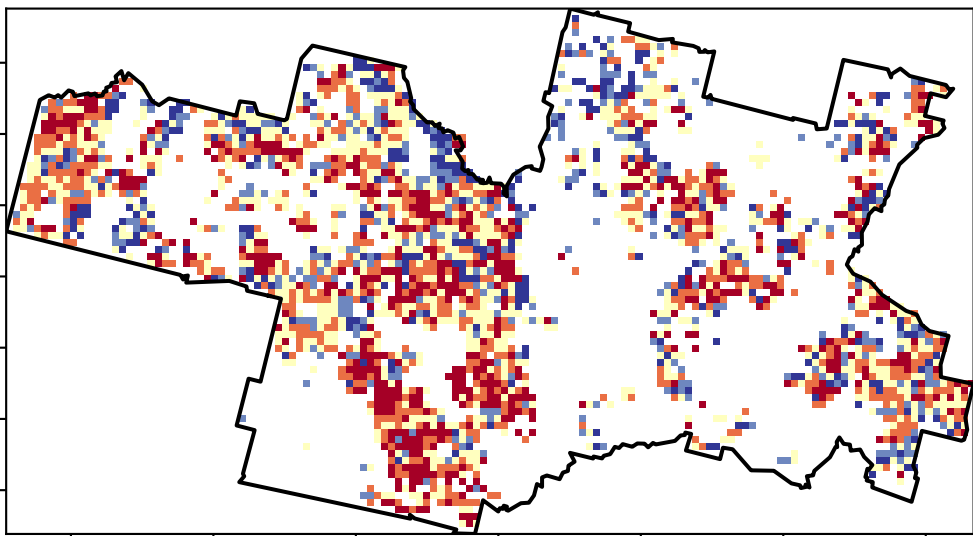
Anomaly show how many percentage points each pixel is from the mean. That is, red pixels are about 20% lower than the mean of that pixel. The mean is only for the month of the map using baseline from 2001 to 2019.



- 20
- 10
- 0
- 10
- 20

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 [%]



- 10
- 9
- 8
- 7
- 6
- 5
- 4
- 3
- 2
- 1



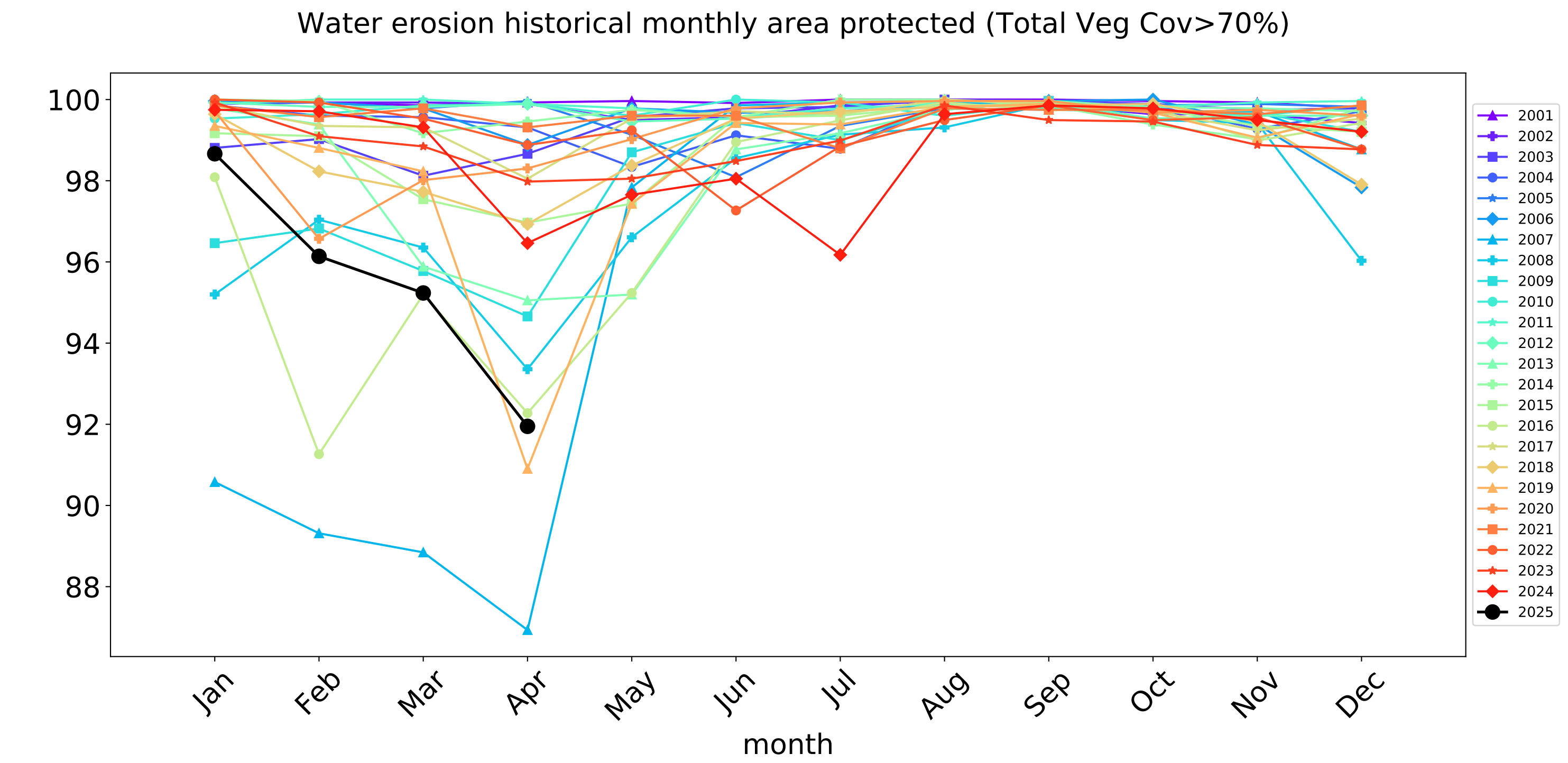
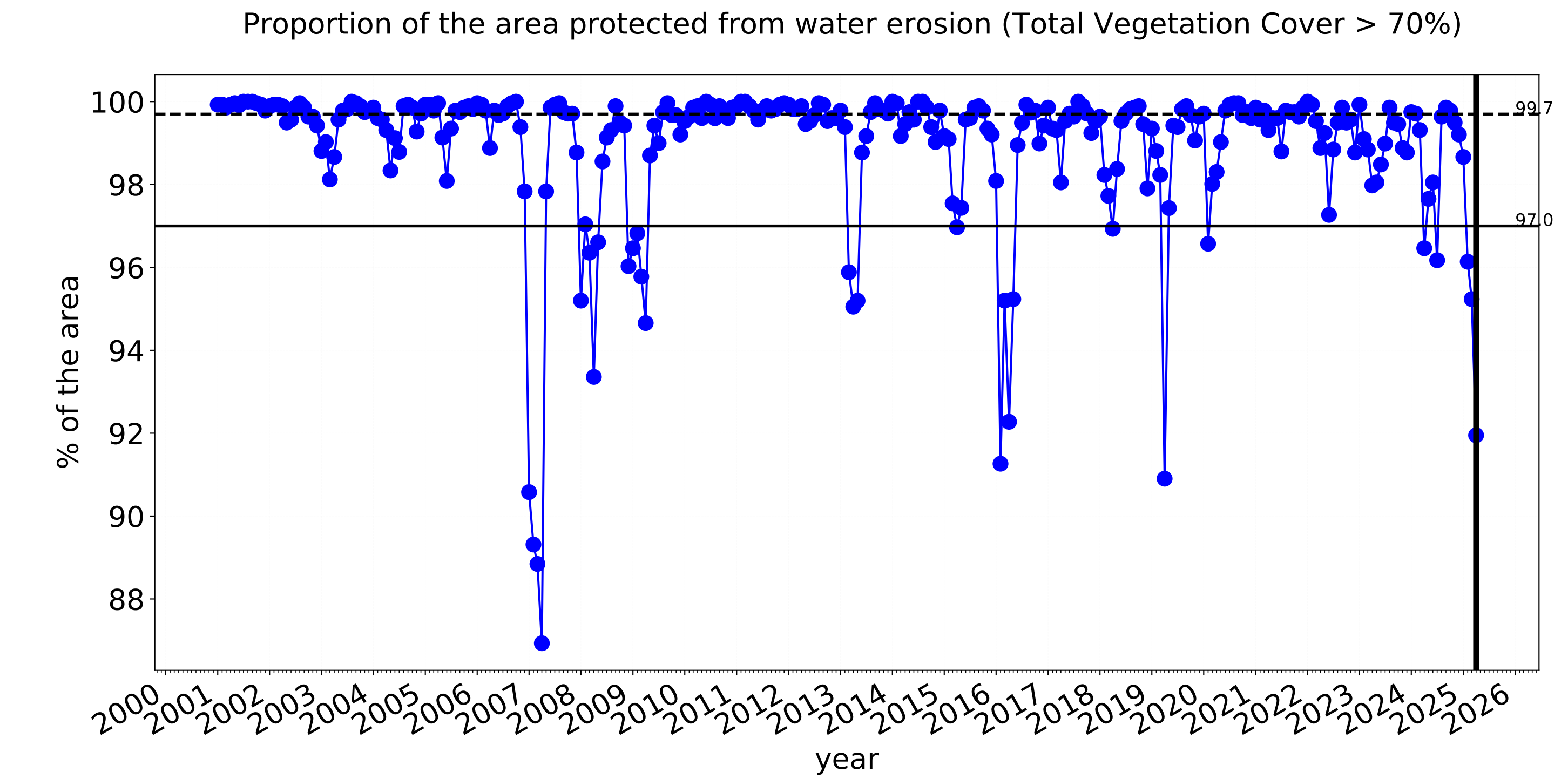
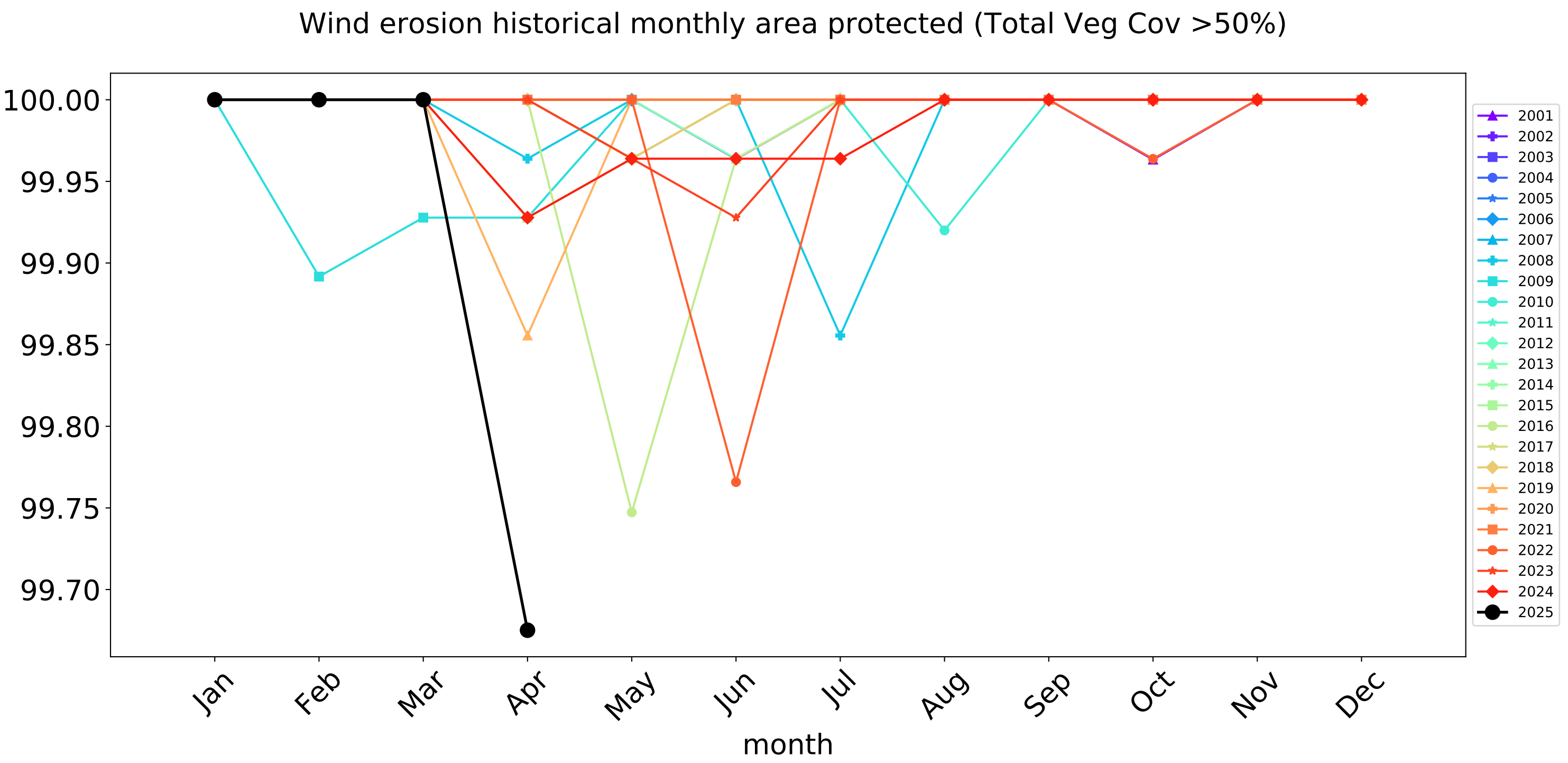
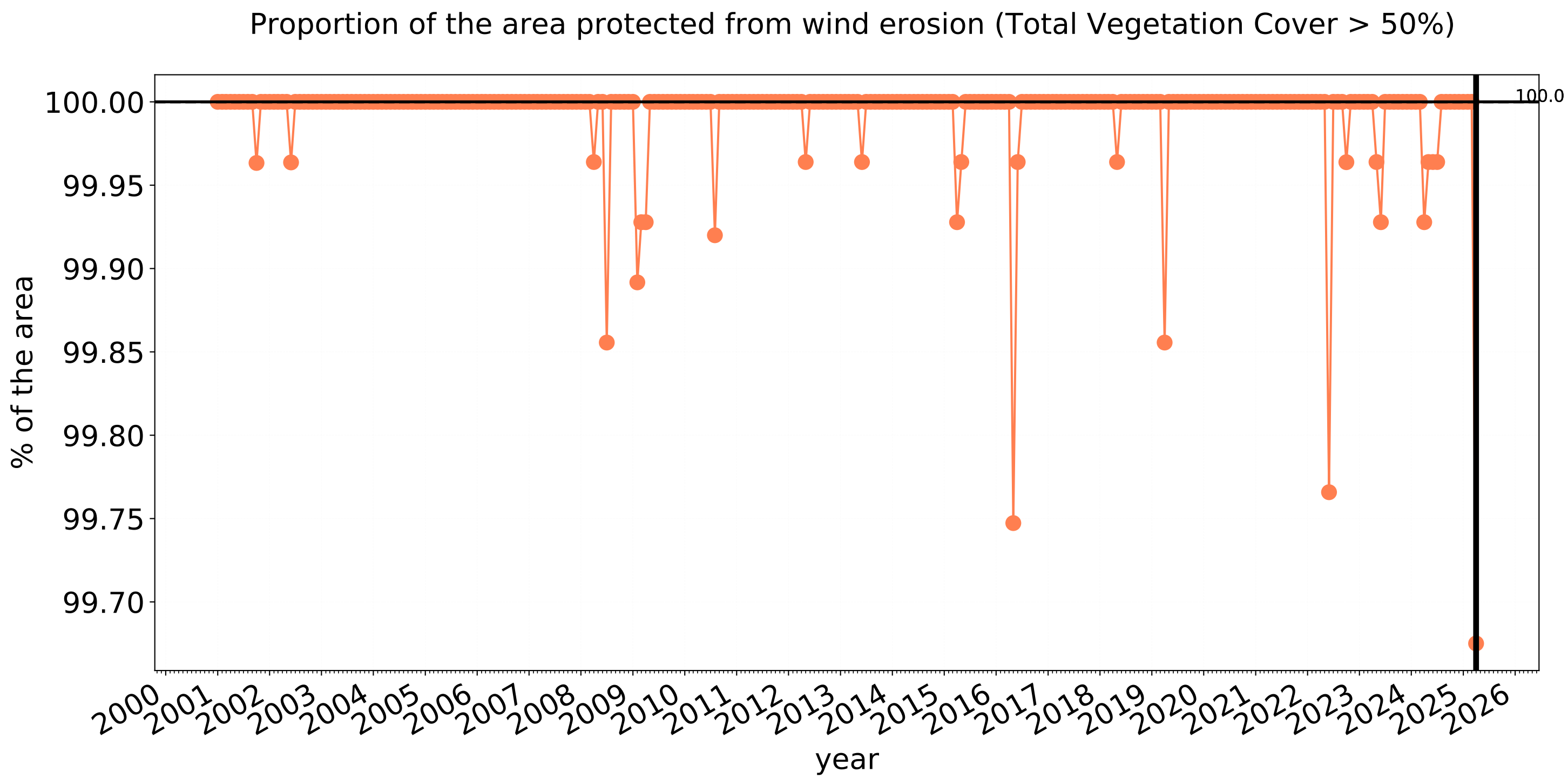
Ecosystem Research Infrastructure

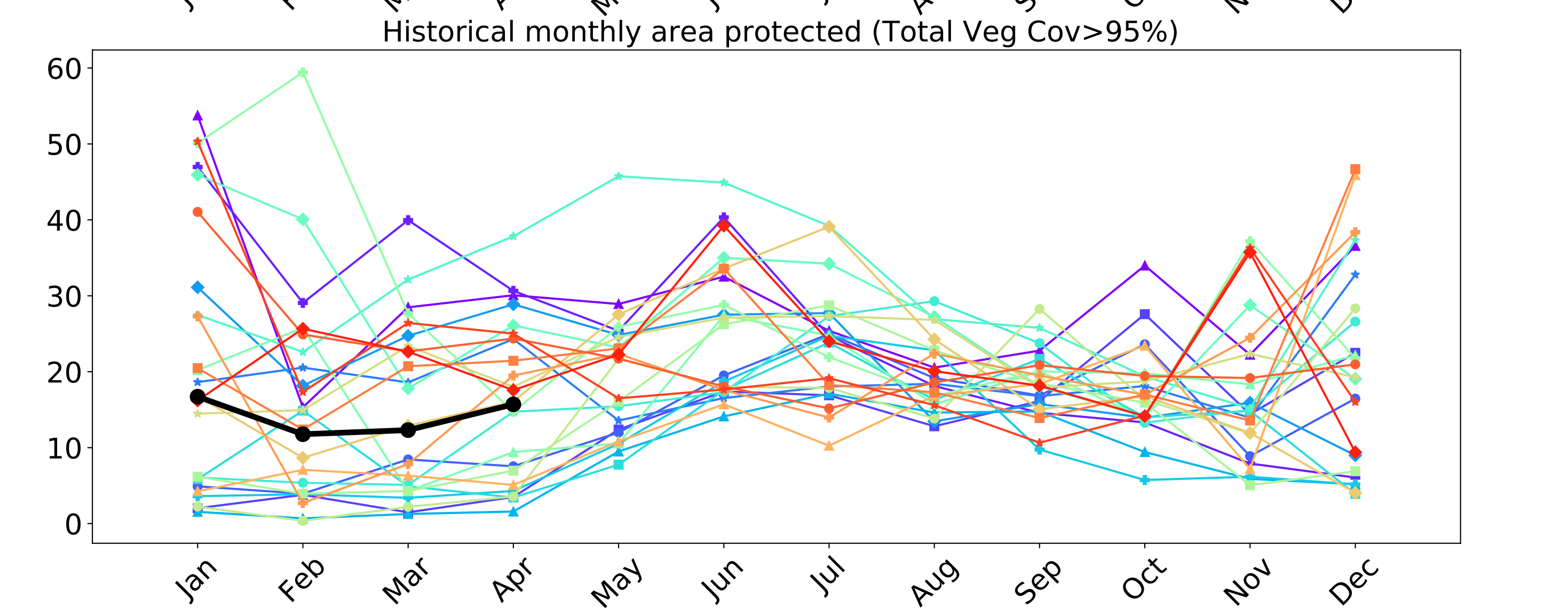
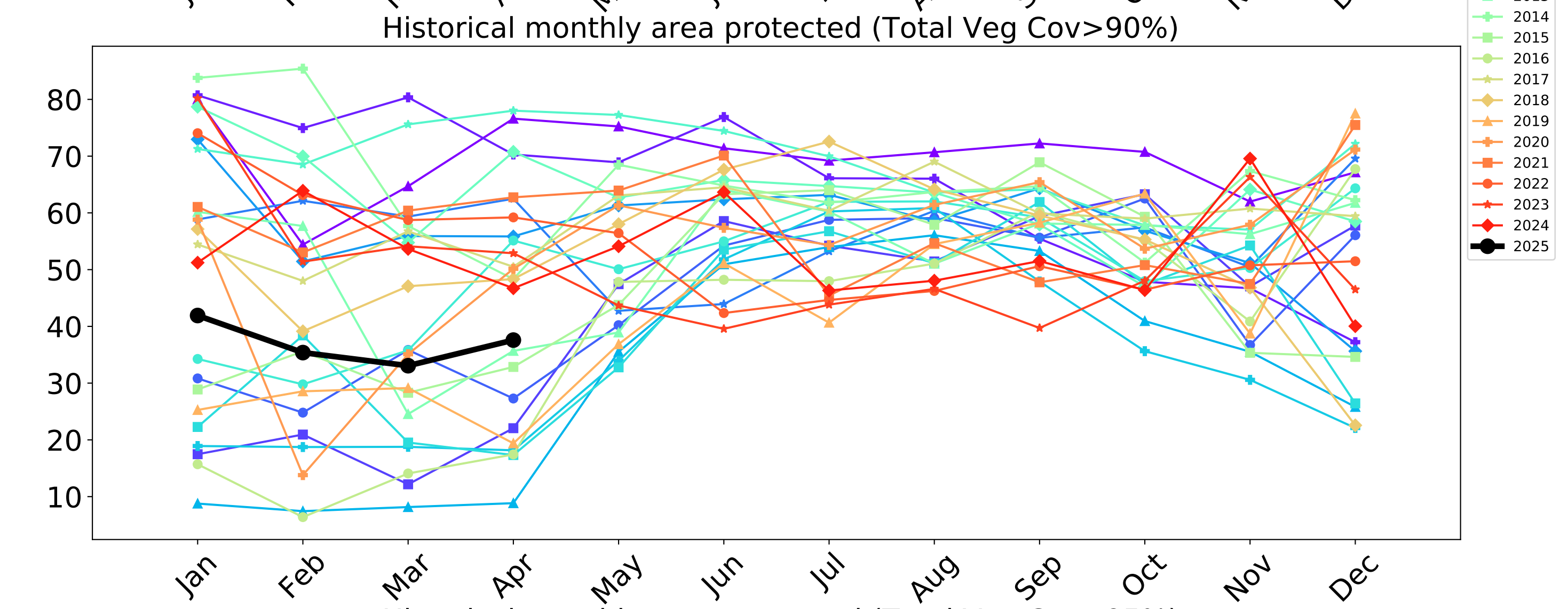
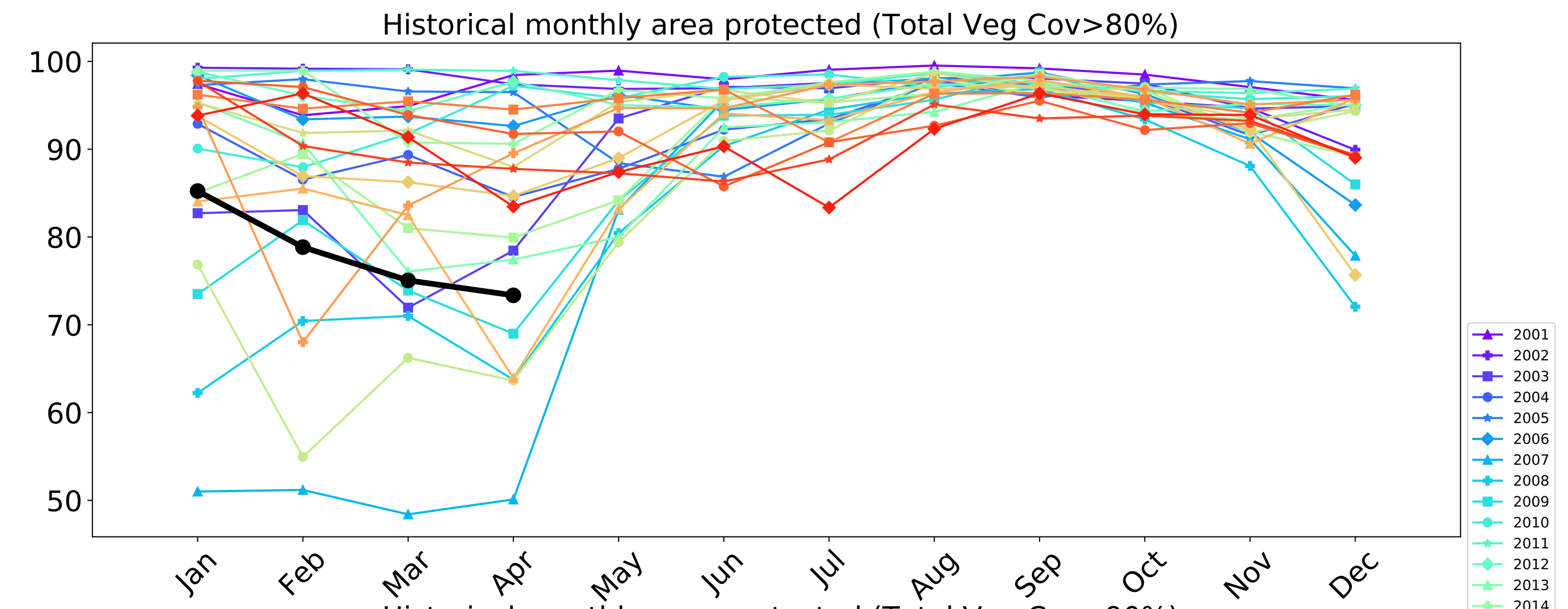
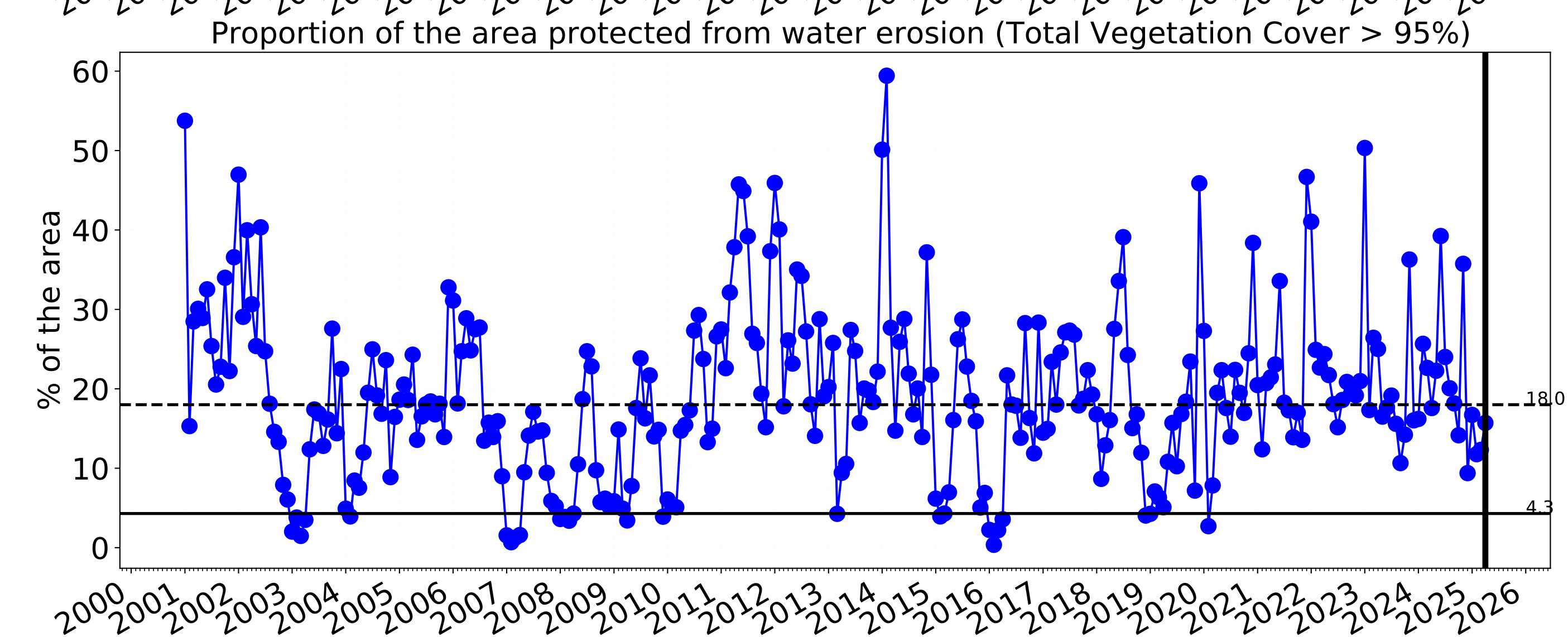
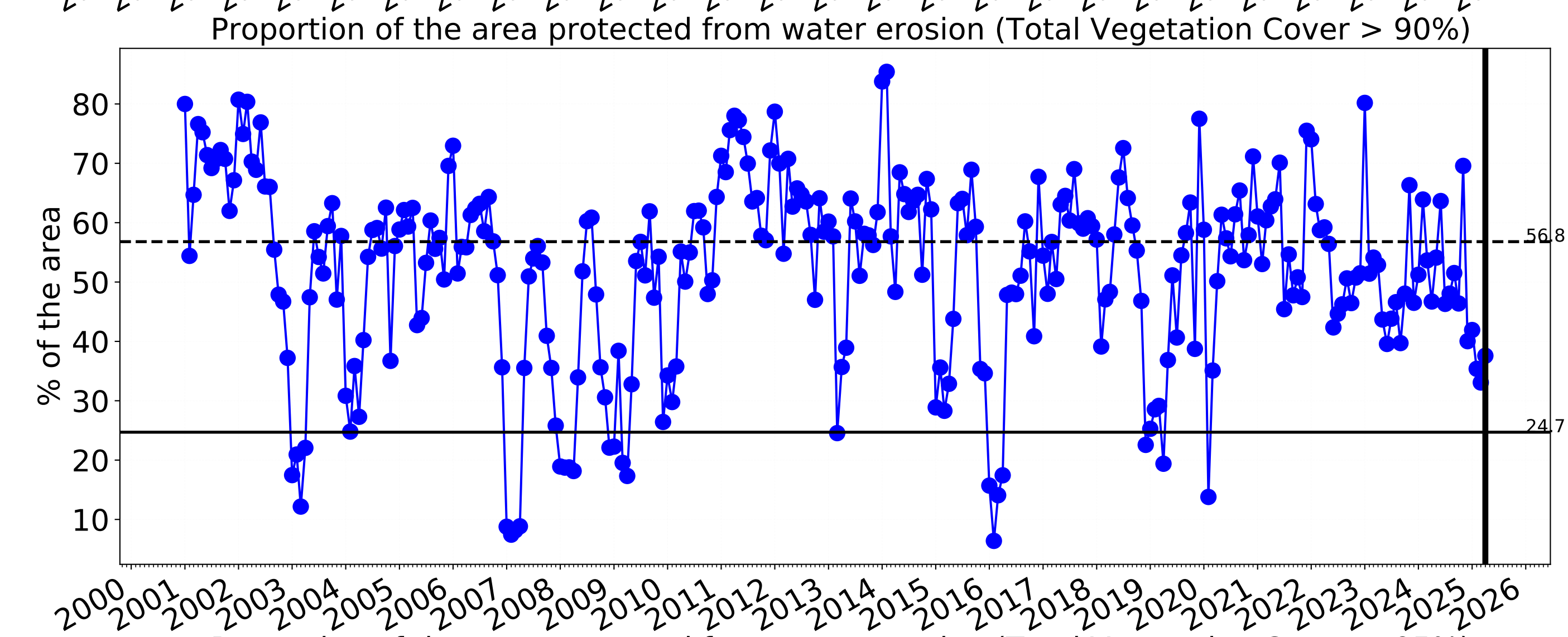
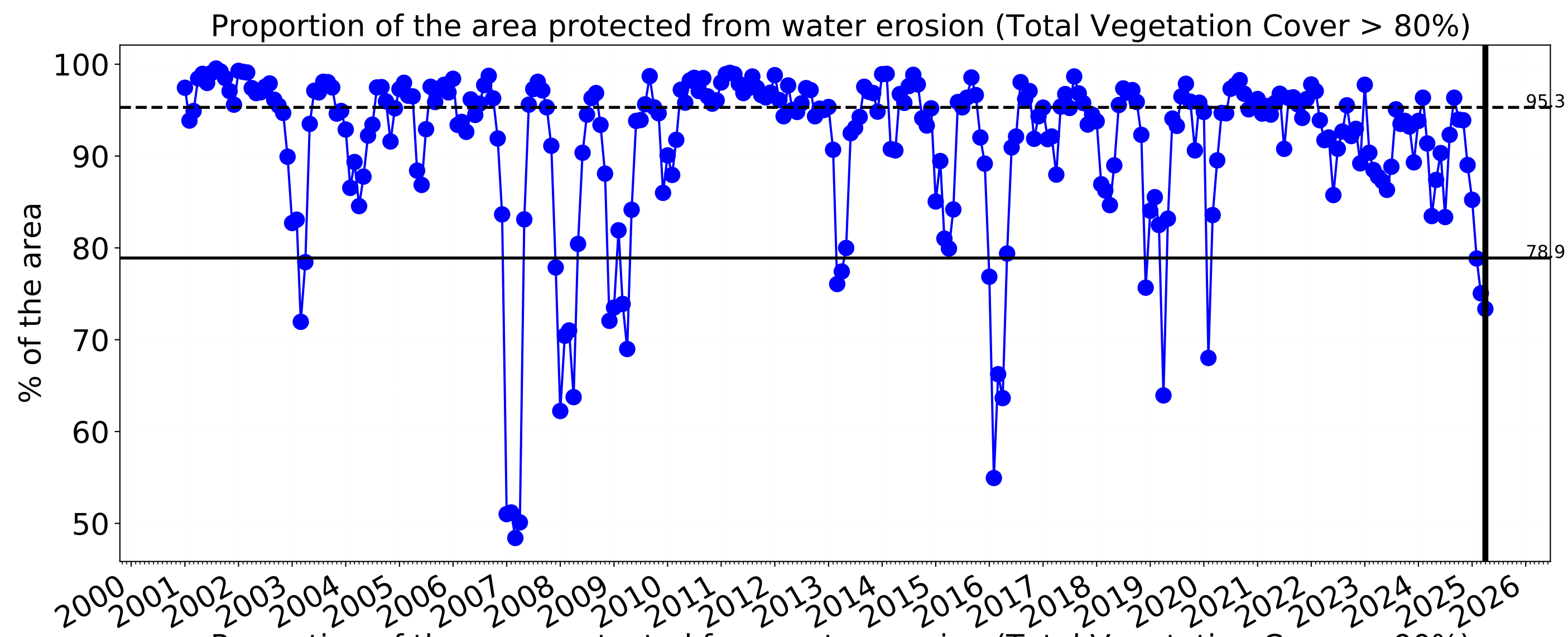


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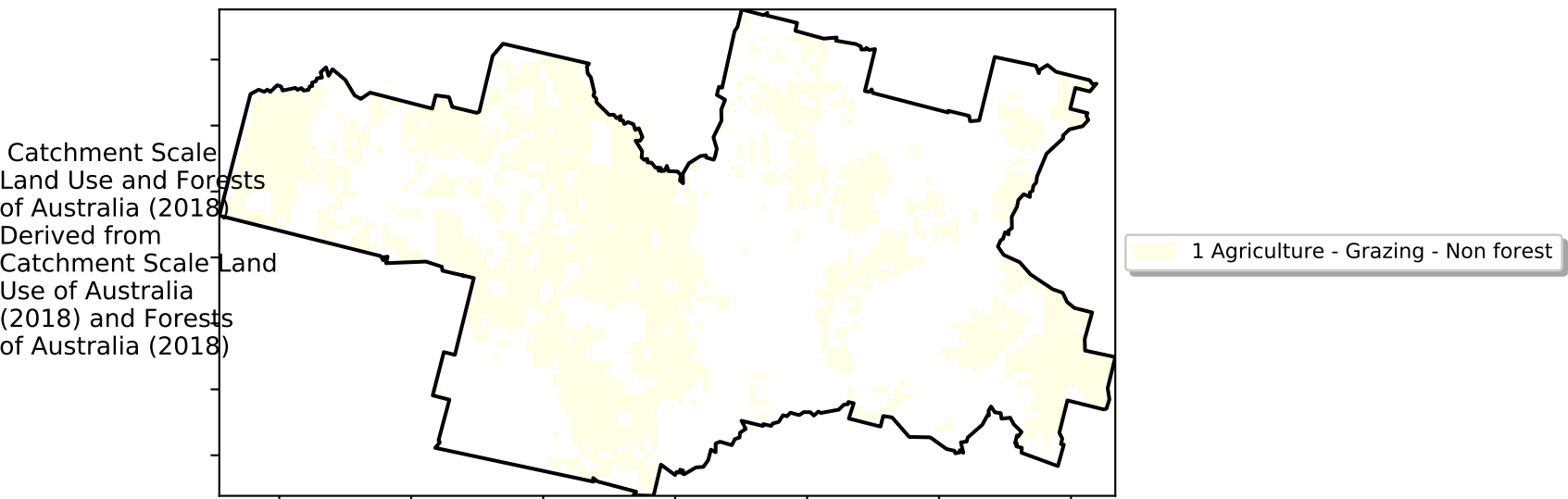
Grazing timeseries



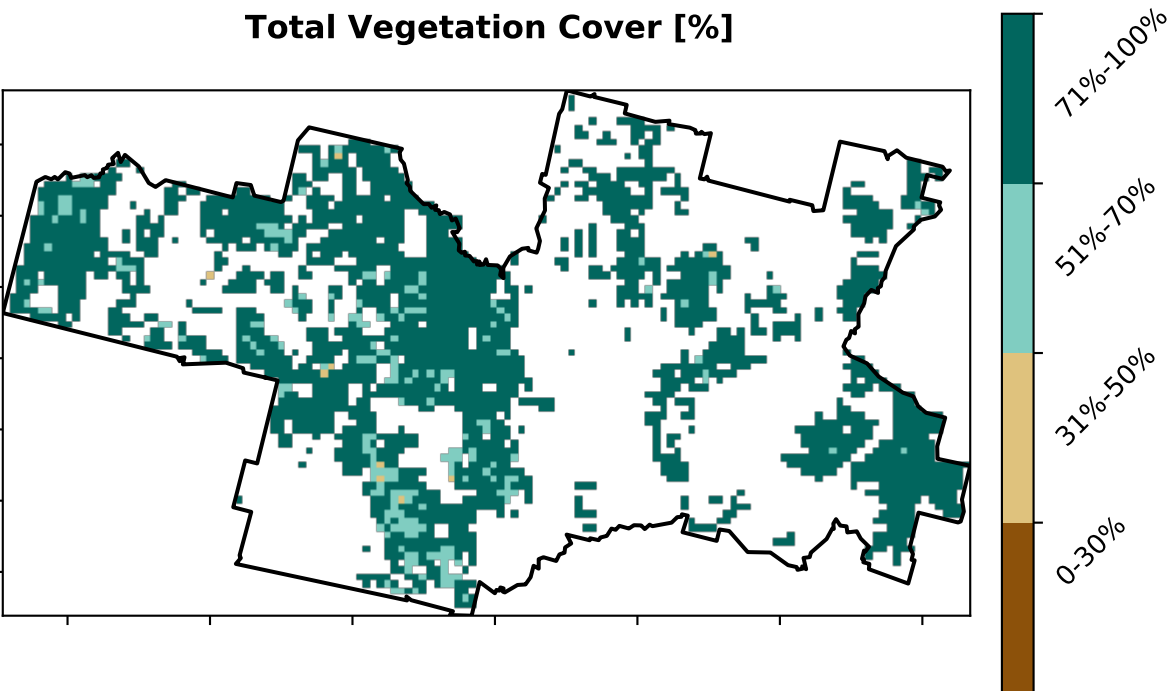


Grazing non forest

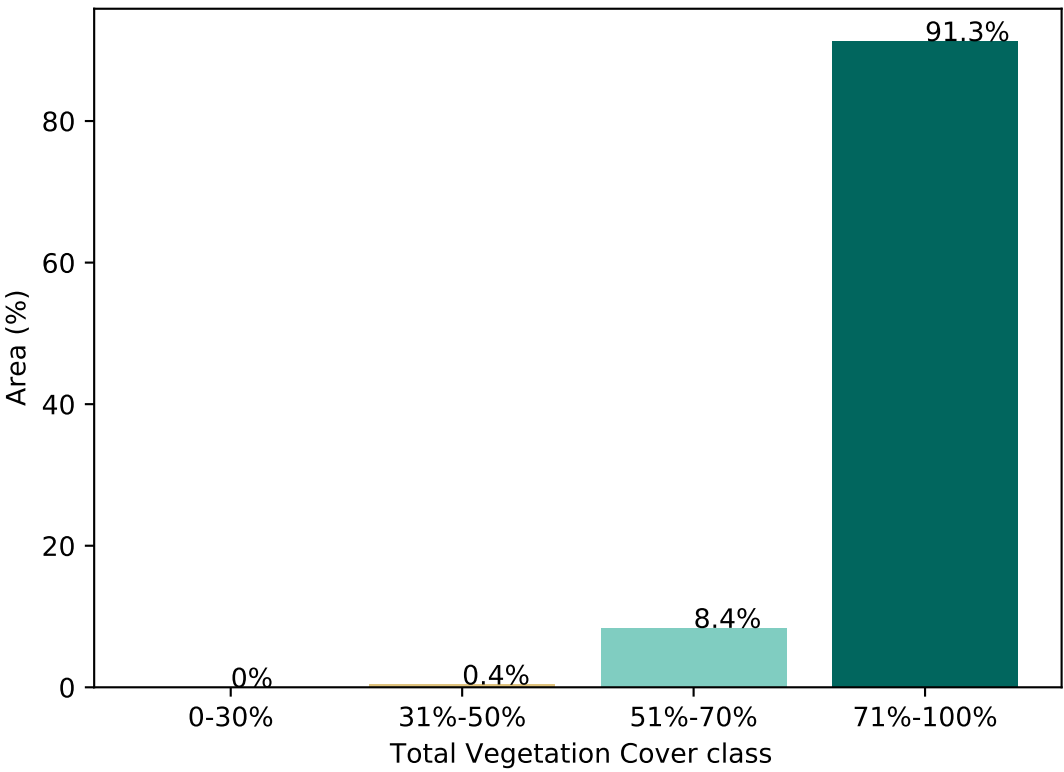
Land use and forest cover



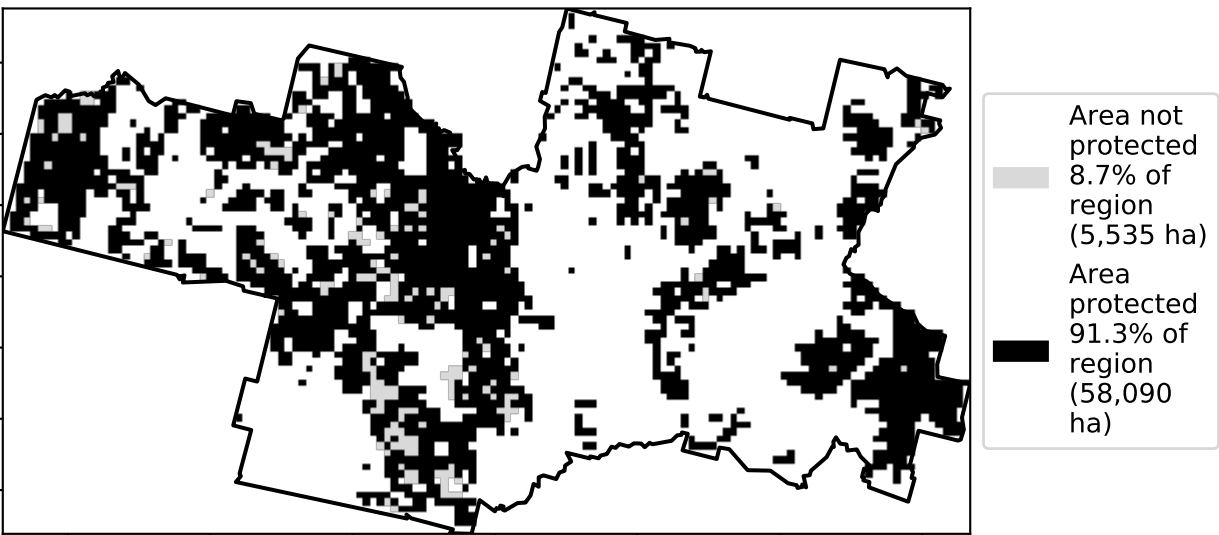
Total Vegetation Cover [%]



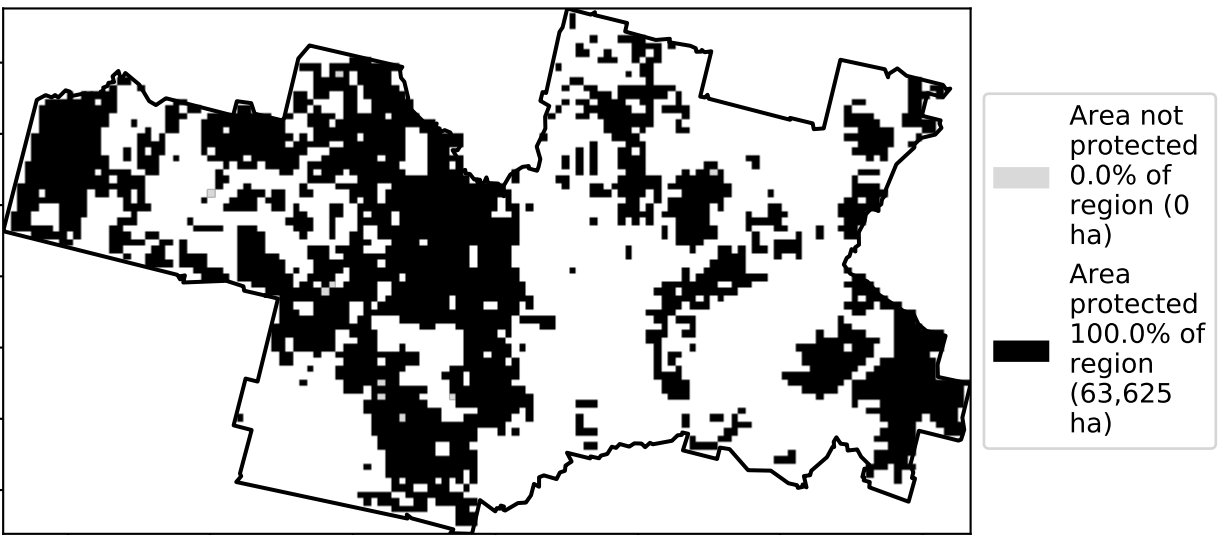
Proportion of vegetation cover class in area



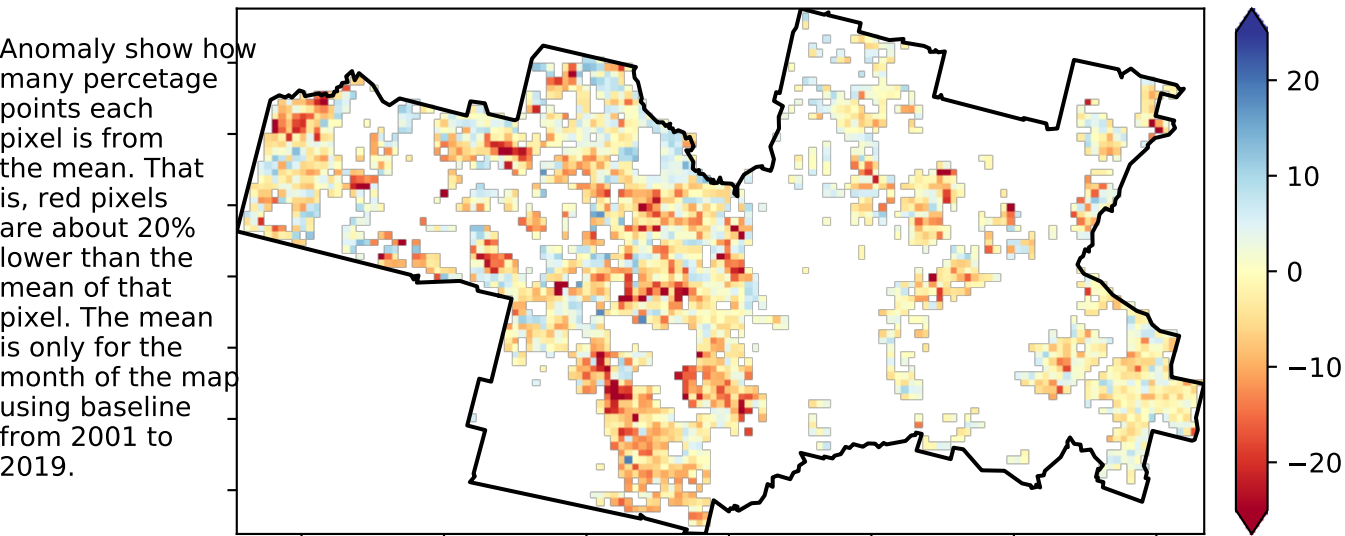
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

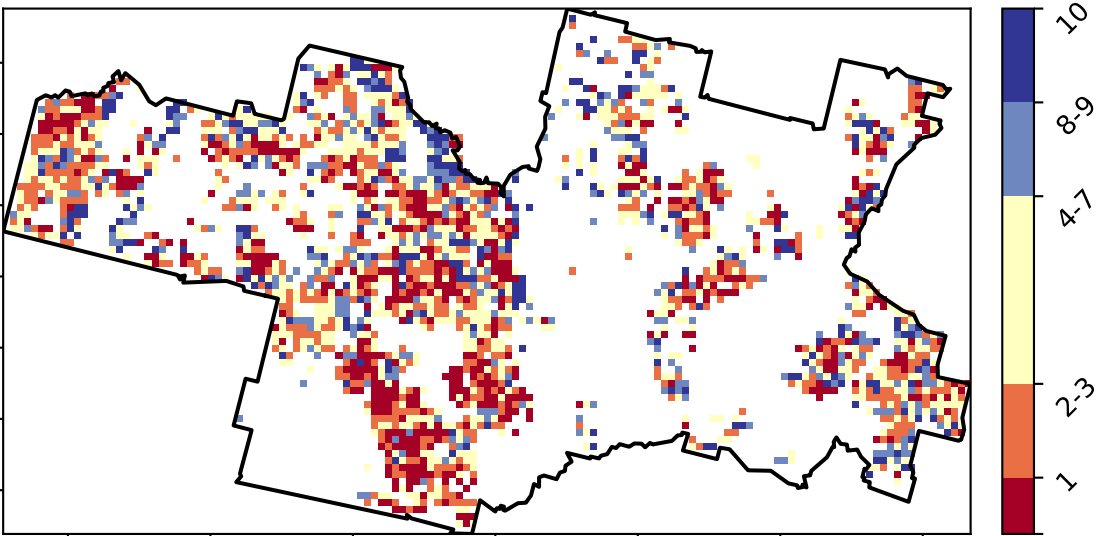


Total Vegetation Cover Anomaly [%]

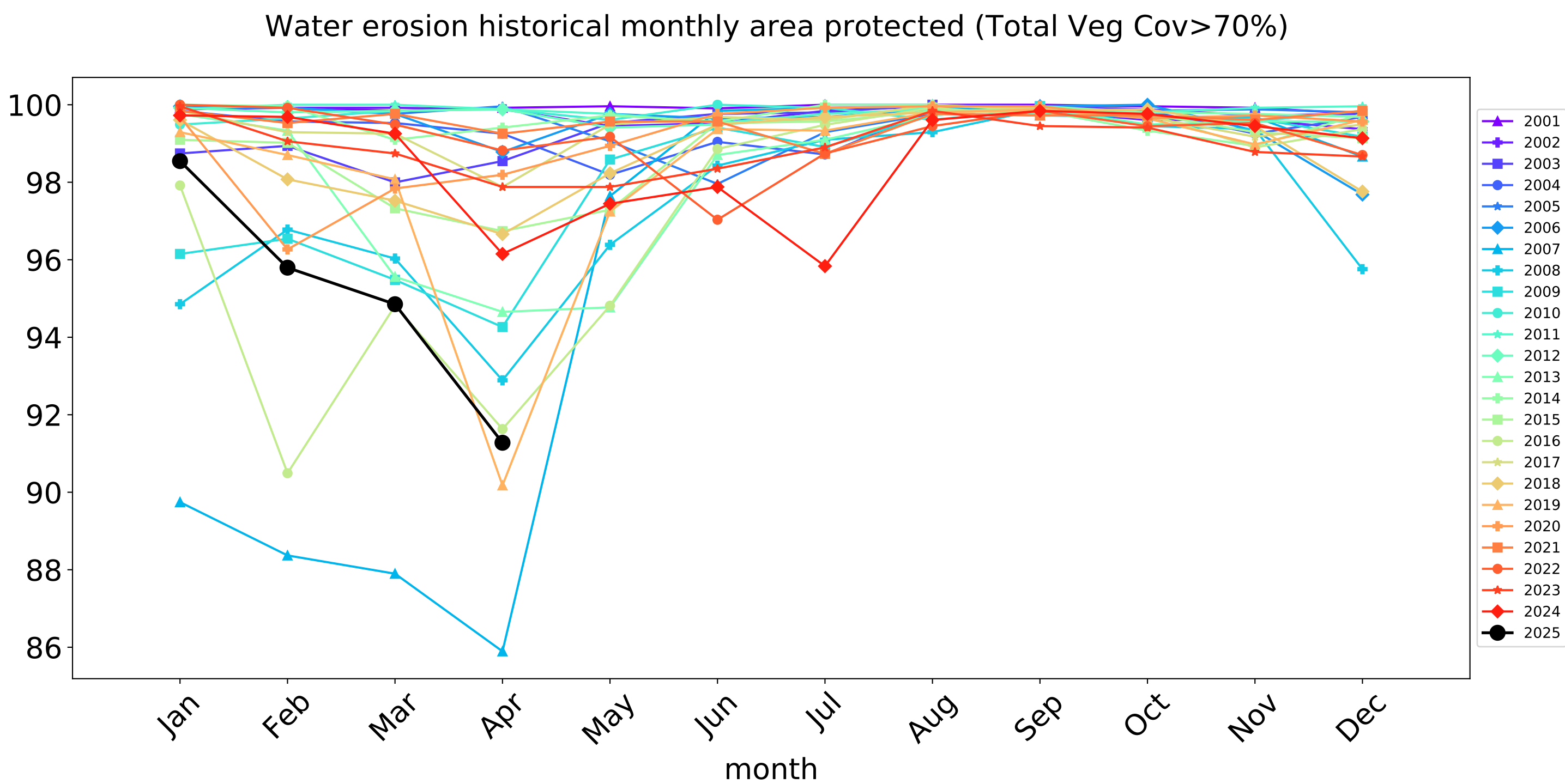
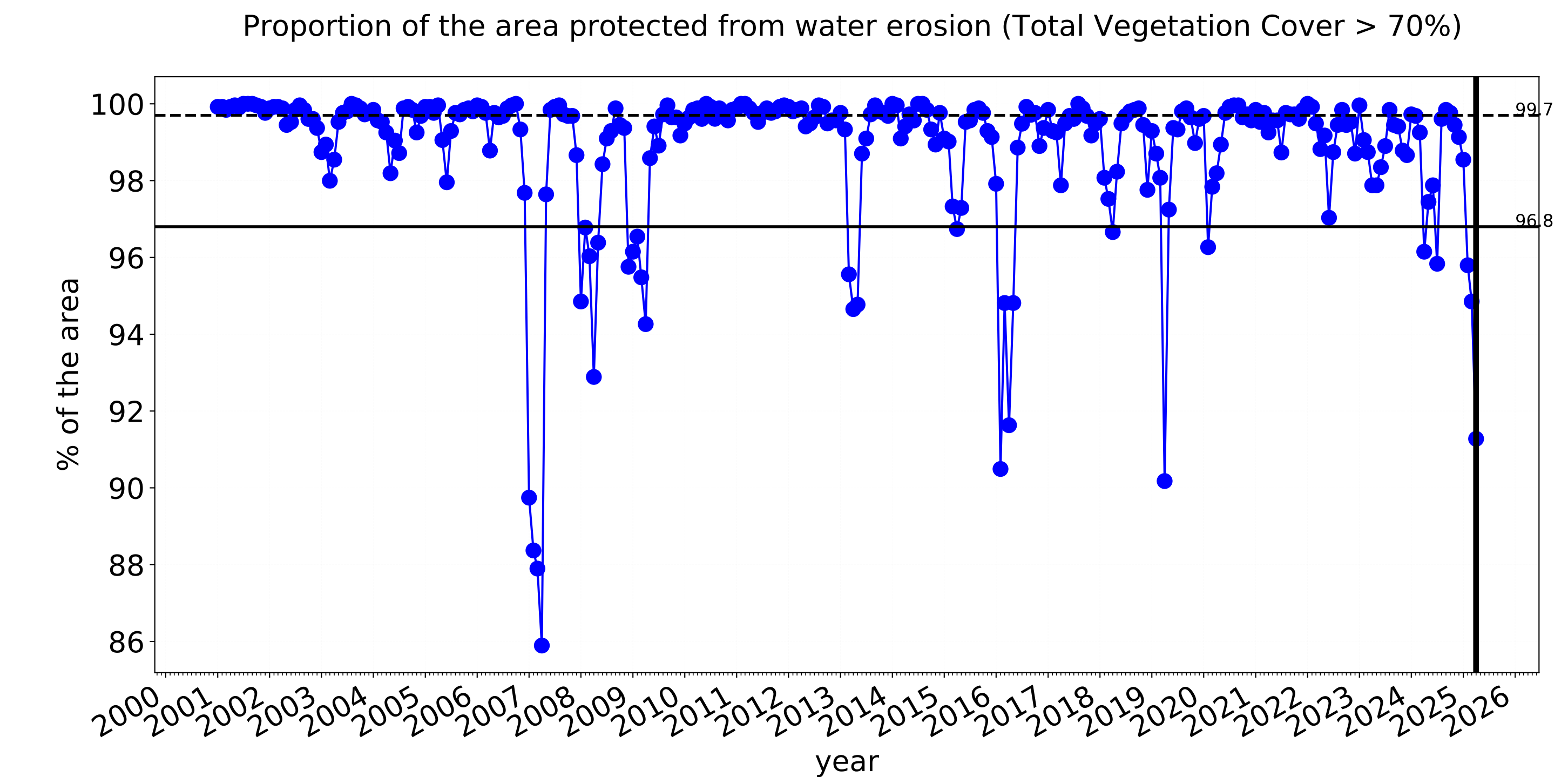
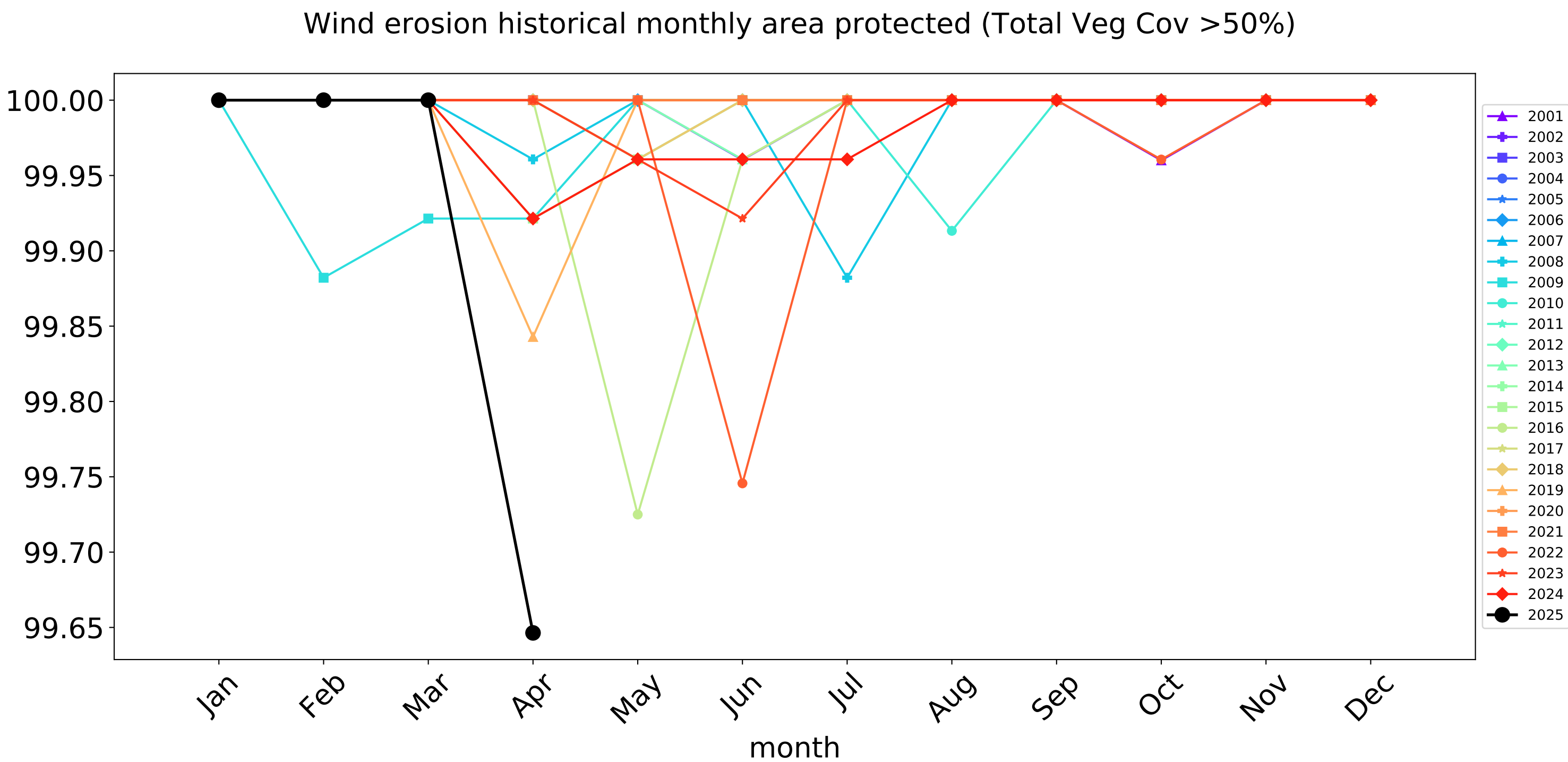
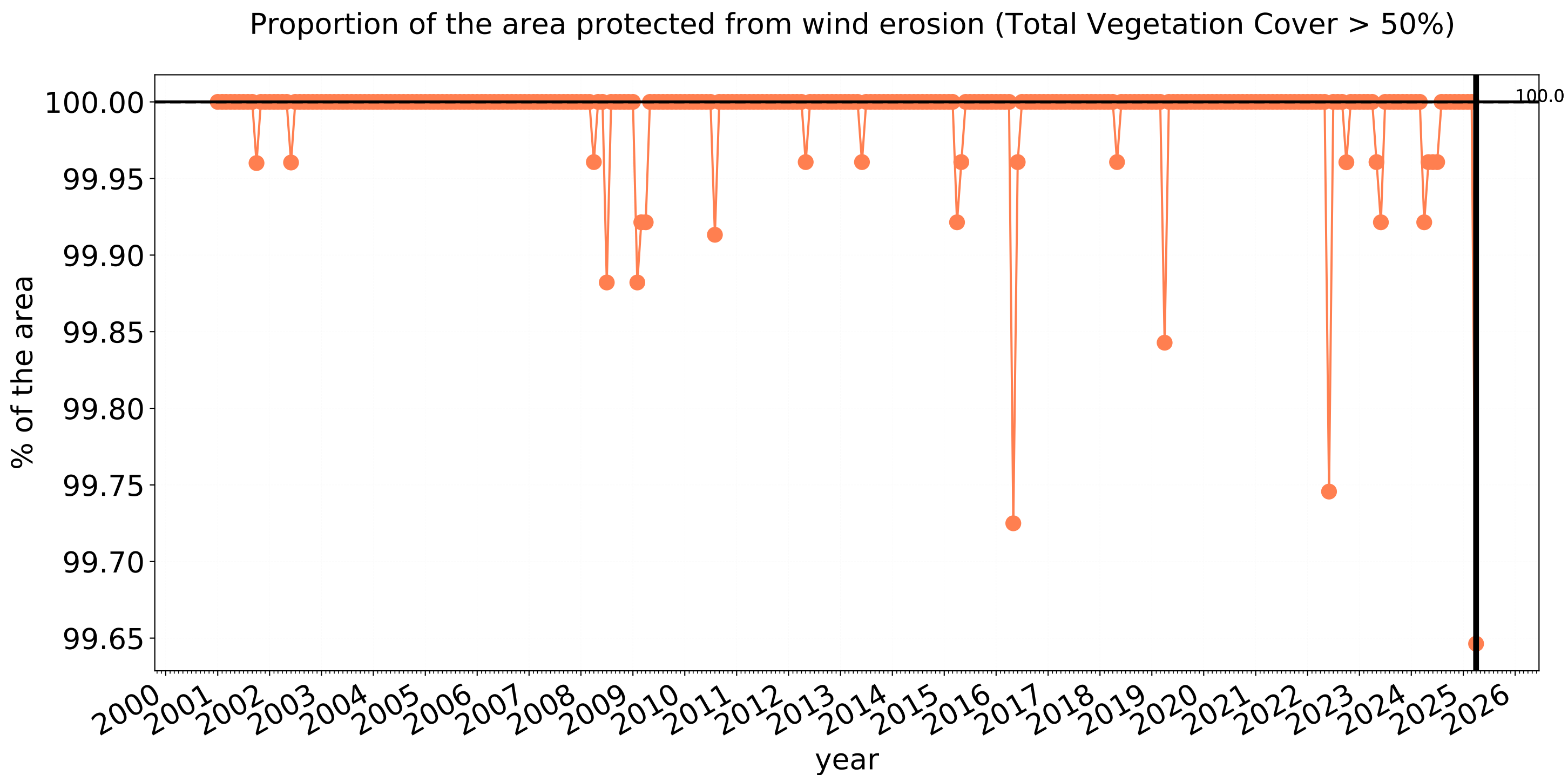


Total Vegetation Cover Decile [%]

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.



Grazing non forest timeseries

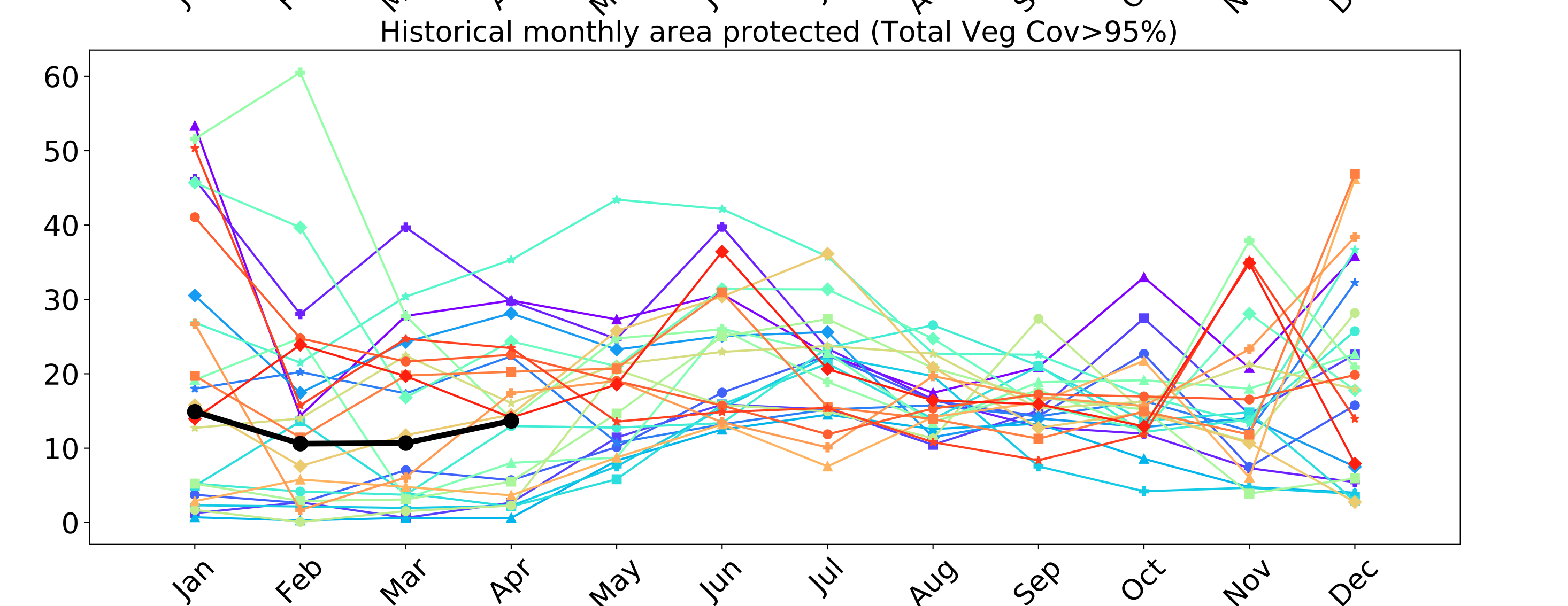
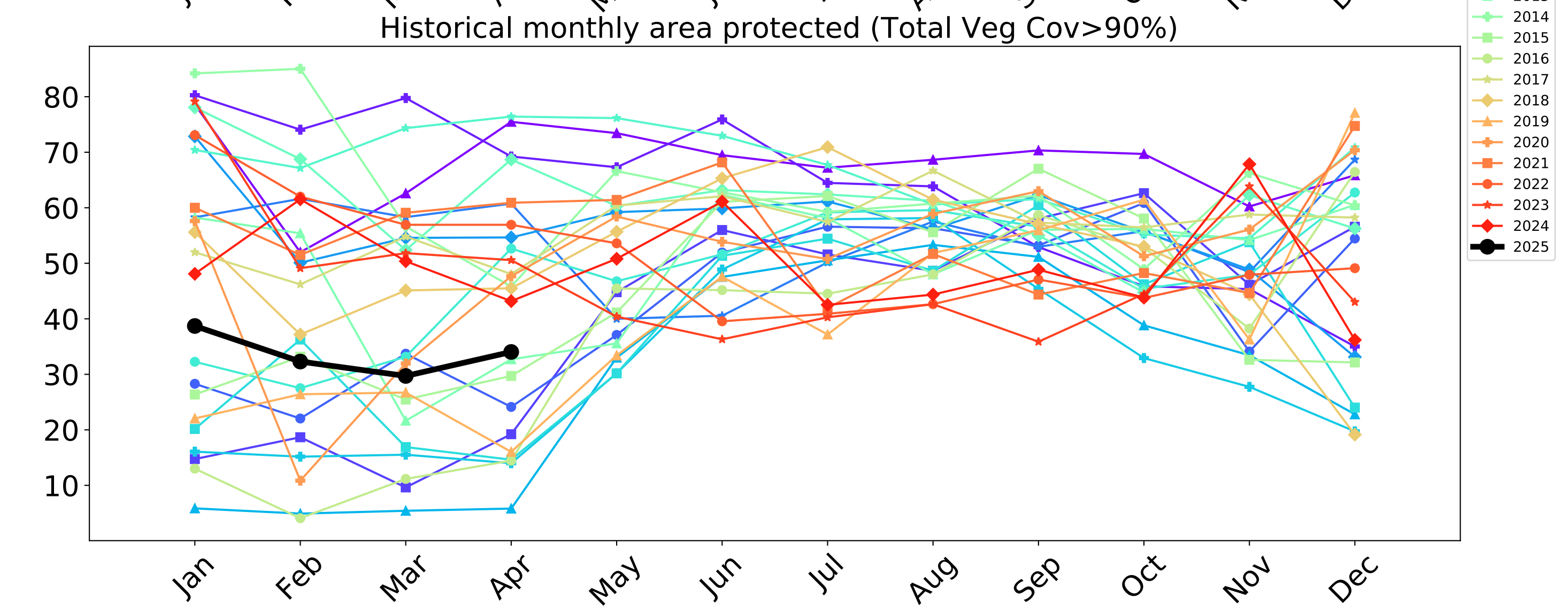
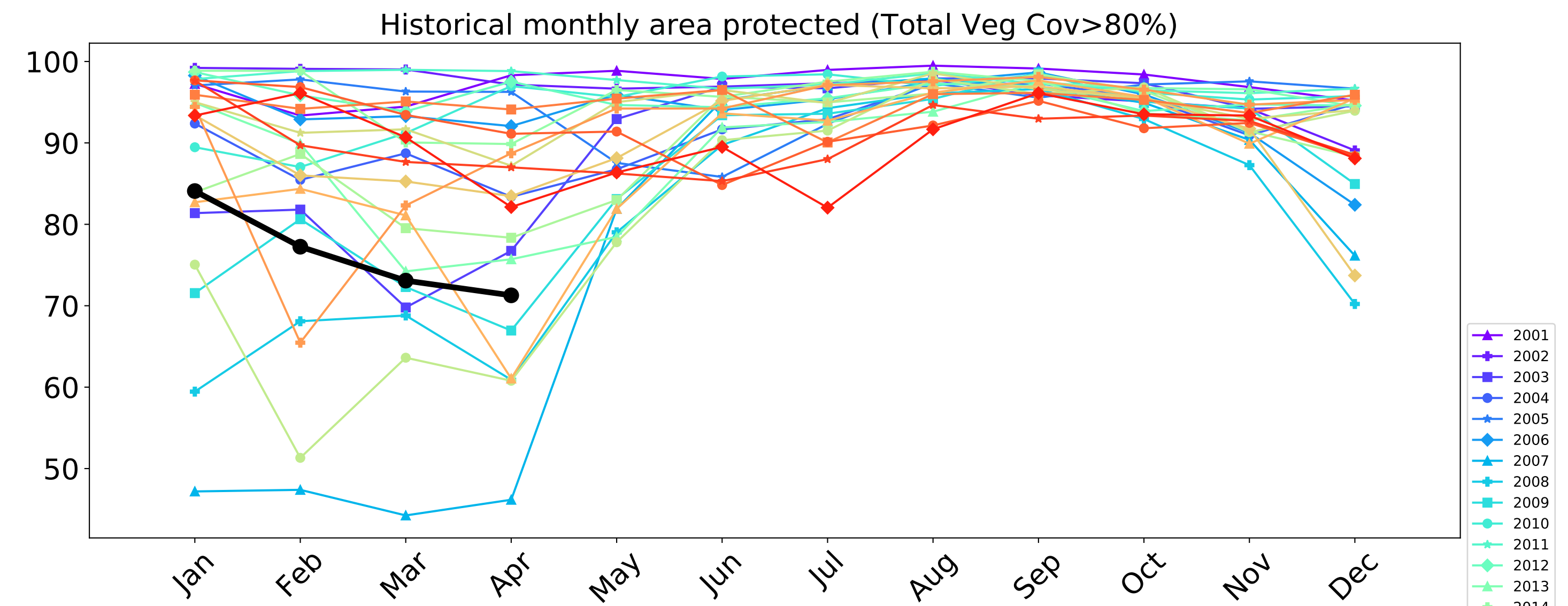
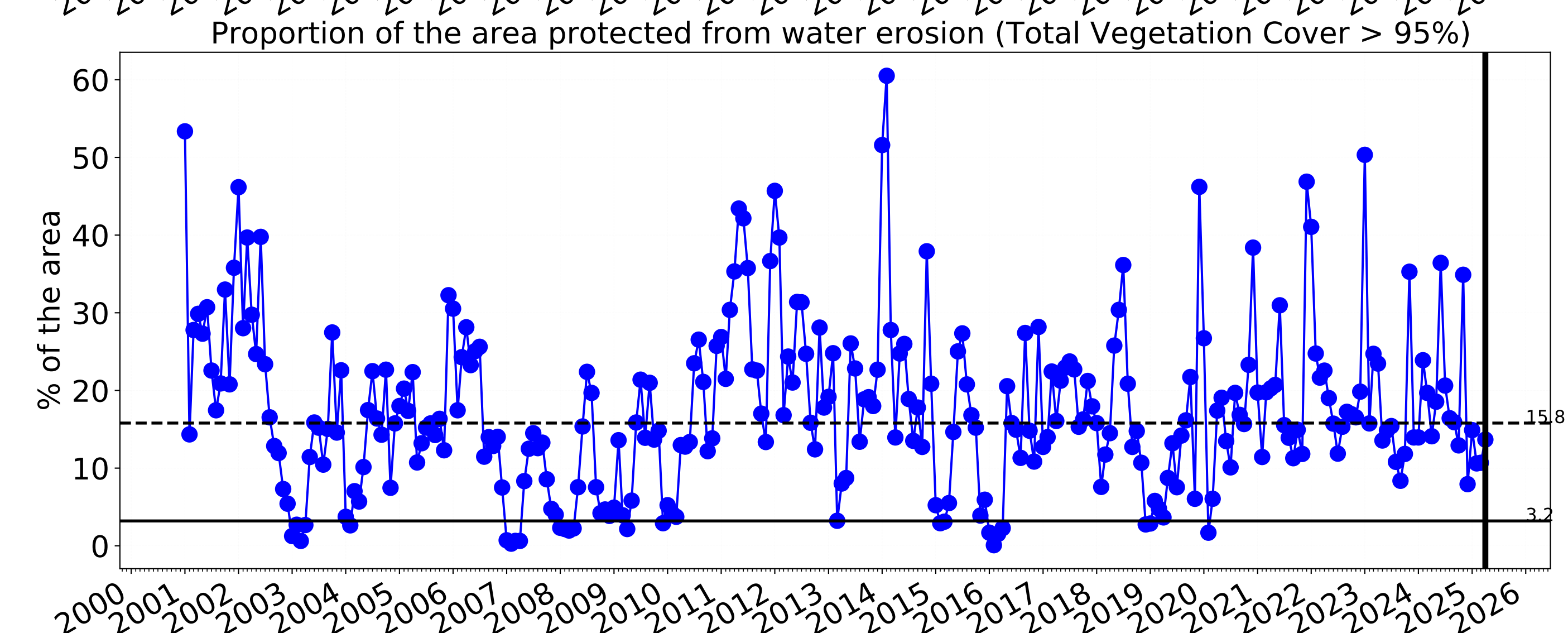
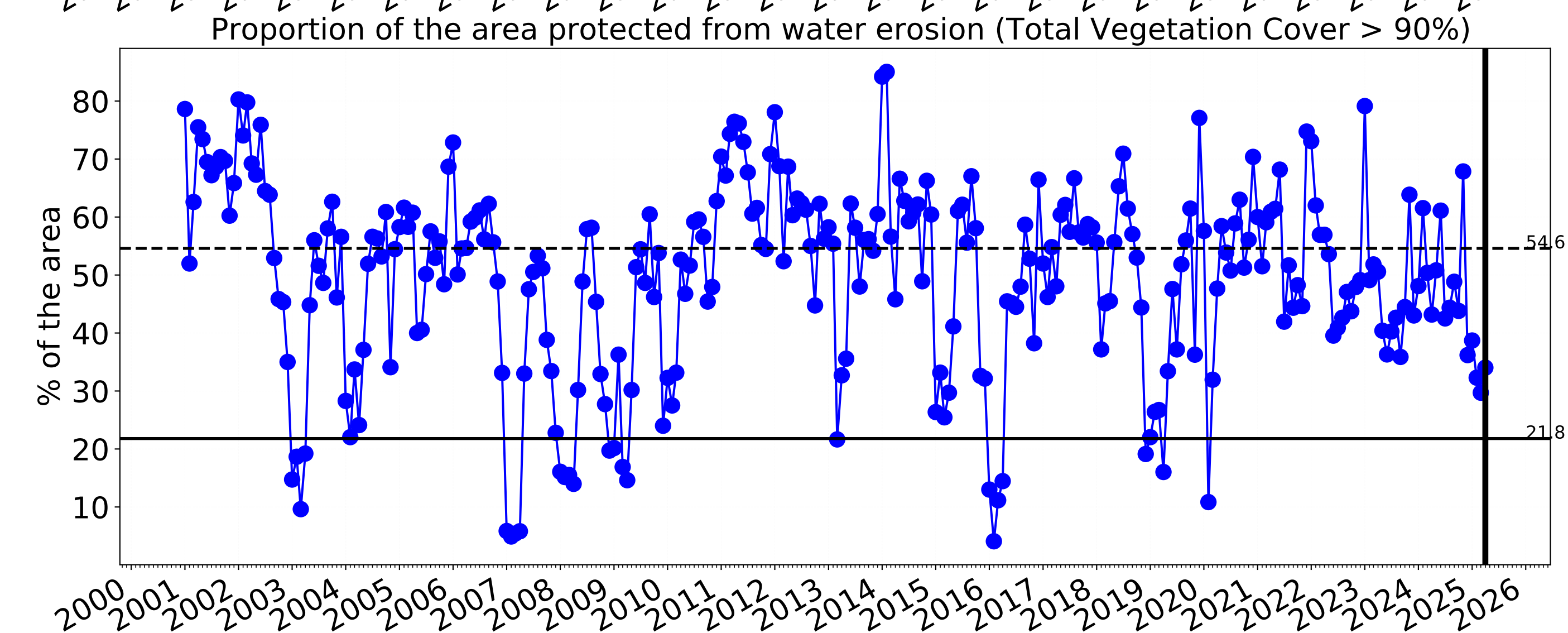
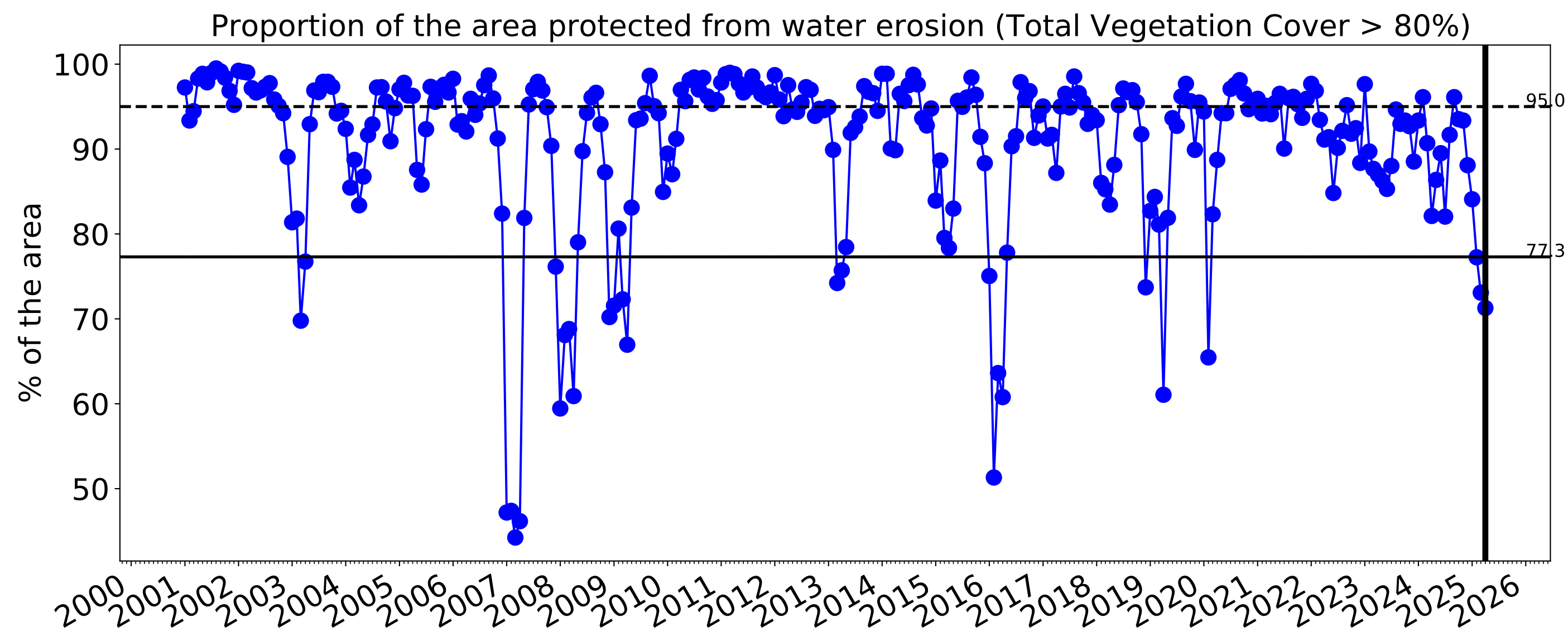


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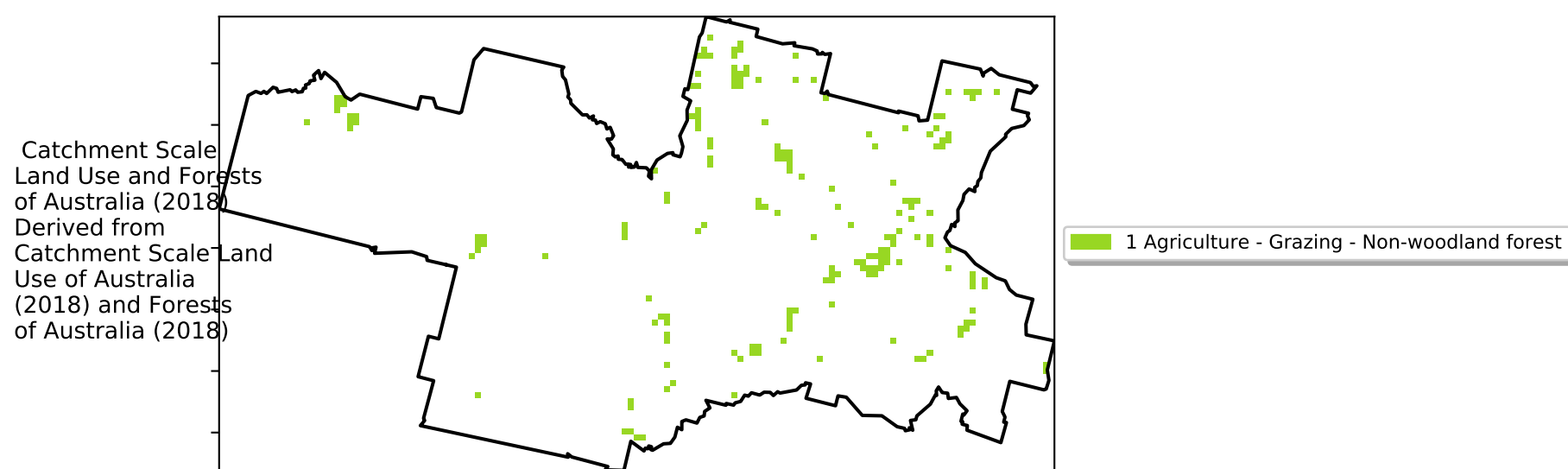
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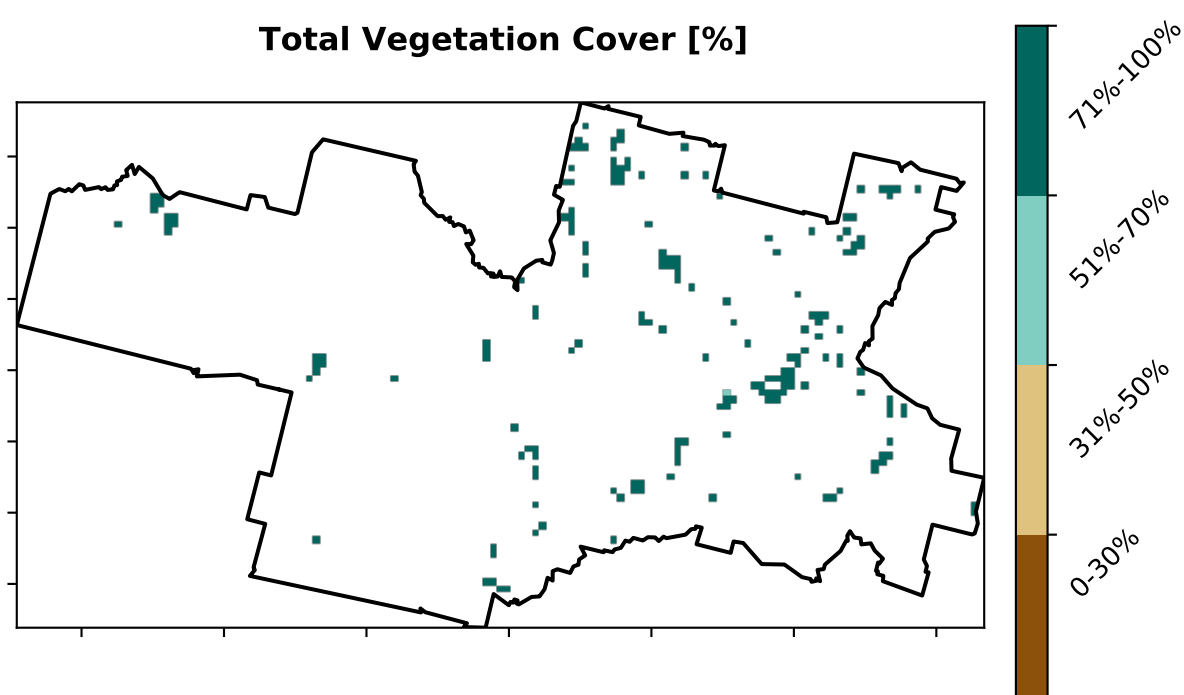


Grazing - Forest (non woodland)

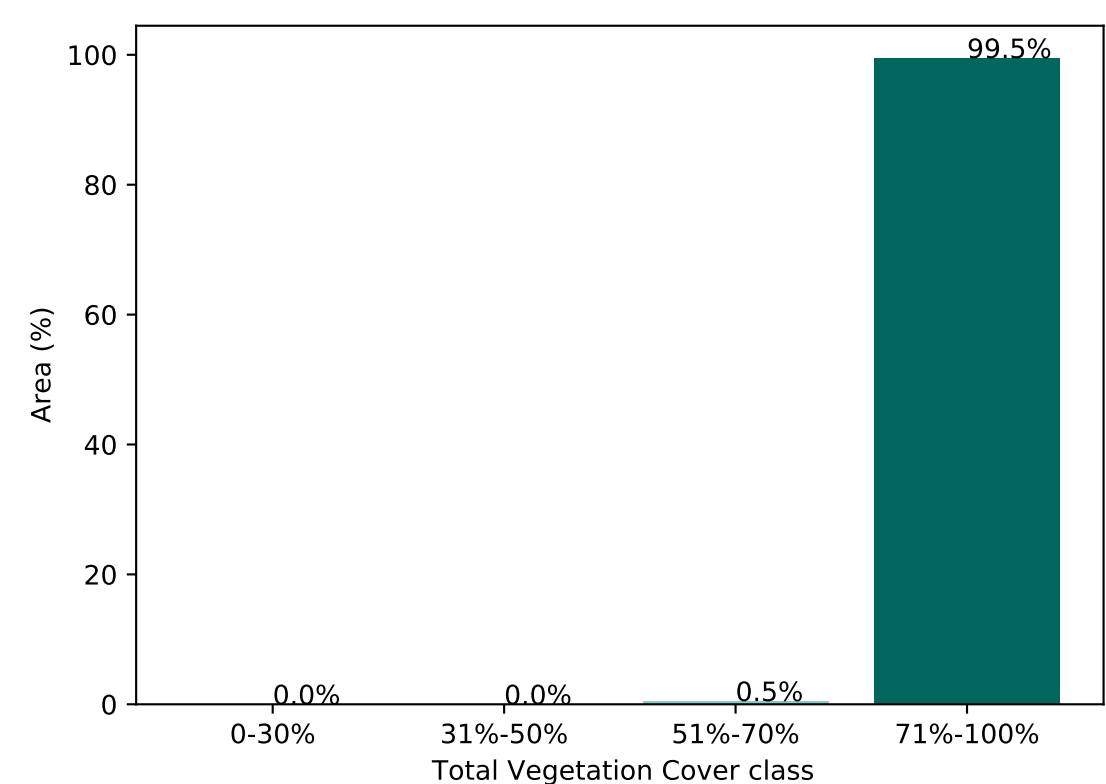
Land use and forest cover



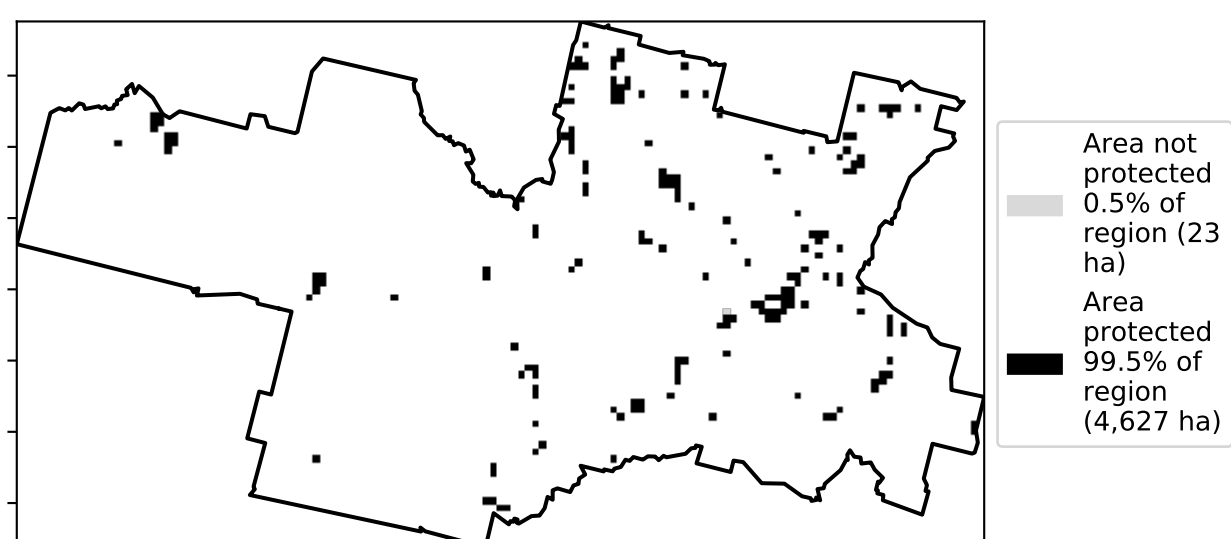
Total Vegetation Cover [%]



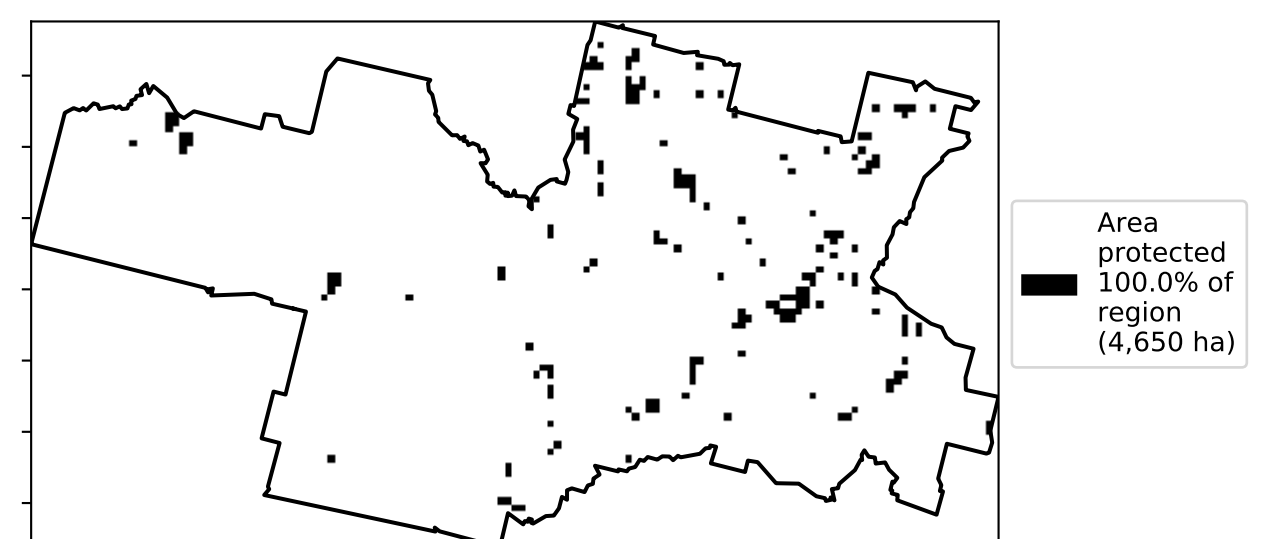
Proportion of vegetation cover class in area



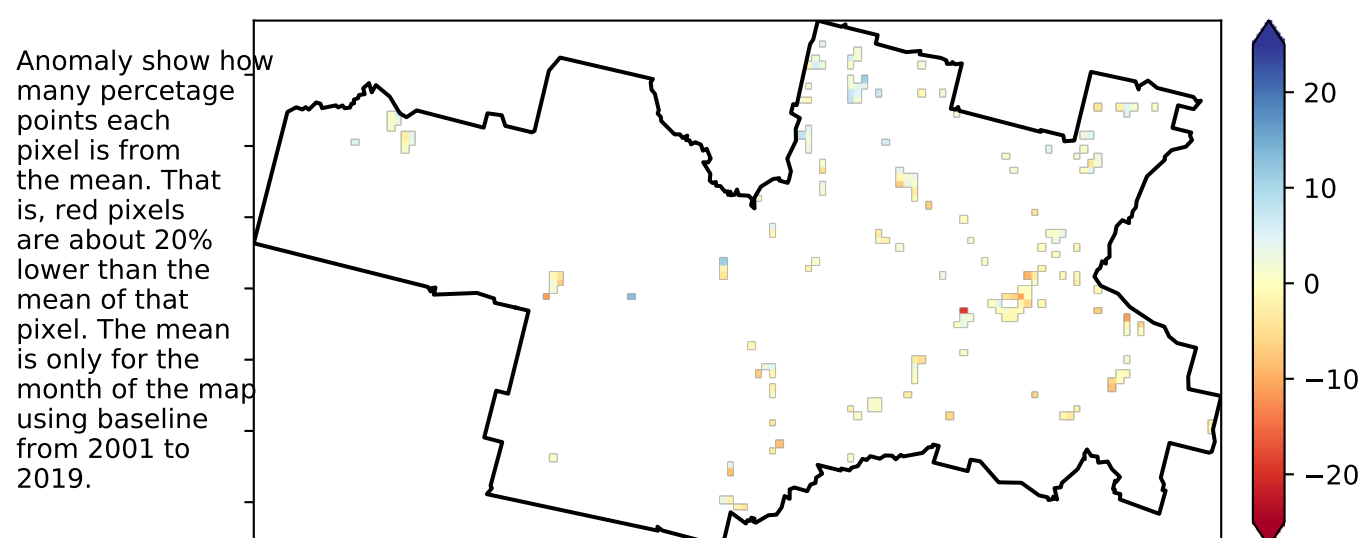
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

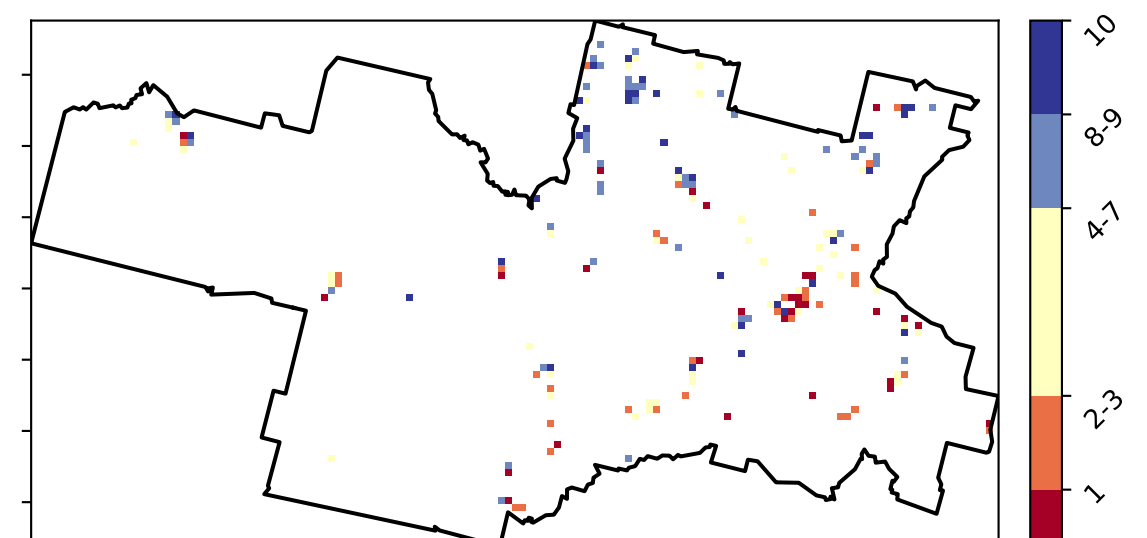


Total Vegetation Cover Anomaly [%]

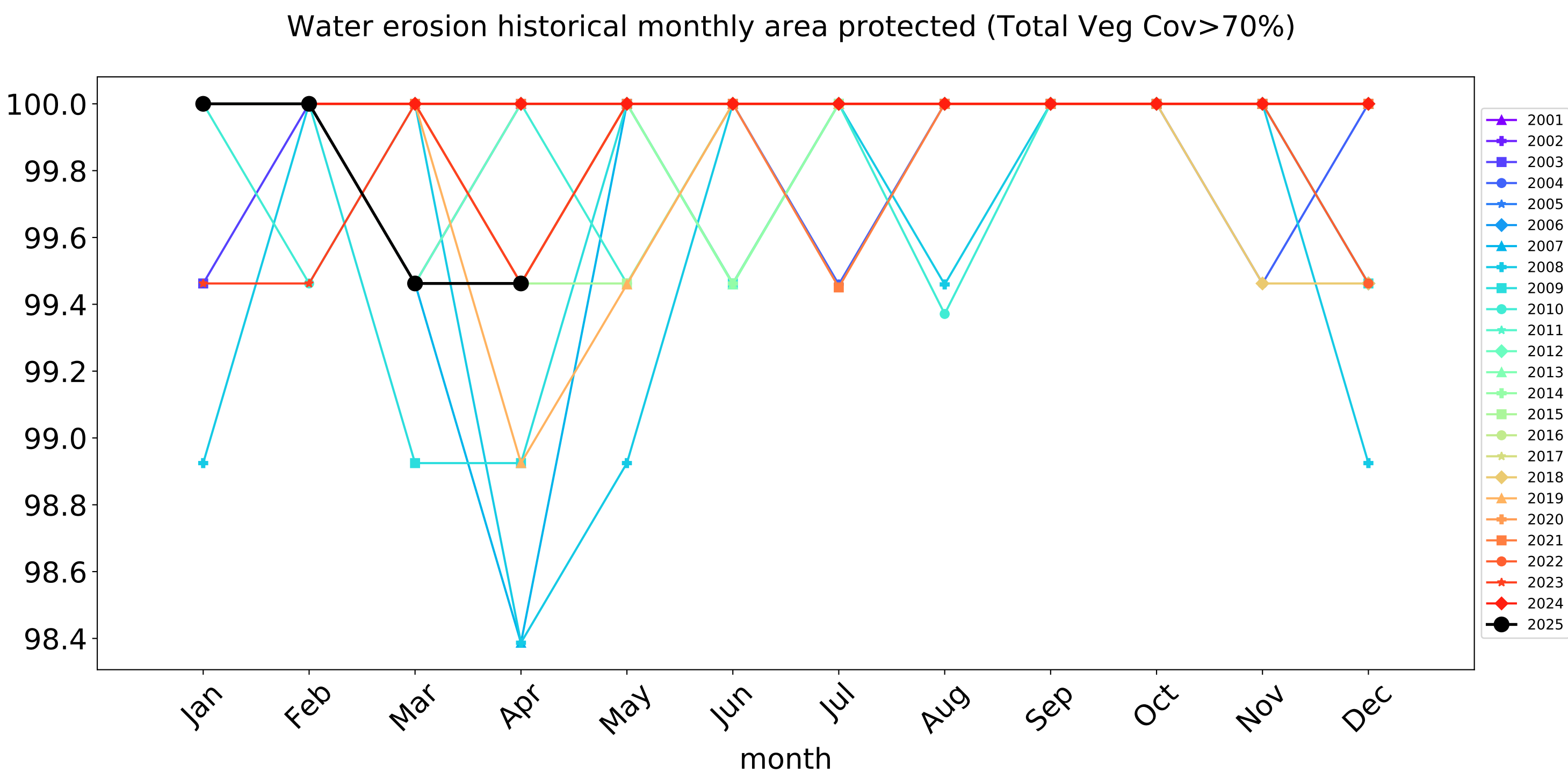
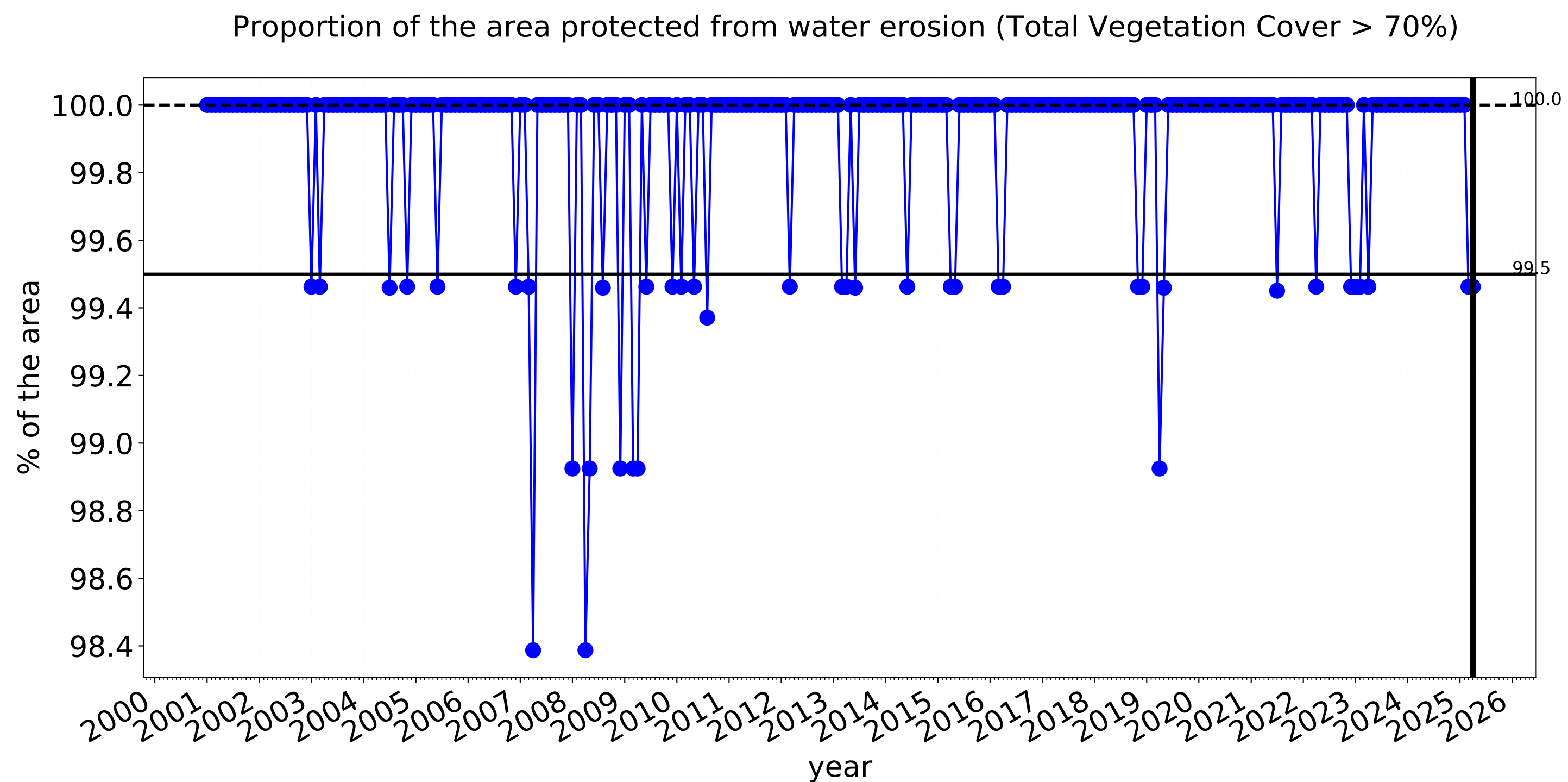
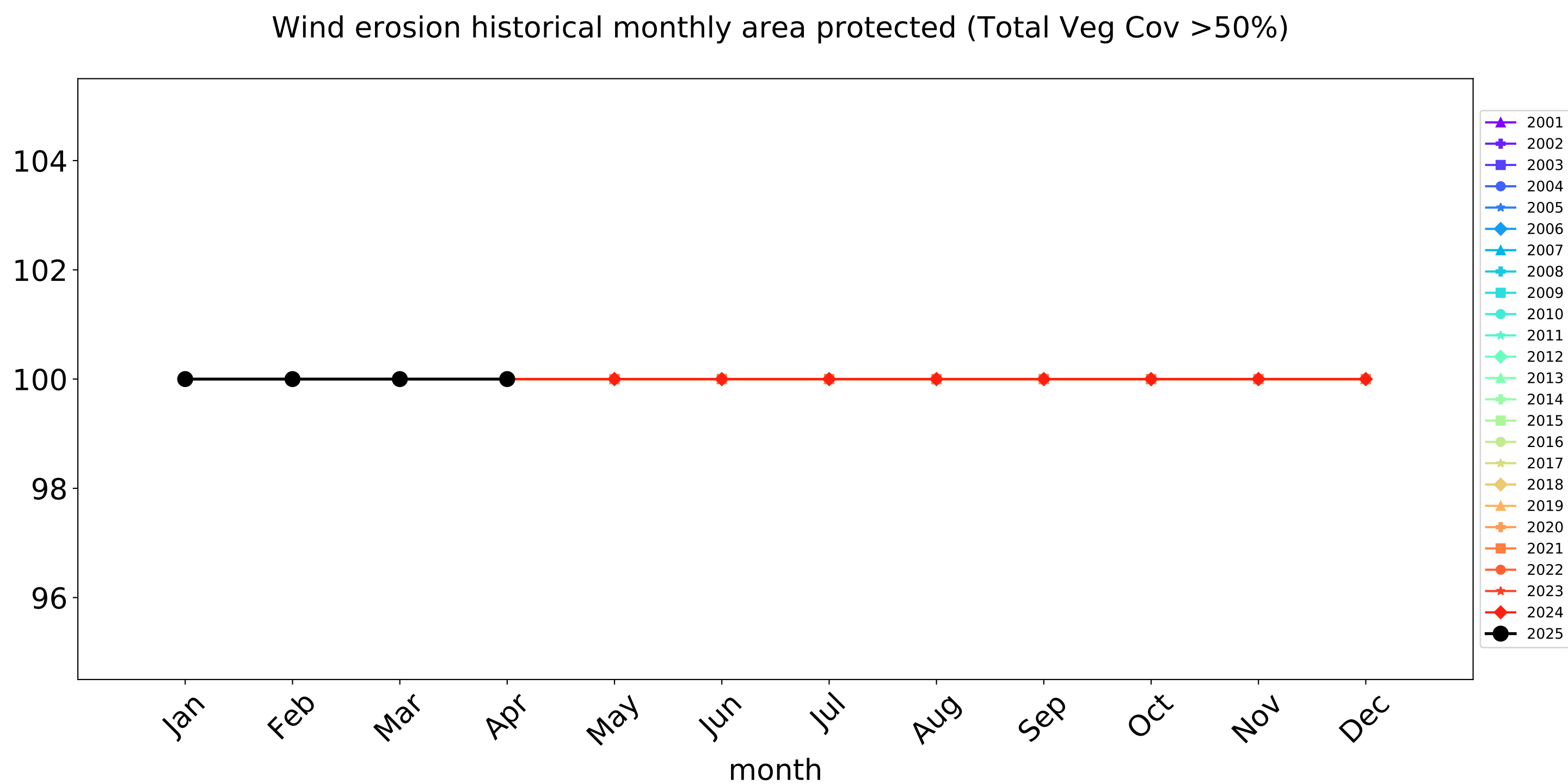
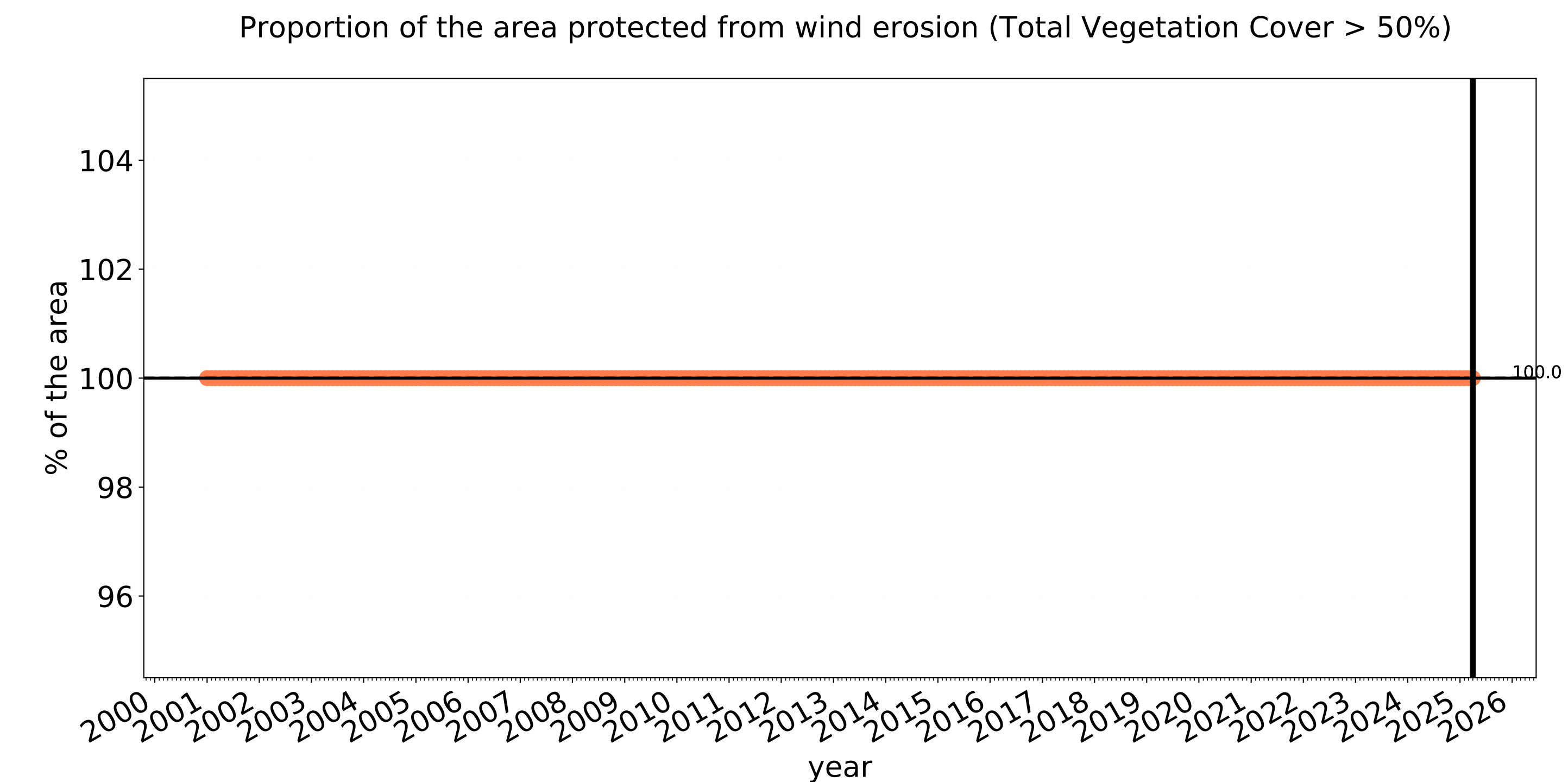


Total Vegetation Cover Decile [%]

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



Grazing - Forest (non woodland) timeseries



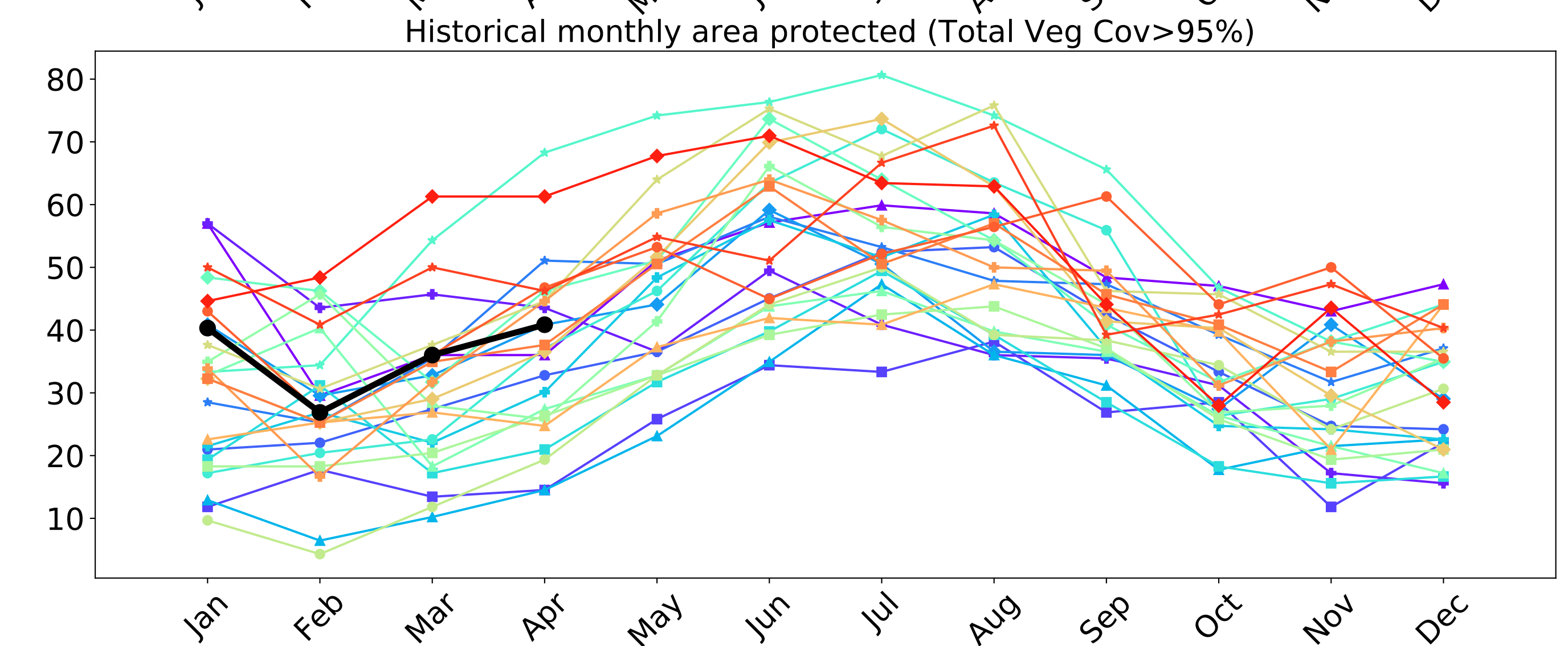
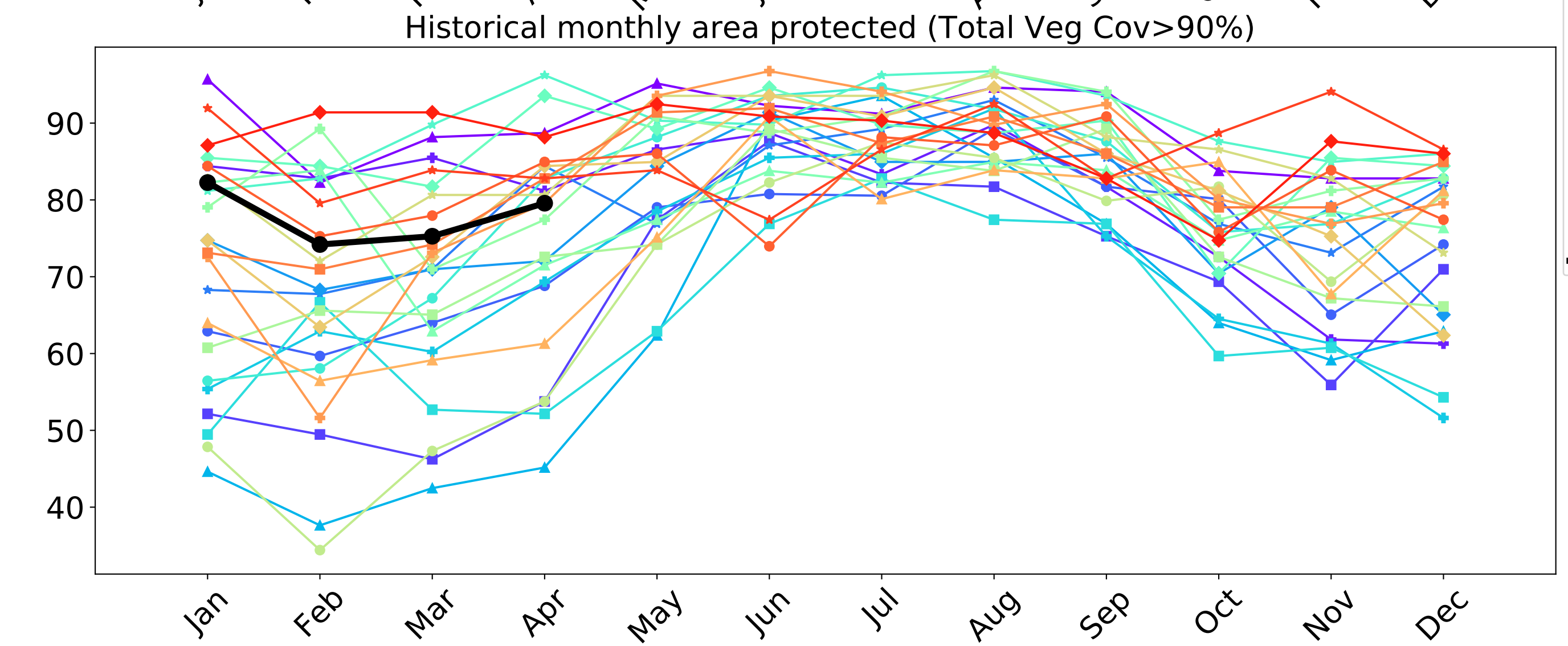
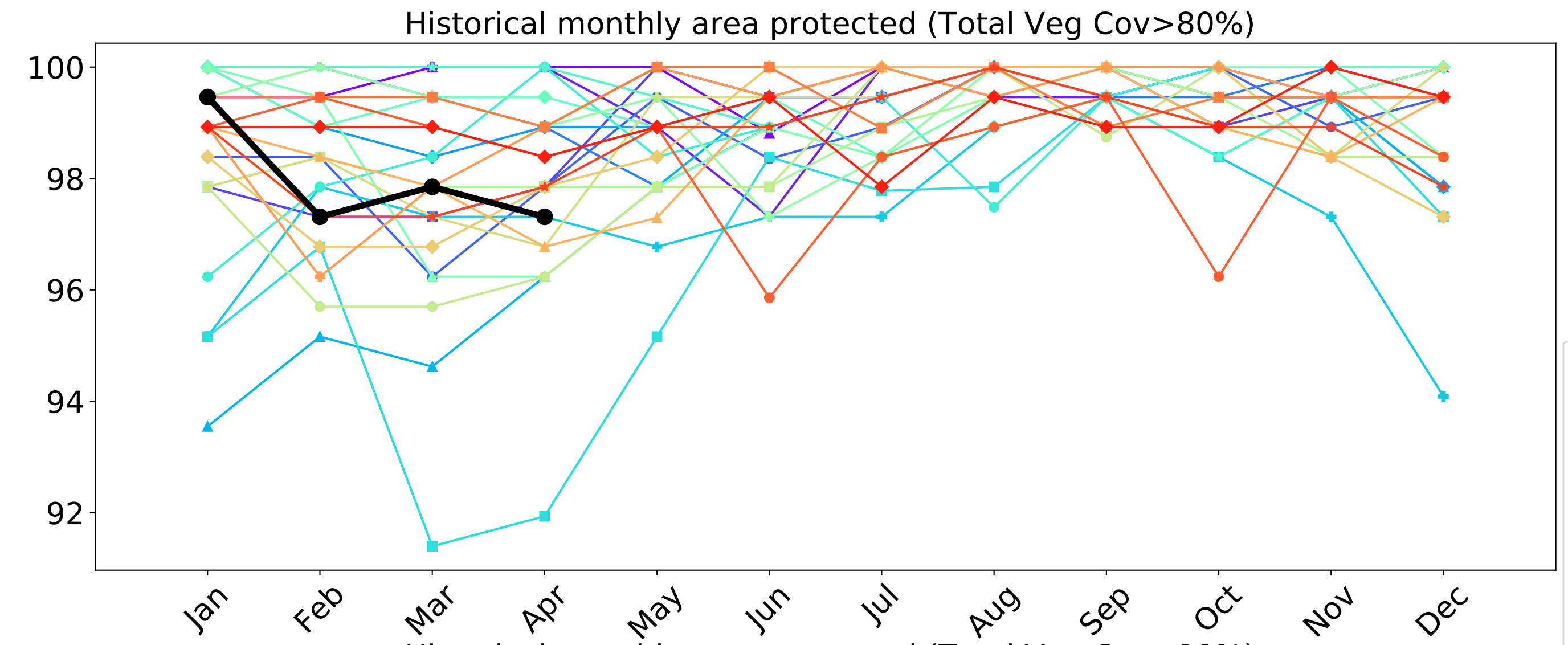
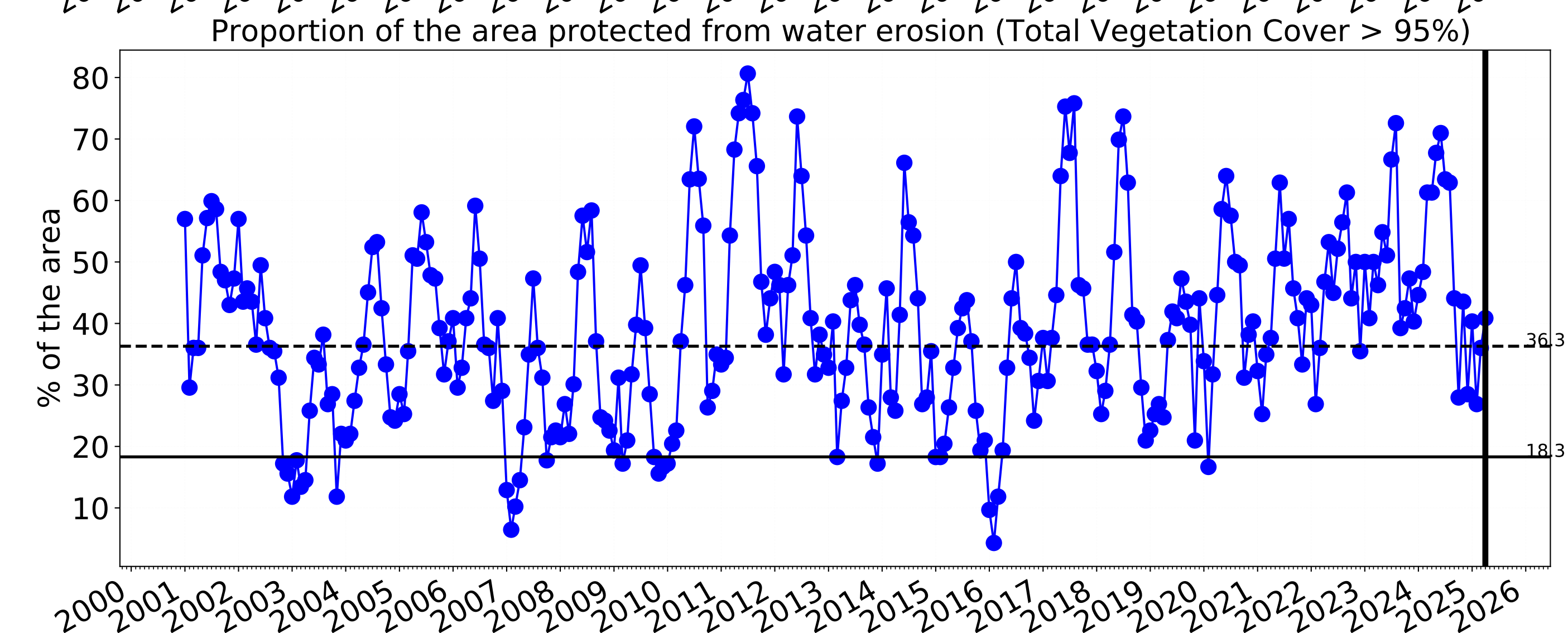
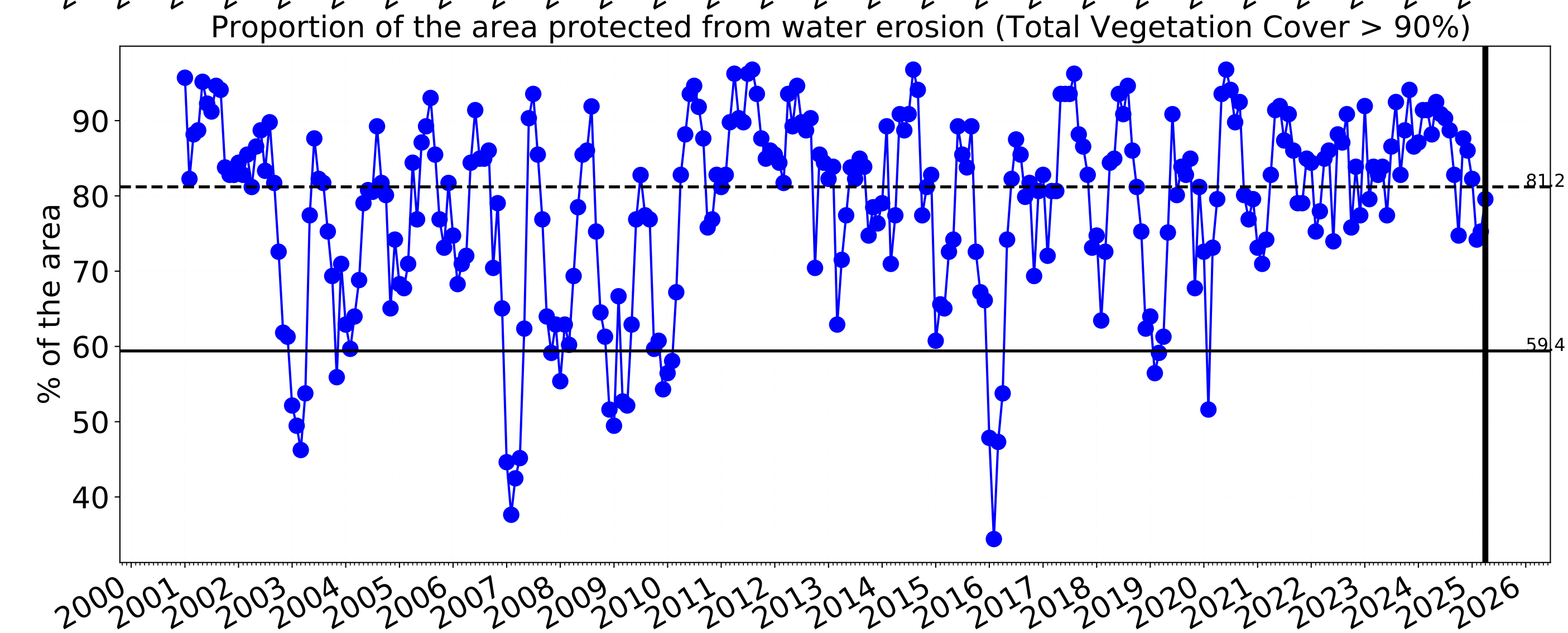
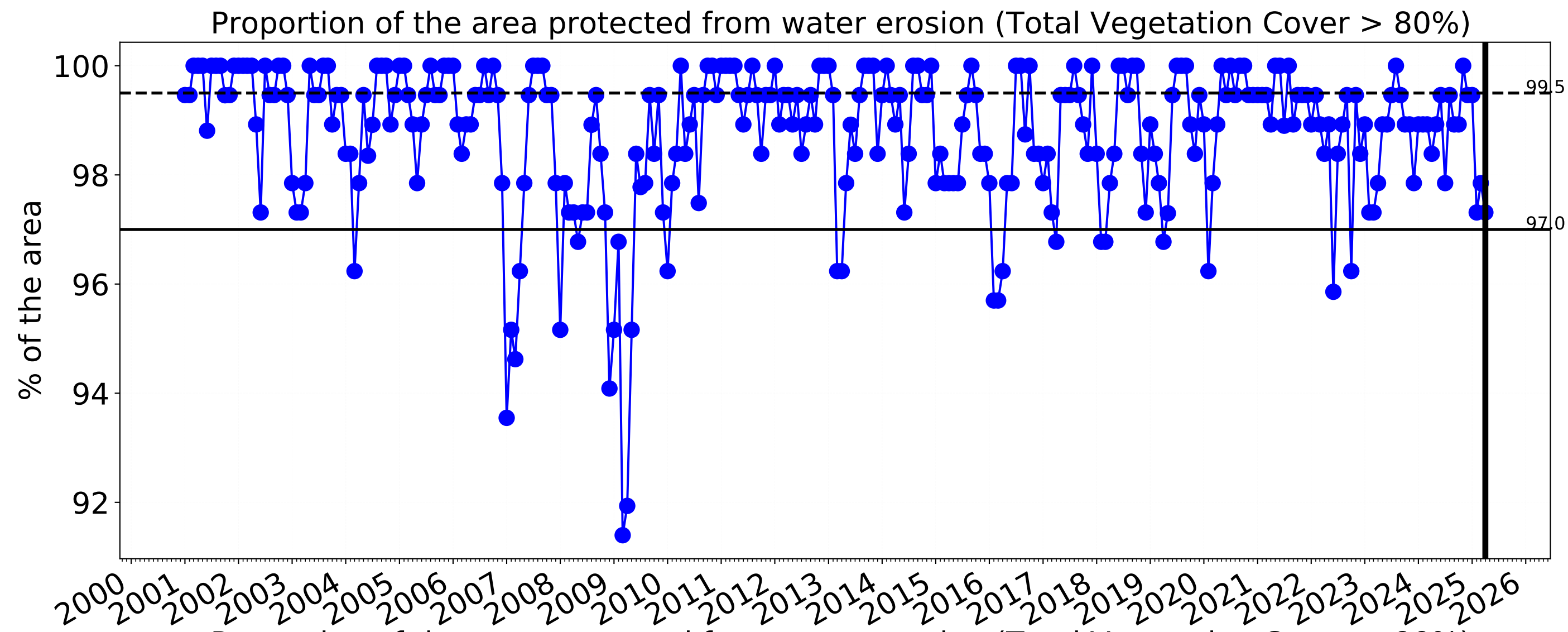
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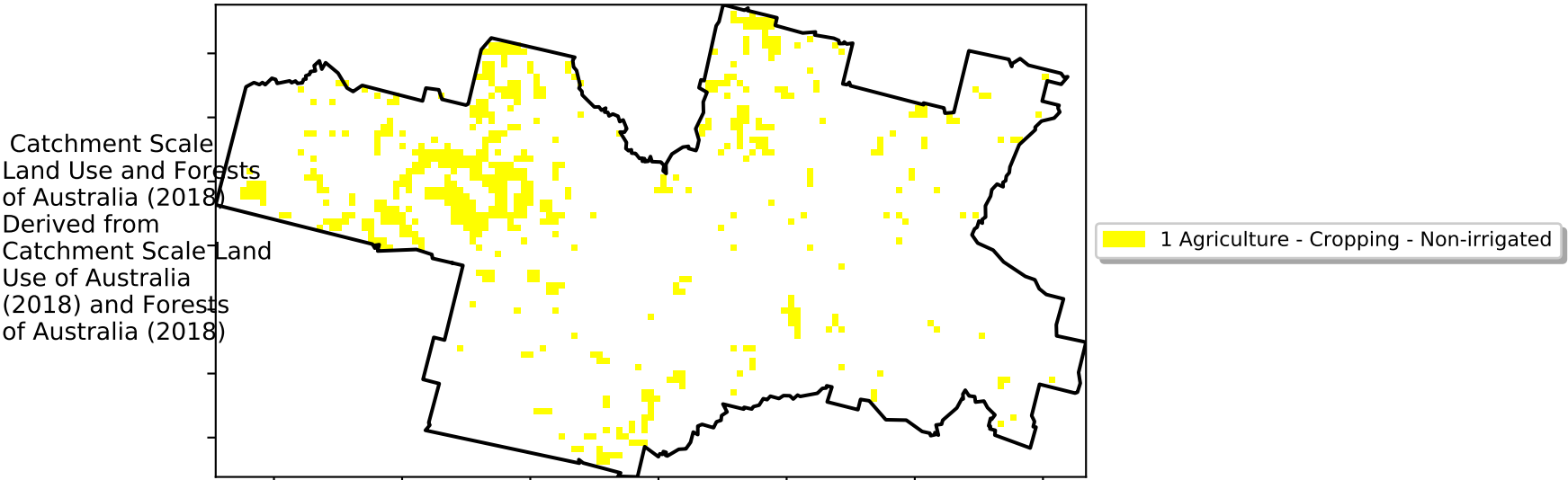
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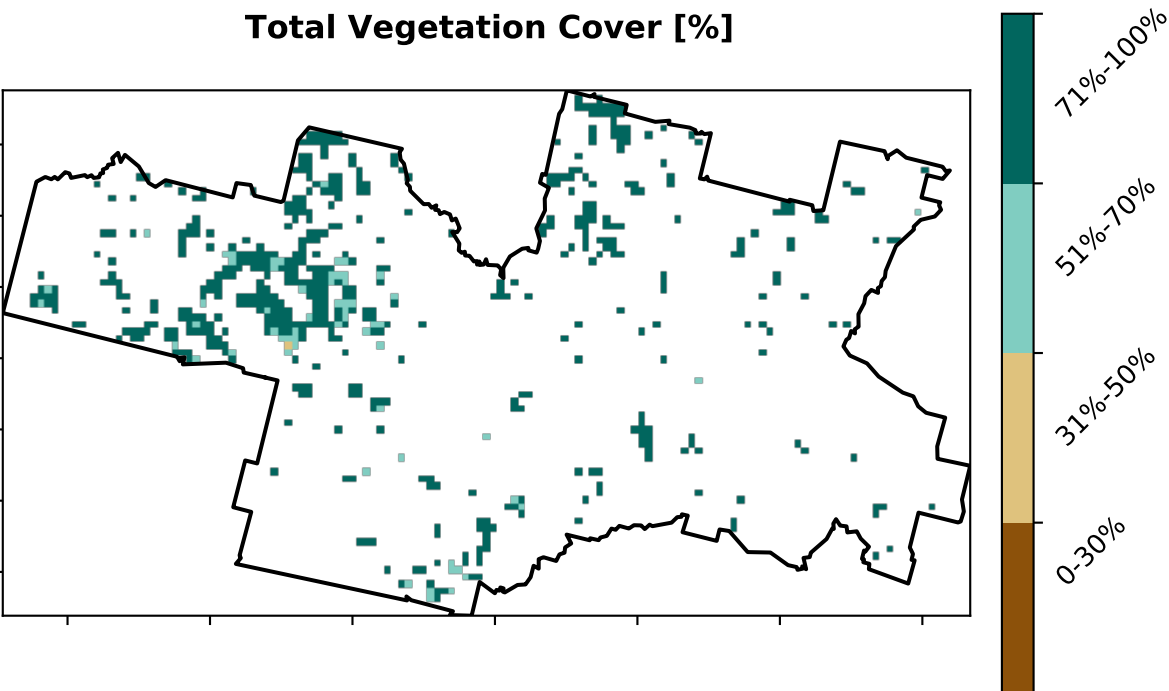


Cropping

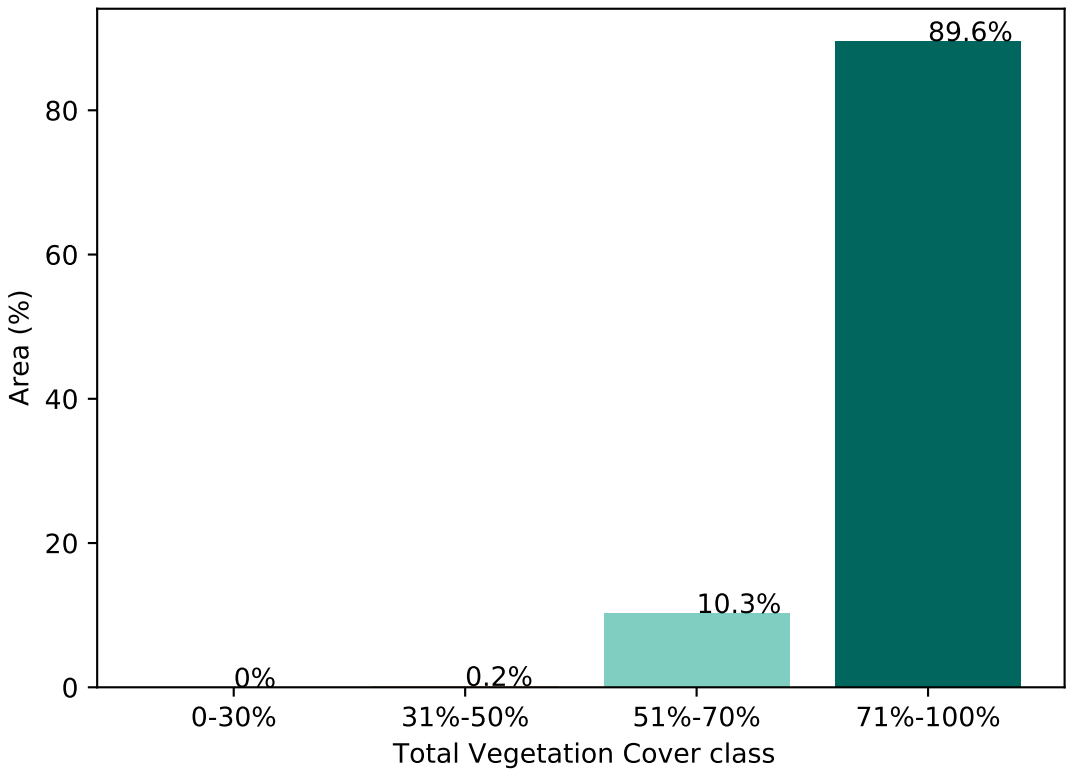
Land use and forest cover



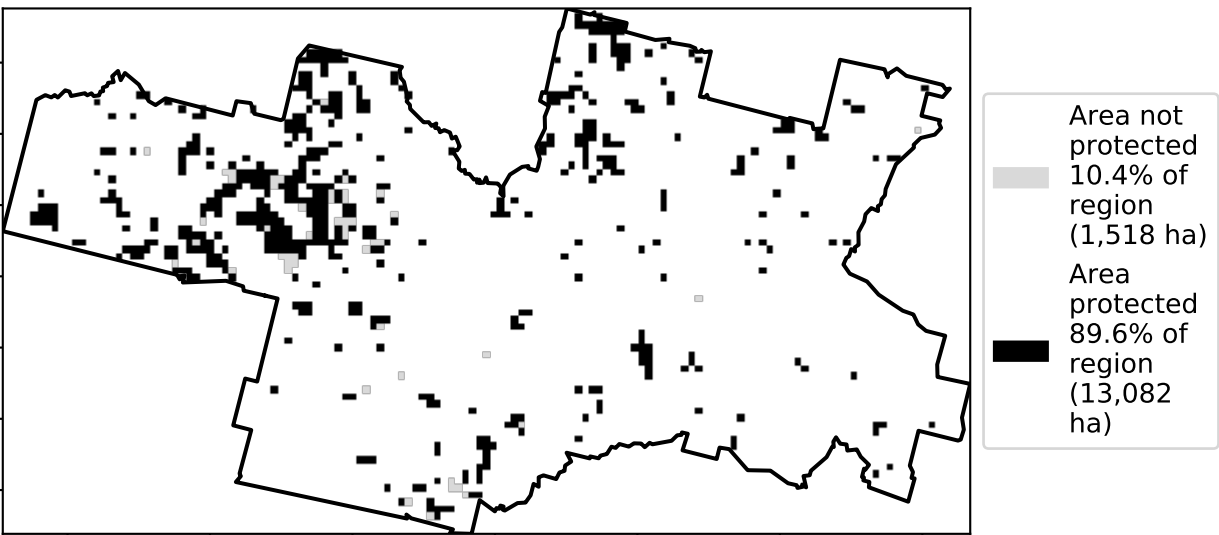
Total Vegetation Cover [%]



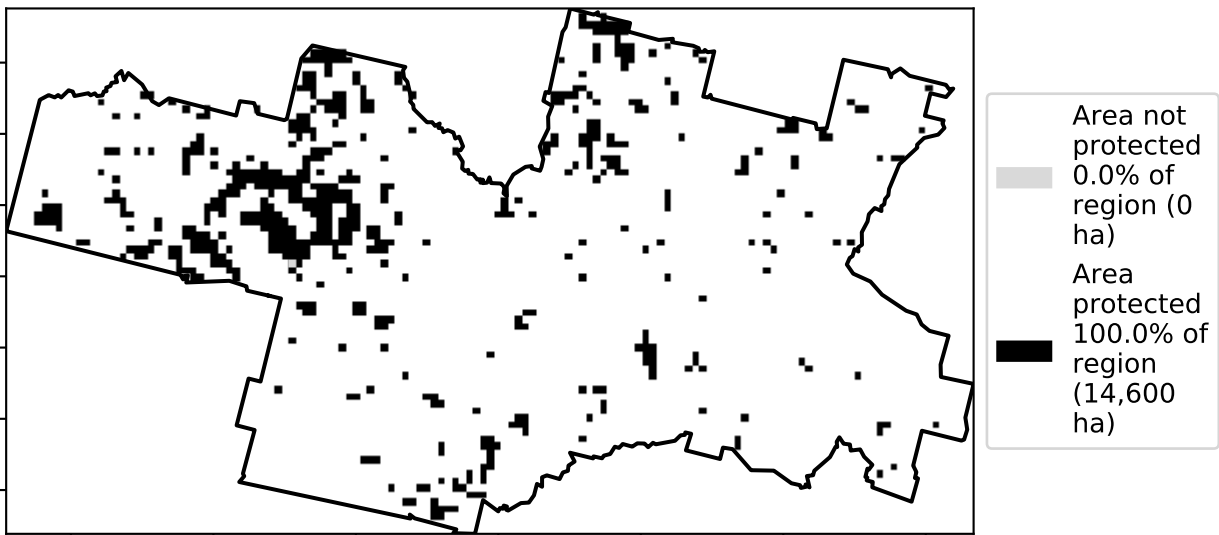
Proportion of vegetation cover class in area



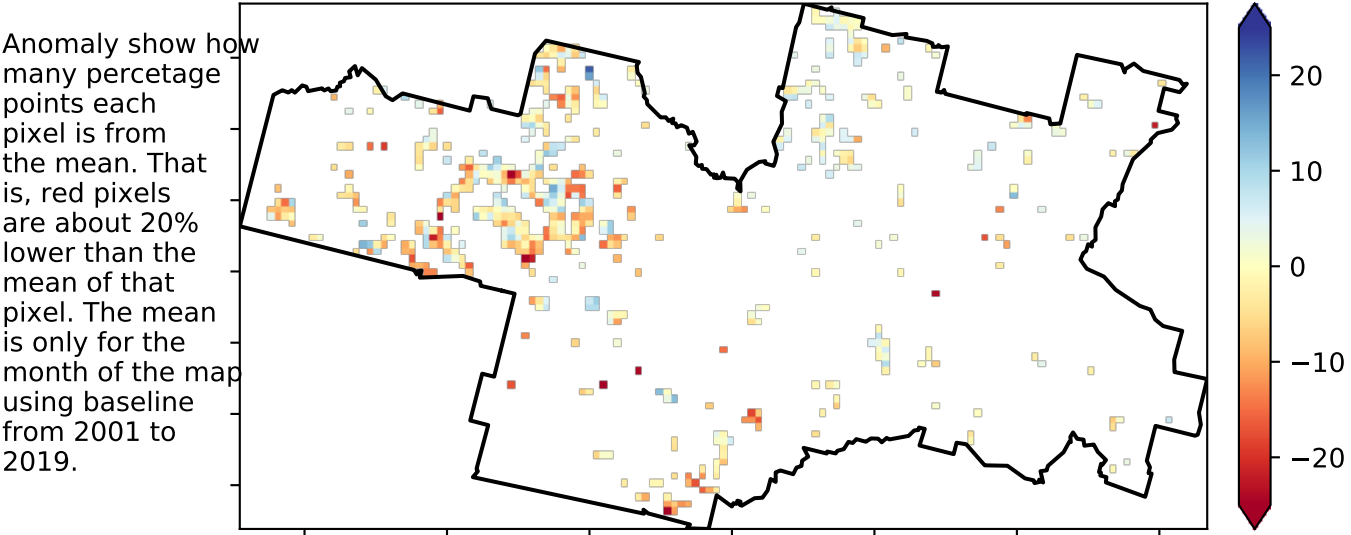
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

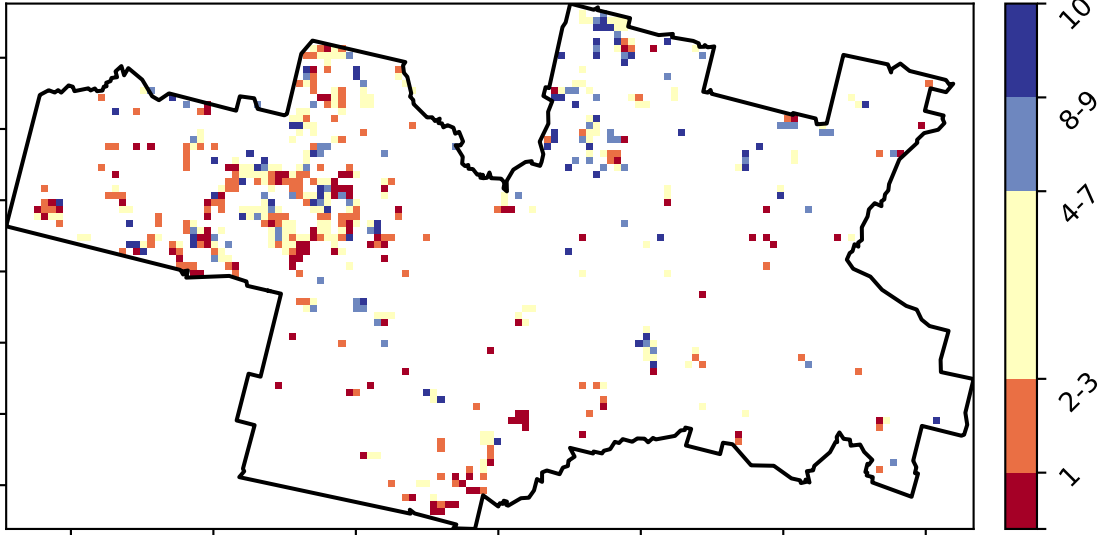


Total Vegetation Cover Anomaly [%]

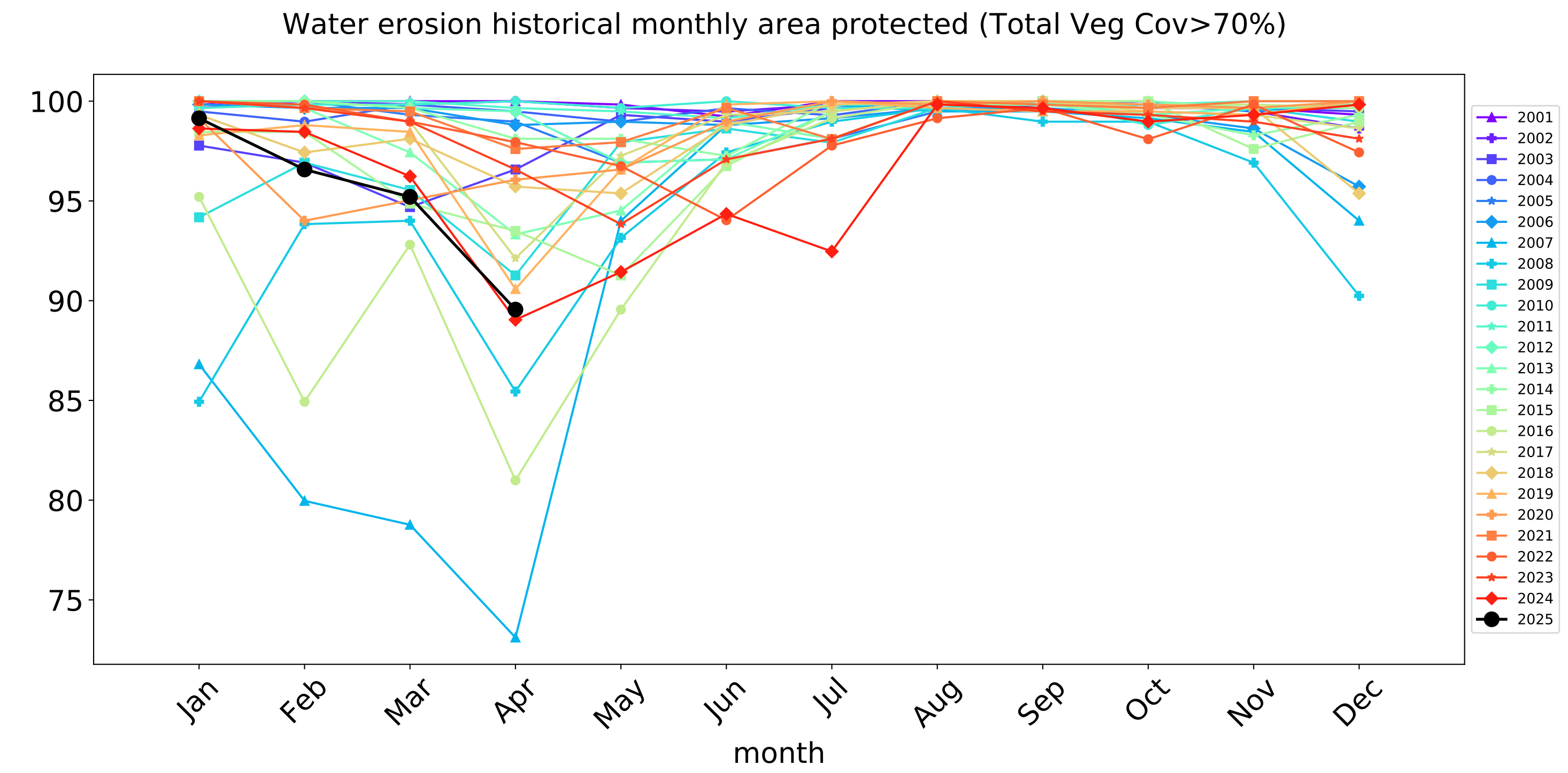
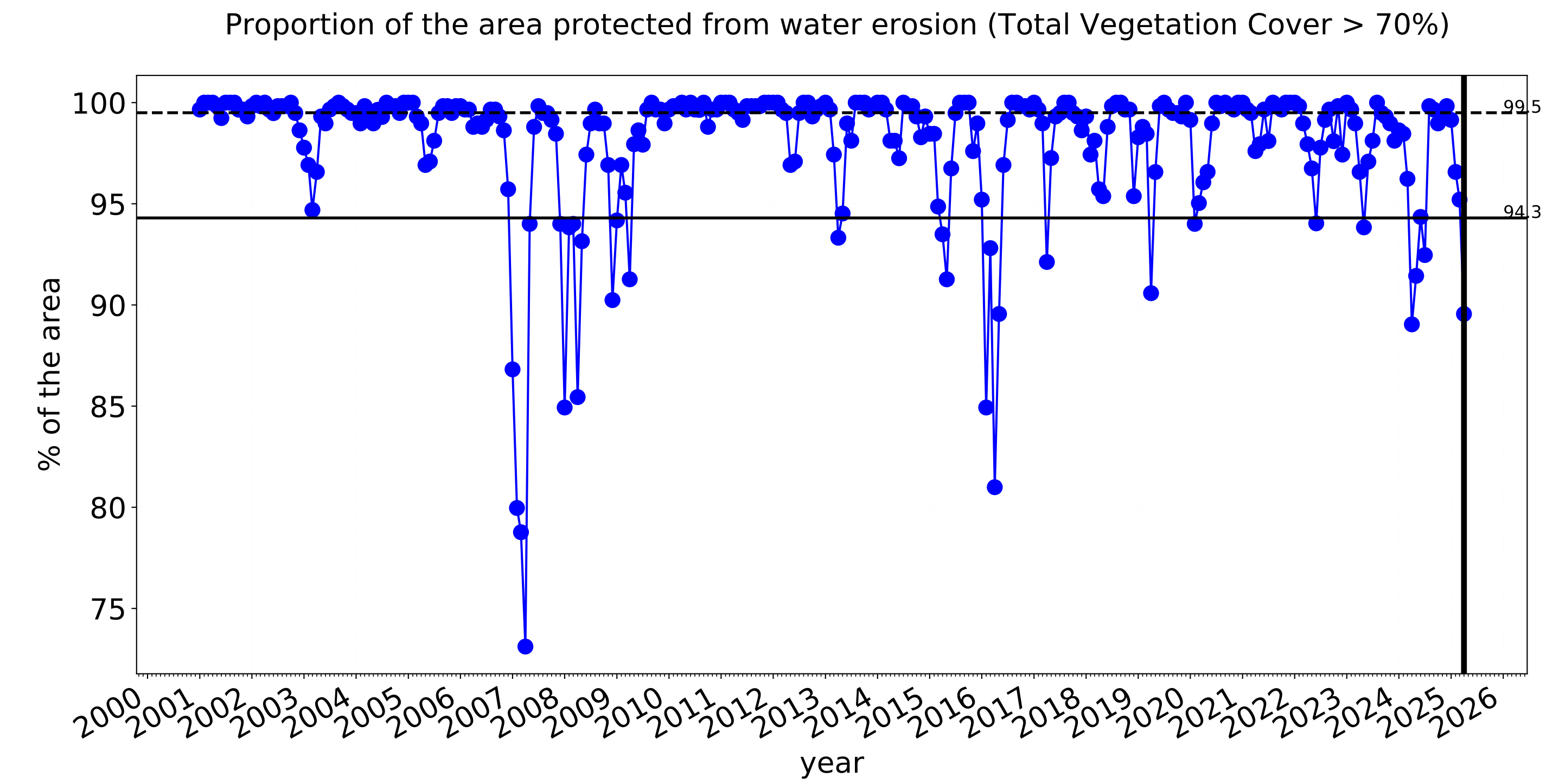
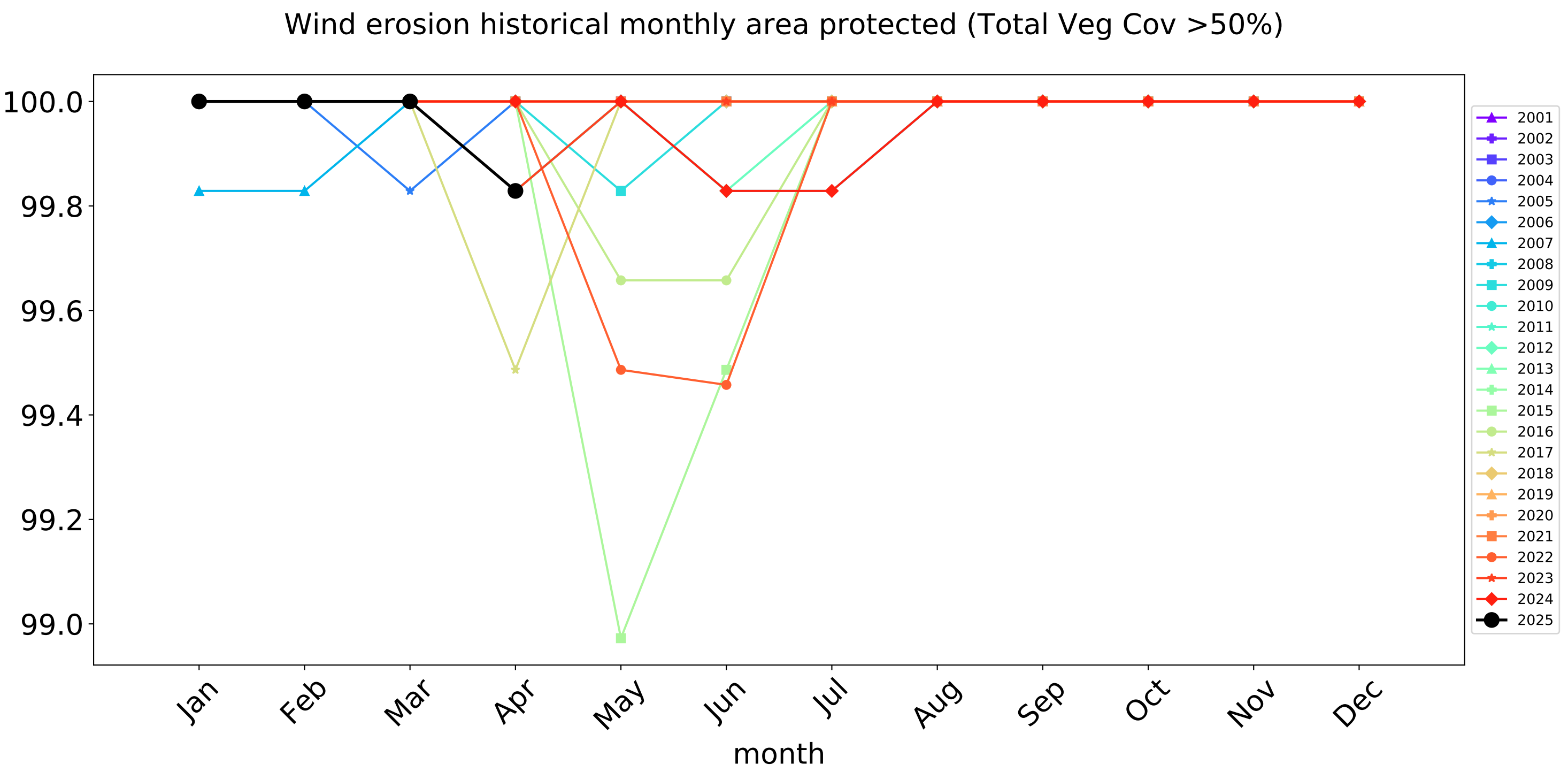
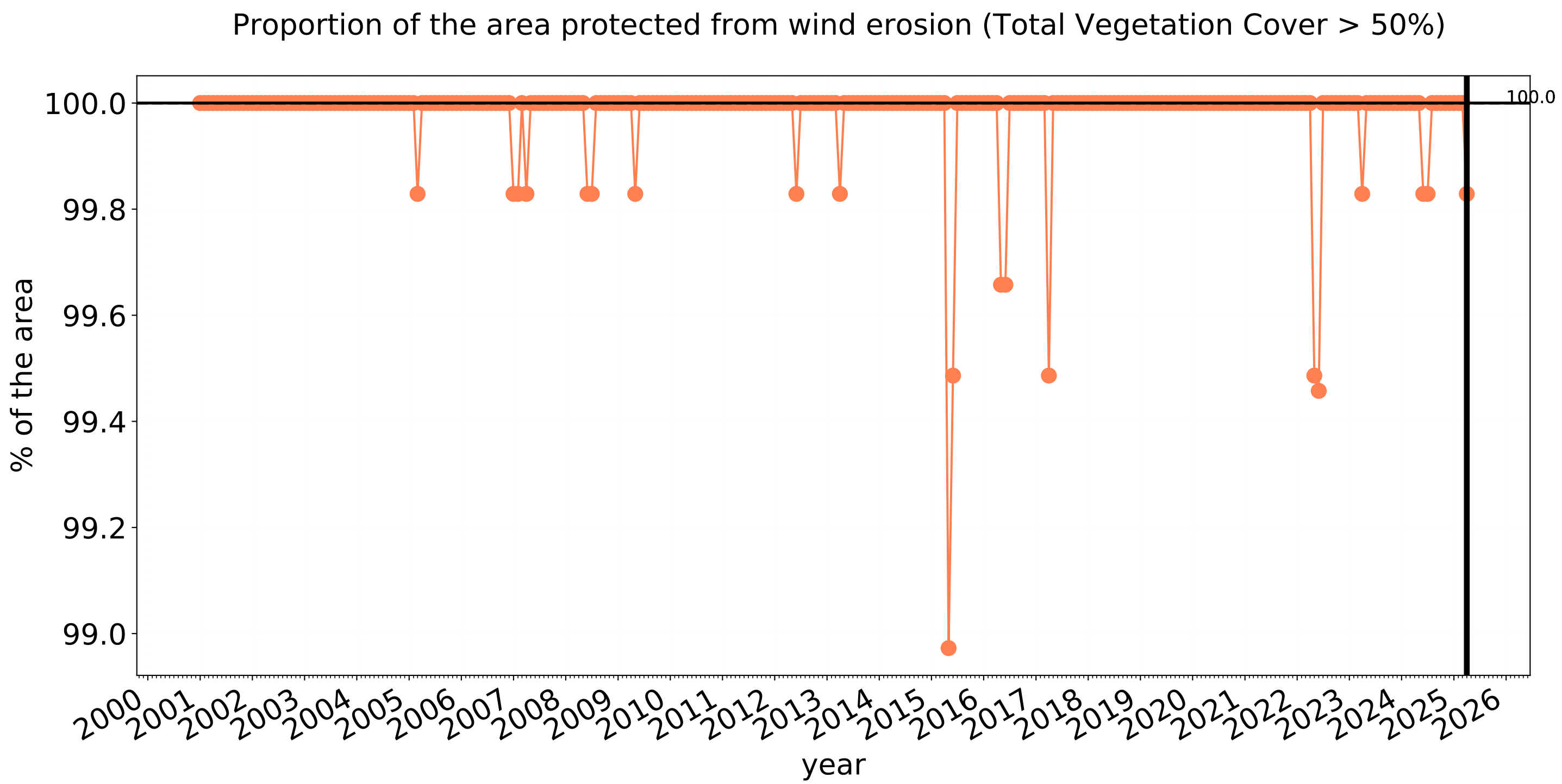


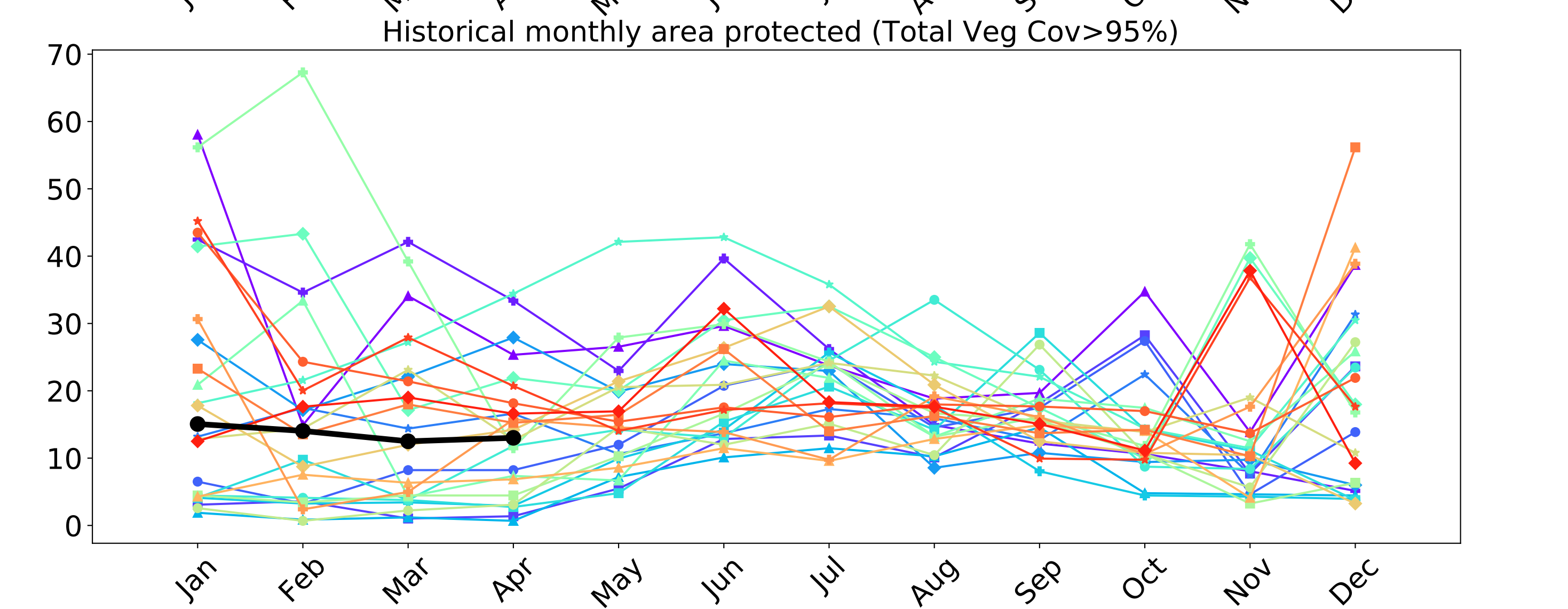
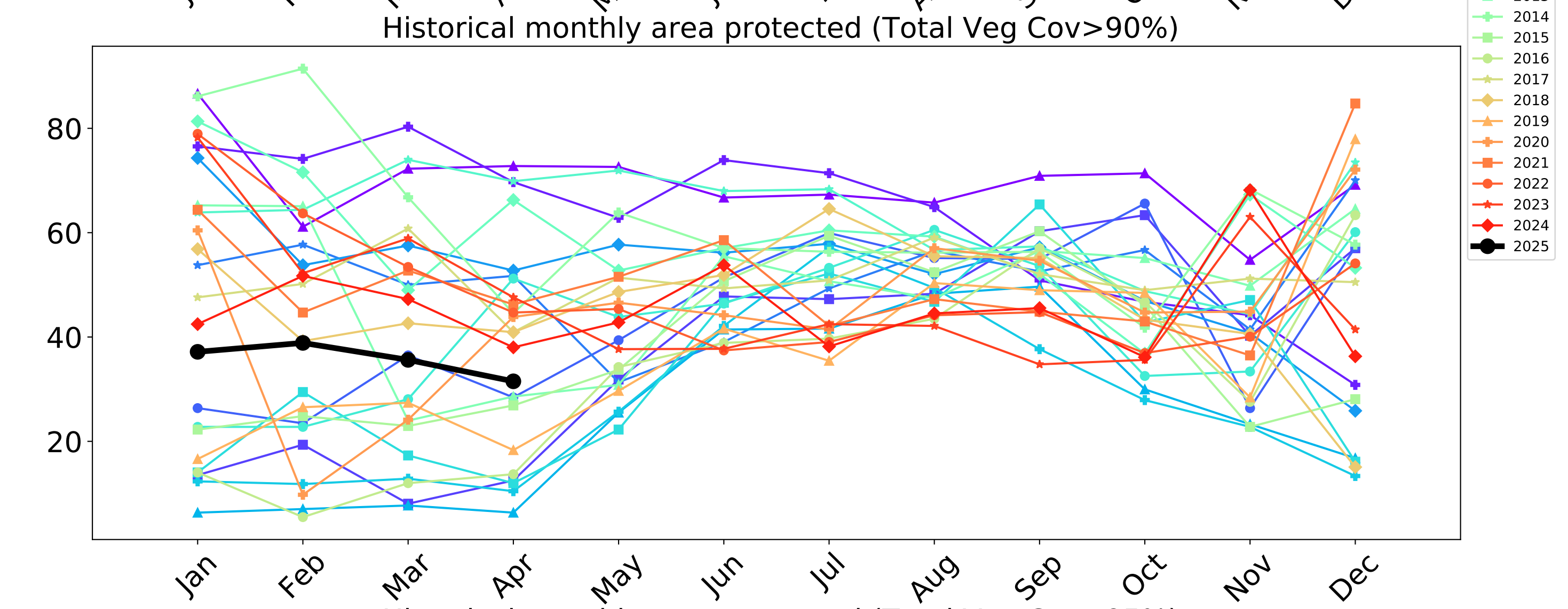
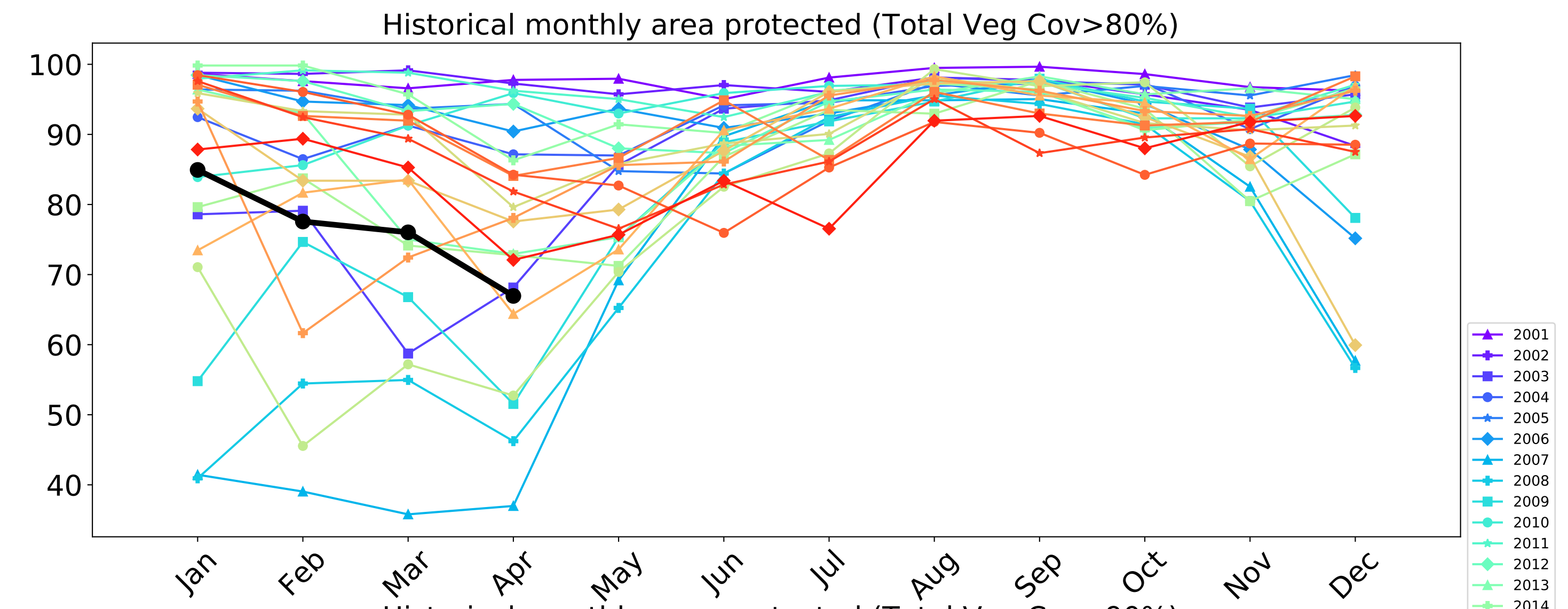
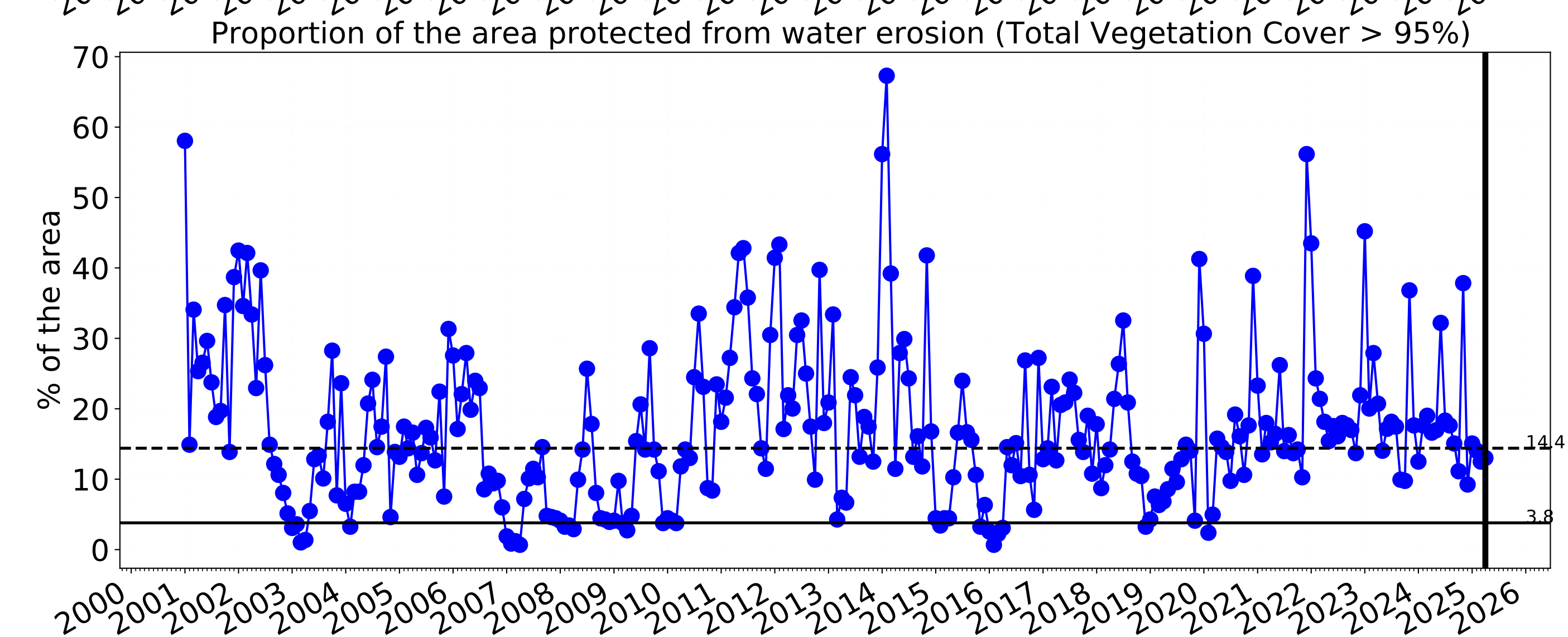
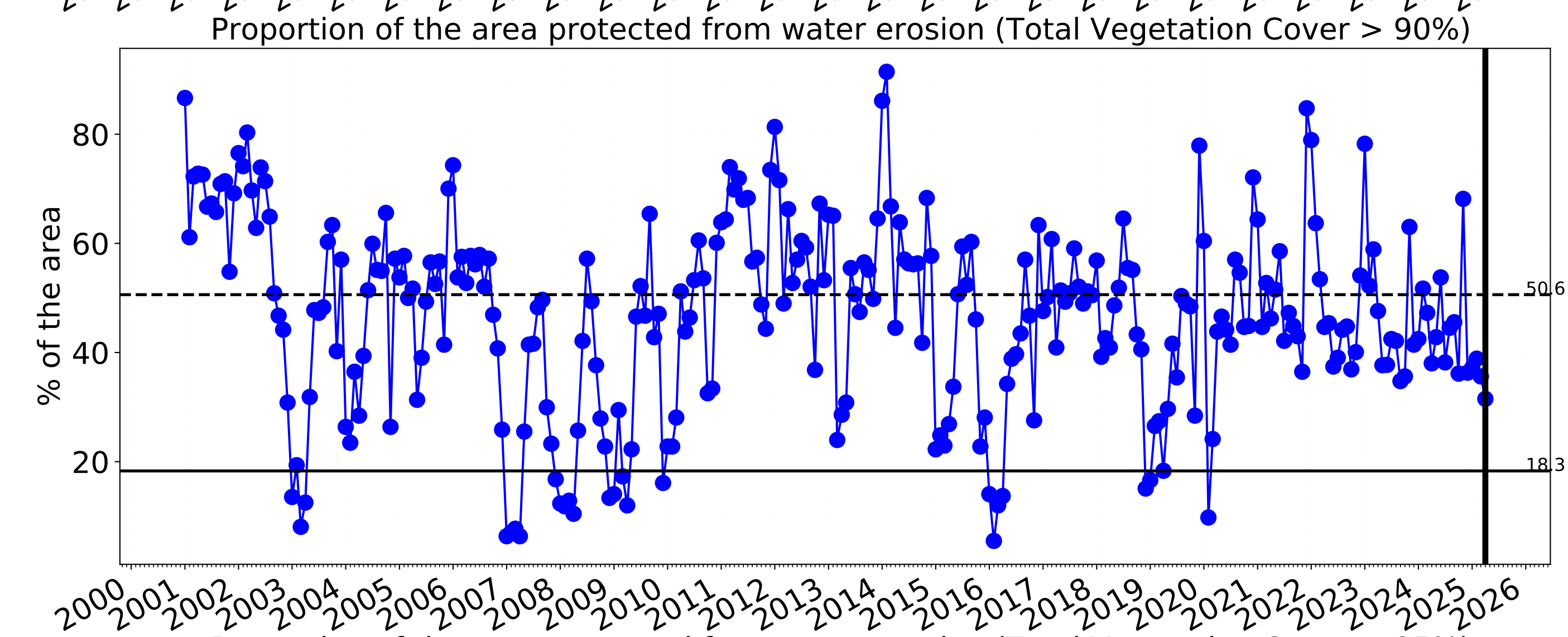
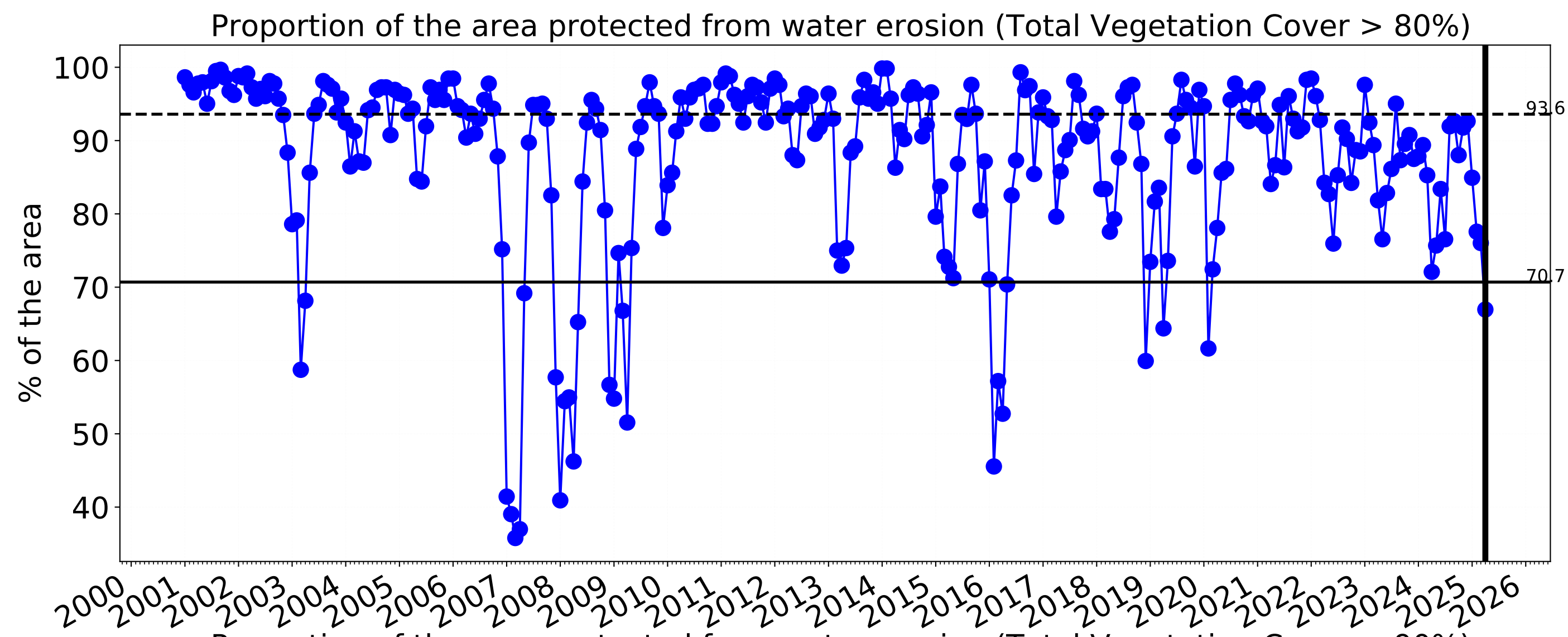
Total Vegetation Cover Decile [%]

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



Cropping timeseries

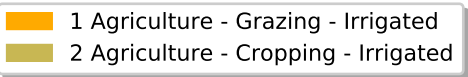
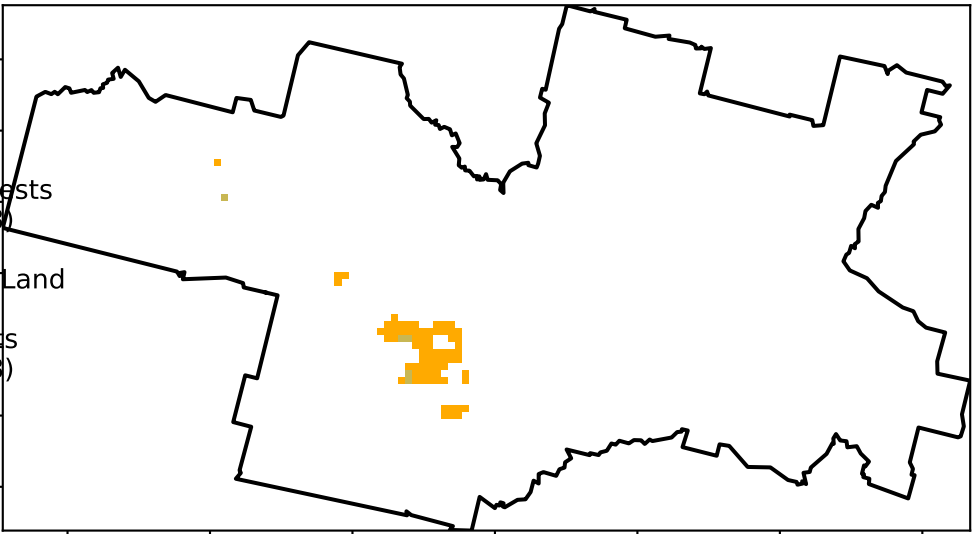




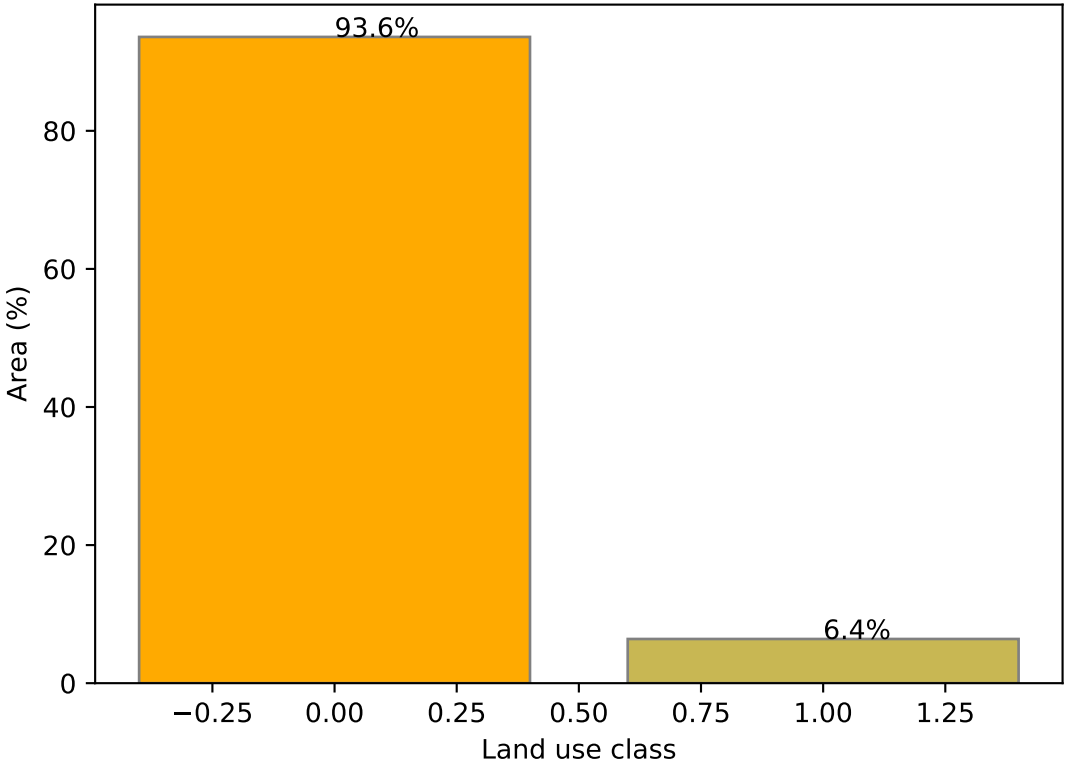
Irrigation

Land use and forest cover

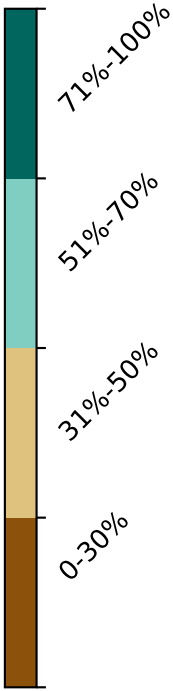
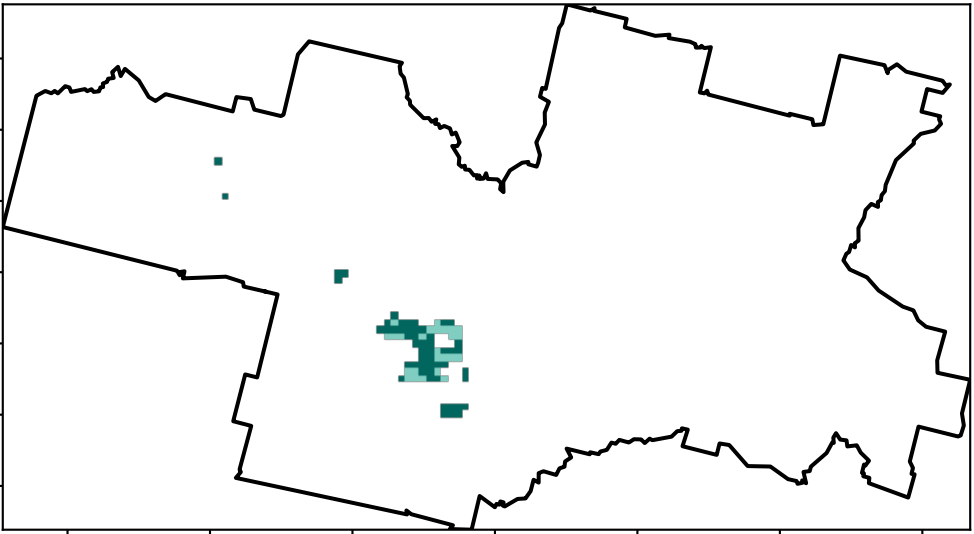
Catchment Scale
Land Use and Forests
of Australia (2018)
Derived from
Catchment Scale Land
Use of Australia
(2018) and Forests
of Australia (2018)



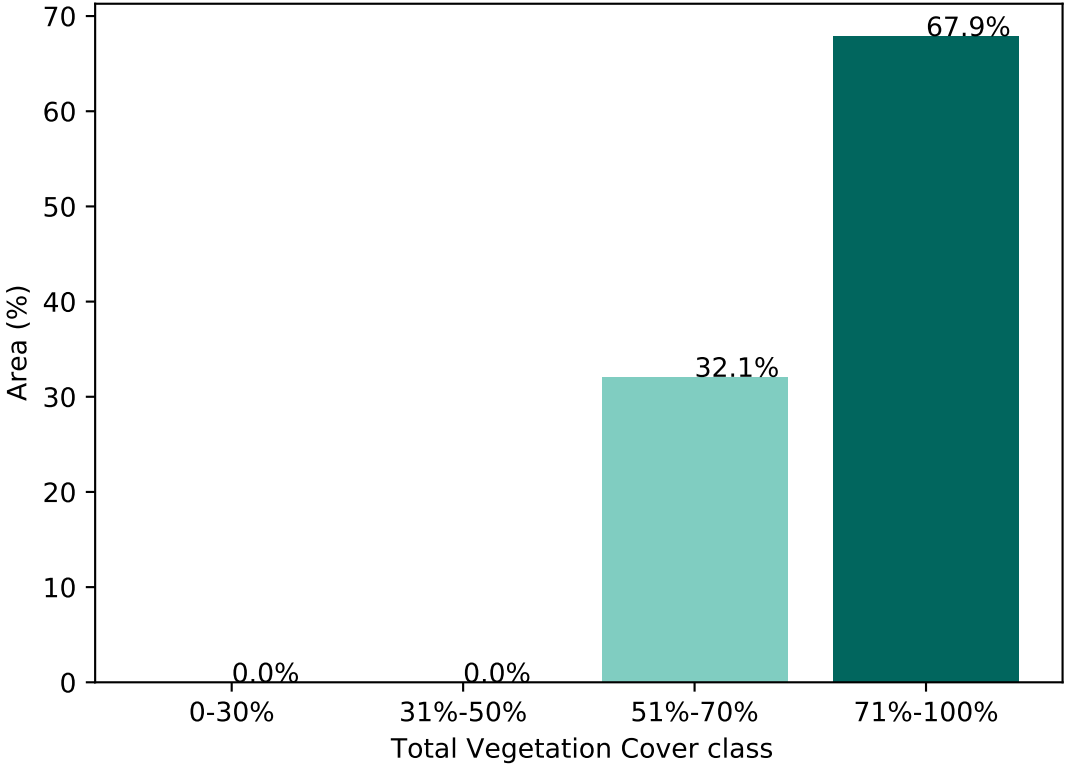
Proportion of each land class in area



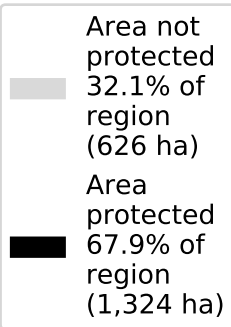
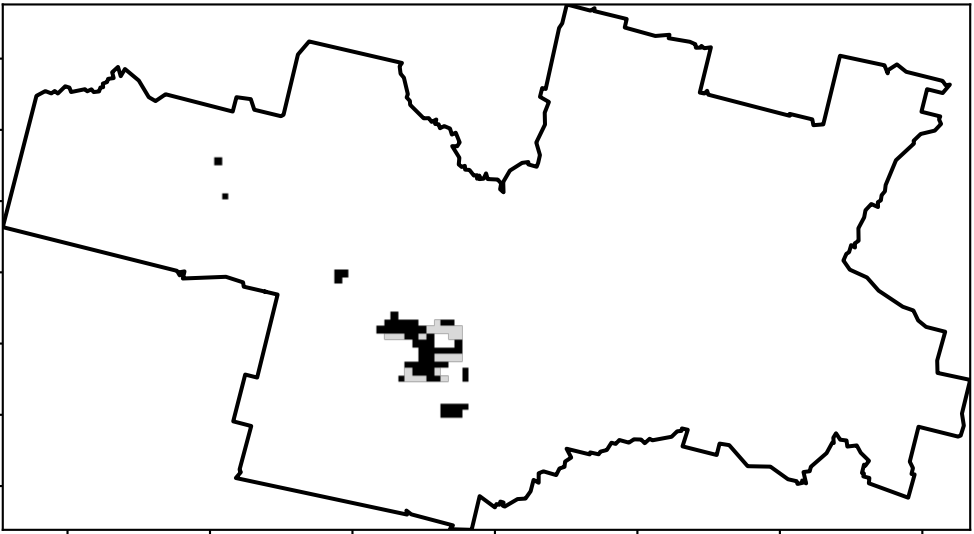
Total Vegetation Cover [%]



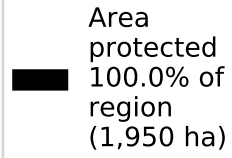
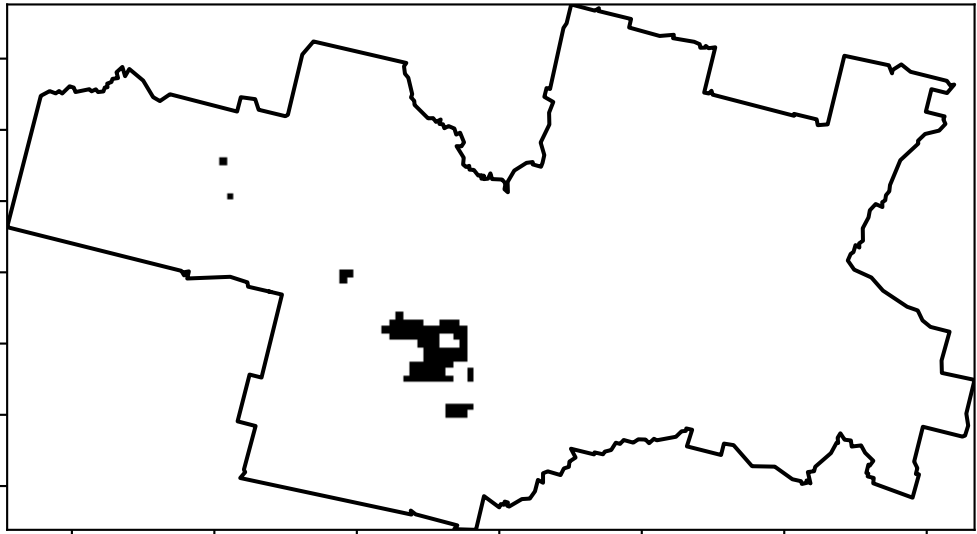
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)

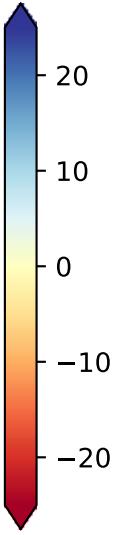
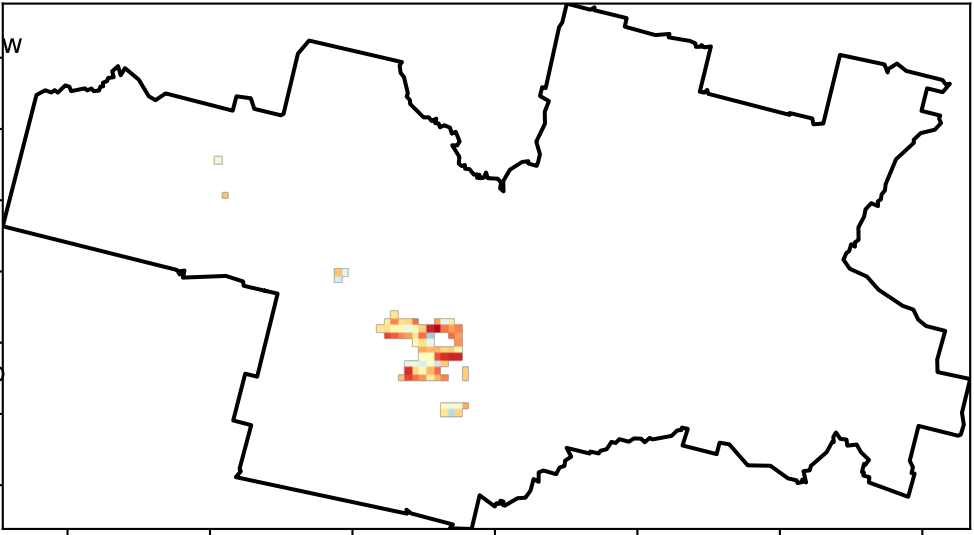


% Area protected from wind erosion (>50%)



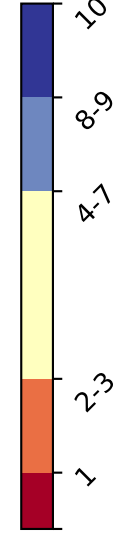
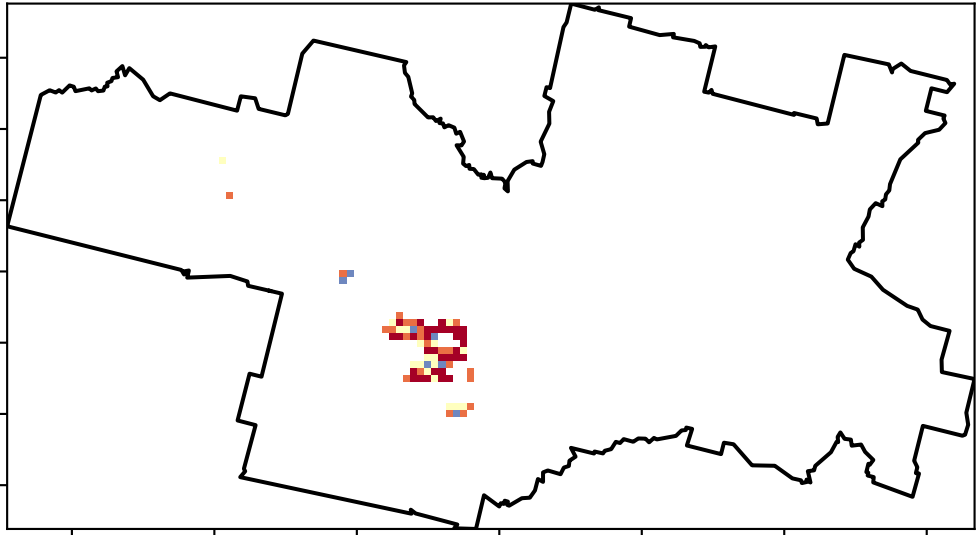
Total Vegetation Cover Anomaly [%]

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.



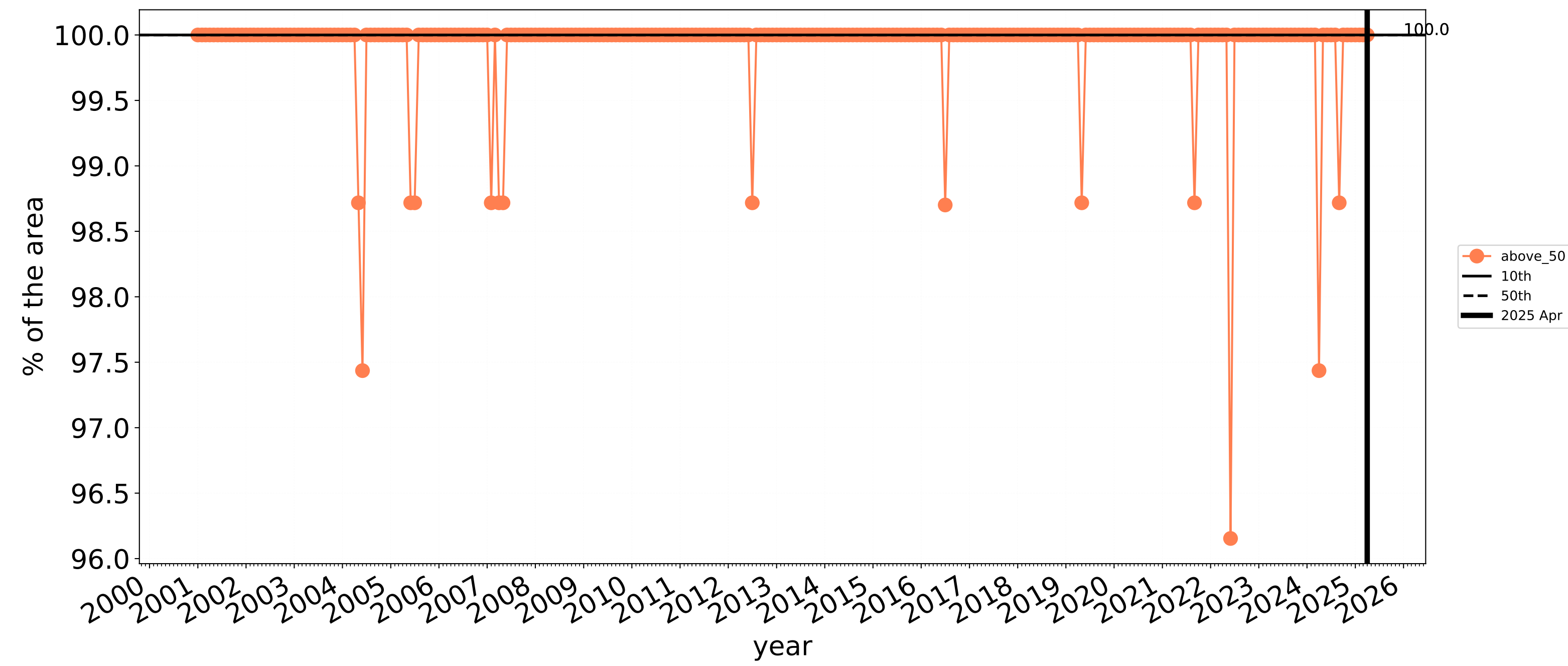
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]

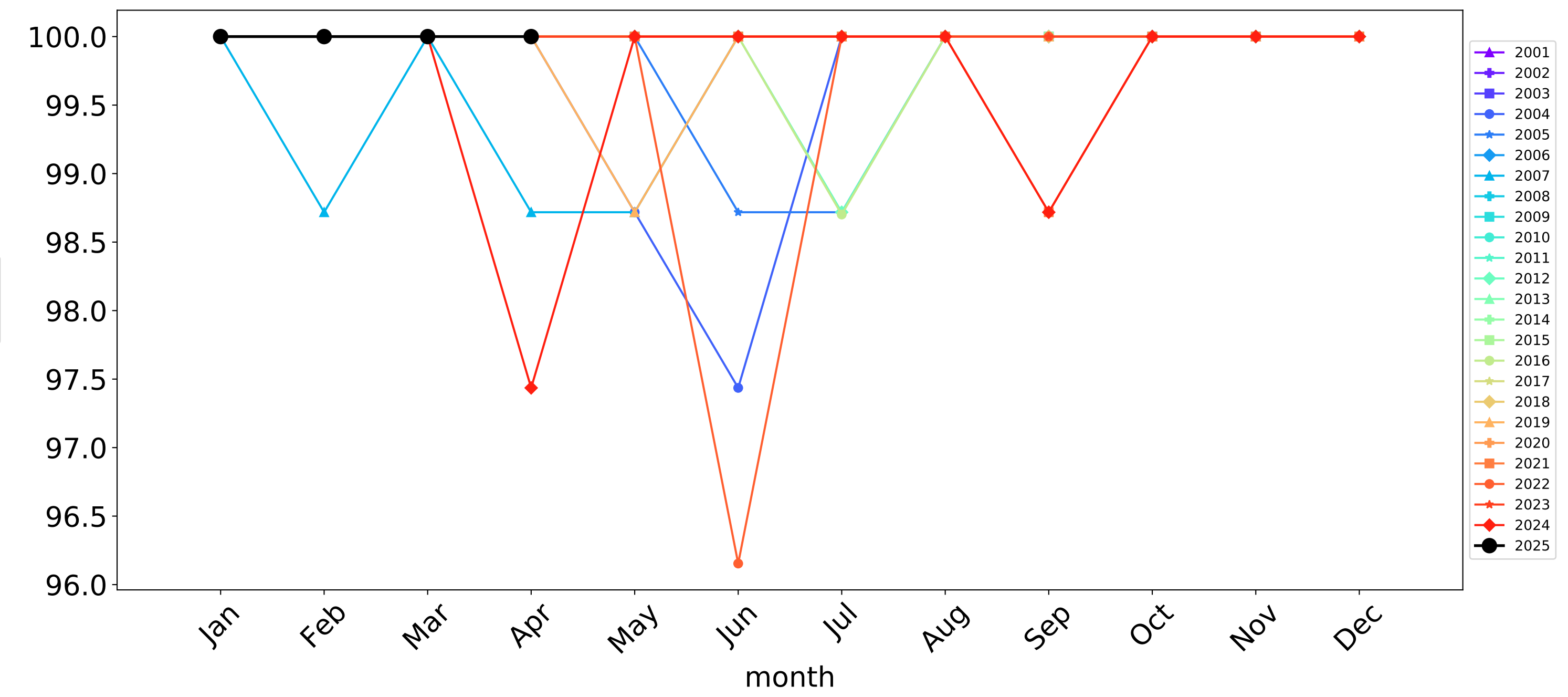


Irrigation timeseries

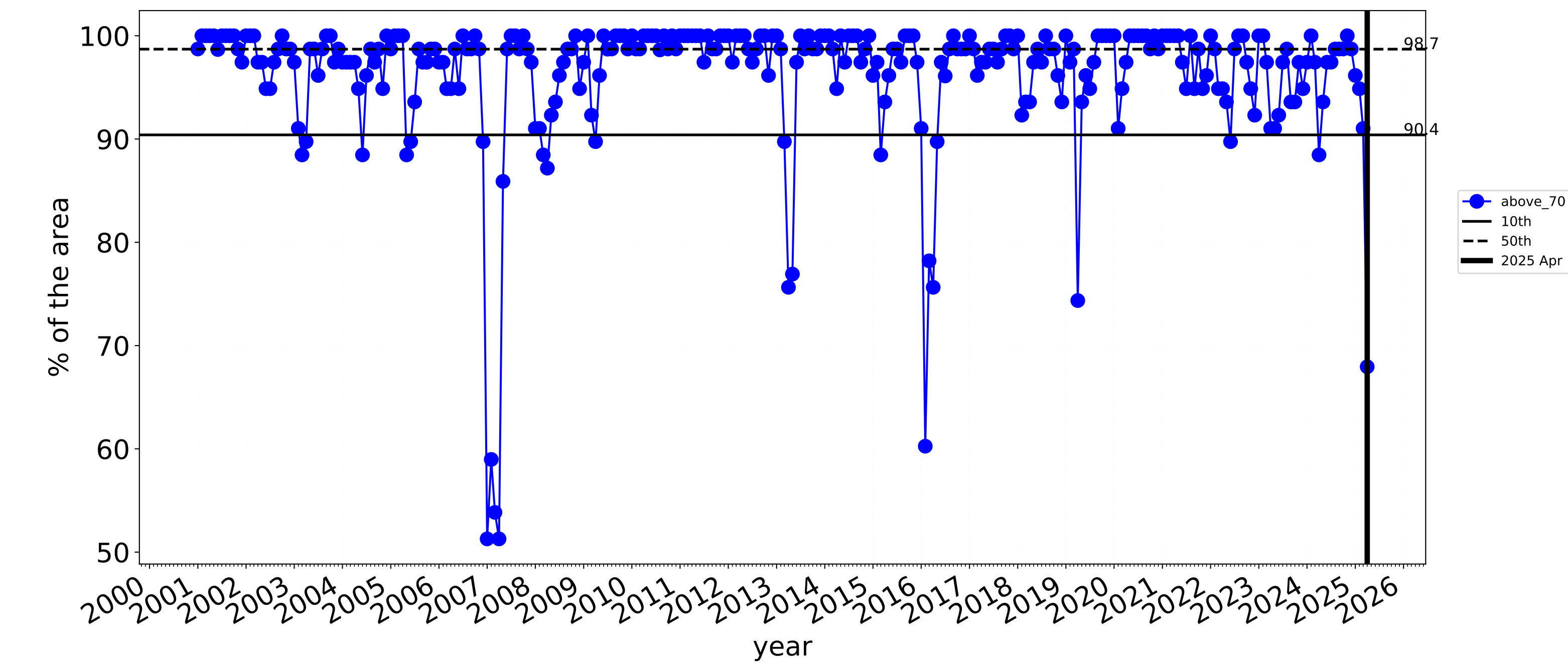
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



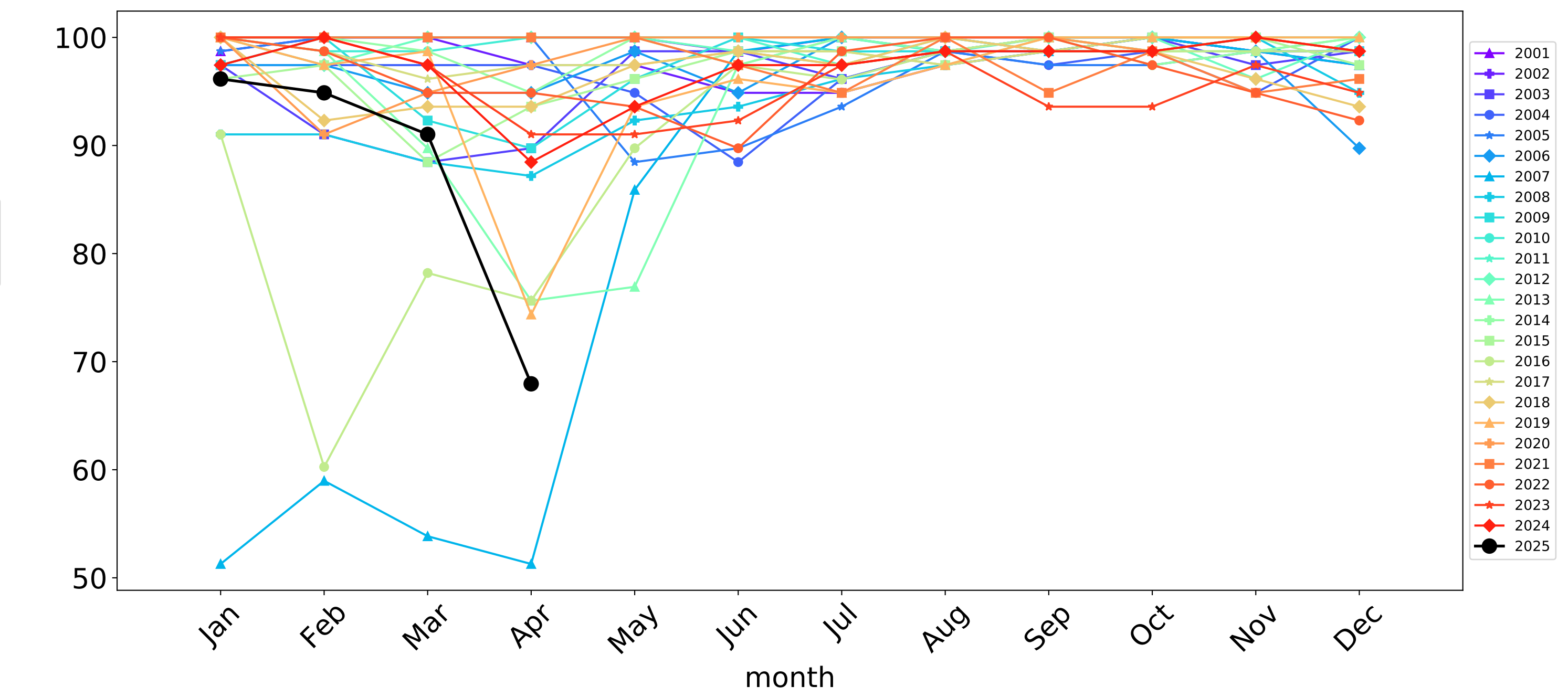
Wind erosion historical monthly area protected (Total Veg Cov >50%)

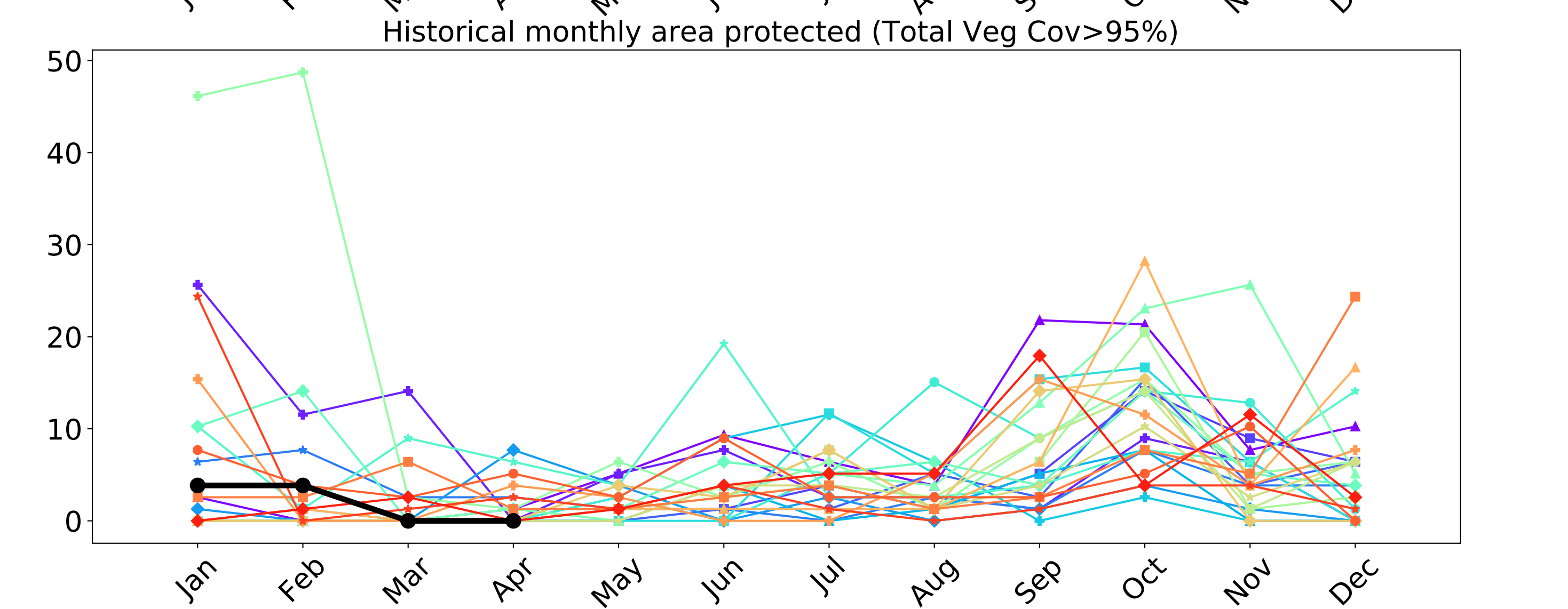
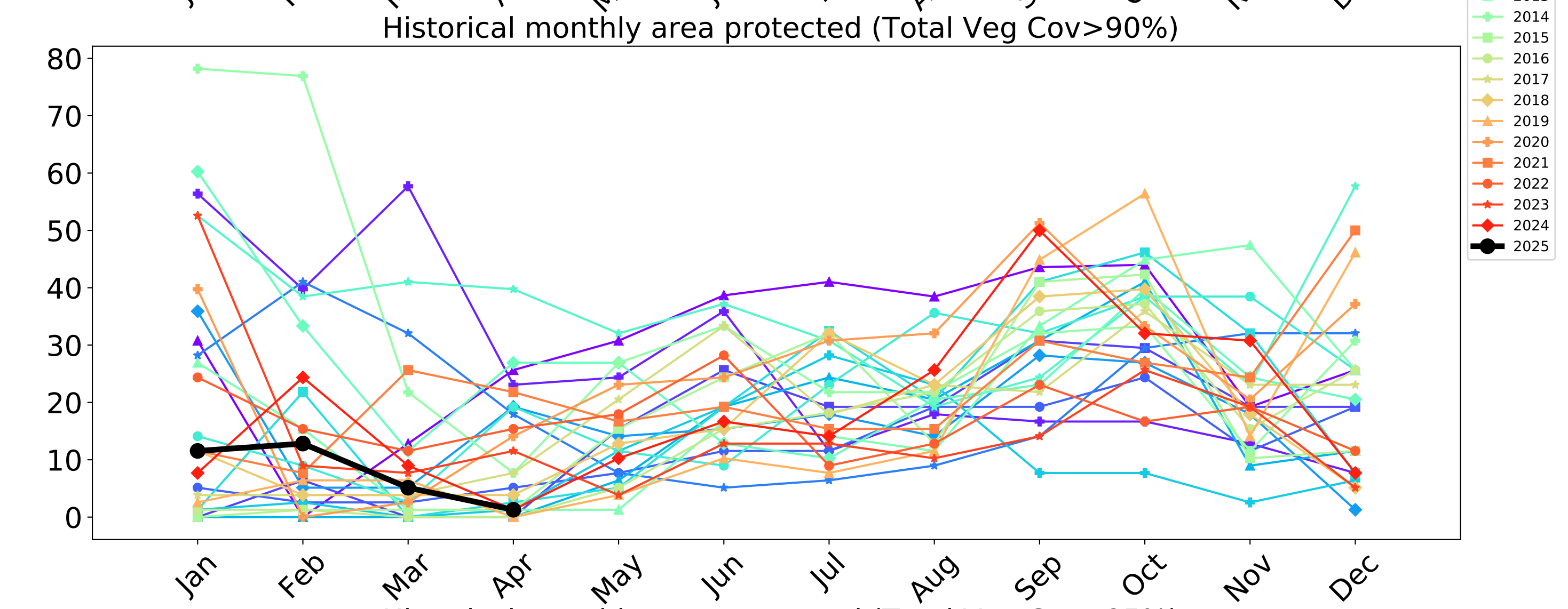
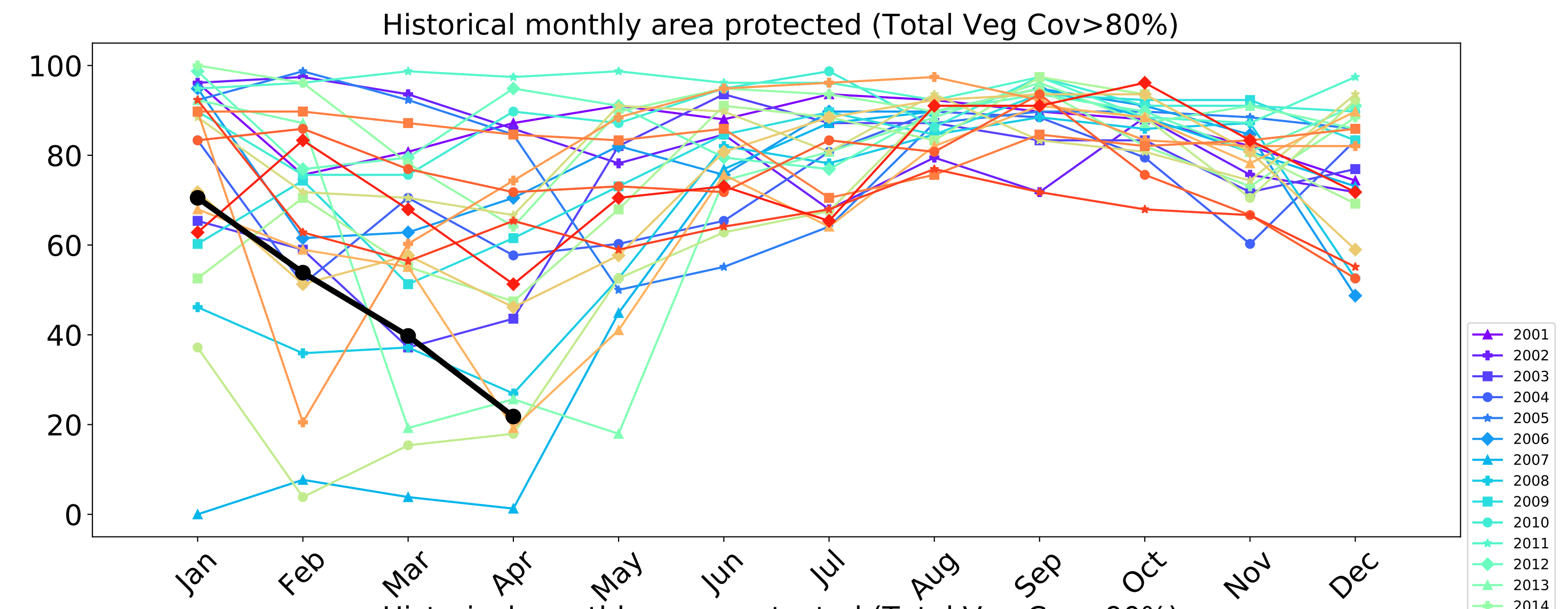
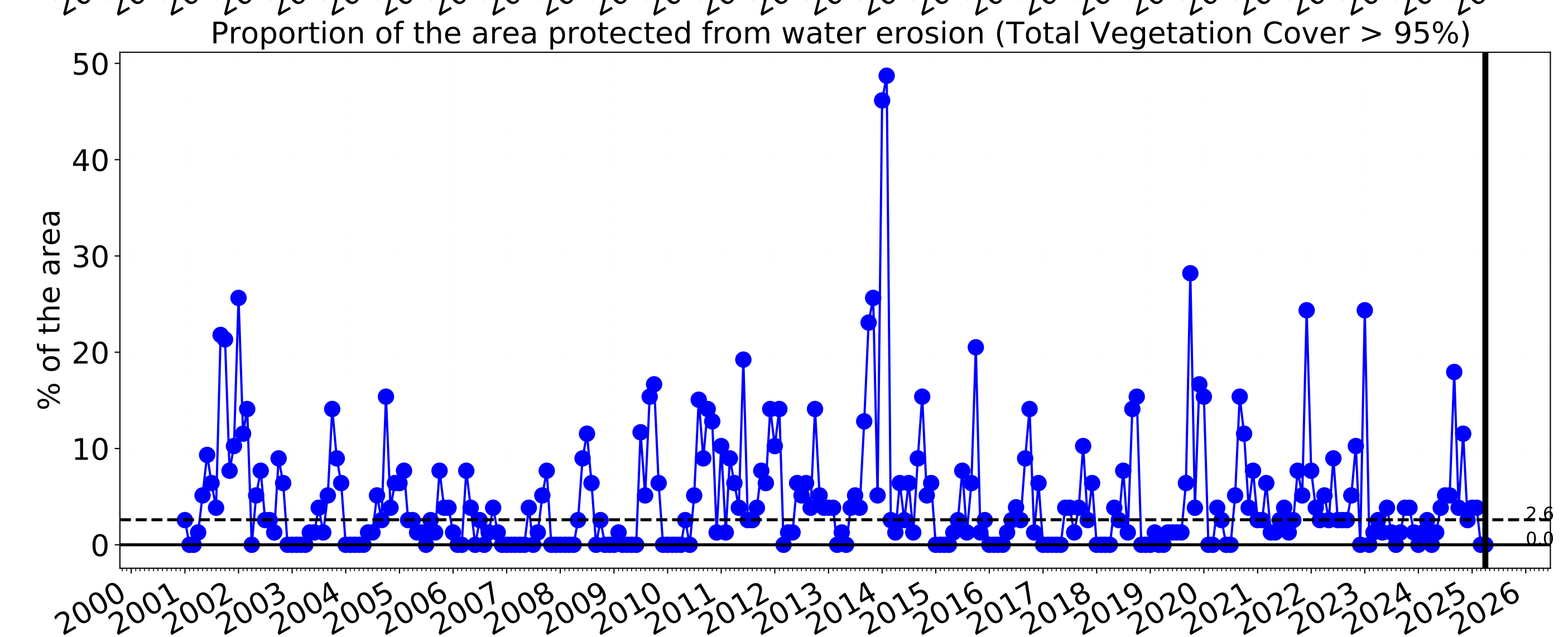
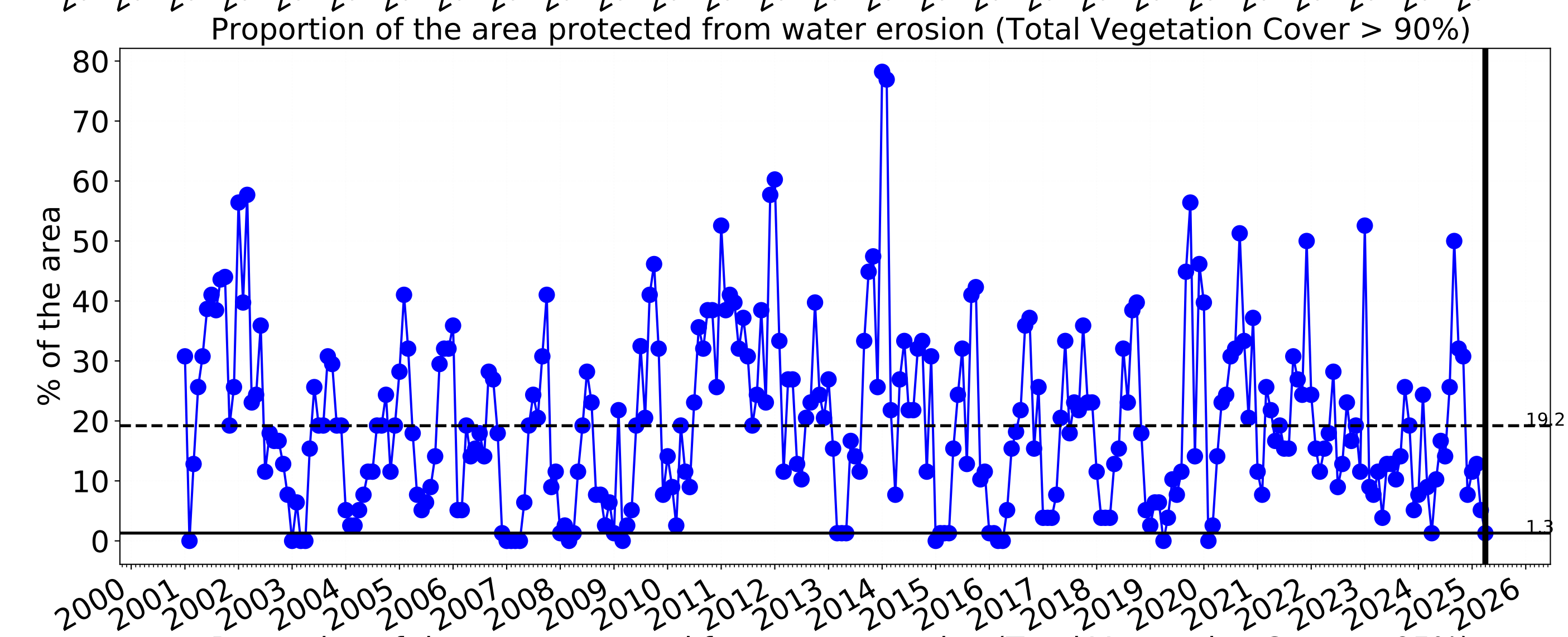
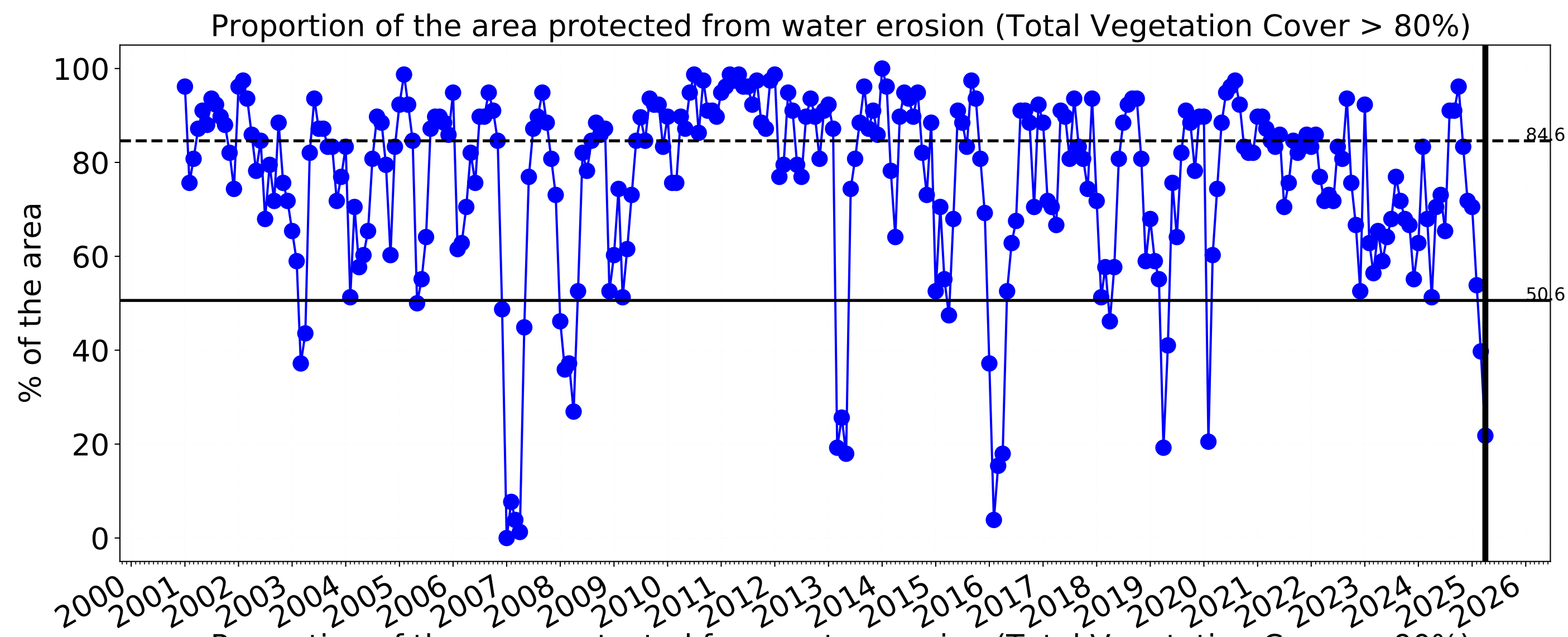


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



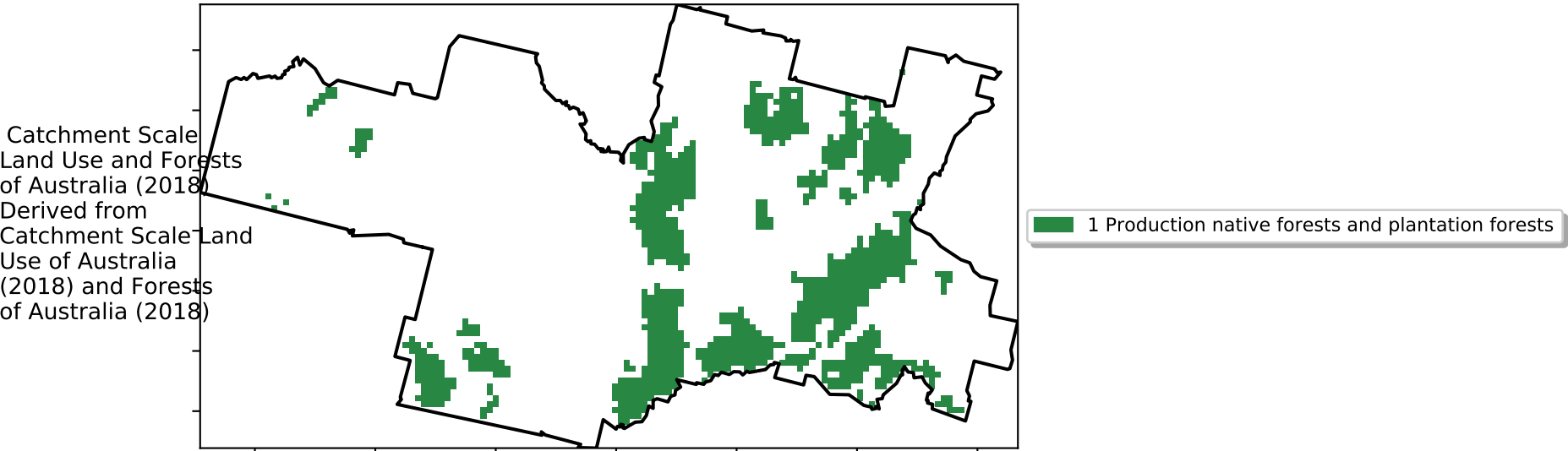
Water erosion historical monthly area protected (Total Veg Cov>70%)



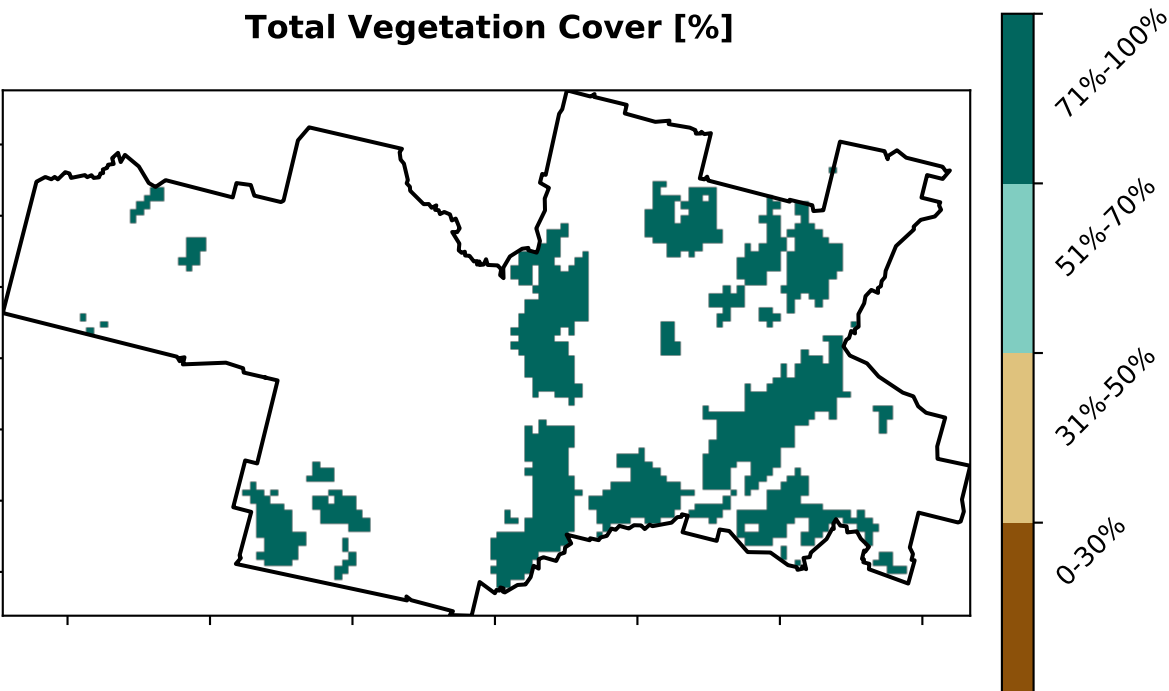


Production native forests and plantation forests

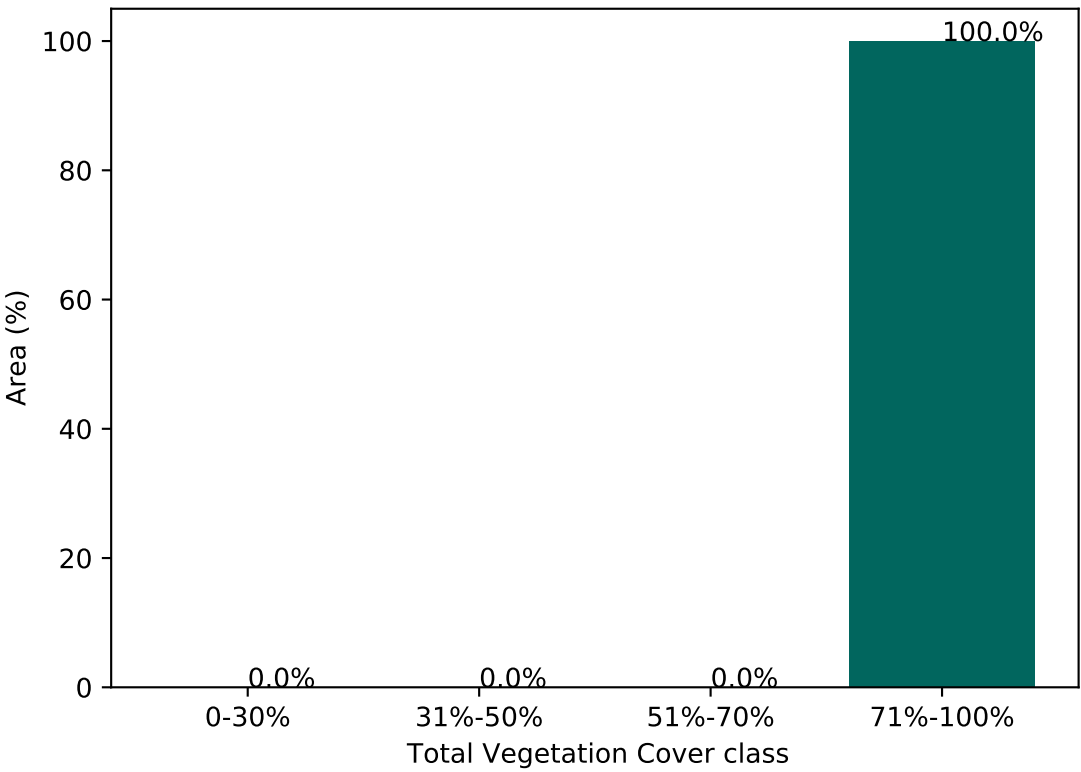
Land use and forest cover



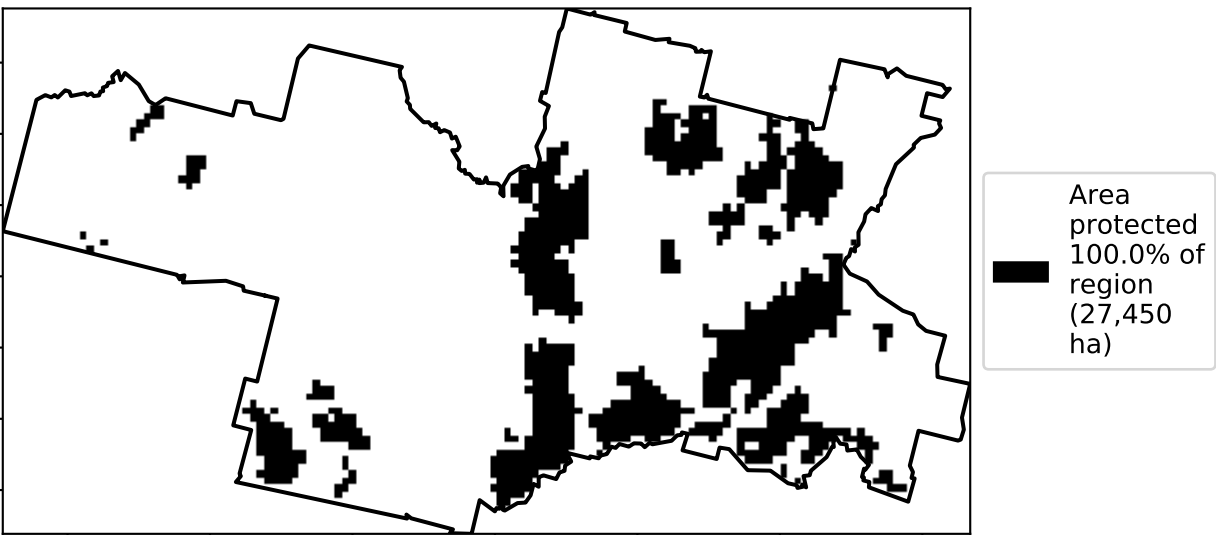
Total Vegetation Cover [%]



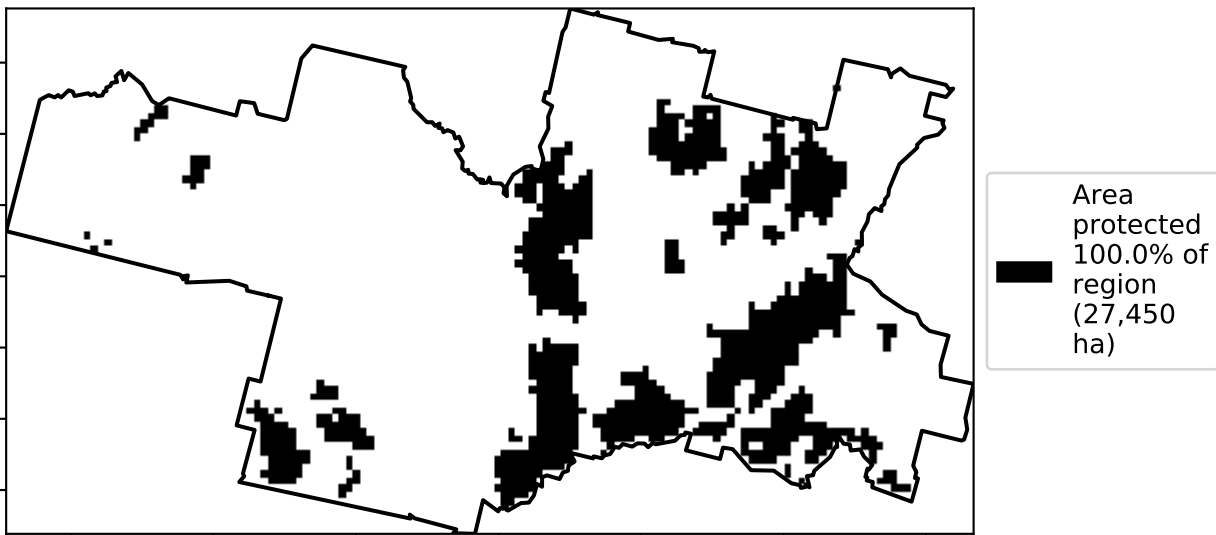
Proportion of vegetation cover class in area



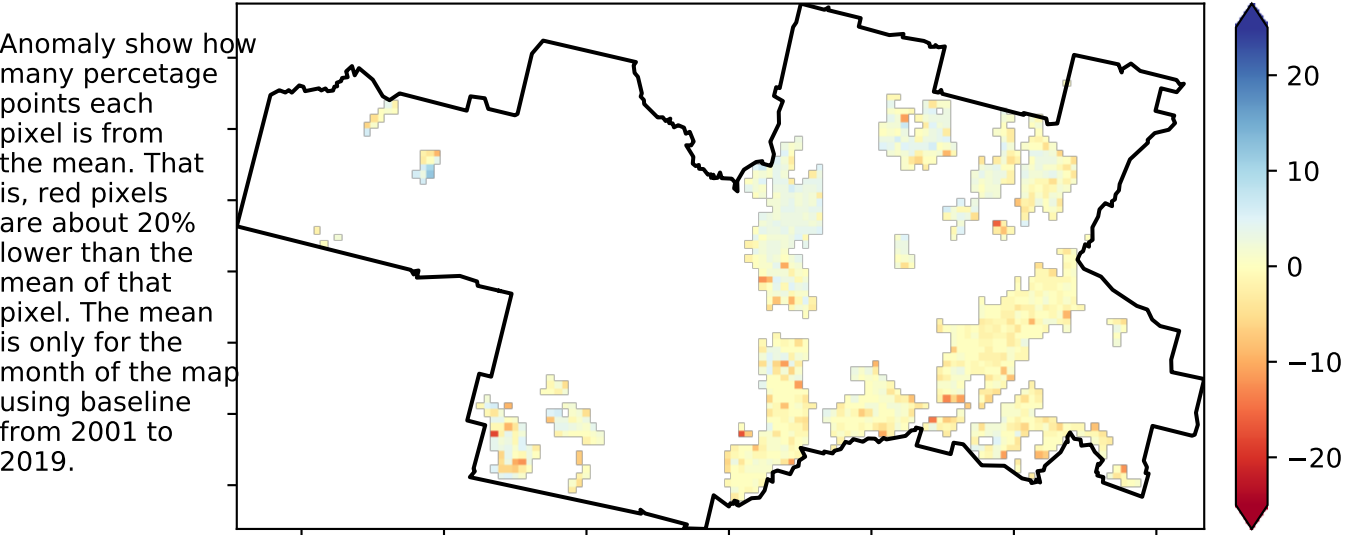
% Area protected from water erosion (>70%)



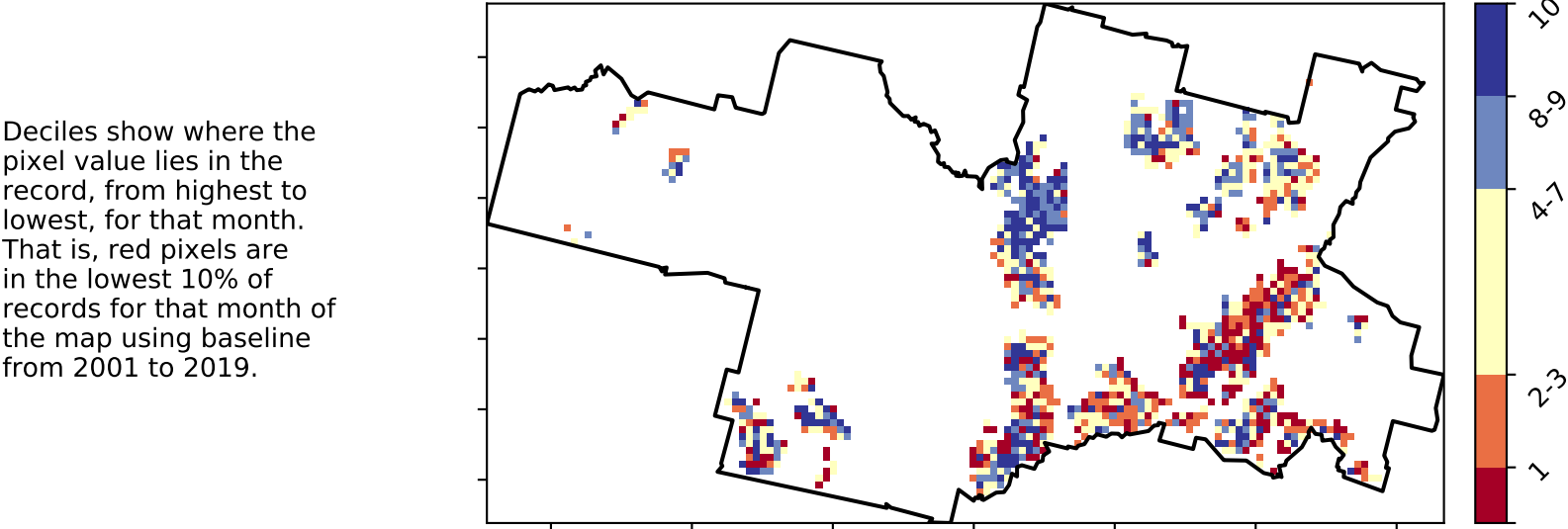
% Area protected from wind erosion (>50%)



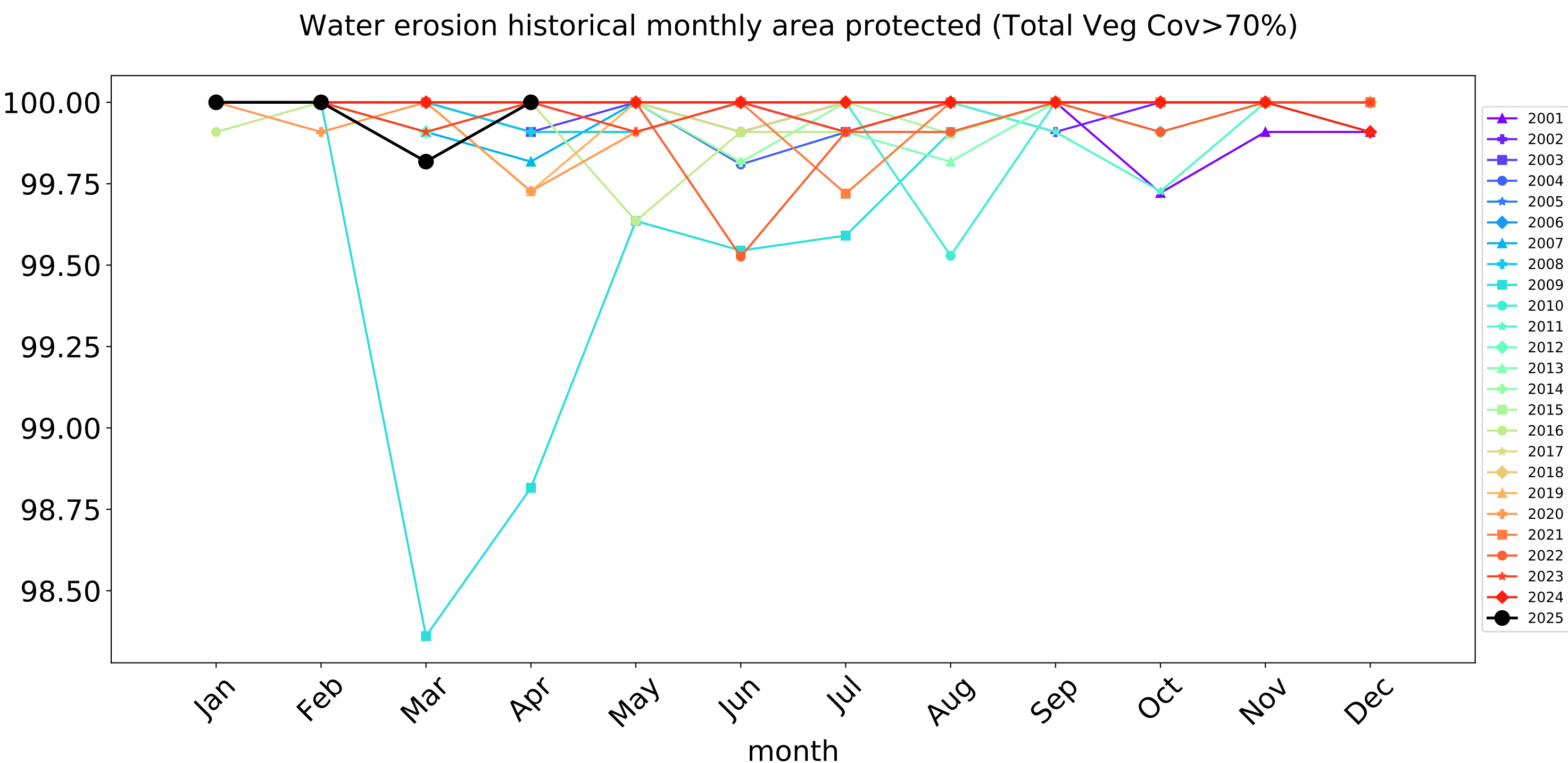
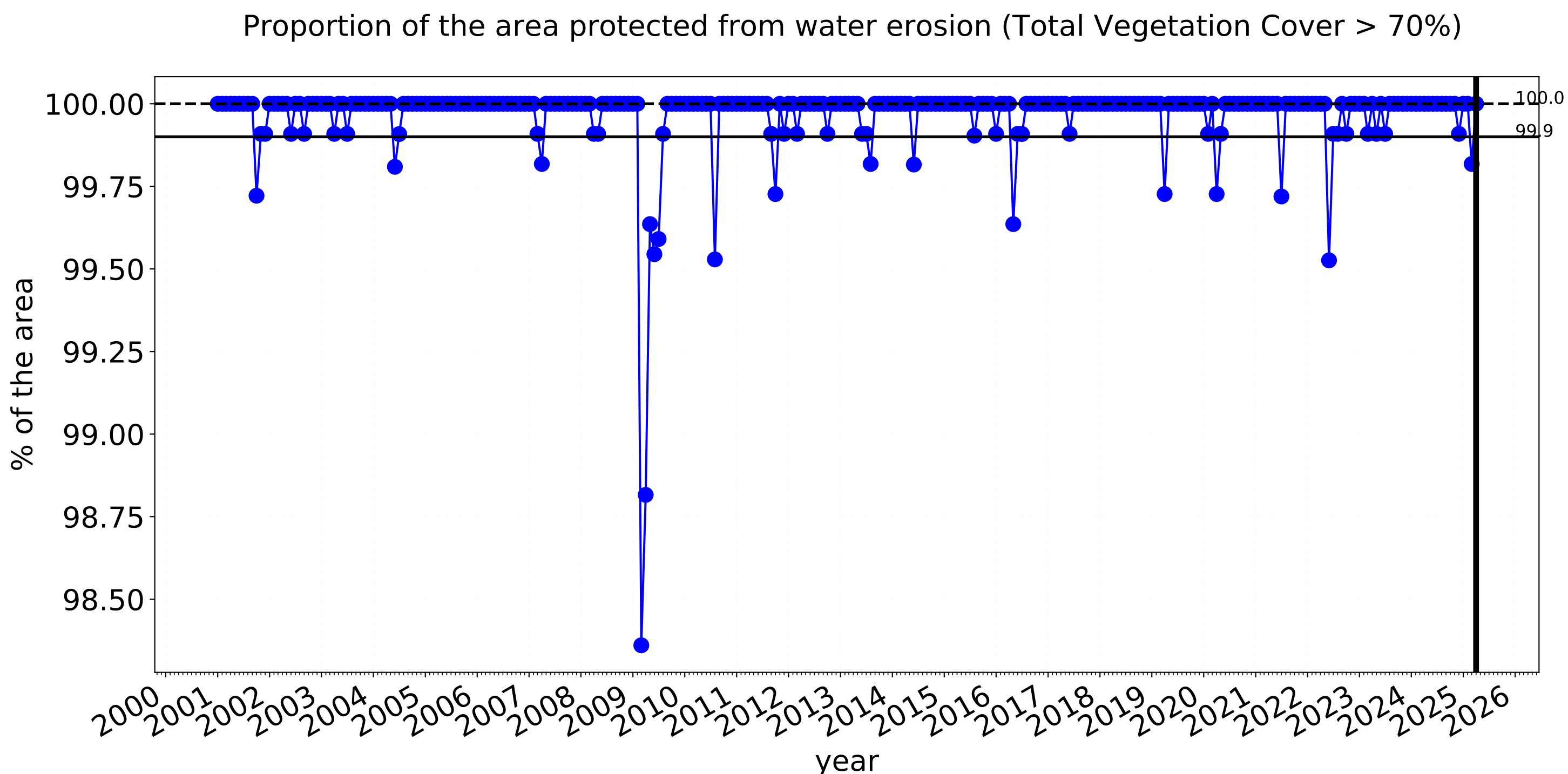
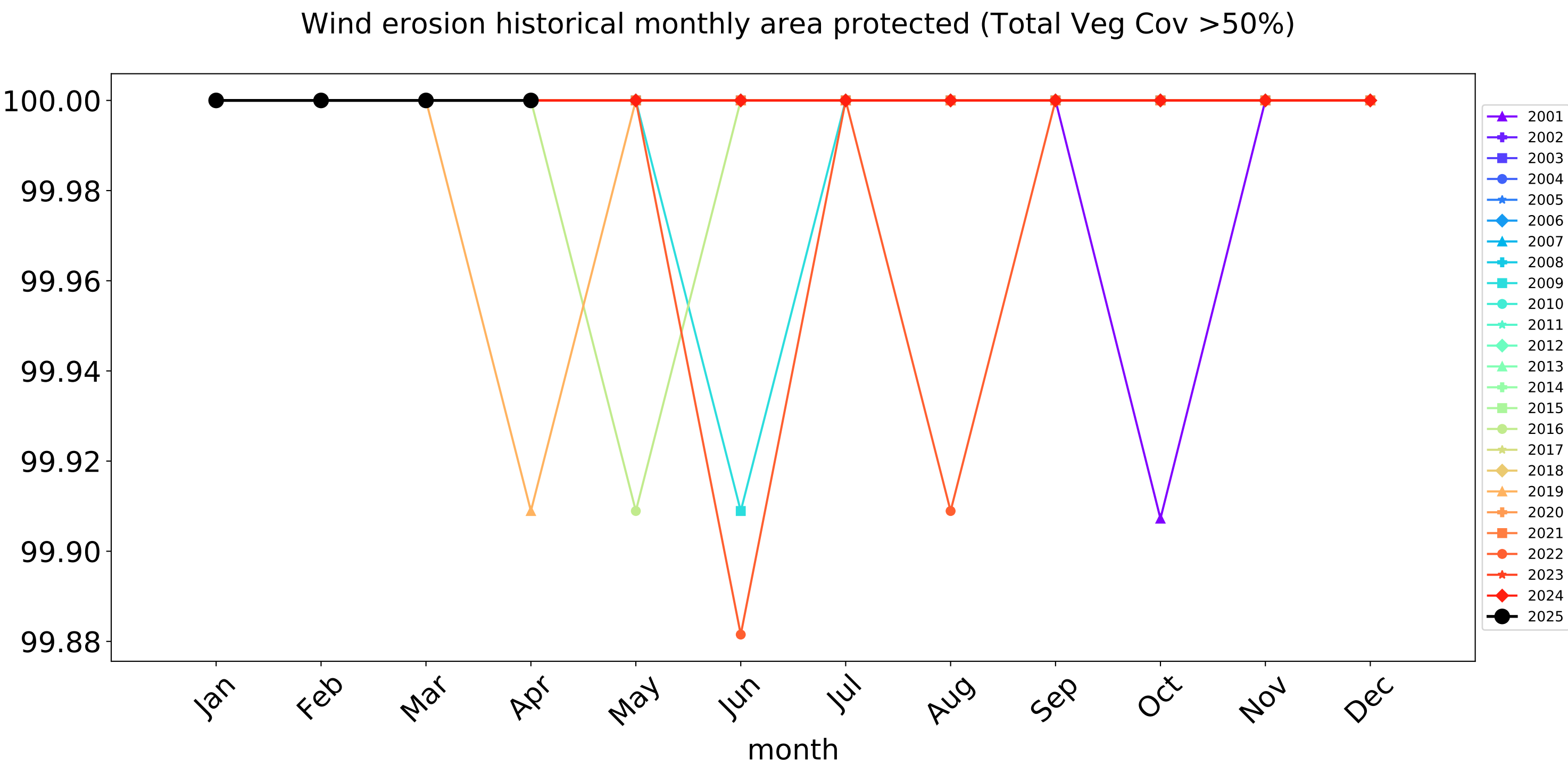
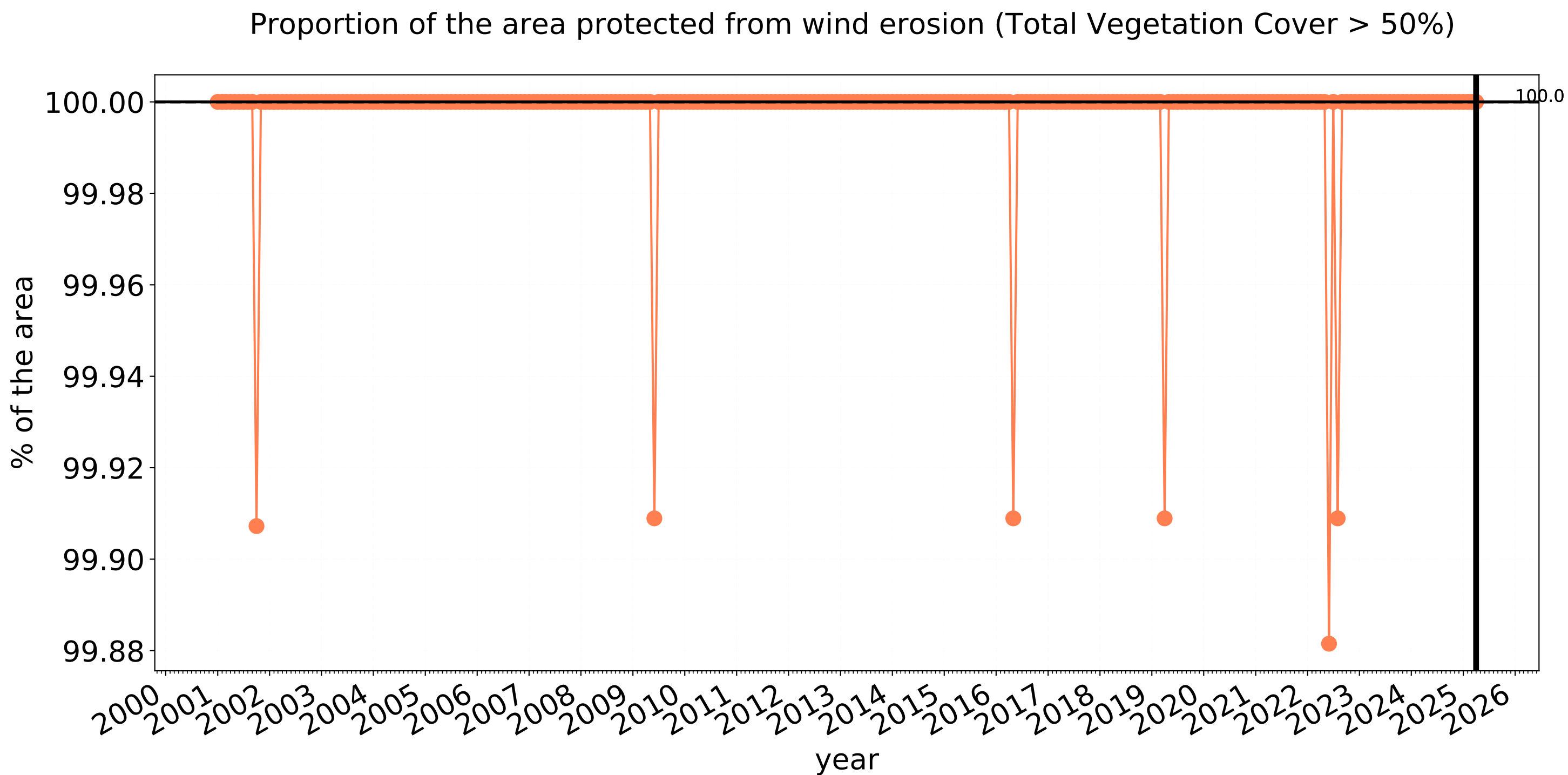
Total Vegetation Cover Anomaly [%]

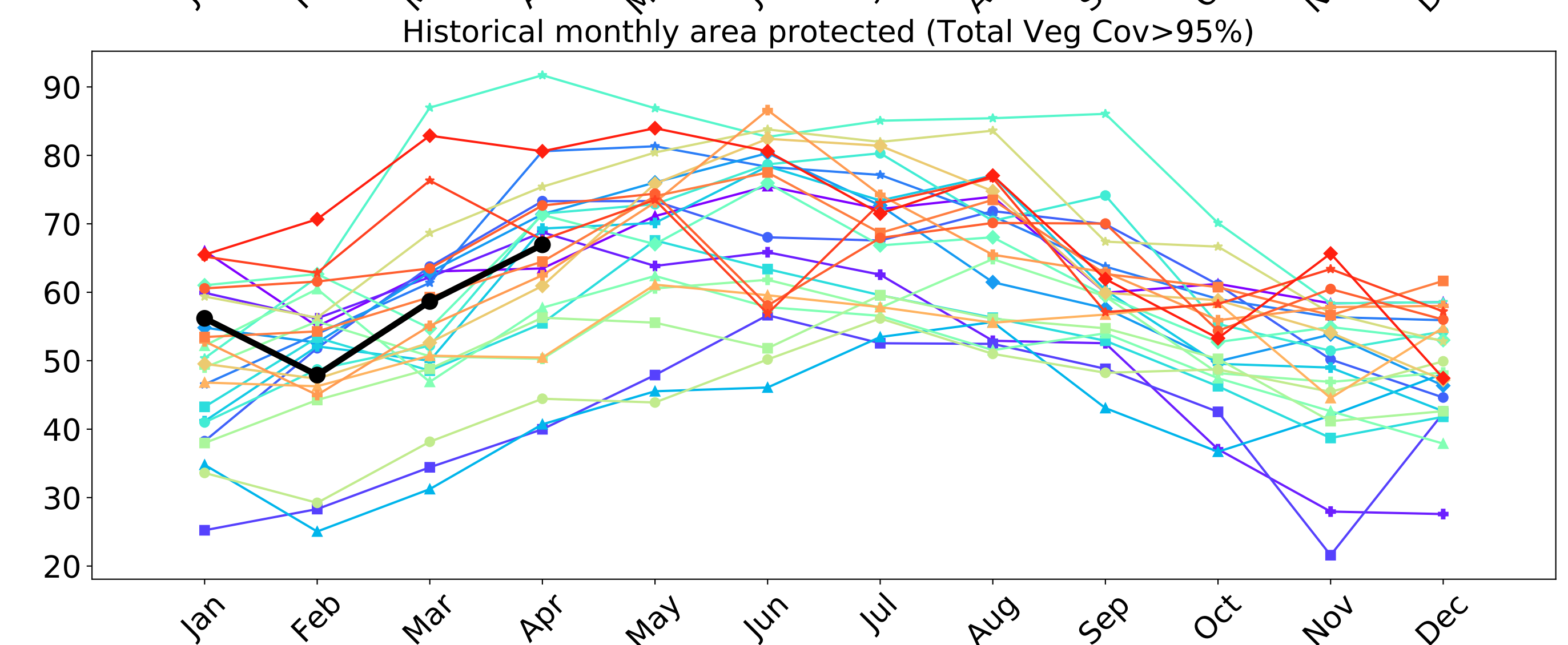
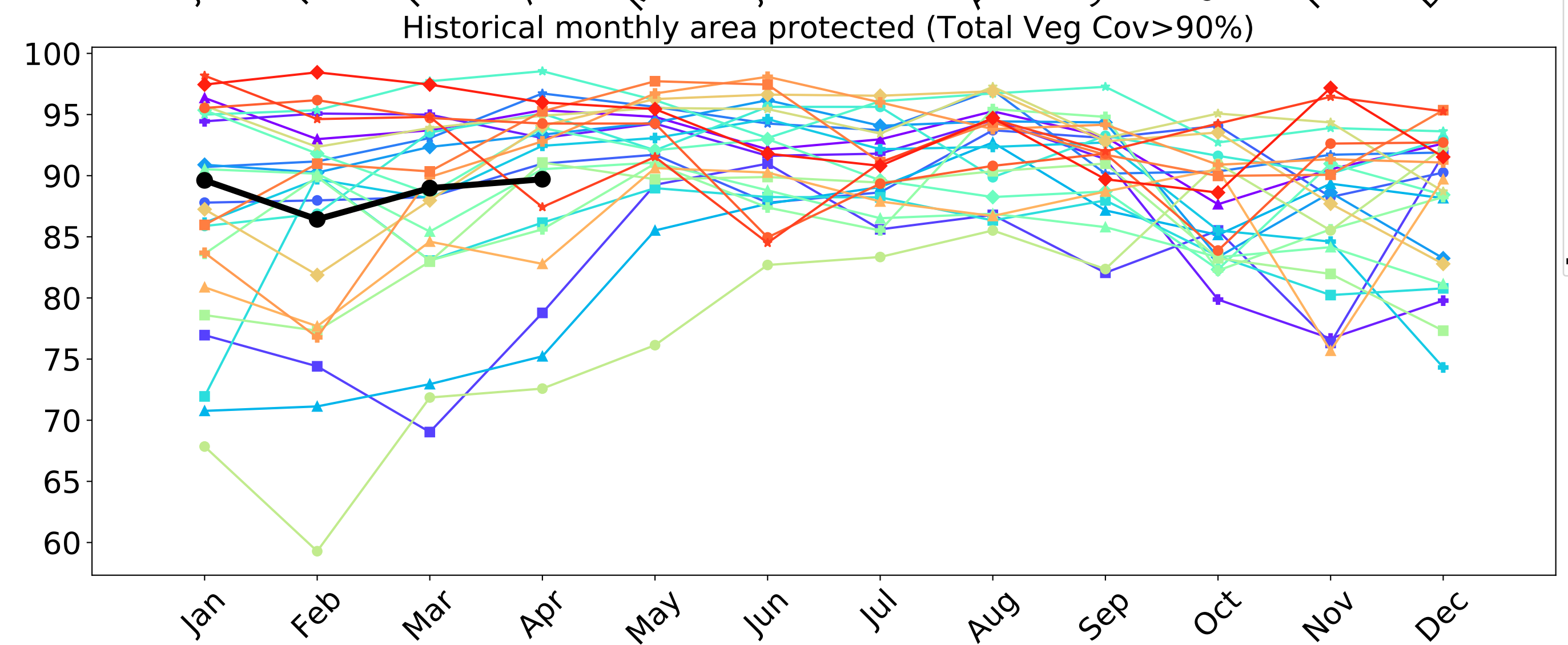
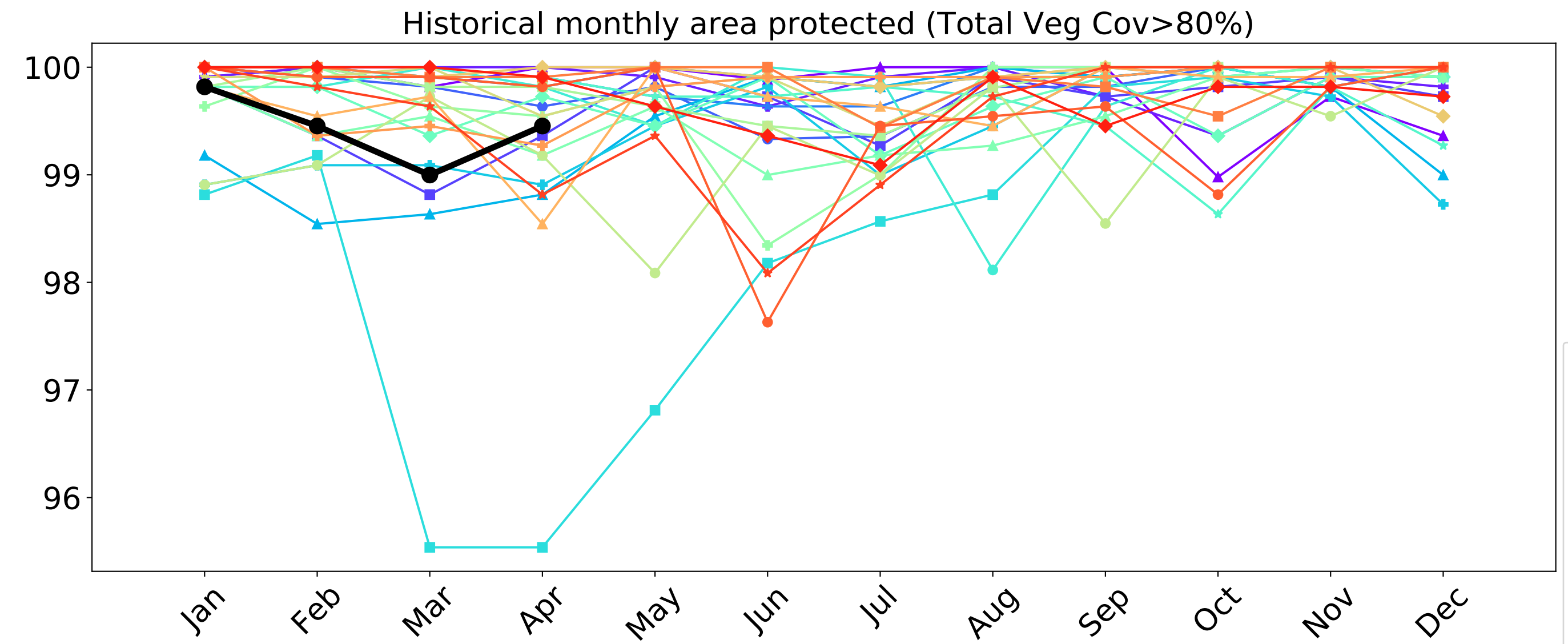
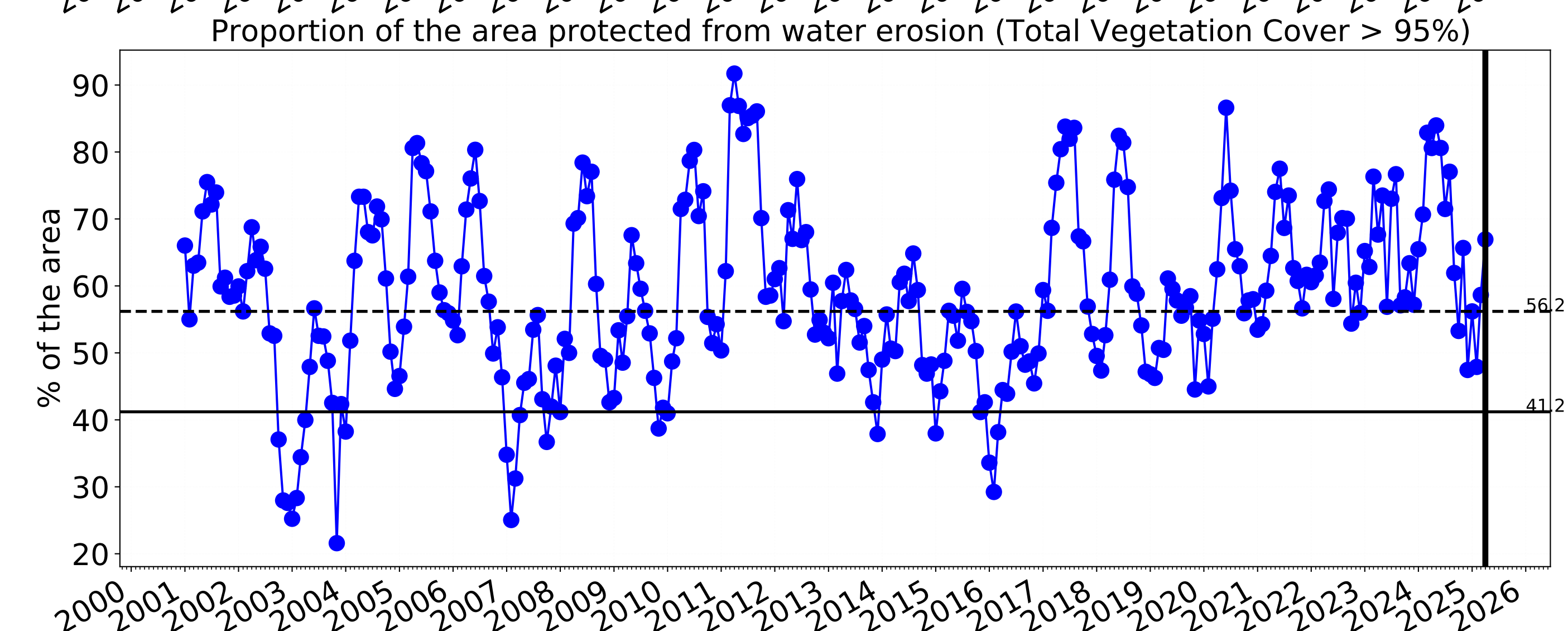
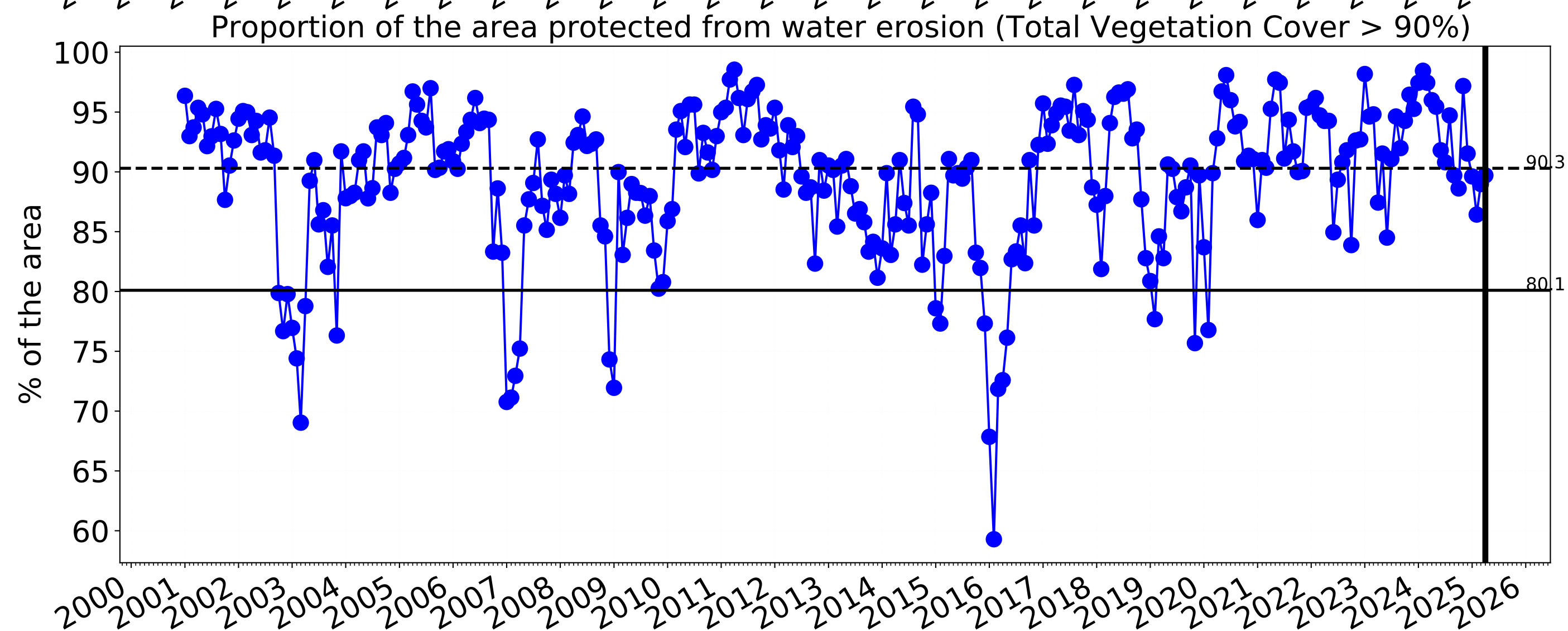
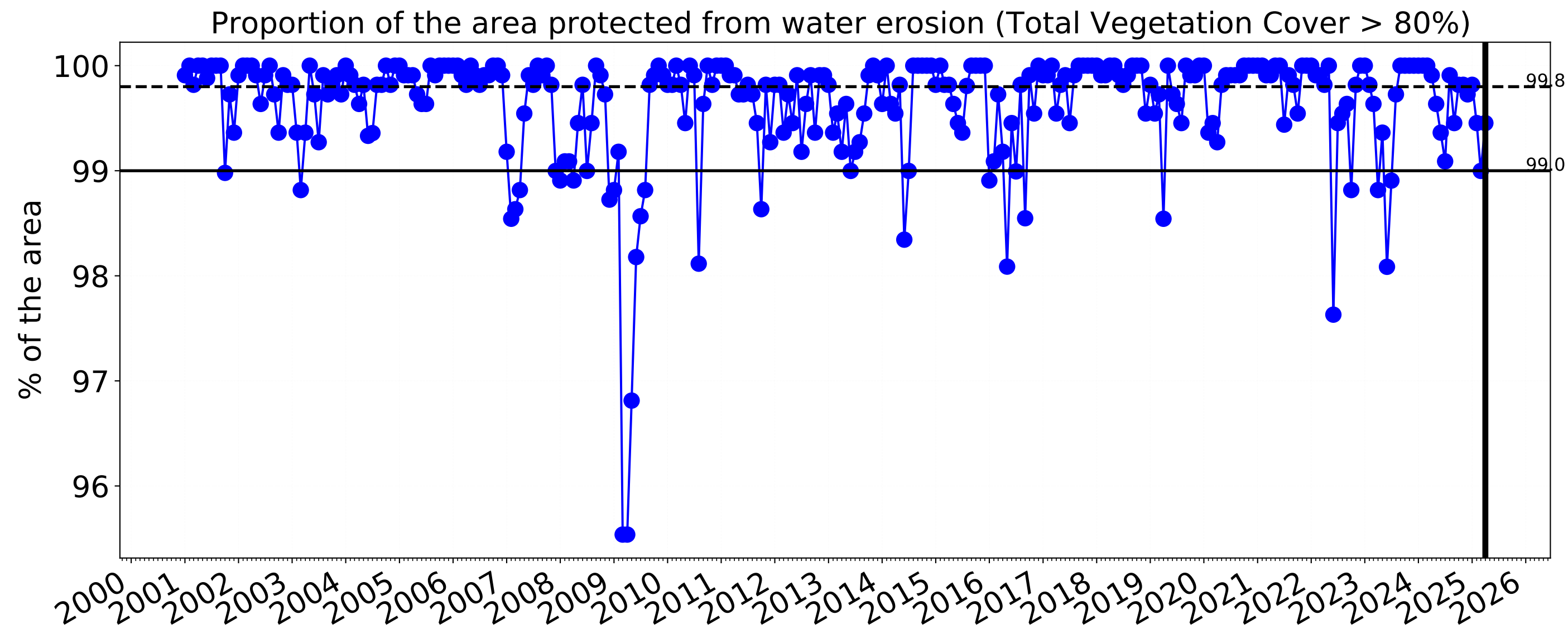


Total Vegetation Cover Decile [%]



Production native forests and plantation forests timeseries





Hepburn_(S) (147,025 ha and no data 142 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	147,025	100.0% 147,025	99.8% 146,750	94.4% 138,850	81.1% 119,200	52.3% 76,825	28.9% 42,425
Conservation and natural environments	10,225	100.0% 10,225	100.0% 10,225	99.8% 10,200	98.8% 10,100	85.1% 8,700	53.8% 5,500
Conservation and natural environments Woodland forest	1,425	100.0% 1,425	100.0% 1,425	100.0% 1,425	98.2% 1,400	63.2% 900	31.6% 450
Conservation and natural environments Forest (non woodland)	8,025	100.0% 8,025	100.0% 8,025	100.0% 8,025	99.7% 8,000	92.5% 7,425	61.7% 4,950
Agriculture	85,875	100.0% 85,875	99.7% 85,625	91.0% 78,150	71.1% 61,075	35.7% 30,675	14.9% 12,775
Grazing	69,250	100.0% 69,250	99.7% 69,025	91.9% 63,675	73.4% 50,800	37.6% 26,025	15.7% 10,875
Grazing non forest	63,625	100.0% 63,625	99.6% 63,400	91.3% 58,075	71.3% 45,350	34.0% 21,650	13.7% 8,700
Grazing - Forest (non woodland)	4,650	100.0% 4,650	100.0% 4,650	99.5% 4,625	97.3% 4,525	79.6% 3,700	40.9% 1,900
Cropping	14,600	100.0% 14,600	99.8% 14,575	89.6% 13,075	67.0% 9,775	31.5% 4,600	13.0% 1,900
Irrigation	1,950	100.0% 1,950	100.0% 1,950	67.9% 1,325	21.8% 425	1.3% 25	0.0% 0
Production native forests and plantation forests	27,450	100.0% 27,450	100.0% 27,450	100.0% 27,450	99.5% 27,300	89.7% 24,625	66.9% 18,375