

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:**

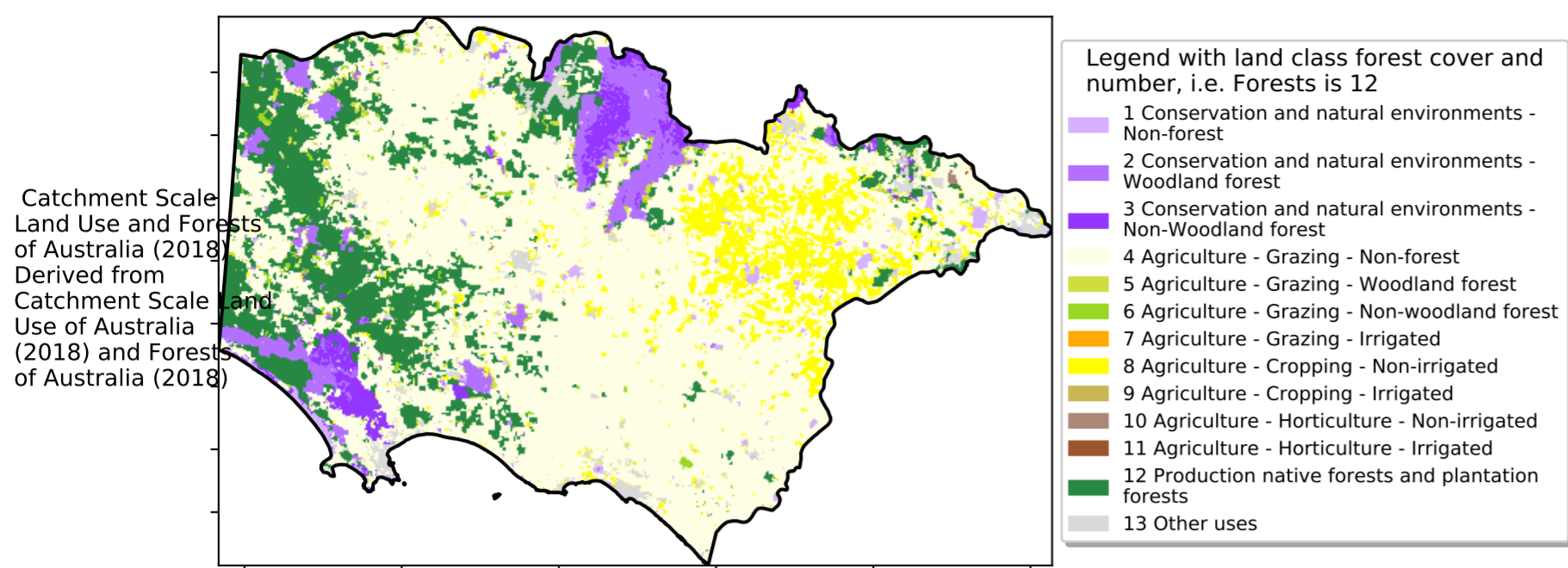
1. <http://www.agriculture.gov.au/abares/aclump/land-use/alum-classification>
2. <http://www.agriculture.gov.au/abares/forestsaustralia/sofr/sofr-2018>
3. <https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/establishment-mgmt/production-management2/groundcover>
4. MODIS Fractional cover algorithm:

<https://doi.org/10.4225/08/5848a3f19a7b3>

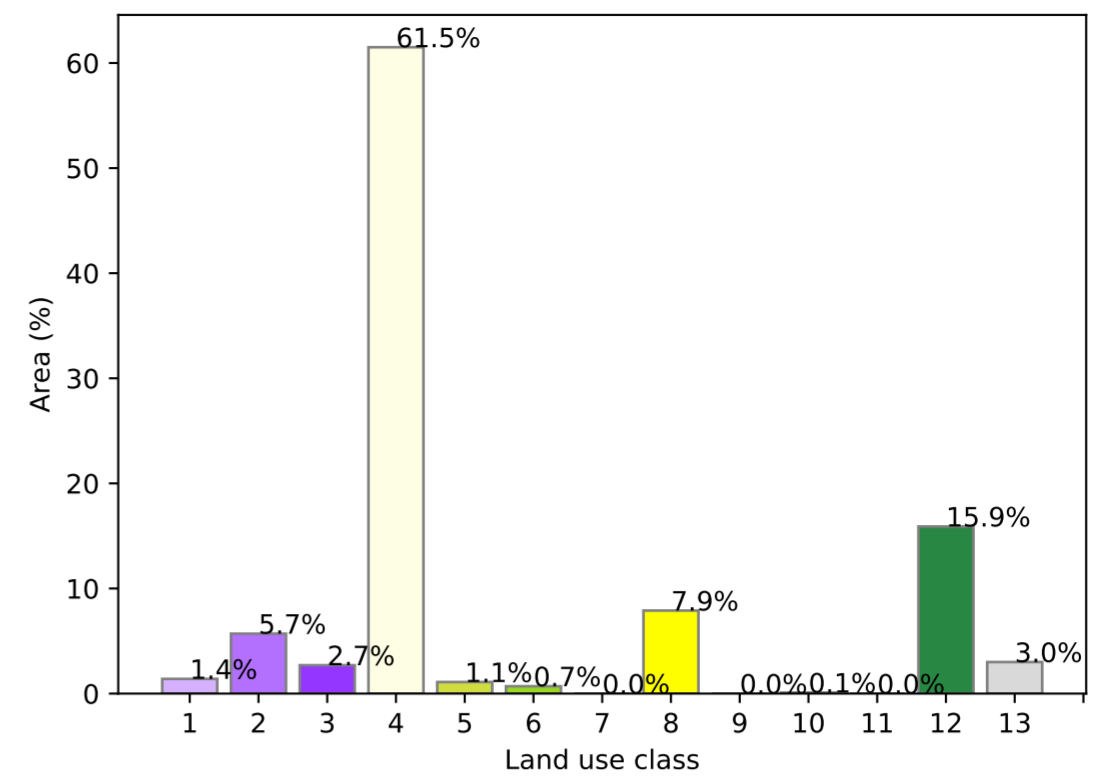


# Vegetation Cover Mar 2021

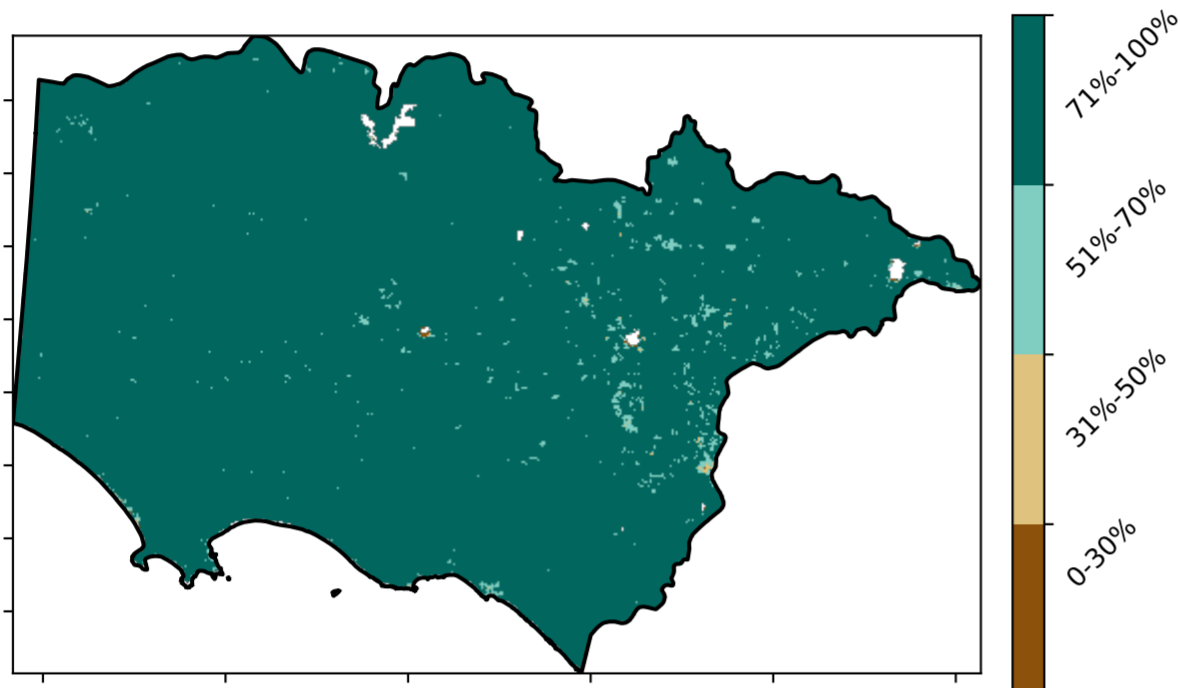
Land use and forest cover



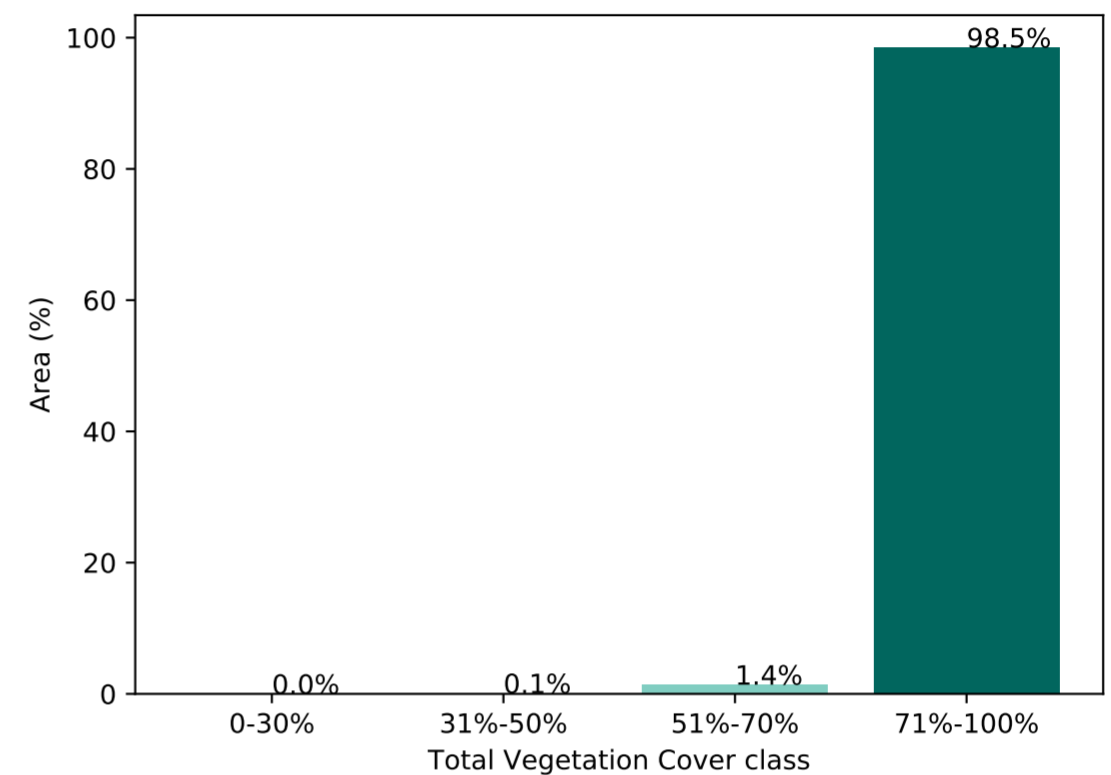
Proportion of each land class in area



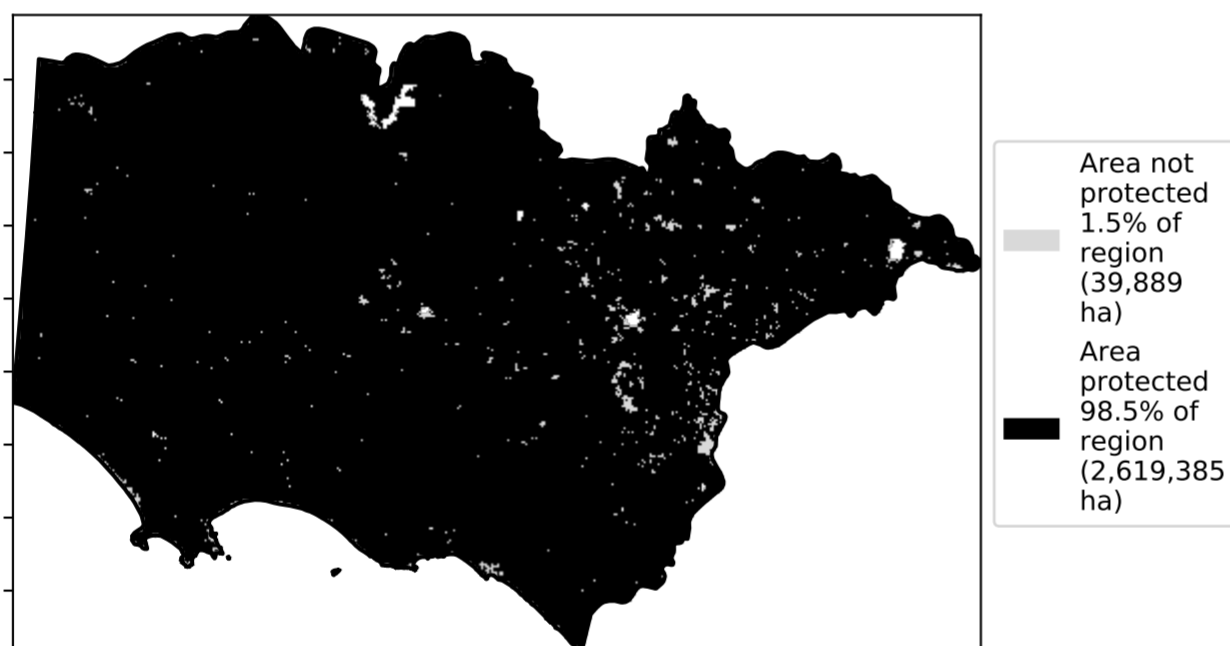
Total Vegetation Cover [%]



Proportion of vegetation cover class in area



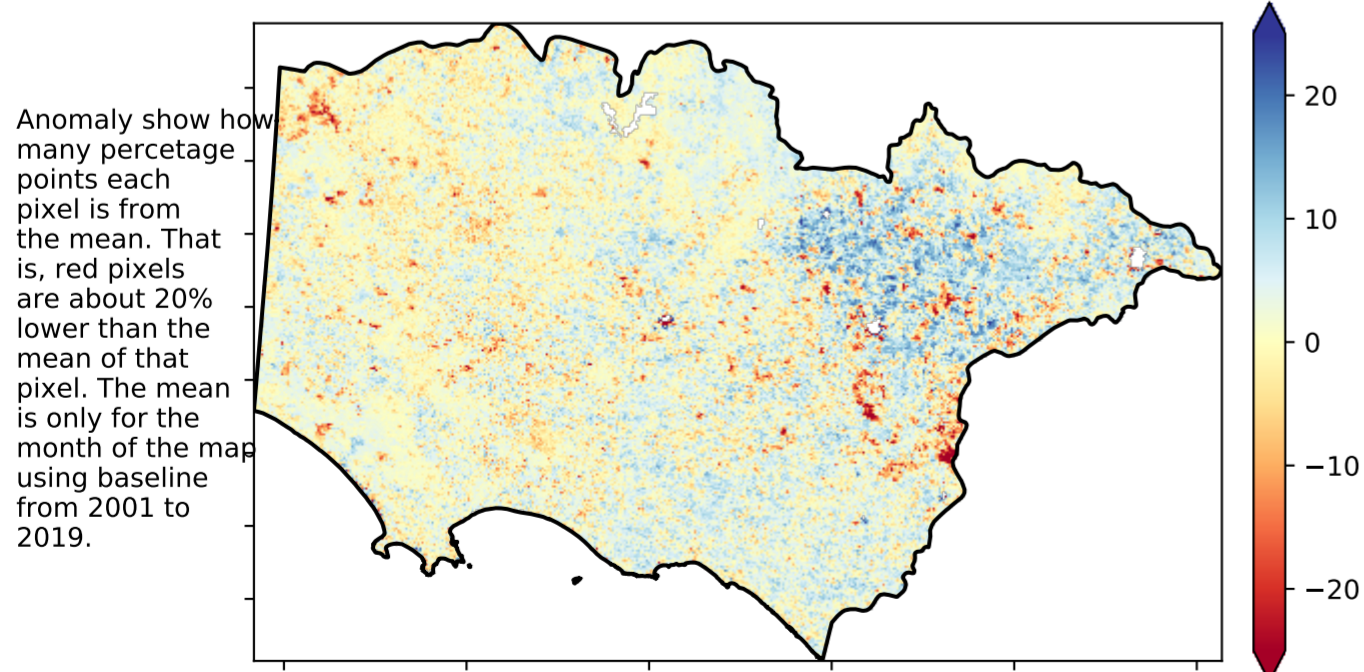
% Area protected from water erosion (>70%)



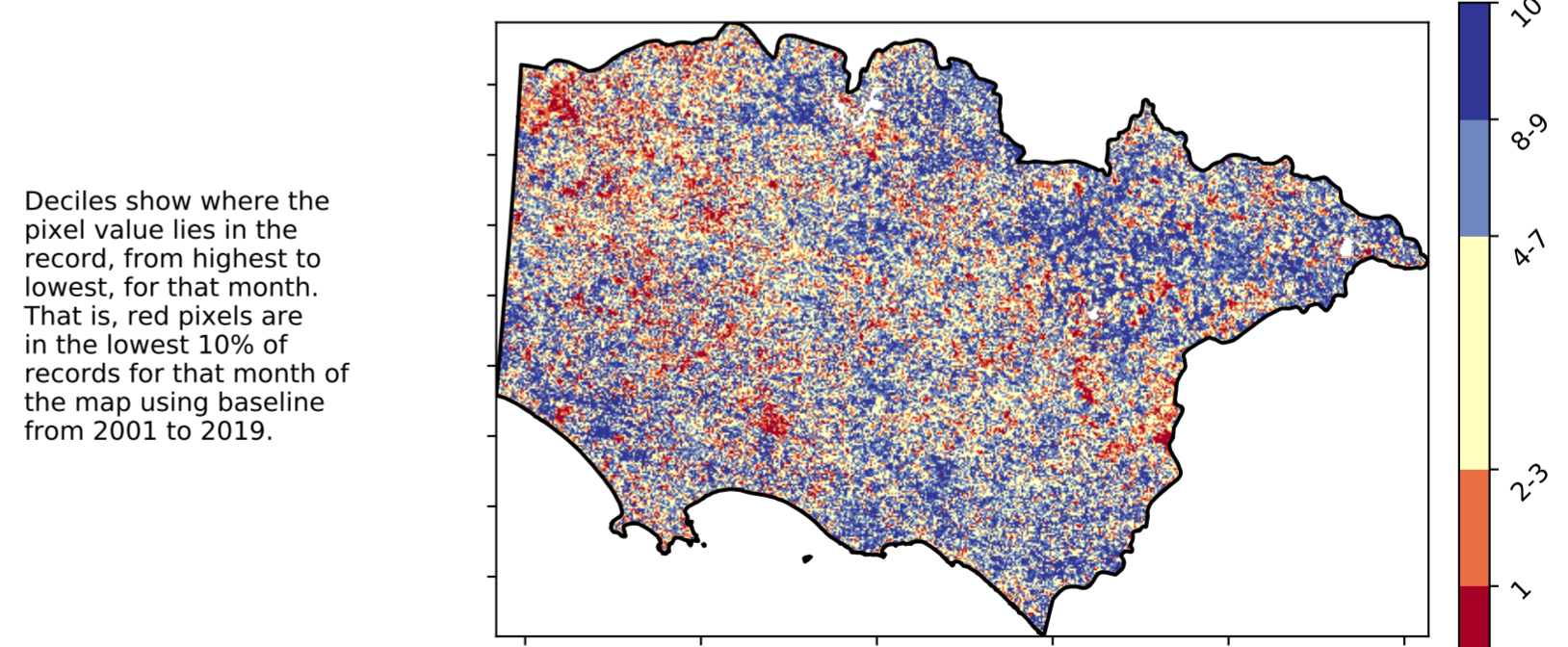
% Area protected from wind erosion (>50%)

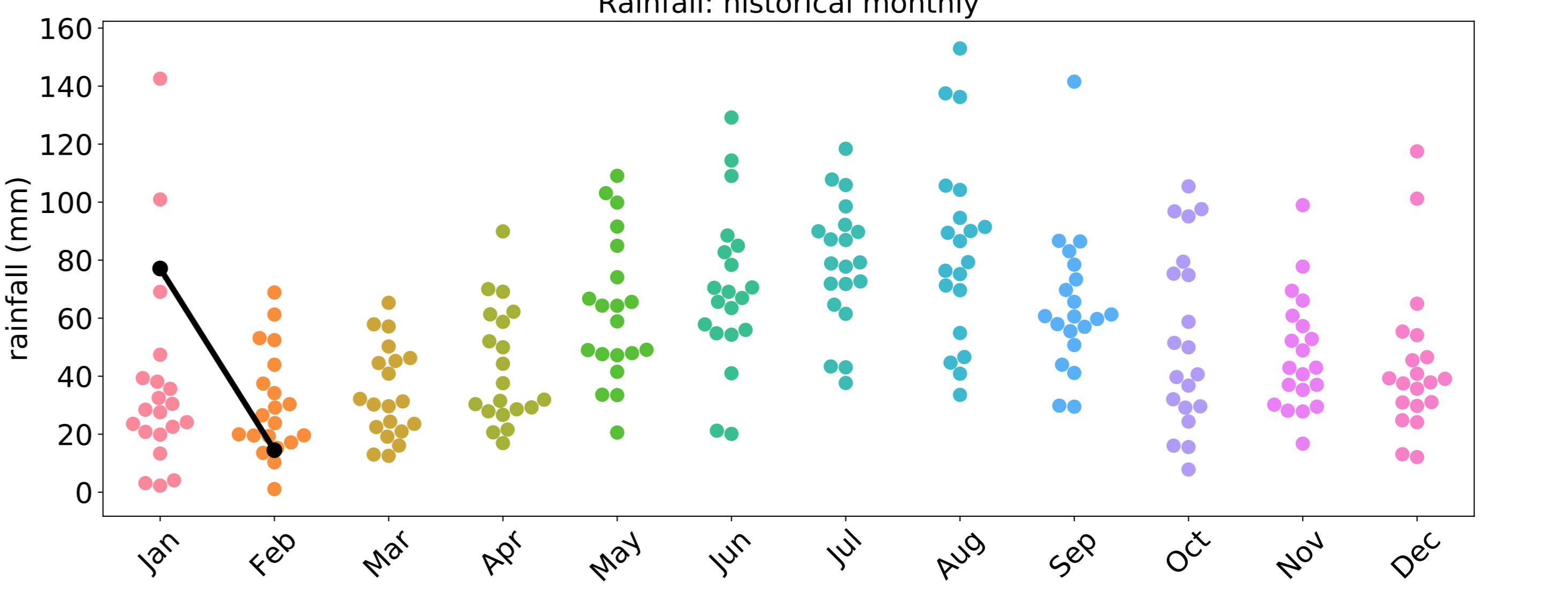
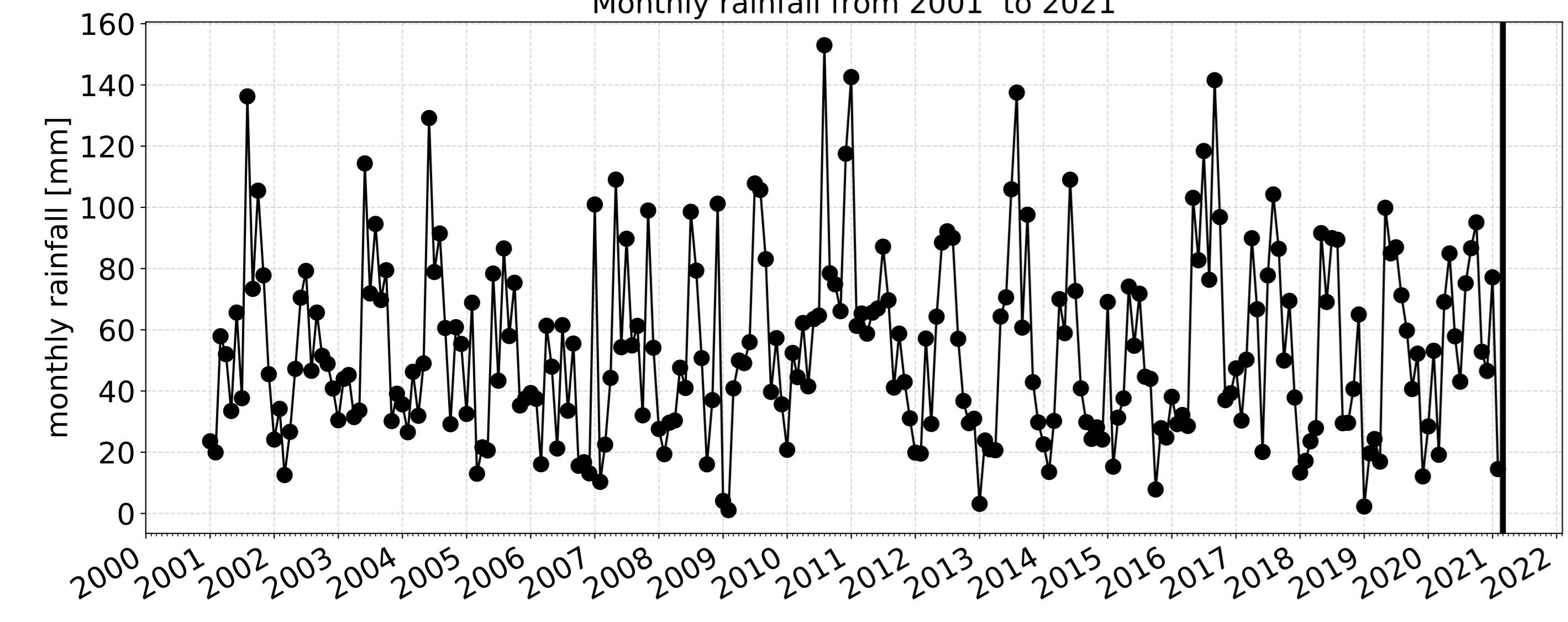
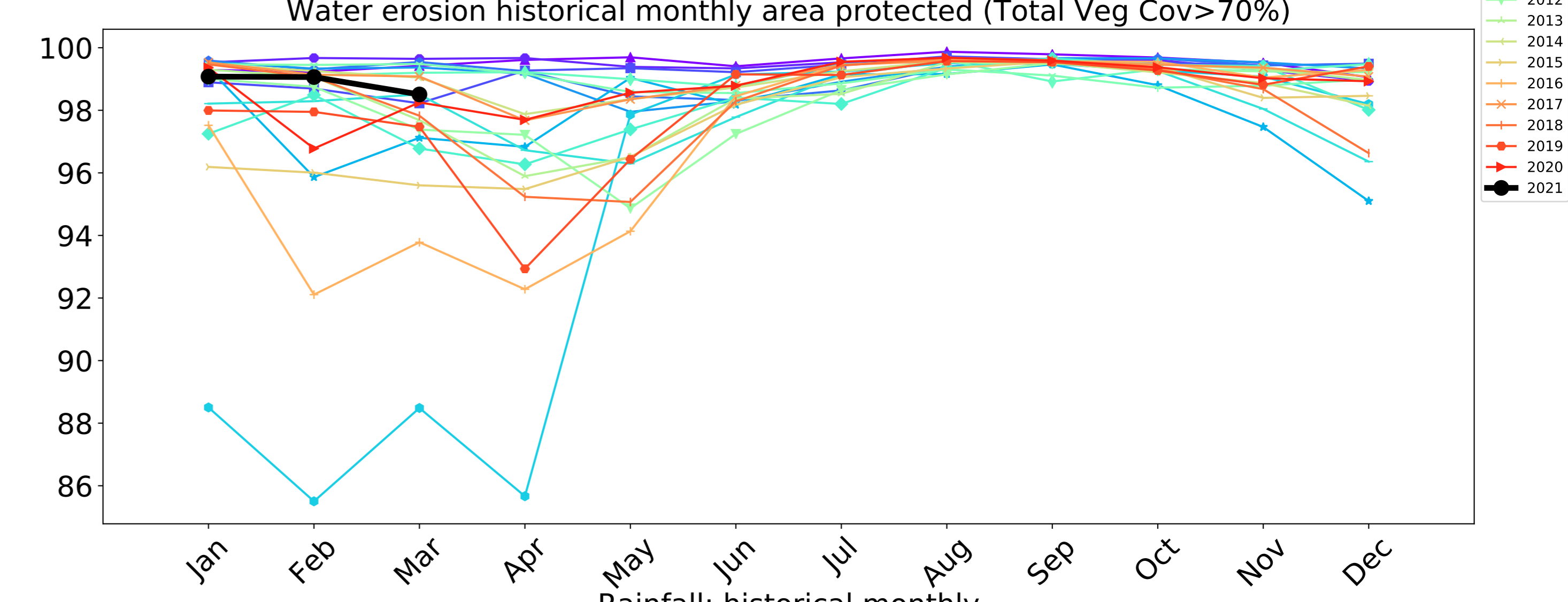
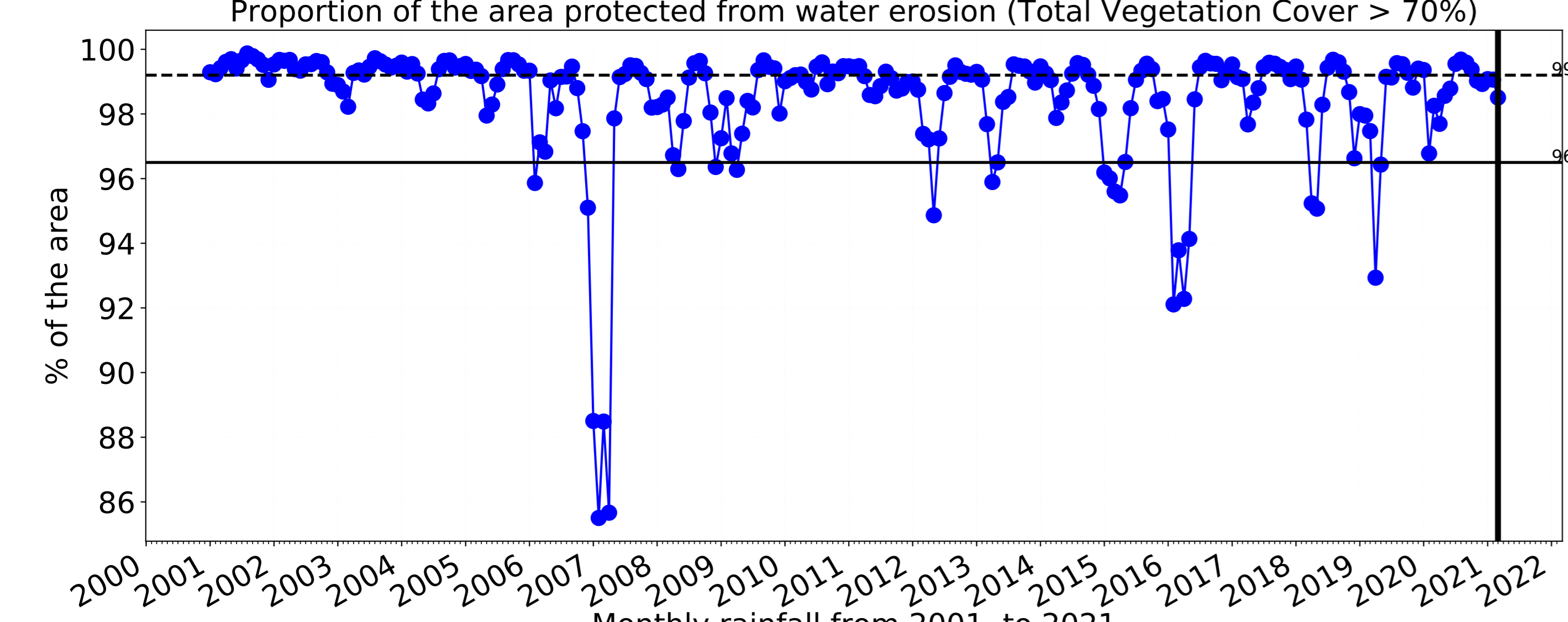
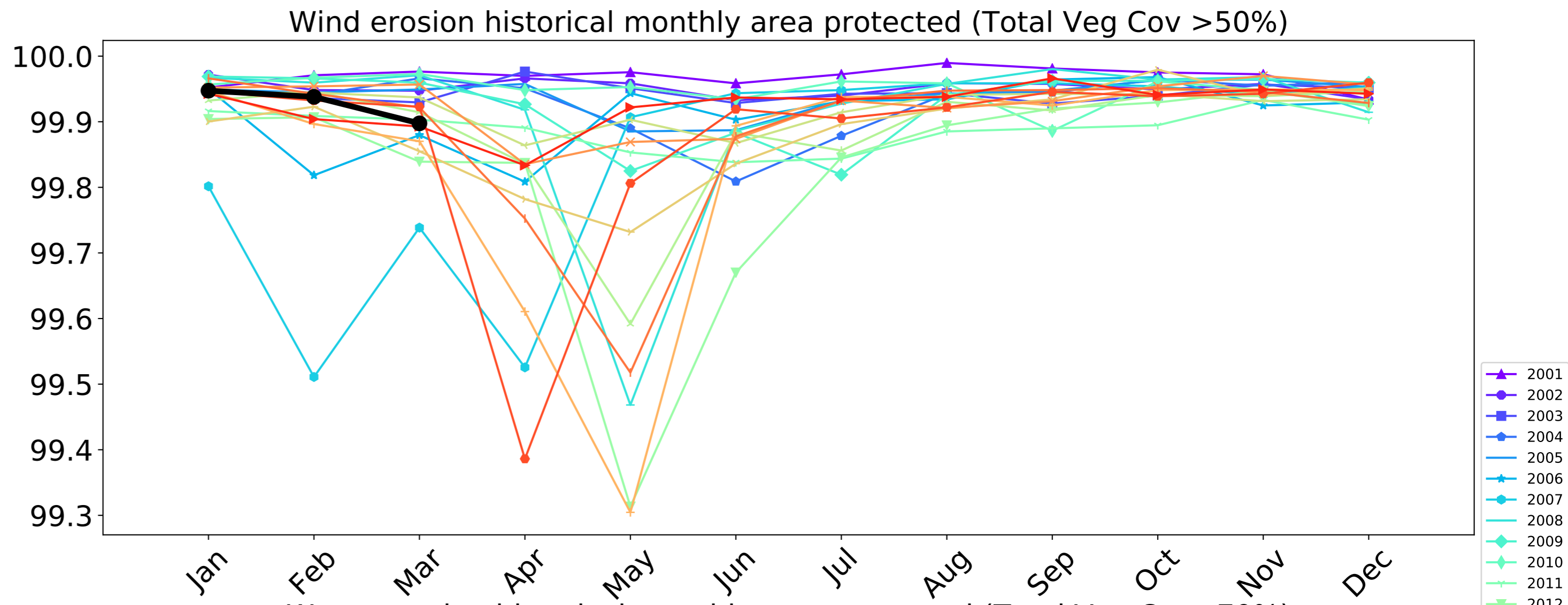
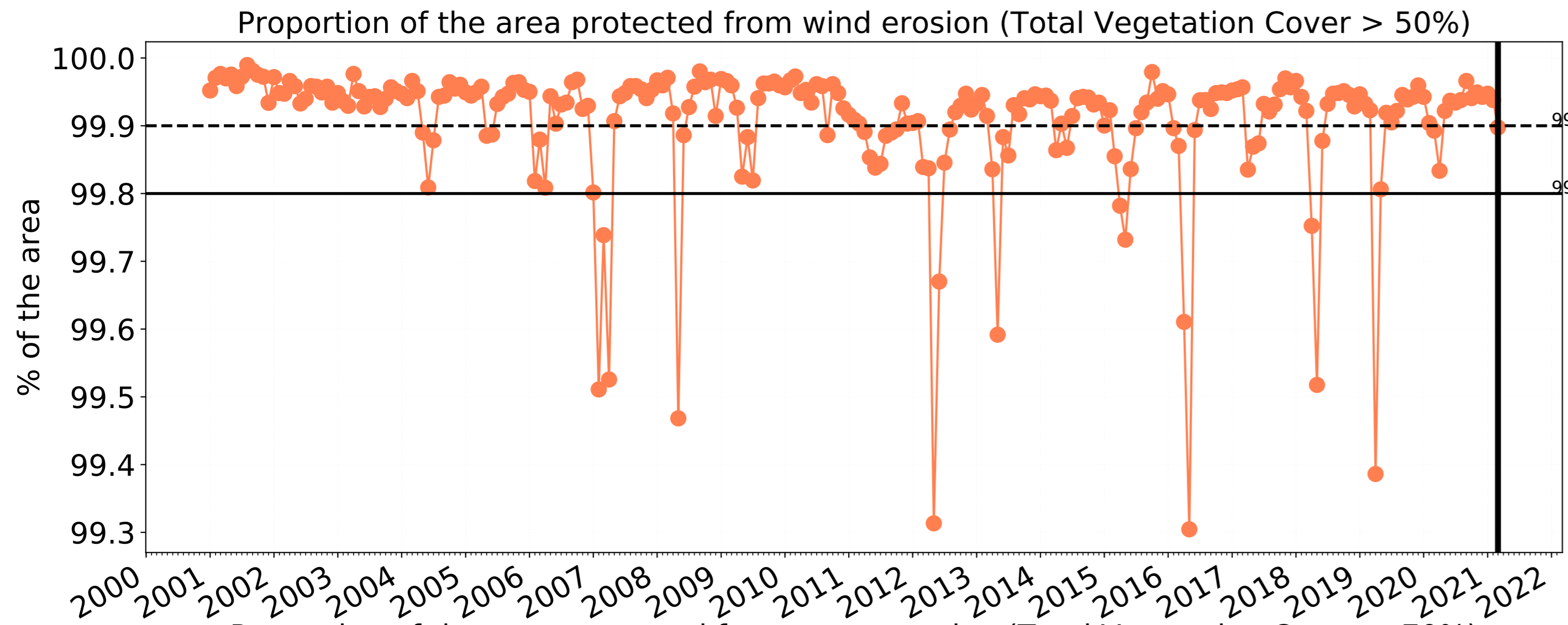


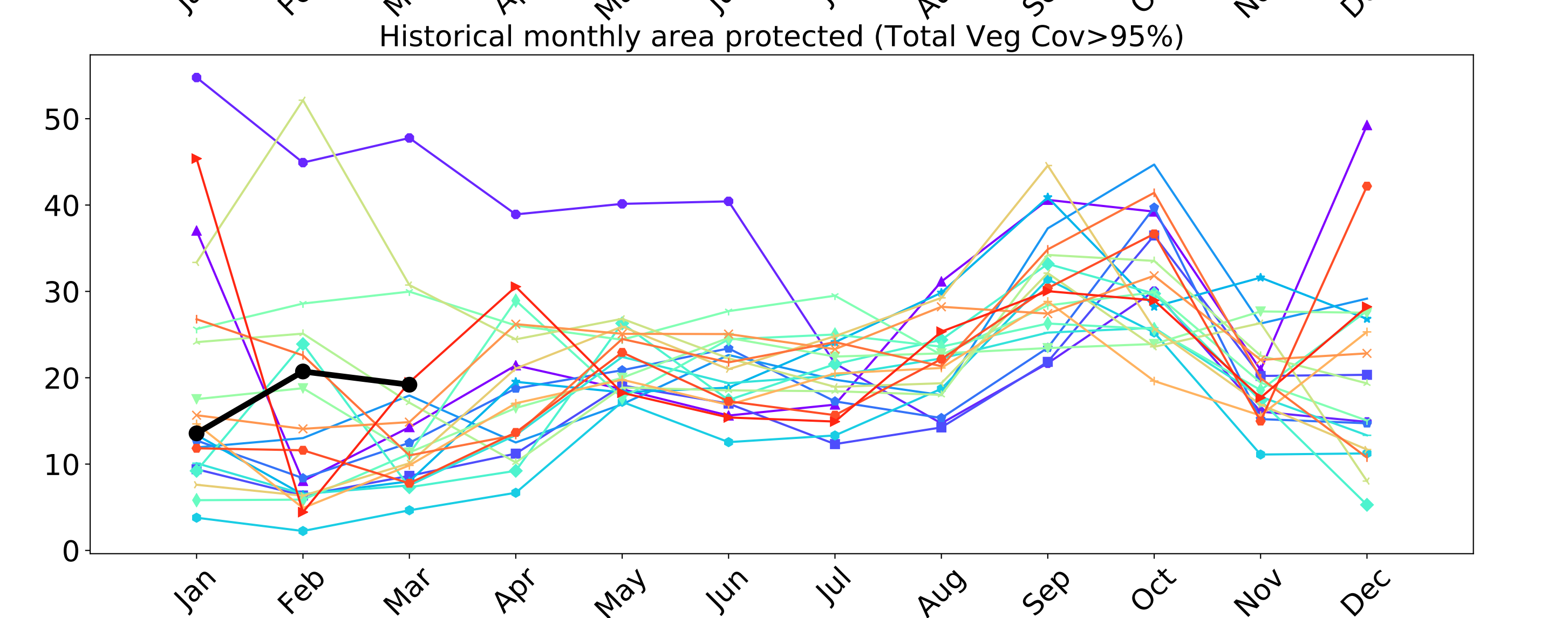
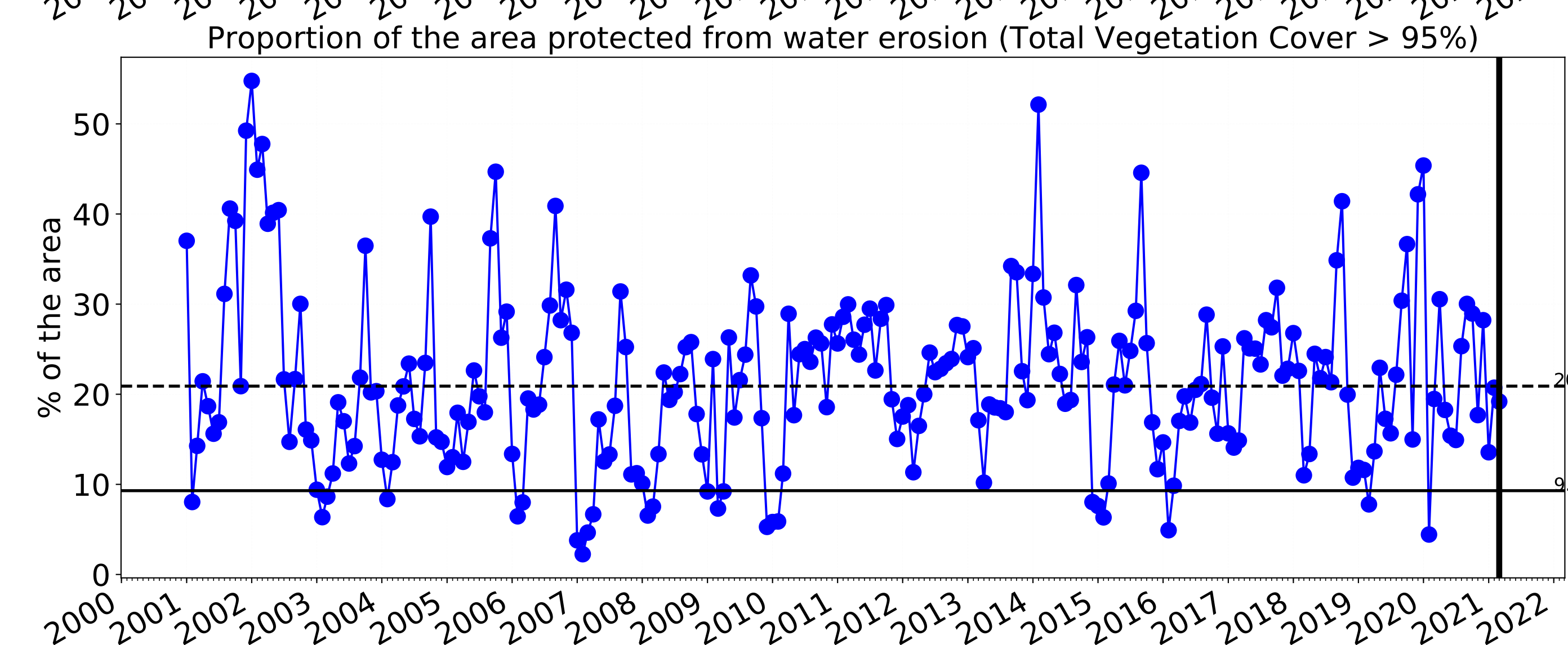
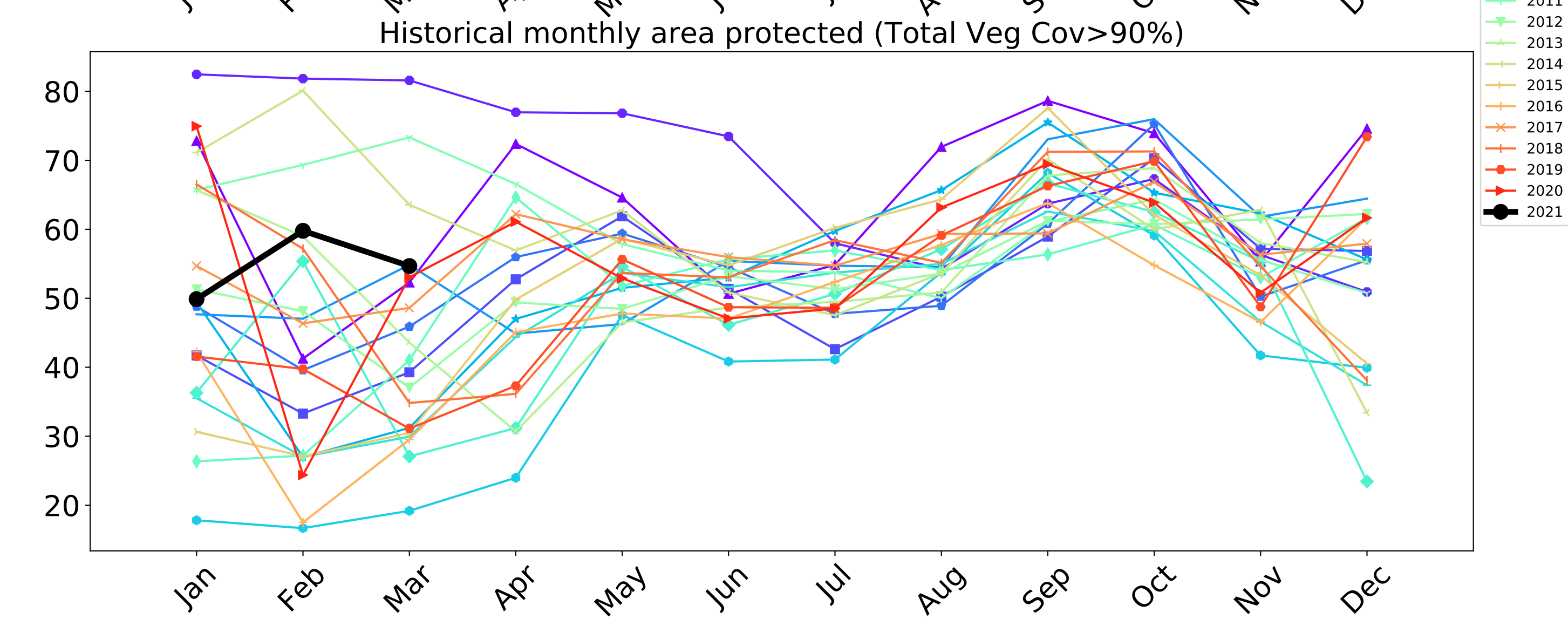
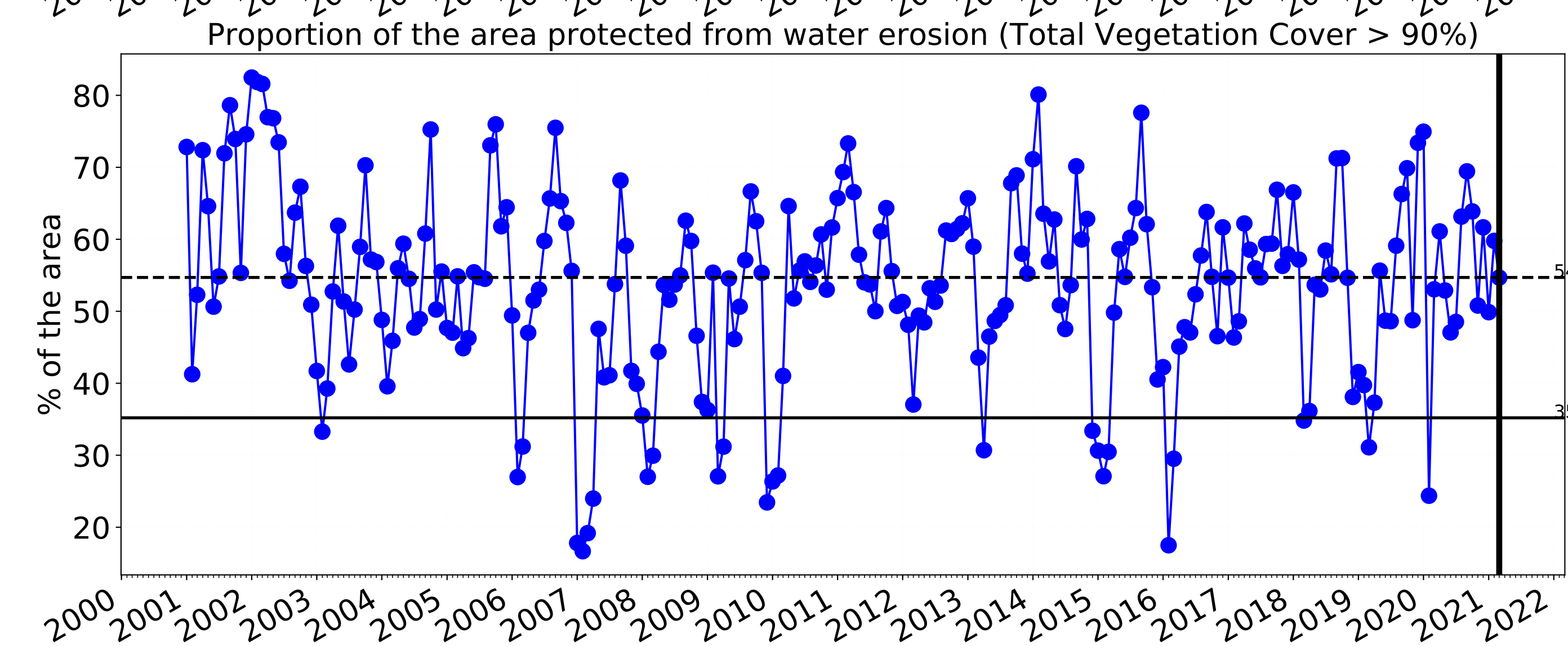
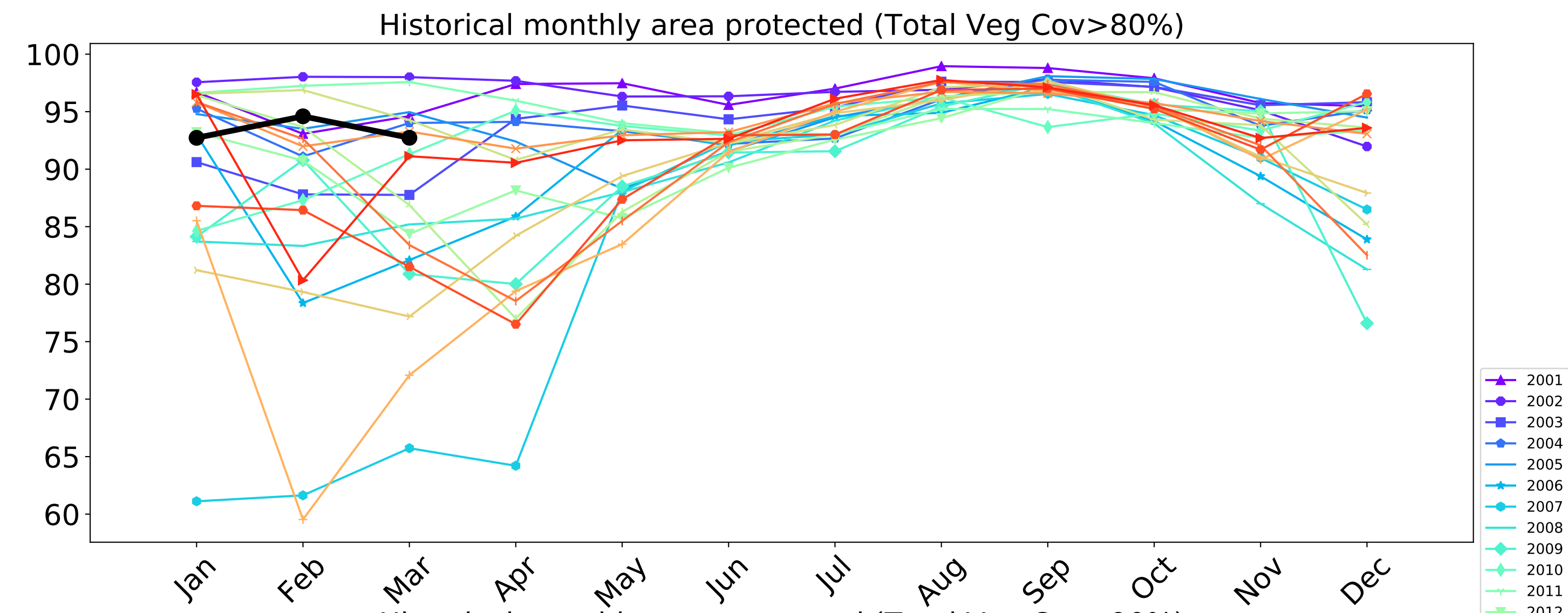
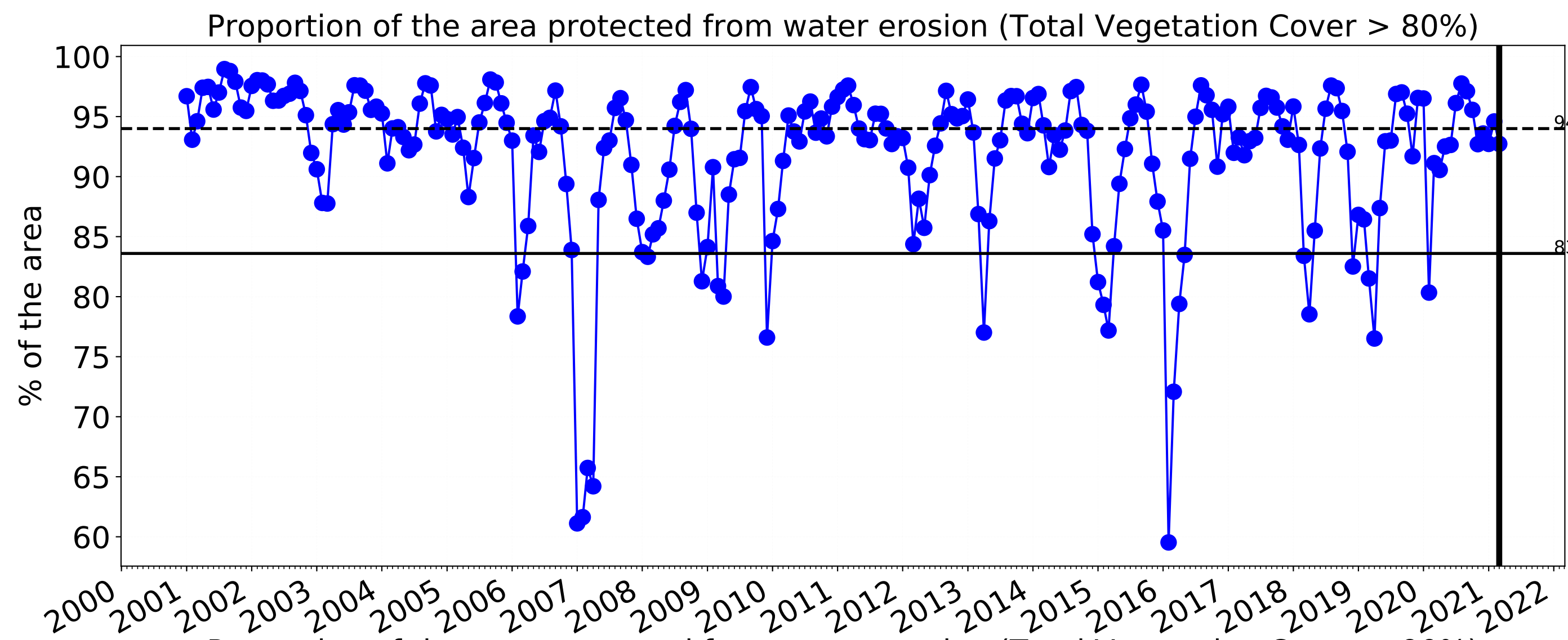
Total Vegetation Cover Anomaly [%]



Total Vegetation Cover Decile [%]

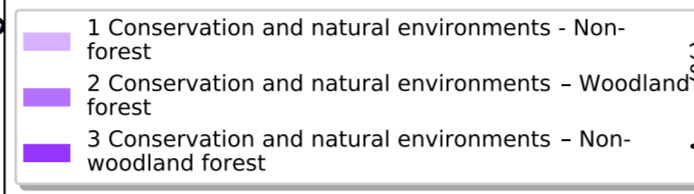
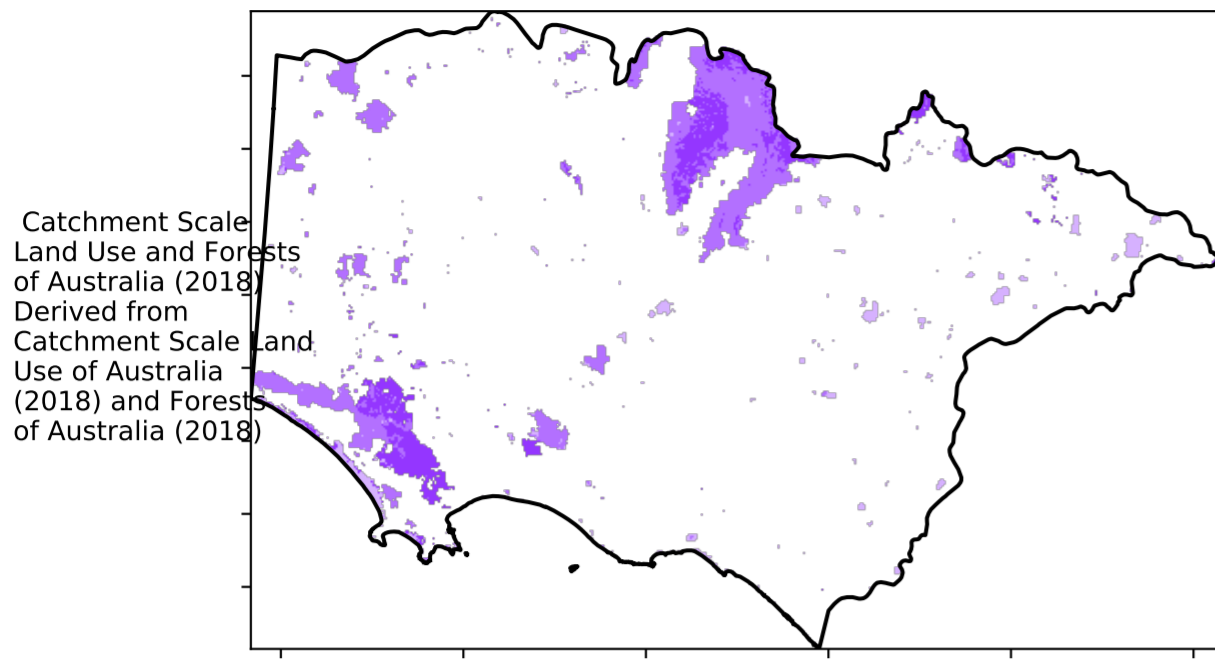




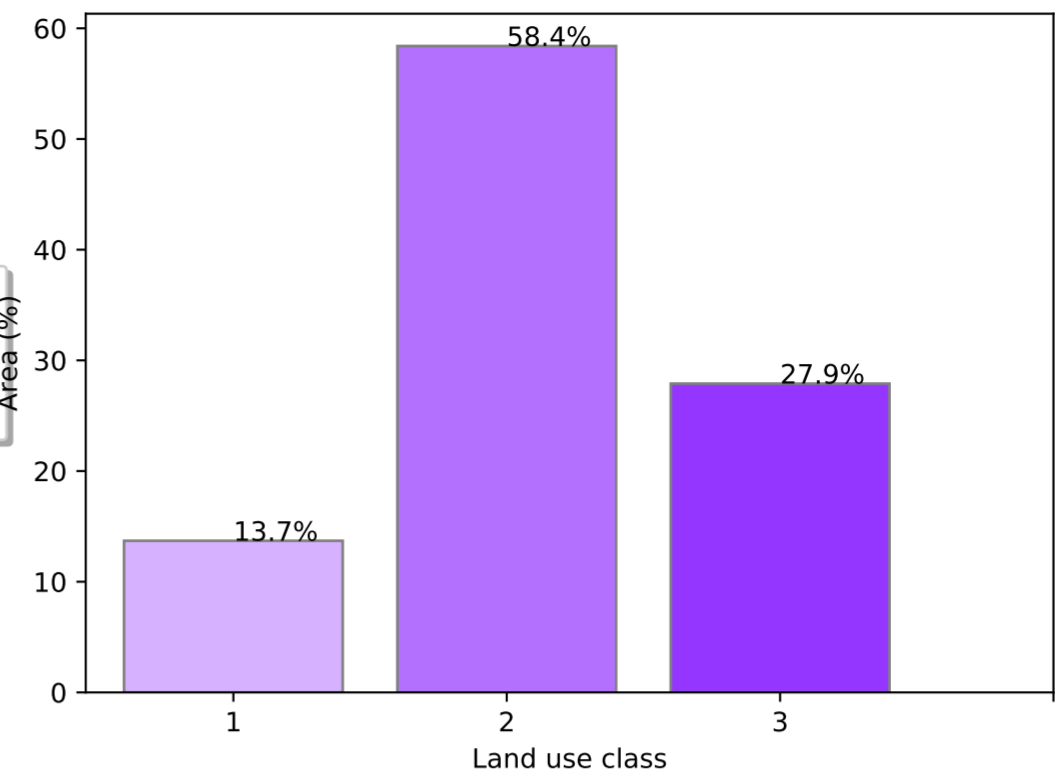


# Conservation and natural environments

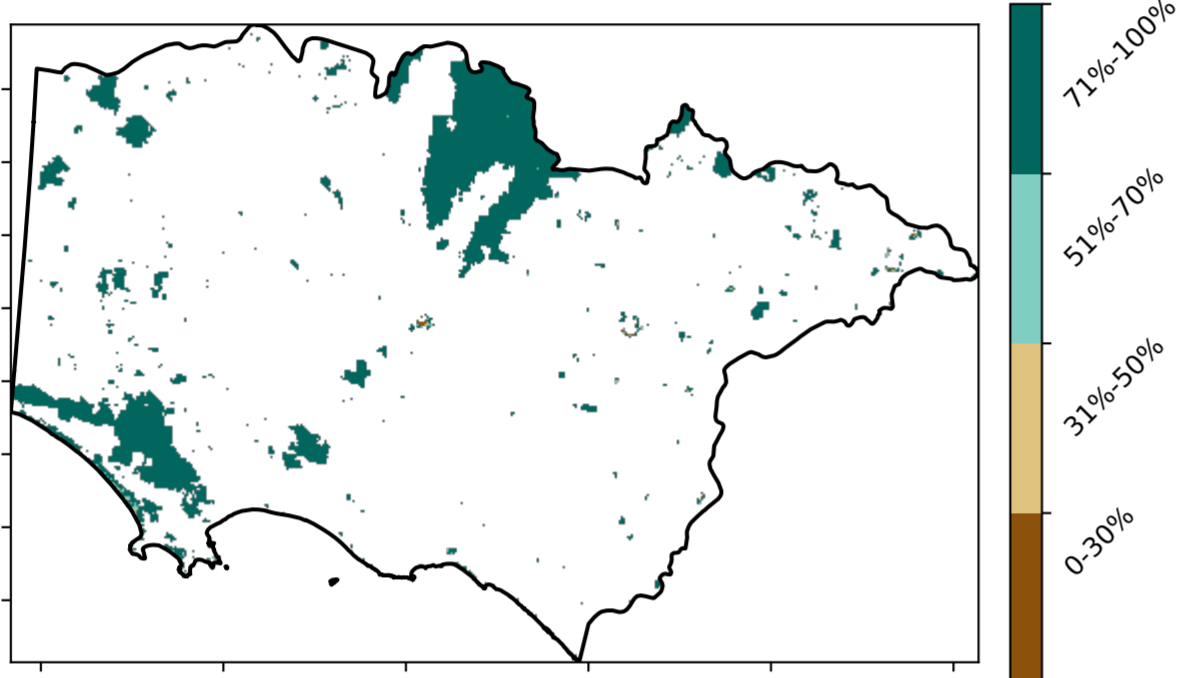
Land use and forest cover



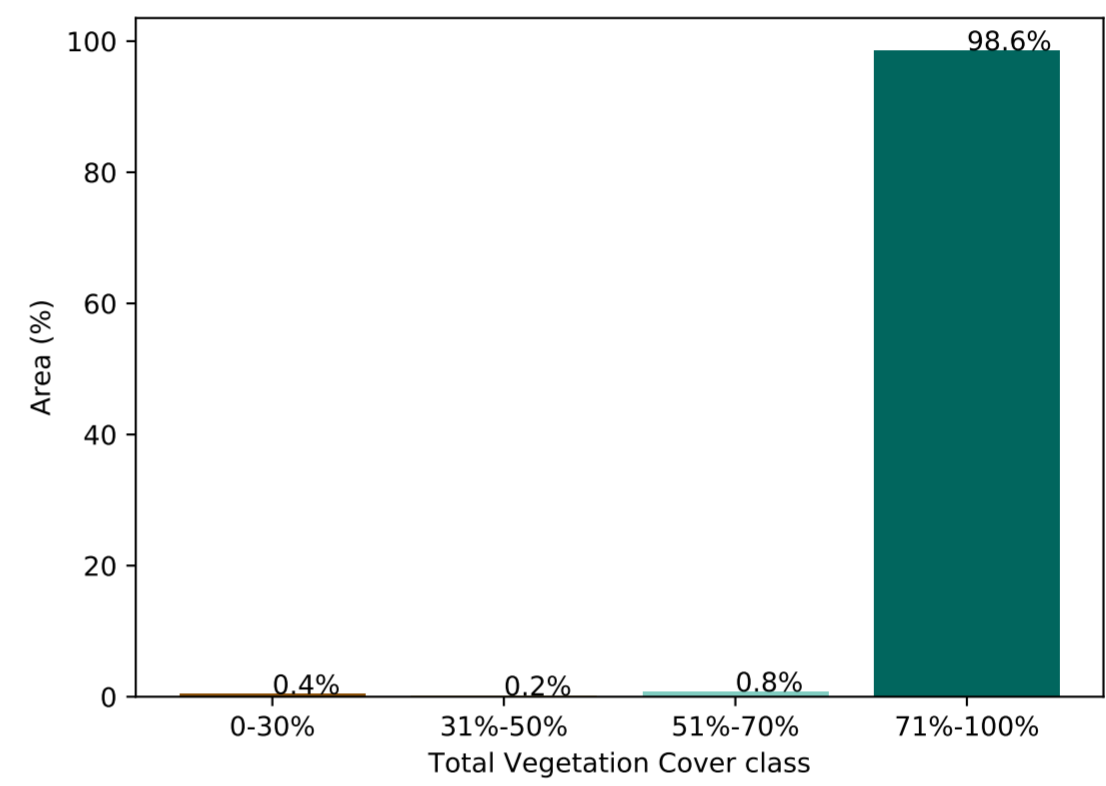
Proportion of each land class in area



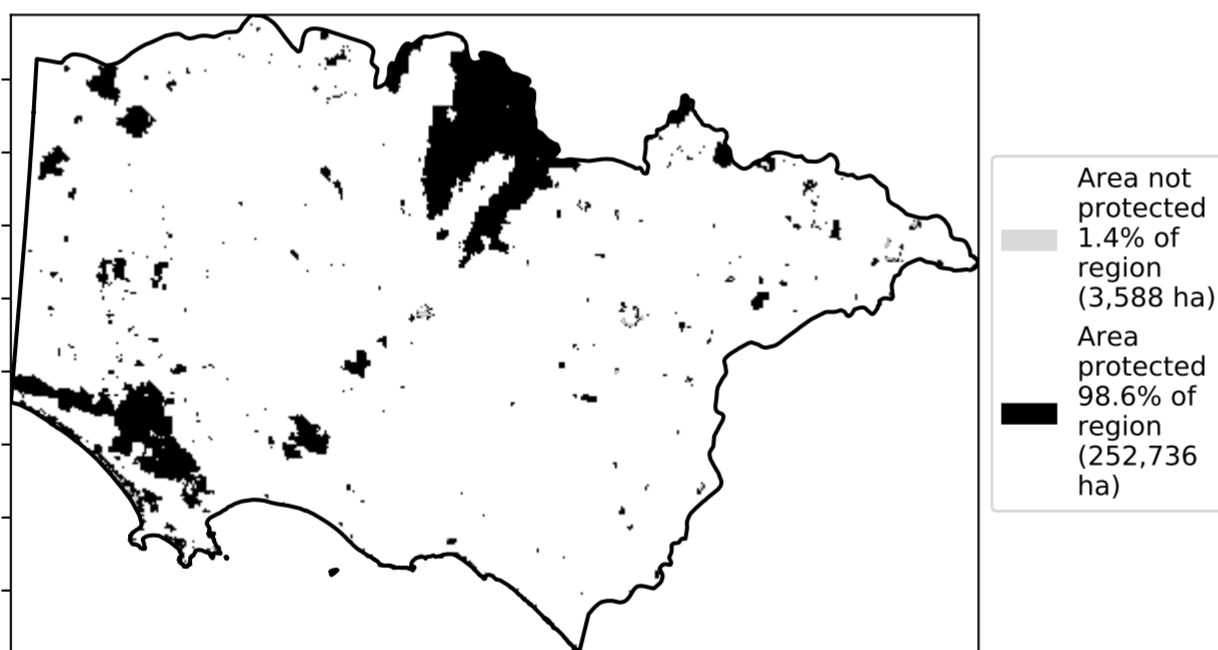
Total Vegetation Cover [%]



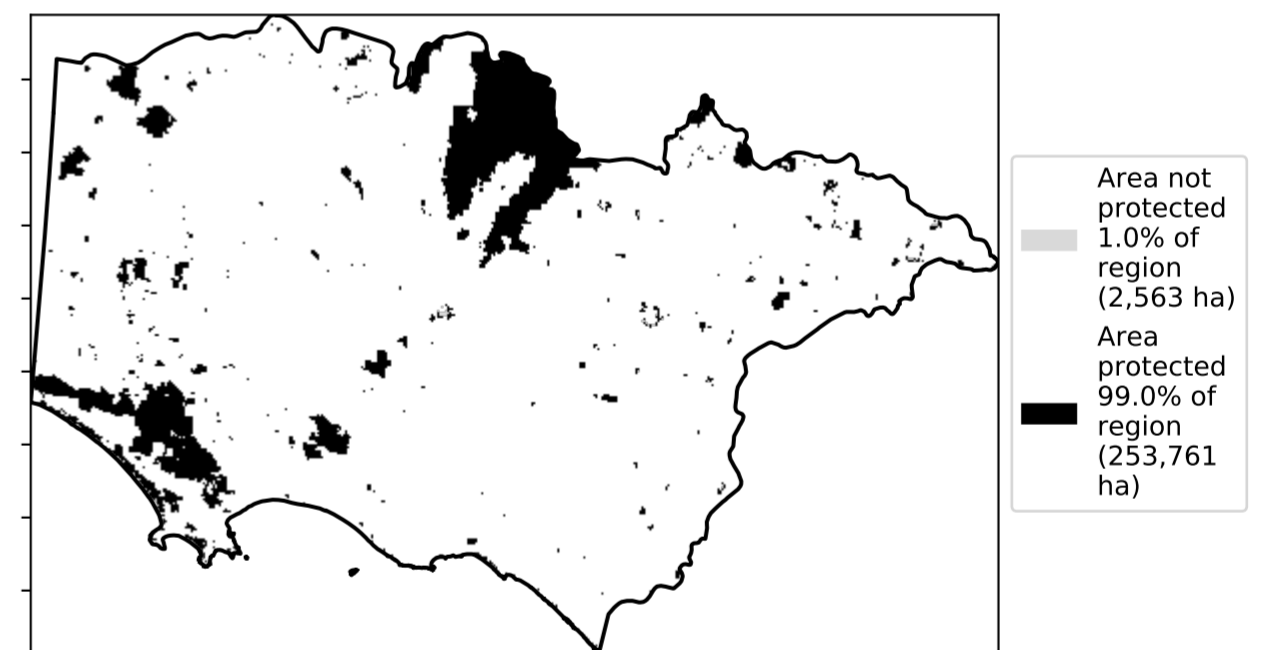
Proportion of vegetation cover class in area



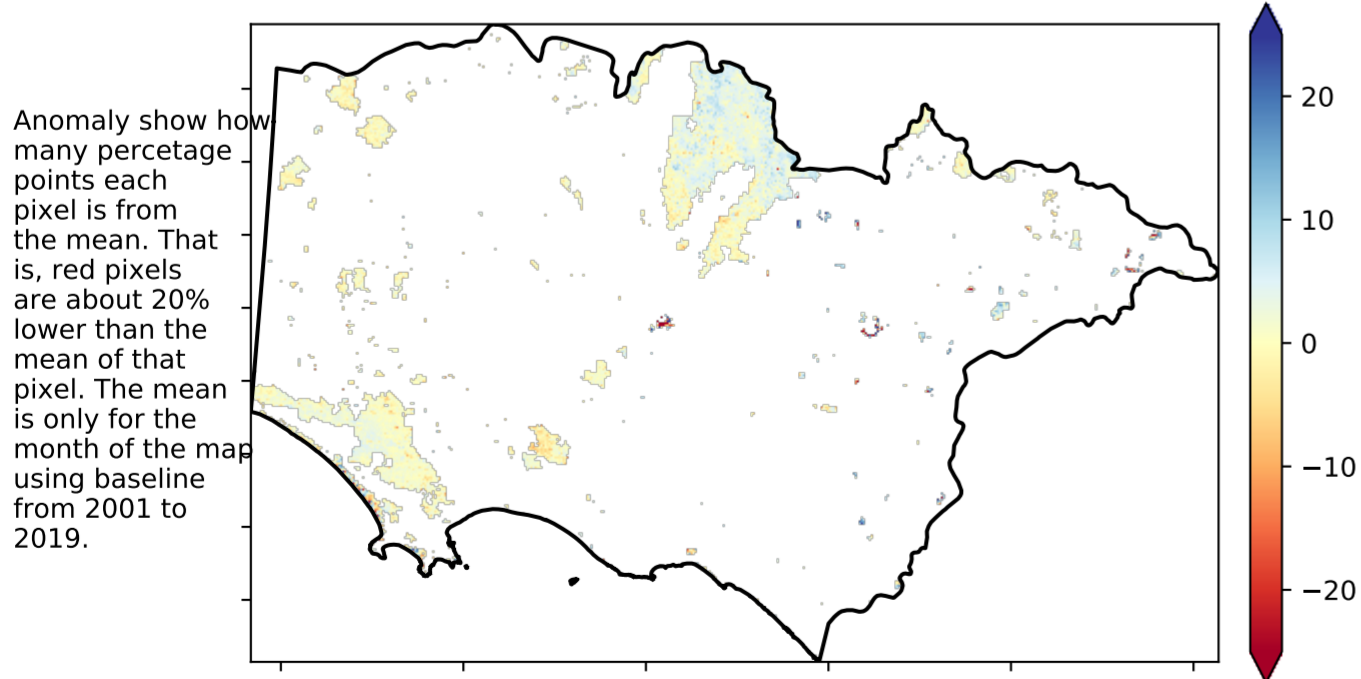
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

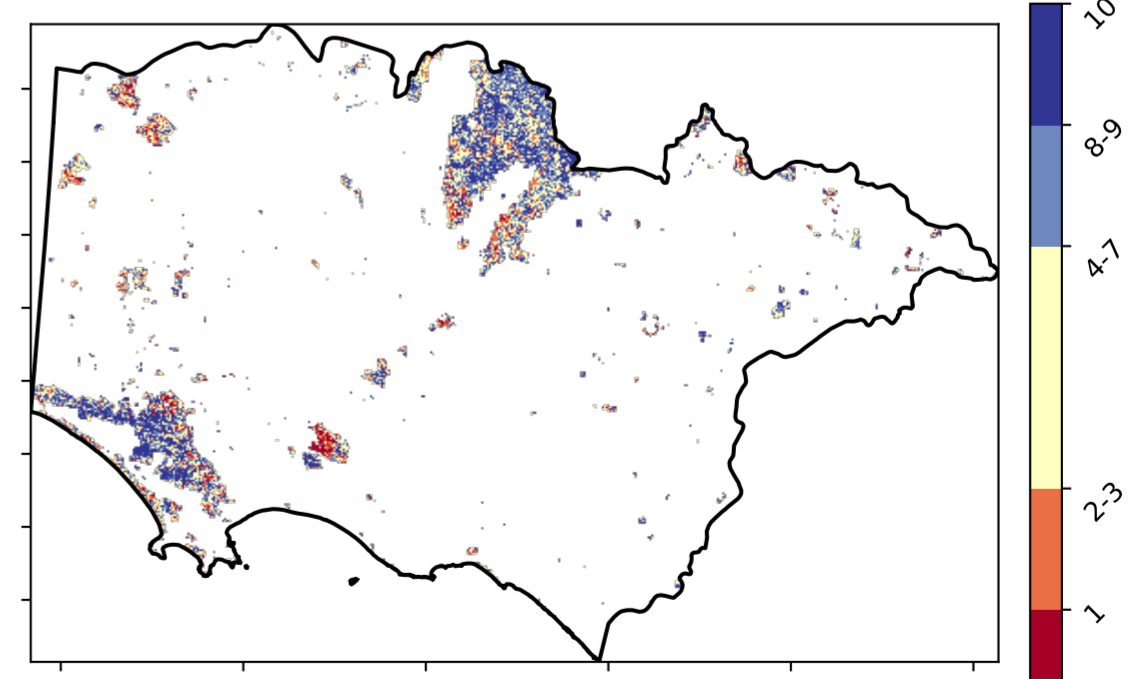


Total Vegetation Cover Anomaly [%]



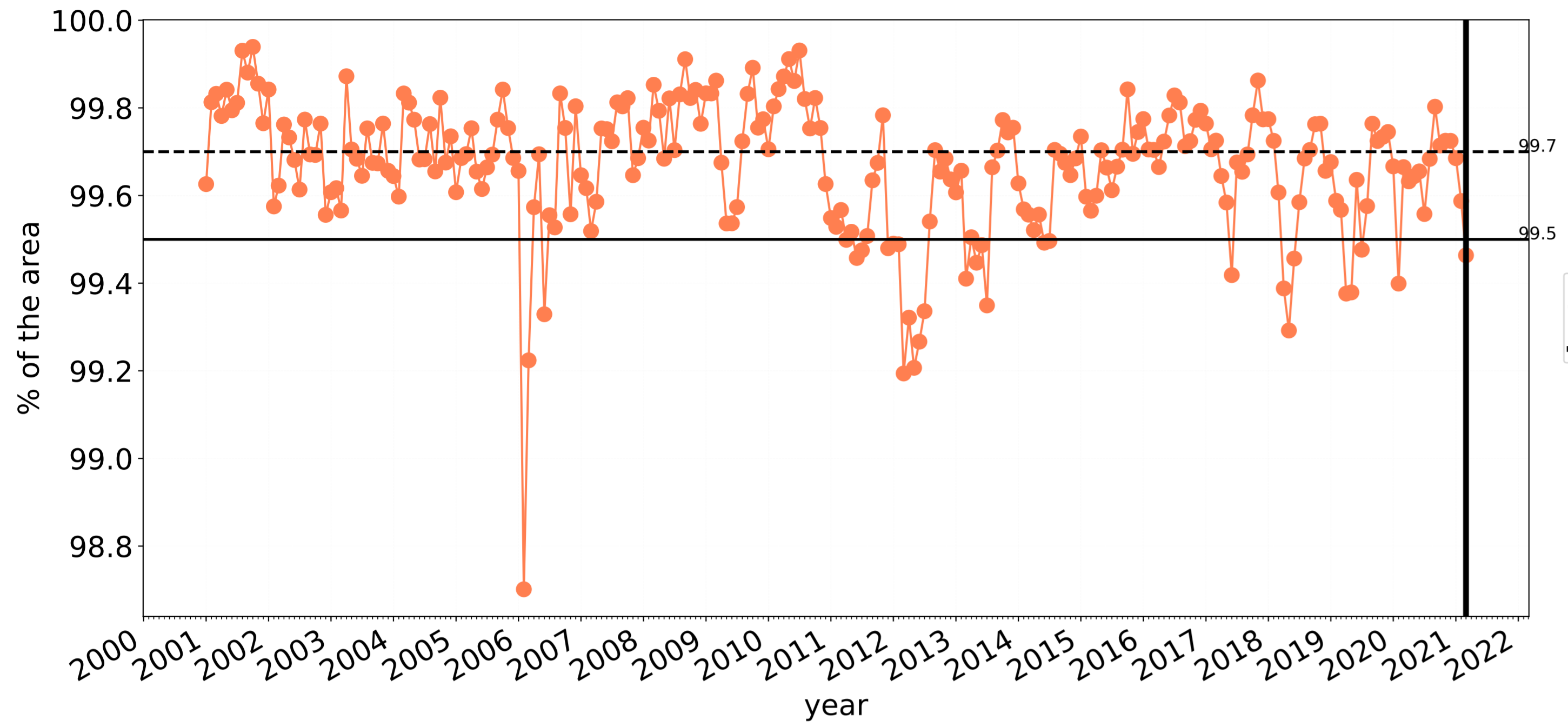
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]

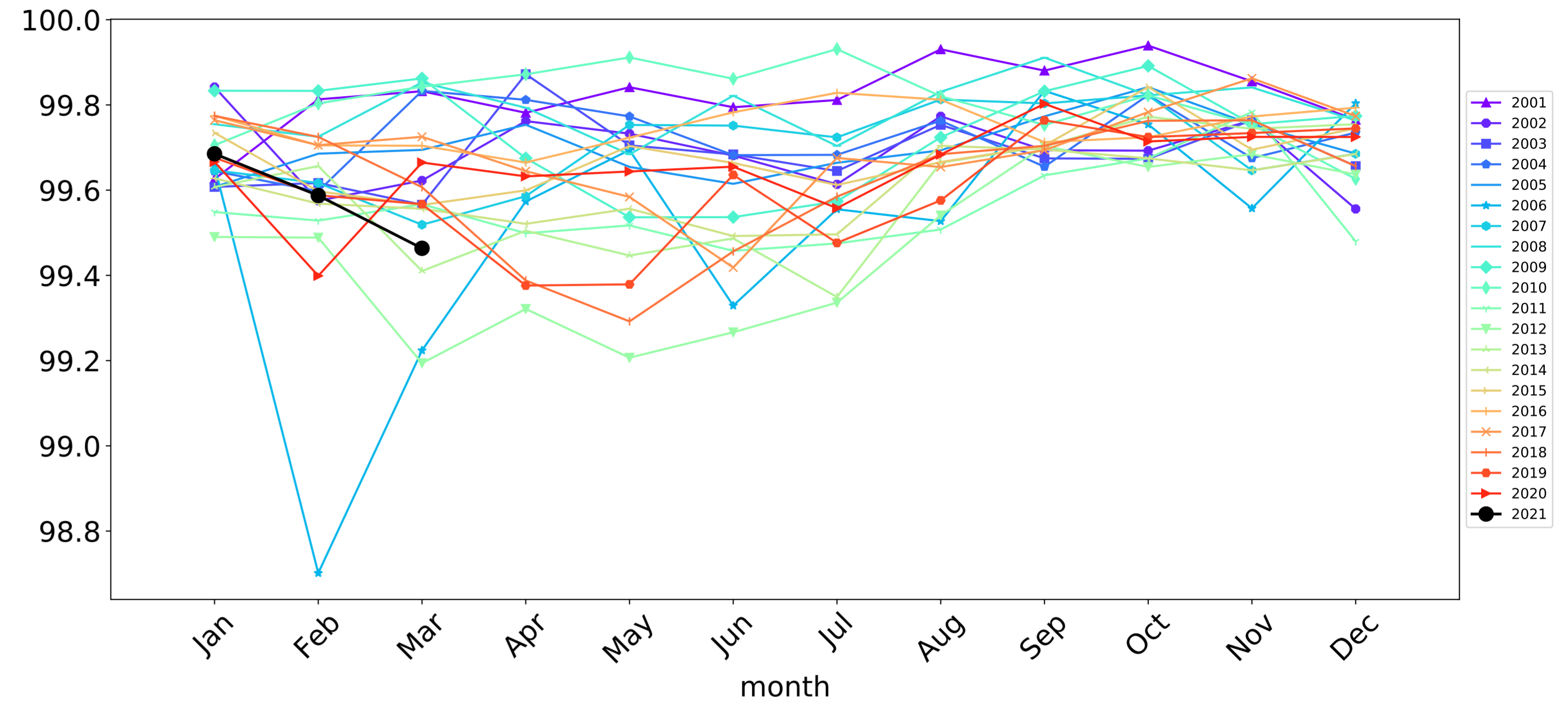


# Conservation and natural environments timeseries

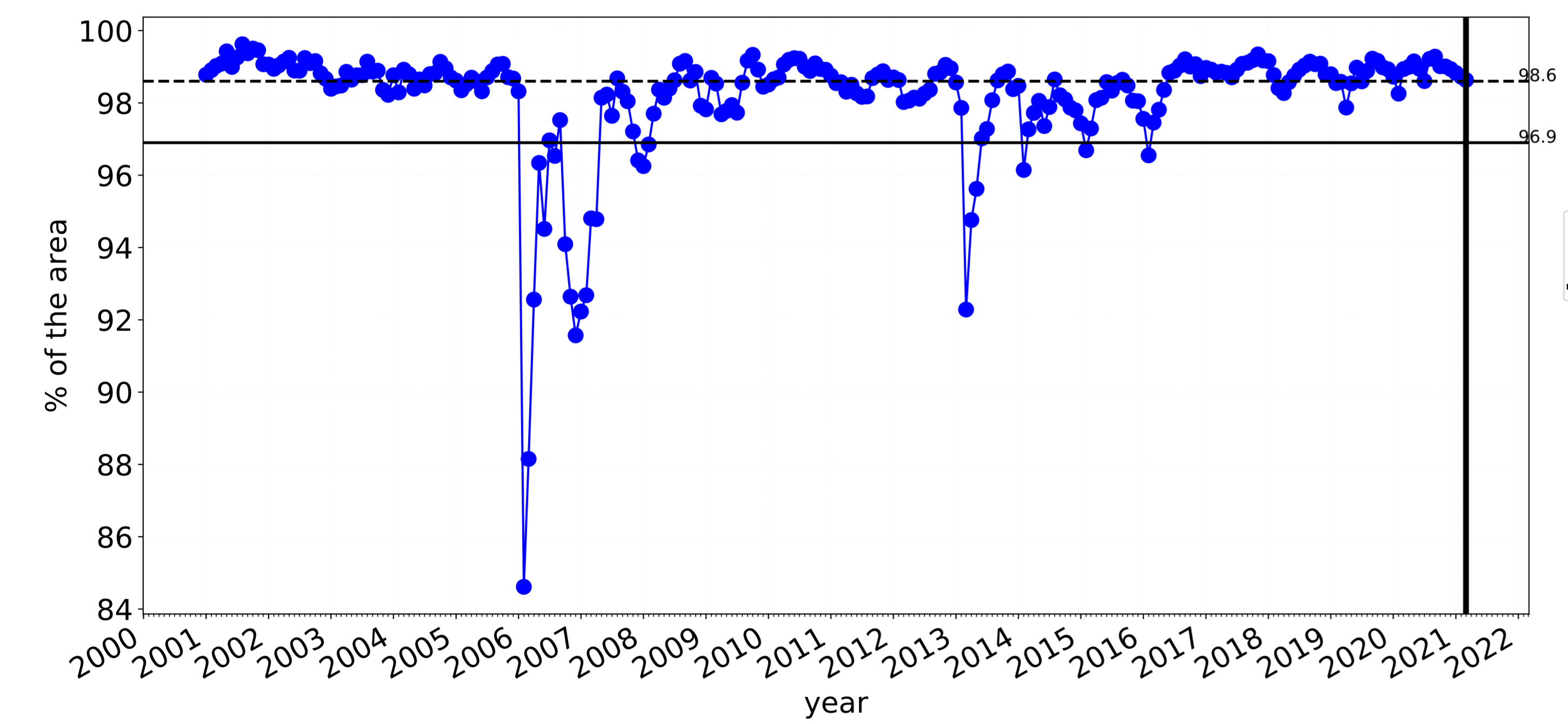
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



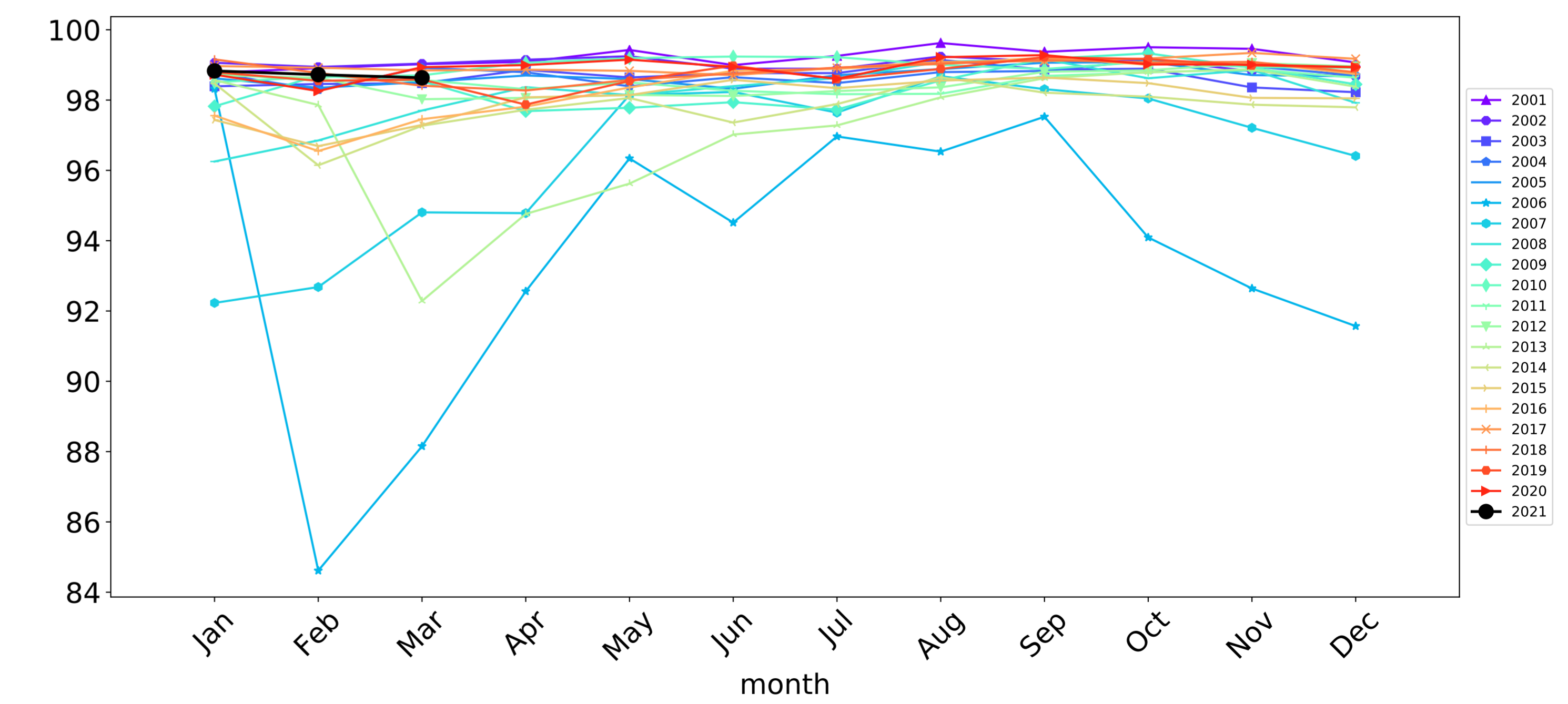
Wind erosion historical monthly area protected (Total Veg Cov >50%)

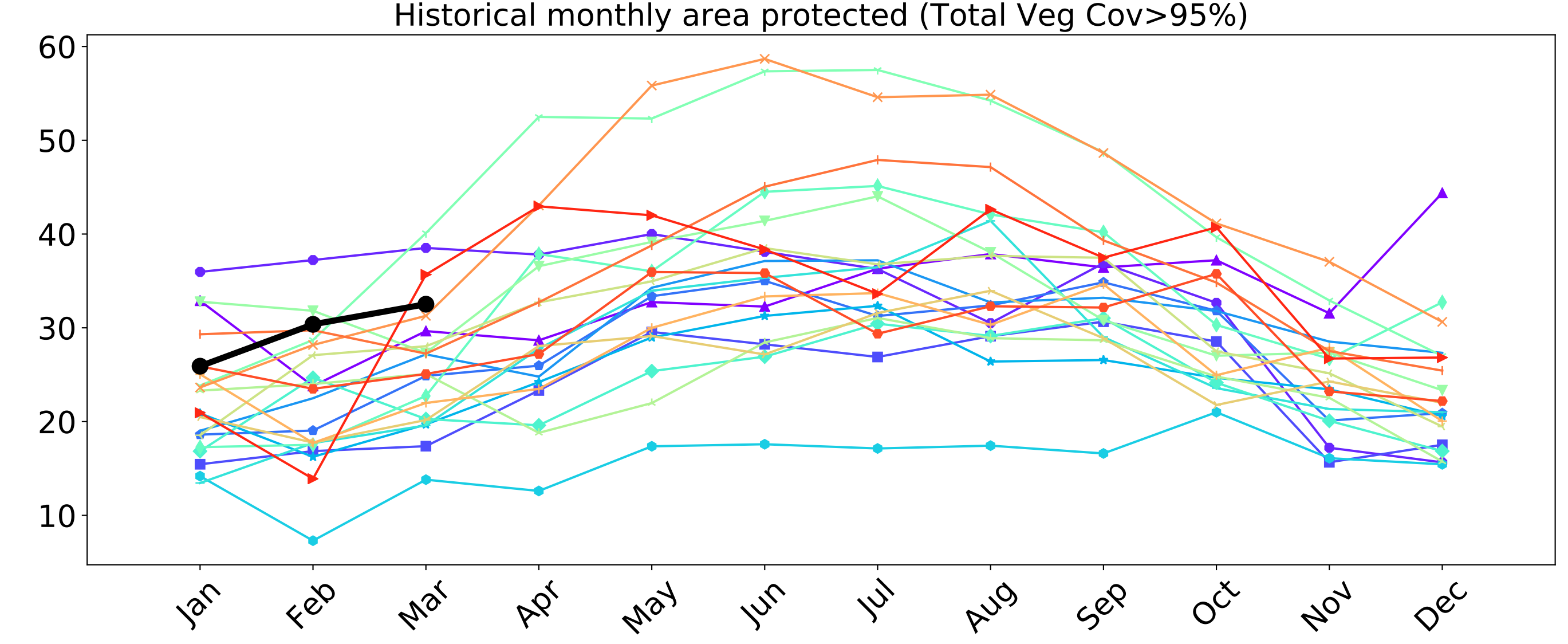
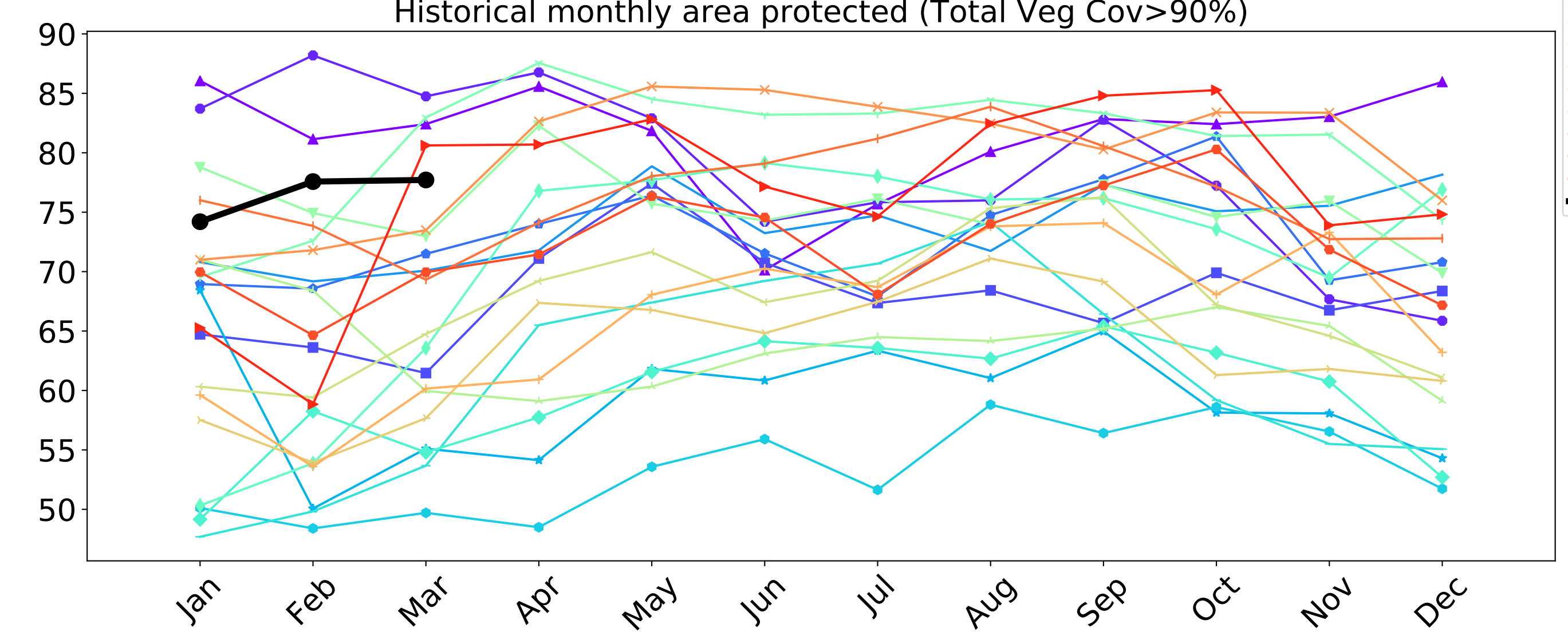
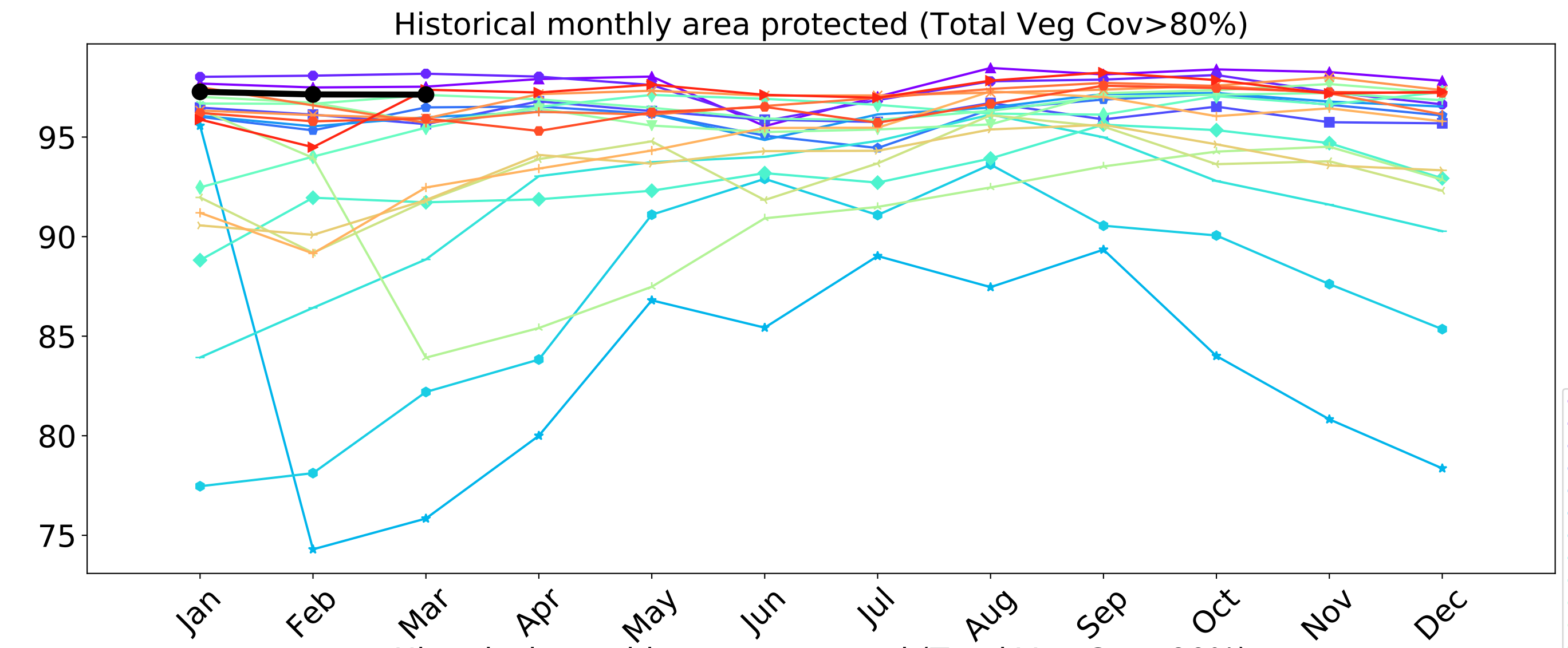
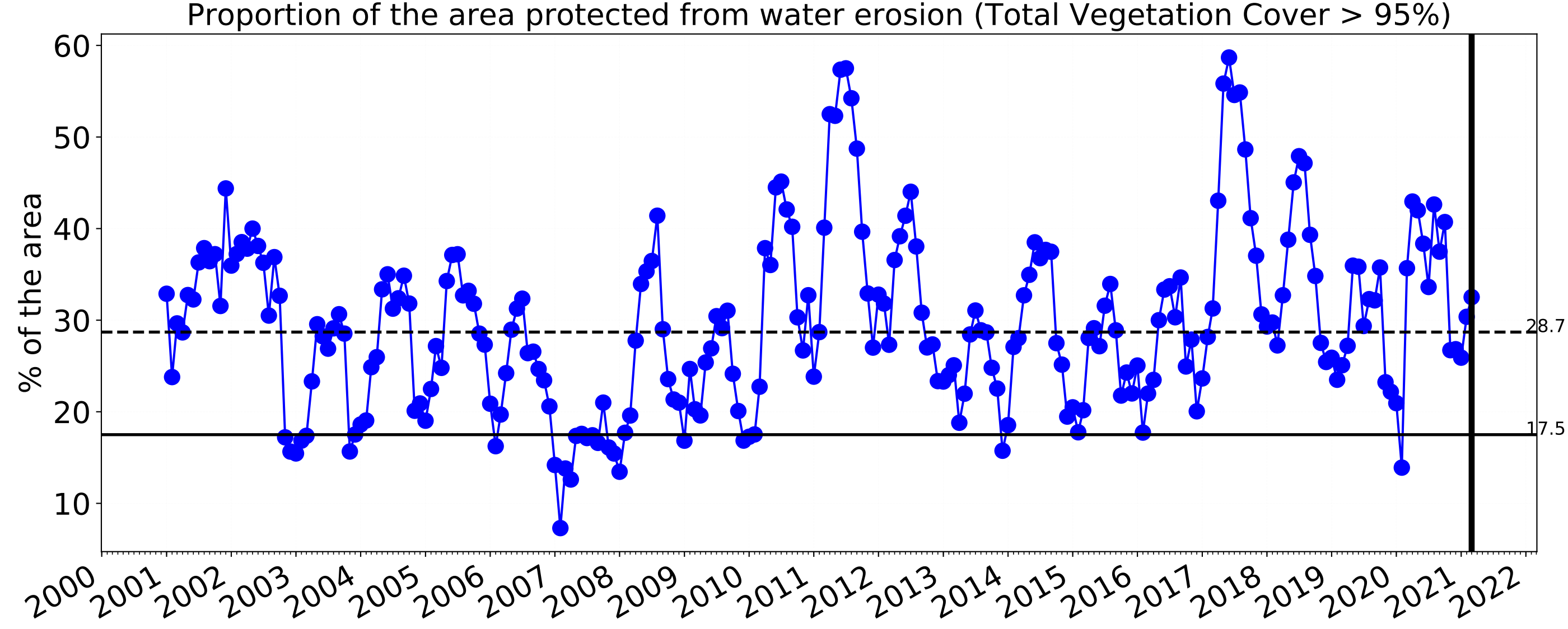
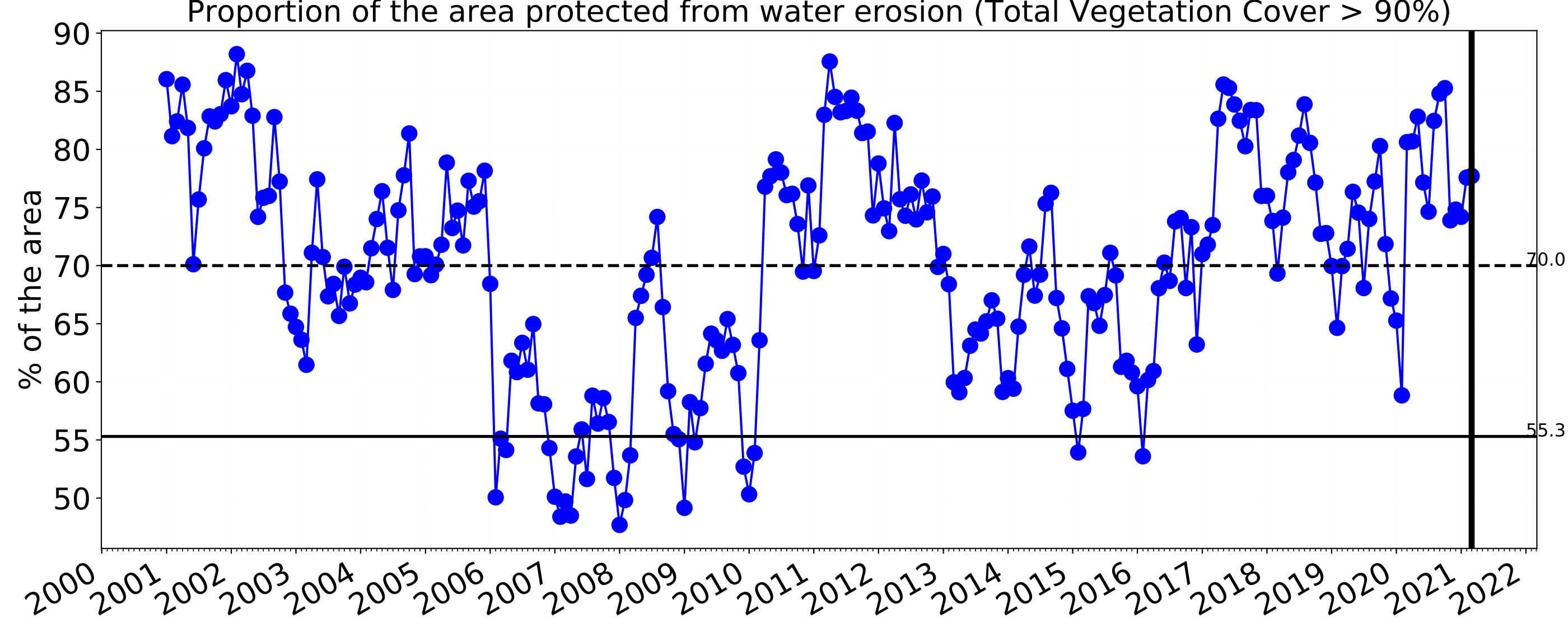
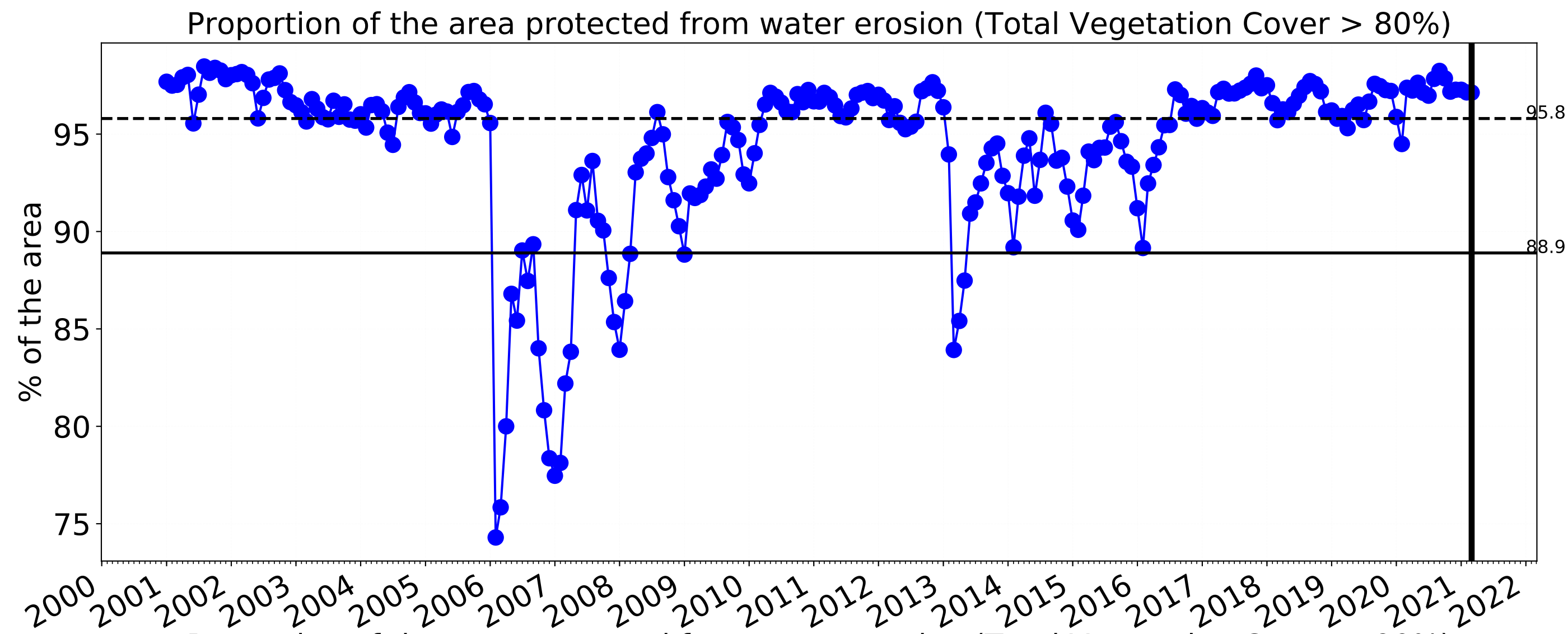


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



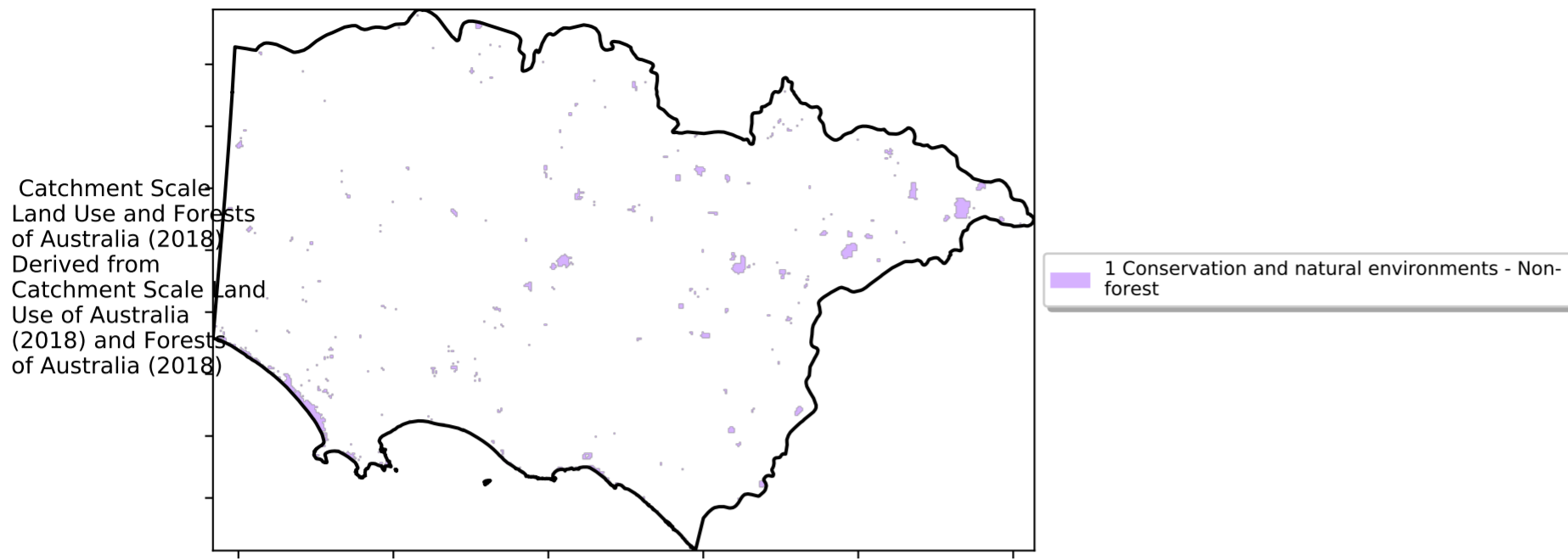
Water erosion historical monthly area protected (Total Veg Cov >70%)



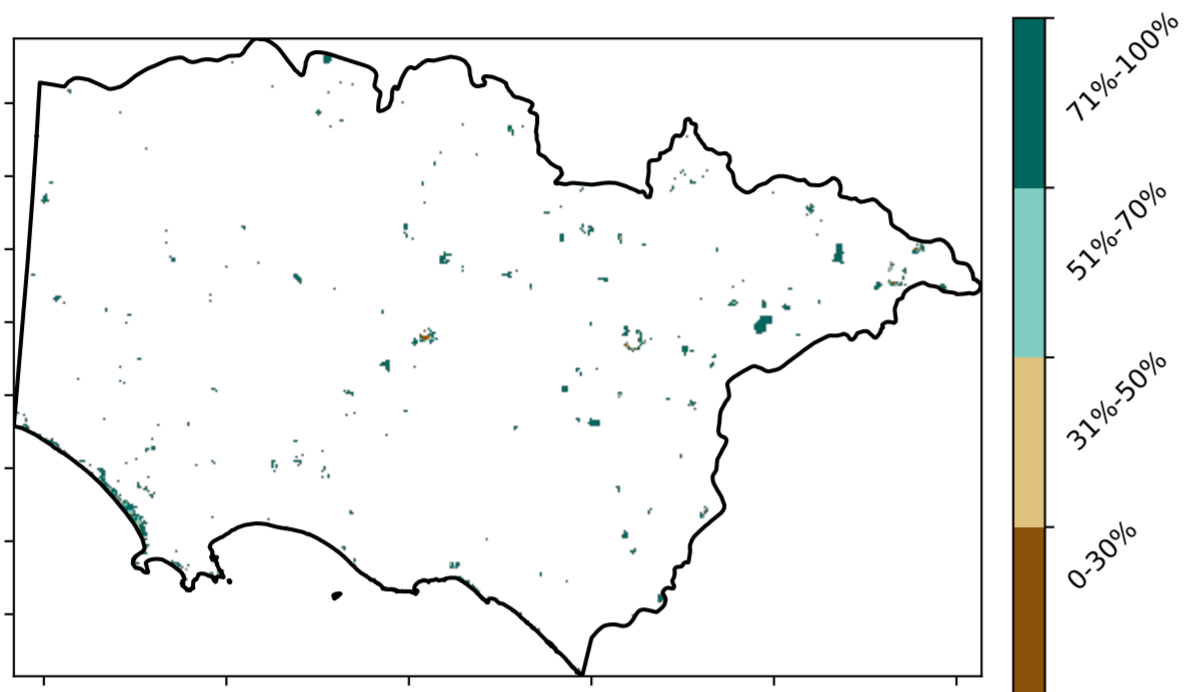


# Conservation and natural environments non forest

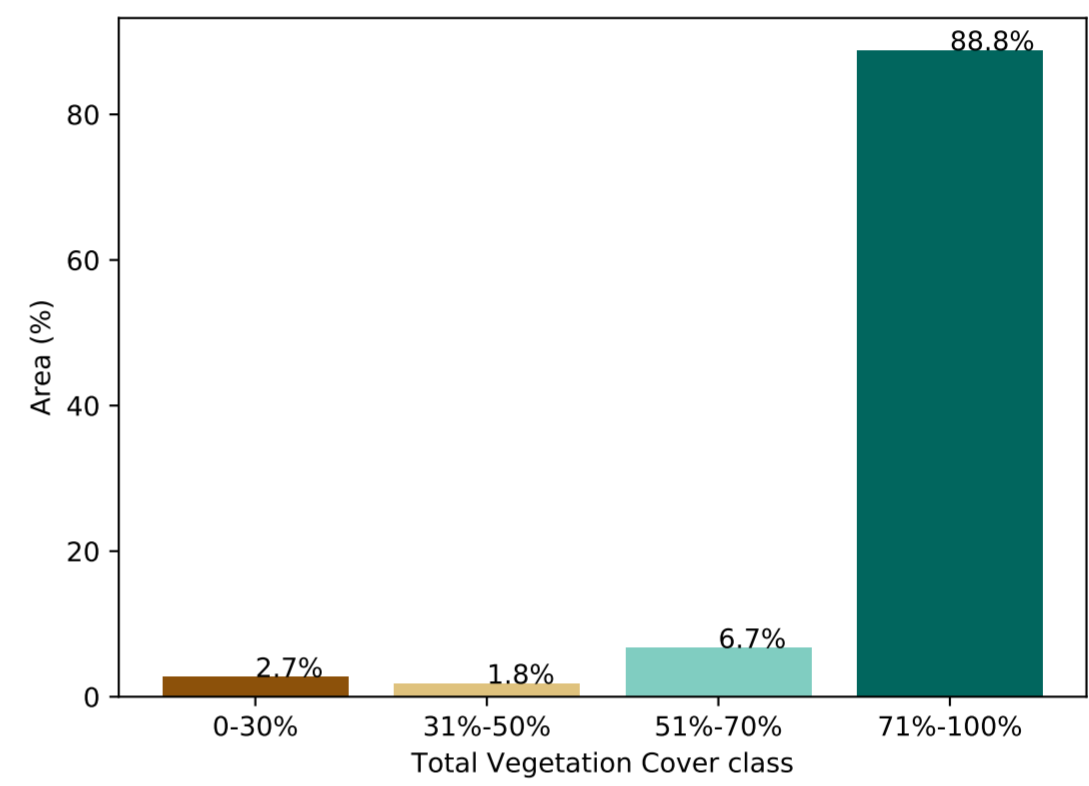
Land use and forest cover



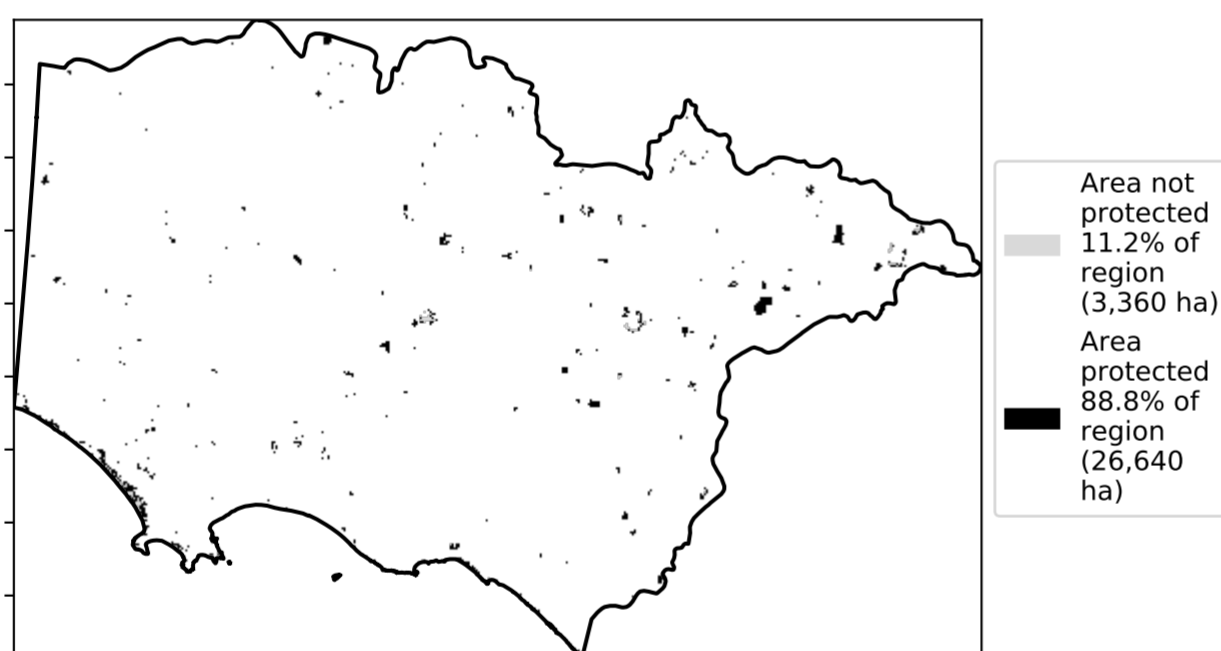
Total Vegetation Cover [%]



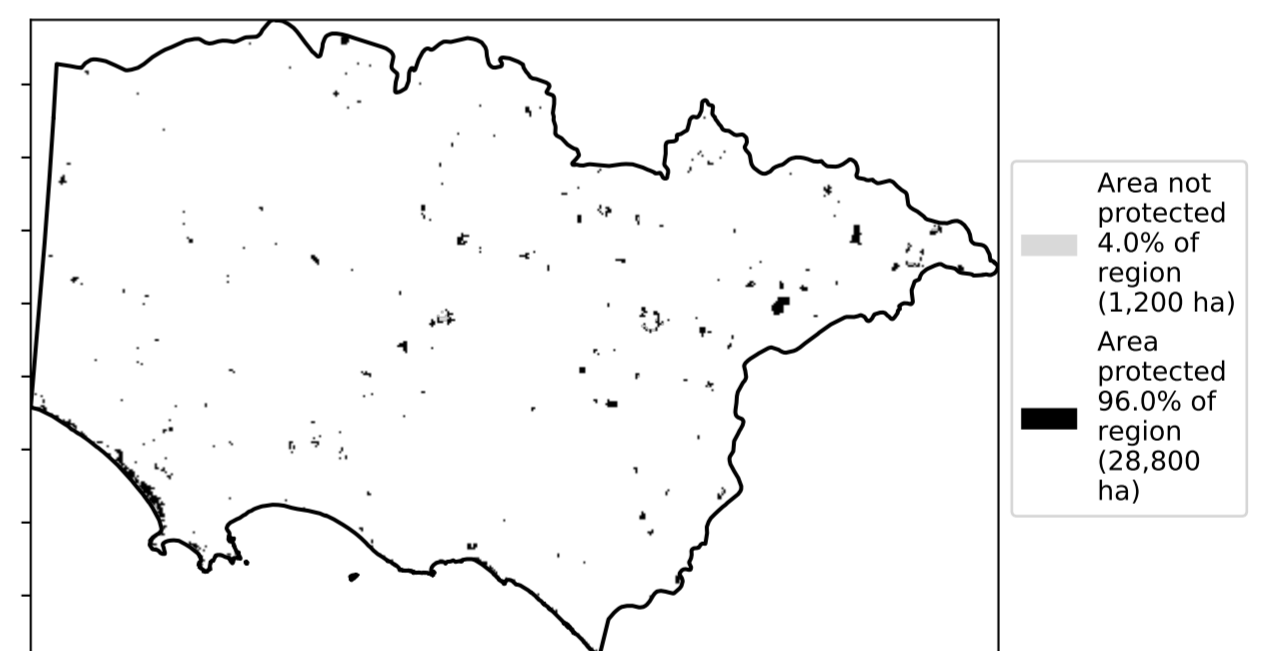
Proportion of vegetation cover class in area



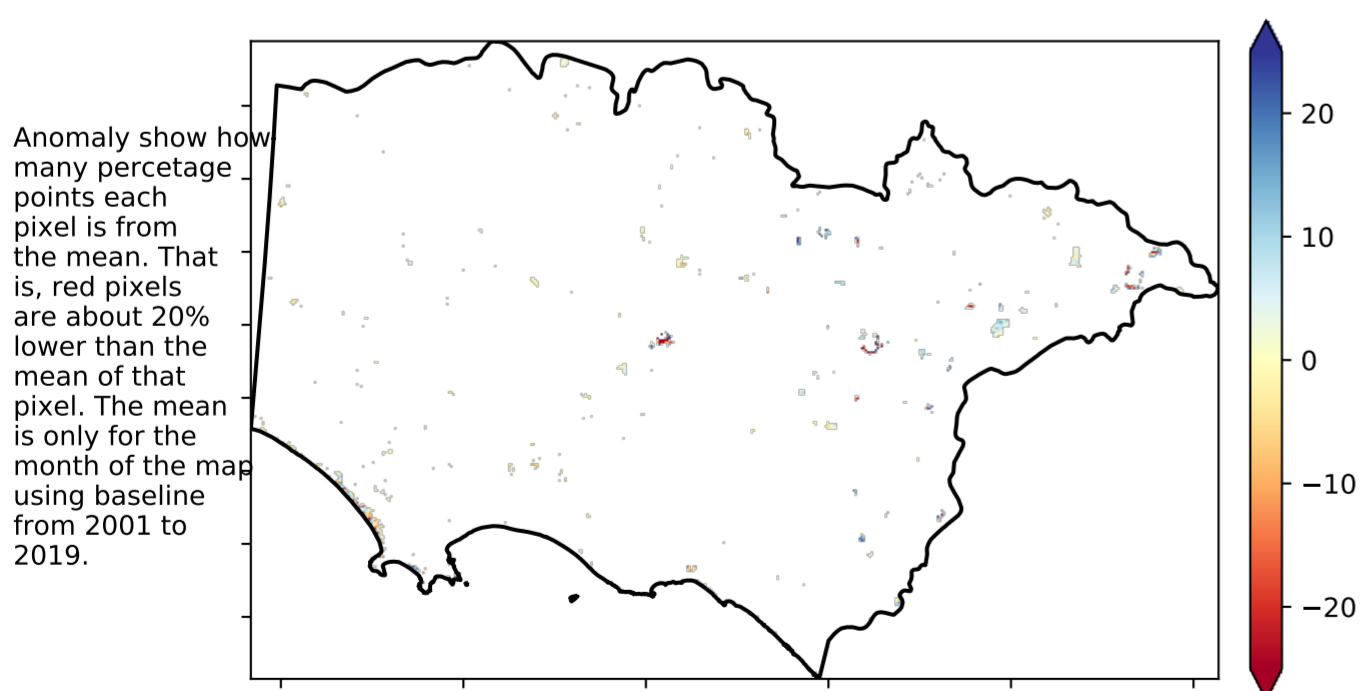
% Area protected from water erosion (>70%)



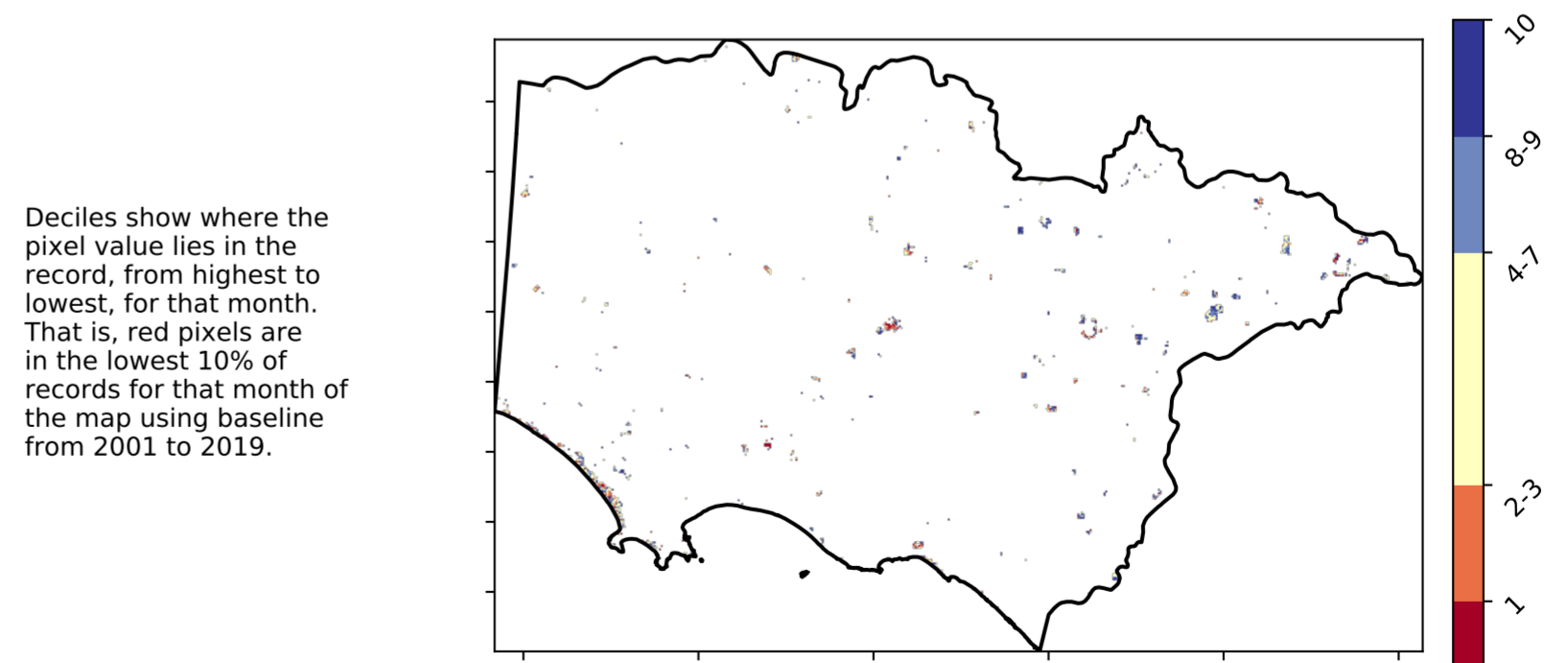
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

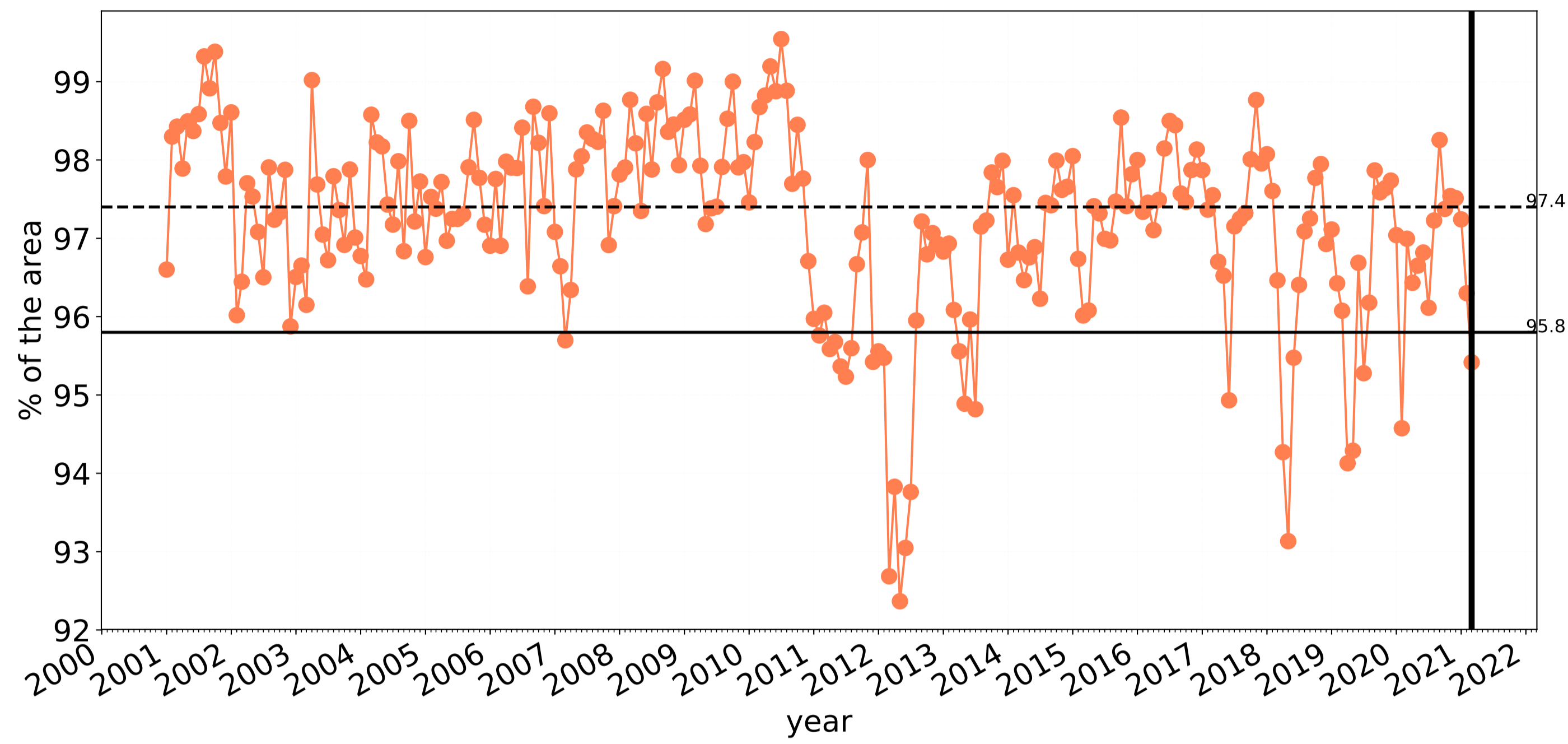


Total Vegetation Cover Decile [%]

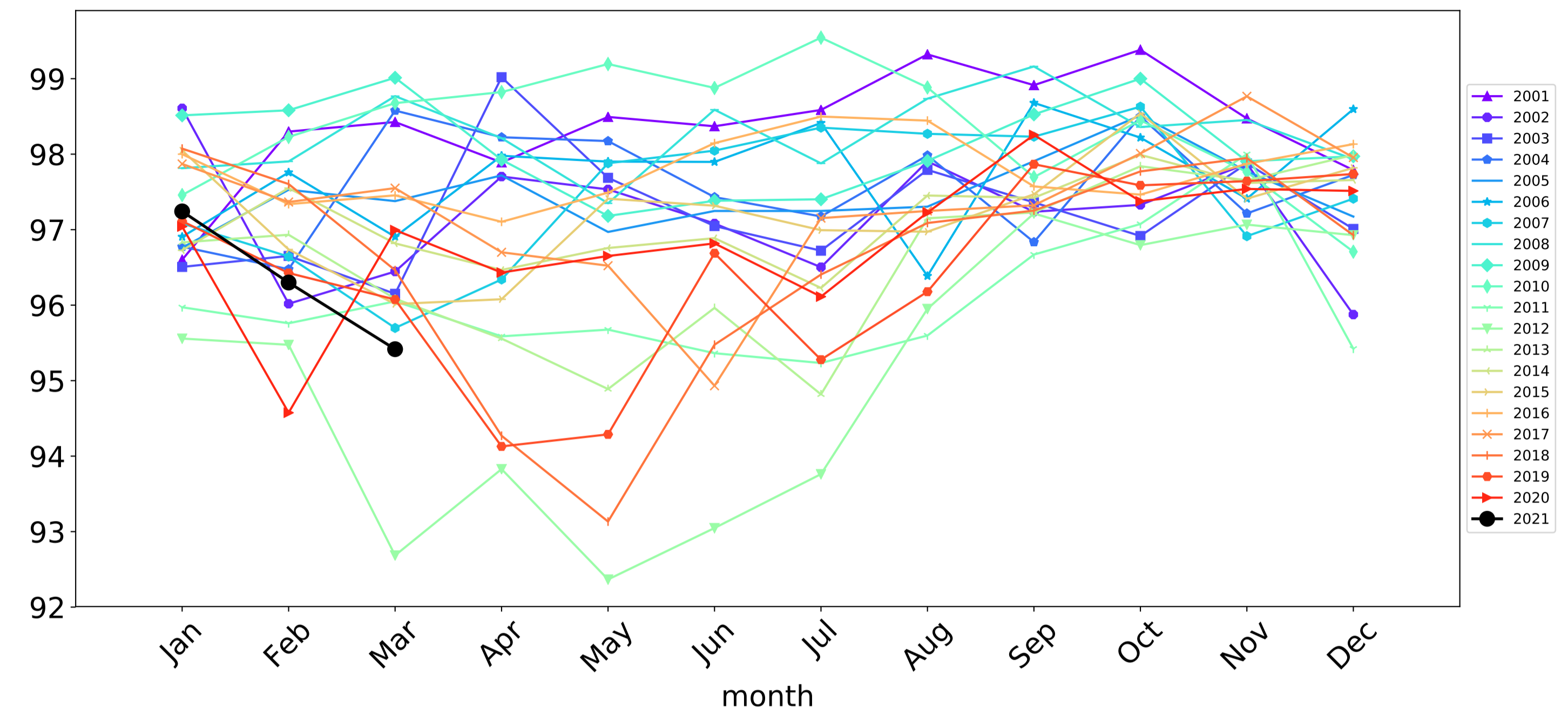


Conservation and natural environments non forest timeseries

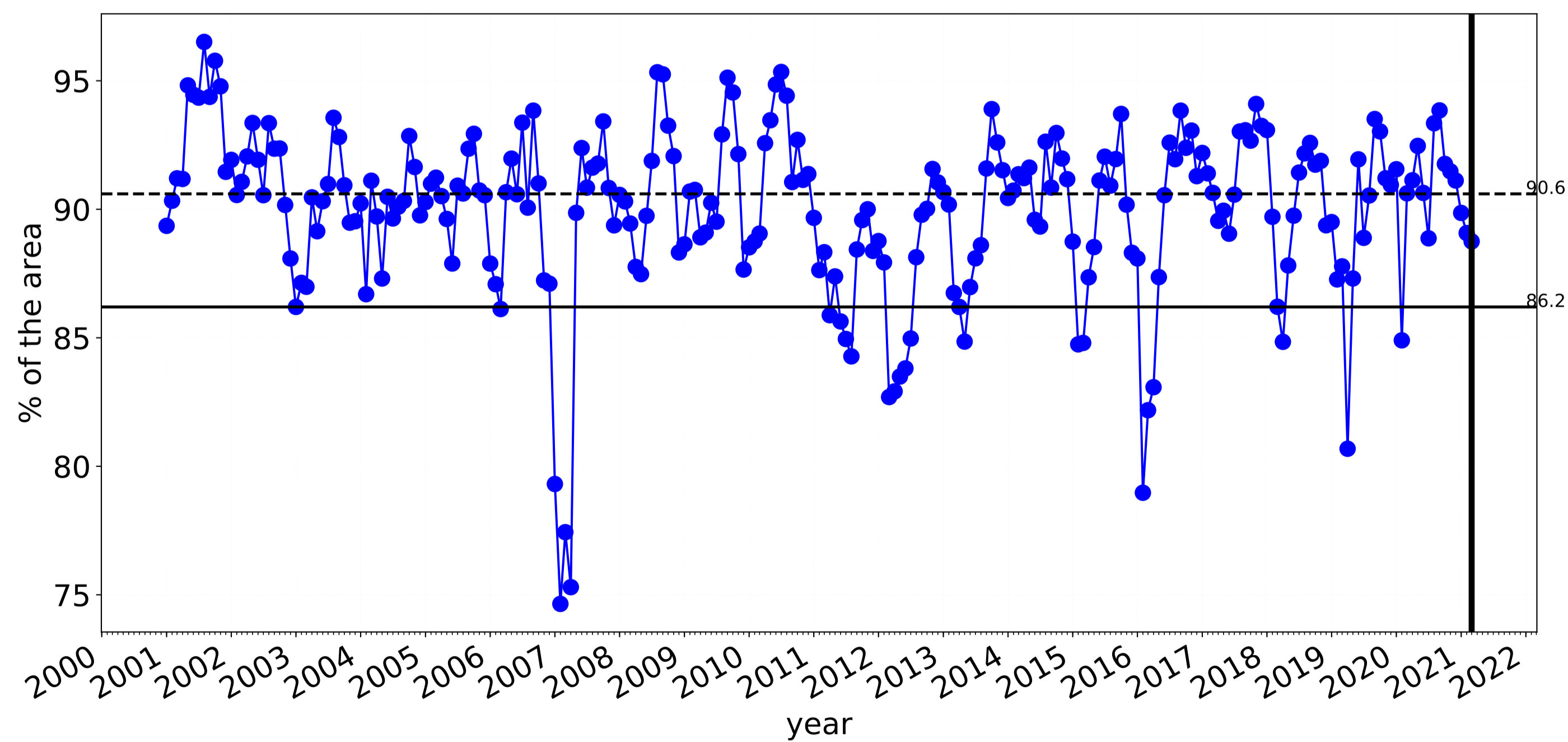
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



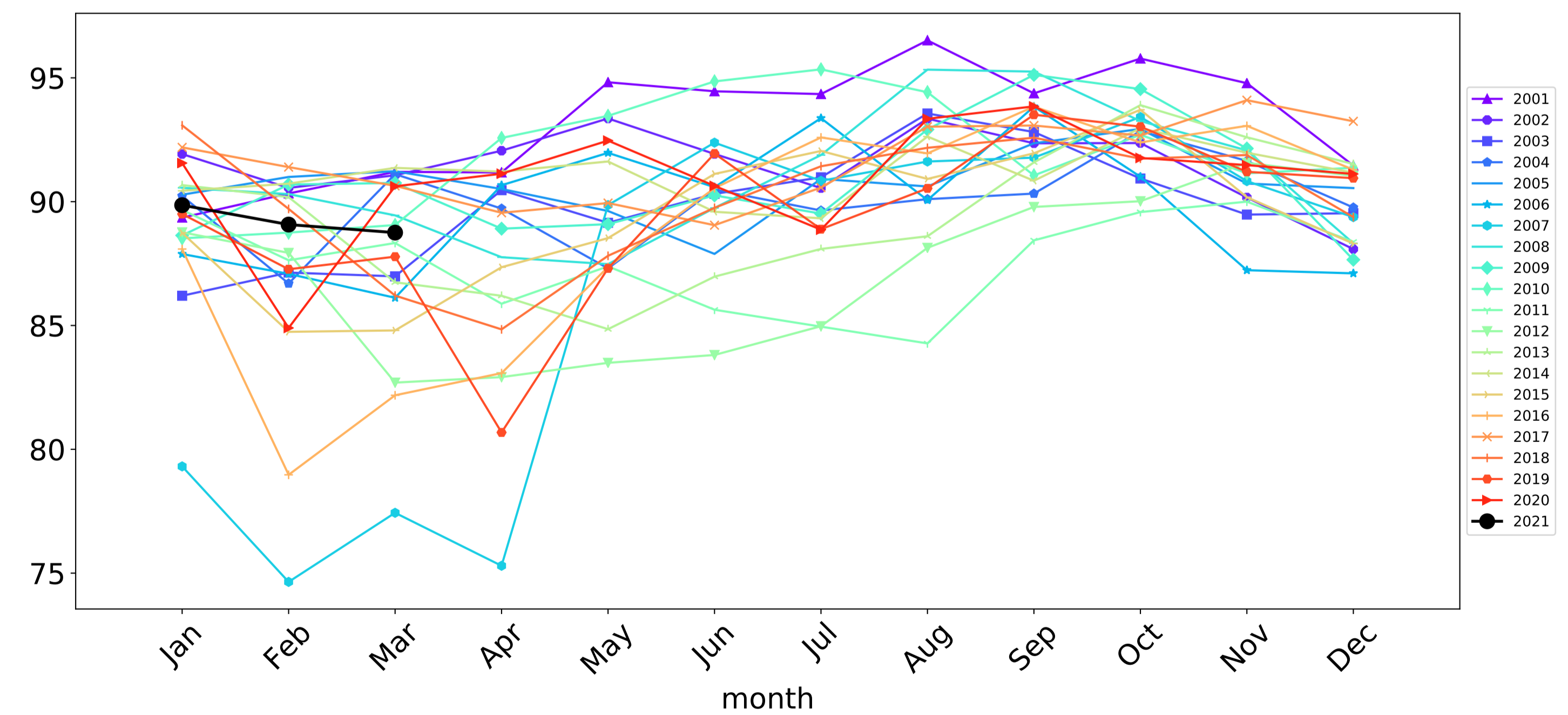
Wind erosion historical monthly area protected (Total Veg Cov >50%)

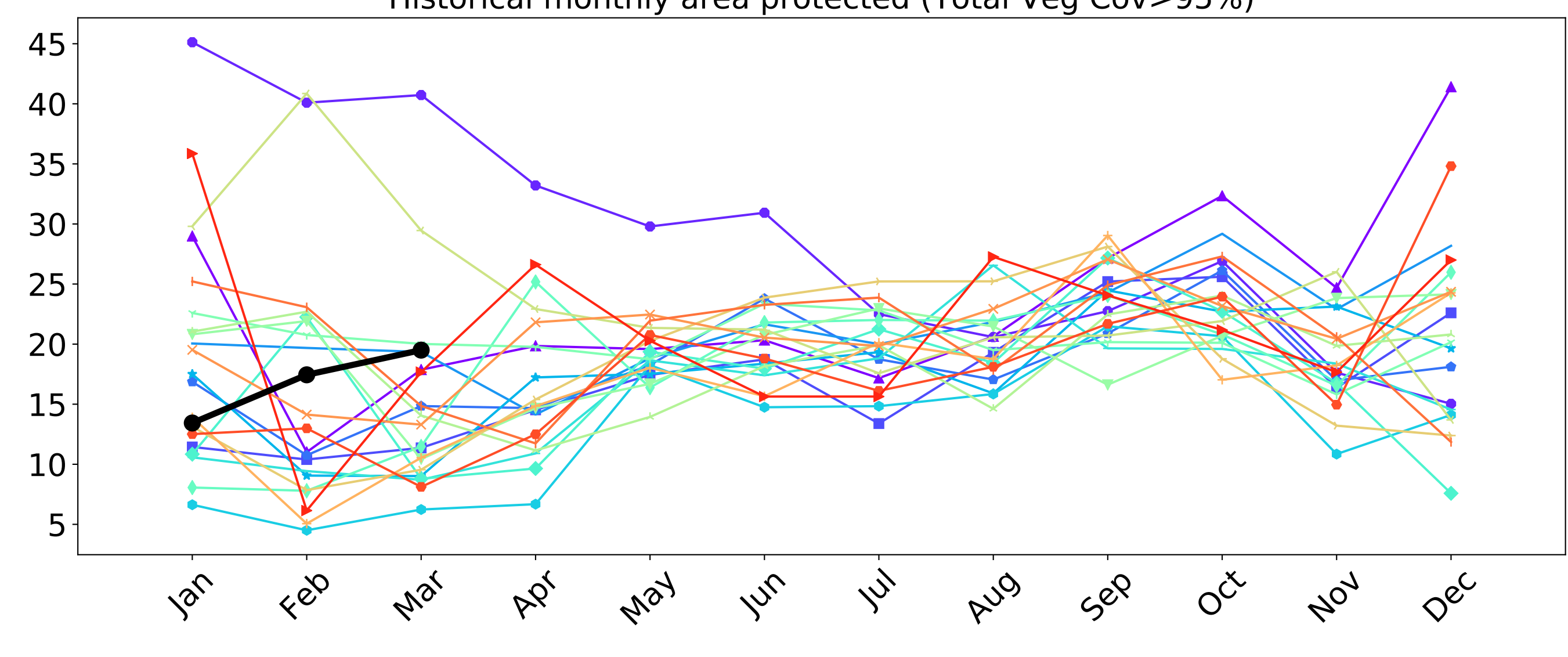
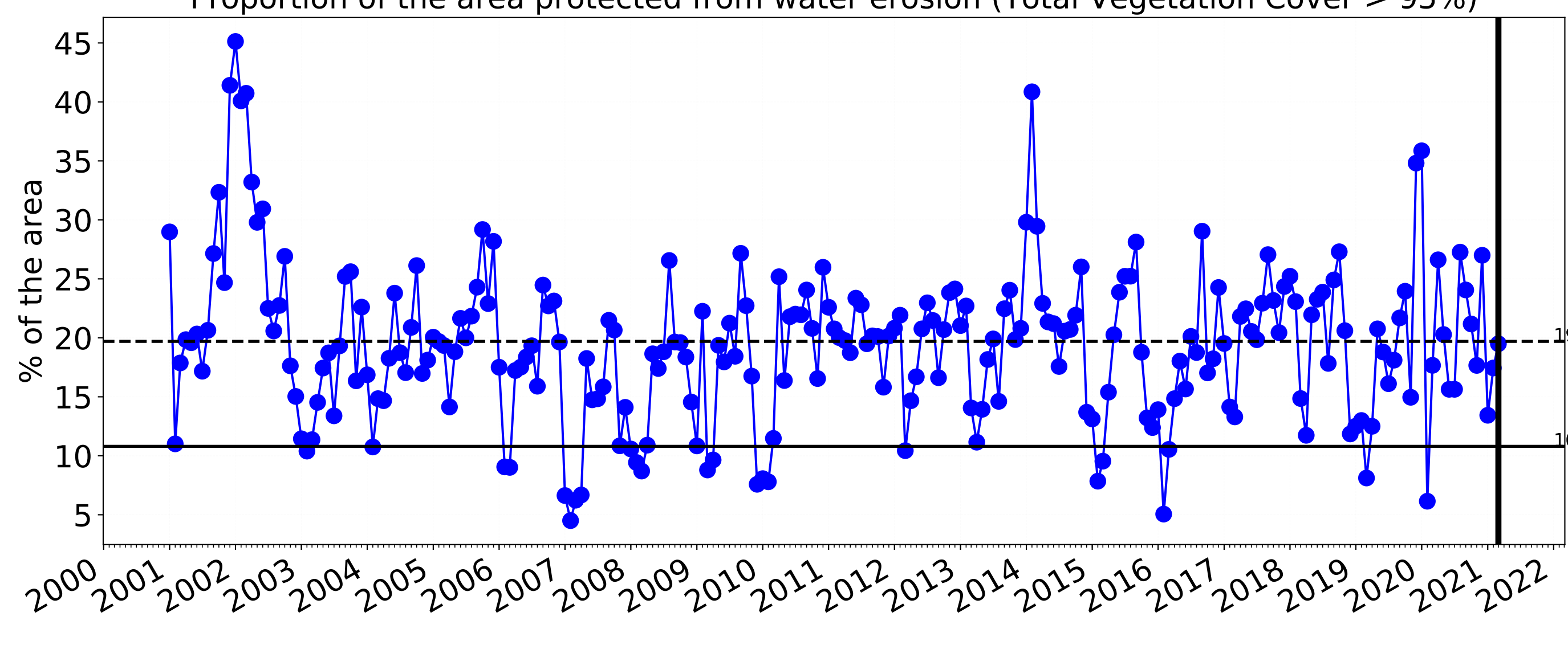
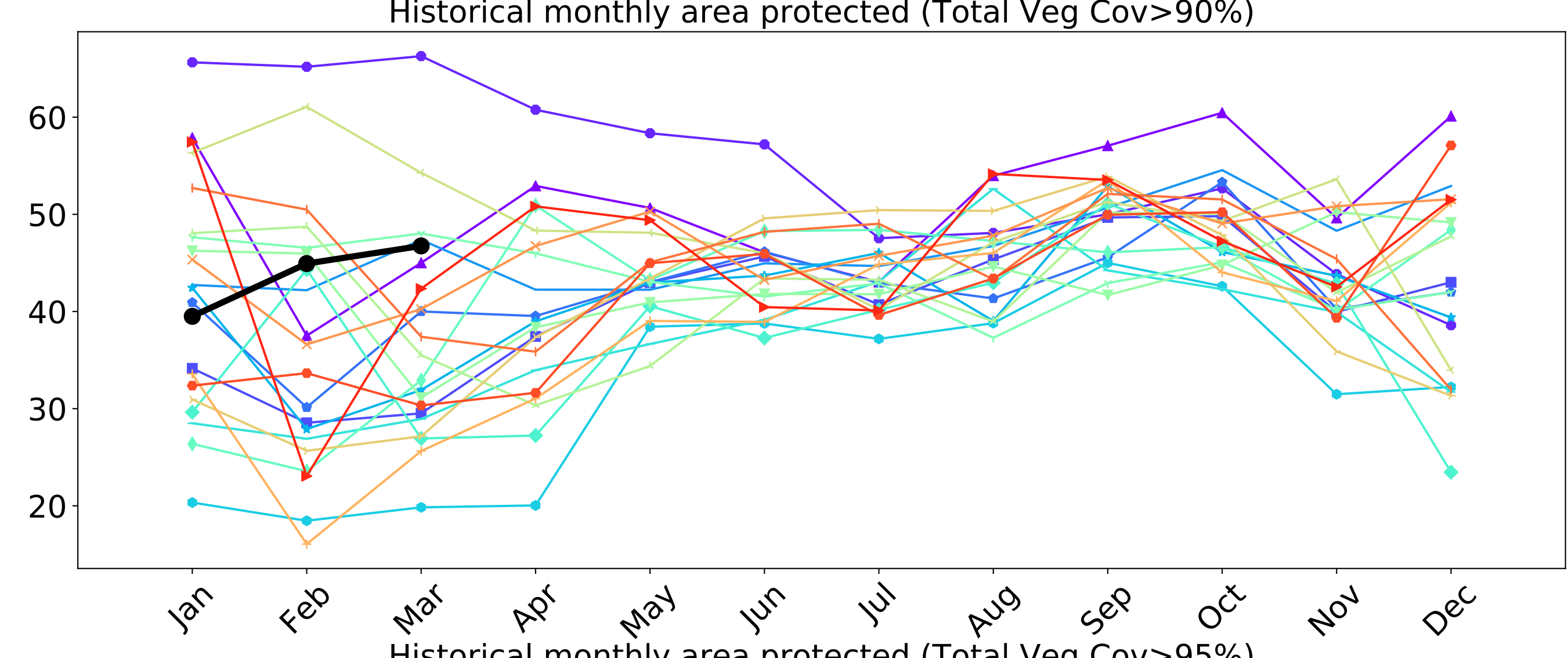
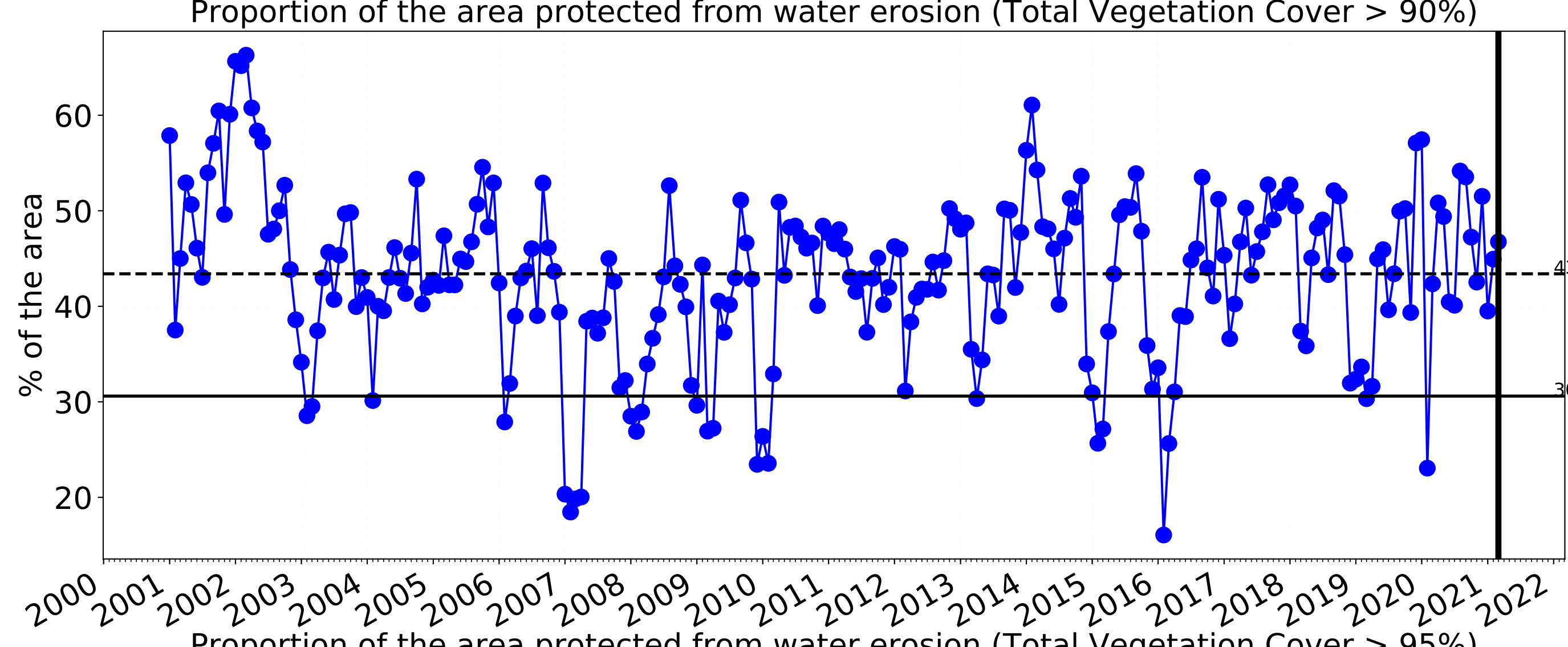
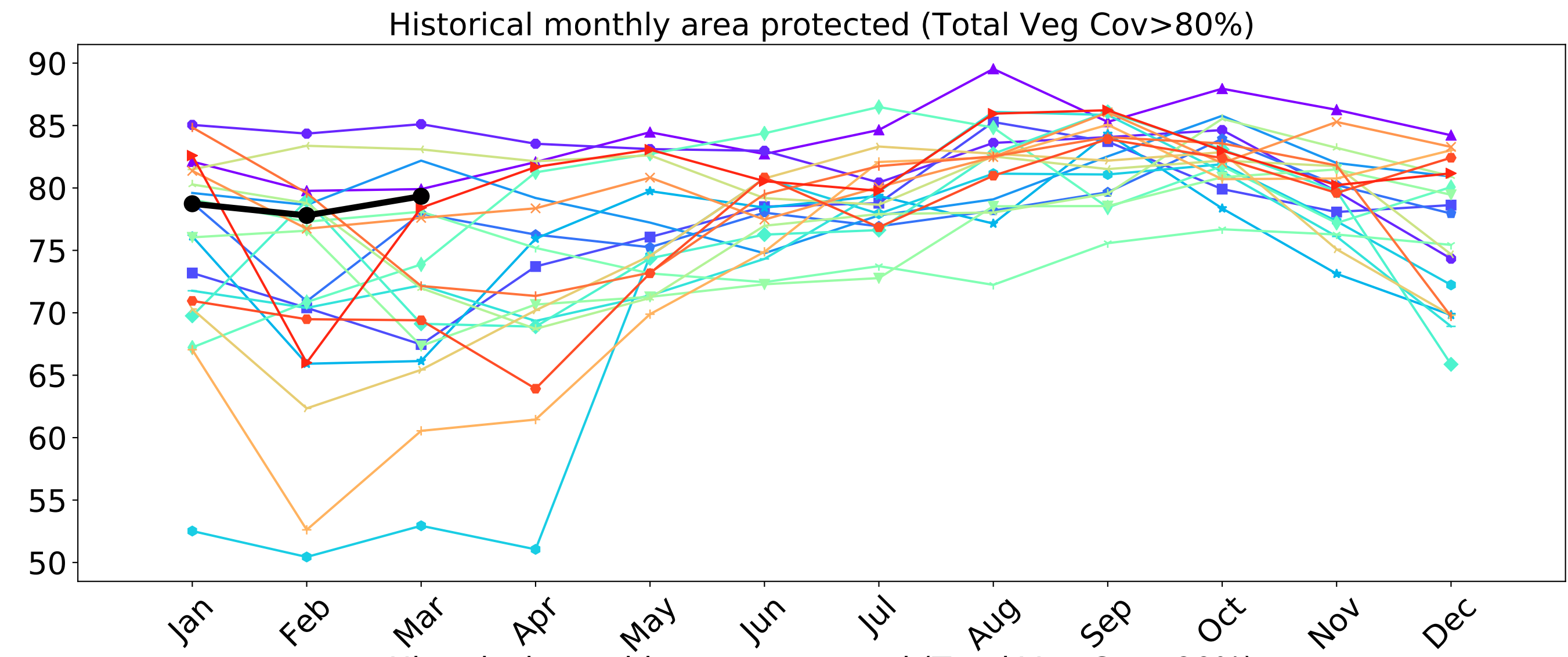
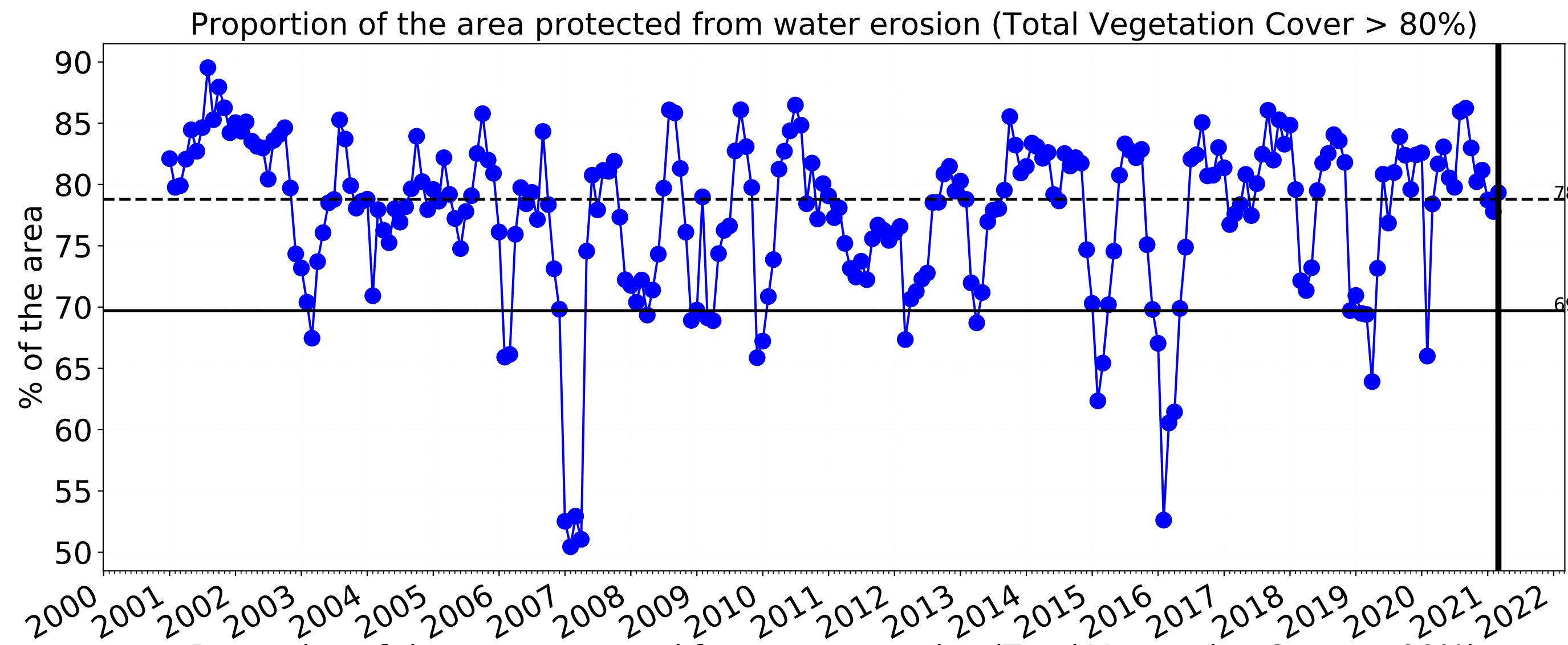


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



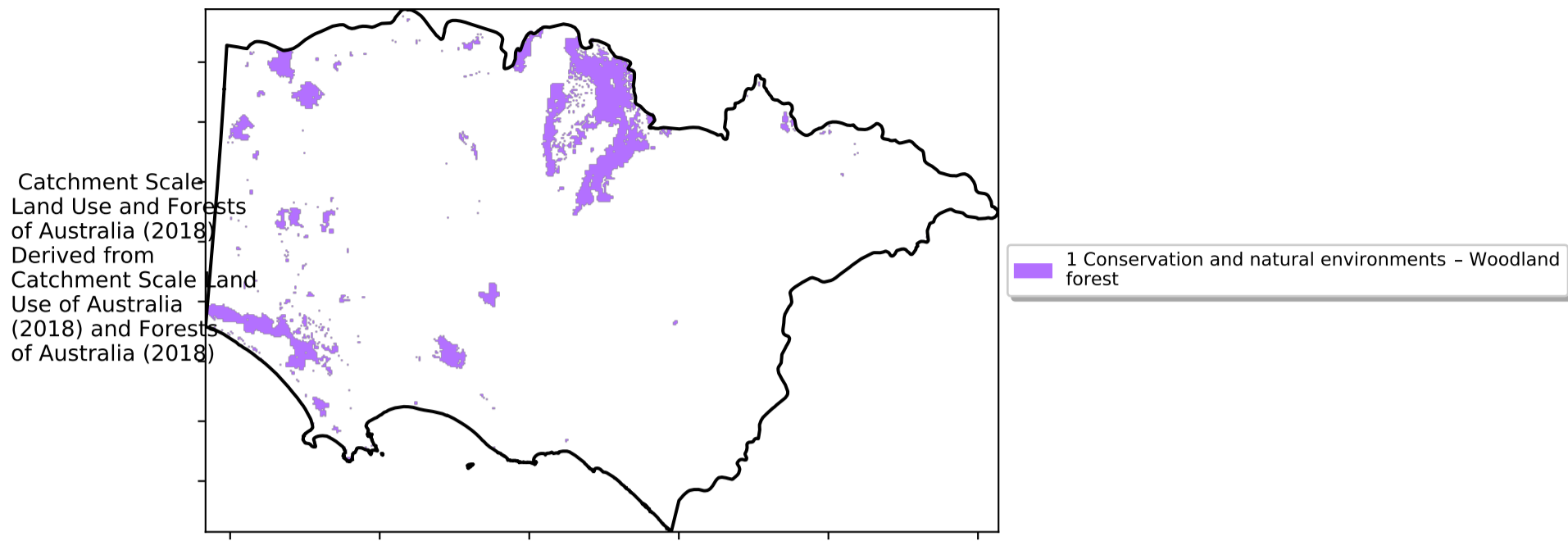
Water erosion historical monthly area protected (Total Veg Cov >70%)



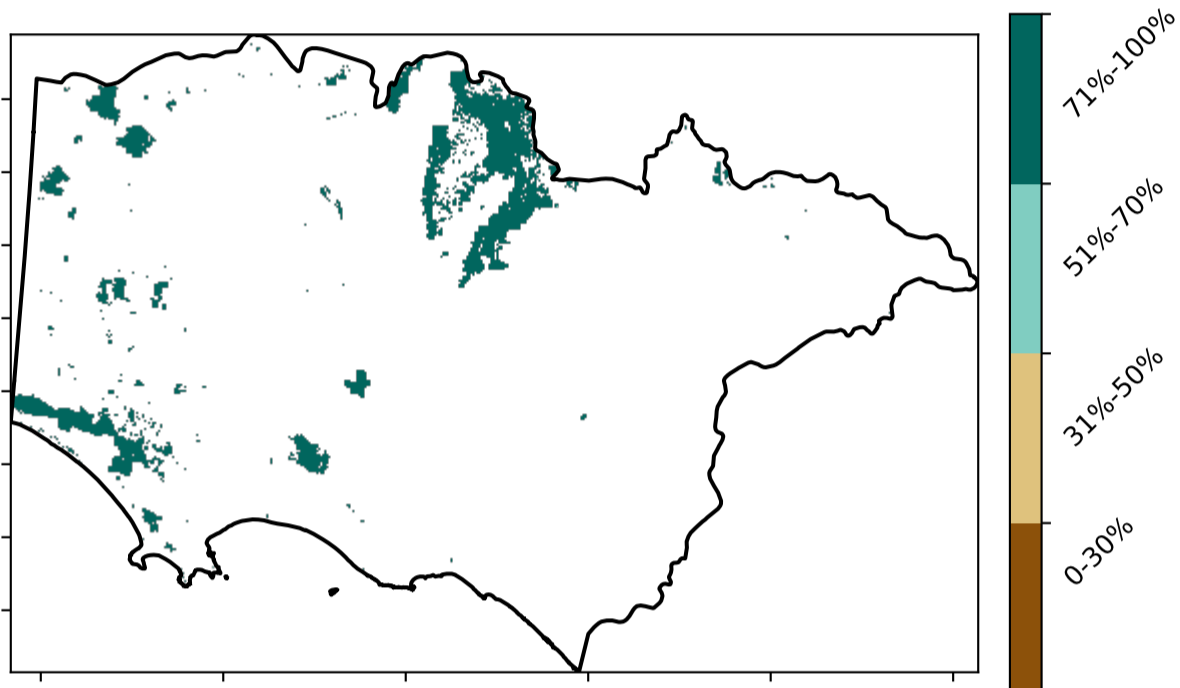


# Conservation and natural environments Woodland forest

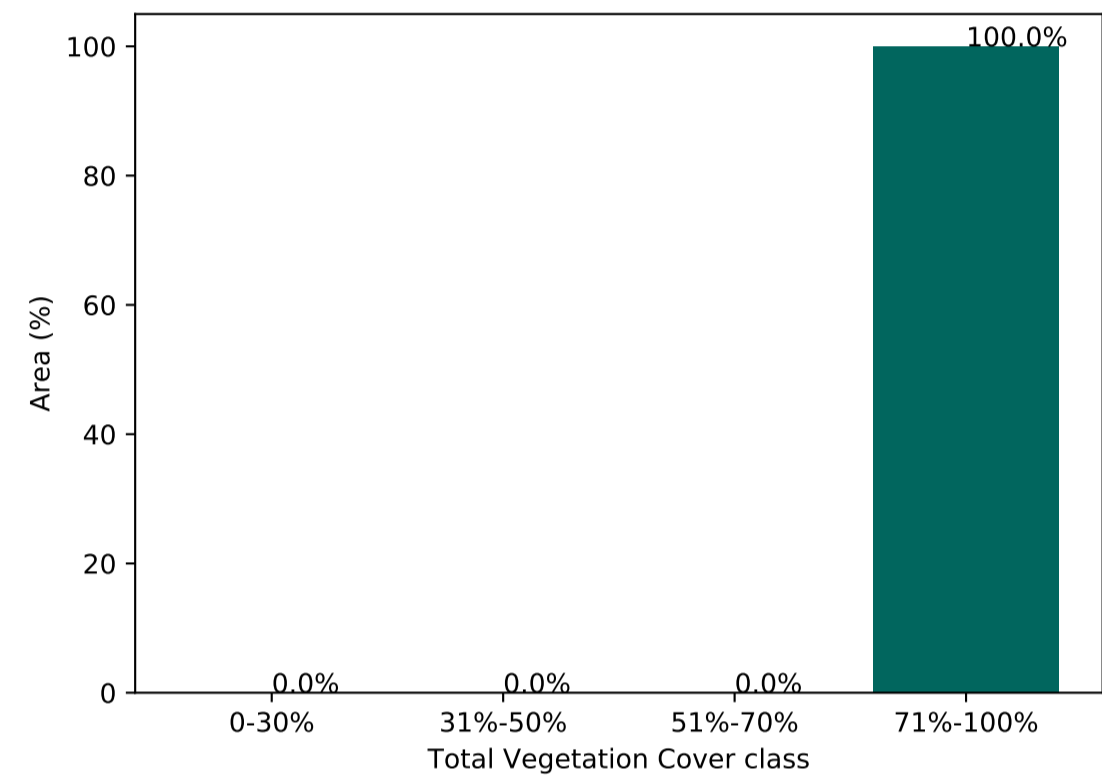
Land use and forest cover



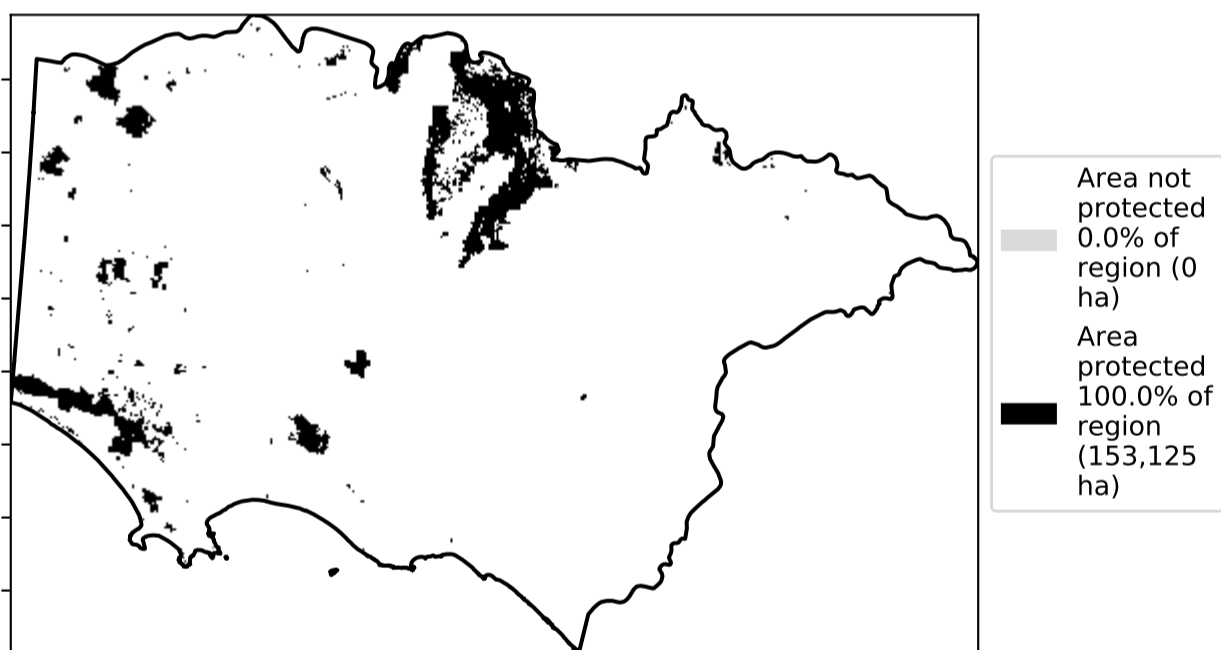
Total Vegetation Cover [%]



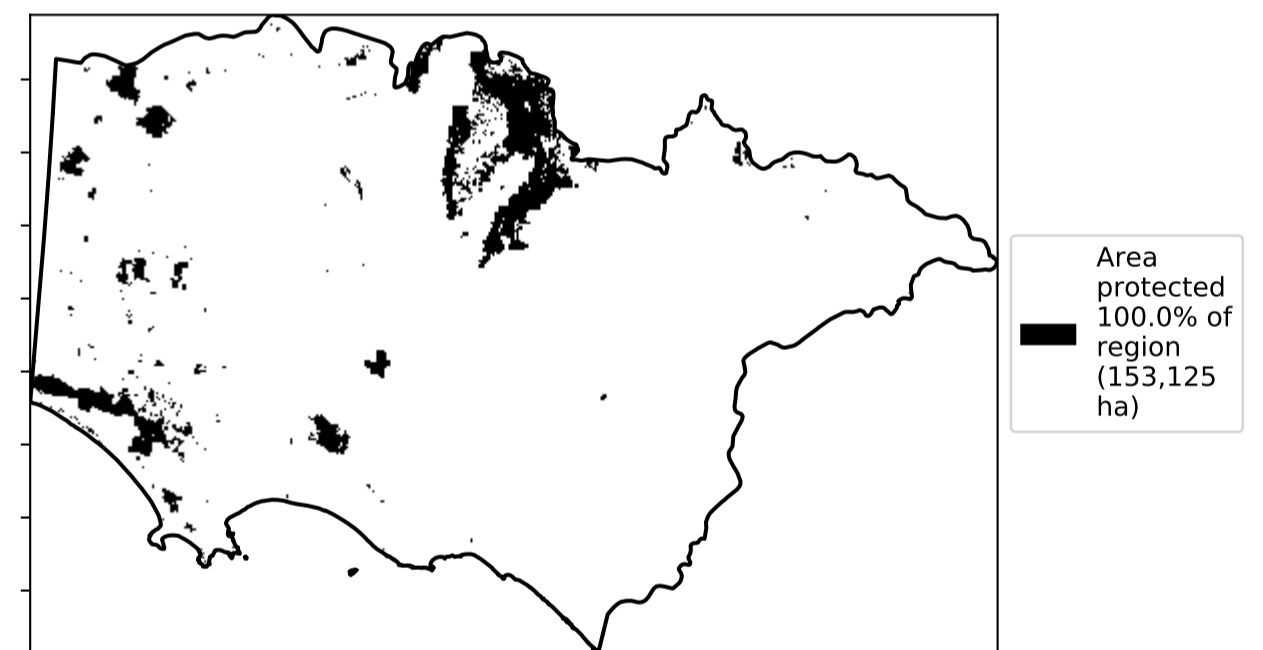
Proportion of vegetation cover class in area



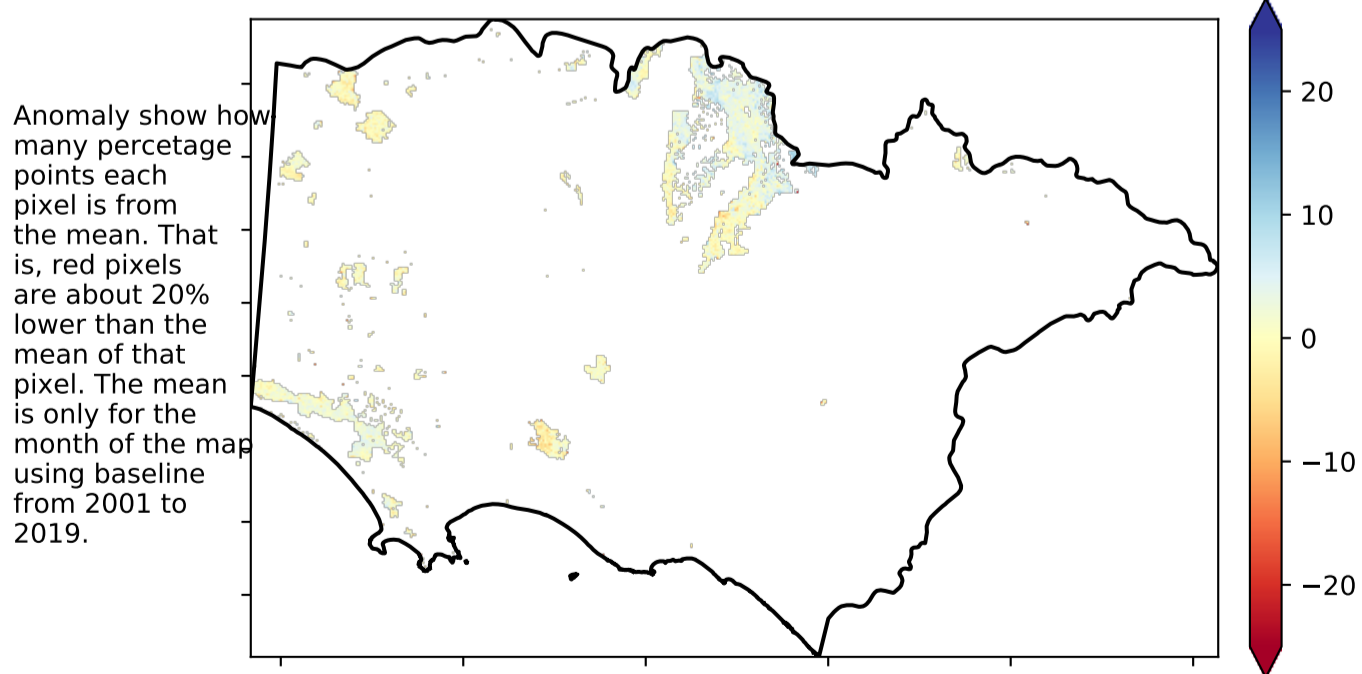
% Area protected from water erosion (>70%)



% Area protected from wind erosion (>50%)

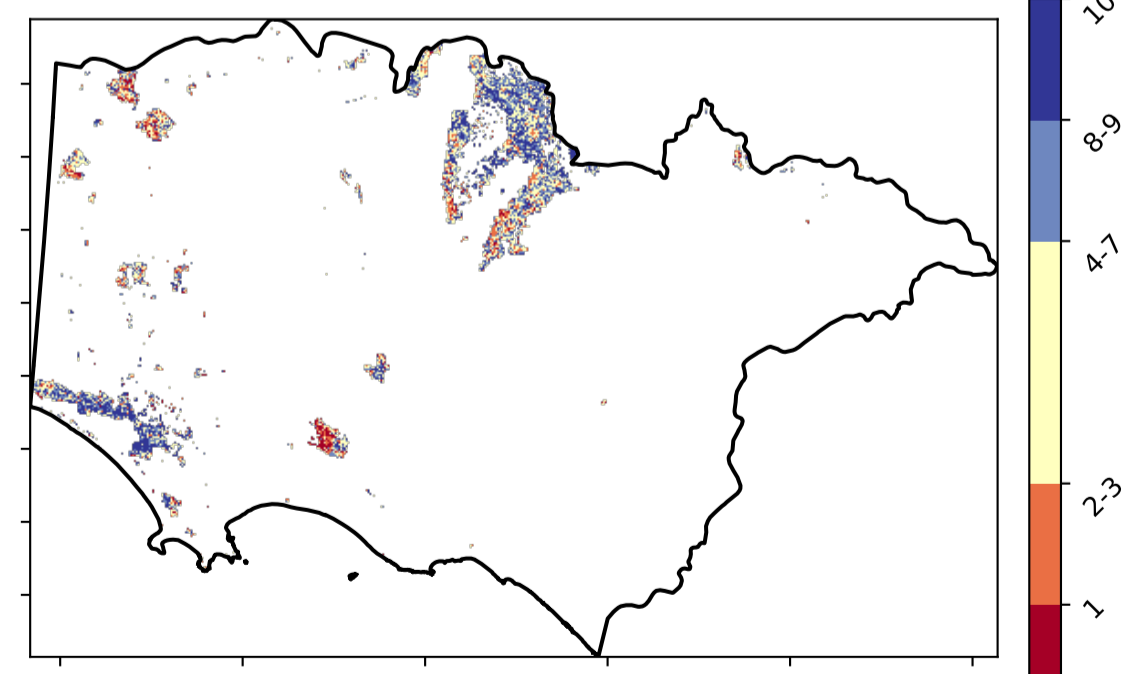


Total Vegetation Cover Anomaly [%]



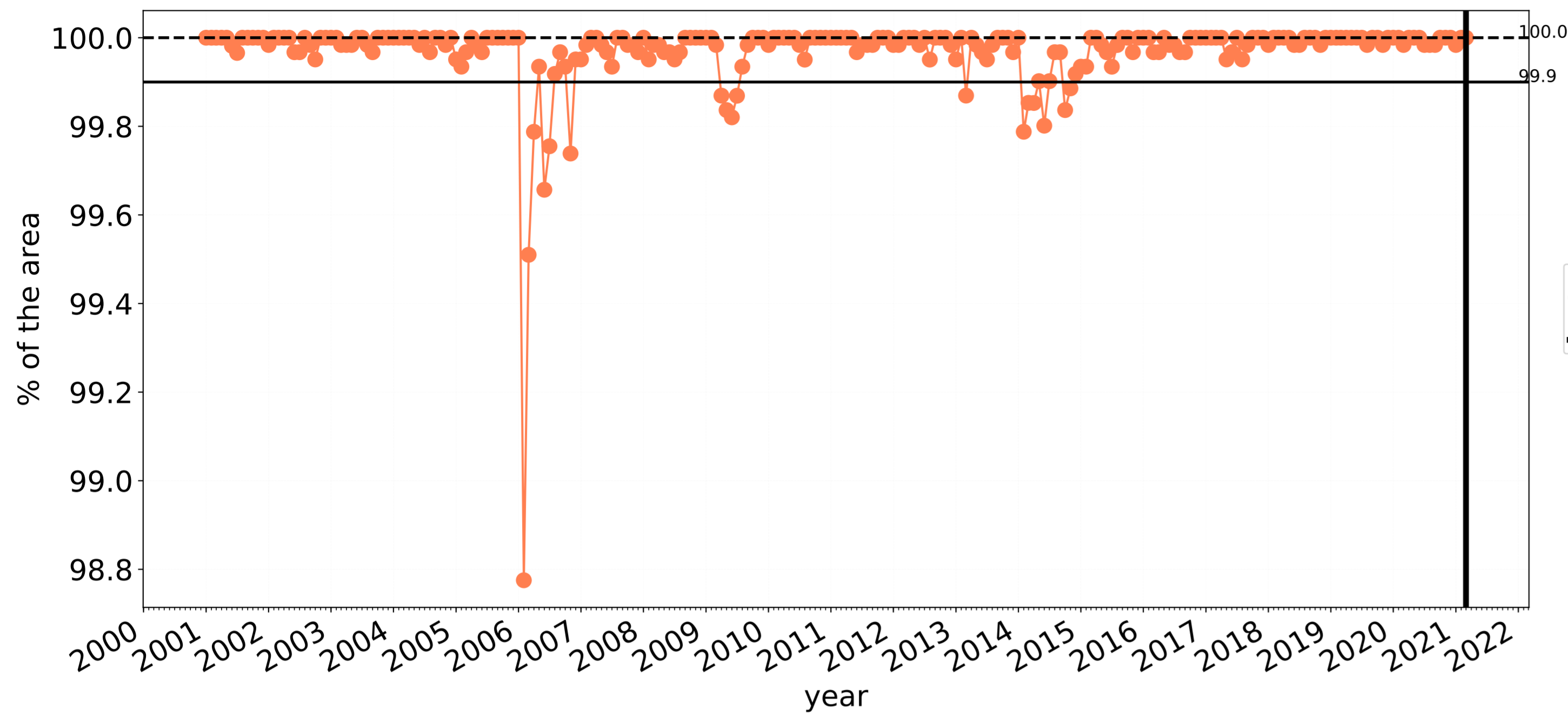
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]

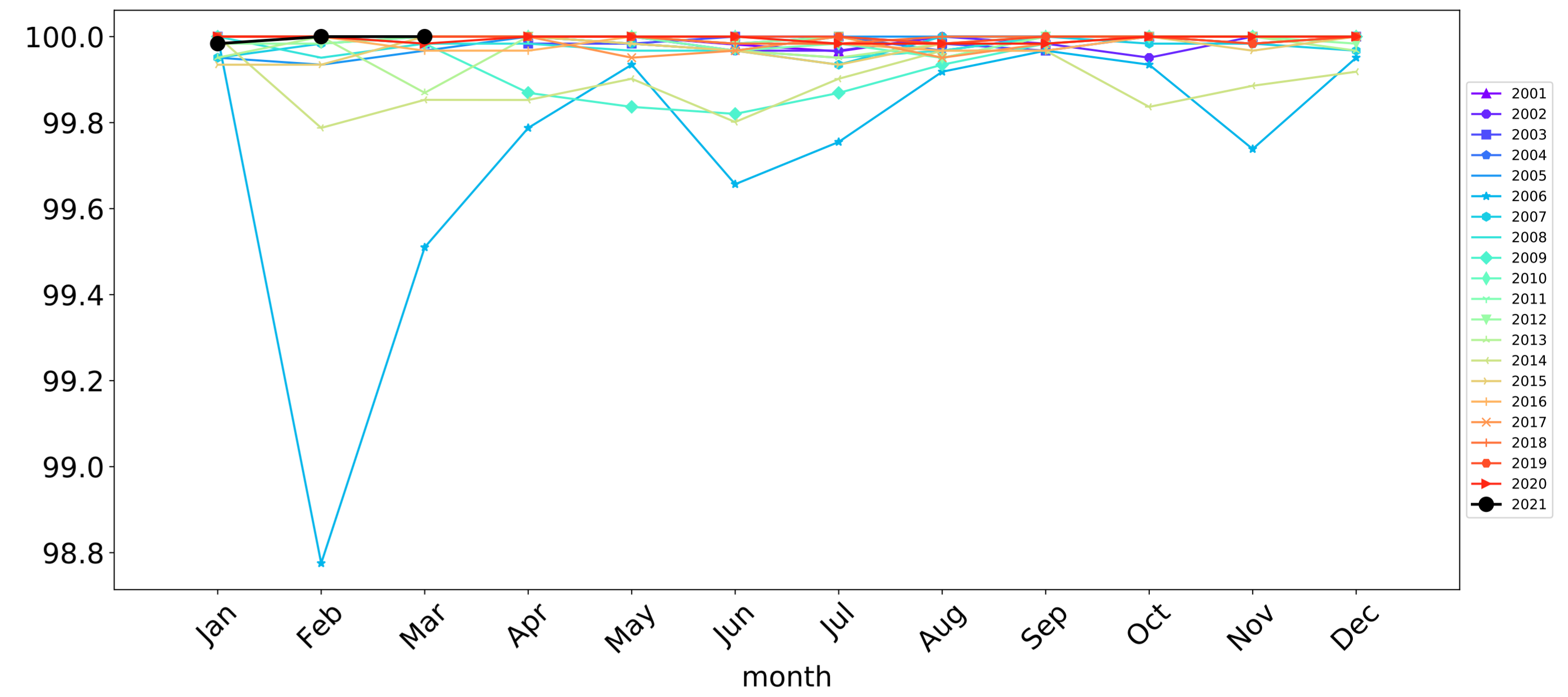


# Conservation and natural environments Woodland forest timeseries

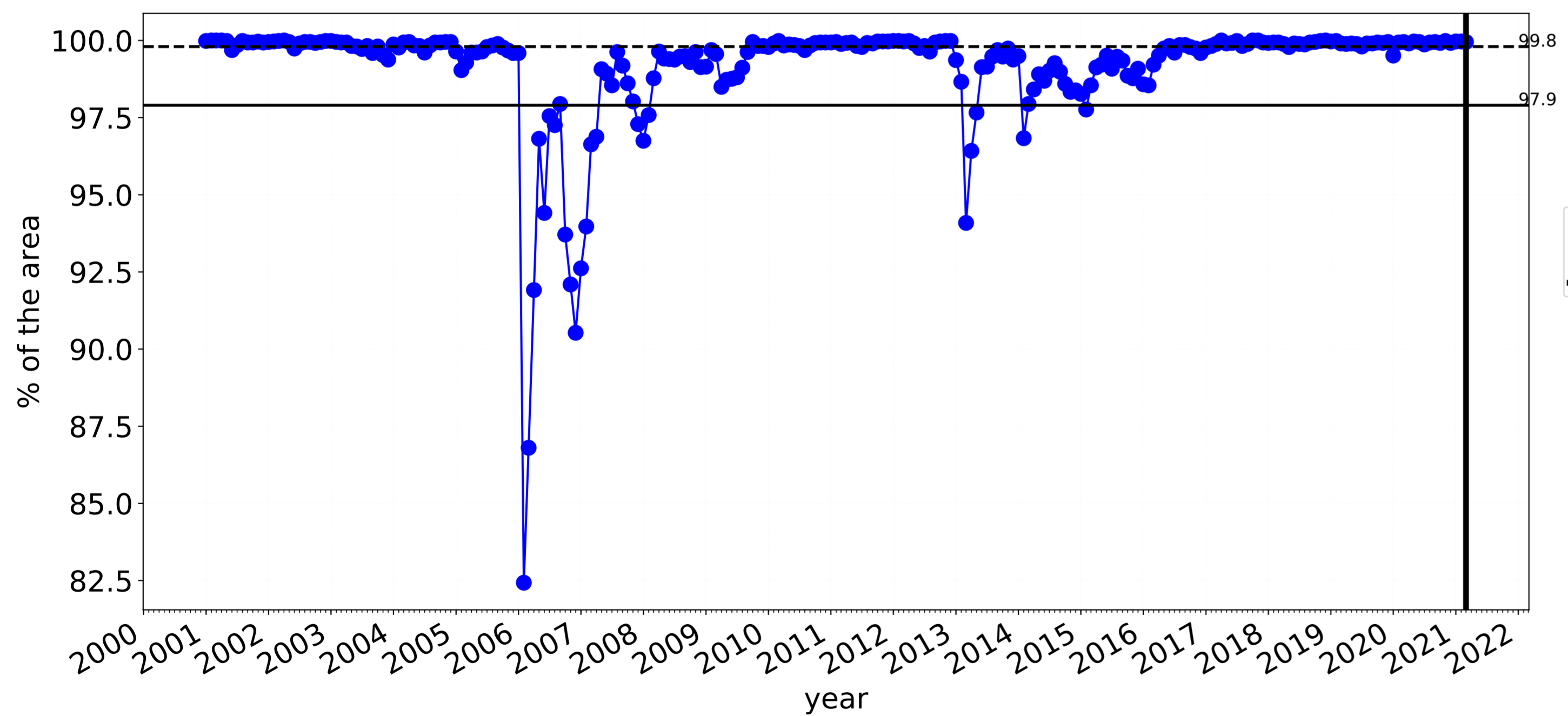
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



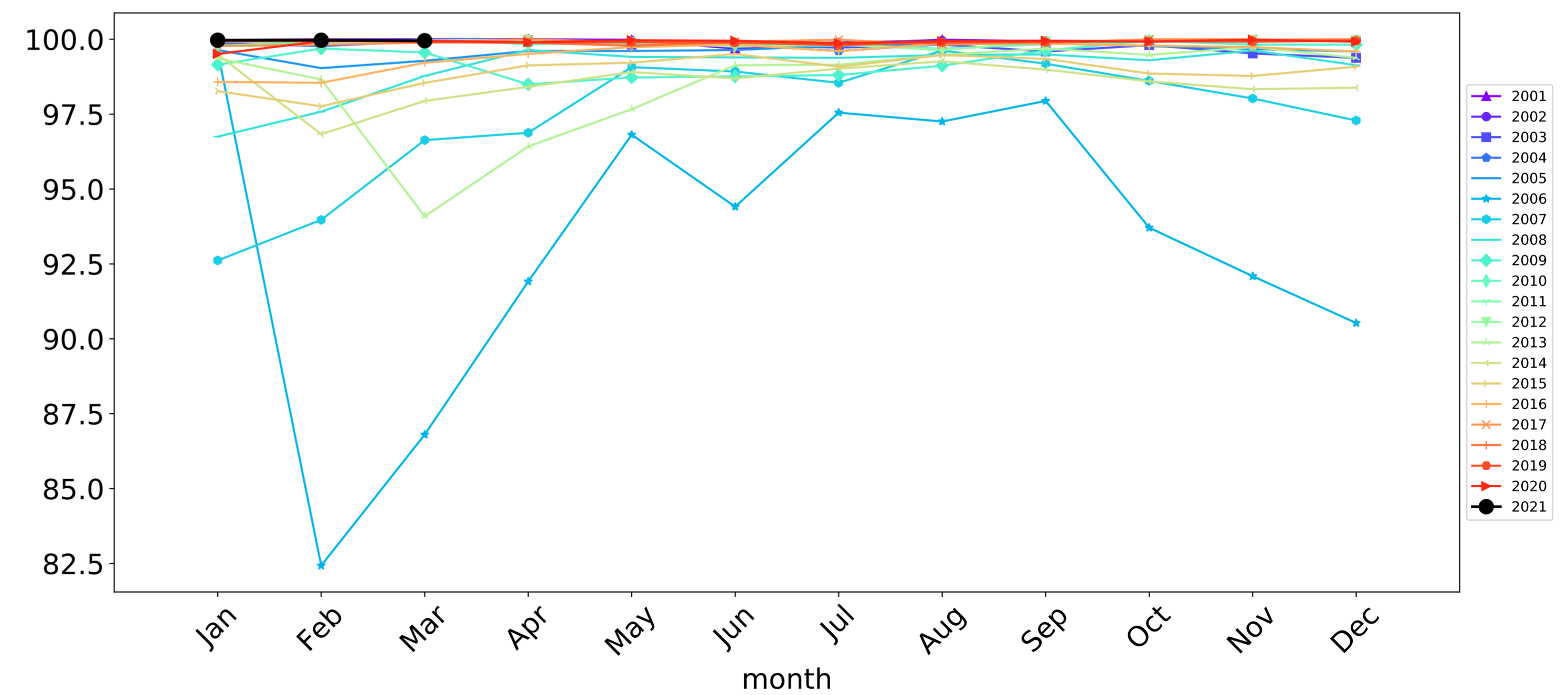
Wind erosion historical monthly area protected (Total Veg Cov >50%)

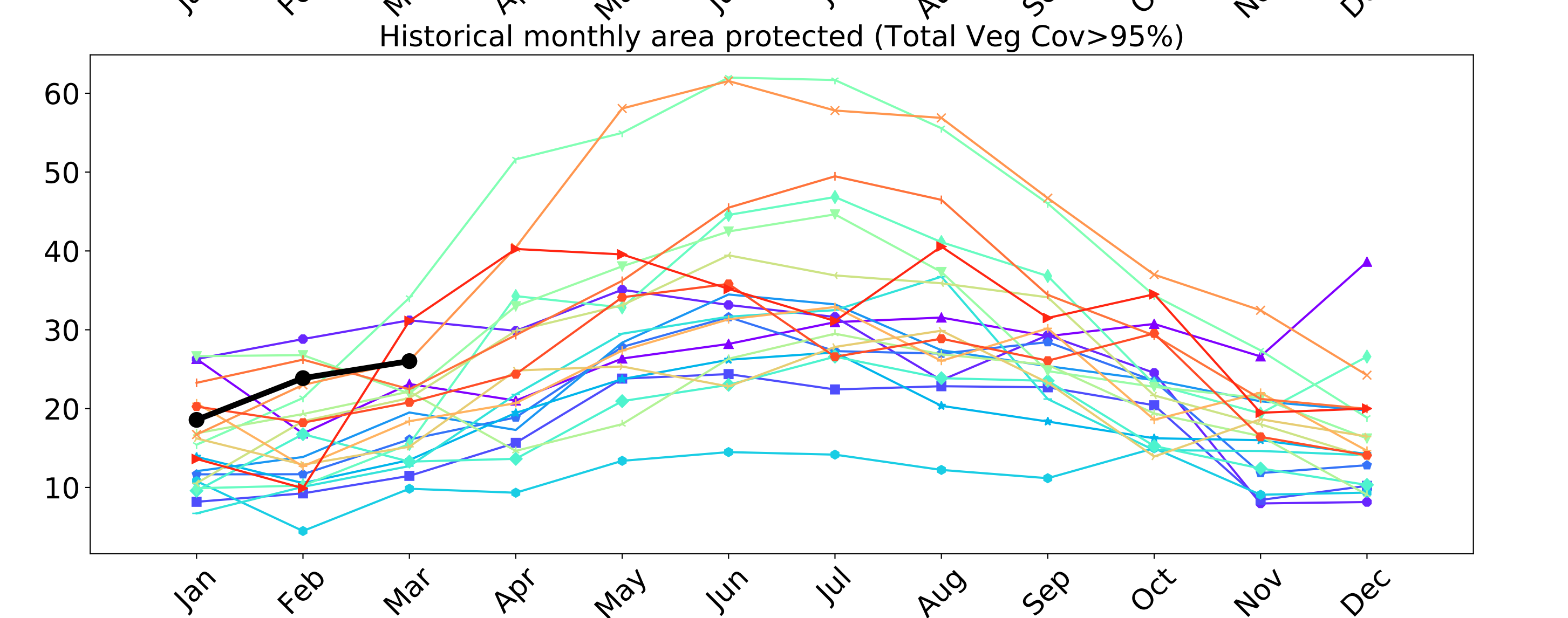
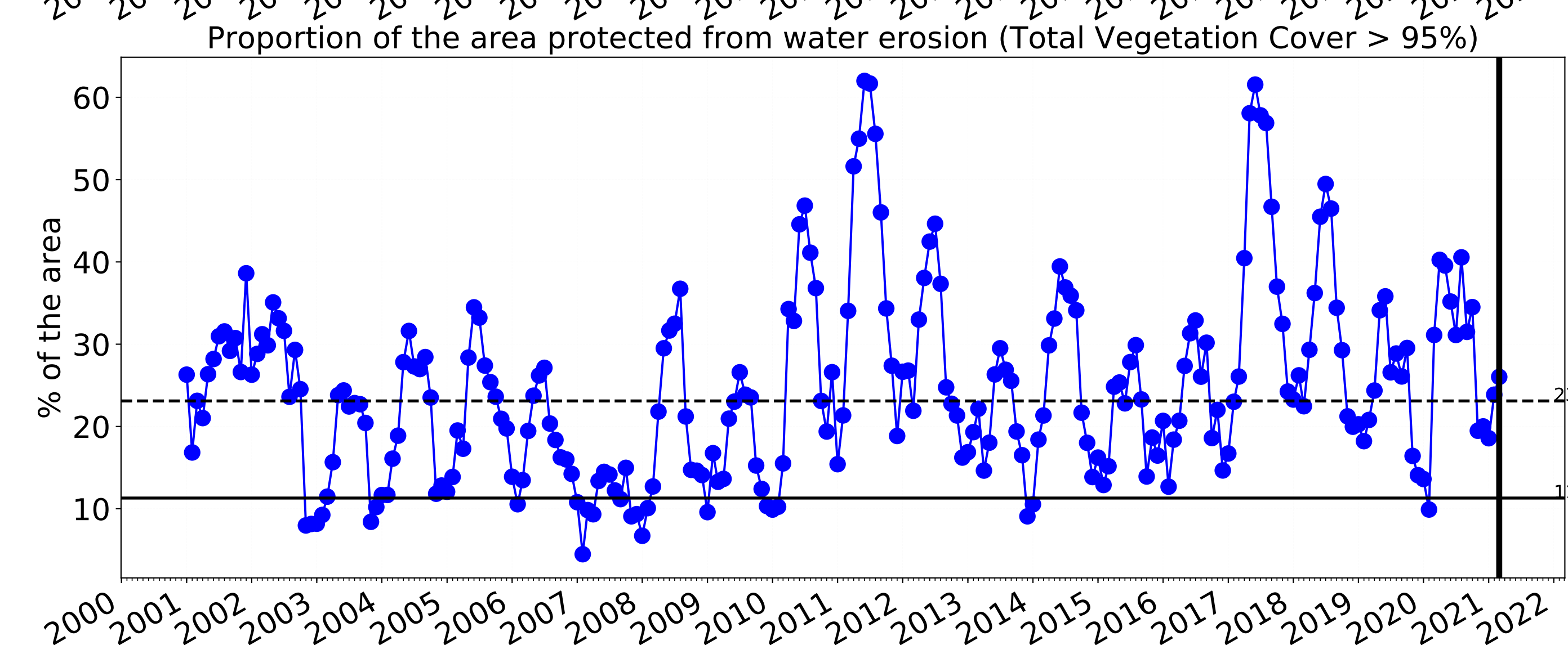
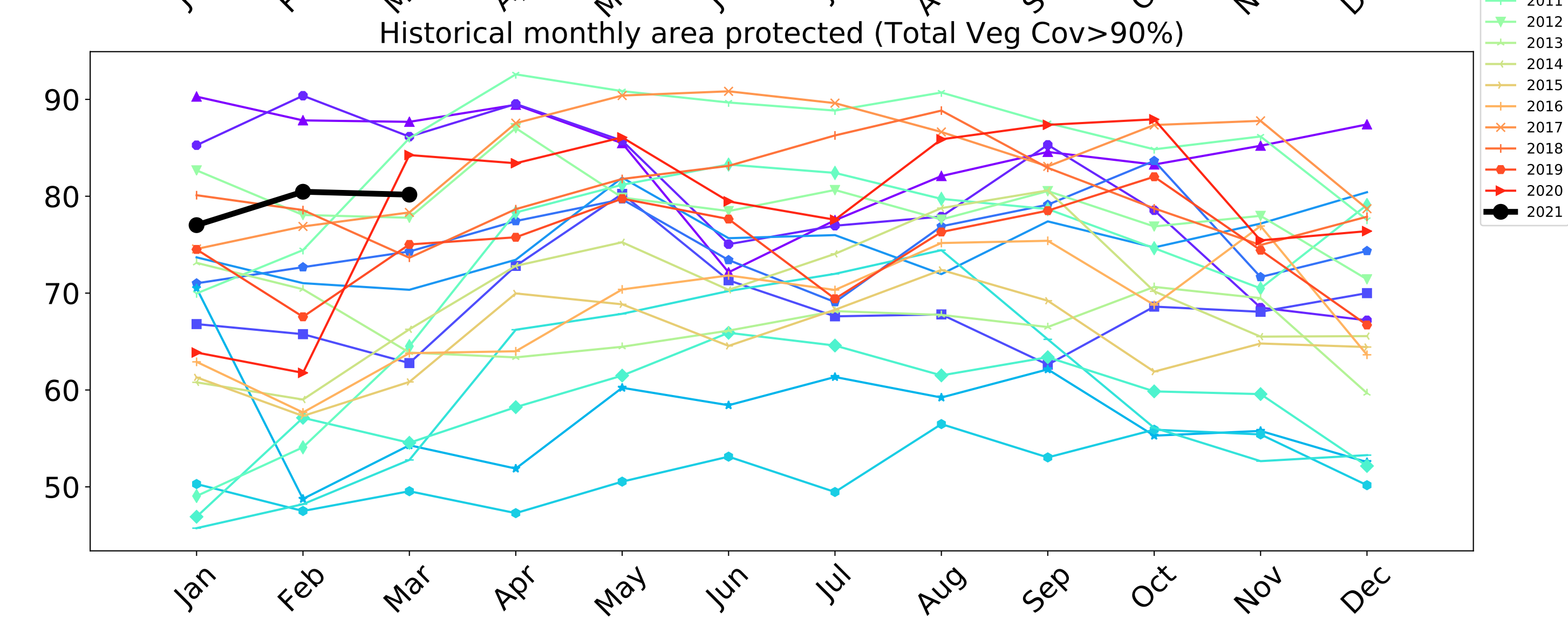
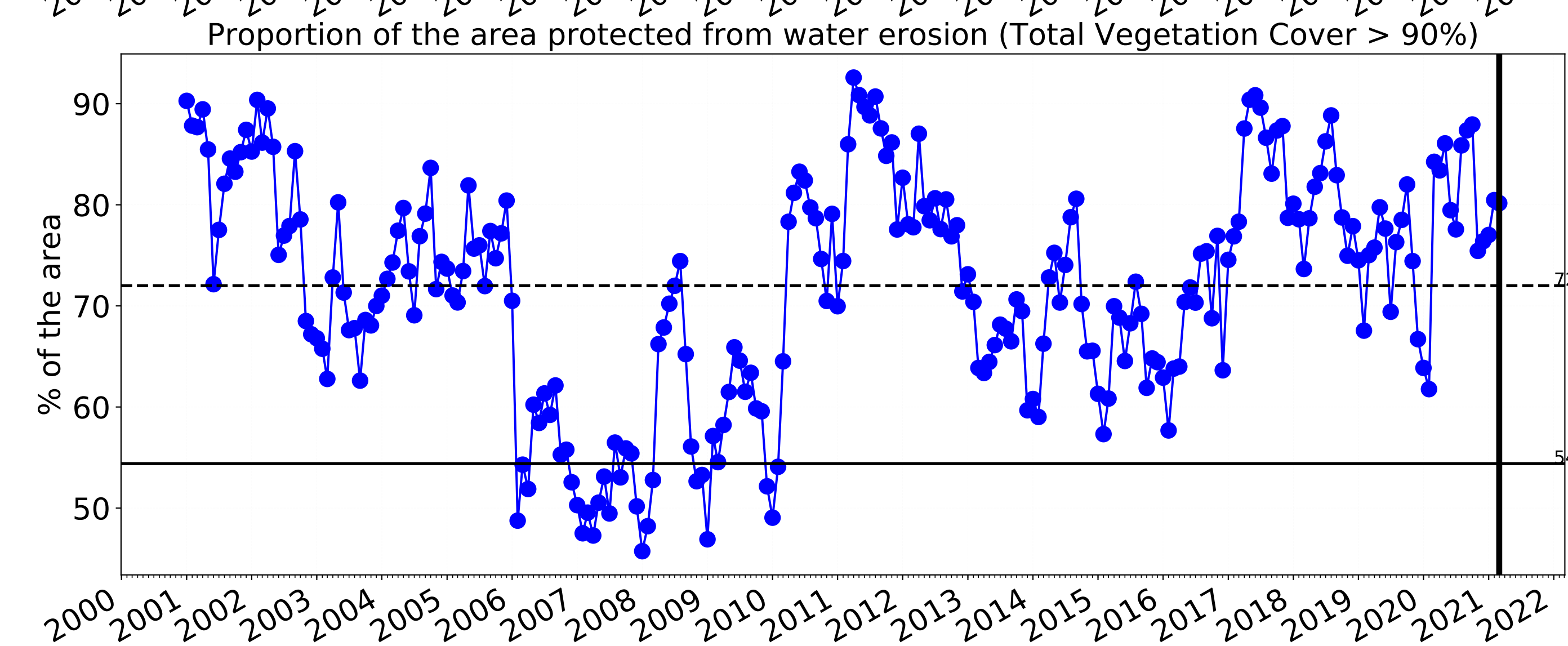
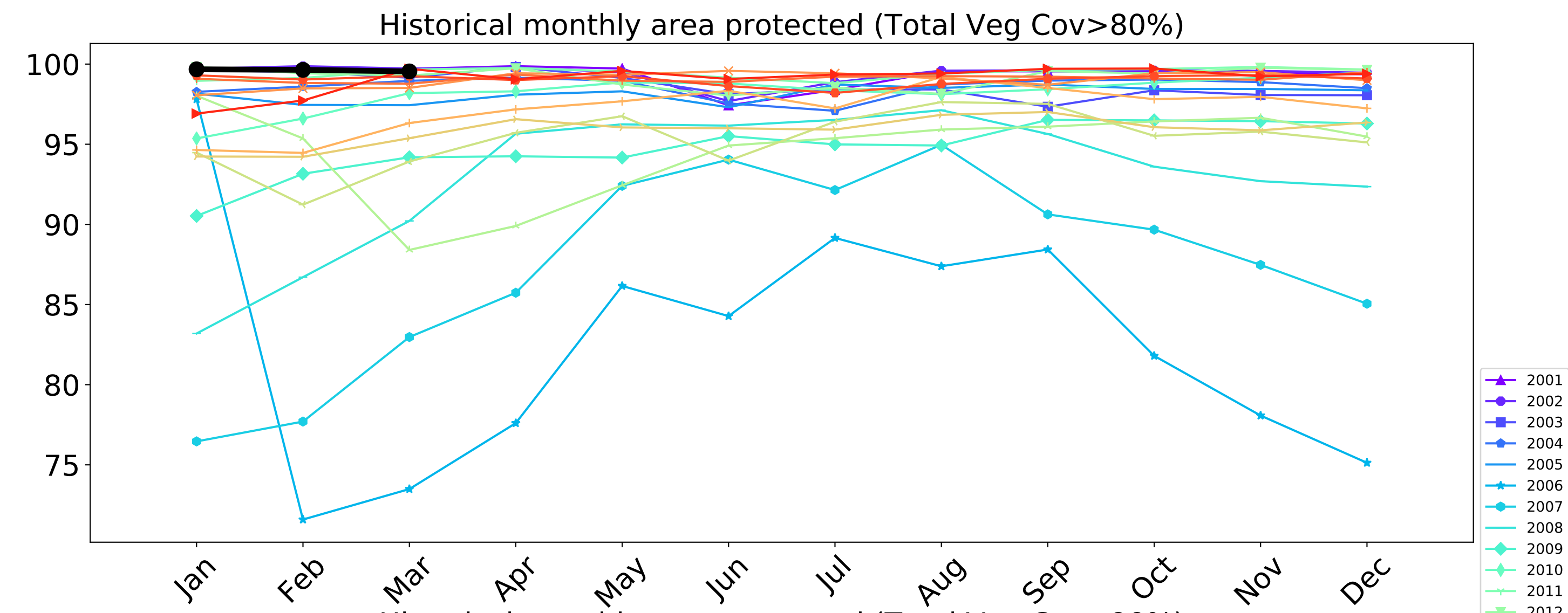
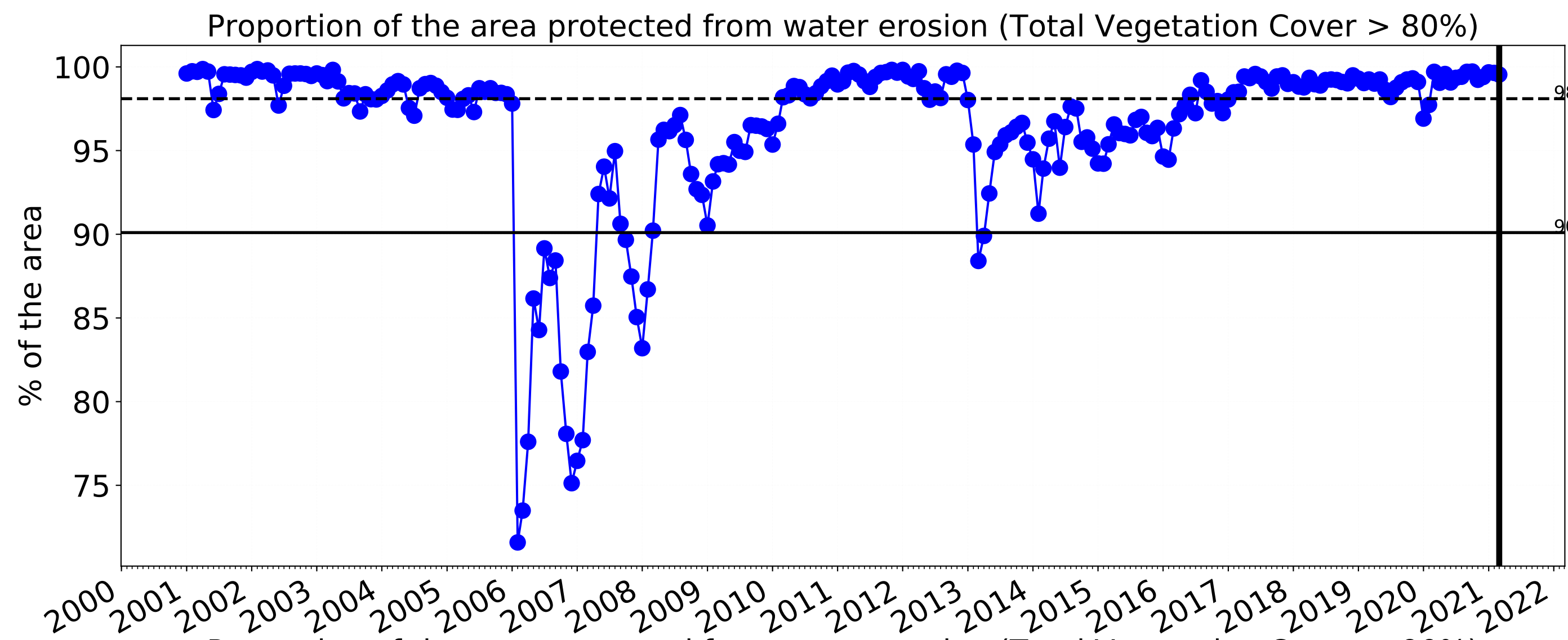


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



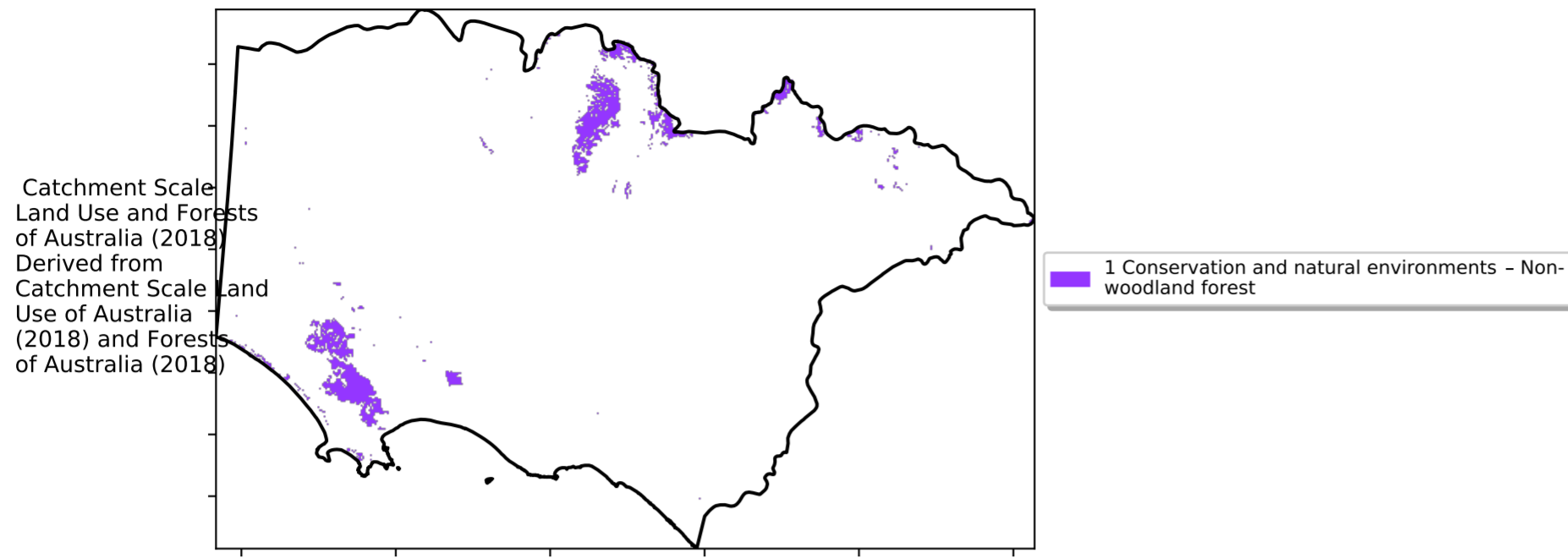
Water erosion historical monthly area protected (Total Veg Cov >70%)



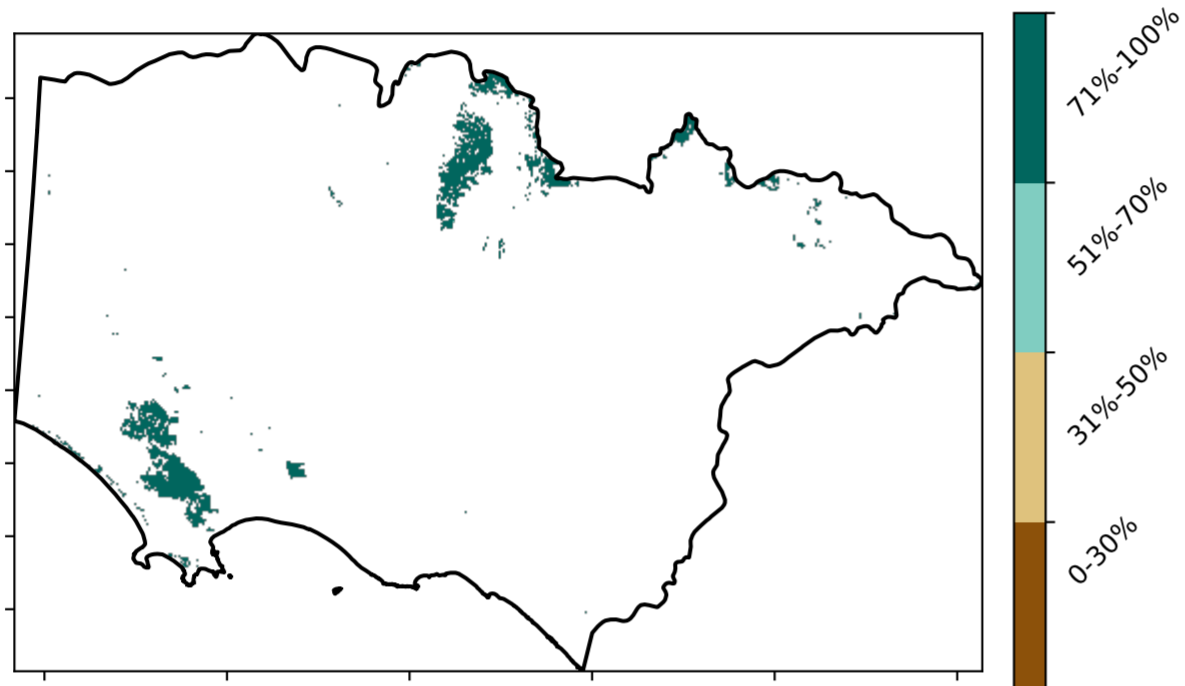


# Conservation and natural environments Forest (non woodland)

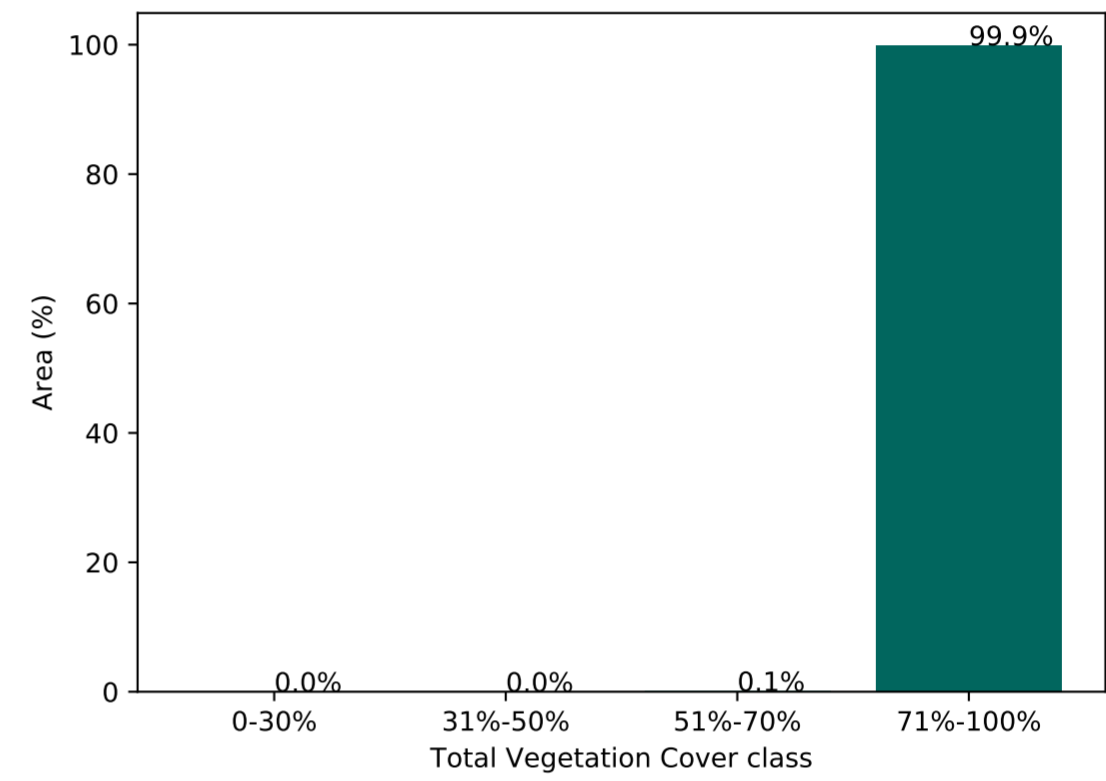
Land use and forest cover



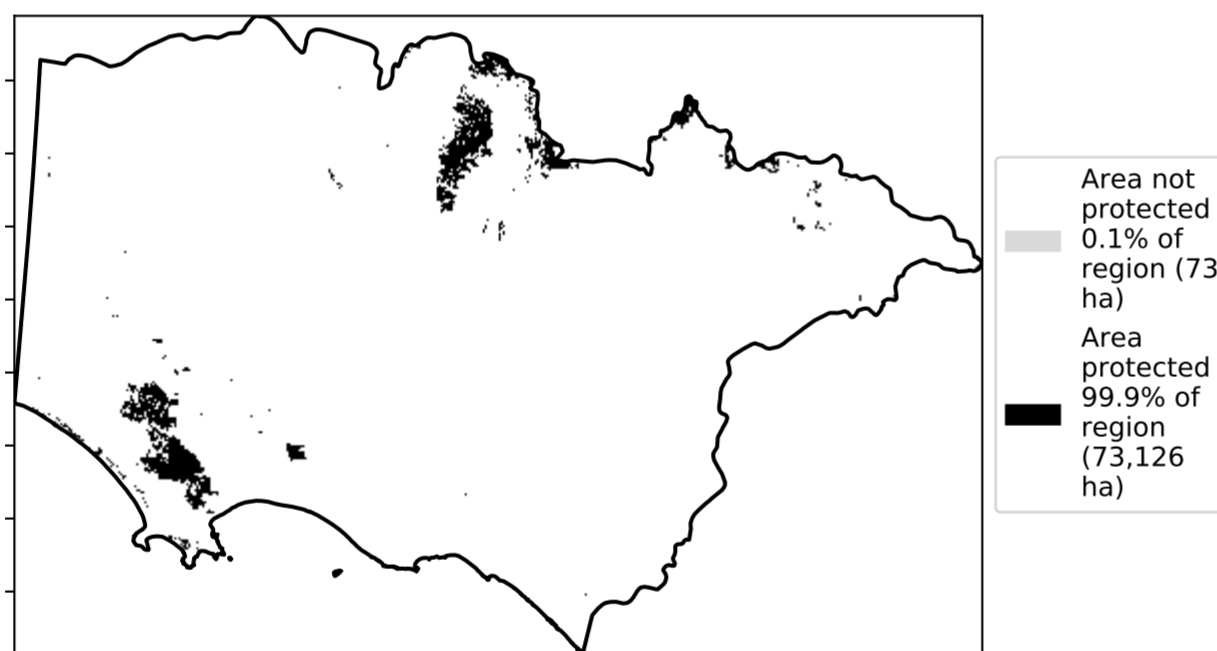
Total Vegetation Cover [%]



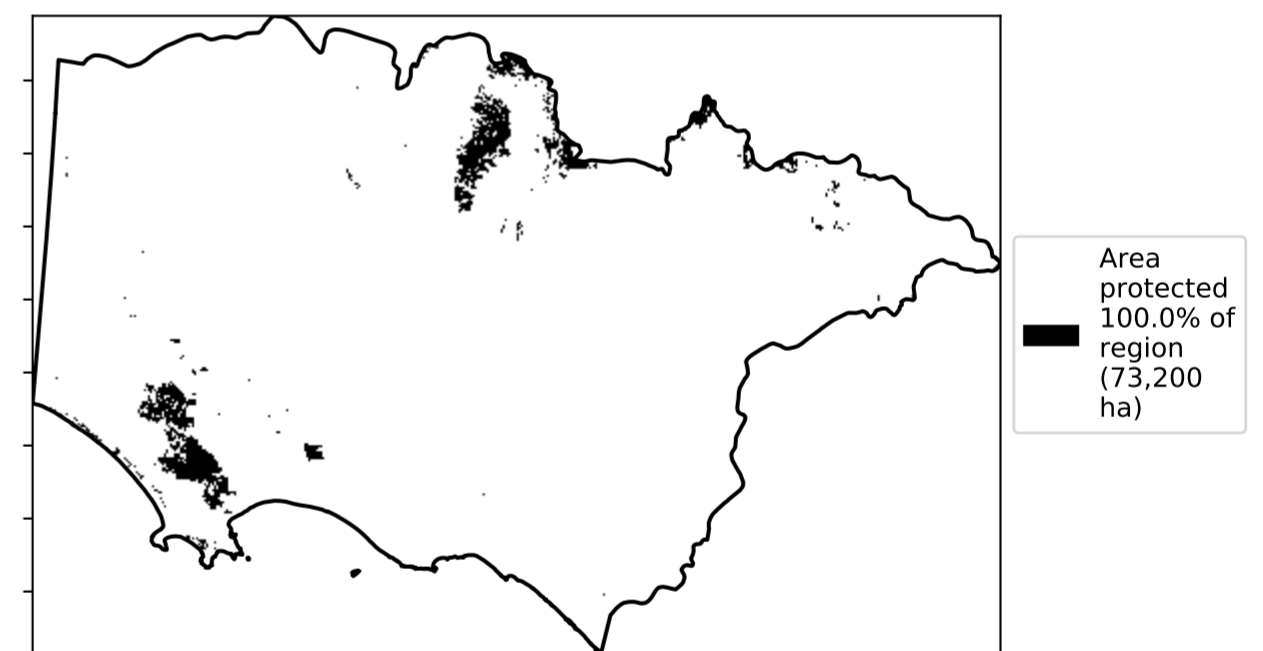
Proportion of vegetation cover class in area



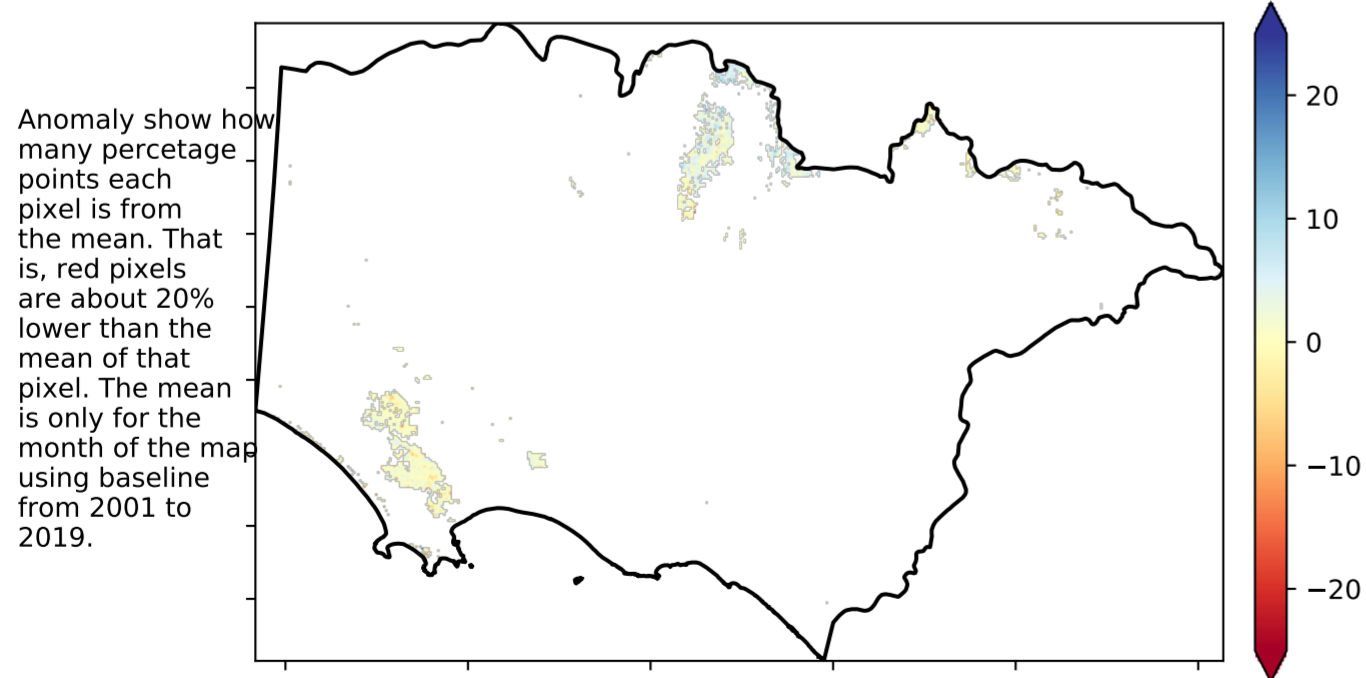
% Area protected from water erosion (>70%)



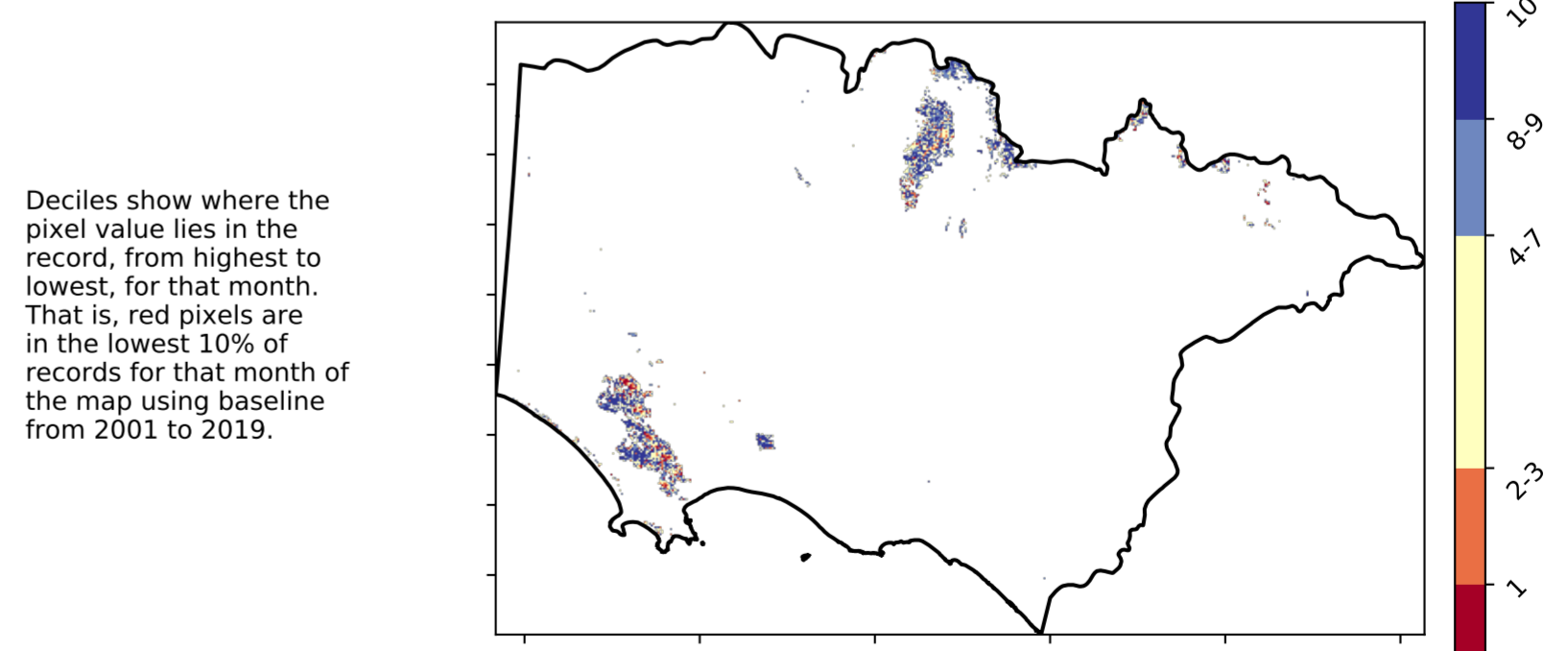
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

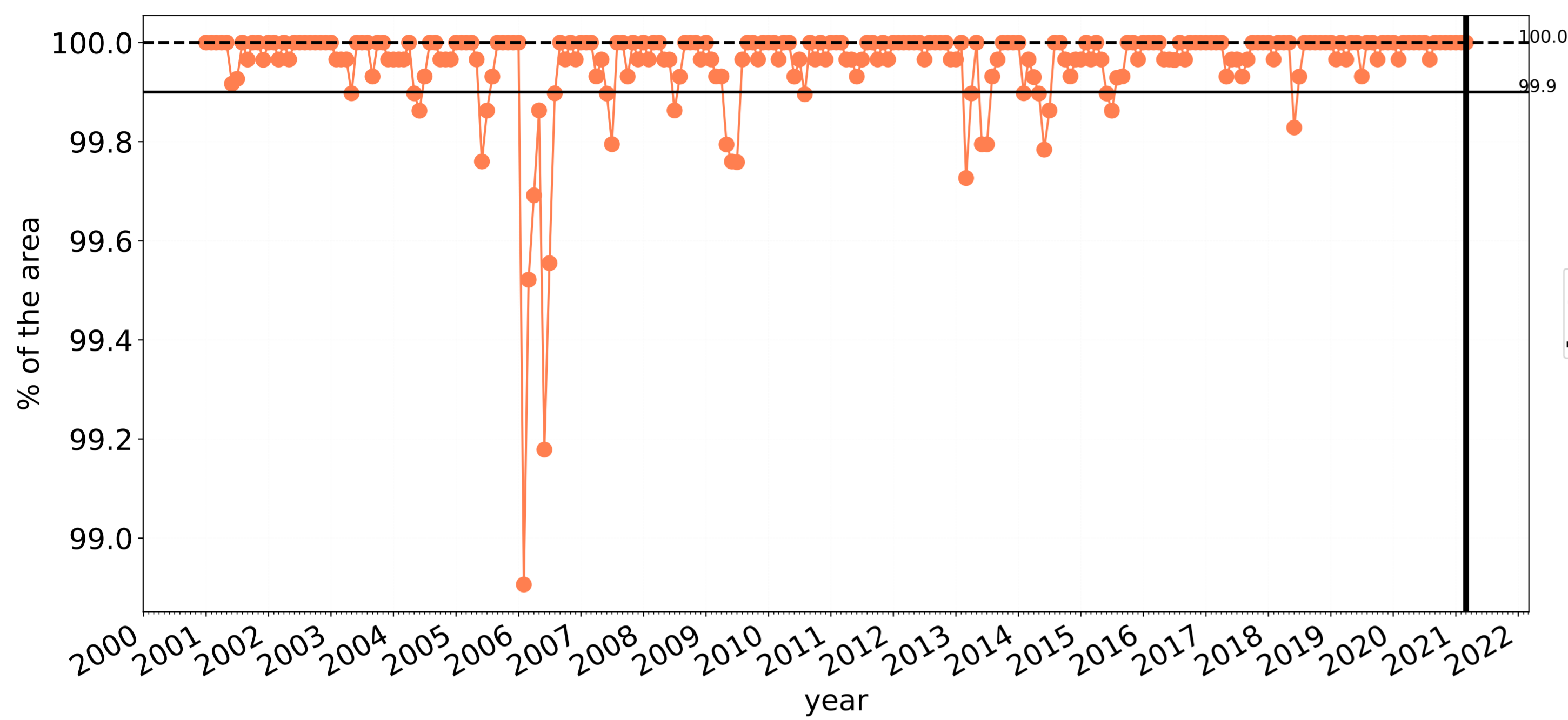


Total Vegetation Cover Decile [%]



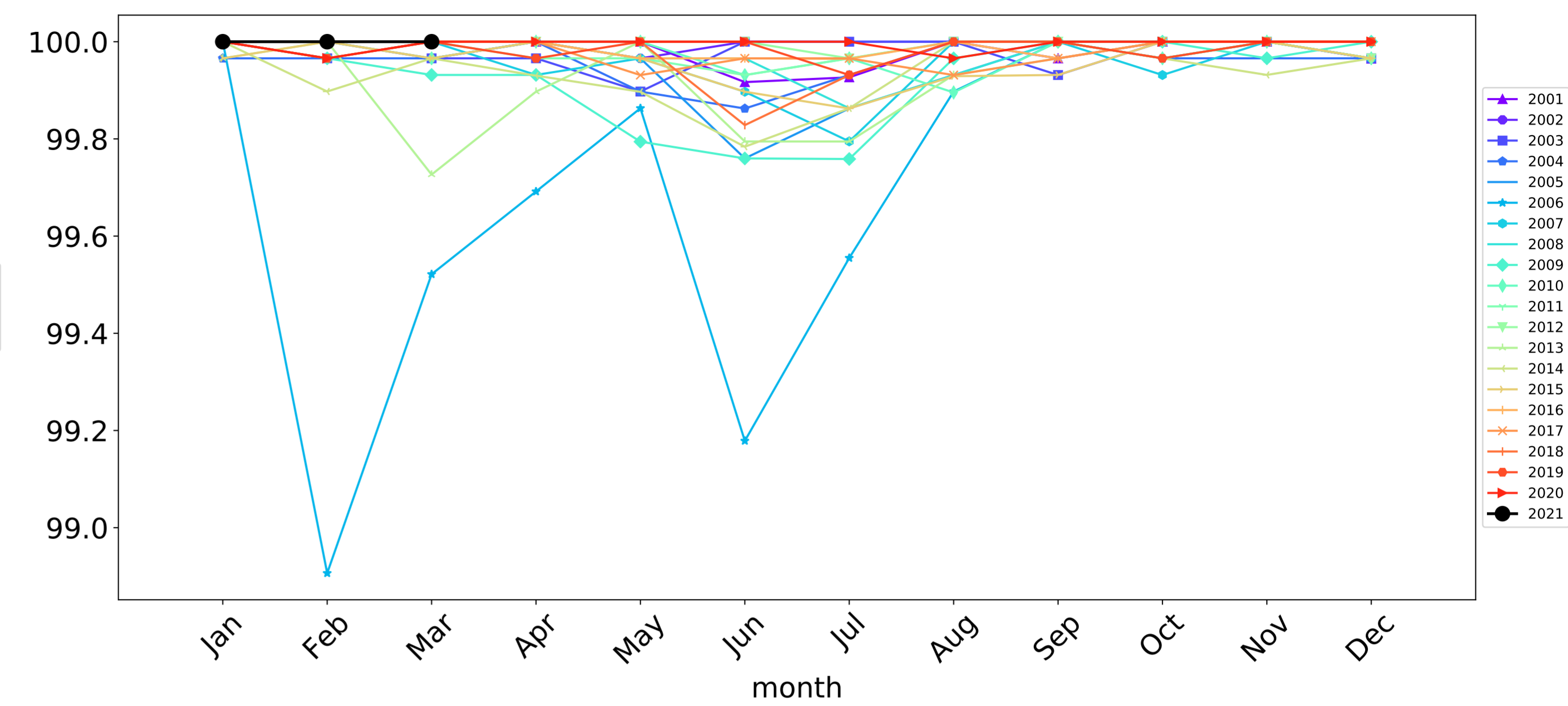
# Conservation and natural environments Forest (non woodland) timeseries

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

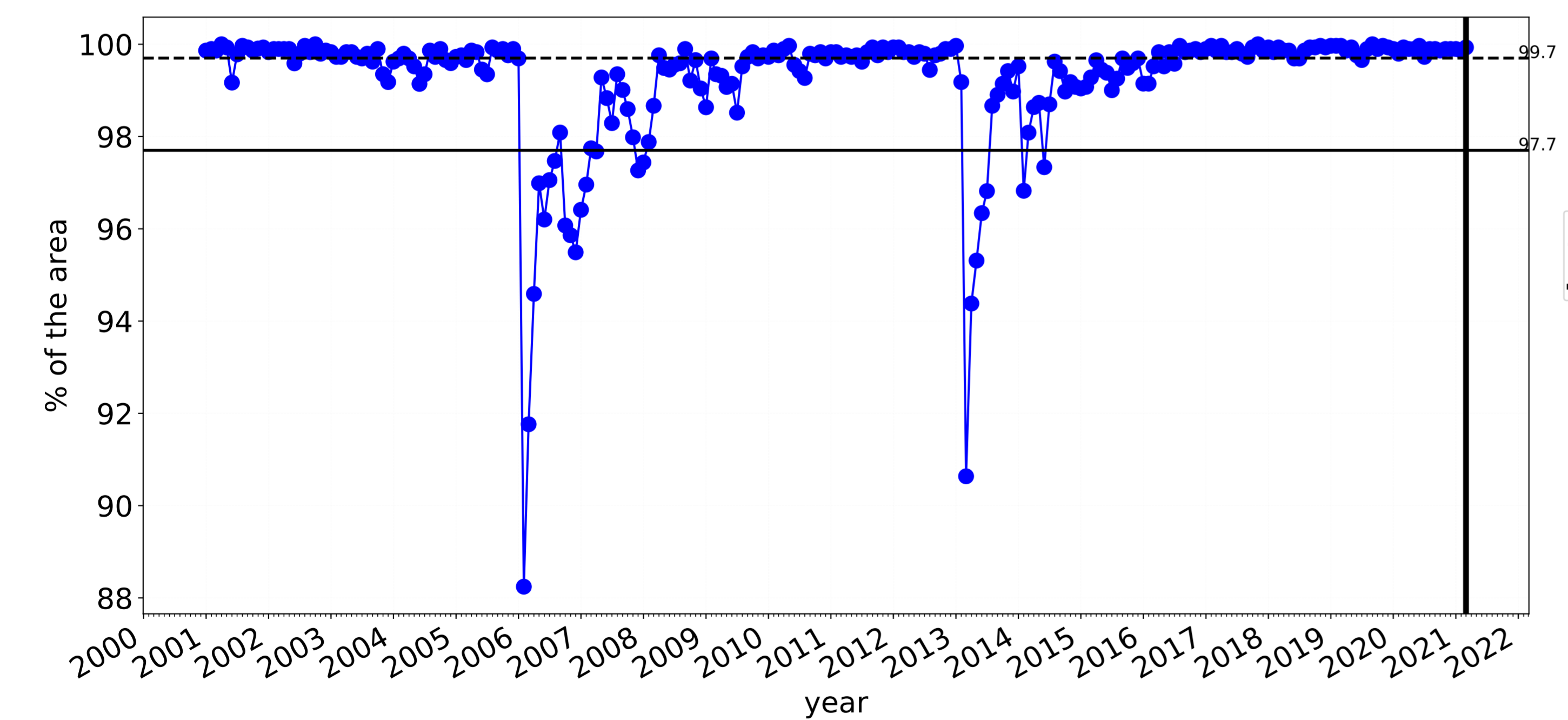


● above\_50  
— 10th  
- - 50th  
— 2021 Mar

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

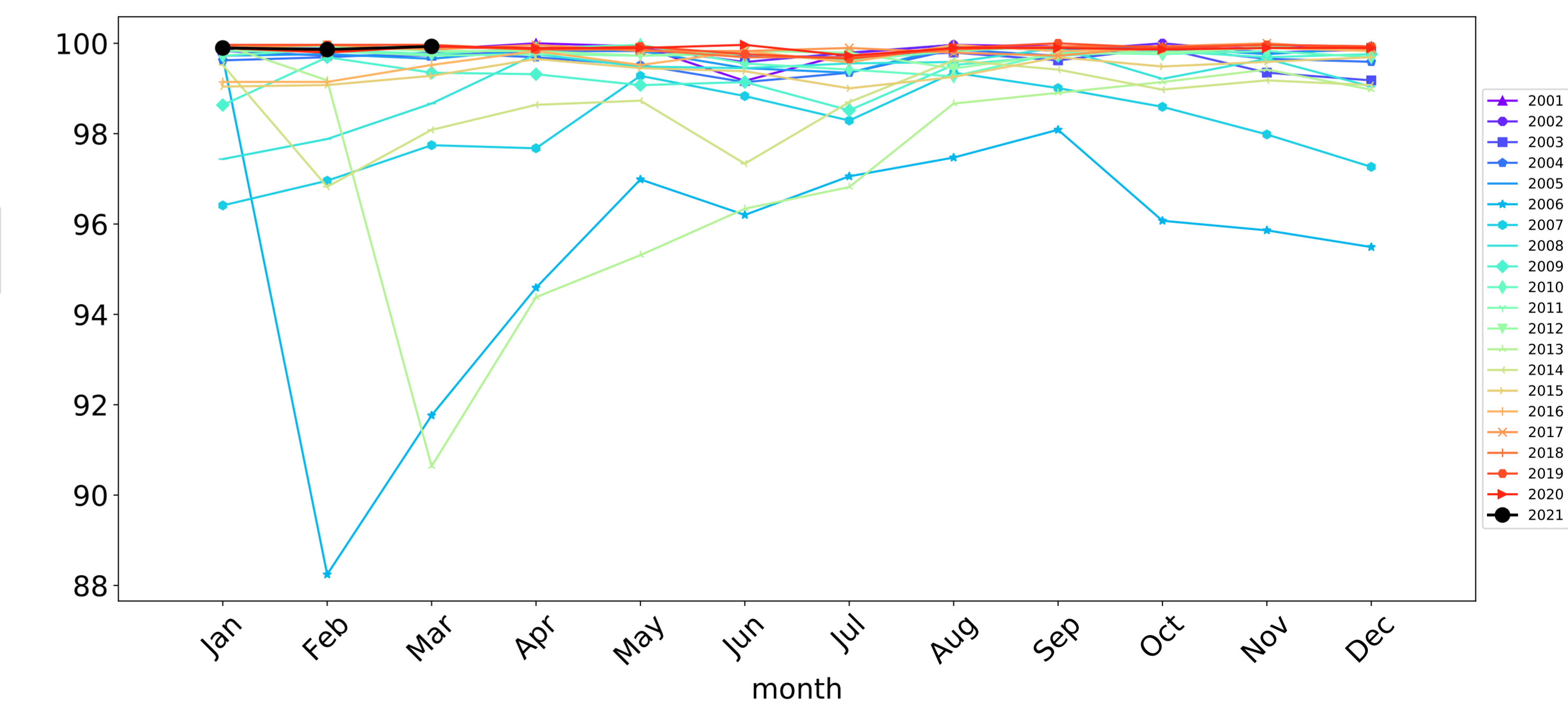


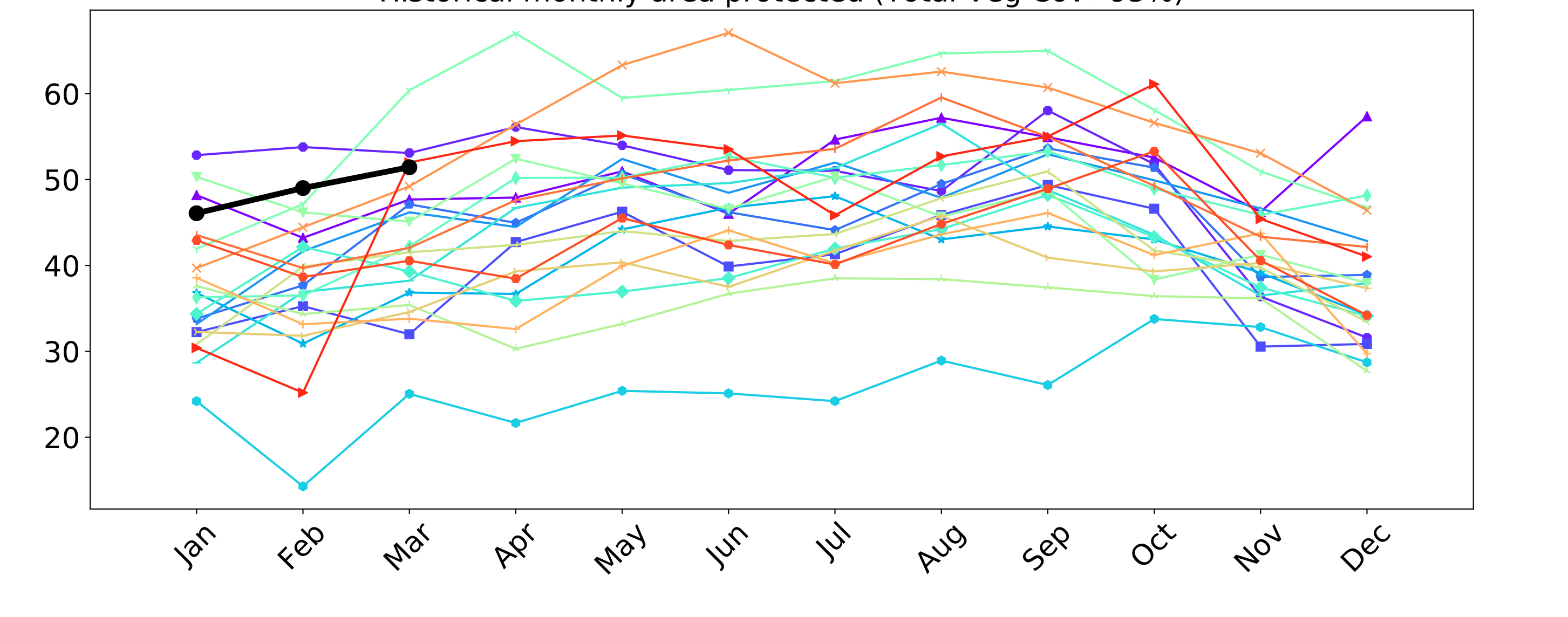
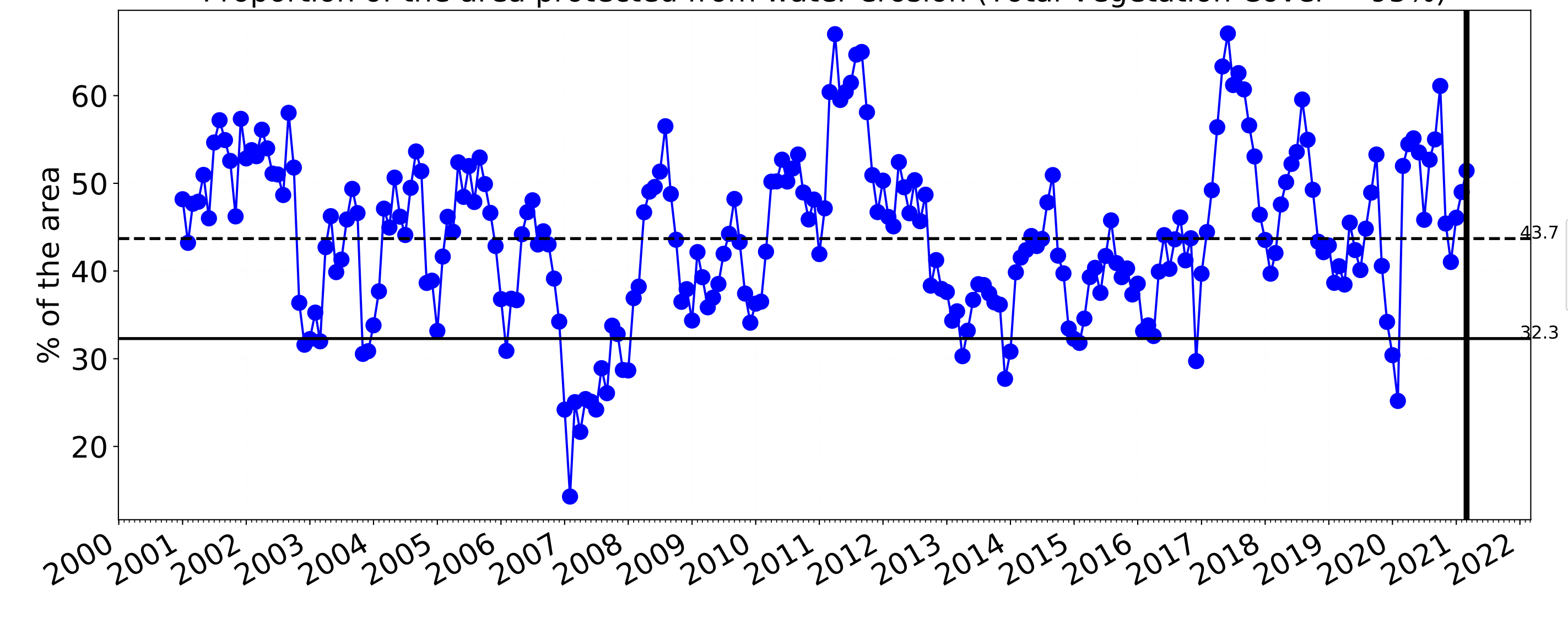
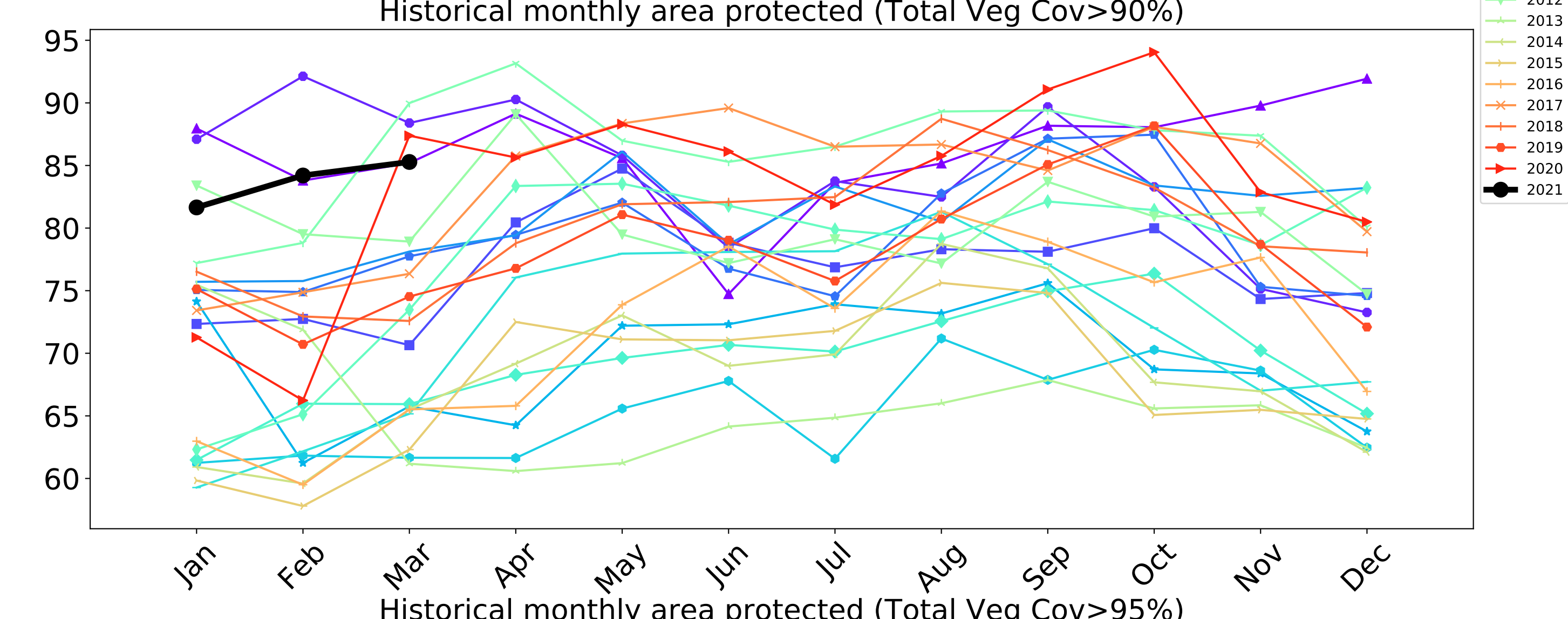
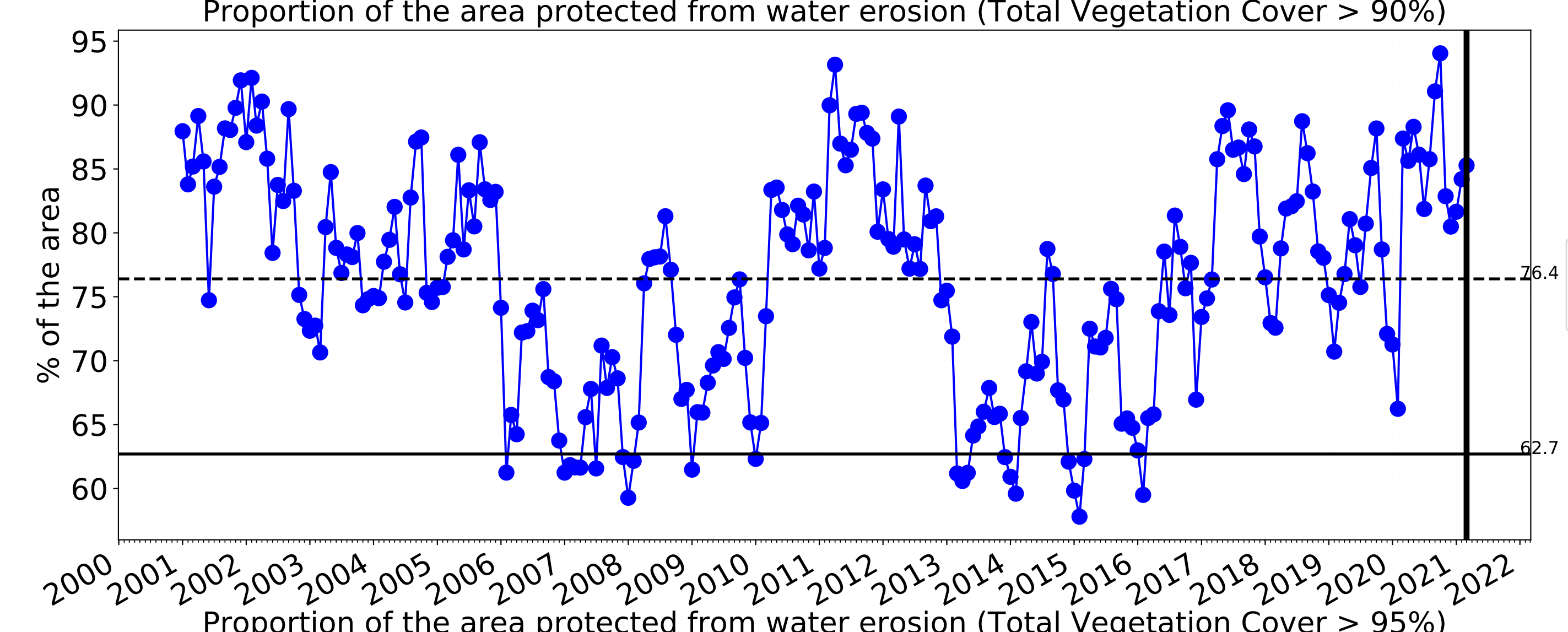
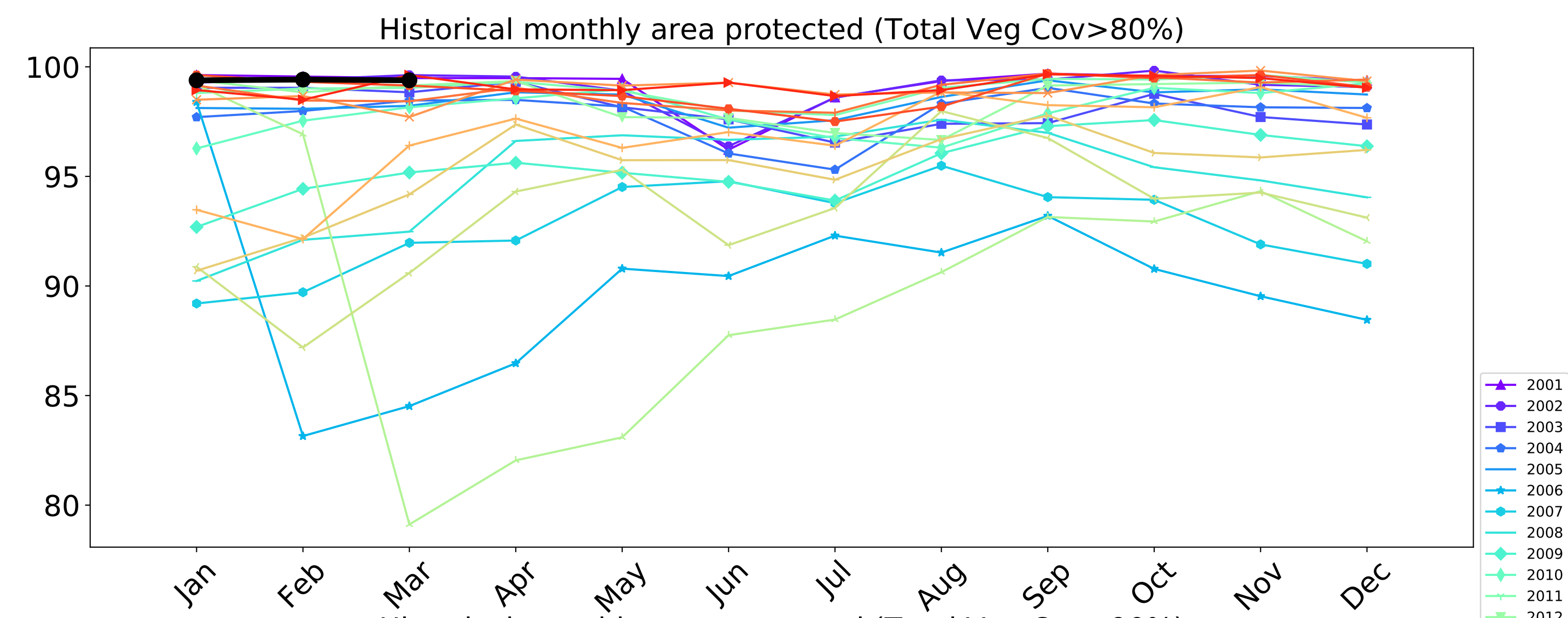
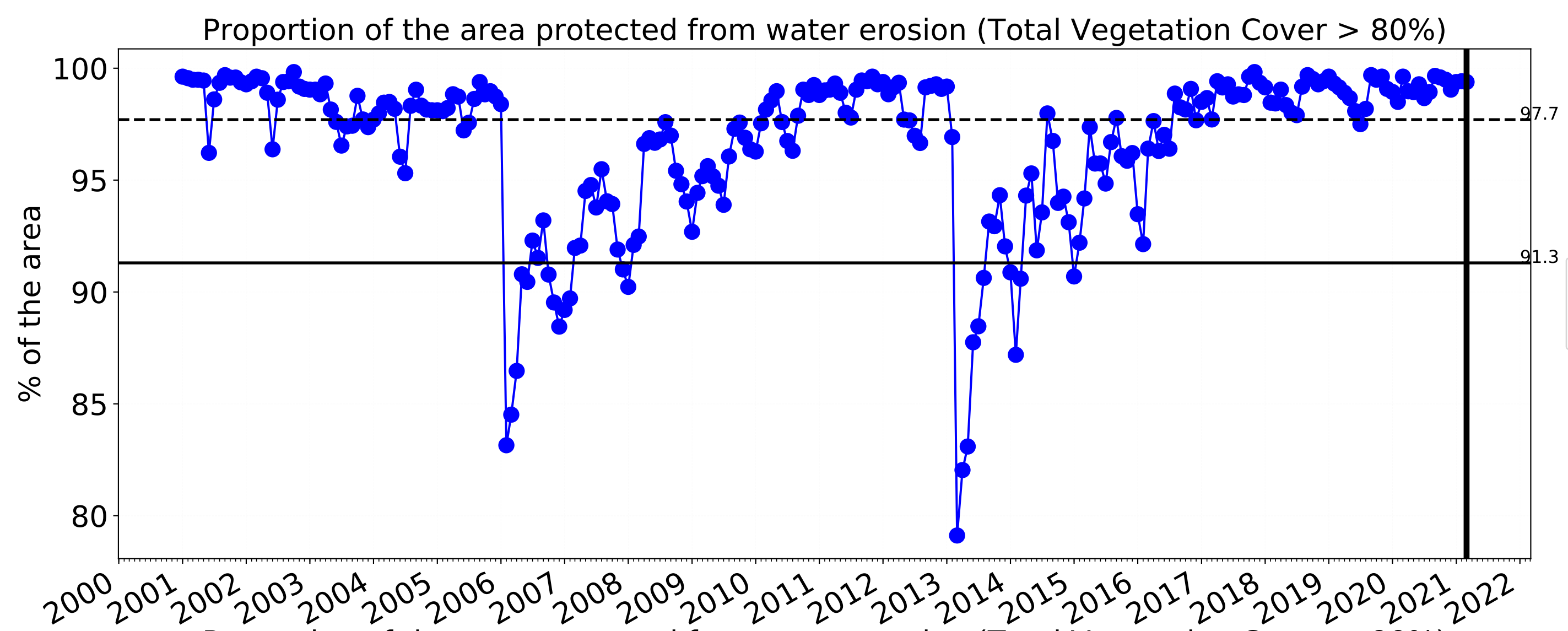
Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



● above\_70  
— 10th  
- - 50th  
— 2021 Mar

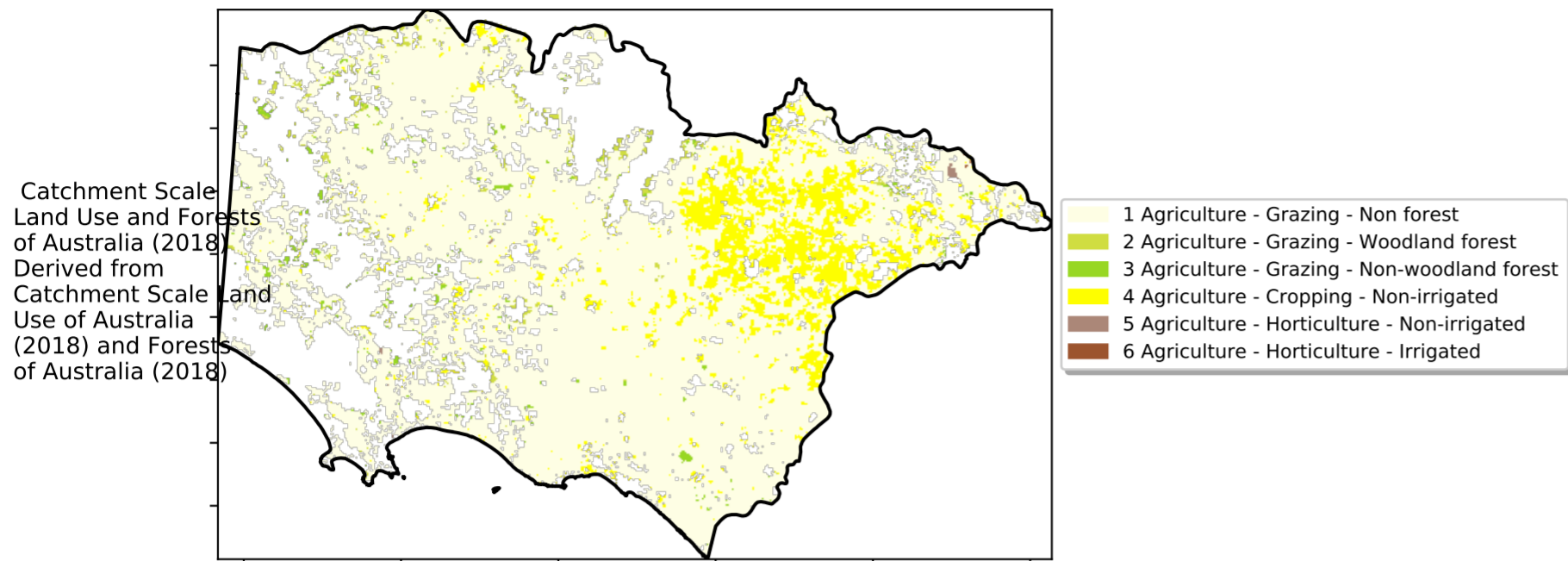
Water erosion historical monthly area protected (Total Veg Cov >70%)



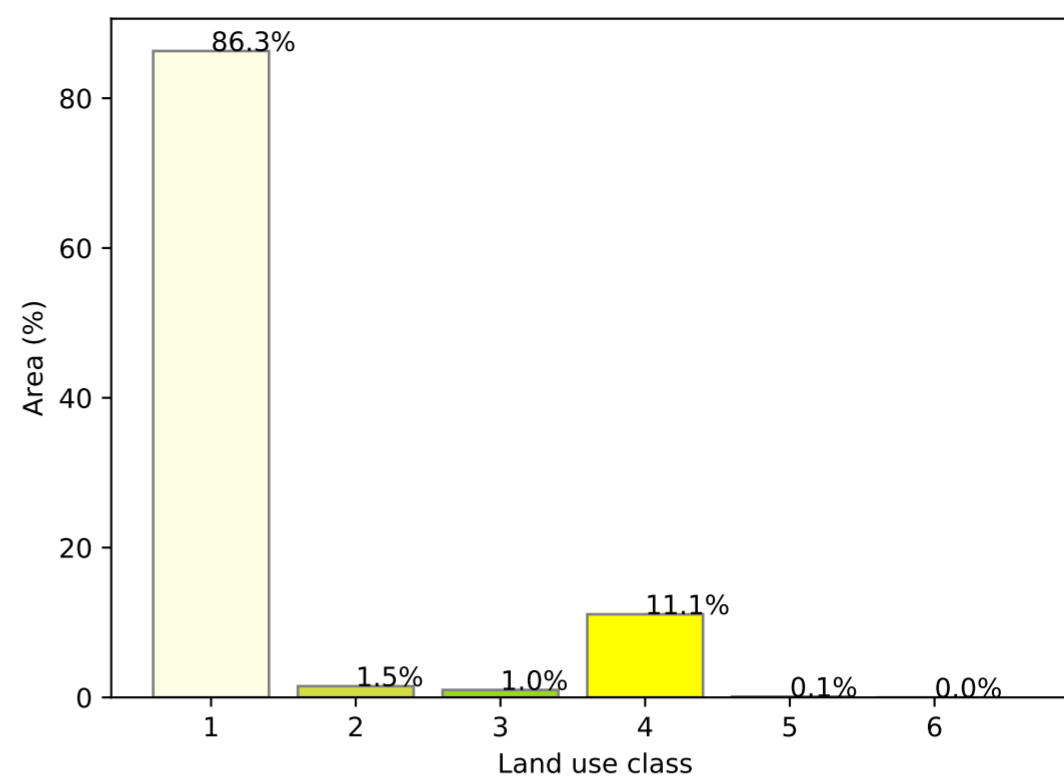


# Agriculture

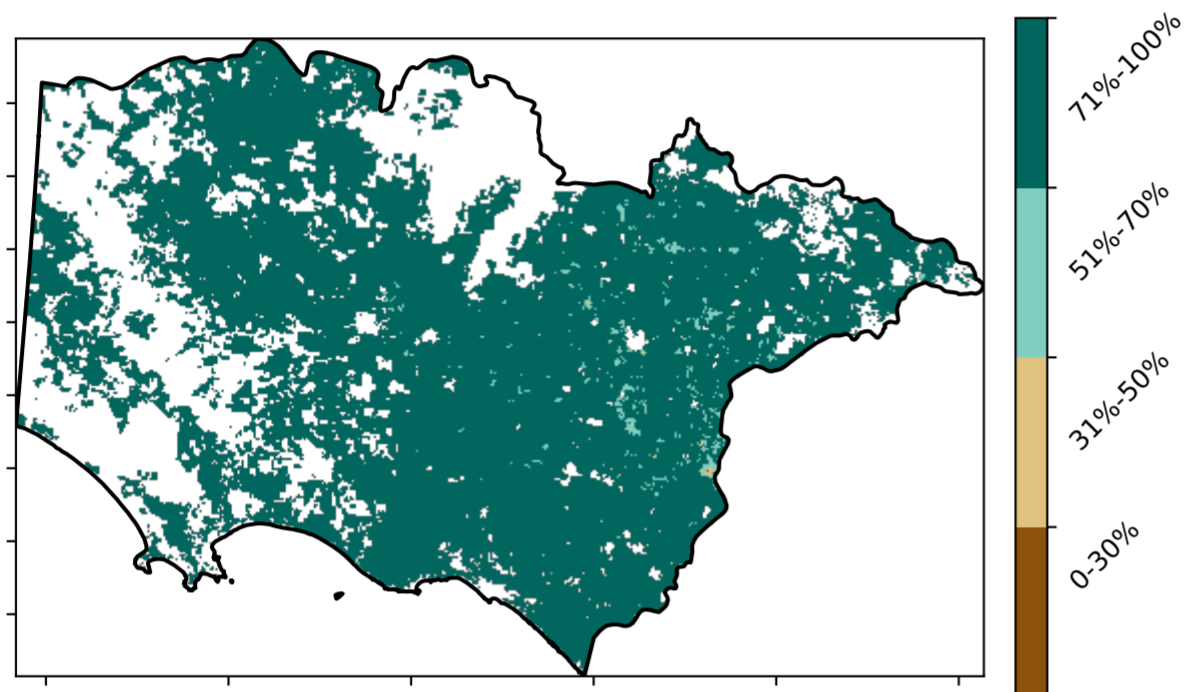
Land use and forest cover



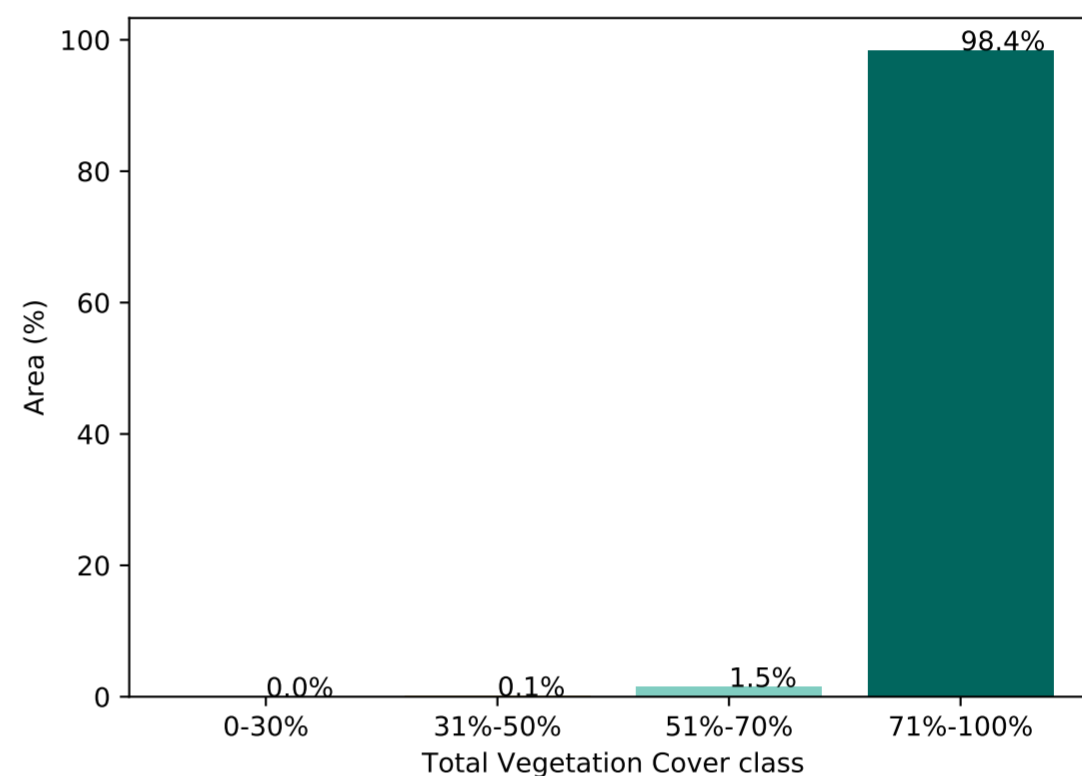
Proportion of each land class in area



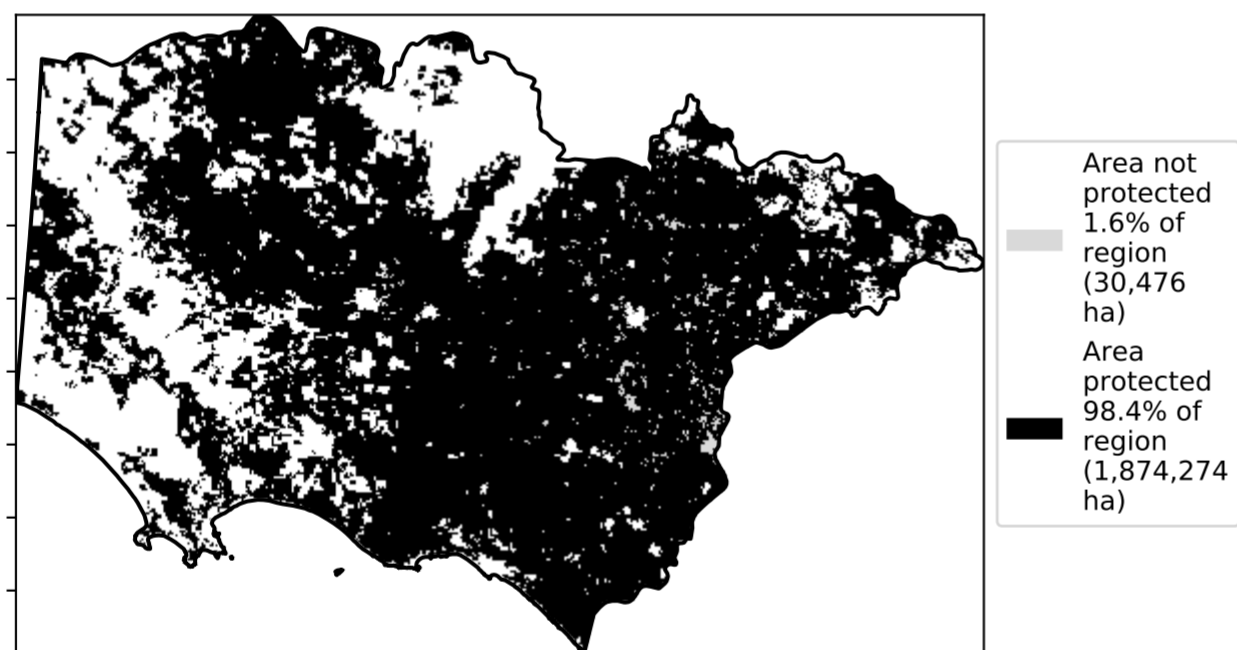
Total Vegetation Cover [%]



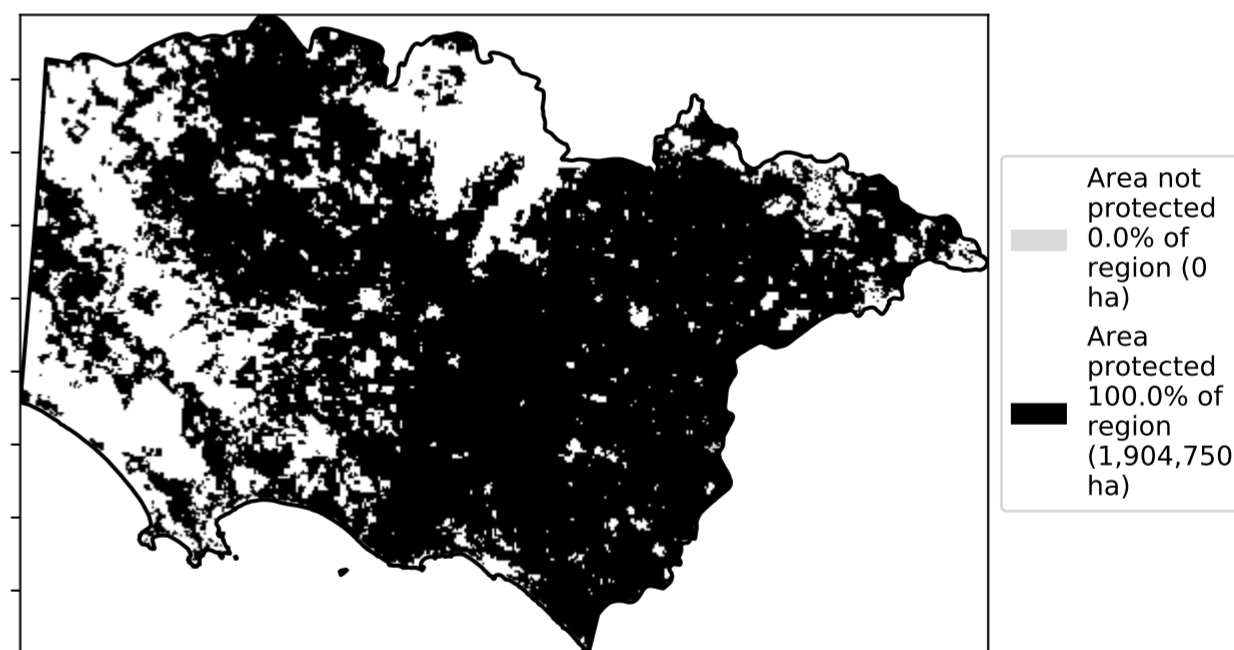
Proportion of vegetation cover class in area



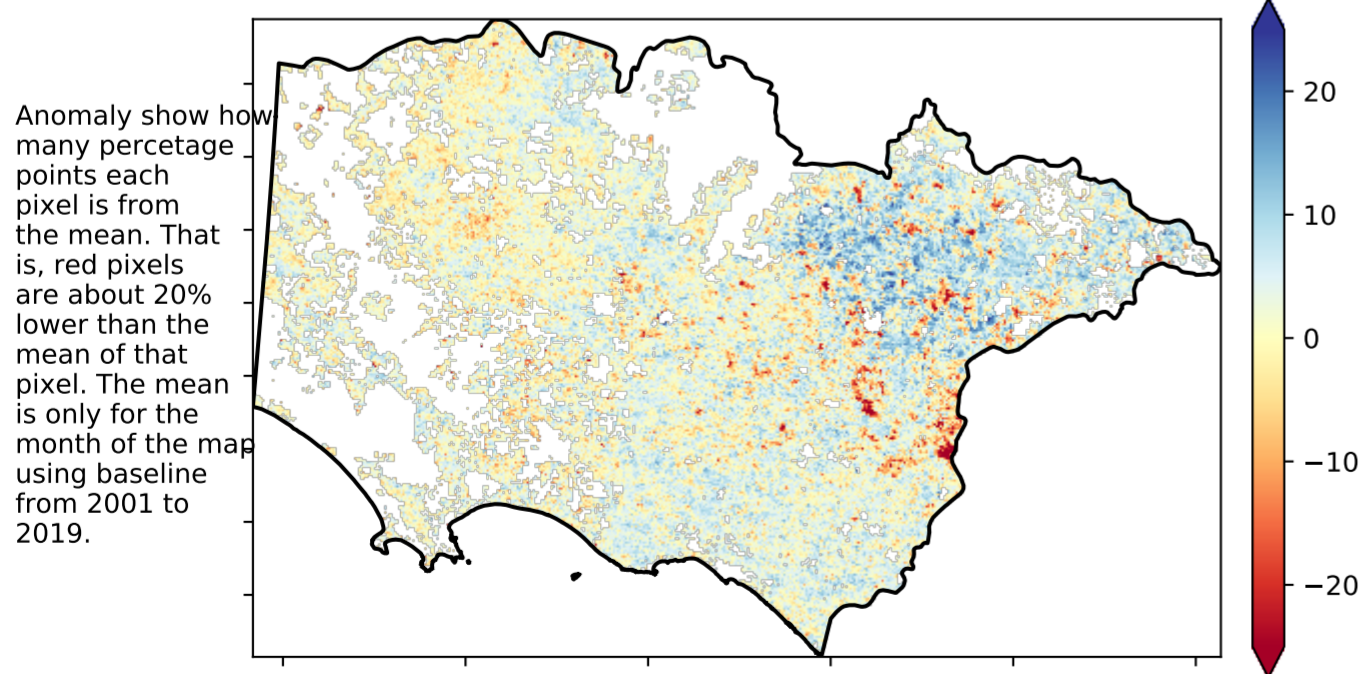
% Area protected from water erosion (>70%)



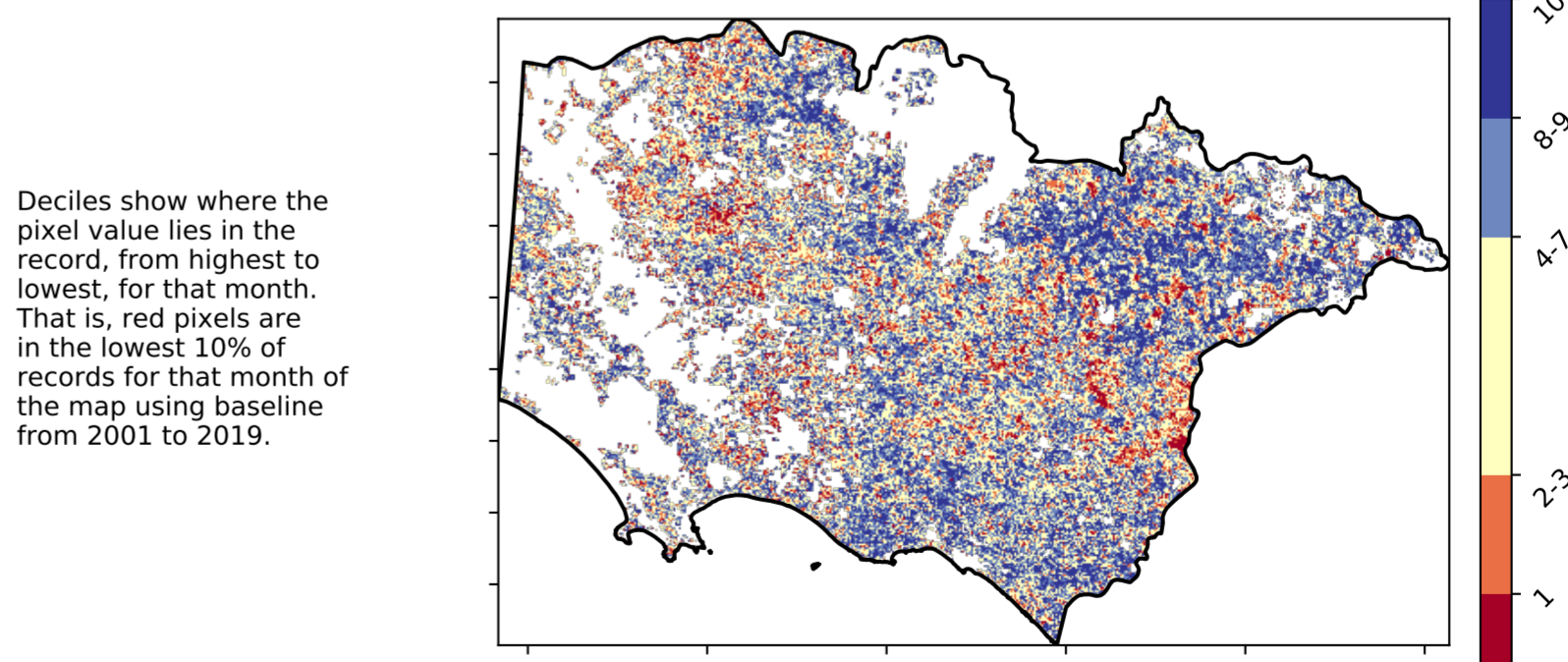
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



Total Vegetation Cover Decile [%]



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Ecosystem Research Infrastructure



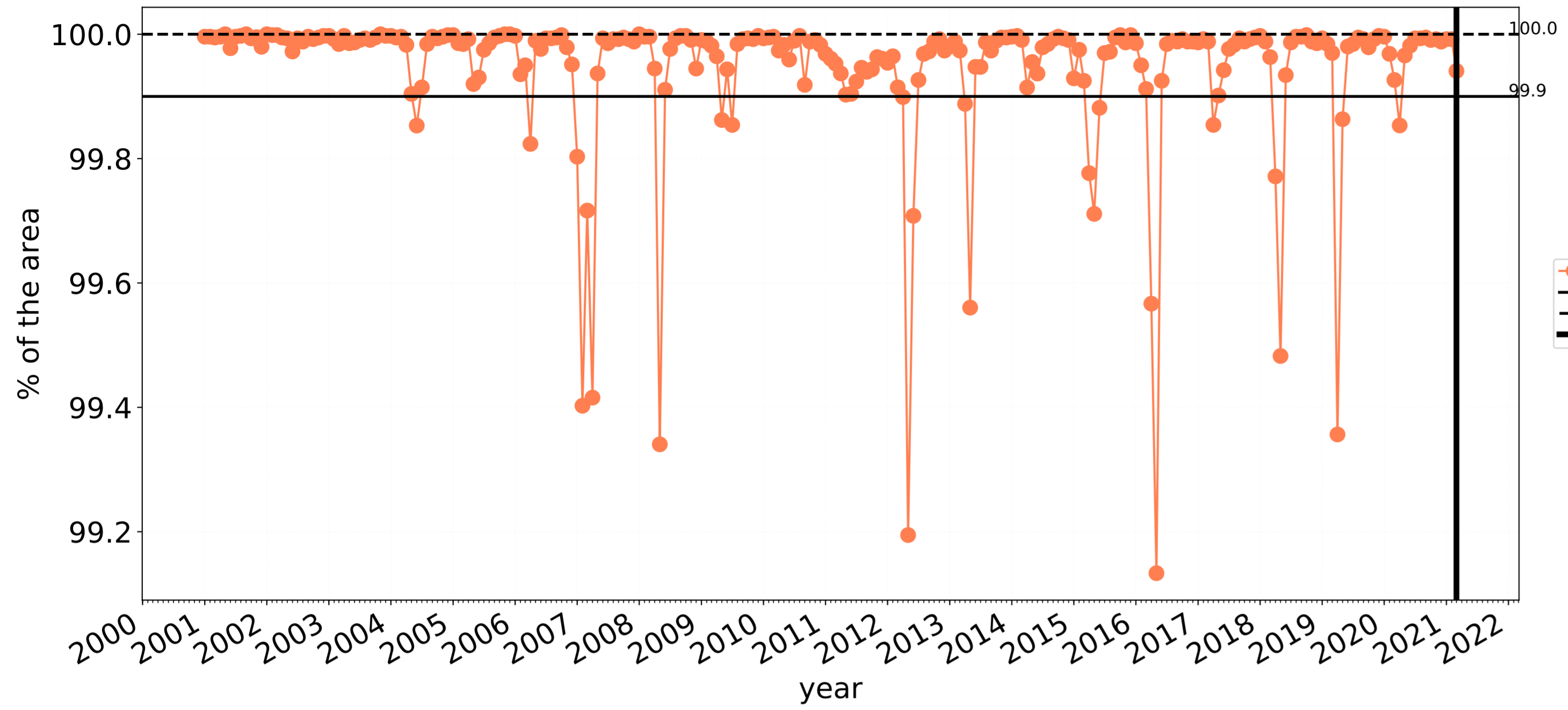
Australian Government

National  
Landcare  
Programme

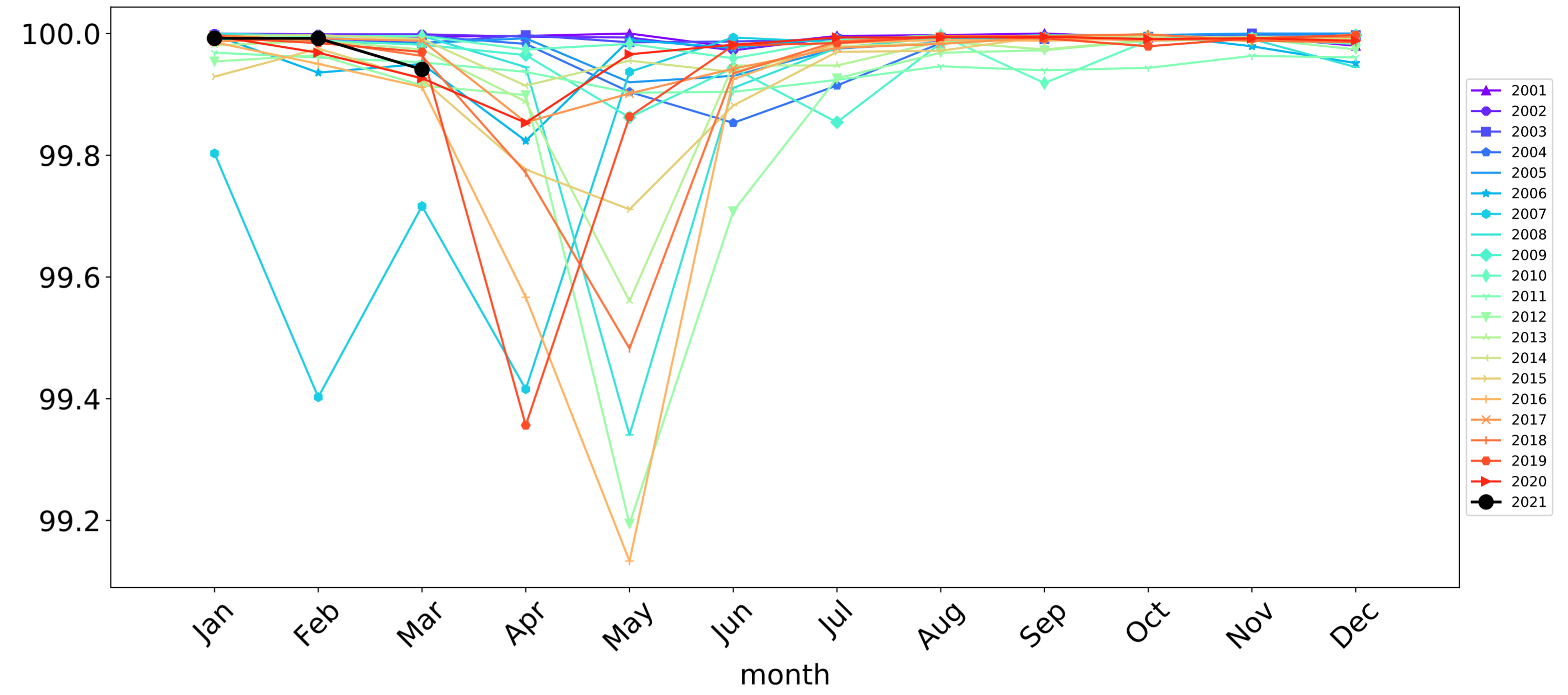


# Agriculture timeseries

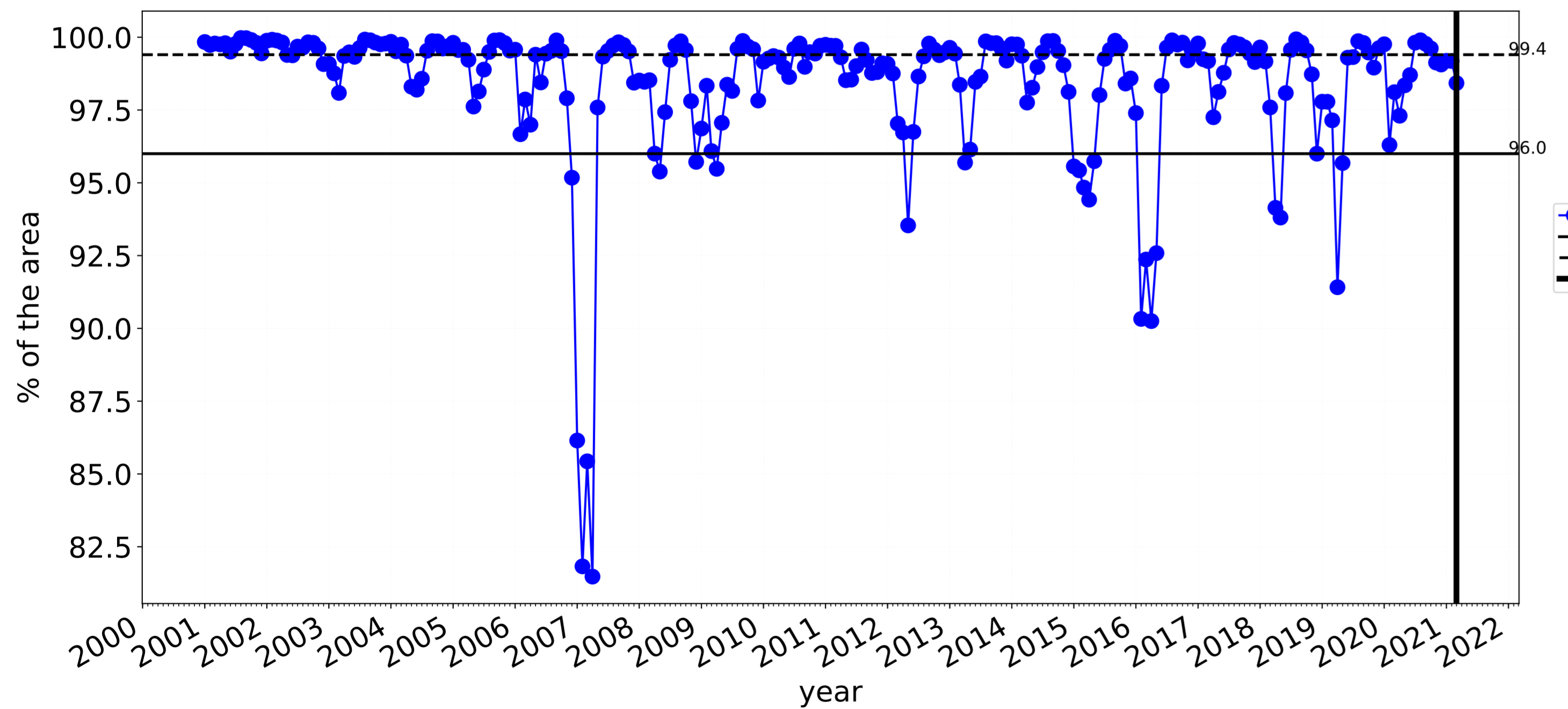
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



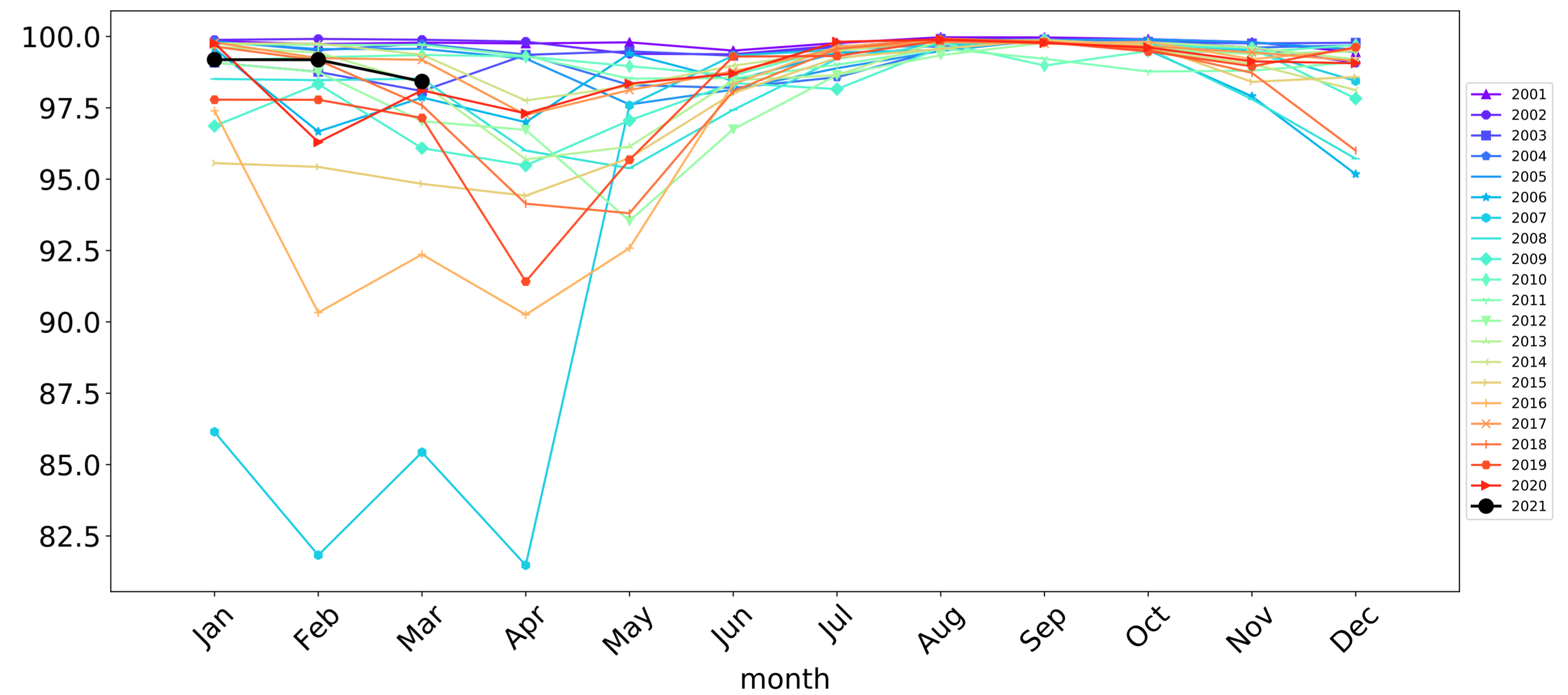
Wind erosion historical monthly area protected (Total Veg Cov >50%)

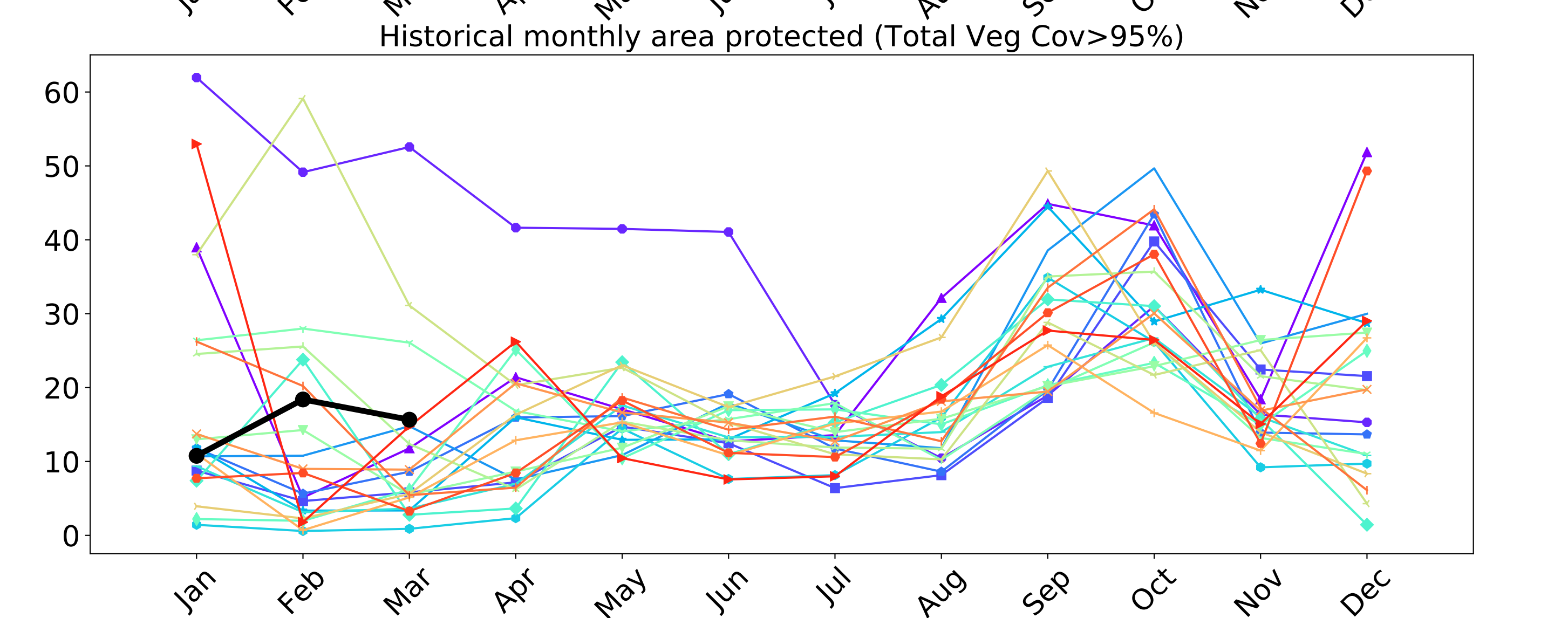
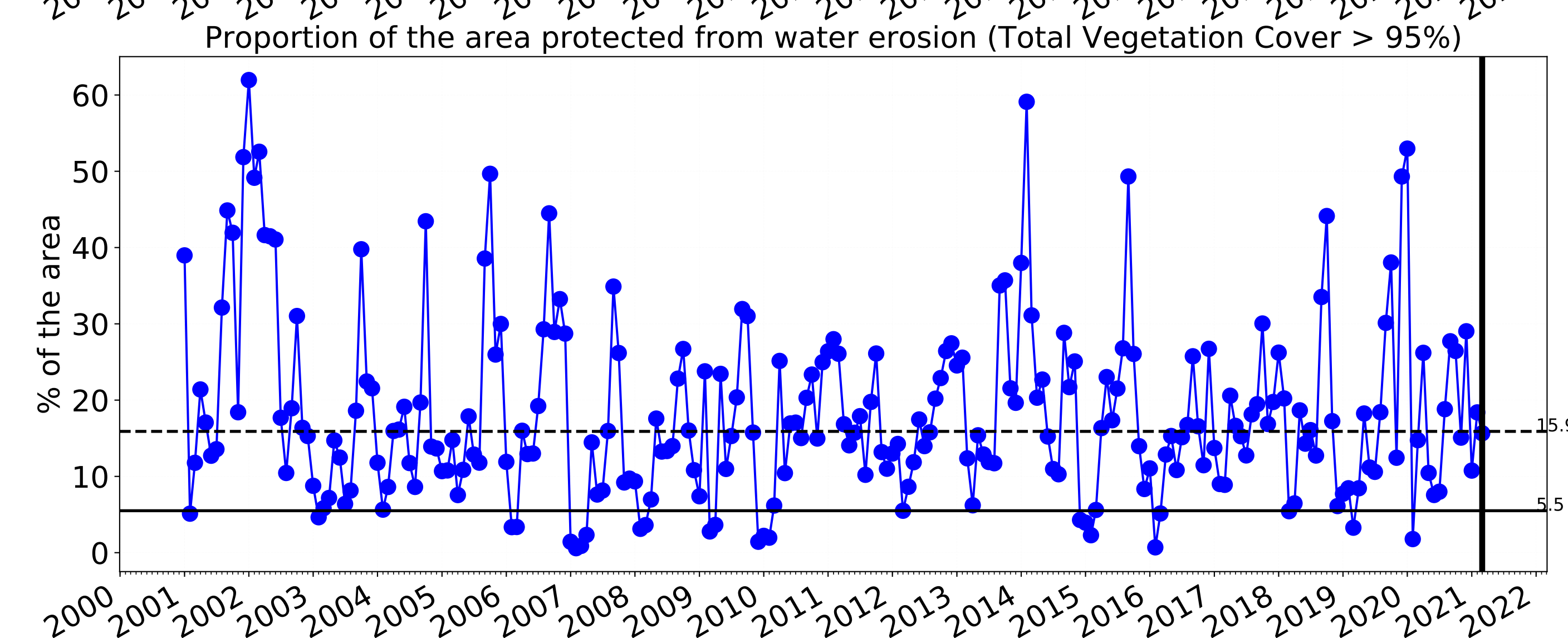
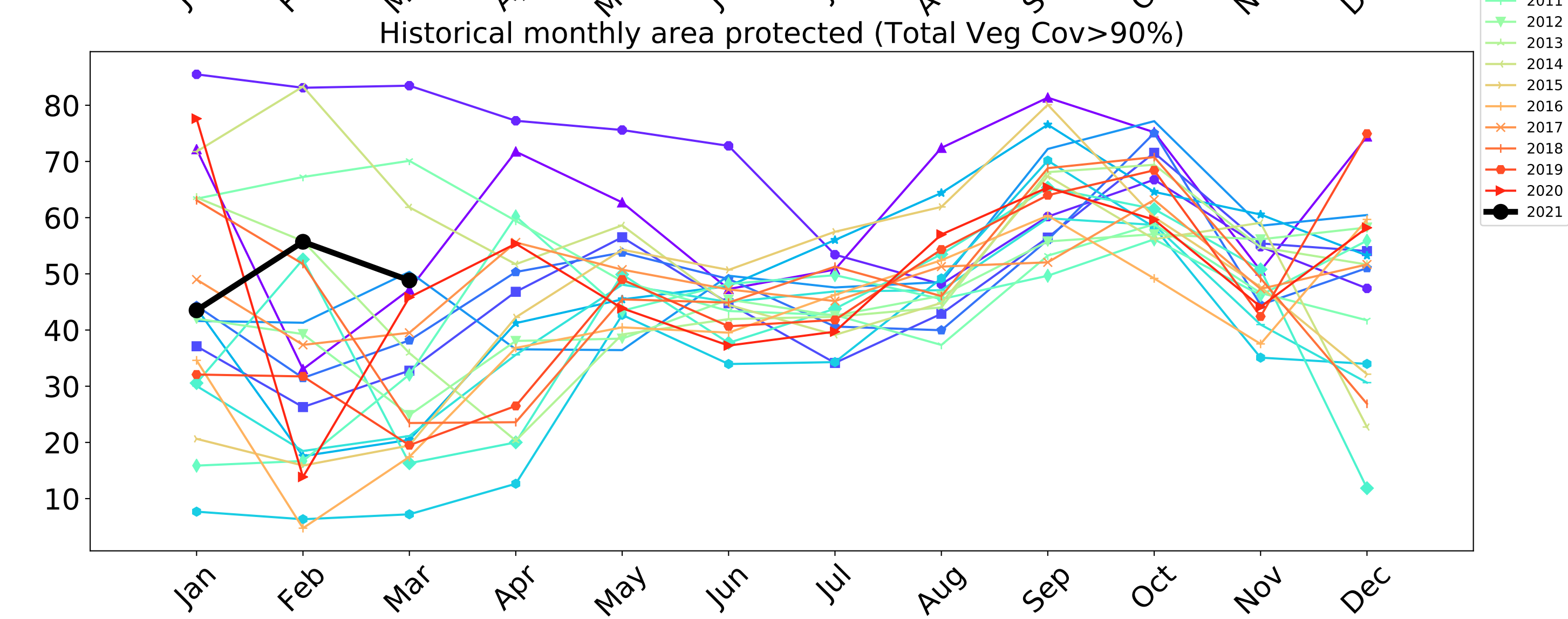
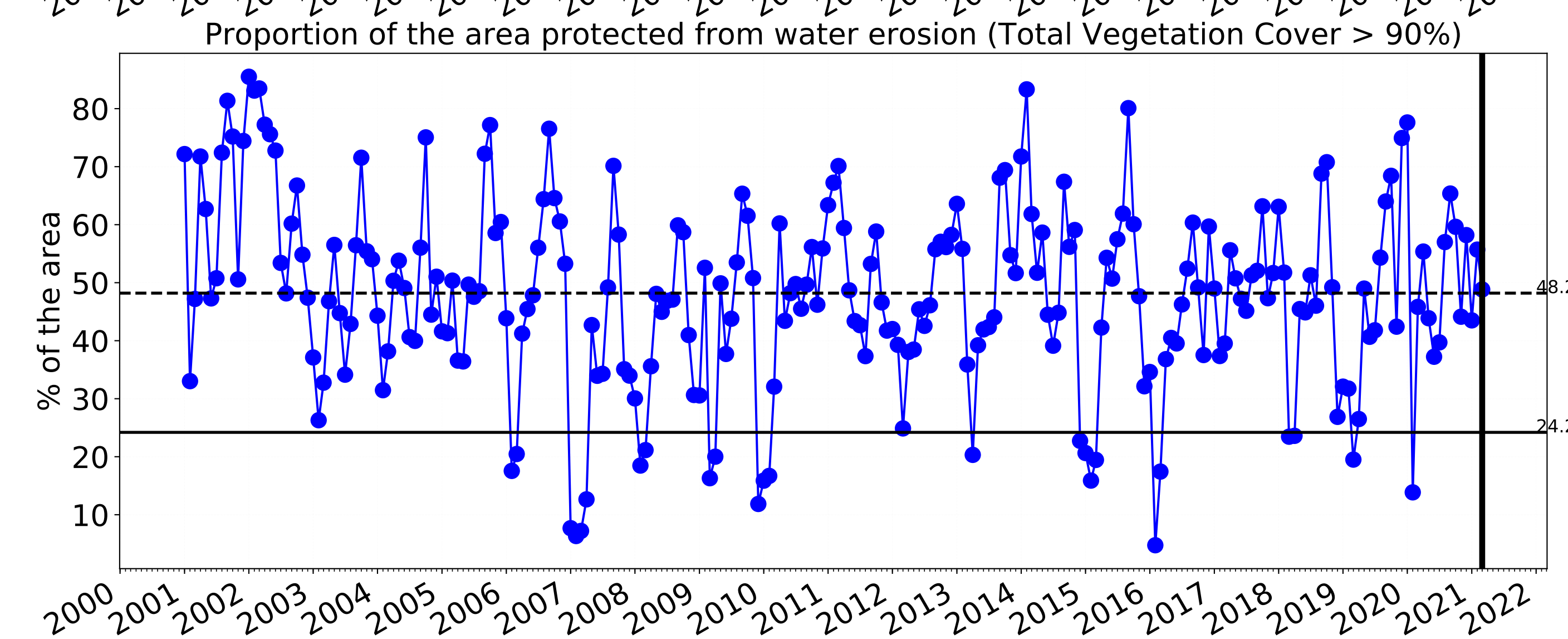
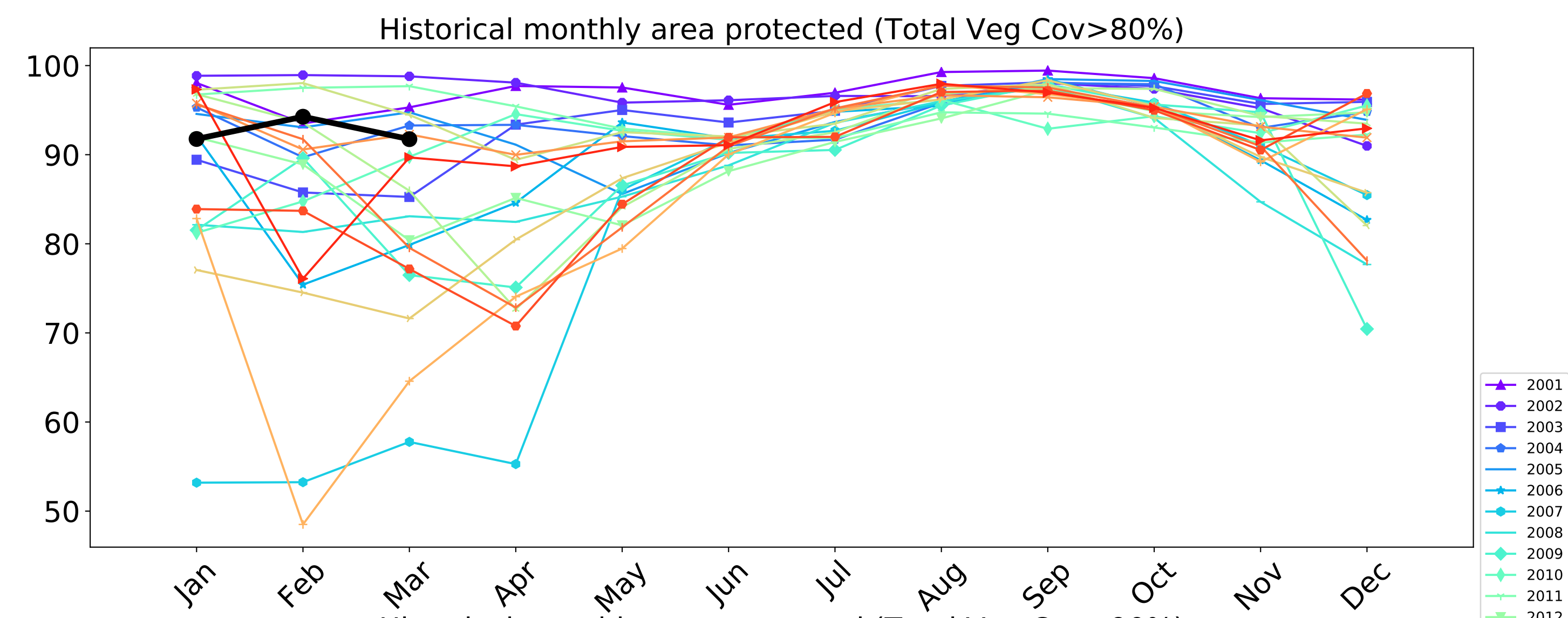
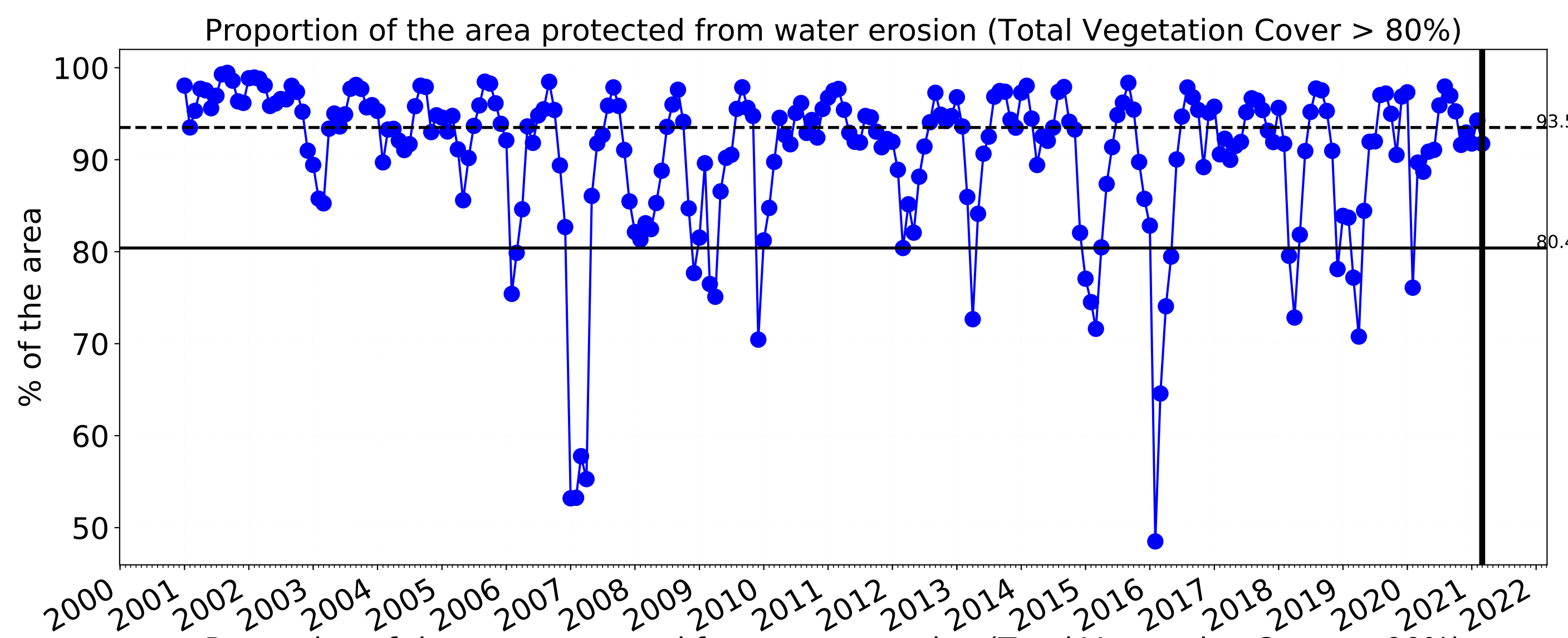


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



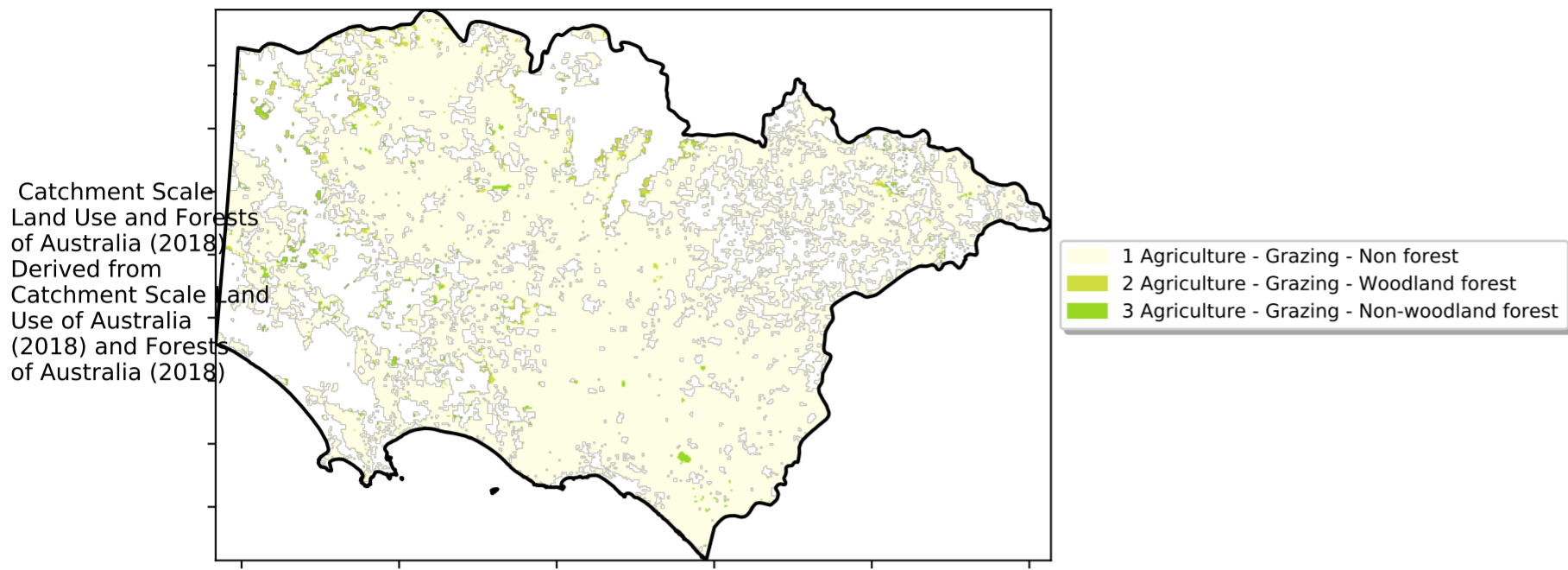
Water erosion historical monthly area protected (Total Veg Cov >70%)



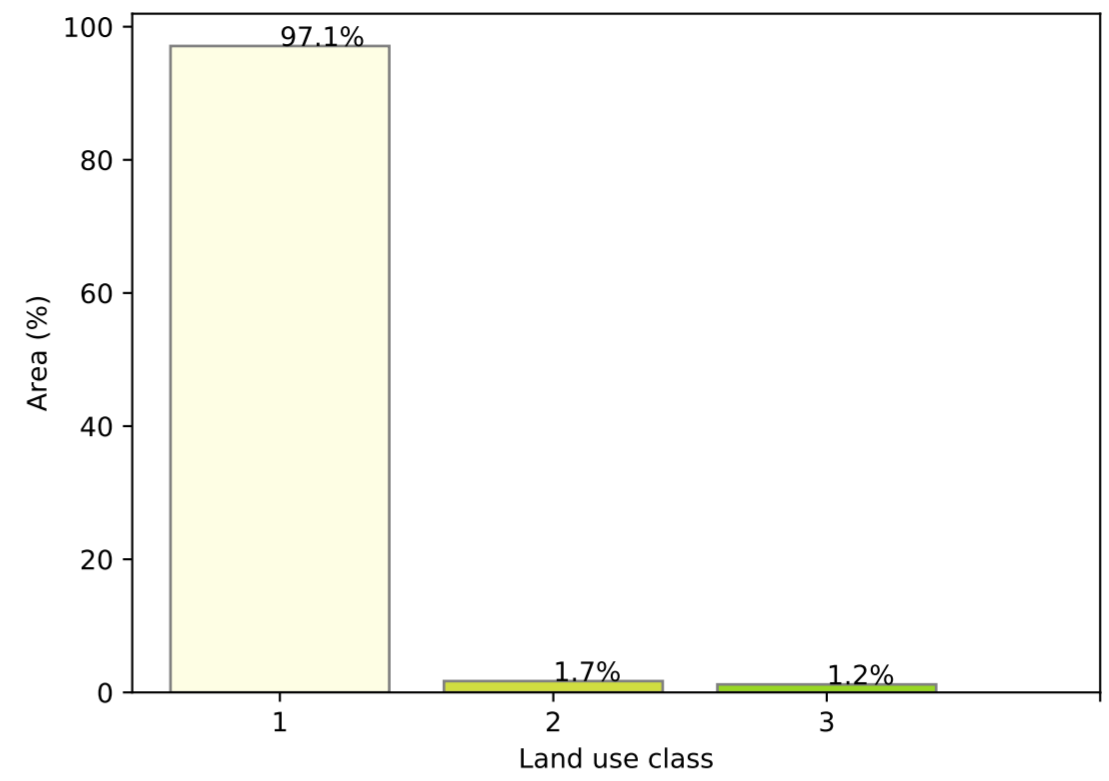


# Grazing

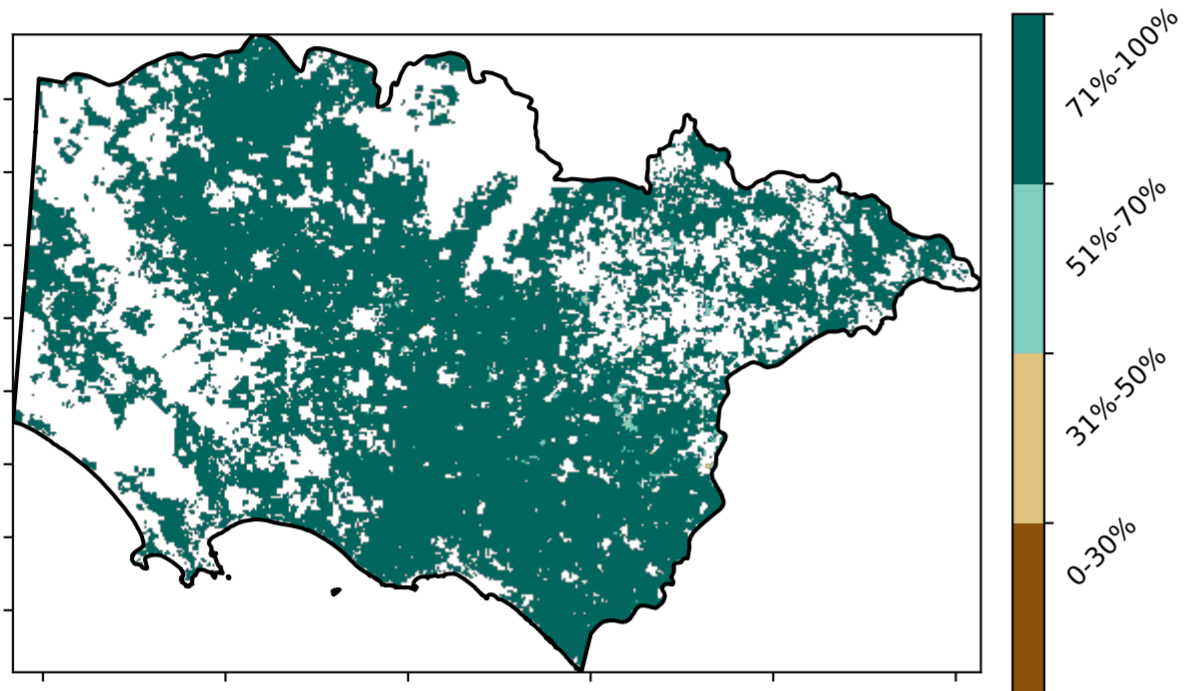
Land use and forest cover



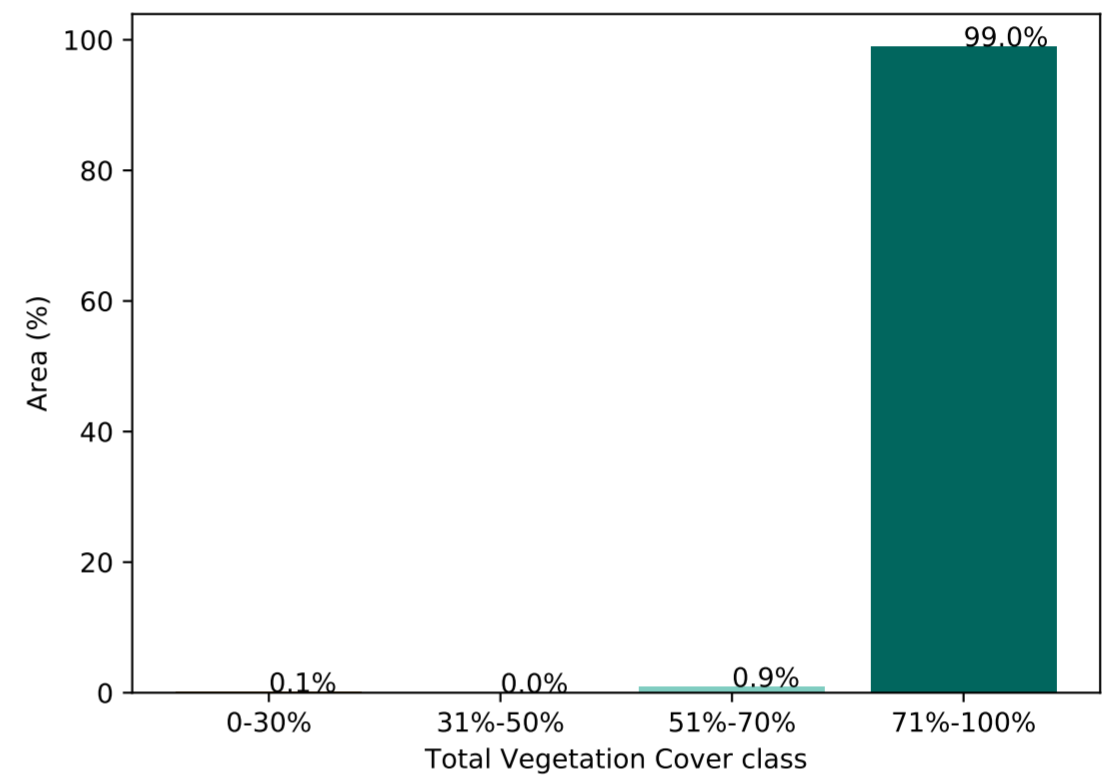
Proportion of each land class in area



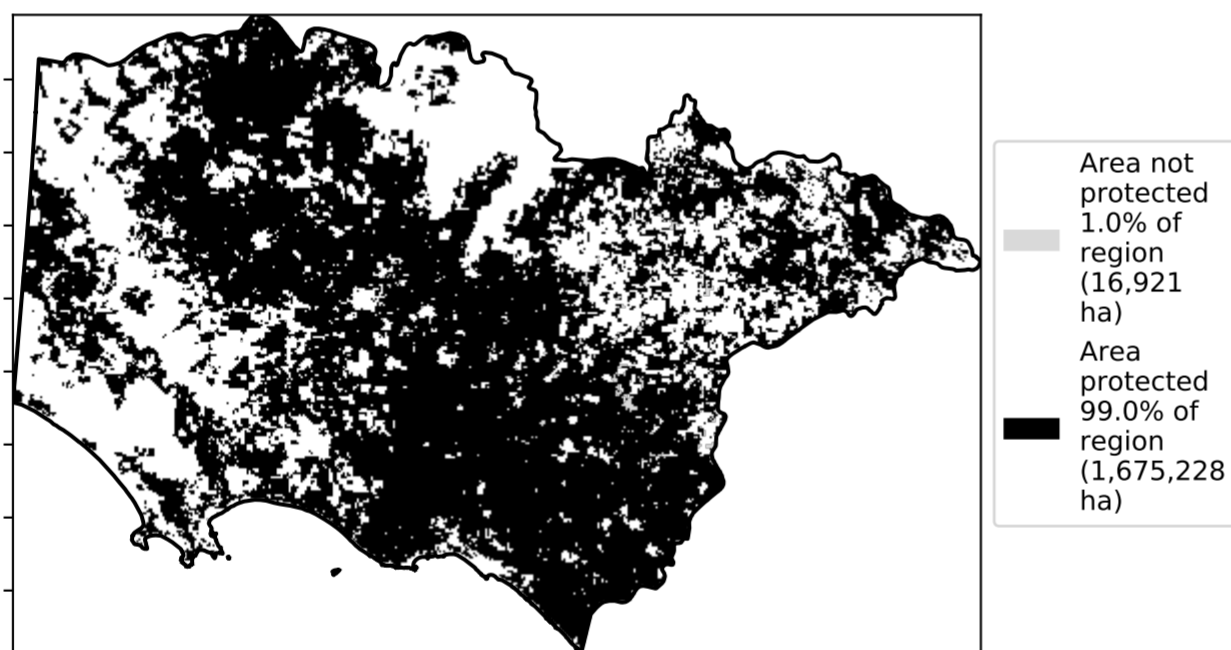
Total Vegetation Cover [%]



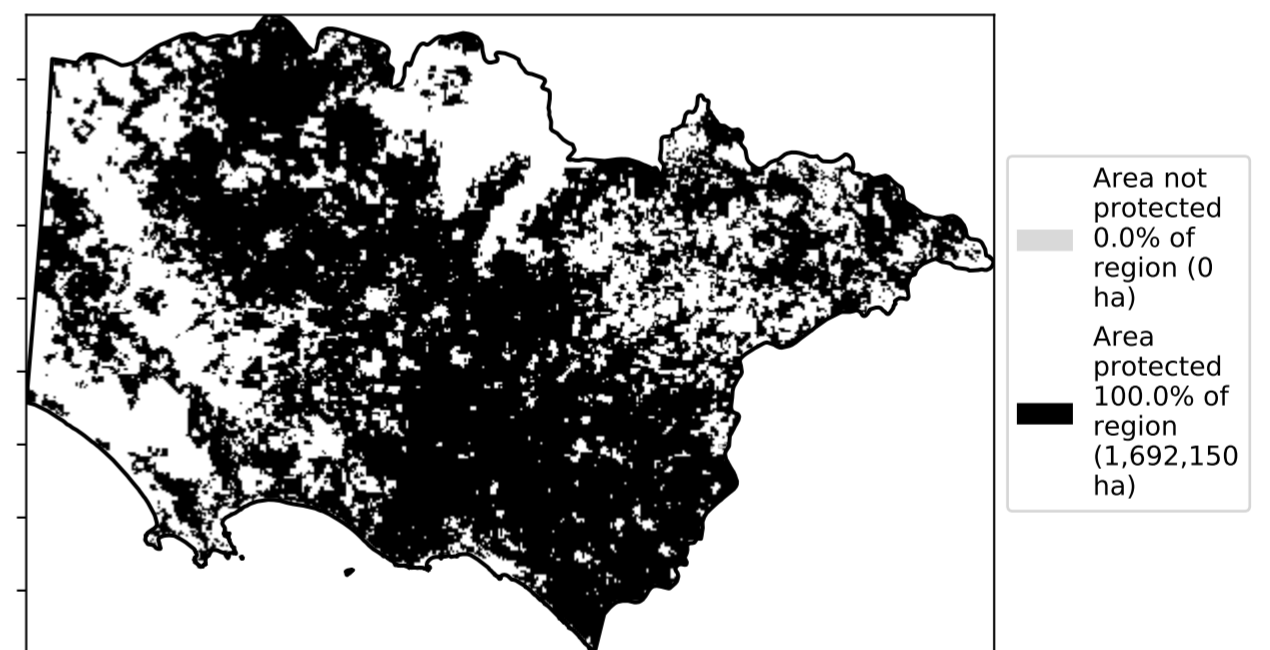
Proportion of vegetation cover class in area



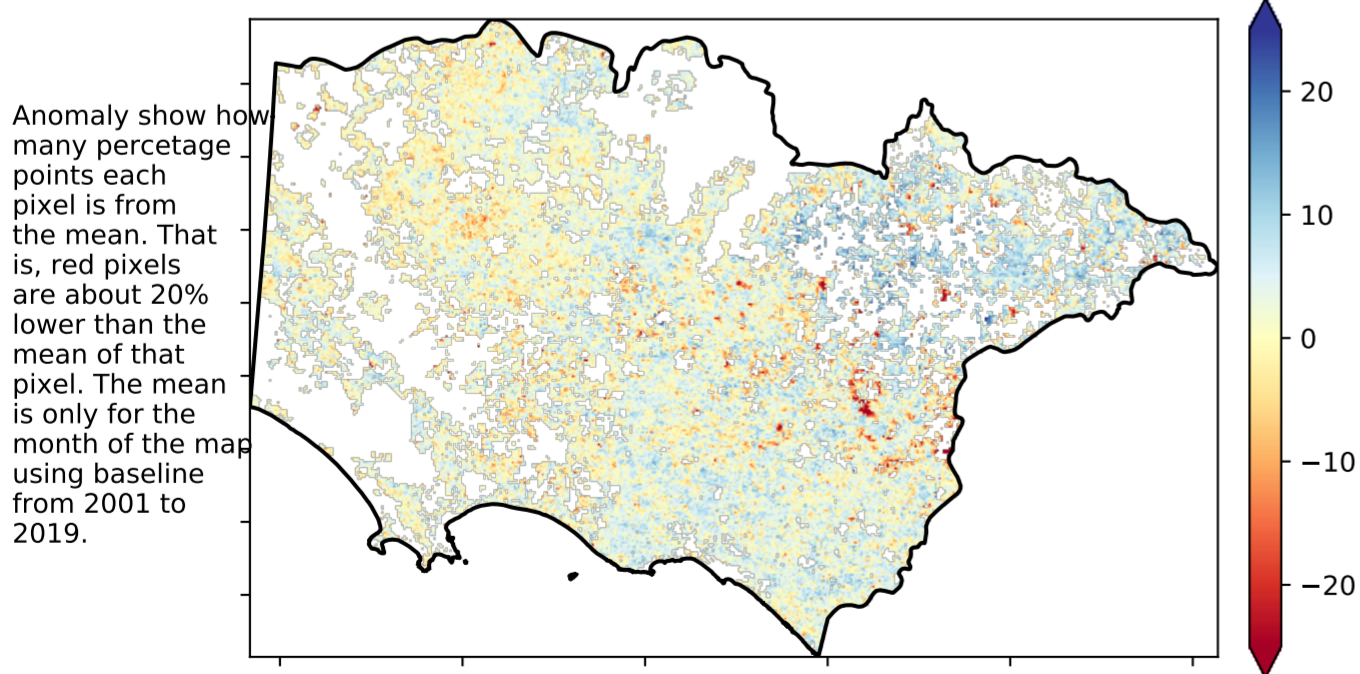
% Area protected from water erosion (>70%)



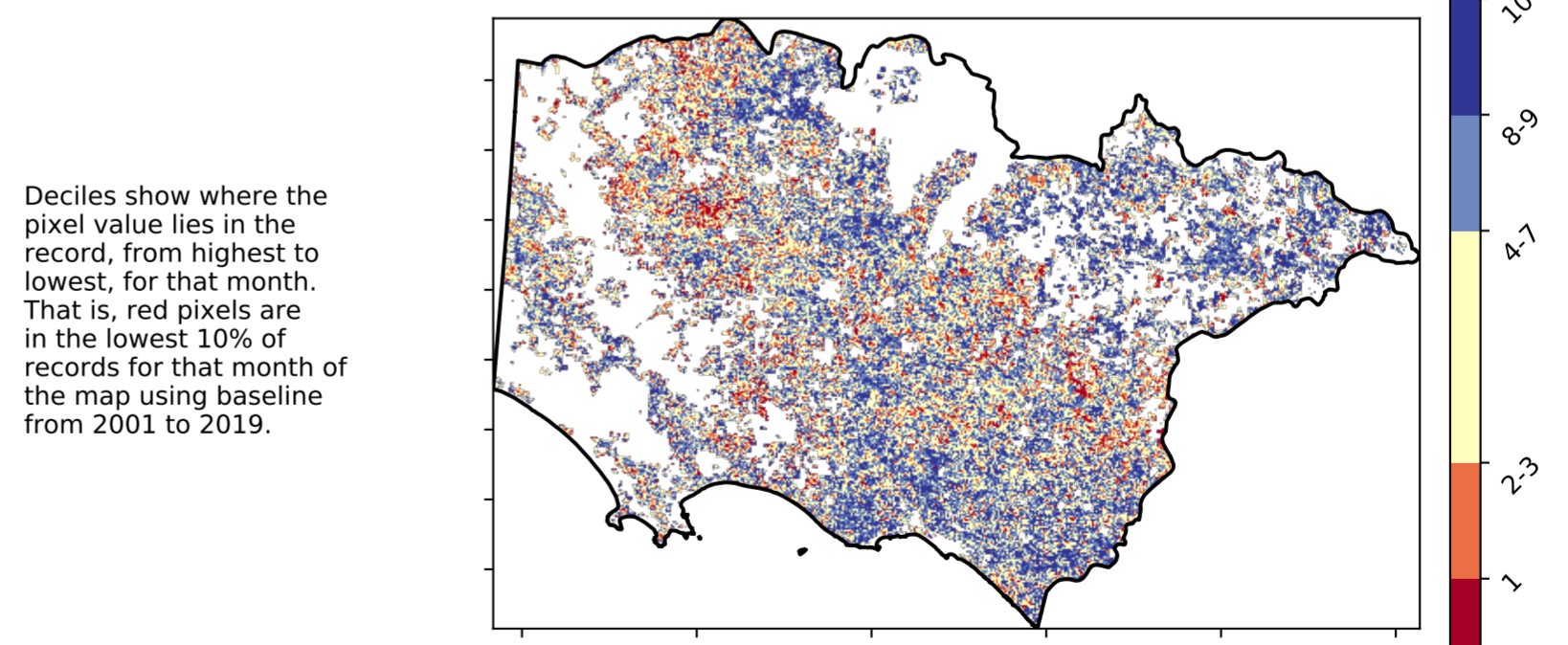
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

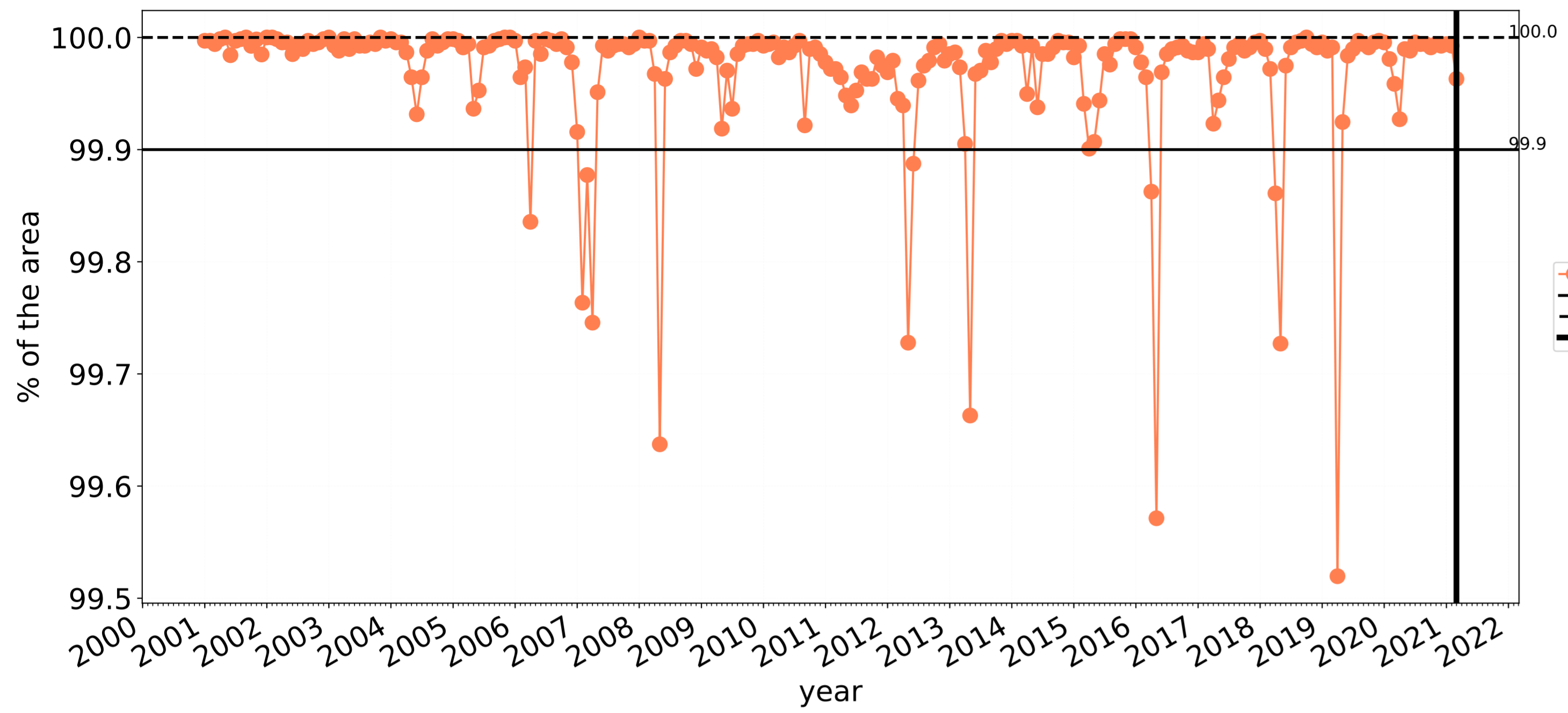


Total Vegetation Cover Decile [%]



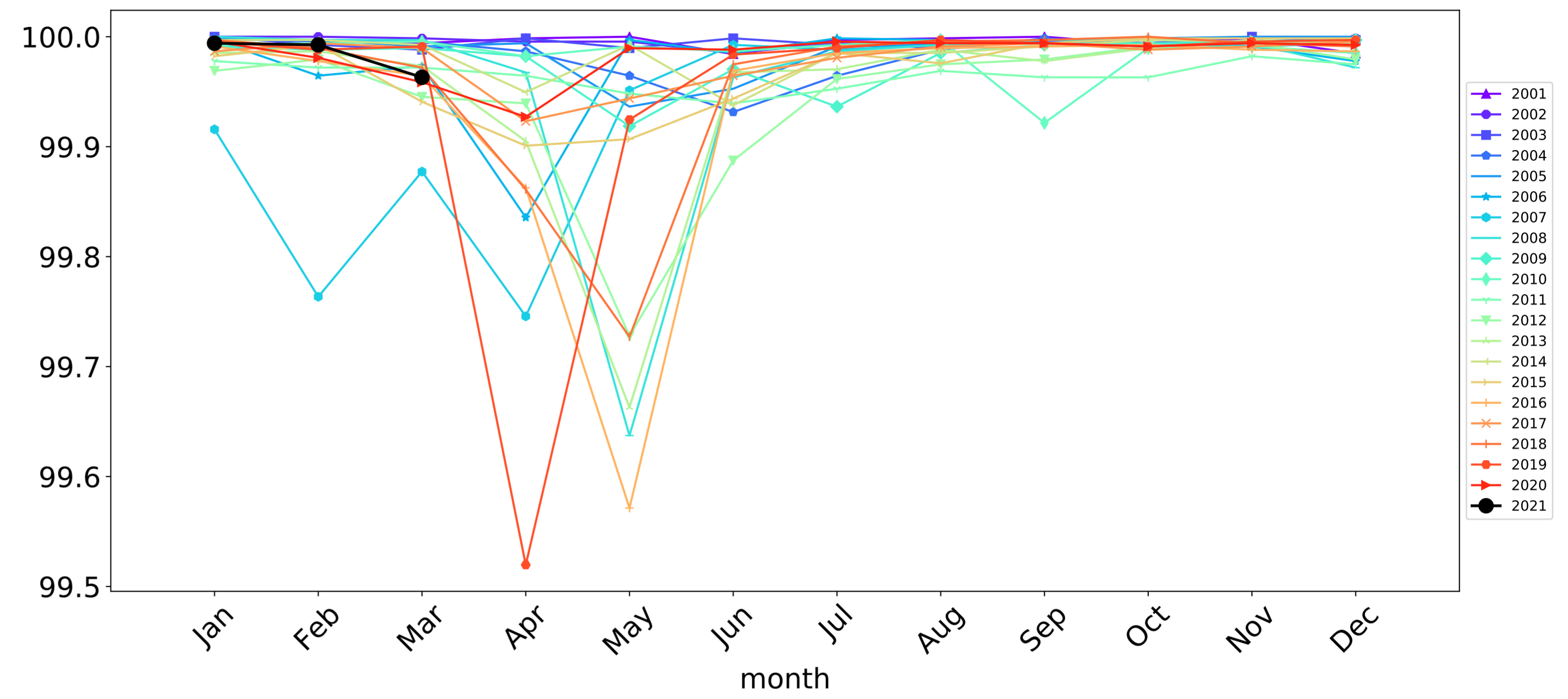
# Grazing timeseries

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



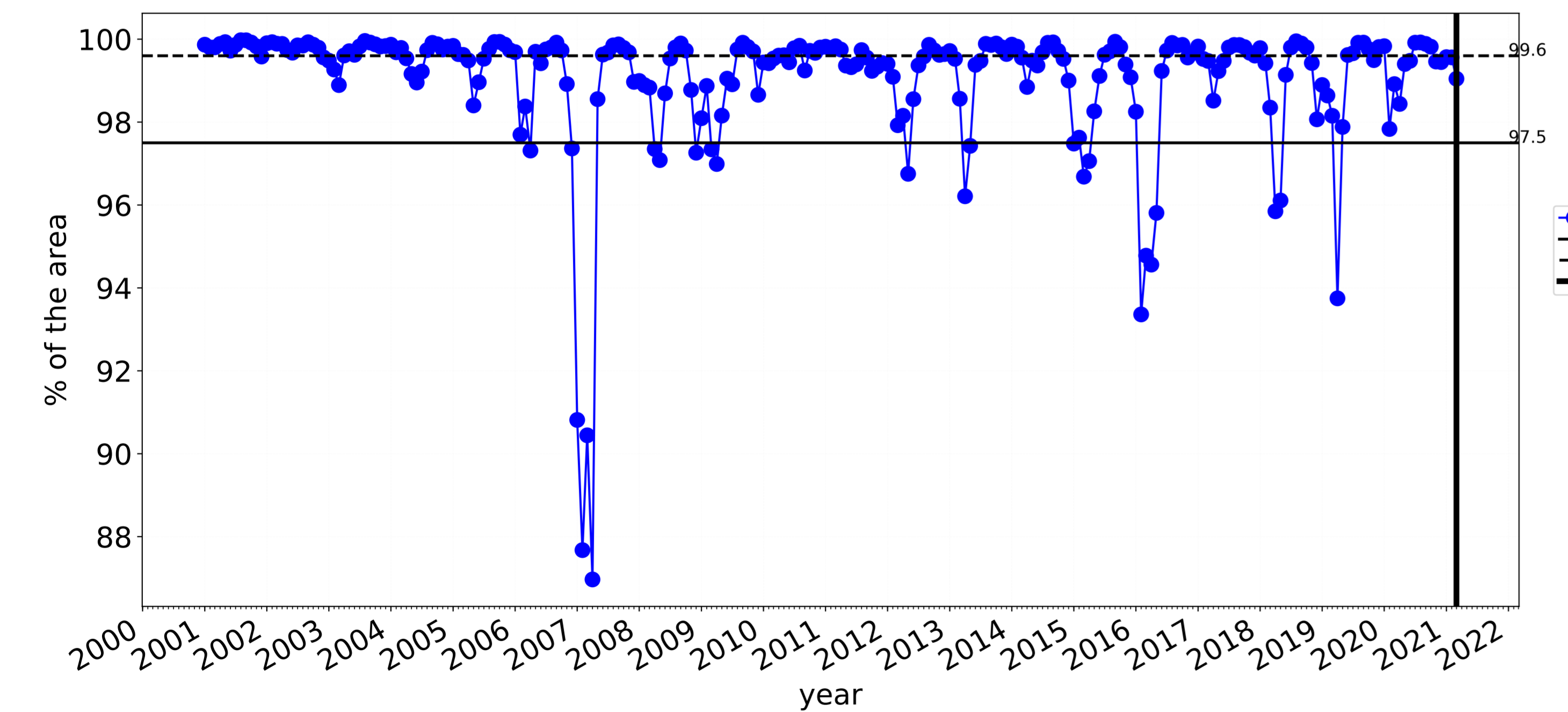
● above\_50  
— 10th  
- - 50th  
█ 2021 Mar

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



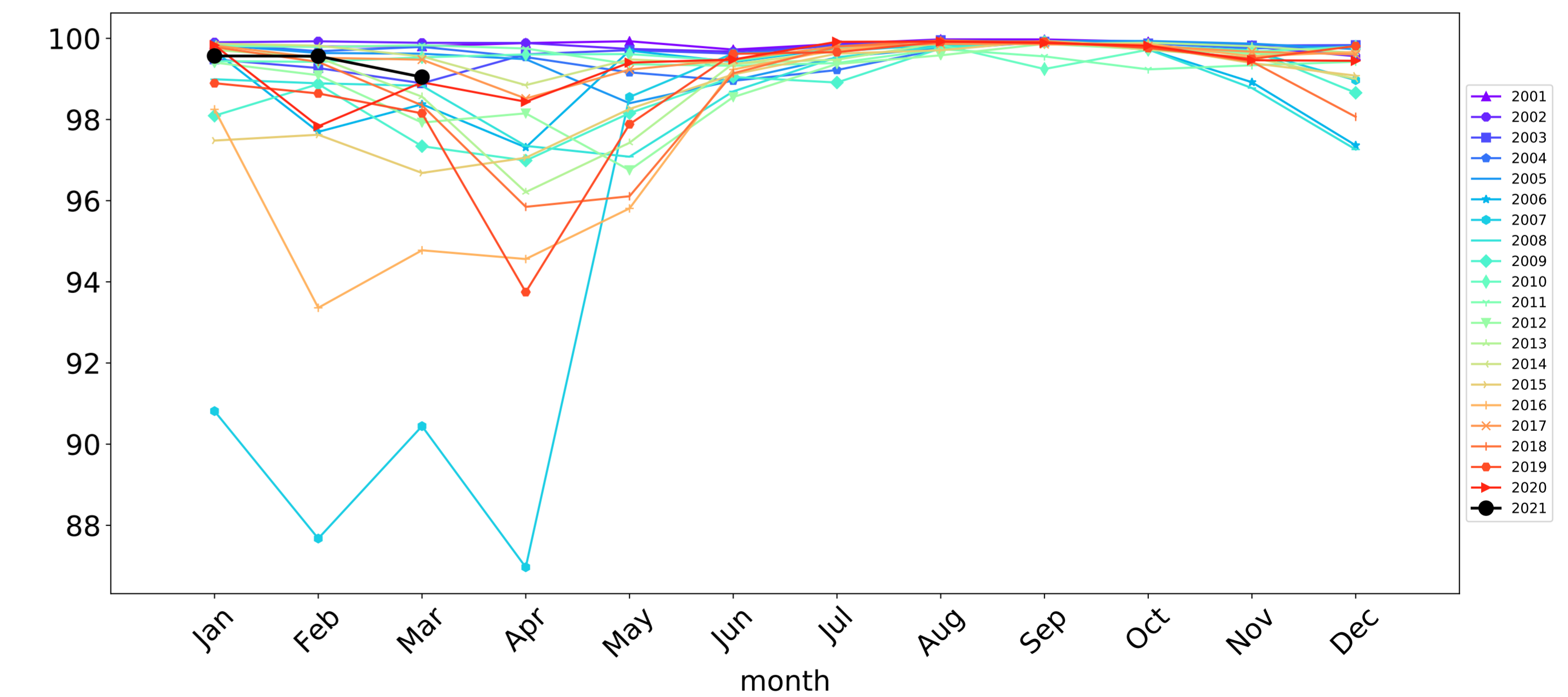
▲ 2001  
● 2002  
■ 2003  
◆ 2004  
▲ 2005  
◆ 2006  
▲ 2007  
◆ 2008  
▲ 2009  
◆ 2010  
▲ 2011  
◆ 2012  
▲ 2013  
◆ 2014  
▲ 2015  
◆ 2016  
▲ 2017  
◆ 2018  
▲ 2019  
◆ 2020  
● 2021

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



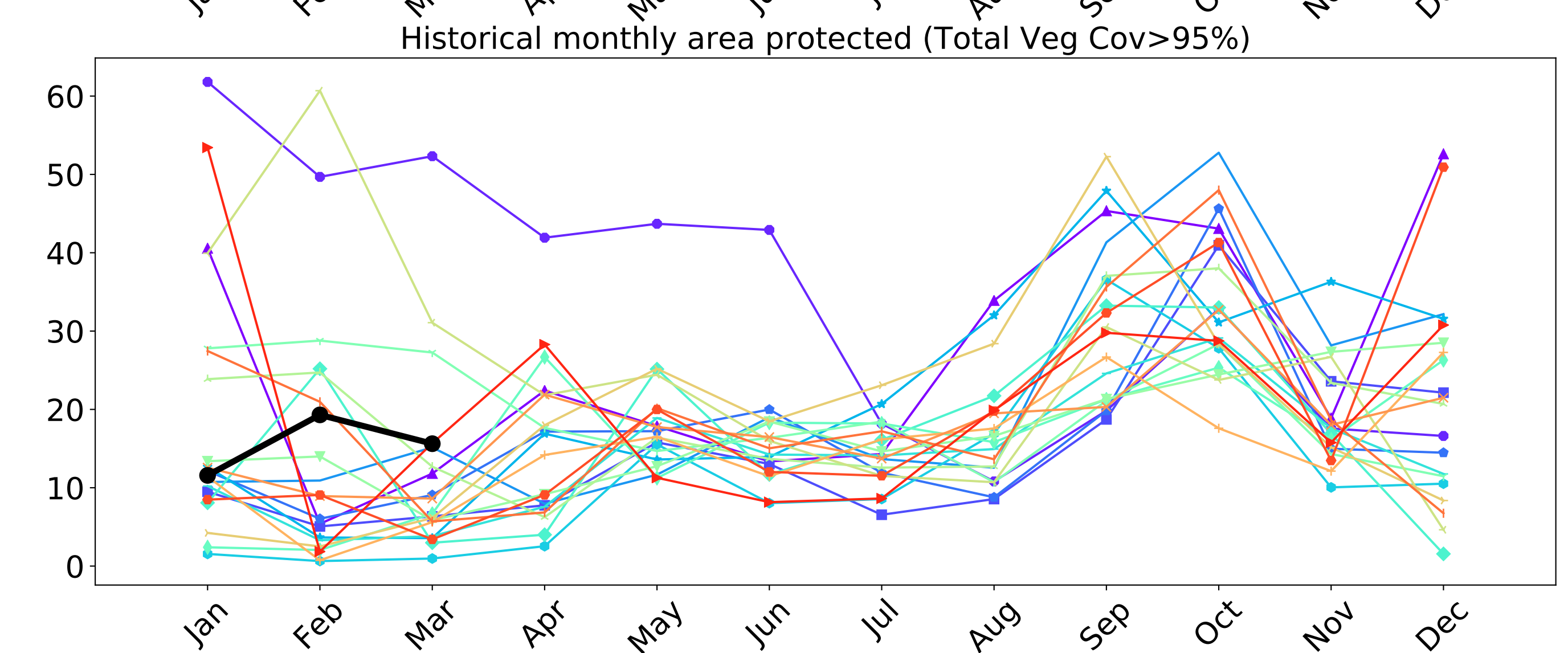
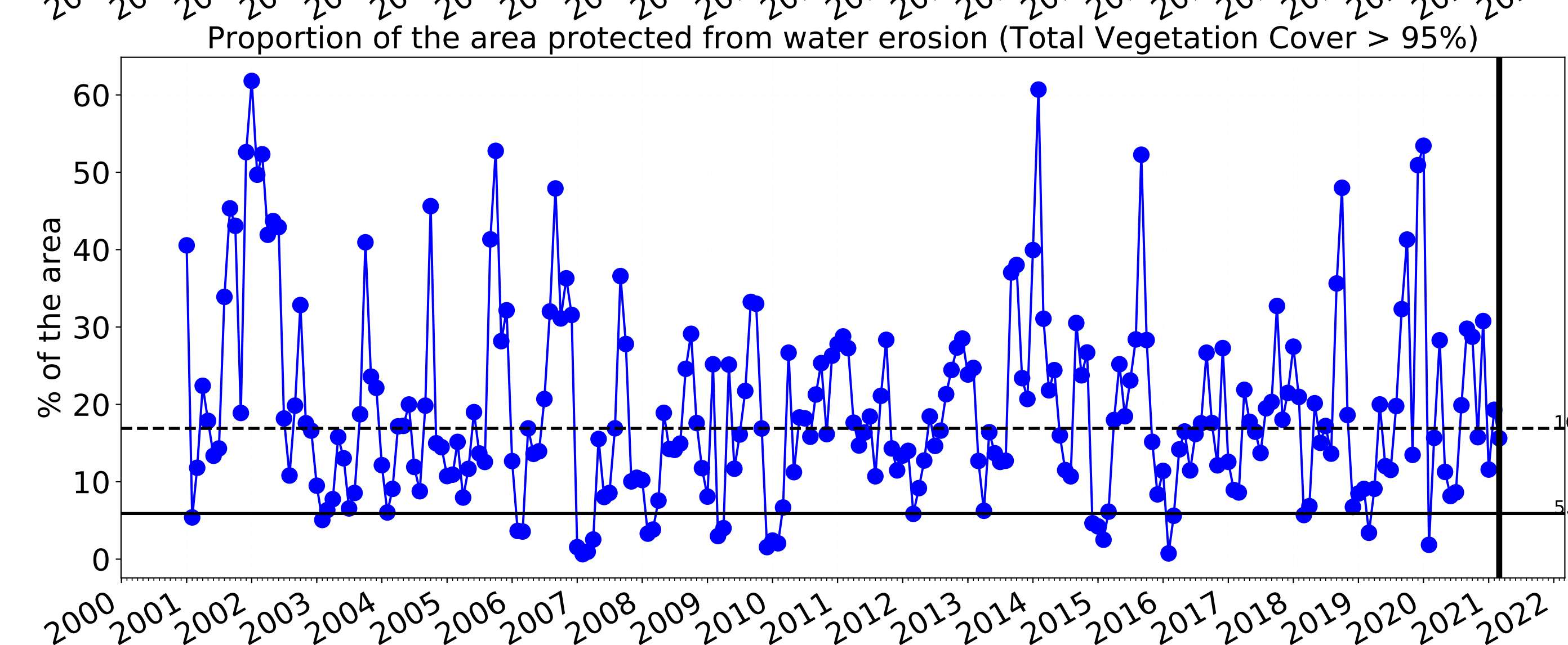
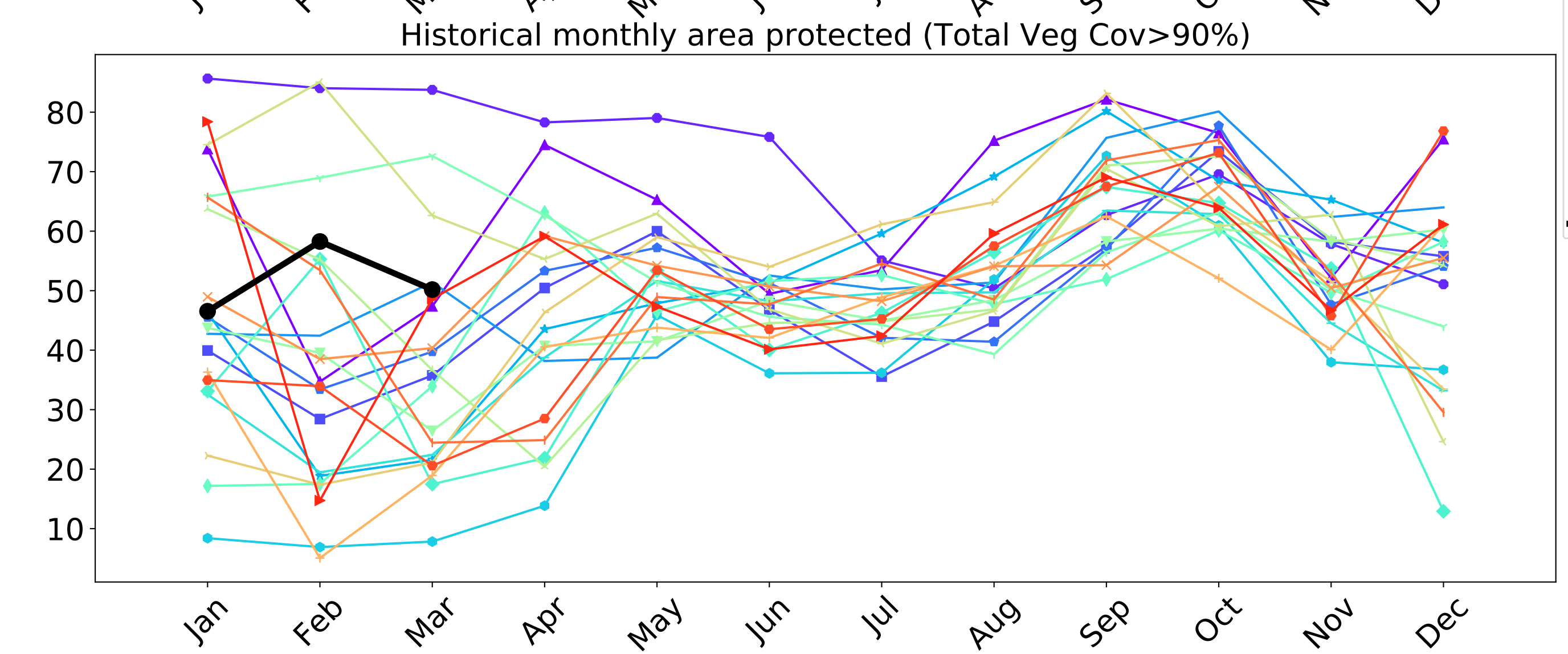
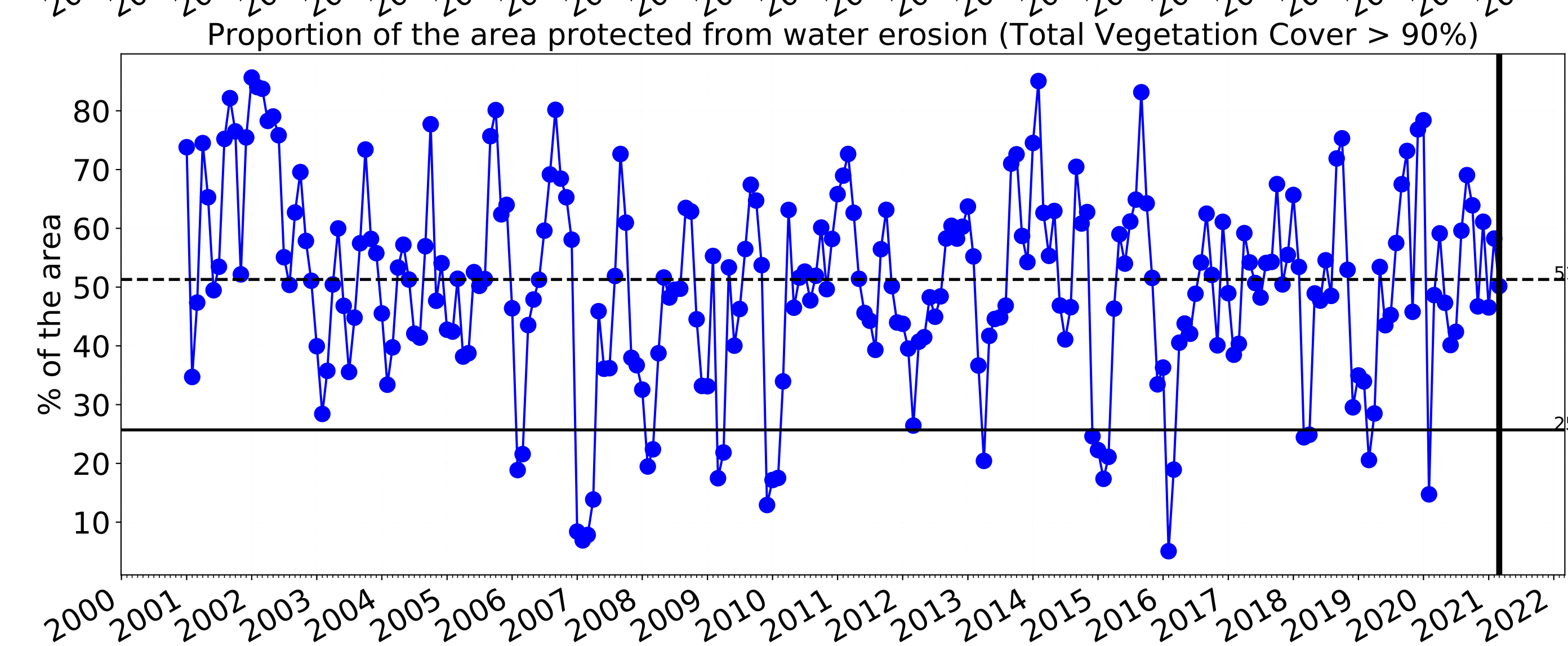
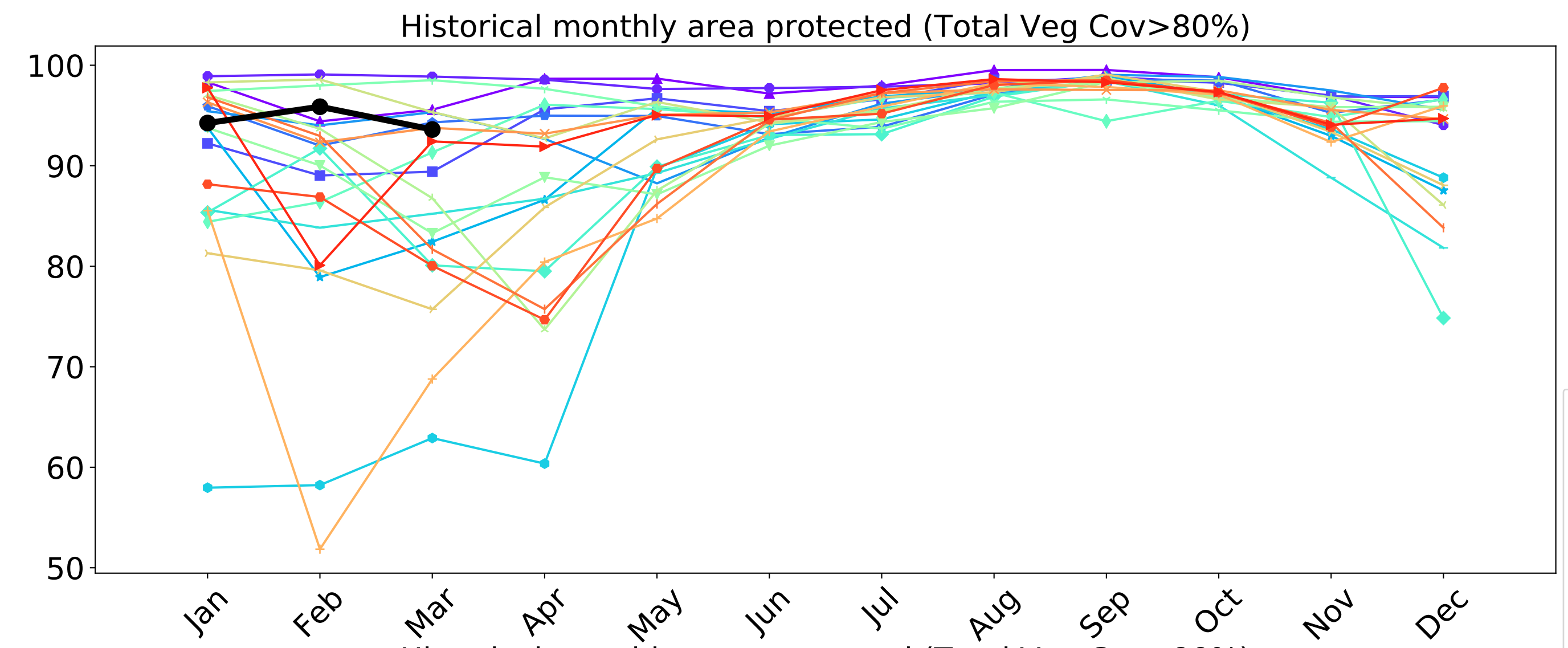
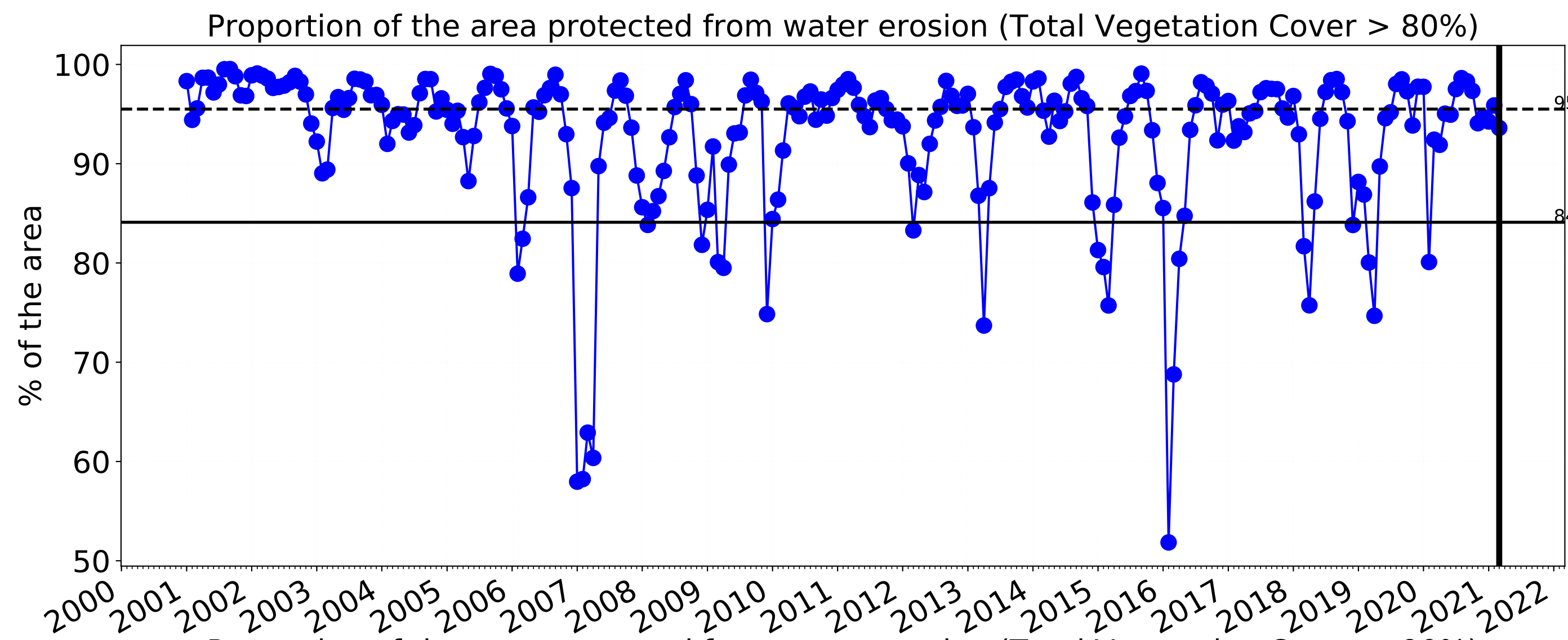
● above\_70  
— 10th  
- - 50th  
█ 2021 Mar

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



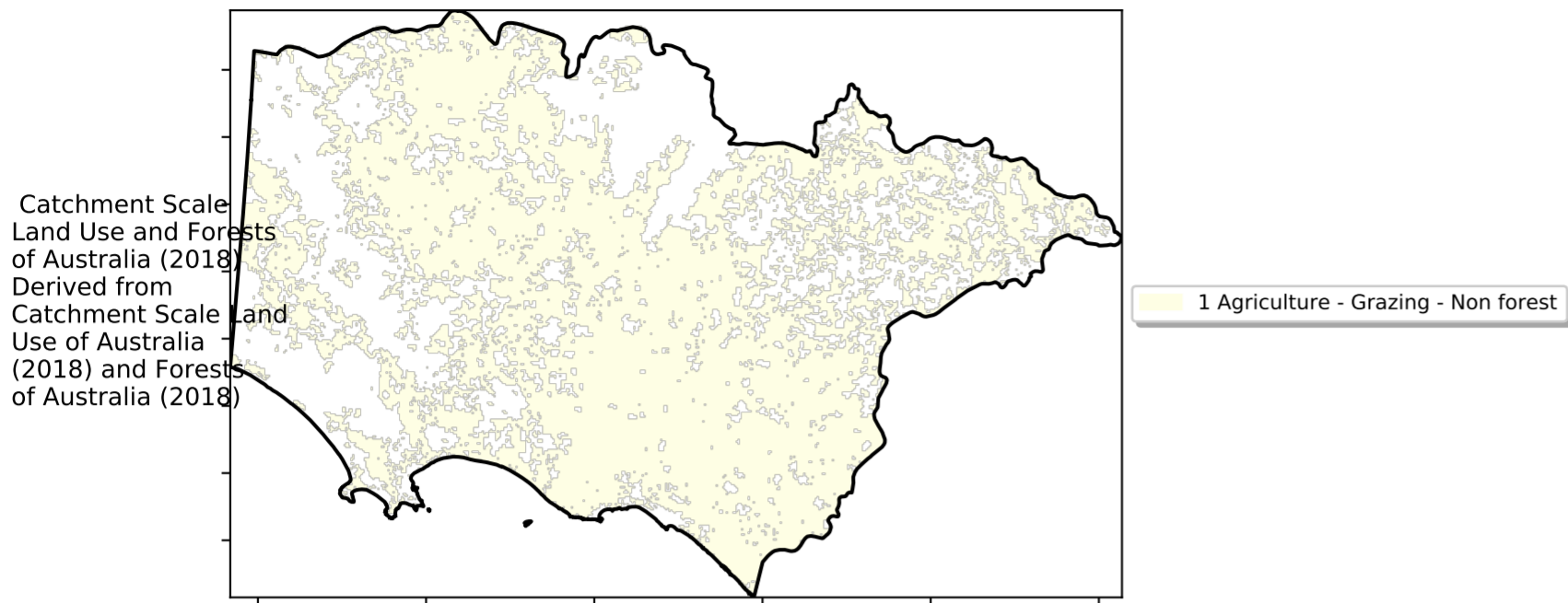
▲ 2001  
● 2002  
■ 2003  
◆ 2004  
▲ 2005  
◆ 2006  
▲ 2007  
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▲ 2009  
◆ 2010  
▲ 2011  
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◆ 2014  
▲ 2015  
◆ 2016  
▲ 2017  
◆ 2018  
▲ 2019  
◆ 2020  
● 2021



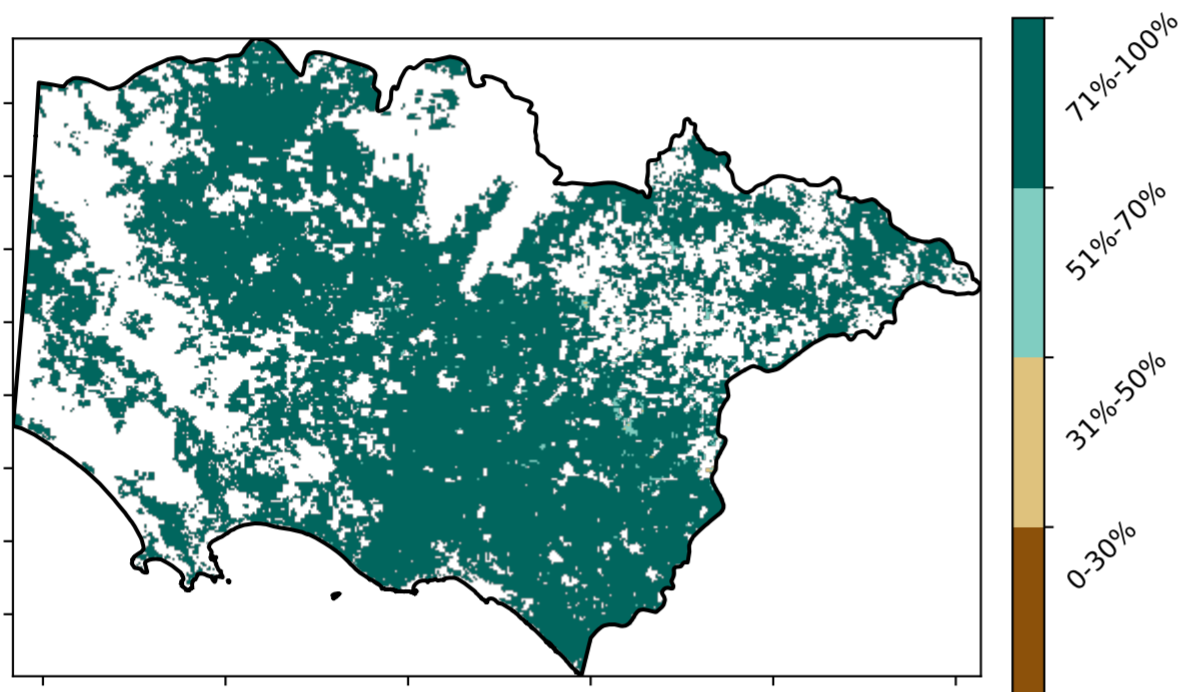


# Grazing non forest

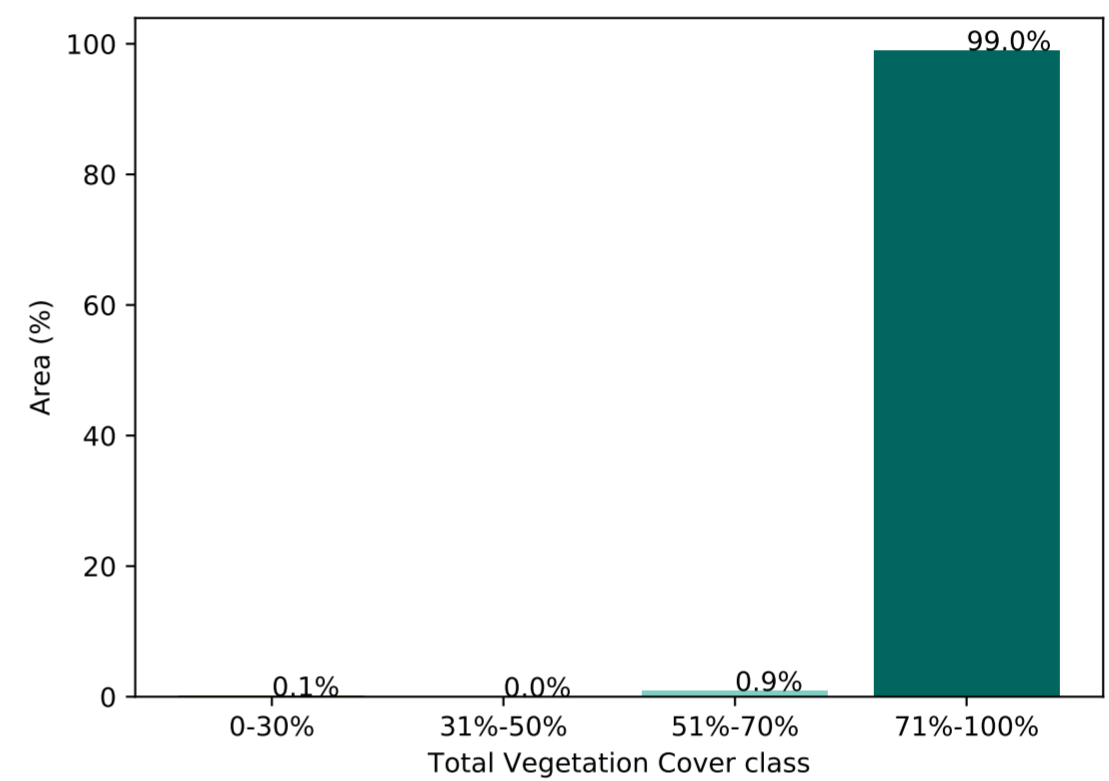
Land use and forest cover



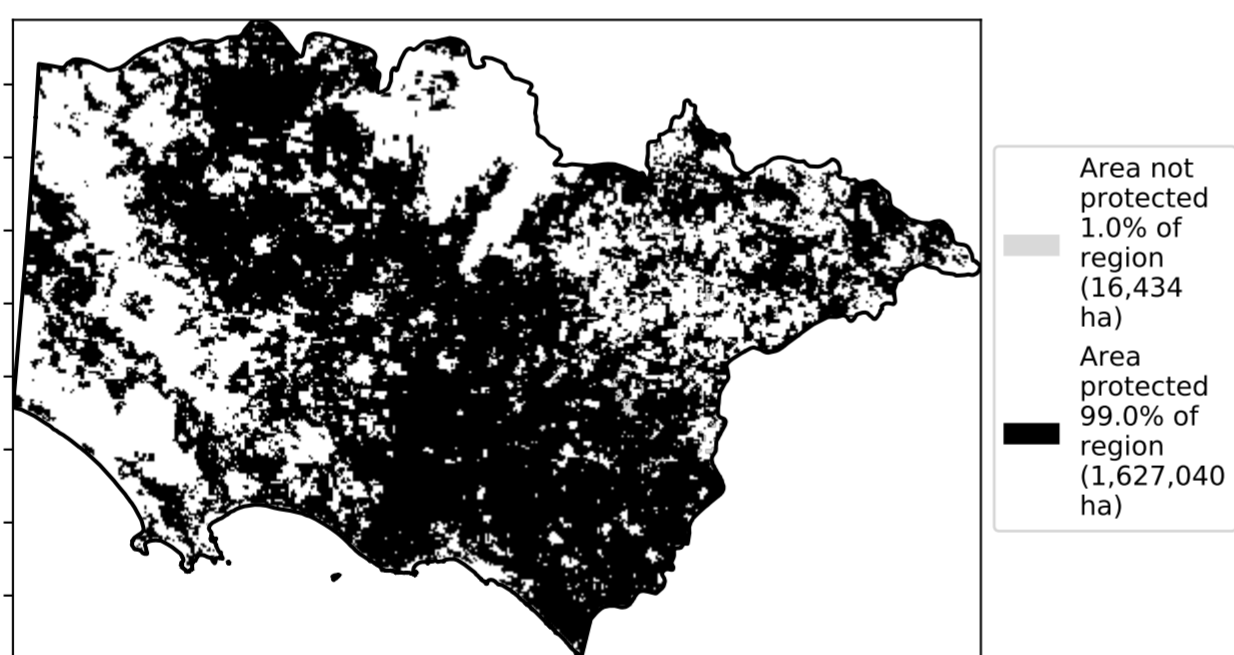
Total Vegetation Cover [%]



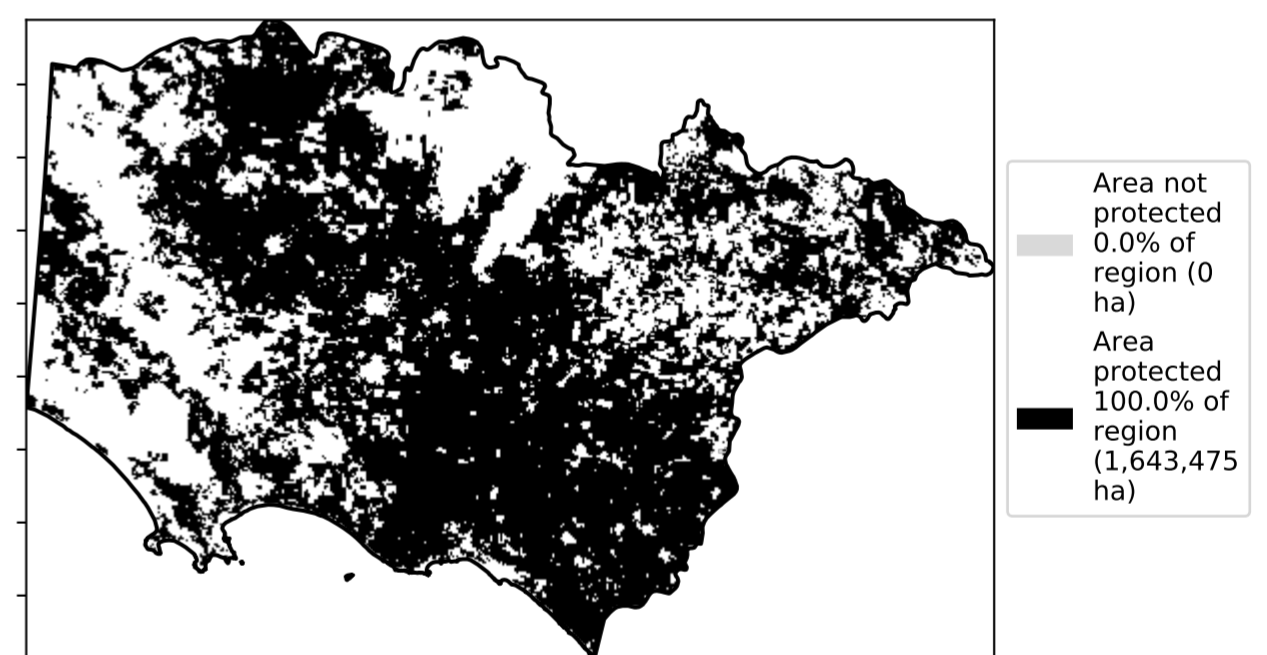
Proportion of vegetation cover class in area



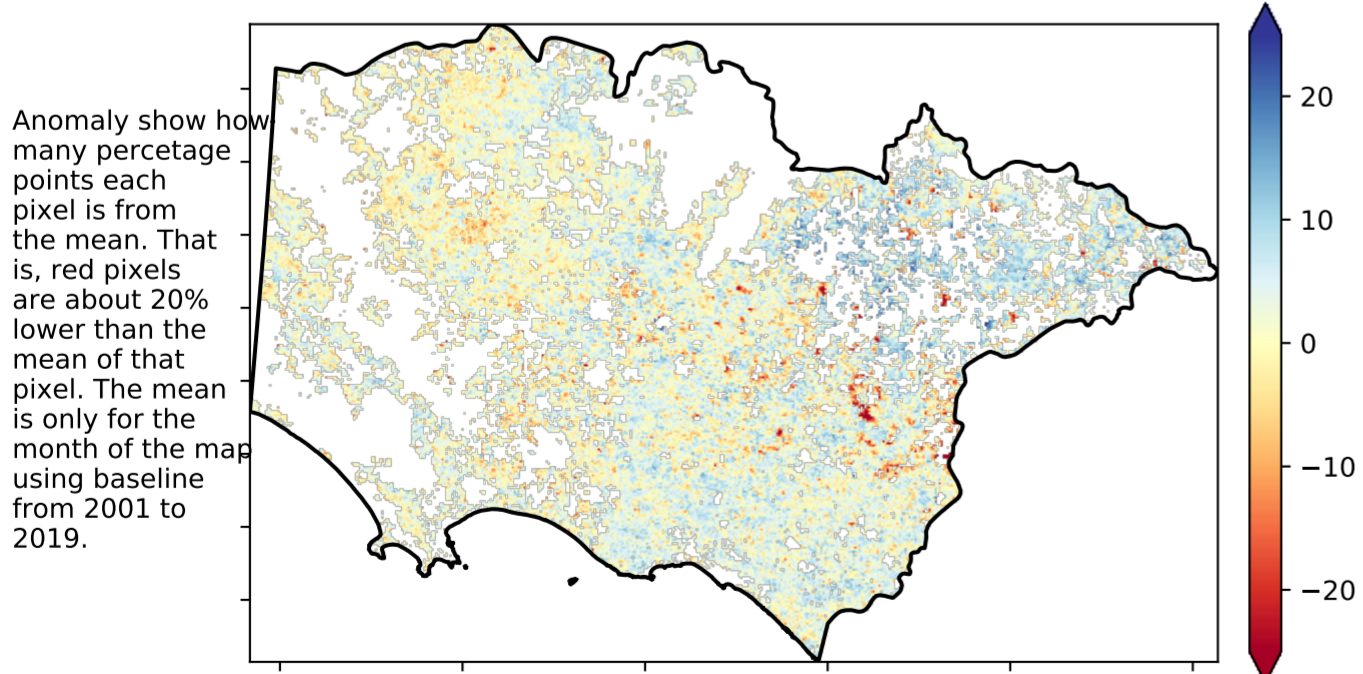
% Area protected from water erosion (>70%)



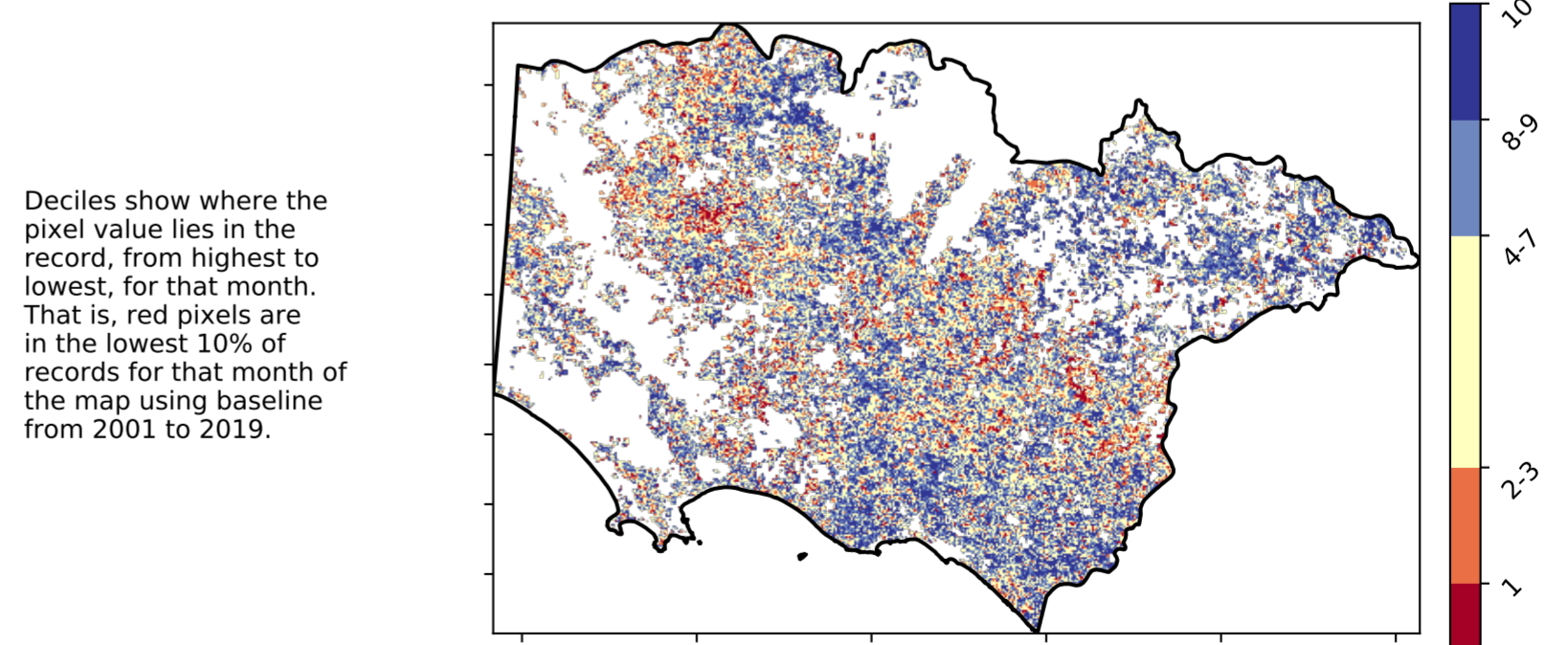
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]



Total Vegetation Cover Decile [%]



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Ecosystem Research Infrastructure



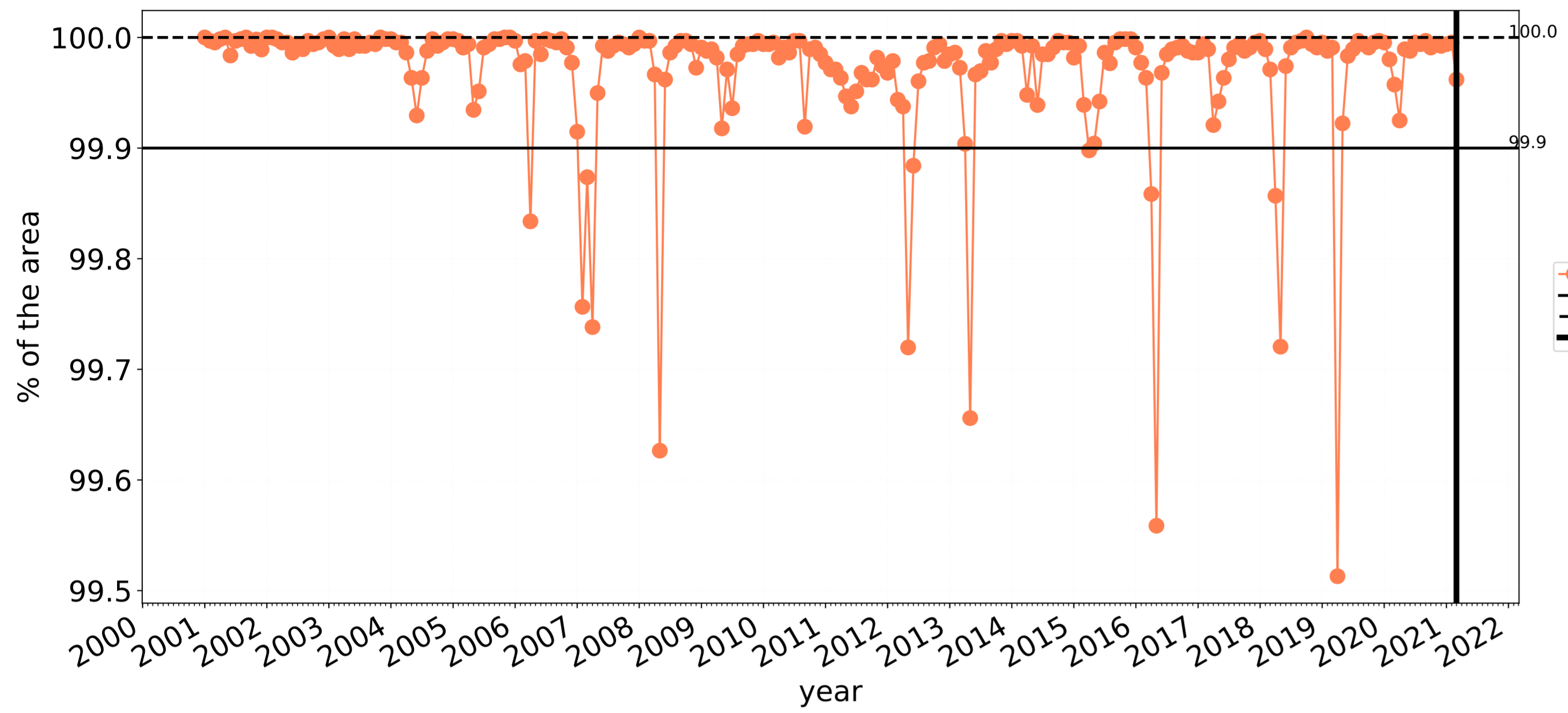
Australian Government

National  
Landcare  
Programme

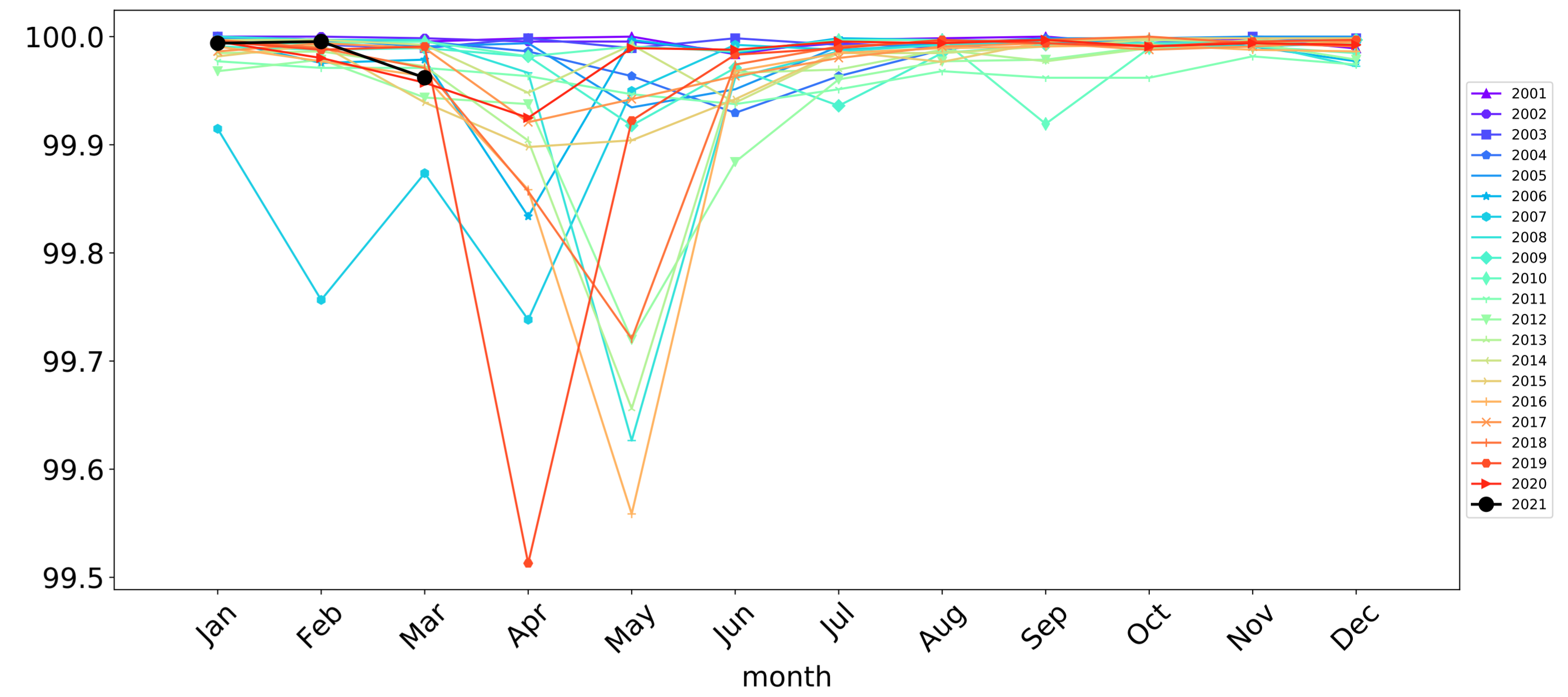


# Grazing non forest timeseries

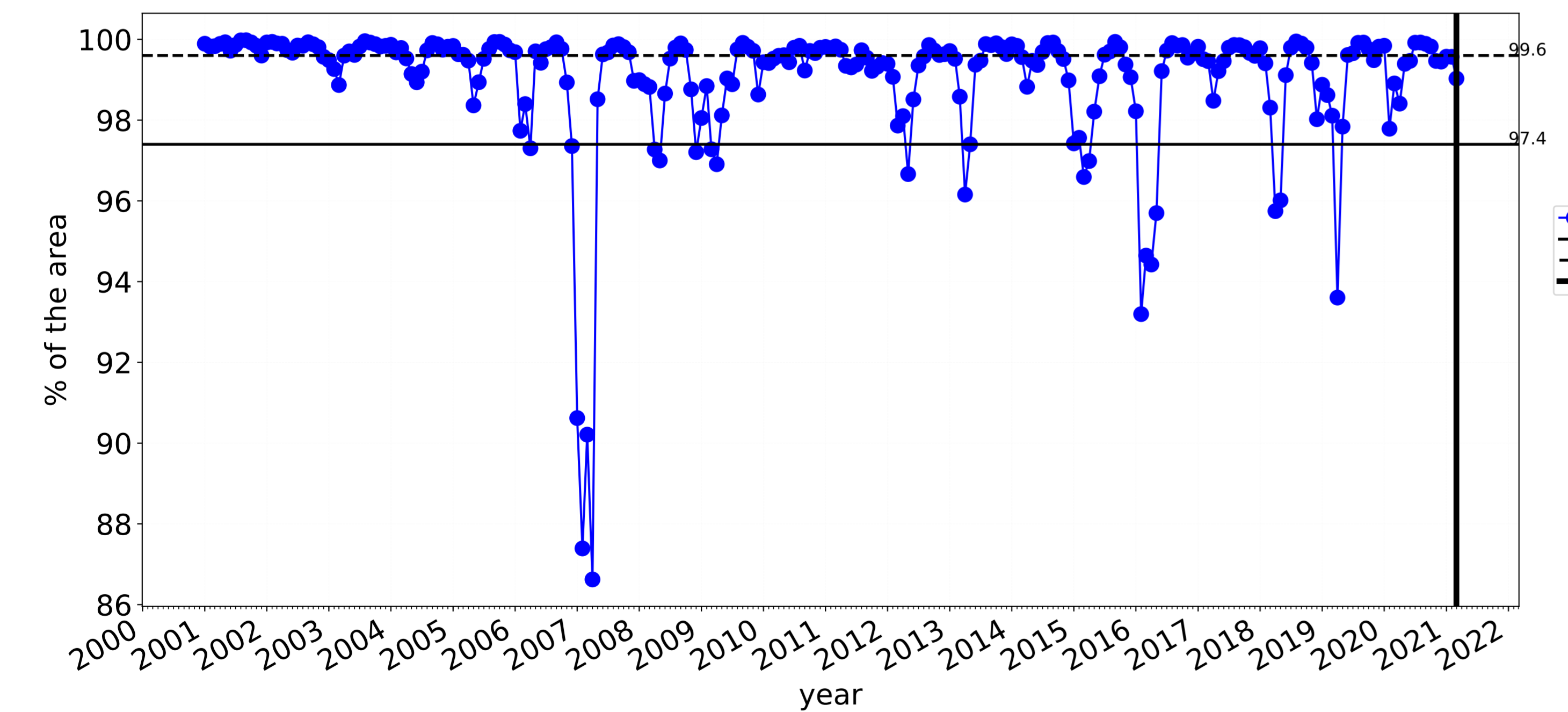
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



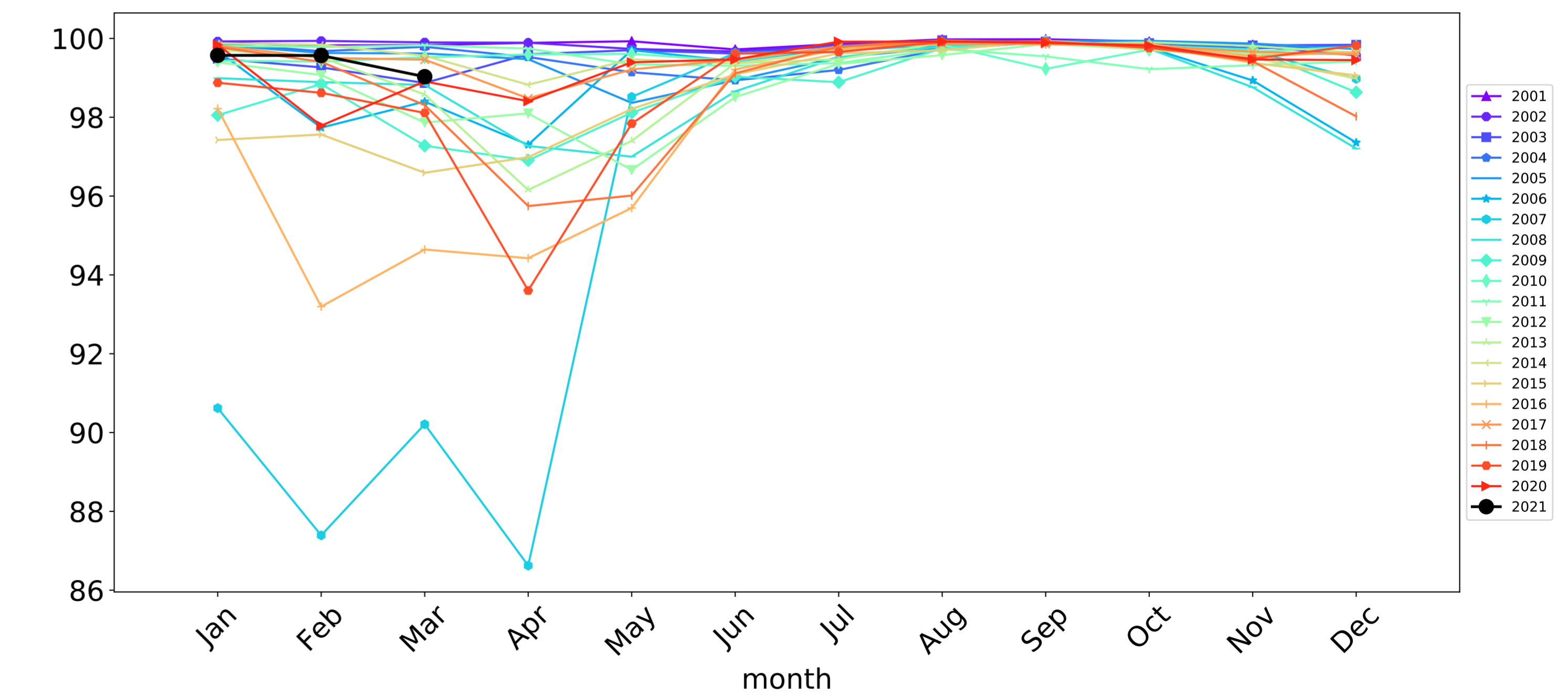
Wind erosion historical monthly area protected (Total Veg Cov >50%)

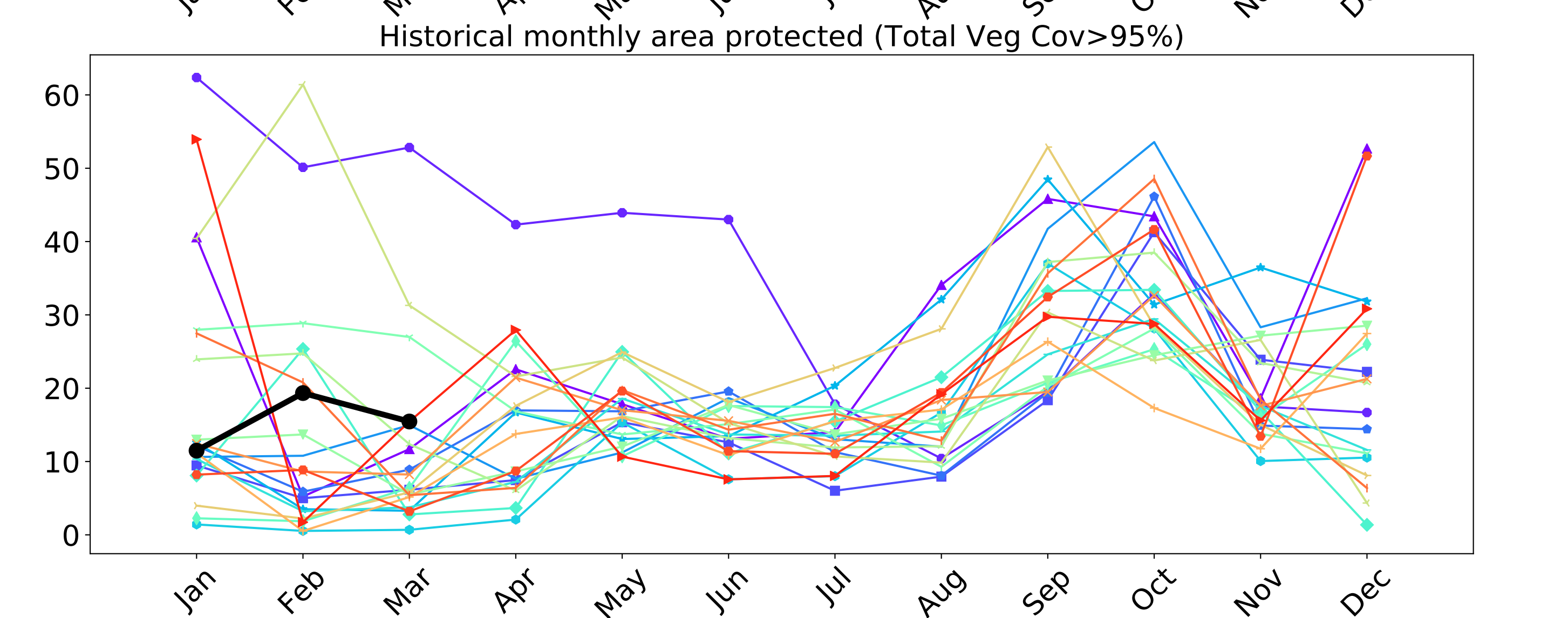
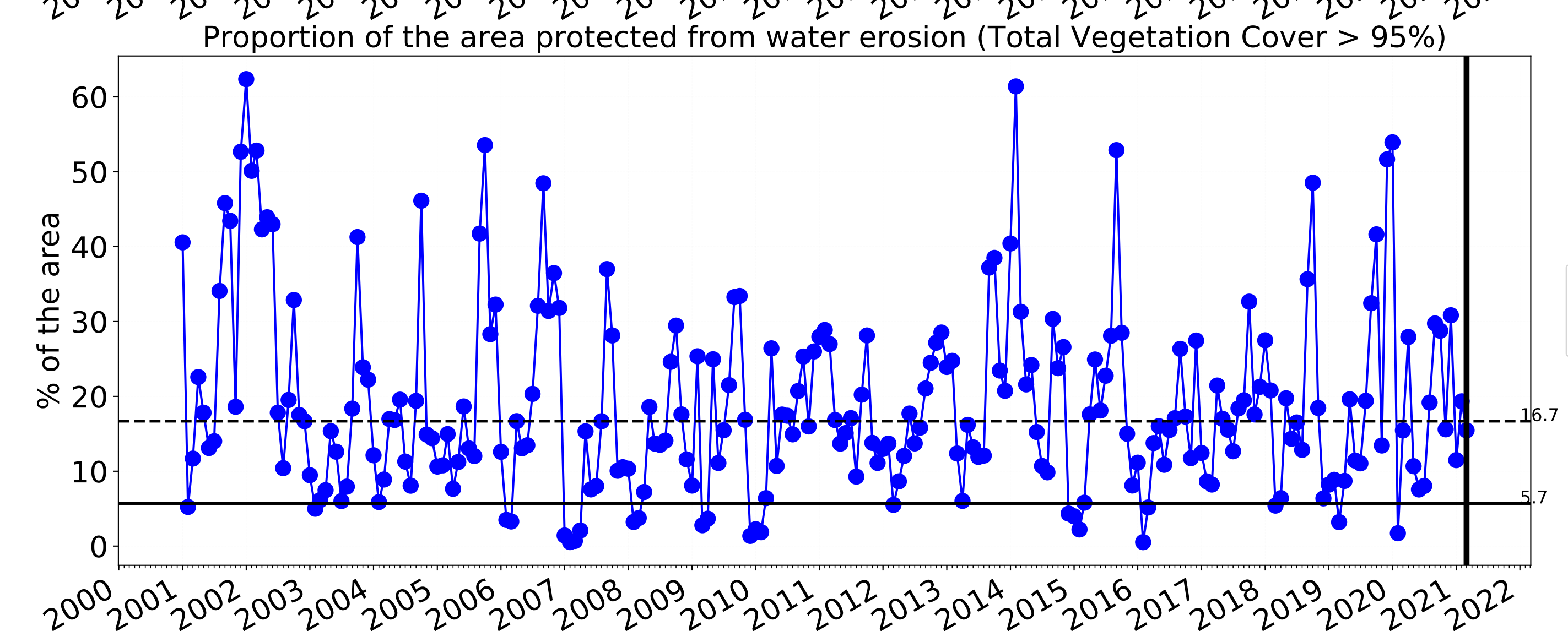
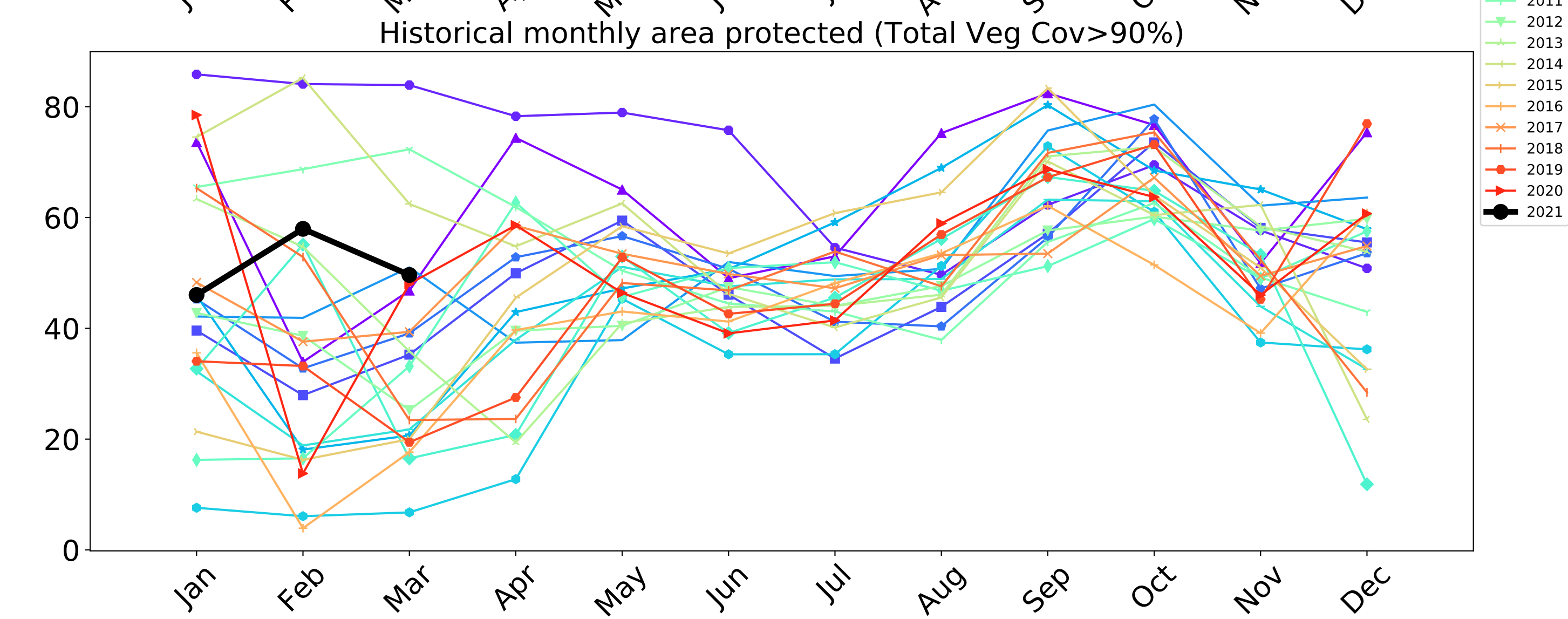
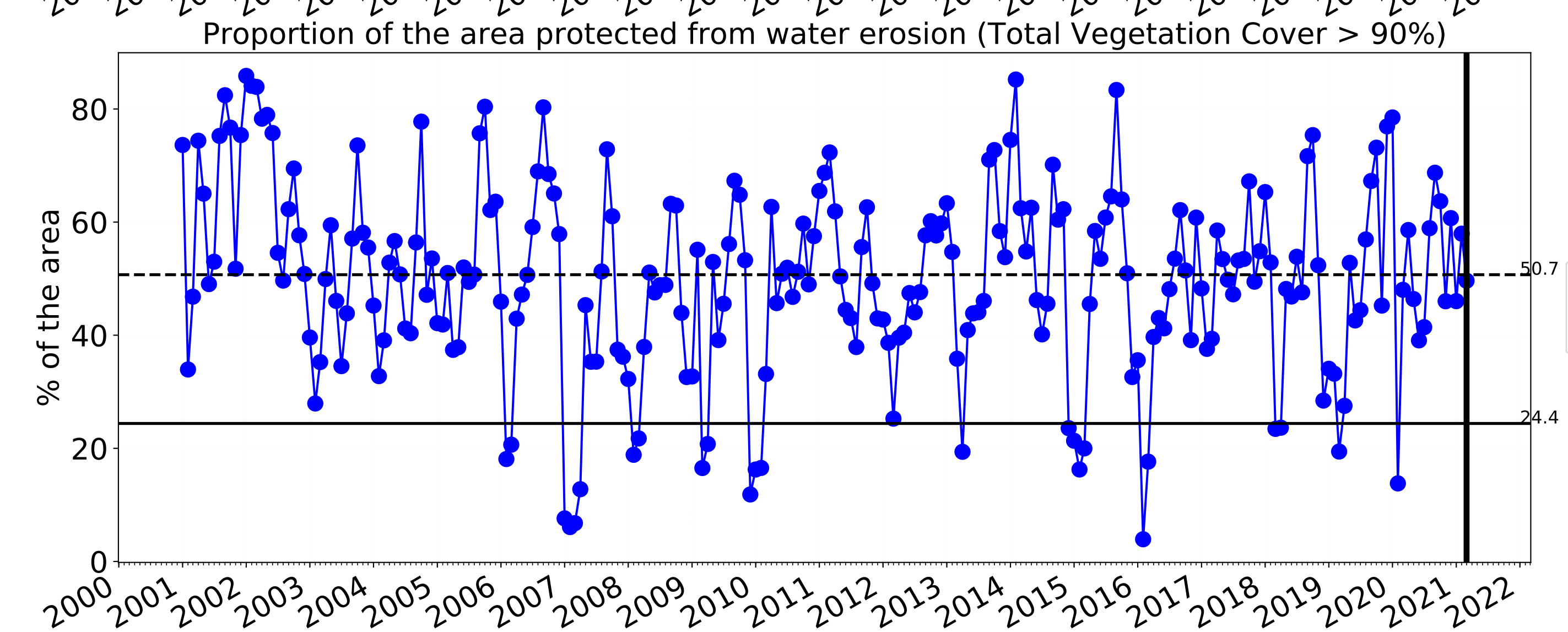
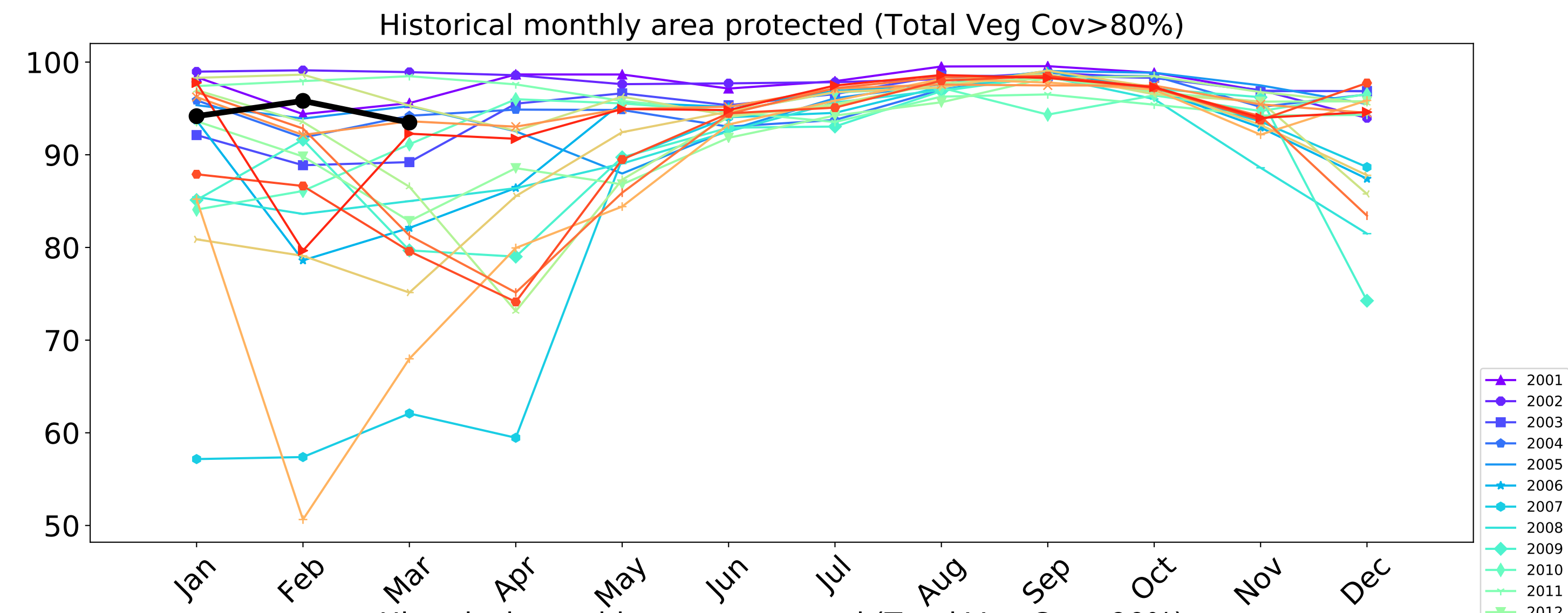
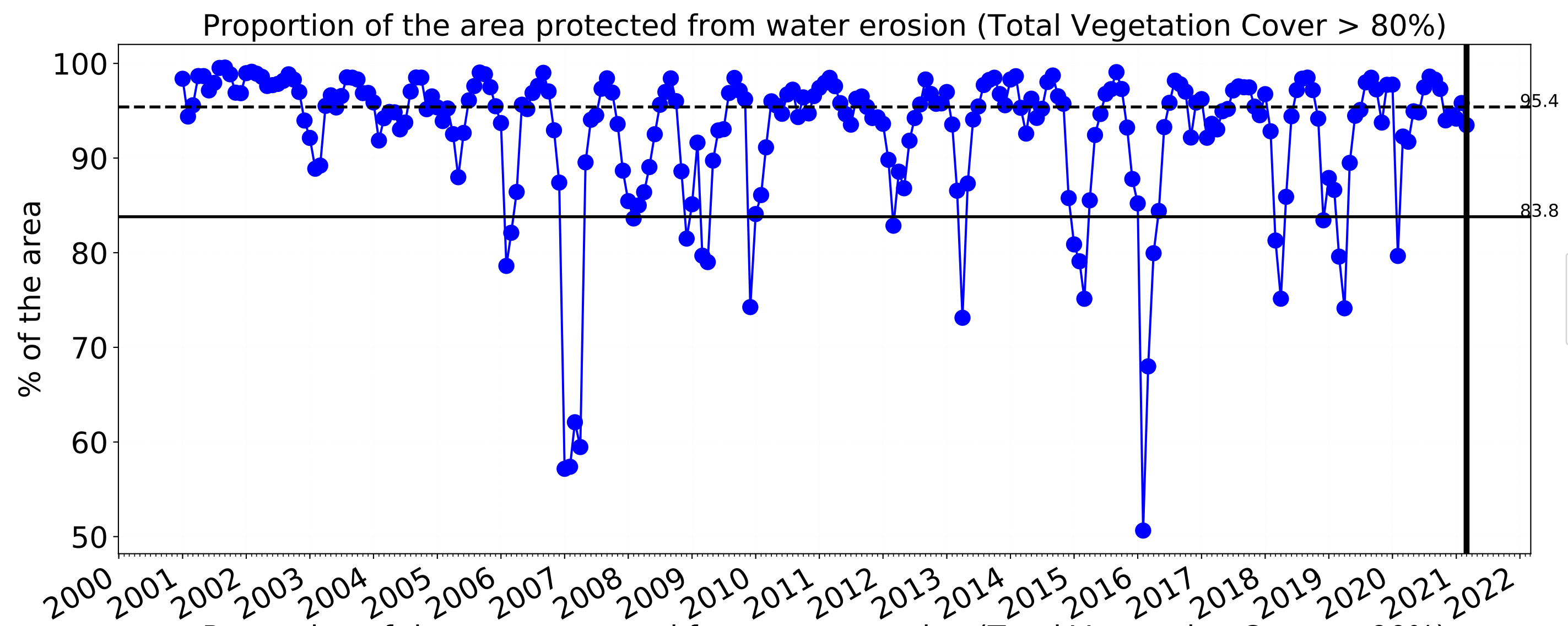


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



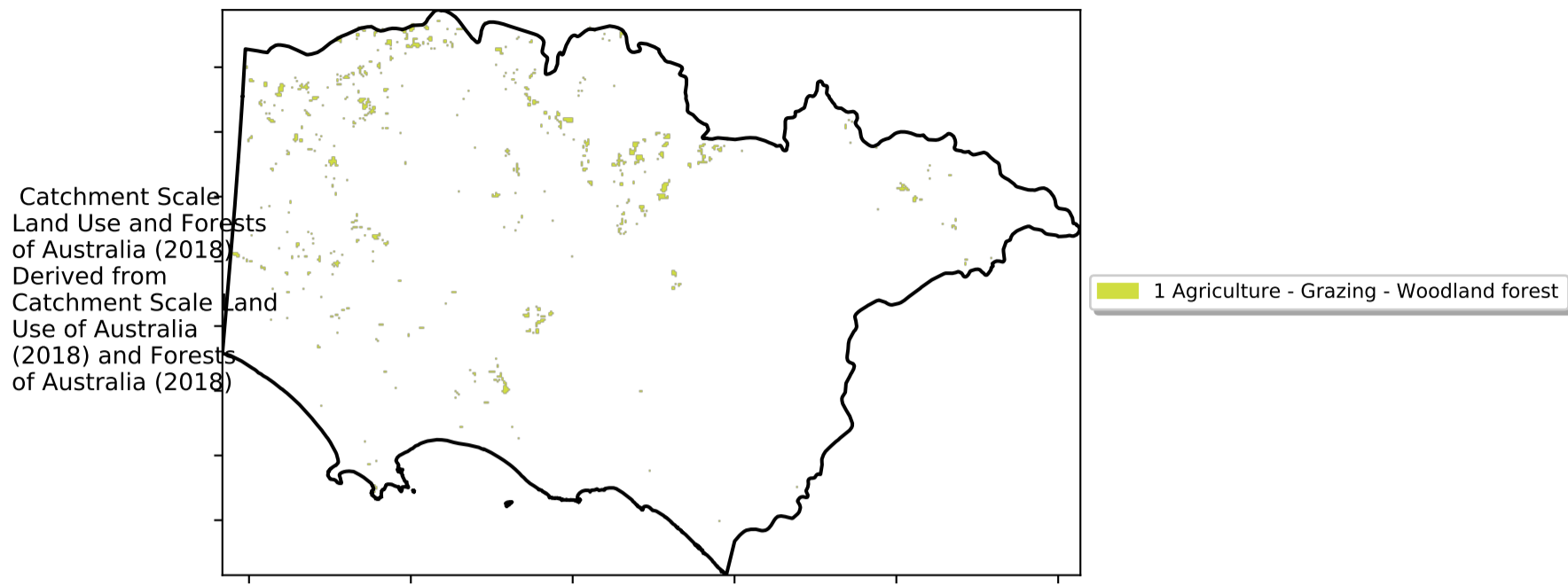
Water erosion historical monthly area protected (Total Veg Cov >70%)



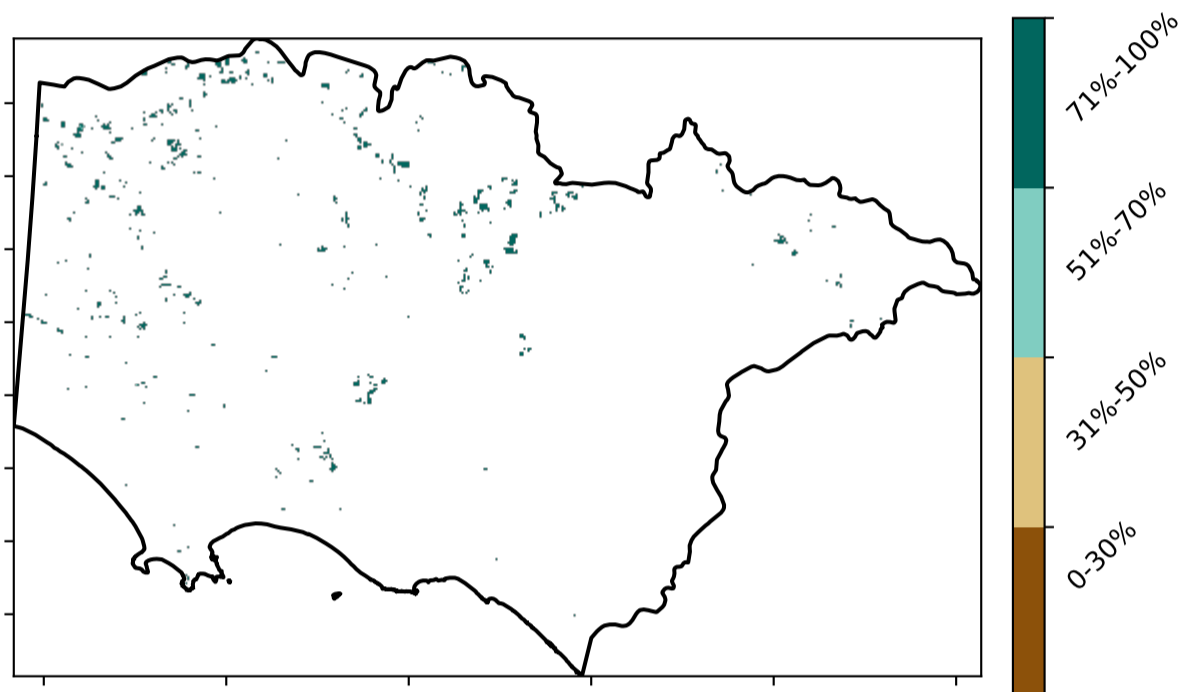


# Grazing Woodland forest

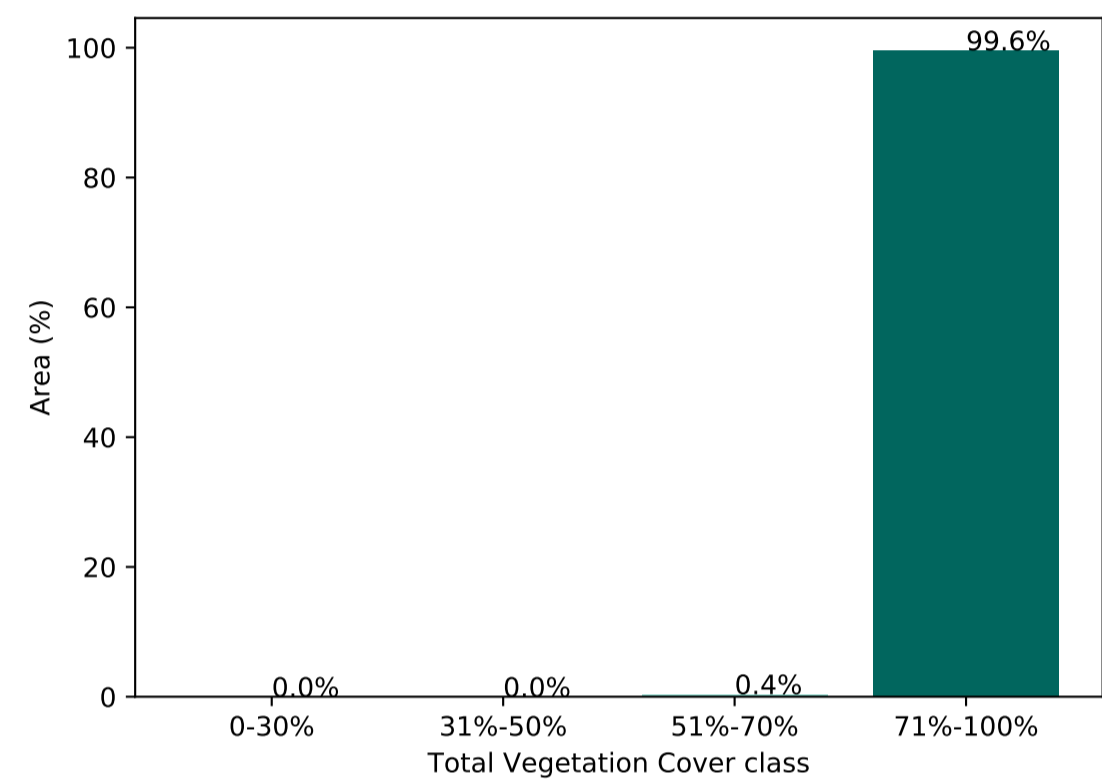
Land use and forest cover



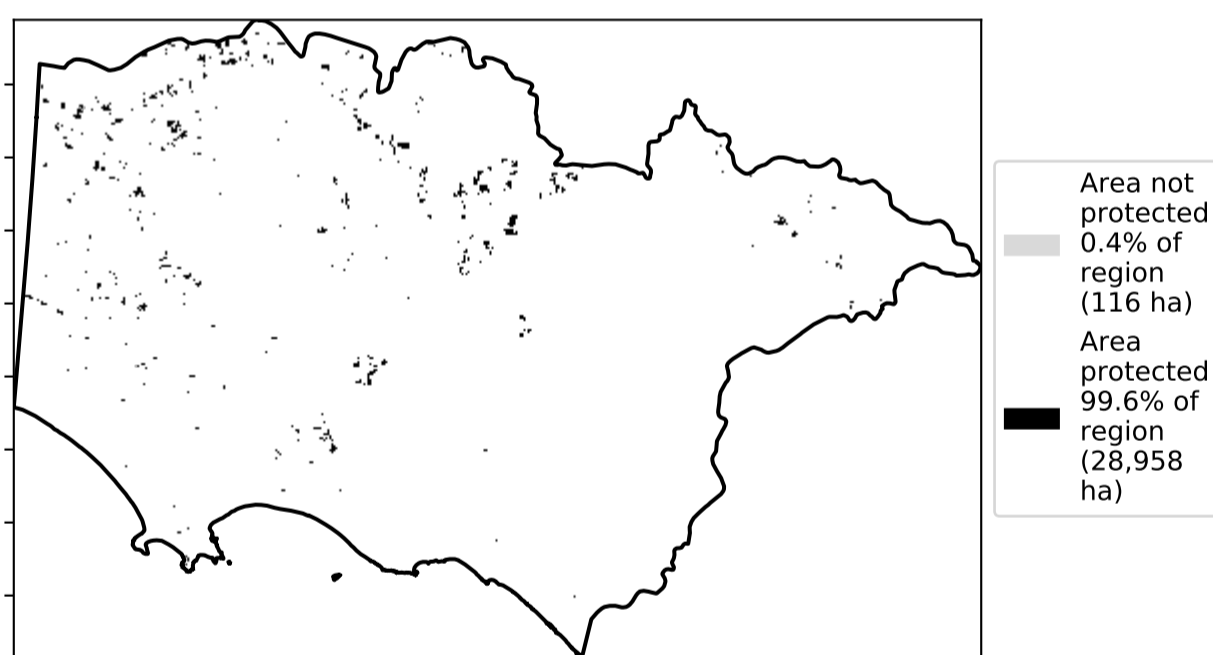
Total Vegetation Cover [%]



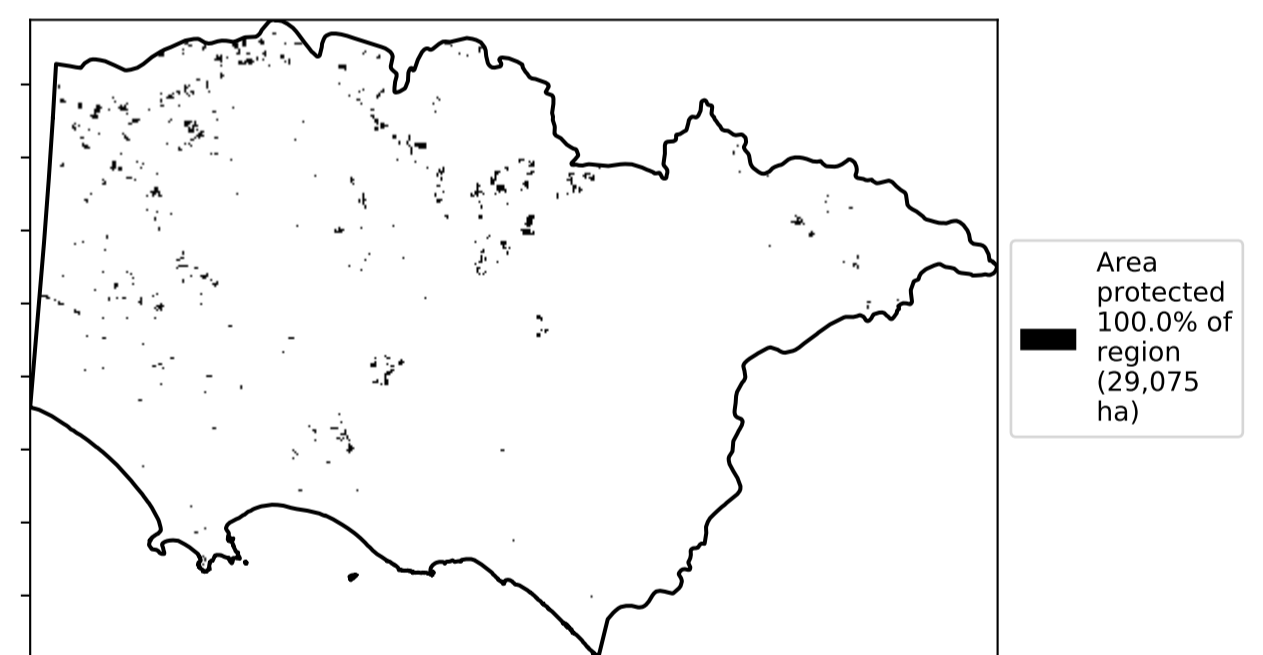
Proportion of vegetation cover class in area



% Area protected from water erosion (>70%)



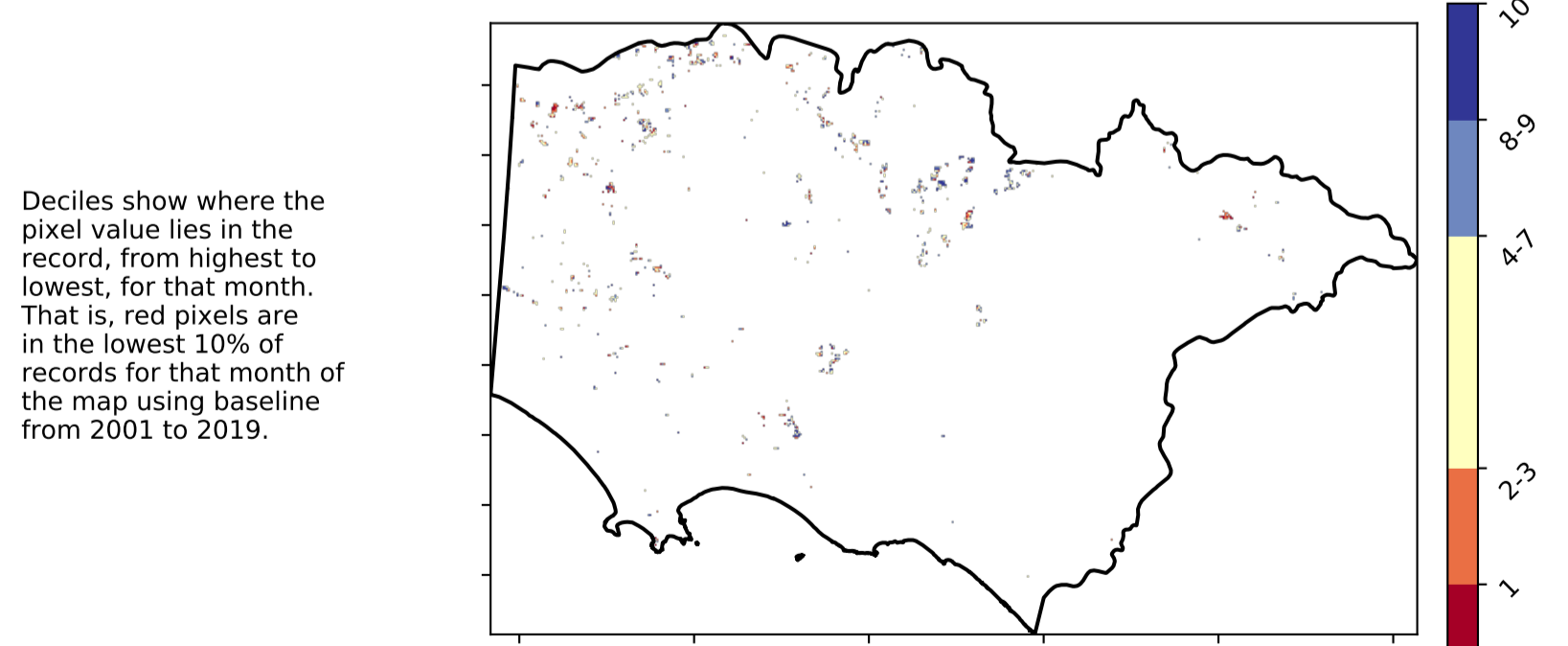
% Area protected from wind erosion (>50%)



Total Vegetation Cover Anomaly [%]

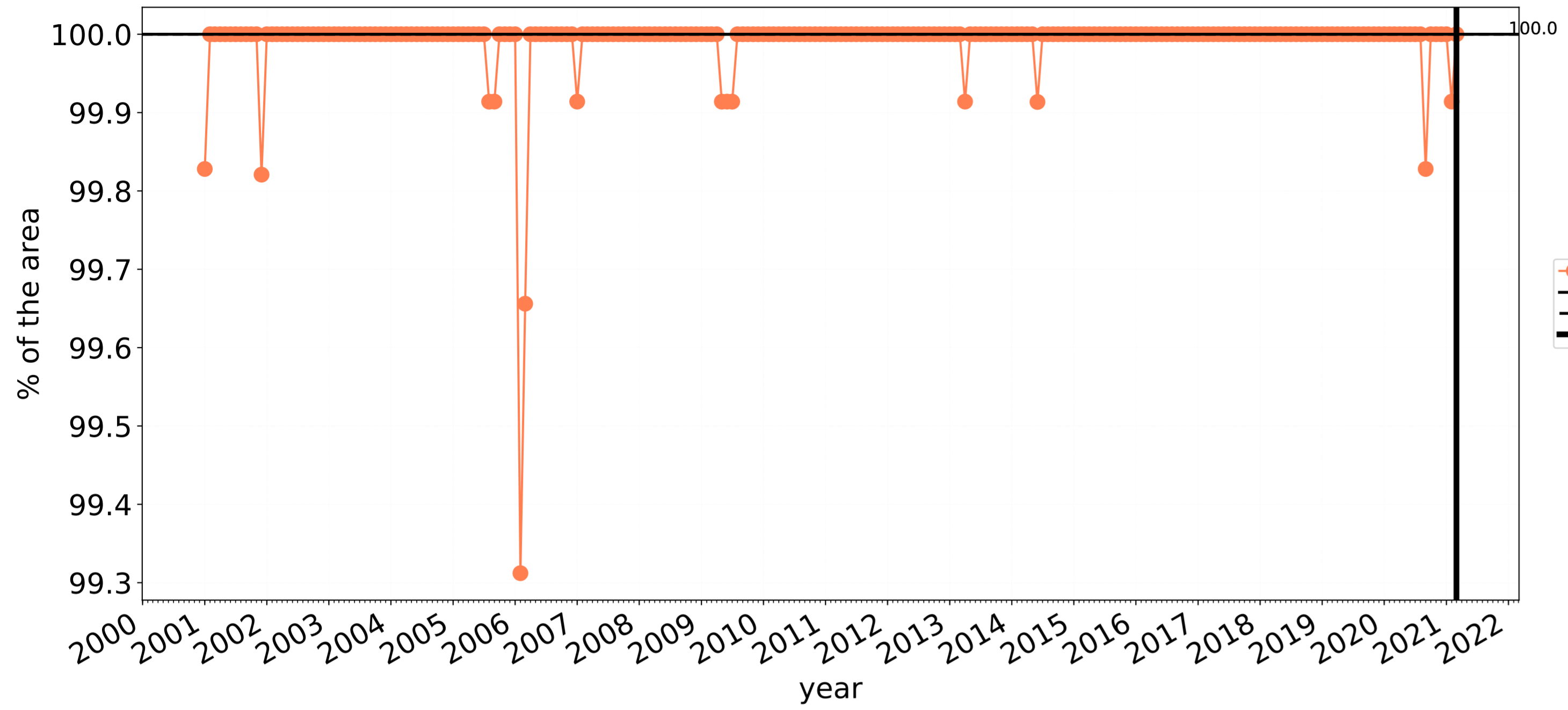


Total Vegetation Cover Decile [%]

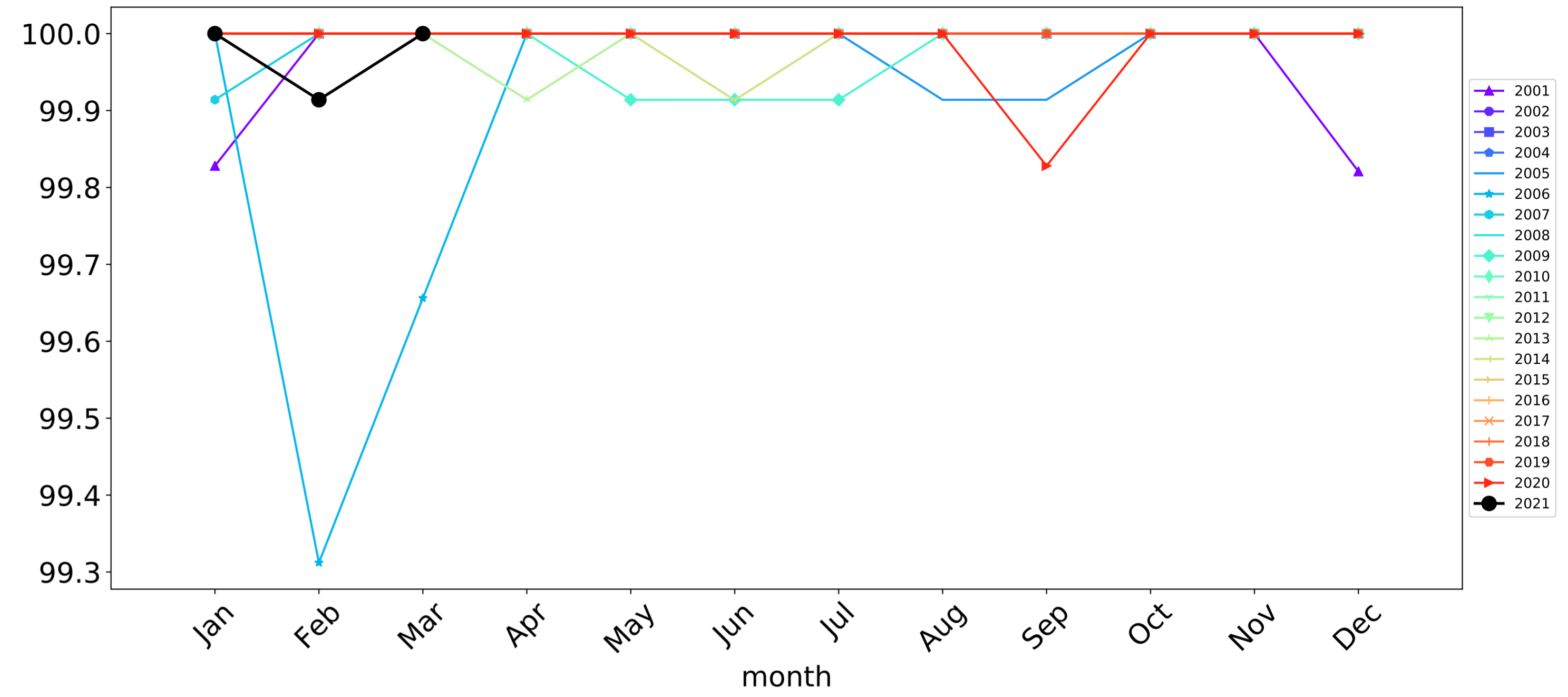


# Grazing Woodland forest timeseries

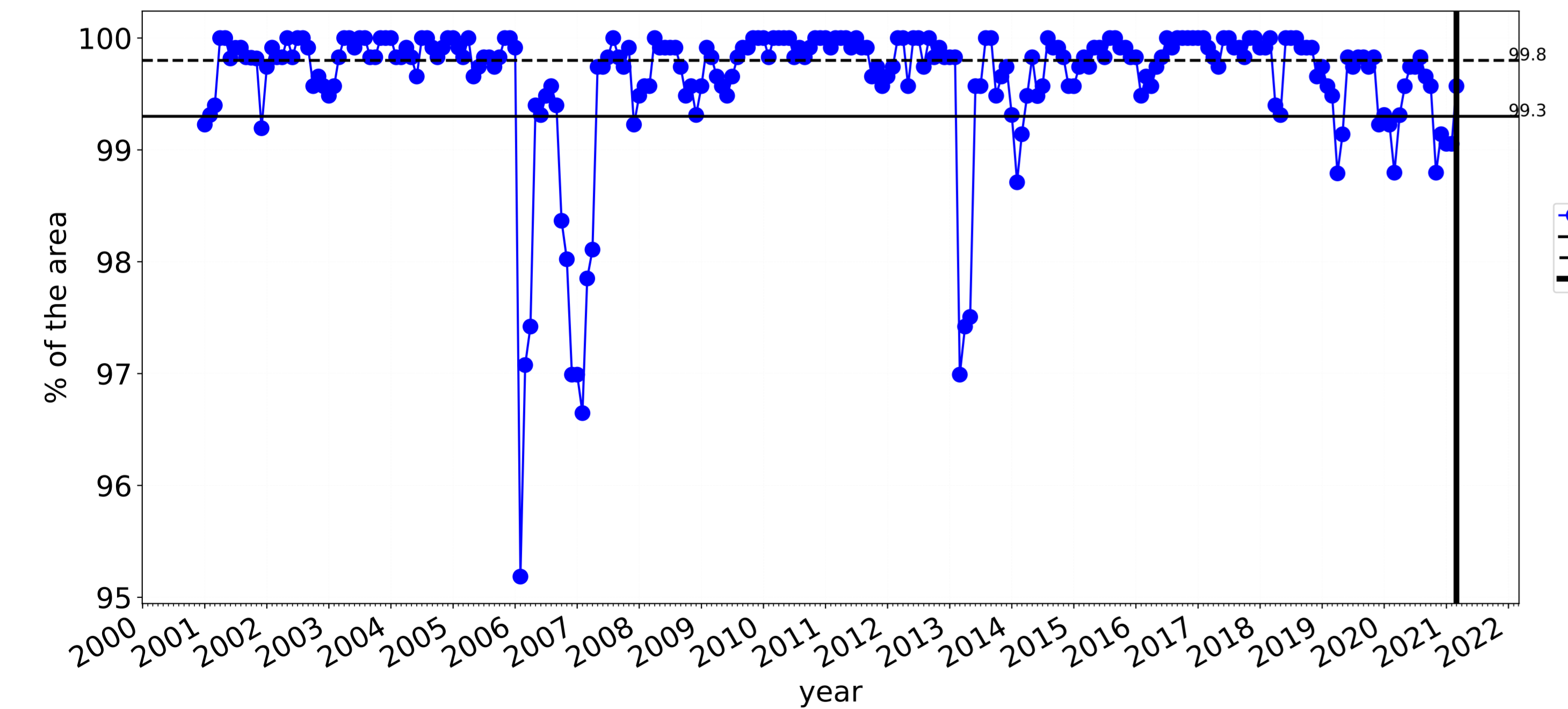
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



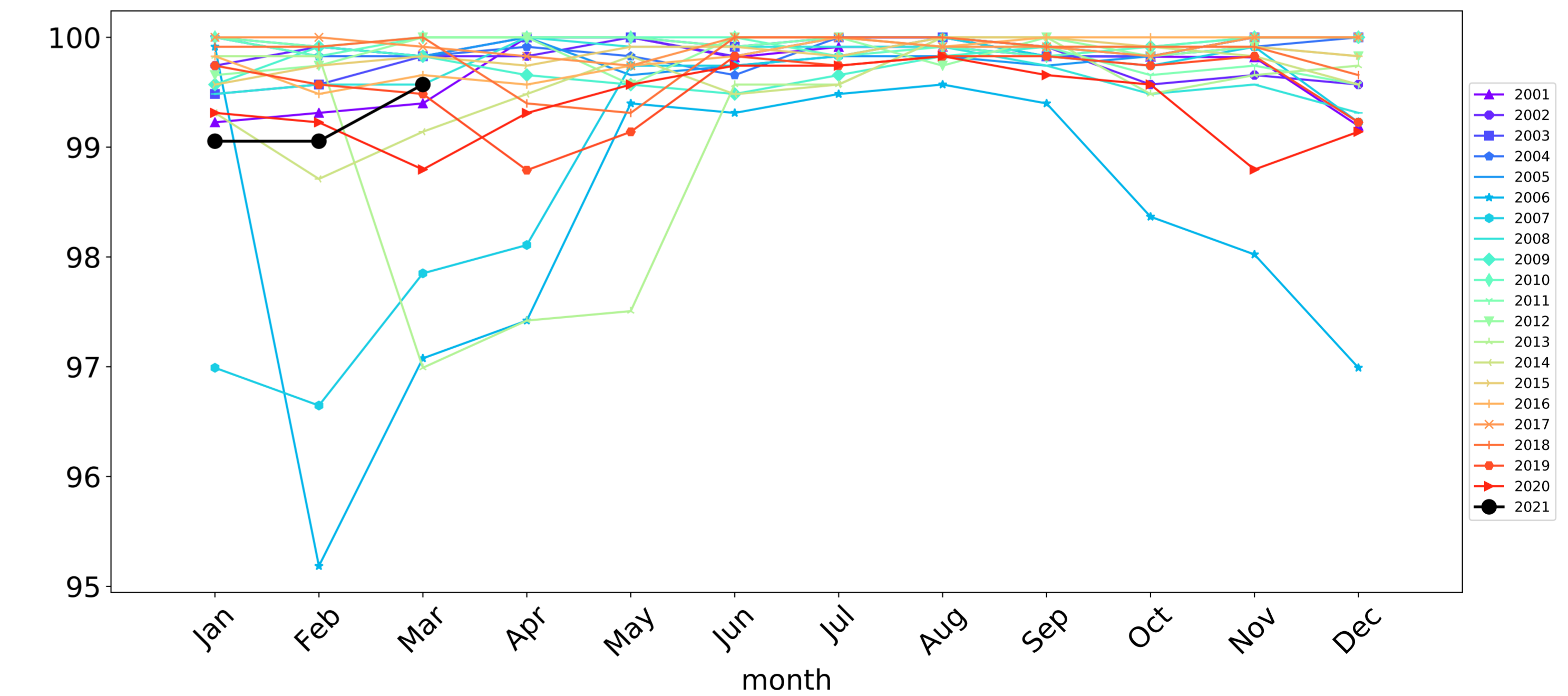
Wind erosion historical monthly area protected (Total Veg Cov >50%)

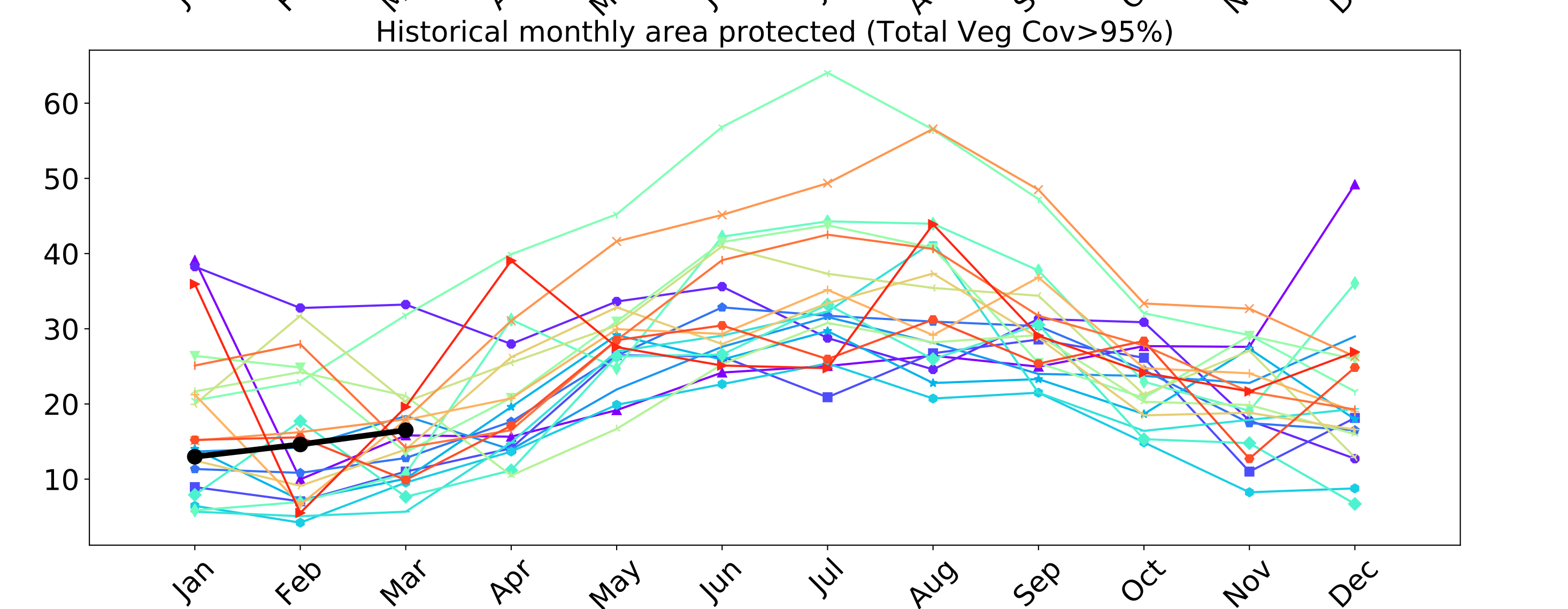
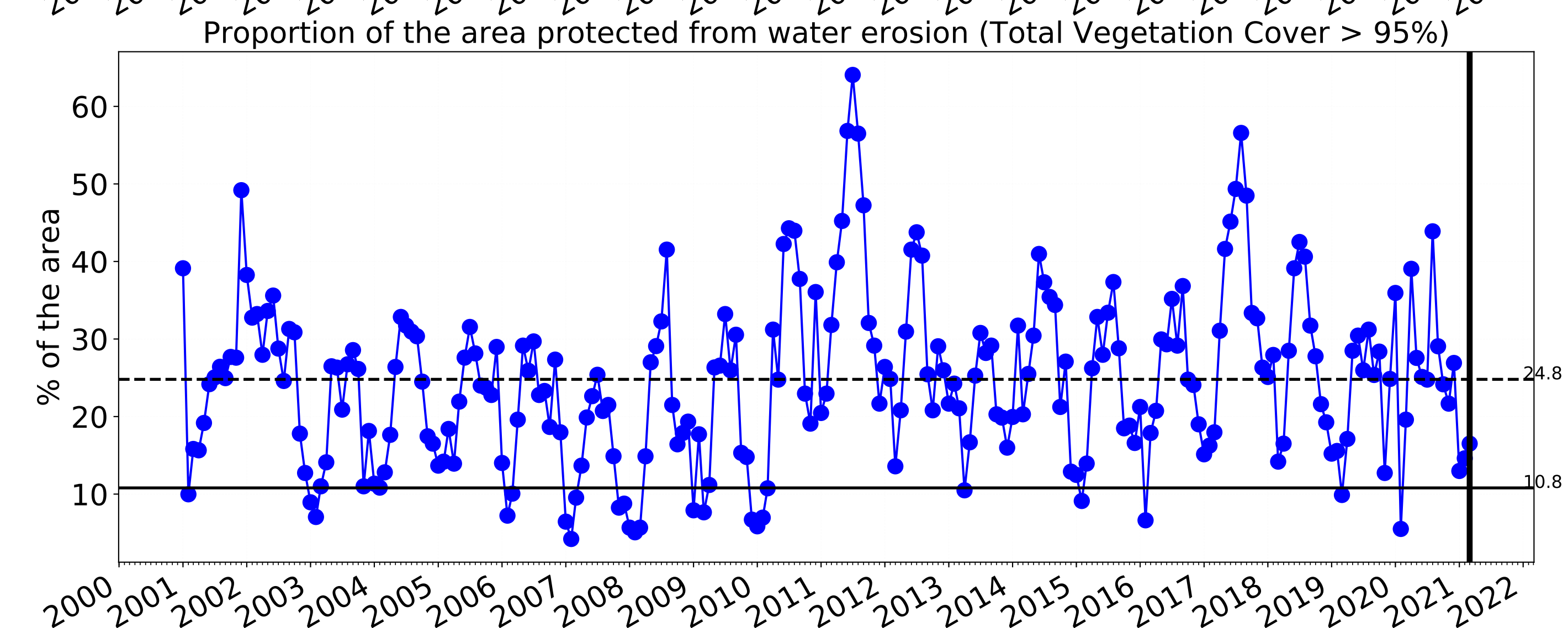
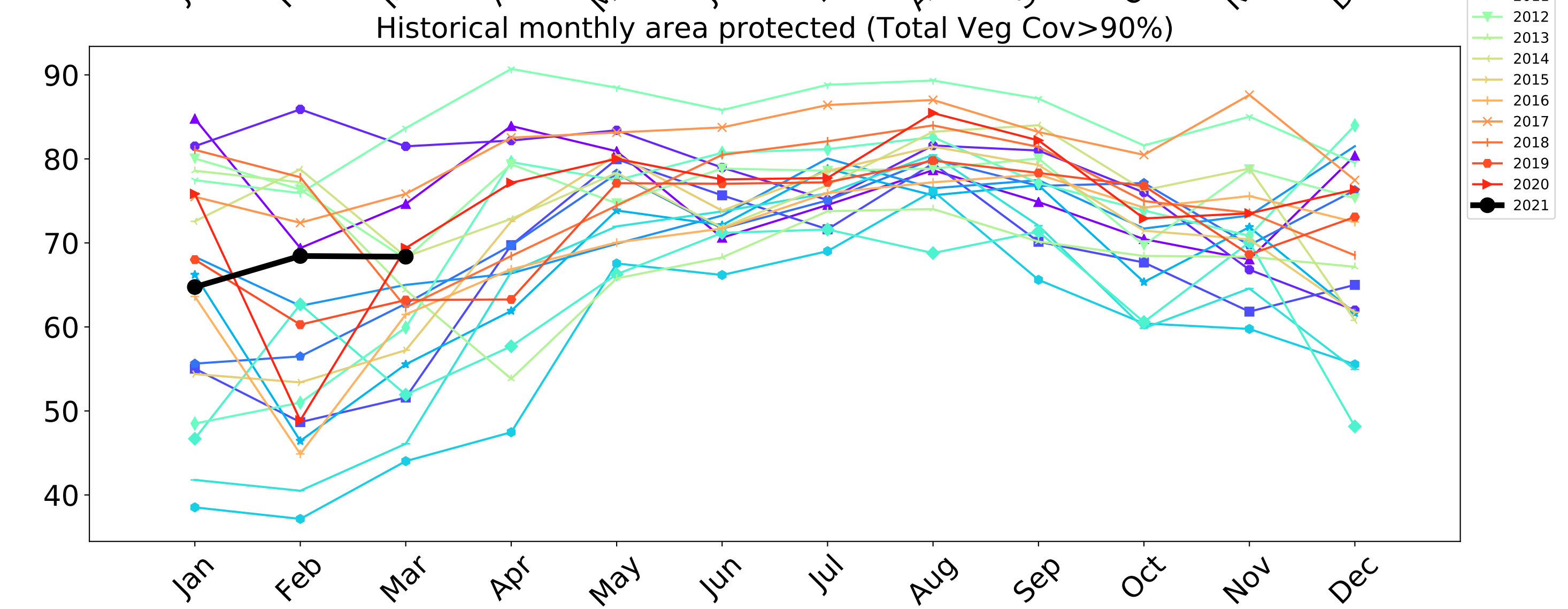
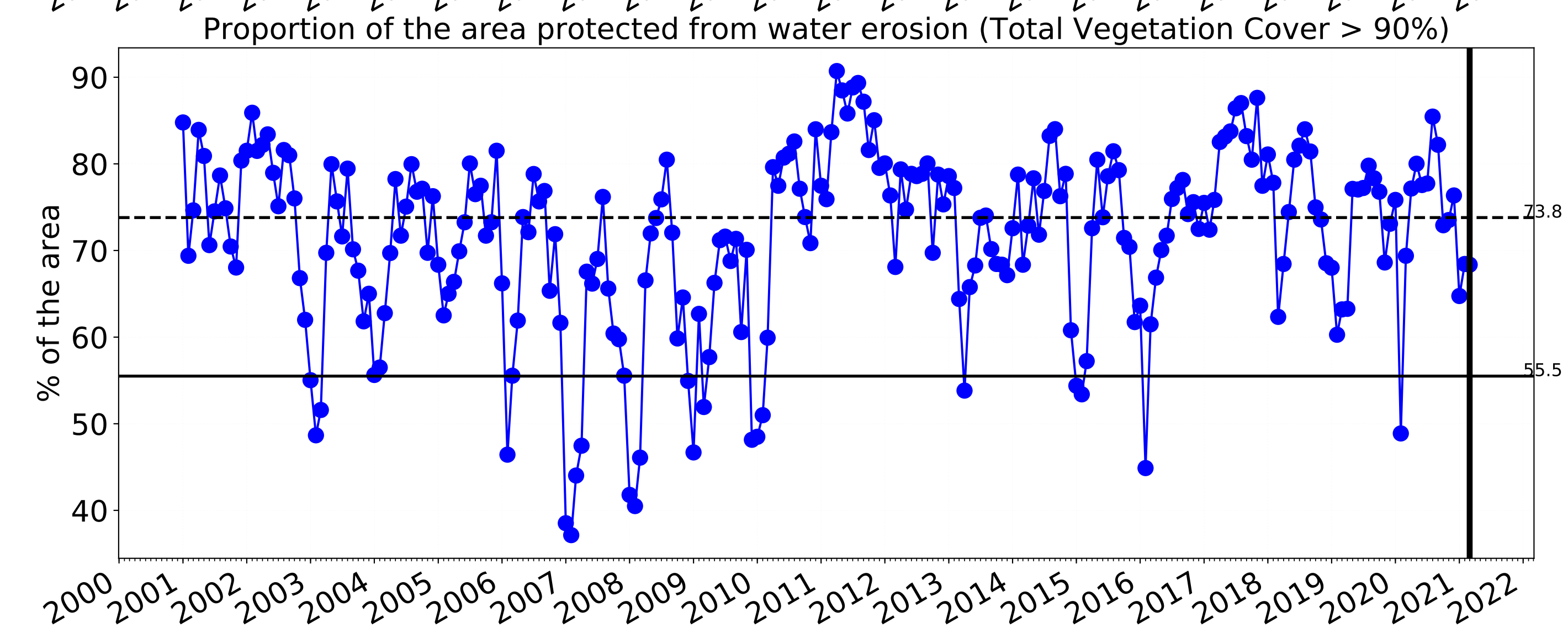
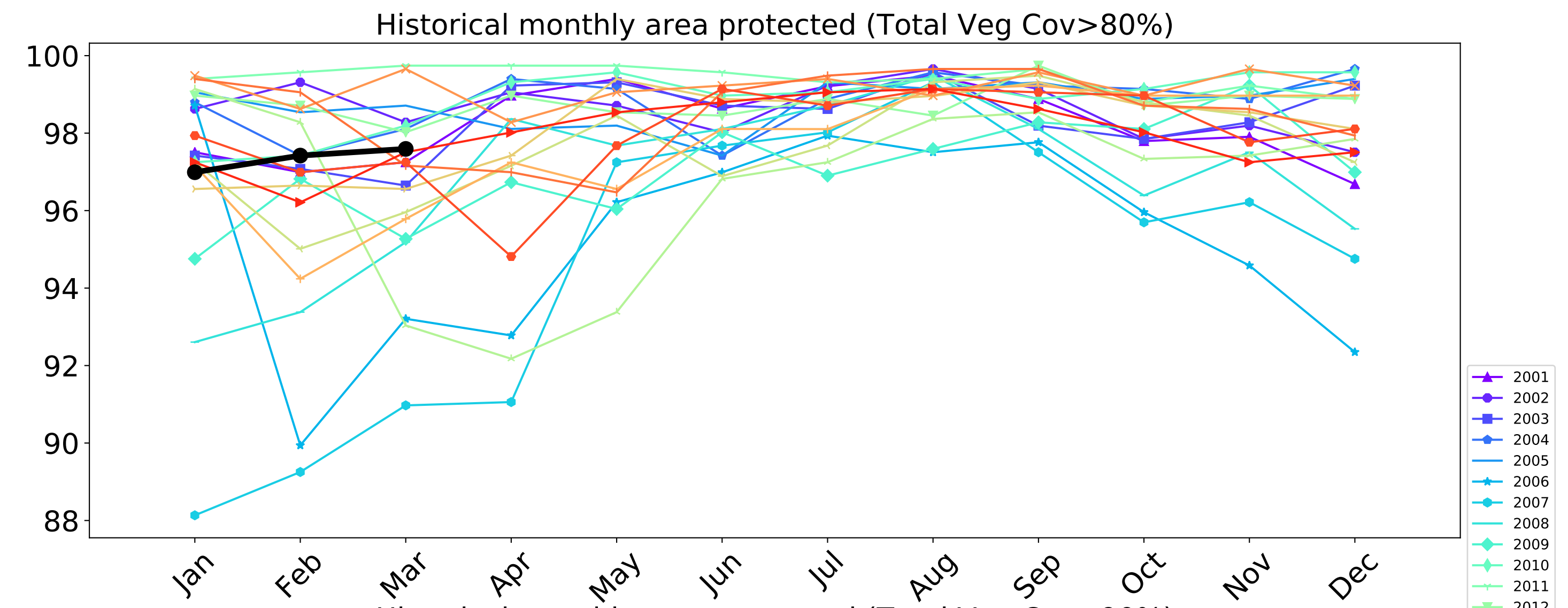
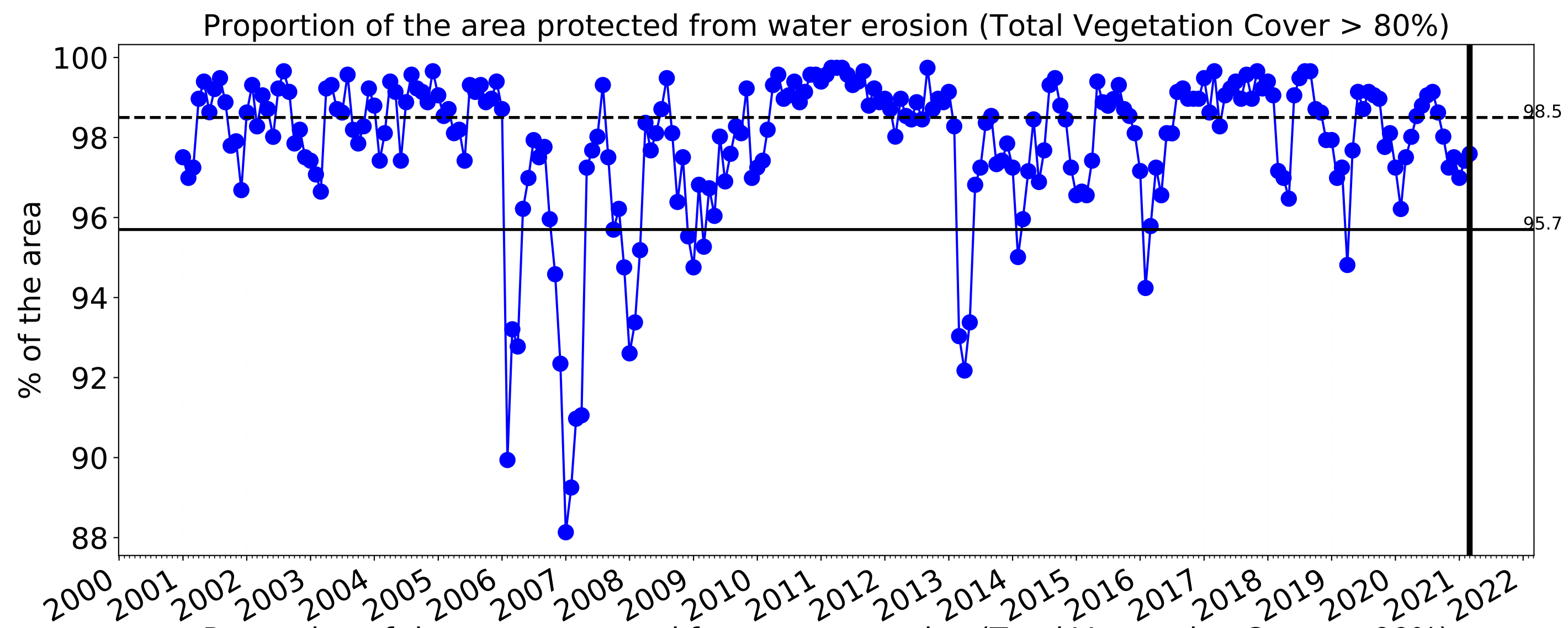


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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

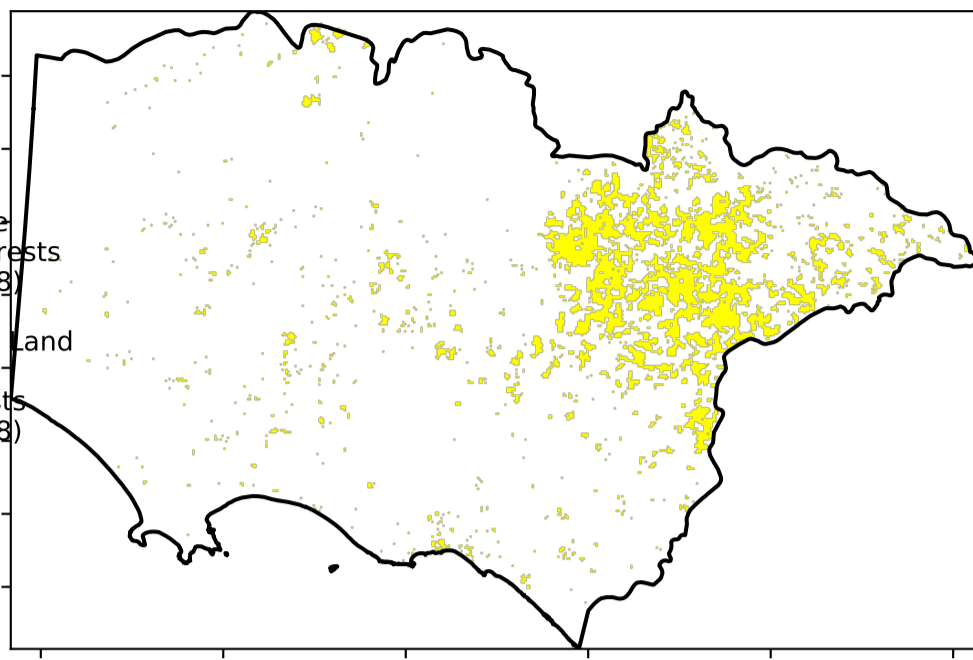




# Cropping

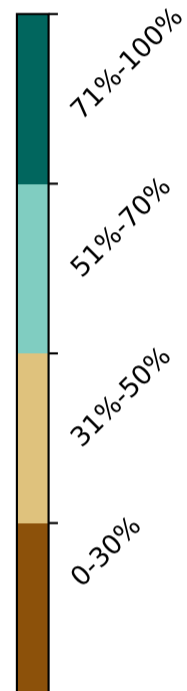
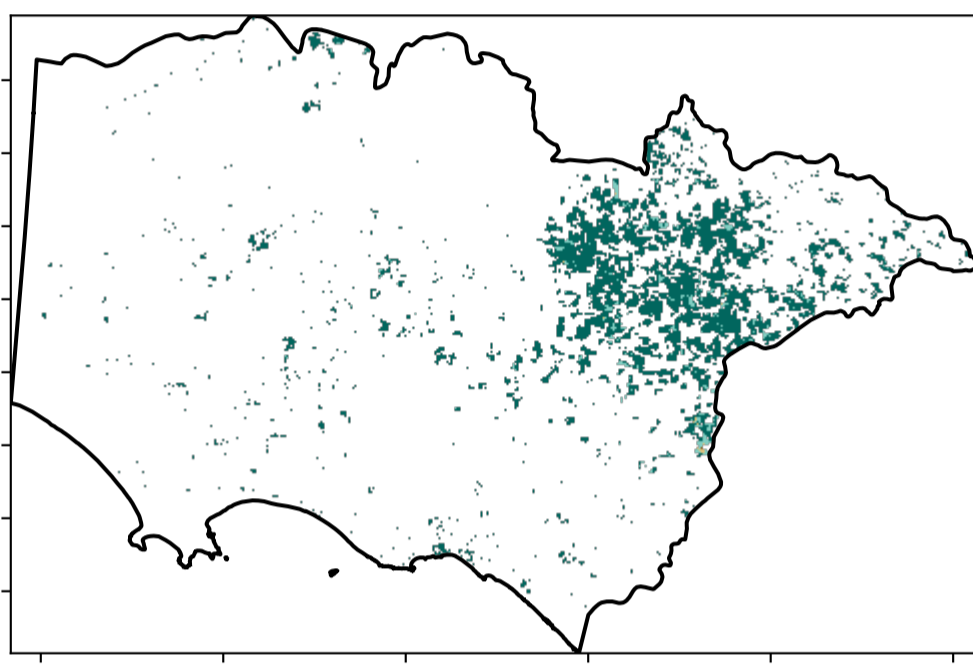
**Land use and forest cover**

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

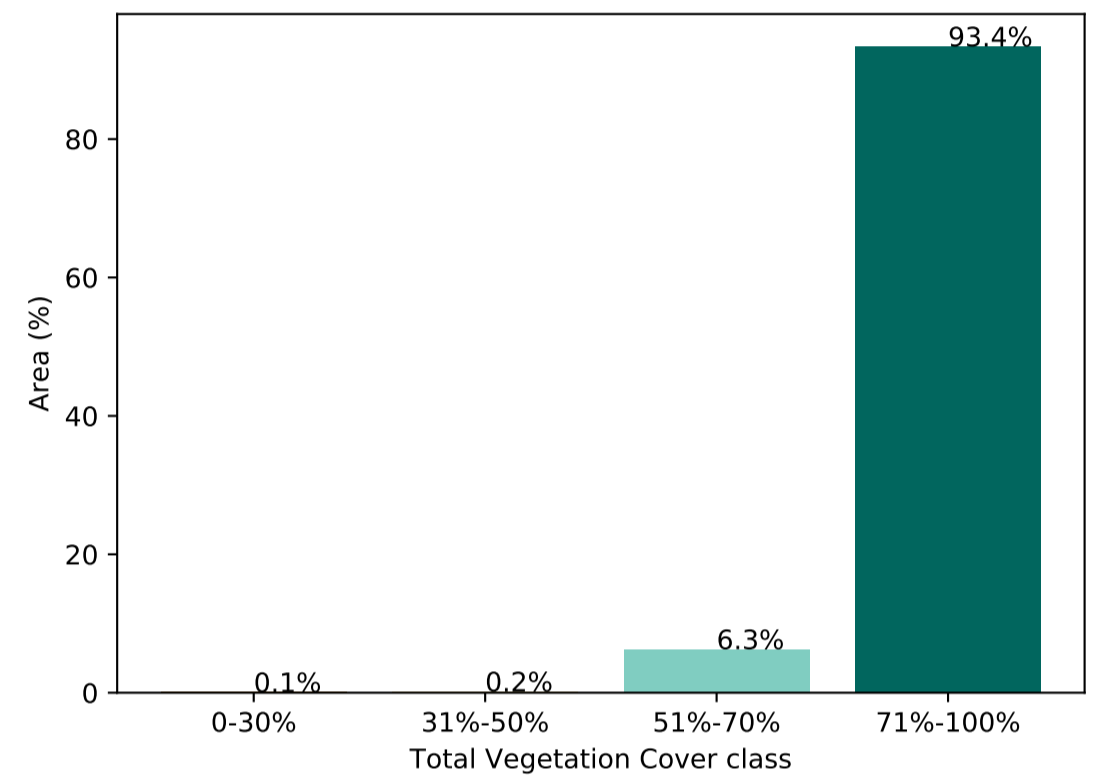


1 Agriculture - Cropping - Non-irrigated

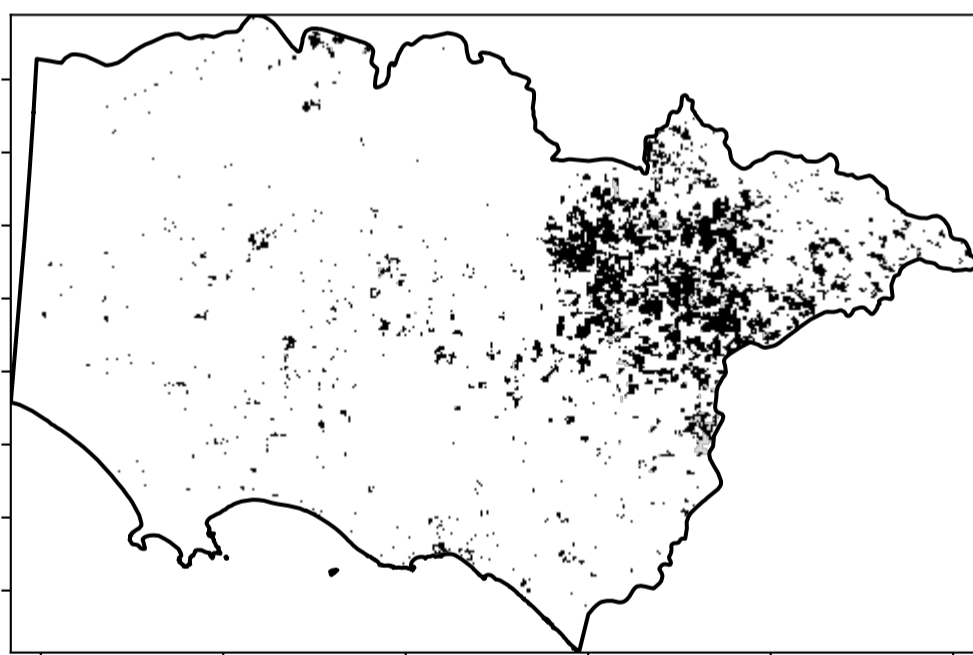
**Total Vegetation Cover [%]**



**Proportion of vegetation cover class in area**

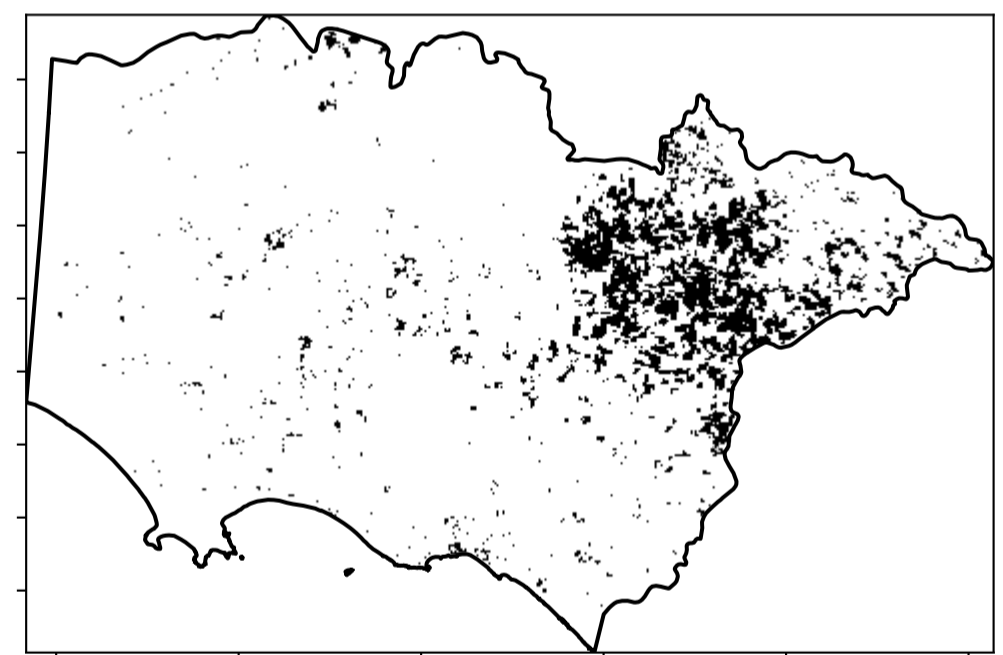


**% Area protected from water erosion (>70%)**



Area not protected  
6.6% of region  
(13,922 ha)  
Area protected  
93.4% of region  
(197,027 ha)

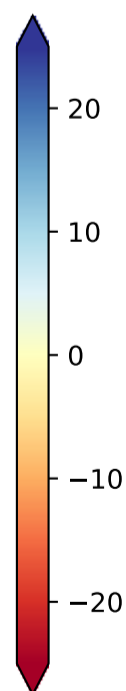
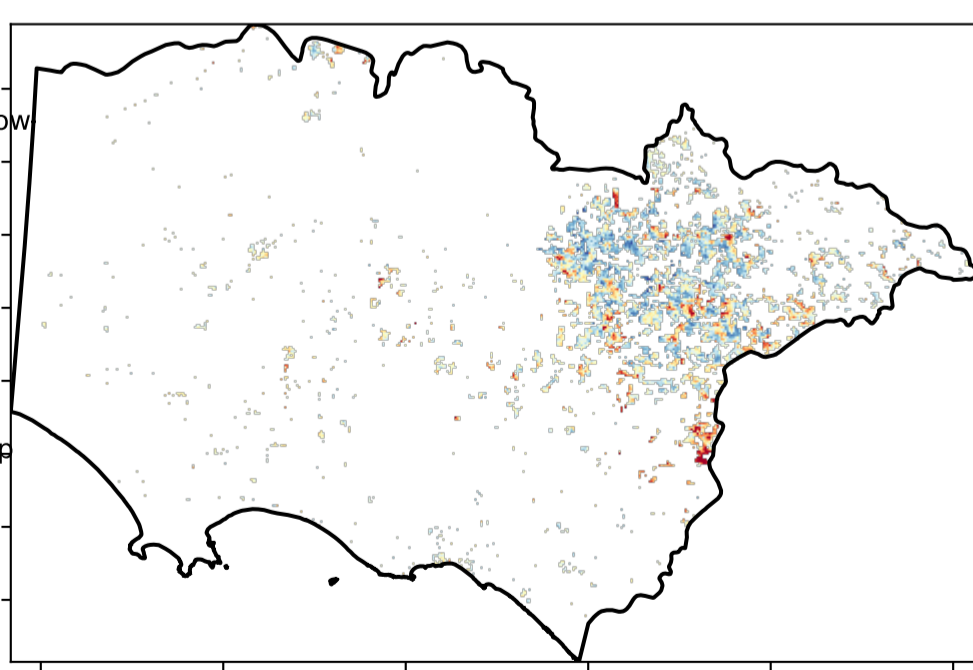
**% Area protected from wind erosion (>50%)**



Area not protected  
0.0% of region  
(0 ha)  
Area protected  
100.0% of region  
(210,950 ha)

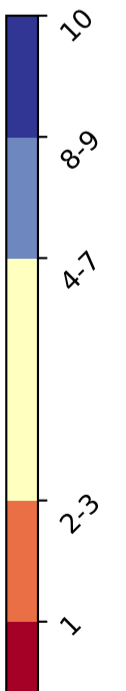
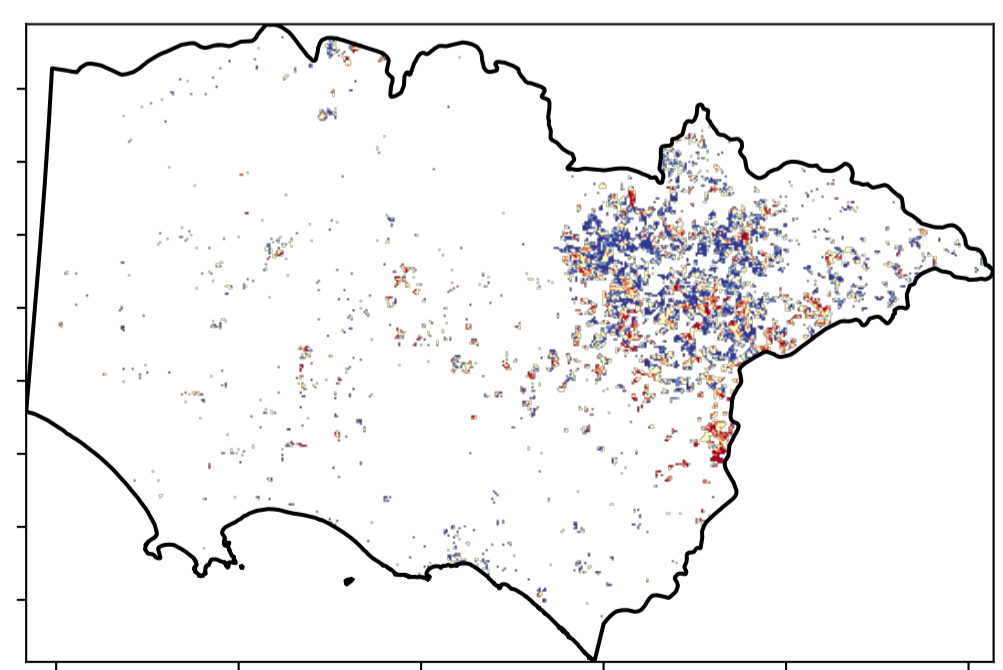
**Total Vegetation Cover Anomaly [%]**

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.



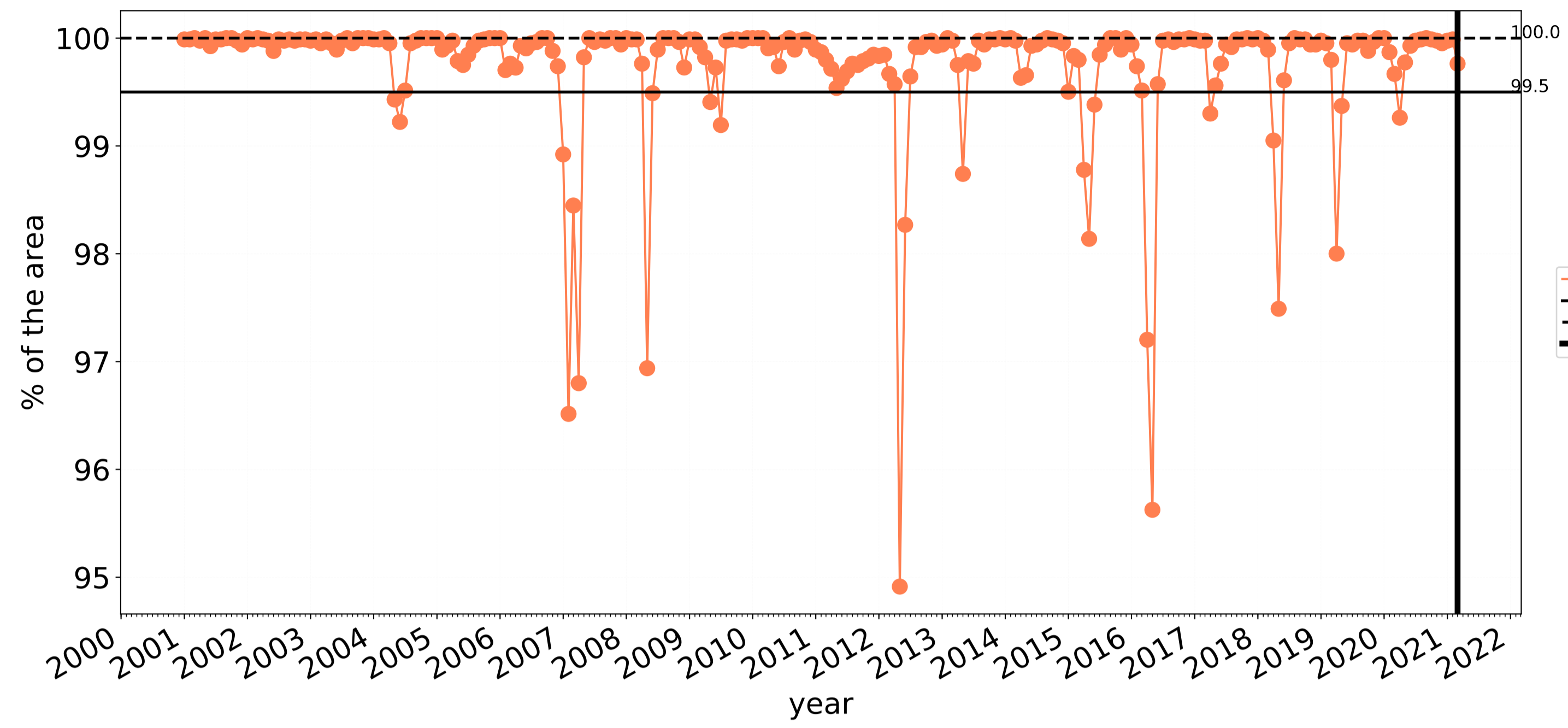
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

**Total Vegetation Cover Decile [%]**

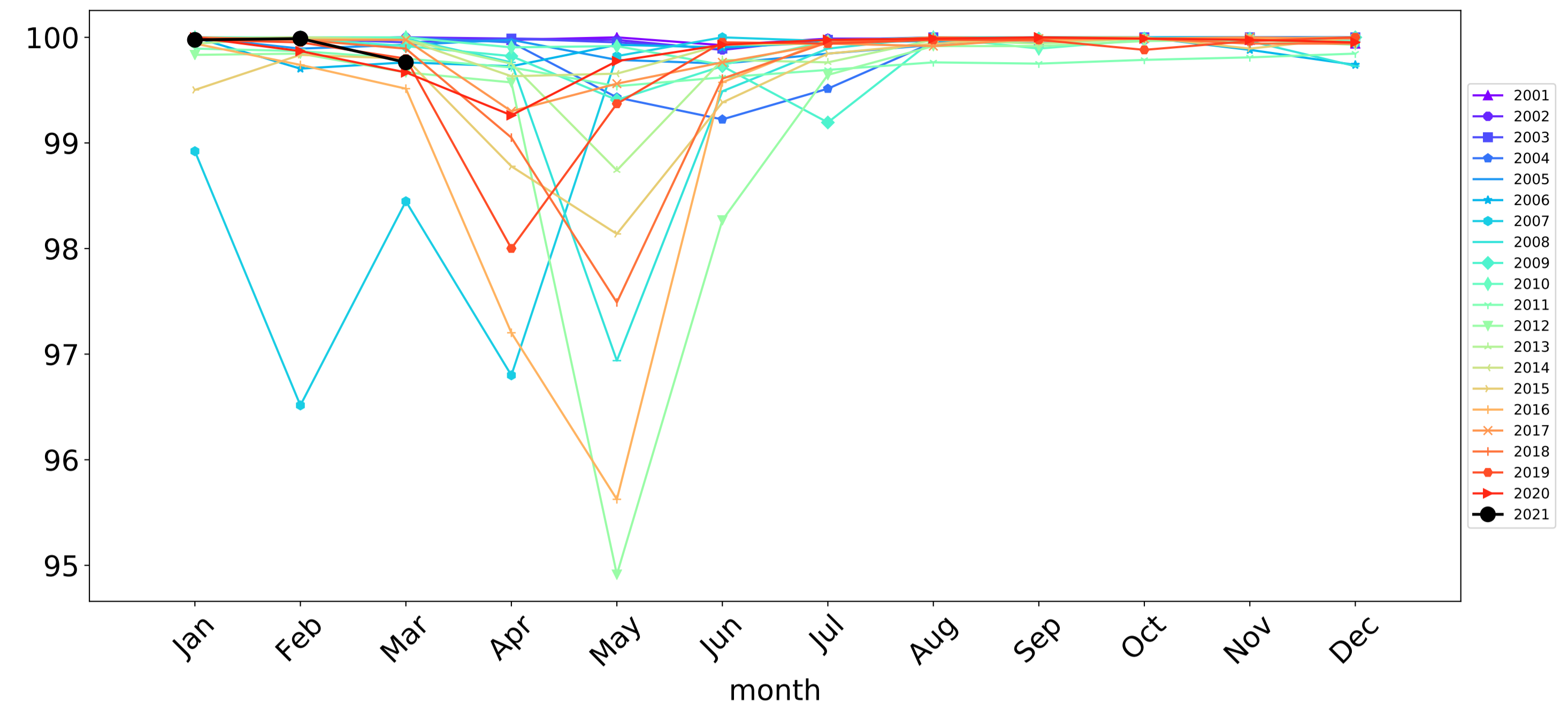


# Cropping timeseries

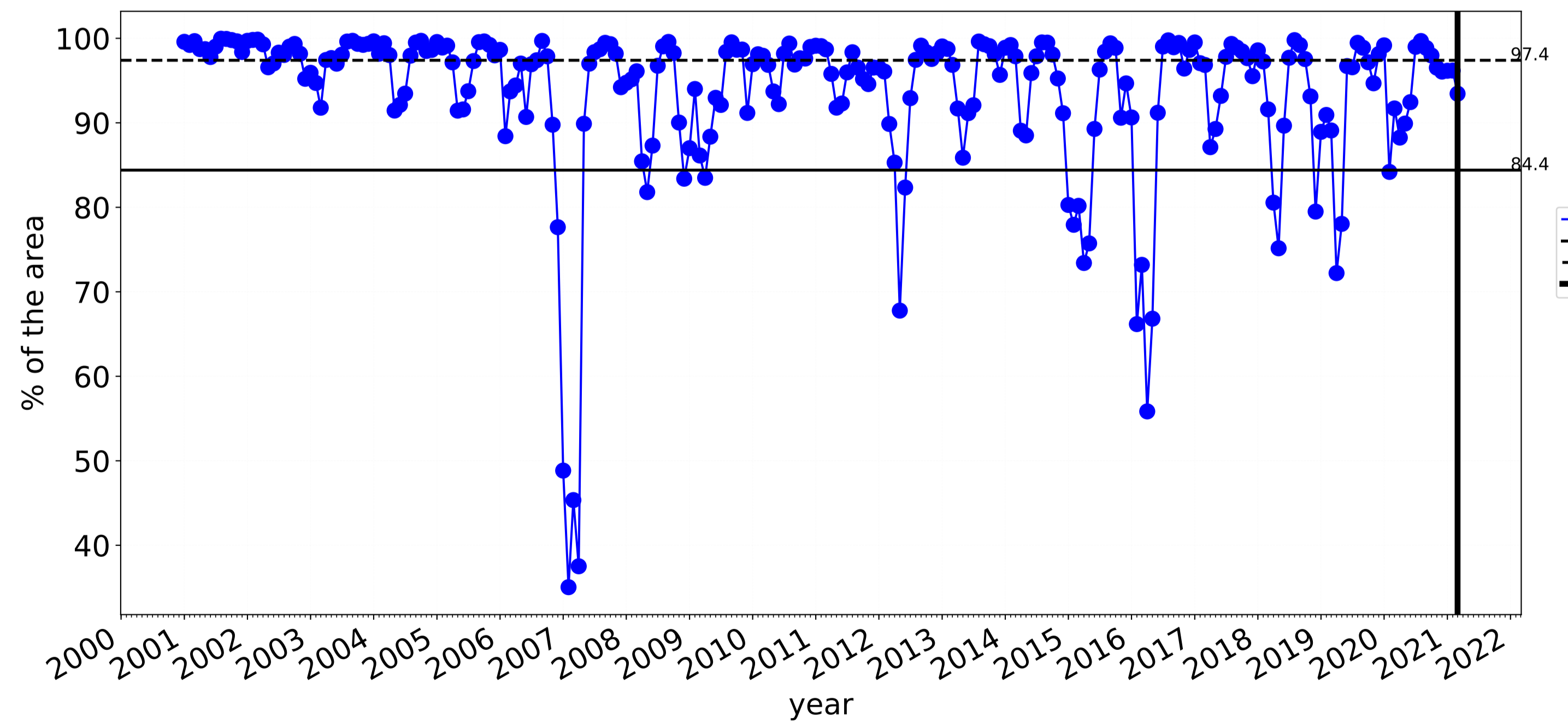
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



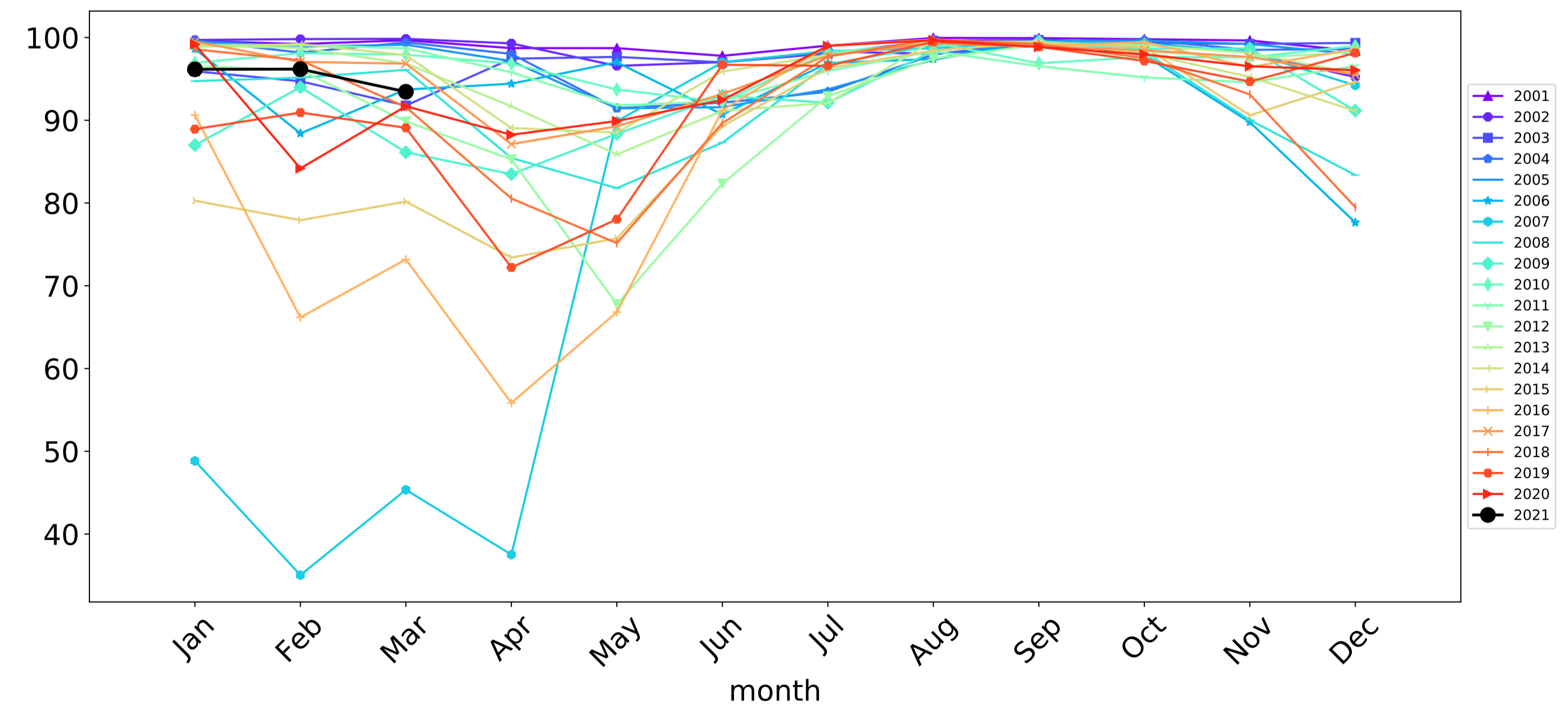
Wind erosion historical monthly area protected (Total Veg Cov >50%)

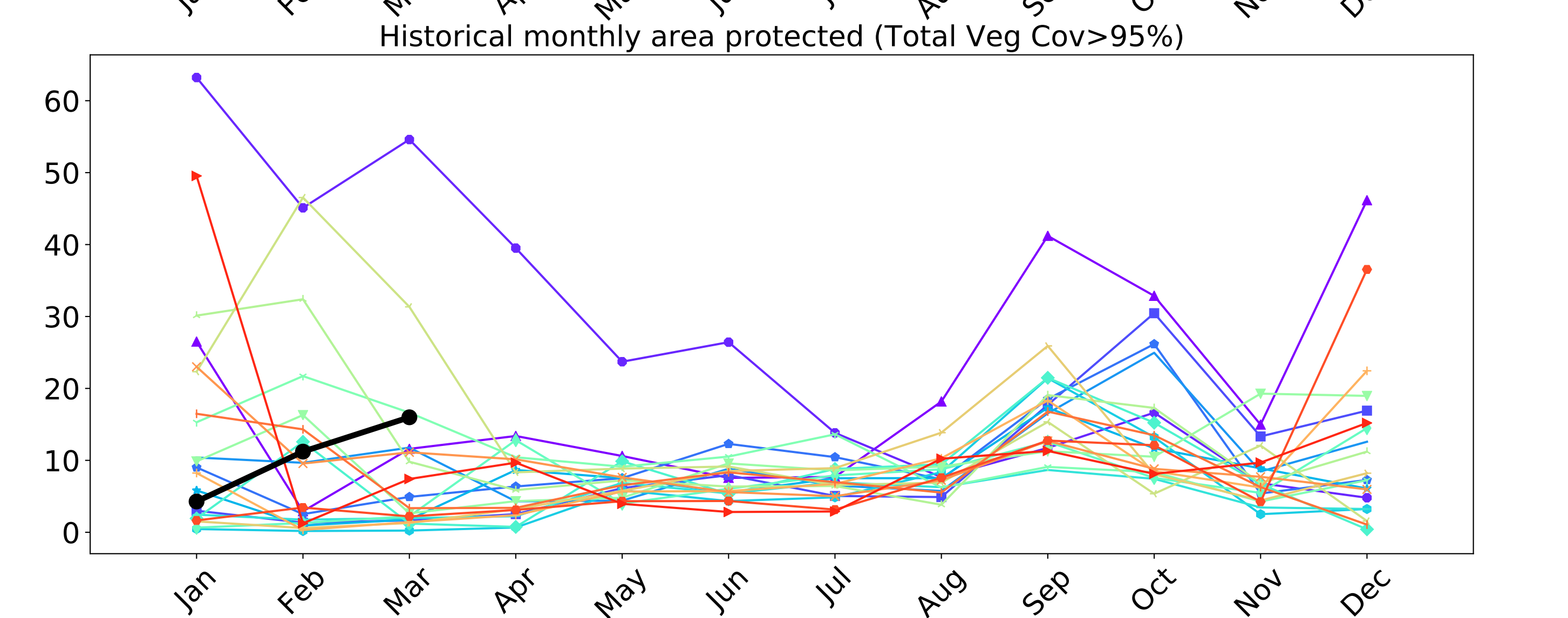
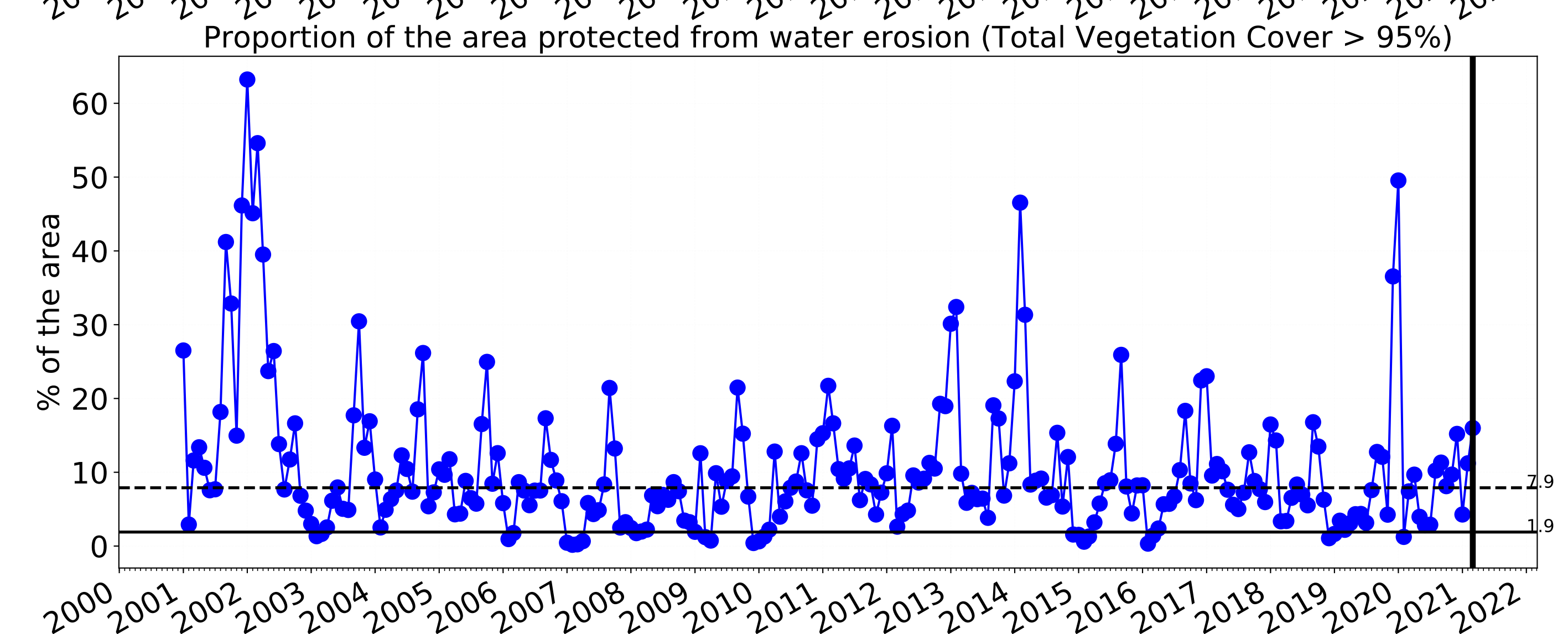
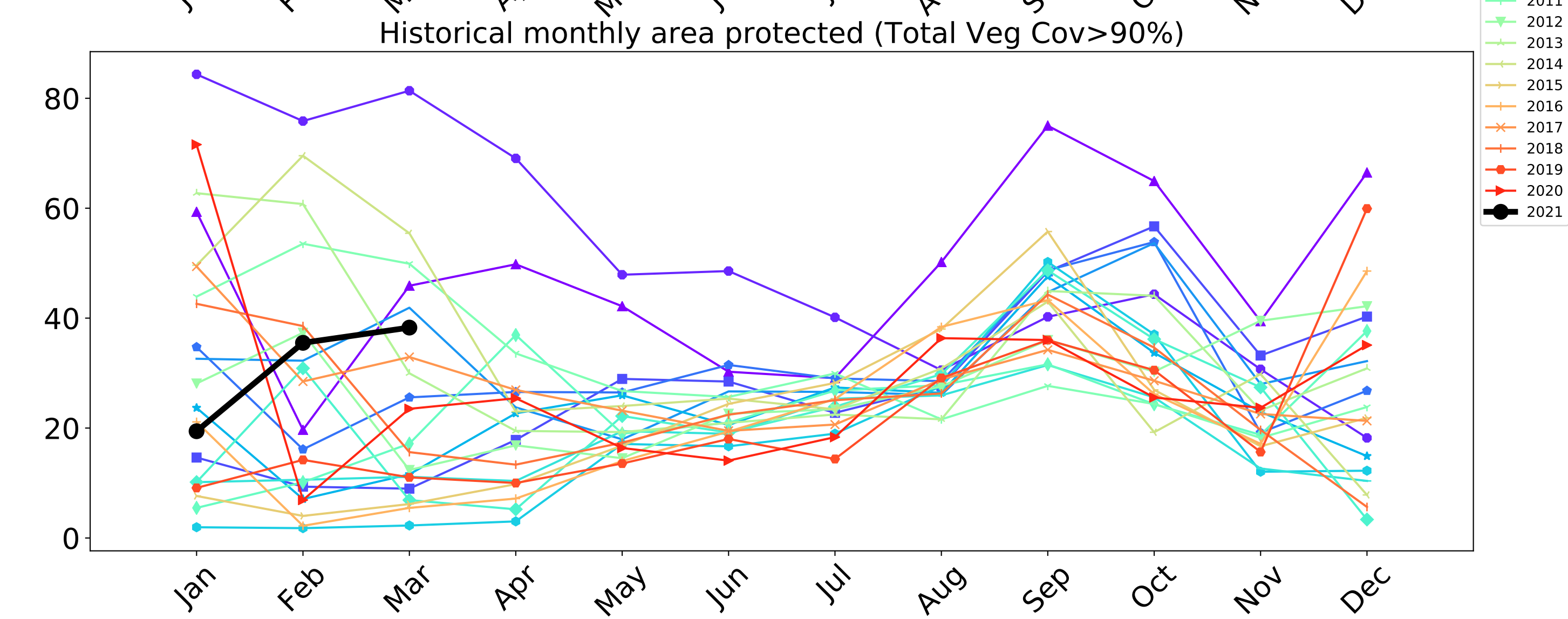
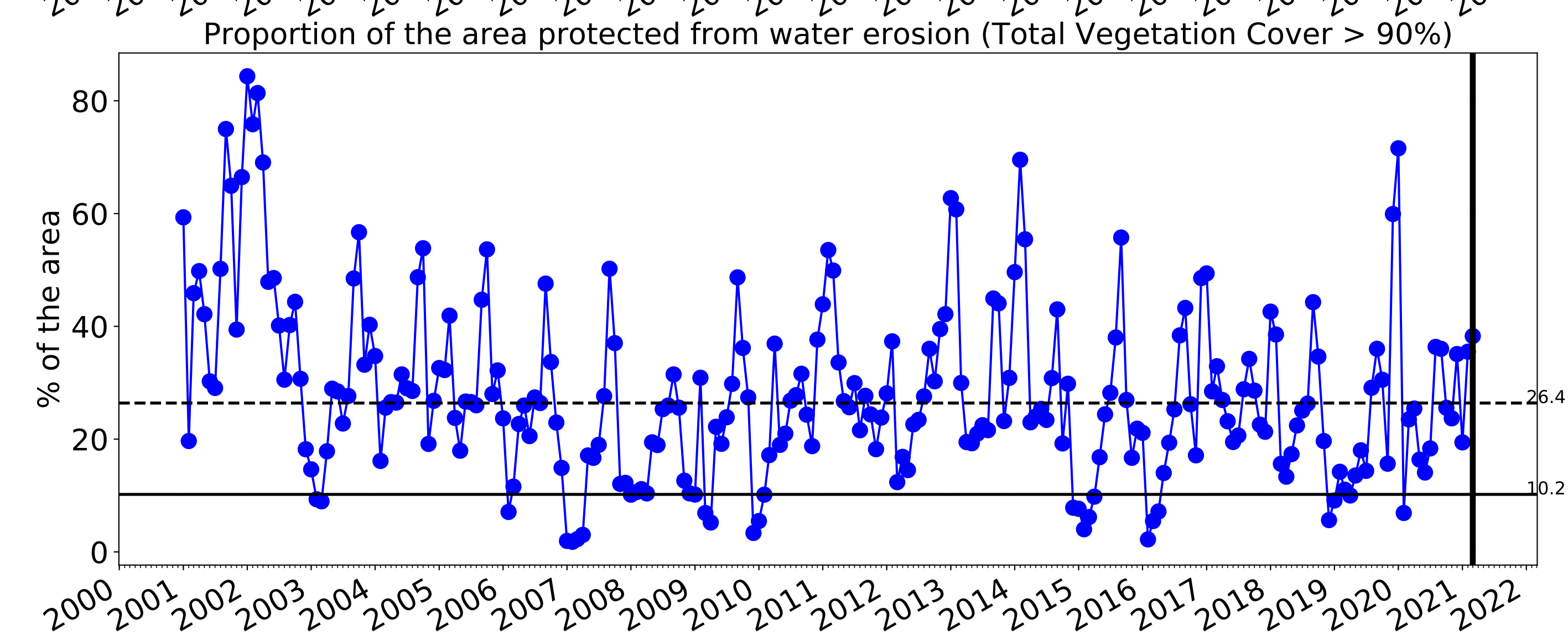
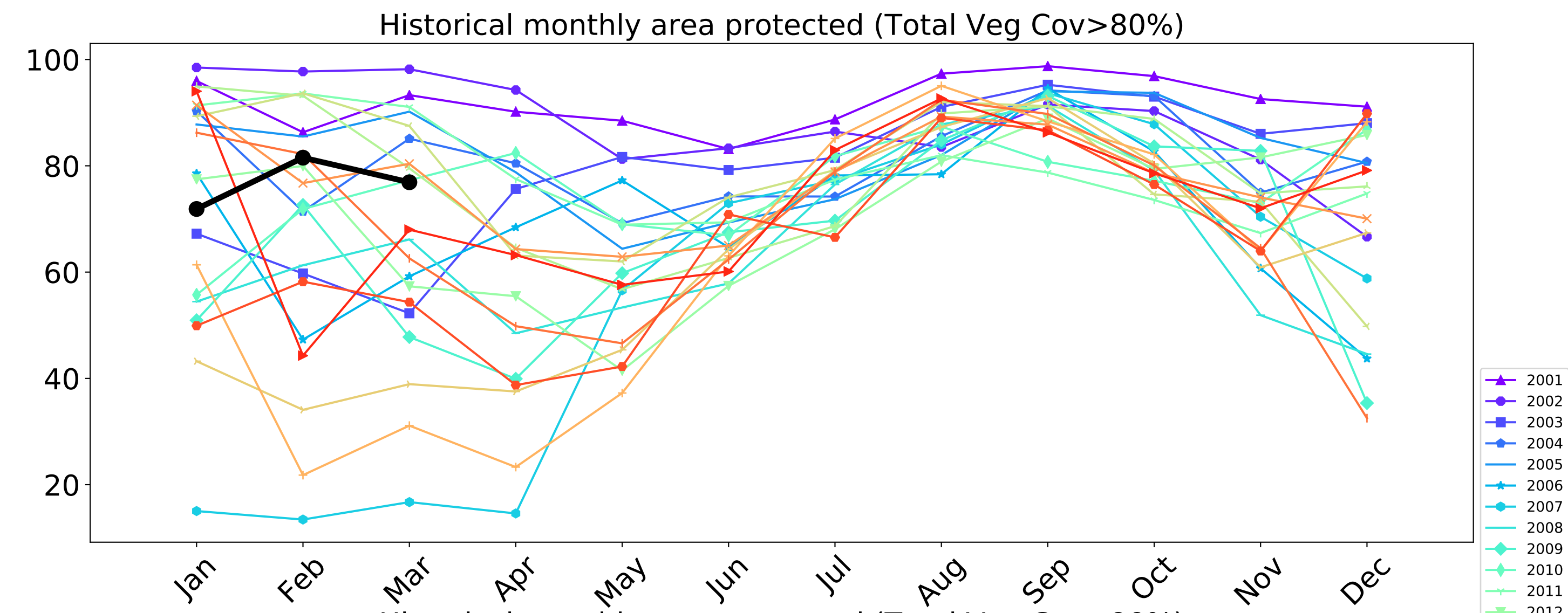
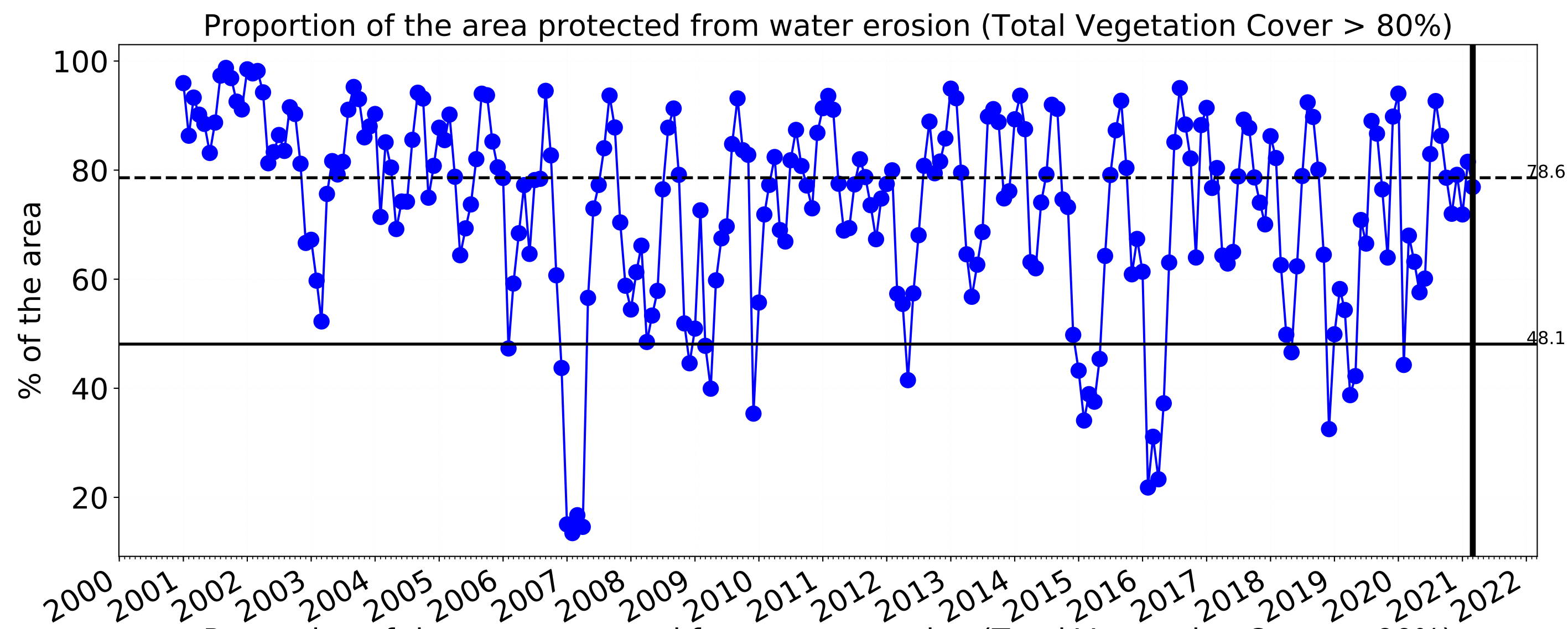


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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

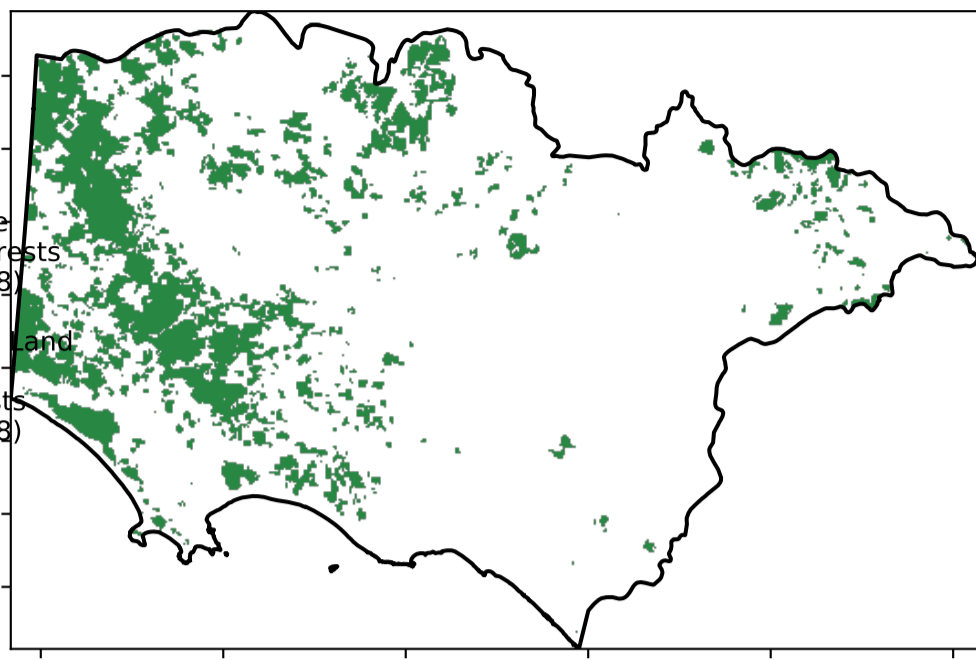




# Production native forests and plantation forests

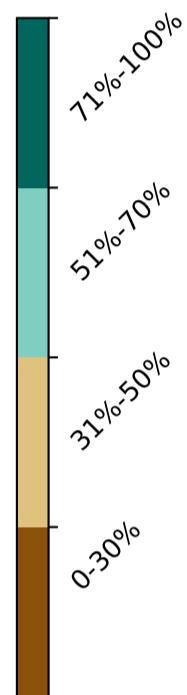
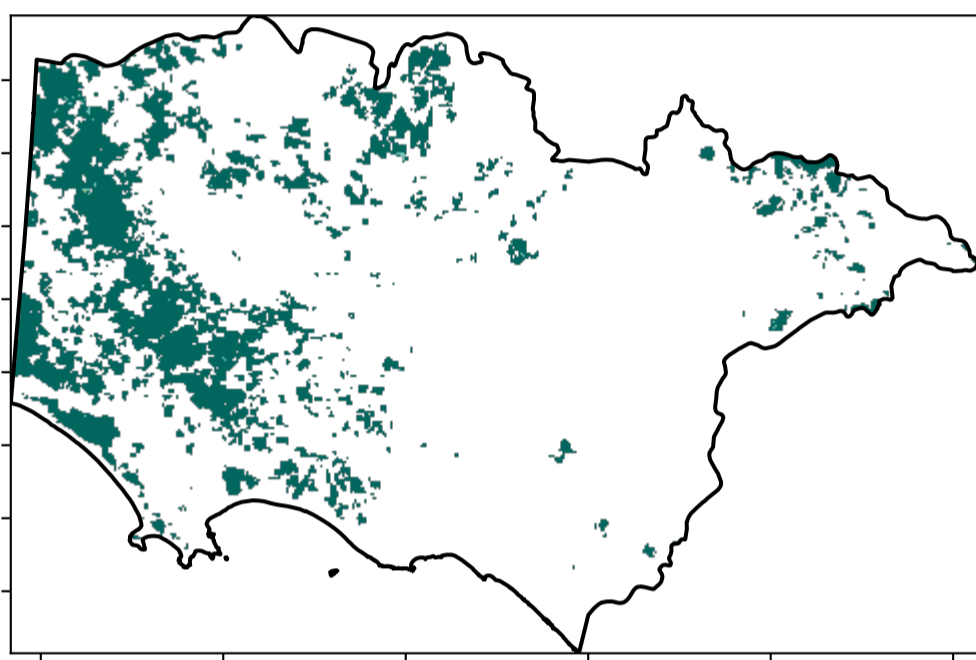
Land use and forest cover

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

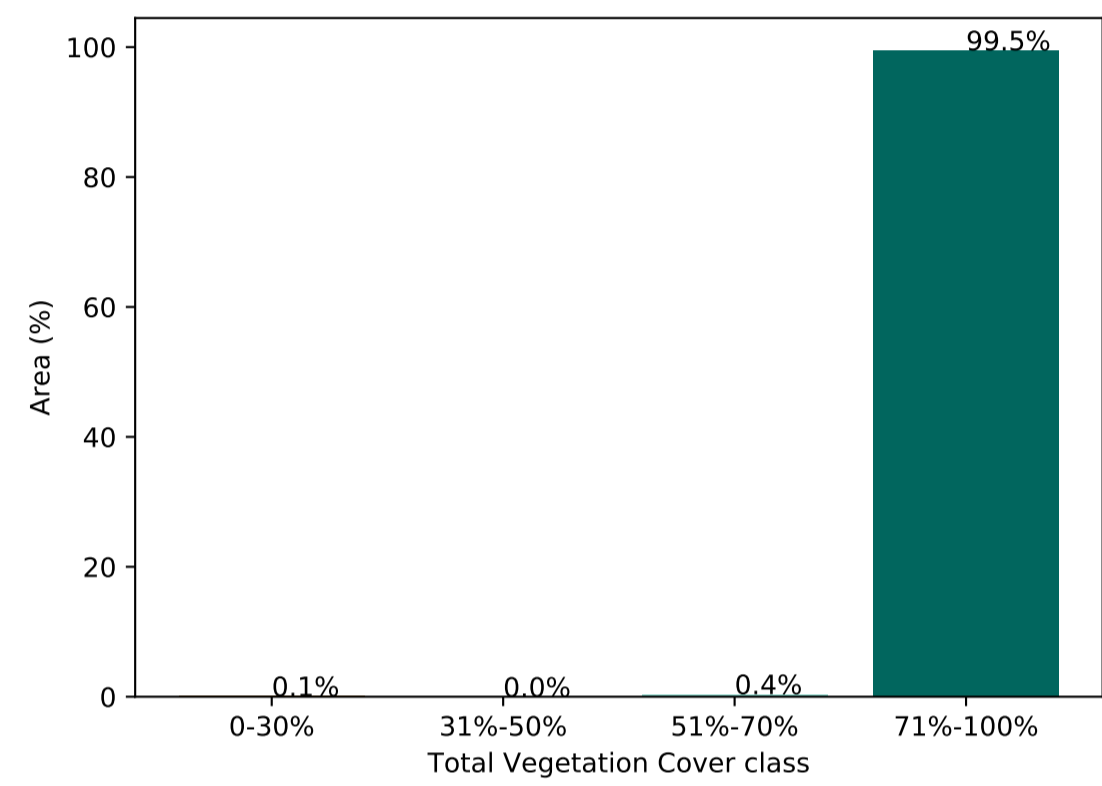


1 Production native forests and plantation forests

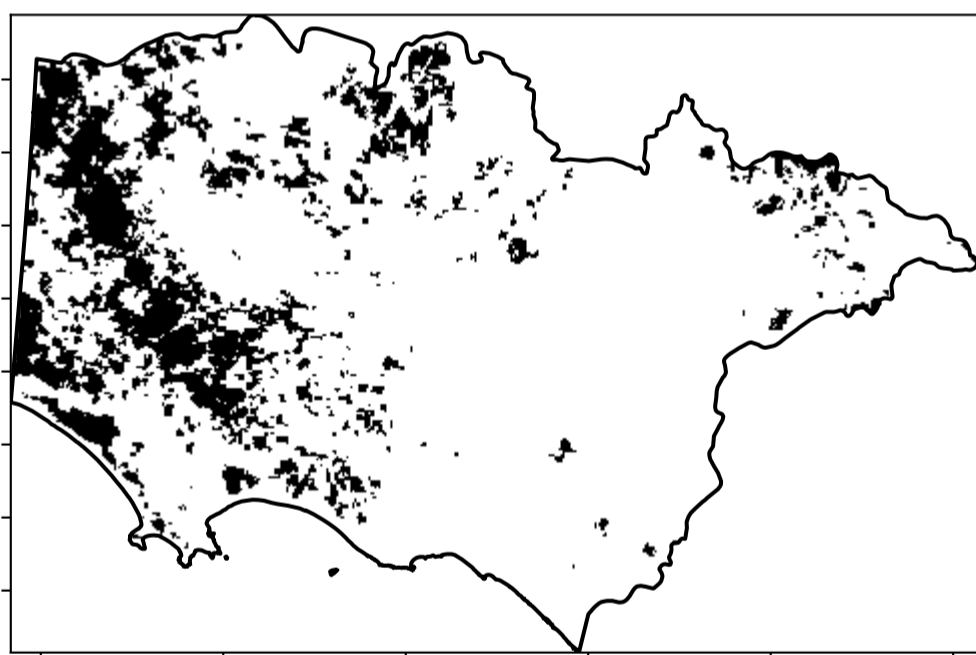
Total Vegetation Cover [%]



Proportion of vegetation cover class in area

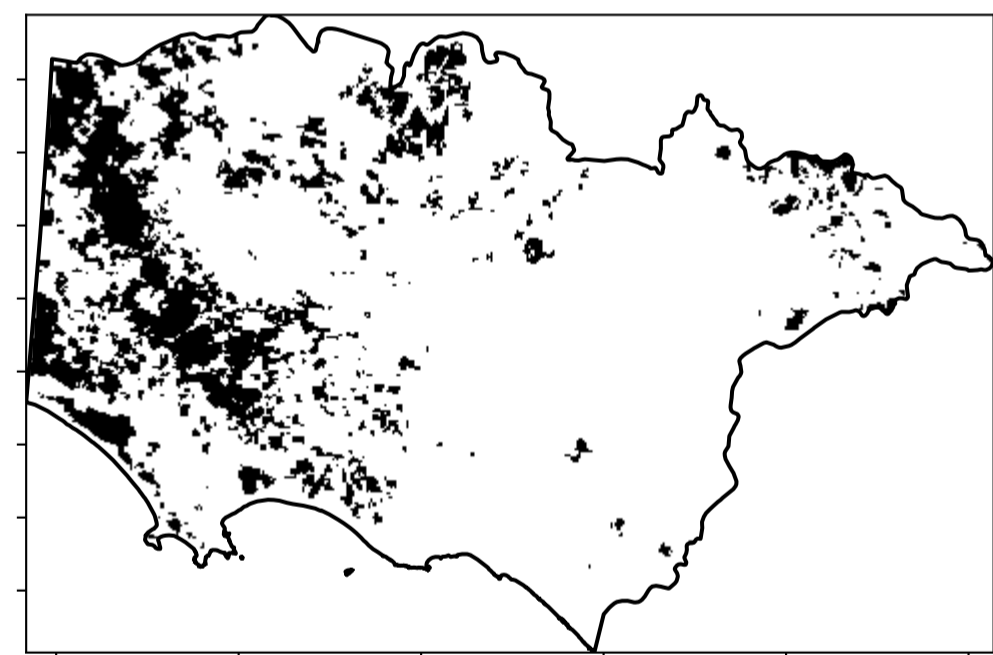


% Area protected from water erosion (>70%)



Area not protected  
0.5% of region  
(2,122 ha)  
Area protected  
99.5% of region  
(422,278 ha)

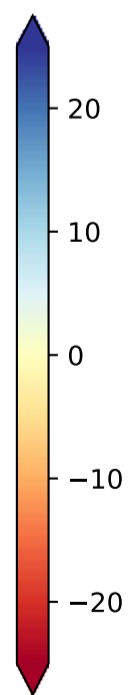
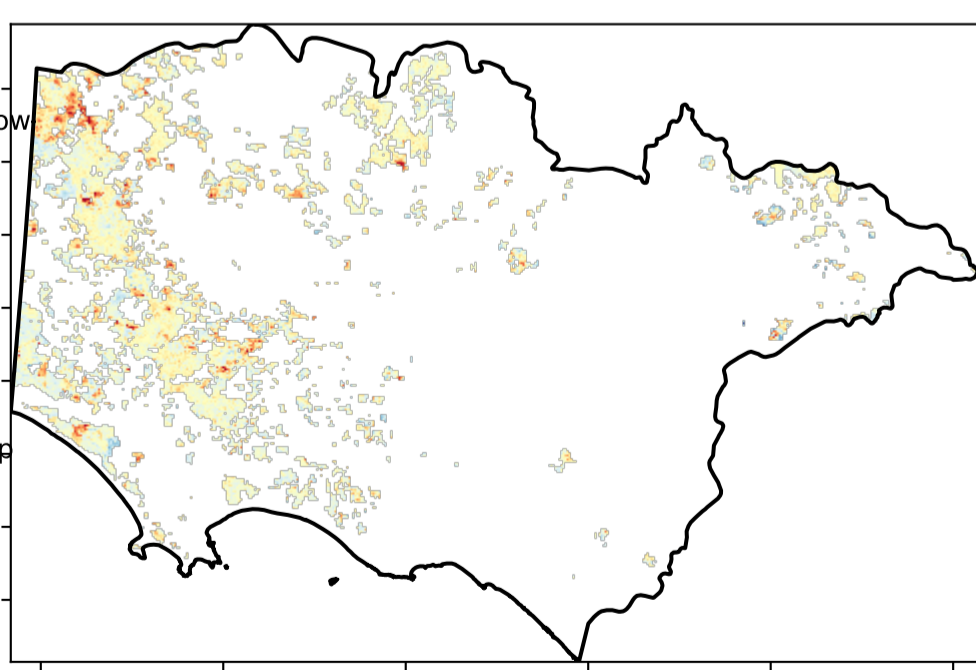
% Area protected from wind erosion (>50%)



Area not protected  
0.0% of region  
(0 ha)  
Area protected  
100.0% of region  
(424,400 ha)

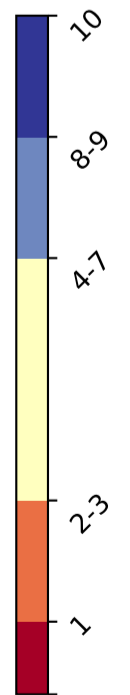
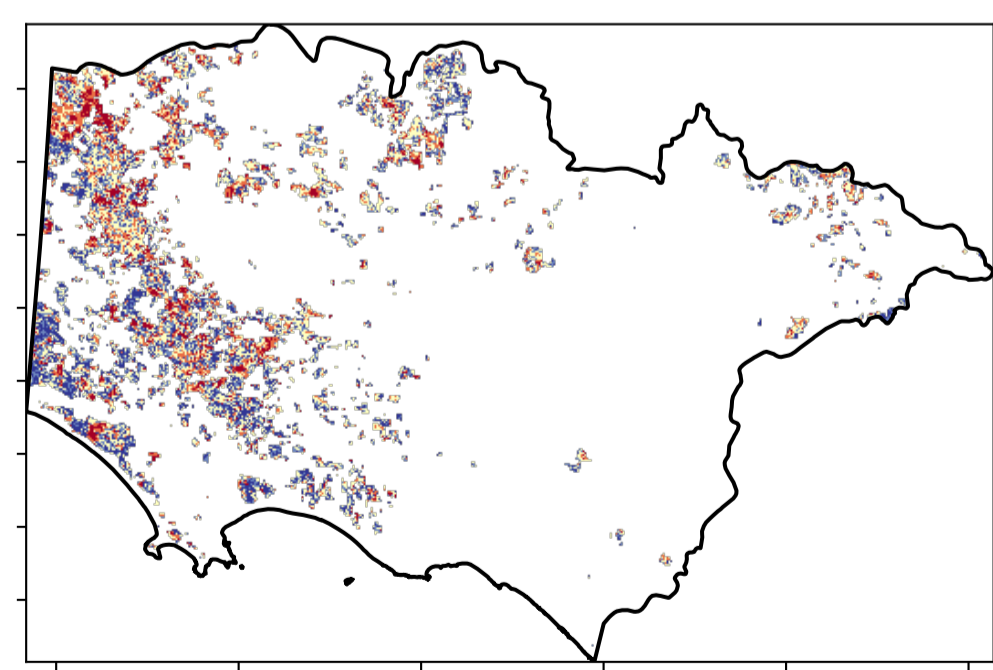
Total Vegetation Cover Anomaly [%]

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.



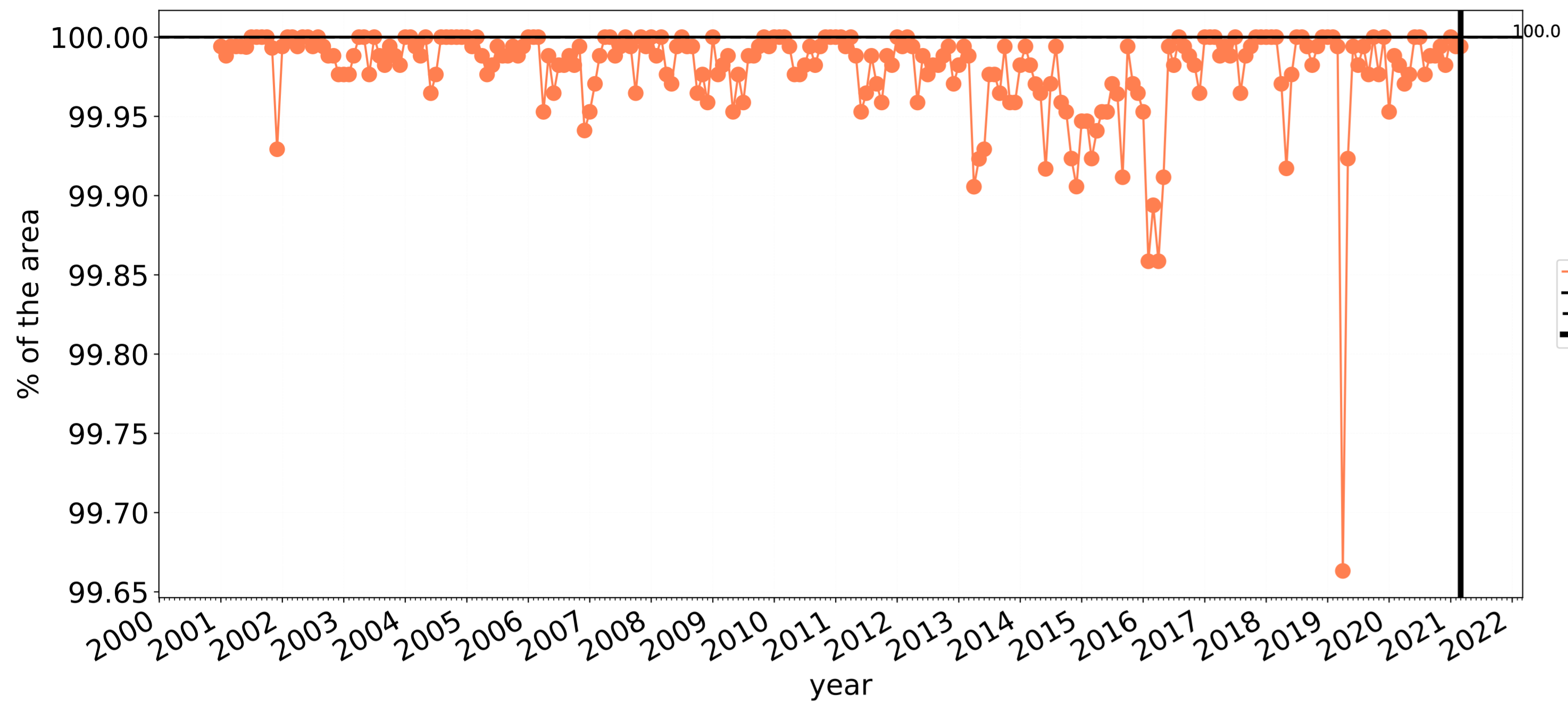
Deciles show where the pixel value lies in the record, from highest to lowest, for that month. That is, red pixels are in the lowest 10% of records for that month of the map using baseline from 2001 to 2019.

Total Vegetation Cover Decile [%]

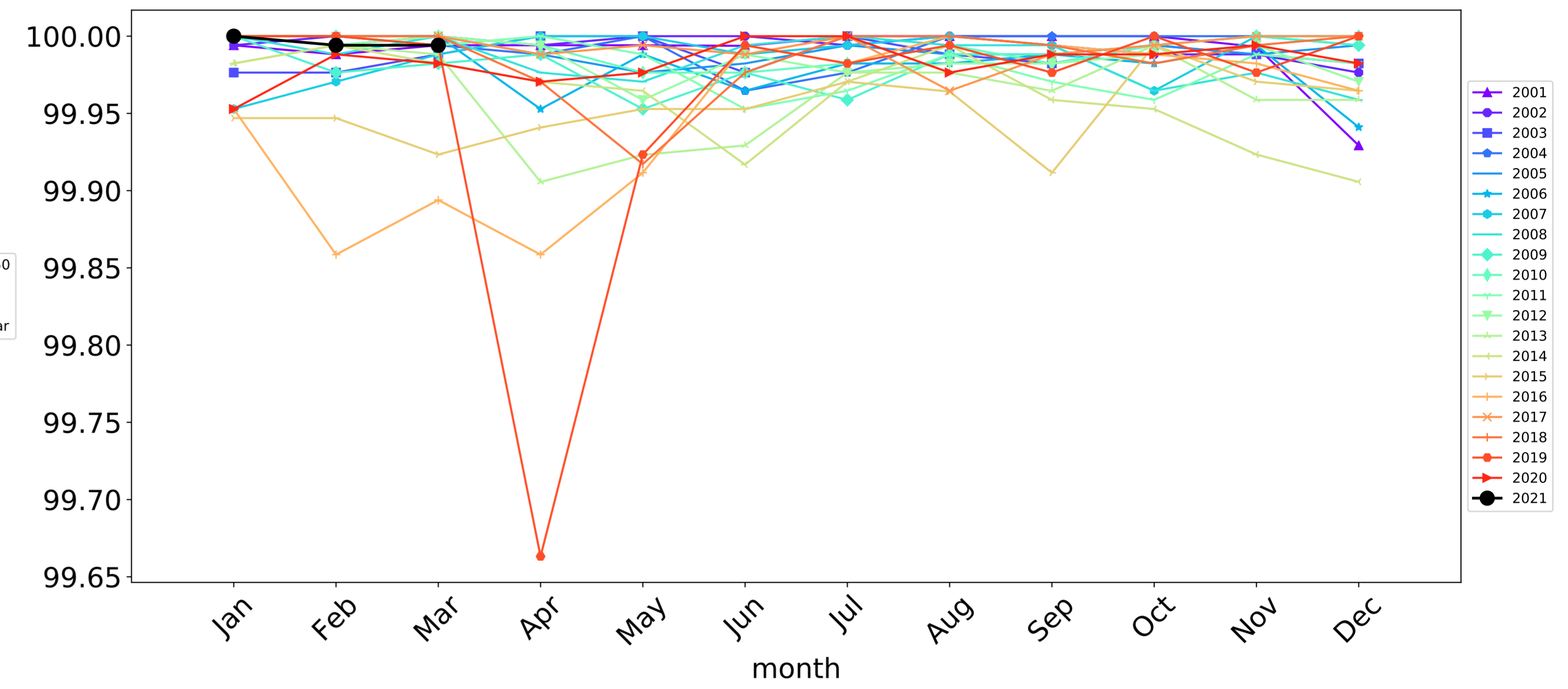


# Production native forests and plantation forests timeseries

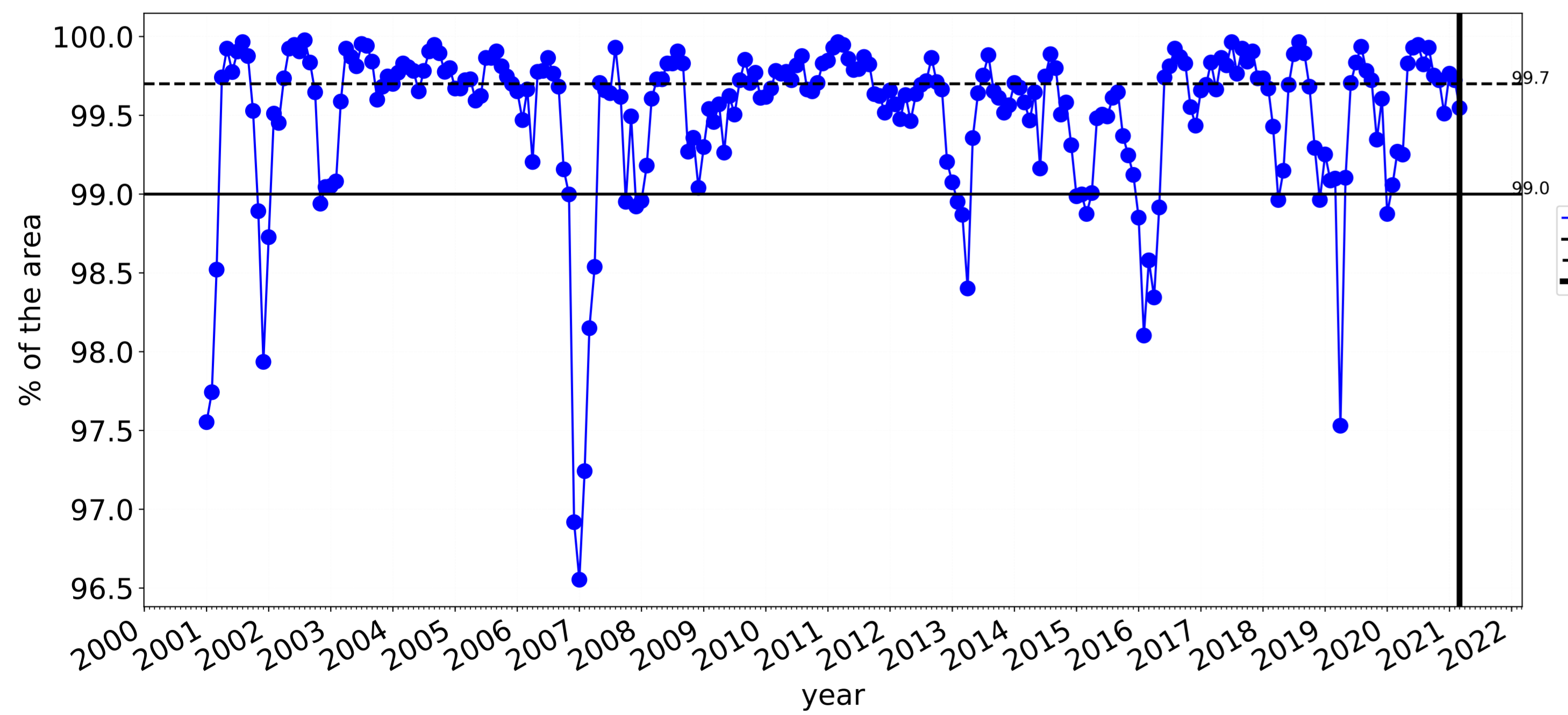
Proportion of the area protected from wind erosion (Total Vegetation Cover > 50%)



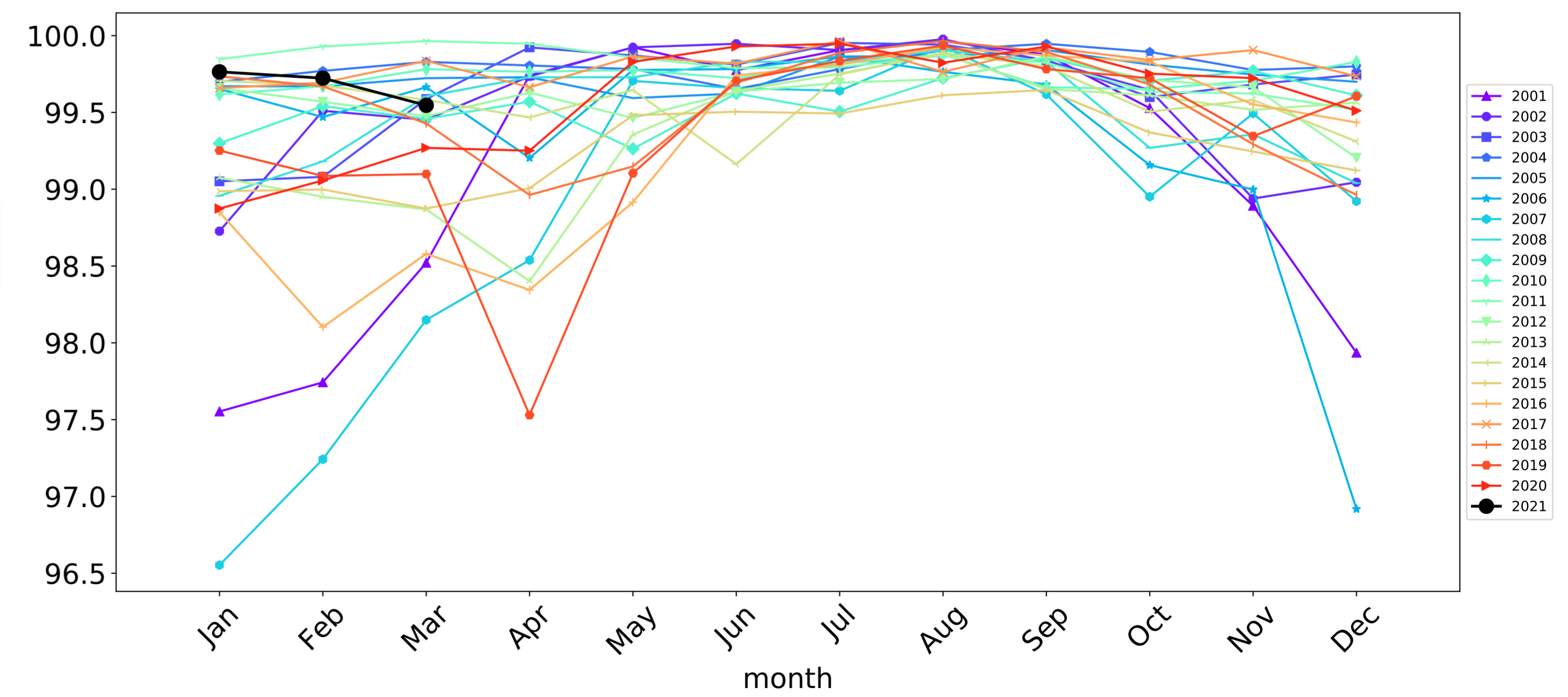
Wind erosion historical monthly area protected (Total Veg Cov >50%)

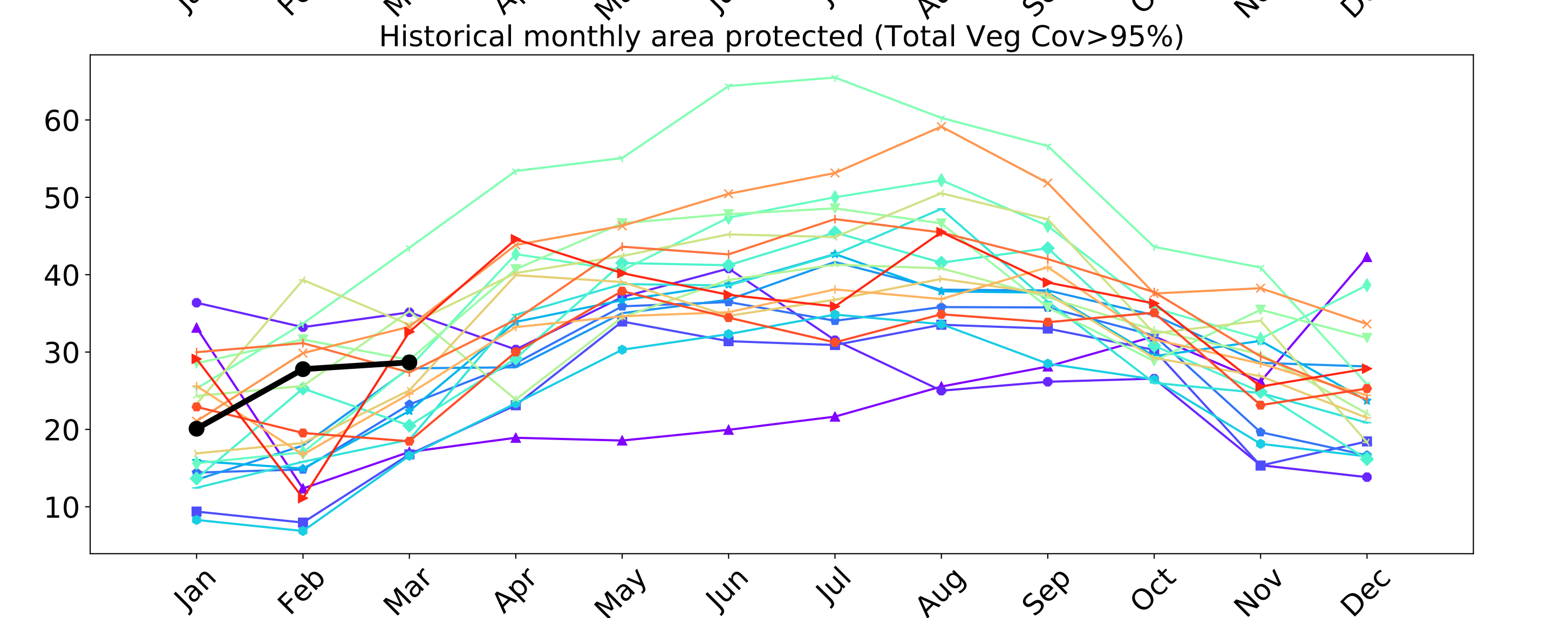
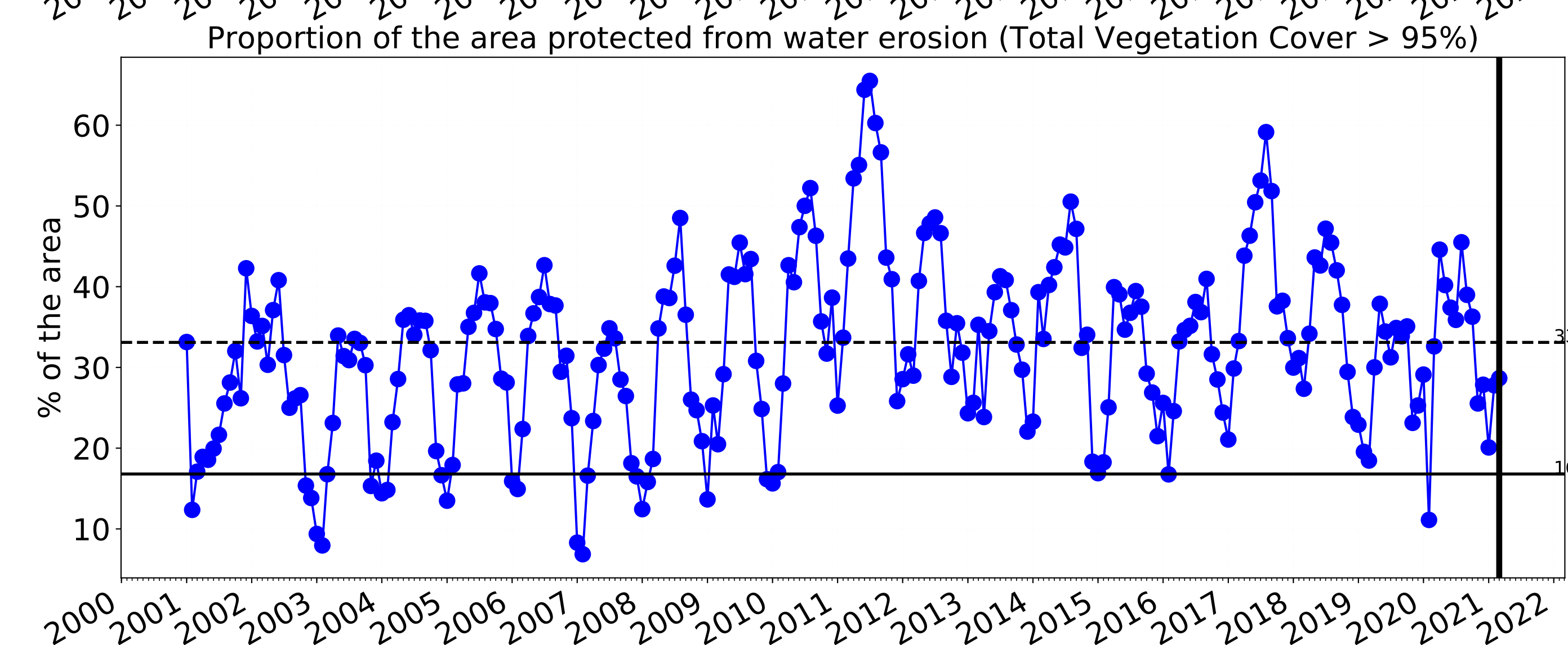
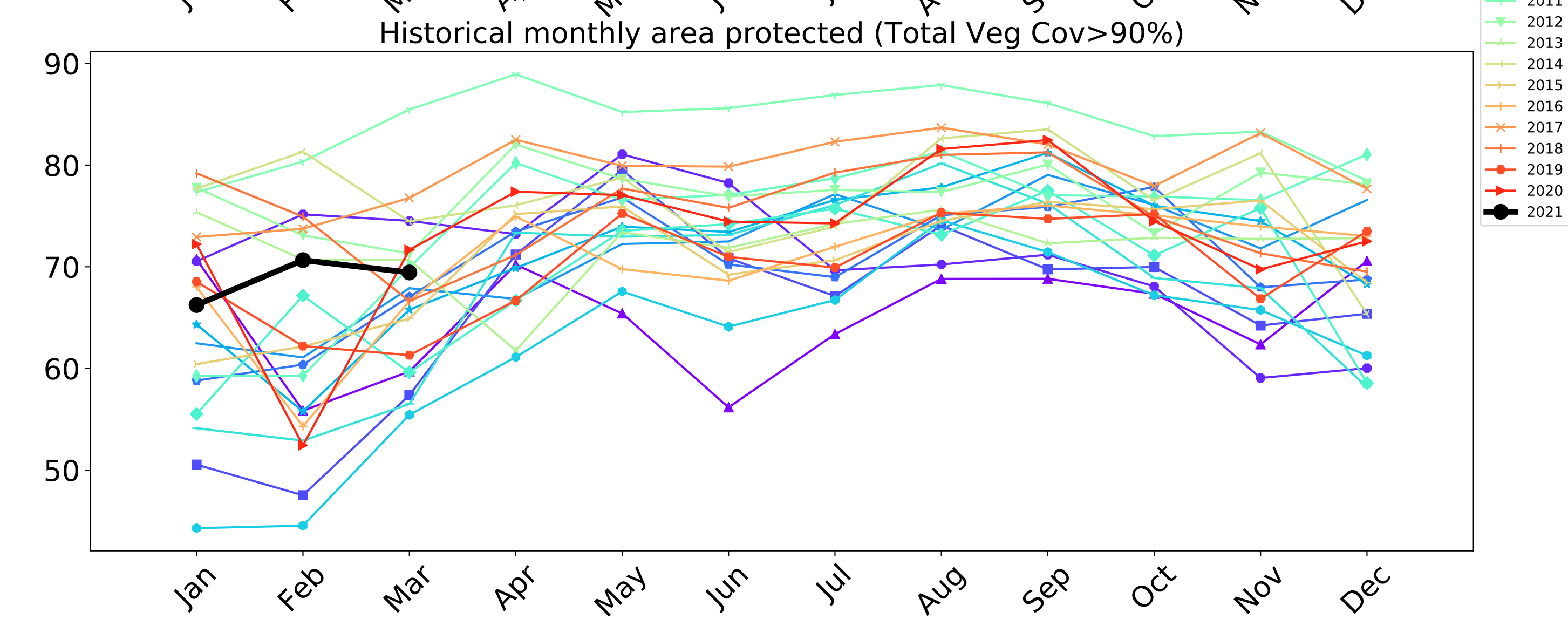
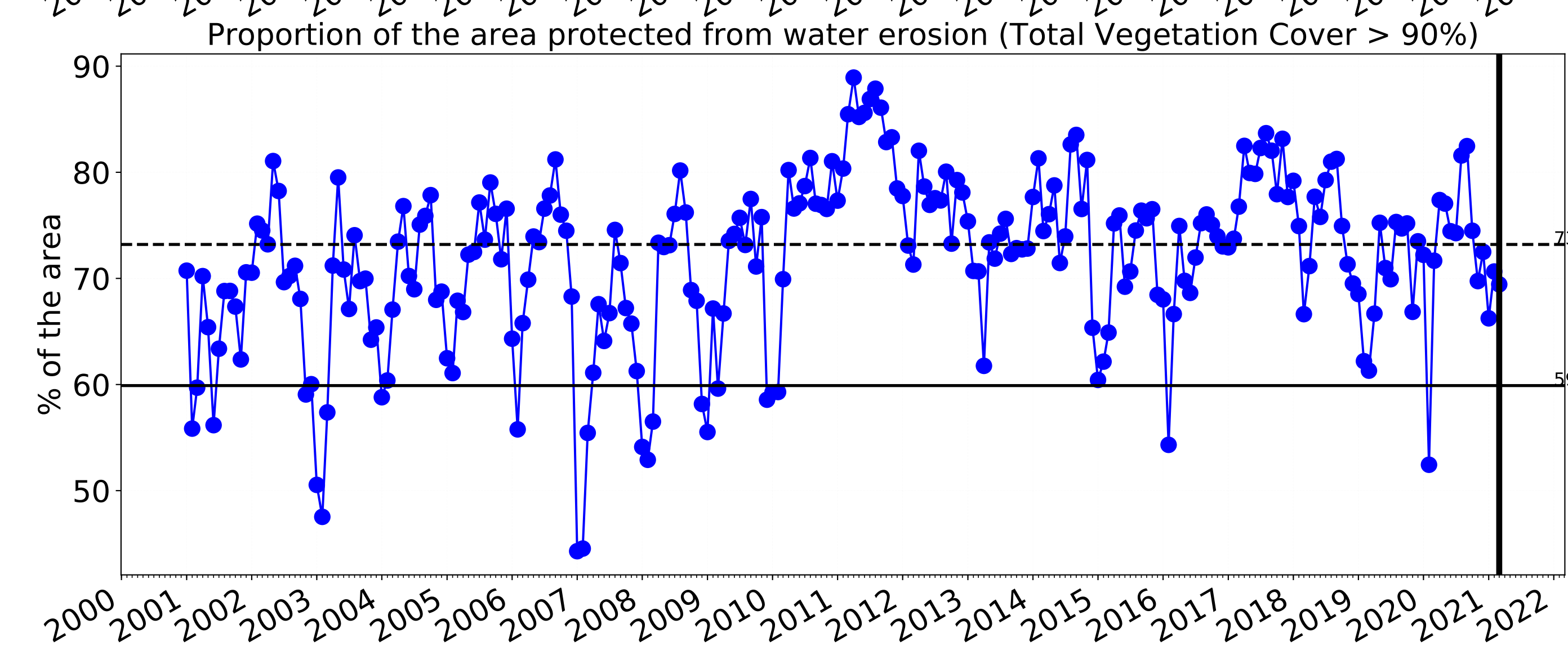
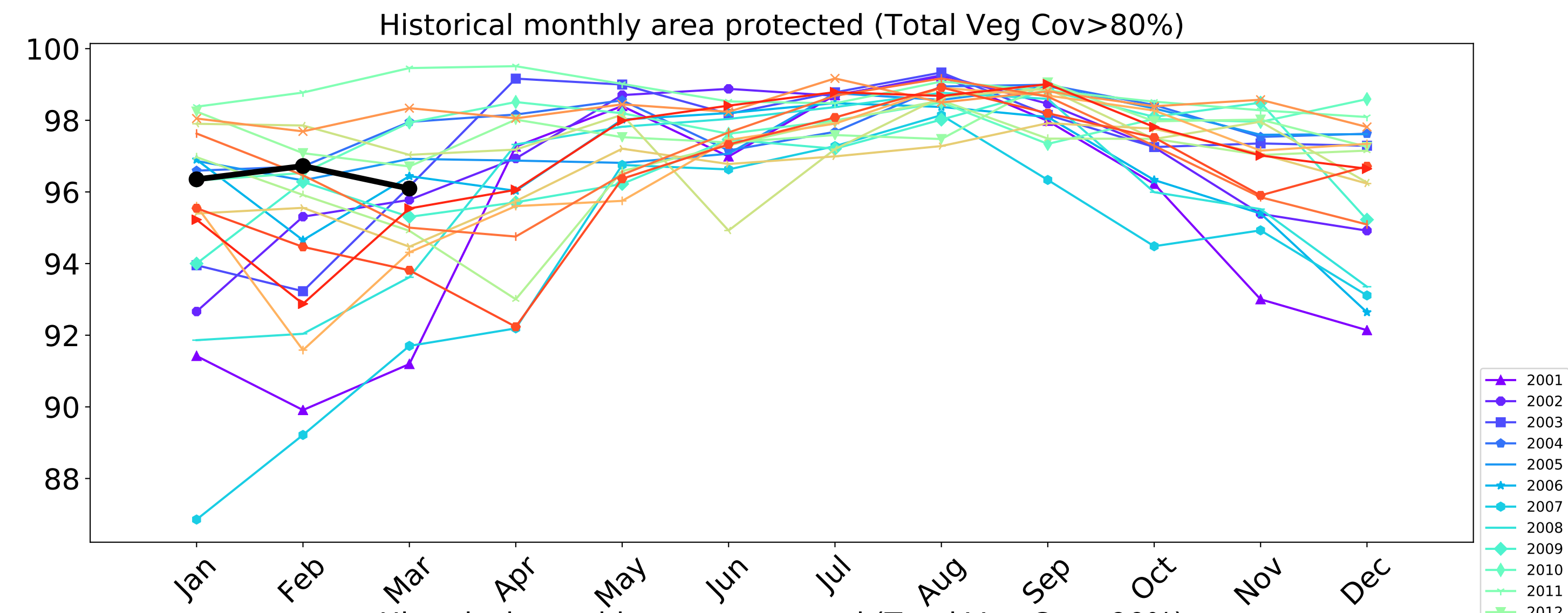
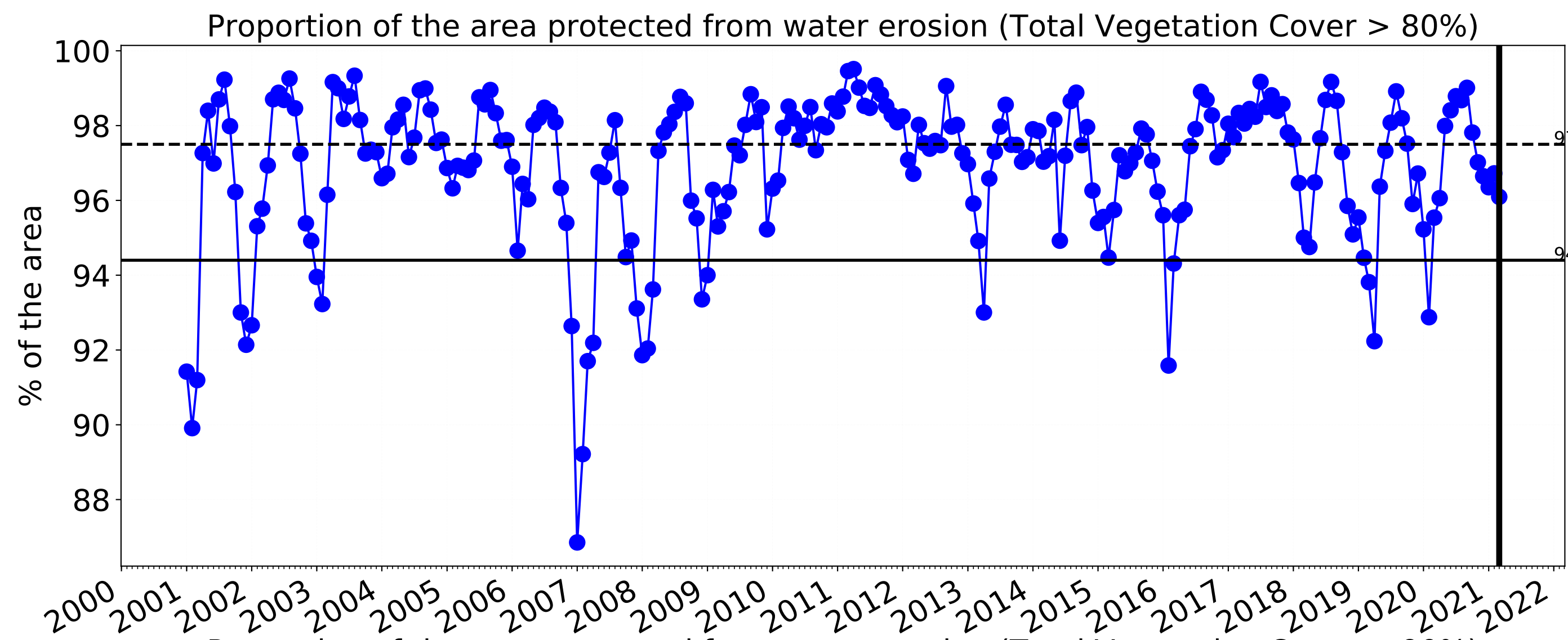


Proportion of the area protected from water erosion (Total Vegetation Cover > 70%)



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





**Glenelg Hopkins (2,659,275 ha and no data 13,906 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
<b>Entire region</b>	2,659,275	100.0% 2,658,375	99.9% 2,656,550	98.5% 2,619,575	92.7% 2,465,925	54.7% 1,454,050	19.2% 510,375
<b>Conservation and natural environments</b>	256,325	99.7% 255,500	99.5% 254,950	98.6% 252,825	97.1% 248,975	77.7% 199,200	32.5% 83,350
<b>Conservation and natural environments non forest</b>	30,000	97.2% 29,175	95.4% 28,625	88.8% 26,625	79.3% 23,800	46.8% 14,025	19.5% 5,850
<b>Conservation and natural environments Woodland forest</b>	153,125	100.0% 153,125	100.0% 153,125	100.0% 153,050	99.5% 152,425	80.2% 122,750	26.0% 39,850
<b>Conservation and natural environments Forest (non woodland)</b>	73,200	100.0% 73,200	100.0% 73,200	99.9% 73,150	99.4% 72,750	85.3% 62,425	51.4% 37,650
<b>Agriculture</b>	1,904,750	100.0% 1,904,700	99.9% 1,903,625	98.4% 1,874,750	91.7% 1,747,475	48.8% 930,150	15.7% 298,200
<b>Grazing</b>	1,692,150	100.0% 1,692,125	100.0% 1,691,525	99.0% 1,676,000	93.6% 1,583,900	50.2% 849,050	15.6% 264,375
<b>Grazing non forest</b>	1,643,475	100.0% 1,643,450	100.0% 1,642,850	99.0% 1,627,525	93.5% 1,536,300	49.6% 815,725	15.5% 254,050
<b>Grazing Woodland forest</b>	29,075	100.0% 29,075	100.0% 29,075	99.6% 28,950	97.6% 28,375	68.4% 19,875	16.5% 4,800
<b>Cropping</b>	210,950	100.0% 210,925	99.8% 210,450	93.4% 197,125	76.9% 162,225	38.3% 80,750	16.0% 33,725
<b>Production native forests and plantation forests</b>	424,400	100.0% 424,400	100.0% 424,375	99.5% 422,475	96.1% 407,825	69.4% 294,700	28.7% 121,650

